FCC Test Report

FCC ID	:	**MXF-WRTD303NME936**
Equipment	:	**LTE Module**
Model No.	:	**ME936**
Brand Name	:	**Gemtek**
Applicant	:	**Gemtek Technology Co., Ltd.**
Address	:	**No.15-1 Zhonghua Road, Hsinchu Industrial Park, Hukou, Hsinchu, Taiwan, 30352**
Standard	:	**47 CFR FCC Part 27 Subpart M**
Received Date	:	**Nov. 12, 2014**
Tested Date	:	**Dec. 12 ~ Dec. 21, 2014**

We, International Certification Corp., would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

Approved & Reviewed by:

Along Chen

Along Chen / Assistant Manager

Testing Laboratory
2732

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Release Record

Report No.	Version	Description	Issued Date
FG4N1201P27M	Rev. 01	Initial issue	Jan. 21, 2014

Summary of Test Results

FCC Rules	Description of Test	Measured	Result
2.1046 / 27.50(h)(2)	Equivalent Isotropically Radiated Power	Power[dBm] : 25.98	Pass
2.1053 / 27.53(l)(4)(6)	Radiated Emissions	Meet the requirement of limit	Pass
2.1051 / 27.53(l)(4)(6)	Conducted Emissions	Meet the requirement of limit	Pass
2.1051 / 27.53(l)(4)(6)	Channel Edge Measurement	Meet the requirement of limit	Pass
2.1049(h) / 27.53(l)(6)	Emission Bandwidth	Meet the requirement of limit	Pass
2.1055 / 27.54	Frequency Stability	Meet the requirement of limit	Pass

1 General Description

1.1 Information

1.1.1 Specification of the Equipment under Test (EUT)

Operating Frequency (MHz)	Channel Bandwidth: 5MHz: 2502.5~2567.5 Channel Bandwidth: 10MHz: 2505~2565 Channel Bandwidth: 15MHz: 2507.5~2562.5 Channel Bandwidth: 20MHz: 2510~2560
Modulation Type	Uplink : QPSK, 16QAM Downlink : QPSK, 16QAM, 64QAM
Duplex Mode	FDD
Release Version	9
H/W Version	V03
S/W Version	1.1.0

Note: The module is certified as limited module that is limited to specific host (refer to section 1.1.2).

1.1.2 Specific platform Information

Brand Name	Model Name	Product Name	FCC ID
Gemtek	WRTD-303N	Easy Connect	MXF-WRTD303N

Accessories for Platfrom		
No.	**Equipment**	**Description**
1	AC Adapter 1	Brand Name: AOEM Model Name: ADS0248-W 120200 Power Rating: I/P: 100-240Vac, 50-60Hz, 0.6A O/P: 12Vdc, 2A Power Line: 120cm non-shielded cable with one core
2	AC Adapter 2	Brand Name: APD Model Name: WA-24Q12FU Power Rating: I/P: 100-240Vac, 50-60Hz, 0.6A O/P: 12Vdc, 2A Power Line: 1.8m non-shielded cable with one core
3	AC Adapter 3	Brand Name: MOSO Model Name: MSP-C2000IC12.0-24W-US Power Rating: I/P: 100-240Vac, 50-60Hz, 0.8A O/P: 12Vdc, 2A Power Line: 1.4m non-shielded cable with one core

4	WTE Battery	Model: 303N Rating: 7.4Vdc, 4050mAh (29.97Wh)
5	MAXELL Battery	button cell battery Model: ML2032 Rating: 3Vdc
6	built-in HDD	Brand: TOSHIBA Model: MQ01ABF050 Capacity: 500GB

1.1.3 Maximum Conducted Power and Emission Designator

System	Bandwidth	Modulation	Maximum ERP(W)	Emission Designator
LTE band 7	5	QPSK	0.356	4M52G7D
LTE band 7	5	16QAM	0.322	4M50W7D
LTE band 7	10	QPSK	0.374	9M03G7D
LTE band 7	10	16QAM	0.340	8M97W7D
LTE band 7	15	QPSK	0.385	13M5G7D
LTE band 7	15	16QAM	0.334	13M5W7D
LTE band 7	20	QPSK	0.396	17M9G7D
LTE band 7	20	16QAM	0.344	17M9W7D

1.1.4 Antenna Details

Ant. No.	Type	Gain (dBi)	Connector	Remark
1	PIFA	3	UFL	---

1.1.5 EUT Operational Condition

EUT

Supply Voltage	3.3 Vdc from host		
Operational Climatic	☒ Tnom (20°C)	☒ Tmax (55°C)	☒ Tmin (-10°C)

Host

Operational Voltage	☒ Vnom (7.4 Vdc)	☒ Vmax (8.14 Vdc)	☒ Vmin (6.66 Vdc)

1.1.6 Operating Channel List

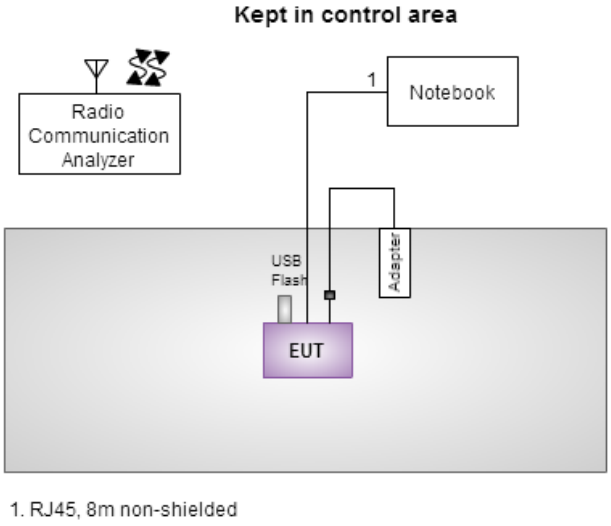
LTE Band 7		
Channel Bandwidth (MHz)	**Channel**	**Frequency (MHz)**
5	20775	2502.5
5	21100	2535
5	21425	2567.5
10	20800	2505
10	21100	2535
10	21400	2565
15	20825	2507.5
15	21100	2535
15	21375	2562.5
20	20850	2510
20	21100	2535
20	21350	2560

1.2 Local Support Equipment List

Support Equipment List						
No.	**Equipment**	**Brand**	**Model**	**S/N**	**FCC ID**	**Signal cable / Length (m)**
1	Notebook	DELL	Latitude E6430	J5GB4X1	DoC	RJ45, 8m non-shielded.
2	USB Flash	Kingston	DTSE9	WX9Q6	---	---

1.3 Test Setup Chart

Test Setup Diagram



Note: The module is certified as limited module that is limited to specific host (refer to section 1.1.2). Thus, test configuration is combined with host not stand-alone.

1.4 The Equipment List

Test Item	Radiated Emission				
Test Site	966 chamber1 / (03CH01-WS)				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101499	Feb. 08, 2014	Feb. 07, 2015
Receiver	R&S	ESR3	101658	Nov. 10, 2014	Nov. 09, 2015
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Sep. 05, 2014	Sep. 04, 2015
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1095	Oct. 14, 2014	Oct. 13, 2015
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Nov. 10, 2014	Nov. 09, 2015
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 10, 2014	Nov. 09, 2015
Preamplifier	Burgeon	BPA-530	SN:100219	Sep. 09, 2014	Sep. 08, 2015
Preamplifier	Agilent	83017A	MY39501308	Oct. 09, 2014	Oct. 08, 2015
Preamplifier	EMC	EMC184045B	980192	Aug. 26, 2014	Aug. 25, 2015
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY22620/4	Feb. 19, 2014	Feb. 18, 2015
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY22601/4	Feb. 19, 2014	Feb. 18, 2015
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY22624/4	Feb. 19, 2014	Feb. 18, 2015
LF cable 3M	EMC	EMC8D-NM-NM-3000	131103	Feb. 17, 2014	Feb. 16, 2015
LF cable 10M	EMC	EMC8D-NM-NM-13000	131104	Feb. 17, 2014	Feb. 16, 2015
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	RF Conducted				
Test Site	(TH01-WS)				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101063	Feb. 17, 2014	Feb. 16, 2015
TEMP&HUMIDITY CHAMBER	GIANT FORCE	GCT-225-40-SP-SD	MAF1212-002	Dec. 03, 2014	Dec. 02, 2015
Power Meter	Anritsu	ML2495A	1241002	Sep. 29, 2014	Sep. 28, 2015
Power Sensor	Anritsu	MA2411B	1207366	Sep. 29, 2014	Sep. 28, 2015
Radio Communication Analyzer	Anritsu	MT8820C	6201240341	Mar. 18, 2014	Mar. 17, 2015
Measurement Software	Sporton	Sporton_1	1.3.30	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

1.5 Test Standards

According to the specification of EUT, the EUT must comply with following standards.

47 CFR FCC Part 27 Subpart M
ANSI C63.4-2003
ANSI / TIA / EIA-603-C -2004
FCC KDB 971168 D01 Power Meas License Digital Systems v02r02
FCC KDB 971168 D02 Misc OOBE License Digital Systems v01
FCC KDB 412172 D01 Determining ERP and EIRP v01

1.6 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)

Measurement Uncertainty	
Parameters	**Uncertainty**
Bandwidth	±34.134 Hz
Conducted power	±0.808 dB
Frequency error	±34.134 Hz
Conducted emission	±2.670 dB
AC conducted emission	±2.92 dB
Radiated emission < 1GHz	±3.72 dB
Radiated emission > 1GHz	±5.65 dB
Temperature	±0.6 ^{o}C

2 Test Configuration

2.1 Testing Condition and Location Information

Test Item	Test Site	Ambient Condition	Tested By
RF conducted	TH01-WS	20°C / 60%	Felix Sung
Radiated Emissions	03CH01-WS	22°C / 63%	Haru Yang

- FCC site registration No.: 657002
- IC site registration No.: 10807A-1

2.2 The Worst Test Modes and Channel Details

Test item	Channel Bandwidth	Modulation	Test channel	Test Configuration
E.I.R.P Conducted Emissions Occupied Bandwidth Peak to Average Ratio	5 MHz 10 MHz 15 MHz 20 MHz	QPSK / 16QAM QPSK / 16QAM QPSK / 16QAM QPSK / 16QAM	20775 / 21100 / 21425 20800 / 21100 / 21400 20825 / 21100 / 21375 20850 / 21100 / 21350	---
Radiated Emission ≤ 1GHz	5 MHz 10 MHz 15 MHz 20 MHz	QPSK QPSK QPSK QPSK	21100 21100 21375 21100	---
Radiated Emission > 1GHz	5 MHz 10 MHz 15 MHz 20 MHz	QPSK QPSK QPSK QPSK	20775 / 21100 / 21425 20800 / 21100 / 21400 20825 / 21100 / 21375 20850 / 21100 / 21350	---
Band Edge	5 MHz 10 MHz 15 MHz 20 MHz	QPSK / 16QAM QPSK / 16QAM QPSK / 16QAM QPSK / 16QAM	20775 / 21425 20800 / 21400 20825 / 21375 20850 / 21350	---
Frequency Stability	5 MHz 10 MHz 15 MHz 20 MHz	QPSK QPSK QPSK QPSK	21100 21100 21100 21100	---

Note:

1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The **X-plane** results were found as the worst case and were shown in this report.
2. Adapter 1, Adapter 2 and Adapter 3 had been pretested and found that **Adapter 1** was the worst case and was selected for final testing (Adapter 1: AOEM adapter; Adapter 2: APD adapter; Adapter 3: MOSO adapter).

3 Test Results

3.1 Equivalent Isotropically Radiated Power

3.1.1 Limit of Equivalent Isotropically Radiated Power

Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP.

3.1.2 Test Procedures

For Conducted power measurement

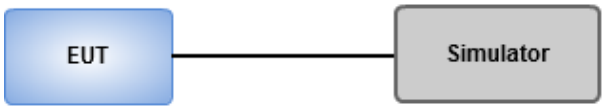
1. The EUT links up with simulator and is set to maximum output power level at low / middel / high channel.
2. Measure the output power of low / middle / high channel of the EUT

For EIRP measurement

EIPR can be calculated by below formula from KDB 412172 D01

1. EIRP = $P_T + G_T - L_C$
   P_T = transmitter output power, in dBm
   G_T = gain of the transmitting antenna, in dBi (EIRP)
   L_C = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

3.1.3 Test Setup



3.1.4 Test Result of Conducted power (dBm)

Band / Channel Bandwidth			LTE Band 7 / CB: 5MHz		
Channel			20775	21100	21425
Frequency (MHz)			2502.5	2535	2567.5
Mode	RB	RB Offset	Maximum AV Power (dBm)		
QPSK	1	0	22.38	22.43	22.45
	1	12	22.27	22.45	22.27
	1	24	22.32	**22.51**	22.45
	12	0	21.67	21.64	21.86
	12	6	21.53	21.64	21.77
	12	11	21.54	21.59	21.72
	25	0	21.65	21.55	21.77
16QAM	1	0	21.72	21.52	21.83
	1	12	21.74	22.08	21.89
	1	24	21.53	21.75	21.71
	12	0	20.68	20.78	20.90
	12	6	20.63	20.74	20.82
	12	11	20.60	20.64	20.76
	25	0	20.59	20.69	20.73

Band / Channel Bandwidth			LTE Band 7 / CB: 10MHz		
Channel			20800	21100	21400
Frequency (MHz)			2505	2535	2565
Mode	RB	RB Offset	Maximum AV Power (dBm)		
QPSK	1	0	22.50	22.68	22.57
	1	24	22.35	22.20	22.33
	1	49	22.55	**22.73**	22.66
	25	0	21.76	21.97	21.74
	25	12	21.76	21.92	21.74
	25	24	21.79	21.89	21.80
	50	0	21.76	21.87	21.79
16QAM	1	0	22.05	21.89	22.32
	1	24	21.87	21.90	21.96
	1	49	21.82	21.93	21.79
	25	0	20.87	20.99	20.94
	25	12	20.81	20.88	20.78
	25	24	20.76	20.86	20.81
	50	0	20.75	20.84	20.82

Band / Channel Bandwidth			LTE Band 7 / CB: 15MHz		
Channel			20825	21100	21375
Frequency (MHz)			2507.5	2535	2562.5
Mode	RB	RB Offset	Maximum AV Power (dBm)		
QPSK	1	0	22.72	22.68	22.83
	1	37	22.69	22.63	22.77
	1	74	22.78	22.69	**22.85**
	36	0	21.88	21.92	22.03
	36	18	21.87	21.96	21.99
	36	37	21.96	21.89	22.02
	75	0	21.93	21.89	22.01
16QAM	1	0	22.24	21.97	22.16
	1	37	21.97	22.02	22.06
	1	74	21.89	21.99	21.97
	36	0	20.98	20.99	21.06
	36	18	20.86	20.92	20.98
	36	37	20.85	20.88	20.99
	75	0	20.86	20.88	20.91

Band / Channel Bandwidth			LTE Band 7 / CB: 20MHz		
Channel			20850	21100	21350
Frequency (MHz)			2510	2535	2560
Mode	RB	RB Offset	Maximum AV Power (dBm)		
QPSK	1	0	22.74	22.92	22.96
	1	49	22.75	22.73	22.79
	1	99	22.78	**22.98**	22.86
	50	0	22.06	22.14	22.16
	50	24	22.01	21.99	22.06
	50	49	22.05	22.01	22.13
	100	0	22.16	22.12	22.24
16QAM	1	0	22.16	22.28	22.32
	1	49	22.02	22.07	22.13
	1	99	22.16	22.36	22.21
	50	0	21.12	21.02	21.03
	50	24	20.99	21.10	21.15
	50	49	21.06	21.01	21.13
	100	0	21.03	20.98	21.06

3.1.5 Test Result of Equivalent Isotropically Radiated Power (dBm)

Mode	LTE CB: 5MHz, QPSK					
Channel	Frequency (MHz)	Conducted Output Power (dBm)	Max Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Limit (W)
20775	2502.5	22.38	3	25.38	0.345	2
21100	2535	22.51	3	25.51	0.356	2
21425	2567.5	22.45	3	25.45	0.351	2

Mode	LTE CB: 5MHz, 16QAM					
Channel	Frequency (MHz)	Conducted Output Power (dBm)	Max Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Limit (W)
20775	2502.5	21.74	3	24.74	0.298	2
21100	2535	22.08	3	25.08	0.322	2
21425	2567.5	21.89	3	24.89	0.308	2

Mode	LTE CB: 10MHz, QPSK					
Channel	Frequency (MHz)	Conducted Output Power (dBm)	Max Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Limit (W)
20800	2505	22.55	3	25.55	0.359	2
21100	2535	22.73	3	25.73	0.374	2
21400	2565	22.66	3	25.66	0.368	2

Mode	LTE CB: 10MHz, 16QAM					
Channel	Frequency (MHz)	Conducted Output Power (dBm)	Max Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Limit (W)
20800	2505	22.05	3	25.05	0.320	2
21100	2535	21.93	3	24.93	0.311	2
21400	2565	22.32	3	25.32	0.340	2

Mode	LTE CB: 15MHz, QPSK					
Channel	**Frequency (MHz)**	**Conducted Output Power (dBm)**	**Max Antenna Gain (dBi)**	**EIRP (dBm)**	**EIRP (W)**	**Limit (W)**
20825	2507.5	22.78	3	25.78	0.378	2
21100	2535	22.69	3	25.69	0.371	2
21375	2562.5	22.85	3	25.85	0.385	2

Mode	LTE CB: 15MHz, 16QAM					
Channel	**Frequency (MHz)**	**Conducted Output Power (dBm)**	**Max Antenna Gain (dBi)**	**EIRP (dBm)**	**EIRP (W)**	**Limit (W)**
20825	2507.5	22.24	3	25.24	0.334	2
21100	2535	22.02	3	25.02	0.318	2
21375	2562.5	22.16	3	25.16	0.328	2

Mode	LTE CB: 20MHz, QPSK					
Channel	**Frequency (MHz)**	**Conducted Output Power (dBm)**	**Max Antenna Gain (dBi)**	**EIRP (dBm)**	**EIRP (W)**	**Limit (W)**
20850	2510	22.78	3	25.78	0.378	2
21100	2535	22.98	3	**25.98**	0.396	2
21350	2560	22.96	3	25.96	0.394	2

Mode	LTE CB: 20MHz, 16QAM					
Channel	**Frequency (MHz)**	**Conducted Output Power (dBm)**	**Max Antenna Gain (dBi)**	**EIRP (dBm)**	**EIRP (W)**	**Limit (W)**
20850	2510	22.16	3	25.16	0.328	2
21100	2535	22.36	3	25.36	0.344	2
21350	2560	22.32	3	25.32	0.340	2

3.2 Radiated Emissions

3.2.1 Limit of Radiated Emissions

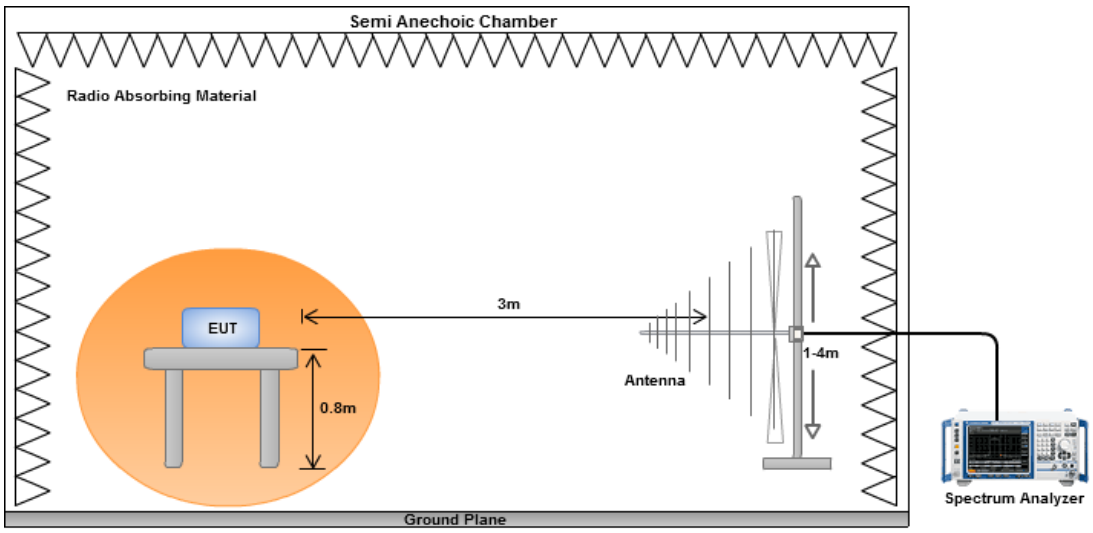
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 55 + 10 log(P) dB equal to -25dBm.

3.2.2 Test Procedures

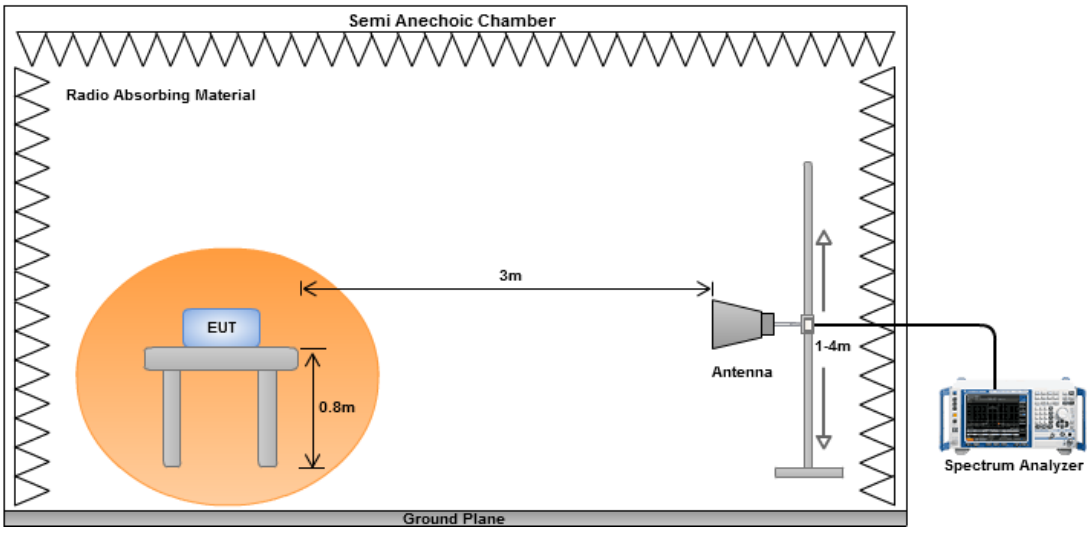
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. The EUT is placed at a height of 0.8 m test table above the ground plane.
2. Measurement is made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna is varied in height (1m ~ 4m) above the reference ground plane to obtain the maximum signal strength. Distance between EUT and antenna is 3 m.
3. This investigation is performed with the EUT rotated 360°, the antenna height scanned between 1 m and4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations.
4. After finding the max radiated emission, substitution method will be used for getting effective radiated power. EUT will be removed and substitution antenna will be placed at same position. Signal generator will output CW signal to substitution antenna through a RF cable. Rotate turntable and move antenna to find maximum radiated emission. Adjust output power of signal generator to let the maximum radiated emission is same as step 3. Record the output power level.
5. E.I.R.P = output power of step 4 + gain of substitution antenna – cable loss of RF cable.

3.2.3 Test Setup

Radiated Emissions below 1 GHz



Radiated Emissions above 1 GHz



3.2.4 Test Result of Radiated Emissions below 1GHz

Mode		LTE Band 7, CB:5MHz, 1RB, Offset 24, Channel:21100					
Frequency (MHz)	Antenna Polarity	E.I.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Vaule (dBm)	Correction Factor (dB)
30	H	-54.52	-25	-29.52	-53.55	-40.14	-14.38
62.98	H	-56.07	-25	-31.07	-48.37	-48.31	-7.76
115.36	H	-46.11	-25	-21.11	-35.9	-45.63	-0.48
142.52	H	-55.38	-25	-30.38	-46.58	-54.09	-1.29
185.2	H	-63.36	-25	-38.36	-52.43	-66.07	2.71
328.76	H	-62.91	-25	-37.91	-54.88	-67.24	4.33
31.94	V	-52.48	-25	-27.48	-41.96	-38.64	-13.84
108.57	V	-39.98	-25	-14.98	-30.77	-39.83	-0.15
146.4	V	-53.76	-25	-28.76	-46.97	-52.57	-1.19
283.17	V	-63.16	-25	-38.16	-57.09	-67.42	4.26
320.03	V	-62.28	-25	-37.28	-56.16	-66.57	4.29
433.52	V	-59.49	-25	-34.49	-54.12	-63.65	4.16

Note: EIRP = S.G Power value + Correction factor.

Mode		LTE Band 7, CB:10MHz, 1RB, Offset 49, Channel:21100					
Frequency (MHz)	Antenna Polarity	E.I.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Vaule (dBm)	Correction Factor (dB)
30.18	H	-54.39	-25	-29.39	-53.36	-40.06	-14.33
62.47	H	-56.63	-25	-31.63	-48.91	-48.7	-7.93
115.41	H	-46.25	-25	-21.25	-36.04	-45.76	-0.49
142.38	H	-55.91	-25	-30.91	-47.11	-54.62	-1.29
185.41	H	-63.47	-25	-38.47	-52.51	-66.2	2.73
328.68	H	-62.45	-25	-37.45	-54.42	-66.78	4.33
31.45	V	-52.13	-25	-27.13	-41.96	-38.15	-13.98
108.37	V	-40.23	-25	-15.23	-31.03	-40.09	-0.14
146.58	V	-53.91	-25	-28.91	-47.13	-52.72	-1.19
283.41	V	-63.02	-25	-38.02	-56.95	-67.28	4.26
320.81	V	-62.45	-25	-37.45	-56.34	-66.74	4.29
433.68	V	-59.91	-25	-34.91	-54.54	-64.07	4.16

Note: EIRP = S.G Power value + Correction factor.

Mode		LTE Band 7, CB:15MHz, 1RB, Offset 74, Channel:21375					
Frequency (MHz)	Antenna Polarity	E.I.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Vaule (dBm)	Correction Factor (dB)
30.74	H	-54.81	-25	-29.81	-53.59	-40.63	-14.18
62.47	H	-56.14	-25	-31.14	-48.42	-48.21	-7.93
115.49	H	-46.38	-25	-21.38	-36.17	-45.89	-0.49
142.21	H	-55.93	-25	-30.93	-47.13	-54.63	-1.3
185.36	H	-63.45	-25	-38.45	-52.5	-66.18	2.73
328.42	H	-62.45	-25	-37.45	-54.4	-66.78	4.33
31.48	V	-52.17	-25	-27.17	-41.98	-38.2	-13.97
108.96	V	-40.26	-25	-15.26	-31.05	-40.09	-0.17
146.37	V	-53.85	-25	-28.85	-47.06	-52.66	-1.19
284.02	V	-63.59	-25	-38.59	-57.51	-67.84	4.25
320.87	V	-62.52	-25	-37.52	-56.41	-66.81	4.29
433.65	V	-59.72	-25	-34.72	-54.35	-63.88	4.16

Note: EIRP = S.G Power value + Correction factor.

Mode		LTE Band 7, CB:20MHz, 1RB, Offset 99, Channel:21100					
Frequency (MHz)	Antenna Polarity	E.I.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Vaule (dBm)	Correction Factor (dB)
30.14	H	-54.95	-25	-29.95	-53.93	-40.61	-14.34
62.78	H	-56.32	-25	-31.32	-48.61	-48.49	-7.83
115.26	H	-46.38	-25	-21.38	-36.17	-45.9	-0.48
142.46	H	-55.93	-25	-30.93	-47.13	-54.64	-1.29
185.17	H	-63.47	-25	-38.47	-52.54	-66.18	2.71
328.94	H	-63.05	-25	-38.05	-55.03	-67.38	4.33
31.28	V	-52.56	-25	-27.56	-42.51	-38.53	-14.03
108.74	V	-40.19	-25	-15.19	-30.98	-40.03	-0.16
146.32	V	-53.89	-25	-28.89	-47.09	-52.69	-1.2
283.43	V	-63.24	-25	-38.24	-57.17	-67.5	4.26
320.47	V	-62.83	-25	-37.83	-56.71	-67.12	4.29
433.41	V	-59.75	-25	-34.75	-54.37	-63.91	4.16

Note: EIRP = S.G Power value + Correction factor.

3.2.5 Test Result of Radiated Emissions above 1GHz

Mode	LTE Band 7, CB:5MHz, 1RB, Offset 24, Channel:20775						
Frequency (MHz)	Antenna Polarity	E.I.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Vaule (dBm)	Correction Factor (dB)
5009.39	H	-35.96	-25	-10.96	-53.2	-41.81	5.85
7513.94	H	-46.61	-25	-21.61	-68.42	-49.57	2.96
10018.75	H	-47.76	-25	-22.76	-73.02	-48.89	1.13
5009.39	V	-34.05	-25	-9.05	-49.03	-39.9	5.85
7513.94	V	-41.81	-25	-16.81	-62.46	-44.77	2.96
10018.75	V	-42.03	-25	-17.03	-65.23	-43.16	1.13

Mode	LTE Band 7, CB:5MHz, 1RB, Offset 24, Channel:21100						
Frequency (MHz)	Antenna Polarity	E.I.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Vaule (dBm)	Correction Factor (dB)
5074.28	H	-37.07	-25	-12.07	-54.32	-42.92	5.85
7611.51	H	-48.28	-25	-23.28	-69.83	-51.26	2.98
10148.62	H	-47.87	-25	-22.87	-73.11	-48.84	0.97
5074.28	V	-34.12	-25	-9.12	-49.54	-39.97	5.85
7611.51	V	-42.17	-25	-17.17	-63.08	-45.15	2.98
10148.62	V	-42.6	-25	-17.6	-65.84	-43.57	0.97

Mode	LTE Band 7, CB:5MHz, 1RB, Offset 24, Channel:21425						
Frequency (MHz)	Antenna Polarity	E.I.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Vaule (dBm)	Correction Factor (dB)
5139.33	H	-35.98	-25	-10.98	-53.26	-41.82	5.84
7708.97	H	-47.26	-25	-22.26	-68.47	-49.86	2.6
10278.55	H	-45.67	-25	-20.67	-70.88	-46.48	0.81
5139.33	V	-32.16	-25	-7.16	-48.03	-38	5.84
7708.97	V	-41.96	-25	-16.96	-62.43	-44.56	2.6
10278.55	V	-41.88	-25	-16.88	-65.16	-42.69	0.81

Note: EIRP = S.G Power value + Correction factor.

Mode	LTE Band 7, CB:10MHz, 1RB, Offset 49, Channel:20800						
Frequency (MHz)	Antenna Polarity	E.I.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Vaule (dBm)	Correction Factor (dB)
5018.83	H	-36.24	-25	-11.24	-53.48	-42.09	5.85
7528.16	H	-46.49	-25	-21.49	-68.27	-49.46	2.97
10038.05	H	-48.31	-25	-23.31	-73.56	-49.41	1.1
5018.83	V	-34.18	-25	-9.18	-49.23	-40.03	5.85
7528.16	V	-41.61	-25	-16.61	-62.32	-44.58	2.97
10038.05	V	-41.98	-25	-16.98	-65.18	-43.08	1.1

Mode	LTE Band 7, CB:10MHz, 1RB, Offset 49, Channel:21100						
Frequency (MHz)	Antenna Polarity	E.I.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Vaule (dBm)	Correction Factor (dB)
5078.79	H	-37.79	-25	-12.79	-55.05	-43.64	5.85
7618.21	H	-47.71	-25	-22.71	-69.24	-50.66	2.95
10157.68	H	-47.22	-25	-22.22	-72.45	-48.18	0.96
5078.79	V	-34.39	-25	-9.39	-49.84	-40.24	5.85
7618.21	V	-41.88	-25	-16.88	-62.77	-44.83	2.95
10157.68	V	-42.68	-25	-17.68	-65.92	-43.64	0.96

Mode	LTE Band 7, CB:10MHz, 1RB, Offset 49, Channel:21400						
Frequency (MHz)	Antenna Polarity	E.I.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Vaule (dBm)	Correction Factor (dB)
5138.69	H	-36.11	-25	-11.11	-53.39	-41.95	5.84
7708.21	H	-47	-25	-22	-68.21	-49.6	2.6
10277.86	H	-45.12	-25	-20.12	-70.33	-45.93	0.81
5138.69	V	-32.38	-25	-7.38	-48.25	-38.22	5.84
7708.21	V	-41.71	-25	-16.71	-62.19	-44.31	2.6
10277.86	V	-42.1	-25	-17.1	-65.38	-42.91	0.81

Note: EIRP = S.G Power value + Correction factor.

Mode	LTE Band 7, CB:15MHz, 1RB, Offset 74, Channel:20825						
Frequency (MHz)	Antenna Polarity	E.I.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Vaule (dBm)	Correction Factor (dB)
5028.29	H	-37.08	-25	-12.08	-54.33	-42.93	5.85
7542.35	H	-45.59	-25	-20.59	-67.33	-48.57	2.98
10056.72	H	-46.29	-25	-21.29	-71.54	-47.37	1.08
5028.29	V	-34.42	-25	-9.42	-49.53	-40.27	5.85
7542.35	V	-41.61	-25	-16.61	-62.37	-44.59	2.98
10056.72	V	-41.93	-25	-16.93	-65.14	-43.01	1.08

Mode	LTE Band 7, CB:15MHz, 1RB, Offset 74, Channel:21100						
Frequency (MHz)	Antenna Polarity	E.I.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Vaule (dBm)	Correction Factor (dB)
5083.3	H	-37.92	-25	-12.92	-55.18	-43.77	5.85
7624.99	H	-46.2	-25	-21.2	-67.71	-49.12	2.92
10166.66	H	-46.94	-25	-21.94	-72.18	-47.89	0.95
5083.3	V	-33.63	-25	-8.63	-49.11	-39.48	5.85
7624.99	V	-41.78	-25	-16.78	-62.64	-44.7	2.92
10166.66	V	-42.32	-25	-17.32	-65.57	-43.27	0.95

Mode	LTE Band 7, CB:15MHz, 1RB, Offset 74, Channel:21375						
Frequency (MHz)	Antenna Polarity	E.I.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Vaule (dBm)	Correction Factor (dB)
5138.36	H	-37.09	-25	-12.09	-54.37	-42.93	5.84
7707.46	H	-45.97	-25	-20.97	-67.19	-48.57	2.6
10276.56	H	-46.24	-25	-21.24	-71.45	-47.05	0.81
5138.36	V	-32.66	-25	-7.66	-48.52	-38.5	5.84
7707.46	V	-41.5	-25	-16.5	-61.98	-44.1	2.6
10276.56	V	-41.1	-25	-16.1	-64.38	-41.91	0.81

Note: EIRP = S.G Power value + Correction factor.

Mode	LTE Band 7, CB:20MHz, 1RB, Offset 99, Channel:20850						
Frequency (MHz)	Antenna Polarity	E.I.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Vaule (dBm)	Correction Factor (dB)
5037.82	H	-37.88	-25	-12.88	-55.13	-43.73	5.85
7556.68	H	-46.96	-25	-21.96	-68.67	-49.95	2.99
10075.73	H	-46.01	-25	-21.01	-71.26	-47.07	1.06
5037.82	V	-34.66	-25	-9.66	-49.84	-40.51	5.85
7556.68	V	-42.67	-25	-17.67	-63.48	-45.66	2.99
10075.73	V	-41.9	-25	-16.9	-65.11	-42.96	1.06

Mode	LTE Band 7, CB:20MHz, 1RB, Offset 99, Channel:21100						
Frequency (MHz)	Antenna Polarity	E.I.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Vaule (dBm)	Correction Factor (dB)
5087.81	H	-37.97	-25	-12.97	-55.24	-43.82	5.85
7631.63	H	-46.94	-25	-21.94	-68.42	-49.84	2.9
10175.68	H	-46.61	-25	-21.61	-71.84	-47.55	0.94
5087.81	V	-34.1	-25	-9.1	-49.62	-39.95	5.85
7631.63	V	-42.41	-25	-17.41	-63.23	-45.31	2.9
10175.68	V	-42.52	-25	-17.52	-65.77	-43.46	0.94

Mode	LTE Band 7, CB:20MHz, 1RB, Offset 99, Channel:21350						
Frequency (MHz)	Antenna Polarity	E.I.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Vaule (dBm)	Correction Factor (dB)
5137.82	H	-37.43	-25	-12.43	-54.71	-43.27	5.84
7706.81	H	-46.33	-25	-21.33	-67.55	-48.93	2.6
10275.62	H	-46.03	-25	-21.03	-71.24	-46.84	0.81
5137.82	V	-32.09	-25	-7.09	-47.95	-37.93	5.84
7706.81	V	-41.95	-25	-16.95	-62.43	-44.55	2.6
10275.62	V	-41.75	-25	-16.75	-65.03	-42.56	0.81

Note: EIRP = S.G Power value + Correction factor.

3.3 Conducted Emissions

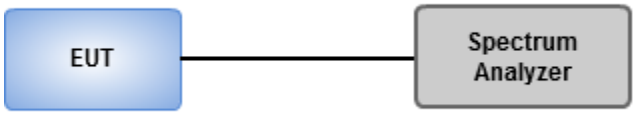
3.3.1 Limit of Conducted Emissions

The power of any emission outside of the authorized operating frequencyranges must be attenuated below the transmitting power (P) by a factor of at least 55 + 10 log(P) dB equal to -25dBm.

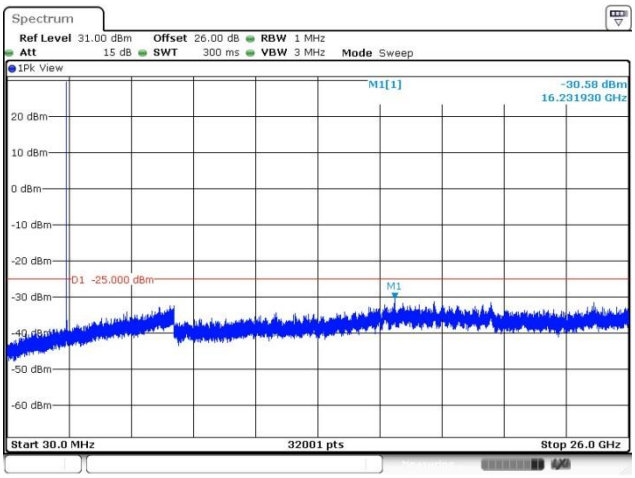
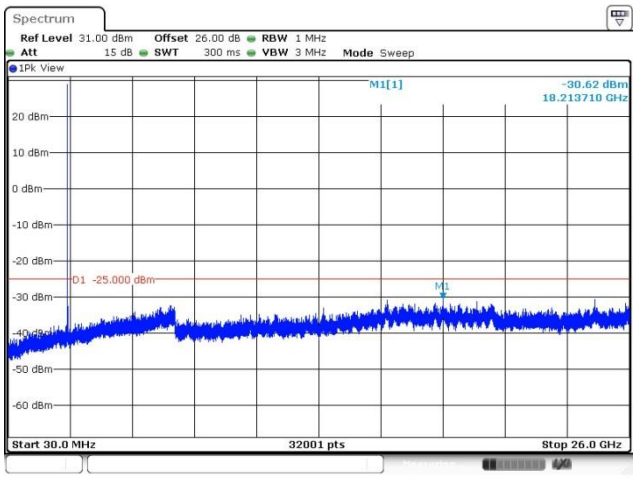
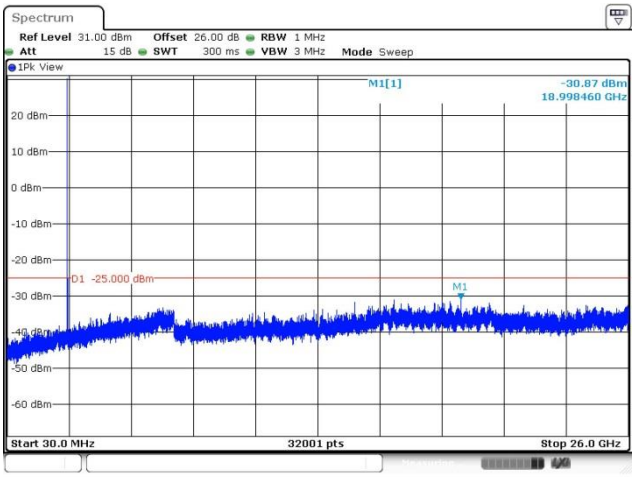
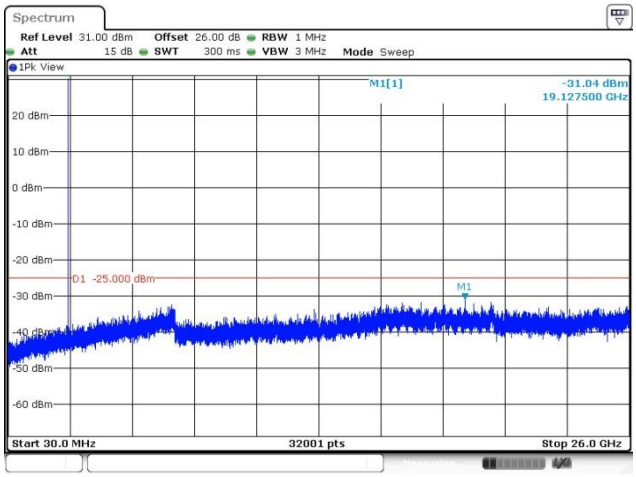
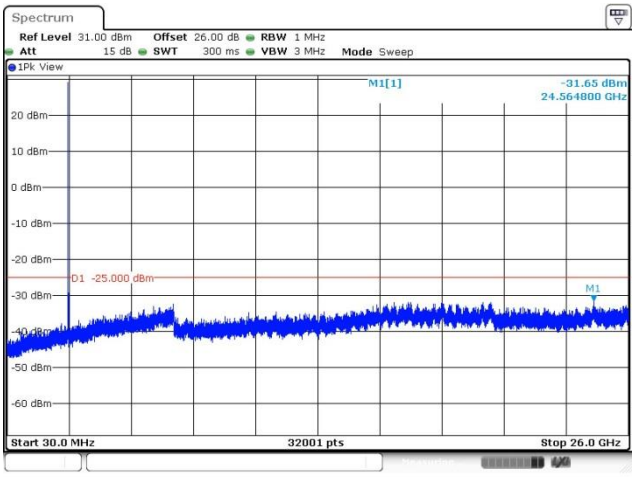
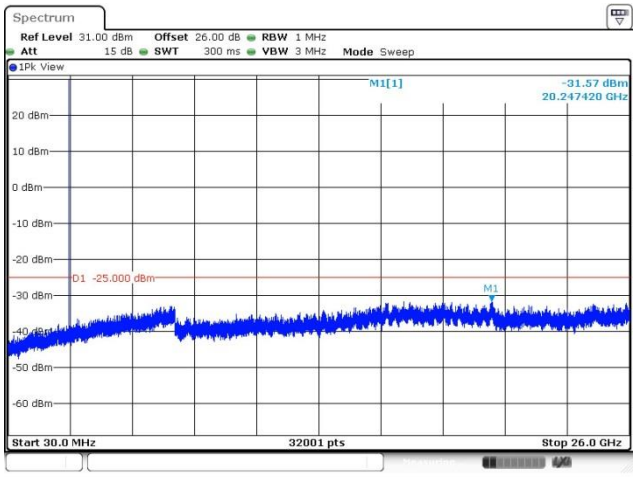
3.3.2 Test Procedures

1. Lowest, middle and highest operating channels are tested for this item.
2. Scan frequency range is from 30MHz~27GHz.
3. Set RBW = 1MHz, VBW = 3MHz, detector = average, sweep time = auto.
4. Record the max trace value and capture the test plot of each sub frequency band.

3.3.3 Test Setup



3.3.4 Test Result of Conducted Emissions

Mode	LTE Band 7, CB: 5MHz, QPSK	Mode	LTE Band 7, CB: 5MHz, 16QAM
Channel	20775	Channel	20775
			
Channel	21100	Channel	21100
			
Channel	21425	Channel	21425
			

Mode	LTE Band 7, CB: 10MHz, QPSK	Mode	LTE Band 7, CB: 10MHz, 16QAM
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	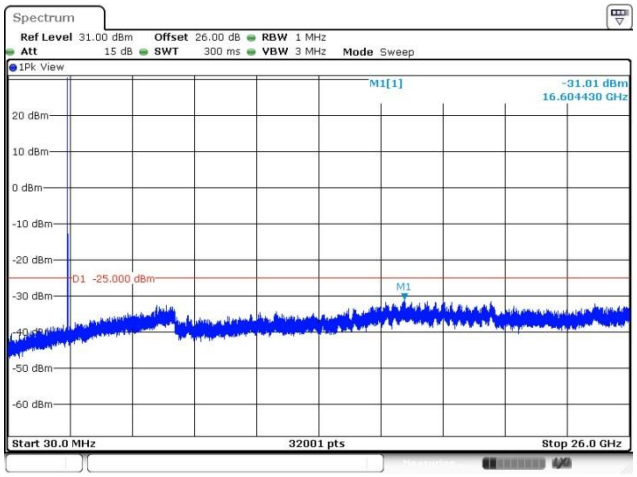		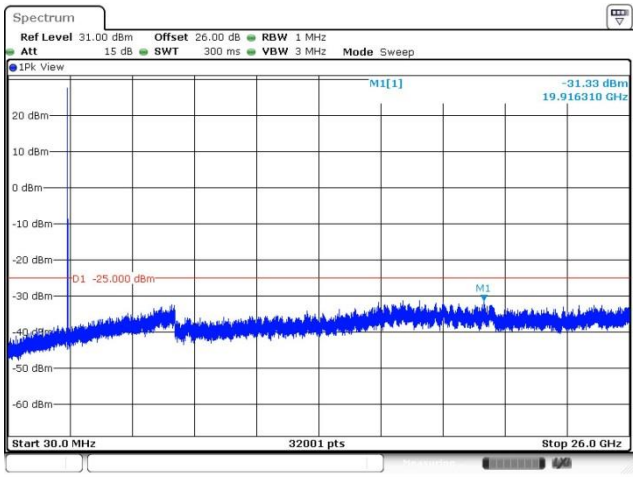
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	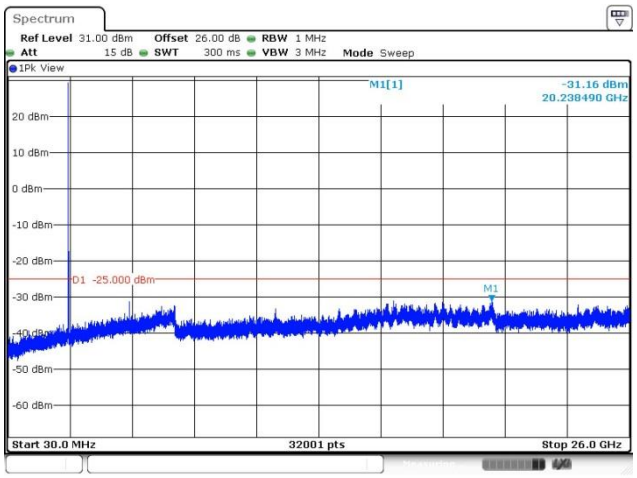		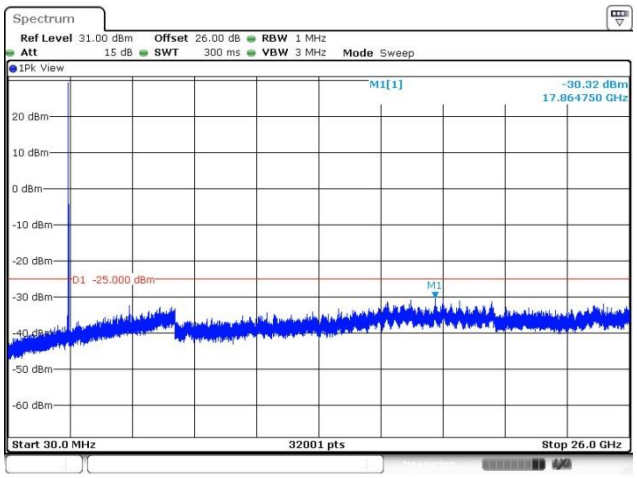
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	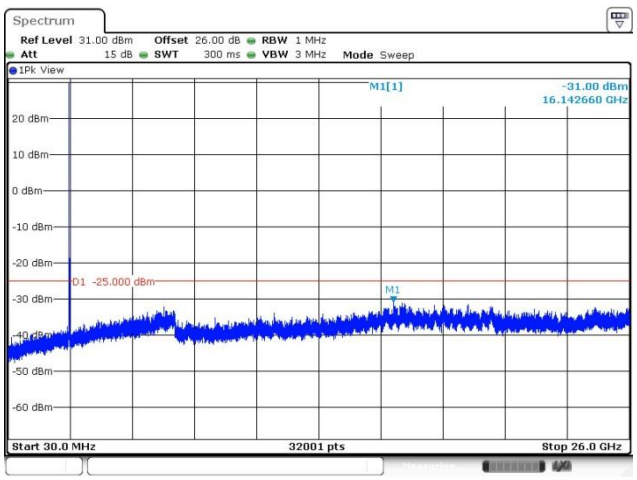		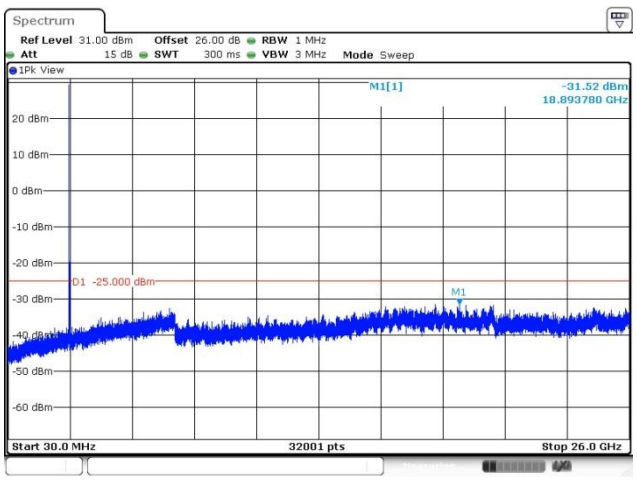

Mode	LTE Band 7, CB: 15MHz, QPSK	Mode	LTE Band 7, CB: 15MHz, 16QAM
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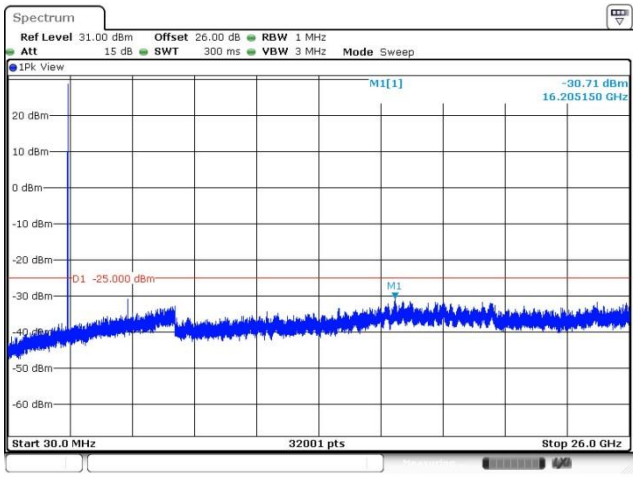
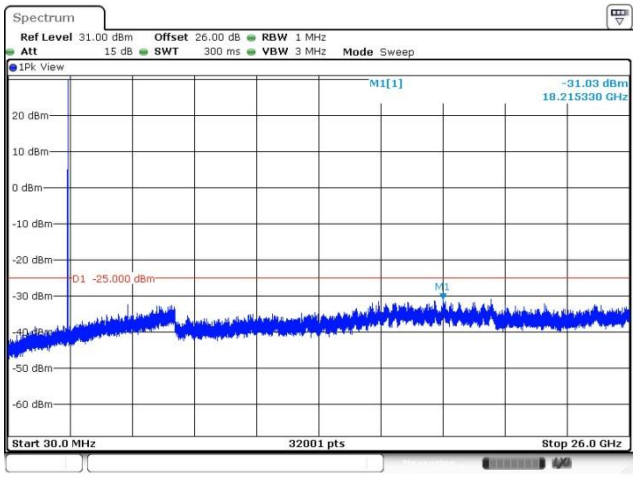
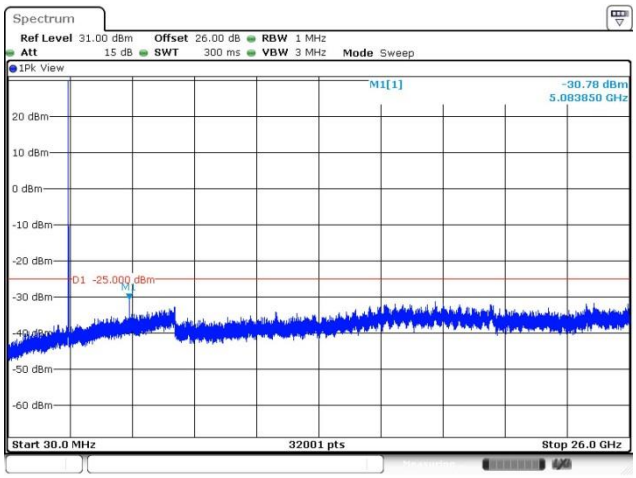
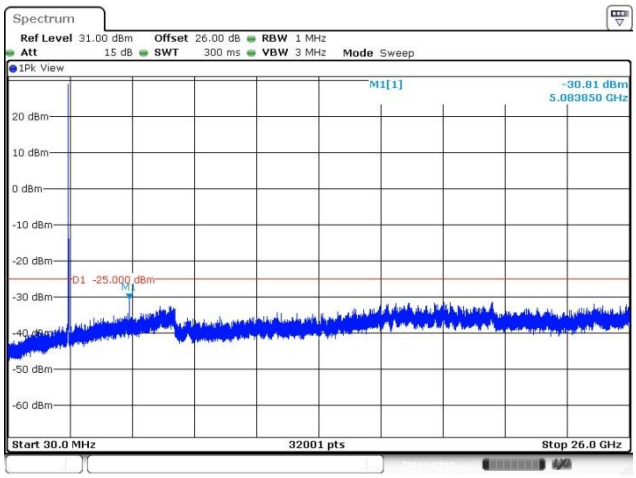
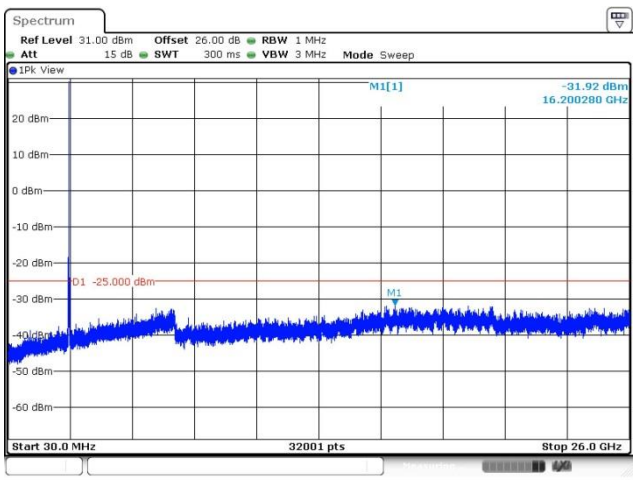
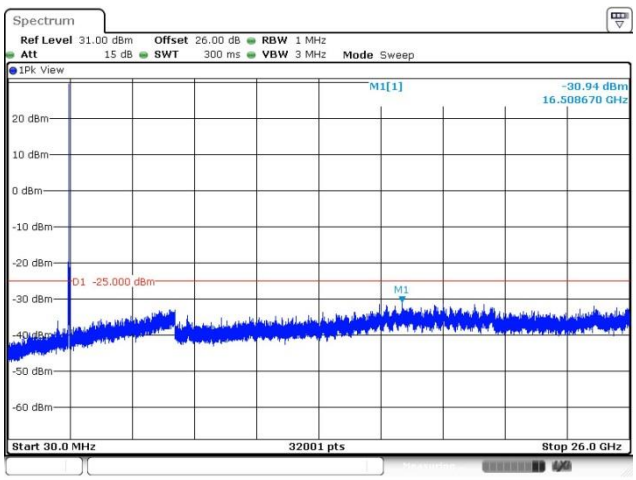
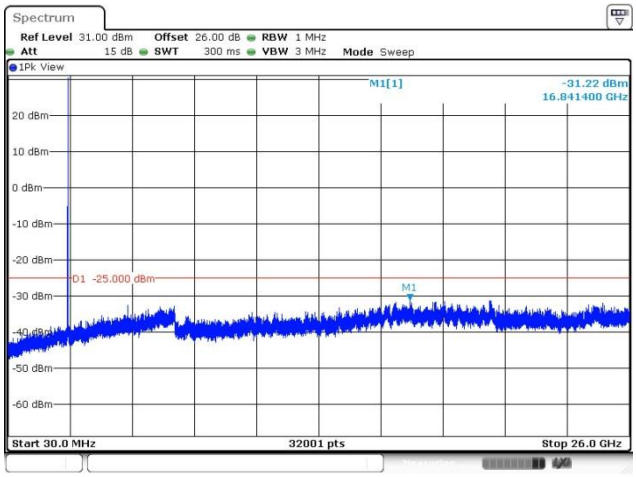
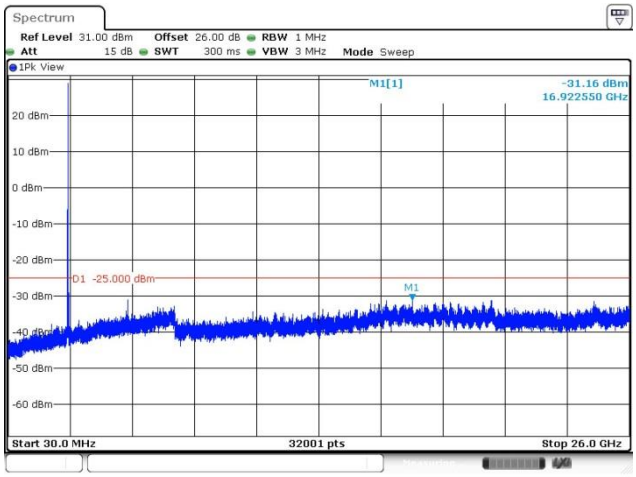
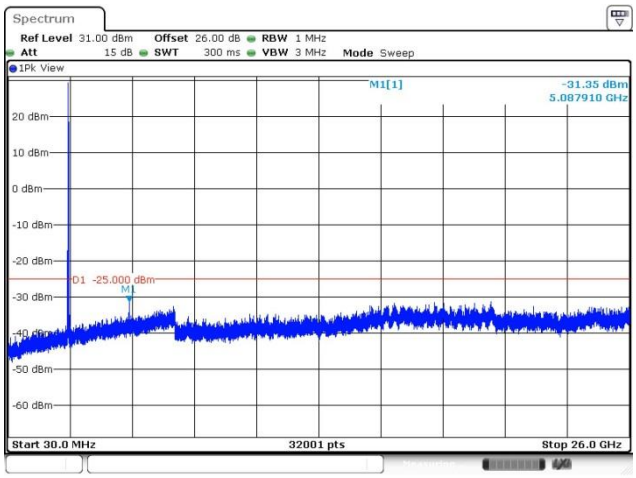
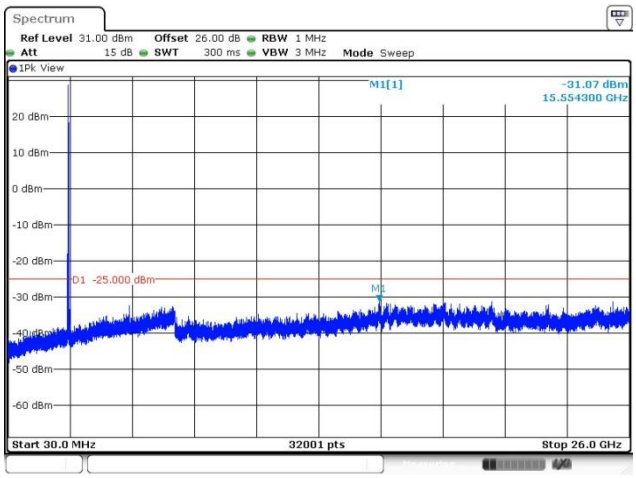
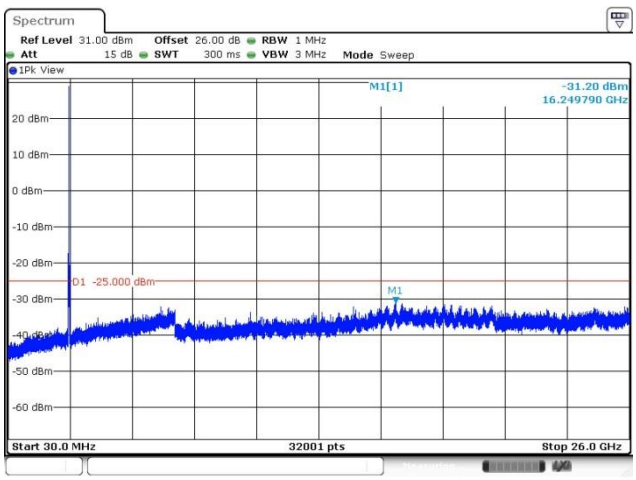
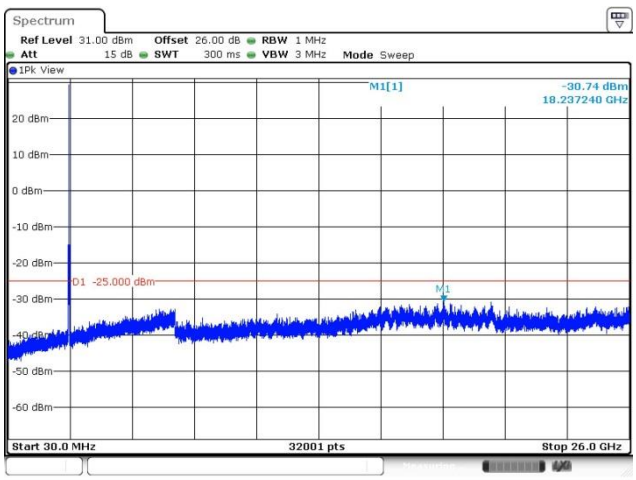
			
Channel	21100	Channel	21100
			
Channel	21375	Channel	21375
			

Mode	LTE Band 7, CB: 20MHz, QPSK	Mode	LTE Band 7, CB: 20MHz, 16QAM
Channel	20850	Channel	20850
			
Channel	21100	Channel	21100
			
Channel	21350	Channel	21350
			

3.4 Channel Edge

3.4.1 Limit of Channel Edge

For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz

3.4.2 Test Procedures

For frequency in the 1 MHz bands immediately outside and adjacent to the frequency block

1. Lowest and highest operating channels are tested for this item.
2. Set RBW = 56 / 110 / 160 / 220 kHz, VBW = 180 / 330 / 510 / 680 kHz for channel bandwidth 5 / 10 / 15 / 20 MHz, detector = RMS, sweep time = auto.
3. Record the max trace value and capture the test plot.

For frequency range: 2496 ~ 2499 and 2571 ~ 2575 MHz

1 Lowest and highest operating channels are tested for this item.

2 Set RBW = 100 / 200 / 200 / 300 kHz, VBW = 300 / 1000 / 1000 / 1000 kHz for channel bandwidth 5 / 10 / 15 / 20 MHz, detector = RMS, sweep time = auto.

3 Use channel power measurement function of spectrum analyzer to integrate power over 1 MHz bandwidth.

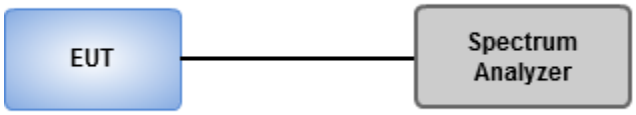
For frequency below 2496 MHz and above 2575 MHz

1 Lowest and highest operating channels are tested for this item.

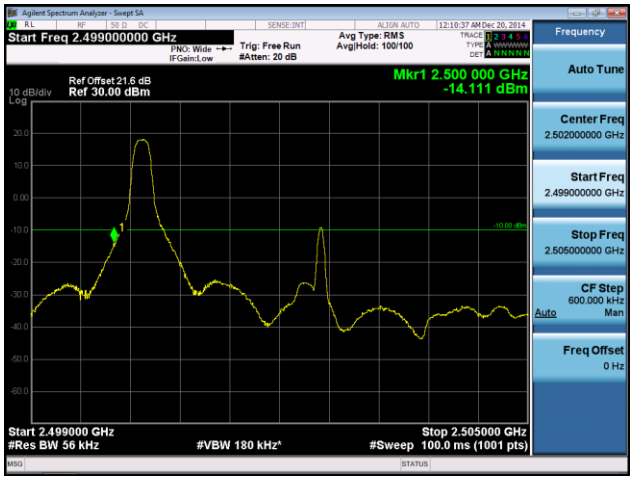
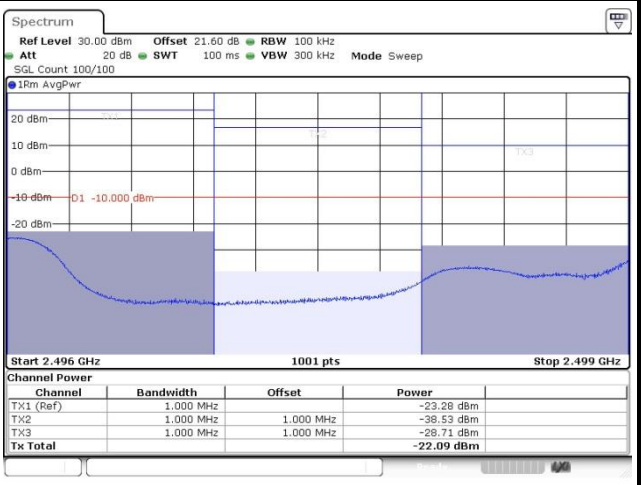
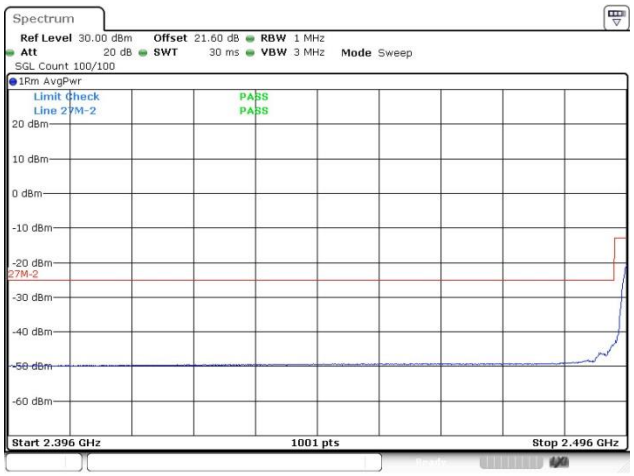
2 Set RBW = 1MHz, VBW= 3MHz detector = RMS, sweep time = auto.

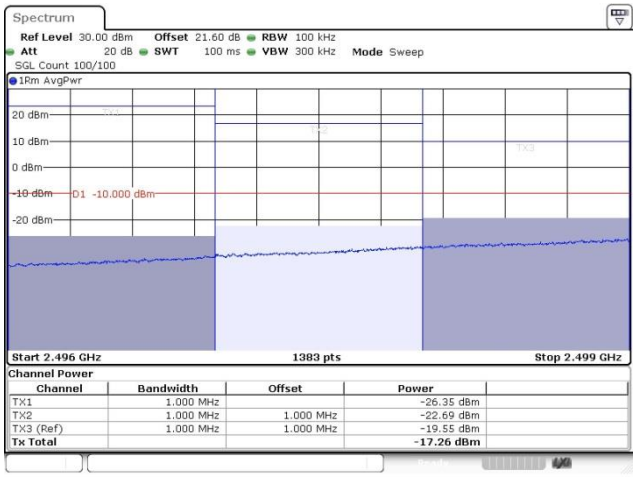
3 Record the max trace value and capture the test plot.

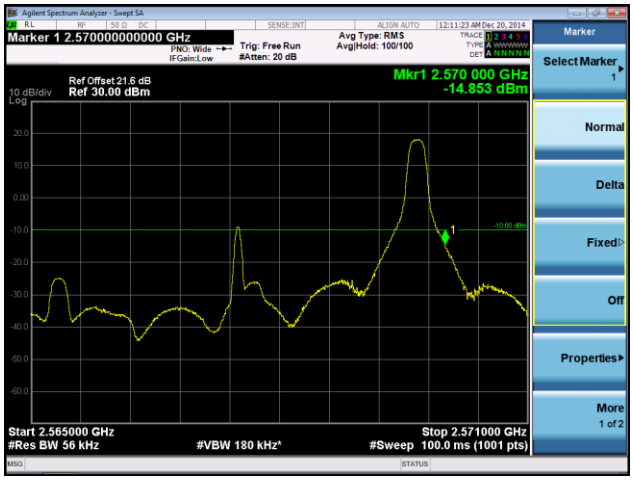
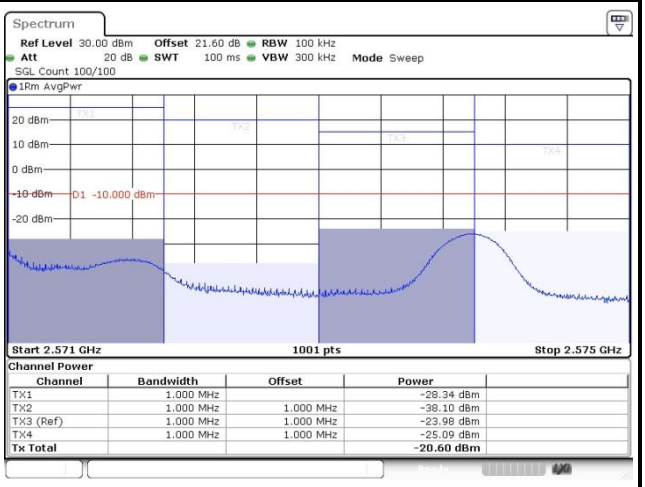
3.4.3 Test Setup

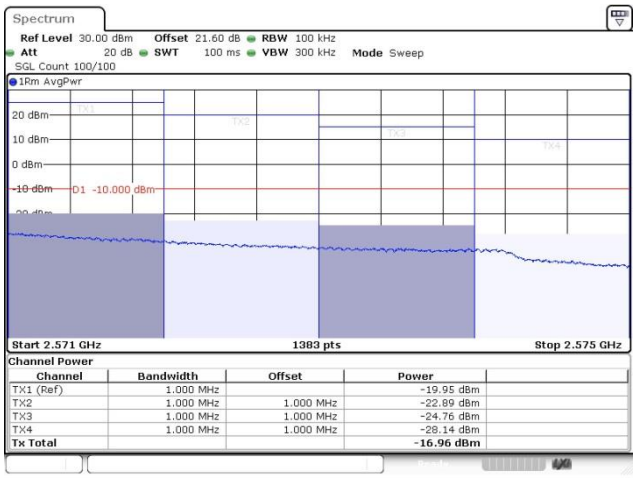


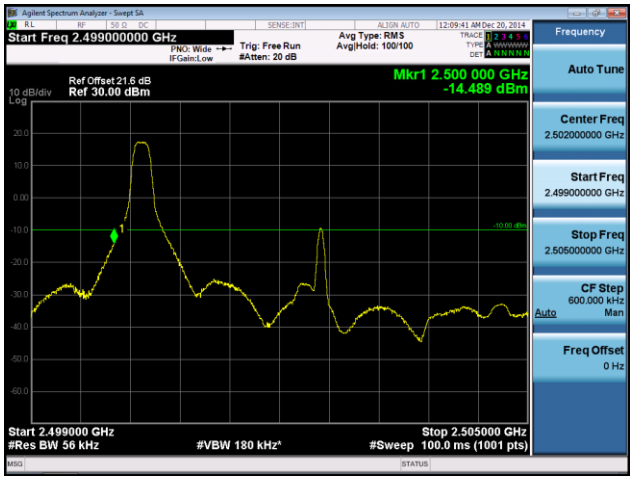
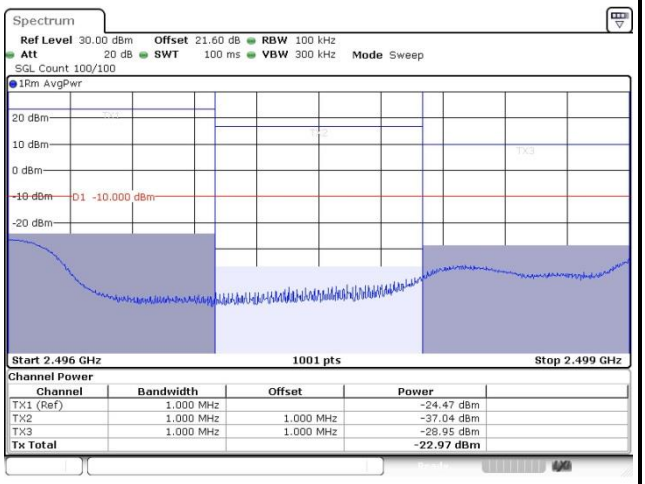
3.4.4 Test Result of Band Edge

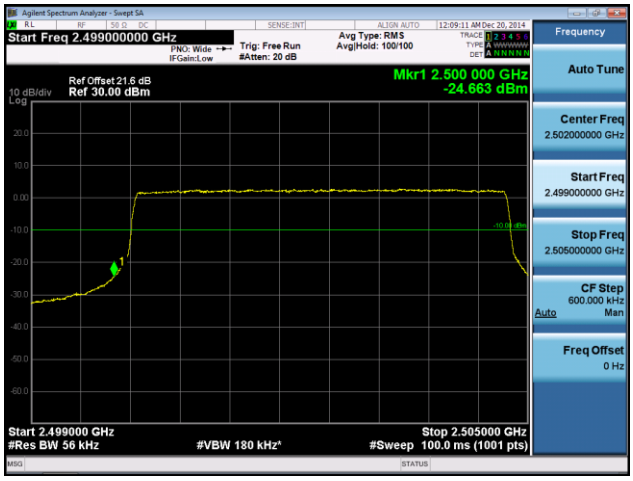
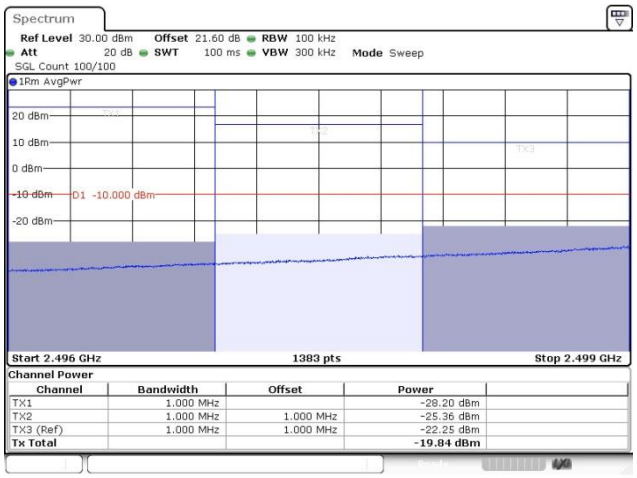
Mode	LTE Band 7, CB: 5 MHz / QPSK				
Channel	20775	1 RB Lower / Offset 0	**Channel**	20775	1 RB Lower / Offset 0
					
Channel	20775	1 RB Lower / Offset 0	---		
			---		

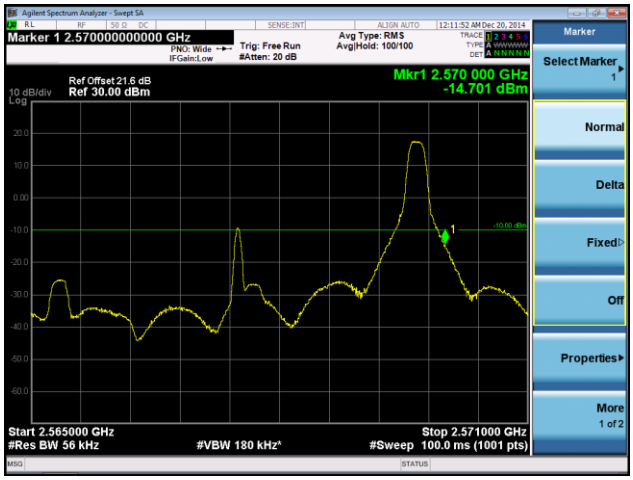
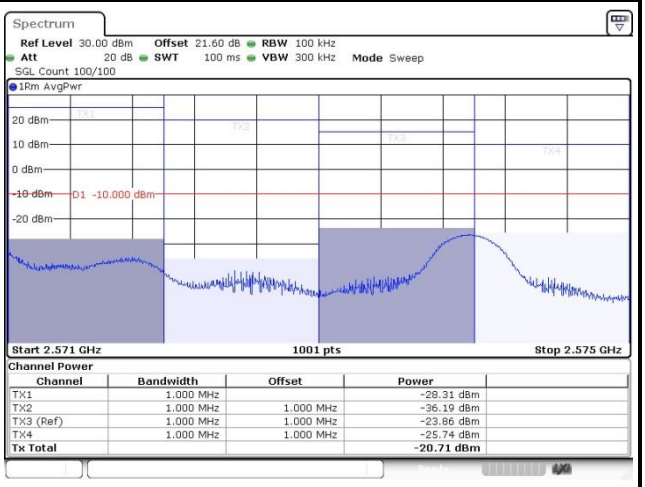
Mode	LTE Band 7, CB: 5 MHz / QPSK				
Channel	20775	100% RB / Offset 0	**Channel**	20775	100% RB / Offset 0
					
Channel	20775	100% RB / Offset 0	---		
			---		

Mode	LTE Band 7, CB: 5 MHz / QPSK				
Channel	21425	1 RB upper / Offset 0	**Channel**	21425	1 RB upper / Offset 0
					
Channel	21425	1 RB upper / Offset 0	---		
			---		

Mode	LTE Band 7, CB: 5 MHz / QPSK				
Channel	21425	100% RB / Offset 0	**Channel**	21425	100% RB / Offset 0
					
Channel	21425	100% RB / Offset 0	---		
			---		

Mode	LTE Band 7, CB: 5 MHz / 16QAM				
Channel	20775	1 RB Lower / Offset 0	**Channel**	20775	1 RB Lower / Offset 0
					
Channel	20775	1 RB Lower / Offset 0	---		
			---		

Mode	LTE Band 7, CB: 5 MHz / 16QAM				
Channel	20775	100% RB / Offset 0	**Channel**	20775	100% RB / Offset 0
					
Channel	20775	100% RB / Offset 0	---		
			---		

Mode	LTE Band 7, CB: 5 MHz / 16QAM				
Channel	21425	1 RB upper / Offset 0	**Channel**	21425	1 RB upper / Offset 0
					
Channel	21425	1 RB upper / Offset 0	---		
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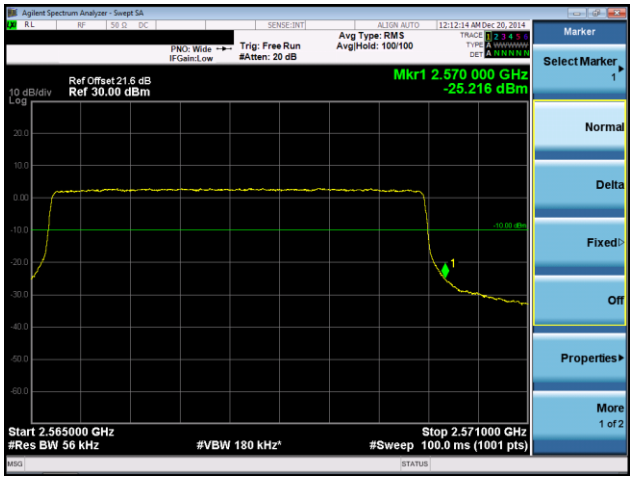
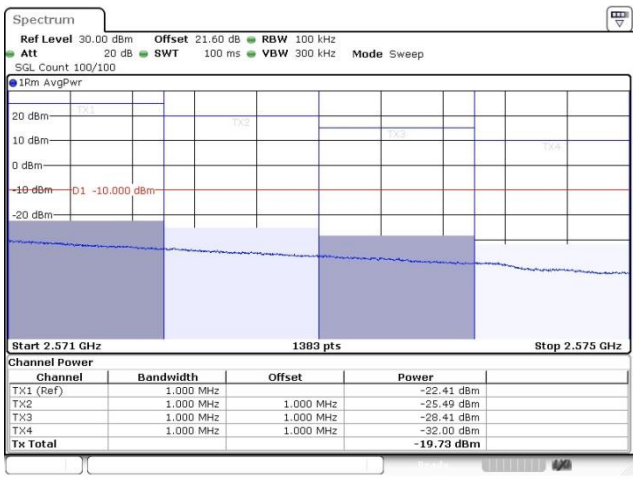
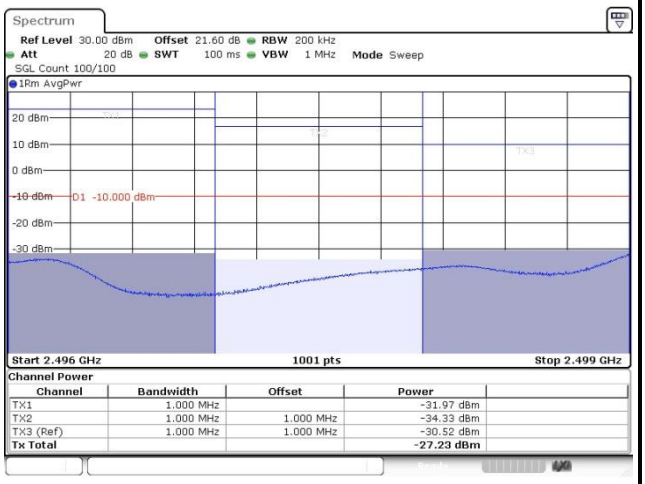
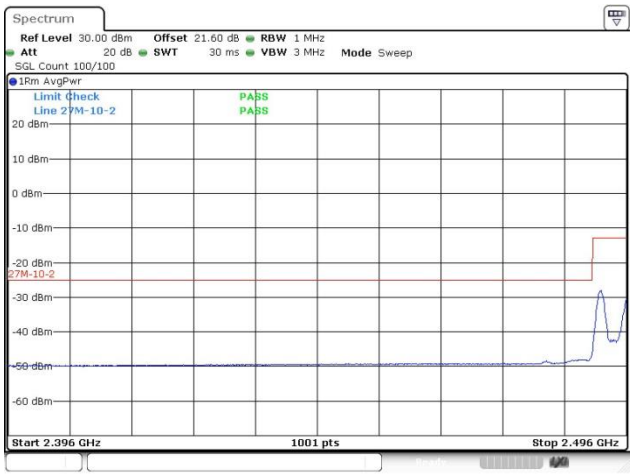
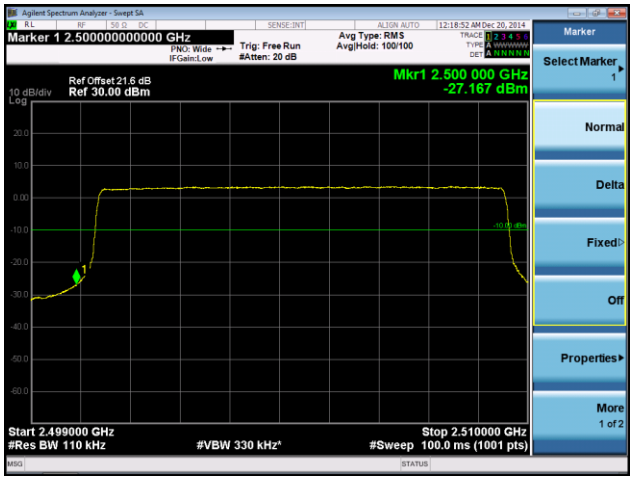
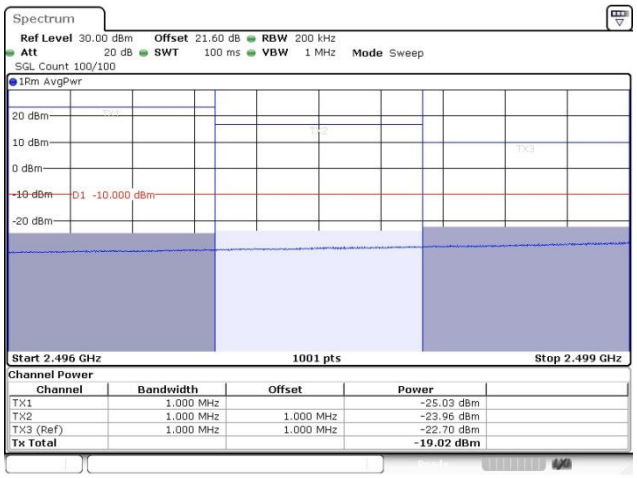
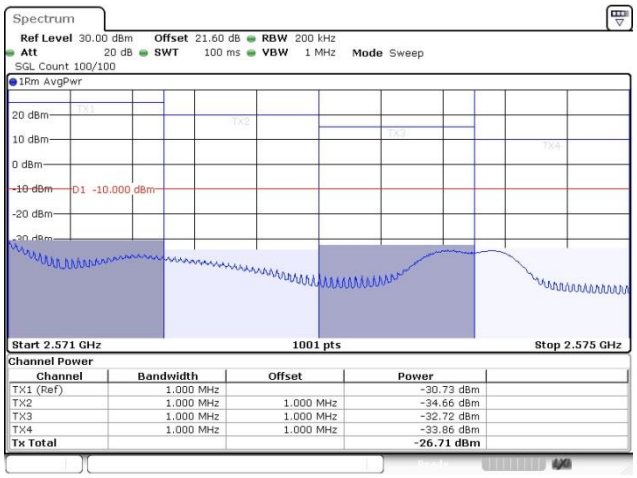
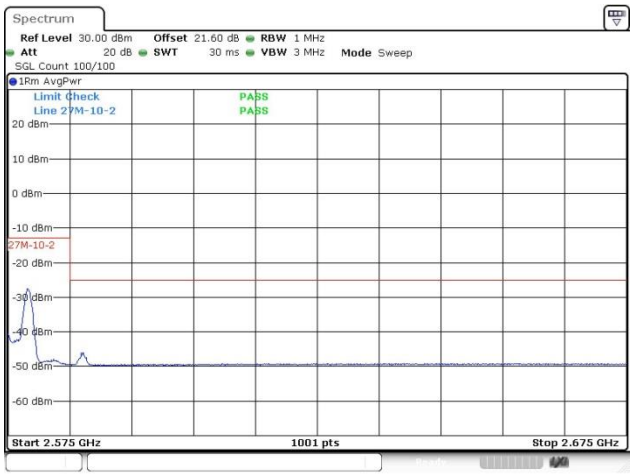
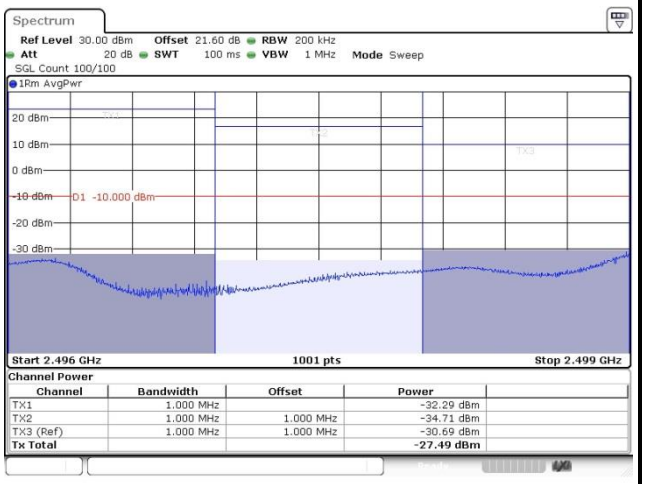
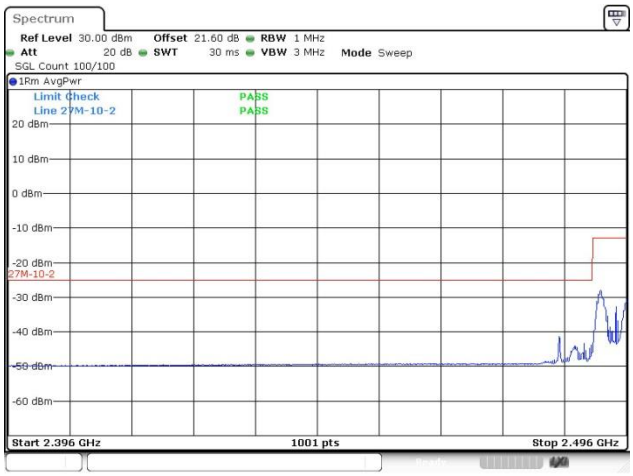
<table>
<tr><td>Mode</td><td colspan="5">LTE Band 7, CB: 5 MHz / 16QAM</td></tr>
<tr><td>Channel</td><td>21425</td><td>100% RB / Offset 0</td><td>Channel</td><td>21425</td><td>100% RB / Offset 0</td></tr>
<tr><td colspan="3"> 
</td><td colspan="3"> 
</td></tr>
<tr><td>Channel</td><td>21425</td><td>100% RB / Offset 0</td><td colspan="3">---</td></tr>
<tr><td colspan="3"> 
</td><td colspan="3">---</td></tr>
</table>

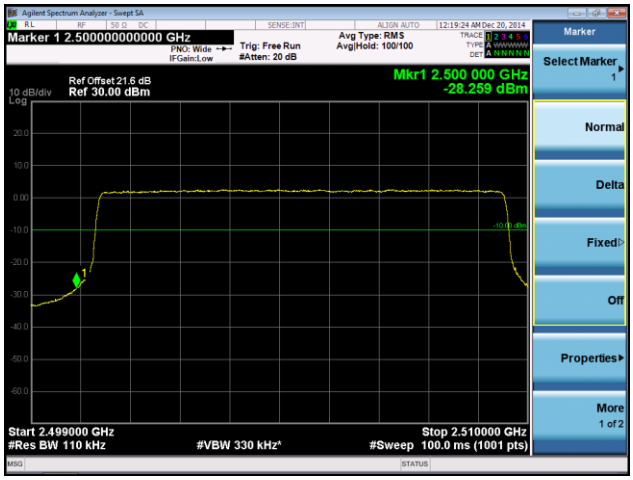
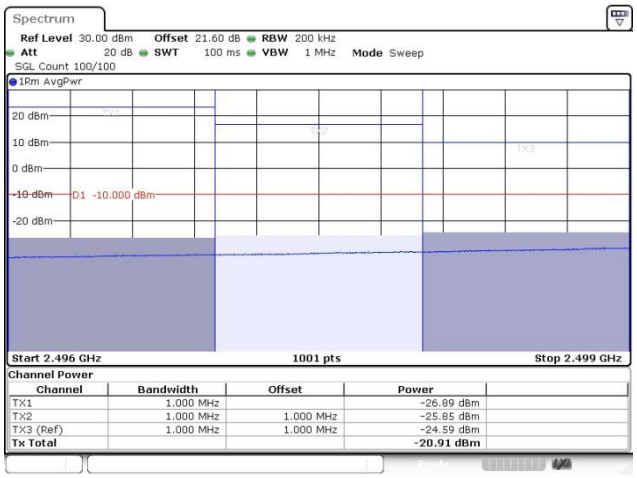
Mode	LTE Band 7, CB: 10 MHz / QPSK				
Channel	20800	1 RB Lower / Offset 0	**Channel**	20800	1 RB Lower / Offset 0
					
Channel	20800	1 RB Lower / Offset 0	---		
			---		

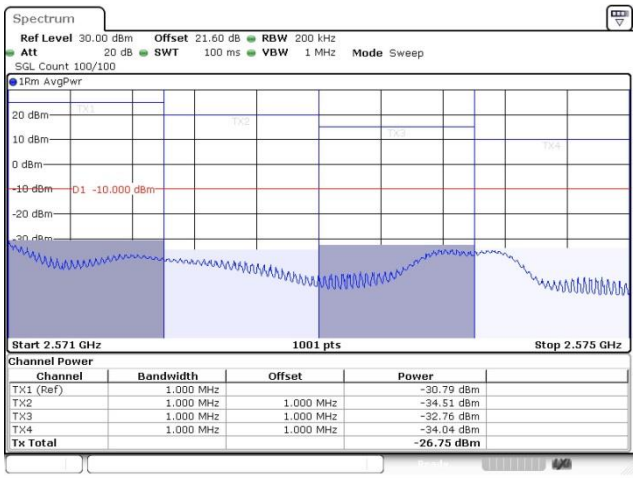
Mode	LTE Band 7, CB: 10 MHz / QPSK				
Channel	20800	100% RB / Offset 0	**Channel**	20800	100% RB / Offset 0
					
Channel	20800	100% RB / Offset 0	---		
			---		

Mode	LTE Band 7, CB: 10 MHz / QPSK				
Channel	21400	1 RB upper / Offset 0	**Channel**	21400	1 RB upper / Offset 0
					
Channel	21400	1 RB upper / Offset 0	---		
			---		

Mode	LTE Band 7, CB: 10 MHz / QPSK				
Channel	21400	100% RB / Offset 0	**Channel**	21400	100% RB / Offset 0
					
Channel	21400	100% RB / Offset 0	---		
			---		

Mode	LTE Band 7, CB: 10 MHz / 16QAM				
Channel	20800	1 RB Lower / Offset 0	**Channel**	20800	1 RB Lower / Offset 0
					
Channel	20800	1 RB Lower / Offset 0	---		
			---		

Mode	LTE Band 7, CB: 10 MHz / 16QAM				
Channel	20800	100% RB / Offset 0	**Channel**	20800	100% RB / Offset 0
					
Channel	20800	100% RB / Offset 0	---		
			---		

Mode	LTE Band 7, CB: 10 MHz / 16QAM				
Channel	21400	1 RB upper / Offset 0	**Channel**	21400	1 RB upper / Offset 0
					
Channel	21400	1 RB upper / Offset 0	---		
			---		

Mode	LTE Band 7, CB: 10 MHz / 16QAM				
Channel	21400	100% RB / Offset 0	**Channel**	21400	100% RB / Offset 0
					
Channel	21400	100% RB / Offset 0	---		
			---		