FCC TEST REPORT

(PART 27)

Applicant:	HMD Global Oy
Address:	Bertel Jungin aukio 9,02600 Espoo, Finland

Manufacturer or Supplier:	HMD Global Oy
Address:	Bertel Jungin aukio 9,02600 Espoo, Finland
Product:	Smart phone
Brand Name:	HMD
Model Name:	TA-1600/TA-1688
FCC ID:	2AJOTTA-1600
Date of tests:	Apr. 08, 2024 ~ May. 31, 2024

The tests have been carried out according to the requirements of the following standard:

☒ **FCC Part 27** ☒ **ANSI/TIA/EIA-603-D**
☒ **FCC Part 2** ☒ **ANSI/TIA/EIA-603-E** ☒ **ANSI C63.26-2015**

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Prepared by Simon Wang Engineer / Mobile Department	Approved by Luke Lu Manager / Mobile Department
Simon Wang Date: May. 31, 2024	Luke Lu Date: May. 31, 2024

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5 MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB. 171

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
PSU-NQN2403180115RF06	Original release	May. 31, 2024

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 27 & PART 2			
STANDARD SECTION	**TEST TYPE AND LIMIT**	**RESULT**	**TEST LAB***
§2.1046	Conducted Output Power	Compliance	B
§27.50(b)(10) §27.50(c)(10)	Effective Radiated Power (Band 12) (Band 13) (Band 17) (Band 71)	Compliance	B
§27.50(d)(4) §27.50(h)(2)	Equivalent Isotropically Radiated Power (WCMDA Band 4)(Band 7)	Compliance	A
§2.1055 §27.54	Frequency Stability	Compliance	A
§2.1049	Occupied Bandwidth	Compliance	A
§2.1051 §27.53(c)(2)(4) §27.53(g) §27.53(h) §27.53(m)(4)(6)	Conducted Band Edge Measurements (WCMDA Band 4) (Band 7) (Band 12) (Band 13) (Band 17) (Band 71)	Compliance	A
§2.1051 §27.53(c)(2)(4) §27.53(g) §27.53(h) §27.53(m)(4)(6)	Conducted Spurious Emissions (WCMDA Band 4) (Band 7) (Band 12) (Band 13) (Band 17) (Band 71)	Compliance	A
§2.1053 §27.53(c)(2)(4) §27.53(f) §27.53(g) §27.53(h) §27.53(m)(4)(6)	Radiated Spurious Emissions (WCMDA Band 4) (Band 7) (Band 12) (Band 13) (Band 17) (Band 71)	Compliance	B
NA	Peak to average ratio	Compliance	A

***Test Lab Information Reference**

Lab A:
BV 7Layers Communications Technology (Shenzhen) Co. Ltd
Lab Address:
Room B37, Warehouse A5, No.3 Chiwan 4th Road, Zhaoshang Street, Nanshan District Shenzhen, Guangdong, People's Republic of China
Accredited Test Lab Cert 3939.01

The FCC Site Registration No. is 525120; The Designation No. is CN1171.

Lab B:
Huarui 7Layers High Technology (Suzhou) Co., Ltd.
Lab Address:
Tower N, Innovation Center, 88 Zhuyi Road, High-tech District, Suzhou City, Anhui Province
Accredited Test Lab Cert 6613.01

The FCC Site Registration No. is 434559; The Designation No. is CN1325.

1.1 MEASREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	UNCERTAINTY
Frequency Stability	±76.97Hz
Radiated emissions (9KHz~30MHz)	±2.68dB
Radiated emissions & Radiated Power (30MHz~1GHz)	±4.98dB
Radiated emissions & Radiated Power (1GHz ~6GHz)	±4.70dB
Radiated emissions (6GHz ~18GHz)	±4.60dB
Radiated emissions (18GHz ~40GHz)	±4.12dB
Conducted emissions	±4.01dB
Occupied Channel Bandwidth	±43.58KHz
Conducted Output power	±2.06dB
Band Edge Measurements	±4.70dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

1.2 TEST SITE AND INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
MXE EMI Receiver	KEYSIGHT	N9038A-544	MY54450026	Mar. 28,23	Mar. 27,24
MXE EMI Receiver	KEYSIGHT	N9038A-544	MY54450026	Mar. 27,24	Mar. 26,25
EXA Signal Analyzer	KEYSIGHT	N9010A-544	MY54510355	May. 10,23	May. 09,24
EXA Signal Analyzer	KEYSIGHT	N9010A-544	MY54510355	May. 09,24	May. 08,25
Loop Antenna	Schwarzbeck	FMZB 1519B	00173	Sep. 02,23	Sep. 01,24
Bilog Antenna	ETS-LINDGREN	3143B	00161965	Feb. 17,24	Feb. 16,25
Horn Antenna	ETS-LINDGREN	3117	00168692	Feb. 17,24	Feb. 16,25
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K-SG/QMS-00361	15433	Sep. 03,23	Sep. 03,24
Radio Communication Analyzer	ANRITSU	MT8820C	6201465426	Feb. 13,24	Feb. 12,25
Signal Pre-Amplifier	EMSI	EMC 9135	980249	May. 06,23	May. 05,24
Signal Pre-Amplifier	EMSI	EMC 9135	980249	May. 05,24	May. 04,25
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	May. 10,23	May.09,24
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	May. 09,24	May.08,25
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Feb. 16,24	Feb. 15,25
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	Euroshieldpn-CT0001143-1216	Nov. 14,23	Nov. 13,26
Test Software	E3	V 9.160323	N/A	N/A	N/A
Test Software	JS1120	3.1.36	N/A	N/A	N/A
10dB Attenuator	JFW/USA	50HF-010-SMA	50HF-010-SMA	May. 06,23	May. 05,24
10dB Attenuator	JFW/USA	50HF-010-SMA	50HF-010-SMA	May. 05,24	May. 04,25
Power Meter	Anritsu	ML2495A	1506002	Feb. 13,24	Feb. 12,25
Power Sensor	Anritsu	MA2411B	1339352	Feb. 13,24	Feb. 12,25
Temperature Chamber	ESPEC	SH-242	93000855	May. 06,23	May. 05,24
Temperature Chamber	ESPEC	SH-242	93000855	May. 05,24	May. 04,25
MXG Analog Microvave Signal Generator	KEYSIGHT	N5183A	MY50143024	Feb. 13,24	Feb. 12,25
Base station R&S CMW500	Rohde&Schwarz	CMW500	153085	May.10,23	May.09,24
Base station R&S CMW500	Rohde&Schwarz	CMW500	153085	May. 09,24	May.08,25
DC Source	Kikusui/JP	PMX18-5A	N/A	Aug. 11,23	Aug. 10,24

NOTE: 1. The calibration interval of the above test instruments is 12 months or 36 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

2. The test was performed in 3m Semi-anechoic Chamber and RF Oven Room.

3. The horn antenna is used only for the measurement of emission frequency above 1GHz if tested.

4. The FCC Site Registration No. is 525120; The Designation No. is CN1171.

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Pre-Amplifier	R&S	SCU18F1	100815	Aug.30,22	Aug.29,24
Pre-Amplifier	R&S	SCU08F1	101028	Sep.16,22	Sep.15,24
Vector Signal Generator	R&S	SMBV100B	102176	Feb.15,24	Feb.14,26
Signal Generator	R&S	SMB100A	182185	Feb.15,24	Feb.14,26
3m Fully-anechoic Chamber	TDK	9m*6m*6m	HRSW-SZ-EMC-01Chamber	Nov.25,22	Nov.24,25
3m Semi-anechoic Chamber	TDK	9m*6m*6m	HRSW-SZ-EMC-02Chamber	Nov.25,22	Nov.24,25
EMI TEST Receiver	R&S	ESR26	101734	Feb.24,24	Feb.23,26
EMI TEST Receiver	R&S	ESW44	101973	Feb.24,24	Feb.23,26
Bilog Antenna	SCHWARZBECK	VULB 9163	1264	Feb.27,24	Feb.26,26
Horn Antenna	ETS-LINDGREN	3117	227836	Aug.22,22	Aug.21,24
Horn Antenna (18GHz-40GHz)	Steatite Q-par Antennas	QMS 00880	23486	Feb.22,24	Feb.21,26
Horn Antenna	Steatite Q-par Antennas	QMS 00208	23485	Aug.22,22	Aug.21,24
Loop Antenna	SCHWARZ	HFH2-Z2/Z2E	100976	Feb.22,24	Feb.21,26
WIDEBANDRADIO COMMUNICATION TESTER	R&S	CMW500	169399	Jun.27,22	Jun.26,24
Test Software	EMC32	EMC32	N/A	N/A	N/A
Test Software	ELEKTRA	ELEKTRA4.32	N/A	N/A	N/A
Open Switch and Control Unit	R&S	OSP220	101964	Oct.01,22	Sep.30,24
DC Source	HYELEC	HY3010B	551016	Aug.31,22	Aug.30,24
Hygrothermograph	DELI	20210528	SZ014	Sep.06,22	Sep.05,24
PC	LENOVO	E14	HRSW0024	N/A	N/A
TMC-AMI18843A(CABLE)	R&S	HF290-NMNM-7.00M	N/A	N/A	N/A
TMC-AMI18843A(CABLE)	R&S	HF290-NMNM-4.00M	N/A	N/A	N/A
CABLE	R&S	W13.02	N/A	Apr.28,23	Apr.27,24
CABLE	R&S	W13.02	N/A	Apr.27,24	Apr.26,25
CABLE	R&S	W12.14	N/A	Apr.28,23	Apr.27,24
CABLE	R&S	W12.14	N/A	Apr.27,24	Apr.26,25
CABLE	R&S	J12J103539-00-1	SEP-03-20-069	Apr.28,23	Apr.27,24
CABLE	R&S	J12J103539-00-1	SEP-03-20-069	Apr.27,24	Apr.26,25
CABLE	R&S	J12J103539-00-1	SEP-03-20-070	Apr.28,23	Apr.27,24
CABLE	R&S	J12J103539-00-1	SEP-03-20-070	Apr.27,24	Apr.26,25
Temperature Chamber	votsch	VT4002	5856607810	May.31,22	May.30,24

			0050		
Temperature Chamber	votsch	VT4002	5856607810 0050	May.30,24	May.29,26

NOTE: 1. The calibration interval of the above test instruments is 12/ 24 / 36 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

2. The test was performed in 3m Semi-anechoic Chamber and RF Oven Room.

3. The horn antenna is used only for the measurement of emission frequency above 1GHz if tested.

4. The FCC Site Registration No. is 434559; The Designation No. is CN1325.

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Smart phone	
BRAND NAME	HMD	
MODEL NAME	TA-1600/TA-1688	
NOMINAL VOLTAGE	5.0Vdc/9.0Vdc /12.0Vdc(adapter) 3.89Vdc (battery)	
MODULATION TECHNOLOGY	**WCDMA IV**	BPSK, QPSK
	LTE	QPSK, 16QAM, 64QAM
FREQUENCY RANGE	**WCDMA IV**	1712.4MHz ~ 1752.6MHz
	LTE Band 7 Channel Bandwidth: 5MHz	2502.5MHz ~ 2567.5MHz
	LTE Band 7 Channel Bandwidth: 10MHz	2505MHz ~ 2565MHz
	LTE Band 7 Channel Bandwidth: 15MHz	2507.5MHz ~ 2562.5MHz
	LTE Band 7 Channel Bandwidth: 20MHz	2510MHz ~ 2560MHz
	LTE Band 12 Channel Bandwidth: 1.4MHz	699.7MHz ~ 715.3MHz
	LTE Band 12 Channel Bandwidth: 3MHz	700.5MHz ~ 714.5MHz
	LTE Band 12 Channel Bandwidth: 5MHz	701.5MHz ~ 713.5MHz
	LTE Band 12 Channel Bandwidth: 10MHz	704MHz ~ 711MHz
	LTE Band 13 Channel Bandwidth: 5MHz	779.5MHz ~ 784.5MHz
	LTE Band 13 Channel Bandwidth: 10MHz	782MHz
	LTE Band 17 Channel Bandwidth: 5MHz	706.5MHz ~ 713.5MHz
	LTE Band 17 Channel Bandwidth: 10MHz	709MHz ~ 711 MHz
	LTE Band 71 Channel Bandwidth: 5MHz	665.5MHz ~ 695.5MHz
	LTE Band 71 Channel Bandwidth: 10MHz	668MHz ~ 693MHz

FREQUENCY RANGE	**LTE Band 71 Channel Bandwidth: 15MHz**	670.5MHz ~ 690.5MHz
	LTE Band 71 Channel Bandwidth: 20MHz	673MHz ~ 688MHz
	LTE CA	CA_2A-12A/CA_4A-7A/ CA_4A-12A/ CA_4A-13A/ CA_2A-13A/ CA_5A-7A
MAX. EIRP POWER	**WCDMA IV**	155.96mW
	LTE Band 7 Channel Bandwidth: 5MHz	152.41mW
	LTE Band 7 Channel Bandwidth: 10MHz	151.71mW
	LTE Band 7 Channel Bandwidth: 15MHz	151.36mW
	LTE Band 7 Channel Bandwidth: 20MHz	157.04mW
	LTE Band 12 Channel Bandwidth: 1.4MHz	34.36mW
	LTE Band 12 Channel Bandwidth: 3MHz	34.43mW
	LTE Band 12 Channel Bandwidth: 5MHz	34.28mW
	LTE Band 12 Channel Bandwidth: 10MHz	35.08mW
	LTE Band 13 Channel Bandwidth: 5MHz	33.96mW
	LTE Band 13 Channel Bandwidth: 10MHz	34.59mW
	LTE Band 17 Channel Bandwidth: 5MHz	32.36mW
	LTE Band 17 Channel Bandwidth: 10MHz	32.81mW
	LTE Band 71 Channel Bandwidth: 5MHz	30.06mW
	LTE Band 71 Channel Bandwidth: 10MHz	29.99mW
	LTE Band 71 Channel Bandwidth: 15MHz	30.2mW
	LTE Band 71 Channel Bandwidth: 20MHz	30.83mW
EMISSION DESIGNATOR	**WCDMA IV**	4M15F9W

EMISSION DESIGNATOR	**LTE Band 7 Channel Bandwidth: 5MHz**	QPSK: 4M53G7D
		16QAM: 4M53W7D
	LTE Band 7 Channel Bandwidth: 10MHz	QPSK:9M00G7D
		16QAM: 9M03W7D
	LTE Band 7 Channel Bandwidth: 15MHz	QPSK: 13M5G7D
		16QAM: 13M5W7D
	LTE Band 7 Channel Bandwidth: 20MHz	QPSK: 18M0G7D
		16QAM: 18M0W7D
	LTE Band 12 Channel Bandwidth: 1.4MHz	QPSK: 1M10G7D
		16QAM: 1M11W7D
	LTE Band 12 Channel Bandwidth: 3MHz	QPSK: 2M70G7D
		16QAM: 2M70W7D
	LTE Band 12 Channel Bandwidth: 5MHz	QPSK: 4M52G7D
		16QAM: 4M53W7D
	LTE Band 12 Channel Bandwidth: 10MHz	QPSK: 8M99G7D
		16QAM: 9M00W7D
	LTE Band 13 Channel Bandwidth: 5MHz	QPSK: 4M52G7D
		16QAM: 4M53W7D
		64QAM: 4M51W7D
	LTE Band 13 Channel Bandwidth: 10MHz	QPSK: 8M96G7D
		16QAM: 8M96W7D

EMISSION DESIGNATOR	**LTE Band 71 Channel Bandwidth: 5MHz**	QPSK: 4M52G7D
		16QAM: 4M52W7D
	LTE Band 71 Channel Bandwidth: 10MHz	QPSK: 8M99G7D
		16QAM: 9M01W7D
	LTE Band 71 Channel Bandwidth: 15MHz	QPSK: 13M5G7D
		16QAM: 13M5W7D
	CLTE Band 71 Channel Bandwidth: 20MHz	QPSK: 17M9G7D
		16QAM: 17M9W7D
ANTENNA TYPE	ANT0: PIFA Antenna with -1.63dBi gain for LTE B7 PIFA Antenna with -6.61dBi gain for LTE B12 PIFA Antenna with -6.87dBi gain for LTE B13 PIFA Antenna with -6.87dBi gain for LTE B17 PIFA Antenna with -6.65dBi gain for LTE B71 ANT1: PIFA Antenna with -1.74dBi gain for WCDMA IV ANT3: PIFA Antenna with -2.56dBi gain for WCDMA IV	
HW VERSION	V2	
SW VERSION	00WW_0_340	
I/O PORTS	Refer to user's manual	
CABLE SUPPLIED	N/A	
EXTREME TEMPERATURE	-10-55℃	
EXTREME VOLTAGE	3.5V - 4.48V	

NOTE:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. The EUT incorporates a SISO function. Physically, the EUT provides one completed transmitter and four receivers.

MODULATION MODE	TX FUNCTION
WCDMA	1TX/4RX
LTE	1TX/4RX

3. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
4. Antenna gain and EUT conducted cable loss are provided by the customer, and the laboratory will record the results based on these items that involve these two parameters.
5. The worst-case scenario for all measurements is based on an engineering evaluation made on different modulations. Then, QPSK and 16QAM were observed as the worst mode to LTE bands respectively and set for all conducted and radiated. Output power measurements were measured on QPSK, 16QAM, 64QAM, and 256QAM modulations, and tests other than output power are performed only in worse-case QPSK and 16QAM modulations.

6 **List of Accessory:**

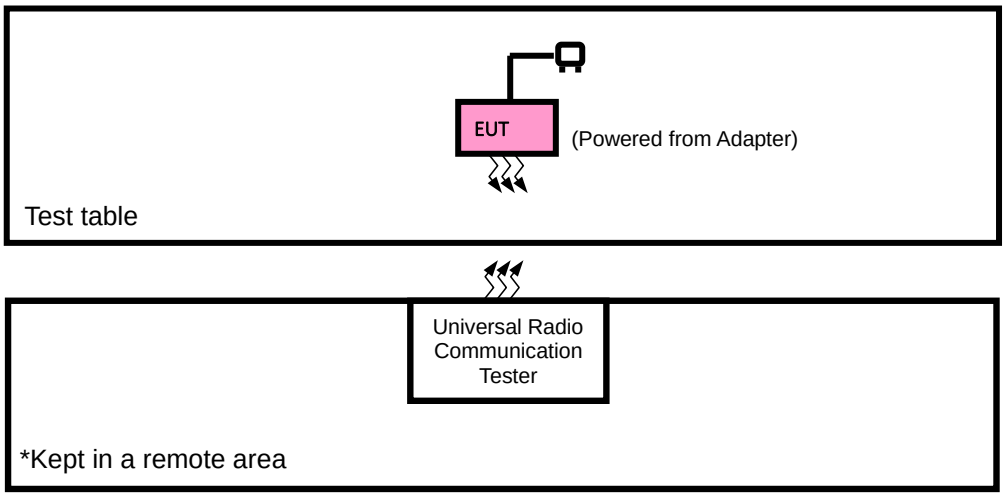
ACCESSORIES	BRAND	MANUFACTURER	MODEL	SPECIFICATION
LCD Panel	BOE	BOE	BF066XMM-TL4-F900	6.55inch, AMOLED;
Back cover	BIEL	BIEL	Panda-X	158 mm*73 mm*0.6 mm
Bezel	BIEL	BIEL	6103HG02-T6	160 mm_76 mm_8.5 mm
Photo Camera 1	AAC	AAC	P50AD01	50MP,AF
Photo Camera 2	AAC	AAC	W13FD02	13MP Ultra Wide, FF
Video Camera 1	AAC	AAC	T50AD01	50MP Tele, AF
Video Camera 2	AAC	AAC	MA8SD01	108MP+OIS, AF
CPU	Qualcomm	Qualcomm	SM-7435-1-PSP1026-TR-00-0-AB	Platform Baseband Chip_PSP_mmW_8 core_SMT
eMMC1 (=ROM1)	Samsung	Samsung	KM8L9001JM-B624T07	uMCP_254-ball FBGA_128GB_LPDD R4X_64Gb_SMT
eMMC2 (=ROM2)	Samsung	Samsung	KM8F9001JM-B813T07	uMCP_254-ball FBGA_256GB_LPDD R4X_64Gb_SMT
eMMC3 (=ROM3)	Samsung	Samsung	KM8F9001MM-B830T07	uMCP_254-ball FBGA_256GB_LPDD R4X_96Gb_SMT
Battery	HMD	Gaoyuan	HBA4633AA	RatedCapacity:4500mAh/17.51Wh

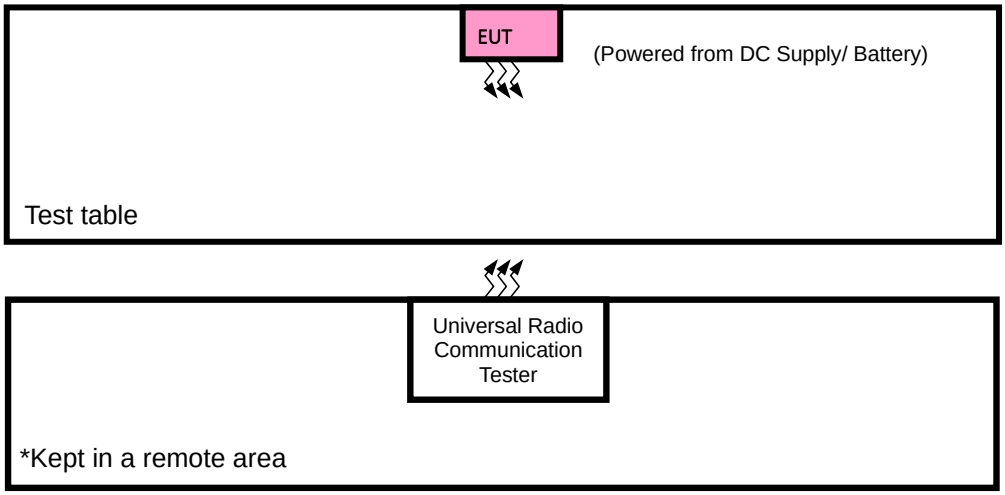
7 The differences between the first and second supply as follows and the specifications and RF parameters are the same.

Key Component list						
No.	Component	Description	First supply		Second supply	
			Supplier	Spec	Supplier	Spec
1	USB/ Analog audio headsets	Analog Audio Switch	Dioo	DIO4480WL25 Analog switch & MUX_WLCSP25_2.7-5.5V_3-Channel_1000MHz _SMT	Will	WAS4780C-25/TR Analog switch & MUX_CSP-25L_2.7-5.5V_2-Channel_950MHz_ SMT
2	Wireless charge	Load Switch	SGM	SGM2575ADYG/TR Load Switch_34 mΩ_11 W_WLCSP_SGM2575ADY G/TR_SGM	Dioo	DIO7290WL4 Load Switch_85 mΩ_11 W_WLCSP-4
3	Sensor	Barometer	Bosch	BMP580 Baroceptor _LGA-10_±0.05 hPa_48 bit_ SMT	Go er mic ro	SPL07-003 Baroceptor_10pin LGA_0.5Pa/°C_24 bit_SMT
4	Sensor	eCOMPASS	VTC	AF6837 Magnetic field sensor_WLCSP_10 LSB/μT_16 bit_I2C_SMT	Memsic	MMC5603NJL Ecompass_MMC56 03NJL_M EMSIC_MCOs
5	RF IC	LNA	Will	WS7916DF-6/TR RF_LNA_6-pin DFN_1150 MHz to 1615_SMT	Awinic	AW5005EDNR RF_LNA_AW5005 EDNR_Awi nic
6	Receiver	SP2T	Will	WS78022D-6/TR DFN-6_0.1GHz - 3.8GHz_SPDT_GPIO_SMT	Champ hill	QX8612GD 0.7 to 2.7GHz_SPDT_2 W_GPIO
7	USB connector	USB type-C connector	LETCON	15-16815-105-M1 USB TYPE C Connector_0.9 mm_16 pin_Female Head (elastic end)_Horizontal_None-waterproof_4.27 mm_Gold_SMT_480M	HRD	UC141-0B100DR0 USB TYPE C Connector_0.9 mm_16 pin_Female Head (elastic end)_Horizontal_No ne- waterproof_4.3 mm_Gold_SMT_48 0M

2.2 CONFIGURATION OF SYSTEM UNDER TEST

FOR RADIATION EMISSION TEST





2.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	DC source	LONG WEI	PS-6403D	010934269	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	DC Line: Unshielded, Detachable 1.8m

2.4 TEST ITEM AND TEST CONFIGURATION

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports The worst case was found when positioned on Y-plane for EIRP and X-axis for radiated emission. Following channel(s) was (were) selected for the final test as listed below:

EUT CONFIGURE MODE	DESCRIPTION
A	**EUT + Adapter + USB Cable with WCDMA or LTE link**
B	**EUT + DC Supply with WCDMA or LTE link**

WCDMA MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
A	EIRP	1312 to 1513	1312, 1413, 1513	WCDMA
B	FREQUENCY STABILITY	1312 to 1513	1312, 1413, 1513	WCDMA
A	OCCUPIED BANDWIDTH	1312 to 1513	1312, 1413, 1513	WCDMA
A	BAND EDGE	1312 to 1513	1312, 1513	WCDMA
A	PEAK TO AVERAGE RATIO	1312 to 1513	1312, 1413, 1513	WCDMA
A	CONDUCTED EMISSION	1312 to 1513	1312, 1413, 1513	WCDMA
A	RADIATED EMISSION	1312 to 1513	1312, 1413, 1513	WCDMA

LTE BAND 7 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	EIRP	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0RB Offset
		20825 to 21375	20825, 21100, 21375	15MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
B	FREQUENCY STABILITY	20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM, 64QAM	50 RB / 0 RB Offset
A	OCCUPIED BANDWIDTH	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM, 64QAM	25 RB / 0 RB Offset
		20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM, 64QAM	50 RB / 0 RB Offset
		20825 to 21375	20825, 21100, 21375	15MHz	QPSK, 16QAM, 64QAM	75 RB / 0 RB Offset
		20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM, 64QAM	100 RB / 0 RB Offset
A	PEAK TO AVERAGE RATIO	20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset 100 RB / 0 RB Offset
A	BAND EDGE	20775 to 21425	20775	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
						25 RB / 0 RB Offset
			21425	5MHz	QPSK, 16QAM, 64QAM	1 RB / 24 RB Offset
						25 RB / 0 RB Offset
		20800 to 21400	20800	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
						50 RB / 0 RB Offset
			21400	10MHz	QPSK, 16QAM, 64QAM	1 RB / 49 RB Offset
						50 RB / 0 RB Offset
		20825 to 21375	20825	15MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
						75 RB / 0 RB Offset
			21375	15MHz	QPSK, 16QAM, 64QAM	1 RB / 74 RB Offset
						75 RB / 0 RB Offset
		20850 to 21350	20850	20MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
						100 RB / 0 RB Offset
			21350	20MHz	QPSK, 16QAM, 64QAM	1 RB / 99 RB Offset
						100 RB / 0 RB Offset
A	CONDUCTED EMISSION	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0RB Offset
		20825 to 21375	20825, 21100, 21375	15MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
A	RADIATED EMISSION	20775 to 21425	21100	5MHz	QPSK	1 RB / 0 RB Offset
		20800 to 21400	21100	10MHz	QPSK	1 RB / 0 RB Offset
		20825 to 21375	20825, 21100, 21375	15MHz	QPSK	1 RB / 0 RB Offset
		20850 to 21350	21100	20MHz	QPSK	1 RB / 0 RB Offset

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

LTE BAND 12 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	ERP	23017 to 23173	23017, 23095 , 23173	1.4MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		23025 to 23165	23025, 23095 ,23165	3MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		23035 to 23155	23035, 23095 ,23155	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		23060 to 23130	23060, 23095 ,23130	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
B	FREQUENCY STABILITY	23060 to 23130	23060, 23095 ,23130	10MHz	QPSK, 16QAM, 64QAM	50 RB / 0 RB Offset
A	OCCUPIED BANDWIDTH	23017 to 23173	23017, 23095 , 23173	1.4MHz	QPSK, 16QAM, 64QAM	6 RB / 0 RB Offset
		23025 to 23165	23025, 23095 ,23165	3MHz	QPSK, 16QAM, 64QAM	15 RB / 0 RB Offset
		23035 to 23155	23035, 23095 ,23155	5MHz	QPSK, 16QAM, 64QAM	25 RB / 0 RB Offset
		23060 to 23130	23060, 23095 ,23130	10MHz	QPSK, 16QAM, 64QAM	50 RB / 0 RB Offset
A	PEAK TO AVERAGE RATIO	23060 to 23130	23060, 23095 ,23130	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset 50 RB / 0 RB Offset
A	BAND EDGE	23017 to 23173	23017	1.4MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
						6 RB / 0 RB Offset
			23173	1.4MHz	QPSK, 16QAM, 64QAM	1 RB / 5 RB Offset
						6 RB / 0 RB Offset
		23025 to 23165	23025	3MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
						15 RB / 0 RB Offset
			23165	3MHz	QPSK, 16QAM, 64QAM	1 RB / 14 RB Offset
						15 RB / 0 RB Offset
		23035 to 23155	23035	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
						25 RB / 0 RB Offset
			23155	5MHz	QPSK, 16QAM, 64QAM	1 RB / 24 RB Offset
						25 RB / 0 RB Offset
		23060 to 23130	23060	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
						50 RB / 0 RB Offset
			23130	10MHz	QPSK, 16QAM, 64QAM	1 RB / 49 RB Offset
						50 RB / 0 RB Offset
A	CONDUCTED EMISSION	23017 to 23173	23017, 23095 , 23173	1.4MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		23025 to 23165	23025, 23095 ,23165	3MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		23035 to 23155	23035, 23095 ,23155	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		23060 to 23130	23060, 23095 ,23130	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
A	RADIATED EMISSION	23017 to 23173	23095	1.4MHz	QPSK	1 RB / 0 RB Offset
		23025 to 23165	23025, 23095 ,23165	3MHz	QPSK	1 RB / 0 RB Offset
		23035 to 23155	23095	5MHz	QPSK	1 RB / 0 RB Offset
		23060 to 23130	23095	10MHz	QPSK	1 RB / 0 RB Offset

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

LTE BAND 13 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	ERP	23205 to 23255	23205, 23230, 23255	5MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		23230	23230	10MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
B	FREQUENCY STABILITY	23230	23230	10MHz	QPSK,16QAM,64QAM	50 RB / 0 RB Offset
A	OCCUPIED BANDWIDTH	23205 to 23255	23205, 23230, 23255	5MHz	QPSK,16QAM,64QAM	25 RB / 0 RB Offset
		23230	23230	10MHz	QPSK,16QAM,64QAM	50 RB / 0 RB Offset
A	PEAK TO AVERAGE RATIO	23230	23230	10MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset 50 RB / 0 RB Offset
A	BAND EDGE	23205 to 23255	23205	5MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
						25 RB / 0 RB Offset
			23255	5MHz	QPSK,16QAM, 64QAM	1 RB / 24 RB Offset
						25 RB / 0 RB Offset
		23230	23230	10MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
						1 RB / 49 RB Offset
						50 RB / 0 RB Offset
A	CONDUCTED EMISSION	23205 to 23255	23205, 23230, 23255	5MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		23230	23230	10MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
A	RADIATED EMISSION	23205 to 23255	23205, 23230, 23255	5MHz	QPSK	1 RB / 0 RB Offset
		23230	23230	10MHz	QPSK	1 RB / 0 RB Offset

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

LTE BAND 17 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	ERP	23755 to 23825	23755, 23790, 23825	5MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		23780 to 23800	23780, 23790, 23800	10MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset

Note: 1.This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

2. LTE Band 17 are covered by LTE Band 12, Because it is a subset of LTE Band 12 with the same output power and supported bandwidths, So the conducted test data and RSE test data please refer to LTE Band 12

LTE BAND 71

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	ERP	133147 to 133447	133147, 133297, 133447	5MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		133172 to 133422	133172, 133297 133422	10MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		133197 to 133397	133197, 133297, 133397	15MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		133222 to 133372	133222, 133322, 133372	20MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
B	FREQUENCY STABILITY	133172 to 133422	133172, 133297 133422	10MHz	QPSK,16QAM,64QAM	50 RB / 0 RB Offset
A	OCCUPIED BANDWIDTH	133147 to 133447	133147, 133297, 133447	5MHz	QPSK,16QAM,64QAM	25 RB / 0 RB Offset
		133172 to 133422	133172, 133297 133422	10MHz	QPSK,16QAM,64QAM	50 RB / 0 RB Offset
		133197 to 133397	133197, 133297, 133397	15MHz	QPSK,16QAM,64QAM	75 RB / 0 RB Offset
		133222 to 133372	133222, 133322, 133372	20MHz	QPSK,16QAM,64QAM	100 RB / 0 RB Offset
A	PEAK TO AVERAGE RATIO	133222 to 133372	133222, 133322, 133372	20MHz	QPSK, 16QAM,64QAM	1 RB / 0 RB Offset 100 RB / 0 RB Offset
A	BAND EDGE	133147 to 133447	133147	5MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
						25 RB / 0 RB Offset
			133447	5MHz	QPSK,16QAM, 64QAM	1 RB / 24 RB Offset
						25 RB / 0 RB Offset
		133172 to 133422	133172	10MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
						50 RB / 0 RB Offset
			133422	10MHz	QPSK,16QAM, 64QAM	1 RB / 49 RB Offset
						50 RB / 0 RB Offset
		133197 to 133397	133197	15MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
						75 RB / 0 RB Offset
			133397	15MHz	QPSK,16QAM, 64QAM	1 RB / 74 RB Offset
						75 RB / 0 RB Offset
		133222 to 133372	133222	20MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset

						100 RB / 0 RB Offset
			133372	20MHz	QPSK,16QAM, 64QAM	1 RB / 99 RB Offset
						100 RB / 0 RB Offset
A	CONDUCTED EMISSION	133147 to 133447	133147, 133297, 133447	5MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
		133172 to 133422	133172, 133297 133422	10MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
		133197 to 133397	133197, 133297, 133397	15MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
		133222 to 133372	133222, 133322, 133372	20MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
A	RADIATED EMISSION	133147 to 133447	133297	5MHz	QPSK	1 RB / 0 RB Offset
		133172 to 133422	133172, 133297 133422	10MHz	QPSK	1 RB / 0 RB Offset
		133197 to 133397	133297	15MHz	QPSK	1 RB / 0 RB Offset
		133222 to 133372	133322	20MHz	QPSK	1 RB / 0 RB Offset

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
ERP&EIRP	23deg. C, 70%RH	DC 5.0V/9.0V /12.0VBy Adapter	Jace Hu
FREQUENCY STABILITY	23deg. C, 70%RH	DC 3.5V/3.89V/4.48V By DC Supply	James Fu
OCCUPIED BANDWIDTH	23deg. C, 70%RH	DC 5.0V/9.0V /12.0VBy Adapter	James Fu
BAND EDGE	23deg. C, 70%RH	DC 5.0V/9.0V /12.0VBy Adapter	James Fu
CONDUCTED EMISSION	23deg. C, 70%RH	DC 5.0V/9.0V /12.0VBy Adapter	James Fu
RADIATED EMISSION	23deg. C, 70%RH	DC 5.0V/9.0V /12.0VBy Adapter	Jace Hu
PEAK TO AVERAGE RATIO	23deg. C, 70%RH	DC 5.0V/9.0V /12.0VBy Adapter	James Fu

2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC 47 CFR Part 2

FCC 47 CFR Part 27

KDB 971168 D01 Power Meas License Digital Systems v03r01

ANSI/TIA/EIA-603-D

ANSI/TIA/EIA-603-E

ANSI C63.26-2015

NOTE: All test items have been performed and recorded as per the above standards.

3 TEST TYPES AND RESULTS

3.1 OUTPUT POWER MEASUREMENT

3.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

The radiated peak output power shall be according to the specific rule Part 27.50(h)(2) that “User stations are limited to 2 watts” and 27.50(i) specific that “Peak transmit power must be measure over any interval of continuous transmission using instrumentation calibration in terms of rms-equivalent voltage.”

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

According to the specific rule Part 27.50(b)(10) and 27.50(c)(10) Fixed, mobile, and Portable stations (hand-held devices) transmitting in the 698-746 MHz, 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

3.1.2 TEST PROCEDURES

EIRP MEASUREMENT:

Per KDB 971168 D01 Power Meas License Digital Systems v03r01 or subclause 5.2.5.5 of ANSI C63.26-2015, the relevant equation for determing the ERP or EIRP from the conducted RF output power measured using the guidance provided above is:

ERP or EIRP = $P_{Meas} + G_T – L_C$

Where:

ERP or EIRP = effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as P_{Meas}, typically dBW or dBm);

P_{Meas} = measured transmitter output power or PSD, in dBm or dBW;

G_T = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);

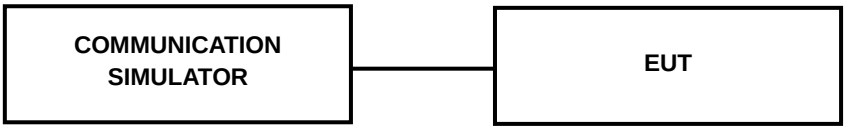
L_C = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

CONDUCTED POWER MEASUREMENT:

a. The EUT was set up for the maximum power with LTE link data modulation and link up with simulator.
b. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

3.1.3 TEST SETUP

CONDUCTED POWER MEASUREMENT:



For the actual test configuration, please refer to the attached file (Test Setup Photo).

3.1.4 TEST RESULTS

CONDUCTED OUTPUT POWER (dBm)

Band	WCDMA IV(ANT1)		
Channel	1312	1413	1513
Frequency (MHz)	1712.4	1732.6	1752.6
RMC 12.2K	**23.67**	23.65	23.57
HSDPA Subtest-1	22.91	22.94	22.88
HSDPA Subtest-2	22.94	22.91	22.90
HSDPA Subtest-3	22.35	22.36	22.23
HSDPA Subtest-4	22.42	22.44	22.37
DC-HSDPA Subtest-1	22.87	22.85	22.71
DC-HSDPA Subtest-2	22.83	22.89	22.62
DC-HSDPA Subtest-3	22.44	22.20	22.26
DC-HSDPA Subtest-4	22.39	22.31	22.36
HSUPA Subtest-1	22.94	22.89	22.72
HSUPA Subtest-2	21.87	21.88	21.69
HSUPA Subtest-3	22.28	22.24	22.32
HSUPA Subtest-4	21.85	21.87	21.85
HSUPA Subtest-5	22.86	22.77	22.84

Band	WCDMA IV(ANT3)		
Channel	1312	1413	1513
Frequency (MHz)	1712.4	1732.6	1752.6
RMC 12.2K	23.57	23.59	**23.60**
HSDPA Subtest-1	22.66	22.68	22.85
HSDPA Subtest-2	22.64	22.73	22.67
HSDPA Subtest-3	22.16	22.05	22.22
HSDPA Subtest-4	22.15	22.15	22.30
DC-HSDPA Subtest-1	22.62	22.76	22.71
DC-HSDPA Subtest-2	22.62	22.67	22.65
DC-HSDPA Subtest-3	22.25	22.20	22.14
DC-HSDPA Subtest-4	22.18	22.17	22.14
HSUPA Subtest-1	22.68	22.57	22.65
HSUPA Subtest-2	21.57	21.65	21.53
HSUPA Subtest-3	22.10	22.01	22.14
HSUPA Subtest-4	21.67	21.58	21.56
HSUPA Subtest-5	22.55	22.65	22.64

ANT0:

LTE Band 7

Band/BW	Modulation	RB Size	RB Offset	Low CH 20775 Frequency 2502.5 MHz	Mid CH 21100 Frequency 2535 MHz	High CH 21425 Frequency 2567.5 MHz
7/ 5	QPSK	1	0	23.27	23.46	23.25
		1	12	23.17	23.13	23.33
		1	24	23.30	23.29	23.36
		12	0	22.13	22.19	22.44
		12	6	22.27	22.27	22.51
		12	13	22.05	22.04	22.36
		25	0	22.12	22.14	22.52
	16QAM	1	0	22.37	22.17	22.40
		1	12	22.36	22.42	22.57
		1	24	22.30	22.47	22.48
		12	0	21.19	21.22	21.42
		12	6	21.18	21.26	21.50
		12	13	21.01	21.13	21.35
		25	0	21.10	21.30	21.51
	64QAM	1	0	21.36	21.37	21.43
		1	12	21.26	21.30	21.52
		1	24	21.18	21.29	21.38
		12	0	20.16	20.23	20.37
		12	6	20.11	20.22	20.44
		12	13	20.09	20.13	20.54
		25	0	20.12	20.16	20.40

Band/BW	Modulation	RB Size	RB Offset	Low CH 20800	Mid CH 21100	High CH 21400
				Frequency 2505 MHz	Frequency 2535 MHz	Frequency 2565 MHz
7/ 10	QPSK	1	0	23.33	23.44	23.36
		1	24	23.19	23.09	23.36
		1	49	23.30	23.21	23.30
		25	0	22.22	22.09	22.38
		25	12	22.23	22.25	22.54
		25	25	22.05	22.06	22.45
		50	0	22.07	22.21	22.40
	16QAM	1	0	22.36	22.17	22.49
		1	24	22.42	22.47	22.68
		1	49	22.23	22.46	22.39
		25	0	21.26	21.20	21.36
		25	12	21.19	21.20	21.49
		25	25	21.06	21.06	21.35
		50	0	21.22	21.25	21.43
	64QAM	1	0	21.36	21.26	21.41
		1	24	21.20	21.25	21.50
		1	49	21.21	21.17	21.45
		25	0	20.17	20.26	20.44
		25	12	20.17	20.28	20.44
		25	25	20.11	20.05	20.54
		50	0	20.04	20.13	20.47

Band/BW	Modulation	RB Size	RB Offset	Low CH 20825 Frequency 2507.5 MHz	Mid CH 21100 Frequency 2535 MHz	High CH 21375 Frequency 2562.5 MHz
7/ 15	QPSK	1	0	23.33	23.43	23.38
		1	37	23.21	23.08	23.37
		1	74	23.30	23.31	23.35
		36	0	22.22	22.16	22.38
		36	19	22.13	22.20	22.48
		36	39	22.14	22.10	22.32
		75	0	22.13	22.13	22.53
	16QAM	1	0	22.35	22.24	22.52
		1	37	22.42	22.52	22.56
		1	74	22.27	22.42	22.47
		36	0	21.23	21.27	21.46
		36	19	21.25	21.23	21.43
		36	39	21.12	21.08	21.45
		75	0	21.11	21.16	21.44
	64QAM	1	0	21.28	21.31	21.51
		1	37	21.27	21.33	21.61
		1	74	21.20	21.24	21.39
		36	0	20.19	20.14	20.46
		36	19	20.11	20.25	20.39
		36	39	20.09	20.09	20.49
		75	0	20.02	20.10	20.47

Band/BW	Modulation	RB Size	RB Offset	Low CH 20850 Frequency 2510 MHz	Mid CH 21100 Frequency 2535 MHz	High CH 21350 Frequency 2560 MHz
7/ 20	QPSK	1	0	23.43	**23.59**	23.47
		1	50	23.27	23.17	23.46
		1	99	23.39	23.58	23.43
		50	0	22.31	22.39	22.37
		50	25	22.29	22.26	22.35
		50	50	22.23	22.22	22.32
		100	0	22.22	22.58	22.47
	16QAM	1	0	22.43	22.32	22.58
		1	50	22.49	22.57	22.74
		1	99	22.37	22.53	22.52
		50	0	21.30	21.32	21.54
		50	25	21.29	21.37	21.61
		50	50	21.19	21.23	21.52
		100	0	21.26	21.34	21.59
	64QAM	1	0	21.41	21.42	21.58
		1	50	21.31	21.38	21.65
		1	99	21.26	21.33	21.49
		50	0	20.27	20.31	20.51
		50	25	20.25	20.33	20.54
		50	50	20.13	20.19	20.58
		100	0	20.18	20.27	20.56

LTE Band 12

Band/BW	Modulation	RB Size	RB Offset	Low CH 23017 Frequency 699.7 MHz	Mid CH 23095 Frequency 707.5 MHz	High CH 23173 Frequency 715.3 MHz
12/ 1.4	QPSK	1	0	24.02	23.95	24.06
		1	2	24.12	24.08	24.05
		1	5	24.02	23.94	23.89
		3	0	23.88	23.99	23.94
		3	1	23.95	23.88	23.91
		3	3	23.83	23.91	23.90
		6	0	23.17	23.06	22.97
	16QAM	1	0	23.33	23.31	23.36
		1	2	23.33	23.23	23.27
		1	5	23.10	23.36	23.39
		3	0	23.44	23.49	23.49
		3	1	23.43	23.47	23.48
		3	3	23.39	23.50	23.42
		6	0	22.02	21.98	22.11
	64QAM	1	0	22.33	22.19	22.24
		1	2	22.32	22.39	22.25
		1	5	22.09	22.19	22.22
		3	0	22.07	22.12	22.13
		3	1	22.12	22.12	22.14
		3	3	22.13	22.05	22.05
		6	0	21.07	21.02	21.09

Band/BW	Modulation	RB Size	RB Offset	Low CH 23025 Frequency 700.5 MHz	Mid CH 23095 Frequency 707.5 MHz	High CH 23165 Frequency 714.5 MHz
12/ 3	QPSK	1	0	24.05	23.95	24.08
		1	7	24.08	24.13	24.02
		1	14	23.98	23.94	23.97
		8	0	23.05	23.09	23.04
		8	3	23.09	23.08	23.11
		8	7	23.03	23.10	23.05
		15	0	23.13	22.95	22.95
	16QAM	1	0	23.36	23.39	23.30
		1	7	23.35	23.26	23.18
		1	14	23.11	23.29	23.44
		8	0	22.04	22.12	21.99
		8	3	22.11	22.05	22.08
		8	7	22.16	22.21	22.03
		15	0	22.05	22.05	22.02
	64QAM	1	0	22.29	22.29	22.20
		1	7	22.23	22.39	22.25
		1	14	22.11	22.25	22.15
		8	0	21.13	21.14	21.14
		8	3	21.08	21.19	21.07
		8	7	21.09	21.11	21.11
		15	0	20.99	21.11	21.04

Band/BW	Modulation	RB Size	RB Offset	Low CH 23035 Frequency 701.5 MHz	Mid CH 23095 Frequency 707.5 MHz	High CH 23155 Frequency 713.5 MHz
12/ 5	QPSK	1	0	23.99	24.05	24.03
		1	12	24.11	24.00	24.00
		1	24	23.97	23.91	23.94
		12	0	23.03	22.99	23.10
		12	6	23.18	23.05	23.10
		12	13	22.96	23.10	23.11
		25	0	23.12	23.08	22.97
	16QAM	1	0	23.39	23.29	23.33
		1	12	23.35	23.23	23.25
		1	24	23.15	23.30	23.43
		12	0	22.01	22.12	22.04
		12	6	22.06	22.09	22.05
		12	13	22.16	22.09	22.04
		25	0	21.97	22.06	22.01
	64QAM	1	0	22.28	22.16	22.19
		1	12	22.31	22.45	22.31
		1	24	22.21	22.20	22.14
		12	0	21.00	21.11	21.07
		12	6	21.18	21.15	21.12
		12	13	21.13	21.08	21.09
		25	0	21.08	20.99	21.00

Band/BW	Modulation	RB Size	RB Offset	Low CH 23060 Frequency 704 MHz	Mid CH 23095 Frequency 707.5 MHz	High CH 23130 Frequency 711 MHz
12/ 10	QPSK	1	0	24.14	24.13	24.15
		1	24	**24.21**	24.18	24.16
		1	49	24.06	24.07	24.04
		25	0	23.15	23.16	23.14
		25	12	23.26	23.17	23.18
		25	25	23.14	23.15	23.18
		50	0	23.22	23.13	23.11
	16QAM	1	0	23.47	23.43	23.41
		1	24	23.41	23.37	23.32
		1	49	23.25	23.41	23.54
		25	0	22.18	22.18	22.16
		25	12	22.16	22.21	22.21
		25	25	22.20	22.27	22.19
		50	0	22.12	22.13	22.17
	64QAM	1	0	22.41	22.34	22.32
		1	24	22.38	22.52	22.36
		1	49	22.27	22.33	22.31
		25	0	21.18	21.26	21.21
		25	12	21.23	21.24	21.19
		25	25	21.21	21.19	21.16
		50	0	21.12	21.17	21.17

LTE Band 13

Band/BW	Modulation	RB Size	RB Offset	Low CH 23205 Frequency 779.5 MHz	Mid CH 23230 Frequency 782.0 MHz	High CH 23255 Frequency 784.5 MHz
13/ 5	QPSK	1	0	24.33	24.29	24.26
		1	12	24.29	24.25	24.22
		1	24	24.22	24.11	24.19
		12	0	23.26	23.21	23.23
		12	6	23.33	23.19	23.29
		12	13	23.26	23.22	23.28
		25	0	23.32	23.21	23.17
	16QAM	1	0	23.62	23.51	23.60
		1	12	23.58	23.59	23.56
		1	24	23.46	23.50	23.48
		12	0	22.33	22.26	22.29
		12	6	22.29	22.20	22.21
		12	13	22.38	22.28	22.33
		25	0	22.36	22.19	22.21
	64QAM	1	0	22.41	22.39	22.49
		1	12	22.44	22.55	22.43
		1	24	22.28	22.45	22.39
		12	0	21.25	21.32	21.22
		12	6	21.30	21.31	21.27
		12	13	21.29	21.30	21.32
		25	0	21.22	21.21	21.15

Band/BW	Modulation	RB Size	RB Offset	/	Mid CH 23230	/
				/	Frequency 782.0 MHz	/
13/ 10	QPSK	1	0	/	24.32	/
		1	24	/	**24.41**	/
		1	49	/	24.27	/
		25	0	/	23.39	/
		25	12	/	23.42	/
		25	25	/	23.40	/
		50	0	/	23.38	/
	16QAM	1	0	/	23.50	/
		1	24	/	23.64	/
		1	49	/	23.49	/
		25	0	/	23.39	/
		25	12	/	22.34	/
		25	25	/	22.27	/
		50	0	/	22.30	/
	64QAM	1	0	/	22.24	/
		1	24	/	22.49	/
		1	49	/	22.43	/
		25	0	/	21.34	/
		25	12	/	21.25	/
		25	25	/	21.28	/
		50	0	/	21.30	/

LTE Band 17

Band/BW	Modulation	RB Size	RB Offset	Low CH 23755 Frequency 706.5 MHz	Mid CH 23790 Frequency 710 MHz	High CH 23825 Frequency 713.5 MHz
17/ 5	QPSK	1	0	23.97	24.05	24.08
		1	12	24.12	23.99	24.08
		1	24	24.00	23.90	23.84
		12	0	23.00	22.93	22.97
		12	6	23.04	23.11	23.03
		12	13	23.09	23.05	22.95
		25	0	23.04	23.07	23.07
	16QAM	1	0	23.35	23.33	23.55
		1	12	23.32	23.44	23.40
		1	24	23.26	23.25	23.22
		12	0	22.09	22.05	21.99
		12	6	22.14	22.06	22.09
		12	13	21.96	22.00	22.07
		25	0	22.02	21.95	21.98
	64QAM	1	0	22.33	22.22	22.26
		1	12	22.23	22.23	22.19
		1	24	22.16	21.98	22.08
		12	0	20.98	21.10	21.06
		12	6	21.11	21.05	21.13
		12	13	20.99	21.12	21.06
		25	0	20.98	21.15	21.05

Band/BW	Modulation	RB Size	RB Offset	Low CH 23780 Frequency 709 MHz	Mid CH 23790 Frequency 710 MHz	High CH 23800 Frequency 711 MHz
17/ 10	QPSK	1	0	24.11	24.14	24.12
		1	24	**24.18**	24.15	24.14
		1	49	24.07	24.03	24.02
		25	0	23.12	23.10	23.13
		25	12	**23.22**	23.16	23.21
		25	25	23.16	23.15	23.10
		50	0	**23.14**	23.13	23.11
	16QAM	1	0	23.50	23.45	23.63
		1	24	23.44	23.56	23.48
		1	49	23.38	23.33	23.37
		25	0	22.19	22.12	22.09
		25	12	22.22	22.23	22.22
		25	25	22.13	22.18	22.17
		50	0	22.14	22.11	22.15
	64QAM	1	0	22.45	22.30	22.33
		1	24	22.37	22.34	22.37
		1	49	22.25	22.15	22.19
		25	0	21.12	21.18	21.16
		25	12	21.24	21.17	21.22
		25	25	21.16	21.23	21.20
		50	0	21.13	21.21	21.10

LTE Band 71

Band/BW	Modulation	RB Size	RB Offset	Low CH 133147	Mid CH 133247	High CH 133447
				Frequency 665.5MHz	Frequency 675.5MHz	Frequency 695.5MHz
71/ 5	QPSK	1	0	23.51	23.58	23.42
		1	12	23.45	23.53	23.44
		1	24	23.47	23.40	23.32
		12	0	22.55	22.52	22.59
		12	6	22.52	22.54	22.43
		12	13	22.60	22.42	22.47
		25	0	22.53	22.53	22.49
	16QAM	1	0	22.84	23.01	22.76
		1	12	22.79	22.75	22.73
		1	24	22.70	22.60	22.57
		12	0	21.56	21.61	21.53
		12	6	21.59	21.56	21.51
		12	13	21.58	21.59	21.46
		25	0	21.64	21.57	21.48
	64QAM	1	0	21.72	21.51	21.73
		1	12	21.57	21.55	21.59
		1	24	21.73	21.61	21.55
		12	0	20.63	20.61	20.76
		12	6	20.57	20.51	20.44
		12	13	20.60	20.68	20.39
		25	0	20.58	20.55	20.48

Band/BW	Modulation	RB Size	RB Offset	Low CH 133172 Frequency 668MHz	Mid CH 133272 Frequency 678MHz	High CH 133172 Frequency 693MHz
71/ 10	QPSK	1	0	23.57	23.55	23.49
		1	24	23.52	23.48	23.46
		1	49	23.34	23.37	23.32
		25	0	22.60	22.65	22.59
		25	12	22.54	22.52	22.38
		25	25	22.62	22.42	22.38
		50	0	22.61	22.57	22.55
	16QAM	1	0	22.78	23.04	22.76
		1	24	22.79	22.76	22.76
		1	49	22.70	22.64	22.57
		25	0	21.57	21.60	21.53
		25	12	21.61	21.49	21.51
		25	25	21.50	21.62	21.56
		50	0	21.61	21.57	21.48
	64QAM	1	0	21.79	21.48	21.73
		1	24	21.68	21.60	21.50
		1	49	21.72	21.59	21.60
		25	0	20.61	20.71	20.78
		25	12	20.59	20.47	20.54
		25	25	20.64	20.65	20.39
		50	0	20.48	20.56	20.51

Band/BW	Modulation	RB Size	RB Offset	Low CH 133197 Frequency 670.5MHz	Mid CH 133297 Frequency 680.5MHz	High CH 133397 Frequency 690.5MHz
71/ 15	QPSK	1	0	23.60	23.57	23.53
		1	37	23.40	23.52	23.39
		1	74	23.39	23.36	23.23
		36	0	22.55	22.63	22.50
		36	19	22.56	22.54	22.42
		36	39	22.51	22.40	22.38
		75	0	22.60	22.60	22.52
	16QAM	1	0	22.83	23.06	22.71
		1	37	22.84	22.85	22.70
		1	74	22.67	22.71	22.59
		36	0	21.55	21.58	21.58
		36	19	21.51	21.51	21.50
		36	39	21.52	21.53	21.57
		75	0	21.74	21.53	21.49
	64QAM	1	0	21.80	21.52	21.70
		1	37	21.64	21.57	21.54
		1	74	21.74	21.59	21.50
		36	0	20.57	20.74	20.70
		36	19	20.62	20.44	20.48
		36	39	20.57	20.70	20.38
		75	0	20.48	20.51	20.45

Band/BW	Modulation	RB Size	RB Offset	Low CH 133222 Frequency 673MHz	Mid CH 133322 Frequency 683MHz	High CH 133372 Frequency 688MHz
71/ 20	QPSK	1	0	23.62	**23.69**	23.57
		1	50	23.54	23.56	23.53
		1	99	23.49	23.42	23.38
		50	0	22.66	22.67	22.62
		50	25	22.61	22.63	22.54
		50	50	22.65	22.52	22.53
		100	0	22.65	22.68	22.63
	16QAM	1	0	22.93	23.08	22.87
		1	50	22.89	22.91	22.82
		1	99	22.73	22.74	22.66
		50	0	21.67	21.71	21.61
		50	25	21.65	21.64	21.65
		50	50	21.66	21.66	21.60
		100	0	21.77	21.61	21.59
	64QAM	1	0	21.84	21.60	21.78
		1	50	21.71	21.62	21.62
		1	99	21.80	21.68	21.63
		50	0	20.66	20.76	20.80
		50	25	20.69	20.59	20.57
		50	50	20.67	20.73	20.49
		100	0	20.63	20.66	20.61

EIRP

WCDMA IV(ANT1)

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
1312	1712.4	23.67	-1.74	21.93	155.96	1
1413	1732.6	23.65	-1.74	21.91	155.24	1
1513	1752.6	23.57	-1.74	21.83	152.41	1

WCDMA IV(ANT3)

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
1312	1712.4	23.42	-2.56	20.86	121.9	1
1413	1732.6	23.44	-2.56	20.88	122.46	1
1513	1752.6	23.45	-2.56	20.89	122.74	1

ANT0:
LTE BAND 7
CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20775	2502.5	23.3	-1.63	21.67	146.89	2
21100	2535.0	23.46	-1.63	21.83	152.41	2
21425	2567.5	23.36	-1.63	21.73	148.94	2

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20775	2502.5	22.37	-1.63	20.74	118.58	2
21100	2535.0	22.47	-1.63	20.84	121.34	2
21425	2567.5	22.57	-1.63	20.94	124.17	2

CHANNEL BANDWIDTH: 5MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20775	2502.5	21.36	-1.63	19.73	93.97	2
21100	2535	21.37	-1.63	19.74	94.19	2
21425	2567.5	21.52	-1.63	19.89	97.5	2

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20800	2505.0	23.33	-1.63	21.7	147.91	2
21100	2535.0	23.44	-1.63	21.81	151.71	2
21400	2565.0	23.36	-1.63	21.73	148.94	2

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20800	2505.0	22.42	-1.63	20.79	119.95	2
21100	2535.0	22.47	-1.63	20.84	121.34	2
21400	2565.0	22.68	-1.63	21.05	127.35	2

CHANNEL BANDWIDTH: 10MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20800	2505	21.36	-1.63	19.73	93.97	2
21100	2535	21.26	-1.63	19.63	91.83	2
21400	2565	21.5	-1.63	19.87	97.05	2

CHANNEL BANDWIDTH: 15MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20825	2507.5	23.33	-1.63	21.7	147.91	2
21100	2535.0	23.43	-1.63	21.8	151.36	2
21375	2562.5	23.38	-1.63	21.75	149.62	2

CHANNEL BANDWIDTH: 15MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20825	2507.5	22.42	-1.63	20.79	119.95	2
21100	2535.0	22.52	-1.63	20.89	122.74	2
21375	2562.5	22.56	-1.63	20.93	123.88	2

CHANNEL BANDWIDTH: 15MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20825	2507.5	21.28	-1.63	19.65	92.26	2
21100	2535	21.33	-1.63	19.7	93.33	2
21375	2562.5	21.61	-1.63	19.98	99.54	2

CHANNEL BANDWIDTH: 20MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510.0	23.43	-1.63	21.8	151.36	2
21100	2535.0	23.59	-1.63	21.96	157.04	2
21350	2560.0	23.47	-1.63	21.84	152.76	2

CHANNEL BANDWIDTH: 20MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510.0	22.49	-1.63	20.86	121.9	2
21100	2535.0	22.57	-1.63	20.94	124.17	2
21350	2560.0	22.74	-1.63	21.11	129.12	2

CHANNEL BANDWIDTH: 20MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510	21.41	-1.63	19.78	95.06	2
21100	2535	21.42	-1.63	19.79	95.28	2
21350	2560	21.65	-1.63	20.02	100.46	2

REMARKS: ERP Output Power (dBm) = EIRP (dBm) -2.15(dB).

LTE BAND 12
CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23017	699.7	24.12	-6.61	15.36	34.36	3
23095	707.5	24.08	-6.61	15.32	34.04	3
23173	715.3	24.06	-6.61	15.3	33.88	3

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23017	699.7	23.44	-6.61	14.68	29.38	3
23095	707.5	23.5	-6.61	14.74	29.79	3
23173	715.3	23.49	-6.61	14.73	29.72	3

CHANNEL BANDWIDTH: 1.4MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23017	699.7	22.33	-6.61	13.57	22.75	3
23095	707.5	22.39	-6.61	13.63	23.07	3
23173	715.3	22.25	-6.61	13.49	22.34	3

CHANNEL BANDWIDTH: 3MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23025	700.5	24.08	-6.61	15.32	34.04	3
23095	707.5	24.13	-6.61	15.37	34.43	3
23165	714.5	24.08	-6.61	15.32	34.04	3

CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23025	700.5	23.36	-6.61	14.6	28.84	3
23095	707.5	23.39	-6.61	14.63	29.04	3
23165	714.5	23.44	-6.61	14.68	29.38	3

CHANNEL BANDWIDTH: 3MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23025	700.5	22.29	-6.61	13.53	22.54	3
23095	707.5	22.39	-6.61	13.63	23.07	3
23165	714.5	22.25	-6.61	13.49	22.34	3

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23035	701.5	24.11	-6.61	15.35	34.28	3
23095	707.5	24.05	-6.61	15.29	33.81	3
23155	713.5	24.03	-6.61	15.27	33.65	3

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23035	701.5	23.39	-6.61	14.63	29.04	3
23095	707.5	23.3	-6.61	14.54	28.44	3
23155	713.5	23.43	-6.61	14.67	29.31	3

CHANNEL BANDWIDTH: 5MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23035	701.5	22.31	-6.61	13.55	22.65	3
23095	707.5	22.45	-6.61	13.69	23.39	3
23155	713.5	22.31	-6.61	13.55	22.65	3

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23060	704	24.21	-6.61	15.45	35.08	3
23095	707.5	24.18	-6.61	15.42	34.83	3
23130	711	24.16	-6.61	15.4	34.67	3

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23060	704	23.47	-6.61	14.71	29.58	3
23095	707.5	23.43	-6.61	14.67	29.31	3
23130	711	23.54	-6.61	14.78	30.06	3

CHANNEL BANDWIDTH: 10MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23060	704	22.41	-6.61	13.65	23.17	3
23095	707.5	22.52	-6.61	13.76	23.77	3
23130	711	22.36	-6.61	13.6	22.91	3

REMARKS: ERP Output Power (dBm) = EIRP (dBm) -2.15(dB).

LTE BAND 13

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23205	779.5	24.33	-6.87	15.31	33.96	3
23230	782	24.29	-6.87	15.27	33.65	3
23255	784.5	24.26	-6.87	15.24	33.42	3

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23205	779.5	23.62	-6.87	14.6	28.84	3
23230	782	23.59	-6.87	14.57	28.64	3
23255	784.5	23.6	-6.87	14.58	28.71	3

CHANNEL BANDWIDTH: 5MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23205	779.5	22.44	-6.87	13.42	21.98	3
23230	782	22.55	-6.87	13.53	22.54	3
23255	784.5	22.49	-6.87	13.47	22.23	3

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
-	-	-	-	-	-	-
23230	782	24.41	-6.87	15.39	34.59	3
-	-	-	-	-	-	-

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
-	-	-	-	-	-	-
23230	782	23.64	-6.87	14.62	28.97	3
-	-	-	-	-	-	-

CHANNEL BANDWIDTH: 10MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
-	-	-	-	-	-	-
23230	782	22.49	-6.87	13.47	22.23	3
-	-	-	-	-	-	-

REMARKS: ERP Output Power (dBm) = EIRP (dBm) -2.15(dB).

LTE BAND 17

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23755	706.5	24.12	-6.87	15.1	32.36	3
23790	710	24.05	-6.87	15.03	31.84	3
23825	713.5	24.08	-6.87	15.06	32.06	3

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23755	706.5	23.35	-6.87	14.33	27.1	3
23790	710	23.44	-6.87	14.42	27.67	3
23825	713.5	23.55	-6.87	14.53	28.38	3

CHANNEL BANDWIDTH: 5MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23755	706.5	22.33	-6.87	13.31	21.43	3
23790	710	22.23	-6.87	13.21	20.94	3
23825	713.5	22.26	-6.87	13.24	21.09	3

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23780	709	24.18	-6.87	15.16	32.81	3
23790	710	24.15	-6.87	15.13	32.58	3
23800	711	24.14	-6.87	15.12	32.51	3

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23780	709	23.5	-6.87	14.48	28.05	3
23790	710	23.56	-6.87	14.54	28.44	3
23800	711	23.63	-6.87	14.61	28.91	3

CHANNEL BANDWIDTH: 10MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23780	709	22.45	-6.87	13.43	22.03	3
23790	710	22.34	-6.87	13.32	21.48	3
23800	711	22.37	-6.87	13.35	21.63	3

REMARKS: ERP Output Power (dBm) = EIRP (dBm) -2.15(dB).

LTE BAND 71

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133147	665.5	23.51	-6.65	14.71	29.58	3
133297	680.5	23.58	-6.65	14.78	30.06	3
133447	695.5	23.44	-6.65	14.64	29.11	3

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133147	665.5	22.84	-6.65	14.04	25.35	3
133297	680.5	23.01	-6.65	14.21	26.36	3
133447	695.5	22.76	-6.65	13.96	24.89	3

CHANNEL BANDWIDTH: 5MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133147	665.5	21.73	-6.65	12.93	19.63	3
133297	680.5	21.61	-6.65	12.81	19.1	3
133447	695.5	21.73	-6.65	12.93	19.63	3

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133172	668	23.57	-6.65	14.77	29.99	3
133297	680.5	23.55	-6.65	14.75	29.85	3
133422	693	23.49	-6.65	14.69	29.44	3

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133172	668	22.79	-6.65	13.99	25.06	3
133297	680.5	23.04	-6.65	14.24	26.55	3
133422	693	22.76	-6.65	13.96	24.89	3

CHANNEL BANDWIDTH: 10MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133172	668	21.79	-6.65	12.99	19.91	3
133297	680.5	21.6	-6.65	12.8	19.05	3
133422	693	21.73	-6.65	12.93	19.63	3

CHANNEL BANDWIDTH: 15MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133197	670.5	23.6	-6.65	14.8	30.2	3
133297	680.5	23.57	-6.65	14.77	29.99	3
133397	690.5	23.53	-6.65	14.73	29.72	3

CHANNEL BANDWIDTH: 15MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133197	670.5	22.84	-6.65	14.04	25.35	3
133297	680.5	23.06	-6.65	14.26	26.67	3
133397	690.5	22.71	-6.65	13.91	24.6	3

CHANNEL BANDWIDTH: 15MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133197	670.5	21.8	-6.65	13	19.95	3
133297	680.5	21.59	-6.65	12.79	19.01	3
133397	690.5	21.7	-6.65	12.9	19.5	3

CHANNEL BANDWIDTH: 20MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133222	673	23.62	-6.65	14.82	30.34	3
133322	683	23.69	-6.65	14.89	30.83	3
133372	688	23.57	-6.65	14.77	29.99	3

CHANNEL BANDWIDTH: 20MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133222	673	22.93	-6.65	14.13	25.88	3
133322	683	23.08	-6.65	14.28	26.79	3
133372	688	22.87	-6.65	14.07	25.53	3

CHANNEL BANDWIDTH: 20MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133222	673	21.84	-6.65	13.04	20.14	3
133322	683	21.68	-6.65	12.88	19.41	3
133372	688	21.78	-6.65	12.98	19.86	3

REMARKS: ERP Output Power (dBm) = EIRP (dBm) -2.15(dB).

3.2 FREQUENCY STABILITY MEASUREMENT

3.2.1 LIMITS OF FREQUENCY STABILIITY MEASUREMENT

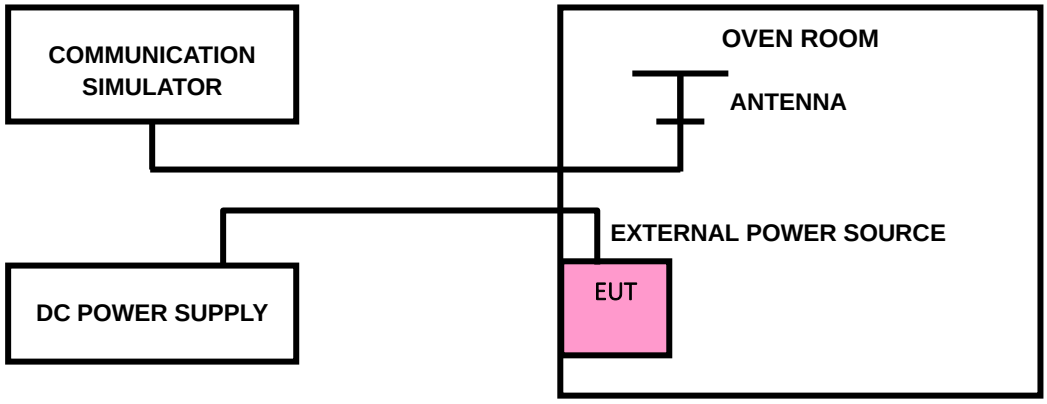
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

3.2.2 TEST PROCEDURE

a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
b. EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the ±0.5℃ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

NOTE: The frequency error was recorded frequency error from the communication simulator.

3.2.3 TEST SETUP



3.2.4 TEST RESULTS

Please Refer to Appendix G Of this test report.

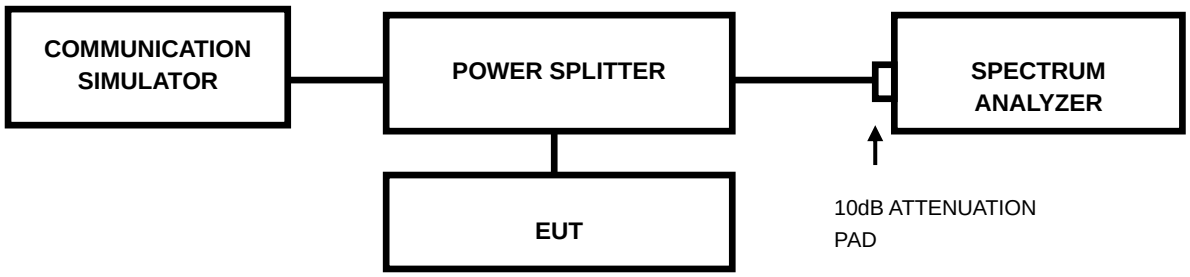
Note: VL = Low voltage(3.5V); VN/NV = Normal voltage(3.89V); VH = High voltage(4.48V);
NT = Normal temperature (25℃)

3.3 OCCUPIED BANDWIDTH MEASUREMENT

3.3.1 LIMITS OF OCCUPIED BANDWIDTH MEASUREMENT

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 %of the total mean power of a given emission.

3.3.2 TEST SETUP



3.3.3 TEST PROCEDURES

a. The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
b. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

3.3.4 TEST RESULTS

Please Refer to Appendix G Of this test report.

3.4 BAND EDGE MEASUREMENT

3.4.1 LIMITS OF BAND EDGE MEASUREMENT

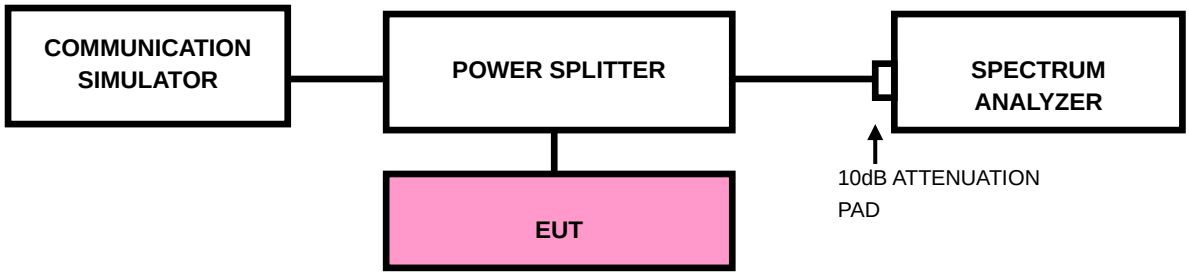
According to FCC 27.53(c) specified that For operations in the 746-758 MHz band and the 776-788 MHz band , the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.In addition, the power of any unwanted emission in an 6.25kHz bandwidth for all frequencies between 763-775 MHz and 793-806 MHz shall be attenuated below the transmitter power,P(dBW),by at least 65 +10log10p(P),dB,for mobile and portable equipment.

According to FCC 27.53(g) specified that For operations in the 600 MHz band and the 698-746 MHz 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. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

According to FCC 27.53(h) specified that For operations in the 1710-1755 MHz 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. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

According to FCC 27.53(m)(4) specified that For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. 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. For mobile digital stations, in the 1 megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed.

3.4.2 TEST SETUP



3.4.3 TEST PROCEDURES

a) All measurements were done at low and high operational frequency range

b) Connect the transmitter to the spectrum analyzer via coaxial cable while ensuring proper impedance matching.

c) Tune the analyzer to the nominal center frequency of the emission bandwidth

(EBW)

d) .Set the resolution bandwidth (RBW) ≧ 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.

e) Beyond the 1MHz band from the band edge, RBW=1MHz was used.

f) Set the video bandwidth (VBW) to ≧3 x RBW.

g) Select the average power (RMS) display detector.

h) Set the number of measurement points to ≧ 1001.

i) Use auto-coupled sweep time.

j) Perform the measurement over an interval of time when the transmission is continuous and at its maximum power level.

k) The RF fundamental frequency should be excluded against the limit line in the operating frequency band and use RBW is 10KHz or 100KHz.

l) Record the max trace plot into the test report.

3.4.4 TEST RESULTS

Please Refer to Appendix G Of this test report.

3.5 CONDUCTED SPURIOUS EMISSIONS

3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

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. The emission limit equal to –13dBm.

For: LTE Band7

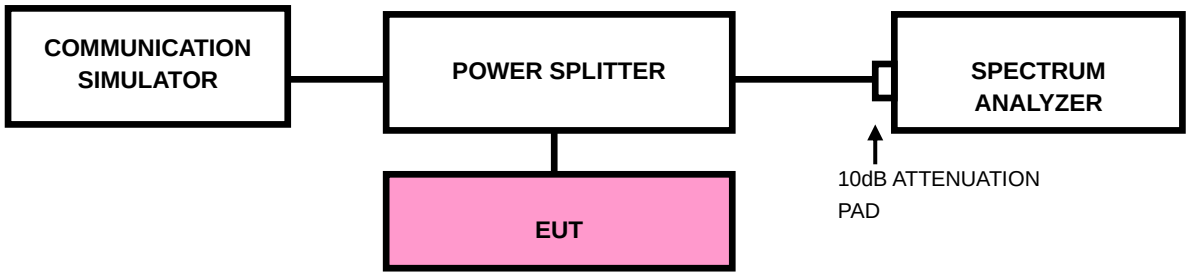
The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 55 +10 log10(P) dB. The limit of emission is equal to -25dBm.

3.5.2 TEST PROCEDURE

a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.

b. Measuring frequency range is from 9kHz up to a frequency including its 10th harmonic. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

3.5.3 TEST SETUP



3.5.4 TEST RESULTS

NOTE：The 9K~30MHz amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

Please Refer to Appendix G Of this test report.

3.6 RADIATED EMISSION MEASUREMENT

3.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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. The emission limit equal to –13dBm.

For: LTE Band7/ Band41

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 55 +10 log10(P) dB. The limit of emission is equal to -25dBm.

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3.6.2 TEST PROCEDURES

a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value “ of step a. Record the power level of S.G.
c. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.
d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.P.R power - 2.15dBi.

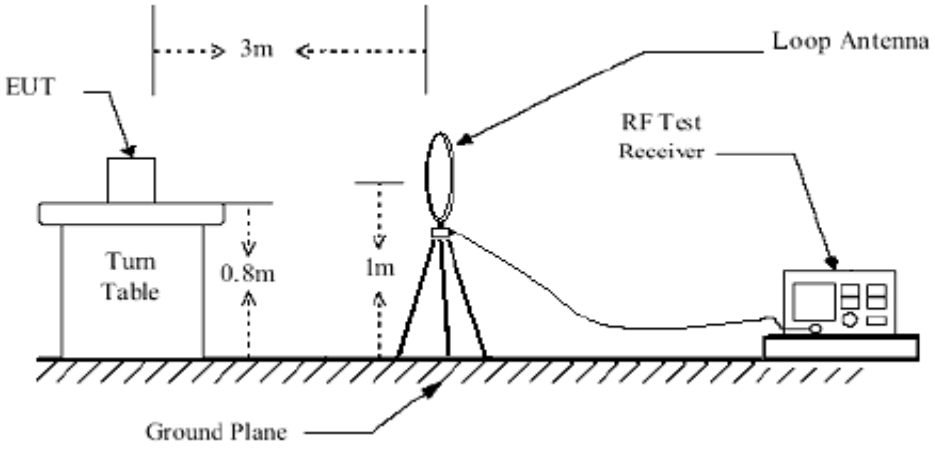
NOTE: The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

3.6.3 DEVIATION FROM TEST STANDARD

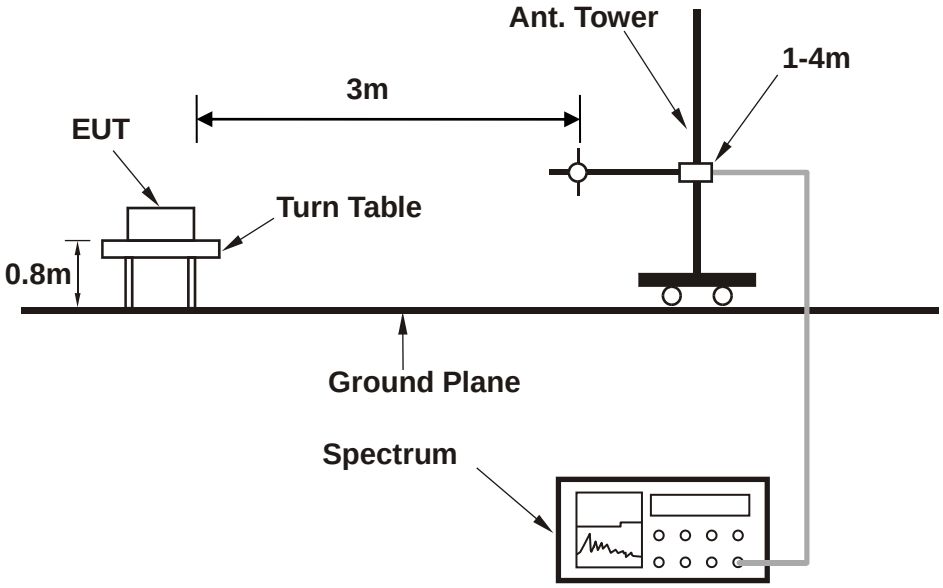
No deviation

3.6.4 TEST SETUP

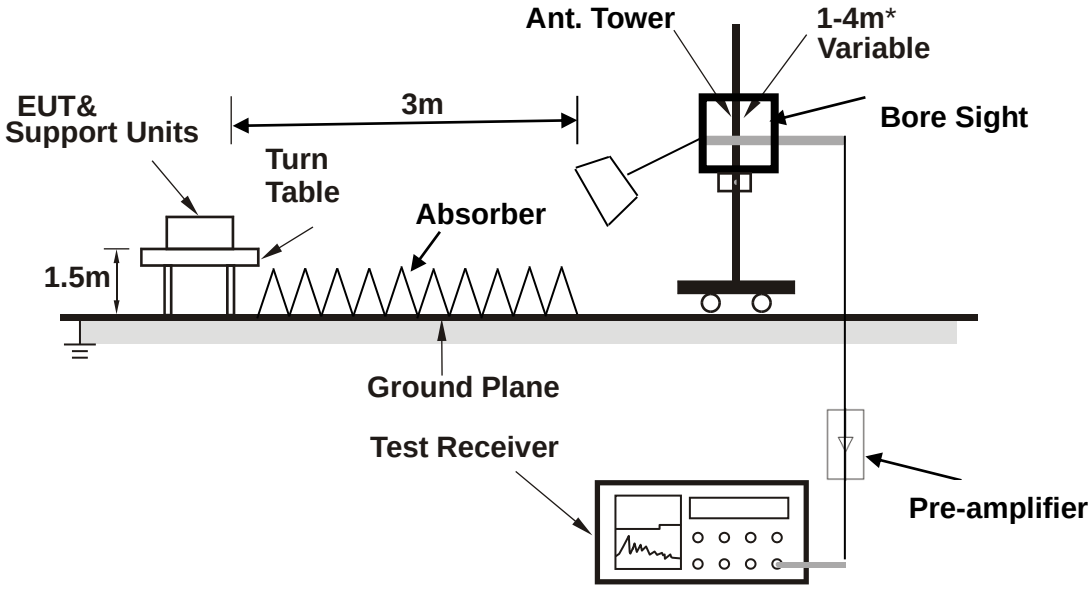
< Frequency Range below 30MHz >



< Frequency Range 30MHz~1GHz >



<Frequency Range above 1GHz>



Note: Above 1G is a directional antenna depends on the EUT height and the antenna 3dB beamwidth both, refer to section 7.3 of CISPR 16-2-3.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

3.6.5 TEST RESULTS

NOTE： The 9K~30MHz amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

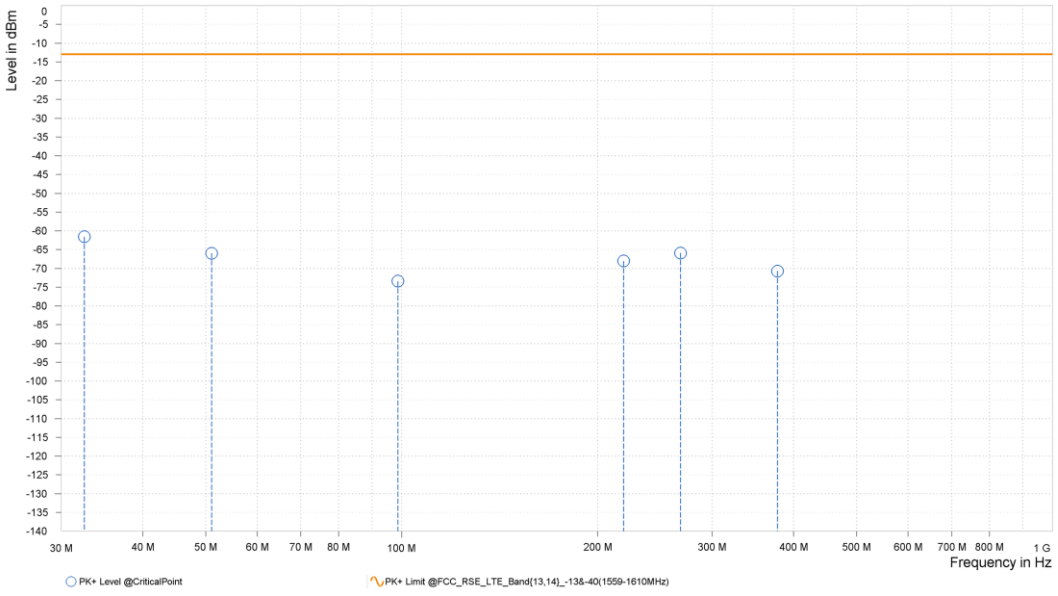
BELOW 1GHz WORST-CASE DATA

30 MHz – 1GHz data:

LTE Band 13
CHANNEL BANDWIDTH: 5MHz / QPSK

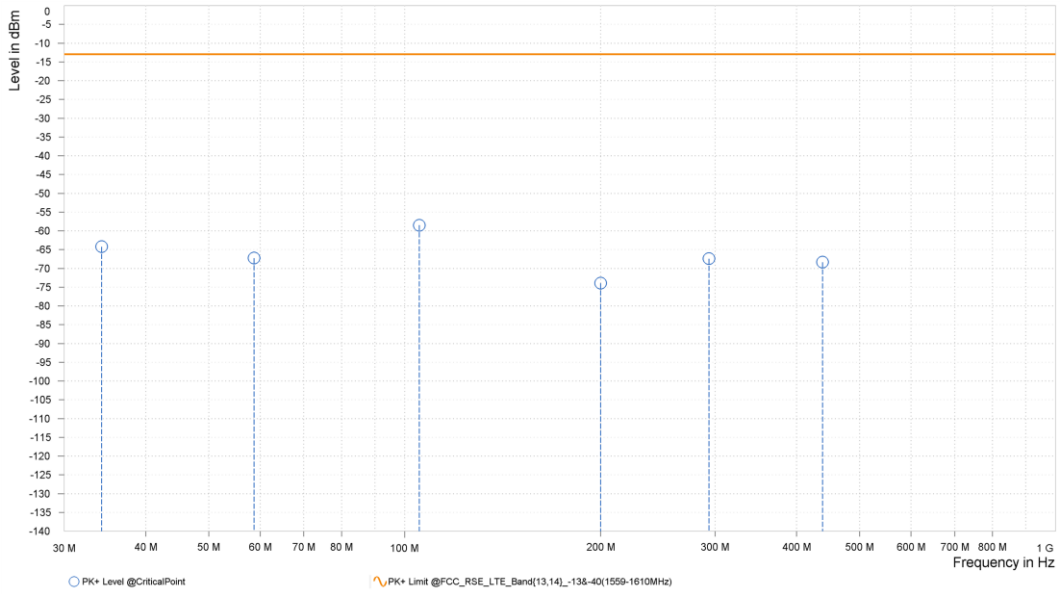
MODE	TX channel 27710	**FREQUENCY RANGE**	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	32.550	-61.59	-13.00	48.59	3.89	H	262.2	1.00
1	51.050	-65.99	-13.00	52.99	2.37	H	338.4	1.00
1	98.650	-73.41	-13.00	60.41	-5.94	H	359	2.00
1	219.350	-68.05	-13.00	55.05	1.27	H	248.2	2.00
1	268.250	-65.88	-13.00	52.88	3.14	H	1	1.00
1	377.850	-70.72	-13.00	57.72	4.81	H	302.8	1.00



MODE	TX channel 27710	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	34.250	-64.22	-13.00	51.22	-4.77	V	247.9	1.00
1	58.700	-67.25	-13.00	54.25	1.56	V	176.2	1.00
1	105.350	-58.49	-13.00	45.49	9.28	V	87	2.00
1	199.950	-73.95	-13.00	60.95	-1.58	V	176.2	1.00
1	293.500	-67.40	-13.00	54.40	3.53	V	105.7	1.00
1	438.750	-68.35	-13.00	55.35	6.93	V	122.9	2.00



ABOVE 1GHz

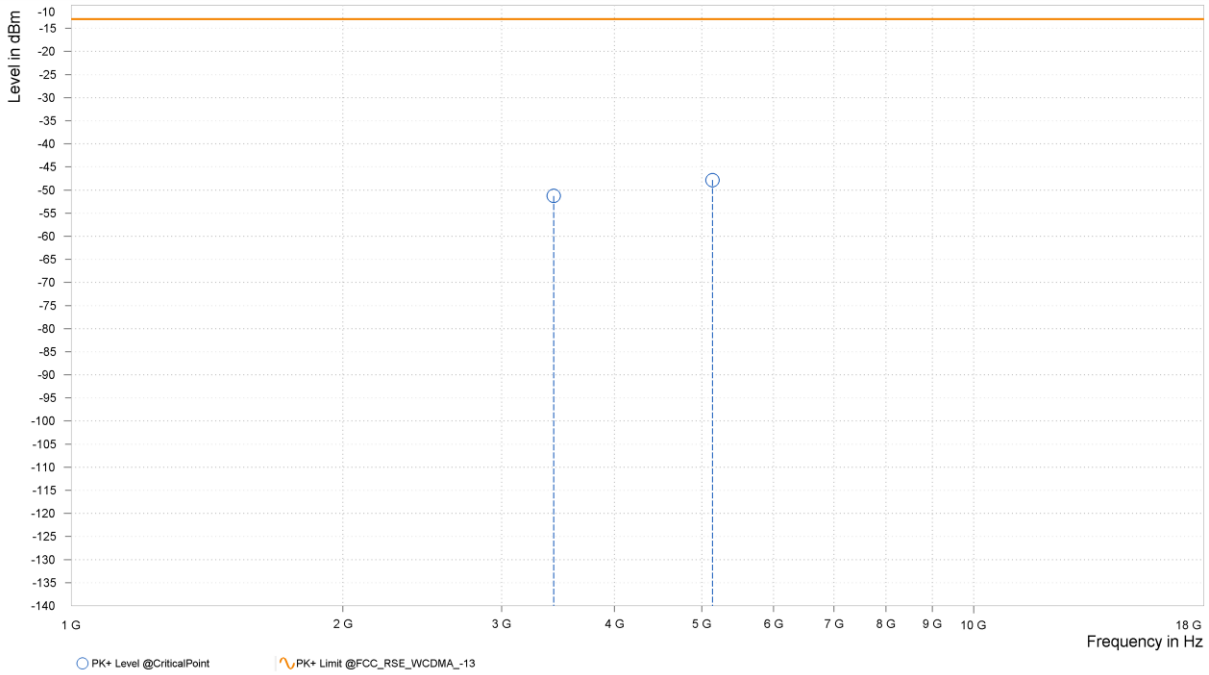
Note: For higher frequency, the emission is too low to be detected.

WCDMA Band IV (ANT1):

CH 1312

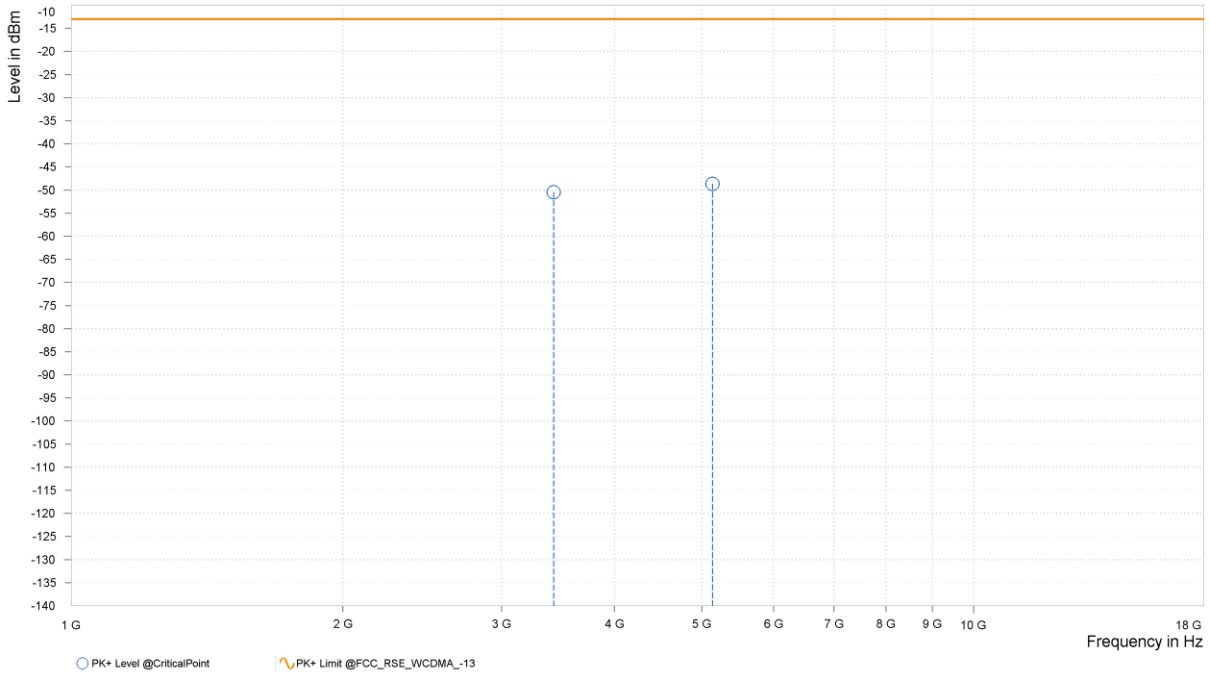
MODE	TX channel 1312	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,424.800	-51.29	-13.00	38.29	20.64	H	14.8	2.00
4	5,137.200	-47.86	-13.00	34.86	23.11	H	359	2.00



MODE	TX channel 1312	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

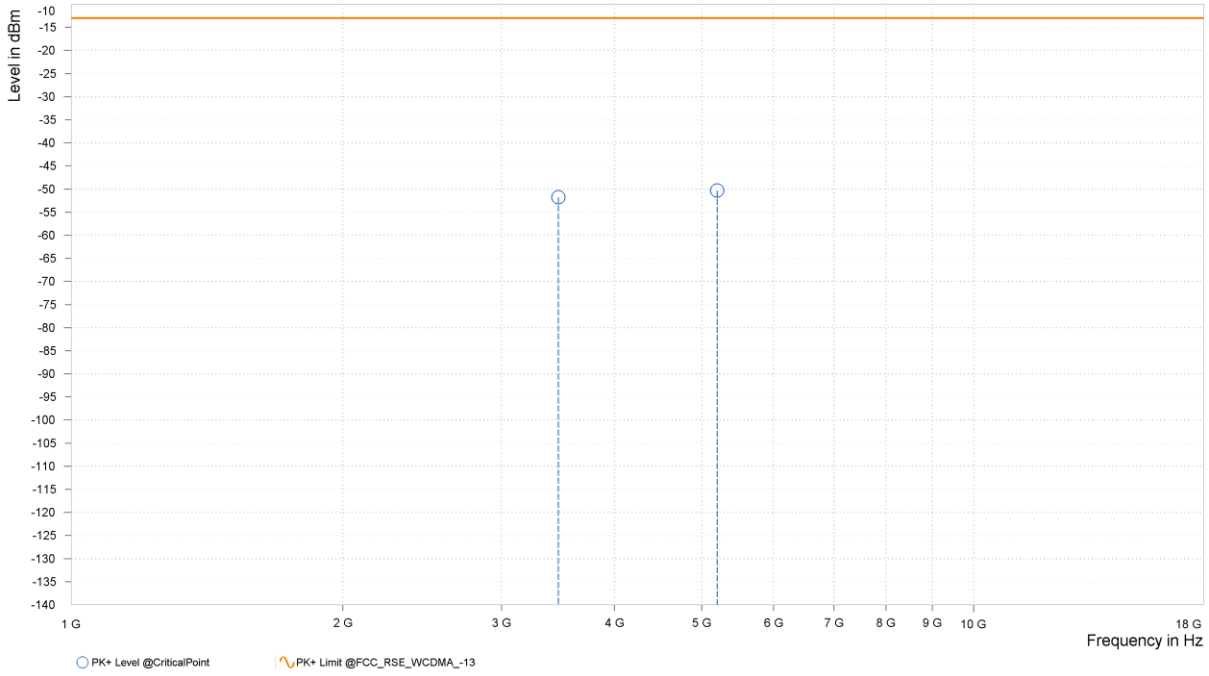
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,424.800	-50.44	-13.00	37.44	21.03	V	357.9	1.00
4	5,137.200	-48.65	-13.00	35.65	23.39	V	357.9	1.00



CH 1413

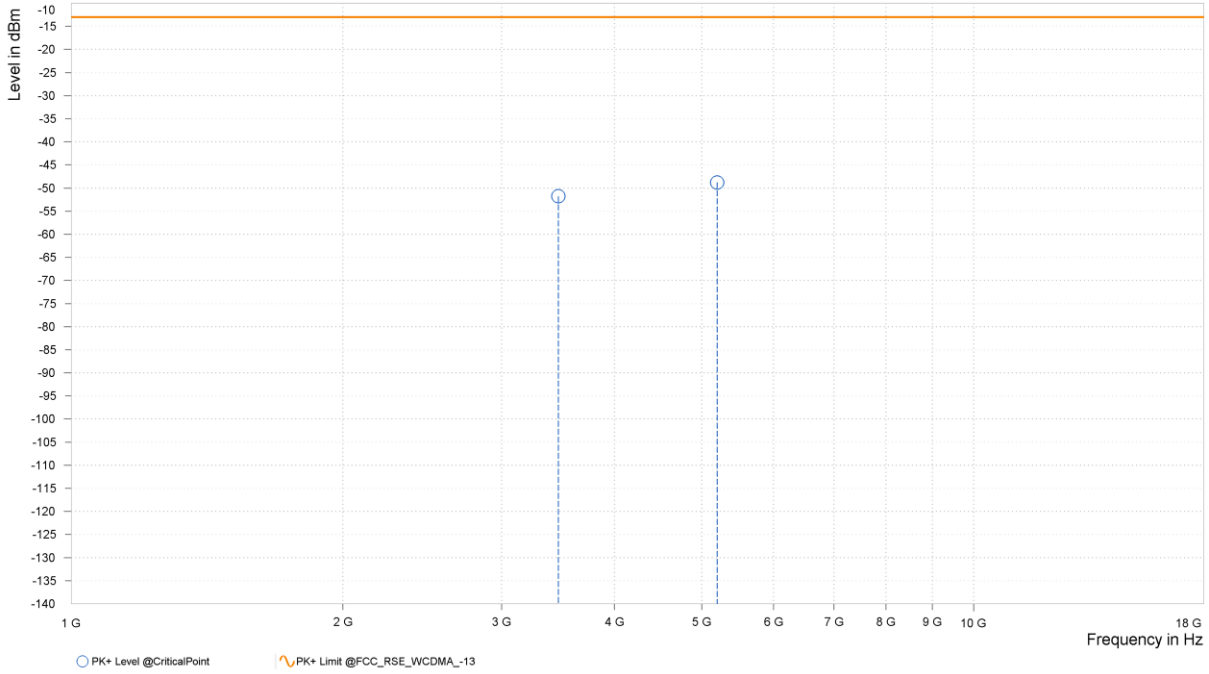
MODE	TX channel 1413	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,465.200	-51.77	-13.00	38.77	20.40	H	164.2	1.00
4	5,197.800	-50.36	-13.00	37.36	23.43	H	359.1	1.00



MODE	TX channel 1413	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

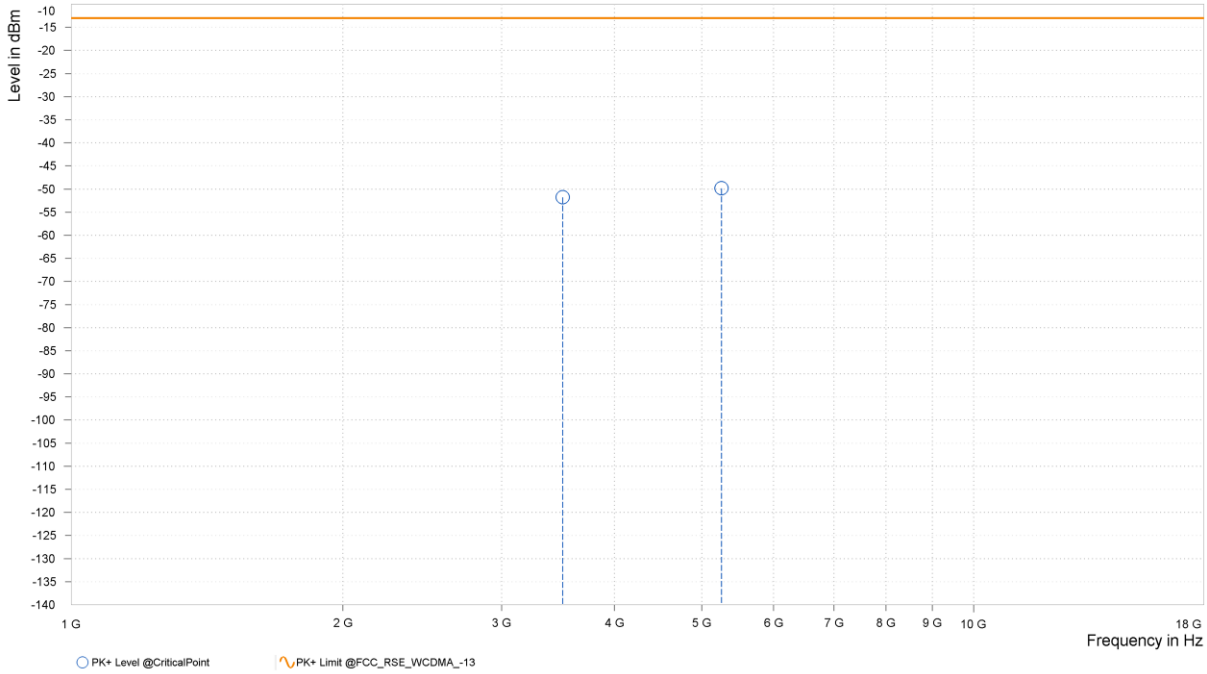
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,465.200	-51.78	-13.00	38.78	21.09	V	359	2.00
4	5,197.800	-48.78	-13.00	35.78	24.03	V	359.1	1.00



CH 1513

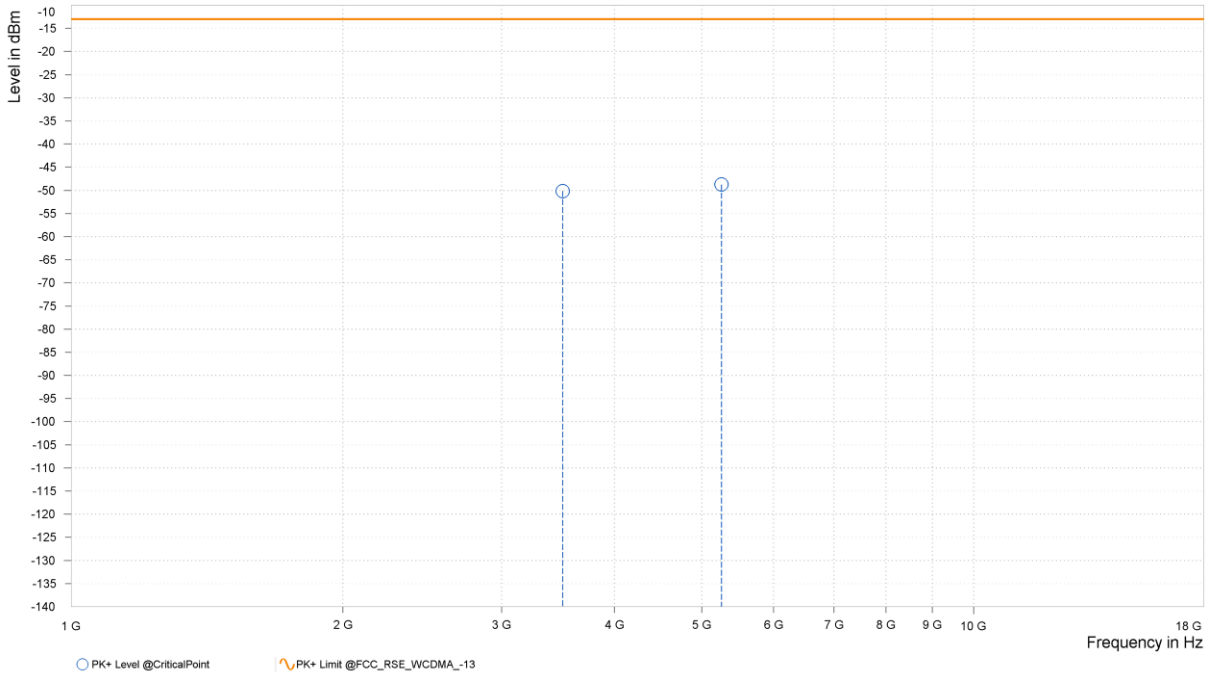
MODE	TX channel 1513	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,505.200	-51.77	-13.00	38.77	20.55	H	15	2.00
4	5,257.800	-49.85	-13.00	36.85	23.64	H	194.5	2.00



MODE	TX channel 1513	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,505.200	-50.15	-13.00	37.15	21.28	V	191	2.00
4	5,257.800	-48.76	-13.00	35.76	24.12	V	1	1.00

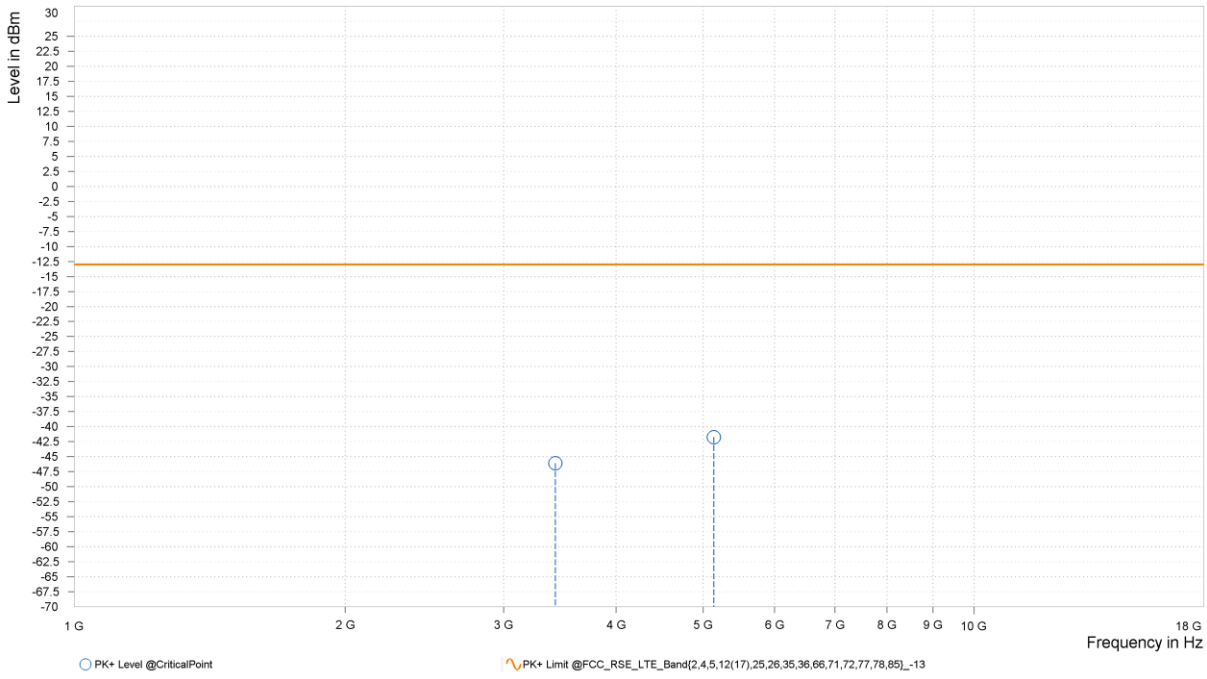


WCDMA Band IV (ANT3):

CH 1312

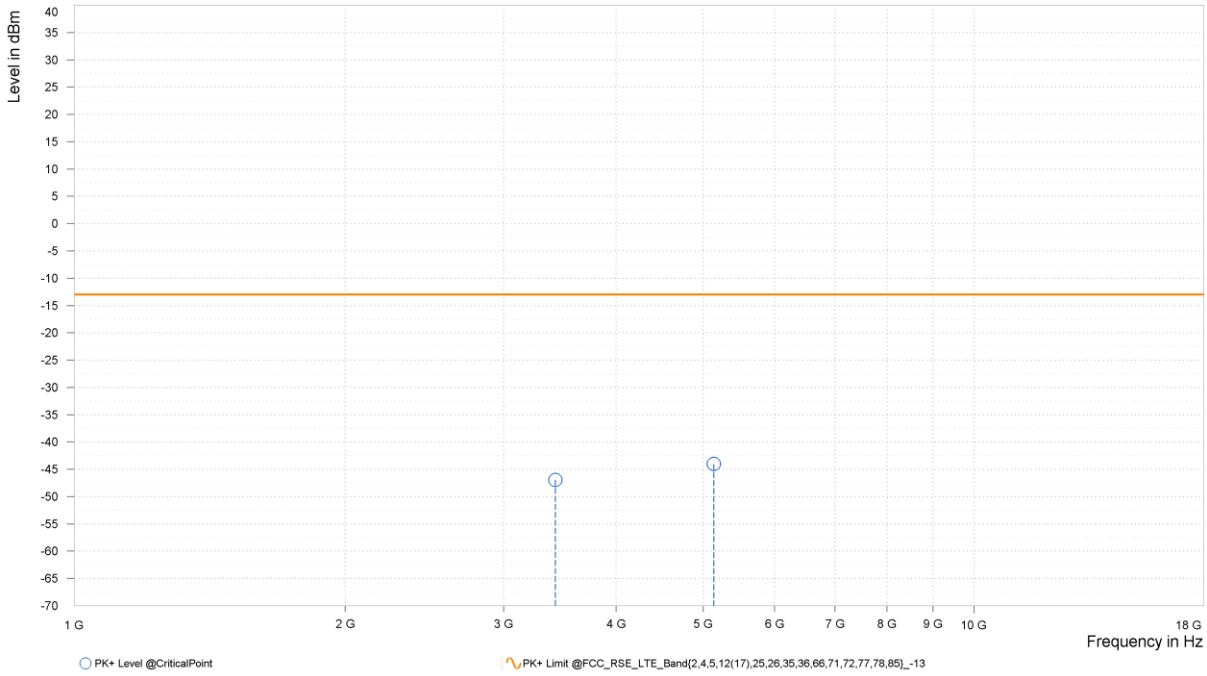
MODE	TX channel 1312	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,424.800	-46.10	-13.00	33.10	16.04	H	53.2	2.00
2	5,137.200	-41.76	-13.00	28.76	17.62	H	303.2	1.00



MODE	TX channel 1312	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

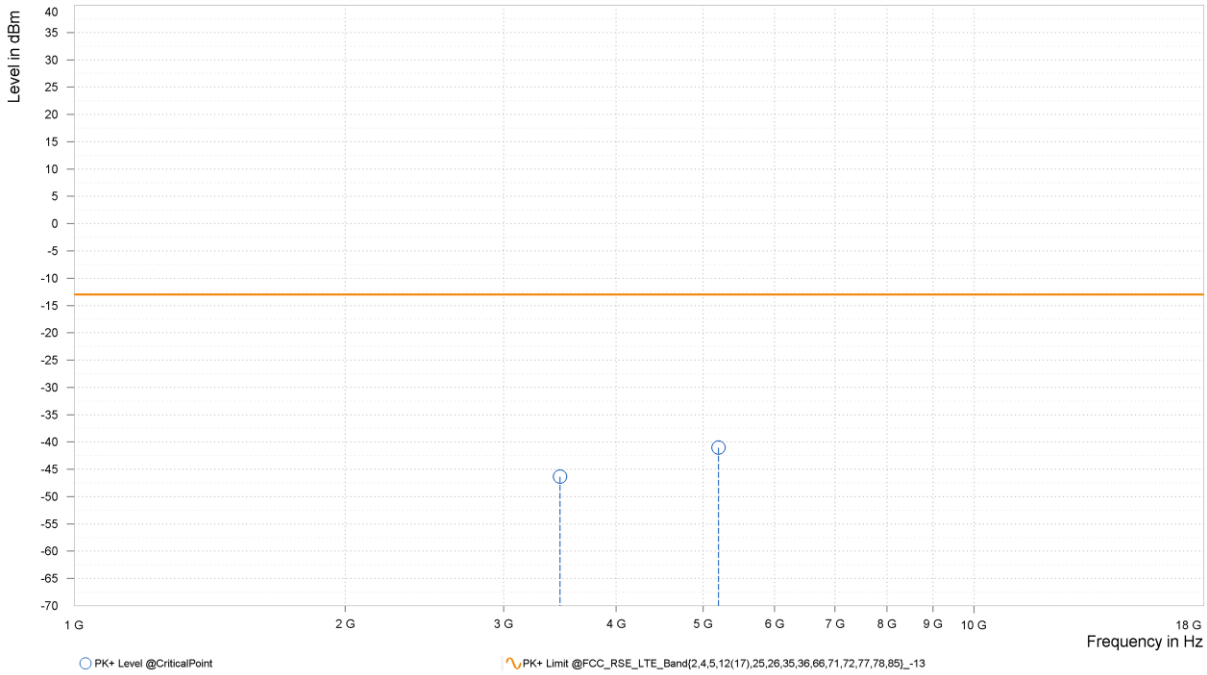
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,424.800	-46.94	-13.00	33.94	15.83	V	359	2.00
2	5,137.200	-44.04	-13.00	31.04	17.50	V	0.9	2.00



CH 1413

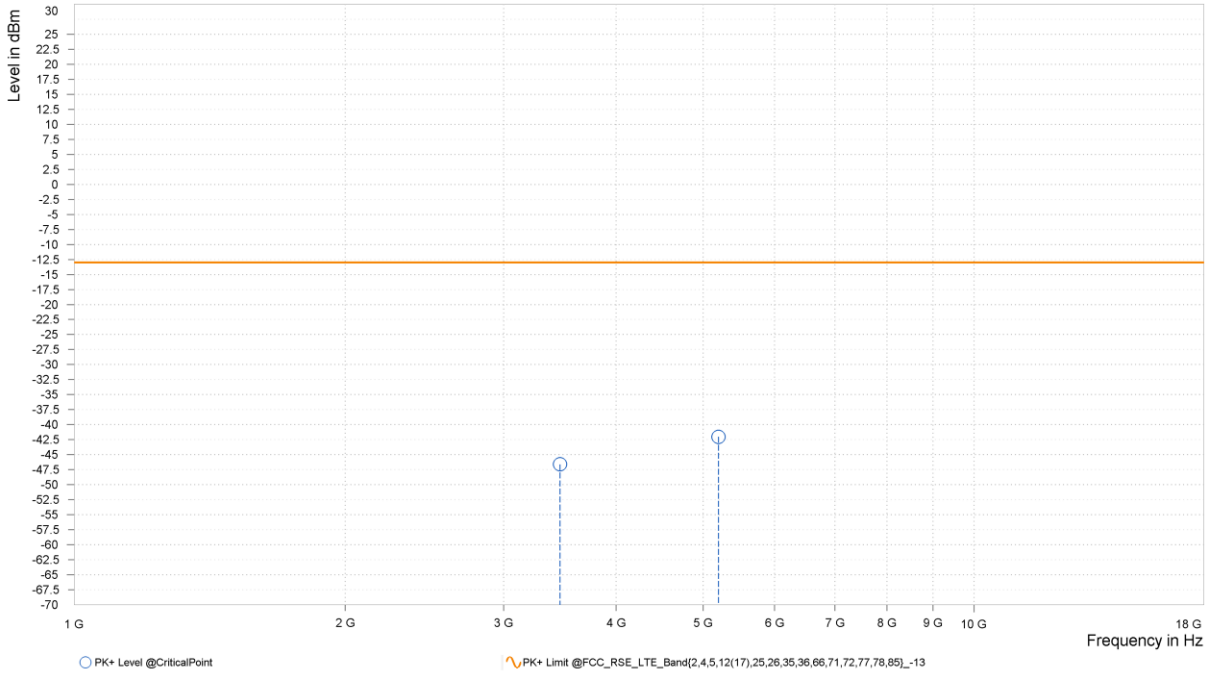
MODE	TX channel 1413	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,465.200	-46.35	-13.00	33.35	16.06	H	42.6	2.00
2	5,198.500	-41.03	-13.00	28.03	18.28	H	1	1.00



MODE	TX channel 1413	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

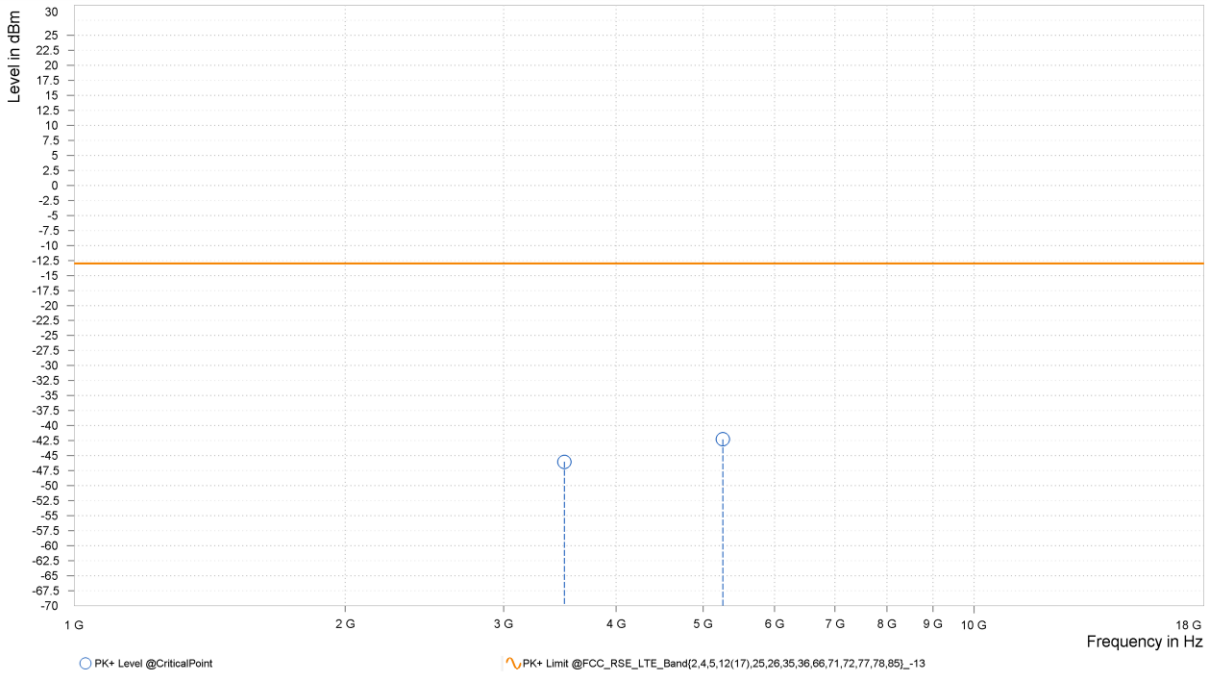
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,465.200	-46.61	-13.00	33.61	15.78	V	260.2	2.00
2	5,197.500	-42.03	-13.00	29.03	18.24	V	144.2	1.00



CH 1513

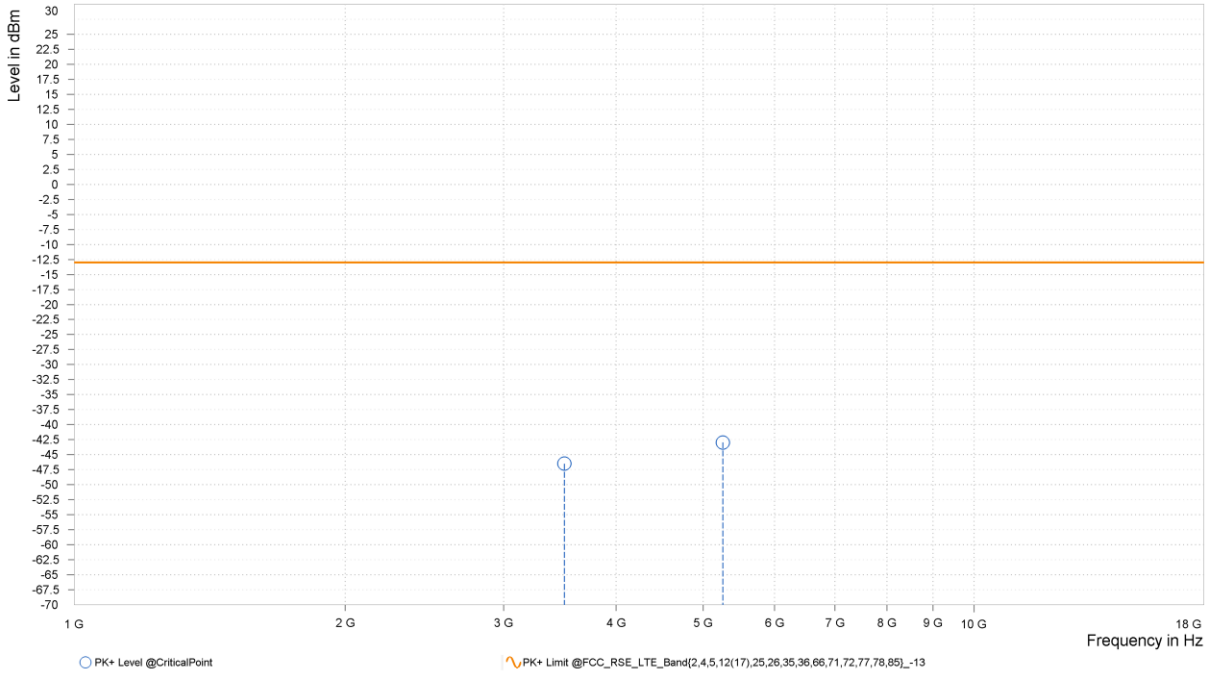
MODE	TX channel 1513	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,505.200	-46.02	-13.00	33.02	15.37	H	253	2.00
2	5,257.800	-42.27	-13.00	29.27	17.71	H	253	2.00



MODE	TX channel 1513	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,505.200	-46.51	-13.00	33.51	15.19	V	261.3	2.00
2	5,257.800	-42.98	-13.00	29.98	17.65	V	56.8	2.00

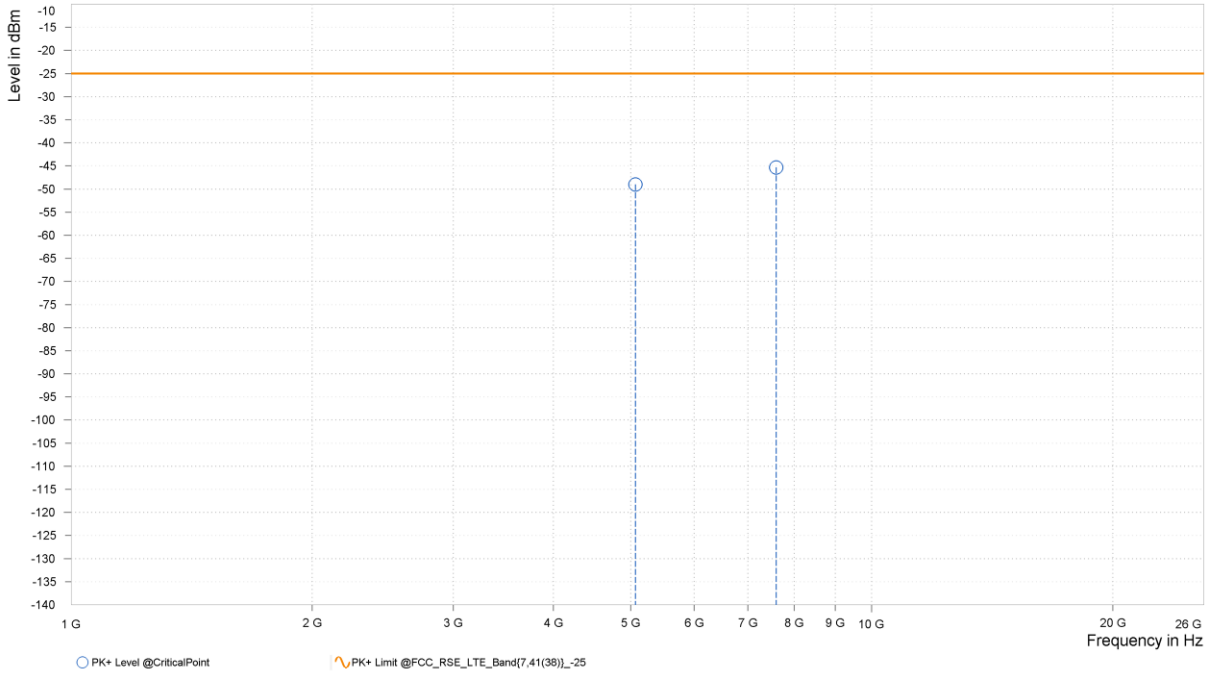


ANT0:

LTE Band 7
CHANNEL BANDWIDTH: 5MHz / QPSK

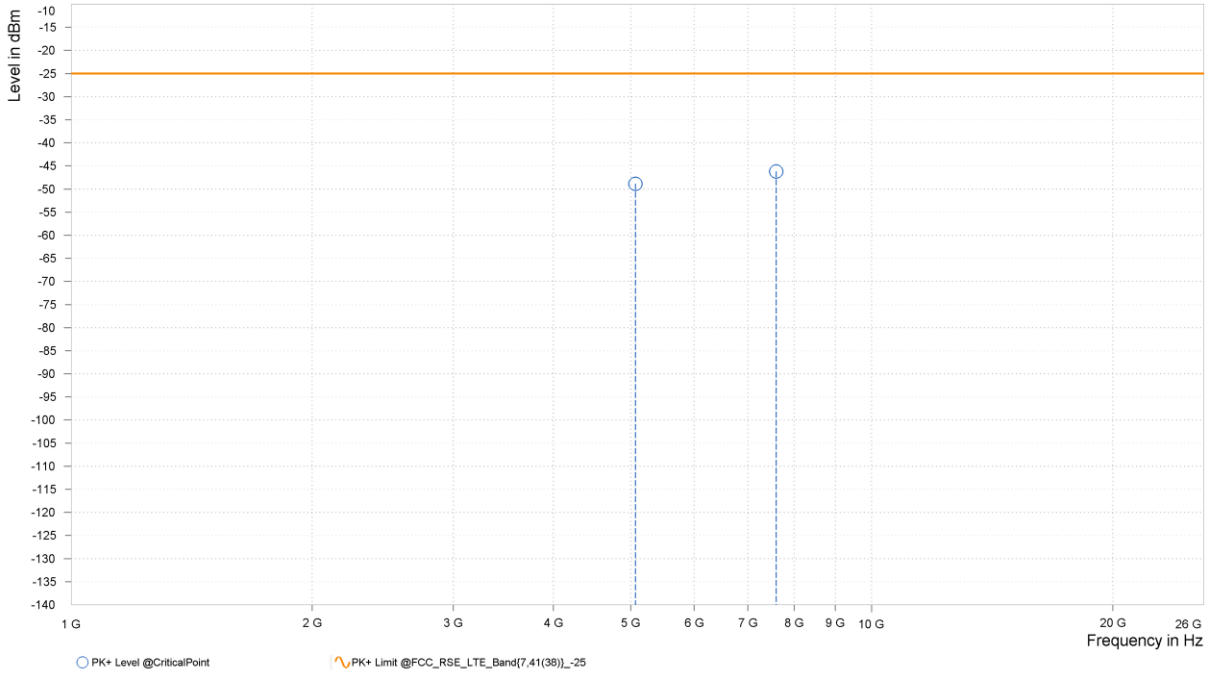
MODE	TX channel 21100	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,065.500	-49.00	-25.00	24.00	23.37	H	127.7	2.00
5	7,598.250	-45.32	-25.00	20.32	26.93	H	1	1.00



MODE	TX channel 21100	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

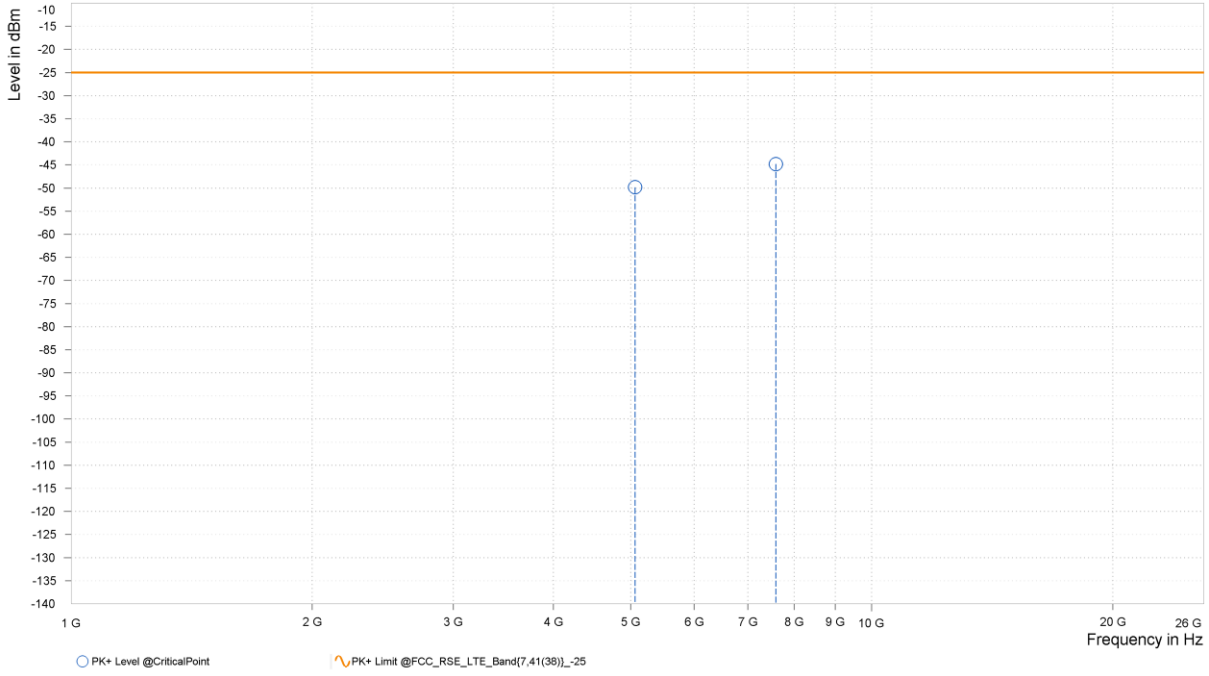
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,065.500	-48.87	-25.00	23.87	23.82	V	359	1.00
5	7,598.250	-46.17	-25.00	21.17	26.72	V	359	2.00



CHANNEL BANDWIDTH: 10MHz / QPSK

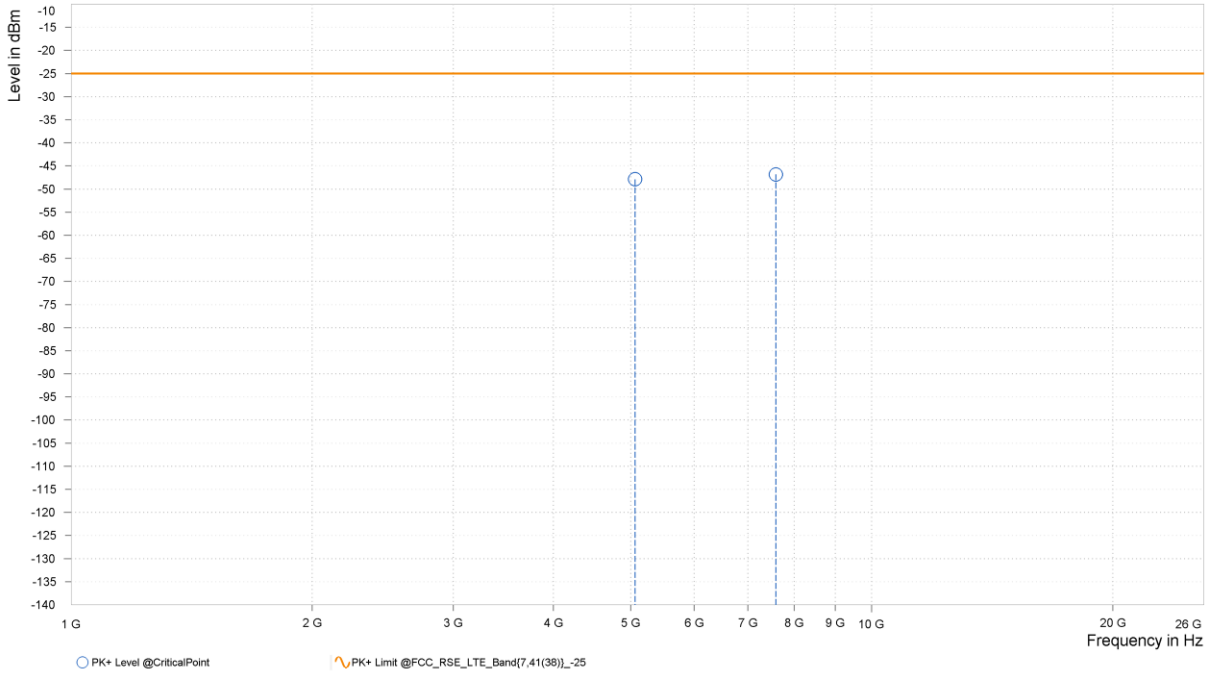
MODE	TX channel 21100	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,061.000	-49.85	-25.00	24.85	23.43	H	12.7	2.00
5	7,591.500	-44.82	-25.00	19.82	26.92	H	1	1.00



MODE	TX channel 21100	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

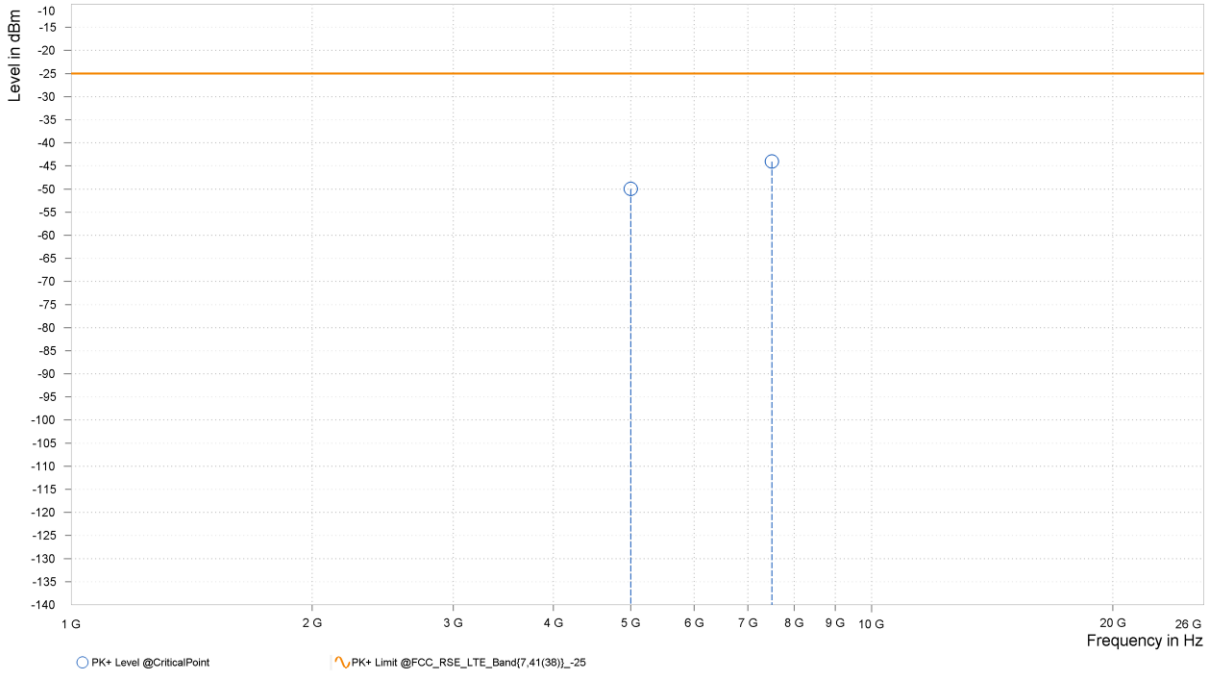
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,061.000	-47.87	-25.00	22.87	23.87	V	359.1	1.00
5	7,591.500	-46.83	-25.00	21.83	26.70	V	226.5	1.00



CHANNEL BANDWIDTH: 15MHz / QPSK
CH20825

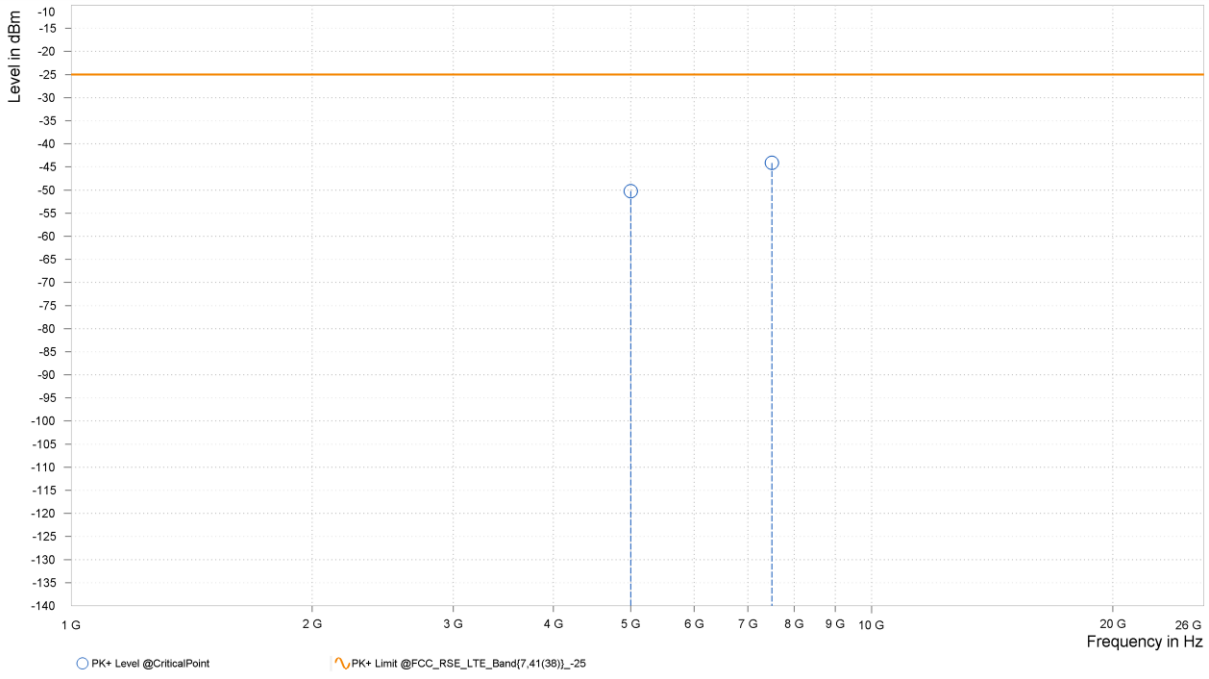
MODE	TX channel 20825	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,001.500	-49.97	-25.00	24.97	23.40	H	4.3	2.00
5	7,502.250	-44.06	-25.00	19.06	27.03	H	354.2	1.00



MODE	TX channel 20825	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

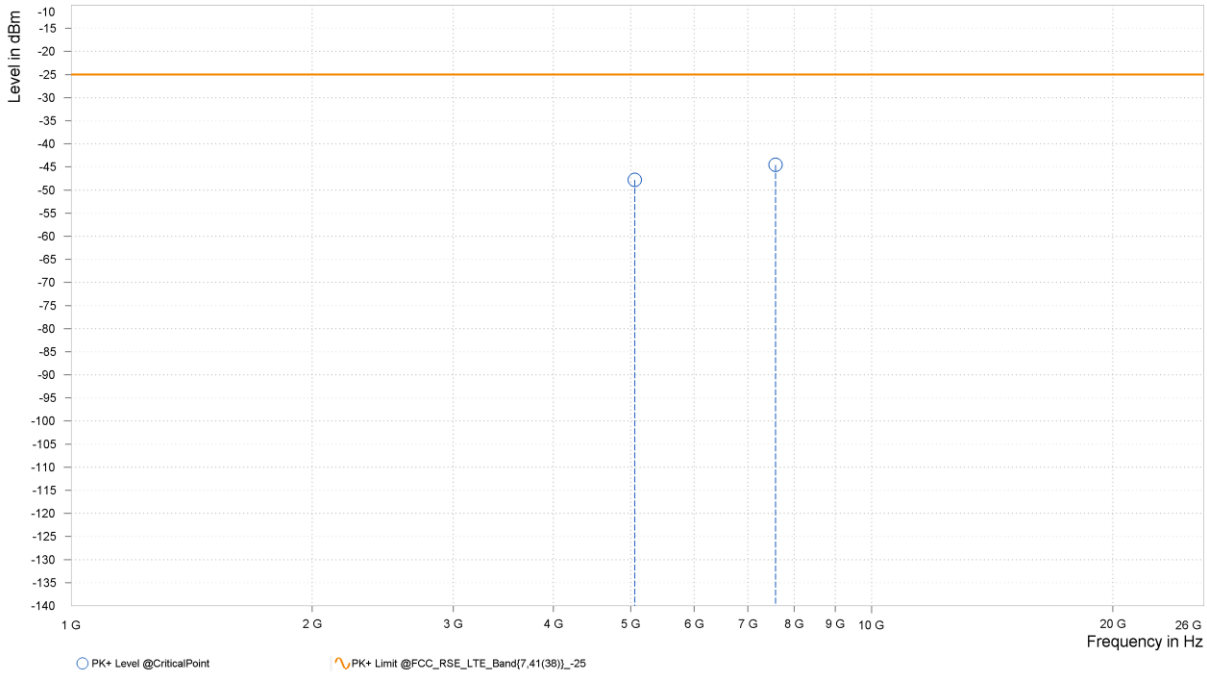
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,001.500	-50.23	-25.00	25.23	23.62	V	0.9	2.00
5	7,502.250	-44.11	-25.00	19.11	27.00	V	359.1	1.00



CH21100

MODE	TX channel 21100	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,056.500	-47.80	-25.00	22.80	23.50	H	12	2.00
5	7,584.750	-44.55	-25.00	19.55	26.92	H	244.3	1.00



MODE	TX channel 21100	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,056.500	-47.82	-25.00	22.82	23.92	V	170.6	2.00
5	7,584.750	-45.13	-25.00	20.13	26.70	V	107.2	2.00