FCC TEST REPORT

(PART 22)

Applicant:	ThingsMatrix Inc.
Address:	9442 North Capital of Texas Hwy,Plaza One, Suite 500,Austin, TX 78759

Manufacturer or Supplier:	ThingsMatrix Inc.
Address:	9442 North Capital of Texas Hwy,Plaza One, Suite 500,Austin, TX 78759
Product:	IoT Wireless Device
Brand Name:	ThingsMatrix
Model Name:	TMX08-EX
FCC ID:	2ATV9TMX08-EX
Date of tests:	Mar. 17, 2021 ~ Mar. 25, 2021

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

☒ **FCC PART 22, Subpart H**
☒ **ANSI/TIA/EIA-603-D**
☒ **ANSI/TIA/EIA-603-E**

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

Prepared by Simon Wang Supervisor / Mobile Department	Approved by Luke Lu Manager / Mobile Department
Simon Date: Mar. 26, 2021	Luke Lu Date: Mar. 26, 2021

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF190701W004-1	Original release	Jul. 24, 2019
RFA210305W001-1	Base on the original release changes the non-RF components include DC-DC power chip model , add RS232 debug external interface and digital temperature sensor , an NTC thermistor, use lidar sensor instead of ultrasonic sensor, update the worst case band LTE 5 radiated spurious and verify conducted power , other refer to the original release report	Mar. 25, 2021

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**	**REMARK**
2.1046 22.913 (a)	Effective Radiated Power	PASS	See Note
2.1055 22.355	Frequency Stability	PASS	See Note
2.1049 22.917b	Occupied Bandwidth	PASS	See Note
--	Peak to average ratio*	PASS	See Note
22.917	Band Edge Measurements	PASS	See Note
2.1051 22.917	Conducted Spurious Emissions	PASS	See Note
2.1053 22.917	Radiated Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -15.25dB at 206.54MHz.

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

Note:

1. These items please refer to the LTE module report RXA1706-0199RF01R1 which The FCC ID is XMR201707BG96, and the LTE module has been certified by TA Technology(shanghai)Co.,Ltd on 09/12/2017.
2. Per the product equivalent declaration provided by the manufacturer, the change not affect any RF parameters, Verify the original report (FCC ID: 2ATV9TMX08; Report No.: RF190701W004-1) conducted power and worst mode of radiated spurious emission.

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
Effective Radiated Power	±4.48dB
Frequency Stability	±39.27Hz
Radiated emissions	±4.48dB
Conducted emissions	±2 dB
Occupied Channel Bandwidth	±21.7KHz
Band Edge Measurements	±4.48dB
Peak to average ratio	±0.76dB

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	May. 19,20	May. 18,23
EXA Signal Analyzer	KEYSIGHT	N9010A-526	MY54510322	Mar. 27,20	Mar. 26,21
Bilog Antenna 1	ETS-LINDGREN	3143B	00161964	Mar. 27,20	Mar. 26,21
Bilog Antenna 2	ETS-LINDGREN	3143B	00161965	Feb. 24,21	Feb. 25,22
Horn Antenna 1	ETS-LINDGREN	3117	00168728	Nov. 24, 20	Nov. 23, 21
Horn Antenna 2	ETS-LINDGREN	3117	00168692	Nov. 23, 20	Nov. 22, 21
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K-SG/QMS-00361	15433	Mar. 27,20	Mar. 26,21
Radio Communication Analyzer	ANRITSU	MT8820C	6201465426	Feb. 24,21	Feb. 23,22
Signal Pre-Amplifier	EMSI	EMC 9135	980249	Jun. 02,20	Jun. 01,21
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	Jun. 02,20	Jun. 01,21
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Jun. 02,20	Jun. 01,21
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	Euroshieldpn-CT0001143-1216	Feb. 24,21	Feb. 23,22
Test Software	E3	V 9.160323	N/A	Feb. 24,21	Feb. 23,22
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	Feb. 24,21	Feb. 23,22
10dB Attenuator	JFW/USA	50HF-010-SMA	1505	Feb. 24,21	Feb. 23,22
Power Meter	Anritsu	ML2495A	1506002	Aug. 25,20	Aug. 24,21
Power Sensor	Anritsu	MA2411B	1339352	NA	NA
Humid & Temp Programmable Tester	Juyi	ITH-120-45-CP-AR	IAA1504-001	Jun. 23,20	Jun. 21,21
MXG Analog Microvave Signal Generator	KEYSIGHT	N5183A	MY50143024	Nov. 21, 20	Nov. 20, 21

NOTE: 1. The calibration interval of the above test instruments is 12 months or 24 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	IoT Wireless Device	
MODEL NAME	TMX08-EX	
POWER SUPPLY	12Vdc (adapter or host equipment) 3.7Vdc (Li-ion, battery)	
MODULATION TYPE	**LTE**	QPSK/16QAM
FREQUENCY RANGE	**LTE Band 5 (Channel Bandwidth: 1.4MHz)**	824.7MHz ~ 848.3MHz
	LTE Band 5 (Channel Bandwidth: 3MHz)	825.5MHz ~ 847.5MHz
	LTE Band 5 (Channel Bandwidth: 5MHz)	826.5MHz ~ 846.5MHz
	LTE Band 5 (Channel Bandwidth: 10MHz)	829MHz ~ 844MHz
	LTE Band 26 (Channel Bandwidth: 1.4MHz)	824.7MHz ~ 848.3MHz
	LTE Band 26 (Channel Bandwidth: 3MHz)	825.5MHz ~ 847.5MHz
	LTE Band 26 (Channel Bandwidth: 5MHz)	826.5MHz ~ 846.5MHz
	LTE Band 26 (Channel Bandwidth: 10MHz)	829MHz ~ 844MHz
	LTE Band 26 (Channel Bandwidth: 15MHz)	831.5MHz ~ 841.5MHz
MAX. ERP POWER	**LTE Band 5 (Channel Bandwidth: 1.4MHz)**	123mW
	LTE Band 5 (Channel Bandwidth: 3MHz)	122mW
	LTE Band 5 (Channel Bandwidth: 5MHz)	123mW
	LTE Band 5 (Channel Bandwidth: 10MHz)	125 mW
	LTE Band 26 (Channel Bandwidth: 1.4MHz)	123mW
	LTE Band 26 (Channel Bandwidth: 3MHz)	111mW
	LTE Band 26 (Channel Bandwidth: 5MHz)	123mW
	LTE Band 26 (Channel Bandwidth: 10MHz)	122mW
	LTE Band 26 (Channel Bandwidth: 15MHz)	123mW

ANTENNA TYPE	External Antenna with 2dBi gain for LTE Band 5 External Antenna with 1.4dBi gain for LTE Band 26
HW VERSION	V2.0
SW VERSION	TMX08-EXV02
I/O PORTS	Refer to user's manual
DATA CABLE	N/A

NOTE:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

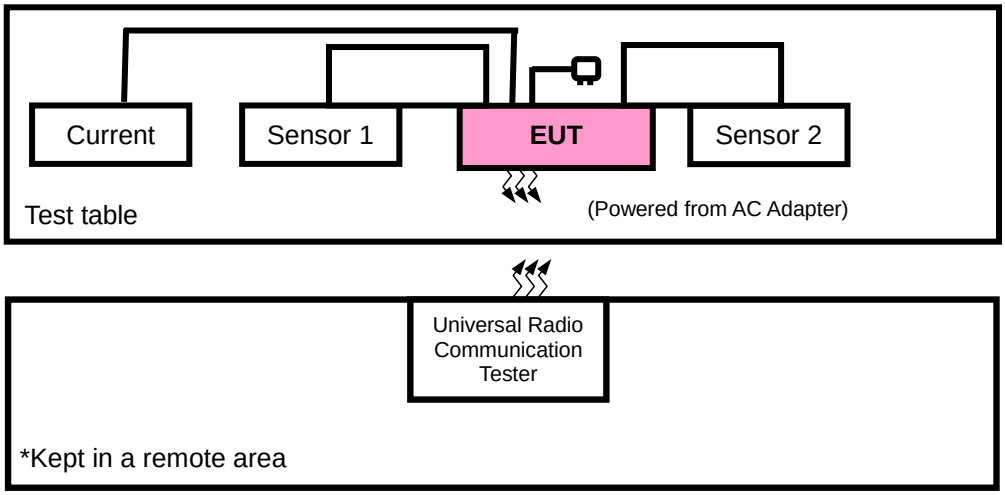
2. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

List of Accessories:

ACCESSORIES	MODEL	SPECIFICATION
Power supply adapter	TDX-1201000	I/P:100~240VAC O/P:12VDC/1A
Battery	Li-ion Polymer Battery	DC 3.7V, 3000mAh, 11.1Wh
Sensor 1	Ultrasonic&Temperature sensor	-
Sensor 2	Lidar sensor	-
Current draw sensor	Current draw sensor	-
Cellular Antenna	Cellular Antenna	-
GPS Antenna	GPS Antenna	-

2.2 CONFIGURATION OF SYSTEM UNDER TEST

FOR RADIATION EMISSION



2.3 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 of radiated emission configuration was mark blod as below:

EUT CONFIGURE MODE	DESCRIPTION
–	**EUT + Adapter with LTE link**

LTE BAND 5 MODE

EUT CONFIGURE MODE	TEST ITEM	Available Channel	Tested Channel	Channel bandwidth	modulation	mode
B	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
A	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	20425, 20525, 20625	5MHz	QPSK	1 RB / 0 RB Offset
		20450 to 20600	**20525**	**10MHz**	**QPSK**	**1 RB / 0 RB Offset**

LTE BAND 26 MODE

TEST ITEM		Available Channel	Tested Channel	Channel bandwidth	modulation	mode
B	ERP	26797 to 27033	26797, 26915, 27033	1.4MHz	QPSK,16QAM	1 RB / 0 RB Offset
		26805 to 27025	26805, 26915, 27025	3MHz	QPSK,16QAM	1 RB / 0 RB Offset
		26815 to 27015	26815, 26915, 27015	5MHz	QPSK,16QAM	1 RB / 0 RB Offset
		26840 to 26990	26840, 26915, 26990	10MHz	QPSK,16QAM	1 RB / 0 RB Offset
		26865 to 26965	26865, 26915, 26965	15MHz	QPSK,16QAM	1 RB / 0 RB Offset
A	RADIATED EMISSION	26797 to 27033	26915	1.4MHz	QPSK	1 RB / 0 RB Offset
		26805 to 27025	26915	3MHz	QPSK	1 RB / 0 RB Offset
		26815 to 27015	26915	5MHz	QPSK	1 RB / 0 RB Offset
		26840 to 26990	26840, 26915, 26990	10MHz	QPSK	1 RB / 0 RB Offset
		26865 to 26965	26915	15MHz	QPSK	1 RB / 0 RB Offset

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RADIATED EMISSION	23deg. C, 70%RH	12Vdc from adapter	Jace Hu

2.4 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

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 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 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);

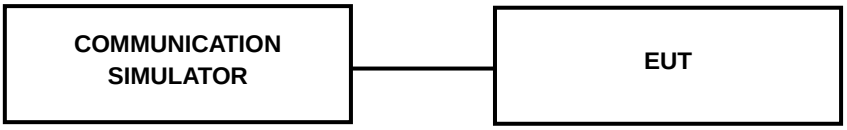
L_C = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

CONDUCTED POWER MEASUREMENT:

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

CONDUCTED POWER MEASUREMENT:



3.1.4 TEST RESULTS

CONDUCTED OUTPUT POWER (dBm)

Pre-scan conducted Power as below, the Conducted Power is the same Power level with module test report (RXA1706-0199RF04R1), verify that the change does not affect the RF parameters.

LTE BAND 5

LTE Band 5							
BW	Modulation	RB Size	RB Offset	Low CH 20407	Mid CH 20525	High CH 20643	MPR
				Frequency 824.7 MHz	Frequency 836.5 MHz	Frequency 848.3 MHz	
1.4	QPSK	1	0	23.62	23.82	23.88	0
		1	3	23.62	23.75	23.86	0
		1	5	23.66	23.80	23.93	0
		3	0	23.66	23.81	23.82	0
		3	2	23.64	23.75	23.86	0
		3	3	23.63	23.77	23.86	0
		6	0	23.61	23.71	23.84	0
	16QAM	1	0	23.60	23.75	23.82	0
		1	3	23.58	23.81	23.84	0
		1	5	23.56	23.76	23.80	0
		3	0	23.62	23.82	23.88	0
		3	2	23.62	23.75	23.86	0
		3	3	23.66	23.80	23.93	0
		6	0	23.66	23.81	23.82	0

LTE BAND 26

LTE Band 26							
BW	Modulation	RB Size	RB Offset	Low CH 26797	Mid CH 26915	High CH 27033	MPR
				Frequency 824.7 MHz	Frequency 836.5 MHz	Frequency 848.3 MHz	
1.4	QPSK	1	0	23.54	23.54	23.55	0
		1	3	23.56	23.49	23.55	0
		1	5	23.62	23.56	23.64	0
		3	0	23.64	23.59	23.55	0
		3	2	23.72	23.63	23.69	0
		3	3	23.55	23.49	23.53	0
		6	0	23.45	23.35	23.43	0
	16QAM	1	0	23.62	23.57	23.59	0
		1	3	23.55	23.58	23.56	0
		1	5	23.64	23.64	23.63	0
		3	0	23.54	23.54	23.55	0
		3	2	23.56	23.49	23.55	0
		3	3	23.62	23.56	23.64	0
		6	0	23.64	23.59	23.55	0

3.2 FREQUENCY STABILITY MEASUREMENT

3.2.1 LIMITS OF FREQUENCY STABILIITY MEASUREMENT

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

3.2.2 TEST PROCEDURE

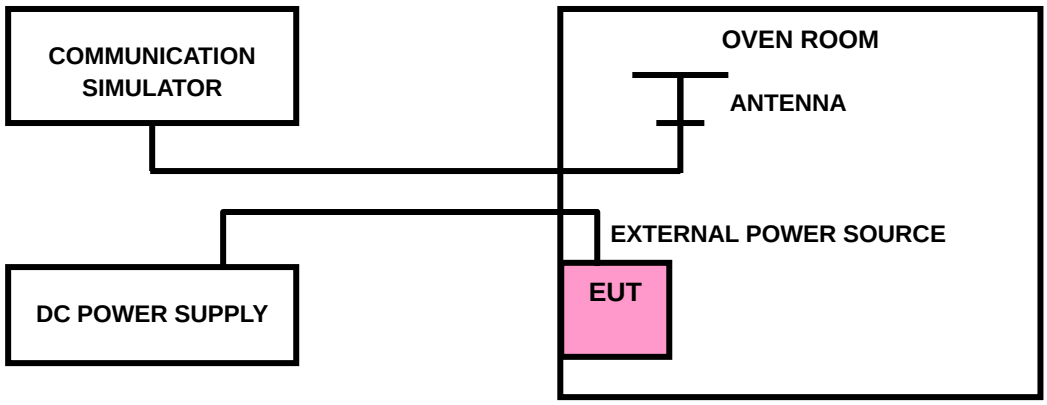
a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.

b. EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.

c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the ±0.5℃ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

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

3.2.3 TEST SETUP



3.2.4 TEST RESULTS

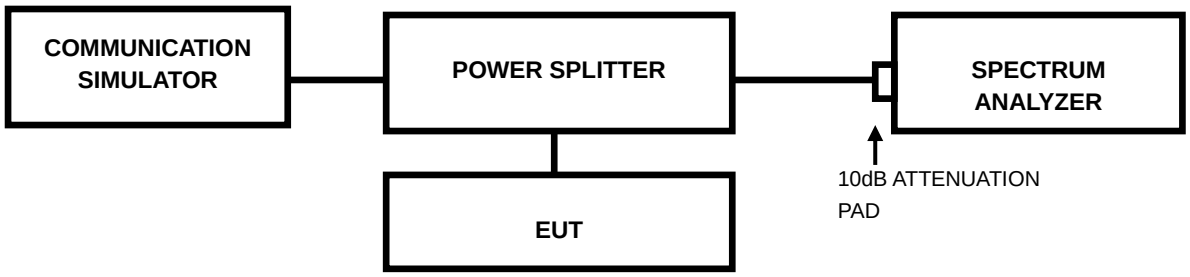
The test results was recorded in Report No.: RXA1706-0199RF01R1.

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

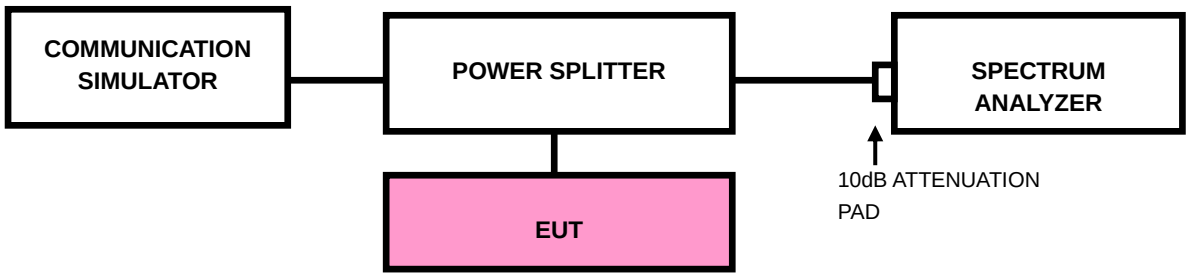
The test results was recorded in Report No.: RXA1706-0199RF01R1.

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 1~5 MHz. RBW of the spectrum is 20kHz and VBW of the spectrum is 100 kHz. (LTE bandwidth 1.4MHz).

c. 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)

d. 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)

e. 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)

f. Record the max trace plot into the test report.

3.4.4 TEST RESULTS

The test results was recorded in Report No.: RXA1706-0199RF01R1.

3.5 CONDUCTED SPURIOUS EMISSIONS

3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

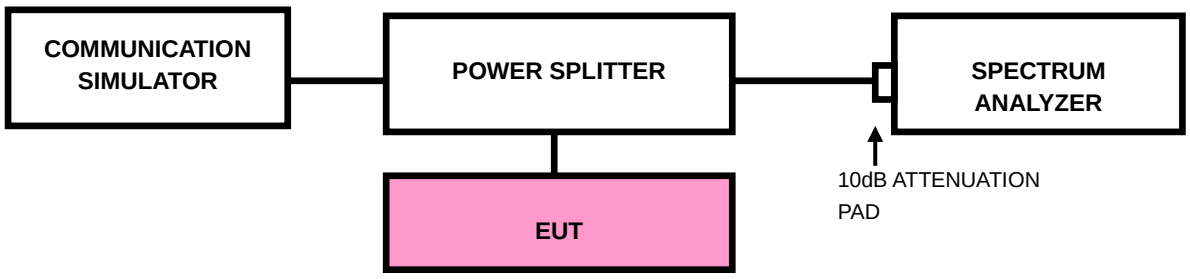
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit equal to –13dBm.

3.5.2 TEST PROCEDURE

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

b. Measuring frequency range is from 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.: RXA1706-0199RF01R1.

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. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.

d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.P.R power - 2.15dBi.

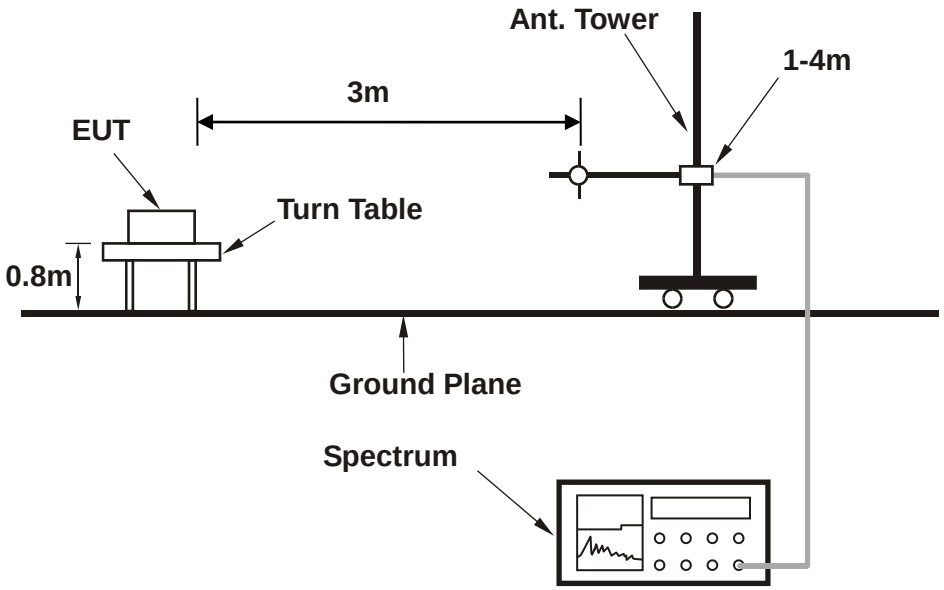
NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

3.6.3 DEVIATION FROM TEST STANDARD

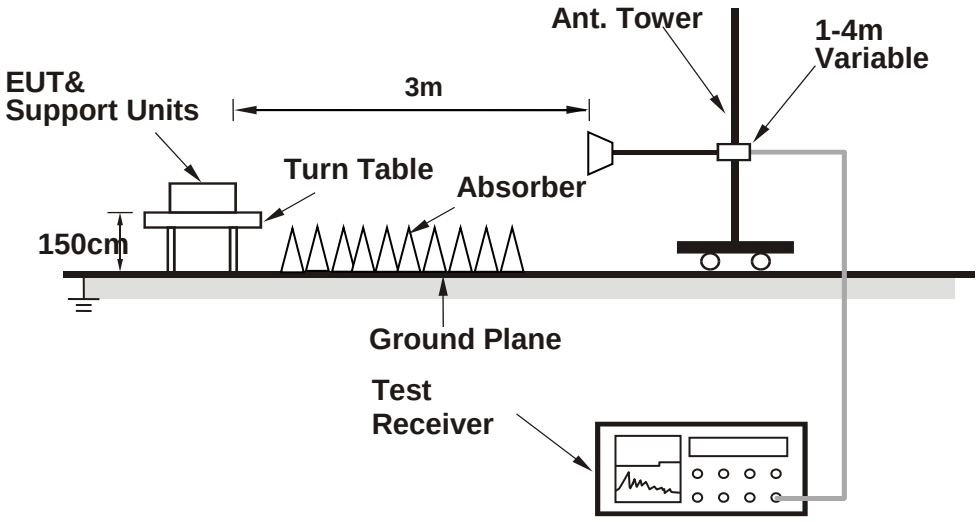
No deviation

3.6.4 TEST SETUP

< Frequency Range 30MHz~1GHz >



< Frequency Range above 1GHz >



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

3.6.5 TEST RESULTS

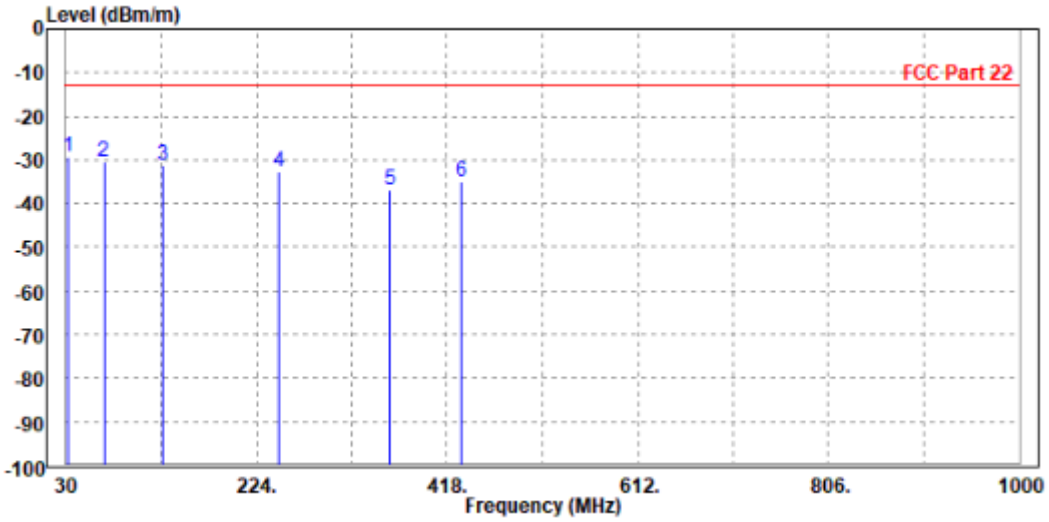
BELOW 1GHz WORST-CASE DATA

30 MHz – 1GHz data:

CHANNEL BANDWIDTH: 10MHz / QPSK

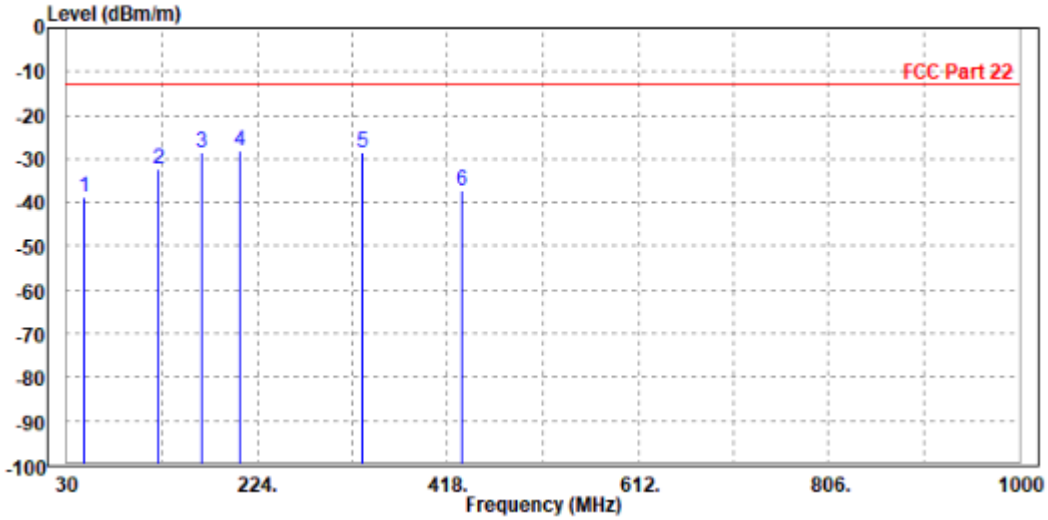
MODE	TX channel 20525	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	31.940	-29.36	-49.29	-13.00	-16.36	19.93	Peak	Vertical
2	68.800	-30.38	-37.52	-13.00	-17.38	7.14	Peak	Vertical
3	127.970	-31.01	-38.29	-13.00	-18.01	7.28	Peak	Vertical
4	247.280	-32.68	-45.99	-13.00	-19.68	13.31	Peak	Vertical
5	359.800	-37.00	-52.51	-13.00	-24.00	15.51	Peak	Vertical
6	431.580	-35.01	-52.57	-13.00	-22.01	17.56	Peak	Vertical



MODE	TX channel 20525	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
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		47.460	-38.64	-48.26	-13.00	-25.64	9.62	Peak	Horizontal
2		123.120	-32.17	-39.65	-13.00	-19.17	7.48	Peak	Horizontal
3		166.770	-28.53	-38.96	-13.00	-15.53	10.43	Peak	Horizontal
4	PP	206.540	-28.25	-38.71	-13.00	-15.25	10.46	Peak	Horizontal
5		330.700	-28.51	-43.09	-13.00	-15.51	14.58	Peak	Horizontal
6		431.580	-37.18	-54.74	-13.00	-24.18	17.56	Peak	Horizontal



ABOVE 1GHz DATA

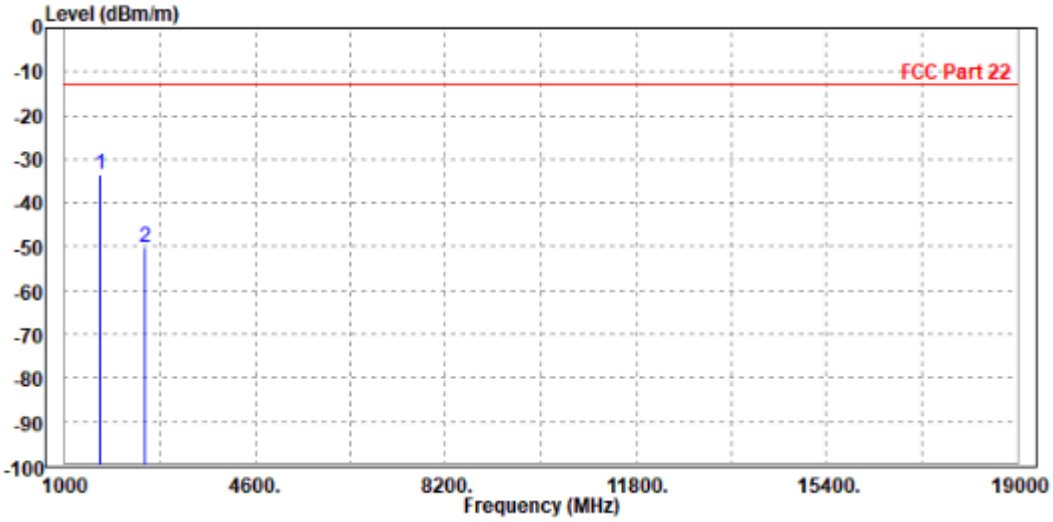
Note: For higher frequency, the emission is too low to be detected.

LTE Band 5

CHANNEL BANDWIDTH: 10MHz / QPSK

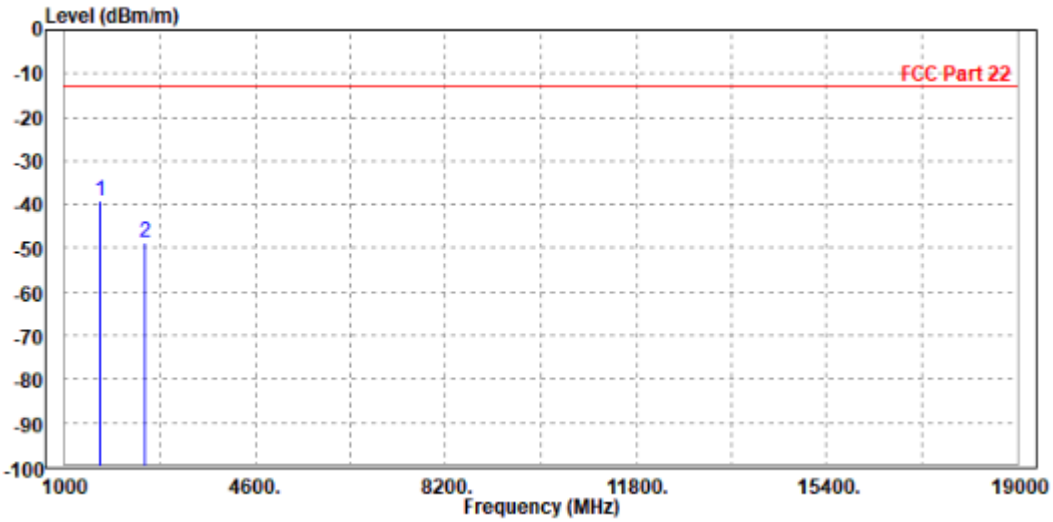
MODE	TX channel 20525	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 1666.000	-33.36	-36.83	-13.00	-20.36	3.47	Peak	Horizontal
2	2509.500	-50.04	-58.10	-13.00	-37.04	8.06	Peak	Horizontal



MODE	TX channel 20525	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 12V from adapter
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	1666.000	-39.28	-42.82	-13.00	-26.28	3.54	Peak	Vertical
2		2509.500	-48.80	-55.90	-13.00	-35.80	7.10	Peak	Vertical

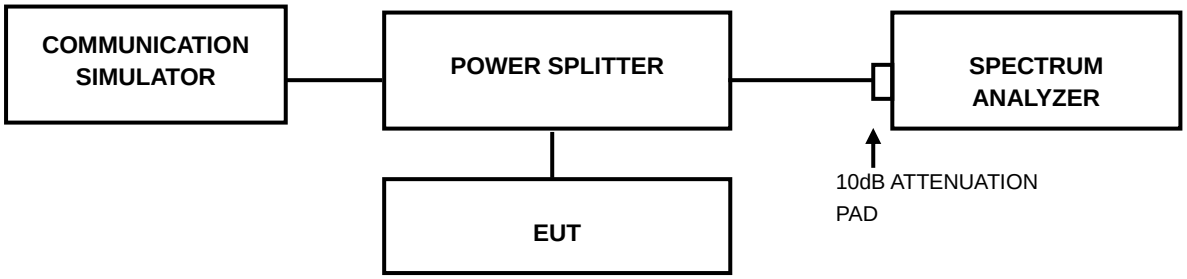


3.7 PEAK TO AVERAGE RATIO

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 ≥ 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.: RXA1706-0199RF01R1.

4 PHOTOGRAPHS OF THE TEST CONFIGURATION

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

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---