

FCC Test Report (CA Mode)

Report No.: RF180713C31-5

FCC ID: H8N-RTL0102VW

Test Model: TM-RTL0102

Received Date: Jul. 13, 2018

Test Date: Jul. 24 ~ Oct. 15, 2018

Issued Date: Oct. 16, 2018

Applicant: ASKEY COMPUTER CORP.

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

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

Test Location (2): No.215, Sec. 3, Beixin Rd., Xindian Dist., New Taipei City 231, Taiwan,
R.O.C

**FCC Registration /
Designation Number:** 427177 / TW0011



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Release Control Record

Issue No.	Description	Date Issued
RF180713C31-5	Original release	Oct. 16, 2018

1 Certificate of Conformity

Product: LTE WiFi Gateway

Brand: T-Mobile

Test Model: TM-RTL0102

Sample Status: Engineering sample

Applicant: ASKEY COMPUTER CORP.

Test Date: Jul. 24 ~ Oct. 15, 2018

Standards: FCC Part 24, Subpart E
FCC Part 27, Subpart H

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 : Celine Chou , **Date:** Oct. 16, 2018
Celine Chou / Specialist

Approved by : Bruce Chen , **Date:** Oct. 16, 2018
Bruce Chen / Project Engineer

2 Summary of Test Results

FCC Clause		Test Item	Result	Remarks
FCC Part 24 & Part 2	FCC Part 27 & Part 2			
2.1046 24.232	-	Effective radiated power	Pass	Meet the requirement of limit.
-	2.1046 27.50 (c)(10)	Equivalent Isotropically Radiated Power	Pass	Meet the requirement of limit.
2.1046 24.232(d)	-	Peak To Average Ratio	Pass	Meet the requirement of limit.
2.1055 24.235	2.1055 27.54	Frequency Stability Stay with the authorized bands of operation	Pass	Meet the requirement of limit.
2.1049 24.238(b)	-	Occupied Bandwidth	Pass	Meet the requirement of limit.
-	2.1049 27.53 (m)(6)	Emission Bandwidth	Pass	Meet the requirement of limit.
24.238(b)	2.1051 27.53(g)	Band Edge Measurements	Pass	Meet the requirement of limit.
2.1051 24.238	2.1051 27.53(g)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 24.238	2.1051 27.53(g)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -31.53dB at 5700.00MHz.

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	30MHz ~ 200MHz	2.0153 dB
	200MHz ~1000MHz	2.0224 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	1.0121 dB
	18GHz ~ 40GHz	1.1508 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver Agilent Technologies	N9010A	MY52220314	Nov. 24, 2017	Nov. 23, 2018
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Jan. 11, 2018	Jan. 10, 2019
Double Ridge Guide Horn Antenna EMCO	3115	5619	Nov. 30, 2017	Nov. 29, 2018
BILOG Antenna SCHWARZBECK	VULB 9168	9168-153	Dec. 06, 2017	Dec. 05, 2018
HORN Antenna Schwarzbeck	BBHA 9120D	9120D-969	Dec. 12, 2017	Dec. 11, 2018
Fixed Attenuator Woken	00801A1GGAM02Y	NA	May 17, 2018	May 16, 2019
MXG Vector signal generator Agilent	N5182B	MY53050430	Oct. 24, 2017	Oct. 23, 2018
Preamplifier Agilent	310N	187226	Jun. 19, 2018	Jun. 18, 2019
Preamplifier Agilent	83017A	MY39501357	Jun. 19, 2018	Jun. 18, 2019
RF signal cable ETS-LINDGREN	5D-FB	Cable-CH1-01(RF C-SMS-100-SMS-120+RFC-SMS-100-SMS-400)	Jun. 19, 2018	Jun. 18, 2019
RF signal cable ETS-LINDGREN	8D-FB	Cable-CH1-02(RF C-SMS-100-SMS- 24)	Jun. 19, 2018	Jun. 18, 2019
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Software BV ADT	E3 8.130425b	NA	NA	NA
Antenna Tower MF	NA	NA	NA	NA
Turn Table MF	NA	NA	NA	NA
Antenna Tower & Turn Table Controller MF	MF-7802	NA	NA	NA
Radio Communication Analyzer Anritsu	MT8820C	6201010284	Dec. 28, 2017	Dec. 27, 2018
Temperature & Humidity Chamber	GTH-120-40-CP-AR	MAA1306-019	Sep. 08, 2017	Sep. 07, 2018
			Sep. 06, 2018	Sep. 05, 2019
DC Power Supply Topward	33010D	807748	Oct. 25, 2016	Oct. 24, 2018
Digital Multimeter Fluke	87-III	70360742	Jun. 29, 2018	Jun. 28, 2019

- Note: 1. The calibration interval of the above test instruments is 12 / 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HsinTien Chamber 1.
3. The horn antenna and preamplifier (model: 83017A) are used only for the measurement of emission frequency above 1 GHz if tested.
4. The IC Site Registration No. is IC7450I-1.

3 General Information

3.1 General Description of EUT

Product	LTE WiFi Gateway				
Brand	T-Mobile				
Test Model	TM-RTL0102				
Status of EUT	Engineering sample				
Power Supply Rating	12Vdc from Adapter 3.7Vdc from Battery				
Modulation Type	LTE: QPSK, 16QAM, 64QAM				
Operating Frequency	LTE Band 2	Channel Bandwidth 5MHz	1852.5MHz ~ 1907.5MHz		
		Channel Bandwidth 10MHz	1855.0MHz ~ 1905.0MHz		
		Channel Bandwidth 15MHz	1857.5MHz ~ 1902.5MHz		
		Channel Bandwidth 20MHz	1860.0MHz ~ 1900.0MHz		
	LTE Band 12	Channel Bandwidth 3MHz	700.5MHz ~ 714.5MHz		
		Channel Bandwidth 5MHz	701.5MHz ~ 713.5MHz		
		Channel Bandwidth 10MHz	704.0MHz ~ 711.0MHz		
Max. EIRP Power			QPSK	16QAM	64QAM
	LTE Band 2	Channel Bandwidth 20MHz	351.56mW (25.46dBm)	279.90mW (24.47dBm)	235.50mW (23.72dBm)
Max. ERP Power			QPSK	16QAM	64QAM
	LTE Band 12	Channel Bandwidth 10MHz	147.50mW (21.69dBm)	111.10mW (20.46dBm)	83.50mW (19.22dBm)
Emission Designator			QPSK	16QAM	64QAM
	LTE Band 2 + 12	Channel Bandwidth 20MHz + 10MHz	27M0G7D	27M1W7D	27M0W7D
Antenna Type	Refer to note				
Antenna Connector	Refer to note				
Accessory Device	Adapter, Battery				
Cable Supplied	NA				

Note:

1. The EUT consumes power from the following adapters and battery.

Adapter 1	
Brand	FLYPOWER
Model	PS24L120K2000UD
Input	100-240Vac, 50/60Hz, 0.8A Max.
Output	12.0Vdc, 2.0A
Power Line	1.45m DC cable without core attached on adapter

Adapter 2	
Brand	Asian Power Devices Inc.
Model	WB-24J12FU
Input	100-240Vac, 50-60Hz, 0.7A Max.
Output	12.0Vdc, 2.0A
Power Line	1.5m DC cable without core attached on adapter

* After pre-test, adapter 1 is the worst case and for final test.

Battery	
Brand	ASKEY COMPUTER CORP.
Model	BP18-002390
Rating	3.7Vdc, 5200mAh, 19.24Wh

2. The following antennas were provided to the EUT.

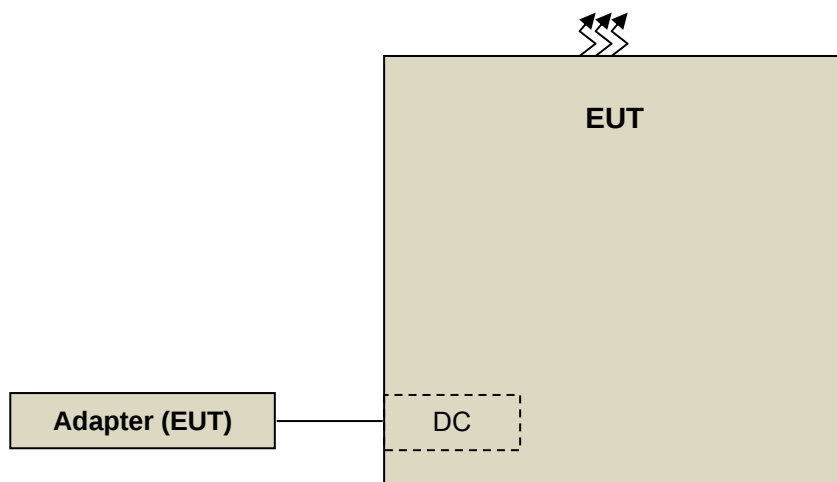
Ant. No.		Ant 1	Ant 2
Antenna Type		PIFA	PIFA
Connector		NA	NA
Band	Freq. Range	Gain (dBi)	Gain (dBi)
WCDMA Band 2	1850~1910	2.3	-
WCDMA Band 4	1710~1755	1.07	-
WCDMA Band 5	824~849	-	0.33
LTE Band 2	1850~1910	2.3	-
LTE Band 4	1710~1755	1.07	-
LTE Band 5	824~849	-	0.33
LTE Band 12	698~716	-	-1.1
LTE Band 66	1710 ~1780	1.5	-
LTE Band 71	663 to 698	-	-1.3

3. Carrier Aggregation technology supported for this device, the operation behavior is LTE Band 2 + LTE Band 12.

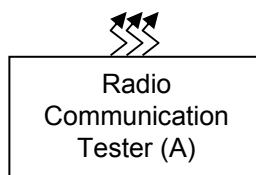
E-UTRA CA Configuration	Uplink CA configurations	E-UTRA Bands	1.4MHz	3MHz	5MHz	10MHz	15MHz	20MHz	Max. Aggregated Bandwidth (MHz)	Bandwidth combination Set
CA_2A-12A	CA_2A-12A	2			Yes	Yes	Yes	Yes	30	0
		12			Yes	Yes				
		2			Yes	Yes	Yes	Yes	30	1
		12		Yes	Yes	Yes				
		2			Yes	Yes			20	2
		12			Yes	Yes				

* All test items are tested under worse condition "LTE Band 2 (Channel Bandwidth 20MHz) + LTE Band 12 (Channel Bandwidth 10MHz), due to the CA mode power is lower than single mode and max. power of EUT.

3.2 Configuration of System under Test



Remote site



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 Tester	Anritsu	MT8820C	6201010284	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.

3.3 Test Mode Applicability and Tested Channel Detail

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
B	EUT only (Battery Mode)

* After pre-test, test mode A is the worst case and for final test.

LTE Band 2 + LTE Band 12

EUT Configure Mode	Test item	Band	Tested Channel		Band	Tested Channel		Modulation
A	ERP	LTE Band 2 (Channel Bandwidth 20MHz)	18700 (1860.00MHz)	100 RB / 0 RB Offset	LTE Band 12 (Channel Bandwidth 10MHz)	23060 (704.0MHz)	50 RB / 0 RB Offset	QPSK / 16QAM / 64QAM
A		LTE Band 2 (Channel Bandwidth 20MHz)	18900 (1880.00MHz)	1 RB / 0 RB Offset	LTE Band 12 (Channel Bandwidth 10MHz)	23130 (711.0 MHz)	1 RB / 0 RB Offset	QPSK / 16QAM / 64QAM
A		LTE Band 2 (Channel Bandwidth 20MHz)	19100 (1900.00MHz)	100 RB / 0 RB Offset	LTE Band 12 (Channel Bandwidth 10MHz)	23130 (711.0 MHz)	50 RB / 0 RB Offset	QPSK / 16QAM / 64QAM
A	Modulation Characteristics	LTE Band 2 (Channel Bandwidth 20MHz)	18900 (1880.00MHz)	1 RB / 0 RB Offset	LTE Band 12 (Channel Bandwidth 10MHz)	23095 (707.5MHz)	1 RB / 0 RB Offset	QPSK
A	Frequency Stability	LTE Band 2 (Channel Bandwidth 20MHz)	18900 (1880.00MHz)	1 RB / 0 RB Offset	LTE Band 12 (Channel Bandwidth 10MHz)	23095 (707.5MHz)	1 RB / 0 RB Offset	QPSK
A	Emission Bandwidth	LTE Band 2 (Channel Bandwidth 20MHz)	18700 (1860.00MHz)	100 RB / 0 RB Offset	LTE Band 12 (Channel Bandwidth 10MHz)	23060 (704.0MHz)	50 RB / 0 RB Offset	QPSK / 16QAM / 64QAM
A		LTE Band 2 (Channel Bandwidth 20MHz)	18900 (1880.00MHz)	1 RB / 0 RB Offset	LTE Band 12 (Channel Bandwidth 10MHz)	23130 (711.0 MHz)	1 RB / 0 RB Offset	QPSK / 16QAM / 64QAM
A		LTE Band 2 (Channel Bandwidth 20MHz)	19100 (1900.00MHz)	100 RB / 0 RB Offset	LTE Band 12 (Channel Bandwidth 10MHz)	23130 (711.0 MHz)	50 RB / 0 RB Offset	QPSK / 16QAM / 64QAM
A	Band Edge	LTE Band 2 (Channel Bandwidth 20MHz)	18700 (1860.00MHz)	1 RB / 0 RB Offset	LTE Band 12 (Channel Bandwidth 10MHz)	23060 (704.0MHz)	1 RB / 0 RB Offset	QPSK
A		LTE Band 2 (Channel Bandwidth 20MHz)	18700 (1860.00MHz)	100 RB / 0 RB Offset	LTE Band 12 (Channel Bandwidth 10MHz)	23060 (704.0MHz)	50 RB / 0 RB Offset	QPSK
A		LTE Band 2 (Channel Bandwidth 20MHz)	19100 (1900.00MHz)	1 RB / 99 RB Offset	LTE Band 12 (Channel Bandwidth 10MHz)	23130 (711.0 MHz)	1 RB / 49 RB Offset	QPSK
A		LTE Band 2 (Channel Bandwidth 20MHz)	19100 (1900.00MHz)	100 RB / 0 RB Offset	LTE Band 12 (Channel Bandwidth 10MHz)	23130 (711.0 MHz)	50 RB / 0 RB Offset	QPSK

EUT Configure Mode	Test item	Band	Tested Channel		Band	Tested Channel		Modulation
A	Peak to Average Ratio	LTE Band 2 (Channel Bandwidth 20MHz)	18700 (1860.00MHz)	100 RB / 0 RB Offset	LTE Band 12 (Channel Bandwidth 10MHz)	23060 (704.0MHz)	50 RB / 0 RB Offset	QPSK
A		LTE Band 2 (Channel Bandwidth 20MHz)	18900 (1880.00MHz)	1 RB / 0 RB Offset	LTE Band 12 (Channel Bandwidth 10MHz)	23130 (711.0 MHz)	1 RB / 0 RB Offset	QPSK
A		LTE Band 2 (Channel Bandwidth 20MHz)	19100 (1900.00MHz)	100 RB / 0 RB Offset	LTE Band 12 (Channel Bandwidth 10MHz)	23130 (711.0 MHz)	50 RB / 0 RB Offset	QPSK
A	Conducted Emission	LTE Band 2 (Channel Bandwidth 20MHz)	18700 (1860.00MHz)	100 RB / 0 RB Offset	LTE Band 12 (Channel Bandwidth 10MHz)	23060 (704.0MHz)	50 RB / 0 RB Offset	QPSK
A		LTE Band 2 (Channel Bandwidth 20MHz)	18900 (1880.00MHz)	1 RB / 0 RB Offset	LTE Band 12 (Channel Bandwidth 10MHz)	23130 (711.0 MHz)	1 RB / 0 RB Offset	QPSK
A		LTE Band 2 (Channel Bandwidth 20MHz)	19100 (1900.00MHz)	100 RB / 0 RB Offset	LTE Band 12 (Channel Bandwidth 10MHz)	23130 (711.0 MHz)	50 RB / 0 RB Offset	QPSK
A	Radiated Emission	LTE Band 2 (Channel Bandwidth 20MHz)	18700 (1860.00MHz)	1 RB / 0 RB Offset	LTE Band 12 (Channel Bandwidth 10MHz)	23060 (704.0MHz)	1 RB / 0 RB Offset	QPSK
A		LTE Band 2 (Channel Bandwidth 20MHz)	18700 (1860.00MHz)	100 RB / 0 RB Offset	LTE Band 12 (Channel Bandwidth 10MHz)	23060 (704.0MHz)	50 RB / 0 RB Offset	QPSK
A		LTE Band 2 (Channel Bandwidth 20MHz)	18900 (1880.00MHz)	1 RB / 0 RB Offset	LTE Band 12 (Channel Bandwidth 10MHz)	23130 (711.0 MHz)	1 RB / 0 RB Offset	QPSK
A		LTE Band 2 (Channel Bandwidth 20MHz)	19100 (1900.00MHz)	1 RB / 99 RB Offset	LTE Band 12 (Channel Bandwidth 10MHz)	23130 (711.0 MHz)	1 RB / 49 RB Offset	QPSK
A		LTE Band 2 (Channel Bandwidth 20MHz)	19100 (1900.00MHz)	100 RB / 0 RB Offset	LTE Band 12 (Channel Bandwidth 10MHz)	23130 (711.0 MHz)	50 RB / 0 RB Offset	QPSK

Note: According to 3GPP 36.521 Section 6.6.3.1A.2 to declare test mode.

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

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

FCC 47 CFR Part 2

FCC 47 CFR Part 24

FCC 47 CFR Part 27

KDB 971168 D01 Power Meas License Digital Systems v03r01

ANSI/TIA/EIA-603-E 2016

ANSI 63.26-2015

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

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

Mobile / Portable station are limited to 2 watts e.i.r.p. for LTE Band 2 and 3 watts e.r.p for LTE Band 12.

4.1.2 Test Procedures

EIRP / ERP Measurement:

- a. All measurements were done at low, middle and high operational frequency range. RWB and VBW is 5MHz for WCDMA mode and 5MHz for LTE Mode.
- b. Substitution method is used for E.I.R.P measurement. 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.
- c. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step b. Record the power level of S.G
- d. $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, $E.R.P \text{ power} = E.I.R.P \text{ power} - 2.15dBi$.

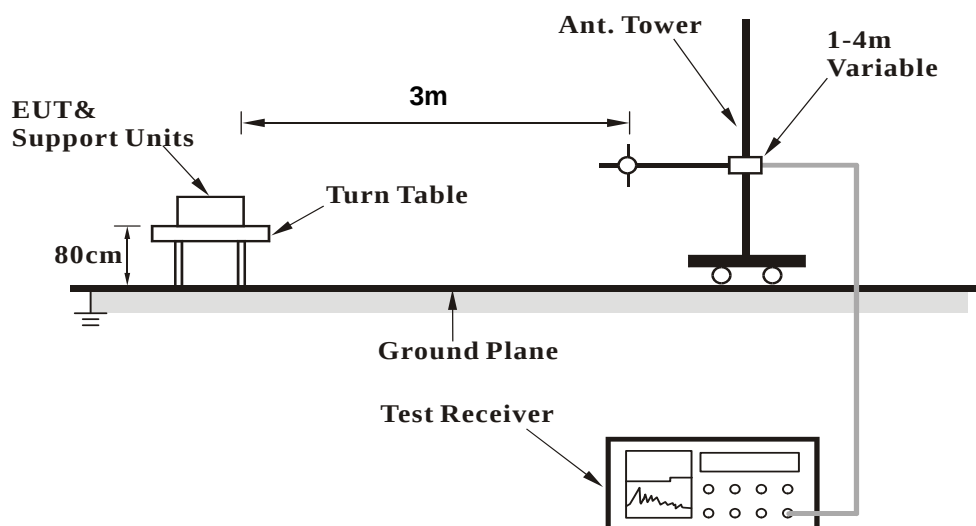
Conducted Power Measurement:

A power sensor was used on the output port of the EUT. A power meter was used to read the response of the power sensor. Record the power level.

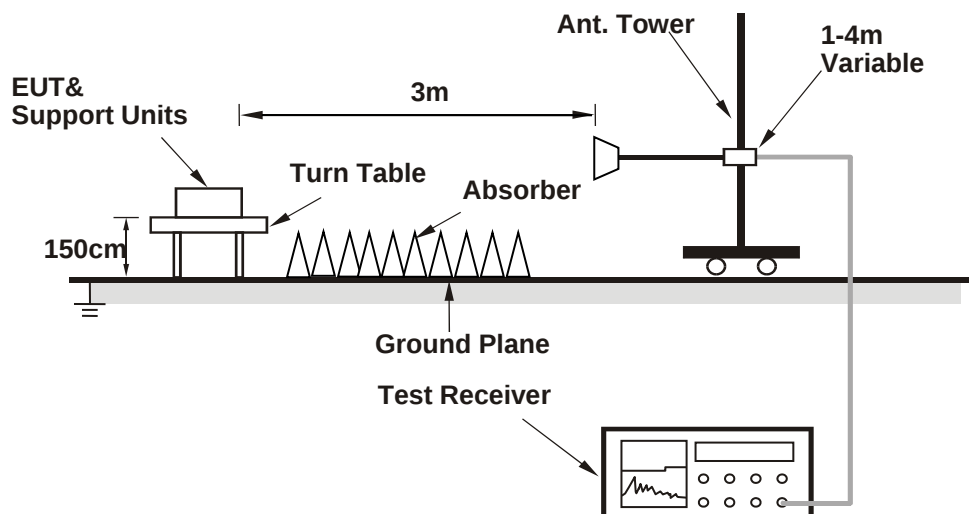
4.1.3 Test Setup

EIRP / ERP MEASUREMENT:

For Radiated Emission below or equal 1GHz



For Radiated Emission above 1GHz



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

CONDUCTED POWER MEASUREMENT:



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

4.1.4 Test Results

Conducted Output Power (dBm)

LTE Band / BW	RB Size	RB Offset	QPSK			16QAM			64QAM		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			18607	18900	19193	18607	18900	19193	18607	18900	19193
			1850.7 MHz	1880 MHz	1909.3 MHz	1850.7 MHz	1880 MHz	1909.3 MHz	1850.7 MHz	1880 MHz	1909.3 MHz
2 / 1.4M	1	0	23.84	24.12	24.16	23.31	23.31	23.38	22.39	22.57	22.60
	1	2	24.30	24.20	23.94	22.83	23.49	23.35	22.69	22.67	22.35
	1	5	24.05	23.88	23.74	23.16	23.63	23.09	22.14	22.62	22.16
	3	0	23.94	24.23	23.97	22.93	23.18	23.19	21.90	22.14	22.40
	3	1	24.00	24.23	24.09	23.03	23.32	23.21	21.97	22.23	22.18
	3	3	23.96	24.07	23.88	22.92	23.11	22.96	21.87	22.04	21.93
	6	0	22.56	23.14	22.99	21.89	22.28	22.12	20.84	21.11	21.08
LTE Band / BW	RB Size	RB Offset	QPSK			16QAM			64QAM		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			18615	18900	19185	18615	18900	19185	18615	18900	19185
			1851.5 MHz	1880 MHz	1908.5 MHz	1851.5 MHz	1880 MHz	1908.5 MHz	1851.5 MHz	1880 MHz	1908.5 MHz
2 / 3M	1	0	23.77	24.40	24.03	22.60	23.83	23.20	21.53	22.75	22.08
	1	7	24.02	24.48	24.63	23.21	23.42	23.67	22.19	22.38	22.59
	1	14	23.89	23.87	23.76	23.29	22.76	23.25	22.13	21.75	22.20
	8	0	22.83	23.22	23.20	21.99	22.27	22.31	20.94	21.04	21.17
	8	3	22.93	23.21	23.17	22.06	22.33	22.26	20.93	21.22	21.18
	8	7	22.67	22.44	22.95	22.01	22.08	22.18	20.90	21.00	21.17
	15	0	22.89	23.07	23.00	22.00	22.18	22.14	20.94	21.00	21.05
LTE Band / BW	RB Size	RB Offset	QPSK			16QAM			64QAM		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			18625	18900	19175	18625	18900	19175	18625	18900	19175
			1852.5 MHz	1880 MHz	1907.5 MHz	1852.5 MHz	1880 MHz	1907.5 MHz	1852.5 MHz	1880 MHz	1907.5 MHz
2 / 5M	1	0	23.76	24.56	24.68	23.26	24.09	23.58	22.05	22.97	22.68
	1	12	24.10	24.33	24.69	23.24	23.52	23.64	22.05	22.48	22.67
	1	24	24.09	23.71	23.84	23.37	23.04	22.71	22.31	21.91	21.68
	12	0	22.93	23.44	23.48	22.08	22.48	22.58	20.89	21.41	21.54
	12	6	23.07	23.17	23.23	21.80	22.28	22.31	20.70	21.12	21.08
	12	13	23.03	22.81	23.11	22.08	21.92	22.20	20.98	20.85	21.17
	25	0	22.92	23.08	23.18	22.02	22.11	22.17	20.88	20.98	21.02

LTE Band / BW	RB Size	RB Offset	QPSK			16QAM			64QAM		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			18650	18900	19150	18650	18900	19150	18650	18900	19150
			1855 MHz	1880 MHz	1905 MHz	1855 MHz	1880 MHz	1905 MHz	1855 MHz	1880 MHz	1905 MHz
2 / 10M	1	0	23.93	25.00	24.14	23.20	24.39	23.56	22.17	23.31	22.50
	1	24	24.11	24.47	24.75	23.22	23.74	24.18	22.17	22.68	23.12
	1	49	24.77	23.47	23.89	23.87	22.62	23.00	22.83	21.52	21.92
	25	0	22.94	23.55	23.43	22.06	22.51	22.61	21.00	21.32	21.46
	25	12	23.05	23.14	23.56	22.24	22.50	22.64	21.08	21.25	21.59
	25	25	23.35	22.51	23.03	22.29	21.89	22.46	21.23	20.88	21.33
	50	0	23.08	23.13	23.22	22.07	22.13	22.48	20.99	21.07	21.36
LTE Band / BW	RB Size	RB Offset	QPSK			16QAM			64QAM		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			18675	18900	19125	18675	18900	19125	18675	18900	19125
			1857.5 MHz	1880 MHz	1902.5 MHz	1857.5 MHz	1880 MHz	1902.5 MHz	1857.5 MHz	1880 MHz	1902.5 MHz
2 / 15M	1	0	23.93	25.13	23.64	23.21	24.57	22.79	22.09	23.43	21.78
	1	37	24.53	24.89	23.15	23.45	24.08	22.30	22.37	22.94	21.15
	1	74	25.08	23.27	23.48	24.54	23.00	22.67	23.82	21.90	21.55
	36	0	23.17	23.33	22.95	22.35	22.58	21.81	21.22	21.44	20.73
	36	19	23.49	23.38	23.44	22.45	22.66	21.80	21.37	21.52	20.75
	36	39	24.26	22.39	23.49	23.26	21.68	22.48	22.09	20.57	21.43
	75	0	23.48	23.20	23.29	22.51	22.36	22.20	21.28	21.07	21.00
LTE Band / BW	RB Size	RB Offset	QPSK			16QAM			64QAM		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			18700	18900	19100	18700	18900	19100	18700	18900	19100
			1860 MHz	1880 MHz	1900 MHz	1860 MHz	1880 MHz	1900 MHz	1860 MHz	1880 MHz	1900 MHz
2 / 20M	1	0	23.94	24.92	24.06	22.91	24.12	23.34	22.90	24.09	23.37
	1	50	25.23	25.41	22.48	24.18	24.34	21.77	24.17	24.31	21.80
	1	99	25.34	23.77	23.27	24.63	22.55	21.47	24.62	22.52	21.50
	50	0	23.49	23.93	23.21	22.39	22.42	21.50	22.38	22.39	21.53
	50	25	23.93	23.38	22.48	23.02	22.75	21.13	23.01	22.72	21.16
	50	50	24.53	22.48	23.12	23.60	21.70	21.57	23.59	21.67	21.60
	100	0	24.10	23.12	23.44	23.09	22.00	22.47	23.08	21.97	22.50

LTE Band / BW	RB Size	RB Offset	QPSK			16QAM			64QAM		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			23017	23095	23173	23017	23095	23173	23017	23095	23173
			699.7 MHz	707.5 MHz	715.3 MHz	699.7 MHz	707.5 MHz	715.3 MHz	699.7 MHz	707.5 MHz	715.3 MHz
12 / 1.4M	1	0	24.53	24.86	24.88	23.63	23.72	23.87	22.68	22.73	22.86
	1	2	24.59	24.87	24.96	23.80	23.75	23.91	22.67	22.68	23.03
	1	5	24.67	24.69	24.83	23.78	23.70	23.83	22.79	22.73	22.83
	3	0	24.60	24.81	24.91	23.66	23.91	24.09	22.68	22.76	23.05
	3	1	24.56	24.85	24.94	23.58	23.91	24.05	22.64	22.82	23.15
	3	3	24.60	24.79	24.93	23.67	23.94	23.99	22.68	23.03	23.10
	6	0	23.66	23.91	24.03	22.78	22.94	23.06	21.78	22.05	22.16
LTE Band / BW	RB Size	RB Offset	QPSK			16QAM			64QAM		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			23025	23095	23165	23025	23095	23165	23025	23095	23165
			700.5 MHz	707.5 MHz	714.5 MHz	700.5 MHz	707.5 MHz	714.5 MHz	700.5 MHz	707.5 MHz	714.5 MHz
12 / 3M	1	0	24.56	24.76	24.89	23.99	24.21	24.38	23.02	23.26	23.40
	1	7	24.60	24.96	24.88	24.21	24.41	24.47	23.22	23.41	23.57
	1	14	24.64	24.82	24.96	24.10	24.18	24.39	23.20	23.21	23.49
	8	0	23.73	23.93	23.94	22.83	23.09	23.09	21.75	22.12	22.17
	8	3	23.75	23.97	23.96	22.85	23.06	23.14	21.81	22.10	22.28
	8	7	23.66	23.91	23.92	22.84	23.04	23.08	21.71	22.07	22.15
	15	0	23.72	23.95	23.92	22.79	23.00	23.14	21.79	22.05	22.25
LTE Band / BW	RB Size	RB Offset	QPSK			16QAM			64QAM		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			23035	23095	23155	23035	23095	23155	23035	23095	23155
			701.5 MHz	707.5 MHz	713.5 MHz	701.5 MHz	707.5 MHz	713.5 MHz	701.5 MHz	707.5 MHz	713.5 MHz
12 / 5M	1	0	24.66	24.63	24.65	23.68	24.00	24.02	22.69	23.03	23.07
	1	12	24.57	24.82	24.74	23.92	23.98	24.03	23.01	23.06	22.99
	1	24	24.62	24.85	24.83	23.99	24.17	24.01	23.08	23.07	23.06
	12	0	23.73	23.96	23.82	22.75	23.08	22.81	23.82	22.06	21.86
	12	6	23.84	24.02	23.98	23.05	23.14	22.97	22.09	22.17	22.02
	12	13	23.83	23.99	23.94	23.00	23.03	22.90	22.02	22.07	21.98
	25	0	23.78	23.92	23.87	22.93	23.10	22.96	21.94	22.21	22.06
LTE Band / BW	RB Size	RB Offset	QPSK			16QAM			64QAM		
			Low CH	Mid CH	High CH	Low CH	Mid CH	High CH	Low CH	Mid CH	High CH
			23060	23095	23130	23060	23095	23130	23060	23095	23130
			704 MHz	707.5 MHz	711 MHz	704 MHz	707.5 MHz	711 MHz	704 MHz	707.5 MHz	711 MHz
12 / 10M	1	0	24.64	24.81	24.62	23.90	24.25	24.15	22.98	23.25	23.29
	1	24	24.75	24.83	24.78	24.14	24.35	24.28	23.22	23.40	23.38
	1	49	24.95	24.99	24.93	24.16	24.52	24.36	23.18	23.84	23.42
	25	0	23.84	23.87	23.77	22.86	22.96	22.87	21.84	22.02	21.87
	25	12	23.93	23.98	23.83	22.98	23.09	23.01	22.00	22.10	22.08
	25	25	23.98	23.90	23.89	23.04	23.00	22.99	22.05	21.93	21.98
	50	0	23.88	23.92	23.81	22.97	23.12	22.97	22.04	22.12	22.05

EIRP / ERP Power (dBm)

LTE Band 2 20MHz: TX channel 18700 + LTE Band 12 10MHz TX channel 23060

LTE Band 2							
Channel Bandwidth: 20MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
Y	18700	1860.0	-19.52	44.70	25.18	329.61	H
	18700	1860.0	-23.54	44.27	20.73	118.25	V
Channel Bandwidth: 20MHz / 16QAM							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
Y	18700	1860.0	-20.41	44.70	24.29	268.53	H
	18700	1860.0	-25.12	44.27	19.15	82.22	V
Channel Bandwidth: 20MHz / 64QAM							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
Y	18700	1860.0	-21.25	44.70	23.45	221.31	H
	18700	1860.0	-26.23	44.27	18.04	63.68	V

Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB).

LTE Band 12							
Channel Bandwidth: 10MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
Z	23060	704.0	-9.21	32.727	21.37	136.99	H
	23060	704.0	-12.10	32.75	18.50	70.79	V
Channel Bandwidth: 10MHz / 16QAM							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
Z	23060	704.0	-10.12	32.727	20.46	111.10	H
	23060	704.0	-12.80	32.75	17.80	60.26	V
Channel Bandwidth: 10MHz / 64QAM							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
Z	23060	704.0	-11.36	32.727	19.22	83.50	H
	23060	704.0	-13.88	32.75	16.72	46.99	V

Note: ERP (dBm) = Reading (dBm) + Correction Factor (dB) – 2.15.

LTE Band 2 20MHz: TX channel 18900 + LTE Band 12 10MHz TX channel 23130

LTE Band 2							
Channel Bandwidth: 20MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
Y	18900	1880.0	-19.24	44.70	25.46	351.56	H
	18900	1880.0	-24.15	44.87	20.72	117.98	V
Channel Bandwidth: 20MHz / 16QAM							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
Y	18900	1880.0	-20.23	44.70	24.47	279.90	H
	18900	1880.0	-25.21	44.87	19.66	92.47	V
Channel Bandwidth: 20MHz / 64QAM							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
Y	18900	1880.0	-20.98	44.70	23.72	235.50	H
	18900	1880.0	-26.10	44.87	18.77	75.34	V

Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB).

LTE Band 12							
Channel Bandwidth: 10MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
Z	23130	711.0	-8.89	32.728	21.69	147.50	H
	23130	711.0	-11.81	32.84	18.88	77.27	V
Channel Bandwidth: 10MHz / 16QAM							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
Z	23130	711.0	-10.22	32.728	20.36	108.59	H
	23130	711.0	-13.42	32.84	17.27	53.39	V
Channel Bandwidth: 10MHz / 64QAM							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
Z	23130	711.0	-11.47	32.728	19.11	81.43	H
	23130	711.0	-14.19	32.84	16.50	44.67	V

Note: ERP (dBm) = Reading (dBm) + Correction Factor (dB) – 2.15.

LTE Band 2 20MHz: TX channel 19100 + LTE Band 12 10MHz TX channel 23130

LTE Band 2							
Channel Bandwidth: 20MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
Y	19100	1900.0	-19.24	44.57	25.34	341.82	H
	19100	1900.0	-24.24	44.61	20.38	109.09	V
Channel Bandwidth: 20MHz / 16QAM							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
Y	19100	1900.0	-20.51	44.57	24.06	254.86	H
	19100	1900.0	-25.23	44.61	19.38	86.76	V
Channel Bandwidth: 20MHz / 64QAM							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
Y	19100	1900.0	-20.89	44.57	23.68	233.51	H
	19100	1900.0	-26.33	44.61	18.28	67.34	V

Note: EIRP (dBm) = Reading (dBm) + Correction Factor (dB).

LTE Band 12							
Channel Bandwidth: 10MHz / QPSK							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
Z	23130	711.0	-8.89	32.728	21.69	147.50	H
	23130	711.0	-11.81	32.84	18.88	77.27	V
Channel Bandwidth: 10MHz / 16QAM							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
Z	23130	711.0	-10.22	32.728	20.36	108.59	H
	23130	711.0	-13.42	32.84	17.27	53.39	V
Channel Bandwidth: 10MHz / 64QAM							
Plane	Channel	Frequency (MHz)	Reading (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
Z	23130	711.0	-11.47	32.728	19.11	81.43	H
	23130	711.0	-14.19	32.84	16.50	44.67	V

Note: ERP (dBm) = Reading (dBm) + Correction Factor (dB) – 2.15.

4.2 Modulation Characteristics Measurement

4.2.1 Limits of Modulation Characteristics

N/A

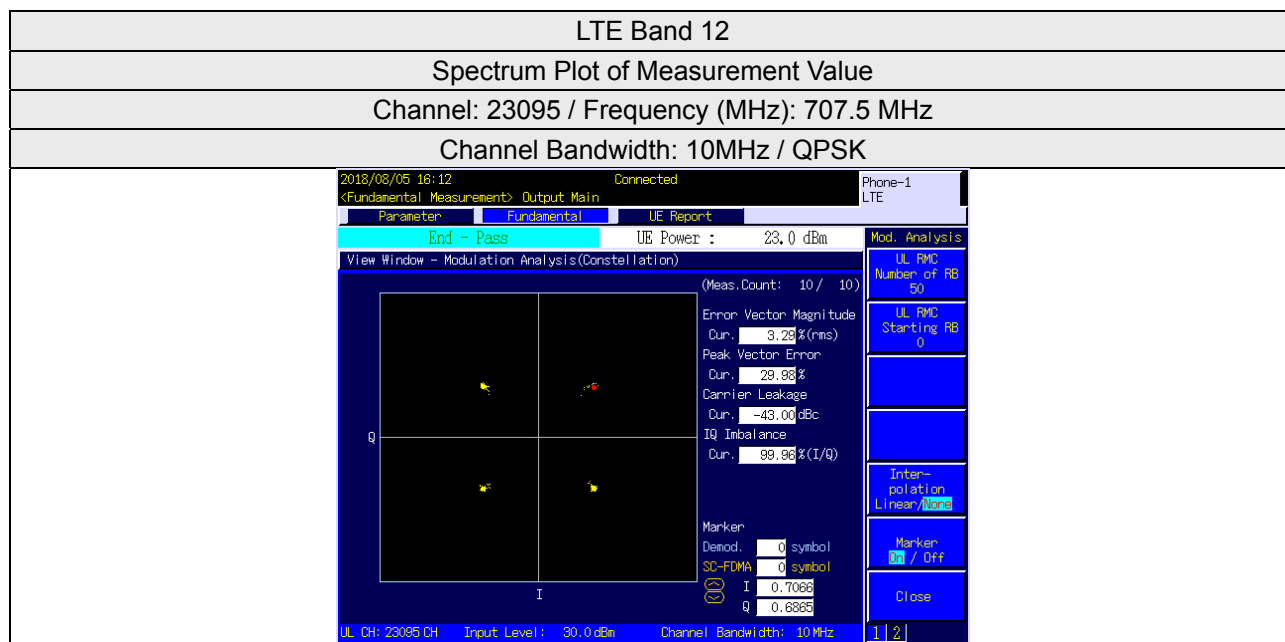
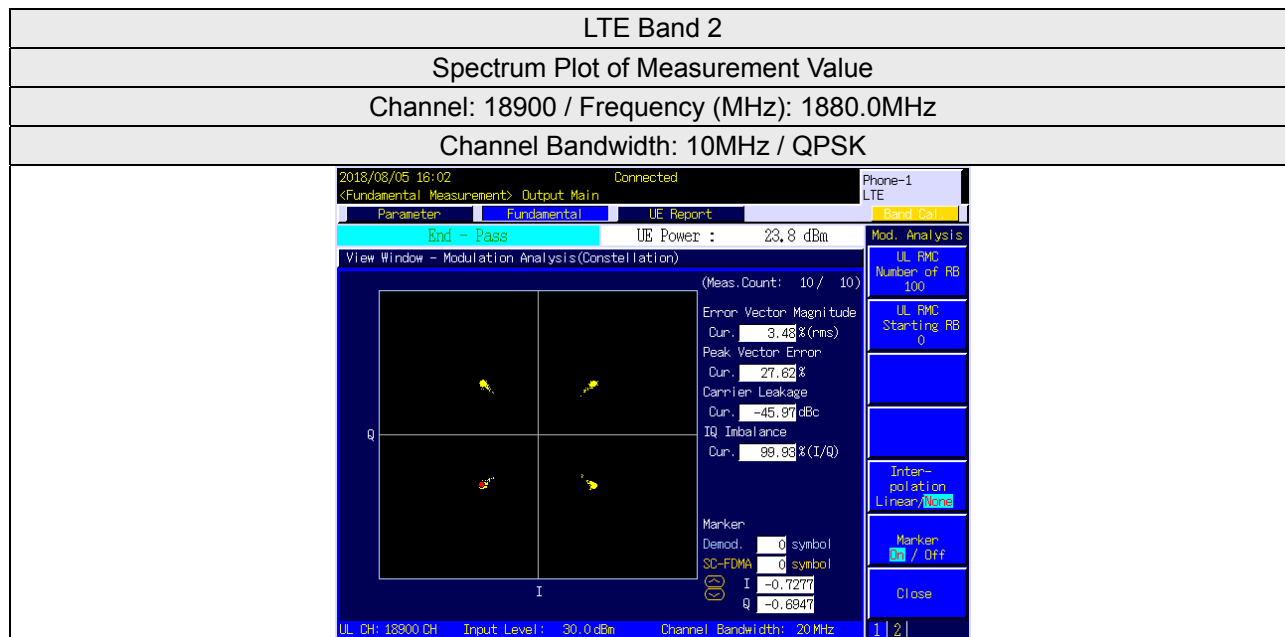
4.2.2 Test Procedure

Connect the EUT to Communication Simulator via the antenna connector, the frequency band is set as EUT supported Modulation and Channels, the EUT output is matched with 50 ohm load, the waveform quality and constellation of the EUT was tested.

4.2.3 Test Setup



4.2.4 Test Results



4.3 Frequency Stability Measurement

4.3.1 Limits of Frequency Stability Measurement

For LTE Band 2

1.5 ppm is for base and fixed station. 2.5 ppm is for mobile station.

For LTE Band 12

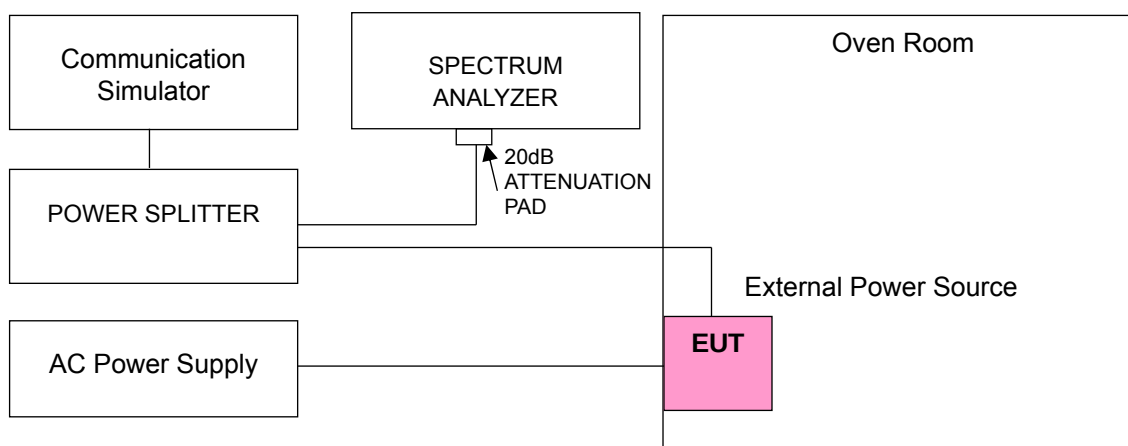
According to the FCC part 2.1055 shall be tested the frequency stability. The rule is defined that "The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block." The test extreme voltage is according to the 2.1055(d)(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment and the extreme temperature rule is comply with specification of EUT $-30^{\circ}\text{C} \sim 50^{\circ}\text{C}$.

4.3.2 Test Procedure

- Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- EUT is connected the external power supply to control the AC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
- The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the $\pm 0.5^{\circ}\text{C}$ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

Note: The frequency error was recorded frequency error from the communication simulator.

4.3.3 Test Setup



4.3.4 Test Results

Frequency Error vs. Voltage

Voltage (Volts)	Frequency Error (ppm)		Limit (ppm)
	LTE Band 2	LTE Band 12	
138	0.06167	0.07783	2.5
120	0.08752	0.09717	2.5
102	0.05491	0.07813	2.5

Note: The applicant defined the normal working voltage is from 102Vac to 138Vac.

Frequency Error vs. Temperature

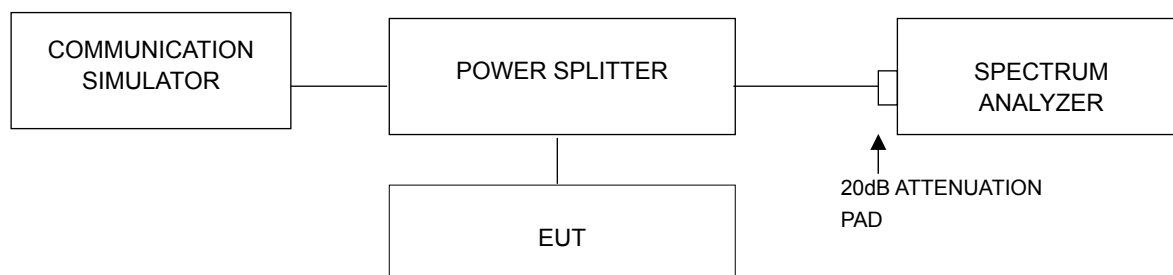
Voltage (Volts)	Frequency Error (ppm)		Limit (ppm)
	LTE Band 2	LTE Band 12	
50	0.02603	0.03751	2.5
40	0.07001	0.01822	2.5
30	0.05625	0.06313	2.5
20	0.05661	0.09717	2.5
10	0.00556	0.02812	2.5
0	0.03923	0.01563	2.5
-10	0.09213	0.05267	2.5
-20	0.00785	0.07246	2.5
-30	0.08190	0.07896	2.5

4.4 Occupied Bandwidth Measurement

4.4.1 Test Procedure

The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

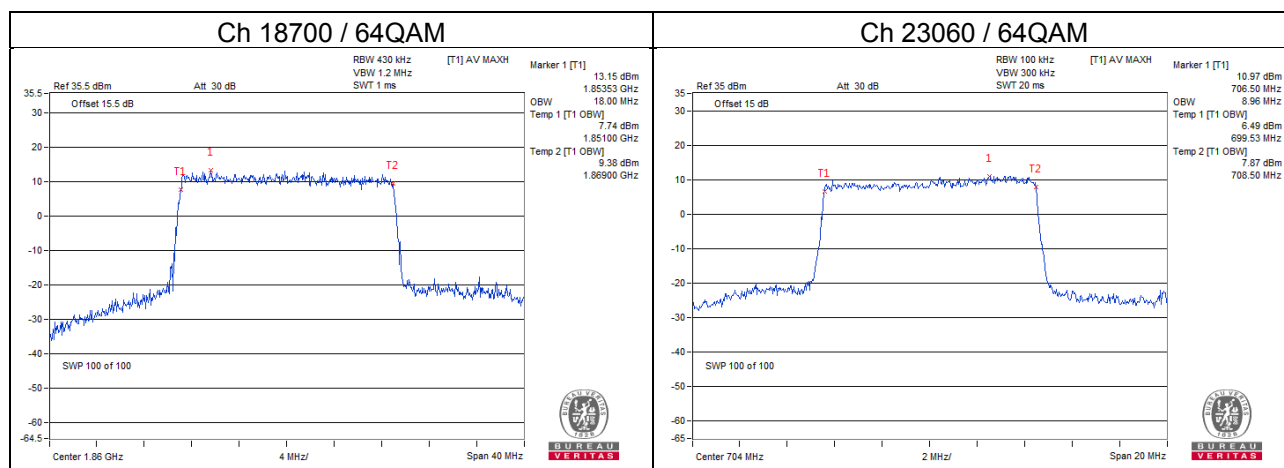
4.4.2 Test Setup



4.4.3 Test Result

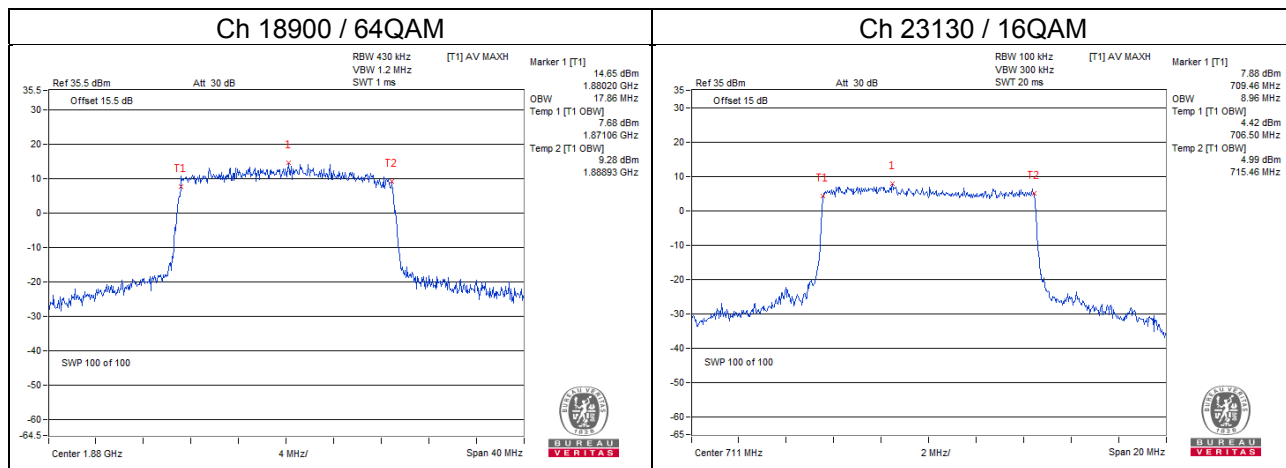
LTE Band 2 20MHz: TX channel 18700 + LTE Band 12 10MHz TX channel 23060

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
18700	1860.0	17.85	17.93	18.00
23060	704.0	8.95	8.93	8.96
Total		26.80	26.86	26.96



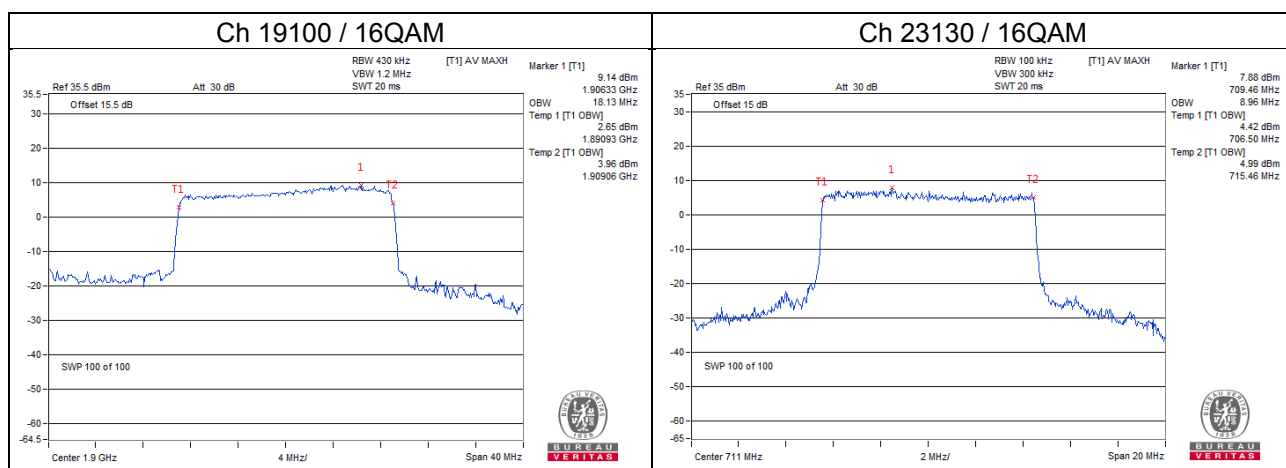
LTE Band 2 20MHz: TX channel 18900 + LTE Band 12 10MHz TX channel 23130

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
18900	1880.0	17.73	17.86	17.86
23130	711.0	8.95	8.96	8.93
Total		26.68	26.82	26.79



LTE Band 2 20MHz: TX channel 19100 + LTE Band 12 10MHz TX channel 23130

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM
19100	1900.0	18.07	18.13	17.93
23130	711.0	8.95	8.96	8.93
Total		27.02	27.09	26.86



4.5 Band Edge Measurement

4.5.1 Limits of Band Edge Measurement

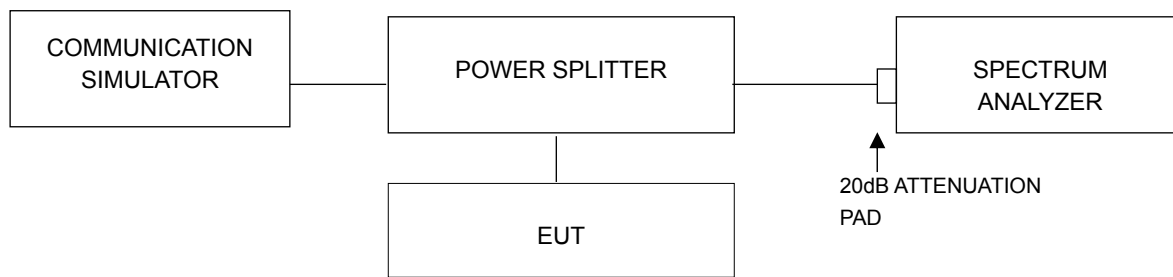
For LTE Band 2

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. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

For LTE Band 12

According to FCC 27.53(g) for operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater.

4.5.2 Test Setup

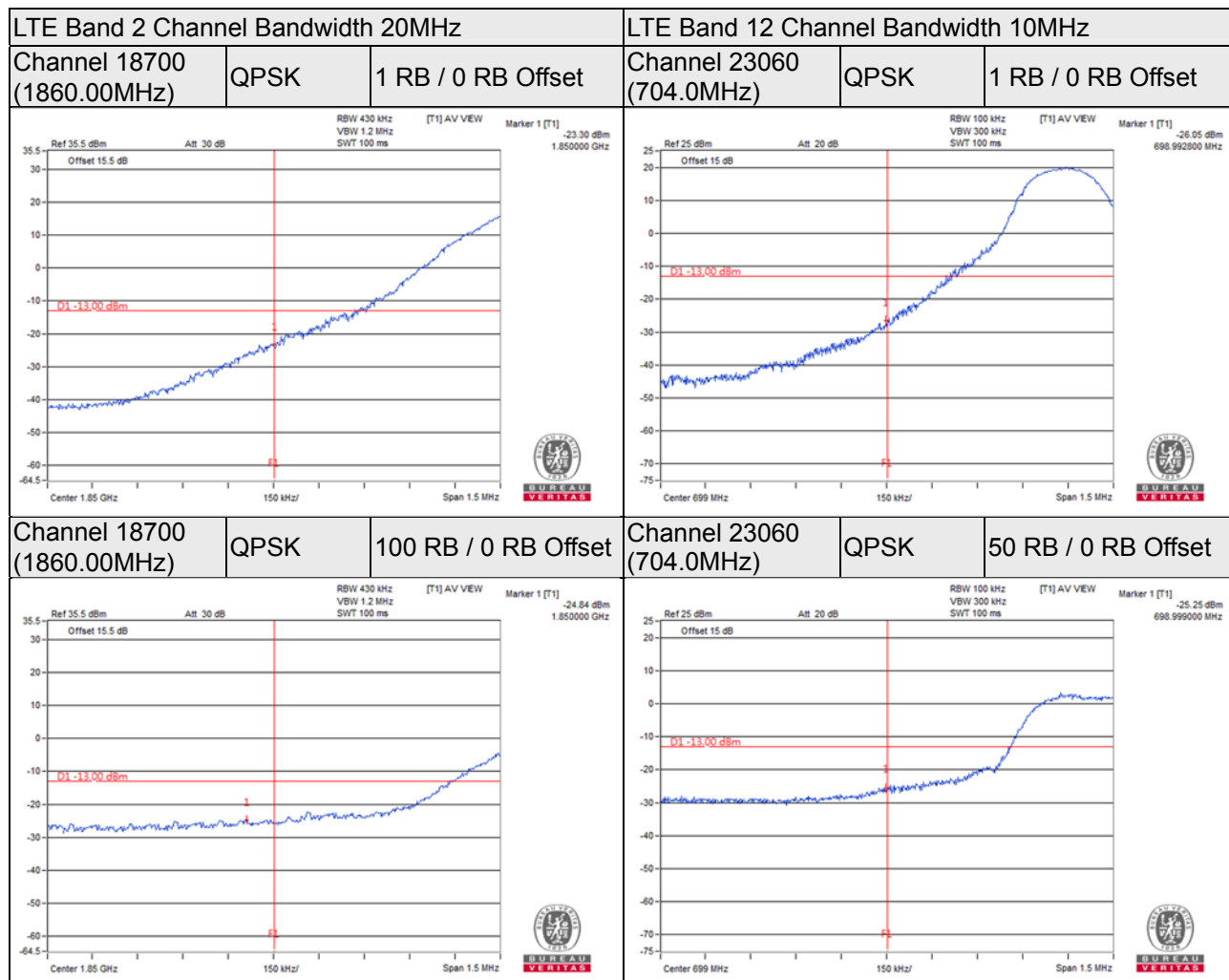


4.5.3 Test Procedures

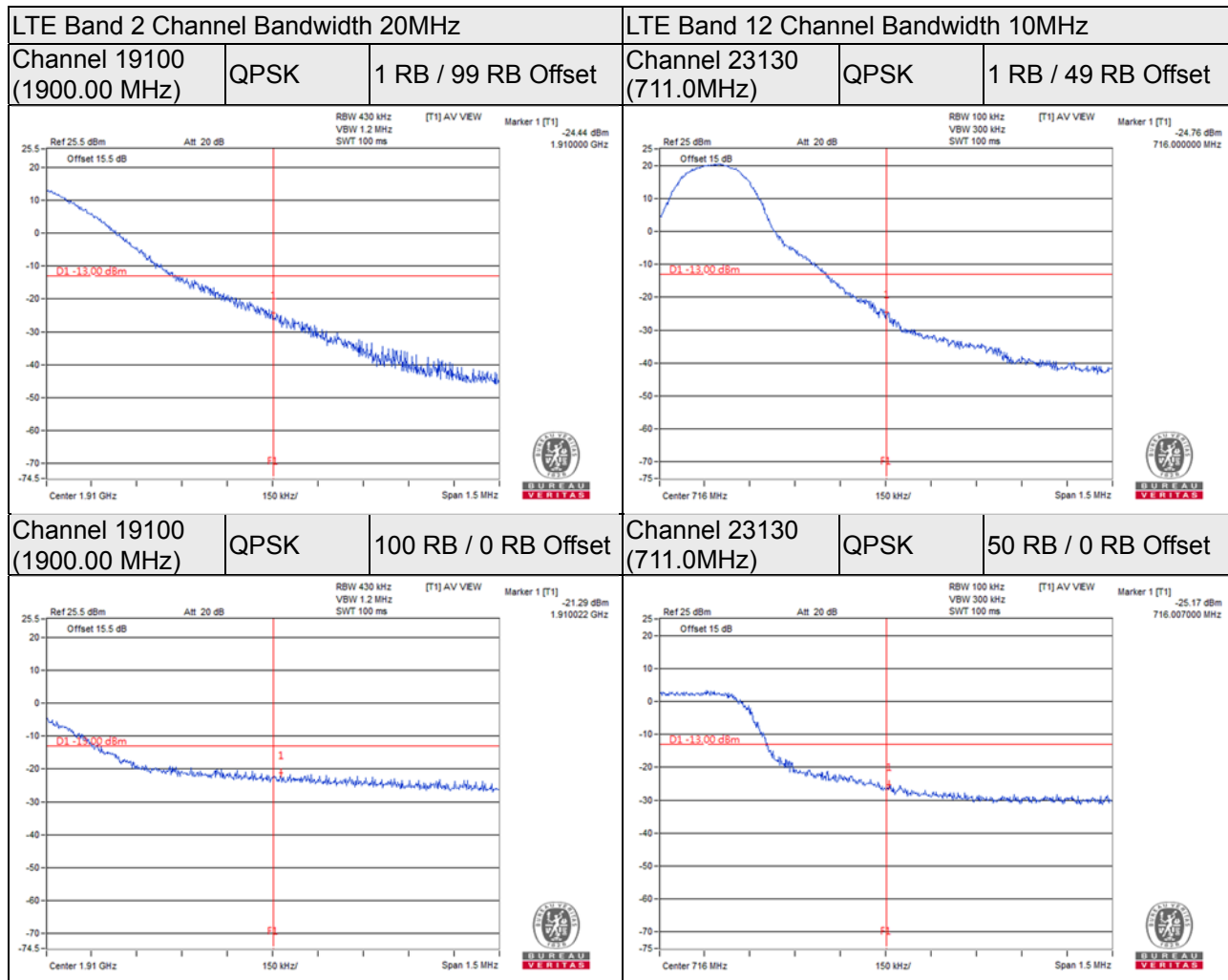
- The EUT was set up for the rated peak power. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels: low, middle and high operational frequency range.
- The center frequency of spectrum is the band edge frequency and span is RBW = 100kHz and VBW = 300kHz (Channel Bandwidth: 10MHz) and RBW = 430kHz and VBW = 1.2MHz (Channel Bandwidth: 20MHz).
- Record the max trace plot into the test report.

4.5.4 Test Results

LTE Band 2 20MHz: TX channel 18700 + LTE Band 12 10MHz TX channel 23060



LTE Band 2 20MHz: TX channel 19100 + LTE Band 12 10MHz TX channel 23130

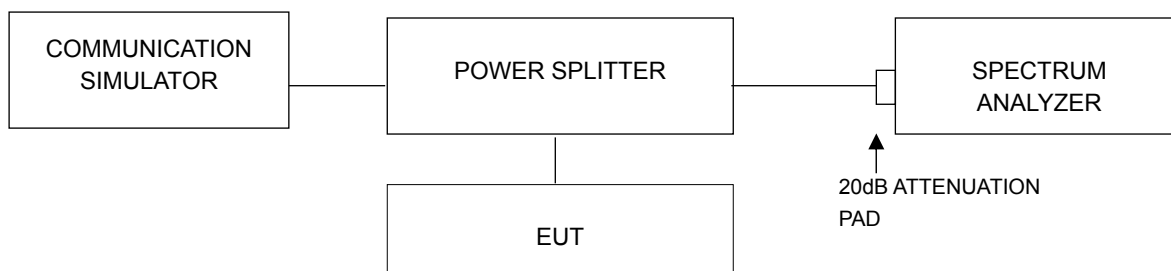


4.6 Peak to Average Ratio

4.6.1 Limits of Peak to Average Ratio Measurement

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB

4.6.2 Test Setup



4.6.3 Test Procedures

- Set resolution/measurement bandwidth $\geq$ signal's occupied bandwidth;
- Set the number of counts to a value that stabilizes the measured CCDF curve;
- Record the maximum PAPR level associated with a probability of 0.1%.

4.6.4 Test Results

LTE Band 2 20MHz: TX channel 18700 + LTE Band 12 10MHz TX channel 23060

Channel	Frequency (MHz)	Peak To Average Ratio (dB)
18700	1860.0	3.58
23060	704.0	5.58



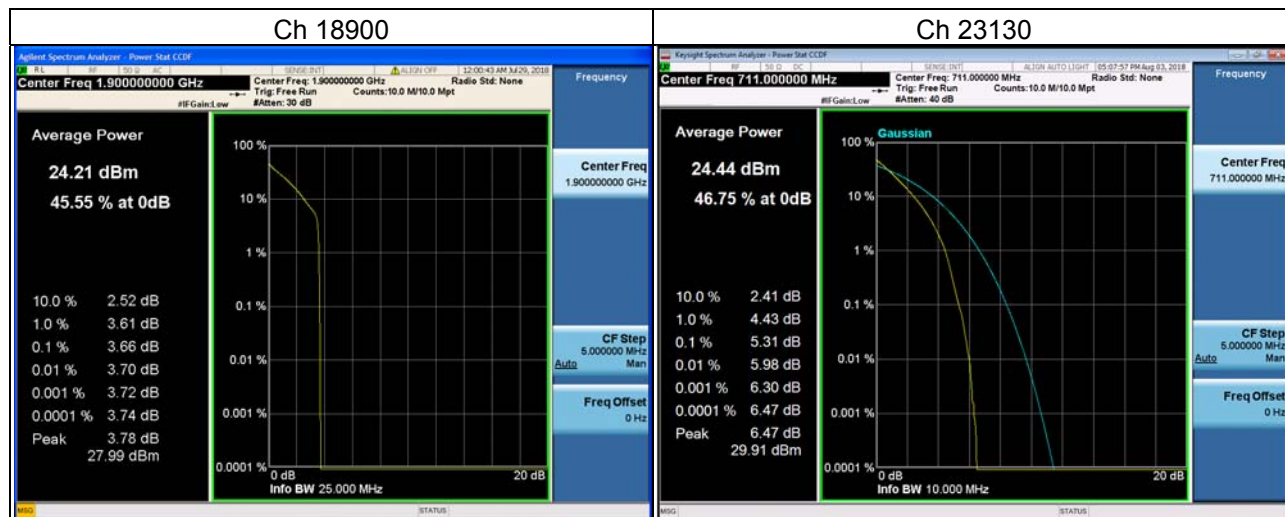
LTE Band 2 20MHz: TX channel 18900 + LTE Band 12 10MHz TX channel 23130

Channel	Frequency (MHz)	Peak To Average Ratio (dB)
18900	1880.0	3.56
23130	711.0	5.31



LTE Band 2 20MHz: TX channel 19100 + LTE Band 12 10MHz TX channel 23130

Channel	Frequency (MHz)	Peak To Average Ratio (dB)
19100	1900.0	3.66
23130	711.0	5.31



4.7 Conducted Spurious Emissions

4.7.1 Limits of Conducted Spurious Emissions Measurement

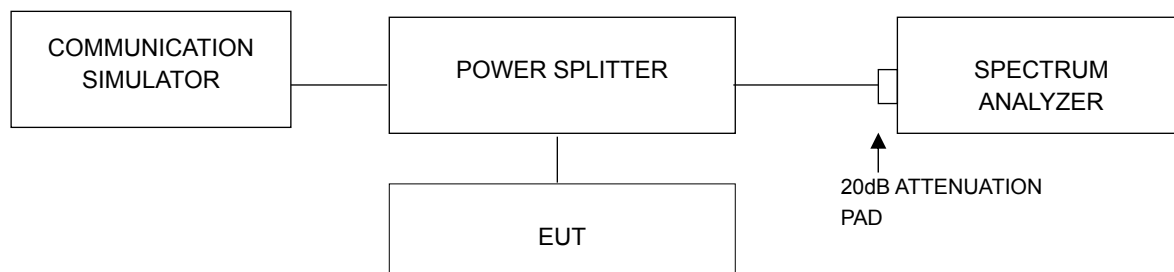
For LTE Band 2

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

For LTE Band 12

For operations in the 600 MHz band and the 698–746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB.

4.7.2 Test Setup

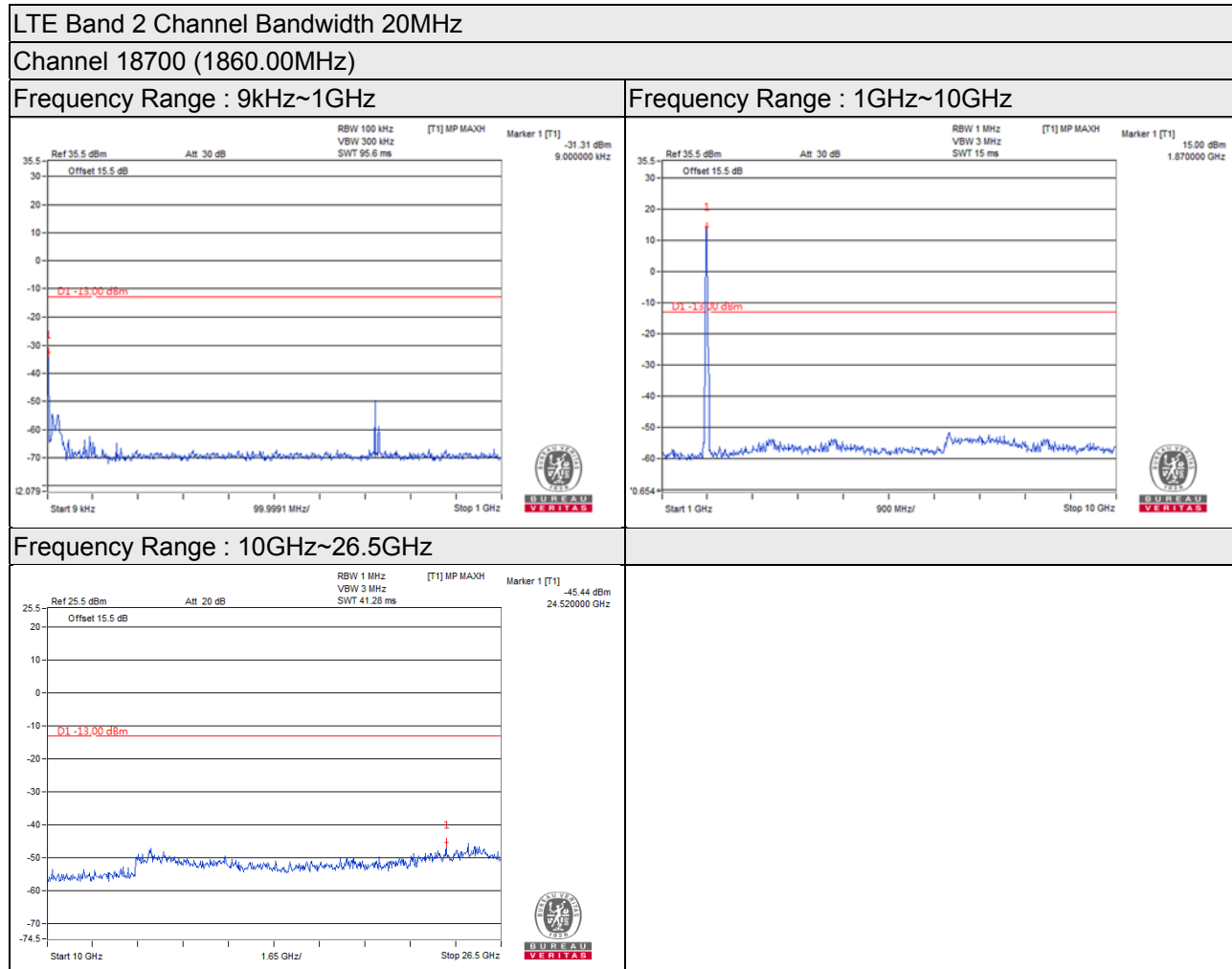


4.7.3 Test Procedure

- All measurements were done at 3 channels: low, middle and high operational frequency range.
- When the spectrum scanned from 9kHz to 26.5GHz, it shall be connected to the attenuator with the carried frequency.

4.7.4 Test Results

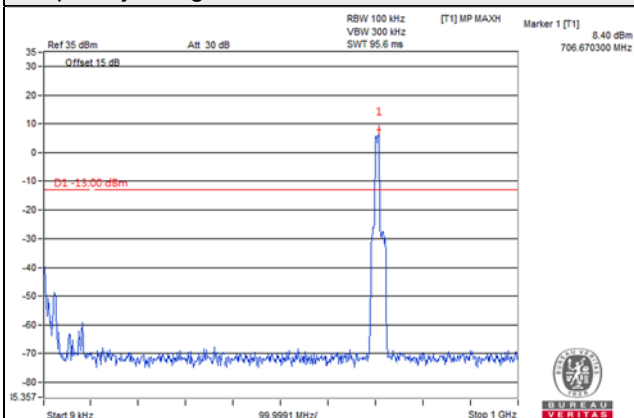
LTE Band 2 20MHz: TX channel 18700 + LTE Band 12 10MHz TX channel 23060



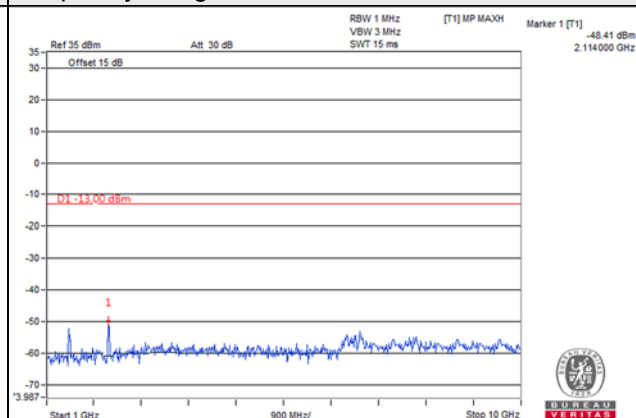
LTE Band 12 Channel Band width: 10MHz

Channel 23060 (704MHz)

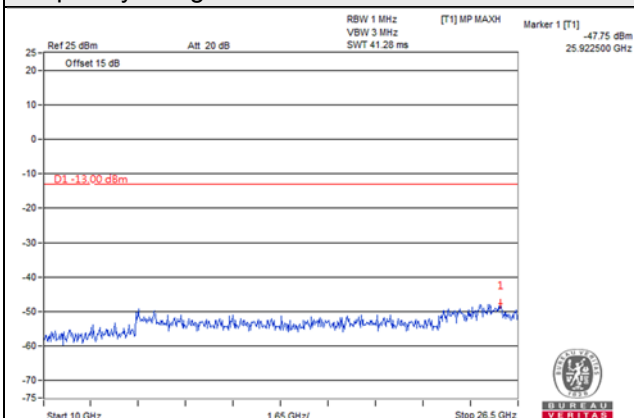
Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~10GHz



Frequency Range : 10GHz~26.5GHz

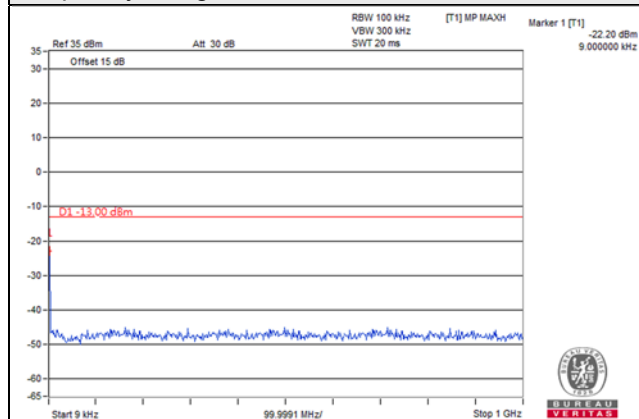


LTE Band 2 20MHz: TX channel 18900 + LTE Band 12 10MHz TX channel 23130

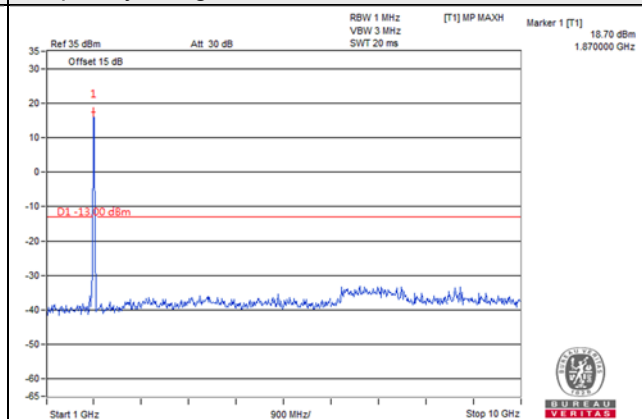
LTE Band 2 Channel Bandwidth 20MHz

Channel 18900 (1880.00MHz)

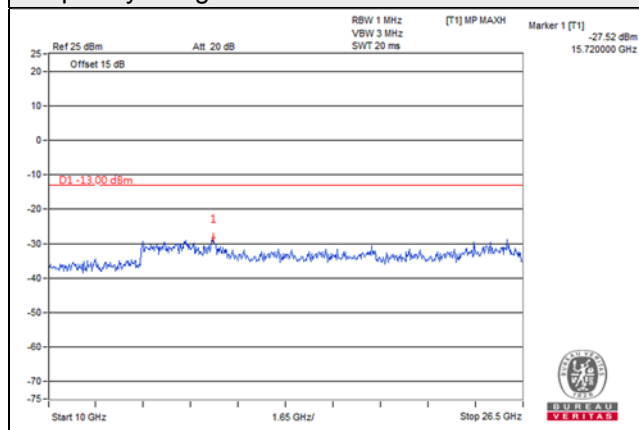
Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~10GHz



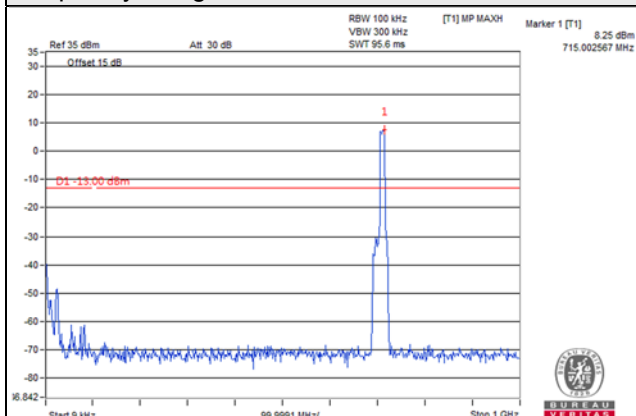
Frequency Range : 10GHz~26.5GHz



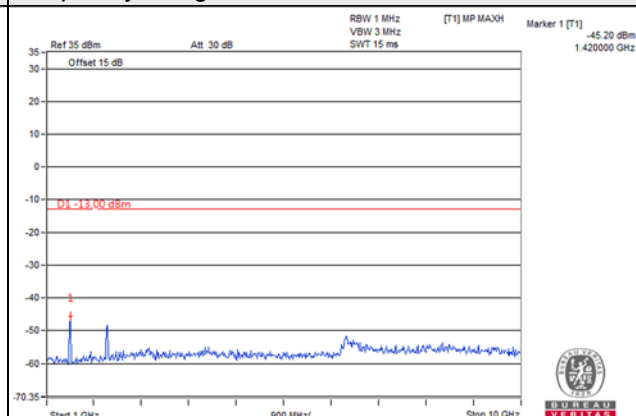
LTE Band 12 Channel Band width: 10MHz

Channel 23130 (711MHz)

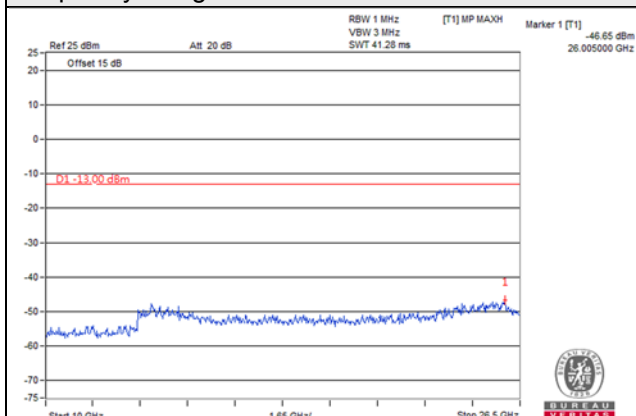
Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~10GHz



Frequency Range : 10GHz~26.5GHz

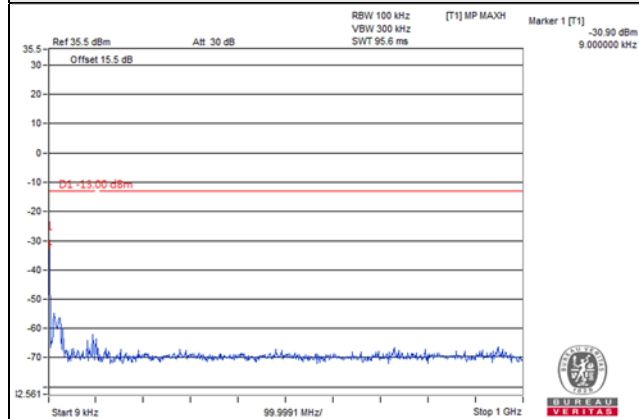


LTE Band 2 20MHz: TX channel 19100 + LTE Band 12 10MHz TX channel 23130

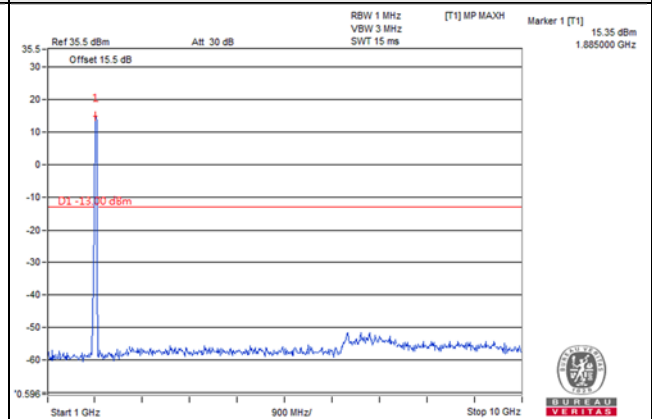
LTE Band 2 Channel Bandwidth 20MHz

Channel 19100 (1900.00MHz)

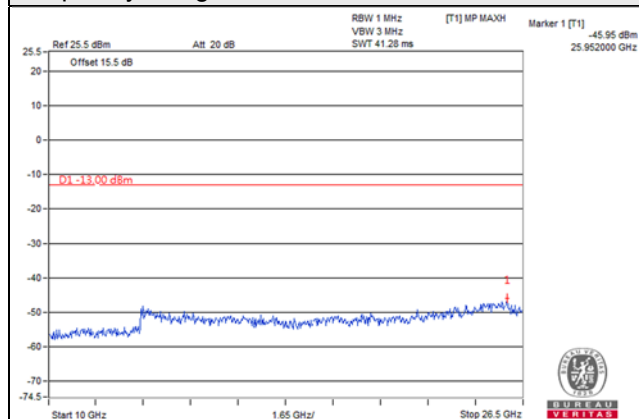
Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~10GHz



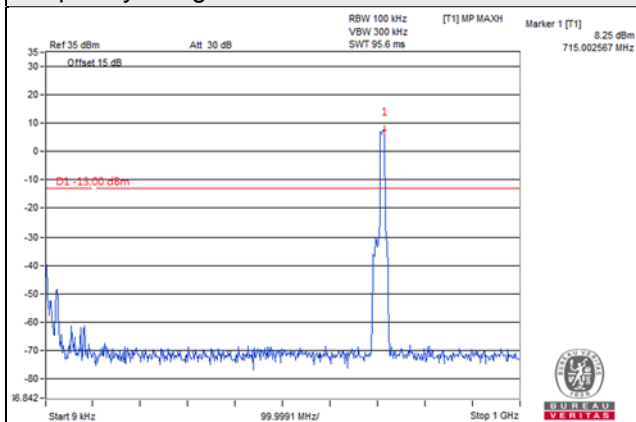
Frequency Range : 10GHz~26.5GHz



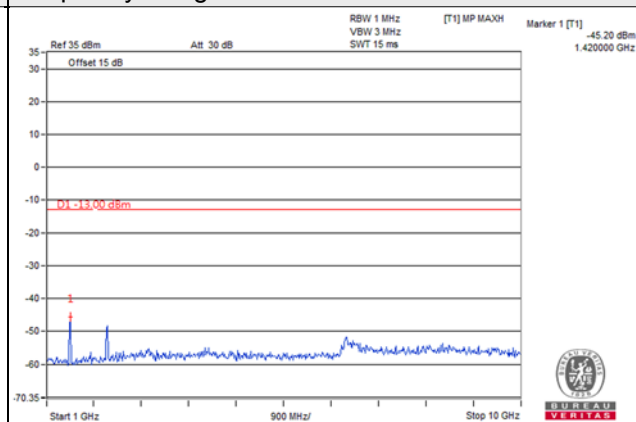
LTE Band 12 Channel Band width: 10MHz

Channel 23130 (711MHz)

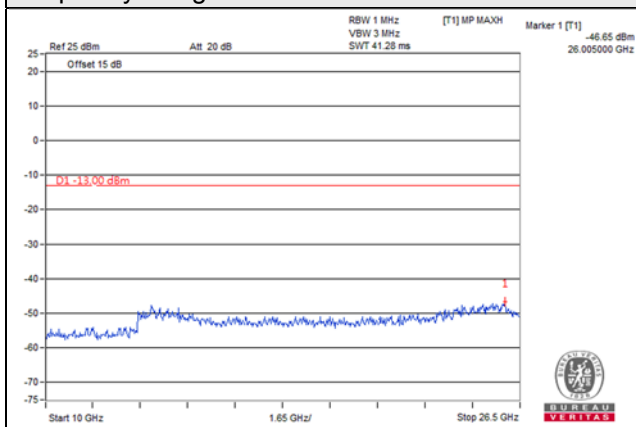
Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~10GHz



Frequency Range : 10GHz~26.5GHz



4.8 Radiated Emission Measurement

4.8.1 Limits of Radiated Emission Measurement

For LTE Band 2

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

For LTE Band 12

According to FCC 27.53(g) for operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater.

4.8.2 Test Procedure

- a. The power was measured with R&S Spectrum Analyzer. All measurements were done at 3 channels (low, middle and high channel of operational frequency range.)
- b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m 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.
- c. The substitution antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step b. Record the power level of S.G
- d. $\text{EIRP} = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution antenna}$.

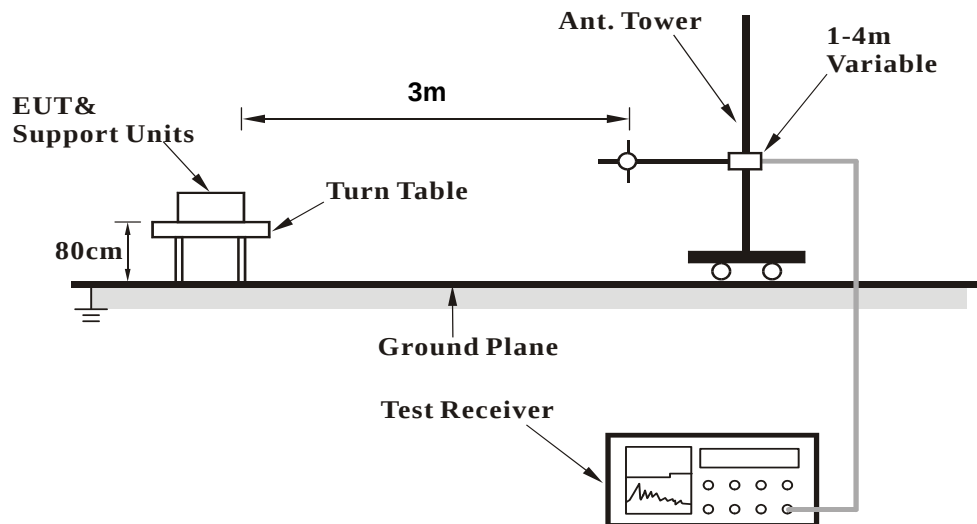
Note: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

4.8.3 Deviation from Test Standard

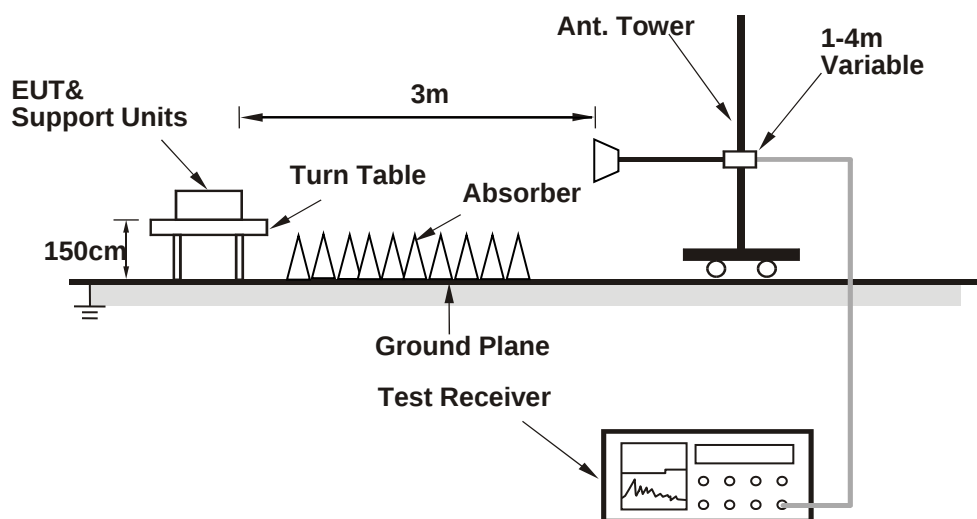
No deviation.

4.8.4 Test Setup

For Radiated Emission below or equal 1GHz



For Radiated Emission above 1GHz



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

4.8.5 Test Results

LTE Band 2 20MHz TX Channel 18700 (1, 0) + LTE Band 12 10MHz TX Channel 23060 (1, 0)

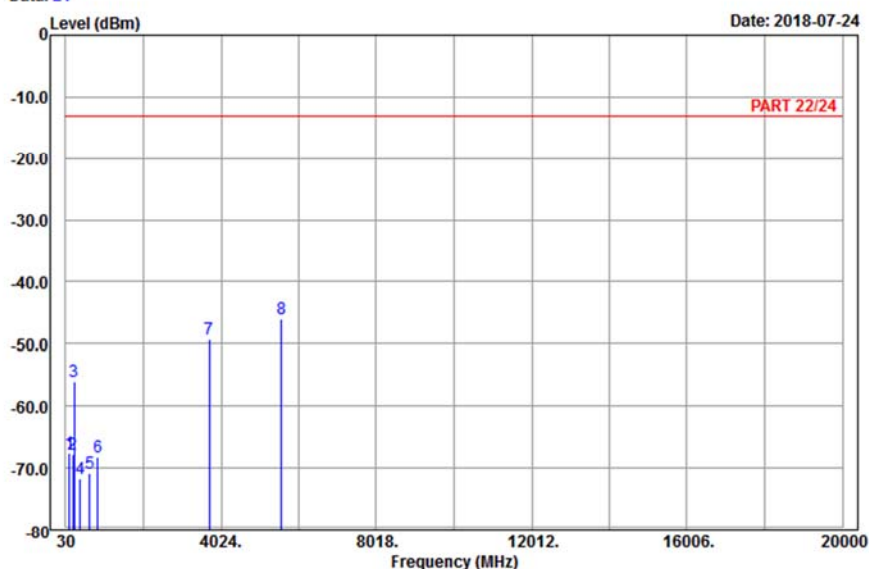
Mode	LTE Band 2 Channel Bandwidth: 20MHz	Channel	TX channel 18700 (1860.00MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 21



Site : 966 chamber 1
 Condition: PART 22/24 Horizontal
 Remark : CA_LTE_B2_CH18700_20M+B12_CH23060_10M
 Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	133.95	-67.66	-60.00	-13.00	-54.66	-7.66	Peak
2	207.66	-67.77	-61.69	-13.00	-54.77	-6.08	Peak
3	248.16	-56.04	-50.51	-13.00	-43.04	-5.53	Peak
4	400.10	-71.75	-68.99	-13.00	-58.75	-2.76	Peak
5	647.90	-70.95	-70.84	-13.00	-57.95	-0.11	Peak
6	853.70	-68.13	-69.69	-13.00	-55.13	1.56	Peak
7	3720.00	-49.23	-65.20	-13.00	-36.23	15.97	Peak
8 pp	5580.00	-45.90	-66.27	-13.00	-32.90	20.37	Peak

Mode	LTE Band 2 Channel Bandwidth: 20MHz	Channel	TX channel 18700 (1860.00MHz)
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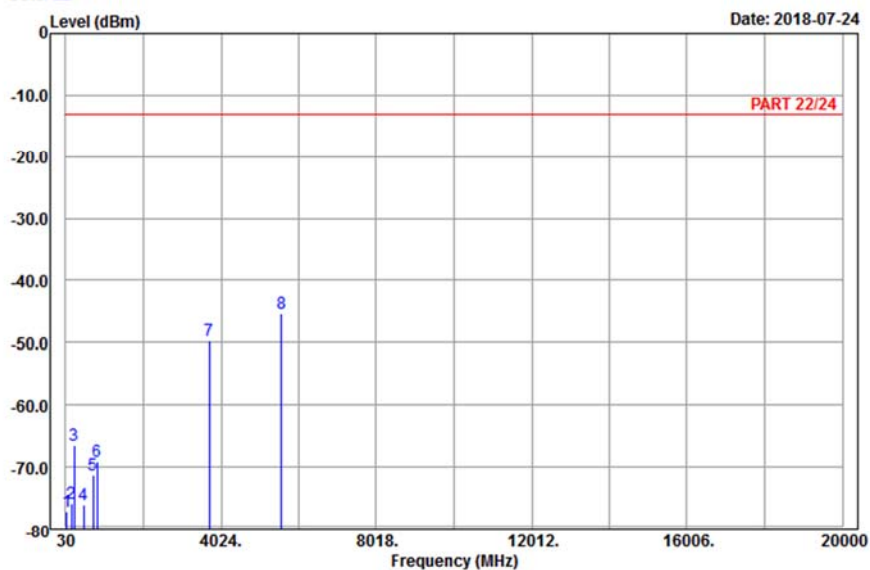


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 22

Date: 2018-07-24



Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : CA_LTE_B2_CH18700_20M+B12_CH23060_10M
Tested by: Karl Lee

	Freq	Level	Read	Limit	Over	
	MHz	dBm	Level	Line	Limit	Factor Remark
	MHz	dBm	dBm	dBm	dB	dB
1	49.17	-77.27	-63.53	-13.00	-64.27	-13.74 Peak
2	183.09	-75.85	-70.23	-13.00	-62.85	-5.62 Peak
3	241.14	-66.53	-60.91	-13.00	-53.53	-5.62 Peak
4	486.20	-76.13	-71.26	-13.00	-63.13	-4.87 Peak
5	736.80	-71.29	-70.22	-13.00	-58.29	-1.07 Peak
6	836.20	-69.02	-70.62	-13.00	-56.02	1.60 Peak
7	3720.00	-49.79	-65.76	-13.00	-36.79	15.97 Peak
8 pp	5580.00	-45.28	-65.65	-13.00	-32.28	20.37 Peak

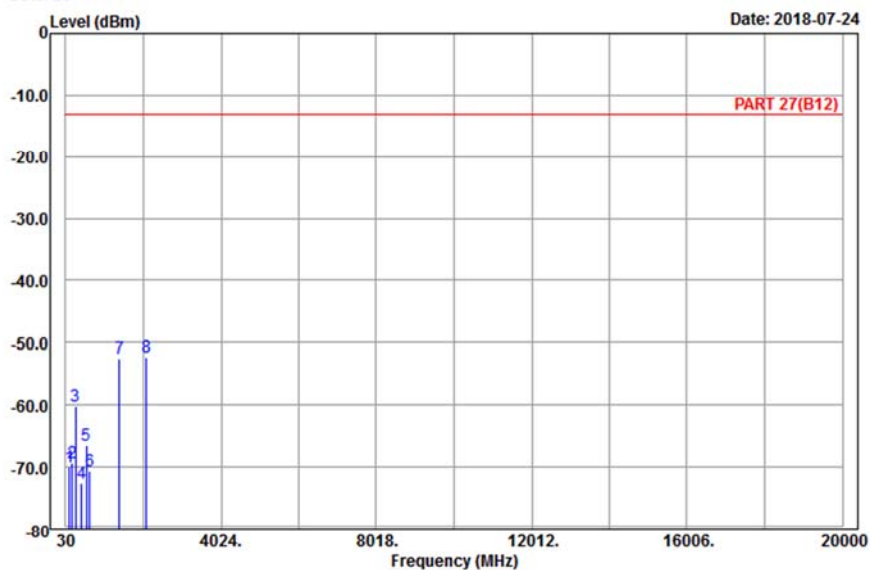
Mode	LTE Band 12 Channel Bandwidth: 10MHz	Channel	TX channel 23060 (704.0MHz)
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A D T

Data: 23



Site : 966 chamber 1
Condition: PART 27(B12) Horizontal
Remark : CA_LTE_B2_CH18700_20M+B12_CH23060_10M
Tested by: Karl Lee

	Freq	Level	Read	Limit	Over	
	MHz	dBm	Level	Line	Limit	Factor Remark
	MHz	dBm	dBm	dBm	dB	dB
1	132.87	-70.06	-62.40	-13.00	-57.06	-7.66 Peak
2	199.29	-69.26	-63.08	-13.00	-56.26	-6.18 Peak
3	274.08	-60.26	-54.53	-13.00	-47.26	-5.73 Peak
4	430.20	-72.58	-69.16	-13.00	-59.58	-3.42 Peak
5	556.20	-66.46	-65.04	-13.00	-53.46	-1.42 Peak
6	641.60	-70.69	-70.64	-13.00	-57.69	-0.05 Peak
7	1408.00	-52.44	-58.80	-13.00	-39.44	6.36 Peak
8 pp	2112.00	-52.34	-63.45	-13.00	-39.34	11.11 Peak

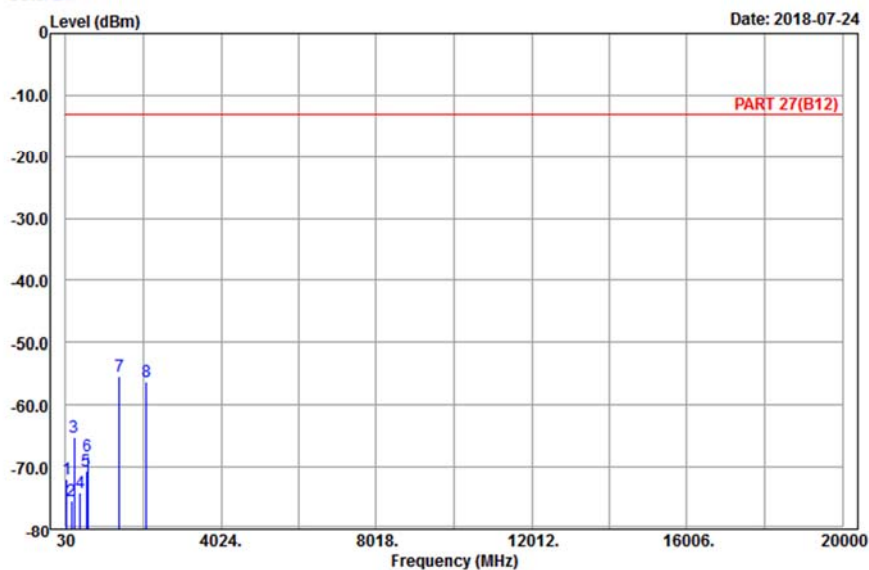
Mode	LTE Band 12 Channel Bandwidth: 10MHz	Channel	TX channel 23060 (704.0MHz)
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Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch

A D T

Data: 24



Site : 966 chamber 1
Condition: PART 27(B12) Vertical
Remark : CA_LTE_B2_CH18700_20M+B12_CH23060_10M
Tested by: Karl Lee

	Freq	Level	Read	Limit	Over	
	MHz	dBm	Level	Line	Limit	Factor Remark
	MHz	dBm	dBm	dBm	dB	dB
1	51.06	-71.91	-57.86	-13.00	-58.91	-14.05 Peak
2	182.82	-75.38	-69.76	-13.00	-62.38	-5.62 Peak
3	249.78	-65.28	-59.77	-13.00	-52.28	-5.51 Peak
4	412.00	-74.13	-71.11	-13.00	-61.13	-3.02 Peak
5	556.20	-70.69	-69.27	-13.00	-57.69	-1.42 Peak
6	596.80	-68.18	-68.45	-13.00	-55.18	0.27 Peak
7 pp	1408.00	-55.44	-61.80	-13.00	-42.44	6.36 Peak
8	2112.00	-56.30	-67.41	-13.00	-43.30	11.11 Peak

LTE Band 2 20MHz TX Channel 18700 (100, 0) + LTE Band 12 10MHz TX Channel 23060 (50, 0)

Mode	LTE Band 2 Channel Bandwidth: 20MHz	Channel	TX channel 18700 (1860.00MHz)
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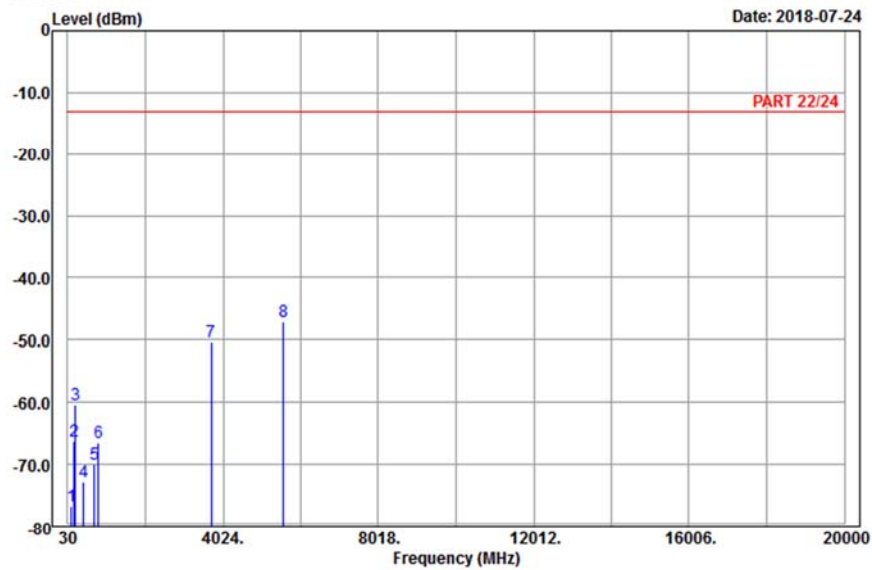


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 21

Date: 2018-07-24



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : CA_LTE_B2_CH18700_20M+B12_CH23060_10M
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	124.23	-76.75	-68.74	-13.00	-63.75	-8.01	Peak
2	189.03	-66.27	-60.55	-13.00	-53.27	-5.72	Peak
3	236.01	-60.46	-54.76	-13.00	-47.46	-5.70	Peak
4	444.90	-72.90	-69.16	-13.00	-59.90	-3.74	Peak
5	717.20	-69.97	-69.28	-13.00	-56.97	-0.69	Peak
6	820.10	-66.49	-68.27	-13.00	-53.49	1.78	Peak
7	3720.00	-50.35	-66.32	-13.00	-37.35	15.97	Peak
8 pp	5580.00	-47.05	-67.42	-13.00	-34.05	20.37	Peak

Mode	LTE Band 2 Channel Bandwidth: 20MHz	Channel	TX channel 18700 (1860.00MHz)
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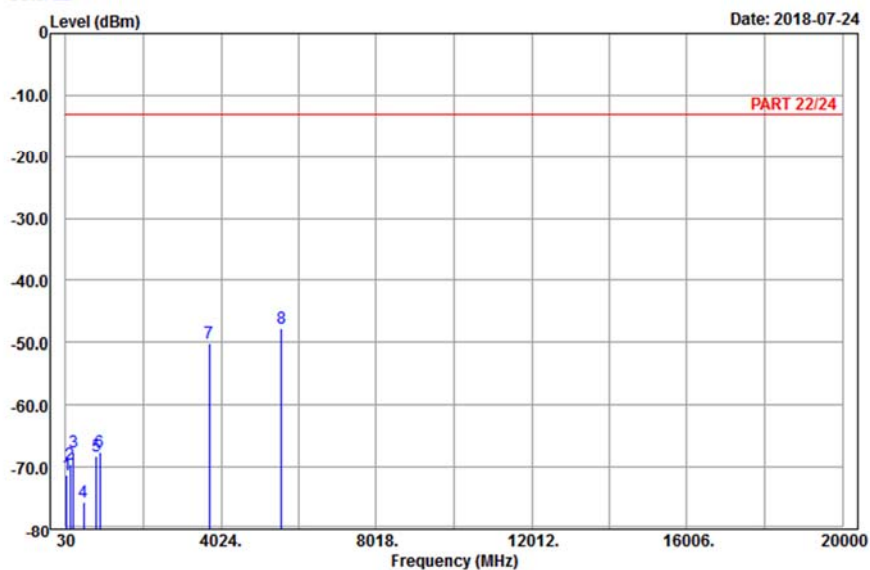


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 22

Date: 2018-07-24



Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : CA_LTE_B2_CH18700_20M+B12_CH23060_10M
Tested by: Karl Lee

	Freq	Level	Read	Limit	Over	
	MHz	dBm	Level	Line	Limit	Factor Remark
	MHz	dBm	dBm	dBm	dB	dB
1	51.33	-71.35	-57.30	-13.00	-58.35	-14.05 Peak
2	151.50	-69.57	-61.65	-13.00	-56.57	-7.92 Peak
3	235.20	-67.53	-61.83	-13.00	-54.53	-5.70 Peak
4	487.60	-75.60	-70.68	-13.00	-62.60	-4.92 Peak
5	823.60	-68.24	-69.99	-13.00	-55.24	1.75 Peak
6	906.20	-67.50	-70.65	-13.00	-54.50	3.15 Peak
7	3720.00	-50.12	-66.09	-13.00	-37.12	15.97 Peak
8 pp	5580.00	-47.74	-68.11	-13.00	-34.74	20.37 Peak

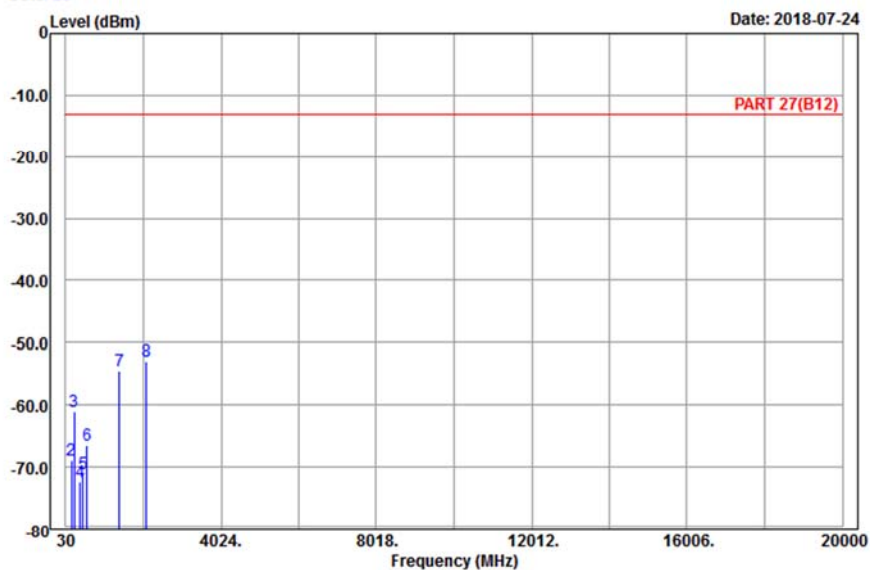
Mode	LTE Band 12 Channel Bandwidth: 10MHz	Channel	TX channel 23060 (704.0MHz)
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Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch

A D T

Data: 23



Site : 966 chamber 1
Condition: PART 27(B12) Horizontal
Remark : CA_LTE_B2_CH18700_20M+B12_CH23060_10M
Tested by: Karl Lee

	Freq	Level	Read	Limit	Over	
	MHz	dBm	Level	Line	Limit	Factor Remark
	MHz	dBm	dBm	dBm	dB	dB
1	75.63	-83.72	-71.54	-13.00	-70.72	-12.18 Peak
2	169.59	-68.85	-62.14	-13.00	-55.85	-6.71 Peak
3	255.18	-61.03	-55.48	-13.00	-48.03	-5.55 Peak
4	410.60	-72.46	-69.49	-13.00	-59.46	-2.97 Peak
5	476.40	-71.05	-66.46	-13.00	-58.05	-4.59 Peak
6	578.60	-66.45	-65.99	-13.00	-53.45	-0.46 Peak
7	1408.00	-54.49	-60.85	-13.00	-41.49	6.36 Peak
8 pp	2112.00	-53.00	-64.11	-13.00	-40.00	11.11 Peak

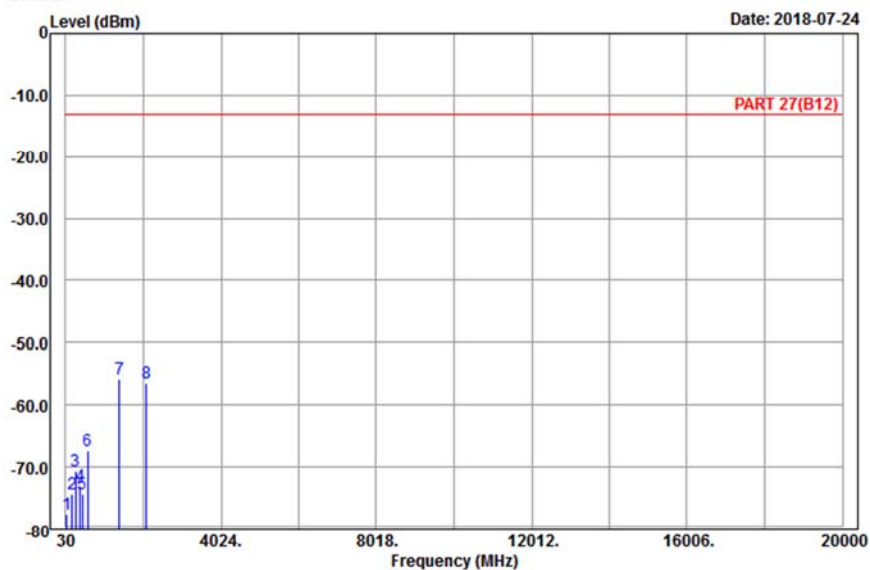
Mode	LTE Band 12 Channel Bandwidth: 10MHz	Channel	TX channel 23060 (704.0MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 24



Site : 966 chamber 1
 Condition: PART 27(B12) Vertical
 Remark : CA_LTE_B2_CH18700_20M+B12_CH23060_10M
 Tested by: Karl Lee

	Freq	Level	Read	Limit	Over	
	MHz	dBm	Level	Line	Limit	Factor Remark
	MHz	dBm	dBm	dBm	dB	dB
1	48.09	-77.70	-64.27	-13.00	-64.70	-13.43 Peak
2	187.68	-74.38	-68.68	-13.00	-61.38	-5.70 Peak
3	287.31	-70.70	-64.86	-13.00	-57.70	-5.84 Peak
4	400.80	-73.11	-70.35	-13.00	-60.11	-2.76 Peak
5	447.70	-74.35	-70.55	-13.00	-61.35	-3.80 Peak
6	602.40	-67.44	-67.84	-13.00	-54.44	0.40 Peak
7 pp	1408.00	-55.89	-62.25	-13.00	-42.89	6.36 Peak
8	2112.00	-56.40	-67.51	-13.00	-43.40	11.11 Peak

LTE Band 2 20MHz TX Channel 18900 (1, 0) + LTE Band 12 10MHz TX Channel 23130 (1, 0)

Mode	LTE Band 2 Channel Bandwidth: 20MHz	Channel	TX channel 18900 (1880MHz)
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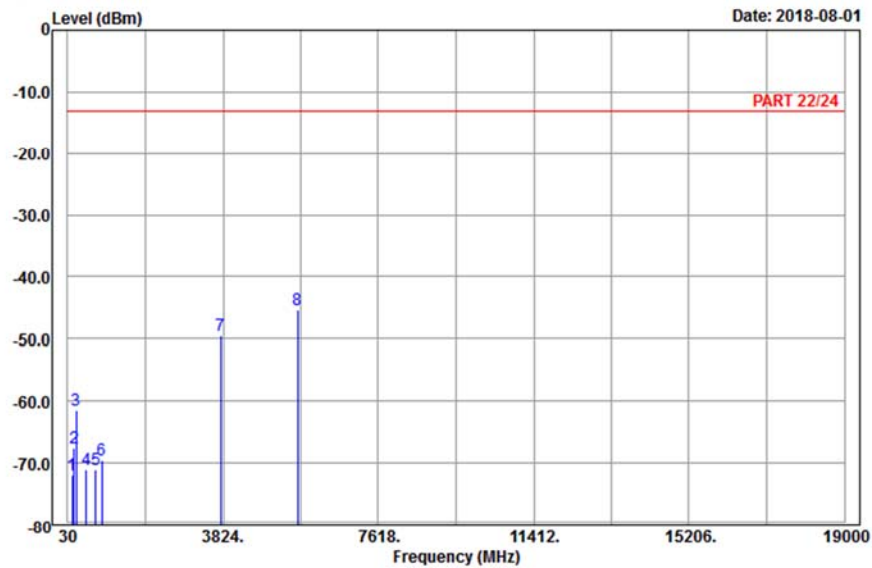


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 21

Date: 2018-08-01



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : CA_LTE_B2_CH18900_20M+B12_CH23130_10M
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	129.63	-71.95	-64.30	-13.00	-58.95	-7.65	Peak
2	189.57	-67.57	-61.84	-13.00	-54.57	-5.73	Peak
3	237.09	-61.46	-55.77	-13.00	-48.46	-5.69	Peak
4	476.40	-71.05	-66.46	-13.00	-58.05	-4.59	Peak
5	715.10	-71.15	-70.50	-13.00	-58.15	-0.65	Peak
6	865.60	-69.58	-71.47	-13.00	-56.58	1.89	Peak
7	3760.00	-49.44	-65.58	-13.00	-36.44	16.14	Peak
8 pp	5640.00	-45.35	-65.82	-13.00	-32.35	20.47	Peak

Mode	LTE Band 2 Channel Bandwidth: 20MHz	Channel	TX channel 18900 (1880MHz)
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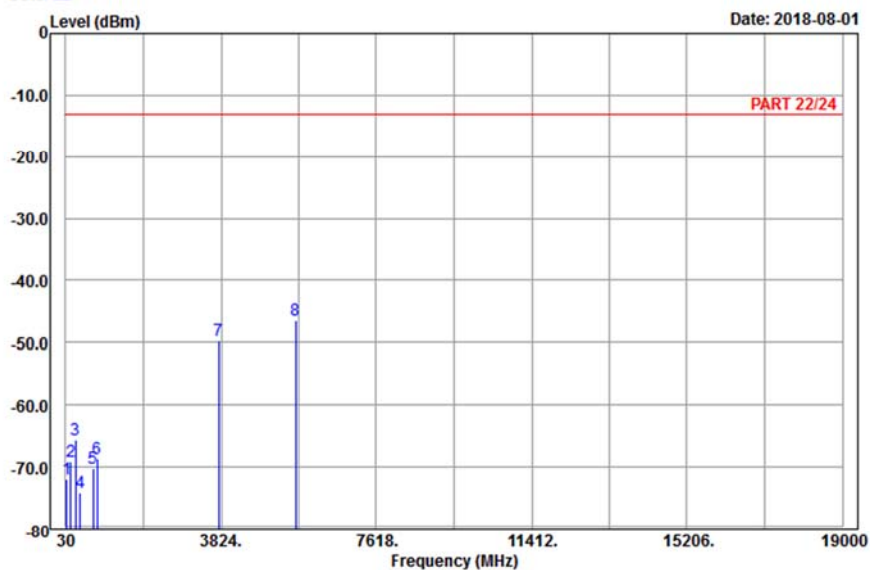


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 22

Date: 2018-08-01



Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : CA_LTE_B2_CH18900_20M+B12_CH23130_10M
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	51.06	-71.91	-57.86	-13.00	-58.91	-14.05	Peak
2	161.76	-69.16	-61.69	-13.00	-56.16	-7.47	Peak
3	267.06	-65.69	-60.03	-13.00	-52.69	-5.66	Peak
4	385.40	-74.02	-70.50	-13.00	-61.02	-3.52	Peak
5	703.90	-70.12	-69.67	-13.00	-57.12	-0.45	Peak
6	798.40	-68.56	-70.44	-13.00	-55.56	1.88	Peak
7	3760.00	-49.78	-65.92	-13.00	-36.78	16.14	Peak
8 pp	5640.00	-46.35	-66.82	-13.00	-33.35	20.47	Peak

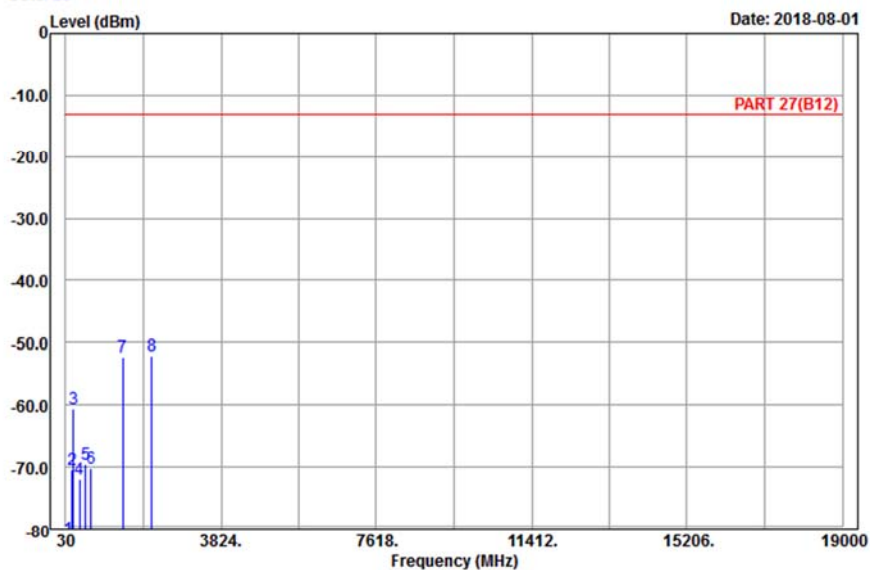
Mode	LTE Band 12 Channel Bandwidth: 10MHz	Channel	TX channel 23130 (711MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 23



Site : 966 chamber 1
Condition: PART 27(B12) Horizontal
Remark : CA_LTE_B2_CH18900_20M+B12_CH23130_10M
Tested by: Karl Lee

	Freq	Level	Read	Limit	Over	
	MHz	dBm	Level	Line	Limit	Factor Remark
	MHz	dBm	dBm	dBm	dB	dB
1	84.00	-81.54	-70.21	-13.00	-68.54	-11.33 Peak
2	179.04	-70.32	-64.64	-13.00	-57.32	-5.68 Peak
3	223.59	-60.51	-54.65	-13.00	-47.51	-5.86 Peak
4	363.70	-71.95	-67.30	-13.00	-58.95	-4.65 Peak
5	512.10	-69.52	-65.09	-13.00	-56.52	-4.43 Peak
6	643.00	-70.16	-70.10	-13.00	-57.16	-0.06 Peak
7	1422.00	-52.28	-58.64	-13.00	-39.28	6.36 Peak
8 pp	2133.00	-52.10	-63.38	-13.00	-39.10	11.28 Peak

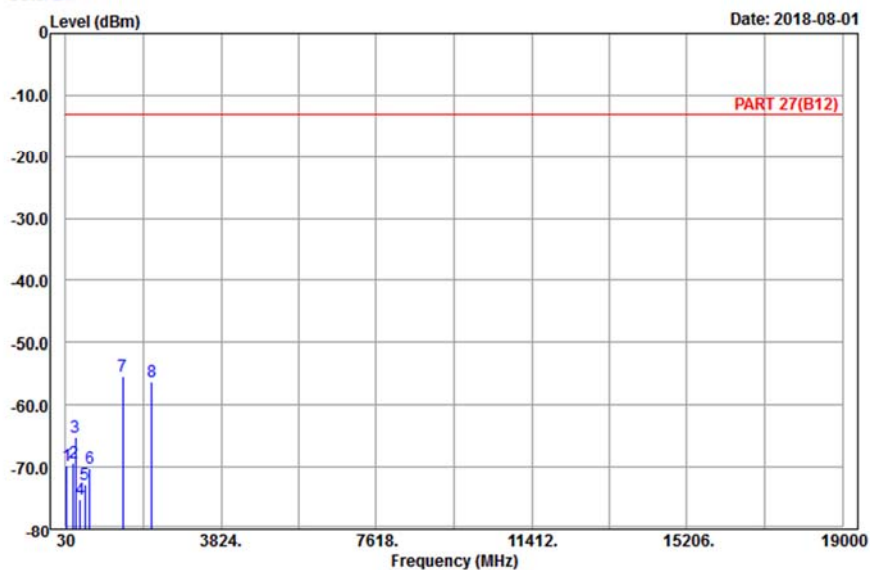
Mode	LTE Band 12 Channel Bandwidth: 10MHz	Channel	TX channel 23130 (711MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 24



Site : 966 chamber 1
 Condition: PART 27(B12) Vertical
 Remark : CA_LTE_B2_CH18900_20M+B12_CH23130_10M
 Tested by: Karl Lee

	Freq	Level	Read	Limit	Over	
	MHz	dBm	Level	Line	Limit	Factor Remark
	MHz	dBm	dBm	dBm	dB	dB
1	52.14	-69.75	-55.69	-13.00	-56.75	-14.06 Peak
2	216.84	-69.24	-63.29	-13.00	-56.24	-5.95 Peak
3	266.79	-65.12	-59.46	-13.00	-52.12	-5.66 Peak
4	377.70	-75.31	-71.38	-13.00	-62.31	-3.93 Peak
5	497.40	-72.83	-67.63	-13.00	-59.83	-5.20 Peak
6	623.40	-70.20	-70.36	-13.00	-57.20	0.16 Peak
7 pp	1422.00	-55.30	-61.66	-13.00	-42.30	6.36 Peak
8	2133.00	-56.28	-67.56	-13.00	-43.28	11.28 Peak

LTE Band 2 20MHz TX Channel 19100 (1, 99) + LTE Band 12 10MHz TX Channel 23130 (1, 49)

Mode	LTE Band 2 Channel Bandwidth: 20MHz	Channel	TX channel 19100 (1900.00MHz)
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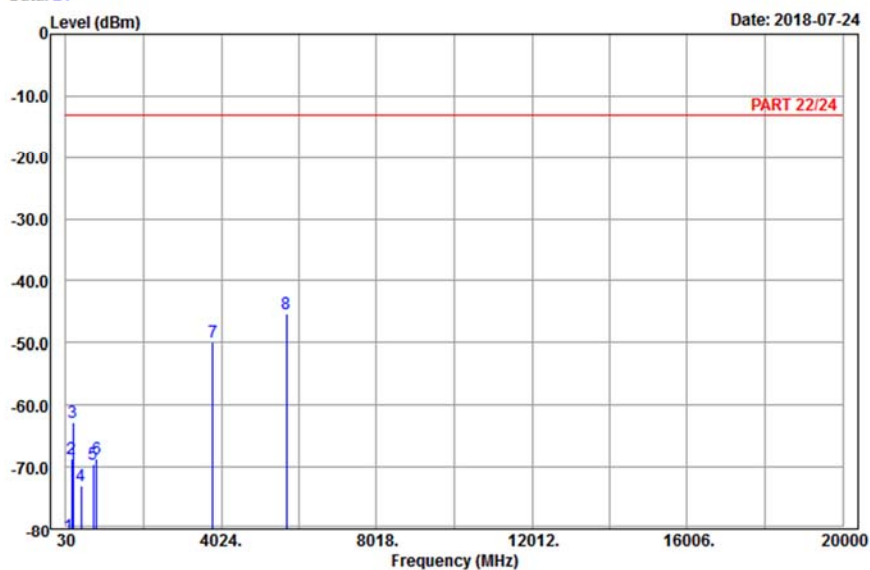


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 21

Date: 2018-07-24



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : CA_LTE_B2_CH19100_20M+B12_CH23130_10M
Tested by: Karl Lee

			Read	Limit	Over		
	Freq	Level	Level	Line	Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	109.92	-81.04	-72.09	-13.00	-68.04	-8.95	Peak
2	172.83	-68.68	-62.28	-13.00	-55.68	-6.40	Peak
3	217.11	-62.72	-56.77	-13.00	-49.72	-5.95	Peak
4	419.70	-73.02	-69.83	-13.00	-60.02	-3.19	Peak
5	726.30	-69.55	-68.68	-13.00	-56.55	-0.87	Peak
6	816.60	-68.62	-70.44	-13.00	-55.62	1.82	Peak
7	3800.00	-49.86	-66.27	-13.00	-36.86	16.41	Peak
8 pp	5700.00	-45.44	-65.65	-13.00	-32.44	20.21	Peak

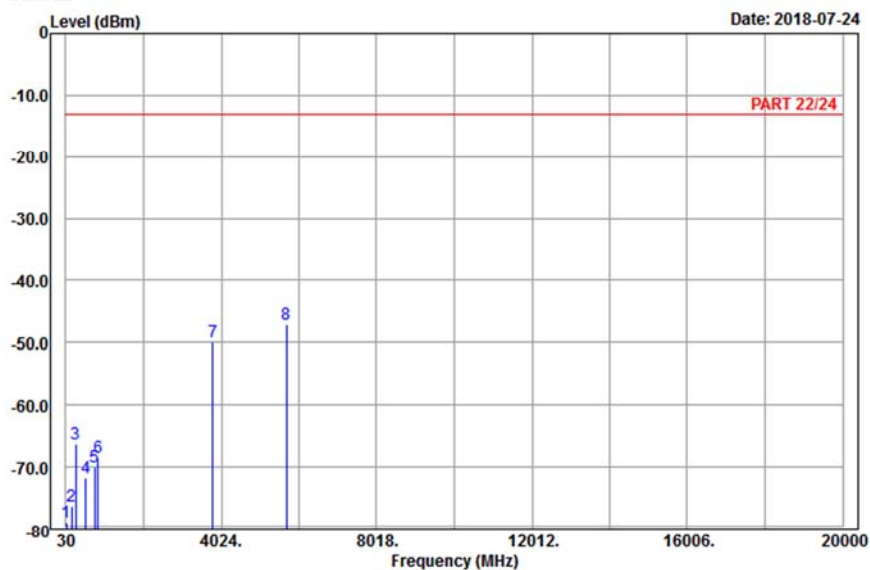
Mode	LTE Band 2 Channel Bandwidth: 20MHz	Channel	TX channel 19100 (1900.00MHz)
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Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch

A D T

Data: 22



Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : CA_LTE_B2_CH19100_20M+B12_CH23130_10M
Tested by: Karl Lee

	Freq	Level	Read	Limit	Over	
	MHz	dBm	Level	Line	Limit	Factor Remark
			dBm	dBm	dB	dB
1	45.39	-78.85	-66.37	-13.00	-65.85	-12.48 Peak
2	171.75	-76.29	-69.79	-13.00	-63.29	-6.50 Peak
3	275.43	-66.18	-60.44	-13.00	-53.18	-5.74 Peak
4	538.70	-71.78	-69.27	-13.00	-58.78	-2.51 Peak
5	766.90	-69.92	-69.76	-13.00	-56.92	-0.16 Peak
6	855.10	-68.41	-70.02	-13.00	-55.41	1.61 Peak
7	3800.00	-50.01	-66.42	-13.00	-37.01	16.41 Peak
8 pp	5700.00	-47.11	-67.32	-13.00	-34.11	20.21 Peak

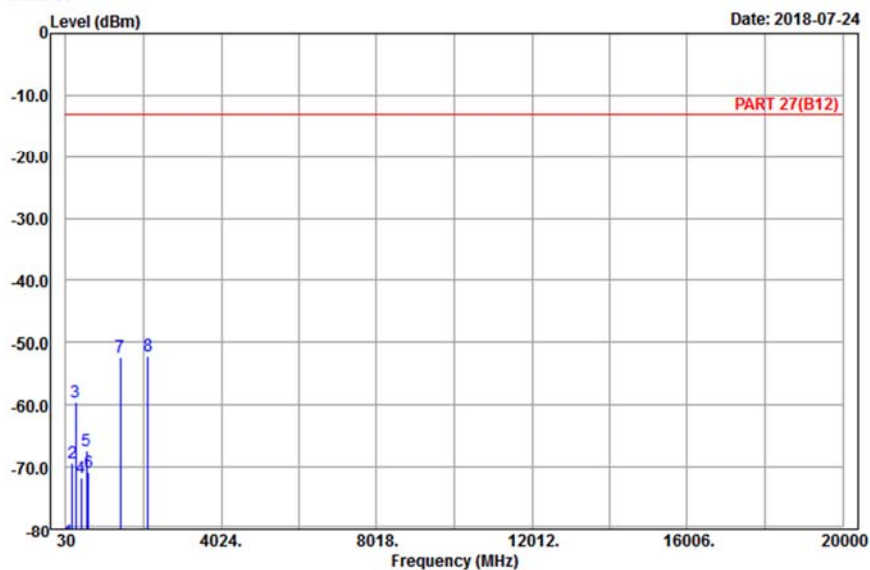
Mode	LTE Band 12 Channel Bandwidth: 10MHz	Channel	TX channel 23130 (711MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 23



Site : 966 chamber 1
Condition: PART 27(B12) Horizontal
Remark : CA_LTE_B2_CH19100_20M+B12_CH23130_10M
Tested by: Karl Lee

	Freq	Level	Read	Limit	Over	
	MHz	dBm	Level	Line	Limit	Factor Remark
	MHz	dBm	dBm	dBm	dB	dB
1	111.54	-82.01	-73.19	-13.00	-69.01	-8.82 Peak
2	199.29	-69.26	-63.08	-13.00	-56.26	-6.18 Peak
3	275.43	-59.61	-53.87	-13.00	-46.61	-5.74 Peak
4	416.90	-71.65	-68.53	-13.00	-58.65	-3.12 Peak
5	552.70	-67.43	-65.89	-13.00	-54.43	-1.54 Peak
6	619.20	-70.87	-71.09	-13.00	-57.87	0.22 Peak
7	1422.00	-52.30	-58.66	-13.00	-39.30	6.36 Peak
8 pp	2133.00	-52.15	-63.43	-13.00	-39.15	11.28 Peak

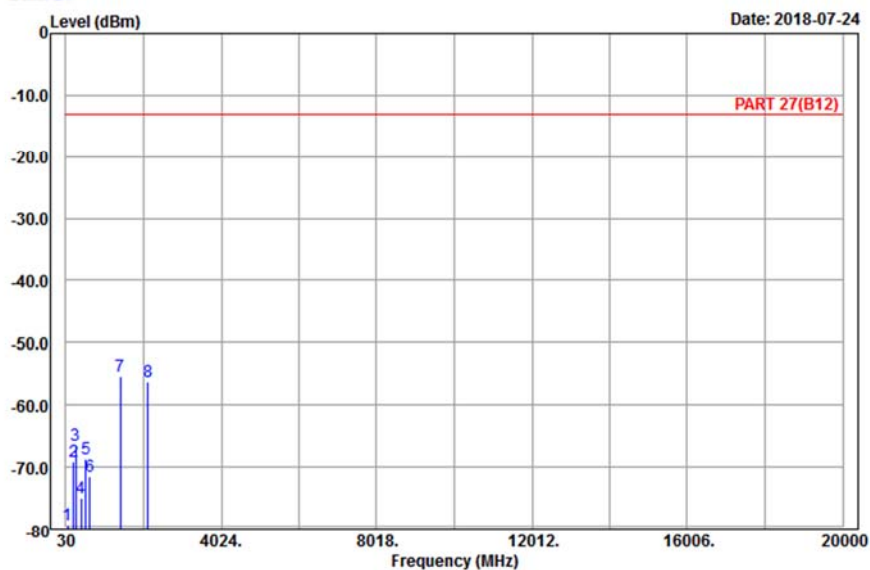
Mode	LTE Band 12 Channel Bandwidth: 10MHz	Channel	TX channel 23130 (711MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 24



Site : 966 chamber 1
Condition: PART 27(B12) Vertical
Remark : CA_LTE_B2_CH19100_20M+B12_CH23130_10M
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	65.10	-79.37	-65.99	-13.00	-66.37	-13.38	Peak
2	221.70	-69.04	-63.16	-13.00	-56.04	-5.88	Peak
3	284.07	-66.52	-60.70	-13.00	-53.52	-5.82	Peak
4	413.40	-75.08	-72.04	-13.00	-62.08	-3.04	Peak
5	547.10	-68.76	-66.89	-13.00	-55.76	-1.87	Peak
6	640.90	-71.43	-71.39	-13.00	-58.43	-0.04	Peak
7 pp	1422.00	-55.43	-61.79	-13.00	-42.43	6.36	Peak
8	2133.00	-56.31	-67.59	-13.00	-43.31	11.28	Peak

LTE Band 2 20MHz TX Channel 19100 (100, 0) + LTE Band 12 10MHz TX Channel 23130 (50, 0)

Mode	LTE Band 2 Channel Bandwidth: 20MHz	Channel	TX channel 19100 (1900.00MHz)
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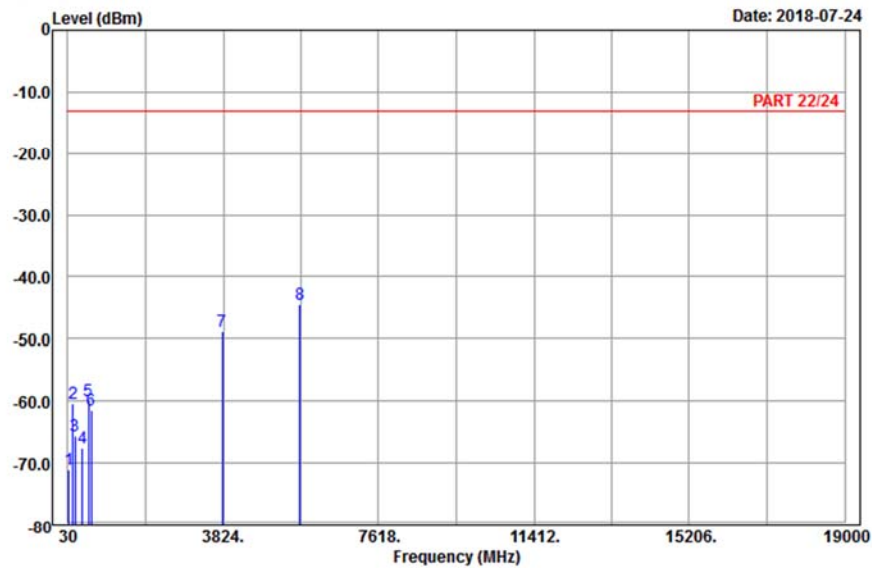


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 21

Date: 2018-07-24



Site : 966 chamber 1
Condition: PART 22/24 Horizontal
Remark : CA_LTE_B2_CH19100_20M+B12_CH23130_10M
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	52.68	-71.09	-57.03	-13.00	-58.09	-14.06	Peak
2	159.33	-60.43	-52.73	-13.00	-47.43	-7.70	Peak
3	195.78	-65.67	-59.67	-13.00	-52.67	-6.00	Peak
4	386.80	-67.67	-64.26	-13.00	-54.67	-3.41	Peak
5	528.20	-59.89	-56.67	-13.00	-46.89	-3.22	Peak
6	597.50	-61.38	-61.69	-13.00	-48.38	0.31	Peak
7	3800.00	-48.85	-65.26	-13.00	-35.85	16.41	Peak
8 pp	5700.00	-44.53	-64.74	-13.00	-31.53	20.21	Peak

Mode	LTE Band 2 Channel Bandwidth: 20MHz	Channel	TX channel 19100 (1900.00MHz)
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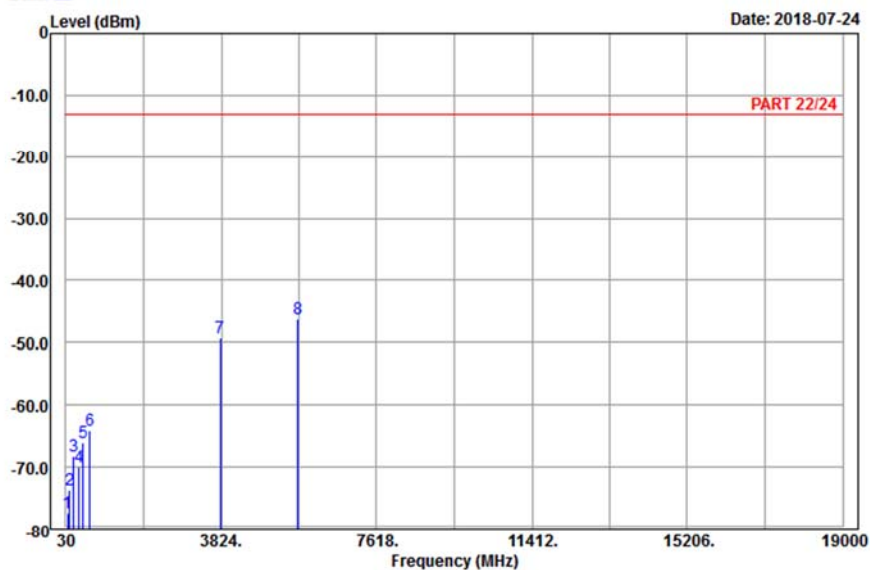


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 22

Date: 2018-07-24



Site : 966 chamber 1
Condition: PART 22/24 Vertical
Remark : CA_LTE_B2_CH19100_20M+B12_CH23130_10M
Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	66.99	-77.47	-64.37	-13.00	-64.47	-13.10	Peak
2	121.26	-73.69	-65.50	-13.00	-60.69	-8.19	Peak
3	218.19	-68.29	-62.35	-13.00	-55.29	-5.94	Peak
4	355.30	-69.98	-64.86	-13.00	-56.98	-5.12	Peak
5	444.90	-65.98	-62.24	-13.00	-52.98	-3.74	Peak
6	622.70	-63.98	-64.15	-13.00	-50.98	0.17	Peak
7	3800.00	-49.21	-65.62	-13.00	-36.21	16.41	Peak
8 pp	5700.00	-46.25	-66.46	-13.00	-33.25	20.21	Peak

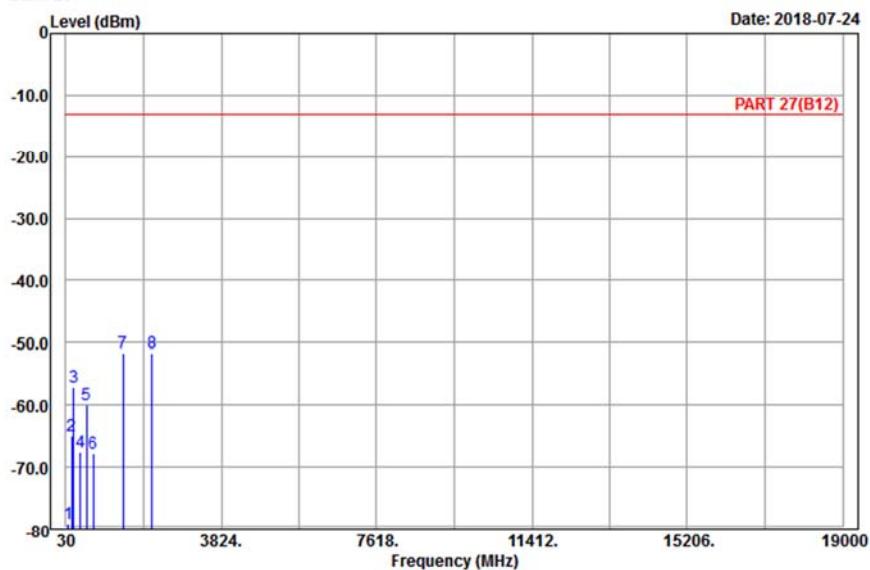
Mode	LTE Band 12 Channel Bandwidth: 10MHz	Channel	TX channel 23130 (711MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 23



Site : 966 chamber 1
 Condition: PART 27(B12) Horizontal
 Remark : CA_LTE_B2_CH19100_20M+B12_CH23130_10M
 Tested by: Karl Lee

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	94.80	-79.13	-68.73	-13.00	-66.13	-10.40	Peak
2	167.16	-64.87	-57.88	-13.00	-51.87	-6.99	Peak
3	226.02	-57.17	-51.34	-13.00	-44.17	-5.83	Peak
4	386.80	-67.67	-64.26	-13.00	-54.67	-3.41	Peak
5	528.20	-59.89	-56.67	-13.00	-46.89	-3.22	Peak
6	706.00	-67.81	-67.32	-13.00	-54.81	-0.49	Peak
7 pp	1422.00	-51.68	-58.04	-13.00	-38.68	6.36	Peak
8	2133.00	-51.77	-63.05	-13.00	-38.77	11.28	Peak

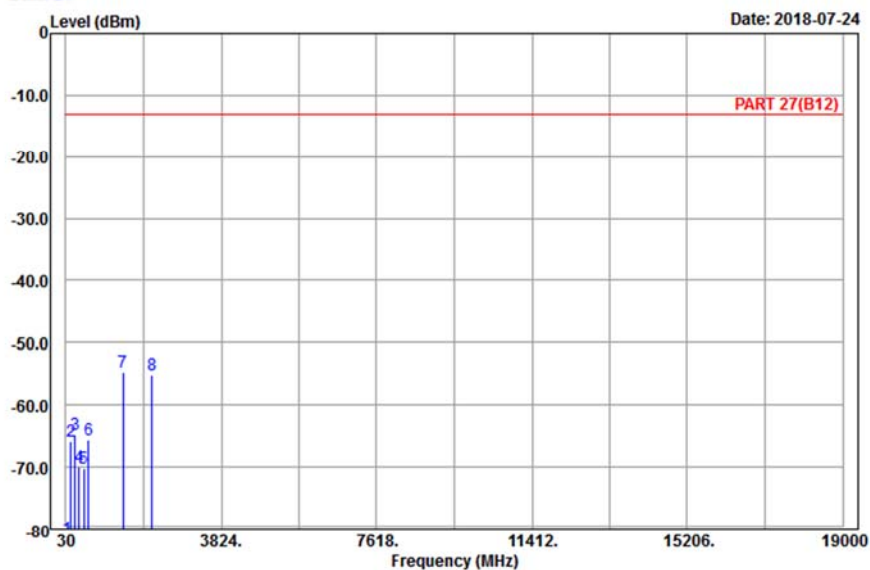
Mode	LTE Band 12 Channel Bandwidth: 10MHz	Channel	TX channel 23130 (711MHz)
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Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 24



Site : 966 chamber 1
 Condition: PART 27(B12) Vertical
 Remark : CA_LTE_B2_CH19100_20M+B12_CH23130_10M
 Tested by: Karl Lee

	Freq	Level	Read	Limit	Over	
	MHz	dBm	Level	Line	Limit	Factor Remark
	MHz	dBm	dBm	dBm	dB	dB
1	77.79	-81.55	-69.53	-13.00	-68.55	-12.02 Peak
2	158.52	-65.84	-58.12	-13.00	-52.84	-7.72 Peak
3	247.35	-64.68	-59.13	-13.00	-51.68	-5.55 Peak
4	355.30	-69.98	-64.86	-13.00	-56.98	-5.12 Peak
5	462.40	-70.17	-65.96	-13.00	-57.17	-4.21 Peak
6	580.00	-65.65	-65.23	-13.00	-52.65	-0.42 Peak
7 pp	1422.00	-54.61	-60.97	-13.00	-41.61	6.36 Peak
8	2133.00	-55.13	-66.41	-13.00	-42.13	11.28 Peak

5 Pictures of Test Arrangements

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

Appendix – Information on 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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Fax: 886-2-26051924

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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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