FCC Test Report

(Part 24)

Report No.:	RF160401D01-1
FCC ID:	P27LC4R
Test Model:	LC4R
Received Date:	Apr. 1, 2016
Test Date:	Apr. 15 ~ May 27, 2016
Issued Date:	Jun. 1, 2016
Applicant:	Sercomm Corp.
Address:	8F, No. 3-1, YuangQu St., NanKang, Taipei 115, Taiwan, R.O.C. (NanKang Software Park)
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan, R.O.C.

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The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies.

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Release Control Record

Issue No.	Description	Date Issued
RF160401D01-1	Original release.	Jun. 1, 2016

1 Certificate of Conformity

Product: LTE module

Brand: Sercomm

Test Model: LC4R

Sample Status: Engineering sample

Applicant: Sercomm Corp.

Test Date: Apr. 15 ~ May 27, 2016

Standards: FCC Part 24, Subpart E

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:** Jun. 1, 2016

Celia Chen / Supervisor

Approved by : , **Date:** Jun. 1, 2016

Rex Lai / Assistant Manager

2 Summary of Test Results

Applied Standard: FCC Part 24 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 24.232	Effective Radiated Power	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 -13.94 dB at 7402.00MHz.

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	Expended Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	30MHz ~ 1000MHz	4.00 dB
Radiated Emissions above 1 GHz	1GHz ~ 40GHz	3.36 dB

2.2 Test Site and Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
HP Preamplifier	8447D	2432A03504	Feb. 26, 2016	Feb. 25, 2017
HP Preamplifier	8449B	3008A01201	Feb. 26, 2016	Feb. 25, 2017
MITEQ Preamplifier	AMF-6F-260400-33-8P	892164	Mar. 01, 2016	Feb. 28, 2017
Agilent TEST RECEIVER	N9038A	MY51210129	Feb. 02, 2016	Feb. 01, 2017
Schwarzbeck Antenna	VULB 9168	139	Jan. 04, 2016	Jan. 03, 2017
Schwarzbeck Antenna	VHBA 9123	480	May 29, 2015	May 28, 2017
Schwarzbeck Horn Antenna	BBHA-9170	212	Jan. 08, 2016	Jan. 07, 2017
Schwarzbeck Horn Antenna	BBHA 9120-D1	D130	Jan. 21, 2016	Jan. 20, 2017
ADT. Turn Table	TT100	0306	NA	NA
ADT. Tower	AT100	0306	NA	NA
Software	Radiated_V7.6.15.9.4	NA	NA	NA
SUHNER RF cable With 4dB PAD	SF104	CABLE-CH6	Aug. 15, 2015	Aug. 14, 2016
SUHNER RF cable With 3dB PAD	SF102	Cable-CH8-3.6m	Aug. 15, 2015	Aug. 14, 2016
KEYSIGHT Spectrum Analyzer	N9030A	MY54490260	Jul. 14, 2015	Jul. 13, 2016
EMCO Horn Antenna	3115	00028257	Jan. 19, 2016	Jan. 18, 2017
Highpass filter Wainwright Instruments	WHK 3.1/18G-10SS	SN 8	NA	NA
ROHDE & SCHWARZ Spectrum Analyzer	FSV40	101042	Sep. 23, 2015	Sep. 22, 2016
Anritsu Power Sensor	MA2411B	0738404	Apr. 28, 2015	Apr. 27, 2016
			Apr. 28, 2016	Apr. 27, 2017
Anritsu Power Meter	ML2495A	0842014	Apr. 28, 2015	Apr. 27, 2016
			Apr. 28, 2016	Apr. 27, 2017

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 horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Chamber No. 6.
4. The Industry Canada Reference No. IC 7450E-6.
5. The FCC Site Registration No. is 447212.

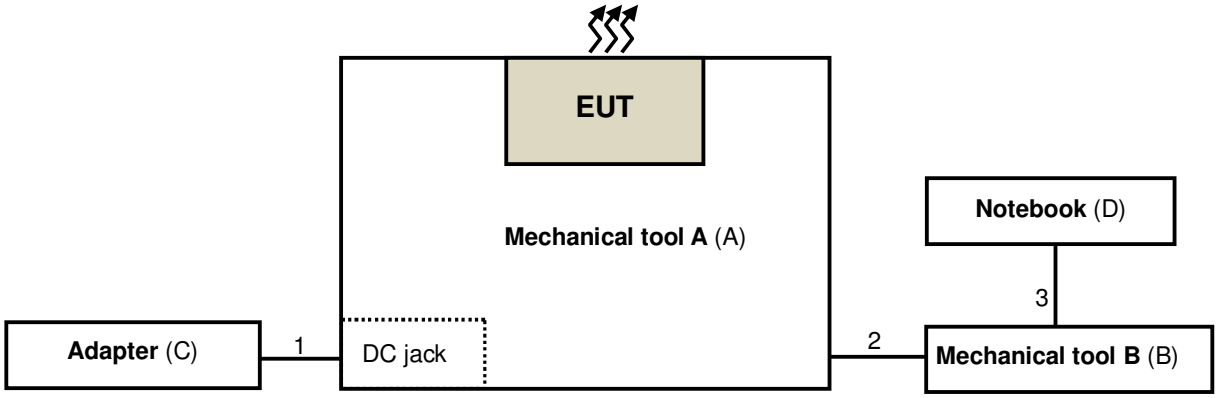
3 General Information

3.1 General Description of EUT

Product	LTE module	
Brand	Sercomm	
Test Model	LC4R	
Status of EUT	Engineering sample	
Power Supply Rating	3.3Vdc	
Modulation Type	QPSK, 16QAM, 64QAM	
Operating Frequency	LTE Band 25 (Channel Bandwidth 3MHz)	1851.5MHz ~ 1913.5MHz
	LTE Band 25 (Channel Bandwidth 5MHz)	1852.5MHz ~1912.5MHz
	LTE Band 25 (Channel Bandwidth 10MHz)	1855MHz ~ 1910MHz
Max. EIRP Power	LTE Band 25 (Channel Bandwidth 3MHz)	748.170mW (28.74dBm)
	LTE Band 25 (Channel Bandwidth 5MHz)	610.942mW (27.86dBm)
	LTE Band 25 (Channel Bandwidth 10MHz)	765.597mW (28.84dBm)
Antenna Type	LTE Band 25	Dipole antenna with 1.7dBi gain
Antenna Connector	I-PEX	
Accessory Device	N/A	
Data Cable Supplied	N/A	

Note: The EUT is a LTE module.

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.	Mechanical tool A	N/A	N/A	N/A	N/A	Supplied by client
B.	Mechanical tool B	N/A	N/A	N/A	N/A	Supplied by client
C.	Adapter	FAIRWAY	WT10A-050U	N/A	N/A	Supplied by client
D.	Notebook	DELL	PP27L	8SNZ12S	FCC DoC Approved	Provided by Lab

Note: All power cords of the above support units are non-shielded (1.8m).

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC cable	1	3.0	N	0	Supplied by client
2.	Data cable	1	0.2	N	0	Supplied by client
3.	USB cable	1	1.0	Y	0	Supplied by client

3.3 Test Mode Applicability and Tested Channel Detail

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

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

LTE Band 25

Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
EIRP	26055 to 26675	26055, 26365, 26675	3MHz	QPSK	15 RB / 0 RB Offset
	26065 to 26665	26065, 26365, 26665	5MHz	QPSK	25 RB / 0 RB Offset
	26090 to 26640	26090, 26365, 26640	10MHz	QPSK	50 RB / 0 RB Offset
Frequency Stability	26055 to 26675	26365	3MHz	QPSK	15 RB / 0 RB Offset
	26065 to 26665	26365	5MHz	QPSK	25 RB / 0 RB Offset
	26090 to 26640	26365	10MHz	QPSK	50 RB / 0 RB Offset
Occupied Bandwidth	26055 to 26675	26055, 26365, 26675	3MHz	QPSK/16QAM/ 64QAM	15 RB / 0 RB Offset
	26065 to 26665	26065, 26365, 26665	5MHz	QPSK/16QAM/ 64QAM	25 RB / 0 RB Offset
	26090 to 26640	26090, 26365, 26640	10MHz	QPSK/16QAM/ 64QAM	50 RB / 0 RB Offset
Band Edge	26055 to 26675	26055	3MHz	QPSK	1 RB / 0 RB Offset
					15 RB / 0 RB Offset
		26675	3MHz	QPSK	1 RB / 14 RB Offset
					15 RB / 0 RB Offset
	26065 to 26665	26065	5MHz	QPSK	1 RB / 0 RB Offset
					25 RB / 0 RB Offset
		26665	5MHz	QPSK	1 RB / 24 RB Offset
					25 RB / 0 RB Offset
	26090 to 26640	26090	10MHz	QPSK	1 RB / 0 RB Offset
					50 RB / 0 RB Offset
		26640	10MHz	QPSK	1 RB / 49 RB Offset
					50 RB / 0 RB Offset
Peak to Average Ratio	26055 to 26675	26055, 26365, 26675	3MHz	QPSK/16QAM/ 64QAM	15 RB / 0 RB Offset
	26065 to 26665	26065, 26365, 26665	5MHz	QPSK/16QAM/ 64QAM	25 RB / 0 RB Offset
	26090 to 26640	26090, 26365, 26640	10MHz	QPSK/16QAM/ 64QAM	50 RB / 0 RB Offset
Condcudeted Emission	26055 to 26675	26055, 26365, 26675	3MHz	QPSK	15 RB / 0 RB Offset
	26065 to 26665	26065, 26365, 26665	5MHz	QPSK	25 RB / 0 RB Offset
	26090 to 26640	26090, 26365, 26640	10MHz	QPSK	50 RB / 0 RB Offset
Radiated Emission Below 1GHz	26055 to 26675	26055	3MHz	QPSK	15 RB / 0 RB Offset
	26065 to 26665	26065	5MHz	QPSK	25 RB / 0 RB Offset
	26090 to 26640	26090	10MHz	QPSK	50 RB / 0 RB Offset
Radiated Emission Above 1GHz	26055 to 26675	26055, 26365, 26675	3MHz	QPSK	15 RB / 0 RB Offset
	26065 to 26665	26065, 26365, 26665	5MHz	QPSK	25 RB / 0 RB Offset
	26090 to 26640	26090, 26365, 26640	10MHz	QPSK	50 RB / 0 RB Offset

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
EIRP	22deg. C, 76%RH	3.3Vdc	Dalen Dai
Frequency Stability	22deg. C, 76%RH	3.3Vdc	Dalen Dai
Occupied Bandwidth	22deg. C, 76%RH	3.3Vdc	Dalen Dai
Band Edge	22deg. C, 76%RH	3.3Vdc	Dalen Dai
Peak To Average Ratio	22deg. C, 76%RH	3.3Vdc	Dalen Dai
Conducted Emission	22deg. C, 76%RH	3.3Vdc	Dalen Dai
Radiated Emission	22deg. C, 76%RH	3.3Vdc	Dalen Dai

3.4 EUT Operating Conditions

The software provided by client to enable the 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 662911 D01 Multiple Transmitter Output v02r01

ANSI/TIA/EIA-603-D 2010

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.

4.1.2 Test Procedures

EIRP / ERP Measurement:

a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 10MHz 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 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

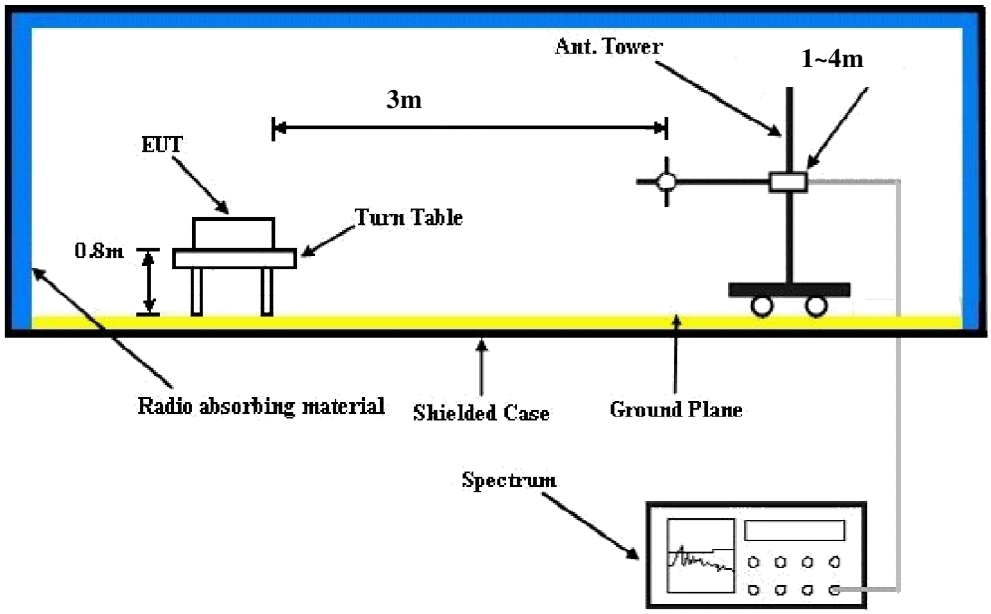
d. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.R.P power - 2.15dBi.

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.

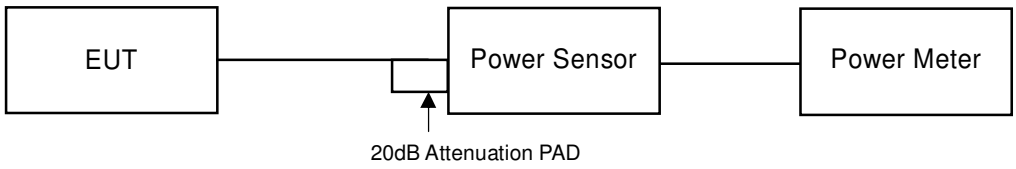
4.1.3 Test Setup

EIRP / ERP MEASUREMENT:



For 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 / BW	RB Size	RB Offset	QPSK								
			Low CH			Mid CH			High CH		
			26055			26365			26675		
			1851.5 MHz			1882.5 MHz			1913.5 MHz		
			Chain0	Chain1	Total	Chain0	Chain1	Total	Chain0	Chain1	Total
25 / 3M	1	0	21.39	21.26	24.34	21.91	21.84	24.89	21.58	21.46	24.53
	1	7	22.23	22.08	25.17	21.87	21.70	24.80	22.12	22.07	25.11
	1	14	21.81	21.54	24.69	21.85	21.63	24.75	22.09	21.84	24.98
	8	0	22.12	22.19	25.17	21.90	21.78	24.85	22.17	21.79	24.99
	8	3	22.20	22.21	25.22	21.93	21.75	24.85	22.06	21.82	24.95
	8	7	22.14	22.17	25.17	21.90	21.73	24.83	21.98	21.71	24.86
	15	0	23.03	22.48	25.77	22.84	22.62	25.74	22.85	22.63	25.75
Band / BW	RB Size	RB Offset	16QAM								
			Low CH			Mid CH			High CH		
			26055			26365			26675		
			1851.5 MHz			1882.5 MHz			1913.5 MHz		
			Chain0	Chain1	Total	Chain0	Chain1	Total	Chain0	Chain1	Total
25 / 3M	1	0	22.04	22.10	25.08	21.87	21.79	24.84	21.23	21.25	24.25
	1	7	21.99	22.08	25.05	21.86	21.77	24.83	21.16	21.31	24.25
	1	14	22.01	22.05	25.04	21.84	21.75	24.81	21.22	21.19	24.22
	8	0	21.93	22.04	25.00	22.65	22.46	25.57	22.29	22.20	25.26
	8	3	21.97	22.16	25.08	22.74	22.43	25.60	22.31	22.23	25.28
	8	7	22.02	22.07	25.06	22.80	22.44	25.63	22.35	22.16	25.27
	15	0	22.94	22.15	25.57	22.89	22.36	25.64	22.91	22.24	25.60
Band / BW	RB Size	RB Offset	64QAM								
			Low CH			Mid CH			High CH		
			26055			26365			26675		
			1851.5 MHz			1882.5 MHz			1913.5 MHz		
			Chain0	Chain1	Total	Chain0	Chain1	Total	Chain0	Chain1	Total
25 / 3M	1	0	21.14	21.31	24.24	21.89	21.76	24.84	21.43	21.35	24.40
	1	7	21.12	21.29	24.22	21.90	21.71	24.82	21.38	21.32	24.36
	1	14	21.08	21.22	24.16	21.88	21.74	24.82	21.39	21.27	24.34
	8	0	22.42	22.16	25.30	22.71	22.60	25.67	22.23	22.16	25.21
	8	3	22.43	22.20	25.33	22.77	22.59	25.69	22.25	22.13	25.20
	8	7	22.48	22.18	25.34	22.70	22.62	25.67	22.26	22.15	25.22
	15	0	22.96	22.25	25.63	22.75	22.64	25.71	22.94	22.39	25.68

Band / BW	RB Size	RB Offset	QPSK								
			Low CH			Mid CH			High CH		
			26065			26365			26665		
			1852.5 MHz			1882.5 MHz			1912.5 MHz		
			Chain0	Chain1	Total	Chain0	Chain1	Total	Chain0	Chain1	Total
25 / 5M	1	0	21.05	20.81	23.94	20.97	20.93	23.96	21.02	20.90	23.97
	1	12	20.92	20.86	23.90	20.94	20.80	23.88	20.88	20.79	23.85
	1	24	20.64	20.58	23.62	20.83	20.75	23.80	20.90	20.79	23.86
	12	0	22.73	22.59	25.67	22.66	22.74	25.71	22.65	22.51	25.59
	12	6	22.62	22.58	25.61	22.69	22.63	25.67	22.71	22.60	25.67
	12	13	22.64	22.57	25.62	22.75	22.69	25.73	22.68	22.54	25.62
	25	0	22.98	22.87	25.94	22.97	22.78	25.89	22.92	22.81	25.88
Band / BW	RB Size	RB Offset	16QAM								
			Low CH			Mid CH			High CH		
			26065			26365			26665		
			1852.5 MHz			1882.5 MHz			1912.5 MHz		
			Chain0	Chain1	Total	Chain0	Chain1	Total	Chain0	Chain1	Total
25 / 5M	1	0	20.92	20.76	23.85	20.89	20.85	23.88	20.97	20.86	23.93
	1	12	20.88	20.69	23.80	20.90	20.82	23.87	20.93	20.79	23.87
	1	24	20.94	20.70	23.83	20.85	20.79	23.83	20.84	20.73	23.80
	12	0	22.79	22.65	25.73	22.81	22.68	25.76	22.82	22.71	25.78
	12	6	22.73	22.62	25.69	22.77	22.66	25.73	22.86	22.60	25.74
	12	13	22.69	22.53	25.62	22.80	22.62	25.72	22.81	22.64	25.74
	25	0	22.91	22.74	25.84	22.88	22.76	25.83	22.89	22.73	25.82
Band / BW	RB Size	RB Offset	64QAM								
			Low CH			Mid CH			High CH		
			26065			26365			26665		
			1852.5 MHz			1882.5 MHz			1912.5 MHz		
			Chain0	Chain1	Total	Chain0	Chain1	Total	Chain0	Chain1	Total
25 / 5M	1	0	20.93	20.81	23.88	20.90	20.85	23.89	20.92	20.86	23.90
	1	12	20.84	20.78	23.82	20.91	20.82	23.88	20.89	20.87	23.89
	1	24	20.92	20.80	23.87	20.87	20.76	23.83	20.84	20.71	23.79
	12	0	22.86	22.72	25.80	22.79	22.67	25.74	22.80	22.75	25.79
	12	6	22.81	22.75	25.79	22.78	22.72	25.76	22.81	22.70	25.77
	12	13	22.83	22.76	25.81	22.77	22.69	25.74	22.78	22.64	25.72
	25	0	22.89	22.80	25.86	22.91	22.77	25.85	22.85	22.76	25.82

Band / BW	RB Size	RB Offset	QPSK								
			Low CH			Mid CH			High CH		
			26090			26365			26640		
			1855 MHz			1882.5 MHz			1910 MHz		
			Chain0	Chain1	Total	Chain0	Chain1	Total	Chain0	Chain1	Total
25 / 10M	1	0	21.47	21.16	24.33	21.55	21.29	24.43	21.88	20.91	24.43
	1	24	21.14	20.93	24.05	21.22	21.10	24.17	21.06	20.75	23.92
	1	49	20.99	20.96	23.99	21.18	21.24	24.22	20.94	20.72	23.84
	25	0	23.01	21.98	25.54	23.05	22.19	25.65	22.13	21.77	24.96
	25	12	23.07	22.05	25.60	23.01	22.20	25.63	22.09	21.64	24.88
	25	25	23.06	22.07	25.60	23.06	22.27	25.69	22.11	21.68	24.91
	50	0	23.15	22.66	25.92	23.09	22.55	25.84	23.08	22.71	25.91
Band / BW	RB Size	RB Offset	16QAM								
			Low CH			Mid CH			High CH		
			26090			26365			26640		
			1855 MHz			1882.5 MHz			1910 MHz		
			Chain0	Chain1	Total	Chain0	Chain1	Total	Chain0	Chain1	Total
25 / 10M	1	0	21.18	21.31	24.26	21.42	21.17	24.31	21.09	20.76	23.94
	1	24	21.04	21.13	24.10	21.38	21.20	24.30	21.05	20.79	23.93
	1	49	20.82	20.64	23.74	21.19	21.08	24.15	20.97	20.62	23.81
	25	0	2.00	22.36	22.40	22.95	22.16	25.58	22.89	22.73	25.82
	25	12	22.89	22.27	25.60	22.98	22.24	25.64	23.04	22.56	25.82
	25	25	22.92	22.19	25.58	23.02	22.20	25.64	23.05	22.58	25.83
	50	0	22.98	22.25	25.64	23.07	22.22	25.68	23.08	22.60	25.86
Band / BW	RB Size	RB Offset	64QAM								
			Low CH			Mid CH			High CH		
			26090			26365			26640		
			1855 MHz			1882.5 MHz			1910 MHz		
			Chain0	Chain1	Total	Chain0	Chain1	Total	Chain0	Chain1	Total
25 / 10M	1	0	21.39	21.26	24.34	21.42	21.25	24.35	21.06	20.87	23.98
	1	24	21.41	21.18	24.31	21.40	21.23	24.33	21.04	20.82	23.94
	1	49	21.32	21.29	24.32	21.37	21.24	24.32	21.03	20.85	23.95
	25	0	22.95	22.27	25.63	22.94	22.60	25.78	22.97	22.58	25.79
	25	12	22.93	22.15	25.57	22.97	22.59	25.79	22.98	22.54	25.78
	25	25	22.91	22.20	25.58	22.99	22.61	25.81	22.94	22.61	25.79
	50	0	23.06	22.54	25.82	23.04	22.57	25.82	22.99	22.63	25.82

EIRP Power (dBm)

LTE Band 25

Channel Bandwidth: 3MHz

MODE		TX channel 26055					
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	1851.50	16.61	6.85	12.01	18.86	33.00	-14.14
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	1851.50	26.85	16.73	12.01	**28.74**	33.00	-4.26

MODE		TX channel 26365					
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	1882.50	15.41	5.94	12.01	17.95	33.00	-15.05
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	1882.50	26.21	16.15	12.01	28.16	33.00	-4.84

MODE		TX channel 26675					
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	1913.50	15.39	5.98	11.98	17.96	33.00	-15.04
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	1913.50	26.49	16.55	11.98	28.53	33.00	-4.47

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

Channel Bandwidth: 5MHz

MODE	TX channel 26065						
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	1852.50	17.36	7.61	12.01	19.62	33.00	-13.38
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	1852.50	25.97	15.85	12.01	**27.86**	33.00	-5.14

MODE	TX channel 26365						
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	1882.50	16.1	6.63	12.01	18.64	33.00	-14.36
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	1882.50	25.88	15.82	12.01	27.83	33.00	-5.17

MODE	TX channel 26665						
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	1912.50	15.94	6.54	11.98	18.52	33.00	-14.48
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	1912.50	25.58	15.63	11.98	27.61	33.00	-5.39

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

Channel Bandwidth: 10MHz

MODE		TX channel 26090					
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	1855.00	17.28	7.55	12.01	19.56	33.00	-13.44
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	1855.00	26.95	16.83	12.01	**28.84**	33.00	-4.16

MODE		TX channel 26365					
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	1882.50	17.24	7.77	12.01	19.78	33.00	-13.22
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	1882.50	26.86	16.8	12.01	28.81	33.00	-4.19

MODE		TX channel 26640					
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	1910.00	15.8	6.42	11.99	18.41	33.00	-14.59
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	1910.00	26.57	16.6	11.99	28.59	33.00	-4.41

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

4.2 Frequency Stability Measurement

4.2.1 Limits of Frequency Stabiliity Measurement

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

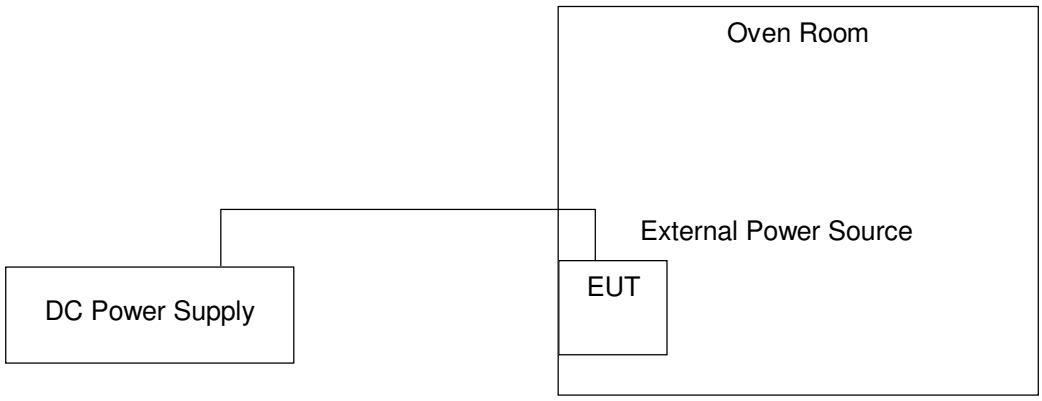
4.2.2 Test Procedure

a. 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.

b. EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.

c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the ±0.5℃ 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.

4.2.3 Test Setup



4.2.4 Test Results

Frequency Error vs. Voltage

Voltage (Volts)	Frequency Error (ppm)						Limit (ppm)
	LTE Band 25						
	3MHz		5MHz		10MHz		
	Chain 0	Chain 1	Chain 0	Chain 1	Chain 0	Chain 1	
3.465	0.0106241700	0.0095617530	0.0116865870	0.0111553785	0.0132802125	0.0132802125	2.5
3.3	0.0095617530	0.0079681275	0.0106241700	0.0084993360	0.0127490040	0.0122177955	2.5
3.135	0.0079681275	0.0069057105	0.0100929615	0.0079681275	0.0106241700	0.0116865870	2.5

Note: The applicant defined the normal working voltage is from 3.135Vdc to 3.465Vdc.

Frequency Error vs. Temperature

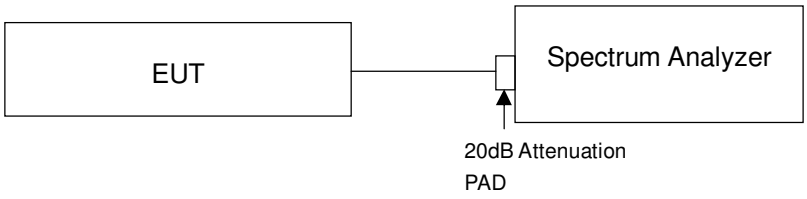
Temp. (℃)	Frequency Error (ppm)						Limit (ppm)
	LTE Band 25						
	3MHz		5MHz		10MHz		
	Chain 0	Chain 1	Chain 0	Chain 1	Chain 0	Chain 1	
50	0.0100929615	0.0090305445	0.0122177955	0.0122177955	0.0143426295	0.0138114210	2.5
40	0.0095617530	0.0079681275	0.0116865870	0.0111553785	0.0138114210	0.0132802125	2.5
30	0.0079681275	0.0074369190	0.0106241700	0.0100929615	0.0122177955	0.0127490040	2.5
20	0.0074369190	0.0069057105	0.0095617530	0.0079681275	0.0116865870	0.0116865870	2.5
10	0.0058432935	0.0053120850	0.0090305445	0.0069057105	0.0100929615	0.0106241700	2.5
0	0.0053120850	0.0042496680	0.0079681275	0.0058432935	0.0090305445	0.0095617530	2.5

4.3 Occupied Bandwidth Measurement

4.3.1 Test Procedure

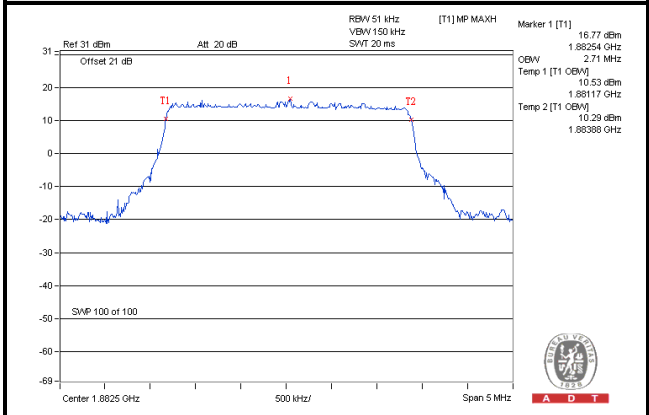
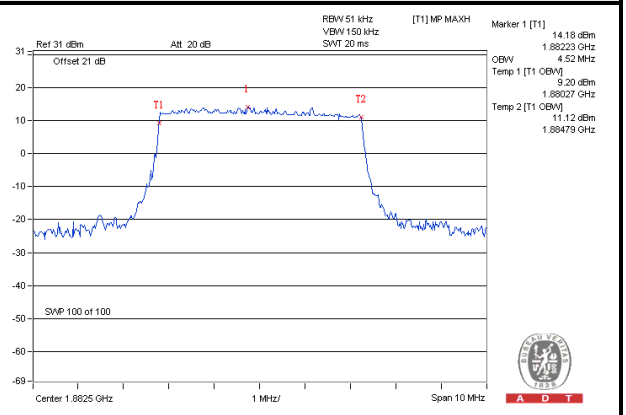
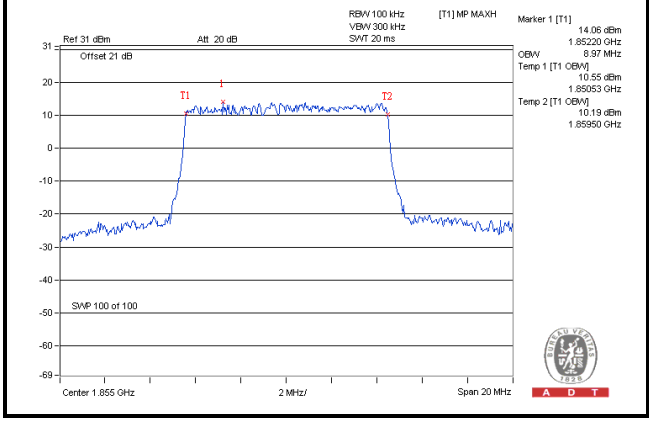
All measurements were done at low, middle and high operational frequency range. The software provided by client to control a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

4.3.2 Test Setup

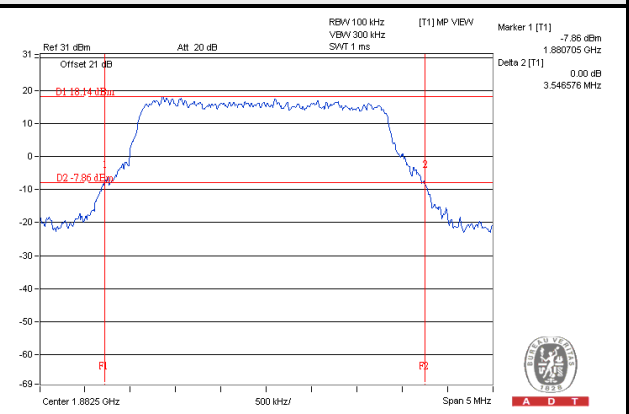
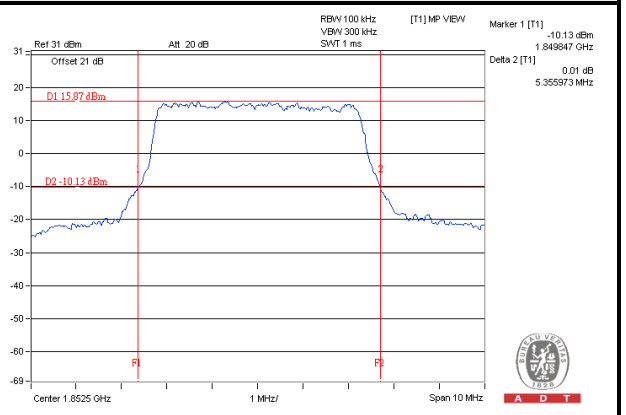
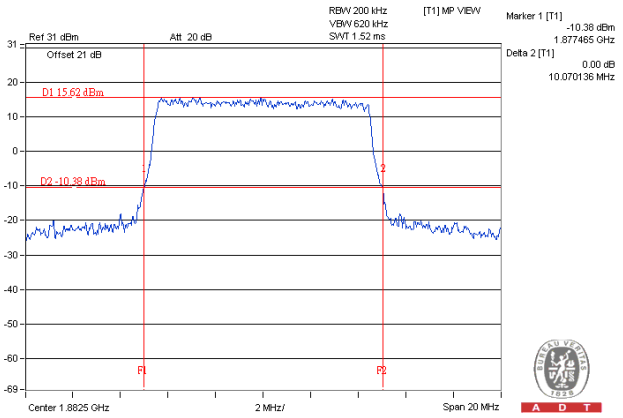


4.3.3 Test Result

LTE Band 25							
Channel Bandwidth 3MHz							
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)					
		QPSK		16QAM		64QAM	
		Chain 0	Chain 1	Chain 0	Chain 1	Chain 0	Chain 1
26055	1851.5	2.69	2.70	2.69	2.70	2.70	2.70
26365	1882.5	2.70	2.71	2.70	2.71	2.70	2.70
26675	1913.5	2.70	2.69	2.69	2.69	2.70	2.69
Channel Bandwidth 5MHz							
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)					
		QPSK		16QAM		64QAM	
		Chain 0	Chain 1	Chain 0	Chain 1	Chain 0	Chain 1
26065	1852.5	4.48	4.47	4.48	4.47	4.50	4.50
26365	1882.5	4.47	4.48	4.45	4.47	4.52	4.52
26665	1912.5	4.48	4.47	4.48	4.47	4.52	4.50
Channel Bandwidth 10MHz							
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)					
		QPSK		16QAM		64QAM	
		Chain 0	Chain 1	Chain 0	Chain 1	Chain 0	Chain 1
26090	1855	8.97	8.93	8.97	8.93	8.90	8.90
26365	1882.5	8.93	8.93	8.93	8.93	8.93	8.97
26640	1910	8.93	8.93	8.93	8.93	8.93	8.90

Spectrum Plot Of Worst Value	
3MHz / QPSK	5MHz / 64QAM
	
10MHz / QPSK	
	

LTE Band 25					
Channel Bandwidth 3MHz					
Channel	Frequency (MHz)	-26dBc Bandwidth (MHz)			
		QPSK			
		1RB		15RB	
		Chain 0	Chain 1	Chain 0	Chain 1
26055	1851.5	1.15	1.18	3.50	3.51
26365	1882.5	1.10	1.12	3.55	3.44
26675	1913.5	1.11	1.14	3.42	3.54
Channel Bandwidth 5MHz					
Channel	Frequency (MHz)	-26dBc Bandwidth (MHz)			
		QPSK			
		1RB		25RB	
		Chain 0	Chain 1	Chain 0	Chain 1
26065	1852.5	1.20	1.16	5.25	5.36
26365	1882.5	1.20	1.14	5.20	5.33
26665	1912.5	1.24	1.21	5.21	5.29
Channel Bandwidth 10MHz					
Channel	Frequency (MHz)	-26dBc Bandwidth (MHz)			
		QPSK			
		1RB		50RB	
		Chain 0	Chain 1	Chain 0	Chain 1
26090	1855	1.48	1.44	10.06	10.00
26365	1882.5	1.41	1.44	10.07	9.96
26640	1910	1.44	1.47	10.02	9.87

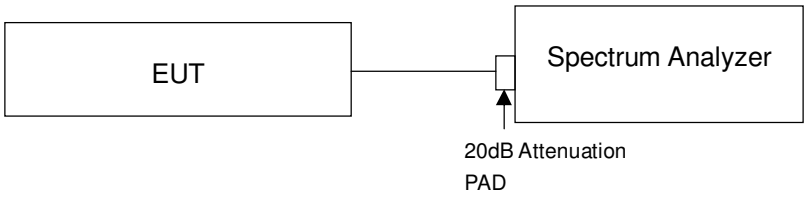
Spectrum Plot Of Worst Value	
3MHz / QPSK / 15RB	5MHz / QPSK / 25RB
	
10MHz / QPSK / 50RB	
	

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.

4.4.2 Test Setup



4.4.3 Test Procedures

a. All measurements were done at low and high operational frequency range.

b. The center frequency of spectrum is the band edge frequency and span is 1.5MHz. RB of the spectrum is 15kHz and VB of the spectrum is 50kHz (LTE Channel Bandwidth 3MHz, 5MHz, 10MHz for 1RB Size).

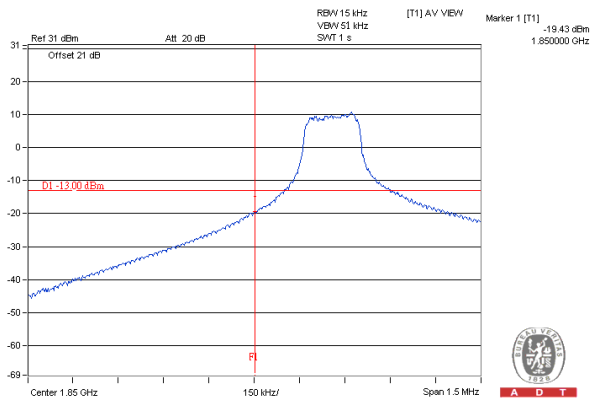
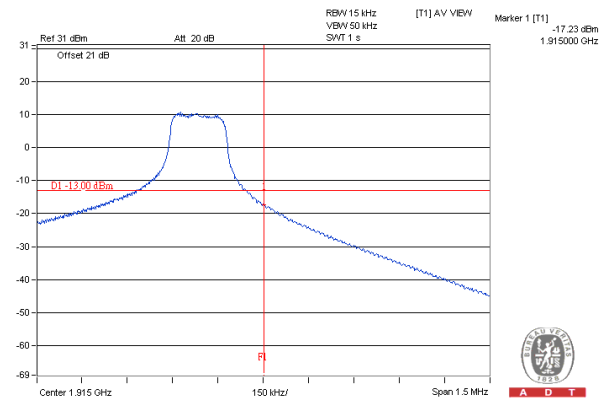
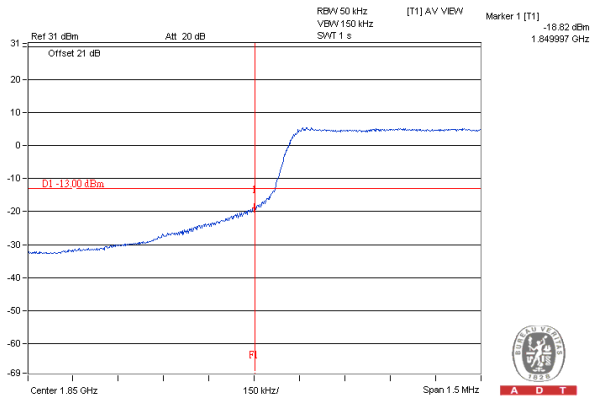
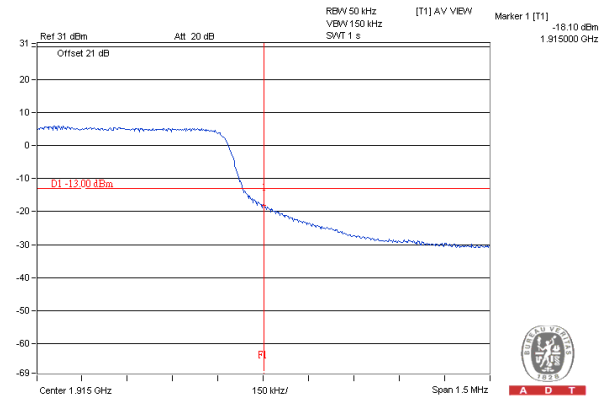
c. The center frequency of spectrum is the band edge frequency and span is 1.5MHz. RB of the spectrum is 50kHz and VB of the spectrum is 150kHz (LTE Channel Bandwidth 3MHz for 15RB Size).

d. The center frequency of spectrum is the band edge frequency and span is 1.5MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (LTE Channel Bandwidth 5MHz for 25RB Size).

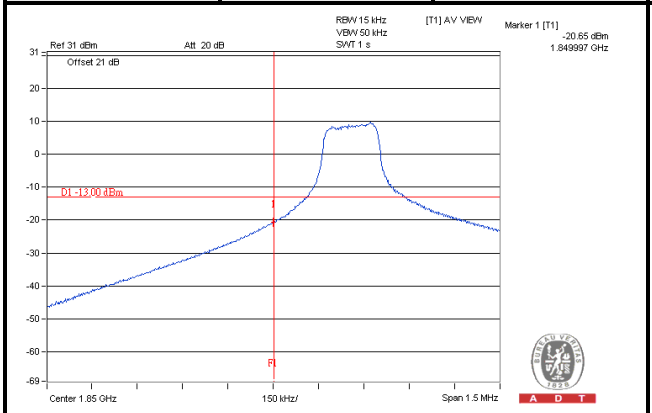
e. The center frequency of spectrum is the band edge frequency and span is 1.5MHz. RB of the spectrum is 150kHz and VB of the spectrum is 500kHz (LTE Channel Bandwidth 10MHz for 50RB Size).

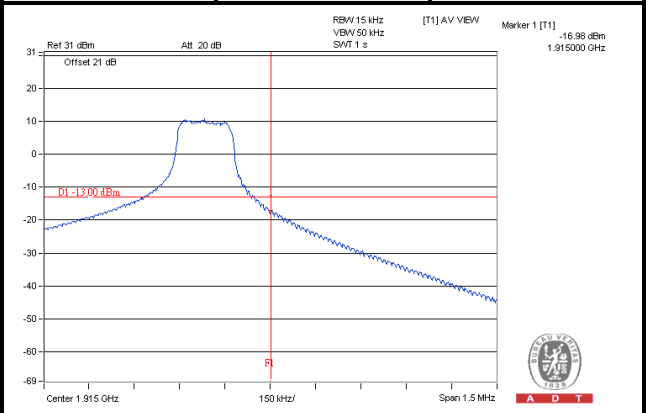
f. Record the max trace plot into the test report.

4.4.4 Test Results

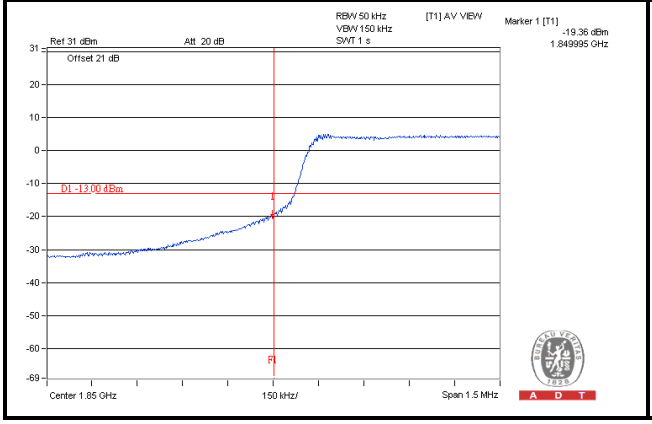
LTE Band 25					
Channel Bandwidth 3MHz					
Chain 0					
Channel	26055	1 RB	Channel	26675	1 RB
					
Channel	26055	15 RB	Channel	26675	15 RB
					

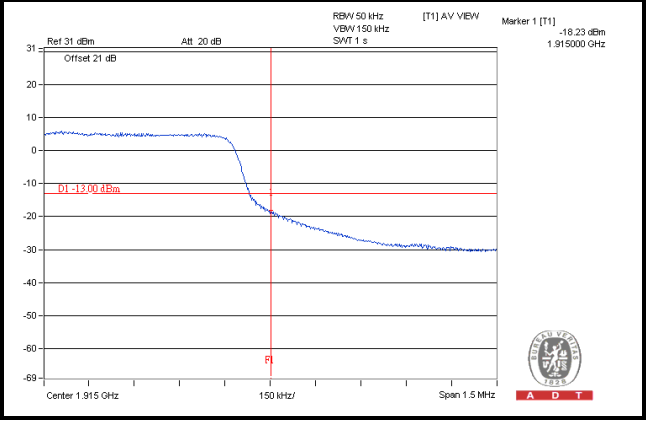
LTE Band 25					
Channel Bandwidth 3MHz					
Chain 1					
Channel	26055	1 RB	Channel	26675	1 RB



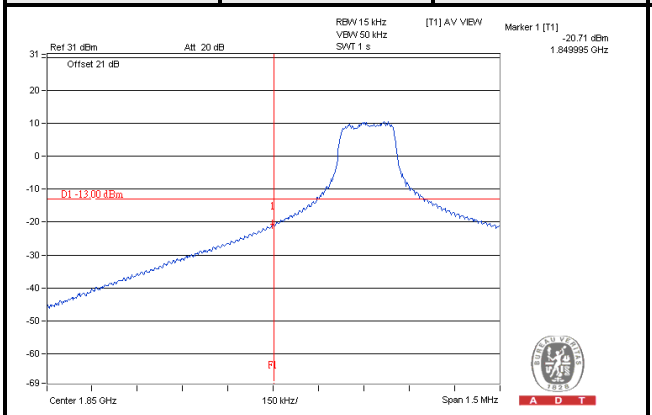
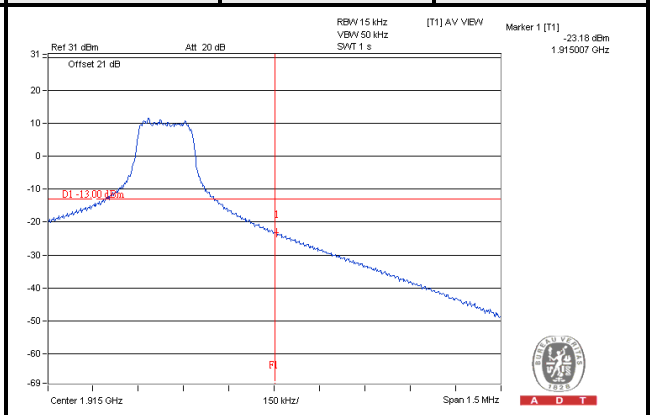
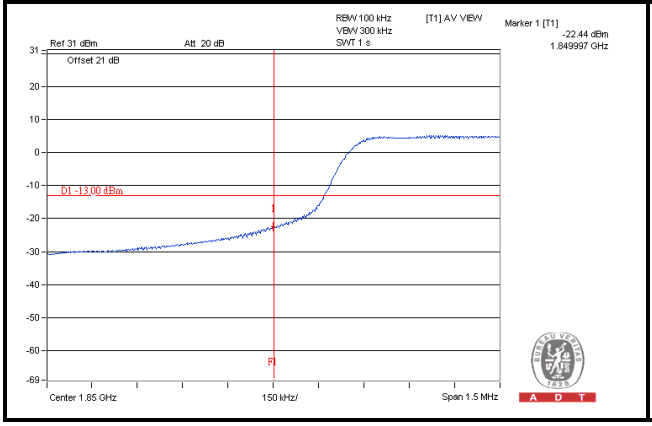
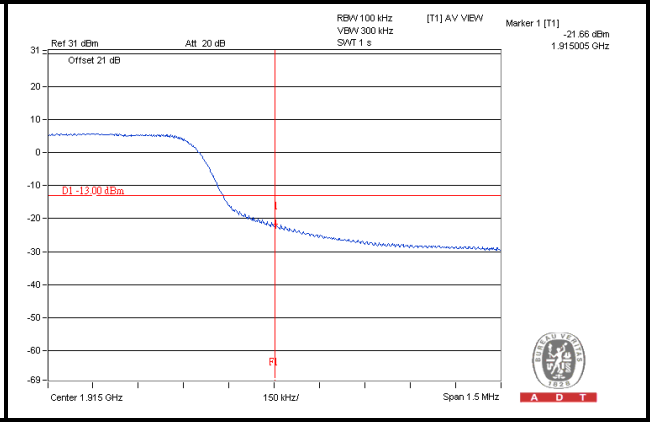


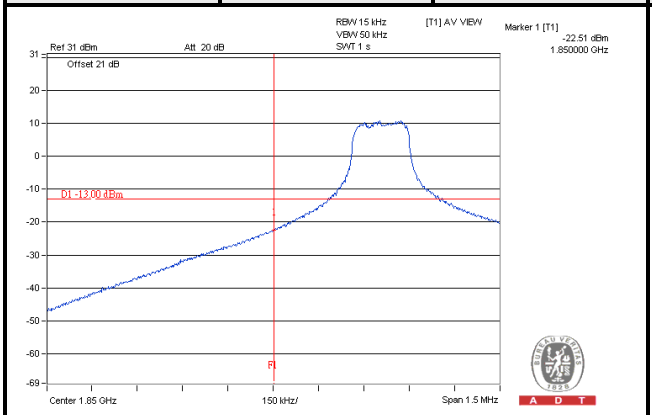
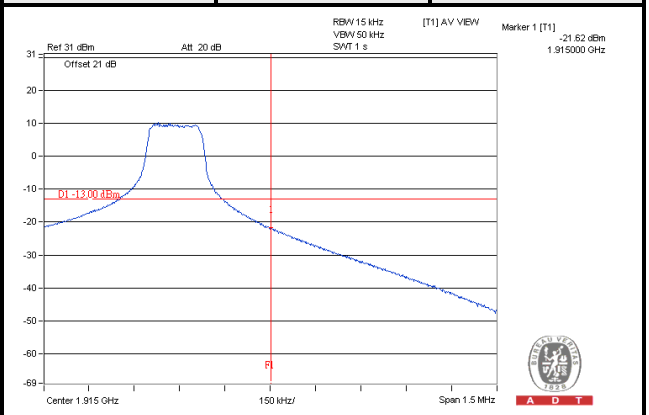
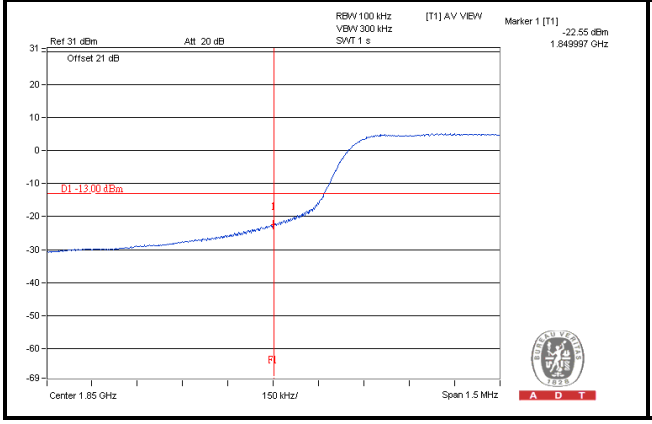
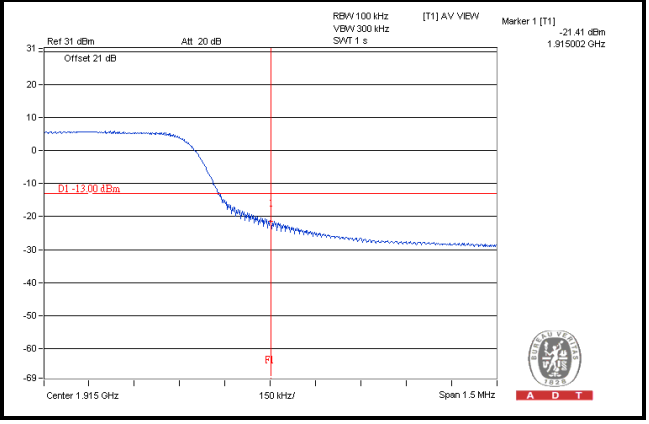
Channel	26055	15 RB	Channel	26675	15 RB



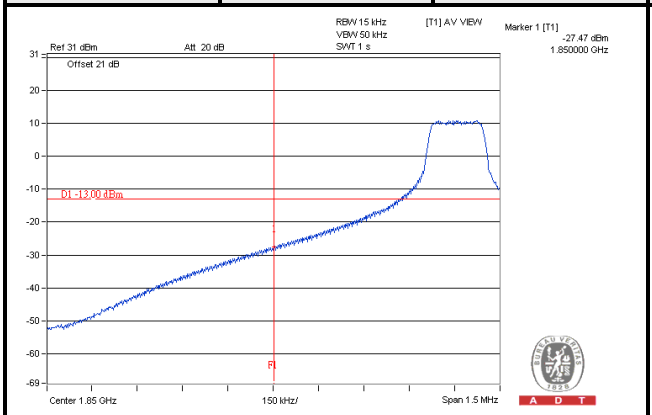
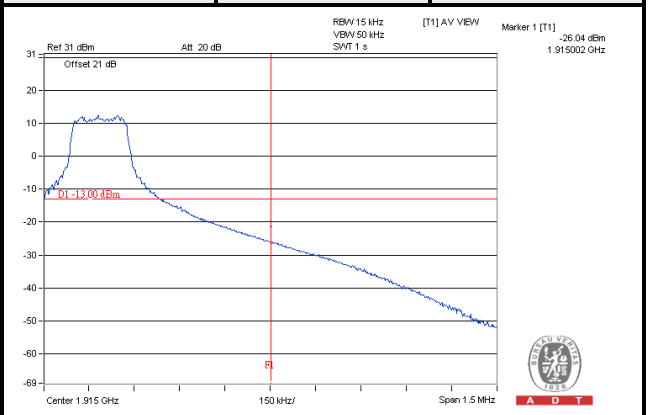
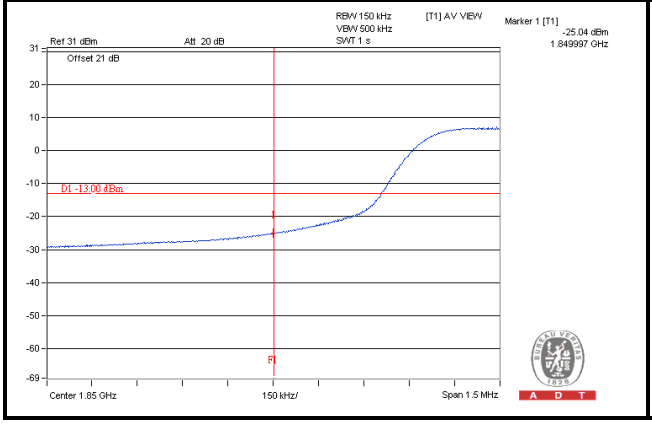
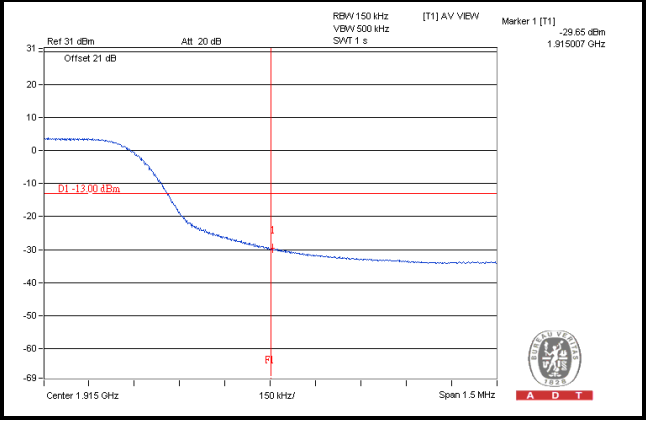


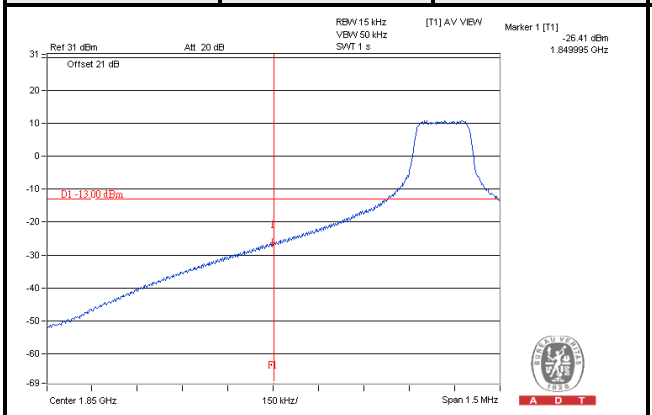
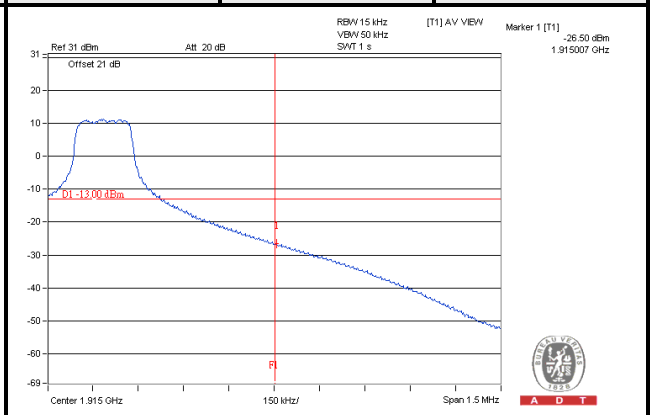
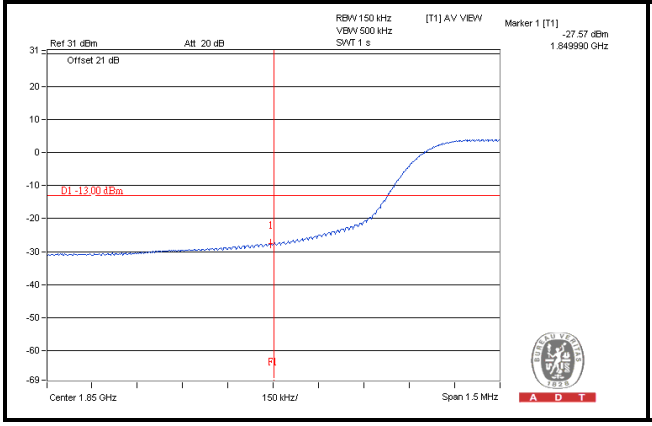
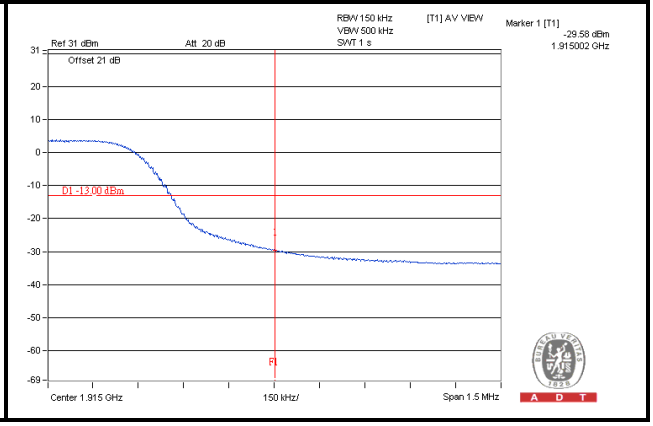
Band / BW	RB Size	Band Edge (dBm)					
		Low CH			High CH		
		26055			26675		
		1851.5 MHz			1913.5 MHz		
		Chain0	Chain1	Total	Chain0	Chain1	Total
25 / 3M	1	-19.43	-20.65	-16.99	-17.23	-16.98	-14.09
	15	-18.82	-19.36	-16.07	-18.10	-18.23	-15.15

LTE Band 25					
Channel Bandwidth 5MHz					
Chain 0					
Channel	26065	1 RB	Channel	26665	1 RB
					
Channel	26065	25 RB	Channel	26665	25 RB
					

LTE Band 25					
Channel Bandwidth 5MHz					
Chain 1					
Channel	26065	1 RB	Channel	26665	1 RB
					
Channel	26065	25 RB	Channel	26665	25 RB
					

Band / BW	RB Size	Band Edge (dBm)					
		Low CH			High CH		
		26065			26665		
		1852.5 MHz			1912.5 MHz		
		Chain0	Chain1	Total	Chain0	Chain1	Total
25 / 5M	1	-20.71	-22.51	-18.51	-23.18	-21.62	-19.32
	25	-22.44	-22.55	-19.48	-21.66	-21.41	-18.52

LTE Band 25					
Channel Bandwidth 10MHz					
Chain 0					
Channel	26090	1 RB	Channel	26640	1 RB
					
Channel	26090	50 RB	Channel	26640	50 RB
					

LTE Band 25					
Channel Bandwidth 10MHz					
Chain 1					
Channel	26090	1 RB	Channel	26640	1 RB
					
Channel	26090	50 RB	Channel	26640	50 RB
					

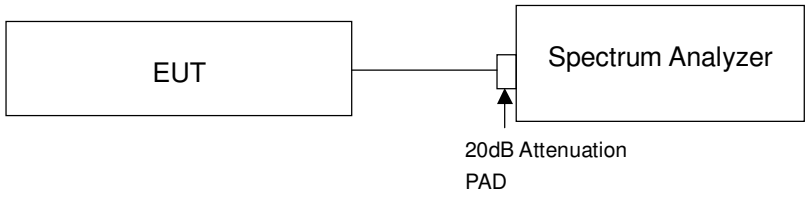
Band / BW	RB Size	Band Edge (dBm)					
		Low CH			High CH		
		26090			26640		
		1855 MHz			1910 MHz		
		Chain0	Chain1	Total	Chain0	Chain1	Total
25 / 10M	1	-27.47	-26.41	-23.90	-26.04	-26.50	-23.25
	50	-25.04	-27.57	-23.11	-29.65	-29.58	-26.60

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

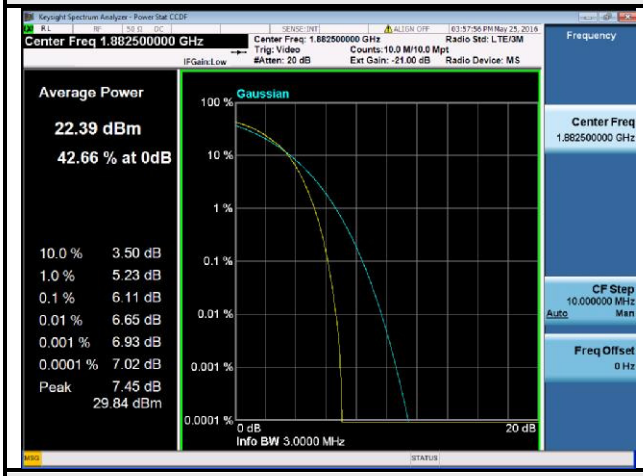
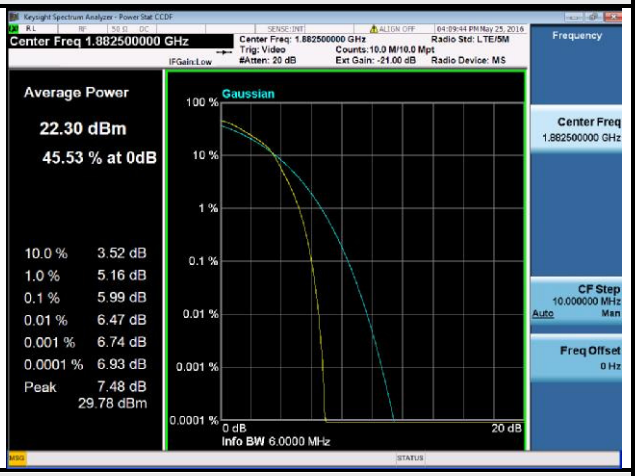
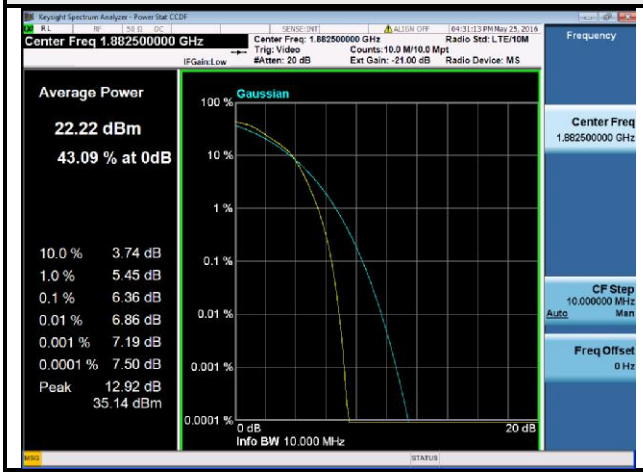
a. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;

b. Set the number of counts to a value that stabilizes the measured CCDF curve;

c. Record the maximum PAPR level associated with a probability of 0.1%.

4.5.4 Test Results

LTE Band 25							
Channel Bandwidth 3MHz							
Channel	Frequency (MHz)	Peak To Average Ratio (dB)					
		QPSK		16QAM		64QAM	
		Chain 0	Chain 1	Chain 0	Chain 1	Chain 0	Chain 1
26055	1851.5	5.06	5.15	5.40	5.79	5.61	5.46
26365	1882.5	5.39	4.94	5.32	5.58	5.92	6.11
26675	1913.5	4.60	4.87	4.51	4.70	5.43	5.60
Channel Bandwidth 5MHz							
Channel	Frequency (MHz)	Peak To Average Ratio (dB)					
		QPSK		16QAM		64QAM	
		Chain 0	Chain 1	Chain 0	Chain 1	Chain 0	Chain 1
26065	1852.5	5.05	5.38	5.51	5.67	5.66	5.83
26365	1882.5	5.27	5.28	5.64	5.99	5.69	5.86
26665	1912.5	4.92	5.34	5.20	5.36	5.31	5.57
Channel Bandwidth 10MHz							
Channel	Frequency (MHz)	Peak To Average Ratio (dB)					
		QPSK		16QAM		64QAM	
		Chain 0	Chain 1	Chain 0	Chain 1	Chain 0	Chain 1
26090	1855	5.37	5.41	5.97	6.05	5.88	6.13
26365	1882.5	5.43	4.92	5.84	6.36	5.81	6.16
26640	1910	5.35	5.75	5.55	5.70	5.62	5.88

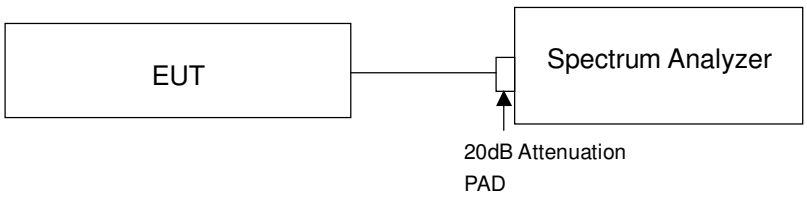
Spectrum Plot Of Worst Value	
3MHz / 64QAM	5MHz / 16QAM
	
10MHz / 16QAM	
	

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.

4.6.2 Test Setup

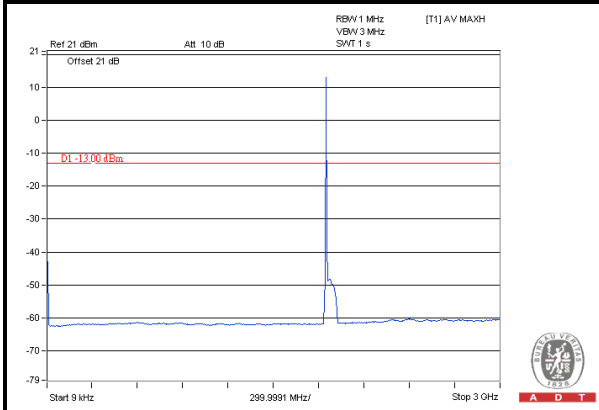
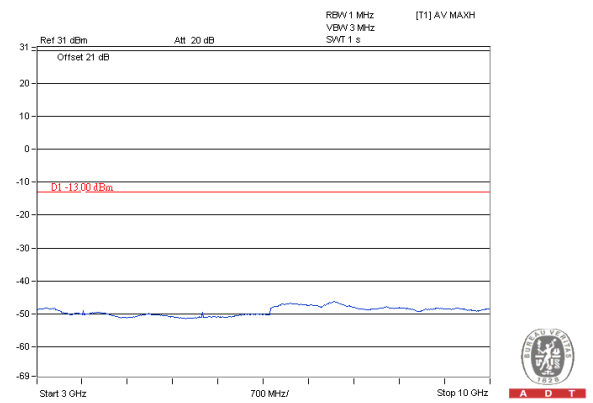
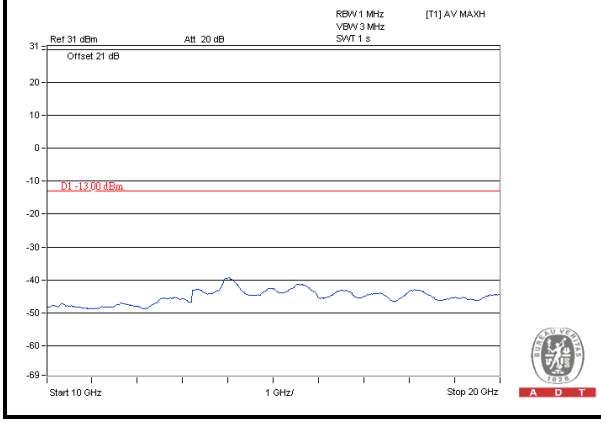


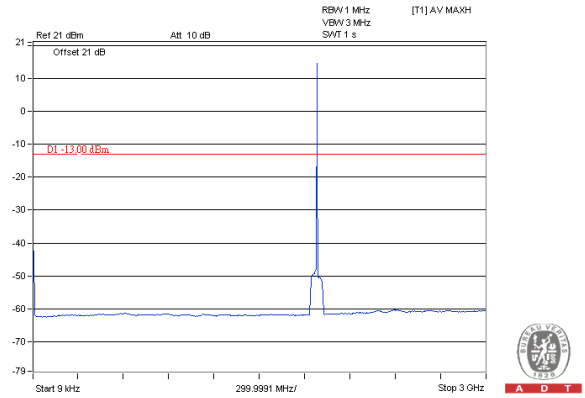
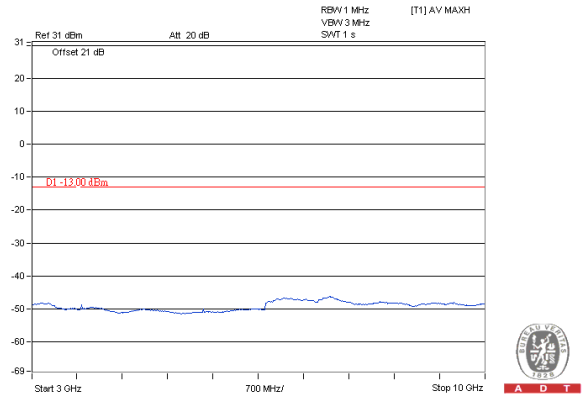
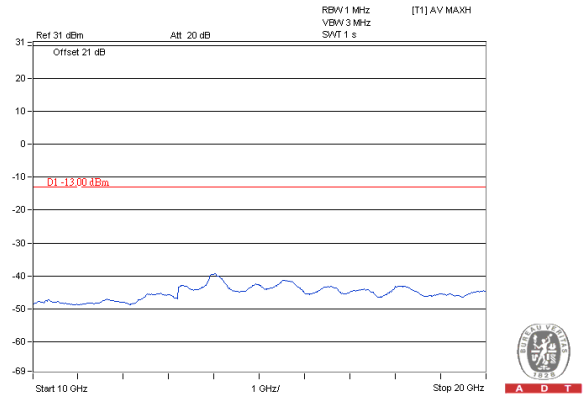
4.6.3 Test Procedure

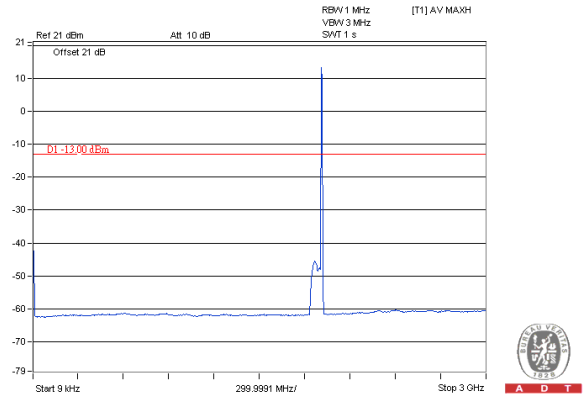
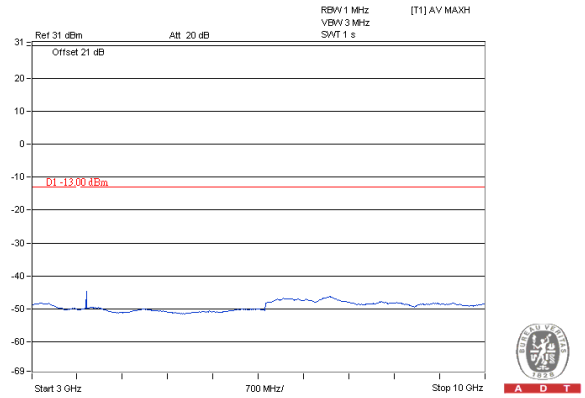
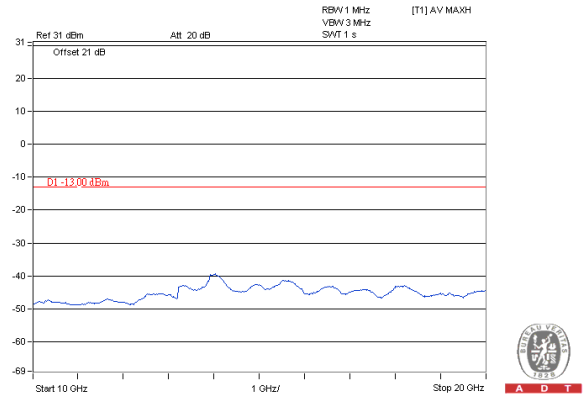
a. All measurements were done at low, middle and high operational frequency range.

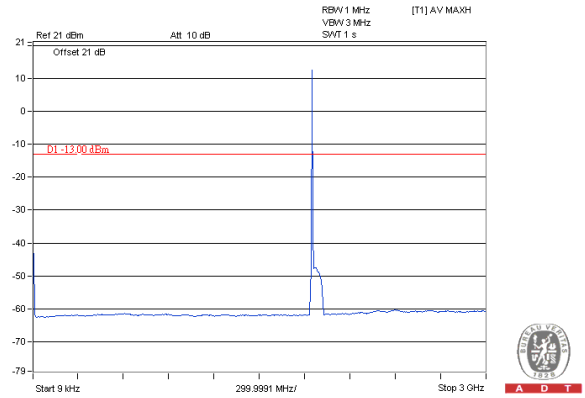
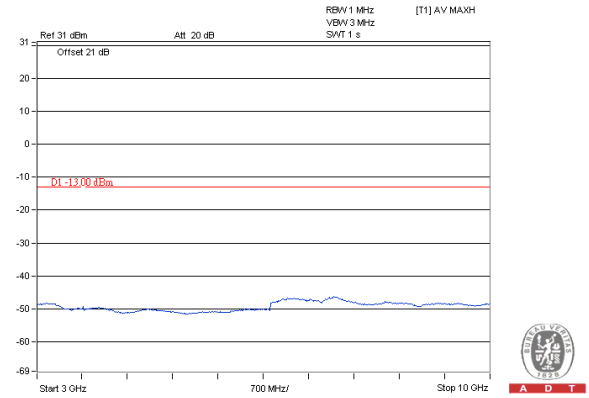
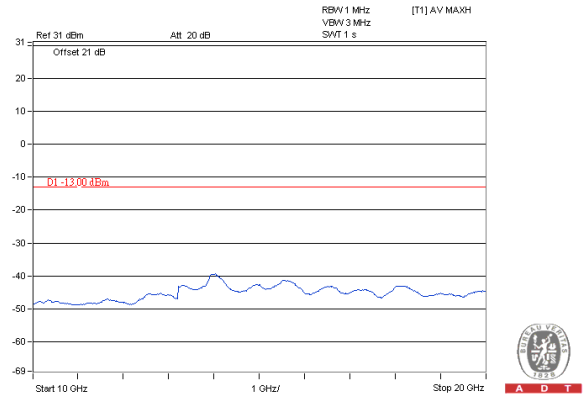
b. Measuring frequency range is from 9 kHz to 20GHz. 20dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

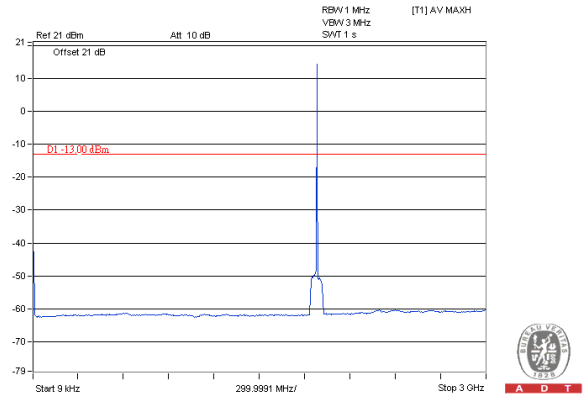
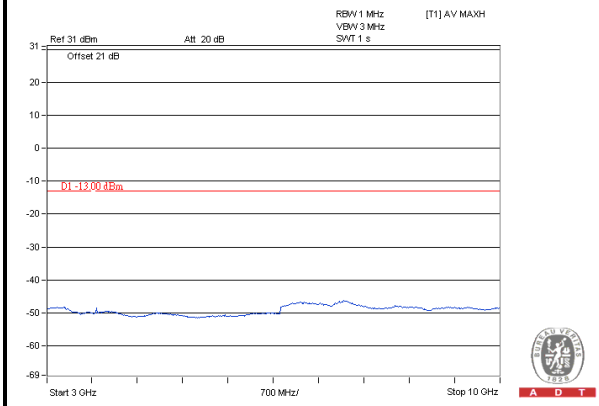
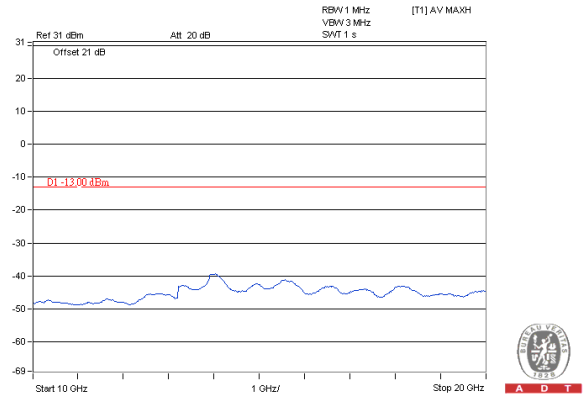
4.6.4 Test Results

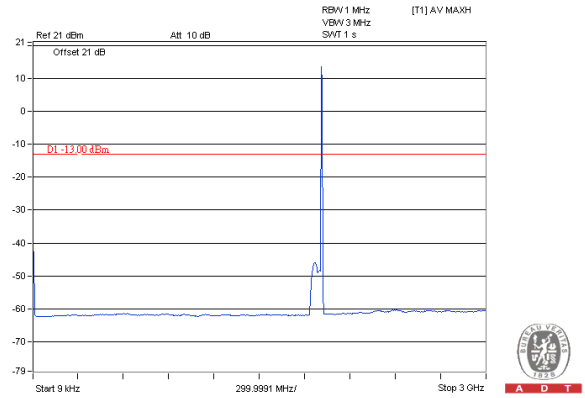
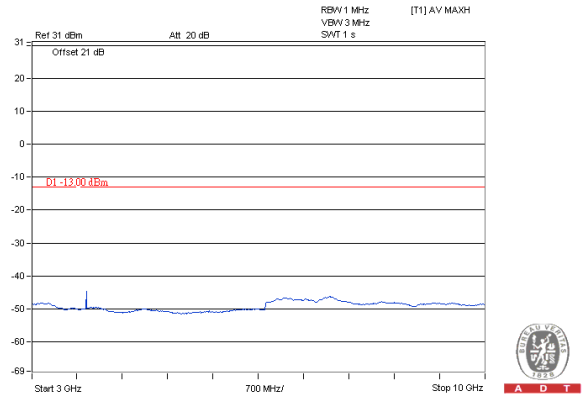
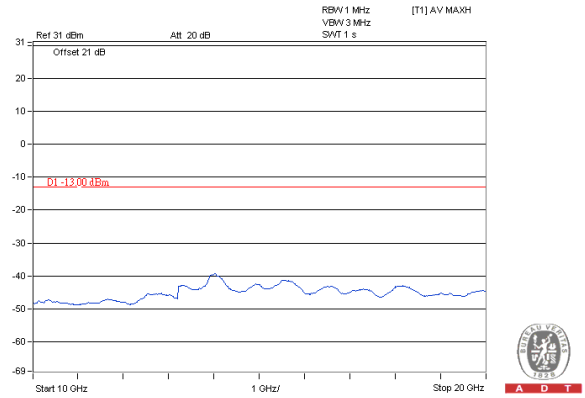
LTE Band 25 Channel Band width: 3MHz	
Chain 0	
Channel 26055	
Frequency Range : 9kHz~3GHz	Frequency Range : 3GHz~10GHz
	
Frequency Range : 10GHz~20GHz	
	

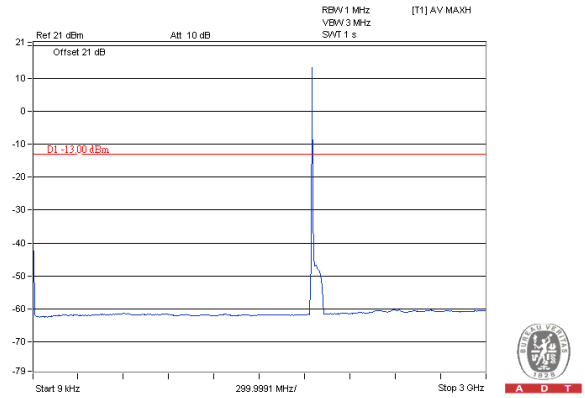
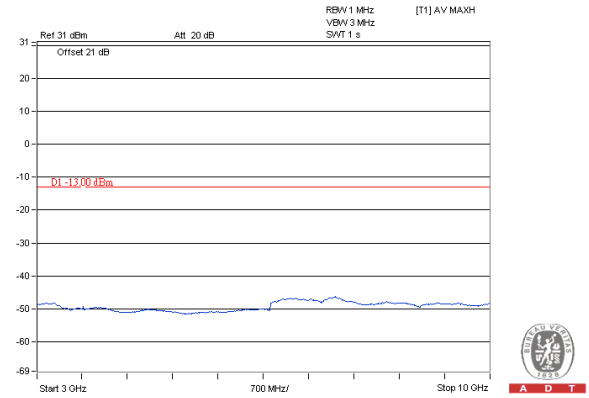
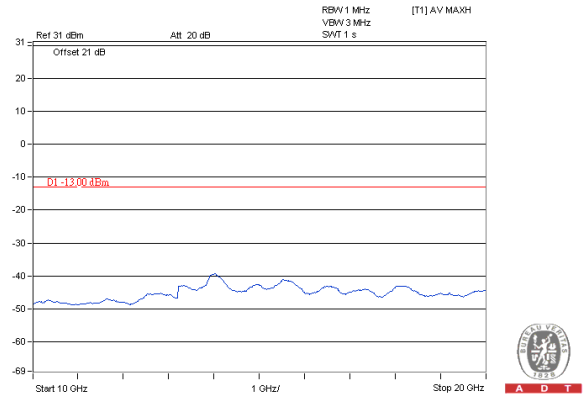
LTE Band 25 Channel Band width: 3MHz	
Chain 0	
Channel 26365	
Frequency Range : 9kHz~3GHz	Frequency Range : 3GHz~10GHz
	
Frequency Range : 10GHz~20GHz	
	

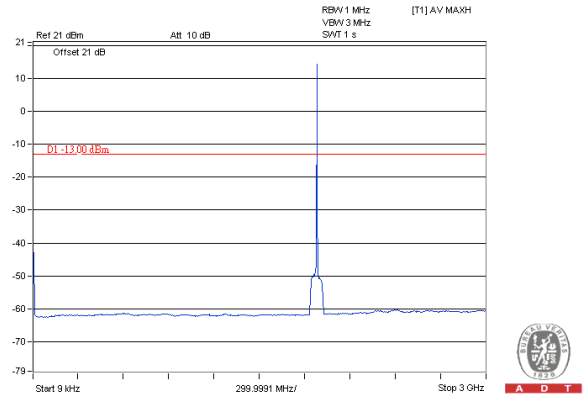
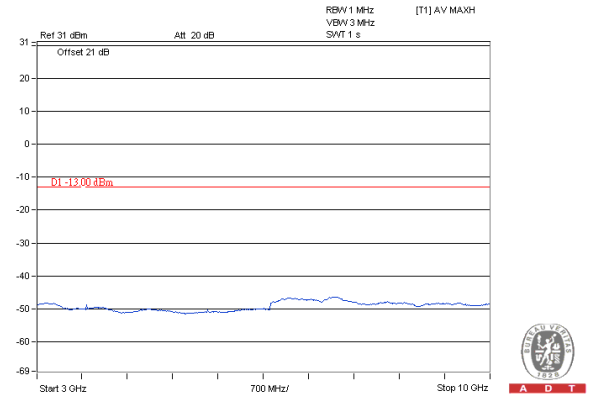
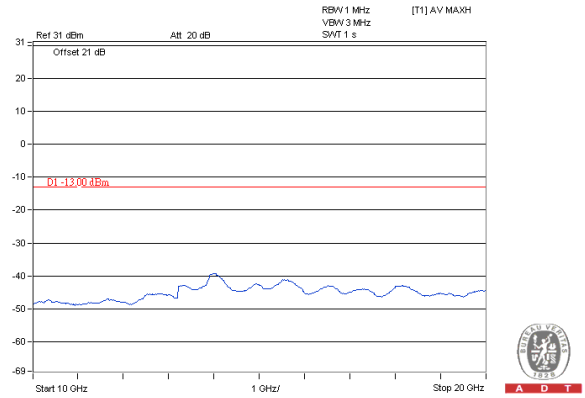
LTE Band 25 Channel Band width: 3MHz	
Chain 0	
Channel 26675	
Frequency Range : 9kHz~3GHz	Frequency Range : 3GHz~10GHz
	
Frequency Range : 10GHz~20GHz	
	

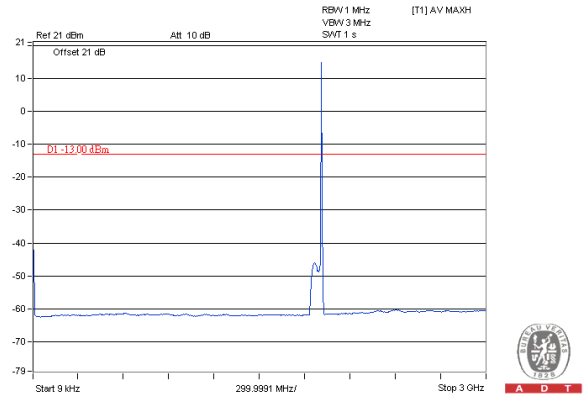
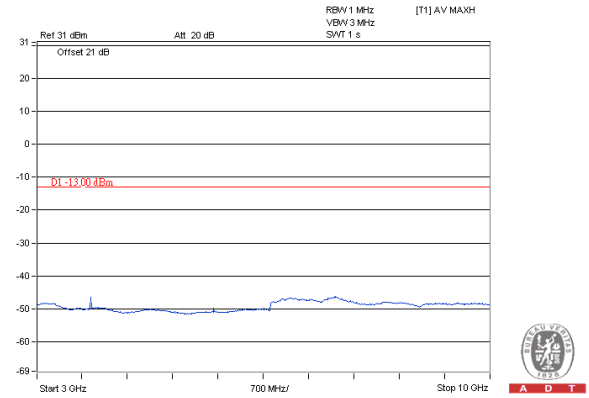
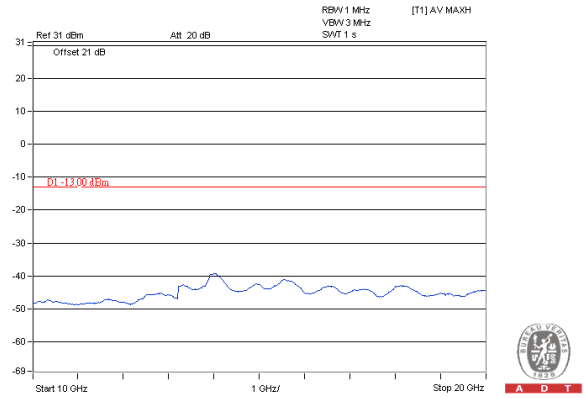
LTE Band 25 Channel Band width: 3MHz	
Chain 1	
Channel 26055	
Frequency Range : 9kHz~3GHz	Frequency Range : 3GHz~10GHz
	
Frequency Range : 10GHz~20GHz	
	

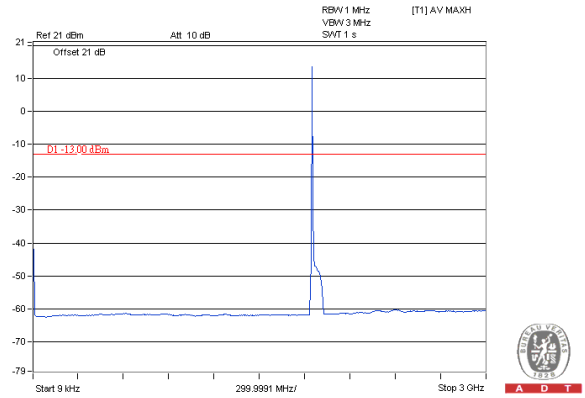
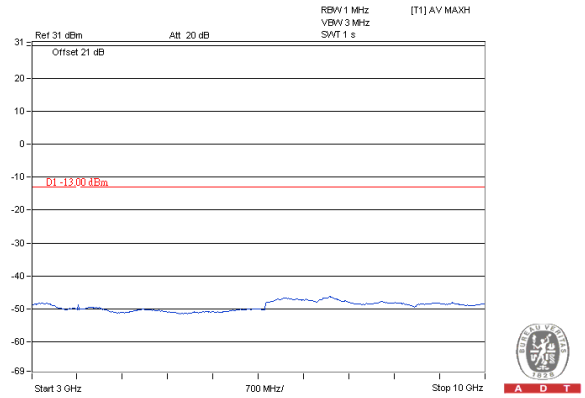
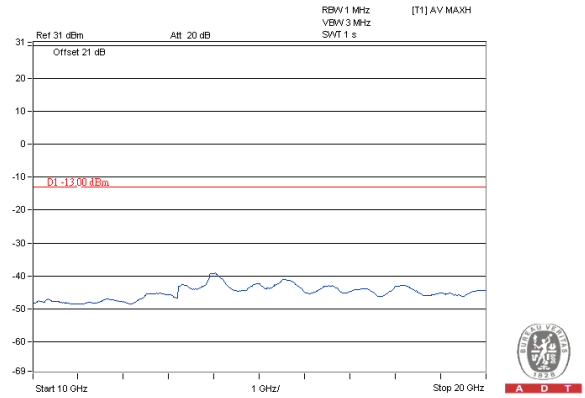
LTE Band 25 Channel Band width: 3MHz	
Chain 1	
Channel 26365	
Frequency Range : 9kHz~3GHz	Frequency Range : 3GHz~10GHz
	
Frequency Range : 10GHz~20GHz	
	

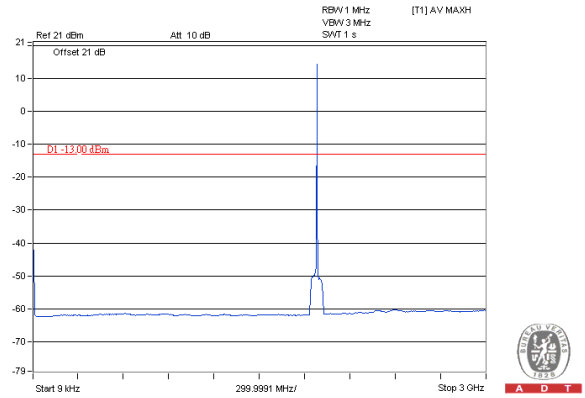
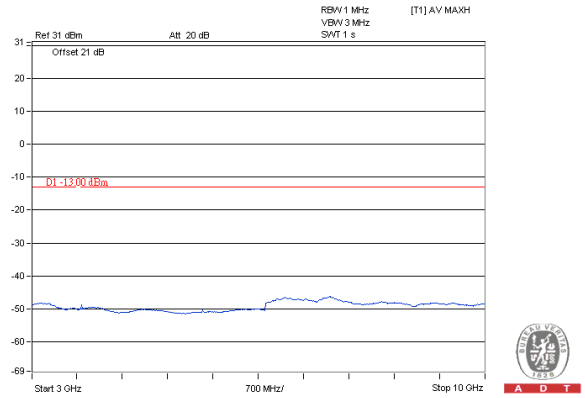
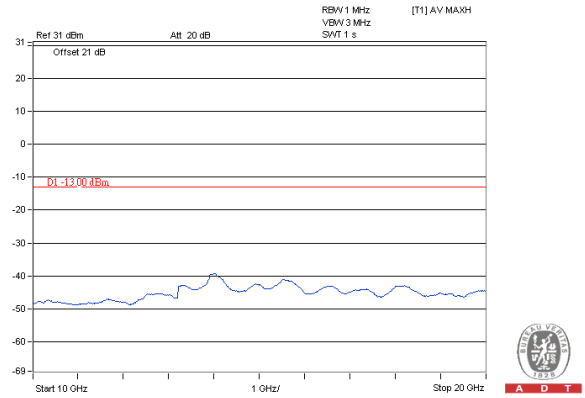
LTE Band 25 Channel Band width: 3MHz	
Chain 1	
Channel 26675	
Frequency Range : 9kHz~3GHz	Frequency Range : 3GHz~10GHz
	
Frequency Range : 10GHz~20GHz	
	

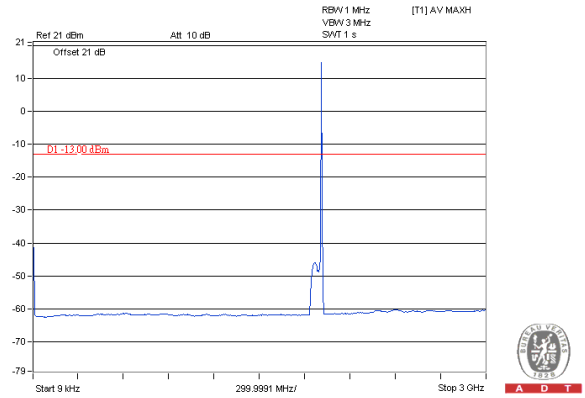
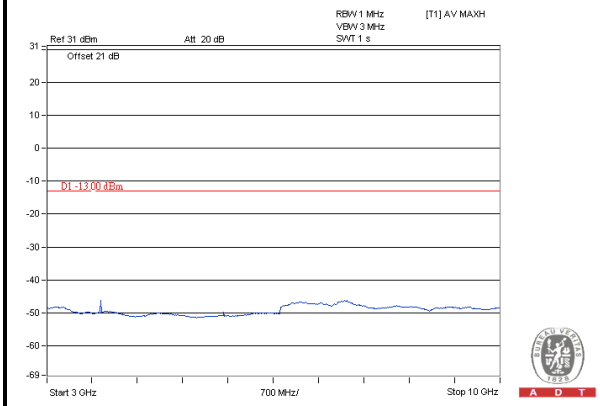
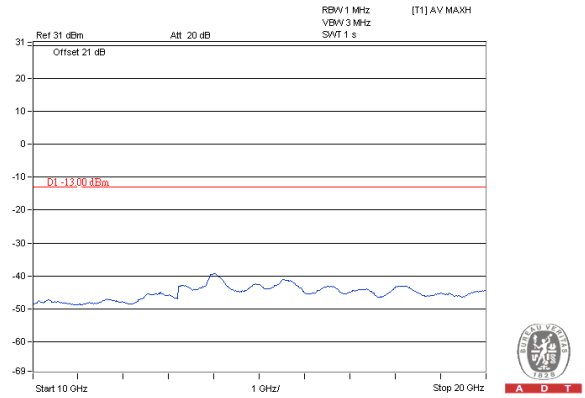
LTE Band 25 Channel Band width: 5MHz	
Chain 0	
Channel 26065	
Frequency Range : 9kHz~3GHz	Frequency Range : 3GHz~10GHz
	
Frequency Range : 10GHz~20GHz	
	

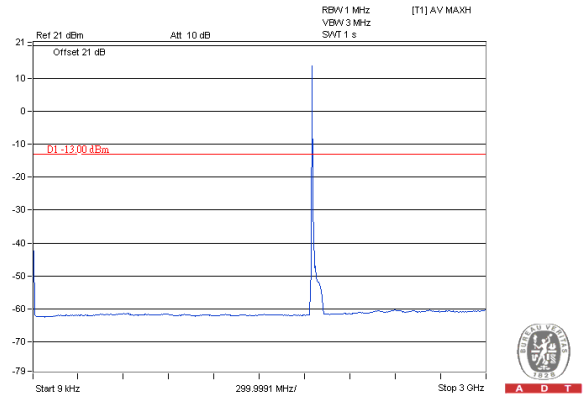
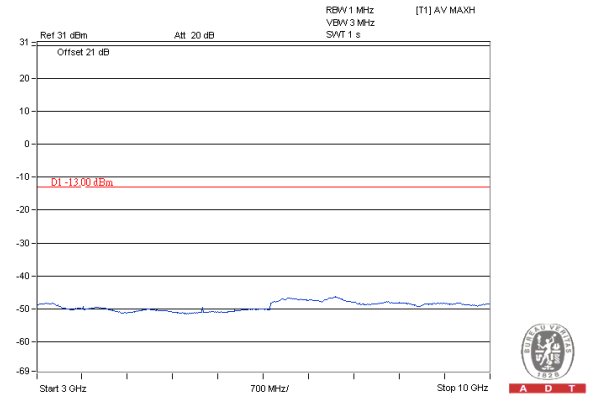
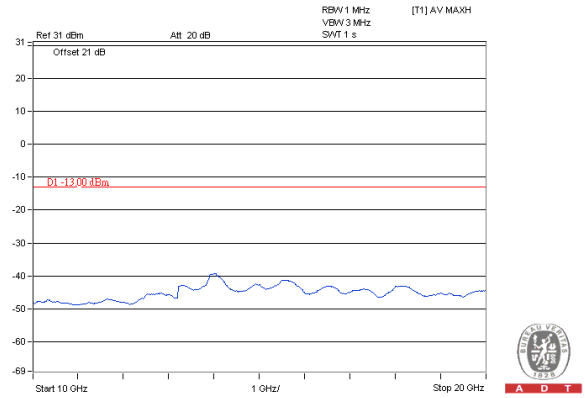
LTE Band 25 Channel Band width: 5MHz	
Chain 0	
Channel 26365	
Frequency Range : 9kHz~3GHz	Frequency Range : 3GHz~10GHz
	
Frequency Range : 10GHz~20GHz	
	

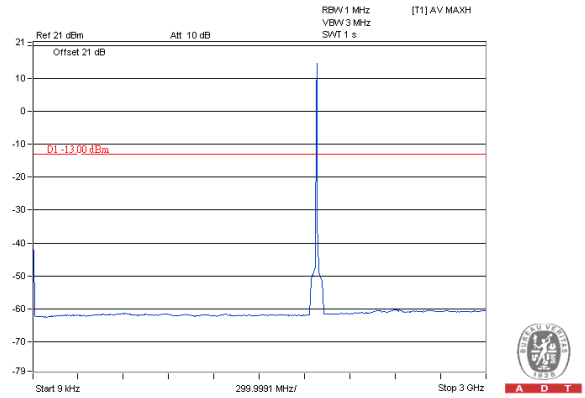
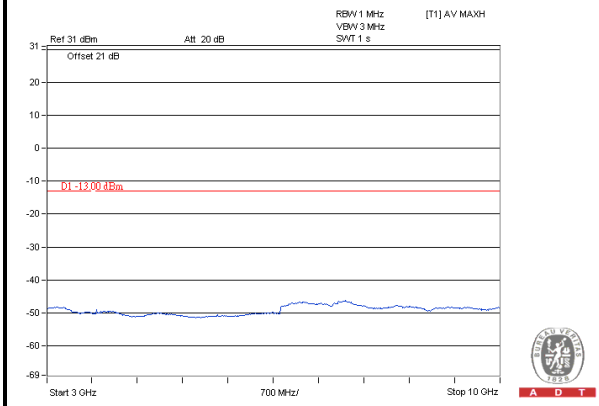
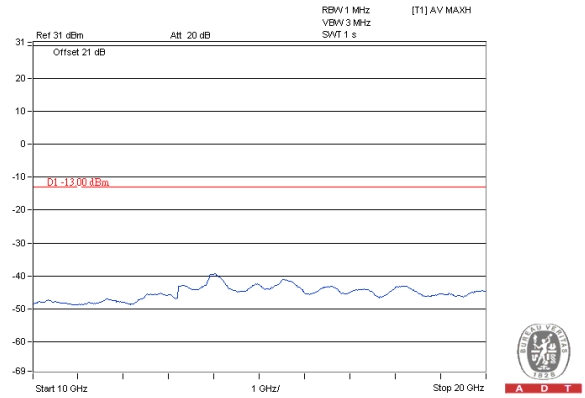
LTE Band 25 Channel Band width: 5MHz	
Chain 0	
Channel 26665	
Frequency Range : 9kHz~3GHz	Frequency Range : 3GHz~10GHz
	
Frequency Range : 10GHz~20GHz	
	

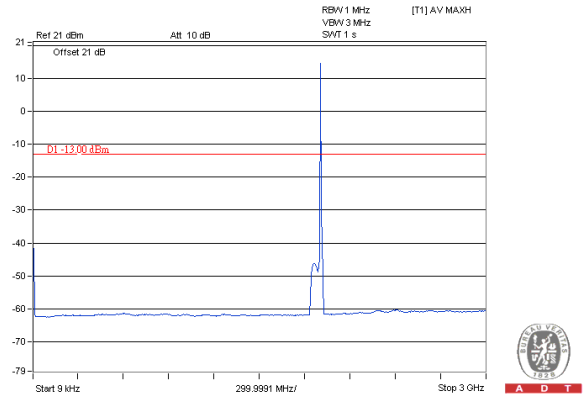
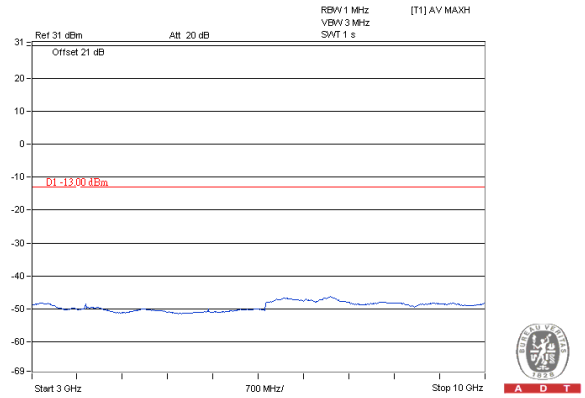
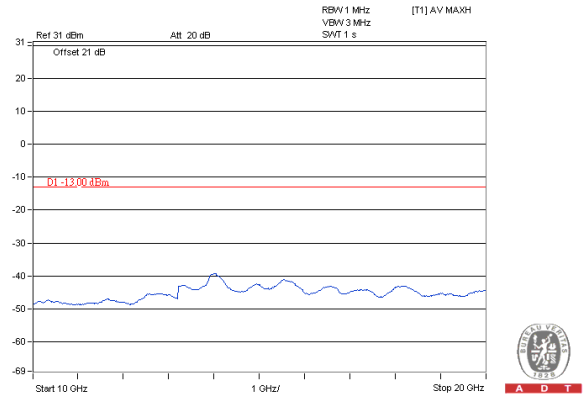
LTE Band 25 Channel Band width: 5MHz	
Chain 1	
Channel 26065	
Frequency Range : 9kHz~3GHz	Frequency Range : 3GHz~10GHz
	
Frequency Range : 10GHz~20GHz	
	

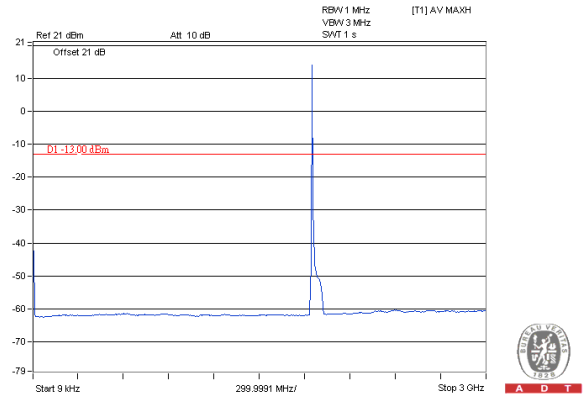
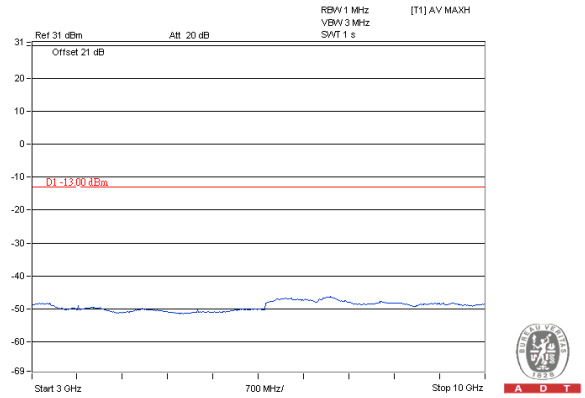
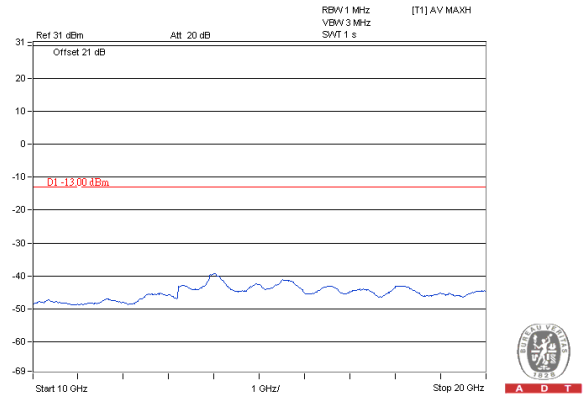
LTE Band 25 Channel Band width: 5MHz	
Chain 1	
Channel 26365	
Frequency Range : 9kHz~3GHz	Frequency Range : 3GHz~10GHz
	
Frequency Range : 10GHz~20GHz	
	

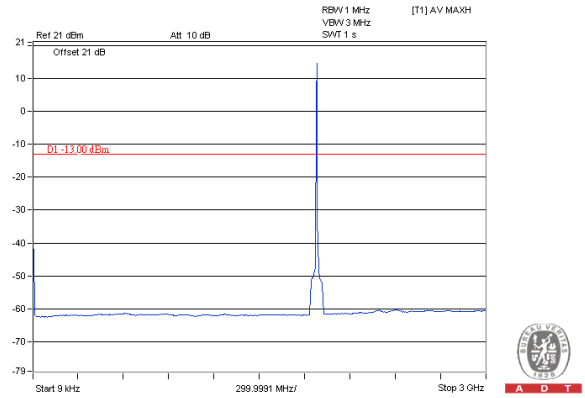
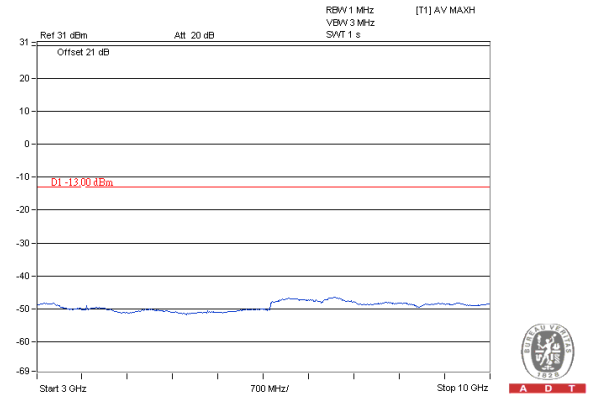
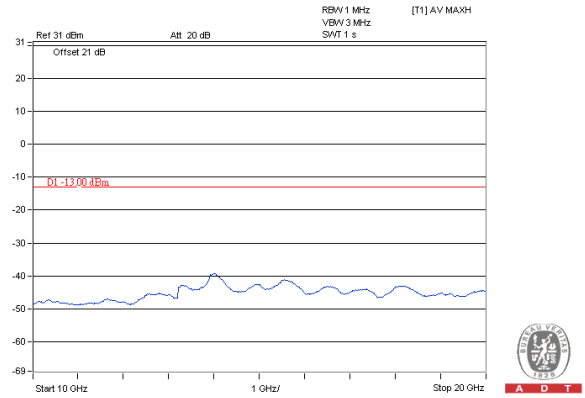
LTE Band 25 Channel Band width: 5MHz	
Chain 1	
Channel 26665	
Frequency Range : 9kHz~3GHz	Frequency Range : 3GHz~10GHz
	
Frequency Range : 10GHz~20GHz	
	

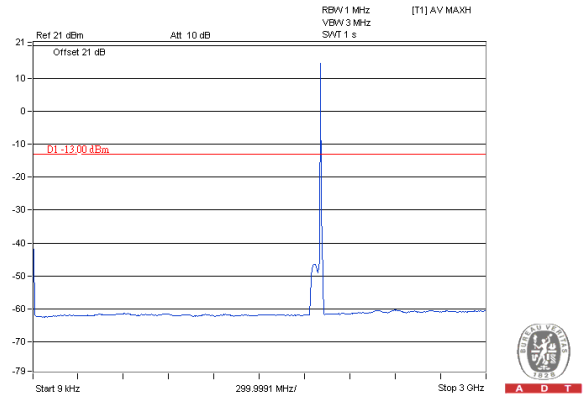
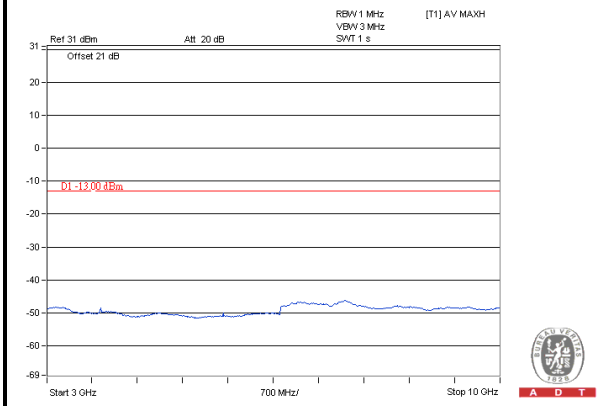
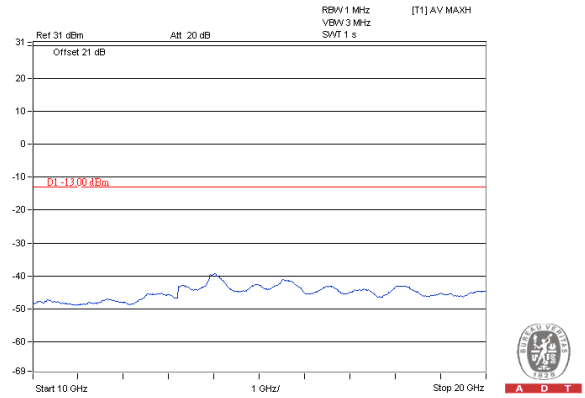
LTE Band 25 Channel Band width: 10MHz	
Chain 0	
Channel 26090	
Frequency Range : 9kHz~3GHz	Frequency Range : 3GHz~10GHz
	
Frequency Range : 10GHz~20GHz	
	

LTE Band 25 Channel Band width: 10MHz	
Chain 0	
Channel 26365	
Frequency Range : 9kHz~3GHz	Frequency Range : 3GHz~10GHz
	
Frequency Range : 10GHz~20GHz	
	

LTE Band 25 Channel Band width: 10MHz	
Chain 0	
Channel 26640	
Frequency Range : 9kHz~3GHz	Frequency Range : 3GHz~10GHz
	
Frequency Range : 10GHz~20GHz	
	

LTE Band 25 Channel Band width: 10MHz	
Chain 1	
Channel 26090	
Frequency Range : 9kHz~3GHz	Frequency Range : 3GHz~10GHz
	
Frequency Range : 10GHz~20GHz	
	

LTE Band 25 Channel Band width: 10MHz	
Chain 1	
Channel 26365	
Frequency Range : 9kHz~3GHz	Frequency Range : 3GHz~10GHz
	
Frequency Range : 10GHz~20GHz	
	

LTE Band 25 Channel Band width: 10MHz	
Chain 1	
Channel 26640	
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. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.

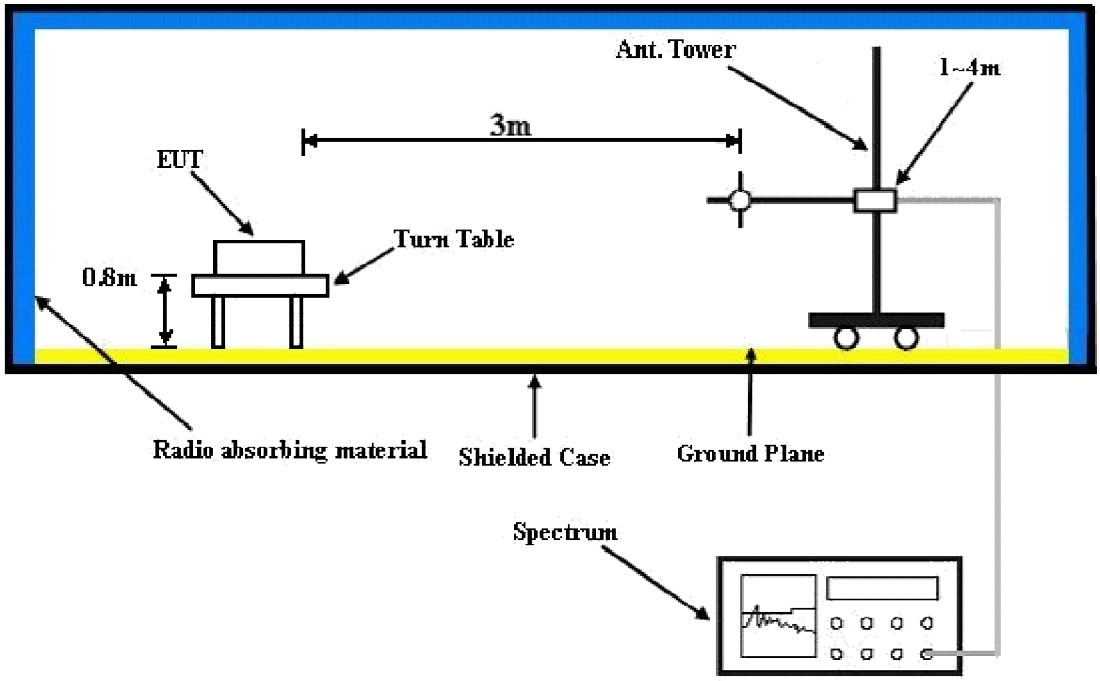
d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.R.P power - 2.15dBi.

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

LTE Band 25

Channel Bandwidth: 3MHz

Mode	TX channel 26055	Frequency Range	Below 1000 MHz

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	121.18	-61.96	-77.15	12.81	-64.34	-13.00	-51.34
2	225.94	-63.98	-80.22	12.18	-68.04	-13.00	-55.04
3	307.42	-66.39	-83.51	16.41	-67.10	-13.00	-54.10
4	398.60	-69.08	-87.40	18.68	-68.72	-13.00	-55.72
5	459.71	-68.65	-88.20	20.58	-67.62	-13.00	-54.62
6	589.69	-69.20	-88.56	23.33	-65.23	-13.00	-52.23
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	36.79	-69.50	-81.17	13.43	-67.74	-13.00	-54.74
2	159.98	-68.47	-83.47	15.08	-68.39	-13.00	-55.39
3	233.70	-65.48	-81.91	13.05	-68.86	-13.00	-55.86
4	424.79	-73.49	-92.53	19.58	-72.95	-13.00	-59.95
5	493.66	-69.76	-89.56	21.15	-68.41	-13.00	-55.41
6	589.69	-72.33	-92.23	23.33	-68.90	-13.00	-55.90

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: 5MHz

Mode	TX channel 26065	Frequency Range	Below 1000 MHz

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	121.18	-62.42	-77.61	12.81	-64.80	-13.00	-51.80
2	164.83	-62.31	-77.25	14.69	-62.56	-13.00	-49.56
3	286.08	-64.44	-81.00	15.80	-65.20	-13.00	-52.20
4	398.60	-70.35	-88.67	18.68	-69.99	-13.00	-56.99
5	468.44	-68.10	-87.55	20.71	-66.84	-13.00	-53.84
6	584.84	-67.96	-87.40	23.18	-64.22	-13.00	-51.22
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	38.73	-71.50	-82.60	13.70	-68.90	-13.00	-55.90
2	94.99	-63.01	-78.45	9.59	-68.86	-13.00	-55.86
3	182.29	-61.53	-77.41	13.04	-64.37	-13.00	-51.37
4	312.27	-67.11	-85.04	16.65	-68.39	-13.00	-55.39
5	493.66	-70.26	-90.06	21.15	-68.91	-13.00	-55.91
6	519.85	-67.15	-86.87	21.71	-65.16	-13.00	-52.16

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 26090	Frequency Range	Below 1000 MHz

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	119.24	-69.04	-84.09	12.61	-71.48	-13.00	-58.48
2	217.21	-64.62	-81.24	12.18	-69.06	-13.00	-56.06
3	312.27	-65.74	-83.10	16.65	-66.45	-13.00	-53.45
4	407.33	-70.46	-88.91	18.90	-70.01	-13.00	-57.01
5	463.59	-70.16	-89.64	20.62	-69.02	-13.00	-56.02
6	563.50	-69.33	-89.10	22.52	-66.58	-13.00	-53.58
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	39.70	-70.99	-81.74	13.77	-67.97	-13.00	-54.97
2	156.10	-70.31	-84.87	14.98	-69.89	-13.00	-56.89
3	229.82	-65.07	-81.46	12.40	-69.06	-13.00	-56.06
4	312.27	-67.11	-85.04	16.65	-68.39	-13.00	-55.39
5	424.79	-73.99	-93.03	19.58	-73.45	-13.00	-60.45
6	546.04	-68.39	-87.78	22.08	-65.70	-13.00	-52.70

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

LTE Band 25

Channel Bandwidth: 3MHz

Mode	TX channel 26055	Frequency Range	Above 1000MHz

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	3698.00	-35.19	-48.80	18.38	-30.42	-13.00	-17.42
2	5548.00	-51.16	-64.54	22.52	-42.02	-13.00	-29.02
3	7398.00	-53.96	-69.22	25.95	-43.27	-13.00	-30.27
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	3698.00	-38.63	-52.27	18.38	-33.89	-13.00	-20.89
2	5548.00	-47.88	-61.47	22.52	-38.95	-13.00	-25.95
3	7398.00)	-47.69	-63.00	25.95	-37.05	-13.00	-24.05

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 26365	Frequency Range	Above 1000MHz

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	3758.00	-38.50	-51.84	18.53	-33.31	-13.00	-20.31
2	5638.00	-43.07	-56.35	22.60	-33.75	-13.00	-20.75
3	7518.00	-51.12	-66.39	26.21	-40.18	-13.00	-27.18
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	3758.00	-41.16	-54.55	18.53	-36.02	-13.00	-23.02
2	5638.00	-43.82	-57.29	22.60	-34.69	-13.00	-21.69
3	7518.00	-52.66	-67.96	26.21	-41.75	-13.00	-28.75

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 26675	Frequency Range	Above 1000MHz

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	3824.00	-38.99	-52.29	18.70	-33.59	-13.00	-20.59
2	5738.00	-43.52	-56.69	22.69	-34.00	-13.00	-21.00
3	7649.00	-51.24	-66.41	26.49	-39.92	-13.00	-26.92
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	3824.00	-41.72	-55.11	18.70	-36.41	-13.00	-23.41
2	5738.00	-43.78	-57.12	22.69	-34.43	-13.00	-21.43
3	7649.00	-49.94	-65.25	26.49	-38.76	-13.00	-25.76

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: 5MHz

Mode	TX channel 26065	Frequency Range	Above 1000MHz

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	3700.00	-48.72	-62.36	18.40	-43.96	-13.00	-30.96
2	5551.00	-48.69	-62.07	22.52	-39.55	-13.00	-26.55
3	7402.00	-43.81	-59.07	25.95	-33.12	-13.00	-20.12
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	3700.00	-41.98	-55.65	18.40	-37.25	-13.00	-24.25
2	5551.00	-41.07	-54.66	22.52	-32.14	-13.00	-19.14
3	**7402.00**	**-37.59**	**-52.89**	**25.95**	**-26.94**	**-13.00**	**-13.94**

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 26365	Frequency Range	Above 1000MHz

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	3760.00	-52.31	-65.64	18.54	-47.10	-13.00	-34.10
2	5641.00	-49.16	-62.44	22.60	-39.84	-13.00	-26.84
3	7522.00	-50.01	-65.28	26.22	-39.06	-13.00	-26.06
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	3760.00	-46.94	-60.33	18.54	-41.79	-13.00	-28.79
2	5641.00	-50.59	-64.05	22.60	-41.45	-13.00	-28.45
3	7522.00	-41.78	-57.08	26.22	-30.86	-13.00	-17.86

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 26665	Frequency Range	Above 1000MHz

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	-52.00	-65.27	18.69	-46.58	-13.00	-33.58
2	5731.00	-42.28	-55.45	22.68	-32.77	-13.00	-19.77
3	7642.00	-53.71	-68.89	26.48	-42.41	-13.00	-29.41
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	3820.00	-44.24	-57.60	18.69	-38.91	-13.00	-25.91
2	5731.00	-37.00	-50.34	22.68	-27.66	-13.00	-14.66
3	7642.00	-45.91	-61.22	26.48	-34.74	-13.00	-21.74

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 26090	Frequency Range	Above 1000MHz

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	3700.00	-32.63	-46.27	18.40	-27.87	-13.00	-14.87
2	5551.00	-47.05	-60.43	22.52	-37.91	-13.00	-24.91
3	7402.00	-45.94	-61.20	25.95	-35.25	-13.00	-22.25
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	3700.00	-35.72	-49.39	18.40	-30.99	-13.00	-17.99
2	5551.00	-45.36	-58.95	22.52	-36.43	-13.00	-23.43
3	7402.00	-38.59	-53.89	25.95	-27.94	-13.00	-14.94

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 26365	Frequency Range	Above 1000MHz

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	3757.00	-37.85	-51.19	18.53	-32.66	-13.00	-19.66
2	5635.00	-44.76	-58.05	22.60	-35.45	-13.00	-22.45
3	7513.00	-48.42	-63.68	26.19	-37.49	-13.00	-24.49
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	3757.00	-39.97	-53.37	18.53	-34.84	-13.00	-21.84
2	5635.00	-44.91	-58.39	22.60	-35.79	-13.00	-22.79
3	7513.00	-41.94	-57.23	26.19	-31.04	-13.00	-18.04

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 26640	Frequency Range	Above 1000MHz

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	3811.00	-35.25	-48.46	18.67	-29.79	-13.00	-16.79
2	5716.00	-43.29	-56.47	22.66	-33.81	-13.00	-20.81
3	7624.00	-48.01	-63.21	26.45	-36.76	-13.00	-23.76
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	3811.00	-39.03	-52.32	18.67	-33.65	-13.00	-20.65
2	5716.00	-40.81	-54.17	22.66	-31.51	-13.00	-18.51
3	7621.00	-42.17	-57.50	26.45	-31.05	-13.00	-18.05

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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