FCC RF Test Report

APPLICANT	:	**Samsung Electronics Co., Ltd.**
EQUIPMENT	:	**MOBILE PHONE**
BRAND NAME	:	**SAMSUNG**
MODEL NAME	:	**SM-E500YZ**
FCC ID	:	**A3LSME500YZ**
STANDARD	:	**47 CFR Part 2, 22(H)**
CLASSIFICATION	:	**PCS Licensed Transmitter Held to Ear (PCE)**

The product was received on Jan. 19, 2015 and completely tested on Feb. 03, 2015. We, SPORTON INTERNATIONAL (SHENZHEN) INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA / EIA-603-C-2004 and the testing has shown the tested sample to be in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL (SHENZHEN) INC., the test report shall not be reproduced except in full.

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager

Testing Laboratory
2353

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APPENDIX A. TEST RESULTS OF CONDUCTED TEST

APPENDIX B. TEST RESULTS OF RADIATED TEST

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG511906B	Rev. 01	Initial issue of report	Feb. 04, 2015

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	Reporting Only	PASS	-
3.5	N/A	Peak-to-Average Ratio	<13 dB	PASS	-
3.6	§2.1049 §22.917(b)	Occupied Bandwidth	Reporting Only	PASS	-
3.7	§2.1051 §22.917(a)	Conducted Band Edge	< 43+10log10(P[Watts])	PASS	-
3.8	§2.1051 §22.917(a)	Conducted Spurious Emission	< 43+10log10(P[Watts])	PASS	-
3.9	§2.1055 §22.355	Frequency Stability Temperature & Voltage	< 2.5 ppm	PASS	-
4.4	§22.913(a)(2)	Effective Radiated Power	ERP < 7 Watt	PASS	-
4.5	§2.1053 §22.917(a)	Radiated Spurious Emission	< 43+10$\log_{10}$(P[Watts])	PASS	Under limit 30.72 dB at 2518.770 MHz

1 General Description

1.1 Applicant

Samsung Electronics Co., Ltd.
No.9 WeiWu Rd, Micro Electronic Industrial Park, Jingang Highway, Xiqing District, Tianjin, China

1.2 Manufacturer

Samsung Electronics Co., Ltd.
516229 China Guangdong Province Huizhou City Chenjiang Town Samsung Electronics Huizhou Co. Ltd.

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	MOBILE PHONE
Brand Name	SAMSUNG
Model Name	SM-E500YZ
FCC ID	A3LSME500YZ
GSM Operating Band(s)	GSM 900/1800/1900/850MHz
GPRS/EGPRS Multislot Class	GPRS Class 33, EGPRS Class 33
WCDMA Operating Band(s)	FDD Band I/II/V/VIII
LTE Operating Band(s)	FDD Band 1/3/5/8/28
Wi-Fi Specification	2.4GHz 802.11b/g/n HT20
Bluetooth Version	Bluetooth v3.0 + EDR/Bluetooth v4.0 LE
NFC Specification	Type A/B/F/V
ANT+ Specification	2.4GHz
HW Version	REV0.1
SW Version	E500YZ.001
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Product Specification subjective to this standard

Product Specification subjective to this standard	
Tx Frequency	LTE Band 5 : 824.7 MHz ~ 848.3 MHz
Rx Frequency	LTE Band 5 : 869.7 MHz ~ 893.3 MHz
Bandwidth	1.4MHz / 3MHz / 5MHz / 10MHz
Maximum Output Power to Antenna	22.84 dBm
Antenna Type	LDS Antenna
Type of Modulation	QPSK / 16QAM / 64QAM(Downlink only)

1.5 Modification of EUT

No modifications are made to the EUT during all test items.

1.6 Maximum Emission Designator, Frequency Tolerance, and ERP Power

LTE Band 5	QPSK			16QAM		
BW(MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum ERP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum ERP(W)
1.4	1M10G7D	-	0.0586	1M10W7D	-	0.0530
3	2M73G7D	-	0.0558	2M73W7D	-	0.0488
5	4M51G7D	-	0.0601	4M51W7D	-	0.0502
10	9M07G7D	0.0064	0.0617	9M05W7D	-	0.0556

1.7 Testing Location

Test Site	SPORTON INTERNATIONAL (SHENZHEN) INC.	
Test Site Location	1F & 2F, Building A, Morning Business Center, No. 4003 ShiGu Rd., Xili Town, Nanshan District, Shenzhen, Guangdong, P. R. China TEL: +86-755-8637-9589 FAX: +86-755-8637-9595	
Test Site No.	**Sporton Site No.**	
	TH01-SZ	

Test Site	SPORTON INTERNATIONAL (SHENZHEN) INC.	
Test Site Location	No. 3 Building, the third floor of south, Shahe River west, Fengzeyuan warehouse, Nanshan District, Shenzhen, Guangdong, P. R. China TEL: +86-755- 3320-2398	
Test Site No.	**Sporton Site No.**	**FCC Registration No.**
	03CH01-SZ	831040

1.8 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR Part 2, 22(H)
- ANSI / TIA / EIA-603-C-2004
- FCC KDB 971168 D01 Power Meas. License Digital Systems v02r02

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

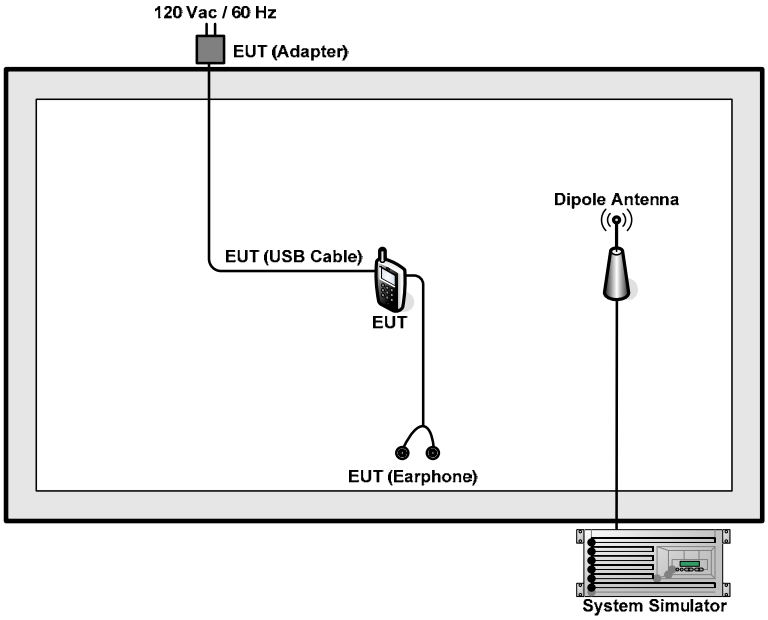
2.1 Test Mode

Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas. License Digital Systems v02r02 with maximum output power.

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes to find the maximum emission.

Test Items	Band	Bandwidth (MHz)						Modulation		RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full	L	M	H
Max. Output Power	5	v	v	v	v	-	-	v	v	v	v	v	v	v	v
Peak-to-Average Ratio	5				v	-	-	v	v	v		v	v	v	v
26dB and 99% Bandwidth	5	v	v	v	v	-	-	v	v			v	v	v	v
Conducted Band Edge	5	v	v	v	v	-	-	v	v	v		v	v		v
Conducted Spurious Emission	5	v	v	v	v	-	-	v	v	v	v		v	v	v
Frequency Stability	5				v	-	-	v				v		v	
E.R.P.	5	v	v	v	v	-	-	v	v	v	v		v	v	v
Radiated Spurious Emission	5	v	v	v	v	-	-	v		v			v	v	v
Note	1. The mark "v" means that this configuration is chosen for testing 2. The mark "-" means that this bandwidth is not supported. 3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.														

2.2 Connection Diagram of Test System



2.3 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.5 dB and 10dB attenuator.

Example :

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 4.5 + 10 = 14.5 (dB)

3 Conducted Test Items

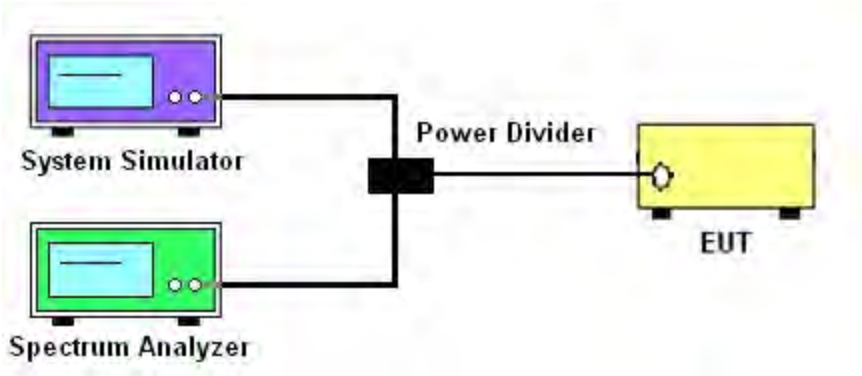
3.1 Measuring Instruments

See list of measuring instruments of this test report.

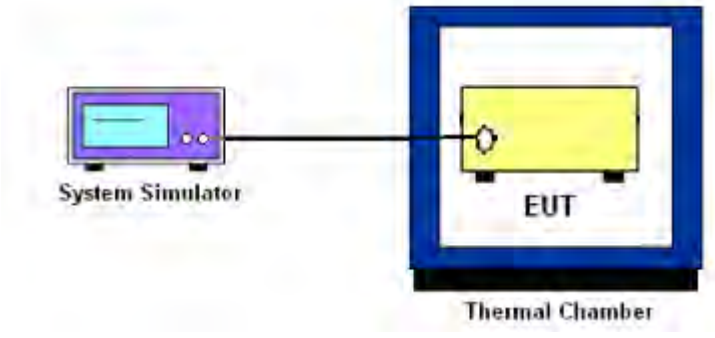
3.2 Test Setup

3.2.1 Conducted Output Power

3.2.2 Peak-to-Average Ratio, Occupied Bandwidth ,Conducted Band-Edge and Conducted Spurious Emission



3.2.3 Frequency Stability



3.3 Test Result of Conducted Test

Please refer to Appendix A.

3.4 Conducted Output Power

3.4.1 Description of the Conducted Output Power Measurement

A system simulator was used to establish communication with the EUT. Its parameters were set to force the EUT transmitting at maximum output power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

3.4.2 Test Procedures

1. The transmitter output port was connected to the system simulator.
2. Set EUT at maximum power through the system simulator.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Measure and record the power level from the system simulator.

3.5 Peak-to-Average Ratio

3.5.1 Description of the PAR Measurement

Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth. 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.

3.5.2 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 5.7.1.
2. The EUT was connected to spectrum and system simulator via a power divider.
3. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
4. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.
5. Record the deviation as Peak to Average Ratio.

3.6 99% Occupied Bandwidth and 26dB Bandwidth Measurement

3.6.1 Description of 99% Occupied Bandwidth and 26dB Bandwidth Measurement

The 99% occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

The 26 dB emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

3.6.2 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 4.2.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.

3.7 Conducted Band Edge

3.7.1 Description of Conducted Band Edge Measurement

22.917(a)

For operations in the 824 – 849 MHz band, the FCC limit is 43 + $10\log_{10}$(P[Watts]) dB below the transmitter power P(Watts) in a 100kHz bandwidth. However, in the 1MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

3.7.2 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 6.0.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The band edges of low and high channels for the highest RF powers were measured. Set RBW >= 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.
4. Set spectrum analyzer with RMS detector.
5. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
6. The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
   = P(W)- [43 + 10log(P)] (dB)
   = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
   = -13dBm.

3.8 Conducted Spurious Emission

3.8.1 Description of Conducted Spurious Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

3.8.2 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 6.0.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. The middle channel for the highest RF power within the transmitting frequency was measured.
5. The conducted spurious emission for the whole frequency range was taken.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
7. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
8. The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
   = P(W)- [43 + 10log(P)] (dB)
   = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
   = -13dBm.

3.9 Frequency Stability

3.9.1 Description of Frequency Stability Measurement

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5ppm) of the center frequency.

3.9.2 Test Procedures for Temperature Variation

1. The EUT was set up in the thermal chamber and connected with the system simulator.
2. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
3. With power OFF, the temperature was raised in 10°C step up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

3.9.3 Test Procedures for Voltage Variation

1. The testing follows FCC KDB 971168 v02r02 Section 9.0.
2. The EUT was placed in a temperature chamber at 25±5° C and connected with the system simulator.
3. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
4. The variation in frequency was measured for the worst case.

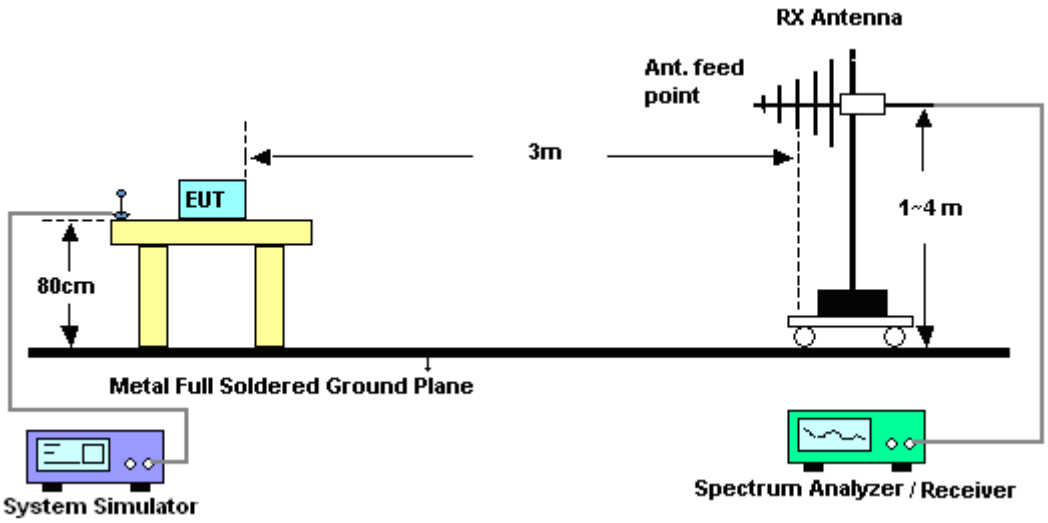
4 Radiated Test Items

4.1 Measuring Instruments

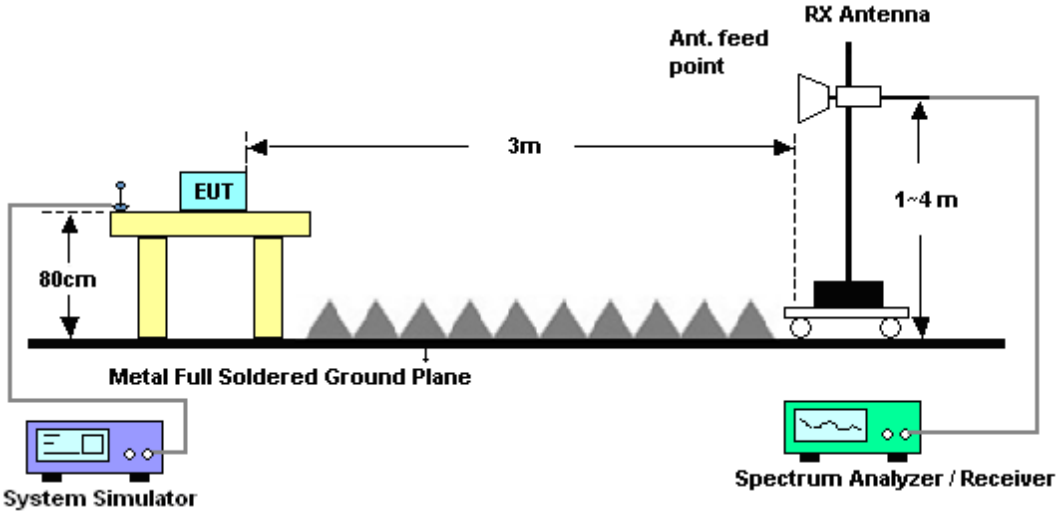
See list of measuring instruments of this test report.

4.2 Test Setup

4.2.1 For radiated test from 30MHz to 1GHz



4.2.2 For radiated test above 1GHz



4.3 Test Result of Radiated Test

Please refer to Appendix B.

4.4 Effective Radiated Power

4.4.1 Description of the ERP Measurement

Effective radiated power output measurements by substitution method according to ANSI / TIA / EIA-603-C-2004, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v02r02. Mobile and portable (hand-held) stations operating are limited to average ERP of 7 watts with LTE band 5.

4.4.2 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 5.2.1. (for CDMA/WCDMA), Section 5.2.2.2 (for GSM/GPRS/EDGE) and ANSI / TIA-603-C-2004 Section 2.2.17.
2. The EUT was placed on a non-conductive rotating platform 0.8 meters high in a semi-anechoic chamber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer with RMS detector.
3. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power. The maximum emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna raised and lowered over a range from 1 to 4 meters in both horizontally and vertically polarized orientations.
4. Effective Isotropic Radiated Power (EIRP) was measured by substitution method according to TIA/EIA-603-C. The EUT was replaced by dipole antenna (substitution antenna) at same location, and then a known power from S.G. was applied into the dipole antenna through a Tx cable, and then recorded the maximum Analyzer reading through raised and lowered the test antenna. The correction factor (in dB) = S.G. - Tx Cable loss + Substitution antenna gain - Analyzer reading. Then the EUT's EIRP was calculated with the correction factor, EIRP= LVL + Correction factor and ERP = EIRP – 2.15.

	LTE					
LTE BW	1.4M	3M	5M	10M	15M	20M
Span	3MHz	6MHz	10MHz	20MHz	30MHz	40MHz
RBW	30kHz	100kHz	100kHz	300kHz	300kHz	300kHz
VBW	100kHz	300kHz	300kHz	1MHz	1MHz	1MHz
Detector	RMS	RMS	RMS	RMS	RMS	RMS
Trace	Average	Average	Average	Average	Average	Average
Average Type	Power	Power	Power	Power	Power	Power
Sweep Count	100	100	100	100	100	100

4.5 Radiated Spurious Emission

4.5.1 Description of Radiated Spurious Emission

The radiated spurious emission was measured by substitution method according to ANSI / TIA / EIA-603-C-2004. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

4.5.2 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 5.8 and ANSI / TIA-603-C-2004 Section 2.2.12.
2. The EUT was placed on a rotatable wooden table with 0.8 meter above ground.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
9. Taking the record of output power at antenna port.
10. Repeat step 7 to step 8 for another polarization.
11. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
    The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [43 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
    = -13dBm.
12. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
13. ERP (dBm) = EIRP - 2.15

5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101078	10Hz~40GHz	May 08, 2014	Jan. 21, 2015~ Feb. 03, 2015	May 07, 2015	Conducted (TH01-SZ)
Thermal Chamber	Hongzhangroup	LP-150U	HD20120425	-40℃~150℃	Feb. 21, 2014	Jan. 21, 2015~ Feb. 03, 2015	Feb. 20, 2015	Conducted (TH01-SZ)
DC Power Supply	TOPWORD	3303DR	714621	DC 10~30V	Feb. 21, 2014	Jan. 21, 2015~ Feb. 03, 2015	Feb. 20, 2015	Conducted (TH01-SZ)
System Simulator	R&S	CMW 500	132727	GSM/WCDMA /CDMA2000/LTE	Feb. 21, 2014	Jan. 21, 2015~ Feb. 03, 2015	Feb. 20, 2015	Conducted (TH01-SZ)
ESCIO TEST Receiver	R&S	ESCI	100724	9kHz~3GHz	Feb. 21, 2014	Jan. 25, 2015	Feb. 20, 2015	Radiation (03CH01-SZ)
Spectrum Analyzer	Agilent	N9038A	MY52260185	20Hz~26.5GHz	May 26, 2014	Jan. 25, 2015	May 25, 2015	Radiation (03CH01-SZ)
Bilog Antenna	TESEQ	CBL 6112D	23188	30MHz~2GHz	Oct. 15, 2014	Jan. 25, 2015	Oct. 14, 2015	Radiation (03CH01-SZ)
Double Ridge Horn Antenna	ETS Lindgren	3117	00119436	1GHz~18GHz	Oct. 15, 2014	Jan. 25, 2015	Oct. 14, 2015	Radiation (03CH01-SZ)
Double Ridged Horn Antenna	COM-POWER	AH-840	101073	18GHz~40GHz	Jun. 09, 2014	Jan. 25, 2015	Jun. 08, 2015	Radiation (03CH01-SZ)
Amplifier	ADVANTEST	BB525C	E9007003	9kHz~3000MHz	Feb. 21, 2014	Jan. 25, 2015	Feb. 20, 2015	Radiation (03CH01-SZ)
Amplifier	Yiai	AV3860B	04030	2GHz~26.5GHz	May 08, 2014	Jan. 25, 2015	May 07, 2015	Radiation (03CH01-SZ)
AC Source(AVR)	Chroma	61601	616010001985	100Vac~250Vac	Mar. 25, 2014	Jan. 25, 2015	Mar. 24, 2015	Radiation (03CH01-SZ)
Turn Table	EM Electronics	EM 1000	N/A	0~360 degree	NCR	Jan. 25, 2015	NCR	Radiation (03CH01-SZ)
Antenna Mast	EM Electronics	EM 1000	N/A	1 m~4 m	NCR	Jan. 25, 2015	NCR	Radiation (03CH01-SZ)
System Simulator	R&S	CMW 500	132727	GSM/WCDMA /CDMA2000/LTE	Feb. 21, 2014	Jan. 25, 2015	Feb. 20, 2015	Radiation (03CH01-SZ)

6 Uncertainty of Evaluation

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.9 dB**

Appendix A. Test Results of Conducted Test

LTE Band 5

Conducted Output Power(Average power)

LTE Band 5 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0	QPSK	22.40	22.41	22.26
1.4	1	2		22.48	22.57	22.27
1.4	1	5		22.35	22.25	22.23
1.4	3	0		22.47	22.44	22.37
1.4	3	1		22.31	22.61	22.20
1.4	3	2		22.33	22.53	22.16
1.4	6	0		21.40	21.37	21.39
1.4	1	0	16-QAM	21.55	21.49	21.83
1.4	1	2		21.28	21.38	21.55
1.4	1	5		21.16	21.31	21.43
1.4	3	0		21.25	21.48	21.51
1.4	3	1		21.57	21.57	21.51
1.4	3	2		21.46	21.47	21.47
1.4	6	0		20.14	20.79	20.03
3	1	0	QPSK	22.26	22.35	22.26
3	1	7		22.24	22.37	22.82
3	1	14		22.16	22.43	22.26
3	8	0		21.45	21.42	21.43
3	8	4		21.44	21.35	21.39
3	8	7		21.43	21.32	21.37
3	15	0		21.43	21.36	21.27
3	1	0	16-QAM	21.77	22.01	21.88
3	1	7		21.82	22.00	21.99
3	1	14		21.79	21.92	21.76
3	8	0		20.32	20.39	20.39
3	8	4		20.22	20.41	20.37
3	8	7		20.32	20.39	20.43
3	15	0		20.35	20.49	20.42

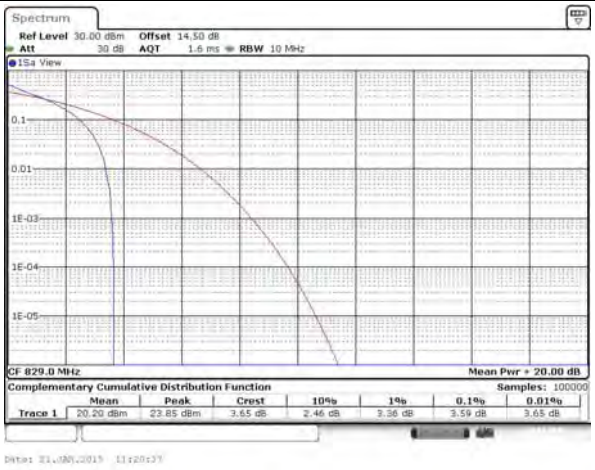
LTE Band 5 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	22.56	22.36	22.48
5	1	12		22.73	22.42	22.47
5	1	24		22.59	22.36	22.01
5	12	0		21.34	21.26	21.32
5	12	6		21.34	21.33	21.26
5	12	11		21.41	21.24	21.23
5	25	0		21.32	21.35	21.31
5	1	0	16-QAM	21.58	21.87	21.65
5	1	12		21.97	21.73	21.56
5	1	24		21.71	21.61	21.64
5	12	0		20.23	20.55	20.59
5	12	6		20.25	20.59	20.53
5	12	11		20.33	20.21	20.57
5	25	0		20.61	20.40	20.21
10	1	0	QPSK	22.53	22.59	22.52
10	1	24		22.75	22.66	**22.84**
10	1	49		22.64	22.47	22.63
10	25	0		21.39	21.38	21.41
10	25	12		21.36	21.36	21.31
10	25	24		21.35	21.34	21.30
10	50	0		21.36	21.40	21.42
10	1	0	16-QAM	21.29	21.26	21.82
10	1	24		21.26	21.14	21.67
10	1	49		21.11	21.15	21.69
10	25	0		20.51	20.44	20.41
10	25	12		20.51	20.41	20.27
10	25	24		20.43	20.44	20.25
10	50	0		20.42	20.36	20.28

Peak-to-Average Ratio

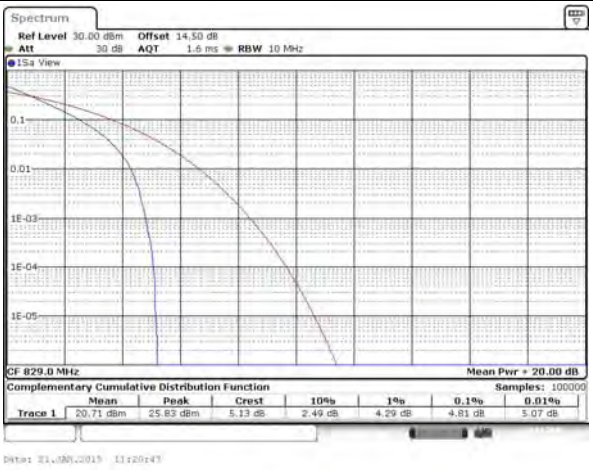
Mode	LTE Band 5 / 10MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	RB Size	Result
Lowest CH	3.59	4.81	4.58	5.68	PASS
Middle CH	3.65	4.52	5.10	5.36	
Highest CH	3.42	4.49	4.46	5.51	

LTE Band 5 / 10MHz / QPSK

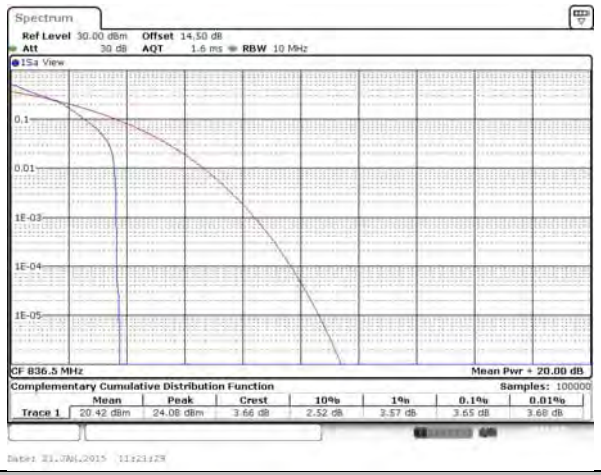
Lowest Channel / 1RB



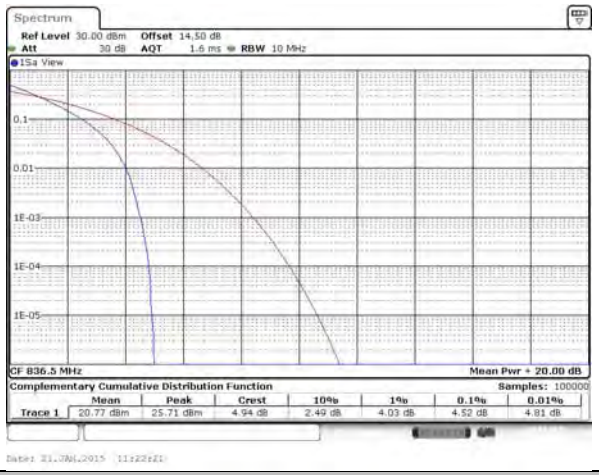
Lowest Channel / Full RB



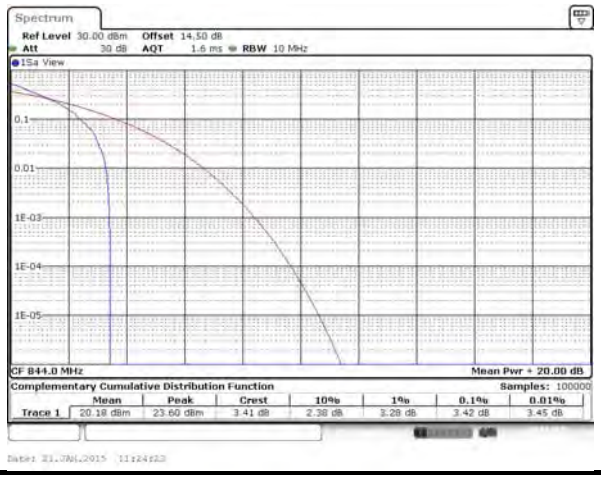
Middle Channel / 1RB



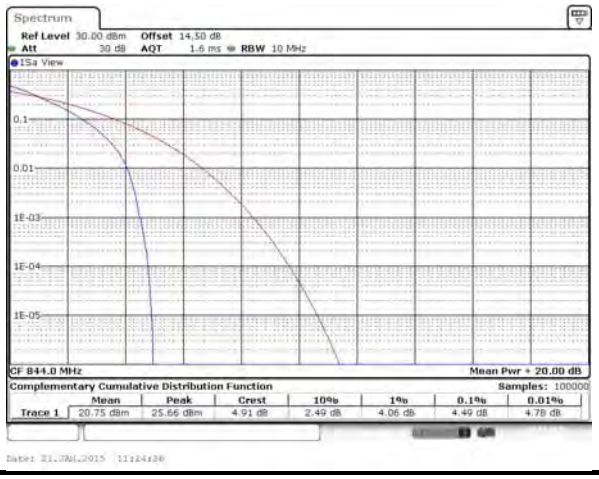
Middle Channel / Full RB



Highest Channel / 1RB

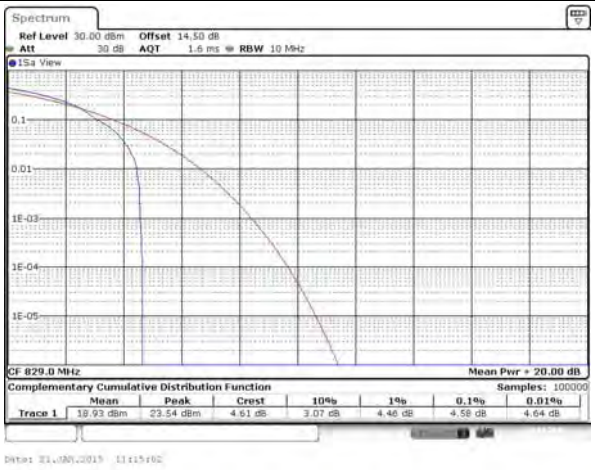


Highest Channel / Full RB

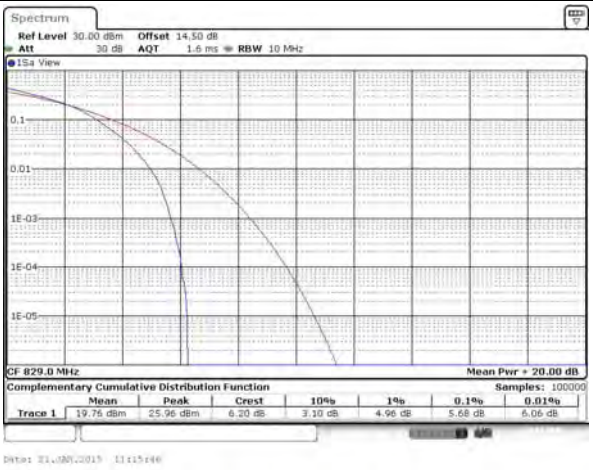


LTE Band 5 / 10MHz / 16QAM

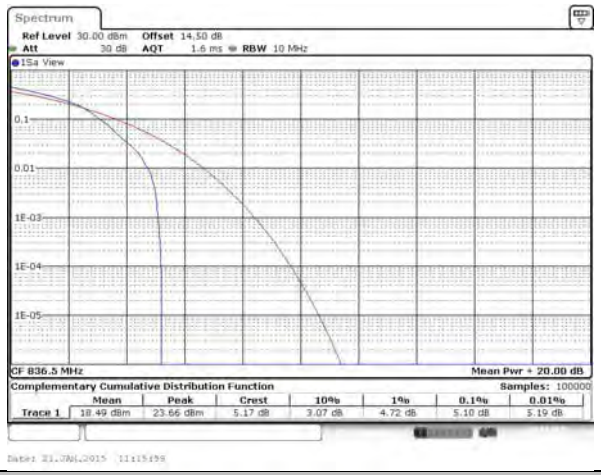
Lowest Channel / 1RB



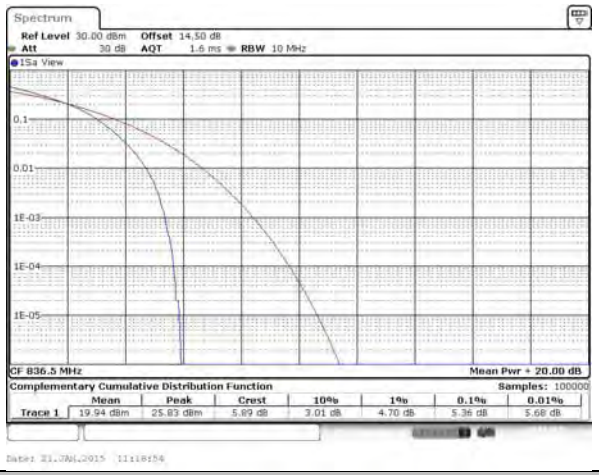
Lowest Channel / Full RB



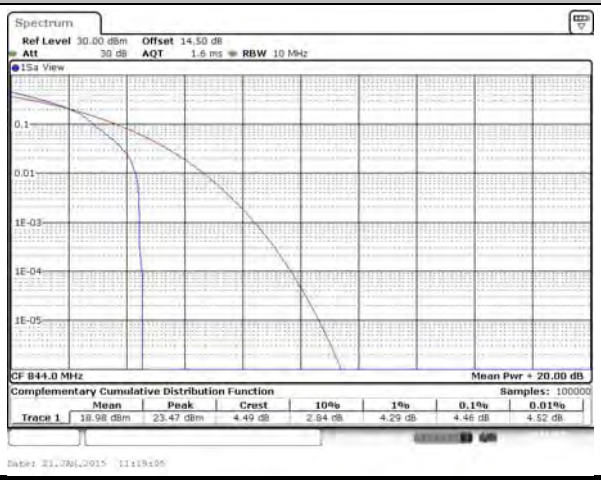
Middle Channel / 1RB



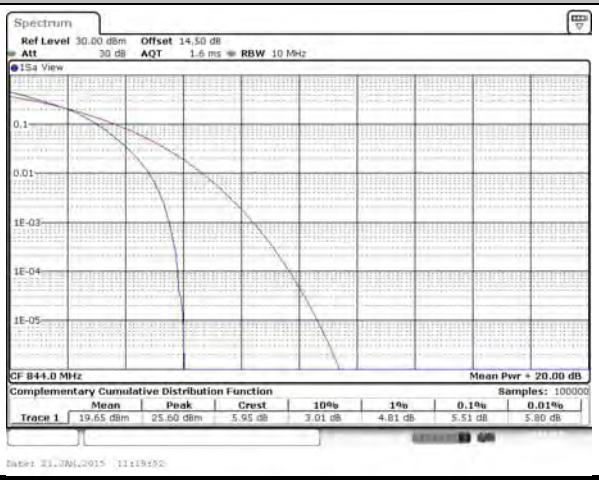
Middle Channel / Full RB



Highest Channel / 1RB



Highest Channel / Full RB

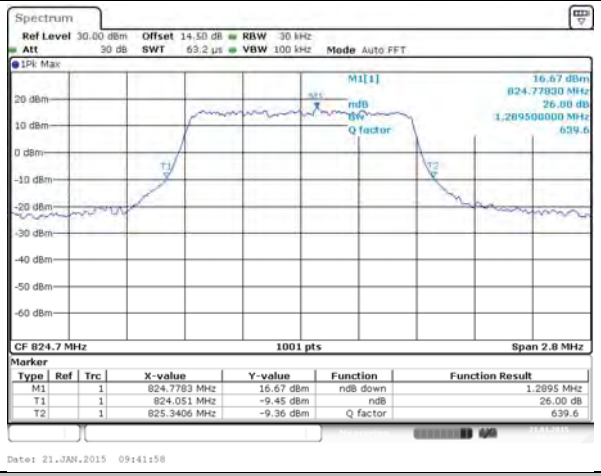


26dB Bandwidth

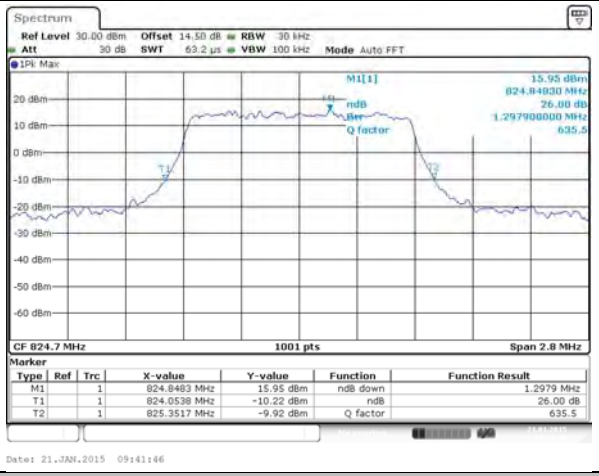
Mode	LTE Band 5 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	1.290	1.298	3.045	3.045	5.065	5.065	10.170	9.950	-	-	-	-
Middle CH	1.284	1.298	3.039	3.045	5.045	5.035	10.150	10.030	-	-	-	-
Highest CH	1.290	1.304	3.051	3.063	5.065	5.055	10.050	10.010	-	-	-	-

LTE Band 5

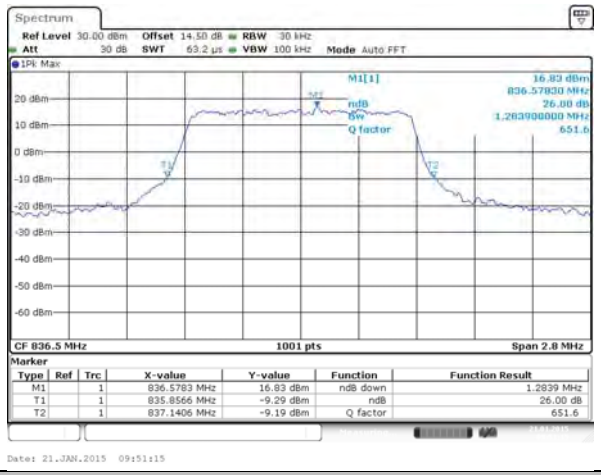
Lowest Channel / 1.4MHz / QPSK



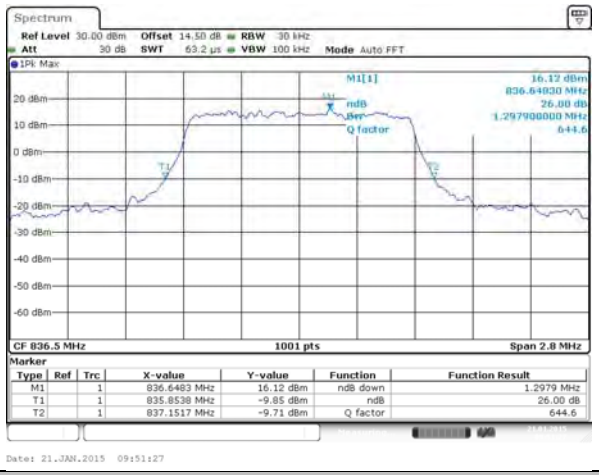
Lowest Channel / 1.4MHz / 16QAM



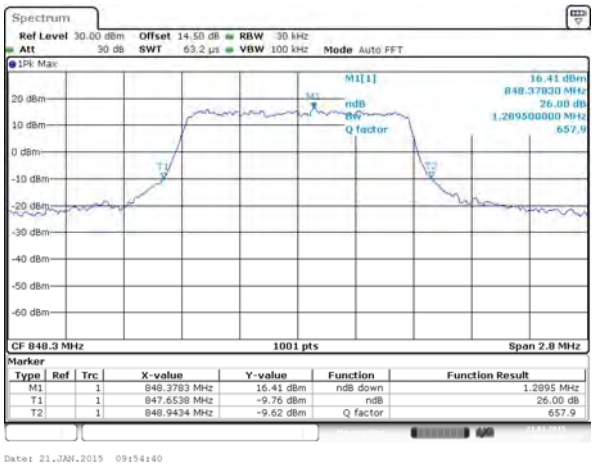
Middle Channel / 1.4MHz / QPSK



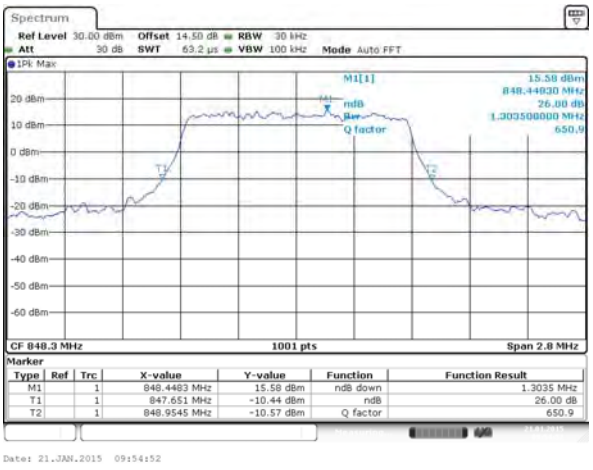
Middle Channel / 1.4MHz / 16QAM



Highest Channel / 1.4MHz / QPSK

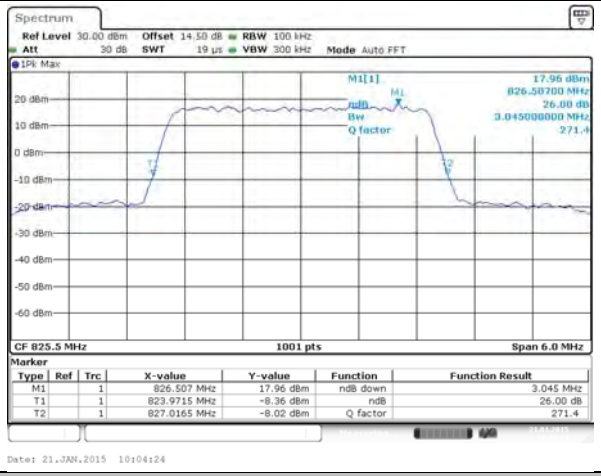


Highest Channel / 1.4MHz / 16QAM

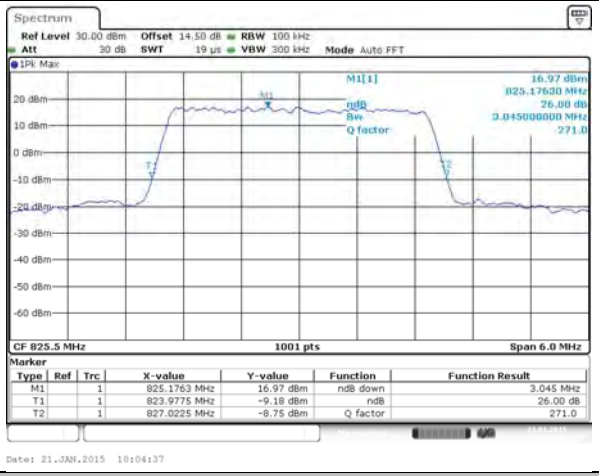


LTE Band 5

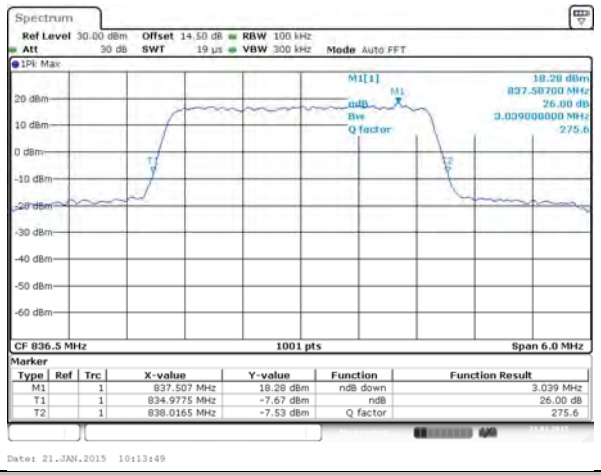
Lowest Channel / 3MHz / QPSK



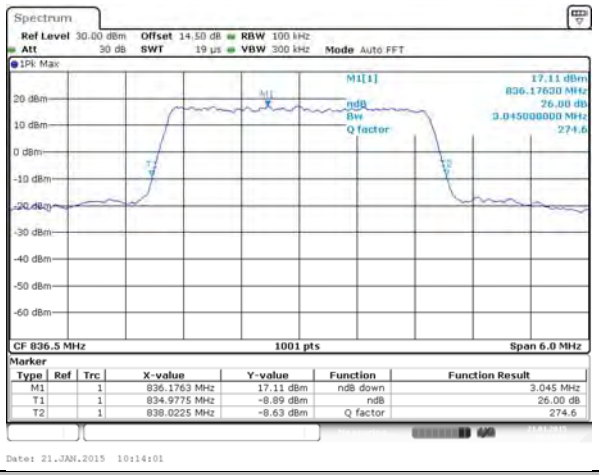
Lowest Channel / 3MHz / 16QAM



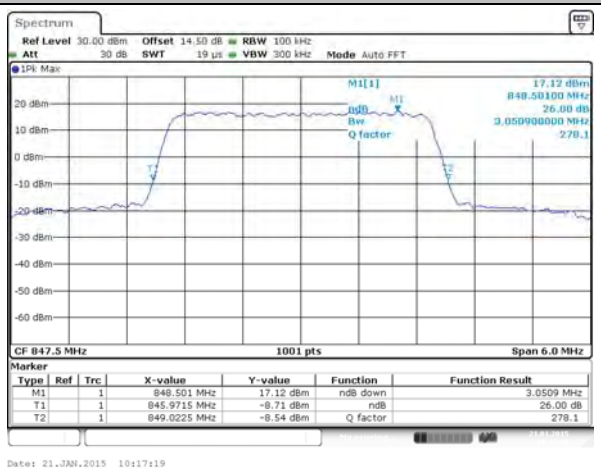
Middle Channel / 3MHz / QPSK



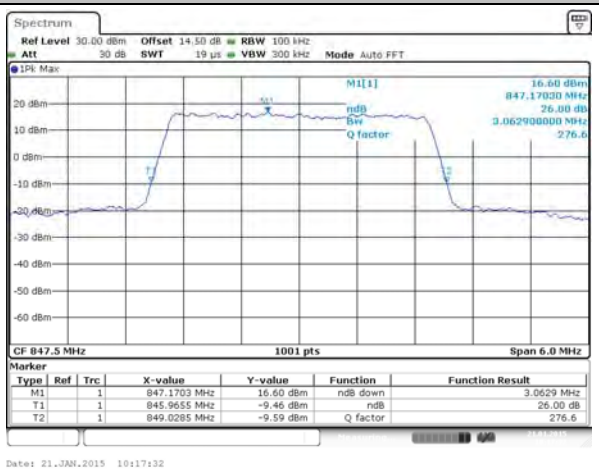
Middle Channel /3MHz / 16QAM



Highest Channel /3MHz / QPSK

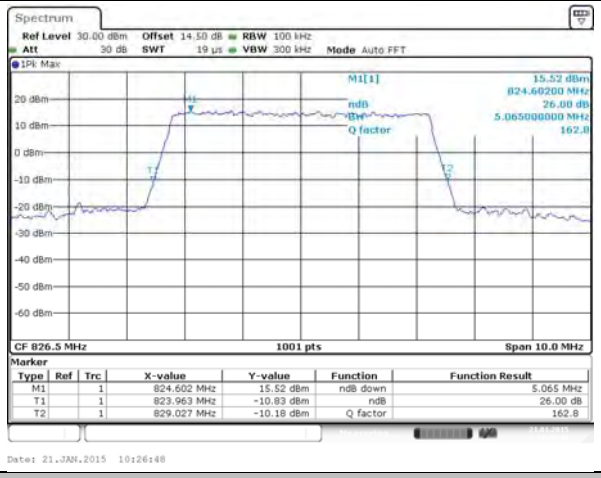


Highest Channel /3MHz / 16QAM

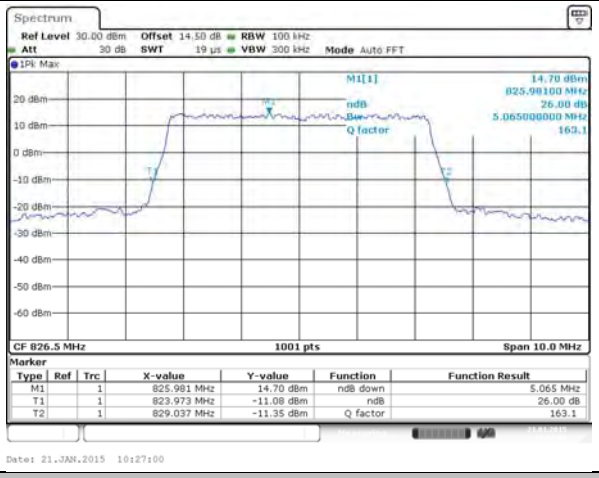


LTE Band 5

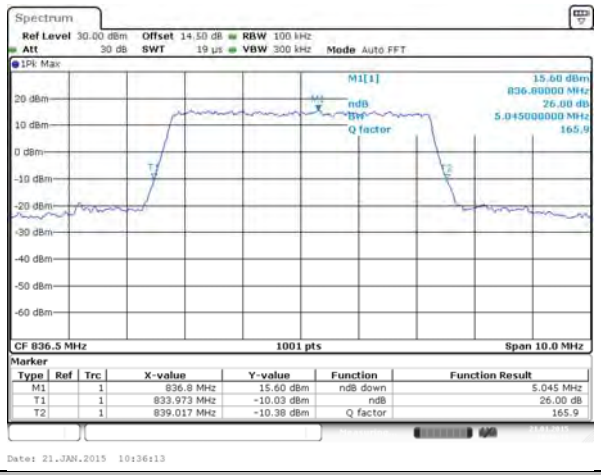
Lowest Channel / 5MHz / QPSK



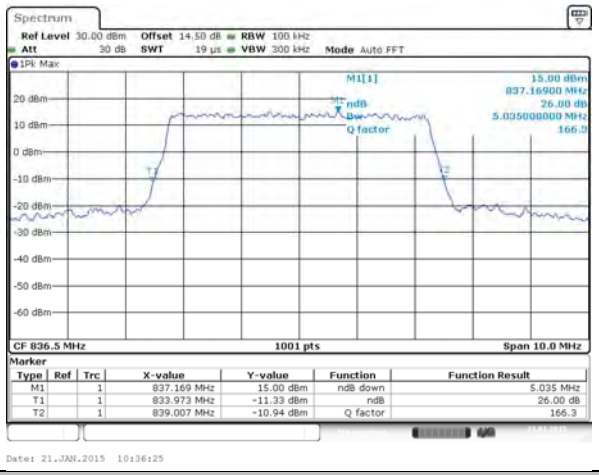
Lowest Channel / 5MHz / 16QAM



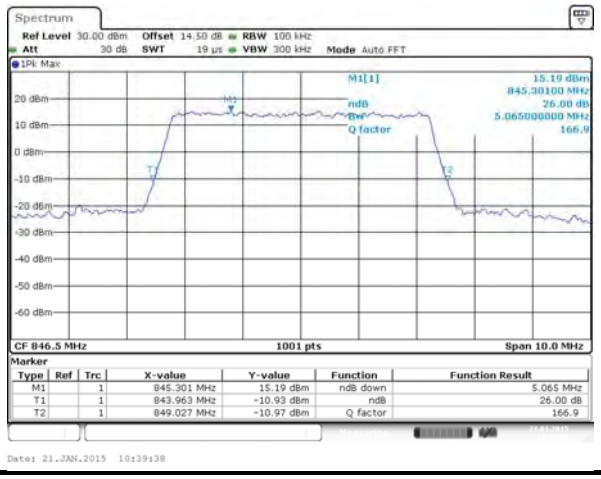
Middle Channel / 5MHz / QPSK



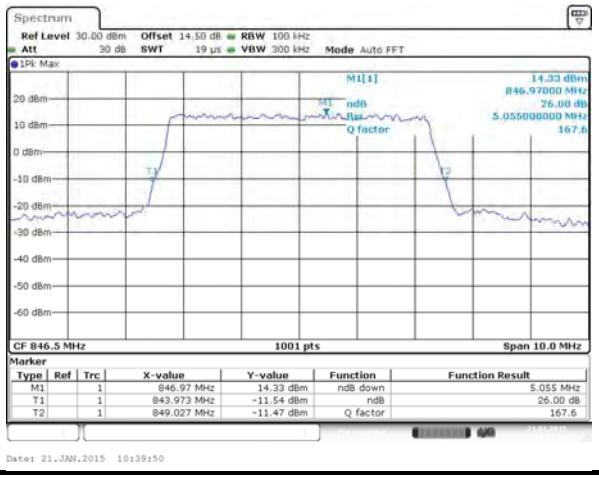
Middle Channel / 5MHz / 16QAM



Highest Channel / 5MHz / QPSK

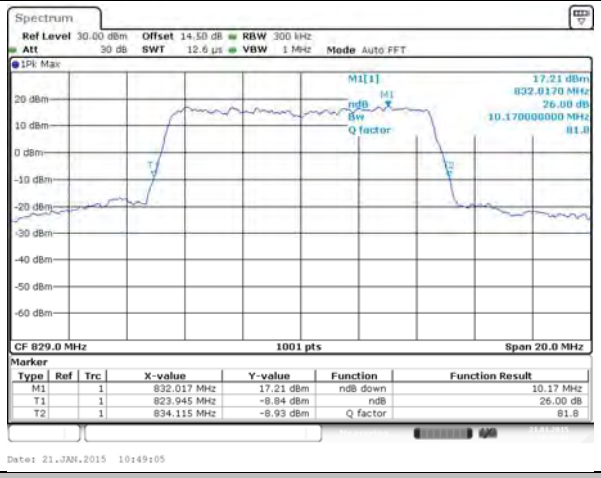


Highest Channel / 5MHz / 16QAM

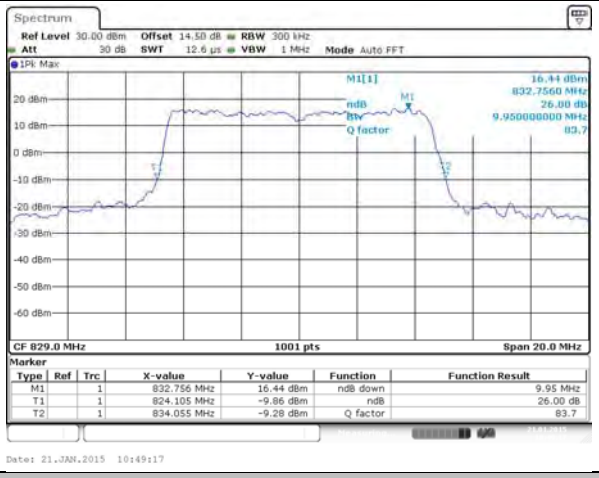


LTE Band 5

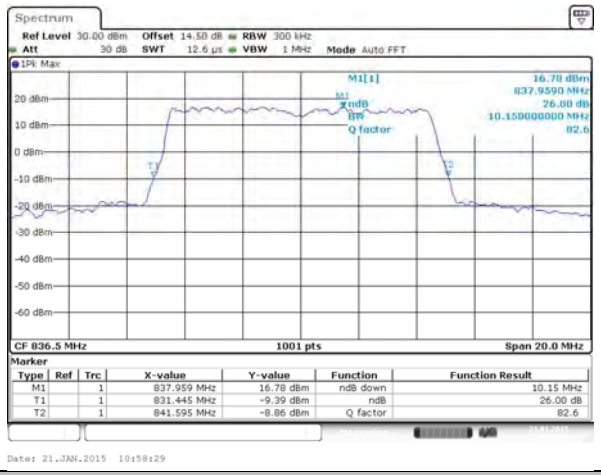
Lowest Channel / 10MHz / QPSK



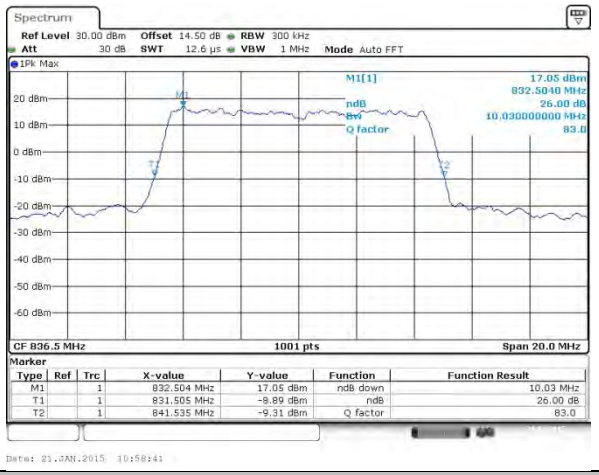
Lowest Channel / 10MHz / 16QAM



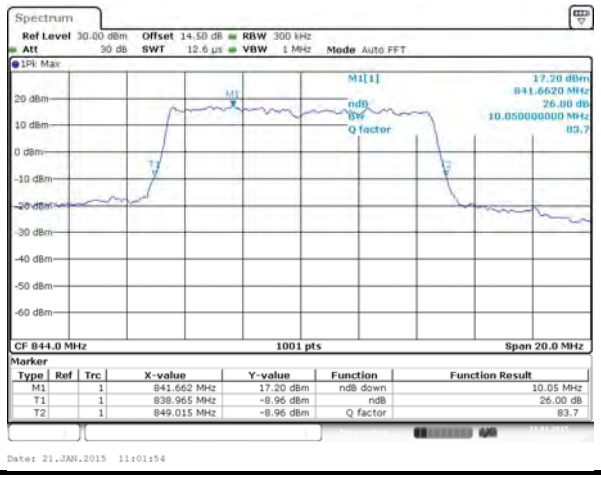
Middle Channel / 10MHz / QPSK



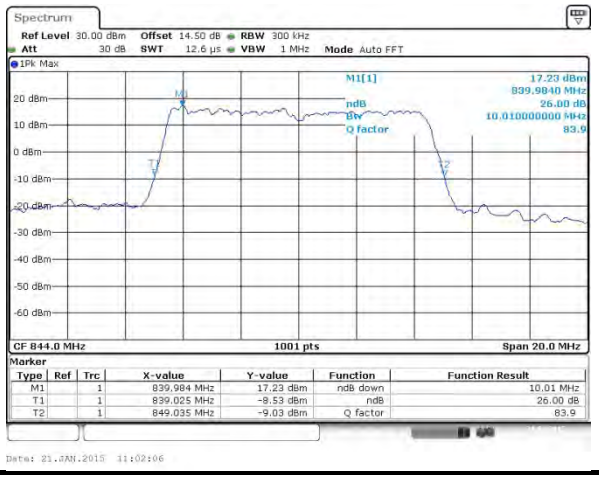
Middle Channel / 10MHz / 16QAM



Highest Channel / 10MHz / QPSK



Highest Channel / 10MHz / 16QAM

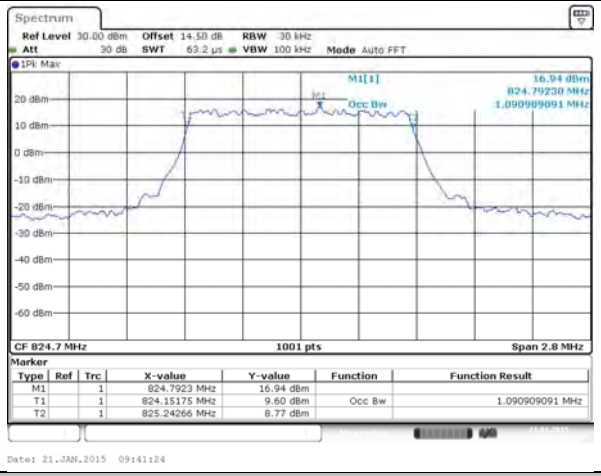


Occupied Bandwidth

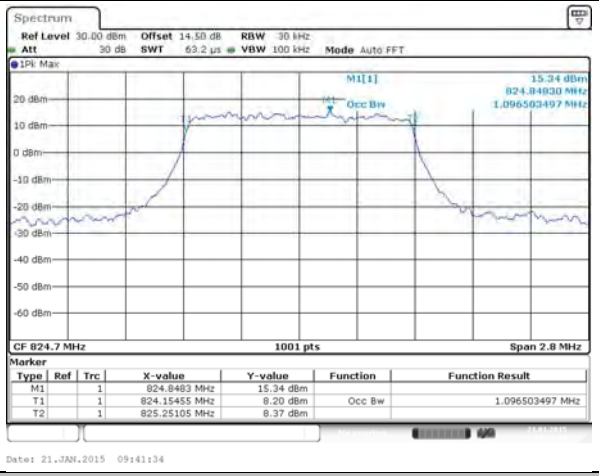
Mode	LTE Band 5 : 99%OBW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	1.091	1.097	2.721	2.721	4.505	4.505	9.051	9.031	-	-	-	-
Middle CH	1.094	1.097	2.733	2.727	4.505	4.486	9.051	9.051	-	-	-	-
Highest CH	1.097	1.097	2.721	2.727	4.505	4.496	9.071	9.031	-	-	-	-

LTE Band 5

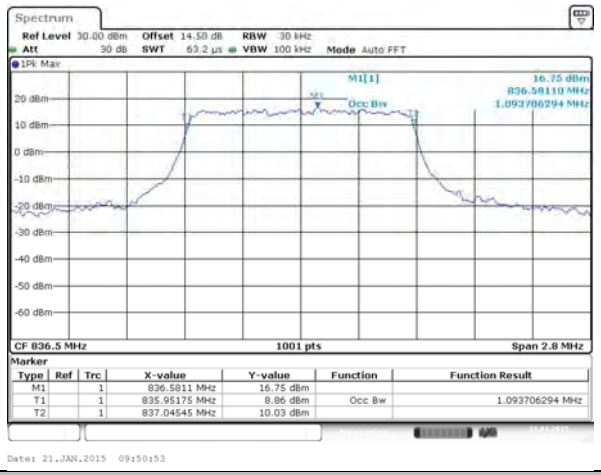
Lowest Channel / 1.4MHz / QPSK



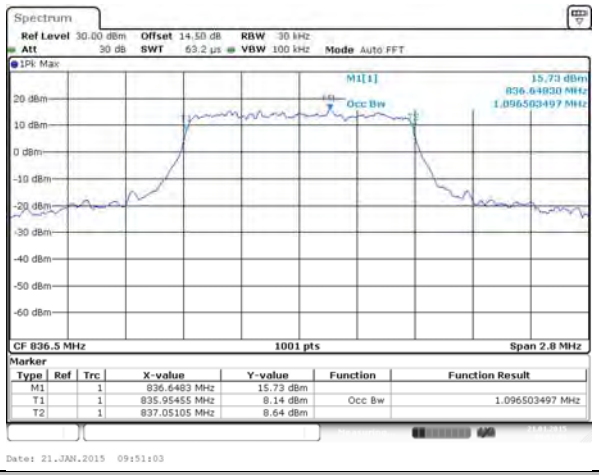
Lowest Channel / 1.4MHz / 16QAM



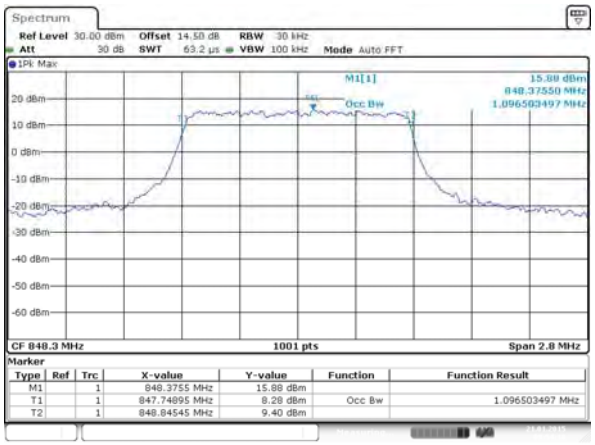
Middle Channel / 1.4MHz / QPSK



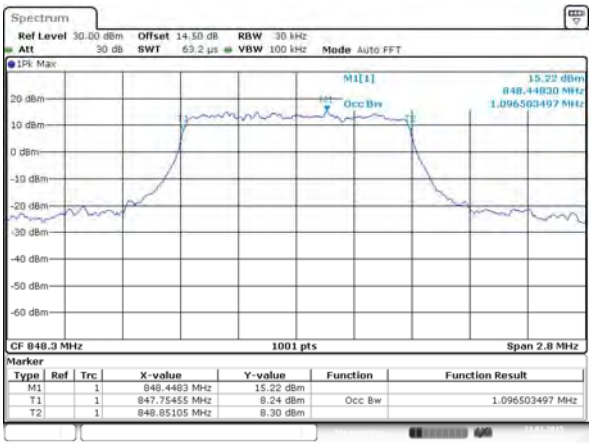
Middle Channel / 1.4MHz / 16QAM



Highest Channel / 1.4MHz / QPSK

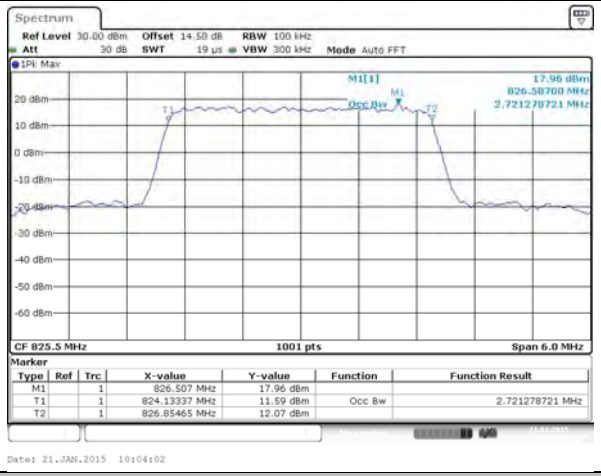


Highest Channel / 1.4MHz / 16QAM

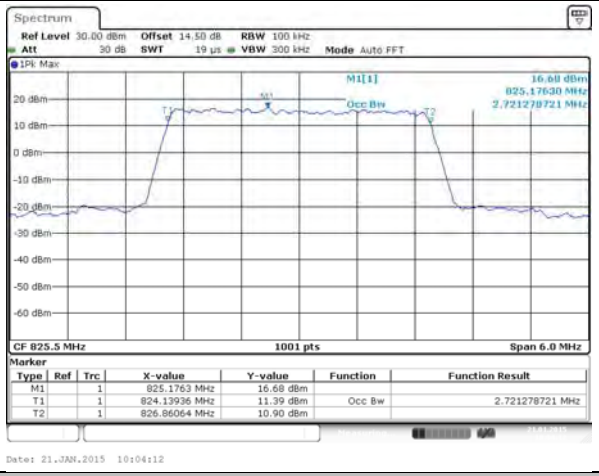


LTE Band 5

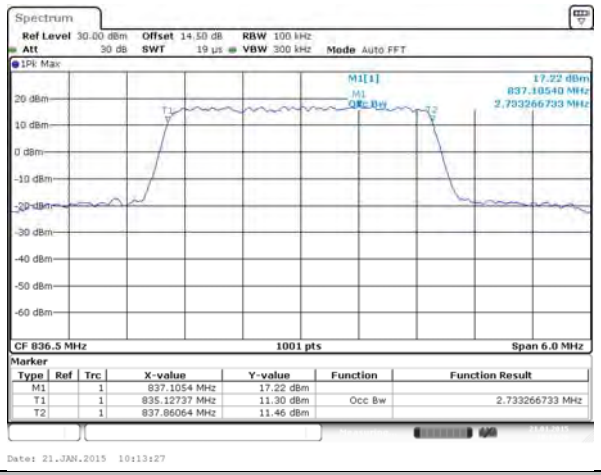
Lowest Channel / 3MHz / QPSK



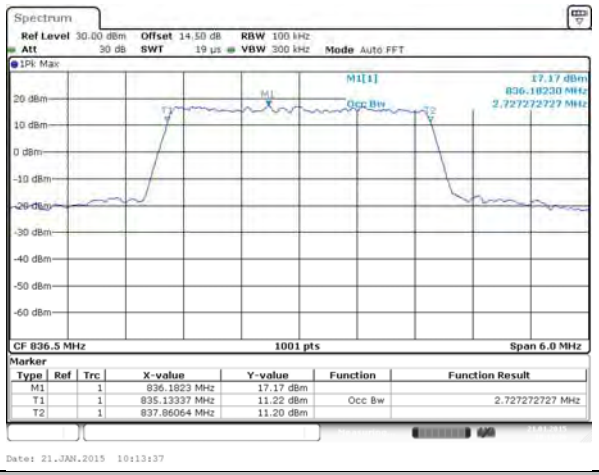
Lowest Channel / 3MHz / 16QAM



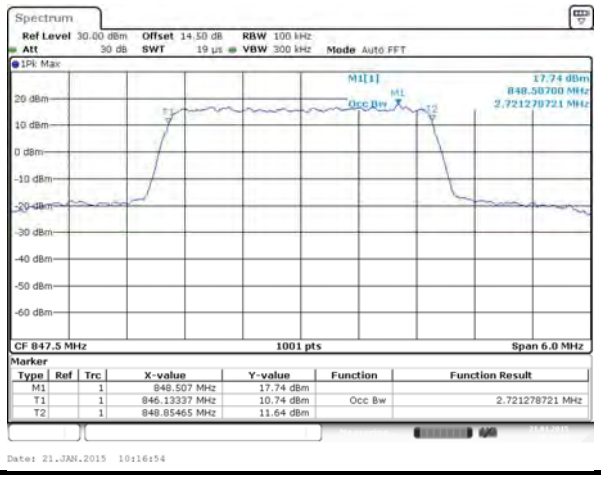
Middle Channel / 3MHz / QPSK



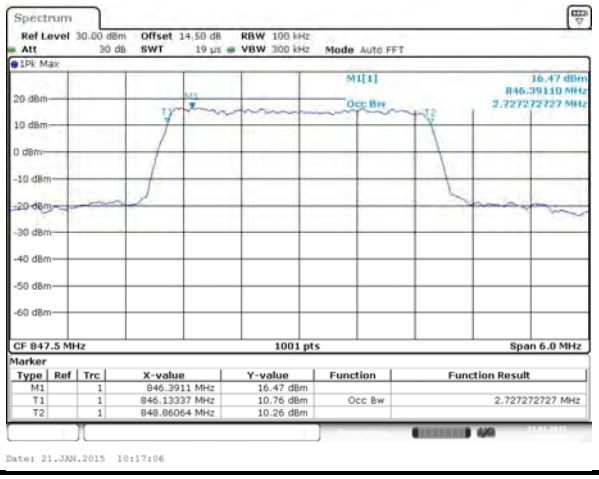
Middle Channel / 3MHz / 16QAM



Highest Channel / 3MHz / QPSK

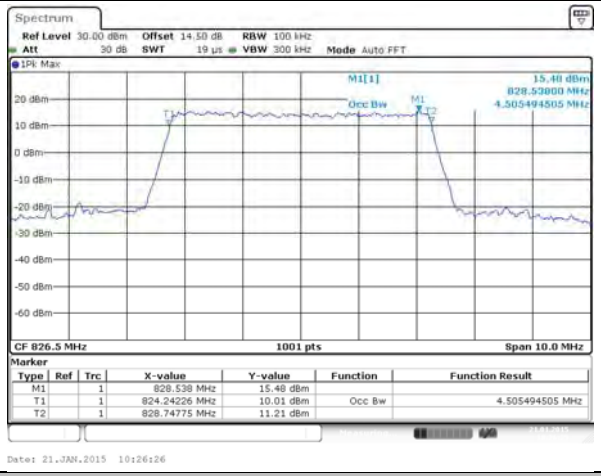


Highest Channel / 3MHz / 16QAM

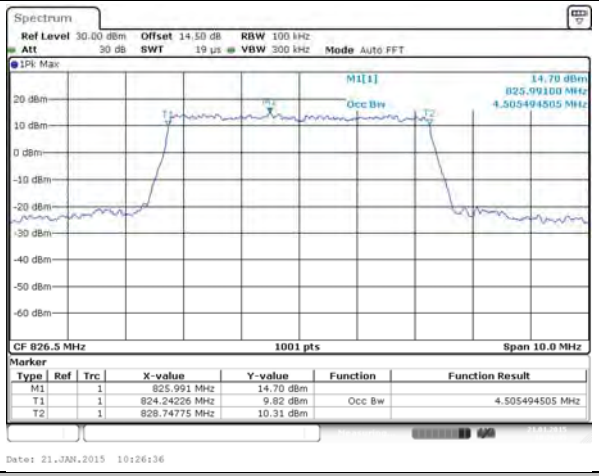


LTE Band 5

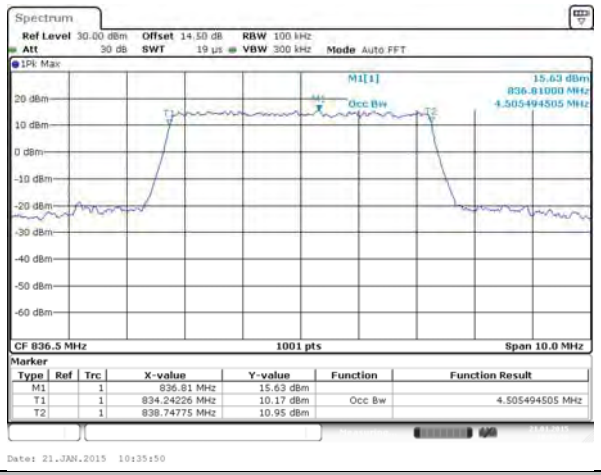
Lowest Channel / 5MHz / QPSK



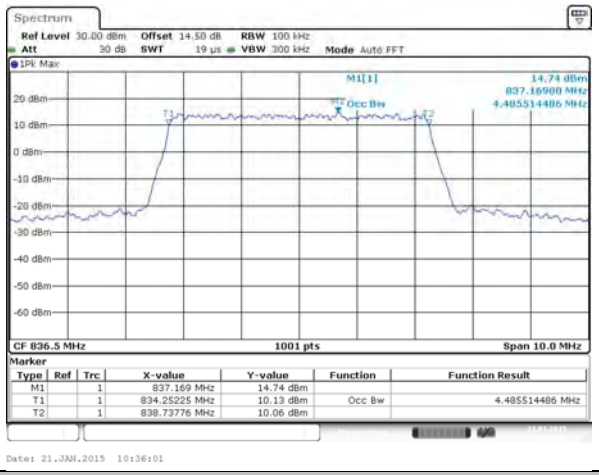
Lowest Channel / 5MHz / 16QAM



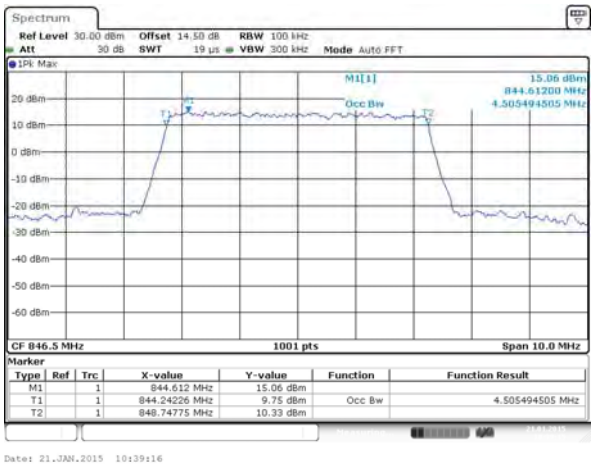
Middle Channel / 5MHz / QPSK



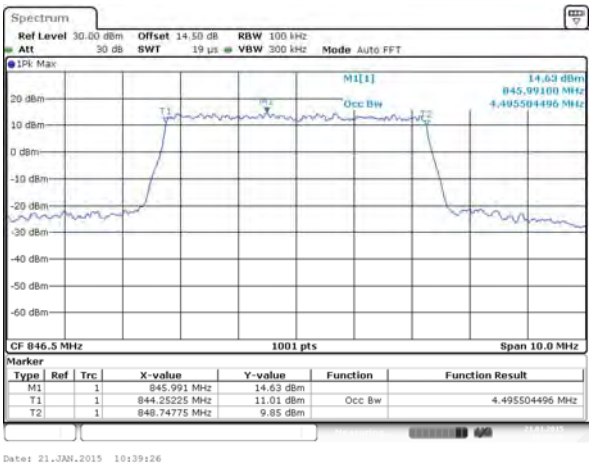
Middle Channel / 5MHz / 16QAM



Highest Channel / 5MHz / QPSK

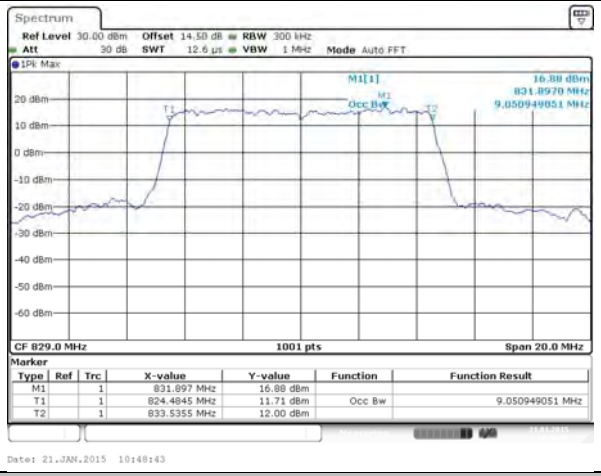


Highest Channel / 5MHz / 16QAM

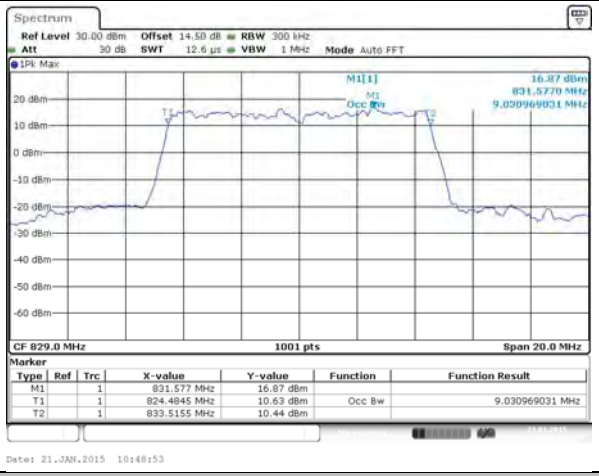


LTE Band 5

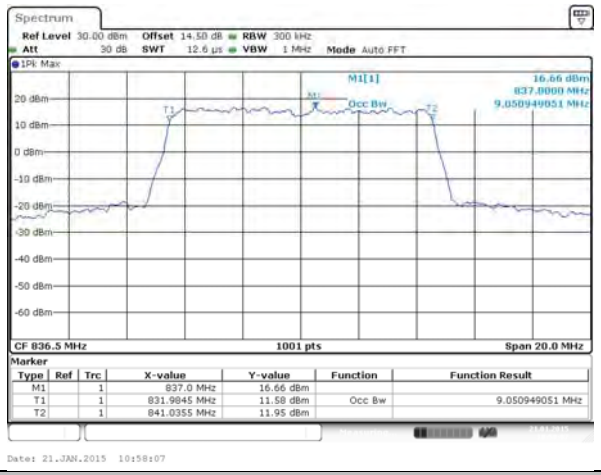
Lowest Channel / 10MHz / QPSK



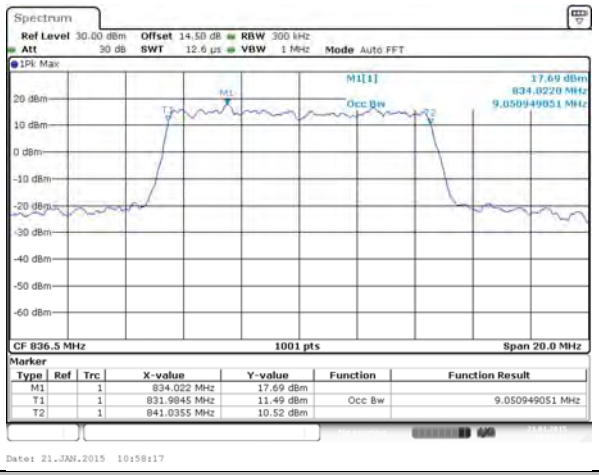
Lowest Channel / 10MHz / 16QAM



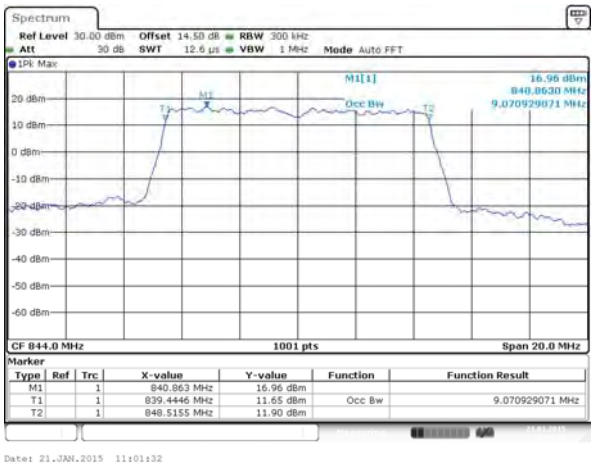
Middle Channel / 10MHz / QPSK



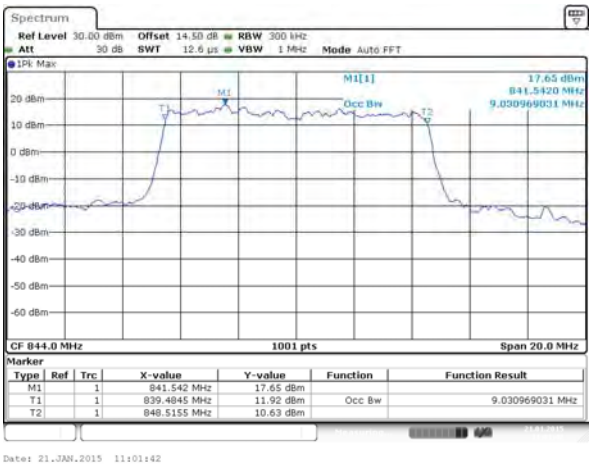
Middle Channel / 10MHz / 16QAM



Highest Channel / 10MHz / QPSK



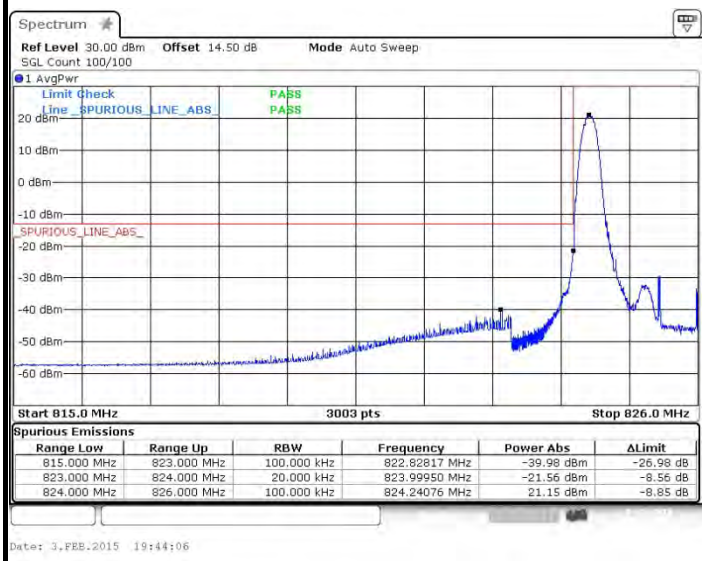
Highest Channel / 10MHz / 16QAM



Conducted Band Edge

LTE Band 5 / 1.4MHz / QPSK

Lowest Band Edge / 1RB

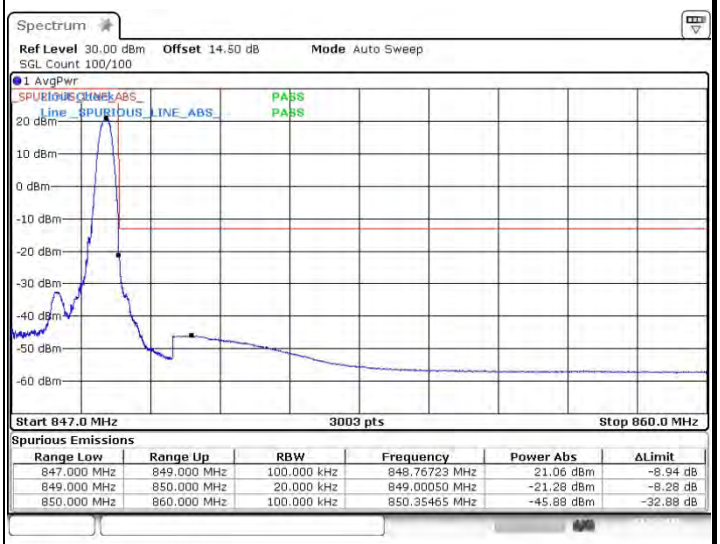


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.82817 MHz	-39.98 dBm	-26.98 dB
823.000 MHz	824.000 MHz	20.000 kHz	823.99950 MHz	-21.56 dBm	-8.56 dB
824.000 MHz	826.000 MHz	100.000 kHz	824.24076 MHz	21.15 dBm	-8.85 dB

Date: 3.FEB.2015 19:44:06

Highest Band Edge / 1RB

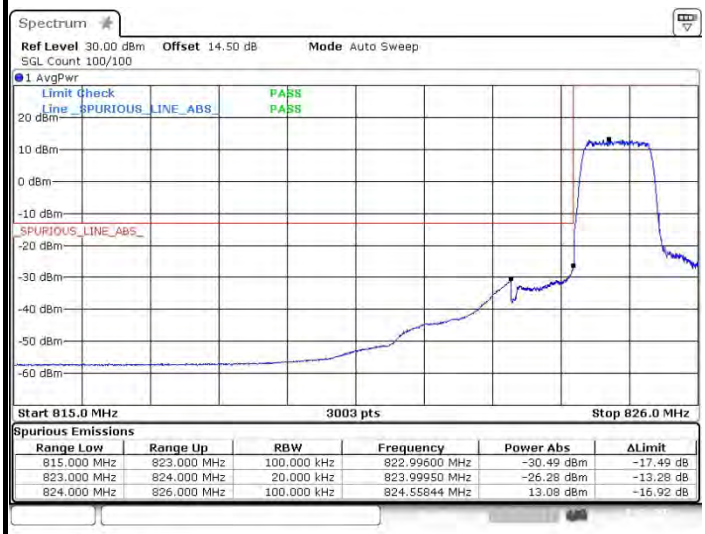


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
847.000 MHz	849.000 MHz	100.000 kHz	848.76723 MHz	21.06 dBm	-8.94 dB
849.000 MHz	850.000 MHz	20.000 kHz	849.00050 MHz	-21.28 dBm	-8.28 dB
850.000 MHz	860.000 MHz	100.000 kHz	850.35465 MHz	-45.88 dBm	-32.88 dB

Date: 3.FEB.2015 19:26:42

Lowest Band Edge / Full RB

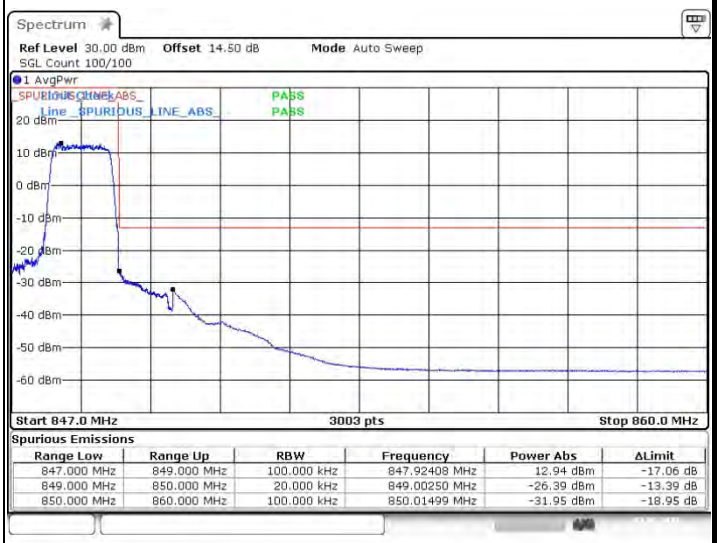


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.99600 MHz	-30.49 dBm	-17.49 dB
823.000 MHz	824.000 MHz	20.000 kHz	823.99950 MHz	-26.28 dBm	-13.28 dB
824.000 MHz	826.000 MHz	100.000 kHz	824.55844 MHz	13.08 dBm	-16.92 dB

Date: 3.FEB.2015 19:33:43

Highest Band Edge / Full RB



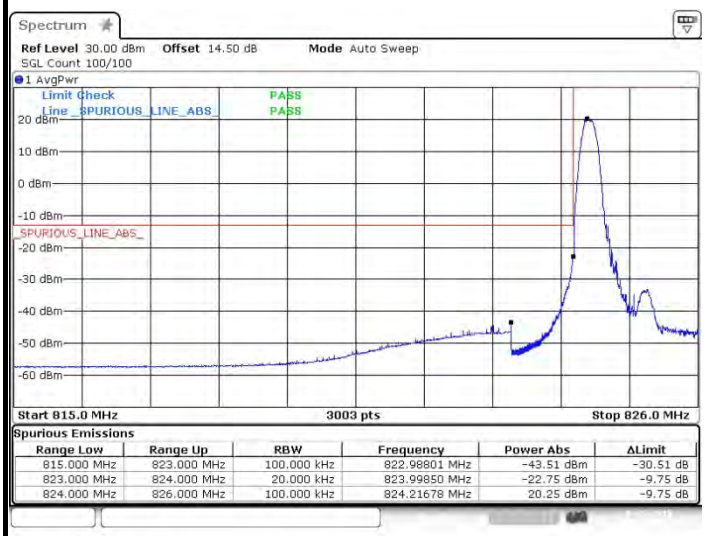
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
847.000 MHz	849.000 MHz	100.000 kHz	847.92408 MHz	12.94 dBm	-17.06 dB
849.000 MHz	850.000 MHz	20.000 kHz	849.00250 MHz	-26.39 dBm	-13.39 dB
850.000 MHz	860.000 MHz	100.000 kHz	850.01499 MHz	-31.95 dBm	-18.95 dB

Date: 3.FEB.2015 19:25:05

LTE Band 5 / 1.4MHz / 16QAM

Lowest Band Edge / 1 RB

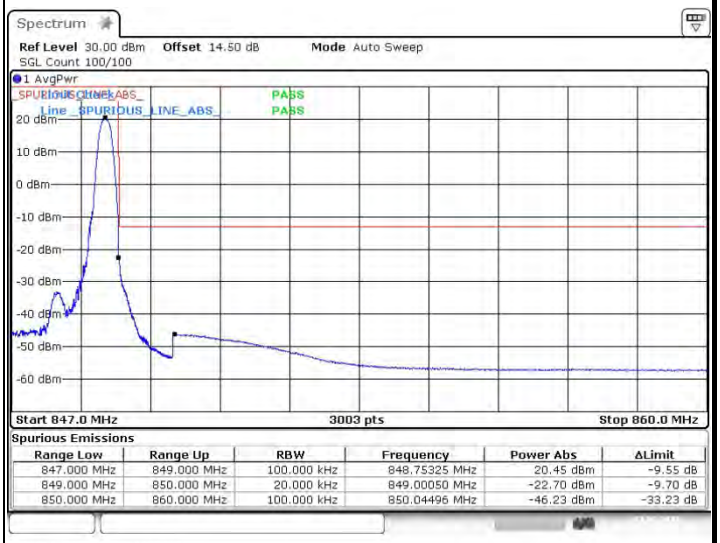


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.98801 MHz	-43.51 dBm	-30.51 dB
823.000 MHz	824.000 MHz	20.000 kHz	823.99850 MHz	-22.75 dBm	-9.75 dB
824.000 MHz	826.000 MHz	100.000 kHz	824.21678 MHz	20.25 dBm	-9.75 dB

Date: 3.FEB.2015 19:41:11

Highest Band Edge / 1 RB



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
847.000 MHz	849.000 MHz	100.000 kHz	848.75325 MHz	20.45 dBm	-9.55 dB
849.000 MHz	850.000 MHz	20.000 kHz	849.00050 MHz	-22.70 dBm	-9.70 dB
850.000 MHz	860.000 MHz	100.000 kHz	850.04496 MHz	-46.23 dBm	-33.23 dB

Date: 3.FEB.2015 19:28:21

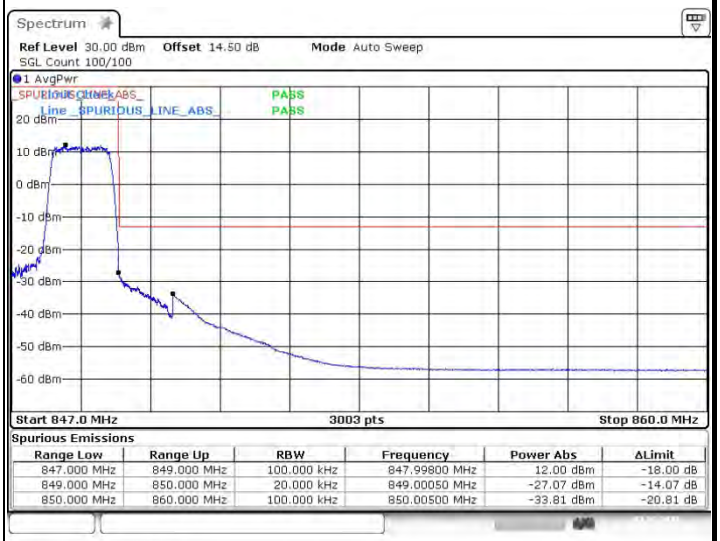
Lowest Band Edge / Full RB

Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.98801 MHz	-33.96 dBm	-20.96 dB
823.000 MHz	824.000 MHz	20.000 kHz	823.99950 MHz	-28.82 dBm	-15.82 dB
824.000 MHz	826.000 MHz	100.000 kHz	824.92008 MHz	11.73 dBm	-18.27 dB

Date: 3.FEB.2015 19:39:08

Highest Band Edge / Full RB



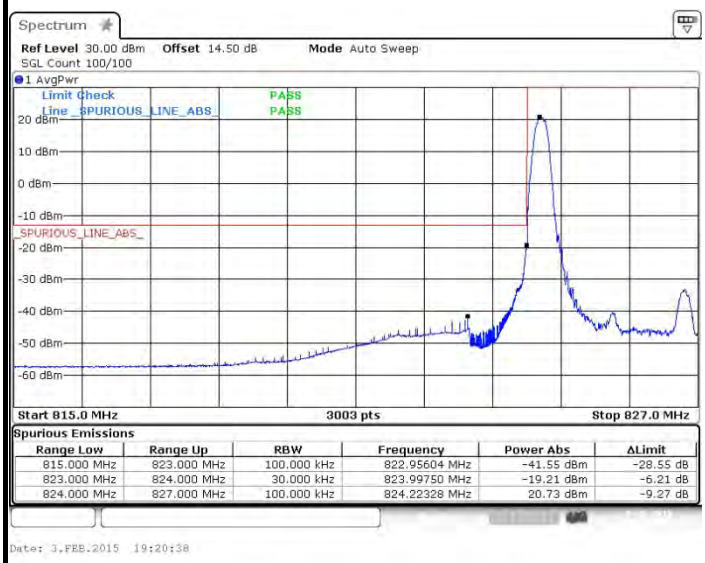
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
847.000 MHz	849.000 MHz	100.000 kHz	847.99800 MHz	12.00 dBm	-18.00 dB
849.000 MHz	850.000 MHz	20.000 kHz	849.00050 MHz	-27.07 dBm	-14.07 dB
850.000 MHz	860.000 MHz	100.000 kHz	850.00500 MHz	-33.81 dBm	-20.81 dB

Date: 3.FEB.2015 19:30:06

LTE Band 5 / 3MHz / QPSK

Lowest Band Edge / 1RB

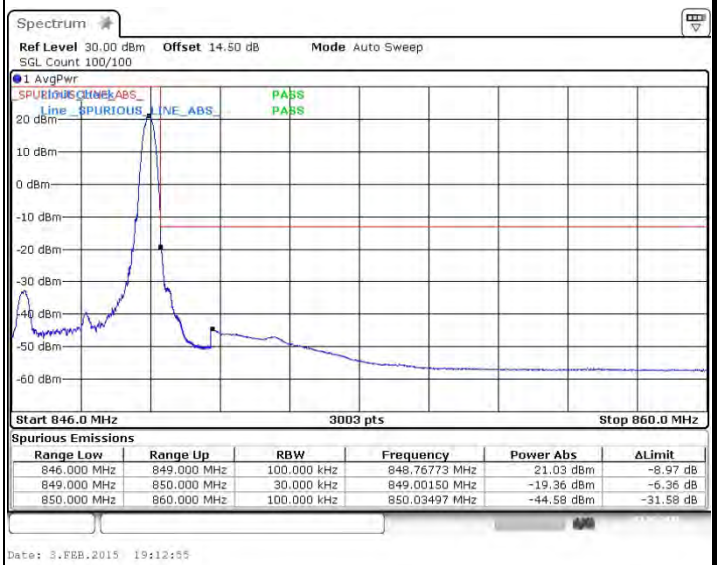


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.95604 MHz	-41.55 dBm	-28.55 dB
823.000 MHz	824.000 MHz	30.000 kHz	823.99750 MHz	-19.21 dBm	-6.21 dB
824.000 MHz	827.000 MHz	100.000 kHz	824.22328 MHz	20.73 dBm	-9.27 dB

Date: 3.FEB.2015 19:20:38

Highest Band Edge / 1 RB

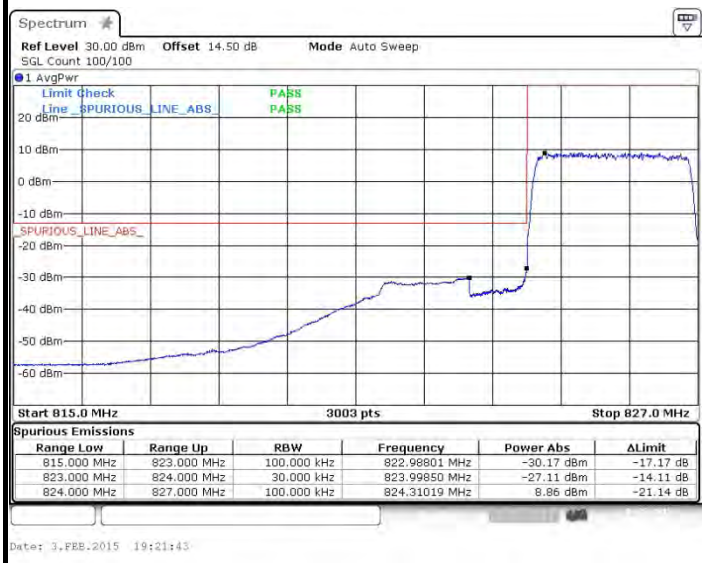


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
846.000 MHz	849.000 MHz	100.000 kHz	848.76773 MHz	21.03 dBm	-8.97 dB
849.000 MHz	850.000 MHz	30.000 kHz	849.00150 MHz	-19.36 dBm	-6.36 dB
850.000 MHz	860.000 MHz	100.000 kHz	850.03497 MHz	-44.58 dBm	-31.58 dB

Date: 3.FEB.2015 19:12:55

Lowest Band Edge / Full RB

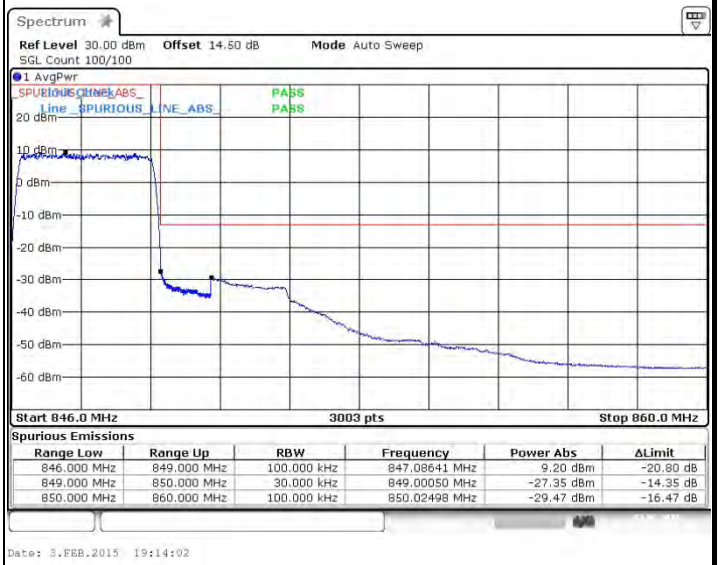


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.98801 MHz	-30.17 dBm	-17.17 dB
823.000 MHz	824.000 MHz	30.000 kHz	823.99850 MHz	-27.11 dBm	-14.11 dB
824.000 MHz	827.000 MHz	100.000 kHz	824.31019 MHz	8.86 dBm	-21.14 dB

Date: 3.FEB.2015 19:21:43

Highest Band Edge / Full RB



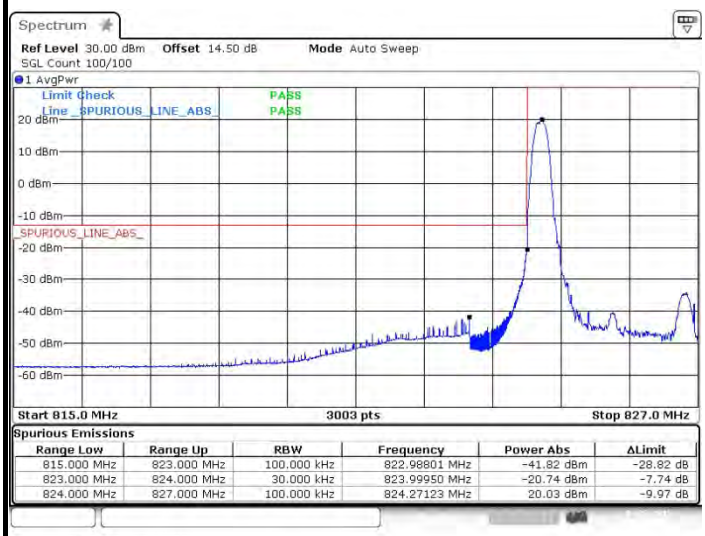
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
846.000 MHz	849.000 MHz	100.000 kHz	847.08641 MHz	9.20 dBm	-20.80 dB
849.000 MHz	850.000 MHz	30.000 kHz	849.00050 MHz	-27.35 dBm	-14.35 dB
850.000 MHz	860.000 MHz	100.000 kHz	850.02498 MHz	-29.47 dBm	-16.47 dB

Date: 3.FEB.2015 19:14:02

LTE Band 5 / 3MHz / 16QAM

Lowest Band Edge / 1 RB

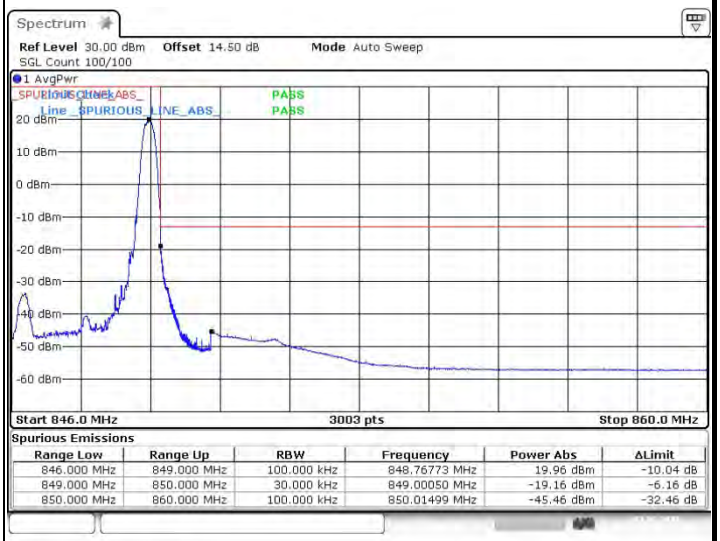


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.98801 MHz	-41.82 dBm	-28.82 dB
823.000 MHz	824.000 MHz	30.000 kHz	823.99950 MHz	-20.74 dBm	-7.74 dB
824.000 MHz	827.000 MHz	100.000 kHz	824.27123 MHz	20.03 dBm	-9.97 dB

Date: 3.FEB.2015 19:19:13

Highest Band Edge /1 RB

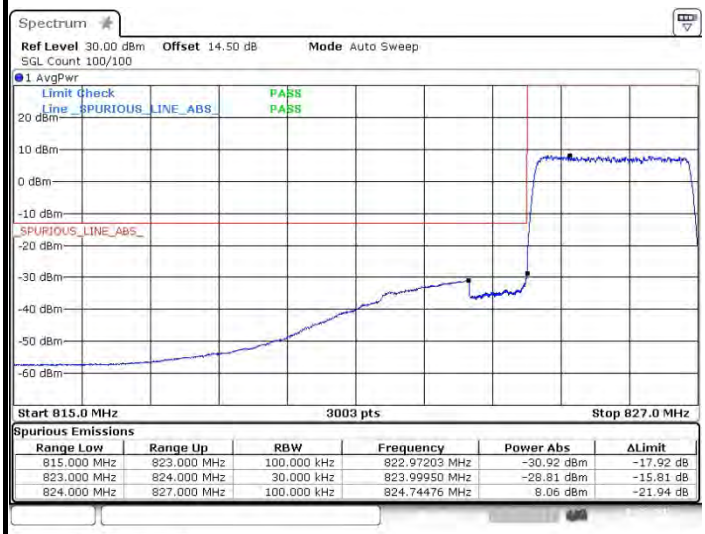


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
846.000 MHz	849.000 MHz	100.000 kHz	848.76773 MHz	19.96 dBm	-10.04 dB
849.000 MHz	850.000 MHz	30.000 kHz	849.00050 MHz	-19.16 dBm	-6.16 dB
850.000 MHz	860.000 MHz	100.000 kHz	850.01499 MHz	-45.46 dBm	-32.46 dB

Date: 3.FEB.2015 19:17:00

Lowest Band Edge / Full RB



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.97203 MHz	-30.92 dBm	-17.92 dB
823.000 MHz	824.000 MHz	30.000 kHz	823.99950 MHz	-28.81 dBm	-15.81 dB
824.000 MHz	827.000 MHz	100.000 kHz	824.74476 MHz	8.06 dBm	-21.94 dB

Date: 3.FEB.2015 19:18:05

Highest Band Edge / Full RB

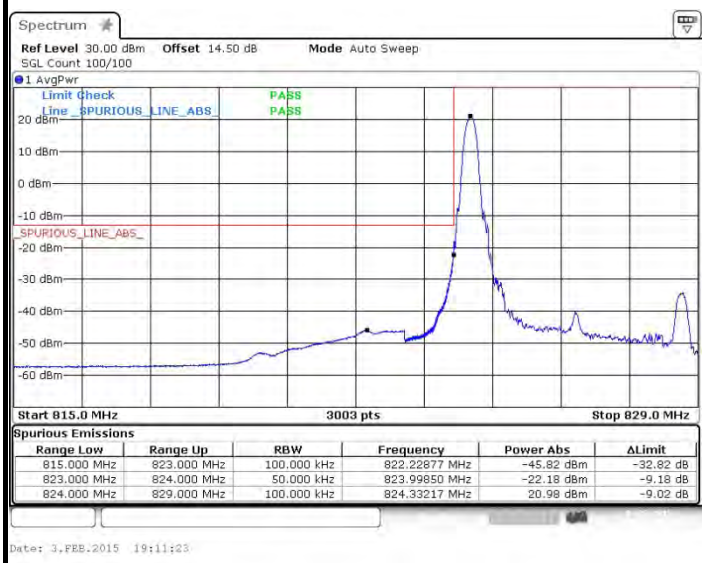
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
846.000 MHz	849.000 MHz	100.000 kHz	846.53796 MHz	8.51 dBm	-21.49 dB
849.000 MHz	850.000 MHz	30.000 kHz	849.00050 MHz	-28.59 dBm	-15.59 dB
850.000 MHz	860.000 MHz	100.000 kHz	850.00500 MHz	-30.91 dBm	-17.91 dB

Date: 3.FEB.2015 19:15:17

LTE Band 5 / 5MHz / QPSK

Lowest Band Edge / 1 RB

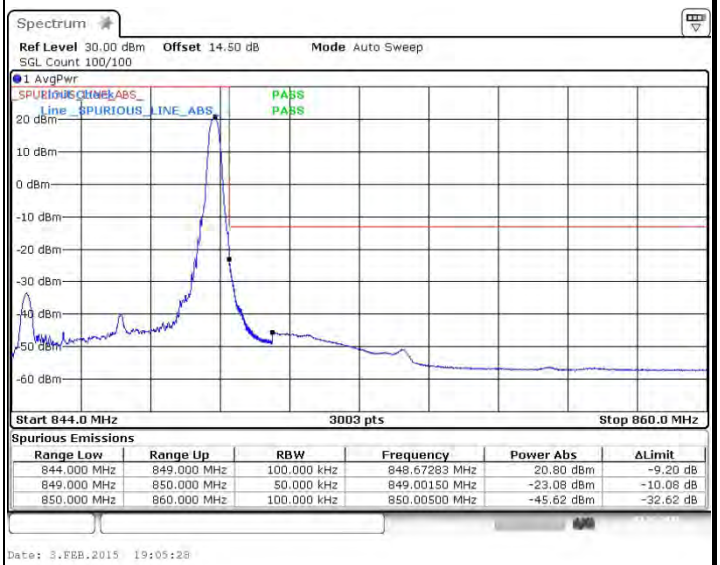


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.22877 MHz	-45.82 dBm	-32.82 dB
823.000 MHz	824.000 MHz	50.000 kHz	823.99850 MHz	-22.18 dBm	-9.18 dB
824.000 MHz	829.000 MHz	100.000 kHz	824.33217 MHz	20.98 dBm	-9.02 dB

Date: 3.FEB.2015 19:11:23

Highest Band Edge / 1 RB

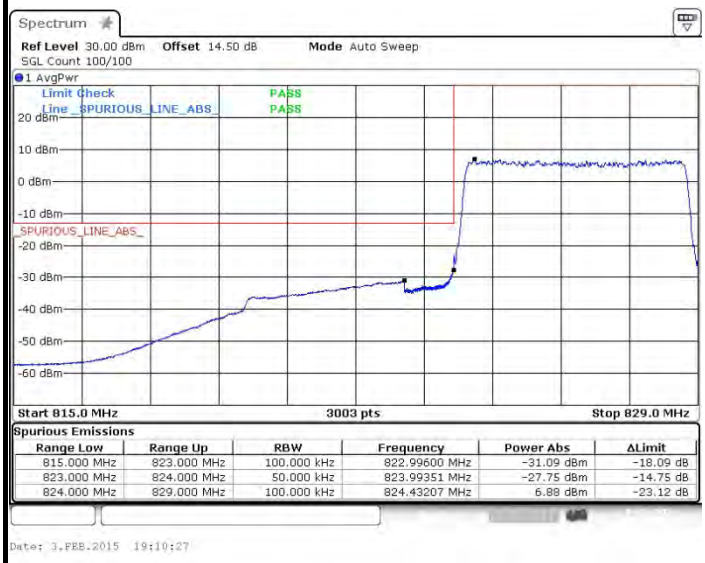


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
844.000 MHz	849.000 MHz	100.000 kHz	848.67283 MHz	20.80 dBm	-9.20 dB
849.000 MHz	850.000 MHz	50.000 kHz	849.00150 MHz	-23.08 dBm	-10.08 dB
850.000 MHz	860.000 MHz	100.000 kHz	850.00500 MHz	-45.62 dBm	-32.62 dB

Date: 3.FEB.2015 19:05:28

Lowest Band Edge / Full RB

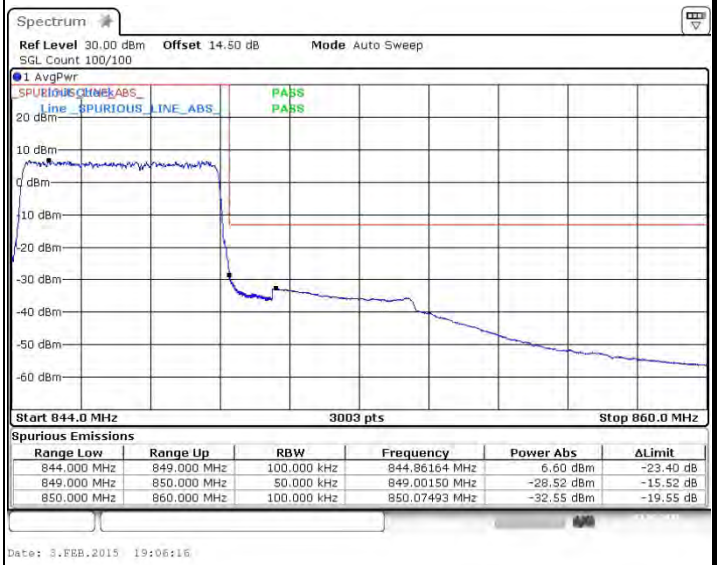


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.99600 MHz	-31.09 dBm	-18.09 dB
823.000 MHz	824.000 MHz	50.000 kHz	823.99351 MHz	-27.75 dBm	-14.75 dB
824.000 MHz	829.000 MHz	100.000 kHz	824.43207 MHz	6.88 dBm	-23.12 dB

Date: 3.FEB.2015 19:10:27

Highest Band Edge / Full RB



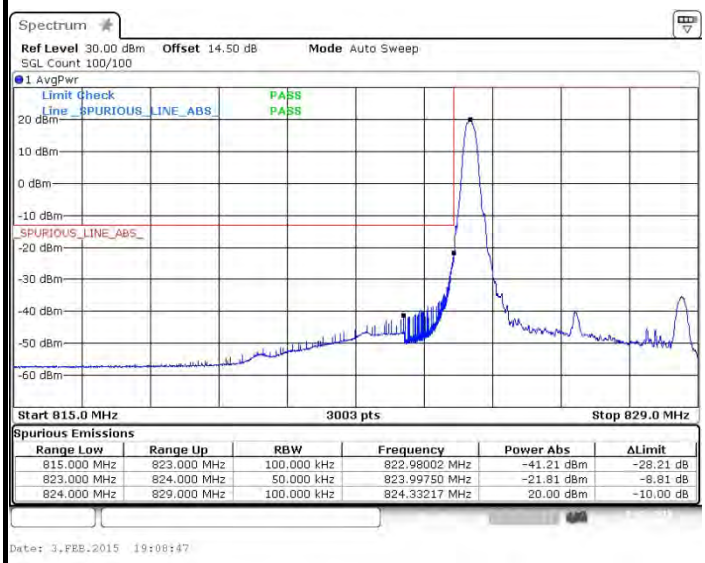
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
844.000 MHz	849.000 MHz	100.000 kHz	844.86164 MHz	6.60 dBm	-23.40 dB
849.000 MHz	850.000 MHz	50.000 kHz	849.00150 MHz	-28.52 dBm	-15.52 dB
850.000 MHz	860.000 MHz	100.000 kHz	850.07493 MHz	-32.55 dBm	-19.55 dB

Date: 3.FEB.2015 19:06:16

LTE Band 5 / 5MHz / 16QAM

Lowest Band Edge / 1RB

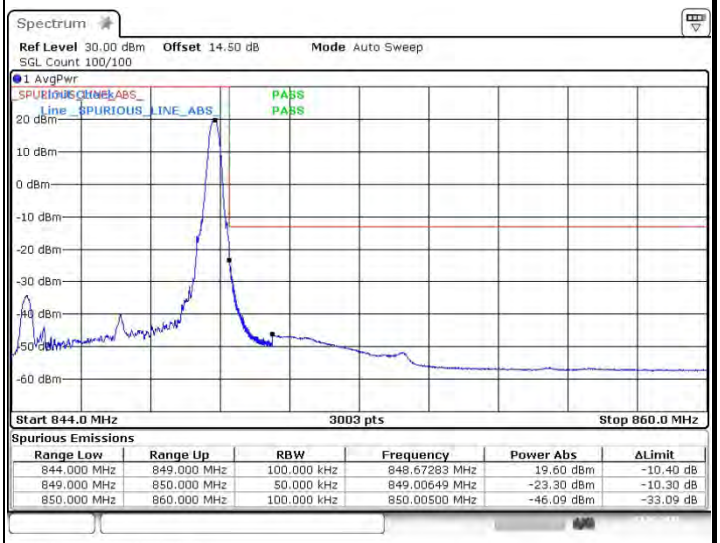


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.98002 MHz	-41.21 dBm	-28.21 dB
823.000 MHz	824.000 MHz	50.000 kHz	823.99750 MHz	-21.81 dBm	-8.81 dB
824.000 MHz	829.000 MHz	100.000 kHz	824.33217 MHz	20.00 dBm	-10.00 dB

Date: 3.FEB.2015 19:08:47

Highest Band Edge / 1 RB

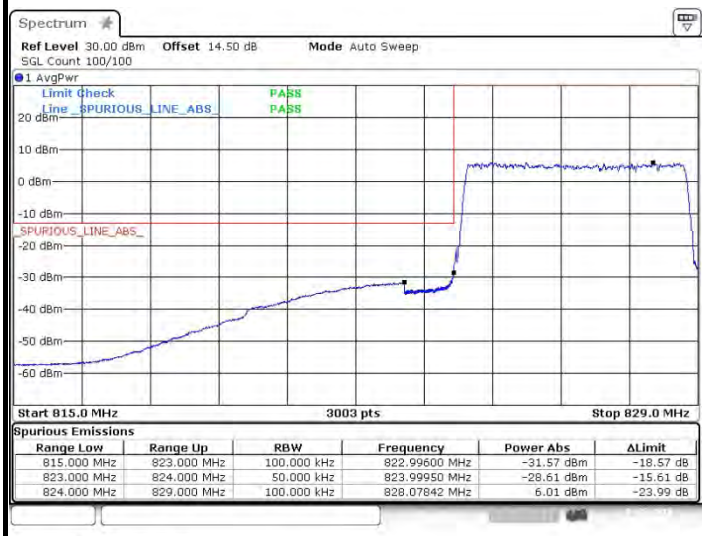


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
844.000 MHz	849.000 MHz	100.000 kHz	848.67283 MHz	19.60 dBm	-10.40 dB
849.000 MHz	850.000 MHz	50.000 kHz	849.00649 MHz	-23.30 dBm	-10.30 dB
850.000 MHz	860.000 MHz	100.000 kHz	850.00500 MHz	-46.09 dBm	-33.09 dB

Date: 3.FEB.2015 19:07:58

Lowest Band Edge / Full RB



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.99600 MHz	-31.57 dBm	-18.57 dB
823.000 MHz	824.000 MHz	50.000 kHz	823.99950 MHz	-28.61 dBm	-15.61 dB
824.000 MHz	829.000 MHz	100.000 kHz	828.07842 MHz	6.01 dBm	-23.99 dB

Date: 3.FEB.2015 19:09:38

Highest Band Edge / Full RB

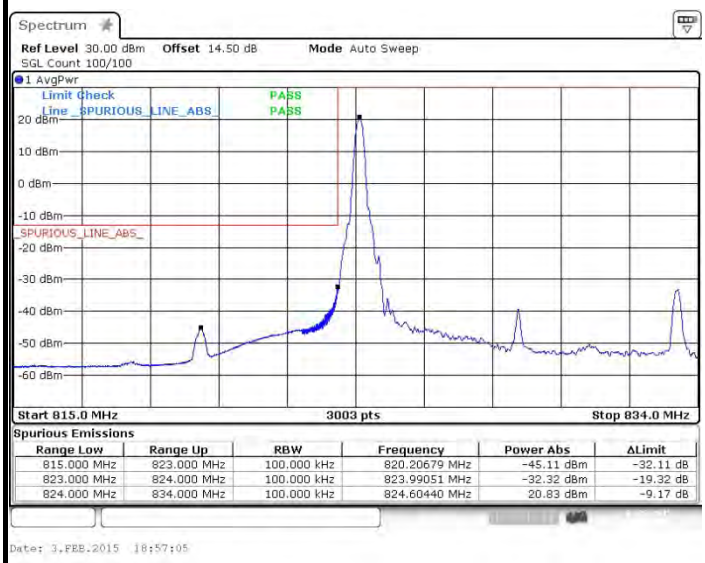
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
844.000 MHz	849.000 MHz	100.000 kHz	846.14036 MHz	5.96 dBm	-24.04 dB
849.000 MHz	850.000 MHz	50.000 kHz	849.00050 MHz	-30.06 dBm	-17.06 dB
850.000 MHz	860.000 MHz	100.000 kHz	850.13487 MHz	-33.88 dBm	-20.88 dB

Date: 3.FEB.2015 19:07:11

LTE Band 5 / 10MHz / QPSK

Lowest Band Edge / 1 RB

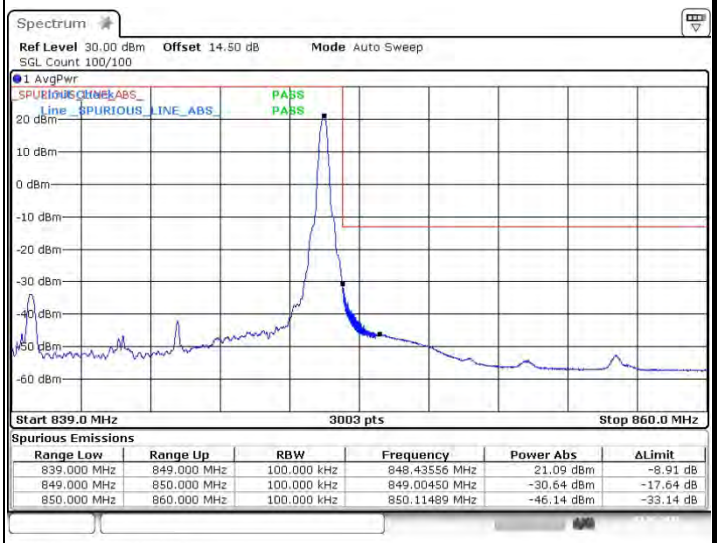


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	820.20679 MHz	-45.11 dBm	-32.11 dB
823.000 MHz	824.000 MHz	100.000 kHz	823.99051 MHz	-32.32 dBm	-19.32 dB
824.000 MHz	834.000 MHz	100.000 kHz	824.60440 MHz	20.83 dBm	-9.17 dB

Date: 3.FEB.2015 18:57:05

Highest Band Edge / 1 RB

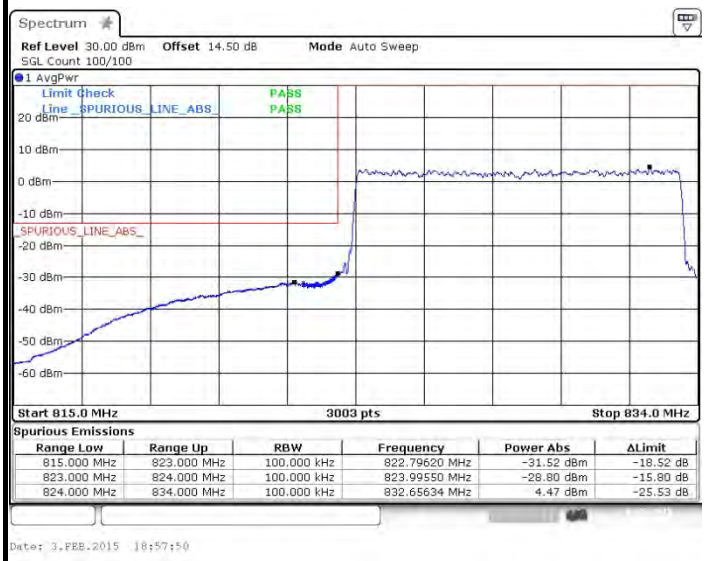


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
839.000 MHz	849.000 MHz	100.000 kHz	848.43556 MHz	21.09 dBm	-8.91 dB
849.000 MHz	850.000 MHz	100.000 kHz	849.00450 MHz	-30.64 dBm	-17.64 dB
850.000 MHz	860.000 MHz	100.000 kHz	850.11489 MHz	-46.14 dBm	-33.14 dB

Date: 3.FEB.2015 19:04:06

Lowest Band Edge / Full RB

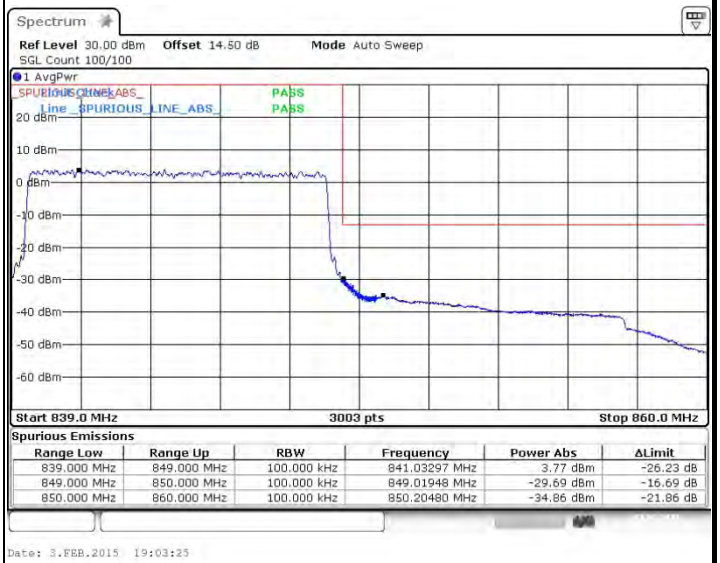


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.79620 MHz	-31.52 dBm	-18.52 dB
823.000 MHz	824.000 MHz	100.000 kHz	823.99550 MHz	-28.80 dBm	-15.80 dB
824.000 MHz	834.000 MHz	100.000 kHz	832.65634 MHz	4.47 dBm	-25.53 dB

Date: 3.FEB.2015 18:57:50

Highest Band Edge / Full RB



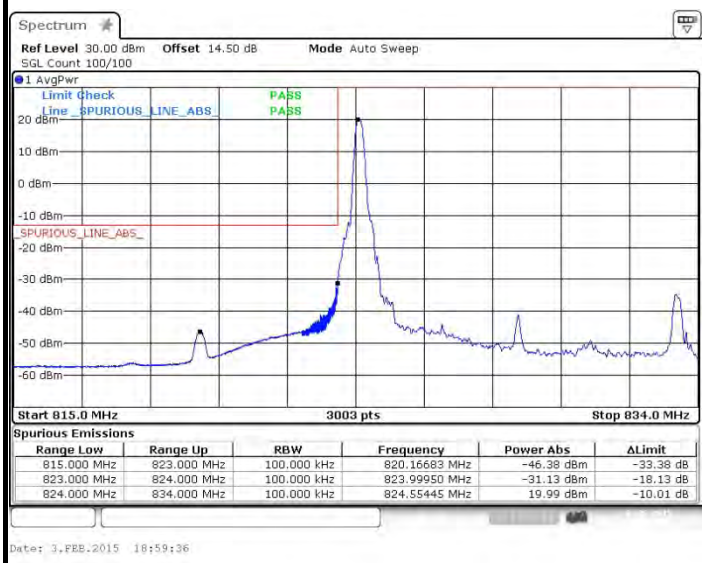
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
839.000 MHz	849.000 MHz	100.000 kHz	841.03297 MHz	3.77 dBm	-26.23 dB
849.000 MHz	850.000 MHz	100.000 kHz	849.01948 MHz	-29.69 dBm	-16.69 dB
850.000 MHz	860.000 MHz	100.000 kHz	850.20480 MHz	-34.86 dBm	-21.86 dB

Date: 3.FEB.2015 19:03:25

LTE Band 5 / 10MHz / 16QAM

Lowest Band Edge / 1 RB

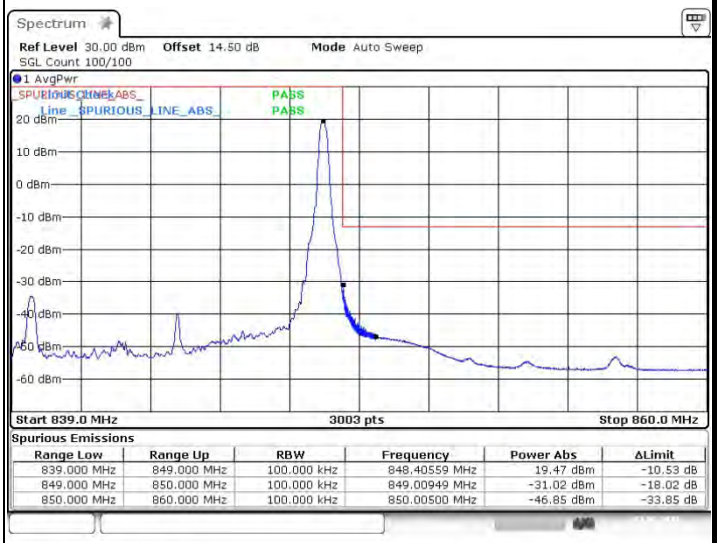


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	820.16683 MHz	-46.38 dBm	-33.38 dB
823.000 MHz	824.000 MHz	100.000 kHz	823.99950 MHz	-31.13 dBm	-18.13 dB
824.000 MHz	834.000 MHz	100.000 kHz	824.55445 MHz	19.99 dBm	-10.01 dB

Date: 3.FEB.2015 18:59:36

Highest Band Edge / 1 RB

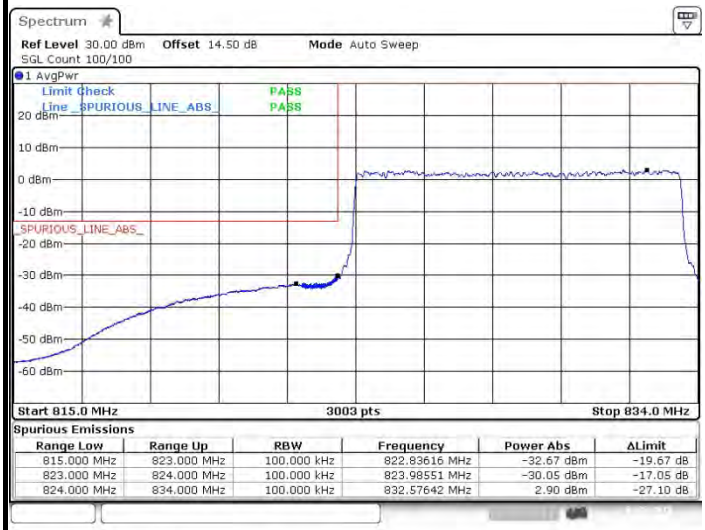


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
839.000 MHz	849.000 MHz	100.000 kHz	848.40559 MHz	19.47 dBm	-10.53 dB
849.000 MHz	850.000 MHz	100.000 kHz	849.00949 MHz	-31.02 dBm	-18.02 dB
850.000 MHz	860.000 MHz	100.000 kHz	850.00500 MHz	-46.85 dBm	-33.85 dB

Date: 3.FEB.2015 19:01:55

Lowest Band Edge / Full RB

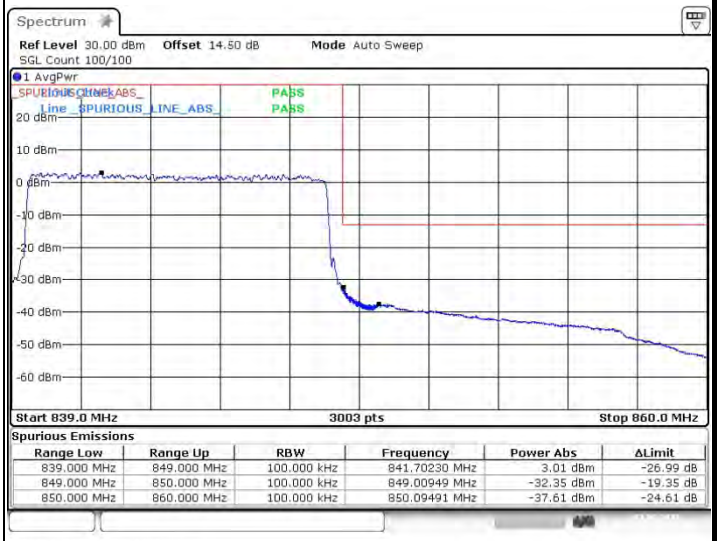


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
815.000 MHz	823.000 MHz	100.000 kHz	822.83616 MHz	-32.67 dBm	-19.67 dB
823.000 MHz	824.000 MHz	100.000 kHz	823.98551 MHz	-30.05 dBm	-17.05 dB
824.000 MHz	834.000 MHz	100.000 kHz	832.57642 MHz	2.90 dBm	-27.10 dB

Date: 3.FEB.2015 18:58:52

Highest Band Edge / Full RB



Spurious Emissions

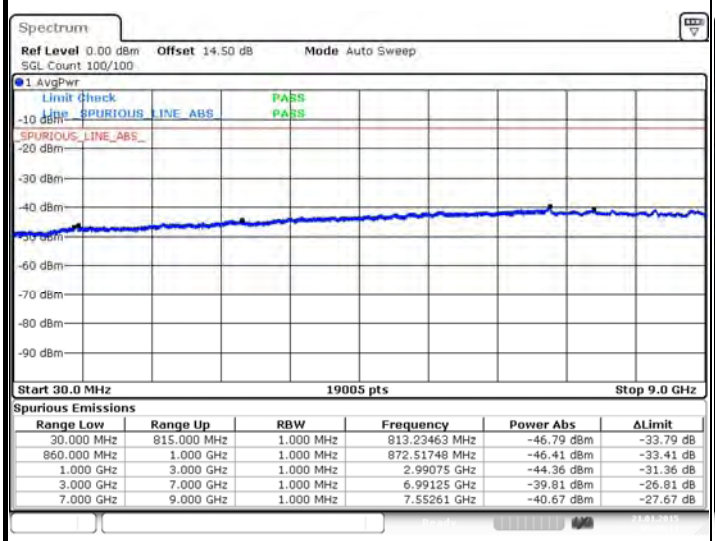
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
839.000 MHz	849.000 MHz	100.000 kHz	841.70230 MHz	3.01 dBm	-26.99 dB
849.000 MHz	850.000 MHz	100.000 kHz	849.00949 MHz	-32.35 dBm	-19.35 dB
850.000 MHz	860.000 MHz	100.000 kHz	850.09491 MHz	-37.61 dBm	-24.61 dB

Date: 3.FEB.2015 19:02:37

Conducted Spurious Emission

LTE Band 5 / 1.4MHz

Lowest Channel / QPSK

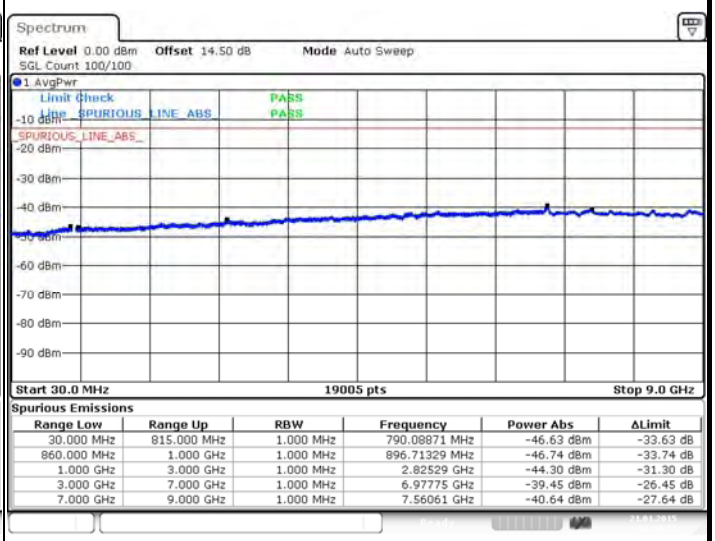


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	1.000 MHz	813.23463 MHz	-46.79 dBm	-33.79 dB
860.000 MHz	1.000 GHz	1.000 MHz	872.51748 MHz	-46.41 dBm	-33.41 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.99075 GHz	-44.36 dBm	-31.36 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.99125 GHz	-39.81 dBm	-26.81 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.55261 GHz	-40.67 dBm	-27.67 dB

Date: 21.JAN.2015 09:49:11

Lowest Channel / 16QAM

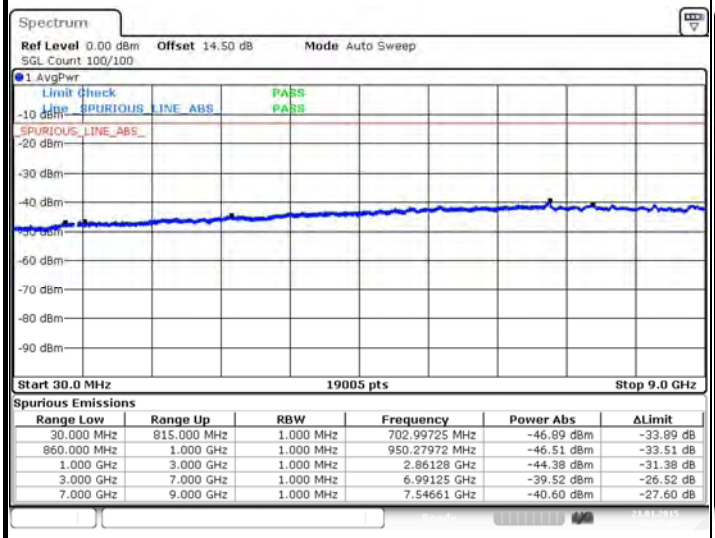


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	1.000 MHz	790.08871 MHz	-46.63 dBm	-33.63 dB
860.000 MHz	1.000 GHz	1.000 MHz	896.71329 MHz	-46.74 dBm	-33.74 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.82529 GHz	-44.30 dBm	-31.30 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.97775 GHz	-39.45 dBm	-26.45 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.56061 GHz	-40.64 dBm	-27.64 dB

Date: 21.JAN.2015 09:50:31

Middle Channel / QPSK

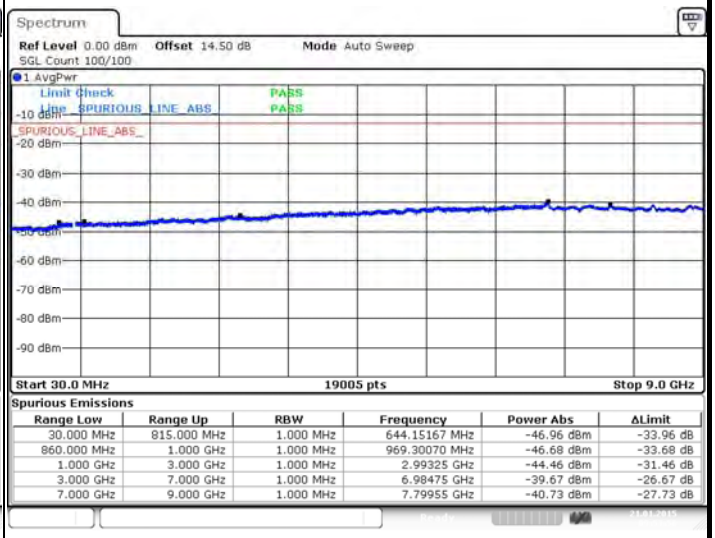


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	1.000 MHz	702.99725 MHz	-46.89 dBm	-33.89 dB
860.000 MHz	1.000 GHz	1.000 MHz	950.27972 MHz	-46.51 dBm	-33.51 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.86128 GHz	-44.38 dBm	-31.38 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.99125 GHz	-39.52 dBm	-26.52 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.54661 GHz	-40.60 dBm	-27.60 dB

Date: 21.JAN.2015 09:52:36

Middle Channel / 16QAM



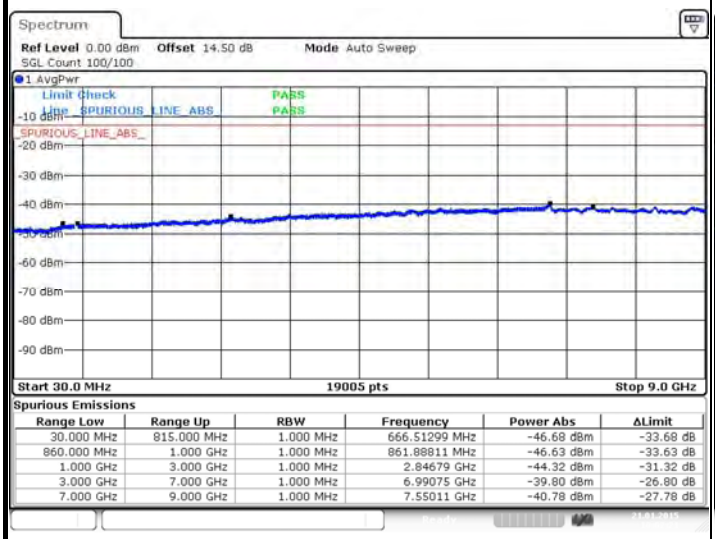
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	1.000 MHz	644.15167 MHz	-46.96 dBm	-33.96 dB
860.000 MHz	1.000 GHz	1.000 MHz	969.30070 MHz	-46.68 dBm	-33.68 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.99325 GHz	-44.46 dBm	-31.46 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.98475 GHz	-39.67 dBm	-26.67 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.79955 GHz	-40.73 dBm	-27.73 dB

Date: 21.JAN.2015 09:53:56

LTE Band 5 / 1.4MHz

Highest Channel / QPSK

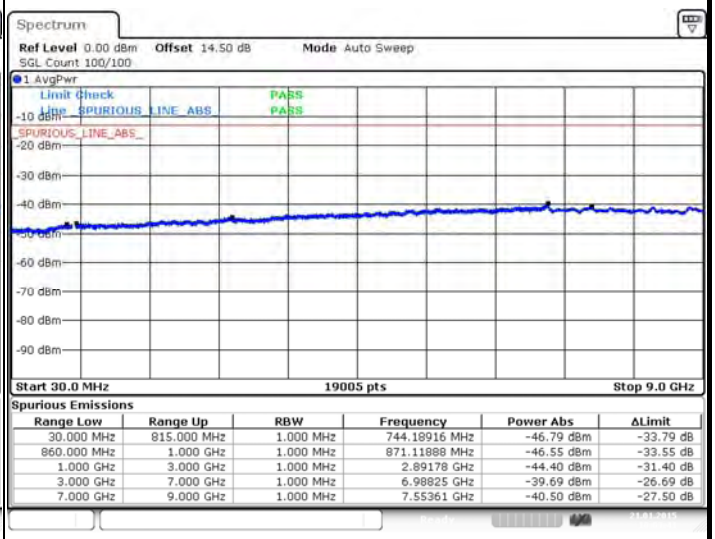


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	1.000 MHz	666.51299 MHz	-46.68 dBm	-33.68 dB
860.000 MHz	1.000 GHz	1.000 MHz	861.88811 MHz	-46.63 dBm	-33.63 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.84679 GHz	-44.32 dBm	-31.32 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.99075 GHz	-39.80 dBm	-26.80 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.55011 GHz	-40.78 dBm	-27.78 dB

Date: 21.JAN.2015 10:02:21

Highest Channel / 16QAM



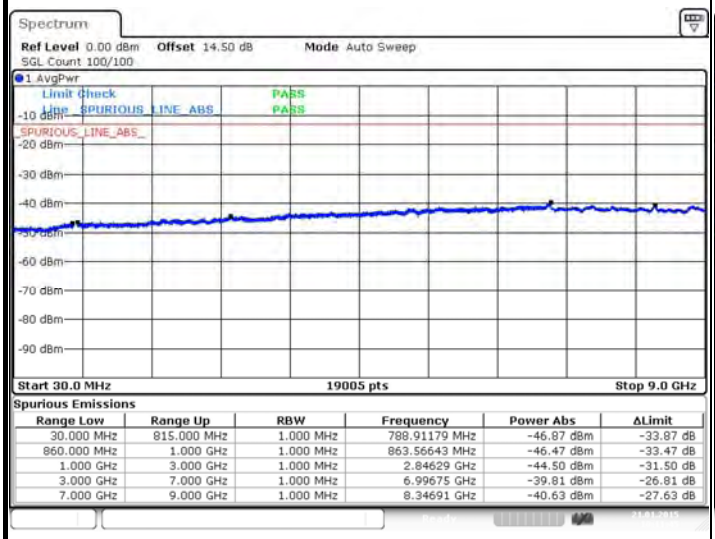
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	1.000 MHz	744.18916 MHz	-46.79 dBm	-33.79 dB
860.000 MHz	1.000 GHz	1.000 MHz	871.11888 MHz	-46.55 dBm	-33.55 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.89178 GHz	-44.40 dBm	-31.40 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.98825 GHz	-39.69 dBm	-26.69 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.55361 GHz	-40.50 dBm	-27.50 dB

Date: 21.JAN.2015 10:03:41

LTE Band 5 / 3MHz

Lowest Channel / QPSK

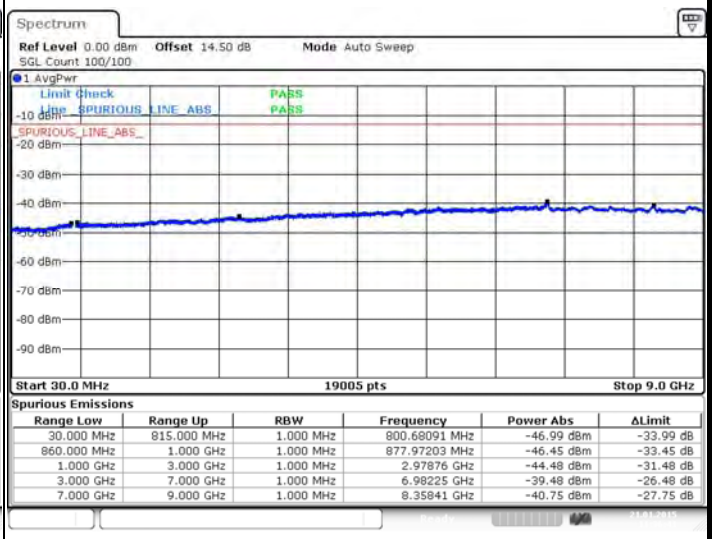


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	1.000 MHz	788.91179 MHz	-46.87 dBm	-33.87 dB
860.000 MHz	1.000 GHz	1.000 MHz	863.56643 MHz	-46.47 dBm	-33.47 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.84629 GHz	-44.50 dBm	-31.50 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.99675 GHz	-39.81 dBm	-26.81 dB
7.000 GHz	9.000 GHz	1.000 MHz	8.34691 GHz	-40.63 dBm	-27.63 dB

Date: 21.JAN.2015 10:11:45

Lowest Channel / 16QAM

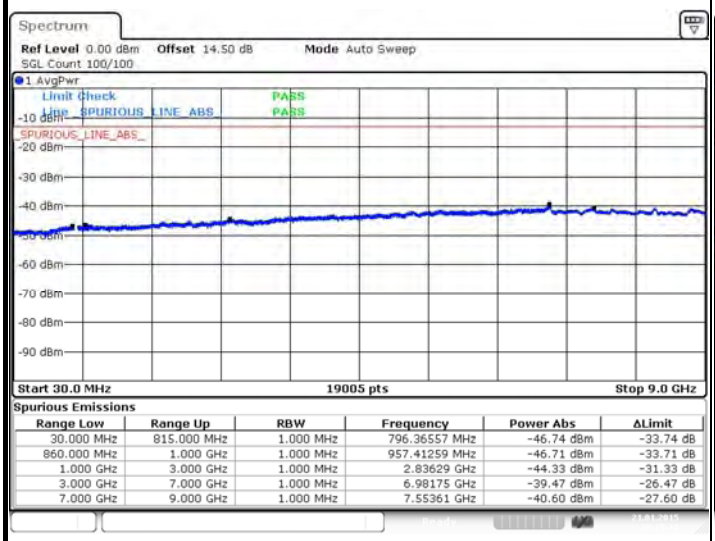


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	1.000 MHz	800.68091 MHz	-46.99 dBm	-33.99 dB
860.000 MHz	1.000 GHz	1.000 MHz	877.97203 MHz	-46.45 dBm	-33.45 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.97876 GHz	-44.48 dBm	-31.48 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.98225 GHz	-39.48 dBm	-26.48 dB
7.000 GHz	9.000 GHz	1.000 MHz	8.35841 GHz	-40.75 dBm	-27.75 dB

Date: 21.JAN.2015 11:36:41

Middle Channel / QPSK

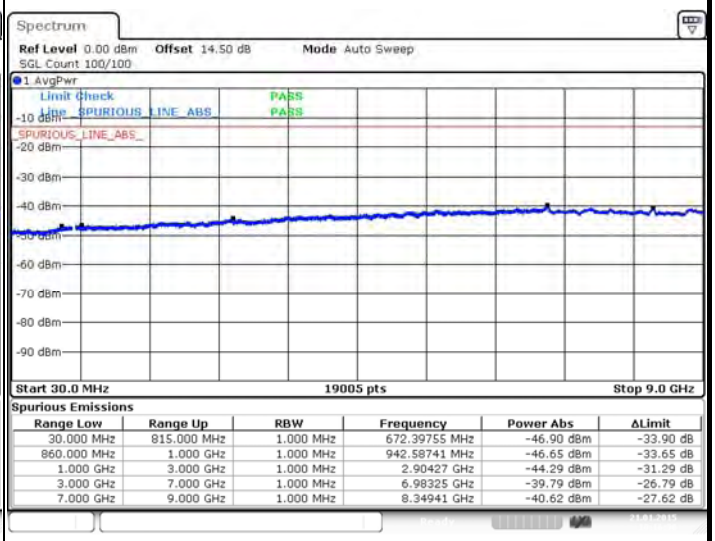


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	1.000 MHz	796.36557 MHz	-46.74 dBm	-33.74 dB
860.000 MHz	1.000 GHz	1.000 MHz	957.41259 MHz	-46.71 dBm	-33.71 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.83629 GHz	-44.33 dBm	-31.33 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.98175 GHz	-39.47 dBm	-26.47 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.55361 GHz	-40.60 dBm	-27.60 dB

Date: 21.JAN.2015 10:15:10

Middle Channel / 16QAM



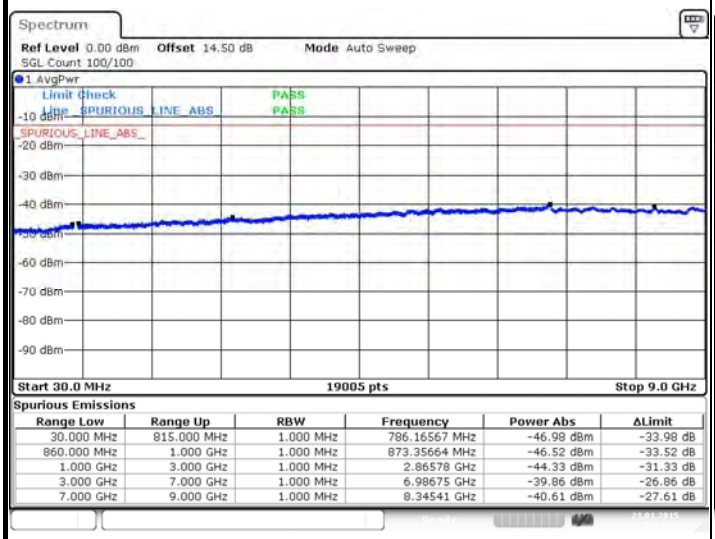
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	1.000 MHz	672.39755 MHz	-46.90 dBm	-33.90 dB
860.000 MHz	1.000 GHz	1.000 MHz	942.58741 MHz	-46.65 dBm	-33.65 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.90427 GHz	-44.29 dBm	-31.29 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.98325 GHz	-39.79 dBm	-26.79 dB
7.000 GHz	9.000 GHz	1.000 MHz	8.34941 GHz	-40.62 dBm	-27.62 dB

Date: 21.JAN.2015 10:16:30

LTE Band 5 / 3MHz

Highest Channel / QPSK

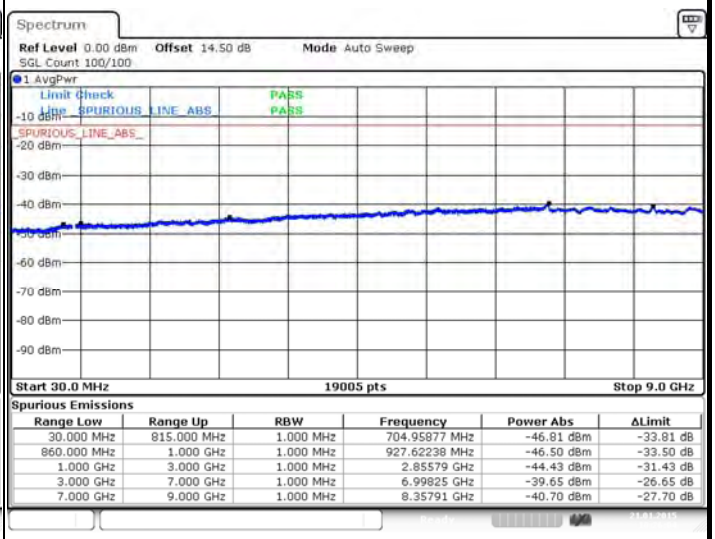


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	1.000 MHz	786.16567 MHz	-46.98 dBm	-33.98 dB
860.000 MHz	1.000 GHz	1.000 MHz	873.35664 MHz	-46.52 dBm	-33.52 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.86578 GHz	-44.33 dBm	-31.33 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.98675 GHz	-39.86 dBm	-26.86 dB
7.000 GHz	9.000 GHz	1.000 MHz	8.34541 GHz	-40.61 dBm	-27.61 dB

Date: 21.JAN.2015 10:24:44

Highest Channel / 16QAM



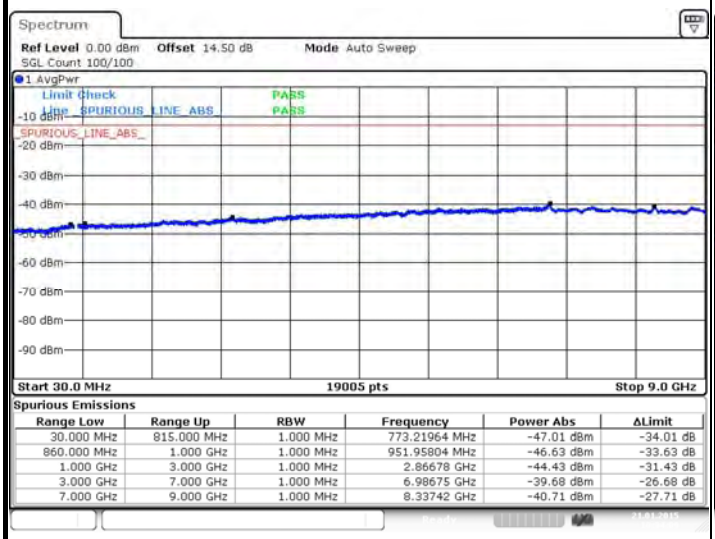
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	1.000 MHz	704.95877 MHz	-46.81 dBm	-33.81 dB
860.000 MHz	1.000 GHz	1.000 MHz	927.62238 MHz	-46.50 dBm	-33.50 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.85579 GHz	-44.43 dBm	-31.43 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.99825 GHz	-39.65 dBm	-26.65 dB
7.000 GHz	9.000 GHz	1.000 MHz	8.35791 GHz	-40.70 dBm	-27.70 dB

Date: 21.JAN.2015 10:26:04

LTE Band 5 / 5MHz

Lowest Channel / QPSK



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	1.000 MHz	773.21964 MHz	-47.01 dBm	-34.01 dB
860.000 MHz	1.000 GHz	1.000 MHz	951.95804 MHz	-46.63 dBm	-33.63 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.86678 GHz	-44.43 dBm	-31.43 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.98675 GHz	-39.68 dBm	-26.68 dB
7.000 GHz	9.000 GHz	1.000 MHz	8.33742 GHz	-40.71 dBm	-27.71 dB

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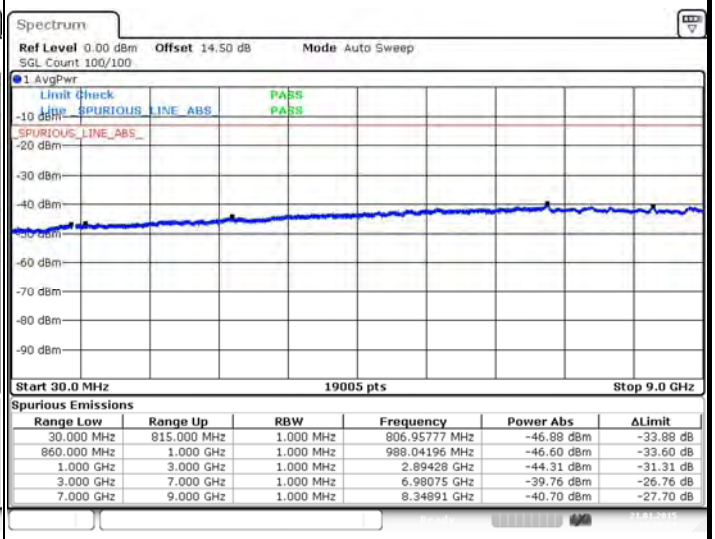
Lowest Channel / 16QAM



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	1.000 MHz	806.95777 MHz	-46.88 dBm	-33.88 dB
860.000 MHz	1.000 GHz	1.000 MHz	988.04196 MHz	-46.60 dBm	-33.60 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.89428 GHz	-44.31 dBm	-31.31 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.98075 GHz	-39.76 dBm	-26.76 dB
7.000 GHz	9.000 GHz	1.000 MHz	8.34891 GHz	-40.70 dBm	-27.70 dB

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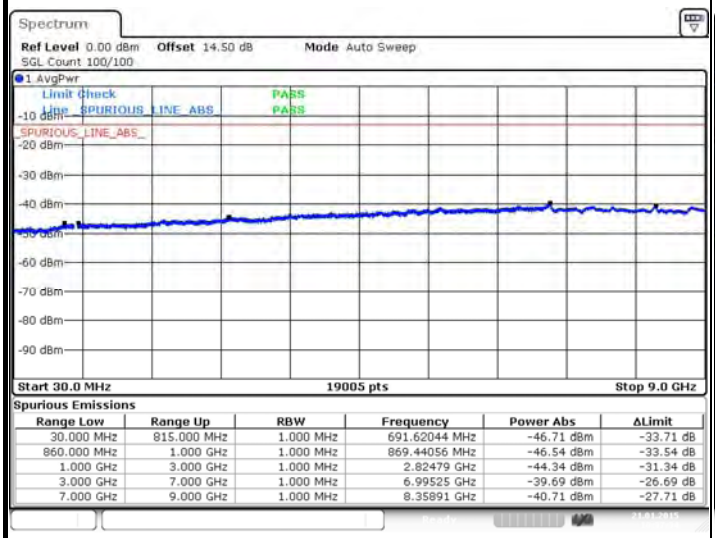
Middle Channel / QPSK



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	1.000 MHz	691.62044 MHz	-46.71 dBm	-33.71 dB
860.000 MHz	1.000 GHz	1.000 MHz	869.44056 MHz	-46.54 dBm	-33.54 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.82479 GHz	-44.34 dBm	-31.34 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.99525 GHz	-39.69 dBm	-26.69 dB
7.000 GHz	9.000 GHz	1.000 MHz	8.35891 GHz	-40.71 dBm	-27.71 dB

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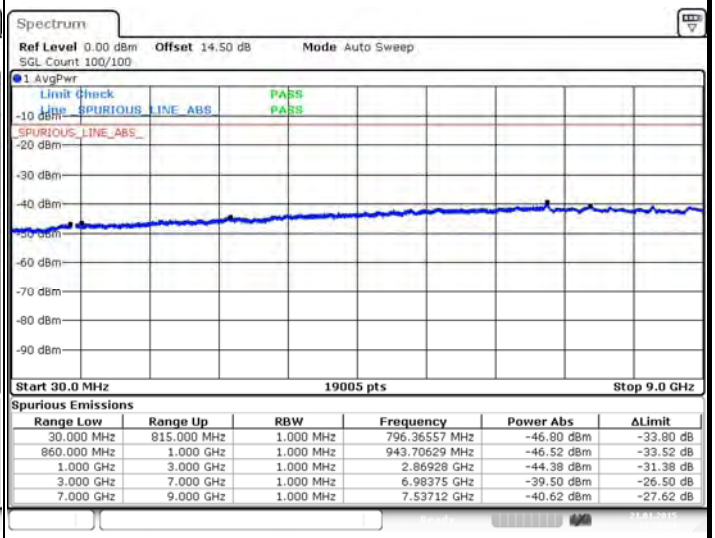
Middle Channel / 16QAM



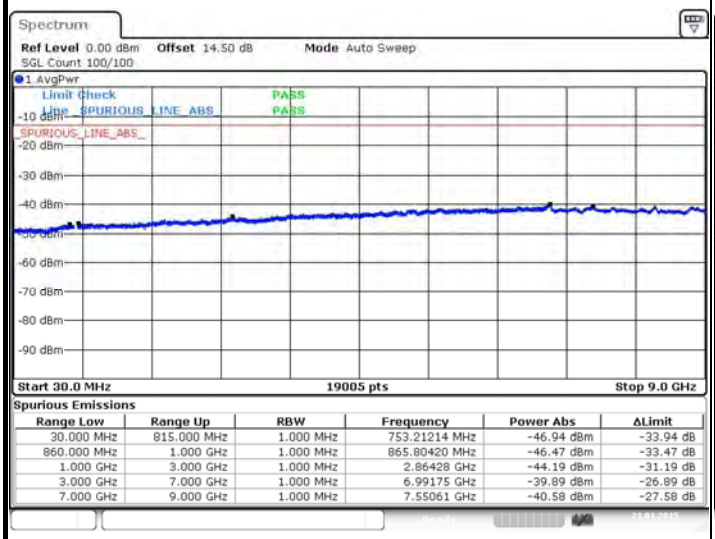
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	1.000 MHz	796.36557 MHz	-46.80 dBm	-33.80 dB
860.000 MHz	1.000 GHz	1.000 MHz	943.70629 MHz	-46.52 dBm	-33.52 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.86928 GHz	-44.38 dBm	-31.38 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.98375 GHz	-39.50 dBm	-26.50 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.53712 GHz	-40.62 dBm	-27.62 dB

Date: 21.JAN.2015 10:38:54

LTE Band 5 / 5MHz

Highest Channel / QPSK



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	1.000 MHz	753.21214 MHz	-46.94 dBm	-33.94 dB
860.000 MHz	1.000 GHz	1.000 MHz	865.80420 MHz	-46.47 dBm	-33.47 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.86428 GHz	-44.19 dBm	-31.19 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.99175 GHz	-39.89 dBm	-26.89 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.55061 GHz	-40.58 dBm	-27.58 dB

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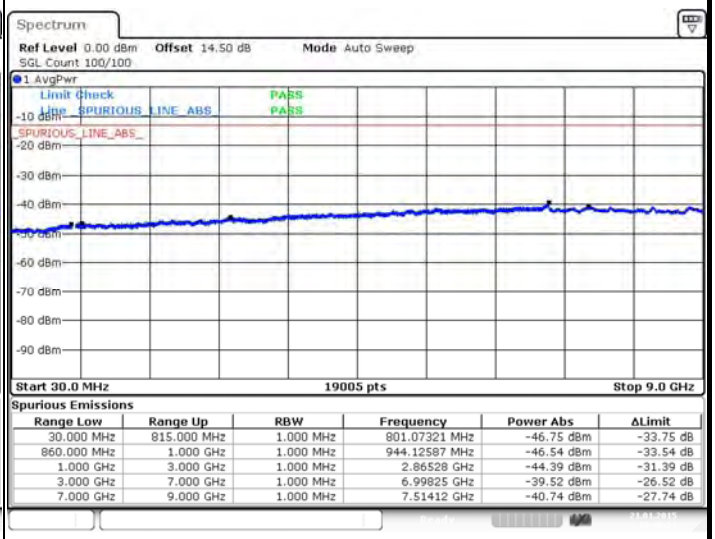
Highest Channel / 16QAM



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	1.000 MHz	801.07321 MHz	-46.75 dBm	-33.75 dB
860.000 MHz	1.000 GHz	1.000 MHz	944.12587 MHz	-46.54 dBm	-33.54 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.86528 GHz	-44.39 dBm	-31.39 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.99825 GHz	-39.52 dBm	-26.52 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.51412 GHz	-40.74 dBm	-27.74 dB

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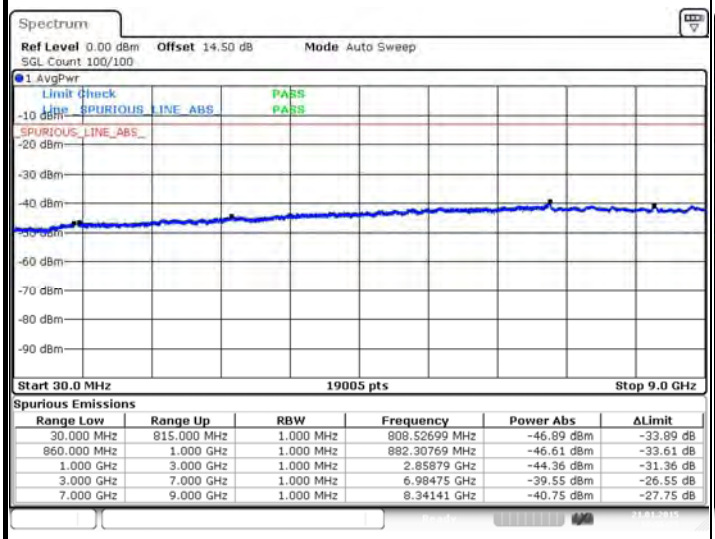
LTE Band 5 / 10MHz

Lowest Channel / QPSK



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	1.000 MHz	808.52699 MHz	-46.89 dBm	-33.89 dB
860.000 MHz	1.000 GHz	1.000 MHz	882.30769 MHz	-46.61 dBm	-33.61 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.85879 GHz	-44.36 dBm	-31.36 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.98475 GHz	-39.55 dBm	-26.55 dB
7.000 GHz	9.000 GHz	1.000 MHz	8.34141 GHz	-40.75 dBm	-27.75 dB

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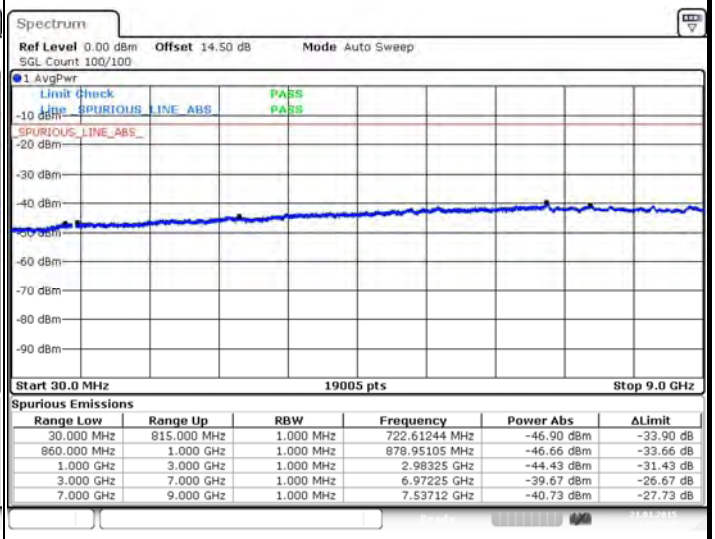
Lowest Channel / 16QAM



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	1.000 MHz	722.61244 MHz	-46.90 dBm	-33.90 dB
860.000 MHz	1.000 GHz	1.000 MHz	878.95105 MHz	-46.66 dBm	-33.66 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.98325 GHz	-44.43 dBm	-31.43 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.97225 GHz	-39.67 dBm	-26.67 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.53712 GHz	-40.73 dBm	-27.73 dB

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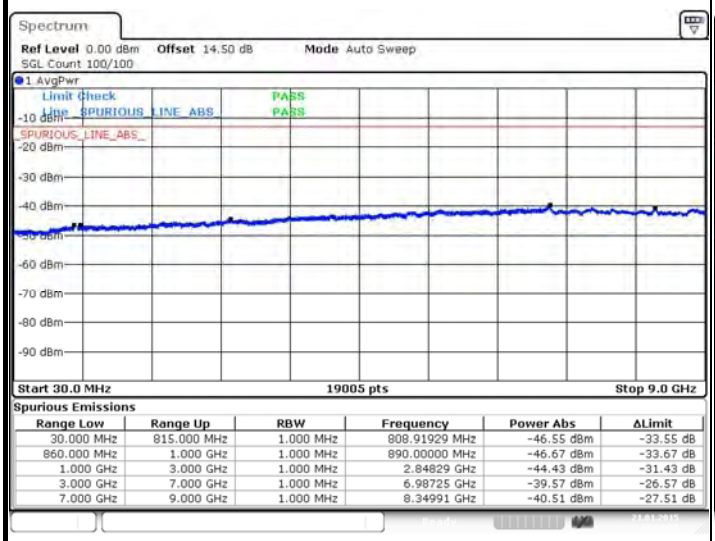
Middle Channel / QPSK



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	1.000 MHz	808.91929 MHz	-46.55 dBm	-33.55 dB
860.000 MHz	1.000 GHz	1.000 MHz	890.00000 MHz	-46.67 dBm	-33.67 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.84829 GHz	-44.43 dBm	-31.43 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.98725 GHz	-39.57 dBm	-26.57 dB
7.000 GHz	9.000 GHz	1.000 MHz	8.34991 GHz	-40.51 dBm	-27.51 dB

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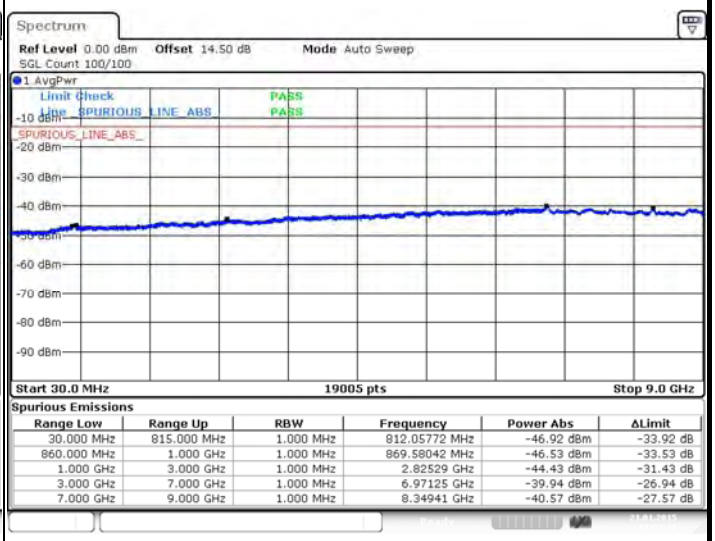
Middle Channel / 16QAM



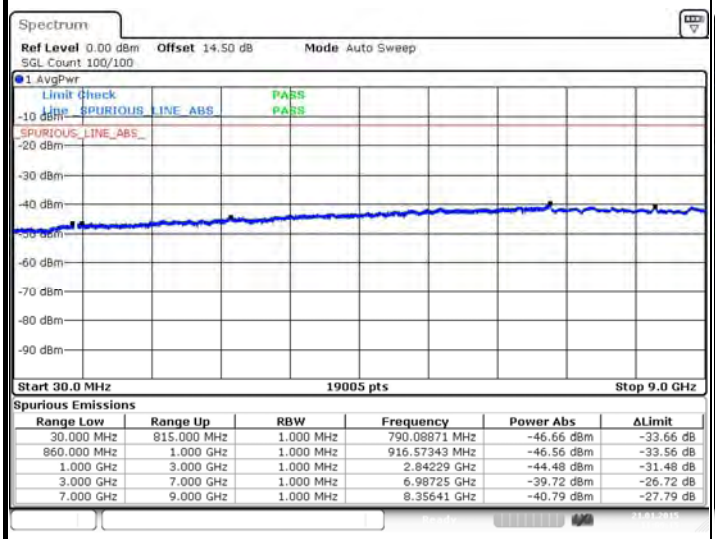
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	1.000 MHz	812.05772 MHz	-46.92 dBm	-33.92 dB
860.000 MHz	1.000 GHz	1.000 MHz	869.58042 MHz	-46.53 dBm	-33.53 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.82529 GHz	-44.43 dBm	-31.43 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.97125 GHz	-39.94 dBm	-26.94 dB
7.000 GHz	9.000 GHz	1.000 MHz	8.34941 GHz	-40.57 dBm	-27.57 dB

Date: 21.JAN.2015 11:01:10

LTE Band 5 / 10MHz

Highest Channel / QPSK

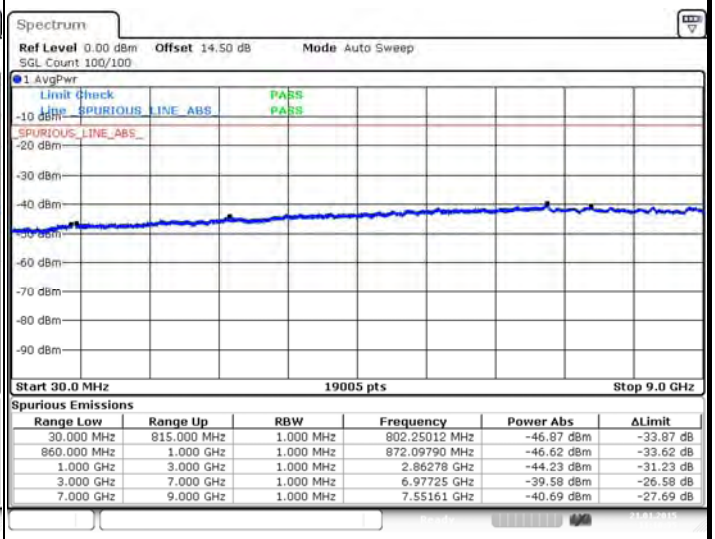


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	1.000 MHz	790.08871 MHz	-46.66 dBm	-33.66 dB
860.000 MHz	1.000 GHz	1.000 MHz	916.57343 MHz	-46.56 dBm	-33.56 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.84229 GHz	-44.48 dBm	-31.48 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.98725 GHz	-39.72 dBm	-26.72 dB
7.000 GHz	9.000 GHz	1.000 MHz	8.35641 GHz	-40.79 dBm	-27.79 dB

Date: 21.JAN.2015 11:09:15

Highest Channel / 16QAM



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	1.000 MHz	802.25012 MHz	-46.87 dBm	-33.87 dB
860.000 MHz	1.000 GHz	1.000 MHz	872.09790 MHz	-46.62 dBm	-33.62 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.86278 GHz	-44.23 dBm	-31.23 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.97725 GHz	-39.58 dBm	-26.58 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.55161 GHz	-40.69 dBm	-27.69 dB

Date: 21.JAN.2015 11:10:35

Frequency Stability

Test Conditions		LTE Band 5 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 10MHz	2.5ppm
		Deviation (ppm)	Result
50	Normal Voltage	0.0064	PASS
40	Normal Voltage	0.0038	
30	Normal Voltage	0.0013	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0013	
0	Normal Voltage	0.0000	
-10	Normal Voltage	0.0026	
-20	Normal Voltage	0.0013	
-30	Normal Voltage	0.0038	
4.2	Maximum Voltage	0.0013	
3.8	Normal Voltage	0.0000	
3.6	Battery End Point	0.0013	

Note:

1. Normal Voltage = 3.8V.; Battery End Point (BEP) = 3.6 V.; Maximum Voltage =4.2 V
2. The manufacturer declared that the EUT could work properly between voltage 3.6V ~ 4.2V.

Appendix B. Test Results of Radiated Test

ERP

LTE Band 5 / 1.4MHz							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	ERP(dBm)	ERP(W)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	2	14.14	0.0259	17.68	0.0586
Middle		3	1	15.37	0.0344	17.12	0.0515
Highest		3	0	15.61	0.0364	16.34	0.0431
Lowest	16QAM	3	1	14.45	0.0279	17.24	0.0530
Middle		3	1	15.55	0.0359	16.53	0.0450
Highest		1	0	15.76	0.0377	16.15	0.0412
Limit	ERP < 7W			Result		PASS	

LTE Band 5 / 3MHz							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	ERP(dBm)	ERP(W)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	0	15.69	0.0371	16.74	0.0472
Middle		1	14	16.66	0.0463	17.47	0.0558
Highest		1	7	16.90	0.0490	17.40	0.0550
Lowest	16QAM	1	7	14.68	0.0294	15.80	0.0380
Middle		1	0	16.21	0.0418	16.88	0.0488
Highest		1	7	16.14	0.0411	15.88	0.0387
Limit	ERP < 7W			Result		PASS	

LTE Band 5 / 5MHz							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	ERP(dBm)	ERP(W)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	12	12.62	0.0183	17.64	0.0581
Middle		1	12	14.74	0.0298	17.79	0.0601
Highest		1	0	15.07	0.0321	16.99	0.0500
Lowest	16QAM	1	12	12.99	0.0199	16.44	0.0441
Middle		1	0	14.10	0.0257	17.01	0.0502
Highest		1	0	15.49	0.0354	16.33	0.0430
Limit	ERP < 7W			Result		PASS	

LTE Band 5 / 10MHz							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	ERP(dBm)	ERP(W)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	24	14.76	0.0299	17.90	0.0617
Middle		1	24	15.32	0.0340	17.22	0.0527
Highest		1	24	15.54	0.0358	17.78	0.0600
Lowest	16QAM	1	0	12.57	0.0181	16.57	0.0454
Middle		1	0	13.53	0.0225	17.14	0.0518
Highest		1	0	13.61	0.0230	17.45	0.0556
Limit	ERP < 7W			Result		PASS	

Radiated Spurious Emission

Band :	LTE Band 5	**Temperature :**	23~25°C
Test Mode :	1.4MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	50~52%
Channel :	20407 (Low)	**Frequency :**	824.7
Test Engineer :	Yangchao Zhou	**Polarization :**	Horizontal
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1649.92	-54.06	-13	-41.06	-66.48	-57.31	0.92	6.32	H	Pass
2474.88	-45.43	-13	-32.43	-68.35	-47.98	1.2	5.90	H	Pass
3299.84	-57.45	-13	-44.45	-68.65	-61.90	1.2	7.80	H	Pass

Band :	LTE Band 5	**Temperature :**	23~25°C
Test Mode :	1.4MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	50~52%
Channel :	20407 (Low)	**Frequency :**	824.7
Test Engineer :	Yangchao Zhou	**Polarization :**	Vertical
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1649.92	-56.69	-13	-43.69	-66.82	-59.94	0.92	6.32	V	Pass
2474.88	-47.12	-13	-34.12	-67.96	-49.67	1.20	5.90	V	Pass
3299.84	-56.31	-13	-43.31	-68.74	-60.76	1.20	7.80	V	Pass

Band :	LTE Band 5	**Temperature :**	23~25°C
Test Mode :	1.4MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	50~52%
Channel :	20525 (Middle)	**Frequency :**	836.5
Test Engineer :	Yangchao Zhou	**Polarization :**	Horizontal
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1671.92	-54.20	-13	-41.20	-67.12	-57.17	0.88	6.00	H	Pass
2507.88	-44.91	-13	-31.91	-67.94	-47.52	1.08	5.84	H	Pass
3343.84	-59.36	-13	-46.36	-69.96	-63.73	1.14	7.66	H	Pass

Band :	LTE Band 5	**Temperature :**	23~25°C
Test Mode :	1.4MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	50~52%
Channel :	20525 (Middle)	**Frequency :**	836.5
Test Engineer :	Yangchao Zhou	**Polarization :**	Vertical
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1671.92	-56.14	-13	-43.14	-66.77	-59.11	0.88	6.00	V	Pass
2507.88	-47.82	-13	-34.82	-68.40	-50.43	1.08	5.84	V	Pass
3343.84	-57.96	-13	-44.96	-69.79	-62.33	1.14	7.66	V	Pass

Band :	LTE Band 5	**Temperature :**	23~25°C
Test Mode :	1.4MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	50~52%
Channel :	20643 (High)	**Frequency :**	848.3
Test Engineer :	Yangchao Zhou	**Polarization :**	Horizontal
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1695.52	-52.67	-13	-39.67	-66.58	-55.66	0.75	5.89	H	Pass
2543.28	-45.03	-13	-32.03	-68.41	-47.74	1.12	5.98	H	Pass
3391.04	-57.45	-13	-44.45	-68.65	-61.85	1.25	7.80	H	Pass

Band :	LTE Band 5	**Temperature :**	23~25°C
Test Mode :	1.4MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	50~52%
Channel :	20643 (High)	**Frequency :**	848.3
Test Engineer :	Yangchao Zhou	**Polarization :**	Vertical
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1695.52	-55.70	-13	-42.70	-66.68	-58.69	0.75	5.89	V	Pass
2543.28	-46.87	-13	-33.87	-68.16	-49.58	1.12	5.98	V	Pass
3391.04	-56.91	-13	-43.91	-69.34	-61.31	1.25	7.80	V	Pass

Band :	LTE Band 5	**Temperature :**	23~25°C
Test Mode :	3MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	50~52%
Channel :	20415 (Low)	**Frequency :**	825.5
Test Engineer :	Yangchao Zhou	**Polarization :**	Horizontal
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1648.48	-54.01	-13	-41.01	-66.83	-57.26	0.92	6.32	H	Pass
2472.72	-45.13	-13	-32.13	-68.10	-47.68	1.20	5.90	H	Pass
3296.96	-58.85	-13	-45.85	-69.45	-63.30	1.20	7.80	H	Pass

Band :	LTE Band 5	**Temperature :**	23~25°C
Test Mode :	3MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	50~52%
Channel :	20415 (Low)	**Frequency :**	825.5
Test Engineer :	Yangchao Zhou	**Polarization :**	Vertical
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1648.48	-56.09	-13	-43.09	-66.72	-59.34	0.92	6.32	V	Pass
2472.72	-47.65	-13	-34.65	-68.29	-50.20	1.20	5.90	V	Pass
3296.96	-58.12	-13	-45.12	-69.95	-62.57	1.20	7.80	V	Pass

Band :	LTE Band 5	**Temperature :**	23~25°C
Test Mode :	3MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	50~52%
Channel :	20525 (Middle)	**Frequency :**	836.5
Test Engineer :	Yangchao Zhou	**Polarization :**	Horizontal
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1670.48	-54.28	-13	-41.28	-67.20	-57.25	0.88	6.00	H	Pass
2505.72	-44.03	-13	-31.03	-67.45	-46.64	1.08	5.84	H	Pass
3340.96	-59.05	-13	-46.05	-69.65	-63.42	1.14	7.66	H	Pass

Band :	LTE Band 5	**Temperature :**	23~25°C
Test Mode :	3MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	50~52%
Channel :	20525 (Middle)	**Frequency :**	836.5
Test Engineer :	Yangchao Zhou	**Polarization :**	Vertical
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1670.48	-56.05	-13	-43.05	-66.68	-59.02	0.88	6.00	V	Pass
2505.72	-47.33	-13	-34.33	-68.09	-49.94	1.08	5.84	V	Pass
3340.96	-57.84	-13	-44.84	-69.67	-62.21	1.14	7.66	V	Pass

Band :	LTE Band 5	**Temperature :**	23~25°C
Test Mode :	3MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	50~52%
Channel :	20635 (High)	**Frequency :**	847.5
Test Engineer :	Yangchao Zhou	**Polarization :**	Horizontal
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1692.48	-54.31	-13	-41.31	-67.58	-57.30	0.75	5.89	H	Pass
2538.72	-44.35	-13	-31.35	-68.02	-47.06	1.12	5.98	H	Pass
3384.96	-58.03	-13	-45.03	-69.23	-62.43	1.25	7.80	H	Pass

Band :	LTE Band 5	**Temperature :**	23~25°C
Test Mode :	3MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	50~52%
Channel :	20635 (High)	**Frequency :**	847.5
Test Engineer :	Yangchao Zhou	**Polarization :**	Vertical
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1692.48	-55.40	-13	-42.40	-66.38	-58.39	0.75	5.89	V	Pass
2538.72	-46.93	-13	-33.93	-68.21	-49.64	1.12	5.98	V	Pass
3384.96	-57.37	-13	-44.37	-69.80	-61.77	1.25	7.80	V	Pass

Band :	LTE Band 5	**Temperature :**	23~25°C
Test Mode :	5MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	50~52%
Channel :	20425 (Low)	**Frequency :**	826.5
Test Engineer :	Yangchao Zhou	**Polarization :**	Horizontal
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1648.68	-54.08	-13	-41.08	-66.70	-57.33	0.92	6.32	H	Pass
2473.02	-44.48	-13	-31.48	-67.70	-47.03	1.2	5.90	H	Pass
3297.36	-59.23	-13	-46.23	-69.83	-63.68	1.2	7.80	H	Pass

Band :	LTE Band 5	**Temperature :**	23~25°C
Test Mode :	5MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	50~52%
Channel :	20425 (Low)	**Frequency :**	826.5
Test Engineer :	Yangchao Zhou	**Polarization :**	Vertical
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1648.68	-55.91	-13	-42.91	-66.54	-59.16	0.92	6.32	V	Pass
2473.02	-46.93	-13	-33.93	-67.82	-49.48	1.20	5.90	V	Pass
3297.36	-57.98	-13	-44.98	-69.81	-62.43	1.20	7.80	V	Pass

Band :	LTE Band 5	**Temperature :**	23~25°C
Test Mode :	5MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	50~52%
Channel :	20525 (Middle)	**Frequency :**	836.5
Test Engineer :	Yangchao Zhou	**Polarization :**	Horizontal
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1668.68	-54.50	-13	-41.50	-67.42	-57.47	0.88	6.00	H	Pass
2503.02	-45.95	-13	-32.95	-68.77	-48.56	1.08	5.84	H	Pass
3337.36	-59.55	-13	-46.55	-70.15	-63.92	1.14	7.66	H	Pass

Band :	LTE Band 5	**Temperature :**	23~25°C
Test Mode :	5MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	50~52%
Channel :	20525 (Middle)	**Frequency :**	836.5
Test Engineer :	Yangchao Zhou	**Polarization :**	Vertical
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1668.68	-55.21	-13	-42.21	-65.84	-58.18	0.88	6.00	V	Pass
2503.02	-47.19	-13	-34.19	-68.00	-49.80	1.08	5.84	V	Pass
3337.36	-57.74	-13	-44.74	-69.57	-62.11	1.14	7.66	V	Pass

Band :	LTE Band 5	**Temperature :**	23~25°C
Test Mode :	5MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	50~52%
Channel :	20625 (High)	**Frequency :**	846..5
Test Engineer :	Yangchao Zhou	**Polarization :**	Horizontal
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1688.68	-54.03	-13	-41.03	-67.10	-57.02	0.75	5.89	H	Pass
2533.02	-44.92	-13	-31.92	-68.34	-47.63	1.12	5.98	H	Pass
3377.36	-58.48	-13	-45.48	-69.68	-62.88	1.25	7.80	H	Pass

Band :	LTE Band 5	**Temperature :**	23~25°C
Test Mode :	5MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	50~52%
Channel :	20625 (High)	**Frequency :**	846..5
Test Engineer :	Yangchao Zhou	**Polarization :**	Vertical
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1688.68	-56.03	-13	-43.03	-67.01	-59.02	0.75	5.89	V	Pass
2533.02	-47.74	-13	-34.74	-68.74	-50.45	1.12	5.98	V	Pass
3377.36	-57.05	-13	-44.05	-69.48	-61.45	1.25	7.80	V	Pass

Band :	LTE Band 5	**Temperature :**	23~25°C
Test Mode :	10MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	50~52%
Channel :	20450 (Low)	**Frequency :**	829
Test Engineer :	Yangchao Zhou	**Polarization :**	Horizontal
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1649.18	-52.44	-13	-39.44	-66.00	-55.69	0.92	6.32	H	Pass
2473.77	-43.87	-13	-30.87	-67.33	-46.42	1.2	5.90	H	Pass
3298.36	-58.80	-13	-45.80	-69.40	-63.25	1.2	7.80	H	Pass

Band :	LTE Band 5	**Temperature :**	23~25°C
Test Mode :	10MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	50~52%
Channel :	20450 (Low)	**Frequency :**	829
Test Engineer :	Yangchao Zhou	**Polarization :**	Vertical
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1649.18	-56.03	-13	-43.03	-66.66	-59.28	0.92	6.32	V	Pass
2473.77	-46.81	-13	-33.81	-67.71	-49.36	1.20	5.90	V	Pass
3298.36	-57.77	-13	-44.77	-69.60	-62.22	1.20	7.80	V	Pass

Band :	LTE Band 5	**Temperature :**	23~25°C
Test Mode :	10MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	50~52%
Channel :	20525 (Middle)	**Frequency :**	836.5
Test Engineer :	Yangchao Zhou	**Polarization :**	Horizontal
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1664.18	-53.29	-13	-40.29	-66.66	-56.26	0.88	6.00	H	Pass
2496.27	-44.80	-13	-31.80	-67.88	-47.41	1.08	5.84	H	Pass
3328.36	-58.49	-13	-45.49	-69.09	-62.86	1.14	7.66	H	Pass

Band :	LTE Band 5	**Temperature :**	23~25°C
Test Mode :	10MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	50~52%
Channel :	20525 (Middle)	**Frequency :**	836.5
Test Engineer :	Yangchao Zhou	**Polarization :**	Vertical
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1664.18	-53.50	-13	-40.50	-64.97	-56.47	0.88	6.00	V	Pass
2496.27	-46.85	-13	-33.85	-67.75	-49.46	1.08	5.84	V	Pass
3328.36	-57.54	-13	-44.54	-69.37	-61.91	1.14	7.66	V	Pass

Band :	LTE Band 5	**Temperature :**	23~25°C
Test Mode :	10MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	50~52%
Channel :	20600 (High)	**Frequency :**	844
Test Engineer :	Yangchao Zhou	**Polarization :**	Horizontal
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1679.18	-53.29	-13	-40.29	-67.01	-56.28	0.75	5.89	H	Pass
2518.77	-43.72	-13	-30.72	-67.59	-46.43	1.12	5.98	H	Pass
3358.36	-57.98	-13	-44.98	-69.18	-62.38	1.25	7.80	H	Pass

Band :	LTE Band 5	**Temperature :**	23~25°C
Test Mode :	10MHz QPSK RB Size 1 Offset 0	**Relative Humidity :**	50~52%
Channel :	20600 (High)	**Frequency :**	844
Test Engineer :	Yangchao Zhou	**Polarization :**	Vertical
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1679.18	-55.13	-13	-42.13	-66.11	-58.12	0.75	5.89	V	Pass
2518.77	-46.92	-13	-33.92	-68.20	-49.63	1.12	5.98	V	Pass
3358.36	-57.27	-13	-44.27	-69.70	-61.67	1.25	7.80	V	Pass