

Partial FCC Test Report

(PART 22)

Report No.: RFBFLF-WTW-P21070538F

FCC ID: MSQFM350GL

Test Model: FM350-GL

Received Date: Dec. 28, 2022

Test Date: Dec. 30, 2022 ~ Jan. 03, 2023

Issued Date: Mar. 08, 2023

Applicant: ASUSTeK COMPUTER INC.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lin Kou Laboratories

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Test Location: No.19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City
33383, Taiwan

**FCC Registration /
Designation Number:** 788550 / TW0003



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Table of Contents

Release Control Record	3
1 Certificate of Conformity	4
2 Summary of Test Results.....	5
2.1 Measurement Uncertainty.....	5
2.2 Test Site and Instruments	6
3 General Information	7
3.1 General Description of EUT	7
3.2 Configuration of System under Test.....	9
3.2.1 Description of Support Units.....	9
3.3 Test Mode Applicability and Tested Channel Detail	10
3.4 EUT Operating Conditions	10
3.5 General Description of Applied Standards and references.....	11
4 Test Types and Results	12
4.1 Radiated Emission Measurement.....	12
4.1.1 Limits of Radiated Emission Measurement.....	12
4.1.2 Test Procedure	12
4.1.3 Deviation from Test Standard	12
4.1.4 Test Setup.....	13
4.1.5 Test Results	14
5 Pictures of Test Arrangements.....	24
Appendix – Information of the Testing Laboratories	25

Release Control Record

Issue No.	Description	Date Issued
RFBFLF-WTW-P21070538F	Original Release	Mar. 08, 2023

2 Summary of Test Results

Applied Standard: FCC Part 22 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 22.913 (a)	Effective Radiated Power	N/A	Refer to Note
2.1047	Modulation Characteristics	N/A	Refer to Note
22.913 (d)	Peak to Average Ratio	N/A	Refer to Note
2.1055 22.355	Frequency Stability	N/A	Refer to Note
2.1049	Occupied Bandwidth	N/A	Refer to Note
22.917	Band Edge Measurements	N/A	Refer to Note
2.1051 22.917	Conducted Spurious Emissions	N/A	Refer to Note
2.1053 22.917	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -34.74 dB at 77.53 MHz.

Note:

1. This report is a partial report, only test items of Radiated Spurious Emissions tests was performed. Other testing data please refer to Sporton report no.: FG051802A_R01, FG051802B_R01, FG051802G_R01, FG051802H_R01 for module (Brand: Fibocom, Model: FM350-GL).
2. 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:

Measurement	Frequency	Expanded Uncertainty (k=2) (\pm)
Radiated Emissions up to 1 GHz	9 kHz ~ 30 MHz	2.44 dB
	30 MHz ~ 200 MHz	2.95 dB
	200 MHz ~ 1000 MHz	2.95 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	2.26 dB
	18 GHz ~ 40 GHz	1.94 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower &Turn Max-Full	MFA-440H	AT93021705	NA	NA
Turn Table Max-Full	MFT-201SS	NA	NA	NA
Turn Table Controller Max-Full	MG-7802	NA	NA	NA
Test Receiver KEYSIGHT	N9038A	MY55420137	Apr. 27, 2022	Apr. 26, 2023
Signal Analyzer Agilent	N9010A	MY52220207	Jan. 06, 2022	Jan. 05, 2023
Loop Antenna TESEQ	HLA 6121	45745	Jul. 27, 2022	Jul. 26, 2023
Loop Antenna EMCI	EM-6879	269	Sep. 19, 2022	Sep. 18, 2023
Pre-amplifier EMCI	EMC001340	980201	Sep. 23, 2022	Sep. 22, 2023
RF Coaxial Cable EMCI	5D-NM-BM	140903+140902	Jan. 15, 2022	Jan. 14, 2023
Pre-Amplifier EMCI	EMC 330H	980112	Oct. 01, 2022	Sep. 30, 2023
Bi_Log Antenna Schwarzbeck	VULB9168	9168-472	Oct. 21, 2022	Oct. 20, 2023
RF Coaxial Cable WORKEN	8D-FB	Cable-Ch10-01	Oct. 01, 2022	Sep. 30, 2023
Horn Antenna Schwarzbeck	BBHA 9120D	9120D-969	Nov. 13, 2022	Nov. 12, 2023
Pre-Amplifier EMCI	EMC 012645	980115	Oct. 01, 2022	Sep. 30, 2023
RF Coaxial Cable EMCI	EMC104-SM-SM- 8000+3000	171005	Oct. 01, 2022	Sep. 30, 2023
RF Coaxial Cable HUBER SUHNER	SUCOFLEX 104	EMC104-SM-SM- 1000(140807)	Oct. 01, 2022	Sep. 30, 2023
RF FLITER MICRO-TRONICS	BRM50716	060	Jan. 10, 2022	Jan. 09, 2023
RF FLITER MICRO-TRONICS	BRM17690	004	Jan. 10, 2022	Jan. 09, 2023
Boresight antenna tower fixture BV	BAF-02	7	NA	NA
Radio Communication Analyzer Anritsu	MT8821C	6201462755	Mar. 03, 2022	Mar. 02, 2023

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HY - 966 chamber 5.

3 General Information

3.1 General Description of EUT

Product	5G Module	
Brand	Fibocom Wireless Inc	
Test Model	FM350-GL	
Status of EUT	Engineering Sample	
Power Supply Rating	11.61 Vdc (Battery) 5 Vdc / 9Vdc / 15Vdc / 20Vdc (Adapter)	
Modulation Type	WCDMA	QPSK
	LTE	QPSK, 16QAM, 64QAM, 256QAM
	5GNR	$\pi/2$ BPSK, QPSK, 16QAM, 64QAM, 256QAM
Frequency Range	WCDMA	826.4 ~ 846.6 MHz
	LTE 5 (Channel Bandwidth: 1.4 MHz)	824.7 ~ 848.3 MHz
	LTE 5 (Channel Bandwidth: 3 MHz)	825.5 ~ 847.5 MHz
	LTE 5 (Channel Bandwidth: 5 MHz)	826.5 ~ 846.5 MHz
	LTE 5 (Channel Bandwidth: 10 MHz)	829 ~ 844 MHz
	LTE 26 (Channel Bandwidth: 1.4 MHz)	824.7 ~ 848.3 MHz
	LTE 26 (Channel Bandwidth: 3 MHz)	825.5 ~ 847.5 MHz
	LTE 26 (Channel Bandwidth: 5 MHz)	826.5 ~ 846.5 MHz
	LTE 26 (Channel Bandwidth: 10 MHz)	829 ~ 844 MHz
	LTE 26 (Channel Bandwidth: 15 MHz)	831.5 ~ 841.5 MHz
	n5 (Channel Bandwidth 5MHz)	826.5MHz ~ 846.5MHz
	n5 (Channel Bandwidth 10MHz)	829.0MHz ~ 844.0MHz
	n5 (Channel Bandwidth 15MHz)	831.5MHz ~ 841.5MHz
	n5 (Channel Bandwidth 20MHz)	834.0MHz ~ 839.0MHz
Antenna Type	Refer to Note as below	
Tx / Rx Function	2Tx / 4Rx	

Note:

- The EUT is authorized for use in specific End-product. Please refer to below for more details.

Product Name	Brand	Model	Difference
Notebook PC/Expertbook	ASUS	B7402FB	For marketing purpose
		B7402F	
		B7402FV	
		B7402FVA	
		B7402FVAT	

2. The antenna information is listed as below.

WWAN Antenna								
Ant. Type	Couple							
Band	NB				Tablet			
	Antenna Peak Gain (dBi)				Antenna Peak Gain (dBi)			
	Ant 0 (TX/RX)	Ant 1 (RX)	Ant 2 (TX/RX)	Ant 3 (RX)	Ant 0 (TX/RX)	Ant 1 (RX)	Ant 2 (TX/RX)	Ant 3 (RX)
WCDMA II / LTE 2 / 5G NR n2	1.96	1.51	1.82	1.96	-1.18	1.92	0.93	-1.73
WCDMA IV / LTE 4	1.89	1.57	1.84	1.87	1.22	1.95	0.48	-0.24
WCDMA V / LTE 5 / 5G NR n5	-0.42	-	-	-0.36	-3.96	-	-	-2.49
LTE 7 / 5G NR n7	1.97	1.61	1.79	1.83	0.29	1.94	1.99	0.79
LTE 12	0.88	-	-	-0.86	-1.05	-	-	-4.13
LTE 13	1.95	-	-	1.99	0.23	-	-	-1.81
LTE 14	1.90	-	-	1.81	-0.78	-	-	-1.95
LTE 17	0.88	-	-	-0.86	-1.05	-	-	-4.13
LTE 25 / 5G NR n25	1.93	1.77	1.82	1.97	-1.04	1.92	0.93	-1.69
LTE 26	-0.03	-	-	-0.22	-3.72	-	-	-2.49
LTE 30 / 5G NR n30	1.80	1.27	1.83	1.96	0.49	1.33	0.71	1.63
LTE 38 / 5G NR n38	1.31	1.55	1.88	1.81	0.8	1.96	1.94	-0.46
LTE 41 / 5G NR n41	1.97	1.98	1.50	1.84	1.82	1.84	1.86	1.96
LTE 48	1.90	1.89	1.73	1.91	1.84	1.77	1.82	1.83
LTE 66 / 5G NR n66	1.94	1.75	1.85	1.85	1.22	1.99	0.51	-0.44
5G NR n77	1.98	1.91	1.87	1.97	1.80	1.89	1.92	1.90
5G NR n78	1.98	1.75	1.87	1.91	1.98	1.89	1.82	1.93

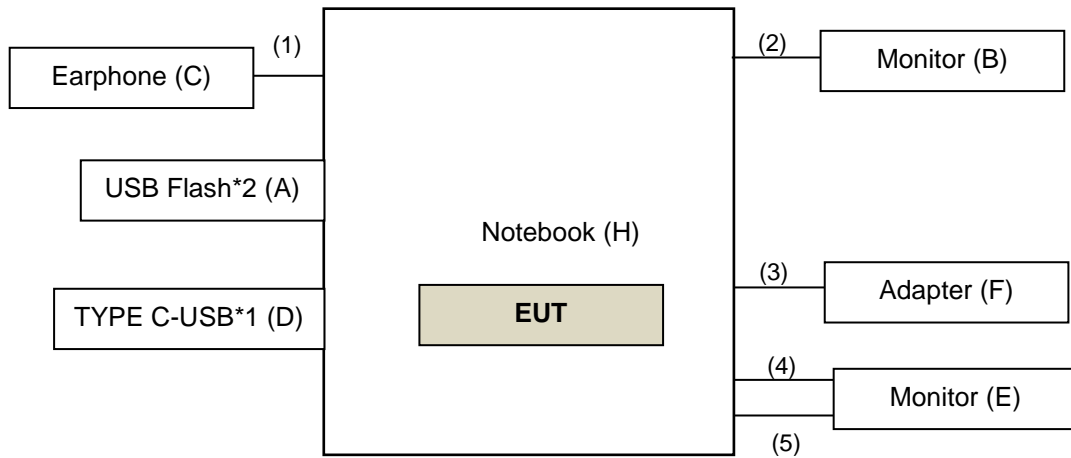
*The max antenna gain was chosen for final test.

3. Detail antenna specification please refer to antenna datasheet.

4. 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 Configuration of System under Test

<Radiated Emission Test>



Under Table

Remote Site

Radio Communication
Analyzer (G)

3.2.1 Description of Support Units

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

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	USB*2	TRANSCEND	USB3.0 32GB	N/A	N/A	Provided by Lab
B	Monitor	Dell	A14S2421HSXmTW	CN-01KQFW-WSL00-24C-711B	N/A	Provided by Lab
C	Earphone	HTC	HTC_MAX320	N/A	N/A	Provided by Lab
D	TYPE C-USB*1	SanDisk	SDDDC3-032G	N/A	N/A	Provided by Lab
E	Monitor	Dell	A14S2421HSXmTW	CN-01KQFW-WSL00-24C-714B	N/A	Provided by Lab
F	Adapter	CHICONY	A19-065N3A	N/A	N/A	Accessory of the EUT
G	Radio Communication Analyzer	Anritsu	MT8821C	6201462755	NA	Provided by Lab
H	Notebook	ASUS	B7402FV	NA	NA	Provided by client

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	Audio for Earphone Cable	1	1.2	N	0	Provided by Lab
2.	HDMI Cable	1	1.8	Y	0	Provided by Lab
3.	Adapter Cable	1	1.6	Y	0	Accessory of the EUT
4.	Mini DP TO DP Cable	1	1.5	Y	0	Provided by Lab
5.	Micro HDMI TO HDMI Cable	1	1.5	Y	0	Provided by Lab

3.3 Test Mode Applicability and Tested Channel Detail

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis of Tablet Mode and NB Mode, and antenna ports.

The worst case was found when positioned on NB mode. Following channel(s) was (were) selected for the final test as listed below:

WCDMA

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
-	Radiated Emission	4132 to 4233	4182	WCDMA

LTE Band 5

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	Radiated Emission	20450 to 20600	20525	10 MHz	QPSK	1 RB / 0 RB Offset

LTE Band 26

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	Radiated Emission	26865 to 26965	26915	15 MHz	QPSK	1 RB / 0 RB Offset

5G NR Band 5

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	Radiated Emission	166800 to 167800	167300	20MHz	QPSK	1 RB / 1 RB Offset

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
Radiated Emission	24 deg. C, 66 % RH	120 Vac, 60 Hz	Thomas Cheng, Vincent Chen

3.4 EUT Operating Conditions

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

3.5 General Description of Applied Standards and references

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards and references:

Test Standard:

FCC 47 CFR Part 2

FCC 47 CFR Part 22

ANSI 63.26-2015

Note: All test items have been performed and recorded as per the above standards.

References Test Guidance:

KDB 971168 D01 Power Meas License Digital Systems v03r01

ANSI/TIA/EIA-603-E 2016

Note: All test items have been performed as a reference to the above KDB test guidance.

4 Test Types and Results

4.1 Radiated Emission Measurement

4.1.1 Limits of Radiated Emission Measurement

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

4.1.2 Test Procedure

- a. In the semi-anechoic chamber, EUT placed on the 0.8m(below or equal 1GHz) and/or 1.5m(above 1GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- b. The 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 C63.26 section 5.5 and 5.2.7
EIRP (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 (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:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz.
2. The emission levels were against the limit of frequency range 9 kHz ~ 30 MHz:

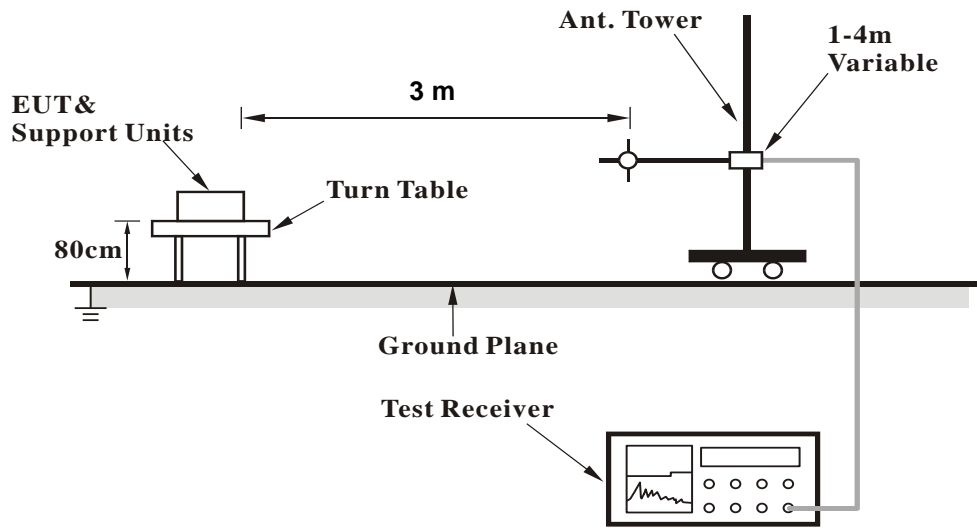
The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

4.1.3 Deviation from Test Standard

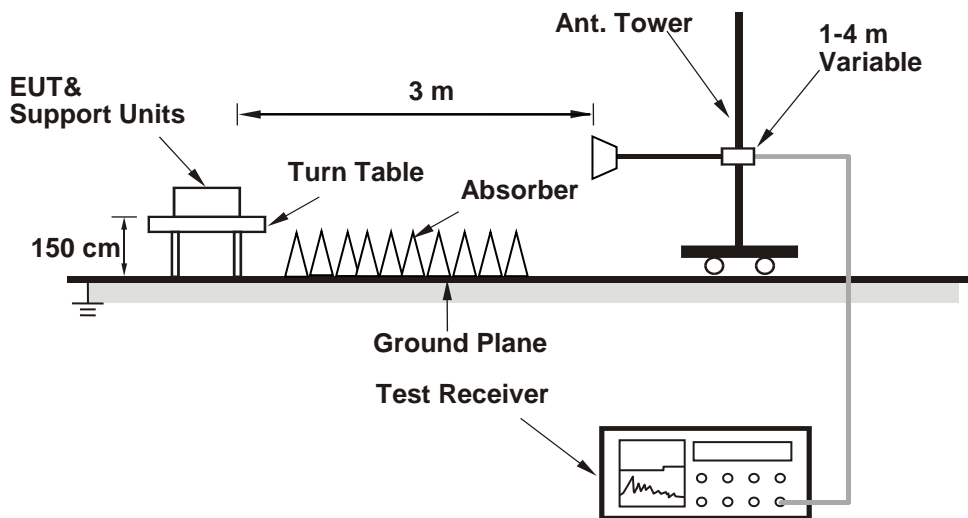
No deviation.

4.1.4 Test Setup

<Radiated Emission below or equal 1 GHz>



<Radiated Emission above 1 GHz>



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

4.1.5 Test Results

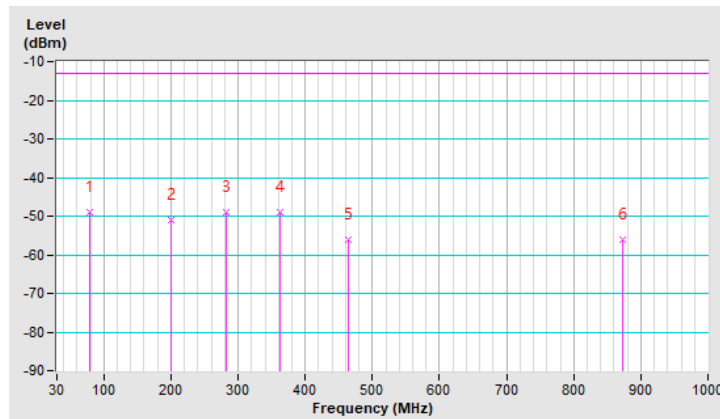
Below 1GHz
WCDMA Band 5

RF Mode	TX WCDMA Band V	Channel	CH 4182 : 836.4 MHz
Frequency Range	30MHz ~ 1GHz		

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	79.47	-48.97	-13.00	-35.97	1.93 H	89	65.10	-114.07
2	200.72	-50.97	-13.00	-37.97	3.75 H	358	62.08	-113.05
3	282.20	-48.98	-13.00	-35.98	2.38 H	144	60.60	-109.58
4	362.71	-49.15	-13.00	-36.15	1.78 H	147	58.67	-107.82
5	463.59	-56.14	-13.00	-43.14	1.76 H	85	49.03	-105.17
6	872.93	-56.22	-13.00	-43.22	1.75 H	74	42.57	-98.79

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.

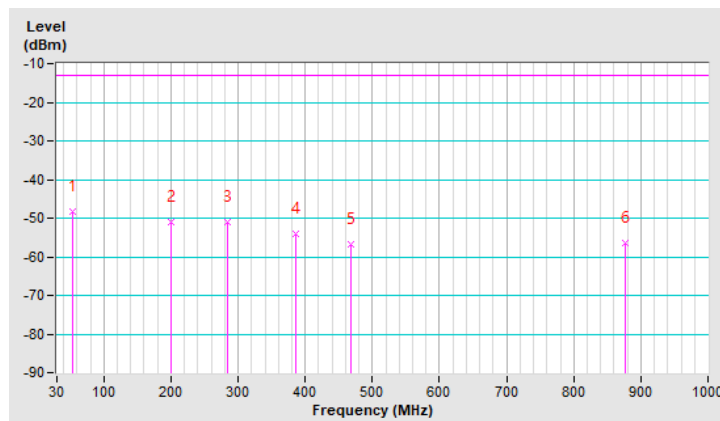


RF Mode	TX WCDMA Band V	Channel	CH 4182 : 836.4 MHz
Frequency Range	30MHz ~ 1GHz		

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	53.28	-48.18	-13.00	-35.18	2.75 V	37	61.62	-109.80
2	199.75	-50.92	-13.00	-37.92	1.49 V	52	62.12	-113.04
3	285.11	-50.98	-13.00	-37.98	2.44 V	180	58.52	-109.50
4	385.02	-54.15	-13.00	-41.15	2.07 V	84	52.98	-107.13
5	468.44	-56.85	-13.00	-43.85	1.79 V	303	48.20	-105.05
6	875.84	-56.53	-13.00	-43.53	2.57 V	227	42.22	-98.75

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.



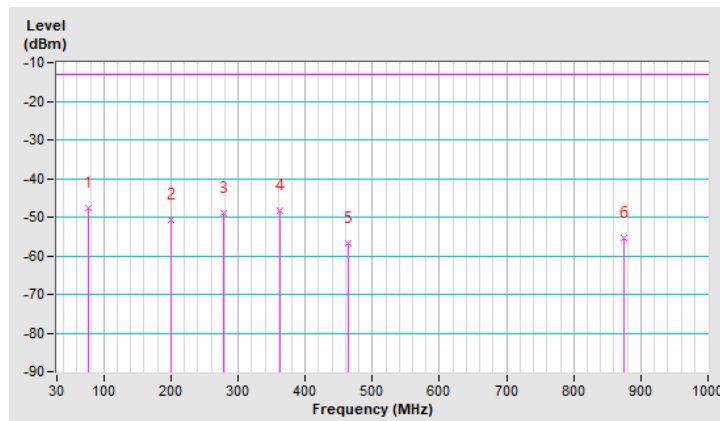
LTE Band 5, Channel Bandwidth: 10MHz

RF Mode	TX LTE Band V-10MHz	Channel	CH 20525 : 836.5 MHz
Frequency Range	30MHz ~ 1GHz		

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	77.53	-47.74	-13.00	-34.74	3.20 H	112	65.86	-113.60
2	200.72	-50.74	-13.00	-37.74	1.80 H	2	62.31	-113.05
3	279.29	-48.89	-13.00	-35.89	1.40 H	148	60.79	-109.68
4	361.74	-48.32	-13.00	-35.32	2.53 H	121	59.53	-107.85
5	464.56	-56.82	-13.00	-43.82	2.06 H	344	48.33	-105.15
6	873.90	-55.52	-13.00	-42.52	2.97 H	312	43.25	-98.77

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.

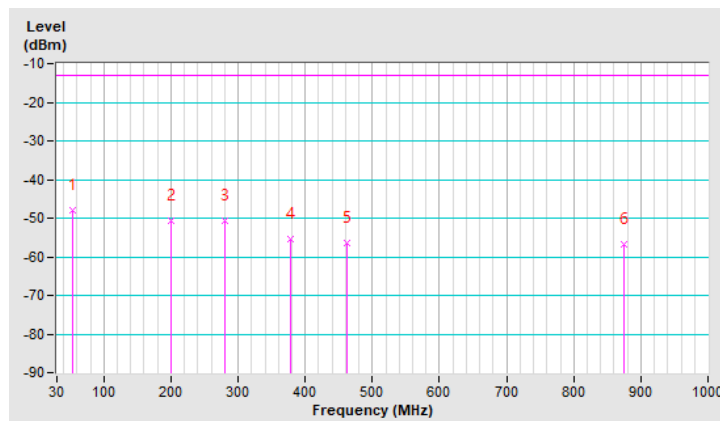


RF Mode	TX LTE Band V-10MHz	Channel	CH 20525 : 836.5 MHz
Frequency Range	30MHz ~ 1GHz		

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	53.28	-47.84	-13.00	-34.84	1.36 V	164	61.96	-109.80
2	200.72	-50.81	-13.00	-37.81	1.41 V	97	62.24	-113.05
3	281.23	-50.62	-13.00	-37.62	2.78 V	175	59.00	-109.62
4	378.23	-55.38	-13.00	-42.38	1.77 V	172	51.89	-107.27
5	461.65	-56.57	-13.00	-43.57	2.46 V	85	48.64	-105.21
6	874.87	-56.89	-13.00	-43.89	2.76 V	255	41.87	-98.76

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.



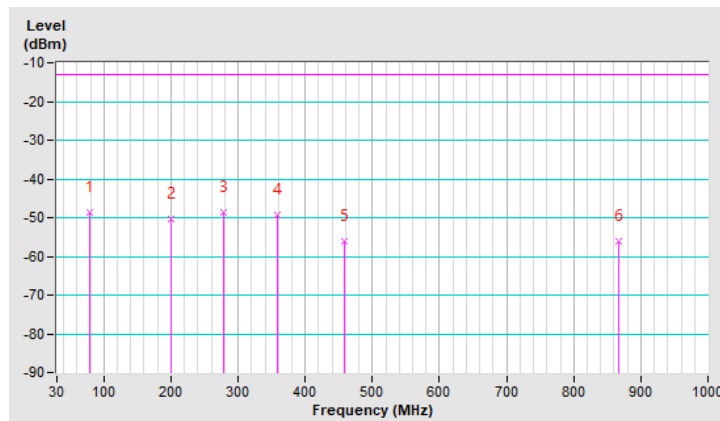
LTE Band 26, Channel Bandwidth: 15MHz

RF Mode	TX LTE Band XXVI-15MHz	Channel	CH 26915 : 836.5 MHz
Frequency Range	30MHz ~ 1GHz		

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	78.50	-48.65	-13.00	-35.65	2.63 H	343	65.18	-113.83
2	199.75	-50.48	-13.00	-37.48	1.46 H	221	62.56	-113.04
3	279.29	-48.55	-13.00	-35.55	1.87 H	142	61.13	-109.68
4	357.86	-49.37	-13.00	-36.37	2.95 H	136	58.59	-107.96
5	458.74	-55.98	-13.00	-42.98	1.64 H	120	49.29	-105.27
6	867.11	-55.99	-13.00	-42.99	1.66 H	296	42.92	-98.91

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.

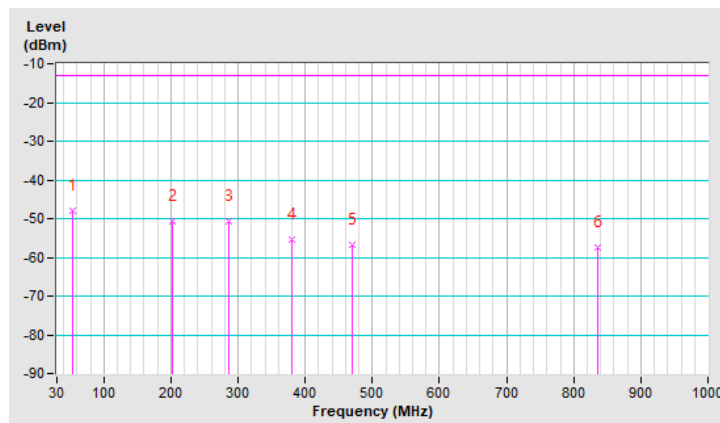


RF Mode	TX LTE Band XXVI-15MHz	Channel	CH 26915 : 836.5 MHz
Frequency Range	30MHz ~ 1GHz		

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	53.28	-47.84	-13.00	-34.84	1.38 V	185	61.96	-109.80
2	201.69	-50.65	-13.00	-37.65	1.08 V	107	62.41	-113.06
3	286.08	-50.61	-13.00	-37.61	3.00 V	179	58.87	-109.48
4	379.20	-55.48	-13.00	-42.48	1.50 V	181	51.76	-107.24
5	470.38	-56.66	-13.00	-43.66	3.85 V	100	48.34	-105.00
6	835.10	-57.51	-13.00	-44.51	2.50 V	114	41.36	-98.87

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.



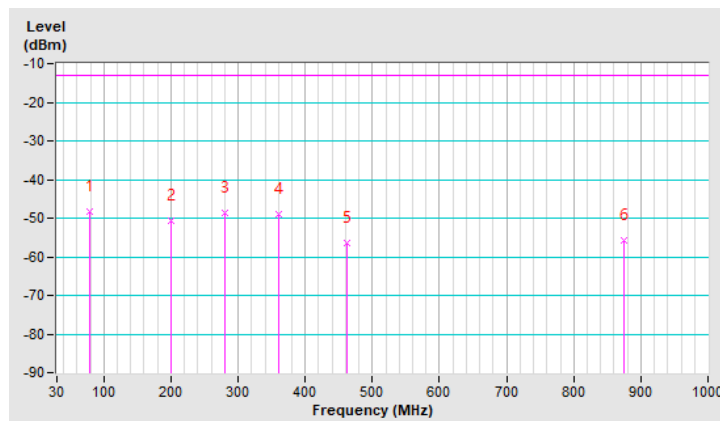
n5, Channel Bandwidth 20MHz

RF Mode	TX 5GNR Band V-20MHz	Channel	CH 167300 : 836.5 MHz
Frequency Range	30MHz ~ 1GHz		

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	78.50	-48.41	-13.00	-35.41	1.35 H	283	65.42	-113.83
2	199.75	-50.57	-13.00	-37.57	3.01 H	149	62.47	-113.04
3	280.26	-48.57	-13.00	-35.57	1.42 H	137	61.07	-109.64
4	359.80	-48.96	-13.00	-35.96	2.36 H	155	58.95	-107.91
5	461.65	-56.61	-13.00	-43.61	3.47 H	156	48.60	-105.21
6	873.90	-55.67	-13.00	-42.67	3.29 H	72	43.10	-98.77

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) + 20log(D) – 104.8 – 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

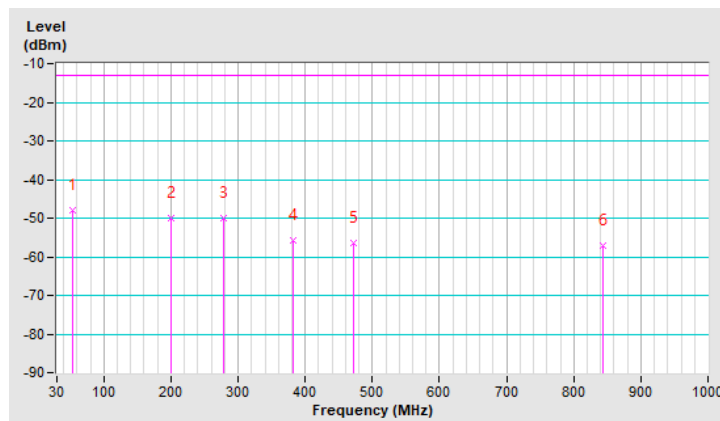


RF Mode	TX 5G NR Band V-20MHz	Channel	CH 167300 : 836.5 MHz
Frequency Range	30MHz ~ 1GHz		

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	53.28	-47.81	-13.00	-34.81	1.61 V	207	61.99	-109.80
2	199.75	-49.98	-13.00	-36.98	1.95 V	55	63.06	-113.04
3	279.29	-49.94	-13.00	-36.94	2.74 V	184	59.74	-109.68
4	382.11	-55.76	-13.00	-42.76	3.00 V	169	51.42	-107.18
5	471.35	-56.61	-13.00	-43.61	1.74 V	88	48.37	-104.98
6	842.86	-57.27	-13.00	-44.27	1.94 V	48	41.66	-98.93

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) + 20log(D) – 104.8 – 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.



Above 1GHz
 WCDMA Band 5

RF Mode	TX WCDMA Band V	Channel	CH 4182 : 836.4 MHz
Frequency Range	1GHz ~ 18GHz		

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	1672.80	-58.16	-13.00	-45.16	2.88 H	314	59.83	-117.99
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	1672.80	-57.68	-13.00	-44.68	2.32 V	99	60.31	-117.99

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) + 20log(D) – 104.8 – 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

LTE Band 5

RF Mode	TX LTE Band V-10MHz	Channel	CH 20525 : 836.5 MHz
Frequency Range	1GHz ~ 18GHz		

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	1673.00	-54.40	-13.00	-41.40	2.39 H	219	63.60	-118.00
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	1673.00	-54.00	-13.00	-41.00	2.16 V	35	64.00	-118.00

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) + 20log(D) – 104.8 – 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

LTE Band 26

RF Mode	TX LTE Band XXVI-15MHz	Channel	CH 26915 : 836.5 MHz
Frequency Range	1GHz ~ 18GHz		

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	1673.00	-60.50	-13.00	-47.50	2.18 H	160	57.50	-118.00
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	1673.00	-60.80	-13.00	-47.80	2.56 V	228	57.20	-118.00

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) + 20log(D) – 104.8 – 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

n5

RF Mode	TX 5GNR Band V-20MHz	Channel	CH 167300 : 836.5 MHz
Frequency Range	1GHz ~ 18GHz		

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	1673.00	-61.38	-13.00	-48.38	2.04 H	144	56.61	-117.99
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	1673.00	-61.10	-13.00	-48.10	1.64 V	265	56.89	-117.99

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) + 20log(D) – 104.8 – 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

5 Pictures of Test Arrangements

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

Appendix – 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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Web Site: <http://ee.bureauveritas.com.tw>

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

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