Partial FCC Test Report
(Part 24)

Report No.:	RF200428C03H-1
FCC ID:	PZWBHTM80QWG
Test Model:	BHT-M80-QWG
Received Date:	Feb. 04, 2021
Test Date:	Mar. 19, 2021
Issued Date:	Mar. 25, 2021
Applicant:	DENSO WAVE INCORPORATED
Address:	1 Yoshiike Kusagi Agui-cho,Chita-gun Aichi 470-2297, Japan
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
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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Release Control Record

Issue No.	Description	Date Issued
RF200428C03H-1	Original release	Mar. 25, 2021

1 Certificate of Conformity

Product:	2D Code Handy Terminal
Brand:	DENSO
Test Model:	BHT-M80-QWG
Sample Status:	Engineering sample
Applicant:	DENSO WAVE INCORPORATED
Test Date:	Mar. 19, 2021
Standards:	FCC Part 24, Subpart E

This report is issued as a supplementary report of RF200428C03-1. This report shall be used combined together with its original report.

Prepared by : _____ , **Date:** Mar. 25, 2021
Polly Chien / Specialist

Approved by : _____ , **Date:** Mar. 25, 2021
Bruce Chen / Project Engineer

Note: Radiated spurious emissions below 1G are performed for the addendum. Refer to original report for the other test data.

2 Summary of Test Results

Applied Standard: FCC Part 24 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 24.232	Effective radiated power	NA	Refer to Note 1
2.1046 24.232(d)	Peak To Average Ratio	NA	Refer to Note 1
2.1047	Modulation Characteristics	NA	Refer to Note 1
2.1055 24.235	Frequency Stability	NA	Refer to Note 1
2.1049	Occupied Bandwidth	NA	Refer to Note 1
24.238	Band Edge Measurements	NA	Refer to Note 1
2.1051 24.238	Conducted Spurious Emissions	NA	Refer to Note 1
2.1053 24.238	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -36.2dB at 212.7536MHz.

Note:

1. Radiated spurious emissions below 1G are performed for the addendum. Refer to original report for the other test data.
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) (±)
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.04 dB
	30MHz ~ 200MHz	3.59 dB
	200MHz ~1000MHz	3.60 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESR3	102579	Jul. 07, 2020	Jul. 06, 2021
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Jun. 09, 2020	Jun. 08, 2021
BILOG Antenna SCHWARZBECK	VULB9168	9168-171	Nov. 04, 2020	Nov. 03, 2021
HORN Antenna SCHWARZBECK	9120D	209	Nov. 22, 2020	Nov. 21, 2021
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 22, 2020	Nov. 21, 2021
Loop Antenna TESEQ	HLA 6121	45745	Jul. 06, 2020	Jul. 05, 2021
Preamplifier Agilent (Below 1GHz)	8447D	2944A10738	Aug. 16, 2020	Aug. 15, 2021
RF Coaxial Cable WOKEN With 5dB PAD	8D-FB	Cable-CH3-01	Aug. 16, 2020	Aug. 15, 2021
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH3-03 (223653/4)	Aug. 16, 2020	Aug. 15, 2021
RF signal cable HUBER+SUHNER& EMCI	SUCOFLEX 104&EMC104-SM -SM-8000	Cable-CH3-03 (309224+170907)	Aug. 16, 2020	Aug. 15, 2021
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021702	NA	NA
Turn Table BV ADT	TT100	TT93021702	NA	NA
Turn Table Controller BV ADT	SC100	SC93021702	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Standard Temperature And Humidity Chamber TERCHY	HRM-120RF	931022	Dec. 12, 2019	Dec. 11, 2020
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
True RMS Clamp Meter Fluke	325	31130711WS	Jun. 06, 2020	Jun. 05, 2021

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 HwaYa Chamber 3.

3 General Information

3.1 General Description of EUT

Product	2D Code Handy Terminal	
Brand	DENSO	
Test Model	BHT-M80-QWG	
Sample Status	Engineering sample	
Power Supply Rating	3.85Vdc (Battery) 5.0Vdc / 9.0Vdc / 12.0Vdc (from adapter)	
Modulation Type	GSM, GPRS: GMSK EDGE: 8PSK WCDMA: BPSK, QPSK HSDPA: BPSK HSUPA: QPSK LTE: QPSK, 16QAM	
Operating Frequency	GSM/GPRS/EDGE	1850.2~1909.8MHz
	WCDMA Band 2	1852.4~1907.6MHz
	LTE Band 2 (Channel Bandwidth 1.4MHz)	1850.7~1909.3MHz
	LTE Band 2 (Channel Bandwidth 3MHz)	1851.5~1908.5MHz
	LTE Band 2 (Channel Bandwidth 5MHz)	1852.5~1907.5MHz
	LTE Band 2 (Channel Bandwidth 10MHz)	1855.0~1905.0MHz
	LTE Band 2 (Channel Bandwidth 15MHz)	1857.5~1902.5MHz
	LTE Band 2 (Channel Bandwidth 20MHz)	1860.0~1900.0MHz
	LTE Band 25 (Channel Bandwidth: 1.4MHz)	1850.7~1914.3MHz
	LTE Band 25 (Channel Bandwidth: 3MHz)	1851.5~1913.5MHz
	LTE Band 25 (Channel Bandwidth: 5MHz)	1852.5~1912.5MHz
	LTE Band 25 (Channel Bandwidth: 10MHz)	1855.0~1910.0MHz
	LTE Band 25 (Channel Bandwidth: 15MHz)	1857.5~1907.5MHz
	LTE Band 25 (Channel Bandwidth: 20MHz)	1860.0~1905.0MHz

Max. EIRP Power	GSM	741.310mW (28.7dBm)	
	WCDMA Band 2	229.087mW (23.6dBm)	
		QPSK	16QAM
	LTE Band 2 (Channel Bandwidth 1.4MHz)	331.131mW (25.2dBm)	269.153mW (24.3dBm)
	LTE Band 2 (Channel Bandwidth 3MHz)	323.594mW (25.1dBm)	269.153mW (24.3dBm)
	LTE Band 2 (Channel Bandwidth 5MHz)	323.594mW (25.1dBm)	245.471mW (23.9dBm)
	LTE Band 2 (Channel Bandwidth 10MHz)	323.594mW (25.1dBm)	257.040mW (24.1dBm)
	LTE Band 2 (Channel Bandwidth 15MHz)	363.078mW (25.6dBm)	301.995mW (24.8dBm)
	LTE Band 2 (Channel Bandwidth 20MHz)	338.844mW (25.3dBm)	257.040mW (24.1dBm)
	LTE Band 25 (Channel Bandwidth: 1.4MHz)	234.423mW (23.7dBm)	194.984mW (22.9dBm)
	LTE Band 25 (Channel Bandwidth: 3MHz)	239.883mW (23.8dBm)	194.984mW (22.9dBm)
	LTE Band 25 (Channel Bandwidth: 5MHz)	245.471mW (23.9dBm)	186.209mW (22.7dBm)
	LTE Band 25 (Channel Bandwidth: 10MHz)	234.423mW (23.7dBm)	194.984mW (22.9dBm)
	LTE Band 25 (Channel Bandwidth: 15MHz)	239.883mW (23.8dBm)	190.546mW (22.8dBm)
	LTE Band 25 (Channel Bandwidth: 20MHz)	251.189mW (24.0dBm)	181.970mW (22.6dBm)
Emission Designator	GSM/GPRS	264KGXW	
	EDGE	259KG7W	
	WCDMA Band 2	4M15F9W	
		QPSK	16QAM
	LTE Band 2 (Channel Bandwidth 1.4MHz)	1M09G7D	1M09D7W
	LTE Band 2 (Channel Bandwidth 3MHz)	2M70G7D	2M70D7W
	LTE Band 2 (Channel Bandwidth 5MHz)	4M49G7D	4M50D7W
	LTE Band 2 (Channel Bandwidth 10MHz)	8M97G7D	8M98D7W
	LTE Band 2 (Channel Bandwidth 15MHz)	13M5G7D	13M5D7W
	LTE Band 2 (Channel Bandwidth 20MHz)	17M9G7D	18M0D7W
	LTE Band 25 (Channel Bandwidth: 1.4MHz)	1M09G7D	1M09D7W
	LTE Band 25 (Channel Bandwidth: 3MHz)	2M70G7D	2M70D7W
	LTE Band 25 (Channel Bandwidth: 5MHz)	4M49G7D	4M49D7W
	LTE Band 25 (Channel Bandwidth: 10MHz)	8M97G7D	8M97D7W
	LTE Band 25 (Channel Bandwidth: 15MHz)	13M5G7D	13M4D7W
	LTE Band 25 (Channel Bandwidth: 20MHz)	17M9G7D	18M0D7W
Antenna Type	Refer to note		
Antenna Connector	Refer to note		
Accessory Device	Refer to note		
Cable Supplied	Refer to note		

Note:

1. This report is prepared for FCC class II permissive change. This report is issued as a supplementary report of the original BV CPS report no.: RF200428C03-1. The differences compared with original report are adding large battery, WPC battery and updating S/W. Therefore, only Radiated spurious emissions below 1G are performed for the addendum. Refer to original report for the other test data.
2. The EUT contains following accessory devices. (Battery 3, 4 are new)

Battery 1	
Brand	DENSO
Model	BT1
Rating	3.85Vdc, 4020mAh, 15.47Wh

Battery 2	
Brand	DENSO
Model	BT1S
Rating	3.85Vdc, 2900mAh, 11.16Wh

Battery 3 (New)	
Brand	DENSO
Model	BT1L
Rating	3.85Vdc, 5800mAh, 22.33Wh

Battery 4 for WPC (New)	
Brand	DENSO
Model	BT1S-W
Rating	3.85Vdc, 2900mAh, 11.16Wh

Adapter	
Brand	CHANNEL WELL TECHNOLOGY
Model	2ACP0183C
Input Power	100-240Vac~0.5A , 50/60Hz
Output Power	5.0Vdc / 3.0A, 15.0W 9.0Vdc / 2.0A, 18.0W 12.0Vdc / 1.5A, 18.0W
Data Cable	1.45 m shielded USB cable without core

Cradle 1: QC3.0 charge single Cradle (Option)	
Brand	DENSO
Model	CU-M80UQ
Adapter	
Brand	CHANNEL WELL TECHNOLOGY
Model	2ACP0183C
Input Power	100-240Vac, 50/60Hz, 0.5A
Output Power	5.0Vdc / 3.0A, 15.0W 9.0Vdc / 2.0A, 18.0W 12.0Vdc / 1.5A, 18.0W
Data Cable	1.45 m shielded USB cable without core

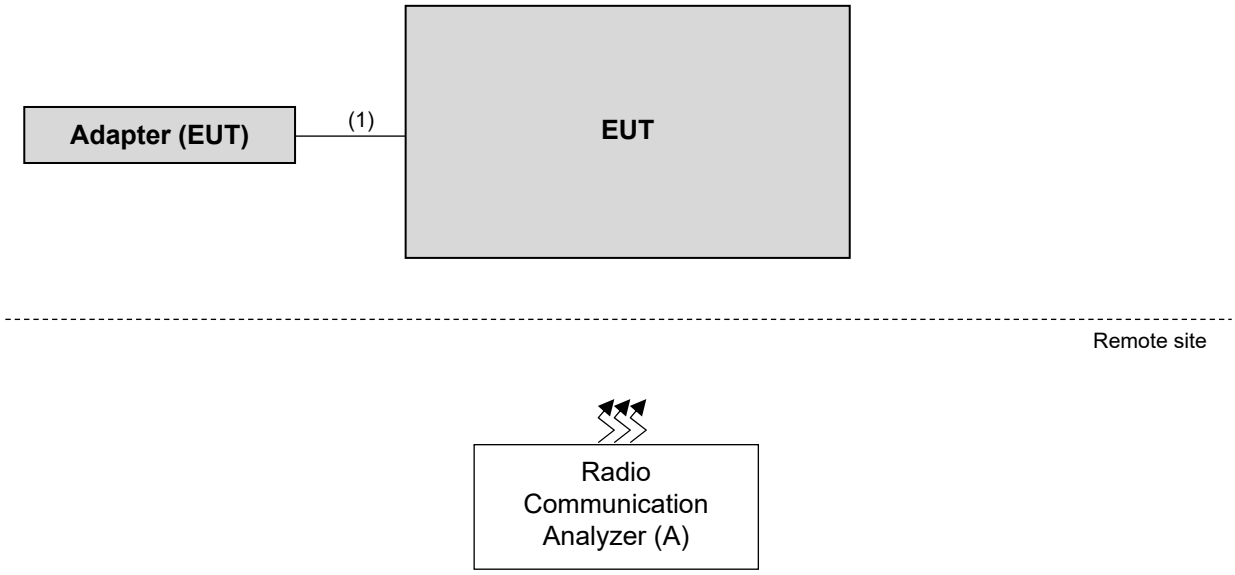
Cradle 2: USB Cradle with spare battery charge (Option)	
Brand	DENSO
Model	CU-M80U
Adapter	
Brand	Sunny
Model	SYS1548-5012-T3
Input Power	100-240Vac, 1.5A MAX, 50-60Hz
Output Power	+12.0Vdc, 4.16A
Power cable	DC: 1.16m cable with one core AC: 1.71m non-shielded cable without core
Data Cable	1.45 m shielded USB cable without core

3. The EUT uses the following antennas.

Ant. Type	PIFA		
Ant. Connector	Spring		
GSM1900/WCDMA Band 2/LTE Band 2			
Frequency (MHz)	1850	1880	1910
Peak Gain (dBi)	**2.13**	1.97	1.65
LTE Band 25			
Frequency (MHz)	1850	1882	1915
Peak Gain (dBi)	**2.13**	2.07	1.75

* The max. gain was chosen for final tests.
* 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.

3.2 Configuration of System under Test



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.	Radio Communication Analyzer	Anritsu	MT8821C	6201462755	NA	-

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item A acted as a communication partner to transfer data.

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	USB cable	1	1.45	Y	0	Accessory of EUT

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 and antenna ports. The worst case was found when positioned on X-plane. Following channel(s) was (were) selected for the final test as listed below.

Test results are presented in the report as below.

Test Mode	Test Condition
A	EUT + Battery 3 + Adapter
B	EUT + Battery 4 + Adapter

GSM Mode

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
A, B	Radiated Emission Below 1GHz	512 to 810	661(1880.0MHz)	GSM

Note: For radiated emissions below 1 GHz, select the worst radiated emission (above 1GHz) channel for final testing.

WCDMA Band 2

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
A, B	Radiated Emission Below 1GHz	9262 to 9538	9400 (1880.0MHz)	WCDMA

Note: For radiated emissions below 1 GHz, select the worst radiated emission (above 1GHz) channel for final testing.

LTE Band 2

EUT Configure Mode	Test item	Available channel	Tested Channel	Channel Bandwidth	Modulation	Mode
A, B	Radiated Emission Below 1GHz	18607 to 19193	18607 (1850.70MHz)	1.4MHz	QPSK	1 RB / 0 RB Offset

Note: For radiated emissions below 1 GHz, select the worst radiated emission (above 1GHz) channel for final testing.

LTE Band 25

EUT Configure Mode	Test item	Available channel	Tested Channel	Channel Bandwidth	Modulation	Mode
A, B	Radiated Emission Below 1GHz	26047 to 26683	26047 (1850.7MHz)	1.4MHz	QPSK	1 RB / 0 RB Offset

Note: For radiated emissions below 1 GHz, select the worst radiated emission (above 1GHz) channel for final testing.

Test Condition:

Test Item	Environmental Conditions	Input Power (system)	Tested By
Radiated Emission	23deg. C, 66%RH	120Vac, 60Hz	Edison Lee

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 24

ANSI 63.26-2015

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

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 equal to –13dBm.

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 (dBμV/m) + 20log(D) - 104.8; where D is the measurement distance (in the far field region) in m.
   - ERP (dBm) = E (dBμV/m) + 20log(D) - 104.8 - 2.15; where D is the measurement distance (in the far field region) in m.

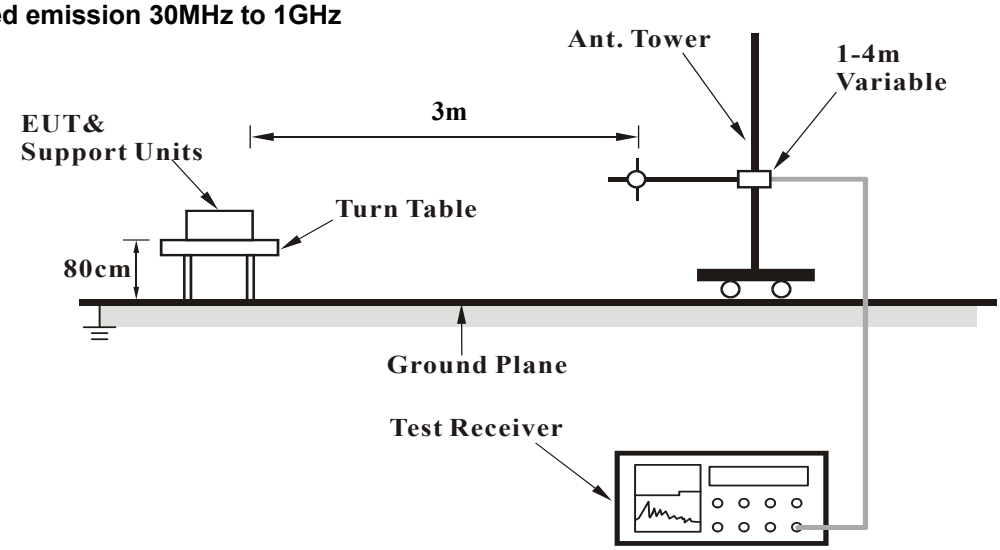
Note:
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.
2. The emission levels were against the limit of frequency range 9 kHz ~ 30 MHz:
   The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

4.1.3 Deviation from Test Standard

No deviation.

4.1.4 Test Setup

For radiated emission 30MHz to 1GHz



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

4.1.5 Test Results

9 kHz ~ 30 MHz Data:

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

Below 1GHz

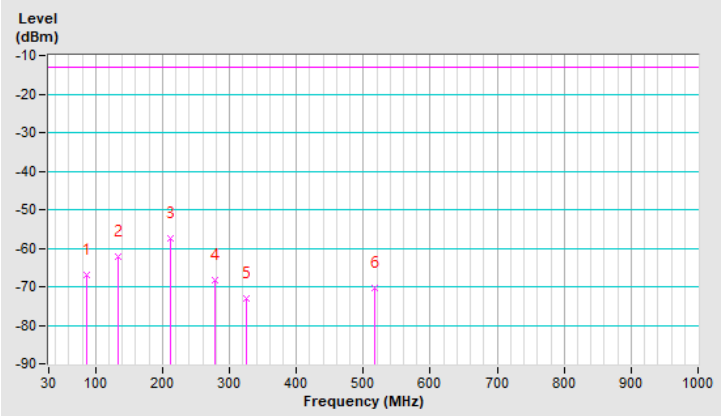
GSM Mode

Mode	TX channel 661 (1880.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Edison Lee	Test Mode	A

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	86.2319	-67.1	-13.0	-54.1	1.00 H	13	42.5	-109.6
2	134.0290	-62.3	-13.0	-49.3	1.50 H	104	42.5	-104.8
3	211.3478	-57.5	-13.0	-44.5	1.50 H	260	48.7	-106.2
4	278.8261	-68.3	-13.0	-55.3	1.50 H	317	34.0	-102.3
5	325.2174	-73.0	-13.0	-60.0	1.50 H	231	28.2	-101.2
6	516.4058	-70.4	-13.0	-57.4	2.00 H	113	26.8	-97.2

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

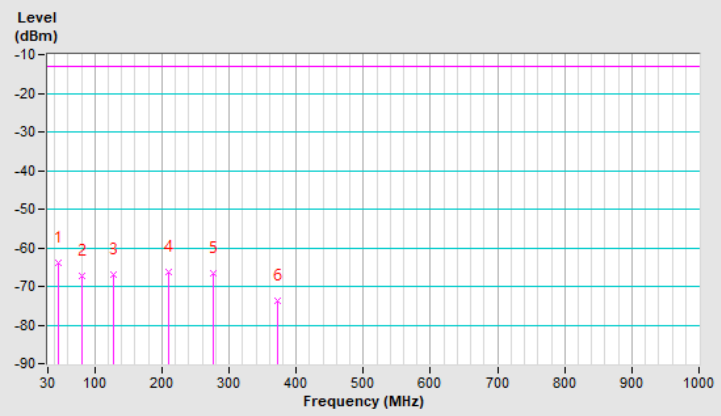


Mode	TX channel 661 (1880.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Edison Lee	Test Mode	A

Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	45.4638	-63.9	-13.0	-50.9	1.00 V	73	40.5	-104.4
2	80.6087	-67.4	-13.0	-54.4	2.00 V	301	41.4	-108.8
3	128.4058	-66.9	-13.0	-53.9	1.50 V	69	38.5	-105.4
4	209.9420	-66.3	-13.0	-53.3	1.50 V	225	40.0	-106.3
5	276.0145	-66.5	-13.0	-53.5	1.50 V	184	35.9	-102.4
6	371.6087	-73.8	-13.0	-60.8	1.00 V	343	26.6	-100.4

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

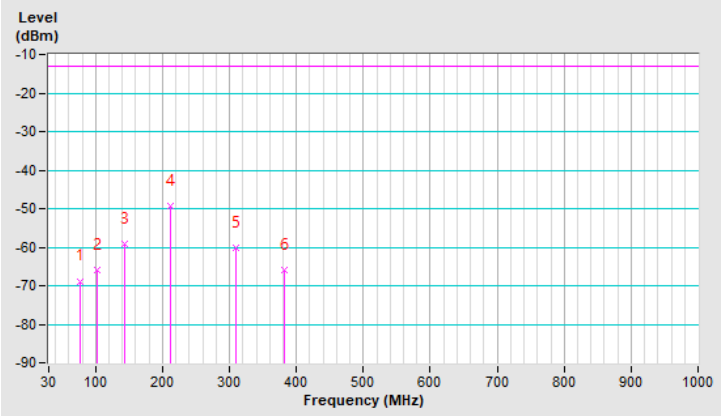


Mode	TX channel 661 (1880.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Edison Lee	Test Mode	B

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	77.7971	-68.8	-13.0	-55.8	1.00 H	258	39.3	-108.1
2	103.1014	-66.0	-13.0	-53.0	1.00 H	284	42.0	-108.0
3	143.8696	-59.0	-13.0	-46.0	1.00 H	117	45.1	-104.1
4	**212.7536**	**-49.2**	**-13.0**	**-36.2**	**1.00 H**	**259**	**56.9**	**-106.1**
5	309.7536	-60.1	-13.0	-47.1	1.00 H	260	41.6	-101.7
6	382.8551	-65.9	-13.0	-52.9	1.00 H	51	34.4	-100.3

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

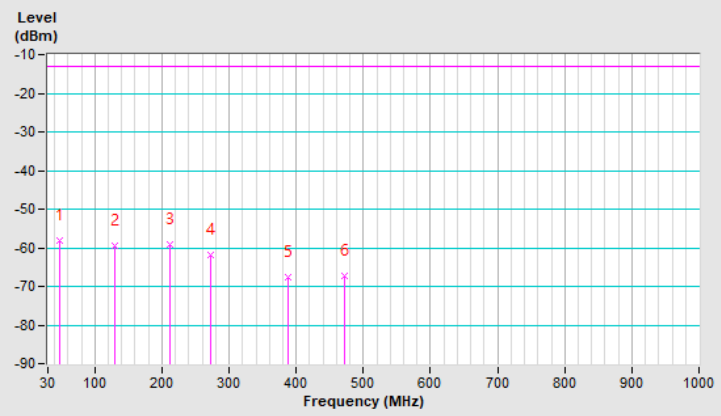


Mode	TX channel 661 (1880.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Edison Lee	Test Mode	B

Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	46.8696	-58.3	-13.0	-45.3	2.00 V	2	46.2	-104.5
2	129.8116	-59.5	-13.0	-46.5	1.00 V	39	45.8	-105.3
3	212.7536	-59.2	-13.0	-46.2	1.50 V	207	46.9	-106.1
4	273.2029	-61.8	-13.0	-48.8	1.00 V	185	40.7	-102.5
5	388.4783	-67.6	-13.0	-54.6	1.50 V	8	32.6	-100.2
6	471.4203	-67.4	-13.0	-54.4	1.00 V	334	30.7	-98.1

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



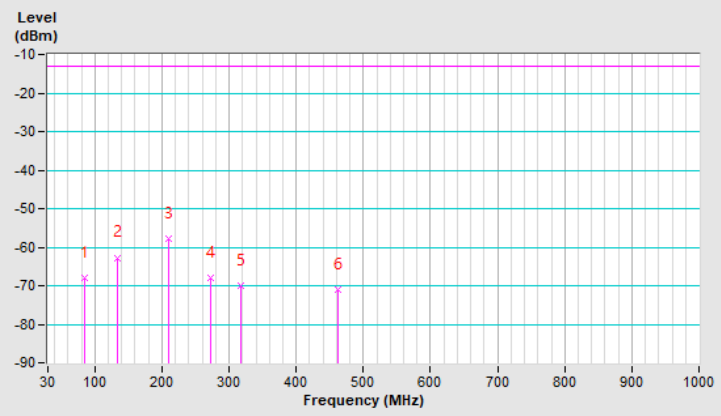
WCDMA Band 2

Mode	TX channel 9400 (1880.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Edison Lee	Test Mode	A

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	84.8261	-68.0	-13.0	-55.0	1.00 H	152	41.5	-109.5
2	134.0290	-62.7	-13.0	-49.7	1.50 H	115	42.1	-104.8
3	209.9420	-57.9	-13.0	-44.9	2.00 H	86	48.4	-106.3
4	271.7971	-68.1	-13.0	-55.1	1.50 H	303	34.5	-102.6
5	318.1884	-70.1	-13.0	-57.1	1.50 H	261	31.3	-101.4
6	462.9855	-71.1	-13.0	-58.1	2.00 H	52	27.2	-98.3

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

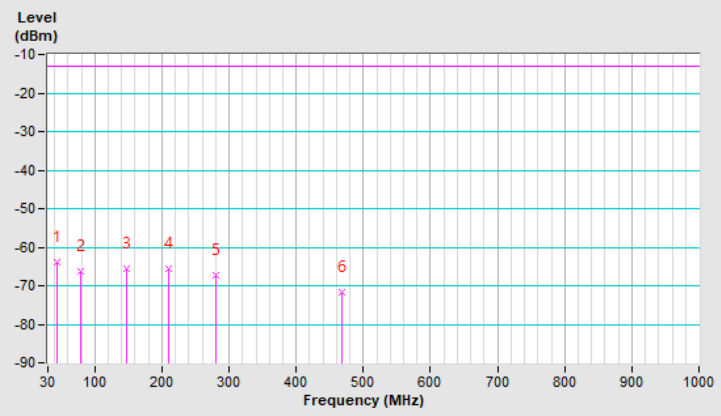


Mode	TX channel 9400 (1880.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Edison Lee	Test Mode	A

Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	44.0580	-64.0	-13.0	-51.0	2.00 V	44	40.5	-104.5
2	79.2029	-66.4	-13.0	-53.4	1.50 V	6	42.0	-108.4
3	148.0870	-65.7	-13.0	-52.7	1.50 V	167	38.3	-104.0
4	209.9420	-65.5	-13.0	-52.5	1.00 V	235	40.8	-106.3
5	280.2319	-67.3	-13.0	-54.3	1.50 V	179	34.9	-102.2
6	467.2029	-71.7	-13.0	-58.7	1.00 V	265	26.5	-98.2

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

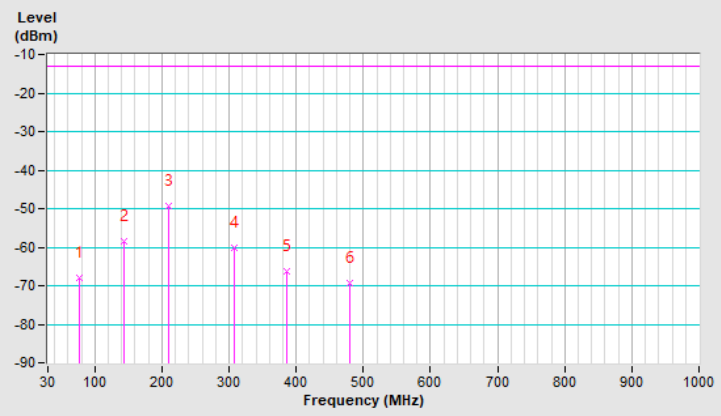


Mode	TX channel 9400 (1880.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Edison Lee	Test Mode	B

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	77.7971	-68.0	-13.0	-55.0	1.00 H	176	40.1	-108.1
2	142.4638	-58.5	-13.0	-45.5	1.50 H	122	45.7	-104.2
3	209.9420	-49.4	-13.0	-36.4	1.00 H	257	56.9	-106.3
4	306.9420	-60.0	-13.0	-47.0	1.50 H	74	41.7	-101.7
5	385.6667	-66.3	-13.0	-53.3	1.00 H	46	33.9	-100.2
6	479.8551	-69.4	-13.0	-56.4	1.50 H	246	28.5	-97.9

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

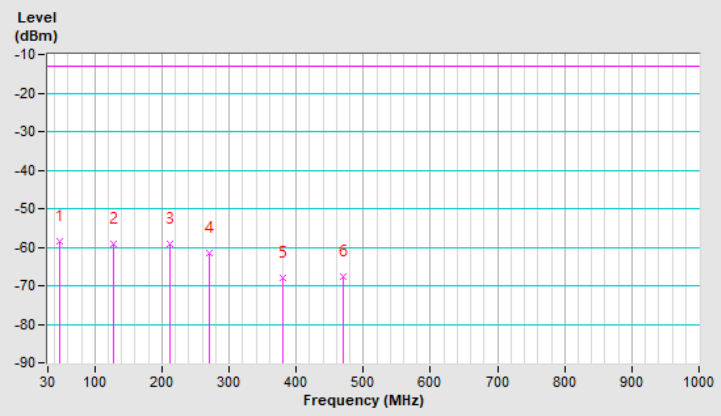


Mode	TX channel 9400 (1880.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Edison Lee	Test Mode	B

Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	46.8696	-58.4	-13.0	-45.4	2.00 V	8	46.1	-104.5
2	128.4058	-59.0	-13.0	-46.0	1.00 V	244	46.4	-105.4
3	212.7536	-59.3	-13.0	-46.3	1.00 V	205	46.8	-106.1
4	270.3913	-61.6	-13.0	-48.6	1.50 V	197	41.1	-102.7
5	380.0435	-68.0	-13.0	-55.0	2.00 V	192	32.3	-100.3
6	470.0145	-67.6	-13.0	-54.6	1.00 V	162	30.5	-98.1

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



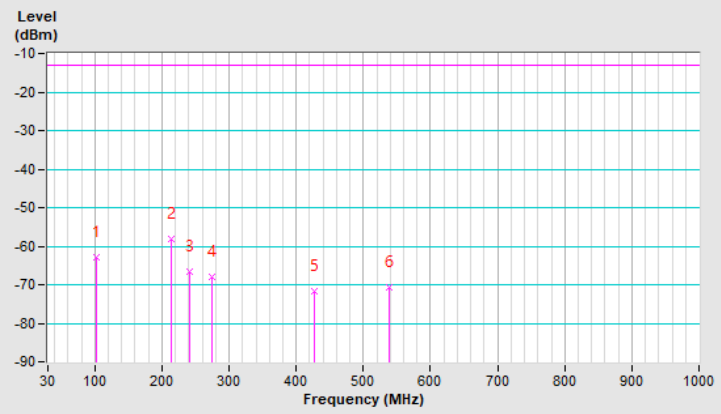
LTE Band 2, Channel Bandwidth: 1.4MHz

Mode	TX channel 18607 (1850.70MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Edison Lee	Test Mode	A

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	101.6957	-62.8	-13.0	-49.8	1.00 H	184	45.6	-108.4
2	214.1594	-58.2	-13.0	-45.2	1.50 H	78	47.9	-106.1
3	240.8696	-66.6	-13.0	-53.6	1.00 H	65	37.8	-104.4
4	274.6087	-67.8	-13.0	-54.8	1.50 H	315	34.7	-102.5
5	427.8406	-71.7	-13.0	-58.7	2.00 H	124	27.3	-99.0
6	537.4928	-70.8	-13.0	-57.8	2.00 H	29	26.1	-96.9

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

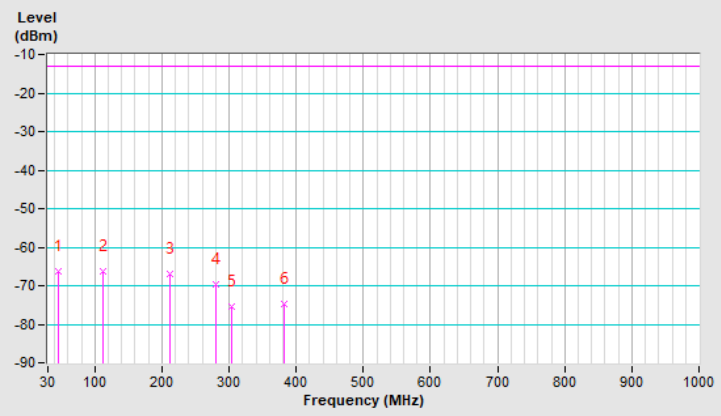


Mode	TX channel 18607 (1850.70MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Edison Lee	Test Mode	A

Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	45.4638	-66.3	-13.0	-53.3	1.00 V	84	38.1	-104.4
2	111.5362	-66.3	-13.0	-53.3	1.50 V	6	40.8	-107.1
3	212.7536	-67.0	-13.0	-54.0	2.00 V	237	39.1	-106.1
4	280.2319	-69.7	-13.0	-56.7	1.50 V	184	32.5	-102.2
5	304.1304	-75.3	-13.0	-62.3	1.50 V	159	26.5	-101.8
6	382.8551	-74.9	-13.0	-61.9	2.00 V	152	25.4	-100.3

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

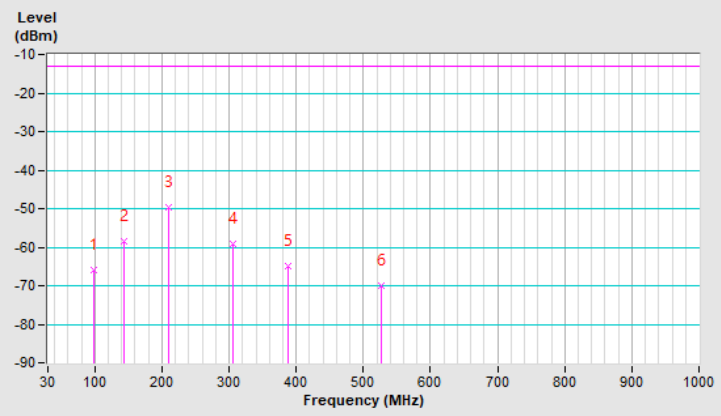


Mode	TX channel 18607 (1850.70MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Edison Lee	Test Mode	B

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	97.4783	-65.9	-13.0	-52.9	1.00 H	9	43.1	-109.0
2	142.4638	-58.4	-13.0	-45.4	1.50 H	116	45.8	-104.2
3	209.9420	-49.8	-13.0	-36.8	1.00 H	262	56.5	-106.3
4	305.5362	-59.3	-13.0	-46.3	1.00 H	65	42.4	-101.7
5	387.0725	-64.9	-13.0	-51.9	1.50 H	48	35.3	-100.2
6	527.6522	-70.1	-13.0	-57.1	2.00 H	275	26.8	-96.9

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

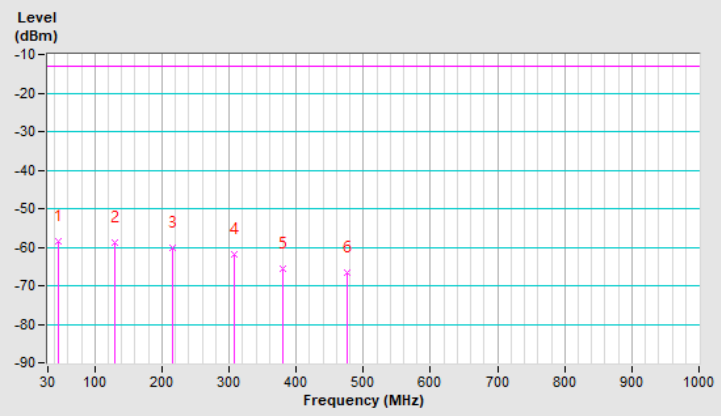


Mode	TX channel 18607 (1850.70MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Edison Lee	Test Mode	B

Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	45.4638	-58.5	-13.0	-45.5	1.50 V	250	45.9	-104.4
2	129.8116	-58.7	-13.0	-45.7	1.00 V	250	46.6	-105.3
3	215.5652	-60.1	-13.0	-47.1	2.00 V	207	45.9	-106.0
4	308.3478	-61.9	-13.0	-48.9	1.00 V	183	39.8	-101.7
5	380.0435	-65.5	-13.0	-52.5	1.00 V	191	34.8	-100.3
6	475.6377	-66.7	-13.0	-53.7	1.50 V	347	31.3	-98.0

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



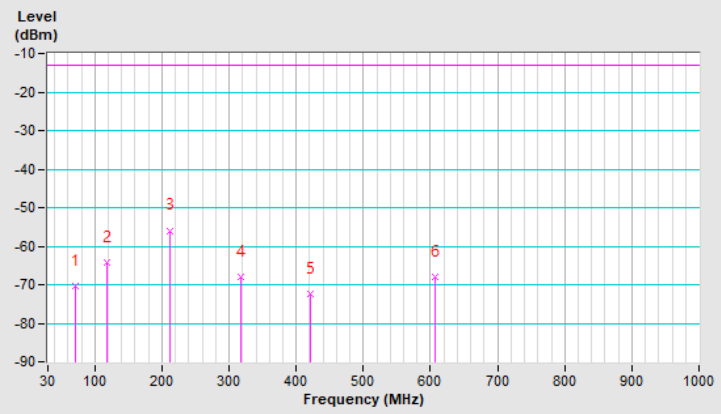
LTE Band 25, Channel Bandwidth: 1.4MHz

Mode	TX channel 26047 (1850.7MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Edison Lee	Test Mode	A

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	70.7681	-70.5	-13.0	-57.5	1.50 H	312	35.9	-106.4
2	118.5652	-64.4	-13.0	-51.4	1.50 H	66	41.9	-106.3
3	212.7536	-55.9	-13.0	-42.9	1.00 H	254	50.2	-106.1
4	318.1884	-67.9	-13.0	-54.9	2.00 H	250	33.5	-101.4
5	420.8116	-72.5	-13.0	-59.5	1.00 H	333	26.8	-99.3
6	607.7826	-68.0	-13.0	-55.0	2.00 H	179	26.7	-94.7

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

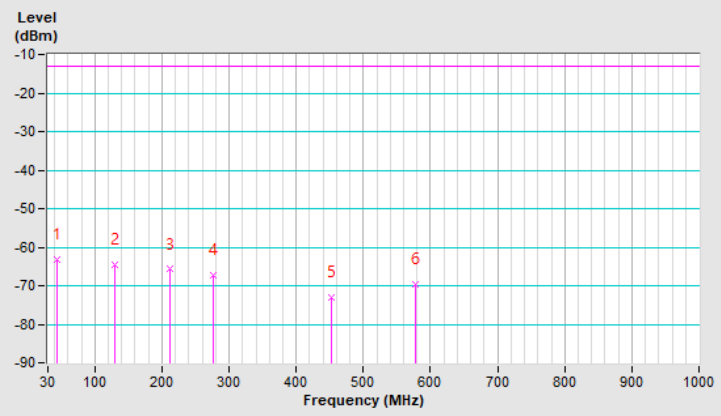


Mode	TX channel 26047 (1850.7MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Edison Lee	Test Mode	A

Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	44.0580	-63.3	-13.0	-50.3	1.00 V	303	41.2	-104.5
2	129.8116	-64.6	-13.0	-51.6	1.00 V	16	40.7	-105.3
3	211.3478	-65.8	-13.0	-52.8	1.00 V	207	40.4	-106.2
4	276.0145	-67.2	-13.0	-54.2	1.50 V	185	35.2	-102.4
5	453.1449	-72.9	-13.0	-59.9	1.00 V	202	25.6	-98.5
6	576.8551	-69.6	-13.0	-56.6	2.00 V	148	26.3	-95.9

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

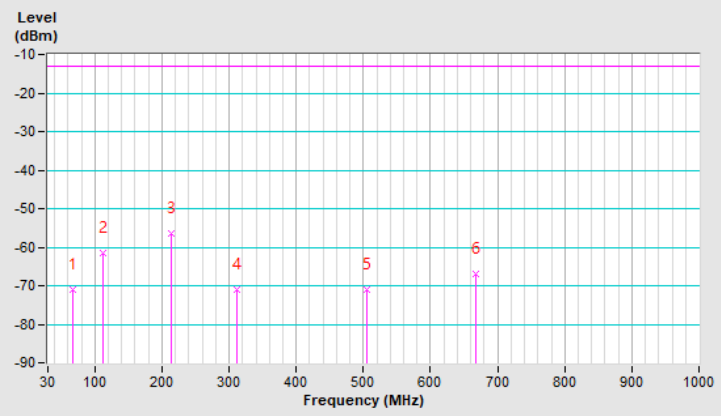


Mode	TX channel 26047 (1850.7MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Edison Lee	Test Mode	B

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	67.9565	-71.0	-13.0	-58.0	2.00 H	175	34.8	-105.8
2	112.9420	-61.6	-13.0	-48.6	1.50 H	139	45.4	-107.0
3	214.1594	-56.5	-13.0	-43.5	1.50 H	96	49.6	-106.1
4	312.5652	-71.1	-13.0	-58.1	2.00 H	248	30.5	-101.6
5	505.1594	-70.9	-13.0	-57.9	1.50 H	261	26.6	-97.5
6	666.8261	-67.1	-13.0	-54.1	1.00 H	306	26.7	-93.8

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

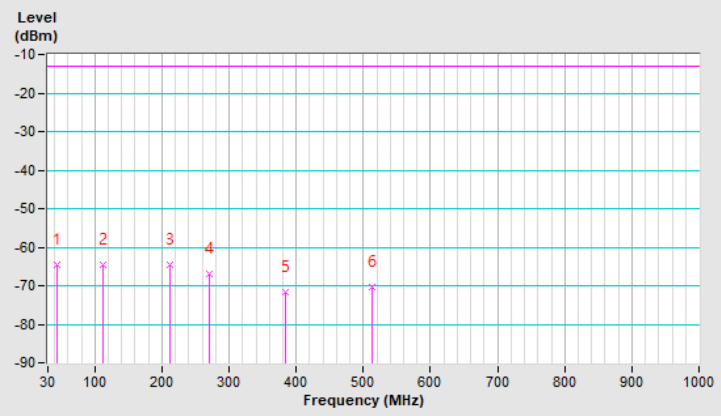


Mode	TX channel 26047 (1850.7MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Edison Lee	Test Mode	B

Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	44.0580	-64.6	-13.0	-51.6	1.00 V	358	39.9	-104.5
2	112.9420	-64.5	-13.0	-51.5	1.50 V	232	42.5	-107.0
3	212.7536	-64.7	-13.0	-51.7	1.50 V	229	41.4	-106.1
4	270.3913	-67.0	-13.0	-54.0	2.00 V	179	35.7	-102.7
5	384.2609	-71.8	-13.0	-58.8	1.50 V	7	28.4	-100.2
6	512.1884	-70.5	-13.0	-57.5	1.00 V	87	26.9	-97.4

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) + 20log(D) – 104.8
3. Margin value = EIRP – Limit value
4. The other EIRP 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 and approved according to ISO/IEC 17025.

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

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Tel: 886-2-26052180
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Email: service.adt@tw.bureauveritas.com
Web Site: www.bureauveritas-adt.com

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

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