

FCC RF Test Report

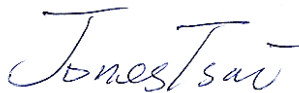
APPLICANT : Samsung Electronics Co., Ltd.
EQUIPMENT : Phablet
BRAND NAME : SAMSUNG
MODEL NAME : SM-T239C
FCC ID : A3LSMT239C
STANDARD : 47 CFR Part 2, 27(M)
CLASSIFICATION : PCS Licensed Transmitter (PCB)

The product was received on Feb. 04, 2015 and completely tested on Feb. 17, 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



SPORTON INTERNATIONAL (SHENZHEN) INC.

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG520401B	Rev. 01	Initial issue of report	Mar. 25, 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 §27.53(m)(6)	Occupied Bandwidth	Reporting Only	PASS	-
3.7	§2.1051 §27.53(m)(4)	Conducted Band Edge	< 5MHz: -10 dBm 5 MHz~6MHz or 26dB(BW): -13 dBm ≥6MHz or 26dB(BW): -25 dBm	PASS	-
3.8	§2.1051 §27.53(m)(4)	Conducted Spurious Emission	< 55+10log10(P[Watts])	PASS	-
3.9	§2.1055 §27.54	Frequency Stability Temperature & Voltage	within authorized band	PASS	-
4.4	§27.50(h)(2)	Equivalent Isotropic Radiated Power	EIRP < 2Watt	PASS	-
4.5	§2.1053 §27.53(m)(4)	Radiated Spurious Emission	< 55+10log10(P[Watts])	PASS	Under limit 10.18 dB at 5240.000 MHz

1 General Description

1.1 Applicant

Samsung Electronics Co., Ltd.

A3 Building, No. 185 Kexue Avenue, Science City, Guang Zhou, P. R. C.

1.2 Manufacturer

Samsung Electronics Co., Ltd.

129, Samsung-ro, Yeongtong-gu, Suwon-city, Gyeonggi-do, 443-742, Korea

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Phablet
Brand Name	SAMSUNG
Model Name	SM-T239C
FCC ID	A3LSMT239C
GSM Operating Band(s)	GSM 900/1800/1900/850MHz
GPRS/EGPRS Multislot Class	GPRS Class 12, EGPRS Class 12
WCDMA Operating Band(s)	FDD Band I/II/V/VIII
LTE Operating Band(s)	FDD Band 1/3, TDD Band 41
Wi-Fi Specification	2.4GHz 802.11b/g/n HT20 5GHz 802.11a/n HT20/HT40
Bluetooth Version	Bluetooth v3.0 + EDR/Bluetooth v4.0 LE
IMEI Code	Conducted: 358841060001877/01 Radiated: 358841060001810
HW Version	T239C.01
SW Version	T239CZCU0AOA1
EUT Stage	Pre-Production

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 41 : 2557.5 MHz ~ 2632.5 MHz
Rx Frequency	LTE Band 41 : 2557.5 MHz ~ 2632.5 MHz
Bandwidth	5MHz / 10MHz / 15MHz / 20MHz
Maximum Output Power to Antenna	23.18 dBm
Antenna Type	SUS Antenna
Type of Modulation	QPSK / 16QAM

1.5 Modification of EUT

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

1.6 Maximum Emission Designator, Frequency Tolerance, and EIRP Power

LTE Band 41	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	4M54G7D	-	0.0557	4M51W7D	-	0.0438
10	9M15G7D	0.0247	0.0535	9M09W7D	-	0.0566
15	13M6G7D	-	0.0503	13M5W7D	-	0.0424
20	18M6G7D	-	0.0649	18M5W7D	-	0.0482

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, 27(M)
- ♦ 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

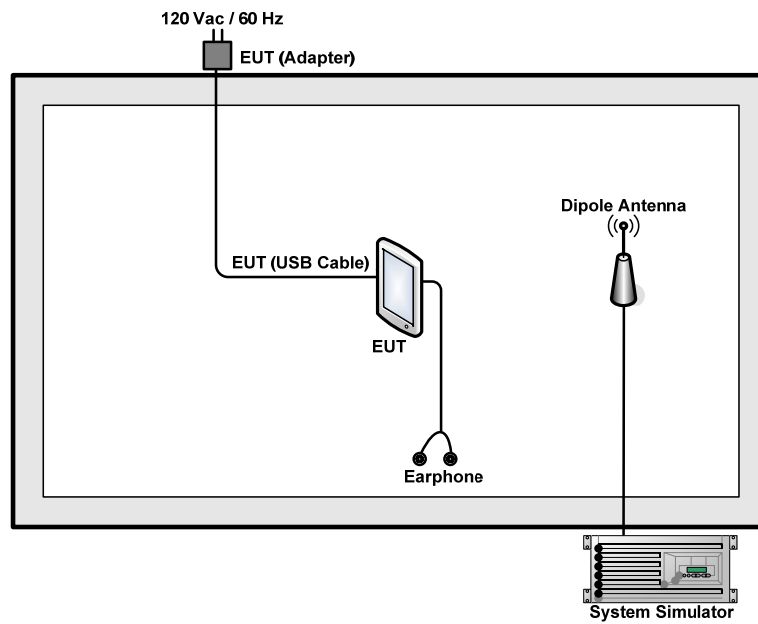
2.1 Test Mode

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	41	-	-	v	v	v	v	v	v	v	v	v	v	v	v
Peak-to-Average Ratio	41	-	-				v	v	v	v		v	v	v	v
26dB and 99% Bandwidth	41	-	-	v	v	v	v	v	v			v	v	v	v
Conducted Band Edge	41	-	-	v	v	v	v	v	v	v		v	v		v
Conducted Spurious Emission	41	-	-	v	v	v	v	v	v	v			v	v	v
Frequency Stability	41	-	-		v			v				v		v	
E.I.R.P.	41	-	-	v	v	v	v	v	v	v			v	v	v
Radiated Spurious Emission	41	-	-	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 5.5 dB and 10dB attenuator.

Example :

$$\begin{aligned}\text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)} \\ &= 5.5 + 10 = 15.5 \text{ (dB)}\end{aligned}$$

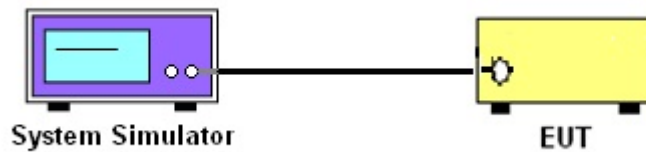
3 Conducted Test Items

3.1 Measuring Instruments

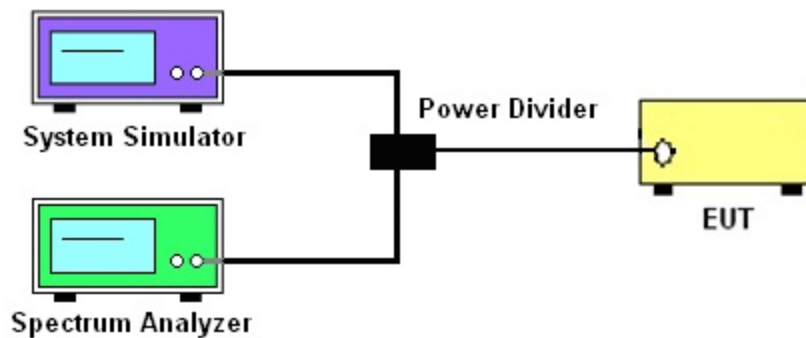
See list of measuring instruments of this test report.

3.2 Test Setup

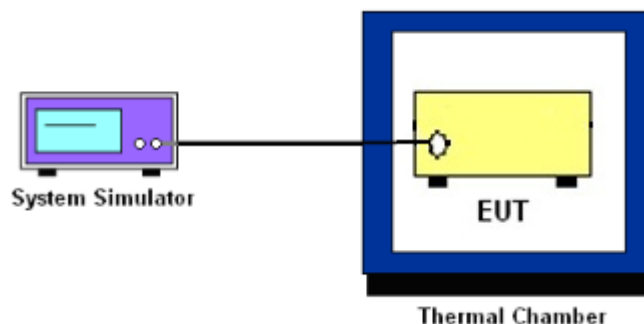
3.2.1 Conducted Output Power



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

27.53(m)(4) for Band 41:

For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

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 $\geq 1\%$ 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.

3.8 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 $55 + 10 \log (P)$ 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 $55 + 10\log(P)$ dB below the transmitter power P(Watts)
= $P(W) - [55 + 10\log(P)]$ (dB)
= $[30 + 10\log(P)]$ (dBm) - $[55 + 10\log(P)]$ (dB)
= -25dBm.

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 $\pm 0.00025\%$ ($\pm 2.5\text{ppm}$) 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 $25\pm 5^{\circ}\text{C}$ 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.

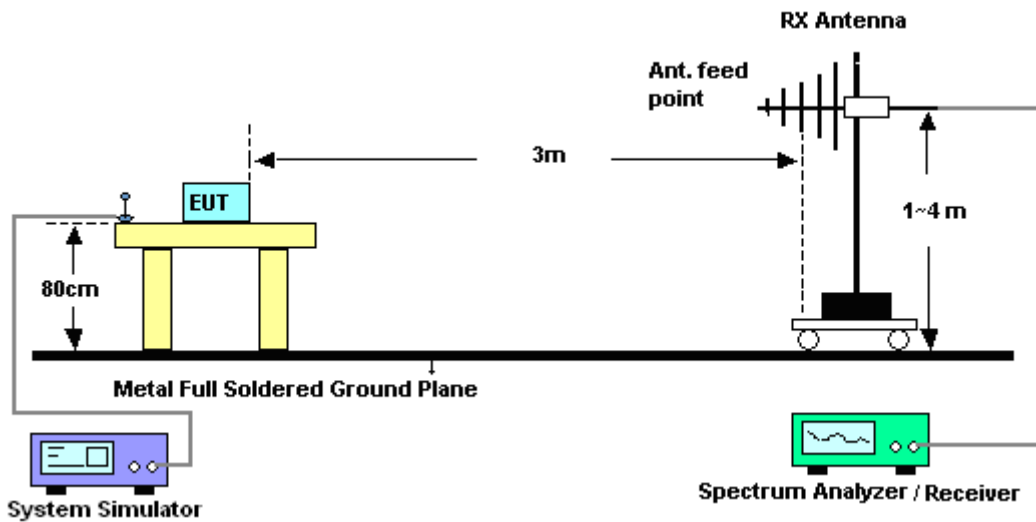
4 Radiated Test Items

4.1 Measuring Instruments

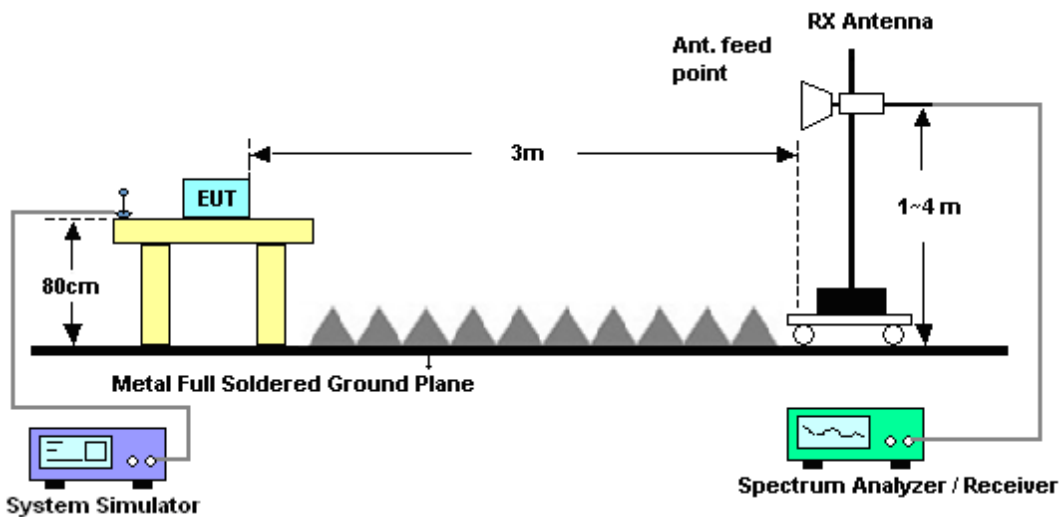
See list of measuring instruments of this test report.

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 Isotropic Radiated Power

4.4.1 Description of the EIRP Measurement

Equivalent isotropic 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 EIRP of 2 watts with LTE band 41.

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, $EIRP = LVL + \text{Correction factor}$ 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 $55 + 10 \log (P)$ 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 $55 + 10\log(P)$ dB below the transmitter power P(Watts)

$$= P(W) - [55 + 10\log(P)] \text{ (dB)}$$

$$= [30 + 10\log(P)] \text{ (dBm)} - [55 + 10\log(P)] \text{ (dB)}$$

$$= -25\text{dBm}.$$

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	Feb. 09, 2015	May 07, 2015	Conducted (TH01-SZ)
Thermal Chamber	Hongzhangroup	LP-150U	HD20120425	-40℃~150℃	Feb. 21, 2014	Feb. 09, 2015	Feb. 20, 2015	Conducted (TH01-SZ)
DC Power Supply	TOPWORD	3303DR	714621	DC 10~30V	Feb. 21, 2014	Feb. 09, 2015	Feb. 20, 2015	Conducted (TH01-SZ)
System Simulator	R&S	CMW 500	132727	GSM/WCDMA /CDMA2000/LTE	Feb. 21, 2014	Feb. 09, 2015	Feb. 20, 2015	Conducted (TH01-SZ)
ESCIO TEST Receiver	R&S	ESCI	100724	9kHz~3GHz	Feb. 21, 2014	Feb. 17, 2015	Feb. 20, 2015	Radiation (03CH01-SZ)
Spectrum Analyzer	Agilent	N9038A	MY52260185	20Hz~26.5GHz	May 26, 2014	Feb. 17, 2015	May 25, 2015	Radiation (03CH01-SZ)
Bilog Antenna	TESEQ	CBL 6112D	23188	30MHz~2GHz	Oct. 15, 2014	Feb. 17, 2015	Oct. 14, 2015	Radiation (03CH01-SZ)
Double Ridge Horn Antenna	ETS Lindgren	3117	00119436	1GHz~18GHz	Oct. 15, 2014	Feb. 17, 2015	Oct. 14, 2015	Radiation (03CH01-SZ)
Double Ridged Horn Antenna	COM-POWER	AH-840	101073	18GHz~40GHz	Jun. 09, 2014	Feb. 17, 2015	Jun. 08, 2015	Radiation (03CH01-SZ)
Amplifier	ADVANTEST	BB525C	E9007003	9kHz~3000MHz	Feb. 21, 2014	Feb. 17, 2015	Feb. 20, 2015	Radiation (03CH01-SZ)
Amplifier	Yiai	AV3860B	04030	2GHz~26.5GHz	May 08, 2014	Feb. 17, 2015	May 07, 2015	Radiation (03CH01-SZ)
AC Source(AVR)	Chroma	61601	616010001985	100Vac~250Vac	Mar. 25, 2014	Feb. 17, 2015	Mar. 24, 2015	Radiation (03CH01-SZ)
Turn Table	EM Electronics	EM 1000	N/A	0~360 degree	NCR	Feb. 17, 2015	NCR	Radiation (03CH01-SZ)
Antenna Mast	EM Electronics	EM 1000	N/A	1 m~4 m	NCR	Feb. 17, 2015	NCR	Radiation (03CH01-SZ)
System Simulator	R&S	CMW 500	132727	GSM/WCDMA /CDMA2000/LTE	Feb. 21, 2014	Feb. 17, 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
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Appendix A. Test Results of Conducted Test

LTE Band 41

Conducted Output Power(Average power)

LTE Band 41 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	22.90	22.70	22.78
5	1	12		22.91	22.64	22.79
5	1	24		22.88	22.60	22.76
5	12	0		22.15	21.91	22.12
5	12	6		22.19	21.88	22.05
5	12	11		22.19	21.88	22.11
5	25	0		22.15	21.84	22.08
5	1	0	16-QAM	22.45	22.26	22.38
5	1	12		22.45	22.27	22.40
5	1	24		22.51	22.23	22.39
5	12	0		21.48	21.35	21.45
5	12	6		21.52	21.26	21.51
5	12	11		21.53	21.27	21.50
5	25	0		21.36	21.16	21.29
10	1	0	QPSK	22.82	22.66	22.71
10	1	24		22.87	22.62	22.71
10	1	49		22.97	22.56	22.76
10	25	0		22.05	21.84	22.02
10	25	12		22.15	21.83	22.04
10	25	24		22.14	21.81	21.99
10	50	0		22.08	21.82	22.00
10	1	0	16-QAM	22.38	22.16	22.26
10	1	24		22.48	22.17	22.33
10	1	49		22.53	22.15	22.40
10	25	0		21.31	21.07	21.22
10	25	12		21.30	21.06	21.24
10	25	24		21.36	21.04	21.26
10	50	0		21.30	20.99	21.20



LTE Band 41 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	23.01	22.82	22.90
15	1	37		23.16	22.83	22.91
15	1	74		23.14	22.78	22.89
15	36	0		22.11	21.85	22.00
15	36	18		22.16	21.81	21.92
15	36	37		22.26	21.79	21.99
15	75	0		22.21	21.83	22.03
15	1	0	16-QAM	22.47	22.34	22.37
15	1	37		22.60	22.24	22.38
15	1	74		22.67	22.25	22.41
15	36	0		21.24	21.02	21.12
15	36	18		21.30	20.99	21.17
15	36	37		21.38	20.97	21.14
15	75	0		21.39	21.04	21.27
20	1	0	QPSK	22.93	22.83	22.77
20	1	49		23.18	22.85	22.94
20	1	99		23.16	22.68	22.92
20	50	0		22.16	21.91	21.99
20	50	24		22.35	21.93	22.03
20	50	49		22.33	21.78	22.00
20	100	0		22.28	21.87	22.01
20	1	0	16-QAM	22.49	22.36	22.29
20	1	49		22.67	22.17	22.35
20	1	99		22.65	22.18	22.39
20	50	0		21.46	21.13	21.15
20	50	24		21.49	21.06	21.22
20	50	49		21.53	21.02	21.31
20	100	0		21.48	21.09	21.26

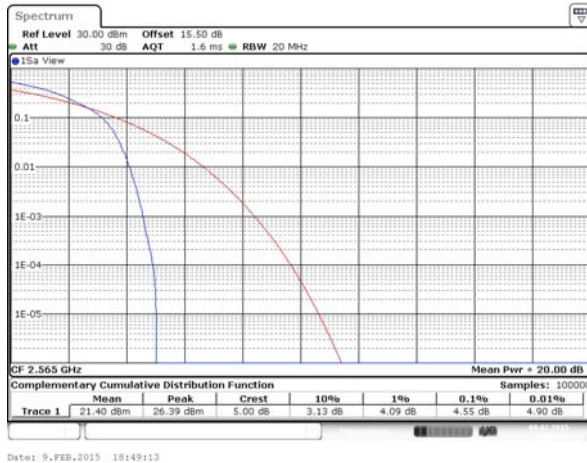
**Peak-to-Average Ratio**

Mode	LTE Band 41 / 20MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	RB Size	Result
Lowest CH	4.55	5.04	6.41	6.64	PASS
Middle CH	5.33	6.52	4.87	8.81	
Highest CH	6.81	5.01	6.84	6.75	

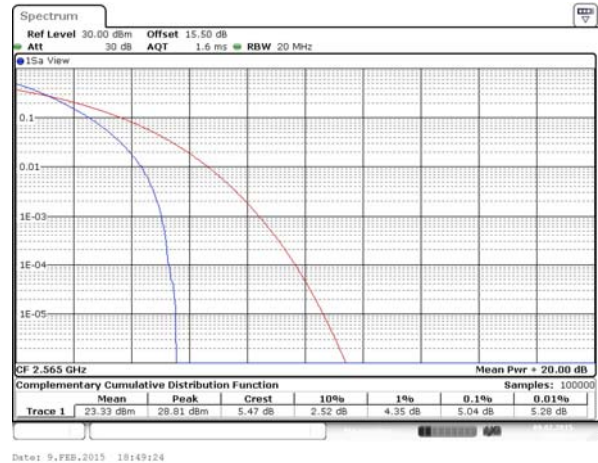


LTE Band 41 / 20MHz / QPSK

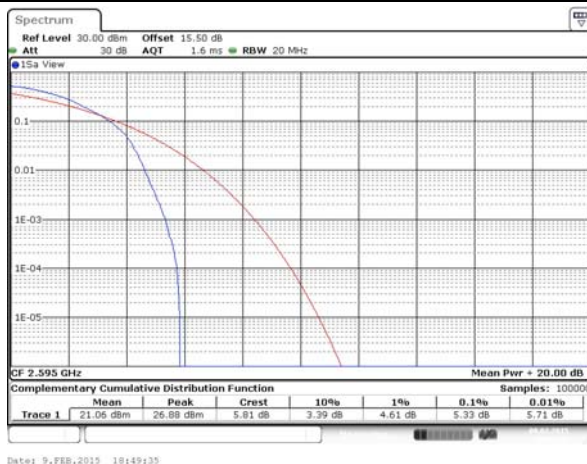
Lowest Channel / 1RB



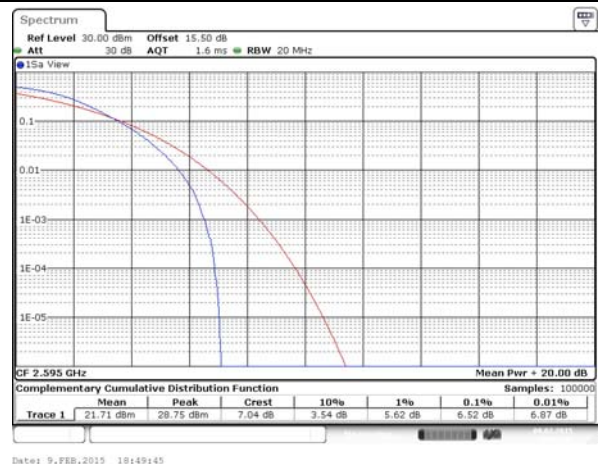
Lowest Channel / Full RB



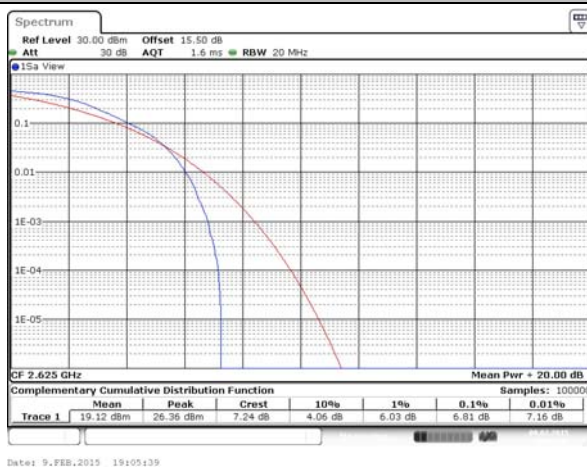
Middle Channel / 1RB



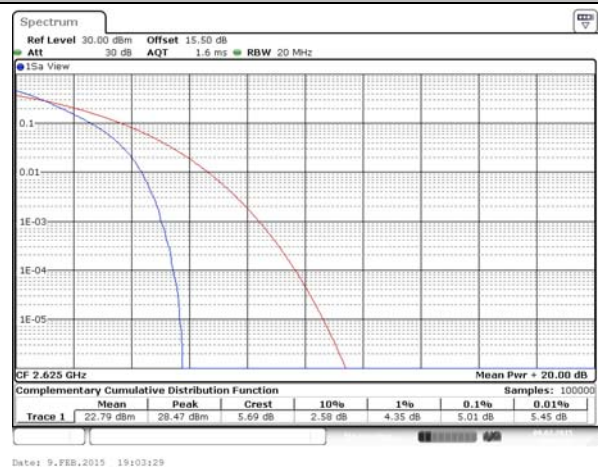
Middle Channel / Full RB



Highest Channel / 1RB



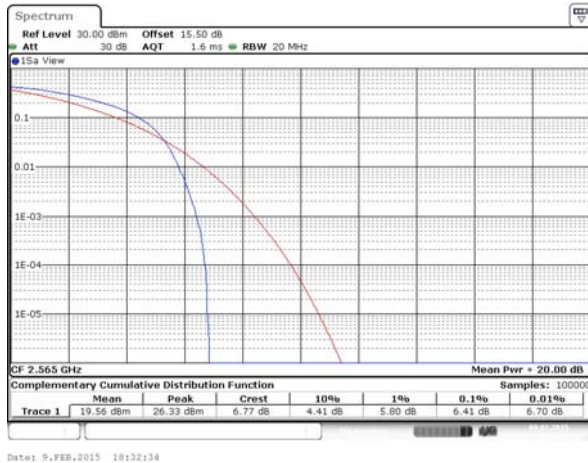
Highest Channel / Full RB



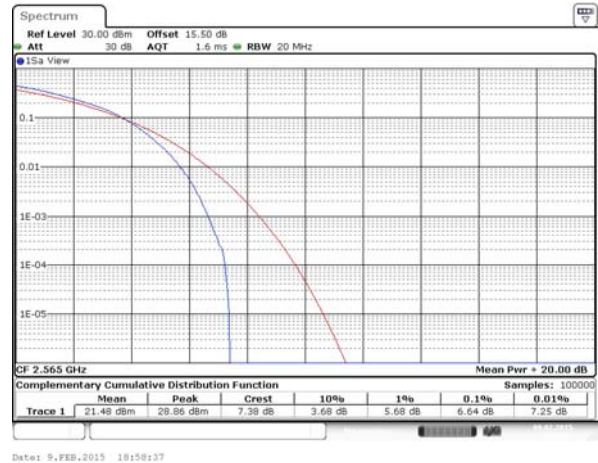


LTE Band 41 / 20MHz / 16QAM

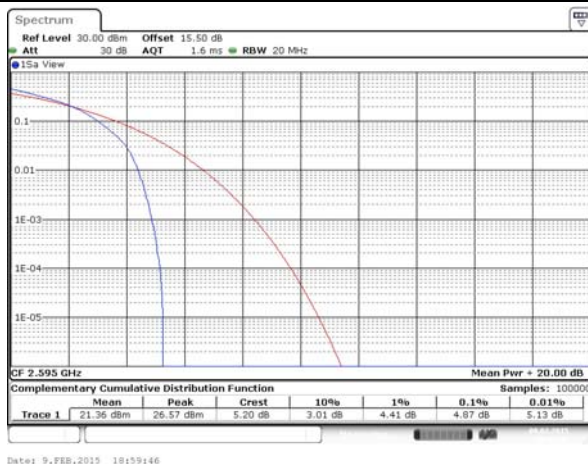
Lowest Channel / 1RB



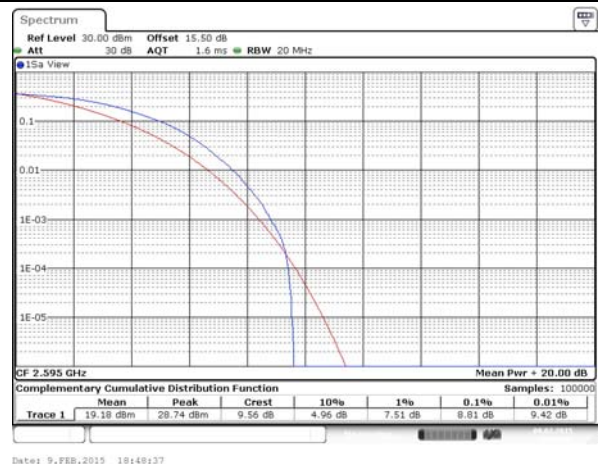
Lowest Channel / Full RB



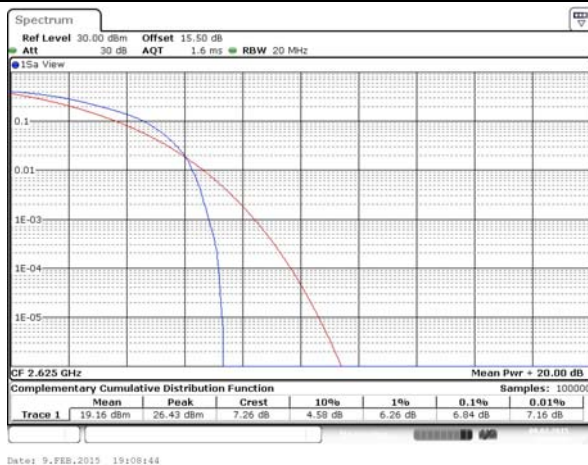
Middle Channel / 1RB



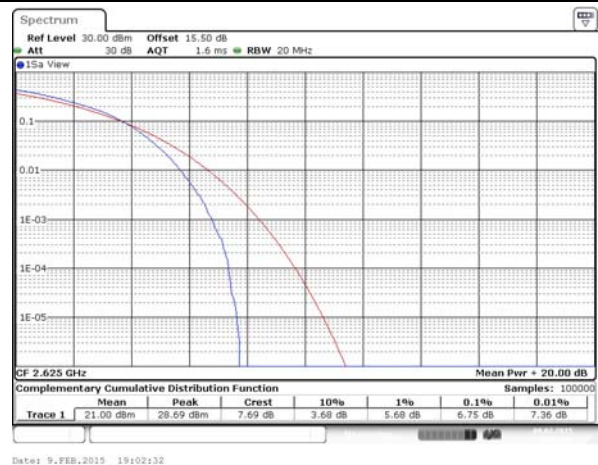
Middle Channel / Full RB



Highest Channel / 1RB



Highest Channel / Full RB



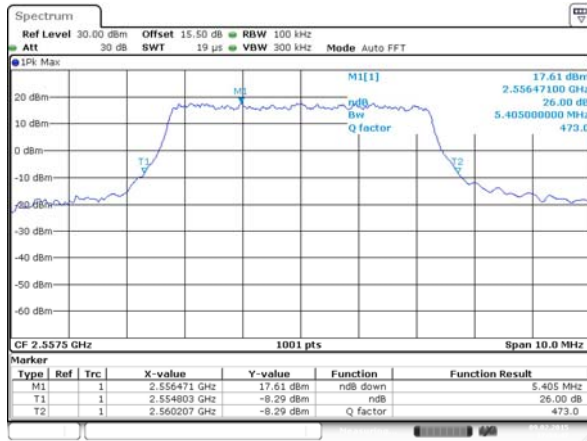
**26dB Bandwidth**

Mode	LTE Band 41 : 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	-	-	-	-	5.405	5.225	10.390	10.230	16.004	15.764	23.097	21.858
Middle CH	-	-	-	-	5.355	5.315	10.310	10.669	16.304	15.614	20.939	21.818
Highest CH	-	-	-	-	5.385	5.245	10.410	10.490	15.614	15.974	21.019	21.818



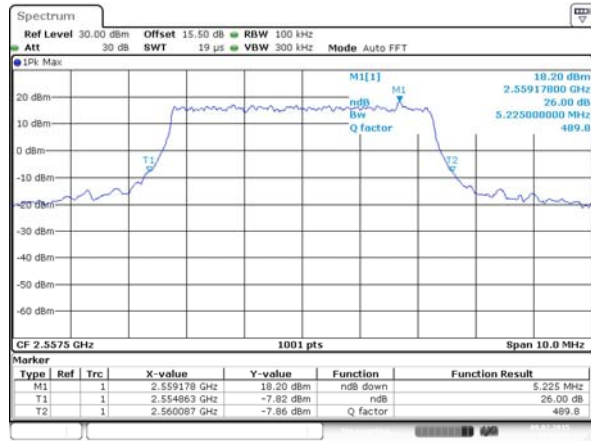
LTE Band 41

Lowest Channel / 5MHz / QPSK



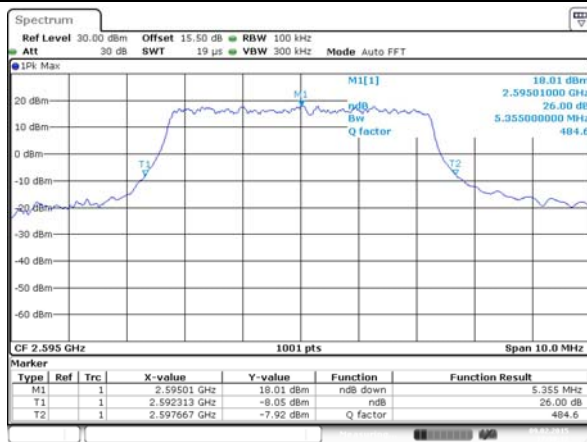
Date: 9.FEB.2015 17:34:47

Lowest Channel / 5MHz / 16QAM



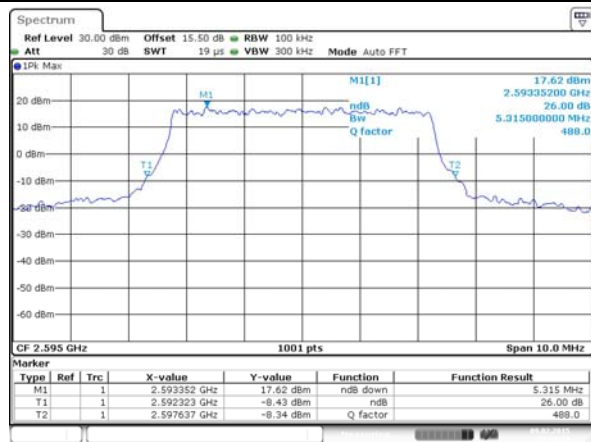
Date: 9.FEB.2015 17:34:59

Middle Channel / 5MHz / QPSK



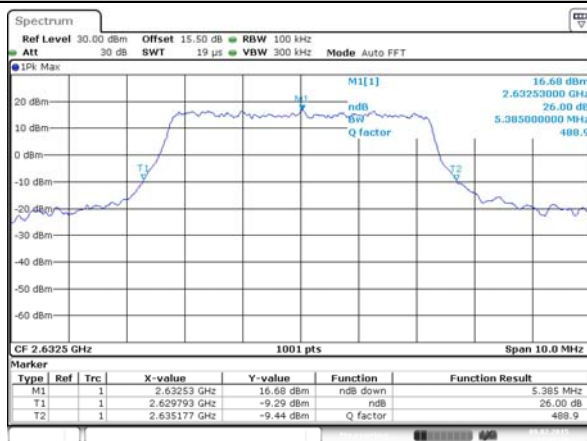
Date: 9.FEB.2015 17:38:13

Middle Channel / 5MHz / 16QAM



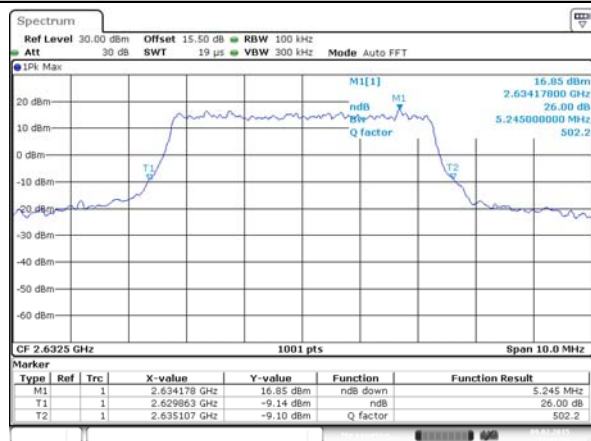
Date: 9.FEB.2015 17:38:25

Highest Channel / 5MHz / QPSK



Date: 9.FEB.2015 17:41:38

Highest Channel / 5MHz / 16QAM

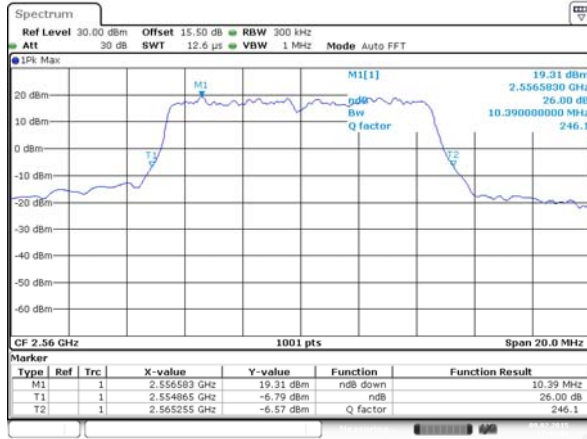


Date: 9.FEB.2015 17:41:50

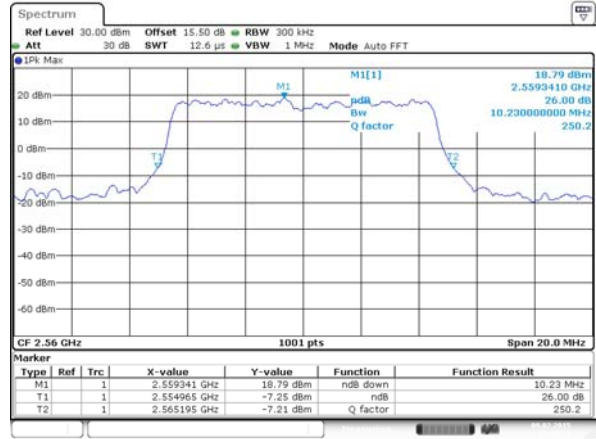


LTE Band 41

Lowest Channel / 10MHz / QPSK



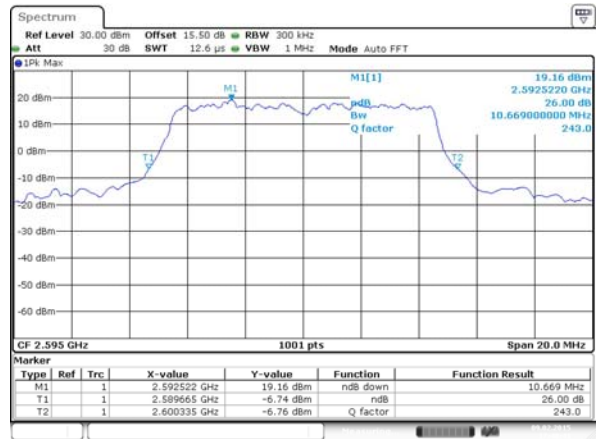
Lowest Channel / 10MHz / 16QAM



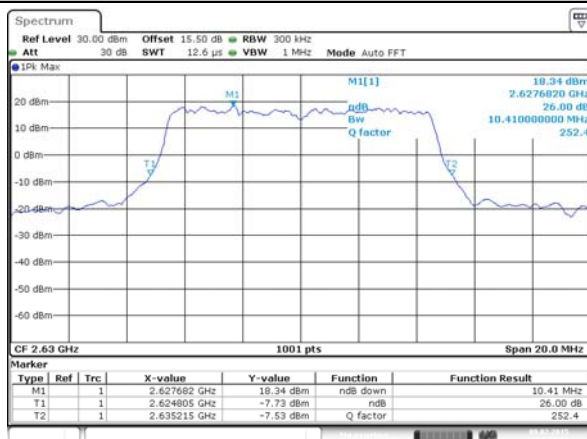
Middle Channel / 10MHz / QPSK



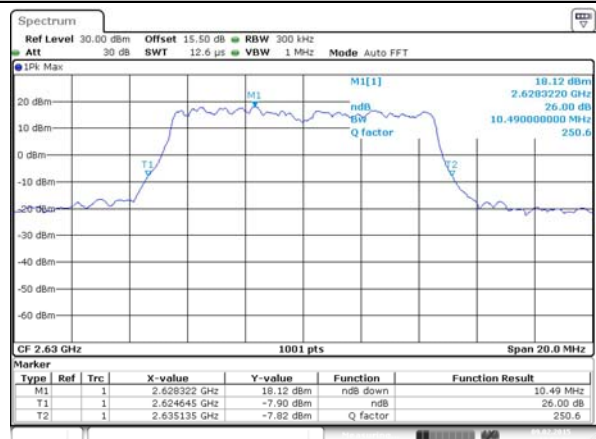
Middle Channel / 10MHz / 16QAM



Highest Channel / 10MHz / QPSK



Highest Channel / 10MHz / 16QAM



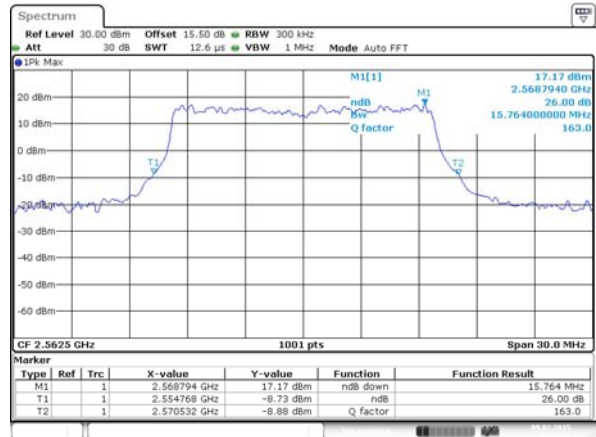


LTE Band 41

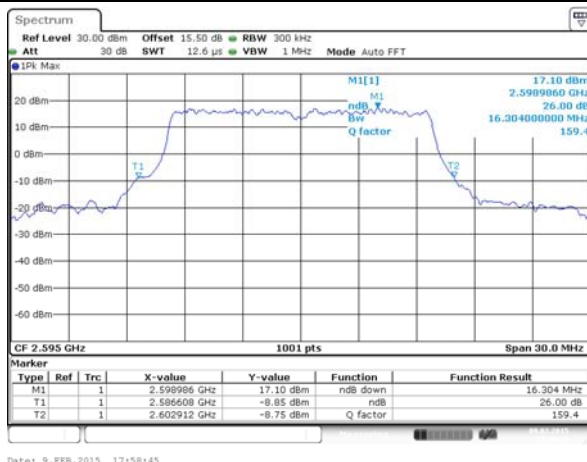
Lowest Channel / 15MHz / QPSK



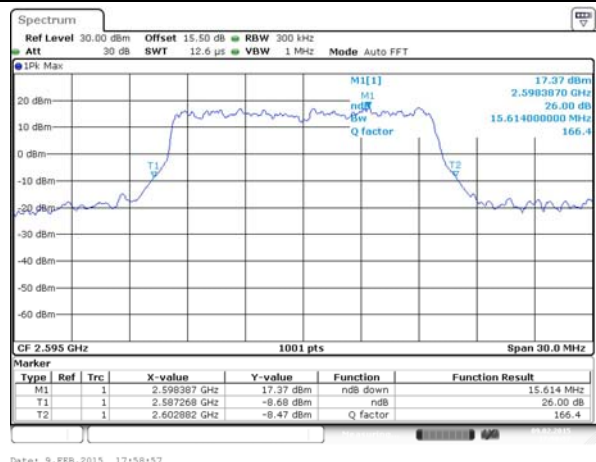
Lowest Channel / 15MHz / 16QAM



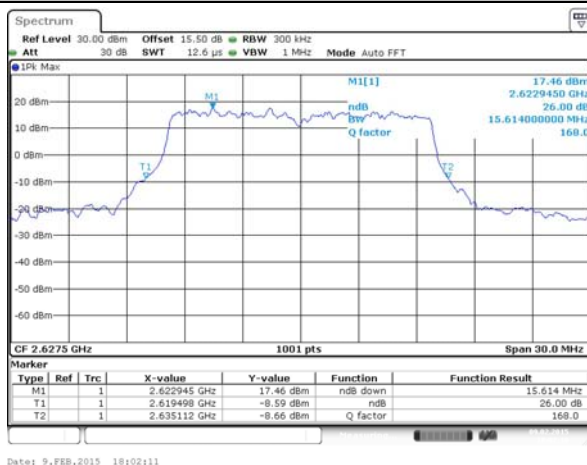
Middle Channel / 15MHz / QPSK



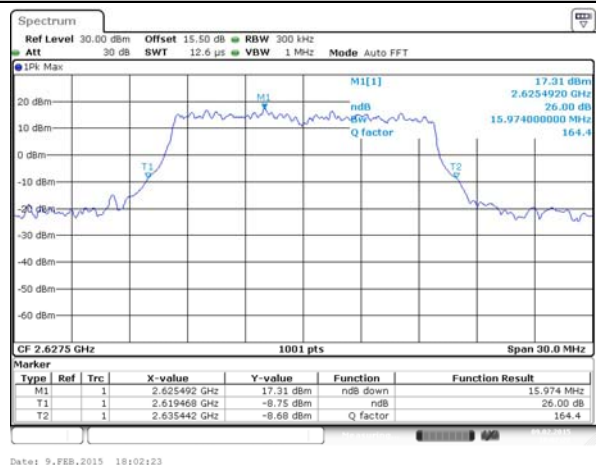
Middle Channel / 15MHz / 16QAM



Highest Channel / 15MHz / QPSK



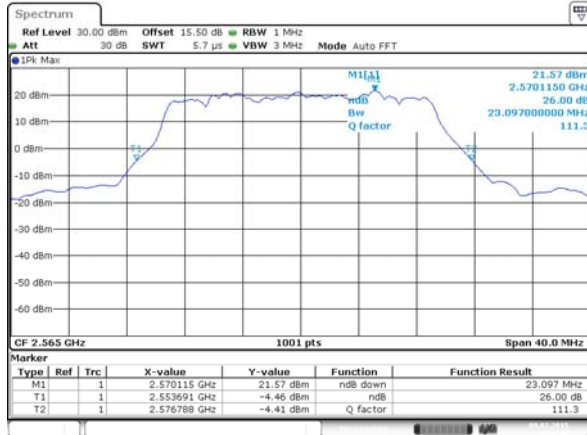
Highest Channel / 15MHz / 16QAM



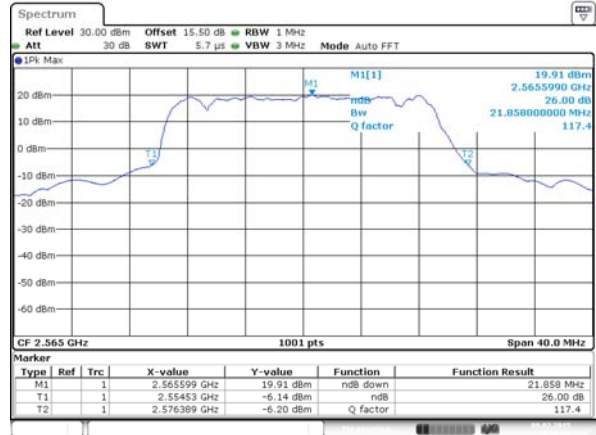


LTE Band 41

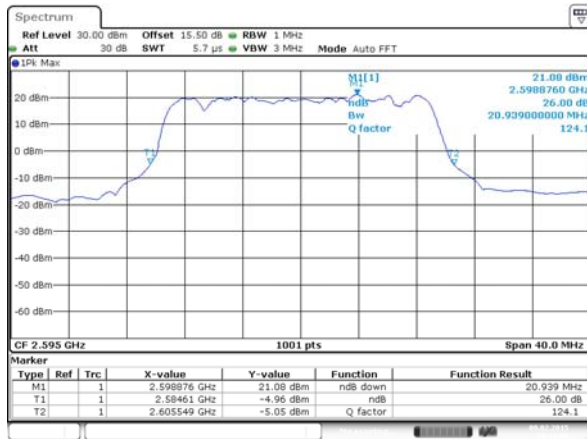
Lowest Channel / 20MHz / QPSK



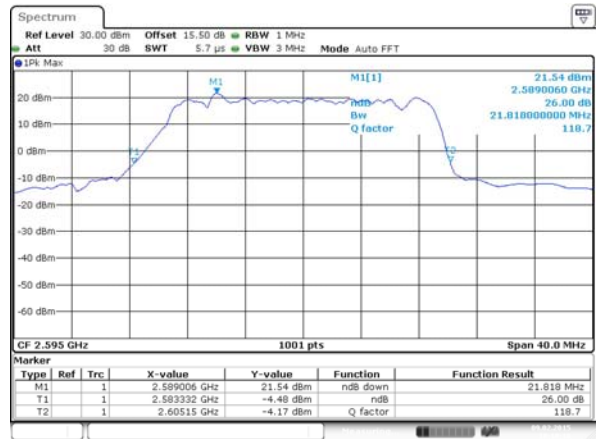
Lowest Channel / 20MHz / 16QAM



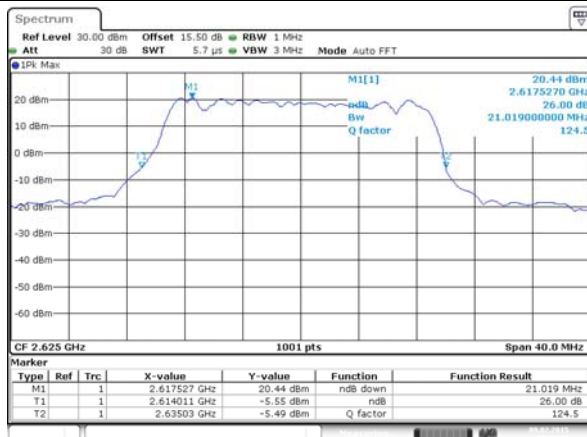
Middle Channel / 20MHz / QPSK



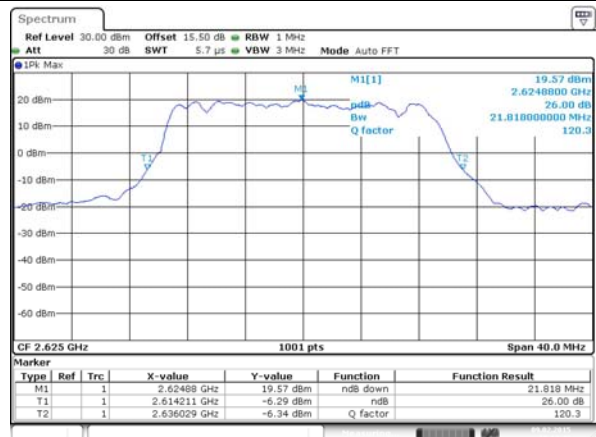
Middle Channel / 20MHz / 16QAM



Highest Channel / 20MHz / QPSK



Highest Channel / 20MHz / 16QAM



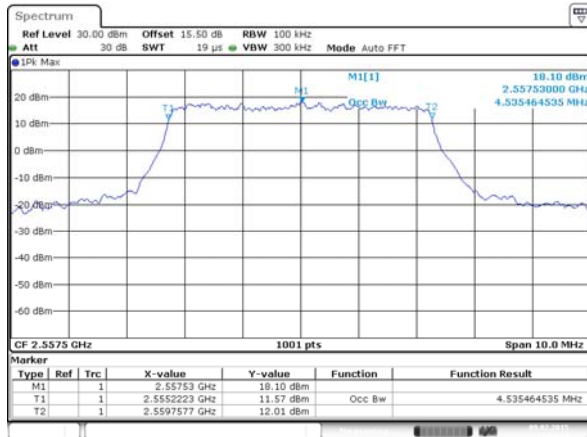
**Occupied Bandwidth**

Mode	LTE Band 41 : 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	-	-	-	-	4.535	4.505	9.111	9.091	13.487	13.546	18.422	18.541
Middle CH	-	-	-	-	4.535	4.505	9.151	9.071	13.576	13.487	18.581	18.262
Highest CH	-	-	-	-	4.535	4.505	9.131	9.071	13.516	13.516	18.382	18.422

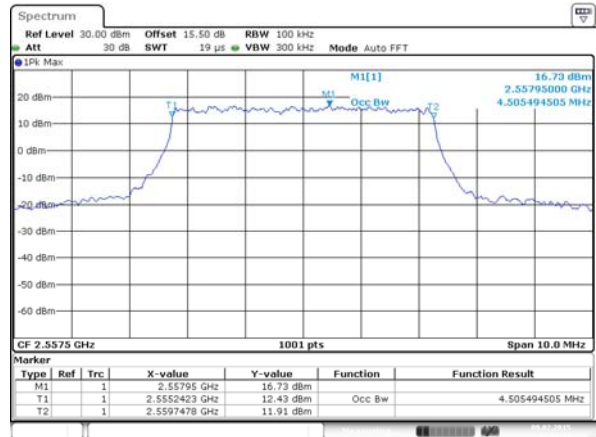


LTE Band 41

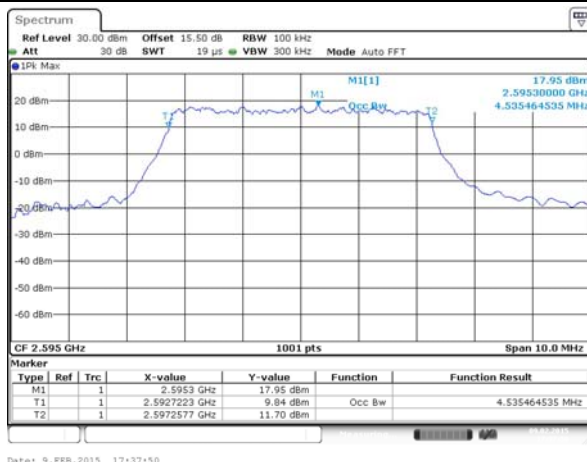
Lowest Channel / 5MHz / QPSK



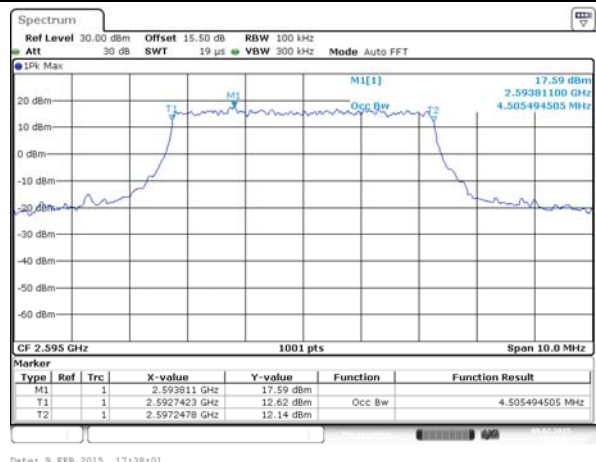
Lowest Channel / 5MHz / 16QAM



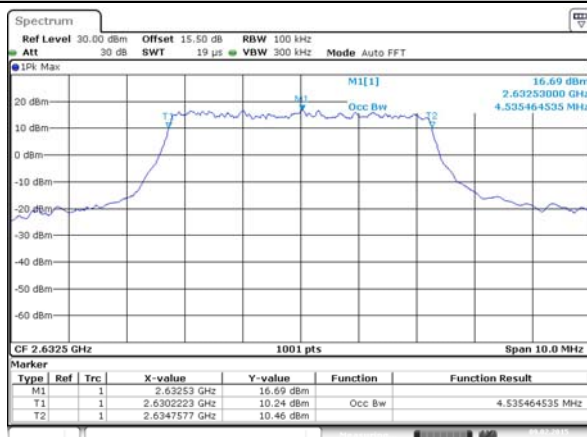
Middle Channel / 5MHz / QPSK



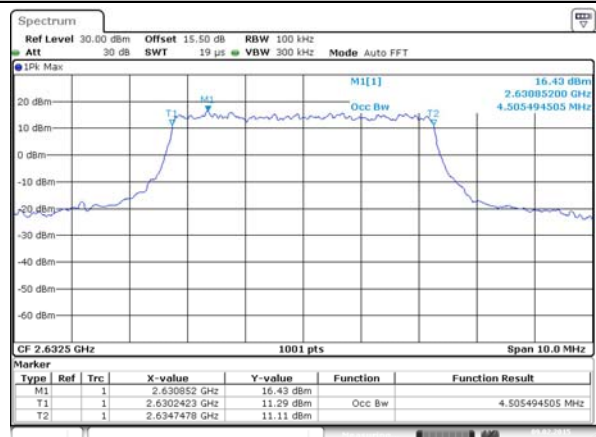
Middle Channel / 5MHz / 16QAM



Highest Channel / 5MHz / QPSK



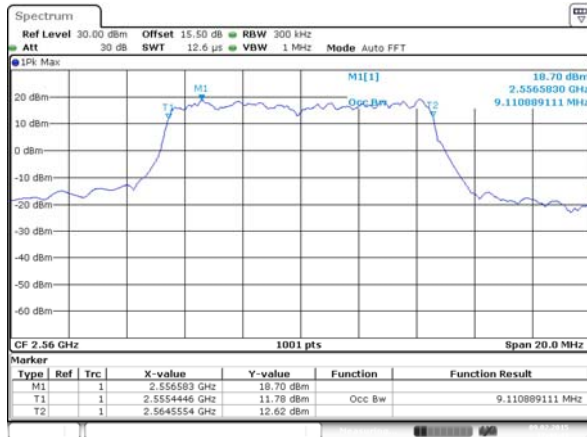
Highest Channel / 5MHz / 16QAM



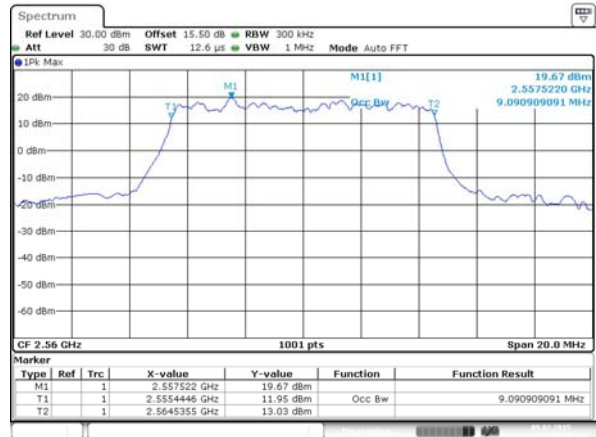


LTE Band 41

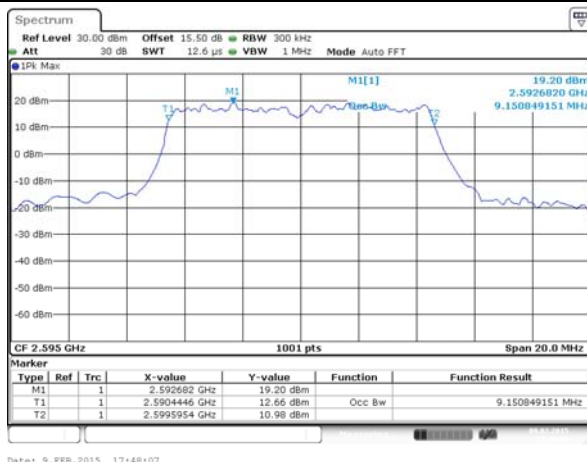
Lowest Channel / 10MHz / QPSK



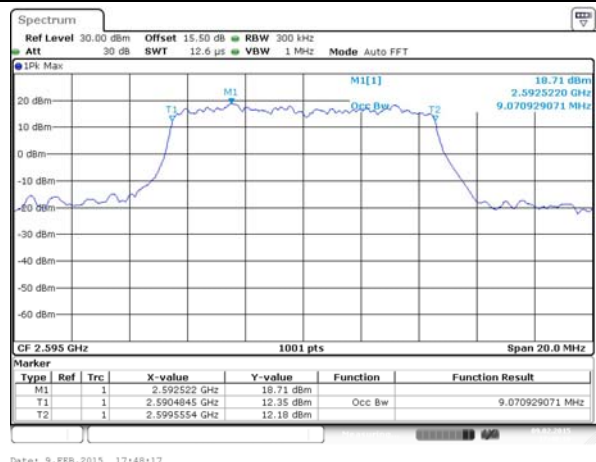
Lowest Channel / 10MHz / 16QAM



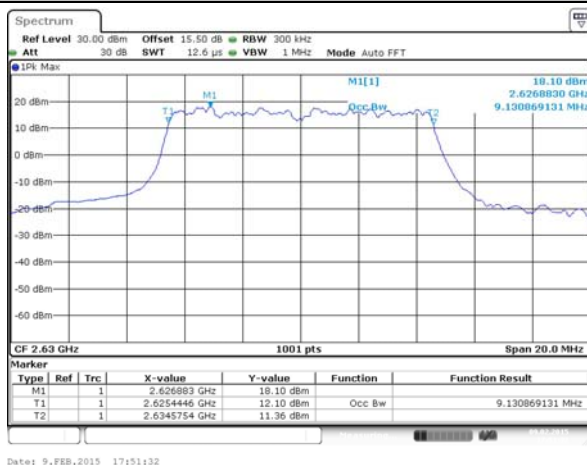
Middle Channel / 10MHz / QPSK



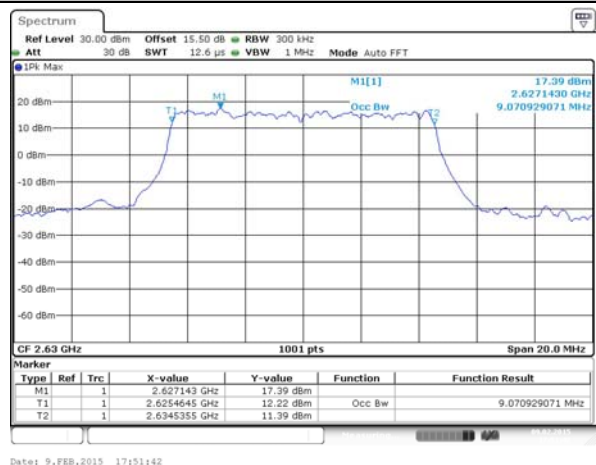
Middle Channel / 10MHz / 16QAM



Highest Channel / 10MHz / QPSK



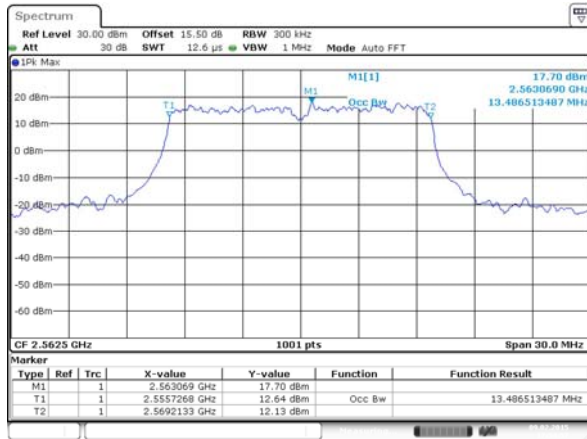
Highest Channel / 10MHz / 16QAM



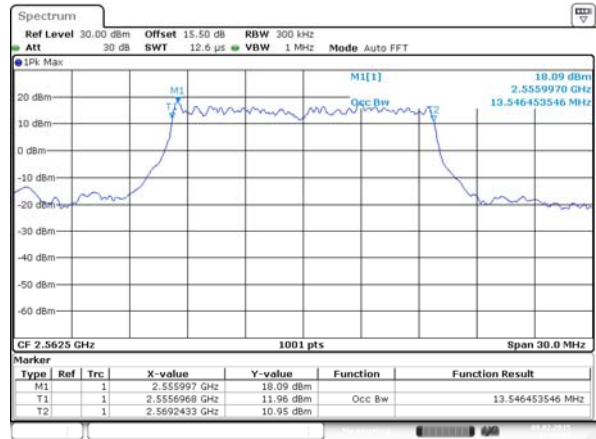


LTE Band 41

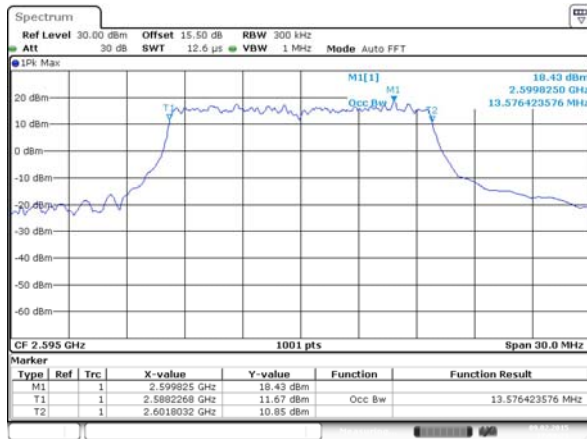
Lowest Channel / 15MHz / QPSK



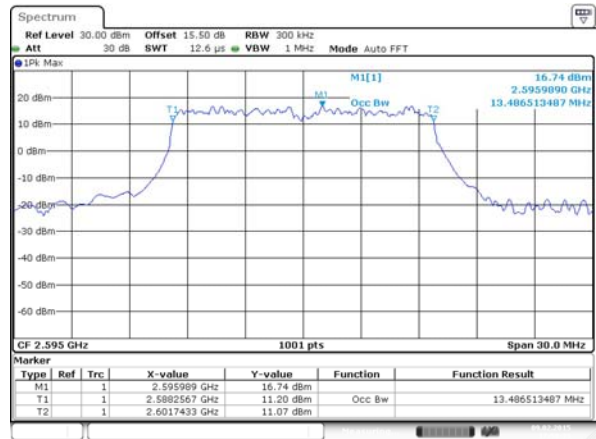
Lowest Channel / 15MHz / 16QAM



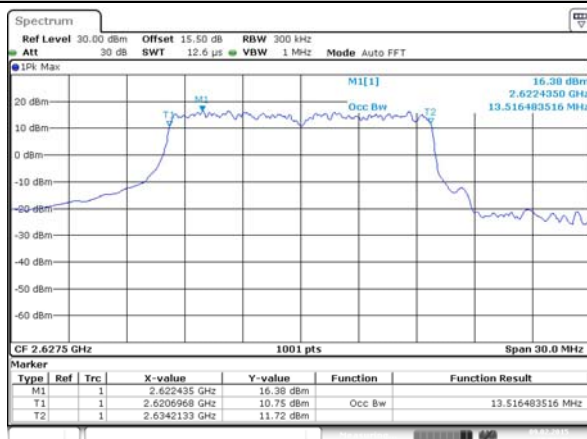
Middle Channel / 15MHz / QPSK



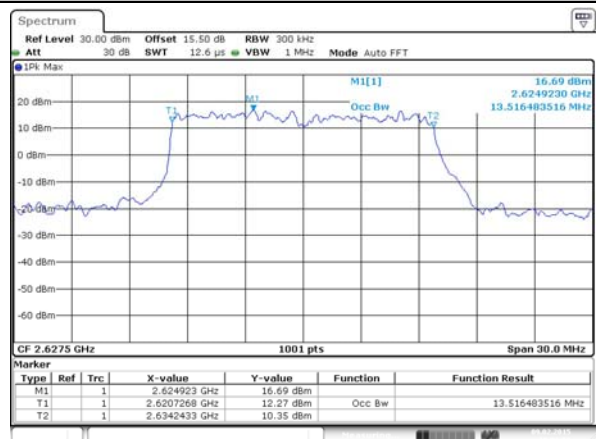
Middle Channel / 15MHz / 16QAM



Highest Channel / 15MHz / QPSK



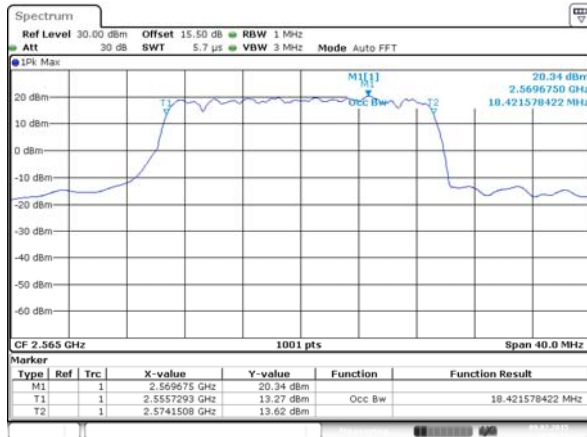
Highest Channel / 15MHz / 16QAM



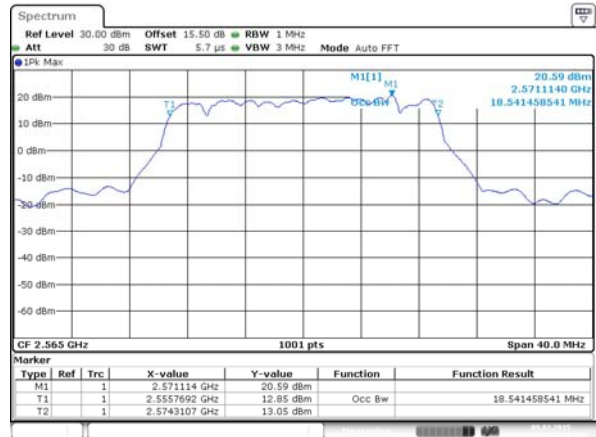


LTE Band 41

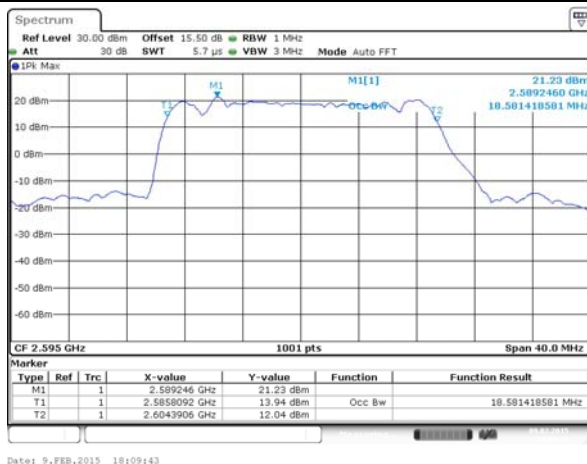
Lowest Channel / 20MHz / QPSK



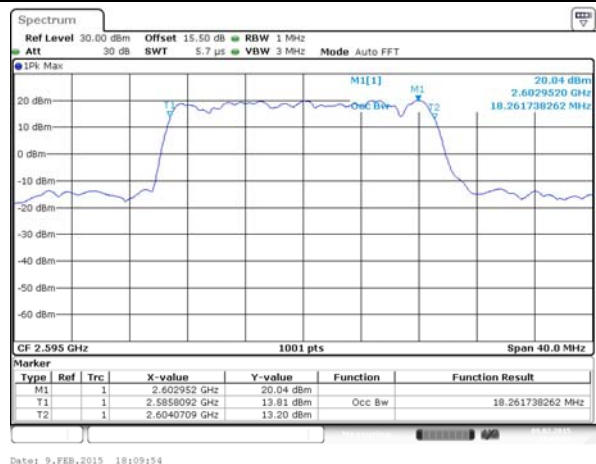
Lowest Channel / 20MHz / 16QAM



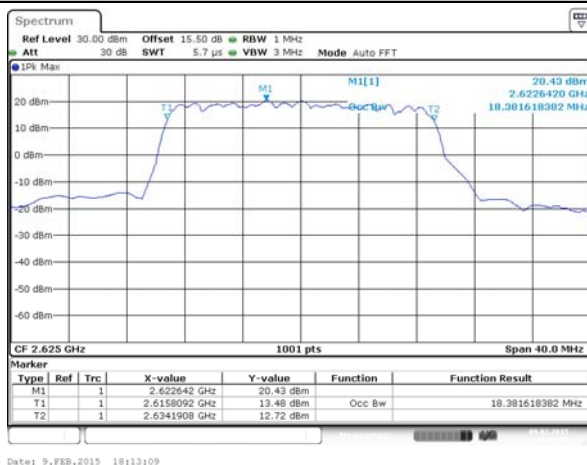
Middle Channel / 20MHz / QPSK



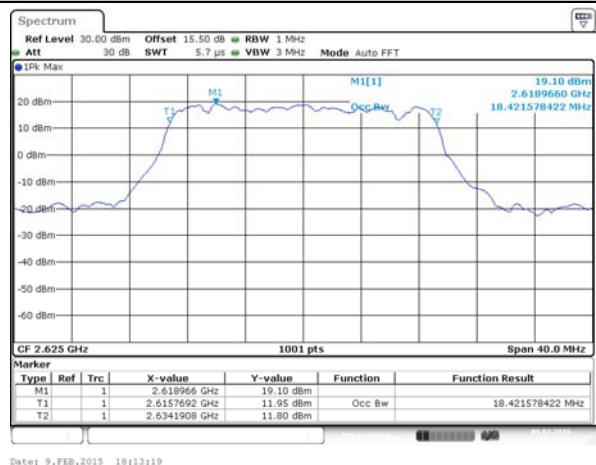
Middle Channel / 20MHz / 16QAM

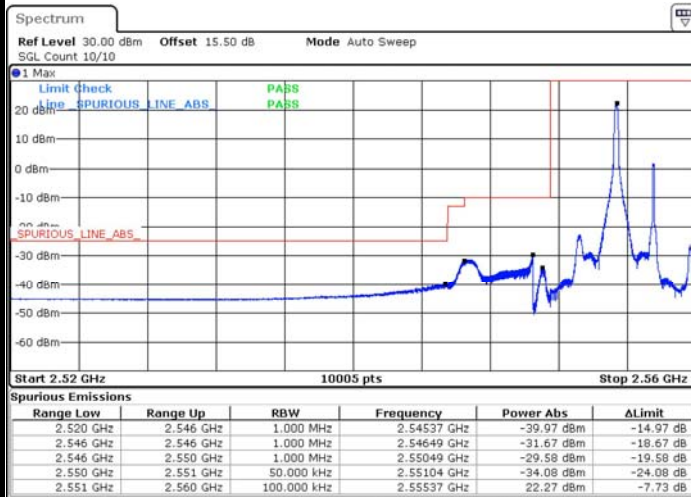
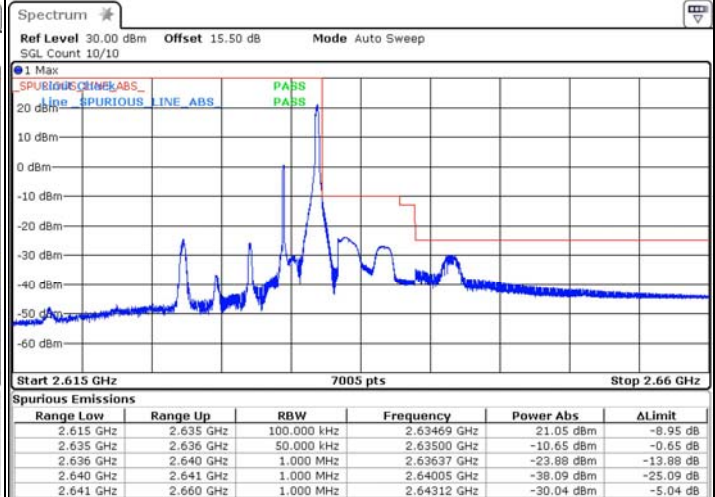
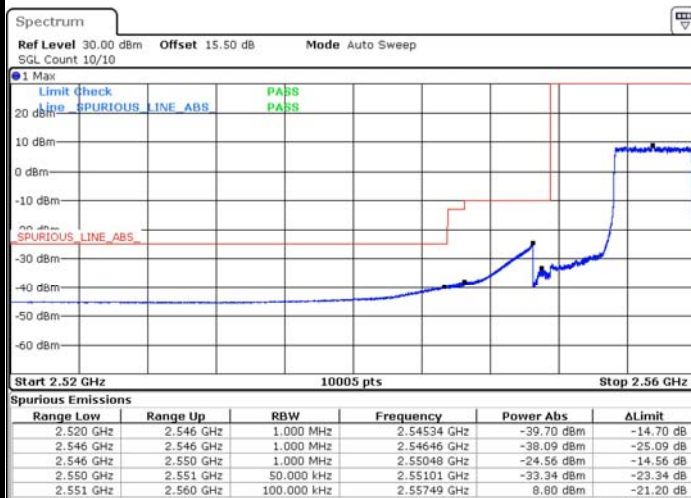


Highest Channel / 20MHz / QPSK



Highest Channel / 20MHz / 16QAM

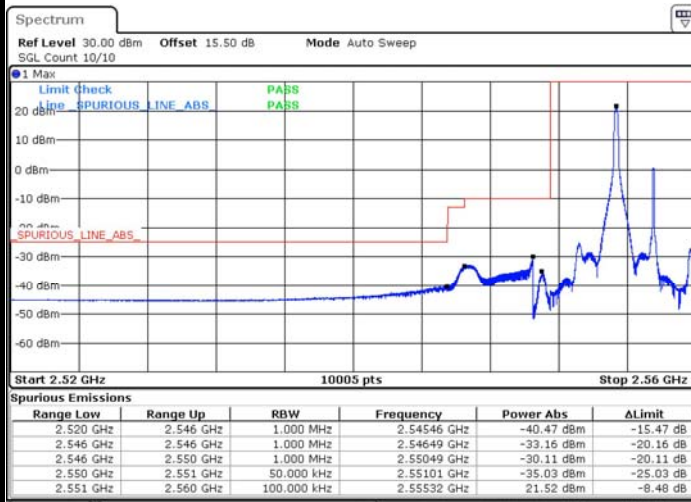


**Conducted Band Edge****LTE Band 41 / 5MHz / QPSK****Lowest Band Edge / 1 RB****Highest Band Edge / 1 RB****Lowest Band Edge / Full RB****Highest Band Edge / Full RB**

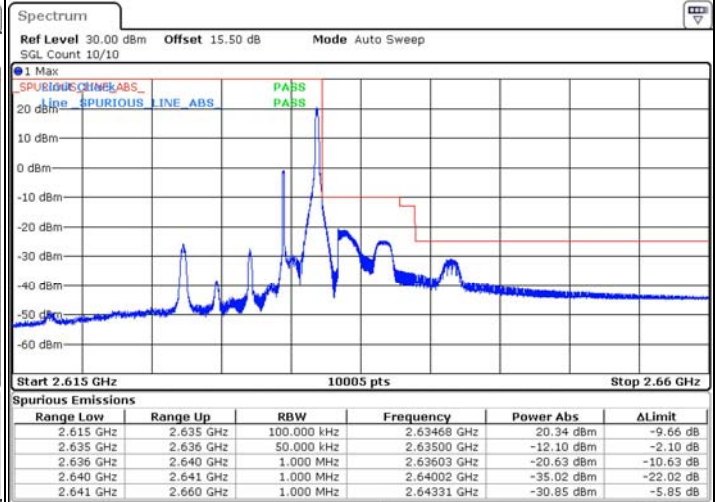


LTE Band 41 / 5MHz / 16QAM

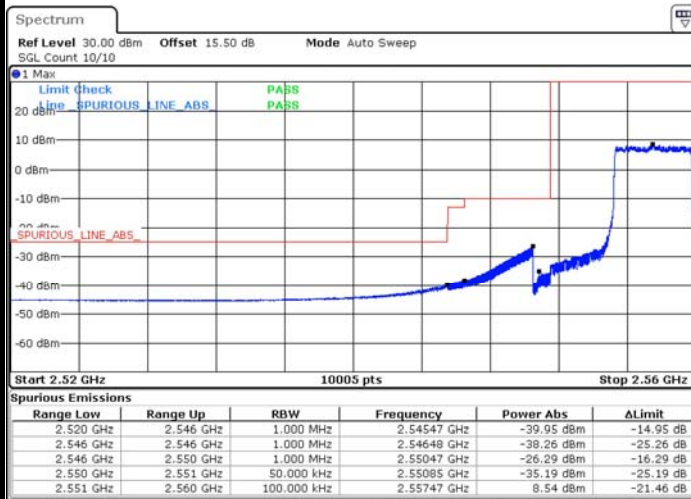
Lowest Band Edge / 1RB



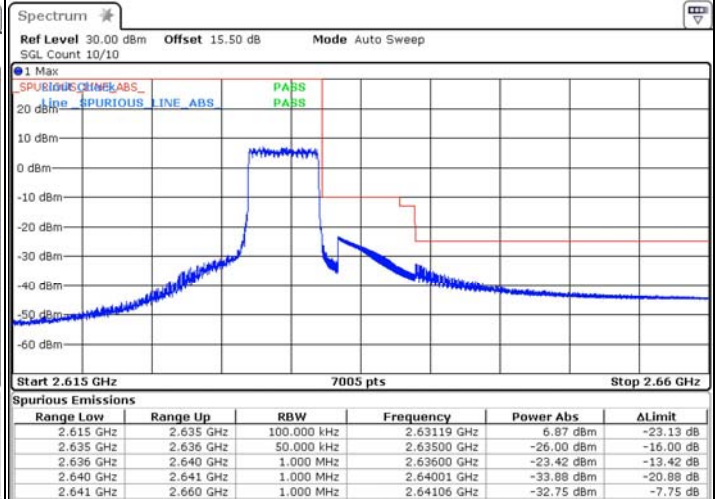
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



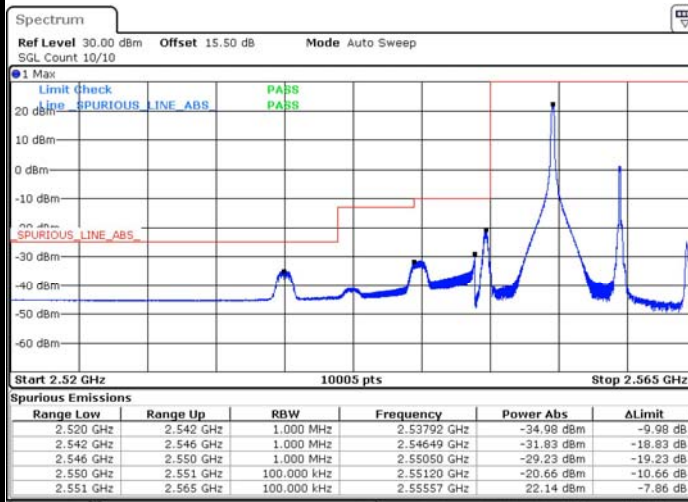
Highest Band Edge / Full RB



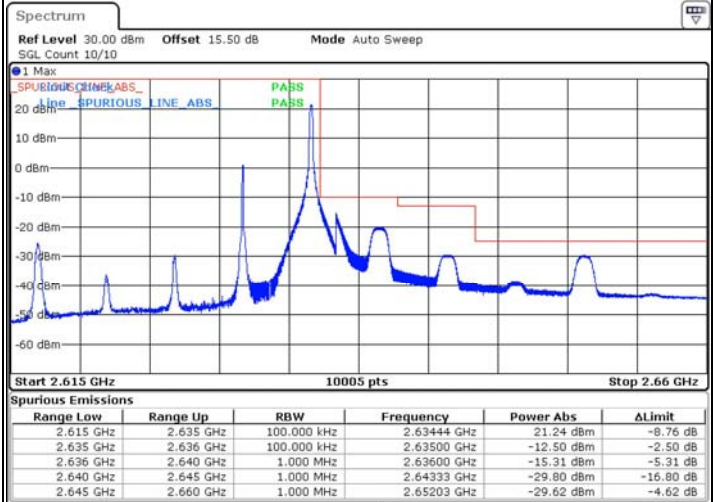


LTE Band 41 / 10MHz / QPSK

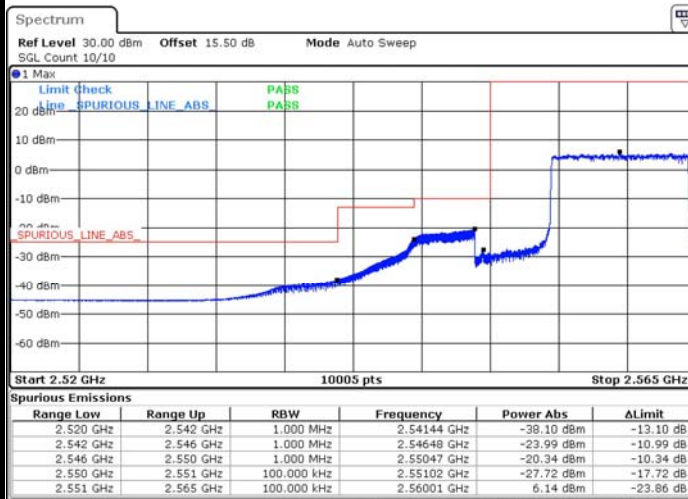
Lowest Band Edge / 1 RB



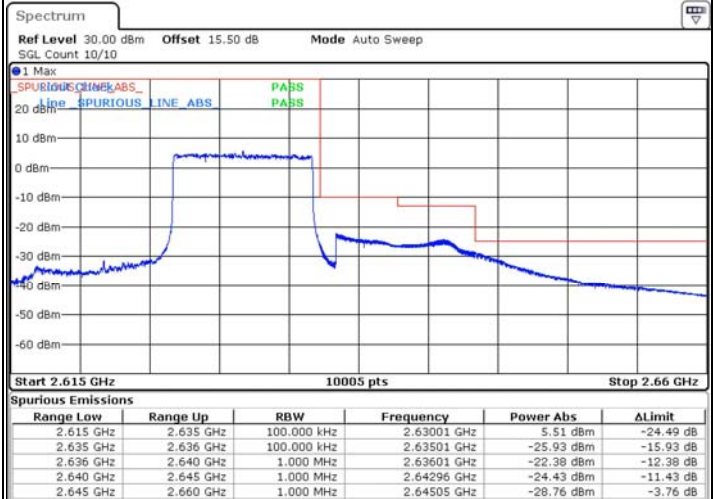
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



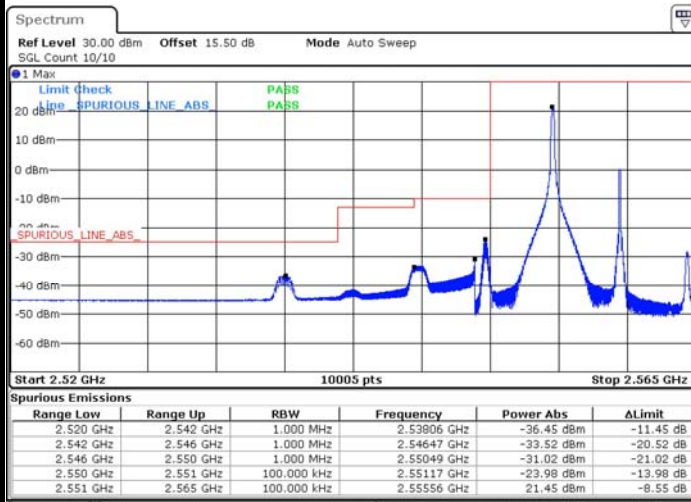
Highest Band Edge / Full RB



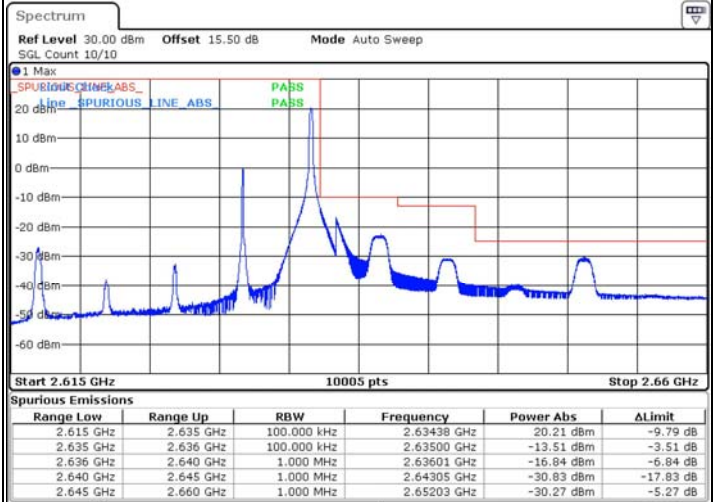


LTE Band 41 / 10MHz / 16QAM

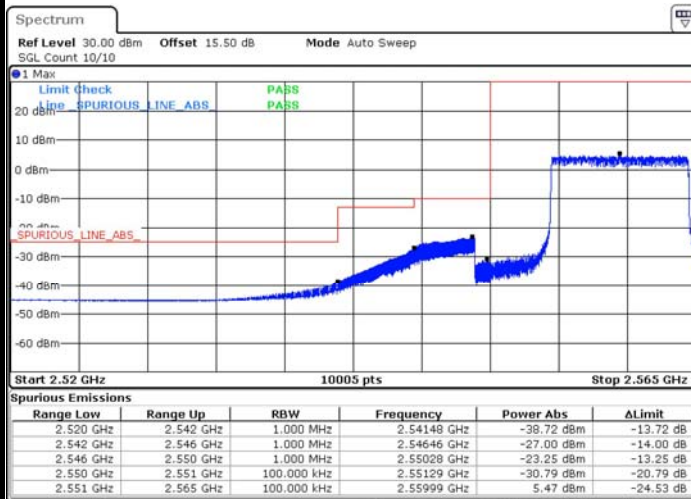
Lowest Band Edge / 1 RB



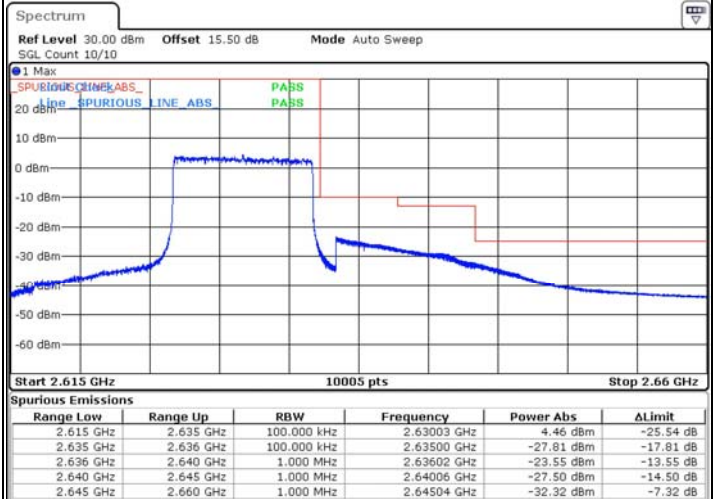
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



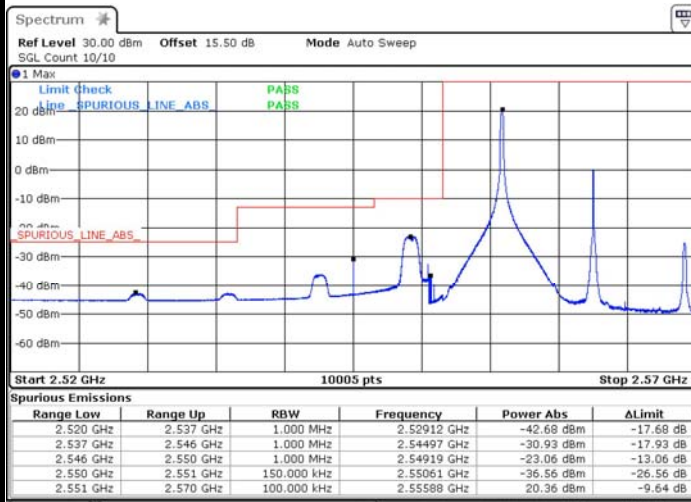
Highest Band Edge / Full RB



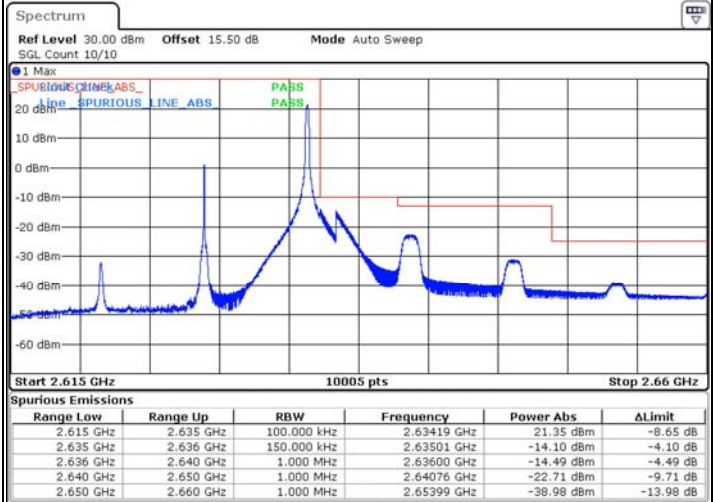


LTE Band 41 / 15MHz / QPSK

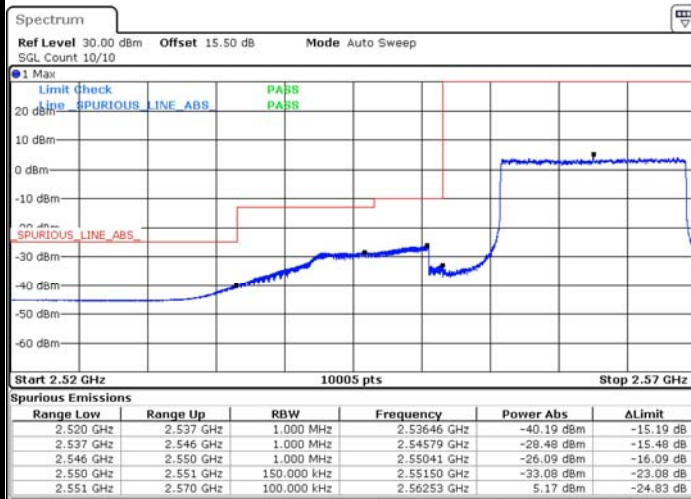
Lowest Band Edge / 1 RB



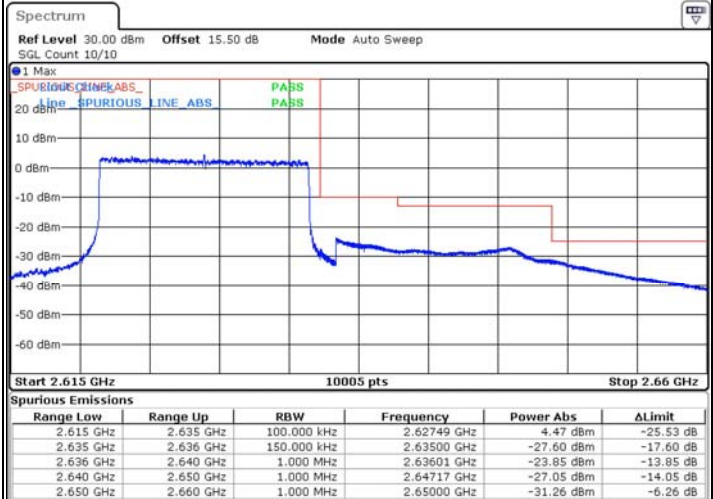
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



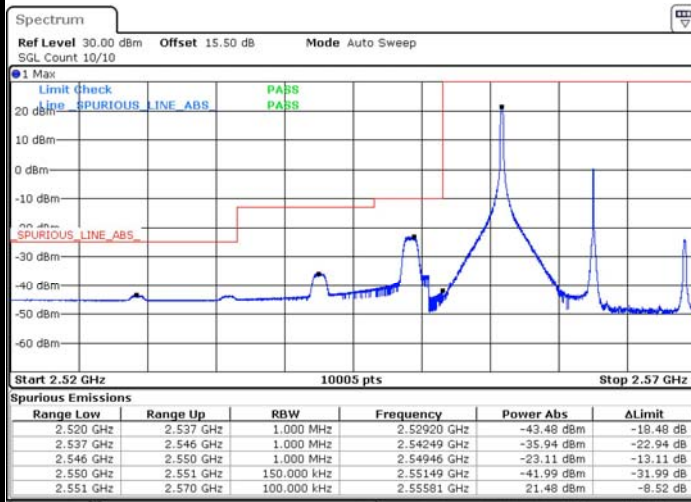
Highest Band Edge / Full RB



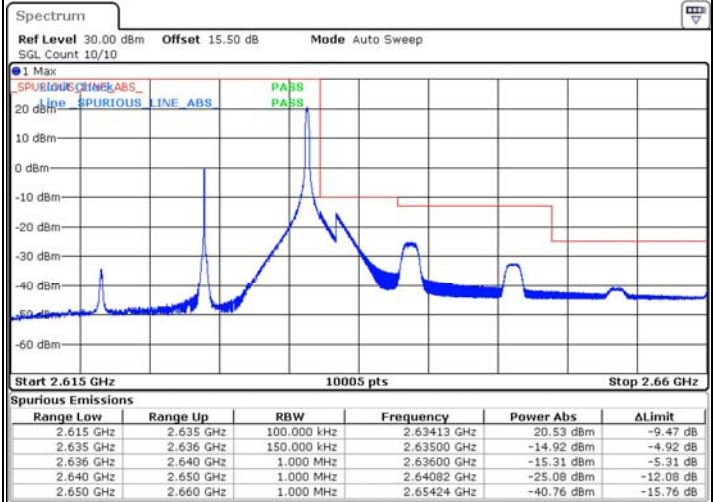


LTE Band 41 / 15MHz / 16QAM

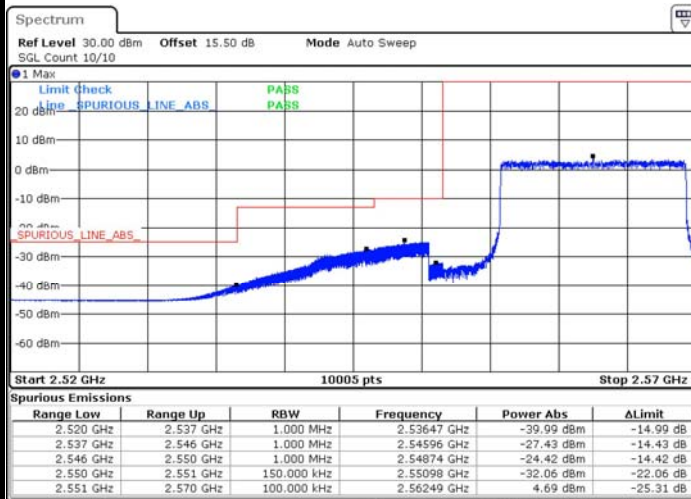
Lowest Band Edge / 1 RB



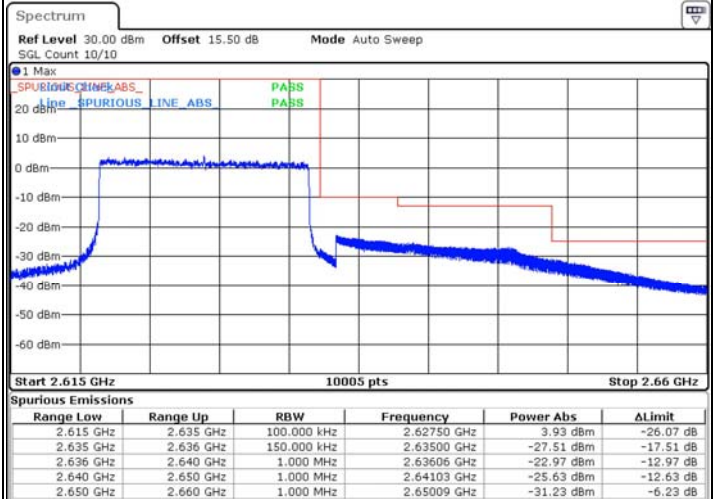
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



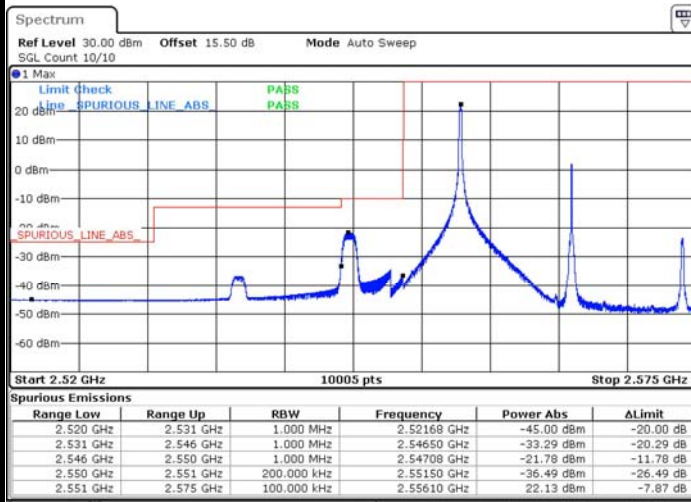
Highest Band Edge / Full RB



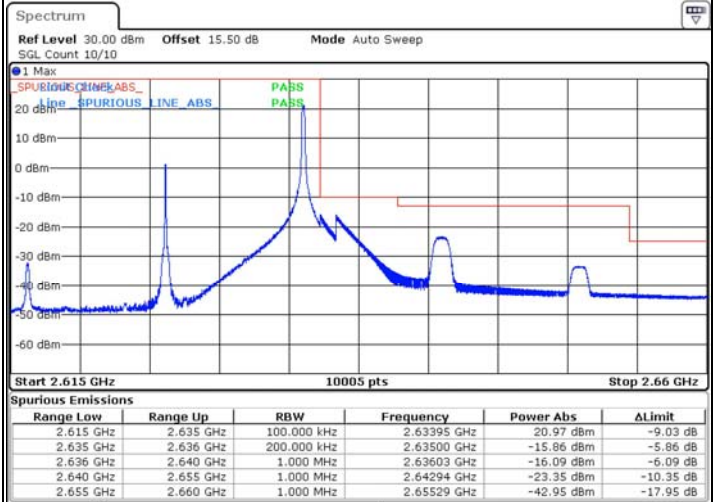


LTE Band 41 / 20MHz / QPSK

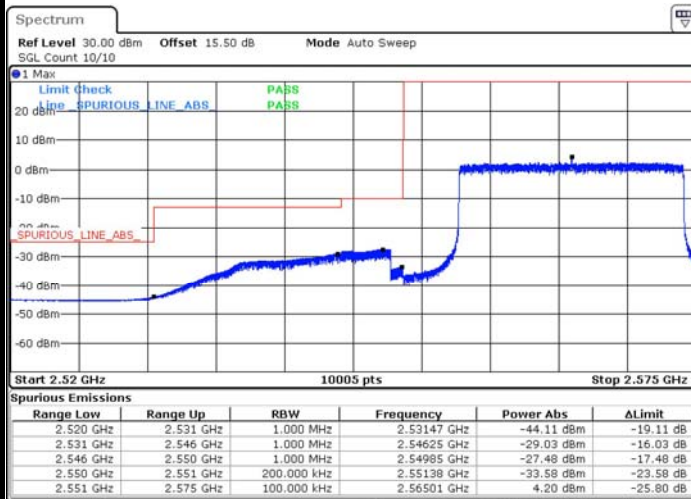
Lowest Band Edge / 1 RB



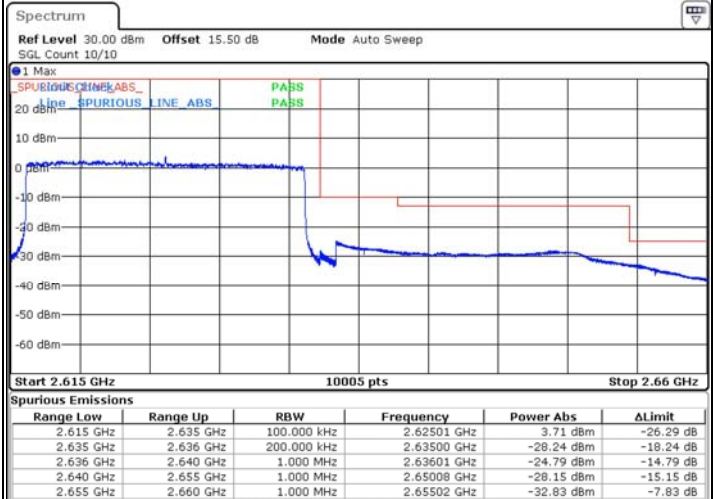
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



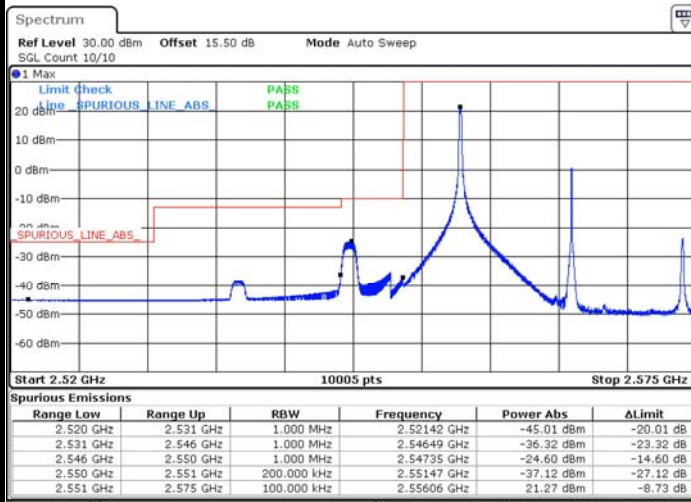
Highest Band Edge / Full RB



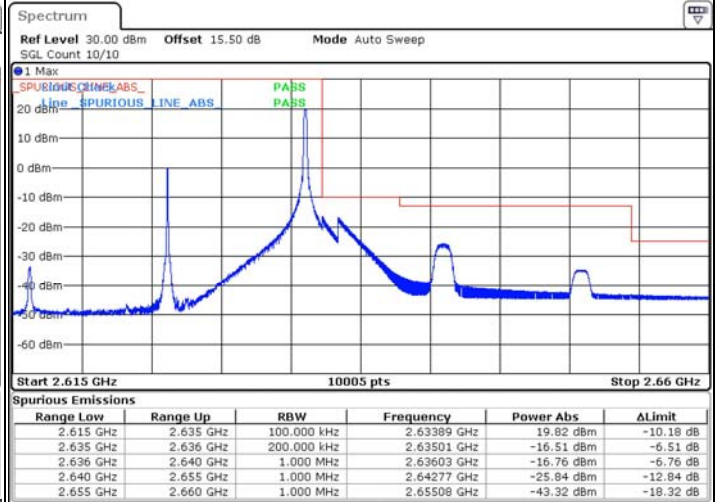


LTE Band 41 / 20MHz / 16QAM

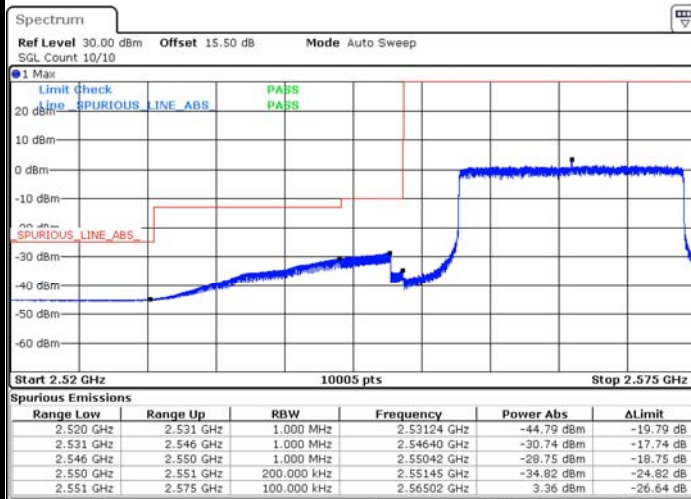
Lowest Band Edge / 1 RB



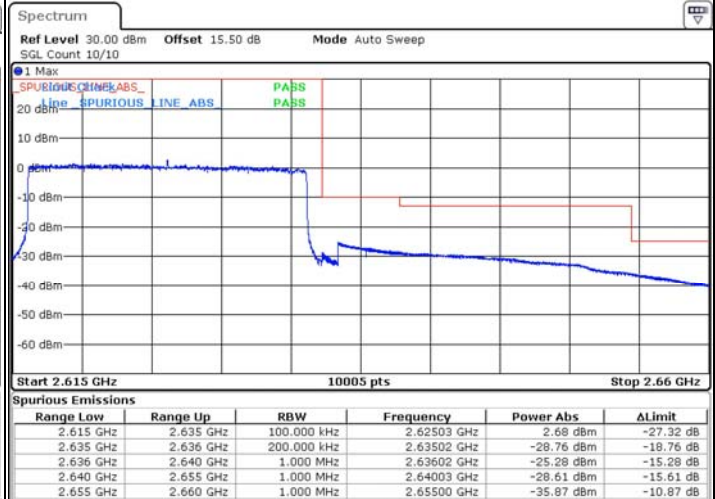
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB

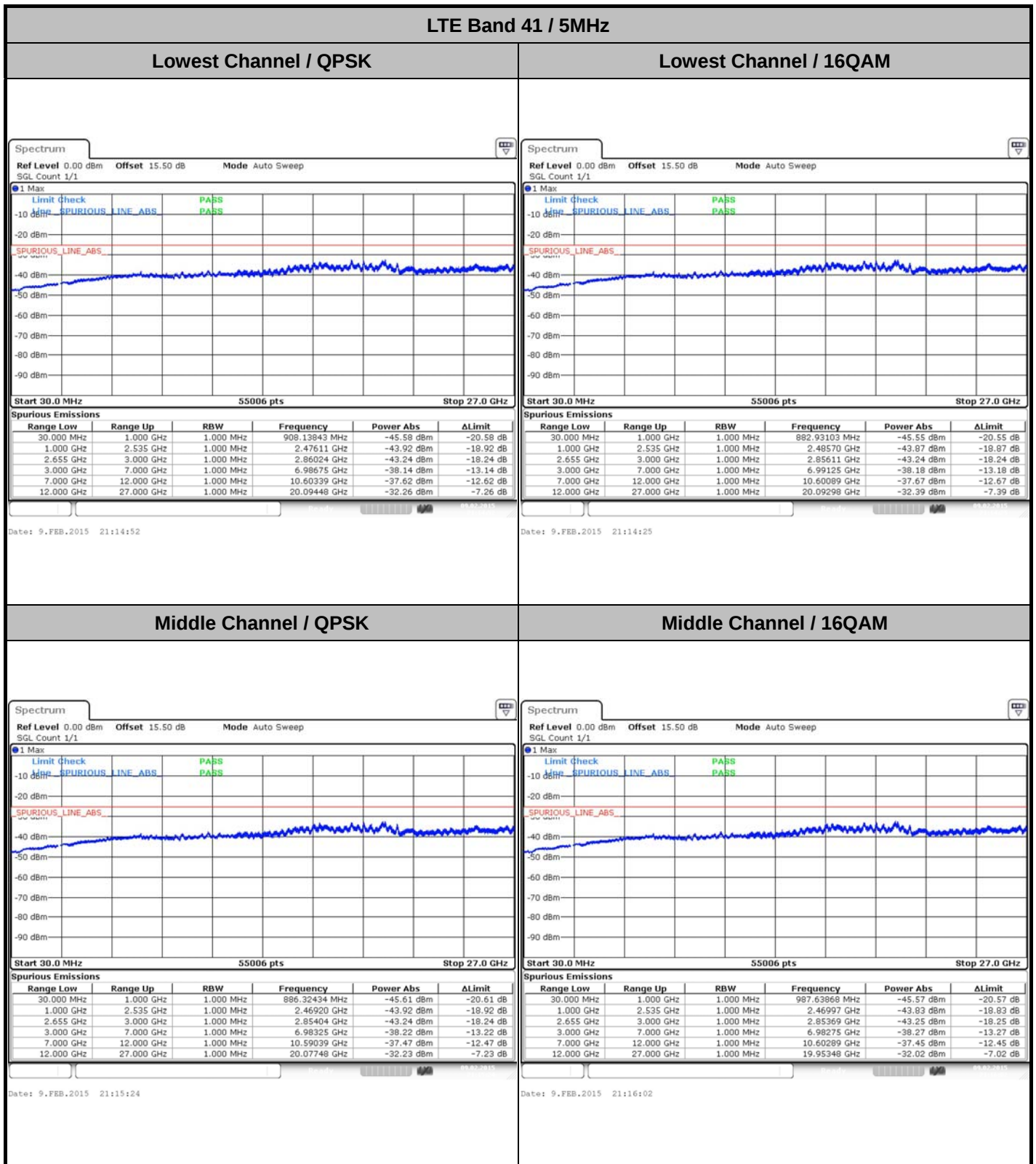


Highest Band Edge / Full RB





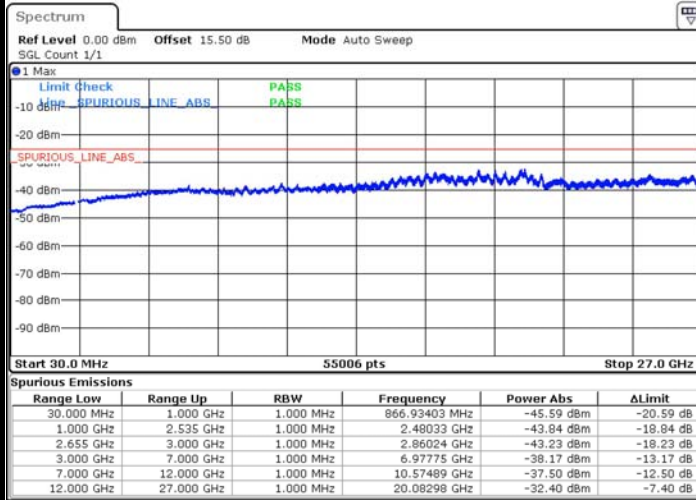
Conducted Spurious Emission





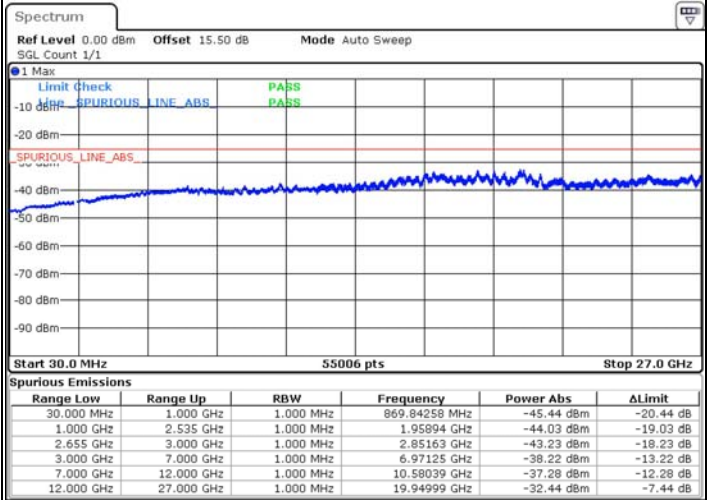
LTE Band 41 / 5MHz

Highest Channel / QPSK



Date: 9.FEB.2015 21:17:42

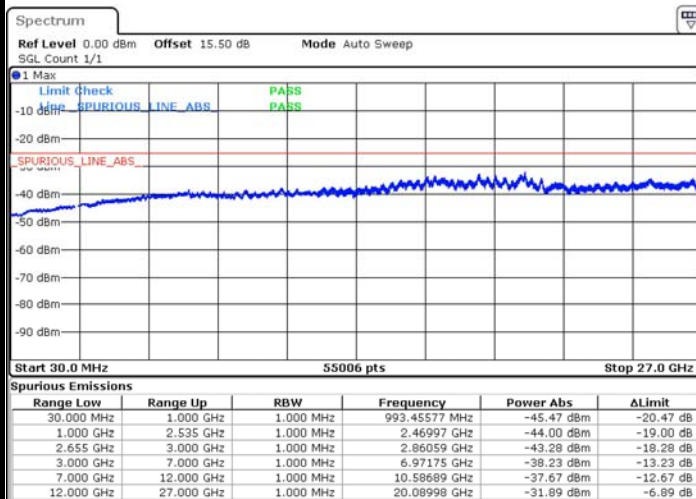
Highest Channel / 16QAM



Date: 9.FEB.2015 21:17:17

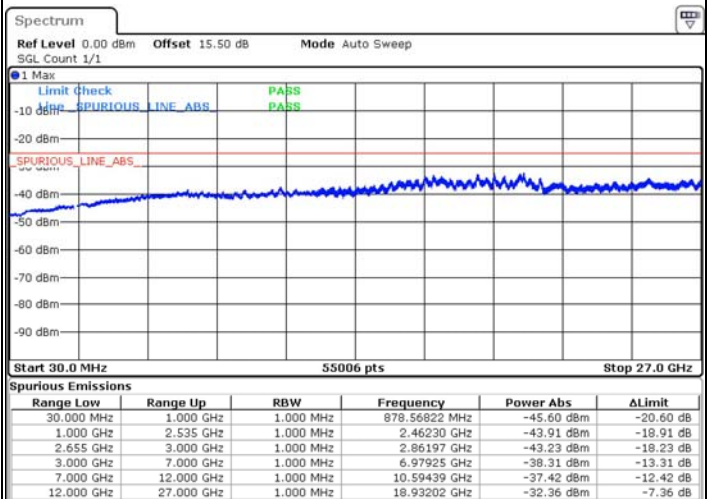
LTE Band 41 / 10MHz

Lowest Channel / QPSK



Date: 9.FEB.2015 21:19:43

Lowest Channel / 16QAM

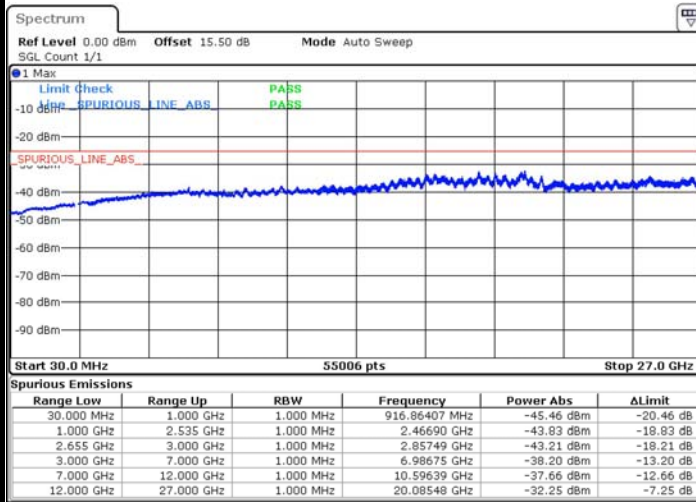


Date: 9.FEB.2015 21:19:07



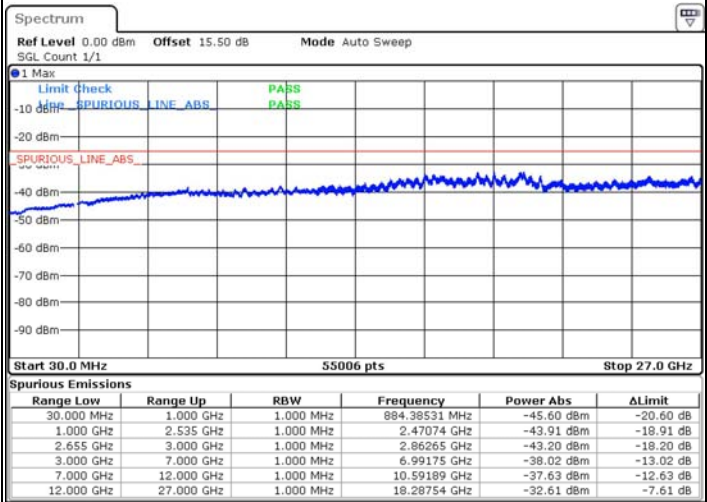
LTE Band 41 / 10MHz

Middle Channel / QPSK



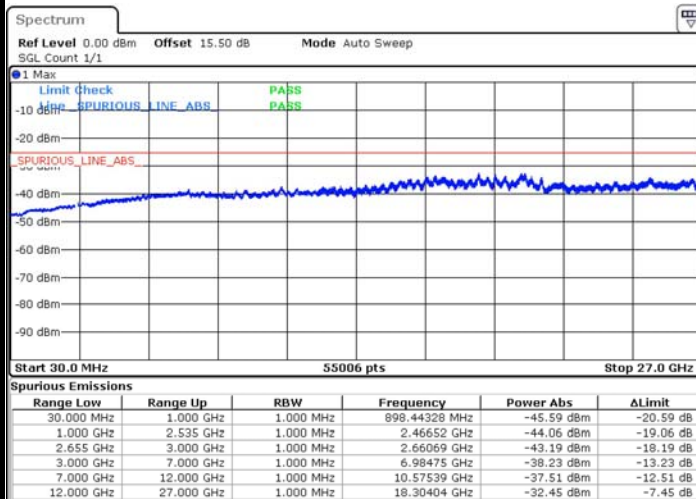
Date: 9.FEB.2015 21:20:20

Middle Channel / 16QAM



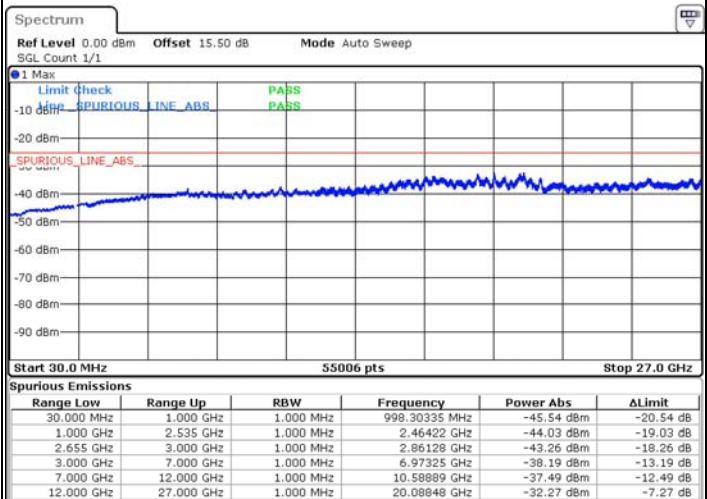
Date: 9.FEB.2015 21:20:48

Highest Channel / QPSK



Date: 9.FEB.2015 21:22:06

Highest Channel / 16QAM

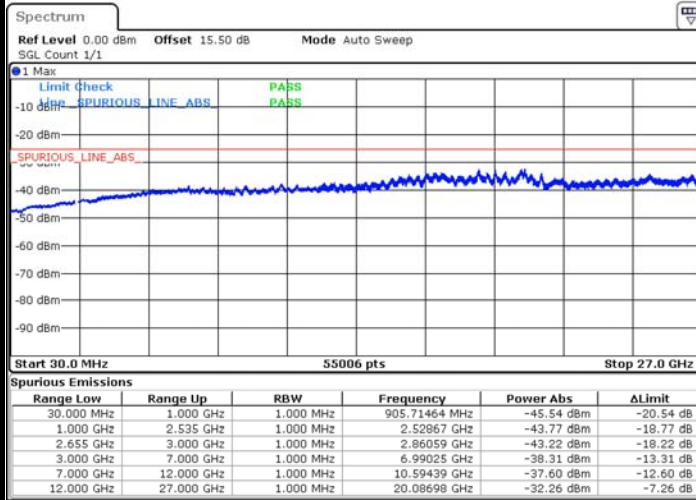


Date: 9.FEB.2015 21:21:19



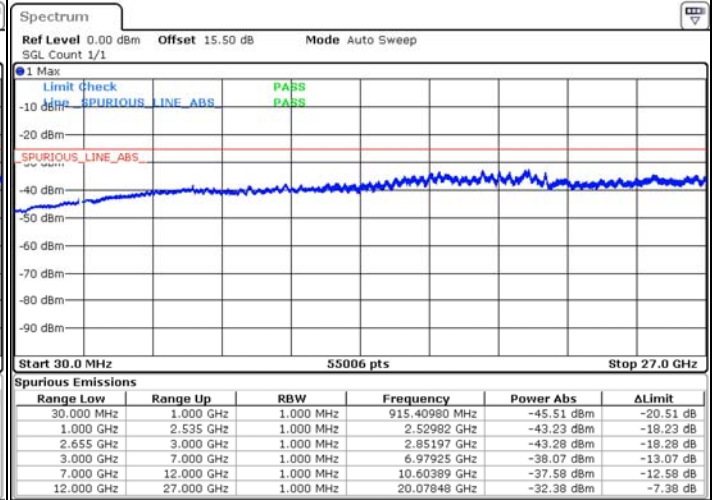
LTE Band 41 / 15MHz

Lowest Channel / QPSK



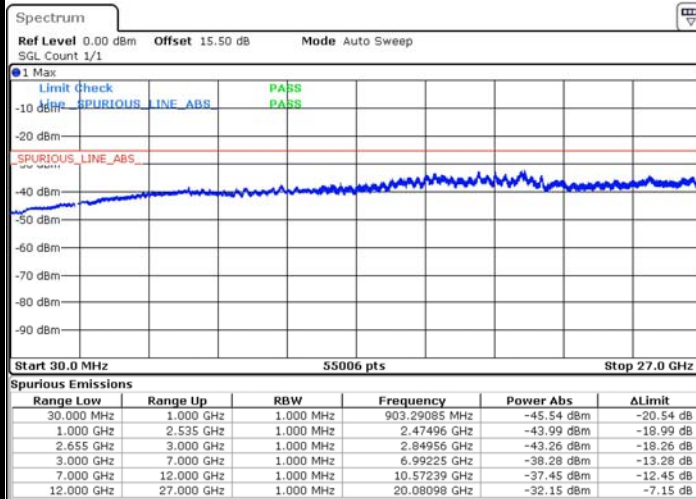
Date: 9.FEB.2015 21:22:49

Lowest Channel / 16QAM



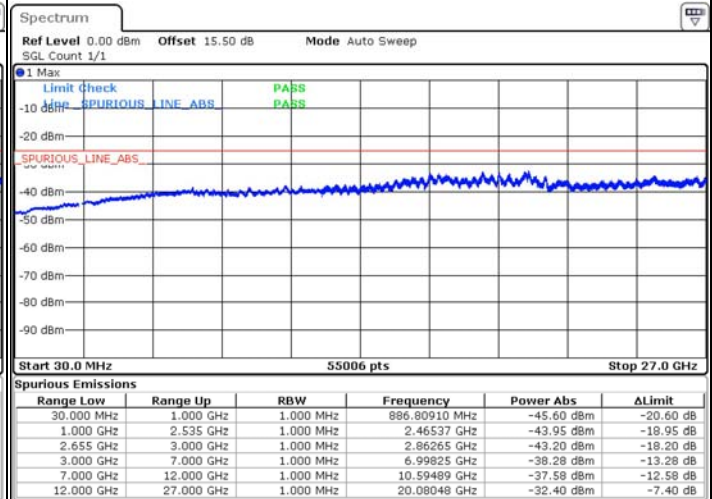
Date: 9.FEB.2015 21:23:22

Middle Channel / QPSK



Date: 9.FEB.2015 21:24:26

Middle Channel / 16QAM

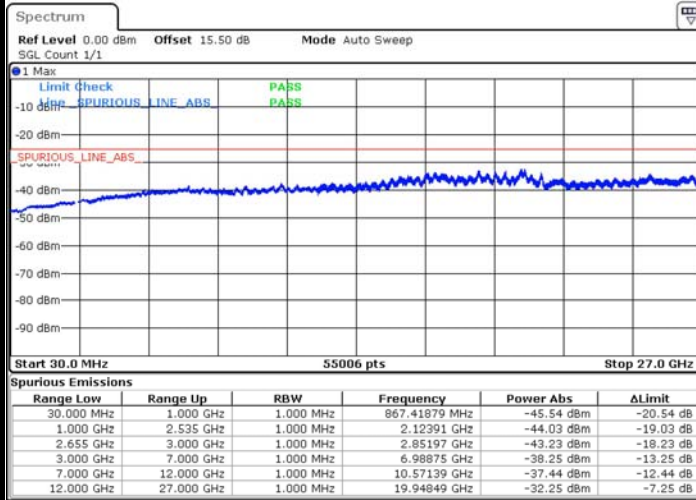


Date: 9.FEB.2015 21:23:50



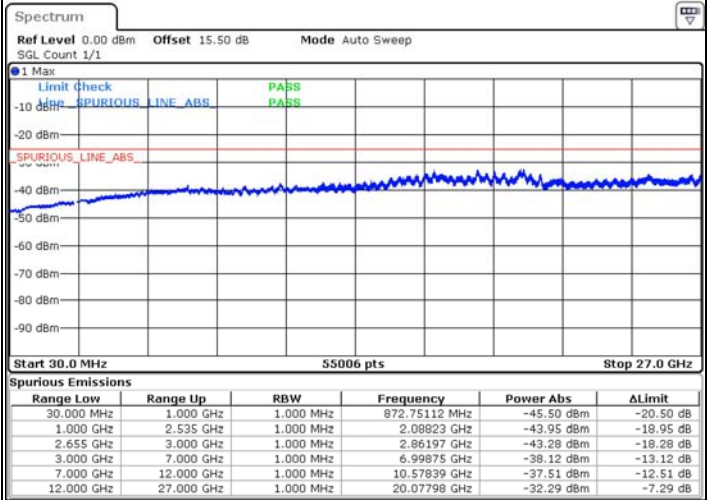
LTE Band 41 / 15MHz

Highest Channel / QPSK



Date: 9.FEB.2015 21:27:40

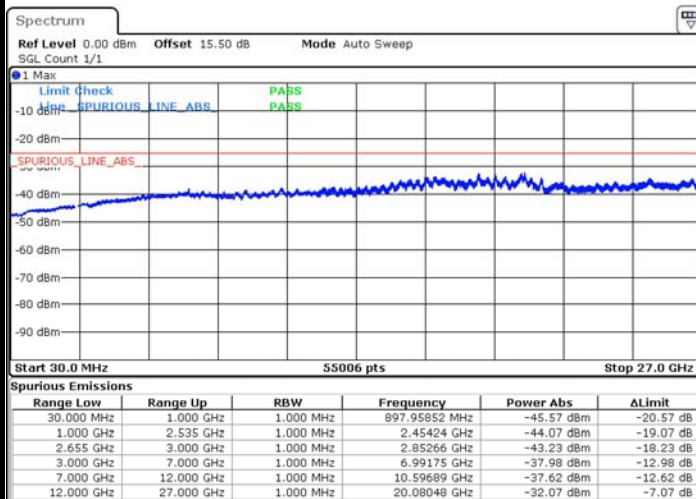
Highest Channel / 16QAM



Date: 9.FEB.2015 21:30:55

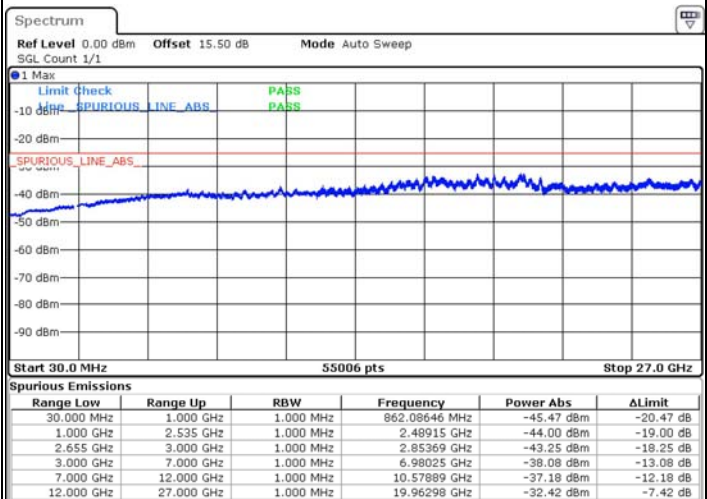
LTE Band 41 / 20MHz

Lowest Channel / QPSK



Date: 9.FEB.2015 21:32:45

Lowest Channel / 16QAM

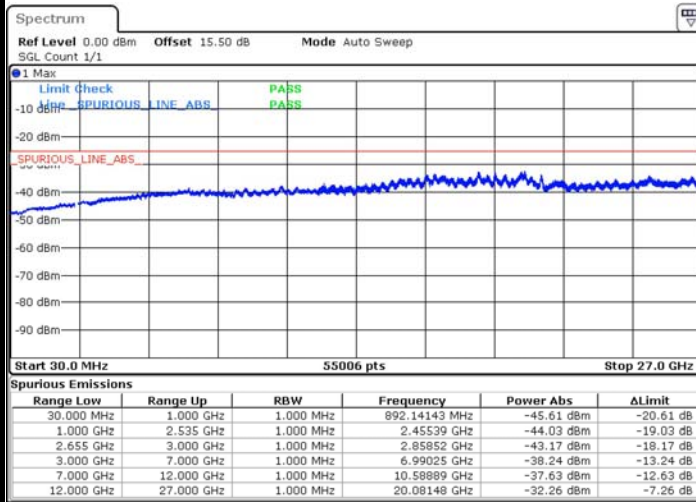


Date: 9.FEB.2015 21:32:20



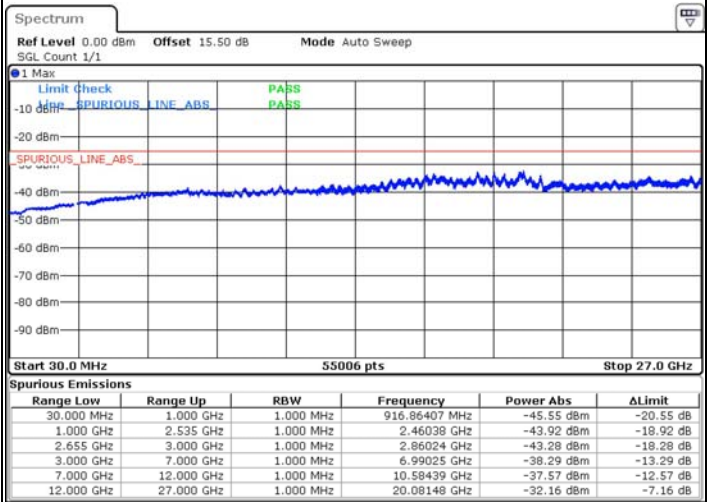
LTE Band 41 / 20MHz

Middle Channel / QPSK



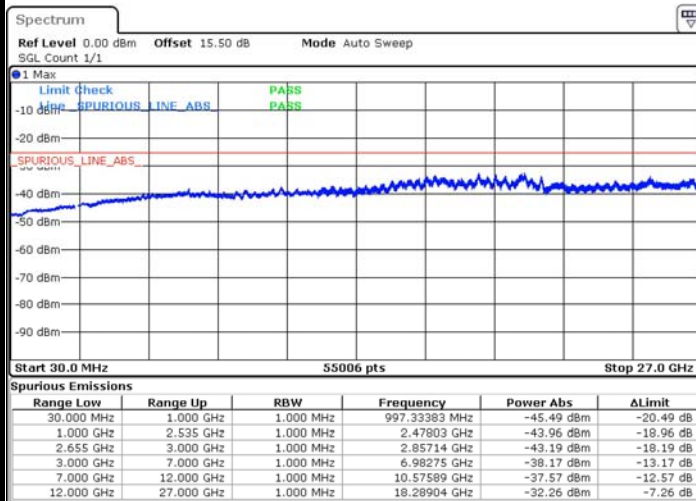
Date: 9.FEB.2015 21:33:13

Middle Channel / 16QAM



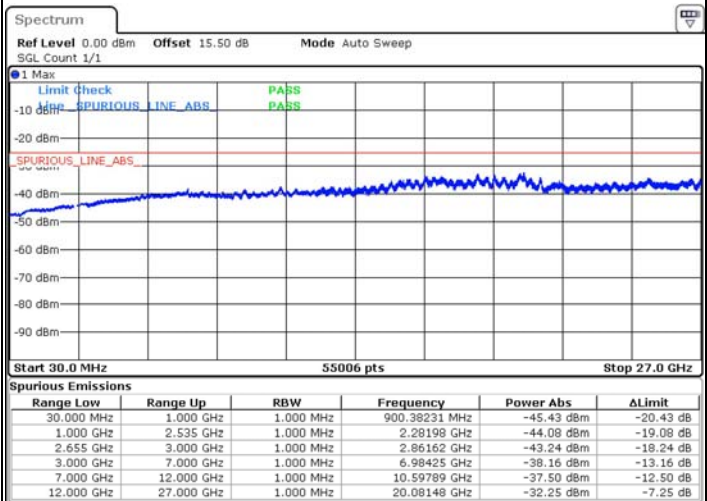
Date: 9.FEB.2015 21:33:45

Highest Channel / QPSK



Date: 9.FEB.2015 21:35:38

Highest Channel / 16QAM



Date: 9.FEB.2015 21:34:28

**Frequency Stability**

Test Conditions		LTE Band 41 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 10MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0027	PASS
40	Normal Voltage	0.0019	
30	Normal Voltage	0.0008	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0004	
0	Normal Voltage	0.0027	
-10	Normal Voltage	0.0015	
-20	Normal Voltage	0.0220	
-30	Normal Voltage	0.0247	
20	Maximum Voltage	0.0012	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0015	

Note:

1. Normal Voltage = 3.8V. ; Battery End Point (BEP) = 3.6 V. ; Maximum Voltage =4.2 V
2. Note: The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

Appendix B. Test Results of Radiated Test

EIRP

LTE Band 41 / 5MHz							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	12	16.76	0.0475	17.32	0.0539
Middle		1	0	16.82	0.0481	17.46	0.0557
Highest		1	12	15.99	0.0397	16.67	0.0465
Lowest	16QAM	1	24	16.18	0.0415	16.42	0.0438
Middle		1	12	15.90	0.0389	16.35	0.0431
Highest		1	12	16.12	0.0409	16.40	0.0437
Limit	EIRP < 2W			Result		PASS	

LTE Band 41 / 10MHz							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	49	17.25	0.0531	16.52	0.0448
Middle		1	0	16.74	0.0472	17.07	0.0509
Highest		1	49	17.28	0.0535	16.46	0.0443
Lowest	16QAM	1	49	16.89	0.0489	17.25	0.0531
Middle		1	24	17.17	0.0522	17.53	0.0566
Highest		1	49	16.45	0.0442	17.04	0.0506
Limit	EIRP < 2W			Result		PASS	



LTE Band 41 / 15MHz							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	37	16.72	0.0470	12.84	0.0192
Middle		1	37	17.01	0.0503	14.09	0.0256
Highest		1	37	15.77	0.0378	12.48	0.0177
Lowest	16QAM	1	74	16.27	0.0424	12.44	0.0175
Middle		1	0	16.09	0.0407	15.82	0.0382
Highest		1	74	15.73	0.0374	13.07	0.0203
Limit	EIRP < 2W			Result		PASS	

LTE Band 41 / 20MHz							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	49	16.83	0.0482	15.54	0.0358
Middle		1	49	18.12	0.0649	17.29	0.0535
Highest		1	49	16.32	0.0429	14.43	0.0277
Lowest	16QAM	1	49	16.29	0.0426	13.84	0.0242
Middle		1	0	16.00	0.0398	16.80	0.0478
Highest		1	99	16.83	0.0482	15.11	0.0324
Limit	EIRP < 2W			Result		PASS	

**Radiated Spurious Emission**

Band :	LTE Band 41	Temperature :	23~25°C						
Test Mode :	5MHz QPSK RB Size 1 Offset 0	Relative Humidity :	48~52%						
Channel :	40265 (Low)	Frequency :	2557.5						
Test Engineer :	Sam Li	Polarization :	Horizontal						
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
5110	-36.34	-25	-11.34	-70.36	-48.09	0.95	12.70	H	Pass
7665	-39.71	-25	-14.71	-76.60	-49.95	1.46	11.70	H	Pass
10220	-41.01	-25	-16.01	-79.48	-51.80	1.31	12.10	H	Pass

Band :	LTE Band 41	Temperature :	23~25°C						
Test Mode :	5MHz QPSK RB Size 1 Offset 0	Relative Humidity :	48~52%						
Channel :	40265 (Low)	Frequency :	2557.5						
Test Engineer :	Sam Li	Polarization :	Vertical						
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)	(dB)	(dB)	(dB)	(dBm)	(dBm)	(dB)	(dBi)		
5110	-38.27	-25	-13.27	-71.67	-50.02	0.95	12.70	V	Pass
7665	-40.36	-25	-15.36	-77.24	-50.60	1.46	11.70	V	Pass
10220	-43.32	-25	-18.32	-80.22	-54.11	1.31	12.10	V	Pass



Band :	LTE Band 41	Temperature :	23~25°C						
Test Mode :	5MHz QPSK RB Size 1 Offset 0	Relative Humidity :	48~52%						
Channel :	40640 (Middle)	Frequency :	2595						
Test Engineer :	Sam Li	Polarization :	Horizontal						
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
5185	-38.63	-25	-13.63	-71.62	-50.38	0.95	12.70	H	Pass
7775	-42.42	-25	-17.42	-79.31	-52.66	1.46	11.70	H	Pass
10370	-42.70	-25	-17.70	-81.17	-53.49	1.31	12.10	H	Pass

Band :	LTE Band 41	Temperature :	23~25°C						
Test Mode :	5MHz QPSK RB Size 1 Offset 0	Relative Humidity :	48~52%						
Channel :	40640 (Middle)	Frequency :	2595						
Test Engineer :	Sam Li	Polarization :	Vertical						
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)	(dB)	(dB)	(dB)	(dBm)	(dBm)	(dB)	(dBi)		
5185	-36.98	-25	-11.98	-71.25	-48.73	0.95	12.70	V	Pass
7775	-42.05	-25	-17.05	-78.93	-52.29	1.46	11.70	V	Pass
10370	-44.06	-25	-19.06	-80.96	-54.85	1.31	12.10	V	Pass



Band :	LTE Band 41	Temperature :	23~25°C						
Test Mode :	5MHz QPSK RB Size 1 Offset 0	Relative Humidity :	48~52%						
Channel :	41015 (High)	Frequency :	2632.5						
Test Engineer :	Sam Li	Polarization :	Horizontal						
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
5260	-35.22	-25	-10.22	-69.45	-46.97	0.95	12.70	H	Pass
7890	-40.70	-25	-15.70	-76.59	-50.54	1.46	11.30	H	Pass
10520	-38.78	-25	-13.78	-77.25	-49.57	1.31	12.10	H	Pass

Band :	LTE Band 41	Temperature :	23~25°C						
Test Mode :	5MHz QPSK RB Size 1 Offset 0	Relative Humidity :	48~52%						
Channel :	41015 (High)	Frequency :	2632.5						
Test Engineer :	Sam Li	Polarization :	Vertical						
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
5260	-36.54	-25	-11.54	-70.74	-48.29	0.95	12.70	V	Pass
7890	-41.90	-25	-16.90	-77.78	-51.74	1.46	11.30	V	Pass
10520	-42.39	-25	-17.39	-78.95	-53.18	1.31	12.10	V	Pass



Band :	LTE Band 41	Temperature :	23~25°C						
Test Mode :	10MHz QPSK RB Size 1 Offset 0	Relative Humidity :	48~52%						
Channel :	40290 (Low)	Frequency :	2560						
Test Engineer :	Sam Li	Polarization :	Horizontal						
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
5110	-38.59	-25	-13.59	-71.57	-50.34	0.95	12.70	H	Pass
7665	-38.13	-25	-13.13	-75.02	-48.37	1.46	11.70	H	Pass
10220	-41.68	-25	-16.68	-80.15	-52.47	1.31	12.10	H	Pass

Band :	LTE Band 41	Temperature :	23~25°C						
Test Mode :	10MHz QPSK RB Size 1 Offset 0	Relative Humidity :	48~52%						
Channel :	40290 (Low)	Frequency :	2560						
Test Engineer :	Sam Li	Polarization :	Vertical						
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
5110	-38.02	-25	-13.02	-71.44	-49.77	0.95	12.70	V	Pass
7665	-40.27	-25	-15.27	-77.15	-50.51	1.46	11.70	V	Pass
10220	-42.58	-25	-17.58	-79.48	-53.37	1.31	12.10	V	Pass



Band :	LTE Band 41	Temperature :	23~25°C						
Test Mode :	10MHz QPSK RB Size 1 Offset 0	Relative Humidity :	48~52%						
Channel :	40640 (Middle)	Frequency :	2595						
Test Engineer :	Sam Li	Polarization :	Horizontal						
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
5180	-38.34	-25	-13.34	-71.30	-50.09	0.95	12.70	H	Pass
7770	-42.26	-25	-17.26	-79.15	-52.50	1.46	11.70	H	Pass
10360	-39.94	-25	-14.94	-78.41	-50.73	1.31	12.10	H	Pass

Band :	LTE Band 41	Temperature :	23~25°C						
Test Mode :	10MHz QPSK RB Size 1 Offset 0	Relative Humidity :	48~52%						
Channel :	40640 (Middle)	Frequency :	2595						
Test Engineer :	Sam Li	Polarization :	Vertical						
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
5180	-36.62	-25	-11.62	-70.83	-48.37	0.95	12.70	V	Pass
7770	-42.03	-25	-17.03	-78.91	-52.27	1.46	11.70	V	Pass
10360	-41.70	-25	-16.70	-78.6	-52.49	1.31	12.10	V	Pass



Band :	LTE Band 41	Temperature :	23~25°C						
Test Mode :	10MHz QPSK RB Size 1 Offset 0	Relative Humidity :	48~52%						
Channel :	40990 (High)	Frequency :	2630						
Test Engineer :	Sam Li	Polarization :	Horizontal						
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
5250	-35.90	-25	-10.90	-70.07	-47.65	0.95	12.70	H	Pass
7875	-42.10	-25	-17.10	-77.99	-51.94	1.46	11.30	H	Pass
10500	-42.75	-25	-17.75	-81.22	-53.54	1.31	12.10	H	Pass

Band :	LTE Band 41	Temperature :	23~25°C						
Test Mode :	10MHz QPSK RB Size 1 Offset 0	Relative Humidity :	48~52%						
Channel :	40990 (High)	Frequency :	2630						
Test Engineer :	Sam Li	Polarization :	Vertical						
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
5250	-35.95	-25	-10.95	-70.08	-47.70	0.95	12.70	V	Pass
7875	-42.80	-25	-17.80	-78.68	-52.64	1.46	11.30	V	Pass
10500	-43.53	-25	-18.53	-80.09	-54.32	1.31	12.10	V	Pass



Band :	LTE Band 41	Temperature :	23~25°C						
Test Mode :	15MHz QPSK RB Size 1 Offset 0	Relative Humidity :	48~52%						
Channel :	40315 (Low)	Frequency :	2562.5						
Test Engineer :	Sam Li	Polarization :	Horizontal						
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
5110	-39.34	-25	-14.34	-72.11	-51.09	0.95	12.70	H	Pass
7665	-41.34	-25	-16.34	-78.23	-51.58	1.46	11.70	H	Pass
10220	-42.56	-25	-17.56	-81.03	-53.35	1.31	12.10	H	Pass

Band :	LTE Band 41	Temperature :	23~25°C						
Test Mode :	15MHz QPSK RB Size 1 Offset 0	Relative Humidity :	48~52%						
Channel :	40315 (Low)	Frequency :	2562.5						
Test Engineer :	Sam Li	Polarization :	Vertical						
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
5110	-38.15	-25	-13.15	-71.56	-49.90	0.95	12.70	V	Pass
7665	-41.14	-25	-16.14	-78.02	-51.38	1.46	11.70	V	Pass
10220	-44.22	-25	-19.22	-81.12	-55.01	1.31	12.10	V	Pass



Band :	LTE Band 41	Temperature :	23~25°C						
Test Mode :	15MHz QPSK RB Size 1 Offset 0	Relative Humidity :	48~52%						
Channel :	40640 (Middle)	Frequency :	2595						
Test Engineer :	Sam Li	Polarization :	Horizontal						
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)	(dB)	(dB)	(dB)	(dBm)	(dBm)	(dB)	(dBi)		
5175	-40.03	-25	-15.03	-72.32	-51.78	0.95	12.70	H	Pass
7762.5	-42.26	-25	-17.26	-79.15	-52.50	1.46	11.70	H	Pass
10350	-39.94	-25	-14.94	-78.41	-50.73	1.31	12.10	H	Pass

Band :	LTE Band 41	Temperature :	23~25°C						
Test Mode :	15MHz QPSK RB Size 1 Offset 0	Relative Humidity :	48~52%						
Channel :	40640 (Middle)	Frequency :	2595						
Test Engineer :	Sam Li	Polarization :	Vertical						
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
5175	-36.92	-25	-11.92	-71.18	-48.67	0.95	12.70	V	Pass
7762.5	-43.12	-25	-18.12	-80.00	-53.36	1.46	11.70	V	Pass
10350	-44.02	-25	-19.02	-80.92	-54.81	1.31	12.10	V	Pass



Band :	LTE Band 41	Temperature :	23~25°C						
Test Mode :	15MHz QPSK RB Size 1 Offset 0	Relative Humidity :	48~52%						
Channel :	40965 (High)	Frequency :	2627.5						
Test Engineer :	Sam Li	Polarization :	Horizontal						
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
5240	-36.56	-25	-11.56	-70.49	-48.31	0.95	12.70	H	Pass
7860	-41.53	-25	-16.53	-77.42	-51.37	1.46	11.30	H	Pass
10480	-39.60	-25	-14.60	-78.07	-50.39	1.31	12.10	H	Pass

Band :	LTE Band 41	Temperature :	23~25°C						
Test Mode :	15MHz QPSK RB Size 1 Offset 0	Relative Humidity :	48~52%						
Channel :	40965 (High)	Frequency :	2627.5						
Test Engineer :	Sam Li	Polarization :	Vertical						
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)	(dB)	(dB)	(dB)	(dBm)	(dBm)	(dB)	(dBi)		
5240	-35.18	-25	-10.18	-69.71	-46.93	0.95	12.70	V	Pass
7860	-40.89	-25	-15.89	-76.77	-50.73	1.46	11.30	V	Pass
10480	-40.93	-25	-15.93	-77.49	-51.72	1.31	12.10	V	Pass



Band :	LTE Band 41	Temperature :	23~25°C						
Test Mode :	20MHz QPSK RB Size 1 Offset 0	Relative Humidity :	48~52%						
Channel :	40340 (Low)	Frequency :	2565						
Test Engineer :	Sam Li	Polarization :	Horizontal						
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
5110	-38.44	-25	-13.44	-71.41	-50.19	0.95	12.70	H	Pass
7665	-40.66	-25	-15.66	-77.55	-50.90	1.46	11.70	H	Pass
10220	-40.62	-25	-15.62	-79.09	-51.41	1.31	12.10	H	Pass

Band :	LTE Band 41	Temperature :	23~25°C						
Test Mode :	20MHz QPSK RB Size 1 Offset 0	Relative Humidity :	48~52%						
Channel :	40340 (Low)	Frequency :	2565						
Test Engineer :	Sam Li	Polarization :	Vertical						
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
5110	-36.67	-25	-11.67	-70.89	-48.42	0.95	12.70	V	Pass
7665	-41.22	-25	-16.22	-78.10	-51.46	1.46	11.70	V	Pass
10220	-43.74	-25	-18.74	-80.64	-54.53	1.31	12.10	V	Pass



Band :	LTE Band 41	Temperature :	23~25°C						
Test Mode :	20MHz QPSK RB Size 1 Offset 0	Relative Humidity :	48~52%						
Channel :	40640 (Middle)	Frequency :	2595						
Test Engineer :	Sam Li	Polarization :	Horizontal						
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
5170	-41.50	-25	-16.50	-73.48	-53.25	0.95	12.70	H	Pass
7755	-42.45	-25	-17.45	-79.34	-52.69	1.46	11.70	H	Pass
10340	-41.45	-25	-16.45	-79.92	-52.24	1.31	12.10	H	Pass

Band :	LTE Band 41	Temperature :	23~25°C						
Test Mode :	20MHz QPSK RB Size 1 Offset 0	Relative Humidity :	48~52%						
Channel :	40640 (Middle)	Frequency :	2595						
Test Engineer :	Sam Li	Polarization :	Vertical						
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
5170	-38.16	-25	-13.16	-71.57	-49.91	0.95	12.70	V	Pass
7755	-41.22	-25	-16.22	-78.1	-51.46	1.46	11.70	V	Pass
10340	-43.94	-25	-18.94	-80.84	-54.73	1.31	12.10	V	Pass



Band :	LTE Band 41	Temperature :	23~25°C						
Test Mode :	20MHz QPSK RB Size 1 Offset 0	Relative Humidity :	48~52%						
Channel :	40940 (High)	Frequency :	2625						
Test Engineer :	Sam Li	Polarization :	Horizontal						
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
5230	-36.22	-25	-11.22	-70.29	-47.97	0.95	12.70	H	Pass
7844	-43.20	-25	-18.20	-79.09	-53.04	1.46	11.30	H	Pass
10460	-42.77	-25	-17.77	-81.24	-53.56	1.31	12.10	H	Pass

Band :	LTE Band 41	Temperature :	23~25°C						
Test Mode :	20MHz QPSK RB Size 1 Offset 0	Relative Humidity :	48~52%						
Channel :	40940 (High)	Frequency :	2625						
Test Engineer :	Sam Li	Polarization :	Vertical						
Remark :	Spurious emissions below 1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
5230	-39.01	-25	-14.01	-72.35	-50.76	0.95	12.70	V	Pass
7844	-43.44	-25	-18.44	-79.32	-53.28	1.46	11.30	V	Pass
10460	-44.21	-25	-19.21	-80.77	-55.00	1.31	12.10	V	Pass