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**AMDT**  
**04/2021**  
**Effective date**  
**12 AUG 2021**  
**Publication date**  
**12 AUG 2021**

## wp-AMDT-2021-04

### 1 Significant information and changes

#### 1.1 Singapore FIR

- a. Amended description of Singapore FIR.

#### 1.2 Singapore Changi Airport

- a. Updated new Taxiway T between Taxiway P and Taxiway J in AD-2-WSSS-ADC-2, AD-2-WSSS-ADC-3 and AD-2-WSSS-AOC-3.
- b. Revised Minimum Sector Altitude (MSA) for existing Instrument Flight Procedures (IFP).

#### 1.3 Seletar Airport

- a. Added Taxiway ES geometric information and added taxiway connections to 2 Bombardier hangars.
- b. Updated AD-2-WSSL-ADC-1 and AD-2-WSSL-ADC-2 with the new runway emergency access road at Runway South End.

**2 This amendment incorporates information contained in the listed AIP Supplements and NOTAMs which are hereby superseded:**

**AIRAC AIP Supplements**

075/2021 dated 03/06/2021

085/2021 dated 01/07/2021

**NOTAM**

A3698/21 dated 12/07/2021

## Amended Pages

GEN 0.2-1/2:	: <i>replace.</i>
GEN 0.3-1/2:	: <i>replace.</i>
GEN 0.3-3/4:	: <i>replace.</i>
GEN 0.3-5:	: <i>replace.</i>
GEN 0.4-1/2:	: <i>replace.</i>
GEN 0.4-3:	: <i>replace.</i>
GEN 1.3-3/4:	: <i>replace.</i>
GEN 1.6-1/2:	: <i>replace.</i>
GEN 1.6-3/4:	: <i>replace.</i>
GEN 3.2-3/4:	: <i>replace.</i>
GEN 3.2-5/6:	: <i>replace.</i>
ENR 1.8-19/20:	: <i>replace.</i>
ENR 1.9-1/2:	: <i>replace.</i>
ENR 1.9-3/4:	: <i>replace.</i>

ENR 2.1-1/2: : *replace.*  
ENR 3.1-9/10: : *replace.*  
ENR-3.1/ATS Chart: : *insert.*  
19: : *remove.*  
ENR 3.3-5/6: : *replace.*  
ENR 3.3-13/14: : *replace.*  
ENR 3.3-17/18: : *replace.*  
ENR 3.3-25/26: : *replace.*  
ENR 3.3-27/28: : *replace.*  
ENR 3.3-29/30: : *replace.*  
ENR 3.3-31/32: : *replace.*  
ENR-3.6-7: : *replace.*  
ENR-3.6-9: : *replace.*  
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ENR 4.4-3/4: : *replace.*  
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AD 0.6-1/2: : *replace.*  
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AD 0.6-7: : *replace.*  
AD 2.WSSS-21/22: : *replace.*  
AD 2.WSSS-43/44: : *replace.*  
AD-2-WSSS-ADC-2: : *replace.*  
AD-2-WSSS-ADC-3: : *replace.*  
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AD-2-WSSS-IAC-14 to 14.1: : *replace.*  
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AD 2.WSSL-15/16: : *replace.*  
AD-2-WSSL-ADC-1: : *replace.*  
AD-2-WSSL-ADC-2: : *replace.*  
AD 2.WSAP-7/8: : *replace.*  
AD 2.WSAT-5/6: : *replace.*  
AD 2.WSAG-3/4: : *replace.*

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**GEN 0.2 RECORD OF AIP AMENDMENTS****AIP AMENDMENT**

<b>NR/Year</b>	<b>Publication date</b>	<b>Date inserted</b>	<b>Inserted by</b>
5/2014	18 SEP 2014	18 SEP 2014	
6/2014	13 NOV 2014	13 NOV 2014	
1/2015	08 JAN 2015	08 JAN 2015	
2/2015	05 MAR 2015	05 MAR 2015	
3/2015	30 APR 2015	30 APR 2015	
4/2015	25 JUN 2015	25 JUN 2015	
5/2015	20 AUG 2015	20 AUG 2015	
6/2015	15 OCT 2015	15 OCT 2015	
07/2015	10 DEC 2015	10 DEC 2015	
01/2016	04 FEB 2016	04 FEB 2016	
02/2016	31 MAR 2016	31 MAR 2016	
03/2016	26 MAY 2016	26 MAY 2016	
04/2016	21 JUL 2016	21 JUL 2016	
05/2016	15 SEP 2016	15 SEP 2016	
06/2016	10 NOV 2016	10 NOV 2016	
01/2017	05 JAN 2017	05 JAN 2017	
02/2017	02 MAR 2017	02 MAR 2017	
03/2017	27 APR 2017	27 APR 2017	
04/2017	22 JUN 2017	22 JUN 2017	
05/2017	17 AUG 2017	17 AUG 2017	
06/2017	12 OCT 2017	12 OCT 2017	
07/2017	07 DEC 2017	07 DEC 2017	
01/2018	01 FEB 2018	01 FEB 2018	
02/2018	29 MAR 2018	29 MAR 2018	
03/2018	24 MAY 2018	24 MAY 2018	
04/2018	19 JUL 2018	19 JUL 2018	
05/2018	13 SEP 2018	13 SEP 2018	

**AIP AMENDMENT**

<b>NR/Year</b>	<b>Publication date</b>	<b>Date inserted</b>	<b>Inserted by</b>
06/2018	08 NOV 2018	08 NOV 2018	
01/2019	03 JAN 2019	03 JAN 2019	
02/2019	28 FEB 2019	28 FEB 2019	
03/2019	25 APR 2019	25 APR 2019	
04/2019	20 JUN 2019	20 JUN 2019	
05/2019	15 AUG 2019	15 AUG 2019	
06/2019	10 OCT 2019	10 OCT 2019	
07/2019	05 DEC 2019	05 DEC 2019	
01/2020	30 JAN 2020	30 JAN 2020	
02/2020	26 MAR 2020	26 MAR 2020	
03/2020	21 MAY 2020	21 MAY 2020	
04/2020	16 JUL 2020	16 JUL 2020	
05/2020	10 SEP 2020	10 SEP 2020	
06/2020	05 NOV 2020	05 NOV 2020	
07/2020	31 DEC 2020	31 DEC 2020	
01/2021	25 FEB 2021	25 FEB 2021	
02/2021	22 APR 2021	22 APR 2021	
03/2021	17 JUN 2021	17 JUN 2021	
04/2021	12 AUG 2021	12 AUG 2021	

**GEN 0.3 RECORD OF CURRENT AIP SUPPLEMENTS**

<b>NR/Year</b>	<b>Subject</b>	<b>AIP section(s) affected</b>	<b>Period of validity (from/to)</b>	<b>Cancellation record</b>
021/2018	Paya Lebar Airport - Luffer Crane and Saddle Cranes	AD	06 APR 2018 / 31 DEC 2022	
028/2018	Paya Lebar Airport - Saddle Cranes	AD	20 JUN 2018 / 31 DEC 2022	
029/2018	Paya Lebar Airport - Luffer Cranes	AD	20 JUN 2018 / 31 DEC 2021	
030/2018	Paya Lebar Airport - Luffer Crane and Topless Cranes	AD	20 JUN 2018 / 31 DEC 2021	
053/2018	Sembawang Aerodrome - Saddle Cranes	AD	25 SEP 2018 / 31 DEC 2021	
071/2018	Paya Lebar Airport - Saddle Cranes	AD	13 NOV 2018 / 31 DEC 2023	
077/2018	Paya Lebar Airport - Luffer Crane	AD	28 NOV 2018 / 18 NOV 2021	
078/2018	Paya Lebar Airport - Luffer Cranes	AD	28 NOV 2018 / 30 DEC 2022	
031/2019	Paya Lebar Airport - Luffer Cranes	AD	27 MAR 2019 / 28 JAN 2022	
032/2019	Paya Lebar Airport - Topless Cranes	AD	27 MAR 2019 / 09 MAR 2022	
033/2019	Paya Lebar Airport - Luffer Crane	AD	27 MAR 2019 / 31 DEC 2022	
034/2019	Paya Lebar Airport - Saddle Cranes	AD	27 MAR 2019 / 31 DEC 2022	
035/2019	Paya Lebar Airport - Luffer Crane	AD	27 MAR 2019 / 31 DEC 2022	
053/2019	Paya Lebar Airport - Saddle Cranes and Luffer Crane	AD	07 MAY 2019 / 31 DEC 2023	
060/2019	Paya Lebar Airport - Topless Crane	AD	06 JUN 2019 / 14 NOV 2021	
068/2019	Paya Lebar Airport - Luffing Crane	AD	04 JUL 2019 / 30 DEC 2021	
073/2019	Paya Lebar Airport - Luffer Cranes	AD	19 AUG 2019 / 31 DEC 2021	
075/2019	Paya Lebar Airport - Luffing Crane	AD	19 AUG 2019 / 31 DEC 2021	
091/2019	Paya Lebar Airport - Cranes	AD	10 SEP 2019 / 30 DEC 2021	
126/2019	Paya Lebar Airport - Luffer Cranes	AD	12 NOV 2019 / 31 DEC 2022	
021/2020	Singapore Changi Airport - Long term closure of aircraft stand E5 at Terminal 2, Singapore Changi Airport	AD	30 MAR 2020 / 30 DEC 2024	
025/2020	Paya Lebar Airport - Luffing Cranes	AD	10 MAR 2020 / 31 DEC 2021	
033/2020	Paya Lebar Airport - Cranes	AD	19 MAY 2020 / 31 DEC 2021	
034/2020	Paya Lebar Airport - Cranes	AD	19 MAY 2020 / 31 DEC 2021	
035/2020	Paya Lebar Airport - Luffing Crane	AD	19 MAY 2020 / 30 DEC 2021	
044/2020	Paya Lebar Airport - Obstacles	AD	12 JUN 2020 / 31 DEC 2021	
052/2020	Paya Lebar Airport - Crawler Crane	AD	12 JUN 2020 / 31 DEC 2021	
053/2020	Sembawang Aerodrome - Saddle Cranes	AD	15 JUN 2020 / 30 DEC 2021	

<b>NR/Year</b>	<b>Subject</b>	<b>AIP section(s) affected</b>	<b>Period of validity (from/to)</b>	<b>Cancellation record</b>
056/2020	Paya Lebar Airport - Flat Top Cranes	AD	16 JUL 2020 / 30 DEC 2021	
057/2020	Paya Lebar Airport - Flat Top Cranes	AD	16 JUL 2020 / 30 DEC 2021	
059/2020	Singapore Changi Airport - Long term closure of aircraft stand E20 at Terminal 2, Singapore Changi Airport	AD	25 AUG 2020 / 30 DEC 2026	
065/2020	Paya Lebar Airport - Cranes	AD	06 AUG 2020 / 31 DEC 2021	
066/2020	Paya Lebar Airport - Topless Cranes	AD	06 AUG 2020 / 31 DEC 2021	
068/2020	Paya Lebar Airport - Topless Cranes	AD	17 SEP 2020 / 01 SEP 2021	
069/2020	Paya Lebar Airport - Mobile Crane	AD	17 SEP 2020 / 27 AUG 2021	
070/2020	Paya Lebar Airport - Mobile Crane	AD	17 SEP 2020 / 27 AUG 2021	
071/2020	Paya Lebar Airport - Topless Cranes	AD	17 SEP 2020 / 29 AUG 2021	
072/2020	Paya Lebar Airport - Luffing Cranes	AD	17 SEP 2020 / 29 AUG 2021	
074/2020	Paya Lebar Airport - Luffer Cranes	AD	17 SEP 2020 / 29 AUG 2021	
075/2020	Paya Lebar Airport - Mobile Crane	AD	17 SEP 2020 / 01 NOV 2021	
076/2020	Paya Lebar Airport - Topless Crane	AD	17 SEP 2020 / 01 SEP 2021	
081/2020	Paya Lebar Airport - Luffing Cranes	AD	17 SEP 2020 / 30 DEC 2021	
083/2020	Paya Lebar Airport - Cranes	AD	17 SEP 2020 / 09 DEC 2021	
086/2020	Paya Lebar Airport - Cranes	AD	08 OCT 2020 / 20 DEC 2021	
089/2020	Paya Lebar Airport - Luffing Crane	AD	08 OCT 2020 / 31 DEC 2021	
090/2020	Paya Lebar Airport - Topless Cranes	AD	08 OCT 2020 / 01 OCT 2021	
091/2020	Paya Lebar Airport - Luffing Crane	AD	08 OCT 2020 / 31 DEC 2021	
092/2020	Paya Lebar Airport - Luffer Cranes	AD	08 OCT 2020 / 31 DEC 2021	
093/2020	Paya Lebar Airport - Mobile Cranes	AD	08 OCT 2020 / 01 NOV 2021	
094/2020	Paya Lebar Airport - Luffing Cranes	AD	08 OCT 2020 / 01 OCT 2021	
095/2020	Paya Lebar Airport - Flat Top Cranes	AD	02 NOV 2020 / 31 DEC 2021	
096/2020	Paya Lebar Airport - Luffing Cranes	AD	08 OCT 2020 / 14 SEP 2021	
097/2020	Paya Lebar Airport - Saddle Cranes	AD	08 OCT 2020 / 31 DEC 2021	
098/2020	Paya Lebar Airport - Topless Crane	AD	08 OCT 2020 / 01 OCT 2021	
104/2020	Paya Lebar Airport - Crawler Tower Crane	AD	12 NOV 2020 / 01 JAN 2022	
106/2020	Paya Lebar Airport - Cranes	AD	12 NOV 2020 / 01 DEC 2021	
107/2020	Paya Lebar Airport - Luffing Crane	AD	12 NOV 2020 / 31 DEC 2021	



<b>NR/Year</b>	<b>Subject</b>	<b>AIP section(s) affected</b>	<b>Period of validity (from/to)</b>	<b>Cancellation record</b>
109/2020	Paya Lebar Airport - Tower Crane	AD	12 NOV 2020 / 24 OCT 2021	
111/2020	Paya Lebar Airport - Topless Cranes	AD	12 NOV 2020 / 19 OCT 2021	
112/2020	Paya Lebar Airport - Luffer Cranes	AD	12 NOV 2020 / 31 DEC 2021	
113/2020	Paya Lebar Airport - Cranes	AD	12 NOV 2020 / 31 DEC 2021	
115/2020	Sembawang Aerodrome - Mobile Crane	AD	12 NOV 2020 / 13 SEP 2021	
117/2020	Paya Lebar Airport - Cranes	AD	08 DEC 2020 / 18 NOV 2021	
119/2020	Paya Lebar Airport - Luffing Cranes	AD	08 DEC 2020 / 31 OCT 2021	
122/2020	Paya Lebar Airport - Cranes	AD	08 DEC 2020 / 31 DEC 2021	
123/2020	Paya Lebar Airport - Luffer Cranes	AD	08 DEC 2020 / 01 DEC 2021	
002/2021	Paya Lebar Airport - Cranes	AD	14 JAN 2021 / 01 FEB 2022	
003/2021	Paya Lebar Airport - Topless Cranes	AD	14 JAN 2021 / 01 FEB 2022	
004/2021	Paya Lebar Airport - Mobile Crane	AD	14 JAN 2021 / 01 JAN 2022	
005/2021	Paya Lebar Airport - Topless Cranes	AD	14 JAN 2021 / 01 FEB 2022	
006/2021	Paya Lebar Airport - Cranes	AD	14 JAN 2021 / 01 JAN 2022	
008/2021	Paya Lebar Airport - Crawler Tower Cranes	AD	14 JAN 2021 / 01 JAN 2022	
010/2021	Paya Lebar Airport - Luffing Cranes	AD	14 JAN 2021 / 15 DEC 2021	
011/2021	Paya Lebar Airport - Cranes	AD	14 JAN 2021 / 31 DEC 2021	
012/2021	Paya Lebar Airport - Flat Top Cranes	AD	14 JAN 2021 / 31 DEC 2021	
013/2021	Paya Lebar Airport - Luffing Crane	AD	14 JAN 2021 / 31 DEC 2021	
015/2021	Paya Lebar Airport - Cranes	AD	14 JAN 2021 / 01 NOV 2021	
016/2021	Paya Lebar Airport - Luffing Tower Crane	AD	14 JAN 2021 / 24 DEC 2021	
018/2021	Paya Lebar Airport - Flat Top Cranes	AD	14 JAN 2021 / 01 JAN 2022	
019/2021	Paya Lebar Airport - Cranes	AD	14 JAN 2021 / 31 DEC 2021	
021/2021	Paya Lebar Airport - Cranes	AD	08 FEB 2021 / 01 FEB 2022	
022/2021	Paya Lebar Airport - Mobile Cranes	AD	08 FEB 2021 / 15 NOV 2021	
023/2021	Paya Lebar Airport - Tower Cranes	AD	08 FEB 2021 / 19 JAN 2022	
024/2021	Paya Lebar Airport - Mobile Cranes	AD	08 FEB 2021 / 01 OCT 2021	
025/2021	Paya Lebar Airport - Tower Crane	AD	08 FEB 2021 / 15 JAN 2022	
026/2021	Paya Lebar Airport - Topless Cranes	AD	08 FEB 2021 / 01 MAR 2022	
027/2021	Paya Lebar Airport - Mobile Crane	AD	08 FEB 2021 / 01 JAN 2022	

<b>NR/Year</b>	<b>Subject</b>	<b>AIP section(s) affected</b>	<b>Period of validity (from/to)</b>	<b>Cancellation record</b>
028/2021	Paya Lebar Airport - Topless Cranes	AD	08 FEB 2021 / 01 DEC 2021	
031/2021	Paya Lebar Airport - Luffing Tower Crane	AD	08 FEB 2021 / 09 JAN 2022	
034/2021	Paya Lebar Airport - Cranes	AD	08 FEB 2021 / 01 FEB 2022	
035/2021	Paya Lebar Airport - Cranes	AD	08 FEB 2021 / 01 FEB 2022	
036/2021	Paya Lebar Airport - Saddle Crane	AD	08 FEB 2021 / 01 FEB 2022	
037/2021	Sembawang Aerodrome - Crawler Crane	AD	08 FEB 2021 / 31 DEC 2021	
039/2021	Seletar Airport - Closure of Helicopter Landing Area	AD	18 MAR 2021 / 30 SEP 2021	
040/2021	Paya Lebar Airport - Luffing Cranes	AD	08 MAR 2021 / 01 MAR 2022	
041/2021	Paya Lebar Airport - Mobile Crane	AD	08 MAR 2021 / 01 MAR 2022	
042/2021	Paya Lebar Airport - Cranes	AD	08 MAR 2021 / 01 MAR 2022	
043/2021	Paya Lebar Airport - Luffing Crane	AD	08 MAR 2021 / 01 MAR 2022	
045/2021	Paya Lebar Airport - Topless Cranes	AD	08 MAR 2021 / 03 FEB 2022	
046/2021	Paya Lebar Airport - Topless Cranes	AD	08 MAR 2021 / 25 JAN 2022	
049/2021	Singapore Changi Airport -Closure of runway 02C/20C and taxiways due to Changi East development works	AD	20 MAY 2021 / 03 NOV 2021	
050/2021	Paya Lebar Airport - Mobile Cranes	AD	08 APR 2021 / 21 JUN 2022	
051/2021	Paya Lebar Airport - Mobile Crane	AD	08 APR 2021 / 01 OCT 2021	
052/2021	Paya Lebar Airport - Luffing Tower Crane	AD	08 APR 2021 / 01 FEB 2022	
053/2021	Paya Lebar Airport - Luffing Crane	AD	08 APR 2021 / 01 SEP 2021	
054/2021	Paya Lebar Airport - Luffing Cranes	AD	08 APR 2021 / 15 MAR 2022	
055/2021	Paya Lebar Airport - Mobile Crane	AD	08 APR 2021 / 15 MAR 2022	
056/2021	Paya Lebar Airport - Tower Cranes	AD	08 APR 2021 / 01 APR 2022	
057/2021	Paya Lebar Airport - Topless Cranes	AD	08 APR 2021 / 10 MAR 2022	
062/2021	Paya Lebar Airport - Mobile Crane	AD	19 MAY 2021 / 01 OCT 2021	
063/2021	Paya Lebar Airport - Cranes	AD	19 MAY 2021 / 01 APR 2022	
064/2021	Paya Lebar Airport - Topless Cranes	AD	19 MAY 2021 / 01 APR 2022	
065/2021	Paya Lebar Airport - Mobile Cranes	AD	19 MAY 2021 / 18 DEC 2021	
066/2021	Paya Lebar Airport - Topless Cranes	AD	19 MAY 2021 / 25 MAY 2022	
067/2021	Paya Lebar Airport - Cranes	AD	19 MAY 2021 / 01 MAY 2022	
068/2021	Paya Lebar Airport - Tower Crane	AD	19 MAY 2021 / 12 APR 2022	

<b>NR/Year</b>	<b>Subject</b>	<b>AIP section(s) affected</b>	<b>Period of validity (from/to)</b>	<b>Cancellation record</b>
069/2021	Paya Lebar Airport - Luffing Crane	AD	19 MAY 2021 / 01 JAN 2022	
070/2021	Paya Lebar Airport - Mobile Crane	AD	19 MAY 2021 / 15 NOV 2021	
072/2021	Singapore Changi Airport - Closure of aircraft stand F34 at Terminal 2	AD	25 MAY 2021 / 29 NOV 2021	
073/2021	Singapore Changi Airport - Partial closure of taxilane R3, temporary changes to ground markings and lighting, and temporary downgrade of taxilane R2 at Terminal 2	AD	25 MAY 2021 / 29 NOV 2021	
076/2021	Paya Lebar Airport - Cranes	AD	24 JUN 2021 / 11 JUN 2022	
077/2021	Paya Lebar Airport - Cranes	AD	24 JUN 2021 / 01 JUL 2022	
078/2021	Paya Lebar Airport - Luffing Cranes	AD	24 JUN 2021 / 01 JUN 2022	
079/2021	Paya Lebar Airport - Mobile Crane	AD	24 JUN 2021 / 01 DEC 2021	
080/2021	Paya Lebar Airport - Mobile Crane	AD	24 JUN 2021 / 01 DEC 2021	
081/2021	Paya Lebar Airport - Topless Cranes	AD	24 JUN 2021 / 15 MAY 2022	
082/2021	Paya Lebar Airport - Luffer Crane	AD	24 JUN 2021 / 04 MAY 2022	
083/2021	Paya Lebar Airport - Topless Cranes	AD	24 JUN 2021 / 01 SEP 2021	
084/2021	Sembawang Aerodrome - Mobile Crane	AD	24 JUN 2021 / 08 AUG 2022	
086/2021	Release of weather balloon with dual radiosondes	ENR	01 AUG 2021 / 01 AUG 2022	
087/2021	Singapore Changi Airport - Closure of aircraft stand E28 at Terminal 2	AD	02 AUG 2021 / 10 DEC 2021	
088/2021	Paya Lebar Airport - Luffer Tower Cranes	AD	08 JUL 2021 / 11 JUN 2022	
089/2021	Paya Lebar Airport - Crawler Crane	AD	08 JUL 2021 / 30 JUN 2022	
090/2021	Paya Lebar Airport - Mobile Cranes	AD	08 JUL 2021 / 21 JUL 2022	
091/2021	Paya Lebar Airport - Obstacles	AD	08 JUL 2021 / 21 JUN 2022	
092/2021	Paya Lebar Airport - Luffing Cranes	AD	08 JUL 2021 / 15 JUN 2022	
093/2021	Paya Lebar Airport - Tower Crane	AD	08 JUL 2021 / 15 JUN 2022	
094/2021	Paya Lebar Airport - Tower Crane	AD	08 JUL 2021 / 10 JUN 2022	
095/2021	Singapore Changi Airport - Closure of aircraft stand F50 and taxilane R7 behind aircraft stand at Terminal 2	AD	21 JUL 2021 / 31 MAR 2022	

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**GEN 0.4 CHECKLIST OF AIP PAGES**

<b>Part 1 – General (GEN)</b>					
<b>GEN 0</b>		GEN 3.2-2	31 MAR 2016	ENR 1.6-7	29 MAR 2018
GEN 0.1-1	26 MAR 2020	GEN 3.2-3	31 MAR 2016	ENR 1.6-8	29 MAR 2018
GEN 0.1-2	25 FEB 2021	GEN 3.2-4	12 AUG 2021	ENR-1.6-9	21 JUL 2016
GEN-0.1-3	08 NOV 2018	GEN 3.2-5	12 AUG 2021	ENR-1.6-11	21 JUL 2016
GEN 0.2-1	13 SEP 2018	GEN 3.2-6	31 MAR 2016	ENR 1.7-1	15 AUG 2019
GEN 0.2-2	12 AUG 2021	GEN 3.3-1	31 DEC 2020	ENR 1.7-2	15 AUG 2019
GEN 0.3-1	12 AUG 2021	GEN 3.3-2	05 NOV 2020	ENR 1.7-3	15 AUG 2019
GEN 0.3-2	12 AUG 2021	GEN 3.4-1	12 NOV 2015	ENR 1.7-4	15 AUG 2019
GEN 0.3-3	12 AUG 2021	GEN 3.4-2	10 SEP 2020	ENR 1.7-5	15 AUG 2019
GEN 0.3-4	12 AUG 2021	GEN 3.4-3	10 SEP 2020	ENR 1.7-6	15 AUG 2019
GEN 0.3-5	12 AUG 2021	GEN 3.4-4	10 SEP 2020	ENR 1.7-7	15 AUG 2019
GEN 0.4-1	12 AUG 2021	GEN 3.4-5	12 NOV 2015	ENR 1.8-1	10 OCT 2019
GEN 0.4-2	12 AUG 2021	GEN-3.4-7	10 SEP 2020	ENR 1.8-2	15 AUG 2019
GEN 0.4-3	12 AUG 2021	GEN-3.4-9	21 JUL 2016	ENR 1.8-3	15 AUG 2019
GEN 0.5-1	30 JAN 2020	GEN 3.5-1	25 APR 2019	ENR 1.8-4	15 AUG 2019
GEN 0.6-1	05 NOV 2020	GEN 3.5-2	22 APR 2021	ENR 1.8-5	15 AUG 2019
GEN 0.6-2	05 NOV 2020	GEN 3.5-3	22 APR 2021	ENR 1.8-6	15 AUG 2019
GEN 0.6-3	31 DEC 2020	GEN 3.5-4	22 APR 2021	ENR 1.8-7	29 MAR 2018
<b>GEN 1</b>		GEN 3.5-5	31 DEC 2020	ENR 1.8-8	29 MAR 2018
GEN 1.1-1	05 DEC 2019	GEN 3.5-6	31 DEC 2020	ENR 1.8-9	29 MAR 2018
GEN 1.1-2	22 APR 2021	GEN 3.5-7	31 DEC 2020	ENR 1.8-10	29 MAR 2018
GEN 1.2-1	05 NOV 2020	GEN 3.5-8	31 DEC 2020	ENR 1.8-11	29 MAR 2018
GEN 1.2-2	30 JAN 2020	GEN 3.5-9	08 NOV 2018	ENR 1.8-12	15 AUG 2019
GEN 1.2-3	30 JAN 2020	GEN 3.6-1	12 NOV 2015	ENR 1.8-13	15 AUG 2019
GEN 1.2-4	21 MAY 2020	GEN 3.6-2	12 NOV 2015	ENR 1.8-14	15 AUG 2019
GEN 1.2-5	30 JAN 2020	GEN 3.6-3	12 NOV 2015	ENR 1.8-15	15 AUG 2019
GEN 1.2-6	16 JUL 2020	GEN 3.6-4	12 NOV 2015	ENR 1.8-16	15 AUG 2019
GEN 1.2-7	30 JAN 2020	GEN 3.6-5	21 JUL 2016	ENR 1.8-17	15 AUG 2019
GEN 1.3-1	25 APR 2019	<b>GEN 4</b>		ENR 1.8-18	15 AUG 2019
GEN 1.3-2	22 APR 2021	GEN 4.1-1	15 SEP 2016	ENR 1.8-19	15 AUG 2019
GEN 1.3-3	22 APR 2021	GEN 4.2-1	24 MAY 2018	ENR 1.8-20	12 AUG 2021
GEN 1.3-4	12 AUG 2021	GEN 4.2-2	12 NOV 2015	ENR 1.8-21	15 AUG 2019
GEN 1.3-5	22 APR 2021	GEN 4.2-3	12 NOV 2015	ENR 1.8-22	15 AUG 2019
GEN-1.3/ARR PAX FLOW	25 APR 2019	GEN 4.2-4	12 NOV 2015	ENR 1.8-23	15 AUG 2019
GEN-1.3/DEP PAX FLOW 1	25 APR 2019	GEN 4.2-5	12 NOV 2015	ENR 1.8-24	15 AUG 2019
GEN-1.3/DEP PAX FLOW 2	25 APR 2019	GEN 4.2-6	12 NOV 2015	ENR 1.8-25	05 DEC 2019
GEN 1.4-1	22 APR 2021	<b>Part 2 – EN-ROUTE (ENR)</b>		ENR 1.8-26	15 AUG 2019
GEN 1.4-2	05 NOV 2020	<b>ENR 0</b>		ENR 1.8-27	15 AUG 2019
GEN 1.4-3	05 NOV 2020	ENR 0.6-1	31 DEC 2020	ENR 1.8-28	15 AUG 2019
GEN 1.5-1	12 NOV 2015	ENR 0.6-2	31 DEC 2020	ENR 1.8-29	15 AUG 2019
GEN 1.6-1	12 AUG 2021	ENR 0.6-3	15 AUG 2019	ENR 1.9-1	12 AUG 2021
GEN 1.6-2	12 AUG 2021	ENR 0.6-4	30 JAN 2020	ENR 1.9-2	12 AUG 2021
GEN 1.6-3	12 AUG 2021	ENR 0.6-5	30 JAN 2020	ENR 1.9-3	12 AUG 2021
GEN 1.6-4	05 NOV 2020	ENR 0.6-6	26 MAR 2020	ENR 1.9-4	10 SEP 2020
GEN 1.7-1	31 DEC 2020	<b>ENR 1</b>		ENR 1.9-5	10 SEP 2020
GEN 1.7-2	22 APR 2021	ENR 1.1-1	25 APR 2019	ENR 1.9-6	30 JAN 2020
GEN 1.7-3	31 DEC 2020	ENR 1.1-2	12 NOV 2015	ENR 1.10-1	25 FEB 2021
GEN 1.7-4	26 MAR 2020	ENR 1.1-3	12 NOV 2015	ENR 1.10-2	25 FEB 2021
<b>GEN 2</b>		ENR 1.1-4	12 NOV 2015	ENR 1.10-3	25 FEB 2021
GEN 2.1-1	12 NOV 2015	ENR 1.1-5	12 NOV 2015	ENR 1.10-4	16 JUL 2020
GEN 2.1-2	05 NOV 2020	ENR 1.1-6	12 NOV 2015	ENR 1.11-1	12 NOV 2015
GEN 2.2-1	02 MAR 2017	ENR 1.1-7	12 NOV 2015	ENR 1.12-1	12 NOV 2015
GEN 2.2-2	02 MAR 2017	ENR 1.1-8	12 NOV 2015	ENR 1.12-2	12 NOV 2015
GEN 2.2-3	02 MAR 2017	ENR 1.1-9	12 NOV 2015	ENR 1.12-3	12 NOV 2015
GEN 2.2-4	05 JAN 2017	ENR 1.1-10	12 NOV 2015	ENR 1.12-4	12 NOV 2015
GEN 2.2-5	10 NOV 2016	ENR 1.1-11	12 NOV 2015	ENR 1.13-1	12 NOV 2015
GEN 2.3-1	12 NOV 2015	ENR 1.1-12	08 NOV 2018	ENR 1.14-1	10 DEC 2015
GEN 2.3-2	12 NOV 2015	ENR 1.1-13	08 NOV 2018	ENR 1.14-2	15 SEP 2016
GEN 2.3-3	12 NOV 2015	ENR 1.1-14	08 NOV 2018	ENR-1.14-3 to ENR-1.14-4	15 SEP 2016
GEN 2.4-1	25 APR 2019	ENR 1.1-15	08 NOV 2018	ENR-1.14-5 to ENR-1.14-6	15 SEP 2016
GEN 2.5-1	28 FEB 2019	ENR 1.2-1	21 JUL 2016	ENR-1.14-7 to ENR-1.14-8	15 AUG 2019
GEN-2.5-3	21 JUL 2016	ENR 1.3-1	12 NOV 2015	<b>ENR 2</b>	
GEN 2.6-1	12 NOV 2015	ENR 1.4-1	12 NOV 2015	ENR 2.1-1	12 AUG 2021
GEN 2.6-2	12 NOV 2015	ENR 1.5-1	31 DEC 2020	ENR 2.1-2	03 JAN 2019
GEN 2.7-1	05 DEC 2019	ENR 1.5-2	31 DEC 2020	ENR 2.1-3	03 JAN 2019
<b>GEN 3</b>		ENR 1.5-3	31 DEC 2020	ENR 2.1-4	25 APR 2019
GEN 3.1-1	10 SEP 2020	ENR 1.5-4	31 DEC 2020	ENR-2.1-7	21 JUL 2016
GEN 3.1-2	10 OCT 2019	ENR 1.6-1	12 NOV 2015	ENR-2.1-9	17 JUN 2021
GEN 3.1-3	10 SEP 2020	ENR 1.6-2	12 NOV 2015	ENR-2.1-11A	21 JUL 2016
GEN 3.1-4	10 SEP 2020	ENR 1.6-3	12 NOV 2015	ENR-2.1-11B	21 JUL 2016
GEN 3.2-1	10 OCT 2019	ENR 1.6-4	25 FEB 2021	ENR-2.1-13	21 JUL 2016
		ENR 1.6-5	31 DEC 2020	ENR-2.1-15	17 JUN 2021
		ENR 1.6-6	31 DEC 2020	<b>ENR 3</b>	
				ENR 3.1-1	02 MAR 2017
				ENR 3.1-2	02 MAR 2017
				ENR 3.1-3	28 FEB 2019



AD-2-WSSS-IAC-6	12 AUG 2021	AD 2.WSAG-4	16 JUL 2020
AD-2-WSSS-IAC-7	12 AUG 2021	AD 2.WMKJ-1	12 NOV 2015
AD-2-WSSS-IAC-9 to 9.1	12 AUG 2021	AD 2.WIDD-1	12 NOV 2015
AD-2-WSSS-IAC-10 to 10.1	12 AUG 2021	AD 2.WIDD-2	12 NOV 2015
AD-2-WSSS-IAC-11 to 11.1	12 AUG 2021	AD-2-WIDD-SID-1	12 NOV 2015
AD-2-WSSS-IAC-12 to 12.1	12 AUG 2021	AD-2-WIDD-SID-2	12 NOV 2015
AD-2-WSSS-IAC-13 to 13.1	12 AUG 2021	AD-2-WIDD-SID-3	12 NOV 2015
AD-2-WSSS-IAC-14 to 14.1	12 AUG 2021	AD-2-WIDD-SID-4	12 NOV 2015
AD-2-WSSS-VAC-1	31 DEC 2020	AD-2-WIDD-STAR-1	12 NOV 2015
AD 2.WSSL-1	10 SEP 2020	AD-2-WIDD-STAR-2	12 NOV 2015
AD 2.WSSL-2	28 FEB 2019	AD-2-WIDD-STAR-3	12 NOV 2015
AD 2.WSSL-3	15 AUG 2019	AD-2-WIDD-STAR-4	12 NOV 2015
AD 2.WSSL-4	05 DEC 2019	AD 2.WIDN-1	03 JAN 2019
AD 2.WSSL-5	12 AUG 2021	AD 2.WIDN-2	03 JAN 2019
AD 2.WSSL-6	15 AUG 2019	AD-2-WIDN-SID-1	12 NOV 2015
AD 2.WSSL-7	15 AUG 2019	AD-2-WIDN-SID-2	12 NOV 2015
AD 2.WSSL-8	15 AUG 2019	AD-2-WIDN-SID-3	12 NOV 2015
AD 2.WSSL-9	15 AUG 2019	AD-2-WIDN-SID-4	12 NOV 2015
AD 2.WSSL-10	15 AUG 2019	AD-2-WIDN-STAR-1	12 NOV 2015
AD 2.WSSL-11	15 AUG 2019	AD-2-WIDN-STAR-2	12 NOV 2015
AD 2.WSSL-12	26 MAR 2020	AD-2-WIDN-STAR-3	21 JUL 2016
AD 2.WSSL-13	05 DEC 2019	AD-2-WIDN-STAR-4	12 NOV 2015
AD 2.WSSL-14	15 AUG 2019		
AD 2.WSSL-15	12 AUG 2021		
AD 2.WSSL-16	10 OCT 2019		
AD 2.WSSL-17	05 NOV 2020		
AD 2.WSSL-18	05 NOV 2020		
AD 2.WSSL-19	15 AUG 2019		
AD 2.WSSL-20	10 OCT 2019		
AD 2.WSSL-21	05 NOV 2020		
AD 2.WSSL-22	10 OCT 2019		
AD 2.WSSL-23	25 FEB 2021		
AD 2.WSSL-24	15 AUG 2019		
AD 2.WSSL-25	25 FEB 2021		
AD-2-WSSL-ADC-1	12 AUG 2021		
AD-2-WSSL-ADC-2	12 AUG 2021		
AD-2-WSSL-ADC-3	16 JUL 2020		
AD-2-WSSL-AOC-1	16 JUL 2020		
AD-2-WSSL-AOC-2	16 JUL 2020		
AD-2-WSSL-VAC-1	16 JUL 2020		
AD-2-WSSL-VAC-2	16 JUL 2020		
AD-2-WSSL-VAC-3	16 JUL 2020		
AD-2-WSSL-VAC-4	16 JUL 2020		
AD-2-WSSL-VDC-1	16 JUL 2020		
AD-2-WSSL-VDC-2 to 2.1	25 FEB 2021		
AD-2-WSSL-VFR-1	31 DEC 2020		
AD-2-WSSL-IFR-1	31 DEC 2020		
AD-2-WSSL-IFR-2	31 DEC 2020		
AD 2.WSAP-1	16 JUL 2020		
AD 2.WSAP-2	19 JUL 2018		
AD 2.WSAP-3	10 OCT 2019		
AD 2.WSAP-4	19 JUL 2018		
AD 2.WSAP-5	10 OCT 2019		
AD 2.WSAP-6	12 OCT 2017		
AD 2.WSAP-7	19 JUL 2018		
AD 2.WSAP-8	12 AUG 2021		
AD 2.WSAP-9	16 JUL 2020		
AD 2.WSAP-10	16 JUL 2020		
AD 2.WSAP-11	31 DEC 2020		
AD-2-WSAP-ADC-1	16 JUL 2020		
AD-2-WSAP-ADC-2	16 JUL 2020		
AD-2-WSAP-AOC-1	16 JUL 2020		
AD-2-WSAP-IAC-1	31 DEC 2020		
AD-2-WSAP-IAC-2	31 DEC 2020		
AD-2-WSAP-IAC-3	31 DEC 2020		
AD-2-WSAP-IAC-4	31 DEC 2020		
AD-2-WSAP-IAC-5	31 DEC 2020		
AD-2-WSAP-IAC-6	31 DEC 2020		
AD 2.WSAT-1	16 JUL 2020		
AD 2.WSAT-2	26 MAR 2020		
AD 2.WSAT-3	25 FEB 2021		
AD 2.WSAT-4	25 FEB 2021		
AD 2.WSAT-5	12 AUG 2021		
AD 2.WSAT-6	25 FEB 2021		
AD 2.WSAT-7	12 NOV 2015		
AD 2.WSAT-8	25 FEB 2021		
AD-2-WSAT-ADC-1	17 JUN 2021		
AD 2.WSAG-1	16 JUL 2020		
AD 2.WSAG-2	08 NOV 2018		
AD 2.WSAG-3	12 AUG 2021		

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- a. A member of the Singapore Armed Forces travelling on duty;
- b. A member of such Visiting Forces as the Minister may determine;
- c. Any child or person who is included in the passport or other travel document of a parent of the child, or of a spouse or other relative of the person and is accompanying that parent, spouse or relative (as the case may be) when travelling to and leaving from Singapore.

2.3 Nationals of the following countries require visas for the purpose of social visits in Singapore (with exception of an aircrew who is an airline crew member that, in the course of a journey on duty from a place outside Singapore to Singapore, or from a place outside Singapore to a place outside Singapore, calls at an authorised airport):

- Afghanistan
- Algeria
- Bangladesh\*
- Commonwealth of Independent States i.e. Armenia~, Azerbaijan\*, Belarus\*, Kazakhstan\*, Kyrgyzstan\*, Moldova\*, Russia\*, Tajikistan\*, and Uzbekistan~
- Democratic People's Republic of Korea
- Egypt
- Georgia#
- India\*
- Iran
- Iraq
- Jordan\*
- Kosovo
- Lebanon
- Libya
- Mali
- Morocco~
- Nigeria\*
- People's Republic of China^
- Pakistan
- Saudi Arabia~
- Somalia
- Sudan
- Syria
- Tunisia\*
- Turkmenistan\*
- Ukraine\*
- Yemen

Visitors holding Hong Kong Document of Identity, Macao Special Administrative Region (MSAR) Travel Permit, Palestinian Authority Passport, Refugee Travel Document\*\* issued by the Middle-East countries and Temporary Passport issued by United Arab Emirates will also require a visa to enter Singapore.

\* Holders of diplomatic, official and service passports do not need a visa for entry.

^ Holders of diplomatic, public affairs and service passports do not need a visa for entry.

+ Holders of diplomatic and official passports do not need a visa for entry

~ Holders of diplomatic passports do not need a visa for entry

\*\* These travel documents are subjected to assessment of recognition for entry into Singapore

# Holders of diplomatic and service passports do not need a visa for entry

Nationals of Commonwealth of Independent States (Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, and Uzbekistan), Georgia, Turkmenistan, and Ukraine may qualify for the 96-hour visa free transit facility (VFTF) provided that:

- a. the person is in transit to a third country;
- b. the person holds a valid passport, confirmed onward air-ticket, entry facilities (including visa) to the third country and have sufficient funds for the period of stay in Singapore;
- c. the person continues his journey to the third country within 96 hours visa free period granted; and
- d. the person satisfies Singapore's entry requirements.

Nationals of India and the PRC may qualify for the 96-hour VFTF provided that:

- a. the person is in transit to or from a third country via Singapore by any mode of transport and will depart via air or sea;
- b. the person holds a valid passport and confirmed onward air/ferry/cruise ticket for departure from Singapore within 96 hours;
- c. the person has a valid visa\*/long-term pass (with a validity of at least 1 month from the date of entry into Singapore under the VFTF) issued by any of the following countries:
  - Australia
  - Canada
  - Germany
  - Japan
  - New Zealand
  - Switzerland
  - United Kingdom
  - United States of America

\* A visa is considered valid so long as it is good for entry into one of the eight countries listed above. Travellers with Single Journey Visas (SJV) may still be granted VFTF on the return leg of their journey (i.e. after the SJV is used and no longer valid), but:

- the person must travel directly from the country that issued the SJV, en route through Singapore, back to their home country
- the person must not have returned to their home country since they last used the SJV.

2.4 Visitors and Long-Term Pass holders must satisfy the following basic entry requirements before they are allowed to enter Singapore:

- a. They are in possession of entry approval letters issued by the Singapore Government and passports with at least 6 months' validity with assurance of their re-entry into their countries of residence or origin;
- b. They have sufficient funds to last for the intended period of stay in Singapore;
- c. They hold confirmed onward/return tickets and entry facilities (including visas) to their onward destinations; and
- d. They have a Yellow Fever Vaccination Certificate and negative Covid-19 PCR test result taken within 72 hours before departure, if applicable.

The granting of social visit passes to all visitors is determined by the Immigration & Checkpoints Authority (ICA) officers at the point of entry.

### 3 PUBLIC HEALTH REQUIREMENTS

3.1 Strict compliance with the provisions of the International Health Regulations, 2005, of the World Health Organisation, and Singapore's Infectious Diseases Act is required.

3.2 The pilot-in-command of an aircraft landing at Airports in Singapore shall furnish the Airport Health Officer with one copy of the General Declaration form (see ICAO Annex 9 Appendix 1) and one copy of the Passenger Manifest (see ICAO Annex 9 Appendix 2) signed by the pilot-in-command.

3.3 Vaccination Certificate Requirements for entry into Singapore are as follows:

A valid International Certificate of Vaccination for yellow fever is required from travellers above one year of age who have been in or have passed through any country with risk of yellow fever transmission in the six days before arriving in Singapore. The certificate is valid for life, beginning from 10 days after the date of vaccination (this applies to existing and new certificates). An exemption letter, signed by a medical practitioner, is required for individuals who are exempted from being vaccinated before entry into Singapore. Please refer to Singapore's Immigration & Checkpoints Authority website for the updated list of countries with risk of yellow fever transmission.

← 3.4 For more details on public health requirements related to COVID-19, please refer to <https://www.caas.gov.sg/legislation-regulations/covid-19-publications/>.

## GEN 1.6 SUMMARY OF NATIONAL REGULATIONS AND INTERNATIONAL AGREEMENTS/CONVENTIONS

### 1 LIST OF CIVIL AVIATION LEGISLATION, AIR NAVIGATION REGULATIONS AND ORDERS

The following is a list of legislation (Acts and subsidiary legislation) affecting aviation and air navigation in the Republic of Singapore together with the International Agreements/Conventions acceded to by the Republic of Singapore. It is essential that anyone engaged in air operations be acquainted with the relevant legal documents.

Copies of the legislation may be obtained as follows:

Electronic versions of the legislation may be freely accessed at

<http://sso.agc.gov.sg>

<http://www.caas.gov.sg>

Electronic versions of all Singapore legislation may be accessed via subscription to Lawnet at

<http://www.lawnet.com.sg>

Print copies of all the legislation may be purchased (by post) from:

Post:

Toppan Leefung Pte. Ltd.,  
No. 1 Kim Seng Promenade, #18-01,  
Great World City, East Lobby  
Singapore 237994.

Tel: (65) 68269600

Fax: (65) 68203341

URL: [www.toppanleefung.com](http://www.toppanleefung.com)

#### 1.1 CIVIL AVIATION LEGISLATION

No	Legislation	Citation
<b><i>Civil Aviation Authority of Singapore Act &amp; related legislation</i></b>		
1	Civil Aviation Authority of Singapore Act	Cap. 41 (2014 Rev Ed.)
2	Civil Aviation Authority of Singapore (Airport Development Levy) Order 2018	S437/2018
3	Civil Aviation Authority of Singapore (Aviation Levy) Order 2018	S522/2018
4	Civil Aviation Authority of Singapore (Changi Airport) By-laws 2009	S313/2009
5	Civil Aviation Authority of Singapore (Changi Airport) Notification 2009	S293/2009
6	Civil Aviation Authority of Singapore (Composition of Offences) Regulations 2009	S315/2009
7	Civil Aviation Authority of Singapore (Licensing of Airport Operators) Regulations 2009	S311/2009
8	Civil Aviation Authority of Singapore (Price Control of Aeronautical Charges) Rules 2009	S298/2009
9	Civil Aviation Authority of Singapore (Seletar Airport) By-laws 2009	S314/2009
10	Civil Aviation Authority of Singapore (Seletar Airport) Notification 2009	S294/2009
11	Delegation of Powers	Cap. 41, N1
<b><i>Air Navigation Act &amp; related legislation</i></b>		
12	Air Navigation Act	Cap. 6 (2014 Rev Ed.)
13	Air Navigation Order	Cap. 6, O2 (1990 Rev Ed.)
14	Air Navigation (101 - Unmanned Aircraft Operations) Regulations 2019	S833/2019
15	Air Navigation (119 - Air Operator Certification) Regulations 2018	S443/2018
16	Air Navigation (121 - Commercial Air Transport by Large Aeroplanes) Regulations 2018	S444/2018
17	Air Navigation (125 - Complex General Aviation) Regulations 2018	S501/2018

No	Legislation	Citation
18	Air Navigation (135 – Commercial Air Transport by Helicopters and Small Aeroplanes) Regulations 2018	S445/2018
19	Air Navigation (137 – Aerial Work) Regulations 2018	S502/2018
20	Air Navigation (91 – General Operating Rules) Regulations 2018	S441/2018
21	Air Navigation (98 – Special Operations) Regulations 2018	S442/2018
22	Air Navigation (99 - Breath Testing for Alcohol) Regulations 2019	S177/2019
23	Air Navigation (Aviation Security) Order	Cap. 6, O5
24	Air Navigation (Composition of Offences) Rules 2017	S667/2017
25	Air Navigation (Flight Crew Recency - Exemption) Order 2020	S347/2020
26	Air Navigation (Investigation of Accidents and Incidents) Order	Cap. 6, O7
27	Air Navigation (Licensing of Air Services) Regulations	Cap. 6, RG 2
28	Air Navigation (Paya Lebar and Tengah Aerodrome Fees) Order	Cap. 6, O1
29	Air Navigation (Prohibited Flights) Order	Cap. 6, O6
30	Air Navigation (Protected Areas) (No. 2) Order 2015	S435/2015
31	Air Navigation (Protected Areas) Order 2015	S350/2015
32	Air Navigation (Regulated Air Cargo Agents and Known Consignors) Regulations 2017	S166/2017
33	Air Navigation (Wreck and Salvage of Aircraft) Regulations	Cap. 6, RG 1
34	Designation of Authorised Persons	Cap. 6, N2
35	Use of Seletar Aerodrome	Cap. 6, N1
<b><i>Other Acts &amp; related legislation</i></b>		
36	Carriage by Air Act	Cap. 32A (2001 Rev Ed.)
37	Carriage by Air (Parties to Conventions) Order	Cap. 32A, O1
38	Carriage by Air (Singapore Currency Equivalents) Order	Cap. 32A, O2
39	Carriage by Air (Montreal Convention, 1999) Act	Cap. 32B (2008 Rev Ed.)
40	Carriage by Air (Montreal Convention, 1999) (Exclusion from Convention) Order	Cap. 32B, O1
41	Tokyo Convention Act	Cap. 327 (1985 Rev Ed.)
42	Tokyo Convention (Convention Countries) Notification	Cap. 327, N1
43	Tokyo Convention (Protocol Countries) Notification 2019	S893/2019
44	Hijacking of Aircraft and Protection of Aircraft and International Airports Act	Cap. 124 (1997 Rev Ed.)
45	Infrastructure Protection Act 2017	Act 41 of 2017
46	International Interests in Aircraft Equipment Act	Cap. 144B (2012 Rev Ed.)
47	Immigration Act	Cap. 133 (2008 Rev Ed.)
48	Immigration (Authorised Places of Entry and Departure, and Rates) Notification 2012	S627/2012
49	Immigration Regulations	Cap. 133, RG 1
50	Arms and Explosives Act	Cap. 13 (2003 Rev Ed.)
51	Arms and Explosives (Aircraft Exemption) Rules	Cap. 13, R3
52	Arms and Explosives (Explosives) Rules	Cap. 13, R2
53	Arms and Explosives (Movement Control) Rules	Cap. 13, R4
54	International Organisations (Immunities and Privileges) Act	Cap. 145 (2013 Rev Ed.)
55	International Organisations (Immunities and Privileges) (International Civil Aviation Organisation) Order	Cap. 145, OR 4

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**1.2 OTHER RELEVANT LEGISLATION**

No	Legislation	Citation
1	COVID-19 (Temporary Measures) Act 2020	Act 14 of 2020
2	COVID-19 (Temporary Measures) (Control Order) Regulations 2020	S254/2020
3	COVID-19 (Temporary Measures) (Extension of Prescribed Period) Order 2021	S178/2021
4	COVID-19 (Temporary Measures) (Extension of Prescribed Period) (No. 2) Order 2021	S268/2021
5	COVID-19 (Temporary Measures) (Extension of Prescribed Period) Order 2020	S886/2020
6	COVID-19 (Temporary Measures) (Prescribed Period) Order 2020	S302/2020
7	COVID-19 (Temporary Measures) (Substitution of Period) Order 2021	S122/2021
8	Infectious Diseases Act	Cap. 137 (2003 Rev Ed.)
9	Infectious Diseases (Certificates of Vaccination or Other Prophylaxis) Regulations 2008	S611/2008
10	Infectious Diseases (Quarantine) Regulations	Cap. 137, RG
11	Arms and Explosives (Arms) Rules	Cap. 13, R1
12	Inspector of Explosives	Cap. 13, N1
13	Arms Offences Act	Cap. 14 (2008 Rev Ed.)

**Note:** “Cap.” means “Chapter”, unless otherwise stated.

**1.3 INTERNATIONAL CONVENTIONS AND PROTOCOLS**

No	Legislation
1	Convention on International Civil Aviation, done at Chicago on 7 December 1944
2	International Air Services Transit Agreement, signed at Chicago on 7 December 1944
3	Protocol Relating to an Amendment to the Convention on International Civil Aviation [Article 83 bis], signed at Montreal on 6 October 1980
4	Convention on Offences and Certain Other Acts Committed on Board Aircraft, signed at Tokyo on 14 September 1963
5	Protocol to Amend the Convention on Offences and Certain Other Acts Committed on Board Aircraft, done at Montreal on 4 April 2014
6	Convention for the Suppression of Unlawful Seizure of Aircraft, signed at The Hague on 16 December 1970
7	Convention for the Suppression of Unlawful Acts against the Safety of Civil Aviation, signed at Montreal on 23 September 1971
8	Protocol for the Suppression of Unlawful Acts of Violence at Airports Serving International Civil Aviation, Supplementary to the Convention for the Suppression of Unlawful Acts against the Safety of Civil Aviation, done at Montreal on 23 September 1971, signed at Montreal on 24 February 1988
9	Convention on the Marking of Plastic Explosives for the Purpose of Detection, signed at Montreal on 1 March 1991
10	Convention for the Unification of Certain Rules Relating to International Carriage by Air, signed at Warsaw on 12 October 1929
11	Protocol to Amend the Convention for the Unification of Certain Rules Relating to International Carriage by Air signed at Warsaw on 12 October 1929, done at The Hague on 28 September 1955
12	Montreal Protocol No. 4 to Amend the Convention for the Unification of Certain Rules Relating to International Carriage by Air, signed at Warsaw on 12 October 1929, signed at Montreal on 25 September 1975
13	Convention for the Unification of Certain Rules for International Carriage by Air, signed at Montreal on 28 May 1999
14	Convention on International interests in Mobile Equipment, signed at Cape Town on 16 November 2001
15	Protocol to the Convention on International Interests in Mobile Equipment on Matters Specific to Aircraft Equipment, signed at Cape Town on 16 November 2001
16	Protocol for the Amendment Agreement on the Joint Financing of Certain Air Navigation Services in Iceland (1956) as amended in 1982 and 2008
17	Protocol for the Amendment Agreement on the Joint Financing of Certain Air Navigation Services in Greenland (1956) as amended in 1982 and 2008
18	The International COSPAS-SARSAT Programme Agreement, done at Paris on 1 July 1988

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## **2 TAXATION IN THE FIELD OF INTERNATIONAL AIR TRANSPORT**

### **2.1 *Petroleum exemptions and income tax***

- a. Petroleum for aircraft is granted Goods and Services Tax (GST) relief under item 11 of the Schedule to the GST (Imports Relief) Order (2001 Rev Ed.).
- b. The matter of income tax on air transport is contained within Section 12(2) of the Income Tax Act (2014 Rev Ed.).

Where a non-resident person carries on either:

- i. the business of shipowner or charterer, or
- ii. the business of air transport,

and any ship or aircraft owned or chartered by him calls at a port, an aerodrome or an airport in Singapore, his full profits arising from the carriage of passengers, mail, livestock or goods shipped, or loaded into an aircraft, in Singapore shall be deemed to accrue in Singapore.

This subsection shall not apply to passengers, mail, livestock or goods which are brought to Singapore solely for transshipment, or for transfer from one aircraft to another or from an aircraft to a ship or from a ship to an aircraft.

### **2.2 *Capital gains tax, or income on wealth, etc.***

There is no capital gains tax, or income on wealth, etc., which are chargeable on the sale or use of international air transport.

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**k. Visual Approach Chart - ICAO**

This chart is produced for aerodromes used by civil aviation where:

- \* only limited navigation facilities are available; or
- \* radio communication facilities are not available; or
- \* no adequate aeronautical charts of the aerodrome and its surroundings at 1:500 000 or greater scale are available; or
- \* visual approach procedures have been established

The aeronautical data shown include information on aerodromes obstacles, designated airspace, visual approach information, radio navigation aids and communication facilities, as appropriate.

**5 LIST OF AERONAUTICAL CHARTS AVAILABLE**

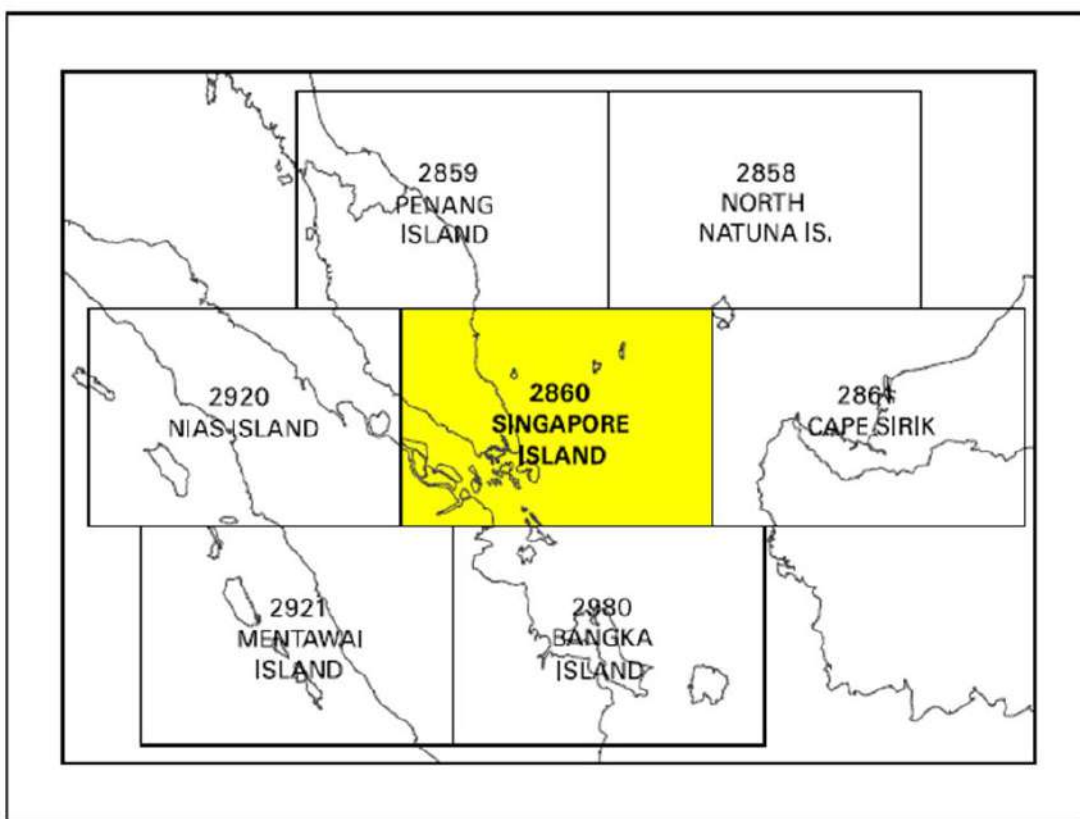
GEN 3.2.5 LIST OF AERONAUTICAL CHARTS AVAILABLE					
<i>Title of Chart Series</i>	<i>Scale</i>	<i>Name and/or number</i>		<i>Price (\$)</i>	<i>Date</i>
<b>World Aeronautical Chart</b> ICAO (WAC)	1:1 000 000	WAC 2860		In AIP	30 JAN 20
← <b>Enroute Chart</b> ICAO (ENRC)		ERC 6-1		In AIP	12 AUG 21
<b>Instrument Approach Chart</b> ICAO (IAC)		<b>Singapore Changi</b>			
↑	1:400 000	RWY 02L - ICW ILS/DME	AD-2-WSSS-IAC-1	In AIP	12 AUG 21
↑	1:400 000	RWY 02C - ICE ILS/DME	AD-2-WSSS-IAC-2	In AIP	12 AUG 21
↑	1:400 000	RWY 20R - ICH ILS/DME	AD-2-WSSS-IAC-5	In AIP	12 AUG 21
↑	1:400 000	RWY 20C - ICC ILS/DME	AD-2-WSSS-IAC-6	In AIP	12 AUG 21
↑	1:400 000	RWY 20C - VTK DVOR/DME	AD-2-WSSS-IAC-7	In AIP	12 AUG 21
↑	1:400 000	RWY 02L - RNP	AD-2-WSSS-IAC-9	In AIP	12 AUG 21
↑	1:400 000	RWY 02C - RNP	AD-2-WSSS-IAC-10	In AIP	12 AUG 21
↑	1:400 000	RWY 20R - RNP	AD-2-WSSS-IAC-11	In AIP	12 AUG 21
↑	1:400 000	RWY 20C - RNP	AD-2-WSSS-IAC-12	In AIP	12 AUG 21
↑	1:400 000	RWY 02R - RNP	AD-2-WSSS-IAC-13	In AIP	12 AUG 21
↑	1:400 000	RWY 20L - RNP	AD-2-WSSS-IAC-14	In AIP	12 AUG 21
		<b>Paya Lebar</b>			
	1:400 000	RWY 20 - PU DVOR/DME	AD-2-WSAP IAC-1	In AIP	31 DEC 20
	1:400 000	RWY 02 - PU DVOR/DME	AD-2-WSAP IAC-2	In AIP	31 DEC 20
	1:400 000	RWY 20 - IPS ILS/DME	AD-2-WSAP IAC-3	In AIP	31 DEC 20
	1:400 000	RWY 02 - IPN ILS/DME	AD-2-WSAP IAC-4	In AIP	31 DEC 20
	1:400 000	RWY 02 - RNP	AD-2-WSAP-IAC-5	In AIP	31 DEC 20
	1:400 000	RWY 20 - RNP	AD-2-WSAP-IAC-6	In AIP	31 DEC 20
<b>Visual Approach Chart</b> ICAO (VAC)	1:400 000	<b>Singapore Changi</b>		AD-2-WSSS-VAC-1	In AIP 31 DEC 20
		<b>Seletar</b>			
	1:100 000	RWY 03	AD-2-WSSL-VAC-1	In AIP	16 JUL 20
	1:100 000	RWY 21	AD-2-WSSL-VAC-2	In AIP	16 JUL 20
	1:100 000	RWY 03	AD-2-WSSL-VAC-3	In AIP	16 JUL 20
	1:100 000	RWY 21	AD-2-WSSL-VAC-4	In AIP	16 JUL 20
<b>Visual Departure Chart</b>		<b>Seletar</b>			
	1:100 000	RWY 03	AD-2-WSSL-VDC-1	In AIP	16 JUL 20
	1:100 000	RWY 21	AD-2-WSSL-VDC-2	In AIP	25 FEB 21
← <b>Aerodrome Chart</b> ← ICAO (AC)		<b>Singapore Changi</b>		AD-2-WSSS-ADC-2	In AIP 12 AUG 21
		<b>Seletar</b>		AD-2-WSSL-ADC-1	In AIP 12 AUG 21
		<b>Paya Lebar</b>		AD-2-WSAP-ADC-1	In AIP 16 JUL 20
<b>Aerodrome Obstacle Chart</b> ICAO TYPE A (AOC)		<b>Singapore Changi</b>			
	1:10 000	RWY 20R/02L	AD-2-WSSS-AOC-1	In AIP	16 JUL 20
	1:10 000	RWY 20C/02C	AD-2-WSSS-AOC-2	In AIP	31 DEC 20
	1:10 000	RWY 02R/20L	AD-2-WSSS-AOC-4	In AIP	22 APR 21
		<b>Seletar</b>			
	1:10 000	RWY 03/21	AD-2-WSSL-AOC-1	In AIP	16 JUL 20
		<b>Paya Lebar</b>			
	1:20 000	RWY 20/02	AD-2-WSAP-AOC-1	In AIP	16 JUL 20



**GEN 3.2.5 LIST OF AERONAUTICAL CHARTS AVAILABLE**

<i>Title of Chart Series</i>	<i>Scale</i>	<i>Name and/or number</i>		<i>Price (\$)</i>	<i>Date</i>
<b>Aerodrome Obstacle Chart</b> ICAO TYPE B (AOC)	1:20 000	<b>Singapore Changi</b> RWY 02L/20R, 02C/20C and RWY 02R/20L	AD-2-WSSS-AOC-3	In AIP	12 AUG 21
	1:20 000	<b>Seletar</b> RWY 03/21	AD-2-WSSL-AOC-2	In AIP	16 JUL 20
<b>Precision Approach Terrain Chart</b> ICAO (PATC)	1:2 500	<b>Singapore Changi</b> RWY 02L	AD-2-WSSS-PATC-1	In AIP	10 OCT 19
	1:2 500	RWY 20C	AD-2-WSSS-PATC-2	In AIP	01 FEB 18
	1:2 500	RWY 02R	AD-2-WSSS-PATC-3	In AIP	31 DEC 20
	1:2 500	RWY 20L	AD-2-WSSS-PATC-4	In AIP	31 DEC 20

**6 INDEX TO THE WORLD AERONAUTICAL CHART (WAC) - ICAO 1:1 000 000**



**7 CORRECTIONS TO CHARTS NOT CONTAINED IN THE AIP**

<b>Identification of charts</b>	<b>Location on the chart where the correction has to be made</b>	<b>Precise details of the corrections to be made</b>
NIL	NIL	NIL

**6.2 ENTRY AND EXIT GATES**

6.2.1 'Entry gates' and 'Exit gates' are established to ensure segregation between arriving and departing aircraft operating at Singapore Changi Airport. These gates (waypoints) are incorporated in the RNAV SIDs/STARs which have been implemented to support the flow management procedures. The 'entry' and 'exit' gates are shown below:

<u>Entry Gate</u>	<u>Coordinates</u>
BOBAG	010230N 1032954E
PASPU	015915N 1040618E
REMES	004342N 1035735E
LAVAX	010950N 1042714E

**6.3 ARRIVING AIRCRAFT TO SINGAPORE CHANGI AIRPORT**

6.3.1 STANDARD INSTRUMENT ARRIVAL (STAR)  
IFR flight should expect a Standard Instrument Arrival (STAR). Changi arrivals via ATS route A464 shall flight plan ARAMA STAR route. LELIB STAR would be issued to pilots when traffic permits. ATC may also clear arrivals to join the LEBAR STAR when air traffic permits to facilitate arrivals joining downwind to the west of Singapore Changi Airport.

6.3.2 ENTRY GATE TIME  
To regulate the flow of traffic into the Approach airspace, ATC will issue, when necessary, a time restriction at an entry gate associated with the inbound route of the flight into Singapore Changi Airport.

6.3.3 DESCENT PROFILE  
Pilots shall plan their descent profile in accordance to the published STAR procedures.

6.3.4 SPEED CONTROL  
Speed control restrictions are incorporated into the STARs to enhance predictability and planning of air traffic in the Approach airspace. Pilots shall adhere to the speed control restrictions published in the STAR procedures unless otherwise advised. ATC may issue further speed adjustment during the different phases of the flight if traffic situation warrants.

**6.4 APPROACH AIRSPACE HOLDING PROCEDURES**

6.4.1 ENTRY PROCEDURE  
The entry into the holding patterns shall be in accordance with the three-sector entry procedure as prescribed in ICAO Doc 8168 - OPS/611 Edition 1993.

6.4.2 RATE OF TURN  
All turns are to be made at a bank angle of 25° or at a rate of 3° per second, whichever requires the lesser bank.

6.4.3 DESCENT PROCEDURE  
When instructed to join a holding pattern, pilots shall reach their assigned altitudes prior to arriving at the holding point. This will allow appropriate traffic sequencing and the reduction of step-descents in the holding pattern.

6.4.4 DETAILS OF APPROACH AIRSPACE HOLDING AREAS

<b>Holding Fix / ID / Co-ordinates</b>	<b>Inbound Track °M</b>	<b>Direction of Turn</b>	<b>MAX HLDG Speed (IAS)</b>	<b>Time (MIN)</b>	<b>MNM-MAX HLDG Level</b>	<b>Controlling Unit and Frequency</b>
1	2	3	4	5	6	7
<b>NYLON</b> 013657N 1040624E	203°	Left	220 knots	1	<u>FL140</u> 3,000ft	Singapore Approach 124.05MHz (PRI) 132.15MHz (SRY)
<b>LAVAX</b> 010950N 1042714E	269°	Left	220 knots	1	<u>FL140</u> 7,000ft	Singapore Approach 124.05MHz (PRI) 132.15MHz (SRY)
<b>REMES</b> 004342N 1035735E	348°	Right	220 knots	1	<u>FL140</u> 6,000ft	Singapore Approach 124.6MHz (PRI) 132.15MHz (SRY)
<b>BOBAG</b> 010230N 1032954E	083°	Right	220 knots	1	<u>FL140</u> 6,000ft	Singapore Approach 124.6MHz (PRI) 132.15MHz (SRY)

6.4.5 ALTERNATE HOLDING AREAS

In the event of inclement weather or capacity constraints rendering a specific holding area unusable, arrivals may be cleared to an alternate holding area for re-sequencing. To ensure smooth transition to alternate holding area, all arrivals bound for Singapore Changi Airport shall have their FMS programmed with all the four promulgated holding areas (paragraph 6.4.4)

**6.5 EXPECTED TIME TO LEAVE HOLDING AREA**

6.5.1 If arrival delay is processed by means of holding, pilots will be informed of the expected time to leave the respective holding area.

6.5.2 The expected time to leave is issued to serve as an early notification of the probable holding duration as well as for unforeseen circumstance such as radio failure (see page ENR 1.6-4). Subsequently, a specified time to leave the holding area will be issued to pilots to resume the flight according to the assigned RNAV STARs.

**6.6 DEPARTING AIRCRAFT FROM SINGAPORE CHANGI AIRPORT**

6.6.1 DEPARTURE SPEED CONTROL

Departing aircraft shall not exceed IAS 230 knots below 4,000 feet AMSL or at the waypoints specified in the SID and not exceed IAS 250 knots below 10,000 feet AMSL. Pilots shall also comply with speed control restrictions according to published SIDs.

**7 AUTOMATIC DEPENDENT SURVEILLANCE BROADCAST (ADS-B) OUT EXCLUSIVE AIRSPACE WITHIN PARTS OF THE SINGAPORE FIR**

**7.1 ADS-B BASED SURVEILLANCE AIRSPACE AND AIRCRAFT OPERATOR APPROVAL**

← 7.1.1 Aircraft that operates on ATS routes L642, L644, M753, M771, M904, N891, N892, Q801, Q802, Q803 and T611 within airspace bounded by 073605N 1090045E, 040713N 1063543E, 041717N 1061247E (MABLI), 044841N 1052247E (DOLOX), 045224N 1041442E (ENREP), 045000N 1034400E, thence north along the Singapore FIR boundary to 070000N 1080000E at or above FL290 must carry serviceable ADS-B transmitting equipment that has been certified as meeting:

- a. European Aviation Safety Agency - Certification Considerations for the Enhanced ATS in Non-Radar Areas using ADS-B Surveillance (ADS-B-NRA) Application via 1090MHz Extended Squitter (AMC 20-24), or
- b. European Aviation Safety Agency (EASA) CS-ACNS (Subpart D - Surveillance - SUR), or
- c. Federal Aviation Administration - Advisory Circular No: 20-165A (or later versions) Airworthiness Approval of Automatic Dependent Surveillance - Broadcast (ADS-B) Out Systems, or
- d. The equipment configuration standards in Appendix XI of Civil Aviation Order 20.18 of the Civil Aviation Safety Authority of Australia.

7.1.2 Aircraft that does not comply with the requirements stipulated in paragraph 7.1.1 will not be accorded priority in the delineated airspace and flight level assignments would be subjected to air traffic conditions.

7.1.3 If an aircraft carries ADS-B transmitting equipment but does not comply with the requirements stipulated in paragraph 7.1.1, the aircraft must not fly in the delineated airspace unless the equipment is deactivated or set to transmit only a value of zero for the Navigation Uncertainty Category (NUCp) or Navigation Integrity Category (NIC).

7.1.4 Flights operating in the delineated airspace are to contact Singapore Radar on 134.35MHz (primary frequency) and 133.6MHz (secondary frequency).

**7.2 FLIGHT PLANNING REQUIREMENTS**

7.2.1 Aircraft operators complying with the requirements stipulated in paragraph 7.1.1 are to indicate the appropriate ADS-B designator in Item 10 of the ICAO flight plan:

- B1 ADS-B with dedicated 1090 MHz ADS-B “out” capability
- B2 ADS-B with dedicated 1090 MHz ADS-B “out” and “in” capability

7.2.2 Aircraft operators are to include the aircraft address (24 Bit Code) in hexadecimal format in Item 18 of the ICAO flight plan as per the following example:

CODE/7C432B

## ENR 1.9 AIR TRAFFIC FLOW MANAGEMENT (ATFM)

### 1 AIR TRAFFIC FLOW MANAGEMENT (ATFM)

- 1.1 ATFM is a service to complement the safe, orderly and efficient delivery of Air Traffic Services (ATS) by regulating air traffic flow to match the prevailing capacity at a given airport or airspace. Through ATFM, airspace users (AUs) and ATS units (ATSUs) can be made aware of predicted delays so that timely adjustment to operations and flight schedules could be made accordingly. ATFM measure such as Ground Delay Programme (GDP), Minimum Departure Interval (MDI) and Miles- in-Trail (MIT) are some of the methods to achieve the objectives of ATFM as defined in ICAO's Manual on Collaborative ATFM (Doc 9971).
- 1.2 For Singapore FIR, ATFM services are provided by Civil Aviation Authority of Singapore (CAAS) from the Singapore ATFM Unit (ATFMU) operating on a 24-hour basis. The services comprise the planning and implementation of ATFM measures to balance demand and capacity. The review of the effectiveness of ATFM measures are carried out through the conduct of post operation analysis. The implementation of ATFM measures will be coordinated with AUs and ATSUs through Collaborative Decision Making (CDM) processes and agreed operating procedures.

### 2 ATFM OPERATIONS FOR FLIGHTS ARRIVING AT SINGAPORE CHANGI AIRPORT

- 2.1 Where necessary, ATFM measures will be applied for flights scheduled to arrive at Singapore Changi Airport (WSSS).
- 2.2 Flights departing from the following airports may be subjected to ATFM measures:

ANSP	Airport
Cambodia	VDPP, VDSR
China	ZGGG, ZGSZ, ZJHK, ZJSY
Hong Kong	VHHH, VMMC
Indonesia	WIII, WADD, WARR
Malaysia	WBGG, WBGR, WBKK, WMKC, WMKI, WMKJ, WMKK, WMKP, WMSA, WMKL
Myanmar	VYMD, VYNT, VYYY
Philippines	RPLL
Thailand	VTBS, VTSP, VTBD, VTBU, VTCC, VTCT, VTSB, VTSG, VTSM, VTSS, VTUD
Vietnam	VVTS, VVNB

- 2.3 When ATFM measures are applied, the Singapore ATFMU will assign Calculated Take-Off Times (CTOTs) to flights departing from the airports listed in paragraph 2.2 planning to arrive into Singapore Changi Airport.
- 2.4 AUs and ATSUs are advised to refer to the Air Traffic Flow Management (ATFM) Portal to access CTOTs and/or other pertinent ATFM information via the Civil Aviation Authority Singapore (CAAS) Webpage, link provided: <http://www.caas.gov.sg/e-services/air-traffic-flow-management>
- 2.5 Compliance to CTOT during the ATFM operation is important, it contributes to the realisation of the ATFM plan. It would assist in the reduction of the need for tactical airborne delay, promoting a safer and more efficient operating environment for AOs and AUs.
- 2.6 All AUs planning to arrive into WSSS shall:
- i. file and submit FPLs at least 3 hours before the Estimated Off Block Time (EOBT);
  - ii. transmit the appropriate ATS messages (CHG / DLA) when the EOBT changes by more than 15 minutes; and
  - iii. transmit CNL message if the flight is cancelled after the submission of FPL.
- 2.7 FPLs and ATS messages shall be addressed to WSJCZQZX.

### 3 ATFM OPERATIONS FOR FLIGHTS PLANNING TO OPERATE WITHIN THE SINGAPORE FIR

- 3.1 The Singapore ATFMU may implement ATFM measures to facilitate ATC of flow restrictions originated by downstream ATSUs, with the aim to provide a higher level of predictability for AUs and affected upstream ATSUs when operating in the Singapore FIR. For example, flow restriction on a given ATS route in a form of Minutes-in-trail MINIT at downstream segments would be converted into CTOT, and/or Calculated Time Over (CTO) at a given waypoint within the Singapore FIR.

3.2 Procedures for flight plan submission for such ATFM facilitation would be coordinated tactically by the Singapore ATFMU with AUs and affected upstream ATSUs. The transmit of the appropriate ATS messages would take reference from para 2.6 in the above.

Note: In general, Singapore ATFMU would request for FPL to be filed and submitted within 1 hour from the notification of the activation of ATFM measure.

3.3 FPLs and ATS messages should be addressed to WSJCZQZX.

## 4 SINGAPORE ATFMU CONTACT INFORMATION AND WEB CONFERENCE

4.1 When ATFM measure are implemented, Singapore ATFMU will open a CDM channel for AUs and affected ATSUs through an active web conferencing facilities and ATFM helpdesk thereafter to facilitate operational queries from AUs relating to the ATFM measure.

← 4.2 The contact details of the Singapore ATFMU are as follows:

Email: [CAAS\\_ATFMU@caas.gov.sg](mailto:CAAS_ATFMU@caas.gov.sg)

Phone: (+65) 62414143, (+65) 62414142

Fax: (+65) 62414034

## ← 5 BAY OF BENGAL COOPERATIVE ATFM (BOBCAT)

### 5.1 INTRODUCTION

5.1.1 The States of the ICAO Asia/Pacific Region within the Bay of Bengal, South Asia and Pakistan airspace have implemented an automated Air Traffic Flow Management (ATFM) service under the auspices of the ICAO Bay of Bengal ATS Coordination Group - ATFM Task Force.

### 5.2 PROVISION OF ATFM SERVICES

5.2.1 ATFM services are provided by Aeronautical Radio of Thailand LTD (AEROTHAI) from the Bangkok Air Traffic Flow Management Unit (ATFMU) at Bangkok ACC. ATFM services will be limited to calculation, promulgation and management of mandatory Calculated Take-Off Time (CTOT) and Kabul FIR flight level, ATS route and entry fix time, Calculated Time-Over (CTO) for each affected flight.

5.2.2 Singapore ATC retains responsibility for the tactical management of flights that are subject to ATFM. In discharging tactical responsibilities, Singapore ATC will manage non-ATFM compliant flights using delayed pushback and start clearances, non-preferred routes and/or flight levels, enroute holding and/or diversion around Kabul FIR.

5.2.3 The ATFMU utilises the automated web based Bay of Bengal Cooperative ATFM System (BOBCAT) system in meeting its ATFM responsibilities. These responsibilities will be managed in coordination with aircraft operators and Singapore ATC in the Singapore FIR.

← 5.2.4 The ATFMU operates on a 24-hour basis and is responsible for westbound flights entering the Kabul FIR at specified times, flight levels and ATS routes in accordance with paragraph 5.3. The objectives of these ATFM services are to:

- a. reduce ground and en-route delays;
- b. maximise capacity and optimize the flow of air traffic through Kabul FIR;
- c. provide an informed choice of routing and flight level selection;
- d. alleviate unplanned in-flight re-routing and technical stops; and
- e. assist regional Air Navigation Service Providers (ANSPs) in planning for and managing future workload in the light of forecast increased traffic flows through Kabul FIR.

**5.3 ATFM AFFECTED ATS ROUTES, FLIGHT LEVELS AND APPLICABLE HOURS**

5.3.1 All westbound flights intending to enter Kabul FIR between 2000UTC and 2359UTC daily on ATS routes and flight levels specified in the Table below shall comply with the BOBCAT ATFM procedure. This includes a mandatory requirement to obtain ATFM slot allocation - CTOT, CTO at Kabul FIR entry waypoint, allocated flight level and allocated ATS route from Bangkok ATFMU for entry into Kabul FIR.

Routing through the Kabul FIR	Metering Waypoint	Flight Level
L509 - M875	LAJAK	FL280, FL300, FL320, FL340, FL360, FL380, FL400
M875	SITAX	FL280, FL300, FL320, FL340, FL360, FL380, FL400
N644	DOBAT	FL280, FL300, FL320, FL340, FL360, FL380, FL400
L750	BIROS	FL280, FL300, FL320, FL340, FL360, FL380, FL400
P628	ASLUM	FL320, FL340, FL360, FL380, FL400
N636 - P628	SERKA	FL280, FL300

5.3.2 Flights that plan to enter Kabul FIR without an ATFM slot allocation will be accommodated only after flights with slots have been processed. Such flights should expect delayed pushback and start clearances, non-preferred routes and/or flight levels, enroute holding and/or diversion around Kabul FIR.

5.3.3 In order to ensure availability of slots for westbound departures from designated airports in northern India and Pakistan, departures from these airports are given priority for FL280 in the slot allocation. This does not preclude these flights from requesting higher flight levels with initial slot request.

5.3.4 The following flights are exempted from the ATFM procedures:

- a. Flights experiencing an emergency, including aircraft subjected to unlawful interference;
- b. Flights on search and rescue or firefighting missions;
- c. Urgent medical evacuation flights or humanitarian flights specifically declared by State medical authorities that flight delays would put the life of patients aboard at risk; and
- d. Flights with "Head of State" status.

Note: After medical flights have completed their mission, they should be subjected to ATFM measures. Scheduled passenger transfer flights are, by their nature, non-urgent and should not be given priority under normal operational situation.

5.3.5 Flights exempted from ATFM procedures shall indicate the exemption in their flight plan as follows: (Field 18 - ATFM EXMP).

**5.4 MANDATORY CTOT AND KABUL FIR SLOT ALLOCATION**

5.4.1 Affected flights shall obtain the mandatory Kabul FIR slot allocation - CTOT, CTO at Kabul FIR entry waypoint, allocated flight level and allocated ATS route from the BOBCAT system. The CTOT and Kabul slot allocation will enable ANSPs to tactically control westbound flights transiting the Kabul FIR at specified times by assigning minimum spacing requirements at established gateway fix points in the vicinity of the eastern boundary of the Kabul FIR.

← 5.4.2 The application, calculation and distribution of CTOT and Kabul FIR entry waypoint slot allocations will be managed via internet access to the BOBCAT system in accordance with the ATFM operating procedures in paragraph 5.2.

**5.5 BOBCAT OPERATING PROCEDURES**

5.5.1 All affected flights are required to submit their slot requests to the BOBCAT system by logging onto <https://www.bobcat.aero> between 0100UTC and 1159UTC on the day of flight and completing the electronic templates provided.

5.5.2 Affected aircraft operators who do not have dedicated BOBCAT username / password access should complete the application form provided and fax it to the ATFMU as soon as possible.

**5.6 SLOT ALLOCATION PROCESS**

5.6.1 The slot allocation process is divided into 3 phases, namely the slot request submission, initial slot allocation and finally the slot distribution to aircraft operators and ANSPs.

Slot Request Submission

5.6.2 Slot requests including preferred ATS route, flight level and Maximum Acceptable Delay (MAD) should be lodged between 0001UTC and 1159UTC on the day of flight. Slot requests may subsequently be amended prior

1200UTC, which is the cut-off time. Aircraft operators are encouraged to submit additional slot request options in case their first choice is not available. This may include variations to ATS route, flight level and MAD.

5.6.3 Slot requests shall be for flight parameters that are able to be met by the flight. For example, flights requesting a slot at FL390 must be able to transit Kabul FIR at FL390. Flights subsequently unable to meet the slot parameters (flight level, ATS route or CTO at entry waypoint) should expect non-preferred routes and / or flight levels, enroute holding and / or diversion around Kabul FIR.

5.6.4 As BOBCAT will allocate FL280 on a priority basis to facilitate departures from northern India and Pakistan underneath overflying traffic, flights departing these points are encouraged to include FL280 as at least one slot request preference.

5.6.5 Flights that were not allocated a slot in the initial slot allocation, are not satisfied with the allocated slot or did not submit a slot request should select slots from the listing of remaining unallocated slots available immediately after slot distribution has been completed.

#### Slot Allocation and Distribution

5.6.6 Slot allocation will commence at the cut-off time at 1200UTC. BOBCAT will process and generate the slot allocation based on the information submitted in the slot requests. Notification of slot allocation will be made not later than 1230UTC via the ATFMU website. Alternative arrangements for notification of slot distribution (e.g. e-mail, fax, telephone) should be coordinated with the ATFMU.

5.6.7 After the slot allocation has been published at <https://www.bobcat.aero>, aircraft operators can:

- a. use the slot allocation result for ATS flight planning purposes;
- b. cancel the allocated slot; and / or
- c. change slot allocation to another available slot in the published list of unallocated slots.

5.6.8 Singapore ATC and AIS can also view the slot allocation results at <https://www.bobcat.aero>.

### **5.7 SUBMISSION OF ATS FLIGHT PLAN**

5.7.1 Once aircraft operators are in receipt of the slot allocation, they shall submit the ATS flight plan using the time, ATS route and flight level parameters of the BOBCAT allocated slot.

5.7.2 In addition to the normal addressees, Singapore AIS will also address the flight plan (FPL) and related ATS messages (e.g. DLA, CNL, CHG) to the ATFMU via AFTN address VTBBZDZX for all flights that have submitted a slot request.

### **5.8 AIRCRAFT OPERATOR / PILOT-IN-COMMAND AND ANSP RESPONSIBILITIES**

#### Aircraft Operator / Pilot-in-Command

5.8.1 In accordance with ICAO PANS-ATM provisions, it is the responsibility of the Pilot-in-Command (PIC) and the aircraft operator to ensure that the aircraft is ready to taxi in time to meet any required departure time. PIC shall be kept informed by their aircraft operators of the CTOT, CTO at Kabul FIR entry waypoint and flight parameters (route / level) allocated by BOBCAT.

5.8.2 The PIC, in collaboration with ATC, shall arrange take-off as close as possible to the CTOT in order to meet the allocated CTO at Kabul FIR entry waypoint.

#### ANSPs

5.8.3 In accordance with ICAO PANS-ATM provisions, flights with an ATFM slot allocation should be given priority for take-off to facilitate compliance with the CTOT.

5.8.4 CTOT shall be included as part of the initial ATC clearance. In collaboration with PIC, Singapore ATC shall ensure that every opportunity and assistance is granted to a flight to meet the CTOT and allocated CTO at Kabul FIR entry waypoint.

### **5.9 COORDINATION BETWEEN AIRCRAFT OPERATOR / PILOT-IN-COMMAND, ANSPs AND BANGKOK ATFMU**

5.9.1 The PIC shall include the CTOT in the initial ATC clearance request.

5.9.2 PIC shall adjust cruise flight to comply with slot parameters at the Kabul FIR entry waypoint, requesting appropriate ATC clearances including speed variations in accordance with the published AIP requirements.



# ENR 2 AIR TRAFFIC SERVICES AIRSPACE

## ENR 2.1 FIR, UIR, TMA

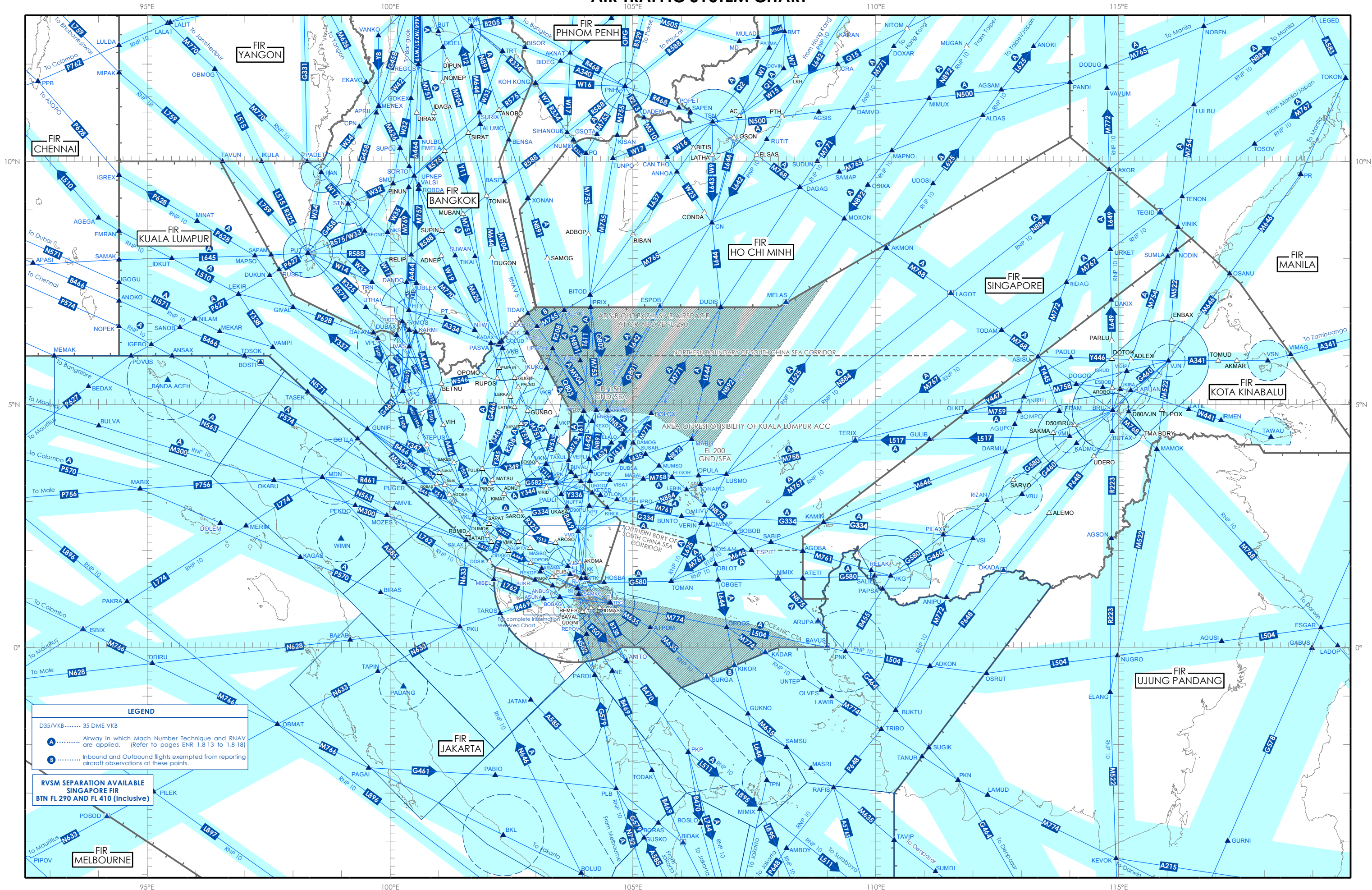
Name Lateral limits Upper limit/Lower limit Class of airspace	Unit providing service	Call sign Languages Area and conditions of use Hr of ser	Frequency /Purpose	Remarks
1	2	3	4	5
<b>SINGAPORE FIR</b>	SINGAPORE ACC	SINGAPORE RADAR  English  H24	255.4MHz	<p>The responsibility for providing air traffic services to flights within the following portions of the Singapore FIR is vested in the Kuala Lumpur ACC:</p> <p>The airspace between a line from 023600N 1044500E to 020000N 1070000E and thereafter along 020000N, in the south, and a line along 060000N in the north, and from surface to FL150 west of longitude 105E and from surface level to FL200 east of longitude 105E. (Ref ANP-ASIA/PAC, Rec 7/4)</p> <p>SEA 1, SEA 2, SEA 3: SSB Suppressed Carriers.</p>
<p>070000N 1030000E 070000N 1080000E 103000N 1140000E 082500N 1163000E 021500N 1083000E 010000N 1083000E 010000N 1085400E, thence along Kalimantan west coast to 001500N 1090000E to 000000N/S 1090000E 000000N/S 1080000E 005000S 1060000E 000000N/S 1051000E 000000N/S 1044600E, thence following the arc of a circle radius 100NM centred on Singapore Island 012136N 1034825E clockwise to 013900N 1021000E 011300N 1033000E 011700N 1033600E, thence east along the national boundary of Singapore/Malaysia, thence along 012000N to 012000N 1042000E 023600N 1044500E 034000N 1034000E 045000N 1034400E 064500N 1024000E 070000N 1030000E.</p> <p><b>UNL</b> <b>SFC</b></p>			<p><u>Primary</u> 123.7 MHz 133.25MHz 134.4MHz 133.8MHz 134.2MHz 134.35 MHz</p> <p><u>Secondary</u> 127.3 MHz 135.8MHz 128.1MHz 133.35MHz 133.6 MHz</p> <p><u>SEA 1</u> 6556kHz 11297kHz</p> <p><u>SEA 2</u> 5655kHz 8942kHz 11396kHz</p> <p><u>SEA 3</u> 6556kHz</p>	
		SINGAPORE CONTROL  SOUTH CHINA SEA  English  H24	<p><u>AFN</u> <u>LOGON</u>  WSJC</p>	<p>Suitably equipped aircraft operating outside radar cover and not in ADS-B exclusive airspace within the Singapore FIR should log on to Singapore's AFN LOGON address at least 10 minutes prior to entering the above-mentioned airspace in Singapore FIR. Area Navigation (RNAV) routes suitable for ADS-C and / or CPDLC logon are described in ENR 3.3.</p>

Name Lateral limits Upper limit/Lower limit Class of airspace	Unit providing service	Call sign Languages Area and conditions of use Hr of ser	Frequency /Purpose	Remarks
1	2	3	4	5
<b>AREAS WITHIN THE KUALA LUMPUR FIR FOR WHICH SINGAPORE ACC IS RESPONSIBLE FOR PROVIDING ATS</b>				
<p><b>SECTOR 1:</b> That airspace contained within coordinates 011300N 1033000E 012203N 1030209E thence along an arc radius 50 DME SJ to 014529N 1031305E 014225N 1031728E, thence along the Johor TMA western boundary to 013022N 1033437E 012600N 1034055E, thence along the Peninsular Malaysia and Singapore international boundary to 011700N 1033600E 011300N 1033000E. The airspace herein is designated as follows:</p> <p>a. <b>AREA B</b> (SJ DVOR/DME - 35 DME SJ) - 3 000ft to FL245 b. <b>AREA D</b> (35 DME SJ - 45 DME SJ) - 5 500ft to FL245 c. <b>AREA F</b> (45 DME SJ - 50 DME SJ) - 9 500ft to FL245</p>	SINGAPORE ACC	SINGAPORE RADAR  English  H24	<u>Primary</u> 133.25MHz  <u>Secondary</u> 135.8MHz	Controlling Authority: Johor APP for airspaces below Sectors 1 and 2, Airway W401 and south of VMR DVOR.  <i>Note:</i> <i>In the event an aircraft in the areas is forced to make an emergency descent which will penetrate Malaysian airspace, the pilot shall advise Singapore ATC immediately.</i>
<p><b>SECTOR 2:</b> That airspace contained within coordinates 013206N 1035031E 022205N 1034724E 025234N 1033340E 025432N 1034341E 033822N 1034139E 023600N 1044500E 012000N 1042000E 012000N 1040528E thence along the Peninsular Malaysia and Singapore international boundary to 012600N 1034055E to 013022N 1033437E 013130N 1034236E to 013206N 1035031E. The airspace herein is designated as follows:</p> <p>a. <b>AREA A</b> (PU DVOR/DME - 30 DME PU excluding the northern portion of Changi CTR) - 2 000FT to FL245 b. <b>AREA C</b> (30 DME PU - 61 DME PU) - 5 500FT to FL300 c. <b>AREA E</b> (61 DME PU - 90 DME PU) - FL120 to FL360 d. <b>AREA H</b> (from 025432N 1034341E thence along the 90 DME PU arc to the FIR boundary (024712N 1043337E) thence to 033822N 1034139E, 025432N 1034341E) - FL145 to FL360</p>	SINGAPORE ACC	SINGAPORE RADAR  English  H24	<u>Primary</u> 123.7 MHz 133.8 MHz  <u>Secondary</u> 127.3 MHz	
<p><b>ATS ROUTES W401 and G579</b></p> <p>a. W401 [Airspace between KK and PU radial 324 from 2,000ft to FL245 and PU radial 324 to PIMOK (excluding WMP228) from 3,000ft to FL245]. b. G579 from 2000ft to FL460.</p>	SINGAPORE ACC	SINGAPORE RADAR  English  H24		

Route Designator {RNP Type}		[Route Usage Notes]									
Significant Point Name		Significant Point Coordinates								Remarks	
{RNP Type}		Track MAG ↓ ↑	Dist NM	(COP)	Upper limit Lower limit	MNM FLT ALT	Lateral limits NM	FL series ↓      ↑		Controlling unit Frequency {Airspace class} Remarks	
1		2	3	4	5	6	7	8	9	10	
<b>G334</b>		Route availability: (1) H24									
▲ PULAU TIOMAN VOR/DME (VPT)		025459N 1040639E									
		096° 276°	21.6NM		FL 285 FL 240	FL 250	20 NM	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class A]	
▲ KIBOL (WMFC/WSJC FIR BDRY)		025224N 1042818E									
		097° 277°	92.7NM		FL 285 FL 240	FL 250	20 NM	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class A]	
▲ BUNTO		024200N 1060000E									
		091° 271°	175.9NM		FL 285 FL 240	FL 250	20 NM	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class A]	
▲ KAMIN (WSJC/WBFC FIR BDRY)		023442N 1085536E									
<p><u>Route Remarks:</u> Tolerances of airway infringe WMD222 ASAHAN (activated by NOTAM – Military activities)</p> <p>10 min longitudinal separation between RNAV-equipped aircraft applying Mach Number Technique.</p> <p>15 min longitudinal separation between other aircraft.</p> <p>Singapore ACC FREQ: P123.7 MHz, S127.3 MHz</p> <p>ADS-C and CPDLC services are available to suitably equipped aircraft operating outside radar cover within the Singapore FIR.</p>											

Route Designator {RNP Type}	[Route Usage Notes]								
Significant Point Name	Significant Point Coordinates								Remarks
{RNP Type}	Track MAG ↓ ↑	Dist NM	(COP)	Upper limit Lower limit	MNM FLT ALT	Lateral limits NM	FL series ↓      ↑		Controlling unit Frequency {Airspace class} Remarks
1	2	3	4	5	6	7	8	9	10
<b>G579</b>	Route availability: (1) H24								
▲ JOHOR BAHRU DVOR/DME (VJB)	013950.4N 1033939.2E								
	343° 163°	10.3NM		FL 460 6500 FT ALT	7000 FT	3	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class A –ABV FL150 Class B –BLW FL150]
▲ JAYBEE NDB (JB)	012959.77N 1034241.82E (Johor Bahru)								(4)
	332° 152°	4.0NM		FL 460 2000 FT ALT	7000 FT	3	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class A –ABV FL150 Class B –BLW FL150]
LAPOL	012622N 1034435E								(5)
	333° 153°	6.1NM		FL 460 2000 FT ALT	11000 FT	3	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class A –ABV FL150 Class B –BLW FL150]
LEGOL	012053N 1034723E								(5)
	333° 153°	8.4NM		FL 460 2000 FT ALT	3000 FT	3	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class A –ABV FL150 Class B –BLW FL150]
▲ SINJON DVOR/DME (SJ)	011319N 1035120E								(3)
	347° -	30.2NM		FL 460 2000 FT ALT	4000 FT			Even <sup>(1)</sup>	[Class A –ABV FL150 Class B –BLW FL150] (2)
△ REMES	004342N 1035735E								
	348° -	27.7NM		FL 460 2000 FT ALT	5000 FT			Even <sup>(1)</sup>	[Class A –ABV FL150 Class B –BLW FL150] (2)
▲ REPOV	001623N 1040300E								
	348° -	32.8NM		FL 460 2000 FT ALT	5000 FT			Even <sup>(1)</sup>	[Class A –ABV FL150 Class B –BLW FL150] (2)
FIRJ3 (WSJC/WIIZ FIR BDRY)	001606S 1040918E								(5)
	346° -	18.4NM		FL 460 2000 FT ALT	5000 FT			Even <sup>(1)</sup>	[Class A –ABV FL150 Class B –BLW FL150] (2)
▲ PARDI (ABM NE)	003400S 1041300E								
<p><u>Route Remarks:</u> Unidirectional route (Northbound) for flights from Jakarta FIR to Singapore FIR and beyond. Bi-directional route between Palembang and Singapore below FL200.</p> <p><u>Point/Segment Remarks:</u> (2) <b>Lateral Limits (PLB VOR/SJ DVOR/DME):</b> The lateral limits commence from 5NM either side of line joining PLB VOR to SJ DVOR/DME funnelling out from PLB VOR on a 7.5° tolerance to intersect the boundary of an AWY similarly projected from SJ DVOR/DME on a 7.5° tolerance.</p> <p>(3) All FLT between SJ and JB are to avoid at all times WSR38 which overlaps the eastern edge of the airway.</p> <p>(4) Kuala Lumpur/Singapore FIR boundary is approximately 2NM south of JB.</p> <p>(5) Not a REP</p>									

# AIR TRAFFIC SYSTEM CHART



**LEGEND**

D35/VKB..... 35 DME VKB

A ..... Airway in which Mach Number Technique and RNAV are applied. (Refer to pages ENR 1.8-13 to 1.8-18)

B ..... Inbound and Outbound flights exempted from reporting aircraft observations at these points.

**RVSM SEPARATION AVAILABLE SINGAPORE FIR BTN FL 290 AND FL 410 (Inclusive)**

**CHANGES :** Specification of ATS Routes M635 and M774 revised from RNAV 10 to RNP 10.  
 ATS Routes A585, B469, B470, C464, G579, L504, L644, M435, M768, M772, M774, N446 and P448 within Jakarta FIR and Ujung Pandang FIR revised.  
 Slangit and Tanjung Pandan Control Zones added. Pangkal Pinang Control Zone revised. Pontianak and Pangkal Pinang TMAs revised.

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<i>Route Designator {RNP Type}</i>		<i>[Route Usage Notes]</i>				
<i>Significant Point Name</i>	<i>Significant Point Coordinates</i>				<i>Remarks</i>	
<i>{RNP Type}</i>	<i>Initial Track MAG</i>	<i>Great Circle Dist NM</i>	<i>Upper limit Lower limit</i>	<i>FL series</i>		<i>Controlling unit Frequency {Airspace class} Remarks</i>
	↓ ↑			↓	↑	
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
<b>L635</b>		<i>Route availability:</i> (1) H24				
▲ MABLI	041717N 1061247E					
		59.9NM	FL 460 FL 240	Even <sup>(1)</sup>		[Class A] (2)
▲ SUSAR	035848N 1051547E					
		31.6NM	FL 460 FL 240	Even <sup>(1)</sup>		[Class A] (2)
▲ DUBSA	034901N 1044540E					
		39.7NM	FL 460 FL 240	Even <sup>(1)</sup>		[Class A] (2)
▲ UGPEK	033647N 1040752E					
		19.4NM	FL 460 FL 240	Even <sup>(1)</sup>		[Class A] (2)
▲ DOVOL (WSJC/MMFC FIR BDRY)	033047N 1034923E					
		25.2NM	FL 460 FL 240	Even <sup>(1)</sup>		[Class A] (2)
▲ PEKAN DVOR/DME (VPK)	032259N 1032524E					
<i>Route Remarks:</i>						
<b>Lateral Limits:</b> 10NM either side of line joining VPK DVOR/DME to DOVOL and 25NM either side of the line joining DOVOL to MABLI						
Singapore ACC FREQ: P123.7 MHz S127.3 MHz						
<i>Point/Segment Remarks:</i> (2) NIL						

Route Designator {RNP Type}		[Route Usage Notes]					Remarks
Significant Point Name {RNP Type}		Significant Point Coordinates		Upper limit Lower limit	FL series		Controlling unit Frequency {Airspace class} Remarks
		Initial Track MAG ↓ ↑	Great Circle Dist NM		↓	↑	
1	2	3	4	5	6	7	
<b>L642</b>		Route availability: (1) H24					
▲ ESPOB (VVT/WSJC FIR BDRY)	070000N 1053318E					(7)	
(10)		149.2NM	FL 460 FL 135			[Class A] (2) (3) (4)	
▲ ENREP	045224N 1041442E					(8)	
(10)		60.4NM	FL 460 FL 135	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class A] (5)	
▲ VEPLI	035223N 1040542E					(9)	
(10)		33.0NM	FL 460 FL 135	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class A] (5)	
▲ EGOLO (WSJC/MMFC FIR BDRY)	031934N 1040047E					(10)	
(10)		25.1NM	FL 460 FL 135	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class A] (6)	
▲ ROBMO	025440N 1035700E					(11)	
(10)		31.6NM	FL 460 FL 135	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class A] (6)	
▲ MERSING DVOR/DME (VMR)	022318N 1035218E						

**Route Remarks:**  
**Lateral Limits:**  
 10NM either side of line joining VMR DVOR/DME to EGOLO and 25NM either side of line joining EGOLO to ESPOB.  
 Bi-directional between VMR and ENREP.

**Point/Segment Remarks:**  
 (2) ADS-C service is available to suitably equipped aircraft operating outside radar cover (between ESPOB and ENREP) and not in the exclusive ADS-B airspace within Singapore FIR.  
 (3) Uni-directional for southbound flights from ESPOB to ENREP. No PDC Flight Levels FL310, FL320, FL350, FL360, FL390, FL400 applicable. Other levels available with prior approval.  
 (4) Segment from ESPOB to ENREP use:  
 P134.35MHz  
 S133.6MHz  
 (5) Segment from ENREP to EGOLO use:  
 P123.7 MHz  
 S127.3 MHz  
 (6) Segment from EGOLO to VMR use:  
 P133.8 MHz  
 S127.3 MHz  
 (7) NIL  
 (8) VMR 008°  
 150.0NM  
 (9) VMR 008°  
 89.7NM  
 (10) VMR 008°  
 56.6NM  
 (11) VMR 008°  
 31.6NM



Route Designator {RNP Type}		[Route Usage Notes]				
Significant Point Name	Significant Point Coordinates			FL series		Remarks
{RNP Type}	Initial Track MAG ↓ ↑	Great Circle Dist NM	Upper limit Lower limit	↓	↑	Controlling unit Frequency {Airspace class} Remarks
1	2	3	4	5	6	7
<b>M646</b>	Route availability: (1) H24					
▲ KAMIN (WBFC/WSJC FIR BDRY)	023442N 1085536E					
(10)		69.6NM	FL 460 FL 240	Even <sup>(1)</sup>	Odd <sup>(1)</sup>	[Class A] (2)
▲ SABIP	020940N 1075044E					
(10)		26.1NM	FL 460 FL 240	Even <sup>(1)</sup>	Odd <sup>(1)</sup>	[Class A] (2)
▲ ESPIT	020011N 1072624E					
(10)		47.9NM	FL 460 FL 240	Even <sup>(1)</sup>	Odd <sup>(1)</sup>	[Class A] (2)
▲ OBLOT	014256N 1064147E					
(10)		58.5NM	FL 460 FL 240	Even <sup>(1)</sup>	Odd <sup>(1)</sup>	[Class A] (2)
▲ TOMAN	012147N 1054717E					
<p><u>Route Remarks:</u>  <b>Lateral Limits:</b>            25NM either side of TOMAN to KAMIN.</p> <p>ADS-C and CPDLC services are available to suitably equipped aircraft operating outside radar cover (between SABIP and KAMIN) within the Singapore FIR.</p> <p>Singapore ACC FREQ:            P134.2 MHz            S133.35 MHz</p> <p><u>Point/Segment Remarks:</u>            (2) NIL</p>						

Route Designator {RNP Type}		[Route Usage Notes]				
Significant Point Name {RNP Type}	Significant Point Coordinates			FL series		Remarks
	Initial Track MAG ↓ ↑	Great Circle Dist NM	Upper limit Lower limit	↓	↑	Controlling unit Frequency {Airspace class} Remarks
1	2	3	4	5	6	
<b>M753</b>	Route availability: (1) H24					
▲ IPRIX (VVTS/WSJC FIR BDRY)	070000N 1040754E					
		127.2NM	FL 460 FL 155	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class A] <sup>(2)</sup>
▲ ENREP	045224N 1041442E					
<p><u>Route Remarks:</u> Singapore ACC FREQ: P134.35 MHz S133.6 MHz</p> <p>ADS-C service is available to suitably equipped aircraft operating outside radar cover and not in the exclusive ADS-B airspace within the Singapore FIR.</p> <p><u>Lateral Limits:</u> 25NM either side of line joining ENREP to IPRIX.</p> <p><u>Point/Segment Remarks:</u> (2) NIL</p>						

Route Designator {RNP Type}		[Route Usage Notes]				
Significant Point Name	Significant Point Coordinates				Remarks	
{RNP Type}	Initial Track MAG ↓ ↑	Great Circle Dist NM	Upper limit Lower limit	FL series ↓      ↑		Controlling unit Frequency {Airspace class} Remarks
1	2	3	4	5	6	7
<b>M761</b>		Route availability: (1) H24				
▲ PEKAN DVOR/DME (VPK)	032259N 1032524E					
		46.0NM	FL 460 FL 240	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class A] (3)
▲ KETOD (WMFC/WSJC FIR BDRY)	031042N 1040942E					
		10.8NM	FL 460 FL 240	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class A] (4)
▲ OTLON	030752N 1042006E					
		21.0NM	FL 460 FL 240	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class A] (4)
▲ KILOT	030217N 1044023E					
		32.3NM	FL 460 FL 240	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class A] (4)
▲ LIPRO	025342N 1051128E					
		118.8NM	FL 460 FL 240	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class A] (5)
▲ BOBOB	022206N 1070558E					
		46.5NM	FL 460 FL 240	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class A] (5)
▲ SABIP	020940N 1075044E					
		40.8NM	FL 460 FL 240	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class A] (2) (5) (6)
▲ AGOBA (WSJC/WBFC FIR BDRY)	015840N 1083000E					
<u>Route Remarks:</u>						
<b>Lateral Limits:</b> 10NM either side of line joining VPK DVOR/DME to KETOD and 25NM either side of line joining KETOD to AGOBA.  Portion of M761 within Singapore FIR between AGOBA and 1080000E has been delegated to Kuching ACC for provision of ATS.  Kuching ACC FREQ: 134.5 MHz						
<u>Point/Segment Remarks:</u>						
(2) ADS-C and CPDLC services are available to suitably equipped aircraft operating outside radar cover (between SABIP and AGOBA) within the Singapore FIR.						
(3) Segment from VPK to KETOD use: P123.7 MHz S127.3 MHz						
(4) Segment from KETOD to LIPRO use: P134.7 MHz S134.15 MHz						
(5) Segment from LIPRO to AGOBA use: P134.2 MHz S133.35 MHz						
(6) VKG 285° 112.7NM						

Route Designator {RNP Type}		[Route Usage Notes]				
Significant Point Name {RNP Type}	Significant Point Coordinates			FL series		Remarks
	Initial Track MAG ↓ ↑	Great Circle Dist NM	Upper limit Lower limit	↓	↑	Controlling unit Frequency {Airspace class} Remarks
1	2	3	4	5	6	
<b>M763</b>		Route availability: (1) H24				
▲ ENREP	045224N 1041442E					(2)
		70.3NM	FL 460 FL 240	Even <sup>(1)</sup>	Odd <sup>(1)</sup>	[Class A]
▲ TAXUL (WMFC/WSJC FIR BDRY)	035035N 1034037E					(2)
		31.4NM	FL 460 FL 240	Even <sup>(1)</sup>	Odd <sup>(1)</sup>	[Class A]
▲ PEKAN DVOR/DME (VPK)	032259N 1032524E					
<p><u>Route Remarks:</u>  <b>Lateral Limits:</b>                      10NM either side of line joining VPK DVOR/DME to TAXUL and 25NM either side of line joining TAXUL to ENREP.</p> <p>Singapore ACC FREQ:                      P123.7 MHz                      S127.3 MHz</p> <p><u>Point/Segment Remarks:</u>                      (2) NIL</p>						

Route Designator {RNP Type}		[Route Usage Notes]				
Significant Point Name	Significant Point Coordinates			FL series		Remarks
{RNP Type}	Initial Track MAG ↓ ↑	Great Circle Dist NM	Upper limit Lower limit	↓	↑	Controlling unit Frequency {Airspace class} Remarks
1	2	3	4	5	6	7
<b>M904</b>	Route availability: (1) H24					
▲ TIDAR (WSJC/VTBB FIR BDRY)	065230.15N 1024959.82E					
		20.0NM	FL 460 6500 FT ALT	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class A (FL290 and ABV)] (2)
▲ ODONO	063613.82N 1030129.41E					
		33.0NM	FL 460 FL 145	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class A (FL290 and ABV)] (2)
▲ UPRON	060903.41N 1032039.98E					
		93.0NM	FL 460 FL 245	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class A (FL290 and ABV)] (2)
▲ ENREP	045224N 1041442E					
<p><i>Route Remarks:</i> Singapore ACC FREQ: P134.35 MHz S133.6 MHz</p> <p>ADS-C service is available to suitably equipped aircraft operating outside radar cover and not in the exclusive ADS-B airspace within the Singapore FIR.</p> <p><b>Lateral Limits:</b> 25NM</p> <p><i>Point/Segment Remarks:</i> (2) NIL</p>						

Route Designator {RNP Type}		[Route Usage Notes]				
Significant Point Name {RNP Type}	Significant Point Coordinates			FL series		Remarks
	Initial Track MAG ↓ ↑	Great Circle Dist NM	Upper limit Lower limit	↓	↑	Controlling unit Frequency {Airspace class} Remarks
1	2	3	4	5	6	
<b>N502</b>		Route availability: (1) H24				
▲ BOBAG (R243/24 DME SJ)	010230N 1032954E					(2)
	335° -	105.3NM	FL 460 FL 275		Even <sup>(1)</sup>	
▲ PARDI	003400S 1041300E					(2)
<p><u>Route Remarks:</u>  <b>Lateral Limits:</b>                      10NM on the western side and 5NM on the eastern side of line joining BOBAG to PARDI.</p> <p>Singapore ACC FREQ:                      P134.4 MHz                      S128.1 MHz</p> <p><u>Point/Segment Remarks:</u>                      (2) NIL</p>						

Route Designator {RNP Type}		[Route Usage Notes]				
Significant Point Name	Significant Point Coordinates				Remarks	
{RNP Type}	Initial Track MAG ↓ ↑	Great Circle Dist NM	Upper limit Lower limit	FL series ↓                      ↑		Controlling unit Frequency {Airspace class} Remarks
1	2	3	4	5	6	7
<b>N875</b>		Route availability: (1) H24				
▲ ENREP	045224N 1041442E				(6)	
		44.1NM	FL 460 FL 245	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class B] (3)
▲ NOPAT	042313N 1044756E				(6)	
		16.3NM	FL 460 FL 245	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class B] (3)
▲ DAMOG	041225N 1050014E				(6)	
		20.6NM	FL 460 FL 245	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class B] (3)
▲ SUSAR	035848N 1051547E				(6)	
		21.8NM	FL 460 FL 245	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class B] (4)
▲ MUMSO	034420N 1053213E				(6)	
		21.3NM	FL 460 FL 245	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class B] (4)
▲ ELGOR	033014N 1054818E				(6)	
		23.6NM	FL 460 FL 245	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class B] (4)
▲ LEBIN	031438N 1060604E				(6)	
		79.5NM	FL 460 FL 245	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class B] (5)
▲ BOBOB	022206N 1070558E				(6)	
		29.9NM	FL 460 FL 245	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class B] (5)
▲ ESPIT	020011N 1072624E				(6)	
		48.3NM	FL 460 FL 245	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class B] (5)
▲ NIMIX	012452N 1075926E				(6)	
		72.4NM	FL 460 FL 245	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class B] (2)
▲ ARUPA	003140N 1084846E				(7)	
<b>Route Remarks:</b>						
<b>Lateral Limits:</b> 25NM either side of line joining ENREP to ARUPA.						
<b>Point/Segment Remarks:</b>						
(2) ADS-C and CPDLC services are available to suitably equipped aircraft operating outside radar cover (between NIMIX and ARUPA) within the Singapore FIR.						
(3) Segment from ENREP to SUSAR use: P123.7 MHz S127.3 MHz						
(4) Segment from SUSAR to LEBIN use: P134.7 MHz S134.15 MHz						
(5) Segment from LEBIN to NIMIX use: P134.2 MHz S133.35 MHz						
(6) NIL						
(7) PNK 316° 49.6NM						

Route Designator {RNP Type}		[Route Usage Notes]				
Significant Point Name	Significant Point Coordinates			FL series		Remarks
{RNP Type}	Initial Track MAG ↓ ↑	Great Circle Dist NM	Upper limit Lower limit	↓	↑	Controlling unit Frequency {Airspace class} Remarks
1	2	3	4	5	6	7
<b>N884</b>	Route availability: (1) H24					
▲ LAXOR (WSJC/RPHI FIR BDRY)	094937N 1144829E					(5)
(10)		246.6NM	FL 460 6500 FT ALT			[Class A] (2)
▲ LAGOT	071632N 1113243E					(5)
(10)		354.3NM	FL 460 6500 FT ALT			[Class A] (2)
▲ LUSMO	033341N 1065534E					(6)
(10)		53.0NM	FL 460 6500 FT ALT			[Class A] (3)
▲ LEBIN	031438N 1060604E					(7)
(10)		58.5NM	FL 460 6500 FT ALT			[Class A] (3)
▲ LIPRO	025342N 1051128E					(8)
(10)		34.2NM	FL 460 6500 FT ALT			[Class A] (3)
▲ LENDA (WSJC/MMFC FIR BDRY)	024124N 1043932E					(9)
(10)		50.6NM	FL 460 6500 FT ALT			[Class A] (4)
▲ MERSING DVOR/DME (VMR)	022318N 1035218E					
<u>Route Remarks:</u>						
<b>Lateral Limits:</b> 5NM either side of line joining VMR DVOR/DME to LUSMO funnelling out at an angle of 5° from VMR to 25NM of either side of track. It then continues at this width until LAXOR.						
Uni-directional for east bound flights from VMR to LAXOR. No PDC Flight Levels FL310, FL320, FL350, FL360, FL390, FL400 applicable. Other levels available with prior approval.						
Not available for flight planning between VMR and LUSMO. Flight Plan via TOMAN L625 LUSMO.						
<u>Point/Segment Remarks:</u>						
(2) ADS-C and CPDLC services are available to suitably equipped aircraft operating outside radar cover (between LUSMO and LAXOR) within the Singapore FIR.						
(3) Segment from LUSMO to LENDA use: P134.7 MHz S134.15 MHz						
(4) Segment from LENDA to VMR use: P133.8 MHz S127.3 MHz						
(5) NIL						
(6) VMR 069° 196.3NM						
(7) VMR 069° 143.3NM						
(8) VMR069° 84.8NM						
(9) VMR 069° 50.6NM						



Route Designator {RNP Type}		[Route Usage Notes]				
Significant Point Name	Significant Point Coordinates		Upper limit Lower limit		FL series	Remarks
{RNP Type}	Initial Track MAG ↓ ↑	Great Circle Dist NM	FL 460 FL 155	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	Controlling unit Frequency {Airspace class} Remarks
1	2	3	4	5	6	7
<b>N891</b>	Route availability: (1) H24					
▲ IGARI (WSJC/VVTS FIR BDRY)	065612N 1033506E					(6)
		65.4NM	FL 460 FL 155	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class A] (2)
▲ IKUMI	055338N 1035509E					(6)
		64.0NM	FL 460 FL 155	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class A] (2)
▲ ENREP	045224N 1041442E					(7)
		75.5NM	FL 460 FL 155	Odd <sup>(1)</sup>	Even <sup>(1)</sup>	[Class A] (3)
▲ UGPEK	033647N 1040752E					(8)
		11.7NM	FL 460 FL 155	Even <sup>(1)</sup>	Odd <sup>(1)</sup>	[Class A] (3)
▲ URIGO	032505N 1040647E					(9)
		10.6NM	FL 460 FL 155	Even <sup>(1)</sup>	Odd <sup>(1)</sup>	[Class A] (3)
▲ MANIM (WMFC/WSJC FIR BDRY)	031430N 1040554E					(10)
		2.6NM	FL 460 FL 155	Even <sup>(1)</sup>	Odd <sup>(1)</sup>	[Class A] (4)
▲ OBDAB	031153N 1040538E					(11)
		106.4NM	FL 460 FL 155	Even <sup>(1)</sup>	Odd <sup>(1)</sup>	[Class A] (4)
▲ PAPA UNIFORM DVOR/DME (PU)	012523.99N 1035559.74E					(5)
<b>Route Remarks:</b> ADS-C service is available to suitably equipped aircraft operating outside radar cover and not in the exclusive ADS-B airspace within the Singapore FIR						
<b>Lateral Limits:</b> 5NM either side of line joining PU DVOR/DME to ENREP funnelling out at an angle of 5° from PU to 25NM of either side of track. It then continues at this width until WSJC/VVTS FIR BDRY.						
<b>Point/Segment Remarks:</b>						
(2) Segment from IGARI to ENREP use: P134.35 MHz S133.6 MHz						
(3) Segment from ENREP to MANIM use: P123.7 MHz S127.3 MHz						
(4) Segment from MANIM to PU use: P133.8 MHz S127.3 MHz						
(5) WSJC/WMFC FIR boundary approximately 0.4NM North of PU.						
(6) NIL						
(7) PU 005° 206.8NM						
(8) PU 005° 131.3NM						
(9) PU 005° 119.6NM						
(10) PU 005° 109.0NM						
(11) PU 005° 106.4NM						

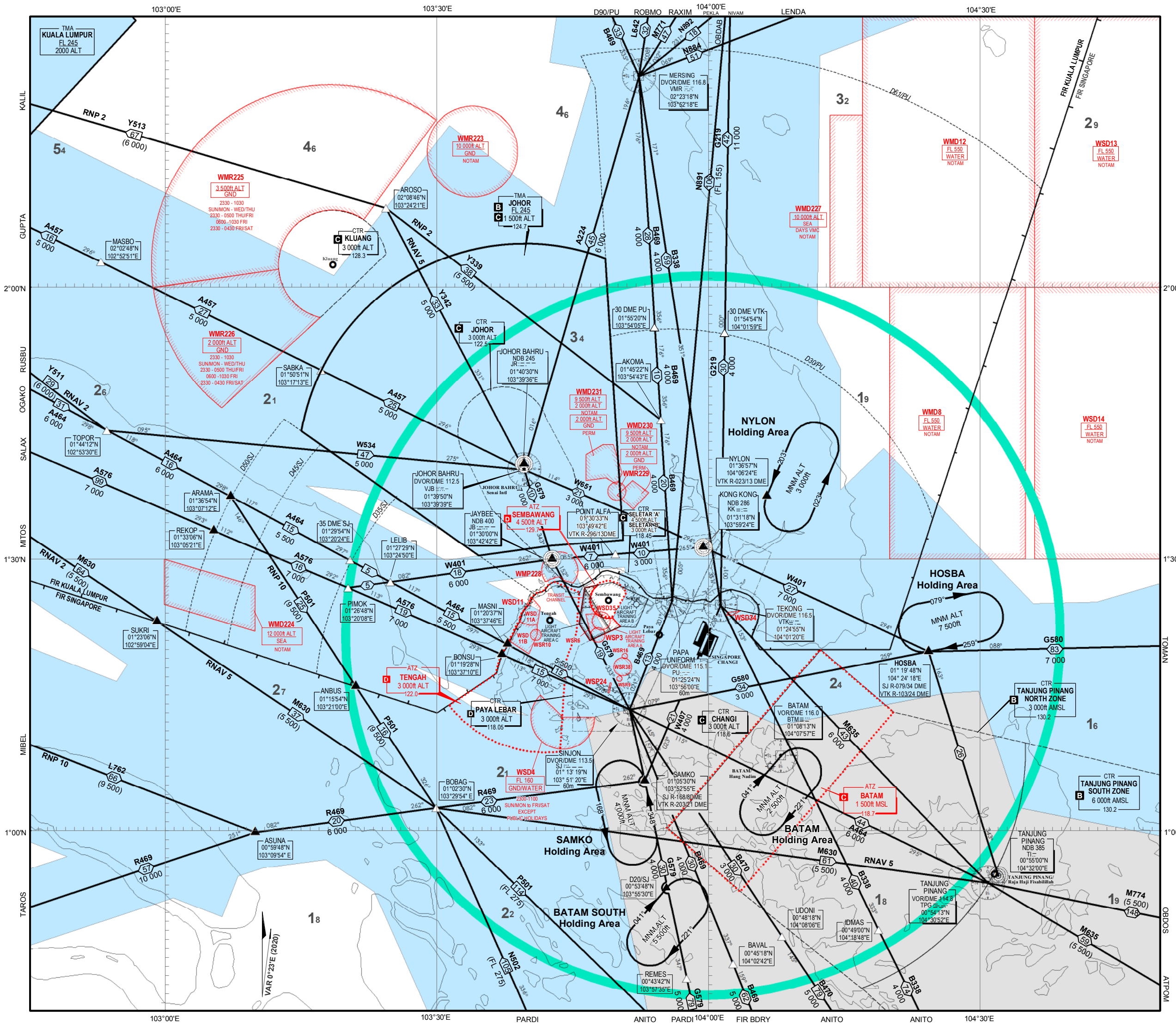
Route Designator {RNP Type}		[Route Usage Notes]				
Significant Point Name {RNP Type}		Significant Point Coordinates			Remarks	
		Initial Track MAG ↓ ↑	Great Circle Dist NM	Upper limit Lower limit	FL series ↓      ↑	
1		2	3	4	5	6
7						
<b>N892</b>		Route availability: (1) H24				
▲ MELAS (VTS/WSJC FIR BDRY)		070518N 1080912E				
(10)			203.6NM	FL 460 FL 135		[Class A] (2) (3)
▲ MABLI		041717N 1061247E				
(10)			52.1NM	FL 460 FL 135		[Class A] (4)
▲ MUMSO		034420N 1053213E				
(10)			25.2NM	FL 460 FL 135		[Class A] (4)
▲ MABAL		032826N 1051236E				
(10)			41.4NM	FL 460 FL 135		[Class A] (4)
▲ KILOT		030217N 1044023E				
(10)			15.7NM	FL 460 FL 135		[Class A] (4)
▲ KIBOL WSJC/WMFC FIR BDRY		025224N 1042818E				
(10)			28.1NM	FL 460 FL 135		[Class A] (5)
▲ PEKLA		023437N 1040618E				
(10)			18.0NM	FL 460 FL 135		[Class A] (5)
▲ MERSING DVOR/DME (VMR)		022318N 1035218E				
<p><u>Route Remarks:</u>  <b>Lateral Limits:</b>                      10NM either side of line joining VMR DVOR/DME to KIBOL and 25NM either side of line joining KIBOL to MELAS.</p> <p>Uni-directional for south-west bound flights from MELAS to VMR. No PDC Flight Levels FL310, FL320, FL350, FL360, FL390, FL400 applicable. Other levels available with prior approval.</p> <p><u>Point/Segment Remarks:</u>                      (2) ADS-C service is available to suitably equipped aircraft operating outside radar cover (between MELAS and MABLI) and not in the exclusive ADS-B airspace within the Singapore FIR.                      (3) Segment from MELAS to MABLI use:                      P134.35 MHz                      S133.6 MHz                      (4) Segment from MABLI to KIBOL use:                      P134.7 MHz                      S134.15 MHz                      (5) Segment from KIBOL to VMR use:                      P133.8 MHz                      S127.3 MHz                      (6) VMR 051°                      180.6NM                      (7) VMR 051°                      128.4NM                      (8) VMR 051°                      103.2NM                      (9) VMR 051°                      61.8NM                      (10) VMR 050°                      46.1NM                      (11) VMR 051°                      18.0NM</p>						

Route Designator {RNP Type}		[Route Usage Notes]				
Significant Point Name	Significant Point Coordinates			FL series		Remarks
{RNP Type}	Initial Track MAG ↓ ↑	Great Circle Dist NM	Upper limit Lower limit	↓	↑	Controlling unit Frequency {Airspace class} Remarks
1	2	3	4	5	6	7
<b>P501</b>	Route availability: (1) H24					
▲ ARAMA (50DME SJ) (delegated airspace BDRY)	013654N 1030712E					(6)
(10)	146° -	25.0NM	FL 460 9500 FT ALT	Odd <sup>(1)</sup>		[Class A-ABV FL150 Class B-BLW FL150] (2) (3)
▲ ANBUS (WMFC/WSJC FIR BDRY)	011554N 1032100E					(6)
	146° -	16.0NM	FL 460 9500 FT ALT	Odd <sup>(1)</sup>		[Class A-ABV FL150 Class B-BLW FL150] (2) (3)
▲ BOBAG (R243/24 DME SJ)	010230N 1032954E					(6)
	133° -	114.1NM	FL 460 FL 275	Odd <sup>(1)</sup>		(4) (5)
▲ ANITO	001700S 1045200E					(6)
<u>Point/Segment Remarks:</u>						
(2) <b>Lateral Limits:</b> 10NM on the western side and 5NM on the eastern side of line joining ARAMA to BOBAG.						
(3) Singapore ACC FREQ: P133.25 MHz S135.8 MHz						
(4) <b>Lateral Limits:</b> 10NM on the western side and 5NM on the eastern side of line joining BOBAG to ANITO.						
(5) Singapore ACC FREQ: P134.4 MHz S128.1 MHz						
(6) NIL						

<b>Route Designator {RNP Type}</b>		<b>[Route Usage Notes]</b>				
<b>Significant Point Name {RNP Type}</b>	<b>Significant Point Coordinates</b>			<b>FL series</b>		<b>Remarks</b>
	<b>Initial Track MAG</b> ↓ ↑	<b>Great Circle Dist NM</b>	<b>Upper limit Lower limit</b>	↓	↑	<b>Controlling unit Frequency {Airspace class} Remarks</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
<b>Q801</b>	<i>Route availability:</i> (1) H24					
▲ ESPOB (VVTS/WSJC FIR BDRY)	070000N 1053318E					
		143.0NM	FL 460 FL 200			[Class A]
▲ ESBUM	045210N 1042830E					
<p><i>Route Remarks:</i>  <b>Lateral Limits:</b>                      15NM either side of line joining ESPOB TO ESBUM.</p> <p>Uni-directional for southbound flights from ESPOB to ESBUM. No PDC Flight Levels FL310, F320, F350, FL360, FL390, FL400 applicable. Other levels available with prior approval.</p> <p>Singapore ACC FREQ:                      P134.35 MHz                      S133.6 MHz</p>						

# AREA CHART - ICAO

SINGAPORE/JOHOR AIRSPACE COMPLEX  
LOW LEVEL HOLDING AREAS



LEGEND	
Terminal Control Area (TMA)	<ul style="list-style-type: none"> <li>Name of TMA: JOHOR</li> <li>Airspace Classification: FL 145</li> <li>Upper Limit: 1500ft</li> <li>Lower Limit: 124.7</li> <li>Radio frequency(ies):</li> </ul>
Control Zone (CTR)	<ul style="list-style-type: none"> <li>Name of CTR: CHANGI</li> <li>Airspace Classification: 3000ft</li> <li>Upper Limit: 118.6m</li> <li>Radio frequency(ies):</li> </ul>
Aerodrome Traffic Zone (ATZ)	<ul style="list-style-type: none"> <li>Name of ATZ: TENGAH</li> <li>Airspace Classification: 3000ft</li> <li>Upper Limit: 122.0</li> <li>Radio frequency(ies):</li> </ul>
ATS Routes	<ul style="list-style-type: none"> <li>Route designator: B469</li> <li>Distance in nautical miles: 4 000/FL 160</li> <li>Minimum flight altitude (ft)/flight level: (4 000)/(FL 160)</li> <li>Lower limit (ft)/flight level:</li> </ul>
Oceanic Control Area (OCA)	
Reporting Point	<ul style="list-style-type: none"> <li>Compulsory: ▲</li> <li>On request: △</li> </ul>
DME distance from SJ Navaid	D35/SJ
Radio Navigation Aid	<ul style="list-style-type: none"> <li>Name: SINJON DVOR/DME 113.5</li> <li>Vertical limits: 01°19'21"N, 103°51'19"E</li> <li>Geographical Coordinates: Elevation of DME site</li> </ul>
Collocated VOR and DME Radio Navigation Aids	Compass rose orientated on the chart to Magnetic North
Restricted Airspace (P - Prohibited, R - Restricted, D - Danger)	<ul style="list-style-type: none"> <li>Identification of area: WSD13</li> <li>Nationality letter: FL 400</li> <li>Vertical limits: WATER</li> <li>Activation by NOTAM</li> </ul>

**Area Minimum Altitude (AMA)**

Each quadrilateral contains an area minimum altitude (AMA) which represents the lowest altitude which may be used under instrument meteorological conditions (IMC). The AMA provides a minimum clearance of 1 000 feet (300m) above all terrain and obstacles in the quadrilateral. It is represented in thousands and hundreds of feet above mean sea level.

Example : 3 400 feet **34**

NOTE :- In computing the area minimum altitude, a margin of 200 feet (60m) for vegetation has been added for spot elevations.

**Speed Control Procedures**

Speed control procedures are in force unless notified otherwise by ATC or ATIS.

All arriving turbo-propeller and turbo-jet aircraft are to fly at not faster than indicated air speed 250 knots when within 40nm from Singapore Changi Airport or when at or below 10,000ft except all arriving aircraft into Singapore Changi Airport shall comply with the speed restrictions depicted on the transitions and RNAV STARs. Further speed reductions will be regulated by ATC as necessary.

Pilots who may not be able to comply with the speed limits specified above for reasons of flight safety and/or weather should inform ATC and state the speed(s) acceptable.

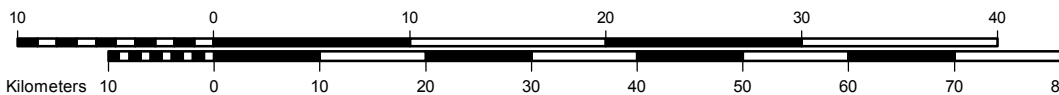
**AIRSPACE CLASSIFICATION IN THE SINGAPORE FIR**

Airspace	Levels	Classification
Controlled airspace	FL150 to FL460	A
	Surface to FL150	B
Controlled airspace more than 100 nm seaward from the shoreline	Lower limit to FL460	A
Control Zone (CTRs)	Changi CTR	C
	Paya Lebar CTR	D
	Seletar CTR	C
ATZs	Surface to upper limit	D
Uncontrolled airspace		G*

\* Aircraft operating in the Light Aircraft Training Areas A, B and C (please refer to page ENR 5.2-1) are required to have continuous two-way communications with the appropriate ATS authority.

SINGAPORE	D-ATIS	DEP	128.6
	ARR	128.025	
	DEP	120.3	
	ARR	119.3	
	APP	124.05	
	TWR	118.6	
		118.25	

**Note :**  
FOR DEPARTURE AND ARRIVAL ROUTES  
REFER TO AD-2-WSSS-SID-1 TO AD-2-WSSS-SID-18 AND  
AD-2-WSSS-STAR-1 TO AD-2-WSSS-STAR-9,  
AD-2-WSSS-STAR-11, AD-2-WSSS-STAR-13 TO AD-2-WSSS-STAR-21



**PROHIBITED, RESTRICTED AND DANGER AREAS**

	ACTIVITY	UPPER LIMIT LOWER LIMIT	REMARKS
WSP3	-	750ft ALT GND	Permanently Active as in ENR 5
WSD4	A/G and G/G Firing Range	FL 160 GND/WATER	Permanently Active as in ENR 5
WMD8	Naval Air/Air Firing Range	FL 550 WATER	Activation by NOTAM
WSD11	Small Arm Firing	1 300ft ALT GND	Permanently Active as in ENR 5
WSD11A	Artillery Firing	FL 125 GND	Activation by NOTAM
WSD11B	Artillery Firing	FL 125 GND	Activation by NOTAM
WMD12	Naval Anti-aircraft Firing	FL 550 WATER	Activation by NOTAM
WSD13	Naval Anti-aircraft Firing	FL 550 WATER	Activation by NOTAM
WSD14	Naval Anti-aircraft Firing & Live Air/Air Firing	FL 550 WATER	Activation by NOTAM
WSP24	-	800ft ALT GND/WATER	Permanently Active as in ENR 5
WSR6	Helicopter Operations	200ft ALT GND	Permanently Active as in ENR 5
WSR9	Helicopter Operations	200ft ALT GND	Permanently Active as in ENR 5
WSR16	Helicopter Operations	200ft ALT GND	Permanently Active as in ENR 5
WSD34	Rifle Range	500ft ALT GND	Permanently Active as in ENR 5
WSD35	Rifle Range	900ft ALT GND	Permanently Active as in ENR 5
WSR10	-	5 500ft ALT GND	Permanently Active as in ENR 5
WSR38	-	10 000ft ALT GND	Permanently Active as in ENR 5
	Transit Channel	2 000ft ALT GND	Activated only for Military acft crossing
*	Light Aircraft Training Area A	4 500ft ALT GND/*2 000ft	Training & Local Flts in VMC only
*	Light Aircraft Training Area B	10 500ft ALT 4 500ft ALT	High Flying Training Ops in VMC only
*	Light Aircraft Training Area C	10 500ft ALT 4 500ft ALT	High Flying Training Ops in VMC only
WMR223	Parachute Dropping	10 000ft ALT GND	Permanently Active as in ENR 5
WMD224	Firing Range	12 000ft ALT SEA	Activation by NOTAM
WMR225	RMAF Helicopter Training Area	3 500ft ALT GND	Permanently Active as in ENR 5
WMR226	RMAF Helicopter Training Area	2 000ft ALT GND	Permanently Active as in ENR 5
WMD227	Radar Bombing Range	10 000ft ALT SEA	Activation by NOTAM
WMP228	Sultan's Palace	5 000ft ALT GND	Permanently Active as in ENR 5
WMR229	Helicopter Operations	1 500ft ALT GND	Permanently Active as in ENR 5
WMD230	Artillery Firing Range	2 000ft ALT GND	Permanently Active as in ENR 5
WMD231	Artillery Firing Range	2 000ft ALT GND	Permanently Active as in ENR 5

\* In Transit Channel

**SPECIAL NOTE :-**

**1. WEATHER BALLOONS**

BALLOONS WILL BE RELEASED FOR MET OBSERVATION AT THE CENTRE FOR CLIMATE RESEARCH SINGAPORE, UPPER AIR OBSERVATORY (012025N 1035317E), BEARING 244° MAG AND DISTANCE 1.5NM FROM SOUTHERN END OF PAYA LEBAR RWY 02.

(I) BALLOONS WILL BE RELEASED DAILY AT 2330UTC AND 1040UTC. CUT-OFF TIMINGS FOR THE RELEASE ARE AT 0030UTC AND 1230UTC RESPECTIVELY. RATE OF ASCENT IS 320M PER MIN. MAX HGT OF BALLOON 115 000FT (35 000M). THE BALLOON, UNCOLOURED AND 162CM IN DIAMETER, IS ATTACHED WITH RADIOSONDE EQUIPMENT. IT WILL BURST 1.5 TO 2HRS AFTER RELEASE AND RADIOSONDE EQUIPMENT WILL DECSEND WITHIN 60NM RADIUS.

(II) A BALLOON WILL BE RELEASED BETWEEN 2330UTC AND 0030UTC ON EITHER THE 3rd OR 4th WEEK OF THE MONTH. RATE OF ASCENT IS 320M PER MIN. MAX HGT OF BALLOONS IS 115 000FT (35 000M). THE BALLOON, UNCOLOURED AND 191CM IN DIAMETER, IS ATTACHED WITH OZONESONDE/RADIOSONDE EQUIPMENT AND PARACHUTE. IT WILL BURST 1.5 TO 2HR AFTER RELEASE.

**2. AEROMODELLING AND KITE FLYING**

**(A) GENERAL WARNING**

- i) PILOTS FLYING AT LOW ALTITUDES SHOULD WATCH OUT FOR POSSIBLE HAZARDS SUCH AS MODEL AIRCRAFT AND KITES, ESPECIALLY WHEN FLYING NEAR PARKS AND OPEN GROUND.
- ii) THE LOCATION OF SOME OF THE PARKS IN SINGAPORE WHERE KITE AND AERO MODEL FLYING MAY OCCUR ARE SHOWN ON ENR 3.4-5. PILOTS SHOULD NOTE THAT THE CHART AT ENR 3.4-5 DOES NOT SHOW ALL THE PARKS IN SINGAPORE AND THAT HAZARDS SUCH AS KITE FLYING AND AERO MODEL FLYING MAY TAKE PLACE AT PARKS AND OPEN GROUND NOT INDICATED IN ENR 3.4-5.
- iii) ACCORDING TO THE SINGAPORE AIR NAVIGATION ORDER, 1985, KITE FLYING AND AERO MODEL FLYING ARE NOT PERMITTED ABOVE 200ft OR WITHIN 5km OF AN AERODROME. HOWEVER, PILOTS ARE ADVISED TO LOOK OUT FOR SUCH HAZARDS AT ALL TIMES AS MEMBERS OF THE PUBLIC MAY INADVERTENTLY FLY KITES OR AERO MODELS ABOVE THE HGT OF 200ft OR WITHIN 5km OF AN AERODROME.

\* AEROBATICS IS PROHIBITED IN LIGHT AIRCRAFT TRAINING AREAS A, B and C.



**PROHIBITED, RESTRICTED AND DANGER AREAS**

	ACTIVITY	UPPER LIMIT LOWER LIMIT	REMARKS
WSP3	-	750ft ALT GND	Permanently Active as in ENR 5
WSD4	A/G and G/G Firing Range	FL 160 GND/WATER	Permanently Active as in ENR 5
WMD8	Naval Air/Air Firing Range	FL 550 WATER	Activation by NOTAM
WSD11	Small Arm Firing	1 300ft ALT GND	Permanently Active as in ENR 5
WSD11A	Artillery Firing	FL 125 GND	Activation by NOTAM
WSD11B	Artillery Firing	FL 125 GND	Activation by NOTAM
WMD12	Naval Anti-aircraft Firing	FL 550 WATER	Activation by NOTAM
WSD13	Naval Anti-aircraft Firing	FL 550 WATER	Activation by NOTAM
WSD14	Naval Anti-aircraft Firing & Live Air/Air Firing	FL 550 WATER	Activation by NOTAM
WSP24	-	800ft ALT GND/WATER	Permanently Active as in ENR 5
WSR6	Helicopter Operations	200ft ALT GND	Permanently Active as in ENR 5
WSR9	Helicopter Operations	200ft ALT GND	Permanently Active as in ENR 5
WSR16	Helicopter Operations	200ft ALT GND	Permanently Active as in ENR 5
WSD34	Rifle Range	500ft ALT GND	Permanently Active as in ENR 5
WSD35	Rifle Range	900ft ALT GND	Permanently Active as in ENR 5
WSR10	-	5 500ft ALT GND	Permanently Active as in ENR 5
WSR38	-	10 000ft ALT GND	Permanently Active as in ENR 5
	Transit Channel	2 000ft ALT GND	Activated only for Military acft crossing
*	Light Aircraft Training Area A	4 500ft ALT GND/*2 000ft	Training & Local Flts in VMC only
*	Light Aircraft Training Area B	10 500ft ALT 4 500ft ALT	High Flying Training Ops in VMC only
*	Light Aircraft Training Area C	10 500ft ALT 4 500ft ALT	High Flying Training Ops in VMC only
WMR223	Parachute Dropping	10 000ft ALT GND	Permanently Active as in ENR 5
WMD224	Firing Range	12 000ft ALT SEA	Activation by NOTAM
WMR225	RMAF Helicopter Training Area	3 500ft ALT GND	Permanently Active as in ENR 5
WMR226	RMAF Helicopter Training Area	2 000ft ALT GND	Permanently Active as in ENR 5
WMD227	Radar Bombing Range	10 000ft ALT SEA	Activation by NOTAM
WMP228	Sultan's Palace	5 000ft ALT GND	Permanently Active as in ENR 5
WMR229	Helicopter Operations	1 500ft ALT GND	Permanently Active as in ENR 5
WMD230	Artillery Firing Range	2 000ft ALT GND	Permanently Active as in ENR 5
WMD231	Artillery Firing Range	2 000ft ALT GND	Permanently Active as in ENR 5

\* In Transit Channel

**SPECIAL NOTE :-**

**1. WEATHER BALLOONS**

BALLOONS WILL BE RELEASED FOR MET OBSERVATION AT THE CENTRE FOR CLIMATE RESEARCH SINGAPORE, UPPER AIR OBSERVATORY (012025N 1035317E), BEARING 244° MAG AND DISTANCE 1.5NM FROM SOUTHERN END OF PAYA LEBAR RWY 02.

(I) BALLOONS WILL BE RELEASED DAILY AT 2330UTC AND 1040UTC. CUT-OFF TIMINGS FOR THE RELEASE ARE AT 0030UTC AND 1230UTC RESPECTIVELY. RATE OF ASCENT IS 320M PER MIN. MAX HGT OF BALLOON 115 000FT (35 000M). THE BALLOON, UNCOLOURED AND 162CM IN DIAMETER, IS ATTACHED WITH RADIOSONDE EQUIPMENT. IT WILL BURST 1.5 TO 2HRS AFTER RELEASE AND RADIOSONDE EQUIPMENT WILL DECSEND WITHIN 60NM RADIUS.

(II) A BALLOON WILL BE RELEASED BETWEEN 2330UTC AND 0030UTC ON EITHER THE 3rd OR 4th WEEK OF THE MONTH. RATE OF ASCENT IS 320M PER MIN. MAX HGT OF BALLOONS IS 115 000FT (35 000M). THE BALLOON, UNCOLOURED AND 191CM IN DIAMETER, IS ATTACHED WITH OZONESONDE/RADIOSONDE EQUIPMENT AND PARACHUTE. IT WILL BURST 1.5 TO 2HR AFTER RELEASE.

**2. AEROMODELLING AND KITE FLYING**

**(A) GENERAL WARNING**

- i) PILOTS FLYING AT LOW ALTITUDES SHOULD WATCH OUT FOR POSSIBLE HAZARDS SUCH AS MODEL AIRCRAFT AND KITES, ESPECIALLY WHEN FLYING NEAR PARKS AND OPEN GROUND.
- ii) THE LOCATION OF SOME OF THE PARKS IN SINGAPORE WHERE KITE AND AERO MODEL FLYING MAY OCCUR ARE SHOWN ON ENR 3.4-5. PILOTS SHOULD NOTE THAT THE CHART AT ENR 3.4-5 DOES NOT SHOW ALL THE PARKS IN SINGAPORE AND THAT HAZARDS SUCH AS KITE FLYING AND AERO MODEL FLYING MAY TAKE PLACE AT PARKS AND OPEN GROUND NOT INDICATED IN ENR 3.4-5.
- iii) ACCORDING TO THE SINGAPORE AIR NAVIGATION ORDER, 1985, KITE FLYING AND AERO MODEL FLYING ARE NOT PERMITTED ABOVE 200ft OR WITHIN 5km OF AN AERODROME. HOWEVER, PILOTS ARE ADVISED TO LOOK OUT FOR SUCH HAZARDS AT ALL TIMES AS MEMBERS OF THE PUBLIC MAY INADVERTENTLY FLY KITES OR AERO MODELS ABOVE THE HGT OF 200ft OR WITHIN 5km OF AN AERODROME.

\* AEROBATICS IS PROHIBITED IN LIGHT AIRCRAFT TRAINING AREAS A, B and C.



## ENR 4.4 NAME-CODE DESIGNATIONS FOR SIGNIFICANT POINTS

Name-code designator	Co-ordinates	ATS route or other route	Terminal Area
1	2	3	4
ABVIP	010008N 1035032E		SID-WSSS
ABVON	012028.18N 1035827.03E		IAC-WSSS
ADMIM	005733N 1033033E		SID-WSSS
ADNIK	011651.19N 1035655.43E		IAC-WSSS
AGOBA	015840N 1083000E	<a href="#">M761</a>	
AGROT	010108N 1035808E		SID-WSSS
AGVAR	014719N 1034145E		SID-WSSS
AKIPO	011356.27N 1035541.59E		IAC-WSSS
AKMET	015355N 1034339E		SID-WSSS
AKMON	081254N 1101306E	<a href="#">L625</a> , <a href="#">M768</a>	
AKOMA	014522N 1035443E	<a href="#">B469</a> , <a href="#">Y339</a>	SID-WSSS, IAC-WSSS
ANBUS	011554N 1032100E	<a href="#">P501</a>	
ANITO	001700S 1045200E	<a href="#">B338</a> , <a href="#">B470</a> , <a href="#">P501</a>	SID-WSSS
ANUMA	011053.11N 1035424.35E		IAC-WSSS
APIPA	010618.43N 1035228.35E		IAC-WSSS
ARAMA	013654N 1030712E	<a href="#">A464</a> , <a href="#">P501</a>	STAR-WSSS
AROSO	020846N 1032421E	<a href="#">Y339</a> , <a href="#">Y342</a>	SID-WSSS
ARUPA	003140N 1084846E	<a href="#">N875</a>	
ASISU	055906N 1132046E	<a href="#">M768</a> , <a href="#">M772</a>	
ASUNA	005948N 1030954E	<a href="#">R469</a> , <a href="#">L762</a>	STAR-WSSS
ATETI	012540N 1083000E	<a href="#">G580</a>	
ATKAX	000512N 1065946E		SID-WSSS
ATPOM	002425N 1052114E	<a href="#">M635</a>	
ATRUM	013256N 1040057E		SID-WSSS
BAVAL	004518N 1040242E	<a href="#">B469</a>	
BAVUS	000000N 1090000E	<a href="#">L504</a>	
BETBA	013302N 1035331E		STAR-WSSS
BIBVI	024336N 1040618E		STAR-WSSS
BIDAG	073101N 1135544E	<a href="#">M772</a>	
BIDUS	013554.05N 1035754.86E		IAC-WSSS, STAR-WSSS
BIKTA	024337N 1034308E	<a href="#">B469</a>	
BIPOP	013122N 1041018E		IAC-WSSS, STAR-WSSS
BOBAG	010230N 1032954E	<a href="#">R469</a> , <a href="#">M630</a> , <a href="#">N502</a> , <a href="#">P501</a>	HLDG ID, SID-WSSS, STAR-WSSS
BOBOB	022206N 1070558E	<a href="#">M761</a> , <a href="#">M767</a> , <a href="#">N875</a>	
BOKIP	010421N 1034353E		SID-WSSS, STAR-WSSS

Name-code designator	Co-ordinates	ATS route or other route	Terminal Area
1	2	3	4
BONSU	011928N 1033710E	<a href="#">A576</a>	
BUNTO	024200N 1060000E	<a href="#">G334</a>	
BUVAL	033622N 1034341E	<a href="#">L629</a>	
DAKIX	070854N 1145054E	<a href="#">L649</a>	
DAMOG	041225N 1050014E	<a href="#">M771, N875</a>	
DIVSA	011105N 1040303E		SID-WSSS
DOGRA	010525N 1041423E		SID-WSSS
DOKTA	012606N 1041040E		SID-WSSS
DOLOX	044841N 1052247E	<a href="#">L629, M771, T612</a>	
DONDI	011252N 1035855E		SID-WSSS
DOSNO	004757N 1041409E		SID-WSSS
DOSPA	011459N 1040441E		SID-WSSS
DOVAN	011938N 1041249E		STAR-WSSS
DOVOL	033047N 1034923E	<a href="#">L635, Y334</a>	
DUBSA	034901N 1044540E	<a href="#">L635, M771</a>	
DUDIS	070000N 1064836E	<a href="#">L644, M771</a>	
EGOLO	031934N 1040047E	<a href="#">L642</a>	
EGORA	013621.37N 1040607.23E		IAC-WSSS
ELALO	041240N 1043329E	<a href="#">Q802, Q803</a>	HLDG ID, STAR-WSSS
ELALU	013439.87N 1040524.21E		IAC-WSSS
ELBEB	012844.66N 1040254.38E		IAC-WSSS
ELBEX	013148.96N 1040314.18E		IAC-WSSS
ELGAP	012820.28N 1040146.15E		IAC-WSSS
ELGOR	033014N 1054818E	<a href="#">M758, N875</a>	
ELMIN	012549.68N 1040140.51E		IAC-WSSS
EMTAP	011655.88N 1035657.47E		IAC-WSSS
ENLES	010931.51N 1035349.83E		IAC-WSSS
ENREP	045224N 1041442E	<a href="#">L642, M753, M763, M904, N875, N891</a>	
ENSUN	012602.56N 1040048.10E		IAC-WSSS
ERVOT	011120.09N 1035435.85E		IAC-WSSS
ESBIT	012212.07N 1040008.64E		IAC-WSSS
ESBUM	045210N 1042830E	<a href="#">Q801, Q802</a>	
ESLUX	011844.31N 1035840.44E		IAC-WSSS
ESPIT	020011N 1072624E	<a href="#">M646, N875</a>	
ESPOB	070000N 1053318E	<a href="#">L642, Q801</a>	
EXOMO	010425.49N 1040933.17E		IAC-WSSS
GULIB	041714N 1110633E	<a href="#">L517</a>	

<i>Name-code designator</i>	<i>Co-ordinates</i>	<i>ATS route or other route</i>	<i>Terminal Area</i>
1	2	3	4
HOSBA	011948N 1042418E	<a href="#">G580, W401</a>	HLDG ID
IBIVA	011351N 1035637E		SID-WSSS
IBIXU	011621N 1035740E		SID-WSSS
IBULA	005036N 1043600E		STAR-WSSS
IDMAS	004900N 1041848E	<a href="#">B338</a>	
IDSEL	032432N 1035544E	<a href="#">M758, T611, T612, Y335</a>	
IDUNA	012305.80N 1035933.58E		IAC-WSSS
IDURO	012639.84N 1040103.94E		IAC-WSSS
IDVAS	012934.66N 1040217.75E		IAC-WSSS
IGARI	065612N 1033506E	<a href="#">R208, M765, N891</a>	
IGNON	010847N 1041257E		STAR-WSSS
IGULA	013232.27N 1040332.66E		IAC-WSSS
IKAGO	003816N 1052931E		STAR-WSSS
IKIMA	004314N 1045500E		HLDG ID, STAR-WSSS
IKUKO	054512N 1031324E	<a href="#">R208</a>	
IKUMI	055338N 1035509E	<a href="#">N891</a>	
IPDOL	045111N 1035920E	<a href="#">Q803, T611</a>	
IPNAK	013711.93N 1040530.83E		IAC-WSSS
IPRIX	070000N 1040754E	<a href="#">M753, Q802, T611</a>	
KADAR	000647S 1074342E	<a href="#">M774</a>	SID-WSSS
KAKSA	011702.58N 1035757.92E		IAC-WSSS
KAMIN	023442N 1085536E	<a href="#">G334, M646</a>	
KANLA	034556N 1043606E		STAR-WSSS
KARTO	011124N 1053343E		HLDG ID, STAR-WSSS,
KASPO	011507.15N 1035709.20E		IAC-WSSS
KETOD	031042N 1040942E	<a href="#">M761, Y336</a>	
KEXAS	011019N 1044818E		STAR-WSSS
KEXOL	043930N 1040942E	<a href="#">Q803</a>	
KIBOL	025224N 1042818E	<a href="#">G334, N892</a>	
KIKOR	002244S 1070524E	<a href="#">L644</a>	
KILOT	030217N 1044023E	<a href="#">M761, N892</a>	STAR-WSSS
KIMER	011105.74N 1035527.30E		IAC-WSSS
LAGOT	071632N 1113243E	<a href="#">M768, N884</a>	
LAGUS	011915.29N 1035854.00E		IAC-WSSS
LAPOL	012622N 1034435E	<a href="#">G579</a>	
LASIN	011538.25N 1035722.39E		IAC-WSSS
LAVAX	010950N 1042714E		HLDG ID, STAR-WSSS,

<i>Name-code designator</i>	<i>Co-ordinates</i>	<i>ATS route or other route</i>	<i>Terminal Area</i>
1	2	3	4
LAXOR	094937N 1144829E	<a href="#">L649, M772, N884</a>	
LEBIN	031438N 1060604E	<a href="#">N875, N884</a>	
LEDOX	011642N 1035651E		SID-WSSS
LEGOL	012053N 1034723E	<a href="#">G579</a>	
LELIB	012729N 1032450E	<a href="#">A464, W401</a>	SID-WSSS, STAR-WSSS
LELON	011243.51N 1035608.62E		IAC-WSSS
LEND A	024124N 1043932E	<a href="#">N884</a>	
LEPNA	010648.29N 1035338.82E		IAC-WSSS
LETGO	011411N 1035548E		SID-WSSS
LIDVA	010505.67N 1035255.38E		IAC-WSSS
LIPRO	025342N 1051128E	<a href="#">M761, N884</a>	
LUSMO	033341N 1065534E	<a href="#">L625, M758, N884</a>	
LUXOL	011802.73N 1035823.38E		IAC-WSSS
MABAL	032826N 1051236E	<a href="#">M758, N892</a>	HLDG ID, STAR-WSSS
MABLI	041717N 1061247E	<a href="#">L635, L644, N892</a>	
← MANIM	031430N 1040554E	<a href="#">N891</a>	
MASBO	020248N 1025251E	<a href="#">A457</a>	SID-WSSS
MASNI	012037N 1033746E	<a href="#">A464</a>	
MELAS	070518N 1080912E	<a href="#">N892</a>	
MIBEL	012351N 1020816E	<a href="#">L762</a>	
MUMSO	034420N 1053213E	<a href="#">N875, N892</a>	
NIMIX	012452N 1075926E	<a href="#">G580, N875</a>	
NIVAM	023650N 1040228E	<a href="#">G219</a>	
NODIN	081100N 1161142E	<a href="#">M522</a>	
NOPAT	042313N 1044756E	<a href="#">L629, N875</a>	
NUFFA	025341.40N 1033829.80E	<a href="#">Y514</a>	
NYLON	013656.90N 1040623.80E		HLDG ID, IAC-WSSS, SID-WSSS, STAR-WSSS
OB DAB	031153N 1040538E	<a href="#">N891</a>	
OB DOS	002503N 1065551E	<a href="#">L504, M774</a>	STAR-WSSS
OB GET	012307N 1064531E	<a href="#">G580, L644</a>	
OB LOT	014256N 1064147E	<a href="#">L644, M646</a>	
ODONO	063613.82N 1030129.41E	<a href="#">M904</a>	
OLKIT	045010N 1115118E	<a href="#">M758</a>	
OLSAM	020059N 1063824E	<a href="#">L644</a>	
OMBAP	023116N 1063242E	<a href="#">L644</a>	
OMLIV	025512N 1062812E	<a href="#">L644</a>	
ONAPO	032116N 1062318E	<a href="#">L644</a>	



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<a href="#">WSAT AD 2.10</a>	AERODROME OBSTACLES	AD 2.WSAT-3
<a href="#">WSAT AD 2.11</a>	[NIL] METEOROLOGICAL INFORMATION PROVIDED	NIL
<a href="#">WSAT AD 2.12</a>	RUNWAY PHYSICAL CHARACTERISTICS	AD 2.WSAT-3
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<a href="#">WSAT AD 2.16</a>	[NIL] HELICOPTER LANDING AREA	NIL
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<a href="#">WSAT AD 2.21</a>	[NIL] NOISE ABATEMENT PROCEDURES	NIL
<a href="#">WSAT AD 2.22</a>	[NIL] FLIGHT PROCEDURES	NIL
<a href="#">WSAT AD 2.23</a>	[NIL] ADDITIONAL INFORMATION	NIL
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<a href="#">WSAG AD 2.9</a>	[NIL] SURFACE MOVEMENT GUIDANCE AND CONTROL SYSTEM AND MARKINGS	NIL
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<a href="#">WSAG AD 2.15</a>	OTHER LIGHTING, SECONDARY POWER SUPPLY	AD 2.WSAG-2
<a href="#">WSAG AD 2.16</a>	[NIL] HELICOPTER LANDING AREA	NIL
<a href="#">WSAG AD 2.17</a>	ATS AIRSPACE	AD 2.WSAG-2
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<a href="#">WSAG AD 2.19</a>	RADIO NAVIGATION AND LANDING AIDS	AD 2.WSAG-4
<a href="#">WSAG AD 2.20</a>	[NIL] LOCAL TRAFFIC REGULATIONS	NIL
<a href="#">WSAG AD 2.21</a>	[NIL] NOISE ABATEMENT PROCEDURES	NIL
<a href="#">WSAG AD 2.22</a>	[NIL] FLIGHT PROCEDURES	NIL
<a href="#">WSAG AD 2.23</a>	[NIL] ADDITIONAL INFORMATION	NIL
<a href="#">WSAG AD 2.24</a>	[NIL] CHARTS RELATED TO AN AERODROME	NIL
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<a href="#">WMKJ AD 2.1</a>	AERODROME LOCATION INDICATOR AND NAME	AD 2.WMKJ-1
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<a href="#">WMKJ AD 2.3</a>	[NIL] OPERATIONAL HOURS	NIL
<a href="#">WMKJ AD 2.4</a>	[NIL] HANDLING SERVICES AND FACILITIES	NIL
<a href="#">WMKJ AD 2.5</a>	[NIL] PASSENGER FACILITIES	NIL
<a href="#">WMKJ AD 2.6</a>	[NIL] RESCUE AND FIRE FIGHTING SERVICES	NIL
<a href="#">WMKJ AD 2.7</a>	[NIL] SEASONAL AVAILABILITY - CLEARING	NIL
<a href="#">WMKJ AD 2.8</a>	[NIL] APRONS, TAXIWAYS AND CHECK LOCATIONS DATA	NIL
<a href="#">WMKJ AD 2.9</a>	[NIL] SURFACE MOVEMENT GUIDANCE AND CONTROL SYSTEM AND MARKINGS	NIL
<a href="#">WMKJ AD 2.10</a>	[NIL] AERODROME OBSTACLES	NIL
<a href="#">WMKJ AD 2.11</a>	[NIL] METEOROLOGICAL INFORMATION PROVIDED	NIL
<a href="#">WMKJ AD 2.12</a>	[NIL] RUNWAY PHYSICAL CHARACTERISTICS	NIL
<a href="#">WMKJ AD 2.13</a>	[NIL] DECLARED DISTANCES	NIL
<a href="#">WMKJ AD 2.14</a>	[NIL] APPROACH AND RUNWAY LIGHTING	NIL
<a href="#">WMKJ AD 2.15</a>	[NIL] OTHER LIGHTING, SECONDARY POWER SUPPLY	NIL
<a href="#">WMKJ AD 2.16</a>	[NIL] HELICOPTER LANDING AREA	NIL
<a href="#">WMKJ AD 2.17</a>	ATS AIRSPACE	AD 2.WMKJ-1
<a href="#">WMKJ AD 2.18</a>	[NIL] ATS COMMUNICATION FACILITIES	NIL
<a href="#">WMKJ AD 2.19</a>	[NIL] RADIO NAVIGATION AND LANDING AIDS	NIL
<a href="#">WMKJ AD 2.20</a>	[NIL] LOCAL TRAFFIC REGULATIONS	NIL
<a href="#">WMKJ AD 2.21</a>	[NIL] NOISE ABATEMENT PROCEDURES	NIL
<a href="#">WMKJ AD 2.22</a>	[NIL] FLIGHT PROCEDURES	NIL
<a href="#">WMKJ AD 2.23</a>	[NIL] ADDITIONAL INFORMATION	NIL
<a href="#">WMKJ AD 2.24</a>	[NIL] CHARTS RELATED TO AN AERODROME	NIL
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<a href="#">WIDD AD 2.2</a>	[NIL] AERODROME GEOGRAPHICAL AND ADMINISTRATIVE DATA	NIL
<a href="#">WIDD AD 2.3</a>	[NIL] OPERATIONAL HOURS	NIL
<a href="#">WIDD AD 2.4</a>	[NIL] HANDLING SERVICES AND FACILITIES	NIL
<a href="#">WIDD AD 2.5</a>	[NIL] PASSENGER FACILITIES	NIL
<a href="#">WIDD AD 2.6</a>	[NIL] RESCUE AND FIRE FIGHTING SERVICES	NIL
<a href="#">WIDD AD 2.7</a>	[NIL] SEASONAL AVAILABILITY - CLEARING	NIL
<a href="#">WIDD AD 2.8</a>	[NIL] APRONS, TAXIWAYS AND CHECK LOCATIONS DATA	NIL
<a href="#">WIDD AD 2.9</a>	[NIL] SURFACE MOVEMENT GUIDANCE AND CONTROL SYSTEM AND MARKINGS	NIL
<a href="#">WIDD AD 2.10</a>	[NIL] AERODROME OBSTACLES	NIL
<a href="#">WIDD AD 2.11</a>	[NIL] METEOROLOGICAL INFORMATION PROVIDED	NIL
<a href="#">WIDD AD 2.12</a>	[NIL] RUNWAY PHYSICAL CHARACTERISTICS	NIL
<a href="#">WIDD AD 2.13</a>	[NIL] DECLARED DISTANCES	NIL
<a href="#">WIDD AD 2.14</a>	[NIL] APPROACH AND RUNWAY LIGHTING	NIL
<a href="#">WIDD AD 2.15</a>	[NIL] OTHER LIGHTING, SECONDARY POWER SUPPLY	NIL
<a href="#">WIDD AD 2.16</a>	[NIL] HELICOPTER LANDING AREA	NIL
<a href="#">WIDD AD 2.17</a>	ATS AIRSPACE	AD 2.WIDD-1
<a href="#">WIDD AD 2.18</a>	ATS COMMUNICATION FACILITIES	AD 2.WIDD-1
<a href="#">WIDD AD 2.19</a>	[NIL] RADIO NAVIGATION AND LANDING AIDS	NIL
<a href="#">WIDD AD 2.20</a>	[NIL] LOCAL TRAFFIC REGULATIONS	NIL
<a href="#">WIDD AD 2.21</a>	[NIL] NOISE ABATEMENT PROCEDURES	NIL
<a href="#">WIDD AD 2.22</a>	[NIL] FLIGHT PROCEDURES	NIL
<a href="#">WIDD AD 2.23</a>	[NIL] ADDITIONAL INFORMATION	NIL

<a href="#">WIDD AD 2.24</a>	CHARTS RELATED TO AN AERODROME	AD 2.WIDD-2
<b><a href="#">WIDN</a></b>	<b>TANJUNG PINANG/RAJA HAJI FISABILILLAH (INDONESIA)</b>	
<a href="#">WIDN AD 2.1</a>	AERODROME LOCATION INDICATOR AND NAME	AD 2.WIDN-1
<a href="#">WIDN AD 2.2</a>	[NIL] AERODROME GEOGRAPHICAL AND ADMINISTRATIVE DATA	NIL
<a href="#">WIDN AD 2.3</a>	[NIL] OPERATIONAL HOURS	NIL
<a href="#">WIDN AD 2.4</a>	[NIL] HANDLING SERVICES AND FACILITIES	NIL
<a href="#">WIDN AD 2.5</a>	[NIL] PASSENGER FACILITIES	NIL
<a href="#">WIDN AD 2.6</a>	[NIL] RESCUE AND FIRE FIGHTING SERVICES	NIL
<a href="#">WIDN AD 2.7</a>	[NIL] SEASONAL AVAILABILITY – CLEARING	NIL
<a href="#">WIDN AD 2.8</a>	[NIL] APRONS, TAXIWAYS AND CHECK LOCATIONS DATA	NIL
<a href="#">WIDN AD 2.9</a>	[NIL] SURFACE MOVEMENT GUIDANCE AND CONTROL SYSTEM AND MARKINGS	NIL
<a href="#">WIDN AD 2.10</a>	[NIL] AERODROME OBSTACLES	NIL
<a href="#">WIDN AD 2.11</a>	[NIL] METEOROLOGICAL INFORMATION PROVIDED	NIL
<a href="#">WIDN AD 2.12</a>	[NIL] RUNWAY PHYSICAL CHARACTERISTICS	NIL
<a href="#">WIDN AD 2.13</a>	[NIL] DECLARED DISTANCES	NIL
<a href="#">WIDN AD 2.14</a>	[NIL] APPROACH AND RUNWAY LIGHTING	NIL
<a href="#">WIDN AD 2.15</a>	[NIL] OTHER LIGHTING, SECONDARY POWER SUPPLY	NIL
<a href="#">WIDN AD 2.16</a>	[NIL] HELICOPTER LANDING AREA	NIL
<a href="#">WIDN AD 2.17</a>	ATS AIRSPACE	AD 2.WIDN-1
<a href="#">WIDN AD 2.18</a>	ATS COMMUNICATION FACILITIES	AD 2.WIDN-1
<a href="#">WIDN AD 2.19</a>	[NIL] RADIO NAVIGATION AND LANDING AIDS	NIL
<a href="#">WIDN AD 2.20</a>	[NIL] LOCAL TRAFFIC REGULATIONS	NIL
<a href="#">WIDN AD 2.21</a>	[NIL] NOISE ABATEMENT PROCEDURES	NIL
<a href="#">WIDN AD 2.22</a>	[NIL] FLIGHT PROCEDURES	NIL
<a href="#">WIDN AD 2.23</a>	[NIL] ADDITIONAL INFORMATION	NIL
<a href="#">WIDN AD 2.24</a>	CHARTS RELATED TO AN AERODROME	AD 2.WIDN-1

*Note: The following sections in this chapter are intentionally left blank:  
AD 0.1, AD 0.2, AD 0.3, AD 0.4, AD 0.5.*

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**WSSS AD 2.15 OTHER LIGHTING, SECONDARY POWER SUPPLY**

1	<i>ABN/IBN location, characteristics and hours of operation</i>	ABN: 012209.20N 1035858.43E (western side of RWY 02L/20R) ALTN FLG W G EV 2.3 SEC, Operating hours HN + IMC IBN: 012301.27N 1035959.49E (top of Cargo Agents Building E) FLG G 'SS' EV 7 SEC, Operating hours HN + IMC
2	<i>LDI location and LGT Anemometer location and LGT</i>	Pressure tube anemometer and wind vane situated 345m west of middle of RWY 02L/20R. Cup anemometers and wind vanes at ends and middle of both runways. Windsocks at ends of both runways. Transmissometers at both ends and in the middle of both runways  RWY 02R/20L: Three ultrasonic wind sensors at the ends and middle of the runway. Windsocks at the ends of the runway. Transmissometers at both ends and in the middle of the runway.
3	<i>TWY Edge and Centreline Lighting</i>	RWY 02L/20R and RWY 02C/20C: Blue lights on TWY curved edges and apron TWY edges and Green centreline lights on all TWY.  RWY 02R/20L: Blue lights on TWY curved edges and Green centreline lights on all TWY.
4	<i>Secondary power supply/switch-over time</i>	Automatic standby generator power supply AVBL for airfield lighting with switchover time of 1 second during Category II low visibility operations.
5	<i>Remarks</i>	Vehicles painted yellow or displaying chequered red/white or orange/white flag at highest point of vehicle

**WSSS AD 2.16 HELICOPTER LANDING AREA**Refer to [ENR 3.4](#)**WSSS AD 2.17 ATS AIRSPACE**

1	<i>Designation and Lateral Limits</i>	<b>CHANGI CTR</b> 013300N 1040149E 013042N 1040654E 012542N 1040448E thence along Kuala Lumpur/Singapore FIR BDRY to 012000N 1041218E 010018N 1035524E 011100N 1035134E 013300N 1040149E
2	<i>Vertical Limits</i>	SFC to 3,000ft ALT
3	<i>Airspace Classification</i>	C
4	<i>ATS Unit Callsign Language(s)</i>	Singapore Tower English
5	<i>Transition Altitude</i>	11000 FT (3,350m)
6	<i>Remarks</i>	A helicopter shall not be operated within the Changi CTR unless prior permission has been obtained from the Director-General of Civil Aviation, CAAS. Email to <a href="mailto:caas_ats_ansp@caas.gov.sg">caas_ats_ansp@caas.gov.sg</a>

**WSSS AD 2.18 ATS COMMUNICATION FACILITIES**

<b>Service Designation</b>	<b>Call sign</b>	<b>Frequency (P-Pri, S-Sec)</b>	<b>Hours of operation</b>	<b>Remarks</b>	
<b>ACC</b>	Singapore Radar	P123.7 MHz S127.3 MHz	H24	for ATS Routes B469, G219, G334, R208, L625, L629, L635, L642, L644, M751, M753, M758, M761, M763, M771, N875, N884, N891, N892 and Y514.	
		133.8 MHz	0000-1430		
		P134.7 MHz S134.15 MHz	H24		for ATS Routes G334, L625, L644, M758, M761, M771, N875, N884 and N892.
		P133.25 MHz S135.8 MHz	H24		for ATS Routes A457, A464, A576, L762, M630 and R469.
		P134.2 MHz S133.35 MHz			for ATS Routes G334. G580, L625, L644, M646 M767 and N875.
		P134.4 MHz S128.1 MHz			for ATS Routes B338, B469, B470, G579, L504, L644, M635, M774, N502, N875, P501 and in area in the immediate vicinity of Singapore.
	Singapore Control	P134.35 MHz S133.6 MHz	H24	for ATS Routes L642, L644, M753, M771, M904, N891, N892, Q801, Q802, Q803 and T611 within airspace bounded by 073605N 1090045E, 040713N 1063543E, 041717N 1061247E (MABLI), 044841N 1052247E (DOLOX), 045224N 1041442E (ENREP), 045000N 1034400E, thence north along the Singapore FIR boundary to 070000N 1080000E.	
	Singapore Radio	6556 kHz 11297 kHz	H24	SEA 1, Emission: A3AJ. SSB suppressed carrier, SATCOM service available.	
		5655 kHz 8942 kHz 11396 kHz		SEA 2, Emission: A3AJ. SSB suppressed carrier, SATCOM service available.	
		6556 kHz		SEA 3, Emission: A3AJ. SSB suppressed carrier, SATCOM service available.	
<b>APP</b>	Singapore Departure	P120.3 MHz S121.625 MHz	H24	DEP from all airports in Singapore.	
	Singapore Arrival	P119.3 MHz S119.4 MHz S119.55 MHz		TAR - Intermediate and final approach to Singapore Changi AP.	
	Singapore Approach	P124.05 MHz S124.6 MHz S126.3 MHz	2100-1700	TAR - flow control service provided for ARR/DEP ACFT. Intermediate approach to Singapore Changi AP and other airports in Singapore.	
<b>TWR</b>	Singapore Tower	118.6 MHz	H24	for TKOF/LDG. for ACFT operating on RWY 02L/20R for vehicular movements on RWY 02L/20R	
		118.25 MHz		for ACFT operating on RWY 02C/20C for vehicular movements on RWY 02C/20C	
		131.4 MHz		for ACFT operating on RWY 02R/20L for vehicular movements on RWY 02R/20L	



- 21.6 Phraseologies for variations to the lateral profile of the SID / STAR are:
- i. PROCEED DIRECT (waypoint), or
  - ii. VECTORING
- 21.7 These phraseologies mean that speed and level restrictions associated with the bypassed waypoints are cancelled.
- 21.8 Phraseology to clear aircraft to return to SID / STAR is: REJOIN SID / STAR
- 21.9 This phraseology means that speed and level restrictions associated with the waypoint where the rejoin occurs, as well as those associated with all subsequent waypoints must be complied with.
- 21.10 The term 'VIA' will no longer be used when issuing lateral routing clearances.

## ← 22 LIGHT AIRCRAFT OPERATIONS

- 22.1 Light aircraft operations into and out of Singapore Changi Airport may be approved subject to the following conditions:
- a. Prior permission has been granted;
  - b. Aircraft is suitably equipped;
  - c. Pilot is appropriately rated;
  - d. Subject to ATC.
- 22.2 Flight notification shall be given by filing a flight plan.
- 22.3 All such operations will be regulated in accordance with IFR procedures.

## 23 SIMULTANEOUS INDEPENDENT PARALLEL APPROACHES

### 23.1 Introduction

- 23.1.1 Simultaneous independent parallel approaches will be implemented daily between 0000UTC and 1500UTC to optimize runway utilization and enhance air traffic efficiency.

### 23.2 Procedures for simultaneous independent parallel approaches

- 23.2.1 To ensure safe operations between aircraft on parallel approaches, Normal Operating Zones (NOZs) are established for each extended runway centreline and a No Transgression Zone (NTZ) is established between the NOZs.
- 23.2.2 ATC will vector arriving flights into Singapore Changi Airport from the final waypoint of the respective STARs to the respective NOZs.
- 23.2.3 Within the NOZ, ATC shall provide a minimum vertical separation of 1,000ft or 3NM surveillance separation between pairs of aircraft until both aircraft are established on the ILS Localizer course.
- 23.2.4 ATC is not required to provide separation between aircraft on adjacent ILS Localizers and will monitor aircraft for deviation from the approach path.
- 23.2.5 Aircraft can expect to maintain altitude 3,500ft till Glide Path Interception for Runway 20R / 02L and 2,500ft till Glide Path Interception for Runway 20C / 02C. This is to ensure the necessary vertical separation prior to establishing on the respective ILS Localizer course.
- 23.2.6 Aircraft can expect the following radiotelephony phraseology when intercepting the ILS:
- a. to intercept the Localizer before clearing for ILS
 

**“TURN LEFT (RIGHT) HEADING (three digits) MAINTAIN (altitude) REPORT ESTABLISHED ON THE LOCALIZER RUNWAY (number) LEFT (CENTRE / RIGHT)”**

followed by ...

**“MAINTAIN (altitude), CLEARED FOR ILS APPROACH RUNWAY (number) LEFT (CENTRE/RIGHT)”**

or
  - b. to intercept ILS

**“TURN LEFT (RIGHT) HEADING (three digits) MAINTAIN (altitude) CLEARED FOR ILS APPROACH RUNWAY (number) LEFT (CENTRE / RIGHT)”**

23.2.7 Aircraft can expect to maintain speed 180kt at base turn or earlier till 8NM from touchdown.

**23.3 Break-out manoeuvre**

23.3.1 When an aircraft is observed to have not established on the appropriate Localizer course or deviated from its course towards the NTZ, ATC will instruct the aircraft to return immediately to the correct Localizer course with the following radiotelephony phraseology:

**“YOU HAVE CROSSED THE LOCALIZER, TURN LEFT (or RIGHT) IMMEDIATELY AND RETURN TO THE LOCALIZER”**

or

**“TURN LEFT (or RIGHT) TO RETURN TO LOCALIZER COURSE”**

23.3.2 When ATC observed aircraft to be penetrating or will penetrate the NTZ, ATC will instruct the aircraft on the adjacent Localizer course to alter course to avoid the deviating aircraft with the following radiotelephony phraseology:

**“TRAFFIC ALERT, TURN LEFT (or RIGHT) IMMEDIATELY HEADING (degrees), CLIMB AND MAINTAIN (altitude)”**

**23.4 Pilot notification and conditions for operations**

23.4.1 Simultaneous approaches to parallel runways operation will be broadcasted on ATIS during the active period.

23.4.2 Simultaneous approaches to the parallel runways will be suspended in the event of adverse weather or any other conditions that may affect the safe conduct of such approaches to the parallel runways.

**WSSS AD 2.23 ADDITIONAL INFORMATION**

**1 BIRD CONCENTRATION IN THE VICINITY OF THE AIRPORT**

1.1 A number of varieties of birds are found in Singapore throughout the year. The larger birds commonly found in Singapore Changi Airport include the following:

- cattle egrets (weighing approximately 400g each)
- intermediate egrets (weighing approximately 500g each)
- brahminy kites (weighing approximately 600g each)
- grey herons (weighing approximately 1500g each)
- white-bellied sea eagle (weighing approximately 2900g each)

1.2 There could be an increase in bird activities during the migratory months of September to March. During this period, migratory birds may use the airport as their feeding ground.

1.3 Various active dispersal devices generating light, sound or cracking effects are used for bird dispersal to mitigate wildlife hazards where necessary within Singapore Changi Airport (such as handheld laser device, long range acoustic device, scarecrow, stock-whip, pyrotechnic, etc.).

AERODROME CHART - ICAO

01° 21' 33"N  
103° 59' 22"E

AERODROME ELEVATION 6.66m

TWR 118.6 / 118.25 / 131.4  
GND 124.3 / 121.85 / 121.725 / 127.275  
DELIVERY 121.65 / 119.6

RAMP TWR  
GND 122.55 (GMC 4 EAST)  
125.65 (GMC 4 WEST)

SINGAPORE/SINGAPORE CHANGI

PAPI 3° (MEHT)*						
Pilot's eye height over the threshold when the following PAPI lights come into view.	RUNWAY					
	02L	20R	02C	20C	02R	20L
2 White lights and 2 red lights	20.0m	20.0m	19.8m	19.8m	19.7m	19.7m
3 White lights and 1 red light	24.0m	22.6m	23.7m	23.7m	23.6m	23.6m
4 White lights	26.4m	25.0m	26.2m	26.2m	26.0m	26.0m

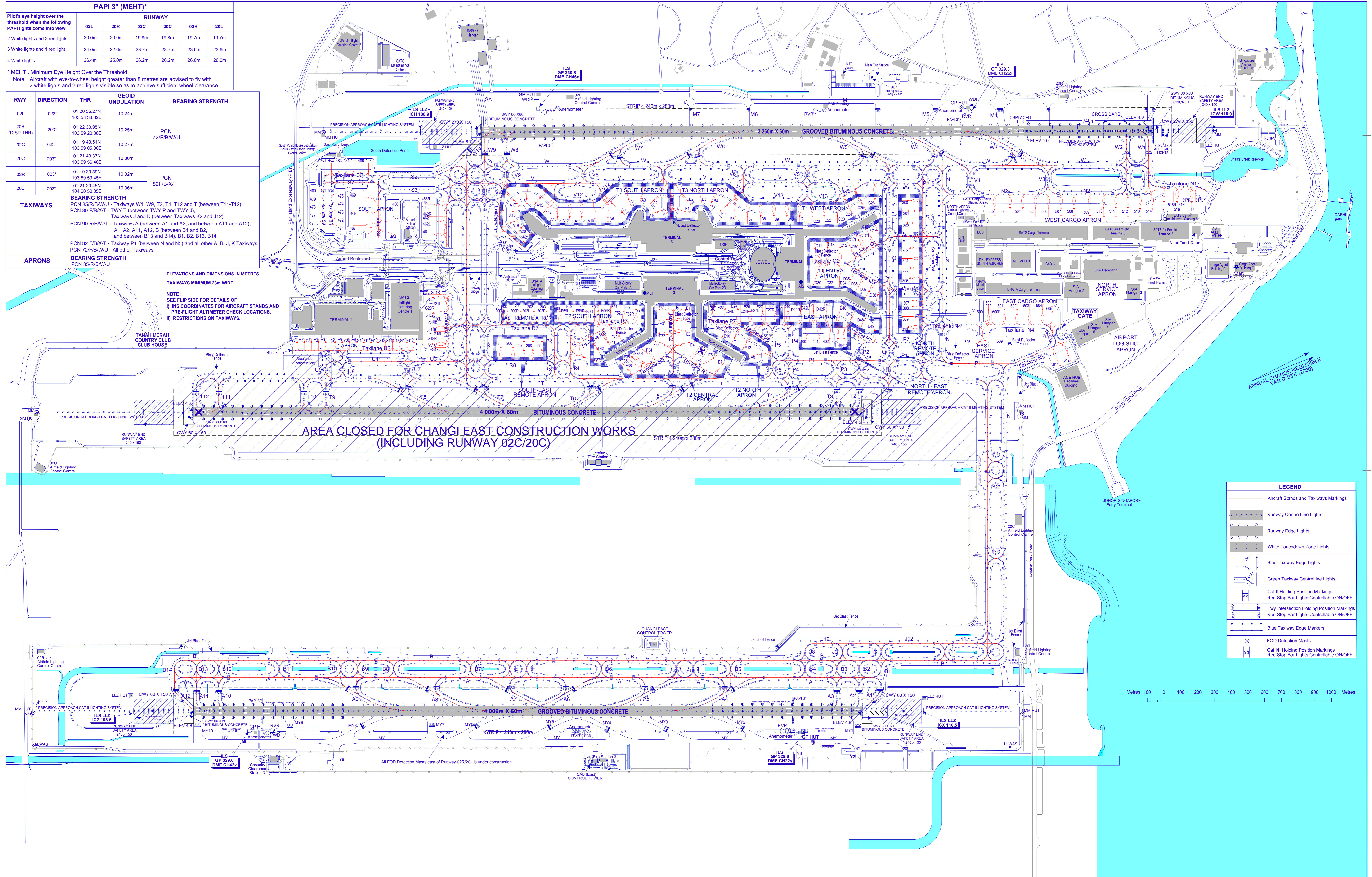
\* MEHT - Minimum Eye Height Over the Threshold.  
Note - Aircraft with eye-to-wheel height greater than 8 metres are advised to fly with 2 white lights and 2 red lights visible so as to achieve sufficient wheel clearance.

RWY	DIRECTION	THR	GEOD UNDULATION	BEARING STRENGTH
02L	023°	01 20 56.27N 103 58 38.82E	10.24m	PCN 72F/B/W/U
20R (DISP THR)	203°	01 22 33.95N 103 59 20.06E	10.25m	
02C	023°	01 19 43.51N 103 59 05.88E	10.27m	
20C	203°	01 21 43.37N 103 59 56.46E	10.30m	
02R	023°	01 19 20.59N 103 59 59.45E	10.32m	PCN 82F/B/X/T
20L	203°	01 21 20.45N 104 00 50.05E	10.36m	

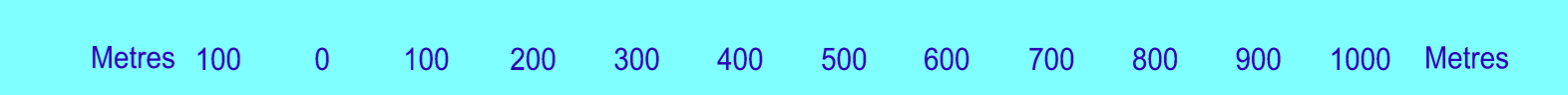
**TAXIWAYS**  
BEARING STRENGTH  
PCN 85R/B/W/U - Taxiways W1, W9, T2, T4, T12 and T (between T11-T12).  
PCN 80 F/B/X/T - TWY T (between TWY P and TWY J),  
Taxiways J and K (between Taxiways K2 and J12)  
PCN 90 R/B/W/T - Taxiways A (between A1 and A2, and between A11 and A12),  
A1, A2, A11, A12, B (between B1 and B2  
and between B13 and B14), B1, B2, B13, B14.  
PCN 82 F/B/X/T - Taxiway P1 (between N and N5) and all other A, B, J, K Taxiways.  
PCN 72F/B/W/U - All other Taxiways

**APRONS**  
BEARING STRENGTH  
PCN 85R/B/W/U

ELEVATIONS AND DIMENSIONS IN METRES  
TAXIWAYS MINIMUM 23m WIDE  
NOTE:  
i) SEE FLIP SIDE FOR DETAILS OF  
ii) INS COORDINATES FOR AIRCRAFT STANDS AND  
PRE-FLIGHT ALTIMETER CHECK LOCATIONS.  
iii) RESTRICTIONS ON TAXIWAYS.



LEGEND	
	Aircraft Stands and Taxiways Markings
	Runway Centre Line Lights
	Runway Edge Lights
	White Touchdown Zone Lights
	Blue Taxiway Edge Lights
	Green Taxiway Centre Line Lights
	Cat II Holding Position Markings
	Red Stop Bar Lights Controllable ON/OFF
	Taxiway Intersection Holding Position Markings
	Red Stop Bar Lights Controllable ON/OFF
	Blue Taxiway Edge Markers
	FOD Detection Masts
	Cat III Holding Position Markings
	Red Stop Bar Lights Controllable ON/OFF



INS COORDINATES FOR AIRCRAFT STANDS AND PRE-FLIGHT ALTIMETER CHECK LOCATIONS

LOCATION	STAND NR	NORTH LAT	EAST LONG	ELEVATION	
T3 SOUTH APRON	A1	01 21 21.52	103 59 06.25	4.75m (15.58ft)	
	A2	01 21 21.75	103 59 04.00	4.65m (15.26ft)	
	A3	01 21 19.86	103 59 02.79	4.66m (15.29ft)	
	A4	01 21 17.61	103 59 02.54	4.79m (15.72ft)	
	A5	01 21 15.50	103 59 03.62	4.86m (15.94ft)	
	A9	01 21 12.56	103 59 03.65	5.02m (16.47ft)	
	A10	01 21 10.34	103 59 02.40	5.04m (16.54ft)	
	A11	01 21 07.93	103 59 01.41	5.25m (17.22ft)	
	A12	01 21 05.76	103 59 00.49	5.38m (17.65ft)	
	A13	01 21 03.59	103 58 59.58	5.48m (17.98ft)	
	A14	01 21 01.66	103 58 57.59	5.57m (18.27ft)	
	A15	01 21 00.77	103 58 55.41	5.46m (17.91ft)	
	A16	01 20 59.27	103 58 54.20	5.51m (18.08ft)	
	A17	01 20 57.25	103 58 54.06	5.23m (17.16ft)	
	A18	01 20 55.87	103 58 55.25	5.37m (17.62ft)	
	A19	01 20 55.26	103 58 57.13	5.40m (17.72ft)	
	A20	01 20 56.09	103 58 58.83	5.45m (17.88ft)	
	A21	01 20 57.10	103 59 00.80	5.49m (18.01ft)	
	T3 NORTH APRON	B1	01 21 26.86	103 59 08.37	4.82m (15.81ft)
		B2	01 21 28.18	103 59 06.82	4.68m (15.35ft)
B3		01 21 30.33	103 59 07.30	4.65m (15.26ft)	
B4		01 21 32.03	103 59 08.60	4.75m (15.58ft)	
B5		01 21 32.98	103 59 10.89	4.80m (15.75ft)	
B6		01 21 35.15	103 59 13.16	4.96m (16.27ft)	
B7		01 21 37.65	103 59 13.93	4.97m (16.31ft)	
B8		01 21 39.94	103 59 15.20	5.09m (16.70ft)	
B9		01 21 42.19	103 59 16.16	5.13m (16.83ft)	
B10		01 21 44.47	103 59 17.12	5.10m (16.73ft)	
T1 WEST APRON	C1	01 21 46.75	103 59 18.08	5.09m (16.70ft)	
	C20	01 21 48.83	103 59 19.23	5.08m (16.67ft)	
	C22	01 21 51.00	103 59 20.13	5.15m (16.90ft)	
	C23	01 21 53.56	103 59 20.77	5.08m (16.67ft)	
	C24	01 21 56.54	103 59 20.97	4.89m (16.04ft)	
	C25	01 21 59.12	103 59 20.59	4.99m (16.37ft)	
	C26	01 22 01.48	103 59 20.76	5.01m (16.44ft)	
	T1 CENTRAL APRON	C11	01 21 47.42	103 59 23.82	5.07m (16.63ft)
C13		01 21 49.64	103 59 24.75	5.05m (16.57ft)	
C15		01 21 51.90	103 59 25.71	5.05m (16.57ft)	
C16		01 21 53.47	103 59 26.62	4.86m (15.94ft)	
C17		01 21 55.50	103 59 26.20	5.01m (16.44ft)	
C17L		01 21 54.75	103 59 26.22	4.96m (16.27ft)	
C17R		01 21 56.01	103 59 25.68	5.12m (16.80ft)	
C18		01 21 57.86	103 59 25.75	4.99m (16.37ft)	
C19		01 21 59.79	103 59 25.63	4.95m (16.24ft)	
D30		01 21 44.54	103 59 30.14	5.09m (16.70ft)	
D32		01 21 46.73	103 59 31.07	5.08m (16.67ft)	
D34		01 21 49.03	103 59 32.04	5.07m (16.63ft)	
D35		01 21 50.87	103 59 32.82	5.02m (16.47ft)	
D36		01 21 51.98	103 59 34.52	5.06m (16.60ft)	
D37		01 21 53.37	103 59 36.28	4.97m (16.31ft)	
D38		01 21 54.58	103 59 37.77	4.99m (16.37ft)	
T1 EAST APRON		D40	01 21 38.13	103 59 32.89	5.11m (16.77ft)
		D40L	01 21 37.38	103 59 32.83	5.09m (16.70ft)
		D40R	01 21 38.77	103 59 32.84	5.13m (16.83ft)
	D41	01 21 40.30	103 59 33.81	5.07m (16.63ft)	
	D42	01 21 42.77	103 59 34.58	5.15m (16.89ft)	
	D42L	01 21 42.00	103 59 34.47	5.12m (16.79ft)	
	D42R	01 21 43.45	103 59 34.44	5.21m (17.09ft)	
	D44	01 21 44.97	103 59 35.44	5.14m (16.86ft)	
	D46	01 21 47.40	103 59 36.72	5.08m (16.67ft)	
	D47	01 21 49.19	103 59 38.89	4.93m (16.17ft)	
	D48	01 21 50.60	103 59 40.77	4.97m (16.31ft)	
	D49	01 21 52.23	103 59 42.35	4.98m (16.34ft)	
	T2 NORTH APRON	E8	01 21 27.99	103 59 38.45	4.68m (15.35ft)
		E10	01 21 24.15	103 59 32.67	4.71m (15.45ft)
		E11	01 21 25.57	103 59 34.37	4.78m (15.68ft)
		E12	01 21 27.20	103 59 36.42	4.75m (15.58ft)
		E20	01 21 24.36	103 59 27.08	5.04m (16.54ft)
E22		01 21 26.64	103 59 28.04	5.07m (16.63ft)	
E24		01 21 29.01	103 59 29.06	5.09m (16.70ft)	
E24L		01 21 28.32	103 59 28.77	5.10m (16.73ft)	
E24R		01 21 29.53	103 59 29.28	5.08m (16.67ft)	
E26		01 21 31.19	103 59 29.96	5.08m (16.67ft)	
E27		01 21 33.56	103 59 30.96	5.07m (16.62ft)	
E27L		01 21 32.79	103 59 30.86	5.03m (16.48ft)	
E27R	01 21 34.20	103 59 30.91	5.12m (16.80ft)		
E28	01 21 35.74	103 59 31.89	5.08m (16.67ft)		

INS COORDINATES FOR AIRCRAFT STANDS AND PRE-FLIGHT ALTIMETER CHECK LOCATIONS

LOCATION	STAND NR	NORTH LAT	EAST LONG	ELEVATION	
T2 CENTRAL APRON	E1	01 21 20.02	103 59 25.58	4.91m (16.11ft)	
	E2	01 21 19.28	103 59 27.30	4.90m (16.08ft)	
	E3	01 21 18.44	103 59 29.27	4.82m (15.81ft)	
	E4	01 21 18.10	103 59 31.70	4.80m (15.75ft)	
	E5	01 21 19.56	103 59 33.72	4.90m (16.08ft)	
	E6	01 21 21.22	103 59 35.93	4.84m (15.88ft)	
	E7	01 21 22.48	103 59 37.46	4.73m (15.52ft)	
	F30	01 21 14.71	103 59 23.33	4.92m (16.14ft)	
	F31	01 21 13.87	103 59 25.30	4.91m (16.11ft)	
	F32	01 21 13.03	103 59 27.26	4.85m (15.91ft)	
	F33	01 21 11.30	103 59 28.54	4.91m (16.11ft)	
	F34	01 21 08.98	103 59 28.96	4.92m (16.14ft)	
	F35	01 21 06.60	103 59 29.55	4.91m (16.11ft)	
	F35L	01 21 06.06	103 59 30.13	4.74m (15.55ft)	
	F35R	01 21 06.96	103 59 29.05	5.04m (16.54ft)	
	F36	01 21 04.34	103 59 29.67	4.82m (15.81ft)	
	T2 SOUTH APRON	F37	01 20 59.83	103 59 27.87	4.75m (15.58ft)
		F40	01 21 05.62	103 59 25.34	4.85m (15.91ft)
		F41	01 21 03.19	103 59 25.58	4.82m (15.81ft)
		F42	01 21 00.61	103 59 25.96	4.72m (15.49ft)
		F50	01 21 10.69	103 59 21.32	5.03m (16.50ft)
		F52	01 21 08.51	103 59 20.40	5.11m (16.77ft)
		F52L	01 21 07.82	103 59 20.11	5.16m (16.93ft)
		F52R	01 21 09.04	103 59 20.62	5.08m (16.67ft)
		F54	01 21 06.14	103 59 19.40	5.22m (17.13ft)
		F56	01 21 03.96	103 59 18.48	5.30m (17.39ft)
		F56L	01 21 03.27	103 59 18.18	5.42m (17.78ft)
		F56R	01 21 04.59	103 59 19.70	5.34m (17.52ft)
		F58	01 21 01.58	103 59 17.47	5.49m (18.01ft)
		F59	01 20 59.41	103 59 16.55	5.64m (18.50ft)
	F59L	01 20 58.72	103 59 16.26	5.67m (18.60ft)	
	F59R	01 20 59.93	103 59 16.78	5.60m (18.37ft)	
	F60	01 20 56.91	103 59 15.50	5.77m (18.93ft)	
EAST REMOTE APRON	200	01 20 47.83	103 59 11.67	6.23m (20.44ft)	
	200L	01 20 46.91	103 59 11.92	6.29m (20.64ft)	
	200R	01 20 48.35	103 59 11.89	6.18m (20.28ft)	
	201	01 20 49.99	103 59 12.62	5.96m (19.55ft)	
	202	01 20 54.34	103 59 13.57	5.94m (19.49ft)	
	202L	01 20 51.65	103 59 13.28	5.76m (18.90ft)	
	202R	01 20 52.87	103 59 13.79	5.73m (18.80ft)	
	203	01 20 54.52	103 59 14.47	5.92m (19.42ft)	
	SOUTH-EAST REMOTE APRON	205	01 20 43.91	103 59 17.06	4.77m (15.65ft)
		206	01 20 46.08	103 59 17.98	4.76m (15.62ft)
		207	01 20 47.91	103 59 18.88	4.74m (15.55ft)
		208	01 20 49.48	103 59 19.54	4.74m (15.55ft)
		209	01 20 51.06	103 59 20.21	4.75m (15.58ft)
NORTH REMOTE APRON	300	01 22 06.95	103 59 22.67	4.53m (14.86ft)	
	301	01 22 06.41	103 59 24.69	4.93m (16.17ft)	
	302	01 22 05.21	103 59 26.75	4.97m (16.31ft)	
	303	01 22 03.55	103 59 31.40	5.32m (17.45ft)	
	304	01 22 02.84	103 59 33.06	5.35m (17.55ft)	
	305	01 22 02.14	103 59 34.71	5.30m (17.39ft)	
	306	01 22 01.41	103 59 36.42	5.16m (16.93ft)	
	307	01 21 59.39	103 59 40.36	5.16m (16.93ft)	
	308	01 21 58.96	103 59 41.35	5.10m (16.73ft)	
	309	01 21 58.52	103 59 43.17	5.06m (16.60ft)	
	310	01 21 57.42	103 59 44.96	4.74m (15.55ft)	
NORTH-EAST REMOTE APRON	400	01 21 38.71	103 59 40.14	4.31m (14.14ft)	
	401	01 21 40.98	103 59 41.10	4.31m (14.14ft)	
	402	01 21 42.85	103 59 41.89	4.30m (14.11ft)	
	403	01 21 44.37	103 59 42.53	4.29m (14.07ft)	
	404	01 21 45.45	103 59 42.98	4.20m (13.78ft)	
WEST CARGO APRON	502	01 22 22.23	103 59 31.62	4.35m (14.27ft)	
	503	01 22 24.98	103 59 32.78	4.29m (14.07ft)	
	504	01 22 27.26	103 59 33.74	4.29m (14.07ft)	
	505	01 22 29.54	103 59 34.70	4.32m (14.17ft)	
	506	01 22 31.81	103 59 35.66	4.38m (14.37ft)	
	507	01 22 34.11	103 59 36.64	4.36m (14.30ft)	
	508	01 22 36.41	103 59 37.61	4.29m (14.07ft)	
	509	01 22 39.12	103 59 38.76	4.09m (13.42ft)	
	510	01 22 41.37	103 59 40.18	4.19m (13.75ft)	
	511	01 22 43.54	103 59 41.09	4.22m (13.85ft)	
	512	01 22 45.71	103 59 42.01	4.24m (13.91ft)	
	513	01 22 47.89	103 59 42.92	4.26m (13.98ft)	
	514	01 22 50.19	103 59 43.54	4.36m (14.30ft)	
	515	01 22 52.90	103 59 43.20	4.09m (13.43ft)	
	516	01 22 55.39	103 59 43.97	4.04m (13.26ft)	
	516L	01 22 56.24	103 59 43.80	3.96m (12.98ft)	
	516R	01 22 54.93	103 59 43.25	3.95m (12.97ft)	
	517	01 22 58.02	103 59 45.08	4.05m (13.27ft)	
517L	01 22 58.83	103 59 44.99	3.98m (13.05ft)		
517R	01 22 57.55	103 59 44.35	3.96m (12.98ft)		

INS COORDINATES FOR AIRCRAFT STANDS AND PRE-FLIGHT ALTIMETER CHECK LOCATIONS

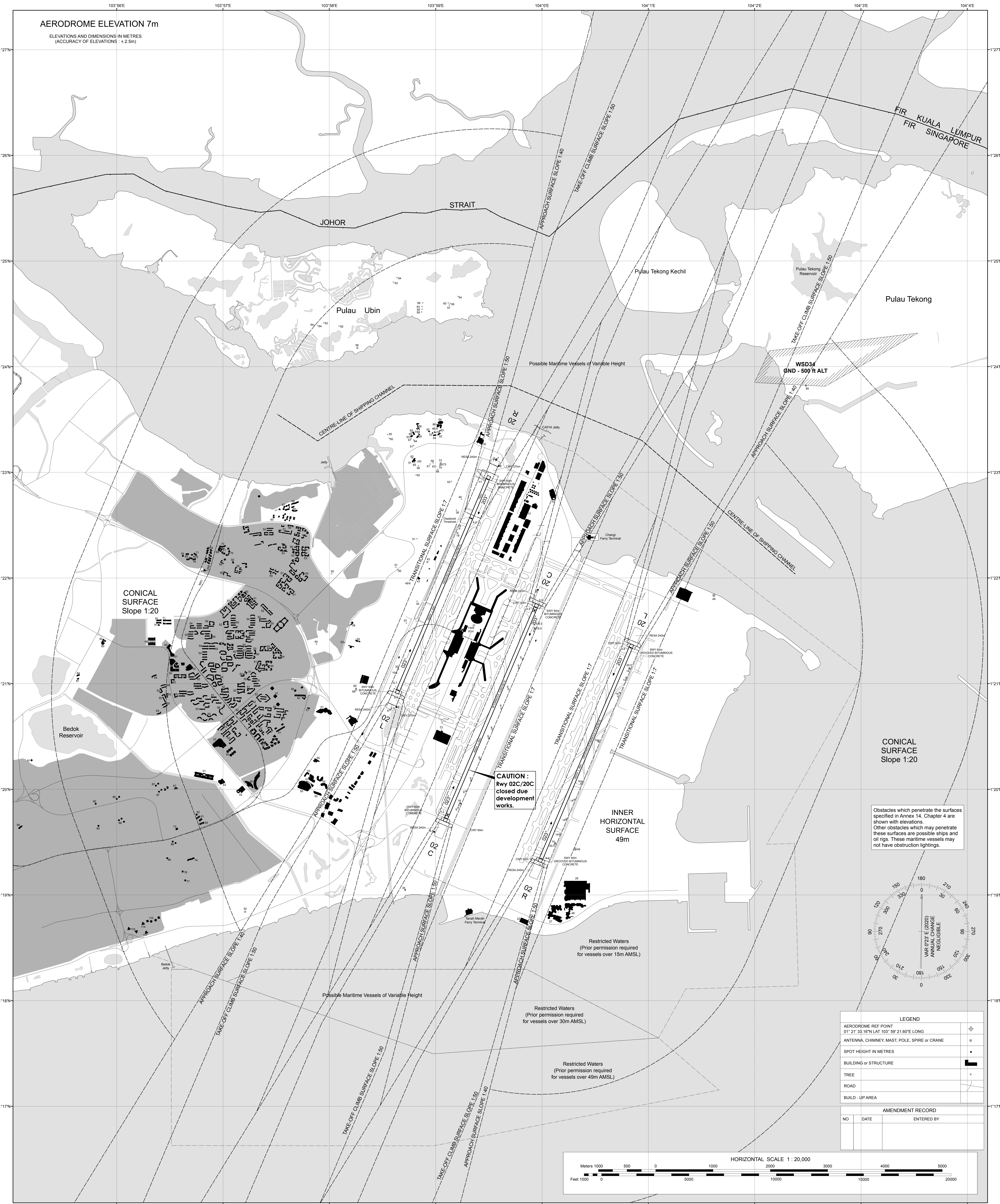
LOCATION	STAND NR	NORTH LAT	EAST LONG	ELEVATION	
EAST CARGO APRON	600	01 22 14.12	103 59 48.10	4.25m (13.94ft)	
	600L	01 22 13.28	103 59 48.27	4.22m (13.83ft)	
	600R	01 22 14.58	103 59 48.81	4.15m (13.60ft)	
	601	01 22 16.52	103 59 49.27	4.27m (14.01ft)	
	602	01 22 18.80	103 59 50.23	4.30m (14.11ft)	
	603	01 22 21.15	103 59 51.02	4.29m (14.07ft)	
	604	01 22 23.46	103 59 51.99	4.31m (14.14ft)	
	605	01 22 25.19	103 59 52.75	4.27m (14.01ft)	
	EAST SERVICE APRON	606	01 22 10.00	103 59 52.53	2.43m (7.97ft)
		609	01 22 12.95	103 59 55.04	2.91m (9.55ft)
ACEHUB	611	01 22 22.14	104 00 02.87	4.01m (13.16ft)	
	612	01 22 24.50	104 00 02.87		



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# AERODROME OBSTACLE CHART - ICAO TYPE B

SINGAPORE / Singapore Changi



**AERODROME ELEVATION 7m**  
ELEVATIONS AND DIMENSIONS IN METRES  
(ACCURACY OF ELEVATIONS : ± 2.5m)

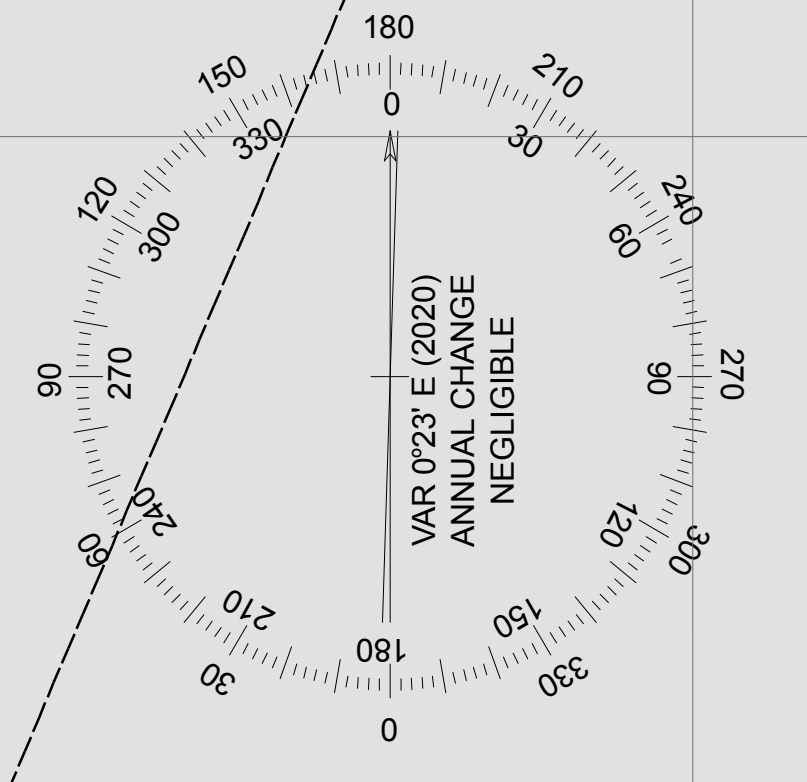
**CONICAL SURFACE**  
Slope 1:20

**INNER HORIZONTAL SURFACE**  
49m

**CONICAL SURFACE**  
Slope 1:20

**CAUTION :**  
Rwy 02C/20C  
closed due  
development  
works.

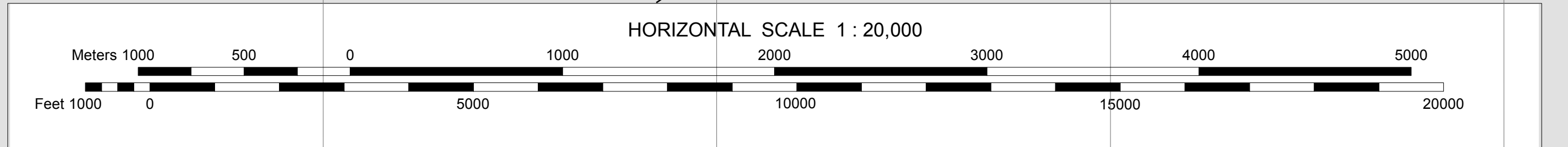
Obstacles which penetrate the surfaces specified in Annex 14, Chapter 4 are shown with elevations. Other obstacles which may penetrate these surfaces are possible ships and oil rigs. These maritime vessels may not have obstruction lightings.



LEGEND	
AERODROME REF POINT	⊕
01° 21' 33.16"N LAT 103° 59' 21.60"E LONG	
ANTENNA, CHIMNEY, MAST, POLE, SPIRE or CRANE	⊙
SPOT HEIGHT IN METRES	•
BUILDING or STRUCTURE	■
TREE	*
ROAD	—
BUILD - UP AREA	▨

AMENDMENT RECORD		
NO	DATE	ENTERED BY



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STANDARD DEPARTURE CHART  
RNAV (GNSS) -  
INSTRUMENT (SID)

TWR 118.6  
APP 120.3  
124.05  
ACC 134.4

TRANSITION ALTITUDE  
11 000ft

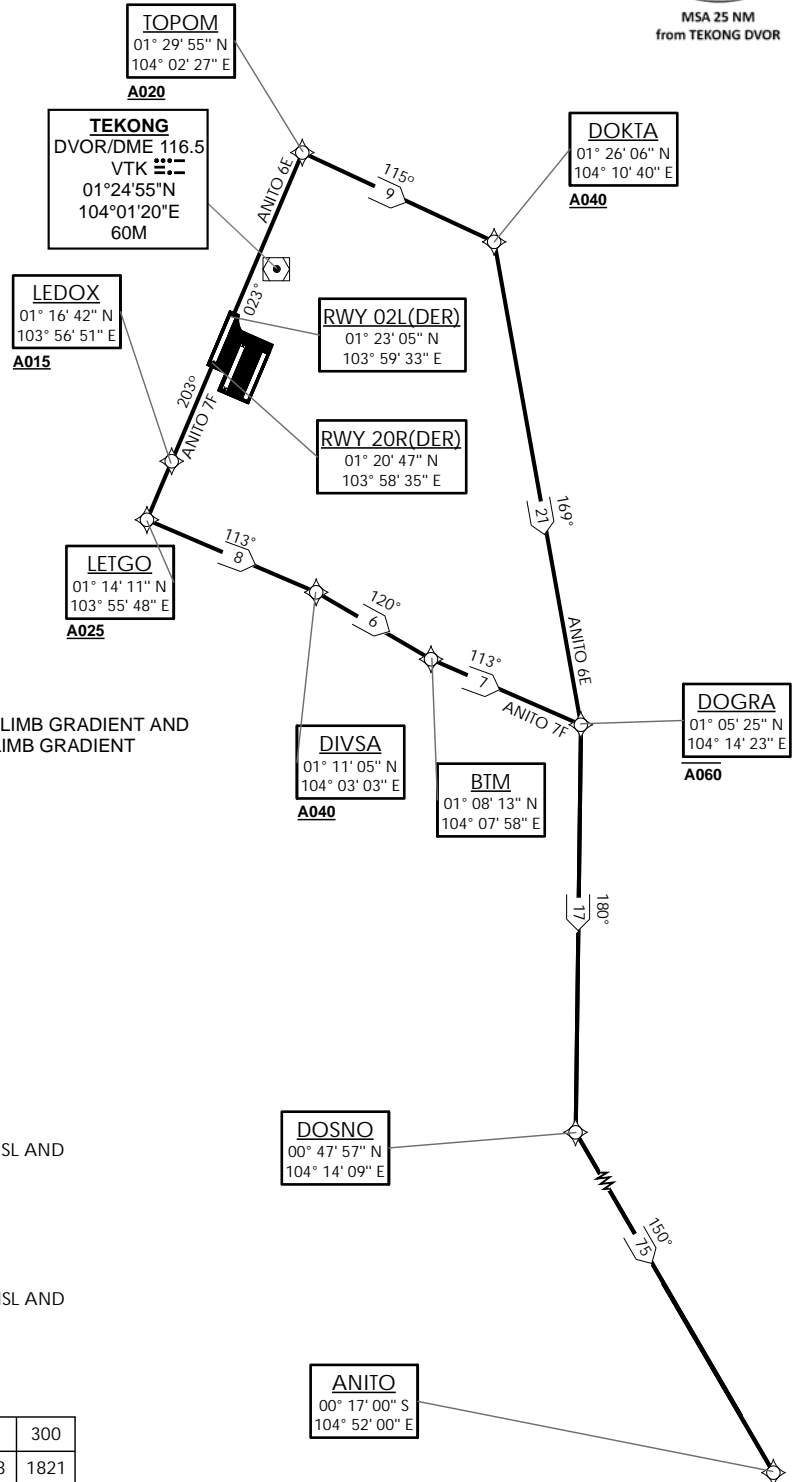
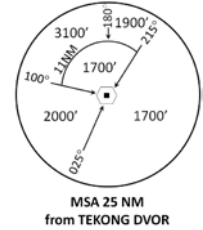
D-ATIS AP ID-WSSS  
128.6

SINGAPORE/Singapore Changi  
RWY 02L/20R

ANITO DEPARTURES  
ANITO 6E (R02L)  
ANITO 7F (R20R)

ELEV, ALT IN FEET  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)

DISTANCES IN NM



- NOTE:** RADAR REQUIRED
- NOTE:** RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED
- NOTE:** ACFT UNABLE TO FLY THE SID PROFILE SHALL INFORM ATC PRIOR TO DEPARTURE AND TO EXPECT RADAR VECTURING, IF NECESSARY
- NOTE:** WHEN TAKEN OFF THE SID, AS INSTRUCTED BY ATC, REFER TO ENR 1.5, SECTION 3, PARAGRAPH 3.2 [A] - FOR RWY 02L MINIMUM CLIMB GRADIENT AND PARAGRAPH 3.4.2 - FOR RWY 20R MINIMUM CLIMB GRADIENT
- NOTE:** REFER TO BACK PAGE FOR
  - FORMAL AND TABULAR DESCRIPTIONS
  - RADIO COM FAILURE PROCEDURES

GENERAL INFORMATION

**INITIAL CLIMB  
3000FT**

ON INITIAL CONTACT WHEN REQUESTING ATC, INFORM ATC OF THE FLIGHT LEVEL AIRCRAFT CAN CROSS ANITO  
ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

**RWY 02L**  
SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL. CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR. SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 3.3%.

**RWY 20R**  
SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL. CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR. SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 6% UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
6% V/V (fpm)	456	608	911	1215	1518	1821
3.3% V/V (fpm)	251	334	501	668	835	1003

NOT TO SCALE

### ANITO 6E (SID) RNAV GNSS RWY 02L - DESCRIPTIONS

#### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOPOM on course 023° at or above 2000ft, turn right. To DOKTA at or above 4000ft, turn right. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To ANITO.	TOPOM [M023; A020+; R] -	CF	N
	DOKTA [A040+; R] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	ANITO	TF	N

#### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOPOM	-	023(023.4)	-0.4	R	A020+	-	RNAV1
TF	DOKTA	-	115(115.4)	-0.4	R	A040+	-	RNAV1
TF	DOGRA	-	169(169.4)	-0.4	R	A060-	-	RNAV1
TF	DOSNO	-	180(180.4)	-0.4	L	-	-	RNAV1
TF	ANITO	-	150(150.4)	-0.4	-	-	-	RNAV1

### ANITO 7F (SID) RNAV GNSS RWY 20R - DESCRIPTIONS

#### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To LEDOX on course 203° at or above 1500ft. To LETGO at or above 2500ft, turn left. To DIVSA at or above 4000ft, turn right. To BTM, turn left. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To ANITO.	LEDOX [M203; A015+] -	CF	N
	LETGO [A025+; L] -	TF	N
	DIVSA [A040+; R] -	TF	N
	BTM [L] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	ANITO	TF	N

#### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	LEDOX	-	203(203.4)	-0.4	-	A015+	-	RNAV1
TF	LETGO	-	203(203.4)	-0.4	L	A025+	-	RNAV1
TF	DIVSA	-	113(113.4)	-0.4	R	A040+	-	RNAV1
TF	BTM	-	120(120.4)	-0.4	L	-	-	RNAV1
TF	DOGRA	-	113(113.4)	-0.4	R	A060-	-	RNAV1
TF	DOSNO	-	180(180.4)	-0.4	L	-	-	RNAV1
TF	ANITO	-	150(150.4)	-0.4	-	-	-	RNAV1

### RADIO COMMUNICATIONS FAILURE PROCEDURE

1	SET TRANSPONDER TO MODE A/C CODE 7600
2	<p><b>COMMUNICATIONS FAILURE OCCURS IMMEDIATELY AFTER DEPARTURE ON:</b></p> <p><b>RWY 02L</b> - PROCEED DIRECT TO NYLON HOLDING AREA (NHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.</p> <p><b>RWY 20R</b> - PROCEED DIRECT TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.</p>

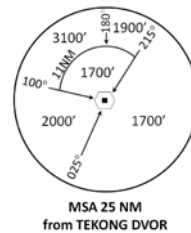
STANDARD DEPARTURE CHART  
RNAV (GNSS) -  
INSTRUMENT (SID)

TWR 118.6 / 118.25 APP 120.3 124.05 ACC 134.4	TRANSITION ALTITUDE 11 000ft
	D-ATIS AP ID-WSSS 128.6

SINGAPORE/Singapore Changi  
RWY 02C/20C  
ANITO DEPARTURES  
ANITO 6A (R02C)  
ANITO 7B (R20C)

- NOTE:** RADAR REQUIRED
- NOTE:** RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED
- NOTE:** CLOSE-IN OBSTACLES (AIRCRAFT UP TO 80FT) EXIST ON TAXIWAYS WEST OF RUNWAY 02C
- NOTE:** ACFT UNABLE TO FLY THE SID PROFILE SHALL INFORM ATC PRIOR TO DEPARTURE AND TO EXPECT RADAR VECTORED, IF NECESSARY
- NOTE:** WHEN TAKEN OFF THE SID, AS INSTRUCTED BY ATC, REFER TO ENR 1.5, SECTION 3, PARAGRAPH 3.3 [A] - FOR RWY 02C MINIMUM CLIMB GRADIENT AND PARAGRAPH 3.4.1 - FOR RWY 20C MINIMUM CLIMB GRADIENT
- NOTE:** REFER TO BACK PAGE FOR  
- FORMAL AND TABULAR DESCRIPTIONS  
- RADIO COM FAILURE PROCEDURES

ELEV, ALT IN FEET  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)  
DISTANCES IN NM



GENERAL INFORMATION

**INITIAL CLIMB  
3000FT**

ON INITIAL CONTACT WHEN REQUESTING ATC, INFORM ATC OF THE FLIGHT LEVEL AIRCRAFT CAN CROSS ANITO  
ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

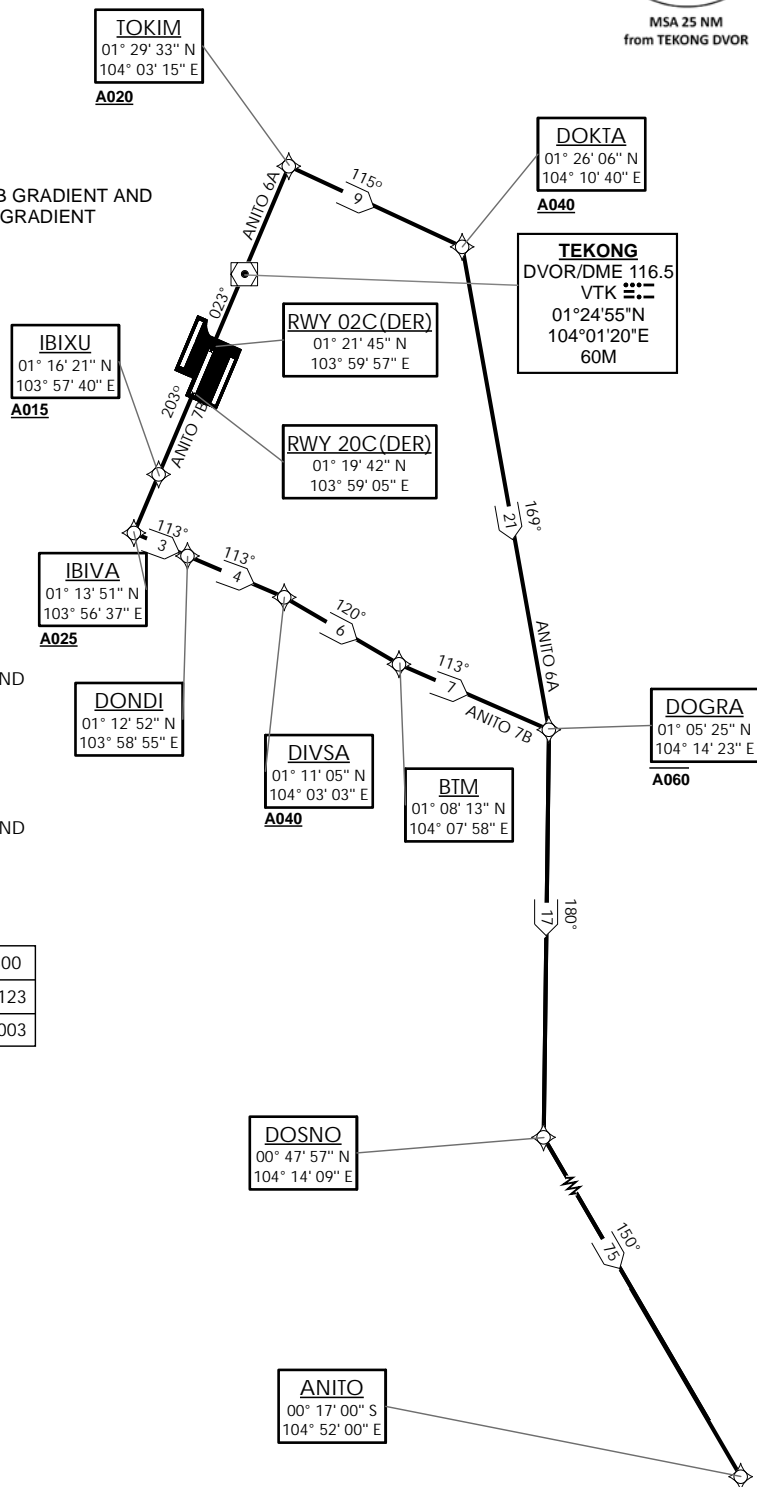
RWY 02C

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL. CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR. SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 3.3%.

RWY 20C

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL. CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR. SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 7% UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
7% V/V (fpm)	532	709	1062	1416	1769	2123
3.3% V/V (fpm)	251	334	501	668	835	1003



NOT TO SCALE

### ANITO 6A (SID) RNAV GNSS RWY 02C - DESCRIPTIONS

#### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOKIM on course 023° at or above 2000ft, turn right. To DOKTA at or above 4000ft, turn right. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To ANITO.	TOKIM [M023; A020+; R] -	CF	N
	DOKTA [A040+; R] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	ANITO	TF	N

#### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOKIM	-	023(023.4)	-0.4	R	A020+	-	RNAV1
TF	DOKTA	-	115(115.4)	-0.4	R	A040+	-	RNAV1
TF	DOGRA	-	169(169.4)	-0.4	R	A060-	-	RNAV1
TF	DOSNO	-	180(180.4)	-0.4	L	-	-	RNAV1
TF	ANITO	-	150(150.4)	-0.4	-	-	-	RNAV1

### ANITO 7B (SID) RNAV GNSS RWY 20C - DESCRIPTIONS

#### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To IBIXU on course 203° at or above 1500ft. To IBIVA at or above 2500ft, turn left. To DONDI. To DIVSA at or above 4000ft, turn right. To BTM, turn left. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To ANITO.	IBIXU [M203; A015+] -	CF	N
	IBIVA [A025+; L] -	TF	N
	DONDI -	TF	N
	DIVSA [A040+; R] -	TF	N
	BTM [L] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	ANITO	TF	N

#### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	IBIXU	-	203(203.4)	-0.4	-	A015+	-	RNAV1
TF	IBIVA	-	203(203.4)	-0.4	L	A025+	-	RNAV1
TF	DONDI	-	113(113.4)	-0.4	-	-	-	RNAV1
TF	DIVSA	-	113(113.4)	-0.4	R	A040+	-	RNAV1
TF	BTM	-	120(120.4)	-0.4	L	-	-	RNAV1
TF	DOGRA	-	113(113.4)	-0.4	R	A060-	-	RNAV1
TF	DOSNO	-	180(180.4)	-0.4	L	-	-	RNAV1
TF	ANITO	-	150(150.4)	-0.4	-	-	-	RNAV1

### RADIO COMMUNICATIONS FAILURE PROCEDURE

1	<b>SET TRANSPONDER TO MODE A/C CODE 7600</b>
2	<p><b>COMMUNICATIONS FAILURE OCCURS IMMEDIATELY AFTER DEPARTURE ON:</b></p> <p><b>RWY 02C</b> - PROCEED DIRECT TO NYLON HOLDING AREA (NHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.</p> <p><b>RWY 20C</b> - PROCEED DIRECT TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.</p>

STANDARD DEPARTURE CHART  
RNAV (GNSS) -  
INSTRUMENT (SID)

TWR	118.6
APP	120.3
	124.05
ACC	133.25

TRANSITION ALTITUDE  
11 000ft

D-ATIS AP ID-WSSS  
DEP 128.6

SINGAPORE/Singapore Changi  
RWY 02L/20R

ADMIM DEPARTURES  
ADMIM 1E (R02L)  
ADMIM 3F (R20R)

ELEV, ALT IN FEET  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)

DISTANCES IN NM

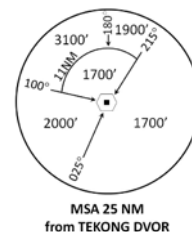
**NOTE:** RADAR REQUIRED

**NOTE:** RNAV-1 NAVIGATION SPECIFICATION  
GNSS REQUIRED

**NOTE:** ACFT UNABLE TO FLY THE SID  
PROFILE SHALL INFORM ATC  
PRIOR TO DEPARTURE AND TO  
EXPECT RADAR VECTURING,  
IF NECESSARY

**NOTE:** WHEN TAKEN OFF THE SID,  
AS INSTRUCTED BY ATC,  
REFER TO ENR 1.5, SECTION 3,  
PARAGRAPH 3.2 [A] - FOR RWY 02L MINIMUM CLIMB GRADIENT AND  
PARAGRAPH 3.4.2 - FOR RWY 20R MINIMUM CLIMB GRADIENT

**NOTE:** REFER TO BACK PAGE FOR  
- FORMAL AND TABULAR DESCRIPTIONS  
- RADIO COM FAILURE PROCEDURES



GENERAL INFORMATION

**INITIAL CLIMB  
3000FT**

ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

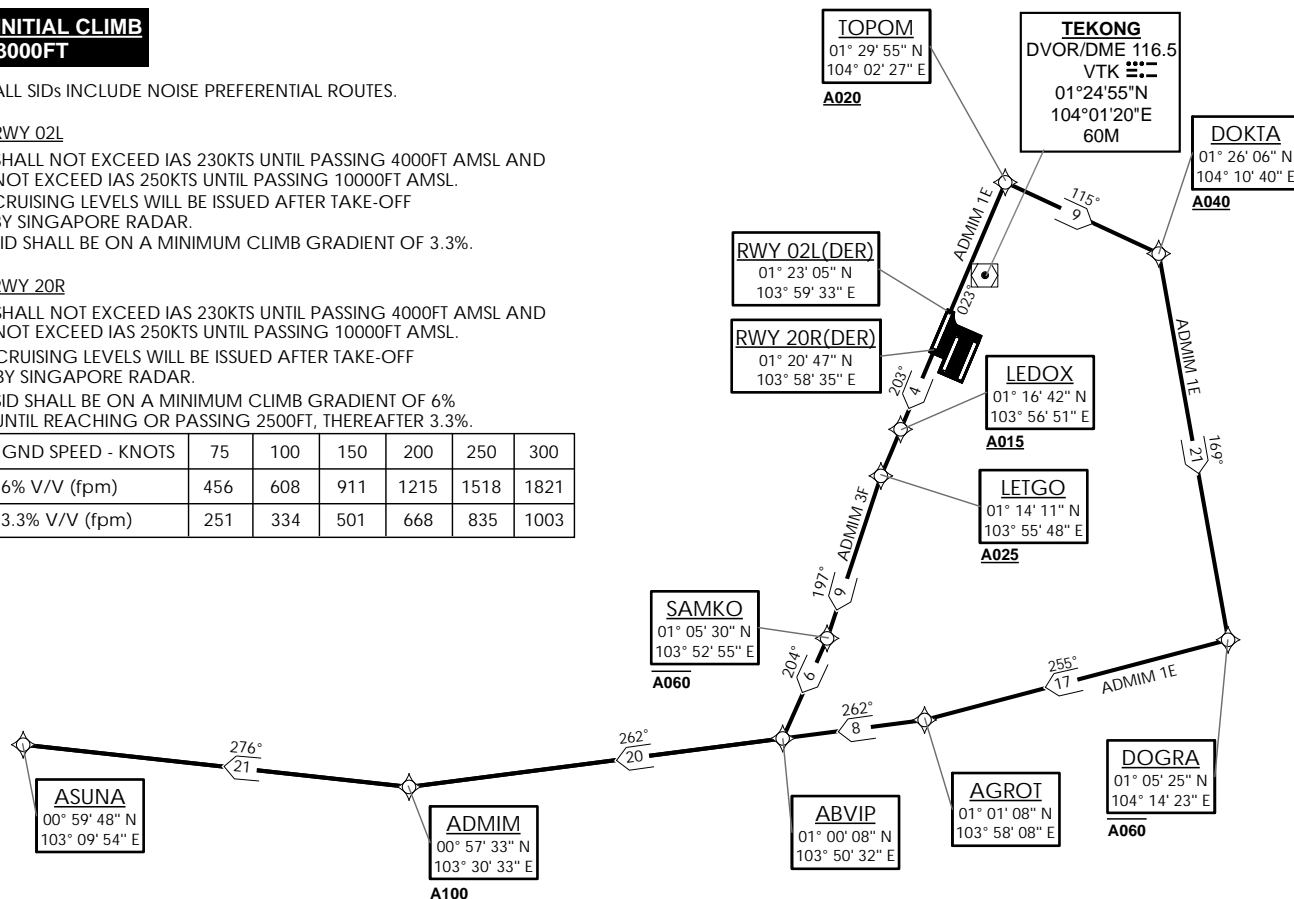
RWY 02L

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND  
NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.  
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF  
BY SINGAPORE RADAR.  
SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 3.3%.

RWY 20R

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND  
NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.  
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF  
BY SINGAPORE RADAR.  
SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 6%  
UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
6% V/V (fpm)	456	608	911	1215	1518	1821
3.3% V/V (fpm)	251	334	501	668	835	1003



NOT TO SCALE

### ADMIM 1E (SID) RNAV GNSS RWY 02L - DESCRIPTIONS

#### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOPOM on course 023° at or above 2000ft, turn right. To DOKTA at or above 4000ft, turn right. To DOGRA at or below 6000ft, turn right. To AGROT, turn right. To ABVIP. To ADMIM at or above 10000ft, turn right. To ASUNA.	TOPOM [M023; A020+; R] -	CF	N
	DOKTA [A040+; R] -	TF	N
	DOGRA [A060-; R] -	TF	N
	AGROT [R] -	TF	N
	ABVIP -	TF	N
	ADMIM [A100+; R] -	TF	N
	ASUNA	TF	N

#### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOPOM	-	023(023.4)	-0.4	R	A020+	-	RNAV1
TF	DOKTA	-	115(115.4)	-0.4	R	A040+	-	RNAV1
TF	DOGRA	-	169(169.4)	-0.4	R	A060-	-	RNAV1
TF	AGROT	-	255(255.4)	-0.4	R	-	-	RNAV1
TF	ABVIP	-	262(262.4)	-0.4	-	-	-	RNAV1
TF	ADMIM	-	262(262.4)	-0.4	R	A100+	-	RNAV1
TF	ASUNA	-	276(276.4)	-0.4	-	-	-	RNAV1

### ADMIM 3F (SID) RNAV GNSS RWY 20R - DESCRIPTIONS

#### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To LEDOX on course 203° at or above 1500ft. To LETGO at or above 2500ft, turn left. To SAMKO at or below 6000ft, turn right. To ABVIP, turn right. To ADMIM at or above 10000ft, turn right. To ASUNA.	LEDOX [M203; A015+] -	CF	N
	LETGO [A025+; L] -	TF	N
	SAMKO [A060-; R] -	TF	N
	ABVIP [R] -	TF	N
	ADMIM [A100+; R] -	TF	N
	ASUNA	TF	N

#### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	LEDOX	-	203(203.4)	-0.4	-	A015+	-	RNAV1
TF	LETGO	-	203(203.4)	-0.4	L	A025+	-	RNAV1
TF	SAMKO	-	197(197.4)	-0.4	R	A060-	-	RNAV1
TF	ABVIP	-	204(204.4)	-0.4	R	-	-	RNAV1
TF	ADMIM	-	262(262.4)	-0.4	R	A100+	-	RNAV1
TF	ASUNA	-	276(276.4)	-0.4	-	-	-	RNAV1

### RADIO COMMUNICATIONS FAILURE PROCEDURE

1	SET TRANSPONDER TO MODE A/C CODE 7600
2	<p><b>COMMUNICATIONS FAILURE OCCURS IMMEDIATELY AFTER DEPARTURE ON:</b></p> <p><b>RWY 02L</b> - PROCEED DIRECT TO NYLON HOLDING AREA (NHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.</p> <p><b>RWY 20R</b> - PROCEED DIRECT TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.</p>



### ADMIM 1A (SID) RNAV GNSS RWY 02C - DESCRIPTIONS

#### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOKIM on course 023° at or above 2000ft, turn right. To DOKTA at or above 4000ft, turn right. To DOGRA at or below 6000ft, turn right. To AGROT, turn right. To ABVIP. To ADMIM at or above 10000ft, turn right. To ASUNA.	TOKIM [M023; A020+; R] -	CF	N
	DOKTA [A040+; R] -	TF	N
	DOGRA [A060-; R] -	TF	N
	AGROT [R] -	TF	N
	ABVIP -	TF	N
	ADMIM [A100+; R] -	TF	N
	ASUNA	TF	N

#### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOKIM	-	023(023.4)	-0.4	R	A020+	-	RNAV1
TF	DOKTA	-	115(115.4)	-0.4	R	A040+	-	RNAV1
TF	DOGRA	-	169(169.4)	-0.4	R	A060-	-	RNAV1
TF	AGROT	-	255(255.4)	-0.4	R	-	-	RNAV1
TF	ABVIP	-	262(262.4)	-0.4	-	-	-	RNAV1
TF	ADMIM	-	262(262.4)	-0.4	R	A100+	-	RNAV1
TF	ASUNA	-	276(276.4)	-0.4	-	-	-	RNAV1

### ADMIM 3B (SID) RNAV GNSS RWY 20C - DESCRIPTIONS

#### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To IBIXU on course 203° at or above 1500ft. To IBIVA at or above 2500ft. To SAMKO at or below 6000ft, turn right. To ABVIP, turn right. To ADMIM at or above 10000ft, turn right. To ASUNA.	IBIXU [M203; A015+] -	CF	N
	IBIVA [A025+] -	TF	N
	SAMKO [A060-; R] -	TF	N
	ABVIP [R] -	TF	N
	ADMIM [A100+; R] -	TF	N
	ASUNA	TF	N

#### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	IBIXU	-	203(203.4)	-0.4	-	A015+	-	RNAV1
TF	IBIVA	-	203(203.4)	-0.4	-	A025+	-	RNAV1
TF	SAMKO	-	203(203.4)	-0.4	R	A060-	-	RNAV1
TF	ABVIP	-	204(204.4)	-0.4	R	-	-	RNAV1
TF	ADMIM	-	262(262.4)	-0.4	R	A100+	-	RNAV1
TF	ASUNA	-	276(276.4)	-0.4	-	-	-	RNAV1

### RADIO COMMUNICATIONS FAILURE PROCEDURE

1	<b>SET TRANSPONDER TO MODE A/C CODE 7600</b>
2	<p><b>COMMUNICATIONS FAILURE OCCURS IMMEDIATELY AFTER DEPARTURE ON:</b></p> <p><b>RWY 02C</b> - PROCEED DIRECT TO NYLON HOLDING AREA (NHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.</p> <p><b>RWY 20C</b> - PROCEED DIRECT TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.</p>



**STANDARD DEPARTURE CHART**  
**RNAV (GNSS) -**  
**INSTRUMENT (SID)**

TWR 118.6  
APP 120.3  
124.05  
ACC 134.2

TRANSITION ALTITUDE  
11 000ft

D-ATIS AP ID-WSSS  
128.6

**SINGAPORE/Singapore Changi**  
**RWY 02L/20R**  
**TOMAN DEPARTURES**  
**TOMAN 2E (R02L)**  
**TOMAN 4F (R20R)**

**ELEV, ALT IN FEET**  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 23°E (2020)

DISTANCES IN NM

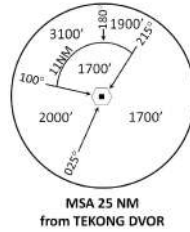
**NOTE:** RADAR REQUIRED

**NOTE:** RNAV-1 NAVIGATION SPECIFICATION  
GNSS REQUIRED

**NOTE:** ACFT UNABLE TO FLY THE SID  
PROFILE SHALL INFORM ATC  
PRIOR TO DEPARTURE AND TO  
EXPECT RADAR VECTORED,  
IF NECESSARY

**NOTE:** WHEN TAKEN OFF THE SID,  
AS INSTRUCTED BY ATC,  
REFER TO ENR 1.5, SECTION 3,  
PARAGRAPH 3.2 [A] - FOR RWY 02L MINIMUM CLIMB GRADIENT AND  
PARAGRAPH 3.4.2 - FOR RWY 20R MINIMUM CLIMB GRADIENT

**NOTE:** REFER TO BACK PAGE FOR  
- FORMAL AND TABULAR DESCRIPTIONS  
- RADIO COM FAILURE PROCEDURES



**GENERAL INFORMATION**

**INITIAL CLIMB**  
**3000FT**

ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

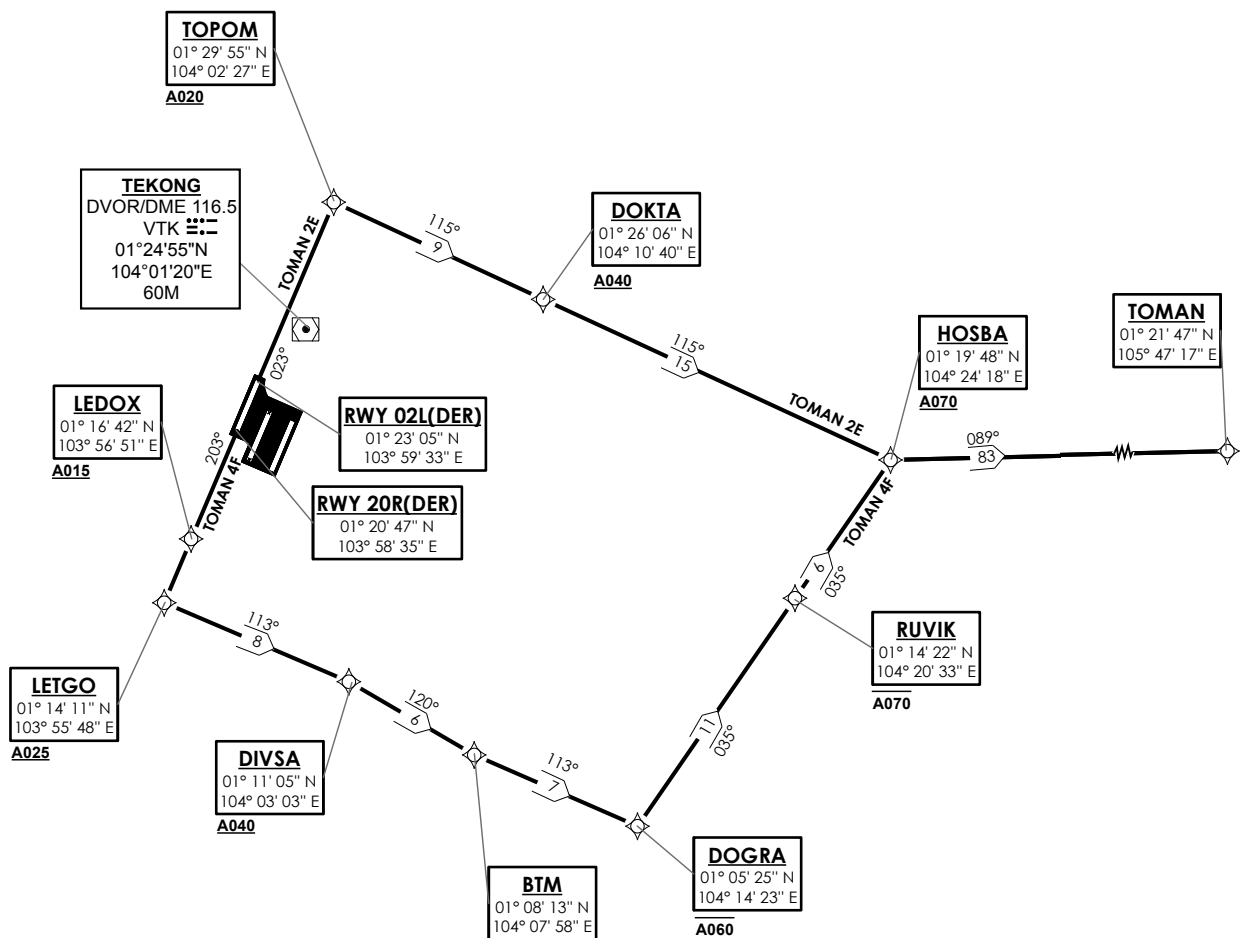
**RWY 02L**

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND  
NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.  
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF  
BY SINGAPORE RADAR.  
SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 3.3%.

**RWY 20R**

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND  
NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.  
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF  
BY SINGAPORE RADAR.  
SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 6%  
UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
6% V/V (fpm)	456	608	911	1215	1518	1821
3.3% V/V (fpm)	251	334	501	668	835	1003



NOT TO SCALE

### TOMAN 2E (SID) RNAV GNSS RWY 02L - DESCRIPTIONS

#### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOPOM on course 023° at or above 2000ft, turn right. To DOKTA at or above 4000ft. To HOSBA at or above 7000ft, turn left. To TOMAN.	TOPOM [M023; A020+; R] -	CF	N
	DOKTA [A040+] -	TF	N
	HOSBA [A070+; L] -	TF	N
	TOMAN	TF	N

#### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOPOM	-	023(023.4)	-0.4	R	A020+	-	RNAV1
TF	DOKTA	-	115(115.4)	-0.4	-	A040+	-	RNAV1
TF	HOSBA	-	115(115.4)	-0.4	L	A070+	-	RNAV1
TF	TOMAN	-	089(089.4)	-0.4	-	-	-	RNAV1

### TOMAN 4F (SID) RNAV GNSS RWY 20R - DESCRIPTIONS

#### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To LEDOX on course 203° at or above 1500ft. To LETGO at or above 2500ft, turn left. To DIVSA at or above 4000ft, turn right. To BTM, turn left. To DOGRA at or below 6000ft, turn left. To RUVIK at or below 7000ft. To HOSBA at or above 7000ft, turn right. To TOMAN.	LEDOX [M203; A015+] -	CF	N
	LETGO [A025+; L] -	TF	N
	DIVSA [A040+; R] -	TF	N
	BTM [L] -	TF	N
	DOGRA [A060-; L] -	TF	N
	RUVIK [A070-] -	TF	N
	HOSBA [A070+; R] -	TF	N
	TOMAN	TF	N

#### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	LEDOX	-	203(203.4)	-0.4	-	A015+	-	RNAV1
TF	LETGO	-	203(203.4)	-0.4	L	A025+	-	RNAV1
TF	DIVSA	-	113(113.4)	-0.4	R	A040+	-	RNAV1
TF	BTM	-	120(120.4)	-0.4	L	-	-	RNAV1
TF	DOGRA	-	113(113.4)	-0.4	L	A060-	-	RNAV1
TF	RUVIK	-	035(035.4)	-0.4	-	A070-	-	RNAV1
TF	HOSBA	-	035(035.4)	-0.4	R	A070+	-	RNAV1
TF	TOMAN	-	089(089.4)	-0.4	-	-	-	RNAV1

### RADIO COMMUNICATIONS FAILURE PROCEDURE

1	SET TRANSPONDER TO MODE A/C CODE 7600
2	<p><b>COMMUNICATIONS FAILURE OCCURS IMMEDIATELY AFTER DEPARTURE ON:</b></p> <p><b>RWY 02L</b> - PROCEED DIRECT TO NYLON HOLDING AREA (NHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.</p> <p><b>RWY 20R</b> - PROCEED DIRECT TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.</p>

STANDARD DEPARTURE CHART  
RNAV (GNSS) -  
INSTRUMENT (SID)

TWR 118.6 / 118.25  
APP 120.3  
124.05  
ACC 134.2

TRANSITION ALTITUDE  
11 000ft

D-ATIS AP ID-WSSS  
128.6

SINGAPORE/Singapore Changi  
RWY 02C/20C  
TOMAN DEPARTURES  
TOMAN 2A (R02C)  
TOMAN 4B (R20C)

ELEV, ALT IN FEET  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)

DISTANCES IN NM

NOTE: RADAR REQUIRED

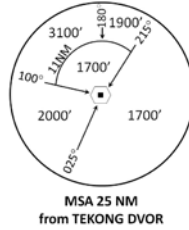
NOTE: RNAV-1 NAVIGATION SPECIFICATION  
GNSS REQUIRED

NOTE: CLOSE-IN OBSTACLES (AIRCRAFT UP TO 80FT)  
EXIST ON TAXIWAYS WEST OF RUNWAY 02C

NOTE: ACFT UNABLE TO FLY THE SID  
PROFILE SHALL INFORM ATC  
PRIOR TO DEPARTURE AND TO  
EXPECT RADAR VECTORING,  
IF NECESSARY

NOTE: WHEN TAKEN OFF THE SID,  
AS INSTRUCTED BY ATC,  
REFER TO ENR 1.5, SECTION 3,  
PARAGRAPH 3.3 [A] - FOR RWY 02C MINIMUM CLIMB GRADIENT AND  
PARAGRAPH 3.4.1 - FOR RWY 20C MINIMUM CLIMB GRADIENT

NOTE: REFER TO BACK PAGE FOR  
- FORMAL AND TABULAR DESCRIPTIONS  
- RADIO COM FAILURE PROCEDURES



GENERAL INFORMATION

**INITIAL CLIMB  
3000FT**

ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

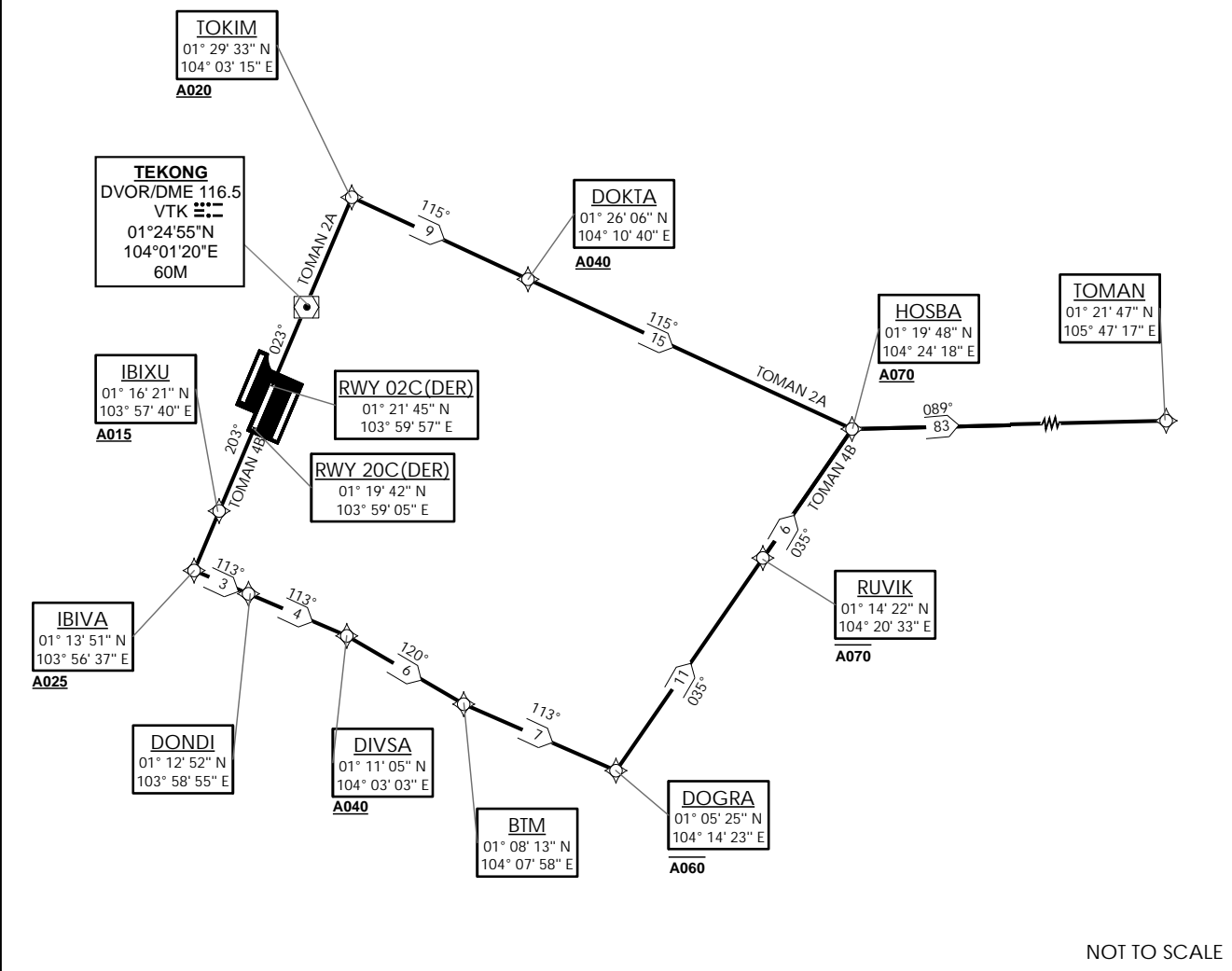
RWY 02C

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND  
NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.  
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF  
BY SINGAPORE RADAR.  
SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 3.3%.

RWY 20C

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND  
NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.  
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF  
BY SINGAPORE RADAR.  
SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 7%  
UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
7% V/V (fpm)	532	709	1062	1416	1769	2123
3.3% V/V (fpm)	251	334	501	668	835	1003



NOT TO SCALE

### TOMAN 2A (SID) RNAV GNSS RWY 02C - DESCRIPTIONS

#### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOKIM on course 023° at or above 2000ft, turn right. To DOKTA at or above 4000ft. To HOSBA at or above 7000ft, turn left. To TOMAN.	TOKIM [M023; A020+; R] -	CF	N
	DOKTA [A040+] -	TF	N
	HOSBA [A070+; L] -	TF	N
	TOMAN	TF	N

#### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOKIM	-	023(023.4)	-0.4	R	A020+	-	RNAV1
TF	DOKTA	-	115(115.4)	-0.4	-	A040+	-	RNAV1
TF	HOSBA	-	115(115.4)	-0.4	L	A070+	-	RNAV1
TF	TOMAN	-	089(089.4)	-0.4	-	-	-	RNAV1

### TOMAN 4B (SID) RNAV GNSS RWY 20C - DESCRIPTIONS

#### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To IBIXU on course 203° at or above 1500ft. To IBIVA at or above 2500ft, turn left. To DONDI. To DIVSA at or above 4000ft, turn right. To BTM, turn left. To DOGRA at or below 6000ft, turn left. To RUVIK at or below 7000ft. To HOSBA at or above 7000ft, turn right. To TOMAN.	IBIXU [M203; A015+] -	CF	N
	IBIVA [A025+; L] -	TF	N
	DONDI -	TF	N
	DIVSA [A040+; R] -	TF	N
	BTM [L] -	TF	N
	DOGRA [A060-; L] -	TF	N
	RUVIK [A070-] -	TF	N
	HOSBA [A070+; R] -	TF	N
TOMAN	TF	N	

#### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	IBIXU	-	203(203.4)	-0.4	-	A015+	-	RNAV1
TF	IBIVA	-	203(203.4)	-0.4	L	A025+	-	RNAV1
TF	DONDI	-	113(113.4)	-0.4	-	-	-	RNAV1
TF	DIVSA	-	113(113.4)	-0.4	R	A040+	-	RNAV1
TF	BTM	-	120(120.4)	-0.4	L	-	-	RNAV1
TF	DOGRA	-	113(113.4)	-0.4	L	A060-	-	RNAV1
TF	RUVIK	-	035(035.4)	-0.4	-	A070-	-	RNAV1
TF	HOSBA	-	035(035.4)	-0.4	R	A070+	-	RNAV1
TF	TOMAN	-	089(089.4)	-0.4	-	-	-	RNAV1

### RADIO COMMUNICATIONS FAILURE PROCEDURE

1	<b>SET TRANSPONDER TO MODE A/C CODE 7600</b>
2	<b>COMMUNICATIONS FAILURE OCCURS IMMEDIATELY AFTER DEPARTURE ON:</b>  <b>RWY 02C</b> - PROCEED DIRECT TO NYLON HOLDING AREA (NHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.  <b>RWY 20C</b> - PROCEED DIRECT TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.

STANDARD DEPARTURE CHART  
RNAV (GNSS) -  
INSTRUMENT (SID)

TWR	118.6
APP	120.3
	124.05
ACC	134.4

TRANSITION ALTITUDE	11 000ft
D-ATIS	AP ID-WSSS 128.6

SINGAPORE/Singapore Changi  
RWY 02L/20R  
BAVUS DEPARTURES  
BAVUS 1E (R02L)  
BAVUS 3F (R20R)

ELEV, ALT IN FEET  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)

DISTANCES IN NM

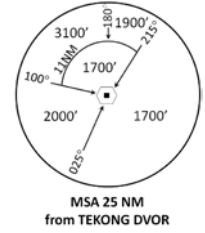
**NOTE:** RADAR REQUIRED

**NOTE:** RNAV-1 NAVIGATION SPECIFICATION  
GNSS REQUIRED

**NOTE:** ACFT UNABLE TO FLY THE SID  
PROFILE SHALL INFORM ATC  
PRIOR TO DEPARTURE AND TO  
EXPECT RADAR VECTURING,  
IF NECESSARY

**NOTE:** WHEN TAKEN OFF THE SID,  
AS INSTRUCTED BY ATC,  
REFER TO ENR 1.5, SECTION 3,  
PARAGRAPH 3.2 [A] - FOR RWY 02L MINIMUM CLIMB GRADIENT AND  
PARAGRAPH 3.4.2 - FOR RWY 20R MINIMUM CLIMB GRADIENT

**NOTE:** REFER TO BACK PAGE FOR  
- FORMAL AND TABULAR DESCRIPTIONS  
- RADIO COM FAILURE PROCEDURES



GENERAL INFORMATION

**INITIAL CLIMB  
3000FT**

ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

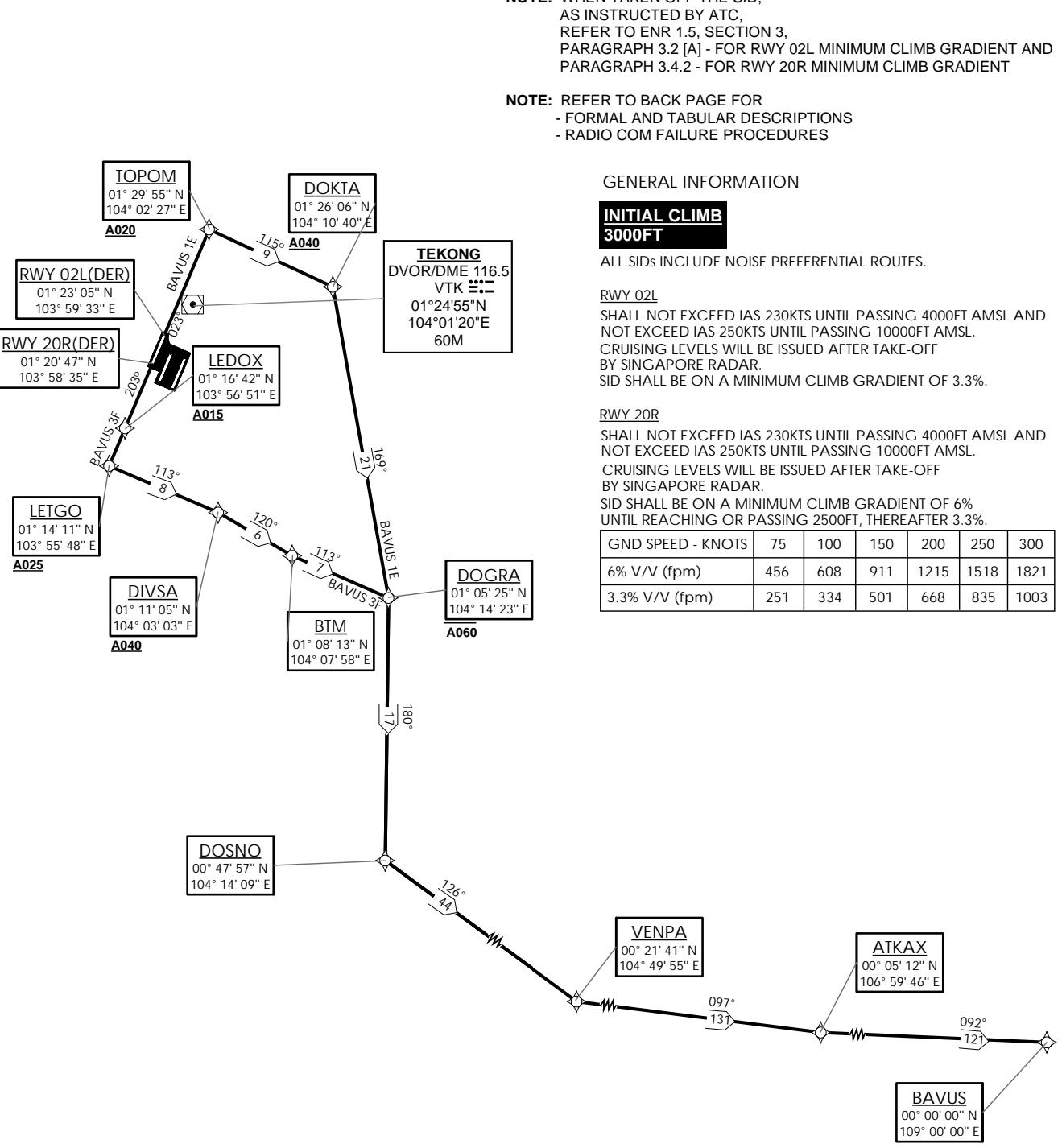
RWY 02L

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND  
NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.  
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF  
BY SINGAPORE RADAR.  
SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 3.3%.

RWY 20R

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND  
NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.  
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF  
BY SINGAPORE RADAR.  
SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 6%  
UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
6% V/V (fpm)	456	608	911	1215	1518	1821
3.3% V/V (fpm)	251	334	501	668	835	1003



NOT TO SCALE

## BAVUS 1E (SID) RNAV GNSS RWY 02L - DESCRIPTIONS

### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOPOM on course 023° at or above 2000ft, turn right. To DOKTA at or above 4000ft, turn right. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To VENPA, turn left. To ATKAX, turn left. To BAVUS.	TOPOM [M023; A020+; R] -	CF	N
	DOKTA [A040+; R] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	VENPA [L] -	TF	N
	ATKAX [L] -	TF	N
	BAVUS	TF	N

### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOPOM	-	023(023.4)	-0.4	R	A020+	-	RNAV1
TF	DOKTA	-	115(115.4)	-0.4	R	A040+	-	RNAV1
TF	DOGRA	-	169(169.4)	-0.4	R	A060-	-	RNAV1
TF	DOSNO	-	180(180.4)	-0.4	L	-	-	RNAV1
TF	VENPA	-	126(126.4)	-0.4	L	-	-	RNAV1
TF	ATKAX	-	097(097.4)	-0.4	L	-	-	RNAV1
TF	BAVUS	-	092(092.4)	-0.4	-	-	-	RNAV1

## BAVUS 3F (SID) RNAV GNSS RWY 20R - DESCRIPTIONS

### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To LEDOX on course 203° at or above 1500ft. To LETGO at or above 2500ft, turn left. To DIVSA at or above 4000ft, turn right. To BTM, turn left. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To VENPA, turn left. To ATKAX, turn left. To BAVUS.	LEDOX [M203; A015+] -	CF	N
	LETGO [A025+; L] -	TF	N
	DIVSA [A040+; R] -	TF	N
	BTM [L] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	VENPA [L] -	TF	N
	ATKAX [L] -	TF	N
	BAVUS	TF	N

### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	LEDOX	-	203(203.4)	-0.4	-	A015+	-	RNAV1
TF	LETGO	-	203(203.4)	-0.4	L	A025+	-	RNAV1
TF	DIVSA	-	113(113.4)	-0.4	R	A040+	-	RNAV1
TF	BTM	-	120(120.4)	-0.4	L	-	-	RNAV1
TF	DOGRA	-	113(113.4)	-0.4	R	A060-	-	RNAV1
TF	DOSNO	-	180(180.4)	-0.4	L	-	-	RNAV1
TF	VENPA	-	126(126.4)	-0.4	L	-	-	RNAV1
TF	ATKAX	-	097(097.4)	-0.4	L	-	-	RNAV1
TF	BAVUS	-	092(092.4)	-0.4	-	-	-	RNAV1

## RADIO COMMUNICATIONS FAILURE PROCEDURE

1	<b>SET TRANSPONDER TO MODE A/C CODE 7600</b>
2	<b>COMMUNICATIONS FAILURE OCCURS IMMEDIATELY AFTER DEPARTURE ON:</b>  <b>RWY 02L</b> - PROCEED DIRECT TO NYLON HOLDING AREA (NHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.  <b>RWY 20R</b> - PROCEED DIRECT TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.

STANDARD DEPARTURE CHART  
RNAV (GNSS) -  
INSTRUMENT (SID)

TWR 118.6 / 118.25  
APP 120.3  
124.05  
ACC 134.4

TRANSITION ALTITUDE  
11 000ft

D-ATIS AP ID-WSSS  
128.6

SINGAPORE/Singapore Changi  
RWY 02C/20C  
BAVUS DEPARTURES  
BAVUS 1A (R02C)  
BAVUS 3B (R20C)

ELEV, ALT IN FEET  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)

DISTANCES IN NM

**NOTE:** RADAR REQUIRED

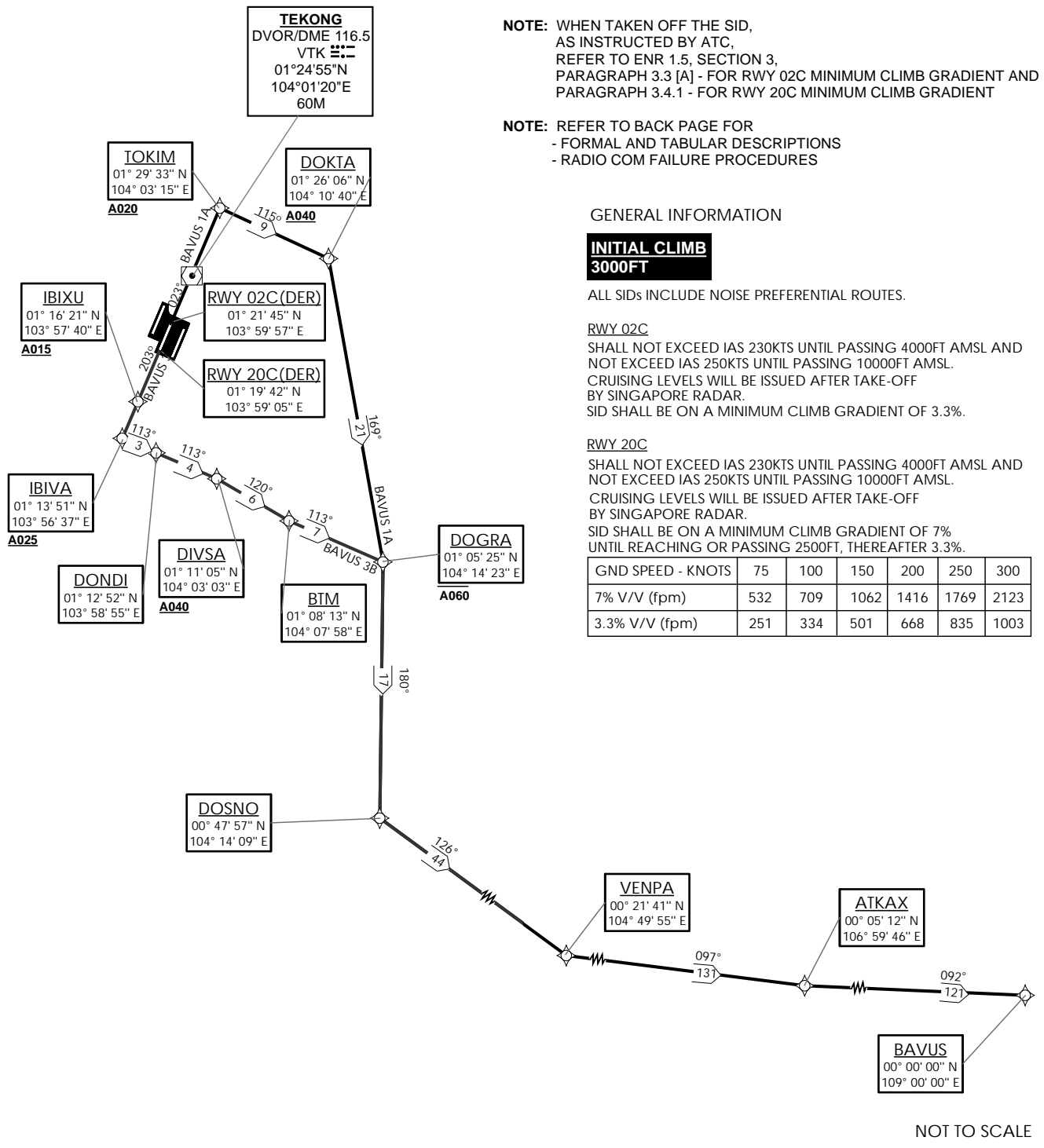
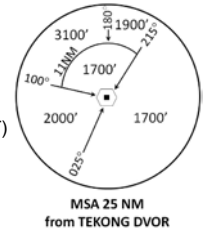
**NOTE:** RNAV-1 NAVIGATION SPECIFICATION  
GNSS REQUIRED

**NOTE:** CLOSE-IN OBSTACLES (AIRCRAFT UP TO 80FT)  
EXIST ON TAXIWAYS WEST OF RUNWAY 02C

**NOTE:** ACFT UNABLE TO FLY THE SID  
PROFILE SHALL INFORM ATC  
PRIOR TO DEPARTURE AND TO  
EXPECT RADAR VECTORED,  
IF NECESSARY

**NOTE:** WHEN TAKEN OFF THE SID,  
AS INSTRUCTED BY ATC,  
REFER TO ENR 1.5, SECTION 3,  
PARAGRAPH 3.3 [A] - FOR RWY 02C MINIMUM CLIMB GRADIENT AND  
PARAGRAPH 3.4.1 - FOR RWY 20C MINIMUM CLIMB GRADIENT

**NOTE:** REFER TO BACK PAGE FOR  
- FORMAL AND TABULAR DESCRIPTIONS  
- RADIO COM FAILURE PROCEDURES



GENERAL INFORMATION

**INITIAL CLIMB  
3000FT**

ALL Sids INCLUDE NOISE PREFERENTIAL ROUTES.

RWY 02C

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND  
NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.  
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF  
BY SINGAPORE RADAR.  
SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 3.3%.

RWY 20C

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND  
NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.  
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF  
BY SINGAPORE RADAR.  
SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 7%  
UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
7% V/V (fpm)	532	709	1062	1416	1769	2123
3.3% V/V (fpm)	251	334	501	668	835	1003

### BAVUS 1A (SID) RNAV GNSS RWY 02C - DESCRIPTIONS

#### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOKIM on course 023° at or above 2000ft, turn right. To DOKTA at or above 4000ft, turn right. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To VENPA, turn left. To ATKAX, turn left. To BAVUS.	TOKIM [M023; A020+; R] -	CF	N
	DOKTA [A040+; R] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	VENPA [L] -	TF	N
	ATKAX [L] -	TF	N
	BAVUS	TF	N

#### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOKIM	-	023(023.4)	-0.4	R	A020+	-	RNAV1
TF	DOKTA	-	115(115.4)	-0.4	R	A040+	-	RNAV1
TF	DOGRA	-	169(169.4)	-0.4	R	A060-	-	RNAV1
TF	DOSNO	-	180(180.4)	-0.4	L	-	-	RNAV1
TF	VENPA	-	126(126.4)	-0.4	L	-	-	RNAV1
TF	ATKAX	-	097(097.4)	-0.4	L	-	-	RNAV1
TF	BAVUS	-	092(092.4)	-0.4	-	-	-	RNAV1

### BAVUS 3B (SID) RNAV GNSS RWY 20C - DESCRIPTIONS

#### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To IBIXU on course 203° at or above 1500ft. To IBIVA at or above 2500ft, turn left. To DONDI. To DIVSA at or above 4000ft, turn right. To BTM, turn left. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To VENPA, turn left. To ATKAX, turn left. To BAVUS.	IBIXU [M203; A015+] -	CF	N
	IBIVA [A025+; L] -	TF	N
	DONDI -	TF	N
	DIVSA [A040+; R] -	TF	N
	BTM [L] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	VENPA [L] -	TF	N
	ATKAX [L] -	TF	N
	BAVUS	TF	N

#### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	IBIXU	-	203(203.4)	-0.4	-	A015+	-	RNAV1
TF	IBIVA	-	203(203.4)	-0.4	L	A025+	-	RNAV1
TF	DONDI	-	113(113.4)	-0.4	-	-	-	RNAV1
TF	DIVSA	-	113(113.4)	-0.4	R	A040+	-	RNAV1
TF	BTM	-	120(120.4)	-0.4	L	-	-	RNAV1
TF	DOGRA	-	113(113.4)	-0.4	R	A060-	-	RNAV1
TF	DOSNO	-	180(180.4)	-0.4	L	-	-	RNAV1
TF	VENPA	-	126(126.4)	-0.4	L	-	-	RNAV1
TF	ATKAX	-	097(097.4)	-0.4	L	-	-	RNAV1
TF	BAVUS	-	092(092.4)	-0.4	-	-	-	RNAV1

### RADIO COMMUNICATIONS FAILURE PROCEDURE

1	<b>SET TRANSPONDER TO MODE A/C CODE 7600</b>
2	<b>COMMUNICATIONS FAILURE OCCURS IMMEDIATELY AFTER DEPARTURE ON:</b>  <b>RWY 02C</b> - PROCEED DIRECT TO NYLON HOLDING AREA (NHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.  <b>RWY 20C</b> - PROCEED DIRECT TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.



STANDARD DEPARTURE CHART  
RNAV (GNSS) -  
INSTRUMENT (SID)

TWR 118.6  
APP 120.3  
124.05  
ACC 133.25

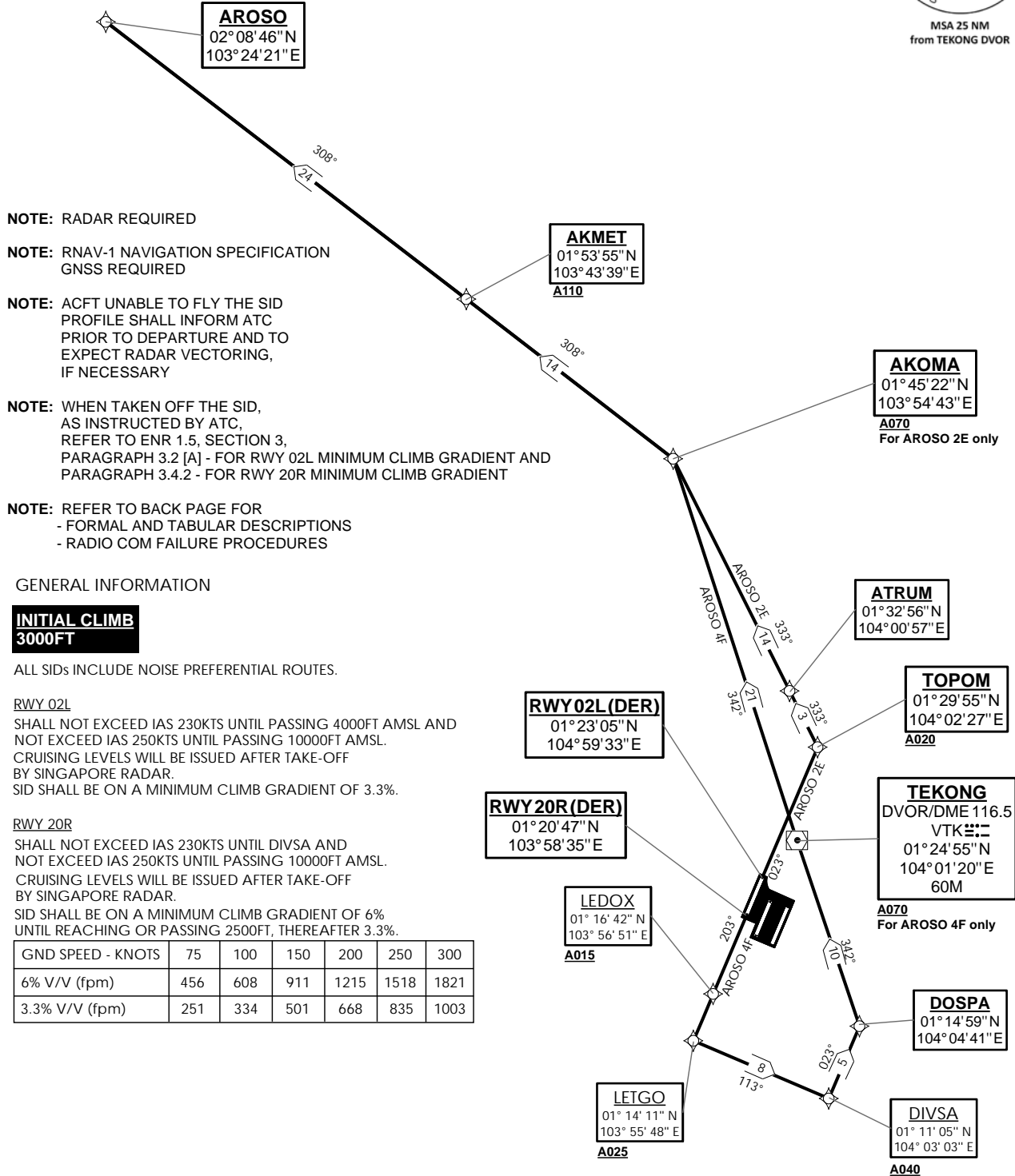
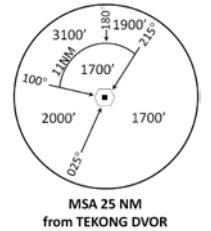
TRANSITION ALTITUDE  
11 000ft

D-ATIS AP ID-WSSS  
128.6

SINGAPORE/Singapore Changi  
RWY 02L/20R  
AROSO DEPARTURES  
AROSO 2E (R02L)  
AROSO 4F (R20R)

ELEV, ALT IN FEET  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)

DISTANCES IN NM



- NOTE:** RADAR REQUIRED
- NOTE:** RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED
- NOTE:** ACFT UNABLE TO FLY THE SID PROFILE SHALL INFORM ATC PRIOR TO DEPARTURE AND TO EXPECT RADAR VECTURING, IF NECESSARY
- NOTE:** WHEN TAKEN OFF THE SID, AS INSTRUCTED BY ATC, REFER TO ENR 1.5, SECTION 3, PARAGRAPH 3.2 [A] - FOR RWY 02L MINIMUM CLIMB GRADIENT AND PARAGRAPH 3.4.2 - FOR RWY 20R MINIMUM CLIMB GRADIENT
- NOTE:** REFER TO BACK PAGE FOR
  - FORMAL AND TABULAR DESCRIPTIONS
  - RADIO COM FAILURE PROCEDURES

GENERAL INFORMATION

**INITIAL CLIMB**  
3000FT

ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

**RWY 02L**  
SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL. CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR. SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 3.3%.

**RWY 20R**  
SHALL NOT EXCEED IAS 230KTS UNTIL DIVSA AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL. CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR. SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 6% UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
6% V/V (fpm)	456	608	911	1215	1518	1821
3.3% V/V (fpm)	251	334	501	668	835	1003

NOT TO SCALE

## AROSO 2E (SID) RNAV GNSS RWY 02L - DESCRIPTIONS

### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOPOM on course 023° at or above 2000ft, turn left. To ATRUM. To AKOMA at or above 7000ft, turn left. To AKMET at or above 11000ft. To AROSO.	TOPOM [M023; A020+; L] -	CF	N
	ATRUM -	TF	N
	AKOMA [A070+; L] -	TF	N
	AKMET [A110+] -	TF	N
	AROSO	TF	N

### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOPOM	-	023(023.4)	-0.4	L	A020+	-	RNAV1
TF	ATRUM	-	333(333.4)	-0.4	-	-	-	RNAV1
TF	AKOMA	-	333(333.4)	-0.4	L	A070+	-	RNAV1
TF	AKMET	-	308(308.4)	-0.4	-	A110+	-	RNAV1
TF	AROSO	-	308(308.4)	-0.4	-	-	-	RNAV1

## AROSO 4F (SID) RNAV GNSS RWY 20R - DESCRIPTIONS

### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To LEDOX on course 203° at or above 1500ft. To LETGO at or above 2500ft, turn left. To DIVSA at or above 4000ft, speed 230kts, turn left. To DOSPA, turn left. To VTK at or above 7000ft. To AKOMA, turn left. To AKMET at or above 11000ft. To AROSO.	LEDOX [M203; A015+] -	CF	N
	LETGO [A025+; L] -	TF	N
	DIVSA [A040+; K230; L] -	TF	N
	DOSPA [L] -	TF	N
	VTK [A070+] -	TF	N
	AKOMA [L] -	TF	N
	AKMET [A110+] -	TF	N
	AROSO	TF	N

### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	LEDOX	-	203(203.4)	-0.4	-	A015+	-	RNAV1
TF	LETGO	-	203(203.4)	-0.4	L	A025+	-	RNAV1
TF	DIVSA	-	113(113.4)	-0.4	L	A040+	K230	RNAV1
TF	DOSPA	-	023(023.4)	-0.4	L	-	-	RNAV1
TF	VTK	-	342(342.4)	-0.4	-	A070+	-	RNAV1
TF	AKOMA	-	342(342.4)	-0.4	L	-	-	RNAV1
TF	AKMET	-	308(308.4)	-0.4	-	A110+	-	RNAV1
TF	AROSO	-	308(308.4)	-0.4	-	-	-	RNAV1

## RADIO COMMUNICATIONS FAILURE PROCEDURE

1	<b>SET TRANSPONDER TO MODE A/C CODE 7600</b>
2	<b>COMMUNICATIONS FAILURE OCCURS IMMEDIATELY AFTER DEPARTURE ON:</b>  <b>RWY 02L</b> - PROCEED DIRECT TO NYLON HOLDING AREA (NHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.  <b>RWY 20R</b> - PROCEED DIRECT TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.

STANDARD DEPARTURE CHART  
RNAV (GNSS) -  
INSTRUMENT (SID)

TWR 118.6  
APP 120.3  
124.05  
ACC 133.25

TRANSITION ALTITUDE  
11 000ft

D-ATIS AP ID-WSSS  
128.6

SINGAPORE/Singapore Changi  
RWY 02L/20R  
MASBO DEPARTURES  
MASBO 2E (R02L)  
MASBO 4F (R20R)

ELEV, ALT IN FEET  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)

DISTANCES IN NM

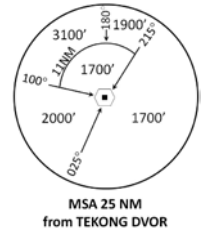
**NOTE:** RADAR REQUIRED

**NOTE:** RNAV-1 NAVIGATION SPECIFICATION  
GNSS REQUIRED

**NOTE:** ACFT UNABLE TO FLY THE SID  
PROFILE SHALL INFORM ATC  
PRIOR TO DEPARTURE AND TO  
EXPECT RADAR VECTURING,  
IF NECESSARY

**NOTE:** WHEN TAKEN OFF THE SID,  
AS INSTRUCTED BY ATC,  
REFER TO ENR 1.5, SECTION 3,  
PARAGRAPH 3.2 [A] - FOR RWY 02L MINIMUM CLIMB GRADIENT AND  
PARAGRAPH 3.4.2 - FOR RWY 20R MINIMUM CLIMB GRADIENT

**NOTE:** REFER TO BACK PAGE FOR  
- FORMAL AND TABULAR DESCRIPTIONS  
- RADIO COM FAILURE PROCEDURES



**MASBO**  
02° 02' 48" N  
102° 52' 51" E

**SABKA**  
01° 50' 51" N  
103° 17' 13" E

**AGVAR**  
01° 47' 19" N  
103° 41' 45" E  
A110

**AKOMA**  
01° 45' 22" N  
103° 54' 43" E  
A070  
For MASBO 2E only

**ATRUM**  
01° 32' 56" N  
104° 00' 57" E

**TOPOM**  
01° 29' 55" N  
104° 02' 27" E  
A020

**RWY 02L (DER)**  
01° 23' 05" N  
103° 59' 33" E

**RWY 20R (DER)**  
01° 20' 47" N  
103° 58' 35" E

**TEKONG**  
DVOR/DME 116.5  
VTK  
01° 24' 55" N  
104° 01' 20" E  
60M  
A070  
For MASBO 4F only

**LEDOX**  
01° 16' 42" N  
103° 56' 51" E  
A015

**DOSPA**  
01° 14' 59" N  
104° 04' 41" E

**LETGO**  
01° 14' 11" N  
103° 55' 48" E  
A025

**DIVSA**  
01° 11' 05" N  
104° 03' 03" E  
A040

GENERAL INFORMATION

**INITIAL CLIMB**  
3000FT

ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

**RWY 02L**

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL. CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR. SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 3.3%.

**RWY 20R**

SHALL NOT EXCEED IAS 230KTS UNTIL DIVSA AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL. CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR. SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 6% UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
6% V/V (fpm)	456	608	911	1215	1518	1821
3.3% V/V (fpm)	251	334	501	668	835	1003

NOT TO SCALE

### MASBO 2E (SID) RNAV GNSS RWY 02L - DESCRIPTIONS

#### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOPOM on course 023° at or above 2000ft, turn left. To ATRUM. To AKOMA at or above 7000ft, turn left. To AGVAR at or above 11000ft. To SABKA, turn right. To MASBO.	TOPOM [M023; A020+; L] -	CF	N
	ATRUM -	TF	N
	AKOMA [A070+; L] -	TF	N
	AGVAR [A110+] -	TF	N
	SABKA [R] -	TF	N
	MASBO	TF	N

#### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOPOM	-	023(023.4)	-0.4	L	A020+	-	RNAV1
TF	ATRUM	-	333(333.4)	-0.4	-	-	-	RNAV1
TF	AKOMA	-	333(333.4)	-0.4	L	A070+	-	RNAV1
TF	AGVAR	-	278(278.4)	-0.4	-	A110+	-	RNAV1
TF	SABKA	-	278(278.4)	-0.4	R	-	-	RNAV1
TF	MASBO	-	296(296.4)	-0.4	-	-	-	RNAV1

### MASBO 4F (SID) RNAV GNSS RWY 20R - DESCRIPTIONS

#### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To LEDOX on course 203° at or above 1500ft. To LETGO at or above 2500ft, turn left. To DIVSA at or above 4000ft, speed 230kts, turn left. To DOSPA, turn left. To VTK at or above 7000ft. To AKOMA, turn left. To AGVAR at or above 11000ft. To SABKA, turn right. To MASBO.	LEDOX [M203; A015+] -	CF	N
	LETGO [A025+; L] -	TF	N
	DIVSA [A040+; K230; L] -	TF	N
	DOSPA [L] -	TF	N
	VTK [A070+] -	TF	N
	AKOMA [L] -	TF	N
	AGVAR [A110+] -	TF	N
	SABKA [R] -	TF	N
	MASBO	TF	N

#### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	LEDOX	-	203(203.4)	-0.4	-	A015+	-	RNAV1
TF	LETGO	-	203(203.4)	-0.4	L	A025+	-	RNAV1
TF	DIVSA	-	113(113.4)	-0.4	L	A040+	K230	RNAV1
TF	DOSPA	-	023(023.4)	-0.4	L	-	-	RNAV1
TF	VTK	-	342(342.4)	-0.4	-	A070+	-	RNAV1
TF	AKOMA	-	342(342.4)	-0.4	L	-	-	RNAV1
TF	AGVAR	-	278(278.4)	-0.4	-	A110+	-	RNAV1
TF	SABKA	-	278(278.4)	-0.4	R	-	-	RNAV1
TF	MASBO	-	296(296.4)	-0.4	-	-	-	RNAV1

### RADIO COMMUNICATIONS FAILURE PROCEDURE

1	SET TRANSPONDER TO MODE A/C CODE 7600
2	<p><b>COMMUNICATIONS FAILURE OCCURS IMMEDIATELY AFTER DEPARTURE ON:</b></p> <p><b>RWY 02L</b> - PROCEED DIRECT TO NYLON HOLDING AREA (NHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.</p> <p><b>RWY 20R</b> - PROCEED DIRECT TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.</p>



## AROSO 2A (SID) RNAV GNSS RWY 02C - DESCRIPTIONS

### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOKIM on course 023° at or above 2000ft, turn left. To AKOMA at or above 7000ft, turn left. To AKMET at or above 11000ft. To AROSO.	TOKIM [M023; A020+; L] -	CF	N
	AKOMA [A070+; L] -	TF	N
	AKMET [A110+] -	TF	N
	AROSO	TF	N

### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOKIM	-	023(023.4)	-0.4	L	A020+	-	RNAV1
TF	AKOMA	-	332(332.4)	-0.4	L	A070+	-	RNAV1
TF	AKMET	-	308(308.4)	-0.4	-	A110+	-	RNAV1
TF	AROSO	-	308(308.4)	-0.4	-	-	-	RNAV1

## AROSO 4B (SID) RNAV GNSS RWY 20C - DESCRIPTIONS

### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To IBIXU on course 203° at or above 1500ft. To IBIVA at or above 2500ft, turn left. To DONDI. To DIVSA at or above 4000ft, speed 230kts, turn left. To DOSPA, turn left. To VTK at or above 7000ft. To AKOMA, turn left. To AKMET at or above 11000ft. To AROSO.	IBIXU [M203; A015+] -	CF	N
	IBIVA [A025+; L] -	TF	N
	DONDI -	TF	N
	DIVSA [A040+; K230; L] -	TF	N
	DOSPA [L] -	TF	N
	VTK [A070+] -	TF	N
	AKOMA [L] -	TF	N
	AKMET [A110+] -	TF	N
	AROSO	TF	N

### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	IBIXU	-	203(203.4)	-0.4	-	A015+	-	RNAV1
TF	IBIVA	-	203(203.4)	-0.4	L	A025+	-	RNAV1
TF	DONDI	-	113(113.4)	-0.4	-	-	-	RNAV1
TF	DIVSA	-	113(113.4)	-0.4	L	A040+	K230	RNAV1
TF	DOSPA	-	023(023.4)	-0.4	L	-	-	RNAV1
TF	VTK	-	342(342.4)	-0.4	-	A070+	-	RNAV1
TF	AKOMA	-	342(342.4)	-0.4	L	-	-	RNAV1
TF	AKMET	-	308(308.4)	-0.4	-	A110+	-	RNAV1
TF	AROSO	-	308(308.4)	-0.4	-	-	-	RNAV1

## RADIO COMMUNICATIONS FAILURE PROCEDURE

1	<b>SET TRANSPONDER TO MODE A/C CODE 7600</b>
2	<p><b>COMMUNICATIONS FAILURE OCCURS IMMEDIATELY AFTER DEPARTURE ON:</b></p> <p><b>RWY 02C</b> - PROCEED DIRECT TO NYLON HOLDING AREA (NHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.</p> <p><b>RWY 20C</b> - PROCEED DIRECT TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.</p>

STANDARD DEPARTURE CHART  
RNAV (GNSS) -  
INSTRUMENT (SID)

TWR 118.6 / 118.25  
APP 120.3  
124.05  
ACC 133.25

TRANSITION ALTITUDE  
11 000ft

D-ATIS AP ID-WSSS  
128.6

SINGAPORE/Singapore Changi  
RWY 02C/20C  
MASBO DEPARTURES  
MASBO 2A (R02C)  
MASBO 4B (R20C)

ELEV, ALT IN FEET  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)

DISTANCES IN NM

**NOTE:** RADAR REQUIRED

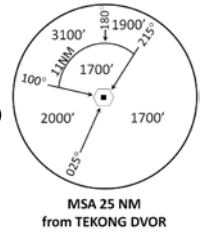
**NOTE:** RNAV-1 NAVIGATION SPECIFICATION  
GNSS REQUIRED

**NOTE:** CLOSE-IN OBSTACLES (AIRCRAFT UP TO 80FT)  
EXIST ON TAXIWAYS WEST OF RUNWAY 02C

**NOTE:** ACFT UNABLE TO FLY THE SID  
PROFILE SHALL INFORM ATC  
PRIOR TO DEPARTURE AND TO  
EXPECT RADAR VECTURING,  
IF NECESSARY

**NOTE:** WHEN TAKEN OFF THE SID,  
AS INSTRUCTED BY ATC,  
REFER TO ENR 1.5, SECTION 3,  
PARAGRAPH 3.3 [A] - FOR RWY 02C MINIMUM CLIMB GRADIENT AND  
PARAGRAPH 3.4.1 - FOR RWY 20C MINIMUM CLIMB GRADIENT

**NOTE:** REFER TO BACK PAGE FOR  
- FORMAL AND TABULAR DESCRIPTIONS  
- RADIO COM FAILURE PROCEDURES



**MASBO**  
02° 02' 48" N  
102° 52' 51" E

**SABKA**  
01° 50' 51" N  
103° 17' 13" E

**AGVAR**  
01° 47' 19" N  
103° 41' 45" E  
A110

**AKOMA**  
01° 45' 22" N  
103° 54' 43" E

A070  
For MASBO 2A only

**TOKIM**  
01° 29' 33" N  
104° 03' 15" E  
A020

**RWY 02C (DER)**  
01° 21' 45" N  
103° 59' 57" E

**RWY 20C (DER)**  
01° 19' 42" N  
103° 59' 05" E

**TEKONG**  
DVOR/DME 116.5  
VTK  
01° 24' 55" N  
104° 01' 20" E  
60M  
A070  
For MASBO 4B only

**IBIXU**  
01° 16' 21" N  
103° 57' 40" E  
A015

**DOSPA**  
01° 14' 59" N  
104° 04' 41" E

**IBIVA**  
01° 13' 51" N  
103° 56' 37" E  
A025

**DONDI**  
01° 12' 52" N  
103° 58' 55" E

**DIVSA**  
01° 11' 05" N  
104° 03' 03" E  
A040

GENERAL INFORMATION

**INITIAL CLIMB**  
3000FT

ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

RWY 02C

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL. CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR. SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 3.3%.

RWY 20C

SHALL NOT EXCEED IAS 230KTS UNTIL DIVSA AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL. CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR. SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 7% UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
7% V/V (fpm)	532	709	1062	1416	1769	2123
3.3% V/V (fpm)	251	334	501	668	835	1003

NOT TO SCALE

### MASBO 2A (SID) RNAV GNSS RWY 02C - DESCRIPTIONS

#### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOKIM on course 023° at or above 2000ft, turn left. To AKOMA at or above 7000ft, turn left. To AGVAR at or above 11000ft. To SABKA, turn right. To MASBO.	TOKIM [M023; A020+; L] -	CF	N
	AKOMA [A070+; L] -	TF	N
	AGVAR [A110+] -	TF	N
	SABKA [R] -	TF	N
	MASBO	TF	N

#### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOKIM	-	023(023.4)	-0.4	L	A020+	-	RNAV1
TF	AKOMA	-	332(332.4)	-0.4	L	A070+	-	RNAV1
TF	AGVAR	-	278(278.4)	-0.4	-	A110+	-	RNAV1
TF	SABKA	-	278(278.4)	-0.4	R	-	-	RNAV1
TF	MASBO	-	296(296.4)	-0.4	-	-	-	RNAV1

### MASBO 4B (SID) RNAV GNSS RWY 20C - DESCRIPTIONS

#### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To IBIXU on course 203° at or above 1500ft. To IBIVA at or above 2500ft, turn left. To DONDI. To DIVSA at or above 4000ft, speed 230kts, turn left. To DOSPA, turn left. To VTK at or above 7000ft. To AKOMA, turn left. To AGVAR at or above 11000ft. To SABKA, turn right. To MASBO.	IBIXU [M203; A015+] -	CF	N
	IBIVA [A025+; L] -	TF	N
	DONDI -	TF	N
	DIVSA [A040+; K230; L] -	TF	N
	DOSPA [L] -	TF	N
	VTK [A070+] -	TF	N
	AKOMA [L] -	TF	N
	AGVAR [A110+] -	TF	N
	SABKA [R] -	TF	N
	MASBO	TF	N

#### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	IBIXU	-	203(203.4)	-0.4	-	A015+	-	RNAV1
TF	IBIVA	-	203(203.4)	-0.4	L	A025+	-	RNAV1
TF	DONDI	-	113(113.4)	-0.4	-	-	-	RNAV1
TF	DIVSA	-	113(113.4)	-0.4	L	A040+	K230	RNAV1
TF	DOSPA	-	023(023.4)	-0.4	L	-	-	RNAV1
TF	VTK	-	342(342.4)	-0.4	-	A070+	-	RNAV1
TF	AKOMA	-	342(342.4)	-0.4	L	-	-	RNAV1
TF	AGVAR	-	278(278.4)	-0.4	-	A110+	-	RNAV1
TF	SABKA	-	278(278.4)	-0.4	R	-	-	RNAV1
TF	MASBO	-	296(296.4)	-0.4	-	-	-	RNAV1

### RADIO COMMUNICATIONS FAILURE PROCEDURE

1	SET TRANSPONDER TO MODE A/C CODE 7600
2	<p><b>COMMUNICATIONS FAILURE OCCURS IMMEDIATELY AFTER DEPARTURE ON:</b></p> <p><b>RWY 02C</b> - PROCEED DIRECT TO NYLON HOLDING AREA (NHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.</p> <p><b>RWY 20C</b> - PROCEED DIRECT TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.</p>



STANDARD DEPARTURE CHART  
RNAV (GNSS) -  
INSTRUMENT (SID)

TWR 118.6  
APP 120.3  
124.05  
ACC 133.8

TRANSITION ALTITUDE  
11 000ft

D-ATIS AP ID-WSSS  
128.6

SINGAPORE/Singapore Changi  
RWY 02L/20R  
MERSING DEPARTURES  
VMR 5E (R02L)  
VMR 8F (R20R)

ELEV, ALT IN FEET  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)

DISTANCES IN NM

**NOTE:** RADAR REQUIRED

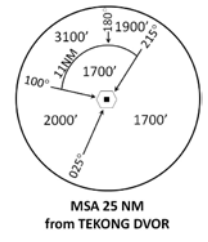
**NOTE:** RNAV-1 NAVIGATION SPECIFICATION  
GNSS REQUIRED

**NOTE:** ACFT UNABLE TO FLY THE SID  
PROFILE SHALL INFORM ATC  
PRIOR TO DEPARTURE AND TO  
EXPECT RADAR VECTORED,  
IF NECESSARY

**NOTE:** WHEN TAKEN OFF THE SID,  
AS INSTRUCTED BY ATC,  
REFER TO ENR 1.5, SECTION 3,  
PARAGRAPH 3.2 [A] - FOR RWY 02L MINIMUM CLIMB GRADIENT AND  
PARAGRAPH 3.4.2 - FOR RWY 20R MINIMUM CLIMB GRADIENT

**NOTE:** REFER TO BACK PAGE FOR  
- FORMAL AND TABULAR DESCRIPTIONS  
- RADIO COM FAILURE PROCEDURES

**VMR**  
02°23'18"N  
103°52'18"E



GENERAL INFORMATION

**INITIAL CLIMB  
3000FT**

ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

RWY 02L

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND  
NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.  
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF  
BY SINGAPORE RADAR.  
SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 3.3%.

RWY 20R

SHALL NOT EXCEED IAS 230KTS UNTIL DIVSA AND  
NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.  
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF  
BY SINGAPORE RADAR.  
SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 6%  
UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
6% V/V (fpm)	456	608	911	1215	1518	1821
3.3% V/V (fpm)	251	334	501	668	835	1003

**RWY02L(DER)**  
01°23'05"N  
103°59'33"E

**RWY20R(DER)**  
01°20'47"N  
103°58'35"E

**LEDOX**  
01°16'42"N  
103°56'51"E  
A015

**LETGO**  
01°14'11"N  
103°55'48"E  
A025

**AKOMA**  
01°45'22"N  
103°54'43"E  
A070  
For VMR 5E only

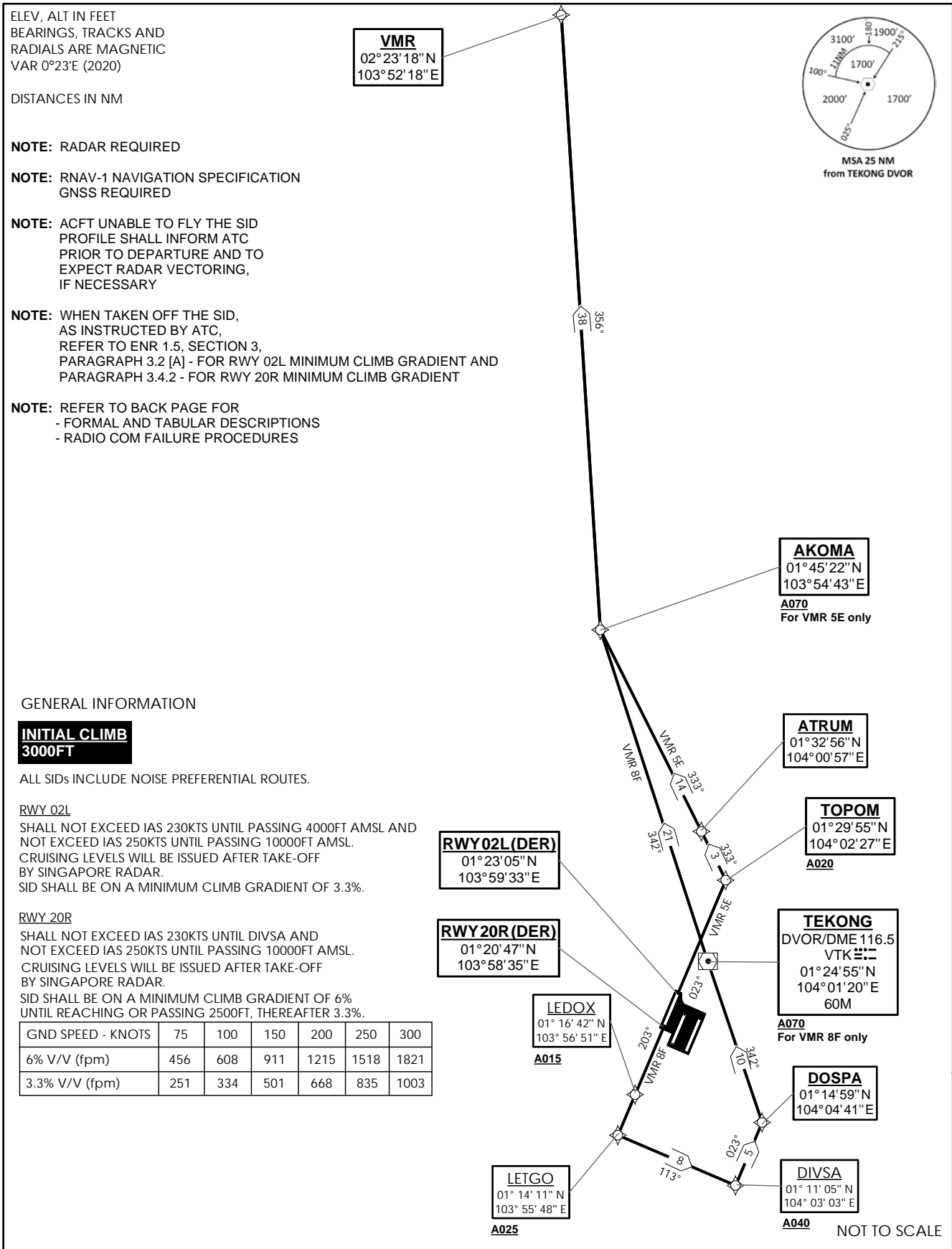
**ATRUM**  
01°32'56"N  
104°00'57"E

**TOPOM**  
01°29'55"N  
104°02'27"E  
A020

**TEKONG**  
DVOR/DME 116.5  
VTK  
01°24'55"N  
104°01'20"E  
60M  
A070  
For VMR 8F only

**DOSPA**  
01°14'59"N  
104°04'41"E

**DIVSA**  
01°11'05"N  
104°03'03"E  
A040



### VMR 5E (SID) RNAV GNSS RWY 02L - DESCRIPTIONS

#### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOPOM on course 023° at or above 2000ft, turn left. To ATRUM. To AKOMA at or above 7000ft, turn right. To VMR.	TOPOM [M023; A020+; L] -	CF	N
	ATRUM -	TF	N
	AKOMA [A070+; R] -	TF	N
	VMR	TF	N

#### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOPOM	-	023(023.4)	-0.4	L	A020+	-	RNAV1
TF	ATRUM	-	333(333.4)	-0.4	-	-	-	RNAV1
TF	AKOMA	-	333(333.4)	-0.4	R	A070+	-	RNAV1
TF	VMR	-	356(356.4)	-0.4	-	-	-	RNAV1

### VMR 8F (SID) RNAV GNSS RWY 20R - DESCRIPTIONS

#### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To LEDOX on course 203° at or above 1500ft. To LETGO at or above 2500ft, turn left. To DIVSA at or above 4000ft, speed 230kts, turn left. To DOSPA, turn left. To VTK at or above 7000ft. To AKOMA, turn right. To VMR.	LEDOX [M203; A015+] -	CF	N
	LETGO [A025+; L] -	TF	N
	DIVSA [A040+; K230; L] -	TF	N
	DOSPA [L] -	TF	N
	VTK [A070+] -	TF	N
	AKOMA [R] -	TF	N
	VMR	TF	N

#### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	LEDOX	-	203(203.4)	-0.4	-	A015+	-	RNAV1
TF	LETGO	-	203(203.4)	-0.4	L	A025+	-	RNAV1
TF	DIVSA	-	113(113.4)	-0.4	L	A040+	K230	RNAV1
TF	DOSPA	-	023(023.4)	-0.4	L	-	-	RNAV1
TF	VTK	-	342(342.4)	-0.4	-	A070+	-	RNAV1
TF	AKOMA	-	342(342.4)	-0.4	R	-	-	RNAV1
TF	VMR	-	356(356.4)	-0.4	-	-	-	RNAV1

### RADIO COMMUNICATIONS FAILURE PROCEDURE

1	SET TRANSPONDER TO MODE A/C CODE 7600
2	<p><b>COMMUNICATIONS FAILURE OCCURS IMMEDIATELY AFTER DEPARTURE ON:</b></p> <p><b>RWY 02L</b> - PROCEED DIRECT TO NYLON HOLDING AREA (NHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.</p> <p><b>RWY 20R</b> - PROCEED DIRECT TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.</p>

STANDARD DEPARTURE CHART  
RNAV (GNSS) -  
INSTRUMENT (SID)

TWR 118.6 / 118.25 APP 120.3 124.05 ACC 133.8	TRANSITION ALTITUDE 11 000ft
	D-ATIS AP ID-WSSS 128.6

SINGAPORE/Singapore Changi  
RWY 02C/20C  
MERSING DEPARTURES  
VMR 5A (R02C)  
VMR 8B (R20C)

ELEV, ALT IN FEET  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)

DISTANCES IN NM

**NOTE:** RADAR REQUIRED

**NOTE:** RNAV-1 NAVIGATION SPECIFICATION  
GNSS REQUIRED

**NOTE:** CLOSE-IN OBSTACLES (AIRCRAFT UP TO 80FT)  
EXIST ON TAXIWAYS WEST OF RUNWAY 02C

**NOTE:** ACFT UNABLE TO FLY THE SID  
PROFILE SHALL INFORM ATC  
PRIOR TO DEPARTURE AND TO  
EXPECT RADAR VECTORED,  
IF NECESSARY

**NOTE:** WHEN TAKEN OFF THE SID,  
AS INSTRUCTED BY ATC,  
REFER TO ENR 1.5, SECTION 3,  
PARAGRAPH 3.3 [A] - FOR RWY 02C MINIMUM CLIMB GRADIENT AND  
PARAGRAPH 3.4.1 - FOR RWY 20C MINIMUM CLIMB GRADIENT

**NOTE:** REFER TO BACK PAGE FOR  
- FORMAL AND TABULAR DESCRIPTIONS  
- RADIO COM FAILURE PROCEDURES

GENERAL INFORMATION

**INITIAL CLIMB  
3000FT**

ALL SIDS INCLUDE NOISE PREFERENTIAL ROUTES.

RWY 02C

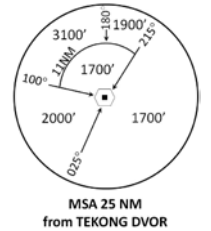
SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND  
NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.  
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF  
BY SINGAPORE RADAR.  
SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 3.3%.

RWY 20C

SHALL NOT EXCEED IAS 230KTS UNTIL DIVSA AND  
NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.  
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF  
BY SINGAPORE RADAR.  
SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 7%  
UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
7% V/V (fpm)	532	709	1062	1416	1769	2123
3.3% V/V (fpm)	251	334	501	668	835	1003

**VMR**  
02° 23' 18" N  
103° 52' 18" E



**AKOMA**  
01° 45' 22" N  
103° 54' 43" E  
**A070**  
For VMR 5A only

**TOKIM**  
01° 29' 33" N  
104° 03' 15" E  
**A020**

**RWY02C(DER)**  
01° 21' 45" N  
103° 59' 57" E

**RWY20C(DER)**  
01° 19' 42" N  
103° 59' 05" E

**TEKONG**  
DVOR/DME 116.5  
VTK   
01° 24' 55" N  
104° 01' 20" E  
60M  
**A070**  
For VMR 8B only

**DOSPA**  
01° 14' 59" N  
104° 04' 41" E

**IBIXU**  
01° 16' 21" N  
103° 57' 40" E  
**A015**

**IBIVA**  
01° 13' 51" N  
103° 56' 37" E  
**A025**

**DONDI**  
01° 12' 52" N  
103° 58' 55" E

**DIVSA**  
01° 11' 05" N  
104° 03' 03" E  
**A040**

NOT TO SCALE

### VMR 5A (SID) RNAV GNSS RWY 02C - DESCRIPTIONS

#### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOKIM on course 023° at or above 2000ft, turn left. To AKOMA at or above 7000ft, turn right. To VMR.	TOKIM [M023; A020+; L] -	CF	N
	AKOMA [A070+; R] -	TF	N
	VMR	TF	N

#### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOKIM	-	023(023.4)	-0.4	L	A020+	-	RNAV1
TF	AKOMA	-	332(332.4)	-0.4	R	A070+	-	RNAV1
TF	VMR	-	356(356.4)	-0.4	-	-	-	RNAV1

### VMR 8B (SID) RNAV GNSS RWY 20C - DESCRIPTIONS

#### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To IBIXU on course 203° at or above 1500ft. To IBIVA at or above 2500ft, turn left. To DONDI. To DIVSA at or above 4000ft, speed 230kts, turn left. To DOSPA, turn left. To VTK at or above 7000ft. To AKOMA, turn right. To VMR.	IBIXU [M203; A015+] -	CF	N
	IBIVA [A025+; L] -	TF	N
	DONDI -	TF	N
	DIVSA [A040+; K230; L] -	TF	N
	DOSPA [L] -	TF	N
	VTK [A070+] -	TF	N
	AKOMA [R] -	TF	N
	VMR	TF	N

#### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	IBIXU	-	203(203.4)	-0.4	-	A015+	-	RNAV1
TF	IBIVA	-	203(203.4)	-0.4	L	A025+	-	RNAV1
TF	DONDI	-	113(113.4)	-0.4	-	-	-	RNAV1
TF	DIVSA	-	113(113.4)	-0.4	L	A040+	K230	RNAV1
TF	DOSPA	-	023(023.4)	-0.4	L	-	-	RNAV1
TF	VTK	-	342(342.4)	-0.4	-	A070+	-	RNAV1
TF	AKOMA	-	342(342.4)	-0.4	R	-	-	RNAV1
TF	VMR	-	356(356.4)	-0.4	-	-	-	RNAV1

### RADIO COMMUNICATIONS FAILURE PROCEDURE

1	<b>SET TRANSPONDER TO MODE A/C CODE 7600</b>
2	<b>COMMUNICATIONS FAILURE OCCURS IMMEDIATELY AFTER DEPARTURE ON:</b>  <b>RWY 02C</b> - PROCEED DIRECT TO NYLON HOLDING AREA (NHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.  <b>RWY 20C</b> - PROCEED DIRECT TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.

STANDARD DEPARTURE CHART  
RNAV (GNSS) -  
INSTRUMENT (SID)

TWR 118.6 / 118.25  
APP 120.3  
124.05  
ACC 134.4

TRANSITION ALTITUDE  
11 000ft

D-ATIS AP ID-WSSS  
128.6

SINGAPORE/Singapore Changi  
RWY 02C/20C

VENIX DEPARTURES  
VENIX 1A (R02C)  
VENIX 3B (R20C)

ELEV, ALT IN FEET  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)

DISTANCES IN NM

**NOTE:** RADAR REQUIRED

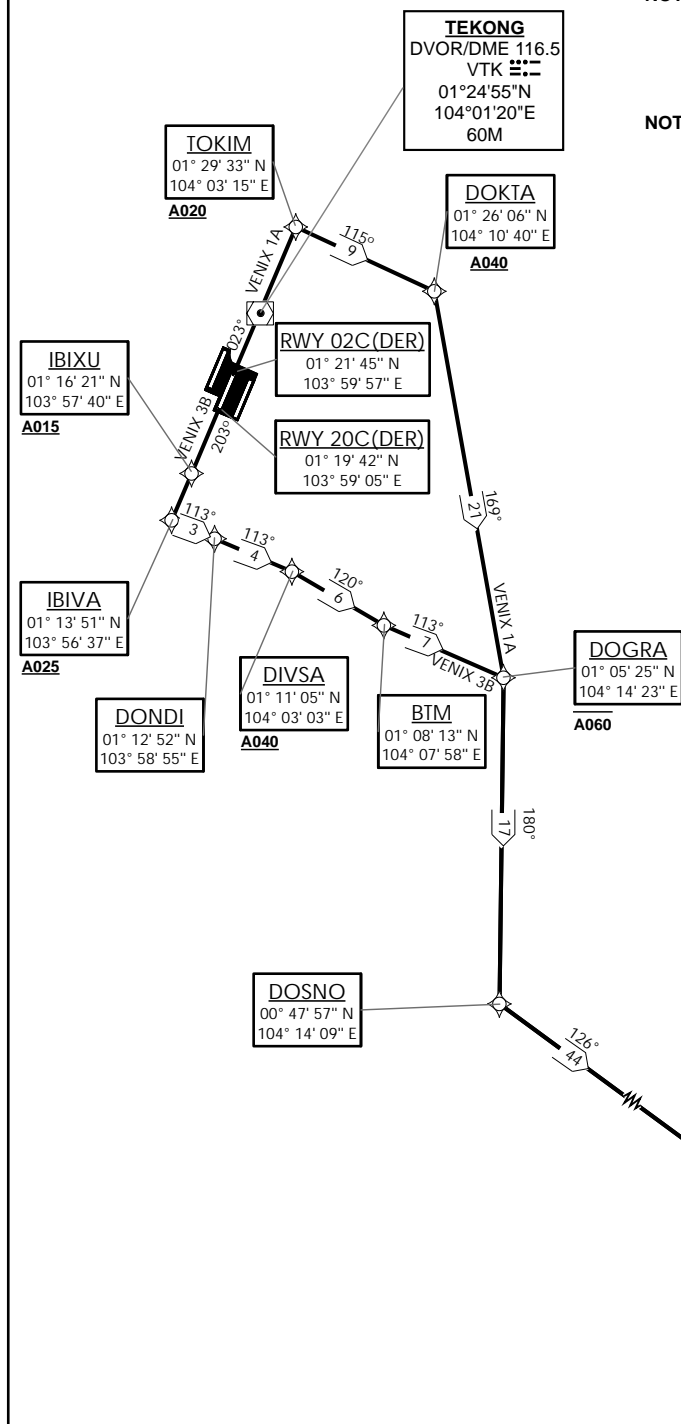
**NOTE:** RNAV-1 NAVIGATION SPECIFICATION  
GNSS REQUIRED

**NOTE:** CLOSE-IN OBSTACLES (AIRCRAFT UP TO 80FT)  
EXIST ON TAXIWAYS WEST OF RUNWAY 02C

**NOTE:** ACFT UNABLE TO FLY THE SID  
PROFILE SHALL INFORM ATC  
PRIOR TO DEPARTURE AND TO  
EXPECT RADAR VECTORED,  
IF NECESSARY

**NOTE:** WHEN TAKEN OFF THE SID,  
AS INSTRUCTED BY ATC,  
REFER TO ENR 1.5, SECTION 3,  
PARAGRAPH 3.3 [A] - FOR RWY 02C MINIMUM CLIMB GRADIENT AND  
PARAGRAPH 3.4.1 - FOR RWY 20C MINIMUM CLIMB GRADIENT

**NOTE:** REFER TO BACK PAGE FOR  
- FORMAL AND TABULAR DESCRIPTIONS  
- RADIO COM FAILURE PROCEDURES



GENERAL INFORMATION

**INITIAL CLIMB  
3000FT**

ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

RWY 02C

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND  
NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.  
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF  
BY SINGAPORE RADAR.  
SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 3.3%.

RWY 20C

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND  
NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.  
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF  
BY SINGAPORE RADAR.  
SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 7%  
UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
7% V/V (fpm)	532	709	1062	1416	1769	2123
3.3% V/V (fpm)	251	334	501	668	835	1003

NOT TO SCALE

### VENIX 1A (SID) RNAV GNSS RWY 02C - DESCRIPTIONS

#### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOKIM on course 023° at or above 2000ft., turn right. To DOKTA at or above 4000ft, turn right. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To VENPA, turn left. To VENIX. To SURGA.	TOKIM [M023; A020+; R] -	CF	N
	DOKTA [A040+; R] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	VENPA [L] -	TF	N
	VENIX -	TF	N
	SURGA	TF	N

#### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOKIM	-	023(023.4)	-0.4	R	A020+	-	RNAV1
TF	DOKTA	-	115(115.4)	-0.4	R	A040+	-	RNAV1
TF	DOGRA	-	169(169.4)	-0.4	R	A060-	-	RNAV1
TF	DOSNO	-	180(180.4)	-0.4	L	-	-	RNAV1
TF	VENPA	-	126(126.4)	-0.4	L	-	-	RNAV1
TF	VENIX	-	120(120.4)	-0.4	-	-	-	RNAV1
TF	SURGA	-	120(120.4)	-0.4	-	-	-	RNAV1

### VENIX 3B (SID) RNAV GNSS RWY 20C - DESCRIPTIONS

#### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To IBIXU on course 203° at or above 1500ft. To IBIVA at or above 2500ft, turn left. To DONDI. To DIVSA at or above 4000ft, turn right. To BTM, turn left. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To VENPA, turn left. To VENIX. To SURGA.	IBIXU [M203; A015+] -	CF	N
	IBIVA [A025+; L] -	TF	N
	DONDI -	TF	N
	DIVSA [A040+; R] -	TF	N
	BTM [L] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	VENPA [L] -	TF	N
	VENIX -	TF	N
	SURGA	TF	N

#### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	IBIXU	-	203(203.4)	-0.4	-	A015+	-	RNAV1
TF	IBIVA	-	203(203.4)	-0.4	L	A025+	-	RNAV1
TF	DONDI	-	113(113.4)	-0.4	-	-	-	RNAV1
TF	DIVSA	-	113(113.4)	-0.4	R	A040+	-	RNAV1
TF	BTM	-	120(120.4)	-0.4	L	-	-	RNAV1
TF	DOGRA	-	113(113.4)	-0.4	R	A060-	-	RNAV1
TF	DOSNO	-	180(180.4)	-0.4	L	-	-	RNAV1
TF	VENPA	-	126(126.4)	-0.4	L	-	-	RNAV1
TF	VENIX	-	120(120.4)	-0.4	-	-	-	RNAV1
TF	SURGA	-	120(120.4)	-0.4	-	-	-	RNAV1

### RADIO COMMUNICATIONS FAILURE PROCEDURE

1	SET TRANSPONDER TO MODE A/C CODE 7600
2	<p><b>COMMUNICATIONS FAILURE OCCURS IMMEDIATELY AFTER DEPARTURE ON:</b></p> <p><b>RWY 02C</b> - PROCEED DIRECT TO NYLON HOLDING AREA (NHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.</p> <p><b>RWY 20C</b> - PROCEED DIRECT TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.</p>

STANDARD DEPARTURE CHART  
RNAV (GNSS) -  
INSTRUMENT (SID)

TWR	118.6
APP	120.3
	124.05
ACC	134.4

TRANSITION ALTITUDE	11 000ft
D-ATIS AP ID-WSSS	128.6

SINGAPORE/Singapore Changi  
RWY 02L/20R  
VENIX DEPARTURES  
VENIX 1E (R02L)  
VENIX 3F (R20R)

ELEV, ALT IN FEET  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)

DISTANCES IN NM

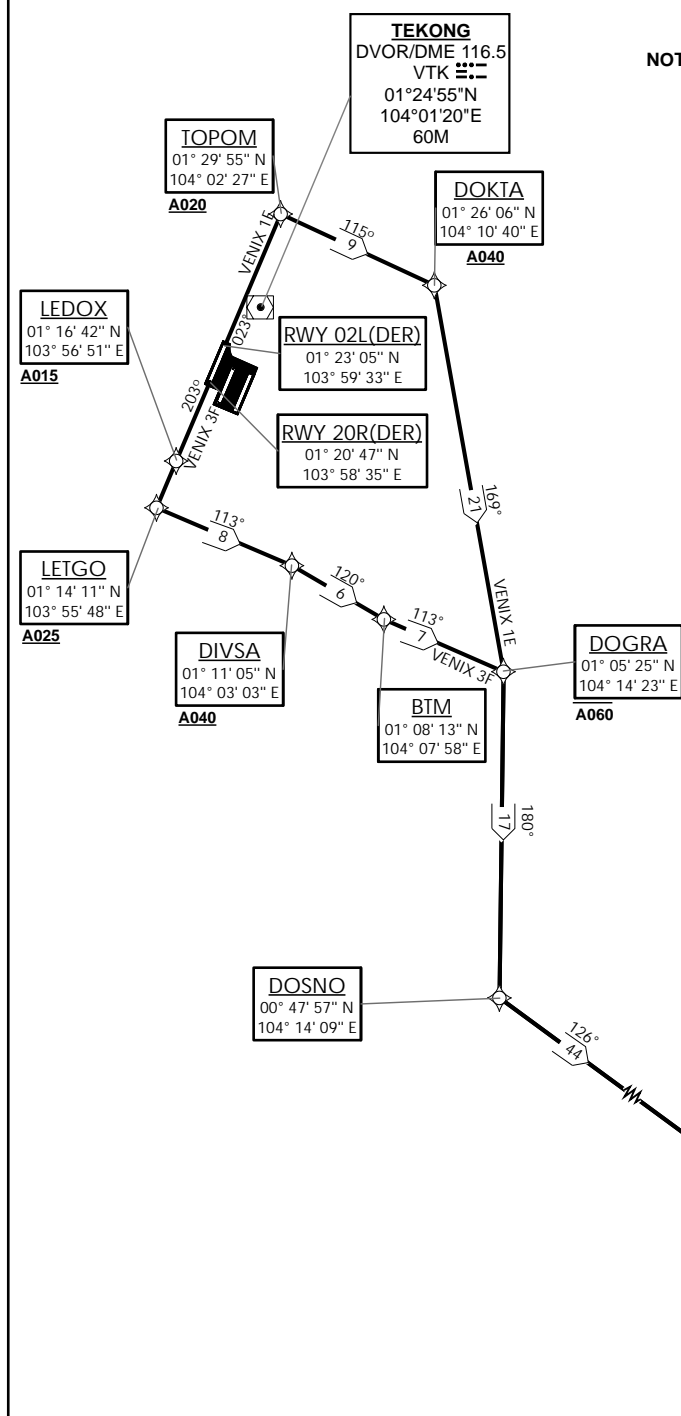
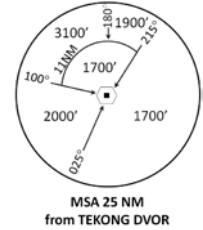
**NOTE:** RADAR REQUIRED

**NOTE:** RNAV-1 NAVIGATION SPECIFICATION  
GNSS REQUIRED

**NOTE:** ACFT UNABLE TO FLY THE SID  
PROFILE SHALL INFORM ATC  
PRIOR TO DEPARTURE AND TO  
EXPECT RADAR VECTORING,  
IF NECESSARY

**NOTE:** WHEN TAKEN OFF THE SID,  
AS INSTRUCTED BY ATC,  
REFER TO ENR 1.5, SECTION 3,  
PARAGRAPH 3.2 (A) - FOR RWY 02L MINIMUM CLIMB GRADIENT AND  
PARAGRAPH 3.4.2 - FOR RWY 20R MINIMUM CLIMB GRADIENT

**NOTE:** REFER TO BACK PAGE FOR  
- FORMAL AND TABULAR DESCRIPTIONS  
- RADIO COM FAILURE PROCEDURES



GENERAL INFORMATION

**INITIAL CLIMB  
3000FT**

ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

RWY 02L

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND  
NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.  
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF  
BY SINGAPORE RADAR.  
SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 3.3%

RWY 20R

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND  
NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL.  
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF  
BY SINGAPORE RADAR.  
SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 6%  
UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
6% V/V (fpm)	456	608	911	1215	1518	1821
3.3% V/V (fpm)	251	334	501	668	835	1003

NOT TO SCALE

## VENIX 1E (SID) RNAV GNSS RWY 02L - DESCRIPTIONS

### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOPOM on course 023° at or above 2000ft, turn right. To DOKTA at or above 4000ft, turn right. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To VENPA, turn left. To VENIX. To SURGA.	TOPOM [M023; A020+; R] -	CF	N
	DOKTA [A040+; R] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	VENPA [L] -	TF	N
	VENIX -	TF	N
	SURGA	TF	N

### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOPOM	-	023(023.4)	-0.4	R	A020+	-	RNAV1
TF	DOKTA	-	115(115.4)	-0.4	R	A040+	-	RNAV1
TF	DOGRA	-	169(169.4)	-0.4	R	A060-	-	RNAV1
TF	DOSNO	-	180(180.4)	-0.4	L	-	-	RNAV1
TF	VENPA	-	126(126.4)	-0.4	L	-	-	RNAV1
TF	VENIX	-	120(120.4)	-0.4	-	-	-	RNAV1
TF	SURGA	-	120(120.4)	-0.4	-	-	-	RNAV1

## VENIX 3F (SID) RNAV GNSS RWY 20R - DESCRIPTIONS

### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To LEDOX on course 203° at or above 1500ft. To LETGO at or above 2500ft, turn left. To DIVSA at or above 4000ft, turn right. To BTM, turn left. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To VENPA, turn left. To VENIX. To SURGA.	LEDOX [M203; A015+] -	CF	N
	LETGO [A025+; L] -	TF	N
	DIVSA [A040+; R] -	TF	N
	BTM [L] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	VENPA [L] -	TF	N
	VENIX -	TF	N
	SURGA	TF	N

### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	LEDOX	-	203(203.4)	-0.4	-	A015+	-	RNAV1
TF	LETGO	-	203(203.4)	-0.4	L	A025+	-	RNAV1
TF	DIVSA	-	113(113.4)	-0.4	R	A040+	-	RNAV1
TF	BTM	-	120(120.4)	-0.4	L	-	-	RNAV1
TF	DOGRA	-	113(113.4)	-0.4	R	A060-	-	RNAV1
TF	DOSNO	-	180(180.4)	-0.4	L	-	-	RNAV1
TF	VENPA	-	126(126.4)	-0.4	L	-	-	RNAV1
TF	VENIX	-	120(120.4)	-0.4	-	-	-	RNAV1
TF	SURGA	-	120(120.4)	-0.4	-	-	-	RNAV1

## RADIO COMMUNICATIONS FAILURE PROCEDURE

1	<b>SET TRANSPONDER TO MODE A/C CODE 7600</b>
2	<b>COMMUNICATIONS FAILURE OCCURS IMMEDIATELY AFTER DEPARTURE ON:</b>  <b>RWY 02L</b> - PROCEED DIRECT TO NYLON HOLDING AREA (NHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.  <b>RWY 20R</b> - PROCEED DIRECT TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.



STANDARD DEPARTURE CHART  
RNAV (GNSS) -  
INSTRUMENT (SID)

TWR 118.6 / 118.25  
APP 120.3  
124.05  
ACC 134.4

TRANSITION ALTITUDE  
11 000ft

D-ATIS AP ID-WSSS  
128.6

SINGAPORE/Singapore Changi  
RWY 02C/20C  
KADAR DEPARTURES  
KADAR 1A (R02C)  
KADAR 3B (R20C)

ELEV, ALT IN FEET  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)

DISTANCES IN NM

**NOTE:** RADAR REQUIRED

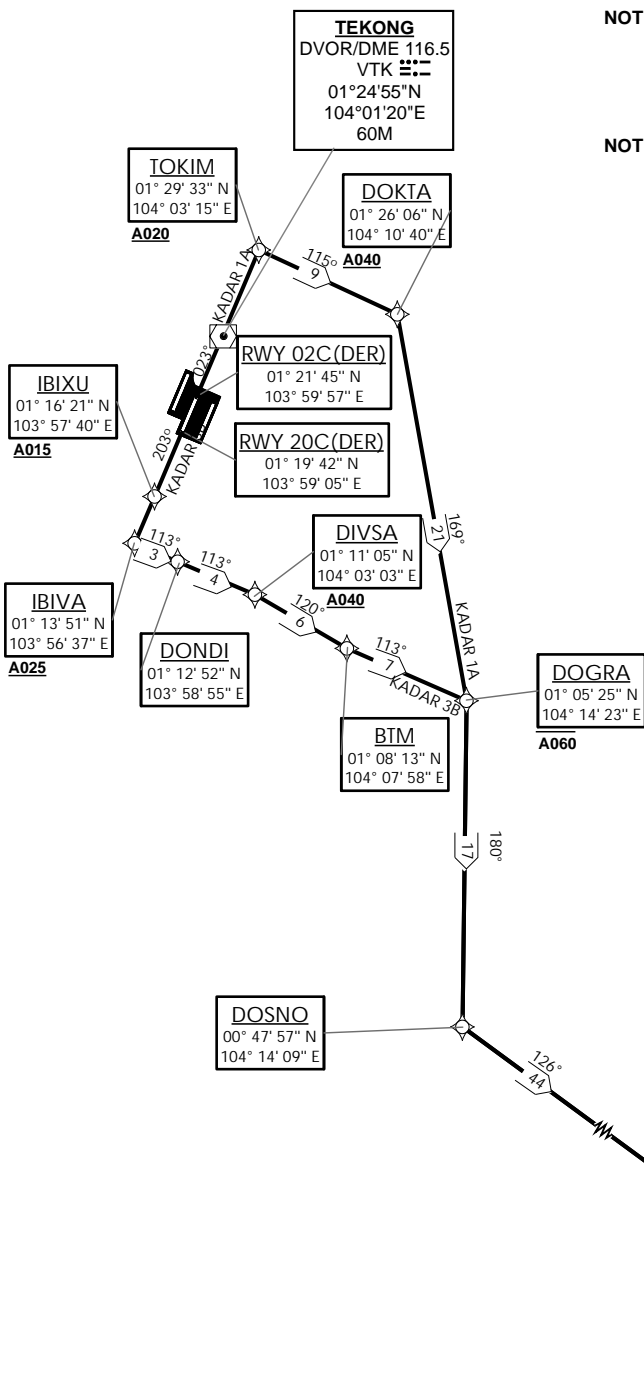
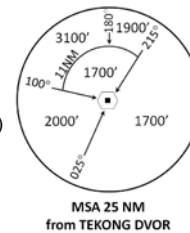
**NOTE:** RNAV-1 NAVIGATION SPECIFICATION  
GNSS REQUIRED

**NOTE:** CLOSE-IN OBSTACLES (AIRCRAFT UP TO 80FT)  
EXIST ON TAXIWAYS WEST OF RUNWAY 02C

**NOTE:** ACFT UNABLE TO FLY THE SID  
PROFILE SHALL INFORM ATC  
PRIOR TO DEPARTURE AND TO  
EXPECT RADAR VECTURING,  
IF NECESSARY

**NOTE:** WHEN TAKEN OFF THE SID,  
AS INSTRUCTED BY ATC,  
REFER TO ENR 1.5, SECTION 3,  
PARAGRAPH 3.3 [A] - FOR RWY 02C MINIMUM CLIMB GRADIENT AND  
PARAGRAPH 3.4.1 - FOR RWY 20C MINIMUM CLIMB GRADIENT

**NOTE:** REFER TO BACK PAGE FOR  
- FORMAL AND TABULAR DESCRIPTIONS  
- RADIO COM FAILURE PROCEDURES



GENERAL INFORMATION

**INITIAL CLIMB  
3000FT**

ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

RWY 02C

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL. CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR. SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 3.3%.

RWY 20C

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL. CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR. SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 7% UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
7% V/V (fpm)	532	709	1062	1416	1769	2123
3.3% V/V (fpm)	251	334	501	668	835	1003

NOT TO SCALE

### KADAR 1A (SID) RNAV GNSS RWY 02C - DESCRIPTIONS

#### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOKIM on course 023° at or above 2000ft, turn right. To DOKTA at or above 4000ft, turn right. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To VENPA, turn left. To ATKAX, turn right. To KADAR.	TOKIM [M023; A020+; R] -	CF	N
	DOKTA [A040+; R] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	VENPA [L] -	TF	N
	ATKAX [R] -	TF	N
	KADAR	TF	N

#### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOKIM	-	023(023.4)	-0.4	R	A020+	-	RNAV1
TF	DOKTA	-	115(115.4)	-0.4	R	A040+	-	RNAV1
TF	DOGRA	-	169(169.4)	-0.4	R	A060-	-	RNAV1
TF	DOSNO	-	180(180.4)	-0.4	L	-	-	RNAV1
TF	VENPA	-	126(126.4)	-0.4	L	-	-	RNAV1
TF	ATKAX	-	097(097.4)	-0.4	R	-	-	RNAV1
TF	KADAR	-	105(105.4)	-0.4	-	-	-	RNAV1

### KADAR 3B (SID) RNAV GNSS RWY 20C - DESCRIPTIONS

#### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To IBIXU on course 203° at or above 1500ft. To IBIVA at or above 2500ft, turn left. To DONDI. To DIVSA at or above 4000ft, turn right. To BTM, turn left. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To VENPA, turn left. To ATKAX, turn right. To KADAR.	IBIXU [M203; A015+] -	CF	N
	IBIVA [A025+; L] -	TF	N
	DONDI -	TF	N
	DIVSA [A040+; R] -	TF	N
	BTM [L] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	VENPA [L] -	TF	N
	ATKAX [R] -	TF	N
	KADAR	TF	N

#### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	IBIXU	-	203(203.4)	-0.4	-	A015+	-	RNAV1
TF	IBIVA	-	203(203.4)	-0.4	L	A025+	-	RNAV1
TF	DONDI	-	113(113.4)	-0.4	-	-	-	RNAV1
TF	DIVSA	-	113(113.4)	-0.4	R	A040+	-	RNAV1
TF	BTM	-	120(120.4)	-0.4	L	-	-	RNAV1
TF	DOGRA	-	113(113.4)	-0.4	R	A060-	-	RNAV1
TF	DOSNO	-	180(180.4)	-0.4	L	-	-	RNAV1
TF	VENPA	-	126(126.4)	-0.4	L	-	-	RNAV1
TF	ATKAX	-	097(097.4)	-0.4	R	-	-	RNAV1
TF	KADAR	-	105(105.4)	-0.4	-	-	-	RNAV1

### RADIO COMMUNICATIONS FAILURE PROCEDURE

1	SET TRANSPONDER TO MODE A/C CODE 7600
2	<p><b>COMMUNICATIONS FAILURE OCCURS IMMEDIATELY AFTER DEPARTURE ON:</b></p> <p><b>RWY 02C</b> - PROCEED DIRECT TO NYLON HOLDING AREA (NHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.</p> <p><b>RWY 20C</b> - PROCEED DIRECT TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.</p>

STANDARD DEPARTURE CHART  
RNAV (GNSS) -  
INSTRUMENT (SID)

TWR 118.6  
APP 120.3  
124.05  
ACC 134.4

TRANSITION ALTITUDE  
11 000ft

D-ATIS AP ID-WSSS  
128.6

SINGAPORE/Singapore Changi  
RWY 02L/20R  
KADAR DEPARTURES  
KADAR 1E (R02L)  
KADAR 3F (R20R)

ELEV, ALT IN FEET  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)

DISTANCES IN NM

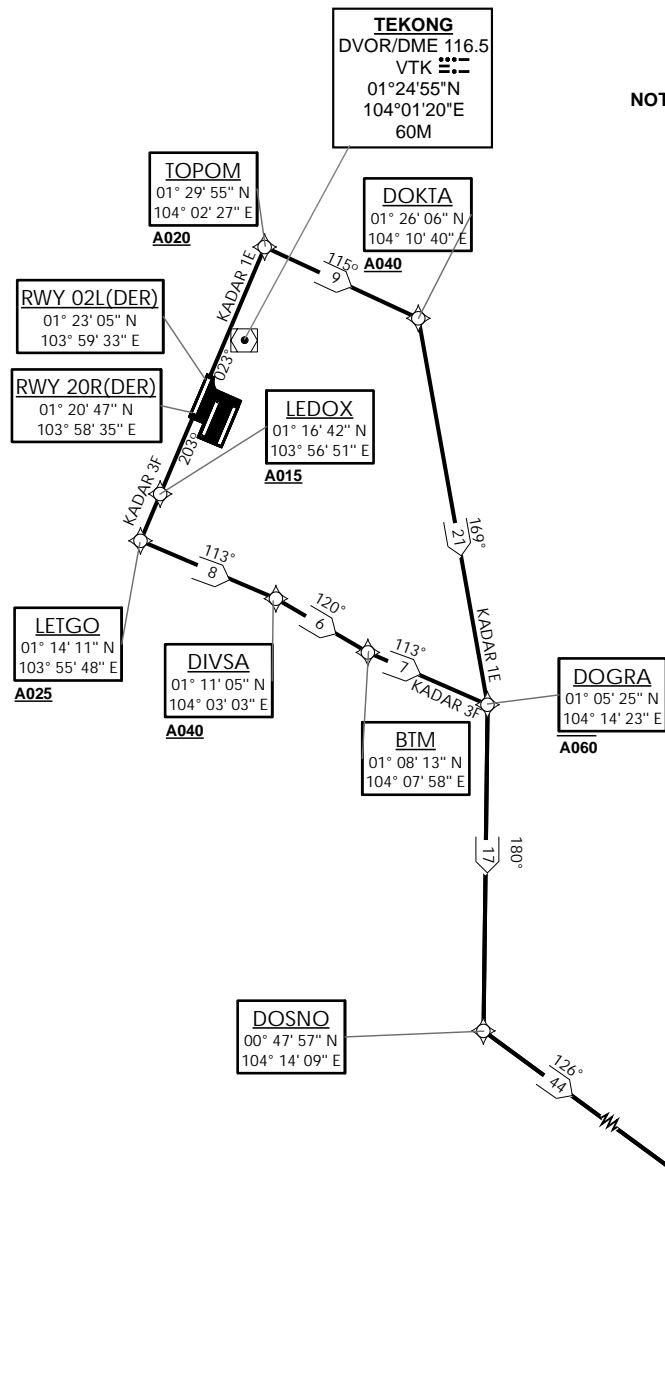
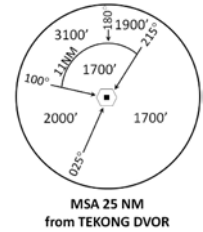
**NOTE:** RADAR REQUIRED

**NOTE:** RNAV-1 NAVIGATION SPECIFICATION  
GNSS REQUIRED

**NOTE:** ACFT UNABLE TO FLY THE SID  
PROFILE SHALL INFORM ATC  
PRIOR TO DEPARTURE AND TO  
EXPECT RADAR VECTURING,  
IF NECESSARY

**NOTE:** WHEN TAKEN OFF THE SID,  
AS INSTRUCTED BY ATC,  
REFER TO ENR 1.5, SECTION 3,  
PARAGRAPH 3.2 [A] - FOR RWY 02L MINIMUM CLIMB GRADIENT AND  
PARAGRAPH 3.4.2 - FOR RWY 20R MINIMUM CLIMB GRADIENT

**NOTE:** REFER TO BACK PAGE FOR  
- FORMAL AND TABULAR DESCRIPTIONS  
- RADIO COM FAILURE PROCEDURES



GENERAL INFORMATION

**INITIAL CLIMB  
3000FT**

ALL SIDs INCLUDE NOISE PREFERENTIAL ROUTES.

RWY 02L

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL. CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR. SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 3.3%.

RWY 20R

SHALL NOT EXCEED IAS 230KTS UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS UNTIL PASSING 10000FT AMSL. CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF BY SINGAPORE RADAR. SID SHALL BE ON A MINIMUM CLIMB GRADIENT OF 6% UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
6% V/V (fpm)	456	608	911	1215	1518	1821
3.3% V/V (fpm)	251	334	501	668	835	1003

NOT TO SCALE

### KADAR 1E (SID) RNAV GNSS RWY 02L - DESCRIPTIONS

#### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To TOPOM on course 023° at or above 2000ft, turn right. To DOKTA at or above 4000ft, turn right. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To VENPA, turn left. To ATKAX, turn right. To KADAR.	TOPOM [M023; A020+; R] -	CF	N
	DOKTA [A040+; R] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	VENPA [L] -	TF	N
	ATKAX [R] -	TF	N
	KADAR	TF	N

#### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	TOPOM	-	023(023.4)	-0.4	R	A020+	-	RNAV1
TF	DOKTA	-	115(115.4)	-0.4	R	A040+	-	RNAV1
TF	DOGRA	-	169(169.4)	-0.4	R	A060-	-	RNAV1
TF	DOSNO	-	180(180.4)	-0.4	L	-	-	RNAV1
TF	VENPA	-	126(126.4)	-0.4	L	-	-	RNAV1
TF	ATKAX	-	097(097.4)	-0.4	R	-	-	RNAV1
TF	KADAR	-	105(105.4)	-0.4	-	-	-	RNAV1

### KADAR 3F (SID) RNAV GNSS RWY 20R - DESCRIPTIONS

#### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
To LEDOX on course 203° at or above 1500ft. To LETGO at or above 2500ft, turn left. To DIVSA at or above 4000ft, turn right. To BTM, turn left. To DOGRA at or below 6000ft, turn right. To DOSNO, turn left. To VENPA, turn left. To ATKAX, turn right. To KADAR.	LEDOX [M203; A015+] -	CF	N
	LETGO [A025+; L] -	TF	N
	DIVSA [A040+; R] -	TF	N
	BTM [L] -	TF	N
	DOGRA [A060-; R] -	TF	N
	DOSNO [L] -	TF	N
	VENPA [L] -	TF	N
	ATKAX [R] -	TF	N
	KADAR	TF	N

#### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
CF	LEDOX	-	203(203.4)	-0.4	-	A015+	-	RNAV1
TF	LETGO	-	203(203.4)	-0.4	L	A025+	-	RNAV1
TF	DIVSA	-	113(113.4)	-0.4	R	A040+	-	RNAV1
TF	BTM	-	120(120.4)	-0.4	L	-	-	RNAV1
TF	DOGRA	-	113(113.4)	-0.4	R	A060-	-	RNAV1
TF	DOSNO	-	180(180.4)	-0.4	L	-	-	RNAV1
TF	VENPA	-	126(126.4)	-0.4	L	-	-	RNAV1
TF	ATKAX	-	097(097.4)	-0.4	R	-	-	RNAV1
TF	KADAR	-	105(105.4)	-0.4	-	-	-	RNAV1

### RADIO COMMUNICATIONS FAILURE PROCEDURE

1	SET TRANSPONDER TO MODE A/C CODE 7600
2	<p><b>COMMUNICATIONS FAILURE OCCURS IMMEDIATELY AFTER DEPARTURE ON:</b></p> <p><b>RWY 02L</b> - PROCEED DIRECT TO NYLON HOLDING AREA (NHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.</p> <p><b>RWY 20R</b> - PROCEED DIRECT TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.</p>

**STANDARD INSTRUMENT  
DEPARTURES (SID)  
CHART**

TWR 131.4  
APP 120.3  
ACC 133.8/134.4/133.25

TRANSITION ALTITUDE  
11 000ft

D-ATIS AP ID-WSSS  
128.6

**SINGAPORE/Singapore Changi  
RWY 02R/20L  
CHANGI DEPARTURE (RADAR)  
CHA 1C (R02R)  
CHA 1D (R20L)**

**ELEV, ALT IN FEET**

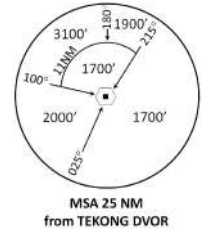
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)

DISTANCES IN NM

**NOTE:** RADAR REQUIRED

**NOTE:** ACFT UNABLE TO COMPLY WITH CLIMB GRADIENT  
RESTRICTION SHALL INFORM ATC DURING THE TIME  
ACFT COMMENCES TAXIING TO HOLDING POINT FOR  
DEPARTURE

**NOTE:** REFER TO BACK PAGE FOR  
- FORMAL AND TABULAR DESCRIPTIONS  
- RADIO COM FAILURE PROCEDURES



**GENERAL INFORMATION**

**INITIAL CLIMB  
3000FT**

ACFT ON DEPARTURE SHALL NOT EXCEED IAS 230KTS  
UNTIL PASSING 4000FT AMSL AND NOT EXCEED IAS 250KTS  
UNTIL PASSING 10000FT AMSL.

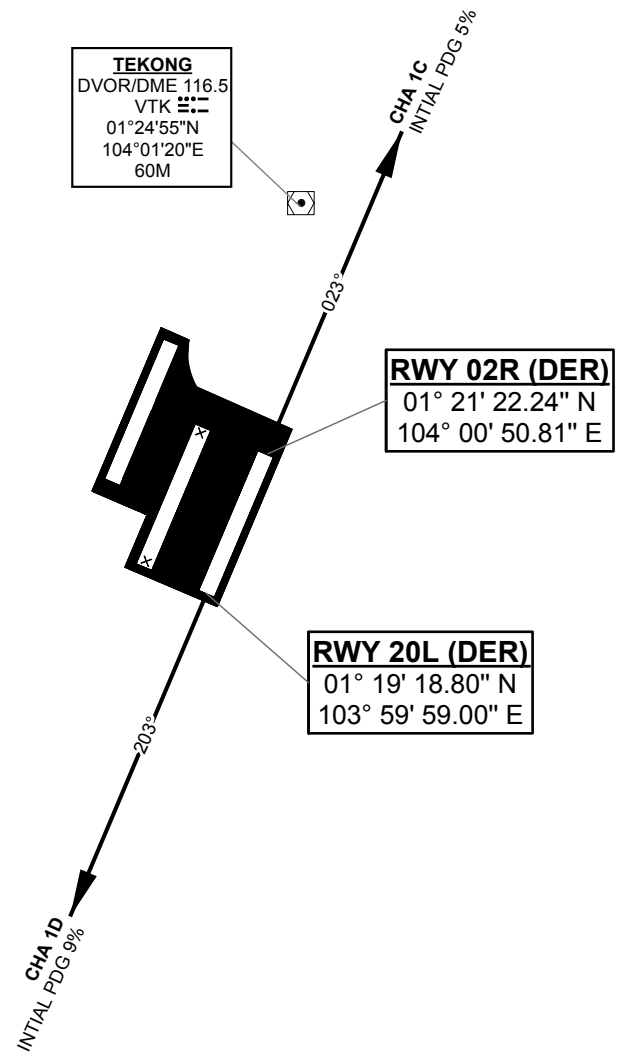
CRUISING LEVELS WILL BE ISSUED AFTER TAKE-OFF  
BY SINGAPORE RADAR.

ACFT ON DEPARTURE **02R** SHALL BE ON A MINIMUM CLIMB GRADIENT  
OF 5% UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
5% V/V (fpm)	380	506	760	1013	1266	1519
3.3% V/V (fpm)	251	334	501	668	835	1003

ACFT ON DEPARTURE **20L** SHALL BE ON A MINIMUM CLIMB GRADIENT  
OF 9% UNTIL REACHING OR PASSING 2500FT, THEREAFTER 3.3%.

GND SPEED - KNOTS	75	100	150	200	250	300
9% V/V (fpm)	684	911	1367	1823	2279	2734
3.3% V/V (fpm)	251	334	501	668	835	1003



NOT TO SCALE

12 AUG 2021

**CHA 1C SID (RADAR) RWY 02R - DESCRIPTIONS****Formal & Abbreviated Descriptions**

Formal Description	Abbreviated Description	Path Terminator
Climb runway heading 023°, Gradient 5% to 2500ft, thence 3.3%. Expect radar vectors to planned ATS route or depicted waypoints (See table A)	-	VA

**Tabular Descriptions**

Path Terminator	Turn Direction	Course °M (°T)	Altitude	Speed Limit
VA	-	023 (023.4)	A030	-

**CHA 1D SID (RADAR) RWY 20L - DESCRIPTIONS****Formal & Abbreviated Descriptions**

Formal Description	Abbreviated Description	Path Terminator
Climb runway heading 203°, Gradient 9% to 2500ft, thence 3.3%. Expect radar vectors to planned ATS route or depicted waypoints (See table A)	-	VA

**Tabular Descriptions**

Path Terminator	Turn Direction	Course °M (°T)	Altitude	Speed Limit
VA	-	203 (203.4)	A030	-

**Table A**

Planned ATS Routes	Expect Radar Vectors to the waypoints listed below and thereafter fly direct between subsequent waypoints to join the respective planned ATS Route
A457	AKOMA DCT SABKA DCT MASBO
B470	DOSNO DCT ANITO
G580 / M646 / L625	HOSBA DCT TOMAN
L504	DOSNO DCT VENPA DCT ATKAX DCT BAVUS
M635	DOSNO DCT VENPA DCT VENIX DCT SURGA
B469 / M751 / M771 / L642 / M753	AKOMA DCT VMR
M774	DOSNO DCT VENPA DCT ATKAX DCT KADAR
L762 / R469	ADMIM DCT ASUNA
Y513	AKOMA DCT AKMET DCT AROSO

**RADIO COMMUNICATIONS FAILURE PROCEDURE**

1	<b>SET TRANSPONDER TO MODE A/C CODE 7600</b>
2	<p><b>COMMUNICATIONS FAILURE OCCURS IMMEDIATELY AFTER DEPARTURE ON:</b></p> <p><b>RWY 02R</b> - PROCEED DIRECT TO NYLON HOLDING AREA (NHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.</p> <p><b>RWY 20L</b> - PROCEED DIRECT TO SAMKO HOLDING AREA (SHA) CLIMBING TO THE LAST ASSIGNED ALTITUDE, THEREAFTER REFER TO SINGAPORE AIP ON RADIO COMMUNICATIONS FAILURE PROCEDURE.</p>

**STANDARD ARRIVAL CHART  
RNAV (GNSS) -  
INSTRUMENT (STAR)**

ACC 133.25  
APP 124.05  
119.3  
TWR 118.6 / 118.25

TRANSITION ALTITUDE  
11 000ft

D-ATIS AP ID-WSSS  
ARR 128.025

**SINGAPORE/Singapore Changi  
RWY 02L/C/R  
ARAMA ONE ALPHA ARRIVAL  
ARAMA 1A**

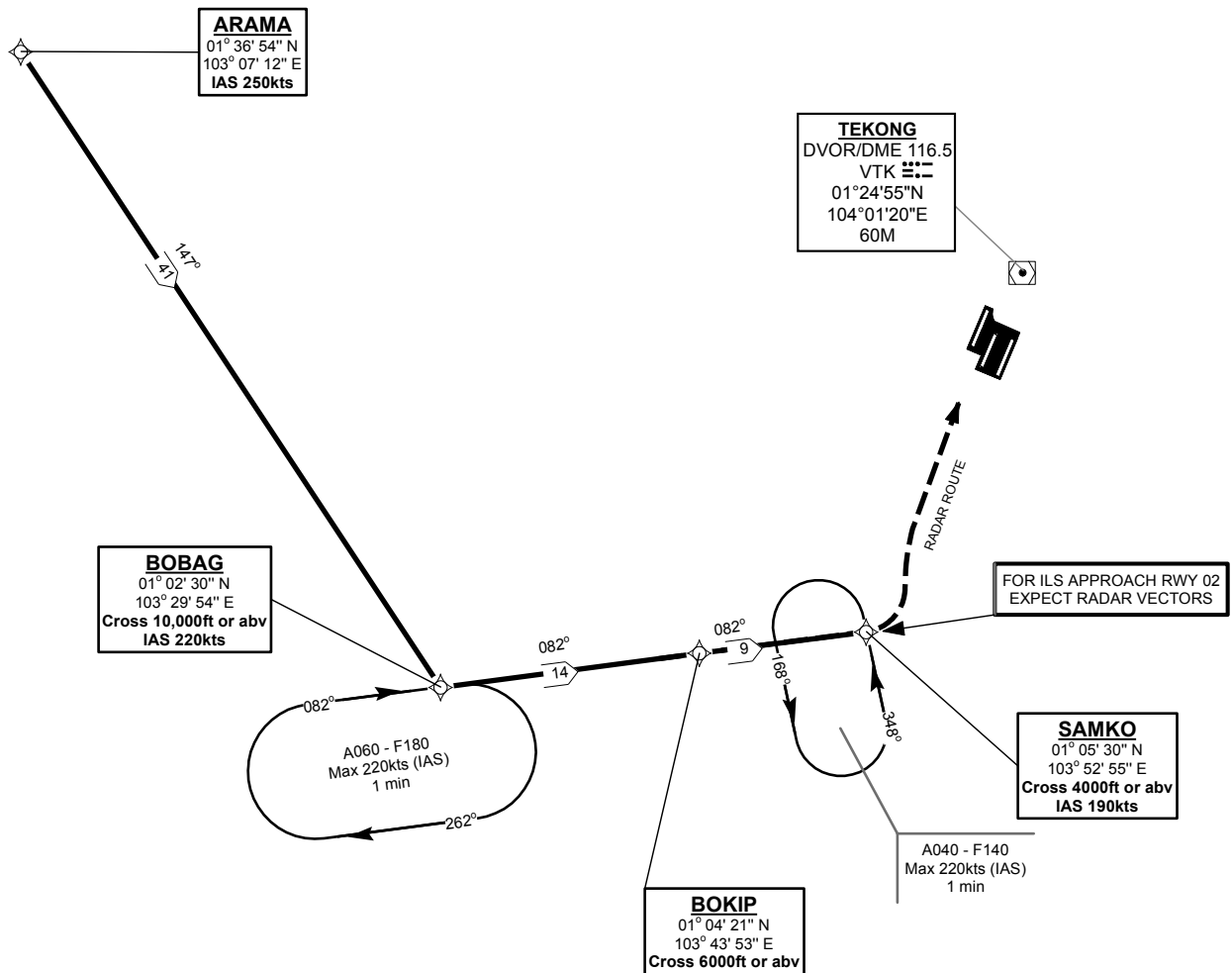
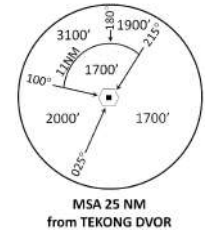
ELEV, ALT IN FEET  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)

DISTANCES IN NM

NOTE: RADAR REQUIRED

NOTE: RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

NOTE: REFER TO BACK PAGE FOR  
- FORMAL AND TABULAR DESCRIPTIONS  
- RADIO COM FAILURE PROCEDURES



NOT TO SCALE

## ARAMA 1A (STAR) RNAV GNSS RWY 02L/02C/02R - DESCRIPTIONS

### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
From ARAMA, speed 250kts. To BOBAG at or above 10000ft, speed 220kts, turn left. To BOKIP at or above 6000ft. To SAMKO at or above 4000ft, speed 190kts.	ARAMA [K250] -	IF	N
	BOBAG [A100+; K220; L] -	TF	N
	BOKIP [A060+] -	TF	N
	SAMKO [A040+; K190]	TF	N

### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
IF	ARAMA	-	-	-	-	-	K250	RNAV1
TF	BOBAG	-	147(147.4)	-0.4	L	A100+	K220	RNAV1
TF	BOKIP	-	082(082.4)	-0.4	-	A060+	-	RNAV1
TF	SAMKO	-	082(082.4)	-0.4	-	A040+	K190	RNAV1

## RADIO COMMUNICATIONS FAILURE PROCEDURE

1	<b>SET TRANSPONDER TO MODE A/C CODE 7600</b>
2	<p><b>When cleared via ARAMA 1A by Singapore ATC</b></p> <p>(a) Maintain last assigned flight level or altitude and proceed on ARAMA 1A to SAMKO</p> <p>(b) From SAMKO commence descent and carry out appropriate landing procedure for RWY 02 as close as possible to EAT or ETA</p> <p>(c) If unable to effect a landing, refer to Singapore AIP for missed approach procedure</p>
3	<p><b>No clearance or instruction received from Singapore ATC</b></p> <p>- Refer to Singapore AIP for radio communications failure procedure</p>



**STANDARD ARRIVAL CHART  
RNAV (GNSS) -  
INSTRUMENT (STAR)**

ACC 133.25  
APP 124.05  
119.3  
TWR 118.6 / 118.25

TRANSITION ALTITUDE  
11 000ft

D-ATIS AP ID-WSSS  
128.025

**SINGAPORE/Singapore Changi  
RWY 02L/C/R**

**ASUNA ONE ALPHA ARRIVAL  
ASUNA 1A**

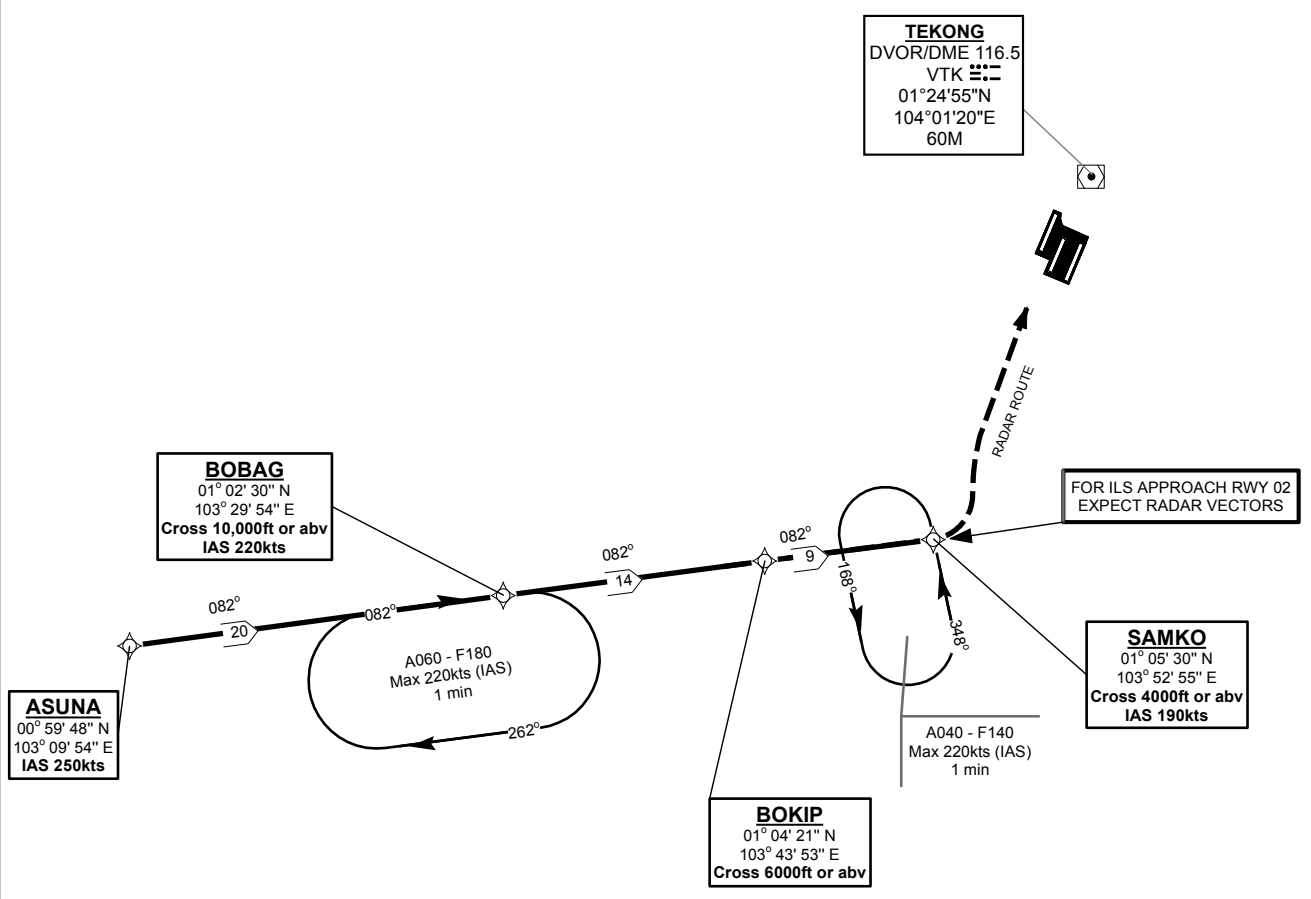
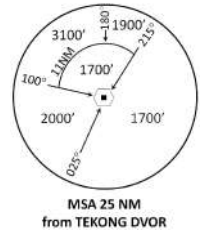
ELEV, ALT IN FEET  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)

DISTANCES IN NM

**NOTE:** RADAR REQUIRED

**NOTE:** RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

**NOTE:** REFER TO BACK PAGE FOR  
- FORMAL AND TABULAR DESCRIPTIONS  
- RADIO COM FAILURE PROCEDURES



NOT TO SCALE

**ASUNA 1A (STAR) RNAV GNSS RWY 02L/02C/02R - DESCRIPTIONS**

**Formal & Abbreviated Descriptions**

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
From ASUNA, speed 250kts. To BOBAG at or above 10000ft, speed 220kts. To BOKIP at or above 6000ft. To SAMKO at or above 4000ft, speed 190kts.	ASUNA [K250] -	IF	N
	BOBAG [A100+; K220] -	TF	N
	BOKIP [A060+] -	TF	N
	SAMKO [A040+; K190]	TF	N

**Tabular Descriptions**

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
IF	ASUNA	-	-	-	-	-	K250	RNAV1
TF	BOBAG	-	082(082.4)	-0.4	-	A100+	K220	RNAV1
TF	BOKIP	-	082(082.4)	-0.4	-	A060+	-	RNAV1
TF	SAMKO	-	082(082.4)	-0.4	-	A040+	K190	RNAV1

**RADIO COMMUNICATIONS FAILURE PROCEDURE**

<b>1</b>	<b>SET TRANSPONDER TO MODE A/C CODE 7600</b>
<b>2</b>	<p><b>When cleared via ASUNA 1A by Singapore ATC</b></p> <p>(a) Maintain last assigned flight level or altitude and proceed on ASUNA 1A to SAMKO</p> <p>(b) From SAMKO commence descent and carry out appropriate landing procedure for RWY 02 as close as possible to EAT or ETA</p> <p>(c) If unable to effect a landing, refer to Singapore AIP for missed approach procedure</p>
<b>3</b>	<p><b>No clearance or instruction received from Singapore ATC</b></p> <p>- Refer to Singapore AIP for radio communications failure procedure</p>

**STANDARD ARRIVAL CHART  
RNAV (GNSS) -  
INSTRUMENT (STAR)**

ACC 133.25  
APP 124.05  
119.3  
TWR 118.6 / 118.25

TRANSITION ALTITUDE  
11 000ft

D-ATIS AP ID-WSSS  
128.025

**SINGAPORE/Singapore Changi  
RWY 20R/C/L  
ARAMA ONE BRAVO ARRIVAL  
ARAMA 1B**

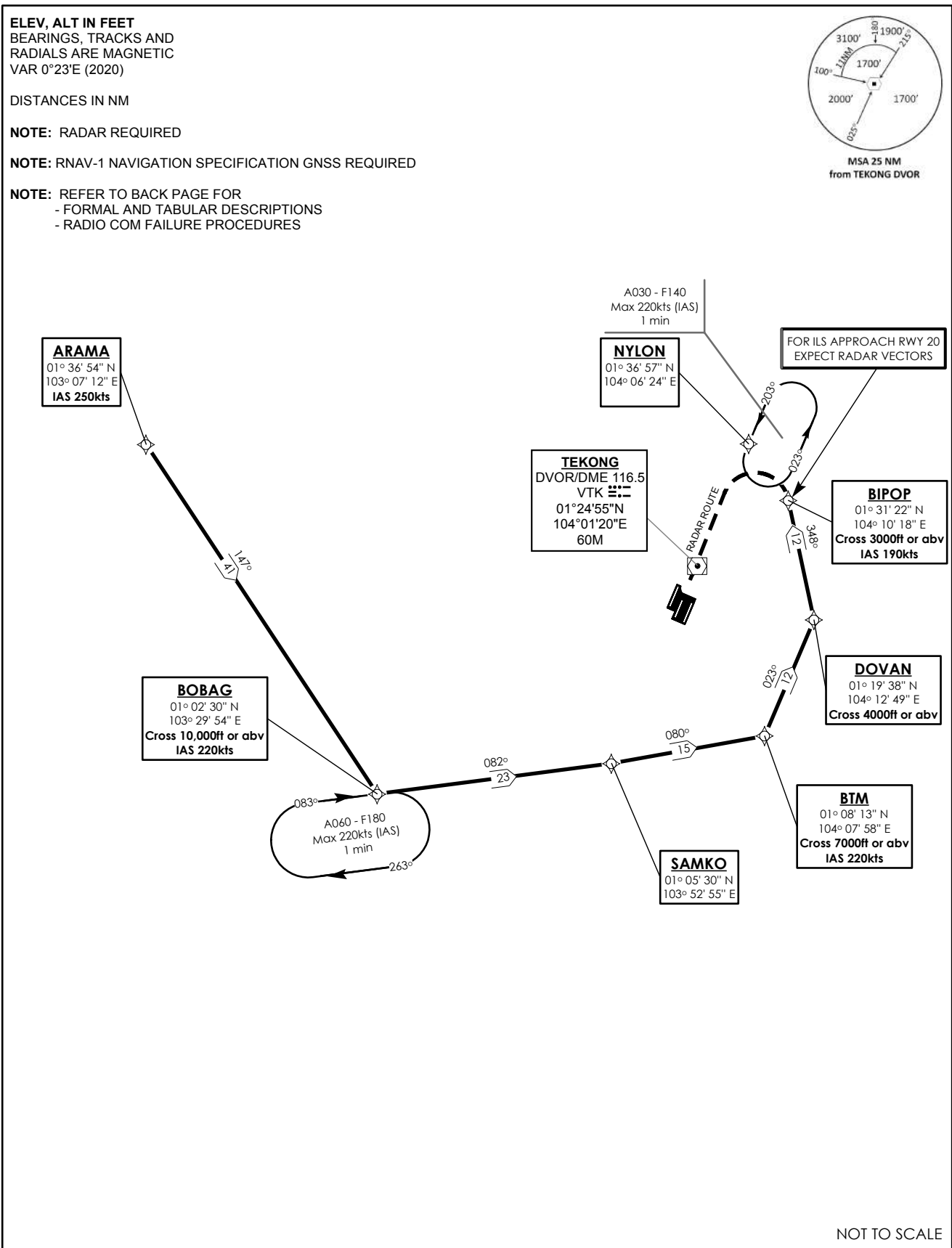
ELEV, ALT IN FEET  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)

DISTANCES IN NM

NOTE: RADAR REQUIRED

NOTE: RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

NOTE: REFER TO BACK PAGE FOR  
- FORMAL AND TABULAR DESCRIPTIONS  
- RADIO COM FAILURE PROCEDURES



NOT TO SCALE

**ARAMA 1B (STAR) RNAV GNSS RWY 20R/20C/20L - DESCRIPTIONS**

**Formal & Abbreviated Descriptions**

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
From ARAMA, speed 250kts. To BOBAG at or above 10000ft, speed 220kts, turn left. To SAMKO, turn left. To BTM at or above 7000ft, speed 220kts, turn left. To DOVAN at or above 4000ft, turn left. To BIPOP at or above 3000ft, speed 190kts.	ARAMA [K250] -	IF	N
	BOBAG [A100+; K220; L] -	TF	N
	SAMKO [L] -	TF	N
	BTM [A070+; K220; L] -	TF	N
	DOVAN [A040+; L] -	TF	N
	BIPOP [A030+; K190]	TF	N

**Tabular Descriptions**

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
IF	ARAMA	-	-	-	-	-	K250	RNAV1
TF	BOBAG	-	147(147.4)	-0.4	L	A100+	K220	RNAV1
TF	SAMKO	-	082(082.4)	-0.4	L	-	-	RNAV1
TF	BTM	-	080(080.4)	-0.4	L	A070+	K220	RNAV1
TF	DOVAN	-	023(023.4)	-0.4	L	A040+	-	RNAV1
TF	BIPOP	-	348(348.4)	-0.4	-	A030+	K190	RNAV1

**RADIO COMMUNICATIONS FAILURE PROCEDURE**

<b>1</b>	<b>SET TRANSPONDER TO MODE A/C CODE 7600</b>
<b>2</b>	<p><b>When cleared via ARAMA 1B by Singapore ATC</b></p> <p>(a) Maintain last assigned flight level or altitude and proceed on ARAMA 1B to BIPOP, then direct to NYLON</p> <p>(b) From NYLON commence descent and carry out appropriate landing procedure for RWY 20 as close as possible to EAT or ETA</p> <p>(c) If unable to effect a landing, refer to Singapore AIP for missed approach procedure</p>
<b>3</b>	<p><b>No clearance or instruction received from Singapore ATC</b></p> <p>- Refer to Singapore AIP for radio communications failure procedure</p>

**STANDARD ARRIVAL CHART  
RNAV (GNSS) -  
INSTRUMENT (STAR)**

ACC 133.25  
APP 124.05  
119.3  
TWR 118.6 / 118.25

TRANSITION ALTITUDE  
11 000ft

D-ATIS AP ID-WSSS  
128.025

**SINGAPORE/Singapore Changi  
RWY 20R/C/L  
ASUNA ONE BRAVO ARRIVAL  
ASUNA 1B**

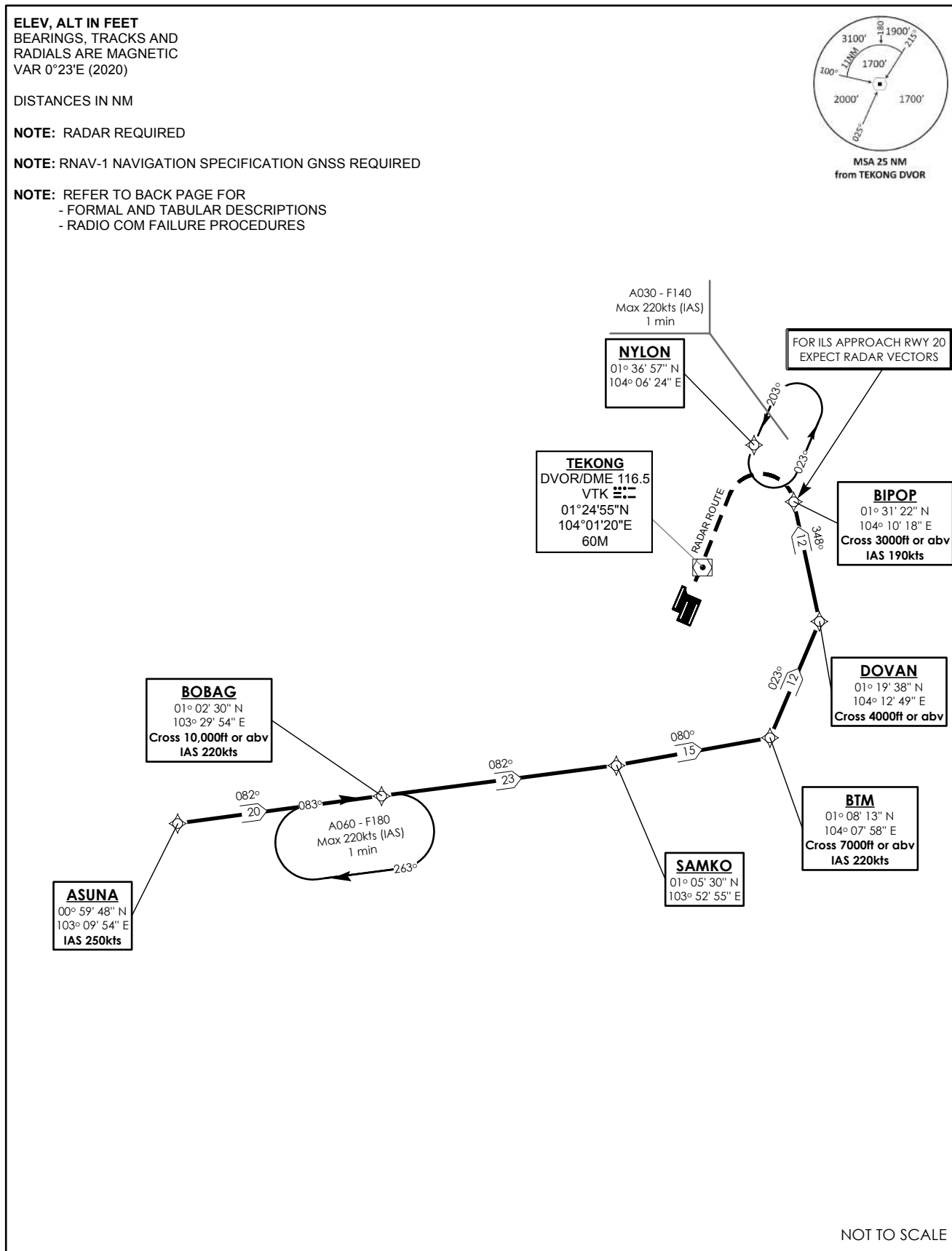
ELEV, ALT IN FEET  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)

DISTANCES IN NM

NOTE: RADAR REQUIRED

NOTE: RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

NOTE: REFER TO BACK PAGE FOR  
- FORMAL AND TABULAR DESCRIPTIONS  
- RADIO COM FAILURE PROCEDURES



NOT TO SCALE

**ASUNA 1B (STAR) RNAV GNSS RWY 20R/20C/20L - DESCRIPTIONS**

**Formal & Abbreviated Descriptions**

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
From ASUNA, speed 250kts. To BOBAG at or above 10000ft, speed 220kts. To SAMKO, turn left. To BTM at or above 7000ft, speed 220kts, turn left. To DOVAN at or above 4000ft, turn left. To BIPOP at or above 3000ft, speed 190kts.	ASUNA [K250] -	IF	N
	BOBAG [A100+; K220] -	TF	N
	SAMKO [L] -	TF	N
	BTM [A070+; K220; L] -	TF	N
	DOVAN [A040+; L] -	TF	N
	BIPOP [A030+; K190]	TF	N

**Tabular Descriptions**

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
IF	ASUNA	-	-	-	-	-	K250	RNAV1
TF	BOBAG	-	082(082.4)	-0.4	-	A100+	K220	RNAV1
TF	SAMKO	-	082(082.4)	-0.4	L	-	-	RNAV1
TF	BTM	-	080(080.4)	-0.4	L	A070+	K220	RNAV1
TF	DOVAN	-	023(023.4)	-0.4	L	A040+	-	RNAV1
TF	BIPOP	-	348(348.4)	-0.4	-	A030+	K190	RNAV1

**RADIO COMMUNICATIONS FAILURE PROCEDURE**

<b>1</b>	<b>SET TRANSPONDER TO MODE A/C CODE 7600</b>
<b>2</b>	<p><b>When cleared via ASUNA 1B by Singapore ATC</b></p> <p>(a) Maintain last assigned flight level or altitude and proceed on ASUNA 1B to BIPOP, then direct to NYLON</p> <p>(b) From NYLON commence descent and carry out appropriate landing procedure for RWY 20 as close as possible to EAT or ETA</p> <p>(c) If unable to effect a landing, refer to Singapore AIP for missed approach procedure</p>
<b>3</b>	<p><b>No clearance or instruction received from Singapore ATC</b></p> <p>- Refer to Singapore AIP for radio communications failure procedure</p>

**STANDARD ARRIVAL CHART**  
**RNAV (GNSS) -**  
**INSTRUMENT (STAR)**

ACC 134.2  
 APP 124.05  
 119.3  
 TWR 118.6 / 118.25

TRANSITION ALTITUDE  
 11 000ft

D-ATIS AP ID-WSSS  
 128.025

**SINGAPORE/Singapore Changi**  
**RWY 02L/C/R**  
**KARTO ONE ALPHA ARRIVAL**  
**KARTO 1A**

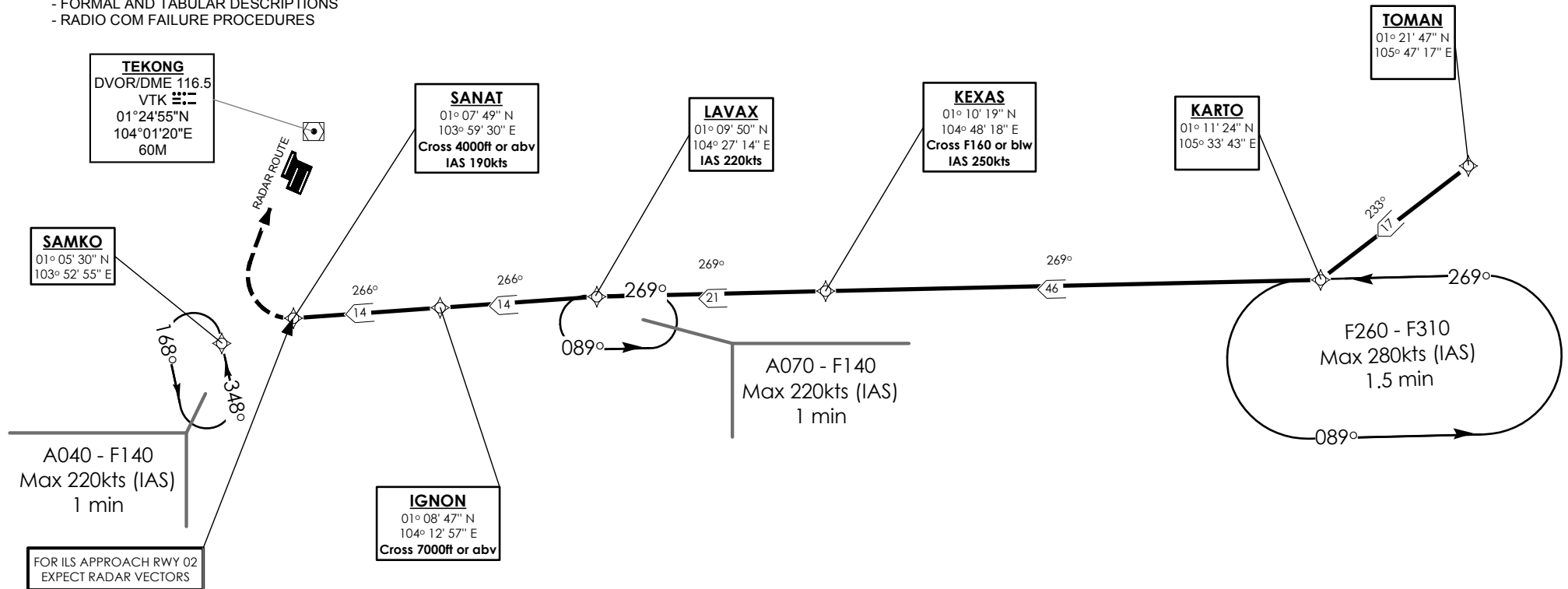
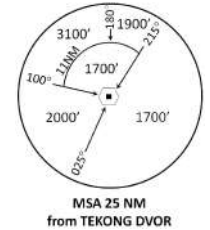
ELEV, ALT IN FEET  
 BEARINGS, TRACKS AND  
 RADIALS ARE MAGNETIC  
 VAR 0°23'E (2020)

DISTANCES IN NM

**NOTE:** RADAR REQUIRED

**NOTE:** RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

**NOTE:** REFER TO BACK PAGE FOR  
 - FORMAL AND TABULAR DESCRIPTIONS  
 - RADIO COM FAILURE PROCEDURES



NOT TO SCALE

**KARTO 1A (STAR) RNAV GNSS RWY 02L/02C/02R - DESCRIPTIONS**

**Formal & Abbreviated Descriptions**

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
From TOMAN. To KARTO, turn right. To KEXAS at or below FL160, speed 250kts. To LAVAX, speed 220kts, turn left. To IGNON at or above 7000ft. To SANAT at or above 4000ft, speed 190kts.	TOMAN -	IF	N
	KARTO [R] -	TF	N
	KEXAS [FL160-; K250] -	TF	N
	LAVAX [K220; L] -	TF	N
	IGNON [A070+] -	TF	N
	SANAT [A040+; K190]	TF	N

**Tabular Descriptions**

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
IF	TOMAN	-	-	-	-	-	-	RNAV1
TF	KARTO	-	233(233.4)	-0.4	R	-	-	RNAV1
TF	KEXAS	-	269(269.4)	-0.4	-	FL160-	K250	RNAV1
TF	LAVAX	-	269(269.4)	-0.4	L	-	K220	RNAV1
TF	IGNON	-	266(266.4)	-0.4	-	A070+	-	RNAV1
TF	SANAT	-	266(266.4)	-0.4	-	A040+	K190	RNAV1

**RADIO COMMUNICATIONS FAILURE PROCEDURE**

<b>1</b>	<b>SET TRANSPONDER TO MODE A/C CODE 7600</b>
<b>2</b>	<p><b>When cleared via KARTO 1A by Singapore ATC</b></p> <p>(a) Maintain last assigned flight level or altitude and proceed on KARTO 1A to SANAT, then direct to SAMKO</p> <p>(b) From SAMKO commence descent and carry out appropriate landing procedure for RWY 02 as close as possible to EAT or ETA</p> <p>(c) If unable to effect a landing, refer to Singapore AIP for missed approach procedure</p>
<b>3</b>	<p><b>No clearance or instruction received from Singapore ATC</b></p> <p>- Refer to Singapore AIP for radio communications failure procedure</p>



**STANDARD ARRIVAL CHART**  
**RNAV (GNSS) -**  
**INSTRUMENT (STAR)**

ACC 134.4  
 APP 124.05  
 119.3  
 TWR 118.6 / 118.25

TRANSITION ALTITUDE  
 11 000ft

D-ATIS AP ID-WSSS  
 128.025

**SINGAPORE/Singapore Changi**  
**RWY 02L/C/R**  
**OBDOS ONE ALPHA ARRIVAL**  
**OBDOS 1A**

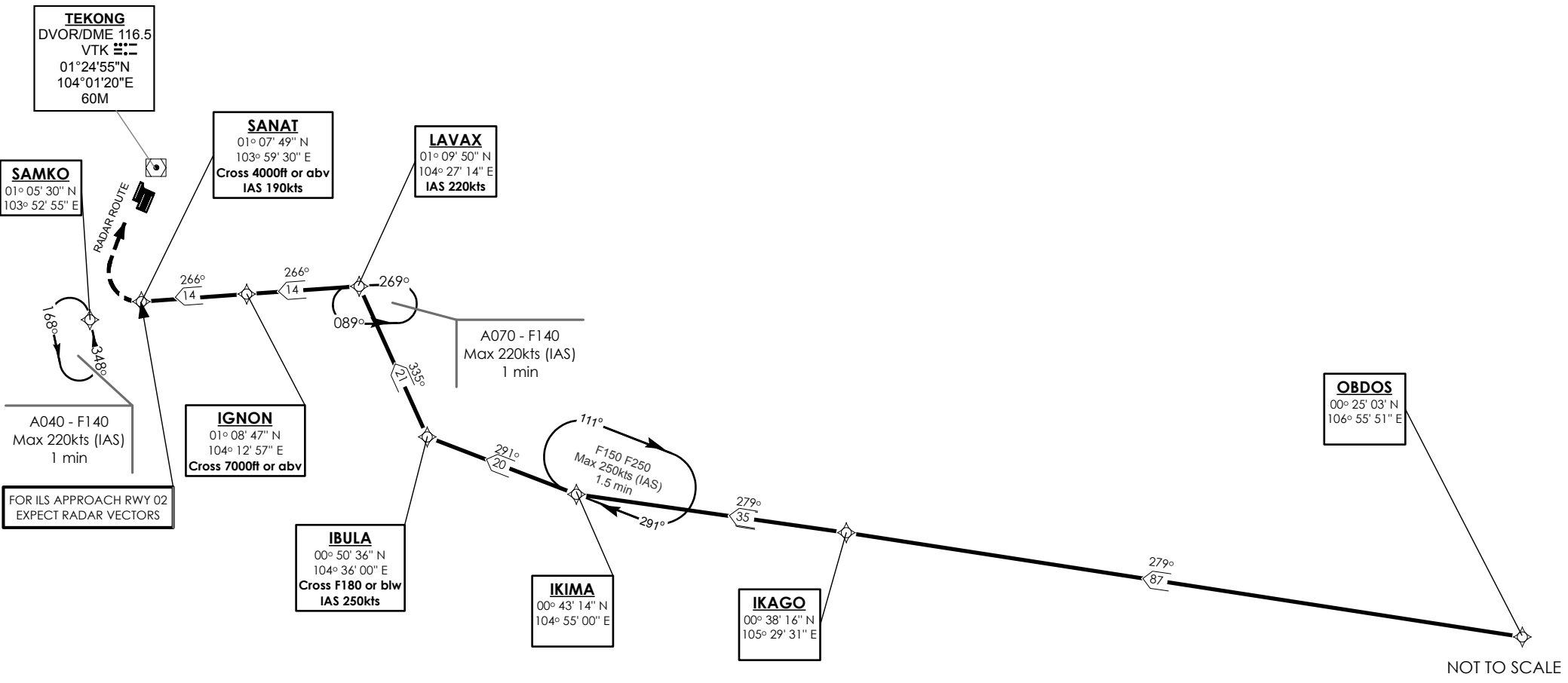
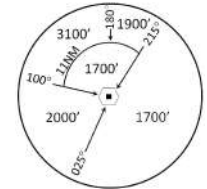
ELEV, ALT IN FEET  
 BEARINGS, TRACKS AND  
 RADIALS ARE MAGNETIC  
 VAR 0°23'E (2020)

DISTANCES IN NM

**NOTE:** RADAR REQUIRED

**NOTE:** RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

**NOTE:** REFER TO BACK PAGE FOR  
 - FORMAL AND TABULAR DESCRIPTIONS  
 - RADIO COM FAILURE PROCEDURES



**OBDOS 1A (STAR) RNAV GNSS RWY 02L/02C/02R - DESCRIPTIONS**

**Formal & Abbreviated Descriptions**

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
From OBDOS. To IKAGO. To IKIMA, turn right. To IBULA at or below FL180, speed 250kts, turn right. To LAVAX, speed 220kts, turn left. To IGNON at or above 7000ft. To SANAT at or above 4000ft, speed 190kts.	OBDOS -	IF	N
	IKAGO -	TF	N
	IKIMA [R] -	TF	N
	IBULA [FL180-; K250; R] -	TF	N
	LAVAX [K220; L] -	TF	N
	IGNON [A070+] -	TF	N
	SANAT [A040+; K190]	TF	N

**Tabular Descriptions**

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
IF	OBDOS	-	-	-	-	-	-	RNAV1
TF	IKAGO	-	279(279.4)	-0.4	-	-	-	RNAV1
TF	IKIMA	-	279(279.4)	-0.4	R	-	-	RNAV1
TF	IBULA	-	291(291.4)	-0.4	R	FL180-	K250	RNAV1
TF	LAVAX	-	335(335.4)	-0.4	L	-	K220	RNAV1
TF	IGNON	-	266(266.4)	-0.4	-	A070+	-	RNAV1
TF	SANAT	-	266(266.4)	-0.4	-	A040+	K190	RNAV1

**RADIO COMMUNICATIONS FAILURE PROCEDURE**

<b>1</b>	<b>SET TRANSPONDER TO MODE A/C CODE 7600</b>
<b>2</b>	<p><b>When cleared via OBDOS 1A by Singapore ATC</b></p> <p>(a) Maintain last assigned flight level or altitude and proceed on OBDOS 1A to SANAT, then direct to SAMKO</p> <p>(b) From SAMKO commence descent and carry out appropriate landing procedure for RWY 02 as close as possible to EAT or ETA</p> <p>(c) If unable to effect a landing, refer to Singapore AIP for missed approach procedure</p>
<b>3</b>	<p><b>No clearance or instruction received from Singapore ATC</b></p> <p>- Refer to Singapore AIP for radio communications failure procedure</p>

**STANDARD ARRIVAL CHART**  
**RNAV (GNSS) -**  
**INSTRUMENT (STAR)**

ACC 134.2  
 APP 124.05  
 119.3  
 TWR 118.6 / 118.25

TRANSITION ALTITUDE  
 11 000ft

D-ATIS AP ID-WSSS  
 128.025

**SINGAPORE/Singapore Changi**  
**RWY 20R/C/L**  
**KARTO ONE BRAVO ARRIVAL**  
**KARTO 1B**

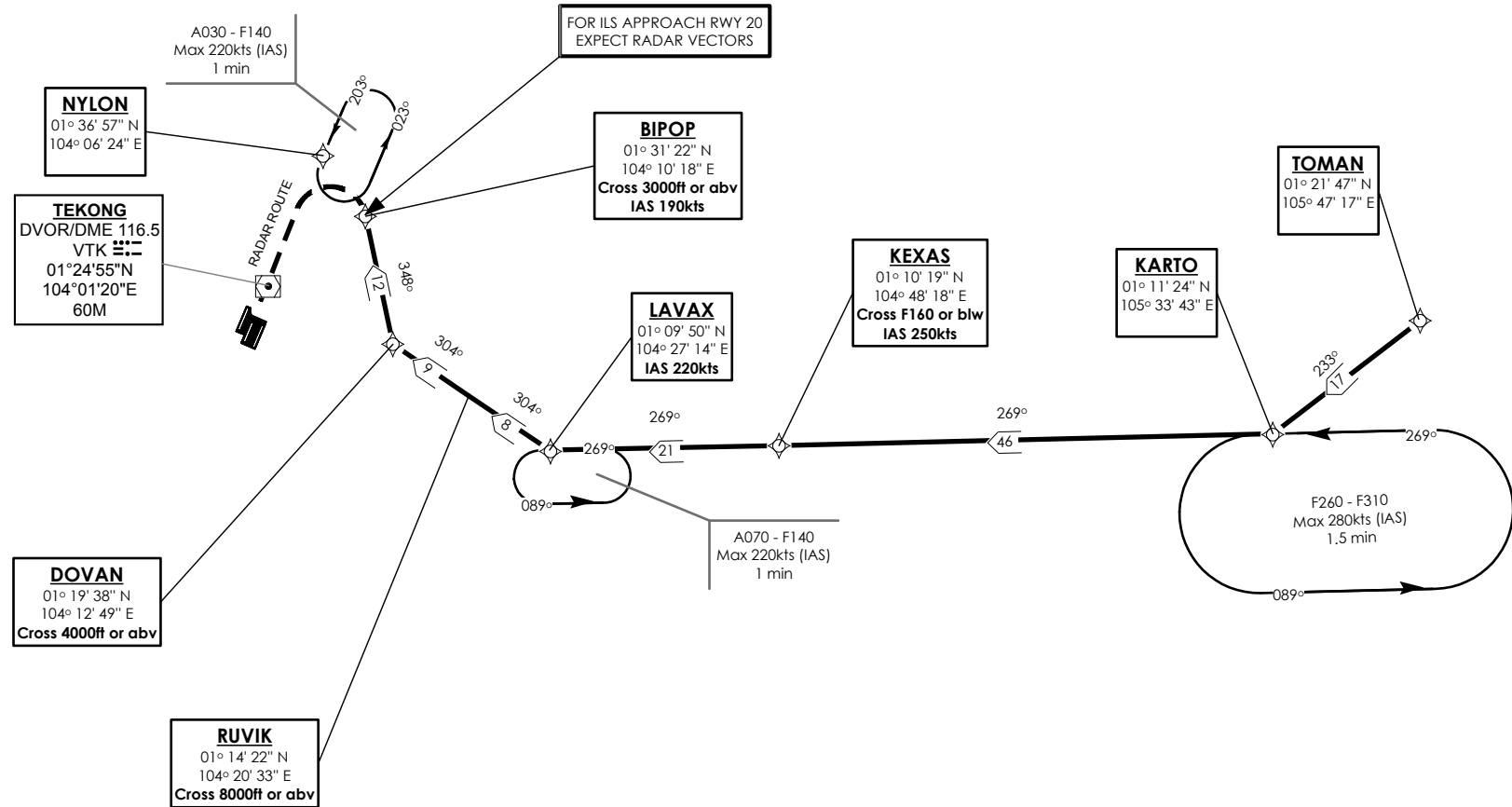
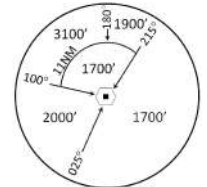
**ELEV, ALT IN FEET**  
 BEARINGS, TRACKS AND  
 RADIALS ARE MAGNETIC  
 VAR 0°23'E (2020)

DISTANCES IN NM

**NOTE:** RADAR REQUIRED

**NOTE:** RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

**NOTE:** REFER TO BACK PAGE FOR  
 - FORMAL AND TABULAR DESCRIPTIONS  
 - RADIO COM FAILURE PROCEDURES



NOT TO SCALE

**KARTO 1B (STAR) RNAV GNSS RWY 20R/20C/20L - DESCRIPTIONS**

**Formal & Abbreviated Descriptions**

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
From TOMAN. To KARTO, turn right. To KEXAS at or below FL160, speed 250kts. To LAVAX, speed 220kts, turn right. To RUVIK at or above 8000ft. To DOVAN at or above 4000ft, turn right. To BIPOP at or above 3000ft, speed 190kts.	TOMAN -	IF	N
	KARTO [R] -	TF	N
	KEXAS [FL160-; K250] -	TF	N
	LAVAX [K220; R] -	TF	N
	RUVIK [A080+] -	TF	N
	DOVAN [A040+; R] -	TF	N
	BIPOP [A030+; K190]	TF	N

**Tabular Descriptions**

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
IF	TOMAN	-	-	-	-	-	-	RNAV1
TF	KARTO	-	233(233.4)	-0.4	R	-	-	RNAV1
TF	KEXAS	-	269(269.4)	-0.4	-	FL160-	K250	RNAV1
TF	LAVAX	-	269(269.4)	-0.4	R	-	K220	RNAV1
TF	RUVIK	-	304(304.4)	-0.4	-	A080+	-	RNAV1
TF	DOVAN	-	304(304.4)	-0.4	R	A040+	-	RNAV1
TF	BIPOP	-	348(348.4)	-0.4	-	A030+	K190	RNAV1

**RADIO COMMUNICATIONS FAILURE PROCEDURE**

<b>1</b>	<b>SET TRANSPONDER TO MODE A/C CODE 7600</b>
<b>2</b>	<p><b>When cleared via KARTO 1B by Singapore ATC</b></p> <p>(a) Maintain last assigned flight level or altitude and proceed on KARTO 1B to BIPOP, then direct to NYLON</p> <p>(b) From NYLON commence descent and carry out appropriate landing procedure for RWY 20 as close as possible to EAT or ETA</p> <p>(c) If unable to effect a landing, refer to Singapore AIP for missed approach procedure</p>
<b>3</b>	<p><b>No clearance or instruction received from Singapore ATC</b></p> <p>- Refer to Singapore AIP for radio communications failure procedure</p>

**STANDARD ARRIVAL CHART**  
**RNAV (GNSS) -**  
**INSTRUMENT (STAR)**

ACC 134.4  
APP 124.05  
119.3  
TWR 118.6 / 118.25

TRANSITION ALTITUDE  
11 000ft

D-ATIS AP ID-WSSS  
128.025

**SINGAPORE/Singapore Changi**  
**RWY 20R/C/L**  
**OBDOS ONE BRAVO ARRIVAL**  
**OBDOS 1B**

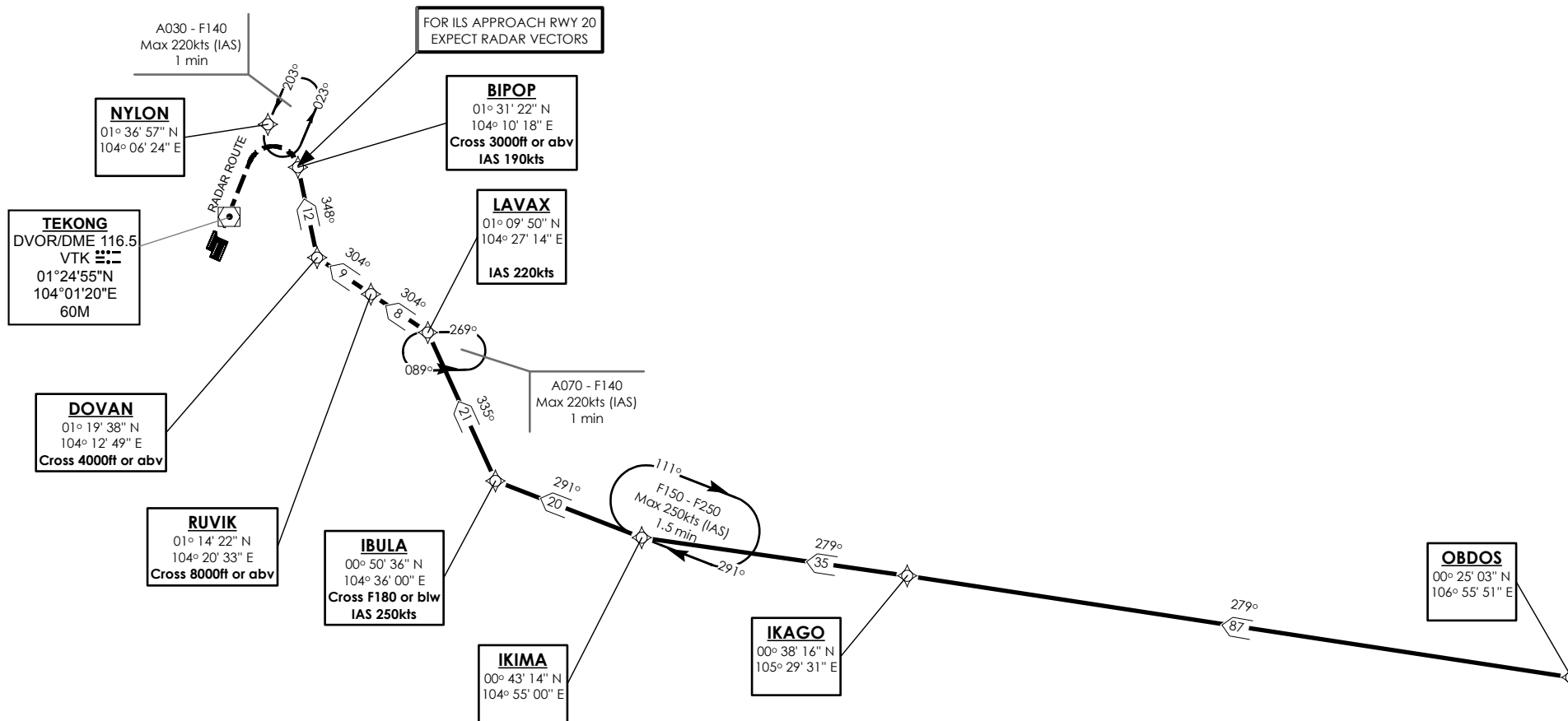
**ELEV, ALT IN FEET**  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)

DISTANCES IN NM

**NOTE:** RADAR REQUIRED

**NOTE:** RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

**NOTE:** REFER TO BACK PAGE FOR  
- FORMAL AND TABULAR DESCRIPTIONS  
- RADIO COM FAILURE PROCEDURES



NOT TO SCALE

**OBDOS 1B (STAR) RNAV GNSS RWY 20R/20C/20L - DESCRIPTIONS**

**Formal & Abbreviated Descriptions**

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
From OBDOS. To IKAGO. To IKIMA, turn right. To IBULA at or below FL180, speed 250kts, turn right. To LAVAX, speed 220kts, turn left. To RUVIK at or above 8000ft. To DOVAN at or above 4000ft, turn right. To BIPOP at or above 3000ft, speed 190kts.	OBDOS -	IF	N
	IKAGO -	TF	N
	IKIMA [R] -	TF	N
	IBULA [FL180-; K250; R] -	TF	N
	LAVAX [K220; L] -	TF	N
	RUVIK [A080+] -	TF	N
	DOVAN [A040+; R] -	TF	N
	BIPOP [A030+; K190]	TF	N

**Tabular Descriptions**

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
IF	OBDOS	-	-	-	-	-	-	RNAV1
TF	IKAGO	-	279(279.4)	-0.4	-	-	-	RNAV1
TF	IKIMA	-	279(279.4)	-0.4	R	-	-	RNAV1
TF	IBULA	-	291(291.4)	-0.4	R	FL180-	K250	RNAV1
TF	LAVAX	-	335(335.4)	-0.4	L	-	K220	RNAV1
TF	RUVIK	-	304(304.4)	-0.4	-	A080+	-	RNAV1
TF	DOVAN	-	304(304.4)	-0.4	R	A040+	-	RNAV1
TF	BIPOP	-	348(348.4)	-0.4	-	A030+	K190	RNAV1

**RADIO COMMUNICATIONS FAILURE PROCEDURE**

<b>1</b>	<b>SET TRANSPONDER TO MODE A/C CODE 7600</b>
<b>2</b>	<p><b>When cleared via OBDOS 1B by Singapore ATC</b></p> <p>(a) Maintain last assigned flight level or altitude and proceed on OBDOS 1B to BIPOP, then direct to NYLON</p> <p>(b) From NYLON commence descent and carry out appropriate landing procedure for RWY 20 as close as possible to EAT or ETA</p> <p>(c) If unable to effect a landing, refer to Singapore AIP for missed approach procedure</p>
<b>3</b>	<p><b>No clearance or instruction received from Singapore ATC</b></p> <p>- Refer to Singapore AIP for radio communications failure procedure</p>

**STANDARD ARRIVAL CHART  
RNAV (GNSS) -  
INSTRUMENT (STAR)**

ACC 133.25  
APP 124.05  
119.3  
TWR 118.6 / 118.25

TRANSITION ALTITUDE  
11 000ft

D-ATIS AP ID-WSSS  
128.025

**SINGAPORE/Singapore Changi  
RWY 20R/C/L  
LELIB THREE BRAVO ARRIVAL  
LELIB 3B**

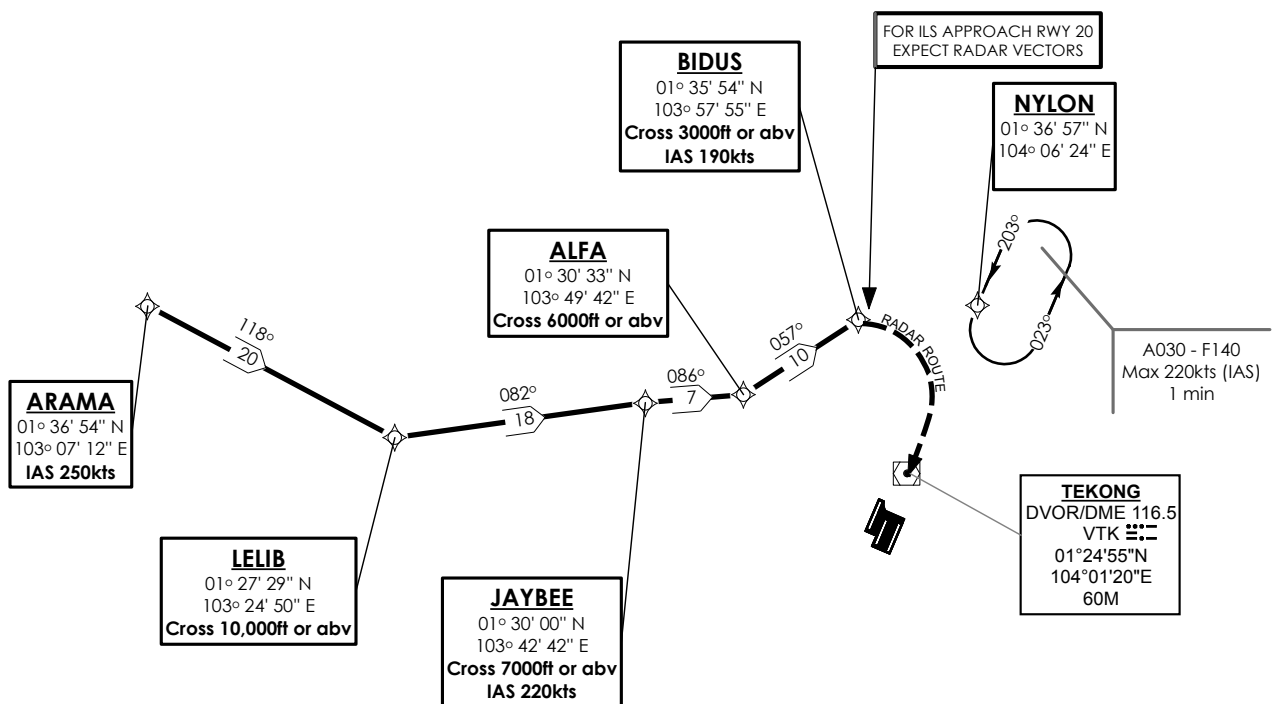
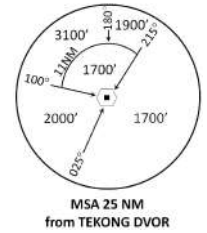
ELEV, ALT IN FEET  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)

DISTANCES IN NM

**NOTE:** RADAR REQUIRED

**NOTE:** RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

**NOTE:** REFER TO BACK PAGE FOR  
- FORMAL AND TABULAR DESCRIPTIONS  
- RADIO COM FAILURE PROCEDURES



ARAMA 1B shall be the default STAR for WSSS RWY 20.  
ATC will offer LELIB 3B when traffic permits.

NOT TO SCALE

**LELIB 3B (STAR) RNAV GNSS RWY 20R/20C/20L - DESCRIPTIONS**

**Formal & Abbreviated Descriptions**

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
From ARAMA, speed 250kts. To LELIB at or above 10000ft, turn left. To JAYBEE at or above 7000ft, speed 220kts, turn right. To ALFA at or above 6000ft, turn left. To BIDUS at or above 3000ft, speed 190kts.	ARAMA [K250] -	IF	N
	LELIB [A100+; L] -	TF	N
	JAYBEE [A070+; K220; R] -	TF	N
	ALFA [A060+; L] -	TF	N
	BIDUS [A030+; K190]	TF	N

**Tabular Descriptions**

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
IF	ARAMA	-	-	-	-	-	K250	RNAV1
TF	LELIB	-	118(118.4)	-0.4	L	A100+	-	RNAV1
TF	JAYBEE	-	082(082.4)	-0.4	R	A070+	K220	RNAV1
TF	ALFA	-	086(086.4)	-0.4	L	A060+	-	RNAV1
TF	BIDUS	-	057(057.4)	-0.4	-	A030+	K190	RNAV1

**RADIO COMMUNICATIONS FAILURE PROCEDURE** AIP Singapore

<b>1</b>	<b>SET TRANSPONDER TO MODE A/C CODE 7600</b>
<b>2</b>	<p><b>When cleared via LELIB 3B by Singapore ATC</b></p> <p>(a) Maintain last assigned flight level or altitude and proceed on LELIB 3B to BIDUS, then direct to NYLON</p> <p>(b) From NYLON commence descent and carry out appropriate landing procedure for RWY 20 as close as possible to EAT or ETA</p> <p>(c) If unable to effect a landing, refer to Singapore AIP for missed approach procedure</p>
<b>3</b>	<p><b>No clearance or instruction received from Singapore ATC</b></p> <p>- Refer to Singapore AIP for radio communications failure procedure</p>



**STANDARD ARRIVAL CHART  
RNAV (GNSS) -  
INSTRUMENT (STAR)**

ACC 133.8  
APP 124.05  
119.3  
TWR 118.6 / 118.25

TRANSITION ALTITUDE  
11 000ft

D-ATIS AP ID-WSSS  
128.025

**SINGAPORE/Singapore Changi  
RWY 02L/C/R  
MABAL TWO ALPHA ARRIVAL  
MABAL 2A**

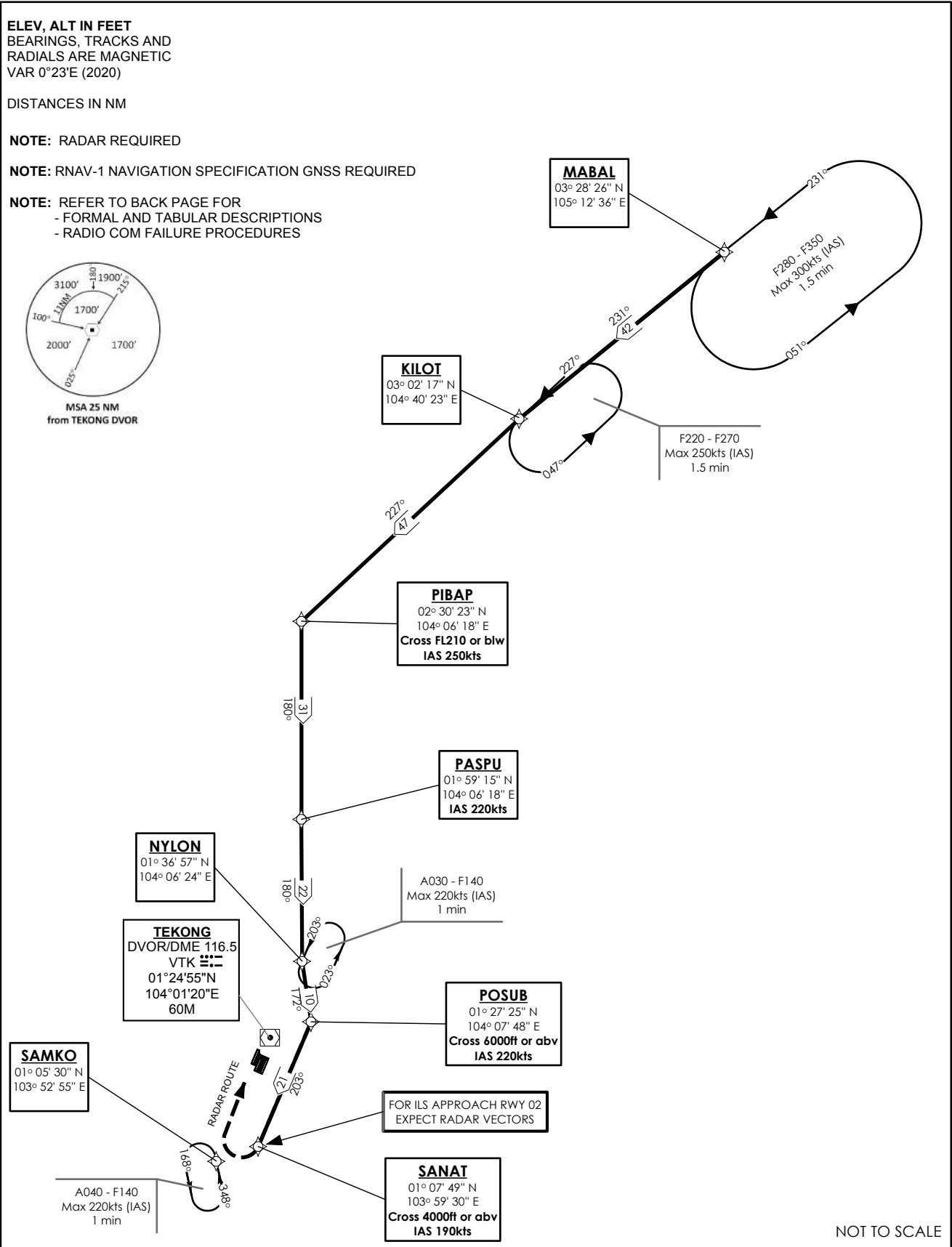
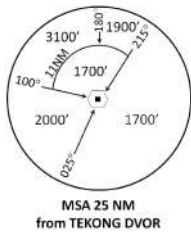
ELEV, ALT IN FEET  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)

DISTANCES IN NM

**NOTE:** RADAR REQUIRED

**NOTE:** RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

**NOTE:** REFER TO BACK PAGE FOR  
- FORMAL AND TABULAR DESCRIPTIONS  
- RADIO COM FAILURE PROCEDURES



**MABAL 2A (STAR) RNAV GNSS RWY 02L/02C/02R - DESCRIPTIONS**

**Formal & Abbreviated Descriptions**

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
From MABAL. To KILOT, turn left. To PIBAP at or below FL210, speed 250kts, turn left. To PASPU, speed 220kts. To NYLON, turn left. To POSUB at or above 6000ft, speed 220kts, turn right. To SANAT at or above 4000ft, speed 190kts.	MABAL -	IF	N
	KILOT [L] -	TF	N
	PIBAP [FL210-; K250; L] -	TF	N
	PASPU [K220] -	TF	N
	NYLON [L] -	TF	N
	POSUB [A060+; K220; R] - SANAT [A040+; K190]	TF	N

**Tabular Descriptions**

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
IF	MABAL	-	-	-	-	-	-	RNAV1
TF	KILOT	-	231(231.4)	-0.4	L	-	-	RNAV1
TF	PIBAP	-	227(227.4)	-0.4	L	FL210-	K250	RNAV1
TF	PASPU	-	180(180.4)	-0.4	-	-	K220	RNAV1
TF	NYLON	-	180(180.4)	-0.4	L	-	-	RNAV1
TF	POSUB	-	172(172.4)	-0.4	R	A060+	K220	RNAV1
TF	SANAT	-	203(203.4)	-0.4	-	A040+	K190	RNAV1

**RADIO COMMUNICATIONS FAILURE PROCEDURE**

<b>1</b>	<b>SET TRANSPONDER TO MODE A/C CODE 7600</b>
<b>2</b>	<p><b>When cleared via MABAL 2A by Singapore ATC</b></p> <p>(a) Maintain last assigned flight level or altitude and proceed on MABAL 2A to SANAT, then direct to SAMKO</p> <p>(b) From SAMKO commence descent and carry out appropriate landing procedure for RWY 02 as close as possible to EAT or ETA</p> <p>(c) If unable to effect a landing, refer to Singapore AIP for missed approach procedure</p>
<b>3</b>	<p><b>No clearance or instruction received from Singapore ATC</b></p> <p>- Refer to Singapore AIP for radio communications failure procedure</p>

**STANDARD ARRIVAL CHART  
RNAV (GNSS) -  
INSTRUMENT (STAR)**

ACC 133.8  
APP 124.05  
119.3  
TWR 118.6 / 118.25

TRANSITION ALTITUDE  
11 000ft

D-ATIS AP ID-WSSS  
128.025

**SINGAPORE/Singapore Changi  
RWY 20R/C/L  
MABAL TWO BRAVO ARRIVAL  
MABAL 2B**

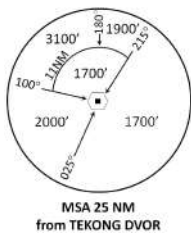
ELEV, ALT IN FEET  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)

DISTANCES IN NM

**NOTE:** RADAR REQUIRED

**NOTE:** RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

**NOTE:** REFER TO BACK PAGE FOR  
- FORMAL AND TABULAR DESCRIPTIONS  
- RADIO COM FAILURE PROCEDURES



FOR ILS APPROACH RWY 20  
EXPECT RADAR VECTORS

**TEKONG**  
DVOR/DME 116.5  
VTK  
01°24'55"N  
104°01'20"E  
60M



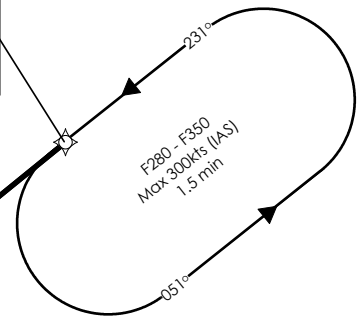
**PIBAP**  
02° 30' 23" N  
104° 06' 18" E  
Cross FL210 or blw  
IAS 250kts

**PASPU**  
01° 59' 15" N  
104° 06' 18" E  
Cross 6000ft or abv  
IAS 220kts

A030 - F140  
Max 220kts (IAS)  
1 min

**NYLON**  
01° 36' 57" N  
104° 06' 24" E  
Cross 3000ft or abv  
IAS 190kts

**MABAL**  
03° 28' 26" N  
105° 12' 36" E



F220 - F270  
Max 250kts (IAS)  
1.5 min

NOT TO SCALE

**MABAL 2B (STAR) RNAV GNSS RWY 20R/20C/20L - DESCRIPTIONS**

**Formal & Abbreviated Descriptions**

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
From MABAL. To KILOT, turn left. To PIBAP at or below FL210, speed 250kts, turn left. To PASPU, at or above 6000ft, speed 220kts. To NYLON at or above 3000ft, speed 190kts.	MABAL - KILOT [L] - PIBAP [FL210-; K250; L] - PASPU [A060+; K220] - NYLON [A030+; K190]	IF TF TF TF TF	N N N N N

**Tabular Descriptions**

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
IF	MABAL	-	-	-	-	-	-	RNAV1
TF	KILOT	-	231(231.4)	-0.4	L	-	-	RNAV1
TF	PIBAP	-	227(227.4)	-0.4	L	FL210-	K250	RNAV1
TF	PASPU	-	180(180.4)	-0.4	-	A060+	K220	RNAV1
TF	NYLON	-	180(180.4)	-0.4	-	A030+	K190	RNAV1

**RADIO COMMUNICATIONS FAILURE PROCEDURE**

<b>1</b>	<b>SET TRANSPONDER TO MODE A/C CODE 7600</b>
<b>2</b>	<p><b>When cleared via MABAL 2B by Singapore ATC</b></p> <p>(a) Maintain last assigned flight level or altitude and proceed on MABAL 2B to NYLON</p> <p>(b) From NYLON commence descent and carry out appropriate landing procedure for RWY 20 as close as possible to EAT or ETA</p> <p>(c) If unable to effect a landing, refer to Singapore AIP for missed approach procedure</p>
<b>3</b>	<p><b>No clearance or instruction received from Singapore ATC</b></p> <p>- Refer to Singapore AIP for radio communications failure procedure</p>

**STANDARD ARRIVAL CHART  
RNAV (GNSS) -  
INSTRUMENT (STAR)**

ACC 133.8  
APP 124.05  
119.3  
TWR 118.6

TRANSITION ALTITUDE  
11 000ft

D-ATIS AP ID-WSSS  
128.025

**SINGAPORE/Singapore Changi  
RWY 02L/C/R  
LEBAR TWO ALPHA ARRIVAL  
LEBAR 2A**

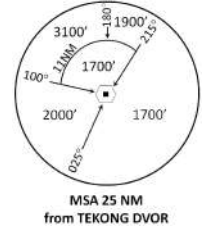
ELEV, ALT IN FEET  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)

DISTANCES IN NM

NOTE: RADAR REQUIRED

NOTE: RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

NOTE: REFER TO BACK PAGE FOR  
- FORMAL AND TABULAR DESCRIPTIONS  
- RADIO COM FAILURE PROCEDURES



**PASPU**  
01° 59' 15" N  
104° 06' 18" E  
IAS 220kts

**PAPA UNIFORM**  
DVOR/DME 115.1  
PU :---  
01° 25' 24" N  
103° 56' 00" E  
60M  
Cross 7,000ft or abv

**TEKONG**  
DVOR/DME 116.5  
VTK :---  
01° 24' 55" N  
104° 01' 20" E  
60M

DEVIATION IS NOT PERMITTED  
BETWEEN SJ AND PU

**WSR38**  
10,000ft ALT  
GND

**SINJON**  
DVOR/DME 113.5  
SJ :---  
01° 13' 19" N  
103° 51' 20" E  
60M  
Cross 7,000ft or abv

**PALGA**  
01° 10' 59" N  
103° 47' 59" E  
IAS 220kts

**PAMSI**  
01° 04' 59" N  
103° 48' 45" E

**SAMKO**  
01° 05' 30" N  
103° 52' 55" E  
Cross 4,000ft or abv  
IAS 190kts

FOR ILS APPROACH RWY 02  
EXPECT RADAR VECTORS

RADAR ROUTE

NOT TO SCALE

## LEBAR 2A (STAR) RNAV GNSS RWY 02L/02C/02R - DESCRIPTIONS

### Formal & Abbreviated Descriptions

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
From PASPU, speed 220kts. To PU at or above 7000ft, turn right. To SJ at or above 7000ft, turn right. To PALGA, speed 220kts, turn left. To PAMSI, turn left. To SAMKO at or above 4000ft, speed 190kts.	PASPU [K220] -	IF	N
	PU [A070+; R] -	TF	N
	SJ [A070+; R] -	TF	N
	PALGA [K220; L] -	TF	N
	PAMSI [L] -	TF	N
	SAMKO [A040+; K190]	TF	N

### Tabular Descriptions

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
IF	PASPU	-	-	-	-	-	K220	RNAV1
TF	PU	-	197(197.4)	-0.4	R	A070+	-	RNAV1
TF	SJ	-	202(202.4)	-0.4	R	A070+	-	RNAV1
TF	PALGA	-	234(234.4)	-0.4	L	-	K220	RNAV1
TF	PAMSI	-	173(173.4)	-0.4	L	-	-	RNAV1
TF	SAMKO	-	082(082.4)	-0.4	-	A040+	K190	RNAV1

## RADIO COMMUNICATIONS FAILURE PROCEDURE

1	<b>SET TRANSPONDER TO MODE A/C CODE 7600</b>
2	<p><b>When cleared via LEBAR 2A by Singapore ATC</b></p> <p>(a) Maintain last assigned flight level or altitude and proceed on LEBAR 2A to SAMKO</p> <p>(b) From SAMKO commence descent and carry out appropriate landing procedure for RWY 02L as close as possible to EAT or ETA</p> <p>(c) If unable to effect a landing, refer to Singapore AIP for missed approach procedure</p>
3	<p><b>No clearance or instruction received from Singapore ATC</b></p> <p>- Refer to Singapore AIP for radio communications failure procedure</p>

**STANDARD ARRIVAL CHART  
RNAV (GNSS) -  
INSTRUMENT (STAR)**

ACC 133.25 / 134.4  
APP 124.05  
119.3  
TWR 118.6

TRANSITION ALTITUDE  
11 000ft

D-ATIS AP ID-WSSS  
128.025

**SINGAPORE/Singapore Changi  
RWY 20R/C/L  
LEBAR TWO BRAVO ARRIVAL  
LEBAR 2B**

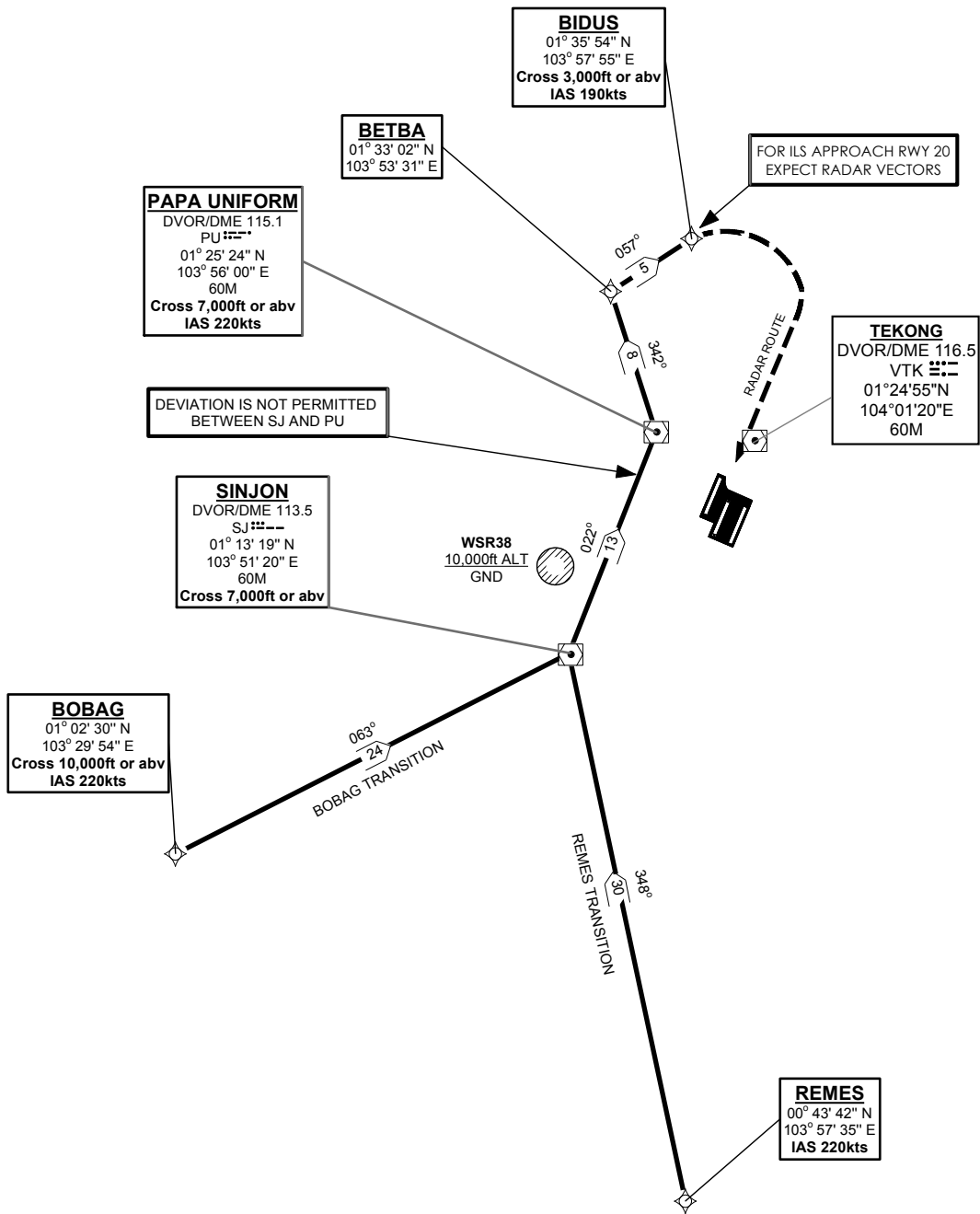
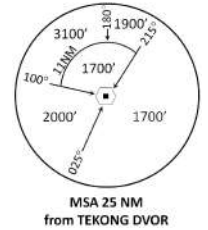
ELEV, ALT IN FEET  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)

DISTANCES IN NM

**NOTE:** RADAR REQUIRED

**NOTE:** RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

**NOTE:** REFER TO BACK PAGE FOR  
- FORMAL AND TABULAR DESCRIPTIONS  
- RADIO COM FAILURE PROCEDURES



## LEBAR 2B (STAR) RNAV GNSS RWY 20R/20C/20L - DESCRIPTIONS

### Formal & Abbreviated Descriptions

Formal Description (BOBAG Transition)	Abbreviated Description	Path Terminator	Fly-Over required
From BOBAG at or above 10000ft, speed 220kts. To SJ at or above 7000ft, turn left. To PU at or above 7000ft, speed 220kts, turn left. To BETBA, turn right. To BIDUS at or above 3000ft, speed 190kts.	BOBAG [A100+; K220] -	IF	N
	SJ [A070+; L] -	TF	N
	PU [A070+; K220; L] -	TF	N
	BETBA [R] -	TF	N
	BIDUS [A030+; K190]	TF	N
Formal Description (REMES Transition)	Abbreviated Description	Path Terminator	Fly-Over required
From REMES, speed 220kts. To SJ at or above 7000ft, turn right. To PU at or above 7000ft, speed 220kts, turn left. To BETBA, turn right. To BIDUS at or above 3000ft, speed 190kts.	REMES [K220] -	IF	N
	SJ [A070+; R] -	TF	N
	PU [A070+; K220; L] -	TF	N
	BETBA [R] -	TF	N
	BIDUS [A030+; K190]	TF	N

### Tabular Descriptions (BOBAG Transition)

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
IF	BOBAG	-	-	-	-	A100+	K220	RNAV1
TF	SJ	-	063(063.4)	-0.4	L	A070+	-	RNAV1
TF	PU	-	022(022.4)	-0.4	L	A070+	K220	RNAV1
TF	BETBA	-	342(342.4)	-0.4	R	-	-	RNAV1
TF	BIDUS	-	057(057.4)	-0.4	-	A030+	K190	RNAV1

### Tabular Descriptions (REMES Transition)

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
IF	REMES	-	-	-	-	-	K220	RNAV1
TF	SJ	-	348(348.4)	-0.4	R	A070+	-	RNAV1
TF	PU	-	022(022.4)	-0.4	L	A070+	K220	RNAV1
TF	BETBA	-	342(342.4)	-0.4	R	-	-	RNAV1
TF	BIDUS	-	057(057.4)	-0.4	-	A030+	K190	RNAV1

## RADIO COMMUNICATIONS FAILURE PROCEDURE

1	<b>SET TRANSPONDER TO MODE A/C CODE 7600</b>
2	<p><b>When cleared via LEBAR 2B by Singapore ATC</b></p> <p>(a) Maintain last assigned flight level or altitude and proceed on LEBAR 2B to BIDUS, then direct to NYLON</p> <p>(b) From NYLON commence descent and carry out appropriate landing procedure for RWY 20R as close as possible to EAT or ETA</p> <p>(c) If unable to effect a landing, refer to Singapore AIP for missed approach procedure</p>
3	<p><b>No clearance or instruction received from Singapore ATC</b></p> <p>- Refer to Singapore AIP for radio communications failure procedure</p>



**STANDARD ARRIVAL CHART  
RNAV (GNSS) -  
INSTRUMENT (STAR)**

ACC 134.4  
APP 124.05  
119.3  
TWR 118.6 / 118.25

TRANSITION ALTITUDE  
11 000ft

D-ATIS AP ID-WSSS  
128.025

**SINGAPORE/Singapore Changi  
RWY 02L/C/R  
REPOV ONE ALPHA ARRIVAL  
REPOV 1A**


**ELEV, ALT IN FEET**  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)

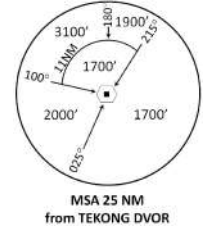
DISTANCES IN NM

**NOTE:** RADAR REQUIRED

**NOTE:** RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

**NOTE:** REFER TO BACK PAGE FOR  
- FORMAL AND TABULAR DESCRIPTIONS  
- RADIO COM FAILURE PROCEDURES

**TEKONG**  
DVOR/DME 116.5  
VTK   
01°24'55"N  
104°01'20"E  
60M



FOR ILS APPROACH RWY 02  
EXPECT RADAR VECTORS

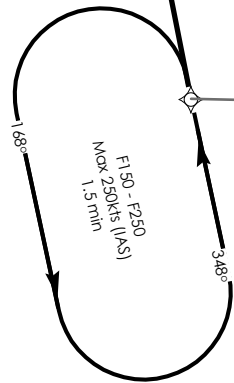
A040 - F140  
Max 220kts (IAS)  
1 min

**SAMKO**  
01° 05' 30" N  
103° 52' 55" E  
Cross 4000ft or abv  
IAS 190kts

**REMES**  
00° 43' 42" N  
103° 57' 35" E  
Cross 6000ft or abv  
IAS 220kts

A060 - F140  
Max 220kts (IAS)  
1 min

**REPOV**  
00° 16' 23" N  
104° 03' 00" E  
Cross FL210 or blw  
IAS 250kts



NOT TO SCALE

## **REPOV 1A (STAR) RNAV GNSS RWY 02L/02C/02R - DESCRIPTIONS**

### **Formal & Abbreviated Descriptions**

<b>Formal Description</b>	<b>Abbreviated Description</b>	<b>Path Terminator</b>	<b>Fly-Over required</b>
From REPOV at or below FL210, speed 250kts. To REMES at or above 6000ft, speed 220kts. To SAMKO at or above 4000ft, speed 190kts.	REPOV [FL210-; K250] - REMES [A060+; K220] - SAMKO [A040+; K190]	IF TF TF	N N N

### **Tabular Descriptions**

<b>Path Term</b>	<b>Waypoint Name</b>	<b>Fly-Over</b>	<b>Course °M(°T)</b>	<b>Magnetic Variation</b>	<b>Turn Direction</b>	<b>Altitude</b>	<b>Speed Limit</b>	<b>Navigation Spec</b>
IF	REPOV	-	-	-	-	FL210-	K250	RNAV1
TF	REMES	-	348(348.4)	-0.4	-	A060+	K220	RNAV1
TF	SAMKO	-	348(348.4)	-0.4	-	A040+	K190	RNAV1

## **RADIO COMMUNICATIONS FAILURE PROCEDURE**

<b>1</b>	<b>SET TRANSPONDER TO MODE A/C CODE 7600</b>
<b>2</b>	<p><b>When cleared via REPOV 1A by Singapore ATC</b></p> <p>(a) Maintain last assigned flight level or altitude and proceed on REPOV 1A to SAMKO</p> <p>(b) From SAMKO commence descent and carry out appropriate landing procedure for RWY 02 as close as possible to EAT or ETA</p> <p>(c) If unable to effect a landing, refer to Singapore AIP for missed approach procedure</p>
<b>3</b>	<p><b>No clearance or instruction received from Singapore ATC</b></p> <p>- Refer to Singapore AIP for radio communications failure procedure</p>

**STANDARD ARRIVAL CHART**  
**RNAV (GNSS) -**  
**INSTRUMENT (STAR)**

ACC 134.4  
APP 124.05  
119.3  
TWR 118.6 / 118.25

TRANSITION ALTITUDE  
11 000ft

D-ATIS AP ID-WSSS  
128.025

**SINGAPORE/Singapore Changi**  
**RWY 02L/C/R**  
**SURGA ONE ALPHA ARRIVAL**  
**SURGA 1A**

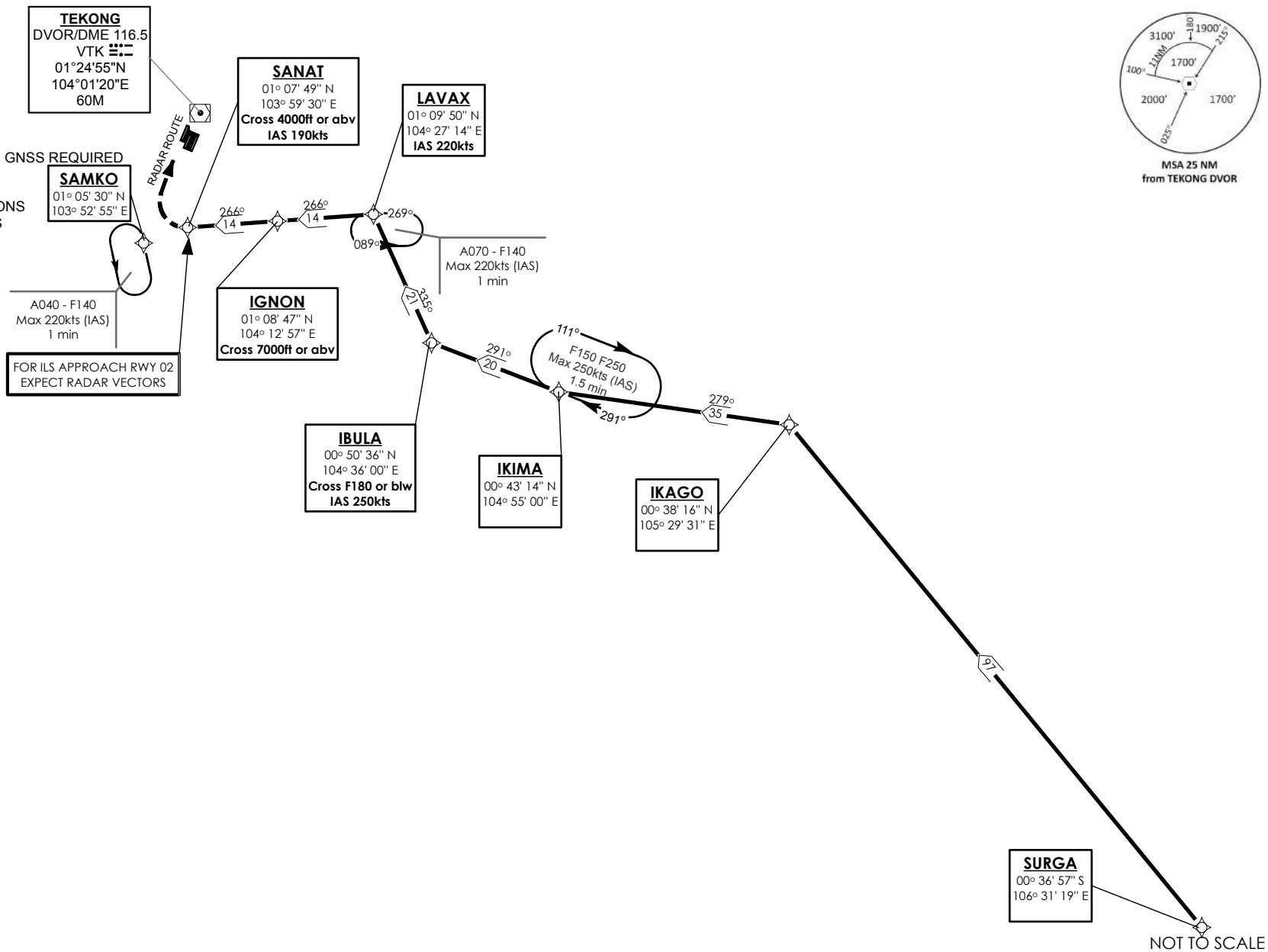
ELEV, ALT IN FEET  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)

DISTANCES IN NM

**NOTE:** RADAR REQUIRED

**NOTE:** RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

**NOTE:** REFER TO BACK PAGE FOR  
- FORMAL AND TABULAR DESCRIPTIONS  
- RADIO COM FAILURE PROCEDURES



**SURGA 1A (STAR) RNAV GNSS RWY 02L/02C/02R - DESCRIPTIONS**

**Formal & Abbreviated Descriptions**

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
From SURGA. To IKAGO, turn left. To IKIMA, turn right. To IBULA at or below FL180, speed 250kts, turn right. To LAVAX, speed 220kts, turn left. To IGNON at or above 7000ft. To SANAT at or above 4000ft, speed 190kts.	SURGA -	IF	N
	IKAGO [L] -	TF	N
	IKIMA [R] -	TF	N
	IBULA [FL180-; K250; R] -	TF	N
	LAVAX [K220; L] -	TF	N
	IGNON [A070+] -	TF	N
	SANAT [A040+; K190]	TF	N

**Tabular Descriptions**

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
IF	SURGA	-	-	-	-	-	-	RNAV1
TF	IKAGO	-	320(320.4)	-0.4	L	-	-	RNAV1
TF	IKIMA	-	279(279.4)	-0.4	R	-	-	RNAV1
TF	IBULA	-	291(291.4)	-0.4	R	FL180-	K250	RNAV1
TF	LAVAX	-	335(335.4)	-0.4	L	-	K220	RNAV1
TF	IGNON	-	266(266.4)	-0.4	-	A070+	-	RNAV1
TF	SANAT	-	266(266.4)	-0.4	-	A040+	K190	RNAV1

**RADIO COMMUNICATIONS FAILURE PROCEDURE**

<b>1</b>	<b>SET TRANSPONDER TO MODE A/C CODE 7600</b>
<b>2</b>	<p><b>When cleared via SURGA 1A by Singapore ATC</b></p> <p>(a) Maintain last assigned flight level or altitude and proceed on SURGA 1A to SANAT, then direct to SAMKO</p> <p>(b) From SAMKO commence descent and carry out appropriate landing procedure for RWY 02 as close as possible to EAT or ETA</p> <p>(c) If unable to effect a landing, refer to Singapore AIP for missed approach procedure</p>
<b>3</b>	<p><b>No clearance or instruction received from Singapore ATC</b></p> <p>- Refer to Singapore AIP for radio communications failure procedure</p>

**STANDARD ARRIVAL CHART  
RNAV (GNSS) -  
INSTRUMENT (STAR)**

ACC 134.4  
APP 124.05  
119.3  
TWR 118.6 / 118.25

TRANSITION ALTITUDE  
11 000ft

D-ATIS AP ID-WSSS  
128.025

**SINGAPORE/Singapore Changi  
RWY 20R/C/L  
REPOV ONE BRAVO ARRIVAL  
REPOV 1B**

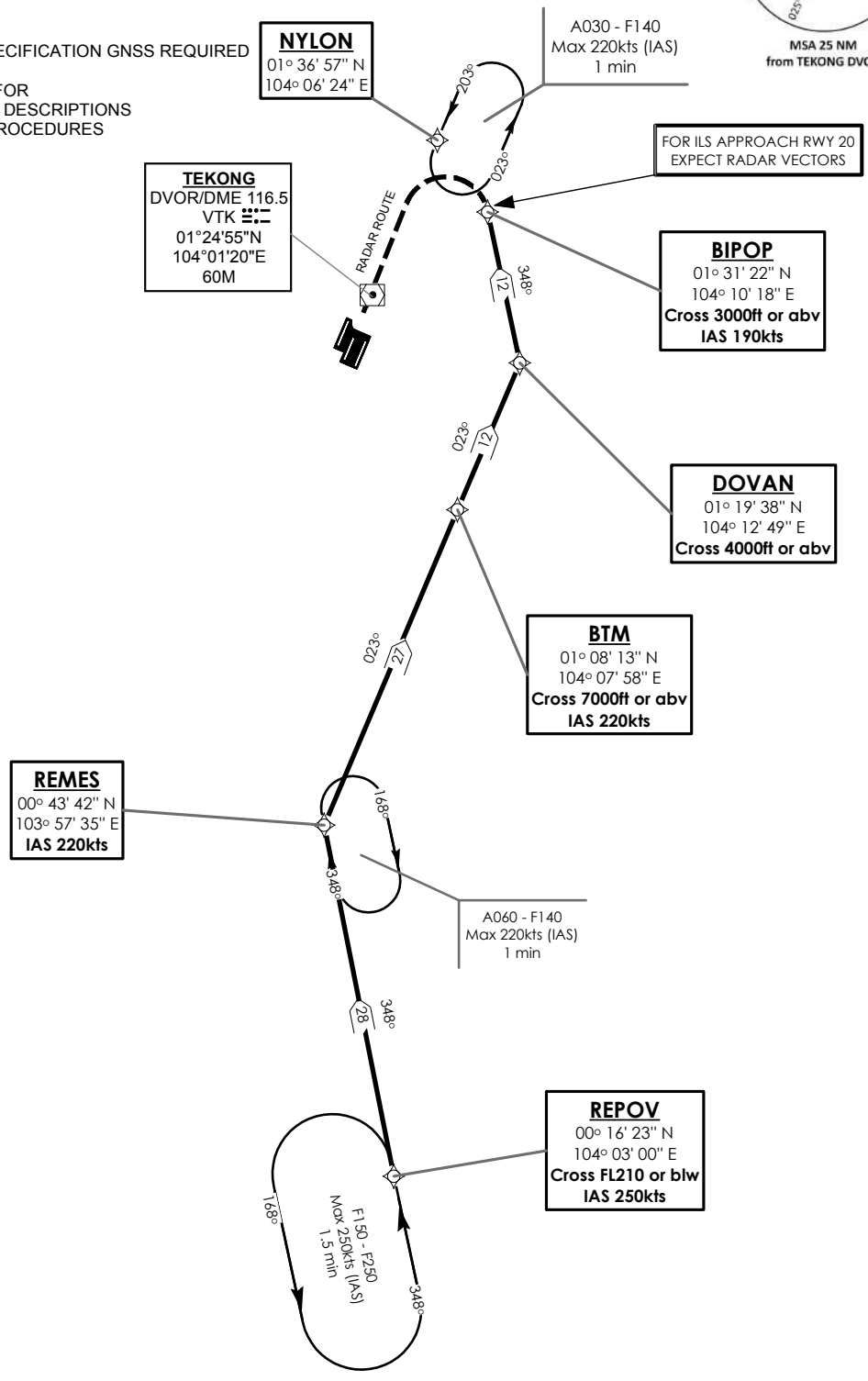
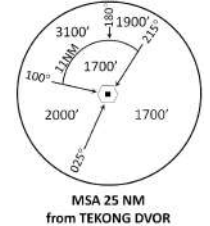
ELEV, ALT IN FEET  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)

DISTANCES IN NM

NOTE: RADAR REQUIRED

NOTE: RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

NOTE: REFER TO BACK PAGE FOR  
- FORMAL AND TABULAR DESCRIPTIONS  
- RADIO COM FAILURE PROCEDURES



NOT TO SCALE

## **REPOV 1B (STAR) RNAV GNSS RWY 20R/20C/20L - DESCRIPTIONS**

### **Formal & Abbreviated Descriptions**

<b>Formal Description</b>	<b>Abbreviated Description</b>	<b>Path Terminator</b>	<b>Fly-Over required</b>
From REPOV at or below FL210, speed 250kts. To REMES, speed 220kts, turn right. To BTM at or above 7000ft, speed 220kts. To DOVAN at or above 4000ft, turn left. To BIPOP at or above 3000ft, speed 190kts.	REPOV [FL210-; K250] - REMES [K220; R] - BTM [A070+; K220] - DOVAN [A040+; L] - BIPOP [A030+; K190]	IF TF TF TF TF	N N N N N

### **Tabular Descriptions**

<b>Path Term</b>	<b>Waypoint Name</b>	<b>Fly-Over</b>	<b>Course °M(°T)</b>	<b>Magnetic Variation</b>	<b>Turn Direction</b>	<b>Altitude</b>	<b>Speed Limit</b>	<b>Navigation Spec</b>
IF	REPOV	-	-	-	-	FL210-	K250	RNAV1
TF	REMES	-	348(348.4)	-0.4	R	-	K220	RNAV1
TF	BTM	-	023(023.4)	-0.4	-	A070+	K220	RNAV1
TF	DOVAN	-	023(023.4)	-0.4	L	A040+	-	RNAV1
TF	BIPOP	-	348(348.4)	-0.4	-	A030+	K190	RNAV1

## **RADIO COMMUNICATIONS FAILURE PROCEDURE**

<b>1</b>	<b>SET TRANSPONDER TO MODE A/C CODE 7600</b>
<b>2</b>	<p><b>When cleared via REPOV 1B by Singapore ATC</b></p> <p>(a) Maintain last assigned flight level or altitude and proceed on REPOV 1B to BIPOP, then direct to NYLON</p> <p>(b) From NYLON commence descent and carry out appropriate landing procedure for RWY 20 as close as possible to EAT or ETA</p> <p>(c) If unable to effect a landing, refer to Singapore AIP for missed approach procedure</p>
<b>3</b>	<p><b>No clearance or instruction received from Singapore ATC</b></p> <p>- Refer to Singapore AIP for radio communications failure procedure</p>

**STANDARD ARRIVAL CHART**  
**RNAV (GNSS) -**  
**INSTRUMENT (STAR)**

ACC 134.4  
APP 124.05  
119.3  
TWR 118.6 / 118.25

TRANSITION ALTITUDE  
11 000ft

D-ATIS AP ID-WSSS  
128.025

**SINGAPORE/Singapore Changi**  
**RWY 20R/C/L**  
**SURGA ONE BRAVO ARRIVAL**  
**SURGA 1B**

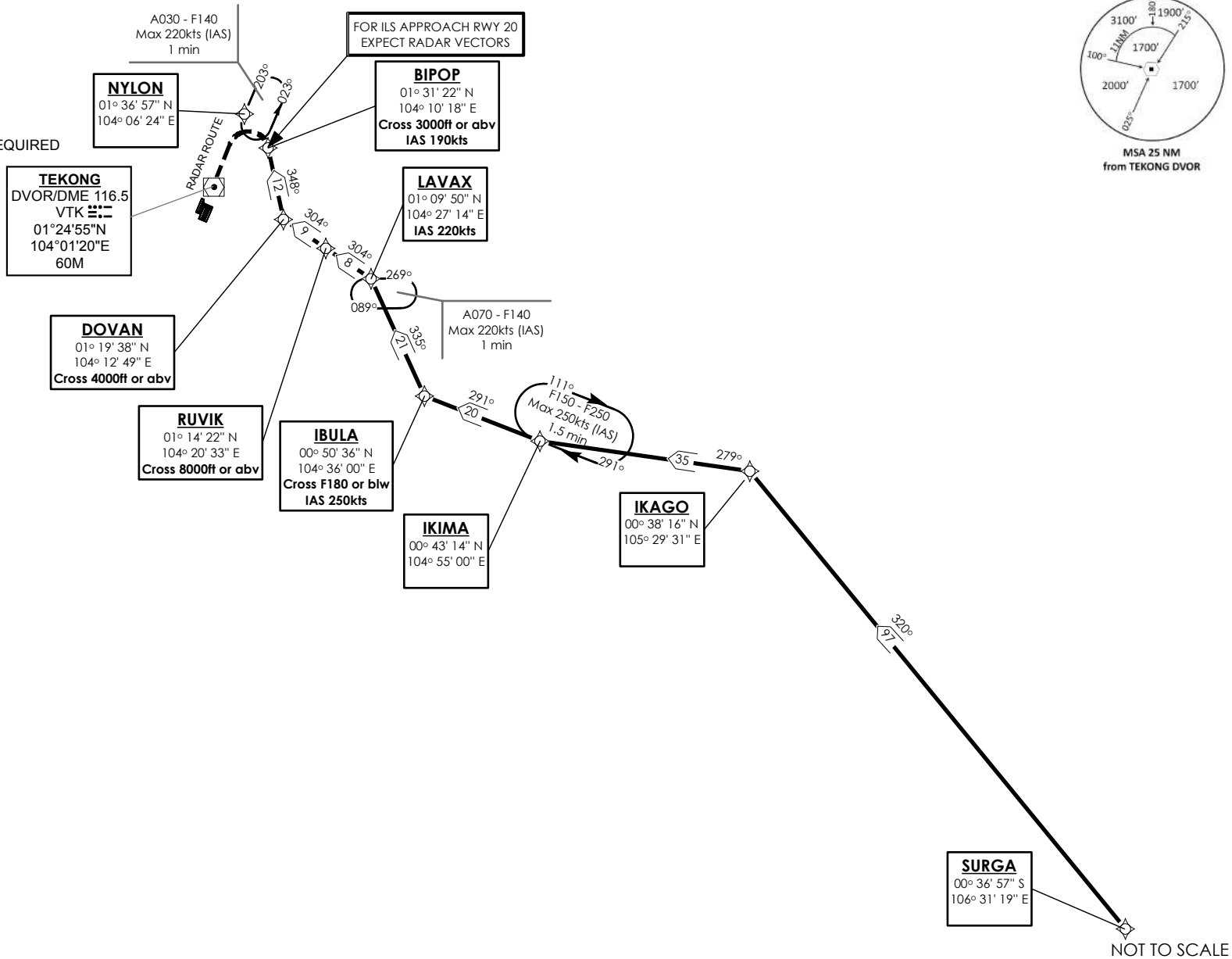
ELEV, ALT IN FEET  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)

DISTANCES IN NM

NOTE: RADAR REQUIRED

NOTE: RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

NOTE: REFER TO BACK PAGE FOR  
- FORMAL AND TABULAR DESCRIPTIONS  
- RADIO COM FAILURE PROCEDURES



**SURGA 1B (STAR) RNAV GNSS RWY 20R/20C/20L - DESCRIPTIONS**

**Formal & Abbreviated Descriptions**

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
From SURGA. To IKAGO, turn left. To IKIMA, turn right. To IBULA at or below FL180, speed 250kts, turn right. To LAVAX, speed 220kts, turn left. To RUVIK at or above 8000ft. To DOVAN at or above 4000ft, turn right. To BIPOP at or above 3000ft, speed 190kts.	SURGA -	IF	N
	IKAGO [L] -	TF	N
	IKIMA [R] -	TF	N
	IBULA [FL180-; K250; R] -	TF	N
	LAVAX [K220; L] -	TF	N
	RUVIK [A080+] -	TF	N
	DOVAN [A040+; R] -	TF	N
	BIPOP [A030+; K190]	TF	N

**Tabular Descriptions**

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
IF	SURGA	-	-	-	-	-	-	RNAV1
TF	IKAGO	-	320(320.4)	-0.4	L	-	-	RNAV1
TF	IKIMA	-	279(279.4)	-0.4	R	-	-	RNAV1
TF	IBULA	-	291(291.4)	-0.4	R	FL180-	K250	RNAV1
TF	LAVAX	-	335(335.4)	-0.4	L	-	K220	RNAV1
TF	RUVIK	-	304(304.4)	-0.4	-	A080+	-	RNAV1
TF	DOVAN	-	304(304.4)	-0.4	R	A040+	-	RNAV1
TF	BIPOP	-	348(348.4)	-0.4	-	A030+	K190	RNAV1

**RADIO COMMUNICATIONS FAILURE PROCEDURE**

<b>1</b>	<b>SET TRANSPONDER TO MODE A/C CODE 7600</b>
<b>2</b>	<p><b>When cleared via SURGA 1B by Singapore ATC</b></p> <p>(a) Maintain last assigned flight level or altitude and proceed on SURGA 1B to BIPOP, then direct to NYLON</p> <p>(b) From NYLON commence descent and carry out appropriate landing procedure for RWY 20 as close as possible to EAT or ETA</p> <p>(c) If unable to effect a landing, refer to Singapore AIP for missed approach procedure</p>
<b>3</b>	<p><b>No clearance or instruction received from Singapore ATC</b></p> <p>- Refer to Singapore AIP for radio communications failure procedure</p>



**STANDARD ARRIVAL CHART  
RNAV (GNSS) -  
INSTRUMENT (STAR)**

ACC 133.8  
APP 124.05  
119.3  
TWR 118.6 / 118.25

TRANSITION ALTITUDE  
11 000ft

D-ATIS AP ID-WSSS  
128.025

**SINGAPORE/Singapore Changi  
RWY 02L/C/R  
ELALO ONE ALPHA ARRIVAL  
ELALO 1A**

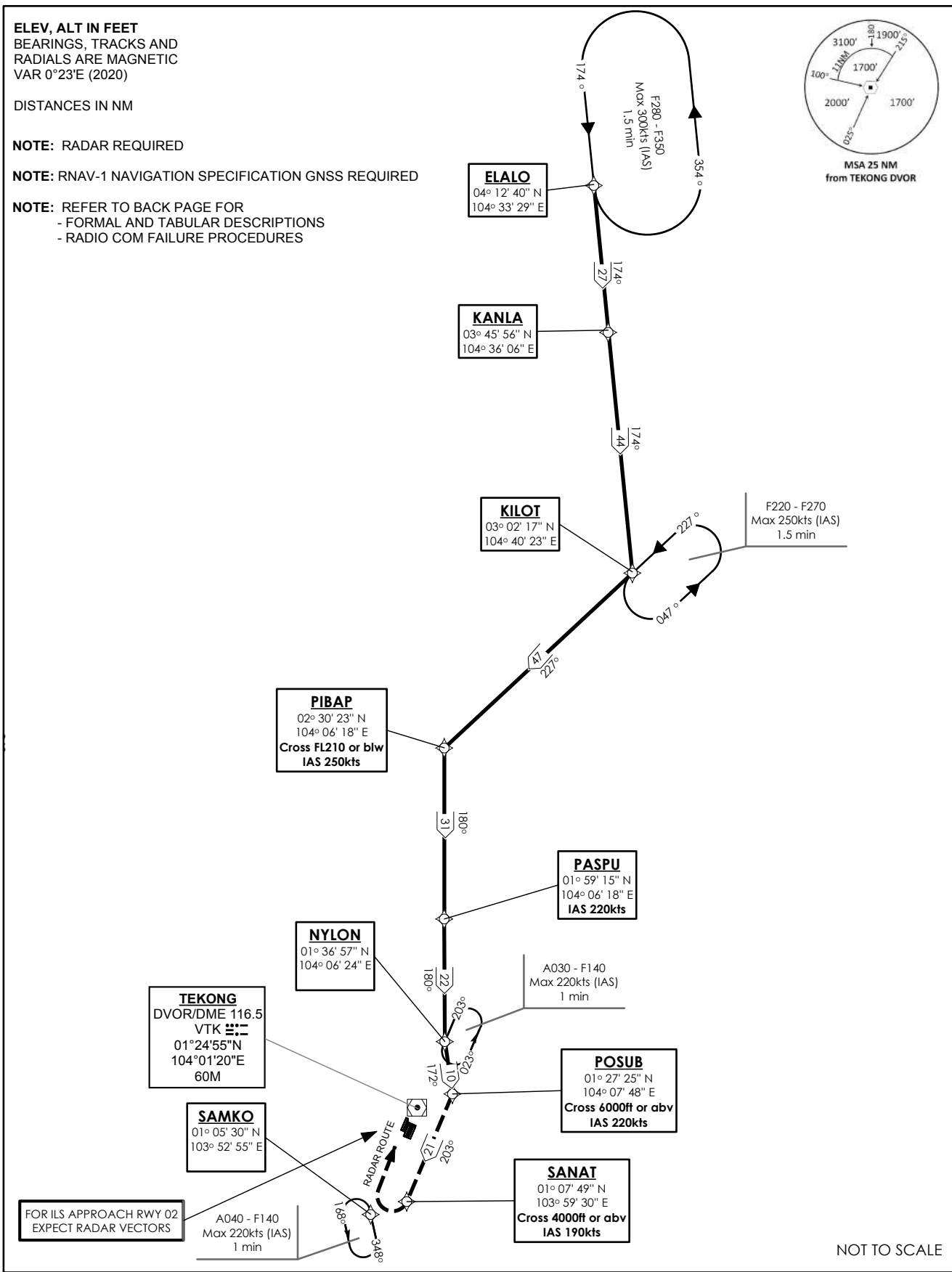
ELEV, ALT IN FEET  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)

DISTANCES IN NM

NOTE: RADAR REQUIRED

NOTE: RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

NOTE: REFER TO BACK PAGE FOR  
- FORMAL AND TABULAR DESCRIPTIONS  
- RADIO COM FAILURE PROCEDURES



**ELALO 1A (STAR) RNAV GNSS RWY 02L/02C/02R - DESCRIPTIONS**

**Formal & Abbreviated Descriptions**

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
From ELALO. To KANLA. To KILOT, turn right. To PIBAP at or below FL210, speed 250kts, turn left. To PASPU, speed 220kts. To NYLON, turn left. To POSUB at or above 6000ft, speed 220kts, turn right. To SANAT at or above 4000ft, speed 190kts.	ELALO -	IF	N
	KANLA -	TF	N
	KILOT [R] -	TF	N
	PIBAP [FL210-; K250; L] -	TF	N
	PASPU [K220] -	TF	N
	NYLON [L] -	TF	N
	POSUB [A060+; K220; R] - SANAT [A040+; K190]	TF TF	N N

**Tabular Descriptions**

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
IF	ELALO	-	-	-	-	-	-	RNAV1
TF	KANLA	-	174(174.4)	-0.4	-	-	-	RNAV1
TF	KILOT	-	174(174.4)	-0.4	R	-	-	RNAV1
TF	PIBAP	-	227(227.4)	-0.4	L	FL210-	K250	RNAV1
TF	PASPU	-	180(180.4)	-0.4	-	-	K220	RNAV1
TF	NYLON	-	180(180.4)	-0.4	L	-	-	RNAV1
TF	POSUB	-	172(172.4)	-0.4	R	A060+	K220	RNAV1
TF	SANAT	-	203(203.4)	-0.4	-	A040+	K190	RNAV1

**RADIO COMMUNICATIONS FAILURE PROCEDURE**

<b>1</b>	<b>SET TRANSPONDER TO MODE A/C CODE 7600</b>
<b>2</b>	<p><b>When cleared via ELALO 1A by Singapore ATC</b></p> <p>(a) Maintain last assigned flight level or altitude and proceed on ELALO 1A to SANAT, then direct to SAMKO</p> <p>(b) From SAMKO commence descent and carry out appropriate landing procedure for RWY 02 as close as possible to EAT or ETA</p> <p>(c) If unable to effect a landing, refer to Singapore AIP for missed approach procedure</p>
<b>3</b>	<p><b>No clearance or instruction received from Singapore ATC</b></p> <p>- Refer to Singapore AIP for radio communications failure procedure</p>

**STANDARD ARRIVAL CHART  
RNAV (GNSS) -  
INSTRUMENT (STAR)**

ACC 133.8  
APP 124.05  
119.3  
TWR 118.6 / 118.25

TRANSITION ALTITUDE  
11 000ft

D-ATIS AP ID-WSSS  
128.025

**SINGAPORE/Singapore Changi  
RWY 20R/C/L  
ELALO ONE BRAVO ARRIVAL  
ELALO 1B**

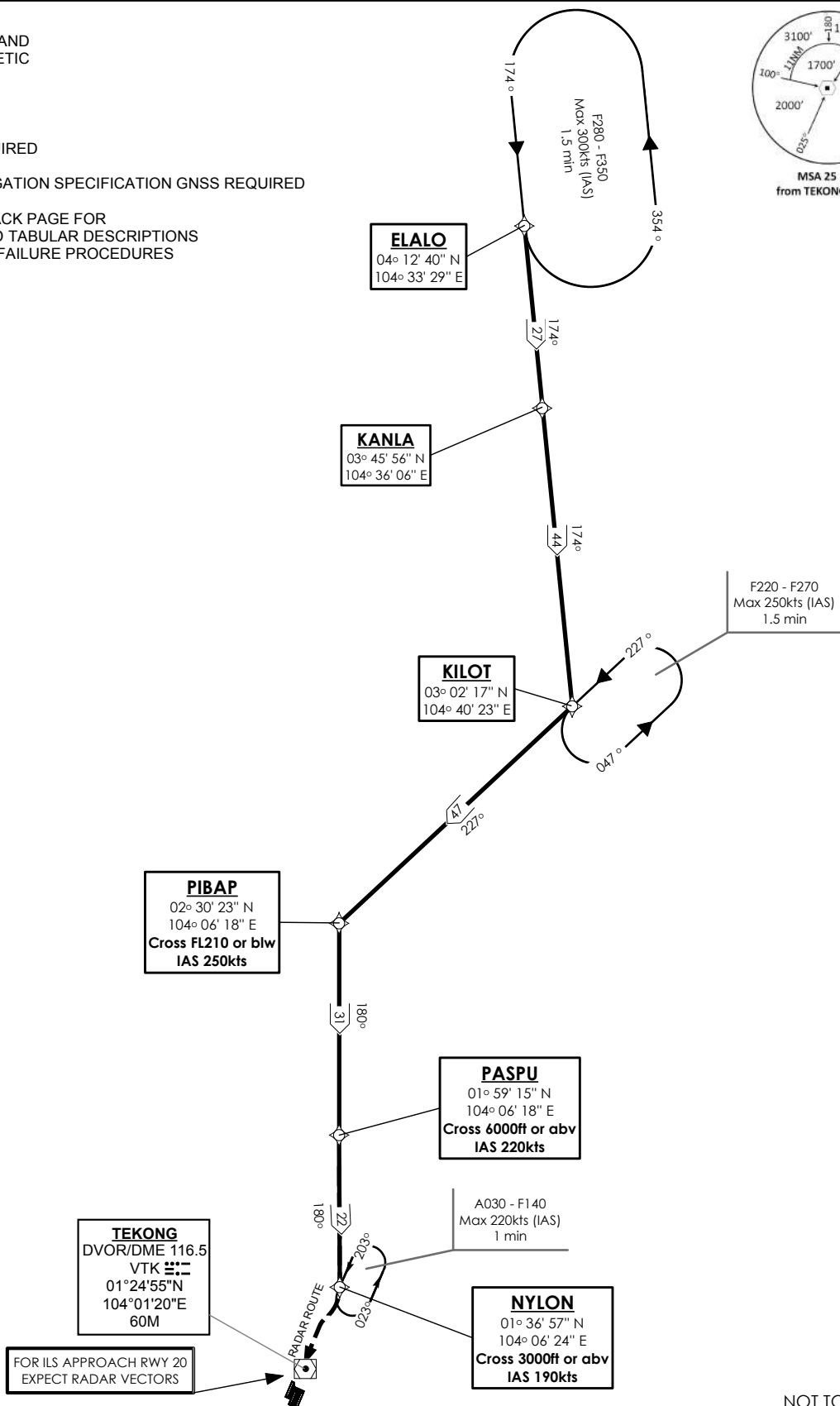
ELEV, ALT IN FEET  
BEARINGS, TRACKS AND  
RADIALS ARE MAGNETIC  
VAR 0°23'E (2020)

DISTANCES IN NM

NOTE: RADAR REQUIRED

NOTE: RNAV-1 NAVIGATION SPECIFICATION GNSS REQUIRED

NOTE: REFER TO BACK PAGE FOR  
- FORMAL AND TABULAR DESCRIPTIONS  
- RADIO COM FAILURE PROCEDURES



NOT TO SCALE

**ELALO 1B (STAR) RNAV GNSS RWY 20R/20C/20L - DESCRIPTIONS**

**Formal & Abbreviated Descriptions**

Formal Description	Abbreviated Description	Path Terminator	Fly-Over required
From ELALO. To KANLA. To KILOT, turn right. To PIBAP at or below FL210, speed 250kts turn left. To PASPU, at or above 6000ft, speed 220kts. To NYLON at or above 3000ft, speed 190kts.	ELALO -	IF	N
	KANLA -	TF	N
	KILOT [R] -	TF	N
	PIBAP [FL210-; K250; L] -	TF	N
	PASPU [A060+; K220] -	TF	N
	NYLON [A030+; K190]	TF	N

**Tabular Descriptions**

Path Term	Waypoint Name	Fly-Over	Course °M(°T)	Magnetic Variation	Turn Direction	Altitude	Speed Limit	Navigation Spec
IF	ELALO	-	-	-	-	-	-	RNAV1
TF	KANLA	-	174(174.4)	-0.4	-	-	-	RNAV1
TF	KILOT	-	174(174.4)	-0.4	R	-	-	RNAV1
TF	PIBAP	-	227(227.4)	-0.4	L	FL210-	K250	RNAV1
TF	PASPU	-	180(180.4)	-0.4	-	A060+	K220	RNAV1
TF	NYLON	-	180(180.4)	-0.4	-	A030+	K190	RNAV1

**RADIO COMMUNICATIONS FAILURE PROCEDURE**

<b>1</b>	<b>SET TRANSPONDER TO MODE A/C CODE 7600</b>
<b>2</b>	<p><b>When cleared via ELALO 1B by Singapore ATC</b></p> <p>(a) Maintain last assigned flight level or altitude and proceed on ELALO 1B to NYLON</p> <p>(b) From NYLON commence descent and carry out appropriate landing procedure for RWY 20 as close as possible to EAT or ETA</p> <p>(c) If unable to effect a landing, refer to Singapore AIP for missed approach procedure</p>
<b>3</b>	<p><b>No clearance or instruction received from Singapore ATC</b></p> <p>- Refer to Singapore AIP for radio communications failure procedure</p>

**INSTRUMENT APPROACH CHART - ICAO**

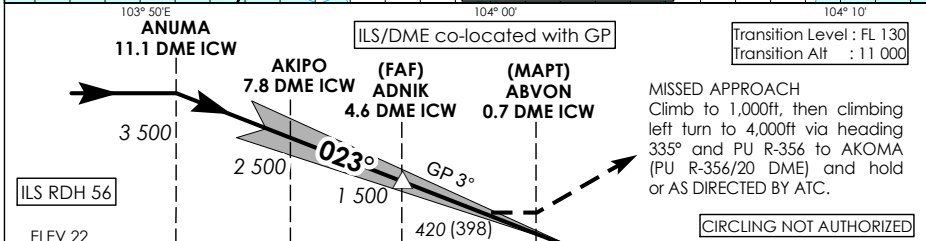
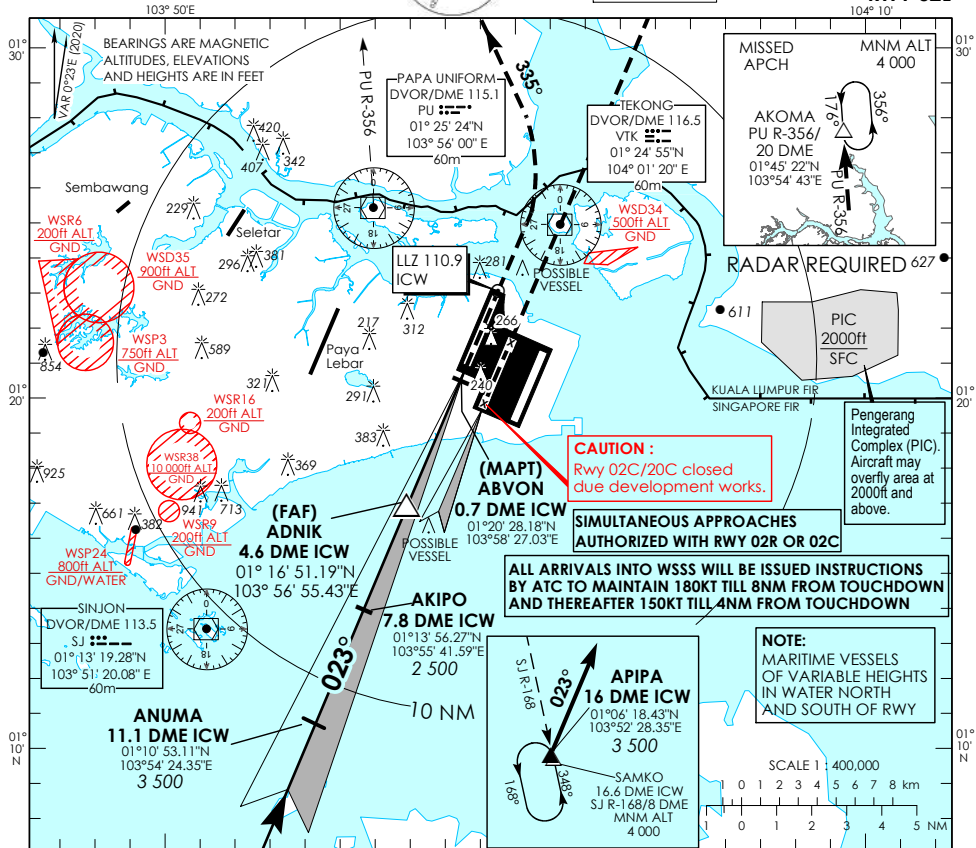
AERODROME ELEV 22ft  
HEIGHT RELATED TO  
THR RWY 02L - ELEV 22ft



MSA 25 NM  
from TEKONG DVOR

D-ATIS AP ID WSSS	128.025
APP	124.05
TWR	119.3
	118.6
	118.25

**SINGAPORE/ SINGAPORE CHANGI ICW ILS/DME RWY 02L**



\* TIMING NOT AUTHORIZED WHEN GP INOP

Category of Aircraft	OCA (OCH)					
	A	B	C	D	D <sub>L</sub>	
Straight-in	CAT I ILS	173 (151)	187 (165)	203 (181)	216 (194)	219 (197)
	CAT II ILS	88 (66)	98 (76)	108 (86)	127 (105)	127 (105)
	GP INOP	420 (398)				

Distance	4 DME		3 DME		2 DME	
Altitude (Height)	1290 (1268)		970 (948)		660 (638)	
Speed	knots 70		120		150 185	
FAF - MAPT 3.9nm	min : s *		1 : 57		1 : 34 1 : 16	
Rate of descent/GS	ft/min 370		635		795 980	

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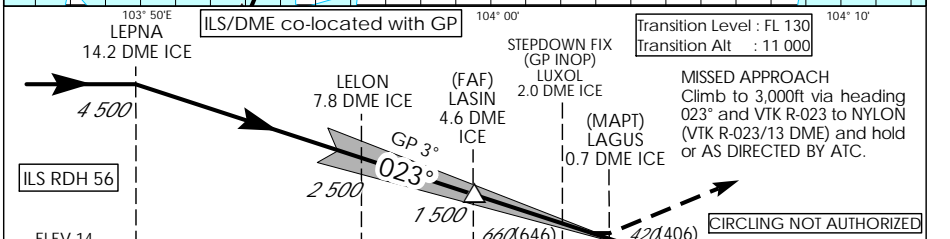
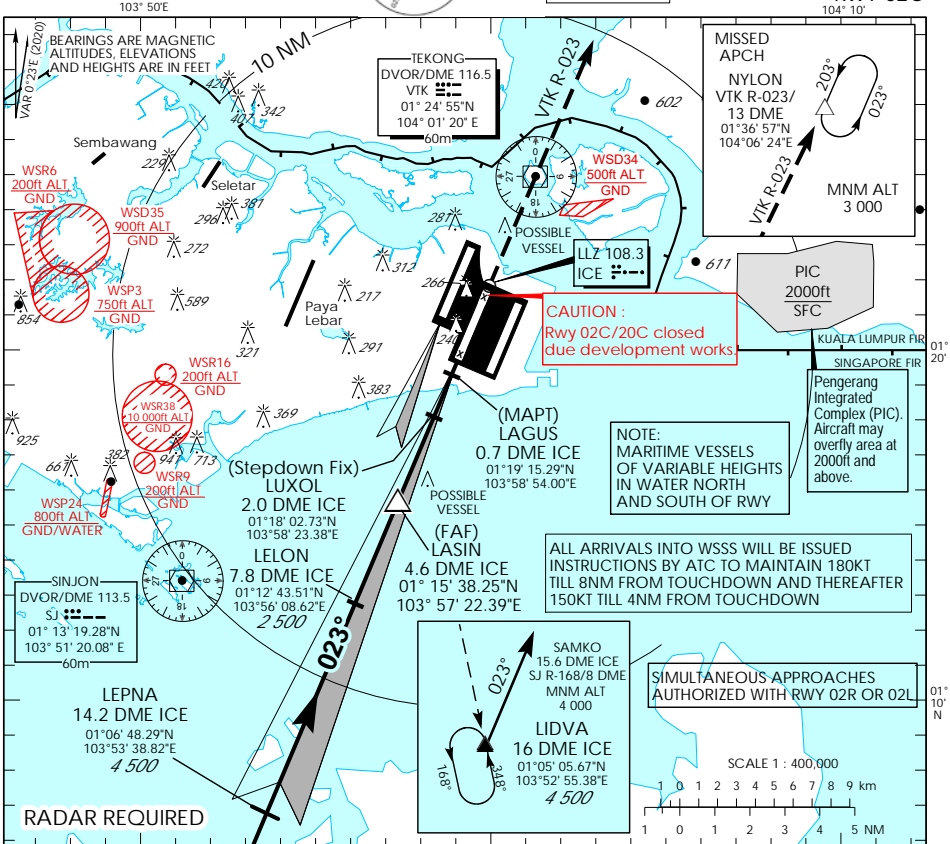
INSTRUMENT  
APPROACH  
CHART - ICAO

AERODROME ELEV 22ft  
HEIGHT RELATED TO  
THR RWY 02C - ELEV 14ft



D-ATIS AP ID WSSS  
128.025  
APP 124.05  
119.3  
118.6  
TWR 118.25

SINGAPORE/  
SINGAPORE CHANGI  
ICE ILS/DME  
RWY 02C



• TIMING NOT AUTHORIZED WHEN GP INOP

NAUTICAL MILES FROM RWY THR 02C

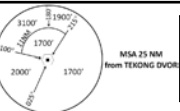
		OCA (OCH)				
		A	B	C	D	D <sub>1</sub>
Straight-in	CAT I ILS	170 (156)	180 (166)	196 (182)	209 (195)	212 (198)
	GP INOP (with stepdown fix)			420 (406)		
	GP INOP (without stepdown fix)			660 (646)		
Distance		4 DME			3 DME	
Altitude (Height)		1290 (1276)			970 (956)	
Speed		70	120	150	185	
FAF - MAPT 3.9nm		min : s*	3 : 21	1 : 57	1 : 34	1 : 16
Rate of descent/GS		ft/min	370	635	795	980

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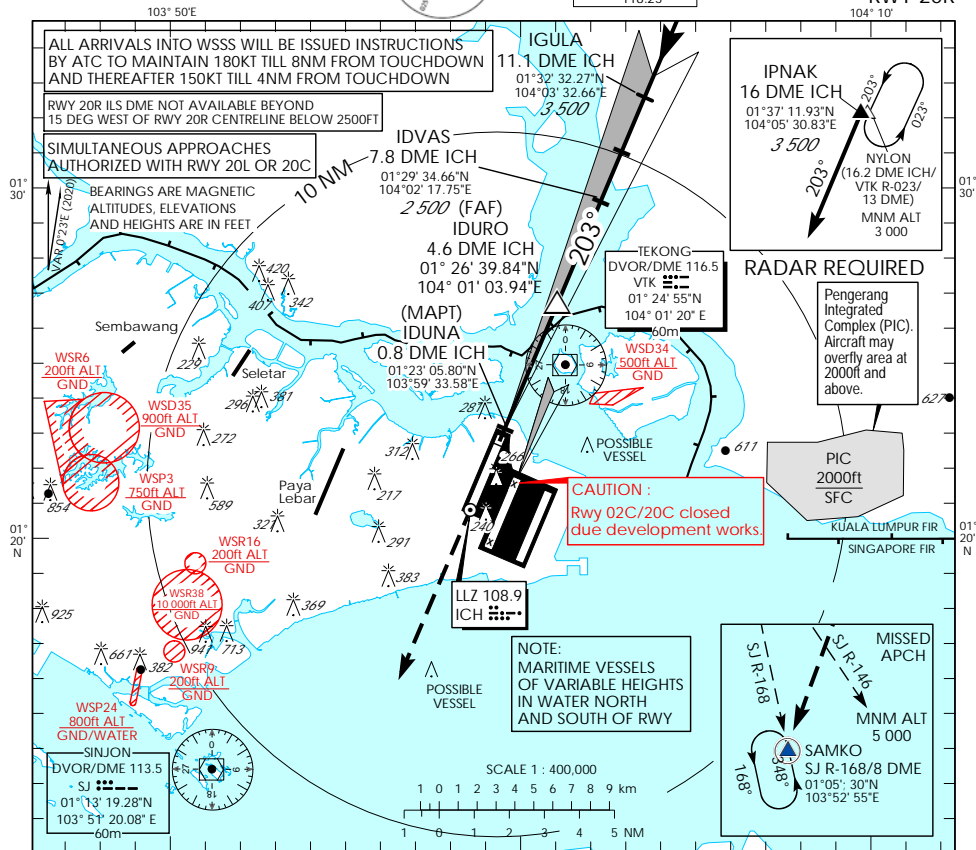
INSTRUMENT  
APPROACH  
CHART - ICAO

AERODROME ELEV 22ft  
HEIGHT RELATED TO  
DTHR RWY 20R - ELEV 13ft

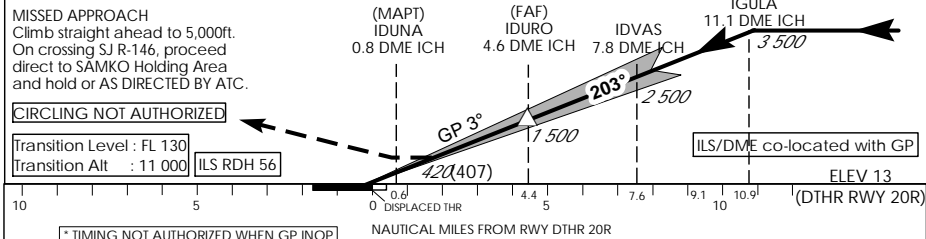


D-ATIS AP ID WSSS	128.025
APP	124.05
TWR	119.3
	118.6
	118.25

SINGAPORE/  
SINGAPORE CHANGI  
ICH ILS/DME  
RWY 20R



This procedure requires a missed approach climb gradient of 3.7% (225 ft/NM) until passing 2,500ft. For aircraft which can only achieve a 2.5% (152 ft/NM) climb gradient, the CAT I OCA (OCH) is 693ft (680ft).



\* TIMING NOT AUTHORIZED WHEN GP INOP

Category of Aircraft	OCA (OCH)				
	A	B	C	D	D <sub>L</sub>
Straight-in	152 (139)	159 (146)	179 (166)	192 (179)	195 (182)
	GP INOP		420 (407)		
Distance	4 DME		3 DME		2 DME
Altitude (Height)	1290 (1277)		970 (957)		650 (637)
Speed	knots	70	120	150	185
FAF - MAPT 3.9nm	min : s *	3 : 21	1 : 57	1 : 34	1 : 16
Rate of descent/GS	ft/min	370	635	795	980

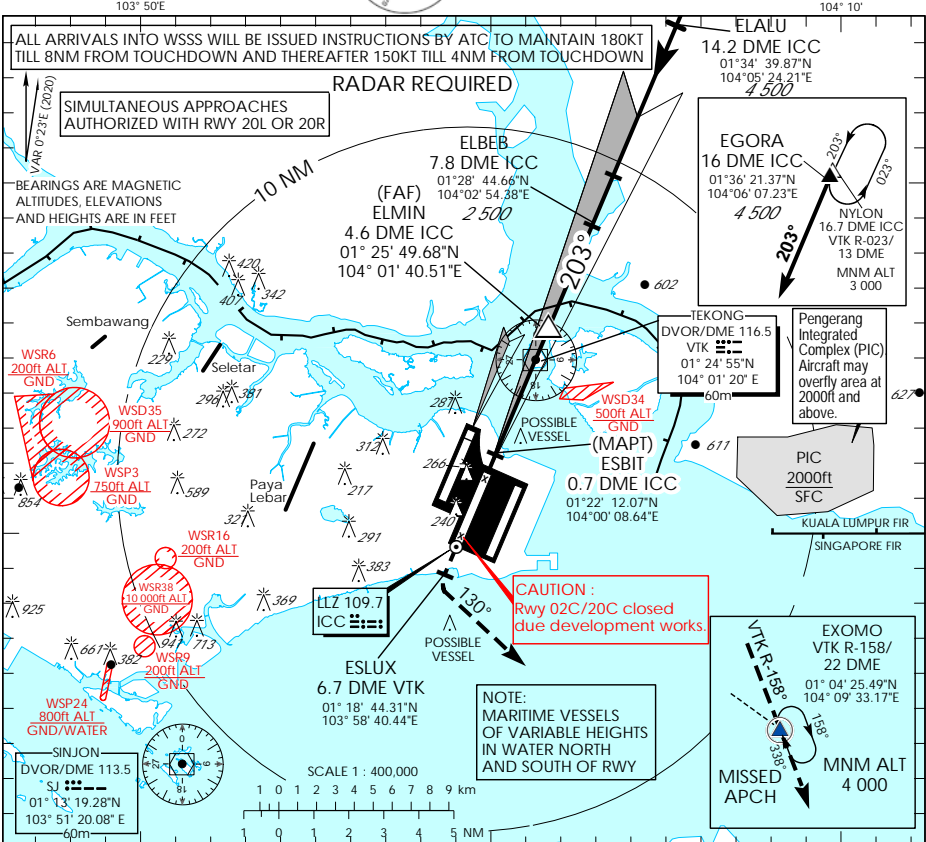
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**INSTRUMENT APPROACH CHART - ICAO**  
**AERODROME ELEV 22ft**  
 HEIGHT RELATED TO THR RWY 20C - ELEV 15ft

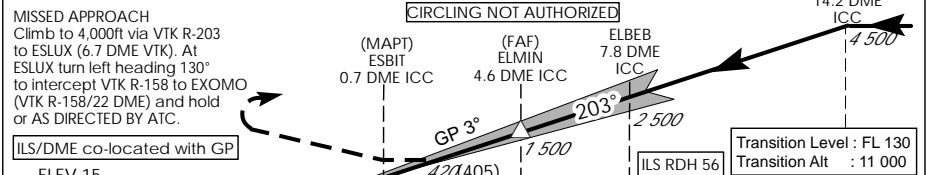


D-ATIS AP ID WSSS  
 APP 128.025  
 124.05  
 119.3  
 118.6  
 118.25  
 MSA 25 NM  
 From TEKONG DVOR

**SINGAPORE/ SINGAPORE CHANGI**  
**ICC ILS/DME RWY 20C**



This procedure requires a missed approach climb gradient of 2.8% (171 ft/NM) until passing 2,000ft.  
 For aircraft which can only achieve a 2.5% (152 ft/NM) climb gradient, the CAT I OCA(OCH) is 315ft (300ft).



\* TIMING NOT AUTHORIZED WHEN GP INOP

Category of Aircraft	OCA (OCH)					
	A	B	C	D	D <sub>1</sub>	
Straight-in	CAT I ILS	166 (151)	180 (165)	196 (181)	209 (194)	212 (197)
	CAT II ILS	71 (56)	78 (63)	91 (76)	101 (86)	107 (92)
	GP INOP	420 (405)				

Distance	4 DME	3 DME	2 DME		
Altitude (Height)	1290 (1275)	980 (965)	660 (645)		
Speed	knots 70	120	150		
		185			
FAF - MAPT 3.9nm	min : s "	3 : 21	1 : 57	1 : 34	1 : 16
Rate of descent/GS	ft/min 370	635	795	980	

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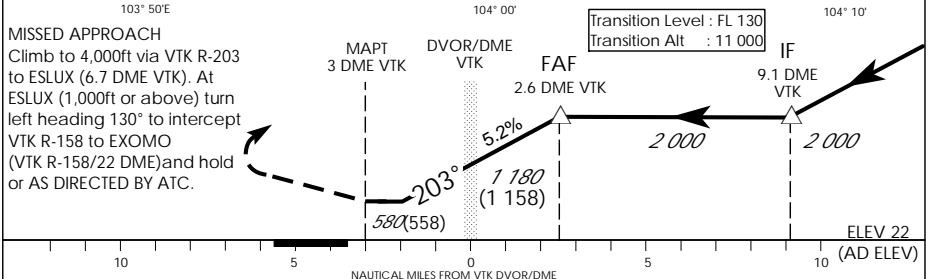
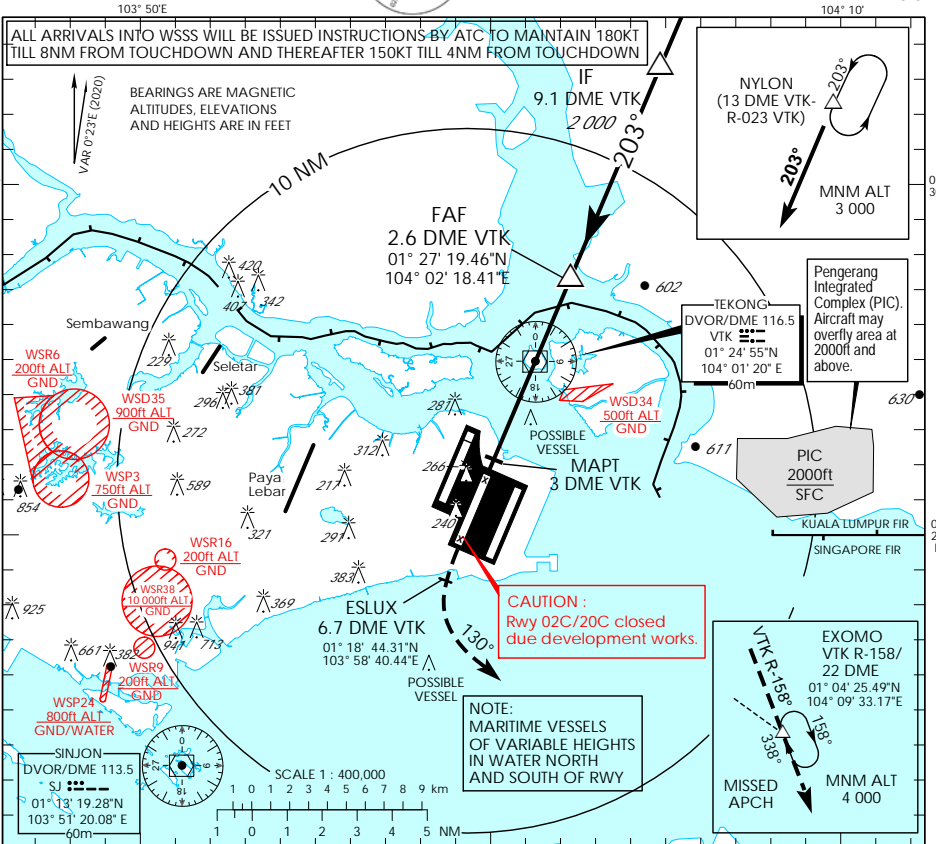
INSTRUMENT  
APPROACH  
CHART - ICAO

AERODROME ELEV 22ft  
HEIGHT RELATED TO  
AD ELEV



D-ATIS AP ID WSSS	128.025
APP	124.05
TWR	119.3
	118.6
	118.25

SINGAPORE/  
SINGAPORE CHANGI  
VTK DVOR/DME  
RWY 20C



**MISSED APPROACH**  
Climb to 4,000ft via VTK R-203 to ESЛУX (6.7 DME VTK). At ESЛУX (1,000ft or above) turn left heading 130° to intercept VTK R-158 to EXOMO (VTK R-158/22 DME) and hold or AS DIRECTED BY ATC.

OCA (OCH)				
Category of Aircraft	A	B	C	D
Straight-in			580 (558)	
Distance	2 DME	1 DME	VTK	1 DME
Altitude (Height)	1820 (1798)	1500 (1478)	1180 (1158)	860 (838)
Speed	knots	70	120	150
		70	120	185
FAF - MAPT 5.6nm	min : s	4 : 48	2 : 48	2 : 15
Rate of descent/GS	ft/min	370	635	795
			980	

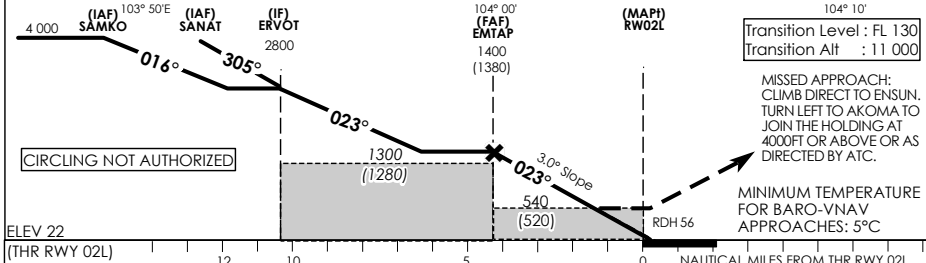
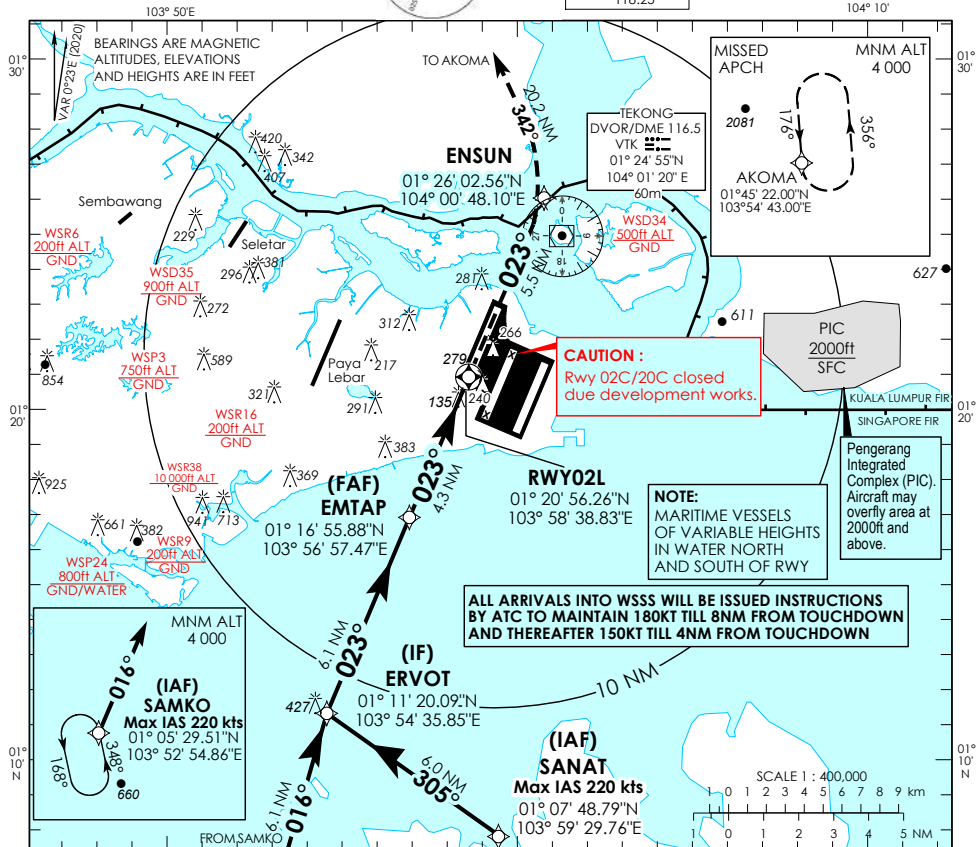
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**INSTRUMENT APPROACH CHART - ICAO** AERODROME ELEV 22ft  
HEIGHT RELATED TO THR RWY 02L - ELEV 22ft



D-ATIS AP ID	WSSS
APP	128.025
TWR	119.3
	118.6
	118.25

**SINGAPORE/ SINGAPORE CHANGI RNP RWY 02L**



ELEV 22 (THR RWY 02L)		NAUTICAL MILES FROM THR RWY 02L						
		12	10	5	0			
Category of Aircraft		OCA (OCH)						
		A		B		C		D
LNAV/VNAV	2.5%	450 (430)						
LNAV	2.5%	540 (520)						
Fix	SAMKO	SANAT	ERVOT	EMTAP	RW02L	ENSUN	AKOMA	
Altitude (Height)	4000 (3978)	4000 (3978)	2800 (2778)	1400 (1378)	540 (518)	880 (858)	4000 (3978)	
Speed	knots	80	100	120	140	160	180	
FAF - MAP1 4.3nm	min : s	3 : 14	2 : 35	2 : 09	1 : 51	1 : 37	1 : 26	
Rate of descent/GS	ft/min	424	530	637	743	849	955	

**SINGAPORE CHANGI RNP-APCH RWY 02L – Approach from SAMKO**

Path Terminator	Waypoint	Fly-Over	Course °M (°T)	Magnetic Variation	Distance (NM)	Turn Direction	Altitude (FT)	Speed Limit (KT)	VPA/ TCH(FT)	Navigation Specification
IF	SAMKO	-	-	-0.4	-	-	A040+	220	-	RNP APCH
TF	ERVOT	-	016 (016.4)	-0.4	6.1	R	A028+	-	-	RNP APCH
TF	EMTAP	-	023 (023.4)	-0.4	6.1	-	A014+	-	-	RNP APCH
TF	RW02L	Y	023 (023.4)	-0.4	4.3	-	-	-	-3.0° / 50	RNP APCH
DF	ENSUN	-	-	-0.4	-	L	-	-	-	RNP APCH
TF	AKOMA	-	342 (342.4)	-0.4	20.2	-	A040+	-	-	RNP APCH

**SINGAPORE CHANGI RNP-APCH RWY 02L – Approach from SANAT**

Path Terminator	Waypoint	Fly-Over	Course °M (°T)	Magnetic Variation	Distance (NM)	Turn Direction	Altitude (FT)	Speed Limit (KT)	VPA/ TCH(FT)	Navigation Specification
IF	SANAT	-	-	-0.4	-	-	A040+	220	-	RNP APCH
TF	ERVOT	-	305 (305.4)	-0.4	6.0	R	A028+	-	-	RNP APCH
TF	EMTAP	-	023 (023.4)	-0.4	6.1	-	A014+	-	-	RNP APCH
TF	RW02L	Y	023 (023.4)	-0.4	4.3	-	-	-	-3.0° / 50	RNP APCH
DF	ENSUN	-	-	-0.4	-	L	-	-	-	RNP APCH
TF	AKOMA	-	342 (342.4)	-0.4	20.2	-	A040+	-	-	RNP APCH

**Waypoint Coordinates**

Name	Latitude	Longitude
SAMKO (IAF)	01° 05' 29.51" N	103° 52' 54.86" E
SANAT (IAF)	01° 07' 48.79" N	103° 59' 29.76" E
ERVOT (IF)	01° 11' 20.09" N	103° 54' 35.85" E
EMTAP (FAF)	01° 16' 55.88" N	103° 56' 57.47" E
RW02L	01° 20' 56.26" N	103° 58' 38.83" E
ENSUN	01° 26' 02.56" N	104° 00' 48.10" E
AKOMA	01° 45' 22.00" N	103° 54' 43.00" E



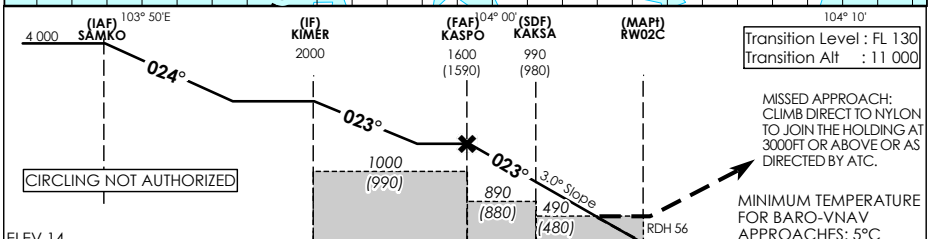
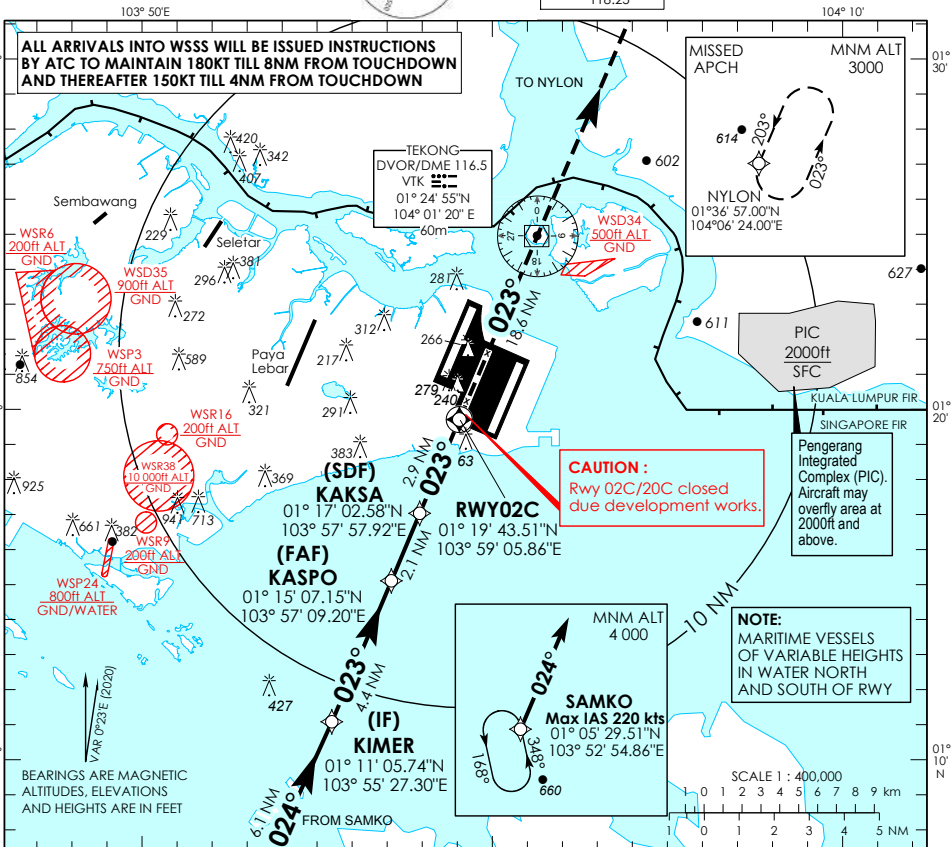
**INSTRUMENT** AERODROME ELEV 22ft  
**APPROACH** HEIGHT RELATED TO  
**CHART - ICAO** THR RWY 02C - ELEV 14ft



MSA 25 NM  
From TEKONG DVOR

D-ATIS AP ID	WSSS
APP	128.025
TWR	124.05
	119.3
	118.6
	118.25

**SINGAPORE/**  
**SINGAPORE CHANGI**  
**RNP RWY 02C**



Category of Aircraft	OCA (OCH)			
	A	B	C	D
LNAV	2.5%	490 (480)		
LNAV without SDF	2.5%	890 (880)		
LNAV/VNAV	2.5%	360 (350)		

Fix	SAMKO	KIMER	KASPO	KAKSA	RW02C	NYLON
Altitude (Height)	4000 (3986)	2000 (1986)	1600 (1586)	990 (976)	490 (476)	3000 (2986)
Speed	80	100	120	140	160	180
FAF - MAP1 5nm	min : s 3 : 45	3 : 00	2 : 30	2 : 09	1 : 53	1 : 40
Rate of descent/GS	ft/min 425	531	637	743	849	955

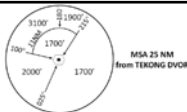
**SINGAPORE CHANGI RNP-APCH RWY 02C – Approach from SAMKO**

Path Terminator	Waypoint	Fly-Over	Course °M (°T)	Magnetic Variation	Distance (NM)	Turn Direction	Altitude (FT)	Speed Limit (KT)	VPA/TCH(FT)	Navigation Specification
IF	SAMKO	-	-	-0.4	-	-	A040+	220	-	RNP APCH
TF	KIMER	-	024 (024.4)	-0.4	6.1	-	A020+	-	-	RNP APCH
TF	KASPO	-	023 (023.4)	-0.4	4.4	-	A016+	-	-	RNP APCH
TF	KAKSA	-	023 (023.4)	-0.4	2.1	-	990ft+	-	-	RNP APCH
TF	RW02C	Y	023 (023.4)	-0.4	2.9	-	-	-	-3.0° / 50	RNP APCH
DF	NYLON	-	-	-0.4	-	-	A030+	-	-	RNP APCH

**Waypoint Coordinates**

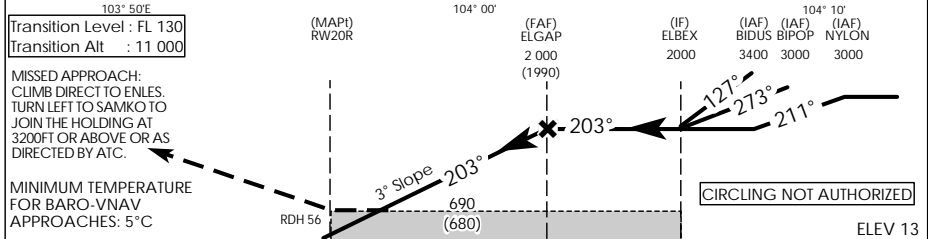
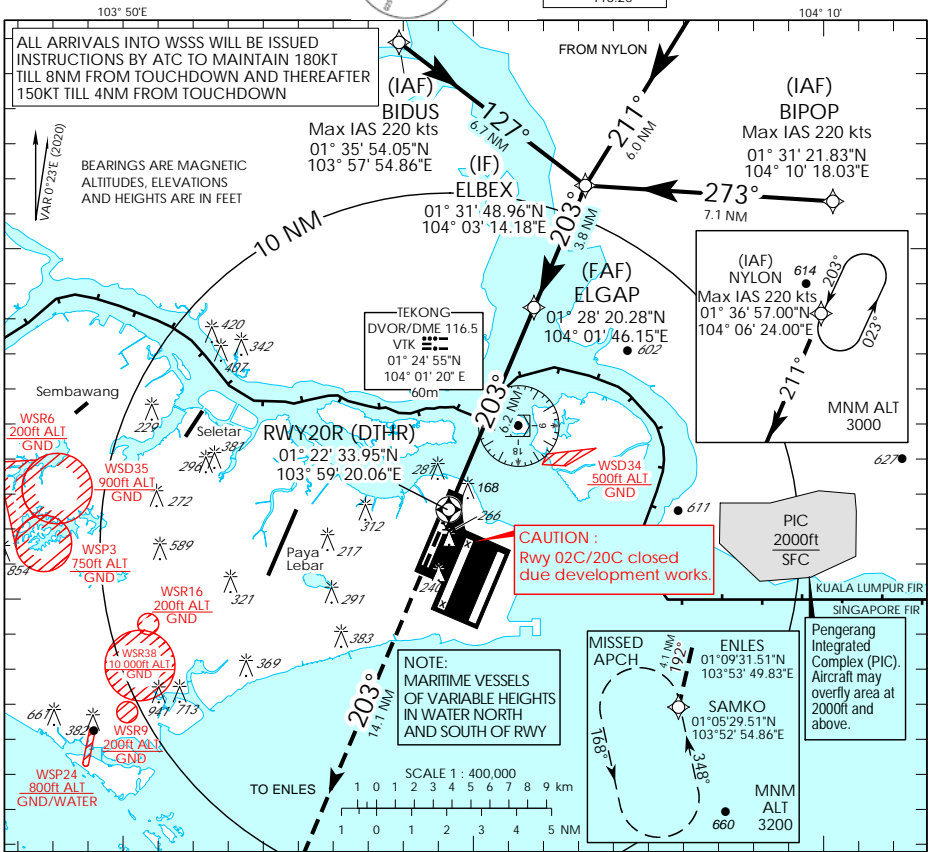
Name	Latitude	Longitude
SAMKO (IAF)	01° 05' 29.51" N	103° 52' 54.86" E
KIMER (IF)	01° 11' 05.74" N	103° 55' 27.30" E
KASPO (FAF)	01° 15' 07.15" N	103° 57' 09.20" E
KAKSA (SDF)	01° 17' 02.58" N	103° 57' 57.92" E
RW02C	01° 19' 43.51" N	103° 59' 05.86" E
NYLON	01° 36' 57.00" N	104° 06' 24.00" E

INSTRUMENT APPROACH CHART - ICAO  
AERODROME ELEV 22ft  
HEIGHT RELATED TO DTHR RWY 20R - ELEV 13ft



D-ATIS AP ID WSSS	128.025
APP	124.05
TWR	119.3
	118.6
	118.25

SINGAPORE/  
SINGAPORE CHANGI  
RNP RWY 20R



		OCA (OCH)							
Category of Aircraft		A	B	C	D				
LNAV/VNAV	2.5%	690 (680)							
LNAV	2.5%	690 (680)							
Fix		BIDUS	NYLON	BIPOP	ELBEX	ELGAP	RW20R	ENLES	SAMKO
Altitude (Height)		3400 (3387)	3000 (2987)	3000 (2987)	2000 (1987)	2000 (1987)	690 (680)	2180 (2167)	3200 (3187)
Speed	knots	80	100	120	140	160	180		
FAF - MAPT 6.2 nm	min : s	4 : 39	3 : 44	3 : 06	2 : 40	2 : 20	2 : 04		
Rate of descent/GS	ft/min	425	531	637	743	849	955		

**SINGAPORE CHANGI RNP-APCH RWY 20R – Approach from BIDUS**

Path Terminator	Waypoint	Fly-Over	Course °M (°T)	Magnetic Variation	Distance (NM)	Turn Direction	Altitude (FT)	Speed Limit (KT)	VPA/ TCH(FT)	Navigation Specification
IF	BIDUS	-	-	-0.4	-	-	A034+	220	-	RNP APCH
TF	ELBEX	-	127 (127.4)	-0.4	6.7	R	A020+	-	-	RNP APCH
TF	ELGAP	-	203 (203.4)	-0.4	3.8	-	A020+	-	-	RNP APCH
TF	RW20R	Y	203 (203.4)	-0.4	6.2	-	-	-	-3.0° / 50	RNP APCH
DF	ENLES	-	-	-0.4	-	L	-	-	-	RNP APCH
TF	SAMKO	-	192 (192.4)	-0.4	4.1	-	A032+	-	-	RNP APCH

**SINGAPORE CHANGI RNP-APCH RWY 20R – Approach from NYLON**

Path Terminator	Waypoint	Fly-Over	Course °M (°T)	Magnetic Variation	Distance (NM)	Turn Direction	Altitude (FT)	Speed Limit (KT)	VPA/ TCH(FT)	Navigation Specification
IF	NYLON	-	-	-0.4	-	-	A030+	220	-	RNP APCH
TF	ELBEX	-	211 (211.4)	-0.4	6.0	L	A020+	-	-	RNP APCH
TF	ELGAP	-	203 (203.4)	-0.4	3.8	-	A020+	-	-	RNP APCH
TF	RW20R	Y	203 (203.4)	-0.4	6.2	-	-	-	-3.0° / 50	RNP APCH
DF	ENLES	-	-	-0.4	-	L	-	-	-	RNP APCH
TF	SAMKO	-	192 (192.4)	-0.4	4.1	-	A032+	-	-	RNP APCH

**SINGAPORE CHANGI RNP-APCH RWY 20R – Approach from BIPOP**

Path Terminator	Waypoint	Fly-Over	Course °M (°T)	Magnetic Variation	Distance (NM)	Turn Direction	Altitude (FT)	Speed Limit (KT)	VPA/ TCH(FT)	Navigation Specification
IF	BIPOP	-	-	-0.4	-	-	A030+	220	-	RNP APCH
TF	ELBEX	-	273 (273.4)	-0.4	7.1	L	A020+	-	-	RNP APCH
TF	ELGAP	-	203 (203.4)	-0.4	3.8	-	A020+	-	-	RNP APCH
TF	RW20R	Y	203 (203.4)	-0.4	6.2	-	-	-	-3.0° / 50	RNP APCH
DF	ENLES	-	-	-0.4	-	L	-	-	-	RNP APCH
TF	SAMKO	-	192 (192.4)	-0.4	4.1	-	A032+	-	-	RNP APCH

**Waypoint Coordinates**

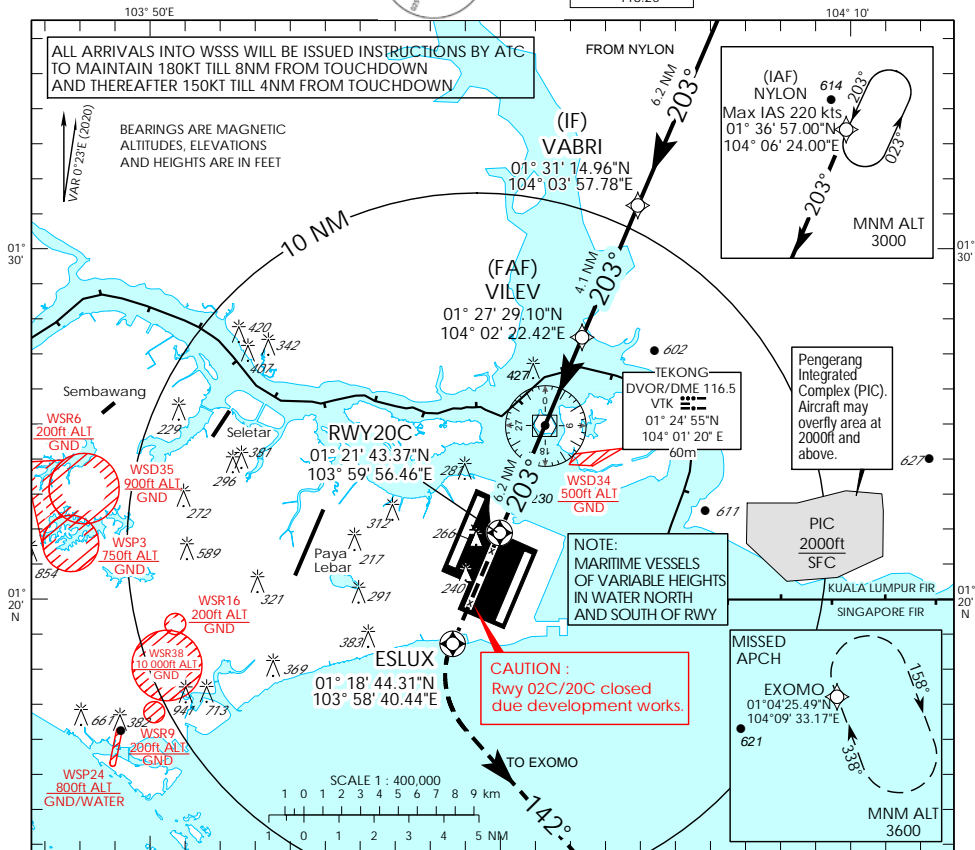
Name	Latitude	Longitude
BIDUS (IAF)	01° 35' 54.05" N	103° 57' 54.86" E
NYLON (IAF)	01° 36' 57.00" N	104° 06' 24.00" E
BIPOP (IAF)	01° 31' 21.83" N	104° 10' 18.03" E
ELBEX (IF)	01° 31' 48.96" N	104° 03' 14.18" E
ELGAP (FAF)	01° 28' 20.28" N	104° 01' 46.15" E
RW20R	01° 22' 33.95" N	103° 59' 20.06" E
ENLES	01° 09' 31.51" N	103° 53' 49.83" E
SAMKO	01° 05' 29.51" N	103° 52' 54.86" E

INSTRUMENT AERODROME ELEV 22ft  
APPROACH HEIGHT RELATED TO  
CHART - ICAO THR RWY 20C - ELEV 15ft



D-ATIS AP ID WSSS	128.025
APP	124.05
TWR	119.3
	118.6
	118.25

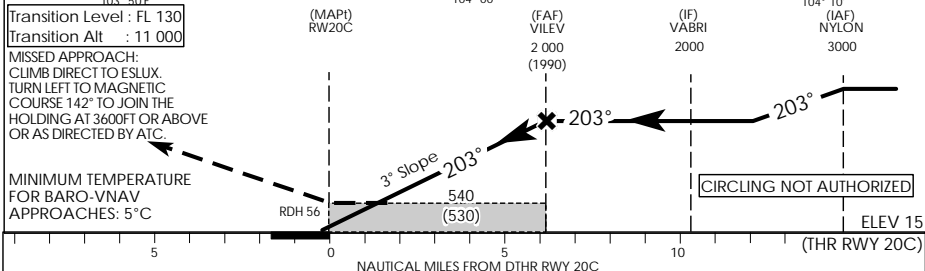
SINGAPORE/  
SINGAPORE CHANGI  
RNP RWY 20C



Transition Level : FL 130  
Transition Alt : 11 000

MISSED APPROACH:  
CLIMB DIRECT TO ESLUX.  
TURN LEFT TO MAGNETIC  
COURSE 142° TO JOIN THE  
HOLDING AT 3600FT OR ABOVE  
OR AS DIRECTED BY ATC.

MINIMUM TEMPERATURE  
FOR BARO-VNAV  
APPROACHES: 5°C



Category of Aircraft	OCA (OCH)							
	A	B	C	D				
LNAV/VNAV	2.5%	490 (480)						
LNAV	2.5%	540 (530)						
Fix	NYLON	VABRI	VILEV	RW20C	ESLUX	EXOMO		
Altitude (Height)	3000 (2985)	2000 (1985)	2000 (1985)	540 (525)	540 (525)	3600 (3585)		
Speed	knots	80	100	120	140	160	180	
FAF - MAPT 6.2 nm	min : s	4 : 39	3 : 44	3 : 06	2 : 40	2 : 20	2 : 04	
Rate of descent/GS	ft/min	425	531	637	743	849	955	

**SINGAPORE CHANGI RNP-APCH RWY 20C – Approach from NYLON**

Path Terminator	Waypoint	Fly-Over	Course °M (°T)	Magnetic Variation	Distance (NM)	Turn Direction	Altitude (FT)	Speed Limit (KT)	VPA/TCH(FT)	Navigation Specification
IF	NYLON	-	-	-0.4	-	-	A030+	220	-	RNP APCH
TF	VABRI	-	203 (203.4)	-0.4	6.2	-	A020+	-	-	RNP APCH
TF	VILEV	-	203 (203.4)	-0.4	4.1	-	A020+	-	-	RNP APCH
TF	RW20C	Y	203 (203.4)	-0.4	6.2	-	-	-	-3.0° / 50	RNP APCH
DF	ESLUX	Y	-	-0.4	-	L	-	-	-	RNP APCH
TF	EXOMO	-	142(142.4)	-0.4	-	-	A036+	-	-	RNP APCH

**Waypoint Coordinates**

Name	Latitude	Longitude
NYLON (IAF)	01° 36' 57.00" N	104° 06' 24.00" E
VABRI (IF)	01° 31' 14.96" N	104° 03' 57.78" E
VILEV (FAF)	01° 27' 29.10" N	104° 02' 22.42" E
RW20C	01° 21' 43.37" N	103° 59' 56.46" E
ESLUX	01° 18' 44.31" N	103° 58' 40.44" E
EXOMO	01° 04' 25.49" N	104° 09' 33.17" E

**INSTRUMENT APPROACH CHART**  
**AERODROME ELEV 22ft**  
 HEIGHT RELATED TO  
**THR RWY 02R - ELEV 16ft**

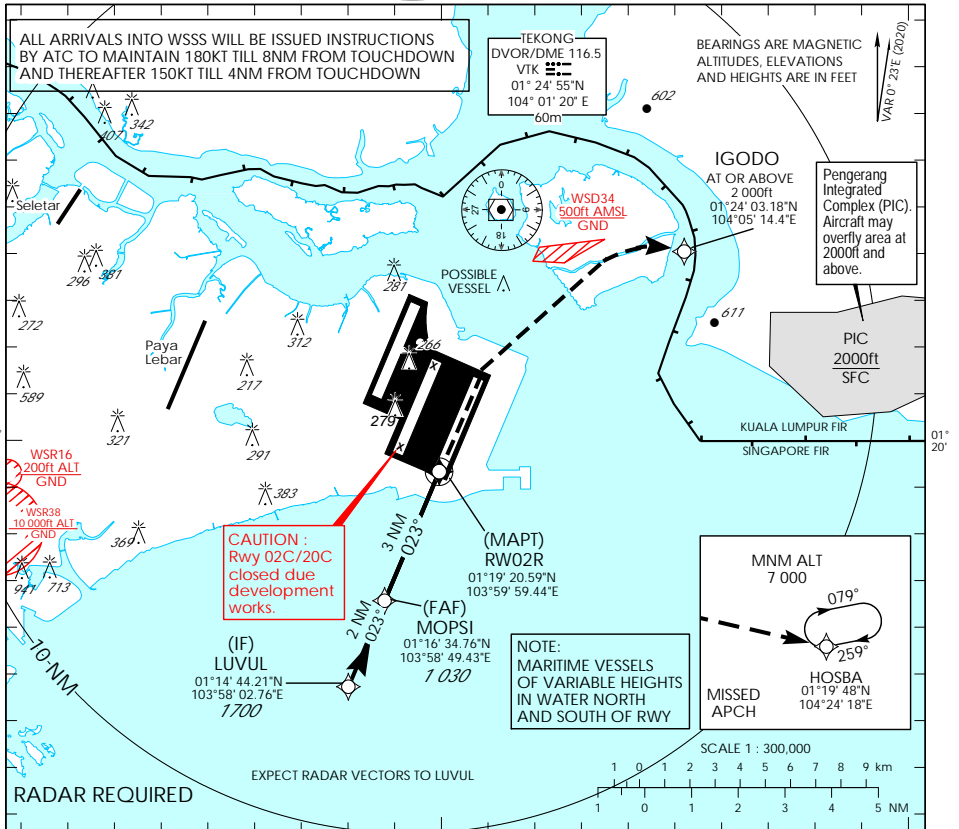


MSA 25 NM  
 from TEKONG DVOR:

D-ATIS AP ID WSSS	128.025
APP	124.05
TWR	124.6
	131.4

**SINGAPORE/ SINGAPORE CHANGI**  
**RNP RWY 02R**

104° 10'

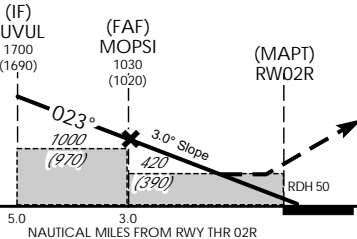


- This procedure requires a missed approach climb gradient of 5% (304 ft/NM) until passing 2,000ft. MAX IAS 185kts during turning missed approach.
- For aircraft which can only achieve a 2.5% (152 ft/NM) climb gradient, the CAT I OCA (OCH) is 820ft (800ft) and aircraft shall climb straight to 1200ft before commencing right turn climbing to 7000ft to HOSBA.

Transition Level : FL 130  
 Transition Alt : 11 000

MINIMUM TEMPERATURE FOR BARO-VNAV APPROACHES: 5°C

ELEV 16  
 (THR RWY 02R)



MISSED APPROACH  
 Climb direct to IGODO at 2 000ft or above. Thereafter, turn right climbing to 7 000ft to HOSBA. Hold at HOSBA or AS DIRECTED BY ATC.  
 No turn before MAPT.

**CIRCLING NOT AUTHORIZED**

Category of Aircraft	OCA (OCH)				
	A	B	C	D	
LNAV/VNAV	5%	330 (310)			
LNAV	5%	420 (390)			
Distance	LUVUL		MOPSI		
Altitude (Height)	1700 (1690)		1030 (1020)		
Speed	knots	70	120	150	185
FAF - MAPT 3.0nm	min : s "	2 : 34	1 : 30	1 : 12	0 : 58
Rate of descent/GS	ft/min	370	635	795	980

**SINGAPORE CHANGI RNP-APCH RWY 02R – Approach from LUVUL**

Path Terminator	Waypoint	Fly-Over	Course °M (°T)	Magnetic Variation	Distance (NM)	Turn Direction	Altitude (FT)	Speed Limit (KT)	VPA/TCH(FT)	Navigation Specification
IF	LUVUL	-	023 (023.4)	-0.4	-	-	1700+	180	-	RNP APCH
TF	MOPSI	-	023 (023.4)	-0.4	2	-	1030+	150	-	RNP APCH
TF	RW02R	Y	023 (023.4)	-0.4	3	R	-	-	-3.0° / 50	RNP APCH
DF	IGODO	-	-	-0.4	-	R	2000+	185	-	RNP APCH
TF	HOSBA	-	103 (103.4)	-0.4	-	-	7000+	-	-	RNP APCH

**Waypoint Coordinates**

Name	Latitude	Longitude
LUVUL (IF)	01° 14' 44.21" N	103° 58' 02.76" E
MOPSI (FAF)	01° 16' 34.76" N	103° 58' 49.43" E
RW02R	01° 19' 20.59" N	103° 59' 59.44" E
IGODO	01° 24' 03.18" N	104° 05' 14.40" E
HOSBA	01° 19' 48.00" N	104° 24' 18.00" E



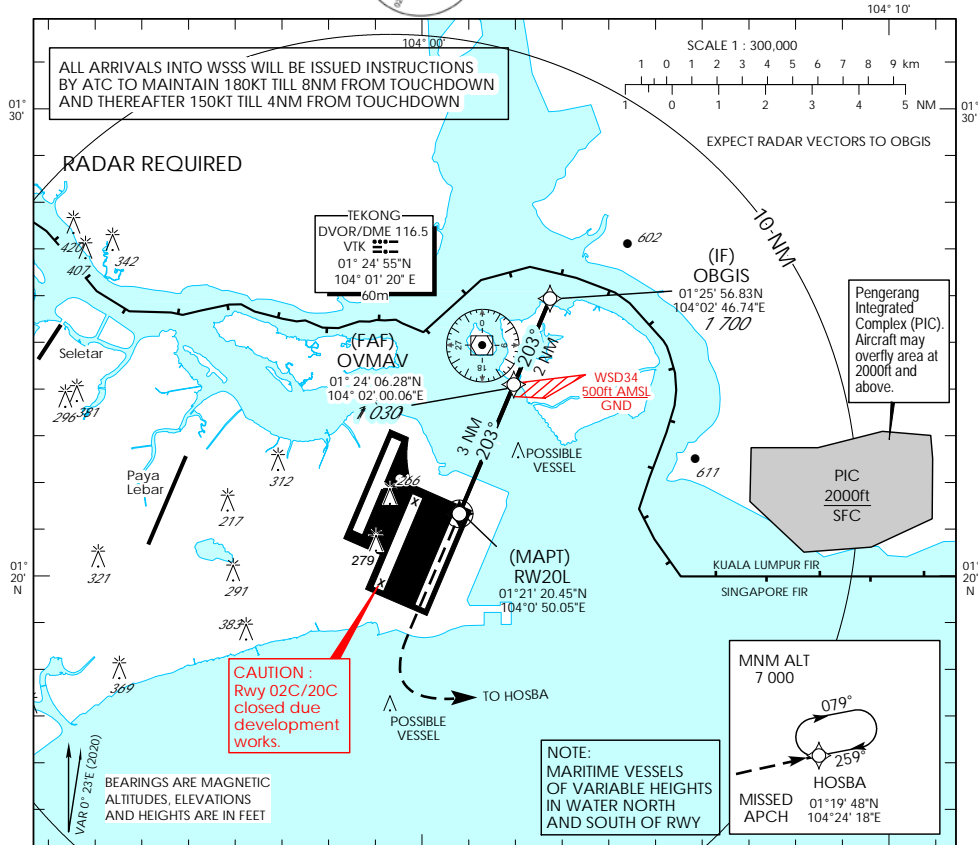
**INSTRUMENT AERODROME ELEV 22ft**  
**APPROACH** HEIGHT RELATED TO  
**CHART** THR RWY 20L - ELEV 16ft



MSA 25 NM  
 from TEKONG DVOR:

D-ATIS AP ID WSSS	128.6
APP	124.05
	124.6
TWR	131.4

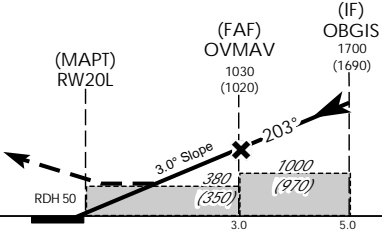
**SINGAPORE/  
 SINGAPORE CHANGI**  
**RNP RWY 20L**



This procedure requires a missed approach climb gradient of 5% (304 ft/NM) until passing 3,000ft.  
 For aircraft which can only achieve a 2.5% (152 ft/NM) climb gradient, the CAT I OCA (OCH) is 1080ft (1050ft).

Transition Level : FL 130  
 Transition Alt : 11 000

**MISSED APPROACH**  
 Climb straight to 1 500ft, turn left climbing to 7 000ft to HOSBA.  
 Hold at HOSBA or AS DIRECTED BY ATC.  
 No turn before MAPT.



MINIMUM TEMPERATURE FOR BARO-VNAV APPROACHES: 5°C

CIRCLING NOT AUTHORIZED

ELEV 16  
 (THR RWY 20L)

Category of Aircraft		OCA (OCH)			
		A	B	C	D
LNAV/VNAV	5%		280 (260)		
LNAV	5%		380 (350)		
Distance			OBGIS		OVMVAV
Altitude (Height)			1700 (1690)		1030 (1020)
Speed	knots	70	120	150	185
FAF - MAPT 3.0nm	min : s "	2 : 34	1 : 30	1 : 12	0 : 58
Rate of descent/GS	ft/min	370	635	795	980

**SINGAPORE CHANGI RNP-APCH RWY 20L – Approach from OBGIS**

Path Terminator	Waypoint	Fly-Over	Course °M (°T)	Magnetic Variation	Distance (NM)	Turn Direction	Altitude (FT)	Speed Limit (KT)	VPA/ TCH(FT)	Navigation Specification
IF	OBGIS	-	203 (203.4)	-0.4	-	-	1700+	180	-	RNP APCH
TF	OVMAN	-	203 (203.4)	-0.4	2	-	1030+	150	-	RNP APCH
TF	RW20L	Y	203 (203.4)	-0.4	3	-	-	-	-3.0° / 50	RNP APCH
CA	-	-	203 (203.4)	-0.4	-	L	1500+	-	-	RNP APCH
DF	HOSBA	-	-	-	-	-	7000+	-	-	RNP APCH

**Waypoint Coordinates**

Name	Latitude	Longitude
OBGIS (IF)	01° 25' 56.83" N	104° 02' 46.74" E
OVMAN (FAF)	01° 24' 06.28" N	104° 02' 00.06" E
RW20L	01° 21' 20.45" N	104° 00' 50.05" E
HOSBA	01° 19' 48.00" N	104° 24' 18.00" E

**SURFACE MOVEMENT GUIDANCE AND CONTROL SYSTEM AND MARKINGS**

4	Remarks	<p>a. Aircraft operators/ground handlers shall be responsible for the safe and smooth operations of aircraft at the aircraft stands.</p> <p>b. A ground handler shall be at the aircraft stand when the aircraft is ready to depart and ensure that the area around the aircraft is clear of vehicles, equipment and personnel before aircraft engines are started. When the pilot signals that he is ready to taxi, the ground handler shall marshal the aircraft out of the aircraft stand. All personnel, tow tugs and equipment shall be cleared from the aircraft stand and red chevron markings on the adjacent aircraft stands before self-power out can commence.</p> <p>c. All arriving aircrafts will be assigned an aircraft stand. Aircraft with wingspan larger than 15m shall be marshalled into the aircraft stand by a ground handler.</p> <p>d. Code A, Code B and Code C aircraft can taxi into aircraft stands C1, C2, C3, C4, C5 and C6 from the north or the south via TWY WA.</p> <p>e. Only Code A aircraft, Code B aircraft, aircraft type Global Express (GLEX), Global 5000 (GL5T), Global 6000 (GL6T), Global Express XRS (GLEX), Global 7500 (GL7T), Fokker 50 (F50), Fokker 70 (F70), Fokker 100 (F100), Gulfstream 500 (GLF5), Gulfstream 550 (GLF5), Gulfstream 650 (GLF6), ATR 42 (AT45 &amp; AT46), ATR 72 (AT75 &amp; AT76), DASH 7 (DNC7), Falcon 7X (FA7X) and Falcon 8X (FA8X) are allowed to taxi out from aircraft stands C1, C2, C3, C4, C5 and C6 subjected to (g), (h) or (i).</p> <p>f. All other aircraft not listed in (e) departing from C1, C2, C3, C4, C5 and C6 are required to push back onto TWY WA or tow forward onto TWY WP.</p> <p>g. Aircraft departing stand C1 shall taxi out towards the north only.</p> <p>h. Aircraft departing stand C6 shall taxi out towards the south only.</p> <p>i. Aircraft departing stands C2, C3, C4 and C5 are allowed to taxi out towards the south or the north.</p> <p>j. Aircraft parking stand C7 is unable to accommodate aircraft with wingspan larger than 28.35m.</p> <p>k. No Refuelling is permitted for aircraft parked at aircraft stand C7.</p> <p>l. Aircraft types up to B757-200 (no winglets) can taxi into aircraft stands D50, D51, D52, D53, D54, D55 and D56.</p> <p>m. Only Code A aircraft, Code B aircraft and Code C aircraft, Airbus A320 family (A318, A319, A320, A321), ATR 42 (AT45 &amp; AT46), ATR 72 (AT75 &amp; AT76), DASH 7 (DNC 7), Embraer 190STD (E190), Embraer ERJ 135 (E135), Falcon 7X (FA7X), Falcon 8X (FA8X), Fokker 50 (F50), Fokker 70 - all, Fokker 100 - all, Global Express (GLEX), Global 5000 (GL5T), Global 6000 (GL6T), Global Express XRS (GLEX), Global 7500 (GL7T), Gulfstream 500 (GLF5), Gulfstream 550 (GLF5), Gulfstream 650 (GLF6) and Q400 (DH8) are allowed to taxi out from aircraft stands D50, D51, D52, D53, D54, D55 and D56.</p> <p>n. Aircraft type C130 is restricted to tow in operations at aircraft stand D1, D2 and D50. Aircraft is required to shut down at designated shut down area and be towed to aircraft stand D1, D2 and D50.</p> <p>o. Only aircraft type ATR72 (AT75 &amp; AT76) and aircrafts with wingspan less than 27.2m can be parked at aircraft stands C60, C61 and C62.</p>
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<b>SURFACE MOVEMENT GUIDANCE AND CONTROL SYSTEM AND MARKINGS</b>		
<b>Aircraft Stands</b>	<b>Pushback / Tow Forward Procedures</b>	<b>Phraseology Used By SELETAR GROUND</b>
<b>C1, C2, C3, C4, C5, C6</b>	<p><b>PUSHBACK</b> The aircraft (on idle thrust) shall be pushed back onto TWY WA to face North (or South) until its nose wheel is at the intersection of the aircraft stand lead-in line and the centreline of TWY WA. The aircraft may breakaway from there.</p> <p><b>TOW FORWARD</b> The aircraft (on idle thrust) shall be towed forward onto the centreline of TWY WP to face North (or South) until its nose wheel is at the intersection of the aircraft tow-out line and TWY WP centreline. The aircraft may breakaway from there.</p>	<p>Pushback approved, to face North (or South)</p> <p>Tow forward approved, to face North (or South)</p>
<b>C7</b>	<p><b>PUSHBACK</b> The aircraft (on idle thrust) shall be pushed back onto TWY WA to face North (or South) until its nose wheel is at the intersection of the aircraft stand lead-in line and the centreline of TWY WA. The aircraft may breakaway from there.</p>	<p>Pushback approved, to face North (or South)</p>
<b>C50, C51, C52</b>	<p><b>PUSHBACK</b> The aircraft (on idle thrust) shall be pushed back onto TWY ES to face North (or South) until its nose wheel is at the intersection of the aircraft stand lead-in line (or pushback line) and the centreline of TWY ES. The aircraft may breakaway from there.</p>	<p>Pushback approved, to face North (or South)</p>
<b>C60, C61</b>	<p><b>Pushback to face North</b> The aircraft (on idle thrust) shall be pushed back onto TWY EC to face North until its nose wheel is abeam the centreline of aircraft stand C62. The aircraft may break away from there.</p> <p><b>Pushback to face East</b> The aircraft (on idle thrust) shall be pushed back onto TWY EC2 to face East until its nose wheel is at the "EOP C60/C61" position. The aircraft may break away from there.</p>	<p>Pushback approved, to face North.</p> <p>Pushback approved, to face East.</p>
<b>C62</b>	<p><b>Pushback to face North</b> The aircraft (on idle thrust) shall be pushed back onto TWY EC to face North until its nose wheel is at the "EOP C62" position. The aircraft may break away from there.</p> <p><b>Pushback to face South</b> The aircraft (on idle thrust) shall be pushed back onto TWY EC to face South until its nose wheel is abeam the centreline of aircraft stand C61. The aircraft may break away from there.</p>	<p>Pushback approved, to face North.</p> <p>Pushback approved, to face South.</p>

**WSSL AD 2.18 ATS COMMUNICATION FACILITIES**

Service designation	Call sign	Frequency P-Pri S-Sec	Hours of operation	Remarks
TWR	Seletar Tower	P118.45 MHz S130.2 MHz 270.4 MHz	H24	NIL
	Seletar Ground	121.6 MHz * 122.9 MHz	H24	* for vehicular movements
ACC	Singapore Radar	P123.7 MHz S127.3 MHz 133.8 MHz	H24 0000-1430	for ATS Routes B469, G219, G334, R208, L625, L629, L635, L642, L644, M751, M753, M758, M761, M763, M771, N875, N884, N891, N892 and Y514.
		P134.7 MHz S134.15 MHz	H24	for ATS Routes G334, L625, L644, M758, M761, M771, N875, N884 and N892.
		P133.25 MHz S135.8 MHz		for ATS Routes A457, A464, A576, L762, M630 and R469.
		P134.2 MHz S133.35 MHz		for ATS Routes G334, G580, L625, L644, M646, M767 and N875.
		P134.4 MHz S128.1 MHz		for ATS Routes B338, B469, B470, G579, L504, L644, M635, M774, N502, N875, P501 and in area in the immediate vicinity of Singapore.
	Singapore Control	P134.35 MHz S133.6 MHz	H24	AUTOMATIC DEPENDENT SURVEILLANCE BROADCAST (ADS-B) OUT EXCLUSIVE AIRSPACE WITHIN PARTS OF THE SINGAPORE FIR - L642, L644, M753, M771, M904, N891, N892, Q801, Q802, Q803 and T611 within airspace bounded by 073605N 1090045E, 040713N 1063543E, 041717N 1061247E (MABLI), 044841N 1052247E (DOLOX), 045224N 1041442E (ENREP), 045000N 1034400E, thence north along the Singapore FIR boundary to 070000N 1080000E at or above FL290.
	Singapore Radio	6556 kHz 11297 kHz	H24	SEA 1. Emission: A3AJ. SSB suppressed carrier, SATCOM service available.
		5655 kHz 8942 kHz 11396 kHz		SEA 2. Emission: A3AJ. SSB suppressed carrier, SATCOM service available.
6556 kHz		SEA 3. Emission: A3AJ. SSB suppressed carrier, SATCOM service available.		
APP	Singapore Approach	P124.05 MHz S124.6 MHz S126.3 MHz	H24	TAR – flow control service provided for ARR/DEP ACFT. Intermediate approach to Singapore Changi AP and other airports in Singapore. DEP from all airports in Singapore.
	Seletar Approach	121.625 MHz	0000-1500	TAR - Intermediate approach to Seletar Airport.
ATIS	Seletar Airport Information	128.425 MHz	H24	Combined ARR and DEP report (broadcasting with hourly updated MET INFO)  Data Link Service available. AP IDENT WSSL Messages comply with ARINC 623 Standards. Updating of data: H+00 to H+10 and H+30 to H+40

**WSSL AD 2.19 RADIO NAVIGATION AND LANDING AIDS**

Type of Aid and Variation	IDENT	Frequency	OPR Hour	Position of Transmitting Antenna Coordinates	DME Transmitting Antenna Elevation / Remarks
1	2	3	4	5	6 & 7
JAYBEE NDB	JB	400 KHz (80w)	H24	012959.77N 1034241.82E	BRG 298° DIST 19.6km from ARP Seletar. Coverage 50NM. Unusable 285°-060° beyond 20NM. Bearing fluctuations greater than +/- 10° may be observed in sector 138° to 148°. EM: A0/A2
KONG KONG NDB	KK	286 KHz (70w)	H24	013117.76N 1035923.69E	BRG 049° DIST 17.7km from ARP Seletar. Coverage 50NM. Unusable 270°-010° beyond 30NM. Bearing fluctuations greater than +/- 10° may be observed in sector 048° to 052°. EM: A0/A2
SELETAR NDB	SEL	220 KHz	H24	012448.50N 1035210.16E	BRG 152° DIST 0.44km from ARP Seletar. Coverage 50NM. EM: A0/A2

**WSSL AD 2.20 LOCAL TRAFFIC REGULATIONS****1 LOCAL FLYING RESTRICTIONS:**

- 1.1 Fixed-wing aircraft operations including circuit flying and training operations are restricted to the west of Seletar runway. Helicopter operations are confined to the west of Seletar runway between sunset and sunrise, subject to the restrictions in paragraph 1.3 below.
- 1.2 Circuit Heights:  
Light aircraft 800ft (west of Seletar runway only);  
Other aircraft 1,000ft - 1,500ft (west of Seletar runway only);  
Helicopter-only area east of runway up to 600ft AGL
- 1.3 Circuit Flying and Training Operations are not permitted between 1400-2300 daily.
- 1.4 Pilots are required to keep clear of PAYA LEBAR CTR and SEMBAWANG ATZ.

**2 TEST/TRAINING FLIGHTS**

- 2.1 Flight notification shall be given prior to departure. Flight notification by means of RTF should be avoided.
- 2.2 For circuits and landings or flights to Light Aircraft Training Areas A, B and C, locally based operators shall submit details of their flight by electronic mail using the Seletar Test / Training Form which can be retrieved from webpage:  
<https://aim-sg.caas.gov.sg>
- 2.3 For test/currency maintenance flight in the fixed-wing circuit, the operator shall contact Seletar Tower Manager, giving at least 2 days' advance notice from the date of flight. The Tower Manager will then liaise with the host slot-time operator during which the test/currency maintenance flight is to be conducted. The advance notice will enable the host slot-time operator to adjust its training programme to accommodate the flight.

AERODROME CHART - ICAO

01° 25' 01.04"N  
103° 52' 03.52"E

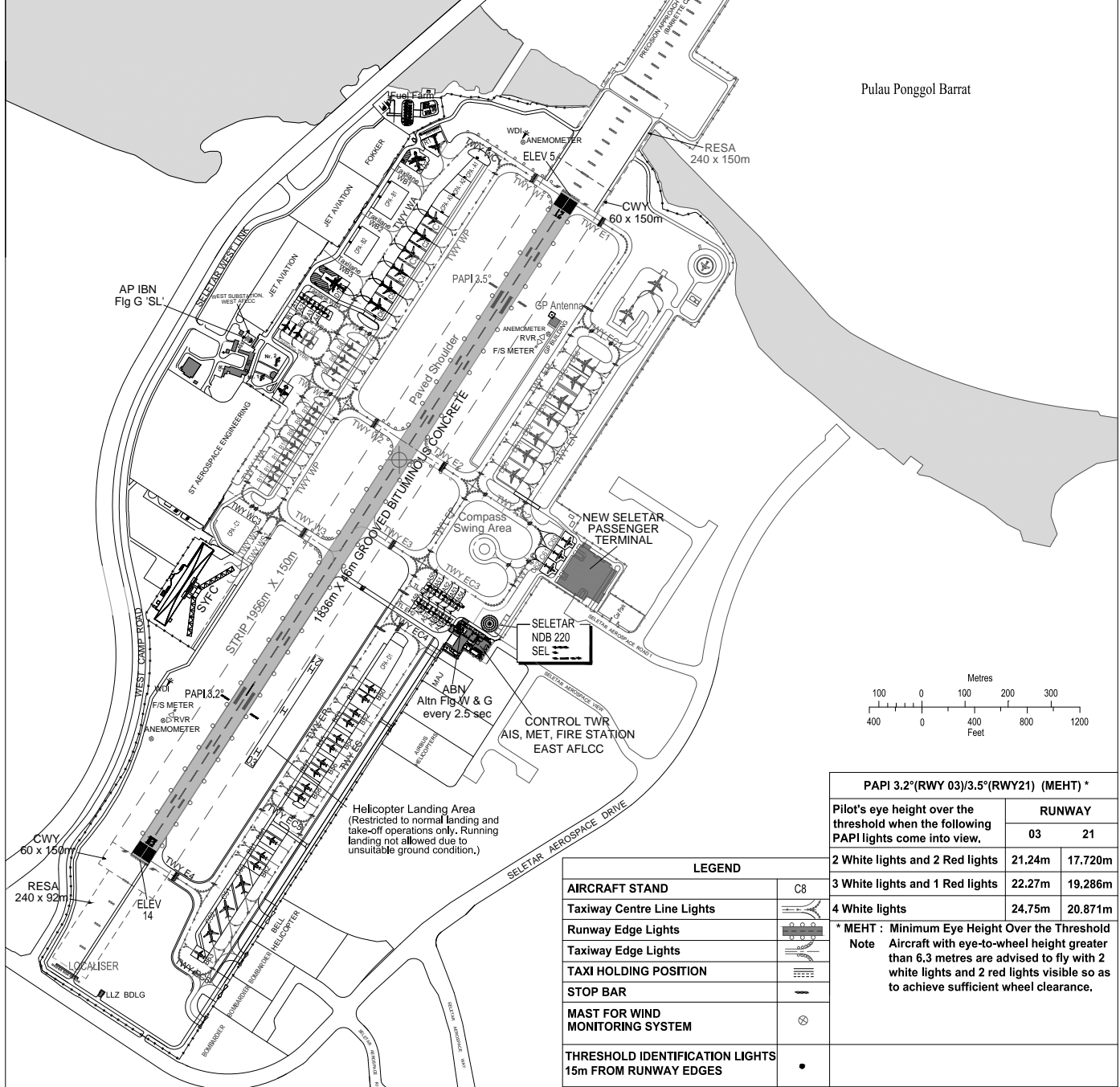
ELEV 14m

TWR 118.45  
121.6

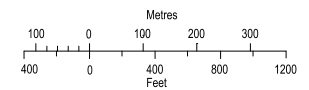
SINGAPORE/SELETAR

RWY	DIRECTION	THR	RUNWAY BEARING STRENGTH
03	033°	01 24 30.846N 103 51 43.791E	PCN 44/F/C/X/T
21	213°	01 25 20.791N 103 52 16.425E	
APRONS		BEARING STRENGTH All Aircraft Stands PCN 41/R/C/W/T except C7 PCN44/F/C/X/T	

ELEVATIONS AND DIMENSIONS IN METRES



Pulau Ponggol Barrat



PAPI 3.2°(RWY 03)/3.5°(RWY21) (MEHT) *		
Pilot's eye height over the threshold when the following PAPI lights come into view.	RUNWAY	
	03	21
2 White lights and 2 Red lights	21.24m	17.720m
3 White lights and 1 Red lights	22.27m	19.286m
4 White lights	24.75m	20.871m

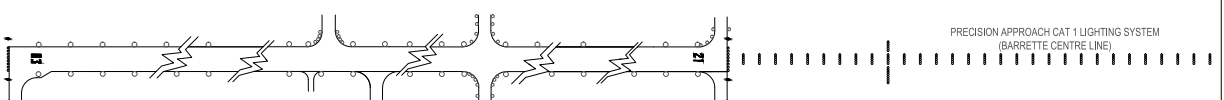
\* MEHT : Minimum Eye Height Over the Threshold  
Note Aircraft with eye-to-wheel height greater than 6.3 metres are advised to fly with 2 white lights and 2 red lights visible so as to achieve sufficient wheel clearance.

LEGEND	
AIRCRAFT STAND	C8
Taxiway Centre Line Lights	[Symbol]
Runway Edge Lights	[Symbol]
Taxiway Edge Lights	[Symbol]
TAXI HOLDING POSITION	[Symbol]
STOP BAR	[Symbol]
MAST FOR WIND MONITORING SYSTEM	[Symbol]
THRESHOLD IDENTIFICATION LIGHTS 15m FROM RUNWAY EDGES	[Symbol]

MARKING AIDS RWY 03/21 AND EXIT TWY



LIGHTING AIDS RWY 03/21 AND EXIT TWY



## INS COORDINATES FOR AIRCRAFT STANDS

STAND NR	NORTH LATITUDE	EAST LONGITUDE	ELEVATION
A1	01 25 13.102	103 51 56.167	6.181m (20.280ft)
A2	01 25 12.779	103 51 56.653	6.338m (20.795ft)
A3	01 25 12.350	103 51 57.301	6.586m (21.609ft)
A4	01 25 12.029	103 51 57.787	6.761m (22.183ft)
A50	01 24 51.431	103 52 05.765	7.807m (25.615ft)
A51	01 24 51.110	103 52 06.251	7.948m (26.077ft)
A52	01 24 50.681	103 52 06.900	8.105m (26.593ft)
A53	01 24 50.358	103 52 07.387	8.211m (26.940ft)
A54	01 24 50.036	103 52 07.874	8.337m (27.354ft)
A55	01 24 48.591	103 52 06.930	8.750m (28.709ft)
A56	01 24 48.913	103 52 06.443	8.587m (28.174ft)
A57	01 24 49.236	103 52 05.957	8.402m (27.567ft)
A58	01 24 49.665	103 52 05.309	8.179m (26.835ft)
A59	01 24 49.987	103 52 04.822	8.014m (26.294ft)
B1	01 25 11.401	103 51 55.231	6.301m (20.674ft)
B2	01 25 10.817	103 51 56.116	6.639m (21.783ft)
B3	01 25 10.221	103 51 57.014	6.967m (22.859ft)
B4	01 25 09.180	103 52 00.361	7.703m (25.274ft)
B5	01 25 08.258	103 51 59.758	7.933m (26.028ft)
B6	01 25 07.348	103 51 59.163	8.163m (26.783ft)
B7	01 25 04.505	103 51 57.519	8.442m (27.698ft)
B8	01 25 03.635	103 51 56.951	8.406m (27.580ft)
B9	01 25 02.765	103 51 56.382	8.396m (27.547ft)
B10	01 25 01.893	103 51 55.814	8.383m (27.505ft)
B11	01 25 01.006	103 51 55.237	8.330m (27.331ft)
B12	01 25 00.109	103 51 54.650	8.449m (27.721ft)
B13	01 24 59.374	103 51 54.170	8.571m (28.121ft)
B50	01 24 43.887	103 52 00.875	8.753m (28.719ft)
B51	01 24 43.153	103 52 00.394	8.847m (29.027ft)
B52	01 24 42.063	103 51 59.681	8.988m (29.490ft)
B53	01 24 41.328	103 51 59.202	9.183m (30.129ft)
B54	01 24 40.154	103 51 58.435	9.358m (30.704ft)
B55	01 24 39.420	103 51 57.954	9.434m (30.953ft)
B56	01 24 38.347	103 51 57.253	9.592m (31.471ft)
B57	01 24 37.614	103 51 56.774	9.679m (31.757ft)
B58	01 24 36.462	103 51 56.021	9.806m (32.172ft)
B59	01 24 35.728	103 51 55.541	9.930m (32.580ft)
B60	01 24 32.416	103 51 53.376	10.094m (33.117ft)
B61	01 24 31.265	103 51 52.624	10.177m (33.389ft)
B62	01 24 30.529	103 51 52.144	10.246m (33.617ft)
B63	01 24 23.858	103 51 47.937	10.639m (34.907ft)
C1	01 25 18.803	103 52 06.627	5.105m (16.750ft)
C2	01 25 17.498	103 52 05.773	5.423m (17.793ft)
C3	01 25 16.192	103 52 04.921	5.759m (18.895ft)
C4	01 25 14.887	103 52 04.067	6.256m (20.526ft)
C5	01 25 13.581	103 52 03.214	6.824m (22.390ft)
C6	01 25 12.275	103 52 02.360	7.304m (23.964ft)
C7	01 25 05.738	103 51 54.466	7.192m (23.596ft)
C50	01 24 29.476	103 51 51.396	10.381m (34.060ft)
C51	01 24 27.626	103 51 50.188	10.589m (34.743ft)
C52	01 24 25.781	103 51 48.979	10.770m (35.335ft)
C60	01 24 54.470	103 52 16.296	6.280m (20.604ft)
C61	01 24 53.483	103 52 15.651	6.301m (20.673ft)
C62	01 24 52.496	103 52 15.006	6.312m (20.709ft)
D1	01 25 14.663	103 51 58.151	6.408m (21.025ft)
D2	01 25 24.033	103 52 04.804	3.471m (11.388ft)
D50	01 25 00.056	103 52 11.563	6.680m (21.916ft)
D51	01 25 01.585	103 52 12.561	6.440m (21.129ft)
D52	01 25 02.828	103 52 13.373	6.280m (20.604ft)
D53	01 25 04.357	103 52 14.372	6.040m (19.816ft)
D54	01 25 05.600	103 52 15.184	5.820m (19.094ft)
D55	01 25 07.129	103 52 16.184	5.550m (18.209ft)
D56	01 25 08.372	103 52 16.997	5.320m (17.454ft)





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**WSAP AD 2.14 APPROACH AND RUNWAY LIGHTING**

<i>RWY Designator</i>	<b>APCH LGT type LEN INTST</b>	<b>THR LGT colour WBAR</b>	<b>VASIS (MEHT) PAPI</b>	<b>TDZ LGT LEN</b>	<b>RWY Centre Line LGT LEN, spacing, colour, INTST</b>	<b>RWY edge LGT LEN, spacing colour, INTST</b>	<b>RWY END LGT colour WBAR</b>	<b>SWY LGT LEN colour</b>
1	2	3	4	5	6	7	8	9
02/20	Sequenced FLG LGT. Modified Calvert High INTST White LGT with brilliancy control.	Green	PAPI on 3° glide slope	-	NIL	White with Amber	Red	Red

**WSAP AD 2.15 OTHER LIGHTING, SECONDARY POWER SUPPLY**

<i>WDI/Taxiway/Stopway</i>	Lighted
IBN	012120.6N 1035410.0E; Flashing Red 'PL'; Operating hours HN and IMC

**WSAP AD 2.17 ATS AIRSPACE**

1	<i>Designation and Lateral Limits</i>	<b>PAYA LEBAR CTR</b> 011100N 1035134E 013300N 1040149E 013200N 1035344E 012534N 1035454E thence along international BDRY to 012544N 1035320E 012227N 1035158E 012232N 1035016E 012100N 1034654E 012025N 1034539E 011835N 1034459E thence southwards on 180° to 011100N 1034459E and eastwards to join up with 011100N 1035134E.
2	<i>Vertical Limits</i>	GND to 3000 FT ALT
3	<i>Airspace Classification</i>	D
4	<i>ATS Unit Call Sign, Language(s)</i>	PAYA LEBAR TOWER (Singapore APP outside the opr hours of PAYA LEBAR TOWER), English
5	<i>Transition Altitude</i>	11000 FT (3,350m)
6	<i>Remarks</i>	Northern Transit Corridor: RSAF military aircraft (with the exception of trainer aircraft) using the northern transit corridor will enter the airspace over Johor at or above 5,000ft. RSAF trainer aircraft using the northern corridor will enter the airspace over Johor at or above 2,000ft.

**WSAP AD 2.18 ATS COMMUNICATION FACILITIES**

Service designation	Call sign	Frequency	Hours of operation	Remarks	
APP	SELETAR APPROACH	121.625 MHz	0000 - 1500	TAR – Intermediate approach to Seletar Airport	
	SINGAPORE APPROACH	124.05 MHz 124.6 MHz 126.3 MHz	H24	TAR – flow control service provided for ARR/DEP ACFT. Intermediate approach to Singapore Changi AP and other airports in Singapore. DEP from all airports in Singapore.	
	PAYA LEBAR APPROACH	119.9 MHz 298.0 MHz *255.8 MHz #127.7 MHz	BTN 2300-1100 SUN-MON to THU-FRI	* for monitoring aircraft operating in Light Aircraft Training Areas. # for monitoring aircraft operating in Light Aircraft Training Areas and Seletar outbound/inbound traffic.	
TWR	PAYA LEBAR TOWER	118.05 MHz 263.1 MHz	On SAT-SUN, public holidays and outside the above times PPR from RSAF	NIL	
GND	PAYA LEBAR GROUND	130.8 MHz 296.0 MHz			
PAR	PAYA LEBAR TALKDOWN	119.9 MHz †269.0 MHz ◆240.5 MHz			Headquarters via Paya Lebar Base Command Post.
SRE	PAYA LEBAR DIRECTOR	283.0 MHz		Maint Period: BTN 0001-1100 Second THU of EV month	
Flight Information Service	SINGAPORE RADAR	119.1 MHz	H24	NIL	
ACC	SINGAPORE RADAR	P123.7 MHz S127.3 MHz	H24	for ATS routes B469, G219, G334, R208, L625, L629, L635, L642, L644 , M751, M753, M758, M761, M763, M771, N875, N884, N891, N892 and Y514.	
		133.8 MHz	0000-1430		
		P134.7 MHz S134.15 MHz	H24		for ATS Routes G334, L625, L644, M758, M761, M771, N875, N884 and N892.
		P133.25 MHz S135.8 MHz			for ATS Routes A457, A464, A576, L762, M630 and R469.
		P134.2 MHz S133.35 MHz			for ATS Routes G334, G580, L625, L644, M646, M767 and N875.
	P134.4 MHz S128.1 MHz		for ATS Routes B338, B469, B470, G579, L504, L644, M635, M774, N502, N875, P501 and in area in the immediate vicinity of Singapore.		
	SINGAPORE CONTROL	P134.35 MHz S133.6 MHz	H24	AUTOMATIC DEPENDENT SURVEILLANCE BROADCAST (ADS-B) OUT EXCLUSIVE AIRSPACE WITHIN PARTS OF THE SINGAPORE FIR - L642, L644, M753, M771, M904, N891, N892, Q801, Q802, Q803 and T611 within airspace bounded by 073605N 1090045E, 040713N 1063543E, 041717N 1061247E (MABLI), 044841N 1052247E (DOLOX), 045224N 1041442E (ENREP), 045000N 1034400E, thence north along the Singapore FIR boundary to 070000N 1080000E at or above FL290.	
SINGAPORE RADIO	6556 kHz 11297 kHz	H24	SEA 1. Emission: A3AJ. SSB suppressed carrier, SATCOM service available.		
	5655 kHz 8942 kHz 11396 kHz		SEA 2. Emission: A3AJ. SSB suppressed carrier, SATCOM service available.		
	6556 kHz		SEA 3. Emission: A3AJ. SSB suppressed carrier, SATCOM service available.		

**WSAT AD 2.18 ATS COMMUNICATION FACILITIES**

<i>Service designation</i>	<i>Call sign</i>	<i>Frequency P - Primary S - Secondary</i>	<i>Hours of operation</i>	<i>Remarks</i>	
APP	TENGAH APPROACH	P130.0 MHz P263.4 MHz S122.0 MHz	BTN 2300-1100 SUN/MON to THU/FRI; and	Nil	
TWR	TENGAH TOWER	P122.0 MHz P282.5 MHz S263.4 MHz	On SUN, Public holidays and outside the above times, PPR from RSAF HQ via Tengah Ops.		
	TENGAH GROUND	122.0 MHz 337.8 MHz			
	TENGAH TALKDOWN	130.0 MHz 290.8 MHz 328.5 MHz			
Flight Information Service	SINGAPORE RADAR	119.1 MHz	H24	Nil	
ACC	SINGAPORE RADAR	P123.7 MHz S127.3 MHz	H24	for ATS Routes B469, G219, G334, R208, L625, L629, L635, L642, L644, M751, M753, M758, M761, M763, M771, N875, N884, N891, N892 and Y514.	
		133.8 MHz	0000-1430		
		P134.7 MHz S134.15 MHz	H24		for ATS Routes G334, L625, L644, M758, M761, M771, N875, N884 and N892.
		P133.25 MHz S135.8 MHz			for ATS Routes A457, A464, A576, L762, M630 and R469.
		P134.2 MHz S133.35 MHz			for ATS Routes G334, G580, L625, L644, M646, M767 and N875.
		P134.4 MHz S128.1 MHz			for ATS Routes B338, B469, B470, G579, L504, L644, M635, M774, N502, N875, P501 and in area in the immediate vicinity of Singapore.
	SINGAPORE CONTROL	P134.35 MHz S133.6 MHz	H24	AUTOMATIC DEPENDENT SURVEILLANCE BROADCAST (ADS-B) OUT EXCLUSIVE AIRSPACE WITHIN PARTS OF THE SINGAPORE FIR - L642, L644, M753, M771, M904, N891, N892, Q801, Q802, Q803 and T611 within airspace bounded by 073605N 1090045E, 040713N 1063543E, 041717N 1061247E (MABLI), 044841N 1052247E (DOLOX), 045224N 1041442E (ENREP), 045000N 1034400E, thence north along the Singapore FIR boundary to 070000N 1080000E at or above FL290.	

<i>Service designation</i>	<i>Call sign</i>	<i>Frequency P - Primary S - Secondary</i>	<i>Hours of operation</i>	<i>Remarks</i>
ACC	SINGAPORE RADIO	6556 kHz 11297 kHz	H24	SEA 1. Emission: A3AJ. SSB suppressed carrier, SATCOM service available.
		5655 kHz 8942 kHz 11396 kHz		SEA 2. Emission: A3AJ. SSB suppressed carrier, SATCOM service available.
		6556 kHz		SEA 3. Emission: A3AJ. SSB suppressed carrier, SATCOM service available.
APP	SINGAPORE APPROACH	P124.05 MHz S124.6 MHz S126.3 MHz	H24	TAR – flow control service provided for ARR/DEP ACFT. Intermediate approach to Singapore Changi AP and other airports in Singapore. DEP from all airports in Singapore.

## WSAT AD 2.19 RADIO NAVIGATION AND LANDING AIDS

<b>RADIO NAVIGATION AND LANDING AIDS</b>					
<i>Type of Aid</i>	<i>IDENT</i>	<i>FREQ</i>	<i>OPR Hour</i>	<i>Coordinates</i>	<i>Remarks</i>
TACAN	TNG	CH86X	2300-1100 from SUN/MON to THU/FRI; SUN, Public holidays and outside the above times prior permission required from RSAF HQ via Tengah Operations.	012336.00N 1034242.00E	043° MAG 0.55km from ARP  Maint Period: 0001-0900 second SAT of EV month
SINJON DVOR/DME	SJ	113.5 MHz CH82X	H24	011319.28N 1035120.08E	201° MAG 14.5km from THR RWY 02 (Paya Lebar)  Antenna HGT: 194ft AMSL. Coverage 200NM  Maint Period: 0200-0600 third THU of EV month
ILS LLZ RWY 36	ITN	108.1 MHz	H24	012408.43N 1034234.34E	Located 260m from THR RWY 18 along centreline of RWY. Course width 3°
ILS GP RWY 36	-	334.7 MHz	H24	012240.84N 1034231.01E	GP antenna 3°
ILS DME RWY 36	ITN	CH18X	H24	012241.02N 1034226.67E	DME co-located with GP

**WSAG AD 2.18 COMMUNICATION FACILITIES**

<i>Service designation</i>	<i>Call sign</i>	<i>Frequency</i>	<i>Hours of operation</i>	<i>Remarks</i>	
1	2	3	4	5	
APP	PAYA LEBAR APPROACH	127.7 MHz 255.8 MHz	BTN 2300-1100 SUN/MON to THU/FRI and BTN 2300-0500 FRI/SAT. Prior permission required on SUN and Public holidays	Nil	
TWR	SEMBAWANG TOWER	129.7 MHz 239.0 MHz		Nil	
GND	SEMBAWANG GROUND	277.1 MHz 118.8 MHz		Nil	
Flight Information Service	SINGAPORE RADAR	119.1 MHz	H24	Nil	
ACC	SINGAPORE RADAR	P123.7 MHz S127.3 MHz	H24	for ATS Routes B469, G219, G334, R208, L625, L629, L635, L642, L644, M751, M753, M758, M761, M763, M771, N875, N884, N891, N892 and Y514.	
		133.8 MHz	0000 - 1430		
		P134.7 MHz S134.15 MHz	H24		for ATS Routes G334, L625, L644, M758, M761, M771, N875, N884 and N892.
		P133.25 MHz S135.8 MHz			for ATS Routes A457, A464, A576, L762, M630 and R469.
		P134.2 MHz S133.35 MHz			for ATS Routes G334, G580, L625, L644, M646, M767 and N875.
		P134.4 MHz S128.1 MHz			For ATS Routes B338, B469, B470, G579, L504, L644, M635, M774, N502, N875, P501 and in area in the immediate vicinity of Singapore.
	SINGAPORE CONTROL	P134.35 MHz S133.6 MHz	H24	AUTOMATIC DEPENDENT SURVEILLANCE BROADCAST (ADS-B) OUT EXCLUSIVE AIRSPACE WITHIN PARTS OF THE SINGAPORE FIR - L642, L644, M753, M771, M904, N891, N892, Q801, Q802, Q803 and T611 within airspace bounded by 073605N 1090045E, 040713N 1063543E, 041717N 1061247E (MABLI), 044841N 1052247E (DOLOX), 045224N 1041442E (ENREP), 045000N 1034400E, thence north along the Singapore FIR boundary to 070000N 1080000E at or above FL290.	
	SINGAPORE RADIO	6556 kHz 11297 kHz	H24	SEA 1. Emission: A3AJ. SSB suppressed carrier, SATCOM service available.	
		5655 kHz 8942 kHz 11396 kHz		SEA 2. Emission: A3AJ. SSB suppressed carrier, SATCOM service available.	
		6556 kHz		SEA 3. Emission: A3AJ. SSB suppressed carrier, SATCOM service available.	
APP	SINGAPORE ARRIVAL	P119.3 MHz S119.4 MHz S119.55 MHz	H24	TAR - Intermediate and final approach to Singapore Changi AP.	
	SINGAPORE APPROACH	P124.05 MHz S124.6 MHz S126.3 MHz		TAR - flow control service provided for ARR/DEP ACFT. Intermediate approach to Singapore Changi AP and other airports in Singapore. DEP from all airports in Singapore.	

**WSAG AD 2.19 RADIO NAVIGATION AND LANDING AIDS**

<i>Type of Aid</i>	<i>IDENT</i>	<i>Frequency</i>	<i>OPR HR</i>	<i>Coordinates</i>	<i>Remarks</i>
1	2	3	4	5	6
SEMBAWANG NDB	AG	325 kHz	H24	012524.00N 1034924.00E	198° MAG 0.54km from ARP Coverage 30NM. MAINT Period: Monthly - EV 2nd FRI 0200-0400. For training approaches in VMC only.