

TEST REPORT

CERTIFICATE OF CONFORMITY

Standard: 47 CFR FCC Part 24
47 CFR FCC Part 27
47 CFR FCC Part 2

Report No.: RFBCKS-WTW-P26010418

FCC ID: XPYUBX19KM01

Product: LTE CAT-M1 Module

Brand: u-blox AG

Model No.: SARA-R510Sv1

Received Date: 2026/2/1

Test Date: 2026/2/25 ~ 2026/3/3

Issued Date: 2026/5/22

Applicant: u-blox AG

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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FCC Registration /
Designation Number: 788550 / TW0003

Approved by: Jeremy Lin, Date: 2026/5/22
Jeremy Lin / Project Engineer

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Prepared by : Pettie Chen / Senior Specialist

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Release Control Record

Issue No.	Description	Date Issued
RFBCKS-WTW-P26010418	Original release.	2026/5/22

1 Certificate

Product: LTE CAT-M1 Module

Brand: u-blox AG

Test Model: SARA-R510Sv1

Sample Status: Engineering sample

Applicant: u-blox AG

Test Date: 2026/2/25 ~ 2026/3/3

Standard: 47 CFR FCC Part 24
47 CFR FCC Part 27
47 CFR FCC Part 2

Measurement procedure: ANSI/TIA/EIA-603-E 2016
ANSI C63.26-2015
KDB 971168 D01 Power Meas License Digital Systems v03r01
KDB 971168 D02 Misc Rev Approv License Devices v02r02

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

2 Summary of Test Results

Standard / Clause	Test Item	Result	Remark
Part 2.1046 Part 24.232 (c) Part 27.50 (d) Part 27.50 (c)	Effective Radiated Power and Equivalent Isotropically Radiated Power	Pass	Meet the requirement of limit.
Part 2.1047	Modulation Characteristics	N/A	Refer to Note
Part 24.232 (d) Part 27.50(d) Part 27.50 (c)	Peak to Average Ratio	N/A	Refer to Note
Part 2.1049	Bandwidth	N/A	Refer to Note
Part 2.1051 Part 24.238 Part 27.53(h) Part 27.53 (g)	Conducted Spurious Emissions	N/A	Refer to Note
Part 2.1053 Part 24.238 Part 27.53(h) Part 27.53 (g)	Radiated Spurious Emissions below 1GHz	Pass	Minimum passing margin is -33.19 dB at 399.57 MHz
Part 2.1053 Part 24.238 Part 27.53(h) Part 27.53 (g)	Radiated Spurious Emissions above 1GHz	Pass	Minimum passing margin is -14.63 dB at 3465.00 MHz
Part 2.1055 Part 24.235 Part 27.54	Frequency Stability	N/A	Refer to Note

Note:

- Only test item of Effective Radiated Power and Equivalent Isotropically Radiated Power and radiated spurious emissions was performed for this report. Other testing data please refer to report no.: MDE_UBLOX_2224_FCC_01 for module (Model: SARA-R510S, FCC ID: XPYUBX19KM01).
- Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 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:

Parameter	Specification	Uncertainty (±)
Effective Radiated Power and Equivalent Isotropically Radiated Power	-	1.371 dB
Radiated Spurious Emissions below 1GHz	9 kHz ~ 30 MHz	3 dB
	30 MHz ~ 1 GHz	2.93 dB
Radiated Spurious Emissions above 1GHz	1 GHz ~ 18 GHz	1.76 dB
	18 GHz ~ 40 GHz	1.77 dB

The other instruments specified are routine verified to remain within the calibrated levels, no measurement uncertainty is required to be calculated.

2.2 Supplementary Information

There is not any deviation from the test standards for the test method, and no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	LTE CAT-M1 Module
Brand	u-blox AG
Test Model	SARA-R510Sv1
Status of EUT	Engineering sample
Power Supply Rating	DC 3.3V from host equipment
EUT Category	Mobile station
Modulation Type	QPSK, 16QAM

Note:

1. This report is prepared for FCC class II permissive change. This report is issued as a supplementary report of report no.: MDE_UBLOX_2224_FCC_01. The differences compared with original report are adding antenna and disabled CAT-M1 Band 5/Band 8/Band 13/Band 25/Band 26/Band 66/Band 71 and NB-IoT by software. Therefore, test items for Effective Radiated Power and Equivalent Isotropically Radiated Power and Radiated Spurious Emissions test had been re-tested in this report.

2. EUT Overview

Cat-M1 Band 2

Bandwidth	TX Frequency Range (MHz)	Modulation	Max. EIRP (W)	Max. EIRP (dBm)
1.4 MHz	1850.7 ~ 1909.3	QPSK	0.290	24.62
		16QAM	0.229	23.59
3 MHz	1851.5 ~ 1908.5	QPSK	0.298	24.74
		16QAM	0.236	23.72
5 MHz	1852.5 ~ 1907.5	QPSK	0.303	24.81
		16QAM	0.245	23.90
10 MHz	1855 ~ 1905	QPSK	0.311	24.93
		16QAM	0.245	23.89

Cat-M1 Band 4

Bandwidth	TX Frequency Range (MHz)	Modulation	Max. EIRP (W)	Max. EIRP (dBm)
1.4 MHz	1710.7 ~ 1754.3	QPSK	0.310	24.92
		16QAM	0.245	23.89
3 MHz	1711.5 ~ 1753.5	QPSK	0.319	25.04
		16QAM	0.252	24.02
5 MHz	1712.5 ~ 1752.5	QPSK	0.324	25.11
		16QAM	0.263	24.20
10 MHz	1715 ~ 1750	QPSK	0.333	25.23
		16QAM	0.262	24.19

Cat-M1 Band 12

Bandwidth	TX Frequency Range (MHz)	Modulation	Max. ERP (W)	Max. ERP (dBm)
1.4 MHz	699.7 ~ 715.3	QPSK	0.153	21.84
		16QAM	0.134	21.26
3 MHz	700.5 ~ 714.5	QPSK	0.174	22.40
		16QAM	0.133	21.25
5 MHz	701.5 ~ 713.5	QPSK	0.175	22.42
		16QAM	0.134	21.26
10 MHz	704 ~ 711	QPSK	0.174	22.40
		16QAM	0.134	21.26

- For detailed information about each WWAN bands frequency range, bandwidth mode of the product, please refer to section 3.3 of the report.
- The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

3.2 Antenna Description of EUT

- The antenna information is listed as below.

Antenna Type	Brand	Mdoel	Frequency range	Antenna Net Gain (dBi)
PIFA	WNC	BB-8	1850 MHz to 1910 MHz	2.7
			1710 MHz to 1755 MHz	3
			698 MHz to 716 MHz	2

*The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

3.3 Test Mode Applicability and Tested Channel Detail

Following channel(s) was (were) selected for the final test as listed below:

3.3.1 Cat-M1 Band 2

Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
Equivalent Isotropically Radiated Power	18607(1850.70 MHz) 18900(1880.00 MHz) 19193(1909.30 MHz)	1.4 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	18615(1851.50 MHz) 18900(1880.00 MHz) 19185(1908.50 MHz)	3 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	18625(1852.50 MHz) 18900(1880.00 MHz) 19175(1907.50 MHz)	5 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	18650(1855.00 MHz) 18900(1880.00 MHz) 19150(1905.00 MHz)	10 MHz	QPSK / 16QAM	1 RB Half RB Full RB
Radiated Spurious Emissions below 1GHz	18900(1880.00 MHz)	10 MHz	QPSK	1 RB
Radiated Spurious Emissions above 1GHz	18607(1850.70 MHz) 18900(1880.00 MHz) 19193(1909.30 MHz)	1.4 MHz	QPSK	1 RB
	18625(1852.50 MHz) 18900(1880.00 MHz) 19175(1907.50 MHz)	5 MHz	QPSK	1 RB
	18650(1855.00 MHz) 18900(1880.00 MHz) 19150(1905.00 MHz)	10 MHz	QPSK	1 RB

*For radiated spurious emissions testing below 1 GHz, the final test employs the worst-case radiated emissions mode above 1 GHz and the most severe 1RB offset scenario.

3.3.2 Cat-M1 Band 4

Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
Equivalent Isotropically Radiated Power	19957(1710.70 MHz) 20175(1732.50 MHz) 20393(1754.30 MHz)	1.4 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	19965(1711.50 MHz) 20175(1732.50 MHz) 20385(1753.50 MHz)	3 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	19975(1712.50 MHz) 20175(1732.50 MHz) 20375(1752.50 MHz)	5 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	20000(1715.00 MHz) 20175(1732.50 MHz) 20350(1750.00 MHz)	10 MHz	QPSK / 16QAM	1 RB Half RB Full RB
Radiated Spurious Emissions below 1GHz	20175(1732.50 MHz)	5 MHz	QPSK	1 RB
Radiated Spurious Emissions above 1GHz	19957(1710.70 MHz) 20175(1732.50 MHz) 20393(1754.30 MHz)	1.4 MHz	QPSK	1 RB
	19975(1712.50 MHz) 20175(1732.50 MHz) 20375(1752.50 MHz)	5 MHz	QPSK	1 RB
	20000(1715.00 MHz) 20175(1732.50 MHz) 20350(1750.00 MHz)	10 MHz	QPSK	1 RB

*For radiated spurious emissions testing below 1 GHz, the final test employs the worst-case radiated emissions mode above 1 GHz and the most severe 1RB offset scenario.

3.3.3 Cat-M1 Band 12

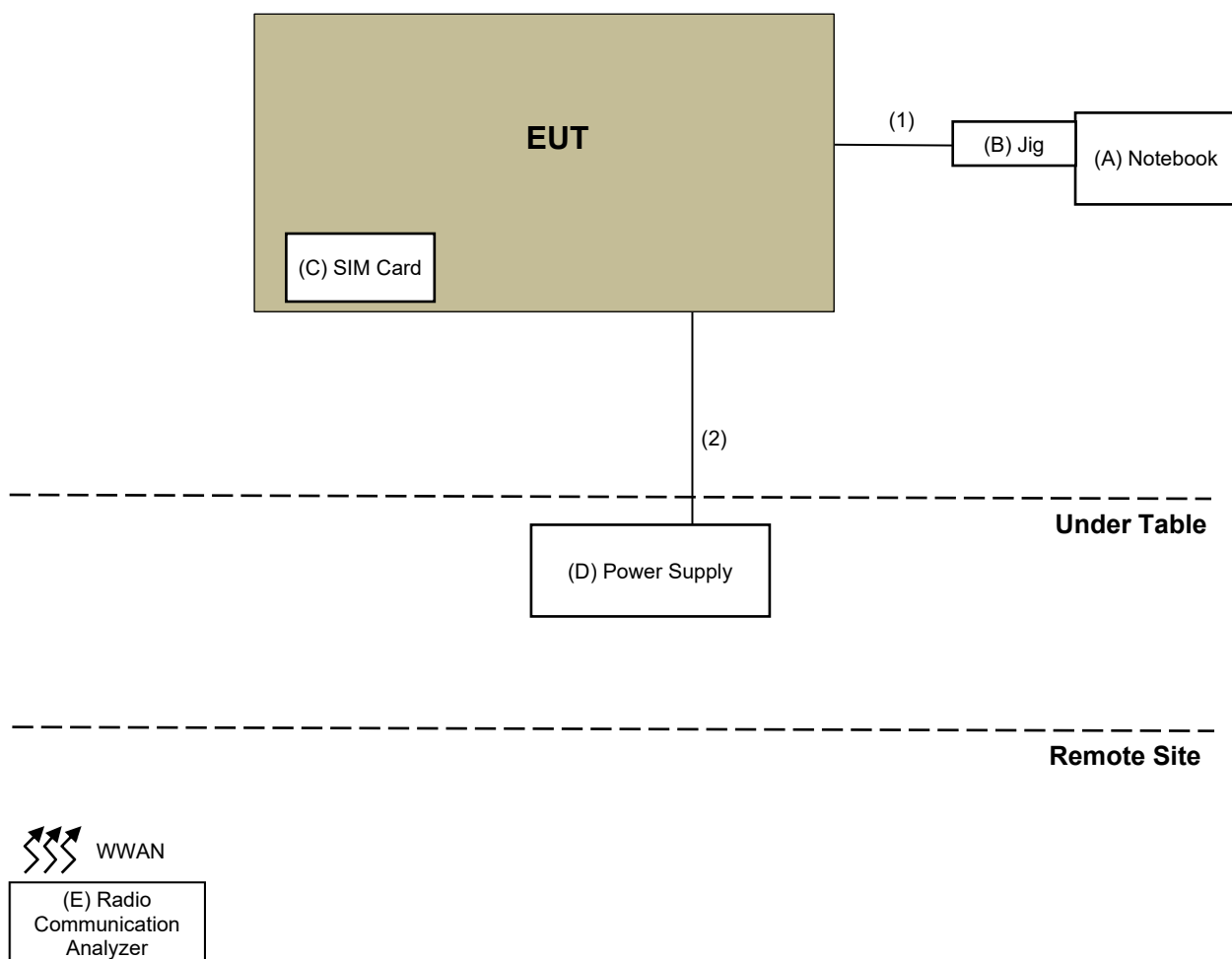
Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
Effective Radiated Power	23017(699.70 MHz) 23095(707.50 MHz) 23173(715.30 MHz)	1.4 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	23025(700.50 MHz) 23095(707.50 MHz) 23165(714.50 MHz)	3 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	23035(701.50 MHz) 23095(707.50 MHz) 23155(713.50 MHz)	5 MHz	QPSK / 16QAM	1 RB Half RB Full RB
	23060(704.00 MHz) 23095(707.50 MHz) 23130(711.00 MHz)	10 MHz	QPSK / 16QAM	1 RB Half RB Full RB
Radiated Spurious Emissions below 1GHz	23095(707.50 MHz)	5 MHz	QPSK	1 RB
Radiated Spurious Emissions above 1GHz	23017(699.70 MHz) 23095(707.50 MHz) 23173(715.30 MHz)	1.4 MHz	QPSK	1 RB
	23035(701.50 MHz) 23095(707.50 MHz) 23155(713.50 MHz)	5 MHz	QPSK	1 RB
	23060(704.00 MHz) 23095(707.50 MHz) 23130(711.00 MHz)	10 MHz	QPSK	1 RB

*For radiated spurious emissions testing below 1 GHz, the final test employs the worst-case radiated emissions mode above 1 GHz and the most severe 1RB offset scenario.

3.4 Test Program Used and Operation Descriptions

Set the EUT under transmission condition continuously at specific channel frequency.

3.5 Connection Diagram of EUT and Peripheral Devices



3.6 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Notebook	Lenovo	L470	NA	NA	Provided by Lab
B	Jig	NA	B8AB	NA	NA	Supplied by applicant
C	SIM Card	NA	NA	NA	NA	Provided by Lab
D	Power supply	NA	NA	NA	NA	Provided by Lab
E	Radio Communication Analyzer	Anritsu	MT8821C	6201462755	NA	-

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	Console Cable	1	1	No	0	Accessory of EUT
2	DC Cable	2	1.5	No	0	Provided by Lab

4 Test Instruments

The calibration interval of the all test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.1 Effective Radiated Power and Equivalent Isotropically Radiated Power

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Fixed Attenuator Woken	00800A1K01A-10	00800A1K01A-10-01	2025/5/23	2026/5/22
PXA Signal Analyzer Keysight	N9030B	MY57140938	2025/3/24	2026/3/23
Radio Communication Analyzer Anritsu	MT8821C	6201462755	2025/4/8	2026/4/7
Software BV	ADT_RF Test Software V7.6.5.4	N/A	N/A	N/A

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2026/3/3

4.2 Radiated Spurious Emissions below 1GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower Max-Full	MFT-151SS-0.5T	NA	NA	NA
Turn Table Max-Full	MF-7802BS	NA	NA	NA
Turn Table Controller Max-Full	MF-7802BS	MF780208674	NA	NA
MXE EMI Receiver Keysight	N9038B	MY60180019	2026/1/14	2027/1/13
Signal & Spectrum Analyzer R&S	FSW43	101867	2026/2/11	2027/2/10
Loop Antenna TESEQ	HLA 6121	45745	2025/9/1	2026/8/31
RF Coaxial Cable EMCI	EMCCFD400-NM-NM-3000	201235	2026/1/13	2027/1/12
RF Coaxial Cable EMCI	EMCCFD400-NM-NM-9000	201236(with PAD)	2026/1/13	2027/1/12
Preamplifier EMCI	EMC330N	980782	2026/1/13	2027/1/12
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-1213	2025/9/18	2026/9/17
RF Coaxial Cable EMCI	EMCCFD400-NM-NM-500	201233	2026/1/13	2027/1/12

Notes:

1. The test was performed in WM - 966 chamber 8.
2. Tested Date: 2026/2/27

4.3 Radiated Spurious Emissions above 1GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower Max-Full	MFT-151SS-0.5T	NA	NA	NA
Turn Table Max-Full	MF-7802BS	NA	NA	NA
Turn Table Controller Max-Full	MF-7802BS	MF780208674	NA	NA
MXE EMI Receiver Keysight	N9038B	MY60180019	2026/1/14	2027/1/13
Signal & Spectrum Analyzer R&S	FSW43	101867	2026/2/11	2027/2/10
Horn Antenna RFSPIN	DRH18-E	210103A18E	2025/11/9	2026/11/8
Preamplifier EMCI	EMC118A45SE	980808	2025/12/24	2026/12/23
RF Coaxial Cable EMCI	EMC104-SM-SM-1000	210102	2026/1/13	2027/1/12
RF Coaxial Cable EMCI	EMC104-SM-SM-3000	201231	2026/1/13	2027/1/12
RF Coaxial Cable EMCI	EMC104-SM-SM-9000	201243	2026/1/13	2027/1/12
Preamplifier EMCI	EMC184045SE	980788	2026/1/13	2027/1/12
Horn Antenna Schwarzbeck	BBHA 9170	9170-1049	2025/11/9	2026/11/8
RF Coaxial Cable EMCI	EMC101G-KM-KM-5000	201261	2026/1/13	2027/1/12
RF Coaxial Cable EMCI	EMC101G-KM-KM-2000	201255	2026/1/13	2027/1/12
RF Coaxial Cable EMCI	EMC101G-KM-KM-2000	201254	2026/1/13	2027/1/12

Notes:

1. The test was performed in WM - 966 chamber 8.
2. Tested Date: 2026/2/27

5 Limits of Test Items

5.1 Effective Radiated Power and Equivalent Isotropically Radiated Power

For Cat-M1 Band 2:

Mobile and portable stations are limited to 2 watts EIRP.

For Cat-M1 Band 4:

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.

For Cat-M1 Band 12:

Control and mobile stations in the 698-746 MHz band are limited to 3 watts ERP.

5.2 Radiated Spurious Emissions below 1GHz

For Cat-M1 Band 2:

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 -13 dBm.

For Cat-M1 Band 4:

According to FCC 47 CFR part 27.53(h), for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz 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 $43 + 10 \log(P)$ dB. The limit of emission is equal to -13 dBm.

For Cat-M1 Band 12:

According to FCC 47 CFR part 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. The limit of emissions is equal to -13 dBm.

5.3 Radiated Spurious Emissions above 1GHz

For Cat-M1 Band 2:

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 -13 dBm.

For Cat-M1 Band 4:

According to FCC 47 CFR part 27.53(h), for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz 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 $43 + 10 \log(P)$ dB. The limit of emission is equal to -13 dBm.

For Cat-M1 Band 12:

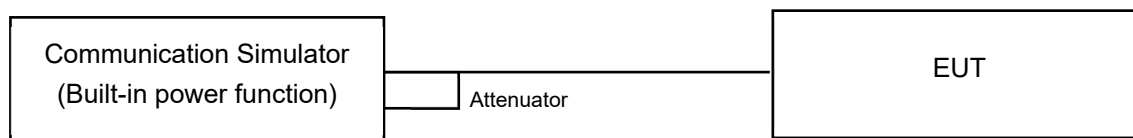
According to FCC 47 CFR part 27.53(g), for operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB. The limit of emissions is equal to -13 dBm.

6 Test Arrangements

6.1 Effective Radiated Power and Equivalent Isotropically Radiated Power

6.1.1 Test Setup

Conducted Power Measurement:



6.1.2 Test Procedure

Conducted Power Measurement:

The EUT is configured by emulator to set data modulation and maximum power using WWAN technology. The average (rms) power measurement was performed on emulator and power value was measured from power function on emulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

Maximum EIRP / ERP

The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation as follows:

$$\text{EIRP} = P_{\text{Meas}} + G_T$$

$$\text{ERP} = P_{\text{Meas}} + G_T - 2.15$$

where

ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively

(expressed in the same units as P_{Meas} , e.g., dBm or dBW)

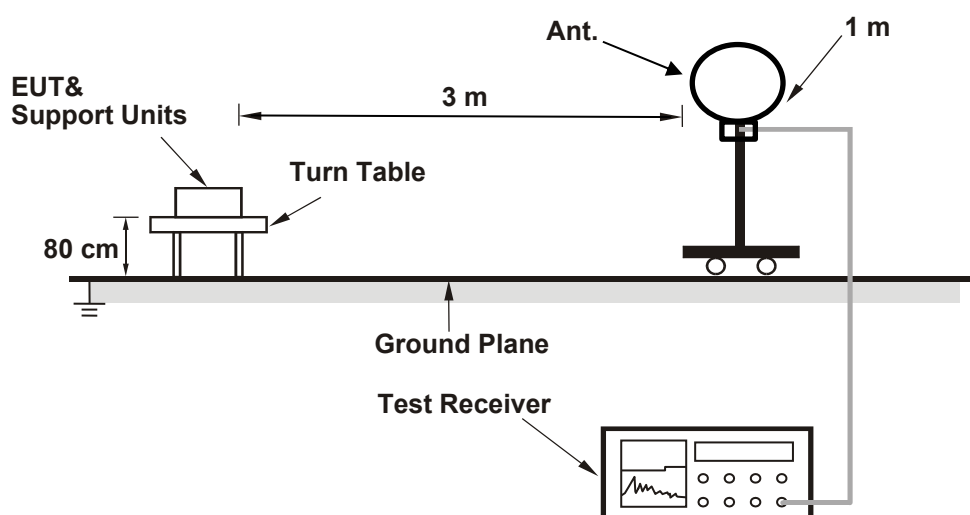
P_{Meas} measured transmitter output power or PSD, in dBm or dBW

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

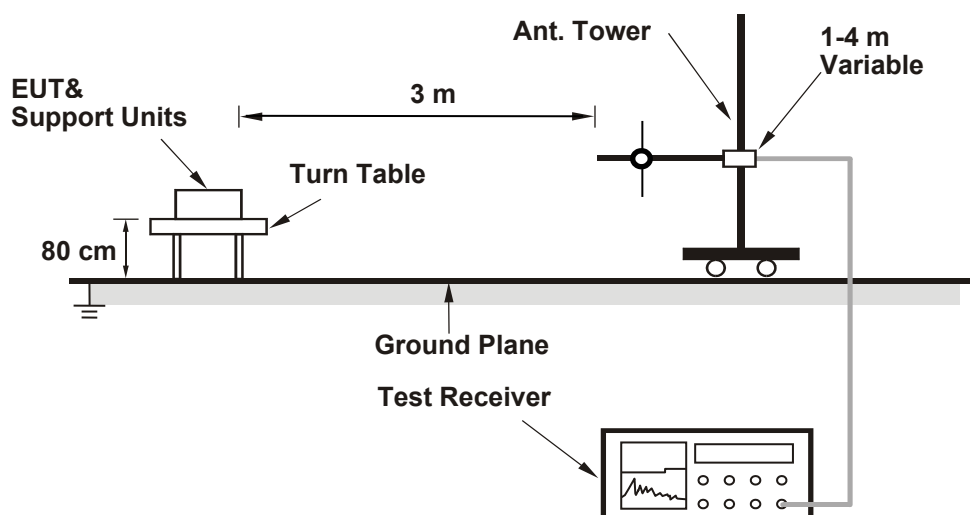
6.2 Radiated Spurious Emissions below 1GHz

6.2.1 Test Setup

For Radiated emission below 30 MHz



For Radiated emission above 30 MHz



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

6.2.2 Test Procedure

The EUT is configured to set data modulation and maximum power using WWAN technology.

- a. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) 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 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- b. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- c. Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP/ERP level.
- d. Following ANSI C63.26 section 5.5 and 5.2.7
- e. $EIRP (dBm) = E (dB\mu V/m) + 20\log(D) - 104.8$; where D is the measurement distance (in the far field region) in m.
- f. $ERP (dBm) = E (dB\mu V/m) + 20\log(D) - 104.8 - 2.15$; where D is the measurement distance (in the far field region) in m.

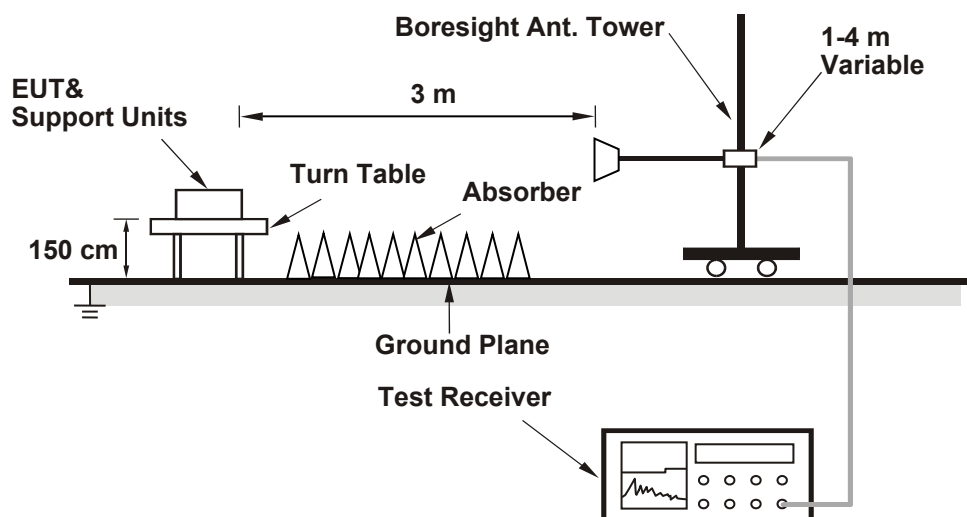
Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz. Set detector = average.
2. The amplitude of spurious emissions in the range 9 kHz to 30 MHz which are attenuated more than 20 dB below the permissible value need not be reported.

6.3 Radiated Spurious Emissions above 1GHz

6.3.1 Test Setup

For radiated emission above 1 GHz



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

6.3.2 Test Procedure

The EUT is configured to set data modulation and maximum power using WWAN technology.

- In the semi-anechoic chamber, EUT placed on the 1.5 m 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 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP/ERP level.
- Following ANSI C63.26 section 5.5 and 5.2.7
- $EIRP \text{ (dBm)} = E \text{ (dB}\mu\text{V/m)} + 20\log(D) - 104.8$; where D is the measurement distance (in the far field region) in m.
- $ERP \text{ (dBm)} = E \text{ (dB}\mu\text{V/m)} + 20\log(D) - 104.8 - 2.15$; where D is the measurement distance (in the far field region) in m.

Note: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz. Set detector = average.

7 Test Results of Test Item

7.1 Effective Radiated Power and Equivalent Isotropically Radiated Power

Environmental Conditions:	23°C, 62% RH	Tested By:	Charles Hsiao
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7.1.1 Cat-M1 Band 2

Cat-M1 Band 2, Channel Bandwidth: 1.4 MHz

Modulation	RB Size	RB Offset	RB Index	Measurement Conducted Power (dBm)		
				CH 18607	CH 18900	CH 19193
				1850.7 MHz	1880 MHz	1909.3 MHz
QPSK	1	0	0	21.79	21.92	21.92
	1	5	0	21.75	21.75	21.80
	3	3	0	20.93	20.63	20.89
	6	0	0	20.13	19.95	20.08
16QAM	1	0	0	20.77	20.80	20.76
	1	5	0	20.89	20.89	20.86
	3	0	0	19.92	19.94	19.66
	5	0	0	19.90	19.80	19.71

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	19.95	21.92	22.65	24.62	33.01
16QAM	19.66	20.89	22.36	23.59	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

Cat-M1 Band 2, Channel Bandwidth: 3 MHz

Modulation	RB Size	RB Offset	RB Index	Measurement Conducted Power (dBm)		
				CH 18615	CH 18900	CH 19185
				1851.5 MHz	1880 MHz	1908.5 MHz
QPSK	1	0	0	22.04	21.86	21.88
	1	5	0	21.83	21.74	21.88
	1	0	0	22.01	21.70	21.85
	1	5	1	21.81	21.98	21.91
	3	0	0	21.09	21.06	20.88
	3	3	1	21.01	20.91	20.81
	6	0	0	20.07	20.12	20.07
	6	0	1	19.90	19.88	19.87
16QAM	1	0	0	20.84	21.02	20.82
	1	5	0	20.88	20.75	20.95
	1	0	0	20.91	20.89	20.90
	1	5	1	20.93	20.87	20.76
	3	0	0	20.08	19.88	19.80
	3	3	1	19.80	19.95	19.80
	5	0	0	20.00	19.98	19.94
	5	0	1	19.84	19.85	19.92

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	19.87	22.04	22.57	24.74	33.01
16QAM	19.80	21.02	22.50	23.72	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

Cat-M1 Band 2, Channel Bandwidth: 5 MHz

Modulation	RB Size	RB Offset	RB Index	Measurement Conducted Power (dBm)		
				CH 18625	CH 18900	CH 19175
				1852.5 MHz	1880 MHz	1907.5 MHz
QPSK	1	0	0	22.00	22.05	21.90
	1	5	0	21.86	21.83	21.97
	1	0	1	21.81	21.95	22.11
	1	5	1	22.02	21.80	22.03
	1	0	3	21.94	22.07	22.03
	1	5	3	21.87	21.89	22.05
	3	0	0	20.99	20.84	21.18
	3	3	3	20.97	21.08	20.90
	6	0	0	21.23	21.16	21.25
	6	0	1	21.00	20.86	20.94
	6	0	3	21.03	21.06	21.05
16QAM	1	0	0	21.05	21.00	21.04
	1	5	0	20.86	20.94	21.20
	1	0	1	21.04	21.01	21.14
	1	5	1	20.88	20.95	21.00
	1	0	3	20.95	20.82	20.96
	1	5	3	21.03	20.93	21.12
	3	0	0	20.82	21.12	21.03
	3	3	3	20.92	20.88	20.93
	5	0	0	19.89	19.90	20.03
	5	0	1	19.93	20.02	20.00
	5	0	3	20.06	20.00	20.11

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	20.84	22.11	23.54	24.81	33.01
16QAM	19.89	21.20	22.59	23.90	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

Cat-M1 Band 2, Channel Bandwidth: 10 MHz

Modulation	RB Size	RB Offset	RB Index	Measurement Conducted Power (dBm)		
				CH 18650	CH 18900	CH 19150
				1855 MHz	1880 MHz	1905 MHz
QPSK	1	0	0	22.06	21.88	22.18
	1	5	0	21.85	21.85	22.06
	1	0	3	22.05	21.93	22.17
	1	5	3	21.87	21.84	22.07
	1	0	7	22.03	21.97	22.23
	1	5	7	22.14	22.06	22.07
	4	0	0	22.10	21.91	21.98
	4	2	7	22.16	21.89	21.98
	6	0	0	21.32	21.13	21.35
	6	0	7	21.04	20.91	21.08
16QAM	1	0	0	21.00	21.07	20.97
	1	5	0	21.02	21.02	21.14
	1	0	3	21.14	20.89	21.19
	1	5	3	21.08	20.94	21.02
	1	0	7	21.05	21.00	20.94
	1	5	7	20.87	20.81	21.05
	4	2	0	21.00	20.82	21.02
	4	2	7	20.96	20.84	21.08
	5	0	0	21.05	20.81	21.04
	5	0	7	21.08	20.90	21.10

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	20.91	22.23	24.93	24.93	33.01
16QAM	20.81	21.19	23.89	23.89	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

7.1.2 Cat-M1 Band 4

Cat-M1 Band 4, Channel Bandwidth: 1.4 MHz

Modulation	RB Size	RB Offset	RB Index	Measurement Conducted Power (dBm)		
				CH 19957	CH 20175	CH 20393
				1710.7 MHz	1732.5 MHz	1754.3 MHz
QPSK	1	0	0	21.79	21.92	21.92
	1	5	0	21.75	21.75	21.80
	3	3	0	20.93	20.63	20.89
	6	0	0	20.13	19.95	20.08
16QAM	1	0	0	20.77	20.80	20.76
	1	5	0	20.89	20.89	20.86
	3	0	0	19.92	19.94	19.66
	5	0	0	19.90	19.80	19.71

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	19.95	21.92	22.95	24.92	30
16QAM	19.66	20.89	22.66	23.89	30

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

Cat-M1 Band 4, Channel Bandwidth: 3 MHz

Modulation	RB Size	RB Offset	RB Index	Measurement Conducted Power (dBm)		
				CH 19965	CH 20175	CH 20385
				1711.5 MHz	1732.5 MHz	1753.5 MHz
QPSK	1	0	0	22.04	21.86	21.88
	1	5	0	21.83	21.74	21.88
	1	0	0	22.01	21.70	21.85
	1	5	1	21.81	21.98	21.91
	3	0	0	21.09	21.06	20.88
	3	3	1	21.01	20.91	20.81
	6	0	0	20.07	20.12	20.07
	6	0	1	19.90	19.88	19.87
16QAM	1	0	0	20.84	21.02	20.82
	1	5	0	20.88	20.75	20.95
	1	0	0	20.91	20.89	20.90
	1	5	1	20.93	20.87	20.76
	3	0	0	20.08	19.88	19.80
	3	3	1	19.80	19.95	19.80
	5	0	0	20.00	19.98	19.94
	5	0	1	19.84	19.85	19.92

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	19.87	22.04	22.87	25.04	30
16QAM	19.80	21.02	22.80	24.02	30

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

Cat-M1 Band 4, Channel Bandwidth: 5 MHz

Modulation	RB Size	RB Offset	RB Index	Measurement Conducted Power (dBm)		
				CH 19975	CH 20175	CH 20375
				1712.5 MHz	1732.5 MHz	1752.5 MHz
QPSK	1	0	0	22.00	22.05	21.90
	1	5	0	21.86	21.83	21.97
	1	0	1	21.81	21.95	22.11
	1	5	1	22.02	21.80	22.03
	1	0	3	21.94	22.07	22.03
	1	5	3	21.87	21.89	22.05
	3	0	0	20.99	20.84	21.18
	3	3	3	20.97	21.08	20.90
	6	0	0	21.23	21.16	21.25
	6	0	1	21.00	20.86	20.94
	6	0	3	21.03	21.06	21.05
16QAM	1	0	0	21.05	21.00	21.04
	1	5	0	20.86	20.94	21.20
	1	0	1	21.04	21.01	21.14
	1	5	1	20.88	20.95	21.00
	1	0	3	20.95	20.82	20.96
	1	5	3	21.03	20.93	21.12
	3	0	0	20.82	21.12	21.03
	3	3	3	20.92	20.88	20.93
	5	0	0	19.89	19.90	20.03
	5	0	1	19.93	20.02	20.00
	5	0	3	20.06	20.00	20.11

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	20.84	22.11	23.84	25.11	30
16QAM	19.89	21.20	22.89	24.20	30

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

Cat-M1 Band 4, Channel Bandwidth: 10 MHz

Modulation	RB Size	RB Offset	RB Index	Measurement Conducted Power (dBm)		
				CH 20000	CH 20175	CH 20350
				1715 MHz	1732.5 MHz	1750 MHz
QPSK	1	0	0	22.06	21.88	22.18
	1	5	0	21.85	21.85	22.06
	1	0	3	22.05	21.93	22.17
	1	5	3	21.87	21.84	22.07
	1	0	7	22.03	21.97	22.23
	1	5	7	22.14	22.06	22.07
	4	0	0	22.10	21.91	21.98
	4	2	7	22.16	21.89	21.98
	6	0	0	21.32	21.13	21.35
	6	0	7	21.04	20.91	21.08
16QAM	1	0	0	21.00	21.07	20.97
	1	5	0	21.02	21.02	21.14
	1	0	3	21.14	20.89	21.19
	1	5	3	21.08	20.94	21.02
	1	0	7	21.05	21.00	20.94
	1	5	7	20.87	20.81	21.05
	4	2	0	21.00	20.82	21.02
	4	2	7	20.96	20.84	21.08
	5	0	0	21.05	20.81	21.04
	5	0	7	21.08	20.90	21.10

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	20.91	22.23	23.91	25.23	30
16QAM	20.81	21.19	23.81	24.19	30

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

7.1.3 Cat-M1 Band 12

Cat-M1 Band 12, Channel Bandwidth: 1.4 MHz

Modulation	RB Size	RB Offset	RB Index	Measurement Conducted Power (dBm)		
				CH 23017	CH 23095	CH 23173
				699.7 MHz	707.5 MHz	715.3 MHz
QPSK	1	0	0	21.99	21.85	21.95
	1	5	0	21.87	21.84	21.85
	3	3	0	21.87	21.85	21.98
	6	0	0	21.12	21.10	21.10
16QAM	1	0	0	21.33	21.19	21.31
	1	5	0	21.41	21.19	21.27
	3	0	0	20.47	20.18	20.27
	5	0	0	20.46	20.33	20.27

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
QPSK	21.10	21.99	20.95	21.84	34.77
16QAM	20.18	21.41	20.03	21.26	34.77

Note: ERP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)-2.15

Cat-M1 Band 12, Channel Bandwidth: 3 MHz

Modulation	RB Size	RB Offset	RB Index	Measurement Conducted Power (dBm)		
				CH 23025	CH 23095	CH 23165
				700.5 MHz	707.5 MHz	714.5 MHz
QPSK	1	0	0	22.55	22.55	22.41
	1	5	0	22.45	22.49	22.38
	1	0	0	22.39	22.38	22.27
	1	5	1	22.37	22.42	22.26
	3	0	0	21.90	22.03	21.76
	3	3	1	21.99	22.05	21.95
	6	0	0	21.19	21.12	21.09
	6	0	1	20.98	21.03	20.84
16QAM	1	0	0	21.24	21.38	21.15
	1	5	0	21.39	21.36	21.30
	1	0	0	21.20	21.26	21.40
	1	5	1	21.34	21.34	21.23
	3	0	0	20.61	20.44	20.16
	3	3	1	20.36	20.18	20.12
	5	0	0	20.50	20.45	20.22
	5	0	1	20.53	20.39	20.09

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
QPSK	20.84	22.55	20.69	22.40	34.77
16QAM	20.09	21.40	19.94	21.25	34.77

Note: ERP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)-2.15

Cat-M1 Band 12, Channel Bandwidth: 5 MHz

Modulation	RB Size	RB Offset	RB Index	Measurement Conducted Power (dBm)		
				CH 23035	CH 23095	CH 23155
				701.5 MHz	707.5 MHz	713.5 MHz
QPSK	1	0	0	22.56	22.47	22.57
	1	5	0	22.52	22.51	22.51
	1	0	1	22.48	22.31	22.46
	1	5	1	22.33	22.28	22.49
	1	0	3	22.37	22.43	22.48
	1	5	3	22.27	22.41	22.37
	3	0	0	21.57	21.96	22.03
	3	3	3	21.64	21.96	22.01
	6	0	0	21.82	22.22	22.25
	6	0	1	21.74	22.01	22.04
	6	0	3	21.76	21.98	21.99
16QAM	1	0	0	21.23	21.36	21.41
	1	5	0	21.02	21.39	21.40
	1	0	1	21.09	21.36	21.38
	1	5	1	21.00	21.25	21.40
	1	0	3	21.07	21.29	21.37
	1	5	3	21.17	21.28	21.39
	3	0	0	21.05	21.37	21.31
	3	3	3	20.95	21.14	21.08
	5	0	0	20.08	20.21	20.61
	5	0	1	20.19	20.29	20.53
	5	0	3	19.90	20.40	20.37

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
QPSK	21.57	22.57	21.42	22.42	34.77
16QAM	19.90	21.41	19.75	21.26	34.77

Note: ERP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)-2.15

Cat-M1 Band 12, Channel Bandwidth: 10 MHz

Modulation	RB Size	RB Offset	RB Index	Measurement Conducted Power (dBm)		
				CH 23060	CH 23095	CH 23130
				704 MHz	707.5 MHz	711 MHz
QPSK	1	0	0	22.46	22.34	22.46
	1	5	0	22.37	22.29	22.34
	1	0	3	22.36	22.36	22.25
	1	5	3	22.41	22.41	22.19
	1	0	7	22.31	22.32	22.51
	1	5	7	22.41	22.33	22.55
	4	0	0	22.34	22.22	22.43
	4	2	7	22.32	22.43	22.47
	6	0	0	22.22	22.16	21.80
	6	0	7	22.01	21.94	21.53
16QAM	1	0	0	21.27	21.38	21.05
	1	5	0	21.21	21.25	21.07
	1	0	3	21.41	21.40	21.06
	1	5	3	21.34	21.39	20.95
	1	0	7	21.14	21.11	21.04
	1	5	7	21.39	21.39	21.04
	4	2	0	21.40	21.37	20.95
	4	2	7	21.31	21.33	21.18
	5	0	0	21.07	21.09	20.93
	5	0	7	21.09	21.00	20.96

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum ERP (dBm)	Maximum ERP (dBm)	ERP Limit (dBm)
QPSK	21.53	22.55	21.38	22.40	34.77
16QAM	20.93	21.41	20.78	21.26	34.77

Note: ERP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)-2.15

7.2 Radiated Spurious Emissions below 1GHz

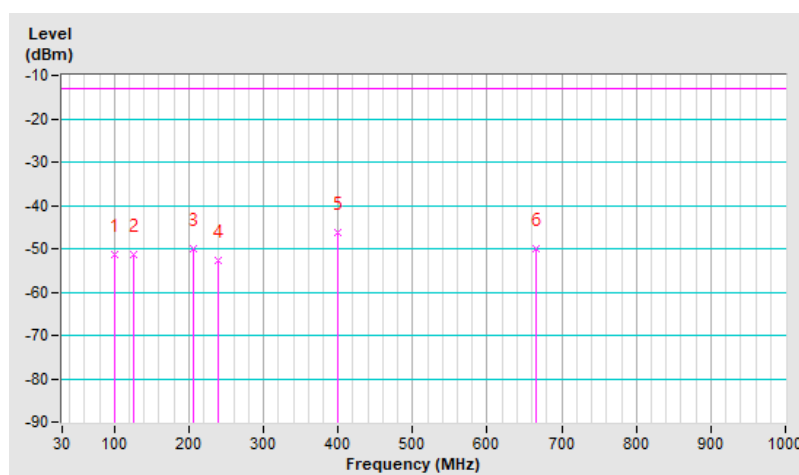
7.2.1 Cat-M1 Band 2

RF Mode	Cat-M1 Band 2 Channel Bandwidth: 10MHz	Channel	CH 18900 : 1880 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	99.84	-51.43	-13.00	-38.43	1.99 H	180	61.07	-112.50
2	125.06	-51.34	-13.00	-38.34	1.99 H	136	58.30	-109.64
3	205.57	-50.05	-13.00	-37.05	1.49 H	104	61.39	-111.44
4	239.52	-52.67	-13.00	-39.67	1.49 H	122	56.70	-109.37
5	400.54	-46.22	-13.00	-33.22	1.00 H	18	58.32	-104.54
6	666.32	-50.10	-13.00	-37.10	1.00 H	55	48.04	-98.14

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.

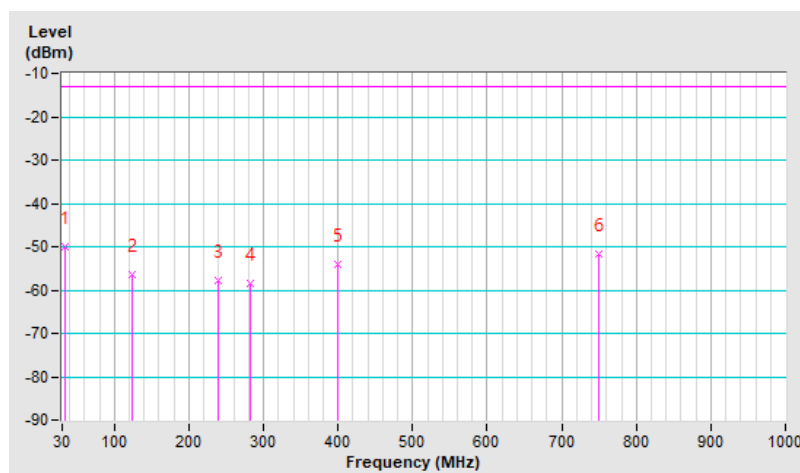


RF Mode	Cat-M1 Band 2 Channel Bandwidth: 10MHz	Channel	CH 18900 : 1880 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	33.88	-49.88	-13.00	-36.88	1.01 V	302	59.34	-109.22
2	124.09	-56.49	-13.00	-43.49	1.01 V	234	53.42	-109.91
3	238.55	-57.70	-13.00	-44.70	1.51 V	182	51.73	-109.43
4	283.17	-58.53	-13.00	-45.53	2.00 V	42	48.93	-107.46
5	400.54	-54.17	-13.00	-41.17	1.51 V	162	50.37	-104.54
6	749.74	-51.80	-13.00	-38.80	1.51 V	169	44.62	-96.42

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.



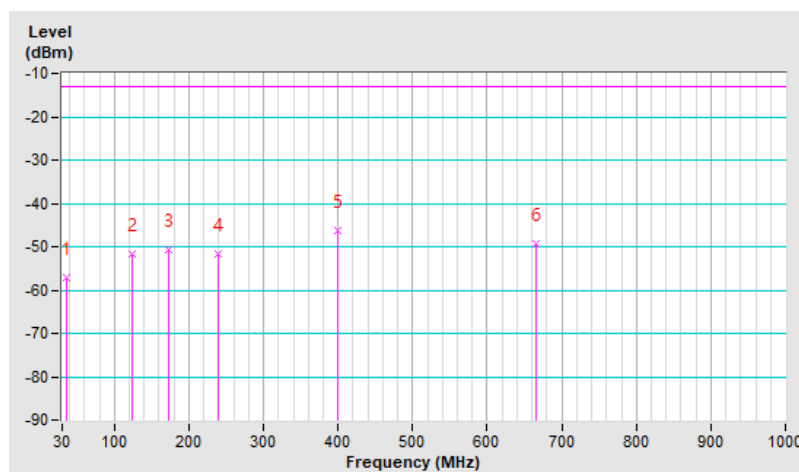
7.2.2 Cat-M1 Band 4

RF Mode	Cat-M1 Band 4 Channel Bandwidth: 5MHz	Channel	CH 20175 : 1732.5 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	36.79	-57.07	-13.00	-44.07	2.00 H	96	51.79	-108.86
2	124.09	-51.63	-13.00	-38.63	2.00 H	111	58.28	-109.91
3	172.59	-50.83	-13.00	-37.83	1.51 H	255	57.46	-108.29
4	238.55	-51.69	-13.00	-38.69	1.51 H	124	57.74	-109.43
5	399.57	-46.19	-13.00	-33.19	1.01 H	2	58.37	-104.56
6	666.32	-49.30	-13.00	-36.30	1.01 H	48	48.84	-98.14

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.

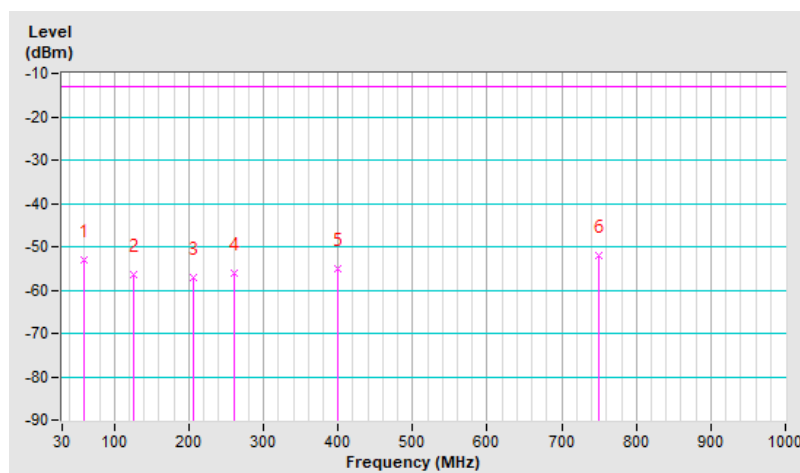


RF Mode	Cat-M1 Band 4 Channel Bandwidth: 5MHz	Channel	CH 20175 : 1732.5 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	59.10	-52.89	-13.00	-39.89	1.00 V	248	55.79	-108.68
2	125.06	-56.40	-13.00	-43.40	1.00 V	215	53.24	-109.64
3	205.57	-57.11	-13.00	-44.11	1.99 V	11	54.33	-111.44
4	259.89	-55.95	-13.00	-42.95	1.00 V	233	52.74	-108.69
5	399.57	-55.15	-13.00	-42.15	1.49 V	173	49.41	-104.56
6	749.74	-52.04	-13.00	-39.04	1.49 V	179	44.38	-96.42

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.



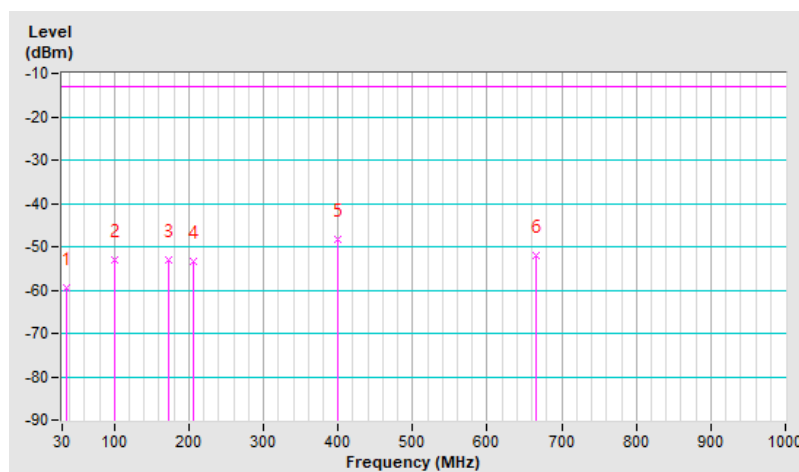
7.2.3 Cat-M1 Band 12

RF Mode	Cat-M1 Band 12 Channel Bandwidth: 5MHz	Channel	CH 23095 : 707.5 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	36.79	-59.48	-13.00	-46.48	1.49 H	18	51.53	-111.01
2	99.84	-52.92	-13.00	-39.92	1.99 H	169	61.73	-114.65
3	172.59	-53.12	-13.00	-40.12	1.99 H	252	57.32	-110.44
4	205.57	-53.32	-13.00	-40.32	1.49 H	128	60.27	-113.59
5	399.57	-48.41	-13.00	-35.41	1.00 H	17	58.30	-106.71
6	666.32	-52.02	-13.00	-39.02	1.49 H	18	48.27	-100.29

Remarks:

- ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
- Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 – 2.15
- Margin value = ERP – Limit value
- The other ERP levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
- The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.

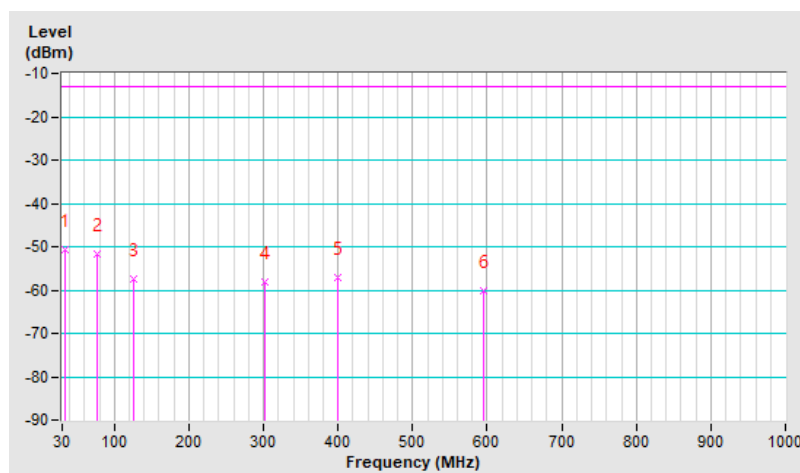


RF Mode	Cat-M1 Band 12 Channel Bandwidth: 5MHz	Channel	CH 23095 : 707.5 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	33.88	-50.75	-13.00	-37.75	1.01 V	266	60.62	-111.37
2	77.53	-51.71	-13.00	-38.71	1.51 V	13	62.91	-114.62
3	125.06	-57.53	-13.00	-44.53	1.01 V	114	54.26	-111.79
4	301.60	-58.28	-13.00	-45.28	2.00 V	2	50.92	-109.20
5	399.57	-57.21	-13.00	-44.21	1.01 V	148	49.50	-106.71
6	594.54	-60.21	-13.00	-47.21	1.01 V	157	41.32	-101.53

Remarks:

- ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
- Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + $20\log(D) - 104.8 - 2.15$
- Margin value = ERP – Limit value
- The other ERP levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
- The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.



7.3 Radiated Spurious Emissions above 1GHz

7.3.1 Cat-M1 Band 2

RF Mode	Cat-M1 Band 2 Channel Bandwidth: 1.4MHz	Channel	CH 18607 : 1850.7 MHz
Frequency Range	1 GHz ~ 20 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3701.40	-34.53	-13.00	-21.53	1.53 H	126	60.34	-94.87
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3701.40	-37.40	-13.00	-24.40	1.05 V	314	57.47	-94.87

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

RF Mode	Cat-M1 Band 2 Channel Bandwidth: 1.4MHz	Channel	CH 18900 : 1880 MHz
Frequency Range	1 GHz ~ 20 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3760.00	-32.16	-13.00	-19.16	1.51 H	129	62.33	-94.49
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3760.00	-40.12	-13.00	-27.12	1.08 V	310	54.37	-94.49

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

RF Mode	Cat-M1 Band 2 Channel Bandwidth: 1.4MHz	Channel	CH 19193 : 1909.3 MHz
Frequency Range	1 GHz ~ 20 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3818.60	-32.99	-13.00	-19.99	1.64 H	103	61.23	-94.22
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3818.60	-39.90	-13.00	-26.90	1.01 V	125	54.32	-94.22

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

RF Mode	Cat-M1 Band 2 Channel Bandwidth: 5MHz	Channel	CH 18625 : 1852.5 MHz
Frequency Range	1 GHz ~ 20 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3705.00	-36.40	-13.00	-23.40	1.08 H	132	58.45	-94.85
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3705.00	-38.62	-13.00	-25.62	1.48 V	128	56.23	-94.85

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

RF Mode	Cat-M1 Band 2 Channel Bandwidth: 5MHz	Channel	CH 18900 : 1880 MHz
Frequency Range	1 GHz ~ 20 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3760.00	-33.26	-13.00	-20.26	1.54 H	147	61.23	-94.49
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3760.00	-39.02	-13.00	-26.02	1.09 V	306	55.47	-94.49

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

RF Mode	Cat-M1 Band 2 Channel Bandwidth: 5MHz	Channel	CH 19175 : 1907.5 MHz
Frequency Range	1 GHz ~ 20 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3815.00	-31.46	-13.00	-18.46	1.53 H	129	62.77	-94.23
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3815.00	-36.92	-13.00	-23.92	1.18 V	216	57.31	-94.23

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

RF Mode	Cat-M1 Band 2 Channel Bandwidth: 10MHz	Channel	CH 18650 : 1855 MHz
Frequency Range	1 GHz ~ 20 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3710.00	-34.63	-13.00	-21.63	1.04 H	88	60.18	-94.81
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3710.00	-38.62	-13.00	-25.62	1.43 V	154	56.19	-94.81

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

RF Mode	Cat-M1 Band 2 Channel Bandwidth: 10MHz	Channel	CH 18900 : 1880 MHz
Frequency Range	1 GHz ~ 20 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3760.00	-29.01	-13.00	-16.01	1.54 H	187	65.48	-94.49
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3760.00	-33.38	-13.00	-20.38	1.00 V	157	61.11	-94.49

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

RF Mode	Cat-M1 Band 2 Channel Bandwidth: 10MHz	Channel	CH 19150 : 1905 MHz
Frequency Range	1 GHz ~ 20 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3810.00	-38.49	-13.00	-25.49	1.14 H	185	55.74	-94.23
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3810.00	-42.86	-13.00	-29.86	1.58 V	135	51.37	-94.23

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

7.3.2 Cat-M1 Band 4

RF Mode	Cat-M1 Band 4 Channel Bandwidth: 1.4MHz	Channel	CH 19957 : 1710.7 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3421.40	-31.59	-13.00	-18.59	1.05 H	219	64.42	-96.01
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3421.40	-32.45	-13.00	-19.45	1.54 V	158	63.56	-96.01

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

RF Mode	Cat-M1 Band 4 Channel Bandwidth: 1.4MHz	Channel	CH 20175 : 1732.5 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3465.00	-33.85	-13.00	-20.85	1.54 H	94	62.09	-95.94
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3465.00	-34.64	-13.00	-21.64	1.08 V	314	61.30	-95.94

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

RF Mode	Cat-M1 Band 4 Channel Bandwidth: 1.4MHz	Channel	CH 20393 : 1754.3 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3508.60	-30.58	-13.00	-17.58	1.55 H	123	65.23	-95.81
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3508.60	-31.41	-13.00	-18.41	1.08 V	115	64.40	-95.81

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

RF Mode	Cat-M1 Band 4 Channel Bandwidth: 5MHz	Channel	CH 19975 : 1712.5 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3425.00	-31.86	-13.00	-18.86	1.49 H	215	64.15	-96.01
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3425.00	-44.98	-13.00	-31.98	1.06 V	88	51.03	-96.01

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

RF Mode	Cat-M1 Band 4 Channel Bandwidth: 5MHz	Channel	CH 20175 : 1732.5 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3465.00	-27.63	-13.00	-14.63	1.41 H	231	68.31	-95.94
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3465.00	-32.90	-13.00	-19.90	1.43 V	219	63.04	-95.94

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

RF Mode	Cat-M1 Band 4 Channel Bandwidth: 5MHz	Channel	CH 20375 : 1752.5 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3505.00	-35.70	-13.00	-22.70	1.08 H	137	60.15	-95.85
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3505.00	-37.22	-13.00	-24.22	1.54 V	105	58.63	-95.85

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

RF Mode	Cat-M1 Band 4 Channel Bandwidth: 10MHz	Channel	CH 20000 : 1715 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3430.00	-36.62	-13.00	-23.62	1.13 H	245	59.38	-96.00
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3430.00	-42.46	-13.00	-29.46	1.52 V	305	53.54	-96.00

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

RF Mode	Cat-M1 Band 4 Channel Bandwidth: 10MHz	Channel	CH 20175 : 1732.5 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3465.00	-45.02	-13.00	-32.02	1.18 H	243	50.92	-95.94
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3465.00	-53.49	-13.00	-40.49	1.58 V	307	42.45	-95.94

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

RF Mode	Cat-M1 Band 4 Channel Bandwidth: 10MHz	Channel	CH 20350 : 1750 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3500.00	-34.81	-13.00	-21.81	1.25 H	285	61.07	-95.88
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3500.00	-40.56	-13.00	-27.56	1.57 V	308	55.32	-95.88

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

7.3.3 Cat-M1 Band 12

RF Mode	Cat-M1 Band 12 Channel Bandwidth: 1.4MHz	Channel	CH 23017 : 699.7 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1399.40	-47.56	-13.00	-34.56	1.58 H	314	56.32	-103.88
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1399.40	-51.50	-13.00	-38.50	1.07 V	100	52.38	-103.88

Remarks:

- ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
- Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
+ 20log(D) – 104.8 – 2.15
- Margin value = ERP – Limit value
- The other ERP levels were very low against the limit.

RF Mode	Cat-M1 Band 12 Channel Bandwidth: 1.4MHz	Channel	CH 23095 : 707.5 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1415.00	-45.60	-13.00	-32.60	1.32 H	108	58.30	-103.90
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1415.00	-49.60	-13.00	-36.60	1.52 V	137	54.30	-103.90

Remarks:

1. $ERP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8 - 2.15$
3. $Margin\ value = ERP - Limit\ value$
4. The other ERP levels were very low against the limit.

RF Mode	Cat-M1 Band 12 Channel Bandwidth: 1.4MHz	Channel	CH 23173 : 715.3 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1430.60	-49.60	-13.00	-36.60	1.58 H	137	54.34	-103.94
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1430.60	-51.77	-13.00	-38.77	1.34 V	201	52.17	-103.94

Remarks:

1. $ERP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8 - 2.15$
3. $Margin\ value = ERP - Limit\ value$
4. The other ERP levels were very low against the limit.

RF Mode	Cat-M1 Band 12 Channel Bandwidth: 5MHz	Channel	CH 23035 : 701.5 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1403.00	-47.89	-13.00	-34.89	1.14 H	84	56.00	-103.89
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1403.00	-52.55	-13.00	-39.55	1.53 V	132	51.34	-103.89

Remarks:

1. $ERP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8 - 2.15$
3. $Margin\ value = ERP - Limit\ value$
4. The other ERP levels were very low against the limit.

RF Mode	Cat-M1 Band 12 Channel Bandwidth: 5MHz	Channel	CH 23095 : 707.5 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1415.00	-45.57	-13.00	-32.57	1.06 H	77	58.34	-103.91
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1415.00	-51.60	-13.00	-38.60	1.54 V	158	52.31	-103.91

Remarks:

- ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
- Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
+ 20log(D) – 104.8 – 2.15
- Margin value = ERP – Limit value
- The other ERP levels were very low against the limit.

RF Mode	Cat-M1 Band 12 Channel Bandwidth: 5MHz	Channel	CH 23155 : 713.5 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1427.00	-49.38	-13.00	-36.38	1.04 H	82	54.55	-103.93
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1427.00	-49.88	-13.00	-36.88	1.53 V	137	54.05	-103.93

Remarks:

1. $ERP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8 - 2.15$
3. $Margin\ value = ERP - Limit\ value$
4. The other ERP levels were very low against the limit.

RF Mode	Cat-M1 Band 12 Channel Bandwidth: 10MHz	Channel	CH 23060 : 704 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1408.00	-48.57	-13.00	-35.57	1.07 H	126	55.32	-103.89
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1408.00	-53.05	-13.00	-40.05	1.32 V	284	50.84	-103.89

Remarks:

1. $ERP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8 - 2.15$
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

RF Mode	Cat-M1 Band 12 Channel Bandwidth: 10MHz	Channel	CH 23095 : 707.5 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1415.00	-50.44	-13.00	-37.44	1.59 H	135	53.47	-103.91
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1415.00	-52.55	-13.00	-39.55	1.08 V	314	51.36	-103.91

Remarks:

1. $ERP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8 - 2.15$
3. $Margin\ value = ERP - Limit\ value$
4. The other ERP levels were very low against the limit.

RF Mode	Cat-M1 Band 12 Channel Bandwidth: 10MHz	Channel	CH 23130 : 711 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 66% RH
Tested By	Tony Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1422.00	-51.55	-13.00	-38.55	1.54 H	158	52.37	-103.92
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1422.00	-53.55	-13.00	-40.55	1.08 V	314	50.37	-103.92

Remarks:

1. $ERP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8 - 2.15$
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

8 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo)

9 Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

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

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