Partial FCC Test Report
(Part 90)

Report No.:	RFBBGM-WTW-P21120093-3
FCC ID:	WIYSLM500QA
Test Model:	SLM500
Received Date:	Dec. 24, 2021
Test Date:	Jan. 13 ~ Feb. 26, 2022
Issued Date:	Mar. 17, 2022
Applicant:	CASTLES TECHNOLOGY CO., LTD.
Address:	6F, NO. 207-5, SEC. 3, BEIXIN RD., XINDIAN DISTRICT, NEW TAIPEI CITY 23143, TAIWAN (R. O. C.)
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

Testing Laboratory
2021

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Release Control Record

Issue No.	Description	Date Issued
RFBBGM-WTW-P21120093-3	Original release	Mar. 17, 2022

1 Certificate of Conformity

Product:	Smart module
Brand:	CASTLES TECHNOLOGY
Test Model:	SLM500
Sample Status:	Identical Prototype
Applicant:	CASTLES TECHNOLOGY CO., LTD.
Test Date:	Jan. 13 ~ Feb. 26, 2022
Standards:	FCC Part 90, Subpart S

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.

Prepared by : Pettie Chen , **Date:** Mar. 17, 2022

Pettie Chen / Senior Specialist

Approved by : Jeremy Lin , **Date:** Mar. 17, 2022

Jeremy Lin / Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 90 & Part 2			
FCC Clause LTE B26	Test Item	Result	Remarks
2.1046 90.635 (b)	Effective Radiated Power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	N/A	Refer to Note
2.1055 90.213	Frequency Stability	N/A	Refer to Note
2.1049 90.209	Occupied Bandwidth	N/A	Refer to Note
2.1051 90.691	Emission Masks	N/A	Refer to Note
-	Band Edge Measurements	N/A	Refer to Note
2.1051 90.691	Conducted Spurious Emissions	N/A	Refer to Note
2.1053 90.691	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -23.09dB at 30.97MHz.

Note:

1. This report is a partial report. Therefore, only test item of Effective Radiated Power and Radiated Spurious Emissions tests were performed for this report. Other testing data please refer to SGS report no.: SZCR210300003007 (Smart module, Brand: Meig Link, Model: SLM500, FCC ID: 2APJ4-SLM500).
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
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver KEYSIGHT	N9038A	MY55420137	Apr. 09, 2021	Apr. 08, 2022
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Jun. 10, 2021	Jun. 09, 2022
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Oct. 28, 2021	Oct. 27, 2022
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-1169	Nov. 14, 2021	Nov. 13, 2022
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Oct. 26, 2021	Oct. 25, 2022
Preamplifier Agilent (Below 1GHz)	8447D	2944A10638	Jun. 05, 2021	Jun. 04, 2022
Preamplifier Agilent (Above 1GHz)	8449B	3008A01963	Jul. 24, 2021	Jul. 23, 2022
RF signal cable HUBER+SUHNER&EMCI	SUCOFLEX 104 & EMC104-SM-SM8000	CABLE-CH9-02 (248780+171006)	Jan. 16, 2021	Jan. 15, 2022
			Jan. 15, 2022	Jan. 14, 2023
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(250795/4)	Jan. 16, 2021	Jan. 15, 2022
			Jan. 15, 2022	Jan. 14, 2023
RF signal cable Woken	8D-FB	Cable-CH9-01	Jun. 05, 2021	Jun. 04, 2022
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower &Turn BV ADT	AT100	AT93021705	NA	NA
Turn Table BV ADT	TT100	TT93021705	NA	NA
Turn Table Controller BV ADT	SC100	SC93021705	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY55190004/MY55190007/MY55210005	Jul. 12, 2021	Jul. 11, 2022
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 01, 2021	May 31, 2022
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
True RMS Clamp Meter Fluke	325	31130711WS	Jun. 02, 2021	Jun. 01, 2022

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 9.

3 General Information

3.1 General Description of EUT

Product	Smart module		
Brand	CASTLES TECHNOLOGY		
Test Model	SLM500		
Sample Status	Identical Prototype		
Power Supply Rating	5.0 Vdc (host equipment) 3.65 or 3.7 Vdc		
Modulation Type	QPSK, 16QAM		
Operating Frequency	LTE Band 26 (Channel Bandwidth 1.4MHz)	814.7MHz ~ 823.3MHz	
	LTE Band 26 (Channel Bandwidth 3MHz)	815.5MHz ~ 822.5MHz	
	LTE Band 26 (Channel Bandwidth 5MHz)	816.5MHz ~ 821.5MHz	
	LTE Band 26 (Channel Bandwidth 10MHz)	819.0MHz	
Max. ERP Power		QPSK	16QAM
	LTE Band 26 (Channel Bandwidth 1.4MHz)	73.451mW (18.66dBm)	57.016mW (17.56dBm)
	LTE Band 26 (Channel Bandwidth 3MHz)	72.277mW (18.59dBm)	56.885mW (17.55dBm)
	LTE Band 26 (Channel Bandwidth 5MHz)	72.444mW (18.60dBm)	56.885mW (17.55dBm)
	LTE Band 26 (Channel Bandwidth 10MHz)	72.277mW (18.59dBm)	56.885mW (17.55dBm)
Antenna Type	Refer to Note as below		
Antenna Connector	Refer to Note as below		
Accessory Device	NA		
Cable Supplied	NA		

Note:

1. This report is prepared for FCC class II permissive change. This report is issued as a supplementary report of SGS report no.: SZCR210300003007. The differences from the original report are adding an End-product (POS Terminal (Brand: CASTLES TECHNOLOGY, Model: SATURN1000)). Only Effective Radiated Power and Radiated Spurious Emissions tests were verified and recorded in this report. Other testing data please refer to the original SGS report no.: SZCR210300003007.
2. The EUT was installed in POS Terminal (Brand: CASTLES TECHNOLOGY, Model: SATURN1000).
3. The antenna information of POS Terminal is listed as below.

Antenna 1			
Antenna Type	Dipole	Brand	ARISTOTLE
Antenna Connector	ipex(MHF)	Model	RFA-LTE-JP169-70-130
Antenna Gain (dBi)	LTE Band 26	-1.19	

Antenna 2 (RX only)			
Antenna Type	PIFA	Brand	INPAQ
Antenna Connector	NA	Model	WAG-F-LTE12-00-062
Antenna Gain (dBi)	LTE Band 26	2.7	

*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.

4. The battery and adapter information of POS Terminal is listed as below.

Battery 1 (Support unit)	
Brand	CASTLES TECHNOLOGY
Model	SATURN1000
Rating	3.65Vdc, 5840mAh

Battery 2 (Support unit)	
Brand	CASTLES TECHNOLOGY
Model	SATURN1000
Rating	3.7Vdc, 5840mAh

*Battery 2 was the worst for the final tests.

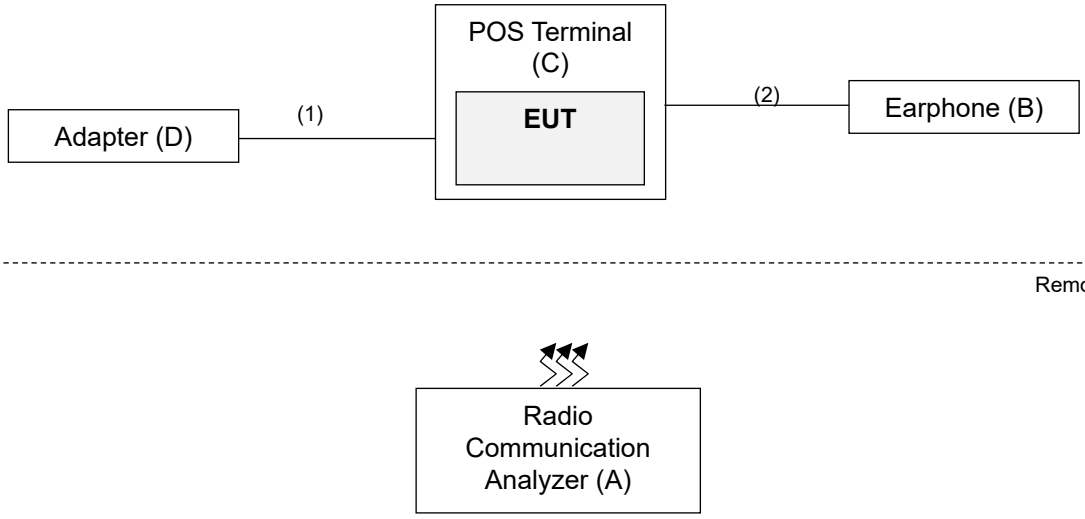
Adapter 1 (Support unit)	
Brand	LUCENT TRANS
Model	1A52-UB52A
Input Power	100-240 Vac; 50/60 Hz; 0.3 A
Output Power	5Vdc; 2A

Adapter 2 (Support unit)	
Brand	LUCENT TRANS
Model	1A52-SR52A
Input Power	100-240 Vac; 50/60 Hz; 0.3 A
Output Power	5Vdc; 2A
Power Cord	1.5m

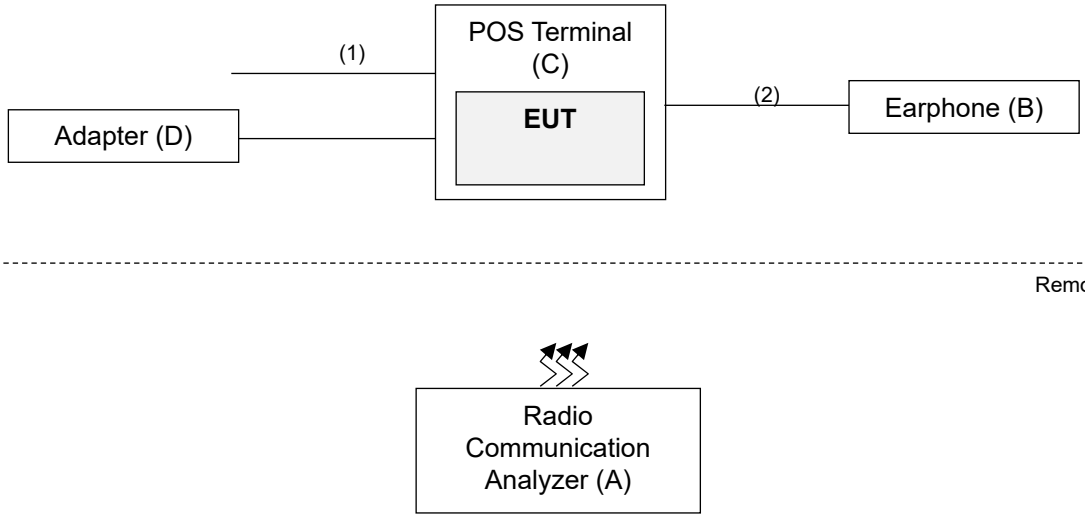
5. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 Configuration of System under Test

Test Mode A



Test Mode B



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	6261806803	NA	-
B.	Earphone	APPLE	MB77PFEB	NA	NA	-
C.	POS Terminal	CASTLES TECHNOLOGY	SATURN1000	NA	NA	-
D.	Adapter	LUCENT TRANS	1A52-UB52A	NA	NA	For Test Mode A
			1A52-SR52A	NA	NA	For Test Mode B

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	0.95	Y	0	Provided by client
2.	Audio cable	1	1.5	Y	0	-

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 Y-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 with adapter 1
B	EUT with adapter 2

LTE Band 26

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
A	ERP	26697 to 26783	26697 (814.7MHz), 26740 (819.0MHz), 26783 (823.3MHz)	1.4MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 2 RB Offset 1 RB / 5 RB Offset 3 RB / 0 RB Offset 3 RB / 1 RB Offset 3 RB / 3 RB Offset 6 RB / 0 RB Offset
		26705 to 26775	26705 (815.5MHz), 26740 (819.0MHz), 26775 (822.5MHz)	3MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 7 RB Offset 1 RB / 14 RB Offset 8 RB / 0 RB Offset 8 RB / 3 RB Offset 8 RB / 7 RB Offset 15 RB / 0 RB Offset
		26715 to 26765	26715 (816.5MHz), 26740 (819.0MHz), 26765 (821.5MHz)	5MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 12 RB Offset 1 RB / 24 RB Offset 12 RB / 0 RB Offset 12 RB / 6 RB Offset 12 RB / 13 RB Offset 25 RB / 0 RB Offset
		26740	26740 (819.0MHz)	10MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB / 0 RB Offset 1 RB / 24 RB Offset 1 RB / 49 RB Offset 25 RB / 0 RB Offset 25 RB / 12 RB Offset 25 RB / 25 RB Offset 50 RB / 0 RB Offset
A, B	Radiated Emission Below 1GHz	26740	26740 (819.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset
A	Radiated Emission Above 1GHz	26740	26740 (819.0MHz)	10MHz	QPSK	1 RB / 0 RB Offset

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
ERP	21deg. C, 67%RH	120Vac, 60Hz	Rex Wang
Radiated Emission	21deg. C, 67%RH	120Vac, 60Hz	Rex Wang, Greg Lin

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:

Test Standard:

FCC 47 CFR Part 2
FCC 47 CFR Part 90
ANSI/TIA/EIA-603-E 2016
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
KDB 971168 D02 Misc Rev Approv License Devices v02r01

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

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

For LTE Band 26:
The output power shall be according to the specific rule Part 90.635 that “Mobile station are limited to 100 watts e.r.p”.

4.1.2 Test Procedures

Conducted Power Measurement:

The EUT was set up for the maximum power with LTE link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

Maximum EIRP / ERP

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

$EIRP = P_{Meas} + G_T$

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

where

ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as P_{Meas}, e.g., dBm or dBW)

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

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

4.1.3 Test Setup

Conducted Power Measurement:

4.1.4 Test Results

Conducted Output Power (dBm)

LTE Band 26				
BW	MCS Index	RB Size	RB Offset	Mid
		Channel		26740
		Frequency (MHz)		819
10M	QPSK	1	0	21.93
		1	24	21.81
		1	49	21.89
		25	0	20.93
		25	12	20.83
		25	25	20.87
		50	0	20.96
10M	16QAM	1	0	20.68
		1	24	20.89
		1	49	20.24
		25	0	19.90
		25	12	19.85
		25	25	19.71
		50	0	19.94

LTE Band 26						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		26715	26740	26765
		Frequency (MHz)		816.5	819	821.5
5M	QPSK	1	0	21.93	21.93	21.94
		1	12	21.88	21.81	21.89
		1	24	21.92	21.89	21.93
		12	0	21.00	20.93	21.01
		12	6	20.86	20.83	20.92
		12	13	20.85	20.87	20.91
		25	0	20.92	20.96	20.97
5M	16QAM	1	0	20.66	20.68	20.71
		1	12	20.84	20.89	20.89
		1	24	20.17	20.24	20.26
		12	0	19.93	19.90	19.98
		12	6	19.84	19.85	19.87
		12	13	19.73	19.71	19.75
		25	0	19.97	19.94	19.97

LTE Band 26						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		26705	26740	26775
		Frequency (MHz)		815.5	819	822.5
3M	QPSK	1	0	21.89	21.83	21.87
		1	7	21.86	21.74	21.88
		1	14	21.83	21.84	21.93
		8	0	20.91	20.93	20.94
		8	3	20.92	20.74	20.77
		8	7	20.89	20.84	20.87
		15	0	20.91	20.88	20.95
3M	16QAM	1	0	20.71	20.59	20.70
		1	7	20.79	20.82	20.89
		1	14	20.21	20.23	20.24
		8	0	19.97	19.85	19.90
		8	3	19.83	19.84	19.82
		8	7	19.66	19.60	19.71
		15	0	19.95	19.80	19.95

LTE Band 26						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		26697	26740	26783
		Frequency (MHz)		814.7	819	823.3
1.4M	QPSK	1	0	21.91	21.80	21.84
		1	2	21.82	21.70	21.76
		1	5	21.82	21.87	21.78
		3	0	21.86	21.82	22.00
		3	1	21.82	21.69	21.86
		3	3	21.82	21.84	21.79
		6	0	20.83	20.89	20.87
1.4M	16QAM	1	0	20.69	20.65	20.60
		1	2	20.76	20.86	20.76
		1	5	20.03	20.16	20.15
		3	0	20.86	20.84	20.90
		3	1	20.76	20.77	20.82
		3	3	20.59	20.70	20.69
		6	0	19.84	19.81	19.85

ERP Power (dBm)

LTE Band 26				
BW	MCS Index	RB Size	RB Offset	Mid
		Channel		26740
		Frequency (MHz)		819
10M	QPSK	1	0	18.59
		1	24	18.47
		1	49	18.55
		25	0	17.59
		25	12	17.49
		25	25	17.53
		50	0	17.62
10M	16QAM	1	0	17.34
		1	24	17.55
		1	49	16.9
		25	0	16.56
		25	12	16.51
		25	25	16.37
		50	0	16.6

*ERP = Conducted + antenna gain (-1.19dBi)-2.15

LTE Band 26						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		26715	26740	26765
		Frequency (MHz)		816.5	819	821.5
5M	QPSK	1	0	18.59	18.59	18.6
		1	12	18.54	18.47	18.55
		1	24	18.58	18.55	18.59
		12	0	17.66	17.59	17.67
		12	6	17.52	17.49	17.58
		12	13	17.51	17.53	17.57
		25	0	17.58	17.62	17.63
5M	16QAM	1	0	17.32	17.34	17.37
		1	12	17.5	17.55	17.55
		1	24	16.83	16.9	16.92
		12	0	16.59	16.56	16.64
		12	6	16.5	16.51	16.53
		12	13	16.39	16.37	16.41
		25	0	16.63	16.6	16.63

*ERP = Conducted + antenna gain (-1.19dBi)-2.15

LTE Band 26						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		26705	26740	26775
		Frequency (MHz)		815.5	819	822.5
3M	QPSK	1	0	18.55	18.49	18.53
		1	7	18.52	18.4	18.54
		1	14	18.49	18.5	18.59
		8	0	17.57	17.59	17.6
		8	3	17.58	17.4	17.43
		8	7	17.55	17.5	17.53
		15	0	17.57	17.54	17.61
3M	16QAM	1	0	17.37	17.25	17.36
		1	7	17.45	17.48	17.55
		1	14	16.87	16.89	16.9
		8	0	16.63	16.51	16.56
		8	3	16.49	16.5	16.48
		8	7	16.32	16.26	16.37
		15	0	16.61	16.46	16.61

*ERP = Conducted + antenna gain (-1.19dBi)-2.15

LTE Band 26						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		26697	26740	26783
		Frequency (MHz)		814.7	819	823.3
1.4M	QPSK	1	0	18.57	18.46	18.5
		1	2	18.48	18.36	18.42
		1	5	18.48	18.53	18.44
		3	0	18.52	18.48	18.66
		3	1	18.48	18.35	18.52
		3	3	18.48	18.5	18.45
		6	0	17.49	17.55	17.53
1.4M	16QAM	1	0	17.35	17.31	17.26
		1	2	17.42	17.52	17.42
		1	5	16.69	16.82	16.81
		3	0	17.52	17.5	17.56
		3	1	17.42	17.43	17.48
		3	3	17.25	17.36	17.35
		6	0	16.5	16.47	16.51

*ERP = Conducted + antenna gain (-1.19dBi)-2.15

4.2 Radiated Emission Measurement

4.2.1 Limits of Radiated Emission Measurement

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 43 +10 log10(P) dB. The limit of emission equal to –13dBm.

For operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to −70 dBW/MHz. The limit of emissions is equal to -40 dBm.

4.2.2 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.

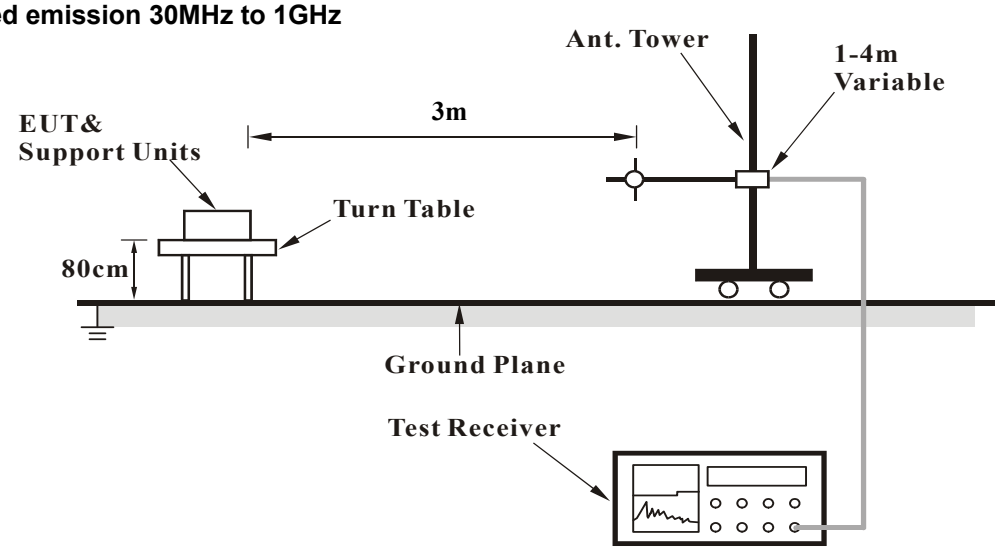
Note:
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.
2. The emission levels were against the limit of frequency range 9 kHz ~ 30 MHz:
   The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

4.2.3 Deviation from Test Standard

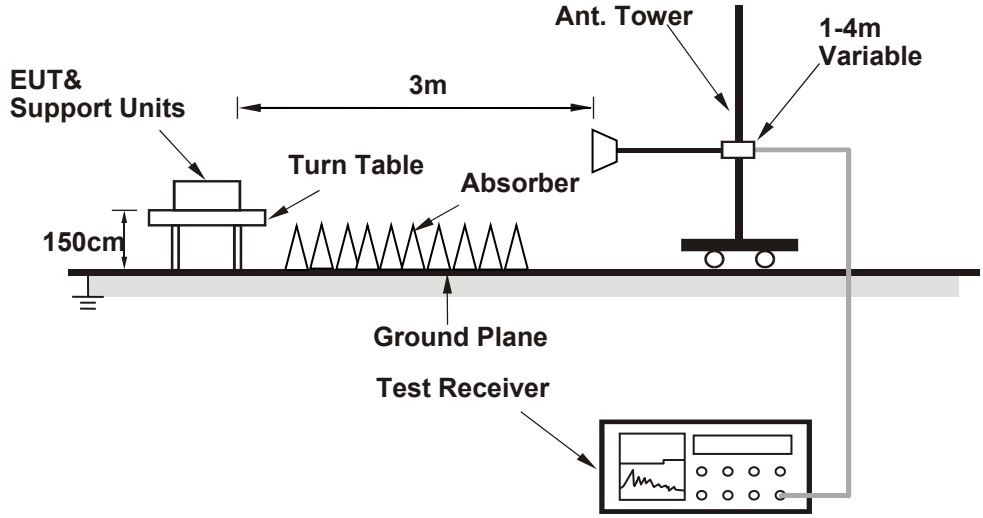
No deviation.

4.2.4 Test Setup

For radiated emission 30MHz to 1GHz



For radiated emission above 1GHz



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

4.2.5 Test Results

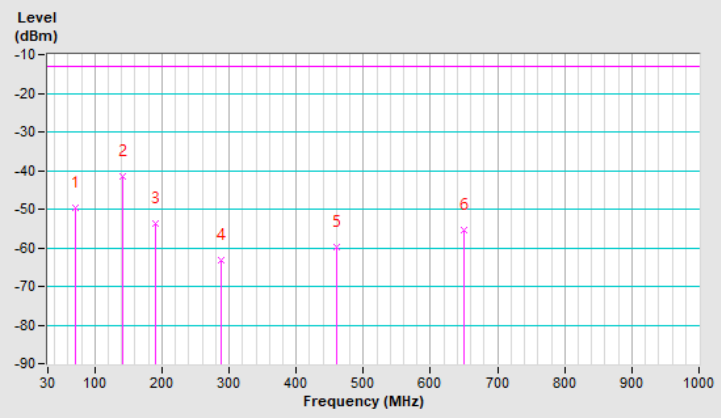
Below 1GHz
LTE Band 26, Channel Bandwidth 10MHz

Mode	TX channel 26740 (819.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	21deg. C, 67%RH	Input Power	120Vac, 60Hz
Tested By	Rex Wang	Test Mode	A

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	71.71	-49.54	-13.00	-36.54	1.50 H	98	59.35	-108.89
2	141.55	-41.44	-13.00	-28.44	1.00 H	98	65.21	-106.65
3	191.02	-53.60	-13.00	-40.60	1.00 H	30	55.16	-108.76
4	288.99	-63.08	-13.00	-50.08	1.25 H	98	41.53	-104.61
5	459.71	-59.81	-13.00	-46.81	1.25 H	98	40.88	-100.69
6	649.83	-55.46	-13.00	-42.46	1.00 H	18	41.69	-97.15

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.

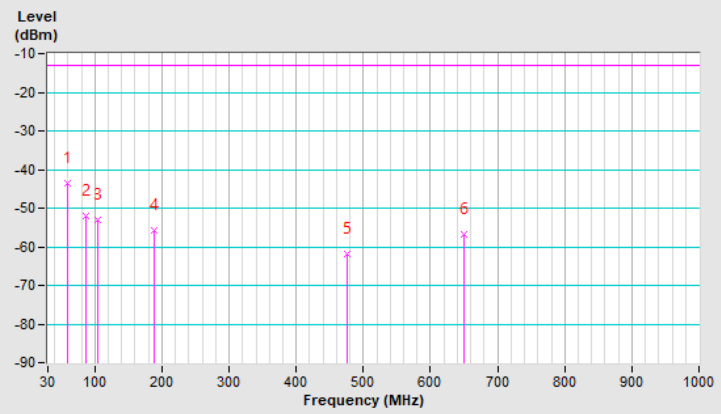


Mode	TX channel 26740 (819.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	21deg. C, 67%RH	Input Power	120Vac, 60Hz
Tested By	Rex Wang	Test Mode	A

Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	59.10	-43.57	-13.00	-30.57	1.25 V	137	63.27	-106.84
2	86.26	-51.88	-13.00	-38.88	1.00 V	226	60.13	-112.01
3	104.69	-53.18	-13.00	-40.18	1.50 V	21	57.10	-110.28
4	189.08	-55.77	-13.00	-42.77	1.00 V	79	52.84	-108.61
5	475.23	-61.74	-13.00	-48.74	1.00 V	278	38.67	-100.41
6	649.83	-56.90	-13.00	-43.90	1.25 V	16	40.25	-97.15

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.

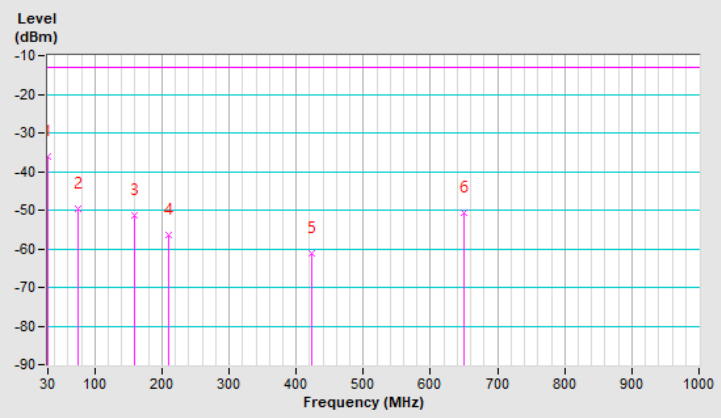


Mode	TX channel 26740 (819.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	21deg. C, 67%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin	Test Mode	B

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	**30.97**	**-36.09**	**-13.00**	**-23.09**	**1.25 H**	**124**	**71.90**	**-107.99**
2	75.59	-49.75	-13.00	-36.75	1.00 H	14	60.11	-109.86
3	159.98	-51.49	-13.00	-38.49	1.50 H	137	54.50	-105.99
4	209.45	-56.49	-13.00	-43.49	1.00 H	16	52.31	-108.80
5	422.85	-61.11	-13.00	-48.11	1.00 H	337	40.51	-101.62
6	649.83	-50.66	-13.00	-37.66	1.25 H	8	46.49	-97.15

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.

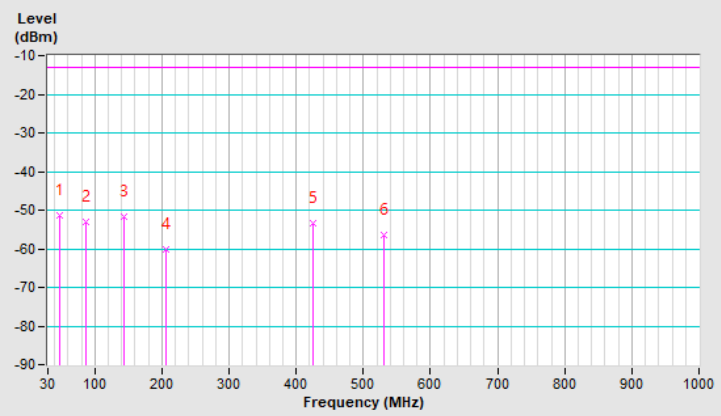


Mode	TX channel 26740 (819.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	21deg. C, 67%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin	Test Mode	B

Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	47.46	-51.40	-13.00	-38.40	1.00 V	25	55.03	-106.43
2	87.23	-53.00	-13.00	-40.00	1.25 V	174	59.06	-112.06
3	142.52	-51.79	-13.00	-38.79	1.00 V	163	54.78	-106.57
4	206.54	-60.07	-13.00	-47.07	1.50 V	51	48.82	-108.89
5	424.79	-53.54	-13.00	-40.54	1.25 V	155	47.99	-101.53
6	531.49	-56.54	-13.00	-43.54	1.00 V	157	42.78	-99.32

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

LTE Band 26, Channel Bandwidth 10MHz

Mode	TX channel 26740 (819.0MHz)	Frequency Range	1GHz ~ 9GHz
Environmental Conditions	23deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

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	1638.00	-51.89	-13.00	-38.89	3.73 H	177	50.17	-102.06
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1638.00	-48.78	-13.00	-35.78	1.02 V	188	53.28	-102.06

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 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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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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