

TEST REPORT

CERTIFICATE OF CONFORMITY

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

Report No.: RFBCMA-WTW-P23030799B-6

FCC ID: RAXTMOG4AR

Product: 5G Gateway

Brand: T-Mobile

Model No.: TMO-G4AR

Received Date: 2023/5/12

Test Date: 2023/5/20 ~ 2023/5/23

Issued Date: 2023/6/15

Applicant: Arcadyan Technology Corporation

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

Designation Number:

Approved by: _____

Jeremy Lin

Jeremy Lin / Project Engineer

, Date: _____

2023/6/15

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Prepared by : Celine Chou / Senior Specialist



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Release Control Record

Issue No.	Description	Date Issued
RFBCMA-WTW-P23030799B-6	Original release.	2023/6/15

1 Certificate

Product: 5G Gateway

Brand: T-Mobile

Test Model: TMO-G4AR

Sample Status: Engineering sample

Applicant: Arcadyan Technology Corporation

Test Date: 2023/5/20 ~ 2023/5/23

Standard: 47 CFR FCC Part 24
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 662911 D01 Multiple Transmitter Output 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

47 CFR FCC Part 24 47 CFR FCC Part 2			
Standard / Clause	Test Item	Result	Remark
FCC 47 CFR Part 2.1046 FCC 47 CFR Part 24.232 (c)	Effective Radiated Power and Equivalent Isotropically Radiated Power	Pass	Meet the requirement of limit. Refer to Note 2
FCC 47 CFR Part 2.1047	Modulation Characteristics	N/A	Refer to Note 1
FCC 47 CFR Part 24.232 (d)	Peak to Average Ratio	N/A	Refer to Note 1
FCC 47 CFR Part 2.1049	Bandwidth	N/A	Refer to Note 1
FCC 47 CFR Part 2.1051 FCC 47 CFR Part 24.238	Conducted Spurious Emissions	N/A	Refer to Note 1
FCC 47 CFR Part 2.1053 FCC 47 CFR Part 24.238	Radiated Spurious Emissions below 1GHz	Pass	Minimum passing margin is -24.99 dB at 92.08 MHz
FCC 47 CFR Part 2.1053 FCC 47 CFR Part 24.238	Radiated Spurious Emissions above 1GHz	Pass	Minimum passing margin is -38.20 dB at 3715.00 MHz
FCC 47 CFR Part 2.1055 FCC 47 CFR Part 24.235	Frequency Stability	N/A	Refer to Note 1

Note:

1. The only test item of Equivalent Isotropically Radiated Power Radiated and Spurious Emissions test was performed for this report. Other testing data please refer to SGS-CSRC Standards Technical Services (Suzhou) Co., Ltd. Report No.: SEWM2210000205RG01 (LTE Module, Brand: Fibocom, Model: FG360-NA, FCC ID: ZMOFG360NA08).
2. The conducted output power was copied from the original module report.
3. 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 (±)
Radiated Spurious Emissions below 1GHz	9 kHz ~ 30 MHz	2.44 dB
	30 MHz ~ 1 GHz	2.95 dB
Radiated Spurious Emissions above 1GHz	1 GHz ~ 18 GHz	2.26 dB
	18 GHz ~ 40 GHz	1.94 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	5G Gateway
Brand	T-Mobile
Test Model	TMO-G4AR
Status of EUT	Engineering sample
Power Supply Rating	20Vdc or 15Vdc or 12Vdc or 9Vdc or 5Vdc (From adapter)

Note:

1. This report is prepared for FCC class II permissive change. The difference compared with the original report (BV CPS report no.: RFBCMA-WTW-P23030799-9) is adding external antenna.
2. Base on the conducted power and all conducted result no change, the device WWAN conducted data leverage 5G module (Fibocom FG360-NA), and record ERP/EIRP in the report with external antenna to prove it not over the limit.

3. EUT Overview

Band / Bandwidth	TX Frequency Range (MHz)	Max. EIRP Power			
		QPSK	16QAM	64QAM	256QAM
LTE Band 2 (CA 2C) (10MHz + 15MHz)	1855.3-1902.5	503.501mW (27.02dBm)	438.531mW (26.42dBm)	347.536mW (25.41dBm)	183.654mW (22.64dBm)
LTE Band 2 (CA 2C) (10MHz + 20MHz)	1855.5-1900.0	550.808mW (27.41dBm)	473.151mW (26.75dBm)	380.189mW (25.80dBm)	189.671mW (22.78dBm)
LTE Band 2 (CA 2C) (15MHz + 10MHz)	1857.5-1904.7	526.017mW (27.21dBm)	449.780mW (26.53dBm)	362.243mW (25.59dBm)	188.365mW (22.75dBm)
LTE Band 2 (CA 2C) (15MHz + 15MHz)	1857.5-1902.5	576.766mW (27.61dBm)	483.059mW (26.84dBm)	394.457mW (25.96dBm)	194.536mW (22.89dBm)
LTE Band 2 (CA 2C) (15MHz + 20MHz)	1857.8-1900.0	572.796mW (27.58dBm)	479.733mW (26.81dBm)	382.825mW (25.83dBm)	192.752mW (22.85dBm)
LTE Band 2 (CA 2C) (20MHz + 10MHz)	1860.0-1904.5	549.541mW (27.40dBm)	464.515mW (26.67dBm)	384.592mW (25.85dBm)	189.671mW (22.78dBm)
LTE Band 2 (CA 2C) (20MHz + 15MHz)	1860.0-1902.2	547.016mW (27.38dBm)	467.735mW (26.70dBm)	374.973mW (25.74dBm)	189.234mW (22.77dBm)
LTE Band 2 (CA 2C) (20MHz + 20MHz)	1860.0-1900.0	545.758mW (27.37dBm)	460.257mW (26.63dBm)	380.189mW (25.80dBm)	190.108mW (22.79dBm)
LTE Band 2 (CA 2C) (20MHz + 5MHz)	1860.0-1906.7	504.661mW (27.03dBm)	425.598mW (26.29dBm)	341.193mW (25.33dBm)	184.502mW (22.66dBm)
LTE Band 2 (CA 2C) (5MHz + 20MHz)	1853.3-1900.0	503.501mW (27.02dBm)	431.519mW (26.35dBm)	351.560mW (25.46dBm)	181.552mW (22.59dBm)

4. The EUT uses following accessories.

AC Adapter 1		
Brand	Model	Specification
LUCENT TRANS	1A78	AC Input : 100~240V, 1.2A, 50-60Hz DC Output : 5.0V, 3.0A, 15W or 9.0V, 3.0A, 27W or 12.0V, 3.0A, 36W or 15.0V, 3.0A, 45W or 20.0V, 2.25A, 45W DC Output Cable : 1.85 M , non-shielded cable, W/O ferrite core Plug : US
AC Adapter 2		
Brand	Model	Specification
MASS POWER	PD045E-C1C0AVU	AC Input : 100~240V, 1.0A, 50-60Hz DC Output : 5.0V, 3.0A or 9.0V, 3.0A or 12.0V, 3.0A or 15.0V, 3.0A or 20.0V, 2.25A, 45W DC Output Cable : 1.8 M , non-shielded cable, W/O ferrite core Plug : US

*The adapter 1 was chosen for final test.

5. For CA mode configuration, please consult the manufacturer to declare the test mode.

6. The EUT support the following CA Configuration.

Band Configuration
2C
48C

7. 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

1. The antenna information is listed as below.

Antenna No.	RF Chain No.	Brand	Model	Antenna Net Gain (dBi)	Frequency range	Antenna Type	Connector Type
WWAN Antenna (Internal)	B71 (TRx) (M2)	PSA	RFPCA811609IMMB403_B	3.17	663-698 MHz	Monopole	ipex(MHF1)
	B71 (Rx)(M1)		RFPCA811609IMMB402_A	3.10	663-698 MHz	Monopole	ipex(MHF1)
	B71 (Rx) (D1)		RFPCA652018IMMB401_A	2.09	663-698 MHz	Monopole	ipex(MHF1)
	B71 (Rx)(D2)		RFFPA656320IMMB401_B	2.01	663-698 MHz	Monopole	ipex(MHF1)
	B12 (TRx)(M2)	PSA	RFPCA811609IMMB403_B	3.34	698-716 MHz	Monopole	ipex(MHF1)
	B12 (Rx)(D2)		RFFPA656320IMMB401_B	2.05	698-716 MHz	Monopole	ipex(MHF1)
	B5 (TRx)(M2)	PSA	RFPCA811609IMMB403_B	1.68	824-849 MHz	Monopole	ipex(MHF1)
	B5 (Rx) (D2)		RFFPA656320IMMB401_B	0.63	824-849 MHz	Monopole	ipex(MHF1)
	B4/B66 (TRx) (M2)	PSA	RFPCA811609IMMB403_B	3.69	1710-1780 MHz	Monopole	ipex(MHF1)
	B4/B66 (TRx) (M1)		RFPCA811609IMMB402_A	5.13	1710-1780 MHz	Monopole	ipex(MHF1)
	B4/B66 (Rx) (D1)		RFPCA652018IMMB401_A	4.26	1710-1780 MHz	Monopole	ipex(MHF1)
	B4/B66 (Rx) (D2)		RFFPA656320IMMB401_B	4.10	1710-1780 MHz	Monopole	ipex(MHF1)
	B2/B25 (TRx) (M2)	PSA	RFPCA811609IMMB403_B	3.33	1850-1915 MHz	Monopole	ipex(MHF1)
	B2/B25 (TRx) (M1)		RFPCA811609IMMB402_A	4.78	1850-1915 MHz	Monopole	ipex(MHF1)
	B2/B25 (Rx) (D1)		RFPCA652018IMMB401_A	3.79	1850-1915 MHz	Monopole	ipex(MHF1)
	B2/B25 (Rx) (D2)		RFFPA656320IMMB401_B	4.11	1850-1915 MHz	Monopole	ipex(MHF1)
	B41 (TRx) (M2)	PSA	RFPCA811609IMMB403_B	2.78	2496-2690 MHz	Monopole	ipex(MHF1)
	B41 (TRx) (M1)		RFPCA811609IMMB402_A	3.02	2496-2690 MHz	Monopole	ipex(MHF1)
	B41 (Rx) (Omni-Antenna HC1O)		RFPCA380906IMMB401_A	4.45	2496-2690 MHz	Dipole	ipex(MHF1)
	B41 (Rx) (Omni-Antenna HC2O)		RFPCA380912IMMB401_A	3.67	2496-2690 MHz	Dipole	ipex(MHF1)
	B41 (Rx) (Semi-Antenna HC1S)		RFPCA474709IMMB401_A	7.59	2496-2690 MHz	Dipole	ipex(MHF1)
	B41 (Rx) (Semi-Antenna HC2S)		RFPCA474709IMMB401_A	7.76	2496-2690 MHz	Dipole	ipex(MHF1)
	B48 (TRx) (M2)	PSA	RFPCA811609IMMB403_B	0.94	3550-3700 MHz	Monopole	ipex(MHF1)
	B48 (TRx) (M1)		RFPCA811609IMMB402_A	1.02	3550-3700 MHz	Monopole	ipex(MHF1)
	B48 (Rx) (Omni-Antenna HC1O)		RFPCA380906IMMB401_A	4.64	3550-3700 MHz	Dipole	ipex(MHF1)
	B48 (Rx) (Omni-Antenna HC2O)		RFPCA380912IMMB401_A	4.03	3550-3700 MHz	Dipole	ipex(MHF1)
	B48 (Rx) (Semi-Antenna HC1S)		RFPCA474709IMMB401_A	7.67	3550-3700 MHz	Dipole	ipex(MHF1)
	B48 (Rx) (Semi-Antenna HC2S)		RFPCA474709IMMB401_A	8.01	3550-3700 MHz	Dipole	ipex(MHF1)
	B77 (TRx) (M2)	PSA	RFPCA811609IMMB403_B	0.84	3300-4200 MHz	Monopole	ipex(MHF1)
	B77(TRx) (M1)		RFPCA811609IMMB402_A	0.91	3300-4200 MHz	Monopole	ipex(MHF1)
	B77 (Rx) (Omni-Antenna HC1O)		RFPCA380906IMMB401_A	4.73	3300-4200 MHz	Dipole	ipex(MHF1)
	B77 (Rx) (Omni-Antenna HC2O)		RFPCA380912IMMB401_A	4.14	3300-4200 MHz	Dipole	ipex(MHF1)
	B77 (Rx) (Semi-Antenna HC1S)		RFPCA474709IMMB401_A	7.98	3300-4200 MHz	Dipole	ipex(MHF1)
	B77 (Rx) (Semi-Antenna HC2S)		RFPCA474709IMMB401_A	8.13	3300-4200 MHz	Dipole	ipex(MHF1)

* 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.

* Only B2/B4/B25 bands support 1TX diversity.

Antenna No.	RF Chain No.	Brand	Model	Antenna Net Gain (dBi)	Frequency range	Antenna Type	Connector Type
WWAN Antenna (External)	B71	TAOGLAS	ANT1	0.80	663-698 MHz	PIFA	ipex(MHF)
	B71		ANT2	1.50	663-698 MHz	PIFA	ipex(MHF)
	B71		ANT3	1.90	663-698 MHz	PIFA	ipex(MHF)
	B71		ANT4	1.40	663-698 MHz	PIFA	ipex(MHF)
	B12	TAOGLAS	ANT1	1.20	698-716 MHz	PIFA	ipex(MHF)
	B12		ANT2	1.40	698-716 MHz	PIFA	ipex(MHF)
	B12		ANT3	0.80	698-716 MHz	PIFA	ipex(MHF)
	B12		ANT4	0.80	698-716 MHz	PIFA	ipex(MHF)
	B5	TAOGLAS	ANT1	-1.00	824-849 MHz	PIFA	ipex(MHF)
	B5		ANT2	-1.80	824-849 MHz	PIFA	ipex(MHF)
	B5		ANT3	1.50	824-849 MHz	PIFA	ipex(MHF)
	B5		ANT4	-1.70	824-849 MHz	PIFA	ipex(MHF)
	B4/B66	TAOGLAS	ANT1	4.40	1710-1780 MHz	PIFA	ipex(MHF)
	B4/B66		ANT2	3.70	1710-1780 MHz	PIFA	ipex(MHF)
	B4/B66		ANT3	4.60	1710-1780 MHz	PIFA	ipex(MHF)
	B4/B66		ANT4	3.80	1710-1780 MHz	PIFA	ipex(MHF)
	B2/B25	TAOGLAS	ANT1	4.00	1850-1915 MHz	PIFA	ipex(MHF)
	B2/B25		ANT2	3.50	1850-1915 MHz	PIFA	ipex(MHF)
	B2/B25		ANT3	4.60	1850-1915 MHz	PIFA	ipex(MHF)
	B2/B25		ANT4	3.60	1850-1915 MHz	PIFA	ipex(MHF)
	B41	TAOGLAS	ANT1	3.90	2496-2690 MHz	PIFA	ipex(MHF)
	B41		ANT2	3.80	2496-2690 MHz	PIFA	ipex(MHF)
	B41		ANT3	2.90	2496-2690 MHz	PIFA	ipex(MHF)
	B41		ANT4	4.00	2496-2690 MHz	PIFA	ipex(MHF)
	B48	TAOGLAS	ANT1	2.60	3550-3700 MHz	PIFA	ipex(MHF)
	B48		ANT2	2.30	3550-3700 MHz	PIFA	ipex(MHF)
	B48		ANT3	1.70	3550-3700 MHz	PIFA	ipex(MHF)
	B48		ANT4	2.40	3550-3700 MHz	PIFA	ipex(MHF)
	B77	TAOGLAS	ANT1	3.20	3300-4200 MHz	PIFA	ipex(MHF)
	B77		ANT2	2.80	3300-4200 MHz	PIFA	ipex(MHF)
	B77		ANT3	3.80	3300-4200 MHz	PIFA	ipex(MHF)
	B77		ANT4	2.90	3300-4200 MHz	PIFA	ipex(MHF)

* 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.

* Only B2/B4/B25 bands support 1TX diversity.

3.3 Test Mode Applicability and Tested Channel Detail

Pre-Scan:	EUT can be used in the following ways: X-axis/ Y-axis/ Z-axis. Pre-scan these ways and find the worst case as a representative test condition.
Worst Case:	X-axis/ Y-axis/ Z-axis Worst Condition: Z-axis

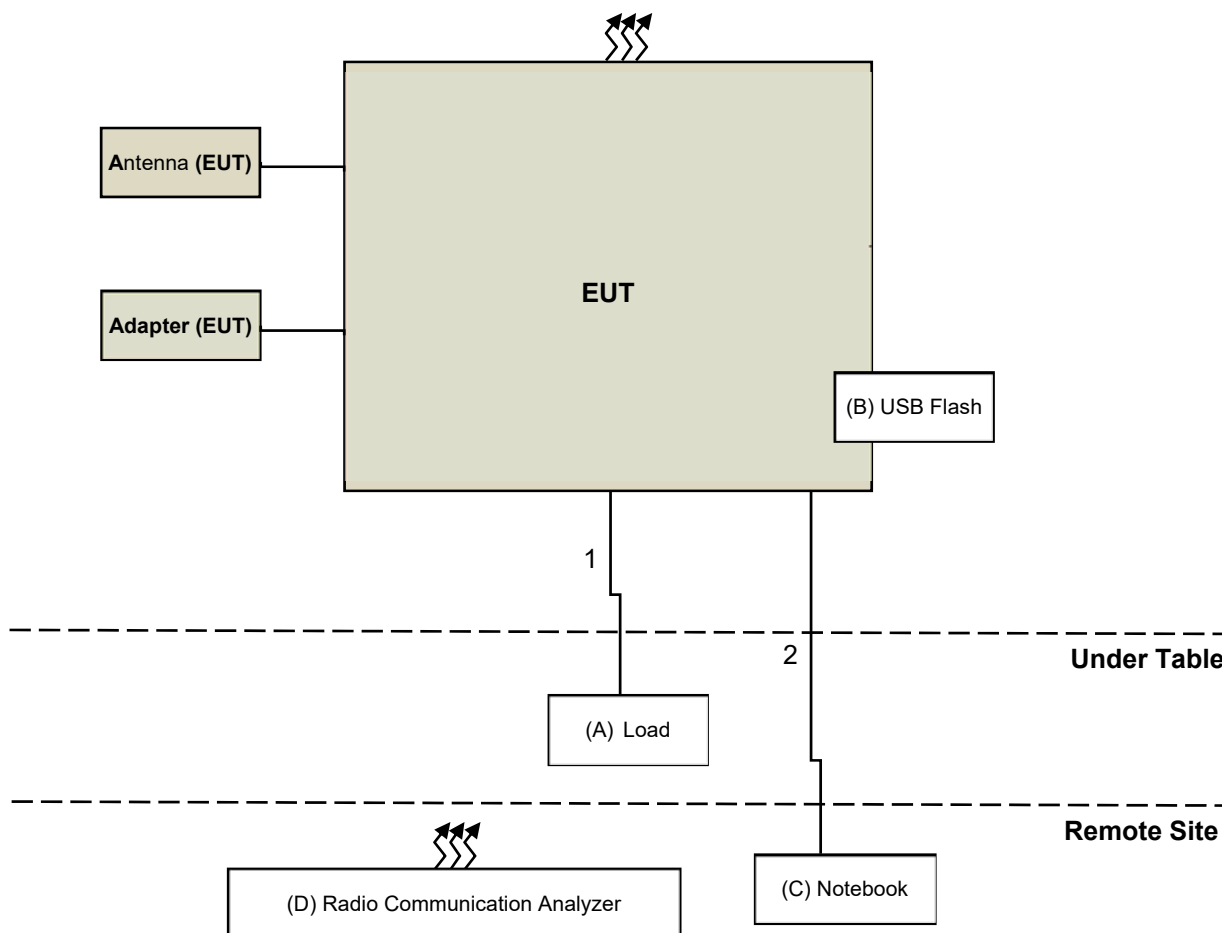
For LTE Band 2 (CA 2C)

Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
EIRP	18653 (1855.3MHz) + 18773 (1867.3MHz) 18829 (1872.9MHz) + 18949 (1884.9MHz) 19005 (1890.5MHz) + 19125 (1902.5MHz)	10MHz + 15MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
	18655 (1855.5MHz) + 18799 (1869.9MHz) 18806 (1870.6MHz) + 18950 (1885.0MHz) 18956 (1885.6MHz) + 19100 (1900.0MHz)	10MHz + 20MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
	18675 (1857.5MHz) + 18795 (1869.5MHz) 18851 (1875.1MHz) + 18971 (1887.1MHz) 19027 (1892.7MHz) + 19147 (1904.7MHz)	15MHz + 10MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
	18675 (1857.5MHz) + 18825 (1872.5MHz) 18825 (1872.5MHz) + 18975 (1887.5MHz) 18975 (1887.5MHz) + 19125 (1902.5MHz)	15MHz + 15MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
	18678 (1857.8MHz) + 18849 (1874.9MHz) 18803 (1870.3MHz) + 18974 (1887.4MHz) 18929 (1882.9MHz) + 19100 (1900.0MHz)	15MHz + 20MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
	18700 (1860.0MHz) + 18844 (1874.4MHz) 18851 (1875.1MHz) + 18995 (1889.5MHz) 19001 (1890.1MHz) + 19145 (1904.5MHz)	20MHz + 10MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
	18700 (1860.0MHz) + 18871 (1877.1MHz) 18826 (1872.6MHz) + 18997 (1889.7MHz) 18951 (1885.1MHz) + 19122 (1902.2MHz)	20MHz + 15MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
	18700 (1860.0MHz) + 18898 (1879.8MHz) 18801 (1870.1MHz) + 18999 (1889.9MHz) 18902 (1880.2MHz) + 19100 (1900.0MHz)	20MHz + 20MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
	18700 (1860.0MHz) + 18817 (1871.7MHz) 18875 (1877.5MHz) + 18992 (1889.2MHz) 19050 (1895.0MHz) + 19167 (1906.7MHz)	20MHz + 5MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
	18633 (1853.3MHz) + 18750 (1865.0MHz) 18808 (1870.8MHz) + 18925 (1882.5MHz) 18983 (1888.3MHz) + 19100 (1900.0MHz)	5MHz + 20MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
RE Below 1GHz	18675 (1857.5MHz) + 18825 (1872.5MHz)	15MHz + 15MHz	QPSK	1 RB
RE Above 1GHz	18675 (1857.5MHz) + 18825 (1872.5MHz)	15MHz + 15MHz	QPSK	1 RB

3.4 Test Program Used and Operation Descriptions

There is no need to controlling software during the test, and the EUT can be paired with the Radio Communication Analyzer to test the connection when it is powered on.

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	Load	NA	NA	NA	NA	Provided by Lab
B	USB Flash	SanDisk	SDDDC3-032	NA	NA	Provided by Lab
C	Notebook	Lenovo	80Q7	PF0KUGU6	FCC DoC Approved	Provided by Lab
D	Radio Communication Analyzer	Anritsu	MT8821C	6201462755	NA	Provided by Lab

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	RJ-45 Cable	1	1.5	No	0	Provided by Lab
2	RJ-45 Cable	1	10	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 Radiated Spurious Emissions below 1GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn Max-Full	MFA-440H	AT93021705	N/A	N/A
Bi_Log Antenna Schwarzbeck	VULB9168	9168-472	2022/10/21	2023/10/20
Loop Antenna EMCI	EM-6879	269	2022/9/19	2023/9/18
Loop Antenna TESEQ	HLA 6121	45745	2022/7/27	2023/7/26
Pre-Amplifier EMCI	EMC 330H	980112	2022/10/1	2023/9/30
Pre-amplifier EMCI	EMC001340	980201	2022/9/23	2023/9/22
RF Coaxial Cable EMCI	5D-NM-BM	140903+140902	2023/1/7	2024/1/6
RF Coaxial Cable WORKEN	8D-FB	Cable-Ch10-01	2022/10/1	2023/9/30
Signal Analyzer Agilent	N9010A	MY52220207	2023/1/3	2024/1/2
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Test Receiver KEYSIGHT	N9038A	MY55420137	2023/5/3	2024/5/2
Turn Table Max-Full	MFT-201SS	N/A	N/A	N/A
Turn Table Controller Max-Full	MG-7802	N/A	N/A	N/A
Radio Communication Analyzer Anritsu	MT8821C	6201462755	2023/3/3	2024/3/2

Notes:

1. The test was performed in HY - 966 chamber 5.
2. Tested Date: 2023/5/23

4.2 Radiated Spurious Emissions above 1GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn Max-Full	MFA-440H	AT93021705	N/A	N/A
Boresight antenna tower fixture BV	BAF-02	7	N/A	N/A
Horn Antenna Schwarzbeck	BBHA 9120D	9120D-969	2022/11/13	2023/11/12
	BBHA 9170	148	2022/11/13	2023/11/12
Pre-Amplifier EMCI	EMC 184045	980116	2022/10/1	2023/9/30
Pre-Amplifier EMCI	EMC 012645	980115	2022/10/1	2023/9/30
RF Coaxial Cable EMCI	EMC102-KM-KM-600	150928	2022/7/9	2023/7/8
	EMC102-KM-KM-3000	150929	2022/7/9	2023/7/8
	EMC104-SM-SM- 8000+3000	171005	2022/10/1	2023/9/30
RF Coaxial Cable HUBER SUHNER	SUCOFLEX 104	EMC104-SM-SM- 1000(140807)	2022/10/1	2023/9/30
RF FLITER MICRO-TRONICS	BRM17690	004	2023/1/11	2024/1/10
	BRM50716	060	2023/1/11	2024/1/10
Signal Analyzer Agilent	N9010A	MY52220207	2023/1/3	2024/1/2
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Test Receiver KEYSIGHT	N9038A	MY55420137	2023/5/3	2024/5/2
Turn Table Max-Full	MFT-201SS	N/A	N/A	N/A
Turn Table Controller Max-Full	MG-7802	N/A	N/A	N/A
Radio Communication Analyzer Anritsu	MT8821C	6201462755	2023/3/3	2024/3/2

Notes:

1. The test was performed in HY - 966 chamber 5.
2. Tested Date: 2023/5/20

5 Limits of Test Items

5.1 Effective Radiated Power and Equivalent Isotropically Radiated Power

Mobile and portable stations are limited to 2 watts EIRP.

5.2 Radiated Spurious Emissions below 1GHz

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.

5.3 Radiated Spurious Emissions above 1GHz

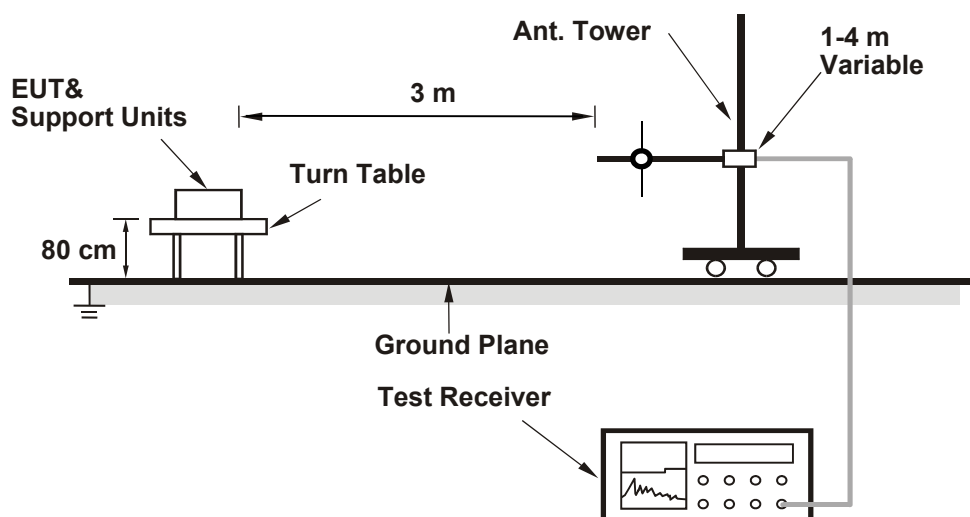
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The emission limit equal to -13 dBm.

6 Test Arrangements

6.1 Radiated Spurious Emissions below 1GHz

6.1.1 Test Setup

For radiated emission 30 MHz to 1 GHz



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

6.1.2 Test Procedure

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

- 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.
- 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 C63.26 section 5.5 and 5.2.7
- $EIRP (dBm) = E (dB\mu V/m) + 20\log(D) - 104.8$; where D is the measurement distance (in the far field region) in m.
- $ERP (dBm) = E (dB\mu V/m) + 20\log(D) - 104.8 - 2.15$; where D is the measurement distance (in the far field region) in m.

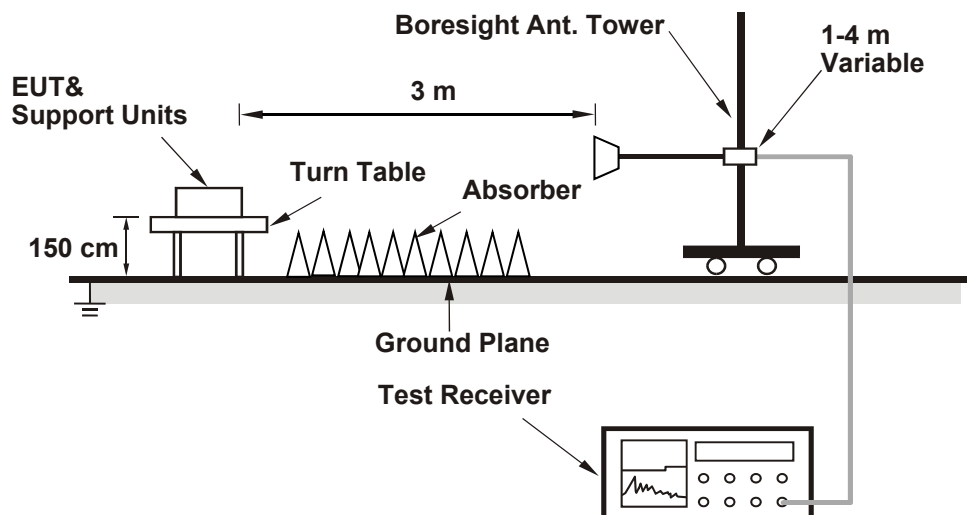
Note:

- The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz. Set detector = average.
- The emission levels were against the limit of frequency range 9 kHz ~ 30 MHz:
The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

6.2 Radiated Spurious Emissions above 1GHz

6.2.1 Test Setup

For radiated emission above 1 GHz



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

6.2.2 Test Procedure

The EUT is configured by emulator 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 C63.26 section 5.5 and 5.2.7
- $EIRP (dBm) = E (dB\mu V/m) + 20\log(D) - 104.8$; where D is the measurement distance (in the far field region) in m.
- $ERP (dBm) = E (dB\mu V/m) + 20\log(D) - 104.8 - 2.15$; where D is the measurement distance (in the far field region) in m.

Note:

- 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

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	22°C, 70% RH	Tested By:	James Yang
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7.1.1 LTE Band 2 (CA 2C)

Band	Bandwidth	Modulation	Channel	RB Configuration	Conducted Output Power (dBm)	EIRP Power (dBm)
CA 2C	10MHz + 15MHz	QPSK	18653 + 18773	1RB#0 + 0RB#0	22.42	27.02
			18653 + 18773	50RB#0 + 75RB#0	20.98	25.58
			18829 + 18949	1RB#0 + 0RB#0	22.3	26.9
			18829 + 18949	50RB#0 + 75RB#0	20.93	25.53
			19005 + 19125	1RB#0 + 0RB#0	22.32	26.92
			19005 + 19125	50RB#0 + 75RB#0	20.92	25.52
		16QAM	18653 + 18773	1RB#0 + 0RB#0	21.82	26.42
			18653 + 18773	50RB#0 + 75RB#0	19.96	24.56
			18829 + 18949	1RB#0 + 0RB#0	21.65	26.25
			18829 + 18949	50RB#0 + 75RB#0	19.91	24.51
			19005 + 19125	1RB#0 + 0RB#0	21.55	26.15
			19005 + 19125	50RB#0 + 75RB#0	19.89	24.49
		64QAM	18653 + 18773	1RB#0 + 0RB#0	20.81	25.41
			18653 + 18773	50RB#0 + 75RB#0	20	24.6
			18829 + 18949	1RB#0 + 0RB#0	20.57	25.17
			18829 + 18949	50RB#0 + 75RB#0	19.9	24.5
			19005 + 19125	1RB#0 + 0RB#0	20.77	25.37
			19005 + 19125	50RB#0 + 75RB#0	19.89	24.49
		256QAM	18653 + 18773	1RB#0 + 0RB#0	17.57	22.17
			18653 + 18773	50RB#0 + 75RB#0	18.04	22.64
			18829 + 18949	1RB#0 + 0RB#0	17.54	22.14
			18829 + 18949	50RB#0 + 75RB#0	17.97	22.57
			19005 + 19125	1RB#0 + 0RB#0	17.59	22.19
			19005 + 19125	50RB#0 + 75RB#0	17.98	22.58

Note:

1. The conducted output power was copied from the original module report.
2. EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

Band	Bandwidth	Modulation	Channel	RB Configuration	Conducted Output Power (dBm)	EIRP Power (dBm)
CA 2C	10MHz + 20MHz	QPSK	18655 + 18799	1RB#0 + 0RB#0	22.81	27.41
			18655 + 18799	50RB#0 + 100RB#0	21.15	25.75
			18806 + 18950	1RB#0 + 0RB#0	22.7	27.3
			18806 + 18950	50RB#0 + 100RB#0	21.11	25.71
			18956 + 19100	1RB#0 + 0RB#0	22.7	27.3
			18956 + 19100	50RB#0 + 100RB#0	21.1	25.7
		16QAM	18655 + 18799	1RB#0 + 0RB#0	22.15	26.75
			18655 + 18799	50RB#0 + 100RB#0	20.14	24.74
			18806 + 18950	1RB#0 + 0RB#0	21.96	26.56
			18806 + 18950	50RB#0 + 100RB#0	20.05	24.65
			18956 + 19100	1RB#0 + 0RB#0	22	26.6
			18956 + 19100	50RB#0 + 100RB#0	20.03	24.63
		64QAM	18655 + 18799	1RB#0 + 0RB#0	21.2	25.8
			18655 + 18799	50RB#0 + 100RB#0	20.15	24.75
			18806 + 18950	1RB#0 + 0RB#0	21.05	25.65
			18806 + 18950	50RB#0 + 100RB#0	20.04	24.64
			18956 + 19100	1RB#0 + 0RB#0	21.07	25.67
			18956 + 19100	50RB#0 + 100RB#0	20.03	24.63
		256QAM	18655 + 18799	1RB#0 + 0RB#0	18.12	22.72
			18655 + 18799	50RB#0 + 100RB#0	18.18	22.78
			18806 + 18950	1RB#0 + 0RB#0	18	22.6
			18806 + 18950	50RB#0 + 100RB#0	18.1	22.7
			18956 + 19100	1RB#0 + 0RB#0	17.99	22.59
			18956 + 19100	50RB#0 + 100RB#0	18.07	22.67

Note:

1. The conducted output power was copied from the original module report.
2. EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

Band	Bandwidth	Modulation	Channel	RB Configuration	Conducted Output Power (dBm)	EIRP Power (dBm)
CA 2C	15MHz + 10MHz	QPSK	18675 + 18795	1RB#0 + 0RB#0	22.61	27.21
			18675 + 18795	75RB#0 + 50RB#0	21.09	25.69
			18851 + 18971	1RB#0 + 0RB#0	22.51	27.11
			18851 + 18971	75RB#0 + 50RB#0	21.04	25.64
			19027 + 19147	1RB#0 + 0RB#0	22.47	27.07
			19027 + 19147	75RB#0 + 50RB#0	20.99	25.59
		16QAM	18675 + 18795	1RB#0 + 0RB#0	21.93	26.53
			18675 + 18795	75RB#0 + 50RB#0	20.07	24.67
			18851 + 18971	1RB#0 + 0RB#0	21.74	26.34
			18851 + 18971	75RB#0 + 50RB#0	20	24.6
			19027 + 19147	1RB#0 + 0RB#0	21.76	26.36
			19027 + 19147	75RB#0 + 50RB#0	19.95	24.55
		64QAM	18675 + 18795	1RB#0 + 0RB#0	20.99	25.59
			18675 + 18795	75RB#0 + 50RB#0	20.08	24.68
			18851 + 18971	1RB#0 + 0RB#0	20.75	25.35
			18851 + 18971	75RB#0 + 50RB#0	20.01	24.61
			19027 + 19147	1RB#0 + 0RB#0	20.82	25.42
			19027 + 19147	75RB#0 + 50RB#0	19.96	24.56
		256QAM	18675 + 18795	1RB#0 + 0RB#0	17.84	22.44
			18675 + 18795	75RB#0 + 50RB#0	18.15	22.75
			18851 + 18971	1RB#0 + 0RB#0	17.75	22.35
			18851 + 18971	75RB#0 + 50RB#0	18.06	22.66
			19027 + 19147	1RB#0 + 0RB#0	17.69	22.29
			19027 + 19147	75RB#0 + 50RB#0	18.02	22.62

Note:

1. The conducted output power was copied from the original module report.
2. EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

Band	Bandwidth	Modulation	Channel	RB Configuration	Conducted Output Power (dBm)	EIRP Power (dBm)
CA 2C	15MHz + 15MHz	QPSK	18675 + 18825	1RB#0 + 0RB#0	23.01	27.61
			18675 + 18825	75RB#0 + 75RB#0	21.23	25.83
			18825 + 18975	1RB#0 + 0RB#0	22.9	27.5
			18825 + 18975	75RB#0 + 75RB#0	21.14	25.74
			18975 + 19125	1RB#0 + 0RB#0	22.88	27.48
			18975 + 19125	75RB#0 + 75RB#0	21.12	25.72
		16QAM	18675 + 18825	1RB#0 + 0RB#0	22.24	26.84
			18675 + 18825	75RB#0 + 75RB#0	20.21	24.81
			18825 + 18975	1RB#0 + 0RB#0	22.15	26.75
			18825 + 18975	75RB#0 + 75RB#0	20.1	24.7
			18975 + 19125	1RB#0 + 0RB#0	22.14	26.74
			18975 + 19125	75RB#0 + 75RB#0	20.1	24.7
		64QAM	18675 + 18825	1RB#0 + 0RB#0	21.36	25.96
			18675 + 18825	75RB#0 + 75RB#0	20.19	24.79
			18825 + 18975	1RB#0 + 0RB#0	21.25	25.85
			18825 + 18975	75RB#0 + 75RB#0	20.11	24.71
			18975 + 19125	1RB#0 + 0RB#0	21.27	25.87
			18975 + 19125	75RB#0 + 75RB#0	20.09	24.69
		256QAM	18675 + 18825	1RB#0 + 0RB#0	18.29	22.89
			18675 + 18825	75RB#0 + 75RB#0	18.25	22.85
			18825 + 18975	1RB#0 + 0RB#0	18.2	22.8
			18825 + 18975	75RB#0 + 75RB#0	18.13	22.73
			18975 + 19125	1RB#0 + 0RB#0	18.11	22.71
			18975 + 19125	75RB#0 + 75RB#0	18.17	22.77

Note:

1. The conducted output power was copied from the original module report.
2. EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

Band	Bandwidth	Modulation	Channel	RB Configuration	Conducted Output Power (dBm)	EIRP Power (dBm)
CA 2C	15MHz + 20MHz	QPSK	18678 + 18849	1RB#0 + 0RB#0	22.98	27.58
			18678 + 18849	75RB#0 + 100RB#0	21.18	25.78
			18803 + 18974	1RB#0 + 0RB#0	22.89	27.49
			18803 + 18974	75RB#0 + 100RB#0	21.13	25.73
			18929 + 19100	1RB#0 + 0RB#0	22.84	27.44
			18929 + 19100	75RB#0 + 100RB#0	21.21	25.81
		16QAM	18678 + 18849	1RB#0 + 0RB#0	22.21	26.81
			18678 + 18849	75RB#0 + 100RB#0	20.17	24.77
			18803 + 18974	1RB#0 + 0RB#0	22.21	26.81
			18803 + 18974	75RB#0 + 100RB#0	20.11	24.71
			18929 + 19100	1RB#0 + 0RB#0	22.09	26.69
			18929 + 19100	75RB#0 + 100RB#0	20.16	24.76
		64QAM	18678 + 18849	1RB#0 + 0RB#0	21.21	25.81
			18678 + 18849	75RB#0 + 100RB#0	20.17	24.77
			18803 + 18974	1RB#0 + 0RB#0	21.23	25.83
			18803 + 18974	75RB#0 + 100RB#0	20.1	24.7
			18929 + 19100	1RB#0 + 0RB#0	21.15	25.75
			18929 + 19100	75RB#0 + 100RB#0	20.19	24.79
		256QAM	18678 + 18849	1RB#0 + 0RB#0	18.25	22.85
			18678 + 18849	75RB#0 + 100RB#0	18.21	22.81
			18803 + 18974	1RB#0 + 0RB#0	18.2	22.8
			18803 + 18974	75RB#0 + 100RB#0	18.13	22.73
			18929 + 19100	1RB#0 + 0RB#0	18.11	22.71
			18929 + 19100	75RB#0 + 100RB#0	18.18	22.78

Note:

1. The conducted output power was copied from the original module report.
2. EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

Band	Bandwidth	Modulation	Channel	RB Configuration	Conducted Output Power (dBm)	EIRP Power (dBm)
CA 2C	20MHz + 10MHz	QPSK	18700 + 18844	100RB#0 + 50RB#0	21.17	25.77
			18700 + 18844	1RB#0 + 0RB#0	22.8	27.4
			18851 + 18995	100RB#0 + 50RB#0	21.12	25.72
			18851 + 18995	1RB#0 + 0RB#0	22.74	27.34
			19001 + 19145	100RB#0 + 50RB#0	21.09	25.69
			19001 + 19145	1RB#0 + 0RB#0	22.73	27.33
		16QAM	18700 + 18844	100RB#0 + 50RB#0	20.13	24.73
			18700 + 18844	1RB#0 + 0RB#0	22.07	26.67
			18851 + 18995	100RB#0 + 50RB#0	20.08	24.68
			18851 + 18995	1RB#0 + 0RB#0	22.04	26.64
			19001 + 19145	100RB#0 + 50RB#0	20.05	24.65
			19001 + 19145	1RB#0 + 0RB#0	22.03	26.63
		64QAM	18700 + 18844	100RB#0 + 50RB#0	20.14	24.74
			18700 + 18844	1RB#0 + 0RB#0	21.25	25.85
			18851 + 18995	100RB#0 + 50RB#0	20.09	24.69
			18851 + 18995	1RB#0 + 0RB#0	21.11	25.71
			19001 + 19145	100RB#0 + 50RB#0	20.08	24.68
			19001 + 19145	1RB#0 + 0RB#0	21.07	25.67
		256QAM	18700 + 18844	100RB#0 + 50RB#0	18.18	22.78
			18700 + 18844	1RB#0 + 0RB#0	18.12	22.72
			18851 + 18995	100RB#0 + 50RB#0	18.11	22.71
			18851 + 18995	1RB#0 + 0RB#0	18.09	22.69
			19001 + 19145	100RB#0 + 50RB#0	18.11	22.71
			19001 + 19145	1RB#0 + 0RB#0	18	22.6

Note:

1. The conducted output power was copied from the original module report.
2. EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

Band	Bandwidth	Modulation	Channel	RB Configuration	Conducted Output Power (dBm)	EIRP Power (dBm)
CA 2C	20MHz + 15MHz	QPSK	18700 + 18871	100RB#0 + 75RB#0	21.16	25.76
			18700 + 18871	1RB#0 + 0RB#0	22.78	27.38
			18826 + 18997	100RB#0 + 75RB#0	21.11	25.71
			18826 + 18997	1RB#0 + 0RB#0	22.75	27.35
			18951 + 19122	100RB#0 + 75RB#0	21.17	25.77
			18951 + 19122	1RB#0 + 0RB#0	22.71	27.31
		16QAM	18700 + 18871	100RB#0 + 75RB#0	20.12	24.72
			18700 + 18871	1RB#0 + 0RB#0	22.1	26.7
			18826 + 18997	100RB#0 + 75RB#0	20.07	24.67
			18826 + 18997	1RB#0 + 0RB#0	21.95	26.55
			18951 + 19122	100RB#0 + 75RB#0	20.13	24.73
			18951 + 19122	1RB#0 + 0RB#0	21.95	26.55
		64QAM	18700 + 18871	100RB#0 + 75RB#0	20.15	24.75
			18700 + 18871	1RB#0 + 0RB#0	21.12	25.72
			18826 + 18997	100RB#0 + 75RB#0	20.1	24.7
			18826 + 18997	1RB#0 + 0RB#0	21.14	25.74
			18951 + 19122	100RB#0 + 75RB#0	20.15	24.75
			18951 + 19122	1RB#0 + 0RB#0	21.08	25.68
		256QAM	18700 + 18871	100RB#0 + 75RB#0	18.15	22.75
			18700 + 18871	1RB#0 + 0RB#0	18.01	22.61
			18826 + 18997	100RB#0 + 75RB#0	18.14	22.74
			18826 + 18997	1RB#0 + 0RB#0	18.08	22.68
			18951 + 19122	100RB#0 + 75RB#0	18.17	22.77
			18951 + 19122	1RB#0 + 0RB#0	17.99	22.59

Note:

1. The conducted output power was copied from the original module report.
2. EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

Band	Bandwidth	Modulation	Channel	RB Configuration	Conducted Output Power (dBm)	EIRP Power (dBm)
CA 2C	20MHz + 20MHz	QPSK	18700 + 18898	100RB#0 + 100RB#0	21.12	25.72
			18700 + 18898	1RB#0 + 0RB#0	22.77	27.37
			18801 + 18999	100RB#0 + 100RB#0	21.1	25.7
			18801 + 18999	1RB#0 + 0RB#0	22.73	27.33
			18902 + 19100	100RB#0 + 100RB#0	21.19	25.79
			18902 + 19100	1RB#0 + 0RB#0	22.67	27.27
		16QAM	18700 + 18898	100RB#0 + 100RB#0	20.07	24.67
			18700 + 18898	1RB#0 + 0RB#0	22.03	26.63
			18801 + 18999	100RB#0 + 100RB#0	20.04	24.64
			18801 + 18999	1RB#0 + 0RB#0	22.01	26.61
			18902 + 19100	100RB#0 + 100RB#0	20.15	24.75
			18902 + 19100	1RB#0 + 0RB#0	21.93	26.53
		64QAM	18700 + 18898	100RB#0 + 100RB#0	20.09	24.69
			18700 + 18898	1RB#0 + 0RB#0	21.2	25.8
			18801 + 18999	100RB#0 + 100RB#0	20.06	24.66
			18801 + 18999	1RB#0 + 0RB#0	21.04	25.64
			18902 + 19100	100RB#0 + 100RB#0	20.15	24.75
			18902 + 19100	1RB#0 + 0RB#0	20.89	25.49
		256QAM	18700 + 18898	100RB#0 + 100RB#0	18.09	22.69
			18700 + 18898	1RB#0 + 0RB#0	18.03	22.63
			18801 + 18999	100RB#0 + 100RB#0	18.11	22.71
			18801 + 18999	1RB#0 + 0RB#0	17.95	22.55
			18902 + 19100	100RB#0 + 100RB#0	18.19	22.79
			18902 + 19100	1RB#0 + 0RB#0	17.94	22.54

Note:

1. The conducted output power was copied from the original module report.
2. EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

Band	Bandwidth	Modulation	Channel	RB Configuration	Conducted Output Power (dBm)	EIRP Power (dBm)
CA 2C	20MHz + 5MHz	QPSK	18700 + 18817	100RB#0 + 25RB#0	21.05	25.65
			18700 + 18817	1RB#0 + 0RB#0	22.43	27.03
			18875 + 18992	100RB#0 + 25RB#0	21	25.6
			18875 + 18992	1RB#0 + 0RB#0	22.31	26.91
			19050 + 19167	100RB#0 + 25RB#0	20.95	25.55
			19050 + 19167	1RB#0 + 0RB#0	22.35	26.95
		16QAM	18700 + 18817	100RB#0 + 25RB#0	20.03	24.63
			18700 + 18817	1RB#0 + 0RB#0	21.69	26.29
			18875 + 18992	100RB#0 + 25RB#0	19.93	24.53
			18875 + 18992	1RB#0 + 0RB#0	21.58	26.18
			19050 + 19167	100RB#0 + 25RB#0	19.91	24.51
			19050 + 19167	1RB#0 + 0RB#0	21.55	26.15
		64QAM	18700 + 18817	100RB#0 + 25RB#0	20.01	24.61
			18700 + 18817	1RB#0 + 0RB#0	20.73	25.33
			18875 + 18992	100RB#0 + 25RB#0	19.95	24.55
			18875 + 18992	1RB#0 + 0RB#0	20.66	25.26
			19050 + 19167	100RB#0 + 25RB#0	19.92	24.52
			19050 + 19167	1RB#0 + 0RB#0	20.47	25.07
		256QAM	18700 + 18817	100RB#0 + 25RB#0	18.06	22.66
			18700 + 18817	1RB#0 + 0RB#0	17.77	22.37
			18875 + 18992	100RB#0 + 25RB#0	17.99	22.59
			18875 + 18992	1RB#0 + 0RB#0	17.62	22.22
			19050 + 19167	100RB#0 + 25RB#0	17.99	22.59
			19050 + 19167	1RB#0 + 0RB#0	17.57	22.17

Note:

1. The conducted output power was copied from the original module report.
2. EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

Band	Bandwidth	Modulation	Channel	RB Configuration	Conducted Output Power (dBm)	EIRP Power (dBm)
CA 2C	5MHz + 20MHz	QPSK	18633 + 18750	1RB#0 + 0RB#0	22.42	27.02
			18633 + 18750	25RB#0 + 100RB#0	20.92	25.52
			18808 + 18925	1RB#0 + 0RB#0	22.36	26.96
			18808 + 18925	25RB#0 + 100RB#0	20.83	25.43
			18983 + 19100	1RB#0 + 0RB#0	22.23	26.83
			18983 + 19100	25RB#0 + 100RB#0	20.84	25.44
		16QAM	18633 + 18750	1RB#0 + 0RB#0	21.75	26.35
			18633 + 18750	25RB#0 + 100RB#0	19.88	24.48
			18808 + 18925	1RB#0 + 0RB#0	21.63	26.23
			18808 + 18925	25RB#0 + 100RB#0	19.82	24.42
			18983 + 19100	1RB#0 + 0RB#0	21.6	26.2
			18983 + 19100	25RB#0 + 100RB#0	19.81	24.41
		64QAM	18633 + 18750	1RB#0 + 0RB#0	20.86	25.46
			18633 + 18750	25RB#0 + 100RB#0	19.85	24.45
			18808 + 18925	1RB#0 + 0RB#0	20.64	25.24
			18808 + 18925	25RB#0 + 100RB#0	19.81	24.41
			18983 + 19100	1RB#0 + 0RB#0	20.58	25.18
			18983 + 19100	25RB#0 + 100RB#0	19.82	24.42
		256QAM	18633 + 18750	1RB#0 + 0RB#0	17.71	22.31
			18633 + 18750	25RB#0 + 100RB#0	17.99	22.59
			18808 + 18925	1RB#0 + 0RB#0	17.56	22.16
			18808 + 18925	25RB#0 + 100RB#0	17.91	22.51
			18983 + 19100	1RB#0 + 0RB#0	17.49	22.09
			18983 + 19100	25RB#0 + 100RB#0	17.89	22.49

Note:

1. The conducted output power was copied from the original module report.
2. EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

7.2 Radiated Spurious Emissions below 1GHz

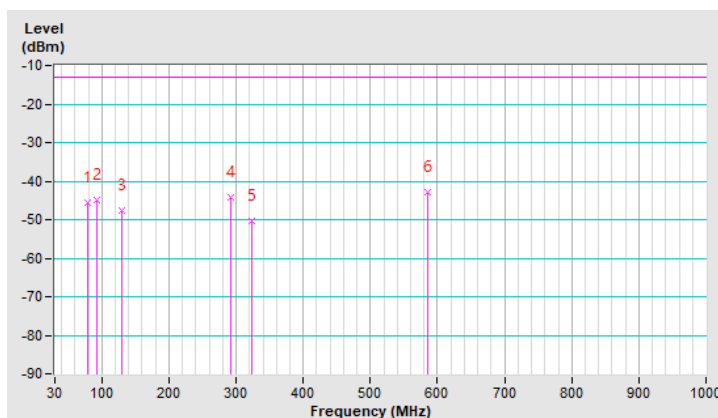
7.2.1 LTE Band 2 (CA 2C)

RF Mode	LTE Band 2 (CA 2C) Channel Bandwidth: 15MHz + 15MHz	Channel	CH 18675 (1857.5MHz) + 18825 (1872.5MHz)
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 70% RH
Tested By	Thomas Cheng		

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	78.50	-45.68	-13.00	-32.68	1.50 H	279	66.00	-111.68
2	93.05	-44.86	-13.00	-31.86	2.00 H	96	68.13	-112.99
3	129.91	-47.64	-13.00	-34.64	1.00 H	204	61.03	-108.67
4	291.90	-44.30	-13.00	-31.30	2.50 H	97	62.91	-107.21
5	322.94	-50.35	-13.00	-37.35	1.00 H	119	56.09	-106.44
6	585.81	-42.75	-13.00	-29.75	2.00 H	346	58.19	-100.94

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 of frequency range 30 MHz ~ 1 GHz.
5. The EIRP levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

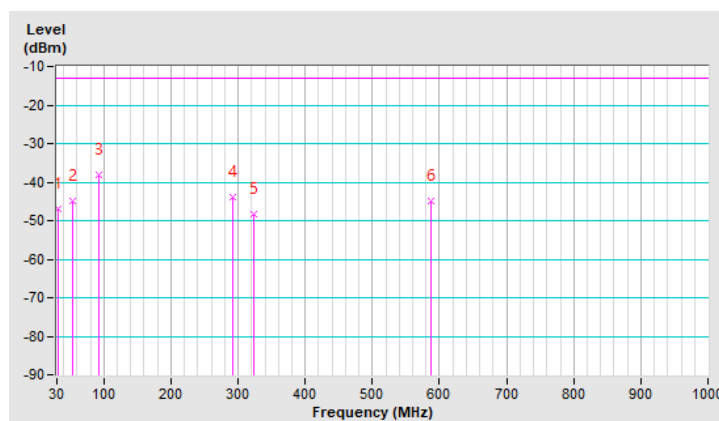


RF Mode	LTE Band 2 (CA 2C) Channel Bandwidth: 15MHz + 15MHz	Channel	CH 18675 (1857.5MHz) + 18825 (1872.5MHz)
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 70% RH
Tested By	Thomas Cheng		

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	31.94	-46.86	-13.00	-33.86	1.00 V	235	61.24	-108.10
2	53.28	-45.04	-13.00	-32.04	1.50 V	28	62.61	-107.65
3	92.08	-37.99	-13.00	-24.99	1.00 V	201	75.05	-113.04
4	291.90	-43.91	-13.00	-30.91	2.00 V	56	63.30	-107.21
5	323.91	-48.20	-13.00	-35.20	2.50 V	228	58.20	-106.40
6	587.75	-44.90	-13.00	-31.90	2.00 V	254	55.99	-100.89

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 EIRP levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



7.3 Radiated Spurious Emissions above 1GHz

7.3.1 LTE Band 2 (CA 2C)

RF Mode	LTE Band 2 (CA 2C) Channel Bandwidth: 15MHz + 15MHz	Channel	CH 18675 (1857.5MHz) + 18825 (1872.5MHz)
Frequency Range	1 GHz ~ 20 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 70% RH
Tested By	Vincent Chen		

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	3715.00	-51.20	-13.00	-38.20	2.74 H	152	-39.00	-12.20
2	3745.00	-51.70	-13.00	-38.70	1.18 H	253	-39.30	-12.40
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	3715.00	-52.90	-13.00	-39.90	1.35 V	254	-40.70	-12.20
2	3745.00	-53.50	-13.00	-40.50	2.31 V	152	-41.10	-12.40

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.

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.

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

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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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