

FCC TEST REPORT

(PART 22)

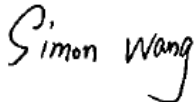
Applicant:	Xiaomi Communications Co., Ltd.
Address:	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

Manufacturer or Supplier:	Xiaomi Communications Co., Ltd.
Address:	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085
Product:	Mobile Phone
Brand Name:	Redmi
Model Name:	2409BRN2CL
FCC ID:	2AFZZRN2CL
Date of tests:	May. 11, 2024 ~ Jul. 05, 2024

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

- ☒ **FCC PART 22, Subpart H** ☒ **FCC Part 2**
☒ **ANSI/TIA/EIA-603-D** ☒ **ANSI C63.26-2015**
☒ **ANSI/TIA/EIA-603-E**

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
	
Date: Jul. 05, 2024	Date: Jul. 05, 2024

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-P24050014RF05	Original release	Jul. 05, 2024

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 22 & Part 2		
STANDARD SECTION	TEST TYPE	RESULT
§2.1046	Conducted Output Power	Compliance
§22.913 (a)(5)	Effective Radiated Power	Compliance
§2.1055 §22.355	Frequency Stability	Compliance
§2.1049	Occupied Bandwidth	Compliance
§22.913 (d)	Peak to average ratio*	Compliance
§22.917(a)	Band Edge Measurements	Compliance
§2.1051 §22.917(a)	Conducted Spurious Emissions	Compliance
§2.1053 §22.917(a)	Radiated Spurious Emissions	Compliance

* Refer to KDB 971168 D01 Power Meas License Digital Systems v03r01.

1.1 MEASUREMENT 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
Maximum Peak Output Power	$\pm 2.06\text{dB}$
Frequency Stability	$\pm 76.97\text{Hz}$
Radiated emissions (9KHz~30MHz)	$\pm 2.68\text{dB}$
Radiated emissions (30MHz~1GHz)	$\pm 4.98\text{dB}$
Radiated emissions (1GHz ~6GHz)	$\pm 4.70\text{dB}$
Radiated emissions (6GHz ~18GHz)	$\pm 4.60\text{dB}$
Radiated emissions (18GHz ~40GHz)	$\pm 4.12\text{dB}$
Conducted emissions	$\pm 4.01\text{dB}$
Occupied Channel Bandwidth	$\pm 43.58\text{KHz}$
Band Edge Measurements	$\pm 4.70\text{dB}$
Peak to average ratio	$\pm 0.76\text{dB}$

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. 28,24	Mar. 27,25
EXA Signal Analyzer	KEYSIGHT	N9010A-544	MY54510355	May.10,24	May.09,25
Loop Antenna	Schwarzbeck	FMZB 1519B	00173	Sep.03,23	Sep.02,24
Bilog Antenna	ETS-LINDGRE N	3143B	00161965	Feb. 18,24	Feb. 17,25
Horn Antenna	ETS-LINDGRE N	3117	00168692	Feb. 18,24	Feb. 17,25
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K- SG/QMS-00361	15433	Sep.04, 23	Sep.03, 24
Radio Communication Analyzer	ANRITSU	MT8820C	6201465426	Feb. 14,24	Feb. 13,25
Signal Pre-Amplifier	EMSI	EMC 9135	980249	May. 06,24	May. 05,25
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	May.10,24	May.09,25
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Feb. 17,24	Feb.16,25
3m Semi-anechoic Chamber	ETS-LINDGRE N	9m*6m*6m	Euroshieldpn- CT0001143-121 6	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. 06,24	May. 05,25
Power Meter	Anritsu	ML2495A	1506002	Feb. 14,24	Feb. 13,25
Power Sensor	Anritsu	MA2411B	1339352	Feb. 14,24	Feb. 13,25
Temperature Chamber	ESPEC	SH-242	93000855	May. 06,24	May. 05,25
MXG Analog Microwave Signal Generator	KEYSIGHT	N5183A	MY50143024	Feb. 14,24	Feb. 13,25
Base station R&S CMW500	Rohde&Schwa rz	CMW500	153085	May.10,24	May.09,25
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.

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Mobile Phone	
BRAND NAME	Redmi	
MODEL NAME	2409BRN2CL	
NOMINAL VOLTAGE	5/3.6~11Vdc(adapter or host equipment) 3.84Vdc (Li-ion, battery)	
MODULATION TYPE	GSM/EDGE	GMSK, 8PSK
	WCDMA	BPSK, QPSK
	LTE	QPSK, 16QAM, 64QAM
FREQUENCY RANGE	GSM/EDGE	824.2MHz ~ 848.8MHz
	WCDMA	826.4MHz ~ 846.6MHz
	LTE Band 5 (Channel Bandwidth: 1.4MHz)	824.7MHz ~ 848.3MHz
	LTE Band 5 (Channel Bandwidth: 3MHz)	825.5MHz ~ 847.5MHz
	LTE Band 5 (Channel Bandwidth: 5MHz)	826.5MHz ~ 846.5MHz
	LTE Band 5 (Channel Bandwidth: 10MHz)	829MHz ~ 844MHz
	LTE Band 26 (Channel Bandwidth: 1.4MHz)	824.7MHz ~ 848.3MHz
	LTE Band 26 (Channel Bandwidth: 3MHz)	825.5MHz ~ 847.5MHz
	LTE Band 26 (Channel Bandwidth: 5MHz)	826.5MHz ~ 846.5MHz
	LTE Band 26 (Channel Bandwidth: 10MHz)	829MHz ~ 844MHz
	LTE Band 26 (Channel Bandwidth: 15MHz)	831.5MHz ~ 841.5MHz
	LTE Band 26 (Channel Bandwidth: 15MHz)	831.5MHz ~ 841.5MHz
MAX. ERP POWER	GSM	417.83mW
	EDGE	121.9mW
	WCDMA	71.94mW
	LTE Band 5 (Channel Bandwidth: 1.4MHz)	66.37mW
	LTE Band 5 (Channel Bandwidth: 3MHz)	65.77mW
	LTE Band 5 (Channel Bandwidth: 5MHz)	66.22mW



MAX. ERP POWER	LTE Band 5 (Channel Bandwidth: 10MHz)	66.53mW
	LTE Band 26 (Channel Bandwidth: 1.4MHz)	70.31mW
	LTE Band 26 (Channel Bandwidth: 3MHz)	69.82mW
	LTE Band 26 (Channel Bandwidth: 5MHz)	69.98mW
	LTE Band 26 (Channel Bandwidth: 10MHz)	69.5mW
	LTE Band 26 (Channel Bandwidth: 15MHz)	71.29mW
EMISSION DESIGNATOR GOGN	GSM	246KGXW
	EDGE	251KG7W
	WCDMA	4M16F9W
	LTE Band 26 (Channel Bandwidth: 1.4MHz)	QPSK: 1M09G7D
		16QAM: 1M10W7D
	LTE Band 26 (Channel Bandwidth: 3MHz)	QPSK: 2M69G7D
		16QAM: 2M69W7D
	LTE Band 26 (Channel Bandwidth: 5MHz)	QPSK: 4M50G7D
		16QAM: 4M50W7D
	LTE Band 26 (Channel Bandwidth: 10MHz)	QPSK: 9M01G7D
		16QAM: 8M99W7D
	LTE Band 26 (Channel Bandwidth: 15MHz)	QPSK: 13M5G7D
		16QAM: 13M5W7D
ANTENNA TYPE	ANT 0(UP): PIFA Antenna with -5.5dBi gain for GSM850/WCDMA V/LTE B5/ LTE B26 ANT 1(DOWN): PIFA Antenna with -4dBi gain for GSM850/WCDMA V/LTE B5/ LTE B26	
HW VERSION	135100C3N	
SW VERSION	Xiaomi HyperOS 1.0	
IMEI	867957070066520	
I/O PORTS	Refer to user's manual	



CABLE SUPPLIED	USB cable1: non-shielded cable, with w/o ferrite core, 1.0 meter USB cable2: non-shielded cable, with w/o ferrite core, 1.0 meter USB cable3: non-shielded cable, with w/o ferrite core, 1.0 meter USB cable4: non-shielded cable, with w/o ferrite core, 1.0 meter USB cable5: non-shielded cable, with w/o ferrite core, 1.0 meter USB cable6: non-shielded cable, with w/o ferrite core, 1.0 meter USB cable7: non-shielded cable, with w/o ferrite core, 1.0 meter USB cable8: non-shielded cable, with w/o ferrite core, 1.0 meter
EXTREME TEMPERATURE	0-40 °C
EXTREME VOLTAGE	3.6V - 4.4V

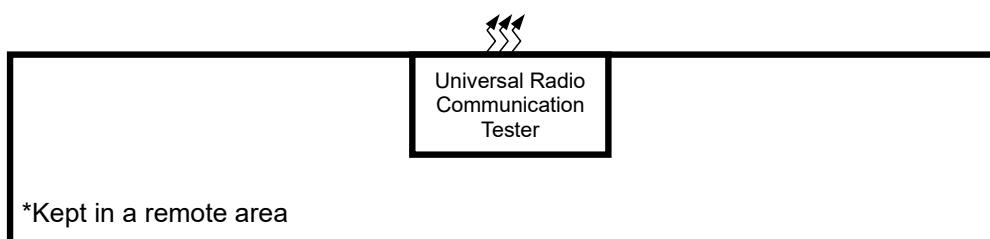
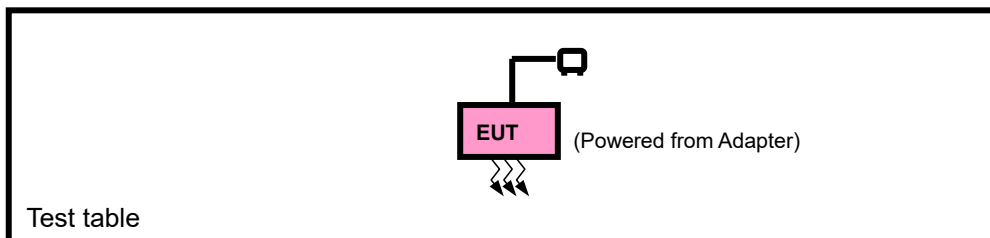
NOTE:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. Physically, the EUT provides two completed transmitter and two receiver.

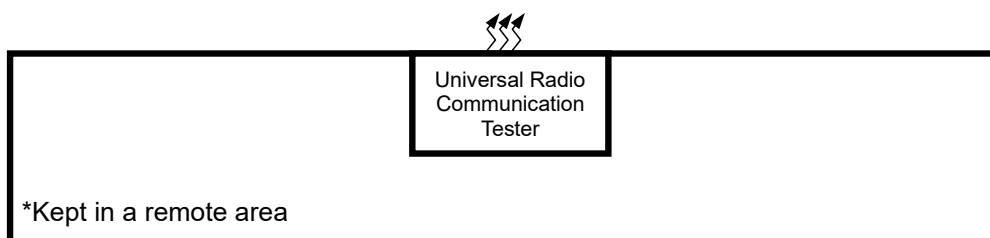
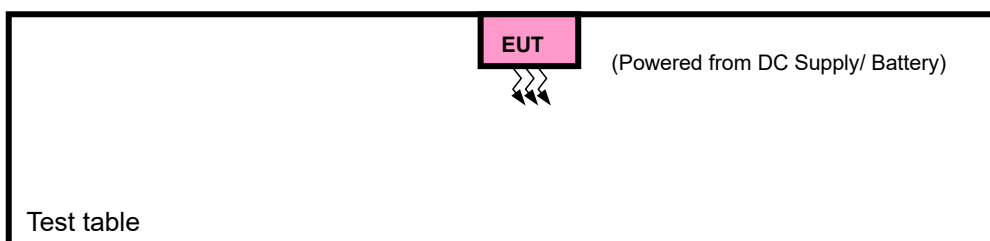
MODULATION MODE	TX FUNCTION
GSM/GPRS/EDGE	2TX/2RX
WCDMA	2TX/2RX
LTE	2TX/2RX

3. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in the 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.

2.2 CONFIGURATION OF SYSTEM UNDER TEST FOR RADIATION EMISSION



FOR CONDUCTED 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	Kikusui/JP	PMX18-5A	0000001	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	DC Line: Unshielded, Detachable 1.0m

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 in ERP and radiated emission was found when positioned on X-plane for GSM /EDGE/WCDMA/LTE. Following channel(s) was (were) selected for the final test as listed below:

EUT CONFIGURE MODE	DESCRIPTION
A	EUT + Adapter with GSM or WCDMA or LTE link
B	EUT + DC source with GSM or WCDMA or LTE link

GSM MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
A	ERP	128 to 251	128, 189, 251	GSM, EDGE
B	FREQUENCY STABILITY	128 to 251	128, 189, 251	GSM, EDGE
A	OCCUPIED BANDWIDTH	128 to 251	128, 189, 251	GSM, EDGE
A	BAND EDGE	128 to 251	128, 251	GSM, EDGE
A	CONDCUDETED EMISSION	128 to 251	128, 189, 251	GSM, EDGE
A	RADIATED EMISSION	128 to 251	128, 189, 251	GSM, EDGE
A	PEAK TO AVERAGE RATIO	128 to 251	128, 189, 251	GSM, EDGE

WCDMA MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
A	ERP	4132 to 4233	4132, 4182, 4233	WCDMA
B	FREQUENCY STABILITY	4132 to 4233	4132, 4182, 4233	WCDMA
A	OCCUPIED BANDWIDTH	4132 to 4233	4132, 4182, 4233	WCDMA
A	BAND EDGE	4132 to 4233	4132, 4233	WCDMA
A	CONDCUDETED EMISSION	4132 to 4233	4132, 4182, 4233	WCDMA
A	RADIATED EMISSION	4132 to 4233	4132, 4182, 4233	WCDMA
A	PEAK TO AVERAGE RATIO	4132 to 4233	4132, 4182, 4233	WCDMA

LTE BAND 5 MODE

EUT CONFIGURE MODE	TEST ITEM	Available Channel	Tested Channel	Channel bandwidth	modulation	mode
A	ERP	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		20415 to 20635	20415, 20525, 20635	3MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		20425 to 20625	20425, 20525, 20625	5MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		20450 to 20600	20450, 20525, 20600	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 5 are covered by LTE Band 26, Because it is a subset of LTE Band 26 with the same output power and supported bandwidths, So the test data please refer to LTE Band 26

LTE BAND 26 MODE

EUT CONFIGURE MODE	TEST ITEM	Available Channel	Tested Channel	Channel bandwidth	modulation	mode
A	ERP	26797 to 27033	26797, 26915, 27033	1.4MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		26805 to 27025	26805, 26915, 27025	3MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		26815 to 27015	26815, 26915, 27015	5MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		26840 to 26990	26840, 26915, 26990	10MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		26865 to 26965	26865, 26915, 26965	15MHz	QPSK,16QAM	1 RB / 0 RB Offset
B	FREQUENCY STABILITY	26865 to 26965	26865, 26915, 26965	10MHz	QPSK,16QAM	75 RB / 0 RB Offset
A	OCCUPIED BANDWIDTH	26797 to 27033	26797, 26915, 27033	1.4MHz	QPSK,16QAM	6 RB / 0 RB Offset
		26805 to 27025	26805, 26915, 27025	3MHz	QPSK,16QAM	15 RB / 0 RB Offset
		26815 to 27015	26815, 26915, 27015	5MHz	QPSK,16QAM	25 RB / 0 RB Offset
		26840 to 26990	26840, 26915, 26990	10MHz	QPSK,16QAM	50 RB / 0 RB Offset
		26865 to 26965	26865, 26915, 26965	15MHz	QPSK,16QAM	75 RB / 0 RB Offset
A	PEAK TO AVERAGE RATIO	26865 to 26965	26865, 26915, 26965	15MHz	QPSK,16QAM	1 RB / 0 RB Offset 75 RB / 0 RB Offset
A	BAND EDGE	26797 to 27033	26797	1.4 MHz	QPSK,16QAM,	1 RB / 0 RB Offset 6 RB / 0 RB Offset
			27033	1.4 MHz	QPSK,16QAM	1 RB / 5 RB Offset 6 RB / 0 RB Offset
		26805 to 27025	26805	3 MHz	QPSK,16QAM	1 RB / 0 RB Offset



						15 RB / 0 RB Offset
		26805 to 27025	27025	3 MHz	QPSK,16QAM	1 RB / 14 RB Offset
						15 RB / 0 RB Offset
		26815 to 27015	26815	5MHz	QPSK,16QAM	1 RB / 0 RB Offset
						25 RB / 0 RB Offset
		26815 to 27015	27015	5MHz	QPSK,16QAM	1 RB / 24 RB Offset
						25 RB / 0 RB Offset
		26840 to 26990	26840	10MHz	QPSK,16QAM	1 RB / 0 RB Offset
						50 RB / 0 RB Offset
		26840 to 26990	26990	10MHz	QPSK,16QAM	1 RB / 49 RB Offset
A	CONDUCTED EMISSION	26840 to 26990				50 RB / 0 RB Offset
		26865 to 26965	26865	15MHz	QPSK,16QAM	1 RB / 0 RB Offset
						75 RB / 0 RB Offset
		26865 to 26965	26965	15MHz	QPSK,16QAM	1 RB / 74 RB Offset
						75 RB / 0 RB Offset
A	RADIATED EMISSION	26797 to 27033	26797, 26915, 27033	1.4MHz	QPSK,16QAM	1 RB / 0 RB Offset
		26805 to 27025	26805, 26915, 27025	3MHz	QPSK,16QAM	1 RB / 0 RB Offset
		26815 to 27015	26815, 26915, 27015	5MHz	QPSK,16QAM	1 RB / 0 RB Offset
		26840 to 26990	26840, 26915, 26990	10MHz	QPSK,16QAM	1 RB / 0 RB Offset
		26865 to 26965	26865, 26915, 26965	15MHz	QPSK,16QAM	1 RB / 0 RB Offset
A	RADIATED EMISSION	26797 to 27033	26797, 26915, 27033	1.4MHz	QPSK	1 RB / 0 RB Offset
		26805 to 27025	26915	3MHz	QPSK	1 RB / 0 RB Offset
		26815 to 27015	26915	5MHz	QPSK	1 RB / 0 RB Offset
		26840 to 26990	26915	10MHz	QPSK	1 RB / 0 RB Offset
		26865 to 26965	26915	15MHz	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	25deg. C, 70%RH	DC 5/3.6~11V By Adapter	Jace Hu
FREQUENCY STABILITY	25deg. C, 70%RH	DC 3.6/3.84/4.4 By DC Source	James Fu
OCCUPIED BANDWIDTH	25deg. C, 70%RH	DC 5/3.6~11V By Adapter	James Fu
BAND EDGE	25deg. C, 70%RH	DC 5/3.6~11V By Adapter	James Fu
CONDCUDED EMISSION	25deg. C, 70%RH	DC 5/3.6~11V By Adapter	James Fu
RADIATED EMISSION	25deg. C, 70%RH	DC 5/3.6~11V By Adapter	Jace Hu
PEAK TO AVERAGE RATIO	25deg. C, 70%RH	DC 5/3.6~11V By Adapter	James Fu

2.5 EUT OPERATING CONDITIONS

The EUT makes a call to the communication simulator. The communication simulator station system controlled an EUT to export maximum output power under transmission mode and specific channel frequency.



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2.6 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is an 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 22

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

Mobile / Portable station is limited to 7 watts E.R.P.

3.1.2 TEST PROCEDURES

EIRP / ERP 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 determining the ERP or EIRP from the conducted RF output power measured using the guidance provided above is:

$$\text{ERP or EIRP} = P_{\text{Meas}} + G_{\text{T}} - L_{\text{C}}$$

Where:

ERP or EIRP = effective radiated power or equivalent isotopically 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.

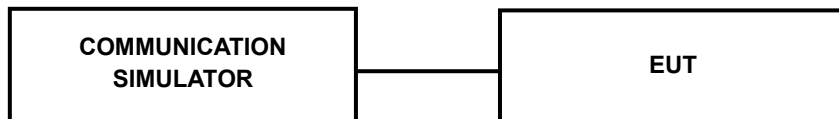
CONDUCTED POWER MEASUREMENT:

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

3.1.3 TEST SETUP

EIRP / ERP Measurement:

CONDUCTED POWER MEASUREMENT:



3.1.4 TEST RESULTS

CONDUCTED OUTPUT POWER (dBm)

Ant 0(UP):

Band	GSM850		
Channel	128	189	251
Frequency (MHz)	824.2	836.4	848.8
GSM	32.39	32.52	32.58
GPRS (GMSK, 1Tx-slot)	32.41	32.51	32.60
GPRS (GMSK, 2Tx-slot)	29.03	29.11	29.29
GPRS (GMSK, 3Tx-slot)	27.55	27.65	27.84
GPRS (GMSK, 4Tx-slot)	26.52	26.61	26.79
EDGE (8PSK, 1Tx-slot)	27.01	27.03	27.07
EDGE (8PSK, 2Tx-slot)	23.72	23.73	23.77
EDGE (8PSK, 3Tx-slot)	21.67	21.69	21.72
EDGE (8PSK, 4Tx-slot)	20.58	20.63	20.67

Band	WCDMA V		
Channel	4132	4182	4233
Frequency (MHz)	826.4	836.4	846.6
RMC 12.2K	24.67	24.65	24.62
HSDPA Subtest-1	23.77	23.81	23.80
HSDPA Subtest-2	23.86	23.79	23.76
HSDPA Subtest-3	23.29	23.35	23.26
HSDPA Subtest-4	23.33	23.27	23.25
DC-HSDPA Subtest-1	23.78	23.77	23.73
DC-HSDPA Subtest-2	23.82	23.79	23.74
DC-HSDPA Subtest-3	23.28	23.32	23.30
DC-HSDPA Subtest-4	23.30	23.34	23.22
HSUPA Subtest-1	22.03	22.00	21.94
HSUPA Subtest-2	21.68	21.74	21.71
HSUPA Subtest-3	22.58	22.57	22.51
HSUPA Subtest-4	21.33	21.30	21.27
HSUPA Subtest-5	22.66	22.60	22.60
HSPA+ Subtest-1	21.90	21.91	21.82



**BUREAU
VERITAS**

Test Report No.: W7L-P24050014RF05

LTE Band 5

Band/BW	Modulation	RB Size	RB Offset	Low CH 20407	Mid CH 20525	High CH 20643
				Frequency 824.7 MHz	Frequency 836.5 MHz	Frequency 848.3 MHz
5/ 1.4	QPSK	1	0	24.03	23.89	24.05
		1	2	24.28	24.17	24.24
		1	5	23.88	23.86	23.84
		3	0	24.24	24.09	24.28
		3	1	24.14	24.22	24.06
		3	3	24.04	24.26	24.18
		6	0	23.12	23.14	23.14
	16QAM	1	0	22.88	23.56	22.99
		1	2	23.01	23.71	23.19
		1	5	22.60	23.07	22.89
		3	0	23.23	23.14	23.32
		3	1	23.29	24.20	23.23
		3	3	23.25	23.27	23.23
		6	0	22.16	22.16	22.21
	64QAM	1	0	22.12	22.15	21.92
		1	2	22.37	22.31	22.08
		1	5	21.79	21.95	21.66
		3	0	22.24	22.10	22.27
		3	1	22.31	22.17	22.19
		3	3	22.16	22.19	22.28
		6	0	21.21	21.10	21.27



Band/BW	Modulation	RB Size	RB Offset	Low CH 20415	Mid CH 20525	High CH 20635
				Frequency 825.5 MHz	Frequency 836.5 MHz	Frequency 847.5 MHz
5/ 3	QPSK	1	0	23.97	23.92	24.02
		1	7	24.38	24.20	24.31
		1	14	23.75	23.82	23.96
		8	0	23.24	23.13	23.15
		8	3	23.08	23.17	23.05
		8	7	23.07	23.21	23.09
		15	0	23.19	23.07	23.16
	16QAM	1	0	22.86	23.44	23.01
		1	7	23.04	23.70	23.12
		1	14	22.59	23.16	22.83
		8	0	22.34	22.20	22.27
		8	3	22.24	23.19	22.19
		8	7	22.17	22.22	22.34
		15	0	22.23	22.14	22.25
	64QAM	1	0	22.03	22.19	21.90
		1	7	22.28	22.38	22.13
		1	14	21.81	22.00	21.71
		8	0	21.24	21.13	21.40
		8	3	21.28	21.08	21.21
		8	7	21.18	21.17	21.26
		15	0	21.18	21.21	21.20

Band/BW	Modulation	RB Size	RB Offset	Low CH 20425	Mid CH 20525	High CH 20625
				Frequency 826.5 MHz	Frequency 836.5 MHz	Frequency 846.5 MHz
5/ 5	QPSK	1	0	24.04	23.99	24.00
		1	12	24.35	24.16	24.22
		1	24	23.85	23.77	23.83
		12	0	23.15	23.10	23.19
		12	6	23.13	23.19	23.10
		12	13	23.14	23.20	23.18
		25	0	23.24	23.05	23.14
	16QAM	1	0	22.87	23.55	22.96
		1	12	23.03	23.67	23.15
		1	24	22.58	23.04	22.88
		12	0	22.23	22.21	22.32
		12	6	22.16	23.26	22.21
		12	13	22.22	22.25	22.22
		25	0	22.21	22.14	22.23
	64QAM	1	0	22.06	22.20	21.90
		1	12	22.29	22.39	22.05
		1	24	21.82	21.95	21.72
		12	0	21.34	21.08	21.38
		12	6	21.19	21.13	21.29
		12	13	21.20	21.17	21.22
		25	0	21.20	21.16	21.15

Band/BW	Modulation	RB Size	RB Offset	Low CH 20450	Mid CH 20525	High CH 20600
				Frequency 829 MHz	Frequency 836.5 MHz	Frequency 844 MHz
5/ 10	QPSK	1	0	24.11	24.02	24.12
		1	24	24.41	24.26	24.32
		1	49	23.89	23.91	23.98
		25	0	23.29	23.26	23.25
		25	12	23.26	23.24	23.18
		25	25	23.18	23.23	23.20
		50	0	23.25	23.19	23.24
	16QAM	1	0	22.89	23.58	23.02
		1	24	23.15	23.78	23.25
		1	49	22.67	23.18	22.92
		25	0	22.36	22.23	22.42
		25	12	22.31	23.32	22.34
		25	25	22.27	22.31	22.36
		50	0	22.31	22.23	22.28
	64QAM	1	0	22.13	22.21	21.96
		1	24	22.38	22.45	22.19
		1	49	21.85	22.01	21.75
		25	0	21.39	21.18	21.42
		25	12	21.34	21.23	21.32
		25	25	21.28	21.32	21.35
		50	0	21.33	21.22	21.28



LTE BAND 26

Band/BW	Modulation	RB Size	RB Offset	Low CH 26797	Mid CH 26915	High CH 27033
				Frequency 824.7 MHz	Frequency 836.5 MHz	Frequency 848.3 MHz
26/ 1.4	QPSK	1	0	24.16	24.01	24.01
		1	2	24.44	24.23	24.16
		1	5	24.06	24.04	23.98
		3	0	24.05	24.07	23.92
		3	1	24.02	23.98	23.99
		3	3	24.07	24.04	23.89
		6	0	23.20	23.24	23.08
	16QAM	1	0	23.39	23.32	23.29
		1	2	23.58	23.48	23.51
		1	5	23.27	23.24	23.13
		3	0	23.04	23.03	22.97
		3	1	23.11	23.06	22.99
		3	3	23.10	23.05	22.87
		6	0	22.26	22.31	22.15
	64QAM	1	0	22.33	22.44	21.95
		1	2	22.57	22.39	22.04
		1	5	22.35	22.44	21.80
		3	0	22.02	22.08	21.88
		3	1	22.08	22.08	22.03
		3	3	21.92	21.95	21.96
		6	0	21.28	21.14	21.14



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Test Report No.: W7L-P24050014RF05

Band/BW	Modulation	RB Size	RB Offset	Low CH 26805	Mid CH 26915	High CH 27025
				Frequency 825.5 MHz	Frequency 836.5 MHz	Frequency 847.5 MHz
26/ 3	QPSK	1	0	24.08	23.99	23.95
		1	7	24.39	24.22	24.24
		1	14	24.17	23.95	23.94
		8	0	23.20	23.26	23.16
		8	3	23.27	23.22	23.24
		8	7	23.25	23.18	23.07
		15	0	23.18	23.20	23.19
	16QAM	1	0	23.42	23.38	23.32
		1	7	23.63	23.45	23.51
		1	14	23.41	23.24	23.22
		8	0	22.20	22.18	22.20
		8	3	22.29	22.22	22.11
		8	7	22.22	22.15	22.13
		15	0	22.34	22.28	22.16
	64QAM	1	0	22.44	22.47	21.88
		1	7	22.63	22.43	22.02
		1	14	22.38	22.48	21.83
		8	0	21.16	21.31	21.20
		8	3	21.21	21.31	21.15
		8	7	21.14	21.21	21.12
		15	0	21.19	21.20	21.20

Band/BW	Modulation	RB Size	RB Offset	Low CH 26815	Mid CH 26915	High CH 27015
				Frequency 826.5 MHz	Frequency 836.5 MHz	Frequency 846.5 MHz
26/ 5	QPSK	1	0	24.04	23.95	24.01
		1	12	24.37	24.30	24.18
		1	24	24.15	23.91	23.88
		12	0	23.17	23.19	23.14
		12	6	23.25	23.22	23.20
		12	13	23.16	23.16	23.14
		25	0	23.21	23.21	23.07
	16QAM	1	0	23.41	23.34	23.23
		1	12	23.55	23.47	23.53
		1	24	23.39	23.19	23.11
		12	0	22.21	22.27	22.14
		12	6	22.38	22.24	22.21
		12	13	22.25	22.24	22.14
		25	0	22.30	22.21	22.05
	64QAM	1	0	22.32	22.31	21.96
		1	12	22.55	22.36	22.12
		1	24	22.42	22.39	21.89
		12	0	21.17	21.24	21.10
		12	6	21.26	21.32	21.15
		12	13	21.13	21.24	21.08
		25	0	21.17	21.22	21.12



Band/BW	Modulation	RB Size	RB Offset	Low CH 26840	Mid CH 26915	High CH 26990
				Frequency 829 MHz	Frequency 836.5 MHz	Frequency 844 MHz
26/10	QPSK	1	0	24.06	24.04	23.92
		1	24	24.38	24.25	24.18
		1	49	24.17	23.96	23.85
		25	0	23.19	23.17	23.08
		25	12	23.20	23.30	23.16
		25	25	23.20	23.18	23.15
		50	0	23.18	23.22	23.21
	16QAM	1	0	23.38	23.35	23.28
		1	24	23.64	23.56	23.48
		1	49	23.32	23.33	23.19
		25	0	22.27	22.18	22.19
		25	12	22.39	22.25	22.23
		25	25	22.26	22.23	22.07
		50	0	22.35	22.21	22.16
	64QAM	1	0	22.35	22.39	21.97
		1	24	22.51	22.43	22.16
		1	49	22.37	22.45	21.91
		25	0	21.25	21.22	21.12
		25	12	21.25	21.23	21.15
		25	25	21.18	21.18	21.08
		50	0	21.28	21.19	21.14

Band/BW	Modulation	RB Size	RB Offset	Low CH 26865	Mid CH 26915	High CH 26965
				Frequency 831.5 MHz	Frequency 836.5 MHz	Frequency 841.5 MHz
26/ 15	QPSK	1	0	24.19	24.08	24.03
		1	37	24.45	24.34	24.29
		1	74	24.18	24.06	23.99
		36	0	23.32	23.30	23.22
		36	19	23.35	23.31	23.25
		36	39	23.28	23.29	23.20
		75	0	23.30	23.27	23.22
	16QAM	1	0	23.48	23.39	23.33
		1	37	23.70	23.60	23.58
		1	74	23.42	23.34	23.23
		36	0	22.34	22.32	22.21
		36	19	22.40	22.31	22.24
		36	39	22.33	22.28	22.18
		75	0	22.36	22.33	22.19
	64QAM	1	0	22.45	22.46	21.98
		1	37	22.64	22.49	22.17
		1	74	22.43	22.51	21.94
		36	0	21.28	21.33	21.22
		36	19	21.30	21.34	21.26
		36	39	21.22	21.30	21.22
		75	0	21.30	21.29	21.21



Ant 1(DOWN):

Band	GSM850		
Channel	128	189	251
Frequency (MHz)	824.2	836.4	848.8
GSM	32.22	32.28	32.35
GPRS (GMSK, 1Tx-slot)	32.20	32.30	32.36
GPRS (GMSK, 2Tx-slot)	28.87	29.02	29.11
GPRS (GMSK, 3Tx-slot)	27.41	27.56	27.67
GPRS (GMSK, 4Tx-slot)	26.40	26.51	26.64
EDGE (8PSK, 1Tx-slot)	26.96	27.01	26.97
EDGE (8PSK, 2Tx-slot)	23.52	23.82	23.69
EDGE (8PSK, 3Tx-slot)	21.77	22.04	21.91
EDGE (8PSK, 4Tx-slot)	20.96	21.00	20.99

Band	WCDMA V		
Channel	4132	4182	4233
Frequency (MHz)	826.4	836.4	846.6
RMC 12.2K	24.72	24.69	24.67
HSDPA Subtest-1	23.79	23.75	23.83
HSDPA Subtest-2	23.76	23.80	23.79
HSDPA Subtest-3	23.32	23.34	23.33
HSDPA Subtest-4	23.35	23.33	23.28
DC-HSDPA Subtest-1	23.86	23.82	23.86
DC-HSDPA Subtest-2	23.91	23.88	23.86
DC-HSDPA Subtest-3	23.31	23.32	23.33
DC-HSDPA Subtest-4	23.36	23.33	23.35
HSUPA Subtest-1	22.11	21.99	22.00
HSUPA Subtest-2	21.74	21.79	21.77
HSUPA Subtest-3	22.68	22.61	22.64
HSUPA Subtest-4	21.68	21.58	21.56
HSUPA Subtest-5	22.63	22.59	22.62
HSPA+ Subtest-1	22.00	21.89	21.93



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VERITAS

Test Report No.: W7L-P24050014RF05

LTE Band 5

Band/BW	Modulation	RB Size	RB Offset	Low CH 20407	Mid CH 20525	High CH 20643
				Frequency 824.7 MHz	Frequency 836.5 MHz	Frequency 848.3 MHz
5/ 1.4	QPSK	1	0	23.99	23.96	23.98
		1	2	24.31	24.15	24.30
		1	5	24.02	24.01	24.05
		3	0	24.36	24.17	24.30
		3	1	24.32	24.25	24.30
		3	3	24.37	24.30	24.27
		6	0	23.26	23.17	23.30
	16QAM	1	0	23.07	23.50	22.91
		1	2	23.19	23.55	22.94
		1	5	22.64	23.30	22.74
		3	0	23.48	23.20	23.48
		3	1	23.35	23.30	23.51
		3	3	23.31	23.34	23.32
		6	0	22.35	22.26	22.39
	64QAM	1	0	22.34	22.12	22.26
		1	2	22.56	22.19	22.27
		1	5	22.18	21.81	22.02
		3	0	22.31	22.25	22.44
		3	1	22.31	22.27	22.36
		3	3	22.16	22.37	22.33
		6	0	21.34	21.25	21.22



Band/BW	Modulation	RB Size	RB Offset	Low CH 20415	Mid CH 20525	High CH 20635
				Frequency 825.5 MHz	Frequency 836.5 MHz	Frequency 847.5 MHz
5/ 3	QPSK	1	0	23.92	23.97	24.06
		1	7	24.24	24.11	24.33
		1	14	24.07	23.87	23.93
		8	0	23.27	23.14	23.34
		8	3	23.33	23.16	23.30
		8	7	23.37	23.30	23.30
		15	0	23.36	23.14	23.35
	16QAM	1	0	23.05	23.41	22.84
		1	7	23.27	23.59	22.95
		1	14	22.60	23.31	22.65
		8	0	22.41	22.23	22.44
		8	3	22.40	22.27	22.47
		8	7	22.38	22.28	22.30
		15	0	22.34	22.25	22.39
	64QAM	1	0	22.34	22.07	22.24
		1	7	22.55	22.19	22.29
		1	14	22.17	21.83	22.04
		8	0	21.30	21.31	21.42
		8	3	21.31	21.29	21.41
		8	7	21.25	21.37	21.30
		15	0	21.23	21.18	21.28

Band/BW	Modulation	RB Size	RB Offset	Low CH 20425	Mid CH 20525	High CH 20625
				Frequency 826.5 MHz	Frequency 836.5 MHz	Frequency 846.5 MHz
5/ 5	QPSK	1	0	23.98	24.02	23.99
		1	12	24.23	24.14	24.36
		1	24	24.08	23.94	24.01
		12	0	23.38	23.10	23.28
		12	6	23.32	23.29	23.26
		12	13	23.28	23.20	23.22
		25	0	23.25	23.20	23.28
	16QAM	1	0	23.03	23.42	22.79
		1	12	23.19	23.63	22.97
		1	24	22.58	23.28	22.67
		12	0	22.39	22.29	22.50
		12	6	22.28	22.27	22.47
		12	13	22.30	22.27	22.40
		25	0	22.37	22.18	22.33
	64QAM	1	0	22.21	22.11	22.21
		1	12	22.51	22.24	22.32
		1	24	22.21	21.92	21.94
		12	0	21.39	21.30	21.49
		12	6	21.30	21.29	21.34
		12	13	21.16	21.41	21.29
		25	0	21.33	21.30	21.25

Band/BW	Modulation	RB Size	RB Offset	Low CH 20450	Mid CH 20525	High CH 20600
				Frequency 829 MHz	Frequency 836.5 MHz	Frequency 844 MHz
5/ 10	QPSK	1	0	24.03	24.08	24.09
		1	24	24.33	24.22	24.38
		1	49	24.12	24.02	24.06
		25	0	23.41	23.34	23.40
		25	12	23.33	23.30	23.36
		25	25	23.39	23.31	23.35
		50	0	23.37	23.26	23.42
	16QAM	1	0	23.17	23.51	22.93
		1	24	23.32	23.68	23.07
		1	49	22.71	23.32	22.75
		25	0	22.53	22.30	22.53
		25	12	22.42	22.37	22.54
		25	25	22.40	22.35	22.44
		50	0	22.39	22.28	22.42
	64QAM	1	0	22.35	22.15	22.32
		1	24	22.59	22.31	22.41
		1	49	22.23	21.95	22.06
		25	0	21.40	21.38	21.51
		25	12	21.33	21.41	21.42
		25	25	21.29	21.43	21.38
		50	0	21.38	21.32	21.29

**LTE BAND 26**

Band/BW	Modulation	RB Size	RB Offset	Low CH 26797	Mid CH 26915	High CH 27033
				Frequency 824.7 MHz	Frequency 836.5 MHz	Frequency 848.3 MHz
26/ 1.4	QPSK	1	0	24.33	24.22	24.41
		1	2	24.62	24.59	24.52
		1	5	24.36	24.29	24.35
		3	0	24.29	24.32	24.24
		3	1	24.28	24.26	24.30
		3	3	24.18	24.25	24.22
		6	0	23.41	23.49	23.45
	16QAM	1	0	23.55	23.52	23.50
		1	2	23.67	23.63	23.82
		1	5	23.56	23.63	23.57
		3	0	23.29	23.38	23.27
		3	1	23.30	23.33	23.31
		3	3	23.21	23.39	23.28
		6	0	22.51	22.62	22.46
	64QAM	1	0	22.63	22.56	22.53
		1	2	22.83	22.66	22.74
		1	5	22.57	22.42	22.60
		3	0	22.23	22.30	22.34
		3	1	22.26	22.28	22.28
		3	3	22.27	22.25	22.19
		6	0	21.37	21.59	21.44



**BUREAU
VERITAS**

Test Report No.: W7L-P24050014RF05

Band/BW	Modulation	RB Size	RB Offset	Low CH 26805	Mid CH 26915	High CH 27025
				Frequency 825.5 MHz	Frequency 836.5 MHz	Frequency 847.5 MHz
26/ 3	QPSK	1	0	24.35	24.31	24.46
		1	7	24.59	24.54	24.53
		1	14	24.35	24.30	24.28
		8	0	23.44	23.50	23.54
		8	3	23.41	23.57	23.49
		8	7	23.40	23.53	23.45
		15	0	23.45	23.52	23.58
	16QAM	1	0	23.54	23.55	23.55
		1	7	23.73	23.65	23.86
		1	14	23.52	23.58	23.57
		8	0	22.53	22.63	22.50
		8	3	22.48	22.50	22.46
		8	7	22.41	22.62	22.56
		15	0	22.39	22.65	22.48
	64QAM	1	0	22.70	22.50	22.62
		1	7	22.88	22.74	22.80
		1	14	22.63	22.54	22.56
		8	0	21.45	21.49	21.46
		8	3	21.55	21.52	21.45
		8	7	21.39	21.50	21.40
		15	0	21.41	21.54	21.51

Band/BW	Modulation	RB Size	RB Offset	Low CH 26815	Mid CH 26915	High CH 27015
				Frequency 826.5 MHz	Frequency 836.5 MHz	Frequency 846.5 MHz
26/ 5	QPSK	1	0	24.37	24.30	24.47
		1	12	24.58	24.56	24.60
		1	24	24.40	24.37	24.25
		12	0	23.48	23.56	23.42
		12	6	23.42	23.58	23.42
		12	13	23.48	23.47	23.41
		25	0	23.36	23.51	23.47
	16QAM	1	0	23.47	23.51	23.53
		1	12	23.75	23.73	23.82
		1	24	23.57	23.56	23.51
		12	0	22.48	22.55	22.40
		12	6	22.52	22.55	22.46
		12	13	22.49	22.56	22.53
		25	0	22.50	22.59	22.55
	64QAM	1	0	22.69	22.54	22.56
		1	12	22.88	22.69	22.73
		1	24	22.62	22.43	22.55
		12	0	21.38	21.54	21.53
		12	6	21.46	21.58	21.46
		12	13	21.40	21.46	21.50
		25	0	21.48	21.52	21.50



**BUREAU
VERITAS**

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Band/BW	Modulation	RB Size	RB Offset	Low CH 26840	Mid CH 26915	High CH 26990
				Frequency 829 MHz	Frequency 836.5 MHz	Frequency 844 MHz
26/10	QPSK	1	0	24.39	24.31	24.35
		1	24	24.57	24.53	24.55
		1	49	24.36	24.28	24.27
		25	0	23.50	23.57	23.50
		25	12	23.43	23.53	23.53
		25	25	23.43	23.45	23.40
		50	0	23.37	23.49	23.46
	16QAM	1	0	23.53	23.50	23.51
		1	24	23.75	23.75	23.83
		1	49	23.57	23.69	23.56
		25	0	22.40	22.56	22.43
		25	12	22.59	22.59	22.55
		25	25	22.48	22.52	22.44
		50	0	22.50	22.60	22.51
	64QAM	1	0	22.58	22.60	22.60
		1	24	22.88	22.76	22.76
		1	49	22.50	22.50	22.53
		25	0	21.50	21.58	21.48
		25	12	21.53	21.58	21.47
		25	25	21.47	21.51	21.42
		50	0	21.36	21.53	21.38

Band/BW	Modulation	RB Size	RB Offset	Low CH 26865	Mid CH 26915	High CH 26965
				Frequency 831.5 MHz	Frequency 836.5 MHz	Frequency 841.5 MHz
26/ 15	QPSK	1	0	24.42	24.36	24.49
		1	37	24.68	24.66	24.64
		1	74	24.43	24.41	24.36
		36	0	23.52	23.54	23.55
		36	19	23.61	23.58	23.57
		36	39	23.49	23.57	23.54
		75	0	23.56	23.54	23.55
	16QAM	1	0	23.59	23.65	23.56
		1	37	23.82	23.78	23.87
		1	74	23.67	23.70	23.66
		36	0	22.55	22.64	22.54
		36	19	22.60	22.62	22.56
		36	39	22.52	22.65	22.57
		75	0	22.54	22.67	22.58
	64QAM	1	0	22.73	22.63	22.64
		1	37	22.90	22.81	22.86
		1	74	22.64	22.56	22.67
		36	0	21.53	21.61	21.56
		36	19	21.61	21.62	21.58
		36	39	21.53	21.58	21.52
		75	0	21.51	21.61	21.53

ERP POWER (dBm)

Ant 0(UP):

GSM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
128	824.2	32.41	-5.5	24.76	299.23	7
189	836.4	32.52	-5.5	24.87	306.9	7
251	848.8	32.6	-5.5	24.95	312.61	7

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

EDGE

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
128	824.2	27.01	-5.5	19.36	86.3	7
189	836.4	27.03	-5.5	19.38	86.7	7
251	848.8	27.07	-5.5	19.42	87.5	7

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

WCDMA

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
4132	826.4	24.67	-5.5	17.02	50.35	7
4182	836.4	24.65	-5.5	17	50.12	7
4233	846.6	24.62	-5.5	16.97	49.77	7

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

LTE BAND 5

CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20407	824.7	24.28	-5.5	16.63	46.03	7
20525	836.5	24.26	-5.5	16.61	45.81	7
20643	848.3	24.28	-5.5	16.63	46.03	7

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20407	824.7	23.29	-5.5	15.64	36.64	7
20525	836.5	24.2	-5.5	16.55	45.19	7
20643	848.3	23.32	-5.5	15.67	36.9	7

CHANNEL BANDWIDTH: 1.4MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20407	824.7	22.37	-5.5	14.72	29.65	7
20525	836.5	22.31	-5.5	14.66	29.24	7
20643	848.3	22.28	-5.5	14.63	29.04	7

CHANNEL BANDWIDTH: 3MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20415	825.5	24.38	-5.5	16.73	47.1	7
20525	836.5	24.2	-5.5	16.55	45.19	7
20635	847.5	24.31	-5.5	16.66	46.34	7

CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20415	825.5	23.04	-5.5	15.39	34.59	7
20525	836.5	23.7	-5.5	16.05	40.27	7
20635	847.5	23.12	-5.5	15.47	35.24	7

**CHANNEL BANDWIDTH: 3MHz 64QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20415	825.5	22.28	-5.5	14.63	29.04	7
20525	836.5	22.38	-5.5	14.73	29.72	7
20635	847.5	22.13	-5.5	14.48	28.05	7

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20425	826.5	24.35	-5.5	16.7	46.77	7
20525	836.5	24.16	-5.5	16.51	44.77	7
20625	846.5	24.22	-5.5	16.57	45.39	7

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20425	826.5	23.03	-5.5	15.38	34.51	7
20525	836.5	23.67	-5.5	16.02	39.99	7
20625	846.5	23.15	-5.5	15.5	35.48	7

CHANNEL BANDWIDTH: 5MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20425	826.5	22.29	-5.5	14.64	29.11	7
20525	836.5	22.39	-5.5	14.74	29.79	7
20625	846.5	22.05	-5.5	14.4	27.54	7

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20450	829.0	24.41	-5.5	16.76	47.42	7
20525	836.5	24.26	-5.5	16.61	45.81	7
20600	844.0	24.32	-5.5	16.67	46.45	7

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20450	829.0	23.15	-5.5	15.5	35.48	7
20525	836.5	23.78	-5.5	16.13	41.02	7
20600	844.0	23.25	-5.5	15.6	36.31	7

CHANNEL BANDWIDTH: 10MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20450	829.0	22.38	-5.5	14.73	29.72	7
20525	836.5	22.45	-5.5	14.8	30.2	7
20600	844.0	22.19	-5.5	14.54	28.44	7

LTE BAND 26

CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26797	824.7	24.44	-5.5	16.79	47.75	7
26915	836.5	24.23	-5.5	16.58	45.5	7
27033	848.3	24.16	-5.5	16.51	44.77	7

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26797	824.7	23.58	-5.5	15.93	39.17	7
26915	836.5	23.48	-5.5	15.83	38.28	7
27033	848.3	23.51	-5.5	15.86	38.55	7

CHANNEL BANDWIDTH: 1.4MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26797	824.7	22.57	-5.5	14.92	31.05	7
26915	836.5	22.44	-5.5	14.79	30.13	7
27033	848.3	22.04	-5.5	14.39	27.48	7

**CHANNEL BANDWIDTH: 3MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26805	825.5	24.39	-5.5	16.74	47.21	7
26915	836.5	24.22	-5.5	16.57	45.39	7
27025	847.5	24.24	-5.5	16.59	45.6	7

CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26805	825.5	23.63	-5.5	15.98	39.63	7
26915	836.5	23.45	-5.5	15.8	38.02	7
27025	847.5	23.51	-5.5	15.86	38.55	7

CHANNEL BANDWIDTH: 3MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26805	825.5	22.63	-5.5	14.98	31.48	7
26915	836.5	22.48	-5.5	14.83	30.41	7
27025	847.5	22.02	-5.5	14.37	27.35	7

**CHANNEL BANDWIDTH: 5MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26815	826.5	24.37	-5.5	16.72	46.99	7
26915	836.5	24.3	-5.5	16.65	46.24	7
27015	846.5	24.18	-5.5	16.53	44.98	7

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26815	826.5	23.55	-5.5	15.9	38.9	7
26915	836.5	23.47	-5.5	15.82	38.19	7
27015	846.5	23.53	-5.5	15.88	38.73	7

CHANNEL BANDWIDTH: 5MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26815	826.5	22.55	-5.5	14.9	30.9	7
26915	836.5	22.39	-5.5	14.74	29.79	7
27015	846.5	22.12	-5.5	14.47	27.99	7

**CHANNEL BANDWIDTH: 10MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26840	829	24.38	-5.5	16.73	47.1	7
26915	836.5	24.25	-5.5	16.6	45.71	7
26990	844	24.18	-5.5	16.53	44.98	7

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26840	829	23.64	-5.5	15.99	39.72	7
26915	836.5	23.56	-5.5	15.91	38.99	7
26990	844	23.48	-5.5	15.83	38.28	7

CHANNEL BANDWIDTH: 10MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26840	829	22.51	-5.5	14.86	30.62	7
26915	836.5	22.45	-5.5	14.8	30.2	7
26990	844	22.16	-5.5	14.51	28.25	7

**CHANNEL BANDWIDTH: 15MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26865	831.5	24.45	-5.5	16.8	47.86	7
26915	836.5	24.34	-5.5	16.69	46.67	7
26965	841.5	24.29	-5.5	16.64	46.13	7

CHANNEL BANDWIDTH: 15MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26865	831.5	23.7	-5.5	16.05	40.27	7
26915	836.5	23.6	-5.5	15.95	39.36	7
26965	841.5	23.58	-5.5	15.93	39.17	7

CHANNEL BANDWIDTH: 15MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26865	831.5	22.64	-5.5	14.99	31.55	7
26915	836.5	22.51	-5.5	14.86	30.62	7
26965	841.5	22.17	-5.5	14.52	28.31	7

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

Ant 1(DOWN):

GSM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
128	824.2	32.22	-4	26.07	404.58	7
189	836.4	32.3	-4	26.15	412.1	7
251	848.8	32.36	-4	26.21	417.83	7

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

EDGE

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
128	824.2	26.96	-4	20.81	120.5	7
189	836.4	27.01	-4	20.86	121.9	7
251	848.8	26.97	-4	20.82	120.78	7

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

WCDMA

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
4132	826.4	24.72	-4	18.57	71.94	7
4182	836.4	24.69	-4	18.54	71.45	7
4233	846.6	24.67	-4	18.52	71.12	7

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

LTE BAND 5

CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20407	824.7	24.37	-4	18.22	66.37	7
20525	836.5	24.3	-4	18.15	65.31	7
20643	848.3	24.3	-4	18.15	65.31	7

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20407	824.7	23.48	-4	17.33	54.08	7
20525	836.5	23.55	-4	17.4	54.95	7
20643	848.3	23.51	-4	17.36	54.45	7

CHANNEL BANDWIDTH: 1.4MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20407	824.7	22.56	-4	16.41	43.75	7
20525	836.5	22.37	-4	16.22	41.88	7
20643	848.3	22.44	-4	16.29	42.56	7

CHANNEL BANDWIDTH: 3MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20415	825.5	24.24	-4	18.09	64.42	7
20525	836.5	24.11	-4	17.96	62.52	7
20635	847.5	24.33	-4	18.18	65.77	7

CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20415	825.5	23.27	-4	17.12	51.52	7
20525	836.5	23.59	-4	17.44	55.46	7
20635	847.5	22.95	-4	16.8	47.86	7

**CHANNEL BANDWIDTH: 3MHz 64QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-L_C} (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20415	825.5	22.55	-4	16.4	43.65	7
20525	836.5	22.19	-4	16.04	40.18	7
20635	847.5	22.29	-4	16.14	41.11	7

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-L_C} (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20425	826.5	24.23	-4	18.08	64.27	7
20525	836.5	24.14	-4	17.99	62.95	7
20625	846.5	24.36	-4	18.21	66.22	7

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-L_C} (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20425	826.5	23.19	-4	17.04	50.58	7
20525	836.5	23.63	-4	17.48	55.98	7
20625	846.5	22.97	-4	16.82	48.08	7

CHANNEL BANDWIDTH: 5MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-L_C} (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20425	826.5	22.51	-4	16.36	43.25	7
20525	836.5	22.24	-4	16.09	40.64	7
20625	846.5	22.32	-4	16.17	41.4	7

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-LC} (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20450	829.0	24.33	-4	18.18	65.77	7
20525	836.5	24.22	-4	18.07	64.12	7
20600	844.0	24.38	-4	18.23	66.53	7

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-LC} (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20450	829.0	23.32	-4	17.17	52.12	7
20525	836.5	23.68	-4	17.53	56.62	7
20600	844.0	23.07	-4	16.92	49.2	7

CHANNEL BANDWIDTH: 10MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-LC} (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20450	829.0	22.59	-4	16.44	44.06	7
20525	836.5	22.31	-4	16.16	41.3	7
20600	844.0	22.41	-4	16.26	42.27	7

**LTE BAND 26****CHANNEL BANDWIDTH: 1.4MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26797	824.7	24.62	-4	18.47	70.31	7
26915	836.5	24.59	-4	18.44	69.82	7
27033	848.3	24.52	-4	18.37	68.71	7

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26797	824.7	23.67	-4	17.52	56.49	7
26915	836.5	23.63	-4	17.48	55.98	7
27033	848.3	23.82	-4	17.67	58.48	7

CHANNEL BANDWIDTH: 1.4MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26797	824.7	22.83	-4	16.68	46.56	7
26915	836.5	22.66	-4	16.51	44.77	7
27033	848.3	22.74	-4	16.59	45.6	7

**CHANNEL BANDWIDTH: 3MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26805	825.5	24.59	-4	18.44	69.82	7
26915	836.5	24.54	-4	18.39	69.02	7
27025	847.5	24.53	-4	18.38	68.87	7

CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26805	825.5	23.73	-4	17.58	57.28	7
26915	836.5	23.65	-4	17.5	56.23	7
27025	847.5	23.86	-4	17.71	59.02	7

CHANNEL BANDWIDTH: 3MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26805	825.5	22.88	-4	16.73	47.1	7
26915	836.5	22.74	-4	16.59	45.6	7
27025	847.5	22.8	-4	16.65	46.24	7



CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26815	826.5	24.58	-4	18.43	69.66	7
26915	836.5	24.56	-4	18.41	69.34	7
27015	846.5	24.6	-4	18.45	69.98	7

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26815	826.5	23.75	-4	17.6	57.54	7
26915	836.5	23.73	-4	17.58	57.28	7
27015	846.5	23.82	-4	17.67	58.48	7

CHANNEL BANDWIDTH: 5MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26815	826.5	22.88	-4	16.73	47.1	7
26915	836.5	22.69	-4	16.54	45.08	7
27015	846.5	22.73	-4	16.58	45.5	7

**CHANNEL BANDWIDTH: 10MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26840	829	24.57	-4	18.42	69.5	7
26915	836.5	24.53	-4	18.38	68.87	7
26990	844	24.55	-4	18.4	69.18	7

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26840	829	23.75	-4	17.6	57.54	7
26915	836.5	23.75	-4	17.6	57.54	7
26990	844	23.83	-4	17.68	58.61	7

CHANNEL BANDWIDTH: 10MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26840	829	22.88	-4	16.73	47.1	7
26915	836.5	22.76	-4	16.61	45.81	7
26990	844	22.76	-4	16.61	45.81	7

**CHANNEL BANDWIDTH: 15MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26865	831.5	24.68	-4	18.53	71.29	7
26915	836.5	24.66	-4	18.51	70.96	7
26965	841.5	24.64	-4	18.49	70.63	7

CHANNEL BANDWIDTH: 15MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26865	831.5	23.82	-4	17.67	58.48	7
26915	836.5	23.78	-4	17.63	57.94	7
26965	841.5	23.87	-4	17.72	59.16	7

CHANNEL BANDWIDTH: 15MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26865	831.5	22.9	-4	16.75	47.32	7
26915	836.5	22.81	-4	16.66	46.34	7
26965	841.5	22.86	-4	16.71	46.88	7

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

3.2 FREQUENCY STABILITY MEASUREMENT

3.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

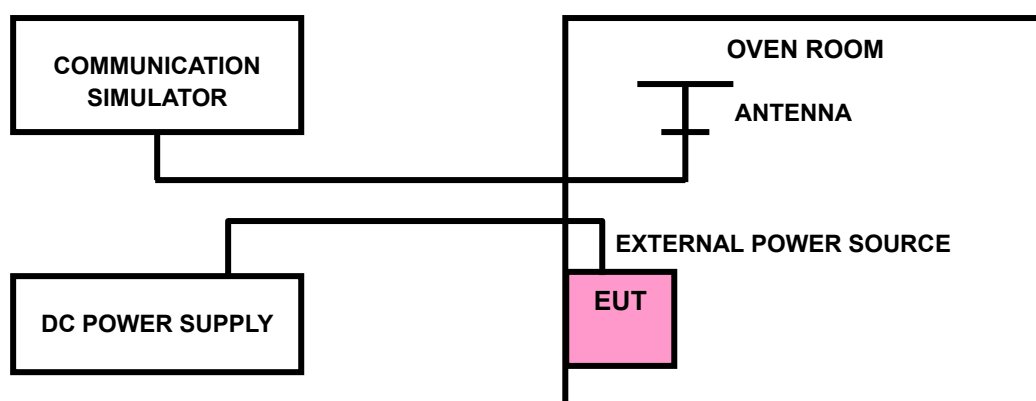
1.5 ppm is for base and fixed station. 2.5 ppm is for mobile stations.

3.2.2 TEST PROCEDURE

- The device is placed in the oven room. The oven room could control the temperatures and humidity. Power warms up is at least 15 min and power applied should perform before recording frequency error.
- EUT is connected to 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 recording the frequency error rate.
- The temperature range step is 10 degrees in this test items. All temperature levels shall be holding the $\pm 0.5^{\circ}\text{C}$ during the measurement testing. 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





Test Report No.: W7L-P24050014RF05

3.2.4 TEST RESULTS

Please Refer to Appendix Of this test report.

Note: LV = Low voltage (3.6V); NV = Normal voltage (3.84V); HV= High voltage (4.4V).
NT = Normal temperature (25°C)

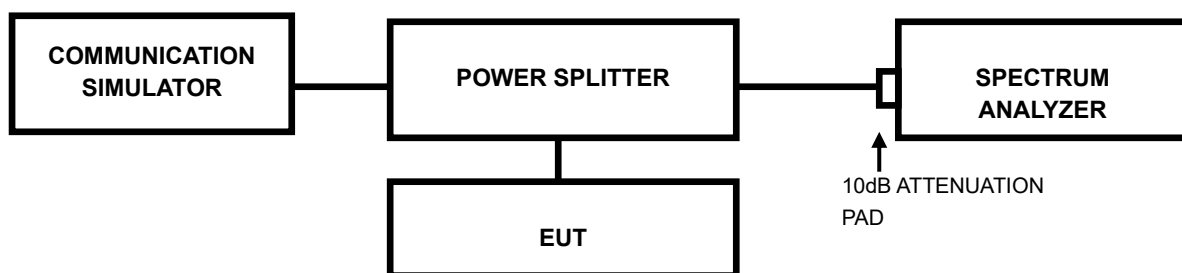
3.3 OCCUPIED BANDWIDTH MEASUREMENT

3.3.1 LIMITS OF OCCUPIED BANDWIDTH MEASUREMENT

The width of a frequency band is 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

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



Test Report No.: W7L-P24050014RF05

3.3.4 TEST RESULTS

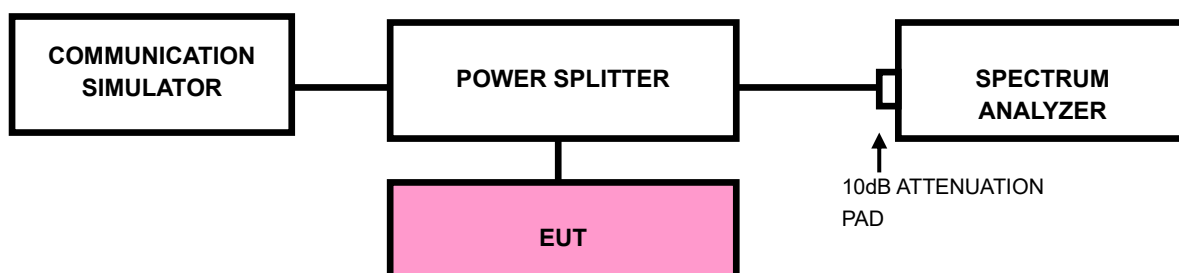
Please Refer to Appendix Of this test report.

3.4 BAND EDGE MEASUREMENT

3.4.1 LIMITS OF BAND EDGE MEASUREMENT

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. 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.

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) $\geq 1\%$ 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 $\geq 3 \times$ 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 5KHz or 10KHz or 100KHz.
- l) Record the max trace plot into the test report.



Test Report No.: W7L-P24050014RF05

3.4.4 TEST RESULTS

Please Refer to Appendix Of this test report.

3.5 CONDUCTED SPURIOUS EMISSIONS

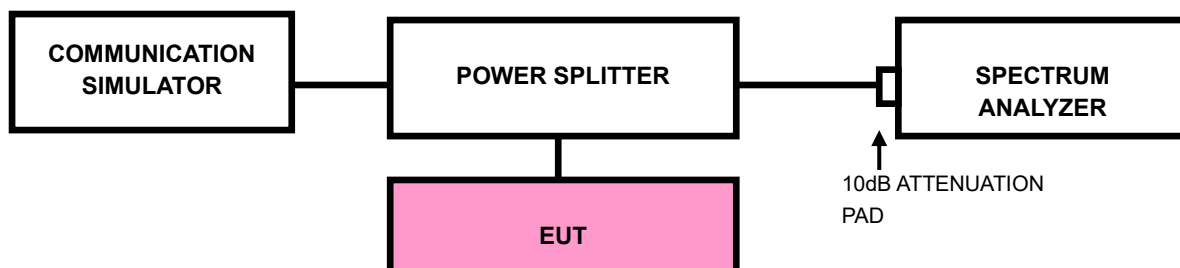
3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

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 is equal to -13dBm .

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





Test Report No.: W7L-P24050014RF05

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 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 is equal to -13dBm .

3.6.2 TEST PROCEDURES

- a. The substitute 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 exports the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved the 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. $\text{EIRP} = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$.
- d. E.R.P power can be calculated from E.I.R.P power by subtracting the gain of dipole,
 $\text{E.R.P power} = \text{E.I.P.R power} - 2.15\text{dBi}$.

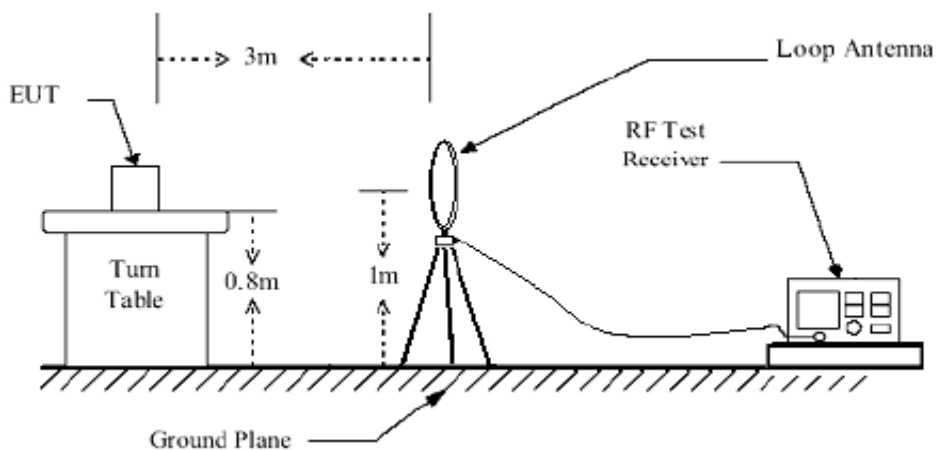
NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

3.6.3 DEVIATION FROM TEST STANDARD

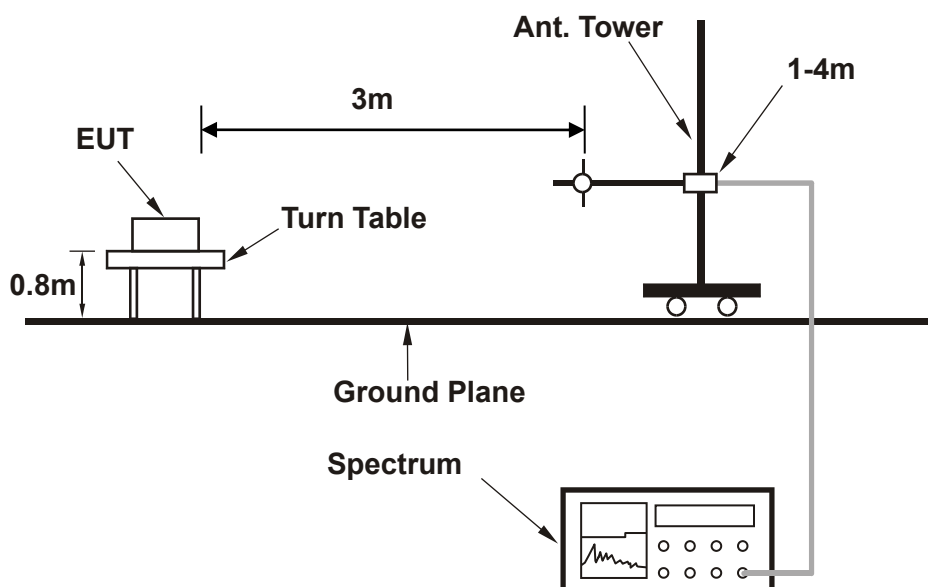
No deviation

3.6.4 TEST SETUP

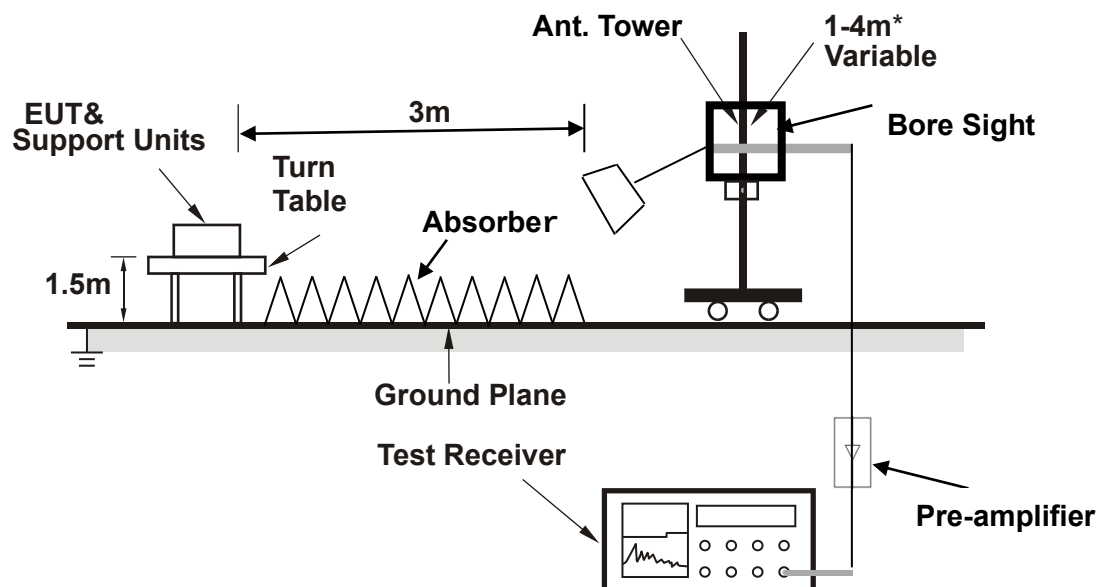
< Frequency Range below 30MHz >



< 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

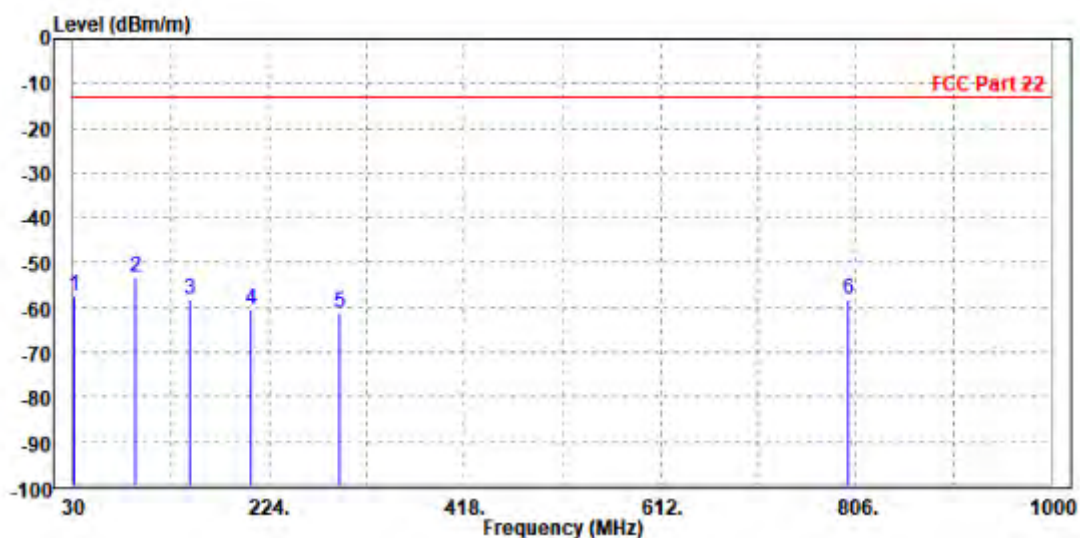
30 MHz – 1GHz data:

GSM 850(Ant0) (UP):

CHANNEL BANDWIDTH: 128 ~ 251

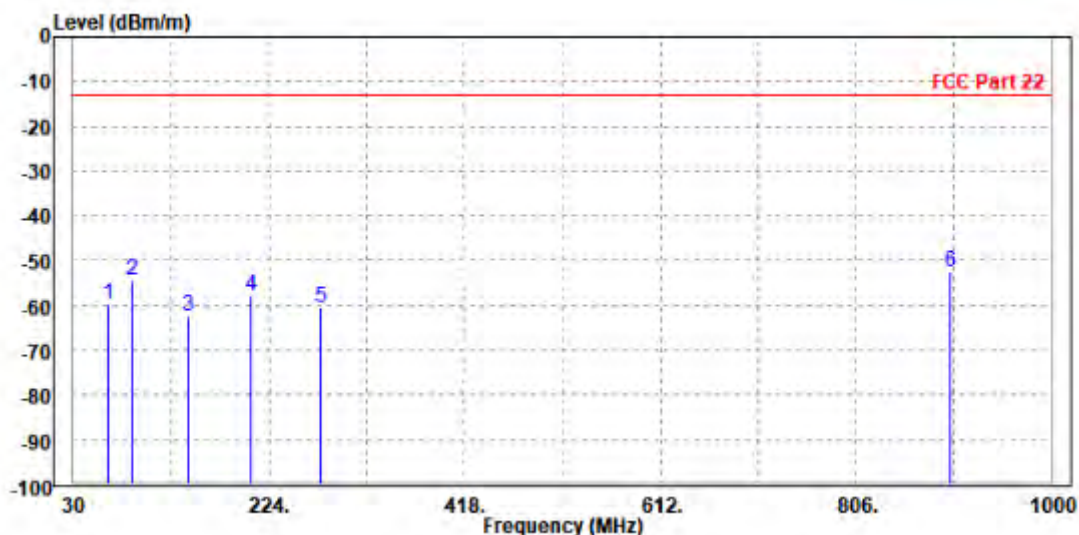
MODE	TX channel 189	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	30.970	-57.51	-55.00	-13.00	-44.51	-2.51	Peak	Horizontal
2 PP	91.110	-53.39	-40.63	-13.00	-40.39	-12.76	Peak	Horizontal
3	146.400	-58.25	-43.70	-13.00	-45.25	-14.55	Peak	Horizontal
4	205.570	-60.41	-45.51	-13.00	-47.41	-14.90	Peak	Horizontal
5	294.810	-61.38	-52.33	-13.00	-48.38	-9.05	Peak	Horizontal
6	798.240	-58.31	-63.53	-13.00	-45.31	5.22	Peak	Horizontal



MODE	TX channel 189	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			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	64.920	-59.88	-40.49	-13.00	-46.88	-19.39	Peak	Vertical
2	88.200	-54.49	-36.82	-13.00	-41.49	-17.67	Peak	Vertical
3	143.490	-62.36	-48.20	-13.00	-49.36	-14.16	Peak	Vertical
4	205.570	-57.65	-49.08	-13.00	-44.65	-8.57	Peak	Vertical
5	275.410	-60.32	-56.75	-13.00	-47.32	-3.57	Peak	Vertical
6 PP	900.090	-52.57	-64.69	-13.00	-39.57	12.12	Peak	Vertical





ABOVE 1GHz DATA

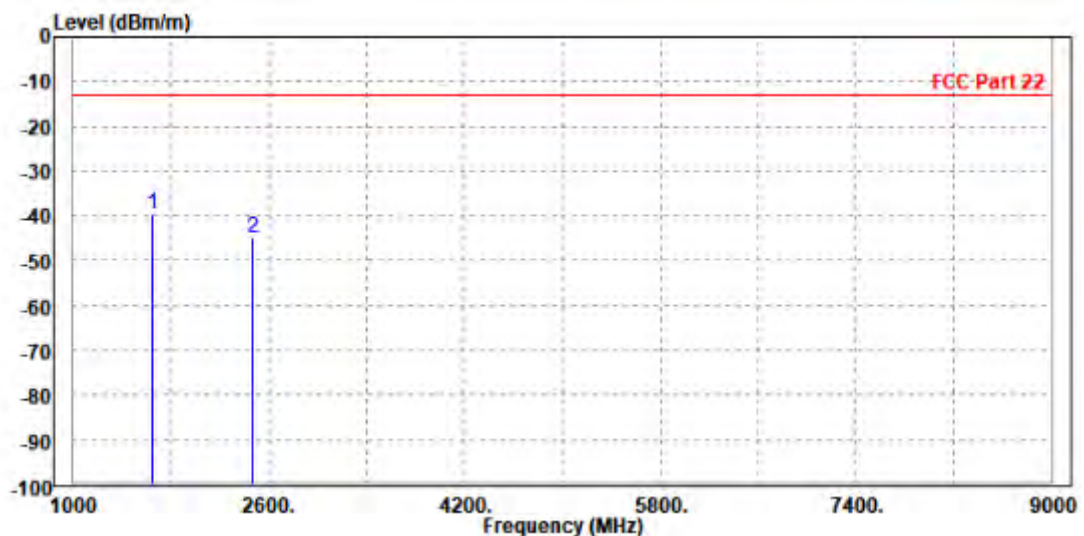
Note: For higher frequency, the emission is too low to be detected.

GSM 850(Ant0) (UP):

CH 128:

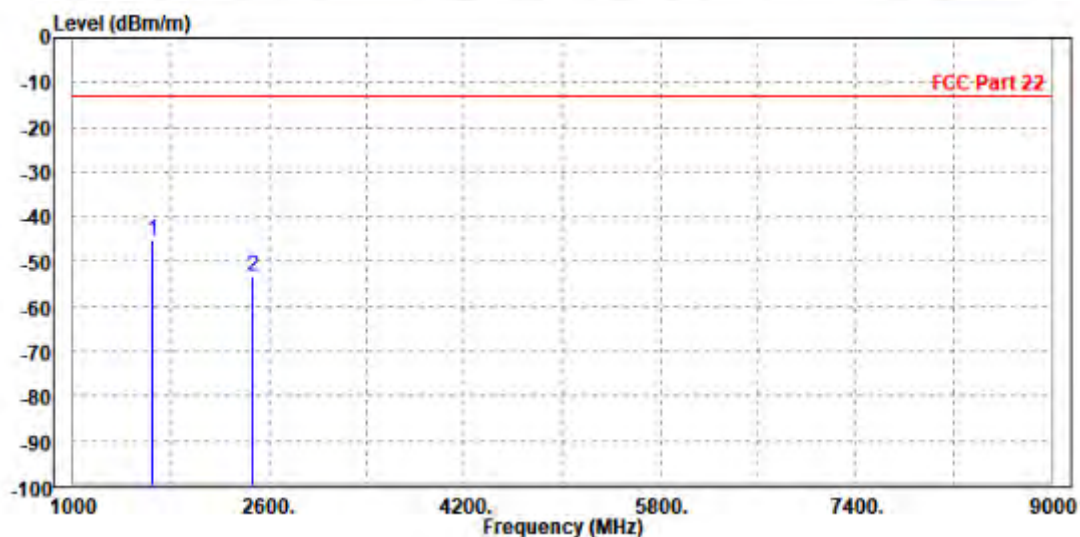
MODE	TX channel 128	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	1648.000	-39.43	-43.09	-13.00	-26.43	3.66	Peak	Horizontal
2	2472.000	-44.95	-50.97	-13.00	-31.95	6.02	Peak	Horizontal



MODE	TX channel 128	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			

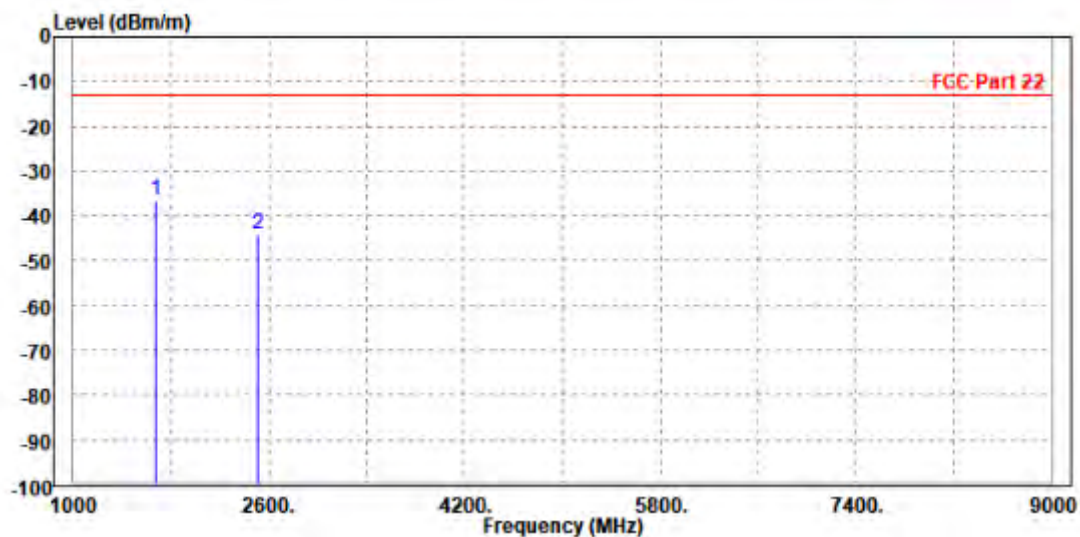
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	1648.000	-45.17	-48.56	-13.00	-32.17	3.39	Peak	Vertical
2	2472.000	-53.41	-59.09	-13.00	-40.41	5.68	Peak	Vertical



CH 189:

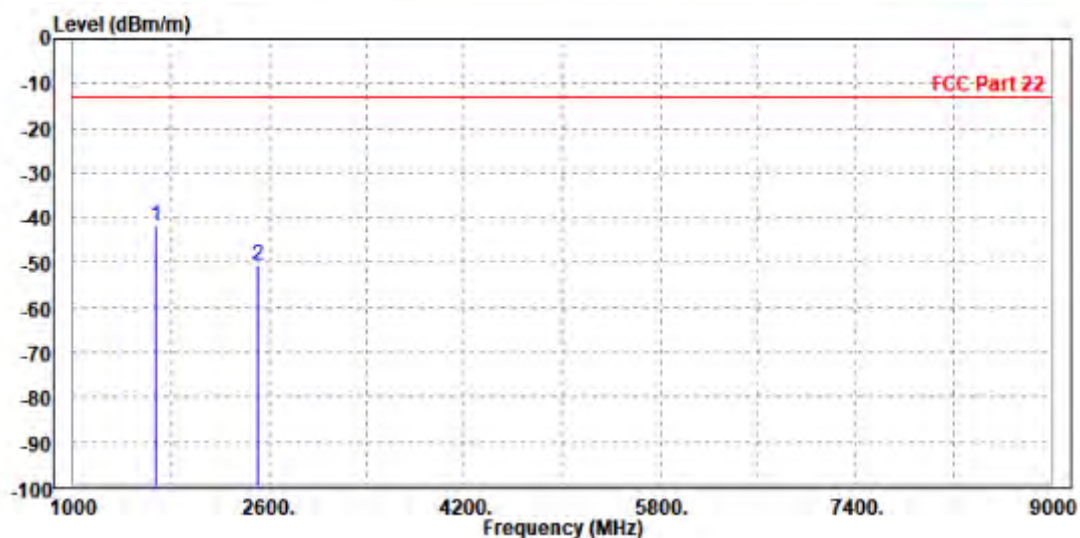
MODE	TX channel 189	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	1672.000	-36.51	-40.24	-13.00	-23.51	3.73	Peak	Horizontal
2	2512.000	-44.15	-50.30	-13.00	-31.15	6.15	Peak	Horizontal



MODE	TX channel 189	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			

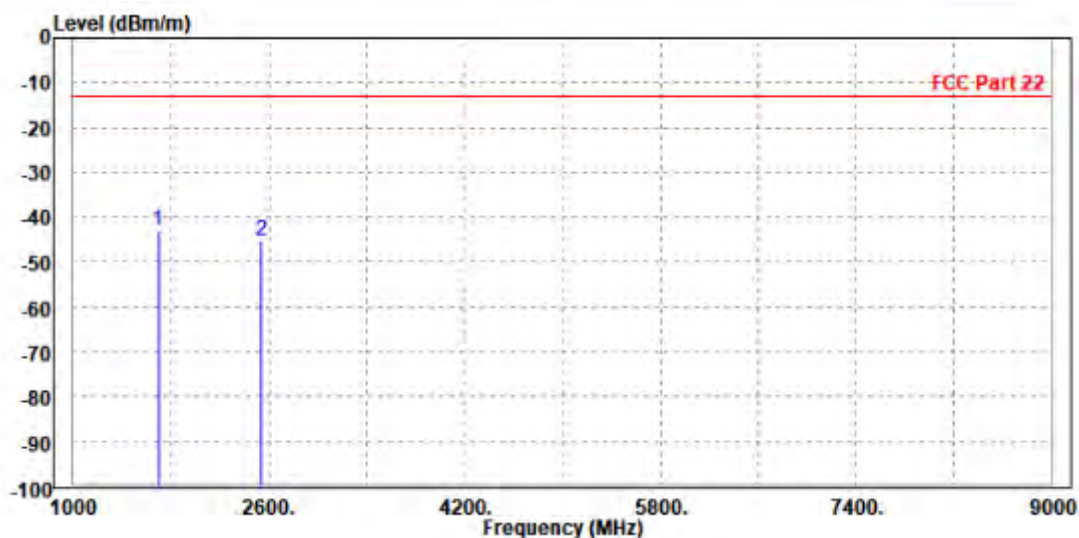
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	1672.000	-41.92	-45.35	-13.00	-28.92	3.43	Peak	Vertical
2	2512.000	-50.76	-56.61	-13.00	-37.76	5.85	Peak	Vertical



CH 251:

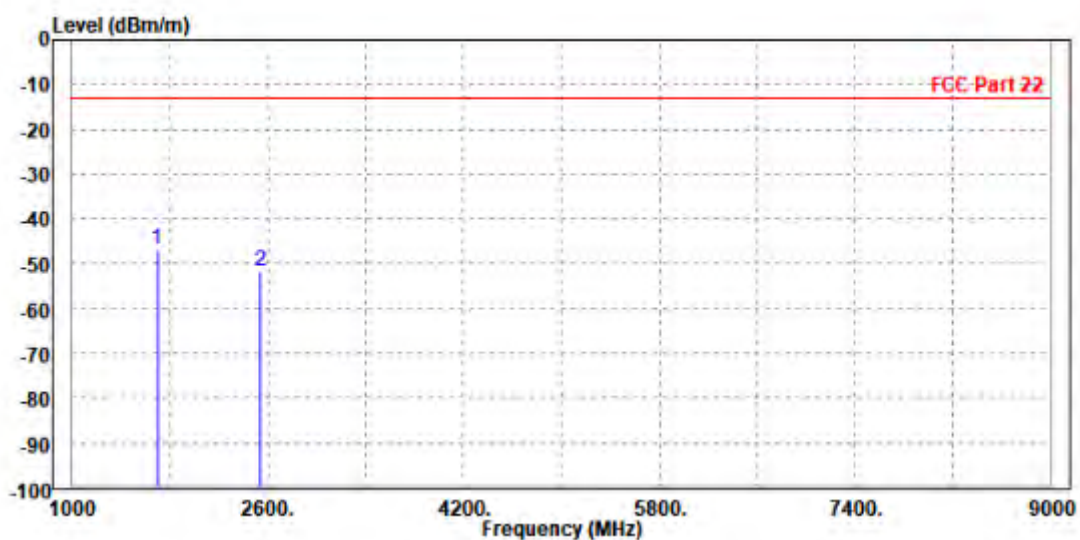
MODE	TX channel 251	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	1696.000	-43.06	-46.87	-13.00	-30.06	3.81	Peak	Horizontal
2	2544.000	-45.35	-51.64	-13.00	-32.35	6.29	Peak	Horizontal



MODE	TX channel 251	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			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	1696.000	-46.68	-50.15	-13.00	-33.68	3.47	Peak	Vertical
2	2544.000	-51.79	-57.84	-13.00	-38.79	6.05	Peak	Vertical

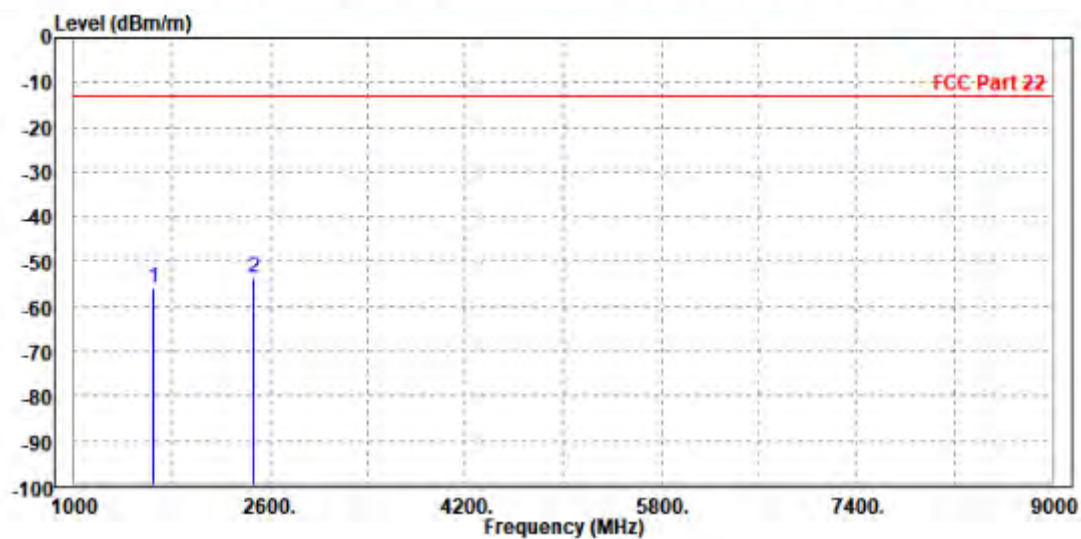


EDGE 850(Ant0) (UP):

CH 128:

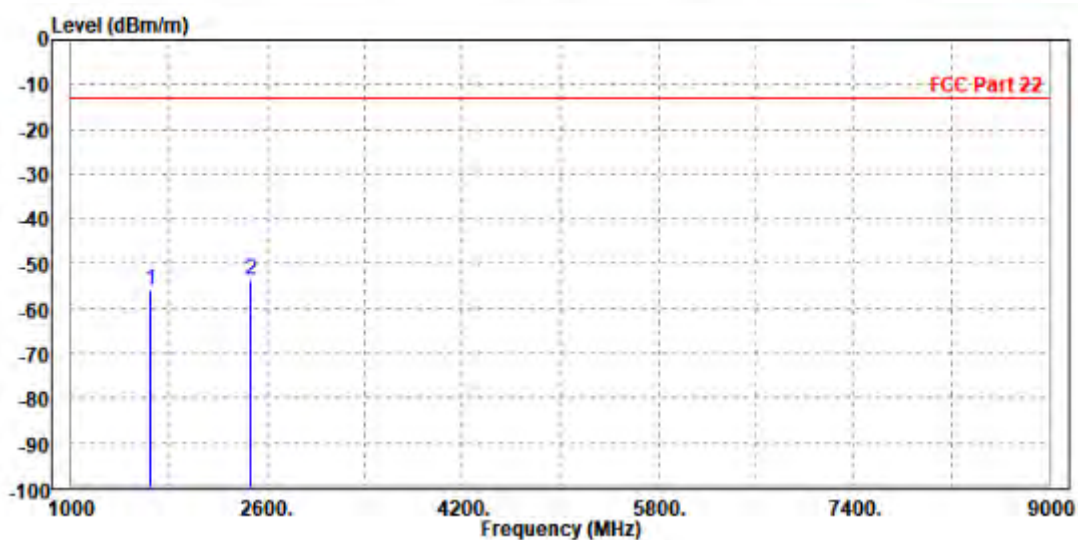
MODE	TX channel 128	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1648.000	-55.76	-59.42	-13.00	-42.76	3.66	Peak	Horizontal
2 PP	2472.000	-53.50	-59.52	-13.00	-40.50	6.02	Peak	Horizontal



MODE	TX channel 128	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			

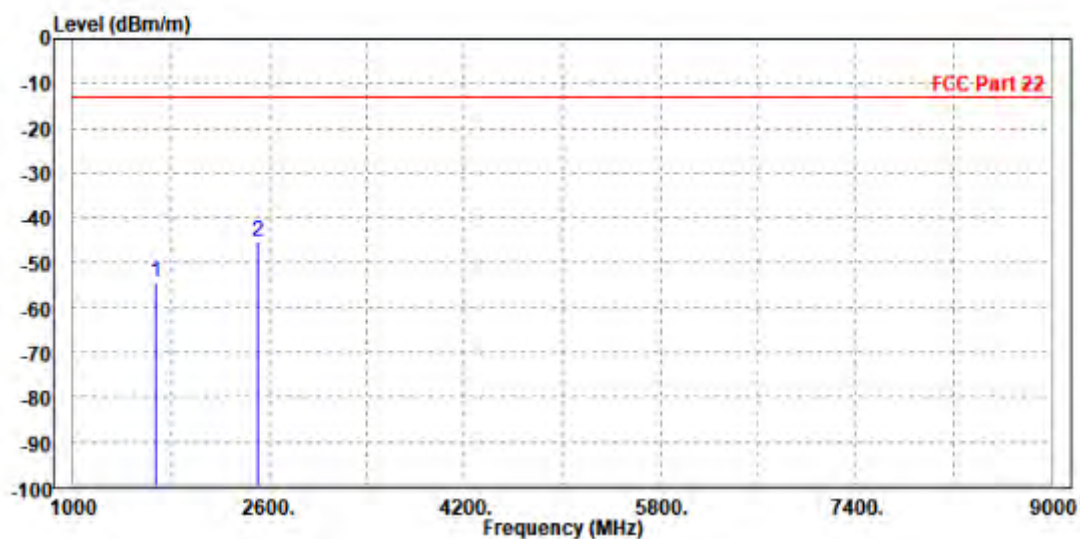
	Freq	Level	Read Level	Limit	Over			
	MHz	dBm/m	dBm	dBm/m	dB	dB/m	Remark	Pol/Phase
1	1648.000	-56.08	-59.47	-13.00	-43.08	3.39	Peak	Vertical
2 PP	2472.000	-53.77	-59.45	-13.00	-40.77	5.68	Peak	Vertical



CH 189:

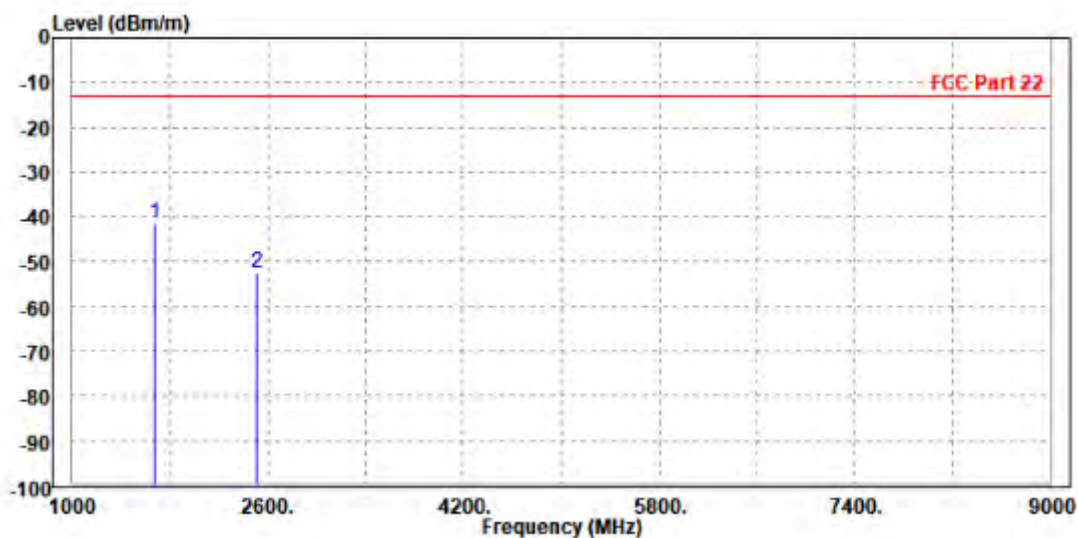
MODE	TX channel 189	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1672.000	-54.55	-58.28	-13.00	-41.55	3.73	Peak	Horizontal
2 PP	2512.000	-45.39	-51.54	-13.00	-32.39	6.15	Peak	Horizontal



MODE	TX channel 189	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			

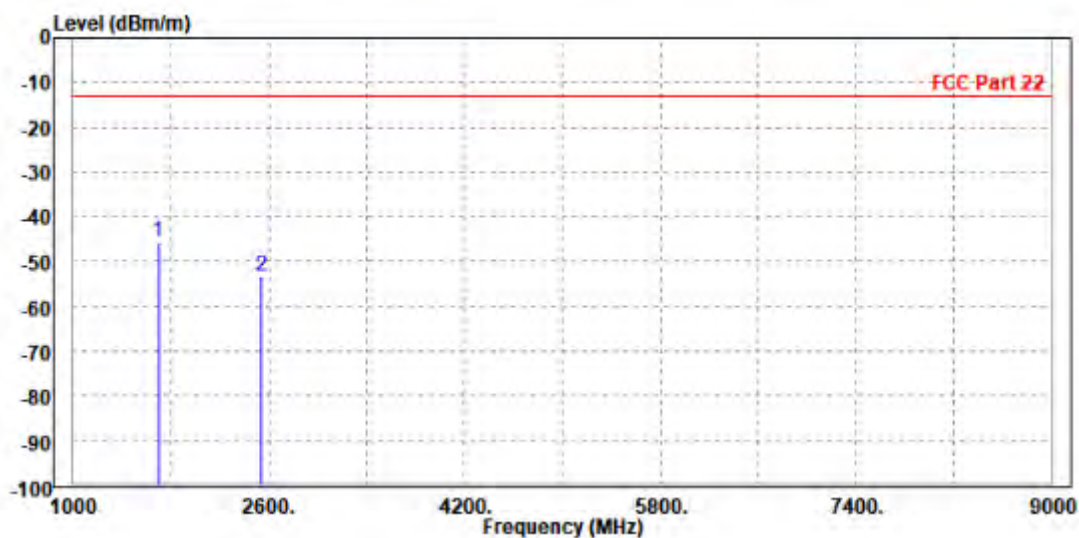
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	1672.000	-41.46	-44.89	-13.00	-28.46	3.43	Peak	Vertical
2	2508.000	-52.54	-58.37	-13.00	-39.54	5.83	Peak	Vertical



CH 251:

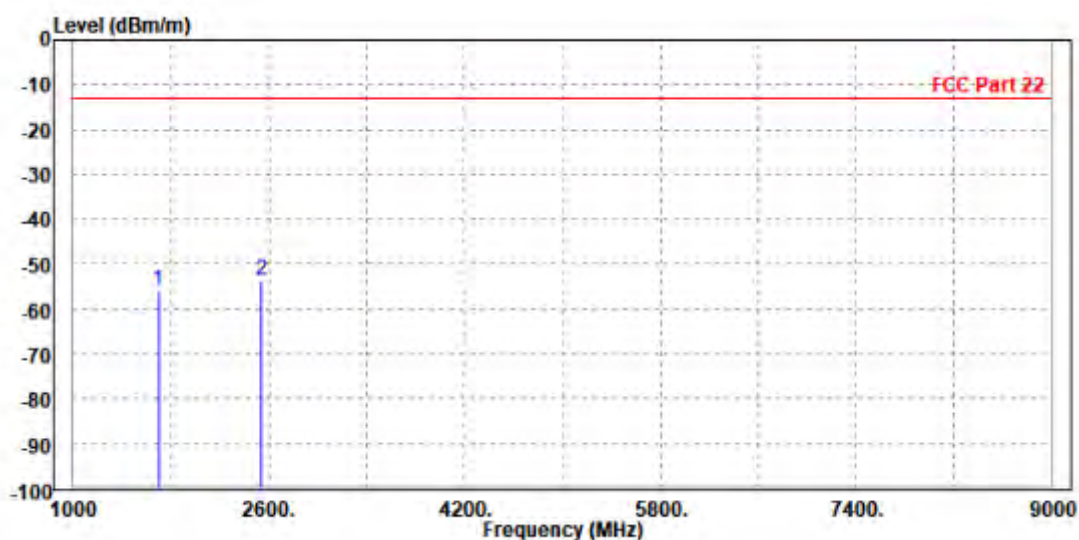
MODE	TX channel 251	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	1696.000	-45.56	-49.37	-13.00	-32.56	3.81	Peak	Horizontal
2	2544.000	-53.09	-59.38	-13.00	-40.09	6.29	Peak	Horizontal



MODE	TX channel 251	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			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1696.000	-55.87	-59.34	-13.00	-42.87	3.47	Peak	Vertical
2 PP	2544.000	-53.74	-59.79	-13.00	-40.74	6.05	Peak	Vertical

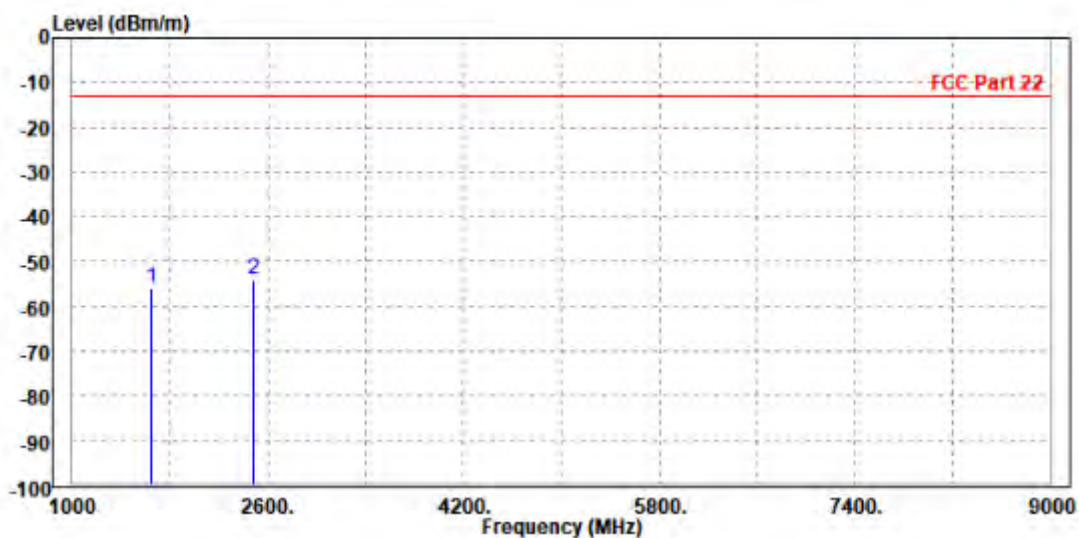


WCDMA Band V(Ant1) (DOWN):

CH 4132:

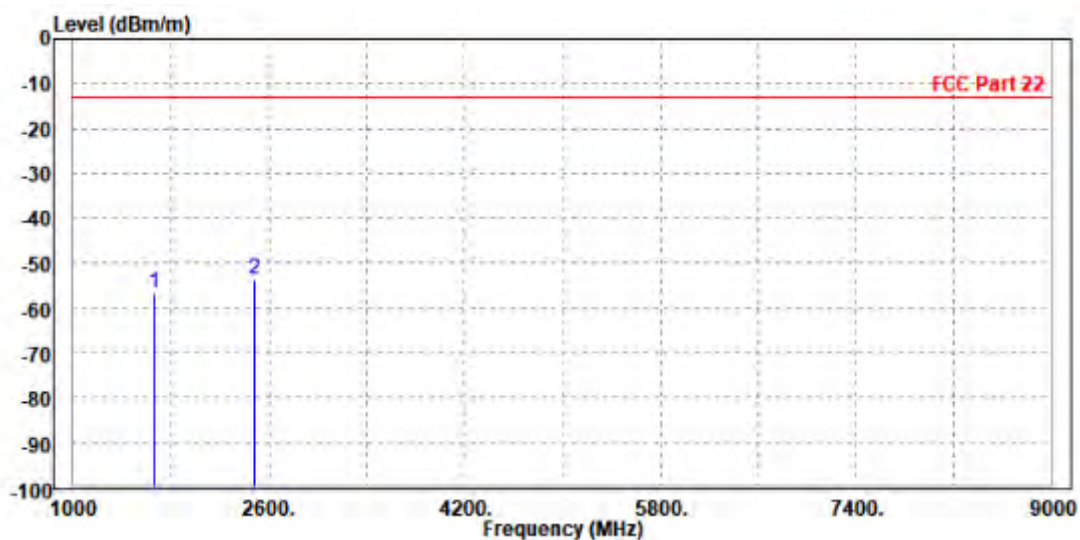
MODE	TX channel 4132	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1652.000	-55.78	-59.45	-13.00	-42.78	3.67	Peak	Horizontal
2 PP	2480.000	-54.13	-60.18	-13.00	-41.13	6.05	Peak	Horizontal



MODE	TX channel 4132	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			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1656.000	-56.68	-60.08	-13.00	-43.68	3.40	Peak	Vertical
2 PP	2478.000	-53.48	-59.18	-13.00	-40.48	5.70	Peak	Vertical



CH 4182:

MODE	TX channel 4182	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			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1672.000	-55.67	-59.40	-13.00	-42.67	3.73	Peak	Horizontal
2 PP	2504.000	-52.69	-58.81	-13.00	-39.69	6.12	Peak	Horizontal

