FCC Radio Test Report

FCC ID: 2AQ7C-M100-V

Original Grant

Report No.	:	TB-FCC173482
Applicant	:	SHENZHEN TOVISION TECHNOLOGY CO.,LTD
Equipment Under Test (EUT)		
EUT Name	:	Wireless base unit
Model No.	:	M100-V
Series Model No.	:	N/A
Brand Name	:	----
Sample ID	:	TBBJ-20200509-02-3#
Receipt Date	:	2020-06-01
Test Date	:	2020-06-02 to 2020-07-08
Issue Date	:	2020-07-09
Standards	:	47 CFR FCC Part 2&27
Test Method	:	ANSI C63.26 2015
Conclusions	:	**PASS**

In the configuration tested, the EUT complied with the standards specified above,

Test/Witness Engineer	:	Jack Deng
Engineer Supervisor	:	Ivan Su
Engineer Manager	:	Ray Lai

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.

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Revision History

Report No.	Version	Description	Issued Date
TB-FCC173482	Rev.01	Initial issue of report	2020-07-09

1. General Information about EUT

1.1 Client Information

Applicant	:	SHENZHEN TOVISION TECHNOLOGY CO.,LTD
Address	:	5B1, Building 4, Fuhong industrial park, Fuhai street, Bao'an District, SHENZHEN City, CHINA
Manufacturer	:	SHENZHEN TOVISION TECHNOLOGY CO.,LTD
Address	:	5B1, Building 4, Fuhong industrial park, Fuhai street, Bao'an District, SHENZHEN City, CHINA

1.2 General Description of EUT (Equipment Under Test)

EUT Name	:	Wireless base unit	
Models No.	:	M100-V	
Model Difference	:	N/A	
Product Description	:	Frequency Bands: LTE Band 4:TX: 1710MHz-1755MHz, RX: 2110MHz-2155MHz LTE Band 13: TX: 777MHz -787MHz, RX: 746MHz-756MHz	
		Antenna Type:	Dipole Antenna
		Antenna Gain:	LTE Band 4: 2dBi LTE Band 13: 2dBi
		Modulation Type:	QPSK, 16QAM
		Bandwidth:	LTE Band 4 :1.4MHz/3MHz/5MHz/10MHz/15MHz/20MHz LTE Band 13 : 5MHz/10MHz
Power Rating	:	DC 12*1.5V AA Battery. DC 6V from DC Port.	
Software Version	:	M100_LB_V005	
Hardware Version	:	M100_M_V03	

Note:

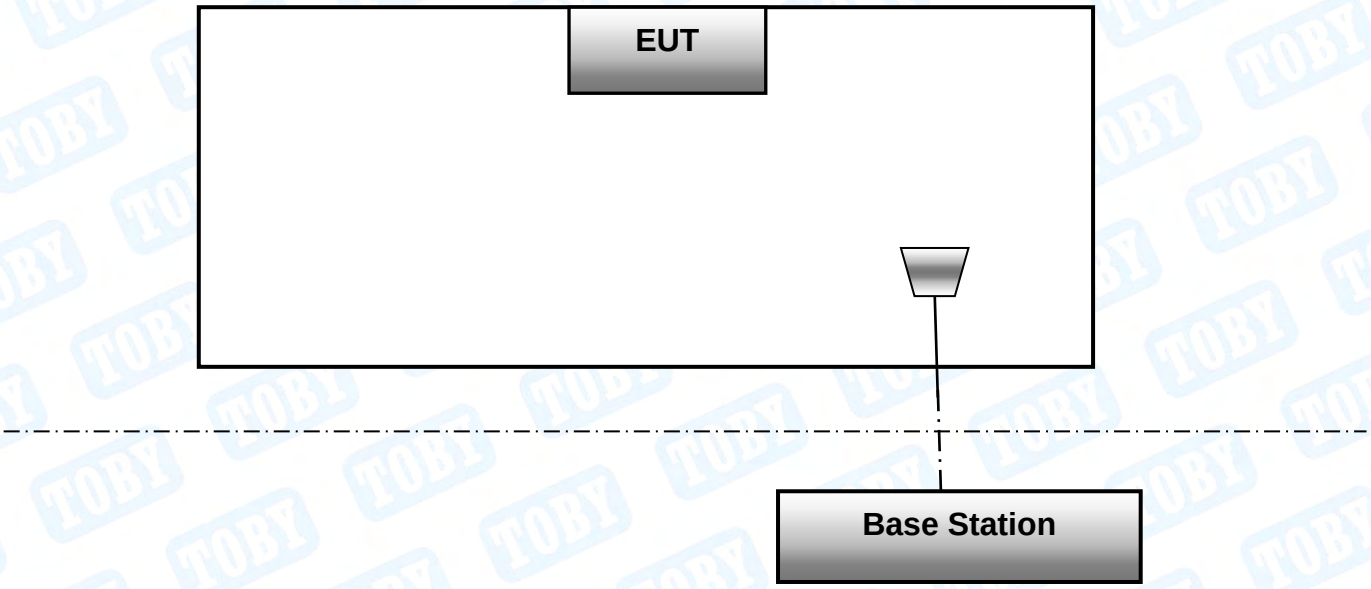
(1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

(2) Channel List

LTE Band 4(1.4MHz)		LTE Band 4(3MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
19957	**1710.70**	**19965**	**1711.50**
19958	1710.80	19966	1711.60
……	……	……	……
20174	1732.40	20174	1732.40
20175	**1732.50**	**20175**	**1732.50**
20176	1732.60	20176	1732.60
……	…..	……	…..
20392	1754.20	20384	1753.40
20393	**1754.30**	**20385**	**1753.50**
LTE Band 4(5MHz)		**LTE Band 4(10MHz)**	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
19975	**1712.50**	**20000**	**1715.00**
19976	1712.60	20001	1715.10
……	……	……	……
20174	1732.40	20174	1732.40
20175	**1732.50**	**20175**	**1732.50**
20176	1732.60	20176	1732.60
……	…..	……	…..
20374	1752.40	20349	1749.90
20375	**1752.50**	**20350**	**1750.00**
LTE Band 4(15MHz)		**LTE Band 4(20MHz)**	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
20025	**1717.50**	**20050**	**1720.00**
20026	1717.60	20051	1720.10
……	……	……	……
20174	1732.40	20174	1732.40
20175	**1732.50**	**20175**	**1732.50**
20176	1732.60	20176	1732.60
……	…..	……	…..
20324	1747.40	20299	1744.90
20325	**1747.50**	**20300**	**1745.00**
LTE Band 13(5MHz)		**LTE Band 13(10MHz)**	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
23205	**779.50**	……	……
23205	779.60	……	……
……	……	……	……
23229	781.90	……	……
23230	**782.00**	**23230**	**782.00**
23231	782.10	……	……

……	…..	…...	…...
23254	784.40	…...	…...
23255	**784.50**	…...	…...

1.3 Block Diagram Showing the Configuration of System Tested



The above block diagram of setup is the normal mode. And more detail please refer to the test setup of each test item of bellow.

1.4 Description of Support Units

The EUT has been tested as an independent unit.

1.5 Description of Test Mode

Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 v03r01 and ANSI C63.26 2015 Power Meas. License Digital Systems with maximum output power. Radiated measurements are performed by rotating the EUT in three different or tho-gonal test planes to find the maximum emission.

Remark:
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

ITEMS	Band	Bandwidth (MHz)						Modulation		RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full	L	M	H
RF Output Power	4	V	V	V	V	V	V	V	V	V	V	V	V	V	V
	13	--	--	V	V	--	--	V	V	V	V	V	V	V	V
Peak-to-Average Ratio	4	--	--	--	--	--	V	V	V			V	V	V	V
	13	--	--	V	V	--	--	V	V			V	V	V	V
99% & -26 dB Occupied Bandwidth	4	V	V	V	V	V	V	V	V	V			V	V	V
	13	--	---	V	V	--	--	V	V	V			V	V	V
Spurious Emissions at Antenna Terminal	4	V	V	V	V	V	V	V	V	V		V	V	V	V
	13	--	---	V	V	--	--	V	V	V		V	V	V	V
Field Strength of Spurious Radiation	4	V	V	V	V	V	V	V	V	V				V	
	13	--	--	V	V	--	--	V	V	V				V	
Out of band emission, Band Edge	4	V	V	V	V	V	V	V	V	V		V	V	V	V
	13	--	--	V	V	--	--	V	V	V		V	V	V	V
Frequency stability	4	V	V	V	V	V	V	V	V	V				V	
	13	--	--	V	V	--	--	V	V	V				V	

Note:

(1) During the testing procedure, the EUT is in link mode with base station emulator at maximum power level in each test mode.

(2) The EUT is considered a portable unit; it was pre-tested on the positioned of each 3 axis, X-plane, Y-plane and Z-plane. The worst case was found positioned on Z-plane as the normal use. Therefore only the test data of this Z-plane was used for radiated emission measurement test.

1.6 Measurement Uncertainty

Test Item	Parameters	Expanded Uncertainty (U_{Lab})
RF Power, conducted	/	±0.82 dB
Radiated Emission	Level Accuracy: 9kHz to 30 MHz	±4.60 dB
Radiated Emission	Level Accuracy: 30MHz to 1000 MHz	±4.50 dB
Radiated Emission	Level Accuracy: Above 1000MHz	±4.20 dB

1.7 Test Facility

The testing was performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at:1A/F., Bldg.6, Yusheng Industrial Zone, The National Road No.107 Xixiang Section 467, Xixiang, Bao'an, Shenzhen, Guangdong, China.
At the time of testing, the following bodies accredited the Laboratory:

CNAS (L5813)

The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

A2LA Certificate No.: 4750.01

The laboratory has been accredited by American Association for Laboratory Accreditation(A2LA) to ISO/IEC 17025：2005 General Requirements for the Competence of Testing and Calibration Laboratories for the technical competence in the field of Electrical Testing. And the A2LA Certificate No.: 4750.01. FCC Accredited Test Site Number: 854351.

IC Registration No.: (11950A)

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A.

2. Test Summary

Test Item	Section in CFR 47	Result
RF Output Power	Part 2.1046 Part 27.50 (b)(10) Part 27.50 (d)(4) Part 27.50 (h)(2)	**PASS**
Peak-to-Average Ratio	Part 27.50(d)(5)	**PASS**
99% & -26 dB Occupied Bandwidth	Part 2.1049 Part 27.53(h) Part 27.53(m)	**PASS**
Spurious Emissions at Antenna Terminal	Part 2.1051 Part 27.53 (h) Part 27.53(m)	**PASS**
Field Strength of Spurious Radiation	Part 2.1053 Part 27.53 (h) Part 27.53(m)	**PASS**
Out of band emission, Band Edge	Part 27.53 (h) Part 27.53(m)	**PASS**
Frequency stability vs. temperature	Part 27.54 Part 2.1055(a)(1)(b)	**PASS**
Frequency stability vs. voltage	Part 27.54 Part 2.1055(d)(2)	**PASS**
Pass: The EUT complies with the essential requirements in the standard.		

3. Test Software

Test Item	Test Software	Manufacturer	Version No.
Radiation Emission	EZ-EMC	EZ	FA-03A2RE

4. Test Equipment

Radiation Emission Test					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Last Cal.**	**Cal. Due Date**
Spectrum Analyzer	Agilent	E4407B	MY45106456	Jul. 13, 2019	Jul. 12, 2020
EMI Test Receiver	Rohde & Schwarz	ESPI	100010/007	Jul. 13, 2019	Jul. 12, 2020
Spectrum Analyzer	Rohde & Schwarz	FSV40-N	102197	Jul. 13, 2019	Jul. 12, 2020
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Mar.01, 2020	Feb. 28, 2021
Horn Antenna	ETS-LINDGREN	3117	00143207	Mar.01, 2020	Feb. 28, 2021
Horn Antenna	ETS-LINDGREN	BBHA 9170	BBHA9170582	Aug.07, 2019	Aug. 06, 2020
Loop Antenna	SCHWARZBECK	FMZB 1519 B	1519B-059	Jul. 13, 2019	Jul. 12, 2020
Pre-amplifier	Sonoma	310N	185903	Mar.01, 2020	Feb. 28, 2021
Pre-amplifier	HP	8449B	3008A00849	Mar.01, 2020	Feb. 28, 2021
Pre-amplifier	SKET	LNPA_1840G-50	SK201904032	Jul. 27, 2019	Jul. 26, 2020
Cable	HUBER+SUHNER	100	SUCOFLEX	Mar.01, 2020	Feb. 28, 2021
Positioning Controller	ETS-LINDGREN	2090	N/A	N/A	N/A
Antenna Conducted Emission					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Last Cal.**	**Cal. Due Date**
Spectrum Analyzer	Agilent	E4407B	MY45106456	Jul. 13, 2019	Jul. 12, 2020
Spectrum Analyzer	Rohde & Schwarz	ESCI	100010/007	Jul. 13, 2019	Jul. 12, 2020
MXA Signal Analyzer	Agilent	N9020A	MY49100060	Sep. 16, 2019	Sep. 15, 2020
Vector Signal Generator	Agilent	N5182A	MY50141294	Sep. 16, 2019	Sep. 15, 2020
Analog Signal Generator	Agilent	N5181A	MY50141953	Sep. 16, 2019	Sep. 15, 2020
RF Power Sensor	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO26	Sep. 16, 2019	Sep. 15, 2020
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO29	Sep. 16, 2019	Sep. 15, 2020
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO31	Sep. 16, 2019	Sep. 15, 2020
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO33	Sep. 16, 2019	Sep. 15, 2020
Wideband Radio Comunication Tester	Rohde & Schwarz	CMW500	144382	Sep. 16, 2019	Sep. 15, 2020
Universal Radio Communication Tester	Rohde&Schwarz	CMU200	103903	Jul. 13, 2019	Jul. 12, 2020

5. Conducted RF Output Power

5.1 Test Standard and Limit

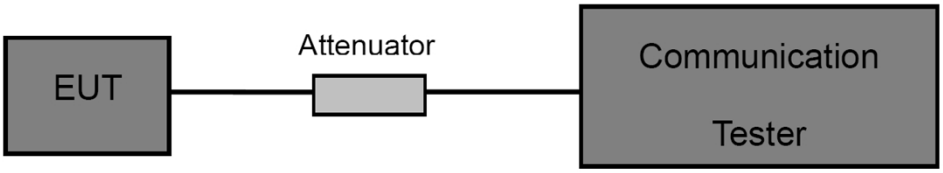
5.1.1 Test Standard

FCC part 2.1046
FCC Part 27.50(b)&(d),
FCC Part 27.50 (h)

5.1.2 Test Limit

RF Output Power	
LTE Band 4	**LTE Band 13**
1W(30dBm)	30W(44.77dBm)

5.2 Test Setup



5.3 Test Procedure

(1) The EUT is coupled to the Base Station with the suitable Attenuator, the path loss is calibrated to correct the reading.
(2) A call is set up by the Base Station to the generic call set up procedure.
(3) Set EUT at maximum power level through base station by power level command.
(4) Then read record the power value from the Base Station in dBm.

5.4 Deviation From Test Standard

No deviation

5.5 EUT Operating Condition

The EUT was continuously connected with the Base station and transmitting in the max power during the test.

5.6 Test Data

Please refer to the Attachment A.

6. Peak-Average Ratio

6.1 Test Standard and Limit

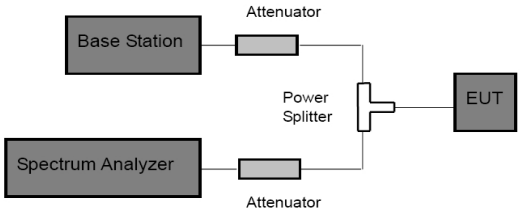
6.1.1 Test Standard

FCC Part 27.50(d), FCC Part 27.50 (h)

6.1.2 Test Limit

Peak-to-Average Ratio
The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

6.2 Test Setup



6.3 Test Procedure

According with KDB 971168

(1) The signal analyzer's CCDF measurement profile is enabled.
(2) Frequency = carrier center frequency.
(3) Measurement BW>Emission bandwidth of signal.
(4) The signal analyzer was set to collect one million samples to generate the CCDF curve.
(5) Set the EUT working in highest power level, measured and recorded the 0.1% as PAPR level.
(6) The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms. For burst transmissions, the spectrum analyzer is set to use an internal "RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which of the transmitter is operating at maximum power.

6.4 Deviation From Test Standard

No deviation

6.5 EUT Operating Condition

The EUT was continuously connected with the Base station and transmitting in the max power during the test.

6.6 Test Data

Please refer to the Attachment B.

7. Occupied Bandwidth

7.1 Test Standard and Limit

7.1.1 Test Standard

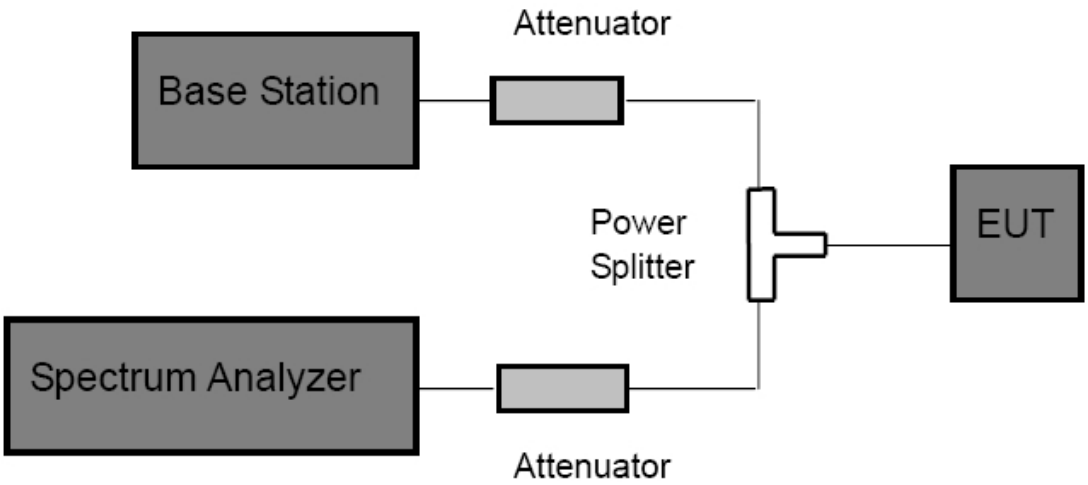
FCC Part 2: 2.1049
FCC Part 27.53(h)
FCC Part 27.53(m)

7.1.2 Test Requirement

According to FCC section 2.1049, the occupied bandwidth is the frequency bandwidth such that below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission.

Occupied bandwidth is also known as 99% power and -26dBC occupied bandwidths.

7.2 Test Setup



7.3 Test Procedure

(1) The EUT was directly connected to the spectrum analyzer and Base station via power splitter as show in the block diagram above.
(2) The resolution bandwidth of the Spectrum Analyzer is set to at least 1% of the occupied bandwidth. VBW= 3 times RBW.
(3) The low, middle and the high channels are selected to perform tests respectively.
(4) Set the frequency range of the Spectrum Analyzer suitably to capture the waveform; search peak; make a line whose value is 26dB lower than the peak; mark two points which the line intersected the waveform at; finally record the delta of the two points as the occupied bandwidth and the plot.
(5) Set the Spectrum Analyzer Occupied bandwidth function to measure the 99% occupied bandwidth.

7.4 Deviation From Test Standard

No deviation

7.5 EUT Operating Condition

The EUT was continuously connected with the Base station and transmitting in the max power during the test.

7.6 Test Data

Please refer to the Attachment C.

8. Out of Band Emission at Antenna Terminals

8.1 Test Standard and Limit

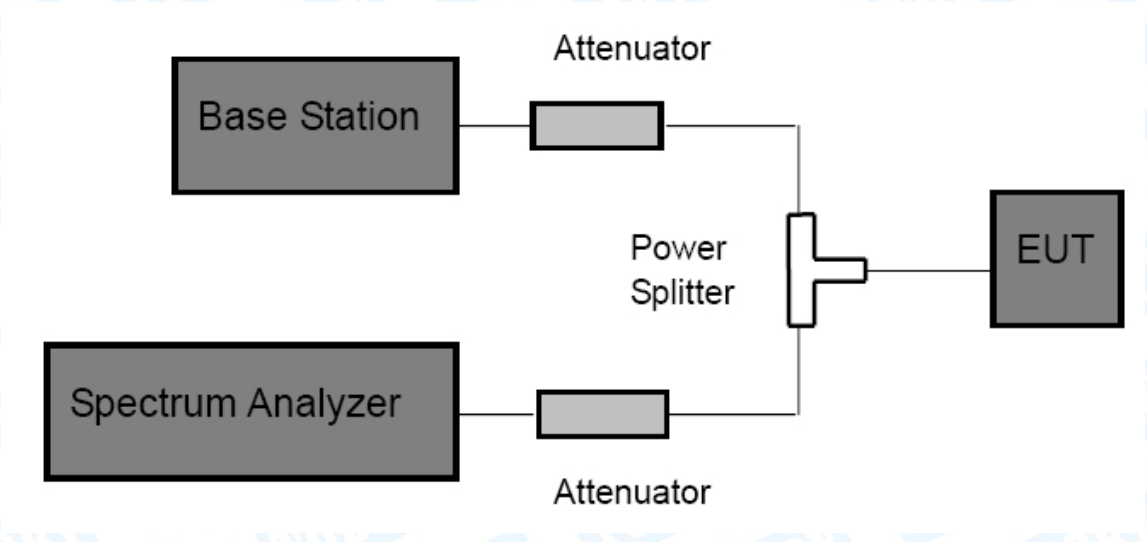
8.1.1 Test Standard

FCC Part 2: 2.1051, 2.1057
FCC Part 27.53 (h),FCC Part 27.53(m)

8.1.2 Test Limit

Band 7: For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz.The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power(P) by a factor of at least 43+10log(P) dB. For all power levels +30 dBm to 0 dBm, this becomes a constant specification limit of -13 dBm.

8.2 Test Setup



8.3 Test Procedure

1 The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation.

2 The resolution bandwidth of the spectrum analyzer was set at 100 kHz when below 1GHz, 1MHz when above 1 GHz; sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic.

3 For the out of band: Set the RBW=100 kHz, VBW=300 kHz when below 1 GHz, RBW =1 MHz, VBW=3 MHz when above 1 GHz, Start=30MHz, Stop= 10th harmonic.

4 Band Edge Requirements: In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter.

8.4 Deviation From Test Standard

No deviation

8.5 EUT Operating Condition

The EUT was continuously connected with the Base station and transmitting in the max power during the test.

8.6 Test Data

Please refer to the Attachment D.

9. Band Edge Test

9.1 Test Standard and Limit

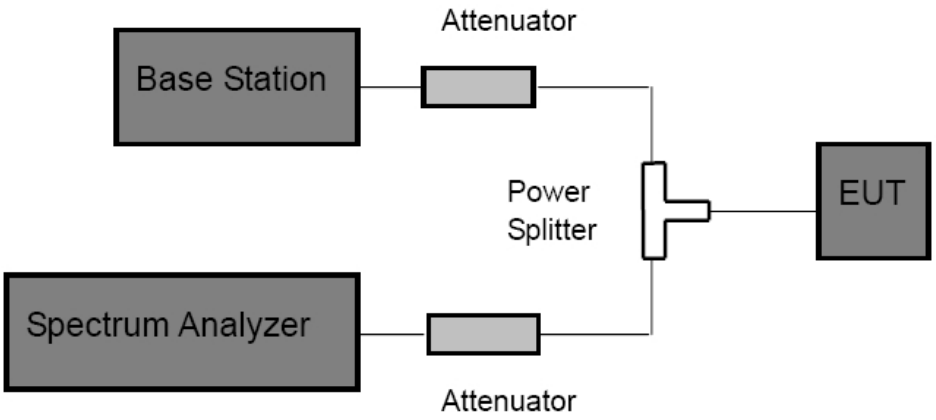
9.1.1 Test Standard

FCC Part 2: 2.1051, 2.1057
FCC Part 27.53 (h),FCC Part 27.53(m)

9.1.2 Test Limit

Band 7: For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz.The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power(P) by a factor of at least 43+10log(P) dB. For all power levels +30 dBm to 0 dBm, this becomes a constant specification limit of -13 dBm.

9.2 Test Setup



9.3 Test Procedure

(1) The EUT was directly connected to the spectrum analyzer and Base station via power splitter as show in the block diagram above.
(2) Band Edge Requirements: In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter.

9.4 Deviation From Test Standard

No deviation

9.5 EUT Operating Condition

The EUT was continuously connected with the Base station and transmitting in the max power during the test.

9.6 Test Data

Please refer to the Attachment E.

10. Radiated Output Power

10.1 Test Standard and Limit

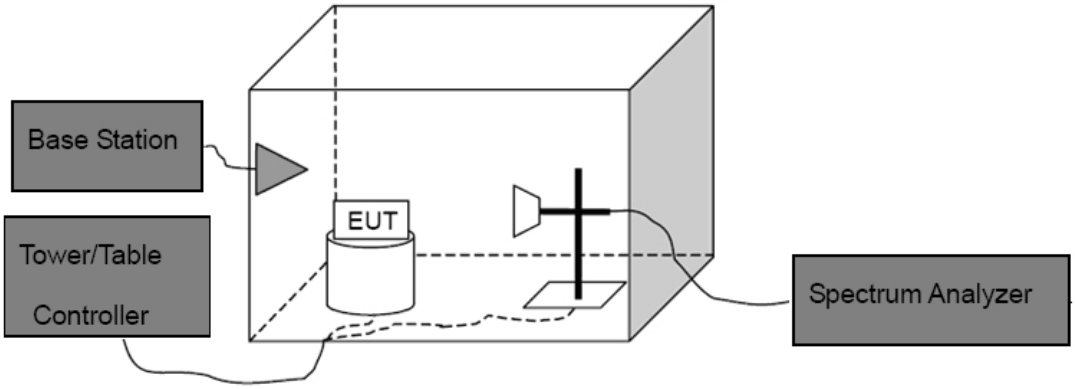
10.1.1 Test Standard

FCC Part 2.1046
FCC part 27.50(c), FCC part 27.50(d)

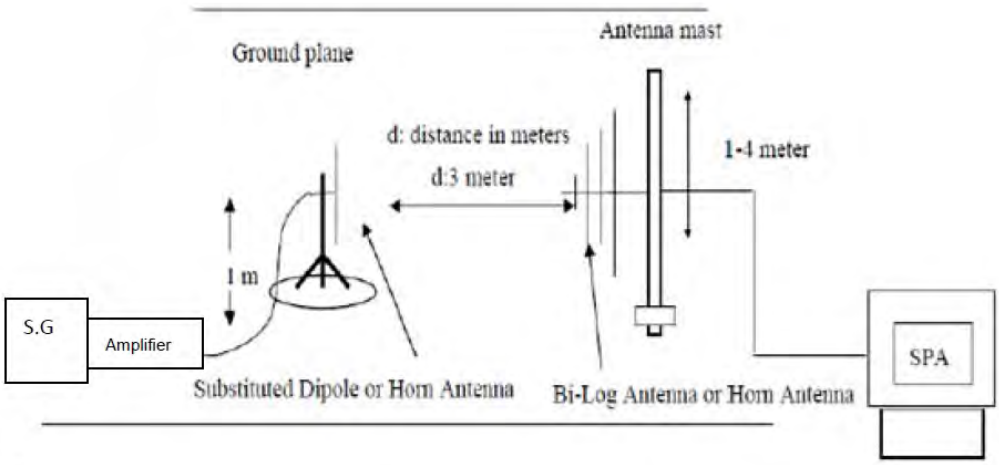
10.1.2 Test Limit

E.I.R.P	
LTE Band 4	LTE Band 13
1W(30 dBm)	3W (34.77 dBm)

10.2 Test Setup



Above 1G



Substituted Method

10.3 Test Procedure

(1) The EUT was placed on an non-conductive rotating platform with 0.8 meter height in an anechoic chamber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer with RBW=3 MHz, VBW=3 MHz and peak detector settings.

(2) During the measurement, the EUT was enforced in maximum power and linked with the Base Station. The highest was recorded from analyzer power level (LVT) 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.

(3) Effective Isotropic Radiated Power (EIRP) was measured by substitution method according to C63.26. The EUT was replaced by dipole antenna (for frequency below 1 GHz) or Horn antenna (for frequency above 1 GHz) at same location with same polarize of receiver antenna and then a known power of each measure frequency from S.G. was applied into the dipole antenna or Horn antenna through a TX cable, and then recorded the maximum Analyzer reading through raised and lowered the test antenna.

Note: In test, the S.G Connect the Pre-amplifier(Sonoma 310N Pre-amplifier for frequency below 1 GHz, HP 8449B Pre-amplifier for frequency above 1 GHz)

Then the EUT's EIRP and ERP was calculated with the correction factor:
ERP=S.G.Level +Antenna Gain Cord.(dBd)-Cable Loss(dB)
EIRP=S.G.Level+Antenna Gain Cord.(dBi)-Cable Loss(dB)

10.4 Deviation From Test Standard

No deviation

10.5 EUT Operating Condition

The EUT was continuously connected with the Base station and transmitting in the max power during the test.

10.6 Test Data

Please refer to the Attachment F.
Measurement Data (worst case)

11. Radiated Out Band of Emissions

11.1 Test Standard and Limit

11.1.1 Test Standard

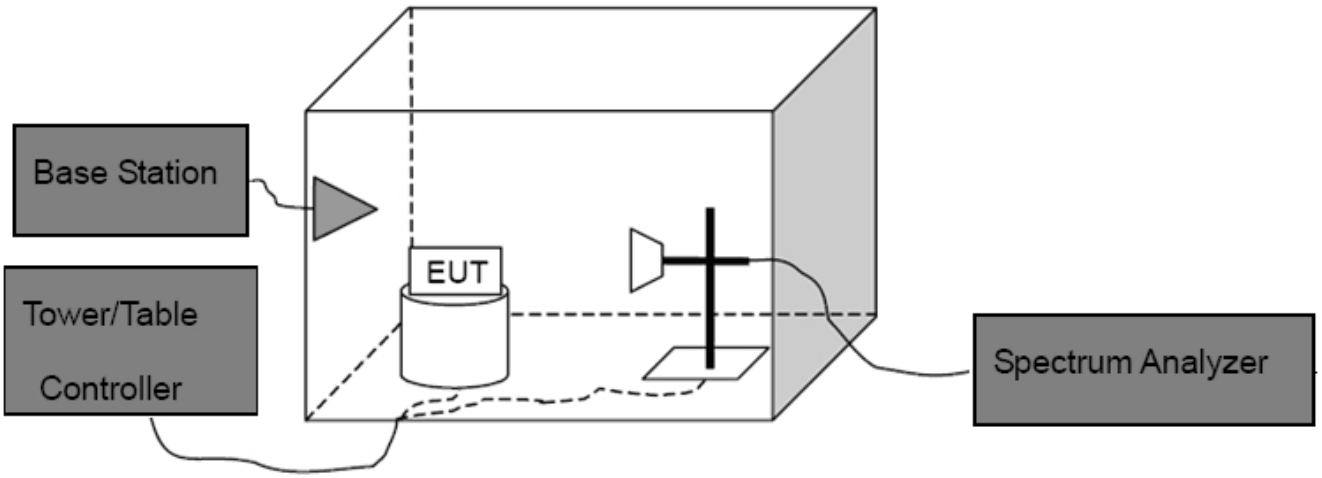
FCC Part 2: 2.1053

FCC Part 27.53 (h),FCC Part 27.53(m)

11.1.2 Test Limit

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power(P) by a factor of at least 43+10log(P) dB. For all power levels +30 dBm to 0 dBm, this becomes a constant specification limit of -13 dBm.

11.2 Test Setup



11.3 Test Procedure

(1) The test system setup as show in the block diagram above.

(2) The EUT was placed on an non-conductive rotating platform in an anechoic chamber. The radiated spurious emissions from 30MHz to 10th harmonious of fundamental frequency were measured at 3 m with a test antenna and a spectrum analyzer with RBW=1 MHz, VBW=1 MHz, peak detector settings.

(3) During the measurement, the EUT was enforced in maximum power and linked with a base station. All the spurious emissions at 3m were measured by 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) When found the maximum level of emissions from the EUT. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious emissions in dB=10 log(TX power in Watts/0.001)-the absolute level

Spurious attenuation limit in dB=43+10 log(power out in Watts)

11.4 Deviation From Test Standard

No deviation

11.5 EUT Operating Condition

The EUT was continuously connected with the Base station and transmitting in the max power during the test.

11.6 Test Data

Please refer to the Attachment G.
Measurement Data (worst case)

12. Frequency Stability

12.1 Test Standard and Limit

12.1.1 Test Standard

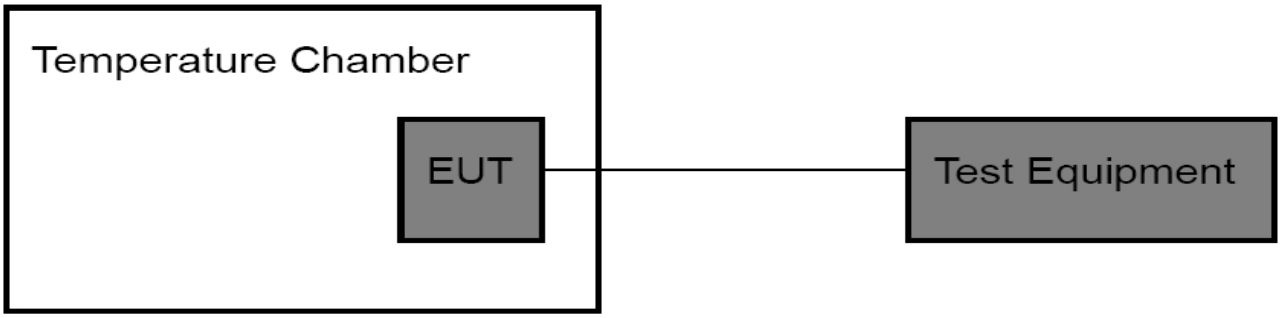
FCC Part 2.1055(a)(1)(b)
Part 27.54

12.1.2 Limit

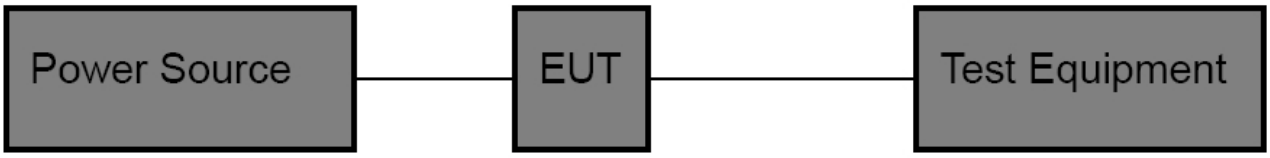
Limit
±2.5ppm

12.2 Test Setup

For Temperature Test:



For Voltage Test:



12.3 Test Procedure

Test Procedures for Temperature Variation:
(1) The EUT was set up in the thermal chamber and connected with the base station.
(2) With power off, the temperature was decreased to -30℃ and the EUT was stabilized for three hours. Power was applied and the maximum change in frequency was recorded within one minute.
(3) With power off, the temperature was raised in 10℃ set up to 50℃ and the EUT was stabilized for three hours. Power was applied and the maximum change in frequency was recorded within one minute.
(4) If the EUT cannot be turned on at -30℃, the testing lowest temperature will be raised in 10℃ step until the EUT can be turned on.
Test Procedures for Voltage Variation:
(1) The EUT was placed in a temperature chamber at 25±5℃ and connected with the base station.
(2) Reduce the input voltage to specify extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.
(3) The variation in frequency was measured for the worst case.

12.4 Deviation From Test Standard

No deviation

12.5 EUT Operating Condition

The Equipment Under Test was set to Communication with the Base Station.

12.6 Test Data

Please refer to the Attachment H.

ATTACHMENT A--CONDUCTED RF OUTPUT POWER

FDD-LTE Band 4						
Channel Bandwidth: 1.4 MHz						
Modulation	RB Size	RB Offset	Conducted Power (dBm)			Result
			Low CH	Middle CH	High CH	
QPSK	1	0	23.13	23.32	23.00	PASS
	1	3	23.16	23.27	23.00	PASS
	1	5	23.08	23.16	22.91	PASS
	3	0	23.21	23.25	22.82	PASS
	3	1	23.21	23.35	22.90	PASS
	3	3	23.09	22.48	22.87	PASS
	6	0	22.11	22.25	21.81	PASS
16QAM	1	0	22.01	21.69	21.53	PASS
	1	3	22.18	21.96	21.80	PASS
	1	5	22.09	21.62	21.72	PASS
	3	0	22.01	21.88	21.61	PASS
	3	1	22.23	21.89	21.57	PASS
	3	3	22.16	21.93	21.51	PASS
	6	0	21.12	21.10	20.86	PASS
Channel Bandwidth: 3 MHz						
Modulation	RB Size	RB Offset	Conducted Power (dBm)			Result
			Low CH	Middle CH	High CH	
QPSK	1	0	23.07	22.89	22.87	PASS
	1	8	23.04	22.79	22.81	PASS
	1	14	23.29	22.71	23.06	PASS
	8	0	22.20	21.92	21.93	PASS
	8	4	22.23	22.03	21.97	PASS
	8	7	22.13	22.00	21.76	PASS
	15	0	22.22	22.00	21.73	PASS
16QAM	1	0	22.06	21.77	21.57	PASS
	1	8	21.77	21.65	21.27	PASS
	1	14	21.84	21.73	21.45	PASS
	8	0	21.27	21.33	20.34	PASS
	8	4	20.83	21.65	20.43	PASS
	8	7	21.15	21.48	20.43	PASS
	15	0	21.18	21.23	20.53	PASS

FDD-LTE Band 4						
Channel Bandwidth: 5 MHz						
Modulation	RB Size	RB Offset	Conducted Power (dBm)			Result
			Low CH	Middle CH	High CH	
QPSK	1	0	23.06	23.05	22.81	PASS
	1	12	23.25	23.05	23.45	PASS
	1	24	23.11	23.13	23.14	PASS
	12	0	22.18	22.09	22.13	PASS
	12	7	22.17	22.23	22.02	PASS
	12	13	22.16	22.09	22.07	PASS
	25	0	22.08	22.12	22.13	PASS
16QAM	1	0	21.54	21.28	21.65	PASS
	1	12	21.17	21.64	21.42	PASS
	1	24	20.99	21.53	21.43	PASS
	12	0	21.15	21.03	20.73	PASS
	12	7	21.16	21.25	20.72	PASS
	12	13	21.22	20.93	20.93	PASS
	25	0	21.47	20.91	21.12	PASS
Channel Bandwidth: 10 MHz						
Modulation	RB Size	RB Offset	Conducted Power (dBm)			Result
			Low CH	Middle CH	High CH	
QPSK	1	0	23.22	23.32	23.20	PASS
	1	25	22.91	23.55	22.98	PASS
	1	49	23.18	23.26	23.07	PASS
	25	0	22.25	22.12	22.13	PASS
	25	12	21.90	22.08	22.06	PASS
	25	25	21.79	22.17	22.09	PASS
	50	0	21.92	22.19	22.24	PASS
16QAM	1	0	21.49	21.84	21.90	PASS
	1	25	21.24	22.44	21.65	PASS
	1	49	21.28	22.52	21.71	PASS
	25	0	21.23	21.65	21.25	PASS
	25	12	20.63	21.66	21.23	PASS
	25	25	20.90	21.64	21.20	PASS
	50	0	21.02	21.30	21.16	PASS

FDD-LTE Band 4						
Channel Bandwidth: 15 MHz						
Modulation	RB Size	RB Offset	Conducted Power (dBm)			Result
			Low CH	Middle CH	High CH	
QPSK	1	0	23.30	23.51	22.81	PASS
	1	37	23.46	23.47	22.65	PASS
	1	74	23.04	23.15	22.52	PASS
	36	0	22.35	22.18	21.76	PASS
	36	20	21.99	22.33	21.45	PASS
	36	39	22.08	22.24	21.42	PASS
	75	0	22.19	22.03	21.65	PASS
16QAM	1	0	22.68	22.23	21.84	PASS
	1	37	22.54	22.18	21.42	PASS
	1	74	21.92	22.10	21.11	PASS
	36	0	21.42	21.18	20.94	PASS
	36	20	21.29	21.39	20.71	PASS
	36	39	21.31	21.22	20.75	PASS
	75	0	21.35	20.91	20.77	PASS
Channel Bandwidth: 20 MHz						
Modulation	RB Size	RB Offset	Conducted Power (dBm)			Result
			Low CH	Middle CH	High CH	
QPSK	1	0	23.06	23.21	23.27	PASS
	1	49	22.92	23.40	23.24	PASS
	1	99	22.99	23.21	22.69	PASS
	50	0	22.27	21.74	21.84	PASS
	50	24	22.07	21.97	21.63	PASS
	50	50	22.10	22.07	21.59	PASS
	100	0	22.26	22.05	21.86	PASS
16QAM	1	0	21.52	22.38	21.97	PASS
	1	49	21.29	22.67	21.78	PASS
	1	99	21.54	22.50	21.89	PASS
	50	0	21.22	20.93	21.11	PASS
	50	24	20.90	21.09	20.93	PASS
	50	50	21.06	21.02	20.54	PASS
	100	0	21.27	20.89	20.96	PASS

FDD-LTE Band 13						
Channel Bandwidth: 5 MHz						
Modulation	RB Size	RB Offset	Conducted Power (dBm)			Result
			Low CH	Middle CH	High CH	
QPSK	1	0	24.02	24.29	24.33	PASS
	1	12	24.19	24.76	24.57	PASS
	1	24	24.27	24.42	24.27	PASS
	12	0	23.21	23.54	23.36	PASS
	12	7	23.40	23.60	23.19	PASS
	12	13	23.46	23.51	23.25	PASS
	25	0	23.46	23.52	23.46	PASS
16QAM	1	0	22.94	23.30	23.18	PASS
	1	12	23.18	23.48	23.20	PASS
	1	24	23.57	22.72	22.99	PASS
	12	0	22.39	22.32	22.37	PASS
	12	7	22.48	22.27	22.38	PASS
	12	13	22.65	22.22	22.10	PASS
	25	0	22.52	22.33	22.43	PASS
Channel Bandwidth: 10 MHz						
Modulation	RB Size	RB Offset	Conducted Power (dBm)			Result
			Low CH	Middle CH	High CH	
QPSK	1	0	--	24.34	--	PASS
	1	25	--	24.51	--	PASS
	1	49	--	23.99	--	PASS
	25	0	--	23.32	--	PASS
	25	12	--	23.49	--	PASS
	25	25	--	23.40	--	PASS
	50	0	--	23.36	--	PASS
16QAM	1	0	--	23.37	--	PASS
	1	25	--	23.40	--	PASS
	1	49	--	22.95	--	PASS
	25	0	--	22.34	--	PASS
	25	12	--	22.15	--	PASS
	25	25	--	22.64	--	PASS
	50	0	--	22.40	--	PASS

ATTACHMENT B--PEAK-AVERAGE RATIO

Test Mode	Modulation	RB Size	RB Offset	PAPR with 0.1% probability (dB)	Limit (dB)	Result
LTE BAND 4 20MHz (Low Channel)	QPSK	100	0	4.90	≤13	PASS
	16QAM	100	0	5.86	≤13	PASS
LTE BAND 4 20MHz (Middle Channel)	QPSK	100	0	4.70	≤13	PASS
	16QAM	100	0	5.80	≤13	PASS
LTE BAND 4 20MHz (High Channel)	QPSK	100	0	4.75	≤13	PASS
	16QAM	100	0	5.59	≤13	PASS
LTE BAND 13 10MHz	QPSK	50	0	4.52	≤13	PASS
	16QAM	50	0	6.26	≤13	PASS

Note: Only show the worst case data

LTE Band 4 20MHz (Low Channel)-QPSK

Date: 6.JUL.2020 04:09:38

LTE Band 4 20MHz (Low Channel)-16QAM

Date: 6.JUL.2020 04:09:22

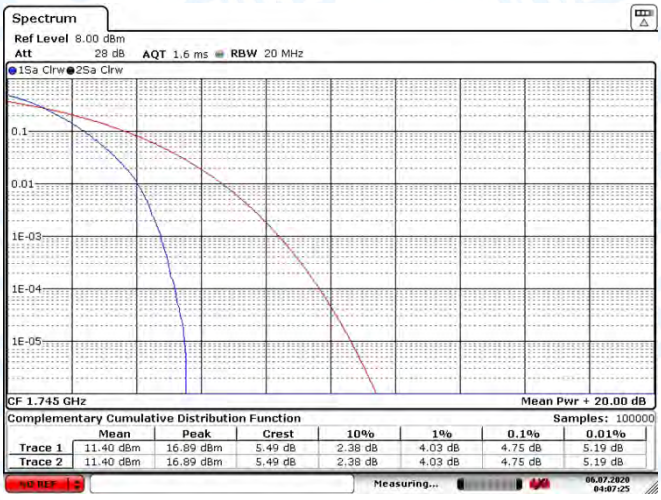
LTE Band 4 20MHz (Middle Channel)-QPSK

Date: 6.JUL.2020 04:07:54

LTE Band 4 20MHz (Middle Channel)-16QAM

Date: 6.JUL.2020 04:08:11

LTE Band 4 20MHz (High Channel)-QPSK



Date: 6.JUL.2020 04:07:25

LTE Band 4 20MHz (High Channel)-16QAM

Date: 6.JUL.2020 04:07:11

LTE Band 13 10MHz-QPSK

Date: 6.JUL.2020 04:12:53

LTE Band 13 10MHz-16QAM

Date: 6.JUL.2020 04:13:20

ATTACHMENT C--OCCUPY BANDWIDTH

LTE Band 4					
Mode	Channel	Frequency (MHz)	Modulation	99% OBW (MHz)	-26dB Bandwidth (MHz)
1.4MHz	19957	1710.70	QPSK	1.1028	1.314
			16QAM	1.0959	1.277
	20175	1732.50	QPSK	1.0947	1.299
			16QAM	1.0951	1.271
	20393	1754.30	QPSK	1.0907	1.261
			16QAM	1.0940	1.245
3MHz	19965	1711.50	QPSK	2.6827	2.910
			16QAM	2.6772	2.899
	20175	1732.50	QPSK	2.6606	2.872
			16QAM	2.6776	2.890
	20385	1753.50	QPSK	2.6745	2.899
			16QAM	2.6743	2.892
5MHz	19975	1712.50	QPSK	4.5065	5.006
			16QAM	4.4966	4.906
	20175	1732.50	QPSK	4.4922	4.907
			16QAM	4.4857	5.010
	20375	1752.50	QPSK	4.5203	5.038
			16QAM	4.4935	5.013
10MHz	20000	1715.00	QPSK	8.9379	9.675
			16QAM	8.9231	9.683
	20175	1732.50	QPSK	8.9159	8.889
			16QAM	8.8891	9.559
	20350	1750.00	QPSK	8.9573	9.926
			16QAM	8.9260	9.697
15MHz	20025	1717.50	QPSK	13.4410	14.790
			16QAM	13.4097	14.705
	20175	1732.50	QPSK	13.4200	14.583
			16QAM	13.4049	14.647
	20325	1747.50	QPSK	13.4563	14.607
			16QAM	13.4728	14.883
20MHz	20050	1720.00	QPSK	18.5948	21.520
			16QAM	18.6094	21.253
	20175	1732.50	QPSK	18.3802	20.945
			16QAM	18.2436	20.980
	20300	1745.00	QPSK	18.4610	21.167
			16QAM	18.4741	21.317

LTE Band 13					
Mode	Channel	Frequency (MHz)	Modulation	99% OBW (MHz)	-26dB Bandwidth (MHz)
5MHz	23205	779.5	QPSK	4.4870	4.973
			16QAM	4.4862	4.907
	23230	782.0	QPSK	4.5002	4.994
			16QAM	4.4864	4.961
	23255	784.5	QPSK	4.5023	5.041
			16QAM	4.4942	4.930
10MHz	---	----	----	----	----
			----	----	----
	23230	782.0	QPSK	8.9188	9.779
			16QAM	8.9117	9.603
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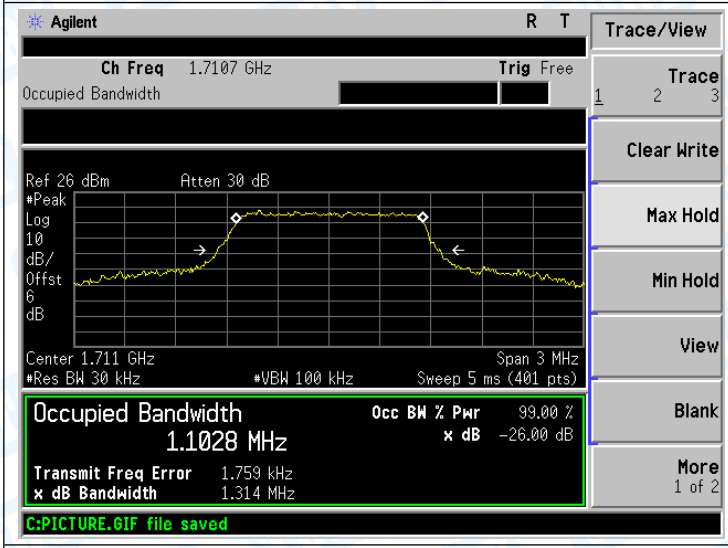
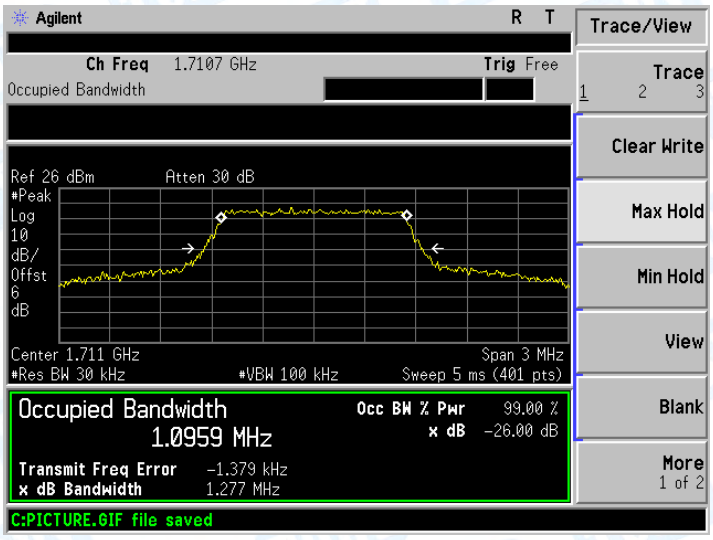
			----	----	----

Occupy Bandwidth Test Plot

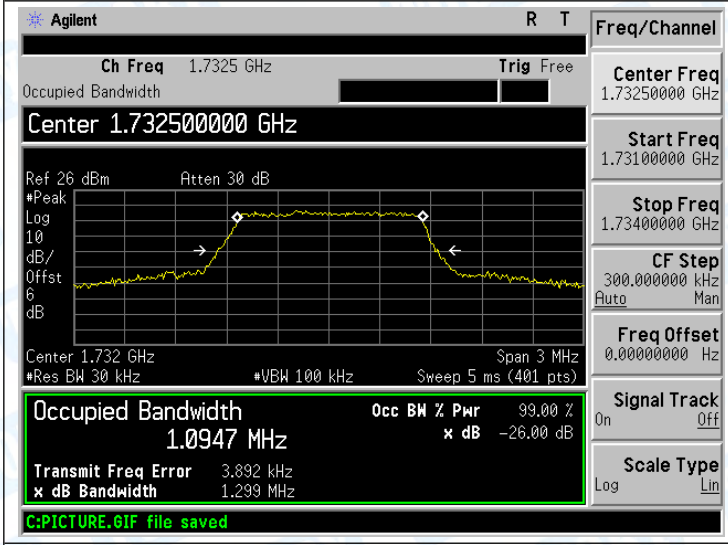
LTE BAND 4 (1.4MHz QPSK-Low CH)



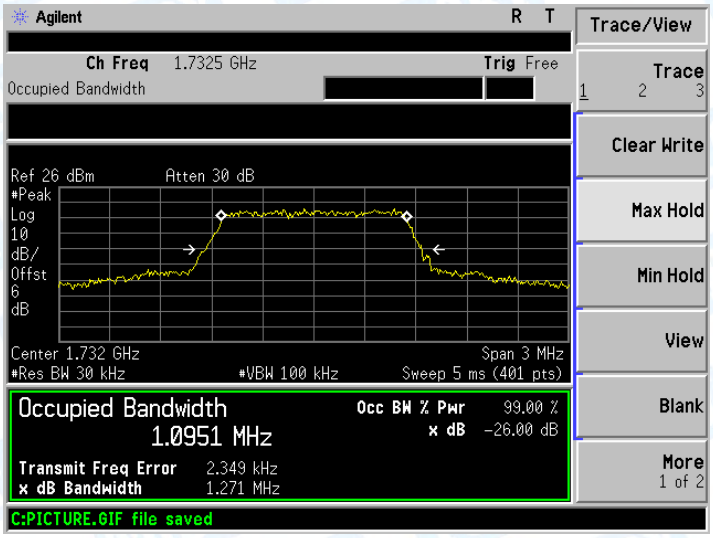
LTE BAND 4 (1.4MHz 16QAM-Low CH)



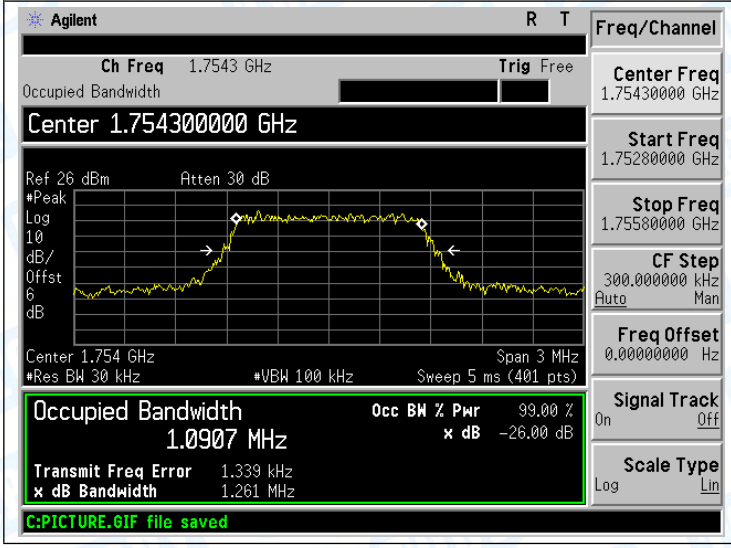
LTE BAND 4 (1.4MHz QPSK-Middle CH)



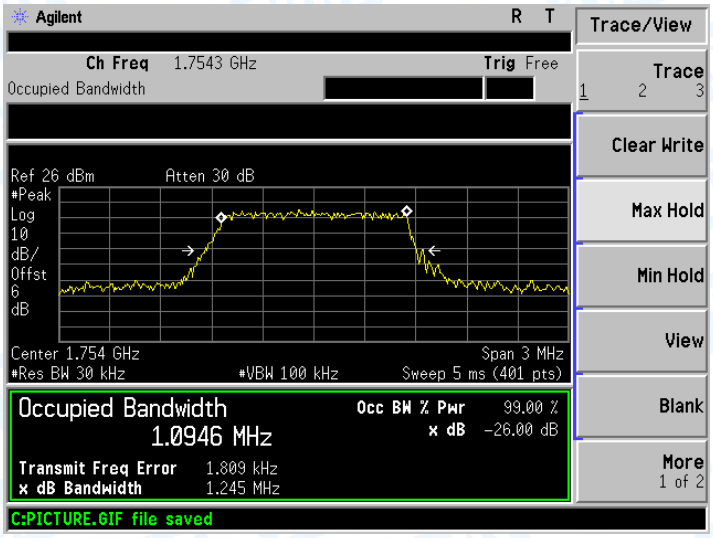
LTE BAND 4 (1.4MHz 16QAM- Middle CH)



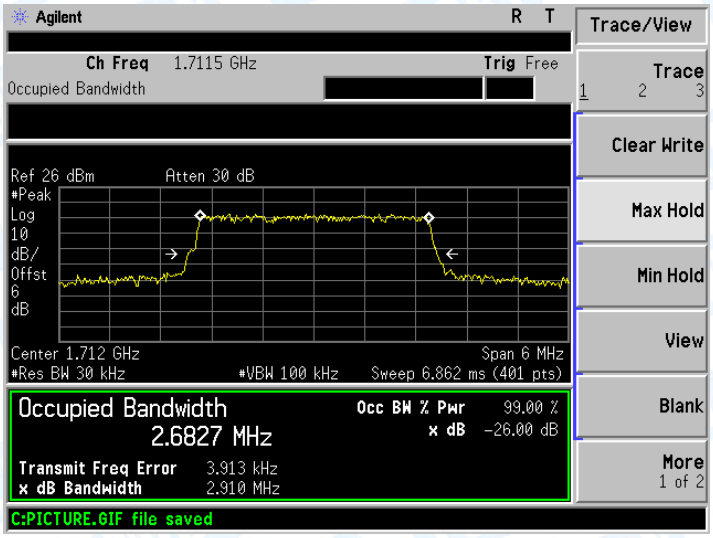
LTE BAND 4 (1.4MHz QPSK-High CH)



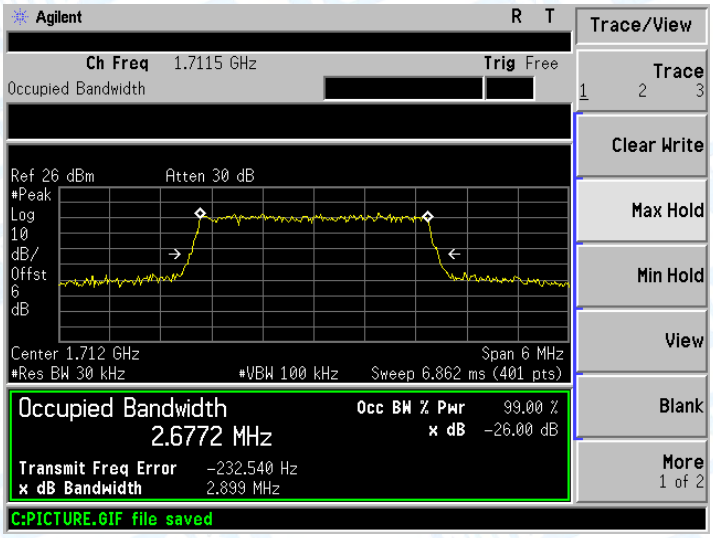
LTE BAND 4 (1.4MHz 16QAM-High CH)



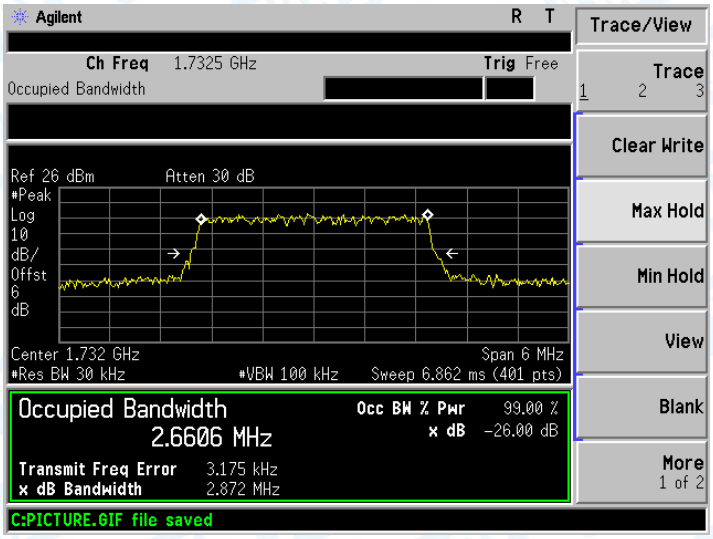
LTE BAND 4 (3MHz QPSK-Low CH)



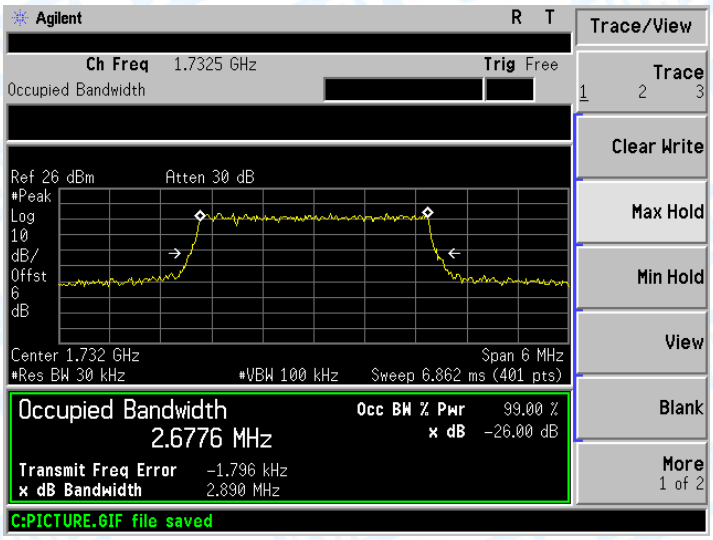
LTE BAND 4 (3MHz 16QAM-Low CH)



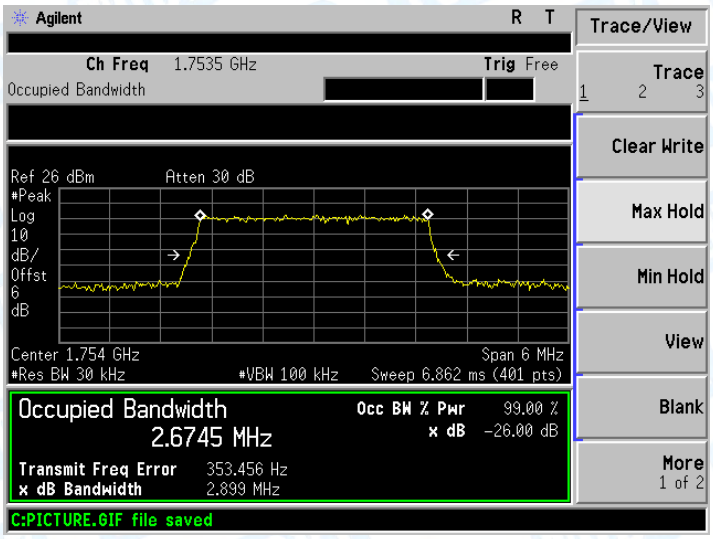
LTE BAND 4 (3MHz QPSK-Middle CH)



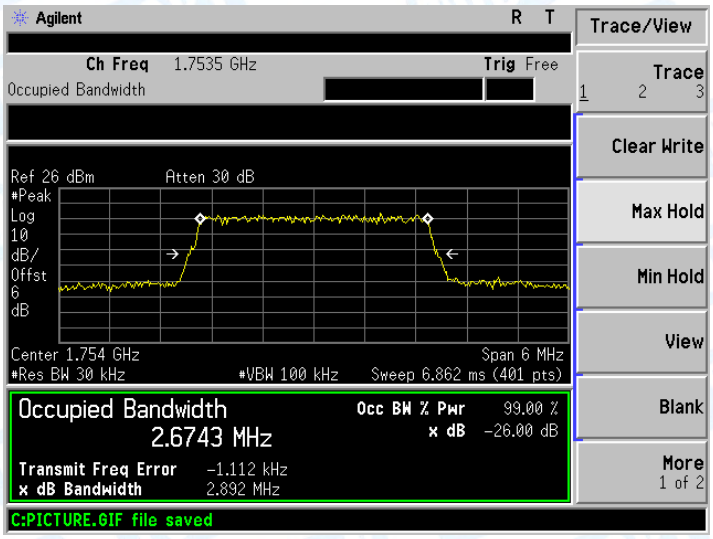
LTE BAND 4 (3MHz 16QAM- Middle CH)



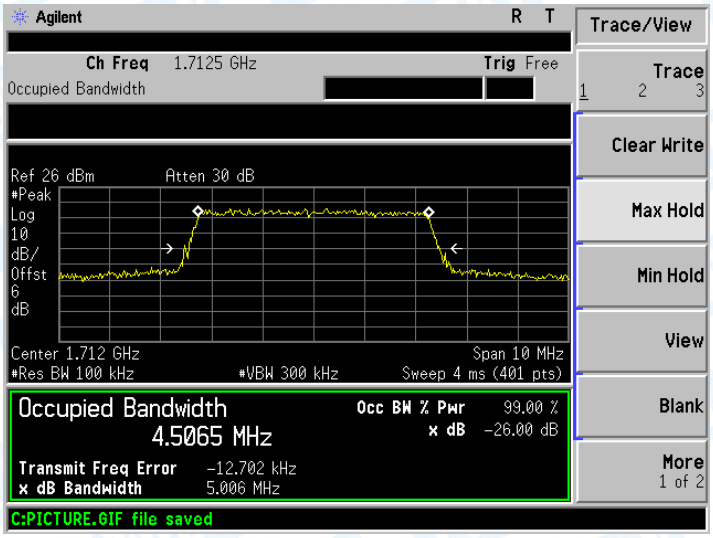
LTE BAND 4 (3MHz QPSK-High CH)



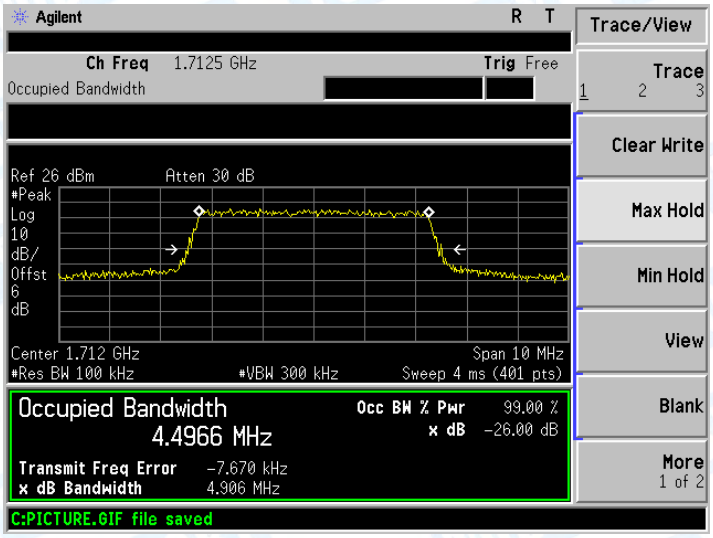
LTE BAND 4 (3MHz 16QAM-High CH)



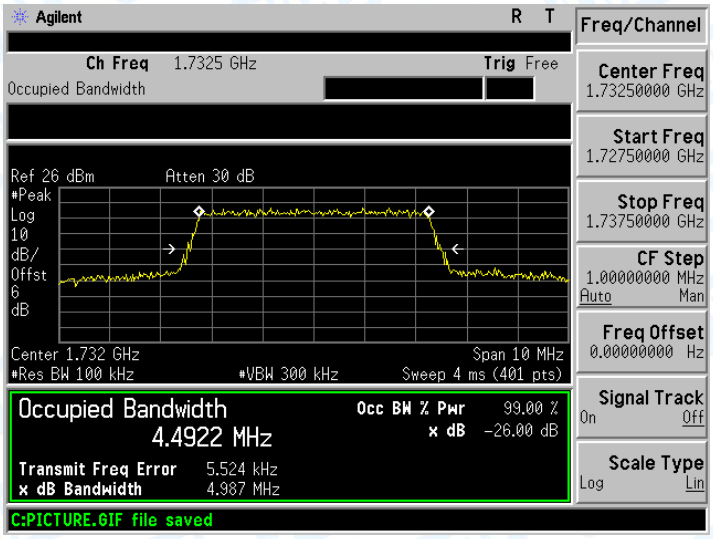
LTE BAND 4 (5MHz QPSK-Low CH)



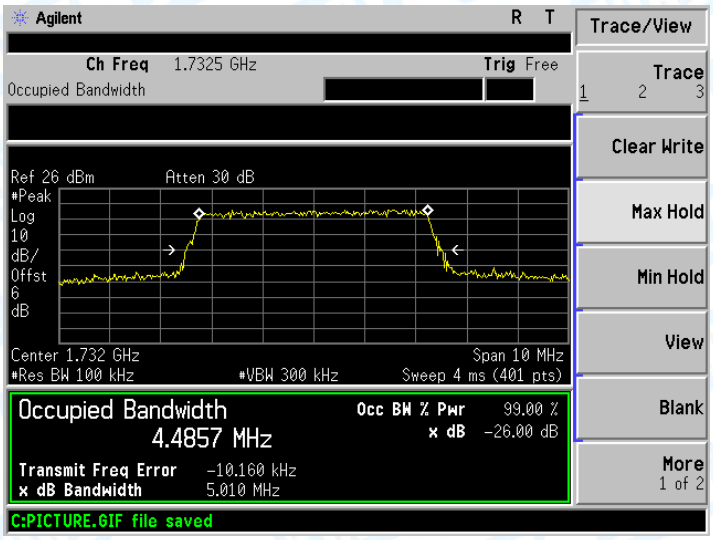
LTE BAND 4 (5MHz 16QAM-Low CH)



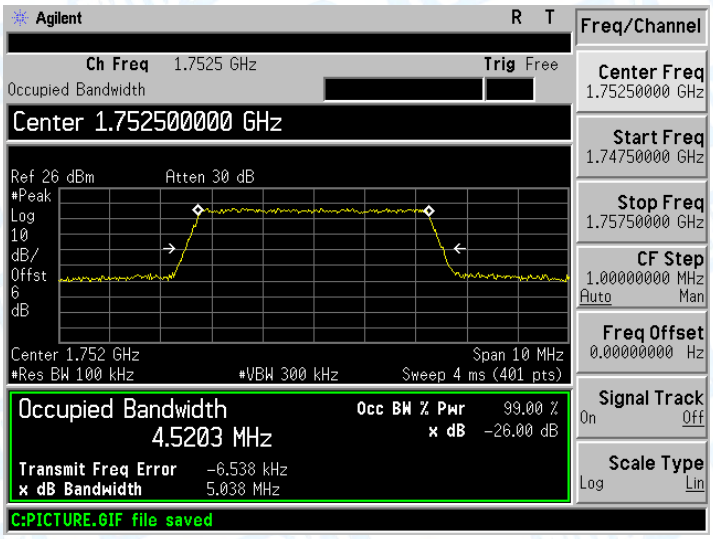
LTE BAND 4 (5MHz QPSK-Middle CH)



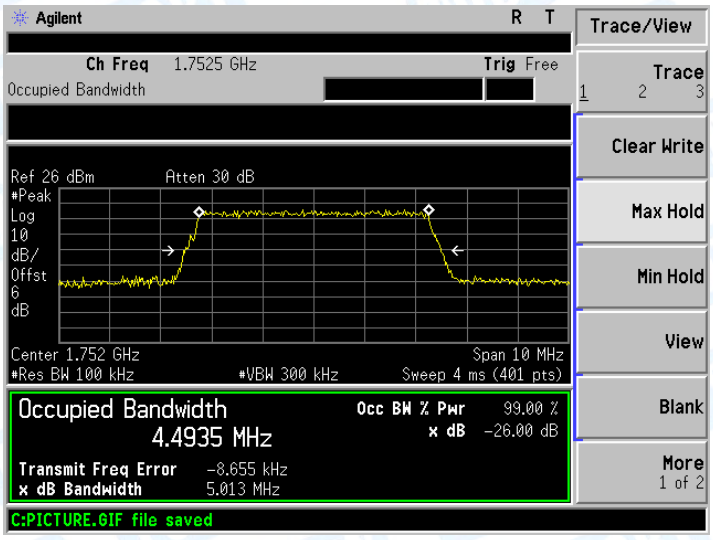
LTE BAND 4 (5MHz 16QAM- Middle CH)



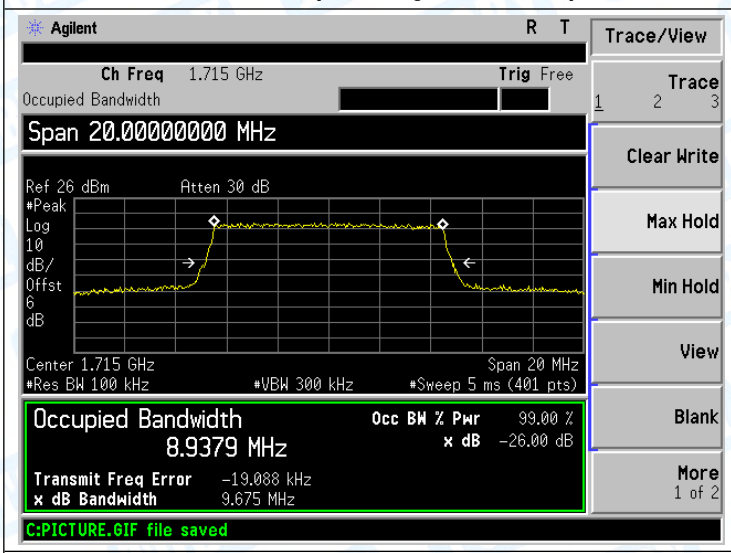
LTE BAND 4 (5MHz QPSK-High CH)



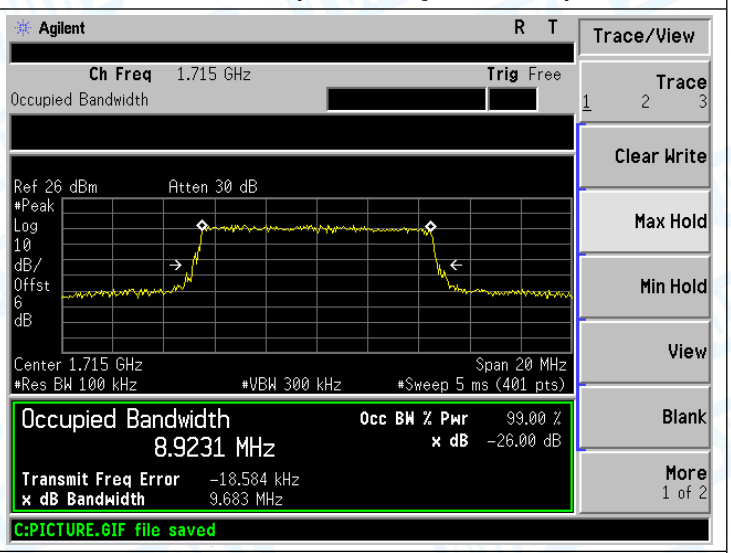
LTE BAND 4 (5MHz 16QAM-High CH)



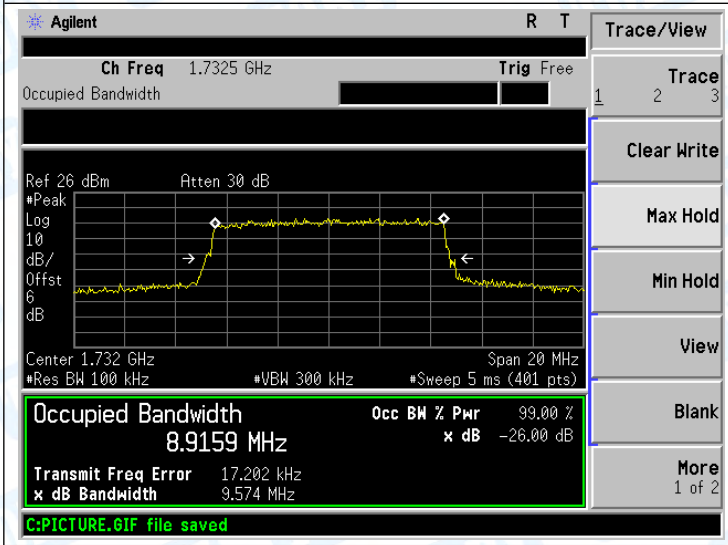
LTE BAND 4 (10MHz QPSK-Low CH)



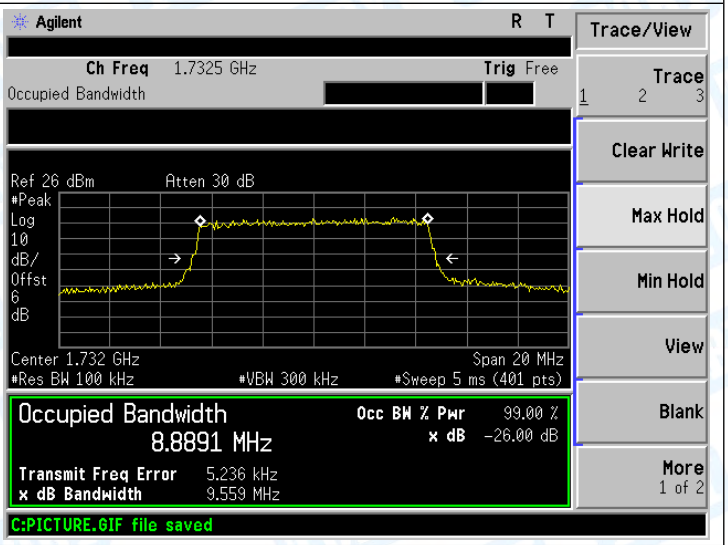
LTE BAND 4 (10MHz 16QAM-Low CH)



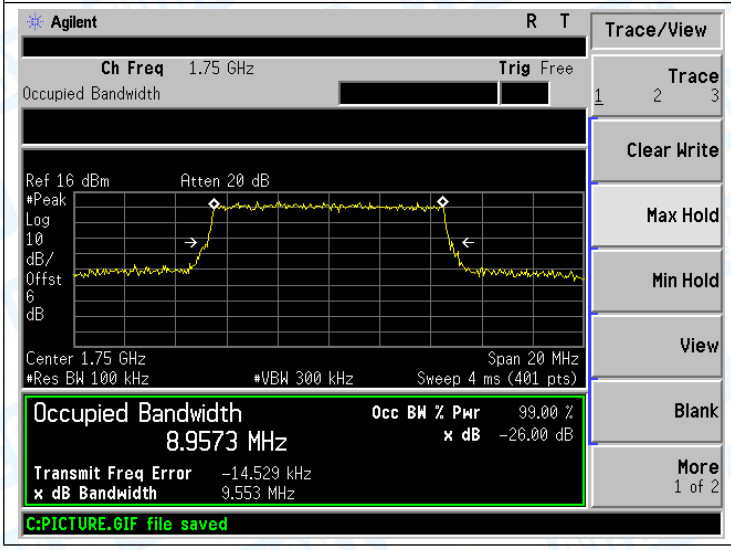
LTE BAND 4 (10MHz QPSK-Middle CH)



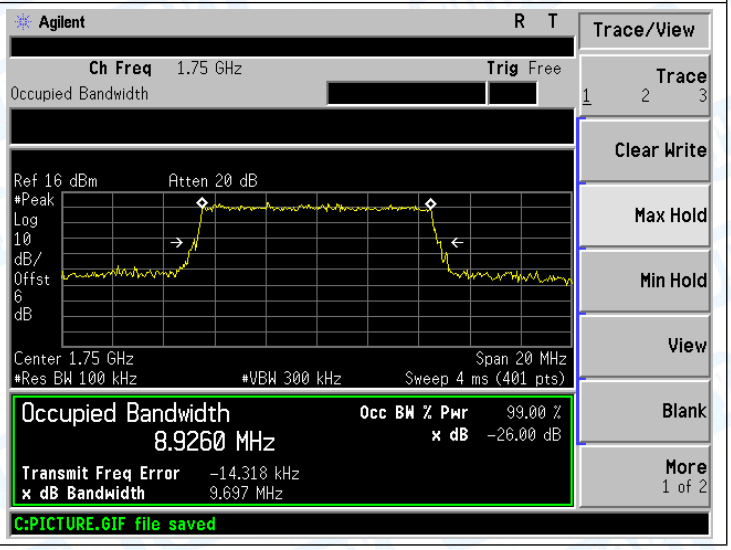
LTE BAND 4 (10MHz 16QAM- Middle CH)



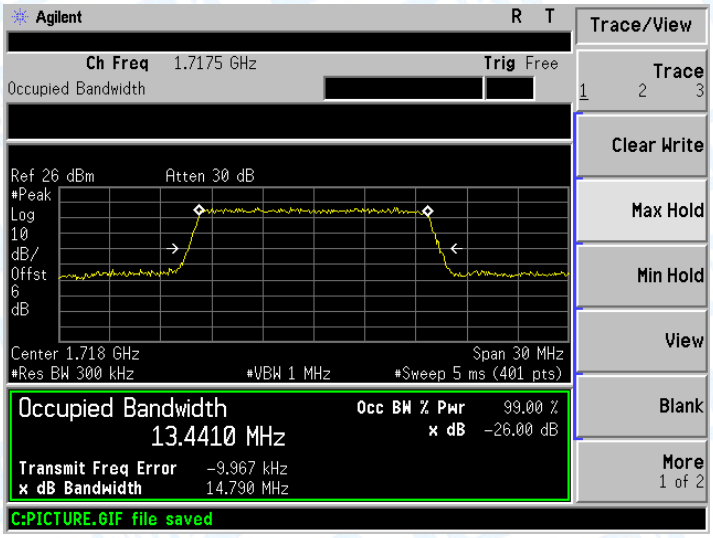
LTE BAND 4 (10MHz QPSK-High CH)



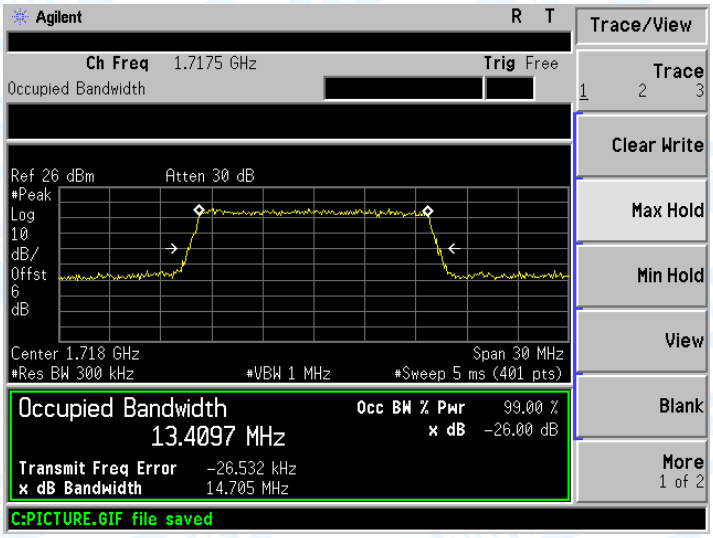
LTE BAND 4 (10MHz 16QAM-High CH)



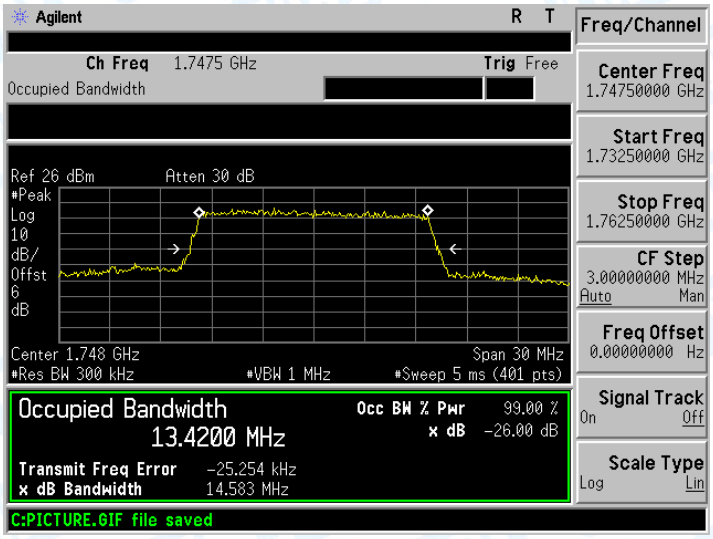
LTE BAND 4 (15MHz QPSK-Low CH)



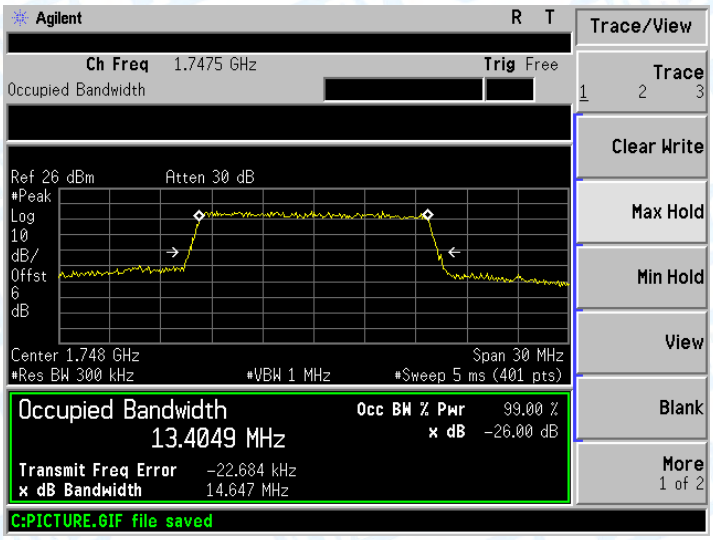
LTE BAND 4 (15MHz 16QAM-Low CH)



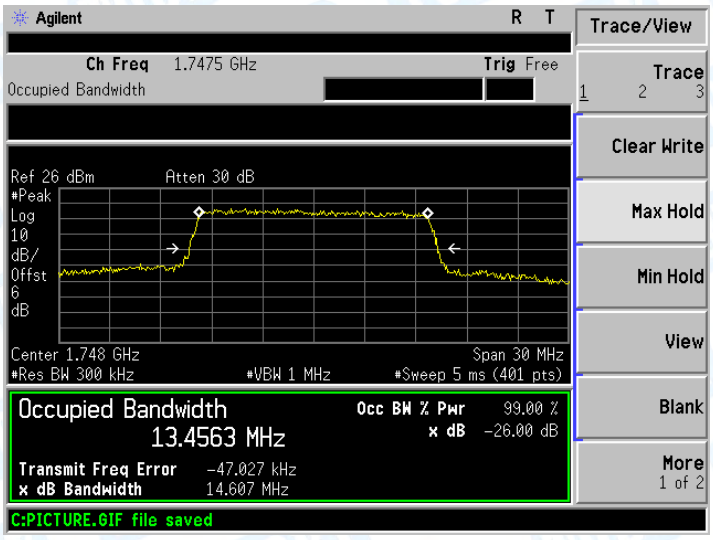
LTE BAND 4 (15MHz QPSK-Middle CH)



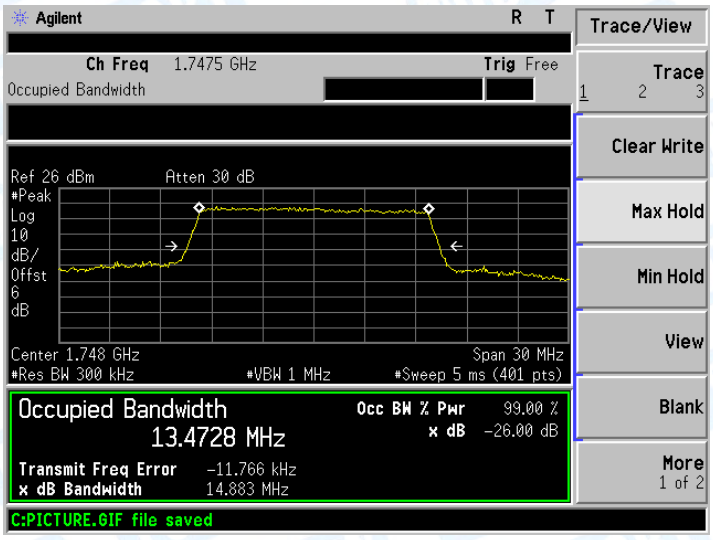
LTE BAND 4 (15MHz 16QAM- Middle CH)



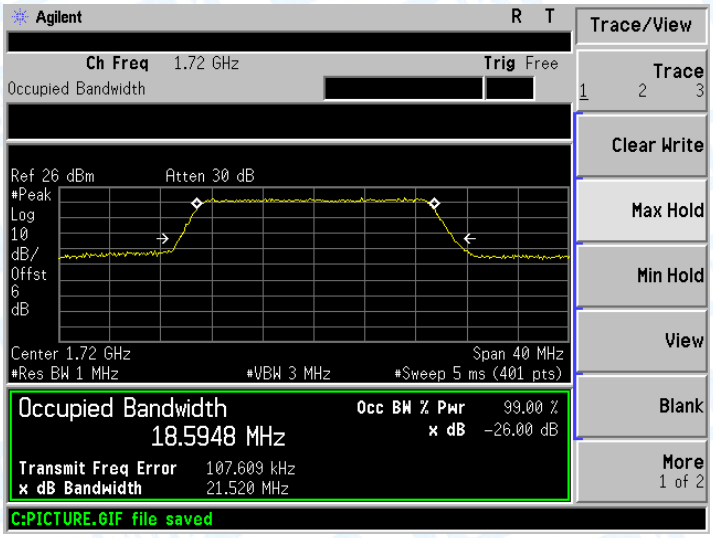
LTE BAND 4 (15MHz QPSK-High CH)



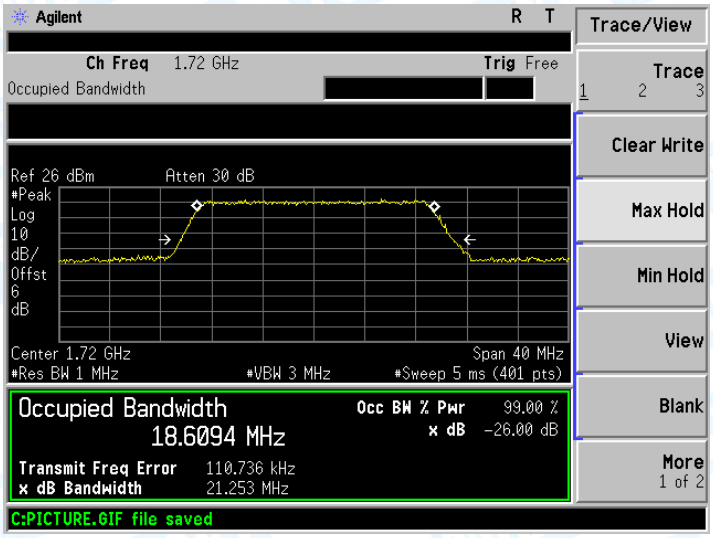
LTE BAND 4 (15MHz 16QAM-High CH)



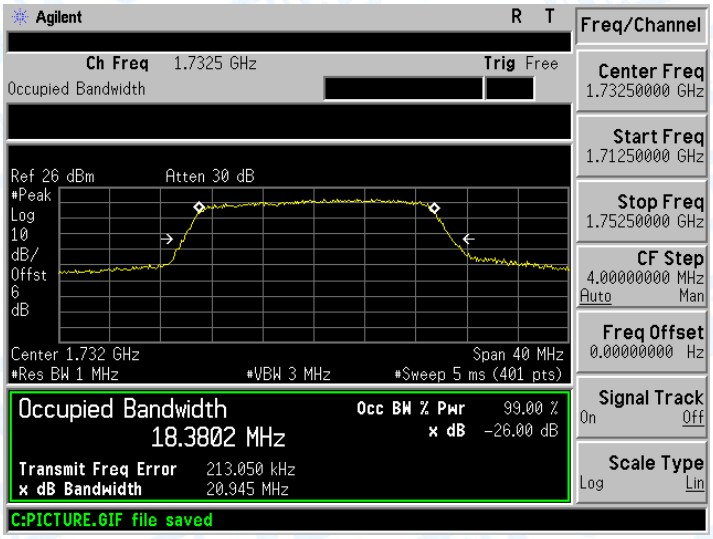
LTE BAND 4 (20MHz QPSK-Low CH)



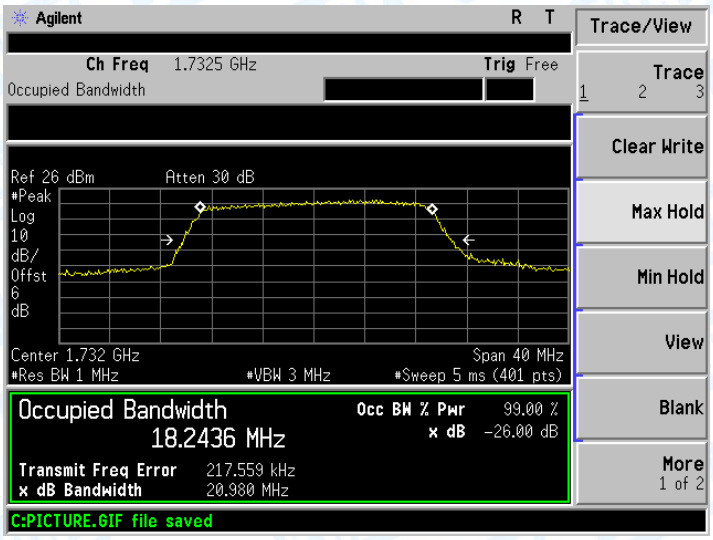
LTE BAND 4 (20MHz 16QAM-Low CH)



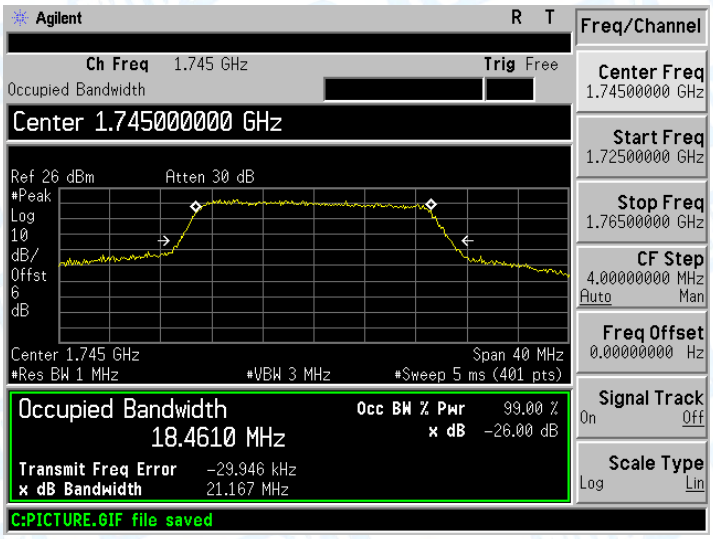
LTE BAND 4 (20MHz QPSK-Middle CH)



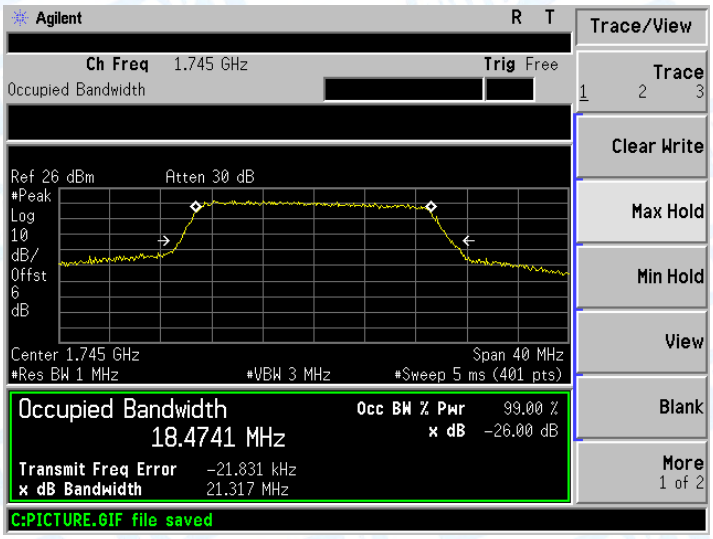
LTE BAND 4 (20MHz 16QAM- Middle CH)



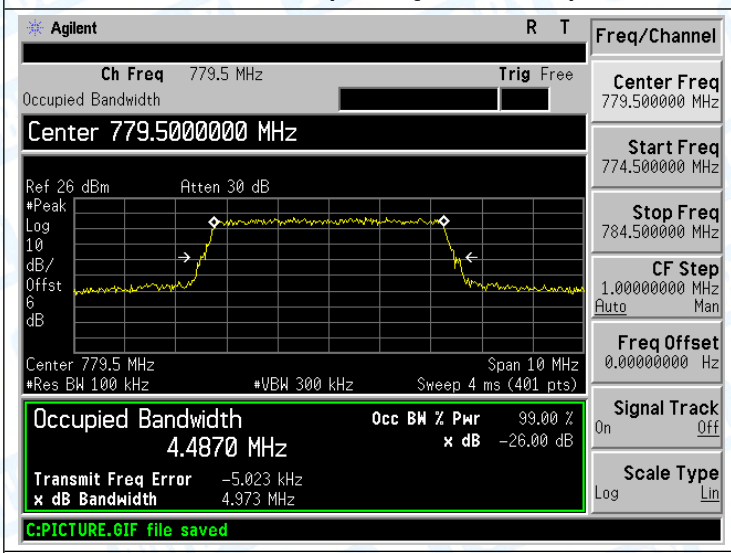
LTE BAND 4 (20MHz QPSK-High CH)



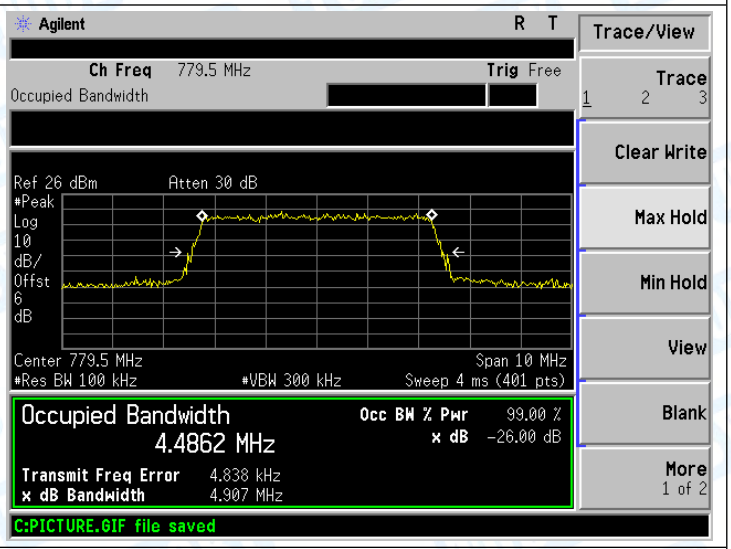
LTE BAND 4 (20MHz 16QAM-High CH)



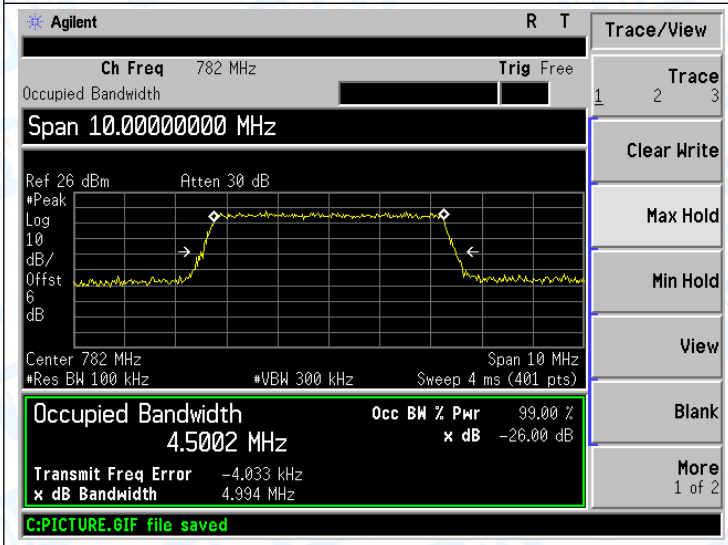
LTE BAND 13 (5MHz QPSK-Low CH)



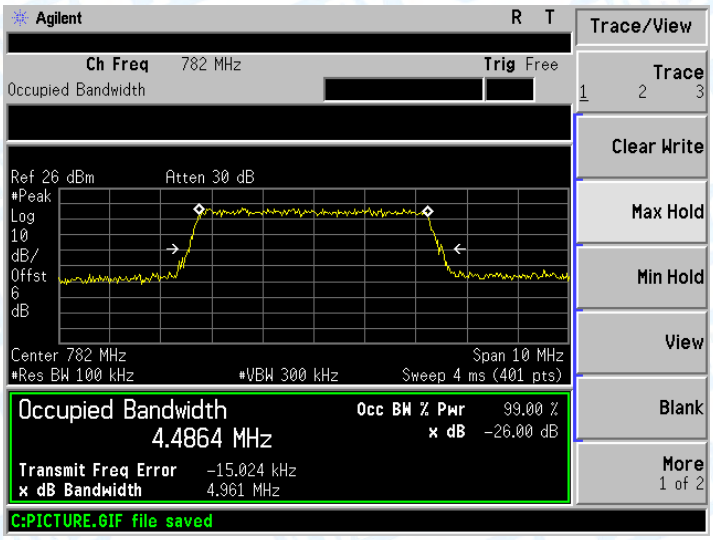
LTE BAND 13 (5MHz 16QAM-Low CH)



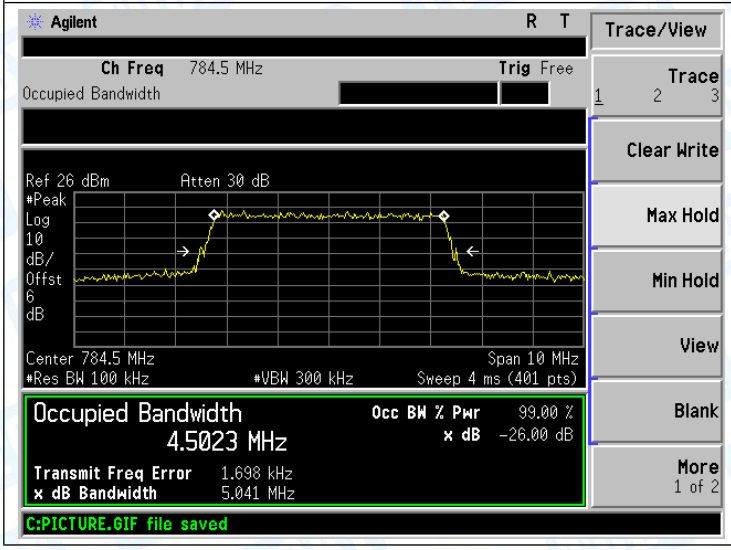
LTE BAND 13 (5MHz QPSK-Middle CH)



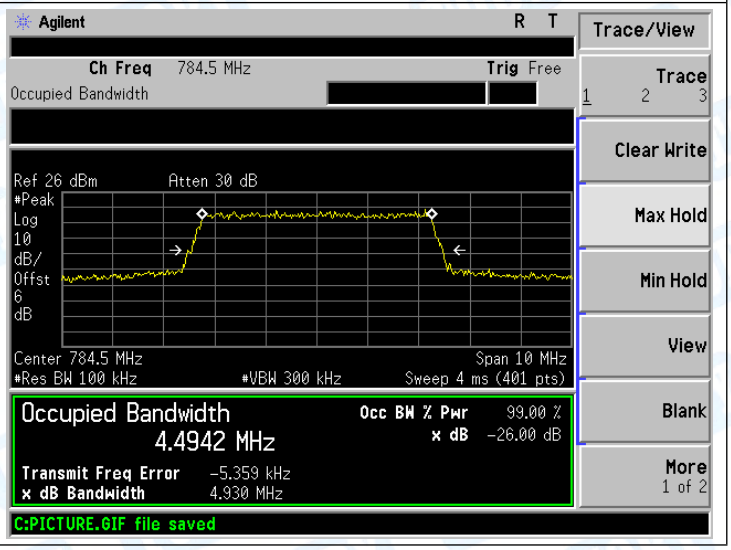
LTE BAND 13 (5MHz 16QAM- Middle CH)

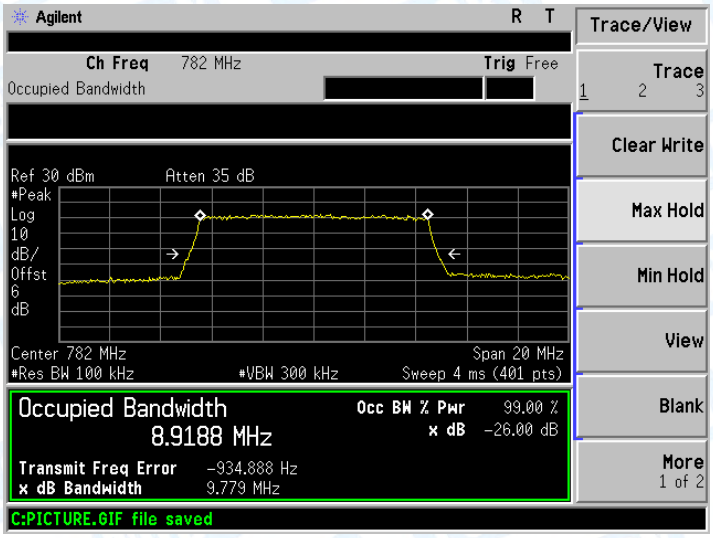
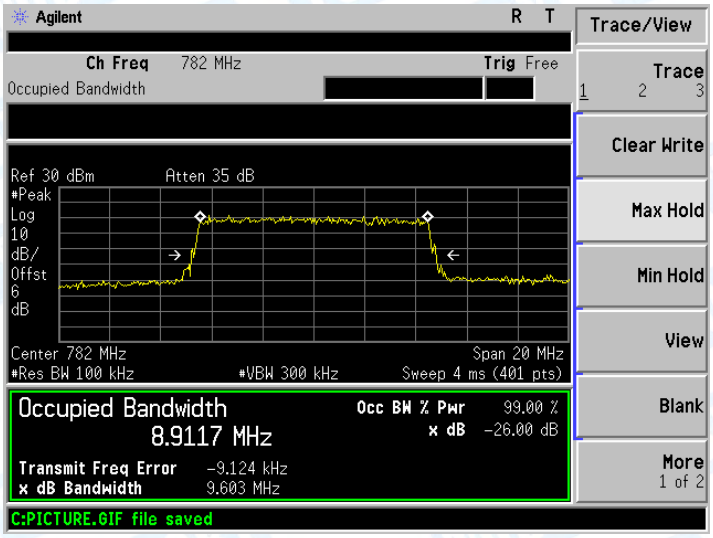


LTE BAND 13 (5MHz QPSK-High CH)

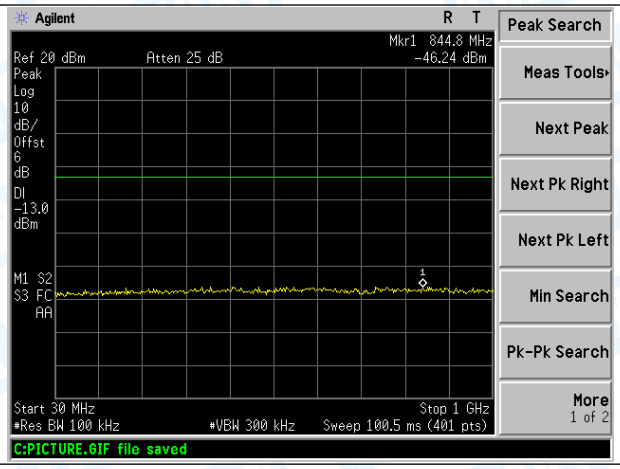
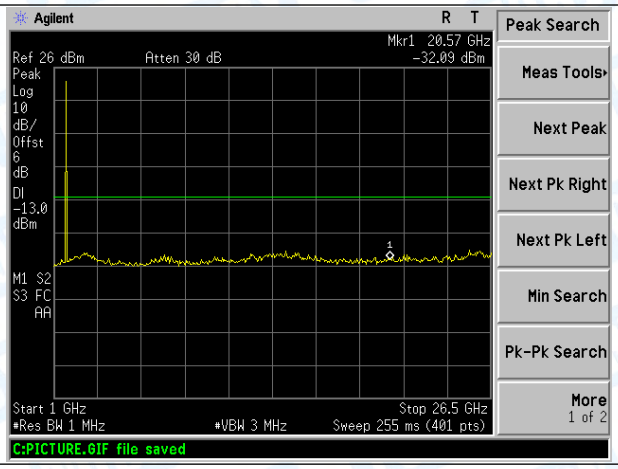
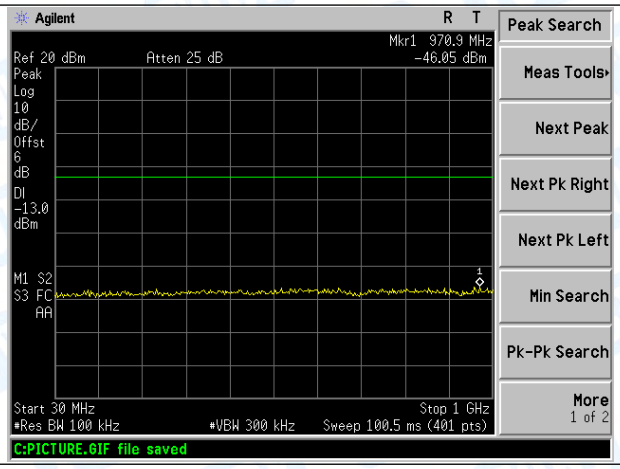
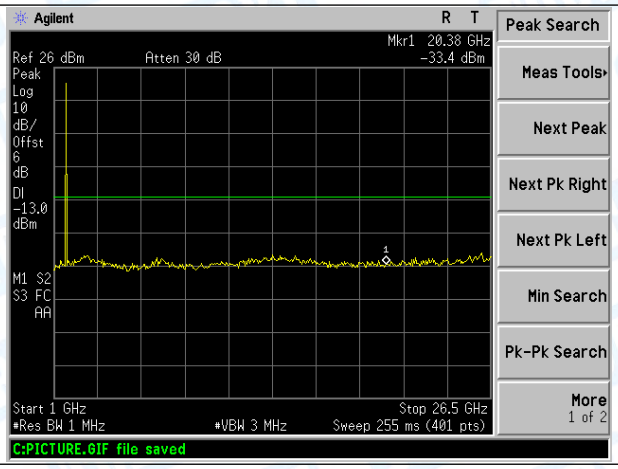
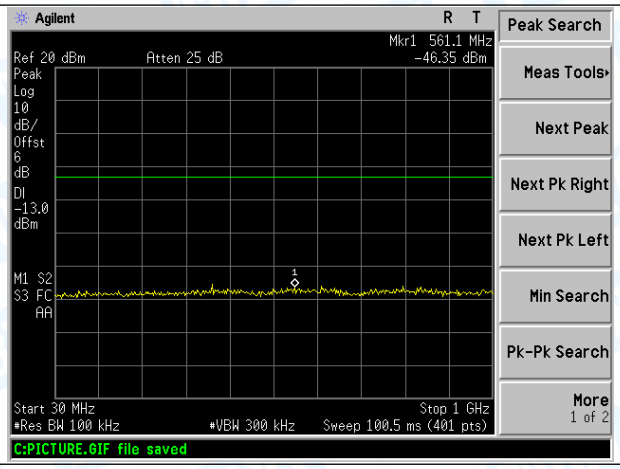
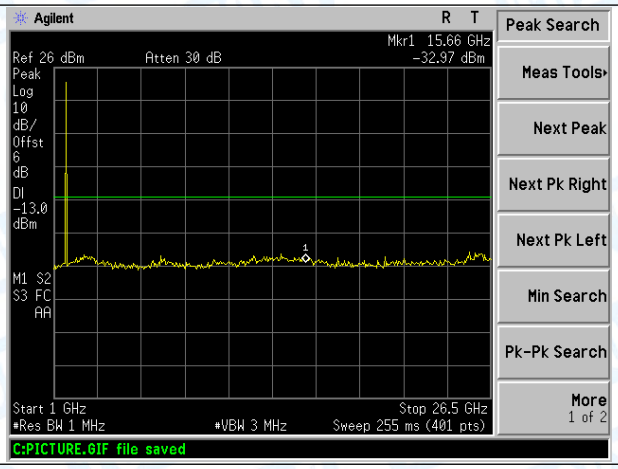


LTE BAND 13 (5MHz 16QAM-High CH)



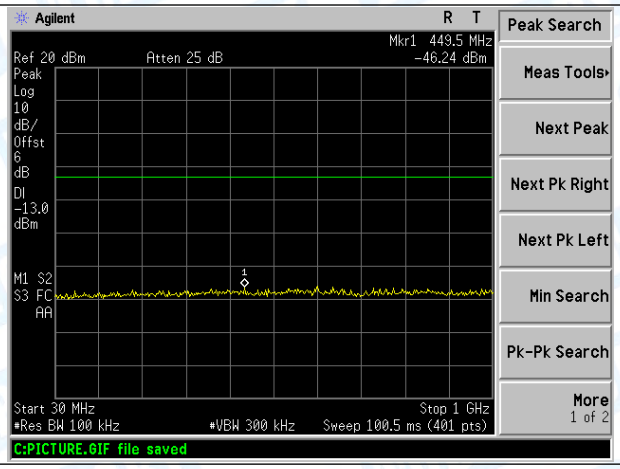
LTE BAND 13 (10MHz QPSK)	LTE BAND 13 (10MHz 16QAM)
	

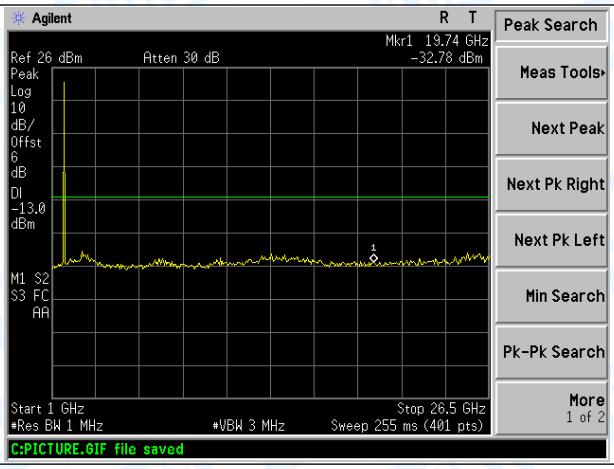
ATTACHMENT D--OUT OF BAND EMISSION AT ANTENNA TERMINALS

30MHz-1GHz	1GHz-26.5GHz
LTE BAND 4 (1.4MHz RB Size 6& RB Offset 0 QPSK-Low CH)	
	
LTE BAND 4 (1.4MHz RB Size 6& RB Offset 0 QPSK-Middle CH)	
	
LTE BAND 4 (1.4MHz RB Size 6& RB Offset 0 QPSK-High CH)	
	

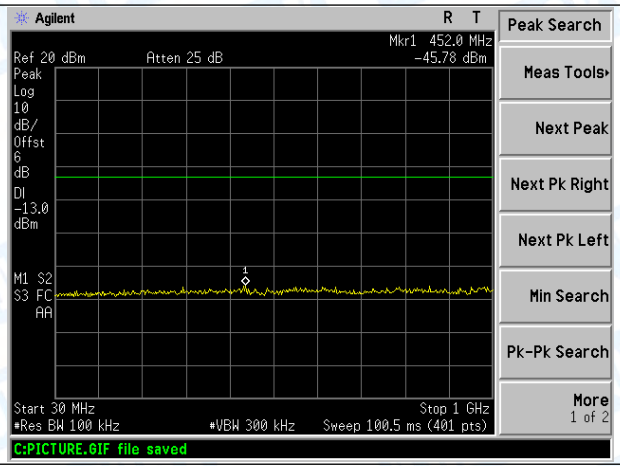
30MHz-1GHz	1GHz-26.5GHz

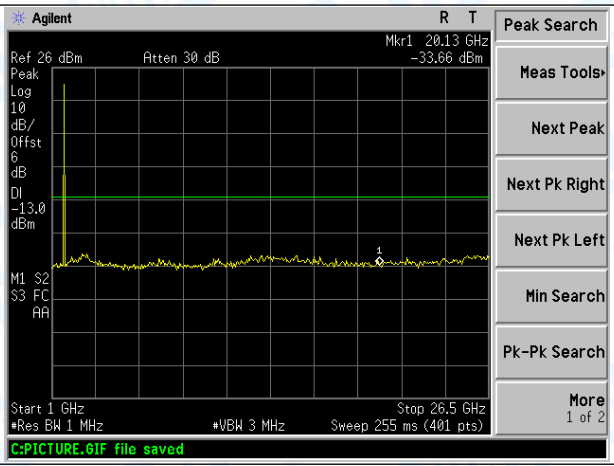
LTE BAND 4 (1.4MHz RB Size 6& RB Offset 0 16QAM-Low CH)



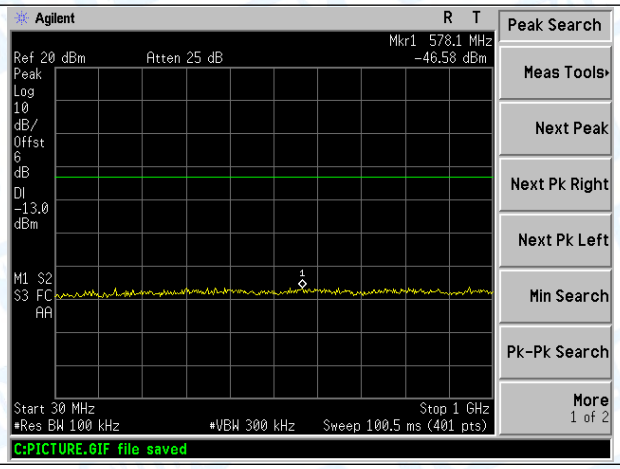


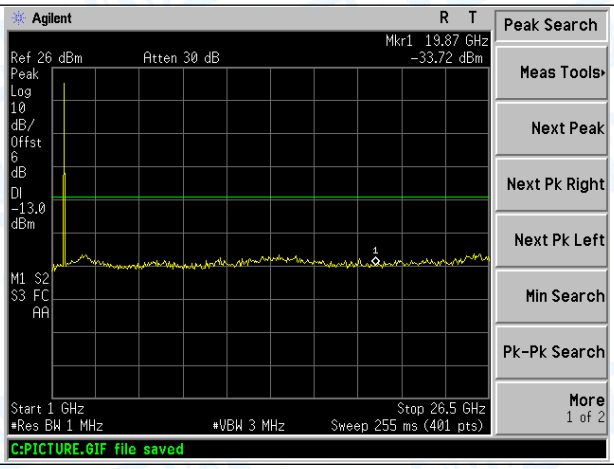
LTE BAND 4 (1.4MHz RB Size 6& RB Offset 0 16QAM-Middle CH)

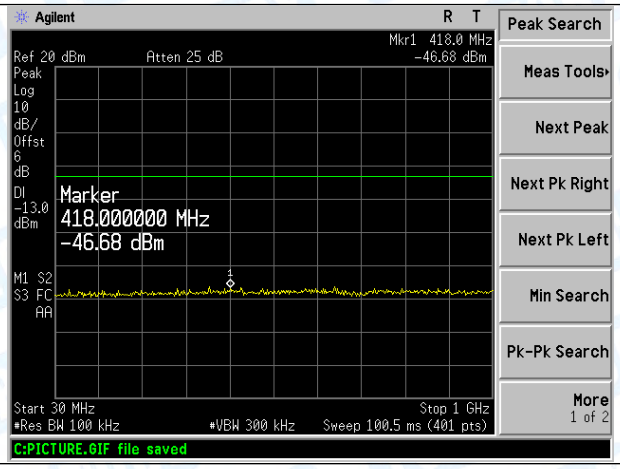
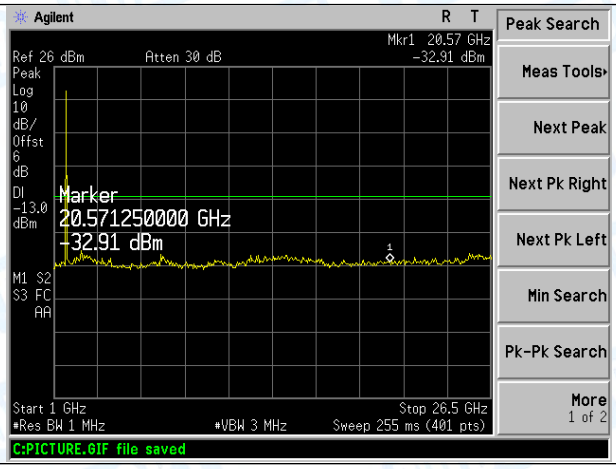
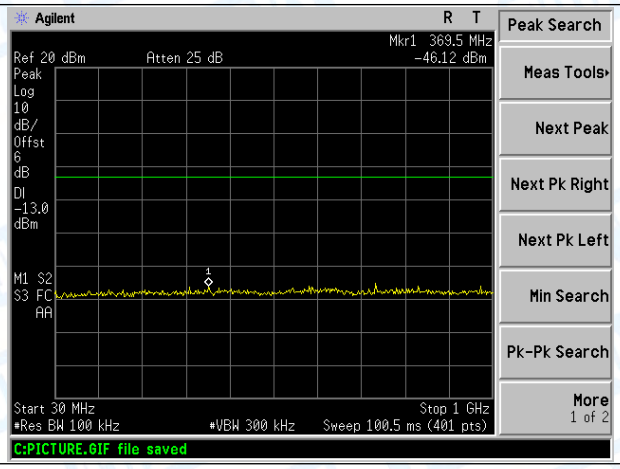
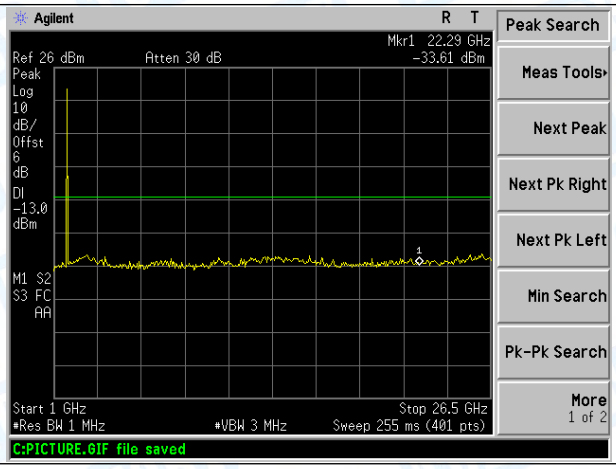
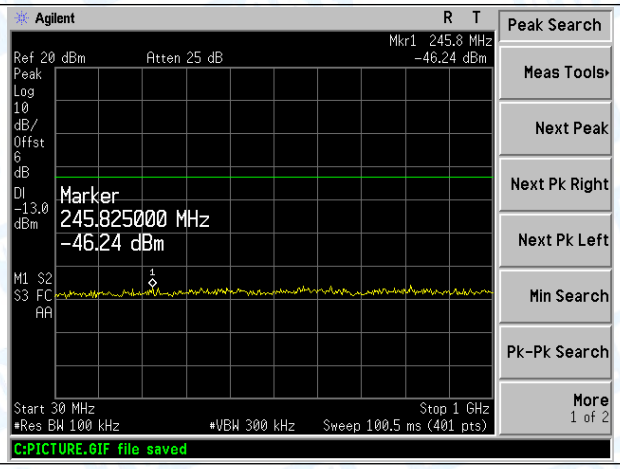
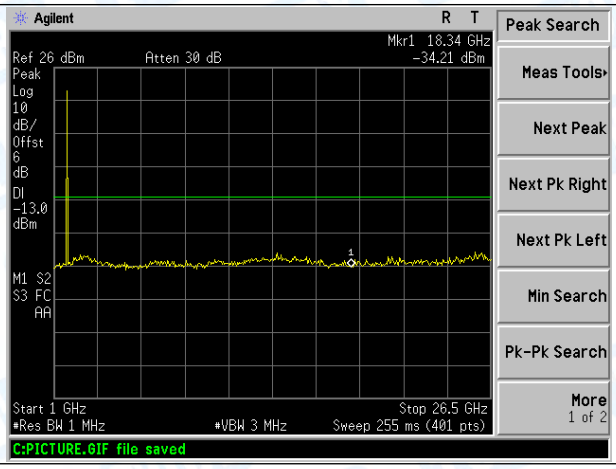




LTE BAND 4 (1.4MHz RB Size 6& RB Offset 0 16QAM-High CH)

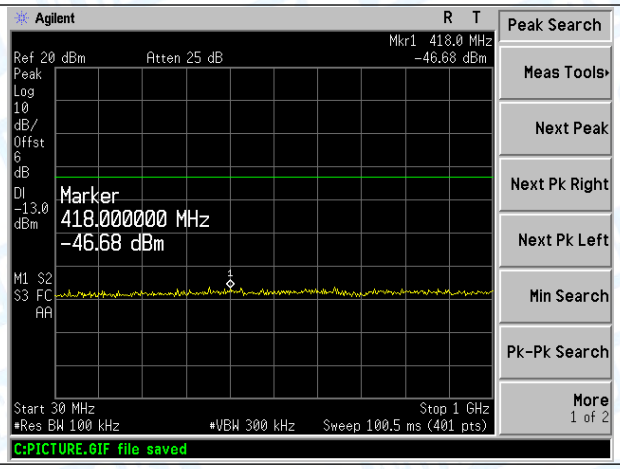


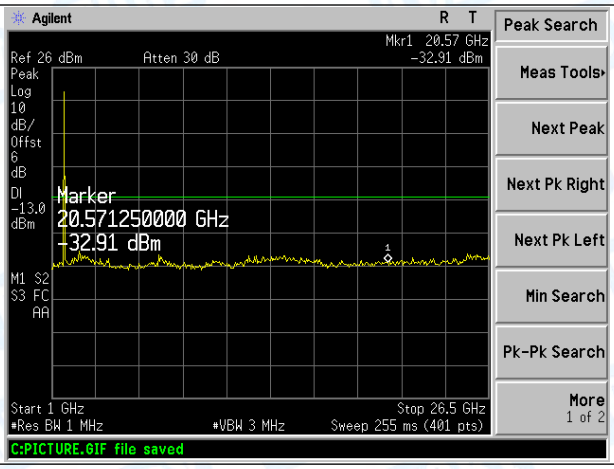


30MHz-1GHz	1GHz-26.5GHz
LTE BAND 4 (3MHz RB Size 15& RB Offset 0 QPSK-Low CH)	
	
LTE BAND 4 (3MHz RB Size 15& RB Offset 0 QPSK-Middle CH)	
	
LTE BAND 4 (3MHz RB Size 15& RB Offset 0 QPSK-High CH)	
	

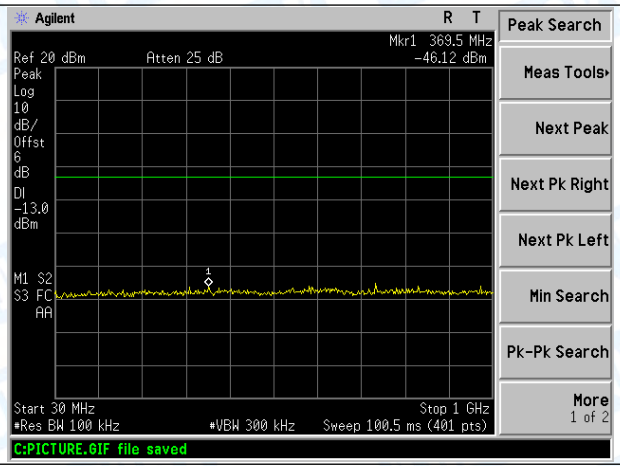
30MHz-1GHz	1GHz-26.5GHz

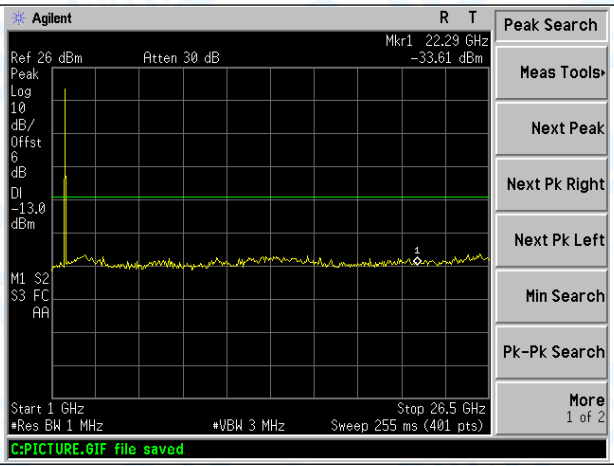
LTE BAND 4 (3MHz RB Size 15& RB Offset 0 16QAM-Low CH)



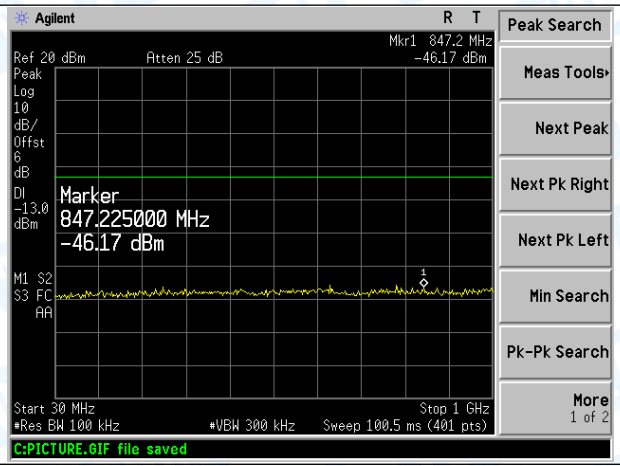


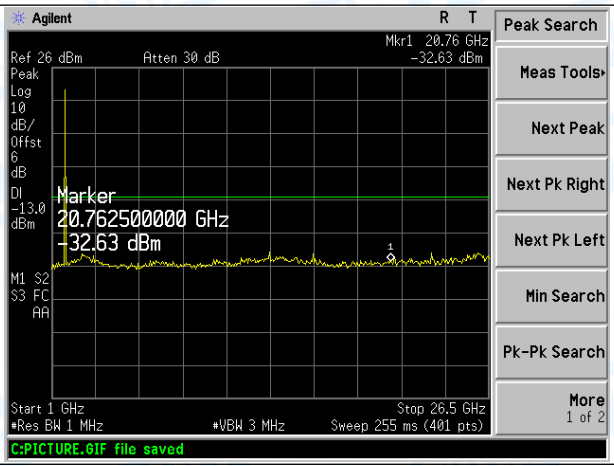
LTE BAND 4 (3MHz RB Size 15& RB Offset 0 16QAM-Middle CH)

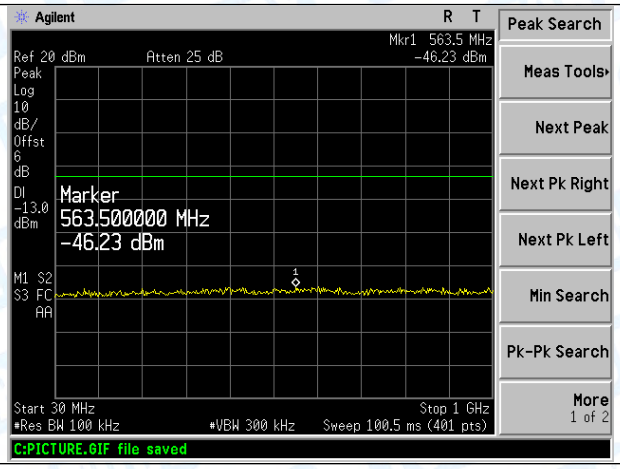
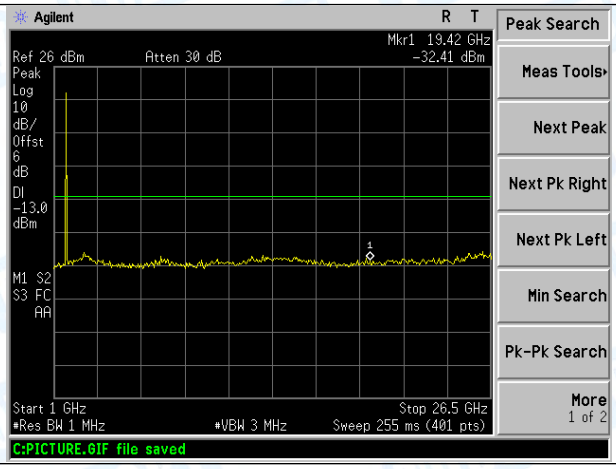
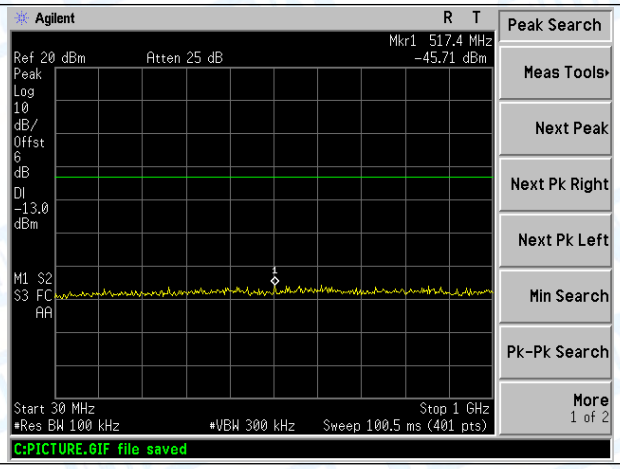
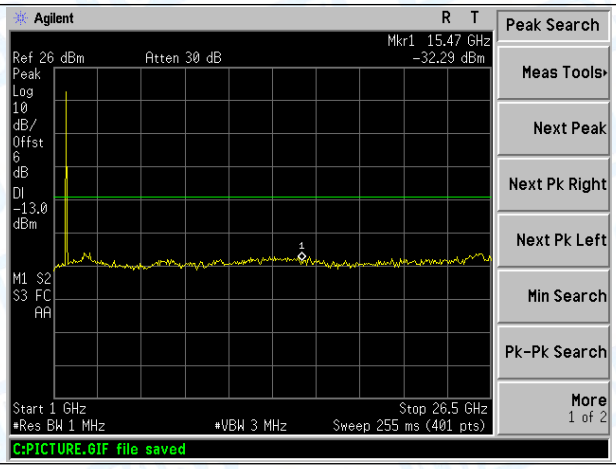
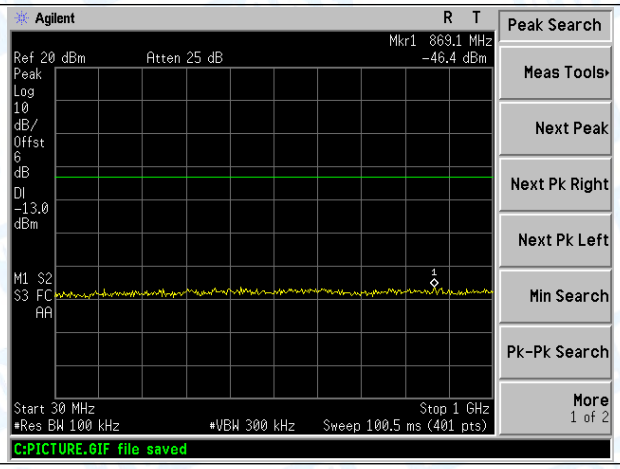
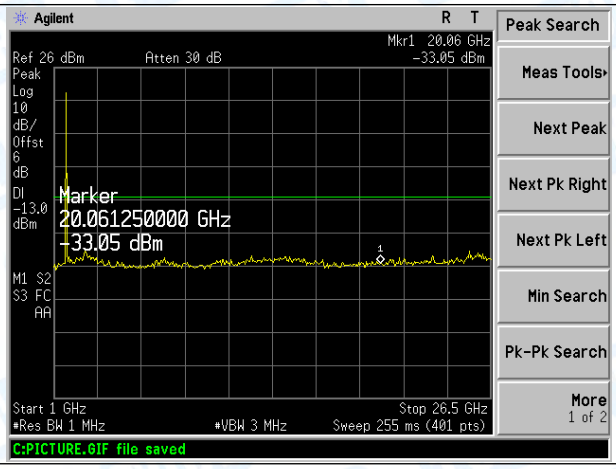




LTE BAND 4 (3MHz RB Size 15& RB Offset 0 16QAM-High CH)

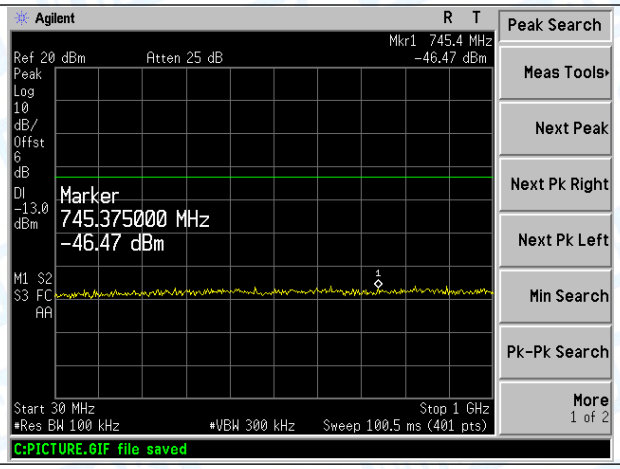


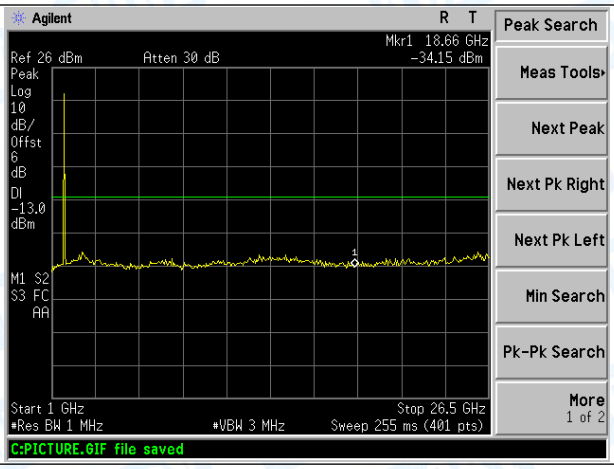


30MHz-1GHz	1GHz-26.5GHz
LTE BAND 4 (5MHz RB Size 25& RB Offset 0 QPSK-Low CH)	
	
LTE BAND 4 (5MHz RB Size 25& RB Offset 0 QPSK-Middle CH)	
	
LTE BAND 4 (5MHz RB Size 25& RB Offset 0 QPSK-High CH)	
	

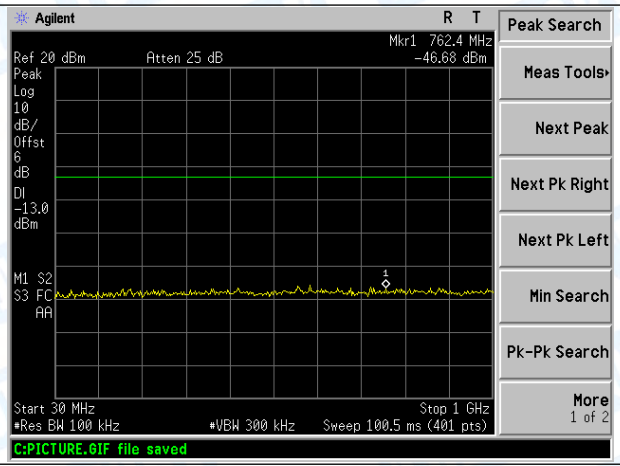
30MHz-1GHz	1GHz-26.5GHz

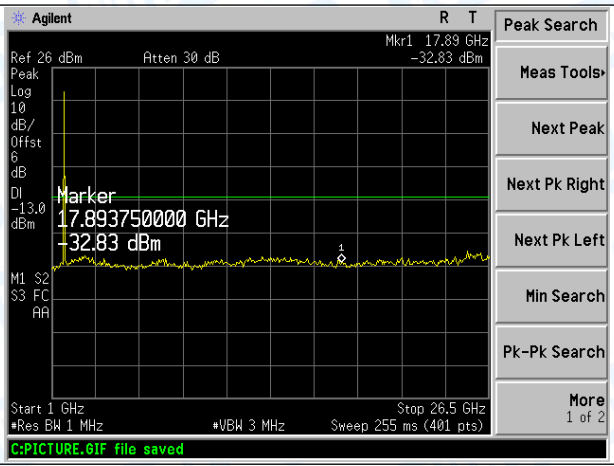
LTE BAND 4 (5MHz RB Size 25& RB Offset 0 16QAM-Low CH)



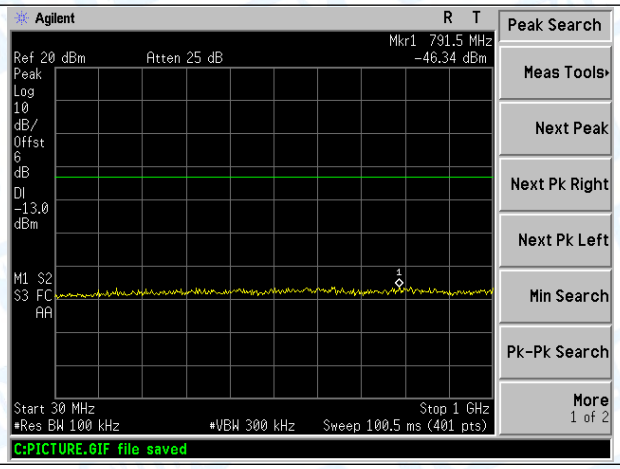


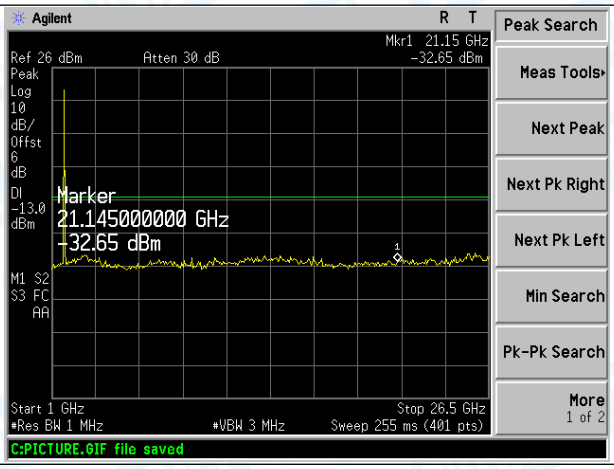
LTE BAND 4 (5MHz RB Size 25& RB Offset 0 16QAM-Middle CH)

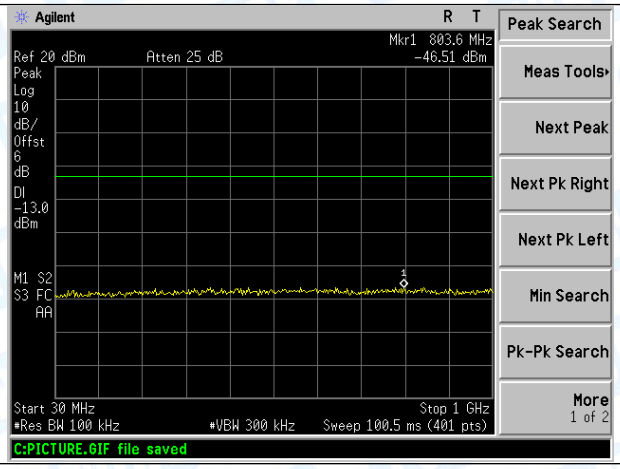
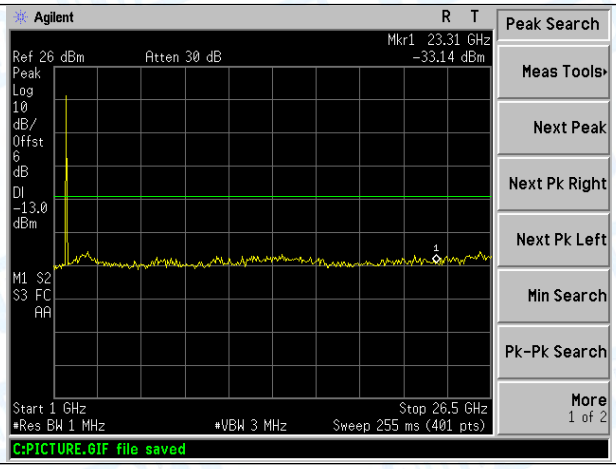
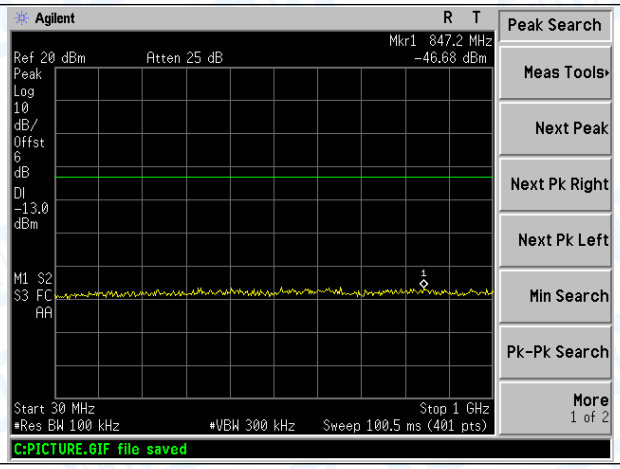
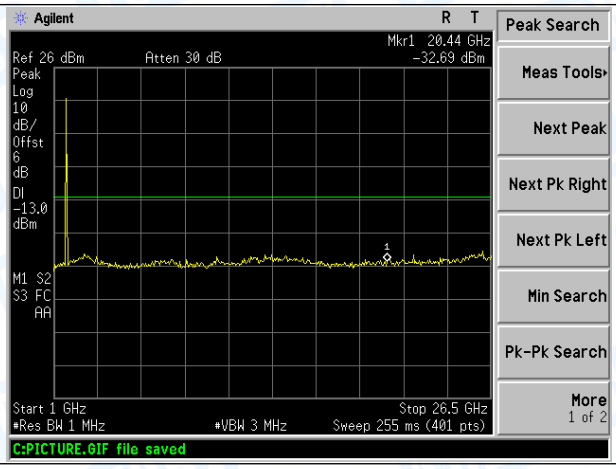
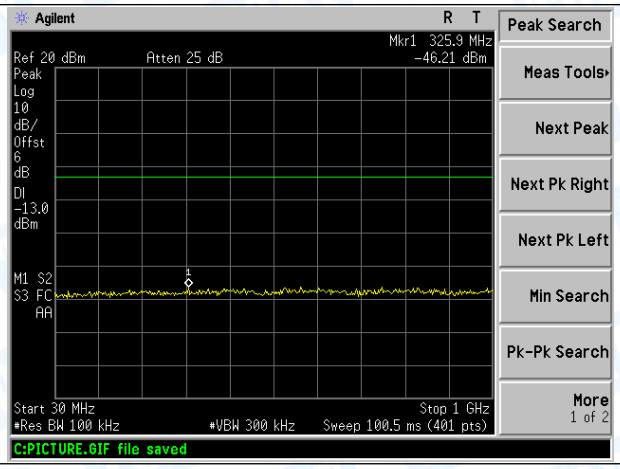
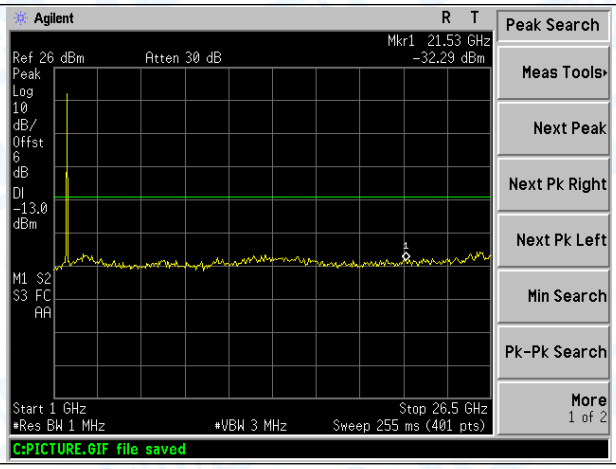




LTE BAND 4 (5MHz RB Size 25& RB Offset 0 16QAM-High CH)

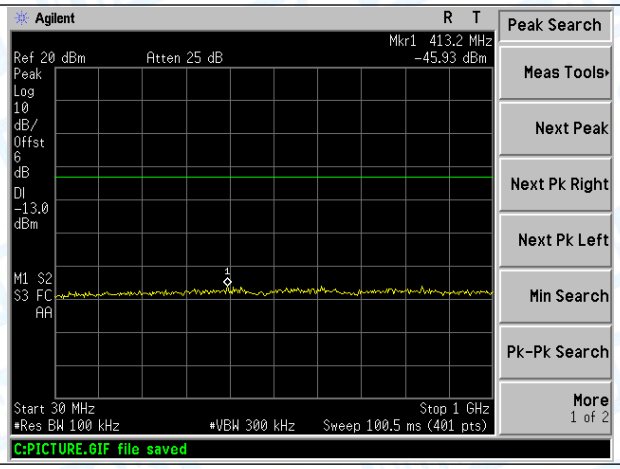


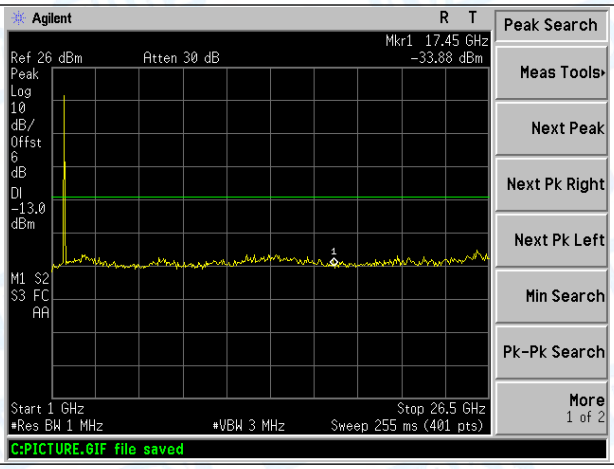


30MHz-1GHz	1GHz-26.5GHz
LTE BAND 4 (10MHz RB Size 50& RB Offset 0 QPSK-Low CH)	
	
LTE BAND 4 (10MHz RB Size 50& RB Offset 0 QPSK-Middle CH)	
	
LTE BAND 4 (10MHz RB Size 50& RB Offset 0 QPSK-High CH)	
	

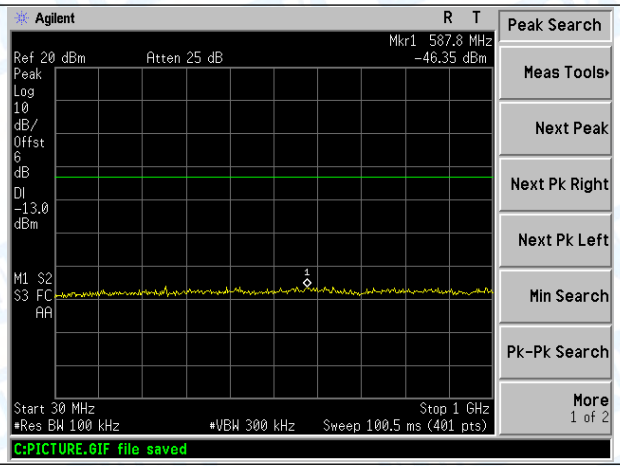
30MHz-1GHz	1GHz-26.5GHz

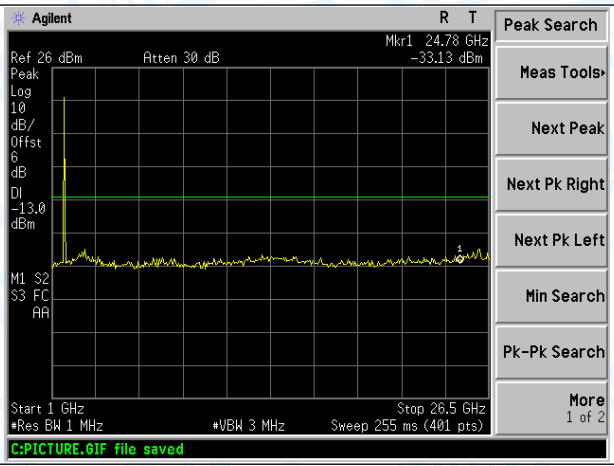
LTE BAND 4 (10MHz RB Size 50& RB Offset 0 16QAM-Low CH)



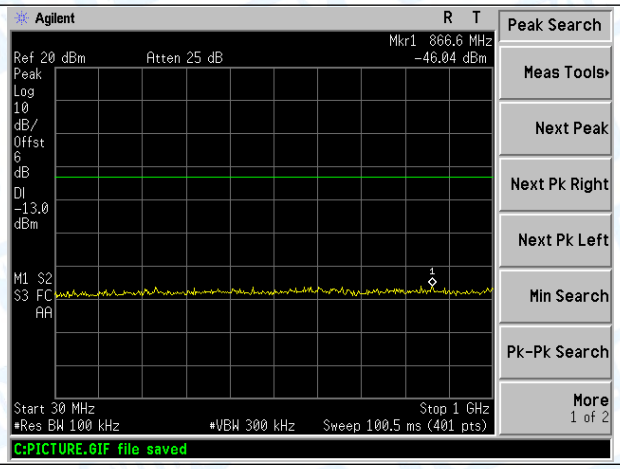


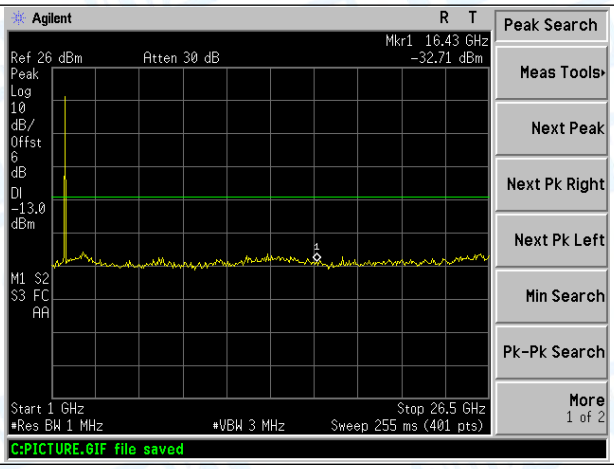
LTE BAND 4 (10MHz RB Size 50& RB Offset 0 16QAM-Middle CH)

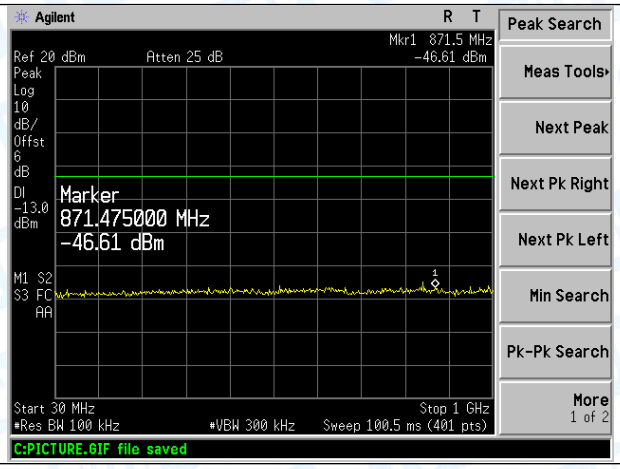
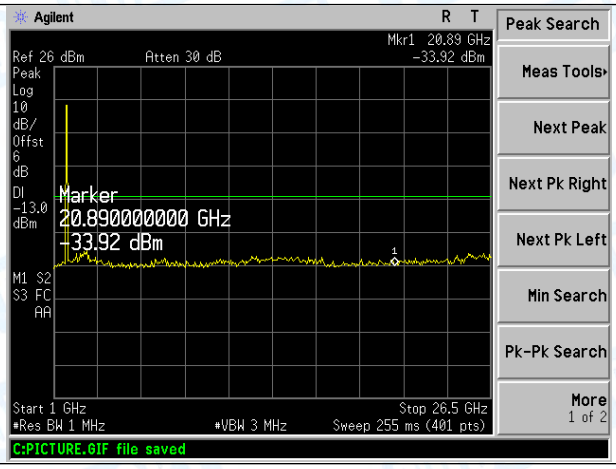
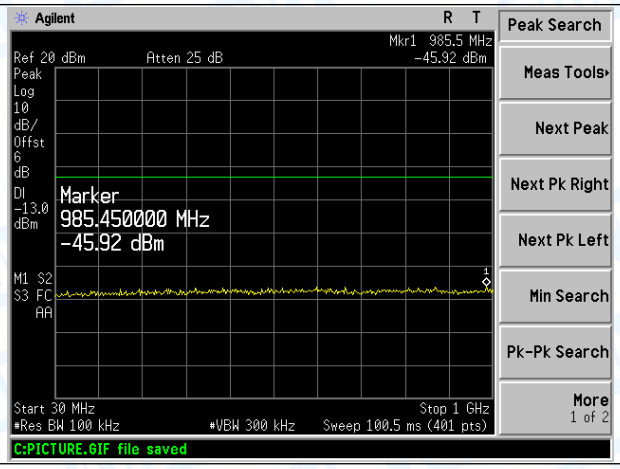
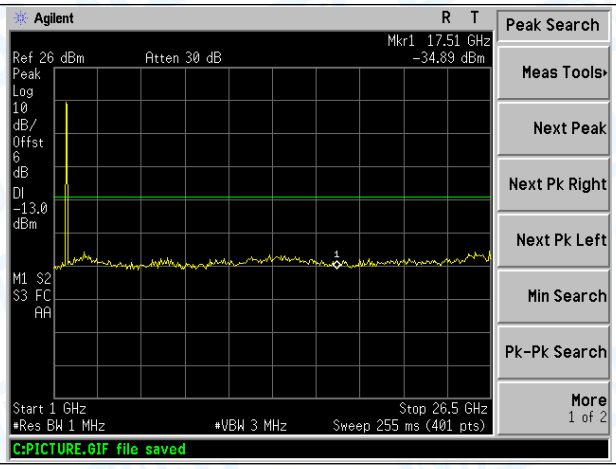
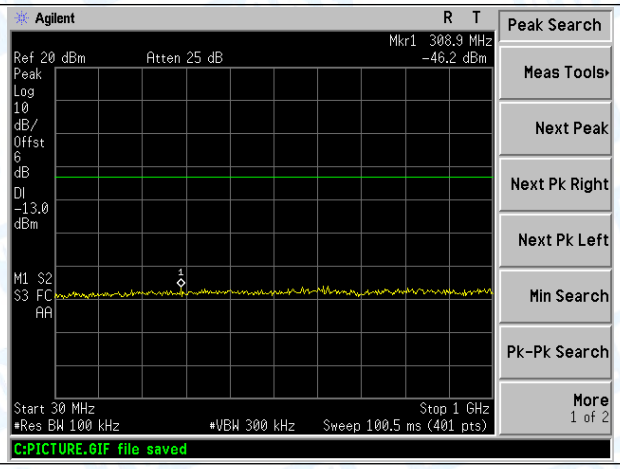
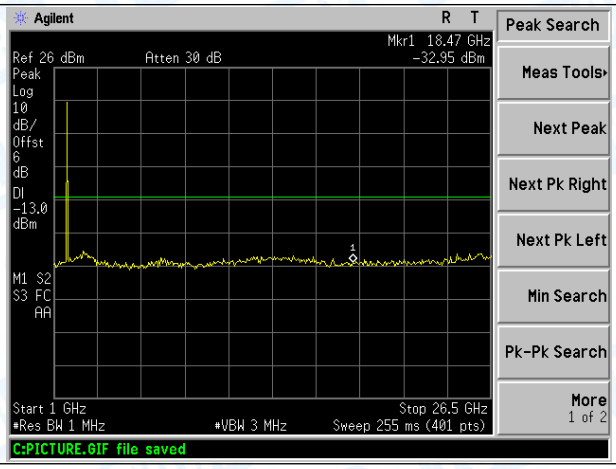




LTE BAND 4 (10MHz RB Size 50& RB Offset 0 16QAM-High CH)

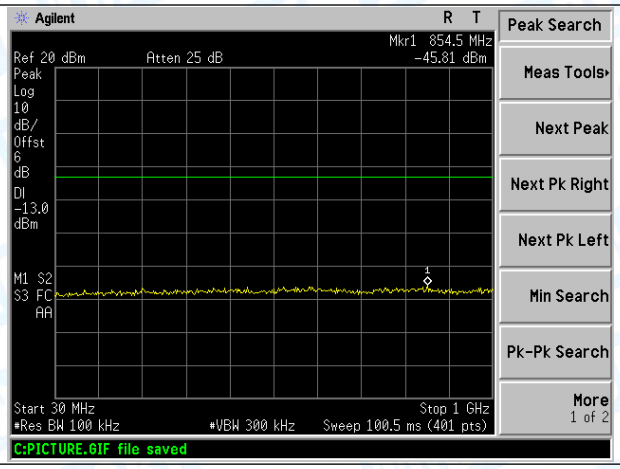


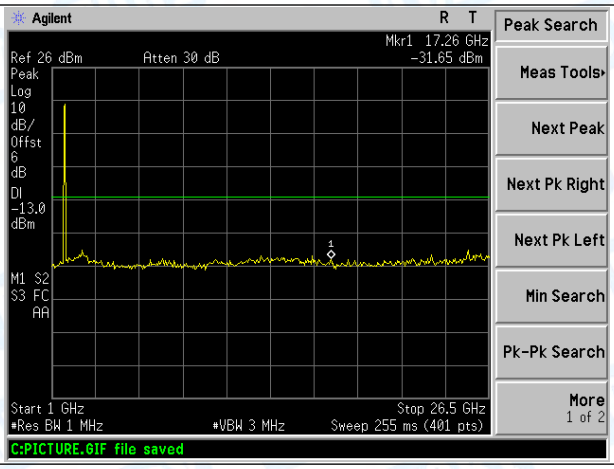


30MHz-1GHz	1GHz-26.5GHz
LTE BAND 4 (15MHz RB Size 75& RB Offset 0 QPSK-Low CH)	
	
LTE BAND 4 (15MHz RB Size 75& RB Offset 0 QPSK-Middle CH)	
	
LTE BAND 4 (15MHz RB Size 75& RB Offset 0 QPSK-High CH)	
	

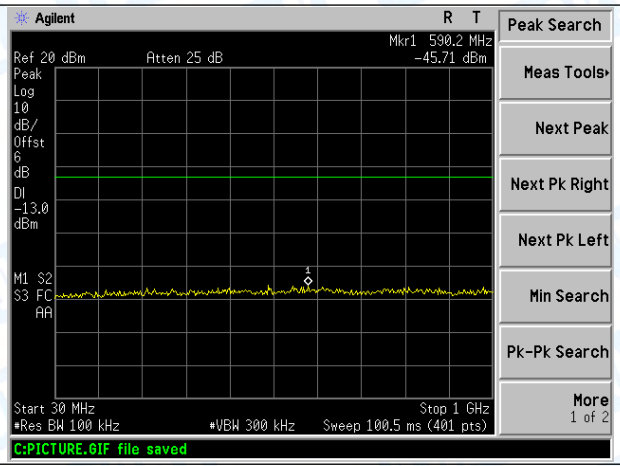
30MHz-1GHz	1GHz-26.5GHz

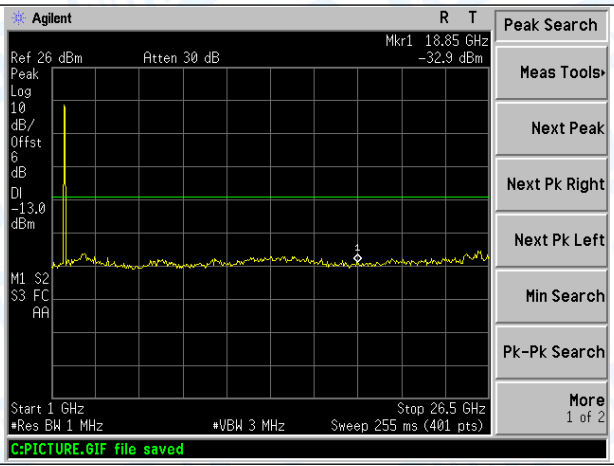
LTE BAND 4 (15MHz RB Size 75& RB Offset 0 16QAM-Low CH)



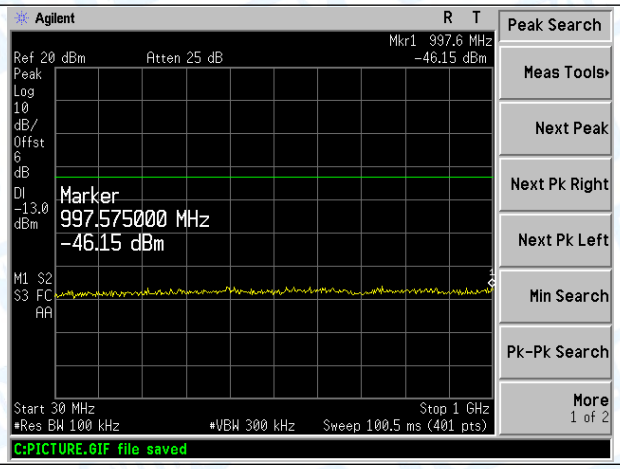


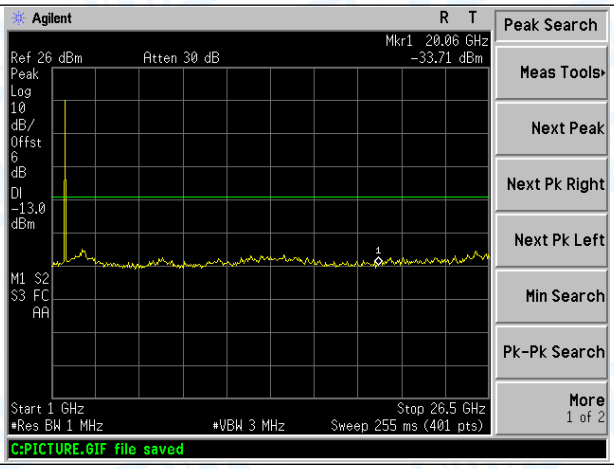
LTE BAND 4 (15MHz RB Size 75& RB Offset 0 16QAM-Middle CH)

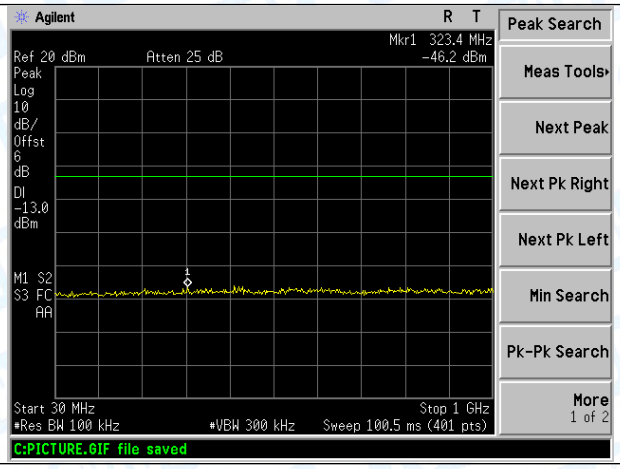
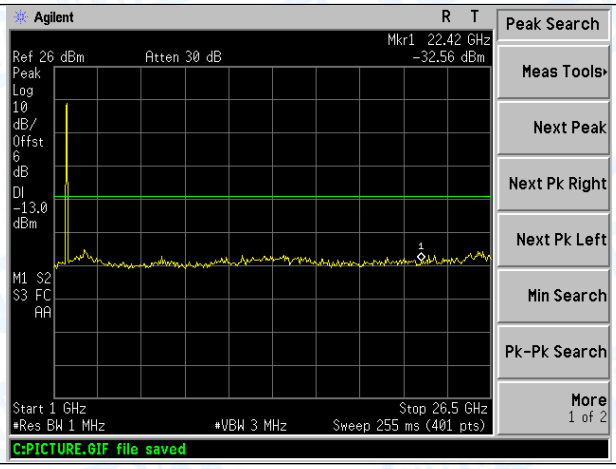
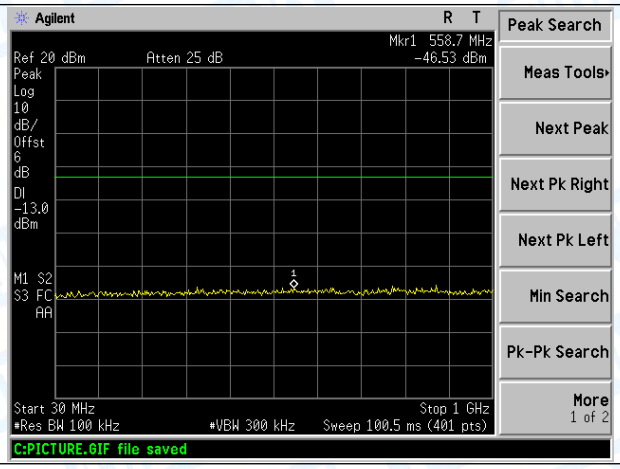
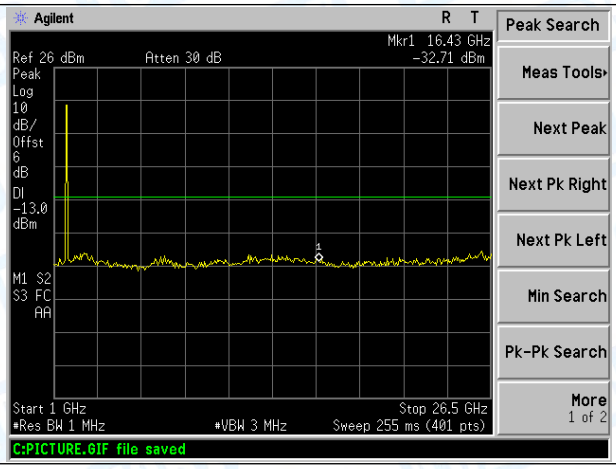
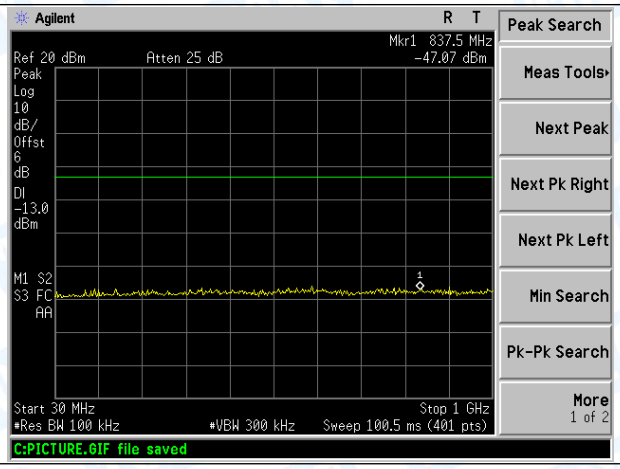
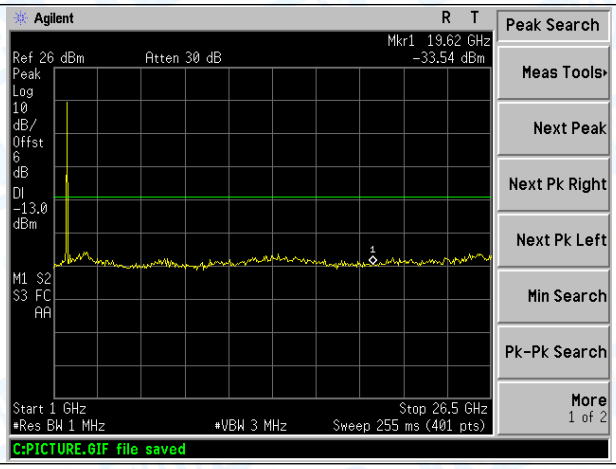




LTE BAND 4 (15MHz RB Size 75& RB Offset 0 16QAM-High CH)

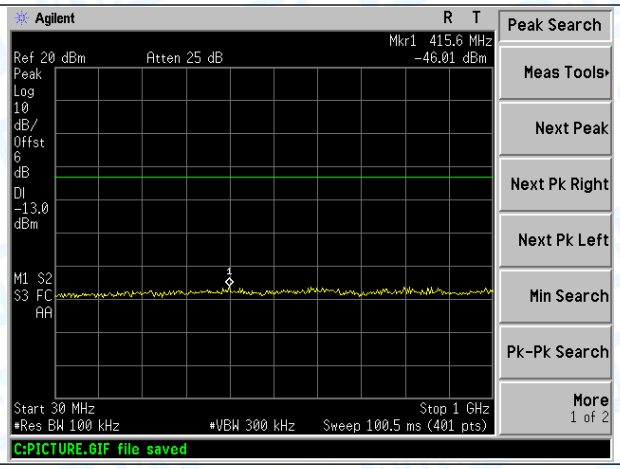


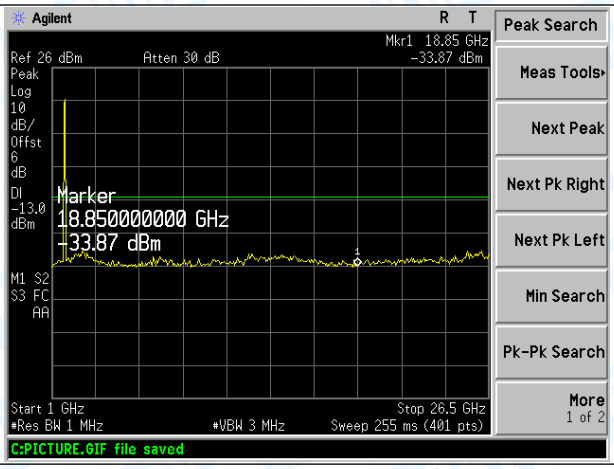


30MHz-1GHz	1GHz-26.5GHz
LTE BAND 4 (20MHz RB Size 100& RB Offset 0 QPSK-Low CH)	
	
LTE BAND 4 (20MHz RB Size 100& RB Offset 0 QPSK-Middle CH)	
	
LTE BAND 4 (20MHz RB Size 100& RB Offset 0 QPSK-High CH)	
	

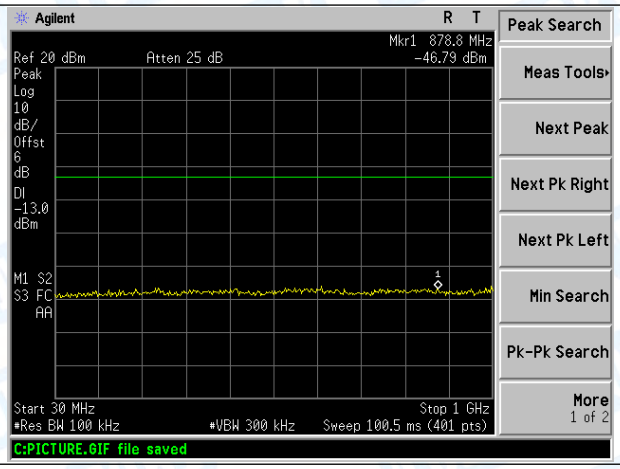
30MHz-1GHz	1GHz-26.5GHz

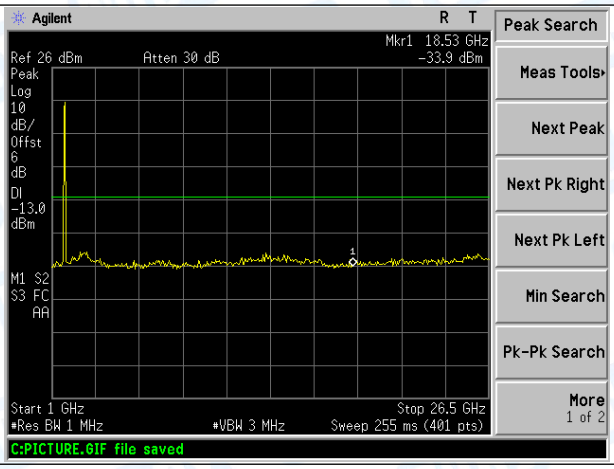
LTE BAND 4 (20MHz RB Size 100& RB Offset 0 16QAM-Low CH)



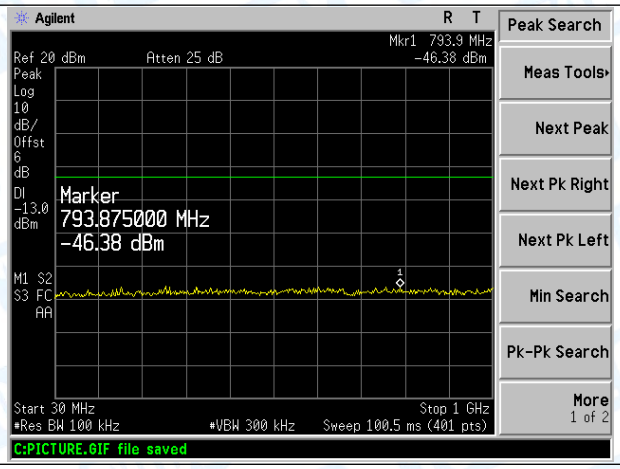


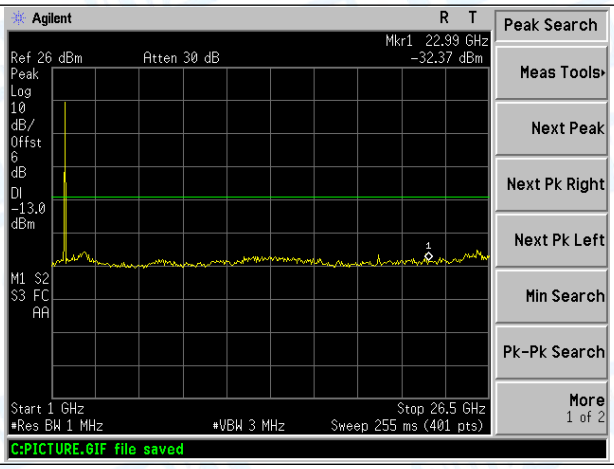
LTE BAND 4 (20MHz RB Size 100& RB Offset 0 16QAM-Middle CH)

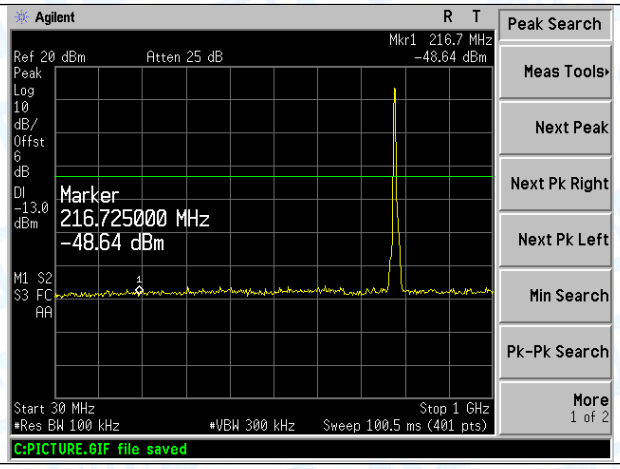
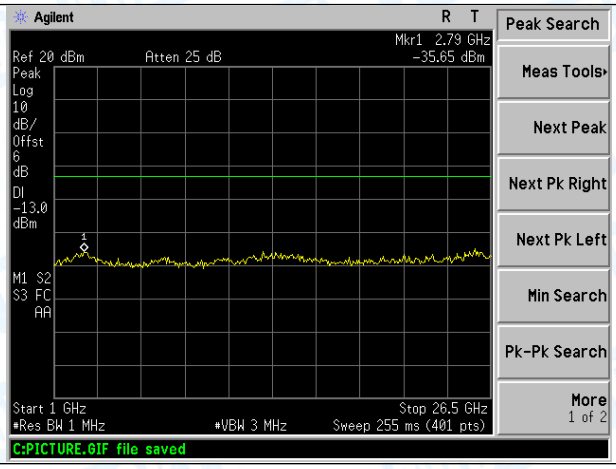
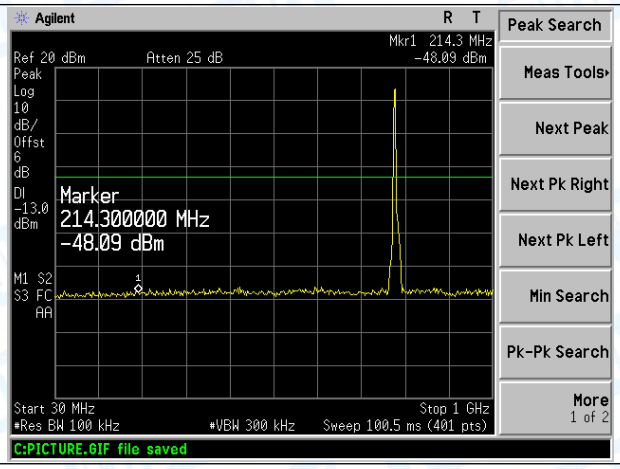
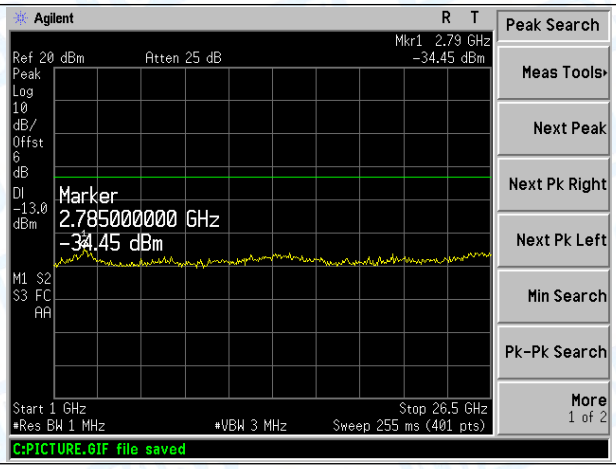
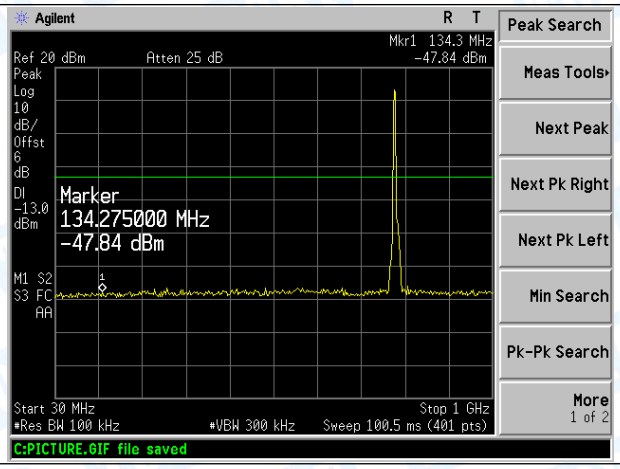
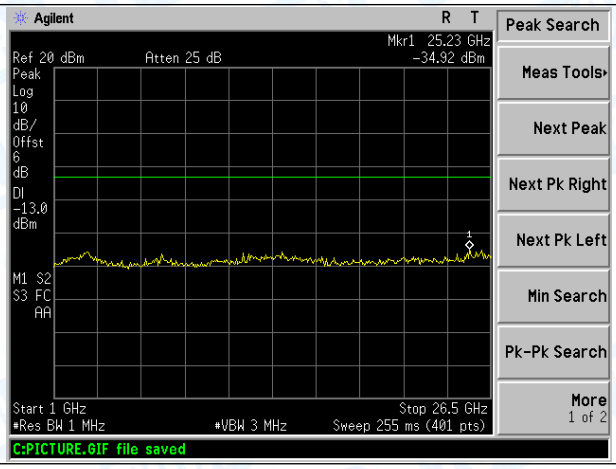




LTE BAND 4 (20MHz RB Size 100& RB Offset 0 16QAM-High CH)

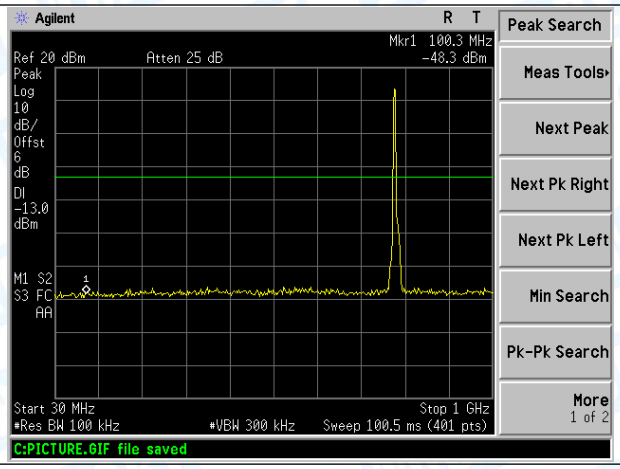


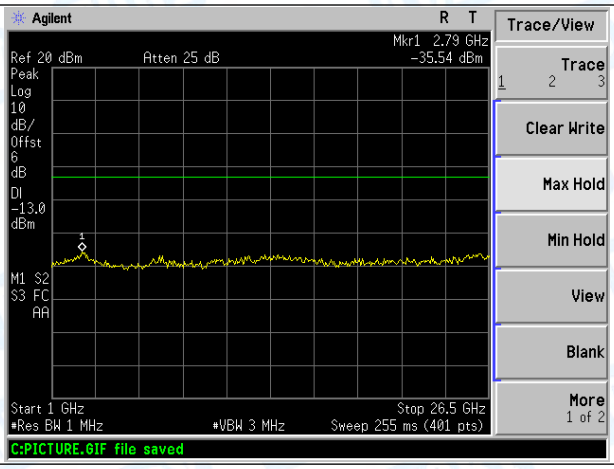


30MHz-1GHz	1GHz-26.5GHz
LTE BAND 13 (5MHz RB Size 25& RB Offset 0 QPSK-Low CH)	
	
LTE BAND 13 (5MHz RB Size 25& RB Offset 0 QPSK-Middle CH)	
	
LTE BAND 13 (5MHz RB Size 25& RB Offset 0 QPSK-High CH)	
	

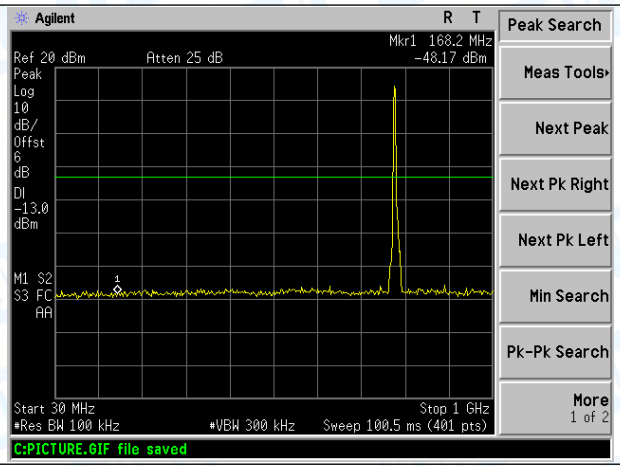
30MHz-1GHz	1GHz-26.5GHz

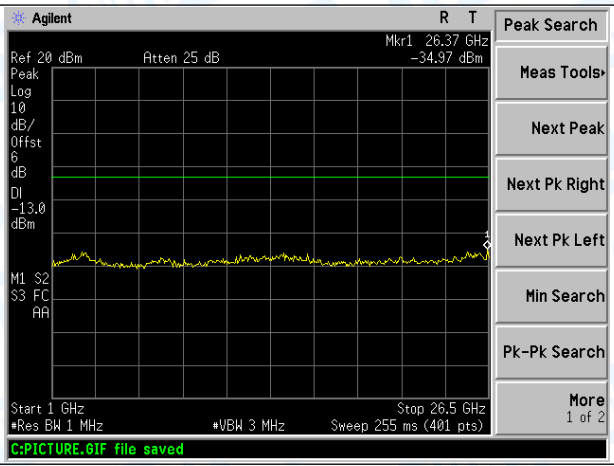
LTE BAND 13 (5MHz RB Size 25& RB Offset 0 16QAM-Low CH)



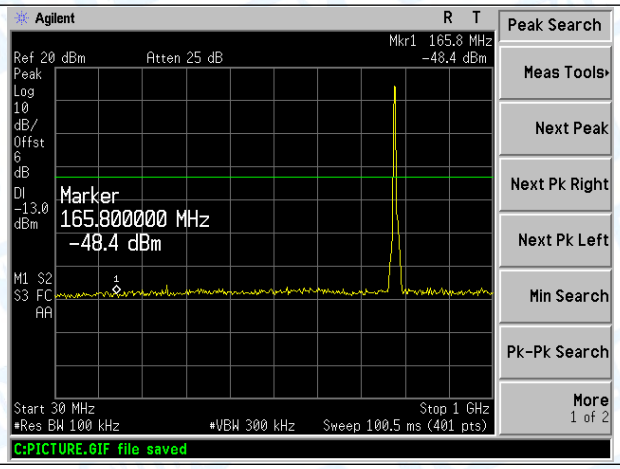


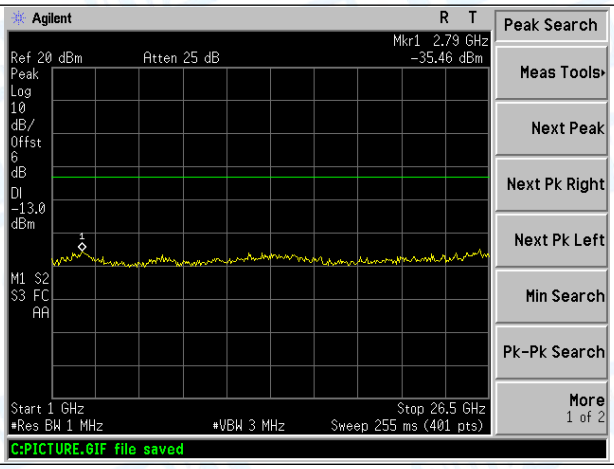
LTE BAND 13 (5MHz RB Size 25& RB Offset 0 16QAM-Middle CH)

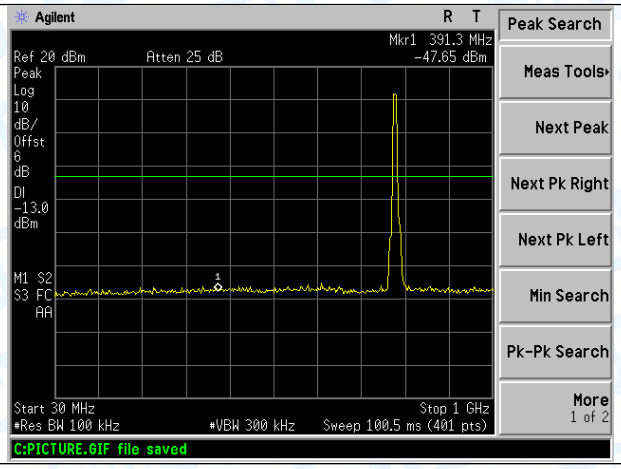
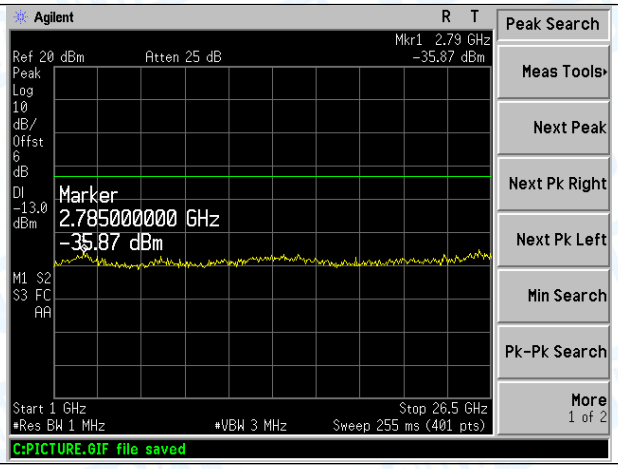
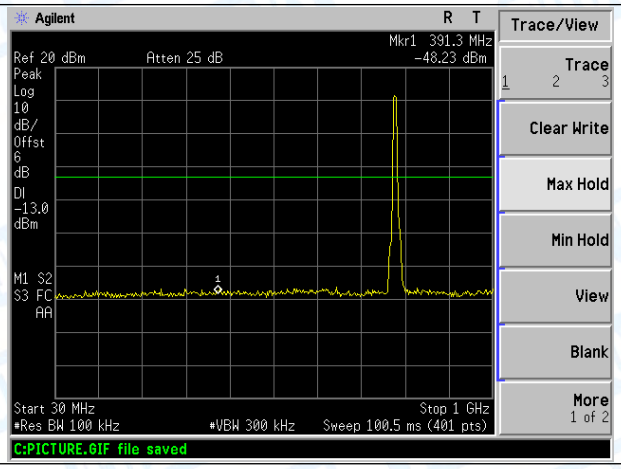
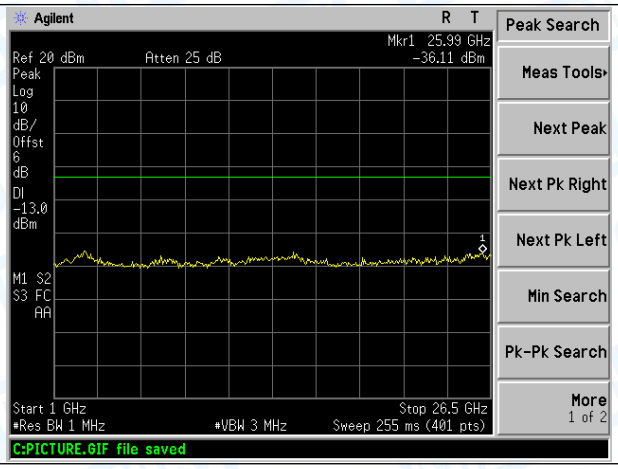




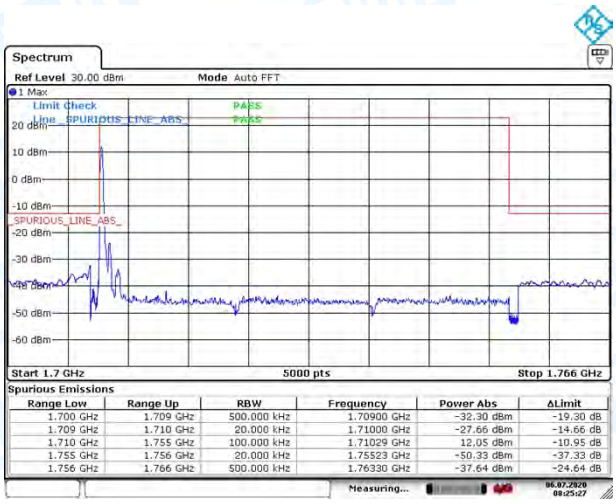
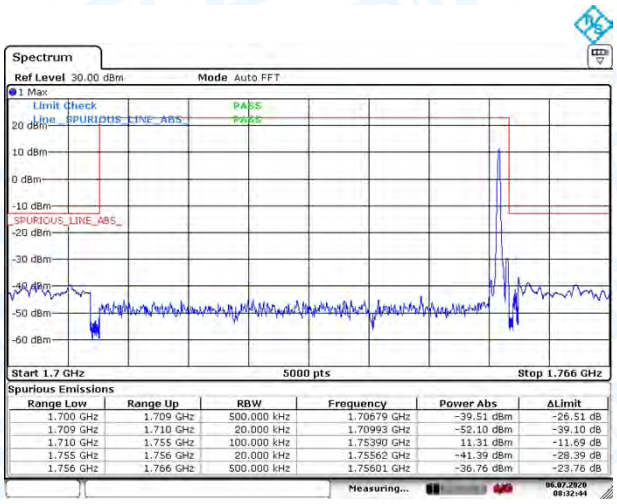
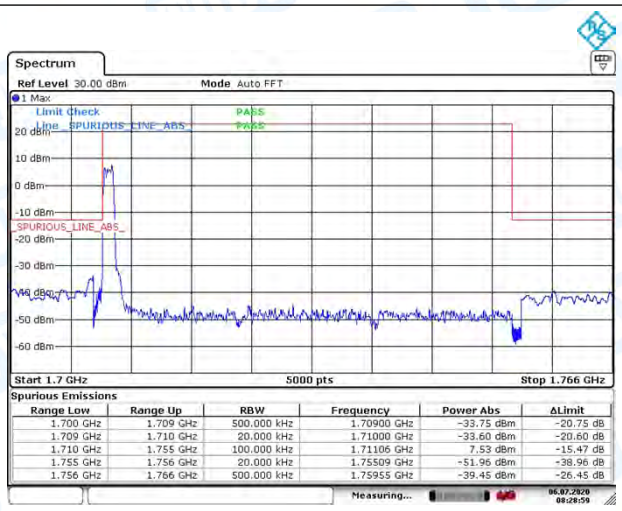
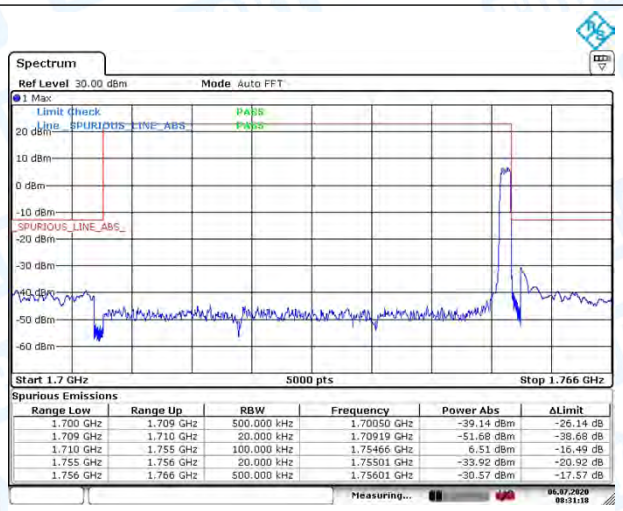
LTE BAND 13 (5MHz RB Size 25& RB Offset 0 16QAM-High CH)





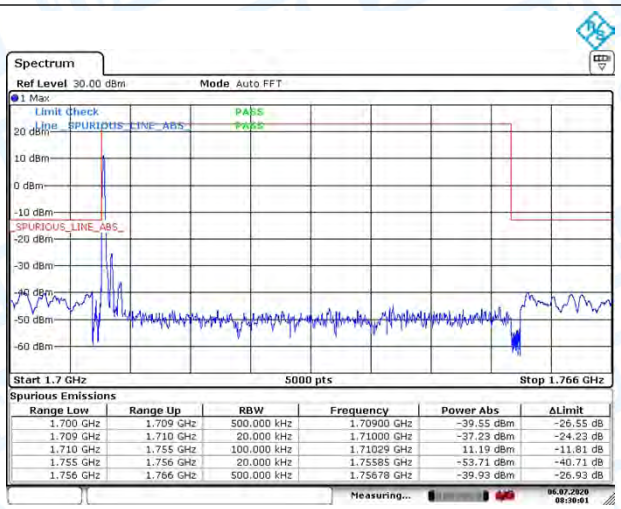
30MHz-1GHz	1GHz-26.5GHz
LTE BAND 13 (10MHz RB Size 50& RB Offset 0 QPSK)	
	
LTE BAND 13 (10MHz RB Size 50& RB Offset 0 16QAM)	
	

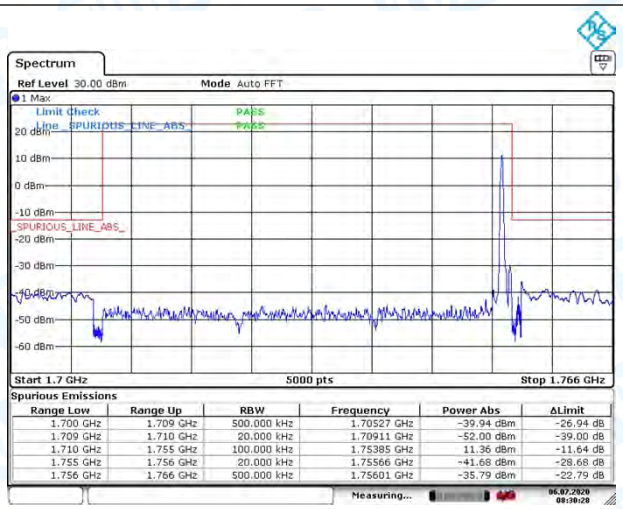
ATTACHMENT E--BAND EDGE TEST

Low Channel	High Channel
LTE BAND 4 (1.4MHz RB Size 1& RB Offset 0 QPSK)	
	
LTE BAND 4 (1.4MHz RB Size 6& RB Offset 0 QPSK)	
	

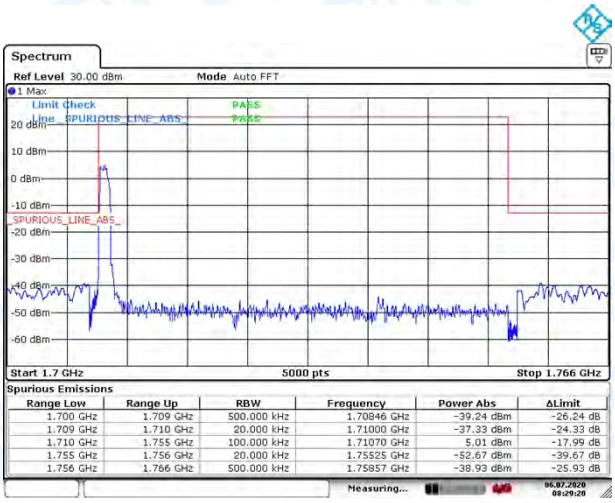
Low Channel	High Channel

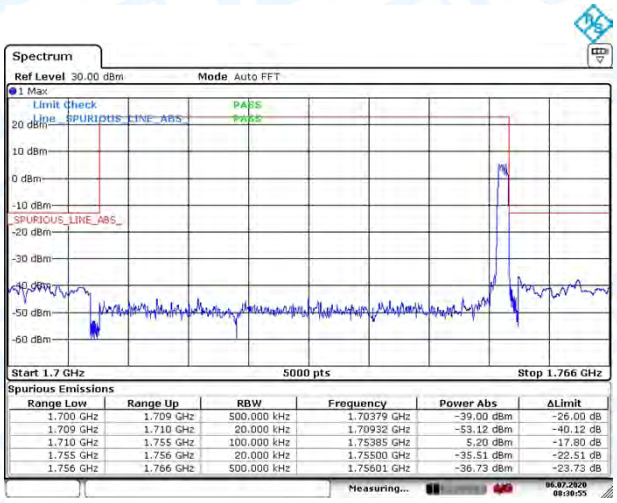
LTE BAND 4 (1.4MHz RB Size 1& RB Offset 0 16QAM)

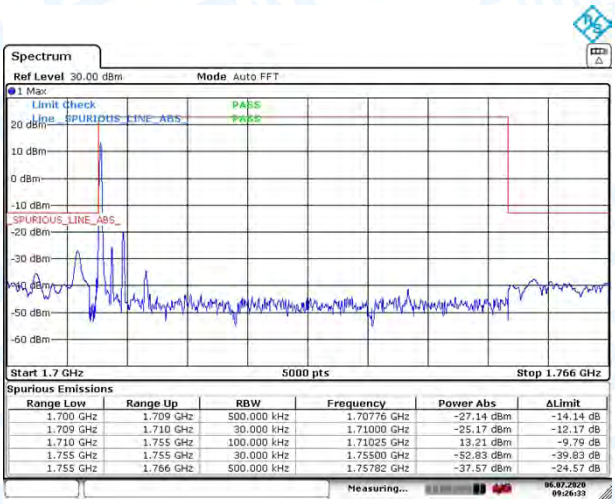
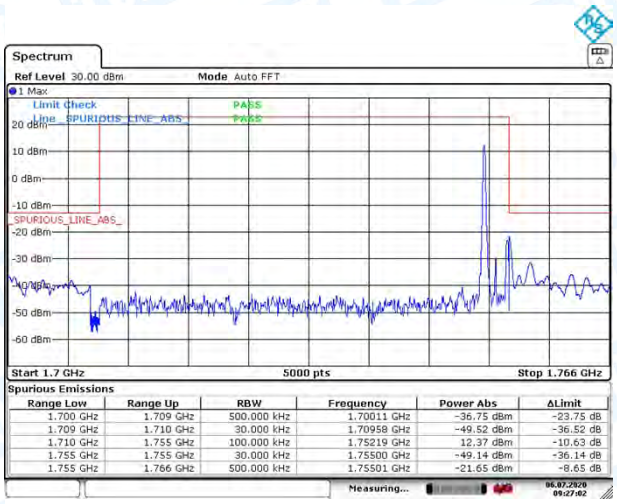
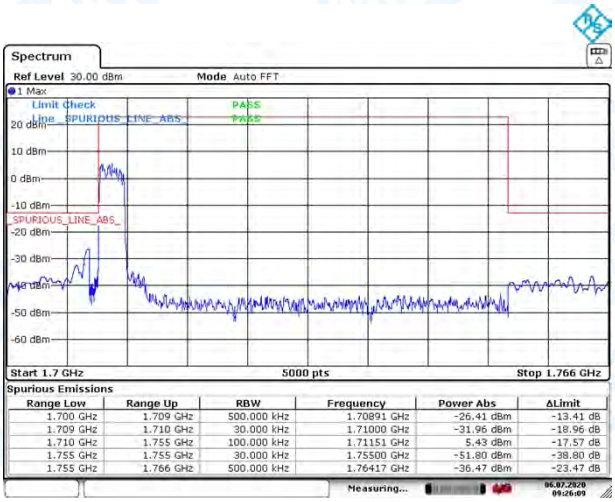
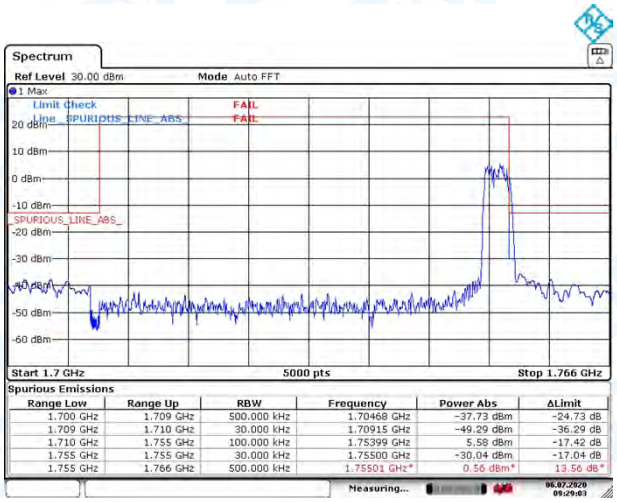




LTE BAND 4 (1.4MHz RB Size 6& RB Offset 0 16QAM)

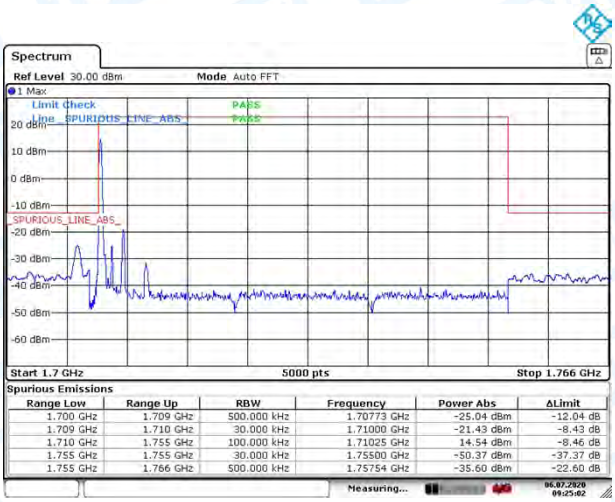


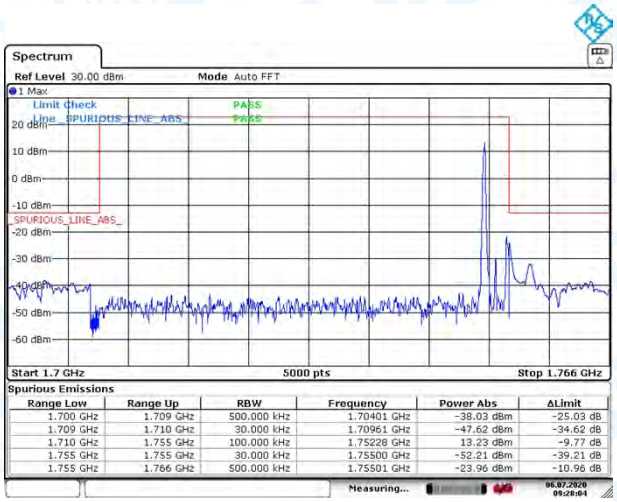


Low Channel	High Channel
LTE BAND 4 (3MHz RB Size 1& RB Offset 0 QPSK)	
 Date: 6.JUL.2020 09:26:32	 Date: 6.JUL.2020 09:27:03
LTE BAND 4 (3MHz RB Size 15& RB Offset 0 QPSK)	
 Date: 6.JUL.2020 09:26:10	 Date: 6.JUL.2020 09:29:04

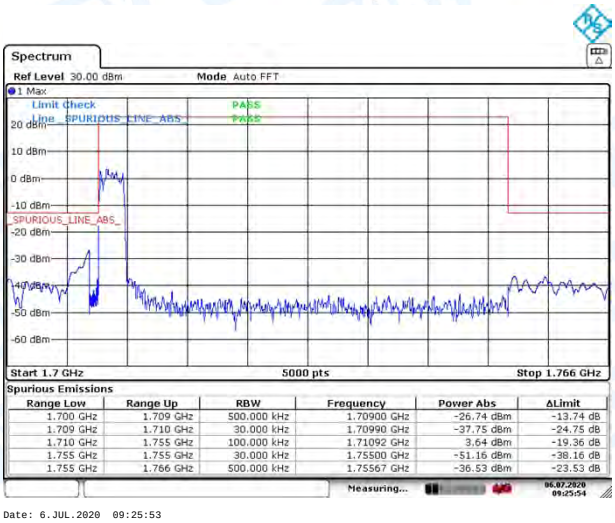
Low Channel	High Channel

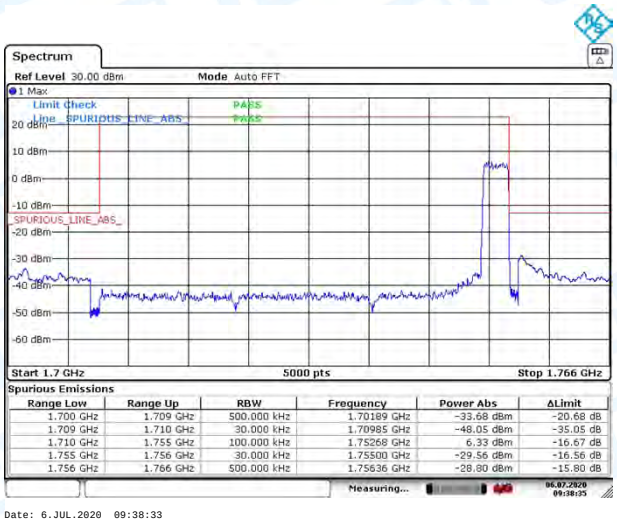
LTE BAND 4 (3MHz RB Size 1& RB Offset 0 16QAM)





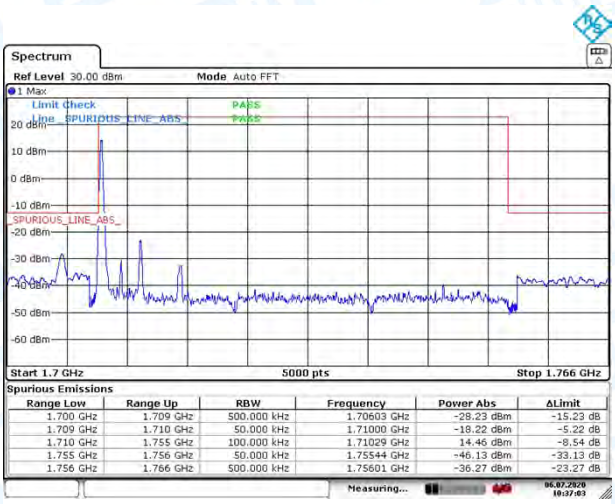
LTE BAND 4 (3MHz RB Size 15& RB Offset 0 16QAM)

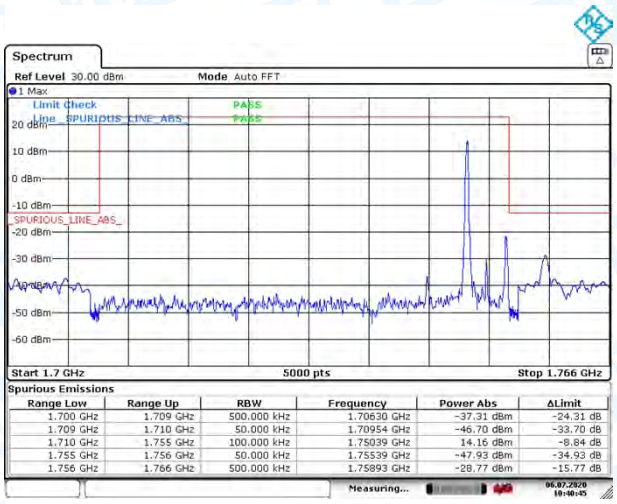




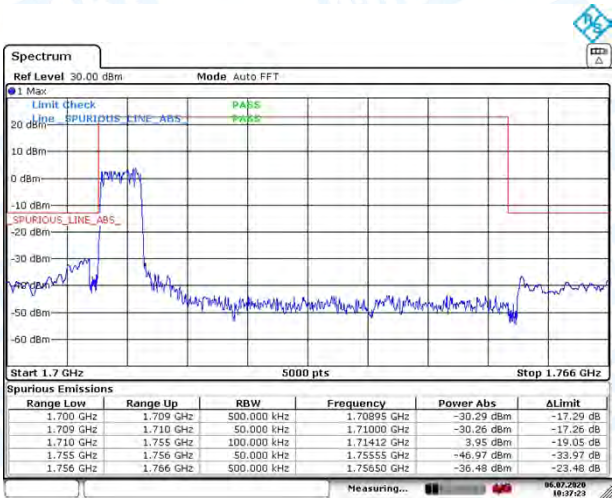
Low Channel	High Channel

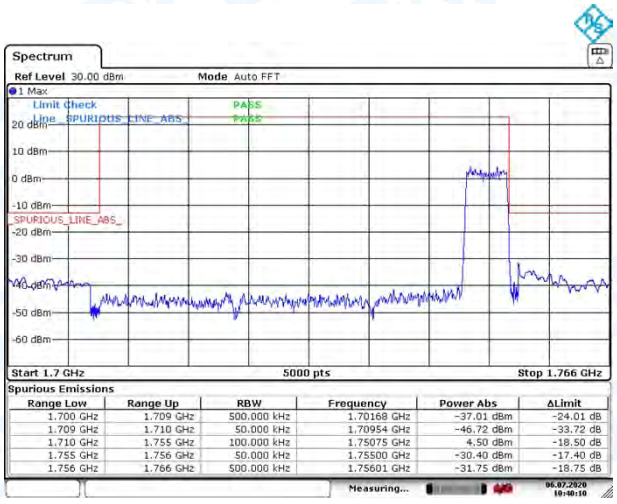
LTE BAND 4 (5MHz RB Size 1& RB Offset 0 QPSK)





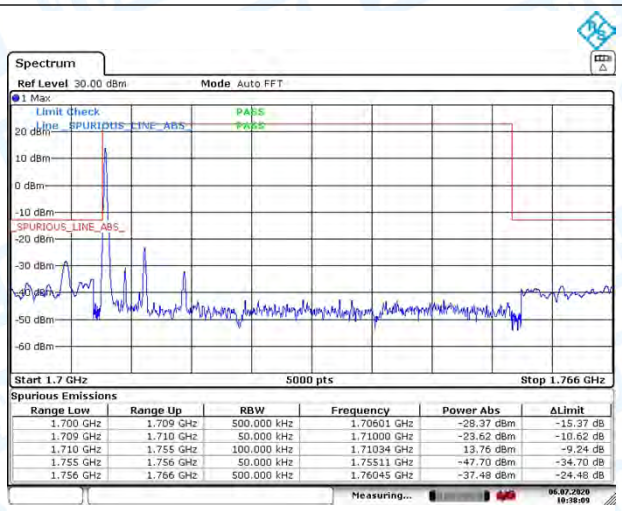
LTE BAND 4 (5MHz RB Size 25& RB Offset 0 QPSK)

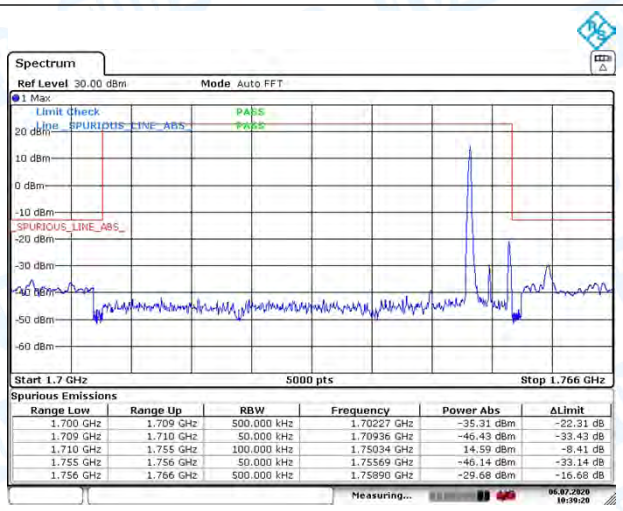




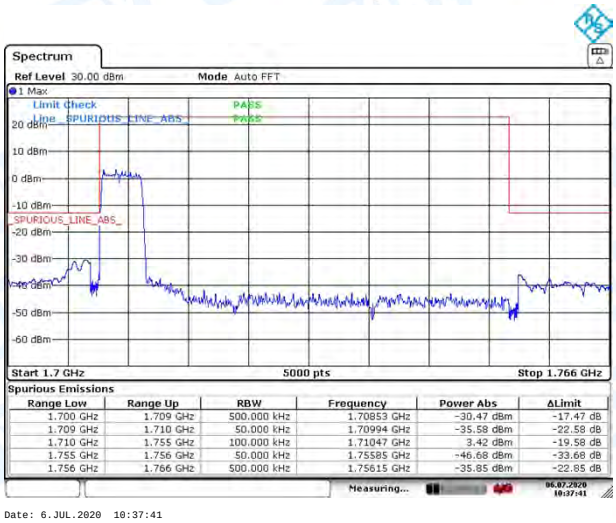
Low Channel	High Channel

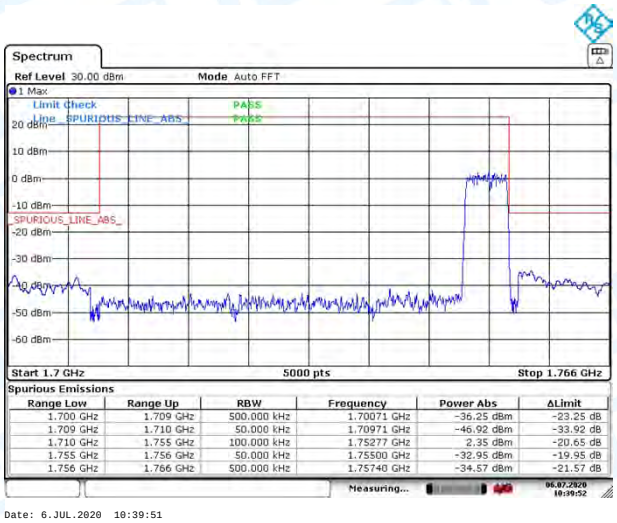
LTE BAND 4 (5MHz RB Size 1& RB Offset 0 16QAM)





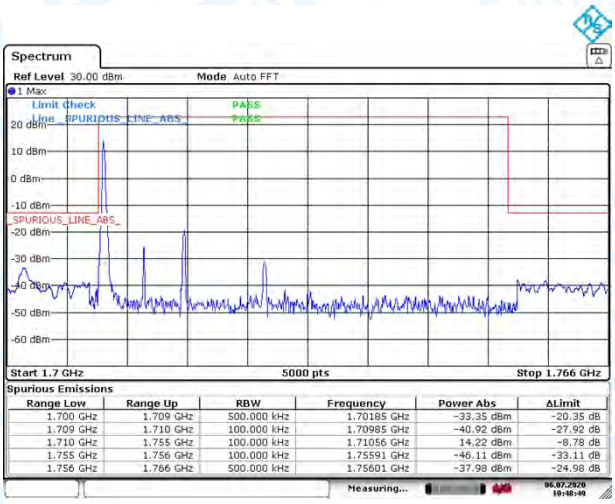
LTE BAND 4 (5MHz RB Size 25& RB Offset 0 16QAM)

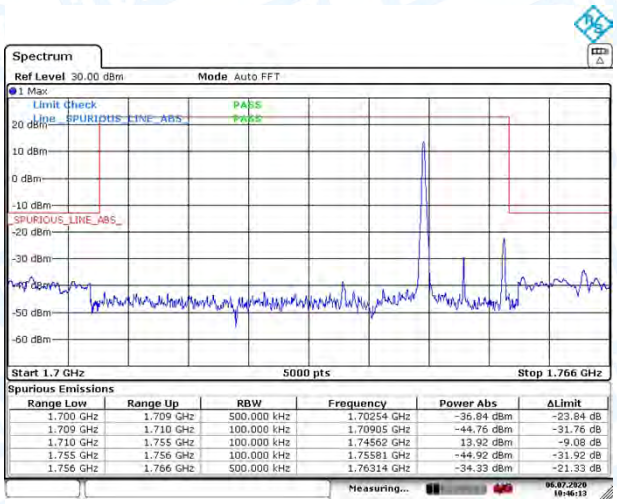




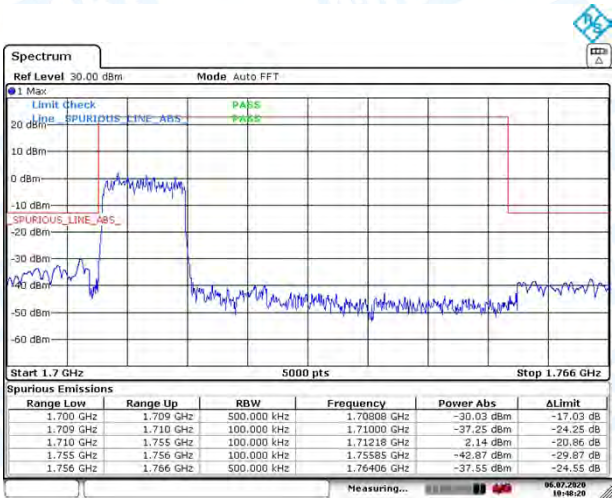
Low Channel	High Channel

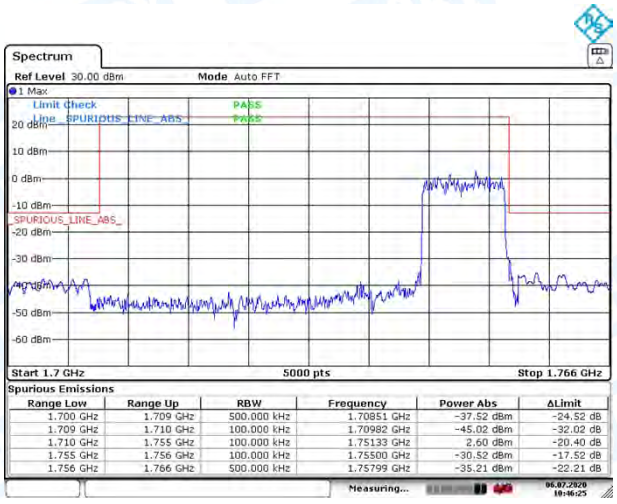
LTE BAND 4 (10MHz RB Size 1& RB Offset 0 QPSK)





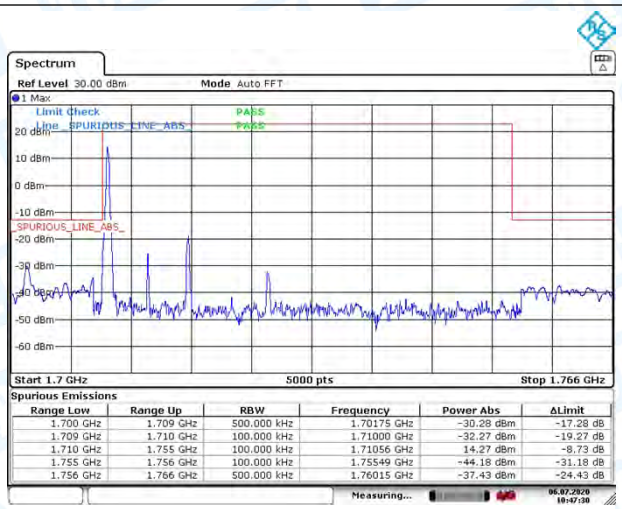
LTE BAND 4 (10MHz RB Size 50& RB Offset 0 QPSK)

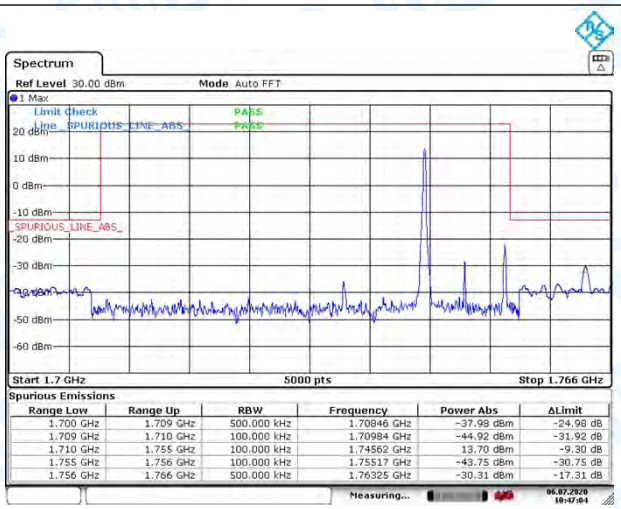




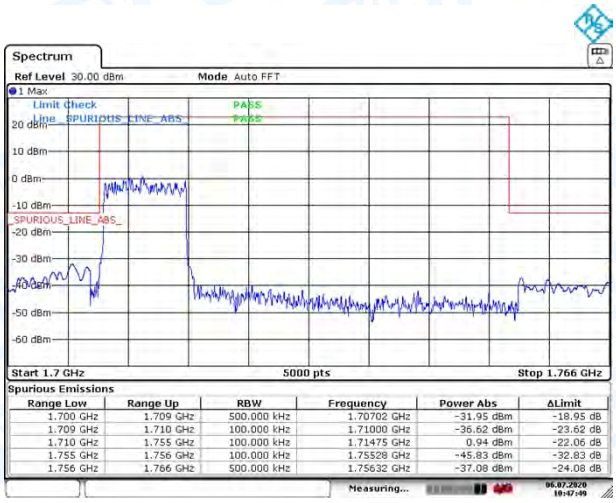
Low Channel	High Channel

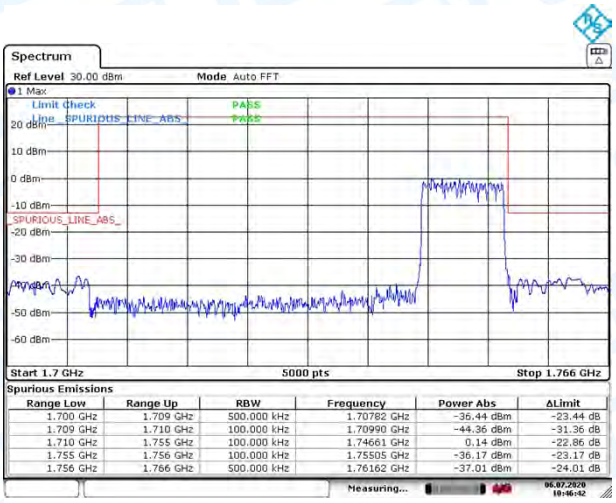
LTE BAND 4 (10MHz RB Size 1& RB Offset 0 16QAM)





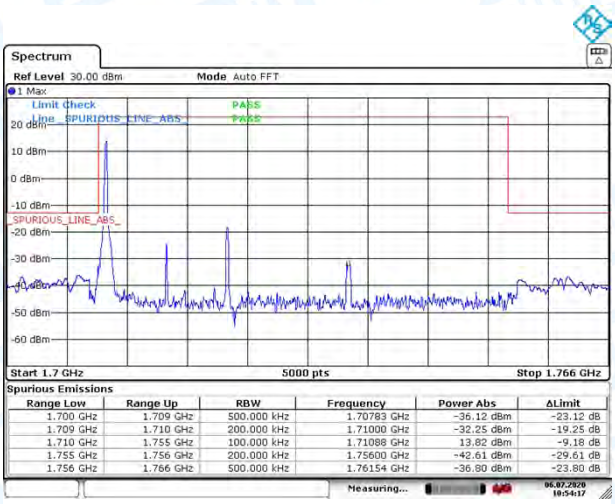
LTE BAND 4 (10MHz RB Size 50& RB Offset 0 16QAM)

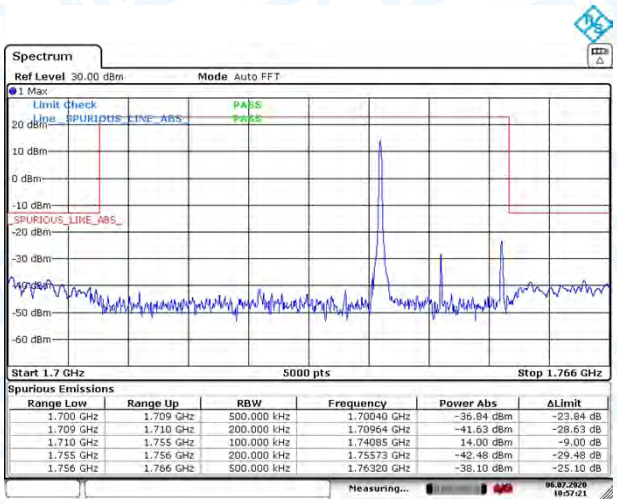




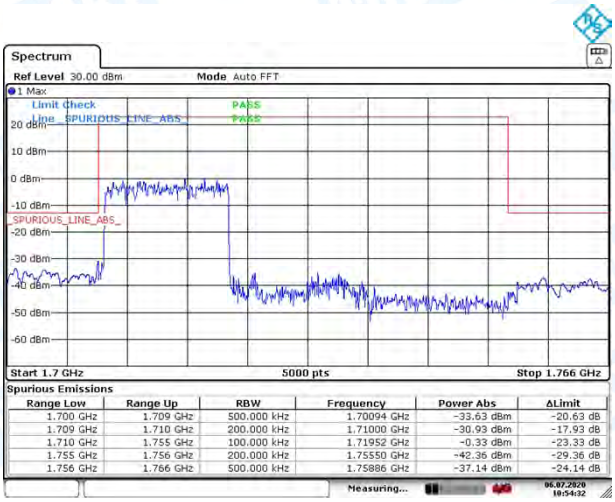
Low Channel	High Channel

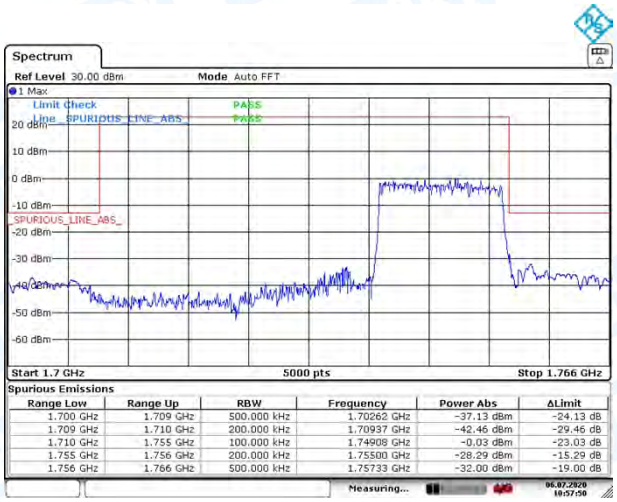
LTE BAND 4 (15MHz RB Size 1& RB Offset 0 QPSK)





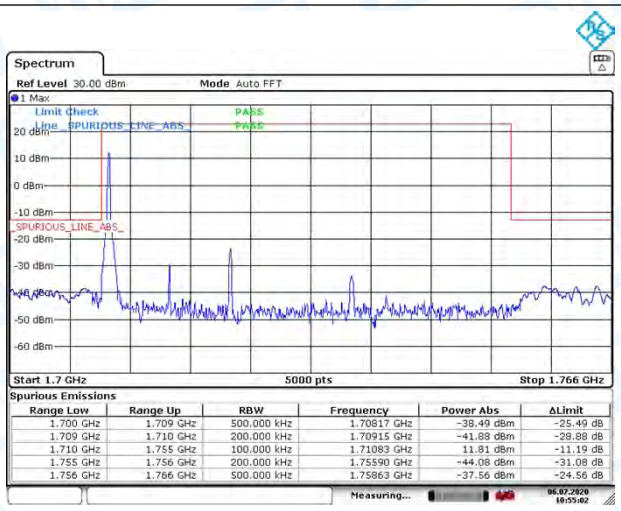
LTE BAND 4 (15MHz RB Size 75& RB Offset 0 QPSK)

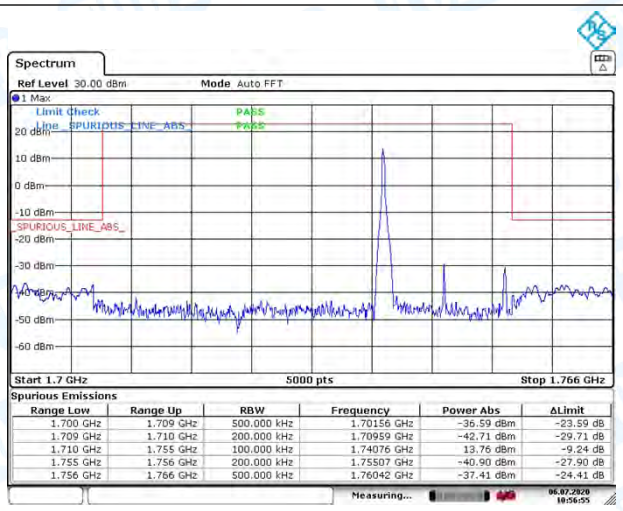




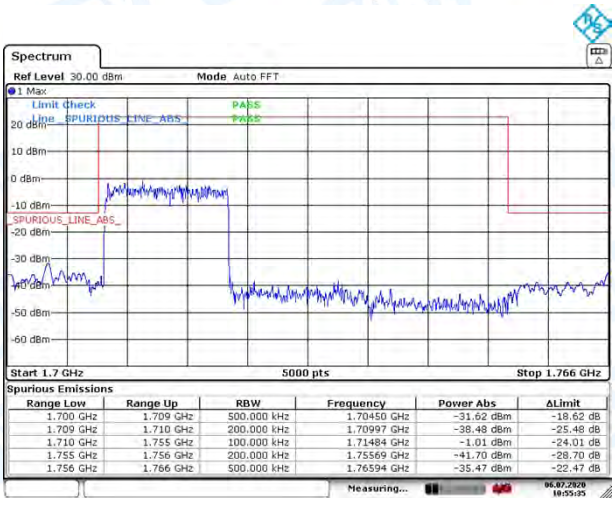
Low Channel	High Channel

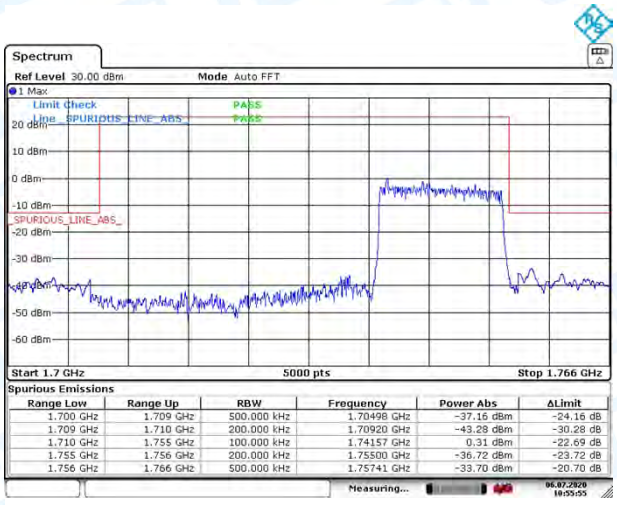
LTE BAND 4 (15MHz RB Size 1& RB Offset 0 16QAM)





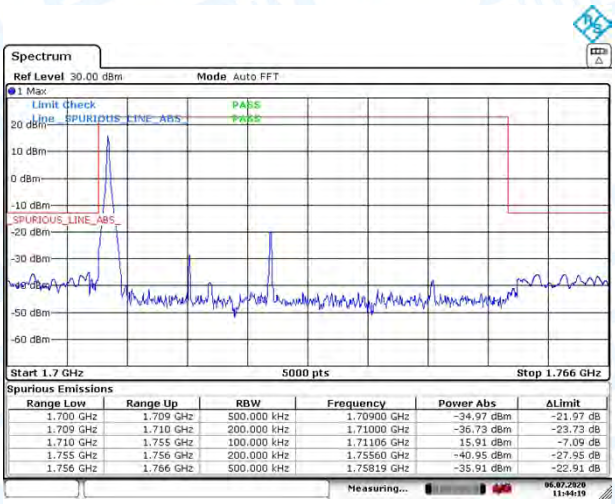
LTE BAND 4 (15MHz RB Size 75& RB Offset 0 16QAM)

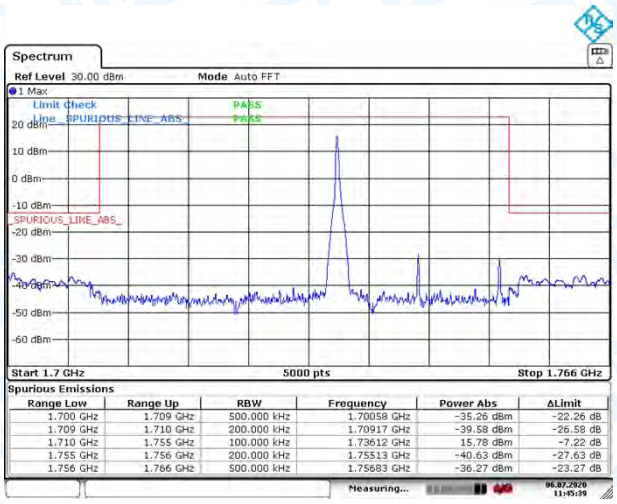




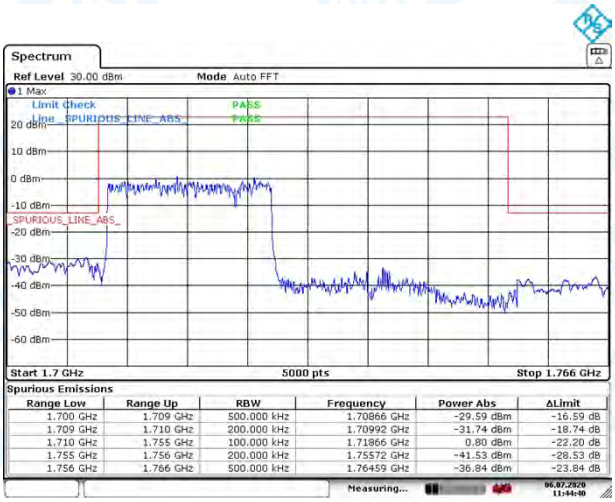
Low Channel	High Channel

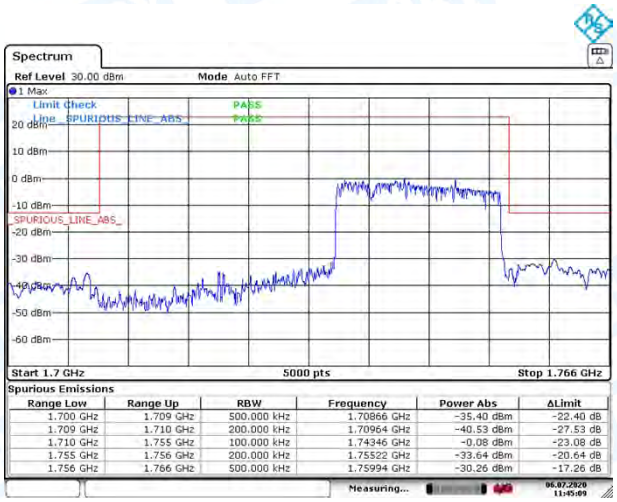
LTE BAND 4 (20MHz RB Size 1& RB Offset 0 QPSK)





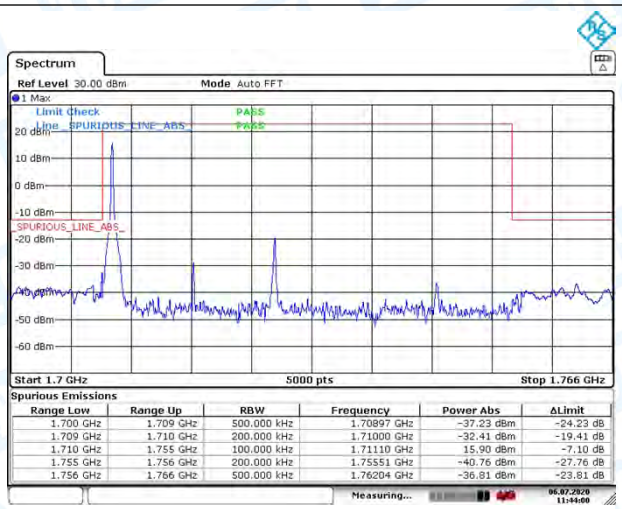
LTE BAND 4 (20MHz RB Size 100& RB Offset 0 QPSK)

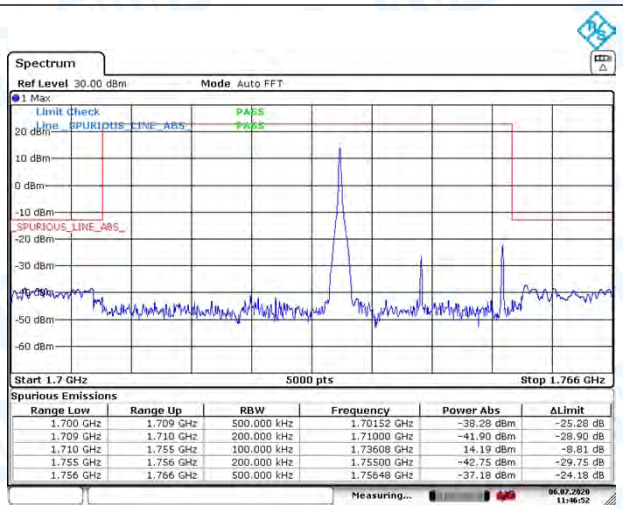




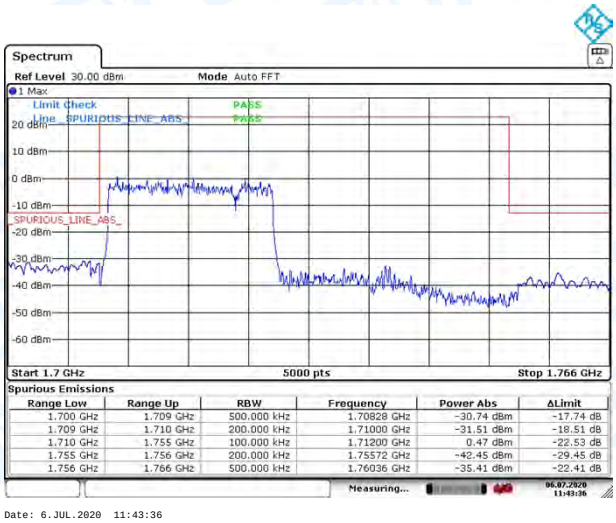
Low Channel	High Channel

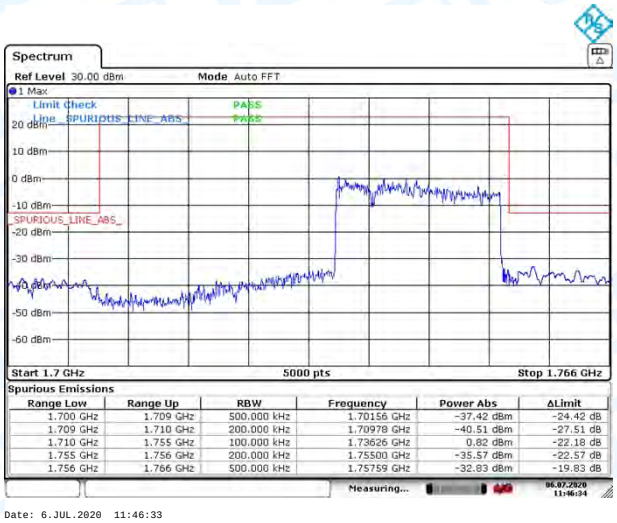
LTE BAND 4 (20MHz RB Size 1& RB Offset 0 16QAM)





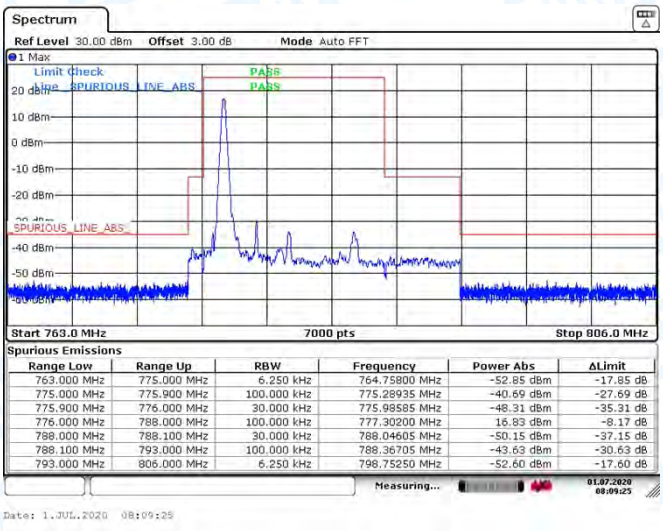
LTE BAND 4 (20MHz RB Size 100& RB Offset 0 16QAM)

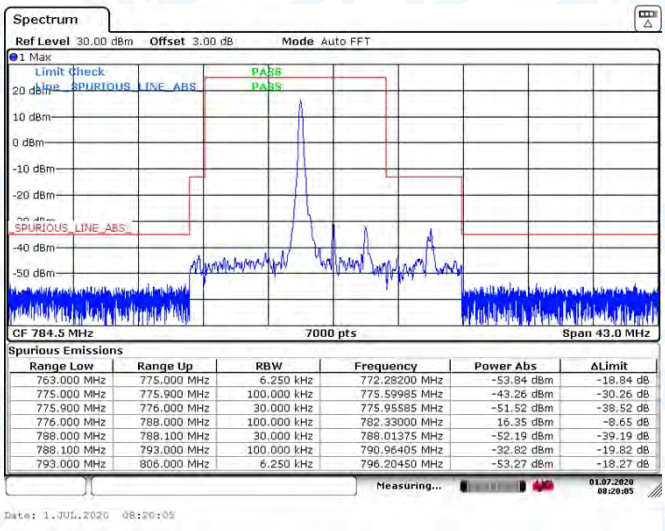




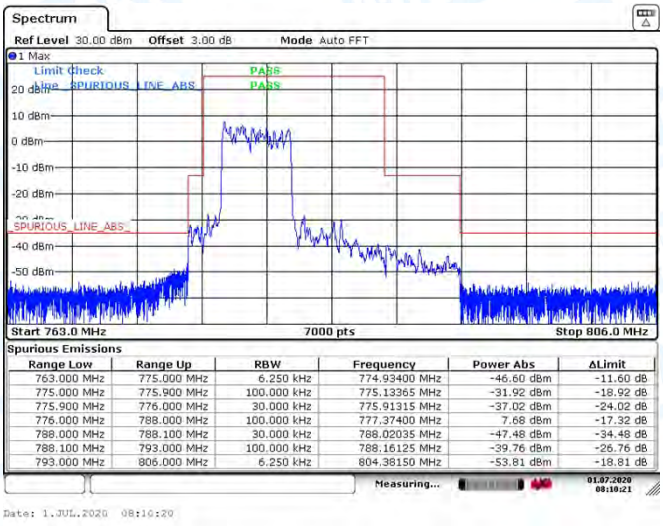
Low Channel	High Channel

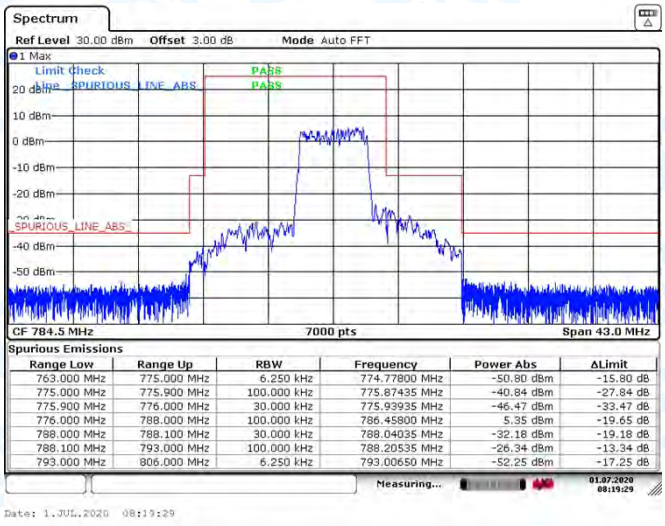
LTE BAND 13 (5MHz RB Size 1& RB Offset 0 QPSK)





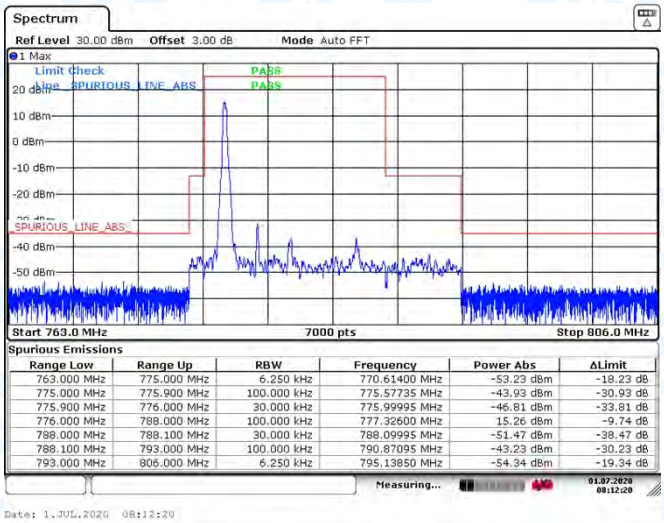
LTE BAND 13 (5MHz RB Size 25& RB Offset 0 QPSK)

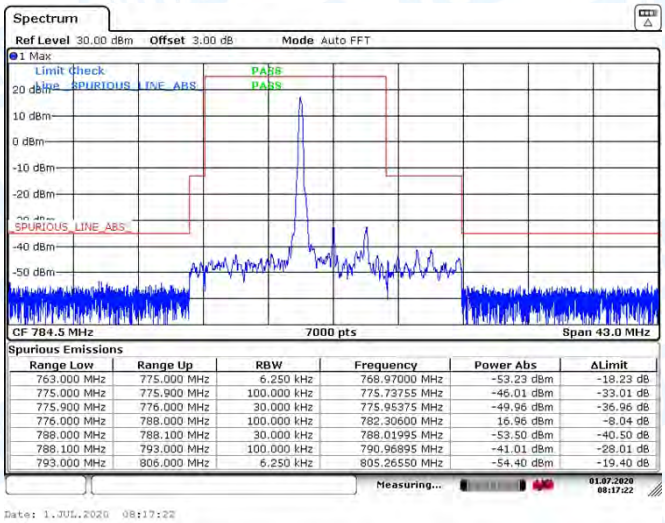




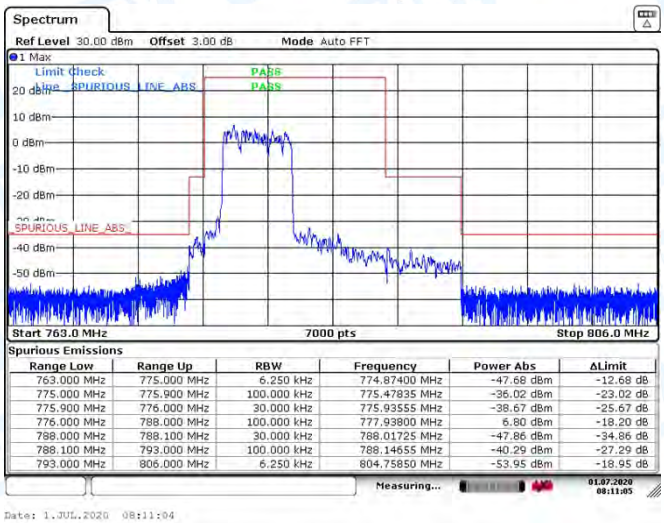
Low Channel	High Channel

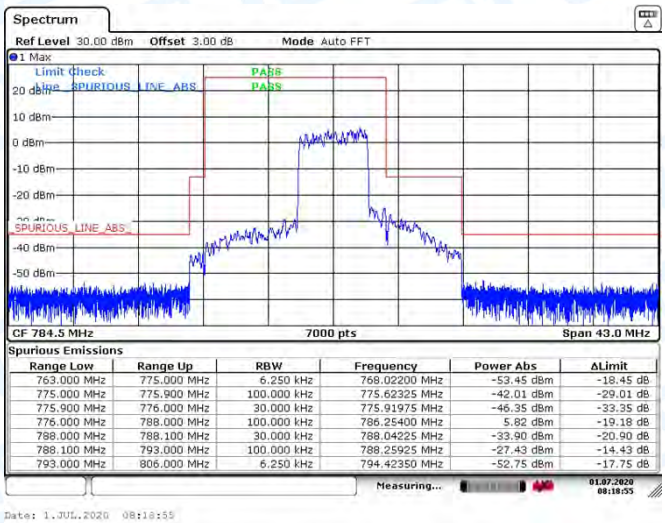
LTE BAND 13 (5MHz RB Size 1& RB Offset 0 16QAM)



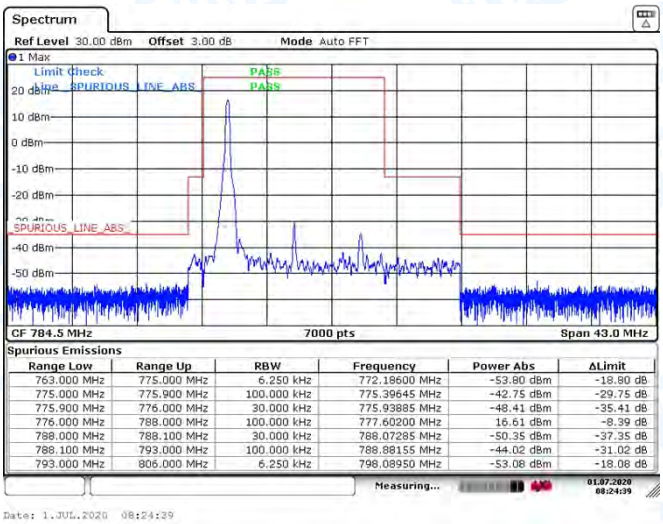


LTE BAND 13 (5MHz RB Size 25& RB Offset 0 16QAM)





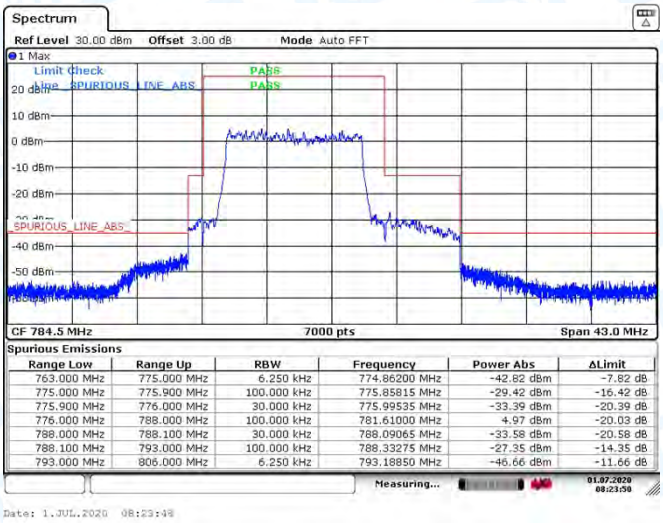
LTE BAND 13 (10MHz RB Size 1& RB Offset 0 QPSK)



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
763.000 MHz	775.000 MHz	6.250 kHz	772.18600 MHz	-53.80 dBm	-18.80 dB
775.000 MHz	775.900 MHz	100.000 kHz	775.39645 MHz	-42.75 dBm	-29.75 dB
775.900 MHz	776.000 MHz	30.000 kHz	775.93885 MHz	-48.41 dBm	-35.41 dB
776.000 MHz	788.000 MHz	100.000 kHz	777.60200 MHz	16.61 dBm	-8.39 dB
788.000 MHz	788.100 MHz	30.000 kHz	788.07285 MHz	-50.35 dBm	-37.35 dB
788.100 MHz	793.000 MHz	100.000 kHz	788.88155 MHz	-44.02 dBm	-31.02 dB
793.000 MHz	806.000 MHz	6.250 kHz	798.08950 MHz	-53.08 dBm	-18.08 dB

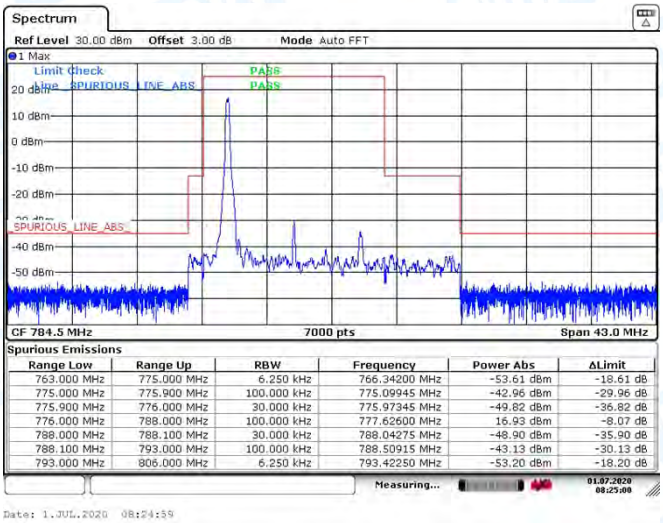
LTE BAND 13 (10MHz RB Size 50& RB Offset 0 QPSK)



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
763.000 MHz	775.000 MHz	6.250 kHz	774.86200 MHz	-42.82 dBm	-7.82 dB
775.000 MHz	775.900 MHz	100.000 kHz	775.85815 MHz	-29.42 dBm	-16.42 dB
775.900 MHz	776.000 MHz	30.000 kHz	775.99535 MHz	-33.39 dBm	-20.39 dB
776.000 MHz	788.000 MHz	100.000 kHz	781.61000 MHz	4.97 dBm	-20.03 dB
788.000 MHz	788.100 MHz	30.000 kHz	788.09065 MHz	-33.58 dBm	-20.58 dB
788.100 MHz	793.000 MHz	100.000 kHz	788.33275 MHz	-27.35 dBm	-14.35 dB
793.000 MHz	806.000 MHz	6.250 kHz	793.18850 MHz	-46.66 dBm	-11.66 dB

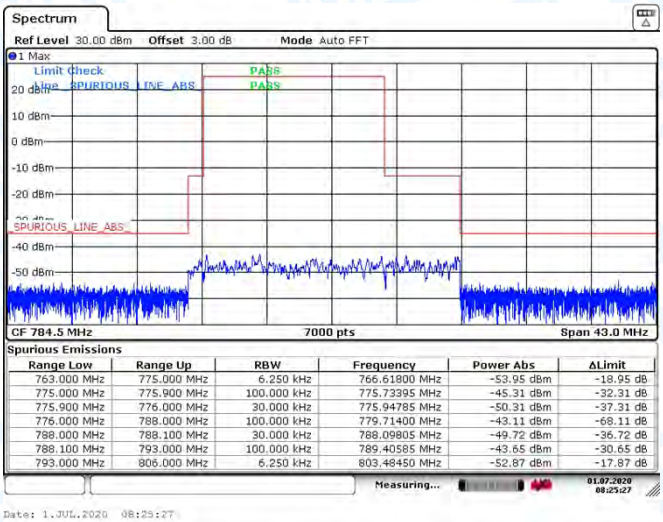
LTE BAND 13 (10MHz RB Size 1& RB Offset 0 16QAM)



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
763.000 MHz	775.000 MHz	6.250 kHz	766.34200 MHz	-53.61 dBm	-18.61 dB
775.000 MHz	775.900 MHz	100.000 kHz	775.09945 MHz	-42.96 dBm	-29.96 dB
775.900 MHz	776.000 MHz	30.000 kHz	775.97345 MHz	-49.82 dBm	-36.82 dB
776.000 MHz	788.000 MHz	100.000 kHz	777.62600 MHz	16.93 dBm	-8.07 dB
788.000 MHz	788.100 MHz	30.000 kHz	788.04275 MHz	-48.90 dBm	-35.90 dB
788.100 MHz	793.000 MHz	100.000 kHz	788.50915 MHz	-43.13 dBm	-30.13 dB
793.000 MHz	806.000 MHz	6.250 kHz	793.42250 MHz	-53.20 dBm	-18.20 dB

LTE BAND 13 (10MHz RB Size 50& RB Offset 0 16QAM)



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
763.000 MHz	775.000 MHz	6.250 kHz	766.61800 MHz	-53.95 dBm	-18.95 dB
775.000 MHz	775.900 MHz	100.000 kHz	775.73395 MHz	-45.31 dBm	-32.31 dB
775.900 MHz	776.000 MHz	30.000 kHz	775.94785 MHz	-50.31 dBm	-37.31 dB
776.000 MHz	788.000 MHz	100.000 kHz	779.71400 MHz	-43.11 dBm	-68.11 dB
788.000 MHz	788.100 MHz	30.000 kHz	788.09805 MHz	-49.72 dBm	-36.72 dB
788.100 MHz	793.000 MHz	100.000 kHz	789.40585 MHz	-43.65 dBm	-30.65 dB
793.000 MHz	806.000 MHz	6.250 kHz	803.48450 MHz	-52.87 dBm	-17.87 dB

ATTACHMENT F--RADIATED OUTPUT POWER

Radiated Power (EIRP) for LTE Band 4 / 1.4M									
Modulation	RB		Channel	Antenna (H&V)	SG Level (dBm)	Antenna Factor (dBd)	Cable Loss (dB)	EIRP (dBm)	EIRP (W)
	Size	offset							
QPSK	1	0	Lowest	H	17.94	5.01	2.59	20.36	0.109
				V	20.60	5.01	2.59	23.02	0.200
	1	0	Middle	H	17.92	4.82	2.59	20.15	0.104
				V	20.46	4.82	2.59	22.69	0.186
	1	0	Highest	H	18.12	4.45	2.59	19.98	0.100
				V	20.82	4.45	2.59	22.68	0.185
16QAM	1	0	Lowest	H	17.72	5.01	2.59	20.14	0.103
				V	20.60	5.01	2.59	23.02	0.200
	1	0	Middle	H	17.02	4.82	2.59	19.25	0.084
				V	20.35	4.82	2.59	22.58	0.181
	1	0	Highest	H	18.02	4.45	2.59	19.88	0.097
				V	20.59	4.45	2.59	22.45	0.176
Limit								30	1

Radiated Power (EIRP) for LTE Band 4 / 3M									
Modulation	RB		Channel	Antenna (H&V)	SG Level (dBm)	Antenna Factor (dBd)	Cable Loss (dB)	EIRP (dBm)	EIRP (W)
	Size	offset							
QPSK	1	0	Lowest	H	17.70	5.01	2.59	20.12	17.70
				V	20.33	5.01	2.59	22.75	20.33
	1	0	Middle	H	17.88	4.82	2.59	20.11	17.88
				V	20.81	4.82	2.59	23.04	20.81
	1	0	Highest	H	18.22	4.45	2.59	20.08	18.22
				V	21.00	4.45	2.59	22.86	21.00
16QAM	1	0	Lowest	H	17.43	5.01	2.59	19.85	17.43
				V	20.54	5.01	2.59	22.96	20.54
	1	0	Middle	H	17.21	4.82	2.59	19.44	17.21
				V	20.06	4.82	2.59	22.29	20.06
	1	0	Highest	H	18.39	4.45	2.59	20.25	18.39
				V	21.11	4.45	2.59	22.97	21.11
Limit								30	1

Radiated Power (EIRP) for LTE Band 4 / 5M									
Modulation	RB		Channel	Antenna (H&V)	SG Level (dBm)	Antenna Factor (dBd)	Cable Loss (dB)	EIRP (dBm)	EIRP (W)
	Size	offset							
QPSK	1	0	Lowest	H	18.23	5.01	2.59	20.65	0.116
				V	21.14	5.01	2.59	23.56	0.227
	1	0	Middle	H	18.19	4.82	2.59	20.42	0.110
				V	21.64	4.82	2.59	23.87	0.244
	1	0	Highest	H	17.83	4.45	2.59	19.69	0.093
				V	21.13	4.45	2.59	22.99	0.199
16QAM	1	0	Lowest	H	17.69	5.01	2.59	20.11	0.103
				V	20.73	5.01	2.59	23.15	0.207
	1	0	Middle	H	18.31	4.82	2.59	20.54	0.113
				V	20.99	4.82	2.59	23.22	0.210
	1	0	Highest	H	17.72	4.45	2.59	19.58	0.091
				V	20.70	4.45	2.59	22.56	0.180
Limit								**30**	**1**

Radiated Power (EIRP) for LTE Band 4 / 10M									
Modulation	RB		Channel	Antenna (H&V)	SG Level (dBm)	Antenna Factor (dBd)	Cable Loss (dB)	EIRP (dBm)	EIRP (W)
	Size	offset							
QPSK	1	0	Lowest	H	16.83	5.01	2.59	19.25	0.084
				V	19.83	5.01	2.59	22.25	0.168
	1	0	Middle	H	16.93	4.82	2.59	19.16	0.082
				V	20.26	4.82	2.59	22.49	0.177
	1	0	Highest	H	18.20	4.45	2.59	20.06	0.101
				V	20.99	4.45	2.59	22.85	0.193
16QAM	1	0	Lowest	H	16.81	5.01	2.59	19.23	0.084
				V	20.44	5.01	2.59	22.86	0.193
	1	0	Middle	H	17.83	4.82	2.59	20.06	0.101
				V	20.64	4.82	2.59	22.87	0.194
	1	0	Highest	H	17.80	4.45	2.59	19.66	0.092
				V	20.91	4.45	2.59	22.77	0.189
Limit								**30**	**1**

Radiated Power (EIRP) for LTE Band 4 / 15M									
Modulation	RB		Channel	Antenna (H&V)	SG Level (dBm)	Antenna Factor (dBd)	Cable Loss (dB)	EIRP (dBm)	EIRP (W)
	Size	offset							
QPSK	1	0	Lowest	H	17.69	5.01	2.59	20.11	0.103
				V	20.63	5.01	2.59	23.05	0.202
	1	0	Middle	H	17.39	4.82	2.59	19.62	0.092
				V	20.65	4.82	2.59	22.88	0.194
	1	0	Highest	H	18.02	4.45	2.59	19.88	0.097
				V	20.83	4.45	2.59	22.69	0.186
16QAM	1	0	Lowest	H	17.45	5.01	2.59	19.87	0.097
				V	20.33	5.01	2.59	22.75	0.188
	1	0	Middle	H	17.89	4.82	2.59	20.12	0.103
				V	20.45	4.82	2.59	22.68	0.185
	1	0	Highest	H	17.56	4.45	2.59	19.42	0.087
				V	20.88	4.45	2.59	22.74	0.188
Limit								30	1

Radiated Power (EIRP) for LTE Band 4 / 20M									
Modulation	RB		Channel	Antenna (H&V)	SG Level (dBm)	Antenna Factor (dBd)	Cable Loss (dB)	EIRP (dBm)	EIRP (W)
	Size	offset							
QPSK	1	0	Lowest	H	17.41	5.01	2.59	19.83	0.096
				V	20.16	5.01	2.59	22.58	0.181
	1	0	Middle	H	17.61	4.82	2.59	19.84	0.096
				V	20.58	4.82	2.59	22.81	0.191
	1	0	Highest	H	18.79	4.45	2.59	20.65	0.116
				V	21.71	4.45	2.59	23.57	0.228
16QAM	1	0	Lowest	H	17.59	5.01	2.59	20.01	0.100
				V	20.66	5.01	2.59	23.08	0.203
	1	0	Middle	H	17.66	4.82	2.59	19.89	0.097
				V	17.93	4.82	2.59	20.16	0.104
	1	0	Highest	H	18.88	4.45	2.59	20.74	0.119
				V	21.37	4.45	2.59	23.23	0.210
Limit								30	1

Radiated Power (ERP) for LTE Band 13 / 5M									
Modulation	RB		Channel	Antenna (H&V)	SG Level (dBm)	Antenna Factor (dBd)	Cable Loss (dB)	ERP (dBm)	ERP (W)
	Size	offset							
QPSK	1	0	Lowest	H	18.05	3.46	1.26	20.25	0.106
				V	20.64	3.46	1.26	22.84	0.192
	1	0	Middle	H	17.76	3.82	1.26	20.32	0.108
				V	20.45	3.82	1.26	23.01	0.200
	1	0	Highest	H	16.98	4.16	1.26	19.88	0.097
				V	19.59	4.16	1.26	22.49	0.177
16QAM	1	0	Lowest	H	17.94	3.46	1.26	20.14	0.103
				V	21.36	3.46	1.26	23.56	0.227
	1	0	Middle	H	17.30	3.82	1.26	19.86	0.097
				V	20.41	3.82	1.26	22.97	0.198
	1	0	Highest	H	17.15	4.16	1.26	20.05	0.101
				V	19.88	4.16	1.26	22.78	0.190
Limit								**34.77**	**3**

Radiated Power (ERP) for LTE Band 13 / 10M									
Modulation	RB		Channel	Antenna (H&V)	SG Level (dBm)	Antenna Factor (dBd)	Cable Loss (dB)	ERP Power (dBm)	ERP (W)
	Size	offset							
QPSK	1	0	Middle	H	17.32	3.46	1.26	19.52	0.090
				V	20.66	3.46	1.26	22.86	0.193
16QAM	1	0	Middle	H	17.57	3.82	1.26	20.13	0.103
				V	21.02	3.82	1.26	23.58	0.228
Limit								**34.77**	**3**

ATTACHMENT G--RADIATED OUT BAND OF EMISSIONS

Measurement Data (worst case)

Test mode:	LTE BAND 4 1.4MHz(RB size 1 & RB offset 0) for QPSK						
Channel:	Middle			Date of Test:	2020-06-25		
Frequency (MHz)	Spurious Emission					Limit (dBm)	Result
	Polarization (H&V)	Read Level (dBm)	Antenna Correct Factor (dBi)	Cable Loss (dB)	Emission Level (dBm)		
3465.99	Horizontal	-44.06	14.70	6.12	-23.24	-13.00	Pass
5198.98	H	-47.98	13.67	7.86	-26.45		
6932.13	H	-51.39	14.27	9.54	-27.58		
3465.99	Vertical	-45.47	15.81	6.12	-23.54	-13.00	Pass
5198.98	V	-47.30	13.80	7.86	-25.64		
6932.13	V	-49.68	13.40	9.54	-26.74		

Remark: 1, The testing has been conformed to 10*1732.5MHz=17325MHz.
2, All other emissions more than 30 dB below the limit.
3, Emission Level= Read Level+ Antenna Correct Factor +Cable Loss

Test mode:	LTE BAND 4 3MHz(RB size 1 & RB offset 0) for QPSK						
Channel:	Middle			Date of Test:	2020-06-25		
Frequency (MHz)	Spurious Emission					Limit (dBm)	Result
	Polarization (H&V)	Read Level (dBm)	Antenna Correct Factor (dBi)	Cable Loss (dB)	Emission Level (dBm)		
3465.99	Horizontal	-43.27	14.70	6.12	-22.45	-13.00	Pass
5198.98	H	-47.27	13.67	7.86	-25.74		
6932.13	H	-50.70	14.27	9.54	-26.89		
3465.99	Vertical	-45.08	15.81	6.12	-23.15	-13.00	Pass
5198.98	V	-47.53	13.80	7.86	-25.87		
6932.13	V	-50.39	13.40	9.54	-27.45		

Remark: 1, The testing has been conformed to 10*1732.5MHz=17325MHz.
2, All other emissions more than 30 dB below the limit.
3, Emission Level= Read Level+ Antenna Correct Factor +Cable Loss

Test mode:	LTE BAND 4 5MHz(RB size 1 & RB offset 0) for QPSK						
Channel:	Middle			Date of Test:	2020-06-25		
Frequency (MHz)	Spurious Emission					Limit (dBm)	Result
	Polarization (H&V)	Read Level (dBm)	Antenna Correct Factor (dBi)	Cable Loss (dB)	Emission Level (dBm)		
3465.99	Horizontal	-43.19	14.70	6.12	-22.37	-13.00	Pass
5198.98	H	-46.05	13.67	7.86	-24.52		
6932.13	H	-49.70	14.27	9.54	-25.89		
3465.99	Vertical	-43.47	15.81	6.12	-21.54	-13.00	Pass
5198.98	V	-45.08	13.80	7.86	-23.42		
6932.13	V	-49.86	13.40	9.54	-26.92		

Remark: 1, The testing has been conformed to 10*1732.5MHz=17325MHz.
2, All other emissions more than 30 dB below the limit.
3, Emission Level= Read Level+ Antenna Correct Factor +Cable Loss

Test mode:	LTE BAND 4 10MHz(RB size 1 & RB offset 0) for QPSK						
Channel:	Middle			Date of Test:	2020-06-25		
Frequency (MHz)	Spurious Emission					Limit (dBm)	Result
	Polarization (H&V)	Read Level (dBm)	Antenna Correct Factor (dBi)	Cable Loss (dB)	Emission Level (dBm)		
3465.99	Horizontal	-43.96	14.70	6.12	-23.14	-13.00	Pass
5198.98	H	-47.17	13.67	7.86	-25.64		
6932.13	H	-51.26	14.27	9.54	-27.45		
3465.99	Vertical	-45.17	15.81	6.12	-23.24	-13.00	Pass
5198.98	V	-48.20	13.80	7.86	-26.54		
6932.13	V	-50.10	13.40	9.54	-27.16		

Remark: 1, The testing has been conformed to 10*1732.5MHz=17325MHz.
2, All other emissions more than 30 dB below the limit.
3, Emission Level= Read Level+ Antenna Correct Factor +Cable Loss

Test mode:	LTE BAND 4 15MHz(RB size 1 & RB offset 0) for QPSK						
Channel:	Middle			Date of Test:	2020-06-25		
Frequency (MHz)	Spurious Emission					Limit (dBm)	Result
	Polarization (H&V)	Read Level (dBm)	Antenna Correct Factor (dBi)	Cable Loss (dB)	Emission Level (dBm)		
3465.99	Horizontal	-43.47	14.70	6.12	-22.65	-13.00	Pass
5198.98	H	-47.98	13.67	7.86	-26.45		
6932.13	H	-51.39	14.27	9.54	-27.58		
3465.99	Vertical	-44.27	15.81	6.12	-22.34	-13.00	Pass
5198.98	V	-47.11	13.80	7.86	-25.45		
6932.13	V	-49.72	13.40	9.54	-26.78		

Remark: 1, The testing has been conformed to 10*1732.5MHz=17325MHz.
2, All other emissions more than 30 dB below the limit.
3, Emission Level= Read Level+ Antenna Correct Factor +Cable Loss

Test mode:	LTE BAND 4 20MHz(RB size 1 & RB offset 0) for QPSK						
Channel:	Middle			Date of Test:	2020-06-25		
Frequency (MHz)	Spurious Emission					Limit (dBm)	Result
	Polarization (H&V)	Read Level (dBm)	Antenna Correct Factor (dBi)	Cable Loss (dB)	Emission Level (dBm)		
3465.99	Horizontal	-42.47	14.70	6.12	-21.65	-13.00	Pass
5198.98	H	-46.98	13.67	7.86	-25.45		
6932.13	H	-50.68	14.27	9.54	-26.87		
3465.99	Vertical	-44.30	15.81	6.12	-22.37	-13.00	Pass
5198.98	V	-48.13	13.80	7.86	-26.47		
6932.13	V	-50.78	13.40	9.54	-27.84		

Remark: 1, The testing has been conformed to 10*1732.5MHz=17325MHz.
2, All other emissions more than 30 dB below the limit.
3, Emission Level= Read Level+ Antenna Correct Factor +Cable Loss

Test mode:	LTE BAND 13 5MHz(RB size 1 & RB offset 0) for QPSK						
Channel:	Middle			Date of Test:	2020-06-25		
Frequency (MHz)	Spurious Emission					Limit (dBm)	Result
	Polarization (H&V)	Read Level (dBm)	Antenna Correct Factor (dBi)	Cable Loss (dB)	Emission Level (dBm)		
1564.00	Horizontal	-32.14	7.49	3.97	-20.68	-13.00	Pass
2345.98	H	-37.82	7.03	5.05	-25.74		
3128.17	H	-45.24	12.48	5.98	-26.78		
1564.00	Vertical	-33.66	8.02	3.97	-21.67	-13.00	Pass
2345.98	V	-40.08	10.47	5.05	-24.56		
3128.17	V	-50.38	16.92	5.98	-27.48		

Remark: 1, The testing has been conformed to 10*782MHz=7820MHz.
2, All other emissions more than 30 dB below the limit.
3, Emission Level= Read Level+ Antenna Correct Factor +Cable Loss

Test mode:	LTE BAND 13 10MHz(RB size 1 & RB offset 0) for QPSK						
Channel:	Middle			Date of Test:	2020-06-25		
Frequency (MHz)	Spurious Emission					Limit (dBm)	Result
	Polarization (H&V)	Read Level (dBm)	Antenna Correct Factor (dBi)	Cable Loss (dB)	Emission Level (dBm)		
1564.00	Horizontal	-33.13	7.49	3.97	-21.67	-13.00	Pass
2345.98	H	-37.82	7.03	5.05	-25.74		
3128.17	H	-46.04	12.48	5.98	-27.58		
1564.00	Vertical	-34.46	8.02	3.97	-22.47	-13.00	Pass
2345.98	V	-41.93	10.47	5.05	-26.41		
3128.17	V	-51.65	16.92	5.98	-28.75		

Remark: 1, The testing has been conformed to 10*782MHz=7820MHz.
2, All other emissions more than 30 dB below the limit.
3, Emission Level= Read Level+ Antenna Correct Factor +Cable Loss

ATTACHMENT H--FREQUENCY STABILITY

Temperature Variation					
Reference Frequency: LTE Band 4 QPSK(1.4MHz) Middle channel=20175 Frequency=1732.5MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
6.0	-30	56	0.0323	±2.5	Pass
	-20	44	0.0256		
	-10	62	0.0360		
	0	38	0.0217		
	10	77	0.0443		
	20	39	0.0227		
	30	91	0.0523		
	40	81	0.0470		
	50	25	0.0147		
Reference Frequency: LTE Band 4 QPSK(3MHz) Middle channel=20175 Frequency=1732.5MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
6.0	-30	65	0.0375	±2.5	Pass
	-20	97	0.0561		
	-10	92	0.0531		
	0	95	0.0549		
	10	39	0.0225		
	20	44	0.0257		
	30	65	0.0376		
	40	97	0.0558		
	50	69	0.0398		
Reference Frequency: LTE Band 4 QPSK(5MHz) Middle channel=20175 Frequency=1732.5MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
6.0	-30	76	0.0439	±2.5	Pass
	-20	105	0.0607		
	-10	62	0.0358		
	0	103	0.0597		
	10	60	0.0348		
	20	64	0.0369		
	30	60	0.0347		
	40	103	0.0592		
	50	86	0.0499		
Reference Frequency: LTE Band 4 QPSK(10MHz) Middle channel=20175 Frequency=1732.5MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
6.0	-30	84	0.0485	±2.5	Pass
	-20	52	0.0302		
	-10	81	0.0468		
	0	111	0.0640		
	10	114	0.0659		
	20	63	0.0365		
	30	113	0.0652		
	40	65	0.0374		
	50	79	0.0454		

Temperature Variation					
Reference Frequency: LTE Band 4 QPSK(15MHz) Middle channel=20175 Frequency=1732.5MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
6.0	-30	96	0.0554	±2.5	Pass
	-20	69	0.0399		
	-10	62	0.0357		
	0	107	0.0619		
	10	60	0.0346		
	20	105	0.0604		
	30	79	0.0457		
	40	135	0.0777		
	50	129	0.0743		
Reference Frequency: LTE Band 4 QPSK(20MHz) Middle channel=20175 Frequency=1732.5MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
6.0	-30	83	0.0479	±2.5	Pass
	-20	95	0.0549		
	-10	98	0.0567		
	0	85	0.0491		
	10	46	0.0267		
	20	97	0.0559		
	30	85	0.0491		
	40	117	0.0675		
	50	63	0.0365		
Reference Frequency: LTE Band 13 QPSK(5MHz) Middle channel=23230 Frequency=782.0MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
6.0	-30	74	0.0946	±2.5	Pass
	-20	59	0.0750		
	-10	76	0.0974		
	0	63	0.0811		
	10	58	0.0745		
	20	104	0.1331		
	30	39	0.0498		
	40	109	0.1390		
	50	110	0.1403		
Reference Frequency: LTE Band 13 QPSK(10MHz) Middle channel=23230 Frequency=782.0MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
6.0	-30	57	0.0729	±2.5	Pass
	-20	85	0.1083		
	-10	45	0.0570		
	0	84	0.1072		
	10	34	0.0439		
	20	96	0.1234		
	30	63	0.0811		
	40	82	0.1054		
	50	91	0.1167		

Temperature Variation					
Reference Frequency: LTE Band 4 16QAM(1.4MHz) Middle channel=20175 Frequency=1732.5MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
6.0	-30	59	0.0341	±2.5	Pass
	-20	20	0.0115		
	-10	89	0.0512		
	0	92	0.0530		
	10	23	0.0135		
	20	23	0.0135		
	30	52	0.0301		
	40	73	0.0419		
	50	62	0.0360		
Reference Frequency: LTE Band 4 16QAM (3MHz) Middle channel=20175 Frequency=1732.5MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
6.0	-30	36	0.0208	±2.5	Pass
	-20	2	0.0010		
	-10	56	0.0320		
	0	60	0.0345		
	10	22	0.0126		
	20	76	0.0438		
	30	56	0.0322		
	40	17	0.0101		
	50	3	0.0018		
Reference Frequency: LTE Band 4 16QAM (5MHz) Middle channel=20175 Frequency=1732.5MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
6.0	-30	59	0.0341	±2.5	Pass
	-20	61	0.0354		
	-10	94	0.0540		
	0	55	0.0318		
	10	75	0.0431		
	20	79	0.0457		
	30	52	0.0298		
	40	64	0.0368		
	50	55	0.0319		
Reference Frequency: LTE Band 4 16QAM(10MHz) Middle channel=20175 Frequency=1732.5MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
6.0	-30	72	0.0416	±2.5	Pass
	-20	55	0.0316		
	-10	48	0.0276		
	0	54	0.0313		
	10	67	0.0389		
	20	41	0.0234		
	30	35	0.0204		
	40	43	0.0249		
	50	56	0.0322		

Temperature Variation					
Reference Frequency: LTE Band 4 16QAM(15MHz) Middle channel=20175 Frequency=1732.5MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
6.0	-30	83	0.0479	±2.5	Pass
	-20	54	0.0309		
	-10	72	0.0413		
	0	83	0.0480		
	10	62	0.0356		
	20	103	0.0592		
	30	116	0.0669		
	40	86	0.0497		
	50	82	0.0472		
Reference Frequency: LTE Band 4 16QAM(20MHz) Middle channel=20175 Frequency=1732.5MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
6.0	-30	91	0.0525	±2.5	Pass
	-20	109	0.0626		
	-10	118	0.0679		
	0	74	0.0428		
	10	114	0.0660		
	20	107	0.0617		
	30	85	0.0492		
	40	129	0.0744		
	50	56	0.0325		
Reference Frequency: LTE Band 13 16QAM (5MHz) Middle channel=23230 Frequency=782.0MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
6.0	-30	49	0.0627	±2.5	Pass
	-20	51	0.0658		
	-10	71	0.0903		
	0	44	0.0567		
	10	64	0.0814		
	20	85	0.1091		
	30	17	0.0213		
	40	59	0.0753		
	50	25	0.0318		
Reference Frequency: LTE Band 13 16QAM (10MHz) Middle channel=23230 Frequency=782.0MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
6.0	-30	64	0.0818	±2.5	Pass
	-20	102	0.1305		
	-10	33	0.0426		
	0	89	0.1135		
	10	91	0.1165		
	20	25	0.0317		
	30	55	0.0703		
	40	76	0.0975		
	50	38	0.0483		

Voltage Variation					
Reference Frequency: LTE Band 4 QPSK(1.4MHz) Middle channel=20175 Frequency=1732.5MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.5	125	0.0722	±2.5	Pass
	6.0	160	0.0923		
	6.5	151	0.0872		
Reference Frequency: LTE Band 4 QPSK (3MHz) Middle channel=20175 Frequency=1732.5MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.5	125	0.0722	±2.5	Pass
	6.0	160	0.0926		
	6.5	108	0.0625		
Reference Frequency: LTE Band 4 QPSK (5MHz) Middle channel=20175 Frequency=1732.5MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.5	146	0.0840	±2.5	Pass
	6.0	161	0.0930		
	6.5	139	0.0800		
Reference Frequency: LTE Band 4 QPSK (10MHz) Middle channel=20175 Frequency=1732.5MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.5	132	0.0762	±2.5	Pass
	6.0	124	0.0716		
	6.5	105	0.0609		
Reference Frequency: LTE Band 4 QPSK (15MHz) Middle channel=20175 Frequency=1732.5MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.5	146	0.0845	±2.5	Pass
	6.0	162	0.0935		
	6.5	131	0.0759		
Reference Frequency: LTE Band 4 QPSK (20MHz) Middle channel=20175 Frequency=1732.5MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.5	110	0.0632	±2.5	Pass
	6.0	148	0.0854		
	6.5	134	0.0771		

Voltage Variation					
Reference Frequency: LTE Band 13 QPSK (5MHz) Middle channel=23230 Frequency=782.0MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.5	128	0.1637	±2.5	Pass
	6.0	117	0.1491		
	6.5	132	0.1683		
Reference Frequency: LTE Band 13 QPSK (10MHz) Middle channel=23230 Frequency=782.0MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.5	153	0.1952	±2.5	Pass
	6.0	155	0.1980		
	6.5	148	0.1898		

Voltage Variation					
Reference Frequency: LTE Band 4 16QAM(1.4MHz) Middle channel=20175 Frequency=1732.5MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.5	135	0.1726	±2.5	Pass
	6.0	116	0.1484		
	6.5	137	0.1746		
Reference Frequency: LTE Band 4 16QAM (3MHz) Middle channel=20175 Frequency=1732.5MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.5	135	0.1727	±2.5	Pass
	6.0	121	0.1542		
	6.5	119	0.1523		
Reference Frequency: LTE Band 4 16QAM (5MHz) Middle channel=20175 Frequency=1732.5MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.5	147	0.1875	±2.5	Pass
	6.0	121	0.1554		
	6.5	125	0.1595		
Reference Frequency: LTE Band 4 16QAM (10MHz) Middle channel=20175 Frequency=1732.5MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.5	127	0.1624	±2.5	Pass
	6.0	101	0.1296		
	6.5	119	0.1523		
Reference Frequency: LTE Band 4 16QAM (15MHz) Middle channel=20175 Frequency=1732.5MHz z					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.5	150	0.1920	±2.5	Pass
	6.0	123	0.1577		
	6.5	147	0.1886		
Reference Frequency: LTE Band 4 16QAM (20MHz) Middle channel=20175 Frequency=1732.5MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.5	141	0.1798	±2.5	Pass
	6.0	139	0.1775		
	6.5	125	0.1596		

Voltage Variation					
Reference Frequency: LTE Band 13 16QAM (5MHz) Middle channel=23230 Frequency=782.0MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.5	109	0.1400	±2.5	Pass
	6.0	104	0.1333		
	6.5	103	0.1313		

Voltage Variation					
Reference Frequency: LTE Band 13 16QAM (10MHz) Middle channel=23230 Frequency=782.0MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.5	101	0.1294	±2.5	Pass
	6.0	105	0.1344		
	6.5	151	0.1927		

------End of Report------