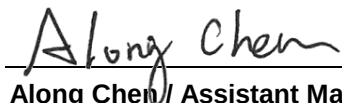


FCC Test Report

FCC ID : SQG-PINNACLE1
Equipment : LTE Modem
Model No. : Pinnacle 100
Brand Name : Laird Connectivity
Applicant : Laird Connectivity, Inc.
Address : W66N220 Commerce Court, Cedarburg,
Wisconsin 53012, USA
Standard : 47 CFR FCC Part 27
Received Date : Apr. 16, 2019
Tested Date : Apr. 28 ~ May 29, 2020

We, International Certification Corp., would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

Reviewed by:



Along Chen / Assistant Manager

Approved by:



Gary Chang / Manager



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Release Record

Report No.	Version	Description	Issued Date
FG950303P27	Rev. 01	Initial issue	Jun. 11, 2020

Summary of Test Results

FCC Rules	Test Items	Measured	Result
2.1046 27.50(b)(10) 27.50(c)(10)	Effective Radiated Power	Power[dBm]: LTE Band 12: 23.96 LTE Band 13: 23.42	Pass
2.1053 27.53(c) 27.53(g)	Radiated Emissions	Meet the requirement of limit	Pass
2.1053 27.53(f)	Radiated Spurious Emission in the 1559-1610MHz band	Meet the requirement of limit	Pass
2.1051 27.53(c) 27.53(g)	Conducted Emissions	Meet the requirement of limit	Pass
2.1051 27.53 (c) 27.53(g)	Band Edge	Meet the requirement of limit	Pass
2.1049	Occupied Bandwidth	Note	Pass
2.1055 / 27.54	Frequency Stability	Note	Pass

Note: Refers to test report of FCC ID: N7NHL78. Test report no.: RF181126C15-2

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

1 General Description

1.1 Information

1.1.1 Specification of the Equipment under Test (EUT)

Operating Frequency	699 MHz ~ 716 MHz 777 MHz ~ 787MHz
Modulation	QPSK / 16QAM
UE category	M1

1.1.2 Antenna Details

Ant. No.	Brand / Model	Type	Connector	Gain (dBi)	Operating Band
External					
1	Laird / DBA6927C1	Dipole	U.FL	0.5	LTE Band 12
				0.5	LTE Band 13
2	Laird / EFF6925A3S	Flex	U.FL	1.9	LTE Band 12
				1.9	LTE Band 13
3	ASC / RFDPA131000SMTB803	Dipole	U.FL	-0.22	LTE Band 12
				1	LTE Band 13
Integrated					
4	Laird/110-00665	Stamped Metal	N/A	1.3	LTE Band 12
				1.3	LTE Band 13

1.1.3 EUT Operational Condition

Power Supply Type	3.7 Vdc
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1.1.4 Accessories

N/A

1.1.5 Operating Channel List

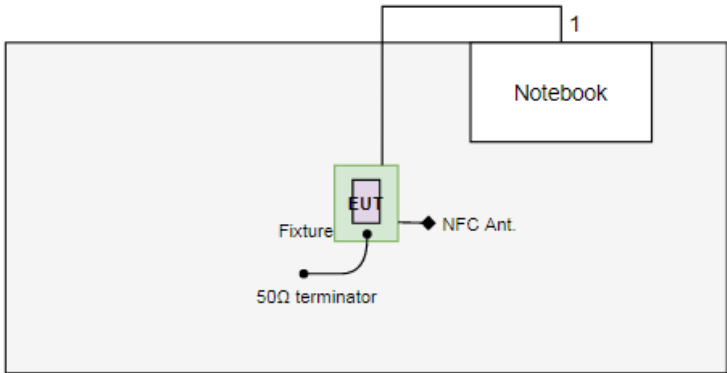
LTE Band 12		
Channel Bandwidth (MHz)	Channel	Frequency (MHz)
1.4	23017	699.7
1.4	23095	707.5
1.4	23173	715.3
3	23025	700.5
3	23095	707.5
3	23165	714.5
5	23035	701.5
5	23095	707.5
5	23155	713.5
10	23060	704.0
10	23095	707.5
10	23130	711.0

LTE Band 13		
Channel Bandwidth (MHz)	Channel	Frequency (MHz)
5	23205	779.5
5	23230	782.0
5	23255	784.5
10	23230	782.0

1.2 Local Support Equipment List

Support Equipment List					
No.	Equipment	Brand	Model	FCC ID	Remarks
1	Notebook	DELL	Latitude E6440	DoC	---
2	USB Cable	I-Gota	micro to A	---	---
3	50Ω terminator	---	---	---	---
4	Fixture	---	---	---	Provided by applicant.

1.3 Test Setup Chart

Test Setup Diagram	
 The diagram illustrates the test setup. A Notebook is connected to a Fixture (EUT) via a USB cable labeled '1'. The Fixture is connected to a 50Ω terminator and an NFC Ant.	
No.	Signal cable / Length (m)
1	USB, 1m shielded.

1.4 The Equipment List

Test Item	Radiated Emission				
Test Site	966 chamber1 / (03CH01-WS)				
Tested Date	Apr. 28 ~ May 29, 2020				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until
Spectrum Analyzer	R&S	FSV40	101498	Dec. 17, 2019	Dec. 16, 2020
Receiver	R&S	ESR3	101657	Feb. 14, 2020	Feb. 13, 2021
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Jul. 12, 2019	Jul. 11, 2020
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1096	Dec. 12, 2019	Dec. 11, 2020
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Nov. 15, 2019	Nov. 14, 2020
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 13, 2019	Nov. 12, 2020
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Oct. 07, 2019	Oct. 06, 2020
Preamplifier	EMC	EMC02325	980225	Jul. 09, 2019	Jul. 08, 2020
Preamplifier	Agilent	83017A	MY39501308	Oct. 08, 2019	Oct. 07, 2020
Preamplifier	EMC	EMC184045B	980192	Aug. 01, 2019	Jul. 31, 2020
RF Cable	EMC	EMC104-SM-SM-80 00	181106	Oct. 07, 2019	Oct. 06, 2020
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16019/4	Oct. 07, 2019	Oct. 06, 2020
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16014/4	Oct. 07, 2019	Oct. 06, 2020
LF cable 1M	EMC	EMCCFD400-NM-N M-1000	160502	Oct. 07, 2019	Oct. 06, 2020
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-001	Oct. 07, 2019	Oct. 06, 2020
LF cable 10M	Woken	CFD400NL-LW	CFD400NL-002	Oct. 07, 2019	Oct. 06, 2020
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	RF Conducted				
Test Site	(TH01-WS)				
Tested Date	May 11 ~ May 15, 2020				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until
Spectrum Analyzer	R&S	FSV40	101063	Apr. 30, 2020	Apr. 29, 2021
Spectrum Analyzer	R&S	FSV40	101499	Jan. 09, 2020	Jan. 08, 2021
Power Meter	Anritsu	ML2495A	1241002	Oct. 23, 2019	Oct. 22, 2020
Power Sensor	Anritsu	MA2411B	1207366	Oct. 23, 2019	Oct. 22, 2020
DC POWER SOURCE	GW INSTRON	GPC-6030D	GES855395	Oct. 29, 2019	Oct. 28, 2020
Measurement Software	Sporton	Sporton_1	1.3.30	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

1.5 Test Standards

According to the specification of EUT, the EUT must comply with following standards.

47 CFR FCC Part 27

ANSI C63.4-2014

ANSI C63.26-2015

FCC KDB 971168 D01 Power Meas License Digital Systems v03r01

FCC KDB 971168 D02 Misc Rev Approv License Devices v02r01

FCC KDB 412172 D01 Determining ERP and EIRP v01r01

1.6 Deviation from Test Standard and Measurement Procedure

None

1.7 Measurement Uncertainty

The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)).

Measurement Uncertainty	
Parameters	Uncertainty
Conducted emission	± 2.715 dB
Radiated emission ≤ 1 GHz	± 3.41 dB
Radiated emission > 1 GHz	± 4.59 dB

2 Test Configuration

2.1 Testing Condition and Location Information

Test Item	Test Site	Ambient Condition	Tested By
Radiated Emissions	03CH01-WS	24-26°C / 62-67%	Akun Chung

- FCC Designation No.: TW2732
- FCC site registration No.: 181692
- ISSED#: 10807A
- CAB identifier: TW2732

2.2 The Worst Test Modes and Channel Details

LTE Band 12			
Test item	Channel Bandwidths	Modulation	Test channel
Effective Radiated Power Conducted Emissions	1.4 MHz 3 MHz 5 MHz 10 MHz	QPSK / 16QAM QPSK / 16QAM QPSK / 16QAM QPSK / 16QAM	23017 / 23095 / 23173 23025 / 23095 / 23165 23035 / 23095 / 23155 23060 / 23095 / 23130
Radiated Emission ≤ 1GHz	1.4 MHz 3 MHz 5 MHz 10 MHz	QPSK QPSK QPSK QPSK	23017 23165 23035 23130
Radiated Emission > 1GHz	1.4 MHz	QPSK QPSK QPSK	23017 23095 23173
	3 MHz	QPSK QPSK QPSK	23025 23095 23165
	5 MHz	16QAM QPSK 16QAM	23035 23095 23155
	10 MHz	QPSK QPSK QPSK	23060 23095 23130
Band Edge	1.4 MHz 3 MHz 5 MHz 10 MHz	QPSK / 16QAM QPSK / 16QAM QPSK / 16QAM QPSK / 16QAM	23017 / 23173 23025 / 23165 23035 / 23155 23060 / 23130
Note: - The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The Y-plane results were found as the worst case and were shown in this report. 50Ω terminators is connected to antenna port of EUT for radiated emission measurement.			

LTE Band 13			
Test item	Channel Bandwidth	Modulation	Test channel
E.R.P Conducted Emissions	5 MHz 10 MHz	QPSK / 16QAM QPSK / 16QAM	23205 / 23230 / 23255 23230
Radiated Emission $\leq$ 1GHz	5 MHz 10 MHz	QPSK QPSK	23230 23230
Radiated Emission $>$ 1GHz	5 MHz	QPSK QPSK QPSK	23205 23230 23255
	10 MHz	QPSK	23230
Band Edge	5 MHz 10 MHz	QPSK / 16QAM QPSK / 16QAM	23205 / 23255 23230
Note: 1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The Y-plane results were found as the worst case and were shown in this report. 2. 50 Ω terminators is connected to antenna port of EUT for radiated emission measurement.			

3 Test Results

3.1 Effective Radiated Power

3.1.1 Limit of Effective Radiated Power

Portable stations (hand-held devices) are limited to 3 watts ERP.

3.1.2 Test Procedures

For E.R.P measurement

ERP can be calculated by below formula from KDB 412172 D01.

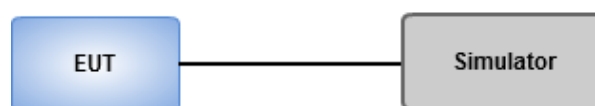
1. $EIRP = P_T + G_T - L_C$
 P_T = transmitter output power, in dBm.
 G_T = gain of the transmitting antenna, in dBi (EIRP).
 L_C = signal attenuation in the connecting cable between the transmitter and antenna, in dB.
2. $ERP = EIRP - 2.15 \text{ dB}$.

For Conducted power measurement

1. The EUT links up with simulator and is set to maximum output power level at low / middel / high channel.
2. Measure the output power of low / middle / high channel of the EUT

3.1.3 Test Setup

Conducted Power Measurement



3.1.4 Test Result of Effective Radiated Power (dBm)

LTE Band 12

LTE Cat-M1 Band 12, BW (MHz): 1.4													
Test Frequency ID	NUL	Frequency of Uplink (MHz)	Test Configuration Initial of Power				EUT		Antenna Gain (dBi)	E.I.R.P Power (dBm)	E.R.P Power (dBm)	E.R.P Power (W)	E.R.P Limit (W)
			Modulation	RB Size	RB Offset	Narrowband Index	Cell Power (dBm/15 kHz)	Power (dBm)					
Low Range	23017	699.7	QPSK	1	0	0	-85	24.21	1.9	26.11	23.96	0.249	3
			QPSK	1	5	0	-85	23.77	1.9	25.67	23.52	0.225	3
			QPSK	3	3	0	-85	22.17	1.9	24.07	21.92	0.156	3
			QPSK	6	0	0	-85	21.26	1.9	23.16	21.01	0.126	3
			16QAM	1	0	0	-85	23.57	1.9	25.47	23.32	0.215	3
			16QAM	1	5	0	-85	22.82	1.9	24.72	22.57	0.181	3
			16QAM	3	0	0	-85	22.11	1.9	24.01	21.86	0.153	3
			16QAM	5	0	0	-85	22.1	1.9	24	21.85	0.153	3
Mid. Range	23095	707.5	QPSK	1	0	0	-85	23.91	1.9	25.81	23.66	0.232	3
			QPSK	1	5	0	-85	23.77	1.9	25.67	23.52	0.225	3
			QPSK	3	3	0	-85	22.16	1.9	24.06	21.91	0.155	3
			QPSK	6	0	0	-85	21.25	1.9	23.15	21	0.126	3
			16QAM	1	0	0	-85	23.57	1.9	25.47	23.32	0.215	3
			16QAM	1	5	0	-85	23.81	1.9	25.71	23.56	0.227	3
			16QAM	3	0	0	-85	22.06	1.9	23.96	21.81	0.152	3
			16QAM	5	0	0	-85	22.09	1.9	23.99	21.84	0.153	3
High Range	23173	715.3	QPSK	1	0	0	-85	24.13	1.9	26.03	23.88	0.244	3
			QPSK	1	5	0	-85	23.67	1.9	25.57	23.42	0.220	3
			QPSK	3	3	0	-85	22.06	1.9	23.96	21.81	0.152	3
			QPSK	6	0	0	-85	21.13	1.9	23.03	20.88	0.122	3
			16QAM	1	0	0	-85	23.49	1.9	25.39	23.24	0.211	3
			16QAM	1	5	0	-85	23.72	1.9	25.62	23.47	0.222	3
			16QAM	3	0	0	-85	21.99	1.9	23.89	21.74	0.149	3
			16QAM	5	0	0	-85	21.87	1.9	23.77	21.62	0.145	3

Note1: EIRP = Conducted Output Power + Antenna Gain.

Note2: ERP = EIRP - 2.15.

Note3: Conducted power refers to test report of FCC ID: N7NHL78. Test report no.: RF181126C15-2

LTE Cat-M1 Band 12, BW (MHz): 3													
Test Frequency ID	NUL	Frequency of Uplink (MHz)	Test Configuration Initial of Power				EUT		Antenna Gain (dBi)	E.I.R.P Power (dBm)	E.R.P Power (dBm)	E.R.P Power (W)	E.R.P Limit (W)
			Modulation	RB Size	RB Offset	Narrowband Index	Cell Power (dBm/15 kHz)	Power (dBm)					
Low Range	23025	700.5	QPSK	1	0	0	-85	23.65	1.9	25.55	23.4	0.219	3
			QPSK	1	5	0	-85	23.82	1.9	25.72	23.57	0.228	3
			QPSK	1	0	1	-85	23.77	1.9	25.67	23.52	0.225	3
			QPSK	1	5	1	-85	23.81	1.9	25.71	23.56	0.227	3
			QPSK	3	3	0	-85	23.51	1.9	25.41	23.26	0.212	3
			QPSK	3	3	1	-85	23.61	1.9	25.51	23.36	0.217	3
			QPSK	6	0	0	-85	23.52	1.9	25.42	23.27	0.212	3
			QPSK	6	0	1	-85	22.99	1.9	24.89	22.74	0.188	3
			16QAM	1	0	0	-85	22.64	1.9	24.54	22.39	0.173	3
			16QAM	1	5	0	-85	22.76	1.9	24.66	22.51	0.178	3
			16QAM	1	0	1	-85	22.88	1.9	24.78	22.63	0.183	3
			16QAM	1	5	1	-85	22.67	1.9	24.57	22.42	0.175	3
			16QAM	3	0	0	-85	21.84	1.9	23.74	21.59	0.144	3
			16QAM	3	3	1	-85	21.81	1.9	23.71	21.56	0.143	3
			16QAM	5	0	0	-85	21.43	1.9	23.33	21.18	0.131	3
			16QAM	5	0	1	-85	21.44	1.9	23.34	21.19	0.132	3
Mid. Range	23095	707.5	QPSK	1	0	0	-85	23.67	1.9	25.57	23.42	0.220	3
			QPSK	1	5	0	-85	23.66	1.9	25.56	23.41	0.219	3
			QPSK	1	0	1	-85	23.81	1.9	25.71	23.56	0.227	3
			QPSK	1	5	1	-85	23.79	1.9	25.69	23.54	0.226	3
			QPSK	3	3	0	-85	23.49	1.9	25.39	23.24	0.211	3
			QPSK	3	3	1	-85	23.52	1.9	25.42	23.27	0.212	3
			QPSK	6	0	0	-85	23.24	1.9	25.14	22.99	0.199	3
			QPSK	6	0	1	-85	22.96	1.9	24.86	22.71	0.187	3
			16QAM	1	0	0	-85	22.56	1.9	24.46	22.31	0.170	3
			16QAM	1	5	0	-85	22.66	1.9	24.56	22.41	0.174	3
			16QAM	1	0	1	-85	22.57	1.9	24.47	22.32	0.171	3
			16QAM	1	5	1	-85	22.78	1.9	24.68	22.53	0.179	3
			16QAM	3	0	0	-85	21.79	1.9	23.69	21.54	0.143	3
			16QAM	3	3	1	-85	21.8	1.9	23.7	21.55	0.143	3
			16QAM	5	0	0	-85	21.53	1.9	23.43	21.28	0.134	3
			16QAM	5	0	1	-85	21.44	1.9	23.34	21.19	0.132	3

Note1: EIRP = Conducted Output Power + Antenna Gain.

Note2: ERP = EIRP - 2.15.

Note3: Conducted power refers to test report of FCC ID: N7NHL78. Test report no.: RF181126C15-2

LTE Cat-M1 Band 12, BW (MHz): 3													
Test Frequency ID	NUL	Frequency of Uplink (MHz)	Test Configuration Initial of Power				EUT		Antenna Gain (dBi)	E.I.R.P Power (dBm)	E.R.P Power (dBm)	E.R.P Power (W)	E.R.P Limit (W)
			Modulation	RB Size	RB Offset	Narrowband Index	Cell Power (dBm/15 kHz)	Power (dBm)					
High Range	23165	714.5	QPSK	1	0	0	-85	23.79	1.9	25.69	23.54	0.226	3
			QPSK	1	5	0	-85	23.83	1.9	25.73	23.58	0.228	3
			QPSK	1	0	1	-85	23.85	1.9	25.75	23.6	0.229	3
			QPSK	1	5	1	-85	23.72	1.9	25.62	23.47	0.222	3
			QPSK	3	3	0	-85	23.56	1.9	25.46	23.31	0.214	3
			QPSK	3	3	1	-85	23.61	1.9	25.51	23.36	0.217	3
			QPSK	6	0	0	-85	23.26	1.9	25.16	23.01	0.200	3
			QPSK	6	0	1	-85	23.31	1.9	25.21	23.06	0.202	3
			16QAM	1	0	0	-85	22.88	1.9	24.78	22.63	0.183	3
			16QAM	1	5	0	-85	22.78	1.9	24.68	22.53	0.179	3
			16QAM	1	0	1	-85	22.68	1.9	24.58	22.43	0.175	3
			16QAM	1	5	1	-85	22.74	1.9	24.64	22.49	0.177	3
			16QAM	3	0	0	-85	21.81	1.9	23.71	21.56	0.143	3
			16QAM	3	3	1	-85	21.67	1.9	23.57	21.42	0.139	3
			16QAM	6	0	0	-85	21.54	1.9	23.44	21.29	0.135	3
			16QAM	6	0	1	-85	21.63	1.9	23.53	21.38	0.137	3

Note1: EIRP = Conducted Output Power + Antenna Gain.

Note2: ERP = EIRP - 2.15.

Note3: Conducted power refers to test report of FCC ID: N7NHL78. Test report no.: RF181126C15-2

LTE Cat-M1 Band 12, BW (MHz): 5													
Test Frequency ID	NUL	Frequency of Uplink (MHz)	Test Configuration Initial of Power				EUT		Antenna Gain (dBi)	E.I.R.P Power (dBm)	E.R.P Power (dBm)	E.R.P Power (W)	E.R.P Limit (W)
			Modulation	RB Size	RB Offset	Narrowband Index	Cell Power (dBm/15 kHz)	Power (dBm)					
Low Range	23035	701.5	QPSK	1	0	0	-85	23.01	1.9	24.91	22.76	0.189	3
			QPSK	1	5	0	-85	22.95	1.9	24.85	22.7	0.186	3
			QPSK	1	0	1	-85	22.95	1.9	24.85	22.7	0.186	3
			QPSK	1	5	1	-85	22.89	1.9	24.79	22.64	0.184	3
			QPSK	1	0	3	-85	22.86	1.9	24.76	22.61	0.182	3
			QPSK	1	5	3	-85	22.91	1.9	24.81	22.66	0.185	3
			QPSK	3	0	0	-85	21.01	1.9	22.91	20.76	0.119	3
			QPSK	3	3	3	-85	21.93	1.9	23.83	21.68	0.147	3
			QPSK	6	0	0	-85	21.99	1.9	23.89	21.74	0.149	3
			QPSK	6	0	1	-85	21.02	1.9	22.92	20.77	0.119	3
			QPSK	6	0	3	-85	21.98	1.9	23.88	21.73	0.149	3
			16QAM	1	0	0	-85	23.17	1.9	25.07	22.92	0.196	3
			16QAM	1	5	0	-85	23.02	1.9	24.92	22.77	0.189	3
			16QAM	1	0	1	-85	22.91	1.9	24.81	22.66	0.185	3
			16QAM	1	5	1	-85	22.94	1.9	24.84	22.69	0.186	3
			16QAM	1	0	3	-85	22.98	1.9	24.88	22.73	0.187	3
			16QAM	1	5	3	-85	22.94	1.9	24.84	22.69	0.186	3
			16QAM	3	0	0	-85	22.04	1.9	23.94	21.79	0.151	3
			16QAM	3	3	3	-85	22.02	1.9	23.92	21.77	0.150	3
			16QAM	5	0	0	-85	22.02	1.9	23.92	21.77	0.150	3
			16QAM	5	0	1	-85	22.03	1.9	23.93	21.78	0.151	3
			16QAM	5	0	3	-85	22.01	1.9	23.91	21.76	0.150	3

Note1: EIRP = Conducted Output Power + Antenna Gain.

Note2: ERP = EIRP - 2.15.

Note3: Conducted power refers to test report of FCC ID: N7NHL78. Test report no.: RF181126C15-2

LTE Cat-M1 Band 12, BW (MHz): 5													
Test Frequency ID	NUL	Frequency of Uplink (MHz)	Test Configuration Initial of Power				EUT		Antenna Gain (dBi)	E.I.R.P Power (dBm)	E.R.P Power (dBm)	E.R.P Power (W)	E.R.P Limit (W)
			Modulation	RB Size	RB Offset	Narrowband Index	Cell Power (dBm/15 kHz)	Power (dBm)					
Mid. Range	23095	707.5	QPSK	1	0	0	-85	22.89	1.9	24.79	22.64	0.184	3
			QPSK	1	5	0	-85	22.77	1.9	24.67	22.52	0.179	3
			QPSK	1	0	1	-85	22.98	1.9	24.88	22.73	0.187	3
			QPSK	1	5	1	-85	22.94	1.9	24.84	22.69	0.186	3
			QPSK	1	0	3	-85	22.97	1.9	24.87	22.72	0.187	3
			QPSK	1	5	3	-85	22.9	1.9	24.8	22.65	0.184	3
			QPSK	3	0	0	-85	21.95	1.9	23.85	21.7	0.148	3
			QPSK	3	3	3	-85	21.89	1.9	23.79	21.64	0.146	3
			QPSK	6	0	0	-85	21.92	1.9	23.82	21.67	0.147	3
			QPSK	6	0	1	-85	21.89	1.9	23.79	21.64	0.146	3
			QPSK	6	0	3	-85	21.76	1.9	23.66	21.51	0.142	3
			16QAM	1	0	0	-85	22.97	1.9	24.87	22.72	0.187	3
			16QAM	1	5	0	-85	22.91	1.9	24.81	22.66	0.185	3
			16QAM	1	0	1	-85	22.94	1.9	24.84	22.69	0.186	3
			16QAM	1	5	1	-85	22.88	1.9	24.78	22.63	0.183	3
			16QAM	1	0	3	-85	22.88	1.9	24.78	22.63	0.183	3
			16QAM	1	5	3	-85	22.79	1.9	24.69	22.54	0.179	3
			16QAM	3	0	0	-85	21.96	1.9	23.86	21.71	0.148	3
			16QAM	3	3	3	-85	21.87	1.9	23.77	21.62	0.145	3
			16QAM	5	0	0	-85	21.98	1.9	23.88	21.73	0.149	3
			16QAM	5	0	1	-85	21.76	1.9	23.66	21.51	0.142	3
			16QAM	5	0	3	-85	21.79	1.9	23.69	21.54	0.143	3

Note1: EIRP = Conducted Output Power + Antenna Gain.

Note2: ERP = EIRP - 2.15.

Note3: Conducted power refers to test report of FCC ID: N7NHL78. Test report no.: RF181126C15-2

LTE Cat-M1 Band 12, BW (MHz): 5													
Test Frequency ID	NUL	Frequency of Uplink (MHz)	Test Configuration Initial of Power				EUT		Antenna Gain (dBi)	E.I.R.P Power (dBm)	E.R.P Power (dBm)	E.R.P Power (W)	E.R.P Limit (W)
			Modulation	RB Size	RB Offset	Narrowband Index	Cell Power (dBm/15 kHz)	Power (dBm)					
High Range	23155	713.5	QPSK	1	0	0	-85	22.98	1.9	24.88	22.73	0.187	3
			QPSK	1	5	0	-85	22.98	1.9	24.88	22.73	0.187	3
			QPSK	1	0	1	-85	22.96	1.9	24.86	22.71	0.187	3
			QPSK	1	5	1	-85	22.93	1.9	24.83	22.68	0.185	3
			QPSK	1	0	3	-85	22.94	1.9	24.84	22.69	0.186	3
			QPSK	1	5	3	-85	22.89	1.9	24.79	22.64	0.184	3
			QPSK	3	0	0	-85	21.94	1.9	23.84	21.69	0.148	3
			QPSK	3	3	3	-85	21.99	1.9	23.89	21.74	0.149	3
			QPSK	6	0	0	-85	21.87	1.9	23.77	21.62	0.145	3
			QPSK	6	0	1	-85	21.85	1.9	23.75	21.6	0.145	3
			QPSK	6	0	3	-85	21.84	1.9	23.74	21.59	0.144	3
			16QAM	1	0	0	-85	23.01	1.9	24.91	22.76	0.189	3
			16QAM	1	5	0	-85	22.99	1.9	24.89	22.74	0.188	3
			16QAM	1	0	1	-85	22.96	1.9	24.86	22.71	0.187	3
			16QAM	1	5	1	-85	22.97	1.9	24.87	22.72	0.187	3
			16QAM	1	0	3	-85	22.87	1.9	24.77	22.62	0.183	3
			16QAM	1	5	3	-85	22.89	1.9	24.79	22.64	0.184	3
			16QAM	3	0	0	-85	21.94	1.9	23.84	21.69	0.148	3
			16QAM	3	3	3	-85	21.85	1.9	23.75	21.6	0.145	3
			16QAM	6	0	0	-85	21.67	1.9	23.57	21.42	0.139	3
			16QAM	6	0	1	-85	21.74	1.9	23.64	21.49	0.141	3
			16QAM	6	0	3	-85	21.59	1.9	23.49	21.34	0.136	3

Note1: EIRP = Conducted Output Power + Antenna Gain.

Note2: ERP = EIRP - 2.15.

Note3: Conducted power refers to test report of FCC ID: N7NHL78. Test report no.: RF181126C15-2

LTE Cat-M1 Band 12, BW (MHz): 10													
Test Frequency ID	NUL	Frequency of Uplink (MHz)	Test Configuration Initial of Power				EUT		Antenna Gain (dBi)	E.I.R.P Power (dBm)	E.R.P Power (dBm)	E.R.P Power (W)	E.R.P Limit (W)
			Modulation	RB Size	RB Offset	Narrowband Index	Cell Power (dBm/15 kHz)	Power (dBm)					
Low Range	23060	704	QPSK	1	0	0	-85	23.02	1.9	24.92	22.77	0.189	3
			QPSK	1	5	0	-85	23.01	1.9	24.91	22.76	0.189	3
			QPSK	1	0	3	-85	23.04	1.9	24.94	22.79	0.190	3
			QPSK	1	5	3	-85	23.03	1.9	24.93	22.78	0.190	3
			QPSK	1	0	7	-85	23.02	1.9	24.92	22.77	0.189	3
			QPSK	1	5	7	-85	23.01	1.9	24.91	22.76	0.189	3
			QPSK	4	0	0	-85	22.91	1.9	24.81	22.66	0.185	3
			QPSK	4	2	7	-85	23.05	1.9	24.95	22.8	0.191	3
			QPSK	6	0	0	-85	21.89	1.9	23.79	21.64	0.146	3
			QPSK	6	0	7	-85	21.76	1.9	23.66	21.51	0.142	3
			16QAM	1	0	0	-85	23.01	1.9	24.91	22.76	0.189	3
			16QAM	1	5	0	-85	22.99	1.9	24.89	22.74	0.188	3
			16QAM	1	0	3	-85	22.91	1.9	24.81	22.66	0.185	3
			16QAM	1	5	3	-85	22.96	1.9	24.86	22.71	0.187	3
			16QAM	1	0	7	-85	23.04	1.9	24.94	22.79	0.190	3
			16QAM	1	5	7	-85	22.98	1.9	24.88	22.73	0.187	3
			16QAM	4	2	0	-85	23.02	1.9	24.92	22.77	0.189	3
			16QAM	4	2	7	-85	23.01	1.9	24.91	22.76	0.189	3
			16QAM	6	0	0	-85	21.97	1.9	23.87	21.72	0.149	3
			16QAM	6	0	7	-85	21.88	1.9	23.78	21.63	0.146	3

Note1: EIRP = Conducted Output Power + Antenna Gain.

Note2: ERP = EIRP - 2.15.

Note3: Conducted power refers to test report of FCC ID: N7NHL78. Test report no.: RF181126C15-2

LTE Cat-M1 Band 12, BW (MHz): 10													
Test Frequency ID	NUL	Frequency of Uplink (MHz)	Test Configuration Initial of Power				EUT		Antenna Gain (dBi)	E.I.R.P Power (dBm)	E.R.P Power (dBm)	E.R.P Power (W)	E.R.P Limit (W)
			Modulation	RB Size	RB Offset	Narrowband Index	Cell Power (dBm/15 kHz)	Power (dBm)					
Mid. Range	23095	707.5	QPSK	1	0	0	-85	23.07	1.9	24.97	22.82	0.191	3
			QPSK	1	5	0	-85	23.04	1.9	24.94	22.79	0.190	3
			QPSK	1	0	3	-85	23.02	1.9	24.92	22.77	0.189	3
			QPSK	1	5	3	-85	23.01	1.9	24.91	22.76	0.189	3
			QPSK	1	0	7	-85	23.05	1.9	24.95	22.8	0.191	3
			QPSK	1	5	7	-85	22.99	1.9	24.89	22.74	0.188	3
			QPSK	4	0	0	-85	22.98	1.9	24.88	22.73	0.187	3
			QPSK	4	2	7	-85	23.01	1.9	24.91	22.76	0.189	3
			QPSK	6	0	0	-85	21.88	1.9	23.78	21.63	0.146	3
			QPSK	6	0	7	-85	21.78	1.9	23.68	21.53	0.142	3
			16QAM	1	0	0	-85	22.99	1.9	24.89	22.74	0.188	3
			16QAM	1	5	0	-85	22.94	1.9	24.84	22.69	0.186	3
			16QAM	1	0	3	-85	22.91	1.9	24.81	22.66	0.185	3
			16QAM	1	5	3	-85	23.01	1.9	24.91	22.76	0.189	3
			16QAM	1	0	7	-85	22.95	1.9	24.85	22.7	0.186	3
			16QAM	1	5	7	-85	23.02	1.9	24.92	22.77	0.189	3
			16QAM	4	2	0	-85	22.96	1.9	24.86	22.71	0.187	3
			16QAM	4	2	7	-85	21.67	1.9	23.57	21.42	0.139	3
			16QAM	6	0	0	-85	21.87	1.9	23.77	21.62	0.145	3
			16QAM	6	0	7	-85	21.89	1.9	23.79	21.64	0.146	3

Note1: EIRP = Conducted Output Power + Antenna Gain.

Note2: ERP = EIRP - 2.15.

Note3: Conducted power refers to test report of FCC ID: N7NHL78. Test report no.: RF181126C15-2

LTE Cat-M1 Band 12, BW (MHz): 10													
Test Frequency ID	NUL	Frequency of Uplink (MHz)	Test Configuration Initial of Power				EUT		Antenna Gain (dBi)	E.I.R.P Power (dBm)	E.R.P Power (dBm)	E.R.P Power (W)	E.R.P Limit (W)
			Modulation	RB Size	RB Offset	Narrowband Index	Cell Power (dBm/15 kHz)	Power (dBm)					
High Range	23130	711	QPSK	1	0	0	-85	23.12	1.9	25.02	22.87	0.194	3
			QPSK	1	5	0	-85	23.11	1.9	25.01	22.86	0.193	3
			QPSK	1	5	7	-85	23.05	1.9	24.95	22.8	0.191	3
			QPSK	1	0	3	-85	23.07	1.9	24.97	22.82	0.191	3
			QPSK	1	5	3	-85	23.09	1.9	24.99	22.84	0.192	3
			QPSK	1	0	7	-85	22.98	1.9	24.88	22.73	0.187	3
			QPSK	4	0	0	-85	22.95	1.9	24.85	22.7	0.186	3
			QPSK	4	2	7	-85	22.97	1.9	24.87	22.72	0.187	3
			QPSK	6	0	0	-85	21.87	1.9	23.77	21.62	0.145	3
			QPSK	6	0	7	-85	21.99	1.9	23.89	21.74	0.149	3
			16QAM	1	0	0	-85	23.04	1.9	24.94	22.79	0.190	3
			16QAM	1	5	0	-85	23.12	1.9	25.02	22.87	0.194	3
			16QAM	1	0	3	-85	23.09	1.9	24.99	22.84	0.192	3
			16QAM	1	5	3	-85	22.98	1.9	24.88	22.73	0.187	3
			16QAM	1	0	7	-85	22.95	1.9	24.85	22.7	0.186	3
			16QAM	1	5	7	-85	22.94	1.9	24.84	22.69	0.186	3
			16QAM	4	2	0	-85	22.94	1.9	24.84	22.69	0.186	3
			16QAM	4	2	7	-85	22.99	1.9	24.89	22.74	0.188	3
			16QAM	6	0	0	-85	21.87	1.9	23.77	21.62	0.145	3
			16QAM	6	0	7	-85	21.78	1.9	23.68	21.53	0.142	3

Note1: EIRP = Conducted Output Power + Antenna Gain.

Note2: ERP = EIRP - 2.15.

Note3: Conducted power refers to test report of FCC ID: N7NHL78. Test report no.: RF181126C15-2

LTE Band 13

LTE Cat-M1 Band 13, BW (MHz): 5													
Test Frequency ID	NUL	Frequency of Uplink (MHz)	Test Configuration Initial of Power				EUT		Antenna Gain (dBi)	E.I.R.P Power (dBm)	E.R.P Power (dBm)	E.R.P Power (W)	E.R.P Limit (W)
			Modulation	RB Size	RB Offset	Narrowband Index	Cell Power (dBm/15 kHz)	Power (dBm)					
Low Range	23205	779.5	QPSK	1	0	0	-85	23.21	1.9	25.11	22.96	0.198	3
			QPSK	1	5	0	-85	23.24	1.9	25.14	22.99	0.199	3
			QPSK	1	0	1	-85	23.42	1.9	25.32	23.17	0.207	3
			QPSK	1	5	1	-85	23.38	1.9	25.28	23.13	0.206	3
			QPSK	1	0	3	-85	22.41	1.9	24.31	22.16	0.164	3
			QPSK	1	5	3	-85	23.38	1.9	25.28	23.13	0.206	3
			QPSK	3	0	0	-85	22.52	1.9	24.42	22.27	0.169	3
			QPSK	3	3	3	-85	22.54	1.9	24.44	22.29	0.169	3
			QPSK	6	0	0	-85	22.57	1.9	24.47	22.32	0.171	3
			QPSK	6	0	1	-85	22.59	1.9	24.49	22.34	0.171	3
			QPSK	6	0	3	-85	22.78	1.9	24.68	22.53	0.179	3
			16QAM	1	0	0	-85	22.59	1.9	24.49	22.34	0.171	3
			16QAM	1	5	0	-85	22.56	1.9	24.46	22.31	0.170	3
			16QAM	1	0	1	-85	22.58	1.9	24.48	22.33	0.171	3
			16QAM	1	5	1	-85	22.58	1.9	24.48	22.33	0.171	3
			16QAM	1	0	3	-85	22.77	1.9	24.67	22.52	0.179	3
			16QAM	1	5	3	-85	22.73	1.9	24.63	22.48	0.177	3
			16QAM	3	0	0	-85	22.34	1.9	24.24	22.09	0.162	3
			16QAM	3	3	3	-85	22.46	1.9	24.36	22.21	0.166	3
			16QAM	5	0	0	-85	20.94	1.9	22.84	20.69	0.117	3
			16QAM	5	0	1	-85	21.17	1.9	23.07	20.92	0.124	3
			16QAM	5	0	3	-85	21.18	1.9	23.08	20.93	0.124	3

Note1: EIRP = Conducted Output Power + Antenna Gain.

Note2: ERP = EIRP - 2.15.

Note3: Conducted power refers to test report of FCC ID: N7NHL78. Test report no.: RF181126C15-2

LTE Cat-M1 Band 13, BW (MHz): 5													
Test Frequency ID	NUL	Frequency of Uplink (MHz)	Test Configuration Initial of Power				EUT		Antenna Gain (dBi)	E.I.R.P Power (dBm)	E.R.P Power (dBm)	E.R.P Power (W)	E.R.P Limit (W)
			Modulation	RB Size	RB Offset	Narrowband Index	Cell Power (dBm/15 kHz)	Power (dBm)					
Mid. Range	23230	782	QPSK	1	0	0	-85	23.32	1.9	25.22	23.07	0.203	3
			QPSK	1	5	0	-85	23.36	1.9	25.26	23.11	0.205	3
			QPSK	1	0	1	-85	23.39	1.9	25.29	23.14	0.206	3
			QPSK	1	5	1	-85	23.33	1.9	25.23	23.08	0.203	3
			QPSK	1	0	3	-85	23.49	1.9	25.39	23.24	0.211	3
			QPSK	1	5	3	-85	23.67	1.9	25.57	23.42	0.220	3
			QPSK	3	0	0	-85	22.64	1.9	24.54	22.39	0.173	3
			QPSK	3	3	3	-85	22.63	1.9	24.53	22.38	0.173	3
			QPSK	6	0	0	-85	22.62	1.9	24.52	22.37	0.173	3
			QPSK	6	0	1	-85	22.67	1.9	24.57	22.42	0.175	3
			QPSK	6	0	3	-85	22.88	1.9	24.78	22.63	0.183	3
			16QAM	1	0	0	-85	22.75	1.9	24.65	22.5	0.178	3
			16QAM	1	5	0	-85	22.61	1.9	24.51	22.36	0.172	3
			16QAM	1	0	1	-85	22.71	1.9	24.61	22.46	0.176	3
			16QAM	1	5	1	-85	22.69	1.9	24.59	22.44	0.175	3
			16QAM	1	0	3	-85	22.83	1.9	24.73	22.58	0.181	3
			16QAM	1	5	3	-85	22.83	1.9	24.73	22.58	0.181	3
			16QAM	3	0	0	-85	22.22	1.9	24.12	21.97	0.157	3
			16QAM	3	3	3	-85	22.45	1.9	24.35	22.2	0.166	3
			16QAM	5	0	0	-85	20.97	1.9	22.87	20.72	0.118	3
			16QAM	5	0	1	-85	21.05	1.9	22.95	20.8	0.120	3
			16QAM	5	0	3	-85	21.27	1.9	23.17	21.02	0.126	3

Note1: EIRP = Conducted Output Power + Antenna Gain.

Note2: ERP = EIRP - 2.15.

Note3: Conducted power refers to test report of FCC ID: N7NHL78. Test report no.: RF181126C15-2

LTE Cat-M1 Band 13, BW (MHz): 5													
Test Frequency ID	NUL	Frequency of Uplink (MHz)	Test Configuration Initial of Power				EUT		Antenna Gain (dBi)	E.I.R.P Power (dBm)	E.R.P Power (dBm)	E.R.P Power (W)	E.R.P Limit (W)
			Modulation	RB Size	RB Offset	Narrowband Index	Cell Power (dBm/15 kHz)	Power (dBm)					
High Range	23255	784.5	QPSK	1	0	0	-85	23.41	1.9	25.31	23.16	0.207	3
			QPSK	1	5	0	-85	23.42	1.9	25.32	23.17	0.207	3
			QPSK	1	0	1	-85	23.47	1.9	25.37	23.22	0.210	3
			QPSK	1	5	1	-85	23.49	1.9	25.39	23.24	0.211	3
			QPSK	1	0	3	-85	23.66	1.9	25.56	23.41	0.219	3
			QPSK	1	5	3	-85	23.54	1.9	25.44	23.29	0.213	3
			QPSK	3	0	0	-85	22.79	1.9	24.69	22.54	0.179	3
			QPSK	3	3	3	-85	22.6	1.9	24.5	22.35	0.172	3
			QPSK	6	0	0	-85	22.78	1.9	24.68	22.53	0.179	3
			QPSK	6	0	1	-85	22.77	1.9	24.67	22.52	0.179	3
			QPSK	6	0	3	-85	22.93	1.9	24.83	22.68	0.185	3
			16QAM	1	0	0	-85	22.77	1.9	24.67	22.52	0.179	3
			16QAM	1	5	0	-85	22.77	1.9	24.67	22.52	0.179	3
			16QAM	1	0	1	-85	22.83	1.9	24.73	22.58	0.181	3
			16QAM	1	5	1	-85	22.76	1.9	24.66	22.51	0.178	3
			16QAM	1	0	3	-85	22.94	1.9	24.84	22.69	0.186	3
			16QAM	1	5	3	-85	22.88	1.9	24.78	22.63	0.183	3
			16QAM	3	0	0	-85	22.43	1.9	24.33	22.18	0.165	3
			16QAM	3	3	3	-85	22.59	1.9	24.49	22.34	0.171	3
			16QAM	5	0	0	-85	21.15	1.9	23.05	20.9	0.123	3
			16QAM	5	0	1	-85	21.22	1.9	23.12	20.97	0.125	3
			16QAM	5	0	3	-85	21.48	1.9	23.38	21.23	0.133	3

Note1: EIRP = Conducted Output Power + Antenna Gain.

Note2: ERP = EIRP - 2.15.

Note3: Conducted power refers to test report of FCC ID: N7NHL78. Test report no.: RF181126C15-2

LTE Cat-M1 Band 13, BW (MHz): 10													
Test Frequency ID	NUL	Frequency of Uplink (MHz)	Test Configuration Initial of Power				EUT		Antenna	E.I.R.P	E.R.P	E.R.P	E.R.P
			Modulation	RB Size	RB Offset	Narrowband Index	Cell Power (dBm/15 kHz)	Power (dBm)	Gain (dBi)	Power (dBm)	Power (dBm)	Power (W)	Limit (W)
Mid. Range	23230	782	QPSK	1	0	0	-85	23.02	1.9	24.92	22.77	0.189	3
			QPSK	1	5	0	-85	23.01	1.9	24.91	22.76	0.189	3
			QPSK	1	0	3	-85	23.17	1.9	25.07	22.92	0.196	3
			QPSK	1	5	3	-85	23.24	1.9	25.14	22.99	0.199	3
			QPSK	1	0	7	-85	23.27	1.9	25.17	23.02	0.200	3
			QPSK	1	5	7	-85	23.24	1.9	25.14	22.99	0.199	3
			QPSK	4	0	0	-85	23.15	1.9	25.05	22.9	0.195	3
			QPSK	4	2	7	-85	23.17	1.9	25.07	22.92	0.196	3
			QPSK	6	0	0	-85	22.55	1.9	24.45	22.3	0.170	3
			QPSK	6	0	7	-85	22.84	1.9	24.74	22.59	0.182	3
			16QAM	1	0	0	-85	22.49	1.9	24.39	22.24	0.167	3
			16QAM	1	5	0	-85	23.01	1.9	24.91	22.76	0.189	3
			16QAM	1	0	3	-85	23.19	1.9	25.09	22.94	0.197	3
			16QAM	1	5	3	-85	23.12	1.9	25.02	22.87	0.194	3
			16QAM	1	0	7	-85	22.77	1.9	24.67	22.52	0.179	3
			16QAM	1	5	7	-85	22.89	1.9	24.79	22.64	0.184	3
			16QAM	4	2	0	-85	22.15	1.9	24.05	21.9	0.155	3
			16QAM	4	2	7	-85	22.81	1.9	24.71	22.56	0.180	3
			16QAM	5	0	0	-85	22.02	1.9	23.92	21.77	0.150	3
			16QAM	5	0	7	-85	22.78	1.9	24.68	22.53	0.179	3

Note1: EIRP = Conducted Output Power + Antenna Gain.

Note2: ERP = EIRP - 2.15.

Note3: Conducted power refers to test report of FCC ID: N7NHL78. Test report no.: RF181126C15-2

3.1.5 Verification of Conducted Output Power

LTE Band 12

LTE Cat-M1 Band 12, BW (MHz): 1.4								
Test Frequency ID	NUL	Frequency of Uplink (MHz)	Test Configuration Initial of Power				EUT	
			Modulation	RB Size	RB Offset	Narrowband Index	Cell Power (dBm/15 kHz)	Conducted Power (dBm)
Low Range	23017	699.7	QPSK	1	0	0	-85	23.08
			QPSK	1	5	0	-85	23.07
			QPSK	3	3	0	-85	22.22
			QPSK	6	0	0	-85	21.19
			16QAM	1	0	0	-85	22.17
			16QAM	1	5	0	-85	22.23
			16QAM	3	0	0	-85	21.34
			16QAM	5	0	0	-85	21.19
Mid. Range	23095	707.5	QPSK	1	0	0	-85	23.1
			QPSK	1	5	0	-85	23.09
			QPSK	3	3	0	-85	21.89
			QPSK	6	0	0	-85	21.17
			16QAM	1	0	0	-85	22.31
			16QAM	1	5	0	-85	22.41
			16QAM	3	0	0	-85	20.97
			16QAM	5	0	0	-85	21.23
High Range	23173	715.3	QPSK	1	0	0	-85	23.1
			QPSK	1	5	0	-85	23.08
			QPSK	3	3	0	-85	22.18
			QPSK	6	0	0	-85	21.18
			16QAM	1	0	0	-85	22.2
			16QAM	1	5	0	-85	22.34
			16QAM	3	0	0	-85	21.28
			16QAM	5	0	0	-85	21.18

LTE Band 13

LTE Cat-M1 Band 13, BW (MHz): 5								
Test Frequency ID	NUL	Frequency of Uplink (MHz)	Test Configuration Initial of Power				EUT	
			Modulation	RB Size	RB Offset	Narrowband Index	Cell Power (dBm/15 kHz)	Conducted Power (dBm)
Low Range	23205	779.5	QPSK	1	0	0	-85	22.52
			QPSK	1	5	0	-85	22.56
			QPSK	1	0	1	-85	22.49
			QPSK	1	5	1	-85	22.5
			QPSK	1	0	3	-85	22.48
			QPSK	1	5	3	-85	22.48
			QPSK	3	0	0	-85	21.56
			QPSK	3	3	3	-85	21.67
			QPSK	6	0	0	-85	21.52
			QPSK	6	0	1	-85	21.69
			QPSK	6	0	3	-85	21.5
			16QAM	1	0	0	-85	22.64
			16QAM	1	5	0	-85	22.67
			16QAM	1	0	1	-85	22.66
			16QAM	1	5	1	-85	22.73
			16QAM	1	0	3	-85	22.76
			16QAM	1	5	3	-85	22.68
			16QAM	3	0	0	-85	21.77
			16QAM	3	3	3	-85	21.69
			16QAM	5	0	0	-85	20.51
			16QAM	5	0	1	-85	20.55
			16QAM	5	0	3	-85	20.49

LTE Cat-M1 Band 13, BW (MHz): 5								
Test Frequency ID	NUL	Frequency of Uplink (MHz)	Test Configuration Initial of Power				EUT	
			Modulation	RB Size	RB Offset	Narrowband Index	Cell Power (dBm/15 kHz)	Conducted Power (dBm)
Mid. Range	23230	782	QPSK	1	0	0	-85	22.49
			QPSK	1	5	0	-85	22.59
			QPSK	1	0	1	-85	22.48
			QPSK	1	5	1	-85	22.5
			QPSK	1	0	3	-85	22.58
			QPSK	1	5	3	-85	22.51
			QPSK	3	0	0	-85	21.55
			QPSK	3	3	3	-85	21.64
			QPSK	6	0	0	-85	21.5
			QPSK	6	0	1	-85	21.57
			QPSK	6	0	3	-85	21.46
			16QAM	1	0	0	-85	22.67
			16QAM	1	5	0	-85	22.78
			16QAM	1	0	1	-85	22.72
			16QAM	1	5	1	-85	22.81
			16QAM	1	0	3	-85	22.77
			16QAM	1	5	3	-85	22.67
			16QAM	3	0	0	-85	21.77
			16QAM	3	3	3	-85	21.72
			16QAM	5	0	0	-85	20.59
			16QAM	5	0	1	-85	20.66
			16QAM	5	0	3	-85	20.57

LTE Cat-M1 Band 13, BW (MHz): 5								
Test Frequency ID	NUL	Frequency of Uplink (MHz)	Test Configuration Initial of Power				EUT	
			Modulation	RB Size	RB Offset	Narrowband Index	Cell Power (dBm/15 kHz)	Conducted Power (dBm)
High Range	23255	784.5	QPSK	1	0	0	-85	22.51
			QPSK	1	5	0	-85	22.42
			QPSK	1	0	1	-85	22.5
			QPSK	1	5	1	-85	22.4
			QPSK	1	0	3	-85	22.36
			QPSK	1	5	3	-85	22.56
			QPSK	3	0	0	-85	21.53
			QPSK	3	3	3	-85	21.7
			QPSK	6	0	0	-85	21.49
			QPSK	6	0	1	-85	21.57
			QPSK	6	0	3	-85	21.56
			16QAM	1	0	0	-85	22.74
			16QAM	1	5	0	-85	22.76
			16QAM	1	0	1	-85	22.76
			16QAM	1	5	1	-85	22.77
			16QAM	1	0	3	-85	22.74
			16QAM	1	5	3	-85	22.81
			16QAM	3	0	0	-85	21.79
			16QAM	3	3	3	-85	21.7
			16QAM	5	0	0	-85	20.61
			16QAM	5	0	1	-85	20.48
			16QAM	5	0	3	-85	20.57

3.2 Radiated Emissions

3.2.1 Limit of Radiated Emissions

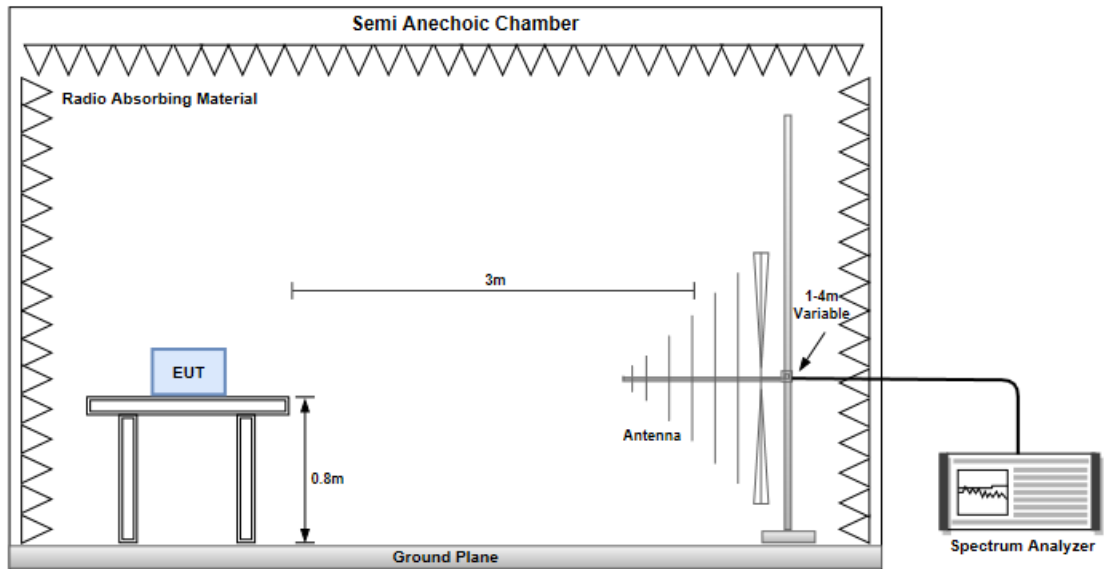
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB equal to -13dBm.

3.2.2 Test Procedures

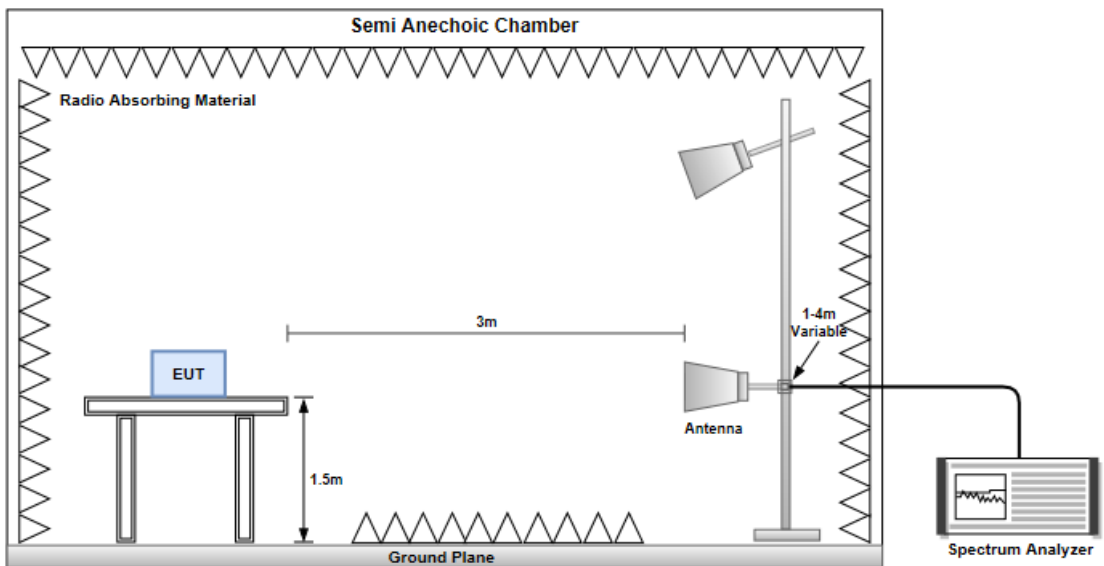
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. For emissions testing at or below 1 GHz, the table height is 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height is 1.5 m.
2. Measurement is made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna is varied in height (1m ~ 4m) above the reference ground plane to obtain the maximum signal strength. Distance between EUT and antenna is 3 m.
3. This investigation is performed with the EUT rotated 360°, the antenna height scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations.
4. After finding the max radiated emission, substitution method will be used for getting effective radiated power. EUT will be removed and substitution antenna will be placed at same position. Signal generator will output CW signal to substitution antenna through a RF cable. Rotate turntable and move antenna to find maximum radiated emission. Adjust output power of signal generator to let the maximum radiated emission is same as step 3. Record the output power level.
5. $E.I.R.P = \text{output power of step 4} + \text{gain of substitution antenna} - \text{cable loss of RF cable}$. ERP can be calculated by below formula:
 $E.R.P = E.I.R.P - 2.15\text{dB}$.

3.2.3 Test Setup

Radiated Emissions below 1 GHz



Radiated Emissions above 1 GHz



3.2.4 Test Result of Radiated Emissions below 1GHz

LTE Band 12

Mode	LTE Band 12, QPSK, CB:1.4 MHz, 1 RB Offset 0, Channel: 23017						
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)
141.894	H	-54.62	-13	-41.62	-51.86	-45.76	-6.71
168	H	-63.66	-13	-50.66	-60.84	-55.84	-5.67
262.84	H	-62.13	-13	-49.13	-57.24	-58.72	-1.26
286.27	H	-66.92	-13	-53.92	-62.84	-63.5	-1.27
311.58	H	-65.74	-13	-52.74	-62.83	-62.36	-1.23
457.89	H	-68.47	-13	-55.47	-68.84	-65.01	-1.31
51.27	V	-62.64	-13	-49.64	-58.64	-44.57	-15.92
90.55	V	-68.86	-13	-55.86	-66.9	-61.8	-4.91
142.96	V	-63.04	-13	-50.04	-63.08	-54.23	-6.66
159.25	V	-60.19	-13	-47.19	-60.86	-51.75	-6.29
236.9	V	-64.1	-13	-51.1	-63.54	-60.25	-1.7
264.55	V	-62.96	-13	-49.96	-62.55	-59.55	-1.26

Mode	LTE Band 12, QPSK, CB:3 MHz, 1 RB Offset 0, Channel: 23165						
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)
141.84	H	-52.19	-13	-39.19	-49.43	-43.33	-6.71
167.21	H	-63.69	-13	-50.69	-60.88	-55.81	-5.73
264.64	H	-61.68	-13	-48.68	-56.86	-58.27	-1.26
287.1	H	-64.89	-13	-51.89	-60.84	-61.47	-1.27
312.9	H	-66.76	-13	-53.76	-63.94	-63.39	-1.22
457.14	H	-68.58	-13	-55.58	-68.94	-65.12	-1.31
51.28	V	-62.96	-13	-49.96	-58.97	-44.99	-15.82
89.57	V	-68.92	-13	-55.92	-66.85	-61.76	-5.01
142.55	V	-65.23	-13	-52.23	-65.25	-56.41	-6.67
160.28	V	-60.12	-13	-47.12	-60.82	-51.72	-6.25
236.28	V	-65.84	-13	-52.84	-65.27	-61.97	-1.72
264.21	V	-64.37	-13	-51.37	-63.96	-60.96	-1.26

NOTE: ERP = S.G power value + correction factor - 2.15.

Mode	LTE Band 12, QPSK, CB:5 MHz, 1 RB Offset 0, Channel: 23035						
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)
141.89	H	-55.45	-13	-42.45	-52.69	-46.59	-6.71
167.85	H	-65.39	-13	-52.39	-62.58	-57.56	-5.68
264.27	H	-63.05	-13	-50.05	-58.21	-59.64	-1.26
288.61	H	-66.14	-13	-53.14	-62.15	-62.72	-1.27
311.5	H	-65.75	-13	-52.75	-62.84	-62.37	-1.23
457.52	H	-68.51	-13	-55.51	-68.88	-65.05	-1.31
50.85	V	-62.86	-13	-49.86	-58.78	-44.79	-15.92
90.25	V	-69.83	-13	-56.83	-67.85	-62.77	-4.91
144.24	V	-65.15	-13	-52.15	-65.24	-56.34	-6.66
159.25	V	-61.91	-13	-48.91	-62.58	-53.47	-6.29
236.85	V	-65.8	-13	-52.8	-65.24	-61.95	-1.7
264.21	V	-64.68	-13	-51.68	-64.27	-61.27	-1.26

Mode	LTE Band 12, QPSK, CB:10 MHz, 1 RB Offset 0, Channel: 23130						
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)
142.52	H	-55.22	-13	-42.22	-52.46	-46.37	-6.7
167.74	H	-64.66	-13	-51.66	-61.85	-56.82	-5.69
263.77	H	-62.79	-13	-49.79	-57.94	-59.38	-1.26
287.05	H	-65.62	-13	-52.62	-61.57	-62.2	-1.27
311.3	H	-66.87	-13	-53.87	-63.95	-63.49	-1.23
457.77	H	-69.01	-13	-56.01	-69.38	-65.55	-1.31
51.34	V	-63.07	-13	-50.07	-59.09	-45.11	-15.81
90.14	V	-69.2	-13	-56.2	-67.21	-62.14	-4.91
143.49	V	-64.33	-13	-51.33	-64.39	-55.51	-6.67
159.01	V	-60.83	-13	-47.83	-61.49	-52.39	-6.29
236.61	V	-64.92	-13	-51.92	-64.35	-61.07	-1.7
263.77	V	-64.67	-13	-51.67	-64.27	-61.26	-1.26

NOTE: ERP = S.G power value + correction factor - 2.15.

LTE Band 13

Mode	LTE Band 13, QPSK,CB: 5MHz, 1RB, Offset 0, Channel : 23230						
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)
142.85	H	-63.61	-13	-50.61	-60.85	-54.77	-6.69
166.64	H	-64.65	-13	-51.65	-61.84	-56.73	-5.77
214.84	H	-68.97	-13	-55.97	-62.89	-64.39	-2.43
262.94	H	-61.73	-13	-48.73	-56.85	-58.32	-1.26
286.94	H	-63.57	-13	-50.57	-59.52	-60.15	-1.27
310.89	H	-65.78	-13	-52.78	-62.83	-62.4	-1.23
50.88	V	-62.03	-13	-49.03	-57.95	-43.97	-15.91
142.4	V	-62.88	-13	-49.88	-62.89	-54.03	-6.7
160.8	V	-65.95	-13	-52.95	-66.65	-57.59	-6.21
167.54	V	-65.09	-13	-52.09	-65.81	-57.24	-5.7
264.24	V	-65.26	-13	-52.26	-64.85	-61.85	-1.26
311.5	V	-66.49	-13	-53.49	-65.79	-63.11	-1.23

Mode	LTE Band 13, QPSK, CB: 10MHz, 1RB, Offset 0, Channel : 23230						
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)
143.49	H	-63.81	-13	-50.81	-61.05	-54.99	-6.67
167.74	H	-64.95	-13	-51.95	-62.14	-57.11	-5.69
215.27	H	-69.32	-13	-56.32	-63.25	-64.76	-2.41
263.77	H	-62.85	-13	-49.85	-58	-59.44	-1.26
287.05	H	-63.4	-13	-50.4	-59.35	-59.98	-1.27
311.3	H	-66.66	-13	-53.66	-63.74	-63.28	-1.23
51.34	V	-62.87	-13	-49.87	-58.89	-44.91	-15.81
143.49	V	-63.31	-13	-50.31	-63.37	-54.49	-6.67
159.01	V	-64.72	-13	-51.72	-65.38	-56.28	-6.29
167.74	V	-65.34	-13	-52.34	-66.06	-57.5	-5.69
263.77	V	-65.9	-13	-52.9	-65.5	-62.49	-1.26
311.3	V	-65.93	-13	-52.93	-65.23	-62.55	-1.23

NOTE: ERP = S.G power value + correction factor - 2.15

3.2.5 Test Result of Radiated Emissions above 1GHz

LTE Band 12

Mode	LTE Band 12, QPSK, CB:1.4 MHz, 1 RB Offset 0, Channel: 23017						
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)
1398.5	H	-55.72	-13	-42.72	-59.41	-57.49	3.92
2097.75	H	-42.46	-13	-29.46	-49.16	-45.86	5.55
2797	H	-57.09	-13	-44.09	-65.29	-61.27	6.33
1398.5	V	-58.43	-13	-45.43	-56.28	-60.2	3.92
2097.75	V	-52.36	-13	-39.36	-50.21	-55.76	5.55
2797	V	-57.04	-13	-44.04	-54.89	-61.22	6.33

Mode	LTE Band 12, QPSK, CB:1.4 MHz, 1 RB Offset 0, Channel: 23095						
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)
1414.1	H	-56.01	-13	-43.01	-59.58	-57.9	4.04
2121.15	H	-42.11	-13	-29.11	-49.25	-45.34	5.38
2828.2	H	-57.01	-13	-44.01	-65.32	-61.21	6.35
1414.1	V	-58.17	-13	-45.17	-61.54	-60.06	4.04
2121.15	V	-51.78	-13	-38.78	-58.87	-55.01	5.38
2828.2	V	-56.99	-13	-43.99	-65.09	-61.19	6.35

Mode	LTE Band 12, QPSK, CB:1.4 MHz, 1 RB Offset 0, Channel: 23173						
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)
1429.7	H	-56.12	-13	-43.12	-59.56	-58.14	4.17
2144.55	H	-42.93	-13	-29.93	-50.51	-46	5.22
2859.4	H	-56.79	-13	-43.79	-65.21	-61.03	6.39
1429.7	V	-58.3	-13	-45.3	-61.56	-60.32	4.17
2144.55	V	-51.99	-13	-38.99	-59.5	-55.06	5.22
2859.4	V	-56.65	-13	-43.65	-64.81	-60.89	6.39

NOTE: ERP = S.G power value + correction factor - 2.15.

Mode	LTE Band 12, QPSK, CB:3 MHz, 1 RB Offset 0, Channel: 23025						
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)
1400.84	H	-55.86	-13	-42.86	-59.56	-57.64	3.93
2101.26	H	-43.07	-13	-30.07	-49.85	-46.45	5.53
2801.68	H	-57	-13	-44	-65.22	-61.17	6.32
1400.84	V	-58.37	-13	-45.37	-61.84	-60.15	3.93
2101.26	V	-52.5	-13	-39.5	-59.25	-55.88	5.53
2801.68	V	-57.12	-13	-44.12	-65.17	-61.29	6.32

Mode	LTE Band 12, QPSK, CB:3 MHz, 1 RB Offset 0, Channel: 23095						
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)
1415.2	H	-56.39	-13	-43.39	-59.96	-58.29	4.05
2122.8	H	-43.41	-13	-30.41	-50.58	-46.63	5.37
2830.4	H	-56.8	-13	-43.8	-65.12	-61	6.35
1415.2	V	-58.38	-13	-45.38	-61.75	-60.28	4.05
2122.8	V	-52.16	-13	-39.16	-59.28	-55.38	5.37
2830.4	V	-56.74	-13	-43.74	-64.85	-60.94	6.35

Mode	LTE Band 12, QPSK, CB:3 MHz, 1 RB Offset 0, Channel: 23165						
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)
1429.2	H	-56.8	-13	-43.8	-60.24	-58.81	4.16
2143.8	H	-43.73	-13	-30.73	-51.29	-46.8	5.22
2858.4	H	-56.77	-13	-43.77	-65.19	-61.01	6.39
1429.2	V	-58.19	-13	-45.19	-61.46	-60.2	4.16
2143.8	V	-52.02	-13	-39.02	-59.51	-55.09	5.22
2858.4	V	-56.58	-13	-43.58	-64.74	-60.82	6.39

NOTE: ERP = S.G power value + correction factor - 2.15.

Mode	LTE Band 12, 16QAM, CB:5 MHz, 1 RB Offset 0, Channel: 23035						
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)
1401.04	H	-55.88	-13	-42.88	-59.58	-57.66	3.93
2101.56	H	-43.38	-13	-30.38	-50.16	-46.75	5.52
2802.08	H	-56.61	-13	-43.61	-64.83	-60.78	6.32
1401.04	V	-59.08	-13	-46.08	-62.55	-60.86	3.93
2101.56	V	-52.72	-13	-39.72	-59.47	-56.09	5.52
2802.08	V	-56.82	-13	-43.82	-64.87	-60.99	6.32

Mode	LTE Band 12, QPSK, CB:5 MHz, 1 RB Offset 0, Channel: 23095						
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)
1413.04	H	-56.31	-13	-43.31	-59.9	-58.19	4.03
2119.56	H	-42.6	-13	-29.6	-49.72	-45.85	5.4
2826.08	H	-56.42	-13	-43.42	-64.72	-60.62	6.35
1413.04	V	-57.63	-13	-44.63	-61.01	-59.51	4.03
2119.56	V	-52.05	-13	-39.05	-59.12	-55.3	5.4
2826.08	V	-57.09	-13	-44.09	-65.19	-61.29	6.35

Mode	LTE Band 12, 16QAM, CB:5 MHz, 1 RB Offset 0, Channel: 23155						
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)
1422.86	H	-56.16	-13	-43.16	-59.66	-58.12	4.11
2134.29	H	-43.67	-13	-30.67	-51.06	-46.81	5.29
2845.72	H	-56.49	-13	-43.49	-64.86	-60.71	6.37
1422.86	V	-57.87	-13	-44.87	-61.18	-59.83	4.11
2134.29	V	-51.45	-13	-38.45	-58.78	-54.59	5.29
2845.72	V	-56.42	-13	-43.42	-64.55	-60.64	6.37

NOTE: ERP = S.G power value + correction factor - 2.15.

Mode	LTE Band 12, QPSK, CB:10 MHz, 1 RB Offset 0, Channel: 23060						
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)
1415.56	H	-56.12	-13	-43.12	-59.68	-58.02	4.05
2123.34	H	-44.27	-13	-31.27	-51.45	-47.49	5.37
2831.12	H	-56.69	-13	-43.69	-65.02	-60.9	6.36
1415.56	V	-58.69	-13	-45.69	-62.05	-60.59	4.05
2123.34	V	-53.03	-13	-40.03	-60.16	-56.25	5.37
2831.12	V	-56.16	-13	-43.16	-64.27	-60.37	6.36

Mode	LTE Band 12, QPSK, CB:10 MHz, 1 RB Offset 0, Channel: 23095						
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)
1406.54	H	-56.39	-13	-43.39	-60.03	-58.21	3.97
2109.81	H	-42.76	-13	-29.76	-49.69	-46.07	5.46
2813.08	H	-56.33	-13	-43.33	-64.59	-60.52	6.34
1406.54	V	-57.9	-13	-44.9	-61.33	-59.72	3.97
2109.81	V	-52.44	-13	-39.44	-59.33	-55.75	5.46
2813.08	V	-57.31	-13	-44.31	-65.39	-61.5	6.34

Mode	LTE Band 12, QPSK, CB:10 MHz, 1 RB Offset 0, Channel: 23130						
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)
1413.54	H	-56.42	-13	-43.42	-60	-58.3	4.03
2120.31	H	-44.26	-13	-31.26	-51.39	-47.5	5.39
2827.08	H	-55.48	-13	-42.48	-63.78	-59.68	6.35
1413.54	V	-63.49	-13	-50.49	-55.82	-65.37	4.03
2120.31	V	-61.14	-13	-48.14	-49.76	-64.38	5.39
2827.08	V	-66.97	-13	-53.97	-54.57	-71.17	6.35

NOTE: ERP = S.G power value + correction factor - 2.15.

LTE Band 13

Mode	LTE Band 13, QPSK, CB: 5MHz, 1RB, Offset 0, Channel : 23205						
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)
2335.56	H	-55.72	-13	-42.72	-63.38	-59.2	5.63
3114.08	H	-54.77	-13	-41.77	-64.11	-59.14	6.52
3892.6	H	-49.15	-13	-36.15	-60.94	-53.95	6.95
2335.56	V	-56.22	-13	-43.22	-63.91	-59.7	5.63
3114.08	V	-55.17	-13	-42.17	-64.34	-59.54	6.52
3892.6	V	-51.26	-13	-38.26	-63	-56.06	6.95

Mode	LTE Band 13, QPSK,CB: 5MHz, 1RB, Offset 0, Channel : 23230						
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)
2352.36	H	-50.2	-13	-37.2	-57.74	-53.78	5.73
3136.48	H	-53.78	-13	-40.78	-63.19	-58.15	6.52
3920.6	H	-49.04	-13	-36.04	-60.2	-53.83	6.94
2352.36	V	-55.49	-13	-42.49	-63.08	-59.07	5.73
3136.48	V	-54.63	-13	-41.63	-63.95	-59	6.52
3920.6	V	-50.94	-13	-37.94	-62.71	-55.73	6.94

Mode	LTE Band 13, QPSK,CB: 5MHz, 1RB, Offset 0, Channel : 23255						
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)
2357.13	H	-54.49	-13	-41.49	-62.1	-58.1	5.76
3142.84	H	-54.18	-13	-41.18	-63.62	-58.54	6.51
3928.55	H	-48.97	-13	-35.97	-60.74	-53.76	6.94
2357.13	V	-56.49	-13	-43.49	-64.07	-60.1	5.76
3142.84	V	-54.64	-13	-41.64	-64	-59	6.51
3928.55	V	-51.3	-13	-38.3	-63.08	-56.09	6.94

NOTE: ERP = S.G power value + correction factor - 2.15

Mode	LTE Band 13, QPSK,CB: 10MHz, 1RB, Offset 0, Channel : 23230						
Frequency (MHz)	Antenna Polarity	E.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)
2356.23	H	-49.62	-13	-36.62	-57.14	-53.23	5.76
3141.64	H	-53.84	-13	-40.84	-63.27	-58.2	6.51
3927.05	H	-49.26	-13	-36.26	-61.03	-54.05	6.94
2356.23	V	-55.22	-13	-42.22	-62.79	-58.83	5.76
3141.64	V	-53.89	-13	-40.89	-63.25	-58.25	6.51
3927.05	V	-50.8	-13	-37.8	-62.58	-55.59	6.94

NOTE: ERP = S.G power value + correction factor - 2.15

3.2.6 Test Result of Radiated Emissions in the 1559-1610MHz band

Mode		LTE Band 13, QPSK , CB: 5MHz, 1RB, Offset 24, Channel : 23205					
Frequency (MHz)	Antenna Polarity	E.I.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)
1563.335	H	-53.33	-40	-13.33	-59.53	-58.6	5.27
1563.335	V	-55.17	-40	-15.17	-61.47	-60.44	5.27

Mode		LTE Band 13, QPSK ,CB: 5MHz, 1RB, Offset 0, Channel : 23230					
Frequency (MHz)	Antenna Polarity	E.I.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)
1568.384	H	-53.24	-40	-13.24	-59.42	-58.55	5.31
1568.384	V	-54.99	-40	-14.99	-61.28	-60.3	5.31

Mode		LTE Band 13, QPSK ,CB: 5MHz, 1RB, Offset 0, Channel : 23255					
Frequency (MHz)	Antenna Polarity	E.I.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)
1571.597	H	-53.22	-40	-13.22	-59.38	-58.56	5.34
1571.597	V	-55.29	-40	-15.29	-61.58	-60.63	5.34

Mode		LTE Band 13, QPSK , CB: 10MHz, 1RB, Offset 49, Channel : 23230					
Frequency (MHz)	Antenna Polarity	E.I.R.P (dBm)	Limit (dBm)	Margin (dB)	S.A Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)
1570.69	H	-53.51	-40	-13.51	-59.68	-58.84	5.33
1570.69	V	-55.32	-40	-15.32	-61.61	-60.65	5.33

NOTE: EIRP = S.G power value + correction factor

3.3 Conducted Emissions

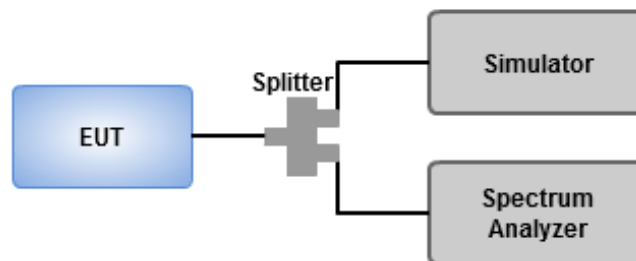
3.3.1 Limit of Conducted Emissions

On any frequency outside the the licensed band, the power of any emission shall be attenuatedoutside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB equal to -13dBm.

3.3.2 Test Procedures

1. Lowest, middle and highest operating channels are tested for this item.
2. Scan frequency range is from 30 MHz ~ 10 GHz.
3. Set RBW = 100 kHz, VBW = 300 kHz, detector = Peak, sweep time = auto.
4. Record the max trace value and capture the test plot of each sub frequency band.

3.3.3 Test Setup



3.3.4 Test Result of Conducted Emissions

LTE Band 12

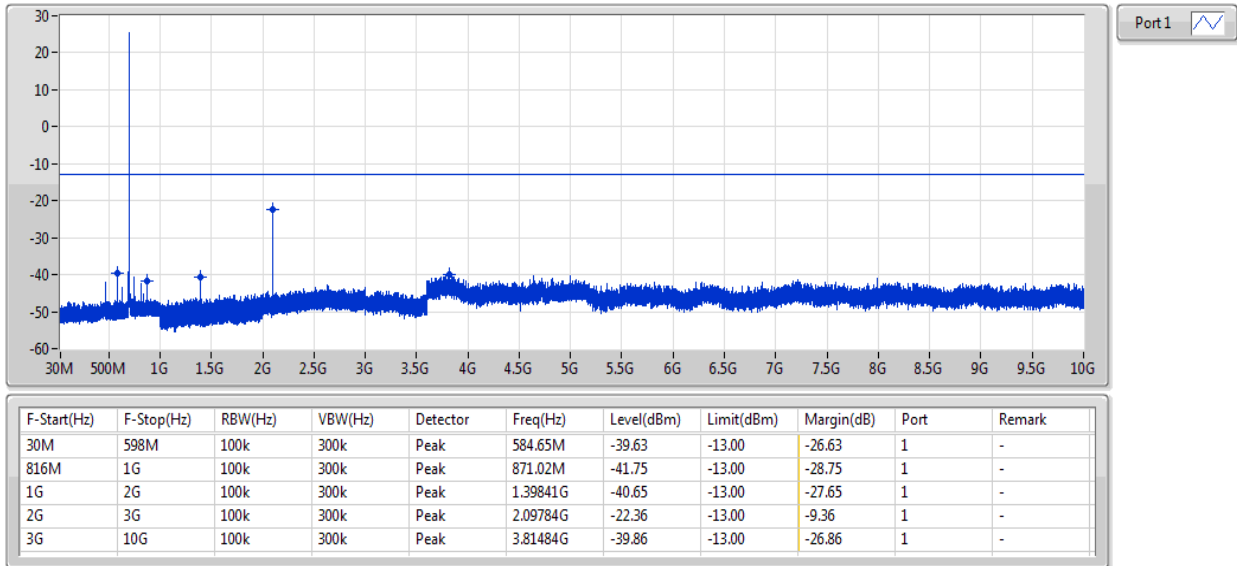
Summary

Mode	Result	F-Start (Hz)	F-Stop (Hz)	RBW (Hz)	VBW (Hz)	Detector	Freq (Hz)	Level (dBm)	Limit (dBm)	Margin (dB)	Port	Remark	Ref.Limit (dB)
Band 12	-	-	-	-	-	-	-	-	-	-	-	-	-
LTE-M1_1.4MHz_Nss1,QPSK_1TX	Pass	2G	3G	100k	300k	Peak	2.09784G	-22.36	-13.00	-9.36	1	-	-
LTE-M1_1.4MHz_Nss1,16QAM_1TX	Pass	2G	3G	100k	300k	Peak	2.09778G	-21.07	-13.00	-8.07	1	-	-
LTE-M1_3MHz_Nss1,QPSK_1TX	Pass	2G	3G	100k	300k	Peak	2.10094G	-20.59	-13.00	-7.59	1	-	-
LTE-M1_3MHz_Nss1,16QAM_1TX	Pass	2G	3G	100k	300k	Peak	2.10091G	-20.97	-13.00	-7.97	1	-	-
LTE-M1_5MHz_Nss1,QPSK_1TX	Pass	2G	3G	100k	300k	Peak	2.10388G	-21.34	-13.00	-8.34	1	-	-
LTE-M1_5MHz_Nss1,16QAM_1TX	Pass	2G	3G	100k	300k	Peak	2.10388G	-22.24	-13.00	-9.24	1	-	-
LTE-M1_10MHz_Nss1,QPSK_1TX	Pass	2G	3G	100k	300k	Peak	2.11166G	-22.16	-13.00	-9.16	1	-	-
LTE-M1_10MHz_Nss1,16QAM_1TX	Pass	2G	3G	100k	300k	Peak	2.11169G	-18.08	-13.00	-5.08	1	-	-

Band 12_LTE-M1_1.4MHz_Nss1,QPSK_1TX

CSE-TX-Port

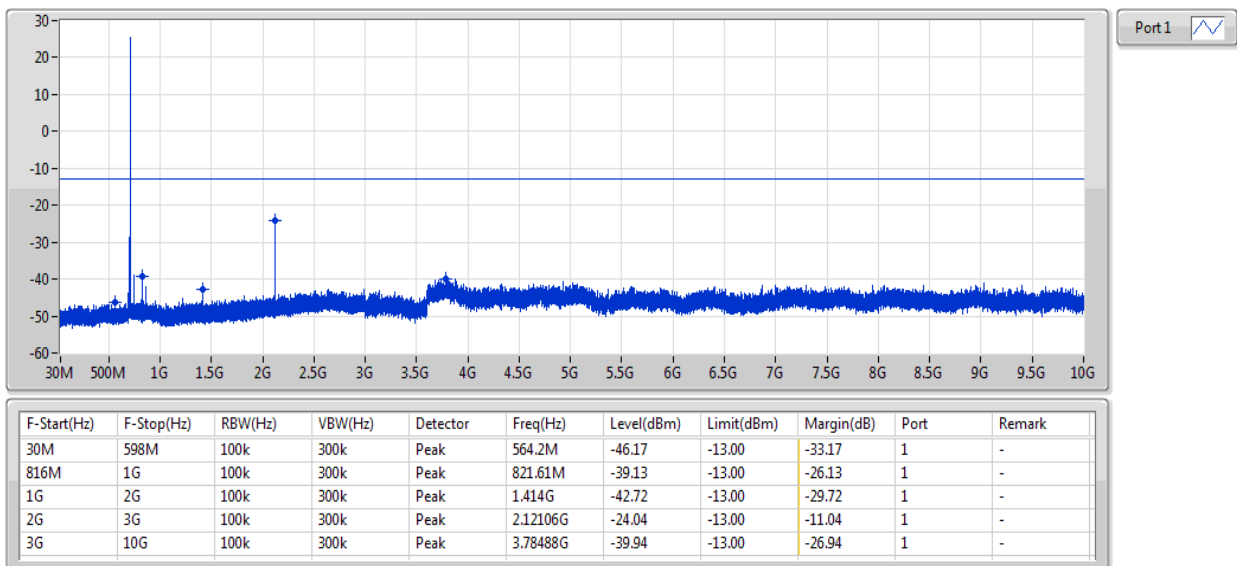
699.7MHz



Band 12_LTE-M1_1.4MHz_Nss1,QPSK_1TX

CSE-TX-Port

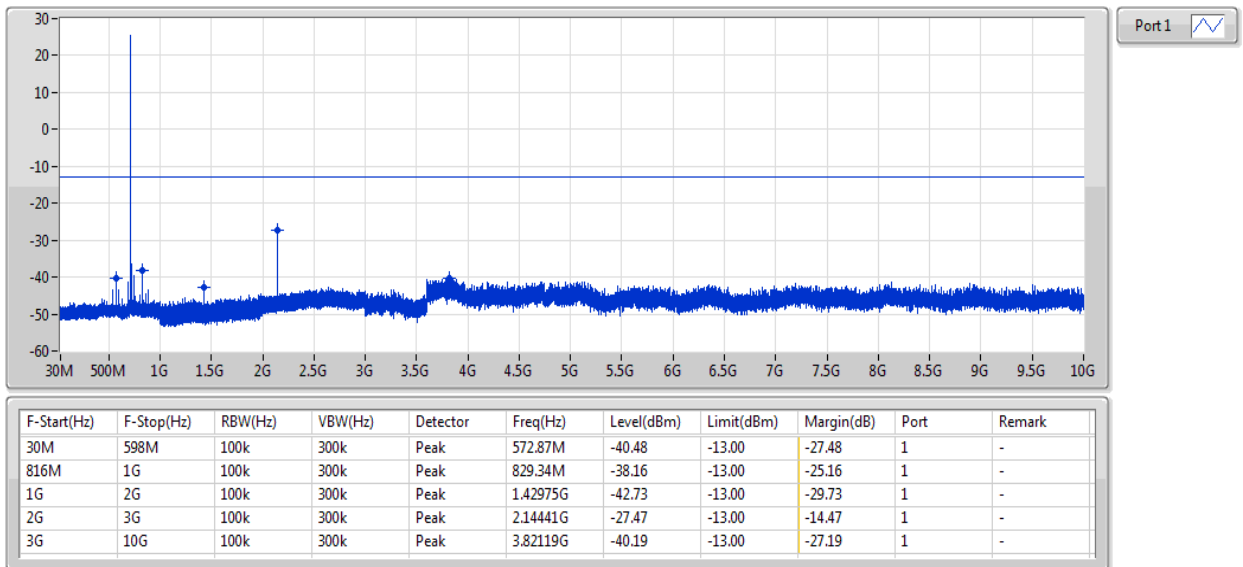
707.5MHz



Band 12_LTE-M1_1.4MHz_Nss1,QPSK_1TX

CSE-TX-Port

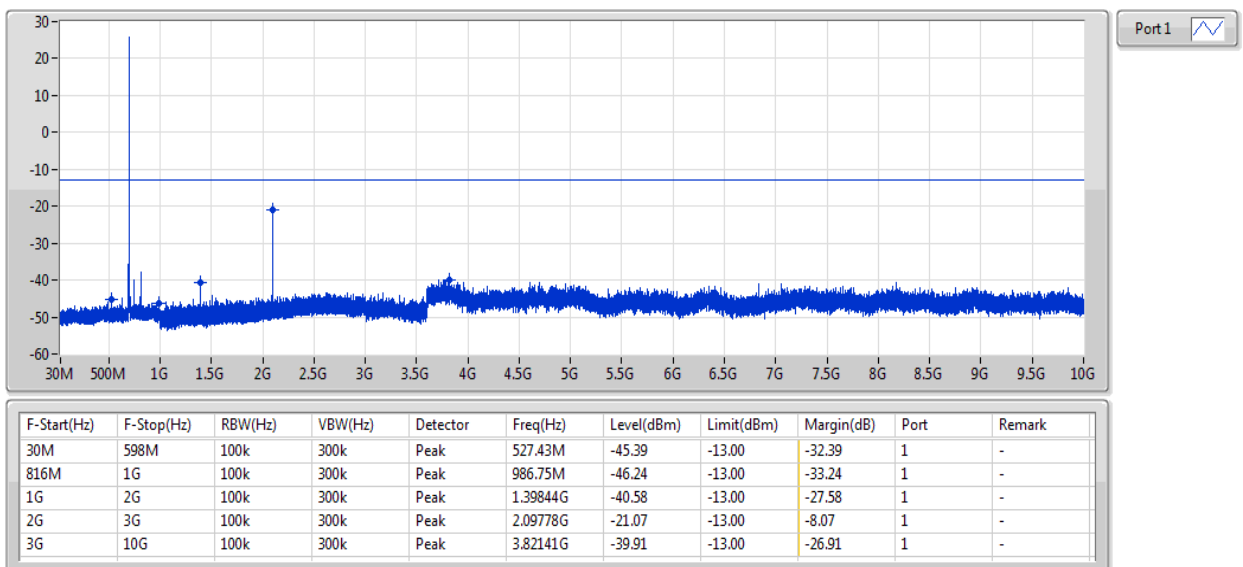
715.3MHz



Band 12_LTE-M1_1.4MHz_Nss1,16QAM_1TX

CSE-TX-Port

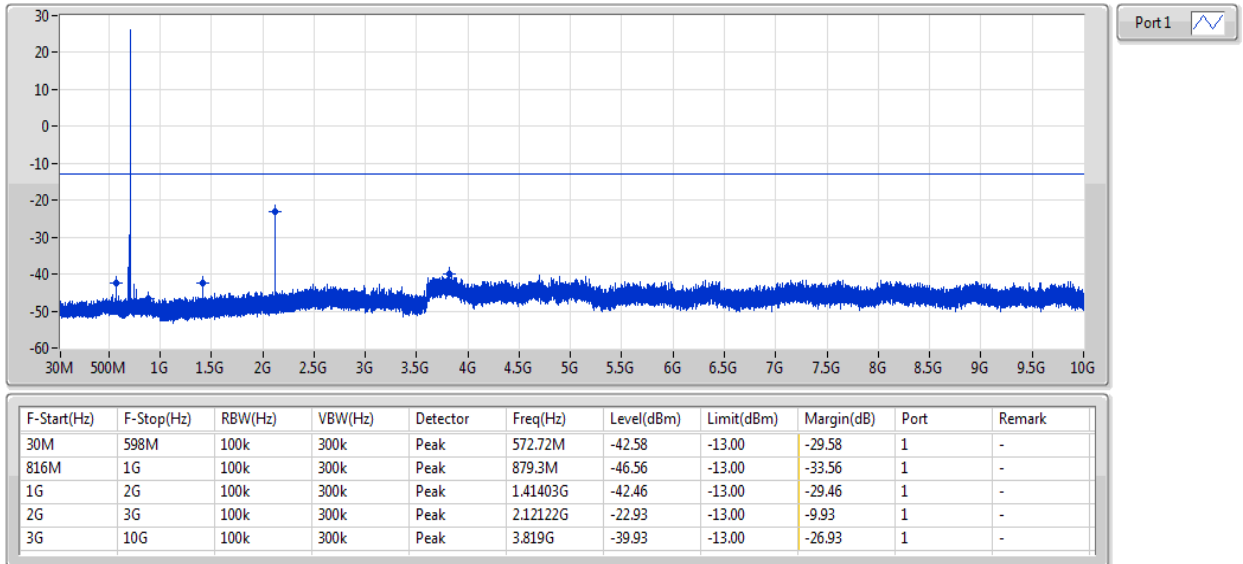
699.7MHz



Band 12_LTE-M1_1.4MHz_Nss1,16QAM_1TX

CSE-TX-Port

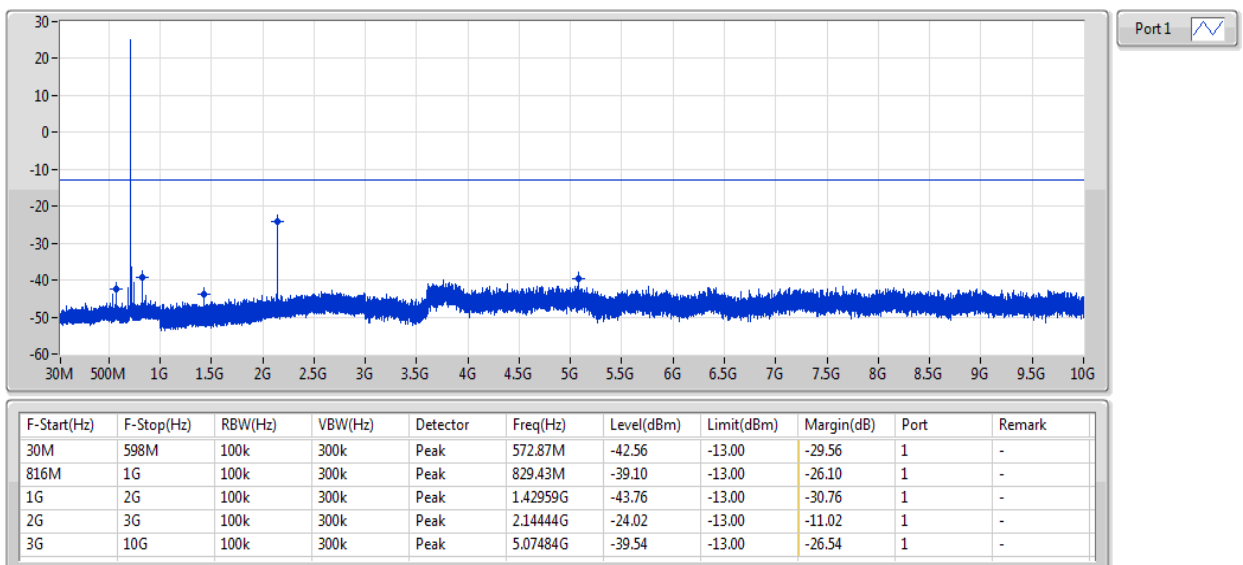
707.5MHz



Band 12_LTE-M1_1.4MHz_Nss1,16QAM_1TX

CSE-TX-Port

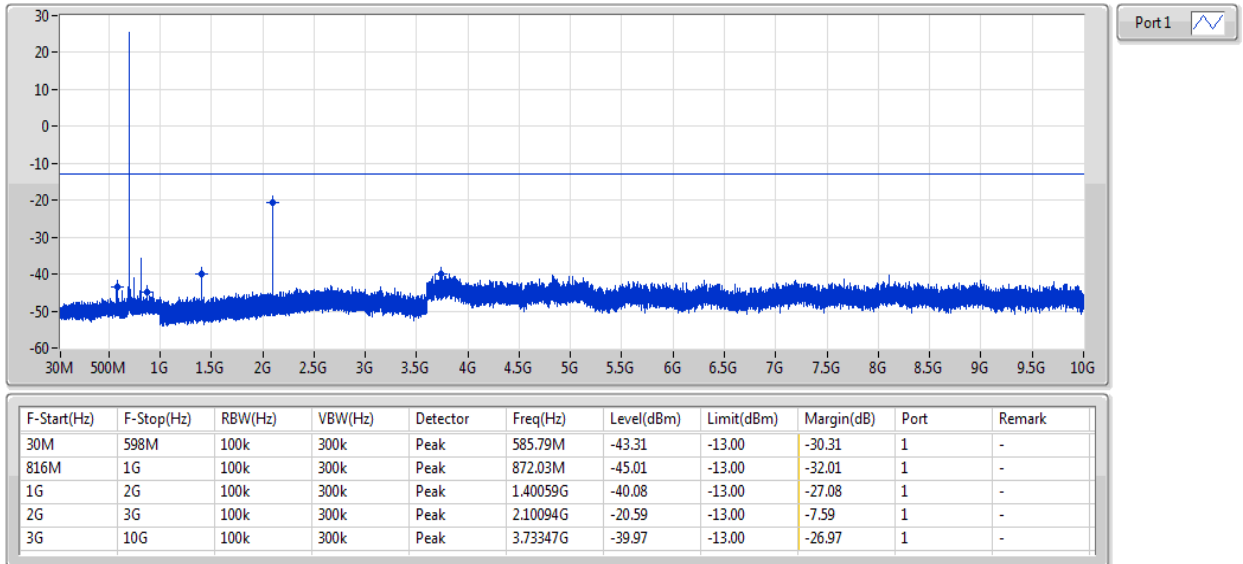
715.3MHz



Band 12_LTE-M1_3MHz_Nss1,QPSK_1TX

CSE-TX-Port

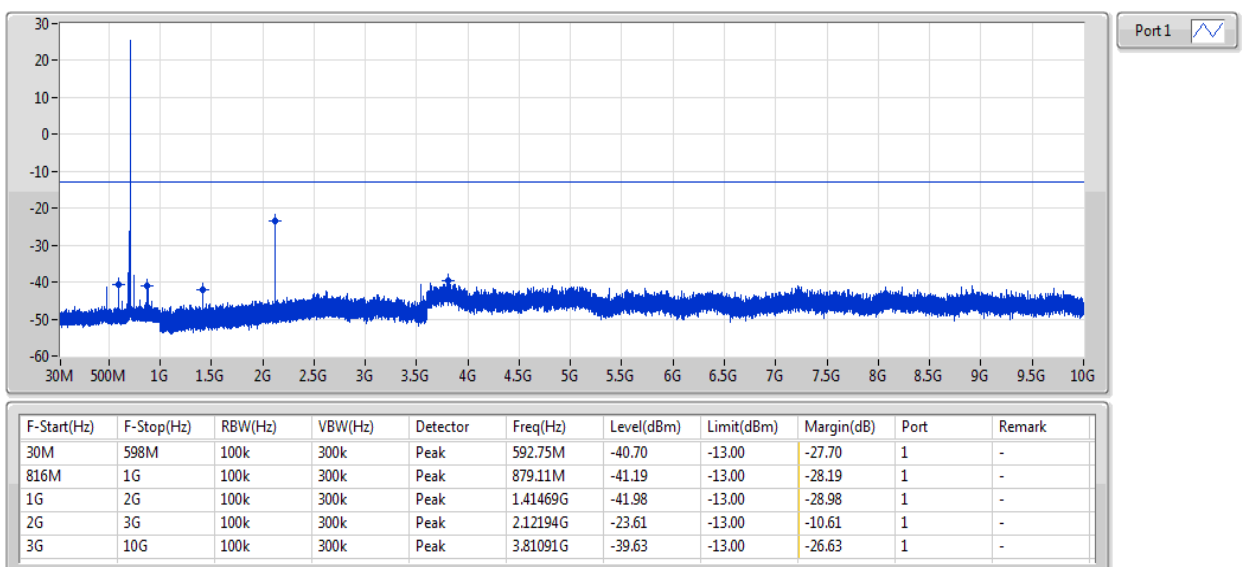
700.5MHz



Band 12_LTE-M1_3MHz_Nss1,QPSK_1TX

CSE-TX-Port

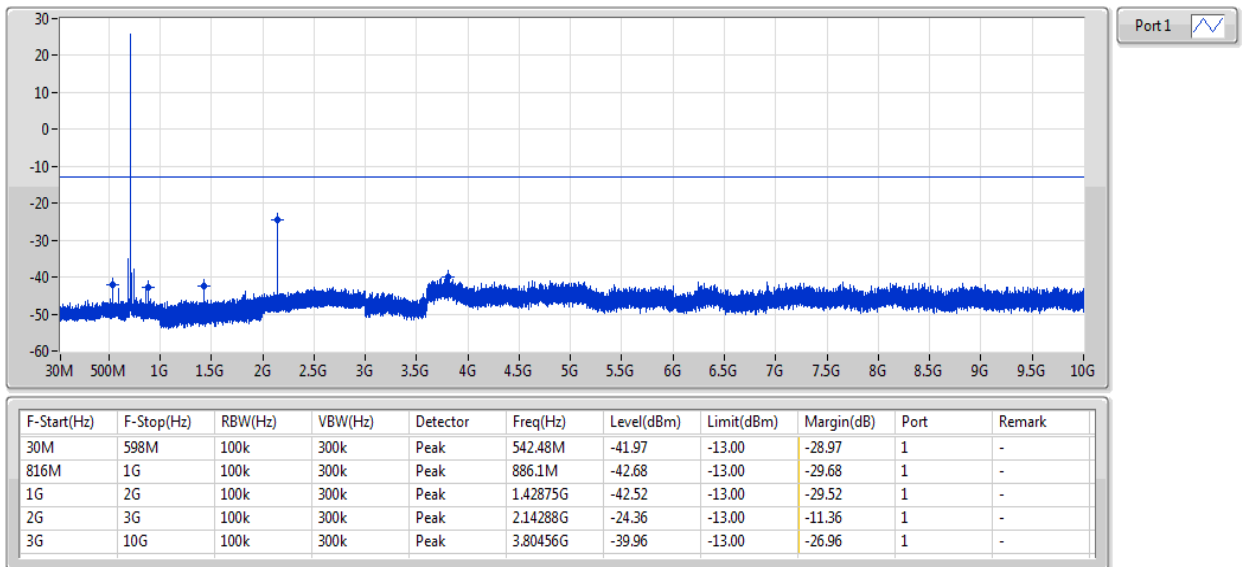
707.5MHz



Band 12_LTE-M1_3MHz_Nss1,QPSK_1TX

CSE-TX-Port

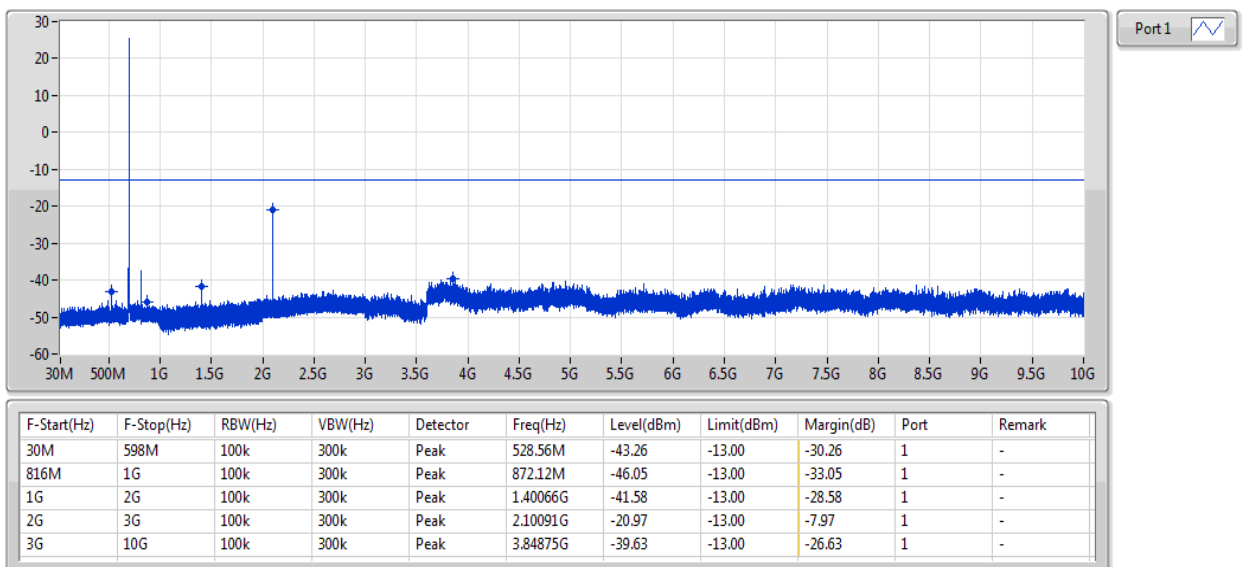
714.5MHz



Band 12_LTE-M1_3MHz_Nss1,16QAM_1TX

CSE-TX-Port

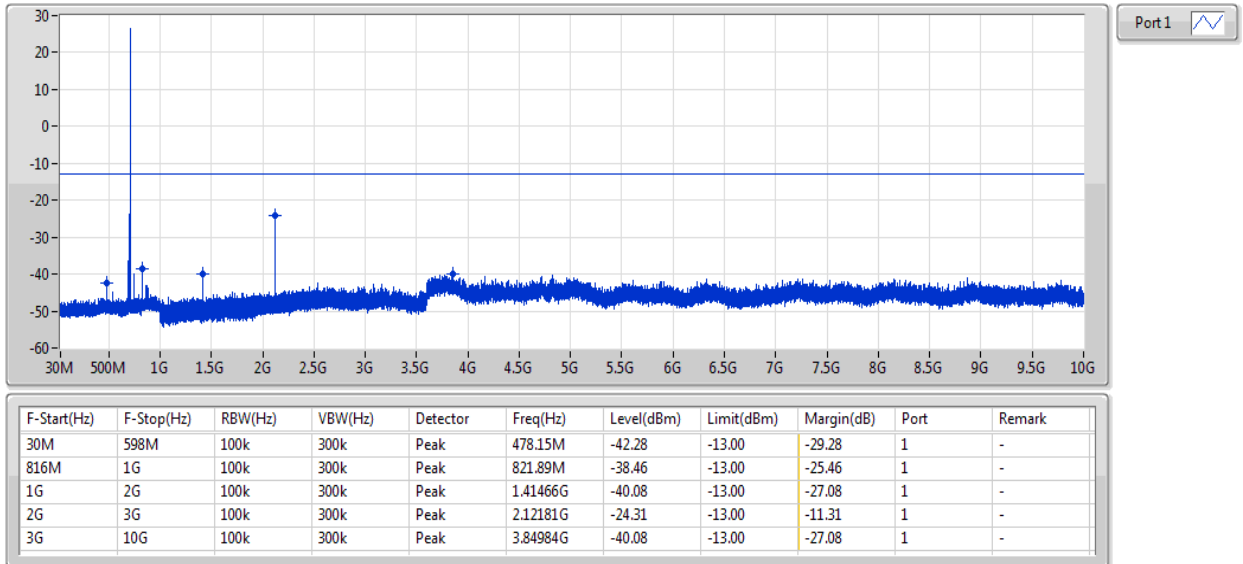
700.5MHz



Band 12_LTE-M1_3MHz_Nss1,16QAM_1TX

CSE-TX-Port

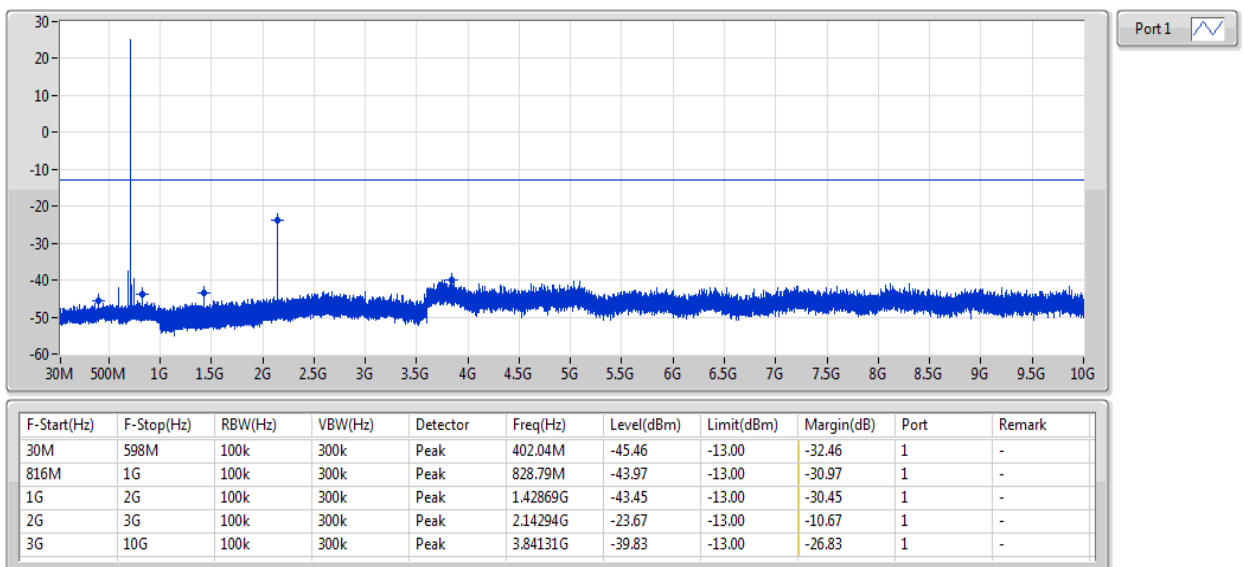
707.5MHz



Band 12_LTE-M1_3MHz_Nss1,16QAM_1TX

CSE-TX-Port

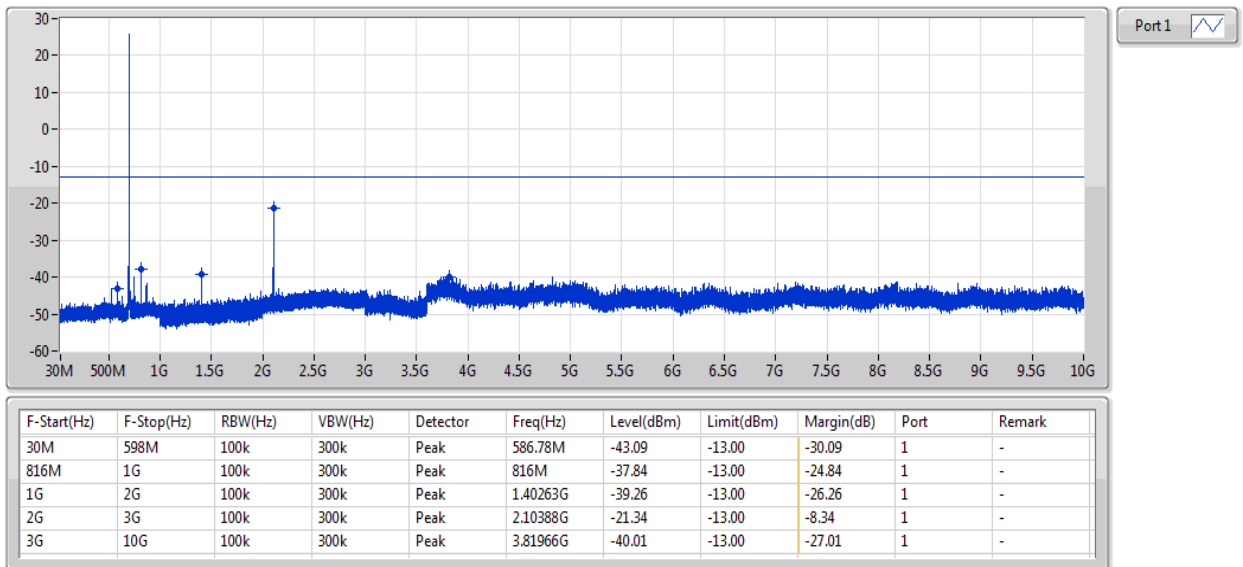
714.5MHz



Band 12_LTE-M1_5MHz_Nss1,QPSK_1TX

CSE-TX-Port

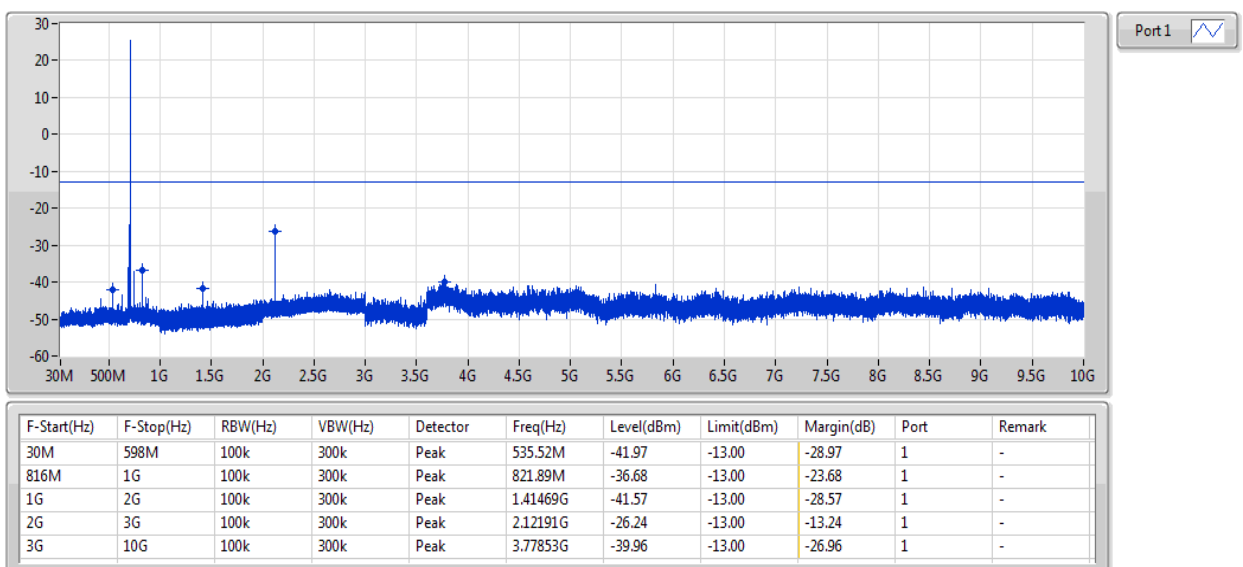
701.5MHz



Band 12_LTE-M1_5MHz_Nss1,QPSK_1TX

CSE-TX-Port

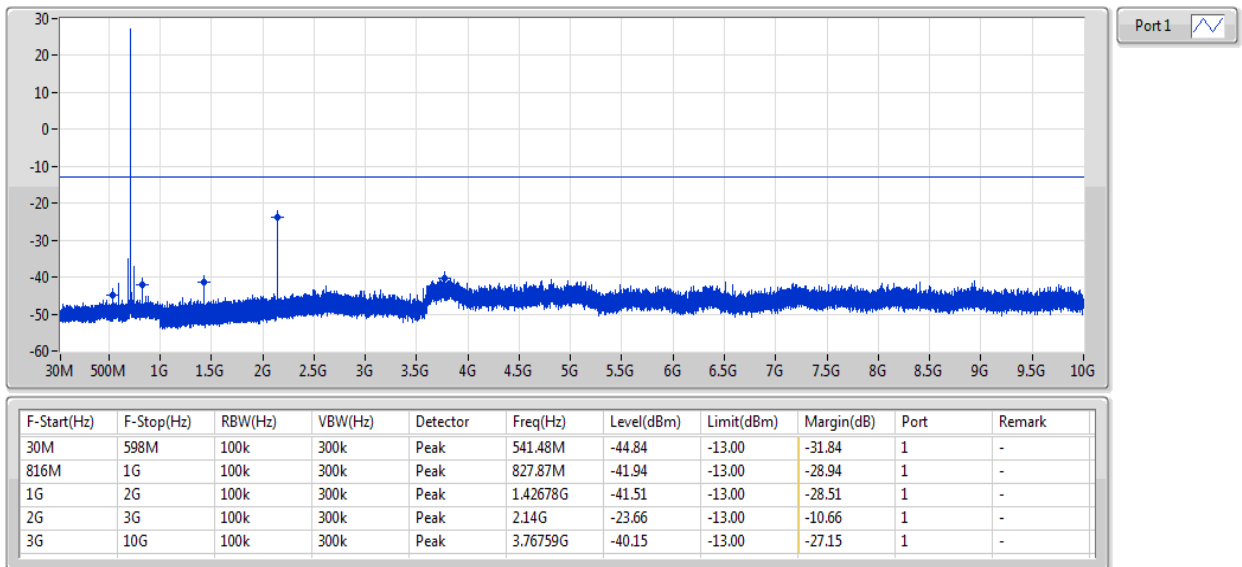
707.5MHz



Band 12_LTE-M1_5MHz_Nss1,QPSK_1TX

CSE-TX-Port

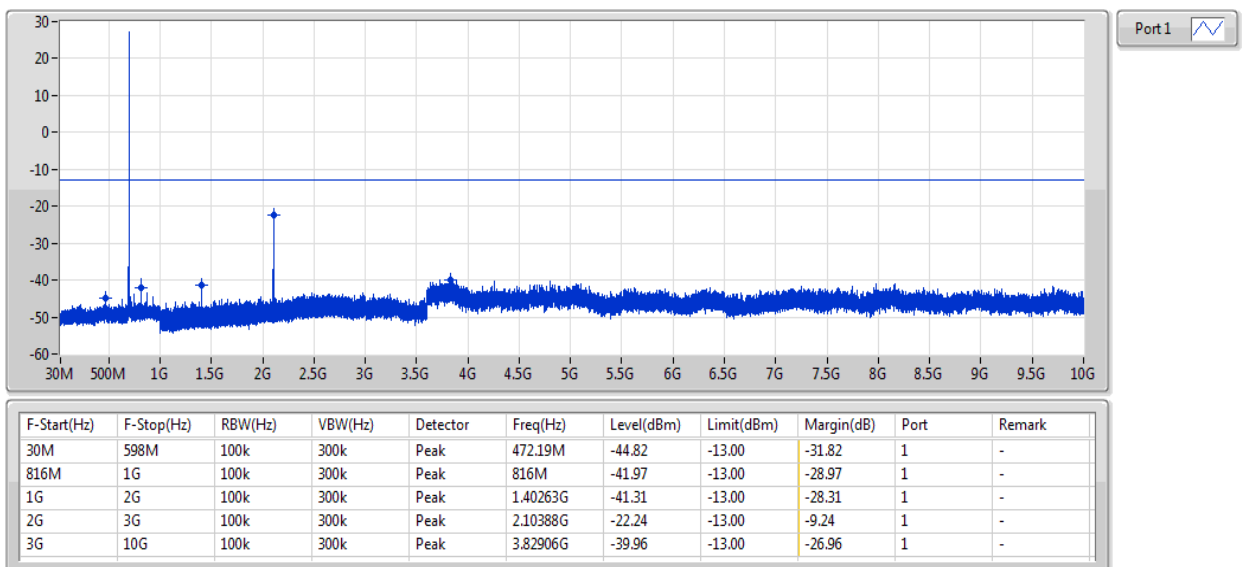
713.5MHz



Band 12_LTE-M1_5MHz_Nss1,16QAM_1TX

CSE-TX-Port

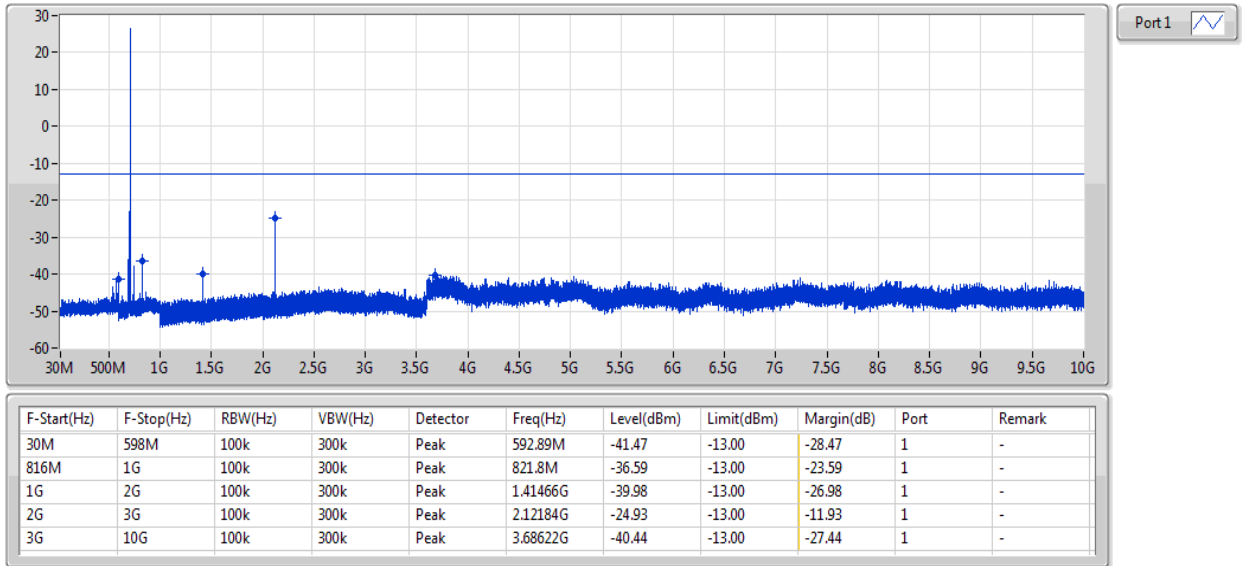
701.5MHz



Band 12_LTE-M1_5MHz_Nss1,16QAM_1TX

CSE-TX-Port

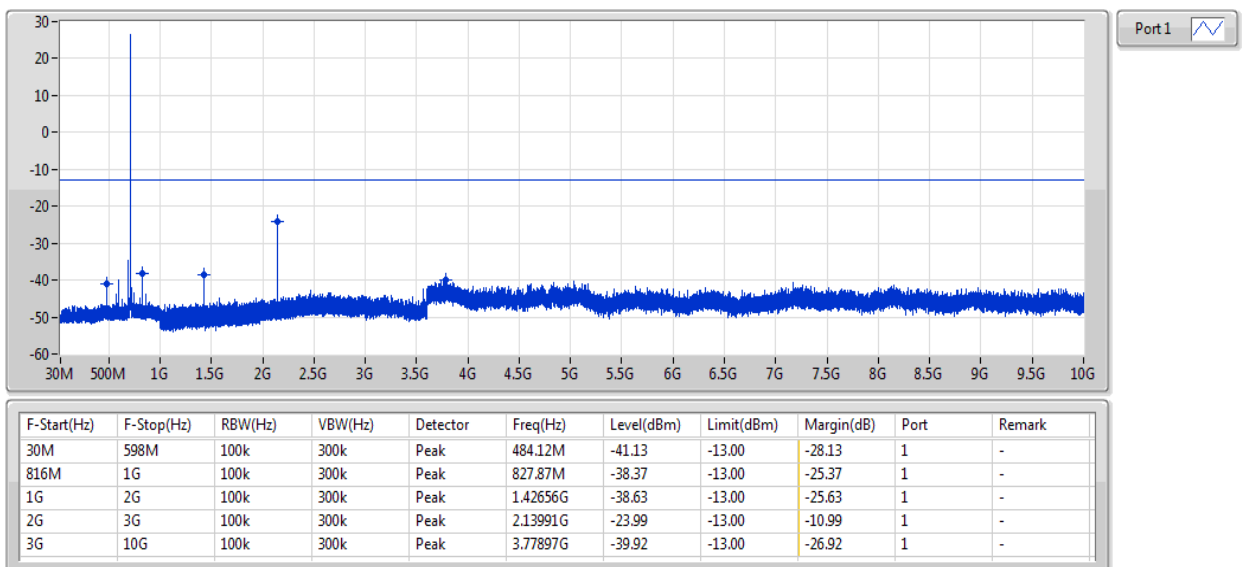
707.5MHz



Band 12_LTE-M1_5MHz_Nss1,16QAM_1TX

CSE-TX-Port

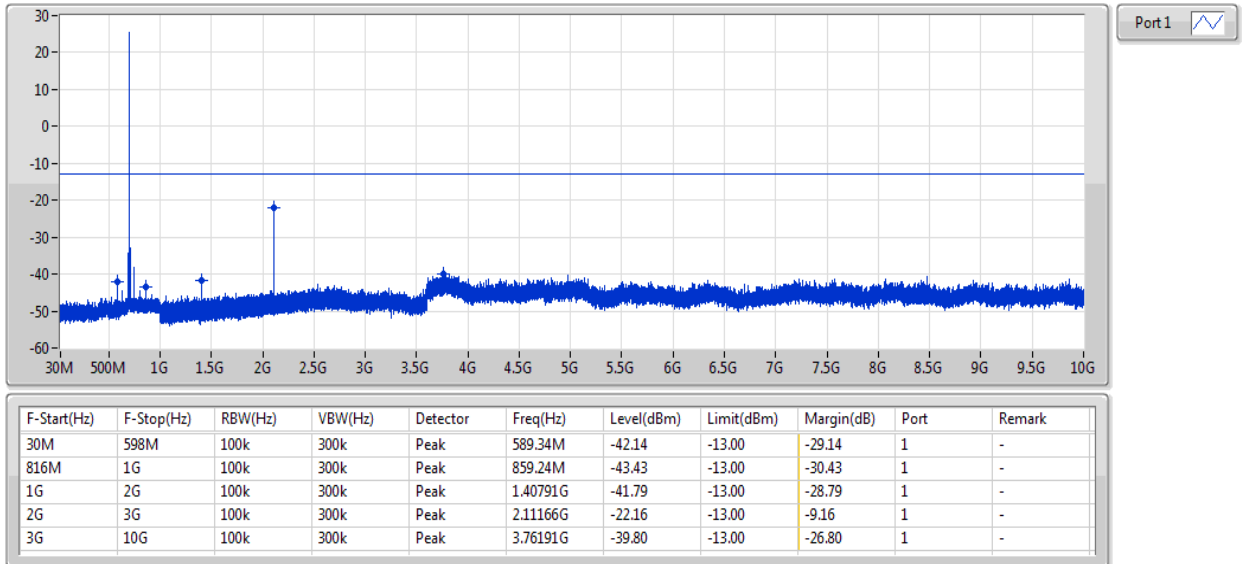
713.5MHz



Band 12_LTE-M1_10MHz_Nss1,QPSK_1TX

CSE-TX-Port

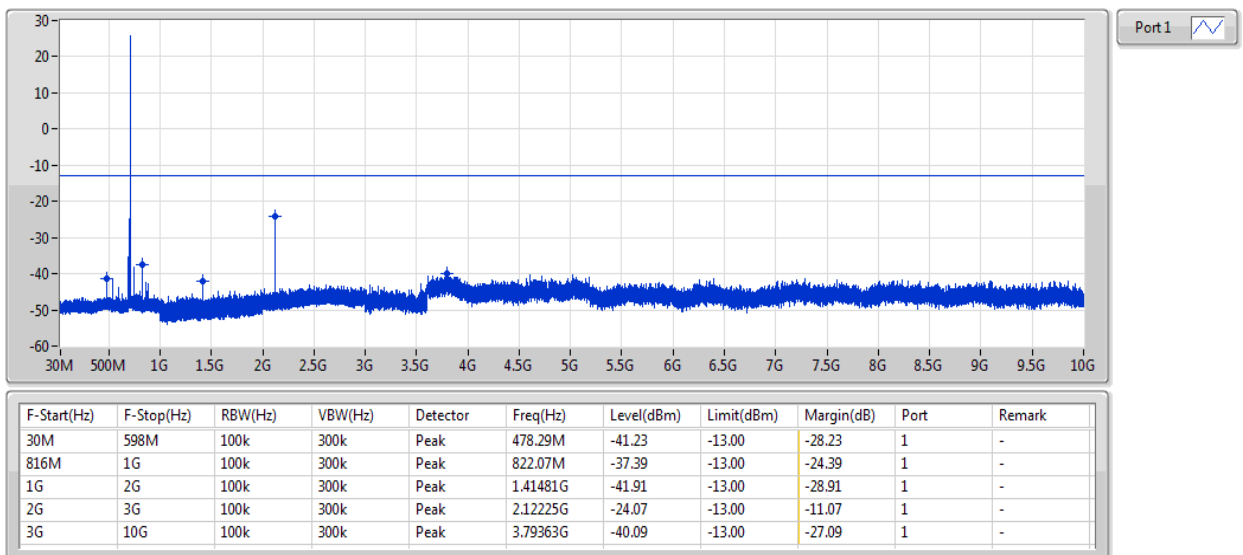
704MHz



Band 12_LTE-M1_10MHz_Nss1,QPSK_1TX

CSE-TX-Port

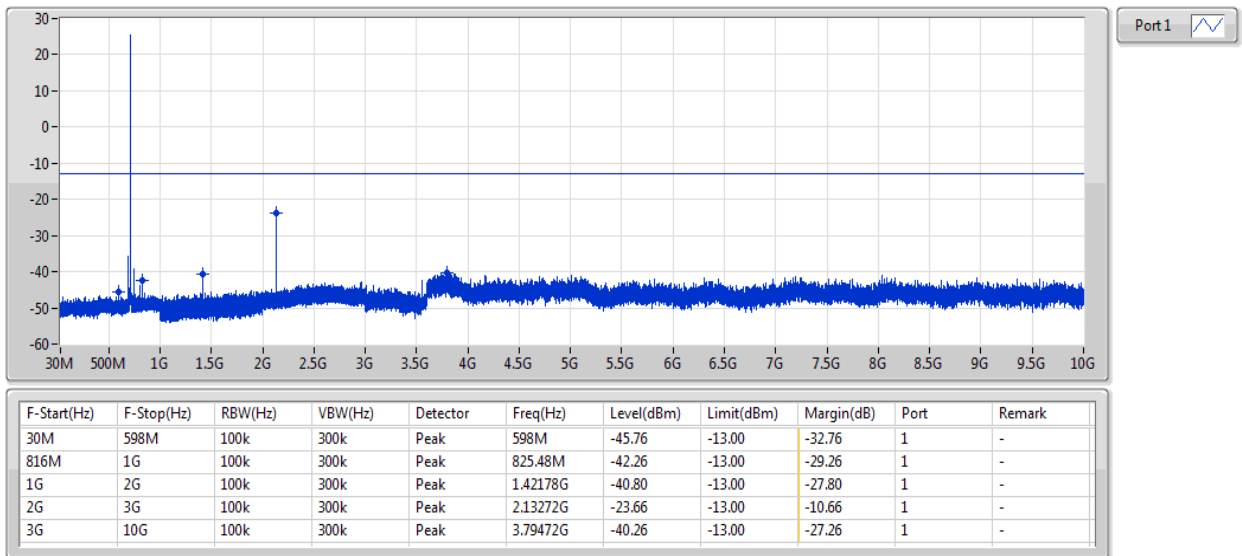
707.5MHz



Band 12_LTE-M1_10MHz_Nss1,QPSK_1TX

CSE-TX-Port

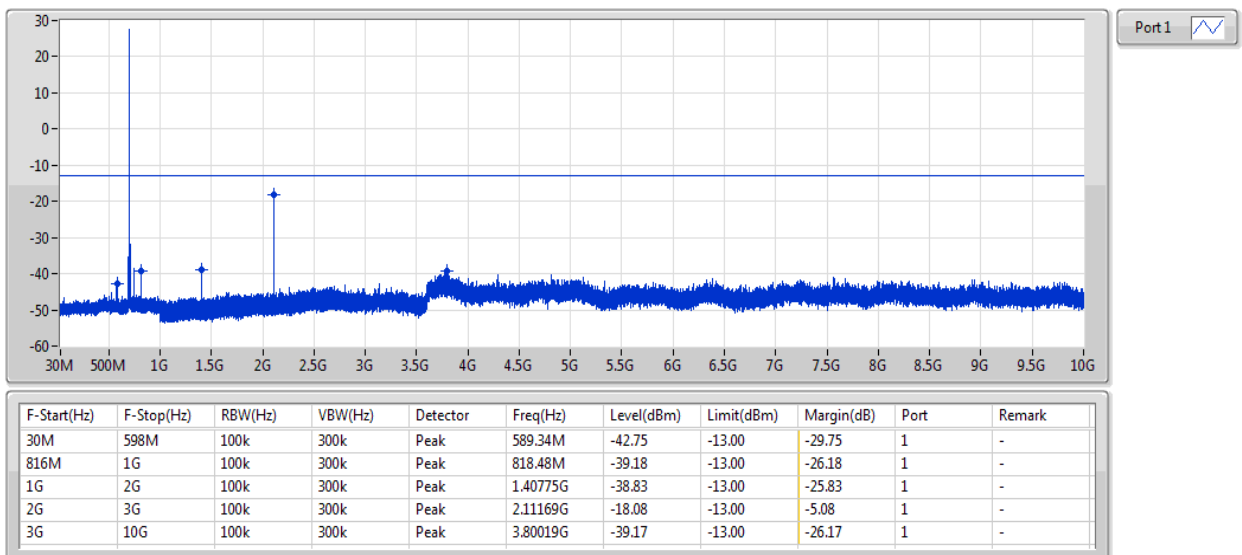
711MHz



Band 12_LTE-M1_10MHz_Nss1,16QAM_1TX

CSE-TX-Port

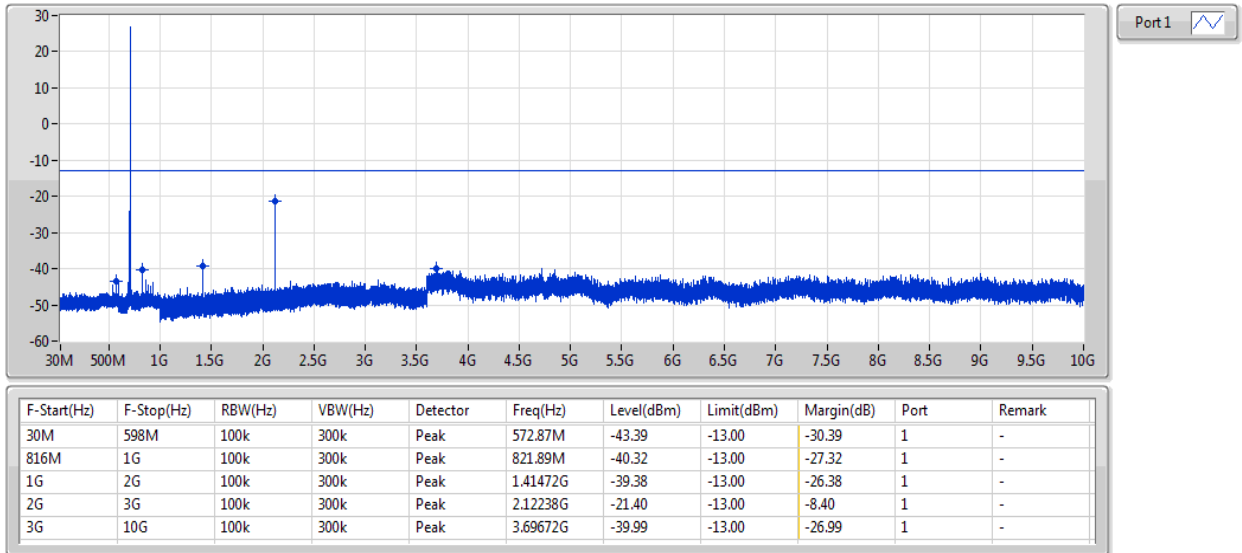
704MHz



Band 12_LTE-M1_10MHz_Nss1,16QAM_1TX

CSE-TX-Port

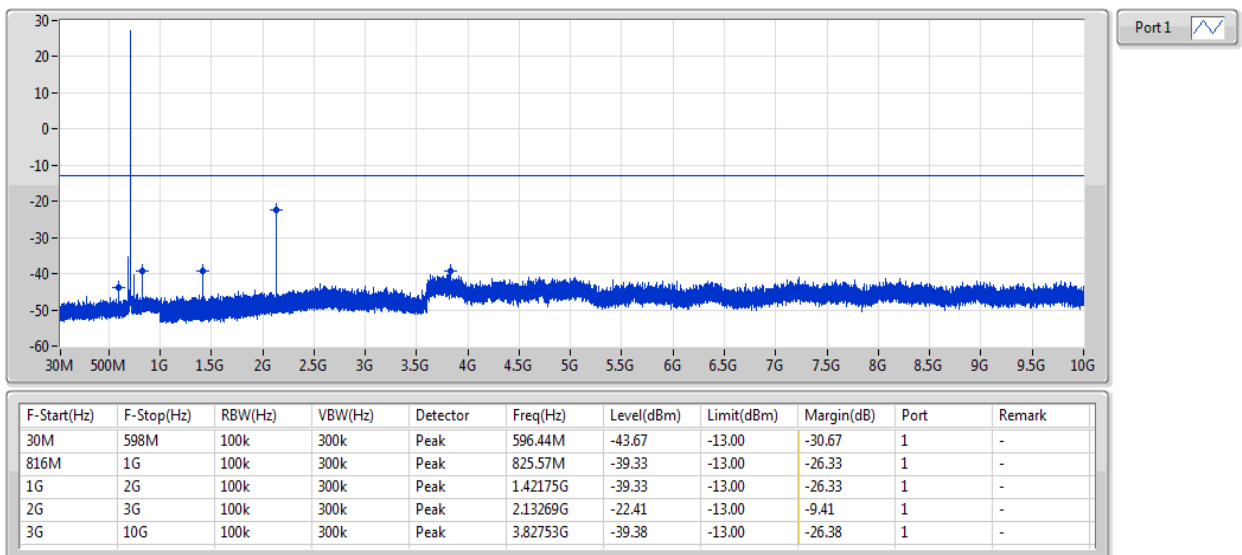
707.5MHz



Band 12_LTE-M1_10MHz_Nss1,16QAM_1TX

CSE-TX-Port

711MHz



LTE Band 13

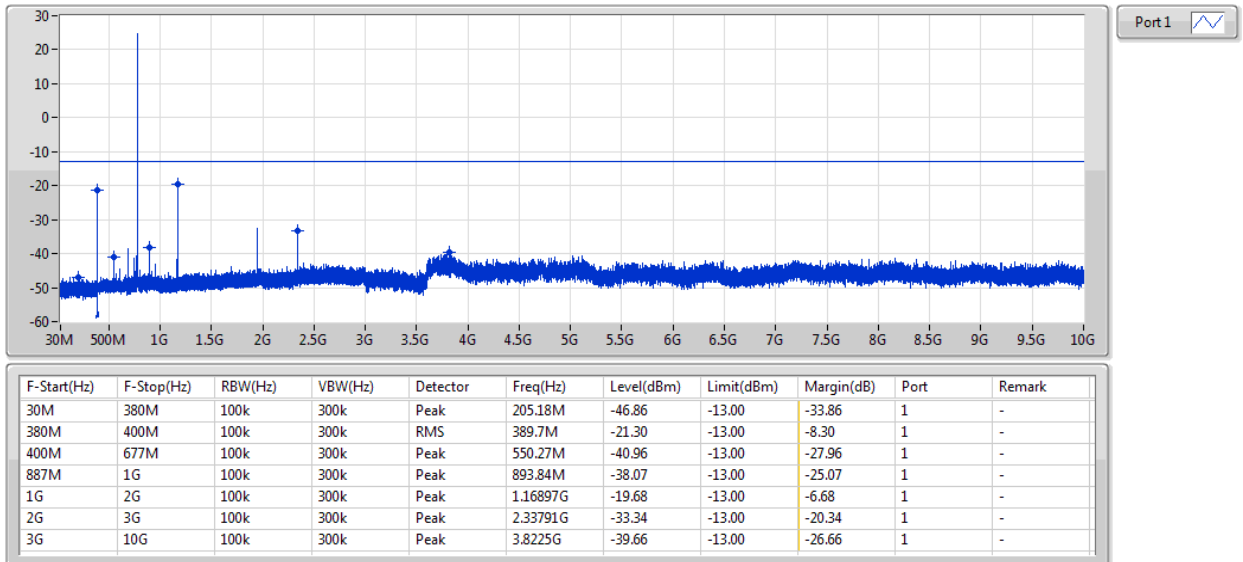
Summary

Mode	Result	F-Start (Hz)	F-Stop (Hz)	RBW (Hz)	VBW (Hz)	Detector	Freq (Hz)	Level (dBm)	Limit (dBm)	Margin (dB)	Port	Remark	Ref.Limit (dB)
Band 13	-	-	-	-	-	-	-	-	-	-	-	-	-
LTE-M1_5MHz_Nss1,QPSK_1TX	Pass	1G	2G	100k	300k	Peak	1.17275G	-18.81	-13.00	-5.81	1	-	-
LTE-M1_5MHz_Nss1,16QAM_1TX	Pass	380M	400M	100k	300k	RMS	392.18M	-16.66	-13.00	-3.66	1	-	-
LTE-M1_10MHz_Nss1,QPSK_1TX	Pass	1G	2G	100k	300k	Peak	1.17294G	-19.61	-13.00	-6.61	1	-	-
LTE-M1_10MHz_Nss1,16QAM_1TX	Pass	1G	2G	100k	300k	Peak	1.17288G	-18.02	-13.00	-5.02	1	-	-

Band 13_LTE-M1_5MHz_Nss1,QPSK_1TX

CSE-TX-Port

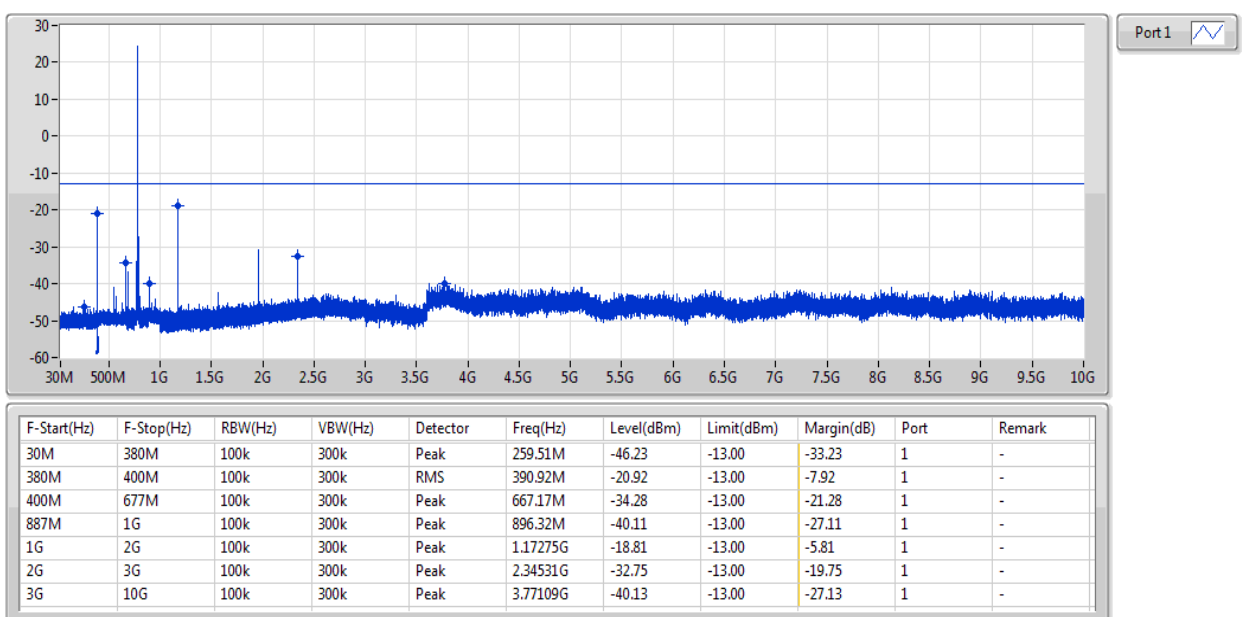
779.5MHz



Band 13_LTE-M1_5MHz_Nss1,QPSK_1TX

CSE-TX-Port

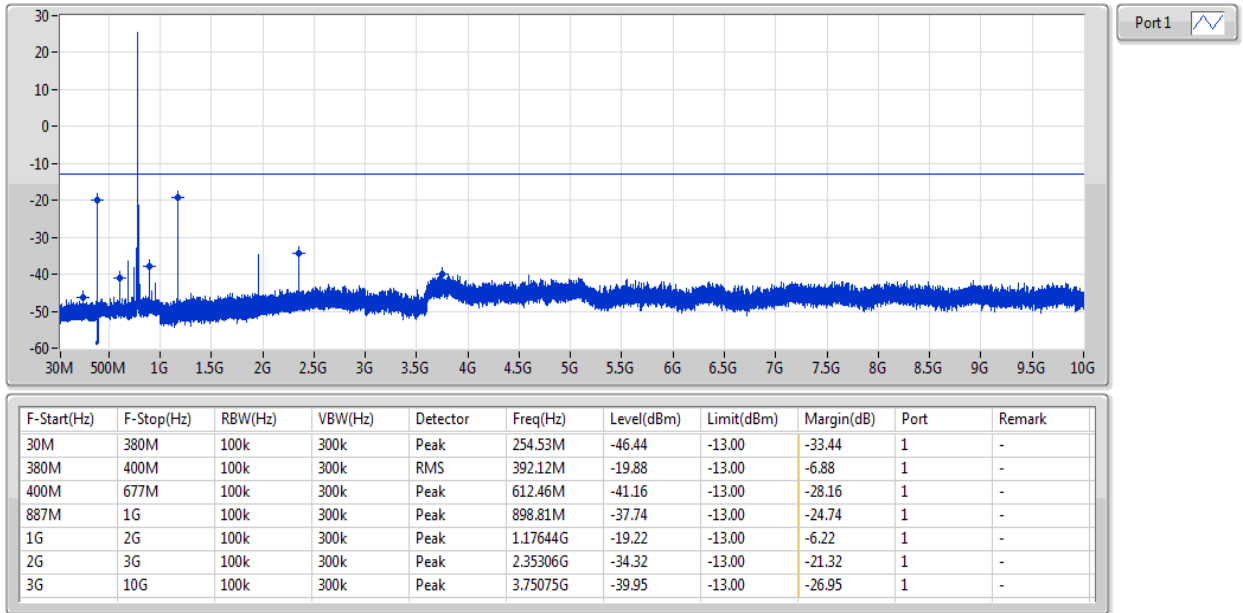
782MHz



Band 13_LTE-M1_5MHz_Nss1,QPSK_1TX

CSE-TX-Port

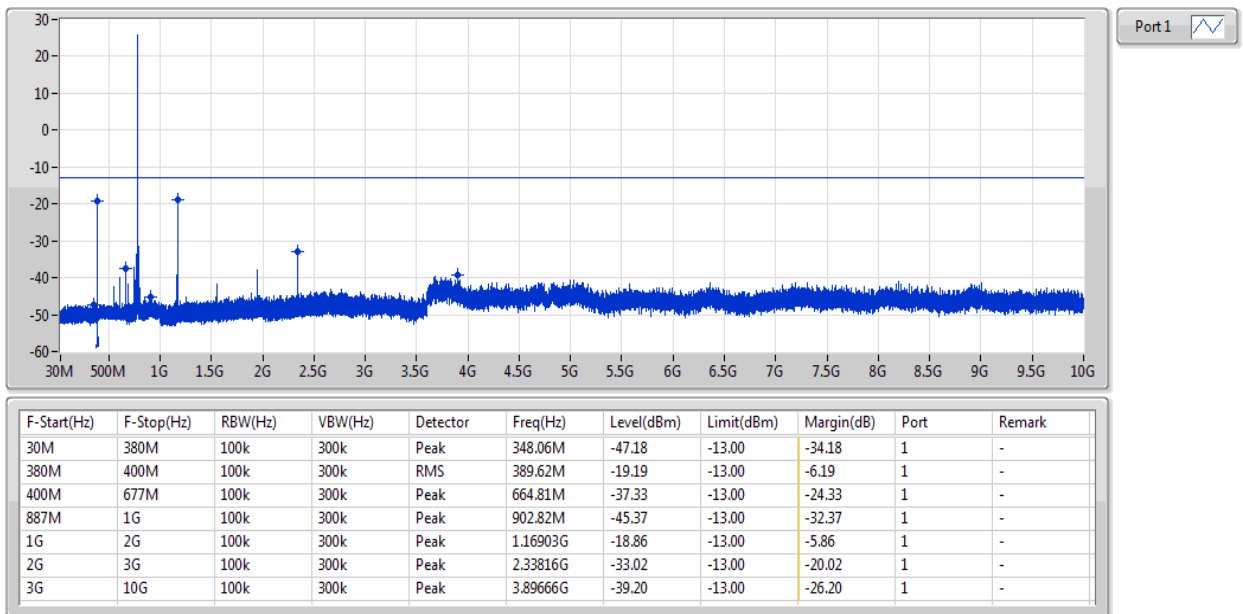
784.5MHz



Band 13_LTE-M1_5MHz_Nss1,16QAM_1TX

CSE-TX-Port

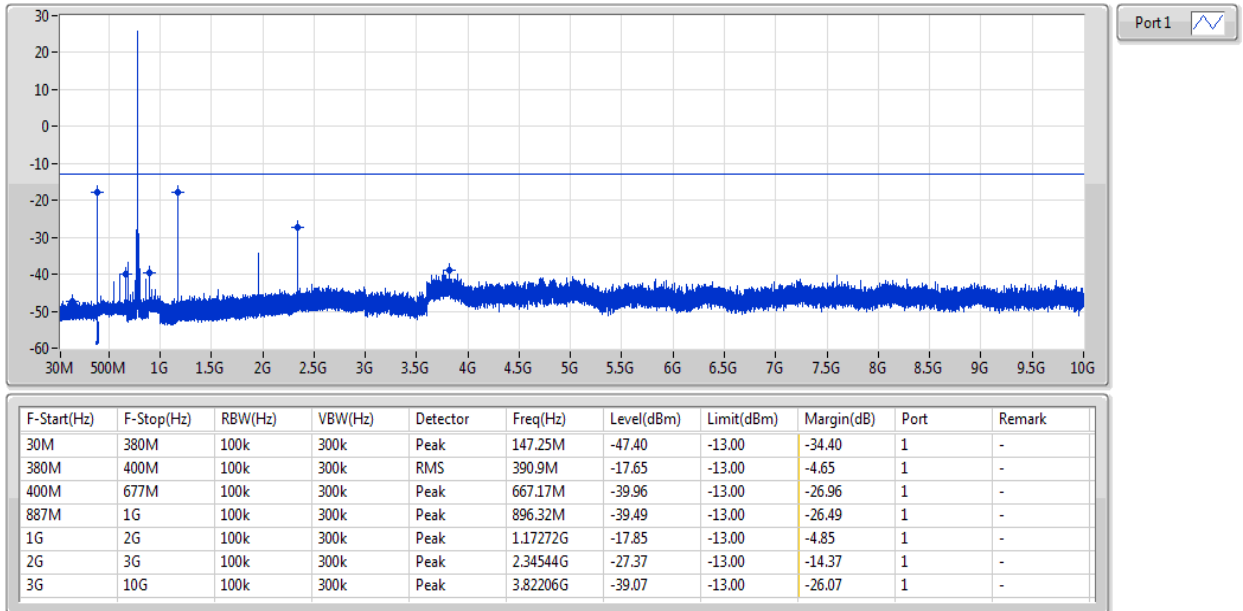
779.5MHz



Band 13_LTE-M1_5MHz_Nss1,16QAM_1TX

CSE-TX-Port

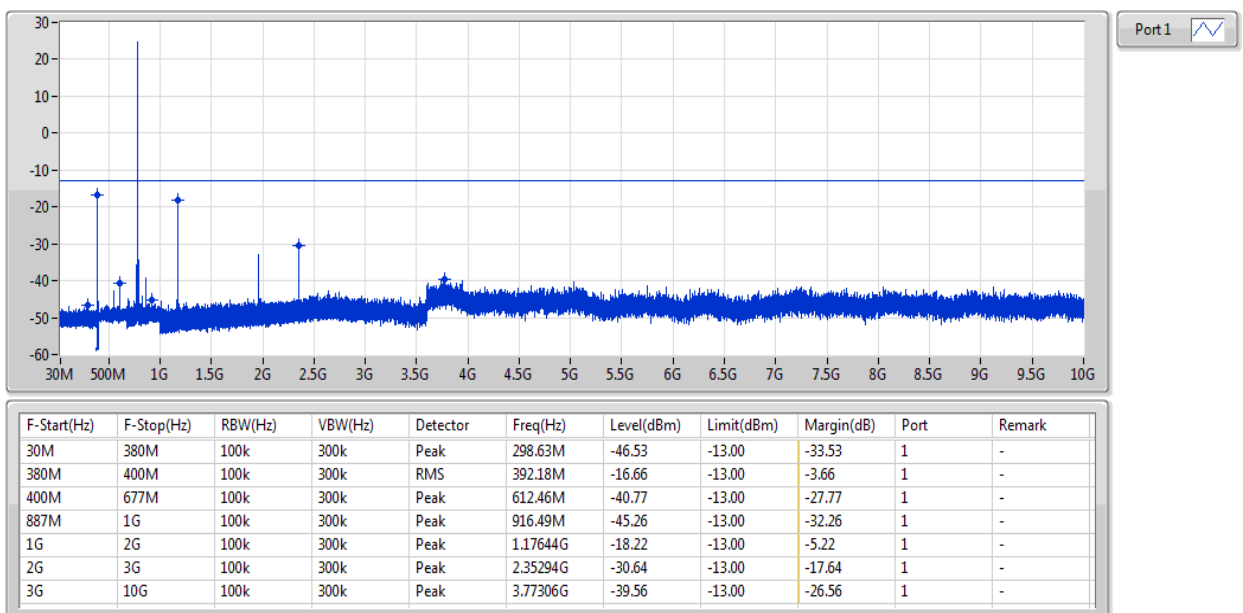
782MHz



Band 13_LTE-M1_5MHz_Nss1,16QAM_1TX

CSE-TX-Port

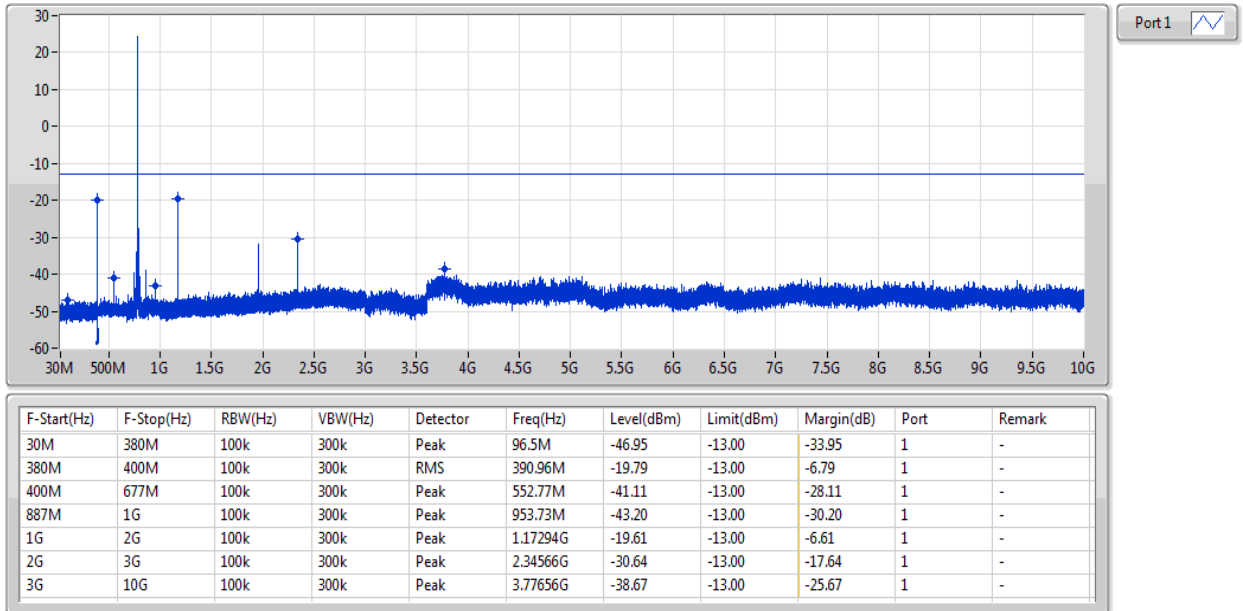
784.5MHz



Band 13_LTE-M1_10MHz_Nss1,QPSK_1TX

CSE-TX-Port

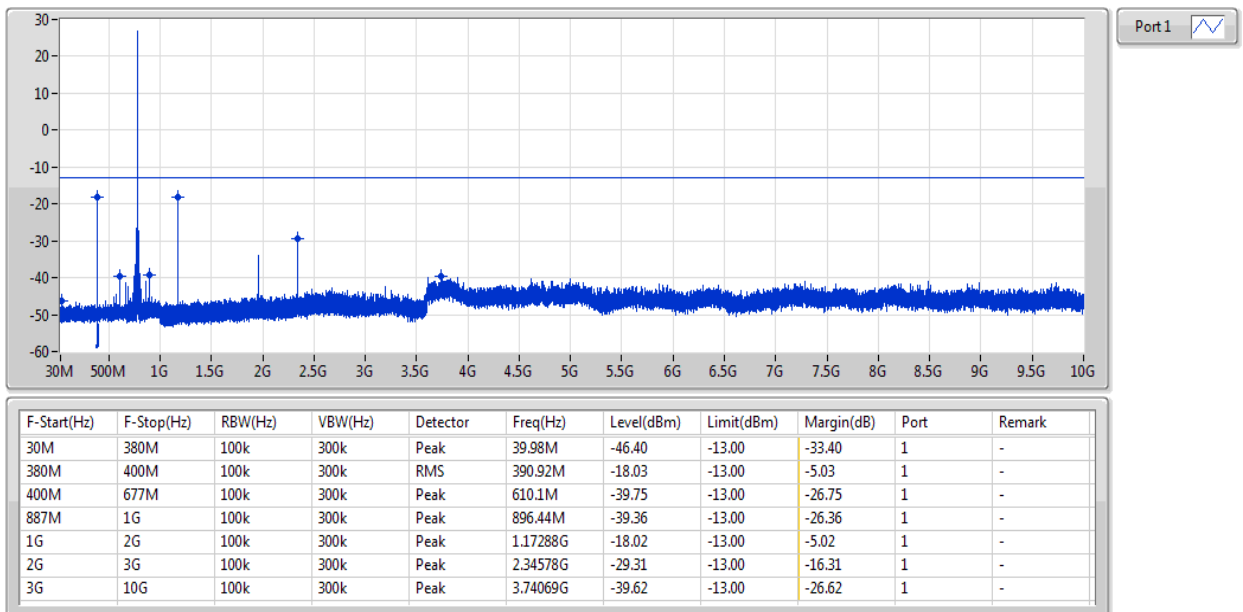
782MHz



Band 13_LTE-M1_10MHz_Nss1,16QAM_1TX

CSE-TX-Port

782MHz



3.4 Band Edge

3.4.1 Limit of Band Edge

On any frequency outside the the licensed band, the power of any emission shall be attenuatedoutside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB equal to -13dBm.

3.4.2 Test Procedures

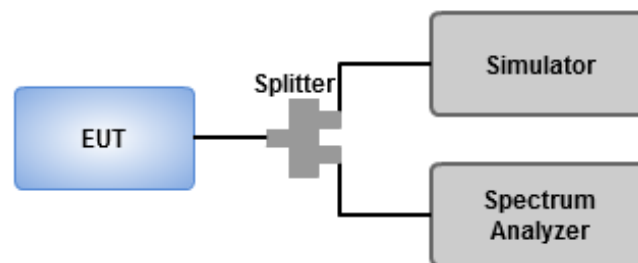
Out of band emission

1. Lowest, middle and highest operating channels are tested for this item.
2. Set RBW = 100 kHz, VBW = 300kHz, detector = RMS, sweep time = auto.
3. Record the max trace value and capture the test plot of each sub frequency band.

Band edge

1. Lowest and highest operating channels are tested for this item.
2. Set RBW = 1% of EBW, VBW = 3 x RBW, detector = RMS, sweep time = auto.
3. Record the max trace value and capture the test plot of each sub frequency band.

3.4.3 Test Setup



3.4.4 Test Result of Band Edge

LTE Band 12

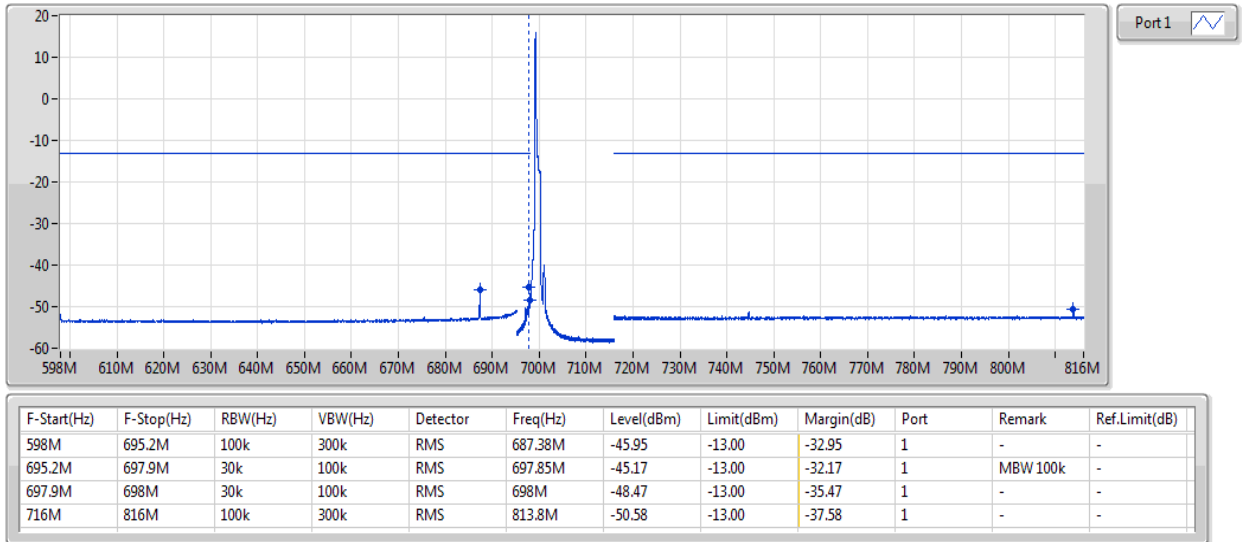
Summary

Mode	Result	F-Start (Hz)	F-Stop (Hz)	RBW (Hz)	VBW (Hz)	Detector	Freq (Hz)	Level (dBm)	Limit (dBm)	Margin (dB)	Port	Remark	Ref.Limit (dB)
Band 12	-	-	-	-	-	-	-	-	-	-	-	-	-
LTE-M1_1.4MHz_Nss1,QPSK_1TX	Pass	716M	716.1M	30k	100k	RMS	716M	-23.36	-13.00	-10.36	1	-	-
LTE-M1_1.4MHz_Nss1,16QAM_1TX	Pass	716M	716.1M	30k	100k	RMS	716M	-26.39	-13.00	-13.39	1	-	-
LTE-M1_3MHz_Nss1,QPSK_1TX	Pass	716.1M	722M	30k	100k	RMS	716.15M	-30.66	-13.00	-17.66	1	MBW 100k	-
LTE-M1_3MHz_Nss1,16QAM_1TX	Pass	716.1M	722M	30k	100k	RMS	716.15M	-32.60	-13.00	-19.60	1	MBW 100k	-
LTE-M1_5MHz_Nss1,QPSK_1TX	Pass	716M	716.1M	30k	100k	RMS	716.01M	-30.62	-13.00	-17.62	1	-	-
LTE-M1_5MHz_Nss1,16QAM_1TX	Pass	716M	716.1M	30k	100k	RMS	716M	-31.54	-13.00	-18.54	1	-	-
LTE-M1_10MHz_Nss1,QPSK_1TX	Pass	716.1M	736M	30k	100k	RMS	716.25M	-33.97	-13.00	-20.97	1	MBW 100k	-
LTE-M1_10MHz_Nss1,16QAM_1TX	Pass	716.1M	736M	30k	100k	RMS	716.15M	-35.14	-13.00	-22.14	1	MBW 100k	-

Band 12_LTE-M1_1.4MHz_Nss1,QPSK_1TX

CSE-TX-Port

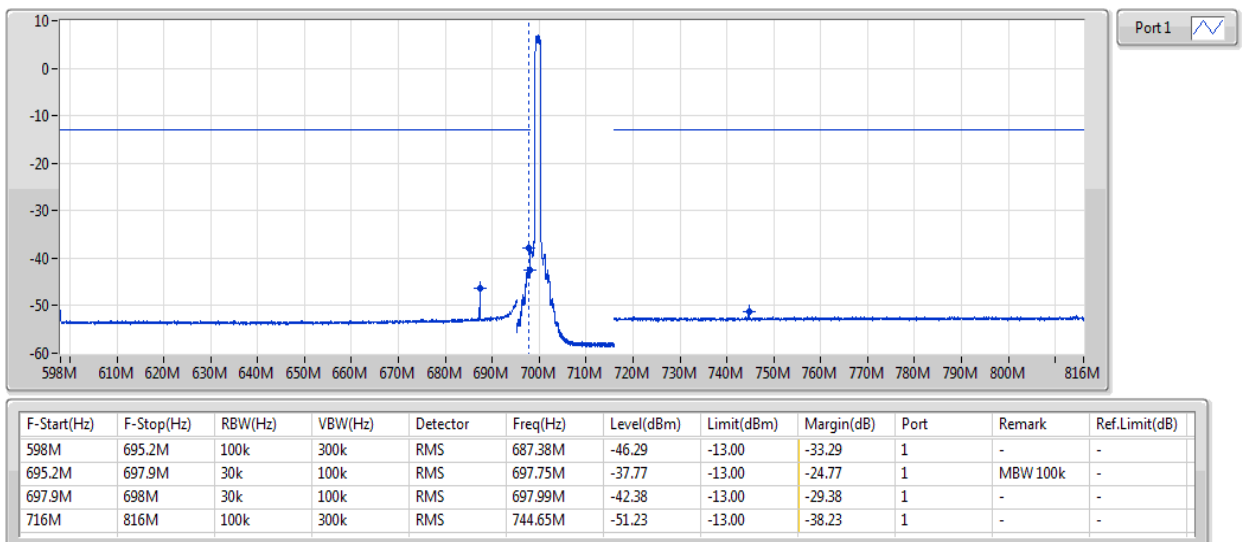
699.7MHz_QPSK_RB 1,#RB 0,NB 0



Band 12_LTE-M1_1.4MHz_Nss1,QPSK_1TX

CSE-TX-Port

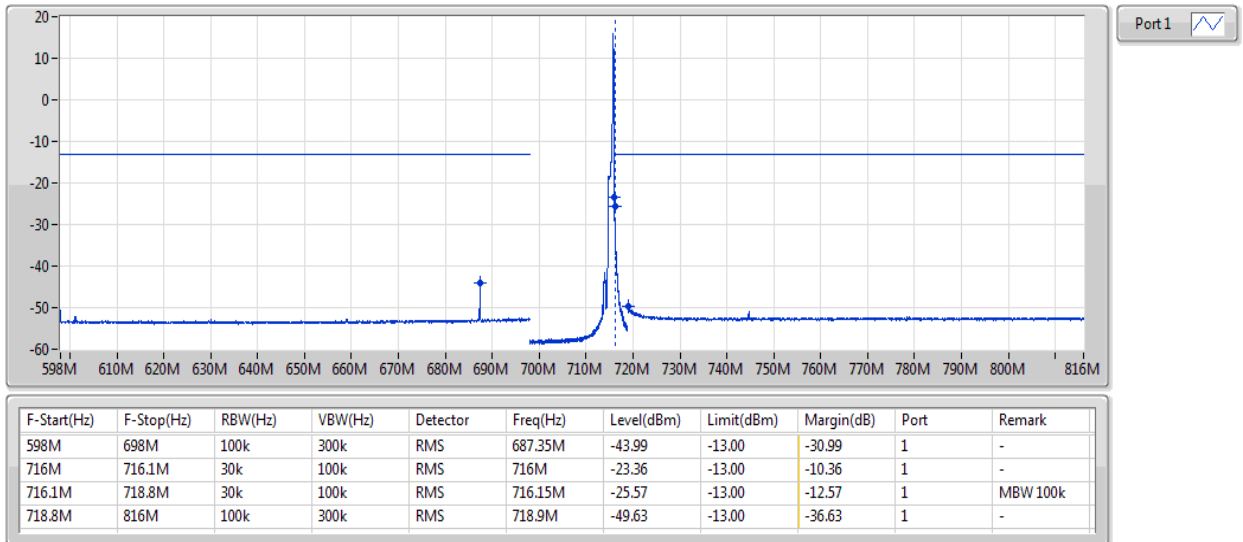
699.7MHz_QPSK_RB 6,#RB 0,NB 0



Band 12_LTE-M1_1.4MHz_Nss1,QPSK_1TX

CSE-TX-Port

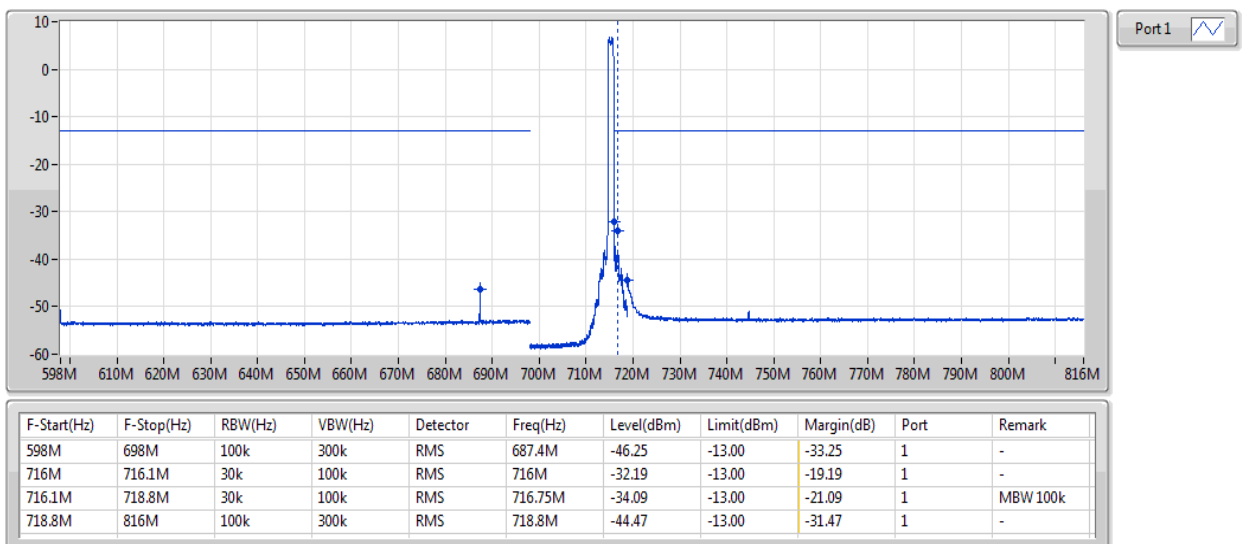
715.3MHz_QPSK_RB 1,#RB 5,NB 0



Band 12_LTE-M1_1.4MHz_Nss1,QPSK_1TX

CSE-TX-Port

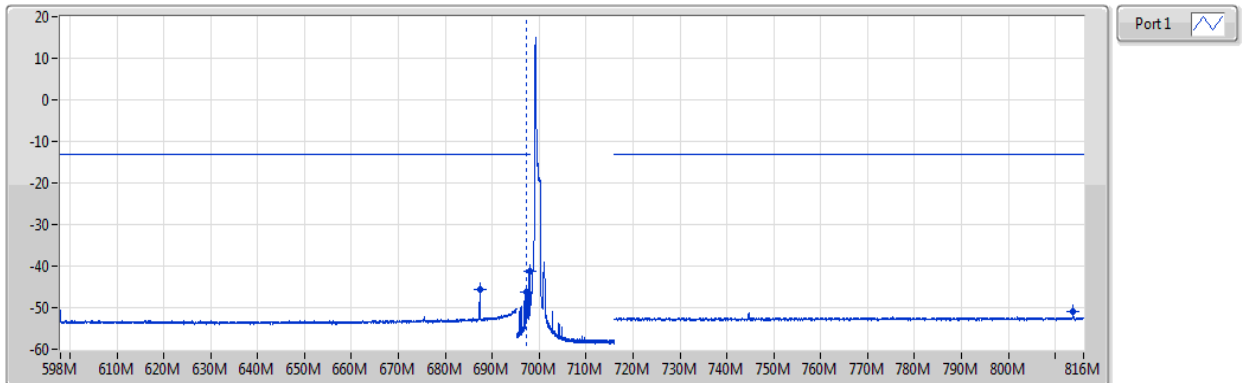
715.3MHz_QPSK_RB 6,#RB 0,NB 0



Band 12_LTE-M1_1.4MHz_Nss1,16QAM_1TX

CSE-TX-Port

699.7MHz_16QAM_RB 1,#RB 0,NB 0

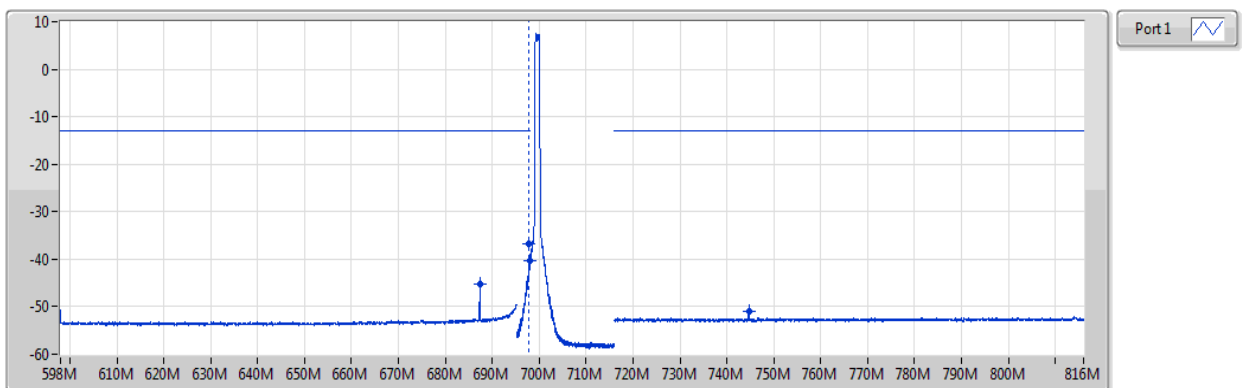


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	VBW(Hz)	Detector	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Port	Remark	Ref.Limit(dB)
598M	695.2M	100k	300k	RMS	687.38M	-45.52	-13.00	-32.52	1	-	-
695.2M	697.9M	30k	100k	RMS	697.35M	-46.38	-13.00	-33.38	1	MBW 100k	-
697.9M	698M	30k	100k	RMS	697.97M	-41.25	-13.00	-28.25	1	-	-
716M	816M	100k	300k	RMS	813.8M	-50.84	-13.00	-37.84	1	-	-

Band 12_LTE-M1_1.4MHz_Nss1,16QAM_1TX

CSE-TX-Port

699.7MHz_16QAM_RB 5,#RB 0,NB 0

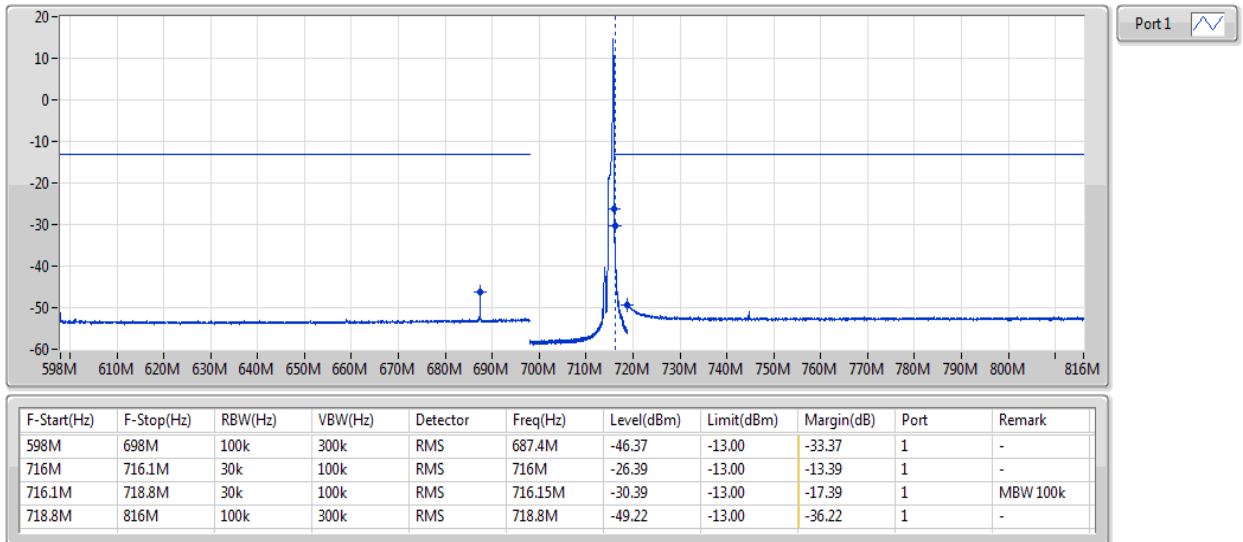


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	VBW(Hz)	Detector	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Port	Remark	Ref.Limit(dB)
598M	695.2M	100k	300k	RMS	687.38M	-45.24	-13.00	-32.24	1	-	-
695.2M	697.9M	30k	100k	RMS	697.85M	-36.81	-13.00	-23.81	1	MBW 100k	-
697.9M	698M	30k	100k	RMS	697.99M	-40.39	-13.00	-27.39	1	-	-
716M	816M	100k	300k	RMS	744.65M	-51.05	-13.00	-38.05	1	-	-

Band 12_LTE-M1_1.4MHz_Nss1,16QAM_1TX

CSE-TX-Port

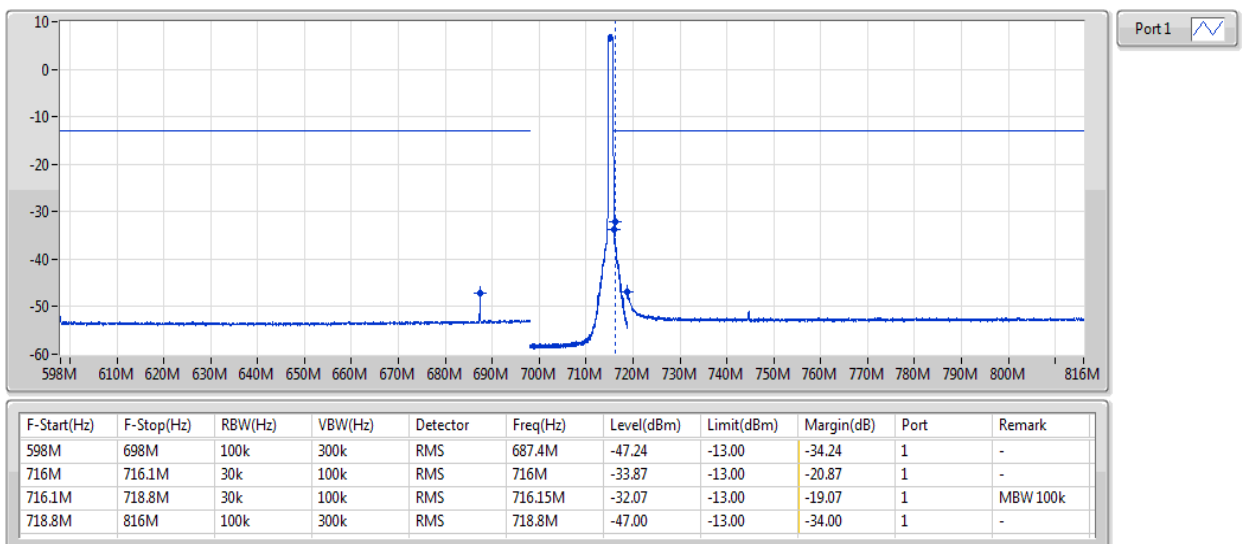
715.3MHz_16QAM_RB 1,#RB 5,NB 0



Band 12_LTE-M1_1.4MHz_Nss1,16QAM_1TX

CSE-TX-Port

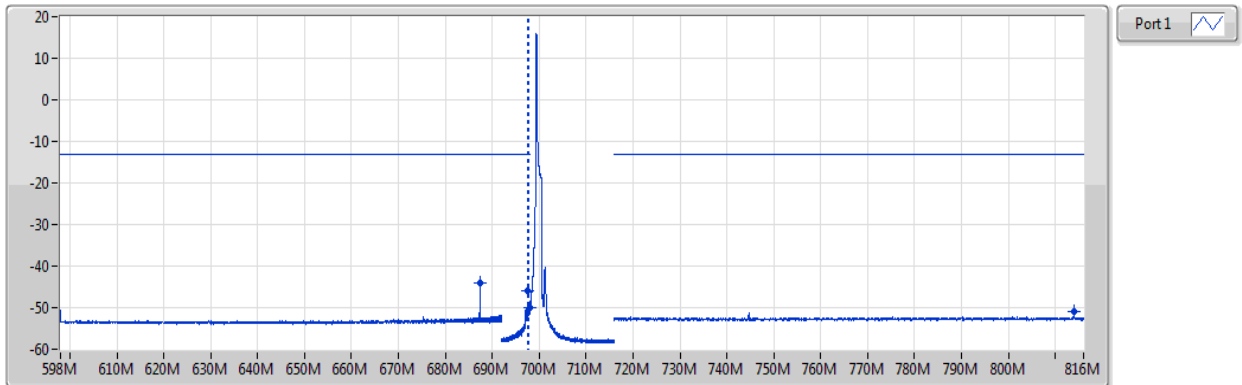
715.3MHz_16QAM_RB 5,#RB 0,NB 0



Band 12_LTE-M1_3MHz_Nss1,QPSK_1TX

CSE-TX-Port

700.5MHz_QPSK_RB 1,#RB 0,NB 0

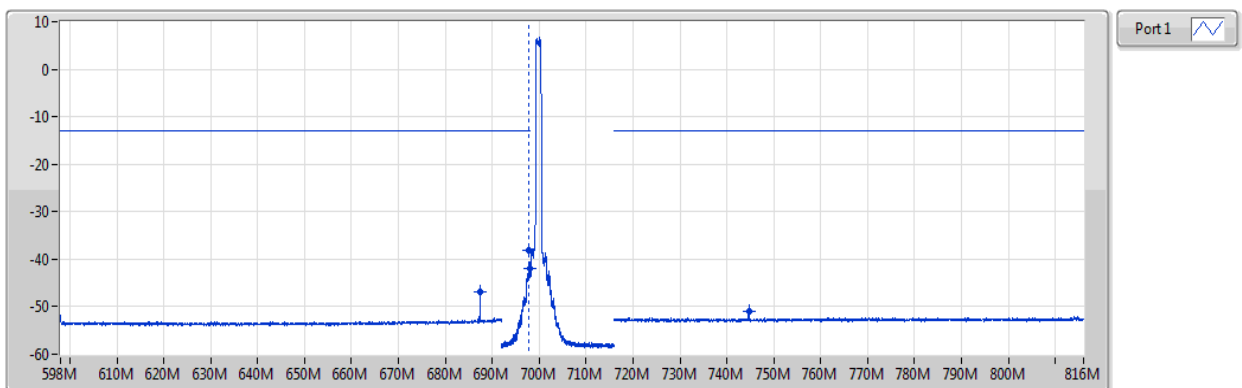


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	VBW(Hz)	Detector	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Port	Remark	Ref.Limit(dB)
598M	692M	100k	300k	RMS	687.39M	-43.98	-13.00	-30.98	1	-	-
692M	697.9M	30k	100k	RMS	697.65M	-46.01	-13.00	-33.01	1	MBW 100k	-
697.9M	698M	30k	100k	RMS	697.99M	-49.90	-13.00	-36.90	1	-	-
716M	816M	100k	300k	RMS	814M	-51.08	-13.00	-38.08	1	-	-

Band 12_LTE-M1_3MHz_Nss1,QPSK_1TX

CSE-TX-Port

700.5MHz_QPSK_RB 6,#RB 0,NB 0

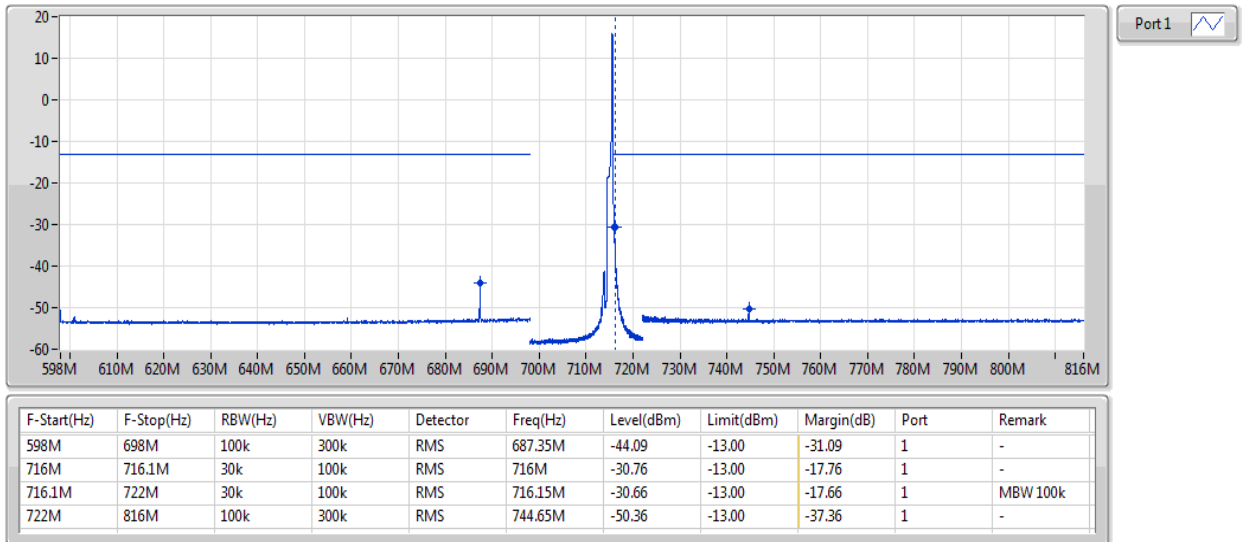


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	VBW(Hz)	Detector	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Port	Remark	Ref.Limit(dB)
598M	692M	100k	300k	RMS	687.39M	-46.88	-13.00	-33.88	1	-	-
692M	697.9M	30k	100k	RMS	697.75M	-38.19	-13.00	-25.19	1	MBW 100k	-
697.9M	698M	30k	100k	RMS	697.92M	-42.05	-13.00	-29.05	1	-	-
716M	816M	100k	300k	RMS	744.65M	-51.01	-13.00	-38.01	1	-	-

Band 12_LTE-M1_3MHz_Nss1,QPSK_1TX

CSE-TX-Port

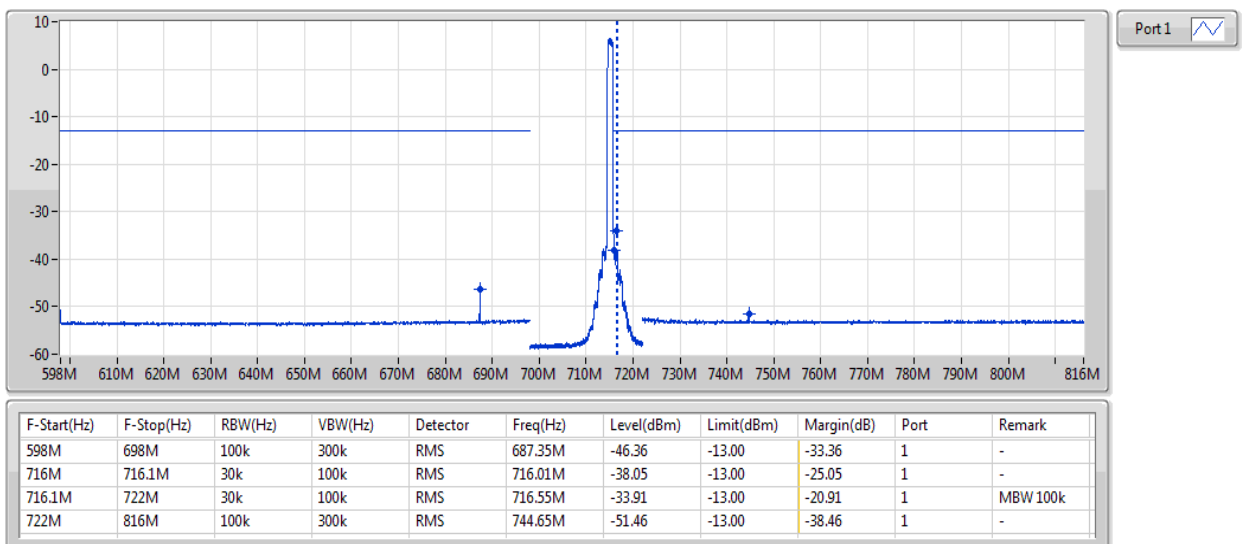
714.5MHz_QPSK_RB 1,#RB 5,NB 1



Band 12_LTE-M1_3MHz_Nss1,QPSK_1TX

CSE-TX-Port

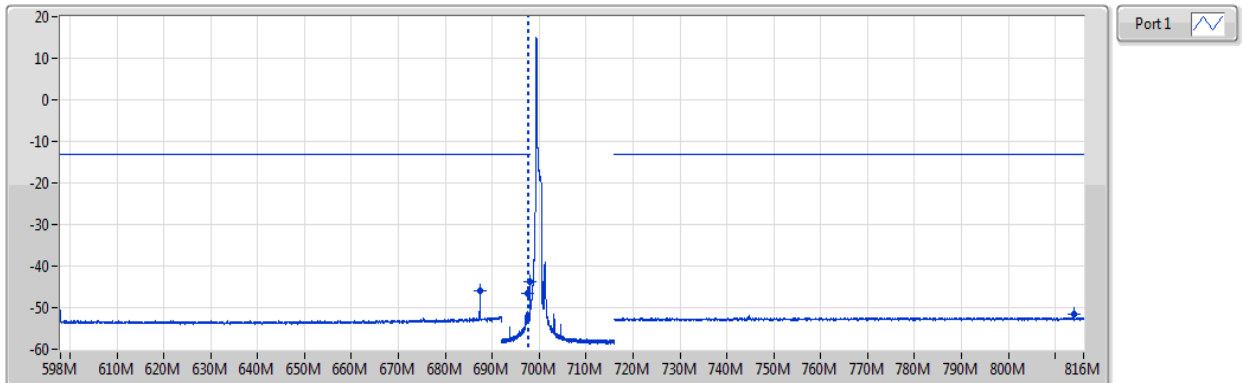
714.5MHz_QPSK_RB 6,#RB 0,NB 1



Band 12_LTE-M1_3MHz_Nss1,16QAM_1TX

CSE-TX-Port

700.5MHz_16QAM_RB 1,#RB 0,NB 0

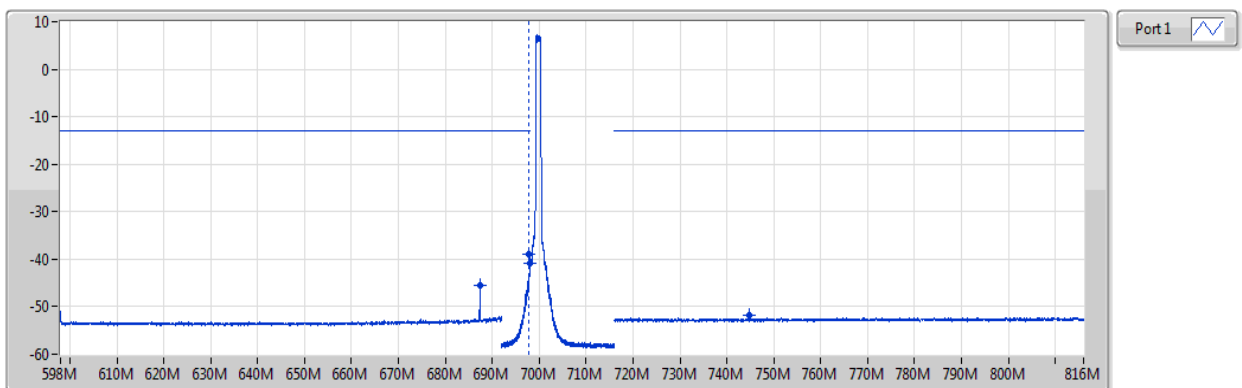


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	VBW(Hz)	Detector	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Port	Remark	Ref.Limit(dB)
598M	692M	100k	300k	RMS	687.39M	-45.81	-13.00	-32.81	1	-	-
692M	697.9M	30k	100k	RMS	697.65M	-46.57	-13.00	-33.57	1	MBW 100k	-
697.9M	698M	30k	100k	RMS	697.91M	-43.82	-13.00	-30.82	1	-	-
716M	816M	100k	300k	RMS	813.95M	-51.62	-13.00	-38.62	1	-	-

Band 12_LTE-M1_3MHz_Nss1,16QAM_1TX

CSE-TX-Port

700.5MHz_16QAM_RB 5,#RB 0,NB 0

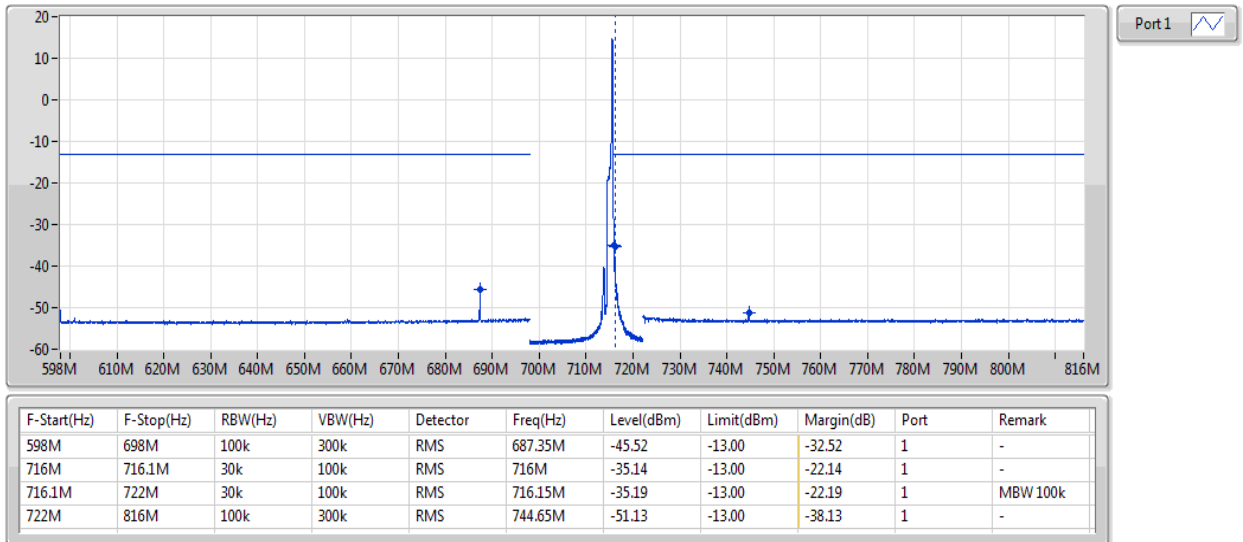


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	VBW(Hz)	Detector	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Port	Remark	Ref.Limit(dB)
598M	692M	100k	300k	RMS	687.35M	-45.62	-13.00	-32.62	1	-	-
692M	697.9M	30k	100k	RMS	697.85M	-38.86	-13.00	-25.86	1	MBW 100k	-
697.9M	698M	30k	100k	RMS	698M	-40.84	-13.00	-27.84	1	-	-
716M	816M	100k	300k	RMS	744.65M	-51.74	-13.00	-38.74	1	-	-

Band 12_LTE-M1_3MHz_Nss1,16QAM_1TX

CSE-TX-Port

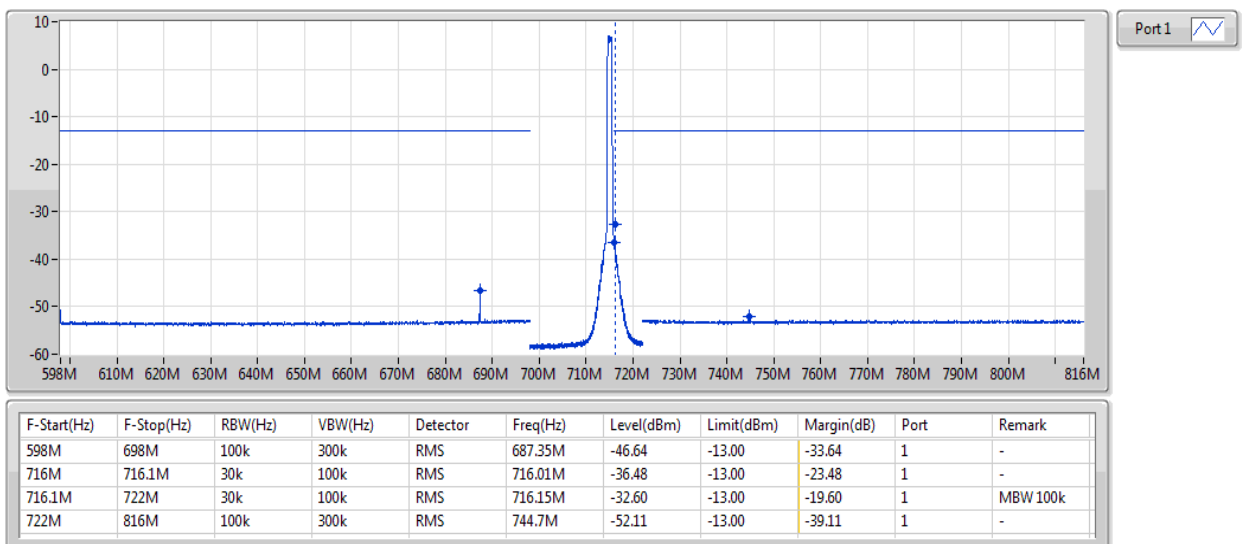
714.5MHz_16QAM_RB 1,#RB 5,NB 1



Band 12_LTE-M1_3MHz_Nss1,16QAM_1TX

CSE-TX-Port

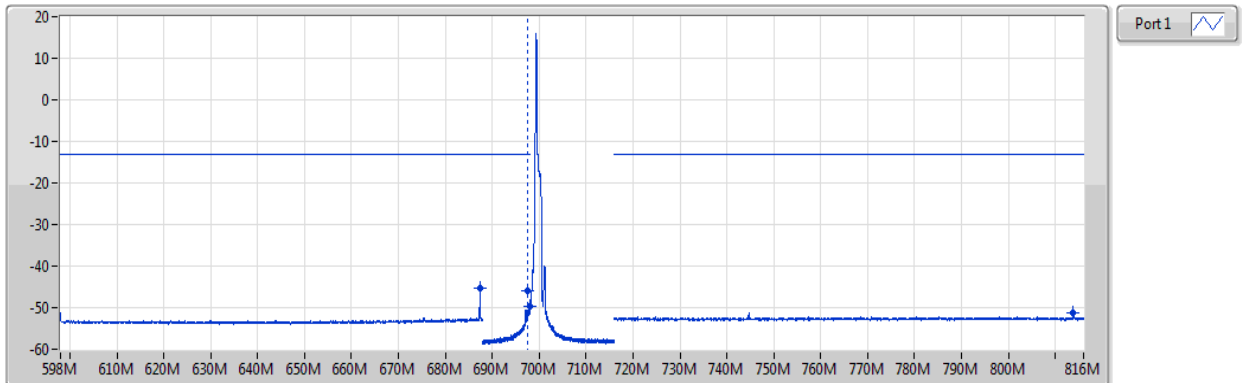
714.5MHz_16QAM_RB 5,#RB 0,NB 1



Band 12_LTE-M1_5MHz_Nss1,QPSK_1TX

CSE-TX-Port

701.5MHz_QPSK_RB 1,#RB 0,NB 0

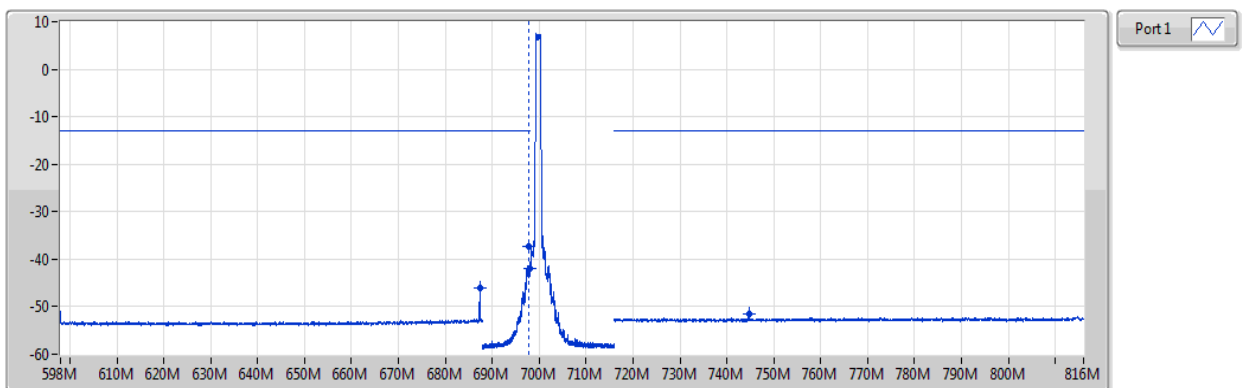


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	VBW(Hz)	Detector	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Port	Remark	Ref.Limit(dB)
598M	688M	100k	300k	RMS	687.37M	-45.37	-13.00	-32.37	1	-	-
688M	697.9M	30k	100k	RMS	697.55M	-45.95	-13.00	-32.95	1	MBW 100k	-
697.9M	698M	30k	100k	RMS	697.99M	-49.59	-13.00	-36.59	1	-	-
716M	816M	100k	300k	RMS	813.85M	-51.19	-13.00	-38.19	1	-	-

Band 12_LTE-M1_5MHz_Nss1,QPSK_1TX

CSE-TX-Port

701.5MHz_QPSK_RB 6,#RB 0,NB 0

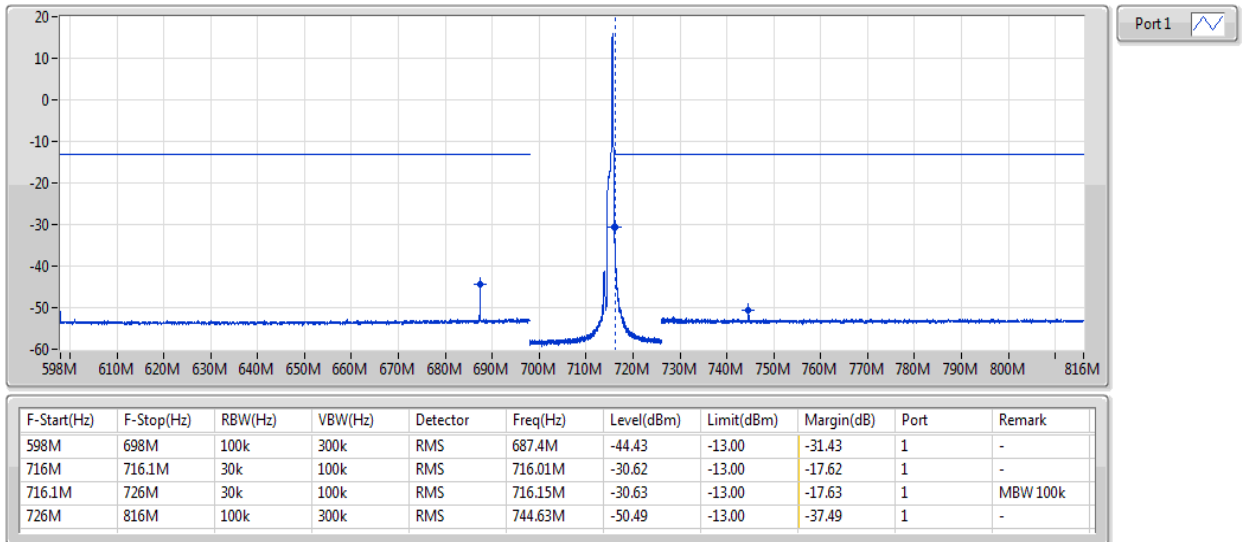


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	VBW(Hz)	Detector	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Port	Remark	Ref.Limit(dB)
598M	688M	100k	300k	RMS	687.37M	-46.07	-13.00	-33.07	1	-	-
688M	697.9M	30k	100k	RMS	697.85M	-37.41	-13.00	-24.41	1	MBW 100k	-
697.9M	698M	30k	100k	RMS	697.91M	-41.90	-13.00	-28.90	1	-	-
716M	816M	100k	300k	RMS	744.7M	-51.47	-13.00	-38.47	1	-	-

Band 12_LTE-M1_5MHz_Nss1,QPSK_1TX

CSE-TX-Port

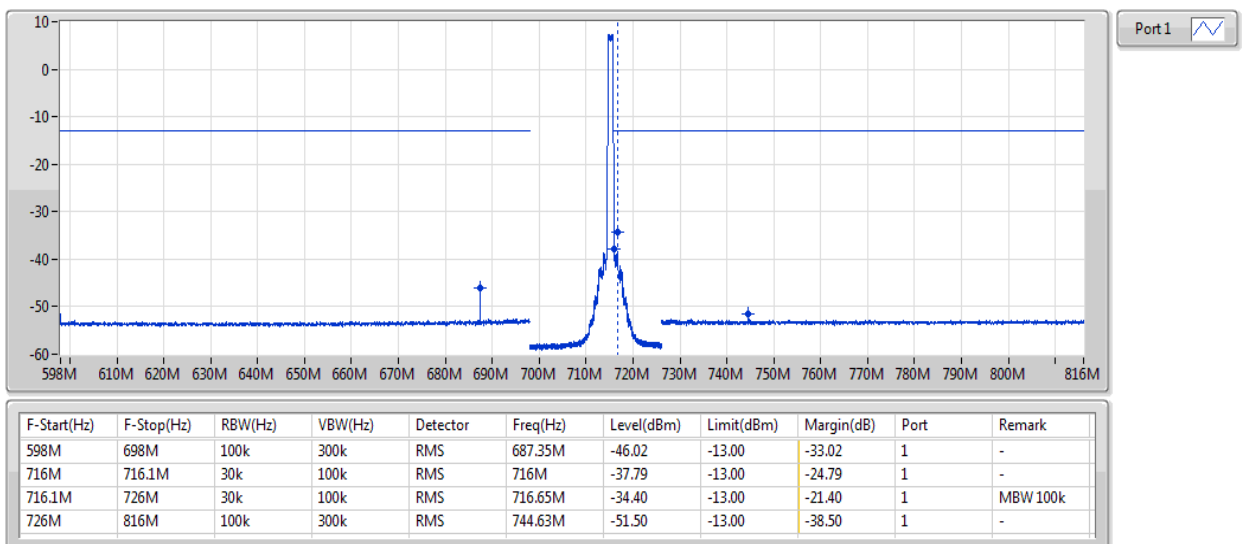
713.5MHz_QPSK_RB 1,#RB 5,NB 3



Band 12_LTE-M1_5MHz_Nss1,QPSK_1TX

CSE-TX-Port

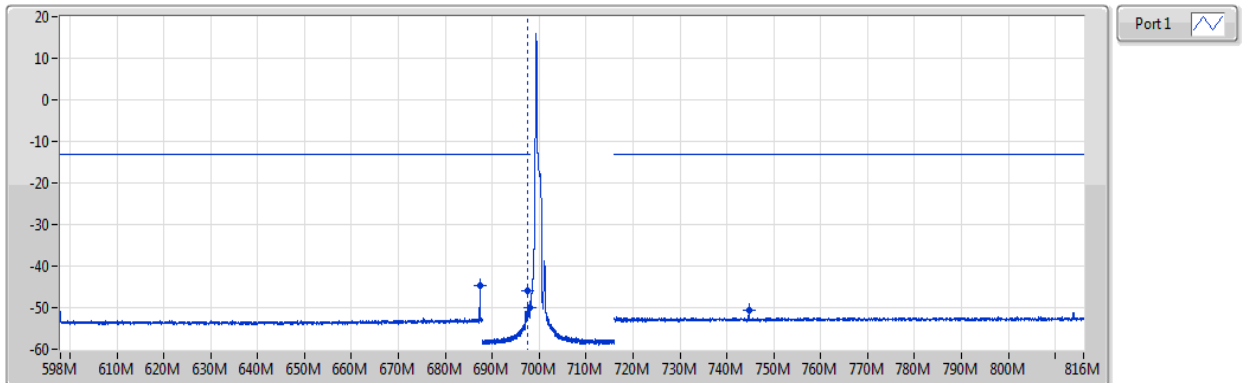
713.5MHz_QPSK_RB 6,#RB 0,NB 3



Band 12_LTE-M1_5MHz_Nss1,16QAM_1TX

CSE-TX-Port

701.5MHz_16QAM_RB 1,#RB 0,NB 0

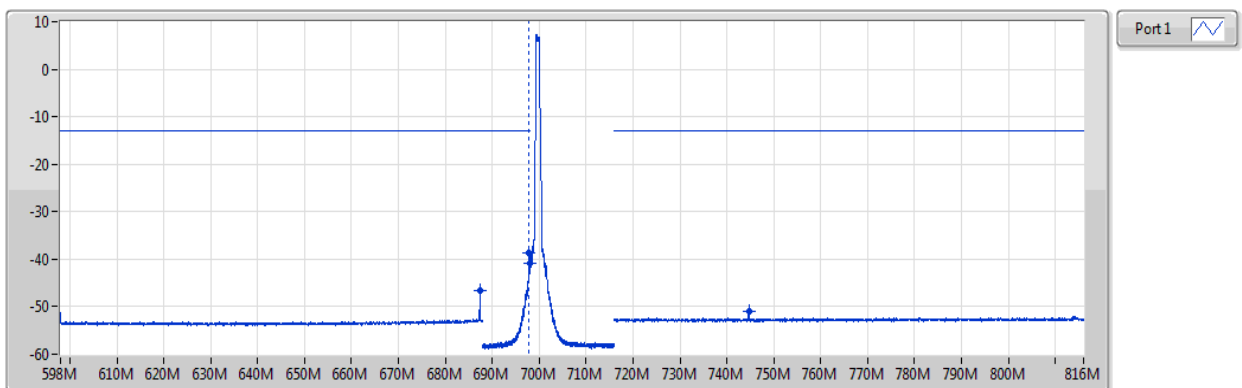


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	VBW(Hz)	Detector	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Port	Remark	Ref.Limit(dB)
598M	688M	100k	300k	RMS	687.37M	-44.56	-13.00	-31.56	1	-	-
688M	697.9M	30k	100k	RMS	697.55M	-45.91	-13.00	-32.91	1	MBW 100k	-
697.9M	698M	30k	100k	RMS	697.97M	-50.03	-13.00	-37.03	1	-	-
716M	816M	100k	300k	RMS	744.65M	-50.68	-13.00	-37.68	1	-	-

Band 12_LTE-M1_5MHz_Nss1,16QAM_1TX

CSE-TX-Port

701.5MHz_16QAM_RB 5,#RB 0,NB 0

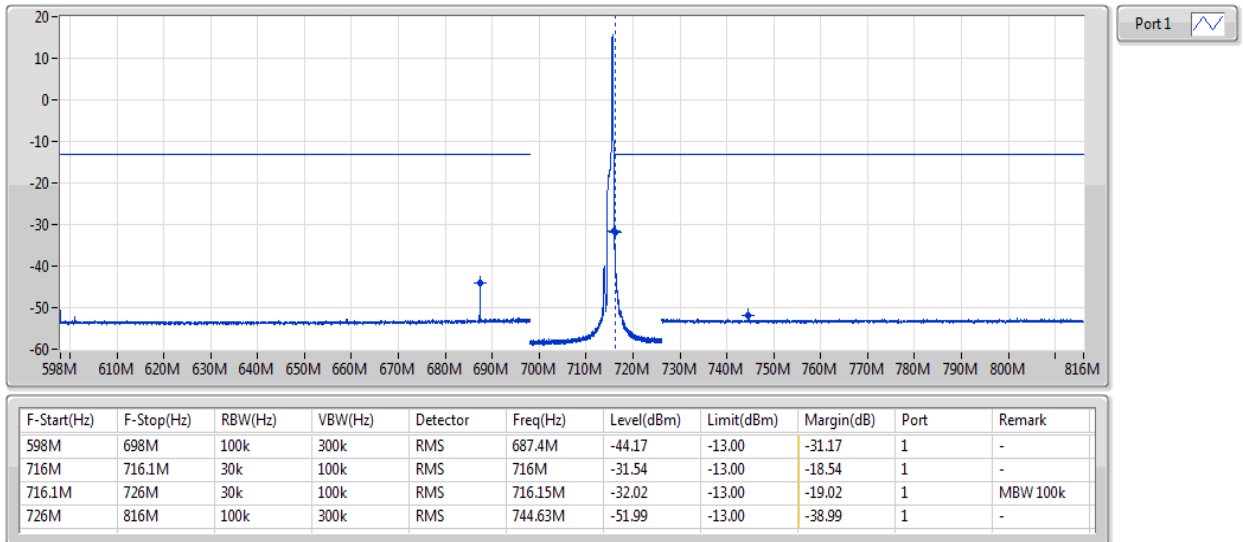


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	VBW(Hz)	Detector	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Port	Remark	Ref.Limit(dB)
598M	688M	100k	300k	RMS	687.37M	-46.47	-13.00	-33.47	1	-	-
688M	697.9M	30k	100k	RMS	697.85M	-38.61	-13.00	-25.61	1	MBW 100k	-
697.9M	698M	30k	100k	RMS	697.92M	-40.93	-13.00	-27.93	1	-	-
716M	816M	100k	300k	RMS	744.65M	-51.04	-13.00	-38.04	1	-	-

Band 12_LTE-M1_5MHz_Nss1,16QAM_1TX

CSE-TX-Port

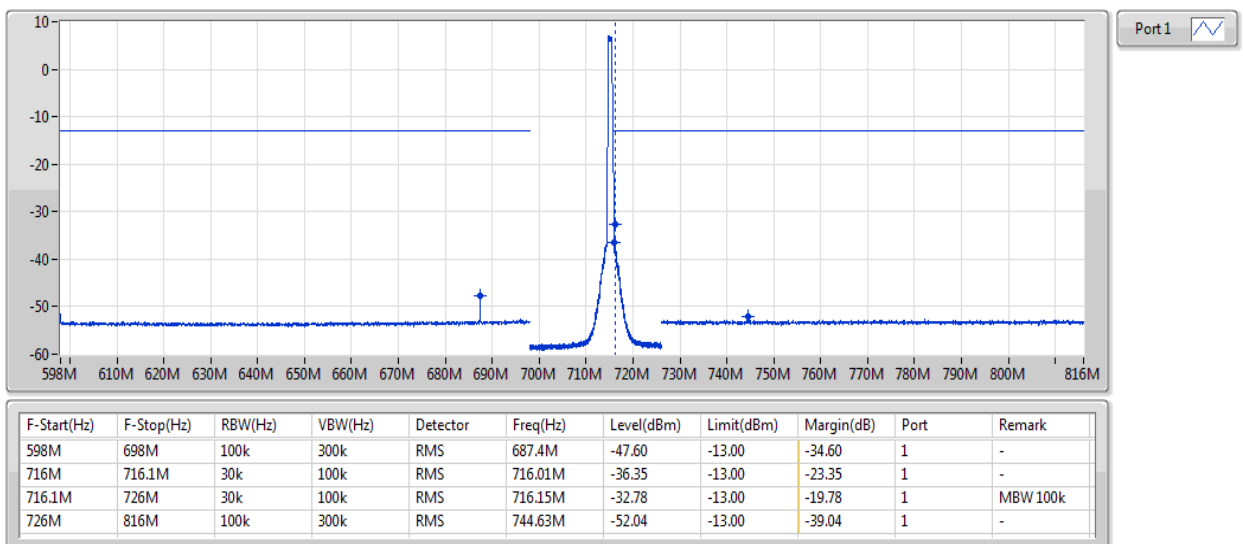
713.5MHz_16QAM_RB 1,#RB 5,NB 3



Band 12_LTE-M1_5MHz_Nss1,16QAM_1TX

CSE-TX-Port

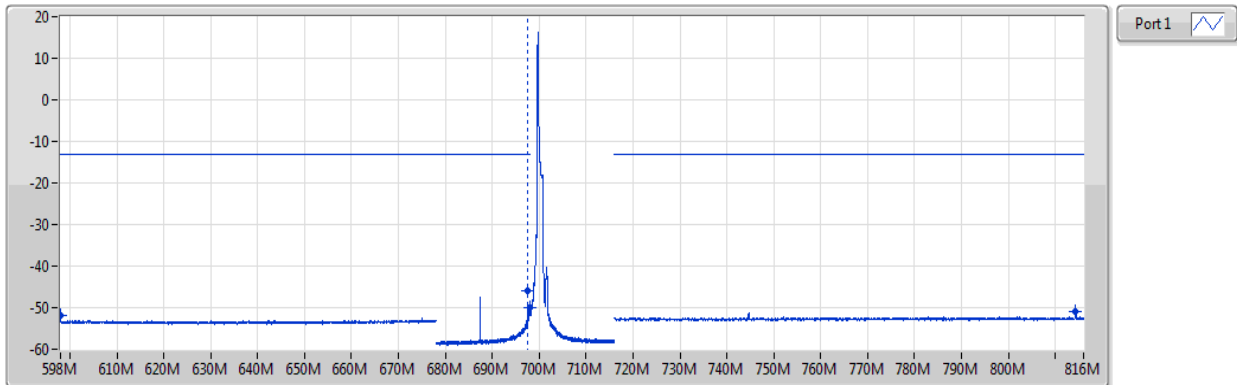
713.5MHz_16QAM_RB 5,#RB 0,NB 3



Band 12_LTE-M1_10MHz_Nss1,QPSK_1TX

CSE-TX-Port

704MHz_QPSK_RB 1,#RB 0,NB 0

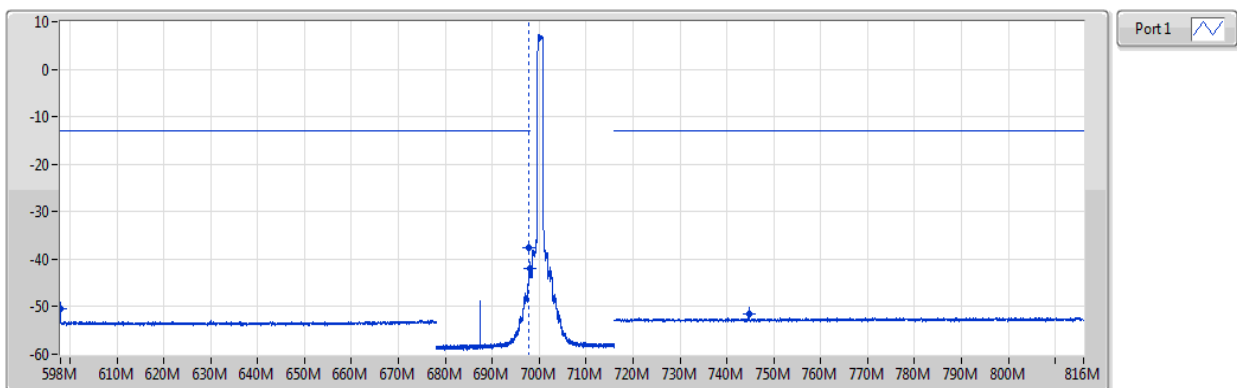


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	VBW(Hz)	Detector	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Port	Remark	Ref.Limit(dB)
598M	678M	100k	300k	RMS	598.04M	-51.78	-13.00	-38.78	1	-	-
678M	697.9M	30k	100k	RMS	697.55M	-45.94	-13.00	-32.94	1	MBW 100k	-
697.9M	698M	30k	100k	RMS	697.97M	-50.08	-13.00	-37.08	1	-	-
716M	816M	100k	300k	RMS	814.3M	-50.97	-13.00	-37.97	1	-	-

Band 12_LTE-M1_10MHz_Nss1,QPSK_1TX

CSE-TX-Port

704MHz_QPSK_RB 6,#RB 0,NB 0

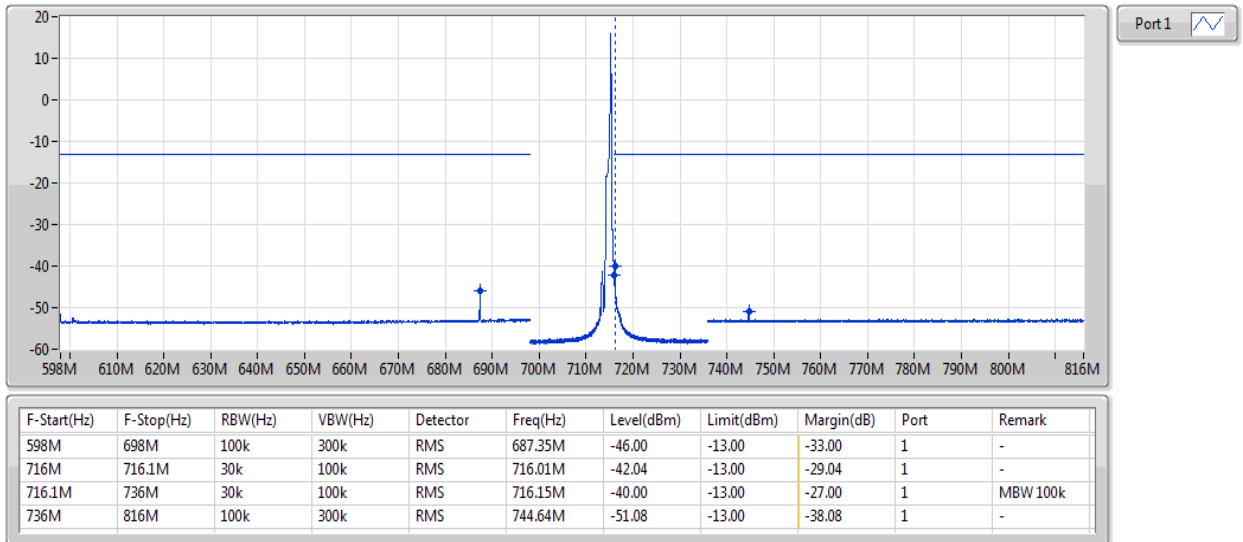


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	VBW(Hz)	Detector	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Port	Remark	Ref.Limit(dB)
598M	678M	100k	300k	RMS	598M	-50.48	-13.00	-37.48	1	-	-
678M	697.9M	30k	100k	RMS	697.85M	-37.61	-13.00	-24.61	1	MBW 100k	-
697.9M	698M	30k	100k	RMS	697.98M	-41.93	-13.00	-28.93	1	-	-
716M	816M	100k	300k	RMS	744.65M	-51.55	-13.00	-38.55	1	-	-

Band 12_LTE-M1_10MHz_Nss1,QPSK_1TX

CSE-TX-Port

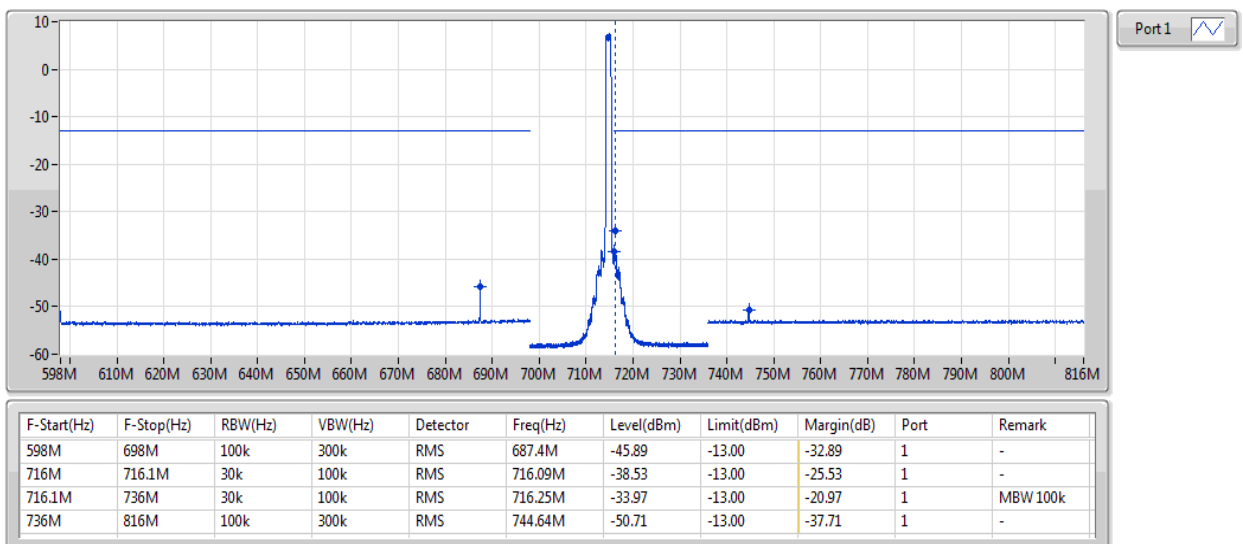
711MHz_QPSK_RB 1,#RB 5,NB 7



Band 12_LTE-M1_10MHz_Nss1,QPSK_1TX

CSE-TX-Port

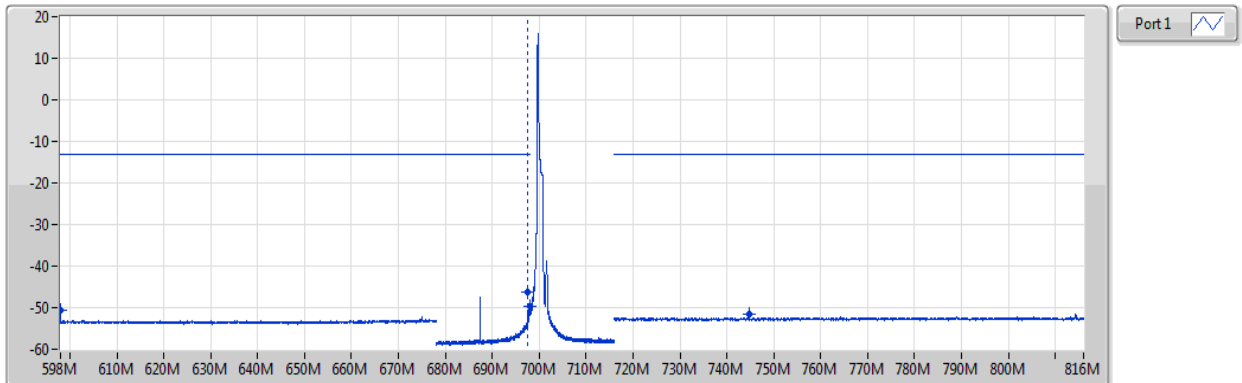
711MHz_QPSK_RB 6,#RB 0,NB 7



Band 12_LTE-M1_10MHz_Nss1,16QAM_1TX

CSE-TX-Port

704MHz_16QAM_RB 1,#RB 0,NB 0

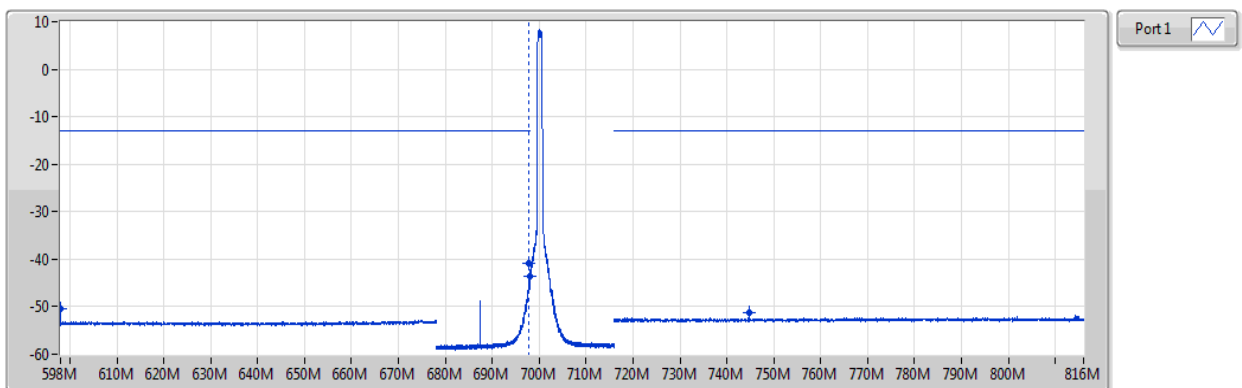


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	VBW(Hz)	Detector	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Port	Remark	Ref.Limit(dB)
598M	678M	100k	300k	RMS	598M	-50.70	-13.00	-37.70	1	-	-
678M	697.9M	30k	100k	RMS	697.55M	-46.19	-13.00	-33.19	1	MBW 100k	-
697.9M	698M	30k	100k	RMS	697.99M	-49.83	-13.00	-36.83	1	-	-
716M	816M	100k	300k	RMS	744.7M	-51.42	-13.00	-38.42	1	-	-

Band 12_LTE-M1_10MHz_Nss1,16QAM_1TX

CSE-TX-Port

704MHz_16QAM_RB 5,#RB 0,NB 0

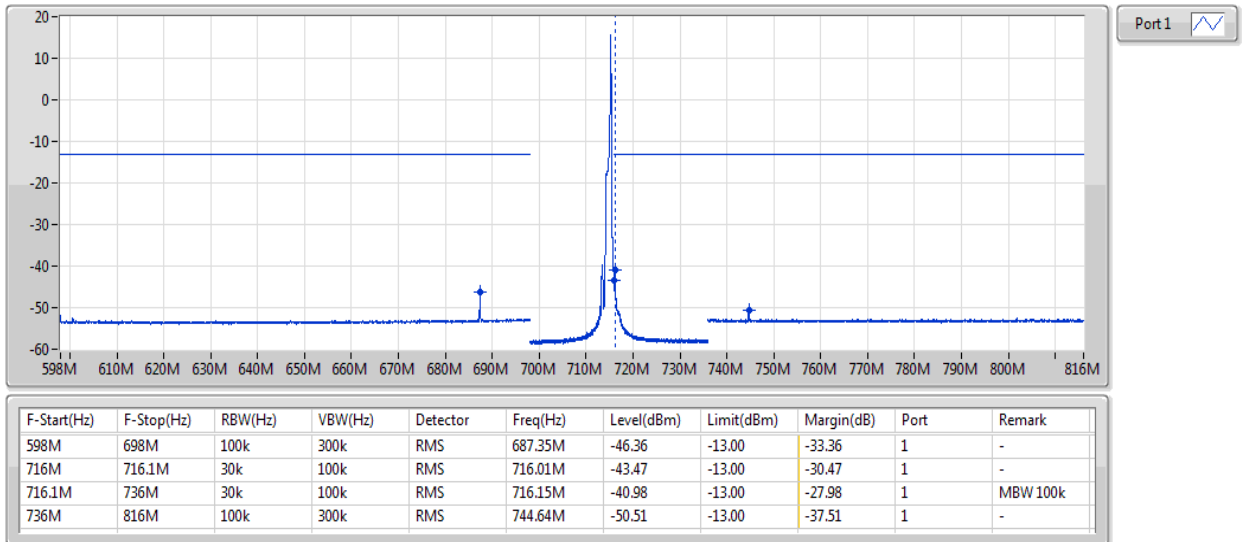


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	VBW(Hz)	Detector	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Port	Remark	Ref.Limit(dB)
598M	678M	100k	300k	RMS	598M	-50.53	-13.00	-37.53	1	-	-
678M	697.9M	30k	100k	RMS	697.85M	-40.95	-13.00	-27.95	1	MBW 100k	-
697.9M	698M	30k	100k	RMS	697.91M	-43.48	-13.00	-30.48	1	-	-
716M	816M	100k	300k	RMS	744.65M	-51.17	-13.00	-38.17	1	-	-

Band 12_LTE-M1_10MHz_Nss1,16QAM_1TX

CSE-TX-Port

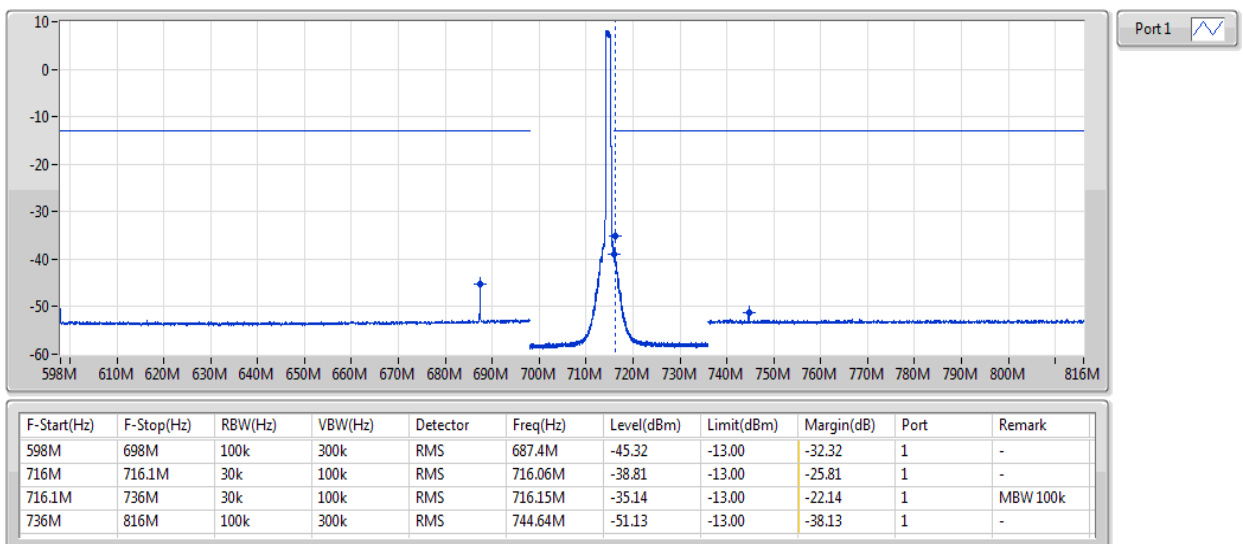
711MHz_16QAM_RB 1,#RB 5,NB 7



Band 12_LTE-M1_10MHz_Nss1,16QAM_1TX

CSE-TX-Port

711MHz_16QAM_RB 5,#RB 0,NB 7



LTE Band 13

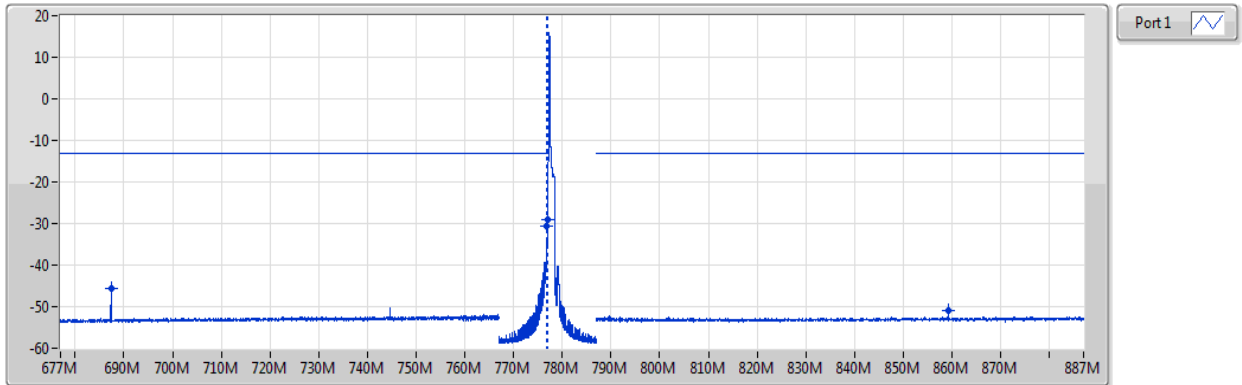
Summary

Mode	Result	F-Start (Hz)	F-Stop (Hz)	RBW (Hz)	VBW (Hz)	Detector	Freq (Hz)	Level (dBm)	Limit (dBm)	Margin (dB)	Port	Remark	Ref.Limit (dB)
Band 13	-	-	-	-	-	-	-	-	-	-	-	-	-
LTE-M1_5MHz_Nss1,QPSK_1TX	Pass	787M	787.1M	30k	100k	RMS	787M	-27.14	-13.00	-14.14	1	-	-
LTE-M1_5MHz_Nss1,16QAM_1TX	Pass	776.9M	777M	30k	100k	RMS	777M	-28.31	-13.00	-15.31	1	-	-
LTE-M1_10MHz_Nss1,QPSK_1TX	Pass	763M	775M	10k	30k	RMS	774.88M	-53.84	-35.00	-18.84	1	-	-
LTE-M1_10MHz_Nss1,16QAM_1TX	Pass	787.1M	807M	30k	100k	RMS	787.15M	-32.98	-13.00	-19.98	1	MBW 100k	-

Band 13_LTE-M1_5MHz_Nss1,QPSK_1TX

CSE-TX-Port

779.5MHz_QPSK_RB 1,#RB 0,NB 0

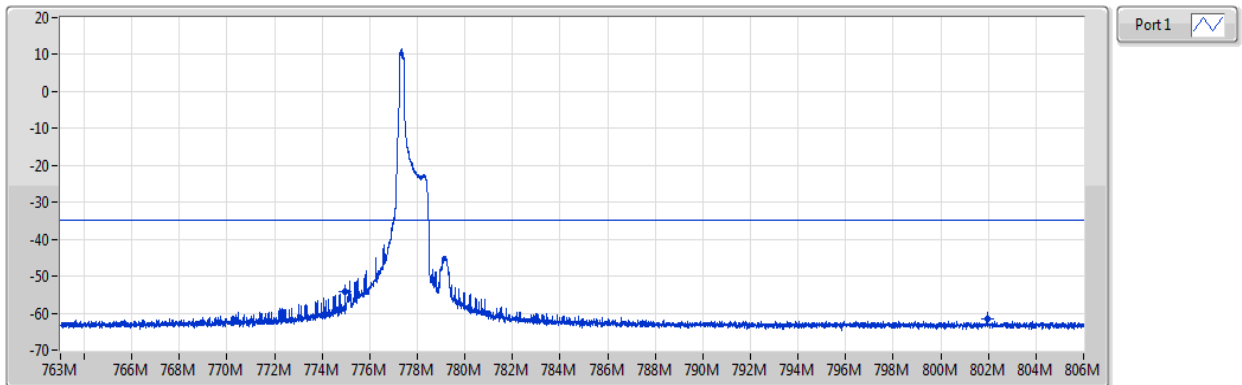


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	VBW(Hz)	Detector	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Port	Remark	Ref.Limit(dB)
677M	767M	100k	300k	RMS	687.35M	-45.75	-13.00	-32.75	1	-	-
767M	776.9M	30k	100k	RMS	776.85M	-30.56	-13.00	-17.56	1	MBW 100k	-
776.9M	777M	30k	100k	RMS	776.98M	-28.92	-13.00	-15.92	1	-	-
787M	887M	100k	300k	RMS	859.2M	-50.89	-13.00	-37.89	1	-	-

Band 13_LTE-M1_5MHz_Nss1,QPSK_1TX

CSE-TX-Port

779.5MHz_QPSK_RB 1,#RB 0,NB 0

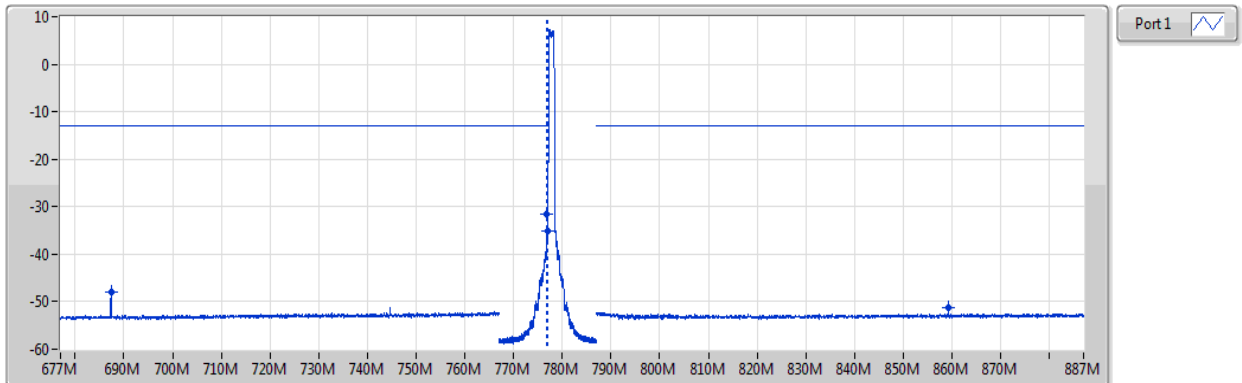


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	VBW(Hz)	Detector	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Port	Remark	Ref.Limit(dB)
763M	775M	10k	30k	RMS	774.96M	-54.14	-35.00	-19.14	1	-	-
793M	806M	10k	30k	RMS	801.94M	-61.45	-35.00	-26.45	1	-	-

Band 13_LTE-M1_5MHz_Nss1,QPSK_1TX

CSE-TX-Port

779.5MHz_QPSK_RB 6,#RB 0,NB 0

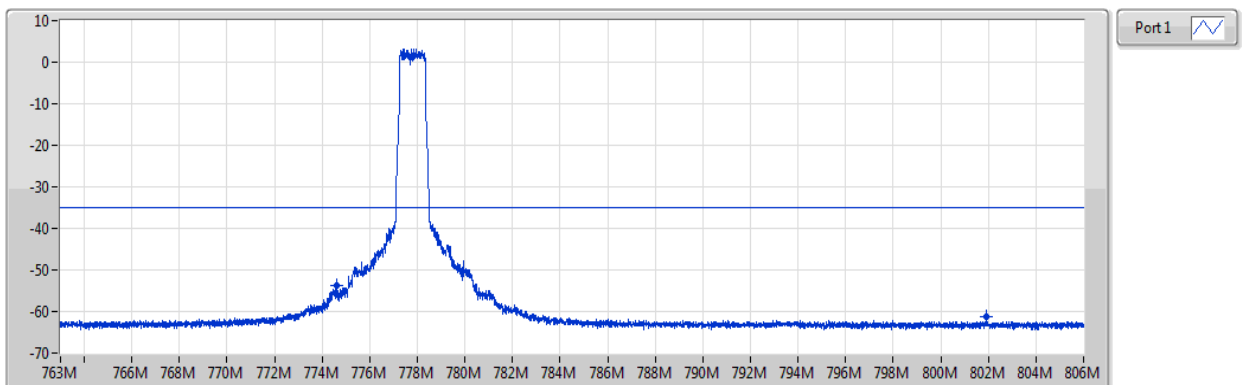


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	VBW(Hz)	Detector	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Port	Remark	Ref.Limit(dB)
677M	767M	100k	300k	RMS	687.4M	-48.03	-13.00	-35.03	1	-	-
767M	776.9M	30k	100k	RMS	776.85M	-31.47	-13.00	-18.47	1	MBW 100k	-
776.9M	777M	30k	100k	RMS	776.98M	-35.07	-13.00	-22.07	1	-	-
787M	887M	100k	300k	RMS	859.2M	-51.13	-13.00	-38.13	1	-	-

Band 13_LTE-M1_5MHz_Nss1,QPSK_1TX

CSE-TX-Port

779.5MHz_QPSK_RB 6,#RB 0,NB 0

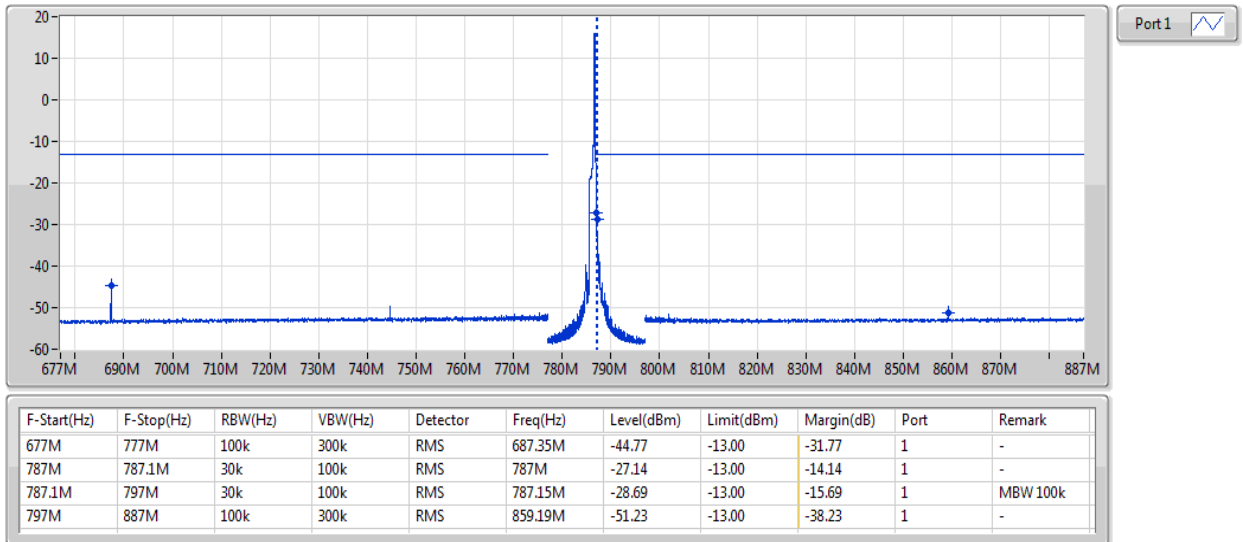


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	VBW(Hz)	Detector	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Port	Remark	Ref.Limit(dB)
763M	775M	10k	30k	RMS	774.59M	-53.88	-35.00	-18.88	1	-	-
793M	806M	10k	30k	RMS	801.93M	-61.24	-35.00	-26.24	1	-	-

Band 13_LTE-M1_5MHz_Nss1,QPSK_1TX

CSE-TX-Port

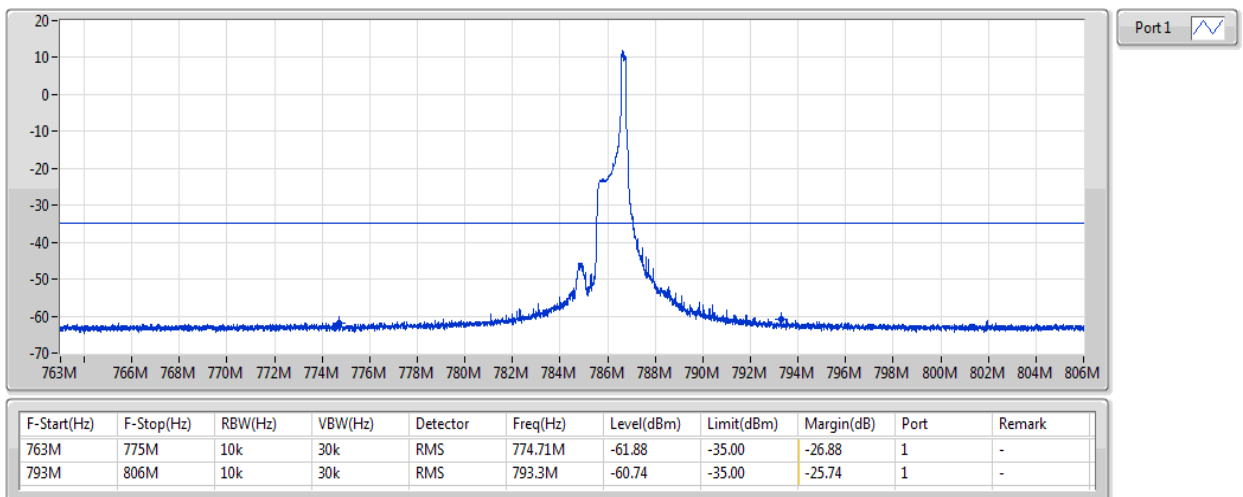
784.5MHz_QPSK_RB 1,#RB 5,NB 3



Band 13_LTE-M1_5MHz_Nss1,QPSK_1TX

CSE-TX-Port

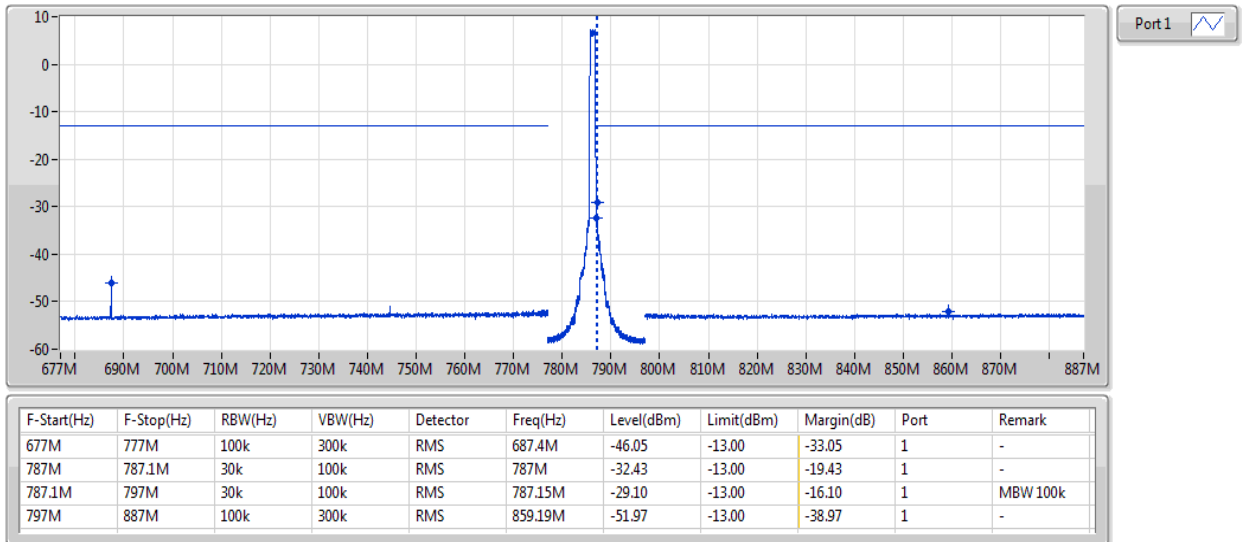
784.5MHz_QPSK_RB 1,#RB 5,NB 3



Band 13_LTE-M1_5MHz_Nss1,QPSK_1TX

CSE-TX-Port

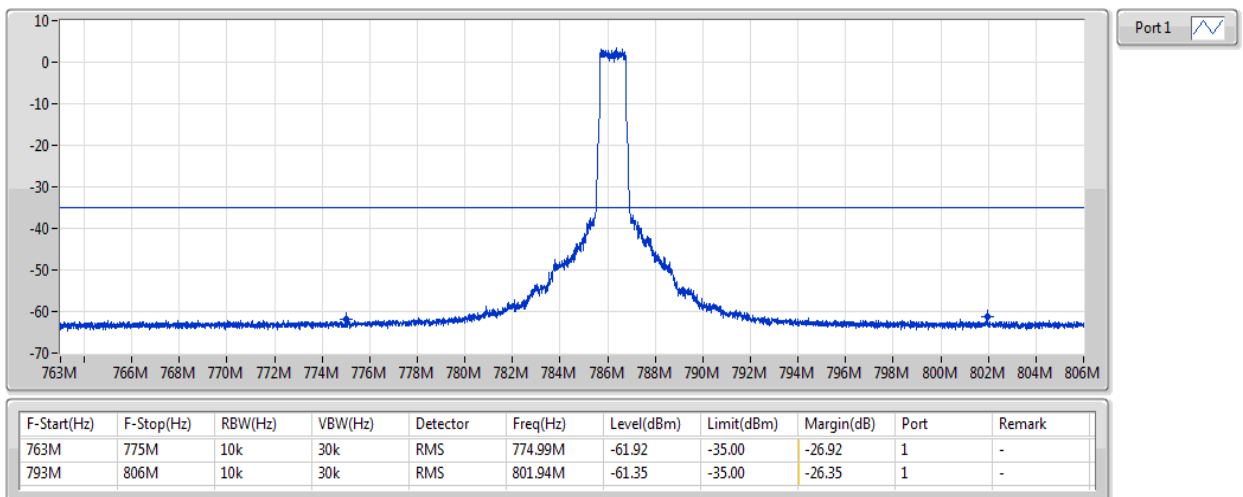
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Band 13_LTE-M1_5MHz_Nss1,QPSK_1TX

CSE-TX-Port

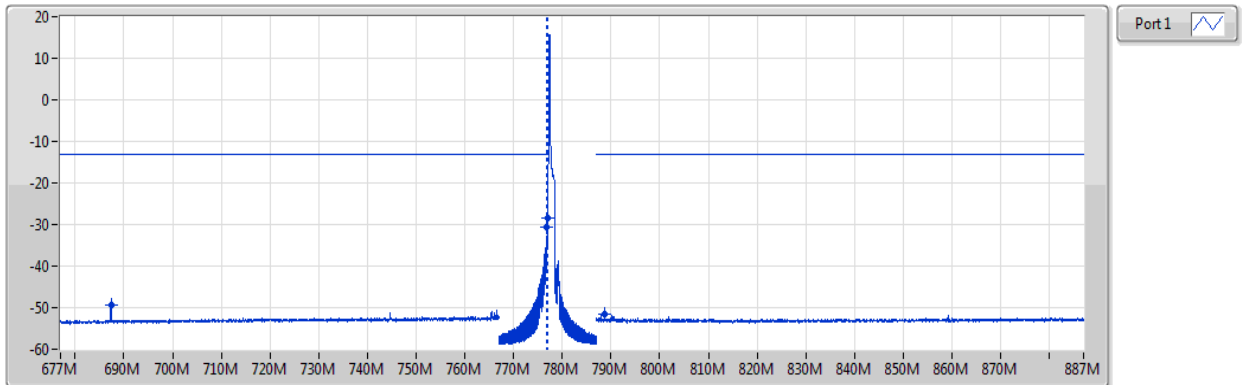
784.5MHz_QPSK_RB 6,#RB 0,NB 3



Band 13_LTE-M1_5MHz_Nss1,16QAM_1TX

CSE-TX-Port

779.5MHz_16QAM_RB 1,#RB 0,NB 0

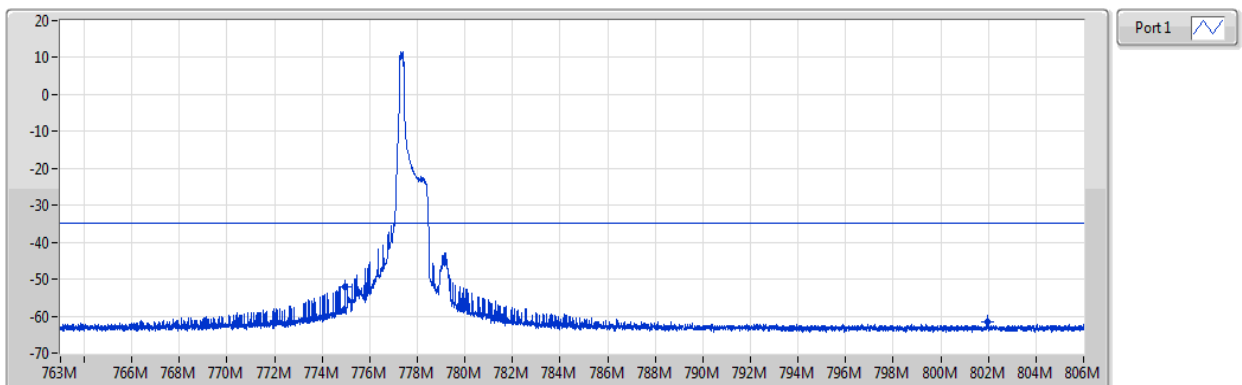


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	VBW(Hz)	Detector	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Port	Remark	Ref.Limit(dB)
677M	767M	100k	300k	RMS	687.35M	-49.31	-13.00	-36.31	1	-	-
767M	776.9M	30k	100k	RMS	776.85M	-30.72	-13.00	-17.72	1	MBW 100k	-
776.9M	777M	30k	100k	RMS	777M	-28.31	-13.00	-15.31	1	-	-
787M	887M	100k	300k	RMS	788.65M	-51.57	-13.00	-38.57	1	-	-

Band 13_LTE-M1_5MHz_Nss1,16QAM_1TX

CSE-TX-Port

779.5MHz_16QAM_RB 1,#RB 0,NB 0

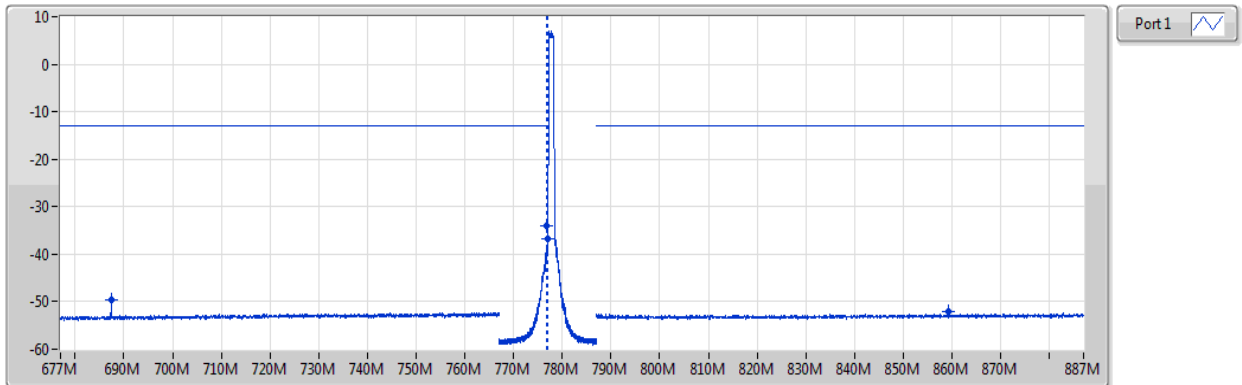


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	VBW(Hz)	Detector	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Port	Remark	Ref.Limit(dB)
763M	775M	10k	30k	RMS	774.95M	-52.13	-35.00	-17.13	1	-	-
793M	806M	10k	30k	RMS	801.94M	-61.61	-35.00	-26.61	1	-	-

Band 13_LTE-M1_5MHz_Nss1,16QAM_1TX

CSE-TX-Port

779.5MHz_16QAM_RB 5,#RB 0,NB 0

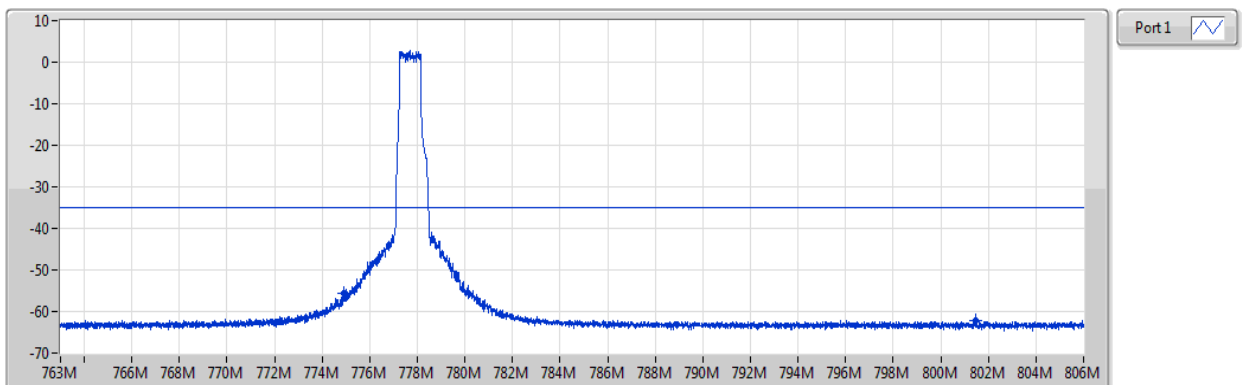


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	VBW(Hz)	Detector	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Port	Remark	Ref.Limit(dB)
677M	767M	100k	300k	RMS	687.4M	-49.66	-13.00	-36.66	1	-	-
767M	776.9M	30k	100k	RMS	776.85M	-34.15	-13.00	-21.15	1	MBW 100k	-
776.9M	777M	30k	100k	RMS	776.96M	-36.65	-13.00	-23.65	1	-	-
787M	887M	100k	300k	RMS	859.2M	-52.10	-13.00	-39.10	1	-	-

Band 13_LTE-M1_5MHz_Nss1,16QAM_1TX

CSE-TX-Port

779.5MHz_16QAM_RB 5,#RB 0,NB 0

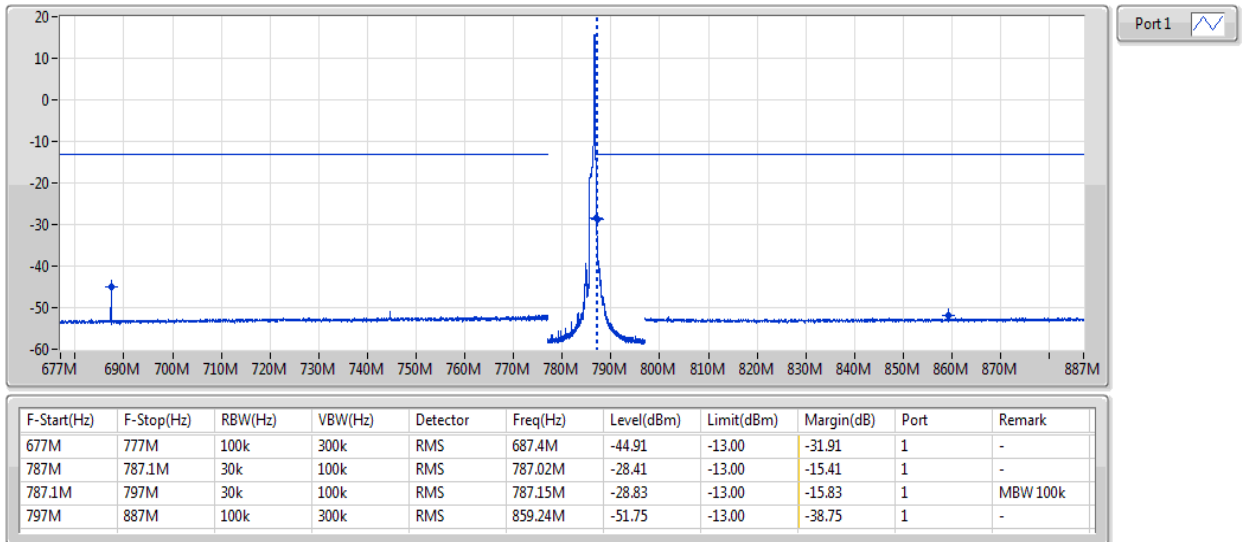


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	VBW(Hz)	Detector	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Port	Remark	Ref.Limit(dB)
763M	775M	10k	30k	RMS	774.92M	-55.56	-35.00	-20.56	1	-	-
793M	806M	10k	30k	RMS	801.45M	-62.04	-35.00	-27.04	1	-	-

Band 13_LTE-M1_5MHz_Nss1,16QAM_1TX

CSE-TX-Port

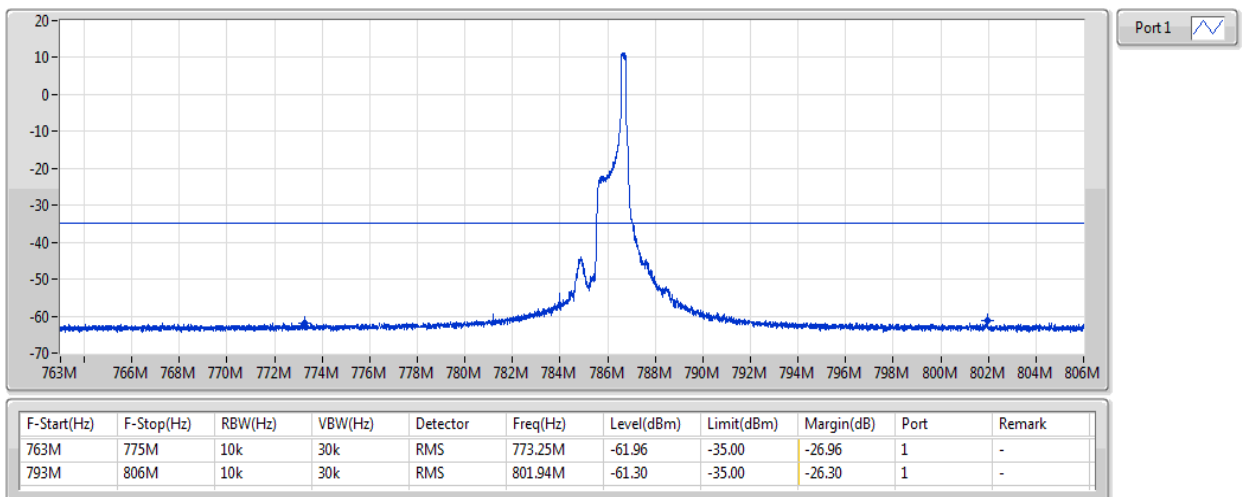
784.5MHz_16QAM_RB 1,#RB 5,NB 3



Band 13_LTE-M1_5MHz_Nss1,16QAM_1TX

CSE-TX-Port

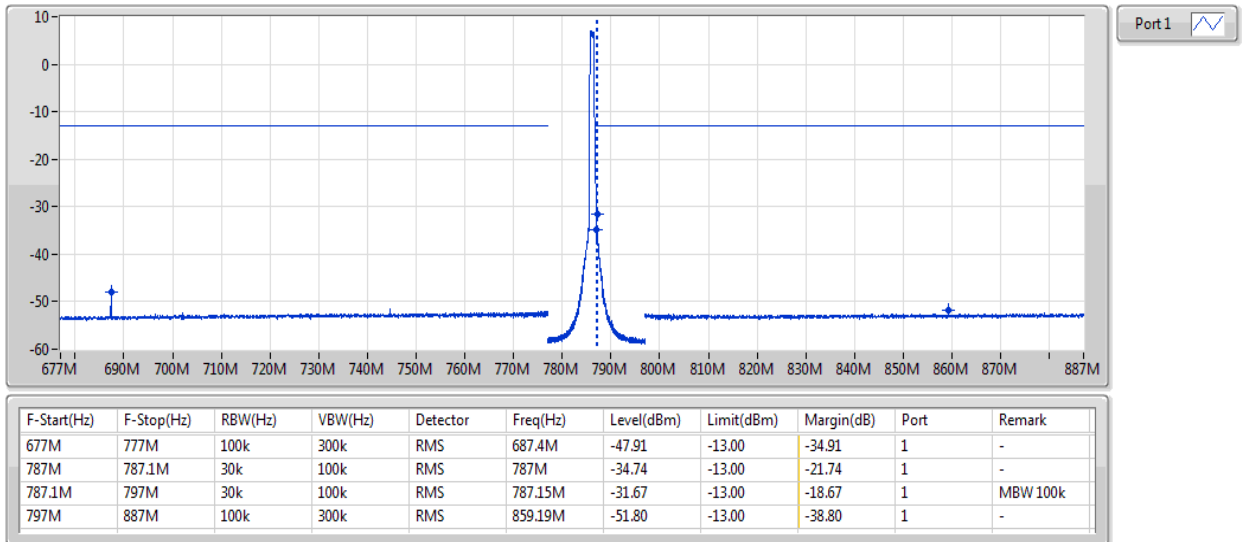
784.5MHz_16QAM_RB 1,#RB 5,NB 3



Band 13_LTE-M1_5MHz_Nss1,16QAM_1TX

CSE-TX-Port

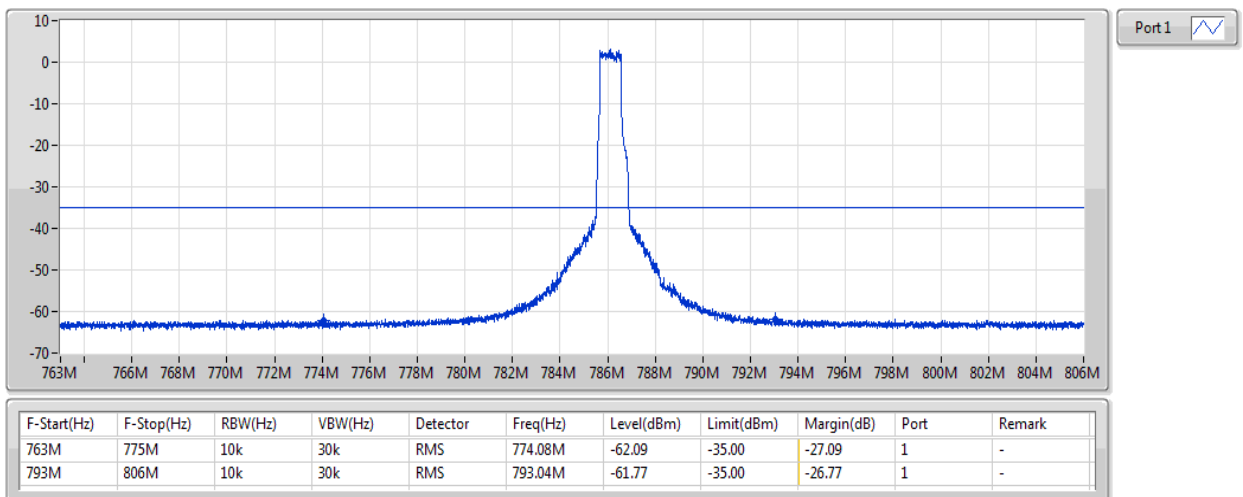
784.5MHz_16QAM_RB 5,#RB 0,NB 3



Band 13_LTE-M1_5MHz_Nss1,16QAM_1TX

CSE-TX-Port

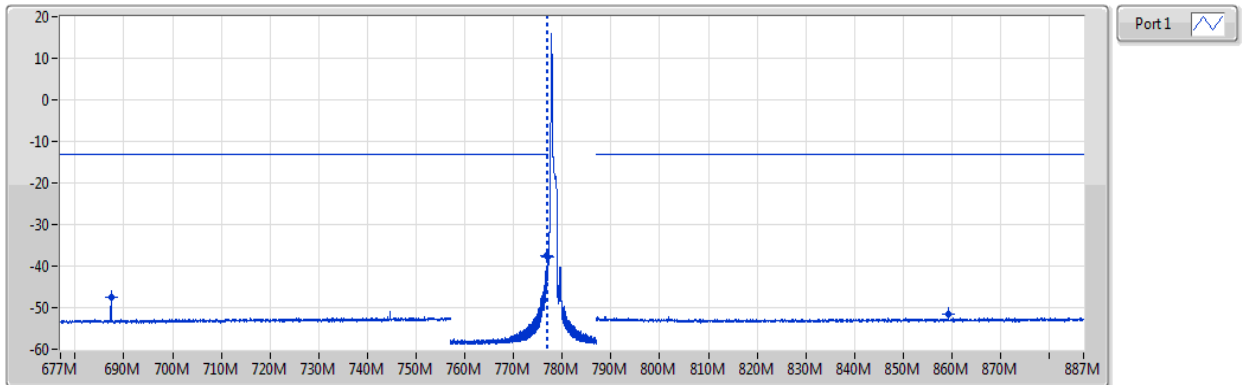
784.5MHz_16QAM_RB 5,#RB 0,NB 3



Band 13_LTE-M1_10MHz_Nss1,QPSK_1TX

CSE-TX-Port

782MHz_QPSK_RB 1,#RB 0,NB 0

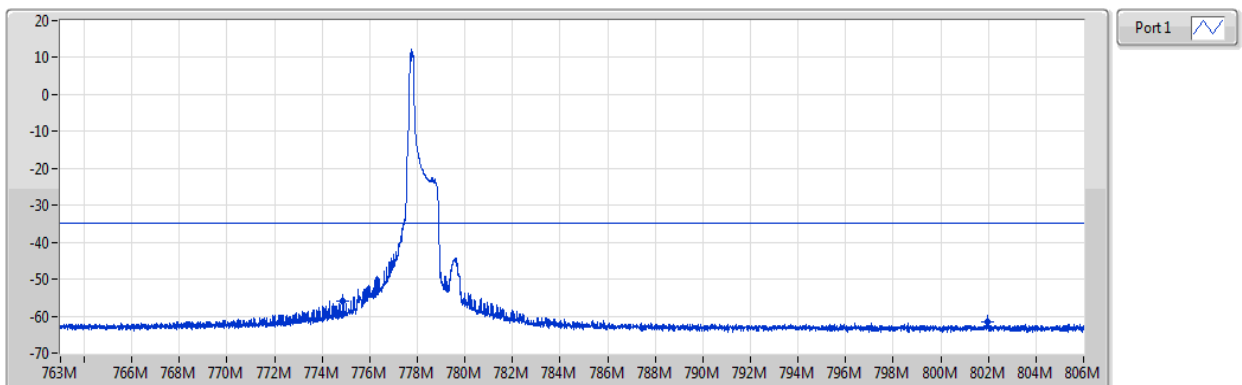


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	VBW(Hz)	Detector	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Port	Remark	Ref.Limit(dB)
677M	757M	100k	300k	RMS	687.36M	-47.51	-13.00	-34.51	1	-	-
757M	776.9M	30k	100k	RMS	776.85M	-37.45	-13.00	-24.45	1	MBW 100k	-
776.9M	777M	30k	100k	RMS	777M	-37.76	-13.00	-24.76	1	-	-
787M	887M	100k	300k	RMS	859.2M	-51.70	-13.00	-38.70	1	-	-

Band 13_LTE-M1_10MHz_Nss1,QPSK_1TX

CSE-TX-Port

782MHz_QPSK_RB 1,#RB 0,NB 0

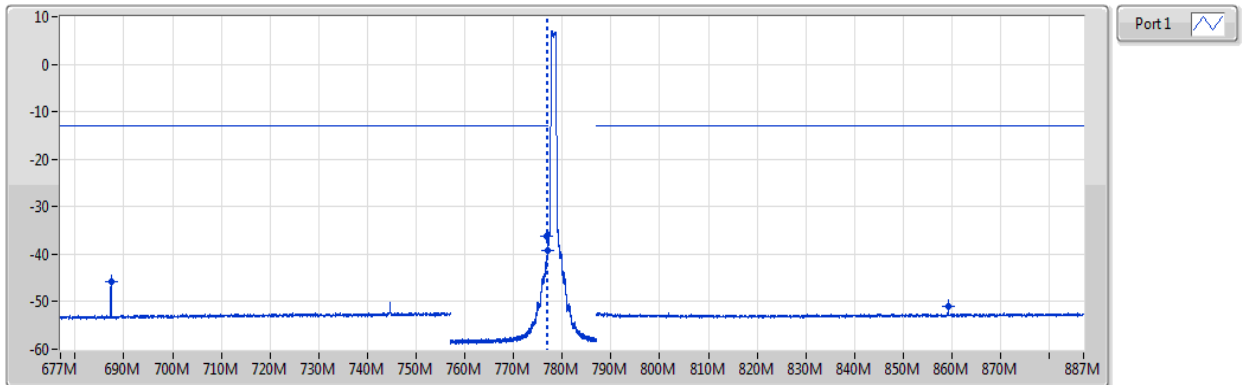


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	VBW(Hz)	Detector	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Port	Remark	Ref.Limit(dB)
763M	775M	10k	30k	RMS	774.85M	-55.99	-35.00	-20.99	1	-	-
793M	806M	10k	30k	RMS	801.94M	-61.57	-35.00	-26.57	1	-	-

Band 13_LTE-M1_10MHz_Nss1,QPSK_1TX

CSE-TX-Port

782MHz_QPSK_RB 6,#RB 0,NB 0

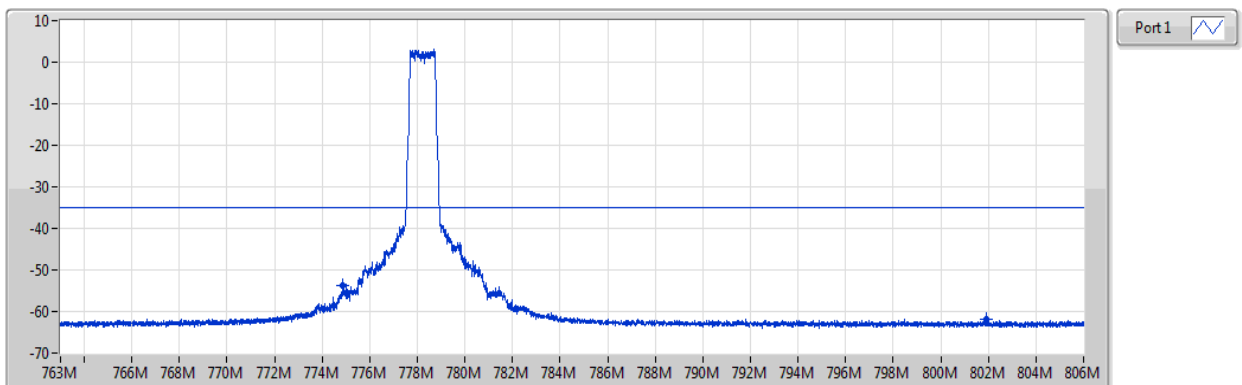


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	VBW(Hz)	Detector	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Port	Remark	Ref.Limit(dB)
677M	757M	100k	300k	RMS	687.36M	-45.83	-13.00	-32.83	1	-	-
757M	776.9M	30k	100k	RMS	776.85M	-36.17	-13.00	-23.17	1	MBW 100k	-
776.9M	777M	30k	100k	RMS	777M	-39.34	-13.00	-26.34	1	-	-
787M	887M	100k	300k	RMS	859.2M	-51.06	-13.00	-38.06	1	-	-

Band 13_LTE-M1_10MHz_Nss1,QPSK_1TX

CSE-TX-Port

782MHz_QPSK_RB 6,#RB 0,NB 0

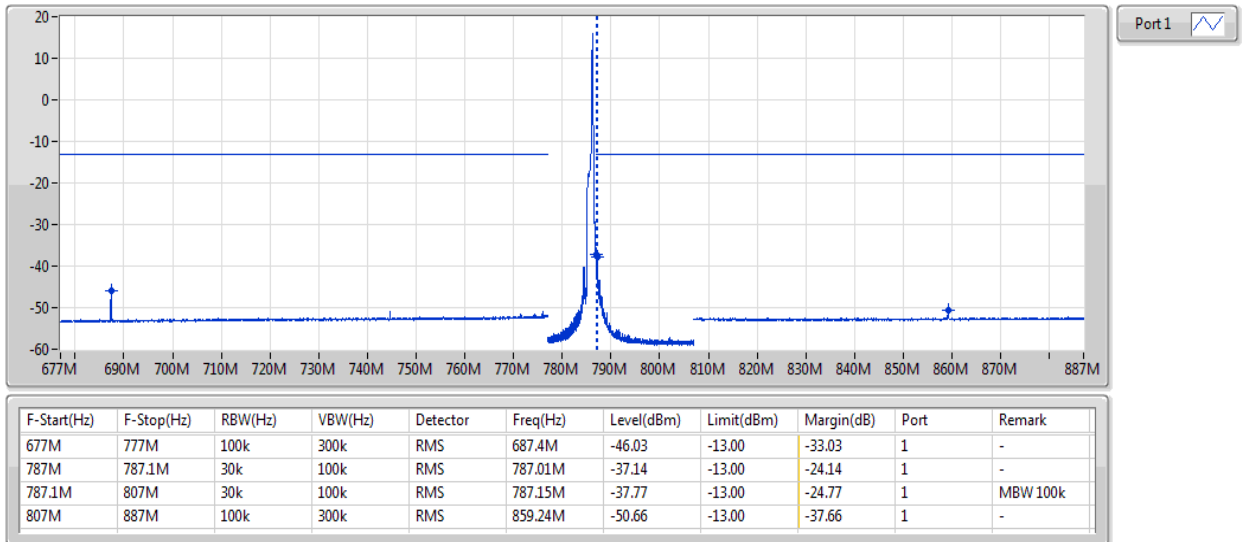


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	VBW(Hz)	Detector	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Port	Remark	Ref.Limit(dB)
763M	775M	10k	30k	RMS	774.88M	-53.84	-35.00	-18.84	1	-	-
793M	806M	10k	30k	RMS	801.93M	-61.85	-35.00	-26.85	1	-	-

Band 13_LTE-M1_10MHz_Nss1,QPSK_1TX

CSE-TX-Port

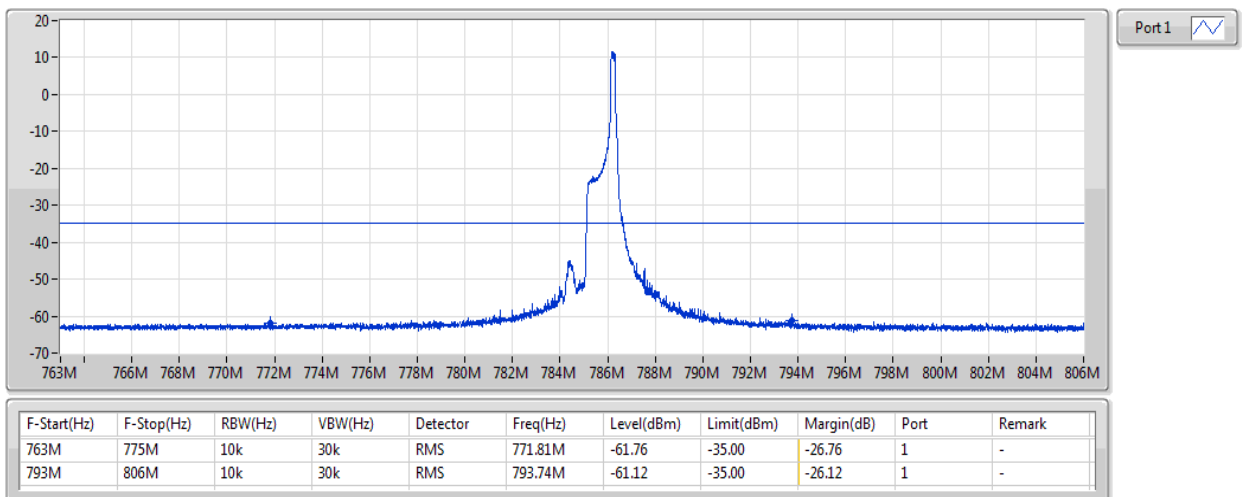
782MHz_QPSK_RB 1,#RB 5,NB 7



Band 13_LTE-M1_10MHz_Nss1,QPSK_1TX

CSE-TX-Port

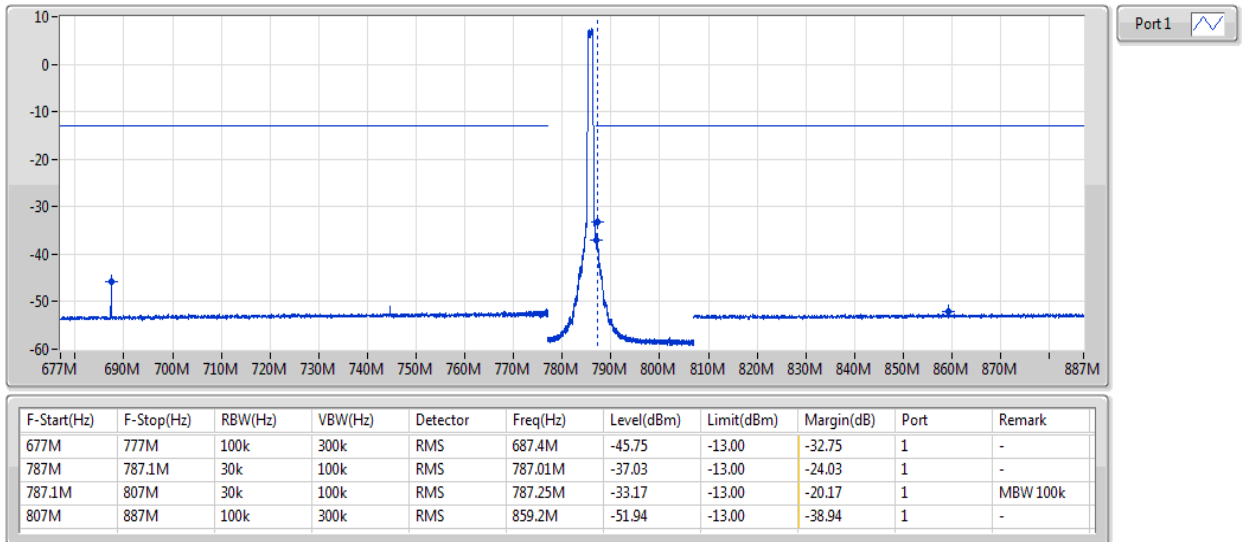
782MHz_QPSK_RB 1,#RB 5,NB 7



Band 13_LTE-M1_10MHz_Nss1,QPSK_1TX

CSE-TX-Port

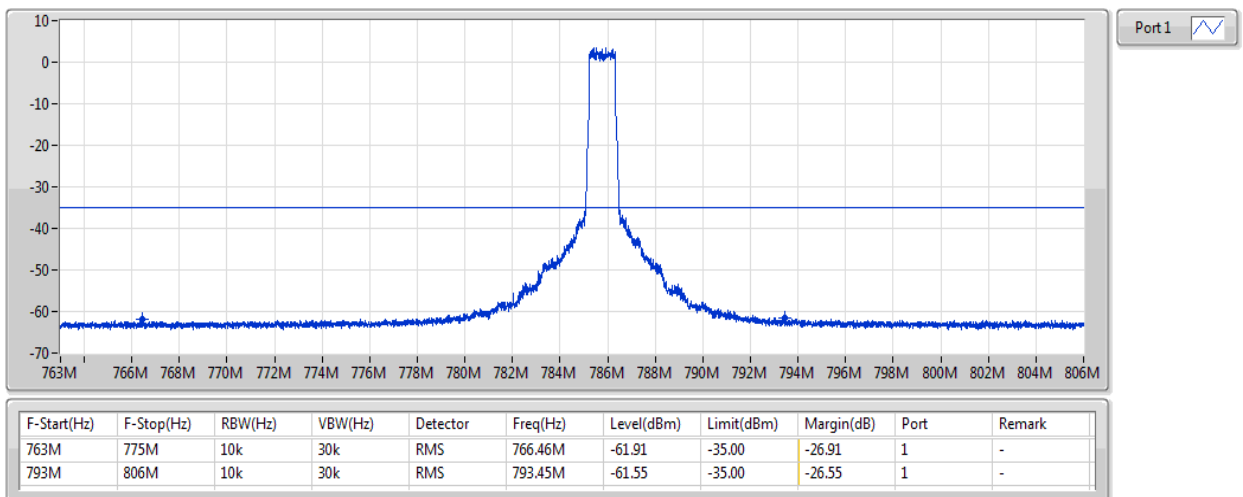
782MHz_QPSK_RB 6,#RB 0,NB 7



Band 13_LTE-M1_10MHz_Nss1,QPSK_1TX

CSE-TX-Port

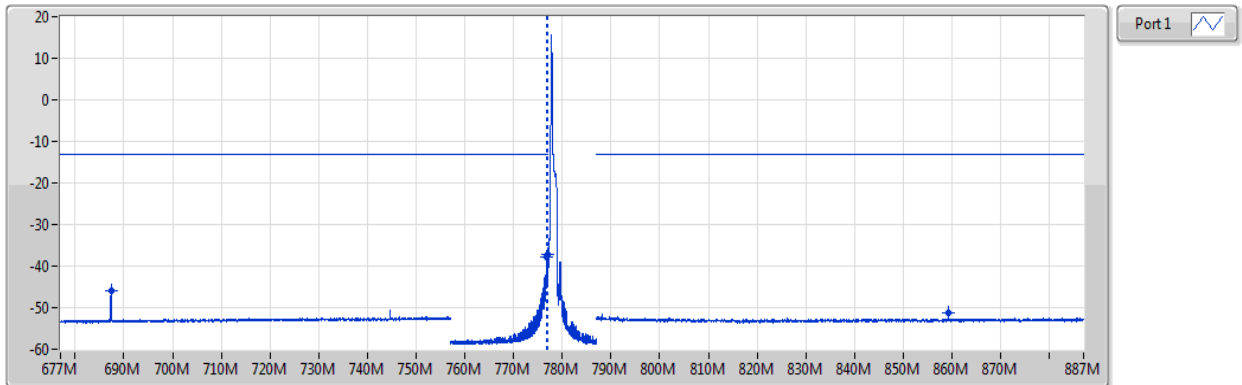
782MHz_QPSK_RB 6,#RB 0,NB 7



Band 13_LTE-M1_10MHz_Nss1,16QAM_1TX

CSE-TX-Port

782MHz_16QAM_RB 1,#RB 0,NB 0

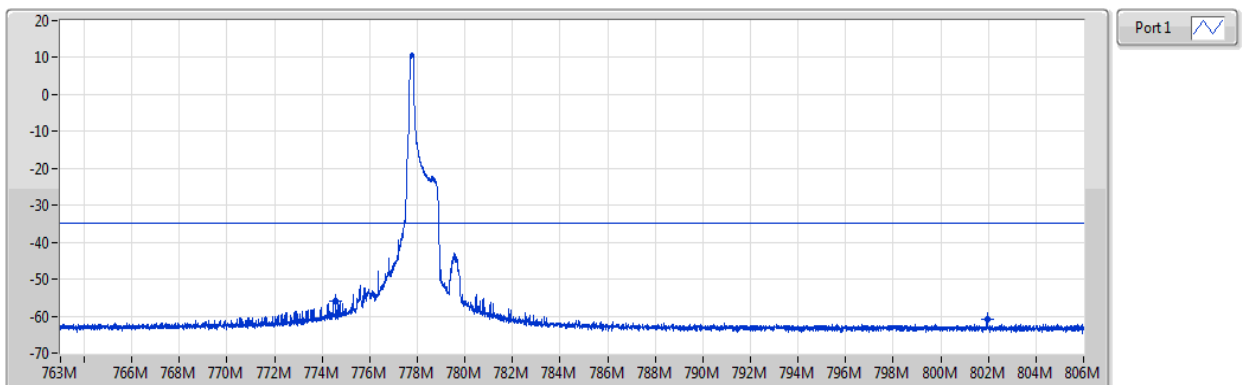


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	VBW(Hz)	Detector	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Port	Remark	Ref.Limit(dB)
677M	757M	100k	300k	RMS	687.36M	-45.95	-13.00	-32.95	1	-	-
757M	776.9M	30k	100k	RMS	776.85M	-37.94	-13.00	-24.94	1	MBW 100k	-
776.9M	777M	30k	100k	RMS	777M	-37.08	-13.00	-24.08	1	-	-
787M	887M	100k	300k	RMS	859.2M	-51.14	-13.00	-38.14	1	-	-

Band 13_LTE-M1_10MHz_Nss1,16QAM_1TX

CSE-TX-Port

782MHz_16QAM_RB 1,#RB 0,NB 0

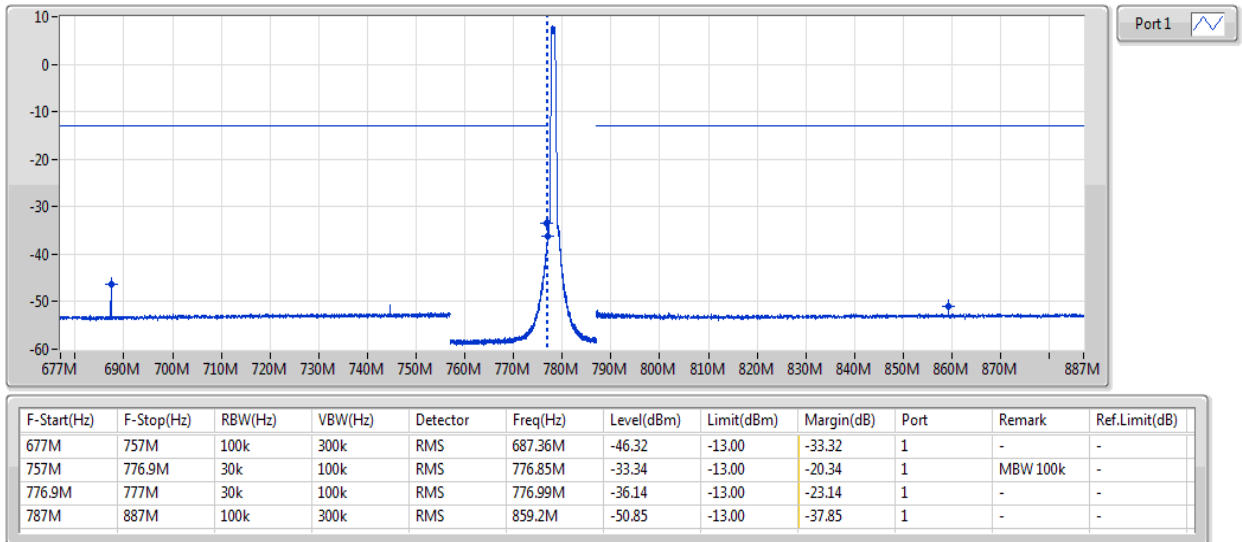


F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	VBW(Hz)	Detector	Freq(Hz)	Level(dBm)	Limit(dBm)	Margin(dB)	Port	Remark	Ref.Limit(dB)
763M	775M	10k	30k	RMS	774.58M	-55.95	-35.00	-20.95	1	-	-
793M	806M	10k	30k	RMS	801.94M	-60.80	-35.00	-25.80	1	-	-

Band 13_LTE-M1_10MHz_Nss1,16QAM_1TX

CSE-TX-Port

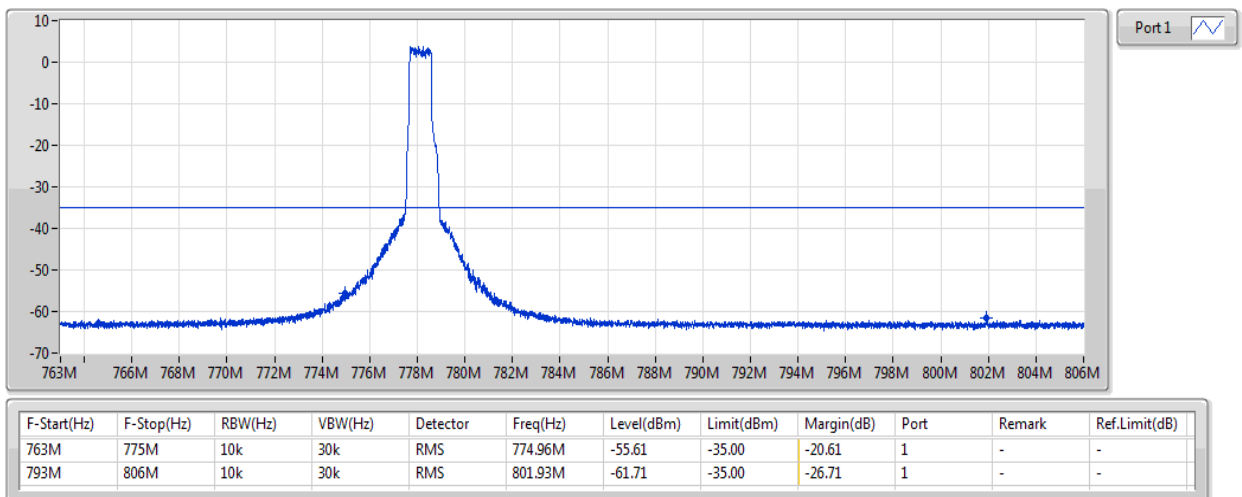
782MHz_16QAM_RB 5,#RB 0,NB 0



Band 13_LTE-M1_10MHz_Nss1,16QAM_1TX

CSE-TX-Port

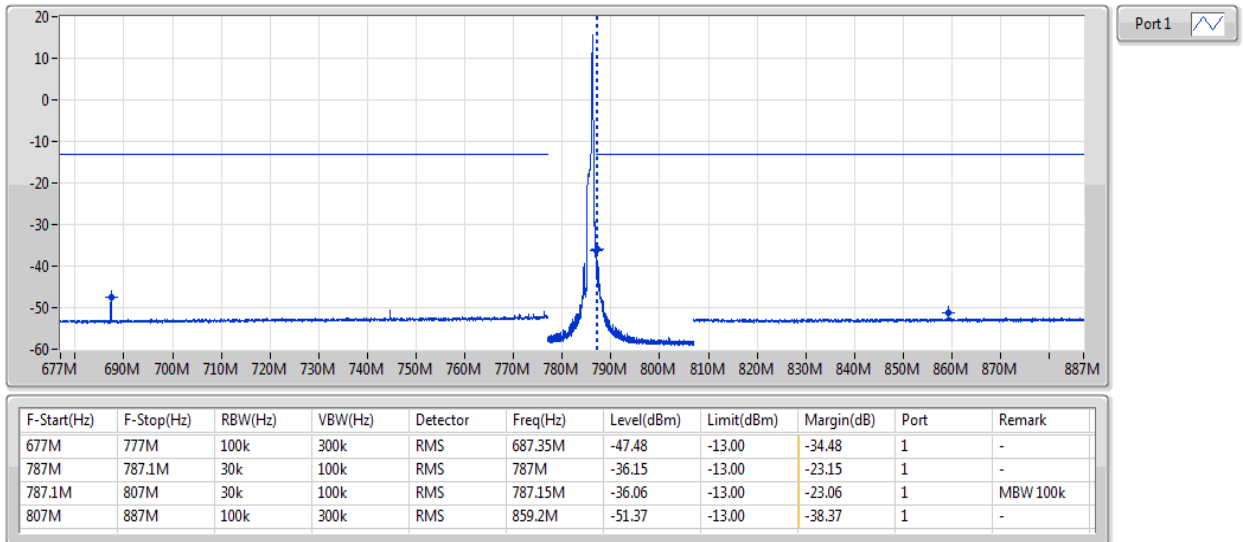
782MHz_16QAM_RB 5,#RB 0,NB 0



Band 13_LTE-M1_10MHz_Nss1,16QAM_1TX

CSE-TX-Port

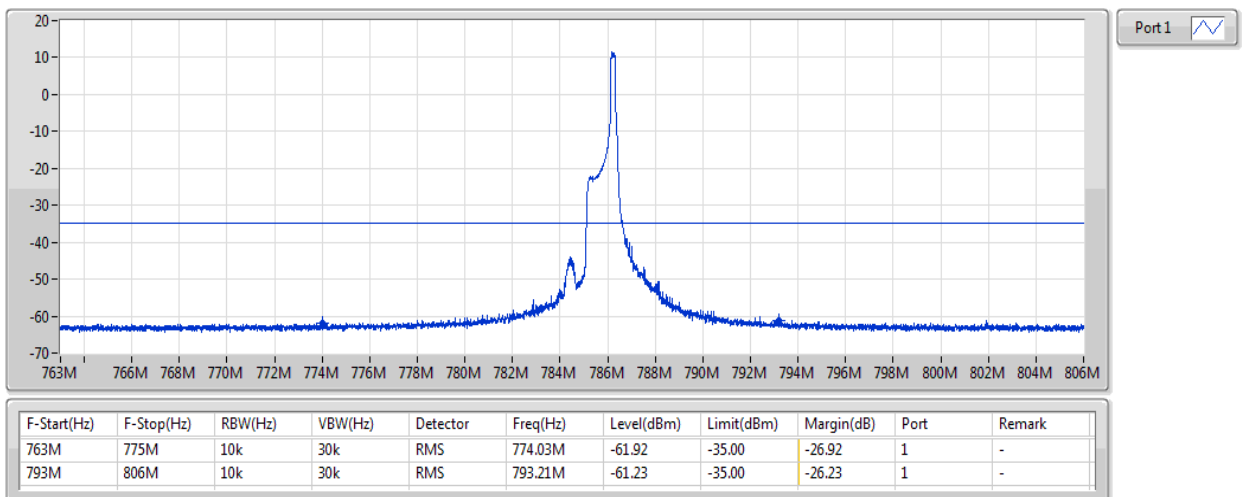
782MHz_16QAM_RB 1,#RB 5,NB 7



Band 13_LTE-M1_10MHz_Nss1,16QAM_1TX

CSE-TX-Port

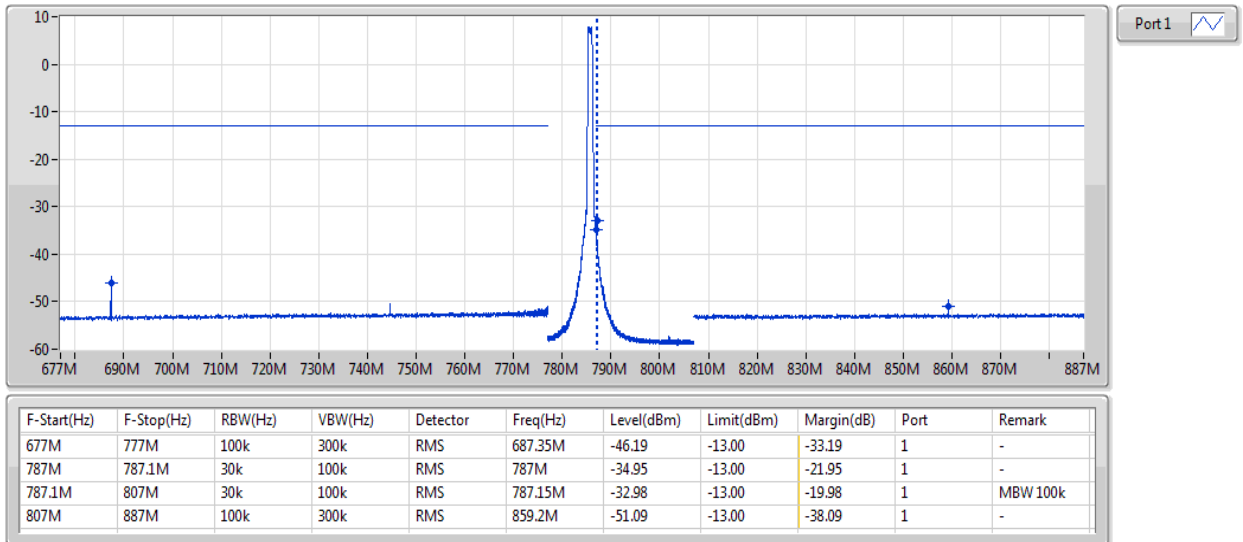
782MHz_16QAM_RB 1,#RB 5,NB 7



Band 13_LTE-M1_10MHz_Nss1,16QAM_1TX

CSE-TX-Port

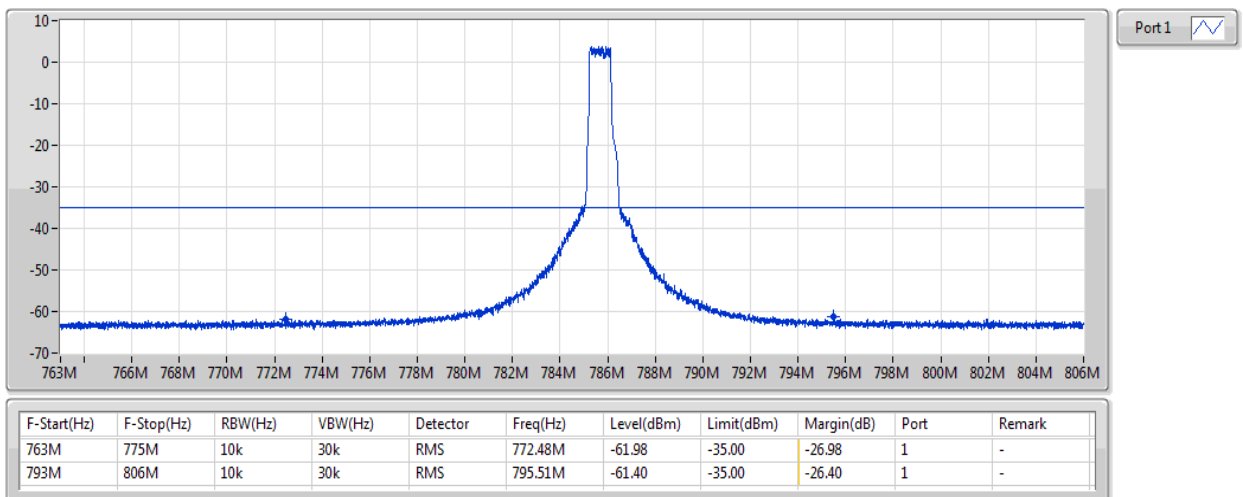
782MHz_16QAM_RB 5,#RB 0,NB 7



Band 13_LTE-M1_10MHz_Nss1,16QAM_1TX

CSE-TX-Port

782MHz_16QAM_RB 5,#RB 0,NB 7



4 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corp (EMC and Wireless Communication Laboratory), it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan District. Location map can be found on our website <http://www.icertifi.com.tw>.

Linkou

Tel: 886-2-2601-1640

No. 30-2, Ding Fwu Tsuen, Lin
Kou District, New Taipei City,
Taiwan, R.O.C.

Kwei Shan

Tel: 886-3-271-8666

No. 3-1, Lane 6, Wen San 3rd St.,
Kwei Shan District, Tao Yuan City
333, Taiwan, R.O.C.

Kwei Shan Site II

Tel: 886-3-271-8640

No. 14-1, Lane 19, Wen San 3rd
St., Kwei Shan District, Tao Yuan
City 333, Taiwan, R.O.C..

If you have any suggestion, please feel free to contact us as below information

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Fax: 886-3-318-0155

Email: ICC_Service@icertifi.com.tw

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