

# TEST REPORT

**Applicant:** Shenzhen DOOGEE Hengtong Technology CO.,LTD

**Address of Applicant:** B, 2/F, Building A4, Silicon Valley Power Digital Industrial Park,  
No.22, Longhua New District, Shenzhen, China

**Manufacturer:** Shenzhen DOOGEE Hengtong Technology CO.,LTD

**Address of Manufacturer:** B, 2/F, Building A4, Silicon Valley Power Digital Industrial Park,  
No.22, Longhua New District, Shenzhen, China

**Equipment Under Test (EUT)**

**Product Name:** Smart Phone

**Model No.:** V Max

**Trade mark:** DOOGEE

**Applicable standards:** FCC CFR Title 47 Part 2  
FCC CFR Title 47 Part22  
FCC CFR Title 47 Part24  
FCC CFR Title 47 Part27  
FCC CFR Title 47 Part90

**Date of sample receipt:** 2022-12-12

**FCC ID:** 2AX4YVMAX

**Date of Test:** 2022-12-13~2023-1-8

**Date of report issued:** 2023-1-9

**Test Result :** PASS \*

\*In the configuration tested, the EUT complied with the standards specified above.

Version

Version No.	Date	Description
00	2023-1-9	Original

**Prepared By:** Stone Tang **Date:** 2023-1-9  
**Project Engineer**

**Check By:** Randy LV **Date:** 2023-1-9  
**Reviewer**

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## 1. Test Summary

No.	Description	FCC Part No.	Test Verdict	Test By	Remark
1	Conducted RF Output Power	2.1046	Pass		
2	Effective (Isotropic) Radiated Power	2.1046 22.913(a) 24.232(c) 27.50	Pass		
3	Peak to Average Ratio	2.1046 22.913(d) 24.232(d) 27.50(d)	Pass		--
4	Occupied Bandwidth	2.1049 22.917(b) 24.238(b) 27.53	Pass		
5	Frequency Stability	2.1055 22.355 24.235 27.54	Pass		
6	Spurious Emission at Antenna Terminals	2.1051 22.917 24.238 27.53	Pass		
7	Band Edge	2.1051 22.917 24.238 27.53	Pass		
8	Field Strength of Spurious Radiation	2.1053 22.917 24.238 27.53	Pass		

## 2. General Information

### General Description of EUT

Product Name:	Smart Phone
Model No.:	V Max, S100Pro
Test Model No.:	V Max
Remark: All above models are identical in the same PCB layout, interior structure and electrical circuits. The only difference is model name for commercial purpose.	
Adapter/Power Supply:	Model: HJ-1203000-09 Input: 100-240V~50/60Hz, 0.8A Output: 5V=3A , 9V=3A, 12V=2.75A, 33.0W Max. PPS:5.0V-11.0V 3.0A 33.0W Max.

The requirement for the following technical information of the EUT was tested in this report:

Operating Bands	GSM/GPRS/EGPRS 850/1900 MHz WCDMA/HSDPA/HSUPA Band 2/4/5 FDD LTE Band 2/4/5/7/12/17/25/26/38/4166 TDD LTE Band 38/41	
Modulation Type	GSM/GPRS	GMSK
	EGPRS	8PSK
	WCDMA	QPSK
	HSDPA/HSUPA	QPSK
		16QAM
LTE	QPSK	
	16QAM	
TX Frequency Range	GSM/GPRS/EGPRS 850: 824.2 MHz ~ 848.8 MHz GSM/GPRS/EGPRS 1900: 1850.2 MHz ~ 1909.8 MHz WCDMA/HSDPA/HSUPA Band 2: 1852.4 MHz ~ 1907.6 MHz WCDMA/HSDPA/HSUPA Band 4: 1712.4 MHz ~ 1752.6 MHz WCDMA/HSDPA/HSUPA Band 5: 826.4 MHz ~ 846.6 MHz FDD LTE Band 2: 1850.7 MHz ~ 1909.3 MHz FDD LTE Band 4: 1710.7 MHz ~ 1754.3 MHz FDD LTE Band 5: 824.7 MHz ~ 848.3 MHz FDD LTE Band 7: 2502.5 MHz ~ 2567.5 MHz FDD LTE Band 12: 699.7 MHz ~ 715.3 MHz FDD LTE Band 17: 706.5 MHz ~ 713.5 MHz FDD LTE Band 25: 1850.7 MHz ~ 1914.3 MHz TDD LTE Band 26: 814.7 MHz ~ 848.3 MHz FDD LTE Band 38: 706.5 MHz ~ 713.5 MHz TDD LTE Band 41: 2498.5 MHz ~ 2687.5 MHz FDD LTE Band 66: 1710.7 MHz ~ 1779.3 MHz	

Rx Frequency Range	GSM/GPRS/EGPRS 850: 869.2 MHz ~ 893.8 MHz GSM/GPRS/EGPRS 1900: 1930.2 MHz ~ 1989.8 MHz WCDMA/HSDPA/HSUPA Band 2: 1932.4 MHz ~ 1987.6 MHz WCDMA/HSDPA/HSUPA Band 4: 2112.4 MHz ~ 2152.6 MHz WCDMA/HSDPA/HSUPA Band 5: 871.4 MHz ~ 891.6 MHz FDD LTE Band 2: 1930.7 MHz ~ 1989.3 MHz FDD LTE Band 4: 2110.7 MHz ~ 2154.3 MHz FDD LTE Band 5: 869.7 MHz ~ 893.3 MHz FDD LTE Band 7: 2622.5 MHz ~ 2687.5 MHz FDD LTE Band 12: 729.7 MHz ~ 745.3 MHz FDD LTE Band 17: 736.5 MHz ~ 743.5 MHz FDD LTE Band 25: 1930.7 MHz ~ 1994.3 MHz FDD LTE Band 26: 859.7 MHz ~ 893.3 MHz TDD LTE Band 38: 2572.5 MHz ~ 2617.5 MHz TDD LTE Band 41: 2498.5 MHz ~ 2687.5 MHz FDD LTE Band 66: 2110.7 MHz ~ 2179.3 MHz
Power Class	GSM/GPRS 850: 4 GSM/GPRS 1900: 1 EGPRS 850/1900: E2 WCDMA/HSDPA/HSUPA Band 2: 3 WCDMA/HSDPA/HSUPA Band 4: 3 WCDMA/HSDPA/HSUPA Band 5: 3 FDD LTE Band 2: 3 FDD LTE Band 4: 3 FDD LTE Band 5: 3 FDD LTE Band 7: 3 FDD LTE Band 12: 3 FDD LTE Band 17: 3 FDD LTE Band 25: 3 FDD LTE Band 26: 3 TDD LTE Band 38: 3 TDD LTE Band 41: 3 FDD LTE Band 66: 3
Multislot Class	GPRS/EGPRS: 12
Antenna Type	PIFA Antenna

Antenna Gain	GSM850 0.15dBi	GSM1900 0.37dBi	WCDMA B2 0.33dBi	WCDMA B4 0.358dBi
	WCDMA B5 0.14dBi	LTE B2 0.34dBi	LTE B4 0.34dBi	LTE B5 0.12dBi
	LTE B7 0.37dBi	LTE B12 -0.31dBi	LTE B17 0.3dBi	LTE B25 0.35dBi
	LTE B26 0.15dBi	LTE B38 0.39dBi	LTE B41 0.35dBi	LTE B66 0.33dBi
The Max RF Output Power (EIRP/ERP)	GSM/GPRS/EGPRS 850: 30.42 dBm GSM/GPRS/EGPRS 1900: 30.27 dBm WCDMA/HSDPA/HSUPA Band 2: 23.82 dBm WCDMA/HSDPA/HSUPA Band 4:23.27 dBm WCDMA/HSDPA/HSUPA Band 5: 21.32 dBm FDD LTE Band 2: 24.97 dBm FDD LTE Band 4: 24.51 dBm FDD LTE Band 5: 22.2 dBm FDD LTE Band 7: 24.74 dBm FDD LTE Band 12: 21.65 dBm FDD LTE Band 17: 21.49 dBm FDD LTE Band 25: 24.07 dBm FDD LTE Band 26: 22.03 dBm TDD LTE Band 38: 24.17 dBm TDD LTE Band 41: 23.89 dBm FDD LTE Band 66: 23.53 dBm			

Note: The EUT information are declared by manufacturer. For more detailed features description, please refer to the manufacturer's specifications or user's manual.



### Description of Support Units

The EUT was test as an independent unit

### Test Location

All tests were performed at:  
No. 2 Danzi North Road, Kengzi Street, Pingshan District, Shenzhen, Guangdong, China  
Telephone: +86 (0) 0755-27087573

### Deviation from Standards

None

### Other Information Requested by the Customer

None.

### 3. Test Instruments List

Equipment No.	Equipment	Manufacturer	Model No.	Cal. Date	Due Date
JL107	Wideband Radio Communication Tester	R&S	CMW500	5-Jan-2022	4-Jan-2023
JL265	Spectrum Analyzer	keysight	N9020B	16-Jan-2022	15-Jan-2023
JL289	Signal Generator	R&S	N5173B	2-Sep-2022	1-Sep-2023
JL288	Vector signal genertor	R&S	N5182B	2-Sep-2022	1-Sep-2023
JL290	DC power supply	keysight	E3642A	2-Sep-2022	1-Sep-2023
JL253	Programmable Temperature & Humidity Chamber	/	JR900	17-Dec-2022	16-Dec-2023
JL207	Spectrum Analyzer	R&S	FSV30	17-Nov-2022	16-Nov-2023
JL199	Integral antenna	SCHWARZBECK	VULB9163	31-Dec-2022	30-Dec-2023
JL198	Double Ridged Broadband Horn Antenna	SCHWARZBECK	BBHA 9120 D	11-Dec-2022	10-Dec-2023
JL197	Broadband amplifier	SCHWARZBECK	BBV9745	17-Nov-2022	16-Nov-2023
JL196	Broadband amplifier	SCHWARZBECK	BBV9721	18-Nov-2022	17-Nov-2023

### 4. Test Auxiliary Equipment

Description	Manufacturer	Model	Serial No.	Length	Description	Use
/	/	/	/	/	/	<input checked="" type="checkbox"/>

## 5. Test Configurations

Test Items	Test Mode	Test Channel		
		LCH	MCH	HCH
Effective (Isotropic) Radiated Power	GSM 850	v	v	v
	GSM 1900	v	v	v
	GPRS 850	v	v	v
	GPRS 1900	v	v	v
	EGPRS 850	v	v	v
	EGPRS 1900	v	v	v
	WCDMA Band 2	v	v	v
	WCDMA Band 4	v	v	v
	WCDMA Band 5	v	v	v
	HSDPA Band 2	v	v	v
	HSDPA Band 4	v	v	v
	HSDPA Band 5	v	v	v
	HSUPA Band 2	v	v	v
	HSUPA Band 4	v	v	v
	HSUPA Band 5	v	v	v
Peak to Average Ratio	GSM 850	v	v	v
	GSM 1900	v	v	v
	GPRS 850	v	v	v
	GPRS 1900	v	v	v
	EGPRS 850	v	v	v
	EGPRS 1900	v	v	v
	WCDMA Band 2	v	v	v
	WCDMA Band 4	v	v	v
	WCDMA Band 5	v	v	v
	HSDPA Band 2	v	v	v
	HSDPA Band 4	v	v	v
	HSDPA Band 5	v	v	v
	HSUPA Band 2	v	v	v
	HSUPA Band 4	v	v	v
	HSUPA Band 5	v	v	v

Occupied Bandwidth	GSM 850	v	v	v
	GSM 1900	v	v	v
	GPRS 850	v	v	v
	GPRS 1900	v	v	v
	EGPRS 850	v	v	v
	EGPRS 1900	v	v	v
	WCDMA Band 2	v	v	v
	WCDMA Band 4	v	v	v
	WCDMA Band 5	v	v	v
	HSDPA Band 2	v	v	v
	HSDPA Band 4	v	v	v
	HSDPA Band 5	v	v	v
	HSUPA Band 2	v	v	v
	HSUPA Band 4	v	v	v
	HSUPA Band 5	v	v	v
Frequency Stability	GSM 850	v	v	v
	GSM 1900	v	v	v
	GPRS 850	v	v	v
	GPRS 1900	v	v	v
	EGPRS 850	v	v	v
	EGPRS 1900	v	v	v
	WCDMA Band 2	v	v	v
	WCDMA Band 4	v	v	v
	WCDMA Band 5	v	v	v
	HSDPA Band 2	v	v	v
	HSDPA Band 4	v	v	v
	HSDPA Band 5	v	v	v
	HSUPA Band 2	v	v	v
	HSUPA Band 4	v	v	v
	HSUPA Band 5	v	v	v

Spurious Emission at Antenna Terminals	GSM 850	v	v	v
	GSM 1900	v	v	v
	GPRS 850	v	v	v
	GPRS 1900	v	v	v
	EGPRS 850	v	v	v
	EGPRS 1900	v	v	v
	WCDMA Band 2	v	v	v
	WCDMA Band 4	v	v	v
	WCDMA Band 5	v	v	v
	HSDPA Band 2	v	v	v
	HSDPA Band 4	v	v	v
	HSDPA Band 5	v	v	v
	HSUPA Band 2	v	v	v
	HSUPA Band 4	v	v	v
	HSUPA Band 5	v	v	v
Band Edge	GSM 850	v	v	v
	GSM 1900	v	v	v
	GPRS 850	v	v	v
	GPRS 1900	v	v	v
	EGPRS 850	v	v	v
	EGPRS 1900	v	v	v
	WCDMA Band 2	v	v	v
	WCDMA Band 4	v	v	v
	WCDMA Band 5	v	v	v
	HSDPA Band 2	v	v	v
	HSDPA Band 4	v	v	v
	HSDPA Band 5	v	v	v
	HSUPA Band 2	v	v	v
	HSUPA Band 4	v	v	v
	HSUPA Band 5	v	v	v

Field Strength of Spurious Radiation	GSM 850	v	v	v
	GSM 1900	v	v	v
	GPRS 850	v	v	v
	GPRS 1900	v	v	v
	EGPRS 850	v	v	v
	EGPRS 1900	v	v	v
	WCDMA Band 2	v	v	v
	WCDMA Band 4	v	v	v
	WCDMA Band 5	v	v	v
	HSDPA Band 2	v	v	v
	HSDPA Band 4	v	v	v
	HSDPA Band 5	v	v	v
	HSUPA Band 2	v	v	v
	HSUPA Band 4	v	v	v
HSUPA Band 5	v	v	v	

Note 1: The mark “v” means that this configuration is chosen for testing.

Test Mode	UL Channel	UL Channel No.	UL Frequency (MHz)
GSM/GPRS/EGPRS 850	Low Channel	128	824.2
	Middle Channel	190	836.6
	High Channel	251	848.8
GSM/GPRS/EGPRS 1900	Low Channel	512	1850.2
	Middle Channel	661	1880.0
	High Channel	810	1909.8
WCDMA Band 2	Low Channel	9262	1852.4
	Middle Channel	9400	1880.0
	High Channel	9538	1907.6
WCDMA Band 4	Low Channel	1312	1712.4
	Middle Channel	1412	1732.6
	High Channel	1513	1752.6
WCDMA Band 5	Low Channel	4132	826.4
	Middle Channel	4182	836.4

	High Channel	4233	846.6
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LTE Band	Bandwidth (MHz)						Modulation Type		RB #			Test Channel		
	1.4	3	5	10	15	20	QPSK	16-QAM	1	Half	Full	LCH	MCH	HCH
<b>Effective (Isotropic) Radiated Power</b>														
2	v	v	v	v	v	v	v	v	v	v	v	v	v	v
4	v	v	v	v	v	v	v	v	v	v	v	v	v	v
5	v	v	v	v	n	n	v	v	v	v	v	v	v	v
7	n	n	v	v	v	v	v	v	v	v	v	v	v	v
12	v	v	v	v	n	n	v	v	v	v	v	v	v	v
17	n	n	v	v	n	n	v	v	v	v	v	v	v	v
25	v	v	v	v	v	v	v	v	v	v	v	v	v	v
26	v	v	v	v	v	n	v	v	v	v	v	v	v	v
38	n	n	v	v	v	v	v	v	v	v	v	v	v	v
41	n	n	v	v	v	v	v	v	v	v	v	v	v	v
66	v	v	v	v	v	v	v	v	v	v	v	v	v	v
<b>Peak to Average Ratio</b>														
2	v	v	v	v	v	v	v	v	v	v	v	v	v	v
4	v	v	v	v	v	v	v	v	v	v	v	v	v	v
5	v	v	v	v	n	n	v	v	v	v	v	v	v	v
7	n	n	v	v	v	v	v	v	v	v	v	v	v	v
12	v	v	v	v	n	n	v	v	v	v	v	v	v	v
17	n	n	v	v	n	n	v	v	v	v	v	v	v	v
25	v	v	v	v	v	v	v	v	v	v	v	v	v	v
26	v	v	v	v	v	n	v	v	v	v	v	v	v	v
38	n	n	v	v	v	v	v	v	v	v	v	v	v	v
41	n	n	v	v	v	v	v	v	v	v	v	v	v	v
66	v	v	v	v	v	v	v	v	v	v	v	v	v	v
<b>Occupied Bandwidth</b>														
2	v	v	v	v	v	v	v	v	v	v	v	v	v	v
4	v	v	v	v	v	v	v	v	v	v	v	v	v	v
5	v	v	v	v	n	n	v	v	v	v	v	v	v	v
7	n	n	v	v	v	v	v	v	v	v	v	v	v	v
12	v	v	v	v	n	n	v	v	v	v	v	v	v	v
17	n	n	v	v	n	n	v	v	v	v	v	v	v	v
25	v	v	v	v	v	v	v	v	v	v	v	v	v	v
26	v	v	v	v	v	n	v	v	v	v	v	v	v	v

38	n	n	v	v	v	v	v	v	v	v	v	v	v	v
41	n	n	v	v	v	v	v	v	v	v	v	v	v	v
66	v	v	v	v	v	v	v	v	v	v	v	v	v	v



Frequency Stability														
2	v	v	v	v	v	v	v	v	-	-	v	v	v	v
4	v	v	v	v	v	v	v	v	-	-	v	v	v	v
5	v	v	v	v	n	n	v	v	-	-	v	v	v	v
7	n	n	v	v	v	v	v	v	-	-	v	v	v	v
12	v	v	v	v	n	n	v	v	-	-	v	v	v	v
13	n	n	v	v	n	n	v	v	-	-	v	v	v	v
17	n	n	v	v	n	n	v	v	-	-	v	v	v	v
38	n	n	v	v	v	v	v	v	-	-	v	v	v	v
41	n	n	v	v	v	v	v	v	-	-	v	v	v	v
66	v	v	v	v	v	v	v	v	-	-	v	v	v	v
Spurious Emission at Antenna Terminals														
2	v	v	v	v	v	v	v	v	v	v	v	v	v	v
4	v	v	v	v	v	v	v	v	v	v	v	v	v	v
5	v	v	v	v	n	n	v	v	v	v	v	v	v	v
7	n	n	v	v	v	v	v	v	v	v	v	v	v	v
12	v	v	v	v	n	n	v	v	v	v	v	v	v	v
17	n	n	v	v	n	n	v	v	v	v	v	v	v	v
25	v	v	v	v	v	v	v	v	v	v	v	v	v	v
26	v	v	v	v	v	n	v	v	v	v	v	v	v	v
38	n	n	v	v	v	v	v	v	v	v	v	v	v	v
41	n	n	v	v	v	v	v	v	v	v	v	v	v	v
66	v	v	v	v	v	v	v	v	v	v	v	v	v	v
Band Edge														
2	v	v	v	v	v	v	v	v	v	v	v	v	v	v
4	v	v	v	v	v	v	v	v	v	v	v	v	v	v
5	v	v	v	v	n	n	v	v	v	v	v	v	v	v
7	n	n	v	v	v	v	v	v	v	v	v	v	v	v
12	v	v	v	v	n	n	v	v	v	v	v	v	v	v
17	n	n	v	v	n	n	v	v	v	v	v	v	v	v
25	v	v	v	v	v	v	v	v	v	v	v	v	v	v
26	v	v	v	v	v	n	v	v	v	v	v	v	v	v

38	n	n	v	v	v	v	v	v	v	v	v	v	v	v	v
41	n	n	v	v	v	v	v	v	v	v	v	v	v	v	v
66	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v

Field Strength of Spurious Radiation															
2	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
4	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
5	v	v	v	v	n	n	v	v	v	v	v	v	v	v	v
7	n	n	v	v	v	v	v	v	v	v	v	v	v	v	v
12	v	v	v	v	n	n	v	v	v	v	v	v	v	v	v
17	n	n	v	v	n	n	v	v	v	v	v	v	v	v	v
25	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
26	v	v	v	v	v	n	v	v	v	v	v	v	v	v	v
38	n	n	v	v	v	v	v	v	v	v	v	v	v	v	v
41	n	n	v	v	v	v	v	v	v	v	v	v	v	v	v
66	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v

Note 1: The mark “v” means that this configuration is chosen for testing.

Note 2: The mark “n” means that this bandwidth is not supported.

Band 2						
Test Frequency ID	Bandwidth [MHz]	N <sub>UL</sub>	Frequency of Uplink [MHz]	N <sub>DL</sub>	Frequency of Downlink [MHz]	
Low Range	1.4	18607	1850.7	607	1930.7	
	3	18615	1851.5	615	1931.5	
	5	18625	1852.5	625	1932.5	
	10	18650	1855	650	1935	
	15 <sup>[1]</sup>	18675	1857.5	675	1937.5	
	20 <sup>[1]</sup>	18700	1860	700	1940	
Mid Range	1.4/3/5/10/15 <sup>[1]</sup> /20 <sup>[1]</sup>	18900	1880	900	1960	
High Range	1.4	19193	1909.3	1193	1989.3	
	3	19185	1908.5	1185	1988.5	
	5	19175	1907.5	1175	1987.5	
	10	19150	1905	1150	1985	
	15 <sup>[1]</sup>	19125	1902.5	1125	1982.5	
	20 <sup>[1]</sup>	19100	1900	1100	1980	
NOTE 1: Bandwidth for which a relaxation of the specified UE receiver sensitivity requirement (TS 36.101 [27] Clause 7.3) is allowed.						

Band 4						
Test Frequency ID	Bandwidth [MHz]	N <sub>UL</sub>	Frequency of Uplink [MHz]	N <sub>DL</sub>	Frequency of Downlink [MHz]	
Low Range	1.4	19957	1710.7	1957	2110.7	
	3	19965	1711.5	1965	2111.5	
	5	19975	1712.5	1975	2112.5	
	10	20000	1715	2000	2115	
	15	20025	1717.5	2025	2117.5	
	20	20050	1720	2050	2120	
Mid Range	1.4/3/5/10/15/20	20175	1732.5	2175	2132.5	
High Range	1.4	20393	1754.3	2393	2154.3	
	3	20385	1753.5	2385	2153.5	
	5	20375	1752.5	2375	2152.5	
	10	20350	1750	2350	2150	
	15	20325	1747.5	2325	2147.5	
	20	20300	1745	2300	2145	

Band 5						
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Test Frequency ID	Bandwidth [MHz]	N <sub>UL</sub>	Frequency of Uplink [MHz]	N <sub>DL</sub>	Frequency of Downlink [MHz]
Low Range	1.4	20407	824.7	2407	869.7
	3	20415	825.5	2415	870.5
	5	20425	826.5	2425	871.5
	10 <sup>[1]</sup>	20450	829	2450	874
Mid Range	1.4/3/5 10 <sup>[1]</sup>	20525	836.5	2525	881.5
High Range	1.4	20643	848.3	2643	893.3
	3	20635	847.5	2635	892.5
	5	20625	846.5	2625	891.5
	10 <sup>[1]</sup>	20600	844	2600	889
NOTE 1: Bandwidth for which a relaxation of the specified UE receiver sensitivity requirement (TS 36.101 [27] Clause 7.3) is allowed.					
Band 7					
Test Frequency ID	Bandwidth [MHz]	N <sub>UL</sub>	Frequency of Uplink [MHz]	N <sub>DL</sub>	Frequency of Downlink [MHz]
Low Range	5	20775	2502.5	2775	2622.5
	10	20800	2505	2800	2625
	15	20825	2507.5	2825	2627.5
	20 <sup>[1]</sup>	20850	2510	2850	2630
Mid Range	5/10/15 20 <sup>[1]</sup>	21100	2535	3100	2655
High Range	5	21425	2567.5	3425	2687.5
	10	21400	2565	3400	2685
	15	21375	2562.5	3375	2682.5
	20 <sup>[1]</sup>	21350	2560	3350	2680
NOTE 1: Bandwidth for which a relaxation of the specified UE receiver sensitivity requirement (TS 36.101 [27] Clause 7.3) is allowed.					

**Band 12**
**Table 4.3.1.1.12-1: Test frequencies for E-UTRA channel bandwidth for operating band 12**

Test Frequency ID	Bandwidth [MHz]	N <sub>UL</sub>	Frequency of Uplink [MHz]	N <sub>DL</sub>	Frequency of Downlink [MHz]
Low Range	1.4	23017	699.7	5017	729.7
	3	23025	700.5	5025	730.5
	5 <sup>[1]</sup>	23035	701.5	5035	731.5
Mid Range	10 <sup>[1]</sup>	23060	704	5060	734
	1.4/3 5 <sup>[1]</sup> /10 <sup>[1]</sup>	23095	707.5	5095	737.5
High Range	1.4	23173	715.3	5173	745.3
	3	23165	714.5	5165	744.5
	5 <sup>[1]</sup>	23155	713.5	5155	743.5
	10 <sup>[1]</sup>	23130	711	5130	741

NOTE 1: Bandwidth for which a relaxation of the specified UE receiver sensitivity requirement (TS 36.101 [27] Clause 7.3) is allowed.

**Band 17**

Test Frequency ID	Bandwidth [MHz]	N <sub>UL</sub>	Frequency of Uplink [MHz]	N <sub>DL</sub>	Frequency of Downlink [MHz]
Low Range	5 <sup>[1]</sup>	23755	706.5	5755	736.5
	10 <sup>[1]</sup>	23780	709	5780	739
Mid Range	5 <sup>[1]</sup> /10 <sup>[1]</sup>	23790	710	5790	740
High Range	5 <sup>[1]</sup>	23825	713.5	5825	743.5
	10 <sup>[1]</sup>	23800	711	5800	741

NOTE 1: Bandwidth for which a relaxation of the specified UE receiver sensitivity requirement (TS 36.101 [27] Clause 7.3) is allowed.

**Band 25**

Test Frequency ID	Bandwidth [MHz]	N <sub>UL</sub>	Frequency of Uplink [MHz]	N <sub>DL</sub>	Frequency of Downlink [MHz]
Low Range	1.4	26047	1850.7	8047	1930.7
	3	26055	1851.5	8055	1931.5
	5	26065	1852.5	8065	1932.5
	10	26090	1855	8090	1935
	15 <sup>[1]</sup>	26115	1857.5	8115	1937.5
	20 <sup>[1]</sup>	26140	1860	8140	1940
Mid Range	1.4/3/5/10 15 <sup>[1]</sup> /20 <sup>[1]</sup>	26365	1882.5	8365	1962.5
High Range	1.4	26683	1914.3	8683	1994.3
	3	26675	1913.5	8675	1993.5
	5	26665	1912.5	8665	1992.5
	10	26640	1910	8640	1990
	15 <sup>[1]</sup>	26615	1907.5	8615	1987.5
	20 <sup>[1]</sup>	26590	1905	8590	1985

NOTE 1: Bandwidth for which a relaxation of the specified UE receiver sensitivity requirement (TS 36.101 [27] Clause 7.3) is allowed.

**Band 26**

Test Frequency ID	Bandwidth [MHz]	N <sub>UL</sub>	Frequency of Uplink [MHz]	N <sub>DL</sub>	Frequency of Downlink [MHz]
Low Range	1.4	26697	814.7	8697	859.7
	3	26705	815.5	8705	860.5
	5	26715	816.5	8715	861.5
	10 <sup>[1]</sup>	26740	819	8740	864
	15 <sup>[1]</sup>	26765	821.5	8765	866.5
Mid Range	1.4/3/5/10 <sup>[1]</sup> 15 <sup>[1]</sup>	26865	831.5	8865	876.5
High Range	1.4	27033	848.3	9033	893.3
	3	27025	847.5	9025	892.5
	5	27015	846.5	9015	891.5
	10 <sup>[1]</sup>	26990	844	8990	889
	15 <sup>[1]</sup>	26965	841.5	8965	886.5

NOTE 1: Bandwidth for which a relaxation of the specified UE receiver sensitivity requirement (TS 36.101 [27] Clause 7.3) is allowed.

**Band 38**

Test Frequency ID	Bandwidth [MHz]	EARFCN	Frequency (UL and DL) [MHz]
Low Range	5	37775	2572.5
	10	37800	2575
	15	37825	2577.5
	20	37850	2580
Mid Range	5/10/15/20	38000	2595
High Range	5	38225	2617.5
	10	38200	2615
	15	38175	2612.5
	20	38150	2610

**Band 41**

Test Frequency ID	Bandwidth [MHz]	EARFCN	Frequency (UL and DL) [MHz]
Low Range	5	39675	2498.5
	10	39700	2501
	15	39725	2503.5
	20	39750	2506
Mid Range	5/10/15/20	40620	2593
High Range	5	41565	2687.5
	10	41540	2685
	15	41515	2682.5
	20	41490	2680

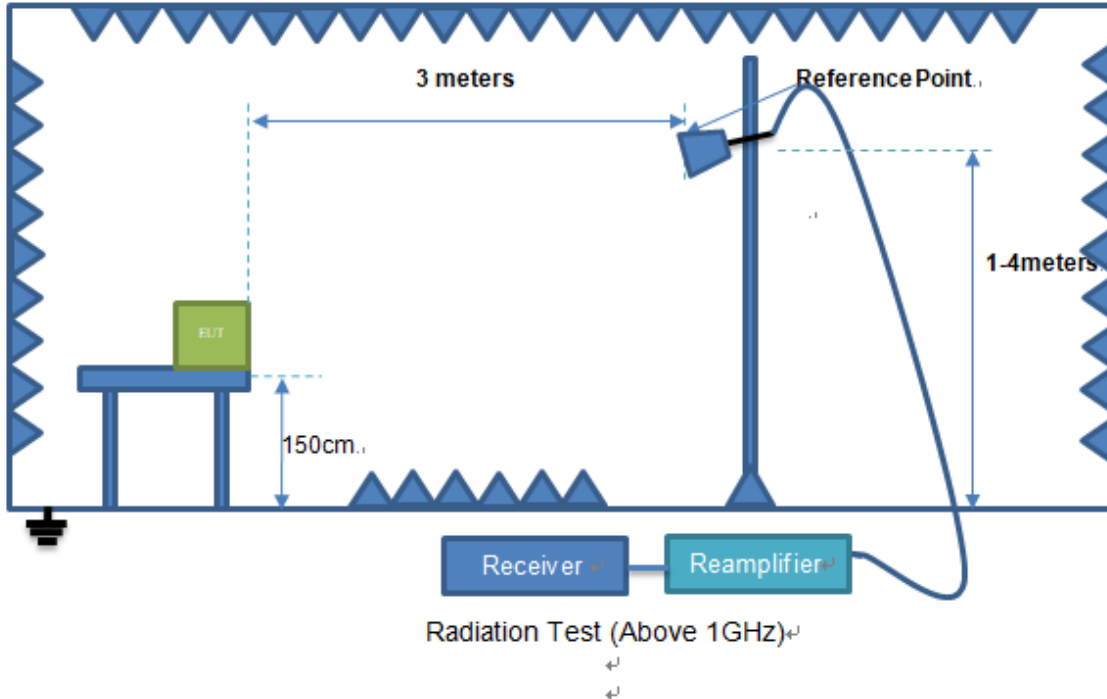
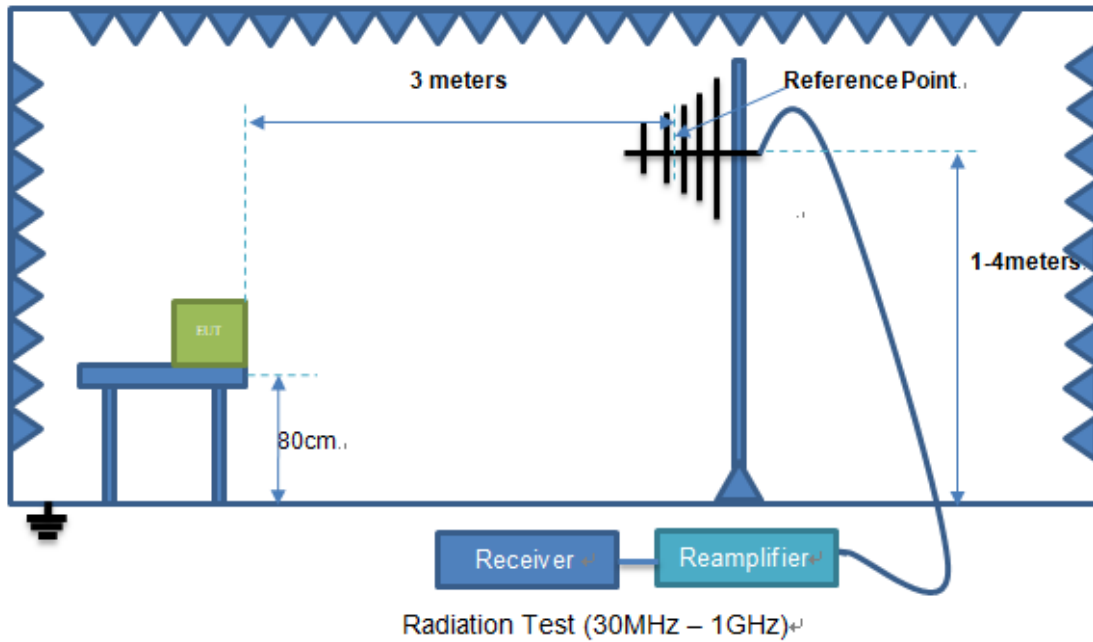
**Band 66**

Table 4.3.1.1.66-1: Test frequencies for E-UTRA channel bandwidth for operating band 66

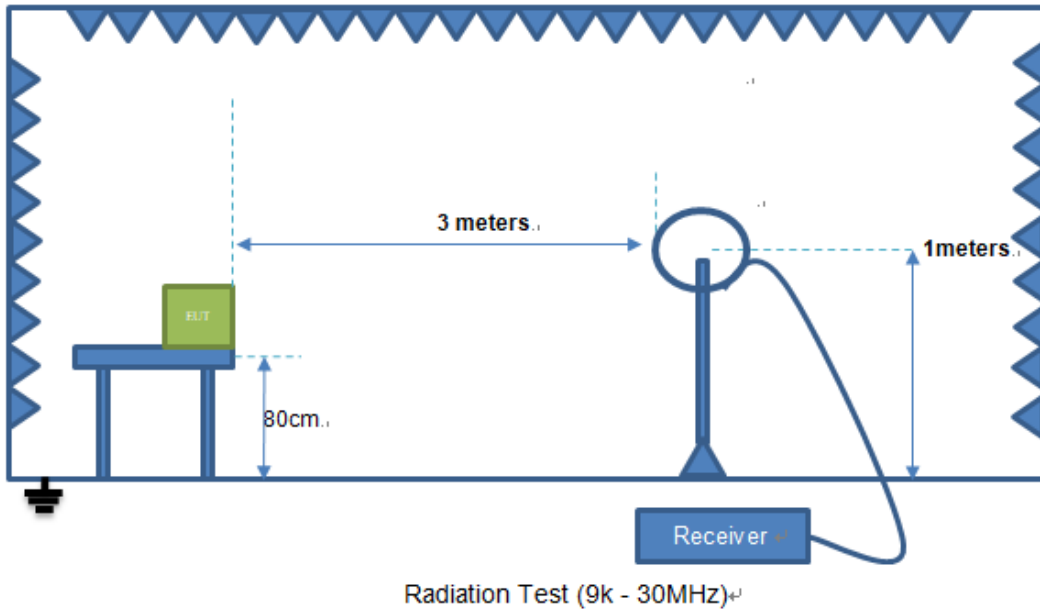
Test Frequency ID	Bandwidth [MHz]	N <sub>UL</sub>	Frequency of Uplink [MHz]	N <sub>DL</sub>	Frequency of Downlink [MHz]
Low Range	1.4	131979	1710.7	66443	2110.7
	3	131987	1711.5	66451	2111.5
	5	131997	1712.5	66461	2112.5
	10	132022	1715	66486	2115
	15	132047	1717.5	66511	2117.5
	20	132072	1720	66536	2120
Mid Range Tx <sup>1</sup>	1.4/3/5/10/15/20	132322	1745	66786	2145
Mid Range	1.4/3/5/10/15/20	132422	1755	66886	2155
Paired High Range <sup>2</sup>	1.4	132665	1779.3	67129	2179.3
	3	132657	1778.5	67121	2178.5
	5	132647	1777.5	67111	2177.5
	10	132622	1775	67086	2175
	15	132597	1772.5	67061	2172.5
	20	132572	1770	67036	2170
High Range <sup>3</sup>	1.4	NA	NA	67329	2199.3
	3	NA	NA	67321	2198.5
	5	NA	NA	67311	2197.5
	10	NA	NA	67286	2195
	15	NA	NA	67261	2192.5
	20	NA	NA	67236	2190

## 6. Test Setup

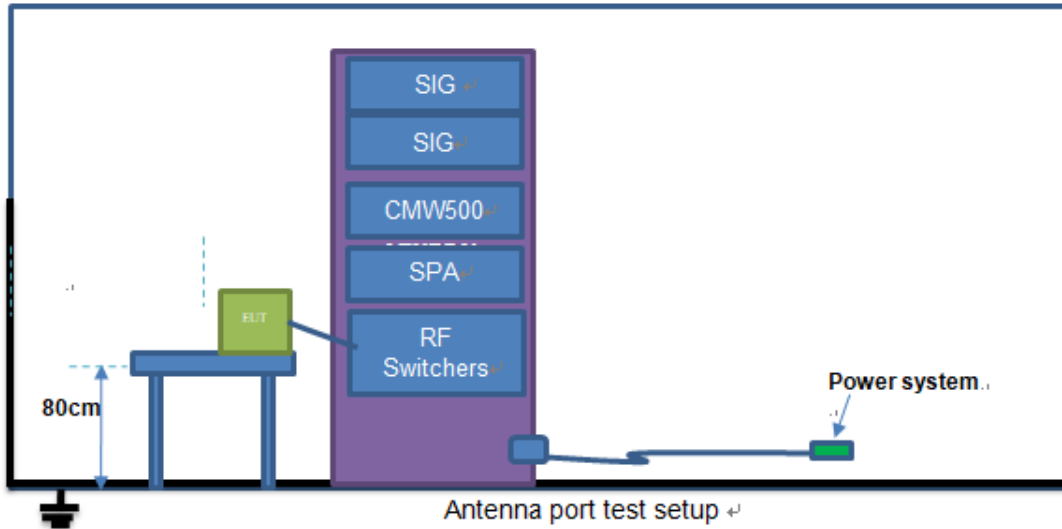
Test Setup 1



## Test Setup 2



## Test Setup 3



## 7. Test Items

### 7.1 Transmitter Radiated Power (EIRP/ERP)

#### 7.1.1 Limit

FCC § 2.1046 & 22.913(a) & 24.232(c) & 27.50(a) & 27.50(b) & 27.50(c) & 27.50(d) & 27.50(h) & 90.635(b) & 90.542(a); RSS-103 4.6; RSS-132 5.4, RSS-133 6.4, RSS-139 6.5, RSS199 4.4

According to FCC section 22.913(a) (5), the Effective Radiated Power (ERP) of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

According to FCC section 24.232(c), mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

According to FCC section 27.50(a) (3), for mobile and portable stations transmitting in the 2305-2315MHz band or the 2350-2360MHz band, the average EIRP must not exceed 50 milliwatts within any 1 megahertz of authorized bandwidth, except that for mobile and portable stations compliant with 3GPP LTE standards.

FCC section 27.50(b) (10), portable stations (hand-held devices) transmitting in the 746-757MHz, 776-788MHz, and 805-806MHz bands are limited to 3 watts ERP.

FCC section 27.50(c) (10), portable stations (hand-held devices) in the 600MHz uplink band and the 698-746MHz band, and fixed and mobile stations in the 600MHz uplink band are limited to 3 watts ERP.

FCC section 27.50(d) (4), fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP. Fixed stations operating in the 1710-1755 MHz band are limited to a maximum antenna height of 10 meters above ground. Mobile and portable stations operating in these bands must employ a means for limiting power to the minimum necessary for successful communications.



(7) Fixed, mobile, and portable (hand-held) stations operating in the 2000-2020 MHz band are limited to 2 watts EIRP.

And FCC section 27.50(h) (2), for mobile and other user stations, mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

According to FCC section 90.635(b), the maximum output power of the transmitter for mobile stations is 100 watts (20dBW).

According to FCC section 90.542(a) (7), portable stations (hand-held devices) transmitting in the 758-768 MHz band and the 788-798 MHz band are limited to 3 watts ERP.

### 7.1.2 Test Setup

The section 4.4 test setup 4 description is used for conducted test, and the test setup description is used for radiated test. The photo of test setup please refer to ANNEX B.

### 7.1.3 Test Procedure

#### **Description of the Conducted Output Power Measurement**

The EUT is coupled to the SS with attenuator through power splitter; the RF load attached to EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. A system simulator is used to establish communication with the EUT, and its parameters are set to force the EUT transmitting at maximum output power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

The relevant equation for determining the conducted measured value is:

$$\text{Conducted Output Power Value (dBm)} = \text{Measured Value (dBm)} + \text{Path Loss (dB)}$$

where:

Conducted Output Power Value = final conducted measured value in the conducted power test, in dBm; Measured Value = measured conducted power received by spectrum analyzer or power meter, in dBm;

Path Loss = signal attenuation in the connecting cable between the transmitter and spectrum analyzer or power meter, including external cable loss, in dB;

During the test, the data of Path Loss (dB) is added in the spectrum analyzer or power meter, so Measured Value (dBm) is the final values which contains the data of Path Loss (dB).

For example:

In the conducted output power test, when measured value for GSM850 is 24.7 dBm, and path loss is 8.5 dB, then final conducted output power value is:

Conducted Output Power Value (dBm) = 24.7 dBm + 8.5 dB = 33.2 dBm

### **Description of the Transmitter Radiated Power Measurement**

In many cases, the RF output power limits for licensed digital transmission devices is specified in terms of effective radiated power (ERP) or equivalent isotropic radiated power (EIRP). Typically, ERP is specified when the operating frequency is less than or equal to 1 GHz and EIRP is specified when the operating frequency is greater than 1 GHz. Both are determined by adding the transmit antenna gain to the conducted RF output power with the primary difference between the two being that when determining the ERP, the transmit antenna gain is referenced to a dipole antenna (i.e., dBd) whereas when determining the EIRP, the transmit antenna gain is referenced to an isotropic antenna (dBi).

Final measurement calculation as below:

The relevant equation for determining the ERP or EIRP from the conducted RF output power measured using the guidance provided above is:

$$\text{ERP/EIRP} = \text{PMeas} + \text{GT} - \text{LC}$$

where:

ERP/EIRP = effective or equivalent radiated power, respectively (expressed in the same units as P<sub>Meas</sub>, typically dBW or dBm);

P<sub>Meas</sub> = measured transmitter output power or PSD, in dBm or dBW; GT = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP); dBd (ERP)=dBi (EIRP) -2.15 dB

LC = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

For devices utilizing multiple antennas, KDB 662911 provides guidance for determining the effective array transmit antenna gain term to be used in the above equation.

For example:

In the EIRP test, when P<sub>Meas</sub> value for GSM1900 is 30.2 dBm, LC is 0.6 dB, and GT is -3.4 dB, then final EIRP value is:

$$\text{EIRP for GSM1900} = 30.2 \text{ dBm} - 3.4 \text{ dBi} - 0.6 \text{ dB} = 26.2 \text{ dBm}$$

The relevant equation for determining the ERP/EIRP from the radiated RF output power is:

$$\text{ERP/EIRP (dBm)} = \text{SA Read Value (dBm)} + \text{Correction Factor (dB)}$$

where:

ERP/EIRP = effective or equivalent radiated power, in dBm;

SA Read Value = measured transmitter power received by EMI receiver or spectrum analyzer, in dBm; Correction Factor = total correction factor including cable loss, in dB;

During the test, the data of Correction Factor (dB) is added in the EMI receiver or spectrum analyzer, so SA Read Value (dBm) is the final values which contains the data of Correction Factor (dB).

For example:

In the ERP test, when SA read value for GSM850 is 21dBm, and correction factor is 8dB, then final ERP value for GSM850 is:

$$\text{ERP (dBm)} = 21\text{dBm} + 8\text{dB} = 29\text{dBm}$$

#### 7.1.4 Test Result

Please refer to ANNEX A.1

## 7.2 Peak to Average Ratio

### 7.2.1 Limit

FCC § 2.1046 & 24.232(d) & 27.50(d); RSS-130 4.6.1, RSS-133 6.4, RSS-139 6.5, RSS199 4.4

In addition, when the transmitter power is measured in terms of average value, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1% of the time using a signal corresponding to the highest PAPR during periods of continuous transmission.

According to FCC section 24.232(d); RSS-133 6.4, power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with 24.232 (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of § 24.51. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

FCC section 24.232(e) ); RSS-133 6.4,, peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms equivalent voltage. The measurement results shall be properly adjusted for any instrument limitations, such as detector response times, limited resolution bandwidth capability when compared to the emission bandwidth, sensitivity, etc., so as to obtain a true peak measurement for the emission in question over the full bandwidth of the channel.

According to FCC section 27.50(d) (5); RSS-139 6.5, in measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13dB.

According to RSS-19 4.4, In addition, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1% of the time and shall use a signal corresponding to the highest PAPR during periods of continuous transmission.

### 7.2.2 Test Setup

The section 4.5 test setup 5 description is used for conducted test, and the test setup description is used for radiated test. The photo of test setup please refer to ANNEX B.

### 7.2.3 Test Procedure

Here the lowest, middle and highest channels are selected to perform testing to verify the peak-to-average ratio.

According to KDB 971168 D01, there is CCDF procedure for PAPR:

- a) Refer to instrument's analyzer instruction manual for details on how to use the power statistics/CCDF function;
- b) Set resolution/measurement bandwidth  $\geq$  signal's occupied bandwidth;
- c) Set the number of counts to a value that stabilizes the measured CCDF curve;
- d) Set the measurement interval as follows:
  - 1)for continuous transmissions, set to 1 ms,
  - 2)for burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize and set the measurement interval to a time that is less than or equal to the burst duration.
- e) Record the maximum PAPR level associated with a probability of 0.1%.

Alternate procedure for PAPR:

Use one of the procedures presented in 4.1 to measure the total peak power and record as PPK. Use one of the applicable procedures presented 4.2 to measure the total average power and record as PAvg. Both the peak and average power levels must be expressed in the same logarithmic units (e.g., dBm). Determine the PAPR from:

$$\text{PAPR (dB)} = \text{PPk (dBm)} - \text{PAvg (dBm)}.$$

### 7.2.4 Test Result

Please refer to ANNEX A.2

## 7.3 Occupied Bandwidth

### 7.3.1 Limit

FCC § 2.1049, RSS-Gen 6.7

The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission.

Many of the individual rule parts specify a relative OBW in lieu of the 99% OBW. In such cases, the OBW is defined as the width of the signal between two points, one below the carrier center frequency and on above the carrier center frequency, outside of which all emissions are attenuated by at least X dB below the transmitter power, where the value of X is typically specified as 26.

### 7.3.2 Test Setup

The section 4.5 test setup 5 description is used for conducted test, and the test setup description is used for radiated test. The photo of test setup please refer to ANNEX B.

### 7.3.3 Test Procedure

The following procedure shall be used for measuring power bandwidth.

- a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be set wide enough to capture all modulation products including the emission skirts (i.e., two to five times the anticipated OBW).
- b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.
- c) Set the reference level of the instrument as required to keep the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope must be at least  $10\log(\text{OBW} / \text{RBW})$  below the reference level.
- d) NOTE—Steps a) through c) may require iteration to adjust within the specified tolerances.
- e) For -26 dB OBW, the dynamic range of the spectrum analyzer at the selected RBW shall be at least 10dB below the target “-X dB down” requirement, e.g. -26 dB OBW, the spectrum analyzer noise floor at the selected RBW shall be 36dB below the reference value.

- f) Set the detection mode to peak, and the trace mode to max hold.
- g) For 99% OBW, use the 99 % power bandwidth function of the spectrum analyzer (if available) and report the measured bandwidth.  
If the instrument does not have a 99 % power bandwidth function, the trace data points are to be recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99 % power bandwidth is the difference between these two frequencies.
- h) For -26 dB OBW, determine the reference value: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value). Determine the “-X dB down amplitude” as equal to (reference value -X). Alternatively, this calculation can be performed by the analyzer by using the marker-delta function. Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below “-X dB down amplitude” determined in step g). If a marker is below this “-X dB down amplitude” value it shall be placed as close as possible to this value. The OBW is the positive frequency difference between the two markers.
- i) The OBW shall be reported by providing plot(s) of the measuring instrument display. The frequency and amplitude axes and scale shall be clearly labeled. Tabular data may be reported in addition to the plot(s).
- j) Change variable modulations, coding, or channel bandwidth settings, then repeat above test procedures.

### 7.3.4 Test Result

Please refer to ANNEX A.3



## 7.4 Frequency Stability

### 7.4.1 Limit

FCC § 2.1055 & 22.355 & 24.235 & 27.54 & 90.213; RSS-130 4.5, RSS-132 5.3, RSS-133 6.3, RSS-139 6.4, RSS199 4.3

The frequency stability shall be measured with variation of ambient temperature as follows:

- (1) The temperature is varied from -30°C to +50°C.
- (2) Frequency measurements shall be made at the extremes of the specified temperature range and at intervals of not more than 10°C through the range.

The frequency stability shall be measured with variation of primary supply voltage as follows:

- (1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than carried battery equipment.
- (2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery operating and point which shall be specified by the manufacture.
- (3) The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided.

FCC § 22.355, RSS-132 5.3

Except as otherwise provided in this part, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table C-1 of this section.

Table C-1—Frequency Tolerance for Transmitters in the Public Mobile Services

Frequency range (MHz)	Base, fixed (ppm)	Mobile > 3 watts (ppm)	Mobile ≤ 3 watts (ppm)
25 to 50	20.0	20.0	50.0
50 to 450	5.0	5.0	50.0
450 to 512	2.5	5.0	5.0
821 to 896	1.5	2.5	2.5
928 to 929	5.0	n/a	n/a
929 to 960	1.5	n/a	n/a
2110 to 2220	10.0	n/a	n/a

FCC § 24.235, RSS-133 6.3

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

FCC § 27.54, RSS-139 6.4

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

FCC § 90.213, RSS199 4.3

The frequency stability shall not depart from the reference frequency in excess of  $\pm 2.5$ ppm for mobile stations.

#### **7.4.2 Test Setup**

The section 4.5 test setup 6 description is used for conducted test, and the test setup description is used for radiated test. The photo of test setup please refer to ANNEX B.

#### **7.4.3 Test Procedure**

1. The EUT is placed in a temperature chamber.
2. The temperature is set to 25°C and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured.
3. The temperature is increased by not more than 10 degrees, allowed to stabilize and soak, and then repeat the frequency error measurement.
4. Repeat procedure 3 until +50°C and -30°C is reached.
5. Change supply voltage, and repeat measurement until extreme voltage is reached.

#### **7.4.4 Test Result**

Please refer to ANNEX A.4

## 7.5 Spurious Emission at Antenna Terminals

### 7.5.1 Limit

FCC § 2.1051 & 22.917(a) & 24.238(a) & 27.53(a) & 27.53(c) & 27.53(f) & 27.53(g) & 27.53(h) & 27.53(m) & 90.691 & 90.543; RSS-130 4.7, RSS-132 5.5, RSS-133 6.5, RSS-139 6.6, RSS199 4.5

In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

FCC § 22.917(a) & 24.238(a), RSS-132 5.5, RSS-133 6.5

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. This is calculated to be -13 dBm.

FCC § 27.53(a) (4), RSS-139 6.6

For mobile and portable stations operating in the 2305-2315MHz and 2350-2360MHz bands:

- (1) By a factor of not less than:  $43 + 10 \log(P)$  dB on all frequencies between 2305 and 2320MHz and on all frequencies between 2345 and 2360MHz that are outside the licensed band(s) of operation, not less than  $55 + 10 \log(P)$  dB on all frequencies between 2320 and 2324MHz and on all frequencies between 2341 and 2345MHz, not less than  $61 + 10 \log(P)$  dB on all frequencies between 2324 and 2328MHz and on all frequencies between 2337 and 2341MHz, and not less than  $67 + 10 \log(P)$  dB on all frequencies between 2328 and 2337MHz.
- (2) By a factor of not less than  $43 + 10 \log(P)$  dB on all frequencies between 2300 and 2305MHz,  $55 + 10 \log(P)$  dB on all frequencies between 2296 and 2300MHz,  $61 + 10 \log(P)$  dB on all frequencies between 2292 and 2296MHz,  $67 + 10 \log(P)$  dB on all frequencies between 2288 and 2292MHz, and  $70 + 10 \log(P)$  dB below 2288MHz.

- (3) By a factor of not less than  $43 + 10 \log (P)$  dB on all frequencies between 2360 and 2365MHz, and not less than  $70 + 10 \log (P)$  dB above 2365MHz.

FCC § 27.53(c), RSS-139 6.6

For operations in the 746–758 MHz band and the 776–788 MHz band, the power of any emission outside the licensee’s frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

- (1) On any frequency outside the 746–758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least  $43 + 10 \log (P)$  dB;
- (2) On any frequency outside the 776–788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least  $43 + 10 \log (P)$  dB;
- (3) On all frequencies between 763–775 MHz and 793–805 MHz, by a factor not less than  $76 + 10 \log (P)$  dB in a 6.25 kHz band segment, for base and fixed stations;
- (4) On all frequencies between 763–775 MHz and 793–805 MHz, by a factor not less than  $65 + 10 \log (P)$  dB in a 6.25 kHz band segment, for mobile and portable stations;
- (5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed;
- (6) Compliance with the provisions of paragraphs (c)(3) and (c)(4) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

FCC § 27.53(f) , RSS-139 6.6

For operations in the 746–758 MHz, 775–788 MHz, and 805–806 MHz bands, emissions in the band 1559–1610 MHz shall be limited to - 70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and

-80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

FCC § 27.53(g) , RSS-139 6.6

For operations in the 600MHz band and the 698-746MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least  $43+10\log(P)$  dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

FCC § 27.53(h) (1) , RSS-139 6.6

Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands,

the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power

(P) in watts by at least  $43 + 10 \log_{10} (P)$  dB.

FCC § 27.53(m) (4) , RSS-139 6.6

For mobile digital stations (BRS and EBS stations), the attenuation factor shall be not less than:

- $40+10\log P$  dB (-10 dBm, 100 nW) on all frequencies between the channel edge and 5 MHz from the channel edge.
- $43+10\log P$  dB (-13 dBm, 50 nW) on all frequencies between 5 MHz and X MHz from the channel edge,
- $55+10\log P$  dB (-25 dBm, 3 nW) on all frequencies more than X MHz from the channel edge, where X is the greater of 6 MHz or the actual emission bandwidth (26 dB).

In addition, the attenuation factor shall not be less that  $43 + 10 \log (P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz and  $55 + 10 \log (P)$  dB at or below 2490.5 MHz. Mobile Satellite Service

licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or

EBS licensees.

#### FCC § 90.691

- (a) Out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:
- (1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $116 \text{ Log}_{10}(f/6.1)$  decibels or  $50 + 10 \text{ Log}_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.
  - (2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \text{ Log}_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.
- (b) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section.

#### FCC § 90.543

- (e) For operations in the 758–768 MHz and the 788–798 MHz bands, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:
- (1) On all frequencies between 769–775 MHz and 799–805 MHz, by a factor not less than  $76 + 10 \text{ log}(P)$  dB in a 6.25 kHz band segment, for base and fixed stations.
  - (2) On all frequencies between 769–775 MHz and 799–805 MHz, by a factor not less than  $65 + 10 \text{ log}(P)$  dB in a 6.25 kHz band segment, for mobile and portable stations.

- (3) On any frequency between 775–788 MHz, above 805 MHz, and below 758 MHz, by at least  $43 + 10 \log (P)$  dB.
- (4) Compliance with the provisions of paragraphs (e)(1) and (2) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.
- (f) For operations in the 758–775 MHz and 788–805 MHz bands, all emissions including harmonics in the band 1559– 1610 MHz shall be limited to -70 dBW/ MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

#### RSS199 4.5

- (a) for base station and fixed subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power,  $P$  (dBW), by at least  $43 + 10 \log_{10} p$ .
- (b) for mobile subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power,  $P$  (dBW), by at least:
  - (i)  $40 + 10 \log_{10} p$  from the channel edges to 5 MHz away
  - (ii)  $43 + 10 \log_{10} p$  between 5 MHz and  $X$  MHz from the channel edges, and
  - (iii)  $55 + 10 \log_{10} p$  at  $X$  MHz and beyond from the channel edges

In addition, the attenuation shall not be less than  $43 + 10 \log_{10} p$  on all frequencies between 2490.5 MHz and 2496 MHz, and  $55 + 10 \log_{10} p$  at or below 2490.5 MHz.

In (a) and (b),  $p$  is the transmitter power measured in watts and  $X$  is 6 MHz or the equipment occupied bandwidth, whichever is greater.

### 7.5.2 Test Setup

The section 4.5 test setup 5 description is used for conducted test, and the test setup description is used for radiated test. The photo of test setup please refer to ANNEX B.

### 7.5.3 Test Procedure

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log(P)$  dB. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency blocks a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

The EUT is coupled to the system simulator and spectrum analyzer; the RF load attached to EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading.

CMW500 is used to establish communication with the EUT, and its parameters are set to force the EUT transmitting at maximum output power.

The RF output of the transmitter is connected to the input of the spectrum analyzer through sufficient attenuation.

Spurious emissions are tested with 0.001MHz RBW for frequency less than 150kHz, 0.01MHz RBW for frequency less than 30MHz, 0.1MHz RBW for frequency less than 1GHz, and 1MHz RBW for frequency above 1GHz. And sweep point number are at least 401, referring to following formula.

$$\text{Sweep point number} = \text{Span/RBW VBW}=3*\text{RBW}$$

Detector Mode=mean or average power

Record the frequencies and levels of spurious emissions.

#### **7.5.4 Test Result**

Please refer to ANNEX A.5



## 7.6 Band Edge Emission

### 7.6.1 Limit

FCC § 2.1051 & 22.917(a) & 24.238(a) & 27.53(a) & 27.53(c) & 27.53(g) & 27.53(h) & 27.53(m) & 90.691 & 90.543; RSS-130 4.7, RSS-132 5.5, RSS-133 6.5, RSS-139 6.6, RSS199 4.5

In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

FCC § 22.917(a) & 24.238(a), RSS-132 5.5, RSS-133 6.5

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. This is calculated to be -13 dBm.

FCC § 27.53(a) (4), RSS-139 6.6

For mobile and portable stations operating in the 2305-2315MHz and 2350-2360MHz bands:

- (1) By a factor of not less than:  $43 + 10 \log(P)$  dB on all frequencies between 2305 and 2320MHz and on all frequencies between 2345 and 2360MHz that are outside the licensed band(s) of operation, not less than  $55 + 10 \log(P)$  dB on all frequencies between 2320 and 2324MHz and on all frequencies between 2341 and 2345MHz, not less than  $61 + 10 \log(P)$  dB on all frequencies between 2324 and 2328MHz and on all frequencies between 2337 and 2341MHz, and not less than  $67 + 10 \log(P)$  dB on all frequencies between 2328 and 2337MHz.
- (2) By a factor of not less than  $43 + 10 \log(P)$  dB on all frequencies between 2300 and 2305MHz,  $55 + 10 \log(P)$  dB on all frequencies between 2296 and 2300MHz,  $61 + 10 \log(P)$  dB on all frequencies between 2292 and 2296MHz,  $67 + 10 \log(P)$  dB on all frequencies between 2288 and 2292MHz, and  $70 + 10 \log(P)$  dB below 2288MHz.

- (3) By a factor of not less than  $43 + 10 \log (P)$  dB on all frequencies between 2360 and 2365MHz, and not less than  $70 + 10 \log (P)$  dB above 2365MHz.

FCC § 27.53(c), RSS-139 6.6

For operations in the 746–758 MHz band and the 776–788 MHz band, the power of any emission outside the licensee’s frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

- (1) On any frequency outside the 746–758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least  $43 + 10 \log (P)$  dB;
- (2) On any frequency outside the 776–788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least  $43 + 10 \log (P)$  dB;
- (3) On all frequencies between 763–775 MHz and 793–805 MHz, by a factor not less than  $76 + 10 \log (P)$  dB in a 6.25Hz band segment, for base and fixed stations;
- (4) On all frequencies between 763–775 MHz and 793–805 MHz, by a factor not less than  $65 + 10 \log (P)$  dB in a 6.25kHz band segment, for mobile and portable stations;
- (5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater.

However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed;

- (6) Compliance with the provisions of paragraphs (c)(3) and (c)(4) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

FCC § 27.53(g), RSS-139 6.6

For operations in the 600MHz band and the 698-746MHz band, the power of any emission outside a licensee’s frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least  $43+10*\log(P)$  dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz bands immediately outside and adjacent to a licensee’s frequency block, a resolution bandwidth of at least 30 kHz may be employed.

FCC § 27.53(h) (1), RSS-139 6.6

Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands,

the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power

(P) in watts by at least  $43 + 10 \log_{10}(P)$  dB.

FCC § 27.53(m) (4), RSS-139 6.6

For mobile digital stations (BRS and EBS stations), the attenuation factor shall be not less than:

- $40 + 10 \log P$  dB ( $-10$  dBm, 100 nW) on all frequencies between the channel edge and 5 MHz from the channel edge.
- $43 + 10 \log P$  dB ( $-13$  dBm, 50 nW) on all frequencies between 5 MHz and X MHz from the channel edge,
- $55 + 10 \log P$  dB ( $-25$  dBm, 3 nW) on all frequencies more than X MHz from the channel edge, where X is the greater of 6 MHz or the actual emission bandwidth (26 dB).

In addition, the attenuation factor shall not be less than  $43 + 10 \log(P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz and  $55 + 10 \log(P)$  dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

FCC § 90.691

(a) Out-of-band emission requirement shall apply only to the "outer" channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

- (1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $116 \log_{10}(f/6.1)$  decibels or  $50 + 10 \log_{10}(P)$  decibels or 80 decibels, whichever is the

lesser attenuation, where  $f$  is the frequency removed from the center of the outer channel in the block in kilohertz and where  $f$  is greater than 12.5 kHz.

- (2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power ( $P$ ) in watts by at least  $43 + 10\log_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where  $f$  is the frequency removed from the center of the outer channel in the block in kilohertz and where  $f$  is greater than 37.5 kHz.
- (b) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section.

#### FCC § 90.543

(e) For operations in the 758–768 MHz and the 788–798 MHz bands, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power ( $P$ ) within the licensed band(s) of operation, measured in watts, in accordance with the following:

- (1) On all frequencies between 769–775 MHz and 799–805 MHz, by a factor not less than  $76 + 10 \log(P)$  dB in a 6.25 kHz band segment, for base and fixed stations.
- (2) On all frequencies between 769–775 MHz and 799–805 MHz, by a factor not less than  $65 + 10 \log(P)$  dB in a 6.25 kHz band segment, for mobile and portable stations.
- (3) On any frequency between 775–788 MHz, above 805 MHz, and below 758 MHz, by at least  $43 + 10 \log(P)$  dB.
- (4) Compliance with the provisions of paragraphs (e)(1) and (2) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

#### RSS199 4.5

- (a) for base station and fixed subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power,  $P$  (dBW), by at least  $43 + 10 \log_{10} p$ .
- (b) for mobile subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power,  $P$  (dBW), by at least:
- (i)  $40 + 10 \log_{10} p$  from the channel edges to 5 MHz away

- (ii)  $43 + 10 \log_{10} p$  between 5 MHz and X MHz from the channel edges, and
- (iii)  $55 + 10 \log_{10} p$  at X MHz and beyond from the channel edges

In addition, the attenuation shall not be less than  $43 + 10 \log_{10} p$  on all frequencies between 2490.5 MHz and 2496 MHz, and  $55 + 10 \log_{10} p$  at or below 2490.5 MHz.

In (a) and (b),  $p$  is the transmitter power measured in watts and  $X$  is 6 MHz or the equipment occupied bandwidth, whichever is greater.

### 7.6.2 Test Setup

The section 4.5 test setup 5 description is used for conducted test, and the test setup description is used for radiated test. The photo of test setup please refer to ANNEX B.

### 7.6.3 Test Procedure

The EUT, which is powered by the Battery, is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50 Ohm; the path loss as the factor is calibrated to correct the reading.

1. The EUT is coupled to the system simulator and spectrum analyzer; the RF load attached to EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading.
2. CMW500 is used to establish communication with the EUT, and its parameters are set to force the EUT transmitting at maximum output power.
3. The RF output of the transmitter is connected to the input of the spectrum analyzer through sufficient attenuation.
4. The center of the spectrum analyzer was set to block edge frequency.
5. Band edge are tested with 1%\*cBW (RBW), and sweep point number referred to following formula.  
Sweep point number =  $2 * \text{Span} / \text{RBW}$  VBW=3RBW
6. Record the frequencies and levels of spurious emissions.

For mobile and portable stations, on all frequencies between 763–775 MHz and 793–805 MHz, by a factor not less than  $65 + 10 \log (P)$  dB in a 6.25 kHz band segment. Since it was not possible to set the resolution bandwidth to 6.25 kHz with the available equipment, a bandwidth of 10 kHz was used instead to show compliance. By using a 10 kHz bandwidth on the spectrum analyzer.

$$10 \cdot \log(10 \text{ kHz} / 6.25 \text{ kHz}) = 2.04 \text{ dB}$$

$$\text{Limit Line} = -35 \text{ dBm} + 2.04 \text{ dB} = -32.96 \text{ dBm}$$

#### 7.6.4 Test Result

Please refer to ANNEX A.6

## 7.7 Field Strength of Spurious Radiation

### 7.7.1 Limit

FCC § 2.1053 & 22.917(a) & 24.238(a) & 27.53(a) & 27.53(c) & 27.53(f) & 27.53(g) & 27.53(h) & 27.53(m) & 90.691 & 90.543 ; RSS-130 4.7, RSS-132 5.5, RSS-133 6.5, RSS-139 6.6, RSS199 4.5

FCC § 22.917(a) & 24.238(a)

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. This is calculated to be -13 dBm.

FCC § 27.53(a) (4), RSS-139 6.6

For mobile and portable stations operating in the 2305-2315MHz and 2350-2360MHz bands:

(1) By a factor of not less than:  $43 + 10 \log(P)$  dB on all frequencies between 2305 and 2320MHz and on all frequencies between 2345 and 2360MHz that are outside the licensed band(s) of operation, not less than  $55 +$

$10 \log(P)$  dB on all frequencies between 2320 and 2324MHz and on all frequencies between 2341 and 2345MHz, not less than  $61 + 10 \log(P)$  dB on all frequencies between 2324 and 2328MHz and on all frequencies between 2337 and 2341MHz, and not less than  $67 + 10 \log(P)$  dB on all frequencies between 2328 and 2337MHz.

(2) By a factor of not less than  $43 + 10 \log(P)$  dB on all frequencies between 2300 and 2305MHz,  $55 + 10 \log(P)$  dB on all frequencies between 2296 and 2300MHz,  $61 + 10 \log(P)$  dB on all frequencies between 2292 and 2296MHz,  $67 + 10 \log(P)$  dB on all frequencies between 2288 and 2292MHz, and  $70 + 10 \log(P)$  dB below 2288MHz.

(3) By a factor of not less than  $43 + 10 \log(P)$  dB on all frequencies between 2360 and 2365MHz, and not less than  $70 + 10 \log(P)$  dB above 2365MHz.

FCC § 27.53(c), RSS-139 6.6

For operations in the 746–758 MHz band and the 776–788 MHz band, the power of any emission outside the licensee’s frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

- (1) On any frequency outside the 746–758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least  $43 + 10 \log (P)$  dB;
- (2) On any frequency outside the 776–788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least  $43 + 10 \log (P)$  dB;
- (3) On all frequencies between 763–775 MHz and 793–805 MHz, by a factor not less than  $76 + 10 \log (P)$  dB in a 6.25 kHz band segment, for base and fixed stations;
- (4) On all frequencies between 763–775 MHz and 793–805 MHz, by a factor not less than  $65 + 10 \log (P)$  dB in a 6.25 kHz band segment, for mobile and portable stations;
- (5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater.

However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed;

- (6) Compliance with the provisions of paragraphs (c)(3) and (c)(4) of this section is based on the use of

measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

FCC § 27.53(f), RSS-139 6.6

For operations in the 746–758 MHz, 775–788 MHz, and 805–806 MHz bands, emissions in the band 1559–1610 MHz shall be limited to - 70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and

-80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

FCC § 27.53(g), RSS-139 6.6



For operations in the 600MHz band and the 698-746MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least  $43+10\log(P)$  dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

FCC § 27.53(h) (1), RSS-139 6.6

Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands,

the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power

(P) in watts by at least  $43 + 10 \log_{10}(P)$  dB. FCC § 27.53(m) (4)

For mobile digital stations (BRS and EBS stations), the attenuation factor shall be not less than:

- $40+10\log P$  dB (-10 dBm, 100 nW) on all frequencies between the channel edge and 5 MHz from the channel edge.
- $43+10\log P$  dB (-13 dBm, 50 nW) on all frequencies between 5 MHz and X MHz from the channel edge,
- $55+10\log P$  dB (-25 dBm, 3 nW) on all frequencies more than X MHz from the channel edge, where X is the greater of 6 MHz or the actual emission bandwidth (26 dB).

In addition, the attenuation factor shall not be less than  $43 + 10 \log(P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz and  $55 + 10 \log(P)$  dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

FCC § 90.691

(a) Out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $116 \text{ Log}_{10}(f/6.1)$  decibels or  $50 + 10 \text{ Log}_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \text{ Log}_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

(b) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section.

#### FCC § 90.543

(e) For operations in the 758–768 MHz and the 788–798 MHz bands, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(1) On all frequencies between 769–775 MHz and 799–805 MHz, by a factor not less than  $76 + 10 \text{ log}(P)$  dB in a 6.25 kHz band segment, for base and fixed stations.

(2) On all frequencies between 769–775 MHz and 799–805 MHz, by a factor not less than  $65 + 10 \text{ log}(P)$  dB in a 6.25 kHz band segment, for mobile and portable stations.

(3) On any frequency between 775–788 MHz, above 805 MHz, and below 758 MHz, by at least  $43 + 10 \text{ log}(P)$  dB.

(4) Compliance with the provisions of paragraphs (e)(1) and (2) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

#### RSS199 4.5

- (a) for base station and fixed subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least  $43 + 10 \log_{10} p$ .
- (b) for mobile subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least:
- (i)  $40 + 10 \log_{10} p$  from the channel edges to 5 MHz away
  - (ii)  $43 + 10 \log_{10} p$  between 5 MHz and X MHz from the channel edges, and
  - (iii)  $55 + 10 \log_{10} p$  at X MHz and beyond from the channel edges

In addition, the attenuation shall not be less than  $43 + 10 \log_{10} p$  on all frequencies between 2490.5 MHz and 2496 MHz, and  $55 + 10 \log_{10} p$  at or below 2490.5 MHz.

In (a) and (b), p is the transmitter power measured in watts and X is 6 MHz or the equipment occupied bandwidth, whichever is greater.

### 7.7.2 Test Setup

The section 4.5 test setup 4 description is used for conducted test, and the test setup description is used for radiated test. The photo of test setup please refer to ANNEX B.

### 7.7.3 Test Procedure

1. On a test site, the EUT shall be placed at 80cm height on a turn table, and in the position close to normal use as declared by the applicant.
2. The test antenna shall be oriented initially for vertical polarization located 3 m from EUT to correspond to the fundamental frequency of the transmitter.
3. The output of the test antenna shall be connected to the measuring receiver and the peak detector is used for the measurement.
4. During the measurement of the EUT, the resolution bandwidth was to 1 MHz and the average bandwidth was set to 1 MHz.
5. The transmitter shall be switched on; the measuring receiver shall be tuned to the frequency of the transmitter under test.
6. The test antenna shall be raised and lowered through the specified range of height until the maximum signal level is detected by the measuring receiver.

7. The transmitter shall be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
8. The test antenna shall be raised and lowered again through the specified range of height until the maximum signal level is detected by the measuring receiver.
9. The maximum signal level detected by the measuring receiver shall be noted.
  
10. The EUT was replaced by half-wave dipole (824 ~ 849 MHz) or horn antenna (1 850 ~ 1 910 MHz) connected to a signal generator.
11. In necessary, the input attenuator setting on the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
12. The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
13. The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, which is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuator setting of the measuring receiver.
14. The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.
15. The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarization.

Final measurement calculation as below:

The relevant equation for determining the ERP/EIRP from the radiated RF output power is:

$$\text{ERP/EIRP (dBm)} = \text{SA Read Value (dBm)} + \text{Correction Factor (dB)}$$

where:

ERP/EIRP = effective or equivalent radiated power, in dBm;

SA Read Value = measured transmitter power received by EMI receiver or spectrum analyzer, in dBm; Correction Factor = total correction factor including cable loss, in dB;

During the test, the data of Correction Factor (dB) is added in the EMI receiver or spectrum analyzer, so SA Read Value (dBm) is the final values which contains the data of Correction Factor (dB).

For example:

In the ERP test, when SA read value for GSM850 is 21dBm, and correction factor is 8dB, then final ERP value for GSM850 is:

$$\text{ERP (dBm)} = 21\text{dBm} + 8\text{dB} = 29\text{dBm}$$

#### 7.7.4 Test Result

Please refer to ANNEX A.7

## **ANNEX A Test Results**

### **A.1 Transmitter Radiated Power (ERP/EIRP)**

Refer to appendix report.

### **A.2 Peak to Average Ratio**

Refer to appendix report.

### **A.3 Occupied Bandwidth**

Refer to appendix report.

### **A.4 Frequency Stability**

Refer to appendix report.

### **A.5 Spurious Emission at Antenna Terminals**

Refer to appendix report.

### **A.6 Band Edge Emission**

Refer to appendix report.

## A.7 Field Strength of Spurious Radiation

### 2G Part

Note:only show the worst case for GSM 850/1900,and spurious emissions within 30-1000MHz were found more than 20dB below limit line.,so they are not show in the report.

Channel:		GSM850 CH-L			Polarization:		Horizontal		
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F	
1	2923.864	-26.04	-30.07	-56.11	-13.00	-43.11	peak	P	
2	3898.134	-23.38	-30.43	-53.81	-13.00	-40.81	peak	P	
3	5147.709	-21.62	-28.18	-49.80	-13.00	-36.80	peak	P	
4	6866.962	-18.67	-25.76	-44.43	-13.00	-31.43	peak	P	
5	9178.971	-13.75	-25.05	-38.80	-13.00	-25.80	peak	P	
6 *	11407.501	-12.68	-24.60	-37.28	-13.00	-24.28	peak	P	

Channel:		GSM850 CH-L			Polarization:		Vertical		
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F	
1	2311.551	-26.85	-31.25	-58.10	-13.00	-45.10	peak	P	
2	3180.428	-22.84	-29.89	-52.73	-13.00	-39.73	peak	P	
3	4034.544	-19.75	-30.54	-50.29	-13.00	-37.29	peak	P	
4	4922.177	-16.93	-28.69	-45.62	-13.00	-32.62	peak	P	
5	6698.373	-14.10	-25.91	-40.01	-13.00	-27.01	peak	P	
6 *	9599.547	-12.83	-24.51	-37.34	-13.00	-24.34	peak	P	

Channel:		GSM850 CH-M			Polarization:		Horizontal		
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F	
1	1320.176	-31.37	-31.19	-62.56	-13.00	-49.56	peak	P	
2	2516.567	-25.29	-31.03	-56.32	-13.00	-43.32	peak	P	
3	3976.657	-21.77	-30.53	-52.30	-13.00	-39.30	peak	P	
4	5185.041	-16.23	-28.12	-44.35	-13.00	-31.35	peak	P	
5	6698.373	-15.10	-25.91	-41.01	-13.00	-28.01	peak	P	
6 *	9535.942	-13.07	-24.49	-37.56	-13.00	-24.56	peak	P	

Channel:		GSM850 CH-M			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1512.271	-26.19	-32.19	-58.38	-13.00	-45.38	peak	P
2	2764.425	-21.50	-30.45	-51.95	-13.00	-38.95	peak	P
3	4717.422	-18.60	-29.42	-48.02	-13.00	-35.02	peak	P
4	7292.464	-12.97	-26.02	-38.99	-13.00	-25.99	peak	P
5	9176.319	-11.73	-25.05	-36.78	-13.00	-23.78	peak	P
6 *	11056.905	-8.46	-24.43	-32.89	-13.00	-19.89	peak	P

Channel:		GSM850 CH-H			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1461.140	-28.25	-31.99	-60.24	-13.00	-47.24	peak	P
2	2458.334	-23.69	-31.11	-54.80	-13.00	-41.80	peak	P
3	3472.529	-19.87	-29.90	-49.77	-13.00	-36.77	peak	P
4	4922.177	-15.93	-28.69	-44.62	-13.00	-31.62	peak	P
5	7250.430	-12.91	-25.97	-38.88	-13.00	-25.88	peak	P
6 *	11926.738	-11.46	-23.28	-34.74	-13.00	-21.74	peak	P

Channel:		GSM850 CH-H			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1461.140	-29.75	-31.99	-61.74	-13.00	-48.74	peak	P
2	2574.691	-25.02	-30.90	-55.92	-13.00	-42.92	peak	P
3	3539.408	-22.26	-29.95	-52.21	-13.00	-39.21	peak	P
4	4883.914	-18.21	-28.84	-47.05	-13.00	-34.05	peak	P
5	6364.305	-15.83	-26.25	-42.08	-13.00	-29.08	peak	P
6 *	8252.774	-13.69	-25.96	-39.65	-13.00	-26.65	peak	P

Channel:		GSM1900 CH-L			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1626.061	-29.77	-32.04	-61.81	-13.00	-48.81	peak	P
2	2657.866	-24.21	-30.70	-54.91	-13.00	-41.91	peak	P
3	3777.238	-20.61	-30.27	-50.88	-13.00	-37.88	peak	P
4	4922.177	-18.43	-28.69	-47.12	-13.00	-34.12	peak	P
5	6727.477	-17.52	-25.88	-43.40	-13.00	-30.40	peak	P
6 *	9981.525	-14.08	-24.59	-38.67	-13.00	-25.67	peak	P



Channel:		GSM1900 CH-L			Polarization:			Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F	
1	1474.291	-30.36	-32.07	-62.43	-13.00	-49.43	peak	P	
2	2038.446	-30.41	-31.50	-61.91	-13.00	-48.91	peak	P	
3	2689.551	-25.01	-30.62	-55.63	-13.00	-42.63	peak	P	
4	3472.529	-19.37	-29.90	-49.27	-13.00	-36.27	peak	P	
5	4922.177	-14.43	-28.69	-43.12	-13.00	-30.12	peak	P	
6 *	8252.774	-10.69	-25.96	-36.65	-13.00	-23.65	peak	P	

Channel:		GSM1900 CH-M			Polarization:			Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F	
1	2574.691	-19.52	-30.90	-50.42	-13.00	-37.42	peak	P	
2	3448.523	-19.32	-29.90	-49.22	-13.00	-36.22	peak	P	
3	4583.023	-18.05	-29.90	-47.95	-13.00	-34.95	peak	P	
4	5541.450	-15.24	-27.54	-42.78	-13.00	-29.78	peak	P	
5	7250.430	-13.41	-25.97	-39.38	-13.00	-26.38	peak	P	
6 *	9535.942	-13.57	-24.49	-38.06	-13.00	-25.06	peak	P	

Channel:		GSM1900 CH-M			Polarization:			Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F	
1	2017.345	-28.79	-31.52	-60.31	-13.00	-47.31	peak	P	
2	2734.229	-23.87	-30.52	-54.39	-13.00	-41.39	peak	P	
3	3777.238	-17.61	-30.27	-47.88	-13.00	-34.88	peak	P	
4	5185.041	-13.23	-28.12	-41.35	-13.00	-28.35	peak	P	
5	7250.430	-13.41	-25.97	-39.38	-13.00	-26.38	peak	P	
6 *	11988.951	-10.68	-23.07	-33.75	-13.00	-20.75	peak	P	

Channel:		GSM1900 CH-H			Polarization:			Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F	
1	1714.880	-30.66	-31.92	-62.58	-13.00	-49.58	peak	P	
2	2443.457	-26.30	-31.12	-57.42	-13.00	-44.42	peak	P	
3	3657.975	-20.40	-30.10	-50.50	-13.00	-37.50	peak	P	
4	5490.432	-16.79	-27.63	-44.42	-13.00	-31.42	peak	P	
5	7292.464	-14.97	-26.02	-40.99	-13.00	-27.99	peak	P	
6 *	10144.402	-13.08	-24.84	-37.92	-13.00	-24.92	peak	P	

Channel:		GSM1900 CH-H			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1521.038	-27.48	-32.18	-59.66	-13.00	-46.66	peak	P
2	2022.015	-27.89	-31.52	-59.41	-13.00	-46.41	peak	P
3	2994.856	-24.38	-29.91	-54.29	-13.00	-41.29	peak	P
4	4678.046	-19.27	-29.56	-48.83	-13.00	-35.83	peak	P
5	6617.549	-16.50	-25.98	-42.48	-13.00	-29.48	peak	P
6 *	10423.798	-7.57	-25.31	-32.88	-13.00	-19.88	peak	P

## 3G Part

Note:only show the worst case for WCDMA Band 2/4/5, and spurious emissions within 30-1000MHz were found more than 20dB below limit line.,so they are not show in the report.

Channel:		WCDMA Band 2 CH-L			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1597.181	-29.60	-32.08	-61.68	-13.00	-48.68	peak	P
2	2623.520	-23.65	-30.78	-54.43	-13.00	-41.43	peak	P
3	3373.597	-22.88	-29.90	-52.78	-13.00	-39.78	peak	P
4	4823.590	-19.37	-29.05	-48.42	-13.00	-35.42	peak	P
5	6045.151	-19.05	-26.63	-45.68	-13.00	-32.68	peak	P
6 *	8640.897	-16.15	-25.66	-41.81	-13.00	-28.81	peak	P

Channel:		WCDMA Band 2 CH-L			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1395.510	-35.57	-31.62	-67.19	-13.00	-54.19	peak	P
2	2196.902	-30.58	-31.35	-61.93	-13.00	-48.93	peak	P
3	3203.493	-26.09	-29.89	-55.98	-13.00	-42.98	peak	P
4	4022.900	-22.93	-30.54	-53.47	-13.00	-40.47	peak	P
5	5567.136	-21.78	-27.50	-49.28	-13.00	-36.28	peak	P
6 *	9194.903	-15.36	-25.02	-40.38	-13.00	-27.38	peak	P

Channel:		WCDMA Band 2 CH-M			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1211.925	-32.49	-30.58	-63.07	-13.00	-50.07	peak	P
2	1872.380	-29.17	-31.71	-60.88	-13.00	-47.88	peak	P
3	2556.154	-28.01	-30.93	-58.94	-13.00	-45.94	peak	P
4	3435.590	-25.64	-29.90	-55.54	-13.00	-42.54	peak	P
5	4733.813	-23.86	-29.37	-53.23	-13.00	-40.23	peak	P
6 *	6329.450	-20.30	-26.28	-46.58	-13.00	-33.58	peak	P

Channel:		WCDMA Band 2 CH-M			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1532.069	-31.17	-32.17	-63.34	-13.00	-50.34	peak	P
2	2520.206	-27.35	-31.02	-58.37	-13.00	-45.37	peak	P
3	3532.254	-23.30	-29.94	-53.24	-13.00	-40.24	peak	P
4	4610.925	-21.01	-29.80	-50.81	-13.00	-37.81	peak	P
5	6329.450	-17.80	-26.28	-44.08	-13.00	-31.08	peak	P
6 *	8226.577	-15.13	-25.98	-41.11	-13.00	-28.11	peak	P

Channel:		WCDMA Band 2 CH-H			Polarization:			Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F	
1	1223.893	-32.69	-30.64	-63.33	-13.00	-50.33	peak	P	
2	1982.661	-30.00	-31.56	-61.56	-13.00	-48.56	peak	P	
3	2841.384	-26.68	-30.27	-56.95	-13.00	-43.95	peak	P	
4	3743.544	-26.30	-30.23	-56.53	-13.00	-43.53	peak	P	
5	5300.200	-24.52	-27.94	-52.46	-13.00	-39.46	peak	P	
6 *	7411.461	-23.86	-26.18	-50.04	-13.00	-37.04	peak	P	

Channel:		WCDMA Band 2 CH-H			Polarization:			Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F	
1	1513.582	-33.25	-32.19	-65.44	-13.00	-52.44	peak	P	
2	3258.591	-25.49	-29.90	-55.39	-13.00	-42.39	peak	P	
3	4939.279	-21.56	-28.63	-50.19	-13.00	-37.19	peak	P	
4	5805.416	-19.96	-27.05	-47.01	-13.00	-34.01	peak	P	
5 *	9194.903	-15.86	-25.02	-40.88	-13.00	-27.88	peak	P	
6	10936.127	-16.55	-24.53	-41.08	-13.00	-28.08	peak	P	

Channel:		WCDMA Band 4 CH-L			Polarization:			Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F	
1	1244.224	-30.16	-30.75	-60.91	-13.00	-47.91	peak	P	
2	1915.626	-29.24	-31.65	-60.89	-13.00	-47.89	peak	P	
3	2744.522	-24.71	-30.50	-55.21	-13.00	-42.21	peak	P	
4	3642.150	-24.06	-30.09	-54.15	-13.00	-41.15	peak	P	
5	4939.279	-18.56	-28.63	-47.19	-13.00	-34.19	peak	P	
6 *	7244.146	-13.14	-25.96	-39.10	-13.00	-26.10	peak	P	

Channel:		WCDMA Band 4 CH-L			Polarization:			Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F	
1	1372.707	-35.63	-31.49	-67.12	-13.00	-54.12	peak	P	
2	2379.338	-30.29	-31.19	-61.48	-13.00	-48.48	peak	P	
3	3210.909	-26.63	-29.90	-56.53	-13.00	-43.53	peak	P	
4	4007.812	-25.01	-30.55	-55.56	-13.00	-42.56	peak	P	
5	6074.927	-20.36	-26.59	-46.95	-13.00	-33.95	peak	P	
6 *	7996.824	-19.05	-26.13	-45.18	-13.00	-32.18	peak	P	

Channel:		WCDMA Band 4 CH-M			Polarization:		Horizontal		
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F	
1	1249.630	-32.08	-30.79	-62.87	-13.00	-49.87	peak	P	
2	1872.380	-29.67	-31.71	-61.38	-13.00	-48.38	peak	P	
3	2802.235	-24.55	-30.36	-54.91	-13.00	-41.91	peak	P	
4	3836.655	-24.24	-30.34	-54.58	-13.00	-41.58	peak	P	
5	6045.151	-21.05	-26.63	-47.68	-13.00	-34.68	peak	P	
6 *	10487.261	-15.86	-25.42	-41.28	-13.00	-28.28	peak	P	

Channel:		WCDMA Band 4 CH-M			Polarization:		Vertical		
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F	
1	1417.462	-34.17	-31.74	-65.91	-13.00	-52.91	peak	P	
2	2453.365	-30.01	-31.12	-61.13	-13.00	-48.13	peak	P	
3	3743.544	-23.30	-30.23	-53.53	-13.00	-40.53	peak	P	
4	4896.635	-22.32	-28.79	-51.11	-13.00	-38.11	peak	P	
5	7872.978	-17.60	-26.17	-43.77	-13.00	-30.77	peak	P	
6 *	10782.332	-14.04	-24.85	-38.89	-13.00	-25.89	peak	P	

Channel:		WCDMA Band 4 CH-H			Polarization:		Horizontal		
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F	
1	1260.513	-31.97	-30.85	-62.82	-13.00	-49.82	peak	P	
2	2238.566	-27.97	-31.31	-59.28	-13.00	-46.28	peak	P	
3	3385.318	-25.91	-29.89	-55.80	-13.00	-42.80	peak	P	
4	4610.925	-23.01	-29.80	-52.81	-13.00	-39.81	peak	P	
5	6760.614	-22.71	-25.85	-48.56	-13.00	-35.56	peak	P	
6 *	10244.585	-17.79	-25.01	-42.80	-13.00	-29.80	peak	P	

Channel:		WCDMA Band 4 CH-H			Polarization:		Vertical		
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F	
1	1341.330	-34.61	-31.30	-65.91	-13.00	-52.91	peak	P	
2	2189.928	-33.49	-31.36	-64.85	-13.00	-51.85	peak	P	
3	3500.746	-26.19	-29.90	-56.09	-13.00	-43.09	peak	P	
4	5720.466	-22.88	-27.21	-50.09	-13.00	-37.09	peak	P	
5	9005.529	-17.24	-25.35	-42.59	-13.00	-29.59	peak	P	
6 *	11677.724	-15.45	-24.07	-39.52	-13.00	-26.52	peak	P	

Channel:		WCDMA Band 5 CH-L			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1160.168	-32.98	-30.27	-63.25	-13.00	-50.25	peak	P
2	2076.505	-31.87	-31.47	-63.34	-13.00	-50.34	peak	P
3	3536.340	-22.98	-29.95	-52.93	-13.00	-39.93	peak	P
4	5872.924	-18.62	-26.92	-45.54	-13.00	-32.54	peak	P
5	7872.978	-17.60	-26.17	-43.77	-13.00	-30.77	peak	P
6 *	10676.890	-14.49	-25.08	-39.57	-13.00	-26.57	peak	P

Channel:		WCDMA Band 5 CH-L			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1417.462	-36.17	-31.74	-67.91	-13.00	-54.91	peak	P
2	2538.483	-31.13	-30.98	-62.11	-13.00	-49.11	peak	P
3	3352.213	-25.87	-29.90	-55.77	-13.00	-42.77	peak	P
4	5177.553	-19.93	-28.13	-48.06	-13.00	-35.06	peak	P
5	6543.372	-21.65	-26.04	-47.69	-13.00	-34.69	peak	P
6 *	10315.897	-16.59	-25.13	-41.72	-13.00	-28.72	peak	P

Channel:		WCDMA Band 5 CH-M			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1325.528	-31.86	-31.22	-63.08	-13.00	-50.08	peak	P
2	1957.606	-30.89	-31.60	-62.49	-13.00	-49.49	peak	P
3	2762.029	-29.07	-30.45	-59.52	-13.00	-46.52	peak	P
4	3532.254	-24.30	-29.94	-54.24	-13.00	-41.24	peak	P
5	5786.987	-21.47	-27.08	-48.55	-13.00	-35.55	peak	P
6 *	9903.933	-17.56	-24.58	-42.14	-13.00	-29.14	peak	P

Channel:		WCDMA Band 5 CH-M			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1503.988	-33.96	-32.21	-66.17	-13.00	-53.17	peak	P
2	2238.566	-29.97	-31.31	-61.28	-13.00	-48.28	peak	P
3	3258.591	-21.99	-29.90	-51.89	-13.00	-38.89	peak	P
4	5237.760	-18.62	-28.04	-46.66	-13.00	-33.66	peak	P
5	7909.472	-16.42	-26.16	-42.58	-13.00	-29.58	peak	P
6 *	12269.401	-15.22	-22.91	-38.13	-13.00	-25.13	peak	P



Channel:		WCDMA Band 5 CH-H			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1351.058	-32.96	-31.37	-64.33	-13.00	-51.33	peak	P
2	2001.663	-31.91	-31.54	-63.45	-13.00	-50.45	peak	P
3	2924.709	-28.35	-30.07	-58.42	-13.00	-45.42	peak	P
4	4754.381	-24.09	-29.29	-53.38	-13.00	-40.38	peak	P
5	7009.339	-23.51	-25.66	-49.17	-13.00	-36.17	peak	P
6 *	10360.720	-18.76	-25.21	-43.97	-13.00	-30.97	peak	P

Channel:		WCDMA Band 5 CH-H			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1270.389	-35.65	-30.91	-66.56	-13.00	-53.56	peak	P
2	2093.983	-33.82	-31.45	-65.27	-13.00	-52.27	peak	P
3	3414.800	-25.85	-29.90	-55.75	-13.00	-42.75	peak	P
4	5206.065	-21.67	-28.09	-49.76	-13.00	-36.76	peak	P
5	7996.824	-21.05	-26.13	-47.18	-13.00	-34.18	peak	P
6 *	11407.501	-15.91	-24.60	-40.51	-13.00	-27.51	peak	P

## 4G Part

Note:only show the worst case for QPSK modulation of all bands, and spurious emissions within 30-1000MHz were found more than 20dB below limit line.,so they are not show in the report.

Channel:		LTE Band 2 CH-L(20MHz)			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1453.978	-39.45	-31.76	-71.21	-13.00	-58.21	peak	P
2	2021.431	-36.92	-31.28	-68.20	-13.00	-55.20	peak	P
3	3051.653	-33.07	-29.85	-62.92	-13.00	-49.92	peak	P
4	4133.699	-33.37	-29.48	-62.85	-13.00	-49.85	peak	P
5	5906.973	-30.22	-26.42	-56.64	-13.00	-43.64	peak	P
6 *	8840.472	-26.13	-26.37	-52.50	-13.00	-39.50	peak	P

Channel:		LTE Band 2 CH-L(20MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1227.791	-36.30	-30.49	-66.79	-13.00	-53.79	peak	P
2	2123.237	-35.48	-31.16	-66.64	-13.00	-53.64	peak	P
3	3435.590	-30.09	-29.55	-59.64	-13.00	-46.64	peak	P
4	5262.039	-28.35	-27.85	-56.20	-13.00	-43.20	peak	P
5	7252.526	-27.01	-26.02	-53.03	-13.00	-40.03	peak	P
6 *	9909.660	-24.46	-26.27	-50.73	-13.00	-37.73	peak	P

Channel:		LTE Band 2 CH-M(20MHz)			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1218.951	-38.25	-30.44	-68.69	-13.00	-55.69	peak	P
2	2036.090	-33.62	-31.27	-64.89	-13.00	-51.89	peak	P
3	3655.861	-33.18	-29.51	-62.69	-13.00	-49.69	peak	P
4	4236.514	-33.50	-29.45	-62.95	-13.00	-49.95	peak	P
5	5408.529	-31.13	-27.74	-58.87	-13.00	-45.87	peak	P
6 *	8071.131	-25.05	-26.91	-51.96	-13.00	-38.96	peak	P

Channel:		LTE Band 2 CH-M(20MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1197.994	-37.63	-30.33	-67.96	-13.00	-54.96	peak	P
2	1896.893	-37.49	-31.45	-68.94	-13.00	-55.94	peak	P
3	3016.575	-33.03	-29.88	-62.91	-13.00	-49.91	peak	P
4	4074.389	-32.11	-29.49	-61.60	-13.00	-48.60	peak	P
5	5447.752	-28.13	-27.71	-55.84	-13.00	-42.84	peak	P
6 *	9245.538	-23.22	-25.67	-48.89	-13.00	-35.89	peak	P



Channel:		LTE Band 2 CH-H(20MHz)			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1594.874	-39.21	-31.88	-71.09	-13.00	-58.09	peak	P
2	2006.877	-35.92	-31.30	-67.22	-13.00	-54.22	peak	P
3	2843.027	-32.60	-30.15	-62.75	-13.00	-49.75	peak	P
4	3730.582	-31.39	-29.51	-60.90	-13.00	-47.90	peak	P
5	4874.043	-28.66	-28.37	-57.03	-13.00	-44.03	peak	P
6 *	7562.942	-26.34	-26.13	-52.47	-13.00	-39.47	peak	P

Channel:		LTE Band 2 CH-H(20MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1312.187	-37.87	-30.97	-68.84	-13.00	-55.84	peak	P
2	2298.892	-35.36	-30.94	-66.30	-13.00	-53.30	peak	P
3	3730.582	-31.39	-29.51	-60.90	-13.00	-47.90	peak	P
4	5640.019	-30.17	-27.25	-57.42	-13.00	-44.42	peak	P
5	7015.420	-28.50	-26.02	-54.52	-13.00	-41.52	peak	P
6 *	8713.630	-24.80	-26.57	-51.37	-13.00	-38.37	peak	P

Channel:		LTE Band 4 CH-L(20MHz)			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1187.651	-38.30	-30.27	-68.57	-13.00	-55.57	peak	P
2	1858.900	-38.72	-31.50	-70.22	-13.00	-57.22	peak	P
3	2867.787	-33.78	-30.11	-63.89	-13.00	-50.89	peak	P
4	3480.568	-31.94	-29.52	-61.46	-13.00	-48.46	peak	P
5	4714.696	-32.97	-28.80	-61.77	-13.00	-48.77	peak	P
6 *	8295.823	-26.95	-26.91	-53.86	-13.00	-40.86	peak	P

Channel:		LTE Band 4 CH-L(20MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1048.847	-34.78	-29.49	-64.27	-13.00	-51.27	peak	P
2	1697.129	-39.07	-31.73	-70.80	-13.00	-57.80	peak	P
3	2714.543	-35.66	-30.37	-66.03	-13.00	-53.03	peak	P
4	4109.872	-31.32	-29.49	-60.81	-13.00	-47.81	peak	P
5	5338.637	-29.75	-27.79	-57.54	-13.00	-44.54	peak	P
6 *	8036.214	-26.63	-26.91	-53.54	-13.00	-40.54	peak	P

Channel:		LTE Band 4 CH-M(20MHz)			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	2033.150	-36.73	-31.27	-68.00	-13.00	-55.00	peak	P
2	3521.042	-33.28	-29.50	-62.78	-13.00	-49.78	peak	P
3	4475.678	-32.40	-29.38	-61.78	-13.00	-48.78	peak	P
4	5179.049	-29.92	-27.90	-57.82	-13.00	-44.82	peak	P
5	6835.279	-29.08	-26.12	-55.20	-13.00	-42.20	peak	P
6 *	9516.668	-25.19	-25.24	-50.43	-13.00	-37.43	peak	P

Channel:		LTE Band 4 CH-M(20MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1204.939	-35.73	-30.36	-66.09	-13.00	-53.09	peak	P
2	1869.677	-37.21	-31.49	-68.70	-13.00	-55.70	peak	P
3	2778.042	-30.97	-30.25	-61.22	-13.00	-48.22	peak	P
4	3867.831	-29.55	-29.52	-59.07	-13.00	-46.07	peak	P
5	5771.953	-29.03	-26.83	-55.86	-13.00	-42.86	peak	P
6 *	8738.852	-25.03	-26.53	-51.56	-13.00	-38.56	peak	P

Channel:		LTE Band 4 CH-H			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1167.232	-35.67	-30.15	-65.82	-13.00	-52.82	peak	P
2	1885.959	-35.74	-31.47	-67.21	-13.00	-54.21	peak	P
3	2714.543	-34.66	-30.37	-65.03	-13.00	-52.03	peak	P
4	4056.762	-31.73	-29.50	-61.23	-13.00	-48.23	peak	P
5	6573.702	-28.63	-26.29	-54.92	-13.00	-41.92	peak	P
6 *	10469.089	-21.72	-26.94	-48.66	-13.00	-35.66	peak	P

Channel:		LTE Band 4 CH-H(20MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1227.791	-37.23	-30.49	-67.72	-13.00	-54.72	peak	P
2	1949.701	-37.01	-31.38	-68.39	-13.00	-55.39	peak	P
3	2981.900	-33.01	-29.92	-62.93	-13.00	-49.93	peak	P
4	4206.011	-33.67	-29.46	-63.13	-13.00	-50.13	peak	P
5	5487.260	-30.25	-27.68	-57.93	-13.00	-44.93	peak	P
6 *	8117.923	-26.40	-26.91	-53.31	-13.00	-40.31	peak	P

Channel:		LTE Band 5 CH-L(10MHz)			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1282.193	-38.63	-30.80	-69.43	-13.00	-56.43	peak	P
2	2074.705	-35.89	-31.21	-67.10	-13.00	-54.10	peak	P
3	3025.306	-34.60	-29.87	-64.47	-13.00	-51.47	peak	P
4	4115.815	-33.34	-29.48	-62.82	-13.00	-49.82	peak	P
5	5479.335	-31.10	-27.69	-58.79	-13.00	-45.79	peak	P
6 *	8283.843	-26.82	-26.91	-53.73	-13.00	-40.73	peak	P

Channel:		LTE Band 5 CH-L(10MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1751.955	-40.22	-31.66	-71.88	-13.00	-58.88	peak	P
2	2843.027	-34.69	-30.15	-64.84	-13.00	-51.84	peak	P
3	3682.374	-34.30	-29.51	-63.81	-13.00	-50.81	peak	P
4	5097.369	-31.34	-27.96	-59.30	-13.00	-46.30	peak	P
5	7508.489	-27.64	-26.04	-53.68	-13.00	-40.68	peak	P
6 *	9461.813	-24.96	-25.27	-50.23	-13.00	-37.23	peak	P

Channel:		LTE Band 5 CH-M(10MHz)			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1201.461	-37.03	-30.35	-67.38	-13.00	-54.38	peak	P
2	1930.076	-36.14	-31.40	-67.54	-13.00	-54.54	peak	P
3	3261.418	-33.08	-29.69	-62.77	-13.00	-49.77	peak	P
4	4033.379	-32.26	-29.51	-61.77	-13.00	-48.77	peak	P
5	5164.102	-30.15	-27.91	-58.06	-13.00	-45.06	peak	P
6 *	8200.463	-26.15	-26.91	-53.06	-13.00	-40.06	peak	P

Channel:		LTE Band 5 CH-M(10MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1265.624	-37.38	-30.70	-68.08	-13.00	-55.08	peak	P
2	1869.677	-37.32	-31.49	-68.81	-13.00	-55.81	peak	P
3	3223.928	-32.63	-29.72	-62.35	-13.00	-49.35	peak	P
4	4547.396	-31.66	-29.25	-60.91	-13.00	-47.91	peak	P
5	6150.901	-27.93	-26.19	-54.12	-13.00	-41.12	peak	P
6 *	9112.884	-21.83	-25.91	-47.74	-13.00	-34.74	peak	P

Channel:		LTE Band 5 CH-H(10MHz)			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1210.174	-37.41	-30.40	-67.81	-13.00	-54.81	peak	P
2	2033.150	-35.98	-31.27	-67.25	-13.00	-54.25	peak	P
3	2994.856	-33.80	-29.90	-63.70	-13.00	-50.70	peak	P
4	4386.033	-31.72	-29.41	-61.13	-13.00	-48.13	peak	P
5	5975.662	-29.15	-26.20	-55.35	-13.00	-42.35	peak	P
6 *	9967.111	-23.46	-26.41	-49.87	-13.00	-36.87	peak	P

Channel:		LTE Band 5 CH-H(10MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1317.888	-37.42	-30.99	-68.41	-13.00	-55.41	peak	P
2	1842.851	-37.07	-31.52	-68.59	-13.00	-55.59	peak	P
3	2994.856	-33.80	-29.90	-63.70	-13.00	-50.70	peak	P
4	3666.443	-32.55	-29.51	-62.06	-13.00	-49.06	peak	P
5	5439.885	-29.04	-27.72	-56.76	-13.00	-43.76	peak	P
6 *	8477.621	-25.45	-26.91	-52.36	-13.00	-39.36	peak	P

Channel:		LTE Band 7 CH-L(20MHz)			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1435.189	-40.38	-31.66	-72.04	-25.00	-47.04	peak	P
2	2047.895	-35.53	-31.25	-66.78	-25.00	-41.78	peak	P
3	2926.400	-32.23	-30.01	-62.24	-25.00	-37.24	peak	P
4	3964.034	-32.62	-29.52	-62.14	-25.00	-37.14	peak	P
5	5090.007	-30.68	-27.96	-58.64	-25.00	-33.64	peak	P
6 *	7739.857	-26.73	-26.45	-53.18	-25.00	-28.18	peak	P

Channel:		LTE Band 7 CH-L(20MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1245.663	-36.33	-30.59	-66.92	-25.00	-41.92	peak	P
2	1869.677	-35.43	-31.49	-66.92	-25.00	-41.92	peak	P
3	2999.187	-32.48	-29.89	-62.37	-25.00	-37.37	peak	P
4	4762.633	-30.24	-28.66	-58.90	-25.00	-33.90	peak	P
5	6303.889	-28.17	-26.25	-54.42	-25.00	-29.42	peak	P
6 *	9502.925	-22.65	-25.21	-47.86	-25.00	-22.86	peak	P

Channel:		LTE Band 7 CH-M(20MHz)			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1372.310	-39.38	-31.30	-70.68	-25.00	-45.68	peak	P
2	1978.082	-35.14	-31.33	-66.47	-25.00	-41.47	peak	P
3	3034.063	-34.22	-29.86	-64.08	-25.00	-39.08	peak	P
4	4045.053	-32.23	-29.51	-61.74	-25.00	-36.74	peak	P
5	5984.304	-29.25	-26.18	-55.43	-25.00	-30.43	peak	P
6 *	8477.621	-25.55	-26.91	-52.46	-25.00	-27.46	peak	P

Channel:		LTE Band 7 CH-M(20MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1203.199	-36.08	-30.35	-66.43	-25.00	-41.43	peak	P
2	2050.856	-34.38	-31.24	-65.62	-25.00	-40.62	peak	P
3	2859.510	-32.61	-30.12	-62.73	-25.00	-37.73	peak	P
4	3895.881	-32.70	-29.52	-62.22	-25.00	-37.22	peak	P
5	5416.351	-30.22	-27.74	-57.96	-25.00	-32.96	peak	P
6 *	8428.756	-26.44	-26.91	-53.35	-25.00	-28.35	peak	P

Channel:		LTE Band 7 CH-H(20MHz)			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1092.159	-34.19	-29.74	-63.93	-25.00	-38.93	peak	P
2	1636.907	-36.46	-31.82	-68.28	-25.00	-43.28	peak	P
3	2471.157	-33.74	-30.74	-64.48	-25.00	-39.48	peak	P
4	3779.422	-30.62	-29.52	-60.14	-25.00	-35.14	peak	P
5	5201.552	-29.28	-27.89	-57.17	-25.00	-32.17	peak	P
6 *	8943.274	-24.56	-26.20	-50.76	-25.00	-25.76	peak	P

Channel:		LTE Band 7 CH-H(20MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1196.264	-36.59	-30.32	-66.91	-25.00	-41.91	peak	P
2	1777.458	-38.85	-31.62	-70.47	-25.00	-45.47	peak	P
3	2843.027	-31.59	-30.15	-61.74	-25.00	-36.74	peak	P
4	4386.033	-31.52	-29.41	-60.93	-25.00	-35.93	peak	P
5	6554.729	-29.11	-26.30	-55.41	-25.00	-30.41	peak	P
6 *	9312.588	-25.22	-25.55	-50.77	-25.00	-25.77	peak	P



Channel:		LTE Band 12 CH-L(10MHz)			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1295.230	-38.94	-30.87	-69.81	-13.00	-56.81	peak	P
2	2050.856	-35.99	-31.24	-67.23	-13.00	-54.23	peak	P
3	2960.430	-33.12	-29.96	-63.08	-13.00	-50.08	peak	P
4	3907.158	-32.73	-29.51	-62.24	-13.00	-49.24	peak	P
5	5567.136	-29.88	-27.47	-57.35	-13.00	-44.35	peak	P
6 *	8380.172	-26.55	-26.91	-53.46	-13.00	-40.46	peak	P

Channel:		LTE Band 12 CH-L(10MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1261.971	-36.42	-30.69	-67.11	-13.00	-54.11	peak	P
2	1813.786	-37.13	-31.57	-68.70	-13.00	-55.70	peak	P
3	2478.310	-33.95	-30.74	-64.69	-13.00	-51.69	peak	P
4	3561.986	-30.79	-29.51	-60.30	-13.00	-47.30	peak	P
5	5864.443	-27.13	-26.55	-53.68	-13.00	-40.68	peak	P
6 *	11092.115	-20.35	-26.11	-46.46	-13.00	-33.46	peak	P

Channel:		LTE Band 12 CH-M(10MHz)			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1274.802	-39.16	-30.76	-69.92	-13.00	-56.92	peak	P
2	2015.596	-33.88	-31.28	-65.16	-13.00	-52.16	peak	P
3	2994.856	-33.98	-29.90	-63.88	-13.00	-50.88	peak	P
4	3946.885	-33.61	-29.52	-63.13	-13.00	-50.13	peak	P
5	5788.660	-29.38	-26.78	-56.16	-13.00	-43.16	peak	P
6 *	10378.703	-22.29	-26.86	-49.15	-13.00	-36.15	peak	P

Channel:		LTE Band 12 CH-M(10MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1197.994	-36.69	-30.33	-67.02	-13.00	-54.02	peak	P
2	1759.567	-36.61	-31.64	-68.25	-13.00	-55.25	peak	P
3	3323.271	-31.14	-29.65	-60.79	-13.00	-47.79	peak	P
4	5615.620	-29.79	-27.32	-57.11	-13.00	-44.11	peak	P
5	7117.542	-25.81	-26.02	-51.83	-13.00	-38.83	peak	P
6 *	10112.200	-22.80	-26.60	-49.40	-13.00	-36.40	peak	P

Channel:		LTE Band 12 CH-H(10MHz)			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1302.739	-37.47	-30.91	-68.38	-13.00	-55.38	peak	P
2	1819.036	-35.79	-31.56	-67.35	-13.00	-54.35	peak	P
3	3490.642	-32.18	-29.51	-61.69	-13.00	-48.69	peak	P
4	4687.520	-29.88	-28.87	-58.75	-13.00	-45.75	peak	P
5	6367.985	-26.14	-26.28	-52.42	-13.00	-39.42	peak	P
6 *	8307.821	-25.10	-26.91	-52.01	-13.00	-39.01	peak	P

Channel:		LTE Band 12 CH-H(10MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1410.514	-35.71	-31.52	-67.23	-13.00	-54.23	peak	P
2	2021.431	-32.60	-31.28	-63.88	-13.00	-50.88	peak	P
3	3946.885	-32.61	-29.52	-62.13	-13.00	-49.13	peak	P
4	5269.649	-29.47	-27.84	-57.31	-13.00	-44.31	peak	P
5	8094.493	-25.27	-26.91	-52.18	-13.00	-39.18	peak	P
6 *	10948.778	-23.58	-26.22	-49.80	-13.00	-36.80	peak	P

Channel:		LTE Band 17 CH-L(10MHz)			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1272.961	-38.17	-30.75	-68.92	-13.00	-55.92	peak	P
2	1805.940	-38.28	-31.58	-69.86	-13.00	-56.86	peak	P
3	3007.868	-31.33	-29.89	-61.22	-13.00	-48.22	peak	P
4	4348.166	-29.09	-29.42	-58.51	-13.00	-45.51	peak	P
5	5722.120	-28.44	-26.99	-55.43	-13.00	-42.43	peak	P
6 *	9218.854	-22.66	-25.72	-48.38	-13.00	-35.38	peak	P

Channel:		LTE Band 17 CH-L(10MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1227.791	-36.60	-30.49	-67.09	-13.00	-54.09	peak	P
2	1944.073	-34.76	-31.38	-66.14	-13.00	-53.14	peak	P
3	3132.079	-31.99	-29.78	-61.77	-13.00	-48.77	peak	P
4	4310.625	-29.83	-29.43	-59.26	-13.00	-46.26	peak	P
5	5830.640	-27.04	-26.65	-53.69	-13.00	-40.69	peak	P
6 *	9923.991	-22.65	-26.30	-48.95	-13.00	-35.95	peak	P

Channel:		LTE Band 17 CH-M(10MHz)			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1386.264	-38.86	-31.38	-70.24	-13.00	-57.24	peak	P
2	1764.660	-37.13	-31.64	-68.77	-13.00	-55.77	peak	P
3	3209.981	-32.91	-29.73	-62.64	-13.00	-49.64	peak	P
4	4626.946	-30.66	-29.03	-59.69	-13.00	-46.69	peak	P
5	6367.985	-27.35	-26.28	-53.63	-13.00	-40.63	peak	P
6 *	9558.018	-22.68	-25.35	-48.03	-13.00	-35.03	peak	P

Channel:		LTE Band 17 CH-M(10MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1961.004	-36.07	-31.36	-67.43	-13.00	-54.43	peak	P
2	2565.777	-36.18	-30.60	-66.78	-13.00	-53.78	peak	P
3	3361.916	-33.18	-29.61	-62.79	-13.00	-49.79	peak	P
4	4267.237	-32.47	-29.44	-61.91	-13.00	-48.91	peak	P
5	6080.197	-29.32	-26.16	-55.48	-13.00	-42.48	peak	P
6 *	8917.462	-25.24	-26.24	-51.48	-13.00	-38.48	peak	P

Channel:		LTE Band 17 CH-H(10MHz)			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1185.936	-37.79	-30.26	-68.05	-13.00	-55.05	peak	P
2	1941.266	-35.62	-31.39	-67.01	-13.00	-54.01	peak	P
3	2641.019	-35.52	-30.48	-66.00	-13.00	-53.00	peak	P
4	3801.333	-30.90	-29.51	-60.41	-13.00	-47.41	peak	P
5	5292.545	-29.67	-27.82	-57.49	-13.00	-44.49	peak	P
6 *	8638.400	-21.47	-26.69	-48.16	-13.00	-35.16	peak	P

Channel:		LTE Band 17 CH-H(10MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1140.551	-34.80	-30.01	-64.81	-13.00	-51.81	peak	P
2	1961.004	-33.57	-31.36	-64.93	-13.00	-51.93	peak	P
3	2956.155	-32.23	-29.96	-62.19	-13.00	-49.19	peak	P
4	3725.195	-30.64	-29.52	-60.16	-13.00	-47.16	peak	P
5	6564.209	-26.76	-26.29	-53.05	-13.00	-40.05	peak	P
6 *	10200.265	-22.31	-26.69	-49.00	-13.00	-36.00	peak	P



Channel:		LTE Band 25 CH-L			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1256.512	-37.41	-30.65	-68.06	-13.00	-55.06	peak	P
2	1932.868	-35.65	-31.40	-67.05	-13.00	-54.05	peak	P
3	2851.256	-33.97	-30.14	-64.11	-13.00	-51.11	peak	P
4	3556.842	-32.39	-29.50	-61.89	-13.00	-48.89	peak	P
5	5755.294	-29.37	-26.89	-56.26	-13.00	-43.26	peak	P
6 *	8956.208	-25.75	-26.18	-51.93	-13.00	-38.93	peak	P

Channel:		LTE Band 25 CH-L(20MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1199.726	-36.49	-30.34	-66.83	-13.00	-53.83	peak	P
2	2295.572	-35.74	-30.95	-66.69	-13.00	-53.69	peak	P
3	3200.716	-33.31	-29.74	-63.05	-13.00	-50.05	peak	P
4	4021.737	-31.55	-29.51	-61.06	-13.00	-48.06	peak	P
5	5755.294	-28.37	-26.89	-55.26	-13.00	-42.26	peak	P
6 *	9178.971	-24.11	-25.79	-49.90	-13.00	-36.90	peak	P

Channel:		LTE Band 25 CH-M(20MHz)			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1206.682	-37.09	-30.37	-67.46	-13.00	-54.46	peak	P
2	1864.280	-37.86	-31.50	-69.36	-13.00	-56.36	peak	P
3	3396.098	-32.62	-29.58	-62.20	-13.00	-49.20	peak	P
4	4966.479	-30.35	-28.11	-58.46	-13.00	-45.46	peak	P
5	7284.038	-26.57	-26.02	-52.59	-13.00	-39.59	peak	P
6 *	9809.916	-25.09	-26.01	-51.10	-13.00	-38.10	peak	P

Channel:		LTE Band 25 CH-M(20MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1272.961	-36.54	-30.75	-67.29	-13.00	-54.29	peak	P
2	2194.998	-35.47	-31.07	-66.54	-13.00	-53.54	peak	P
3	2892.762	-34.16	-30.07	-64.23	-13.00	-51.23	peak	P
4	4304.400	-31.85	-29.43	-61.28	-13.00	-48.28	peak	P
5	7200.309	-26.99	-26.02	-53.01	-13.00	-40.01	peak	P
6 *	10590.830	-23.81	-26.81	-50.62	-13.00	-37.62	peak	P

Channel:		LTE Band 25 CH-H(20MHz)			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1215.433	-36.14	-30.42	-66.56	-13.00	-53.56	peak	P
2	2001.084	-35.16	-31.30	-66.46	-13.00	-53.46	peak	P
3	3168.500	-32.60	-29.76	-62.36	-13.00	-49.36	peak	P
4	4109.872	-33.43	-29.49	-62.92	-13.00	-49.92	peak	P
5	6526.372	-29.12	-26.31	-55.43	-13.00	-42.43	peak	P
6 *	10393.713	-24.37	-26.87	-51.24	-13.00	-38.24	peak	P

Channel:		LTE Band 25 CH-H(20MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1132.340	-36.63	-29.96	-66.59	-13.00	-53.59	peak	P
2	1651.162	-38.50	-31.80	-70.30	-13.00	-57.30	peak	P
3	3450.518	-31.79	-29.54	-61.33	-13.00	-48.33	peak	P
4	6451.352	-28.19	-26.31	-54.50	-13.00	-41.50	peak	P
5	8675.933	-25.27	-26.63	-51.90	-13.00	-38.90	peak	P
6 *	12523.791	-21.78	-24.84	-46.62	-13.00	-33.62	peak	P

Channel:		LTE Band 26-part22 CH-L(15MHz)			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1422.798	-39.74	-31.59	-71.33	-13.00	-58.33	peak	P
2	2262.635	-36.72	-30.98	-67.70	-13.00	-54.70	peak	P
3	3337.710	-31.98	-29.63	-61.61	-13.00	-48.61	peak	P
4	3873.425	-33.11	-29.51	-62.62	-13.00	-49.62	peak	P
5	5479.335	-30.28	-27.69	-57.97	-13.00	-44.97	peak	P
6 *	8307.821	-25.40	-26.91	-52.31	-13.00	-39.31	peak	P

Channel:		LTE Band 26-part22 CH-L(15MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1585.682	-39.22	-31.89	-71.11	-13.00	-58.11	peak	P
2	2160.380	-35.98	-31.12	-67.10	-13.00	-54.10	peak	P
3	2994.856	-33.03	-29.90	-62.93	-13.00	-49.93	peak	P
4	4475.678	-31.70	-29.38	-61.08	-13.00	-48.08	peak	P
5	6535.811	-27.95	-26.31	-54.26	-13.00	-41.26	peak	P
6 *	9299.139	-24.45	-25.57	-50.02	-13.00	-37.02	peak	P

Channel:		LTE Band 26-part22 CH-M(15MHz)			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1224.247	-36.42	-30.48	-66.90	-13.00	-53.90	peak	P
2	1858.900	-34.56	-31.50	-66.06	-13.00	-53.06	peak	P
3	3266.135	-31.18	-29.69	-60.87	-13.00	-47.87	peak	P
4	5416.351	-30.29	-27.74	-58.03	-13.00	-45.03	peak	P
5	7989.892	-23.94	-26.90	-50.84	-13.00	-37.84	peak	P
6 *	11906.073	-21.04	-25.50	-46.54	-13.00	-33.54	peak	P

Channel:		LTE Band 26-part22 CH-M(15MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1229.566	-36.46	-30.50	-66.96	-13.00	-53.96	peak	P
2	2039.035	-34.70	-31.25	-65.95	-13.00	-52.95	peak	P
3	2847.139	-32.23	-30.14	-62.37	-13.00	-49.37	peak	P
4	3773.964	-30.23	-29.51	-59.74	-13.00	-46.74	peak	P
5	5559.097	-29.15	-27.50	-56.65	-13.00	-43.65	peak	P
6 *	8650.893	-23.56	-26.67	-50.23	-13.00	-37.23	peak	P

Channel:		LTE Band 26-part22 CH-H(15MHz)			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1785.181	-39.14	-31.61	-70.75	-13.00	-57.75	peak	P
2	2802.236	-33.88	-30.22	-64.10	-13.00	-51.10	peak	P
3	3495.691	-31.91	-29.51	-61.42	-13.00	-48.42	peak	P
4	5559.097	-29.65	-27.50	-57.15	-13.00	-44.15	peak	P
5	7606.788	-26.23	-26.21	-52.44	-13.00	-39.44	peak	P
6 *	11012.253	-23.14	-26.14	-49.28	-13.00	-36.28	peak	P

Channel:		LTE Band 26-part22 CH-H(15MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1256.512	-39.46	-30.65	-70.11	-13.00	-57.11	peak	P
2	2223.734	-37.12	-31.03	-68.15	-13.00	-55.15	peak	P
3	3763.071	-32.36	-29.52	-61.88	-13.00	-48.88	peak	P
4	4660.501	-31.05	-28.94	-59.99	-13.00	-46.99	peak	P
5	6479.383	-29.50	-26.32	-55.82	-13.00	-42.82	peak	P
6 *	9824.103	-25.21	-26.04	-51.25	-13.00	-38.25	peak	P

Channel:		LTE Band 26-part90 CH-L(15MHz)			Polarization:			Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F	
1	3209.981	-30.89	-29.90	-60.79	-13.00	-47.79	peak	P	
2	3921.867	-30.54	-30.45	-60.99	-13.00	-47.99	peak	P	
3	5490.432	-28.87	-27.63	-56.50	-13.00	-43.50	peak	P	
4	7742.094	-25.66	-26.22	-51.88	-13.00	-38.88	peak	P	
5	9699.955	-23.95	-24.53	-48.48	-13.00	-35.48	peak	P	
6 *	14079.082	-23.57	-21.80	-45.37	-13.00	-32.37	peak	P	

Channel:		LTE Band 26-part90 CH-L(15MHz)			Polarization:			Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F	
1	3031.434	-33.13	-29.89	-63.02	-13.00	-50.02	peak	P	
2	4126.536	-31.63	-30.47	-62.10	-13.00	-49.10	peak	P	
3	5630.247	-29.65	-27.37	-57.02	-13.00	-44.02	peak	P	
4	8653.393	-23.97	-25.65	-49.62	-13.00	-36.62	peak	P	
5	11937.085	-21.74	-23.25	-44.99	-13.00	-31.99	peak	P	
6 *	14809.541	-20.24	-21.10	-41.34	-13.00	-28.34	peak	P	

Channel:		LTE Band 26-part90 CH-M(15MHz)			Polarization:			Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F	
1	2828.274	-32.84	-30.29	-63.13	-13.00	-50.13	peak	P	
2	3771.783	-31.38	-30.26	-61.64	-13.00	-48.64	peak	P	
3	5078.251	-29.36	-28.29	-57.65	-13.00	-44.65	peak	P	
4	7971.439	-25.25	-26.14	-51.39	-13.00	-38.39	peak	P	
5	11208.135	-21.92	-24.50	-46.42	-13.00	-33.42	peak	P	
6 *	13662.164	-19.88	-21.23	-41.11	-13.00	-28.11	peak	P	

Channel:		LTE Band 26-part90 CH-M(15MHz)			Polarization:			Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F	
1	2754.854	-33.81	-30.47	-64.28	-13.00	-51.28	peak	P	
2	3748.958	-30.95	-30.23	-61.18	-13.00	-48.18	peak	P	
3	4922.177	-30.04	-28.69	-58.73	-13.00	-45.73	peak	P	
4	6532.034	-27.36	-26.05	-53.41	-13.00	-40.41	peak	P	
5	8625.924	-24.05	-25.68	-49.73	-13.00	-36.73	peak	P	
6 *	12724.473	-20.74	-22.44	-43.18	-13.00	-30.18	peak	P	

Channel:		LTE Band 26-part90 CH-H(15MHz)			Polarization:			Horizontal	
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No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	2730.280	-35.13	-30.53	-65.66	-13.00	-52.66	peak	P
2	3640.045	-32.52	-30.08	-62.60	-13.00	-49.60	peak	P
3	4489.930	-31.53	-30.20	-61.73	-13.00	-48.73	peak	P
4	6124.292	-28.13	-26.53	-54.66	-13.00	-41.66	peak	P
5	9978.641	-22.02	-24.59	-46.61	-13.00	-33.61	peak	P
6 *	14783.881	-19.75	-21.18	-40.93	-13.00	-27.93	peak	P

Channel:		LTE Band 26-part90 CH-H(15MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	2760.433	-33.59	-30.46	-64.05	-13.00	-51.05	peak	P
2	3733.818	-30.03	-30.21	-60.24	-13.00	-47.24	peak	P
3	5245.335	-28.49	-28.03	-56.52	-13.00	-43.52	peak	P
4	7508.489	-25.69	-26.29	-51.98	-13.00	-38.98	peak	P
5	10182.591	-22.32	-24.90	-47.22	-13.00	-34.22	peak	P
6 *	13595.198	-20.45	-21.13	-41.58	-13.00	-28.58	peak	P

Channel:		LTE Band 38 CH-L(20MHz)			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1364.400	-40.27	-31.25	-71.52	-25.00	-46.52	peak	P
2	2243.100	-37.44	-31.01	-68.45	-25.00	-43.45	peak	P
3	3500.746	-34.28	-29.50	-63.78	-25.00	-38.78	peak	P
4	4714.696	-34.01	-28.80	-62.81	-25.00	-37.81	peak	P
5	6349.606	-30.16	-26.27	-56.43	-25.00	-31.43	peak	P
6 *	9034.206	-26.88	-26.05	-52.93	-25.00	-27.93	peak	P

Channel:		LTE Band 38 CH-L(20MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1194.536	-36.65	-30.30	-66.95	-25.00	-41.95	peak	P
2	2262.635	-36.36	-30.98	-67.34	-25.00	-42.34	peak	P
3	3567.138	-33.80	-29.51	-63.31	-25.00	-38.31	peak	P
4	4600.276	-30.01	-29.10	-59.11	-25.00	-34.11	peak	P
5	6186.561	-29.82	-26.20	-56.02	-25.00	-31.02	peak	P
6 *	9448.149	-24.37	-25.29	-49.66	-25.00	-24.66	peak	P



Channel:		LTE Band 38 CH-M(20MHz)			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1145.507	-35.98	-30.03	-66.01	-25.00	-41.01	peak	P
2	1694.678	-39.08	-31.73	-70.81	-25.00	-45.81	peak	P
3	2194.998	-36.01	-31.07	-67.08	-25.00	-42.08	peak	P
4	3289.821	-35.04	-29.66	-64.70	-25.00	-39.70	peak	P
5	4811.058	-31.94	-28.54	-60.48	-25.00	-35.48	peak	P
6 *	5906.973	-31.35	-26.42	-57.77	-25.00	-32.77	peak	P

Channel:		LTE Band 38 CH-M(20MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1218.951	-38.81	-30.44	-69.25	-25.00	-44.25	peak	P
2	2510.755	-35.04	-30.70	-65.74	-25.00	-40.74	peak	P
3	4527.723	-33.21	-29.30	-62.51	-25.00	-37.51	peak	P
4	5269.649	-30.71	-27.84	-58.55	-25.00	-33.55	peak	P
5	6630.952	-27.70	-26.25	-53.95	-25.00	-28.95	peak	P
6 *	10901.411	-24.31	-26.31	-50.62	-25.00	-25.62	peak	P

Channel:		LTE Band 38 CH-H(20MHz)			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1172.303	-37.11	-30.18	-67.29	-25.00	-42.29	peak	P
2	1627.472	-38.16	-31.83	-69.99	-25.00	-44.99	peak	P
3	2754.058	-35.76	-30.30	-66.06	-25.00	-41.06	peak	P
4	3671.746	-34.73	-29.51	-64.24	-25.00	-39.24	peak	P
5	5822.220	-29.11	-26.68	-55.79	-25.00	-30.79	peak	P
6 *	9952.717	-24.21	-26.38	-50.59	-25.00	-25.59	peak	P

Channel:		LTE Band 38 CH-H(20MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1170.610	-36.53	-30.17	-66.70	-25.00	-41.70	peak	P
2	1856.215	-35.29	-31.51	-66.80	-25.00	-41.80	peak	P
3	2943.366	-34.45	-29.99	-64.44	-25.00	-39.44	peak	P
4	4004.339	-32.36	-29.52	-61.88	-25.00	-36.88	peak	P
5	5535.047	-29.72	-27.57	-57.29	-25.00	-32.29	peak	P
6 *	8176.795	-24.42	-26.91	-51.33	-25.00	-26.33	peak	P

Channel:		LTE Band 41CH-L(20MHz)			Polarization:		Horizontal	
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No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1201.461	-39.13	-30.35	-69.48	-25.00	-44.48	peak	P
2	2050.856	-37.23	-31.24	-68.47	-25.00	-43.47	peak	P
3	2843.027	-34.91	-30.15	-65.06	-25.00	-40.06	peak	P
4	3851.098	-35.39	-29.51	-64.90	-25.00	-39.90	peak	P
5	5224.153	-32.04	-27.87	-59.91	-25.00	-34.91	peak	P
6 *	8489.882	-25.93	-26.91	-52.84	-25.00	-27.84	peak	P

Channel:		LTE Band 41 CH-L(20MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1185.936	-36.13	-30.26	-66.39	-25.00	-41.39	peak	P
2	1581.105	-37.74	-31.90	-69.64	-25.00	-44.64	peak	P
3	2325.624	-34.96	-30.91	-65.87	-25.00	-40.87	peak	P
4	3386.297	-33.11	-29.59	-62.70	-25.00	-37.70	peak	P
5	4354.454	-30.99	-29.41	-60.40	-25.00	-35.40	peak	P
6 *	8153.195	-24.74	-26.91	-51.65	-25.00	-26.65	peak	P

Channel:		LTE Band 41 CH-M(20MHz)			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1240.274	-37.08	-30.56	-67.64	-25.00	-42.64	peak	P
2	2446.284	-35.63	-30.77	-66.40	-25.00	-41.40	peak	P
3	3430.629	-34.48	-29.55	-64.03	-25.00	-39.03	peak	P
4	4329.355	-32.92	-29.43	-62.35	-25.00	-37.35	peak	P
5	6944.808	-26.15	-26.05	-52.20	-25.00	-27.20	peak	P
6 *	11204.896	-23.40	-26.09	-49.49	-25.00	-24.49	peak	P

Channel:		LTE Band 41 CH-M(20MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1167.232	-36.90	-30.15	-67.05	-25.00	-42.05	peak	P
2	1969.525	-34.15	-31.35	-65.50	-25.00	-40.50	peak	P
3	3007.868	-34.15	-29.89	-64.04	-25.00	-39.04	peak	P
4	3719.815	-32.78	-29.51	-62.29	-25.00	-37.29	peak	P
5	5315.541	-30.61	-27.81	-58.42	-25.00	-33.42	peak	P
6 *	9613.430	-23.25	-25.49	-48.74	-25.00	-23.74	peak	P

Channel:		LTE Band 41 CH-H(20MHz)			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1258.329	-36.41	-30.66	-67.07	-25.00	-42.07	peak	P
2	1792.937	-38.06	-31.59	-69.65	-25.00	-44.65	peak	P
3	2411.185	-35.03	-30.81	-65.84	-25.00	-40.84	peak	P
4	3577.463	-33.83	-29.51	-63.34	-25.00	-38.34	peak	P
5	5813.812	-30.26	-26.70	-56.96	-25.00	-31.96	peak	P
6 *	9585.684	-23.38	-25.42	-48.80	-25.00	-23.80	peak	P

Channel:		LTE Band 41 CH-H(20MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1177.397	-35.29	-30.22	-65.51	-25.00	-40.51	peak	P
2	2110.999	-34.45	-31.18	-65.63	-25.00	-40.63	peak	P
3	3386.297	-32.61	-29.59	-62.20	-25.00	-37.20	peak	P
4	5354.090	-30.42	-27.78	-58.20	-25.00	-33.20	peak	P
5	7863.881	-25.14	-26.67	-51.81	-25.00	-26.81	peak	P
6 *	11786.235	-20.55	-25.65	-46.20	-25.00	-21.20	peak	P

Channel:		LTE Band 66CH-L(20MHz)			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1312.187	-39.60	-30.97	-70.57	-13.00	-57.57	peak	P
2	2782.060	-35.52	-30.25	-65.77	-13.00	-52.77	peak	P
3	3839.983	-33.82	-29.51	-63.33	-13.00	-50.33	peak	P
4	6395.654	-29.43	-26.29	-55.72	-13.00	-42.72	peak	P
5	9502.925	-24.58	-25.21	-49.79	-13.00	-36.79	peak	P
6 *	12947.068	-22.30	-24.64	-46.94	-13.00	-33.94	peak	P

Channel:		LTE Band 66 CH-L(20MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1229.566	-38.20	-30.50	-68.70	-13.00	-55.70	peak	P
2	2068.717	-36.97	-31.22	-68.19	-13.00	-55.19	peak	P
3	3650.582	-34.76	-29.51	-64.27	-13.00	-51.27	peak	P
4	6195.508	-28.68	-26.21	-54.89	-13.00	-41.89	peak	P
5	8551.451	-24.26	-26.83	-51.09	-13.00	-38.09	peak	P
6 *	11975.098	-21.21	-25.41	-46.62	-13.00	-33.62	peak	P



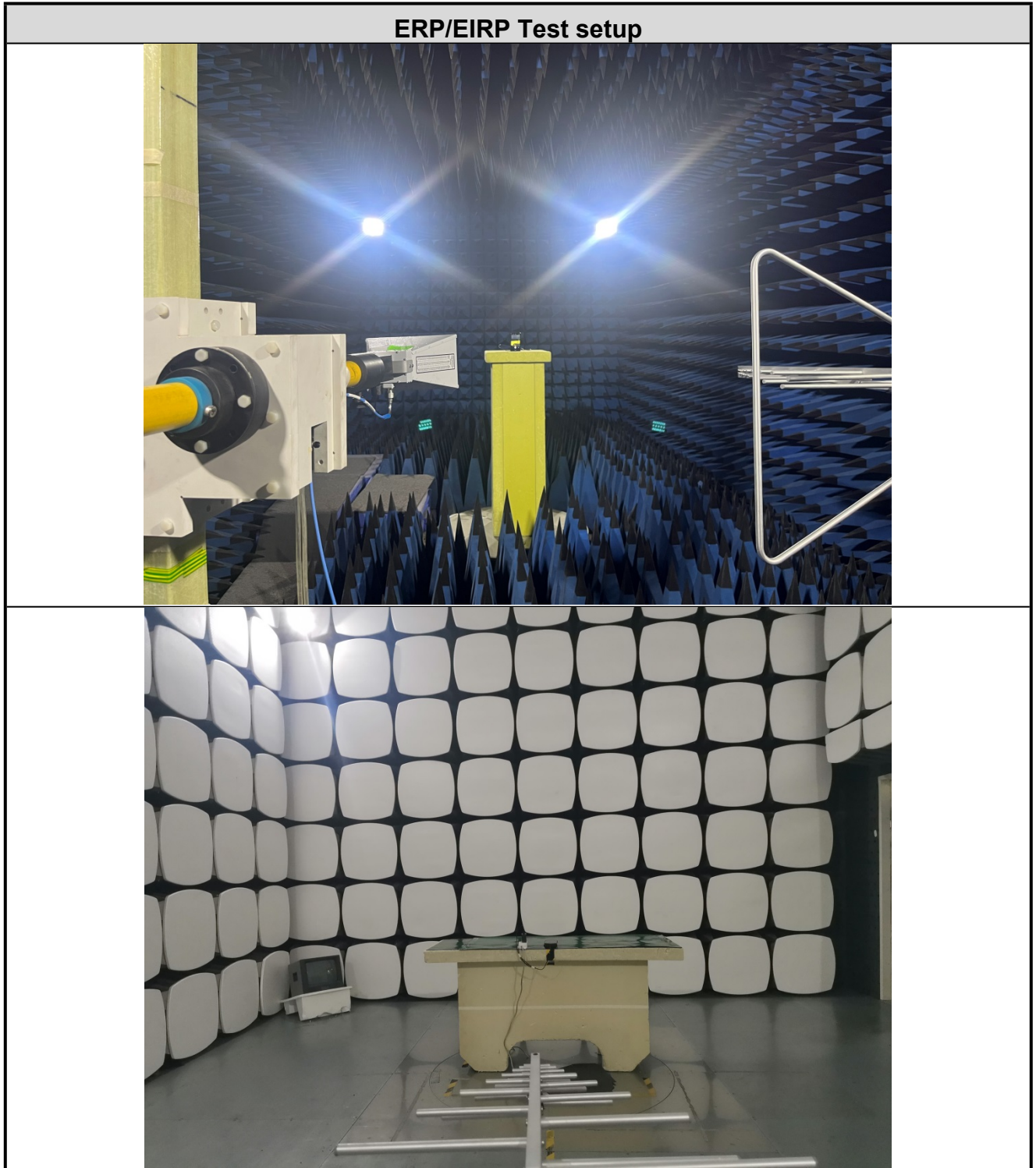
Channel:		LTE Band 66 CH-M(20MHz)			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1215.433	-35.84	-30.42	-66.26	-13.00	-53.26	peak	P
2	1787.762	-36.01	-31.61	-67.62	-13.00	-54.62	peak	P
3	2414.672	-34.81	-30.80	-65.61	-13.00	-52.61	peak	P
4	4086.182	-32.20	-29.50	-61.70	-13.00	-48.70	peak	P
5	6062.649	-29.33	-26.15	-55.48	-13.00	-42.48	peak	P
6 *	10097.596	-21.60	-26.59	-48.19	-13.00	-35.19	peak	P

Channel:		LTE Band 66 CH-M(20MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1258.329	-37.24	-30.66	-67.90	-13.00	-54.90	peak	P
2	1998.195	-32.90	-31.31	-64.21	-13.00	-51.21	peak	P
3	3261.418	-33.80	-29.69	-63.49	-13.00	-50.49	peak	P
4	5277.270	-30.78	-27.83	-58.61	-13.00	-45.61	peak	P
5	7943.838	-23.49	-26.82	-50.31	-13.00	-37.31	peak	P
6 *	12009.761	-19.72	-25.37	-45.09	-13.00	-32.09	peak	P

Channel:		LTE Band 66 CH-H(20MHz)			Polarization:		Horizontal	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1258.329	-38.24	-30.66	-68.90	-13.00	-55.90	peak	P
2	2062.746	-34.97	-31.22	-66.19	-13.00	-53.19	peak	P
3	3261.418	-33.30	-29.69	-62.99	-13.00	-49.99	peak	P
4	4916.490	-29.34	-28.25	-57.59	-13.00	-44.59	peak	P
5	6592.730	-27.41	-26.27	-53.68	-13.00	-40.68	peak	P
6 *	10636.847	-22.24	-26.74	-48.98	-13.00	-35.98	peak	P

Channel:		LTE Band 66 CH-H(20MHz)			Polarization:		Vertical	
No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector	P/F
1	1293.359	-36.79	-30.86	-67.65	-13.00	-54.65	peak	P
2	2154.145	-35.46	-31.12	-66.58	-13.00	-53.58	peak	P
3	3261.418	-33.30	-29.69	-62.99	-13.00	-49.99	peak	P
4	4437.036	-30.68	-29.39	-60.07	-13.00	-47.07	peak	P
5	6985.070	-27.86	-26.03	-53.89	-13.00	-40.89	peak	P
6 *	11012.253	-20.32	-26.14	-46.46	-13.00	-33.46	peak	P

## ANNEX B TEST SETUP PHOTOS



## **ANNEX C     Photographs of EUT**

Refer to Report No: FCC2022-06453RF1 EUT external and internal photos.