

FCC TEST REPORT

(PART 22)

Applicant:	Particle Industries, Inc
Address:	126 Post St, 4th floor, San Francisco, CA 94108 USA

Manufacturer or Supplier:	Particle Industries, Inc
Address:	126 Post St, 4th floor, San Francisco, CA 94108 USA
Product:	Tracker SoM LTE M1
Brand Name:	Particle
Model Name:	T402M/T404M
FCC ID:	2AEMI-T40X
Date of tests:	May. 21, 2020 ~ Jun. 09, 2020

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 Alex Chen Engineer / Mobile Department	Approved by Luke Lu Manager / Mobile Department
 Date: Jun. 09, 2020	 Date: Jun. 09, 2020

This report is governed by, and incorporates by reference, CPS Conditions of Service as posted at the date of issuance of this report at <http://www.bureauveritas.com/home/about-us/our-business/cps/about-us/terms-conditions> and is intended for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. Measurement uncertainty is only provided upon request for accredited tests. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence or if you require measurement uncertainty; provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents.

TABLE OF CONTENTS

RELEASE CONTROL RECORD	4
1 SUMMARY OF TEST RESULTS.....	5
1.1 MEASUREMENT UNCERTAINTY	6
1.2 TEST SITE AND INSTRUMENTS	7
2 GENERAL INFORMATION	8
2.1 GENERAL DESCRIPTION OF EUT	8
2.2 CONFIGURATION OF SYSTEM UNDER TEST	10
2.3 DESCRIPTION OF SUPPORT UNITS	11
2.4 TEST ITEM AND TEST CONFIGURATION.....	11
2.5 EUT OPERATING CONDITIONS.....	12
2.6 GENERAL DESCRIPTION OF APPLIED STANDARDS	13
3 TEST TYPES AND RESULTS.....	14
3.1 OUTPUT POWER MEASUREMENT	14
3.1.1 LIMITS OF OUTPUT POWER MEASUREMENT	14
3.1.2 TEST PROCEDURES	14
3.1.3 TEST SETUP	15
3.1.4 TEST RESULTS	15
3.2 FREQUENCY STABILITY MEASUREMENT	21
3.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT	21
3.2.2 TEST PROCEDURE	21
3.2.3 TEST SETUP	21
3.2.4 TEST RESULTS	22
3.3 OCCUPIED BANDWIDTH MEASUREMENT	23
3.3.1 TEST PROCEDURES	23
3.3.2 TEST SETUP	23
3.3.3 TEST RESULTS	24
3.4 BAND EDGE MEASUREMENT	24
3.4.1 LIMITS OF BAND EDGE MEASUREMENT	24
3.4.2 TEST SETUP	24
3.4.3 TEST PROCEDURES	25
3.4.4 TEST RESULTS	26
3.5 CONDUCTED SPURIOUS EMISSIONS.....	26
3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT	26
3.5.2 TEST PROCEDURE	26
3.5.3 TEST SETUP	26
3.5.4 TEST RESULTS	26
3.6 RADIATED EMISSION MEASUREMENT	27
3.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT	27
3.6.2 TEST PROCEDURES	27
3.6.3 DEVIATION FROM TEST STANDARD	27
3.6.4 TEST SETUP	28



Test Report No.: RF200520W003-1

3.6.5	TEST RESULTS	29
3.7	PEAK TO AVERAGE RATIO	55
3.7.1	LIMITS OF PEAK TO AVERAGE RATIO MEASUREMENT	55
3.7.2	TEST SETUP	55
3.7.3	TEST PROCEDURES	55
3.7.4	TEST RESULTS	55
4	PHOTOGRAPHS OF THE TEST CONFIGURATION	56
5	INFORMATION ON THE TESTING LABORATORIES	57
6	APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB	58



Test Report No.: RF200520W003-1

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF200520W003-1	Original release	Jun. 09, 2020

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 22.913 (a)	Effective Radiated Power	Compliance
2.1055 22.355	Frequency Stability	See Note
2.1049 22.917 (b)	Occupied Bandwidth	See Note
22.913 (d)	Peak to average ratio*	See Note
22.917	Band Edge Measurements	See Note
2.1051 22.917	Conducted Spurious Emissions	See Note
2.1053 22.917	Radiated Spurious Emissions	Compliance

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

Note: Test data re-use from certified module BG96, BG96 MINIPCIE, more details please refer test report R1811A0536-R1 (FCC ID: XMR201707BG96).

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 (30MHz~1GMHz)	$\pm 4.98\text{dB}$
Radiated emissions (1GMHz ~6GMHz)	$\pm 4.70\text{dB}$
Radiated emissions (6GMHz ~18GMHz)	$\pm 4.60\text{dB}$
Radiated emissions (18GMHz ~40GMHz)	$\pm 4.12\text{dB}$
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	Feb. 26,20	Feb. 25,21
EXA Signal Analyzer	KEYSIGHT	N9010A-544	MY54510355	Jun. 24,19	Jun. 23,20
Bilog Antenna	ETS-LINDGREN	3143B	00161965	Mar. 27,20	Mar. 26,21
Horn Antenna (1GHz-18GHz)	ETS-LINDGREN	3117	00168692	Mar. 27,20	Mar. 26,21
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40 -K-SG/QMS-00 361	15433	Nov. 24,19	Nov. 23,20
Radio Communication Analyzer	ANRITSU	MT8820C	6201465426	Feb. 27,20	Feb. 26,21
Signal Pre-Amplifier	EMSI	EMC 9135	980249	Jun. 24,19	Jun. 23,20
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	Jun. 24,19	Jun. 23,20
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Jun. 24,19	Jun. 23,20
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	Euroshieldpn- CT0001143-1216	May. 18,20	May. 17,23
Test Software	E3	V 9.160323	N/A	N/A	N/A
Test Software	ADT	ADT_Radiated _V7.6.15.9.2	N/A	N/A	N/A
10dB Attenuator	JFW/USA	50HF-010-SM A	1505	Jun. 24,19	Jun. 23,20
Power Meter	Anritsu	ML2495A	1506002	Feb. 26,20	Feb. 25,21
Power Sensor	Anritsu	MA2411B	1339352	Feb. 26,20	Feb. 25,21
Humid & Temp Programmable Tester	Juyi	ITH-120-45-CP -AR	IAA1504-001	Jun. 24,19	Jun. 23,20
MXG Analog Microwave Signal Generator	KEYSIGHT	N5183A	MY50143024	Mar. 11,20	Mar. 10,21
Power Divider	MCLI/USA	PS2-15	24880	Nov. 22, 19	Nov. 21, 20

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

EUT	Tracker SoM LTE M1	
BRAND NAME	Particle	
MODEL NAME	T402M/T404M	
POWER SUPPLY	Li+ PIN: DC +3.3V--4.3V or Vusb PIN: DC +4.35V--5.5V or Vin PIN: DC +3.9V--17V	
MODULATION TYPE	GSM/GPRS/EDGE	GMSK, 8PSK
	LTE CAT-M1	QPSK, 16QAM
FREQUENCY RANGE	GSM/GPRS/EDGE	824.2MHz ~ 848.8MHz
	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
MAX. ERP POWER	GSM	1439mW
	EDGE	403mW
	LTE Band 5 (Channel Bandwidth: 1.4MHz)	202mW
	LTE Band 5 (Channel Bandwidth: 3MHz)	203mW
	LTE Band 5 (Channel Bandwidth: 5MHz)	201mW
	LTE Band 5 (Channel Bandwidth: 10MHz)	200mW
EMISSION DESIGNATOR GGN	GSM	246KGXW
	EDGE	249KG7W
	LTE Band 5 (Channel Bandwidth: 1.4MHz)	QPSK: 1M11G7D 16QAM: 947KW7D
	LTE Band 5 (Channel Bandwidth: 3MHz)	QPSK: 1M16G7D 16QAM: 983KW7D
	LTE Band 5 (Channel Bandwidth: 5MHz)	QPSK: 1M15G7D 16QAM: 1M01W7D
	LTE Band 5 (Channel Bandwidth: 10MHz)	QPSK: 1M20G7D 16QAM: 1M05W7D
ANTENNA TYPE	External Antenna with 1.42dBi gain for GSM 850/ LTE Band 5	
HW VERSION	V1.0	



SW VERSION	V1.5.4
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	N/A

NOTE:

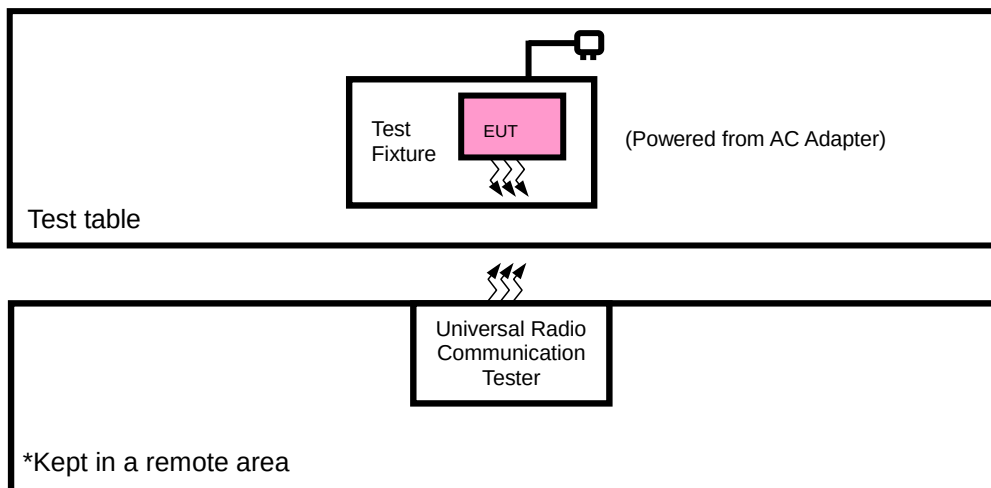
1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. The schematic and PCB of the two models T402M and T404M used by our company for the certification is completely the same ,and the HW&SW used is the same. Because the product is sold in different market using different models eSIM, different models are named. the differences are as follows:T402M uses eSIM of Kore.T404M uses eSIM of Twilio.
3. The EUT incorporates a SISO function. Physically, the EUT provides one completed transmitter and one receiver.

MODULATION MODE	TX FUNCTION
GSM/GPRS/EDGE	1TX/1RX diversity
LTE	1TX/1RX diversity

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

2.2 CONFIGURATION OF SYSTEM UNDER TEST

FOR RADIATION EMISSION



2.3 DESCRIPTION OF SUPPORT UNITS

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

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

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

2.4 TEST ITEM AND TEST CONFIGURATION

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

EUT CONFIGURE MODE	DESCRIPTION
-	EUT + with GSM/ EDGE or LTE link
-	EUT + with GSM/ EDGE or LTE link

GSM MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
-	ERP	128 to 251	128, 189, 251	GSM, EDGE
-	RADIATED EMISSION	128 to 251	128, 189, 251	GSM, EDGE



LTE BAND 5 MODE

TEST ITEM	Available Channel	Tested Channel	Channel bandwidth	modulation	mode
ERP	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK,16QAM	1 RB / 0 RB Offset
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK,16QAM	1 RB / 0 RB Offset
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK,16QAM	1 RB / 0 RB Offset
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK,16QAM	1 RB / 0 RB Offset
RADIATED EMISSION	20407 to 20643	20525	1.4MHz	QPSK	1 RB / 0 RB Offset
	20415 to 20635	20525	3MHz	QPSK	1 RB / 0 RB Offset
	20425 to 20625	20525	5MHz	QPSK	1 RB / 0 RB Offset
	20450 to 20600	20450, 20525, 20600	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 ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
ERP	23deg. C, 70%RH	DC 5V	Tony
RADIATED EMISSION	23deg. C, 70%RH	DC 5V	Tony

2.5 EUT OPERATING CONDITIONS

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



Test Report No.: RF200520W003-1

2.6 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 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 are 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:

$$\text{ERP or EIRP} = P_{\text{Meas}} + G_T - L_C$$

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.

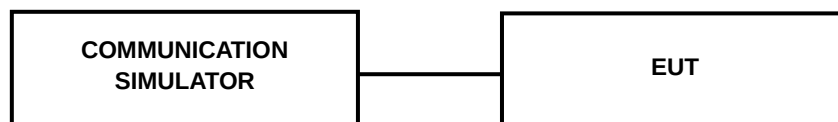
CONDUCTED POWER MEASUREMENT:

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)

Band	GSM850			Max. Tune-up Power
Channel	128	189	251	
Frequency	824.2	836.6	848.8	
GPRS 1Tx Slot	32.37	32.40	32.87	33.0
GPRS 2Tx Slot	32.23	32.32	32.74	33.0
GPRS 3Tx Slot	30.73	30.88	30.74	31.0
GPRS 4Tx Slot	29.26	29.36	29.28	29.5
EDGE 1Tx Slot (MCS9)	25.33	25.33	25.02	25.5
EDGE 2Tx Slot (MCS9)	25.05	25.03	24.75	25.5
EDGE 3Tx Slot (MCS9)	24.86	24.81	24.57	25.0
EDGE 4Tx Slot (MCS9)	24.59	24.49	24.21	25.0



LTE Band 5

Band/BW	Modulation	RB Size	RB Offset	Low CH 20407	Mid CH 20525	High CH 20643	Tune Up
				Frequency 824.7 MHz	Frequency 836.5 MHz	Frequency 848.3 MHz	
5/ 1.4	QPSK	1	0	23.19	23.29	23.30	24.0
		1	5	23.18	23.21	23.27	
		3	0	23.23	23.24	23.28	24.0
		3	3	23.17	23.21	23.29	
		6	0	23.25	23.30	23.26	24.0
	16QAM	1	0	22.82	22.86	22.90	24.0
		1	5	22.80	22.80	22.88	
		3	0	23.06	23.09	23.18	24.0
		3	3	22.91	22.96	22.98	
		6	0	23.12	23.25	23.23	24.0

Band/BW	Modulation	RB Size	RB Offset	Low CH 20415	Mid CH 20525	High CH 20635	Tune Up
				Frequency 825.5 MHz	Frequency 836.5 MHz	Frequency 847.5 MHz	
5/ 3	QPSK	1	0	23.21	23.31	23.29	24.0
		1	5	23.14	23.22	23.27	
		3	0	23.19	23.24	23.28	24.0
		3	3	23.16	23.24	23.29	
		6	0	23.18	23.30	23.28	24.0
	16QAM	1	0	22.79	22.92	22.93	24.0
		1	5	22.77	22.83	22.86	
		3	0	23.09	23.09	23.18	24.0
		3	3	22.87	22.97	22.98	
		6	0	23.17	23.20	23.26	24.0



Band/BW	Modulation	RB Size	RB Offset	Low CH 20425	Mid CH 20525	High CH 20625	Tune Up
				Frequency 826.5 MHz	Frequency 836.5 MHz	Frequency 846.5 MHz	
5/ 5	QPSK	1	0	23.22	23.26	23.30	24.0
		1	5	23.19	23.19	23.27	
		3	0	23.20	23.23	23.32	24.0
		3	3	23.19	23.24	23.26	
		6	0	23.18	23.31	23.29	24.0
	16QAM	1	0	22.80	22.88	22.93	24.0
		1	5	22.74	22.86	22.85	
		3	0	23.09	23.09	23.17	24.0
		3	3	22.87	22.95	22.95	
		6	0	23.14	23.24	23.22	24.0

Band/BW	Modulation	RB Size	RB Offset	Low CH 20450	Mid CH 20525	High CH 20600	Tune Up
				Frequency 829 MHz	Frequency 836.5 MHz	Frequency 844 MHz	
5/ 10	QPSK	1	0	23.27	23.33	23.35	24.0
		1	5	23.21	23.27	23.29	
		3	0	23.25	23.31	23.33	24.0
		3	3	23.23	23.29	23.31	
		6	0	23.26	23.32	23.34	24.0
	16QAM	1	0	22.87	22.93	22.95	24.0
		1	5	22.82	22.88	22.90	
		3	0	23.11	23.17	23.19	24.0
		3	3	22.95	23.01	23.03	
		6	0	23.20	23.26	23.28	24.0

ERP POWER (dBm)

GSM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
128	824.2	32.25	1.42	31.52	1419.06	7
189	836.4	32.28	1.42	31.55	1428.89	7
251	848.8	32.31	1.42	31.58	1438.80	7

EDGE

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
128	824.2	26.58	1.42	25.85	384.59	7
189	836.4	26.65	1.42	25.92	390.84	7
251	848.8	26.78	1.42	26.05	402.72	7

REMARKS: 1. ERP Output Power (dBm) = SPA LVL (dBm) + Correction Factor (dB) -2.15(dB).
2. Correction factor (dB) = Free Space Loss + Antenna Factor + Cable Loss



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	22.66	1.42	21.93	155.96	7
20525	836.5	23.15	1.42	22.42	174.58	7
20643	848.3	23.21	1.42	22.48	177.01	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	23.79	1.42	23.06	202.3	7
20525	836.5	23.20	1.42	22.47	176.6	7
20643	848.3	23.14	1.42	22.41	174.18	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	22.70	1.42	21.97	157.4	7
20525	836.5	23.16	1.42	22.43	174.98	7
20635	847.5	23.24	1.42	22.51	178.24	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	23.81	1.42	23.08	203.24	7
20525	836.5	23.25	1.42	22.52	178.65	7
20635	847.5	23.16	1.42	22.43	174.98	7



CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-LC} (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20425	826.5	22.68	1.42	21.95	156.68	7
20525	836.5	23.12	1.42	22.39	173.38	7
20625	846.5	23.22	1.42	22.49	177.42	7

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-LC} (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20425	826.5	23.76	1.42	23.03	200.91	7
20525	836.5	23.20	1.42	22.47	176.6	7
20625	846.5	23.14	1.42	22.41	174.18	7

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-LC} (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20450	829.0	22.65	1.42	21.92	155.6	7
20525	836.5	23.08	1.42	22.35	171.79	7
20600	844.0	23.19	1.42	22.46	176.2	7

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _{T-LC} (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20450	829.0	23.74	1.42	23.01	199.99	7
20525	836.5	23.16	1.42	22.43	174.98	7
20600	844.0	23.09	1.42	22.36	172.19	7

3.2 FREQUENCY STABILITY MEASUREMENT

3.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

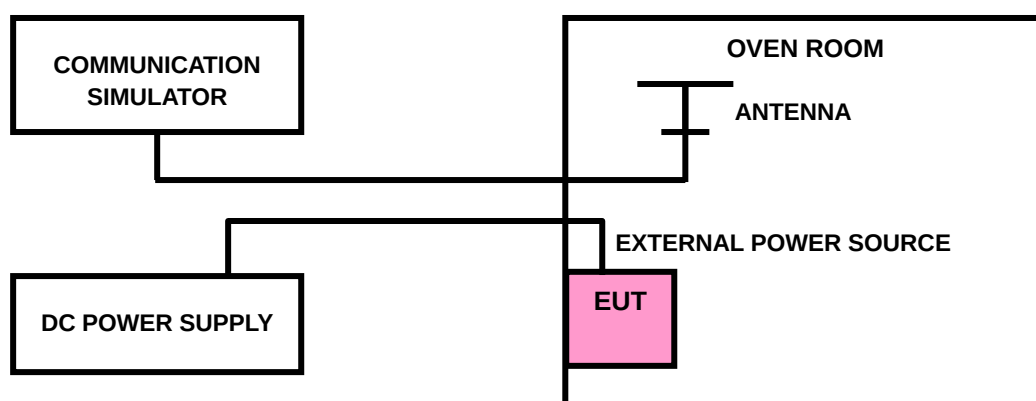
1.5 ppm is for base and fixed station. 2.5 ppm is for mobile station.

3.2.2 TEST PROCEDURE

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

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

3.2.3 TEST SETUP





Test Report No.: RF200520W003-1

3.2.4 TEST RESULTS

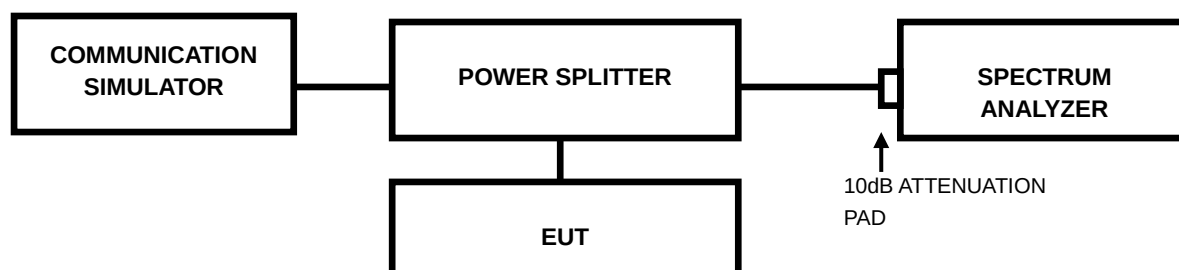
The test results was recorded in Report No.: R1811A0536-R1 (FCC ID: XMR201707BG96).

3.3 OCCUPIED BANDWIDTH MEASUREMENT

3.3.1 TEST PROCEDURES

The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

3.3.2 TEST SETUP



3.3.3 TEST RESULTS

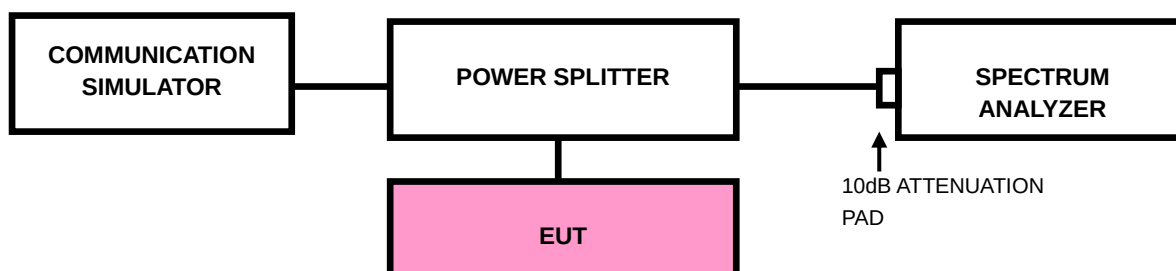
The test results was recorded in Report No.: R1811A0536-R1 (FCC ID: XMR201707BG96).

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. The center frequency of spectrum is the band edge frequency and span is 1.5MHz. RBW of the spectrum is 10kHz and VBW of the spectrum is 30kHz (GSM/GPRS/EDGE).
- c. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 20kHz and VBW of the spectrum is 100 kHz. (LTE bandwidth 1.4MHz).
- d. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 30kHz and VBW of the spectrum is 100kHz. (LTE bandwidth 3MHz)
- e. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 50kHz and VBW of the spectrum is 200kHz. (LTE bandwidth 5MHz)
- f. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 100kHz and VBW of the spectrum is 300kHz. (LTE bandwidth 10MHz)
- g. Record the max trace plot into the test report.

3.4.4 TEST RESULTS

The test results was recorded in Report No.: R1811A0536-R1 (FCC ID: XMR201707BG96).

3.5 CONDUCTED SPURIOUS EMISSIONS

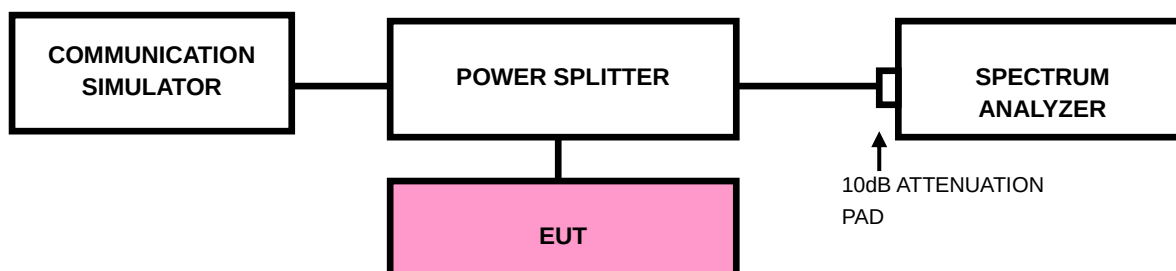
3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

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

3.5.2 TEST PROCEDURE

- The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- Measuring frequency range is from 9 kHz to 9GHz. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

3.5.3 TEST SETUP



3.5.4 TEST RESULTS

The test results was recorded in Report No.: R1811A0536-R1 (FCC ID: XMR201707BG96).

3.6 RADIATED EMISSION MEASUREMENT

3.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

3.6.2 TEST PROCEDURES

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

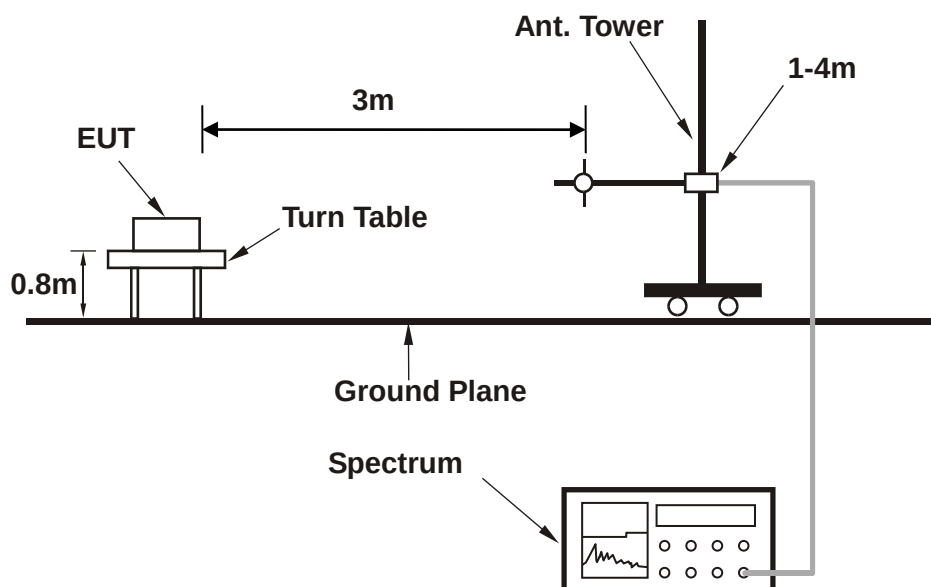
NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

3.6.3 DEVIATION FROM TEST STANDARD

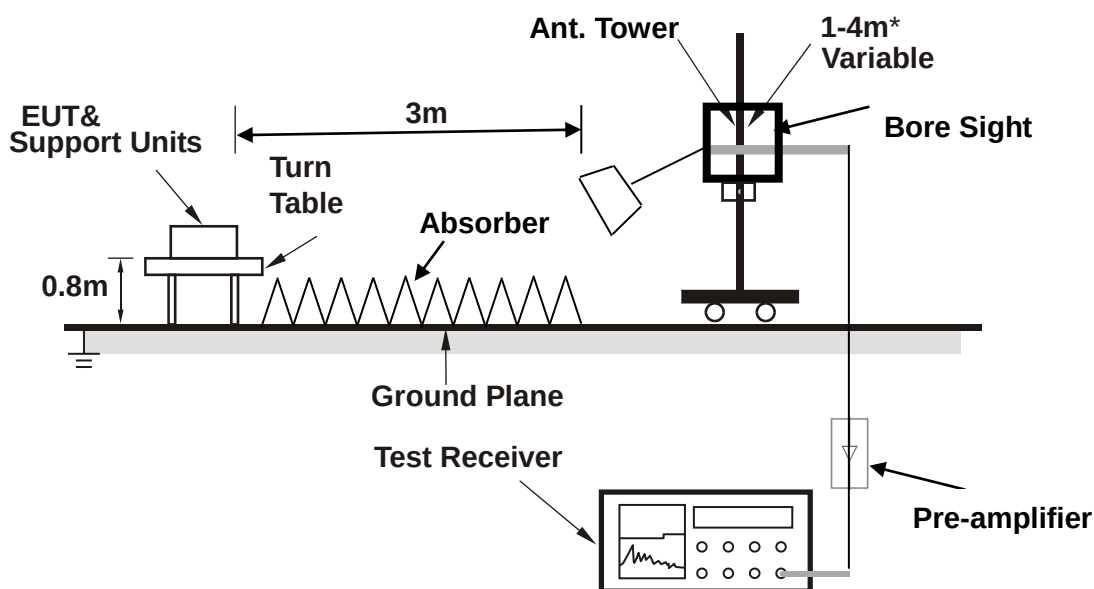
No deviation

3.6.4 TEST SETUP

< Frequency Range 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

BELOW 1GHz WORST-CASE DATA

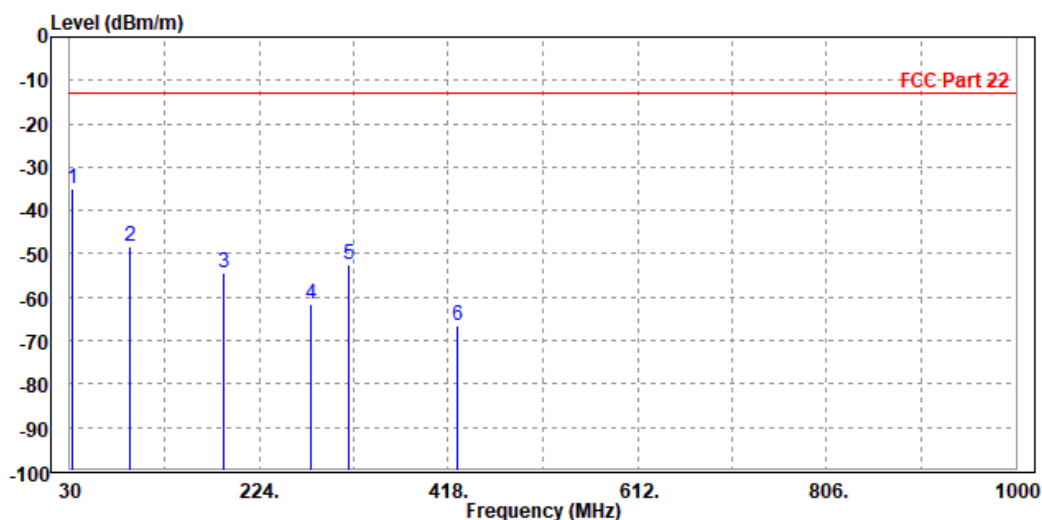
30 MHz – 1GHz data:

LTE Band 5

CHANNEL BANDWIDTH: 10MHz / QPSK

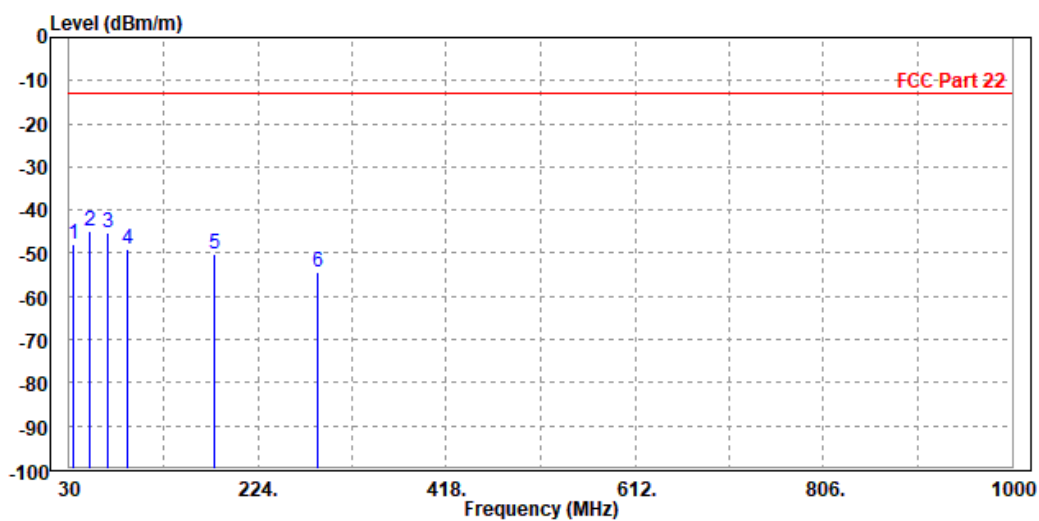
MODE	TX channel 20525	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V
TESTED BY	Tony		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP	32.250	-35.07	-52.13	-13.00	-22.07	17.06	Peak	Horizontal
2		91.210	-48.25	-40.22	-13.00	-35.25	-8.03	Peak	Horizontal
3		188.360	-54.45	-38.65	-13.00	-41.45	-15.80	Peak	Horizontal
4		277.150	-61.43	-48.62	-13.00	-48.43	-12.81	Peak	Horizontal
5		316.250	-52.62	-41.64	-13.00	-39.62	-10.98	Peak	Horizontal
6		427.460	-66.37	-58.65	-13.00	-53.37	-7.72	Peak	Horizontal



MODE	TX channel 20525	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V
TESTED BY	Tony		
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	33.470	-48.08	-49.62	-13.00	-35.08	1.54	Peak	Vertical
2 PP	50.470	-44.82	-40.75	-13.00	-31.82	-4.07	Peak	Vertical
3	68.950	-45.31	-31.26	-13.00	-32.31	-14.05	Peak	Vertical
4	89.750	-48.87	-39.62	-13.00	-35.87	-9.25	Peak	Vertical
5	178.650	-50.08	-38.47	-13.00	-37.08	-11.61	Peak	Vertical
6	286.350	-54.44	-45.24	-13.00	-41.44	-9.20	Peak	Vertical





ABOVE 1GHz DATA

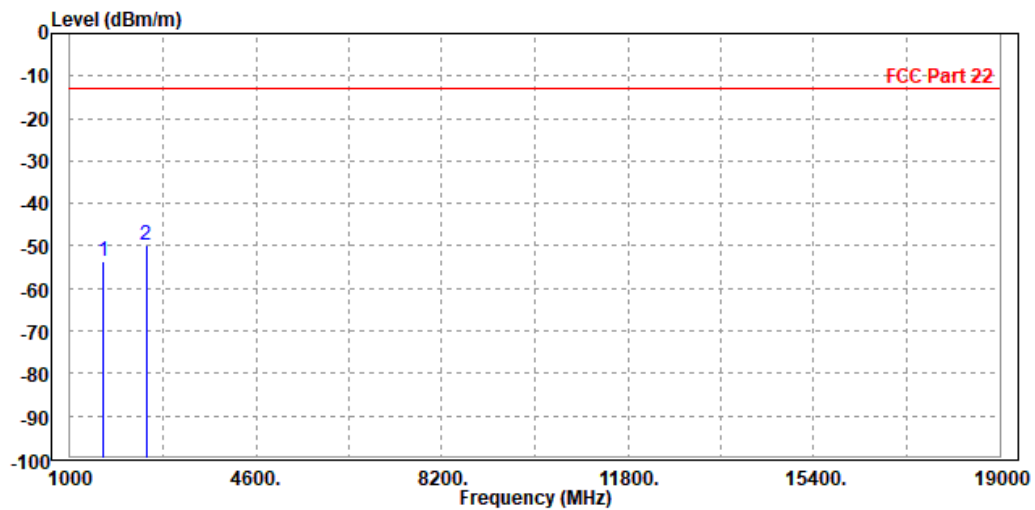
Note: For higher frequency, the emission is too low to be detected.

GSM 850

CH 128:

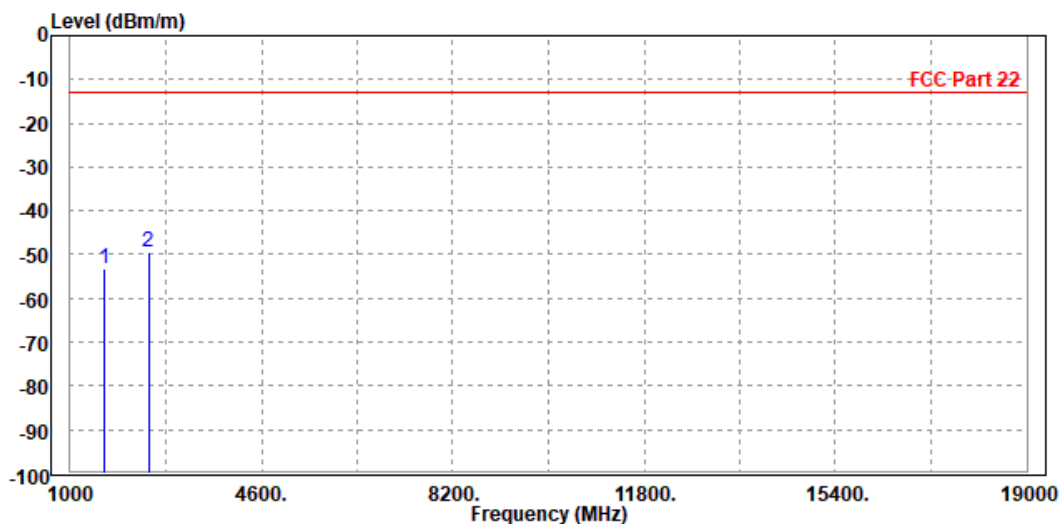
MODE	TX channel 128	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V
TESTED BY	Tony		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1648.000	-53.75	-57.00	-13.00	-40.75	3.25	Peak	Horizontal
2 PP	2472.600	-49.84	-57.86	-13.00	-36.84	8.02	Peak	Horizontal



MODE	TX channel 128	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V
TESTED BY	Tony		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

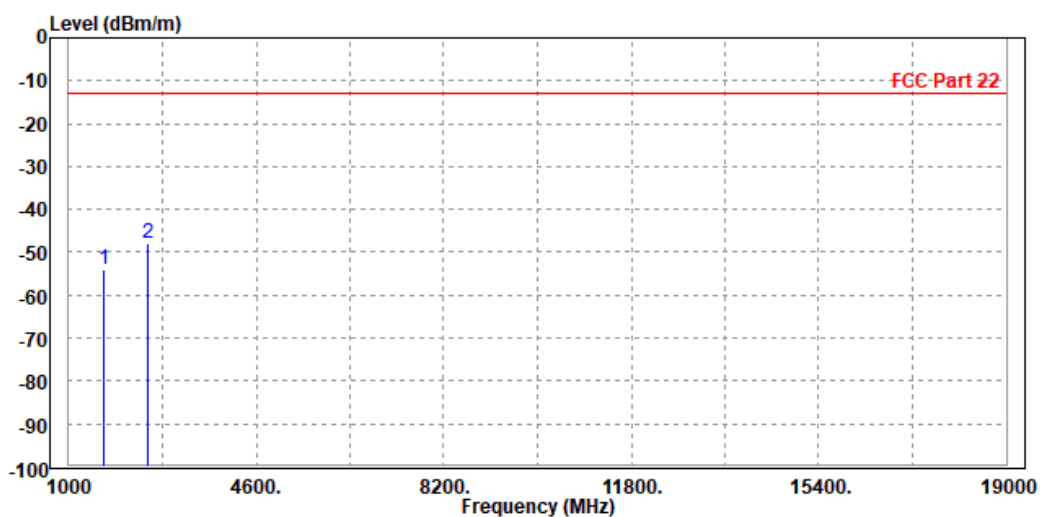
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1648.000	-53.34	-56.72	-13.00	-40.34	3.38	Peak	Vertical
2 PP	2472.600	-49.40	-56.44	-13.00	-36.40	7.04	Peak	Vertical



CH 189:

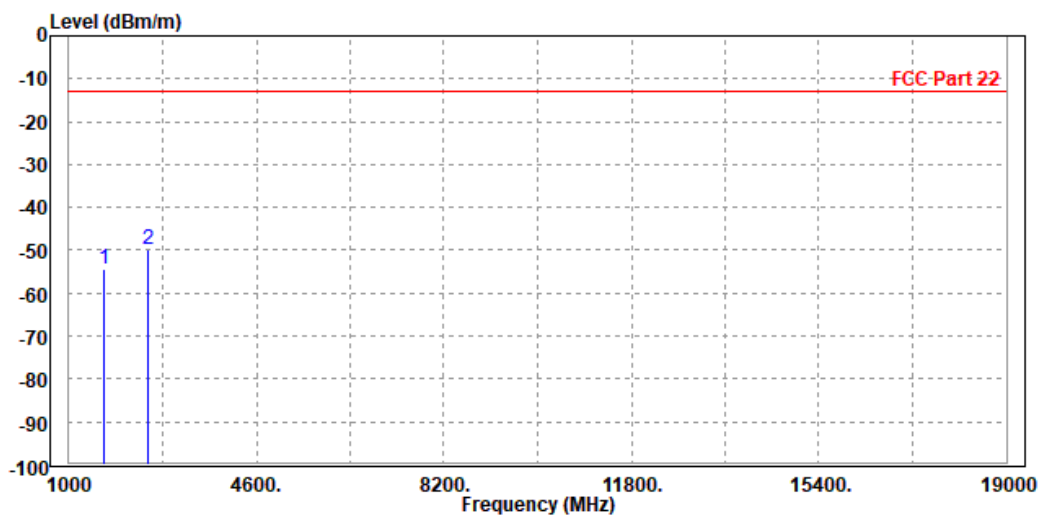
MODE	TX channel 189	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V
TESTED BY	Tony		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1666.000	-53.86	-57.33	-13.00	-40.86	3.47	Peak	Horizontal
2 PP	2509.200	-48.06	-56.12	-13.00	-35.06	8.06	Peak	Horizontal



MODE	TX channel 189	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V
TESTED BY	Tony		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

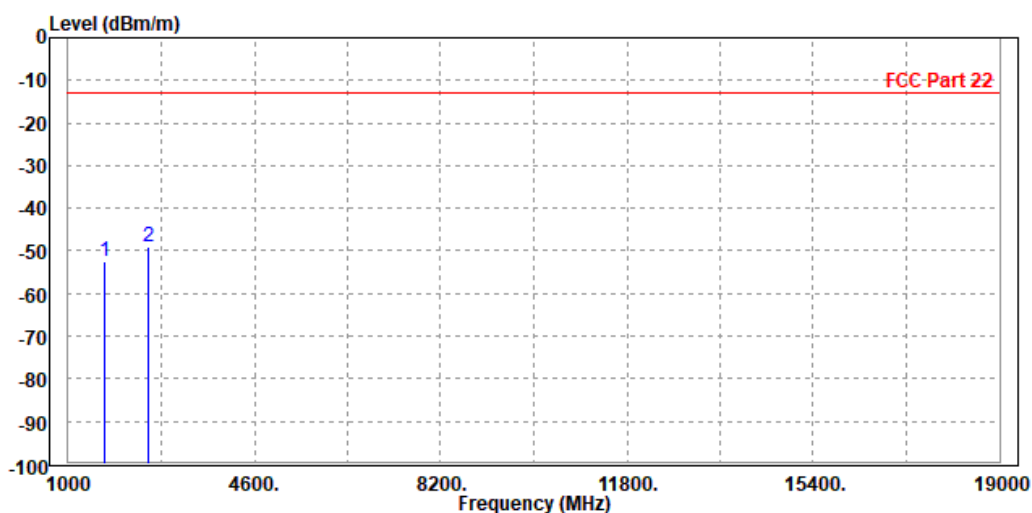
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1666.000	-54.52	-58.06	-13.00	-41.52	3.54	Peak	Vertical
2 PP	2509.200	-49.64	-56.74	-13.00	-36.64	7.10	Peak	Vertical



CH 251:

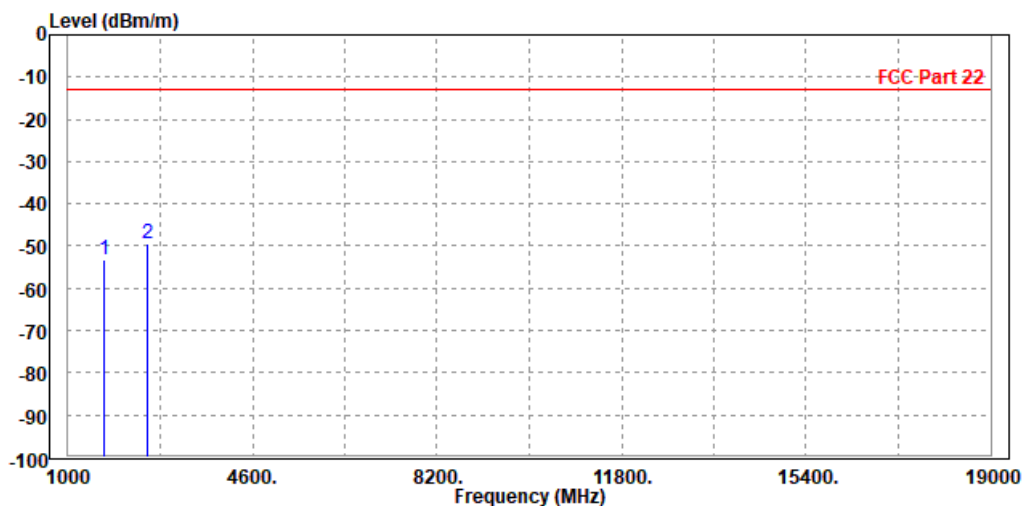
MODE	TX channel 251	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V/9V/11V/12/20V from adapter
TESTED BY	Tony		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1702.000	-52.63	-56.54	-13.00	-39.63	3.91	Peak	Horizontal
2 PP	2546.400	-49.20	-57.31	-13.00	-36.20	8.11	Peak	Horizontal



MODE	TX channel 251	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V
TESTED BY	Tony		
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	1702.000	-53.40	-57.27	-13.00	-40.40	3.87	Peak	Vertical
2 PP	2546.400	-49.52	-56.74	-13.00	-36.52	7.22	Peak	Vertical





BUREAU
VERITAS

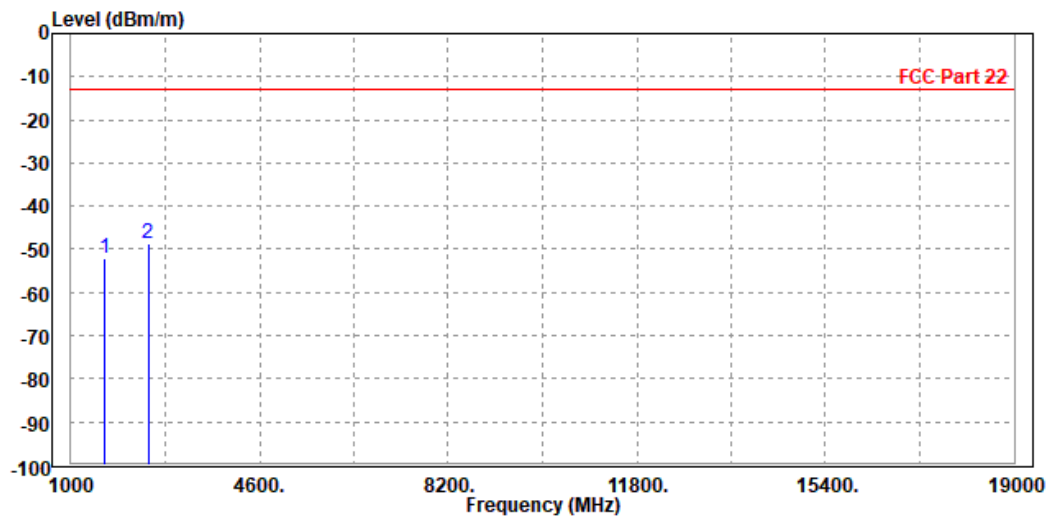
Test Report No.: RF200520W003-1

EDGE 850:

CH 128:

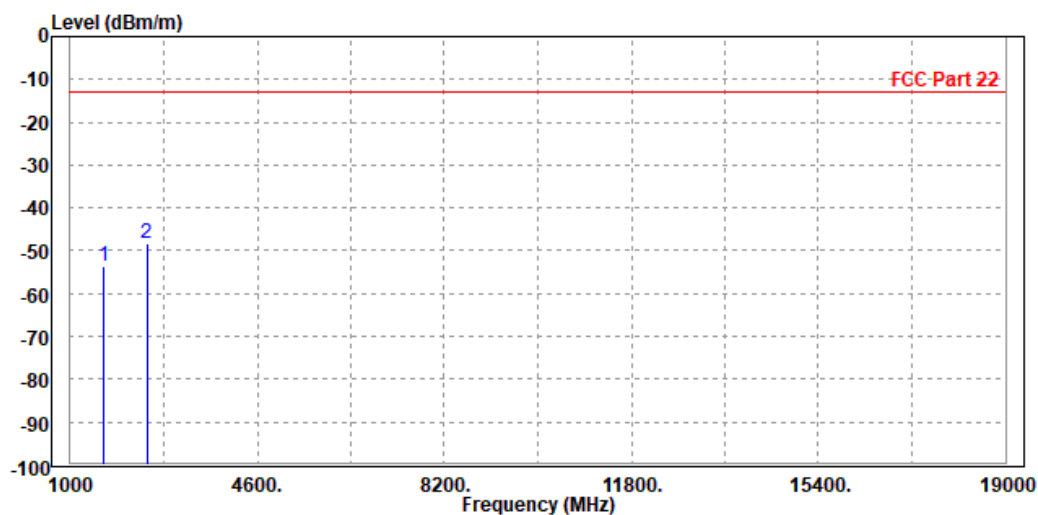
MODE	TX channel 128	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V
TESTED BY	Tony Xiong		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1648.000	-51.92	-55.17	-13.00	-38.92	3.25	Peak	Horizontal
2 PP	2472.600	-48.85	-56.87	-13.00	-35.85	8.02	Peak	Horizontal



MODE	TX channel 128	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Xiong		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

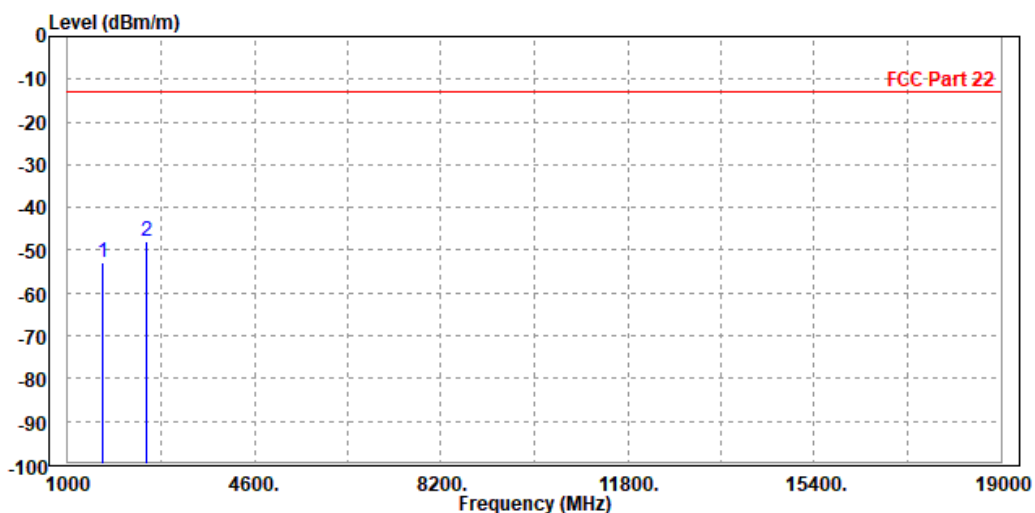
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1648.000	-53.74	-57.12	-13.00	-40.74	3.38	Peak	Vertical
2 PP	2472.600	-48.19	-55.23	-13.00	-35.19	7.04	Peak	Vertical



CH 189:

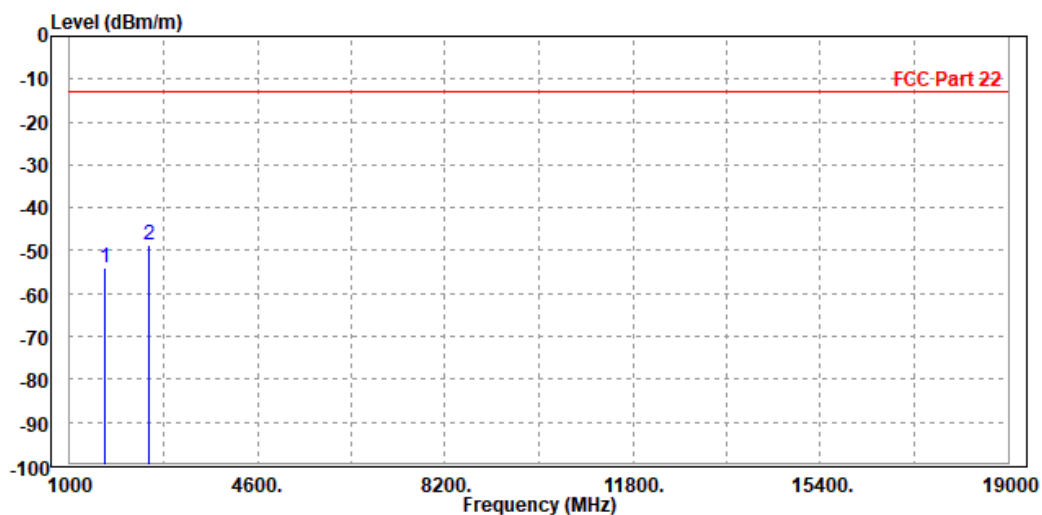
MODE	TX channel 189	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Xiong		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1666.000	-52.86	-56.33	-13.00	-39.86	3.47	Peak	Horizontal
2 PP	2509.200	-47.94	-56.00	-13.00	-34.94	8.06	Peak	Horizontal



MODE	TX channel 189	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Xiong		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

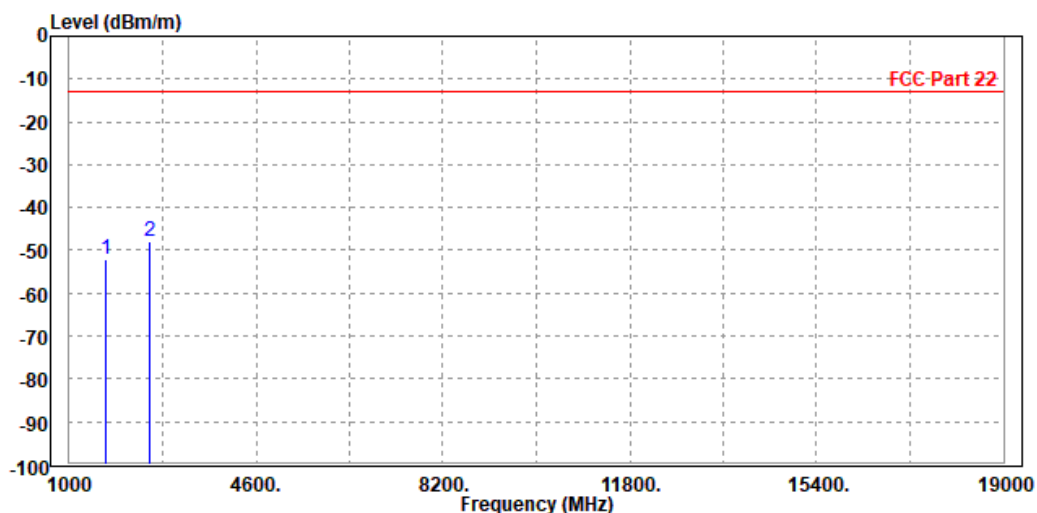
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1666.000	-54.11	-57.65	-13.00	-41.11	3.54	Peak	Vertical
2 PP	2509.200	-48.64	-55.74	-13.00	-35.64	7.10	Peak	Vertical



CH 251:

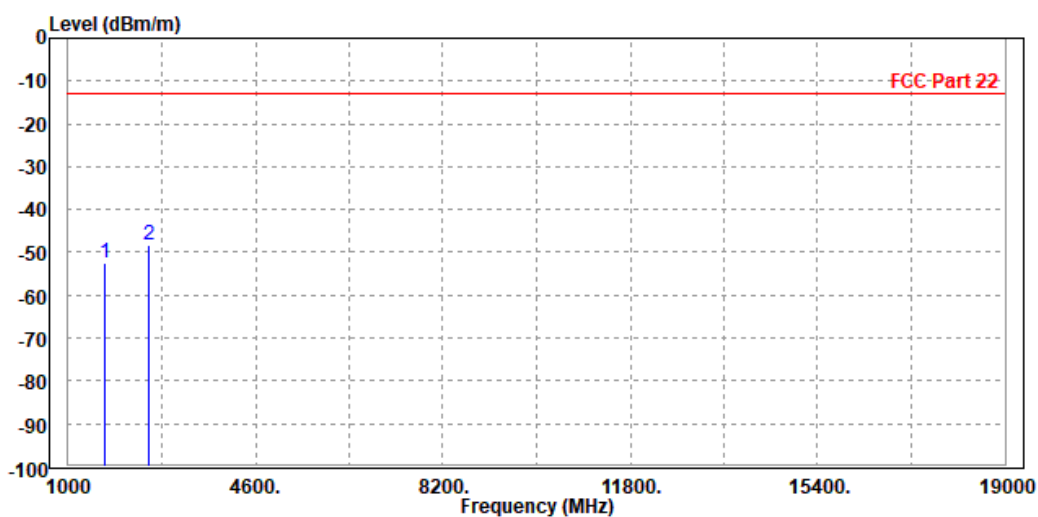
MODE	TX channel 251	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Xiong		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1702.000	-51.96	-55.87	-13.00	-38.96	3.91	Peak	Horizontal
2 PP	2546.400	-48.06	-56.17	-13.00	-35.06	8.11	Peak	Horizontal



MODE	TX channel 251	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Tony Xiong		
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	1702.000	-52.31	-56.18	-13.00	-39.31	3.87	Peak	Vertical
2 PP	2546.400	-48.10	-55.32	-13.00	-35.10	7.22	Peak	Vertical

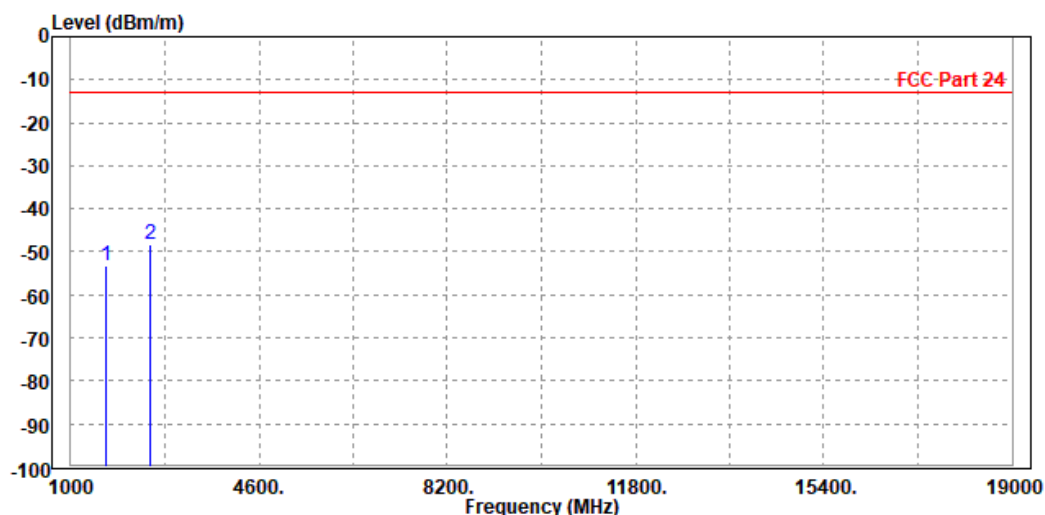


LTE Band 5

CHANNEL BANDWIDTH: 1.4MHz / QPSK

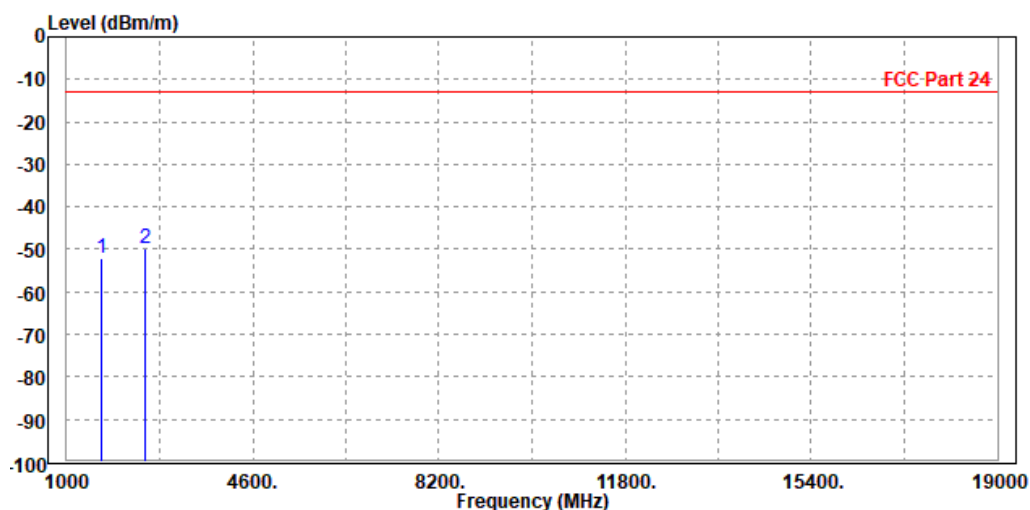
MODE	TX channel 20525	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V
TESTED BY	Tony		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1666.000	-53.13	-56.60	-13.00	-40.13	3.47	Peak	Horizontal
2 PP	2509.500	-48.27	-56.33	-13.00	-35.27	8.06	Peak	Horizontal



MODE	TX channel 20525	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V
TESTED BY	Tony		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

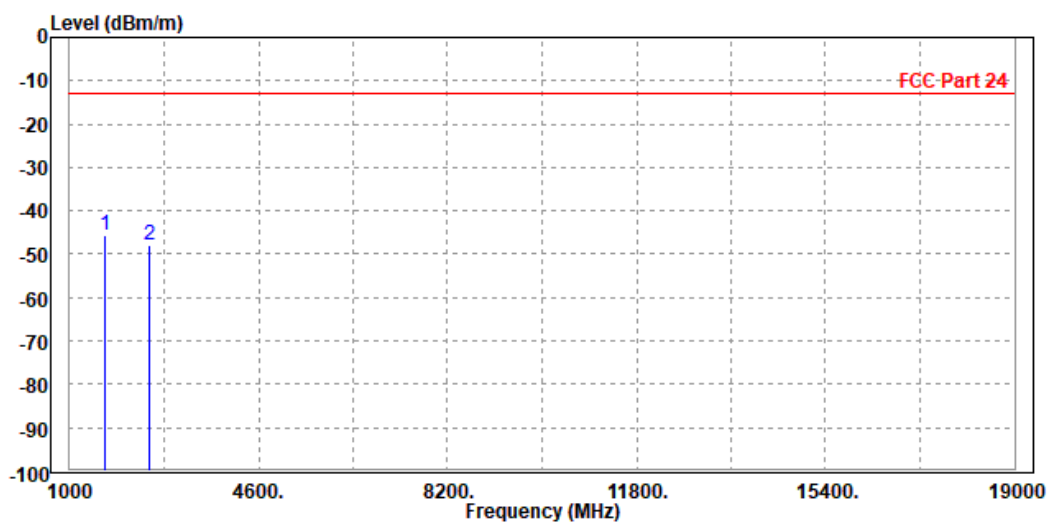
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1666.000	-52.27	-55.81	-13.00	-39.27	3.54	Peak	Vertical
2 PP	2509.500	-49.77	-56.87	-13.00	-36.77	7.10	Peak	Vertical



CHANNEL BANDWIDTH: 3MHz / QPSK

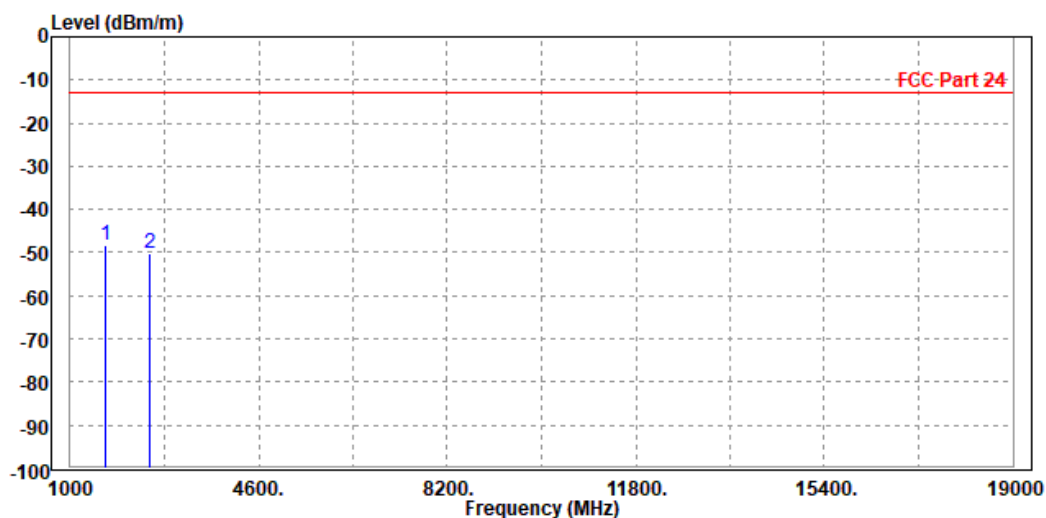
MODE	TX channel 20525	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V
TESTED BY	Tony		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	1666.000	-45.75	-49.22	-13.00	-32.75	3.47	Peak	Horizontal
2	2509.500	-48.05	-56.11	-13.00	-35.05	8.06	Peak	Horizontal



MODE	TX channel 20525	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V
TESTED BY	Tony		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

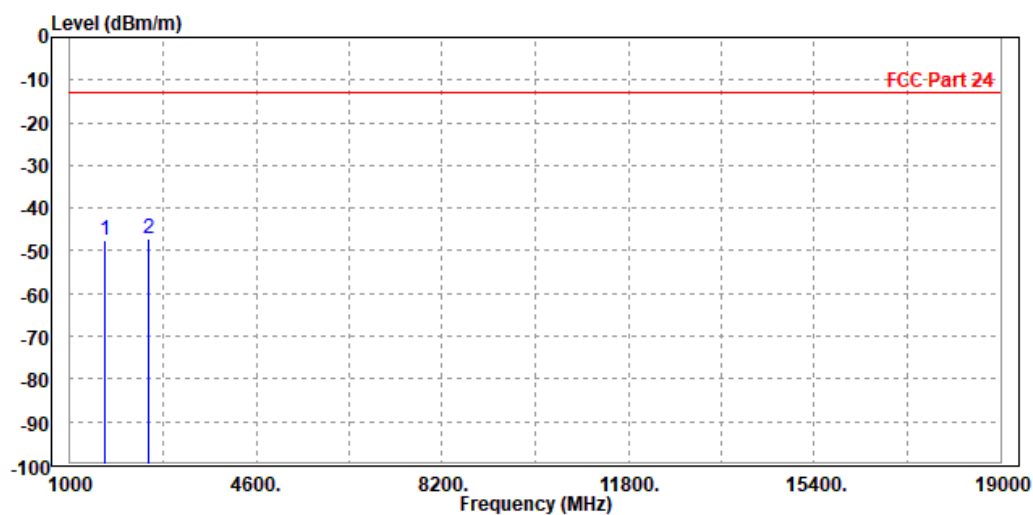
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	1666.000	-48.31	-51.85	-13.00	-35.31	3.54	Peak	Vertical
2	2509.500	-50.05	-57.15	-13.00	-37.05	7.10	Peak	Vertical



CHANNEL BANDWIDTH: 5MHz / QPSK

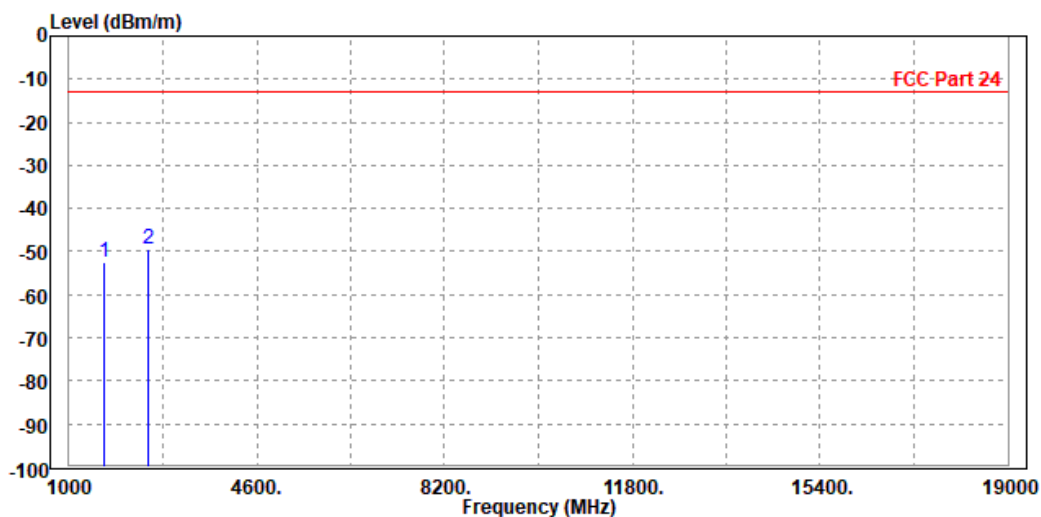
MODE	TX channel 20525	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V
TESTED BY	Tony		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1666.000	-47.62	-51.09	-13.00	-34.62	3.47	Peak	Horizontal
2 PP	2509.500	-47.18	-55.24	-13.00	-34.18	8.06	Peak	Horizontal



MODE	TX channel 20525	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V
TESTED BY	Tony		
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	1666.000	-52.58	-56.12	-13.00	-39.58	3.54	Peak	Vertical
2 PP	2509.500	-49.38	-56.48	-13.00	-36.38	7.10	Peak	Vertical

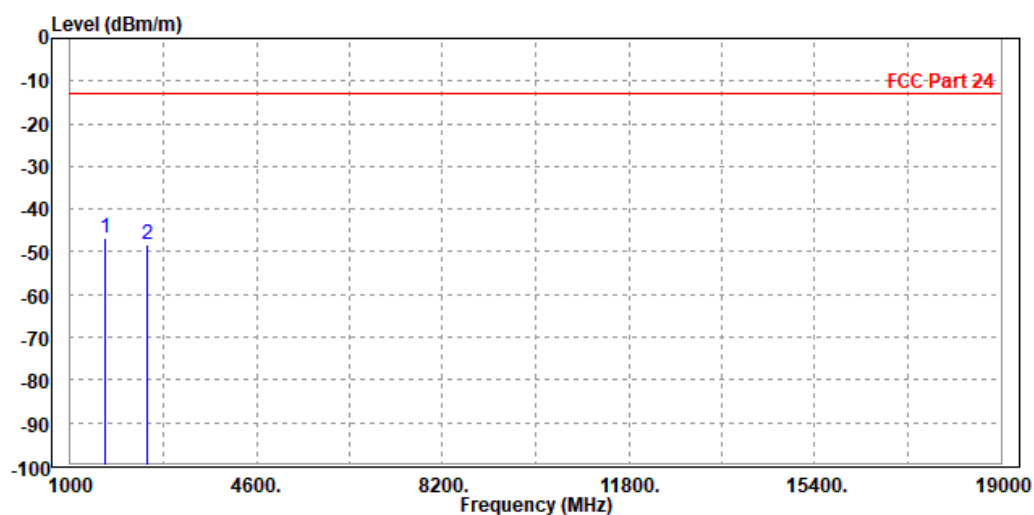


CHANNEL BANDWIDTH: 10MHz / QPSK

CH 20450

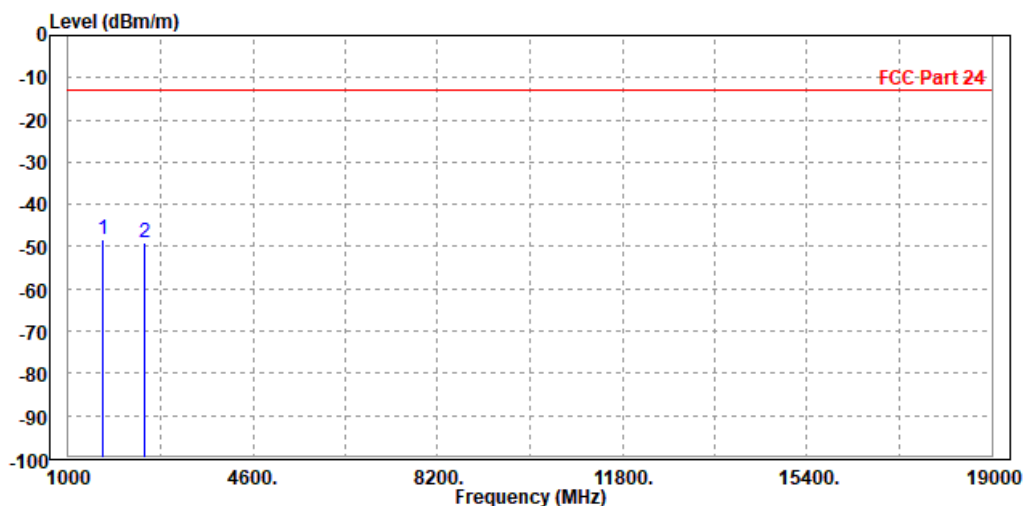
MODE	TX channel 20450	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V
TESTED BY	Tony		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	1666.000	-46.95	-50.42	-13.00	-33.95	3.47	Peak	Horizontal
2	2487.000	-48.11	-56.15	-13.00	-35.11	8.04	Peak	Horizontal



MODE	TX channel 20450	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V
TESTED BY	Tony		
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	1666.000	-48.23	-51.77	-13.00	-35.23	3.54	Peak	Vertical
2		2487.000	-49.07	-56.12	-13.00	-36.07	7.05	Peak	Vertical





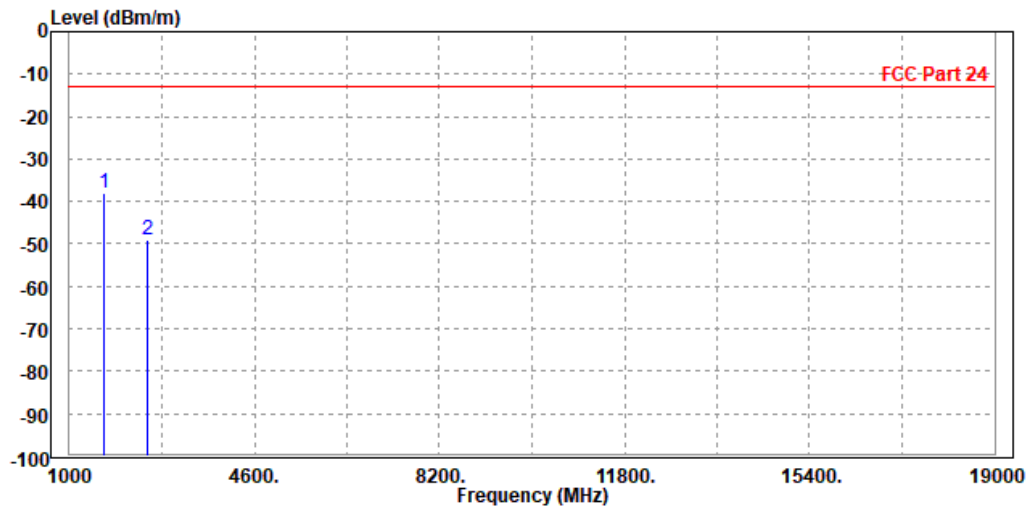
BUREAU
VERITAS

Test Report No.: RF200520W003-1

CH 20525

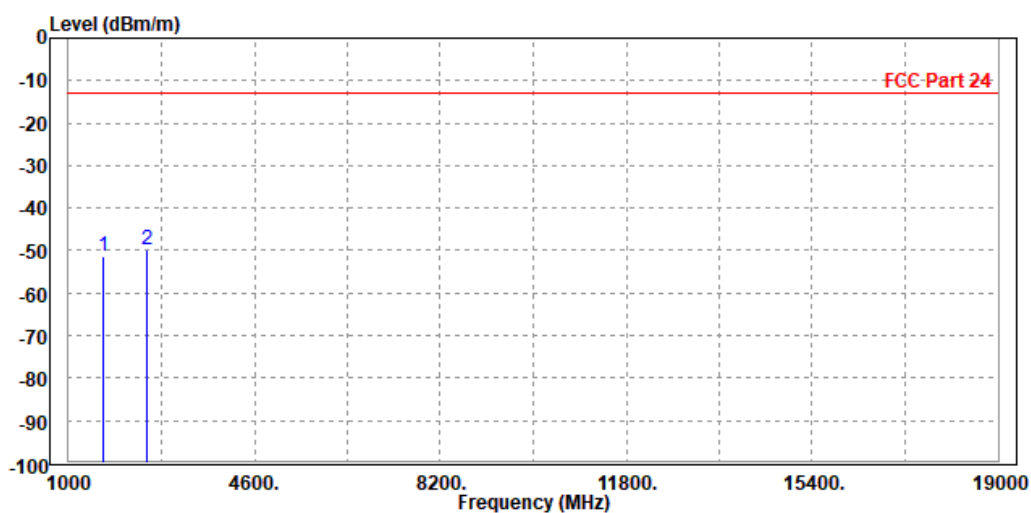
MODE	TX channel 20525	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V
TESTED BY	Tony		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP	1666.000	-38.21	-41.68	-13.00	-25.21	3.47	Peak	Horizontal
2		2509.500	-48.98	-57.04	-13.00	-35.98	8.06	Peak	Horizontal



MODE	TX channel 20525	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V
TESTED BY	Tony		
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	1666.000	-51.39	-54.93	-13.00	-38.39	3.54	Peak	Vertical
2 PP	2509.500	-49.92	-57.02	-13.00	-36.92	7.10	Peak	Vertical





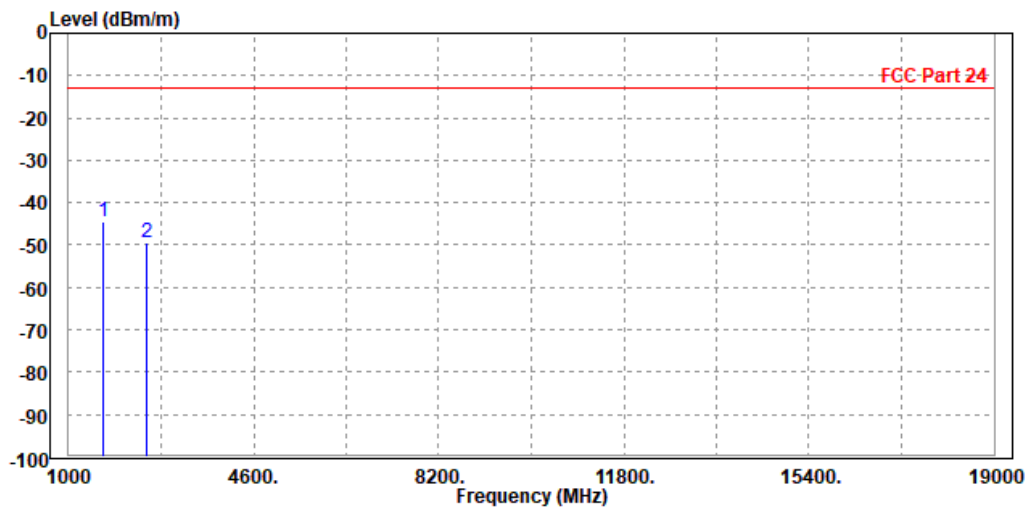
**BUREAU
VERITAS**

Test Report No.: RF200520W003-1

CH 20600

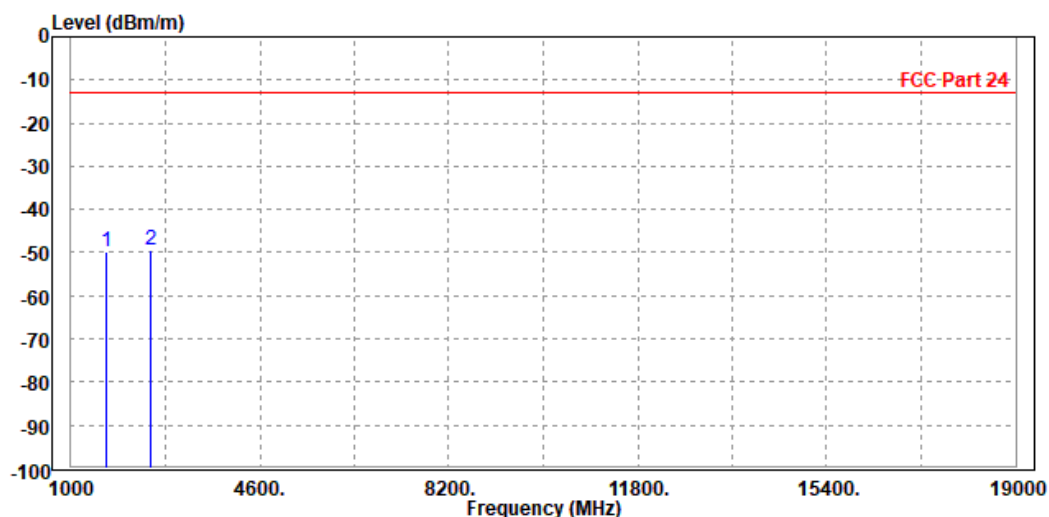
MODE	TX channel 20600	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V
TESTED BY	Tony		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP	1684.000	-44.62	-48.31	-13.00	-31.62	3.69	Peak	Horizontal
2		2532.000	-49.28	-57.37	-13.00	-36.28	8.09	Peak	Horizontal



MODE	TX channel 20600	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V
TESTED BY	Tony		
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	1684.000	-49.89	-53.60	-13.00	-36.89	3.71	Peak	Vertical
2 PP	2532.000	-49.45	-56.62	-13.00	-36.45	7.17	Peak	Vertical

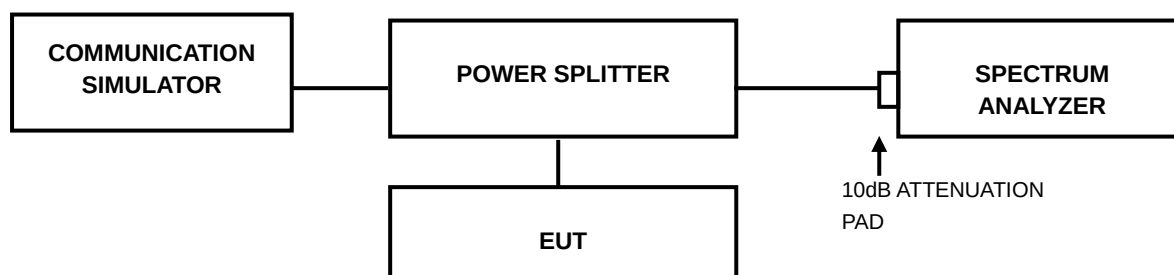


3.7 PEAK TO AVERAGE RATIO

3.7.1 LIMITS OF PEAK TO AVERAGE RATIO MEASUREMENT

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB

3.7.2 TEST SETUP



3.7.3 TEST PROCEDURES

1. Set resolution/measurement bandwidth $\geq$ signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1%.

3.7.4 TEST RESULTS

The test results was recorded in Report No.: R1811A0536-R1 (FCC ID: XMR201707BG96).



Test Report No.: RF200520W003-1

4 PHOTOGRAPHS OF THE TEST CONFIGURATION

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



Test Report No.: RF200520W003-1

5 INFORMATION ON THE TESTING LABORATORIES

We, BV 7LAYERS COMMUNICATIONS TECHNOLOGY (SHENZHEN) CO. LTD., were founded in 2015 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:

Shenzhen EMC/RF Lab:

Tel: +86-755-88696566

Fax: +86-755-88696577

Email: customerservice.dg@cn.bureauveritas.com

Web Site: www.adt.com.tw

The address and road map of all our labs can be found in our web site also.

6 APPENDIX A – 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---