

FCC RF Test Report

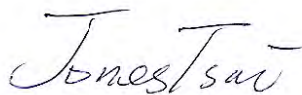
APPLICANT : Samsung Electronics Co., Ltd.
EQUIPMENT : Tablet PC
BRAND NAME : SAMSUNG
MODEL NAME : SM-P555C
FCC ID : A3LSMP555C
STANDARD : 47 CFR Part 2, 27(M)
CLASSIFICATION : PCS Licensed Transmitter (PCB)

The product was received on Mar. 10, 2015 and completely tested on Apr. 14, 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



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG531006B	Rev. 01	Initial issue of report	Apr. 16, 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	$< 55+10\log_{10}(P[\text{Watts}])$	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	$< 55+10\log_{10}(P[\text{Watts}])$	PASS	Under limit 3.02 dB at 5300.000 MHz



1 General Description

1.1 Applicant

Samsung Electronics Co., Ltd.

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

1.2 Manufacturer

Samsung Electronics Co., Ltd.

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

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Tablet PC
Brand Name	SAMSUNG
Model Name	SM-P555C
FCC ID	A3LSMP555C
GSM Operating Band(s)	GSM900/1800/1900/850MHz
GPRS/EGPRS Multi-slot Class	GPRS Class 33, EGPRS Class 33
WCDMA Operating Band(s)	FDD Band I/II/V/VIII
LTE Operating Band(s)	FDD Band 1/3/8/28 TDD Band 41
Wi-Fi Specification	2.4GHz 802.11b/g/n HT20 5GHz 802.11a/n HT20/HT40
ANT+ Specification	2.4GHz
Bluetooth Version	Bluetooth v3.0 + EDR / Bluetooth v4.0 LE
IMEI Code	Conducted: 354171050000373 Radiated: 354171050000349 ERP/EIRP: 354171050000356
HW Version	REV1.0
SW Version	P555C.001
EUT Stage	Identical Prototype

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

1.4 Product Specification subjective to this standard

Product Specification subjective to this standard	
Tx Frequency	LTE Band 41 : 2557.5 MHz ~ 2652.5 MHz
Rx Frequency	LTE Band 41 : 2557.5 MHz ~ 2652.5 MHz
Bandwidth	5MHz / 10MHz / 15MHz / 20MHz
Maximum Output Power to Antenna	22.81 dBm
Antenna Type	FPCB 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	4M52G7D	-	0.0815	4M51W7D	-	0.0430
10	9M07G7D	0.0202	0.0806	9M07W7D	-	0.0472
15	13M5G7D	-	0.0702	13M5W7D	-	0.0588
20	18M5G7D	-	0.0836	18M4W7D	-	0.0547

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

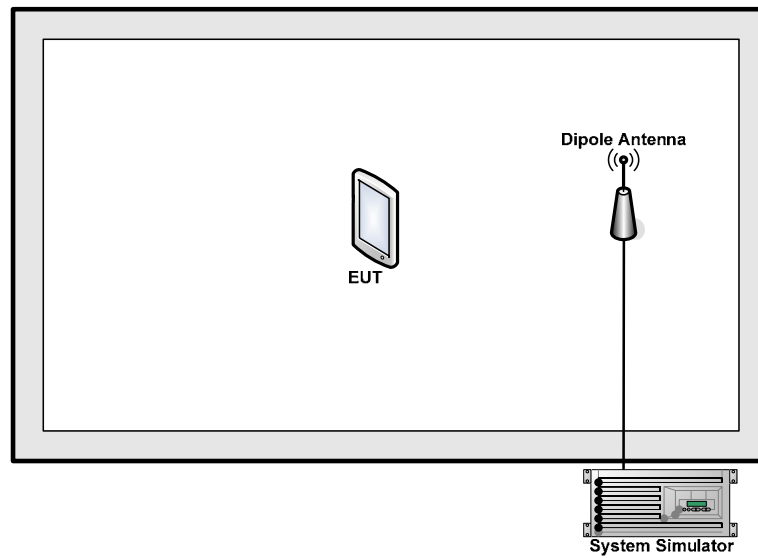
2.1 Test Mode

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 7.5 dB and 10dB attenuator.

Example :

$$\begin{aligned}\text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)} \\ &= 7.5 + 10 = 17.5 \text{ (dB)}\end{aligned}$$

3 Conducted Test Items

3.1 Measuring Instruments

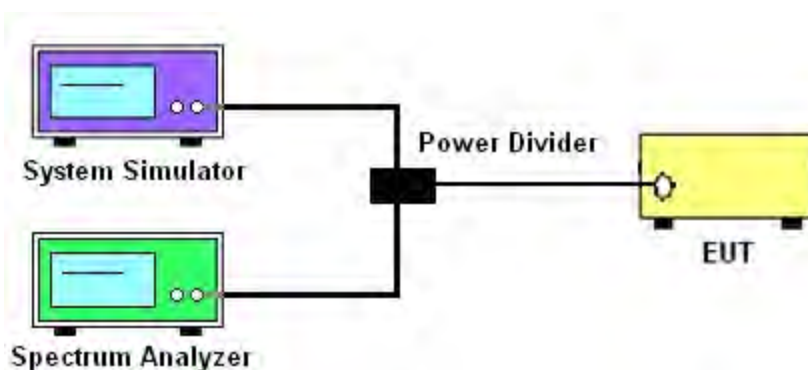
See list of measuring instruments of this test report.

3.2 Test Setup

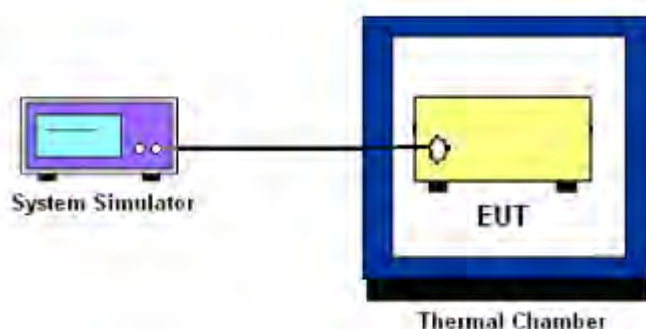
3.2.1 Conducted Output Power



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.

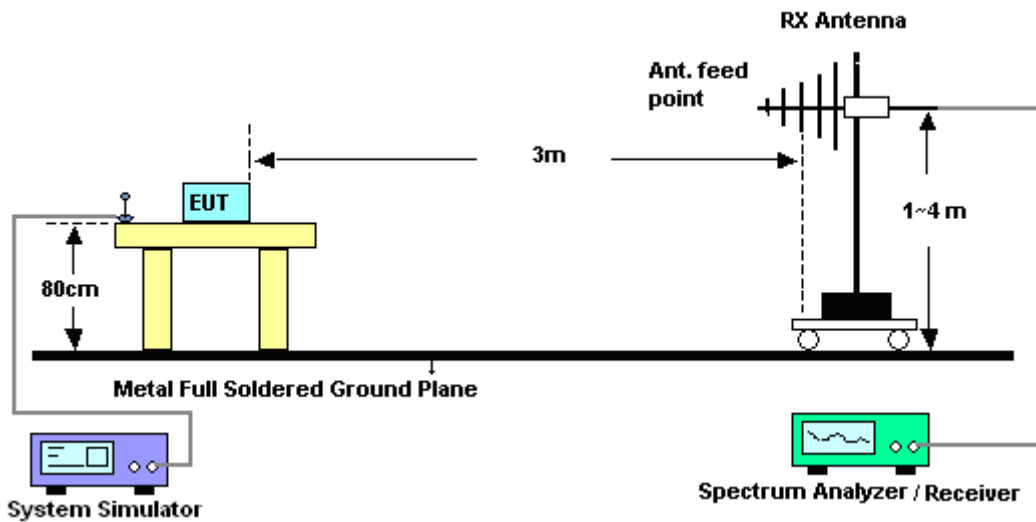
4 Radiated Test Items

4.1 Measuring Instruments

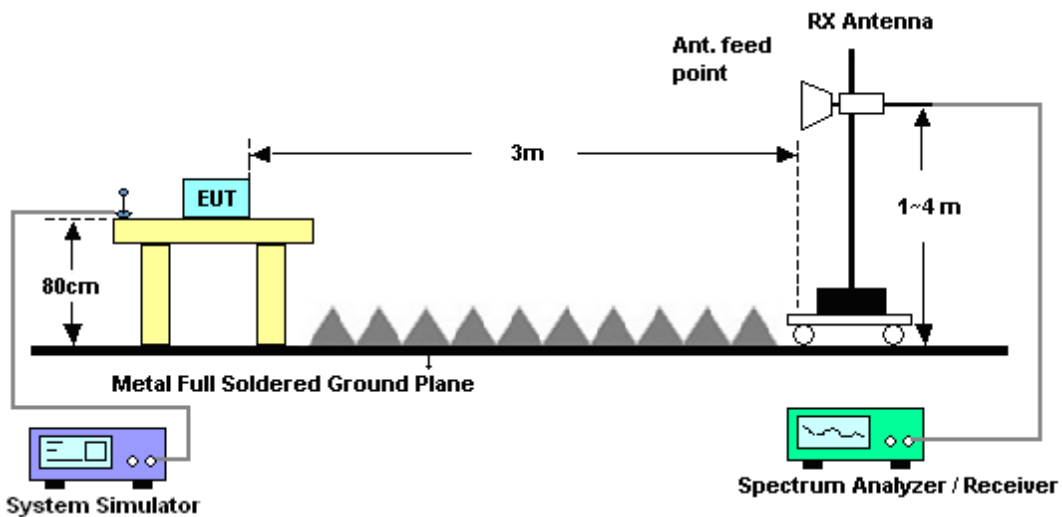
See list of measuring instruments of this test report.

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. 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 per section 5. of KDB 971168 D01.
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 the 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 $ERP = EIRP - 2.15$. Take the record of the output power at substitution antenna.



	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. $\text{EIRP (dBm)} = \text{S.G. Power} - \text{Tx Cable Loss} + \text{Tx Antenna Gain}$
13. $\text{ERP (dBm)} = \text{EIRP} - 2.15$



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	Mar. 23, 2015~ Mar. 24, 2015	May 07, 2015	Conducted (TH01-SZ)
Thermal Chamber	Hong zhanggroup	LP-150U	HD20120425	-40℃~150℃	Jan. 28, 2015	Mar. 23, 2015~ Mar. 24, 2015	Jan. 27, 2016	Conducted (TH01-SZ)
DC Power Supply	GWINSTEK	GPS-3030D	EM882636	DC 10~30V	May 08, 2014	Mar. 23, 2015~ Mar. 24, 2015	May 07, 2015	Conducted (TH01-SZ)
LTE Base Station	Anritsu	MT8820C	6201432834	GSM/WCDMA/LTE	Jan. 15, 2015	Mar. 23, 2015~ Mar. 24, 2015	Jan. 14, 2016	Conducted (TH01-SZ)
EMI TEST Receiver	R&S	ESCI7	100768	9kHz~3GHz	May 04, 2014	Apr. 01, 2015~ Apr. 14, 2015	May 03, 2015	Radiation (03CH01-SZ)
Spectrum Analyzer	Agilent	N9038A	MY52260185	20Hz~26.5GHz	May 26, 2014	Apr. 01, 2015~ Apr. 14, 2015	May 25, 2015	Radiation (03CH01-SZ)
Bilog Antenna	TESEQ	CBL 6112D	37877	30MHz~2GHz	Oct. 15, 2014	Apr. 01, 2015~ Apr. 14, 2015	Oct. 14, 2015	Radiation (03CH01-SZ)
Double Ridge Horn Antenna	ETS Lindgren	3117	00119436	1GHz~18GHz	Oct. 15, 2014	Apr. 01, 2015~ Apr. 14, 2015	Oct. 14, 2015	Radiation (03CH01-SZ)
Double Ridged Horn Antenna	COM-POWER	AH-840	101073	18GHz~40GHz	Jun. 09, 2014	Apr. 01, 2015~ Apr. 14, 2015	Jun. 08, 2015	Radiation (03CH01-SZ)
Amplifier	ADVANTEST	BB525C	E9007003	9kHz~3000MHz GAIN 30db	Jan. 28, 2015	Apr. 01, 2015~ Apr. 14, 2015	Jan. 27, 2016	Radiation (03CH01-SZ)
Amplifier	Chengyi	AMF-7D-00 101800-30-1	1707137	1GHz~18GHz	May 08, 2014	Apr. 01, 2015~ Apr. 14, 2015	May 07, 2015	Radiation (03CH01-SZ)
Amplifier	Yiai	AV3860B	04030	2GHz~26.5GHz	May 08, 2014	Apr. 01, 2015~ Apr. 14, 2015	May 07, 2015	Radiation (03CH01-SZ)
AC Source	Chroma	61601ACSO URCE	6160100024 70	100Vac~240Vac	NCR	Apr. 01, 2015~ Apr. 14, 2015	NCR	Radiation (03CH01-SZ)
Turn Table	EM Electronics	EM 1000	N/A	0~360 degree	NCR	Apr. 01, 2015~ Apr. 14, 2015	NCR	Radiation (03CH01-SZ)
Antenna Mast	EM Electronics	EM 1000	N/A	1 m~4 m	NCR	Apr. 01, 2015~ Apr. 14, 2015	NCR	Radiation (03CH01-SZ)
LTE Base Station	Anritsu	MT8820C	6201432828	GSM/WCDMA /CDMA2000/LTE	Jan. 15, 2015	Apr. 01, 2015~ Apr. 14, 2015	Jan. 14, 2016	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	22.29	22.46	22.43
5	1	12		22.41	22.39	22.39
5	1	24		22.45	22.25	22.00
5	12	0		21.48	21.33	21.40
5	12	6		21.42	21.41	21.26
5	12	11		21.47	21.31	21.29
5	25	0		21.51	21.39	21.31
5	1	0	16-QAM	21.53	21.54	21.55
5	1	12		21.41	21.52	21.22
5	1	24		21.55	21.49	21.10
5	12	0		20.55	20.23	20.25
5	12	6		20.30	20.21	20.29
5	12	11		20.54	20.20	20.15
5	25	0		20.63	20.62	20.23
10	1	0	QPSK	22.56	22.68	22.51
10	1	24		22.36	22.74	22.25
10	1	49		22.53	22.38	22.08
10	25	0		21.50	21.53	21.52
10	25	12		21.44	21.37	21.41
10	25	24		21.54	21.36	21.28
10	50	0		21.53	21.33	21.45
10	1	0	16-QAM	21.87	21.55	21.74
10	1	24		21.51	21.73	21.45
10	1	49		21.74	21.60	21.37
10	25	0		20.71	20.77	20.40
10	25	12		20.77	20.68	20.57
10	25	24		20.33	20.68	20.37
10	50	0		20.29	20.55	20.43



LTE Band 41 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	22.48	22.45	22.42
15	1	37		22.46	22.48	22.38
15	1	74		22.41	22.47	22.27
15	36	0		22.45	22.46	22.37
15	36	18		22.45	22.42	22.41
15	36	37		22.43	22.46	22.37
15	75	0	16-QAM	21.44	21.60	21.54
15	1	0		21.46	21.46	21.75
15	1	37		21.45	21.47	21.71
15	1	74		21.44	21.45	21.61
15	36	0		21.47	21.40	21.34
15	36	18		21.45	21.44	21.33
15	36	37		21.44	21.41	21.33
15	75	0	QPSK	20.84	20.82	20.50
20	1	0		22.76	22.81	22.57
20	1	49		22.48	22.66	22.16
20	1	99		22.74	22.50	22.00
20	50	0		21.68	21.70	21.57
20	50	24		21.49	21.52	21.35
20	50	49	16-QAM	21.46	21.44	21.37
20	100	0		21.55	21.60	21.41
20	1	0		21.85	21.81	21.68
20	1	49		21.84	21.80	21.43
20	1	99		21.66	21.60	21.38
20	50	0		20.46	20.66	20.42
20	50	24	16-QAM	20.38	20.43	20.32
20	50	49		20.35	20.45	20.33
20	100	0		20.53	20.46	20.38

**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	5.42	5.19	5.62	6.12	PASS
Middle CH	5.62	6.41	5.65	6.32	
Highest CH	5.01	5.54	5.33	6.52	



LTE Band 41 / 20MHz / QPSK

Lowest Channel / 1RB



Lowest Channel / Full RB



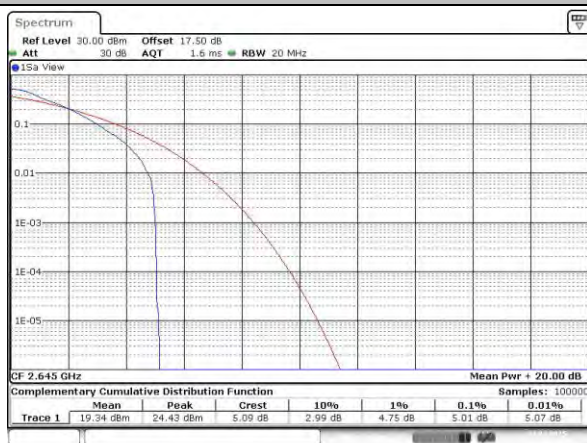
Middle Channel / 1RB



Middle Channel / Full RB



Highest Channel / 1RB



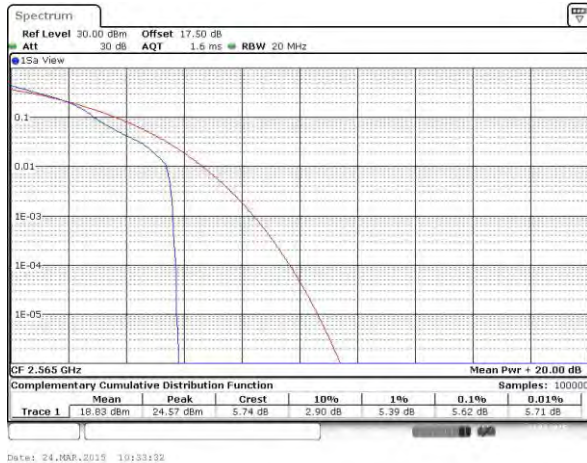
Highest Channel / Full RB



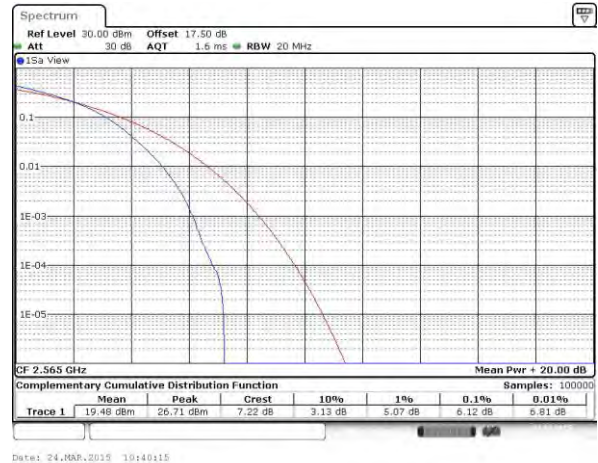


LTE Band 41 / 20MHz / 16QAM

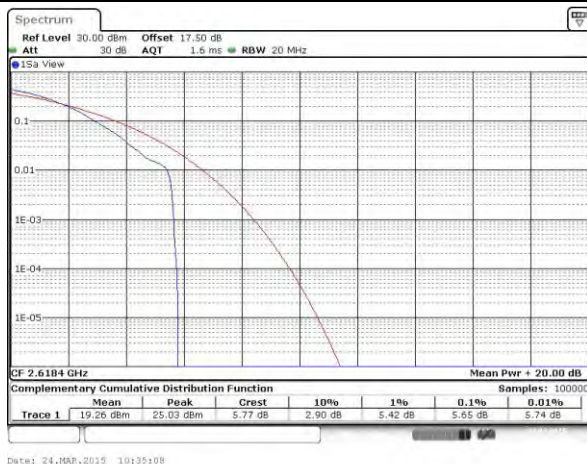
Lowest Channel / 1RB



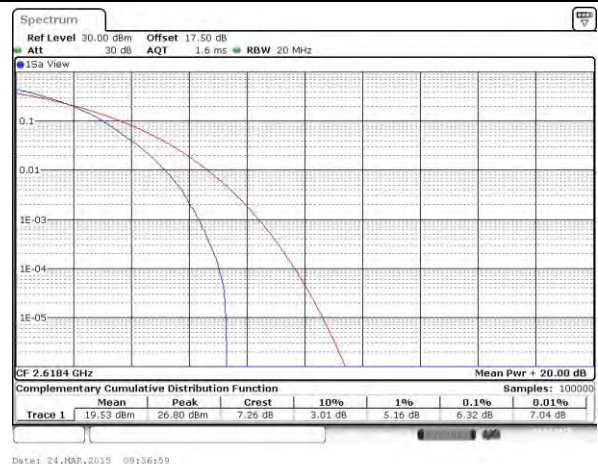
Lowest Channel / Full RB



Middle Channel / 1RB



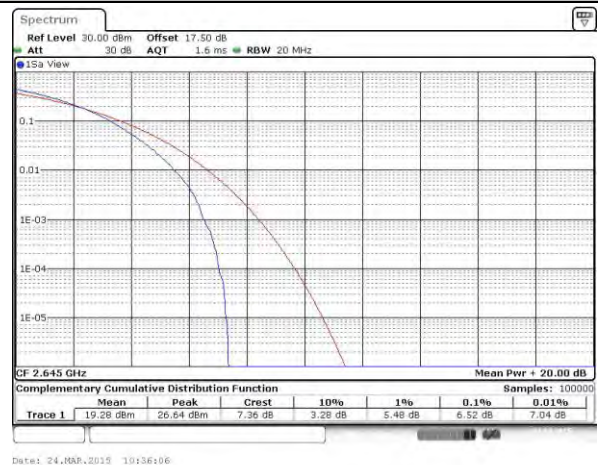
Middle Channel / Full RB



Highest Channel / 1RB



Highest Channel / Full RB



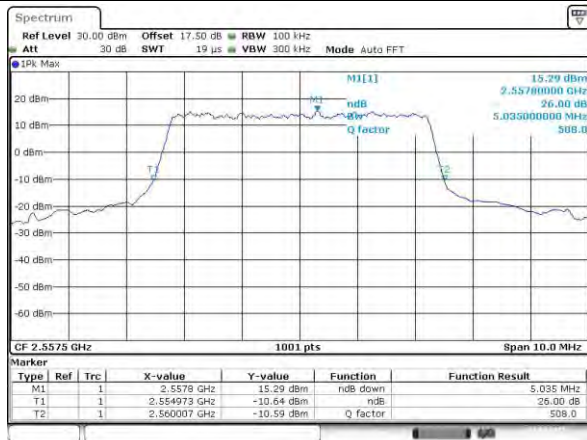
**26dB Bandwidth**

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	-	-	-	-	5.035	5.035	10.030	9.850	14.476	14.625	20.140	20.140
Middle CH	-	-	-	-	5.095	5.085	10.030	10.050	14.745	14.925	21.499	20.340
Highest CH	-	-	-	-	5.385	5.075	9.930	9.990	14.655	14.446	20.380	20.300

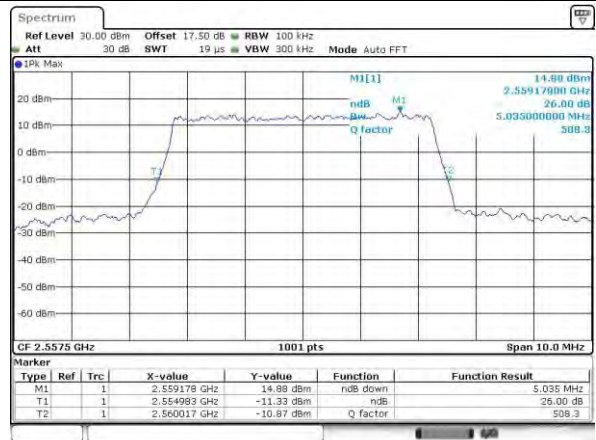


LTE Band 41

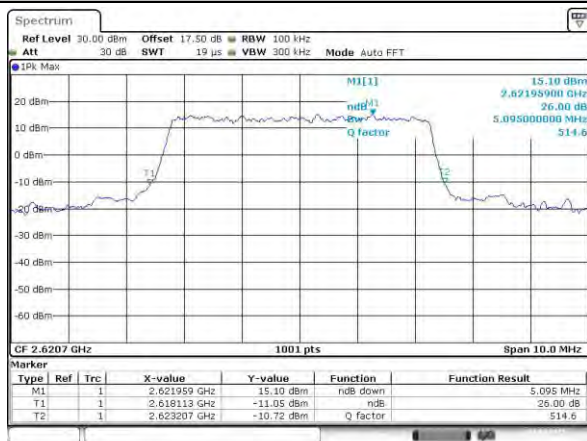
Lowest Channel / 5MHz / QPSK



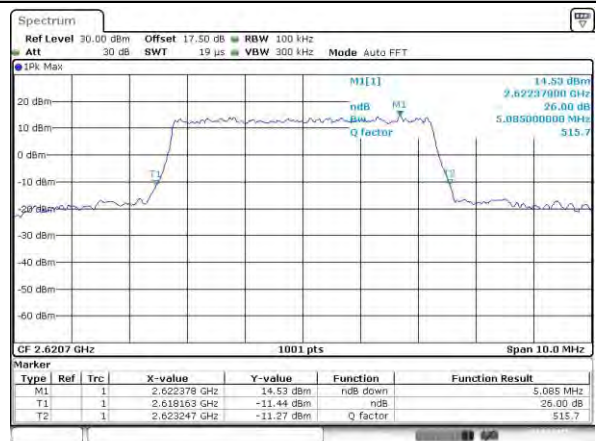
Lowest Channel / 5MHz / 16QAM



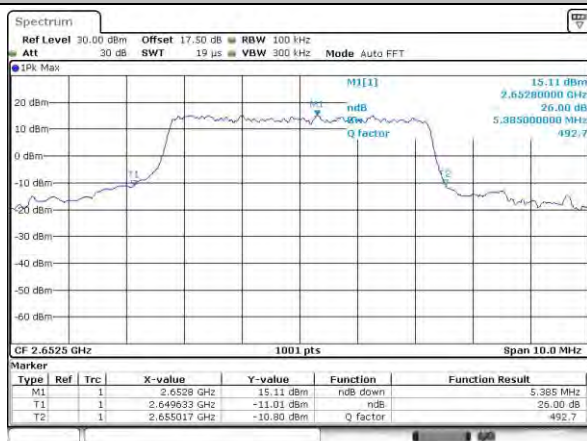
Middle Channel / 5MHz / QPSK



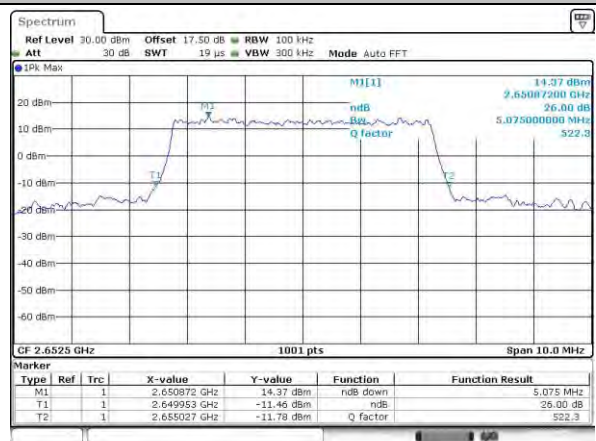
Middle Channel / 5MHz / 16QAM



Highest Channel / 5MHz / QPSK



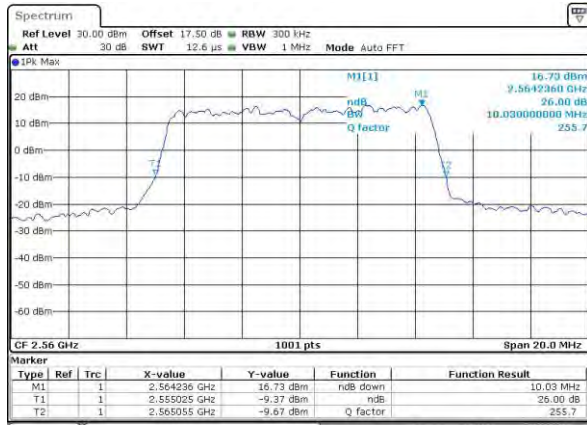
Highest Channel / 5MHz / 16QAM



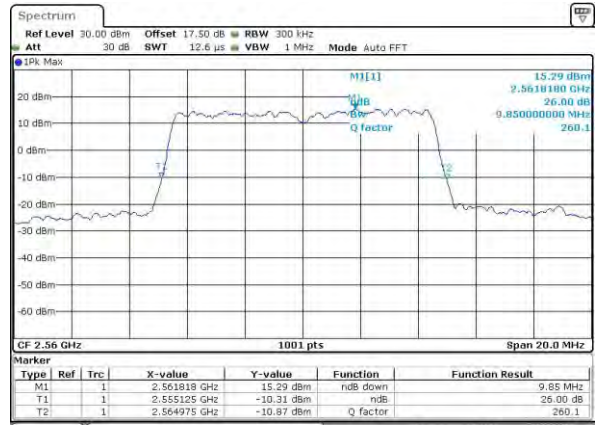


LTE Band 41

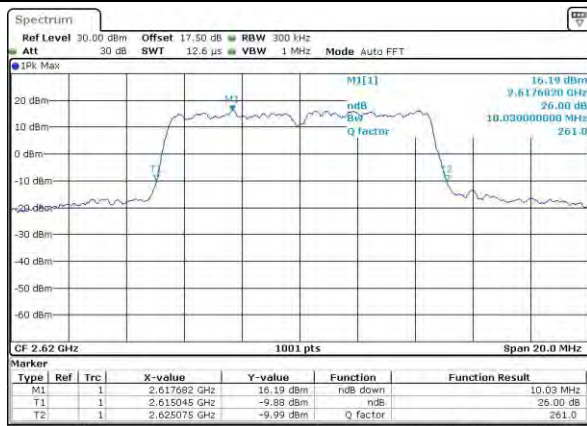
Lowest Channel / 10MHz / QPSK



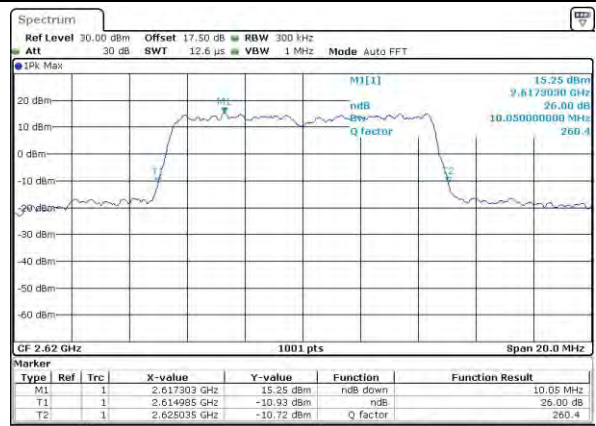
Lowest Channel / 10MHz / 16QAM



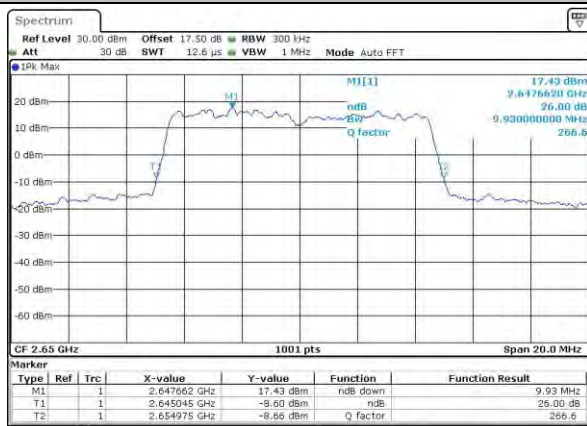
Middle Channel / 10MHz / QPSK



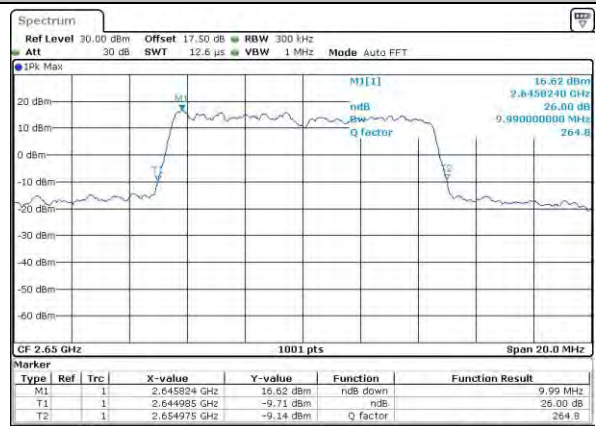
Middle Channel / 10MHz / 16QAM



Highest Channel / 10MHz / QPSK



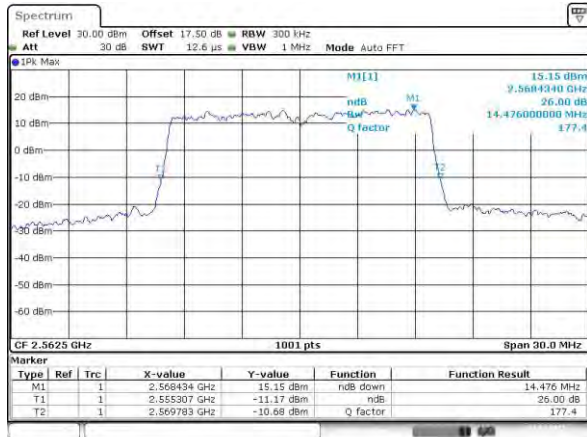
Highest Channel / 10MHz / 16QAM



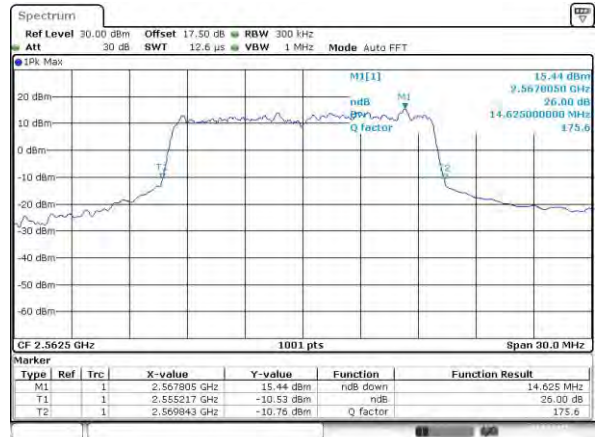


LTE Band 41

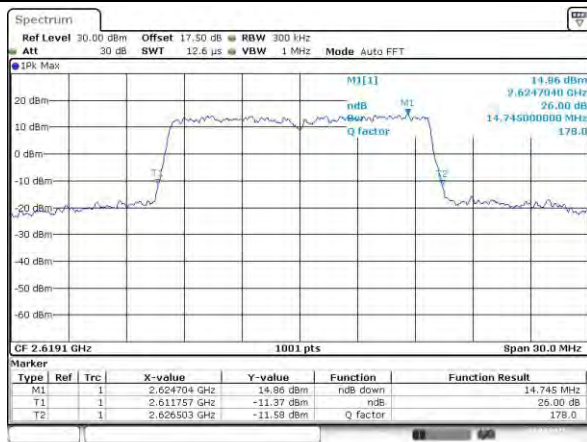
Lowest Channel / 15MHz / QPSK



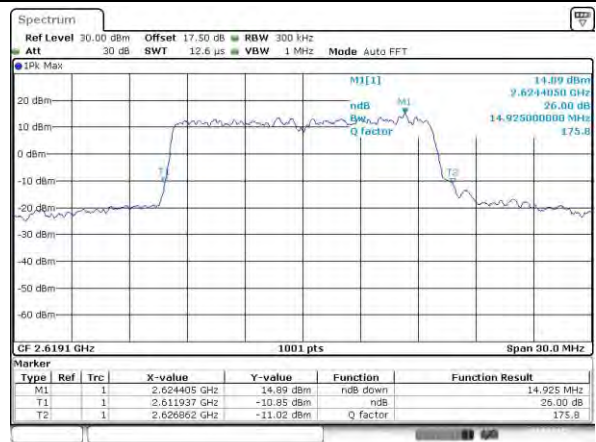
Lowest Channel / 15MHz / 16QAM



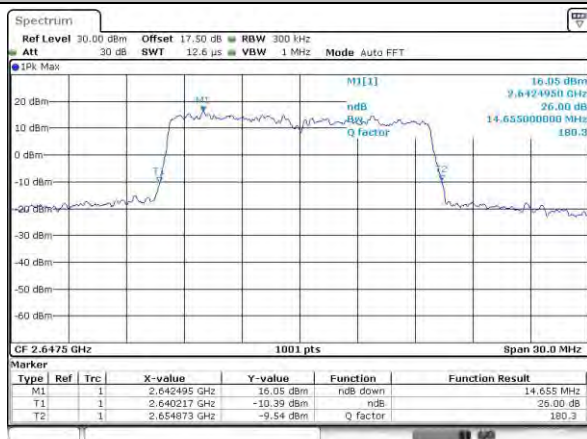
Middle Channel / 15MHz / QPSK



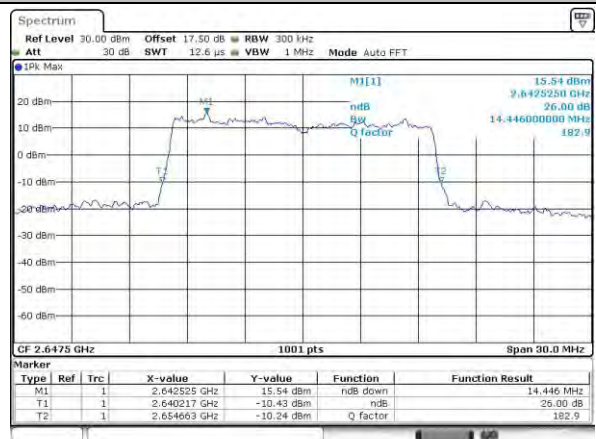
Middle Channel / 15MHz / 16QAM



Highest Channel / 15MHz / QPSK



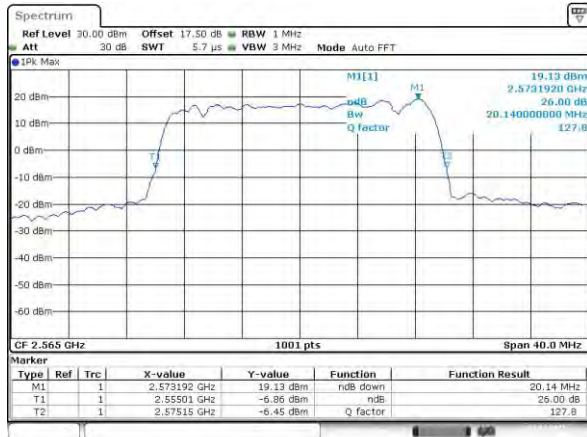
Highest Channel / 15MHz / 16QAM



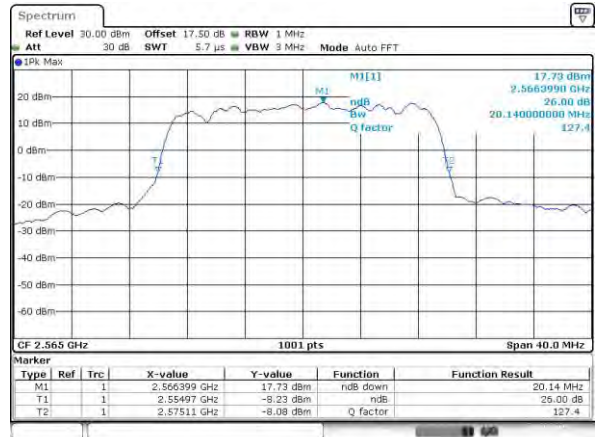


LTE Band 41

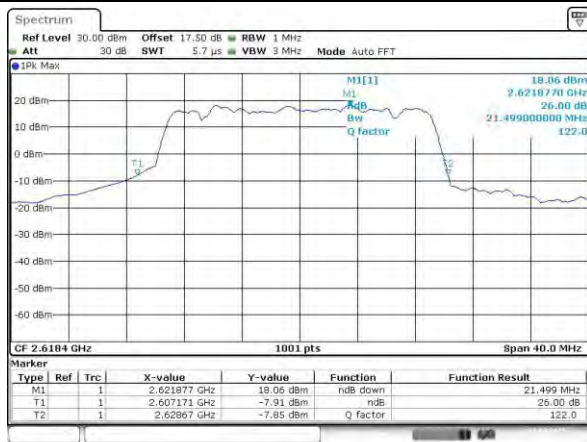
Lowest Channel / 20MHz / QPSK



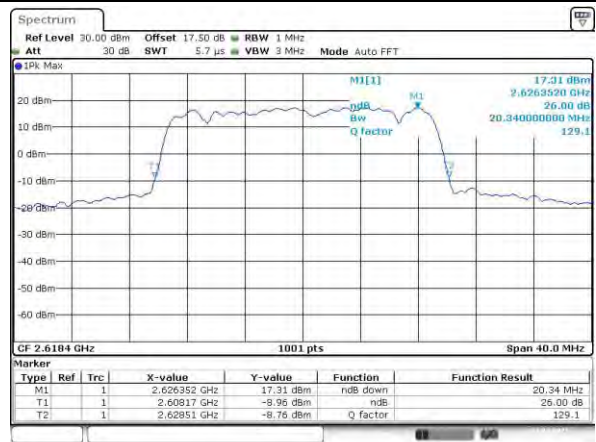
Lowest Channel / 20MHz / 16QAM



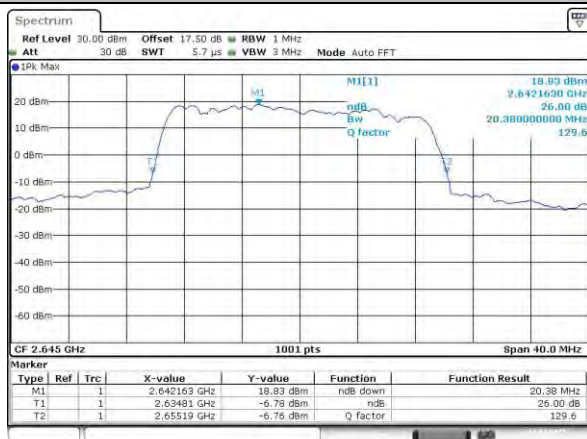
Middle Channel / 20MHz / QPSK



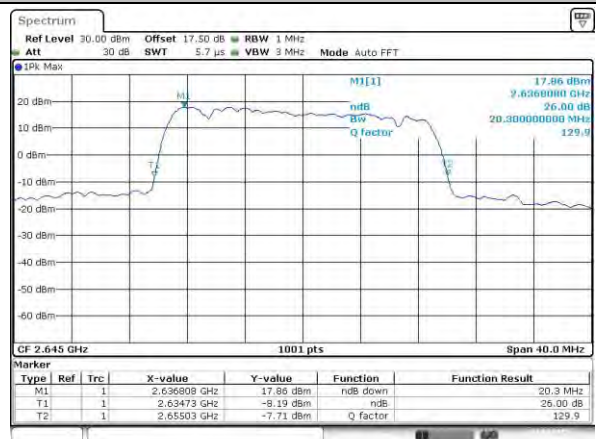
Middle Channel / 20MHz / 16QAM



Highest Channel / 20MHz / QPSK



Highest Channel / 20MHz / 16QAM



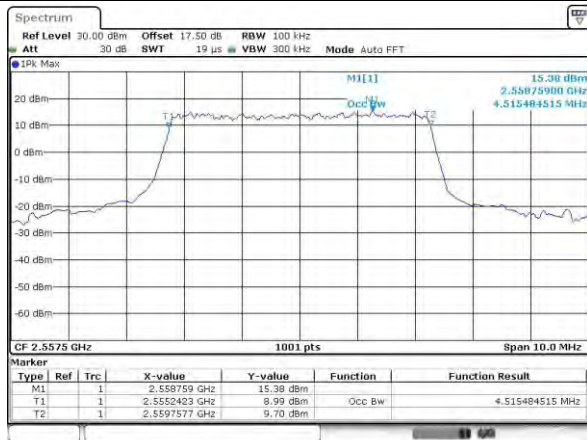
**Occupied Bandwidth**

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	-	-	-	-	4.515	4.496	9.071	9.051	13.457	13.457	18.342	18.262
Middle CH	-	-	-	-	4.515	4.496	9.071	9.071	13.487	13.457	18.462	18.422
Highest CH	-	-	-	-	4.515	4.505	9.051	9.051	13.457	13.487	18.342	18.382

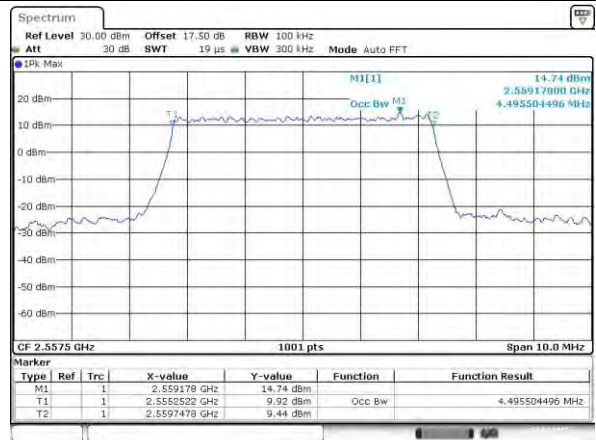


LTE Band 41

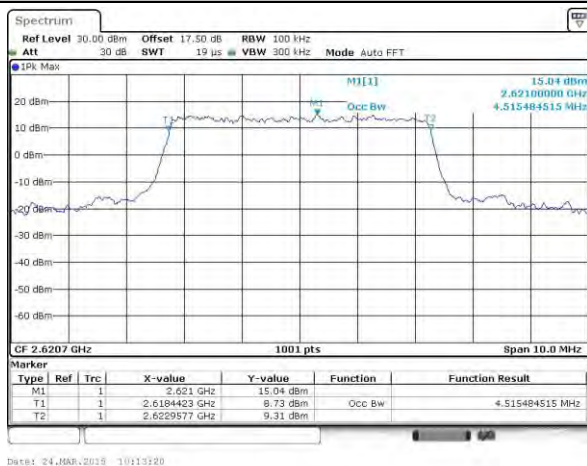
Lowest Channel / 5MHz / QPSK



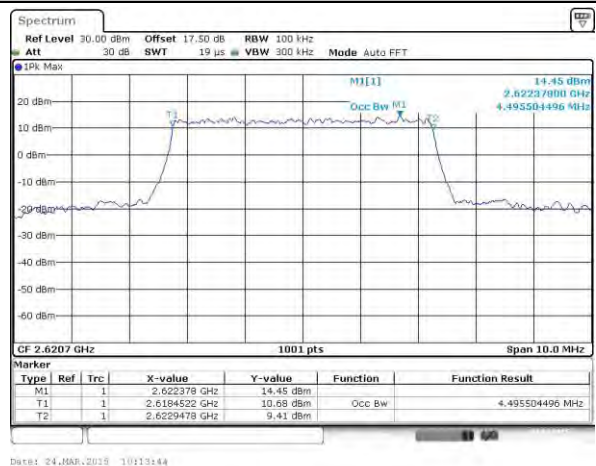
Lowest Channel / 5MHz / 16QAM



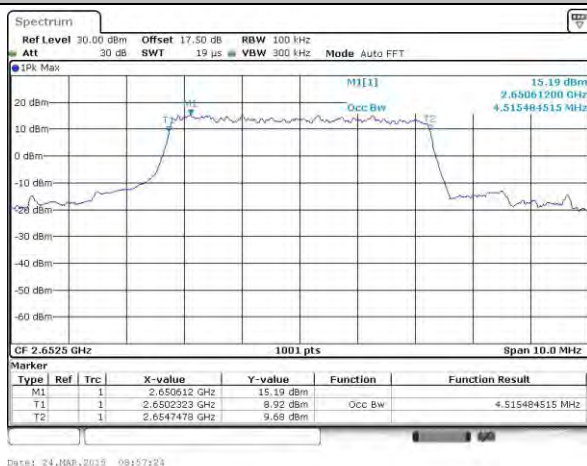
Middle Channel / 5MHz / QPSK



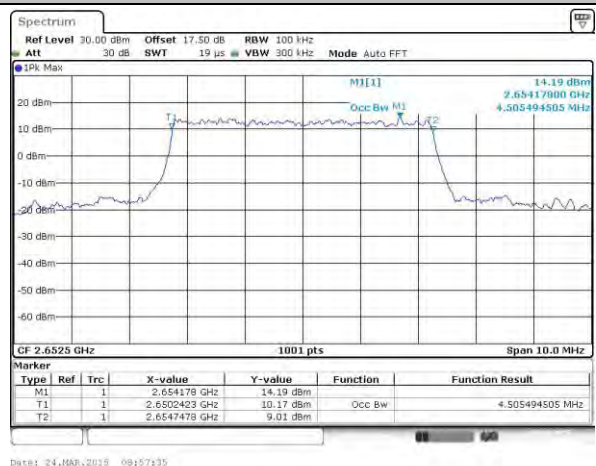
Middle Channel / 5MHz / 16QAM

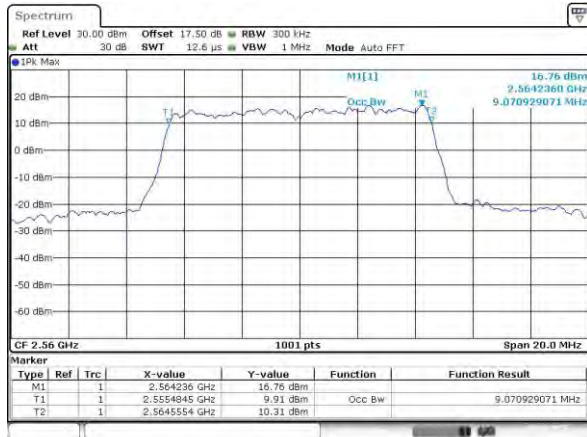
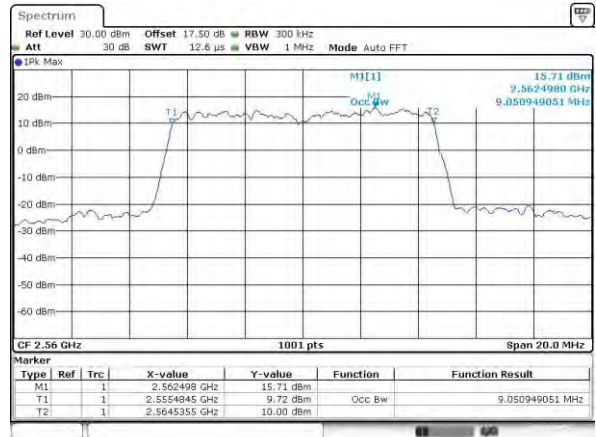
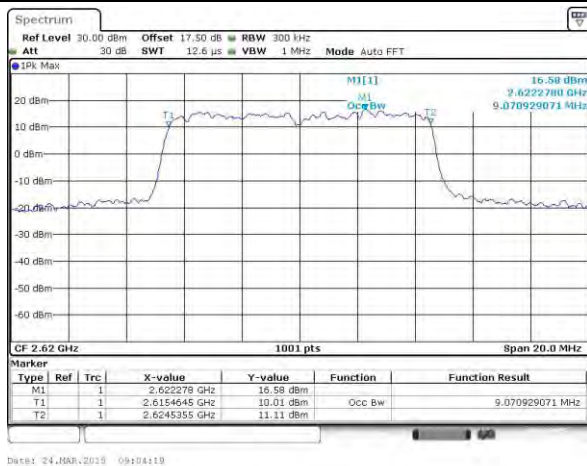
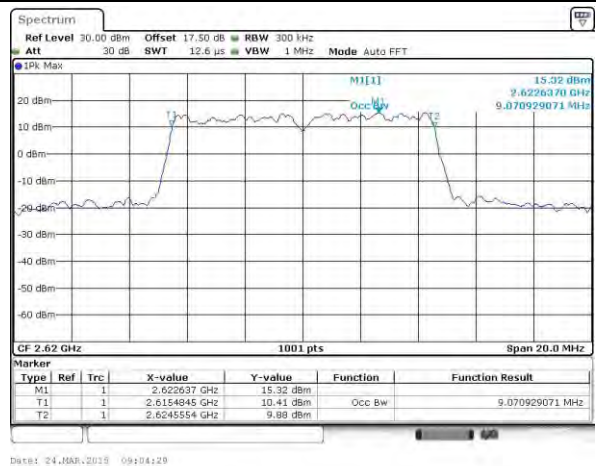
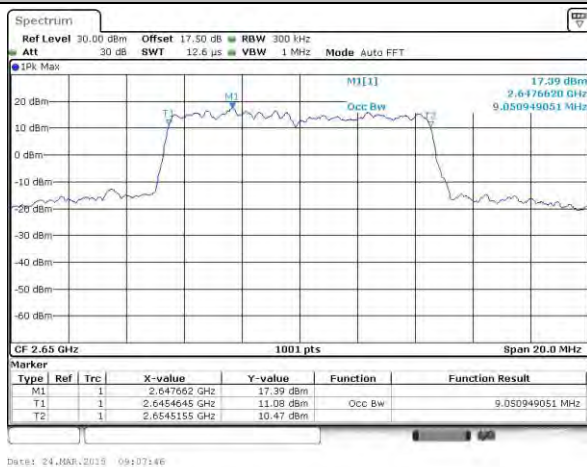
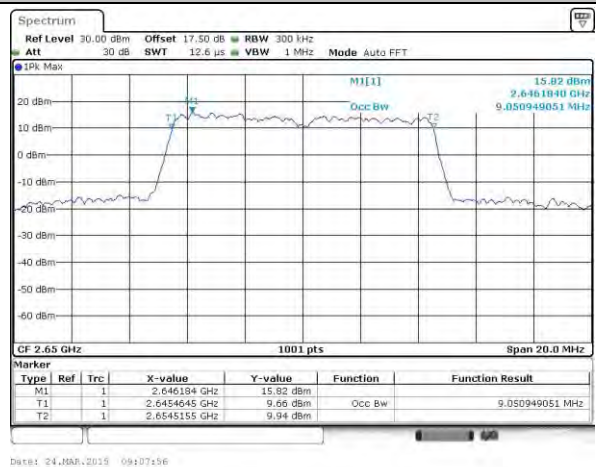


Highest Channel / 5MHz / QPSK



Highest Channel / 5MHz / 16QAM

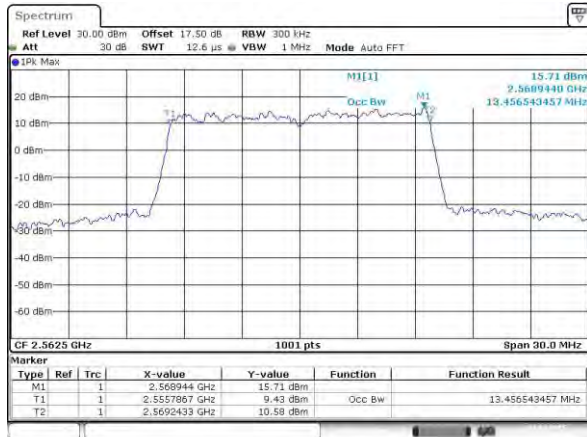


**LTE Band 41****Lowest Channel / 10MHz / QPSK****Lowest Channel / 10MHz / 16QAM****Middle Channel / 10MHz / QPSK****Middle Channel / 10MHz / 16QAM****Highest Channel / 10MHz / QPSK****Highest Channel / 10MHz / 16QAM**

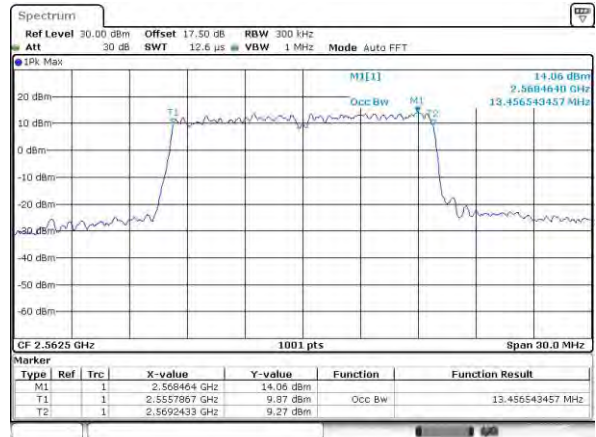


LTE Band 41

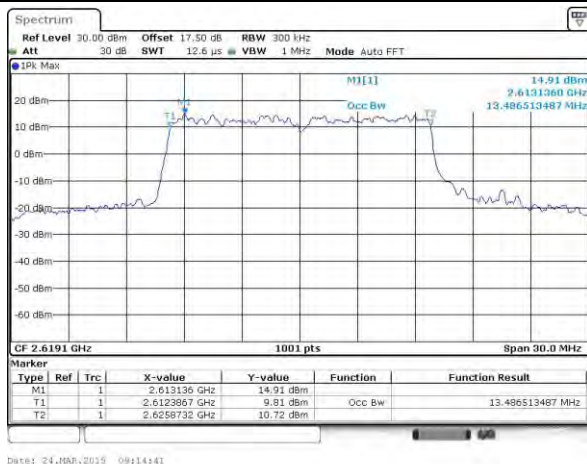
Lowest Channel / 15MHz / QPSK



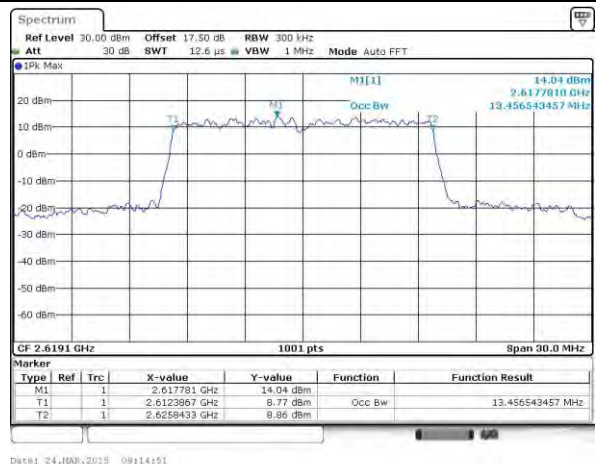
Lowest Channel / 15MHz / 16QAM



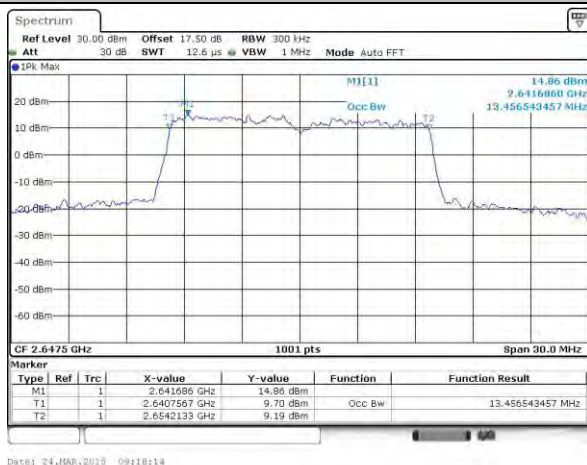
Middle Channel / 15MHz / QPSK



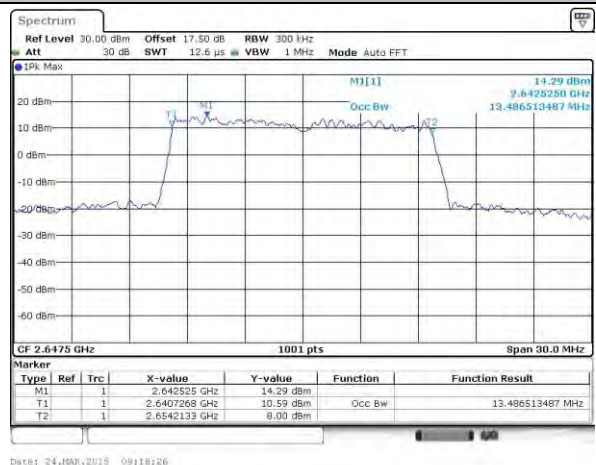
Middle Channel / 15MHz / 16QAM

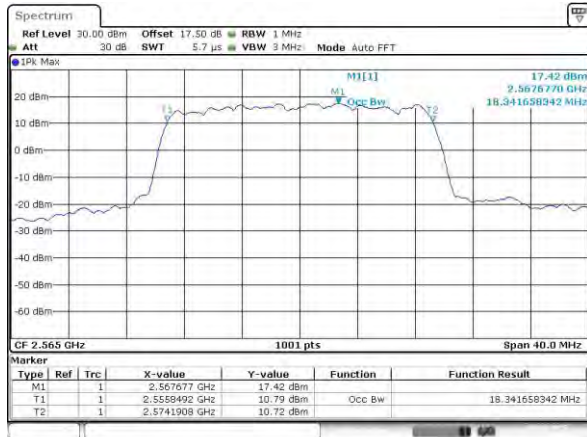


Highest Channel / 15MHz / QPSK

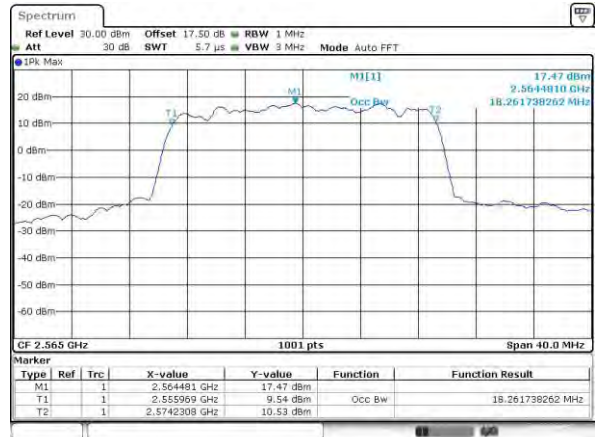


Highest Channel / 15MHz / 16QAM

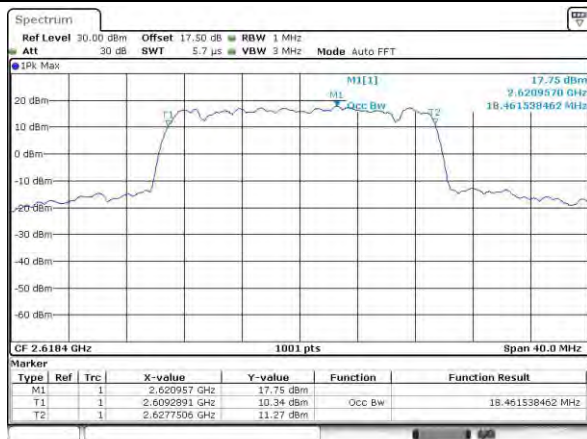


**LTE Band 41****Lowest Channel / 20MHz / QPSK**

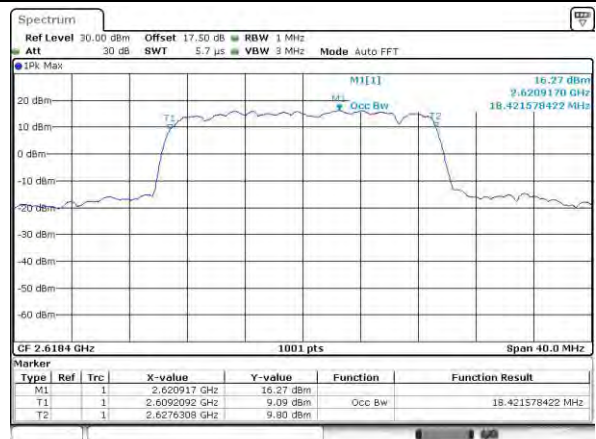
Date: 24.MAR.2015 09:21:17

Lowest Channel / 20MHz / 16QAM

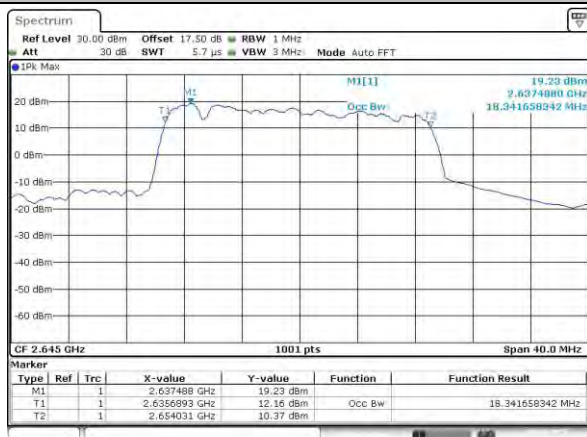
Date: 24.MAR.2015 09:21:57

Middle Channel / 20MHz / QPSK

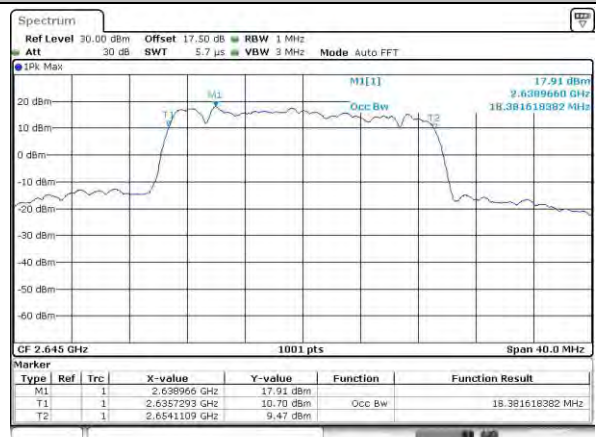
Date: 24.MAR.2015 09:25:14

Middle Channel / 20MHz / 16QAM

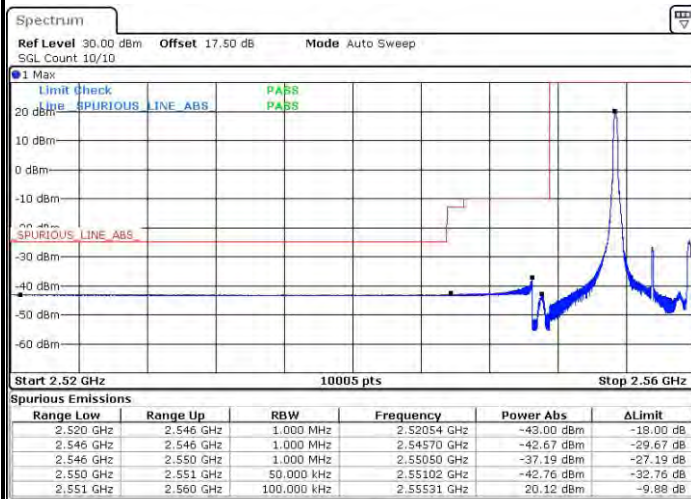
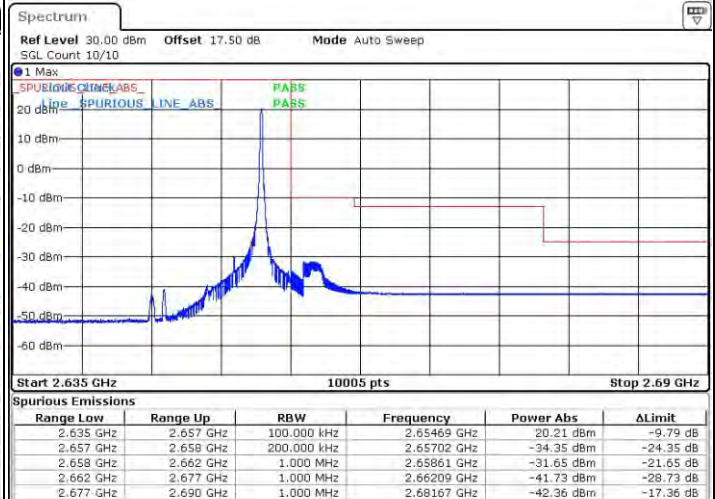
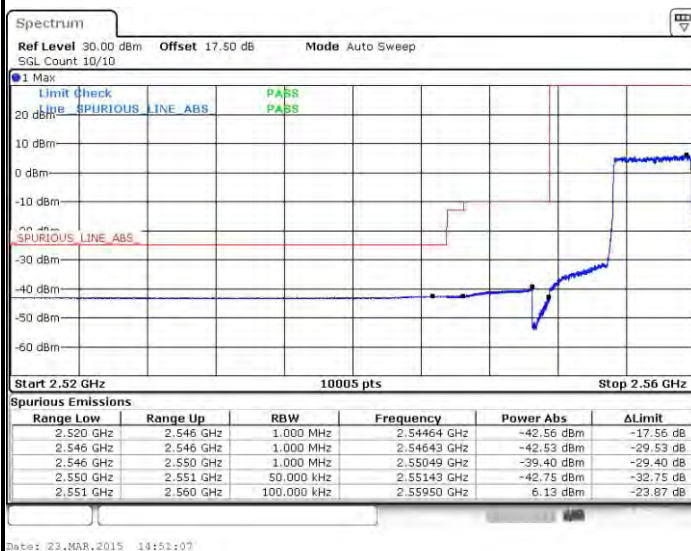
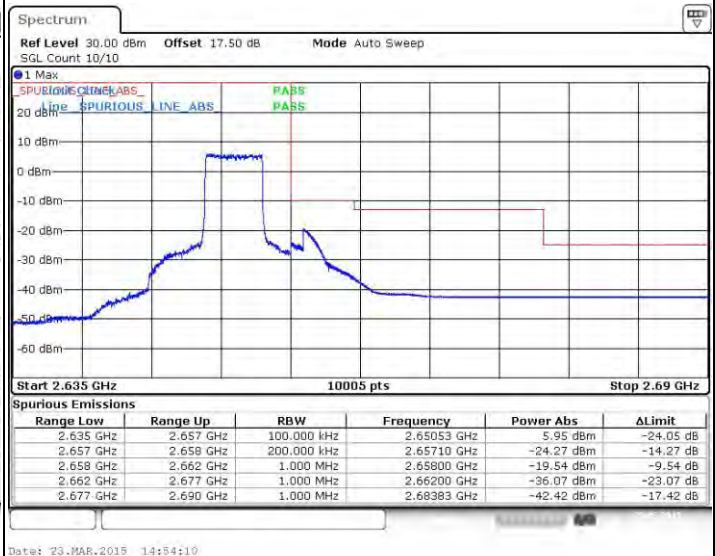
Date: 24.MAR.2015 09:25:28

Highest Channel / 20MHz / QPSK

Date: 24.MAR.2015 09:28:41

Highest Channel / 20MHz / 16QAM

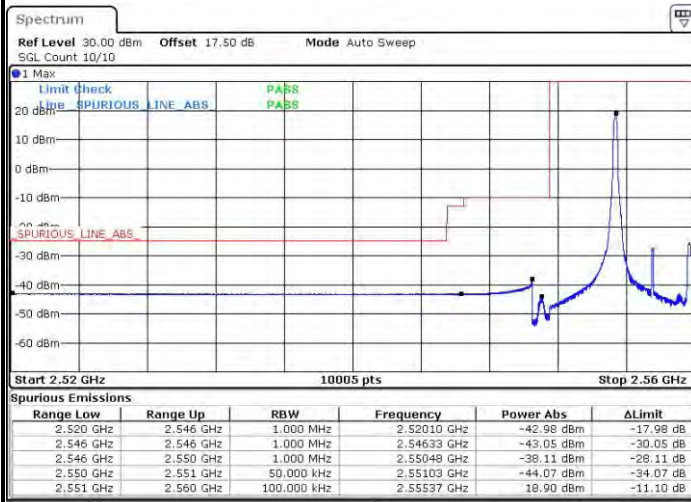
Date: 24.MAR.2015 09:28:51

**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

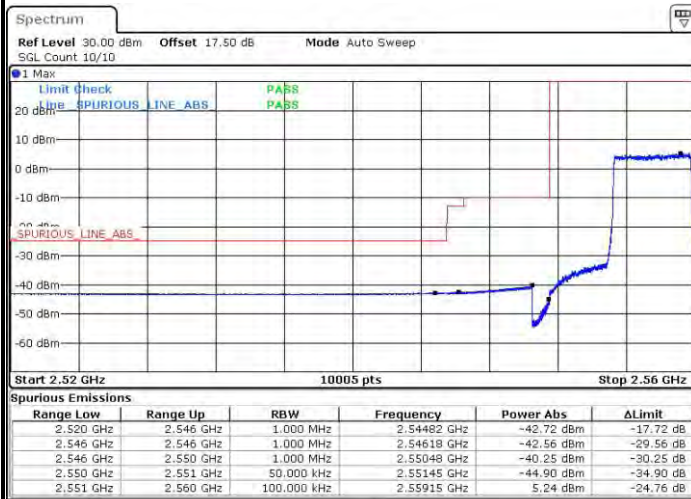
Lowest Band Edge / 1RB



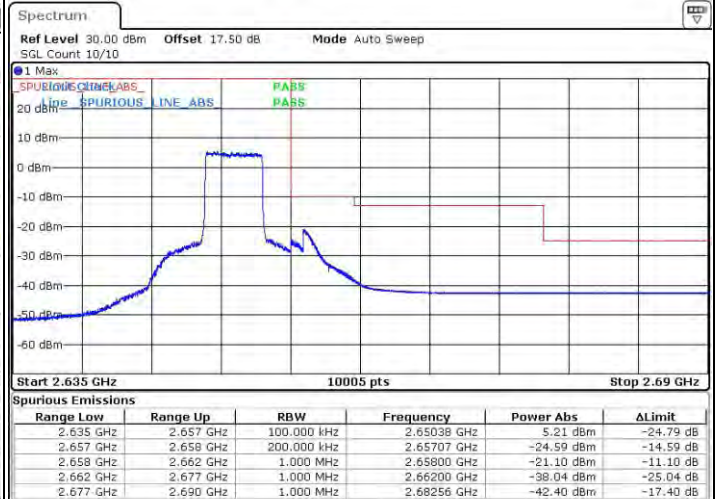
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



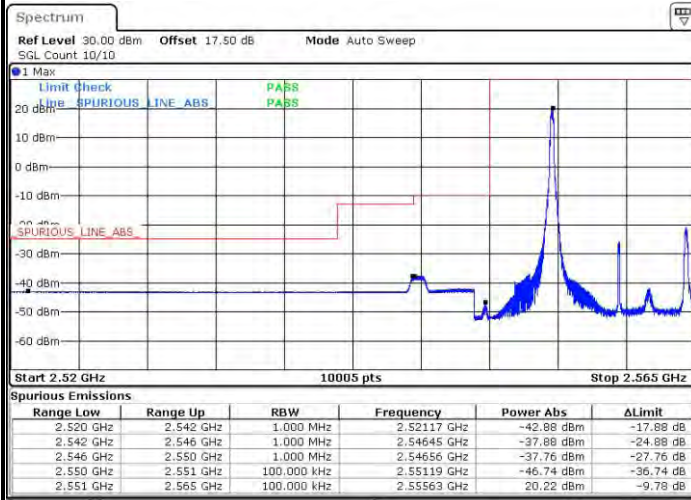
Highest Band Edge / Full RB



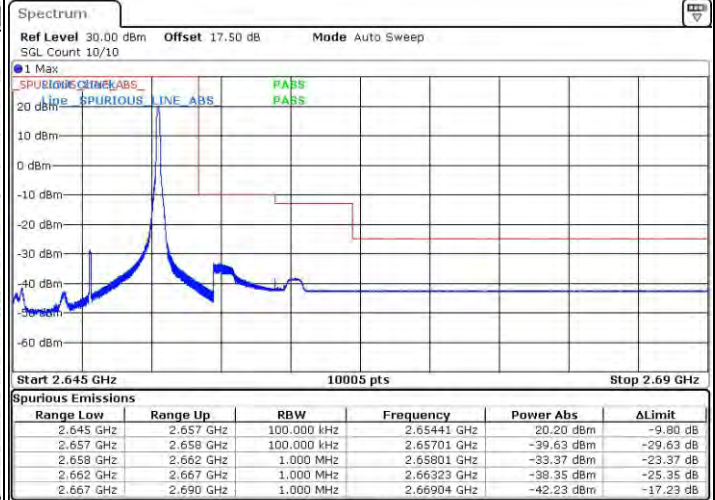


LTE Band 41 / 10MHz / QPSK

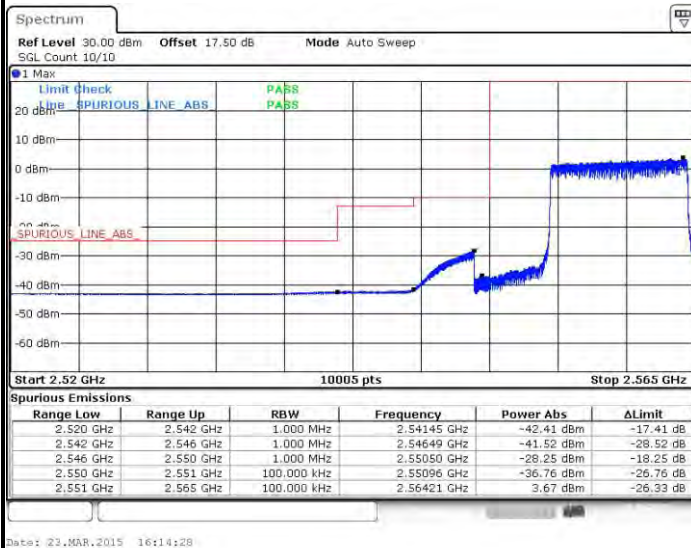
Lowest Band Edge / 1 RB



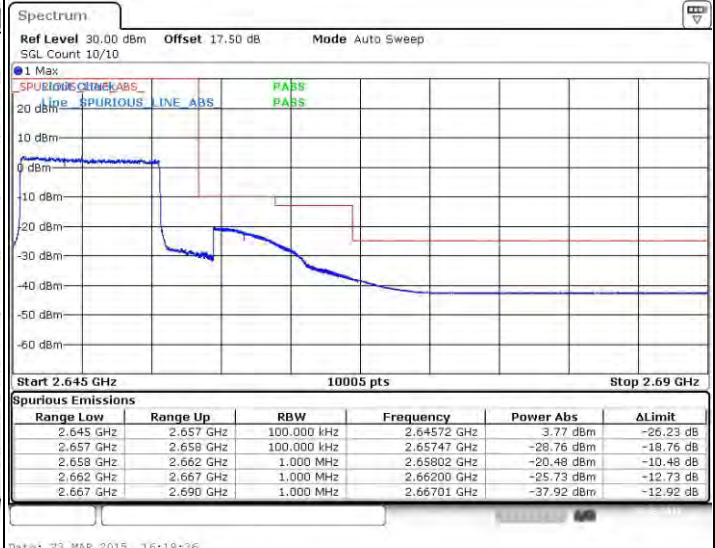
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



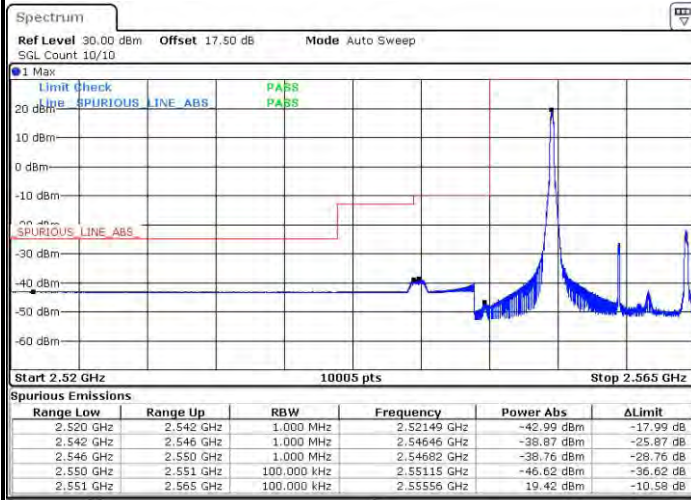
Highest Band Edge / Full RB



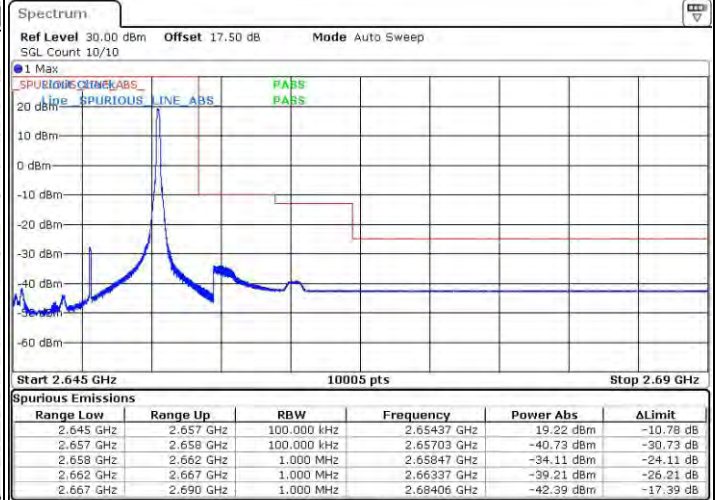


LTE Band 41 / 10MHz / 16QAM

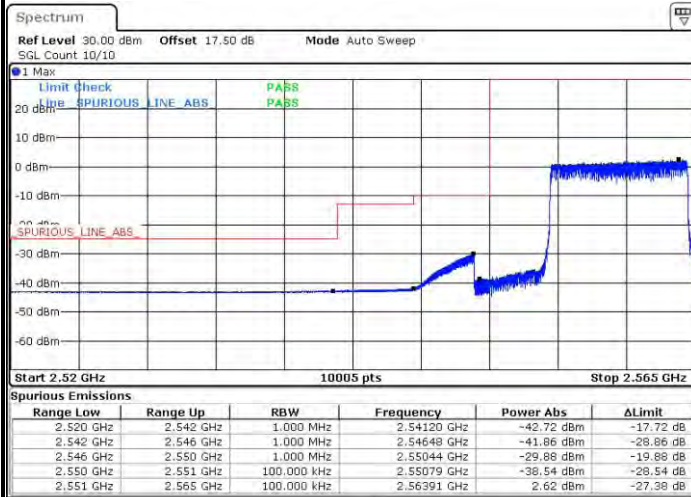
Lowest Band Edge / 1 RB



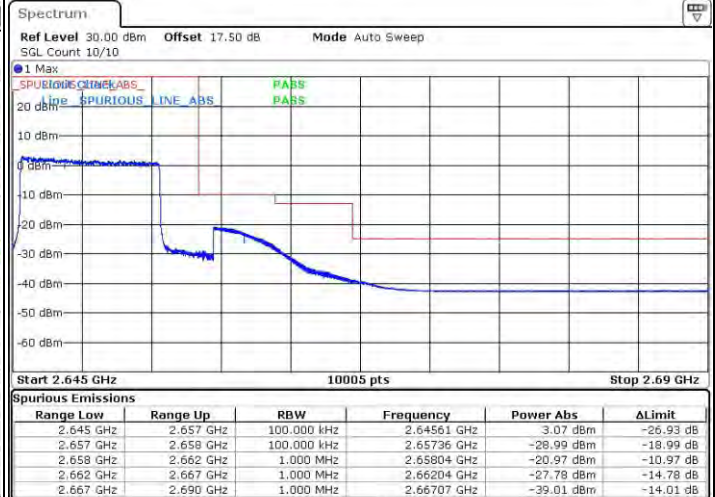
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



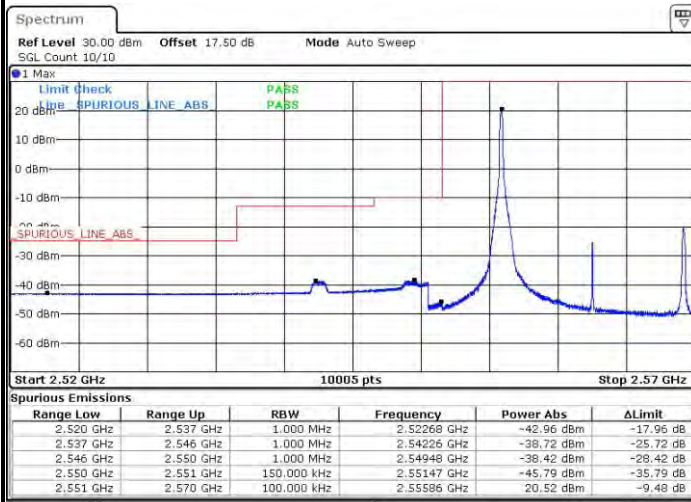
Highest Band Edge / Full RB



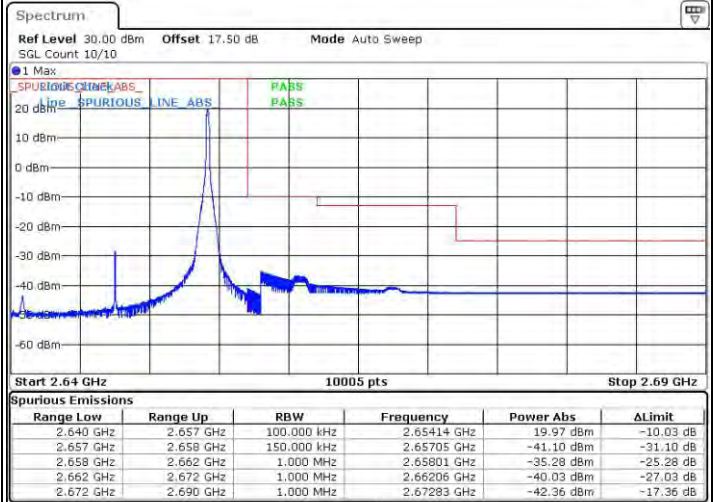


LTE Band 41 / 15MHz / QPSK

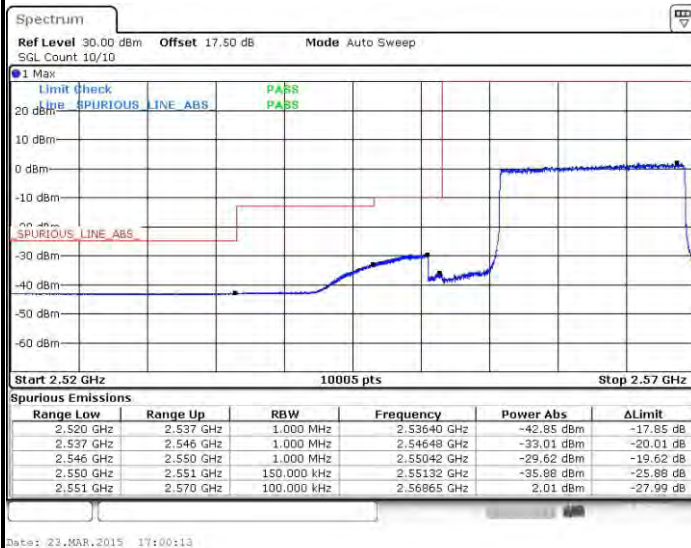
Lowest Band Edge / 1 RB



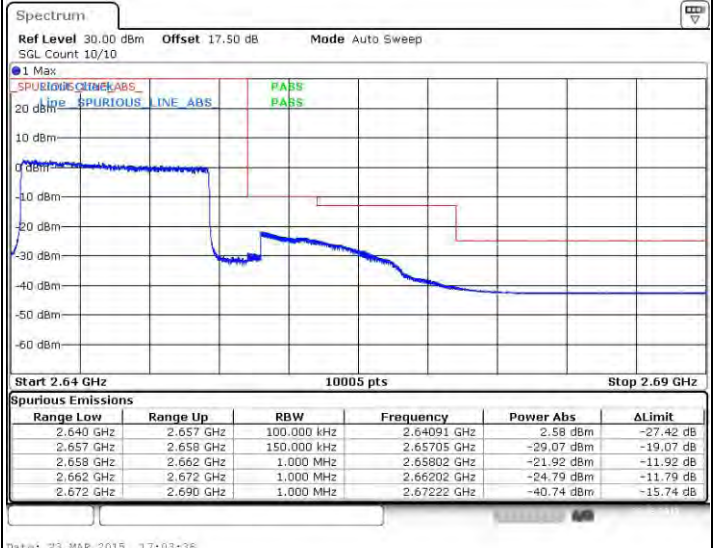
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



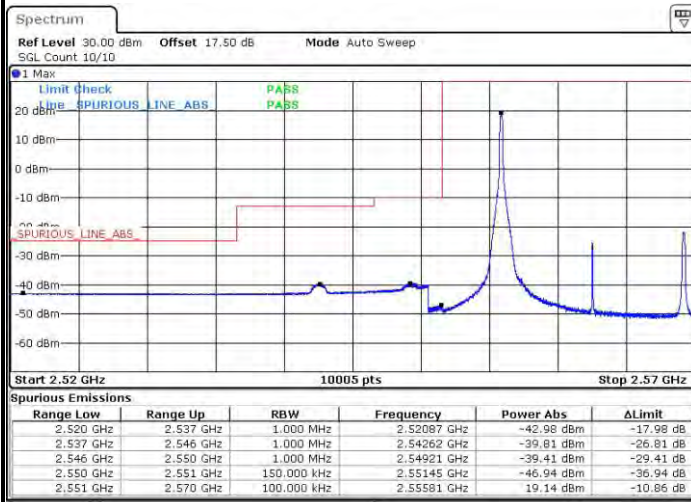
Highest Band Edge / Full RB



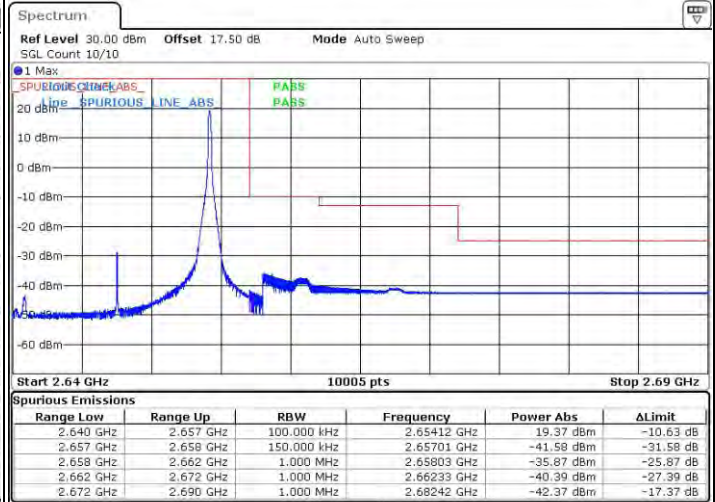


LTE Band 41 / 15MHz / 16QAM

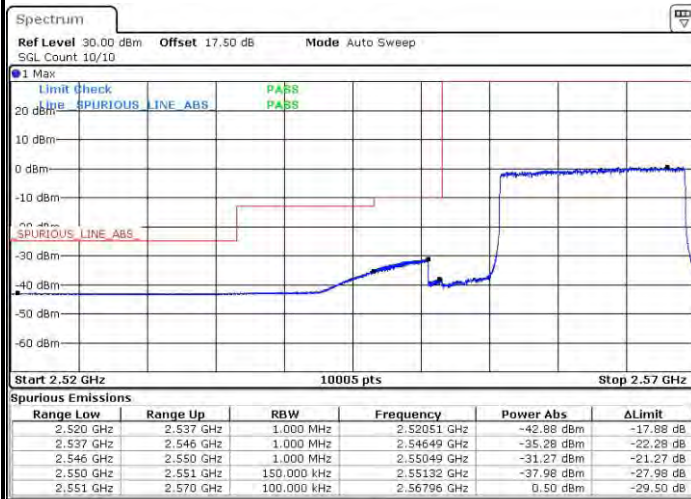
Lowest Band Edge / 1 RB



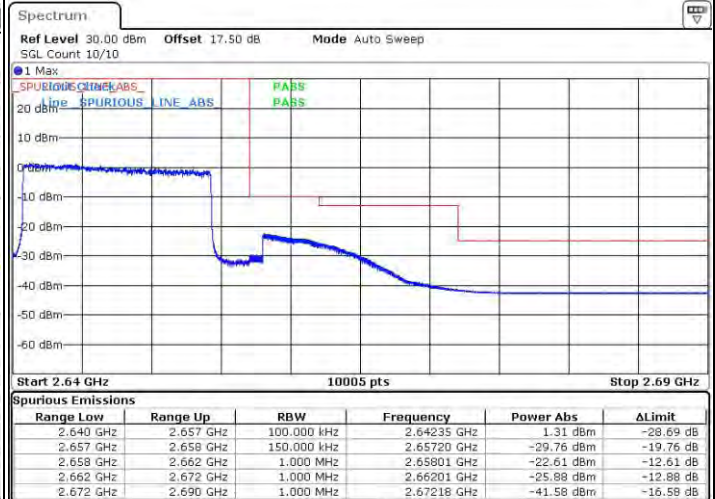
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



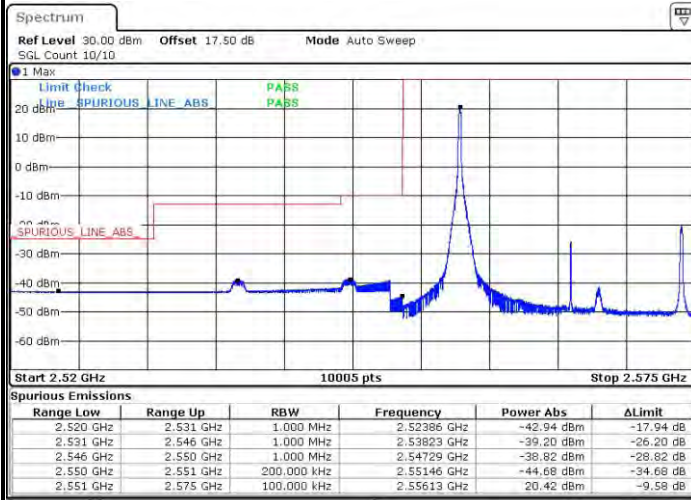
Highest Band Edge / Full RB



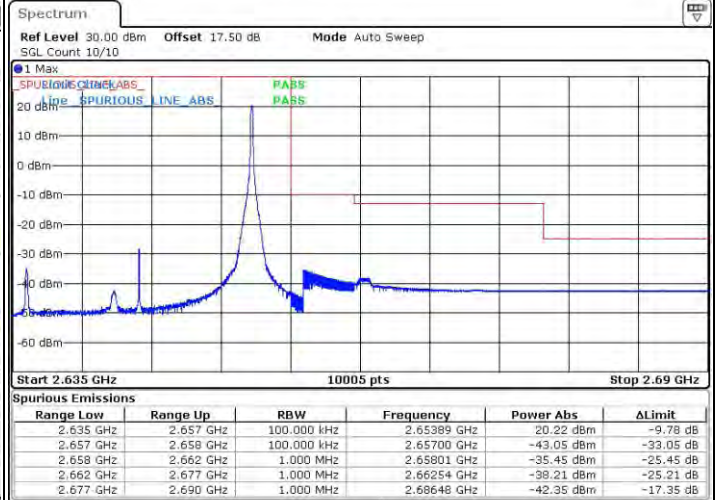


LTE Band 41 / 20MHz / QPSK

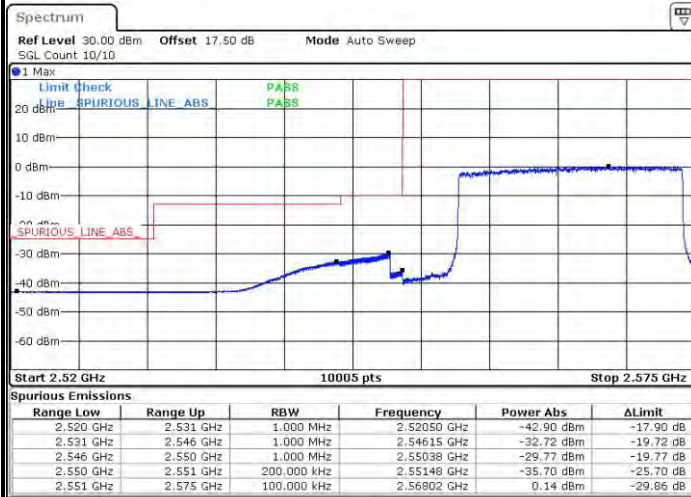
Lowest Band Edge / 1 RB



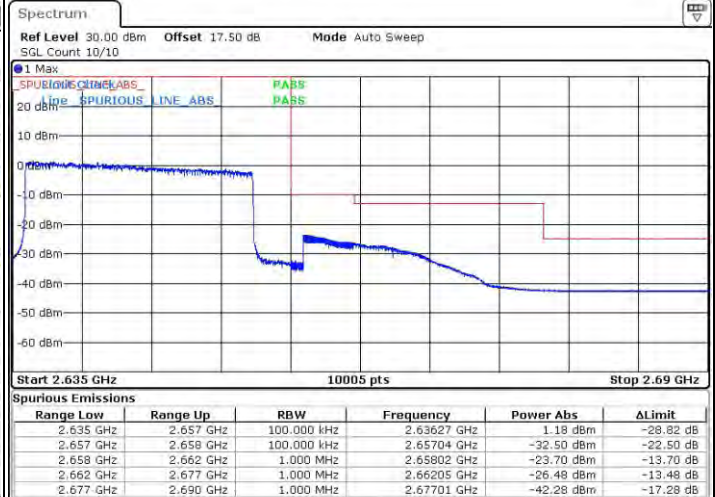
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



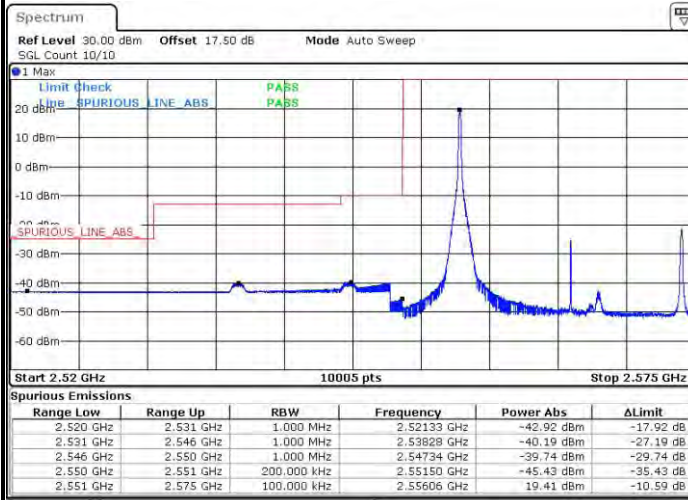
Highest Band Edge / Full RB



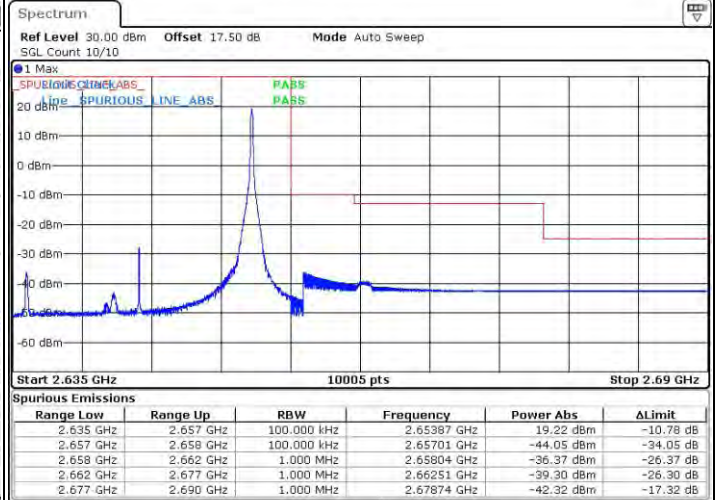


LTE Band 41 / 20MHz / 16QAM

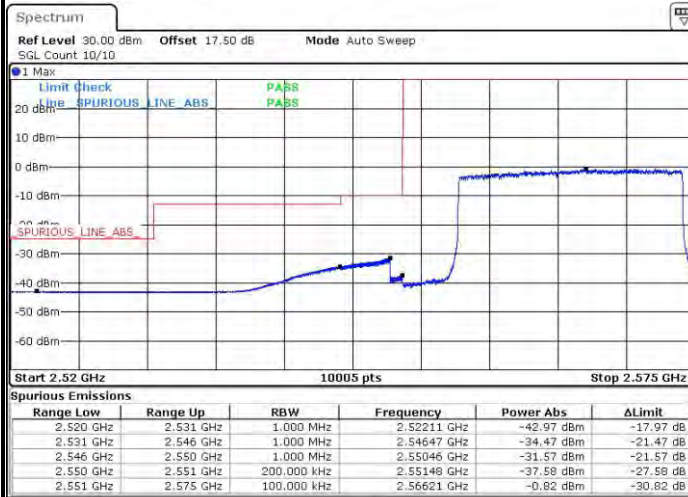
Lowest Band Edge / 1 RB



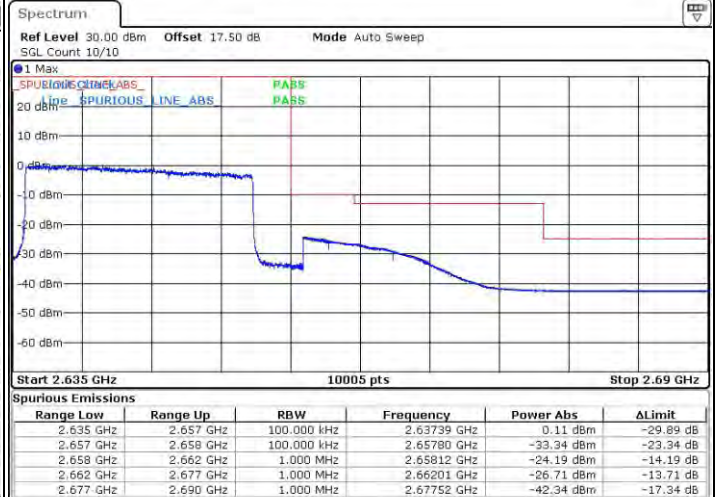
Highest Band Edge / 1 RB

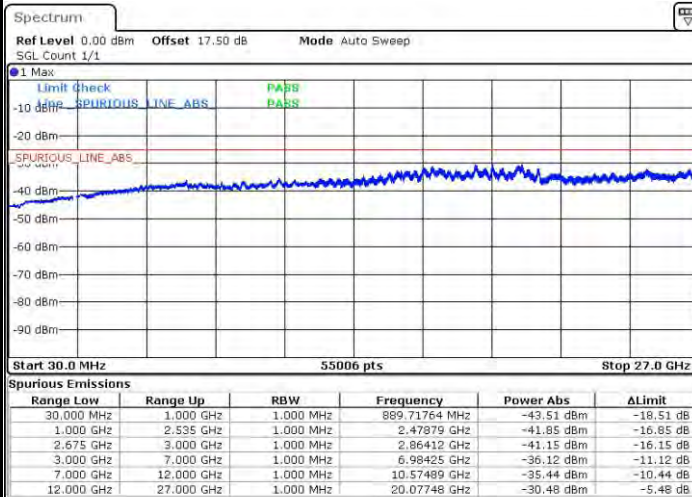


Lowest Band Edge / Full RB

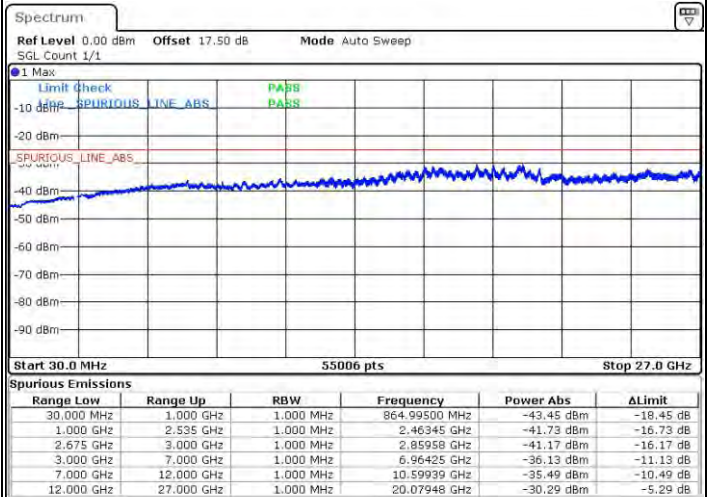


Highest Band Edge / Full RB

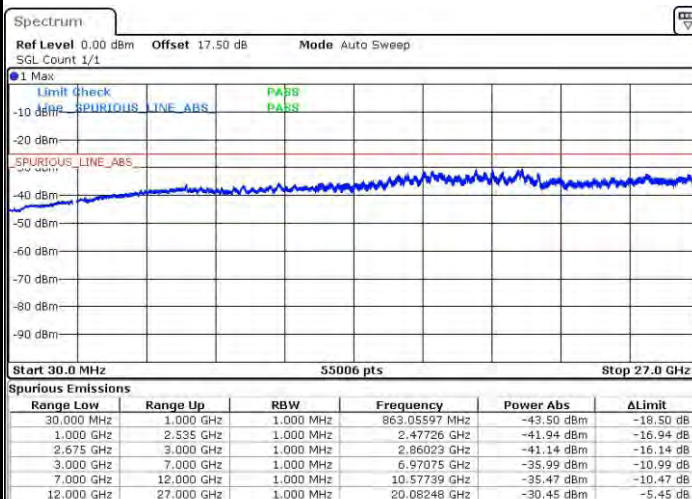


**Conducted Spurious Emission****LTE Band 41 / 5MHz****Lowest Channel / QPSK**

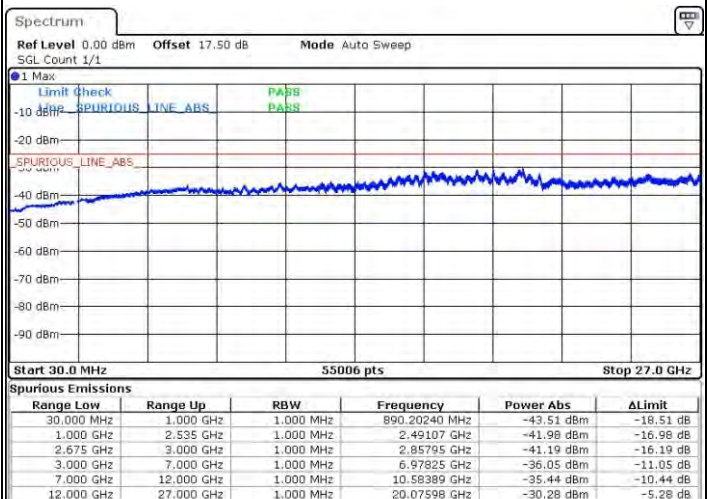
Date: 24.MAR.2015 08:49:55

Lowest Channel / 16QAM

Date: 24.MAR.2015 08:51:16

Middle Channel / QPSK

Date: 24.MAR.2015 10:20:38

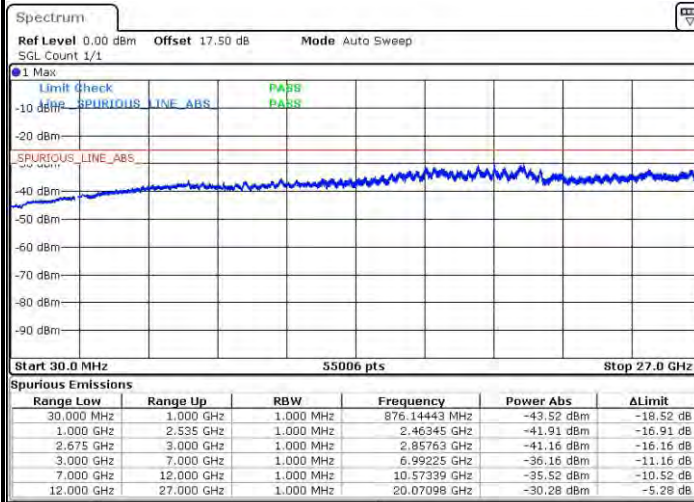
Middle Channel / 16QAM

Date: 24.MAR.2015 10:14:35



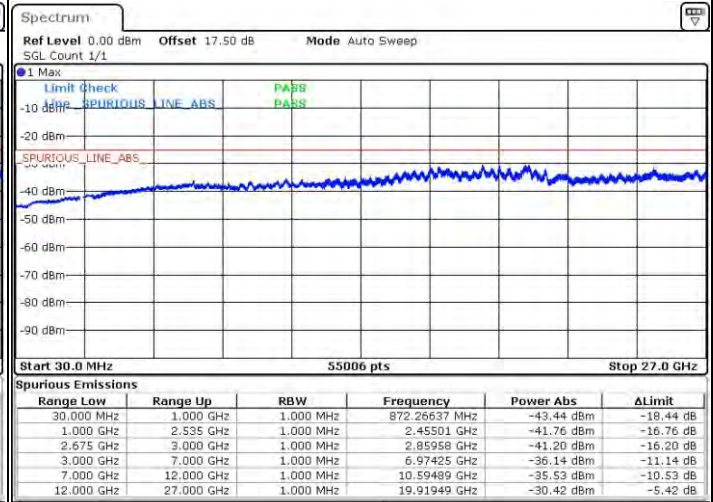
LTE Band 41 / 5MHz

Highest Channel / QPSK



Date: 24.MAR.2015 08:59:09

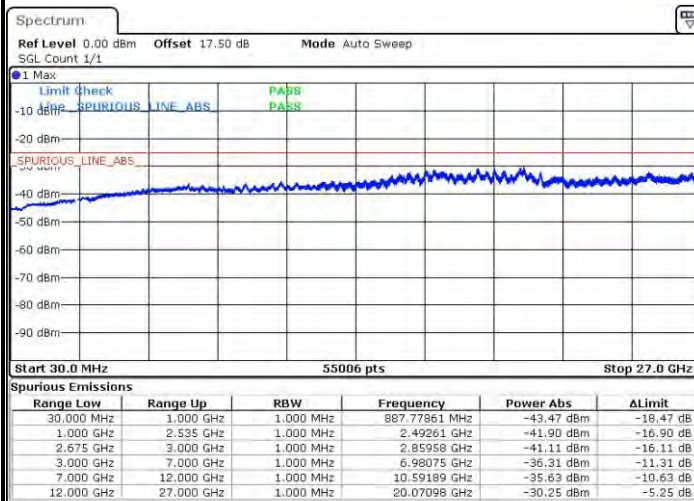
Highest Channel / 16QAM



Date: 24.MAR.2015 09:00:30

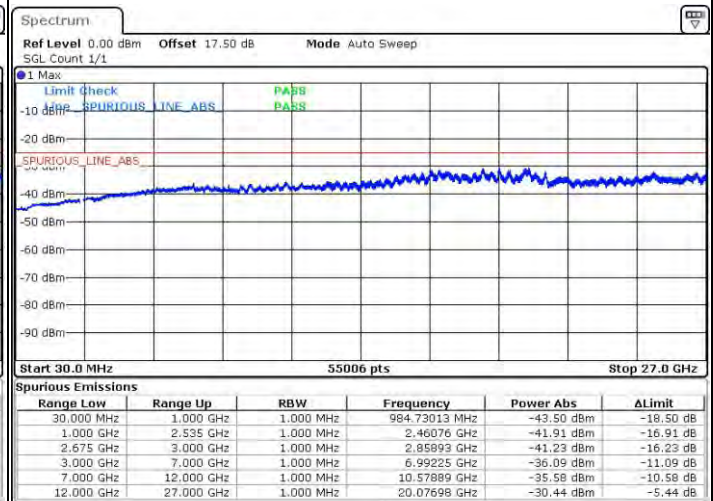
LTE Band 41 / 10MHz

Lowest Channel / QPSK



Date: 24.MAR.2015 09:02:36

Lowest Channel / 16QAM

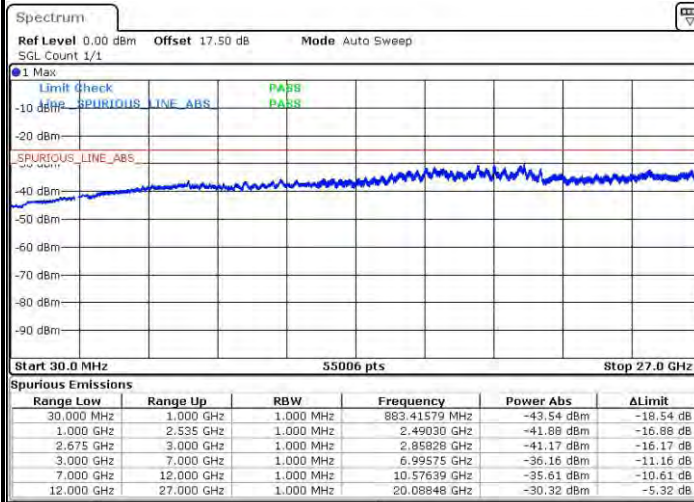


Date: 24.MAR.2015 09:03:57



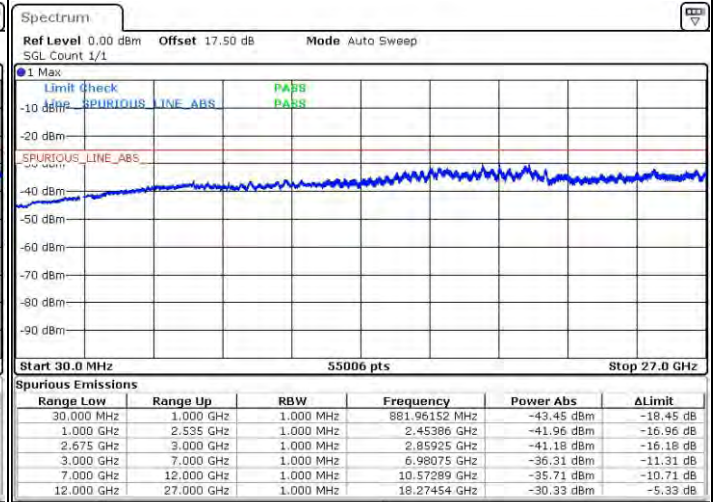
LTE Band 41 / 10MHz

Middle Channel / QPSK



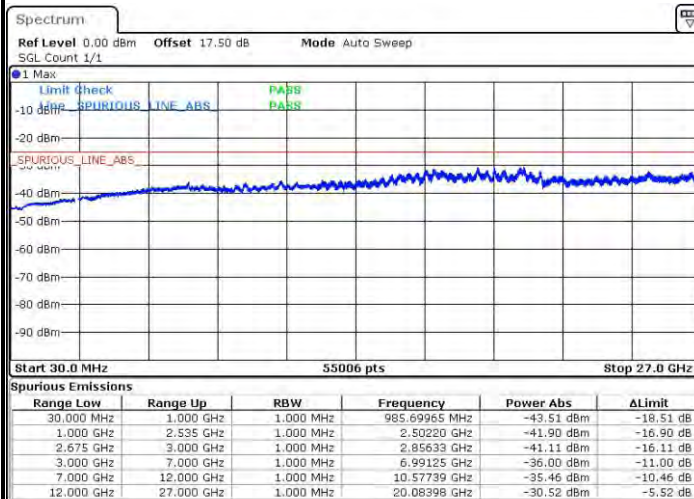
Date: 24.MAR.2015 09:06:04

Middle Channel / 16QAM



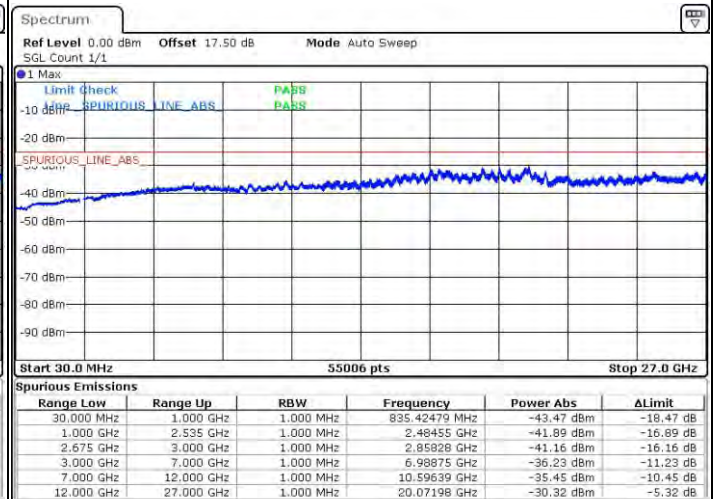
Date: 24.MAR.2015 09:07:25

Highest Channel / QPSK



Date: 24.MAR.2015 09:09:31

Highest Channel / 16QAM

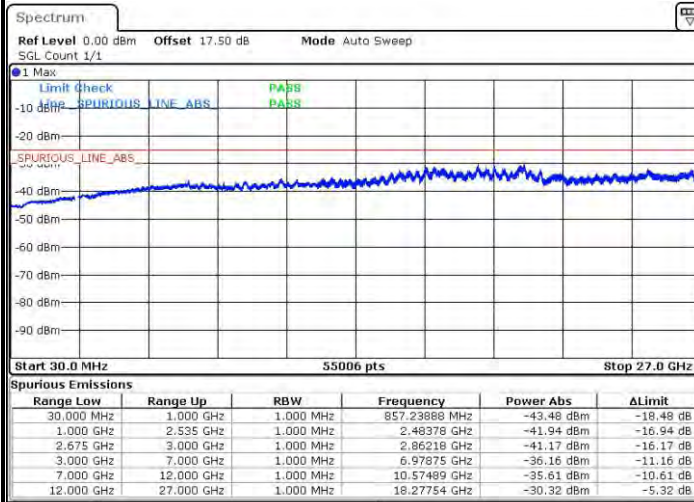


Date: 24.MAR.2015 09:10:52



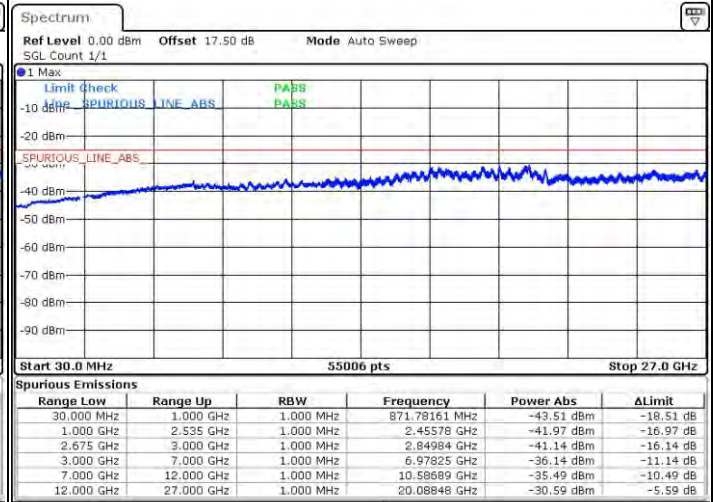
LTE Band 41 / 15MHz

Lowest Channel / QPSK



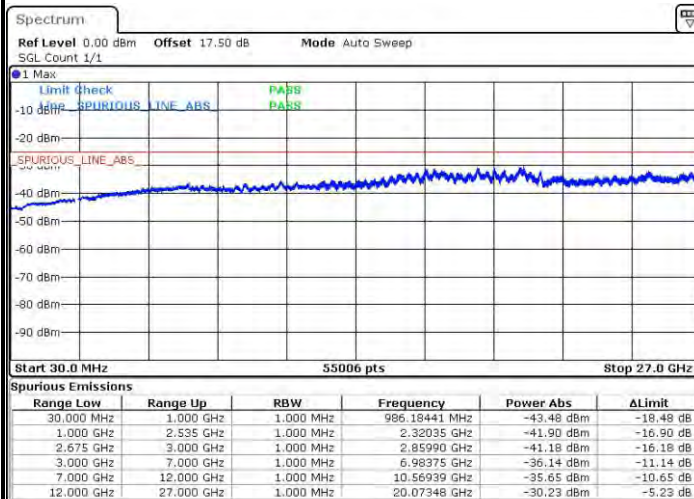
Date: 24.MAR.2015 09:12:58

Lowest Channel / 16QAM



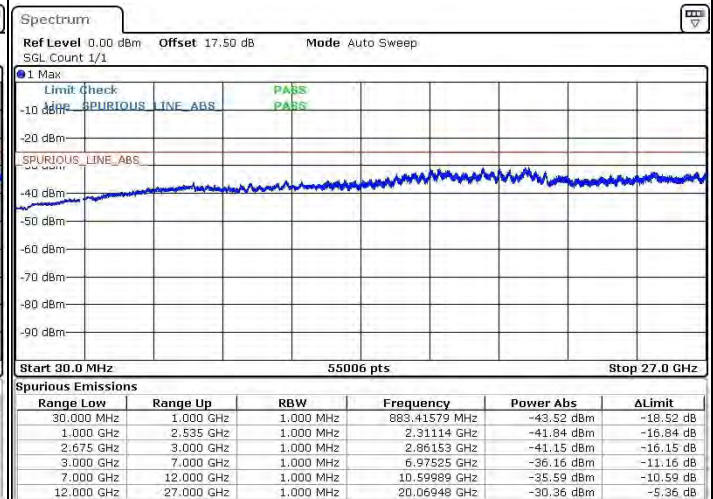
Date: 24.MAR.2015 09:14:20

Middle Channel / QPSK



Date: 24.MAR.2015 09:16:26

Middle Channel / 16QAM

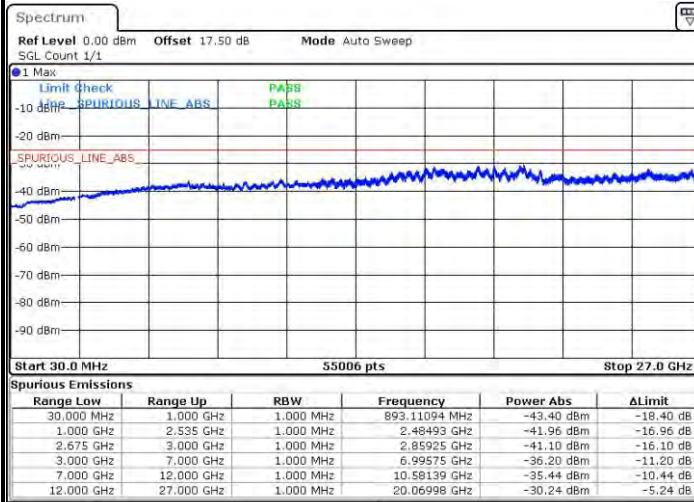


Date: 24.MAR.2015 09:17:48



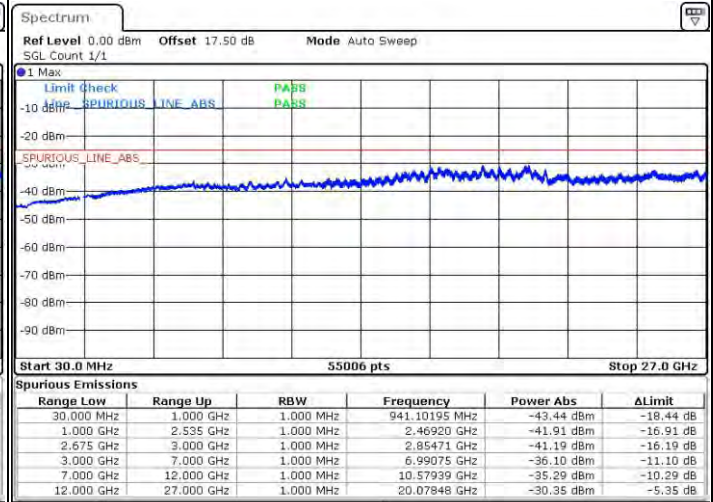
LTE Band 41 / 15MHz

Highest Channel / QPSK



Date: 24.MAR.2015 09:20:05

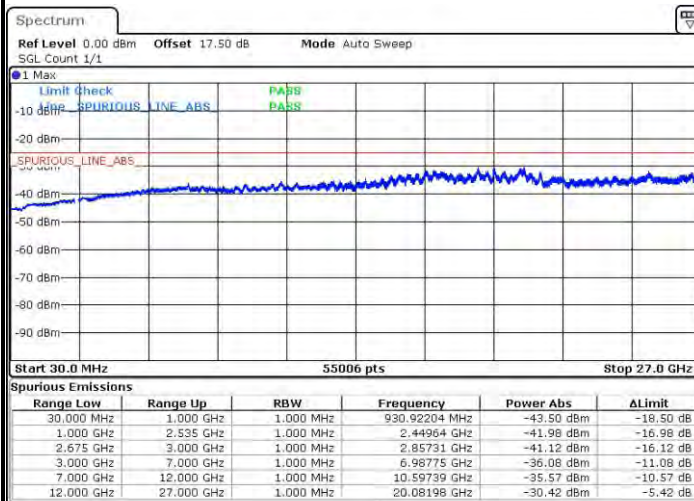
Highest Channel / 16QAM



Date: 24.MAR.2015 09:21:26

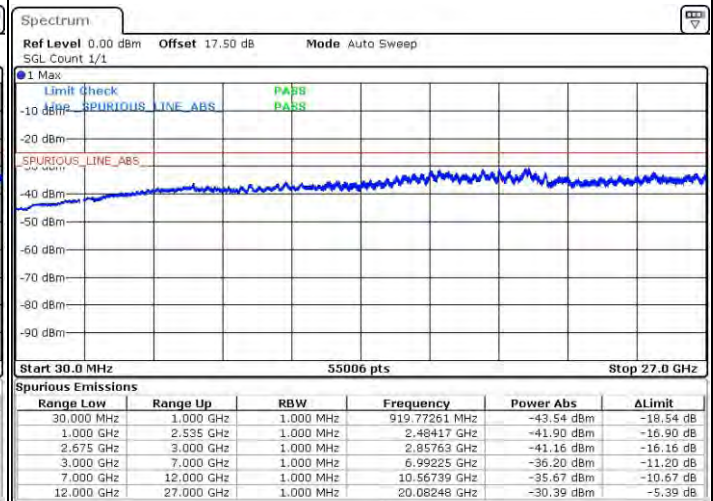
LTE Band 41 / 20MHz

Lowest Channel / QPSK



Date: 24.MAR.2015 09:23:32

Lowest Channel / 16QAM

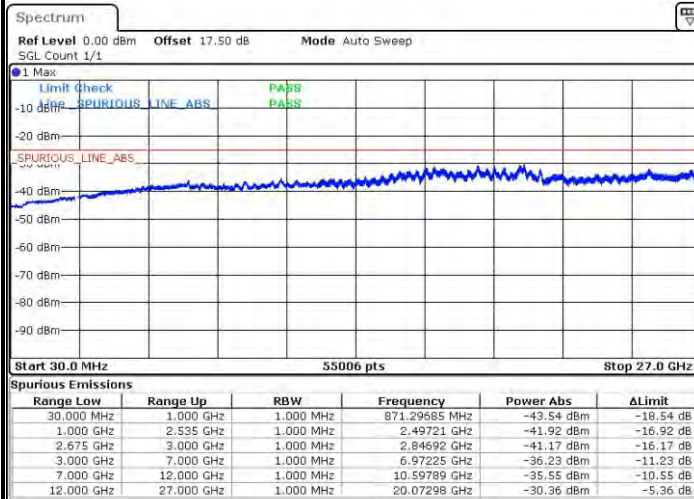


Date: 24.MAR.2015 10:08:17



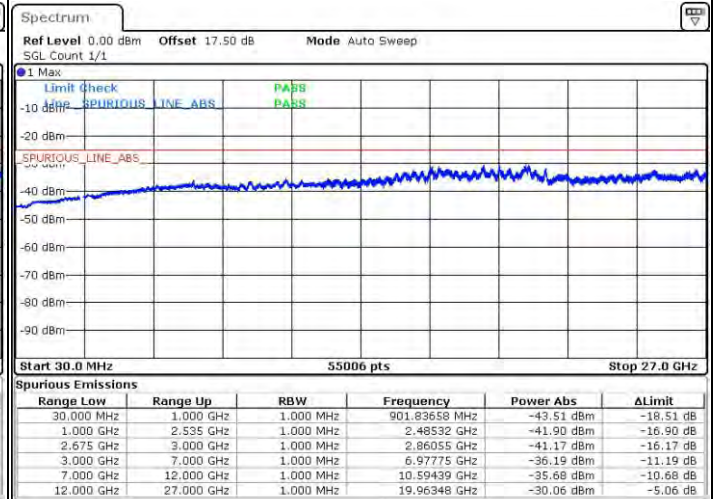
LTE Band 41 / 20MHz

Middle Channel / QPSK



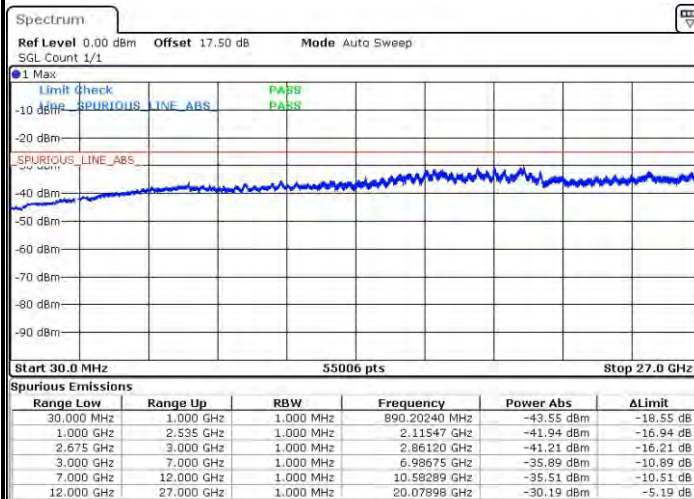
Date: 24.MAR.2015 09:26:59

Middle Channel / 16QAM



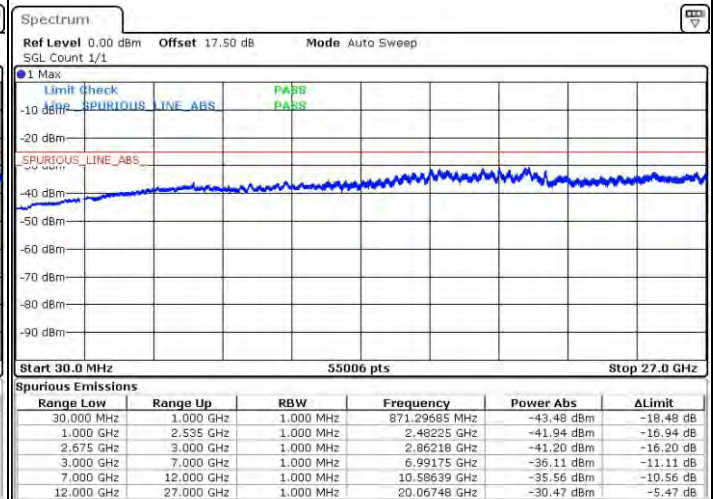
Date: 24.MAR.2015 09:28:20

Highest Channel / QPSK



Date: 24.MAR.2015 09:30:25

Highest Channel / 16QAM



Date: 24.MAR.2015 09:31:46

**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	0.0004	PASS
40	Normal Voltage	0.0013	
30	Normal Voltage	0.0028	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0015	
0	Normal Voltage	0.0015	
-10	Normal Voltage	0.0054	
-20	Normal Voltage	0.0172	
-30	Normal Voltage	0.0202	
20	Maximum Voltage	0.0012	
20	Normal Voltage	0.0006	
20	Battery End Point	0.0005	

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	24	16.49	0.0446	13.12	0.0205
Middle		1	0	18.46	0.0702	13.13	0.0205
Highest		1	0	19.11	0.0815	13.10	0.0204
Lowest	16QAM	1	24	15.79	0.0380	13.62	0.0230
Middle		1	0	16.03	0.0401	11.55	0.0143
Highest		1	0	16.33	0.0430	12.20	0.0166
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	0	17.62	0.0578	14.85	0.0305
Middle		1	24	19.06	0.0806	15.38	0.0345
Highest		1	0	17.85	0.0610	15.02	0.0318
Lowest	16QAM	1	0	16.09	0.0407	13.24	0.0211
Middle		1	24	16.56	0.0453	13.23	0.0210
Highest		1	0	16.74	0.0472	12.58	0.0181
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	0	17.04	0.0506	15.14	0.0326
Middle		1	37	18.36	0.0686	16.47	0.0443
Highest		1	0	18.46	0.0702	16.49	0.0446
Lowest	16QAM	36	0	17.45	0.0556	14.10	0.0257
Middle		1	37	17.20	0.0525	15.22	0.0332
Highest		1	0	17.69	0.0588	14.86	0.0306
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	0	18.77	0.0754	14.98	0.0315
Middle		1	0	19.02	0.0799	14.25	0.0266
Highest		1	0	19.22	0.0836	14.73	0.0297
Lowest	16QAM	1	0	15.57	0.0361	16.37	0.0433
Middle		1	0	15.96	0.0395	17.19	0.0523
Highest		1	0	16.19	0.0416	17.38	0.0547
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)	
5112	-31.45	-25	-6.45	-66.65	-43.20	0.95	12.70	H	Pass
7668	-36.99	-25	-11.99	-73.88	-47.23	1.46	11.70	H	Pass
10224	-38.79	-25	-13.79	-77.26	-49.58	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
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
5112	-28.13	-25	-3.13	-64.39	-39.88	0.95	12.70	V	Pass
7668	-34.44	-25	-9.44	-71.4	-44.68	1.46	11.70	V	Pass
10224	-40.18	-25	-15.18	-77.08	-50.97	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 :	40897 (Middle)	Frequency :	2620.7						
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)	
5236	-35.12	-25	-10.12	-69.35	-46.87	0.95	12.70	H	Pass
7856	-35.51	-25	-10.51	-72.40	-45.75	1.46	11.70	H	Pass
10476	-36.27	-25	-11.27	-74.74	-47.06	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 :	40897 (Middle)	Frequency :	2620.7						
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
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
5236	-31.01	-25	-6.01	-66.95	-42.76	0.95	12.70	V	Pass
7856	-30.32	-25	-5.32	-68.55	-40.56	1.46	11.70	V	Pass
10476	-28.13	-25	-3.13	-68.73	-38.92	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 :	41215 (High)	Frequency :	2652.5						
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)	
5300	-35.32	-25	-10.32	-69.54	-47.07	0.95	12.70	H	Pass
7952	-38.39	-25	-13.39	-74.28	-48.23	1.46	11.30	H	Pass
10600	-37.72	-25	-12.72	-76.19	-48.51	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 :	41215 (High)	Frequency :	2652.5						
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)		
5300	-28.02	-25	-3.02	-64.08	-39.77	0.95	12.70	V	Pass
7952	-35.86	-25	-10.86	-71.76	-45.70	1.46	11.30	V	Pass
10600	-29.88	-25	-4.88	-69.88	-40.67	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)	
5112	-33.67	-25	-8.67	-68.16	-45.42	0.95	12.70	H	Pass
7668	-37.15	-25	-12.15	-74.04	-47.39	1.46	11.70	H	Pass
10224	-38.76	-25	-13.76	-77.23	-49.55	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)	
5112	-28.04	-25	-3.04	-64.2	-39.79	0.95	12.70	V	Pass
7668	-33.23	-25	-8.23	-70.49	-43.47	1.46	11.70	V	Pass
10224	-36.16	-25	-11.16	-73.03	-46.95	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 :	40890 (Middle)	Frequency :	2620						
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)	
5232	-34.08	-25	-9.08	-68.59	-45.83	0.95	12.70	H	Pass
7848	-39.13	-25	-14.13	-76.02	-49.37	1.46	11.70	H	Pass
10464	-37.35	-25	-12.35	-75.82	-48.14	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 :	40890 (Middle)	Frequency :	2620						
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
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
5232	-31.25	-25	-6.25	-67.15	-43.00	0.95	12.70	V	Pass
7848	-31.28	-25	-6.28	-69.18	-41.52	1.46	11.70	V	Pass
10464	-28.87	-25	-3.87	-69.27	-39.66	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 :	41190 (High)	Frequency :	2650						
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)	
5292	-33.01	-25	-8.01	-67.40	-44.76	0.95	12.70	H	Pass
7936	-37.78	-25	-12.78	-73.67	-47.62	1.46	11.30	H	Pass
10584	-39.41	-25	-14.41	-77.88	-50.20	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 :	41190 (High)	Frequency :	2650						
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)		
5292	-29.16	-25	-4.16	-65.44	-40.91	0.95	12.70	V	Pass
7936	-34.73	-25	-9.73	-70.84	-44.57	1.46	11.30	V	Pass
10584	-34.57	-25	-9.57	-72.38	-45.36	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
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
5112	-33.02	-25	-8.02	-67.41	-44.77	0.95	12.70	H	Pass
7668	-36.84	-25	-11.84	-73.73	-47.08	1.46	11.70	H	Pass
10224	-39.01	-25	-14.01	-77.48	-49.80	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)	
5112	-28.84	-25	-3.84	-65.14	-40.59	0.95	12.70	V	Pass
7668	-32.02	-25	-7.02	-69.94	-42.26	1.46	11.70	V	Pass
10224	-36.97	-25	-11.97	-73.87	-47.76	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 :	40881 (Middle)	Frequency :	2619.1						
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)	
5224	-34.31	-25	-9.31	-68.75	-46.06	0.95	12.70	H	Pass
7836	-39.44	-25	-14.44	-76.33	-49.68	1.46	11.70	H	Pass
10448	-39.01	-25	-14.01	-77.48	-49.80	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 :	40881 (Middle)	Frequency :	2619.1						
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
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
5224	-30.09	-25	-5.09	-66.18	-41.84	0.95	12.70	V	Pass
7836	-31.09	-25	-6.09	-68.98	-41.33	1.46	11.70	V	Pass
10448	-32.54	-25	-7.54	-71.37	-43.33	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 :	41165 (High)	Frequency :	2647.5						
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)	
5280	-34.73	-25	-9.73	-69.05	-46.48	0.95	12.70	H	Pass
7924	-37.97	-25	-12.97	-73.86	-47.81	1.46	11.30	H	Pass
10564	-39.14	-25	-14.14	-77.61	-49.93	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 :	41165 (High)	Frequency :	2647.5						
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)		
5280	-28.17	-25	-3.17	-64.43	-39.92	0.95	12.70	V	Pass
7924	-35.82	-25	-10.82	-71.73	-45.66	1.46	11.30	V	Pass
10564	-38.03	-25	-13.03	-74.59	-48.82	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)	
5112	-32.75	-25	-7.75	-67.33	-44.50	0.95	12.70	H	Pass
7668	-37.15	-25	-12.15	-74.04	-47.39	1.46	11.70	H	Pass
10224	-39.58	-25	-14.58	-78.05	-50.37	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)	
5112	-28.08	-25	-3.08	-63.89	-39.83	0.95	12.70	V	Pass
7668	-31.80	-25	-6.80	-69.72	-42.04	1.46	11.70	V	Pass
10224	-37.75	-25	-12.75	-74.65	-48.54	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 :	40874 (Middle)	Frequency :	2618.4						
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)	
5220	-33.53	-25	-8.53	-67.99	-45.28	0.95	12.70	H	Pass
7828	-36.83	-25	-11.83	-73.72	-47.07	1.46	11.70	H	Pass
10438	-38.91	-25	-13.91	-77.38	-49.70	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 :	40874 (Middle)	Frequency :	2618.4						
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)		
5220	-29.11	-25	-4.11	-65.4	-40.86	0.95	12.70	V	Pass
7828	-31.36	-25	-6.36	-69.26	-41.60	1.46	11.70	V	Pass
10438	-36.55	-25	-11.55	-73.44	-47.34	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 :	41140 (High)	Frequency :	2645						
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)	
5272	-35.91	-25	-10.91	-70.08	-47.66	0.95	12.70	H	Pass
7908	-37.27	-25	-12.27	-73.16	-47.11	1.46	11.30	H	Pass
10544	-36.44	-25	-11.44	-74.91	-47.23	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 :	41140 (High)	Frequency :	2645						
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)		
5272	-31.91	-25	-6.91	-67.7	-43.66	0.95	12.70	V	Pass
7908	-36.83	-25	-11.83	-72.71	-46.67	1.46	11.30	V	Pass
10544	-28.52	-25	-3.52	-69.01	-39.31	1.31	12.10	V	Pass