

FCC Test Report (Part 24)

Report No.: RF170208C16

FCC ID: H8NSS2FII

Test Model: SS2FII Femtocell Multi-band SOHO

Received Date: Feb. 08, 2017

Test Date: Feb. 22 ~ Apr. 17, 2017

Issued Date: Apr. 24, 2017

Applicant: ASKEY COMPUTER CORP.

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Release Control Record

Issue No.	Description	Date Issued
RF170208C16	Original release	Apr. 24, 2017

1 Certificate of Conformity

Product: Femtocell

Brand: Nokia

Test Model: SS2FII Femtocell Multi-band SOHO

Sample Status: Engineering sample

Applicant: ASKEY COMPUTER CORP.

Test Date: Feb. 22 ~ Apr. 17, 2017

Standards: FCC Part 24, Subpart E
FCC Part 2

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 EMC characteristics under the conditions specified in this report.

Prepared by :



Date:

Apr. 24, 2017

Pettie Chen / Senior Specialist

Approved by :



Date:

Apr. 24, 2017

Dylan Chiou / Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 24 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 24.232	Output 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	Frequency Stability	Pass	Meet the requirement of limit.
2.1049 24.238(b)	Occupied Bandwidth	Pass	Meet the requirement of limit.
24.238(b)	Band Edge Measurements	Pass	Meet the requirement of limit.
2.1051 24.238	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 24.238	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -5.6dB at 7729.60MHz.

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	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 ROHDE & SCHWARZ	ESIB7	100187	Apr. 18, 2016	Apr. 17, 2017
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100041	Nov. 16, 2016	Nov. 15, 2017
BILOG Antenna SCHWARZBECK	VULB9168	9168-148	Dec. 28, 2016	Dec. 27, 2017
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-1169	Dec. 27, 2016	Dec. 26, 2017
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Dec. 14, 2016	Dec. 13, 2017
Loop Antenna	EM-6879	269	Aug. 11, 2016	Aug. 10, 2017
Preamplifier Agilent	8449B	3008A01638	Feb. 22, 2017	Feb. 21, 2018
Preamplifier Agilent	8447D	2944A10638	Aug. 09, 2016	Aug. 08, 2017
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-02 (248780+MY13377)	Feb. 02, 2017	Feb. 01, 2018
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-03 (274092)	Aug. 09, 2016	Aug. 08, 2017
RF signal cable HUBER+SUHNER	8D-FB	Cable-CH9-01	Aug. 09, 2016	Aug. 08, 2017
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	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
High Speed Peak Power Meter	ML2495A	0824012	Aug. 11, 2016	Aug. 10, 2017
Power Sensor	MA2411B	0738171	Aug. 11, 2016	Aug. 10, 2017
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 08, 2016	Jun. 07, 2017
Mini-Circuits Power Splitter	ZN2PD-9G	NA	Jun. 13, 2016	Jun. 12, 2017
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA

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. The horn antenna and preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 215374.
5. The IC Site Registration No. is IC 7450F-9.

3 General Information

3.1 General Description of EUT

Product	Femtocell
Brand	Nokia
Test Model	SS2FII Femtocell Multi-band SOHO
Sample Status	Engineering sample
Power Supply Rating	12Vdc (Adapter)
Modulation Type	WCDMA: BPSK, QPSK LTE: QPSK, 16QAM, 64QAM
Operating Frequency	WCDMA: 1932.4MHz ~ 1987.6MHz LTE Band 2 (Channel Bandwidth 5MHz): 1932.5MHz ~ 1987.5MHz LTE Band 2 (Channel Bandwidth 10MHz): 1935.0MHz ~ 1985.0MHz LTE Band 2 (Channel Bandwidth 15MHz): 1937.5MHz ~ 1982.5MHz LTE Band 2 (Channel Bandwidth 20MHz): 1940.0MHz ~ 1980.0MHz
Max. EIRP Power	WCDMA: 208.930mW (23.2dBm) LTE Band 2 (Channel Bandwidth 5MHz): 575.440mW (27.6dBm) LTE Band 2 (Channel Bandwidth 10MHz): 512.861mW (27.1dBm) LTE Band 2 (Channel Bandwidth 15MHz): 812.831mW (29.1dBm) LTE Band 2 (Channel Bandwidth 20MHz): 741.310mW (28.7dBm)
Antenna Type	WCDMA: Antenna 1: PIFA antenna with 2.6dBi gain LTE Band 2: Antenna 2: PIFA antenna with 2.9dBi gain Antenna 4: PIFA antenna with 3.7dBi gain
Antenna Connector	NA
Accessory Device	Adapter, GPS antenna (Brand: INPAQ, model: GPSGLONASS15D-S6-0341-A, cable: 4.55m non-shielded cable w/o core)
Data Cable Supplied	2.95m non-shielded RJ45 cable w/o core

Note:

1. The EUT uses following adapter.

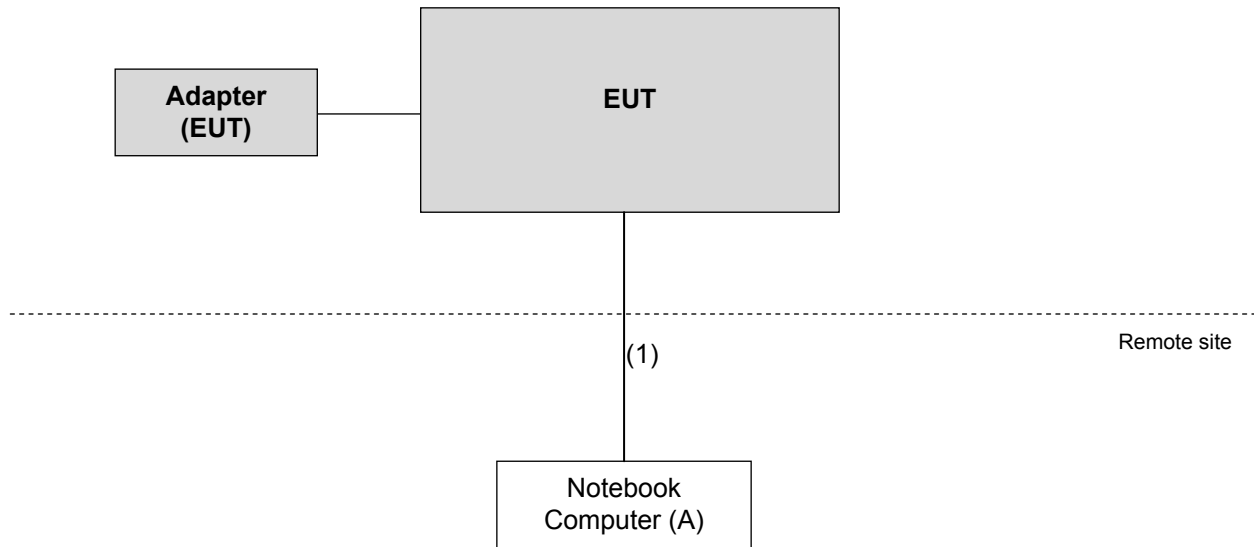
Brand	SHENZHEN FRECOM ELECTRONICS CO., LTD
Model	F24W5-120200SPAU
Input Power	100-240Vac, 50/60Hz, 0.6A
Output Power	12Vdc, 2A
Power Line	1.5m DC cable without core attached on adapter

2. The EUT provides 2 completed transmitters and 2 receivers.

Modulation Mode	TX FUNCTION	RX FUNCTION
WCDMA	1TX	1RX
LTE	2TX	2RX

3. Carrier Aggregation technology supported for this device, the operation behavior is LTE Band 2 + LTE Band 4, for more details information please refer to "CA Mode" of test report.

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.	Notebook Computer	DELL	E5410	1HC2XM1	FCC DoC Approved	-

Note:

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

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ45 Cable	1	10	N	0	Cat5e

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 Z-plane. Following channel(s) was (were) selected for the final test as listed below:

WCDMA Mode

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
-	EIRP	9662 to 9938	9662, 9800, 9938	WCDMA (BPSK)
-	Frequency Stability	9662 to 9938	9800	WCDMA (BPSK)
-	Emission Bandwidth	9662 to 9938	9662, 9800, 9938	WCDMA (BPSK)
-	Band Edge	9662 to 9938	9662, 9938	WCDMA (BPSK)
-	Peak To Average Ratio	9662 to 9938	9662, 9800, 9938	WCDMA (BPSK)
-	Conducted Emission	9662 to 9938	9662, 9800, 9938	WCDMA (BPSK)
-	Radiated Emission Below 1GHz	9662 to 9938	9662, 9800, 9938	WCDMA (BPSK)
-	Radiated Emission Above 1GHz	9662 to 9938	9662, 9800, 9938	WCDMA (BPSK)

LTE Band 2

Test item	Available channel	Tested channel	Channel Bandwidth	Modulation
Output Power	625 to 1175	625, 900, 1175	5MHz	QPSK / 16QAM / 64QAM
	650 to 1150	650, 900, 1150	10MHz	QPSK / 16QAM / 64QAM
	675 to 1125	675, 900, 1125	15MHz	QPSK / 16QAM / 64QAM
	700 to 1100	700, 900, 1100	20MHz	QPSK / 16QAM / 64QAM
Frequency Stability	625 to 1175	900	5MHz	QPSK
Emission Bandwidth	625 to 1175	625, 900, 1175	5MHz	QPSK / 16QAM / 64QAM
	650 to 1150	650, 900, 1150	10MHz	QPSK / 16QAM / 64QAM
	675 to 1125	675, 900, 1125	15MHz	QPSK / 16QAM / 64QAM
	700 to 1100	700, 900, 1100	20MHz	QPSK / 16QAM / 64QAM
Band Edge	625 to 1175	625, 1175	5MHz	QPSK
	650 to 1150	650, 1150	10MHz	QPSK
	675 to 1125	675, 1125	15MHz	QPSK
	700 to 1100	700, 1100	20MHz	QPSK
Peak to Average Ratio	625 to 1175	625, 900, 1175	5MHz	QPSK / 16QAM / 64QAM
	650 to 1150	650, 900, 1150	10MHz	QPSK / 16QAM / 64QAM
	675 to 1125	675, 900, 1125	15MHz	QPSK / 16QAM / 64QAM
	700 to 1100	700, 900, 1100	20MHz	QPSK / 16QAM / 64QAM
Conducuted Emission	625 to 1175	625, 900, 1175	5MHz	QPSK
	650 to 1150	650, 900, 1150	10MHz	QPSK
	675 to 1125	675, 900, 1125	15MHz	QPSK
	700 to 1100	700, 900, 1100	20MHz	QPSK
Radiated Emission Below 1GHz	625 to 1175	625	5MHz	QPSK
	650 to 1150	650	10MHz	QPSK
	675 to 1125	675	15MHz	QPSK
	700 to 1100	700	20MHz	QPSK
Radiated Emission Above 1GHz	625 to 1175	625, 900, 1175	5MHz	QPSK
	650 to 1150	650, 900, 1150	10MHz	QPSK
	675 to 1125	675, 900, 1125	15MHz	QPSK
	700 to 1100	700, 900, 1100	20MHz	QPSK

Note:

1. For radiated emission below 1 GHz, the low, mid and high channels were pre-tested in chamber. The low channel was the worst case and chosen for final test.
2. The conducted output power for QPSK, 16QAM and 64QAM, measured value of QPSK is higher than 16QAM and 64QAM mode. Therefore, Frequency Stability, Channel edge, Conducted Emission, Radiated Emission were presented under QPSK mode only.

Test Condition:

Test Item	Environmental Conditions	Input Power (System)	Tested By
EIRP	25deg. C, 69%RH	120Vac, 60Hz	Tank Wu
Frequency Stability	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui
Emission Bandwidth	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui
Band Edge	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui
Peak To Average Ratio	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui
Conducted Emission	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui
Radiated Emission	20deg. C, 69%RH	120Vac, 60Hz	Tank Wu, Bayu Chen

3.4 EUT Operating Conditions

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

3.5 General Description of Applied Standards

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

KDB 971168 D01 Power Meas License Digital Systems v02r02

KDB 412172 D01 Determining ERP and EIRP v01r01

KDB 662911 D01 multiple transmitter output v02r01

ANSI/TIA/EIA-603-D 2010

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

Note: The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC).
The test report has been issued separately.

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

Base stations with an emission bandwidth greater than 1MHz are limited to 1640 watts/MHz EIRP with an antenna height up to 300 meters HAAT.

4.1.2 Test Procedures

EIRP / ERP Measurement:

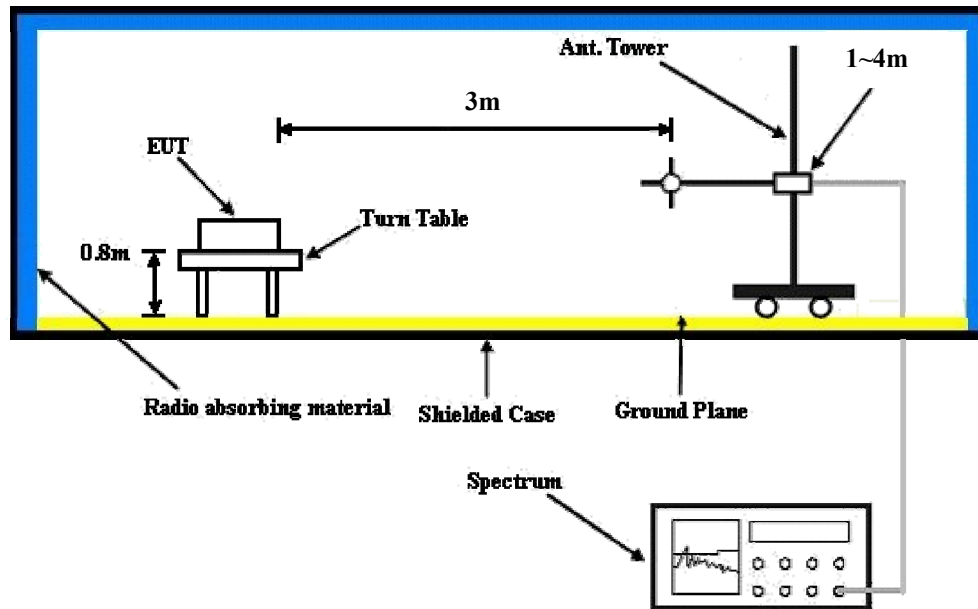
- All measurements were done at low, middle and high operational frequency range. RBW and VBW is 5MHz for WCDMA mode, 10MHz for LTE Mode.
- Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees 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.
- 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
- $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$. E.R.P power can be calculated from E.I.R.P power by subtracting the gain of dipole, $E.R.P \text{ power} = E.I.R.P \text{ power} - 2.15\text{dBi}$.

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.

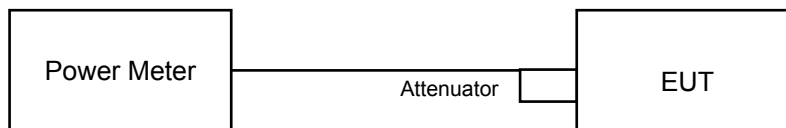
4.1.3 Test Setup

EIRP / ERP Measurement:



For 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)

Band	WCDMA II		
Channel	9662	9800	9938
Frequency	1932.4	1960	1987.6
RMC 12.2K	19.95	20.65	20.76

Band / BW	RB Size	RB Offset	QPSK						16QAM						64QAM					
			Low CH 625		Mid CH 900		High CH 1175		Low CH 625		Mid CH 900		High CH 1175		Low CH 625		Mid CH 900		High CH 1175	
			1932.5 MHz		1960 MHz		1987.5 MHz		1932.5 MHz		1960 MHz		1987.5 MHz		1932.5 MHz		1960 MHz		1987.5 MHz	
			Chain0	Chain1	Chain0	Chain1	Chain0	Chain1	Chain0	Chain1	Chain0	Chain1	Chain0	Chain1	Chain0	Chain1	Chain0	Chain1	Chain0	Chain1
2/5M	25	0	19.95	18.53	20.22	20.56	19.81	20.62	19.43	18.12	19.76	20.04	19.35	20.21	18.98	17.68	19.24	19.67	18.87	19.84
			Total		Total		Total		Total		Total		Total		Total		Total		Total	
			22.31		23.40		23.24		21.83		22.91		22.81		21.39		22.47		22.39	
Band / BW	RB Size	RB Offset	QPSK						16QAM						64QAM					
			Low CH 650		Mid CH 900		High CH 1150		Low CH 650		Mid CH 900		High CH 1150		Low CH 650		Mid CH 900		High CH 1150	
			1935 MHz		1960 MHz		1985 MHz		1935 MHz		1960 MHz		1985 MHz		1935 MHz		1960 MHz		1985 MHz	
			Chain0	Chain1	Chain0	Chain1	Chain0	Chain1	Chain0	Chain1	Chain0	Chain1	Chain0	Chain1	Chain0	Chain1	Chain0	Chain1	Chain0	Chain1
2/10M	50	0	19.66	19.17	20.44	20.53	20.83	20.92	19.13	18.68	20.01	20.09	20.28	20.43	18.65	18.14	19.64	19.68	19.74	19.99
			Total		Total		Total		Total		Total		Total		Total		Total		Total	
			22.43		23.50		23.89		21.92		23.06		23.37		21.41		22.67		22.88	
Band / BW	RB Size	RB Offset	QPSK						16QAM						64QAM					
			Low CH 675		Mid CH 900		High CH 1125		Low CH 675		Mid CH 900		High CH 1125		Low CH 675		Mid CH 900		High CH 1125	
			1937.5 MHz		1960 MHz		1982.5 MHz		1937.5 MHz		1960 MHz		1982.5 MHz		1937.5 MHz		1960 MHz		1982.5 MHz	
			Chain0	Chain1	Chain0	Chain1	Chain0	Chain1	Chain0	Chain1	Chain0	Chain1	Chain0	Chain1	Chain0	Chain1	Chain0	Chain1	Chain0	Chain1
2/15M	75	0	20.94	20.76	21.65	21.70	22.09	21.93	20.54	20.22	21.14	21.21	21.64	21.48	20.01	19.78	20.60	20.73	21.13	20.89
			Total		Total		Total		Total		Total		Total		Total		Total		Total	
			23.86		24.69		25.02		23.39		24.19		24.57		22.91		23.68		24.02	
Band / BW	RB Size	RB Offset	QPSK						16QAM						64QAM					
			Low CH 700		Mid CH 900		High CH 1100		Low CH 700		Mid CH 900		High CH 1100		Low CH 700		Mid CH 900		High CH 1100	
			1940 MHz		1960 MHz		1980 MHz		1940 MHz		1960 MHz		1980 MHz		1940 MHz		1960 MHz		1980 MHz	
			Chain0	Chain1	Chain0	Chain1	Chain0	Chain1	Chain0	Chain1	Chain0	Chain1	Chain0	Chain1	Chain0	Chain1	Chain0	Chain1	Chain0	Chain1
2/20M	100	0	19.90	19.78	20.18	20.52	20.69	21.00	19.48	19.34	19.84	20.10	20.14	20.53	19.02	18.75	19.36	19.63	19.64	20.11
			Total		Total		Total		Total		Total		Total		Total		Total		Total	
			22.85		23.36		23.86		22.42		22.98		23.35		21.90		22.51		22.89	

EIRP Power (dBm)
WCDMA Mode

MODE		TX channel 9662					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1932.4	-22.7	17.9	-0.2	17.7	33.0	-15.3
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1932.4	-18.3	22.7	-0.2	22.5	33.0	-10.5

MODE		TX channel 9800					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1960.00	-19.1	21.4	-0.3	21.1	33.0	-11.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1960.00	-17.7	23.5	-0.3	23.2	33.0	-9.8

MODE		TX channel 9938					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1987.60	-21.2	19.2	-0.4	18.8	33.0	-14.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1987.60	-18.0	23.4	-0.4	23.0	33.0	-10.0

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

LTE Band 2

Channel Bandwidth: 5MHz

MODE		TX channel 625					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1932.50	-18.4	22.2	-0.2	22.0	33.0	-11.0
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1932.50	-13.7	27.3	-0.2	27.1	33.0	-5.9

MODE		TX channel 900					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1960.00	-16.6	23.9	-0.3	23.6	33.0	-9.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1960.00	-13.3	27.9	-0.3	27.6	33.0	-5.4

MODE		TX channel 1175					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1987.50	-16.6	23.8	-0.4	23.4	33.0	-9.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1987.50	-14.3	27.1	-0.4	26.7	33.0	-6.3

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Channel Bandwidth: 10MHz

MODE		TX channel 650					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1935.00	-17.8	22.8	-0.2	22.6	33.0	-10.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1935.00	-13.9	27.1	-0.2	26.9	33.0	-6.1

MODE		TX channel 900					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1960.00	-16.4	24.1	-0.3	23.8	33.0	-9.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1960.00	-13.8	27.4	-0.3	27.1	33.0	-5.9

MODE		TX channel 1150					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1985.00	-16.6	23.8	-0.4	23.4	33.0	-9.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1985.00	-13.9	27.5	-0.4	27.1	33.0	-5.9

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Channel Bandwidth: 15MHz

MODE		TX channel 675					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1937.50	-16.5	24.2	-0.3	23.9	33.0	-9.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1937.50	-12.2	28.9	-0.3	28.6	33.0	-4.4

MODE		TX channel 900					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1960.00	-14.8	25.7	-0.3	25.4	33.0	-7.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1960.00	-12.6	28.6	-0.3	28.3	33.0	-4.7

MODE		TX channel 1125					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1982.50	-14.7	25.8	-0.4	25.4	33.0	-7.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1982.50	-11.9	29.5	-0.4	29.1	33.0	-3.9

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Channel Bandwidth: 20MHz

MODE		TX channel 700					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1940.00	-16.2	24.4	-0.3	24.1	33.0	-8.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1940.00	-12.1	29.0	-0.3	28.7	33.0	-4.3

MODE		TX channel 900					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1960.00	-17.3	23.2	-0.3	22.9	33.0	-10.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1960.00	-14.2	27.0	-0.3	26.7	33.0	-6.3

MODE		TX channel 1100					
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1980.00	-17.1	23.4	-0.4	23.0	33.0	-10.0
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1980.00	-14.3	27.1	-0.4	26.7	33.0	-6.3

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

4.2 Frequency Stability Measurement

4.2.1 Limits of Frequency Stability Measurement

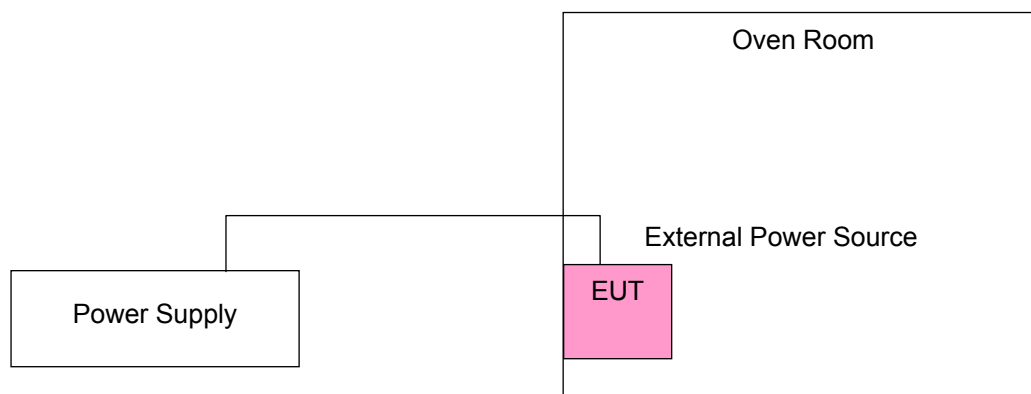
According to the FCC part 2.1055 shall be tested the frequency stability. The rule is defined that "The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block." The test extreme voltage is according to the 2.1055(d)(1) Vary primary 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 $-20^{\circ}\text{C} \sim 50^{\circ}\text{C}$.

4.2.2 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.

4.2.3 Test Setup



4.2.4 Test Results

Frequency Error vs. Voltage

Voltage (Volts)	Frequency Error (ppm)		Limit (Pass/Fail)
	WCDMA	LTE Band 2	
138	-0.005	-0.005	Pass
120	-0.006	-0.005	Pass
102	-0.005	-0.004	Pass

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

Frequency Error vs. Temperature.

TEMP. (°C)	Frequency Error (ppm)		Limit (Pass/Fail)
	WCDMA	LTE Band 2	
50	-0.005	-0.005	Pass
40	-0.006	-0.005	Pass
30	-0.006	-0.005	Pass
20	-0.006	-0.005	Pass
10	-0.005	-0.004	Pass
0	-0.007	-0.005	Pass
-10	-0.008	-0.006	Pass
-20	-0.008	-0.006	Pass

4.3 Emission Bandwidth Measurement

4.3.1 Test Procedure

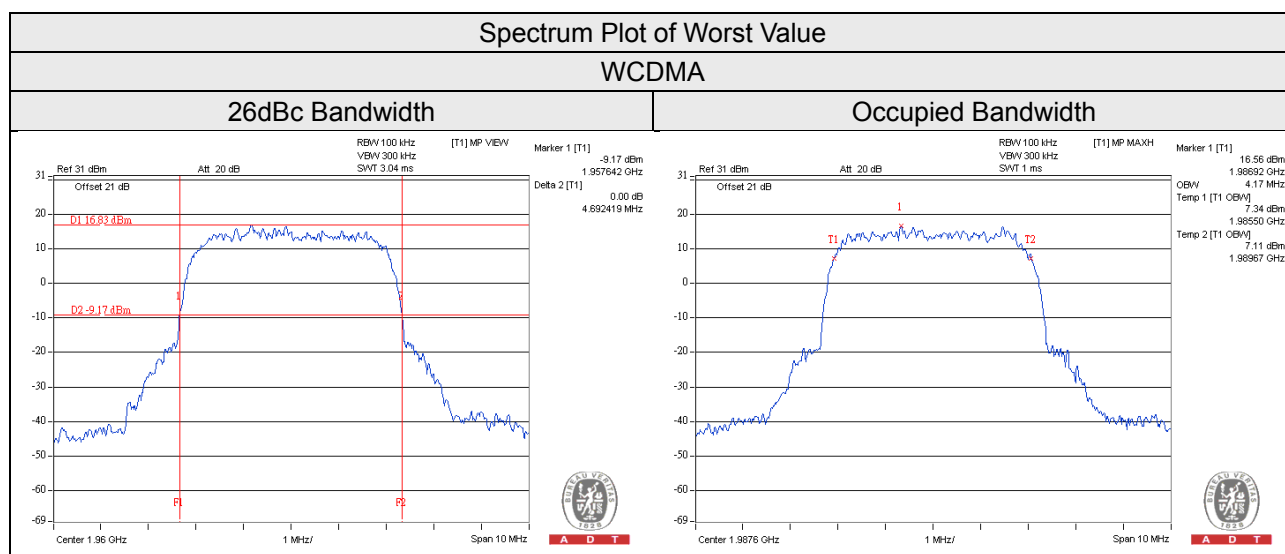
The EUT connected with Spectrum Analyzer. All measurements were done at low, middle and high operational frequency range. The control system connected a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

4.3.2 Test Setup



4.3.3 Test Result

Channel	Frequency (MHz)	WCDMA	
		26dBc Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
9662	1932.4	4.68	4.13
9800	1960.0	4.69	4.15
9938	1987.6	4.68	4.17



LTE Band 2 / Chain 0

Channel Bandwidth 5MHz							
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
625	1932.5	4.79	4.81	4.79	4.43	4.43	4.43
900	1960.0	4.77	4.79	4.80	4.42	4.43	4.43
1175	1987.5	4.80	4.79	4.76	4.43	4.43	4.43

Channel Bandwidth 10MHz							
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
650	1935.0	9.61	9.66	9.66	8.90	8.90	8.90
900	1960.0	9.66	9.67	9.68	8.90	8.90	8.90
1150	1985.0	9.67	9.66	9.68	8.90	8.90	8.90

Channel Bandwidth 15MHz							
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
675	1937.5	14.14	14.14	14.14	13.27	13.27	13.27
900	1960.0	14.18	14.14	14.15	13.30	13.30	13.30
1125	1982.5	14.21	14.18	14.13	13.30	13.30	13.30

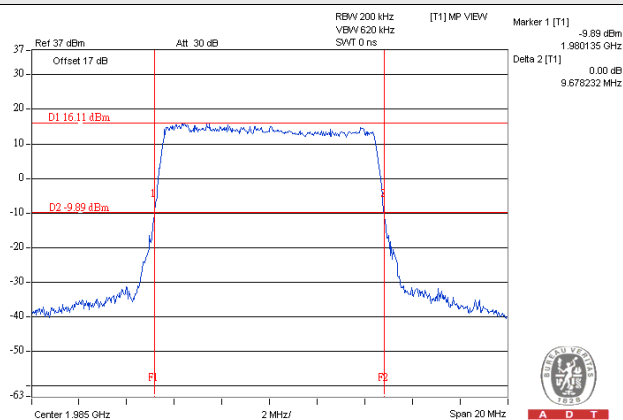
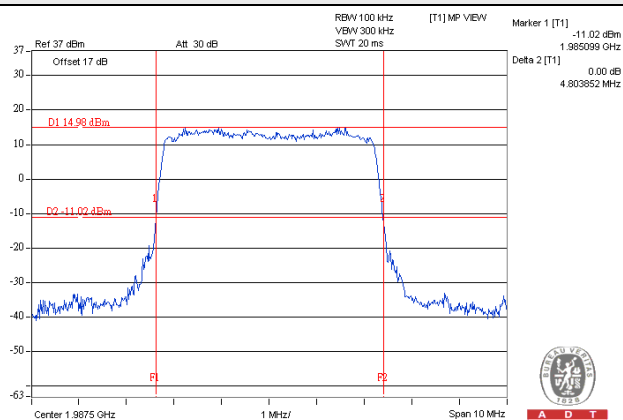
Channel Bandwidth 20MHz							
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
700	1940.0	19.30	19.36	19.25	18.00	18.00	18.00
900	1960.0	19.26	19.35	19.29	17.93	17.93	17.93
1100	1980.0	19.30	19.29	19.24	17.87	17.87	17.93

Spectrum Plot of Worst Value

26dBc Bandwidth

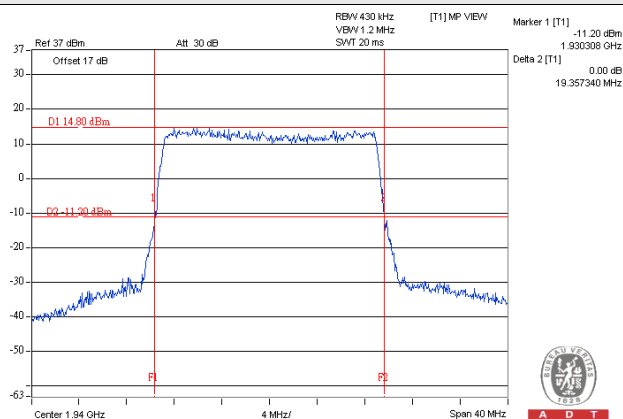
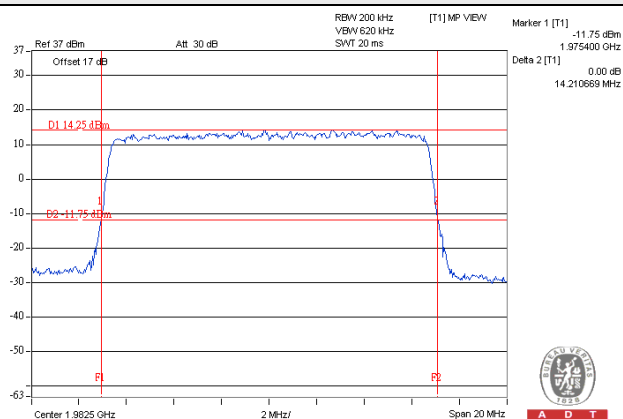
5MHz / QPSK / Ch 1175

10MHz / 64QAM / Ch 1150



15MHz / QPSK / Ch 1125

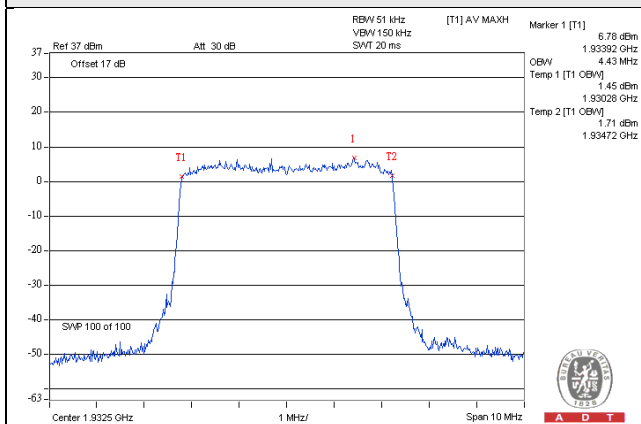
20MHz / 16QAM / Ch 700



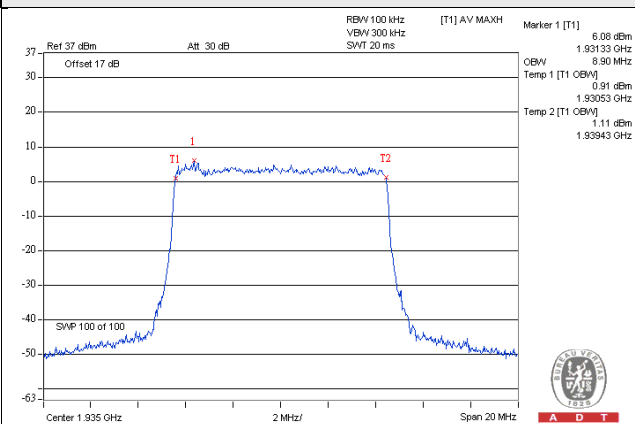
Spectrum Plot of Worst Value

Occupied Bandwidth

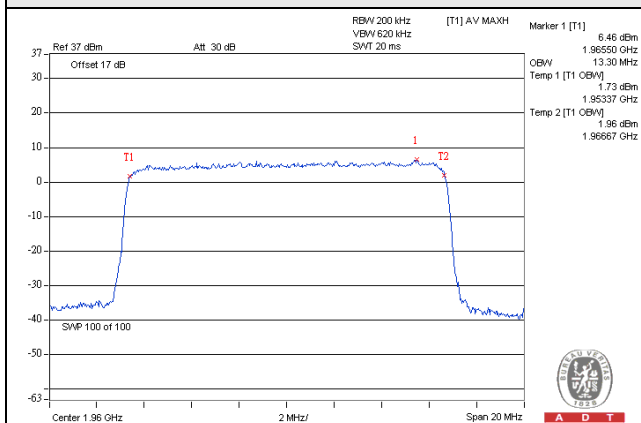
5MHz / QPSK / Ch 625



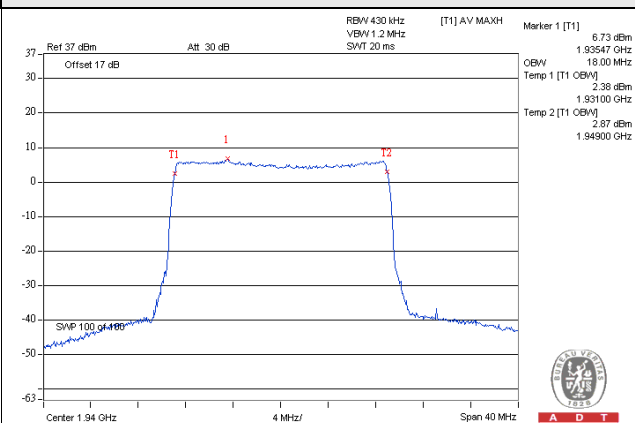
10MHz / QPSK / Ch 650



15MHz / QPSK / Ch 900



20MHz / QPSK / Ch 700



LTE Band 2 / Chain 1

Channel Bandwidth 5MHz							
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
625	1932.5	4.79	4.77	4.78	4.43	4.43	4.43
900	1960.0	4.78	4.80	4.80	4.43	4.43	4.43
1175	1987.5	4.78	4.79	4.77	4.43	4.43	4.43

Channel Bandwidth 10MHz							
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
650	1935.0	9.69	9.65	9.66	8.90	8.93	8.93
900	1960.0	9.68	9.69	9.61	8.93	8.90	8.93
1150	1985.0	9.68	9.69	9.69	8.93	8.93	8.93

Channel Bandwidth 15MHz							
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
675	1937.5	14.15	14.12	14.08	13.27	13.27	13.27
900	1960.0	14.18	14.19	14.12	13.30	13.27	13.30
1125	1982.5	14.22	14.17	14.16	13.30	13.27	13.30

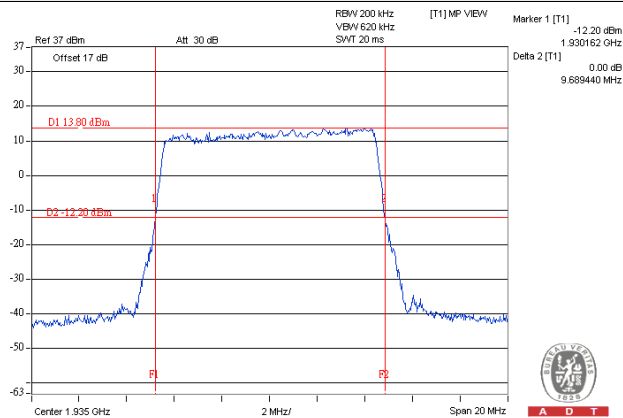
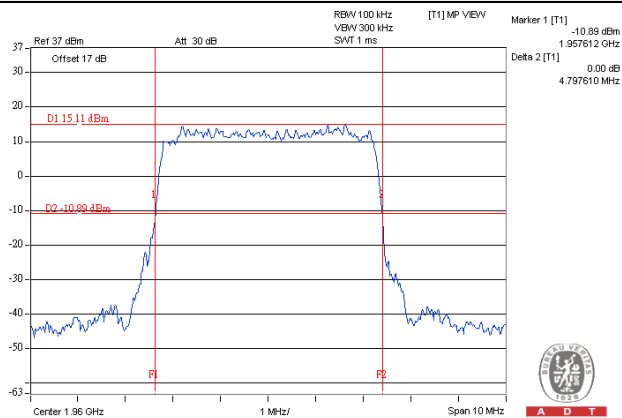
Channel Bandwidth 20MHz							
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)			Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
700	1940.0	19.19	19.30	19.34	17.87	17.87	17.87
900	1960.0	19.27	19.30	19.16	17.93	17.93	17.93
1100	1980.0	19.44	19.44	19.38	18.00	18.00	18.00

Spectrum Plot of Worst Value

26dBc Bandwidth

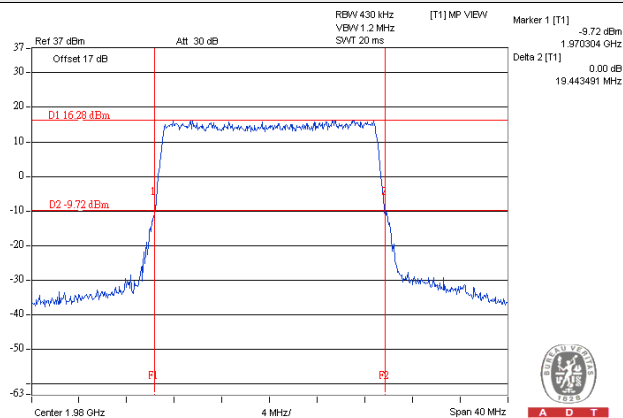
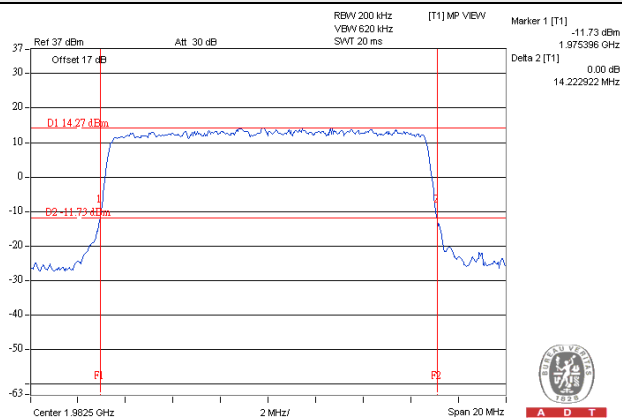
5MHz / 16QAM / Ch 900

10MHz / QPSK / Ch 650



15MHz / QPSK / Ch 1125

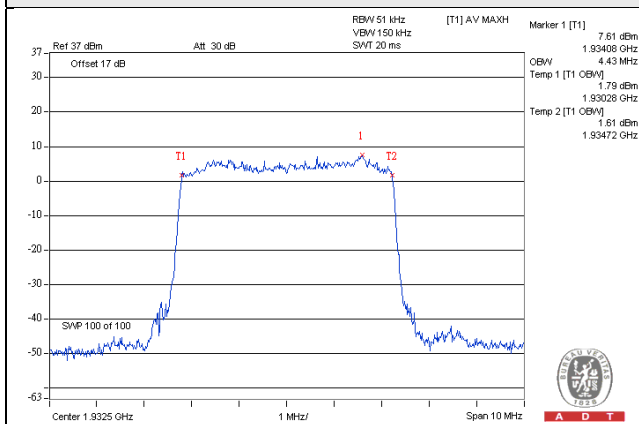
20MHz / 16QAM / Ch 1100



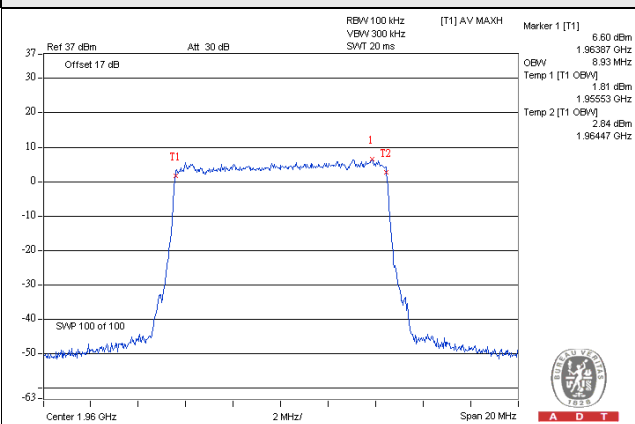
Spectrum Plot of Worst Value

Occupied Bandwidth

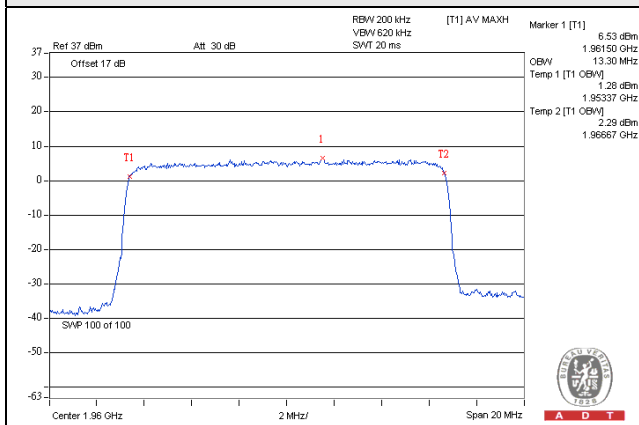
5MHz / QPSK / Ch 625



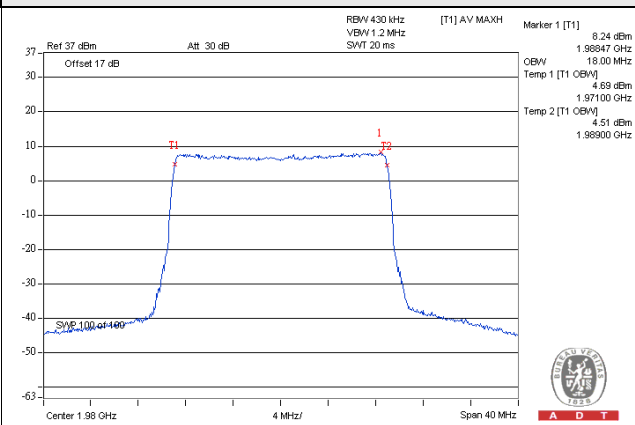
10MHz / QPSK / Ch 900



15MHz / QPSK / Ch 900



20MHz / QPSK / Ch 1100



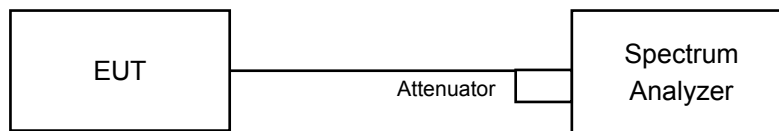
4.4 Band Edge Measurement

4.4.1 Limits of Band Edge Measurement

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.

This device can be implement MIMO function, so the limit of spurious emissions needs to be reduced by $10\log(\text{Numbers}_{\text{Ant}})$ according to FCC KDB 662911 D01 guidance.

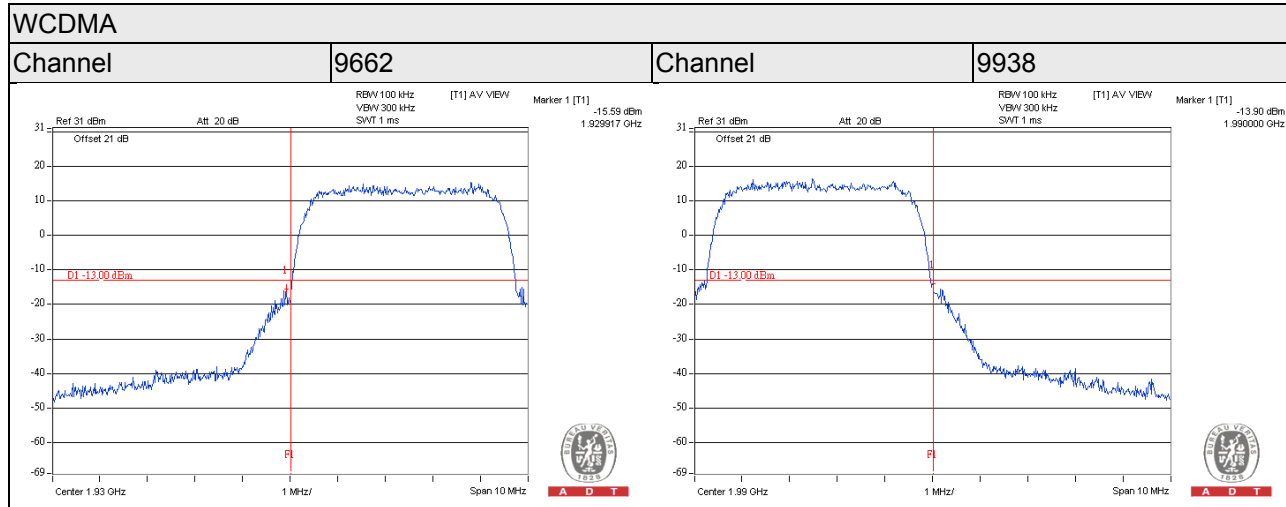
4.4.2 Test Setup



4.4.3 Test Procedures

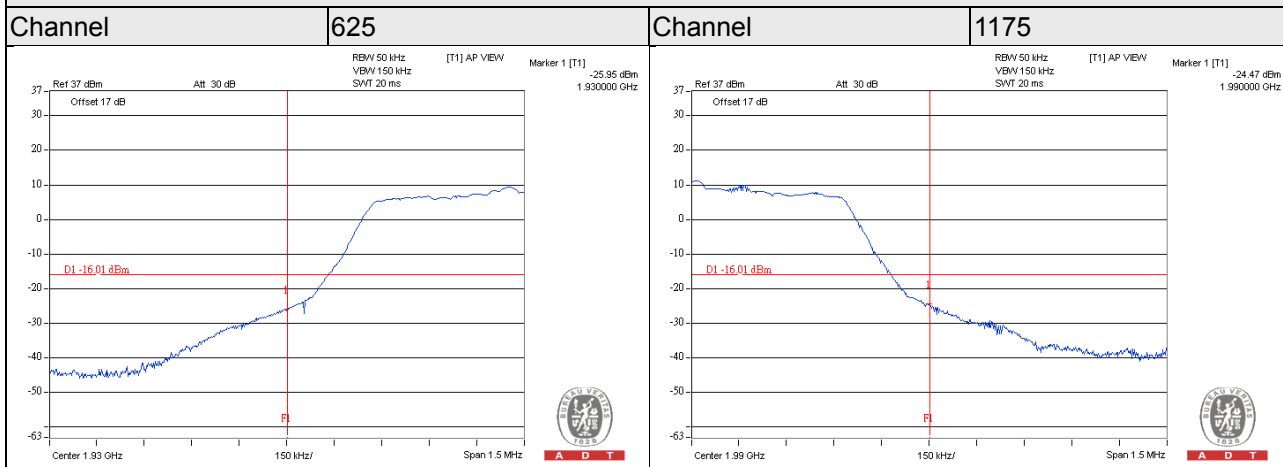
- All measurements were done at low and high operational frequency range.
- The center frequency of spectrum is the band edge frequency and span is 10MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (WCDMA).
- The center frequency of spectrum is the band edge frequency and span is 1.5MHz. RB of the spectrum is 50kHz and VB of the spectrum is 150kHz (LTE).
- Record the max trace plot into the test report.

4.4.4 Test Results

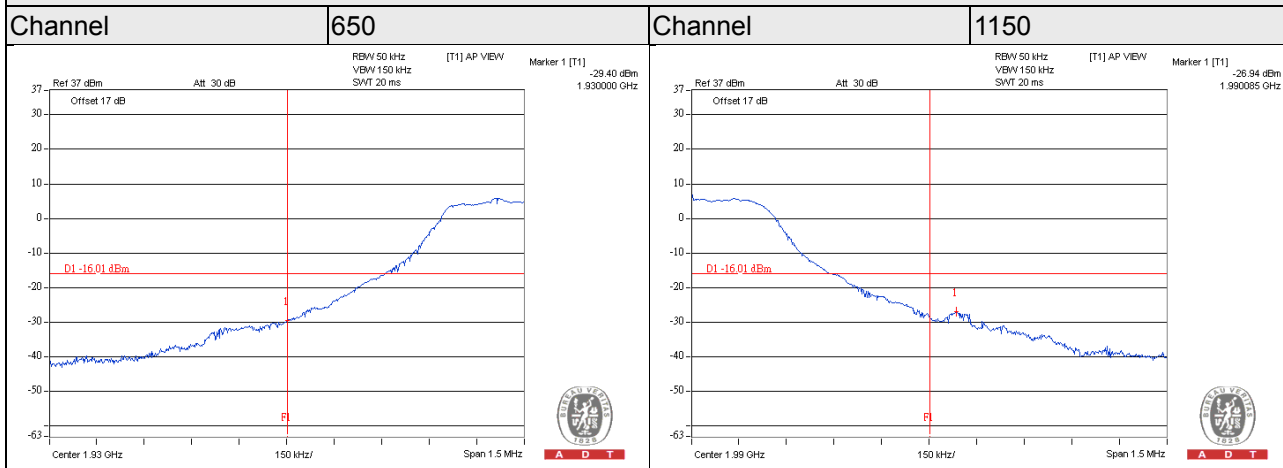


LTE Band 2 / Chain 0

Channel Bandwidth 5MHz

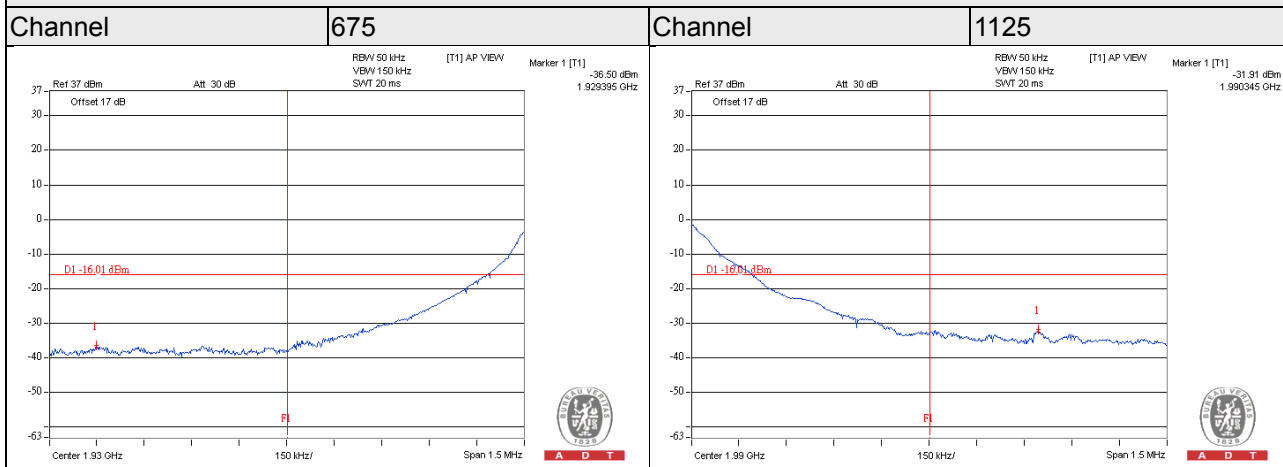


Channel Bandwidth 10MHz

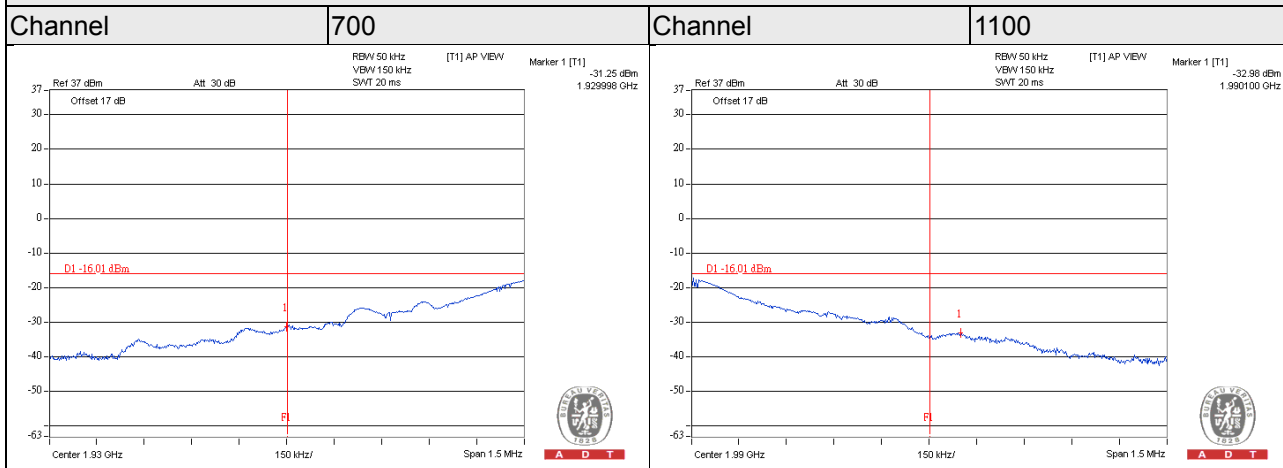


LTE Band 2 / Chain 0

Channel Bandwidth 15MHz

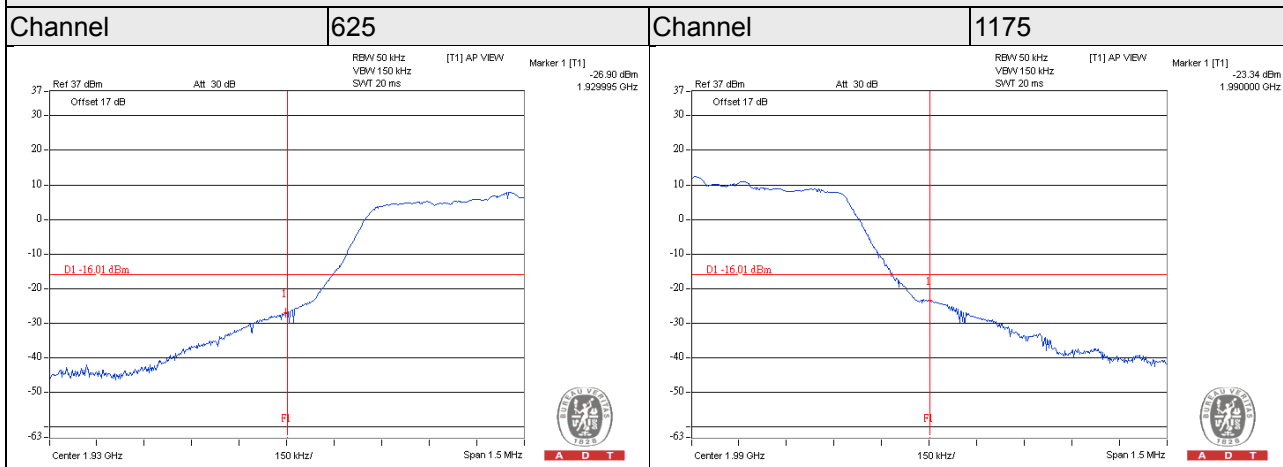


Channel Bandwidth 20MHz

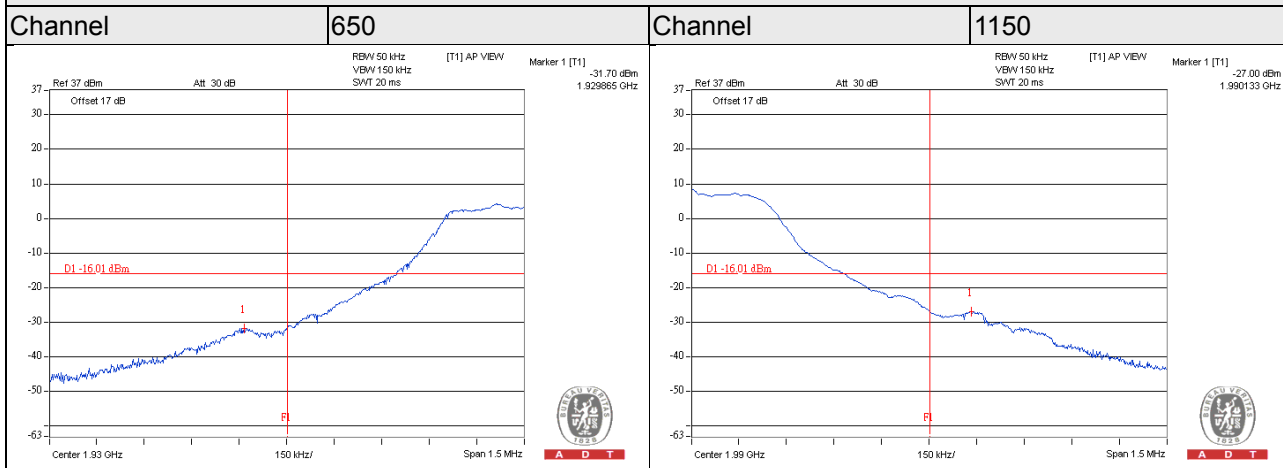


LTE Band 2 / Chain 1

Channel Bandwidth 5MHz

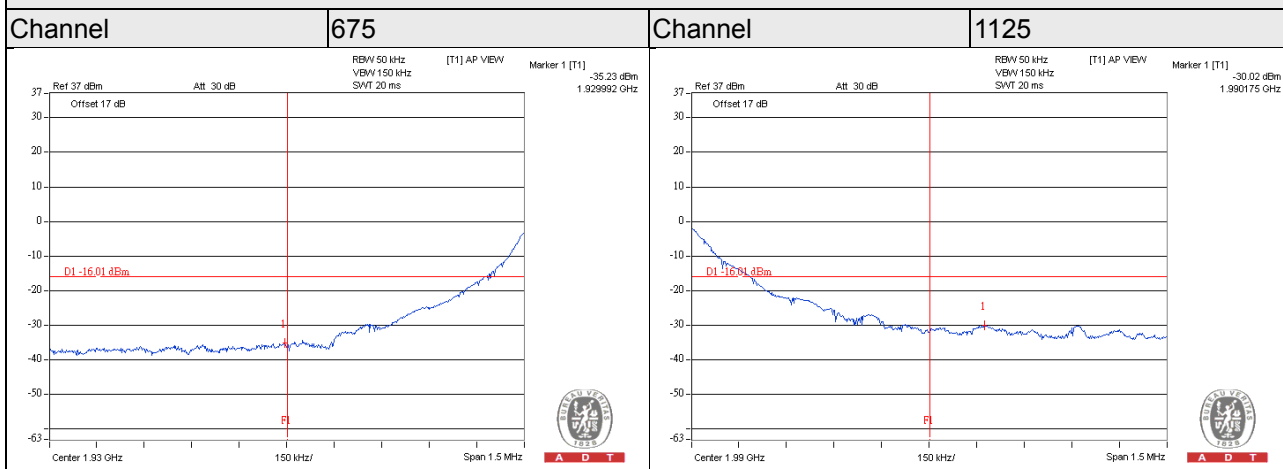


Channel Bandwidth 10MHz

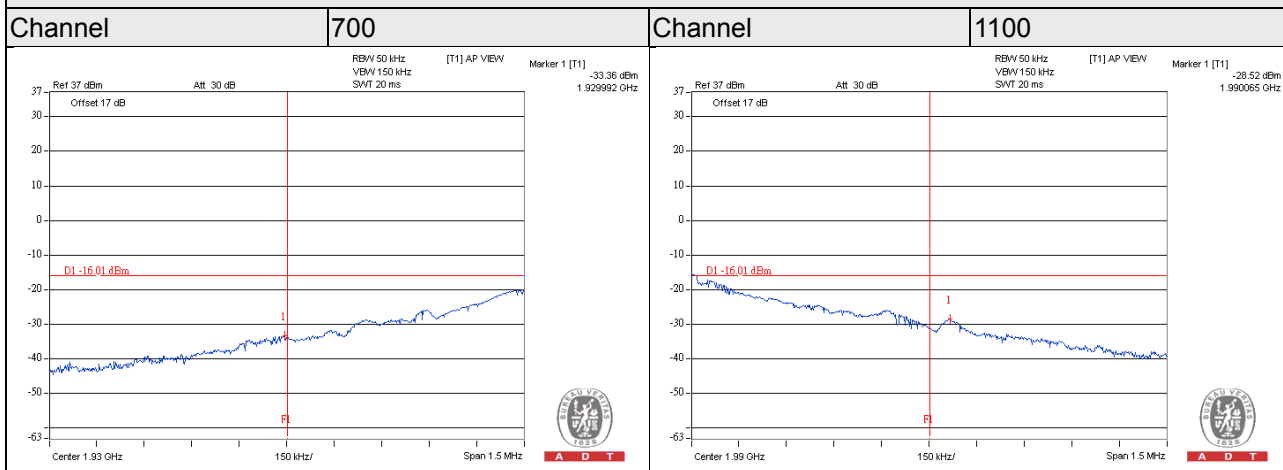


LTE Band 2 / Chain 1

Channel Bandwidth 15MHz



Channel Bandwidth 20MHz

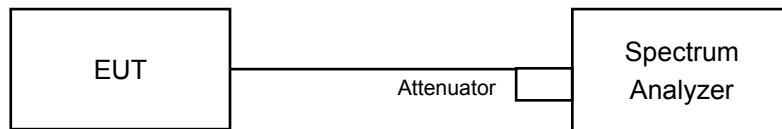


4.5 Peak to Average Ratio

4.5.1 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

4.5.2 Test Setup

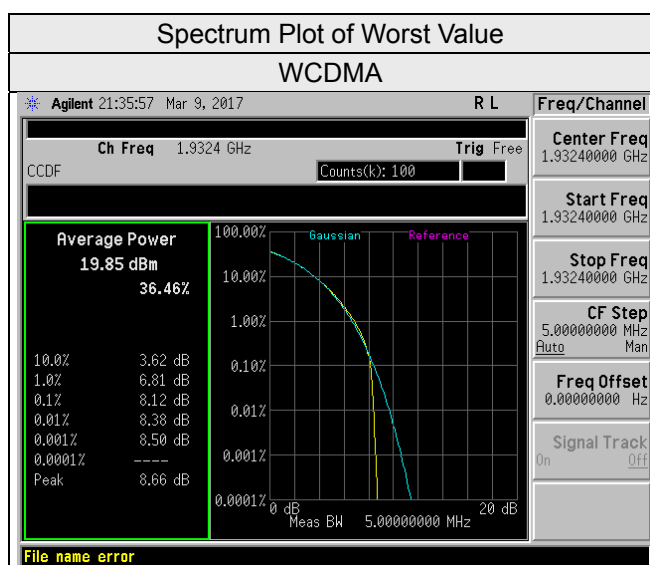


4.5.3 Test Procedures

- 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%.

4.5.4 Test Results

Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		WCDMA
9262	1932.4	8.12
9800	1960.0	8.11
9938	1987.6	8.07

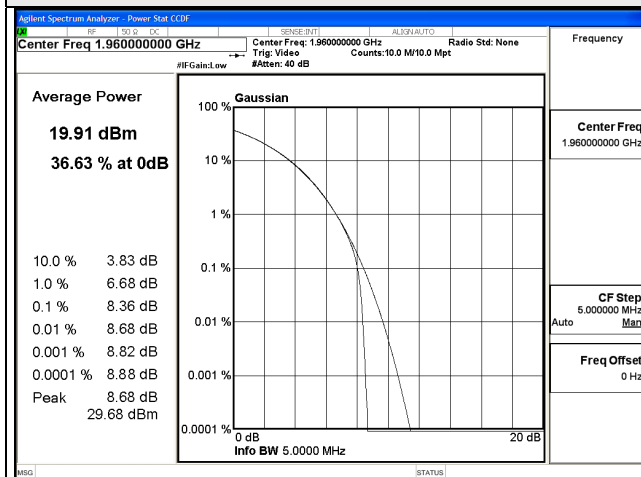


LTE Band 2 / Chain 0

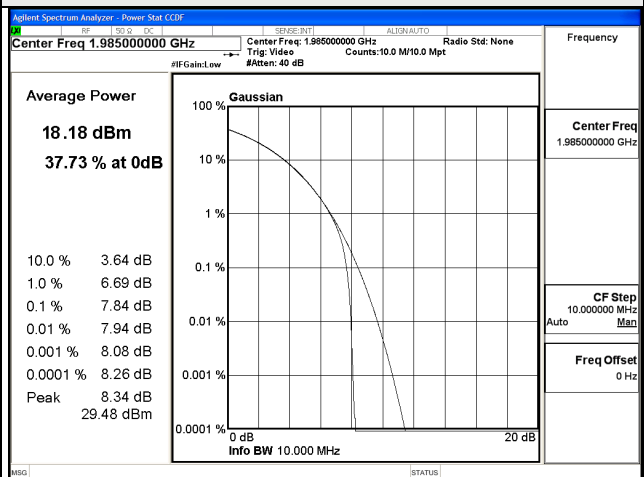
Channel Bandwidth 5MHz					Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
625	1932.5	8.03	8.03	8.01	650	1935.0	7.67	7.67	7.63
900	1960.0	8.33	8.36	8.02	900	1960.0	7.65	7.76	7.65
1175	1987.5	7.95	7.93	8.00	1150	1985.0	7.77	7.68	7.84
Channel Bandwidth 15MHz					Channel Bandwidth 20MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
675	1937.5	8.16	8.14	8.12	700	1940.0	7.61	7.64	7.65
900	1960.0	8.25	8.25	8.25	900	1960.0	7.52	7.58	7.73
1125	1982.5	8.17	8.19	8.18	1100	1980.0	7.47	7.47	7.43

Spectrum Plot Of Worst Value

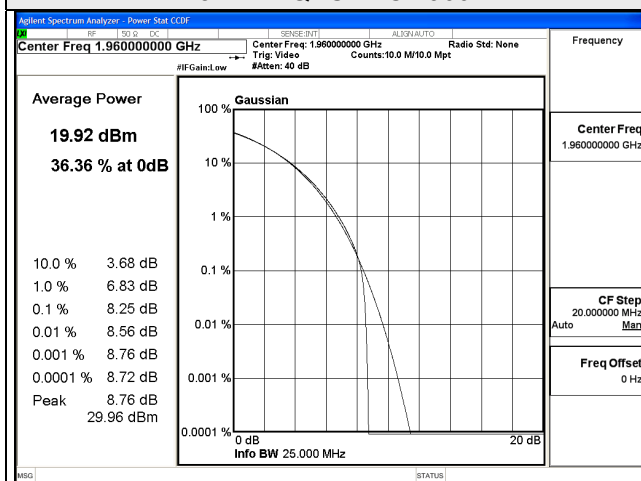
5MHz / 16QAM / Ch 900



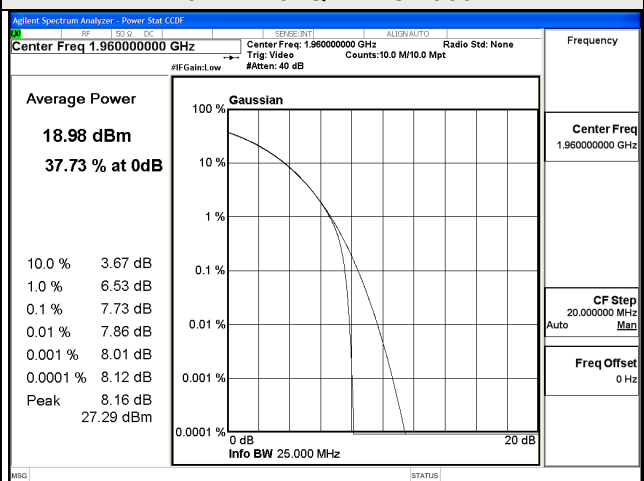
10MHz / 64QAM / Ch 1150



15MHz / QPSK / Ch 900



20MHz / 64QAM / Ch 900

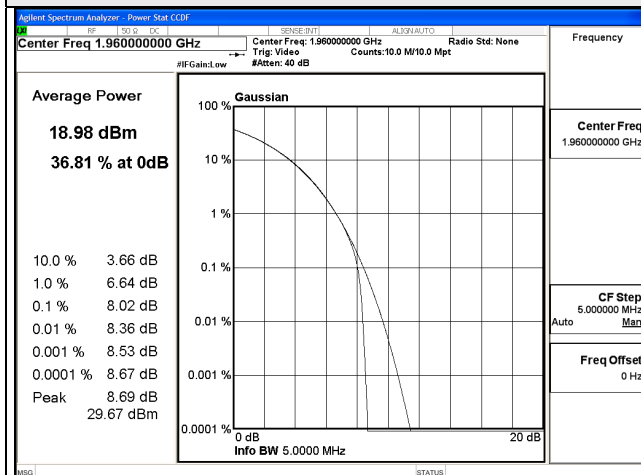


LTE Band 2 / Chain 1

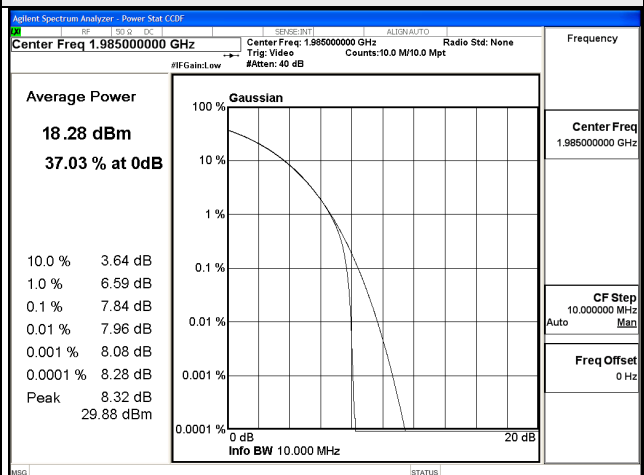
Channel Bandwidth 5MHz					Channel Bandwidth 10MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
625	1932.5	8.06	8.08	8.01	650	1935.0	7.66	7.67	7.65
900	1960.0	8.33	8.36	8.02	900	1960.0	7.65	7.73	7.65
1175	1987.5	7.95	7.94	8.00	1150	1985.0	7.76	7.64	7.84
Channel Bandwidth 15MHz					Channel Bandwidth 20MHz				
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
675	1937.5	8.16	8.14	8.14	700	1940.0	7.63	7.34	7.67
900	1960.0	8.28	8.21	8.15	900	1960.0	7.54	7.53	7.71
1125	1982.5	8.14	8.19	8.18	1100	1980.0	7.46	7.46	7.46

Spectrum Plot Of Worst Value

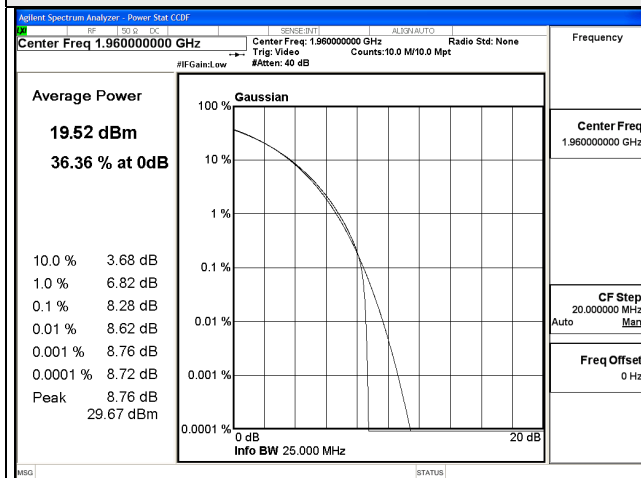
5MHz / 16QAM / Ch 900



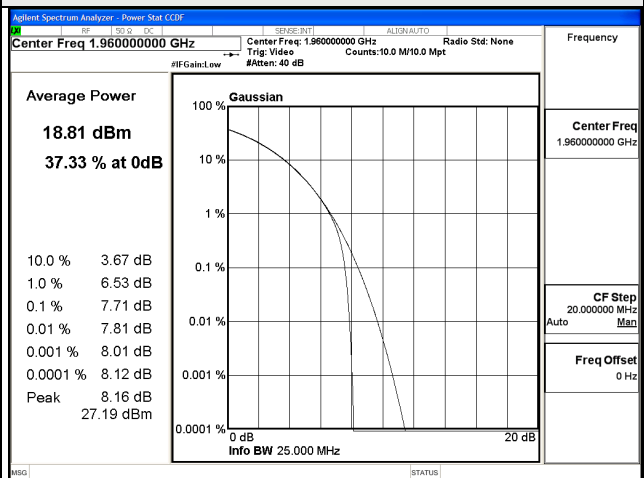
10MHz / 64QAM / Ch 1150



15MHz / QPSK / Ch 900



20MHz / 64QAM / Ch 900



4.6 Conducted Spurious Emissions

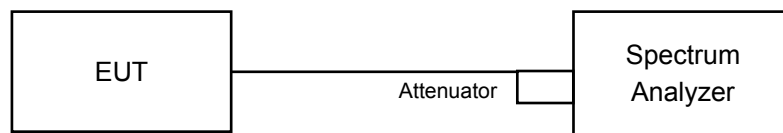
4.6.1 Limits of Conducted Spurious Emissions Measurement

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 .

Note:

This device can be implement MIMO function, so the limit of spurious emissions needs to be reduced by $10\log(\text{Numbers}_{\text{Ant}})$ according to FCC KDB 662911 D01 guidance.

4.6.2 Test Setup



4.6.3 Test Procedure

- All measurements were done at 3 channels: low, middle and high operational frequency range.
- When the spectrum scanned from 9kHz to 20GHz for LTE Band 4, it shall be connected to the attenuator with the carried frequency.

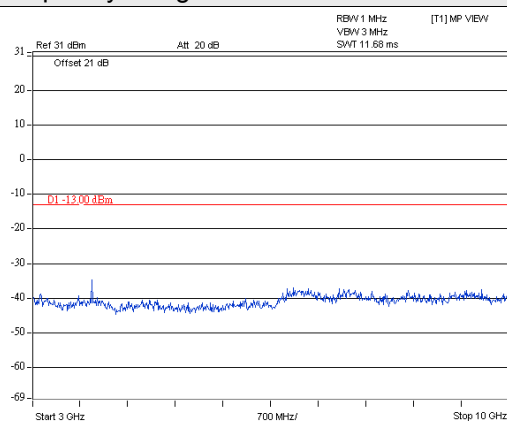
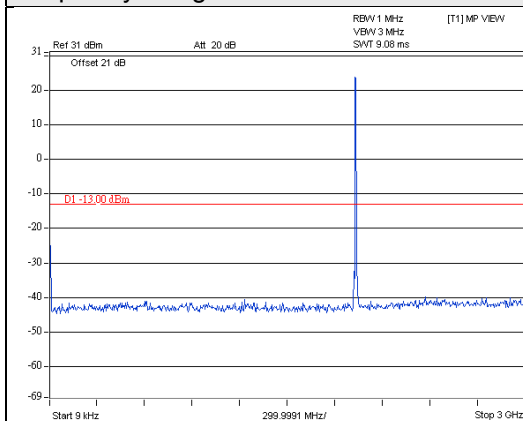
4.6.4 Test Results

WCDMA

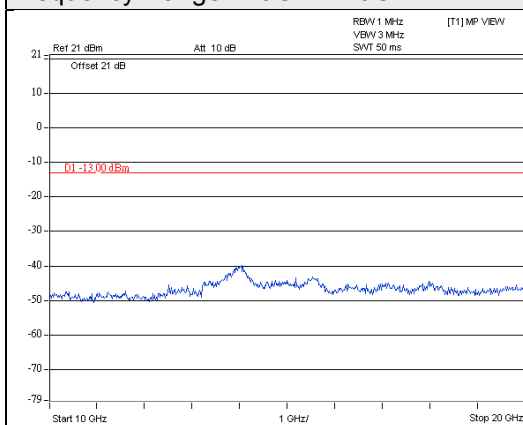
Channel 9662

Frequency Range : 9kHz~3GHz

Frequency Range : 3GHz~10GHz



Frequency Range : 10GHz~20GHz

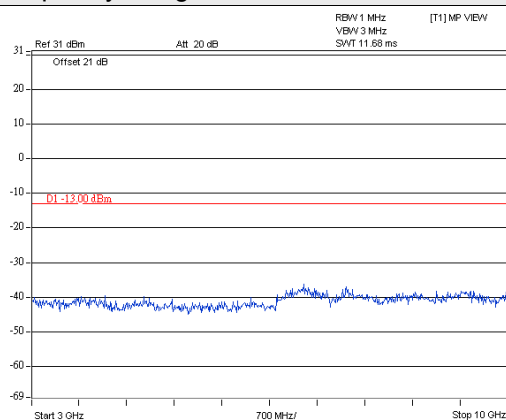
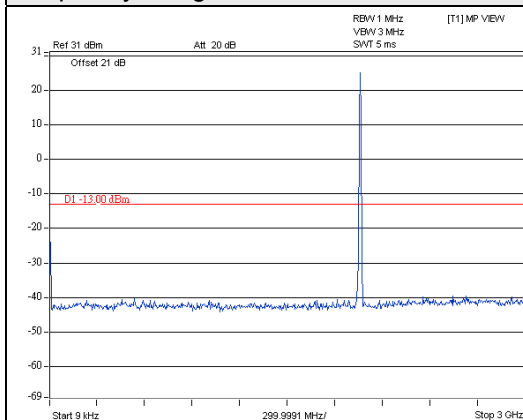


WCDMA

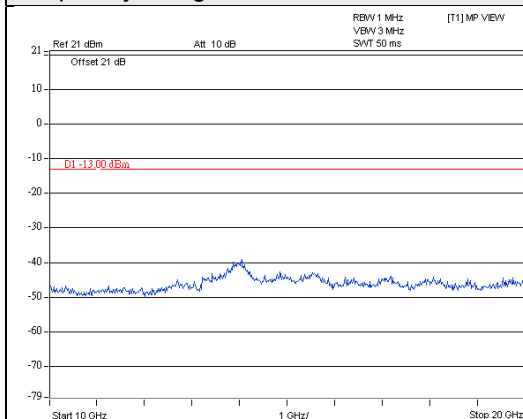
Channel 9800

Frequency Range : 9kHz~3GHz

Frequency Range : 3GHz~10GHz



Frequency Range : 10GHz~20GHz

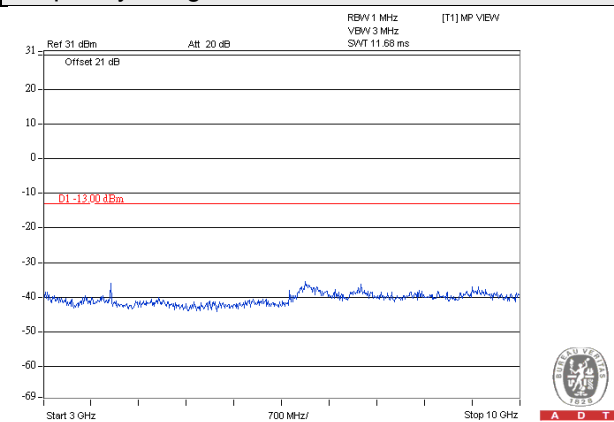
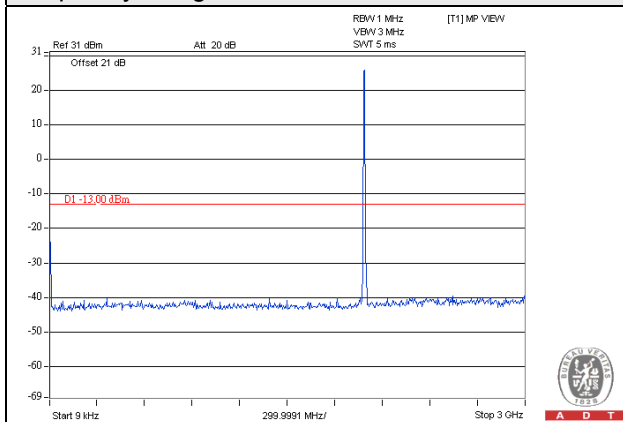


WCDMA

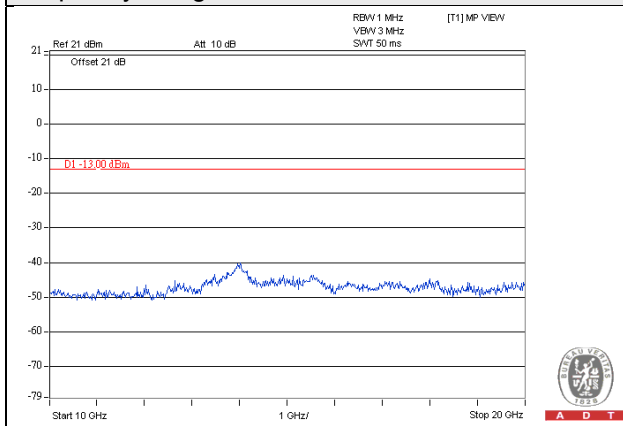
Channel 9938

Frequency Range : 9kHz~3GHz

Frequency Range : 3GHz~10GHz



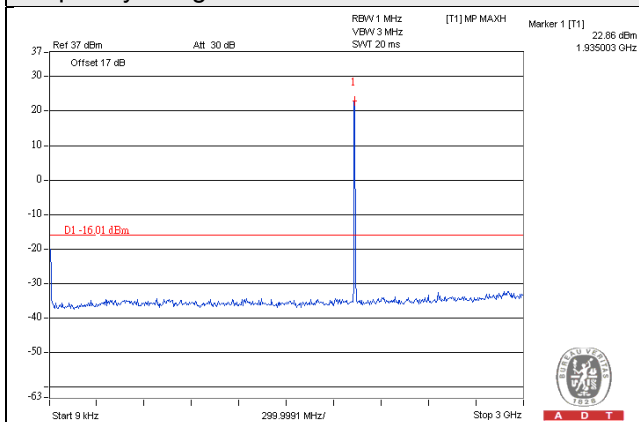
Frequency Range : 10GHz~20GHz



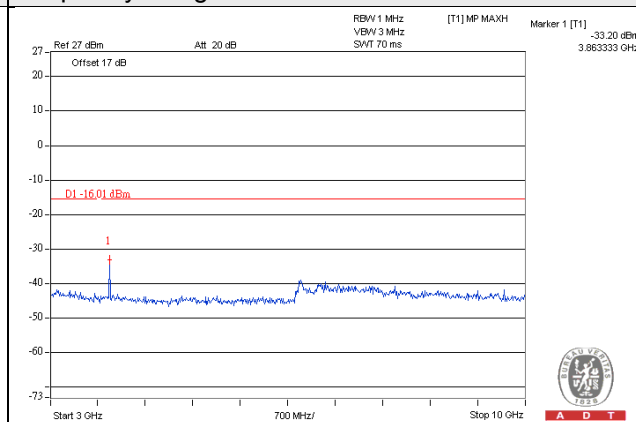
LTE Band 2 / Chain 0 / Channel Bandwidth: 5MHz

Channel 625

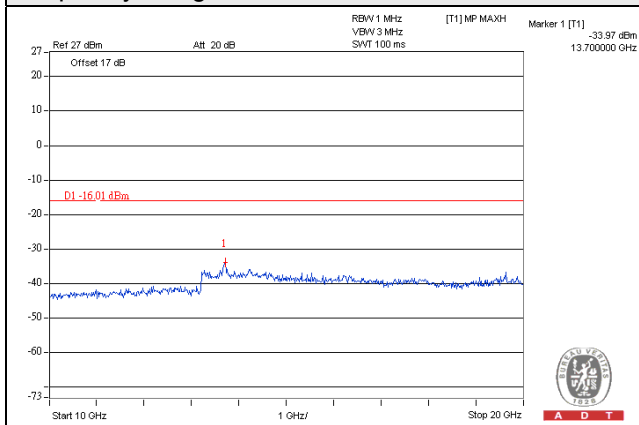
Frequency Range : 9kHz~3GHz



Frequency Range : 3GHz~10GHz



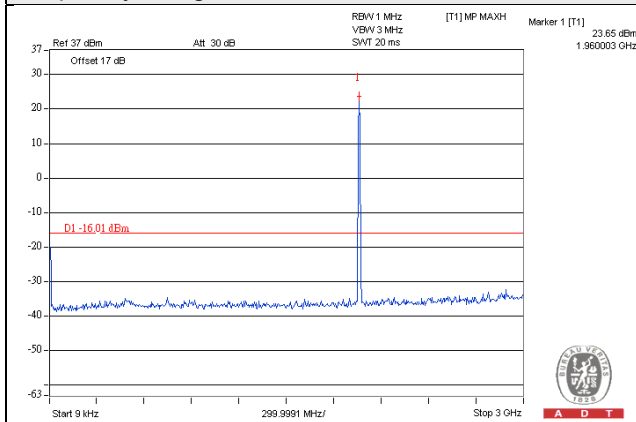
Frequency Range : 10GHz~20GHz



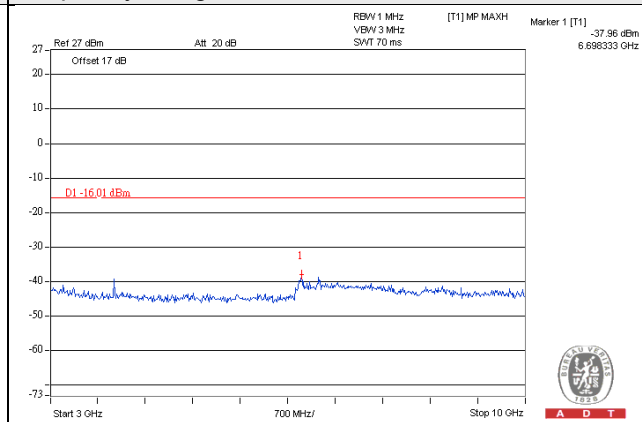
LTE Band 2 / Chain 0 / Channel Bandwidth: 5MHz

Channel 900

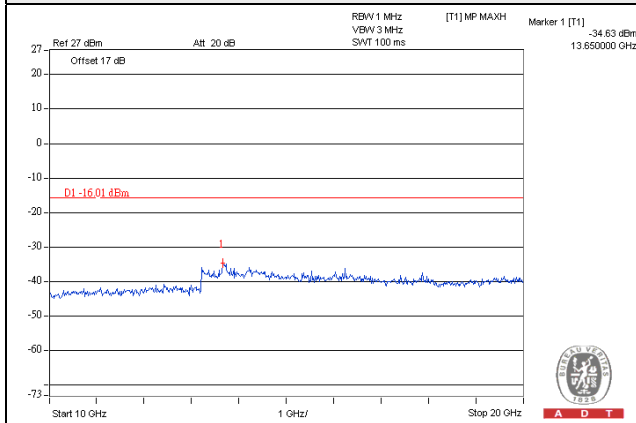
Frequency Range : 9kHz~3GHz



Frequency Range : 3GHz~10GHz



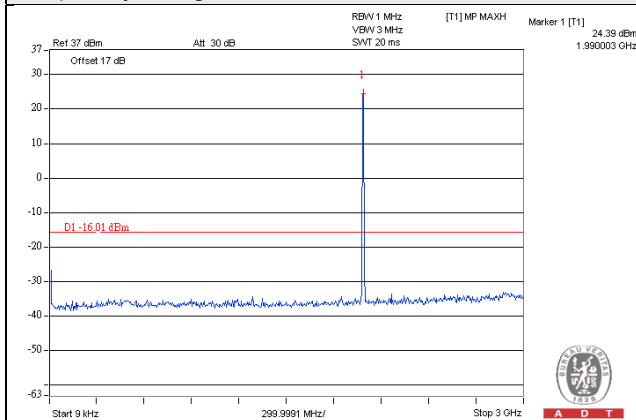
Frequency Range : 10GHz~20GHz



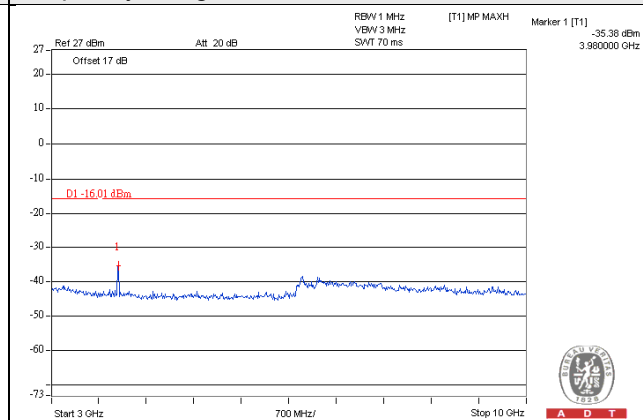
LTE Band 2 / Chain 0 / Channel Bandwidth: 5MHz

Channel 1175

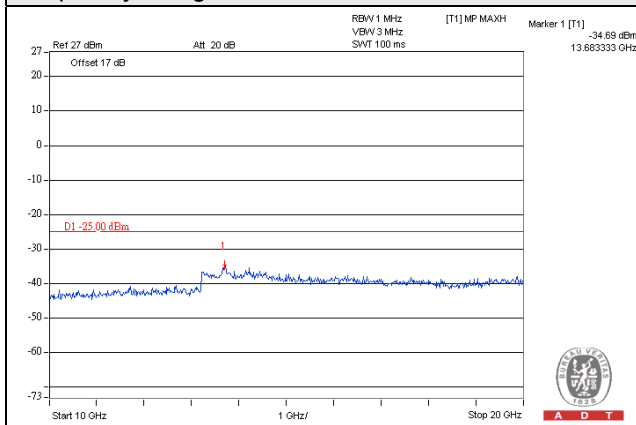
Frequency Range : 9kHz~3GHz



Frequency Range : 3GHz~10GHz



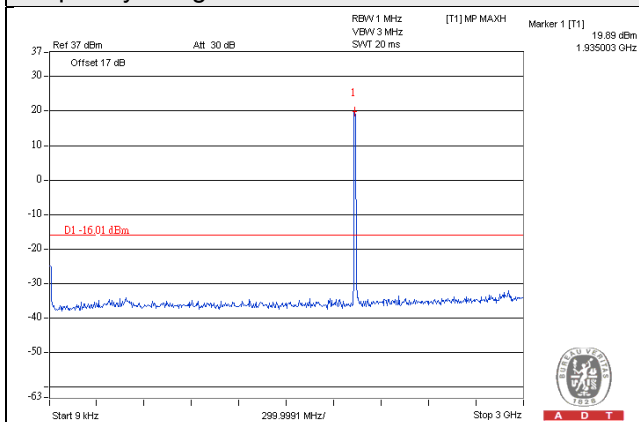
Frequency Range : 10GHz~20GHz



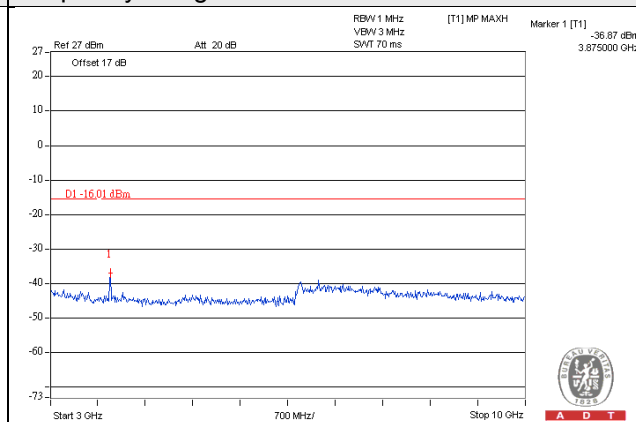
LTE Band 2 / Chain 0 / Channel Bandwidth: 10MHz

Channel 650

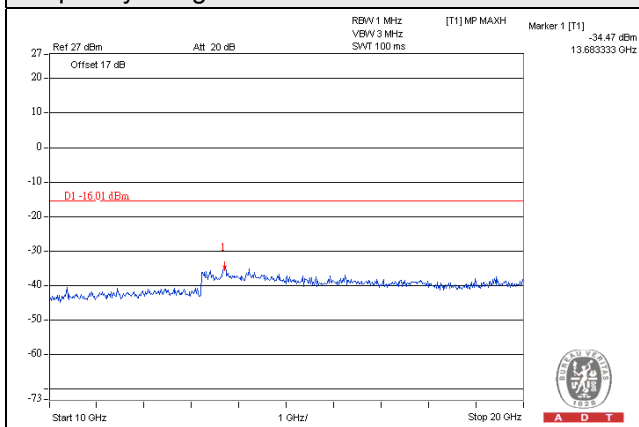
Frequency Range : 9kHz~3GHz



Frequency Range : 3GHz~10GHz



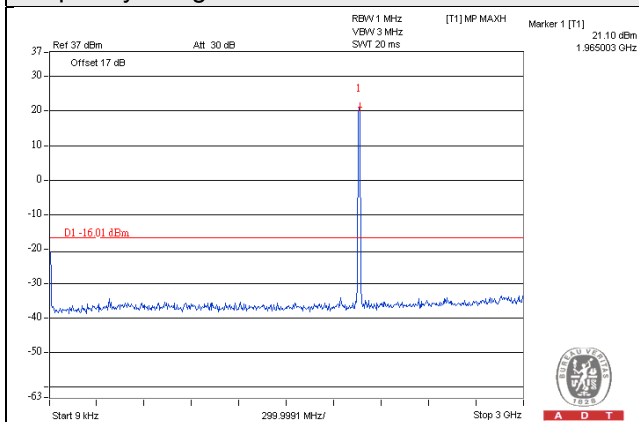
Frequency Range : 10GHz~20GHz



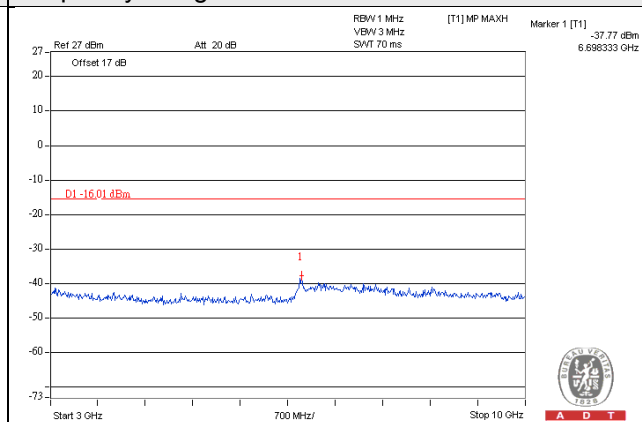
LTE Band 2 / Chain 0 / Channel Bandwidth: 10MHz

Channel 900

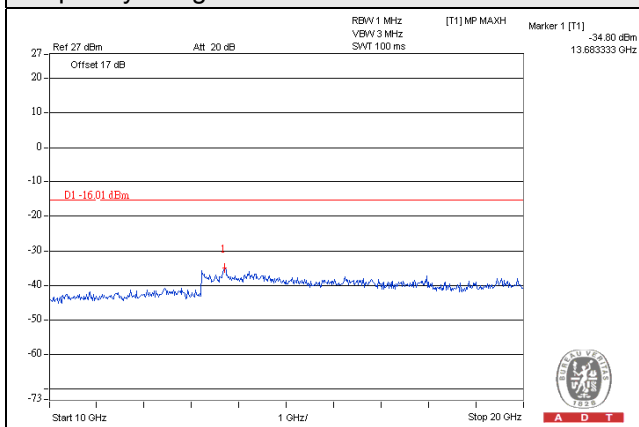
Frequency Range : 9kHz~3GHz



Frequency Range : 3GHz~10GHz



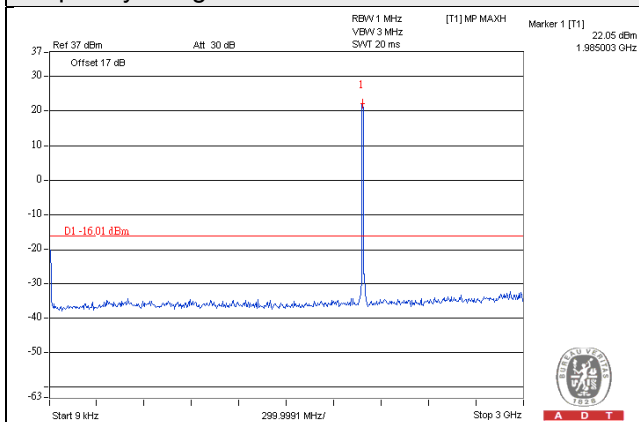
Frequency Range : 10GHz~20GHz



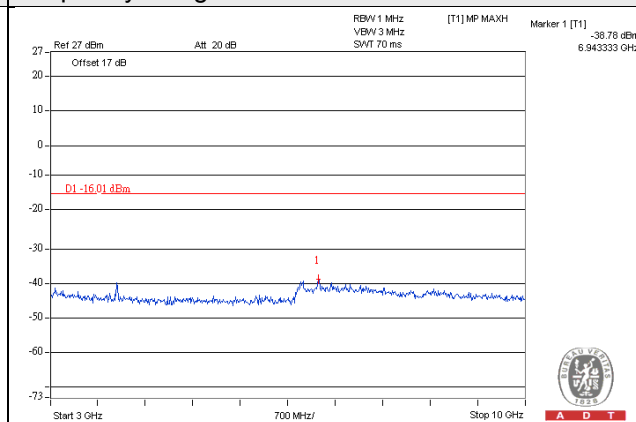
LTE Band 2 / Chain 0 / Channel Bandwidth: 10MHz

Channel 1150

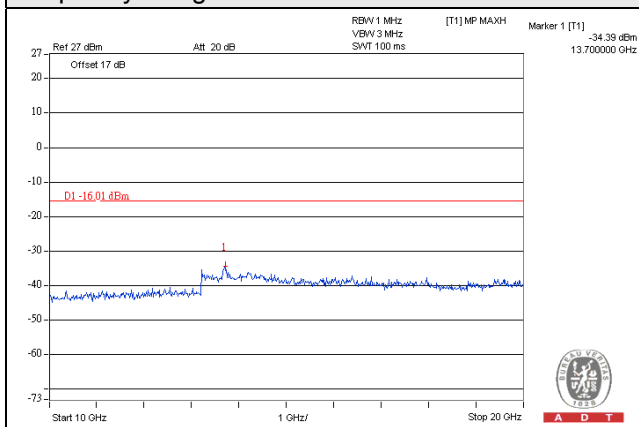
Frequency Range : 9kHz~3GHz



Frequency Range : 3GHz~10GHz



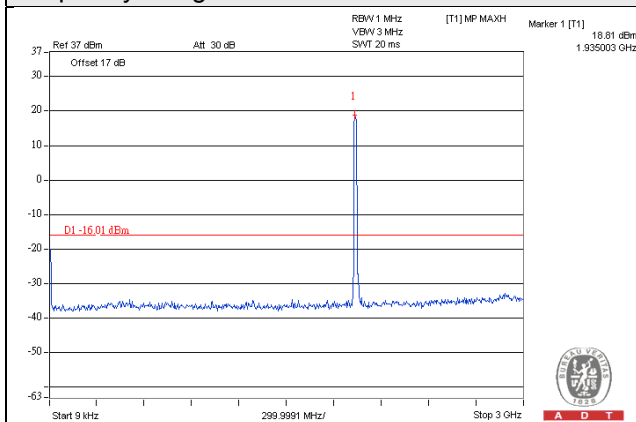
Frequency Range : 10GHz~20GHz



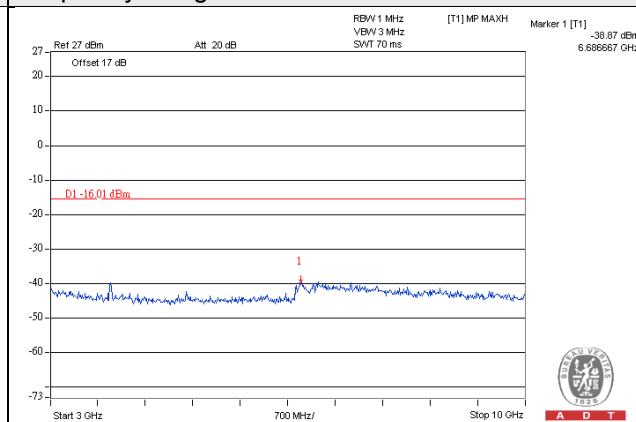
LTE Band 2 / Chain 0 / Channel Bandwidth: 15MHz

Channel 675

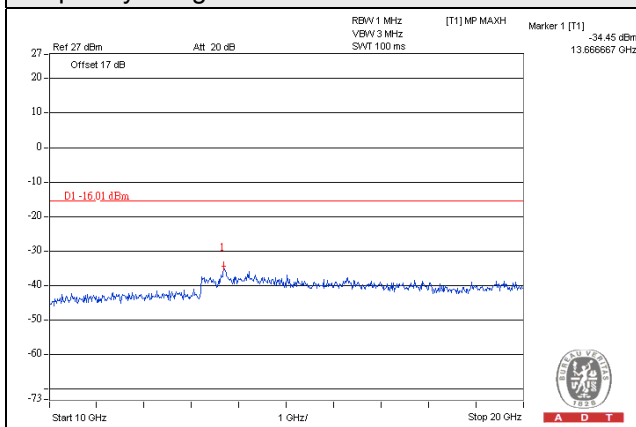
Frequency Range : 9kHz~3GHz



Frequency Range : 3GHz~10GHz



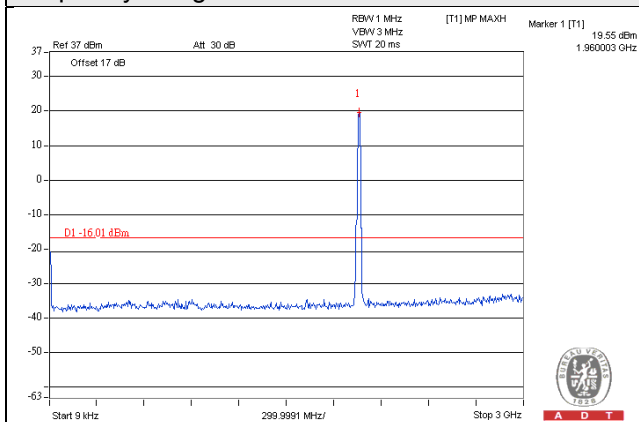
Frequency Range : 10GHz~20GHz



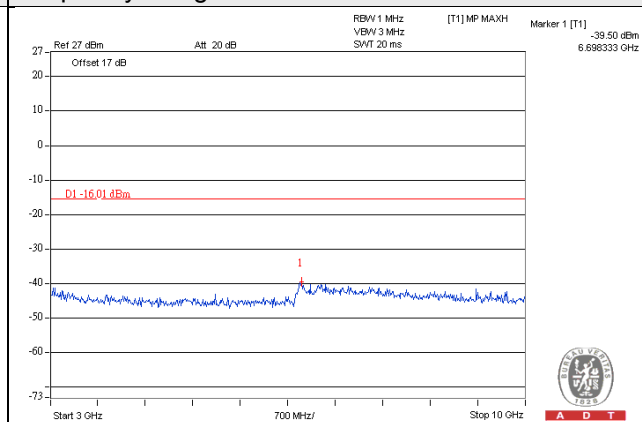
LTE Band 2 / Chain 0 / Channel Bandwidth: 15MHz

Channel 900

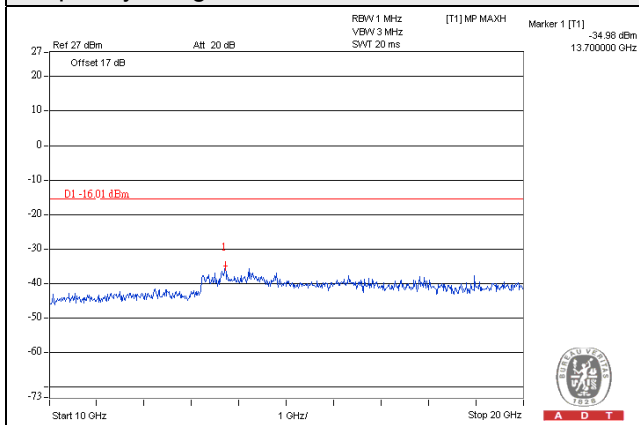
Frequency Range : 9kHz~3GHz



Frequency Range : 3GHz~10GHz



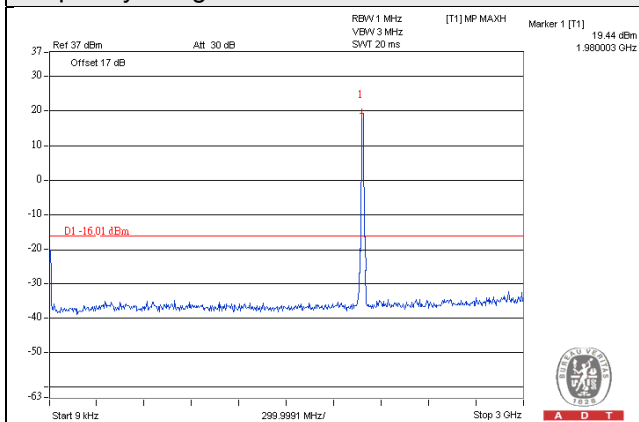
Frequency Range : 10GHz~20GHz



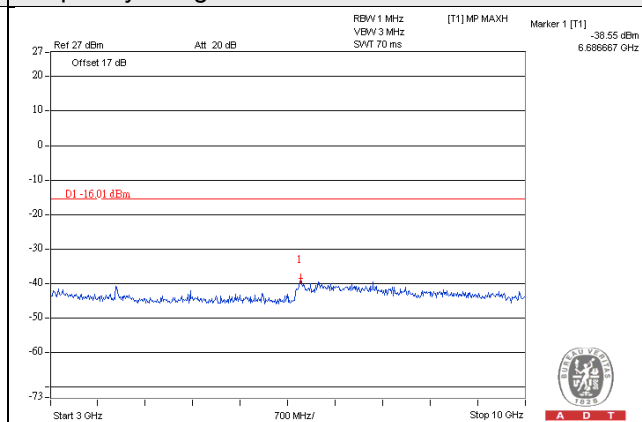
LTE Band 2 / Chain 0 / Channel Bandwidth: 15MHz

Channel 1125

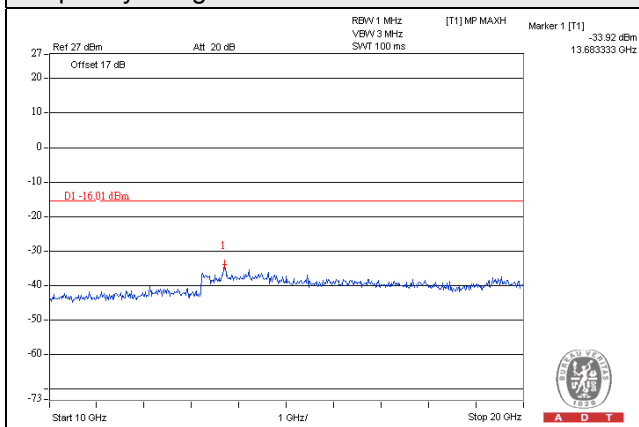
Frequency Range : 9kHz~3GHz



Frequency Range : 3GHz~10GHz



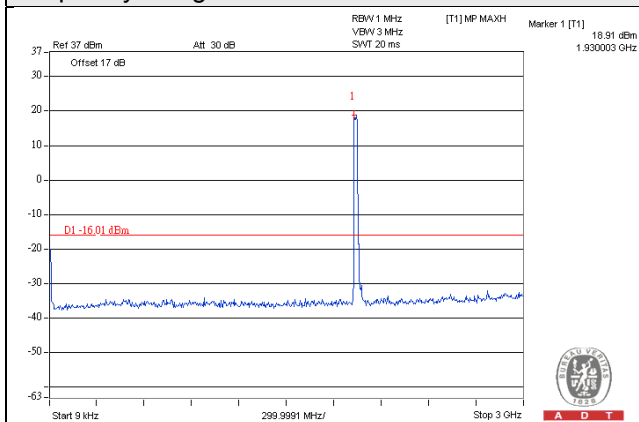
Frequency Range : 10GHz~20GHz



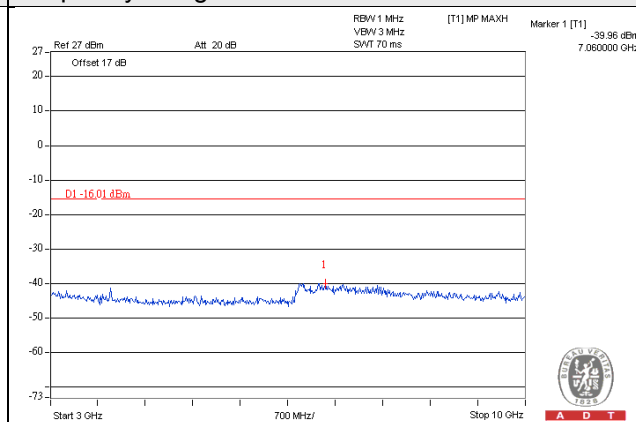
LTE Band 2 / Chain 0 / Channel Bandwidth: 20MHz

Channel 700

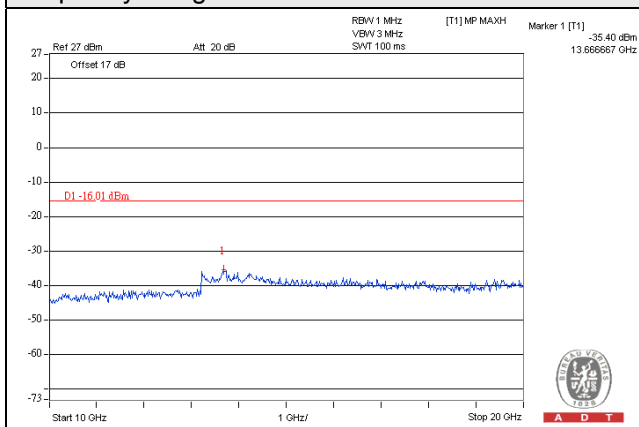
Frequency Range : 9kHz~3GHz



Frequency Range : 3GHz~10GHz



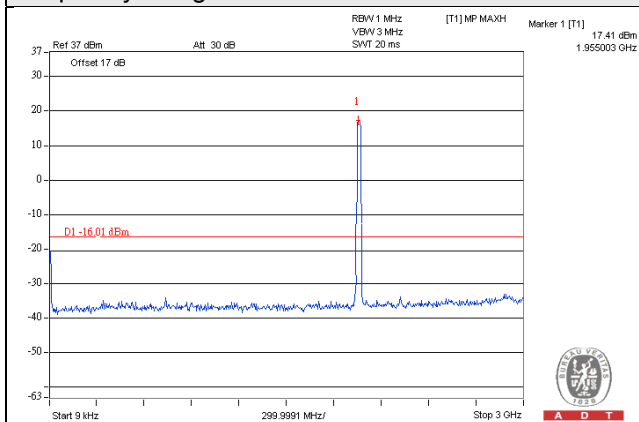
Frequency Range : 10GHz~20GHz



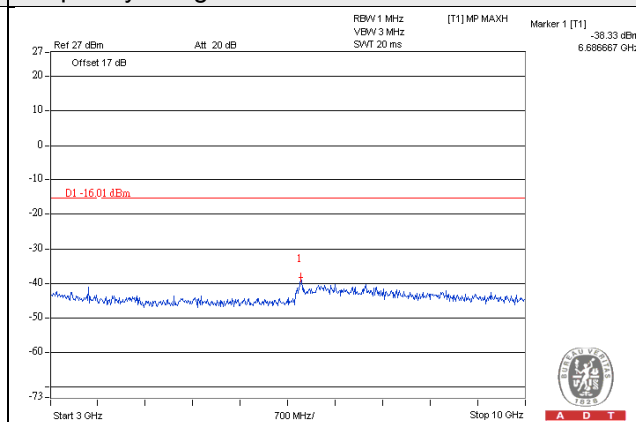
LTE Band 2 / Chain 0 / Channel Bandwidth: 20MHz

Channel 900

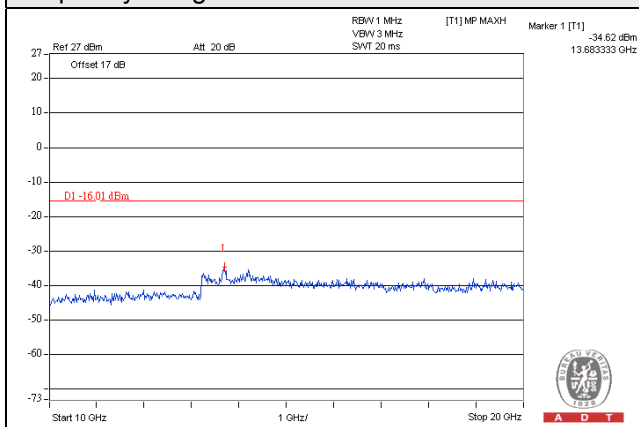
Frequency Range : 9kHz~3GHz



Frequency Range : 3GHz~10GHz



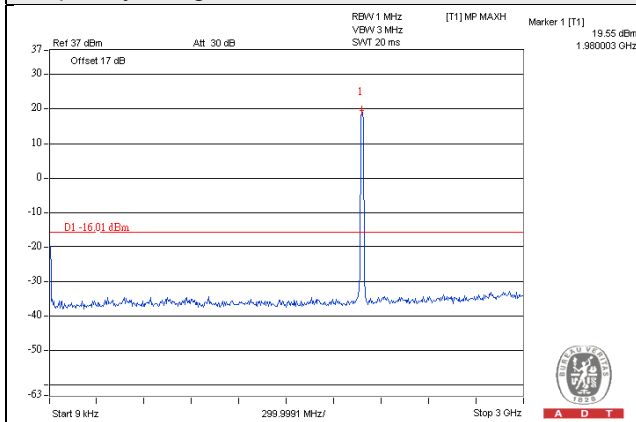
Frequency Range : 10GHz~20GHz



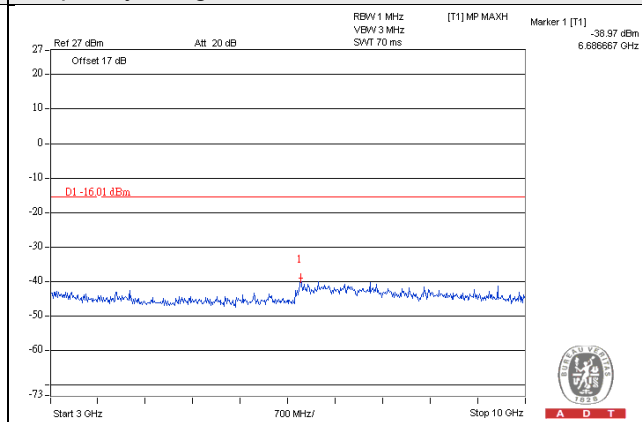
LTE Band 2 / Chain 0 / Channel Bandwidth: 20MHz

Channel 1100

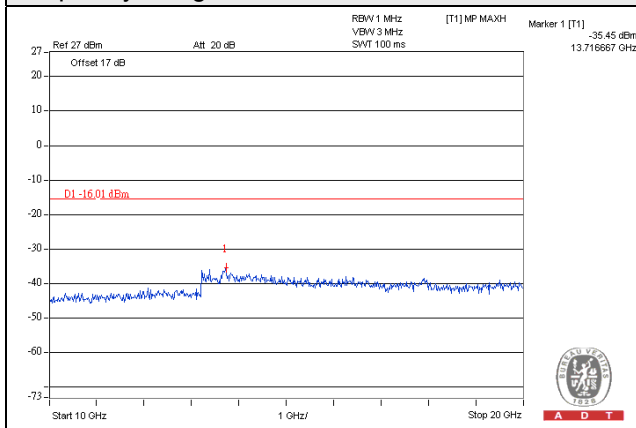
Frequency Range : 9kHz~3GHz



Frequency Range : 3GHz~10GHz



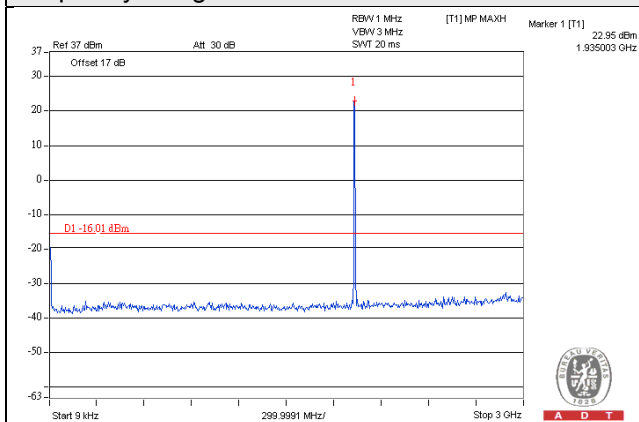
Frequency Range : 10GHz~20GHz



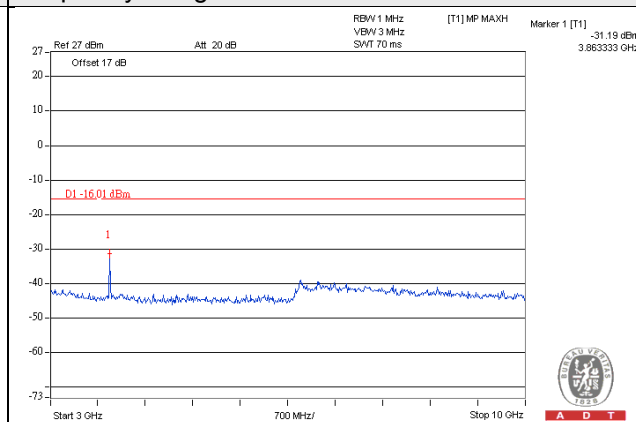
LTE Band 2 / Chain 1 / Channel Bandwidth: 5MHz

Channel 625

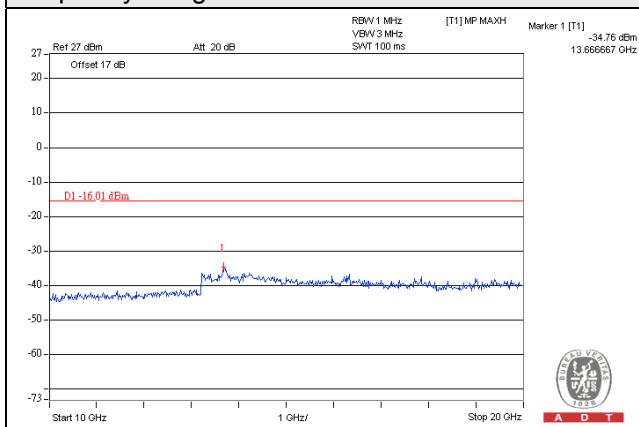
Frequency Range : 9kHz~3GHz



Frequency Range : 3GHz~10GHz



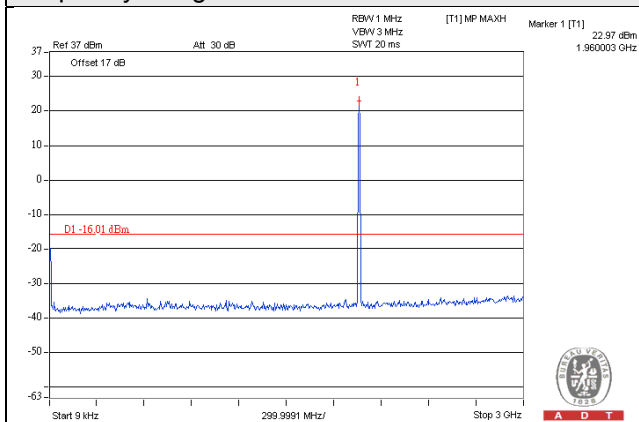
Frequency Range : 10GHz~20GHz



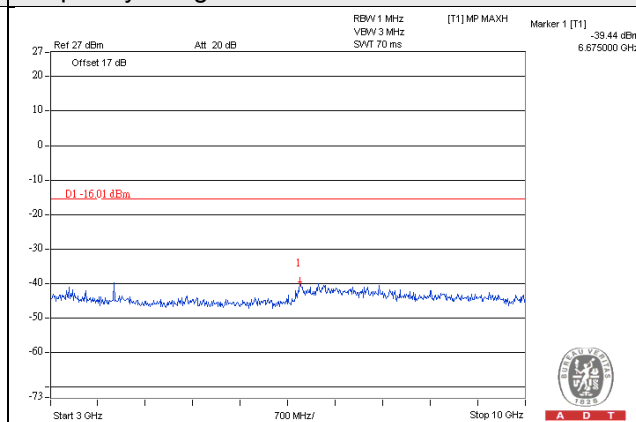
LTE Band 2 / Chain 1 / Channel Bandwidth: 5MHz

Channel 900

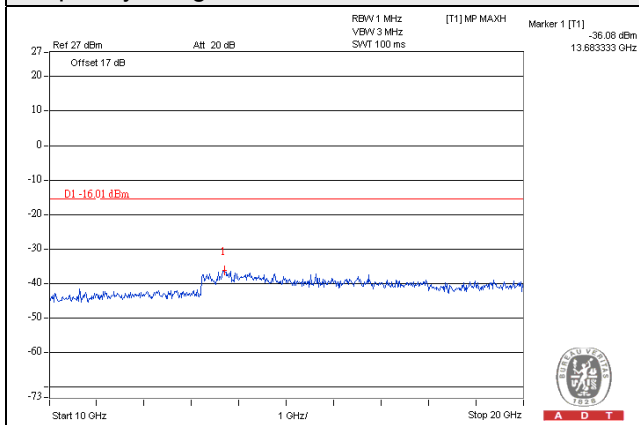
Frequency Range : 9kHz~3GHz



Frequency Range : 3GHz~10GHz



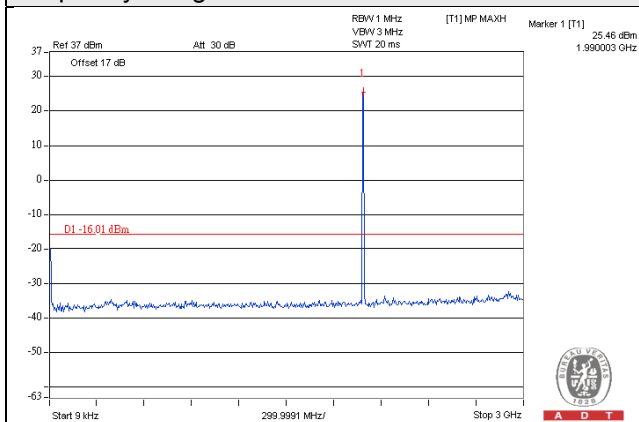
Frequency Range : 10GHz~20GHz



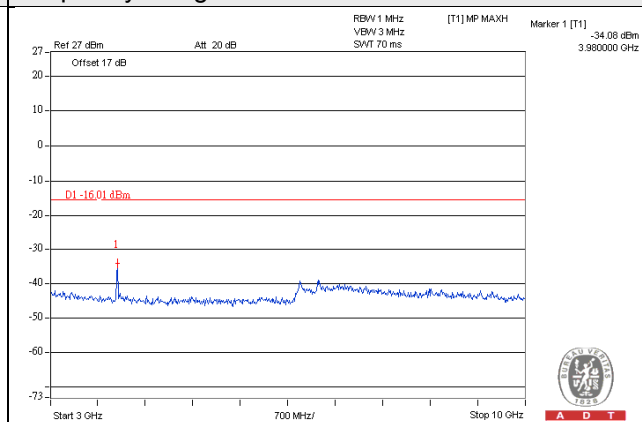
LTE Band 2 / Chain 1 / Channel Bandwidth: 5MHz

Channel 1175

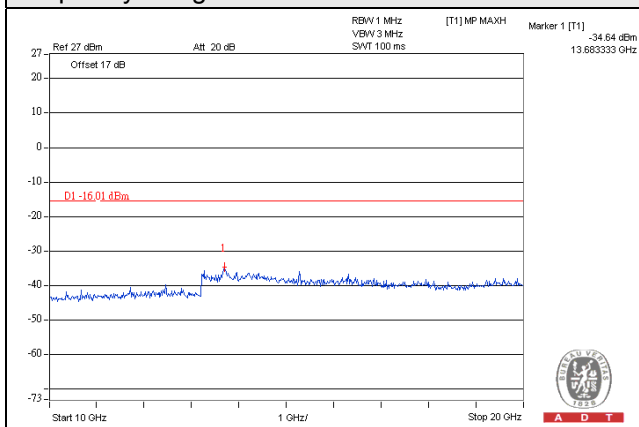
Frequency Range : 9kHz~3GHz



Frequency Range : 3GHz~10GHz



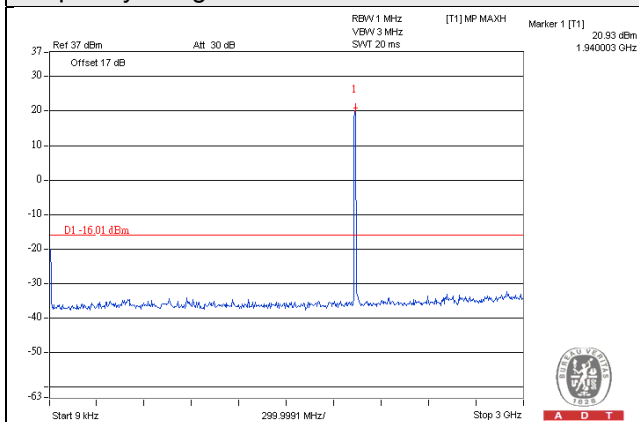
Frequency Range : 10GHz~20GHz



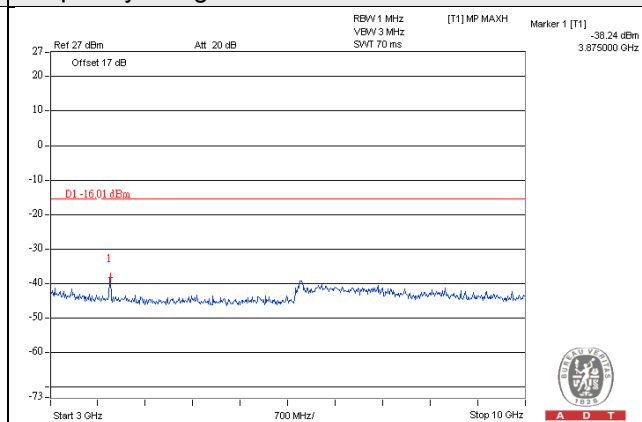
LTE Band 2 / Chain 1 / Channel Bandwidth: 10MHz

Channel 650

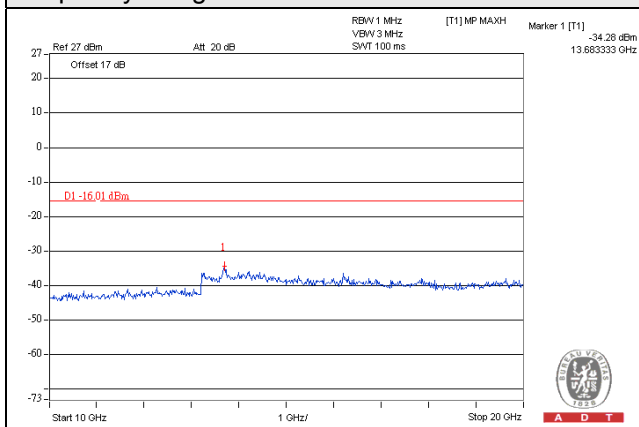
Frequency Range : 9kHz~3GHz



Frequency Range : 3GHz~10GHz



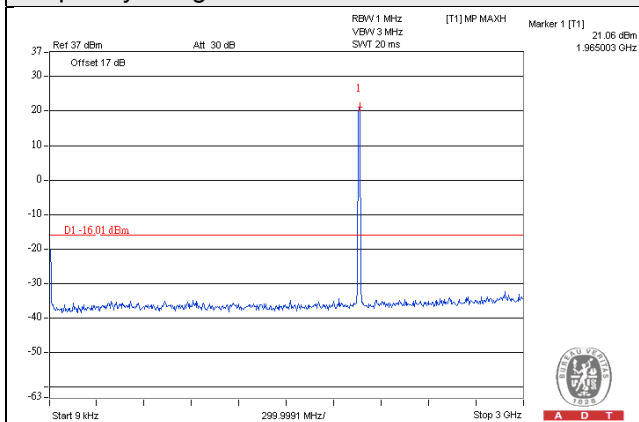
Frequency Range : 10GHz~20GHz



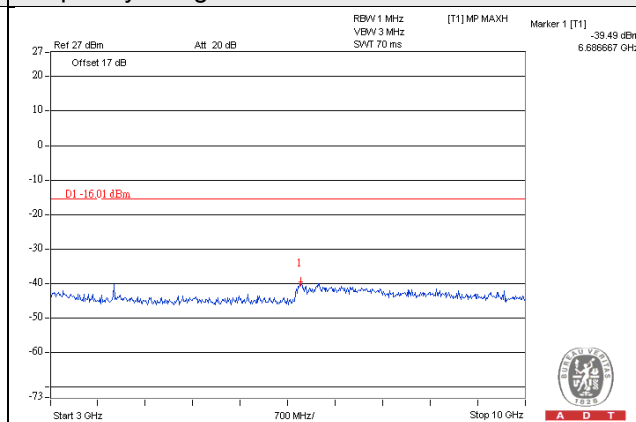
LTE Band 2 / Chain 1 / Channel Bandwidth: 10MHz

Channel 900

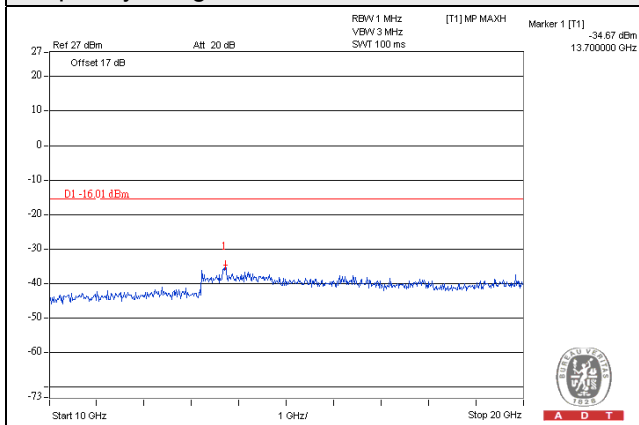
Frequency Range : 9kHz~3GHz



Frequency Range : 3GHz~10GHz



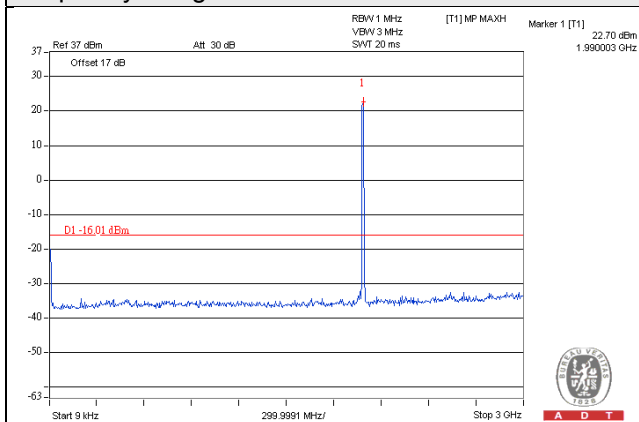
Frequency Range : 10GHz~20GHz



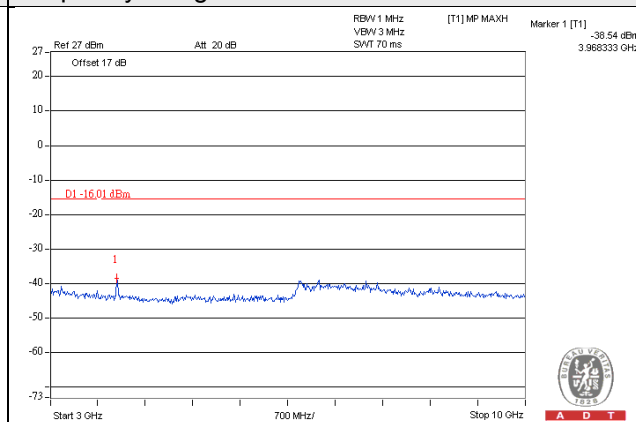
LTE Band 2 / Chain 1 / Channel Bandwidth: 10MHz

Channel 1150

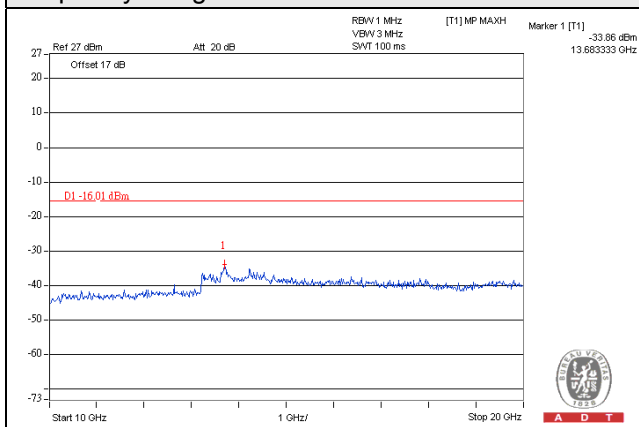
Frequency Range : 9kHz~3GHz



Frequency Range : 3GHz~10GHz



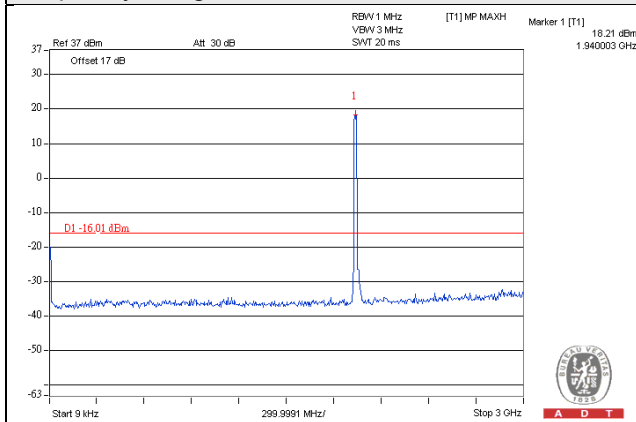
Frequency Range : 10GHz~20GHz



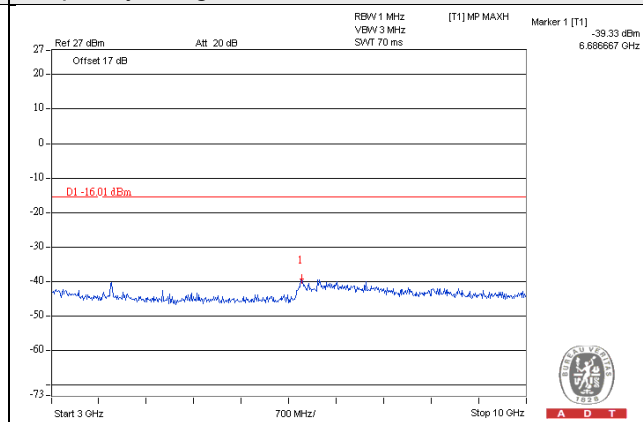
LTE Band 2 / Chain 1 / Channel Bandwidth: 15MHz

Channel 675

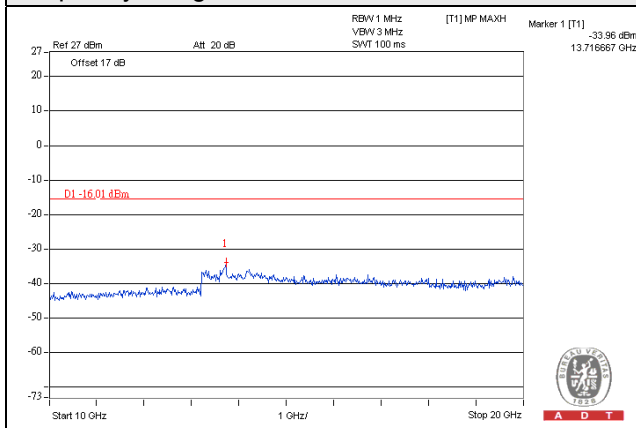
Frequency Range : 9kHz~3GHz



Frequency Range : 3GHz~10GHz



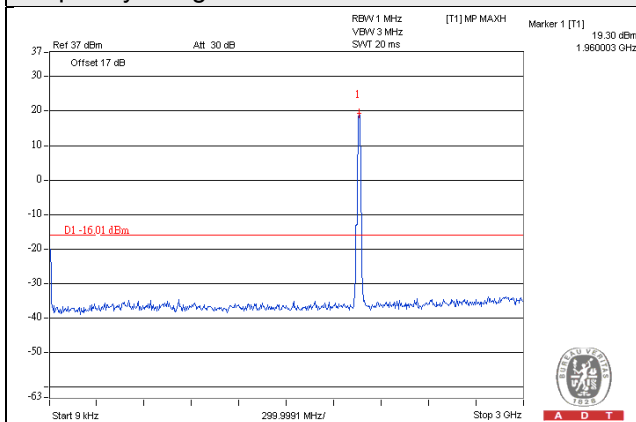
Frequency Range : 10GHz~20GHz



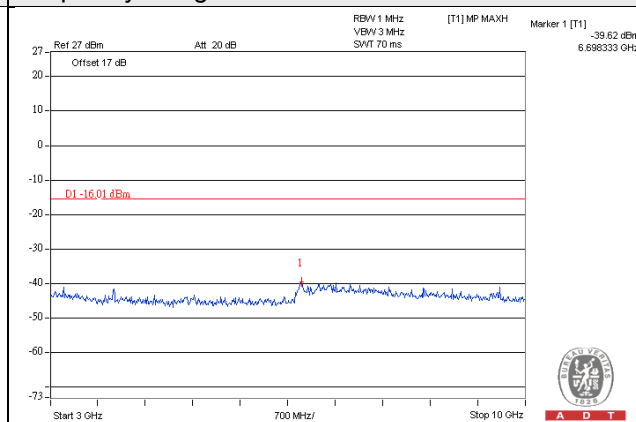
LTE Band 2 / Chain 1 / Channel Bandwidth: 15MHz

Channel 900

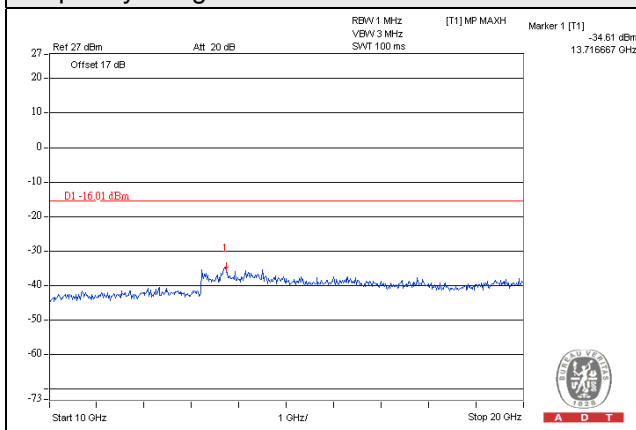
Frequency Range : 9kHz~3GHz



Frequency Range : 3GHz~10GHz



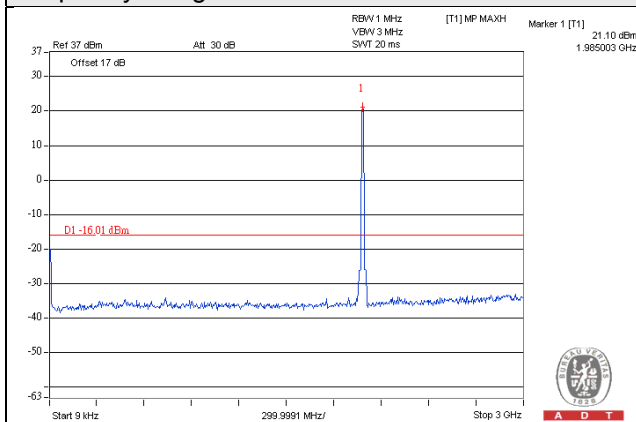
Frequency Range : 10GHz~20GHz



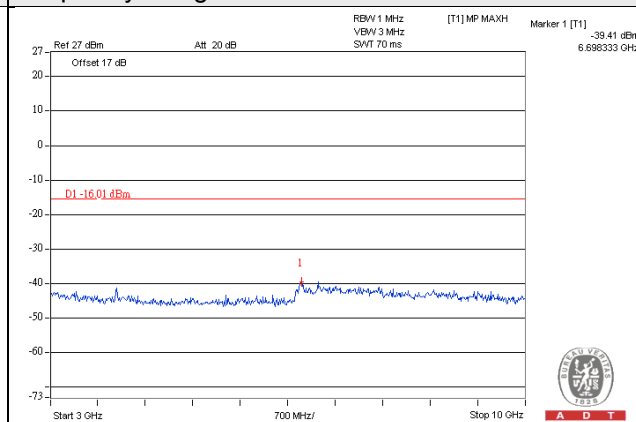
LTE Band 2 / Chain 1 / Channel Bandwidth: 15MHz

Channel 1125

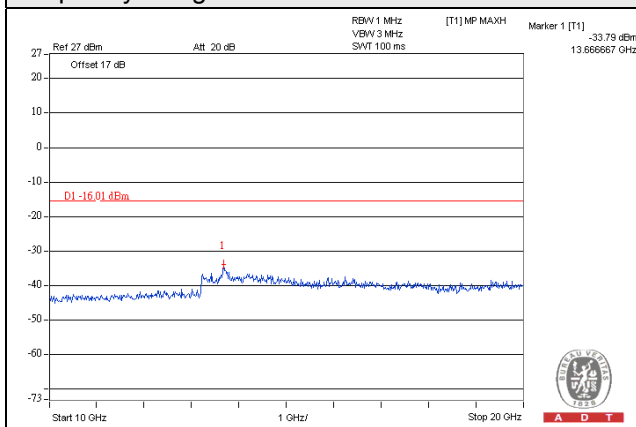
Frequency Range : 9kHz~3GHz



Frequency Range : 3GHz~10GHz



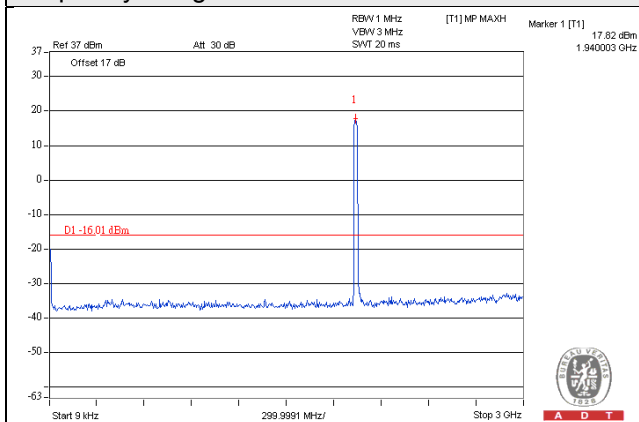
Frequency Range : 10GHz~20GHz



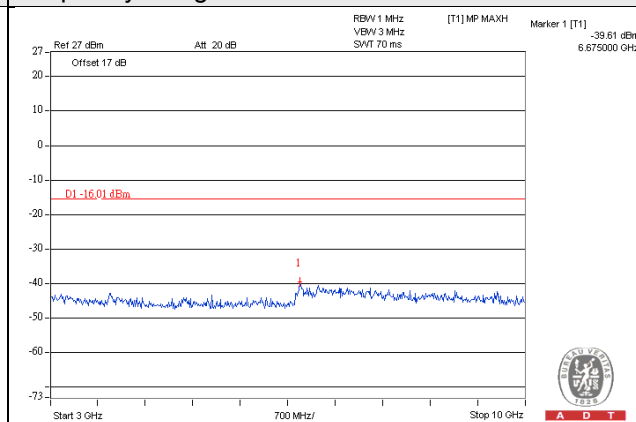
LTE Band 2 / Chain 1 / Channel Bandwidth: 20MHz

Channel 700

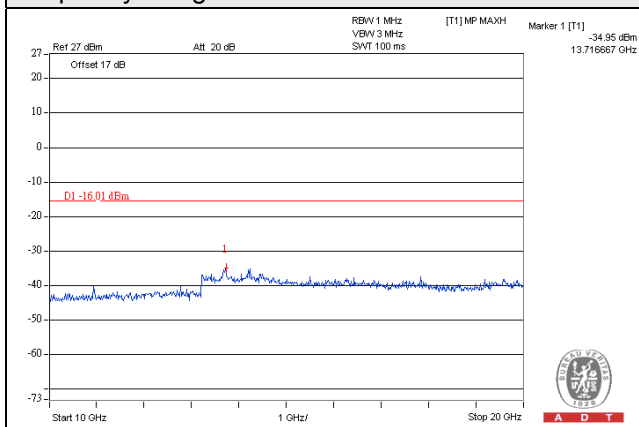
Frequency Range : 9kHz~3GHz



Frequency Range : 3GHz~10GHz



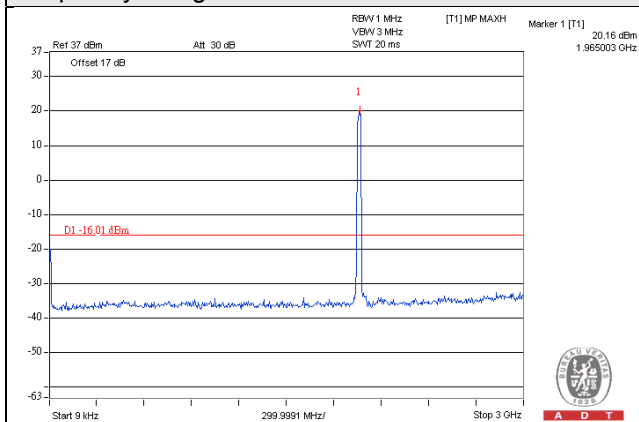
Frequency Range : 10GHz~20GHz



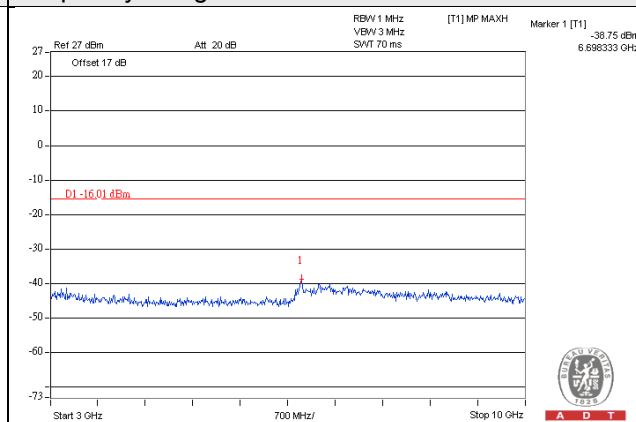
LTE Band 2 / Chain 1 / Channel Bandwidth: 20MHz

Channel 900

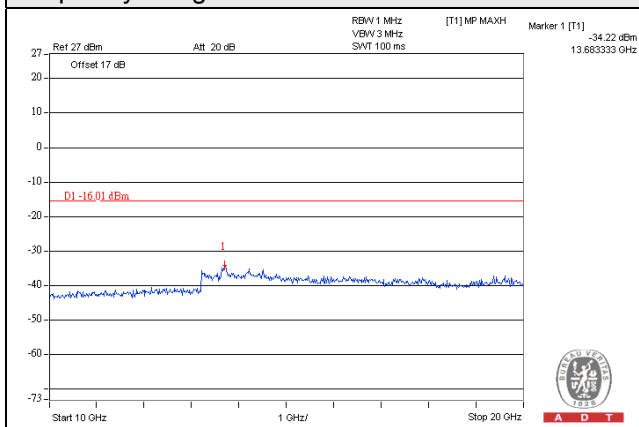
Frequency Range : 9kHz~3GHz



Frequency Range : 3GHz~10GHz



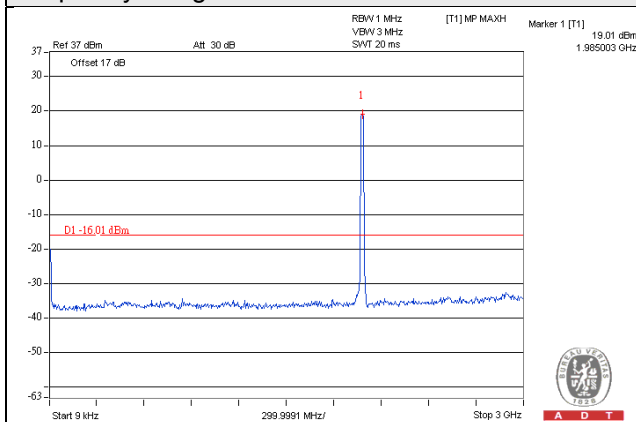
Frequency Range : 10GHz~20GHz



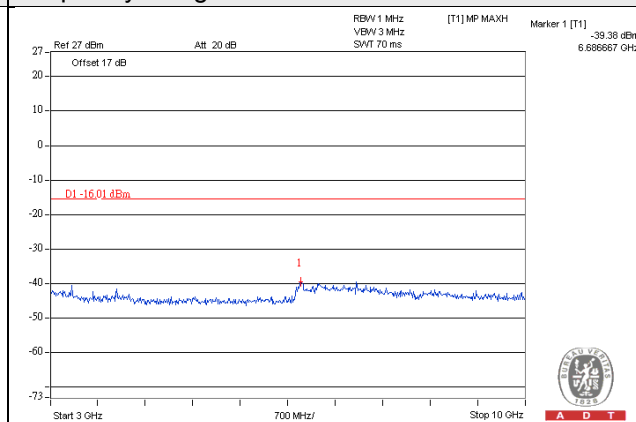
LTE Band 2 / Chain 1 / Channel Bandwidth: 20MHz

Channel 1100

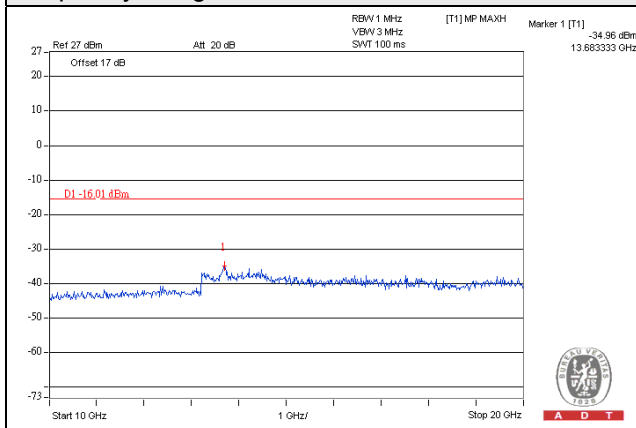
Frequency Range : 9kHz~3GHz



Frequency Range : 3GHz~10GHz



Frequency Range : 10GHz~20GHz



4.7 Radiated Emission Measurement

4.7.1 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 .

4.7.2 Test Procedure

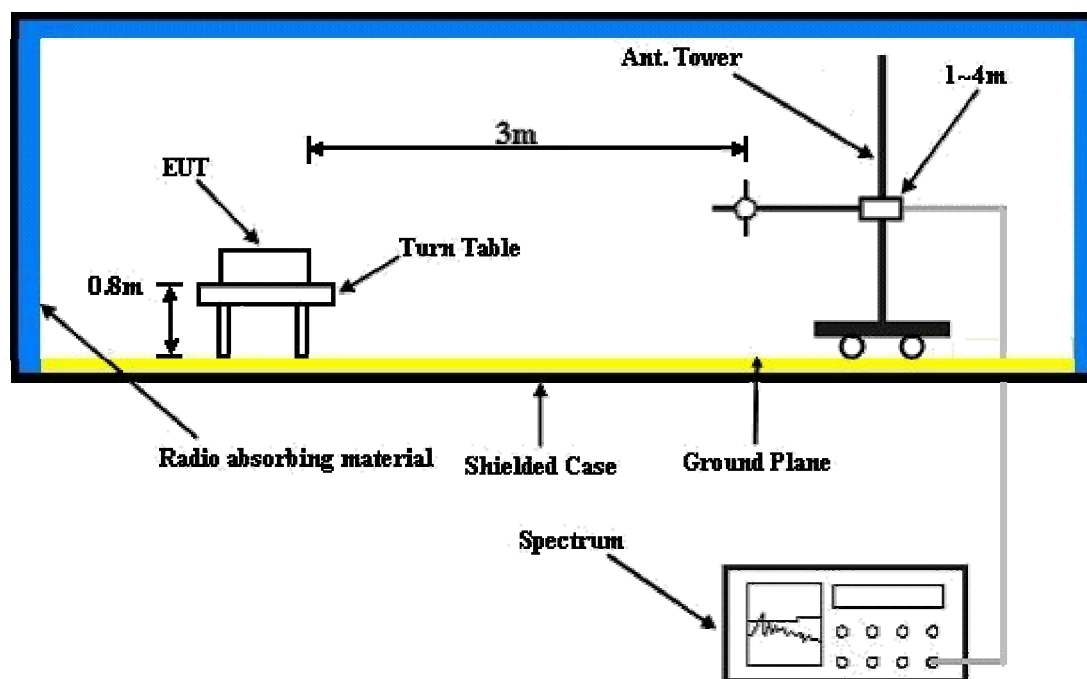
- a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- b. 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 a. Record the power level of S.G
- c. $\text{EIRP} = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$.
- d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, $\text{E.R.P power} = \text{E.I.R.P power} - 2.15\text{dBi}$.

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

4.7.3 Deviation from Test Standard

No deviation.

4.7.4 Test Setup



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

4.7.5 Test Results

Below 1GHz
WCDMA Mode

Mode	TX channel 9662	Frequency Range	Below 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	33.88	-47.0	-27.0	-17.1	-44.1	-13.0	-31.1
2	92.08	-46.1	-54.1	-0.6	-54.7	-13.0	-41.7
3	154.16	-46.0	-47.4	-2.9	-50.3	-13.0	-37.3
4	202.66	-45.3	-51.2	-2.1	-53.3	-13.0	-40.3
5	282.20	-59.3	-61.8	-1.7	-63.5	-13.0	-50.5
6	800.18	-63.4	-61.8	4.0	-57.8	-13.0	-44.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	30.00	-35.1	-25.6	-19.4	-45.0	-13.0	-32.0
2	57.16	-42.0	-44.2	-4.7	-48.9	-13.0	-35.9
3	154.16	-44.9	-44.3	-2.9	-47.2	-13.0	-34.2
4	196.84	-51.9	-50.3	-2.5	-52.8	-13.0	-39.8
5	272.50	-60.8	-56.9	-1.5	-58.4	-13.0	-45.4
6	821.52	-63.0	-59.5	3.9	-55.6	-13.0	-42.6

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 9800	Frequency Range	Below 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	31.94	-45.3	-23.6	-18.3	-41.9	-13.0	-28.9
2	94.02	-45.2	-53.2	-0.7	-53.9	-13.0	-40.9
3	130.88	-42.7	-45.7	-3.3	-49.0	-13.0	-36.0
4	154.16	-45.9	-47.3	-2.9	-50.2	-13.0	-37.2
5	204.60	-45.6	-51.6	-2.0	-53.6	-13.0	-40.6
6	817.64	-64.4	-62.1	3.9	-58.2	-13.0	-45.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	30.00	-30.0	-20.5	-19.4	-39.9	-13.0	-26.9
2	59.10	-41.7	-44.7	-3.8	-48.5	-13.0	-35.5
3	154.16	-43.8	-43.2	-2.9	-46.1	-13.0	-33.1
4	194.90	-50.7	-49.2	-2.6	-51.8	-13.0	-38.8
5	280.26	-61.1	-56.3	-1.6	-57.9	-13.0	-44.9
6	807.94	-63.2	-60.3	4.0	-56.3	-13.0	-43.3

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 9938	Frequency Range	Below 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	30.00	-40.3	-16.9	-19.4	-36.3	-13.0	-23.3
2	92.08	-45.8	-53.8	-0.6	-54.4	-13.0	-41.4
3	154.16	-46.0	-47.4	-2.9	-50.3	-13.0	-37.3
4	202.66	-45.4	-51.3	-2.1	-53.4	-13.0	-40.4
5	270.56	-58.3	-61.1	-1.4	-62.5	-13.0	-49.5
6	802.12	-62.6	-60.9	4.0	-56.9	-13.0	-43.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	30.00	-35.4	-25.9	-19.4	-45.3	-13.0	-32.3
2	59.10	-42.5	-45.5	-3.8	-49.3	-13.0	-36.3
3	154.16	-44.6	-44.0	-2.9	-46.9	-13.0	-33.9
4	194.90	-51.4	-49.9	-2.6	-52.5	-13.0	-39.5
5	280.26	-61.6	-56.8	-1.6	-58.4	-13.0	-45.4
6	817.64	-61.7	-58.5	3.9	-54.6	-13.0	-41.6

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

LTE Band 2

Channel Bandwidth: 5MHz

Mode	TX channel 625	Frequency Range	Below 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	30.00	-47.0	-23.6	-19.4	-43.0	-13.0	-30.0
2	94.02	-44.8	-52.8	-0.7	-53.5	-13.0	-40.5
3	154.16	-46.6	-48.0	-2.9	-50.9	-13.0	-37.9
4	204.60	-45.0	-51.0	-2.0	-53.0	-13.0	-40.0
5	293.84	-58.4	-59.8	-1.8	-61.6	-13.0	-48.6
6	800.18	-62.8	-61.2	4.0	-57.2	-13.0	-44.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	33.88	-36.0	-29.5	-17.1	-46.6	-13.0	-33.6
2	59.10	-42.1	-45.1	-3.8	-48.9	-13.0	-35.9
3	154.16	-44.9	-44.3	-2.9	-47.2	-13.0	-34.2
4	189.08	-51.8	-51.2	-2.8	-54.0	-13.0	-41.0
5	253.10	-55.3	-53.8	-1.4	-55.2	-13.0	-42.2
6	815.7	-63.4	-60.3	3.9	-56.4	-13.0	-43.4

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 10MHz

Mode	TX channel 650	Frequency Range	Below 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	30.00	-42.8	-19.4	-19.4	-38.8	-13.0	-25.8
2	92.08	-46.2	-54.2	-0.6	-54.8	-13.0	-41.8
3	154.16	-46.4	-47.8	-2.9	-50.7	-13.0	-37.7
4	204.60	-45.2	-51.2	-2.0	-53.2	-13.0	-40.2
5	291.90	-58.9	-60.5	-2.1	-62.6	-13.0	-49.6
6	827.34	-64.6	-61.6	3.9	-57.7	-13.0	-44.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	30.00	-41.3	-31.8	-19.4	-51.2	-13.0	-38.2
2	59.10	-41.9	-44.9	-3.8	-48.7	-13.0	-35.7
3	154.16	-45.5	-44.9	-2.9	-47.8	-13.0	-34.8
4	198.78	-53.1	-51.7	-2.4	-54.1	-13.0	-41.1
5	280.26	-60.6	-55.8	-1.6	-57.4	-13.0	-44.4
6	821.52	-63.8	-60.3	3.9	-56.4	-13.0	-43.4

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 15MHz

Mode	TX channel 675	Frequency Range	Below 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	31.94	-45.8	-24.1	-18.3	-42.4	-13.0	-29.4
2	92.08	-45.9	-53.9	-0.6	-54.5	-13.0	-41.5
3	154.16	-46.2	-47.6	-2.9	-50.5	-13.0	-37.5
4	204.60	-45.3	-51.3	-2.0	-53.3	-13.0	-40.3
5	295.78	-58.9	-60.0	-1.8	-61.8	-13.0	-48.8
6	813.76	-64.3	-62.3	4.0	-58.3	-13.0	-45.3
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	33.88	-36.0	-29.5	-17.1	-46.6	-13.0	-33.6
2	57.16	-41.1	-43.3	-4.7	-48.0	-13.0	-35.0
3	154.16	-44.9	-44.3	-2.9	-47.2	-13.0	-34.2
4	198.78	-52.8	-51.4	-2.4	-53.8	-13.0	-40.8
5	278.32	-60.8	-55.9	-1.6	-57.5	-13.0	-44.5
6	800.18	-63.0	-60.3	4.0	-56.3	-13.0	-43.3

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 20MHz

Mode	TX channel 700	Frequency Range	Below 1000 MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	31.94	-45.1	-23.4	-18.3	-41.7	-13.0	-28.7
2	92.08	-45.9	-53.9	-0.6	-54.5	-13.0	-41.5
3	154.16	-46.6	-48.0	-2.9	-50.9	-13.0	-37.9
4	204.60	-45.0	-51.0	-2.0	-53.0	-13.0	-40.0
5	272.50	-57.1	-59.9	-1.5	-61.4	-13.0	-48.4
6	815.70	-62.9	-60.7	3.9	-56.8	-13.0	-43.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	30.00	-40.3	-30.8	-19.4	-50.2	-13.0	-37.2
2	59.10	-41.6	-44.6	-3.8	-48.4	-13.0	-35.4
3	94.02	-47.4	-54.0	-0.7	-54.7	-13.0	-41.7
4	158.04	-44.5	-44.7	-2.7	-47.4	-13.0	-34.4
5	276.38	-53.3	-48.4	-1.6	-50.0	-13.0	-37.0
6	802.12	-61.7	-58.9	4.0	-54.9	-13.0	-41.9

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Above 1GHz
WCDMA Mode

Mode	TX channel 9662	Frequency Range	Above 1000MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3864.80	-38.7	-30.3	1.3	-29.0	-13.0	-16.0
2	5797.20	-49.7	-36.6	1.2	-35.4	-13.0	-22.4
3	7729.60	-38.4	-20.4	1.2	-19.2	-13.0	-6.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3864.80	-37.8	-29.2	1.3	-27.9	-13.0	-14.9
2	5797.20	-46.7	-33.8	1.2	-32.6	-13.0	-19.6
3	7729.60	-37.7	-19.8	1.2	-18.6	-13.0	-5.6

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 9800	Frequency Range	Above 1000MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3920.00	-41.6	-33.1	1.3	-31.8	-13.0	-18.8
2	5880.00	-48.2	-34.8	1.2	-33.6	-13.0	-20.6
3	7840.00	-42.0	-23.7	1.1	-22.6	-13.0	-9.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3920.00	-41.0	-32.3	1.3	-31.0	-13.0	-18.0
2	5680.00	-46.2	-34.3	1.2	-33.1	-13.0	-20.1
3	7840.00	-39.5	-21.5	1.1	-20.4	-13.0	-7.4

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 9938	Frequency Range	Above 1000MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3975.20	-40.5	-32.0	1.3	-30.7	-13.0	-17.7
2	5962.80	-47.4	-33.8	1.1	-32.7	-13.0	-19.7
3	7950.40	-42.9	-24.3	1.1	-23.2	-13.0	-10.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3975.20	-37.8	-29.2	1.3	-27.9	-13.0	-14.9
2	5962.80	-44.8	-31.5	1.1	-30.4	-13.0	-17.4
3	7950.40	-39.8	-21.6	1.1	-20.5	-13.0	-7.5

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

LTE Band 2

Channel Bandwidth: 5MHz

Mode	TX channel 625	Frequency Range	Above 1000MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3865.00	-40.9	-32.5	1.3	-31.2	-13.0	-18.2
2	5797.50	-53.4	-40.3	1.2	-39.1	-13.0	-26.1
3	7730.00	-42.5	-24.5	1.2	-23.3	-13.0	-10.3
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3865.00	-43.2	-34.6	1.3	-33.3	-13.0	-20.3
2	5797.50	-54.0	-41.1	1.2	-39.9	-13.0	-26.9
3	7730.00	-39.6	-21.7	1.2	-20.5	-13.0	-7.5

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 900	Frequency Range	Above 1000MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3920.00	-47.8	-39.3	1.3	-38.0	-13.0	-25.0
2	5880.00	-51.4	-38.0	1.2	-36.8	-13.0	-23.8
3	7840.00	-42.2	-23.9	1.1	-22.8	-13.0	-9.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3920.00	-47.0	-38.3	1.3	-37.0	-13.0	-24.0
2	5880.00	-51.6	-38.5	1.2	-37.3	-13.0	-24.3
3	7840.00	-41.3	-23.3	1.1	-22.2	-13.0	-9.2

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 1175	Frequency Range	Above 1000MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3975.00	-41.4	-32.9	1.3	-31.6	-13.0	-18.6
2	5962.50	-46.7	-33.1	1.1	-32.0	-13.0	-19.0
3	7950.00	-42.8	-24.2	1.1	-23.1	-13.0	-10.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3975.00	-38.6	-30.0	1.3	-28.7	-13.0	-15.7
2	5962.50	-46.1	-32.8	1.1	-31.7	-13.0	-18.7
3	7950.00	-40.9	-22.7	1.1	-21.6	-13.0	-8.6

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 10MHz

Mode	TX channel 650	Frequency Range	Above 1000MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3870.00	-41.2	-32.8	1.3	-31.5	-13.0	-18.5
2	5805.00	-54.2	-41.0	1.2	-39.8	-13.0	-26.8
3	7740.00	-42.6	-24.6	1.2	-23.4	-13.0	-10.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3870.00	-43.3	-34.7	1.3	-33.4	-13.0	-20.4
2	5805.00	-54.5	-41.6	1.2	-40.4	-13.0	-27.4
3	7740.00	-40.6	-22.7	1.2	-21.5	-13.0	-8.5

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 900	Frequency Range	Above 1000MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3820.00	-47.9	-39.6	1.4	-38.2	-13.0	-25.2
2	5880.00	-52.3	-38.9	1.2	-37.7	-13.0	-24.7
3	7840.00	-42.9	-24.6	1.1	-23.5	-13.0	-10.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3920.00	-48.2	-39.5	1.3	-38.2	-13.0	-25.2
2	5880.00	-51.9	-38.8	1.2	-37.6	-13.0	-24.6
3	7840.00	-42.1	-24.1	1.1	-23.0	-13.0	-10.0

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 1150	Frequency Range	Above 1000MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3970.00	-41.9	-33.4	1.3	-32.1	-13.0	-19.1
2	5955.00	-47.3	-33.7	1.1	-32.6	-13.0	-19.6
3	7940.00	-43.2	-24.7	1.1	-23.6	-13.0	-10.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3970.00	-39.1	-30.5	1.3	-29.2	-13.0	-16.2
2	5955.00	-46.5	-33.2	1.1	-32.1	-13.0	-19.1
3	7940.00	-41.6	-23.4	1.1	-22.3	-13.0	-9.3

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 15MHz

Mode	TX channel 675	Frequency Range	Above 1000MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3875.00	-41.3	-32.9	1.3	-31.6	-13.0	-18.6
2	5812.50	-53.2	-40.0	1.2	-38.8	-13.0	-25.8
3	7750.00	-42.8	-24.6	1.1	-23.5	-13.0	-10.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3875.00	-43.9	-35.3	1.3	-34.0	-13.0	-21.0
2	5812.50	-53.6	-40.7	1.2	-39.5	-13.0	-26.5
3	7750.00	-40.6	-22.6	1.1	-21.5	-13.0	-8.5

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 900	Frequency Range	Above 1000MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3920.00	-48.1	-39.6	1.3	-38.3	-13.0	-25.3
2	5880.00	-51.6	-38.2	1.2	-37.0	-13.0	-24.0
3	7840.00	-42.5	-24.2	1.1	-23.1	-13.0	-10.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3920.00	-46.8	-38.1	1.3	-36.8	-13.0	-23.8
2	5880.00	-52.1	-39.0	1.2	-37.8	-13.0	-24.8
3	7840.00	-41.1	-23.1	1.1	-22.0	-13.0	-9.0

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 1125	Frequency Range	Above 1000MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3965.00	-41.9	-33.4	1.3	-32.1	-13.0	-19.1
2	5947.50	-47.2	-33.6	1.1	-32.5	-13.0	-19.5
3	7930.00	-43.0	-24.6	1.1	-23.5	-13.0	-10.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3965.00	-39.1	-30.5	1.3	-29.2	-13.0	-16.2
2	5947.50	-46.5	-33.2	1.1	-32.1	-13.0	-19.1
3	7930.00	-41.1	-23.0	1.1	-21.9	-13.0	-8.9

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Channel Bandwidth: 20MHz

Mode	TX channel 700	Frequency Range	Above 1000MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3880.00	-43.6	-35.2	1.3	-33.9	-13.0	-20.9
2	5820.00	-55.7	-42.5	1.2	-41.3	-13.0	-28.3
3	7760.00	-44.6	-26.3	1.1	-25.2	-13.0	-12.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3880.00	-45.8	-37.1	1.3	-35.8	-13.0	-22.8
2	5820.00	-55.9	-42.9	1.2	-41.7	-13.0	-28.7
3	7760.00	-42.3	-24.3	1.1	-23.2	-13.0	-10.2

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 900	Frequency Range	Above 1000MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3920.00	-44.0	-35.5	1.3	-34.2	-13.0	-21.2
2	5880.00	-55.8	-42.4	1.2	-41.2	-13.0	-28.2
3	7840.00	-45.2	-26.9	1.1	-25.8	-13.0	-12.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3920.00	-46.3	-37.6	1.3	-36.3	-13.0	-23.3
2	5880.00	-57.5	-44.4	1.2	-43.2	-13.0	-30.2
3	7840.00	-43.1	-25.1	1.1	-24.0	-13.0	-11.0

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 1100	Frequency Range	Above 1000MHz
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Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3960.00	-43.7	-35.2	1.3	-33.9	-13.0	-20.9
2	5940.00	-55.3	-41.7	1.1	-40.6	-13.0	-27.6
3	7920.00	-44.8	-26.6	1.2	-25.4	-13.0	-12.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3960.00	-45.7	-37.1	1.3	-35.8	-13.0	-22.8
2	5940.00	-56.4	-43.1	1.1	-42.0	-13.0	-29.0
3	7920.00	-42.8	-24.8	1.2	-23.6	-13.0	-10.6

Remarks:

1. Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

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

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