FCC TEST REPORT

(PART 27)

Applicant:	Borqs BeiJing Ltd.
Address:	Tower A, Building B23, Universal Business Park, No. 10 Jiuxianqiao Road, Chaoyang District Beijing, 100015 China

Manufacturer or Supplier:	Borqs BeiJing Ltd.
Address:	Tower A, Building B23, Universal Business Park, No. 10 Jiuxianqiao Road, Chaoyang District Beijing, 100015 China
Product:	SKYBOX
Brand Name:	SkyCentrics
Model Name:	MA01-WBNA (Low Voltage with LTE), MA01-EP-WBNA (High Voltage with LTE)
FCC ID:	2ABDK-MA01
Date of tests:	Nov. 27, 2023 ~ Dec. 05, 2023

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 Chao Wu Engineer / Mobile Department	Approved by Peibo Sun Manager / Mobile Department
Chao Wu Date: Dec. 05, 2023	Sun Peibo Date: Dec. 05, 2023

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-231123W001RF03	Original release	Dec. 05, 2023

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**	**LAB**
§2.1046	Conducted Output Power	Compliance	A
§27.50(c)(10) §27.50(b)(10)	Effective Radiated Power (Band 12)(Band 13)	Compliance	A
§27.50(d)(4)	Equivalent Isotropically Radiated Power (Band 4)	Compliance	A
§2.1055 §27.54	Frequency Stability	See Note	-
§2.1049	Occupied Bandwidth	See Note	-
§2.1051 §27.53(c)(2)(4) §27.53(h) §27.53(g)	Conducted Band Edge Measurements (Band 4) (Band 12) (Band 13)	See Note	-
§2.1051 §27.53(c)(2)(4) §27.53(h) §27.53(g)	Conducted Spurious Emissions (Band 4) (Band 12) (Band 13)	See Note	-
§2.1053 §27.53(h) §27.53(g) §27.53(c)(2)(4) §27.53(f)	Radiated Spurious Emissions (Band 4) (Band 12) (Band 13)	Compliance	A
NA	Peak to average ratio	See Note	-

Note: please refer to the module report R2006A0379-R5 (FCC-ID: XMR202008EG91NAXD).

Test Lab Information Reference:

Lab A:

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
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 Output power	±2.06dB

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
EXA Signal Analyzer	KEYSIGHT	N9010A-544	MY54510355	May.10,23	May.09,24
Loop Antenna	Schwarzbeck	FMZB 1519B	00173	Sep.02,23	Sep.01,24
Bilog Antenna	ETS-LINDGREN	3143B	00161965	Feb. 18,23	Feb. 17,24
Horn Antenna	ETS-LINDGREN	3117	00168692	Feb. 18,23	Feb. 17,24
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K-SG/QMS-00361	15433	Sep.03, 23	Sep.02, 24
Radio Communication Analyzer	ANRITSU	MT8820C	6201465426	Feb. 14,23	Feb. 13,24
Signal Pre-Amplifier	EMSI	EMC 9135	980249	May. 06,23	May. 05,24
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	May.10,23	May.09,24
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Feb. 17,23	Feb.16,24
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	Euroshieldpn-CT0001143-1216	May. 22, 23	May. 21,26
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
Power Meter	Anritsu	ML2495A	1506002	Feb. 14,23	Feb. 13,24
Power Sensor	Anritsu	MA2411B	1339352	Feb. 14,23	Feb. 13,24
Temperature Chamber	ESPEC	SH-242	93000855	May. 06,23	May. 05,24
MXG Analog Microwave Signal Generator	KEYSIGHT	N5183A	MY50143024	Feb. 14,23	Feb. 13,24
Base station R&S CMW500	Rohde&Schwarz	CMW500	153085	May.10,23	May.09,24
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 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	SKYBOX	
BRAND NAME	SkyCentrics	
MODEL NAME	MA01-WBNA (Low Voltage with LTE), MA01-EP-WBNA (High Voltage with LTE)	
NOMINAL VOLTAGE	24Vac (MA01-WBNA) 120Vac (MA01-EP-WBNA)	
MODULATION TECHNOLOGY	**LTE**	QPSK, 16QAM
FREQUENCY RANGE	**LTE Band 4 Channel Bandwidth: 1.4MHz**	1710.7MHz ~ 1754.3MHz
	LTE Band 4 Channel Bandwidth: 3MHz	1711.5MHz ~ 1753.5MHz
	LTE Band 4 Channel Bandwidth: 5MHz	1712.5MHz ~ 1752.5MHz
	LTE Band 4 Channel Bandwidth: 10MHz	1715MHz ~ 1750MHz
	LTE Band 4 Channel Bandwidth: 15MHz	1717.5MHz ~ 1747.5 MHz
	LTE Band 4 Channel Bandwidth: 20MHz	1720MHz ~ 1745MHz
	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
MAX. EIRP POWER	**LTE Band 4 Channel Bandwidth: 1.4MHz**	358.92mW
	LTE Band 4 Channel Bandwidth: 3MHz	355.63mW
	LTE Band 4 Channel Bandwidth: 5MHz	363.08mW
	LTE Band 4 Channel Bandwidth: 10MHz	356.45mW

	LTE Band 4 Channel Bandwidth: 15MHz	361.41mW
	LTE Band 4 Channel Bandwidth: 20MHz	363.92mW
	LTE Band 12 Channel Bandwidth: 1.4MHz	60.39mW
	LTE Band 12 Channel Bandwidth: 3MHz	61.52mW
	LTE Band 12 Channel Bandwidth: 5MHz	59.84mW
	LTE Band 12 Channel Bandwidth: 10MHz	61.94mW
	LTE Band 13 Channel Bandwidth: 5MHz	72.44mW
	LTE Band 13 Channel Bandwidth: 10MHz	74.3mW
EMISSION DESIGNATOR	**LTE Band 4 Channel Bandwidth: 1.4MHz**	QPSK: 1M13G7D
		16QAM: 327KW7D
		64QAM: /
	LTE Band 4 Channel Bandwidth: 3MHz	QPSK:2M74G7D
		16QAM: 408KW7D
		64QAM: /
	LTE Band 4 Channel Bandwidth: 5MHz	QPSK: 4M53G7D
		16QAM: 493KW7D
		64QAM: /
	LTE Band 4 Channel Bandwidth: 10MHz	QPSK: 9M02G7D
		16QAM: 885KW7D
		64QAM: /
	LTE Band 4 Channel Bandwidth: 15MHz	QPSK: 13M5G7D
		16QAM: 1M16W7D
		64QAM: /
	LTE Band 4 Channel Bandwidth: 20MHz	QPSK: 17M9G7D
		16QAM: 1M24W7D
		64QAM: /
	LTE Band 12 Channel Bandwidth: 1.4MHz	QPSK: 1M12G7D
		16QAM: 331KW7D
		64QAM: /
	LTE Band 12 Channel Bandwidth: 3MHz	QPSK:2M74G7D
		16QAM: 410KW7D
		64QAM: /

	LTE Band 12 Channel Bandwidth: 5MHz	QPSK: 4M52G7D
		16QAM: 470KW7D
		64QAM: /
	LTE Band 12 Channel Bandwidth: 10MHz	QPSK: 4M53G7D
		16QAM: 893KW7D
		64QAM: /
	LTE Band 13 Channel Bandwidth: 5MHz	QPSK: 4M53G7D
		16QAM: 499KW7D
		64QAM: /
	LTE Band 13 Channel Bandwidth: 10MHz	QPSK: 9M04G7D
		16QAM: 903KW7D
		64QAM: /
ANTENNA TYPE	Internal Antenna with 2.53 dBi gain for LTE Band 4 Internal Antenna with -3.1 dBi gain for LTE Band 12 Internal Antenna with -2.19 dBi gain for LTE Band 13	
HW VERSION	DVT	
SW VERSION	fft_PICO_KITE_20230828	
I/O PORTS	Refer to user's manual	
CABLE SUPPLIED	Power cable: non-shielded cable, with w/o ferrite core, 1.8 meter	
EXTREME TEMPERATURE	-20-50 ℃	
EXTREME VOLTAGE	110V - 240V (MA01-EP-WBNA) 18V - 30V (MA01-WBNA)	

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 one completed transmitter and one receiver.

MODULATION MODE	TX FUNCTION
LTE	1TX/1RX

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.

5. The difference of MA01-WBNA and MA01-EP-WBNA is as follows：

No	Model	Difference Description
1	MA01-EP-WBNA	High Voltage: 120 VAC through Power Entry Module
2	MA01-WBNA	Low Voltage: 24 VAC through terminal block header

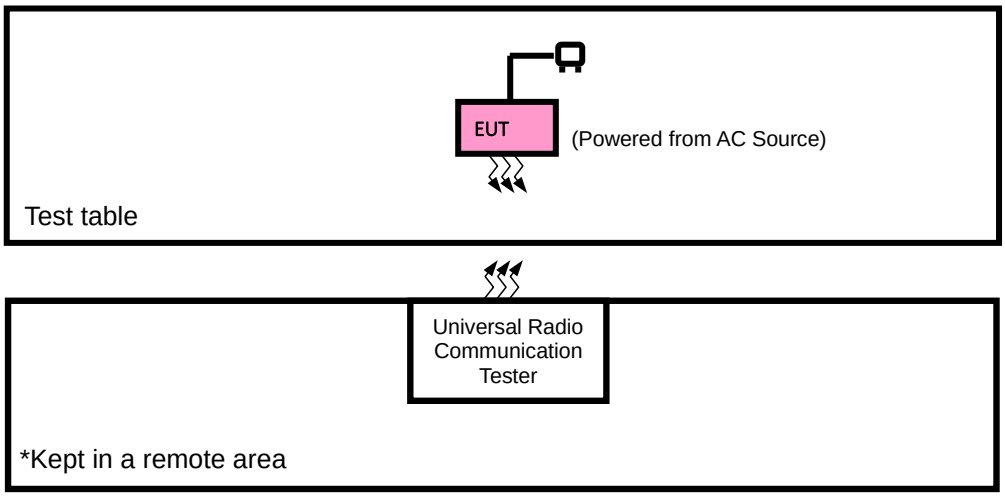
The main test model is MA01-EP-WBNA, and MA01-WBNA verified the worst-case mode of MA01-EP-WBNA.Only the data of MA01-EP-WBNA was reported in the report, because of its worse data.

List of Accessory:

ACCESSORIES	BRAND	MODEL	SPECIFICATION
Power cable	YuanSong	YS-301+SVT18/ 3CBK+ YS-302	1.8M

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	AC power supply	N/A	JS-AC2410	N/A	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	N/A

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 with LTE link**

LTE BAND 4 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	EIRP	19957 to 20393	19957, 20175, 20393	1.4MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		19965 to 20385	19965, 20175, 20385	3MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		19975 to 20375	19975, 20175, 20375	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20000 to 20350	20000, 20175, 20350	10MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20025 to 20325	20025, 20175, 20325	15MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20050 to 20300	20050, 20175, 20300	20MHz	QPSK, 16QAM	1 RB / 0 RB Offset
A	RADIATED EMISSION	19957 to 20393	20175	1.4MHz	QPSK	1 RB / 0 RB Offset
		19965 to 20385	20175	3MHz	QPSK	1 RB / 0 RB Offset
		19975 to 20375	20175	5MHz	QPSK	1 RB / 0 RB Offset
		20000 to 20350	20175	10MHz	QPSK	1 RB / 0 RB Offset
		20025 to 20325	20175	15MHz	QPSK	1 RB / 0 RB Offset
		20050 to 20300	20050, 20175, 20300	20MHz	QPSK	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.

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	1 RB / 0 RB Offset
		23025 to 23165	23025, 23095 ,23165	3MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		23035 to 23155	23035, 23095 ,23155	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		23060 to 23130	23060, 23095 ,23130	10MHz	QPSK, 16QAM	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	1 RB / 0 RB Offset
		23230	23230	10MHz	QPSK, 16QAM	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.

TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
ERP&EIRP	23deg. C, 70%RH	AC 120V	Jace Hu
RADIATED EMISSION	23deg. C, 70%RH	AC 120V	Jace Hu

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

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

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) Fixed, mobile, and Portable stations (hand-held devices) transmitting in the 776-788 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).

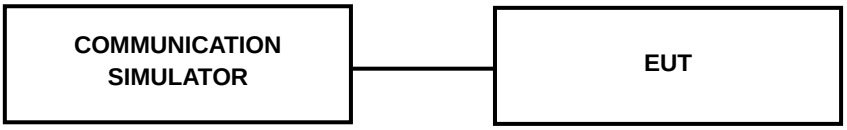
L_C = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

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)

LTE Band 4

Band/BW	Modulation	RB Size	RB Offset	Low CH 19957	Mid CH 20175	High CH 20393
				Frequency 1710.7 MHz	Frequency 1732.5 MHz	Frequency 1754.3 MHz
4/ 1.4	QPSK	1	0	22.65	22.94	23.02
		1	2	22.42	22.63	22.84
		1	5	22.35	22.51	22.68
		3	0	22.62	22.85	22.92
		3	1	22.41	22.56	22.68
		3	3	22.12	22.36	22.57
		6	0	21.72	21.86	21.90
	16QAM	1	0	21.38	21.73	21.82
		1	2	21.67	21.69	21.85
		1	5	21.35	21.36	21.55
		3	0	21.91	22.17	22.21
		3	1	21.60	21.83	22.00
		3	3	21.16	21.38	21.45
		6	0	20.76	21.02	21.09

Band/BW	Modulation	RB Size	RB Offset	Low CH 19965	Mid CH 20175	High CH 20385
				Frequency 1711.5 MHz	Frequency 1732.5 MHz	Frequency 1753.5 MHz
4/ 3	QPSK	1	0	22.70	22.82	22.98
		1	7	22.49	22.60	22.87
		1	14	22.27	22.62	22.69
		8	0	21.87	22.03	22.10
		8	3	21.65	21.80	21.89
		8	7	21.37	21.47	21.70
		15	0	21.67	21.84	21.88
	16QAM	1	0	21.50	21.70	21.96
		1	7	21.62	21.72	21.90
		1	14	21.42	21.46	21.50
		8	0	21.86	22.05	22.22
		8	3	21.60	21.76	21.90
		8	7	21.20	21.49	21.44
		15	0	20.89	20.92	21.10

Band/BW	Modulation	RB Size	RB Offset	Low CH 19975	Mid CH 20175	High CH 20375
				Frequency 1712.5 MHz	Frequency 1732.5 MHz	Frequency 1752.5 MHz
4/ 5	QPSK	1	0	22.71	22.88	23.07
		1	12	22.48	22.57	22.89
		1	24	22.27	22.60	22.71
		12	0	21.77	22.09	22.06
		12	6	21.61	21.79	21.89
		12	13	21.40	21.51	21.70
		25	0	21.60	21.81	21.85
	16QAM	1	0	21.38	21.70	21.94
		1	12	21.59	21.68	21.87
		1	24	21.39	21.40	21.58
		12	0	21.83	22.08	22.15
		12	6	21.63	21.77	21.99
		12	13	21.18	21.44	21.52
		25	0	20.89	21.00	21.08

Band/BW	Modulation	RB Size	RB Offset	Low CH 20000	Mid CH 20175	High CH 20350
				Frequency 1715 MHz	Frequency 1732.5 MHz	Frequency 1750 MHz
4/ 10	QPSK	1	0	22.66	22.88	22.99
		1	24	22.47	22.63	22.84
		1	49	22.28	22.54	22.74
		25	0	21.81	21.98	22.11
		25	12	21.61	21.77	21.85
		25	25	21.40	21.49	21.76
		50	0	21.63	21.79	21.96
	16QAM	1	0	21.47	21.74	21.87
		1	24	21.60	21.69	21.87
		1	49	21.30	21.47	21.52
		12	0	21.96	22.04	22.23
		12	17	21.61	21.84	21.98
		12	36	21.16	21.51	21.46
		27	0	20.87	21.02	21.06

Band/BW	Modulation	RB Size	RB Offset	Low CH 20025	Mid CH 20175	High CH 20325
				Frequency 1717.5 MHz	Frequency 1732.5 MHz	Frequency 1747.5 MHz
4/ 15	QPSK	1	0	22.73	22.92	23.05
		1	37	22.42	22.65	22.89
		1	74	22.34	22.52	22.72
		36	0	21.76	22.10	22.06
		36	19	21.65	21.75	21.87
		36	39	21.42	21.57	21.71
		75	0	21.73	21.90	21.98
	16QAM	1	0	21.44	21.66	21.89
		1	37	21.55	21.71	21.86
		1	74	21.29	21.34	21.49
		12	0	21.88	22.03	22.28
		12	30	21.58	21.70	21.92
		12	61	21.25	21.48	21.57
		27	0	20.86	21.03	21.16

Band/BW	Modulation	RB Size	RB Offset	Low CH 20050	Mid CH 20175	High CH 20300
				Frequency 1720 MHz	Frequency 1732.5 MHz	Frequency 1745 MHz
4/ 20	QPSK	1	0	22.74	22.97	**23.08**
		1	50	22.56	22.68	22.91
		1	99	22.38	22.65	22.80
		50	0	21.88	22.11	22.20
		50	25	21.72	21.90	21.94
		50	50	21.43	21.59	21.80
		100	0	21.75	21.91	22.00
	16QAM	1	0	21.52	21.77	21.97
		1	50	21.70	21.77	21.97
		1	99	21.44	21.48	21.62
		12	0	21.98	22.18	22.30
		12	42	21.73	21.85	22.05
		12	86	21.31	21.53	21.59
		27	0	20.91	21.05	21.20

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	22.56	22.65	22.61
		1	2	22.98	23.06	23.01
		1	5	22.53	22.68	22.67
		3	0	22.36	22.43	22.47
		3	1	22.34	22.43	22.54
		3	3	22.27	22.38	22.43
		6	0	21.56	21.70	21.79
	16QAM	1	0	21.38	21.37	21.41
		1	2	21.37	21.48	21.46
		1	5	21.17	21.26	21.30
		3	0	21.56	21.68	21.67
		3	1	21.88	22.05	22.11
		3	3	21.72	21.79	21.86
		6	0	20.46	20.68	20.66

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	22.52	22.52	22.67
		1	7	22.93	23.14	22.95
		1	14	22.64	22.58	22.63
		8	0	21.67	21.76	21.80
		8	3	21.61	21.76	21.72
		8	7	21.70	21.78	21.76
		15	0	21.58	21.73	21.77
	16QAM	1	0	21.37	21.44	21.41
		1	7	21.43	21.44	21.38
		1	14	21.13	21.28	21.33
		8	0	21.29	21.40	21.41
		8	3	21.64	21.81	21.93
		8	7	21.57	21.49	21.65
		15	0	20.54	20.64	20.67

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	22.50	22.60	22.59
		1	12	23.01	23.02	22.96
		1	24	22.60	22.70	22.61
		12	0	21.71	21.75	21.70
		12	6	21.71	21.73	21.78
		12	13	21.63	21.78	21.68
		25	0	21.60	21.73	21.72
	16QAM	1	0	21.39	21.34	21.47
		1	12	21.38	21.54	21.45
		1	24	21.18	21.32	21.38
		12	0	21.28	21.45	21.45
		12	6	21.73	21.86	21.84
		12	13	21.47	21.50	21.54
		25	0	20.53	20.62	20.66

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	22.57	22.67	22.68
		1	24	23.04	**23.17**	23.10
		1	49	22.68	22.72	22.73
		25	0	21.72	21.81	21.83
		25	12	21.75	21.78	21.87
		25	25	21.71	21.80	21.82
		50	0	21.61	21.82	21.86
	16QAM	1	0	21.40	21.49	21.55
		1	24	21.46	21.58	21.52
		1	49	21.26	21.40	21.39
		12	0	21.38	21.55	21.54
		12	17	21.75	21.95	21.95
		12	36	21.59	21.63	21.67
		27	0	20.58	20.71	20.73

LTE Band 13

Band/BW	Modulation	RB Size	RB Offset	Low CH 23205	Mid CH 23230	High CH 23255
				Frequency 779.5 MHz	Frequency 782.0 MHz	Frequency 784.5 MHz
13/ 5	QPSK	1	0	22.49	22.60	22.53
		1	12	22.91	22.92	22.94
		1	24	22.86	22.79	22.91
		12	0	21.76	21.80	21.88
		12	6	21.67	21.65	21.68
		12	13	21.83	21.84	21.84
		25	0	21.64	21.65	21.66
	16QAM	1	0	21.15	21.16	21.20
		1	12	21.61	21.60	21.63
		1	24	21.43	21.56	21.56
		12	0	21.64	21.68	21.70
		12	6	21.67	21.77	21.72
		12	13	21.58	21.66	21.62
		25	0	20.73	20.80	20.79

Band/BW	Modulation	RB Size	RB Offset	/	Mid CH 23230	/
				/	Frequency 782.0 MHz	/
13/ 10	QPSK	1	0	/	22.62	/
		1	24	/	**23.05**	/
		1	49	/	22.92	/
		25	0	/	21.89	/
		25	12	/	21.78	/
		25	25	/	21.87	/
		50	0	/	21.68	/
	16QAM	1	0	/	21.24	/
		1	24	/	21.64	/
		1	49	/	21.57	/
		12	0	/	21.78	/
		12	17	/	21.80	/
		12	36	/	21.71	/
		27	0	/	20.86	/

EIRP
LTE BAND 4
CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19957	1710.7	22.65	2.53	25.18	329.61	1
20175	1732.5	22.94	2.53	25.47	352.37	1
20393	1754.3	23.02	2.53	25.55	358.92	1

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19957	1710.7	21.91	2.53	24.44	277.97	1
20175	1732.5	22.17	2.53	24.7	295.12	1
20393	1754.3	22.21	2.53	24.74	297.85	1

CHANNEL BANDWIDTH: 3MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19965	1711.5	22.7	2.53	25.23	333.43	1
20175	1732.5	22.82	2.53	25.35	342.77	1
20385	1753.5	22.98	2.53	25.51	355.63	1

CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19965	1711.5	21.86	2.53	24.39	274.79	1
20175	1732.5	21.86	2.53	24.39	274.79	1
20385	1753.5	21.86	2.53	24.39	274.79	1

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19975	1712.5	22.71	2.53	25.24	334.2	1
20175	1732.5	22.88	2.53	25.41	347.54	1
20375	1752.5	23.07	2.53	25.6	363.08	1

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19975	1712.5	21.83	2.53	24.36	272.9	1
20175	1732.5	22.08	2.53	24.61	289.07	1
20375	1752.5	22.15	2.53	24.68	293.76	1

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20000	1715	22.66	2.53	25.19	330.37	1
20175	1732.5	22.88	2.53	25.41	347.54	1
20350	1750	22.99	2.53	25.52	356.45	1

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20000	1715	21.96	2.53	24.49	281.19	1
20175	1732.5	22.04	2.53	24.57	286.42	1
20350	1750	22.23	2.53	24.76	299.23	1

CHANNEL BANDWIDTH: 15MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20025	1717.5	22.73	2.53	25.26	335.74	1
20175	1732.5	22.92	2.53	25.45	350.75	1
20325	1747.5	23.05	2.53	25.58	361.41	1

CHANNEL BANDWIDTH: 15MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20025	1717.5	21.88	2.53	24.41	276.06	1
20175	1732.5	22.03	2.53	24.56	285.76	1
20325	1747.5	22.28	2.53	24.81	302.69	1

CHANNEL BANDWIDTH: 20MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20050	1720	22.74	2.53	25.27	336.51	1
20175	1732.5	22.97	2.53	25.5	354.81	1
20300	1745	23.08	2.53	25.61	363.92	1

CHANNEL BANDWIDTH: 20MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20050	1720	21.98	2.53	24.51	282.49	1
20175	1732.5	22.18	2.53	24.71	295.8	1
20300	1745	22.3	2.53	24.83	304.09	1

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	22.98	-3.1	17.73	59.29	3
23095	707.5	23.06	-3.1	17.81	60.39	3
23173	715.3	23.01	-3.1	17.76	59.7	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	21.88	-3.1	16.63	46.03	3
23095	707.5	22.05	-3.1	16.8	47.86	3
23173	715.3	22.11	-3.1	16.86	48.53	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	22.93	-3.1	17.68	58.61	3
23095	707.5	23.14	-3.1	17.89	61.52	3
23165	714.5	22.95	-3.1	17.7	58.88	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	21.64	-3.1	16.39	43.55	3
23095	707.5	21.81	-3.1	16.56	45.29	3
23165	714.5	21.93	-3.1	16.68	46.56	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	23.01	-3.1	17.76	59.7	3
23095	707.5	23.02	-3.1	17.77	59.84	3
23155	713.5	22.96	-3.1	17.71	59.02	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	21.73	-3.1	16.48	44.46	3
23095	707.5	21.86	-3.1	16.61	45.81	3
23155	713.5	21.84	-3.1	16.59	45.6	3

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23060	704	23.04	-3.1	17.79	60.12	3
23095	707.5	23.17	-3.1	17.92	61.94	3
23130	711	23.1	-3.1	17.85	60.95	3

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23060	704	21.75	-3.1	16.5	44.67	3
23095	707.5	21.95	-3.1	16.7	46.77	3
23130	711	21.95	-3.1	16.7	46.77	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	22.91	-2.19	18.57	71.94	3
23230	782	22.92	-2.19	18.58	72.11	3
23255	784.5	22.94	-2.19	18.6	72.44	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	21.67	-2.19	17.33	54.08	3
23230	782	21.77	-2.19	17.43	55.34	3
23255	784.5	21.72	-2.19	17.38	54.7	3

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
-	-	-	-	-	-	-
23230	782	23.05	-2.19	18.71	74.3	3
-	-	-	-	-	-	-

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G_T-L_C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
-	-	-	-	-	-	-
23230	782	21.8	-2.19	17.46	55.72	3
-	-	-	-	-	-	-

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

3.2 RADIATED EMISSION MEASUREMENT

3.2.1 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. and For operations in the 746–758 MHz, 775–788 MHz, and 805–806 MHz bands, emissions in the band 1559–1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

47 CFR 27.53(h)(1) General protection levels. Except as otherwise specified below, for operations in the 1695–1710 MHz, 1710–1755 MHz, 1755–1780 MHz, 1915–1920 MHz, 1995–2000 MHz, 2000–2020 MHz, 2110–2155 MHz, 2155–2180 MHz, and 2180–2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10 (P) dB.

47 CFR 27.53(g) 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. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. 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.

3.2.2 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. EIRP = Output power level of S.G – TX cable loss + 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, E.R.P power = E.I.P.R power - 2.15dBi.

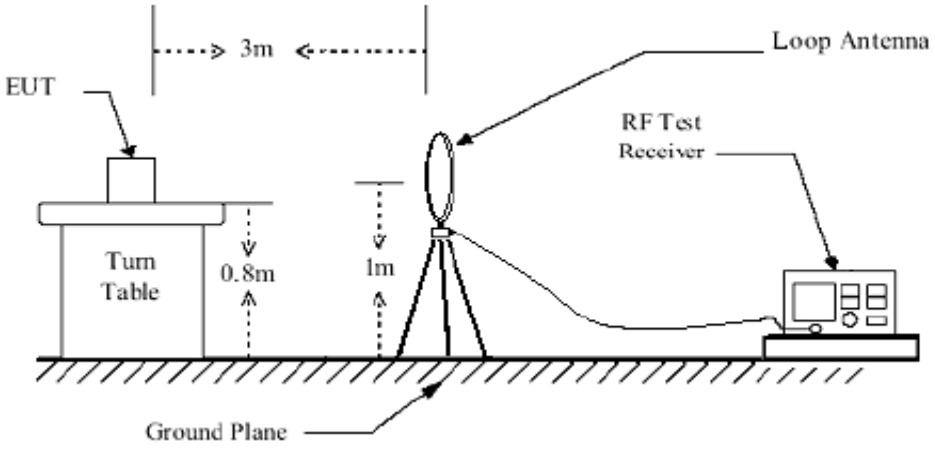
NOTE: The resolution bandwidth of spectrum analyzer is 1 MHz, and the video bandwidth is 3 MHz.

3.2.3 DEVIATION FROM TEST STANDARD

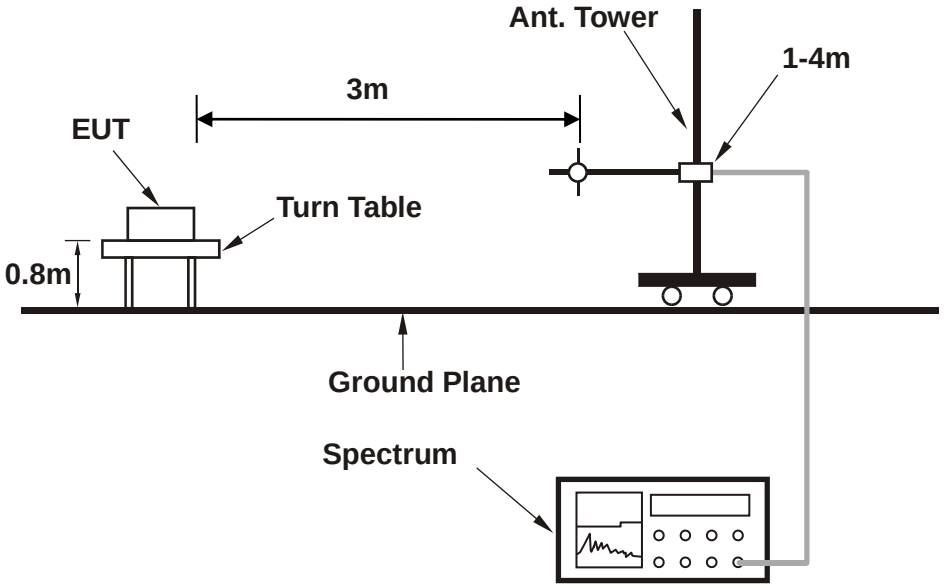
No deviation

3.2.4 TEST SETUP

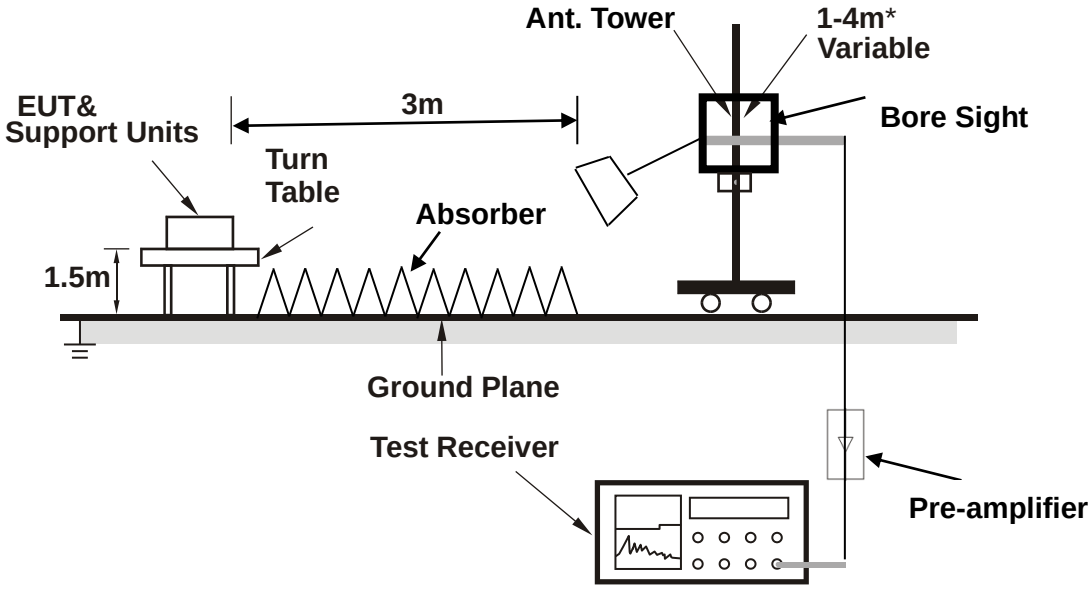
< Frequency Range below 30MHz >



< 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).

3.2.5 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.

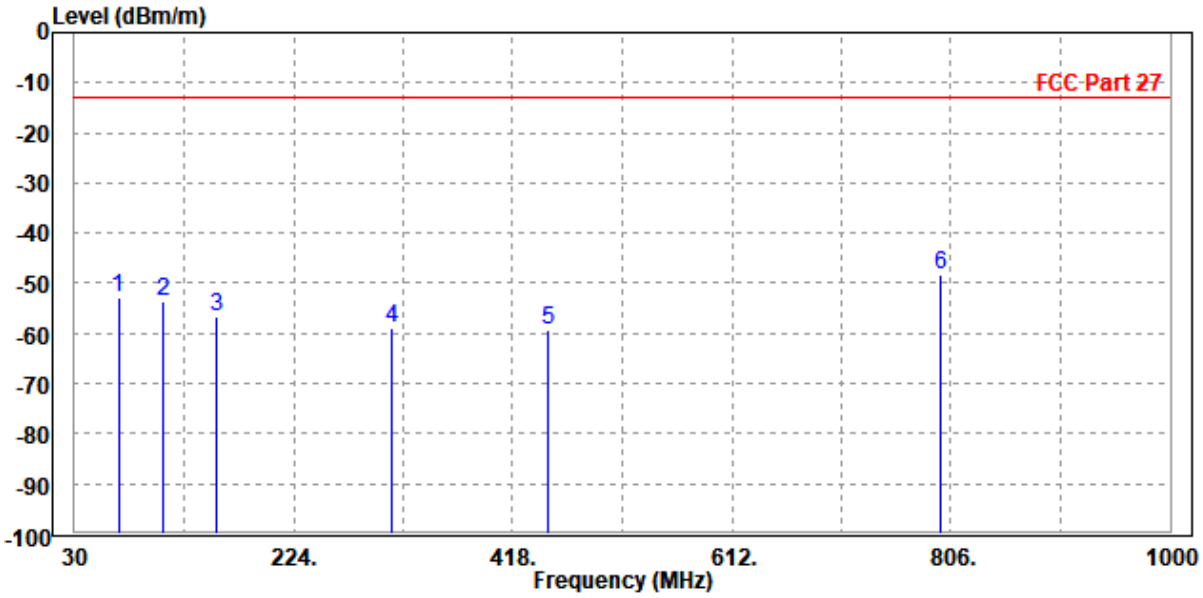
BELOW 1GHz WORST-CASE DATA

30 MHz – 1GHz data:

LTE Band 13:
CHANNEL BANDWIDTH: 5MHz / QPSK

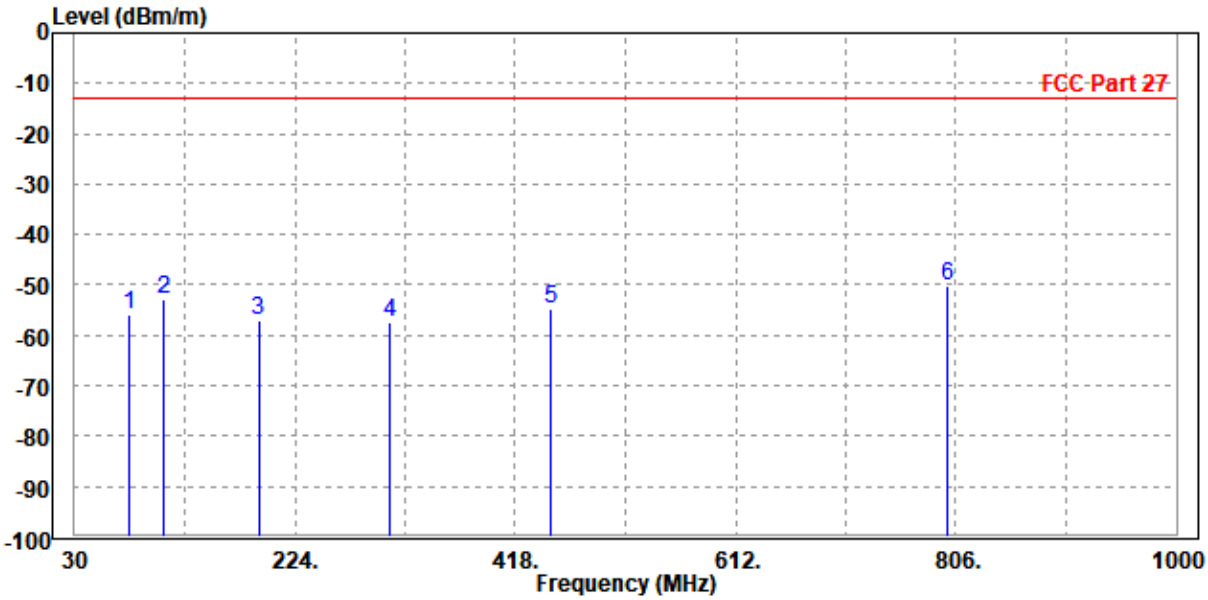
MODE	TX channel 23205	**FREQUENCY RANGE**	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	68.800	-52.94	-40.69	-13.00	-39.94	-12.25	Peak	Horizontal
2	108.570	-53.56	-39.41	-13.00	-40.56	-14.15	Peak	Horizontal
3	155.130	-56.67	-41.85	-13.00	-43.67	-14.82	Peak	Horizontal
4	311.300	-58.85	-50.26	-13.00	-45.85	-8.59	Peak	Horizontal
5	450.010	-59.39	-53.43	-13.00	-46.39	-5.96	Peak	Horizontal
6 PP	796.300	-48.42	-53.62	-13.00	-35.42	5.20	Peak	Horizontal



MODE	TX channel 23205	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	77.530	-55.96	-36.59	-13.00	-42.96	-19.37	Peak	Vertical
2	108.570	-52.94	-36.52	-13.00	-39.94	-16.42	Peak	Vertical
3	191.990	-57.00	-49.95	-13.00	-44.00	-7.05	Peak	Vertical
4	307.420	-57.36	-53.90	-13.00	-44.36	-3.46	Peak	Vertical
5	450.010	-54.89	-50.19	-13.00	-41.89	-4.70	Peak	Vertical
6 PP	798.240	-50.16	-55.08	-13.00	-37.16	4.92	Peak	Vertical



ABOVE 1GHz

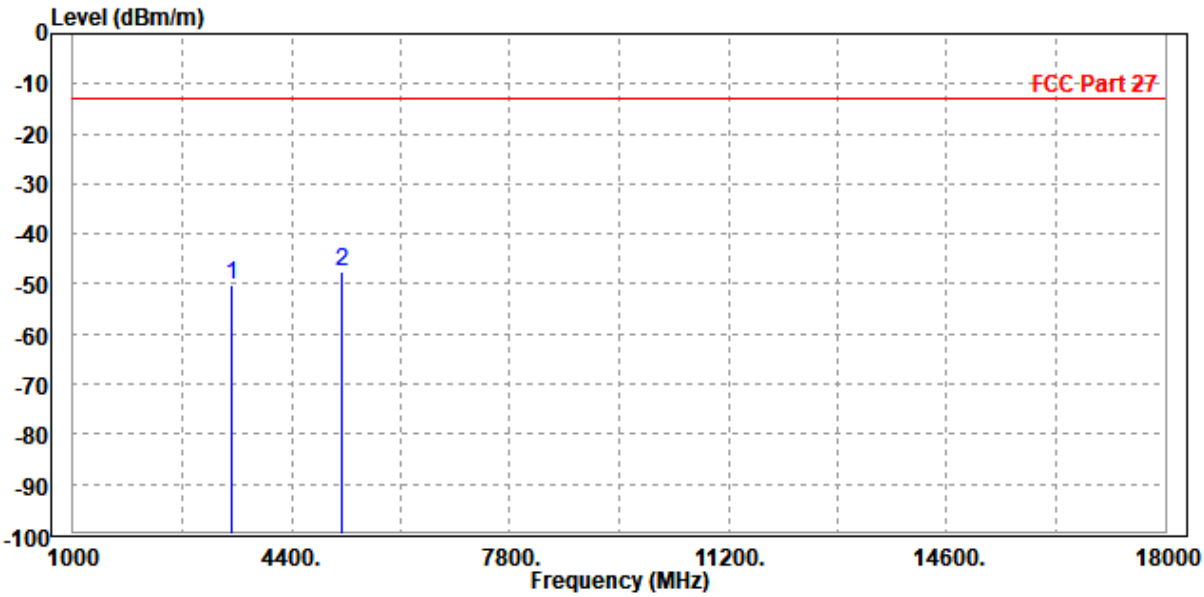
Note: For higher frequency, the emission is too low to be detected.

LTE BAND 4

CHANNEL BANDWIDTH: 1.4MHz / QPSK

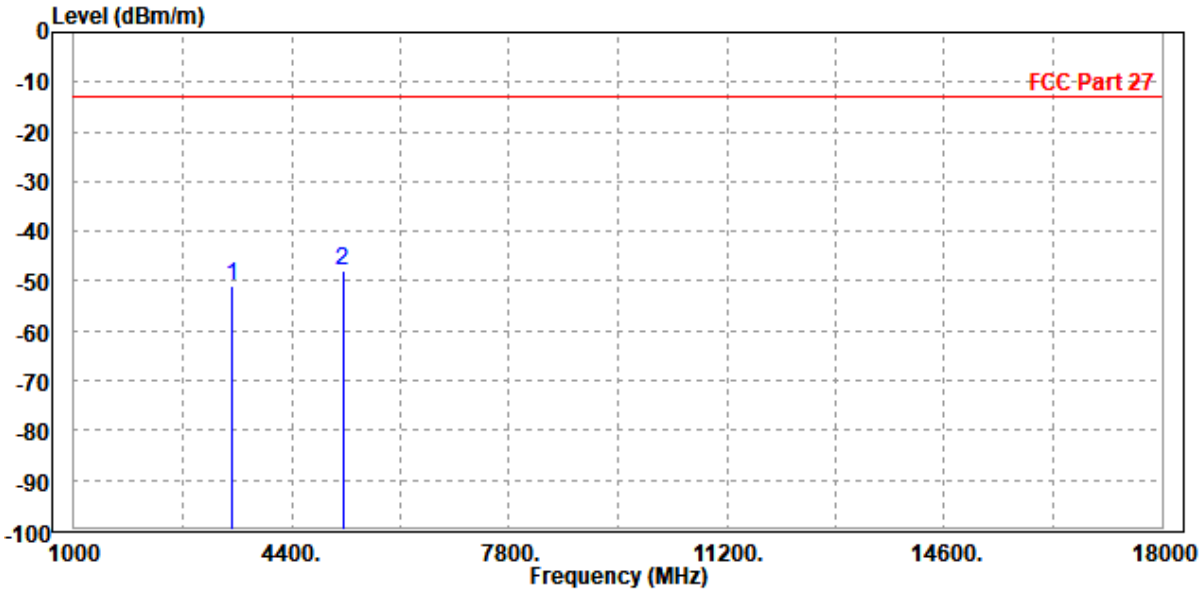
MODE	TX channel 20175	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60HZ
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3465.000	-50.38	-58.92	-13.00	-37.38	8.54	Peak	Horizontal
2 PP	5197.500	-47.44	-58.79	-13.00	-34.44	11.35	Peak	Horizontal



MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

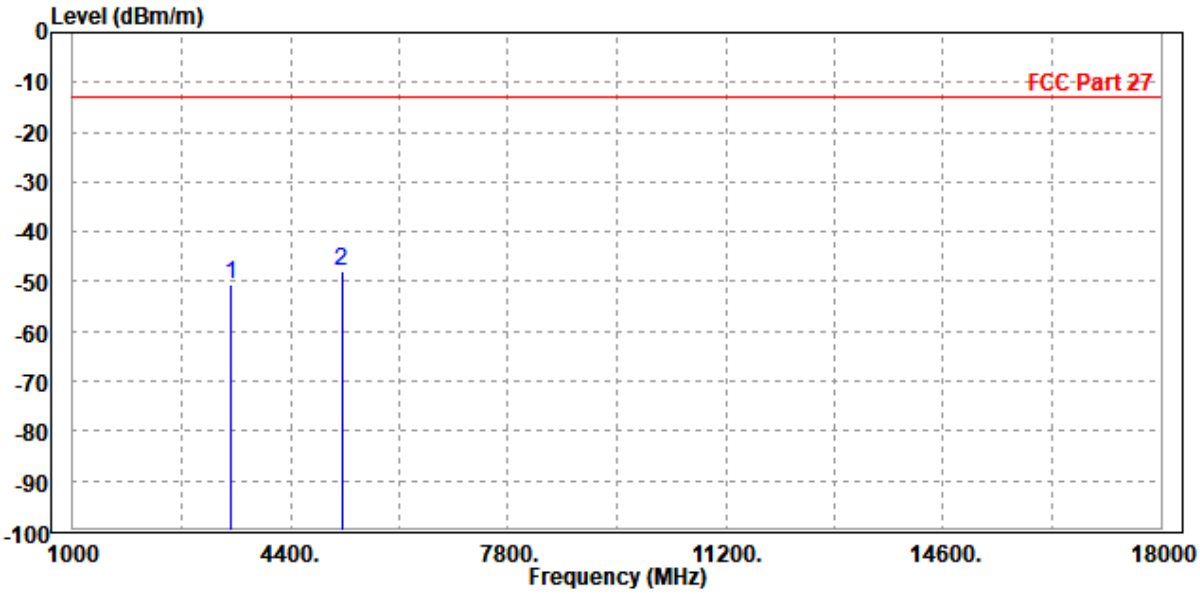
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3465.000	-50.83	-59.48	-13.00	-37.83	8.65	Peak	Vertical
2 PP	5199.000	-47.91	-59.67	-13.00	-34.91	11.76	Peak	Vertical



CHANNEL BANDWIDTH: 3MHz / QPSK

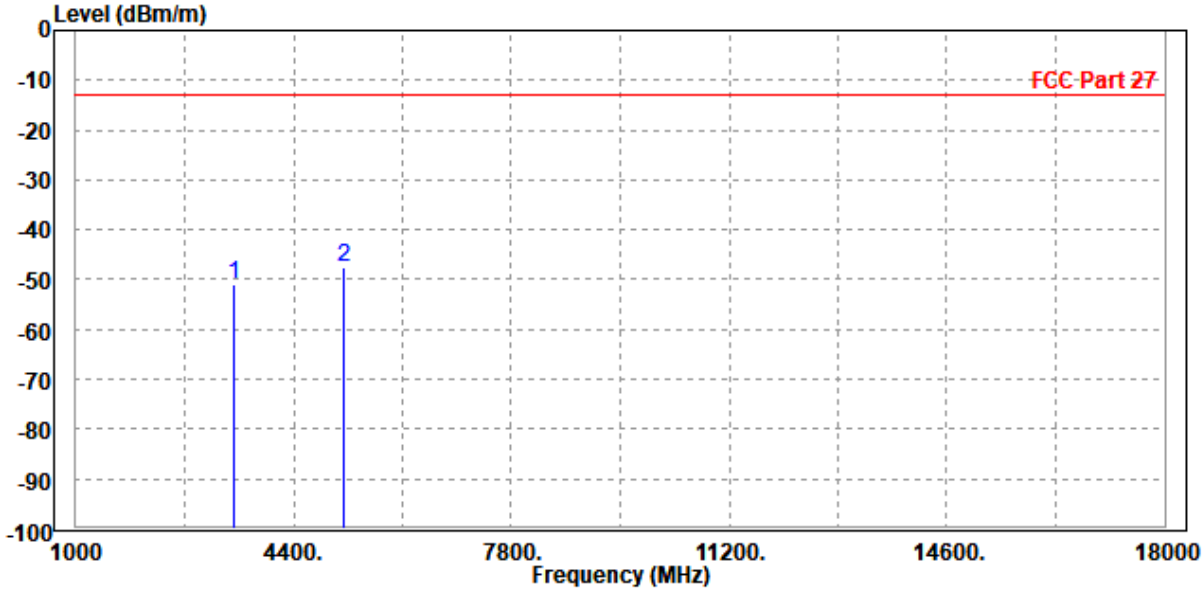
MODE	TX channel 20175	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60HZ
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3465.000	-50.71	-59.25	-13.00	-37.71	8.54	Peak	Horizontal
2 PP	5199.000	-47.76	-59.11	-13.00	-34.76	11.35	Peak	Horizontal



MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

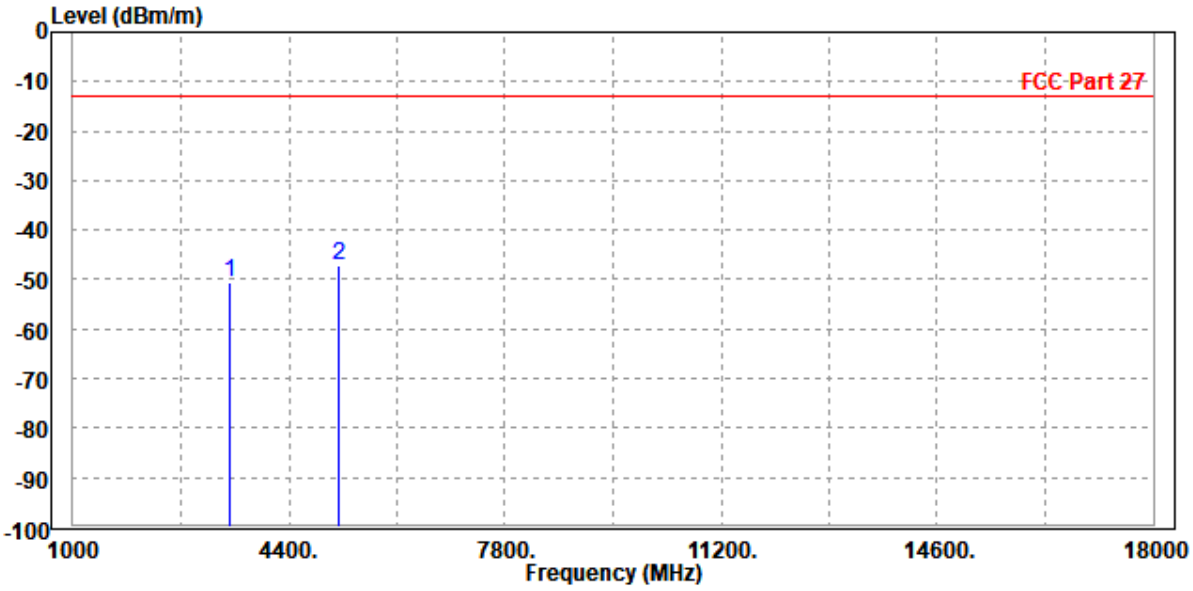
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3465.000	-50.85	-59.50	-13.00	-37.85	8.65	Peak	Vertical
2 PP	5197.500	-47.49	-59.24	-13.00	-34.49	11.75	Peak	Vertical



CHANNEL BANDWIDTH: 5MHz / QPSK

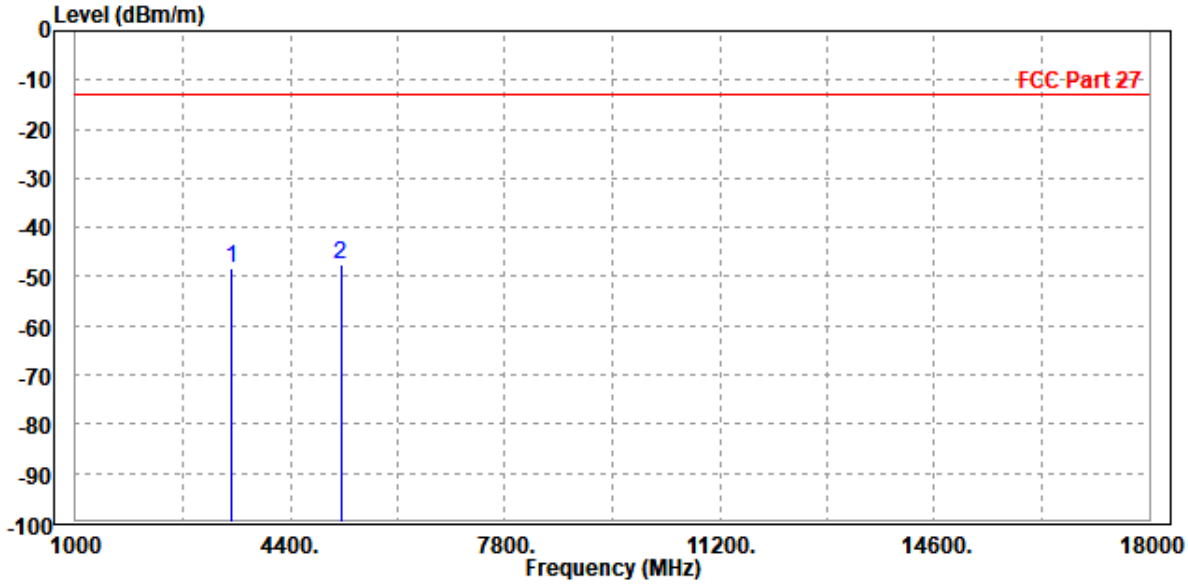
MODE	TX channel 20175	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60HZ
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1		3465.000	-50.49	-59.03	-13.00	-37.49	8.54	Peak	Horizontal
2	PP	5197.500	-47.24	-58.59	-13.00	-34.24	11.35	Peak	Horizontal



MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

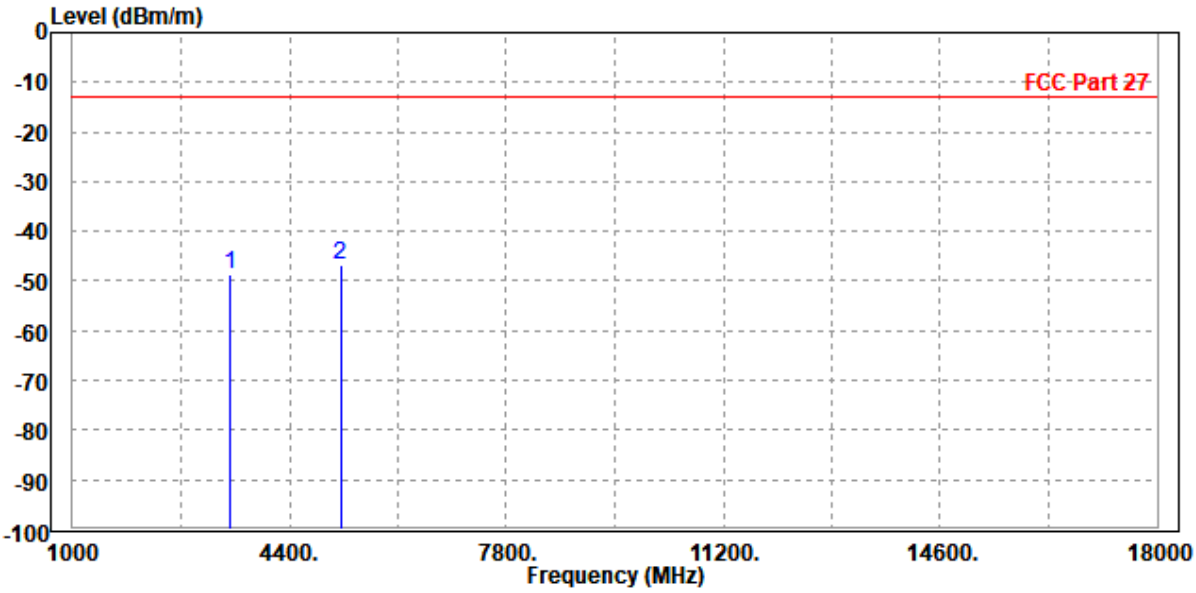
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3465.000	-48.38	-57.03	-13.00	-35.38	8.65	Peak	Vertical
2 PP	5199.000	-47.43	-59.19	-13.00	-34.43	11.76	Peak	Vertical



CHANNEL BANDWIDTH: 10MHz / QPSK

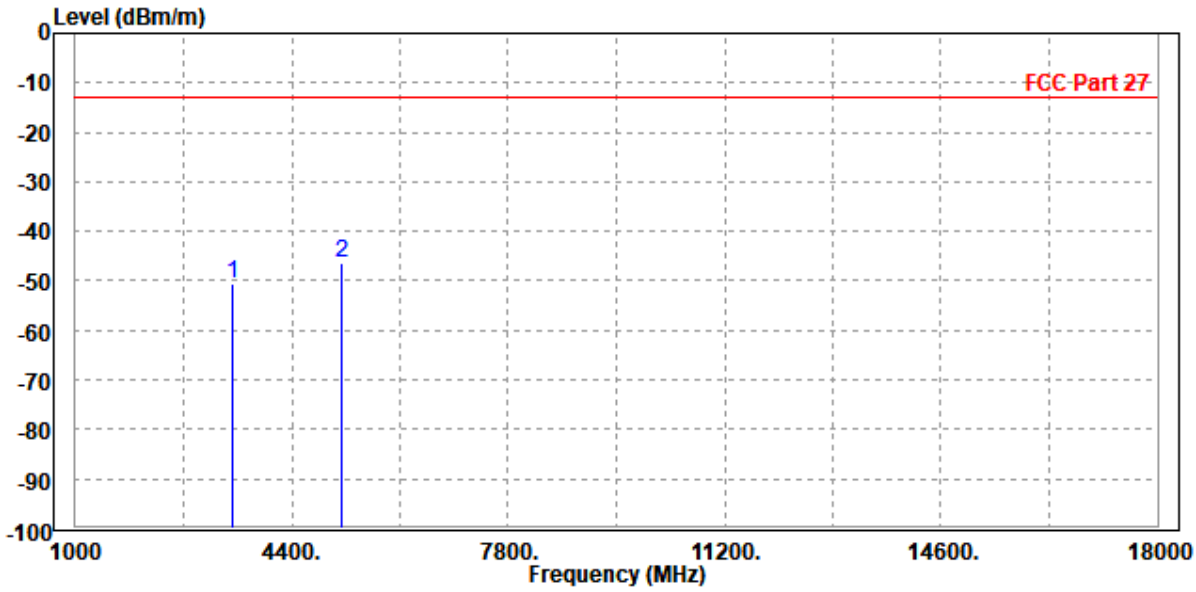
MODE	TX channel 20175	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60HZ
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3465.000	-48.62	-57.16	-13.00	-35.62	8.54	Peak	Horizontal
2 PP	5199.000	-46.70	-58.05	-13.00	-33.70	11.35	Peak	Horizontal



MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

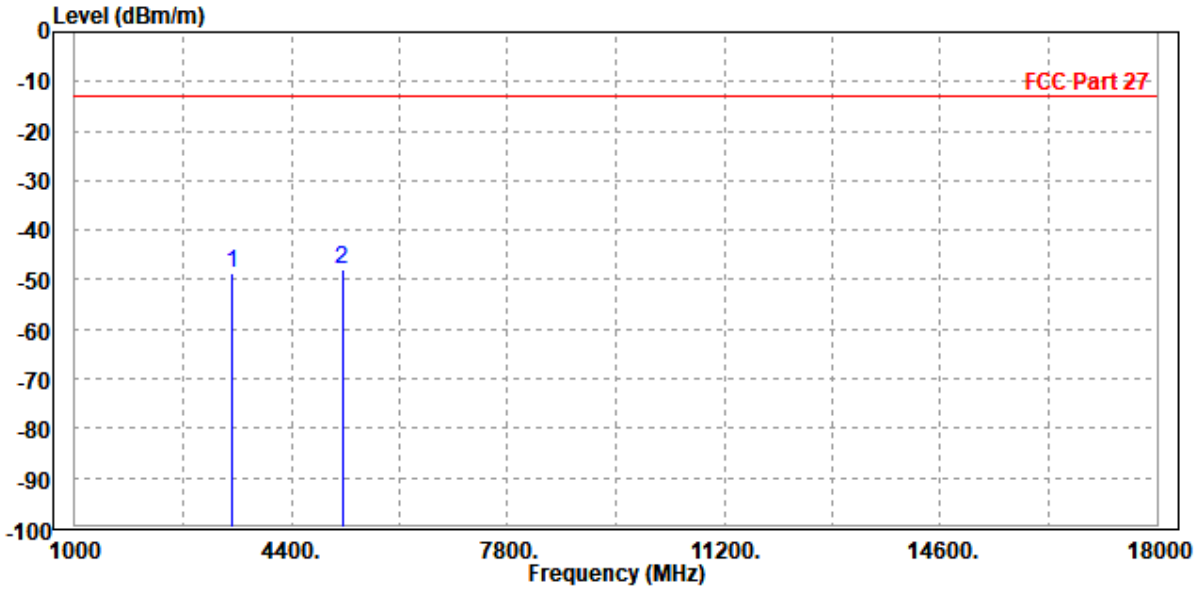
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3465.000	-50.41	-59.06	-13.00	-37.41	8.65	Peak	Vertical
2 PP	5197.500	-46.51	-58.26	-13.00	-33.51	11.75	Peak	Vertical



CHANNEL BANDWIDTH: 15MHz / QPSK

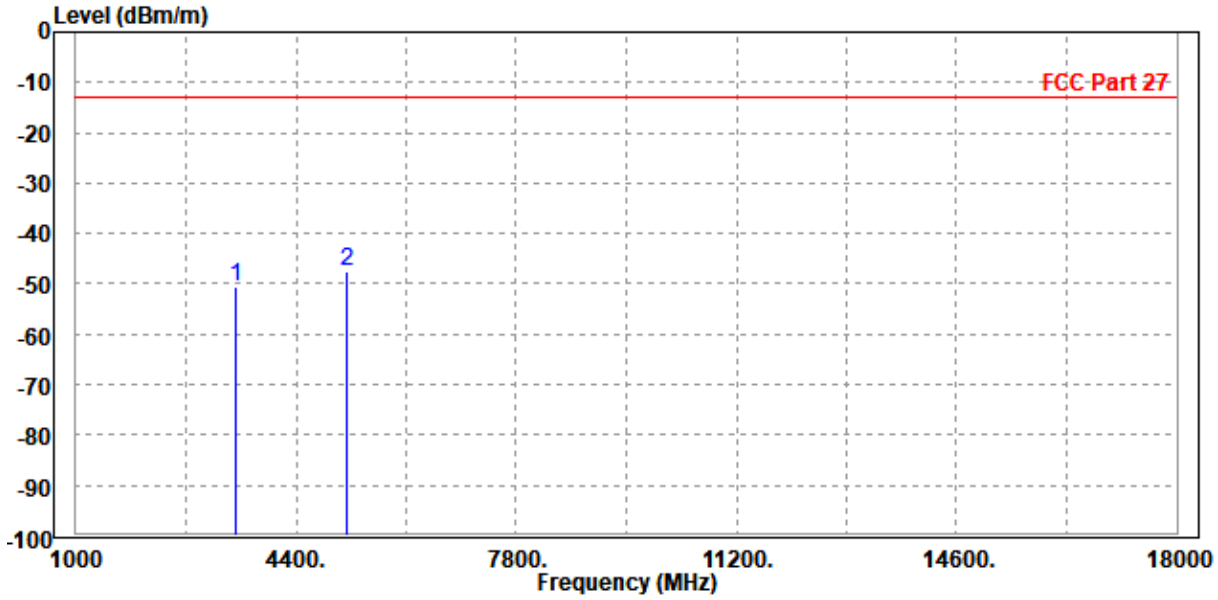
MODE	TX channel 20175	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60HZ
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1		3465.000	-48.72	-57.26	-13.00	-35.72	8.54	Peak	Horizontal
2	PP	5199.000	-48.00	-59.35	-13.00	-35.00	11.35	Peak	Horizontal



MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Star Le		
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	3465.000	-50.64	-59.29	-13.00	-37.64	8.65	Peak	Vertical
2 PP	5197.500	-47.60	-59.35	-13.00	-34.60	11.75	Peak	Vertical

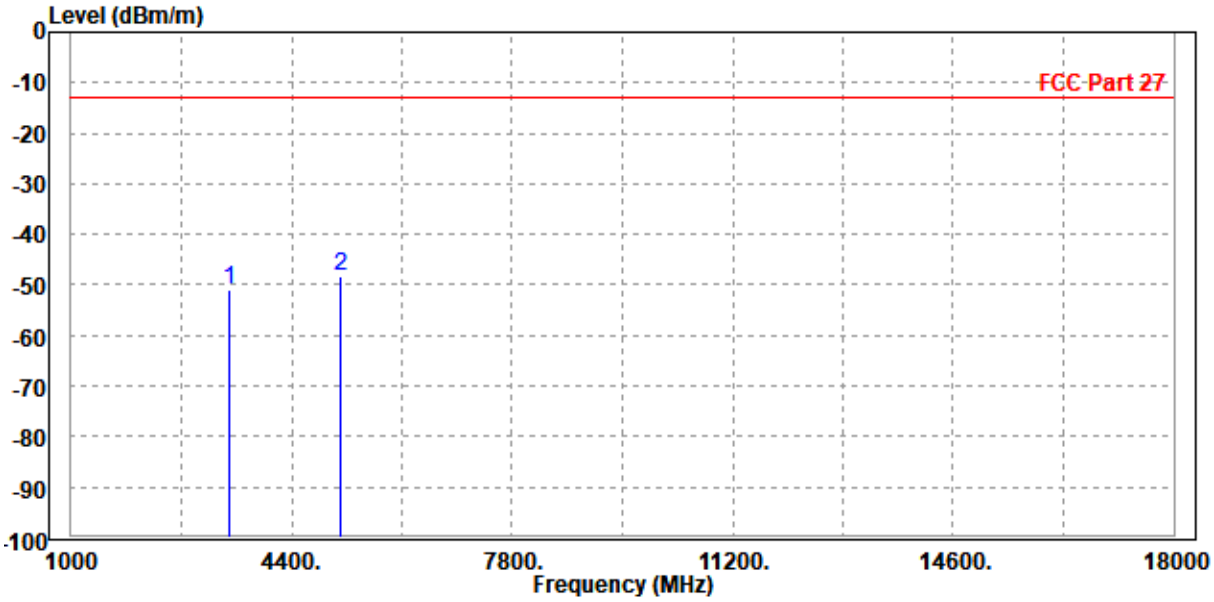


CHANNEL BANDWIDTH: 20MHz / QPSK

CH 20050

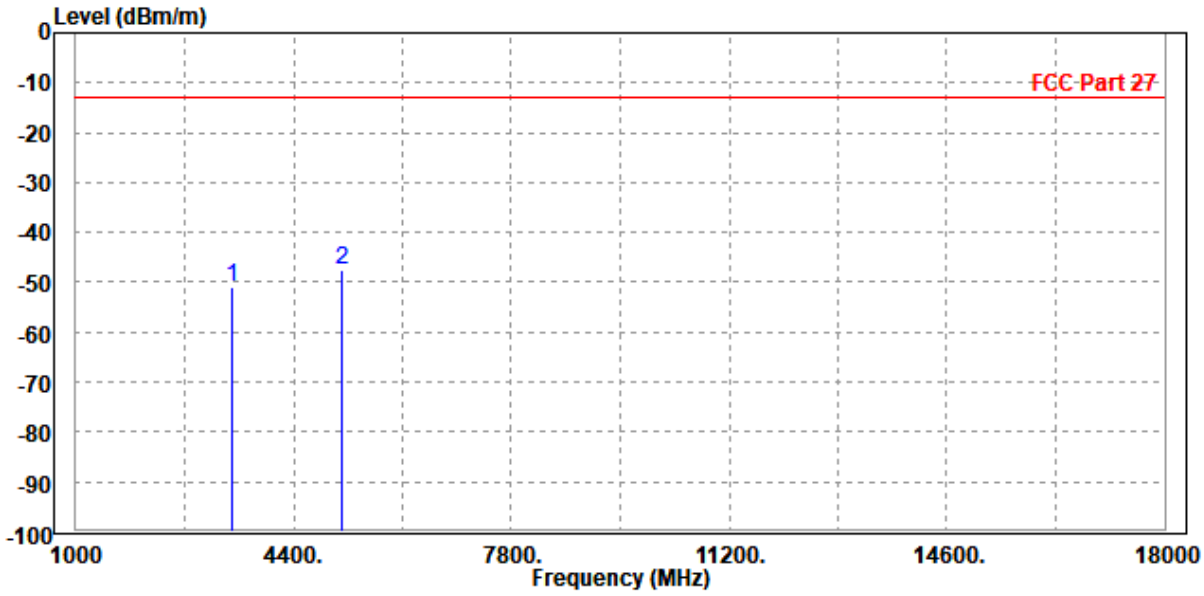
MODE	TX channel 20050	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60HZ
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3440.000	-51.13	-59.65	-13.00	-38.13	8.52	Peak	Horizontal
2 PP	5165.000	-48.21	-59.51	-13.00	-35.21	11.30	Peak	Horizontal



MODE	TX channel 20050	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

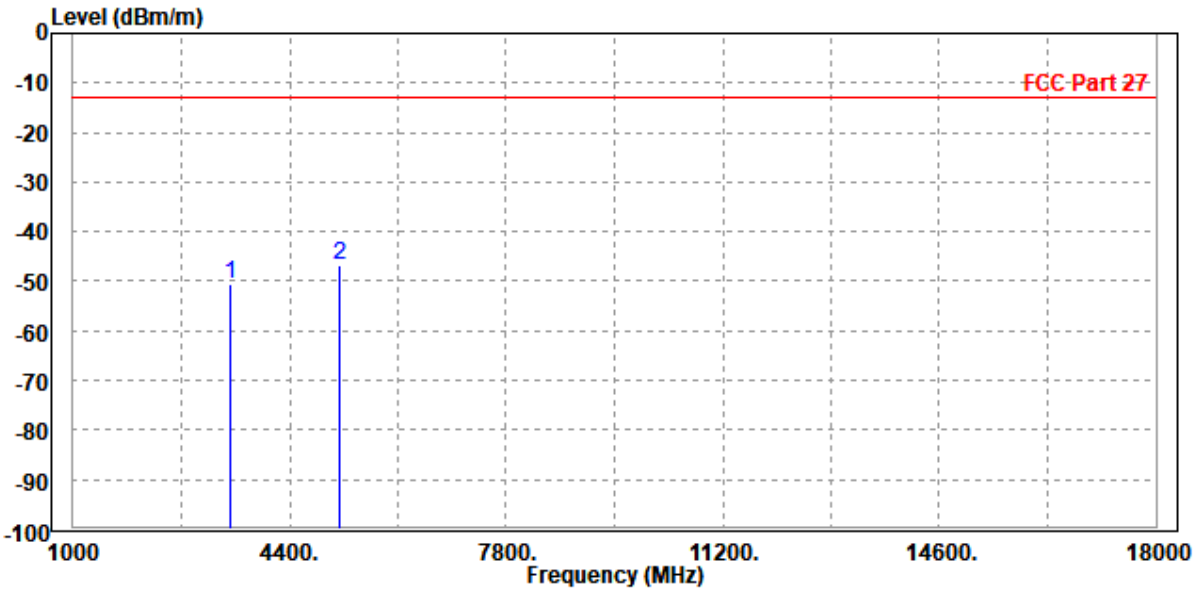
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3448.000	-50.85	-59.51	-13.00	-37.85	8.66	Peak	Vertical
2 PP	5160.000	-47.38	-59.06	-13.00	-34.38	11.68	Peak	Vertical



CH 20175

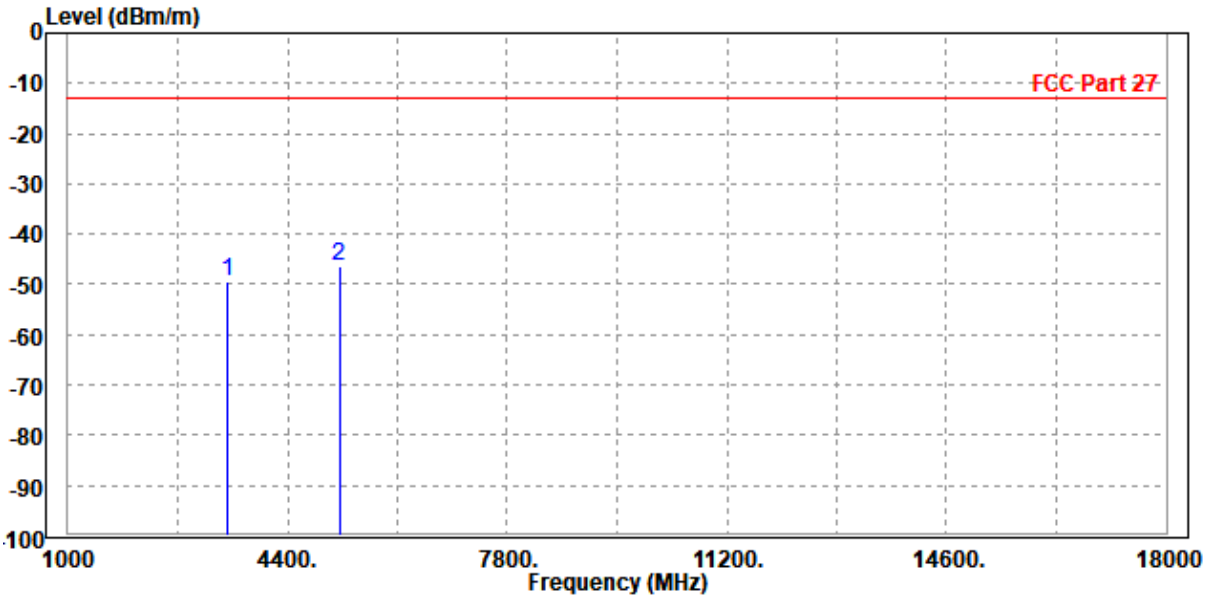
MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3465.000	-50.41	-58.95	-13.00	-37.41	8.54	Peak	Horizontal
2 PP	5197.500	-46.67	-58.02	-13.00	-33.67	11.35	Peak	Horizontal



MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

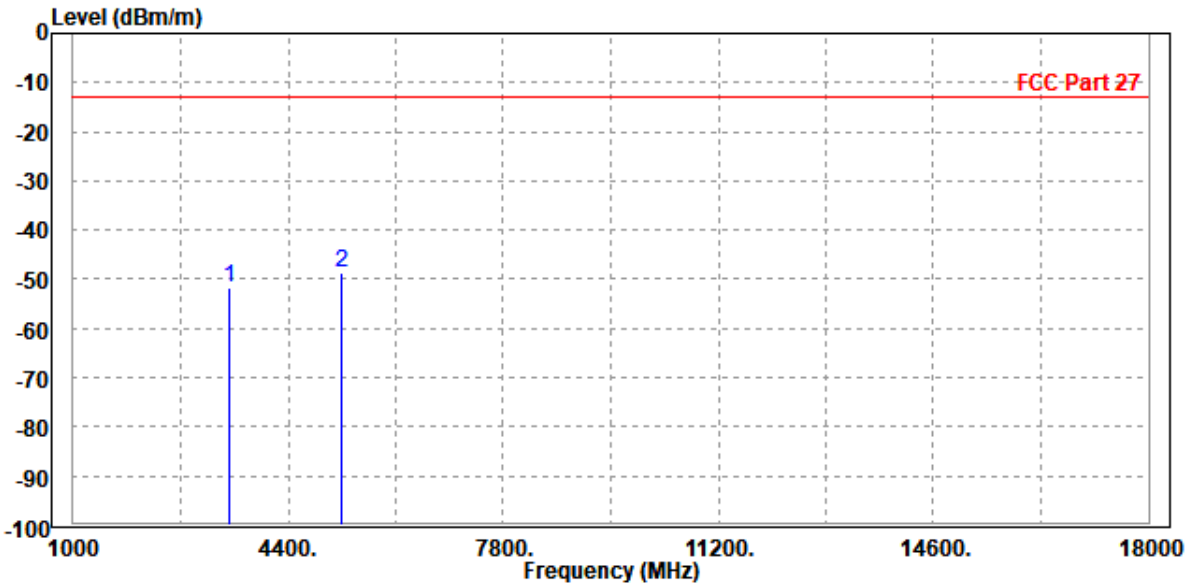
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3465.000	-49.46	-58.11	-13.00	-36.46	8.65	Peak	Vertical
2 PP	5199.000	-46.43	-58.19	-13.00	-33.43	11.76	Peak	Vertical



CH 20300

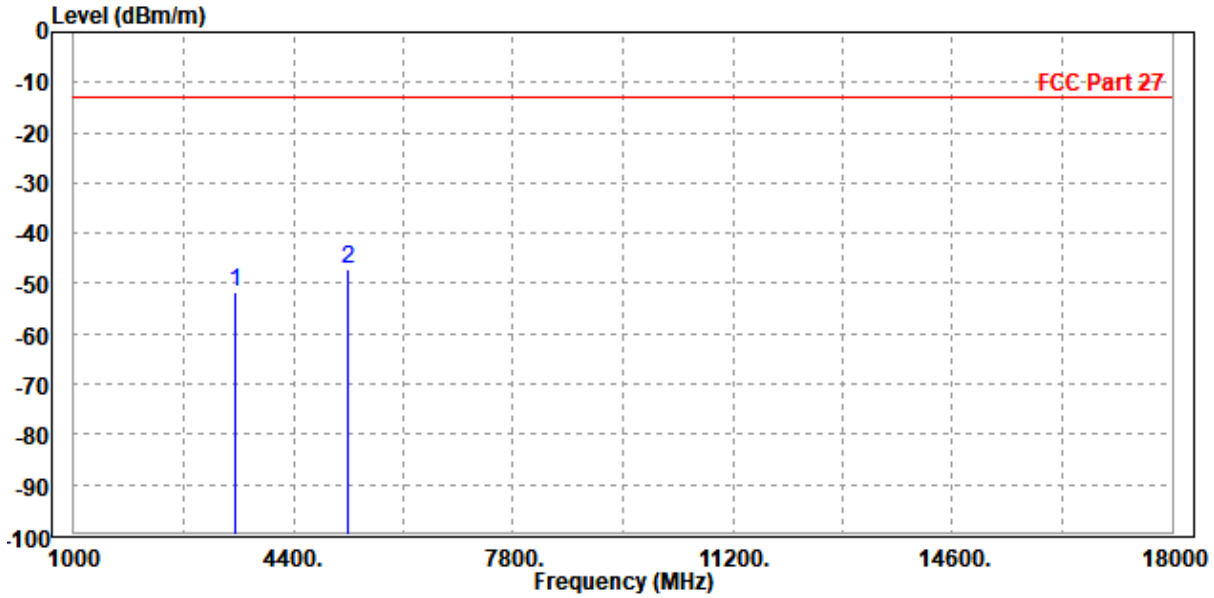
MODE	TX channel 20300	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	3482.000	-51.64	-60.19	-13.00	-38.64	8.55	Peak	Horizontal
2 PP	5235.000	-48.48	-59.89	-13.00	-35.48	11.41	Peak	Horizontal



MODE	TX channel 20300	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Star Le		
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	3490.000	-51.65	-60.29	-13.00	-38.65	8.64	Peak	Vertical
2 PP	5233.000	-47.29	-59.11	-13.00	-34.29	11.82	Peak	Vertical

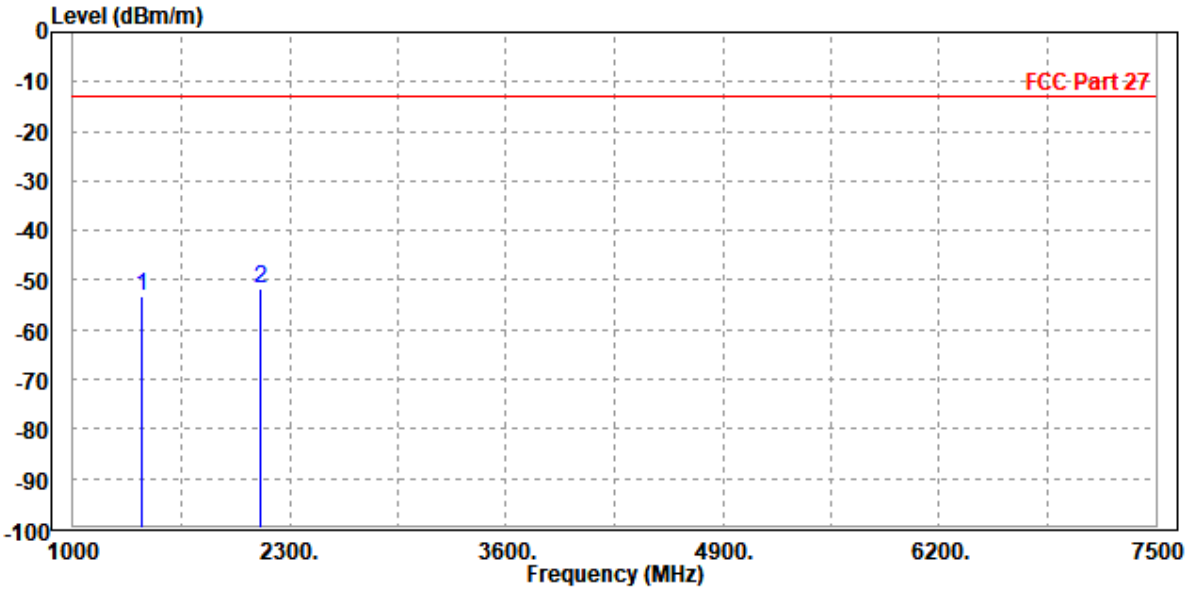


LTE BAND 12

CHANNEL BANDWIDTH: 1.4MHz / QPSK

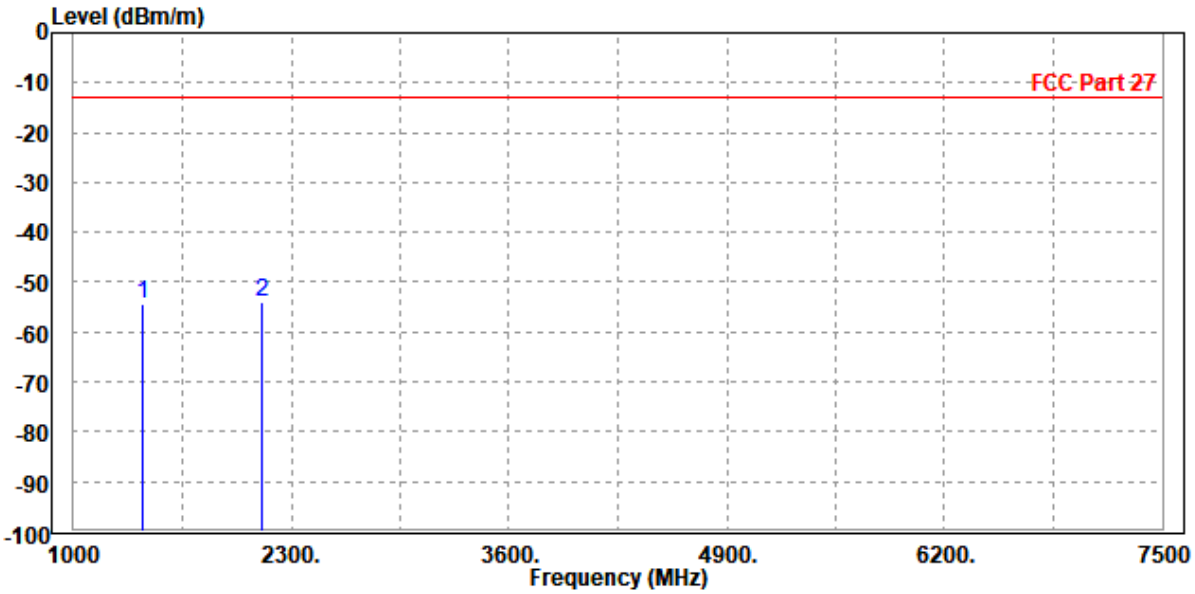
MODE	TX channel 23095	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1		1415.000	-53.13	-56.07	-13.00	-40.13	2.94	Peak	Horizontal
2	PP	2124.500	-51.75	-56.84	-13.00	-38.75	5.09	Peak	Horizontal



MODE	TX channel 23095	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			

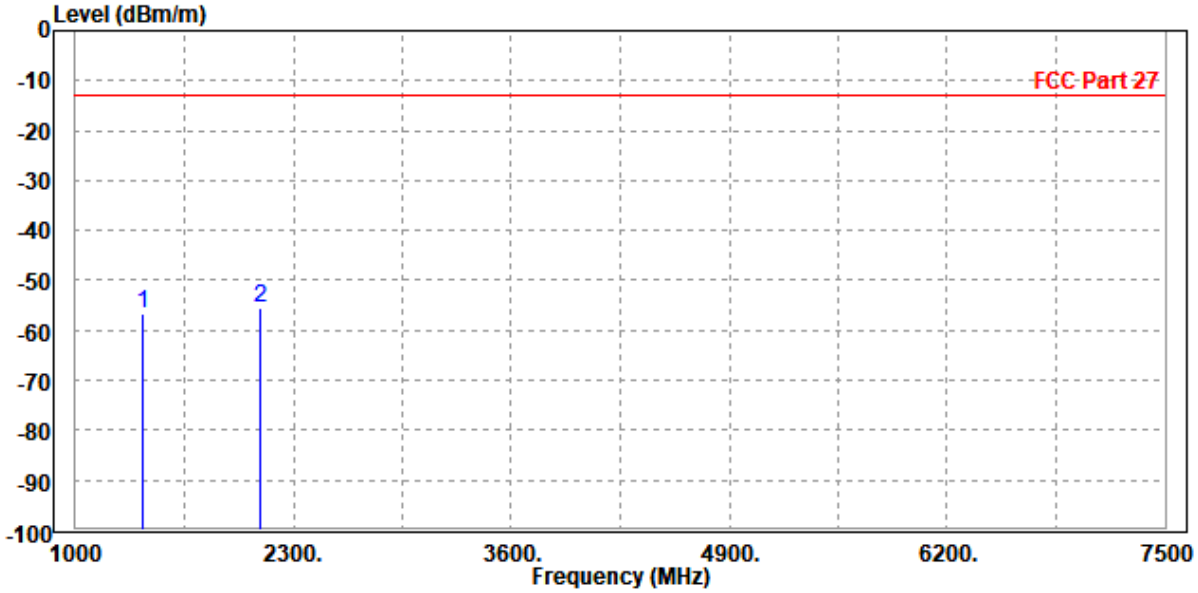
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1416.000	-54.19	-57.12	-13.00	-41.19	2.93	Peak	Vertical
2 PP	2122.500	-54.09	-58.53	-13.00	-41.09	4.44	Peak	Vertical



CHANNEL BANDWIDTH: 3MHz / QPSK
CH 23025

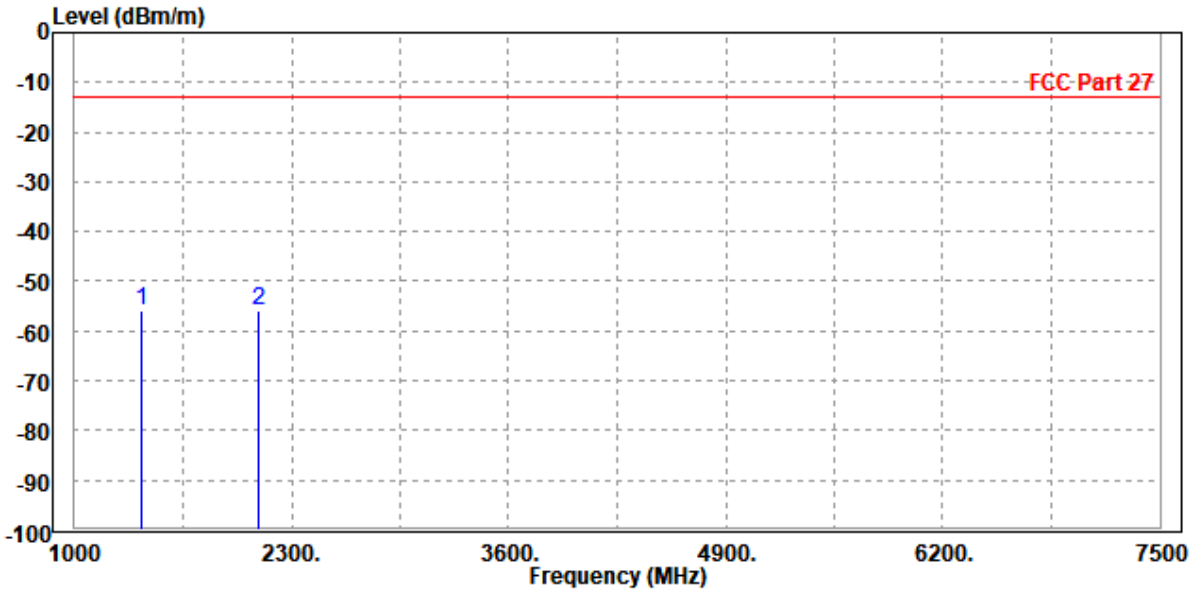
MODE	TX channel 23025	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1403.000	-56.64	-59.54	-13.00	-43.64	2.90	Peak	Horizontal
2 PP	2101.500	-55.38	-60.40	-13.00	-42.38	5.02	Peak	Horizontal



MODE	TX channel 23025	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			

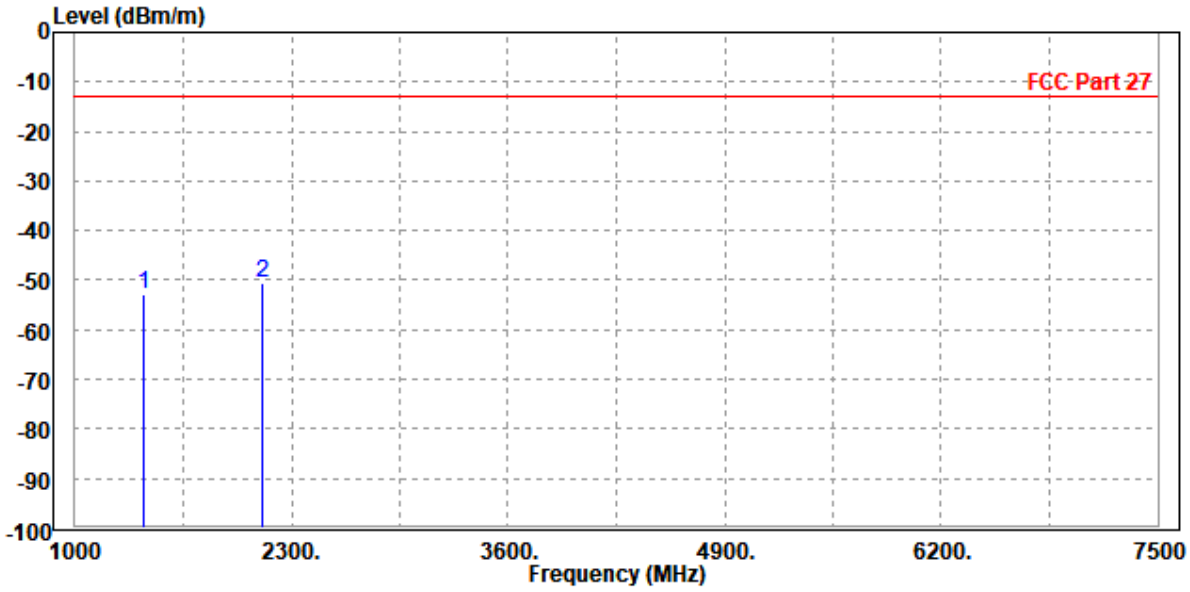
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1401.000	-55.93	-58.82	-13.00	-42.93	2.89	Peak	Vertical
2 PP	2098.500	-55.74	-60.09	-13.00	-42.74	4.35	Peak	Vertical



CH 23095

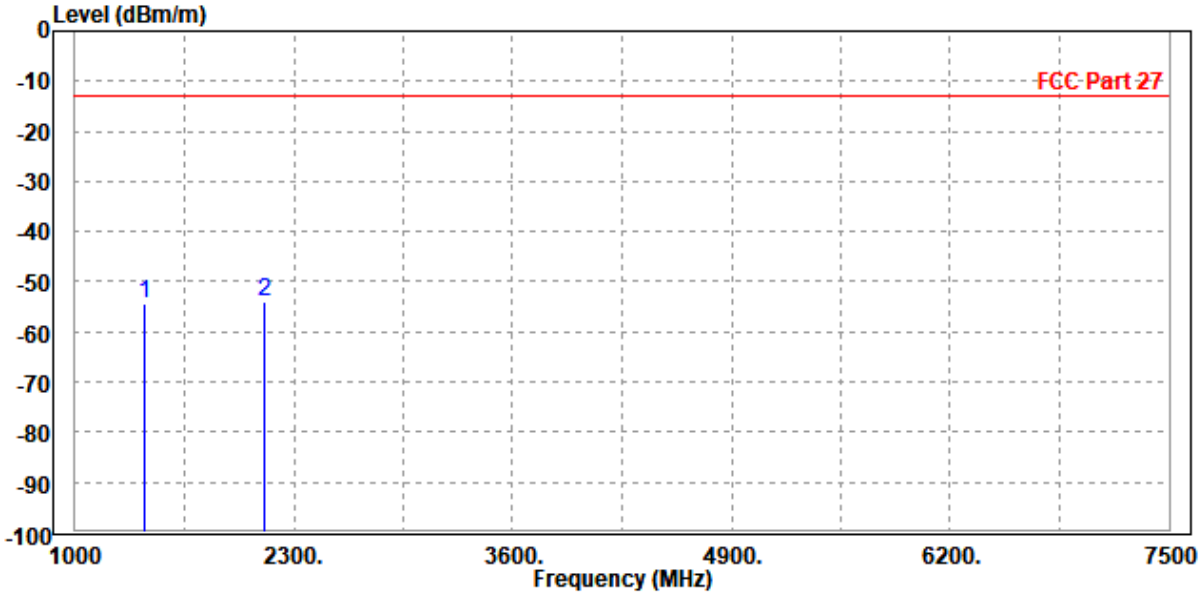
MODE	TX channel 23095	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1416.000	-52.78	-55.72	-13.00	-39.78	2.94	Peak	Horizontal
2 PP	2122.500	-50.41	-55.49	-13.00	-37.41	5.08	Peak	Horizontal



MODE	TX channel 23095	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			

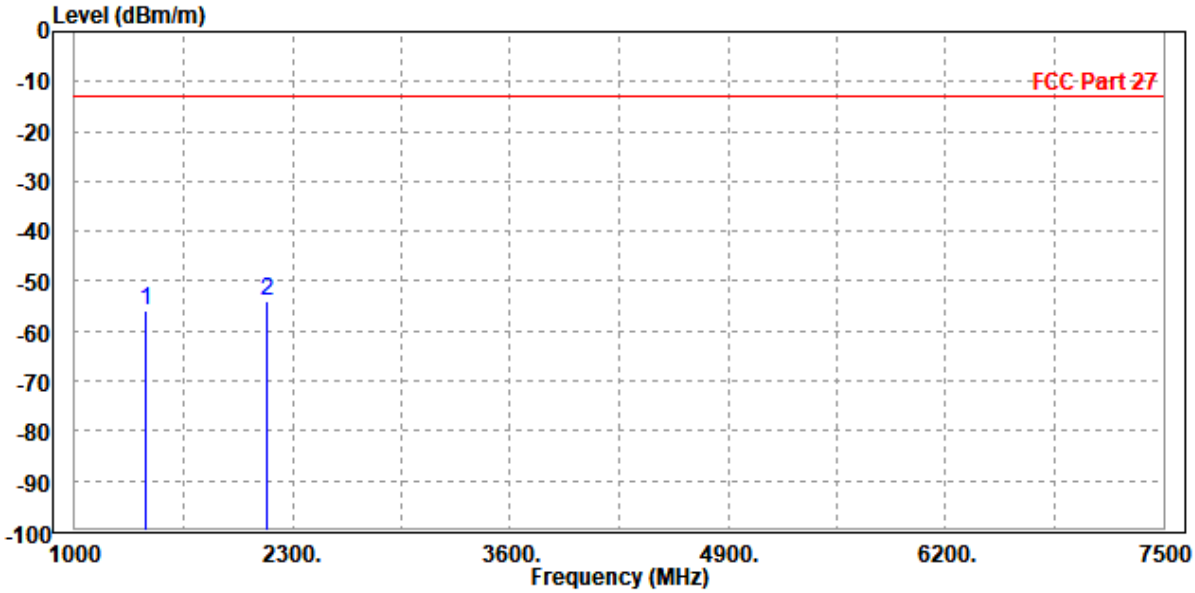
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1415.000	-54.20	-57.12	-13.00	-41.20	2.92	Peak	Vertical
2 PP	2124.500	-53.84	-58.28	-13.00	-40.84	4.44	Peak	Vertical



CH 23165

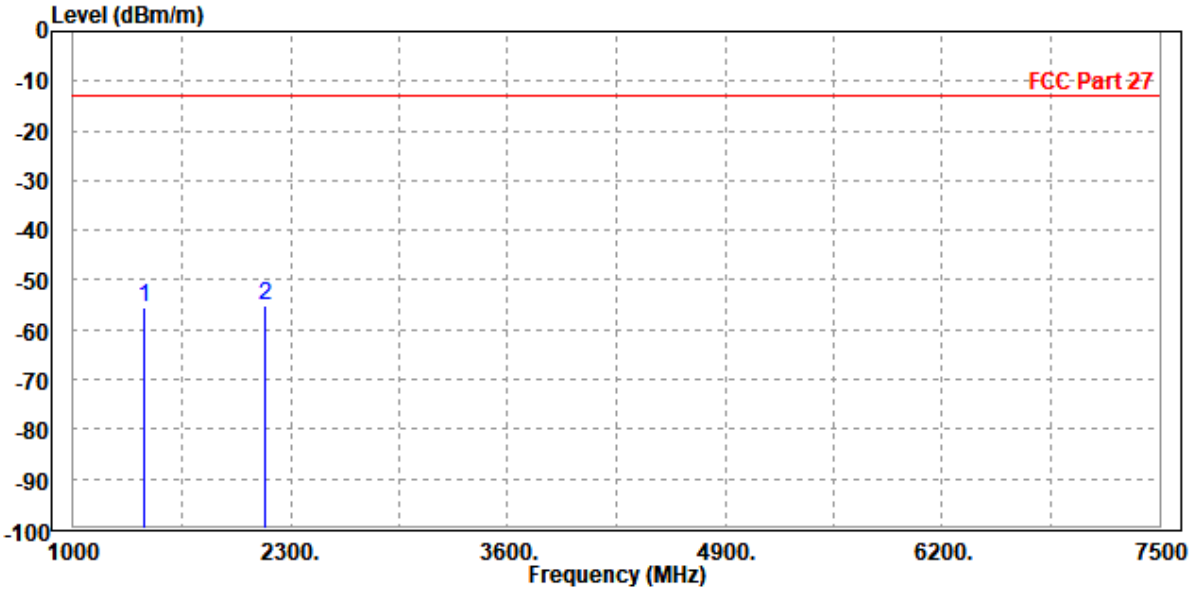
MODE	TX channel 23165	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1429.000	-55.92	-58.90	-13.00	-42.92	2.98	Peak	Horizontal
2 PP	2144.000	-53.93	-59.07	-13.00	-40.93	5.14	Peak	Horizontal



MODE	TX channel 23165	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			

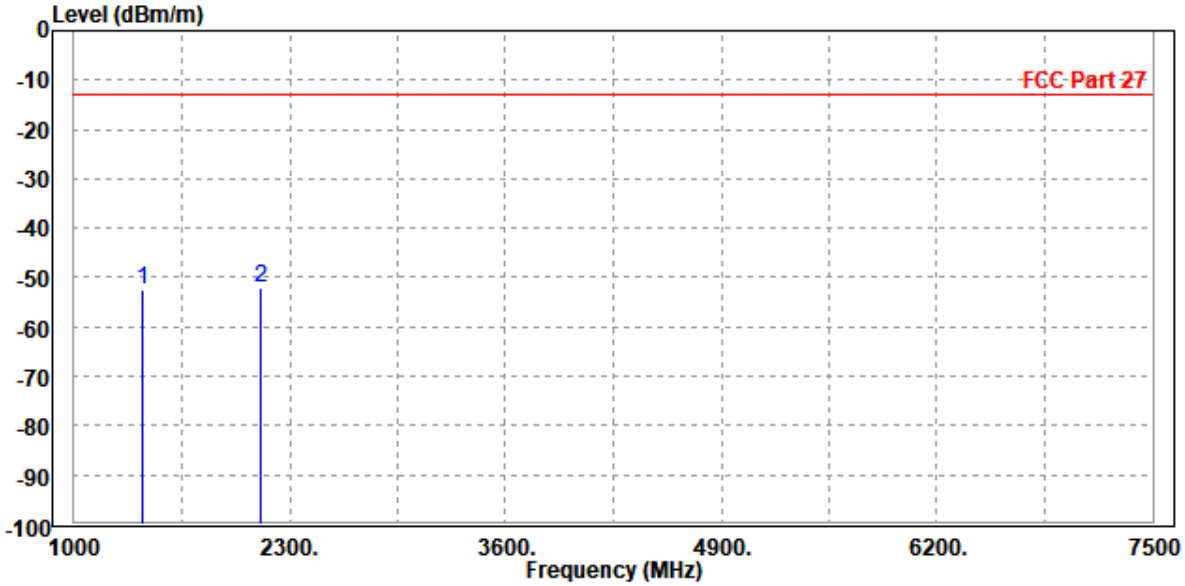
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1429.000	-55.46	-58.42	-13.00	-42.46	2.96	Peak	Vertical
2 PP	2143.500	-55.25	-59.76	-13.00	-42.25	4.51	Peak	Vertical



CHANNEL BANDWIDTH: 5MHz / QPSK

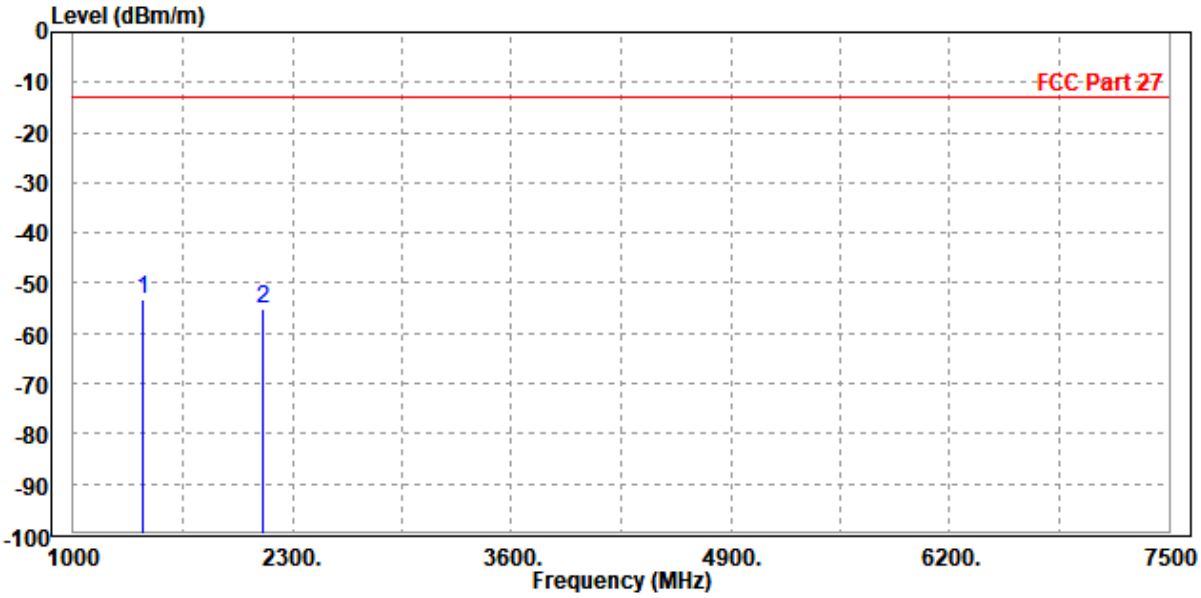
MODE	TX channel 23095	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1415.000	-52.45	-55.39	-13.00	-39.45	2.94	Peak	Horizontal
2 PP	2124.500	-52.16	-57.25	-13.00	-39.16	5.09	Peak	Horizontal



MODE	TX channel 23095	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			

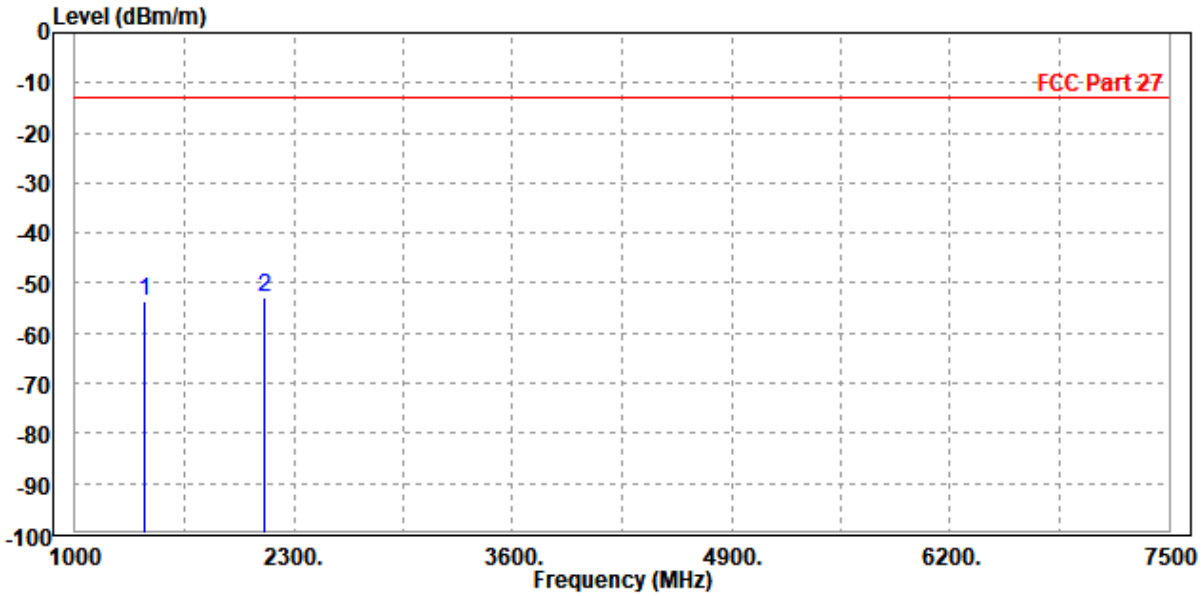
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 1416.000	-53.16	-56.09	-13.00	-40.16	2.93	Peak	Vertical
2	2122.500	-55.25	-59.69	-13.00	-42.25	4.44	Peak	Vertical



CHANNEL BANDWIDTH: 10MHz / QPSK

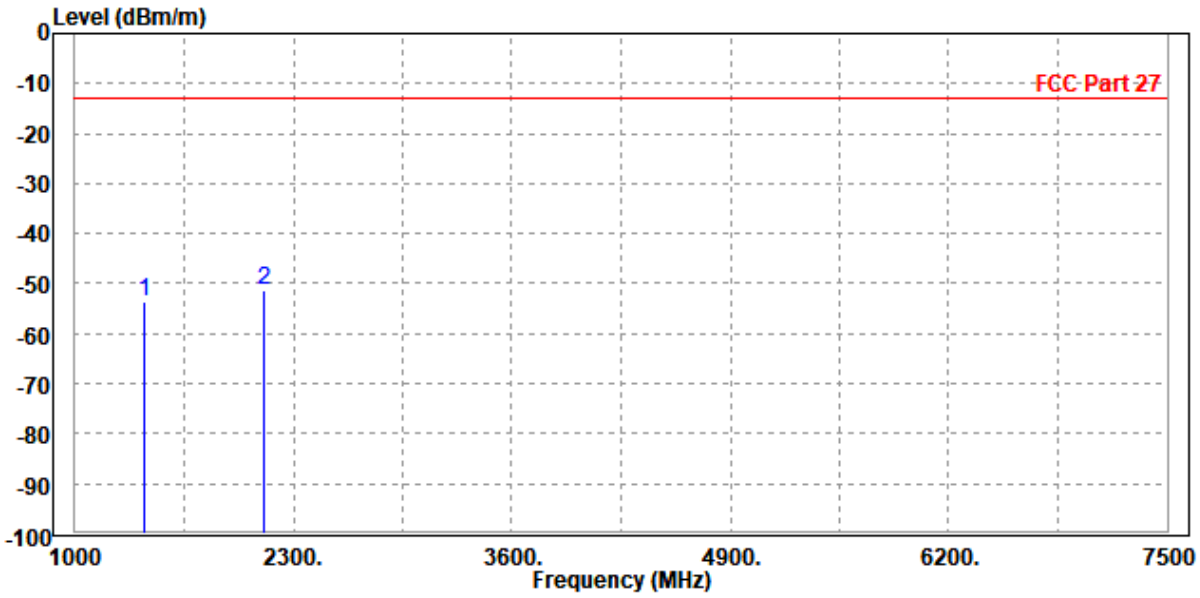
MODE	TX channel 23095	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1415.000	-53.75	-56.69	-13.00	-40.75	2.94	Peak	Horizontal
2 PP	2124.500	-52.70	-57.79	-13.00	-39.70	5.09	Peak	Horizontal



MODE	TX channel 23095	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	1416.000	-53.47	-56.40	-13.00	-40.47	2.93	Peak	Vertical
2 PP	2122.500	-51.39	-55.83	-13.00	-38.39	4.44	Peak	Vertical



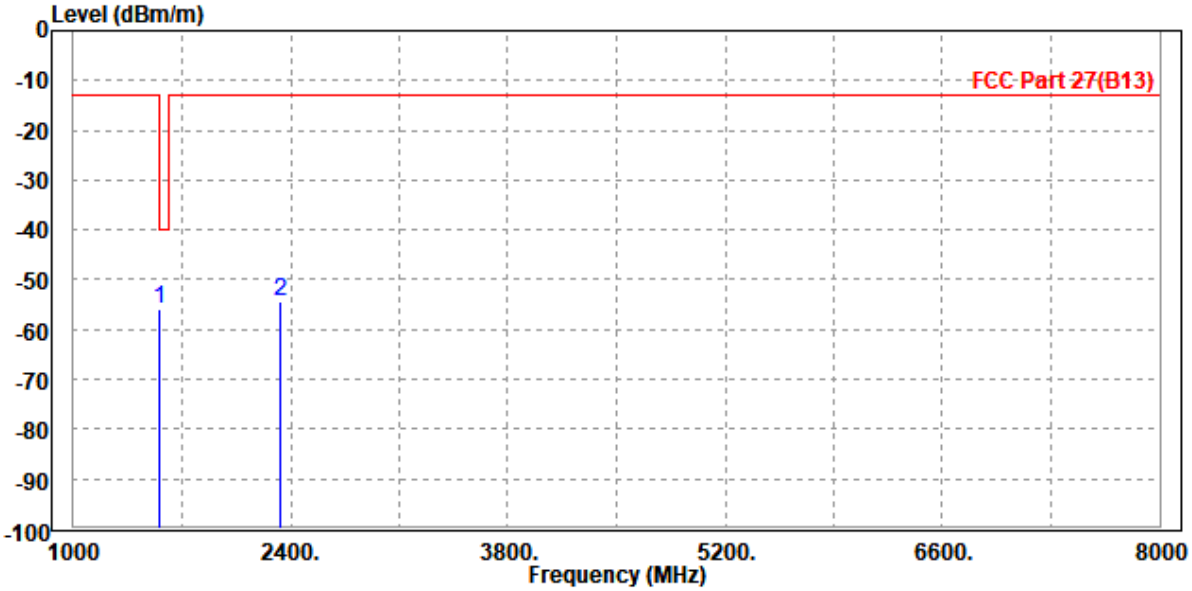
LTE B13:

CHANNEL BANDWIDTH: 5MHz / QPSK

CH23205

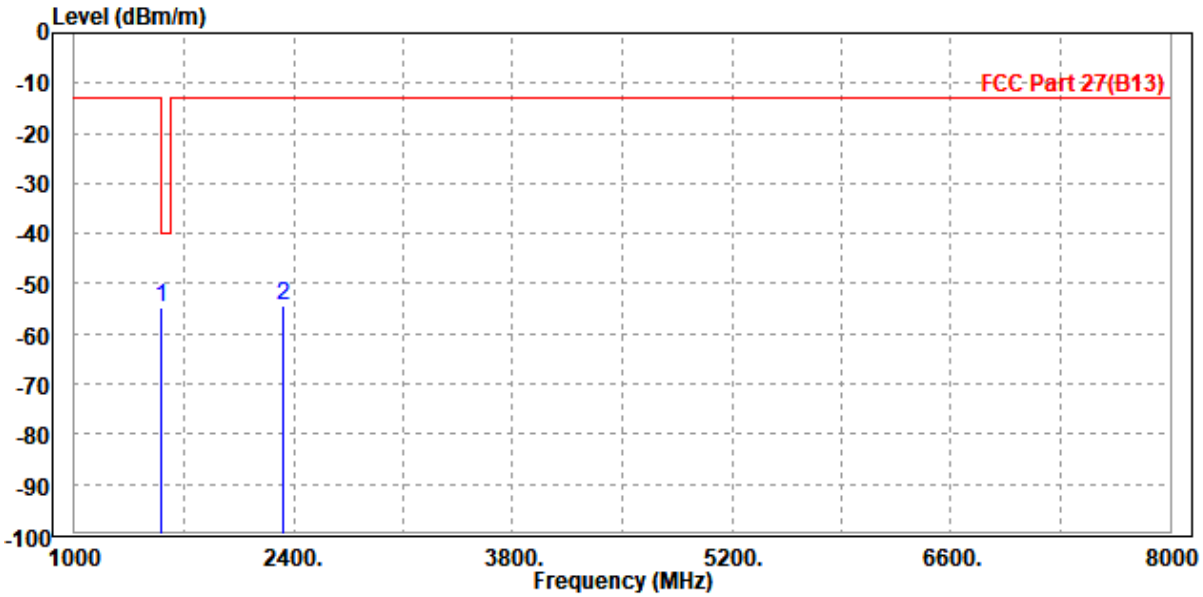
MODE	TX channel 23205	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 1560.000	-55.89	-59.28	-40.00	-15.89	3.39	Peak	Horizontal
2	2338.500	-54.28	-59.94	-13.00	-41.28	5.66	Peak	Horizontal



MODE	TX channel 23205	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			

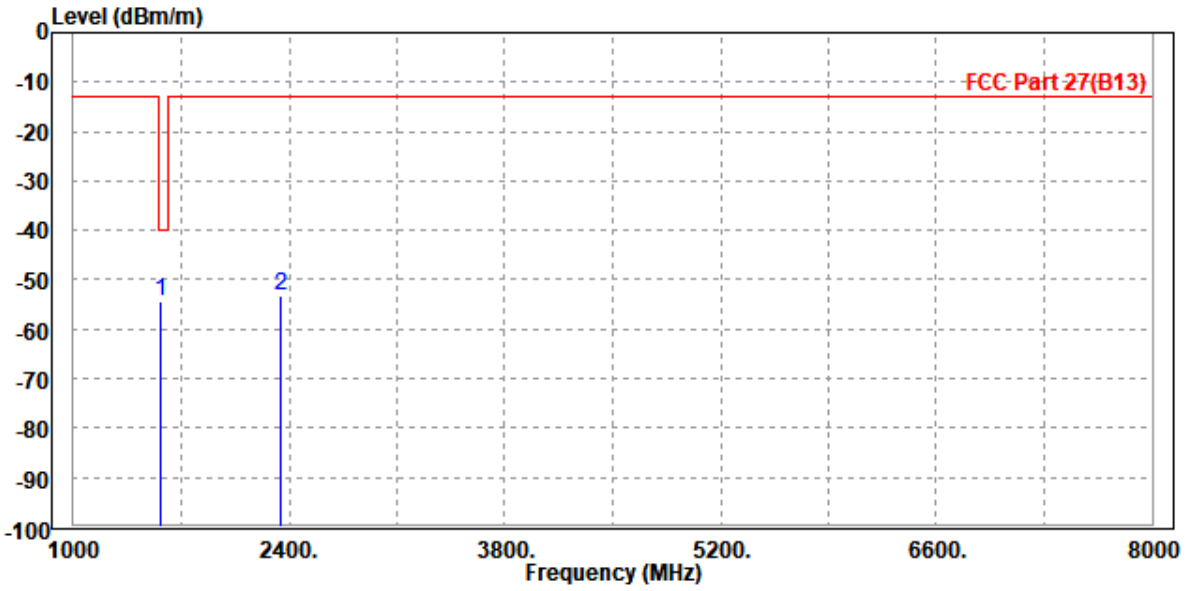
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 1559.000	-54.80	-58.03	-40.00	-14.80	3.23	Peak	Vertical
2	2337.000	-54.47	-59.67	-13.00	-41.47	5.20	Peak	Vertical



CH23230

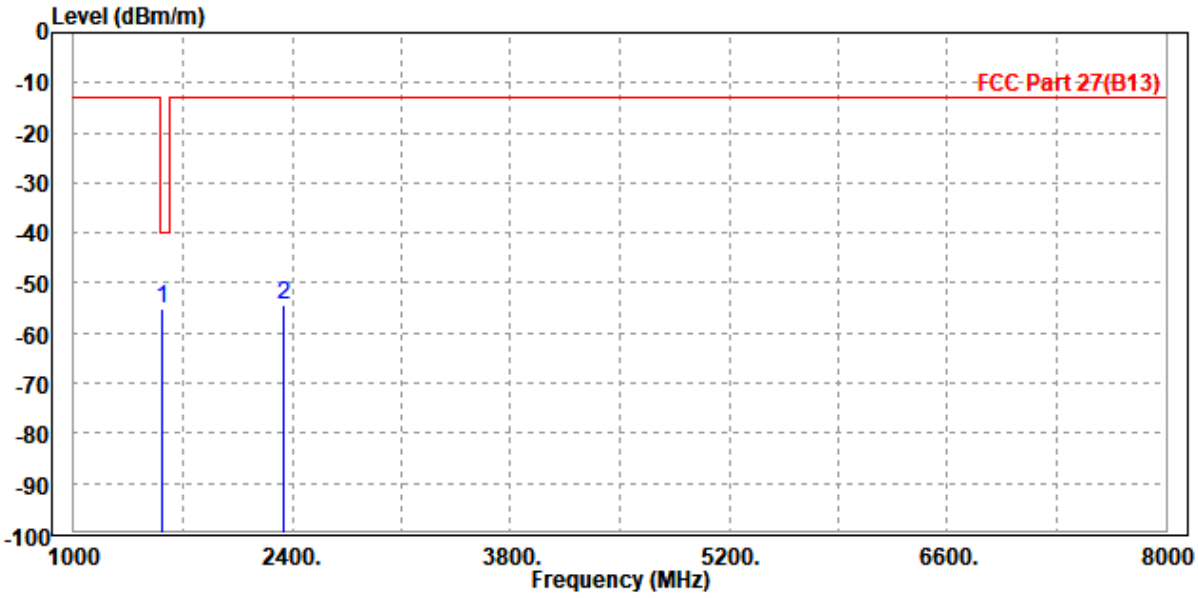
MODE	TX channel 23230	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	1564.000	-54.21	-57.61	-40.00	-14.21	3.40	Peak	Horizontal
2	2344.000	-53.29	-58.97	-13.00	-40.29	5.68	Peak	Horizontal



MODE	TX channel 23230	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			

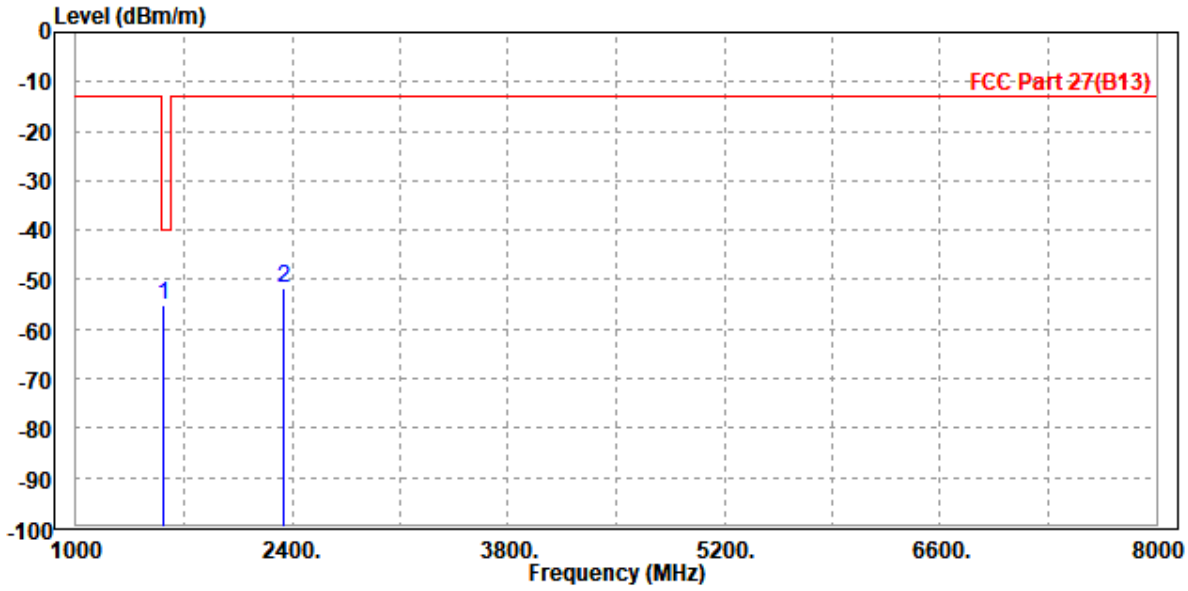
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	1567.000	-55.18	-58.43	-40.00	-15.18	3.25	Peak	Vertical
2	2346.000	-54.26	-59.49	-13.00	-41.26	5.23	Peak	Vertical



CH23255

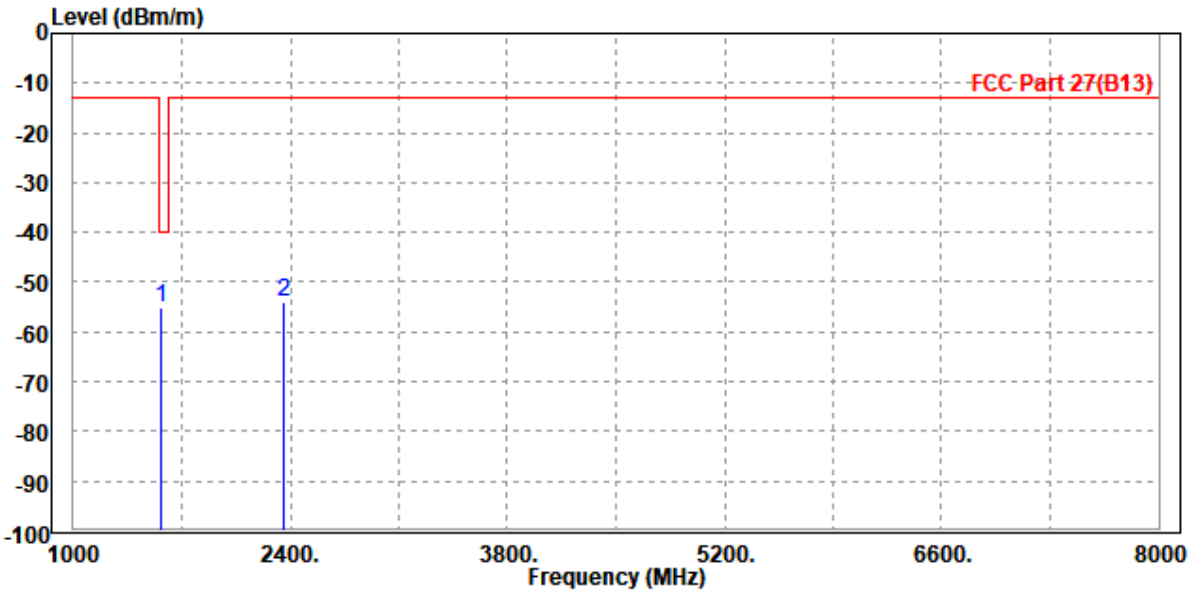
MODE	TX channel 23255	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 1569.000	-55.07	-58.48	-40.00	-15.07	3.41	Peak	Horizontal
2	2351.000	-51.80	-57.50	-13.00	-38.80	5.70	Peak	Horizontal



MODE	TX channel 23255	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			

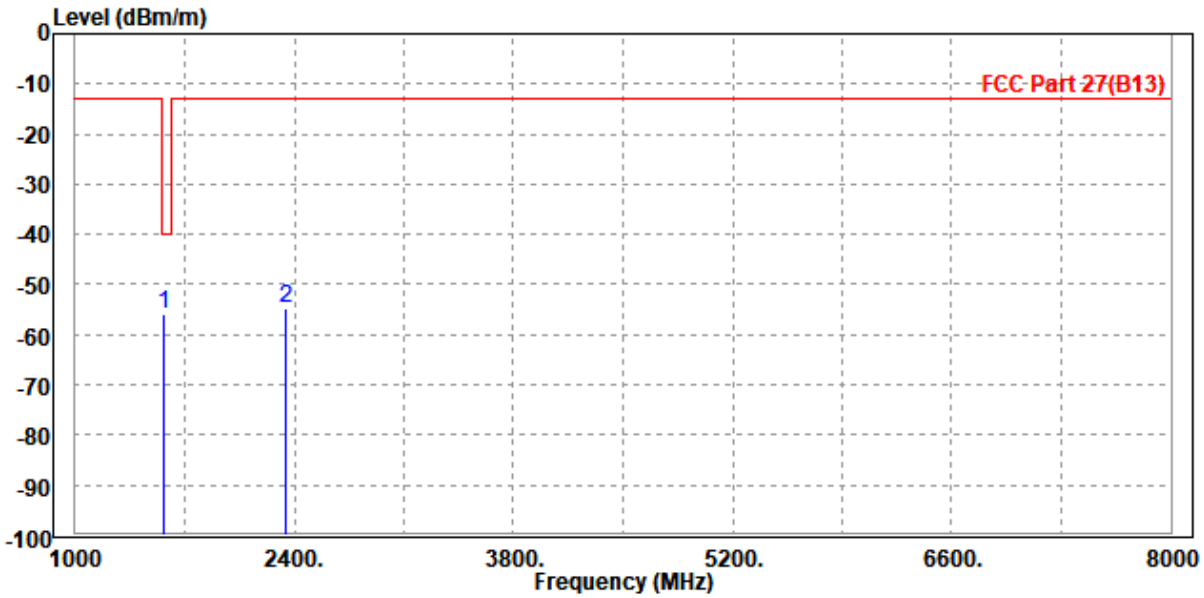
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 1567.000	-55.09	-58.34	-40.00	-15.09	3.25	Peak	Vertical
2	2353.500	-53.99	-59.25	-13.00	-40.99	5.26	Peak	Vertical



CHANNEL BANDWIDTH: 10MHz /QPSK

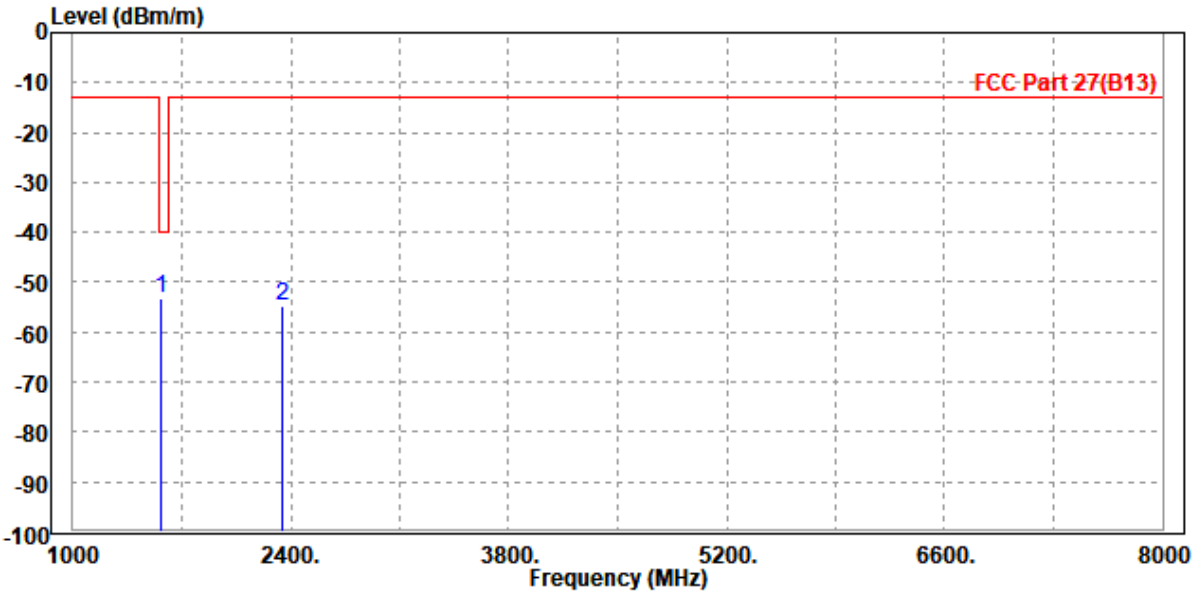
MODE	TX channel 23230	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 1564.000	-55.80	-59.20	-40.00	-15.80	3.40	Peak	Horizontal
2	2344.000	-54.60	-60.28	-13.00	-41.60	5.68	Peak	Horizontal



MODE	TX channel 23230	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 1567.000	-53.19	-56.44	-40.00	-13.19	3.25	Peak	Vertical
2	2346.000	-54.87	-60.10	-13.00	-41.87	5.23	Peak	Vertical



4 PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).

5 INFORMATION ON THE TESTING LABORATORIES

We, **Huarui 7layers High Technology (Suzhou) Co., Ltd.** were founded in 2020 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Suzhou EMC/RF Lab:

Tel: +86 (0557) 368 1008

6 MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

--END--