FCC RF Test Report

APPLICANT	:	Country Wireless, LLC
EQUIPMENT	:	Outdoor LTE CPE
BRAND NAME	:	country wireless
MODEL NAME	:	CW5100
FCC ID	:	2AICPCW5100
STANDARD	:	FCC 47 CFR Part 2, and 90(Z)
CLASSIFICATION	:	Licensed Non-Broadcast Station Transmitter (TNB)

The product was received on May 26, 2016 and testing was completed on Jul. 26, 2016. We, SPORTON INTERNATIONAL (SHENZHEN) INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI / TIA / EIA-603-D-2010 and shown 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.

Prepared by: Ken Chen / Supervisor

Approved by: Jones Tsai / Manager

Testing Laboratory
2353

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FW652611	Rev. 01	Initial issue of report	Aug. 01, 2016

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	§2.1046 §90.1321	Conducted Output Power	25W / 25MHz EIRP	PASS	-
3.2	§90.1321	Peak EIRP Density	1 W / MHz EIRP	PASS	-
3.3	§2.1049 §90.1323	Occupied Bandwidth	(Reporting only)	PASS	-
3.4	§2.1051 §90.1323	Band Edge Measurement	< 43+10log10(P[Watts])	PASS	-
3.5	§90.210	Emission Mask	Mask B	PASS	
3.6	§2.1051 §90.1323	Conducted Spurious Emission	< 43+10log10(P[Watts])	PASS	
3.7	§2.1053 §90.1323	Field Strength of Spurious Radiation	< 43+10log10(P[Watts])	PASS	Under limit 21.60 dB at 14623.000 MHz
3.8	§2.1055	Frequency Stability for Temperature & Voltage	Within Operating Band	PASS	-

Note: The threshold level is at least -65dBm and the details of specification please find the operation description.

1 General Description

1.1 Applicant

Country Wireless, LLC
1403 South Maple Avenue, Marshfield, WI, 54449, USA

1.2 Manufacturer

Jaton technology Limited
Rm1505, Kuangu Building, 68#, Langrong Rd., Shi'ao Village, Dalang Sub-district, New Longhua District, Shenzhen City China

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Outdoor LTE CPE
Brand Name	country wireless
Model Name	CW5100
FCC ID	2AICPCW5100
EUT supports Radios application	LTE
IMEI Code	Conducted: 860524030016982 Radiation: 860524030016500
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 of Equipment Under Test

Product Specification subjective to this standard	
Tx Frequency	3652.5 MHz ~ 3697.5 MHz
Rx Frequency	3652.5 MHz ~ 3697.5 MHz
Bandwidth	5MHz/10MHz/15MHz/20MHz
Maximum Output Power to Antenna	17.34 dBm
Antenna Type	Planar Antenna
Type of Modulation	QPSK / 16QAM

Remark: This test report recorded only product characteristics and test results of Licensed Non-Broadcast Station Transmitter (TNB).

1.5 Modification of EUT

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

1.6 Maximum EIRP Power, Frequency Tolerance, and Emission Designator

LTE Band 43	QPSK			16QAM		
BW(MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)
5	4M64G7D	-	0.9162	4M56W7D	-	0.9462
10	9M07G7D	0.0030	0.8974	9M07W7D	-	0.9226
15	13M6G7D	-	0.8831	13M5W7D	-	0.9638
20	18M4G7D	-	0.7568	18M5W7D	-	0.8610

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.**
	03CH03-SZ	565805

Note: The test site complies with ANSI C63.4 2014 requirement.

1.8 Applied Standards

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

- FCC 47 CFR Part 2, 90
- ANSI / TIA / EIA-603-D-2010
- FCC KDB 971168 D01 Power Meas. License Digital Systems v02r02
- FCC KDB 412172 D01 Determining ERP and EIRP v01r01
- FCC KDB 552295 D01 CBP Guidance for 3650 3700 Band v02r02
- FCC KDB 965270 D01 Pwr Meas Part 90Z Equipment v01

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

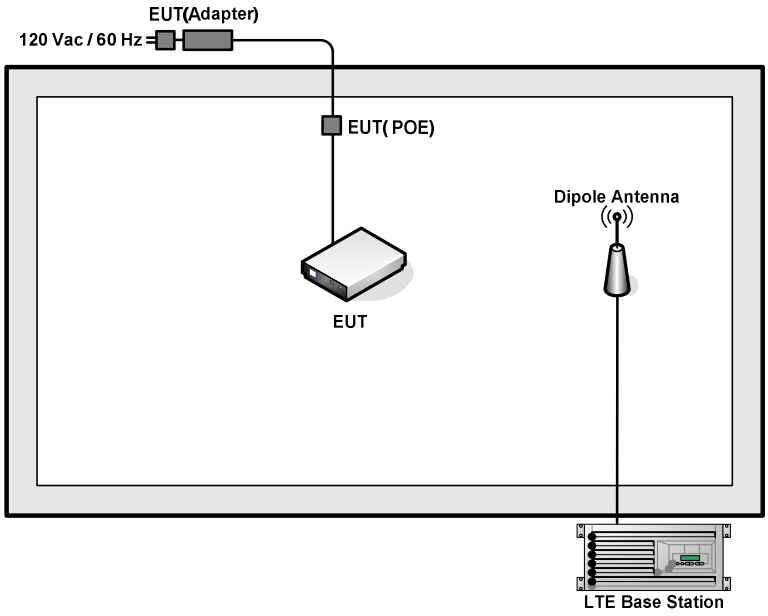
2.1 Test Mode

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	43	-	-	v	v	v	v	v	v	v	v	v	v	v	v
Peak EIRP Density	43	-	-	v	v	v	v	v	v	v	-	-	v	v	v
26dB and 99% Bandwidth	43	-	-	v	v	v	v	v	v	-	-	v	v	v	v
Conducted Band Edge	43	-	-	v	v	v	v	v	v	v	-	v	v		v
Emission Mask	43	-	-	v	v	v	v	v	v	v	-	v	v	v	v
Conducted Spurious Emission	43	-	-	v	v	v	v	v	v	v	-	-	v	v	v
E.I.R.P.	43	-	-	v	v	v	v	v	v	v	-	-	v	v	v
Radiated Spurious Emission	43	-	-	v	v	v	v	v		v	-	-		v	
Frequency Stability	43	-	-	-	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.														

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	LTE Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m

2.4 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 RF conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level will be exactly the RF output level.

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

Offset = RF cable loss + attenuator factor.

The following shows an offset computation example with RF cable loss 5.5 dB and a 10dB attenuator.

Example :

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

= 5.5 + 10 = 15.5 (dB)

3 Test Result

3.1 Conducted Output Power and EIRP

3.1.1 Description of the Conducted Output Power Measurement and EIRP 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.

The EIRP of mobile transmitters must not exceed 25 Watts/25MHz for LTE Band 43.

According to KDB 412172 D01 Power Approach,

EIRP = $P_T + G_T – L_C$, where

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in dB

3.1.2 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.

3.1.3 Test Setup

3.1.4 Test Result of Conducted Output Power and EIRP

(G_T - L_C = 12.5 dB)						
Modes	**LTE Band 43 (QPSK,BW=5M)**			**LTE Band 43 (16QAM,BW=5M)**		
Channel	**44115 (Low)**	**44340 (Mid)**	**44565 (High)**	**44115 (Low)**	**44340 (Mid)**	**44565 (High)**
Frequency (MHz)	**3652.5**	**3675**	**3697.5**	**3652.5**	**3675**	**3697.5**
Conducted Power P_T (dBm)	17.12	17.1	16.98	17.26	17.2	17.23
Conducted Power P_T (Watts)	0.05	0.05	0.05	0.05	0.05	0.05
EIRP(dBm)	29.62	29.60	29.48	29.76	29.70	29.73
EIRP(Watts)	0.9162	0.9120	0.8872	0.9462	0.9333	0.9397

(G_T - L_C = 12.5 dB)						
Modes	**LTE Band 43 (QPSK,BW=10M)**			**LTE Band 43 (16QAM,BW=10M)**		
Channel	**44140 (Low)**	**44340 (Mid)**	**44540 (High)**	**44140 (Low)**	**44340 (Mid)**	**44540 (High)**
Frequency (MHz)	**3655**	**3675**	**3695**	**3655**	**3675**	**3695**
Conducted Power P_T (dBm)	17.03	16.91	16.93	17.08	17.15	17.12
Conducted Power P_T (Watts)	0.05	0.05	0.05	0.05	0.05	0.05
EIRP(dBm)	29.53	29.41	29.43	29.58	29.65	29.62
EIRP(Watts)	0.8974	0.8730	0.8770	0.9078	0.9226	0.9162

(G_T - L_C = 12.5 dB)						
Modes	LTE Band 43 (QPSK,BW=15M)			LTE Band 43 (16QAM,BW=15M)		
Channel	44165 (Low)	44340 (Mid)	44515 (High)	44165 (Low)	44340 (Mid)	44515 (High)
Frequency (MHz)	3657.5	3675	3692.5	3657.5	3675	3692.5
Conducted Power P_T (dBm)	16.93	16.95	16.96	17.34	17.3	17.12
Conducted Power P_T (Watts)	0.05	0.05	0.05	0.05	0.05	0.05
EIRP(dBm)	29.43	29.45	29.46	29.84	29.8	29.62
EIRP(Watts)	0.8770	0.8810	0.8831	0.9638	0.9550	0.9162

(G_T - L_C = 12.5 dB)						
Modes	LTE Band 43 (QPSK,BW=20M)			LTE Band 43 (16QAM,BW=20M)		
Channel	44190 (Low)	44340 (Mid)	44490 (High)	44190 (Low)	44340 (Mid)	44490 (High)
Frequency (MHz)	3660	3675	3690	3660	3675	3690
Conducted Power P_T (dBm)	16.2	16.29	16.28	16.85	16.62	16.71
Conducted Power P_T (Watts)	0.04	0.04	0.04	0.05	0.05	0.05
EIRP(dBm)	28.7	28.79	28.78	29.35	29.12	29.21
EIRP(Watts)	0.7413	0.7568	0.7551	0.8610	0.8166	0.8337

3.1.5 Test Result of Conducted Output Power

Please refer to Appendix A.

3.2 Peak EIRP Density

3.2.1 Description of the Peak EIRP Density

In any event, the peak EIRP power density shall not exceed 1 Watt in any one-megahertz slice of spectrum.

3.2.2 Measuring Instruments

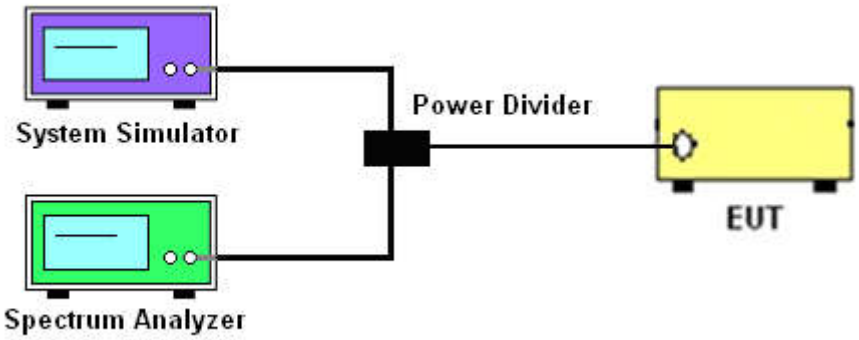
The measuring equipment is listed in the section 4 of this test report.

3.2.3 Test Procedures

The testing follows FCC KDB 965270 D01 Pwr Meas Part 90Z Equipment v01. Maximum power spectral density Measurement

1. Set the span to twice the nominal EBW (span = 2 x EBW).
2. Set the resolution bandwidth (RBW) to 1 MHz.
3. Set the video bandwidth (VBW) to ≥ 3 x RBW.
4. Select the average power (RMS) display detector.
5. Set the number of measurement points to ≥ 1001.
6. Use auto-coupled sweep time.
7. Perform the measurement over an interval of time when the transmission is continuous and at its maximum power level
8. Utilize trace averaging over 100 traces in the power averaging (i.e., RMS) mode.
9. Find the maximum trace amplitude (peak search) and record.
10. Adjust the recorded level by applying appropriate correction factors for the measurement set-up
11. Determine the EIRP by adding the effective antenna gain to the adjusted power level

3.2.4 Test Setup



3.2.5 Test Result of Peak EIRP Density

Please refer to Appendix A.

3.3 Bandwidth Limitations Measurement

3.3.1 Description of (Occupied) Bandwidth Limitations Measurement

The 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.

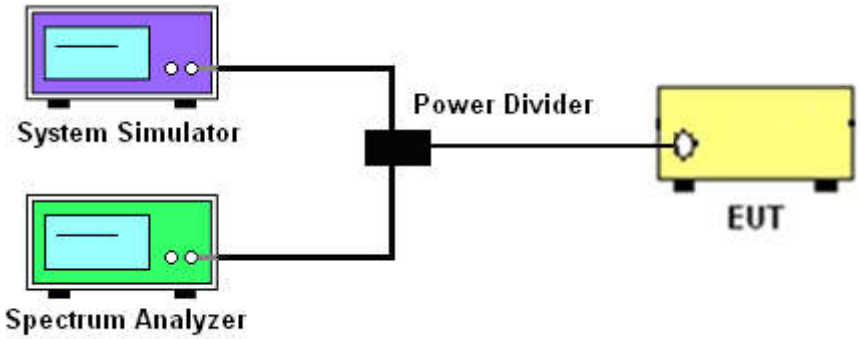
3.3.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.3.3 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.

3.3.4 Test Setup



3.3.5 Test Result of 99% Occupied Bandwidth and 26dB Bandwidth

Please refer to Appendix A.

3.4 Conducted Band Edge

3.4.1 Description of Conducted Band Edge Measurement

The power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or less, but at least one percent of the emission bandwidth of the fundamental emission of the transmitter, provided the measured energy is integrated over a 1 MHz bandwidth.

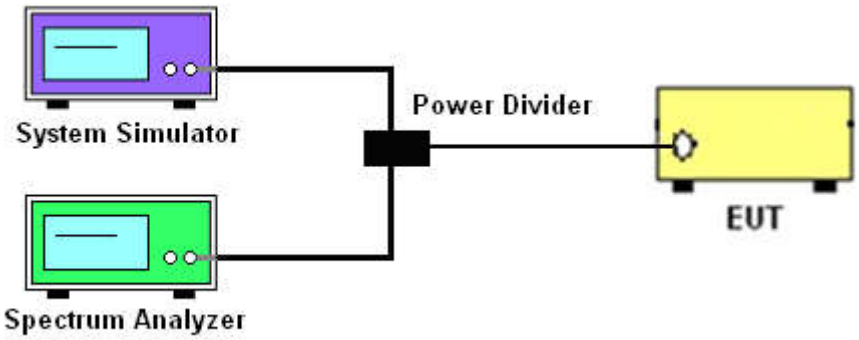
3.4.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.4.3 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.

3.4.4 Test Setup



3.4.5 Test Result Conducted Band Edge

Please refer to Appendix A.

3.5 Emission Mask

3.5.1 Description of Emission Mask

The power of any emission must be attenuated below the unmodulated carrier power(P) as below:

(1) On any frequency removed from the assigned frequency by more than 50 percent, but no more than 100 percent of the authorized bandwidth at least 25dB.

(2) On any frequency removed from the assigned frequency by more than 100 percent, but no more than 250 percent of the authorized bandwidth at least 25dB.

(3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth at least 43+10log(P) dB.

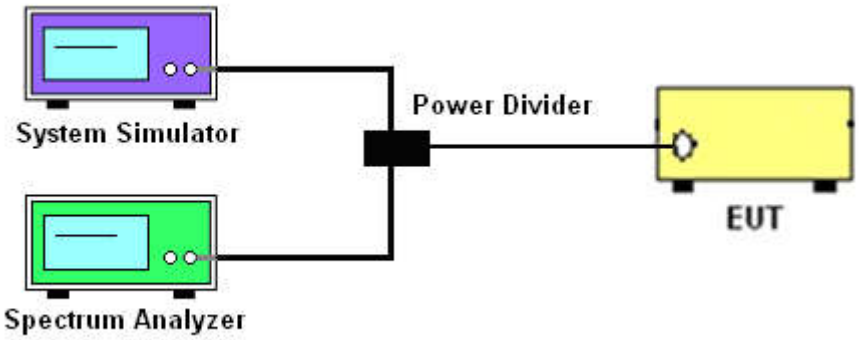
3.5.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.5.3 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.

3.5.4 Test Setup



3.5.5 Test Result (Plots) of Conducted Emission

Please refer to Appendix A.

3.6 Conducted Spurious Emission

3.6.1 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 30MHz up to a frequency including its 10^{th} harmonic.

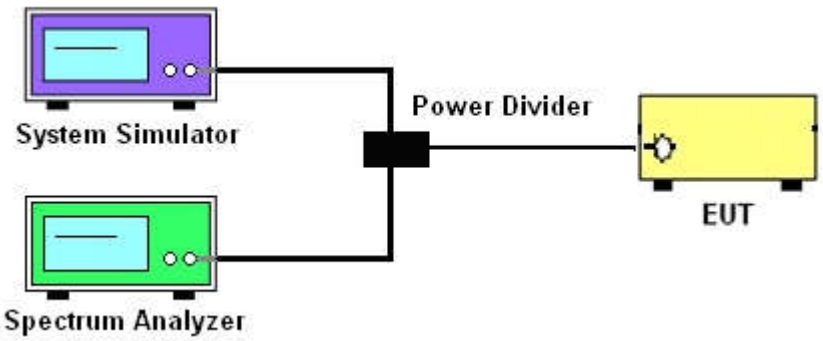
3.6.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.6.3 Test Procedures

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
1. 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.
2. The middle channel for the highest RF power within the transmitting frequency was measured.
3. The conducted spurious emission for the whole frequency range was taken.
4. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
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.

3.6.4 Test Setup



3.6.5 Test Result of Conducted Spurious Emission

Please refer to Appendix A.

3.7 Radiated Spurious Emission

3.7.1 Description of Radiated Spurious Emission

The radiated spurious emission was measured by substitution method according to ANSI / TIA / EIA-603-D-2010. 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.

3.7.2 Measuring Instruments

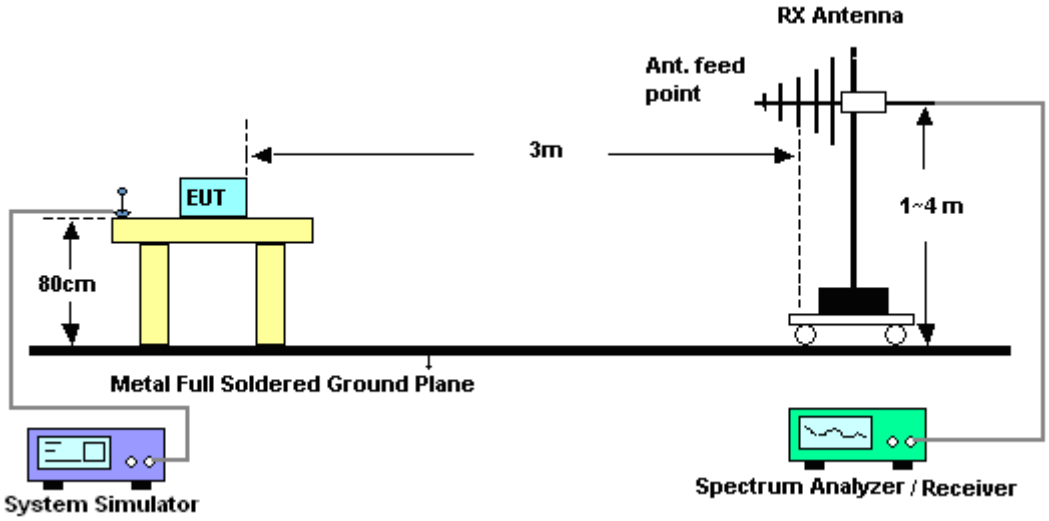
The measuring equipment is listed in the section 4 of this test report.

3.7.3 Test Procedures

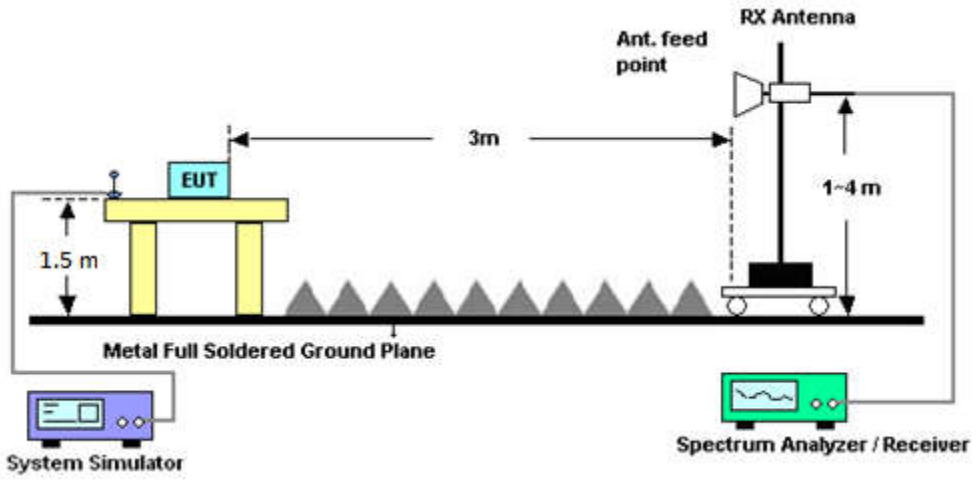
1. The testing follows FCC KDB 971168 v02r02 Section 5.8 and ANSI / TIA-603-D-2010 Section 2.2.12.
2. The EUT was placed on a rotatable wooden table 0.8 meters for frequency below 1GHz and 1.5 meter for frequency above 1GHz above the ground.
3. The EUT was set 3 meters from the receiving antenna, which 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.

3.7.4 Test Setup

For radiated test from 30MHz to 1GHz



For radiated test above 1GHz



3.7.5 Test Result of Field Strength of Spurious Radiated

Please refer to Appendix B.

3.8 Frequency Stability Measurement

3.8.1 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.

3.8.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

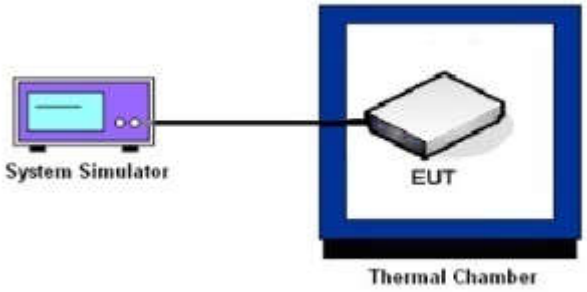
3.8.3 Test Procedures for Temperature Variation

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.

3.8.4 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.

3.8.5 Test Setup



3.8.6 Test Result of Temperature Variation

Please refer to Appendix A.

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101078	9kHz~40GHz	May 07. 2016	Jun. 09, 2016~ Jul. 26, 2016	May 06. 2017	Conducted (TH01-SZ)
Spectrum Analyzer	R&S	FSP30	101400	9kHz~40GHz	Jan. 12, 2016	Jun. 09, 2016~ Jul. 26, 2016	Jan. 11, 2017	Conducted (TH01-SZ)
Thermal Chamber	Ten Billion Hongzhangroup	LP-150U	H2014081803	-40~+150°C	Aug. 07, 2015	Jun. 09, 2016~ Jul. 26, 2016	Aug. 06, 2016	Conducted (TH01-SZ)
EMI Test Receiver&SA	KEYSIGHT	N9038A	MY54450083	20Hz~8.4GHz	May 07, 2016	Jun. 27, 2016	May 06, 2017	Radiation (03CH03-SZ)
EXA Spectrum Anaiyzer	KEYSIGHT	N9010A	MY55150246	10Hz~44GHz;	May 07, 2016	Jun. 27, 2016	May 06, 2017	Radiation (03CH03-SZ
Bilog Antenna	TeseQ	CBL6112D	35408	30MHz-2GHz	May 21, 2016	Jun. 27, 2016	May 20, 2017	Radiation (03CH03-SZ)
Double Ridge Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-1355	1GHz~18GHz	May 07, 2016	Jun. 27, 2016	May 06, 2017	Radiation (03CH03-SZ)
Amplifier	PREAMPLIFIER	BPA-530	102210	0.01Hz ~3000MHz	Oct. 20, 2015	Jun. 27, 2016	Oct. 19, 2016	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz	Jul. 18. 2015	Jun. 27, 2016	Jul. 17. 2016	Radiation (03CH03-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18Ghz-40GHz	Aug.19, 2015	Jun. 27, 2016	Aug. 18, 2016	Radiation (03CH03-SZ)
Amplifier	Agilent Technologies	83017A	MY39501302	500MHz~26.5GHz	Jan. 12, 2016	Jun. 27, 2016	Jan. 11, 2017	Radiation (03CH03-SZ)
AC Power Source	Chroma	61601	616010001985	N/A	NCR	Jun. 27, 2016	NCR	Radiation (03CH03-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Jun. 27, 2016	NCR	Radiation (03CH03-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Jun. 27, 2016	NCR	Radiation (03CH03-SZ)

NCR: No Calibration Required

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.0dB**

Uncertainty of Radiated Emission Measurement (1GHz ~ 18GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.8dB**

Uncertainty of Radiated Emission Measurement (18GHz ~ 40GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.0dB**

Appendix A. Test Results of Conducted Test

Conducted Output Power (Average power)

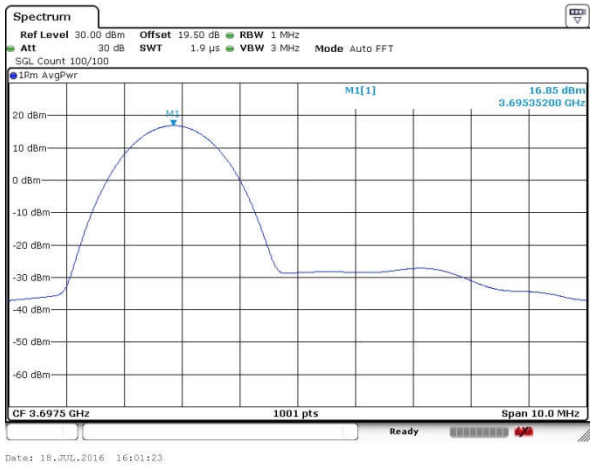
LTE Band 43 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	17.12	17.10	16.98
5	1	12		16.94	16.93	16.91
5	1	24		17.00	16.87	16.85
5	12	0		16.94	16.99	16.97
5	12	7		16.87	16.91	16.89
5	12	13		16.80	16.92	16.90
5	25	0		16.79	16.92	16.81
5	1	0	16-QAM	17.26	17.20	17.23
5	1	12		17.22	17.14	17.21
5	1	24		17.17	17.09	17.12
5	12	0		16.89	16.89	16.95
5	12	7		16.73	16.93	16.88
5	12	13		16.75	16.83	16.90
5	25	0		16.98	16.80	16.99
10	1	0	QPSK	17.03	16.91	16.93
10	1	24		16.82	16.79	16.79
10	1	49		16.64	16.69	16.69
10	25	0		16.85	16.89	16.89
10	25	12		16.81	16.84	16.84
10	25	24		16.75	16.77	16.77
10	50	0		16.79	16.73	16.78
10	1	0	16-QAM	17.06	17.15	17.12
10	1	24		17.08	17.14	17.01
10	1	49		16.89	17.04	16.90
10	25	0		16.80	16.96	16.87
10	25	12		16.76	16.91	16.82
10	25	24		16.82	16.85	16.76
10	50	0		16.79	16.78	16.77

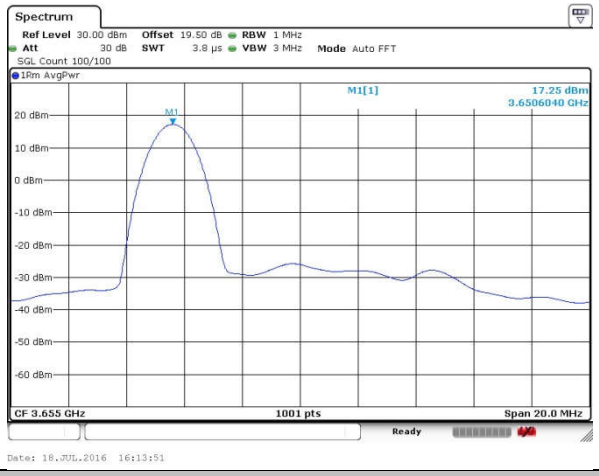
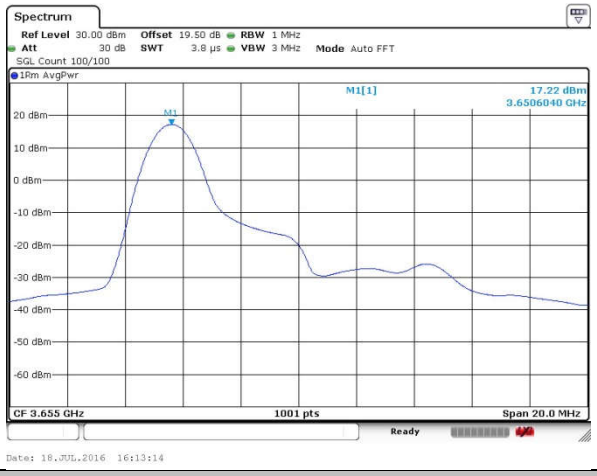
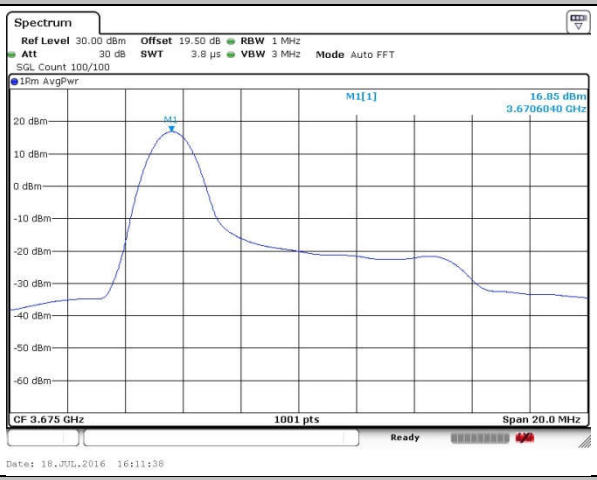
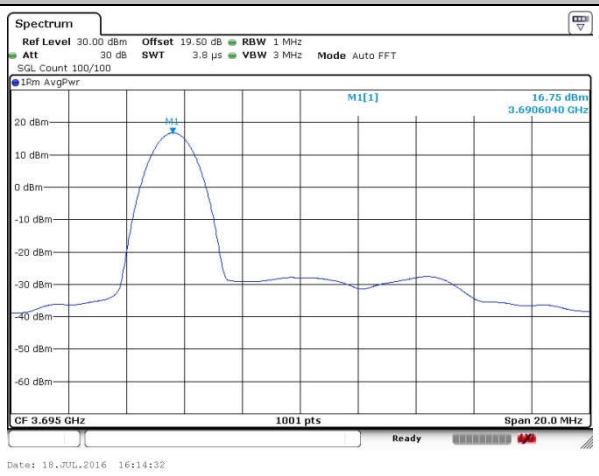
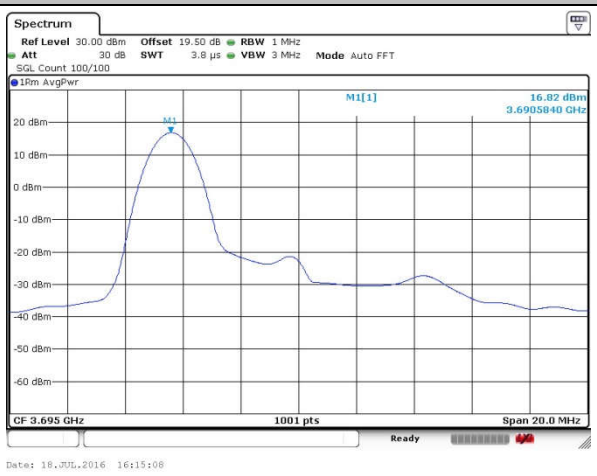
LTE Band 43 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	16.93	16.95	16.96
15	1	37		16.61	16.60	16.59
15	1	74		16.62	16.71	16.60
15	36	0		16.61	16.68	16.67
15	36	18		16.54	16.49	16.60
15	36	37		16.44	16.51	16.49
15	75	0		16.48	16.58	16.46
15	1	0	16-QAM	**17.34**	17.30	17.12
15	1	37		17.14	17.07	16.79
15	1	74		17.16	17.09	16.79
15	36	0		16.59	16.55	16.63
15	36	18		16.54	16.61	16.57
15	36	37		16.45	16.51	16.45
15	75	0		16.44	16.42	16.50
20	1	0	QPSK	16.16	16.21	16.21
20	1	49		16.20	16.29	16.28
20	1	99		16.02	15.85	15.84
20	50	0		15.98	16.07	15.98
20	50	24		15.98	15.95	15.91
20	50	49		15.80	15.85	15.71
20	100	0		15.88	15.96	15.84
20	1	0	16-QAM	16.85	16.62	16.71
20	1	49		16.72	16.56	16.52
20	1	99		16.49	16.21	16.31
20	50	0		15.97	16.11	15.95
20	50	24		16.01	16.09	16.02
20	50	49		15.84	15.90	15.88
20	100	0		15.96	15.92	15.91

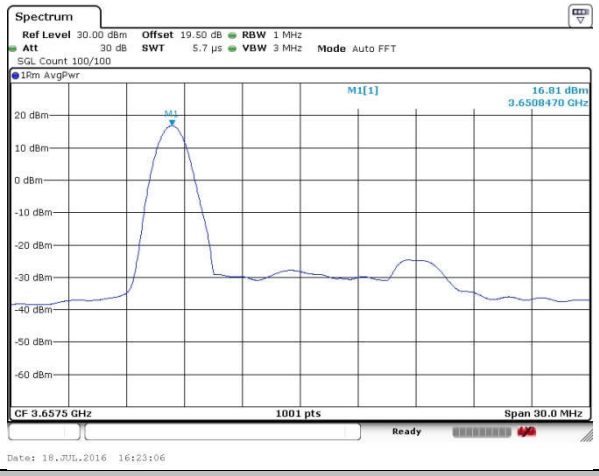
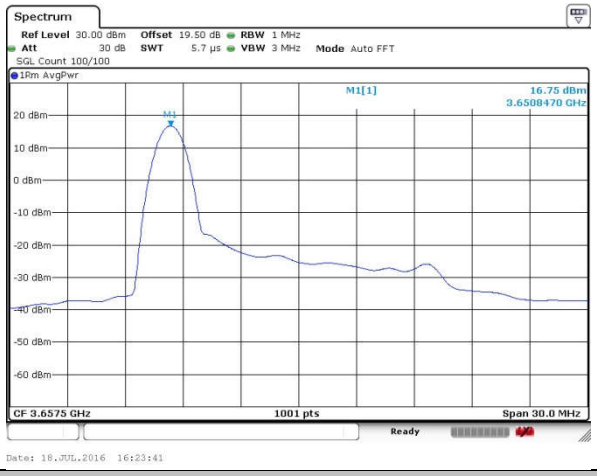
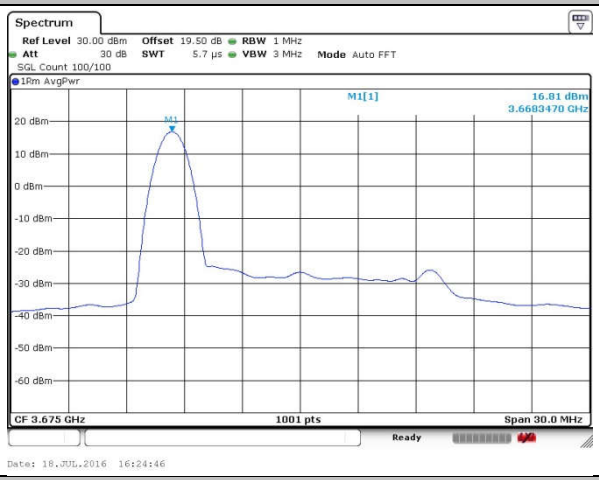
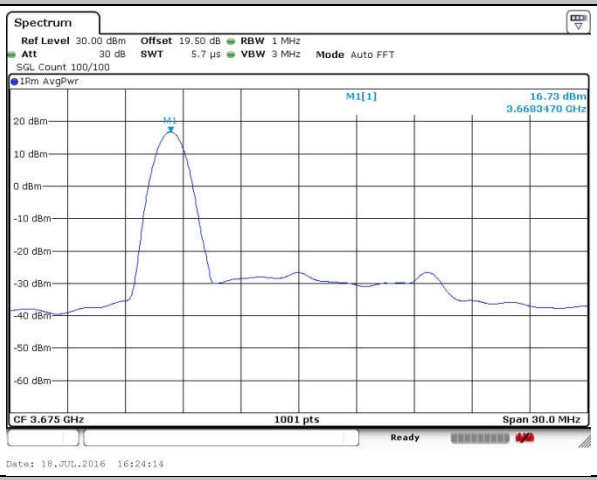
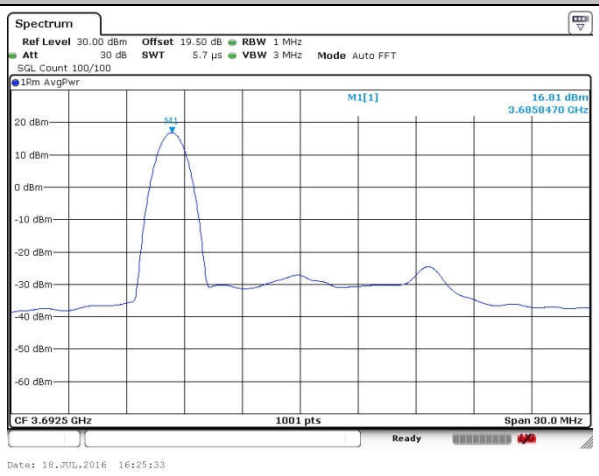
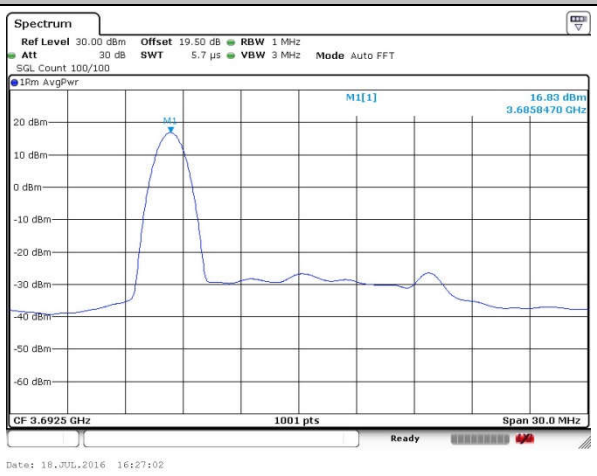
Peak EIRP Density

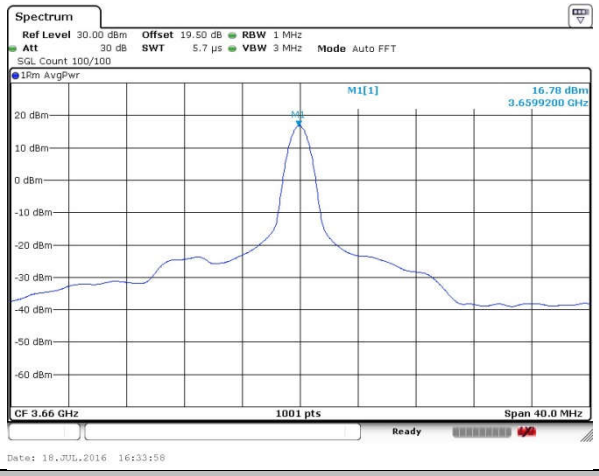
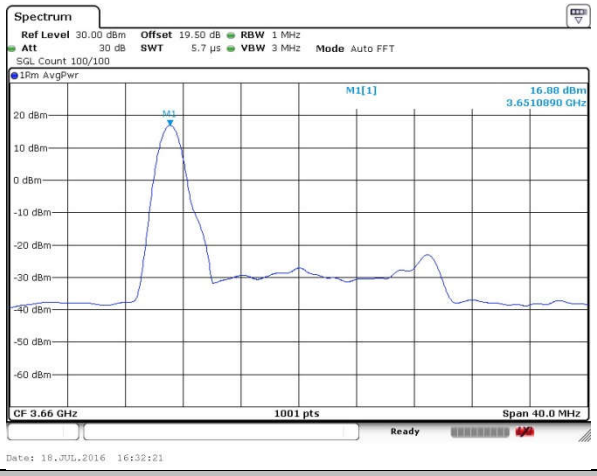
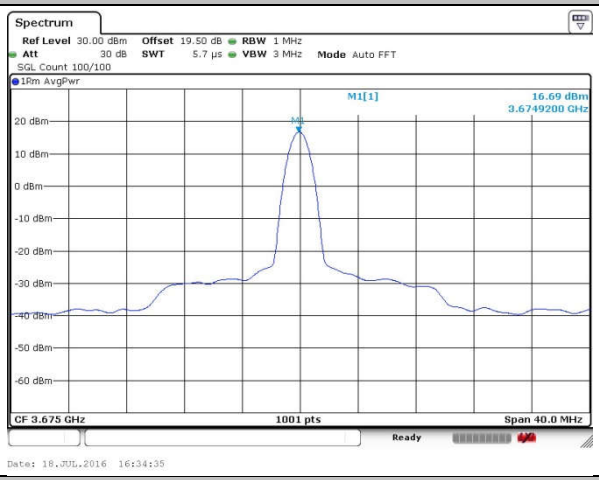
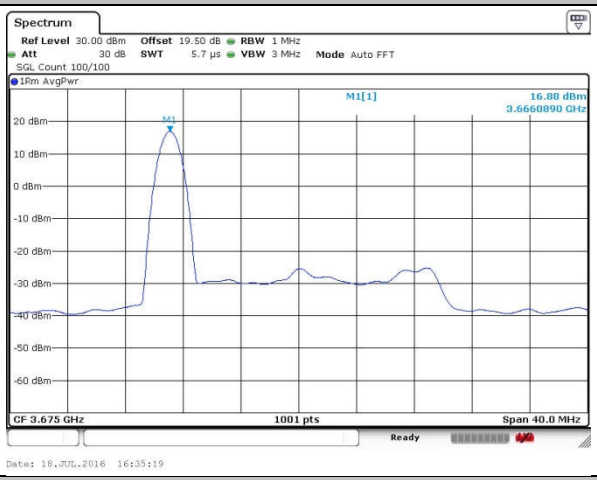
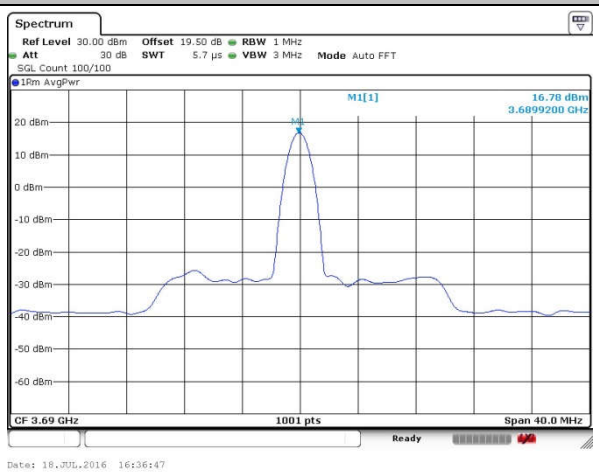
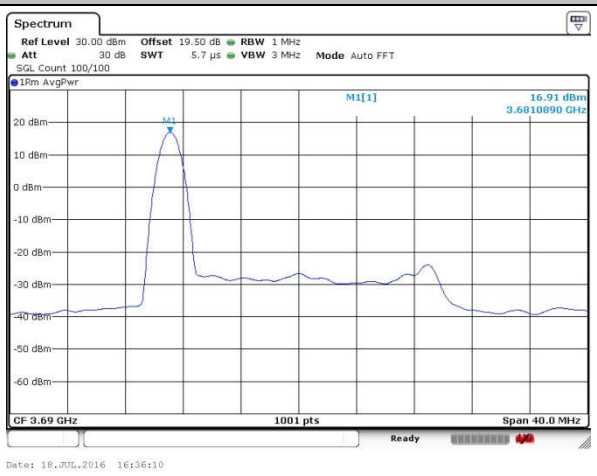
Mode	LTE Band 43 : Peak EIRP Density(dBm/MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	-	-	-	-	29.45	29.46	29.75	29.72	29.31	29.25	29.28	29.38
Middle CH	-	-	-	-	29.33	29.24	29.35	29.35	29.31	29.23	29.19	29.38
Highest CH	-	-	-	-	29.30	29.35	29.25	29.32	29.31	29.33	29.28	29.41

EIRP Power Density = Conducted power density + antenna gain (12.5dBi).

LTE Band 43	
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 43	
Lowest Channel / 10MHz / QPSK	**Lowest Channel / 10MHz / 16QAM**
	
Middle Channel / 10MHz / QPSK	**Middle Channel / 10MHz / 16QAM**
	
Highest Channel / 10MHz / QPSK	**Highest Channel / 10MHz / 16QAM**
	

LTE Band 43	
Lowest Channel / 15MHz / QPSK	**Lowest Channel / 15MHz / 16QAM**
	
Middle Channel / 15MHz / QPSK	**Middle Channel / 15MHz / 16QAM**
	
Highest Channel / 15MHz / QPSK	**Highest Channel / 15MHz / 16QAM**
	

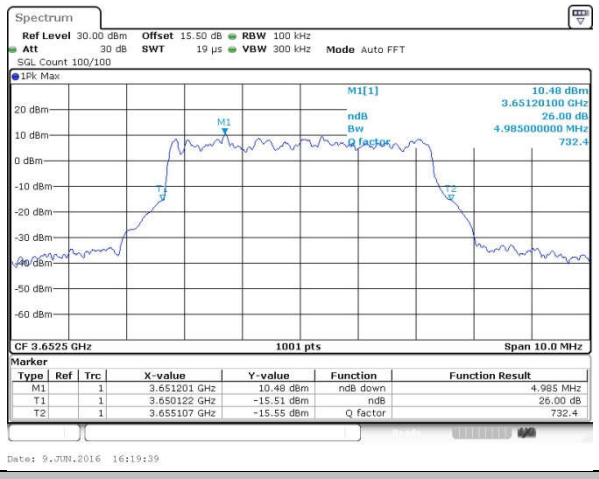
LTE Band 43	
Lowest Channel / 20MHz / QPSK	**Lowest Channel / 20MHz / 16QAM**
	
Middle Channel / 20MHz / QPSK	**Middle Channel / 20MHz / 16QAM**
	
Highest Channel / 20MHz / QPSK	**Highest Channel / 20MHz / 16QAM**
	

26dB Bandwidth

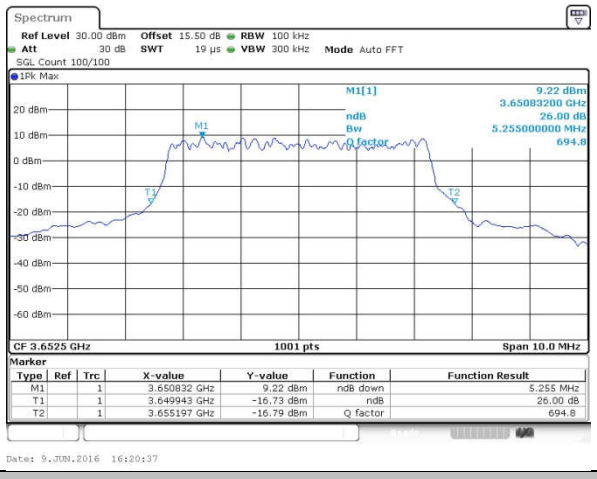
Mode	LTE Band 43 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	-	-	-	-	4.985	5.255	10.23	10.03	15.135	14.266	20.1	20.1
Middle CH	-	-	-	-	5.435	5.564	10.35	10.949	14.805	14.236	20.34	20.38
Highest CH	-	-	-	-	5.335	5.425	9.67	9.85	14.206	14.595	20.18	20.26

LTE Band 43

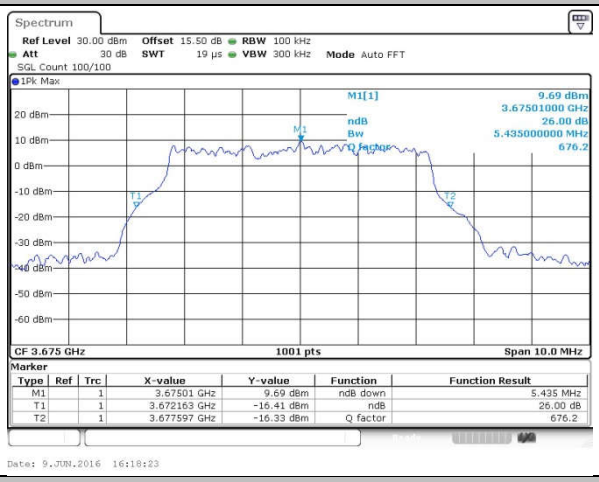
Lowest Channel / 5MHz / QPSK



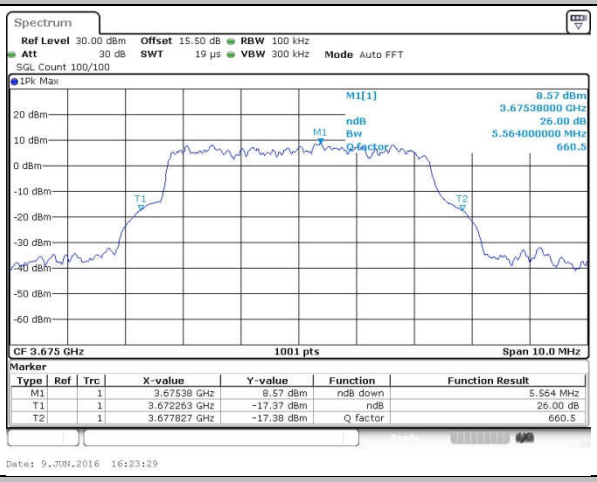
Lowest Channel / 5MHz / 16QAM



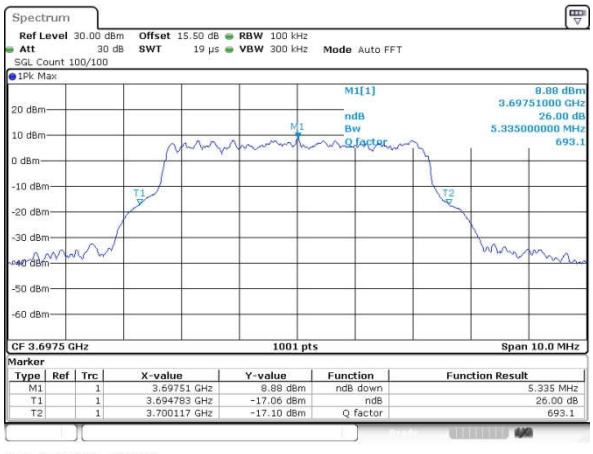
Middle Channel / 5MHz / QPSK



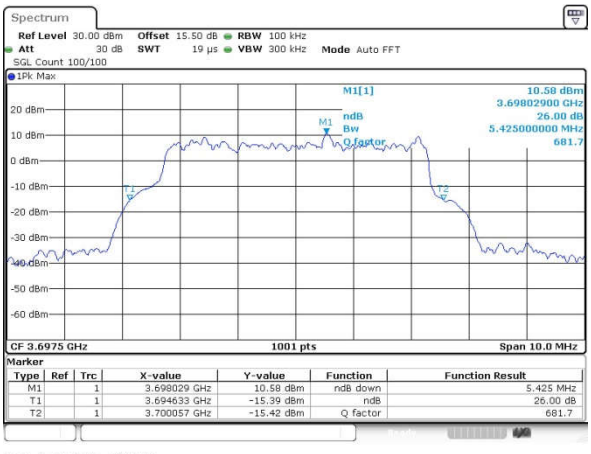
Middle Channel / 5MHz / 16QAM



Highest Channel / 5MHz / QPSK

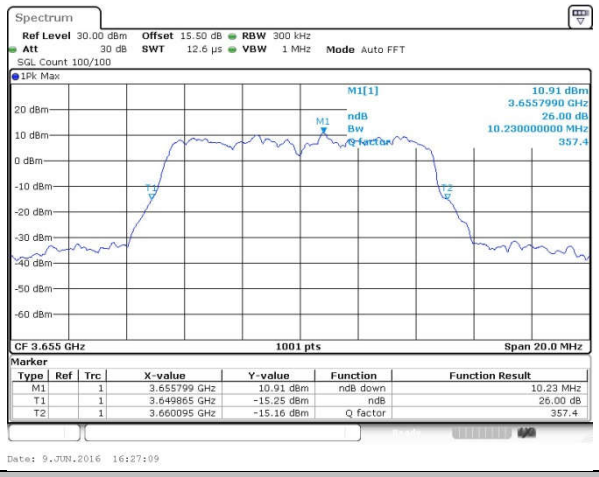


Highest Channel / 5MHz / 16QAM

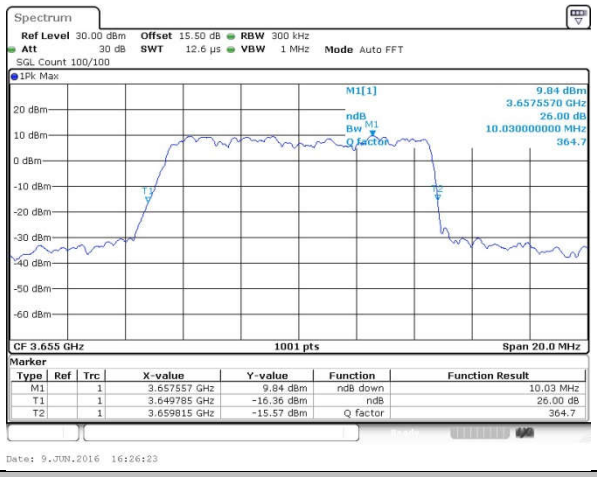


LTE Band 43

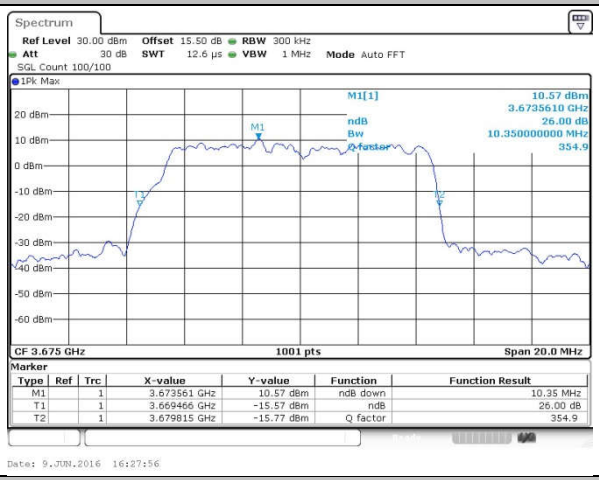
Lowest Channel / 10MHz / QPSK



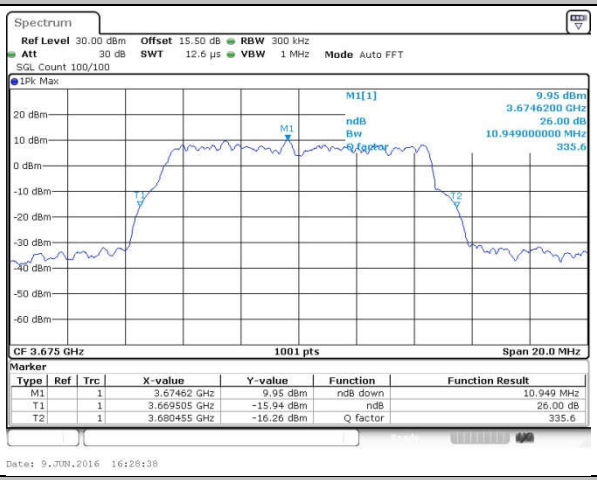
Lowest Channel / 10MHz / 16QAM



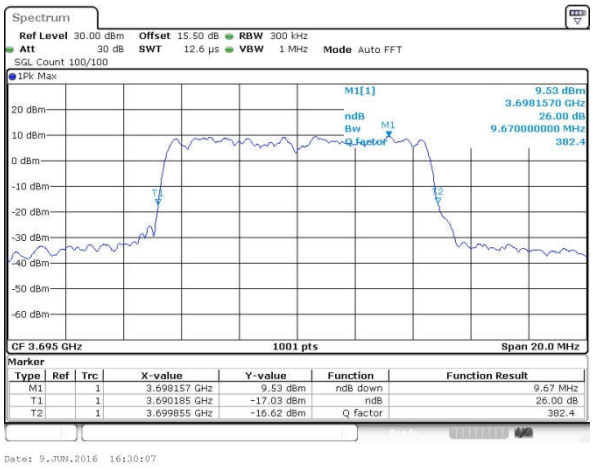
Middle Channel / 10MHz / QPSK



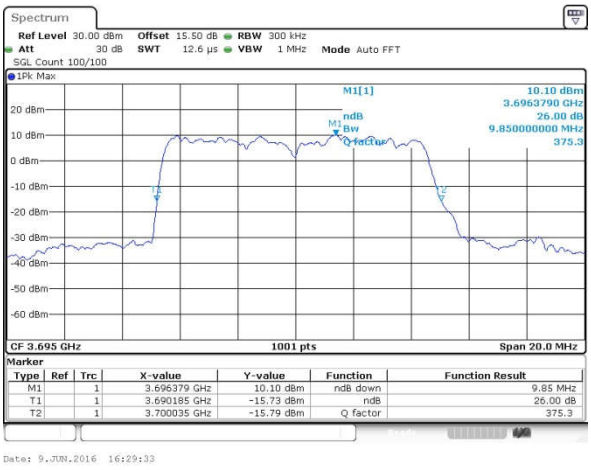
Middle Channel / 10MHz / 16QAM



Highest Channel / 10MHz / QPSK

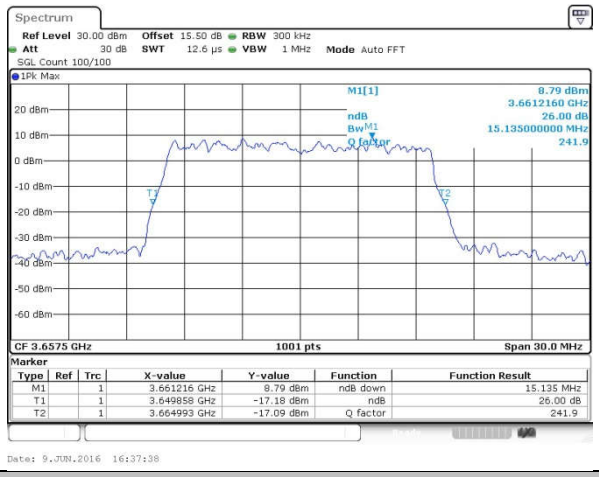


Highest Channel / 10MHz / 16QAM

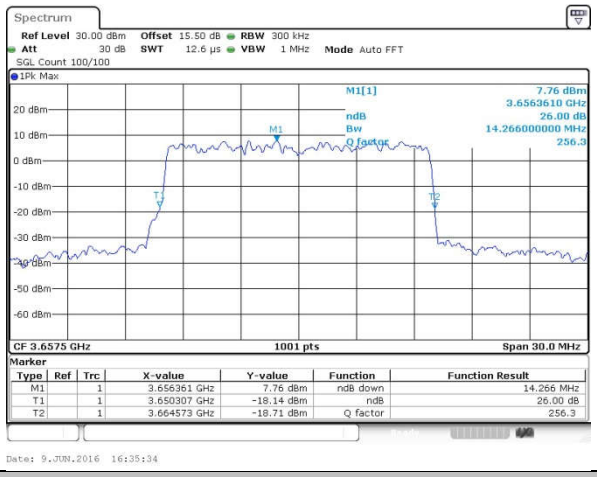


LTE Band 43

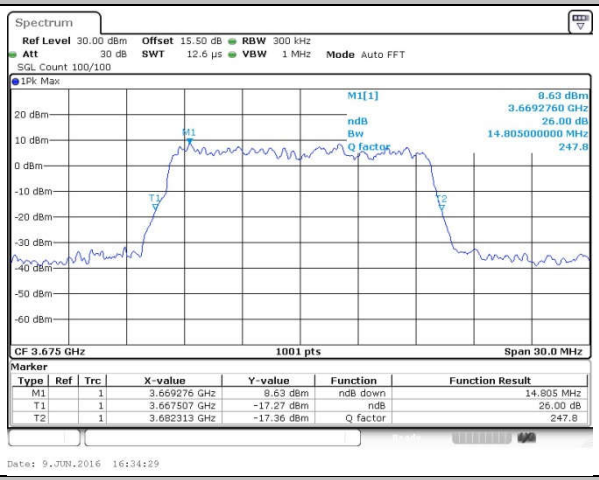
Lowest Channel / 15MHz / QPSK



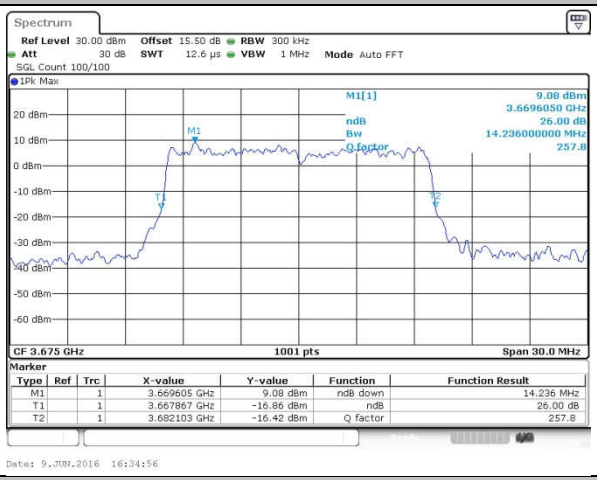
Lowest Channel / 15MHz / 16QAM



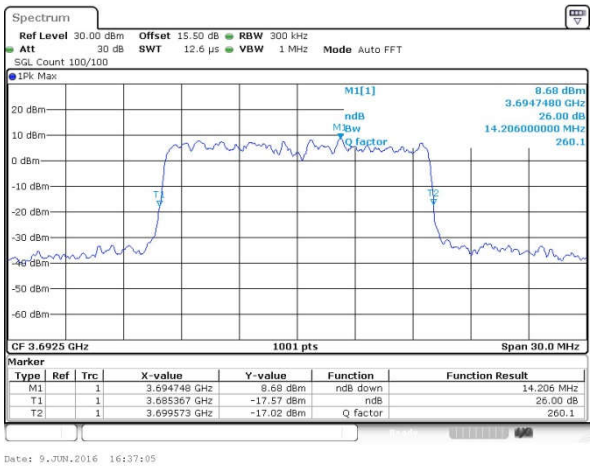
Middle Channel / 15MHz / QPSK



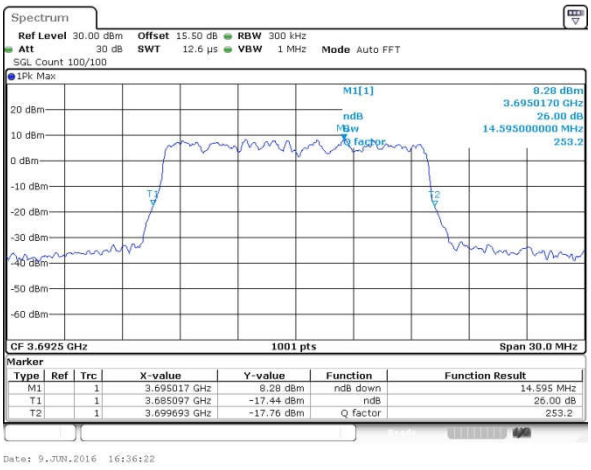
Middle Channel / 15MHz / 16QAM



Highest Channel / 15MHz / QPSK

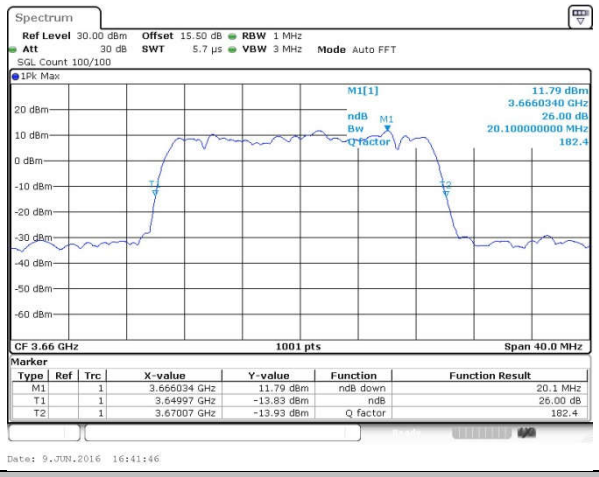


Highest Channel / 15MHz / 16QAM

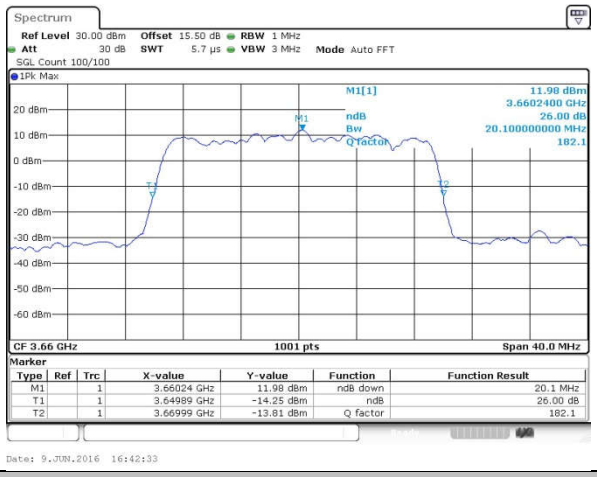


LTE Band 43

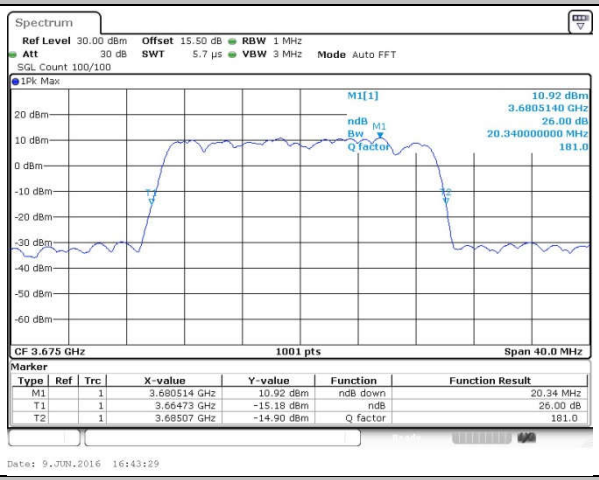
Lowest Channel / 20MHz / QPSK



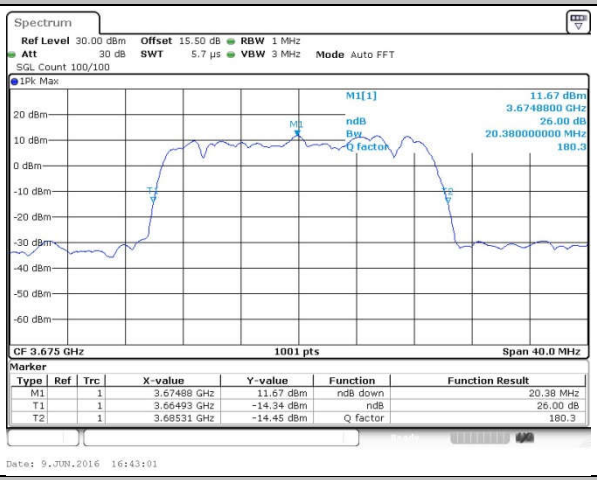
Lowest Channel / 20MHz / 16QAM



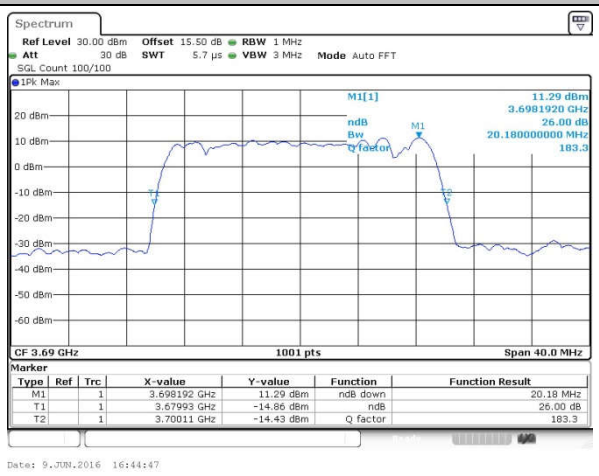
Middle Channel / 20MHz / QPSK



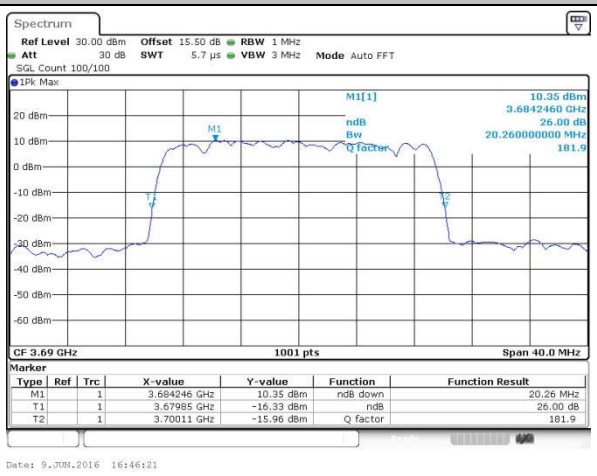
Middle Channel / 20MHz / 16QAM



Highest Channel / 20MHz / QPSK



Highest Channel / 20MHz / 16QAM

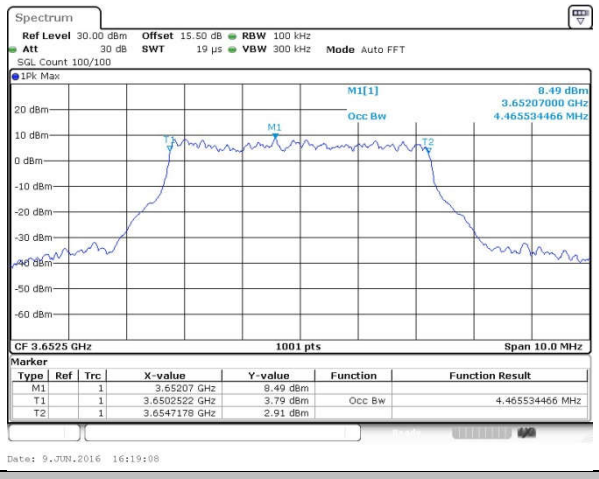


Occupied Bandwidth

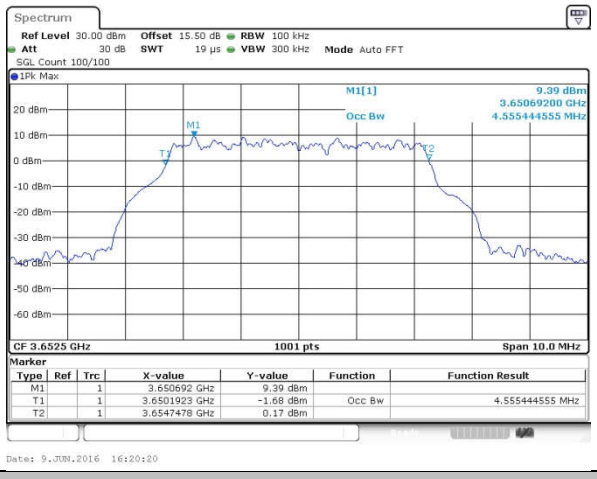
Mode	LTE Band 43 : 99%OBW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	-	-	-	-	4.47	4.56	9.05	9.01	13.40	13.49	18.38	18.38
Middle CH	-	-	-	-	4.64	4.49	8.99	8.93	13.40	13.43	18.42	18.46
Highest CH	-	-	-	-	4.55	4.49	9.07	9.07	13.55	13.49	18.42	18.38

LTE Band 43

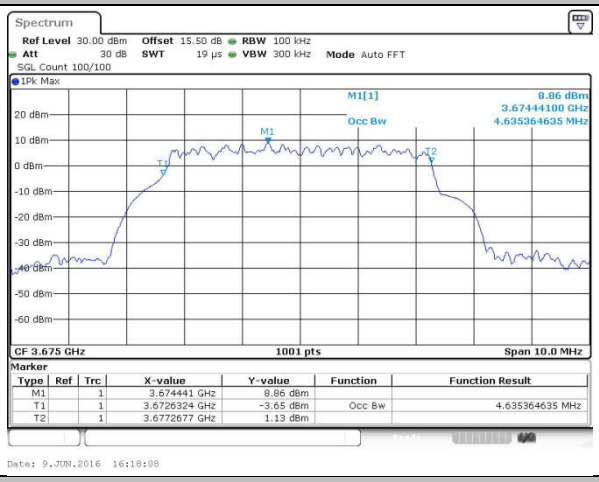
Lowest Channel / 5MHz / QPSK



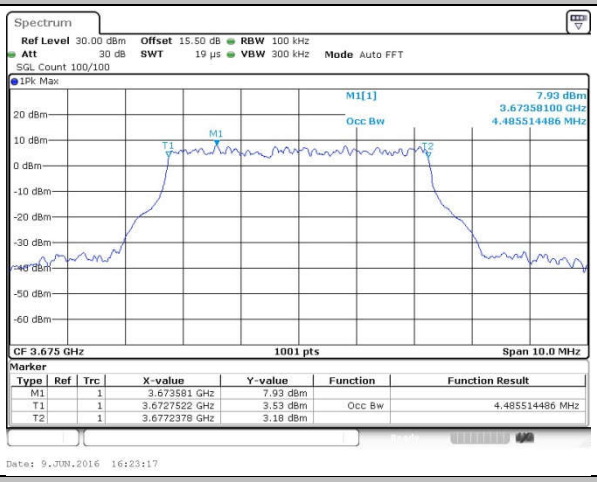
Lowest Channel / 5MHz / 16QAM



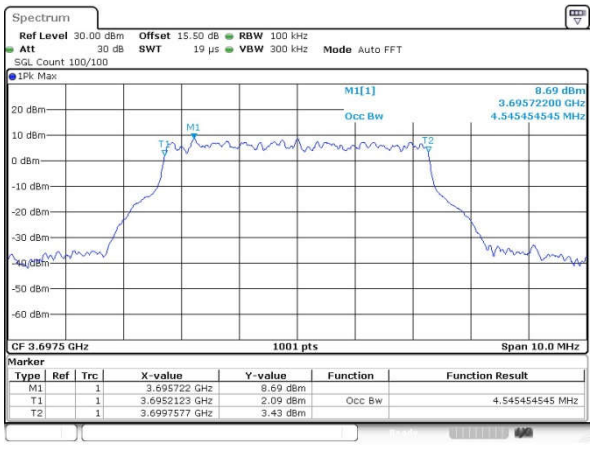
Middle Channel / 5MHz / QPSK



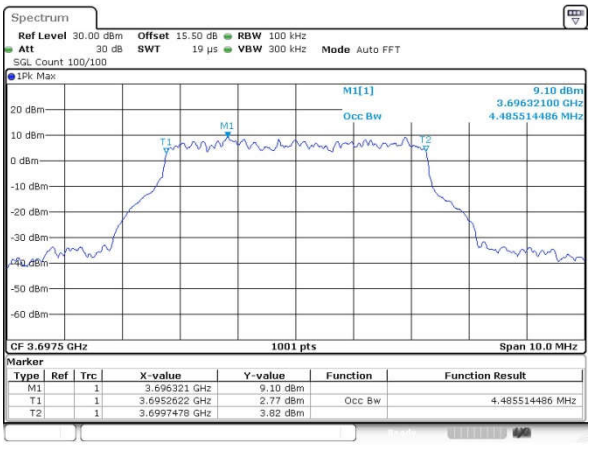
Middle Channel / 5MHz / 16QAM



Highest Channel / 5MHz / QPSK

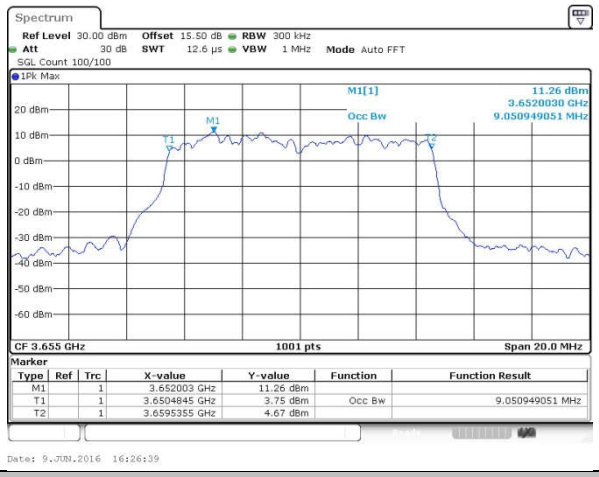


Highest Channel / 5MHz / 16QAM

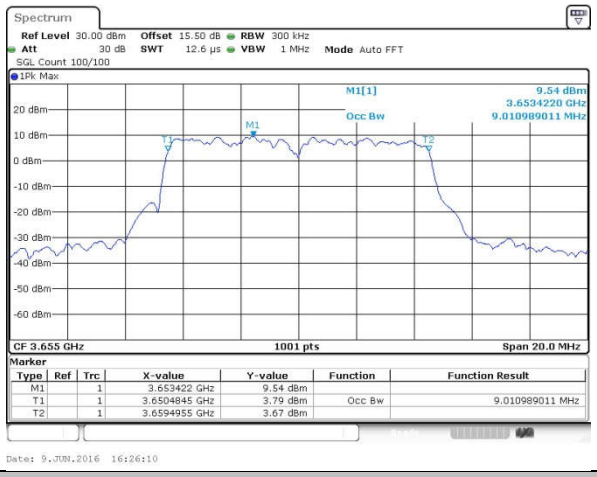


LTE Band 43

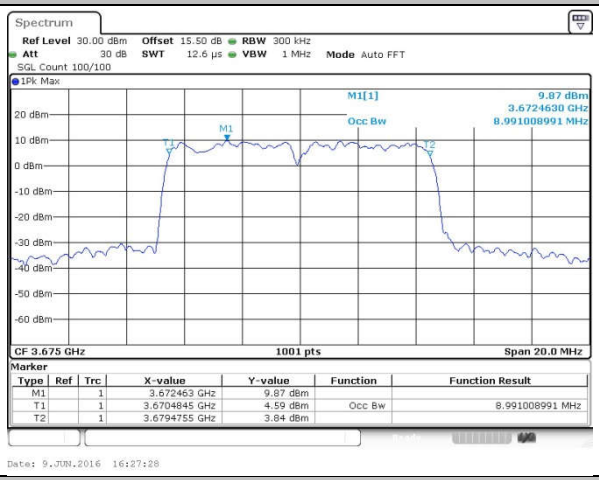
Lowest Channel / 10MHz / QPSK



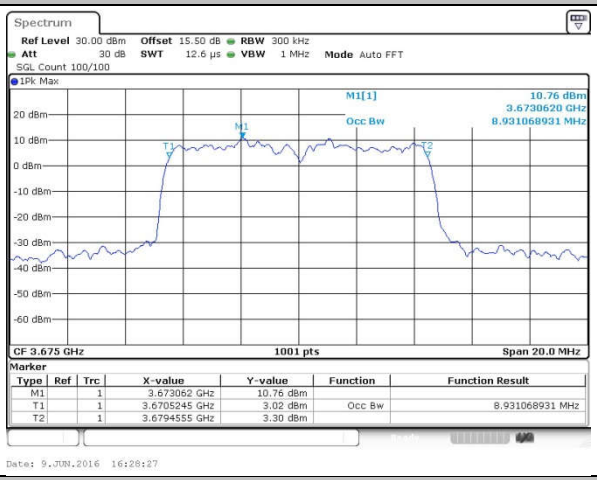
Lowest Channel / 10MHz / 16QAM



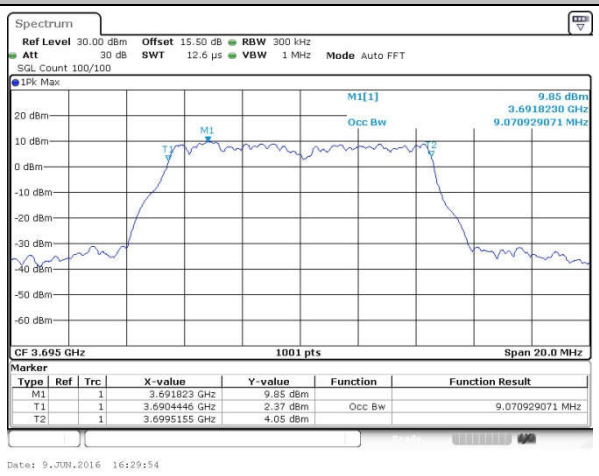
Middle Channel / 10MHz / QPSK



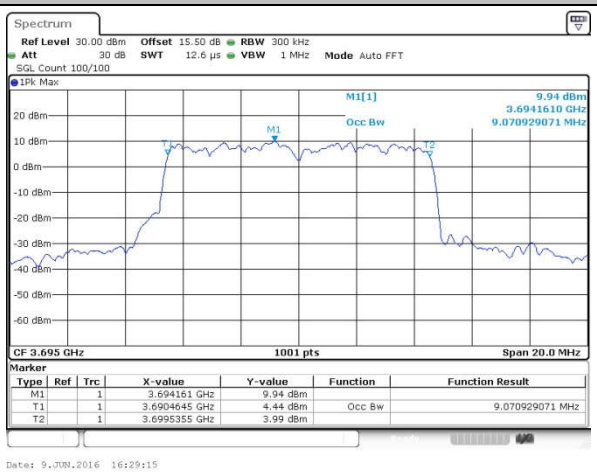
Middle Channel / 10MHz / 16QAM



Highest Channel / 10MHz / QPSK

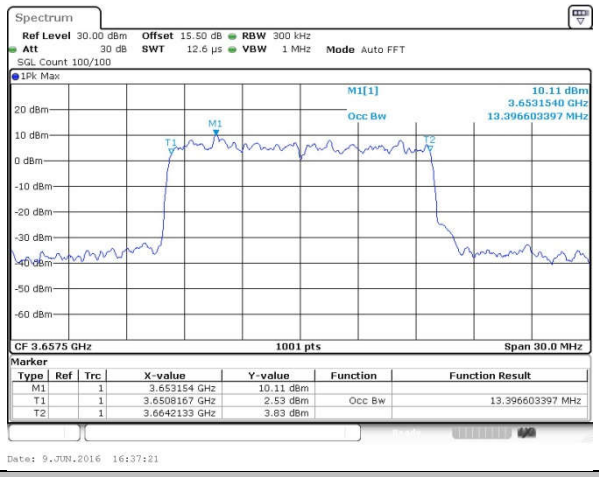


Highest Channel / 10MHz / 16QAM

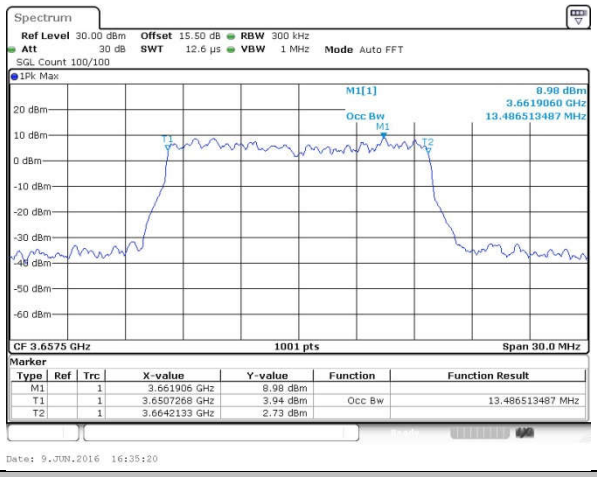


LTE Band 43

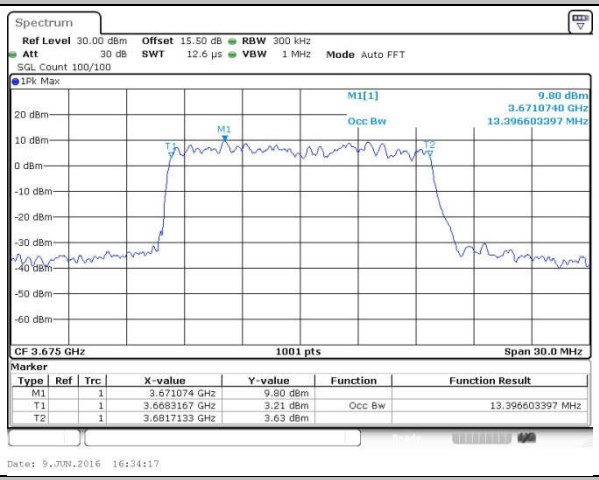
Lowest Channel / 15MHz / QPSK



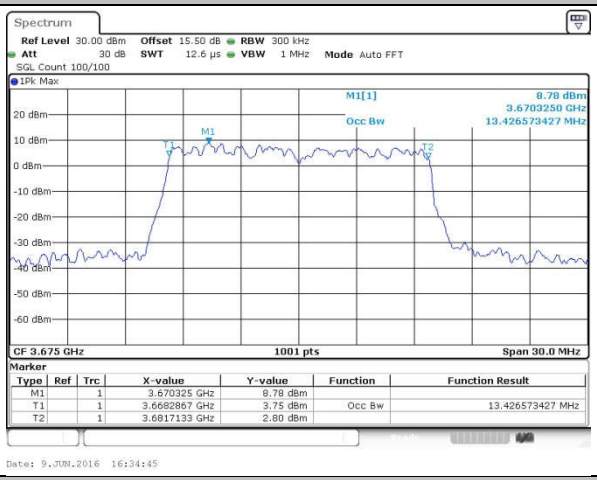
Lowest Channel / 15MHz / 16QAM



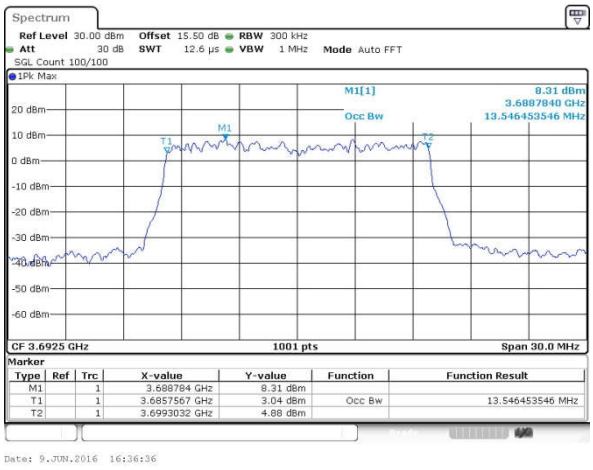
Middle Channel / 15MHz / QPSK



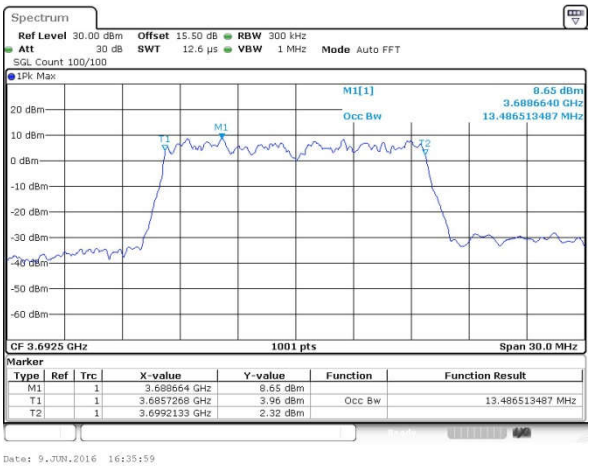
Middle Channel / 15MHz / 16QAM



Highest Channel / 15MHz / QPSK

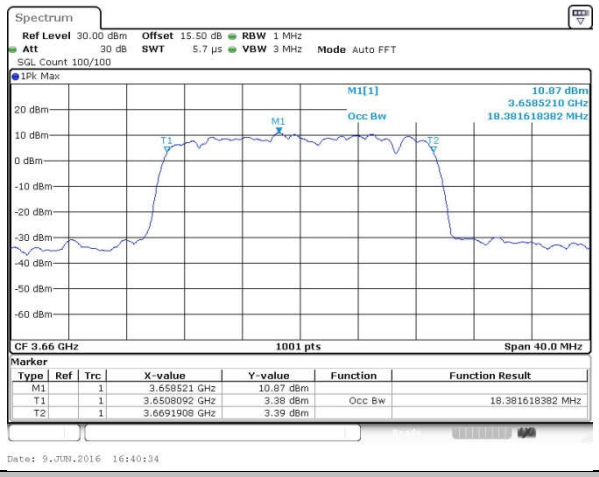


Highest Channel / 15MHz / 16QAM

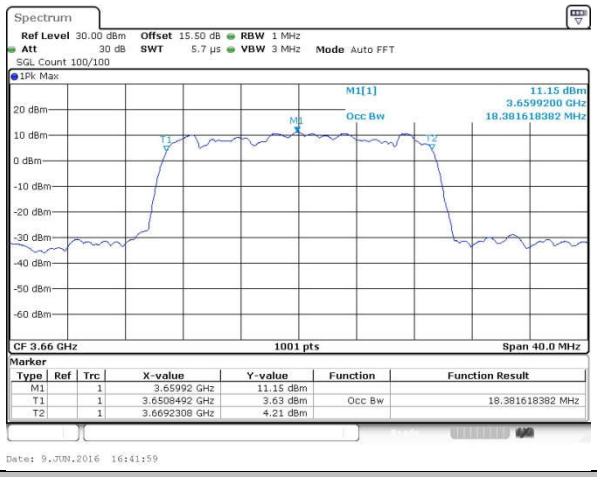


LTE Band 43

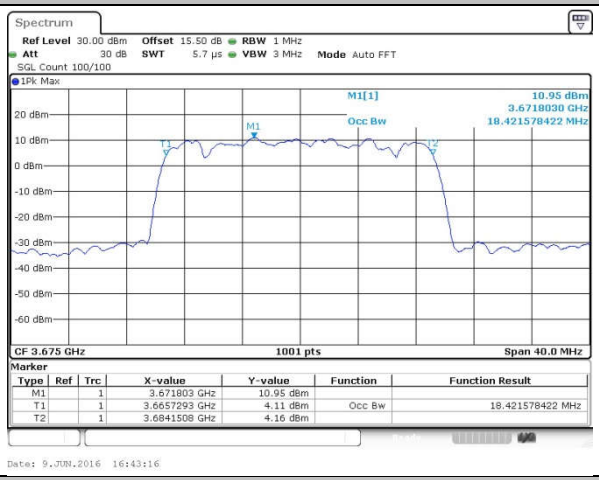
Lowest Channel / 20MHz / QPSK



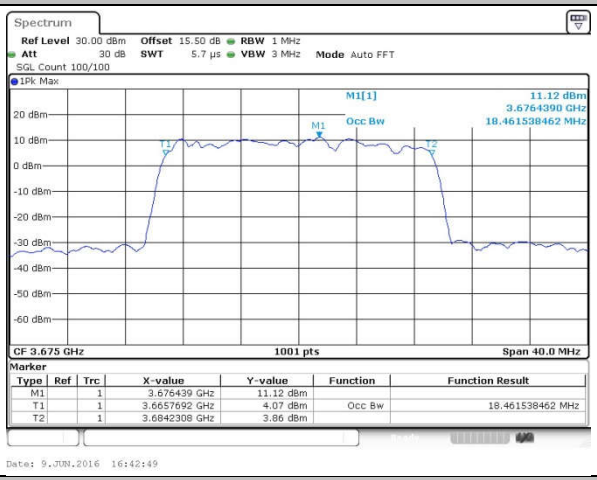
Lowest Channel / 20MHz / 16QAM



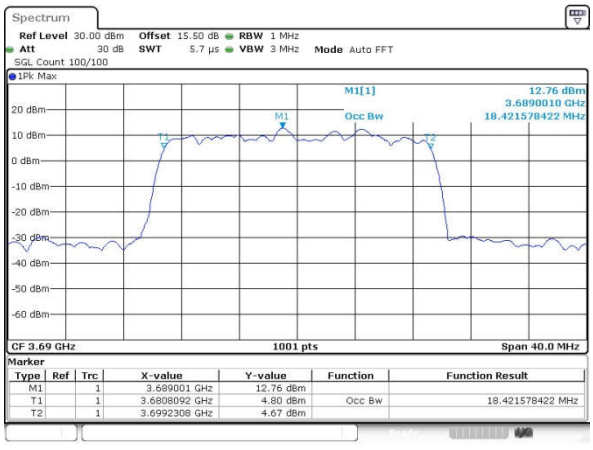
Middle Channel / 20MHz / QPSK



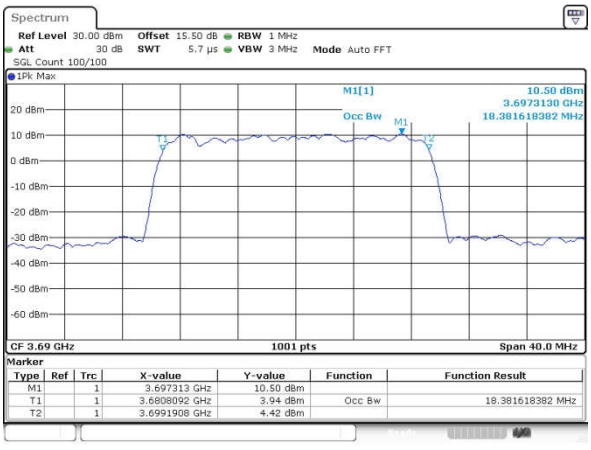
Middle Channel / 20MHz / 16QAM



Highest Channel / 20MHz / QPSK



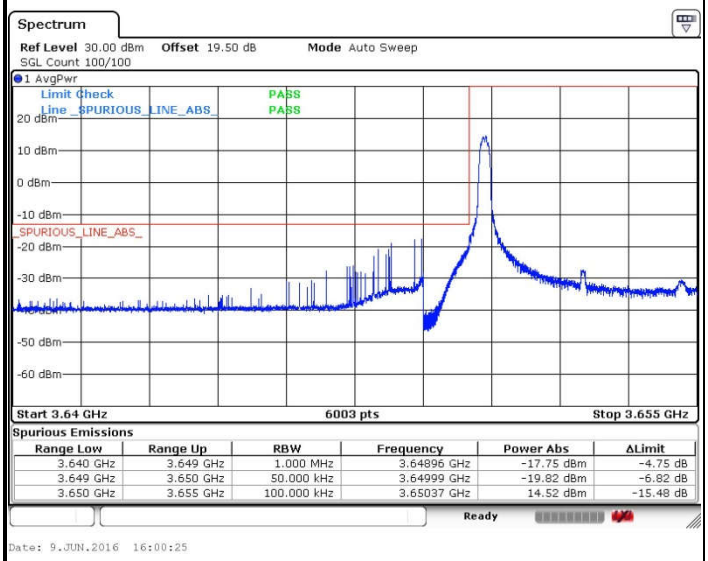
Highest Channel / 20MHz / 16QAM



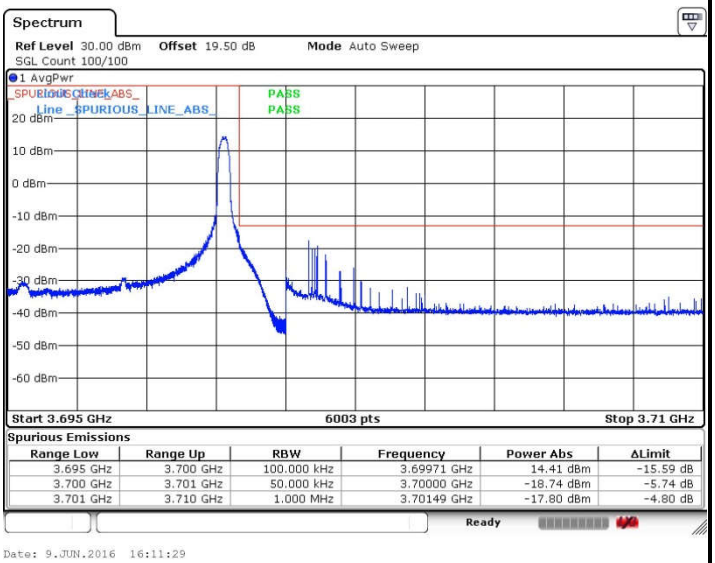
Conducted Band Edge

LTE Band 43 / 5MHz / QPSK

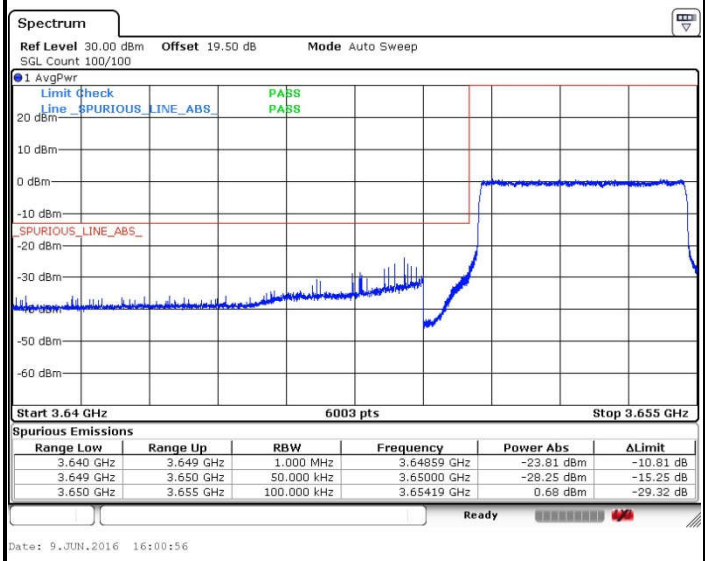
Lowest Band Edge / 1 RB



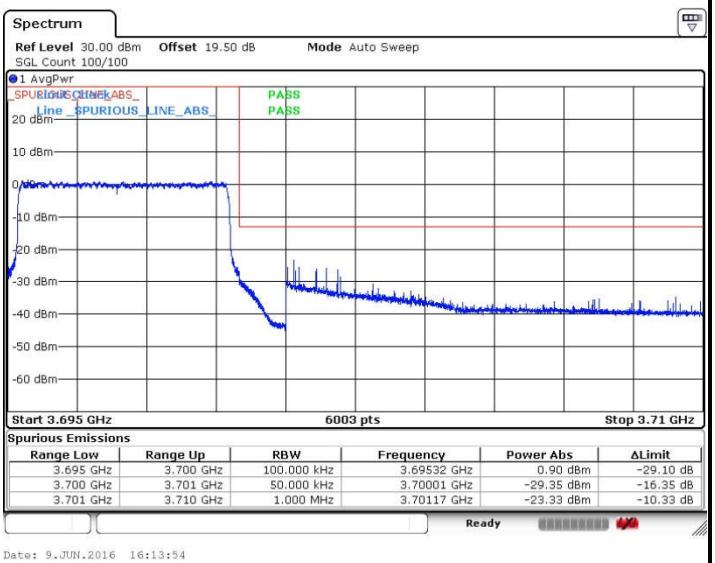
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB

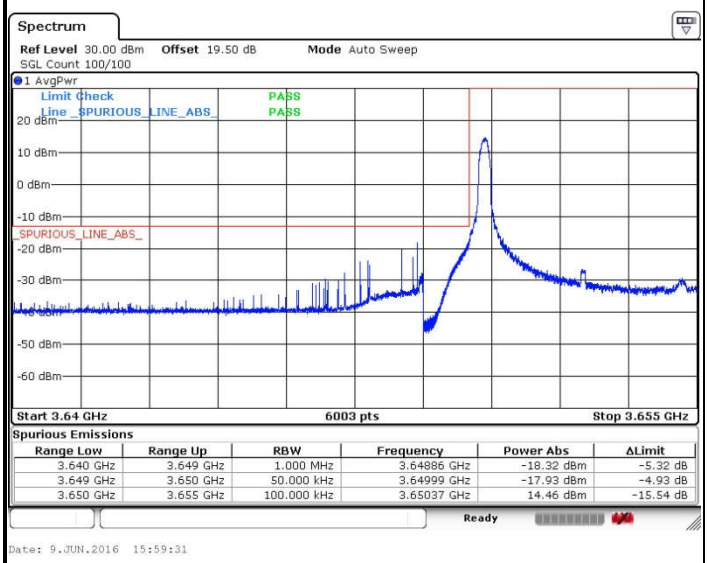


Highest Band Edge / Full RB



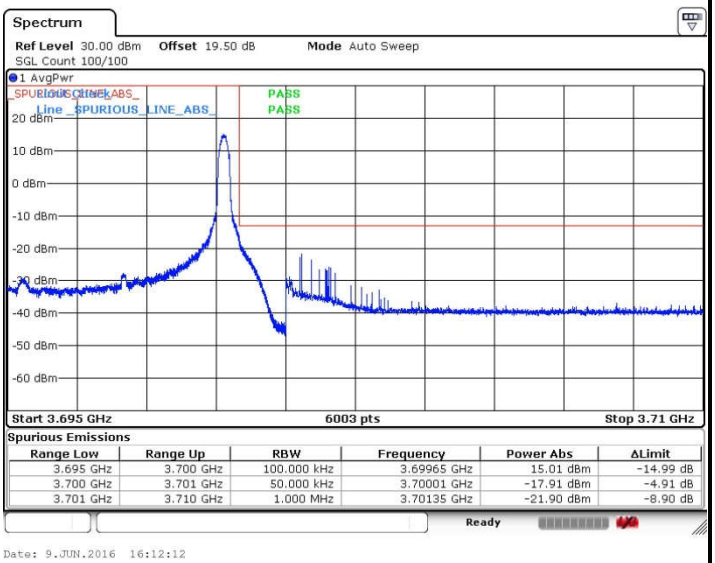
LTE Band 43 / 5MHz / 16QAM

Lowest Band Edge / 1 RB



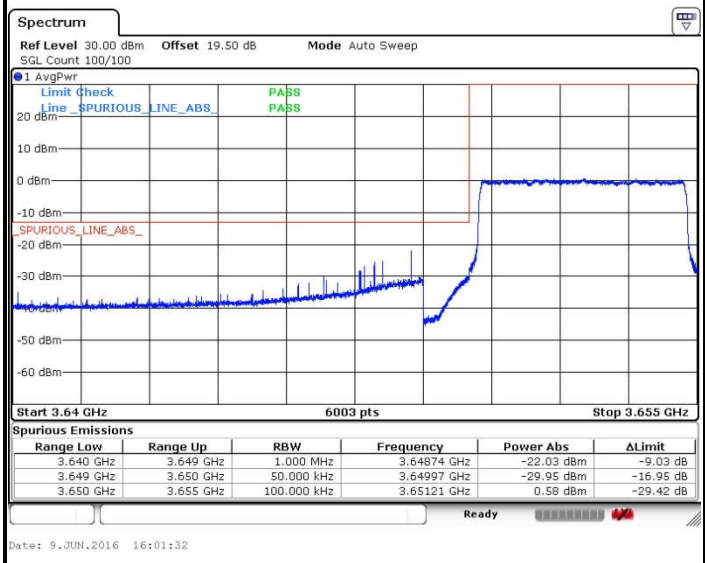
Date: 9.JUN.2016 15:59:31

Highest Band Edge / 1 RB



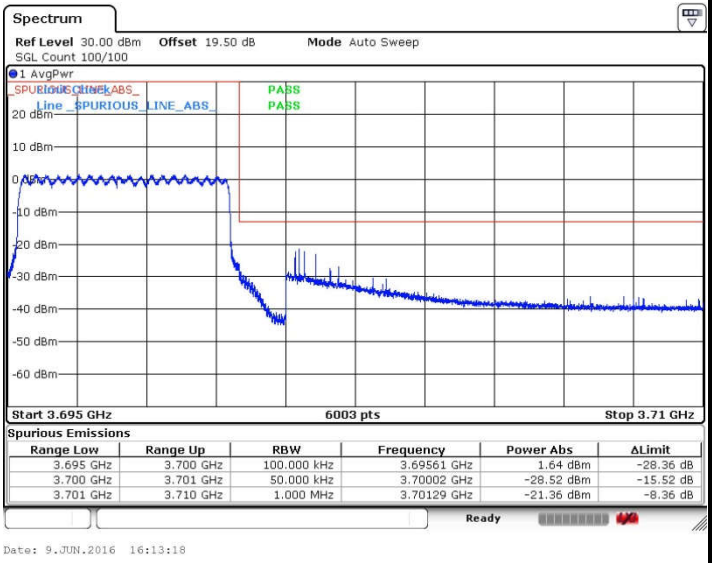
Date: 9.JUN.2016 16:12:12

Lowest Band Edge / Full RB



Date: 9.JUN.2016 16:01:32

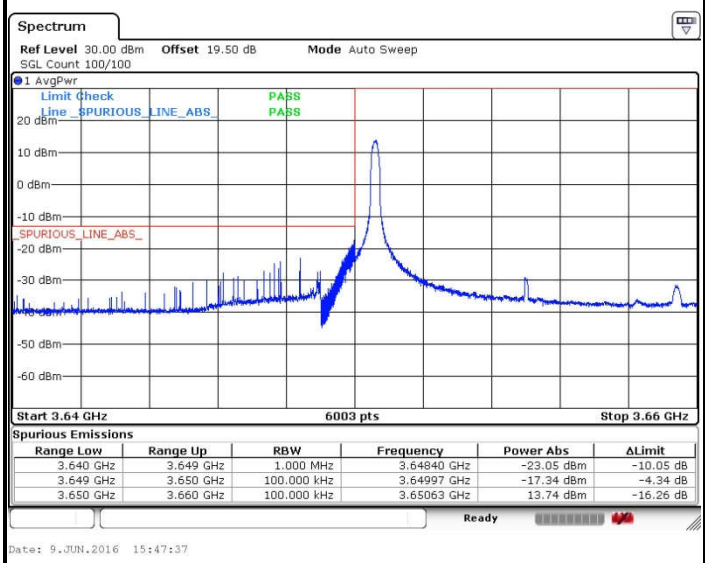
Highest Band Edge / Full RB



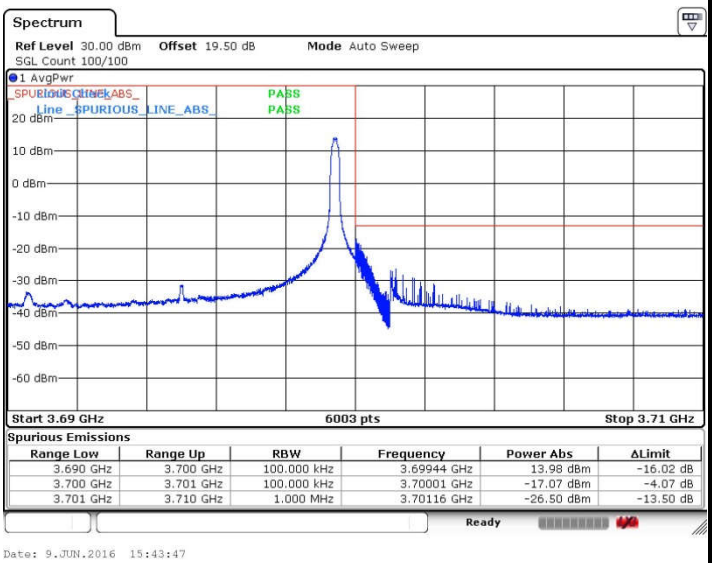
Date: 9.JUN.2016 16:13:18

LTE Band 43 / 10MHz / QPSK

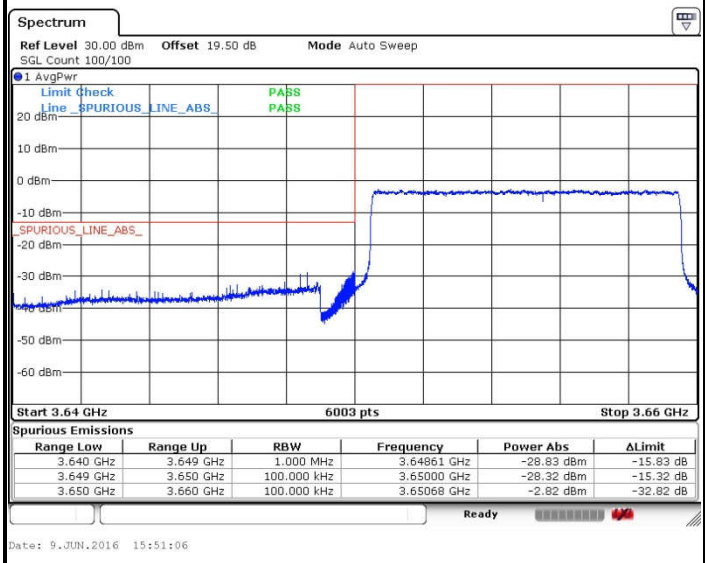
Lowest Band Edge / 1 RB



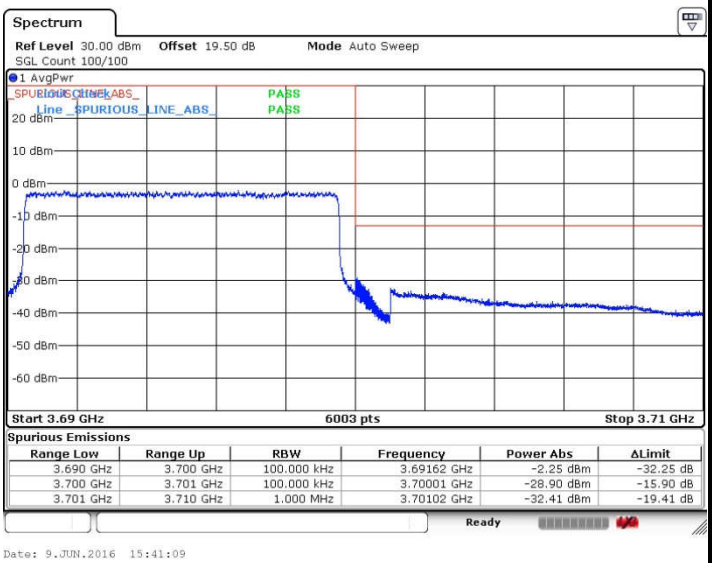
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB

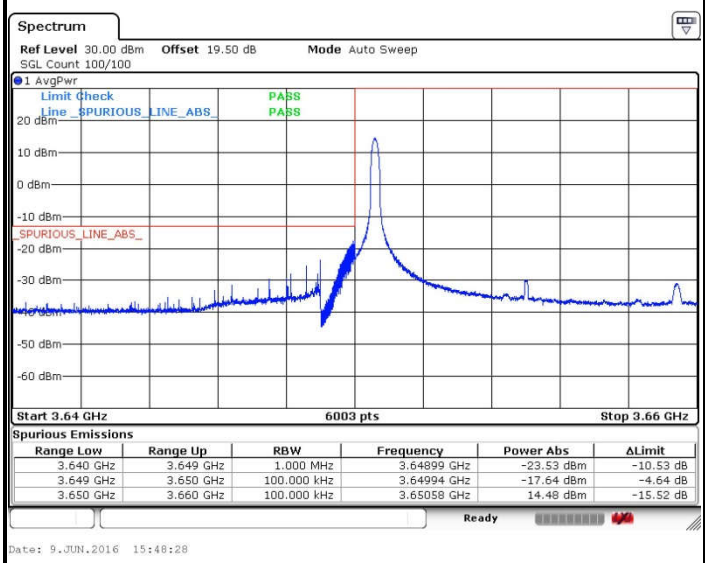


Highest Band Edge / Full RB

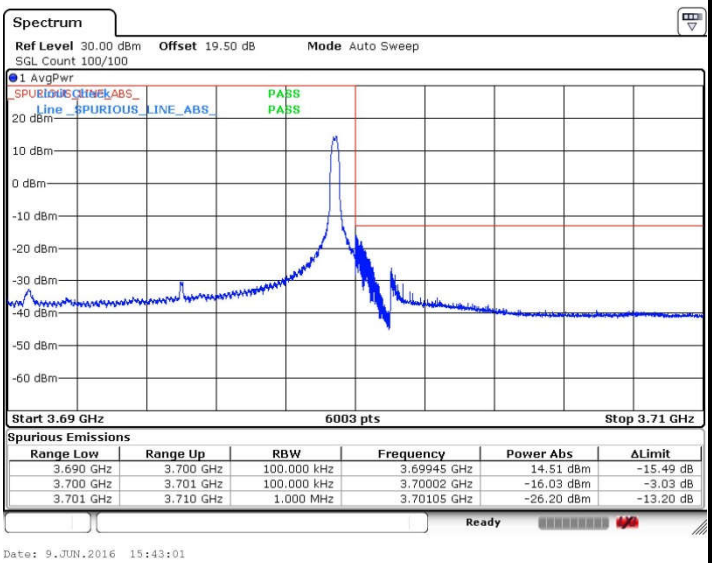


LTE Band 43 / 10MHz / 16QAM

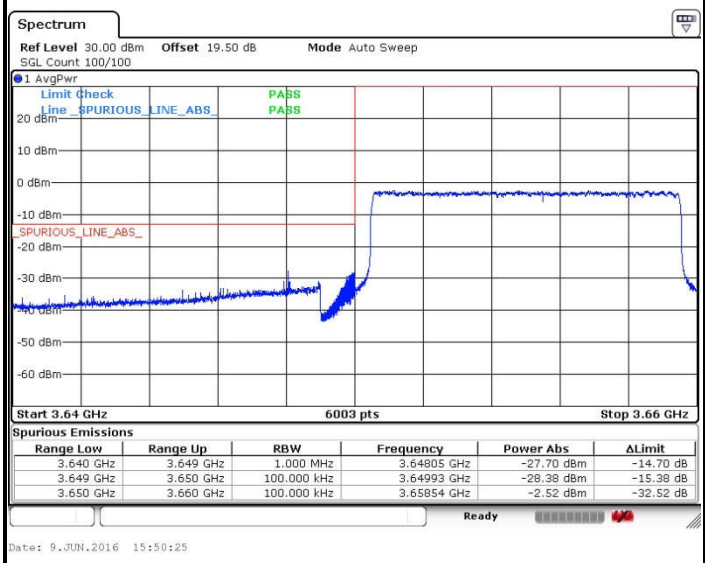
Lowest Band Edge / 1 RB



Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



Highest Band Edge / Full RB