Shenzhen Huaxia Testing Technology Co., Ltd

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Report Template Version: V03
Report Template Revision Date: Mar.1st, 2017

Test Report

Report No. :	CQASZ20181200010E-02
Applicant:	Shenzhen Hesibond IOT Technology Corp., Ltd.
Address of Applicant:	Room 418, 4th Floor, Shenyi Industrial Building, Nanshan Avenue, Nanshan Street, Nanshan District, Shenzhen, China
Manufacturer:	Shenzhen Hesibond IOT Technology Corp., Ltd.
Address of Manufacturer:	Room 418, 4th Floor, Shenyi Industrial Building, Nanshan Avenue, Nanshan Street, Nanshan District, Shenzhen, China
Product Name:	IOT Lock Gateway
Model No.(EUT):	2ASI7-HB-WLK-02
Trade Mark:	hesibond IOT Tech
FCC ID:	2ASI7-HB-WLK-02
Standards:	47 CFR Part 2, 47 CFR Part 27
Test Method:	FCC KDB 971168 D01 Power Meas License Digital Systems v03r01 ANSI C63.26-2015 ANSI /TIA-603-E
Date of Test:	2018-12-06 to 2019-05-14
Date of Issue:	2019-05-14
Test Result :	**PASS***

Tested By: Tiny You

(Tiny You)

Reviewed By: Aaron Ma

(Aaron Ma)

Approved By:

(Jack Ai)

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

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CQA, this report can't be reproduced except in full.

1 Version

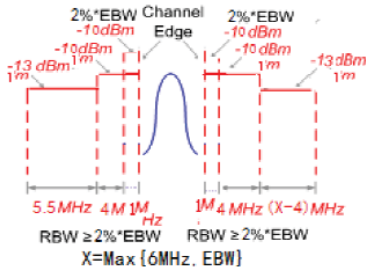
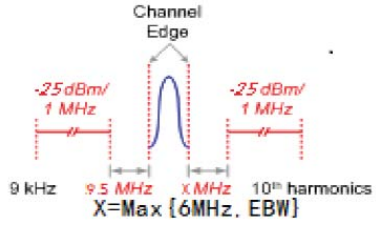
Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20181200010E-02	Rev.01	Initial report	2019-05-14

2 Content

3 Test Summary

3.1 BRS&EBS Band7 (2500-2570 MHz paired with 2620-2690 MHz)

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §27.50(h)	EIRP ≤ 2 W(33dBm)	Appendix A	PASS
Peak-Average Ratio	§27.50(a)	≤13dB	Appendix A	PASS
Bandwidth	§2.1049	OBW: No limit EBW: No limit	Appendix A	PASS
Band Edge Compliance	§2.1051, §27.53(m)		Appendix A	PASS
Spurious emissions at antenna terminals	§2.1051, §27.53(m)		Appendix A	PASS
Field strength of spurious radiation	§2.1051, §27.53(m)	≤ -25dBm,	Appendix A	PASS
Frequency stability	§2.1055, §27.54	Within authorized bands of operation/ frequency block	Appendix A	PASS

4 General Information

4.1 Client Information

Applicant:	Shenzhen Hesibond IOT Technology Corp., Ltd.
Address of Applicant:	Room 418, 4th Floor, Shenyi Industrial Building, Nanshan Avenue, Nanshan Street, Nanshan District, Shenzhen, China
Manufacturer:	Shenzhen Hesibond IOT Technology Corp., Ltd.
Address of Manufacturer:	Room 418, 4th Floor, Shenyi Industrial Building, Nanshan Avenue, Nanshan Street, Nanshan District, Shenzhen, China

4.2 General Description of EUT

Product Name:	IOT Lock Gateway
Model No.:	2ASI7-HB-WLK-02
Trade Mark:	hesibond IOT Tech
Hardware Version:	DOR007
Software Version:	2.4G-SWG2X-V1.0
Sample Type:	☐ Mobile ☐ Portable ☒ Fix Location
Antenna Type:	Integral antenna
Antenna Gain:	LTE BAND7: 0dBi.
Power Supply:	Adapter: Mode: P-046-090200 Input: AC100~240V 50/60Hz 0.6A, Output: DC9V 2A Battery: DC3.7V 1800 mA

4.3 Technical Specification

Characteristics	Description	
Radio System Type	☐ GSM ☐ UMTS ☒ LTE	
Supported Frequency Range	LTE BAND7	Transmission (TX): 2500 to 2570 MHz
		Receiving (RX): 2620 to 2690 MHz
Target TX Output Power	LTE BAND7: 23dBm	
Supported Channel Bandwidth	LTE BAND7	☒5MHz☒10MHz☒15 MHz☒20 MHz
Designation of Emissions (Note: the necessary bandwidth of which is the worst value from the measured occupied bandwidths for each type of channel bandwidth configuration.)	LTE BAND7:	4M54G7D (5 MHz QPSK modulation), 4M54W7D (5 MHz 16QAM modulation) 8M97G7D (10 MHz QPSK modulation), 8M97W7D (10 MHz 16QAM modulation) 13M5G7D (15 MHz QPSK modulation), 13M6W7D (15 MHz 16QAM modulation) 18M0G7D (20 MHz QPSK modulation), 18M0W7D (20 MHz 16QAM modulation)

4.4 Test Mode

Test Mode	Test Modes Description
LTE/TM1	LTE system, QPSK modulation
LTE/TM2	LTE system, 16QAM modulation

NOTE: The test mode(s) are selected according to relevant radio technology specifications.

4.5 Test Environment

Environment Parameter	Selected Values During Tests	
Relative Humidity	52%	
Atmospheric Pressure:	1005Pa	
Temperature	TN	25 °C
Voltage :	VL	3.5V
	VN	3.7V
	VH	4.2V

NOTE: VL= lower extreme test voltage
VN= nominal voltage
VH= upper extreme test voltage
TN= normal temperature

4.6 Test Frequency

Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 7 5MHz	TX	Channel 20775	Channel 21100	Channel 21425
		2502.5 MHz	2535 MHz	2567.5 MHz
	RX	Channel 2775	Channel 3100	Channel 3425
		2622.5 MHz	2630 MHz	2687.5 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 7 10MHz	TX	Channel 20800	Channel 21100	Channel 21400
		2505 MHz	2535 MHz	2565 MHz
	RX	Channel 2800	Channel 3100	Channel 3400
		2625 MHz	2630 MHz	2685 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 7 15MHz	TX	Channel 20825	Channel 21100	Channel 21375
		2507.5 MHz	2535 MHz	2562.5 MHz
	RX	Channel 2825	Channel 3100	Channel 3375
		2627.5 MHz	2630 MHz	2682.5 MHz
Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
LTE BAND 7 20MHz	TX	Channel 20850	Channel 21100	Channel 21350
		2510 MHz	2535 MHz	2560 MHz
	RX	Channel 2850	Channel 3100	Channel 3350
		2630 MHz	2630 MHz	2680 MHz

4.7 Test Location

All tests were performed at:

Shenzhen Huaxia Testing Technology Co., Ltd.,

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

4.8 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **CNAS (No. CNAS L5785)**

CNAS has accredited Shenzhen Huaxia Testing Technology Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **ISED Registration No.: 22984**

The 3m Semi-anechoic chamber of Shenzhen Huaxia Testing Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

- **A2LA (Certificate No. 4742.01)**

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4742.01.

- **FCC Registration No.: 522263**

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.:522263

4.9 Measurement uncertainty

No.	Item	Uncertainty	Notes
1	Radiated Emission (Below 1GHz)	±5.12dB	(1)
2	Radiated Emission (Above 1GHz)	±4.60dB	(1)
3	Conducted Disturbance (0.15~30MHz)	±3.34dB	(1)
4	Radio Frequency	3×10-8	(1)
5	Duty cycle	0.6 %.	(1)
6	Occupied Bandwidth	1.1%	(1)
7	RF conducted power	0.86dB	(1)
8	RF power density	0.74	(1)
9	Conducted Spurious emissions	0.86dB	(1)
10	Temperature test	0.8℃	(1)
11	Humidity test	2.0%	(1)
12	Supply voltages	0.5 %.	(1)
13	time	0.6 %.	(1)
14	Frequency Error	5.5 Hz	(1)

(1)This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

4.10Deviation from Standards

None.

4.11Abnormalities from Standard Conditions

None.

4.12Other Information Requested by the Customer

None.

5 Description of Tests

5.1 Conducted Output Power

Measurement Procedure:

The transmitter output was connected to a calibrated coaxial cable, attenuator and power meter, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The power output at the transmitter antenna port was determined by adding the value of the cable insertion loss to the power reading. The tests were performed at three frequencies (low channel, middle channel and high channel) and on the highest power levels, which can be setup on the transmitters.

Note: Reference test setup 1

5.2 Effective (Isotropic) Radiated Power of Transmitter

Measurement Procedure:

Below 1GHz test procedure as below:

1). The EUT was powered ON and placed on a 0.8m high table in the chamber. The antenna of the transmitter was extended to its maximum length.

2). The disturbance of the transmitter was maximized on the test receiver display by raising and lowering from 1m to 4m the receive antenna and by rotating through 360° the turntable. After the fundamental emission was maximized, a field strength measurement was made.

3). Steps 1) and 2) were performed with the EUT and the receive antenna in both vertical and horizontal polarization.

4). The transmitter was then removed and replaced with another antenna. The center of the antenna was approximately at the same location as the center of the transmitter.

5). A signal at the disturbance was fed to the substitution antenna by means of a non-radiating cable. With both the substitution and the receive antennas horizontally polarized, the receive antenna was raised and lowered to obtain a maximum reading at the test receiver. The level of the signal generator was adjusted until the measured field strength level in step 2) is obtained for this set of conditions.

6). The output power into the substitution antenna was then measured.

7). Steps 5) and 6) were repeated with both antennas polarized.

8). Calculate power in dBm by the following formula:

ERP (dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBd)

Where:

Pg is the generator output power into the substitution antenna.

Above 1GHz test procedure as below:

1). Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber

2). Calculate power in dBm by the following formula:

EIRP(dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBi)

EIRP=ERP+2.15dB

Where:

Pg is the generator output power into the substitution antenna.

3). Test the EUT in the lowest channel, the middle channel the Highest channel

4). The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, Only the test worst case mode is recorded in the report.

5). Repeat above procedures until all frequencies measured was complete.

Note: Reference test setup 2

5.3 Occupied Bandwidth

Measurement Procedure:

The occupied bandwidth, that 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 shall be measured. The transmitter output was connected to a calibrated coaxial cable, attenuator and Spectrum analyser, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at three frequencies (low channel, middle channel and high channel).The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1 percent of the selected span as is possible without being below 1 percent. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used since a peak or, peak hold, may produce a wider bandwidth than actual. The trace data points are recovered and are directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 percent of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded. The span between the two recorded frequencies is the occupied bandwidth.

Note: Reference test setup 1

5.4 Band Edge at Antenna Terminals

Measurement Procedure:

The transmitter output was connected to a calibrated coaxial cable, attenuator and Spectrum analyser, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at three frequencies (low channel and high channel).in the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of 100kHz or 1% of the emission bandwidth of the fundamental emission of the transmitter may be employed. The EUT emission bandwidth is measured as the width of the signal between two points, outside of which all emission are attenuated at least 26dB below the transmitter power. The video bandwidth of the spectrum analyzer was set at thrice the resolution bandwidth. Detector Mode was set to peak or peak hold power.

Note: Reference test setup 1

5.5 Spurious And Harmonic Emissions at Antenna Terminal

Measurement Procedure:

The transmitter output was connected to a calibrated coaxial cable, attenuator and Spectrum analyzer, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at three frequencies (low channel and high channel).The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. On any frequency outside a licensee’s frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log(P) dB. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

Note: Reference test setup 1

5.6 Peak-Average Ratio

Measurement Procedure:

A peak to average ratio measurement is performed at the conducted port of the EUT. For WCDMA signals, the spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level. For GSM signals, an average and a peak trace are used on a spectrum analyzer to determine the largest deviation between the average and the peak power of the EUT in a bandwidth greater than the emission bandwidth. The traces are generated with the spectrum analyzer set to zero span mode.

Note: Reference test setup 1

5.7 Field Strength of Spurious Radiation

Measurement Procedure:

Below 1GHz test procedure as below:

1). The EUT was powered ON and placed on a 80cm high table in the chamber. The antenna of the transmitter was extended to its maximum length.

2). The disturbance of the transmitter was maximized on the test receiver display by raising and lowering from 1m to 4m (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) the receive antenna and by rotating through 360° the turntable. After the fundamental emission was maximized, a field strength measurement was made.

3). Steps 1) and 2) were performed with the EUT and the receive antenna in both vertical and horizontal polarization.

4). The transmitter was then removed and replaced with another antenna. The center of the antenna was approximately at the same location as the center of the transmitter.

5). A signal at the disturbance was fed to the substitution antenna by means of a non-radiating cable. With both the substitution and the receive antennas horizontally polarized, the receive antenna was raised and lowered to obtain a maximum reading at the test receiver. The level of the signal generator was adjusted until the measured field strength level in step 2) is obtained for this set of conditions.

6). The output power into the substitution antenna was then measured.

7). Steps 5) and 6) were repeated with both antennas polarized.

8) Calculate power in dBm by the following formula:

ERP(dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBd)

Where:

Pd is the dipole equivalent power, Pg is the generator output into the substitution antenna, and the antenna gain is the gain of the substitute antenna used relative to either a half-wave dipole (dBd) or an isotropic

source (dBi). The substitute level is equal to Pg [dBm] – cable loss [dB]. The calculated Pd levels are then compared to the absolute spurious emission limit of -13dBm which is equivalent to the required minimum attenuation of 43 + 10log10(Power [Watts]).

Above 1GHz test procedure as below:

1) Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber
2) Calculate power in dBm by the following formula:

EIRP(dBm) = Pg(dBm) – cable loss (dB) + antenna gain (dBi)

EIRP=ERP+2.15dB

Where:

Pg is the generator output power into the substitution antenna.

3. Test the EUT in the lowest channel, the middle channel the Highest channel
4. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, Only the test worst case mode is recorded in the report.
5. Repeat above procedures until all frequencies measured was complete

Note: Reference test setup 3

5.8 Frequency Stability / Temperature Variation

Measurement Procedure:

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-C-2004. The frequency stability of the transmitter is measured by:

a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.

b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

Specification – The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5 ppm) of the center frequency.

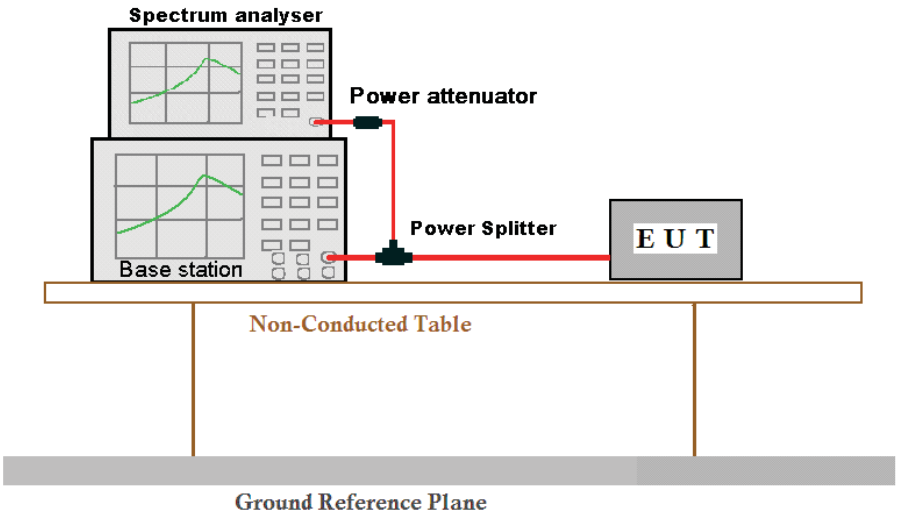
Time Period and Procedure:

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
2. The equipment is turned on in a “standby” condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

Note: Reference test setup 4

5.9 Test Setups

5.9.1 Test Setup 1



5.9.2 Test Setup 2

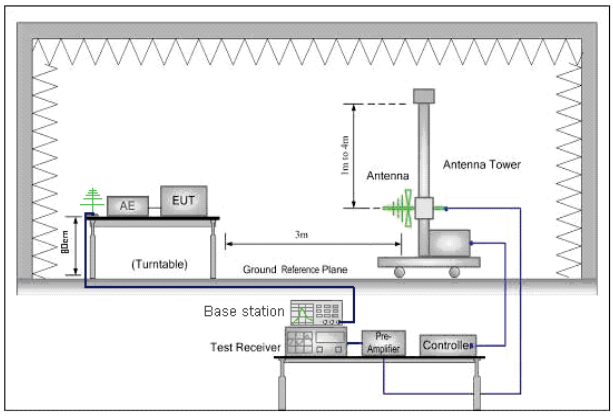


Figure 1. 30MHz to 1GHz

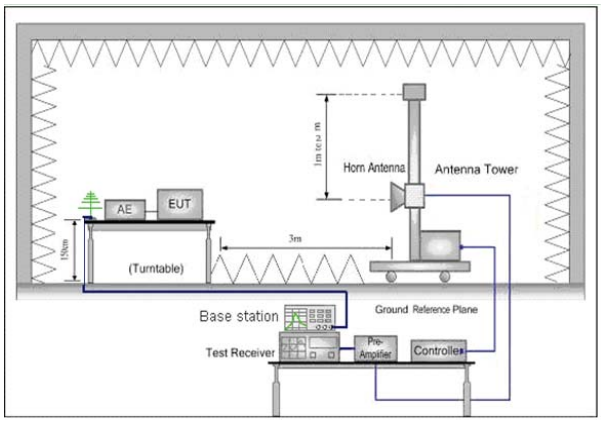


Figure 2. above 1GHz

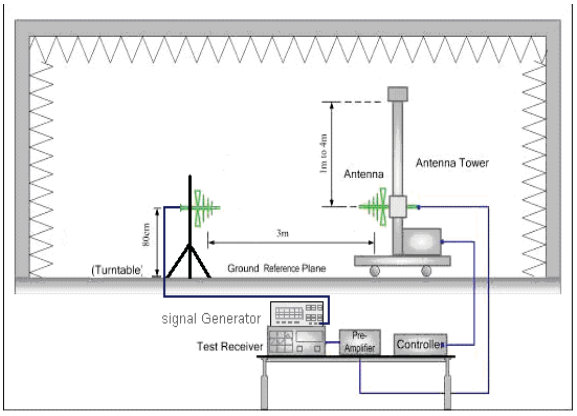


Figure 1. 30MHz to 1GHz

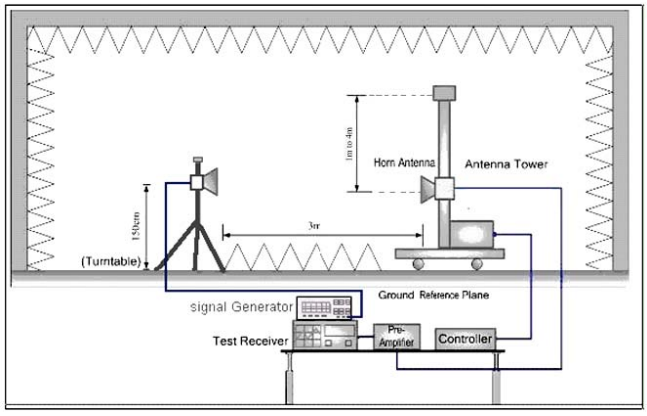


Figure 2. above 1GHz

5.9.3 Test Setup 3

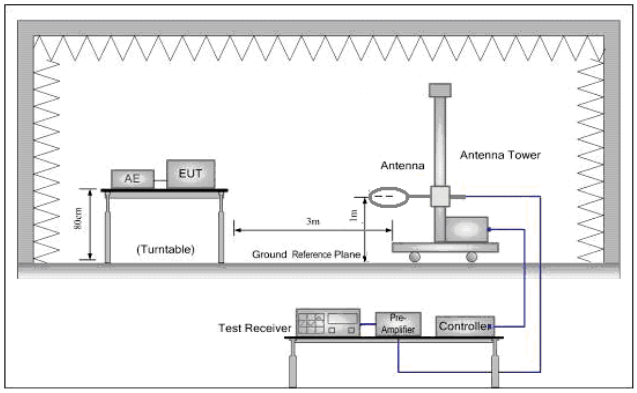


Figure 1. Below 30MHz

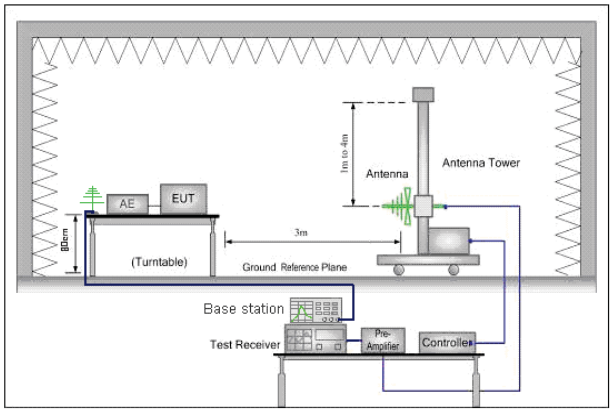


Figure 2. 30MHz to 1GHz

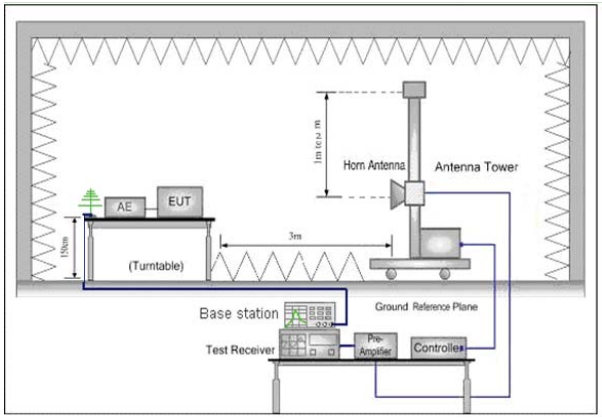


Figure 3. above 1GHz

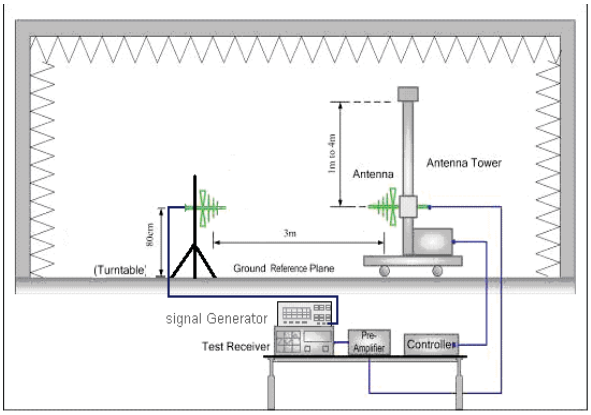


Figure 2. 30MHz to 1GHz

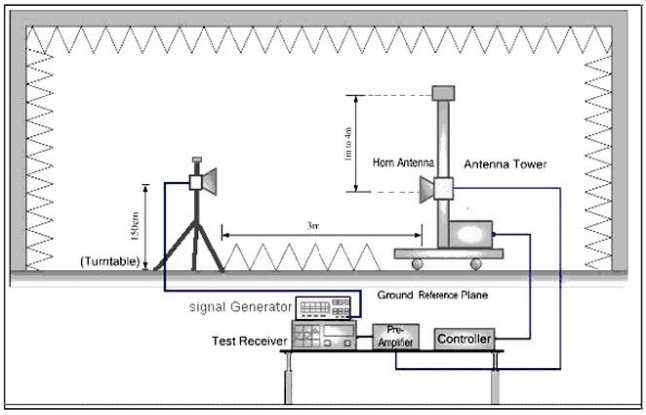
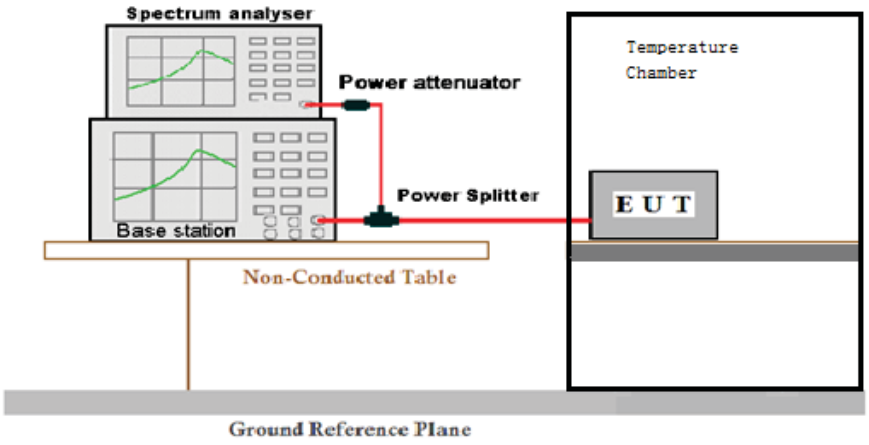


Figure 3. above 1GHz

5.9.4 Test Setup 4



5.10 Test Conditions

Test Case		Test Conditions	
Transmit Output Power Data	Average Power, Total	Test Environment	Ambient Climate & Rated Voltage
		Test Setup	Test Setup 1
		RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
		Test Mode	LTE/TM1;LTE/TM2
	Average Power, Spectral Density (if required)	Test Environment	Ambient Climate & Rated Voltage
		Test Setup	Test Setup 1
		RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
		Test Mode	LTE/TM1;LTE/TM2
Peak-to-Average Ratio (if required)		Test Environment	Ambient Climate & Rated Voltage
		Test Setup	Test Setup 1
		RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
		Test Mode	LTE/TM1;LTE/TM2
Bandwidth	Occupied Bandwidth	Test Environment	Ambient Climate & Rated Voltage
		Test Setup	Test Setup 1
		RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
		Test Mode	LTE/TM1;LTE/TM2
	Emission Bandwidth (if required)	Test Environment	Ambient Climate & Rated Voltage
		Test Setup	Test Setup 1
		RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
		Test Mode	LTE/TM1;LTE/TM2
Band Edges Compliance		Test Environment	Ambient Climate & Rated Voltage
		Test Setup	Test Setup 1
		RF Channels (TX)	L, H (L= low channel, H= high channel)
		Test Mode	LTE/TM1;LTE/TM2
Spurious Emission at Antenna Terminals		Test Environment	Ambient Climate & Rated Voltage
		Test Setup	Test Setup 1
		RF Channels (TX)	L, H (L= low channel, M= middle channel, H= high channel)
		Test Mode	LTE/TM1;LTE/TM2

Field Strength of Spurious Radiation	Test Environment	Ambient Climate & Rated Voltage
	Test Setup	Test Setup 2
	Test Mode	GSM/TM1;GSM/TM2;UMTS/TM1; LTE/TM1;LTE/TM2 NOTE: If applicable, the EUT conf. that has maximum power density (based on the equivalent power level) is selected.
	RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
Frequency Stability	Test Env.	(1) -30 °C to +50 °C with step 10 °C at Rated Voltage; (2) VL, VN and VH of Rated Voltage at Ambient Climate.
	Test Setup	Test Setup 4
	RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
	Test Mode	LTE/TM1;LTE/TM2

6 Main Test Equipment

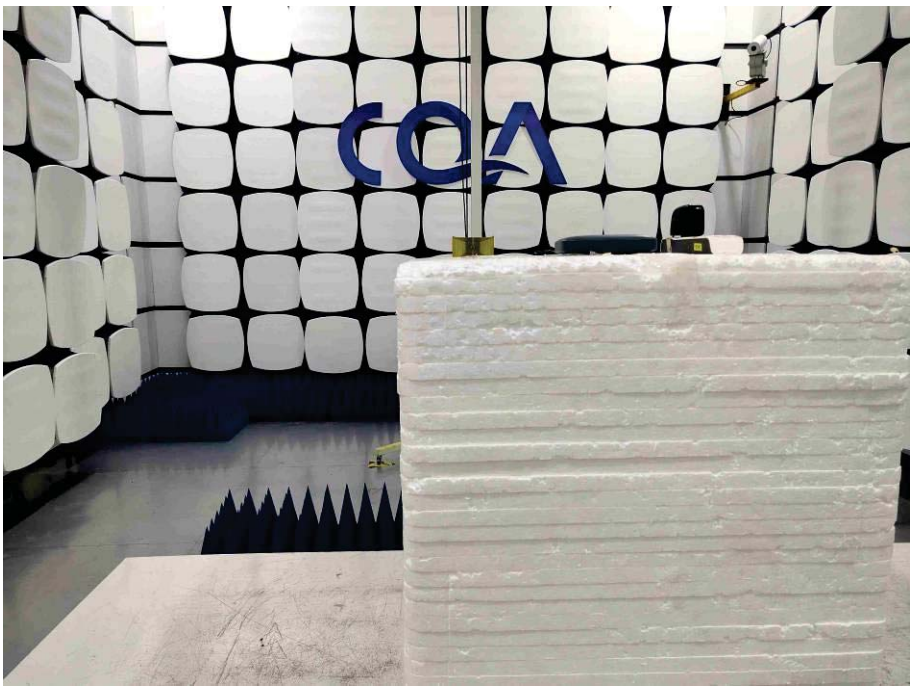
Test Equipment	Manufacturer	Model No.	Instrument No.	Calibration Date	Calibration Due Date
EMI Test Receiver	R&S	ESR7	CQA-005	2018/9/26	2019/9/25
Spectrum analyzer	R&S	FSU26	CQA-038	2018/10/28	201910/27
Spectrum analyzer	R&S	FSP40	CQA-102	2018/11/2	2019/11/1
Preamplifier	MITEQ	AFS4-00010300-18-10P-4	CQA-035	2018/9/26	2019/9/25
Preamplifier	MITEQ	AMF-6D-02001800-29-20P	CQA-036	2018/11/2	2019/11/1
Loop antenna	Schwarzbeck	FMZB1516	CQA-087	2018/10/28	2020/10/27
Bilog Antenna	R&S	HL562	CQA-011	2018/9/26	2020/9/25
Horn Antenna	R&S	HF906	CQA-012	2018/9/26	2020/9/25
Horn Antenna	Schwarzbeck	BBHA 9170	CQA-088	2018/9/26	2020/9/25
Horn Antenna	A.H.Systems, Inc.	SAS-573	CQA-104	2018/9/26	2020/9/25
Coaxial Cable (Above 1GHz)	CQA	N/A	C019	2018/9/26	2019/9/25
Coaxial Cable (Below 1GHz)	CQA	N/A	C020	2018/9/26	2019/9/25
Antenna Connector	CQA	RFC-01	CQA-080	2018/9/26	2019/9/25
RF cable(9KHz~40GHz)	CQA	RF-01	CQA-079	2018/9/26	2019/9/25
Universal Radio Communication Tester	Rohde & Schwarz	CMW500	CQA-022	2018/9/26	2019/9/25
Power divider	MIDWEST	PWD-2533-02-SMA-79	CQA-067	2018/9/26	2019/9/25

7 Photographs - EUT Test Setup

7.1 Radiated Spurious Emission

30MHz~1GHz:

Above 1GHz:



8 Photographs - EUT Constructional Details

Refer to Appendix A - Photographs of EUT Constructional Details for CQASZ20181200010E-01.

9 Appendix A: Test Data

1. Conducted Output Power and Effective (Isotropic) Radiated Power

LTE Band 7

1.1 Conducted Output Power

Channel	RB Configuration		Average Power [dBm]		Channel	RB Configuration		Average Power [dBm]	
	Size	Offset	QPSK	16QAM		Size	Offset	QPSK	16QAM
Channel Bandwidth: 5 MHz					Channel Bandwidth: 10 MHz				
LCH	1	12	22.74	22.07	LCH	1	24	22.76	22.11
MCH	1	12	22.51	22.11	MCH	1	24	22.57	22.16
HCH	1	12	22.74	21.78	HCH	1	24	22.77	22.04
Channel Bandwidth: 15 MHz					Channel Bandwidth: 20 MHz				
LCH	1	37	22.82	22.17	LCH	1	50	22.85	22.21
MCH	1	37	22.62	22.21	MCH	1	50	22.65	22.25
HCH	1	37	22.83	21.91	HCH	1	50	22.86	21.92

1.2 EIRP

Channel	RB Configuration		EIRP [dBm]		Channel	RB Configuration		EIRP [dBm]	
	Size	Offset	QPSK	16QAM		Size	Offset	QPSK	16QAM
Channel Bandwidth: 5 MHz					Channel Bandwidth: 10 MHz				
LCH	1	12	22.74	22.07	LCH	1	24	22.76	22.11
MCH	1	12	22.51	22.11	MCH	1	24	22.57	22.16
HCH	1	12	22.74	21.78	HCH	1	24	22.77	22.04
Channel Bandwidth: 15 MHz					Channel Bandwidth: 20 MHz				
LCH	1	37	22.82	22.17	LCH	1	50	22.85	22.21
MCH	1	37	22.62	22.21	MCH	1	50	22.65	22.25
HCH	1	37	22.83	21.91	HCH	1	50	22.86	21.92

Note: 1. EIRP= Conducted Output Power+ Antenna Gain

2. Antenna Gain=0dBi

2.Peak-Average Ratio

LTE Band 7

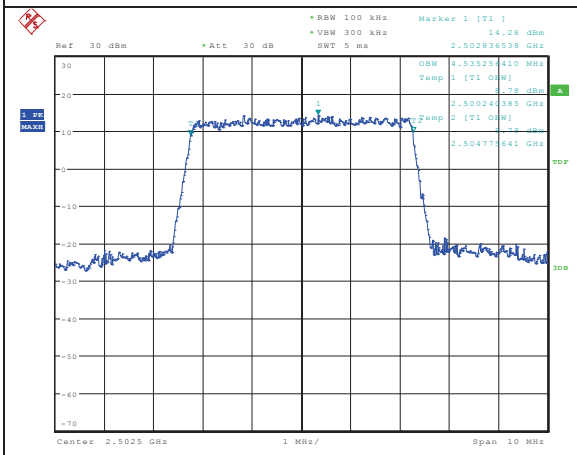
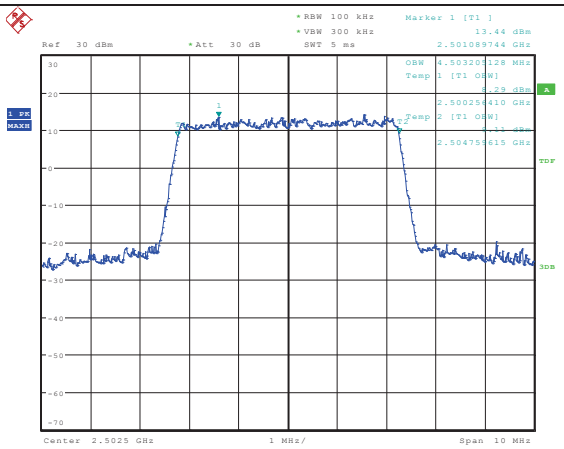
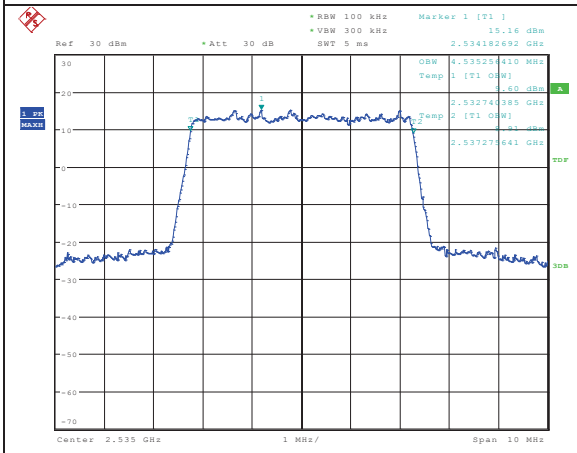
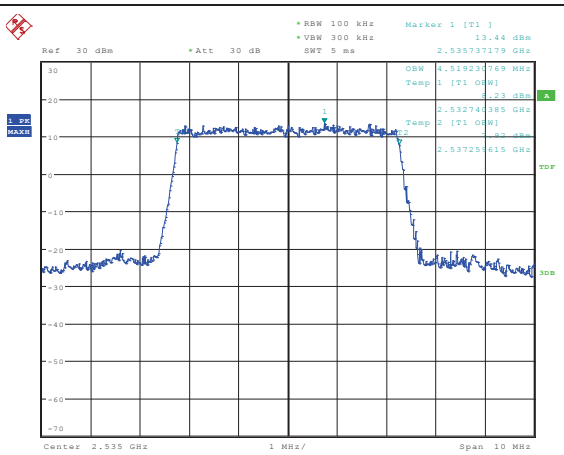
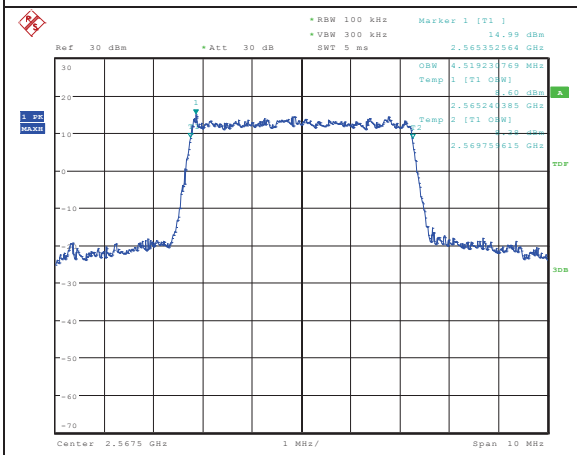
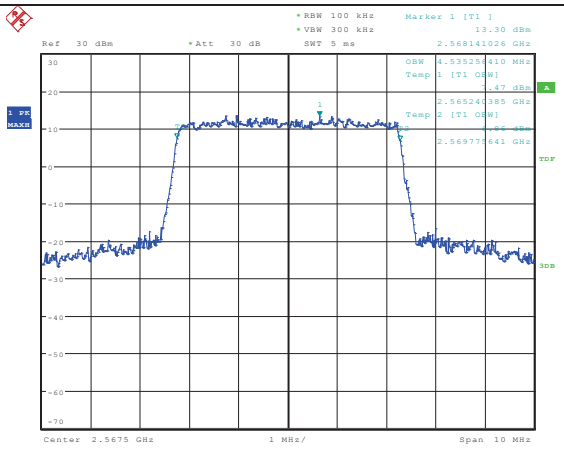
Channel	RB Configuration		Modulation	
	Size	Offset	QPSK	16QAM
LTE Band 7_ Channel Bandwidth: 20 MHz				
LCH	1	0	3.15	3.94
	100	0	4.45	5.45
MCH	1	0	3.2	3.85
	100	0	4.7	5.6
HCH	1	0	3.18	4.06
	100	0	4.52	5.32

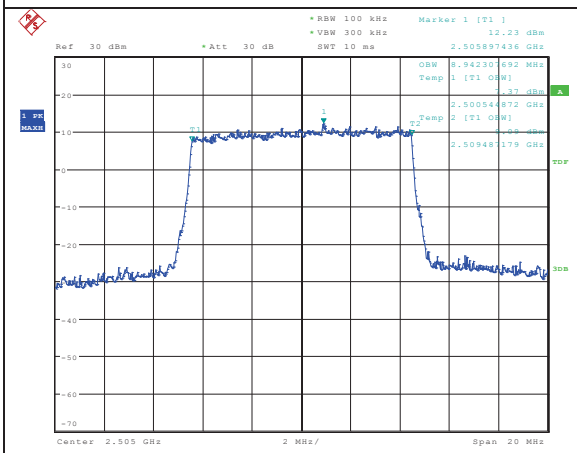
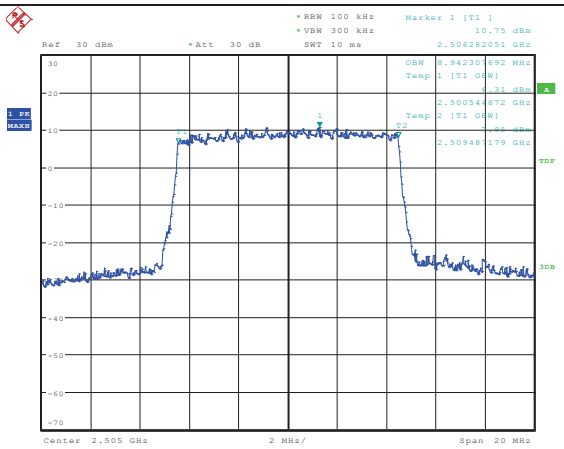
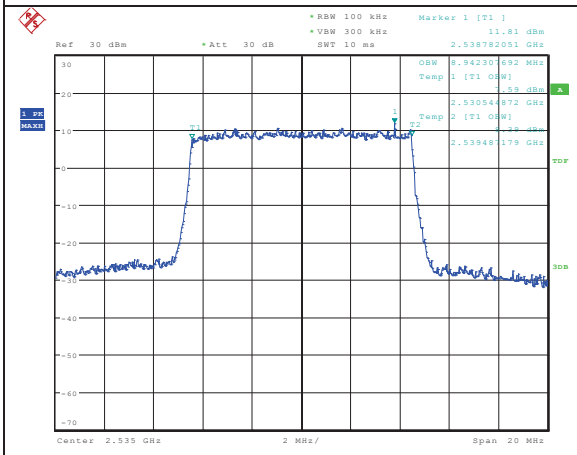
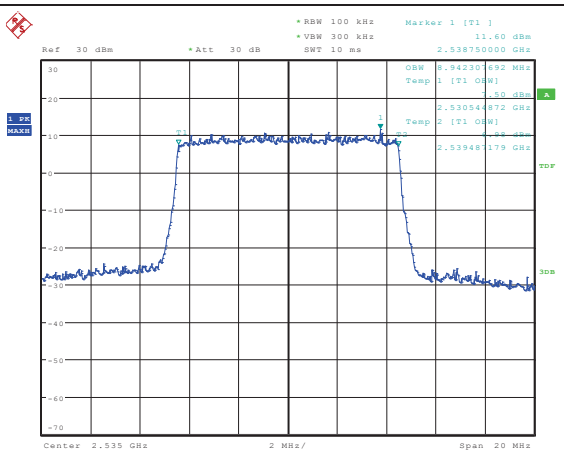
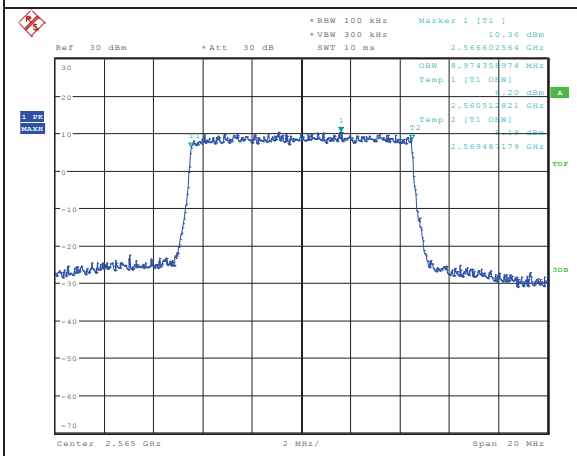
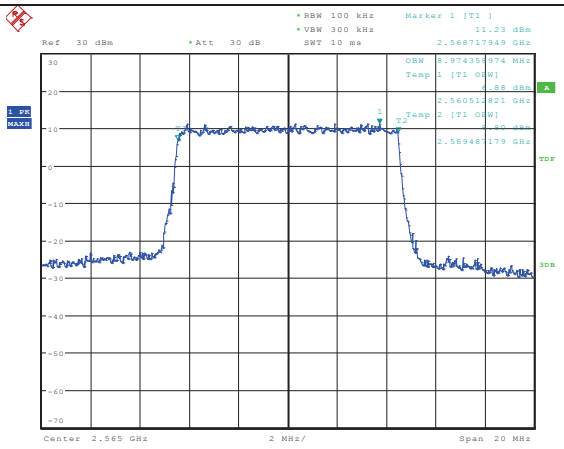
3. 26dB Bandwidth and Occupied Bandwidth

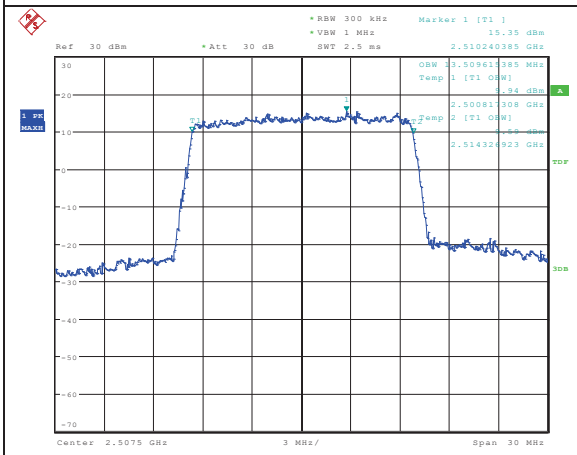
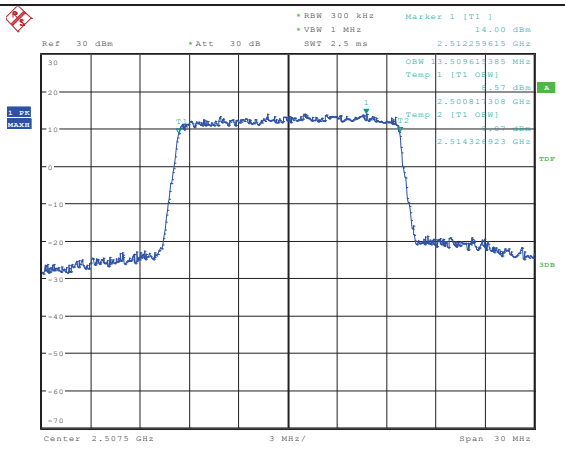
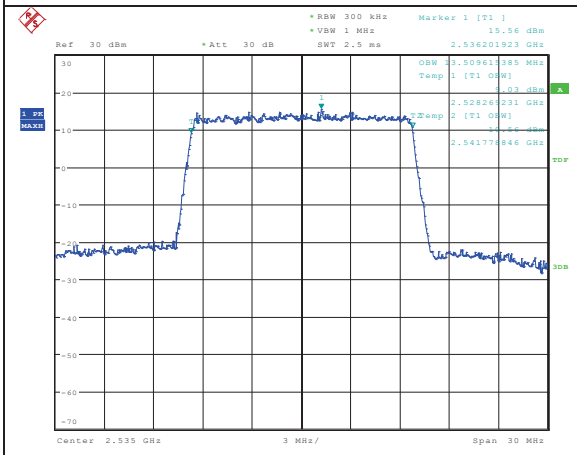
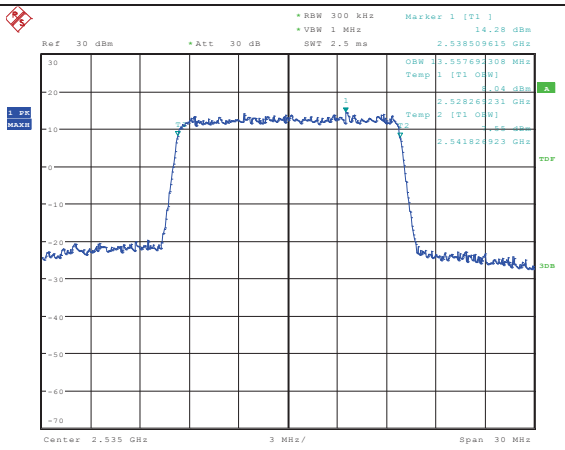
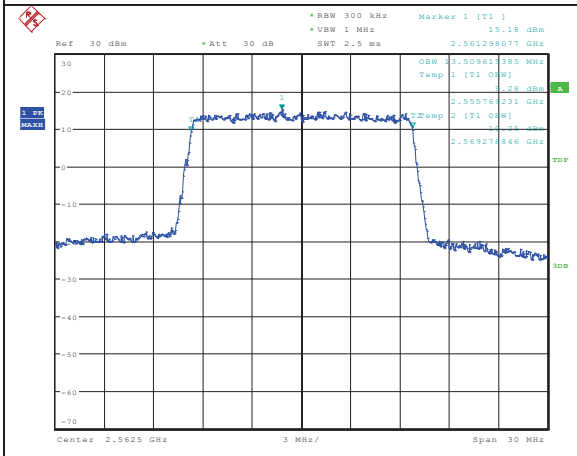
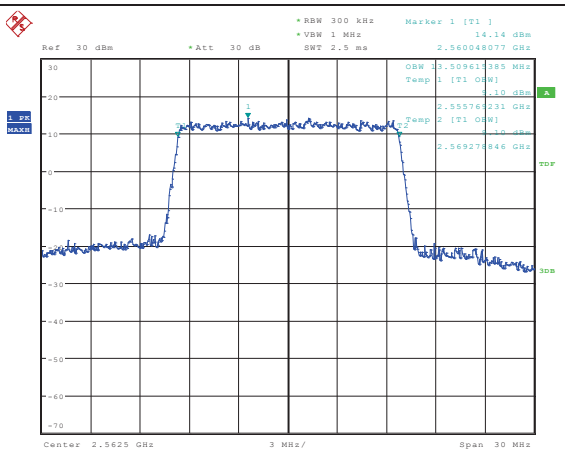
LTE Band 7

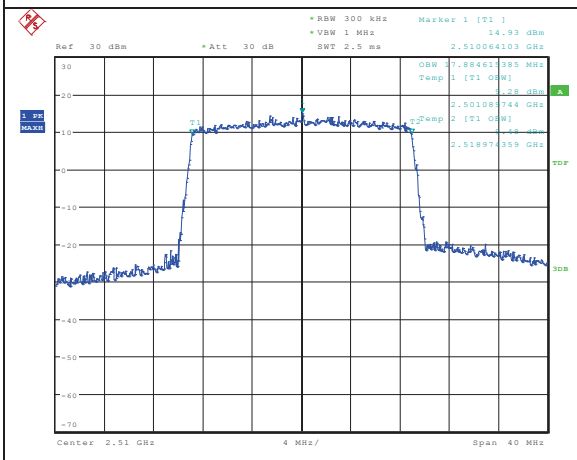
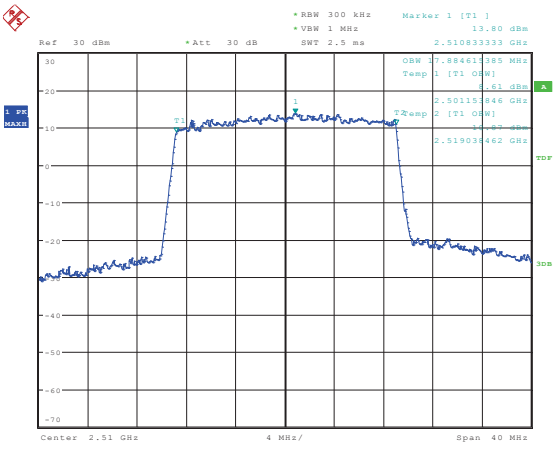
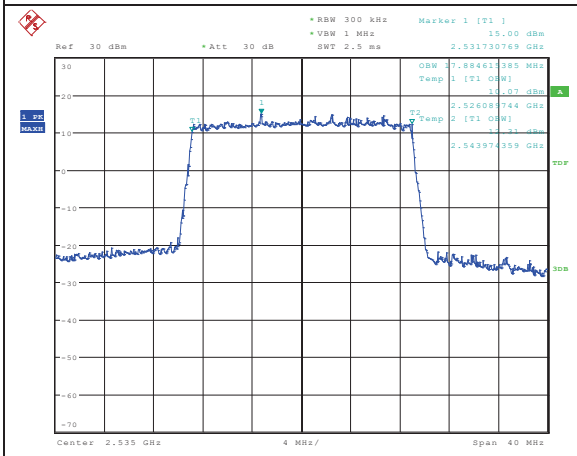
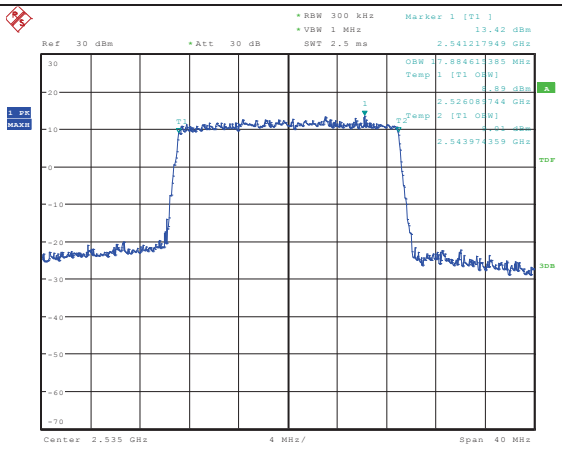
For LTE Band 7						
Channel	RB Configuration		26 dB BW (MHz)		99% BW (MHz)	
	Size	Offset	QPSK	16QAM	QPSK	16QAM
Channel Bandwidth: 5 MHz						
LCH	25	0	4.98	5.02	4.54	4.5
MCH	25	0	5.05	5.02	4.54	4.52
HCH	25	0	4.98	5.03	4.52	4.54
Channel Bandwidth: 10 MHz						
LCH	50	0	9.68	9.71	8.94	8.94
MCH	50	0	9.81	9.71	8.94	8.94
HCH	50	0	9.84	9.64	8.97	8.97
Channel Bandwidth: 15 MHz						
LCH	75	0	14.76	14.9	13.51	13.51
MCH	75	0	14.86	14.86	13.51	13.56
HCH	75	0	14.9	14.9	13.51	13.51
Channel Bandwidth: 20 MHz						
LCH	100	0	19.36	19.42	17.88	17.88
MCH	100	0	19.42	19.42	17.88	17.88
HCH	100	0	19.49	19.49	18.01	17.95

The test plot as follows:

LTE Band 7 _ 99% Occupied Bandwidth: 5 MHz_25RB#0	
QPSK	**16QAM**
LCH	
	
MCH	
	
HCH	
	

LTE Band 7 _99% Occupied Bandwidth: 10 MHz_50RB#0	
QPSK	**16QAM**
LCH	
	
MCH	
	
HCH	
	

LTE Band 7 _ 99% Occupied Bandwidth: 15 MHz_75RB#0	
QPSK	**16QAM**
LCH	
	
MCH	
	
HCH	
	

LTE Band 7 _99% Occupied Bandwidth: 20 MHz_100RB#0	
QPSK	**16QAM**
LCH	
	
MCH	
	
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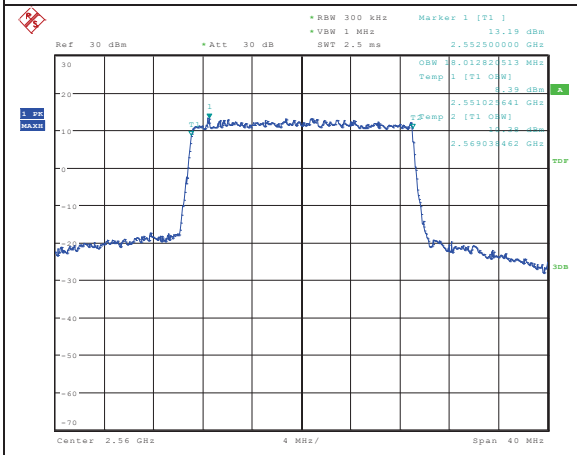
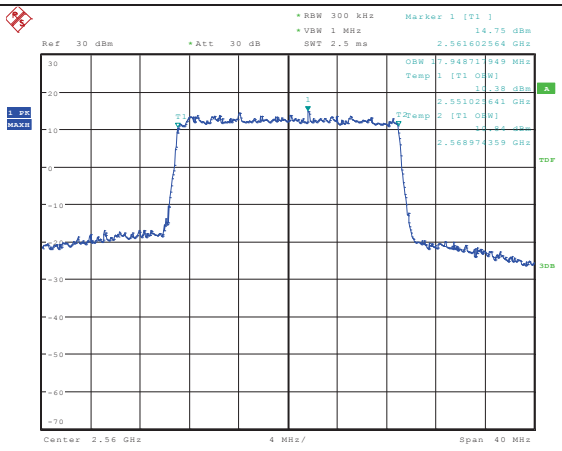
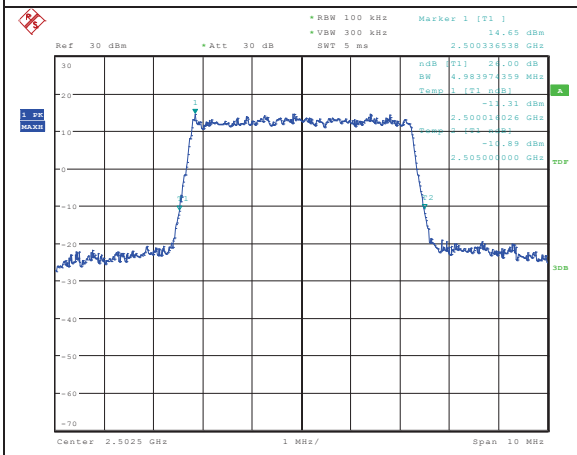
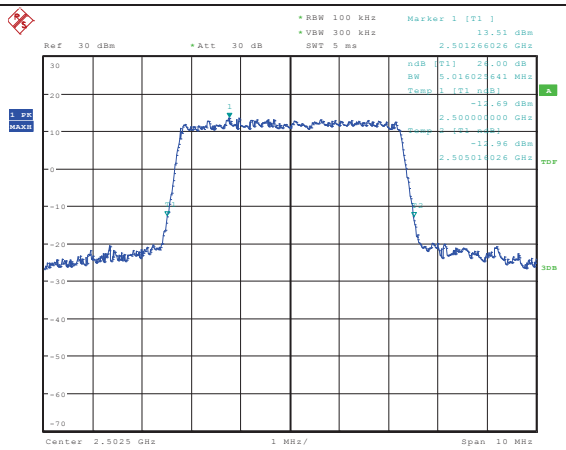
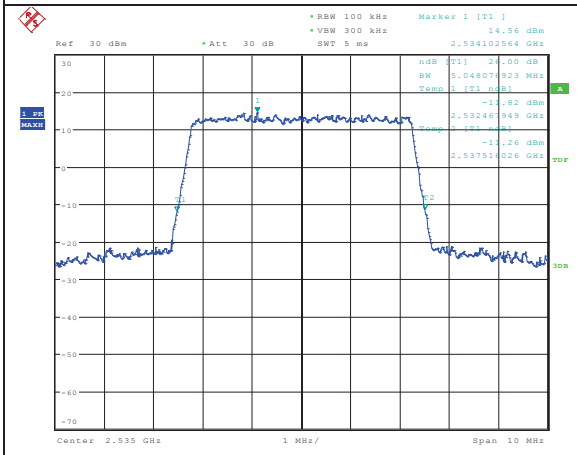
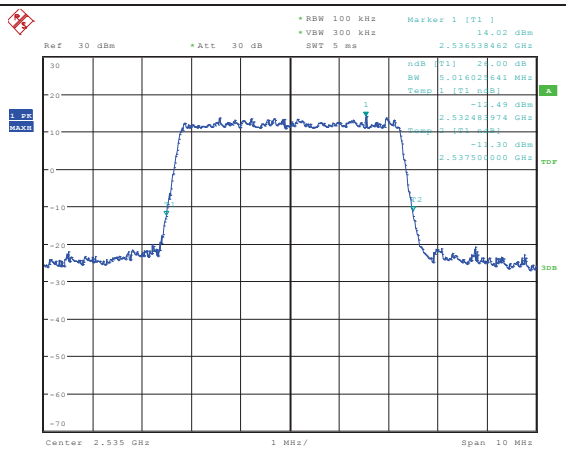
	

LTE Band 7 _ 26dB Bandwidth: 5 MHz_25RB#0	
QPSK	**16QAM**
LCH	
	
MCH	
	
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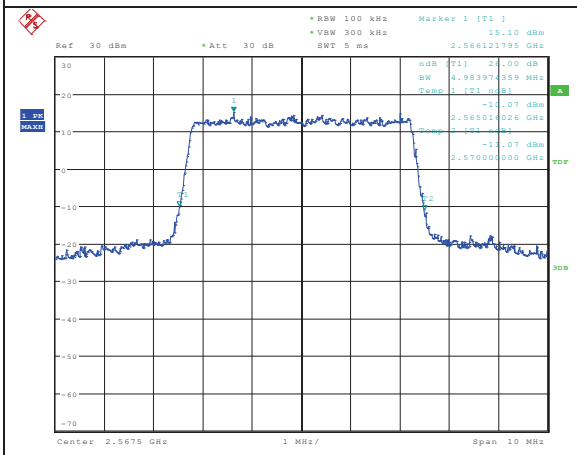
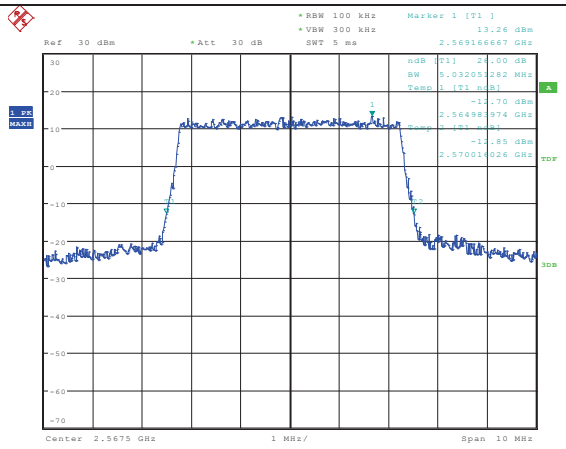
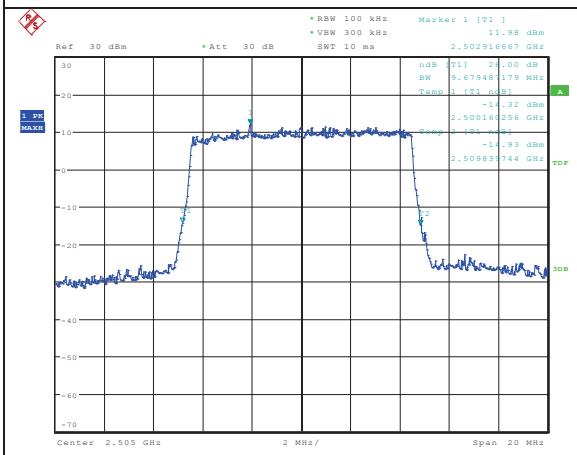
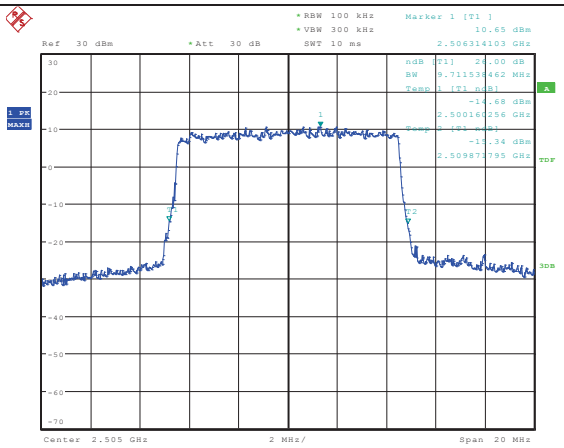
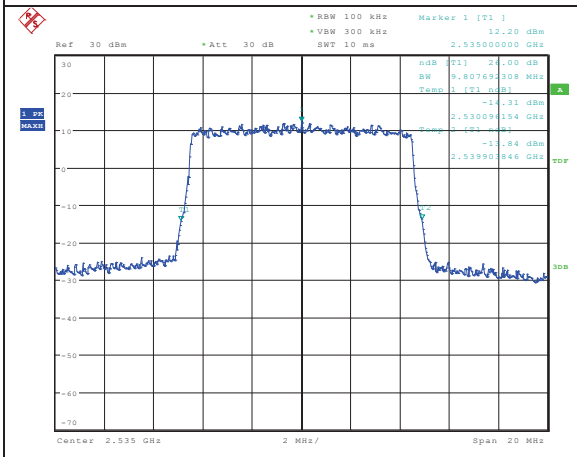
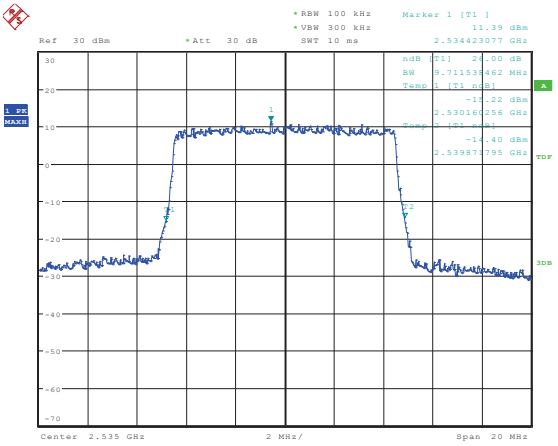
	

LTE Band 7 _ 26dB Bandwidth: 10 MHz_50RB#0	
QPSK	**16QAM**
LCH	
	
MCH	
	
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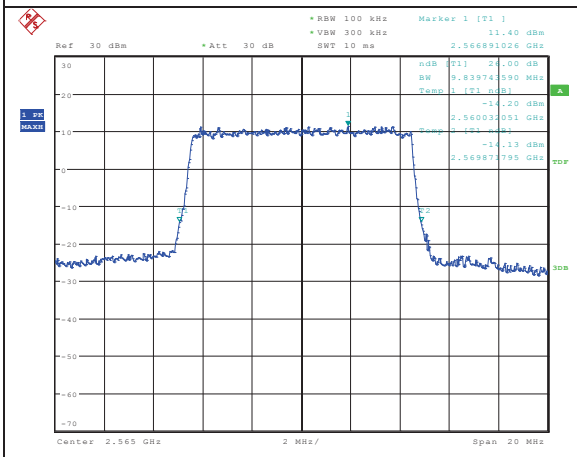
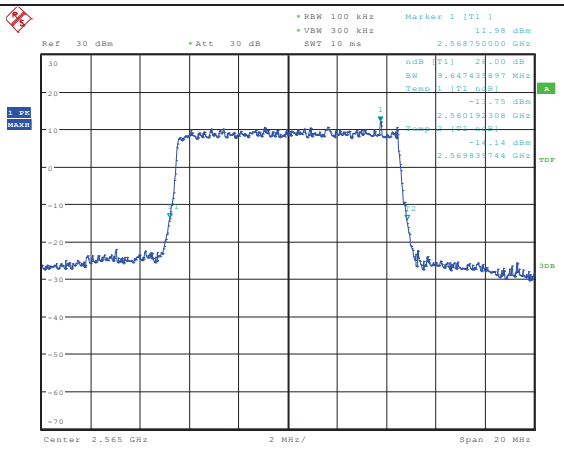
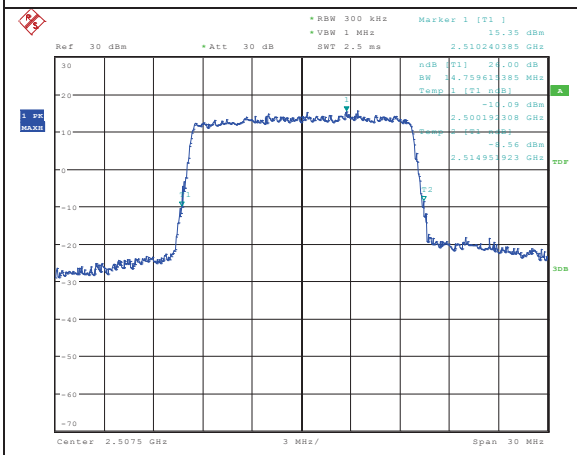
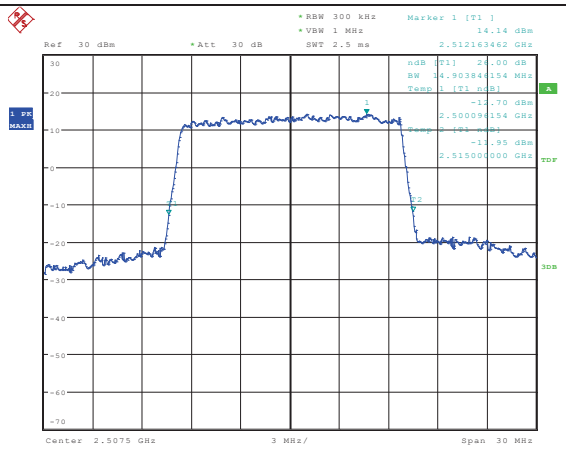
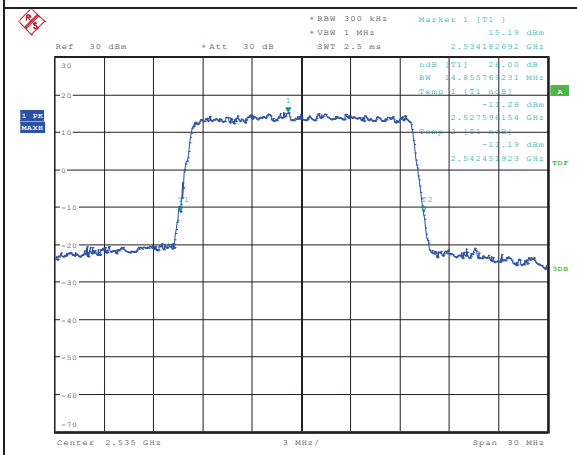
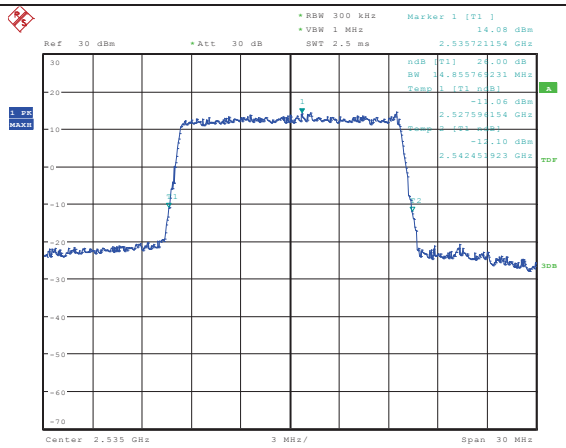
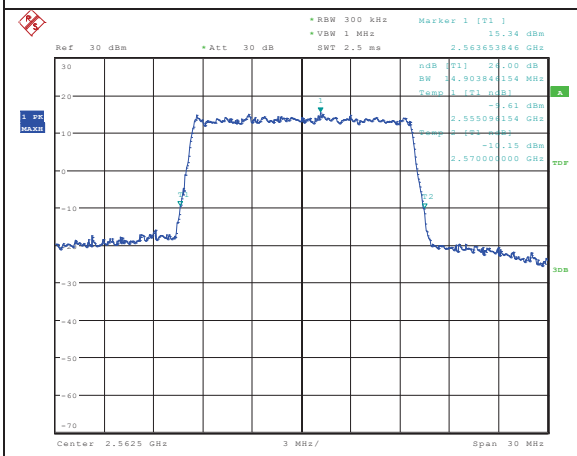
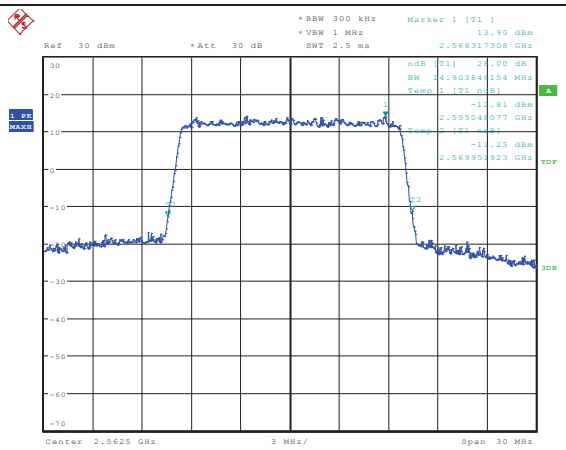
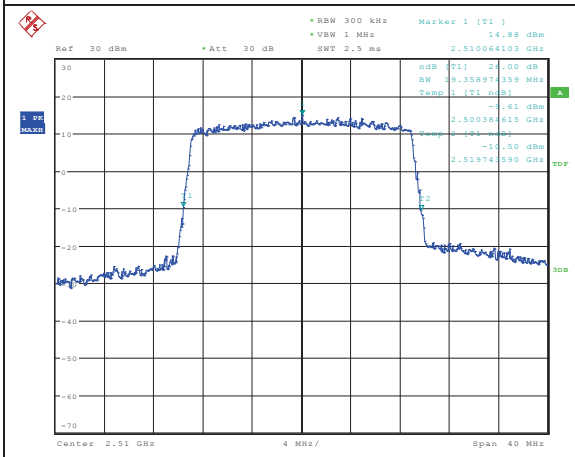
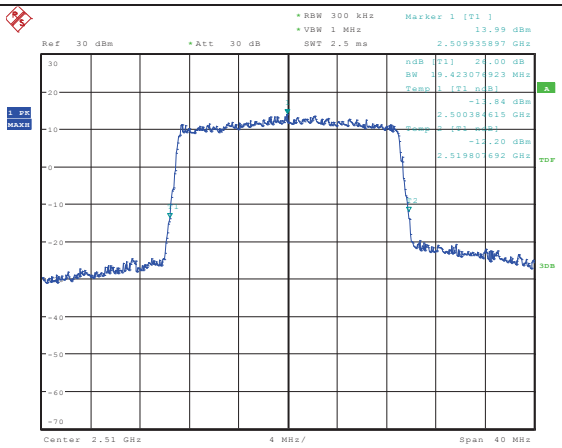
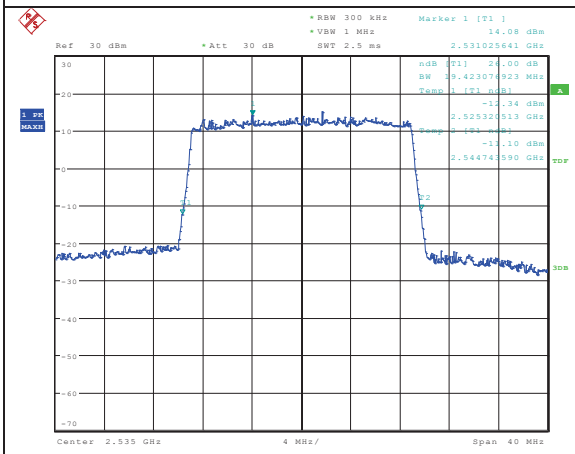
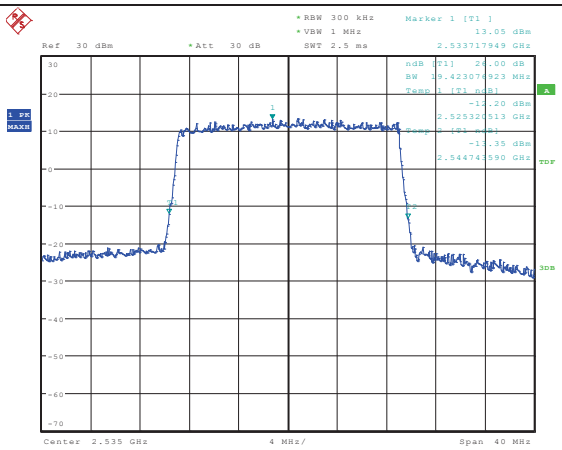
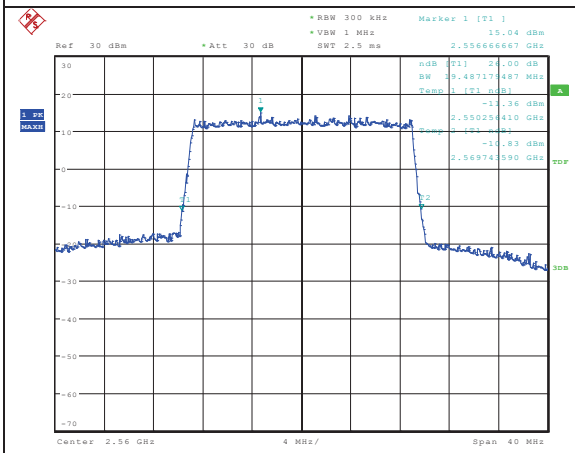
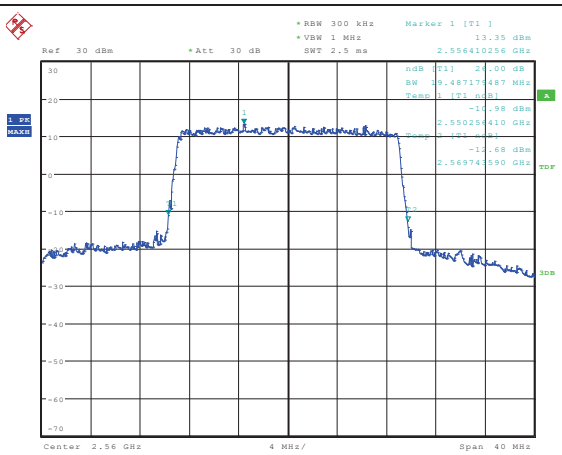
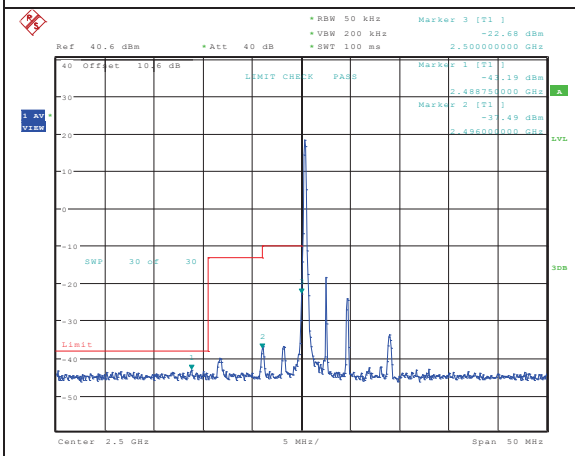
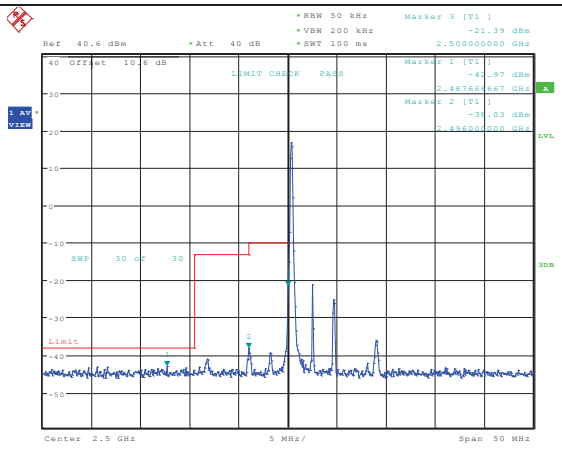
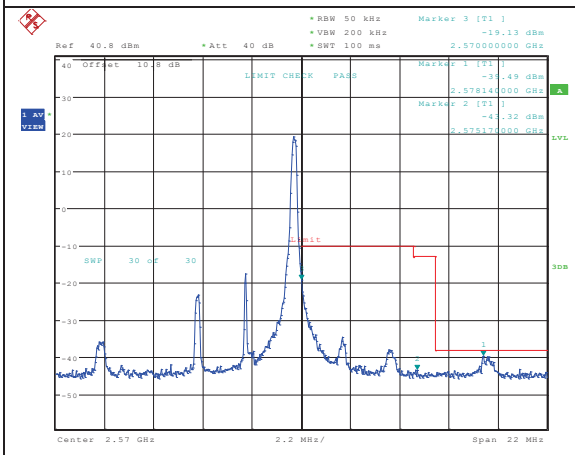
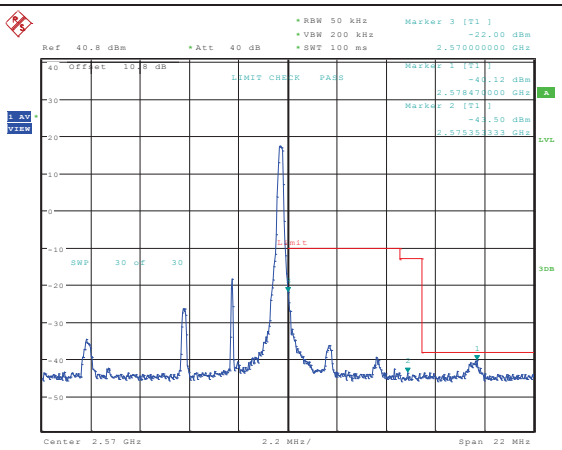
	

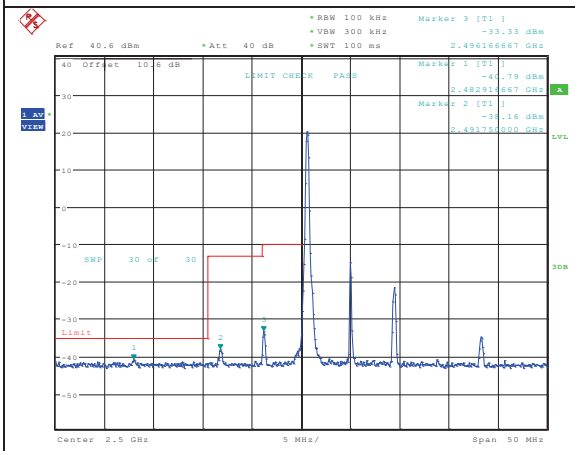
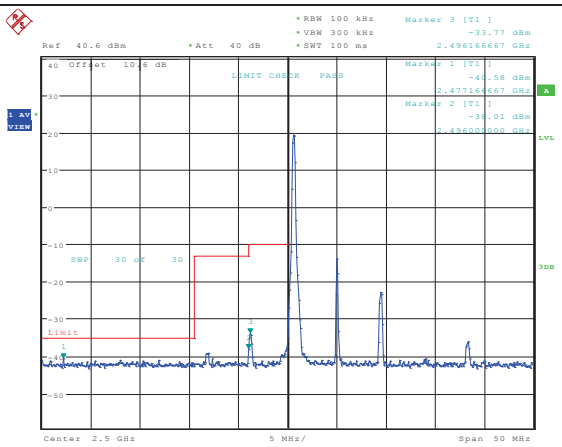
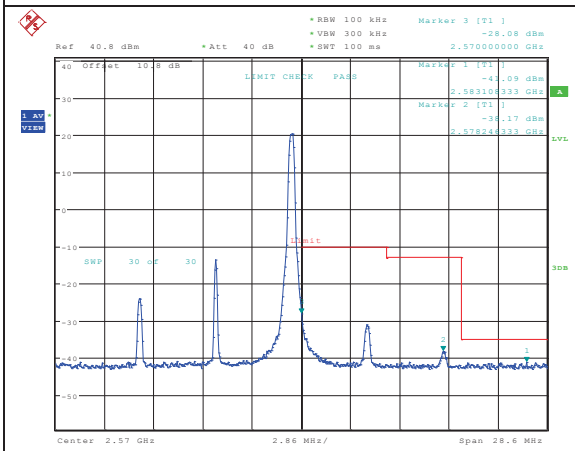
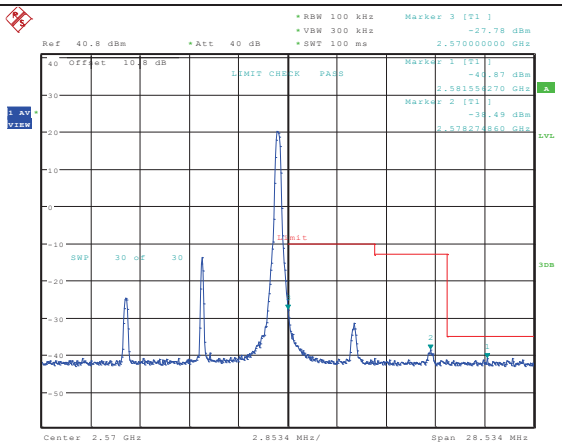
LTE Band 7 _ 26dB Bandwidth: 15 MHz_75RB#0	
QPSK	16QAM
LCH	
	
MCH	
	
HCH	
	

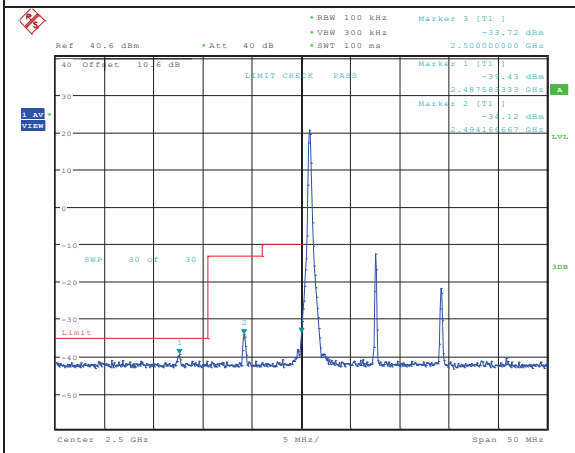
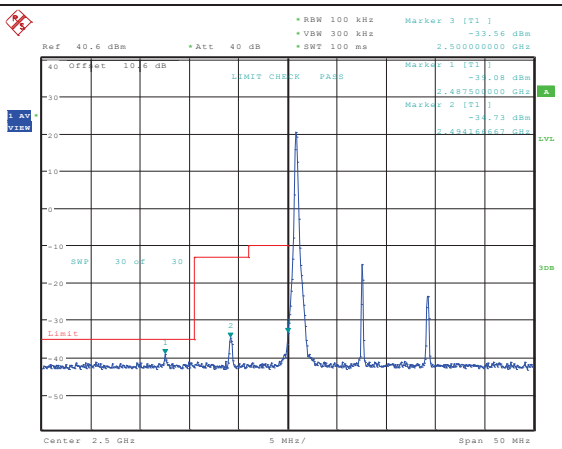
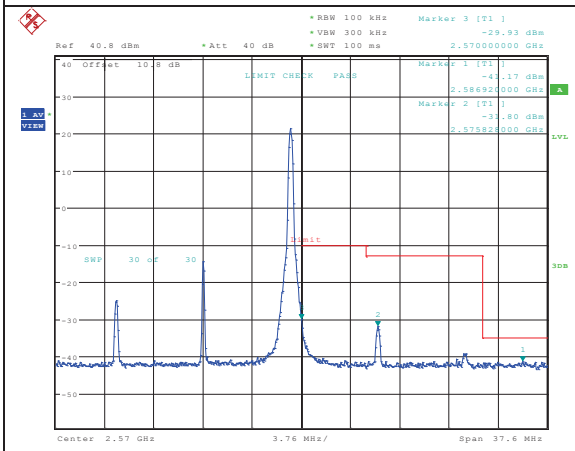
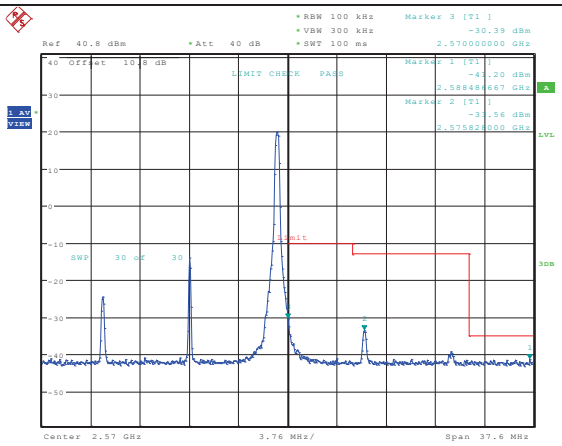
LTE Band 7 _ 26dB Bandwidth: 20 MHz_100RB#0	
QPSK	**16QAM**
LCH	
	
MCH	
	
HCH	
	

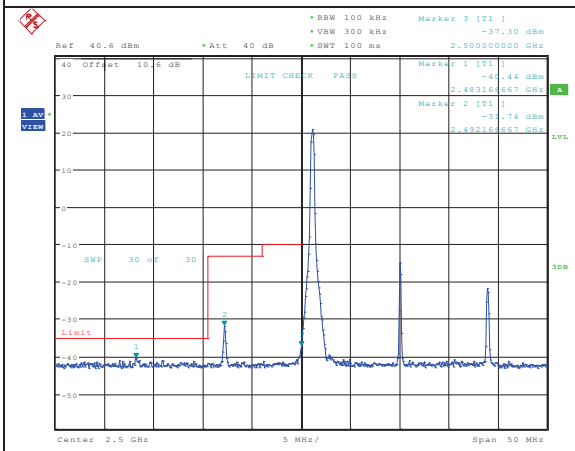
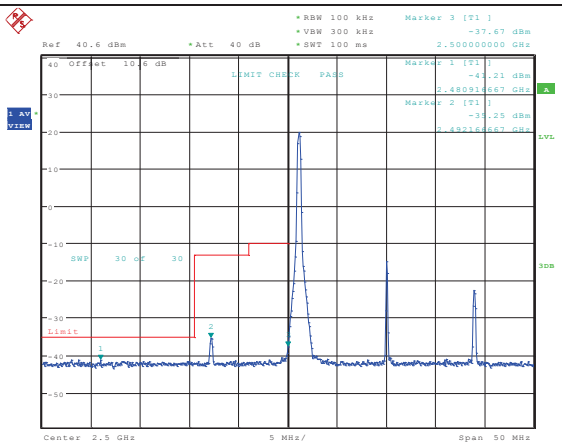
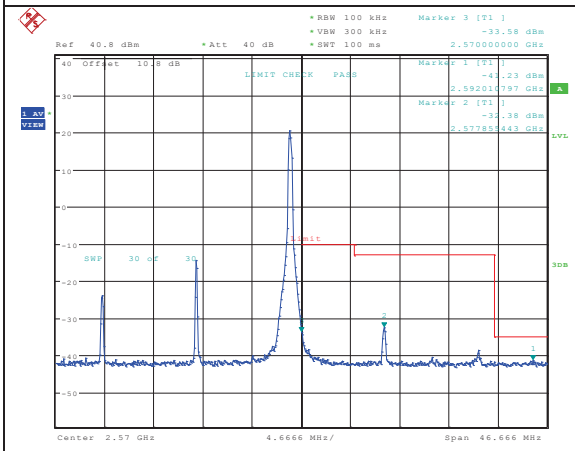
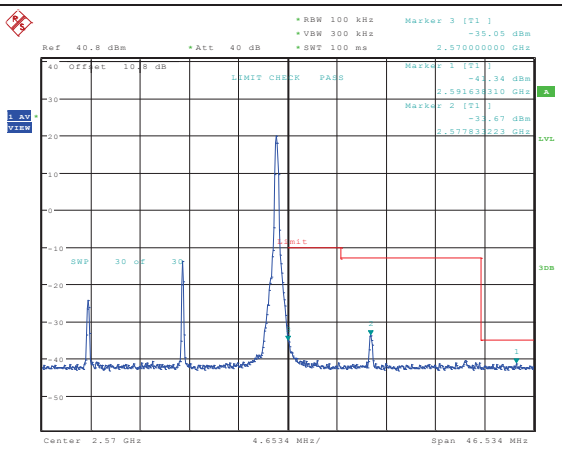
4.Band Edge

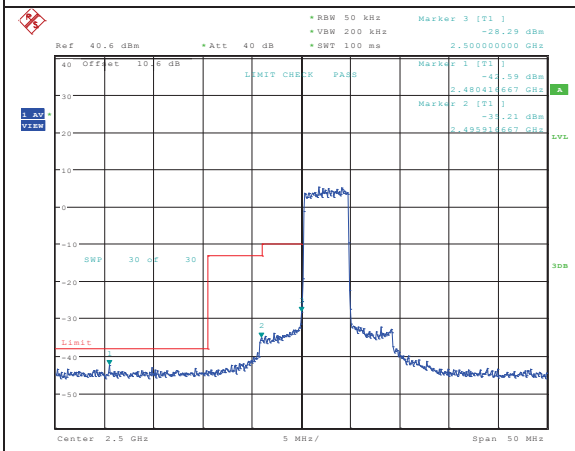
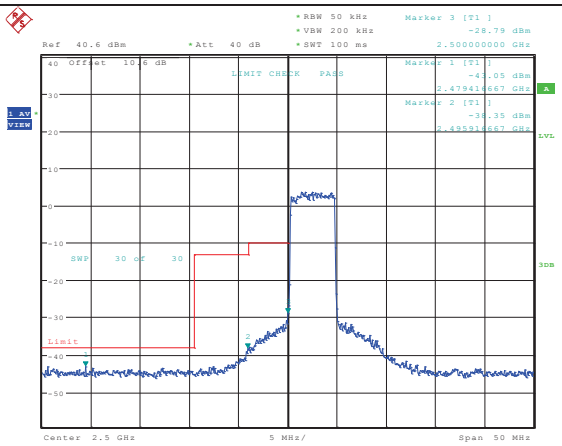
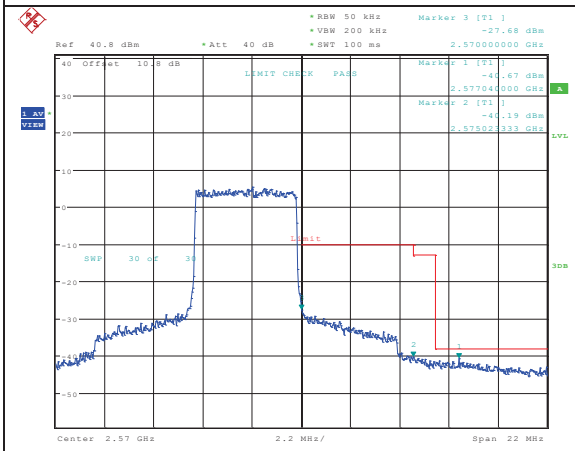
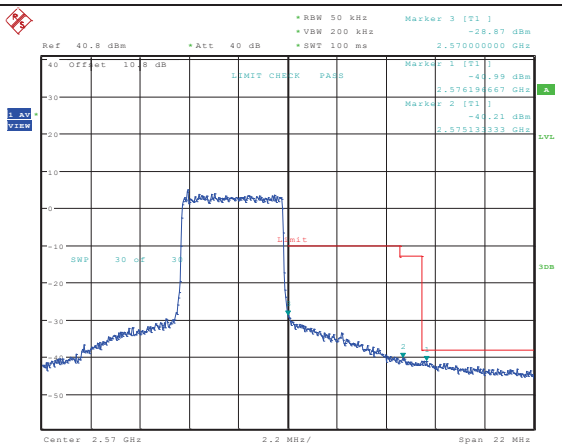
TE Band 7

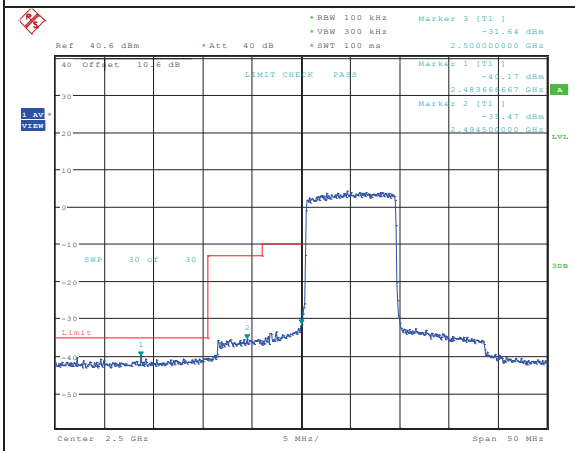
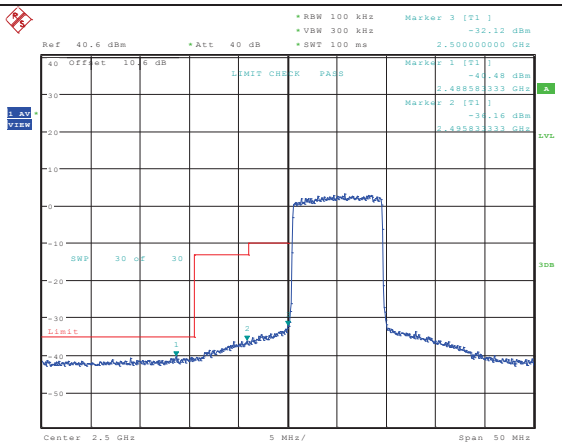
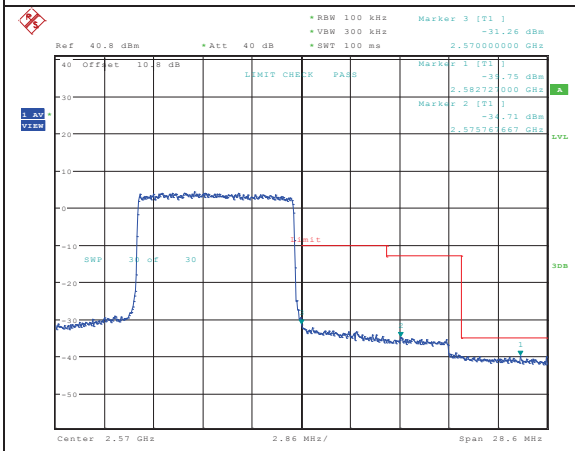
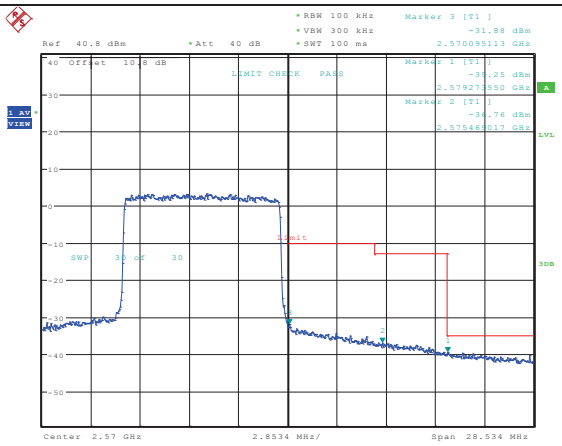
LTE_ Band 7_Channel Bandwidth: 5 MHz_1RB#0	
QPSK	**16QAM**
LCH	
	
HCH	
	

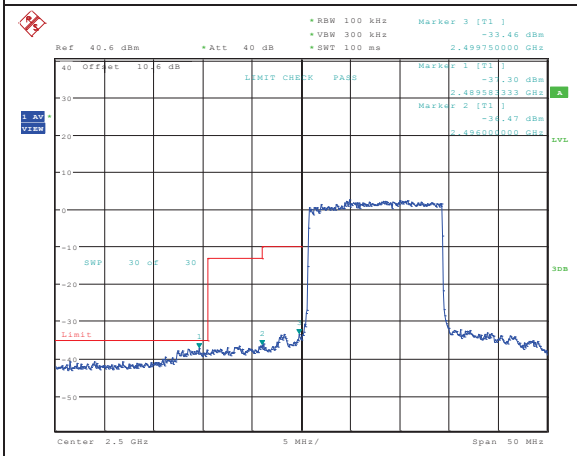
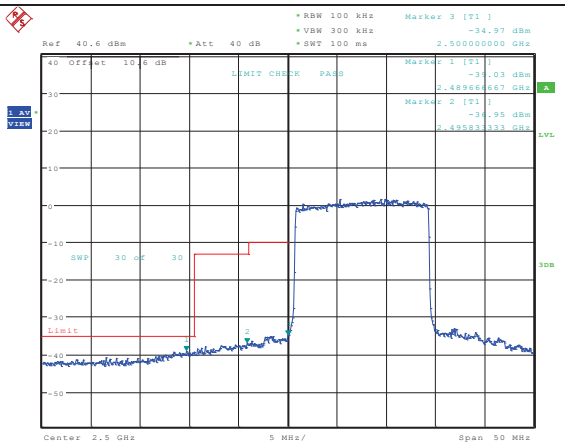
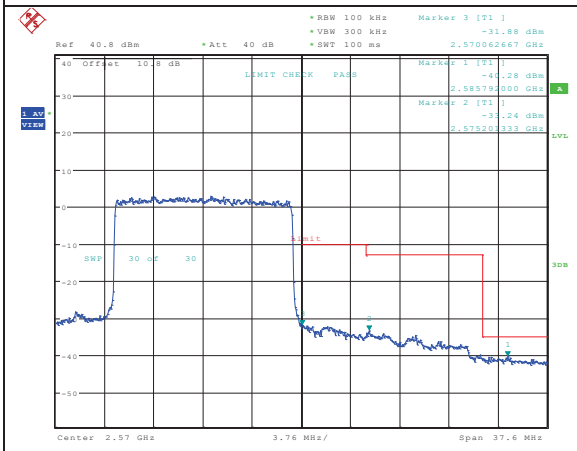
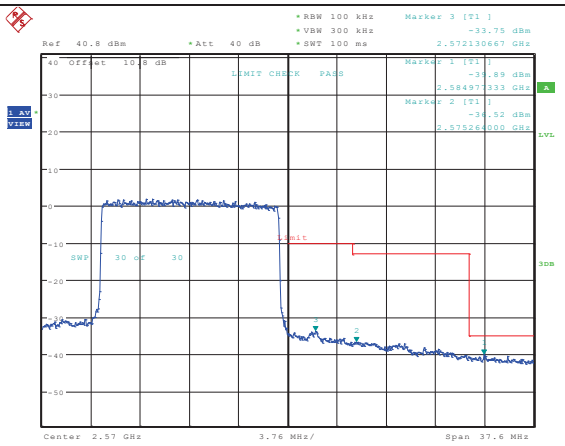
LTE_ Band 7_Channel Bandwidth: 10 MHz_1RB#0	
QPSK	**16QAM**
LCH	
	
HCH	
	

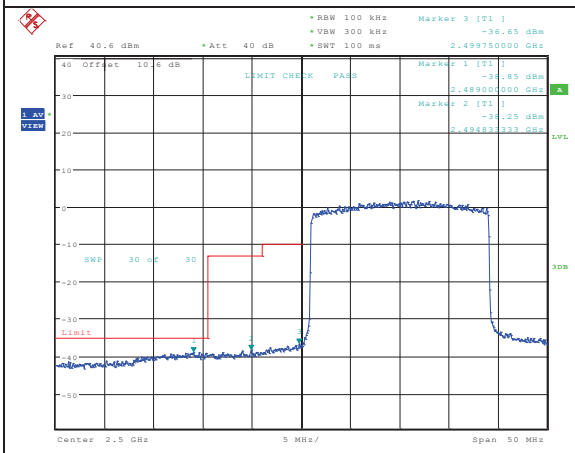
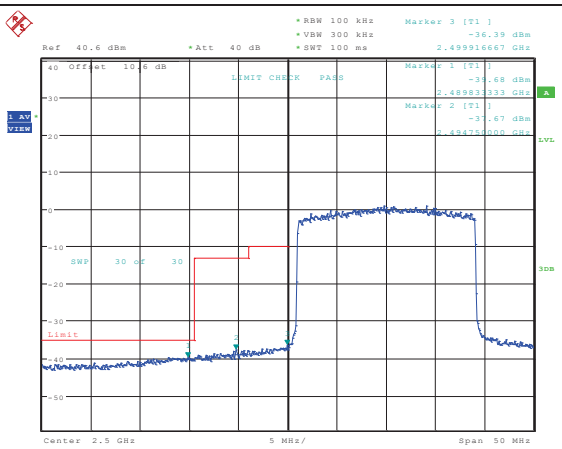
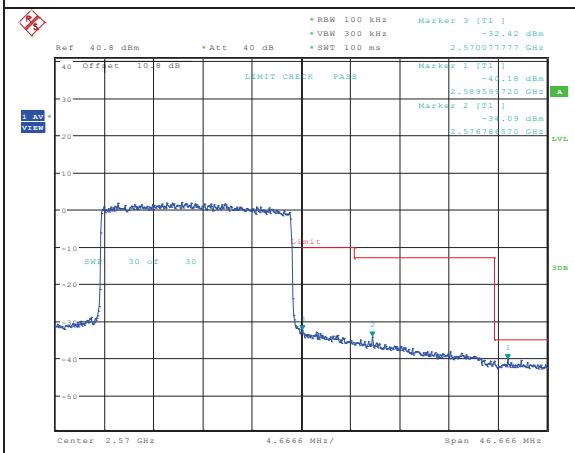
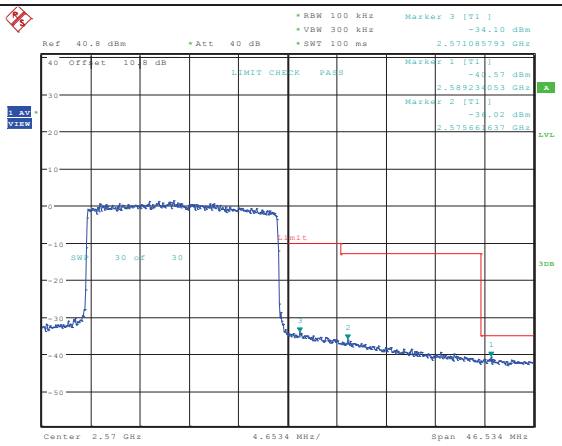
LTE_ Band 7_Channel Bandwidth: 15 MHz_1RB#0	
QPSK	**16QAM**
LCH	
	
HCH	
	

LTE_ Band 7_Channel Bandwidth: 20 MHz_1RB#0	
QPSK	**16QAM**
LCH	
	
HCH	
	

LTE_ Band 7_Channel Bandwidth: 5 MHz_25RB#0	
QPSK	**16QAM**
LCH	
	
HCH	
	

LTE_ Band 7_Channel Bandwidth: 10 MHz_50RB#0	
QPSK	**16QAM**
LCH	
	
HCH	
	

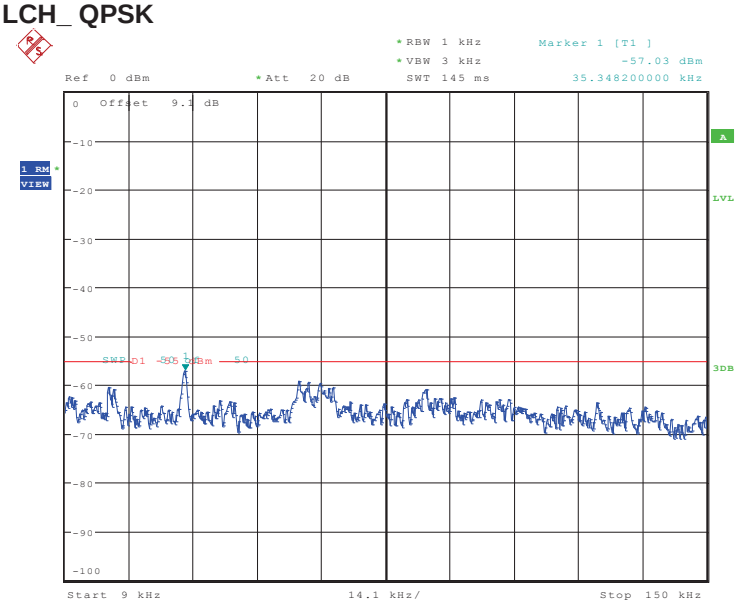
LTE_ Band 7_Channel Bandwidth: 15 MHz_75RB#0	
QPSK	**16QAM**
LCH	
	
HCH	
	

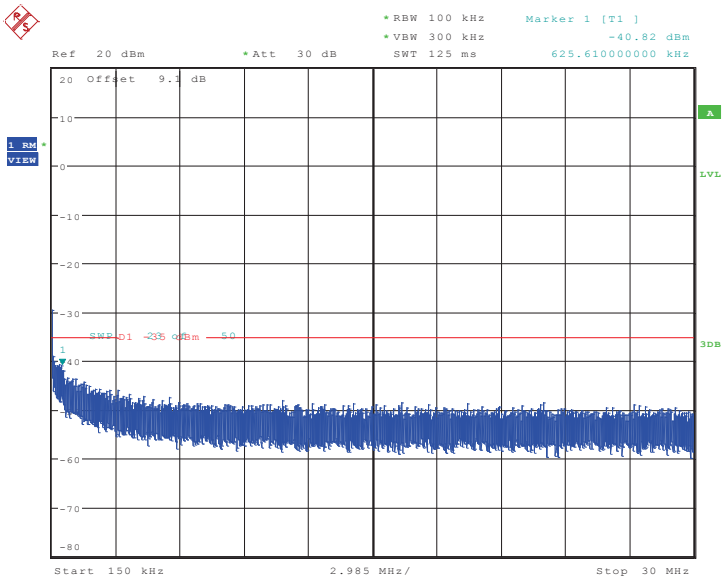
LTE_ Band 7_Channel Bandwidth: 20 MHz_100RB#0	
QPSK	**16QAM**
LCH	
	
HCH	
	

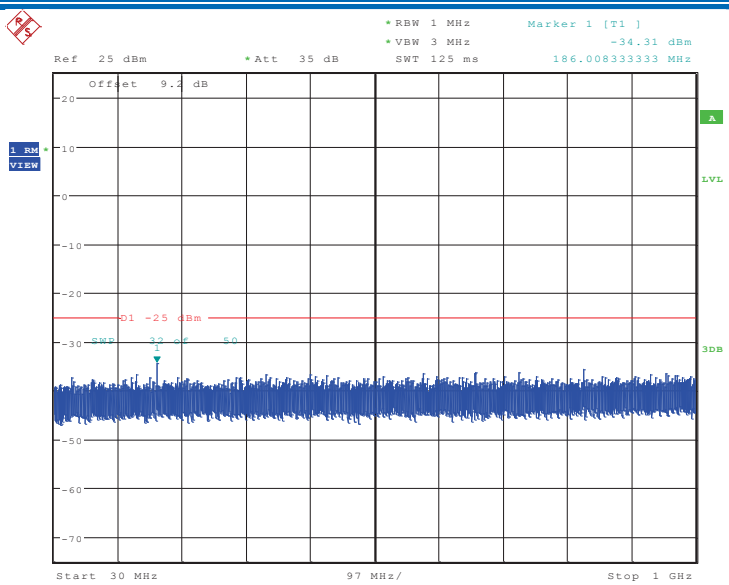
5.Conducted Spurious Emission

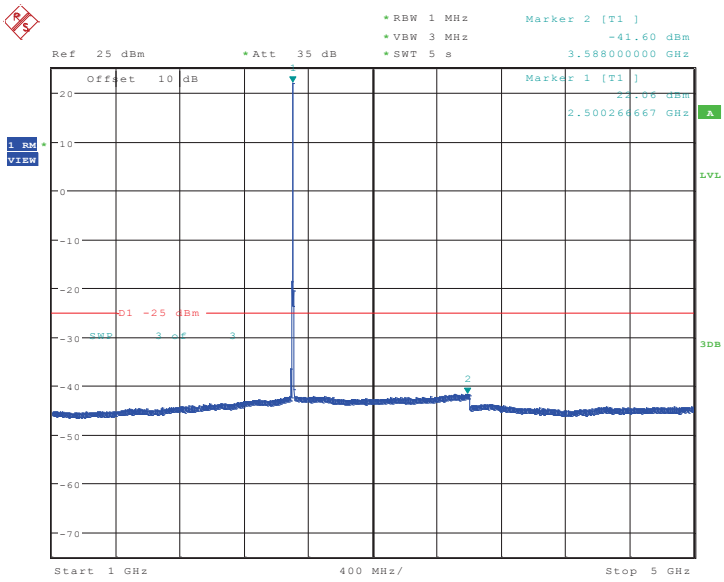
LTE_ Band 7_Channel Bandwidth: 5 MHz_1RB#0

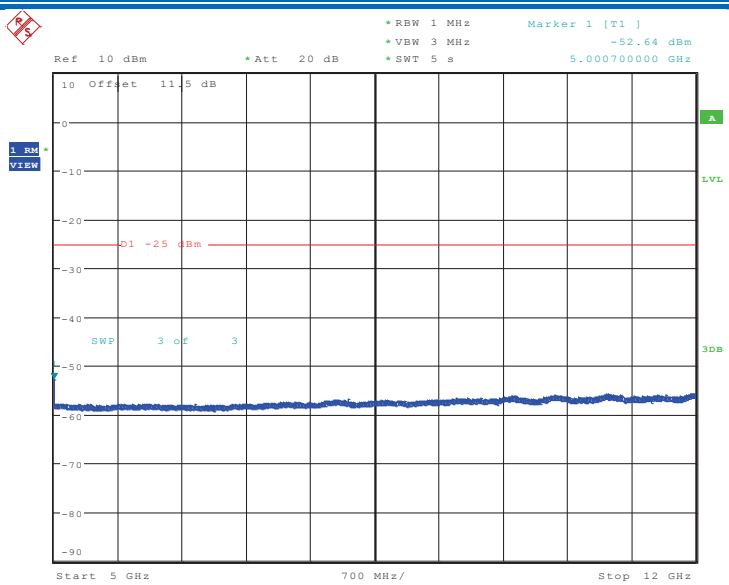
LCH_ QPSK

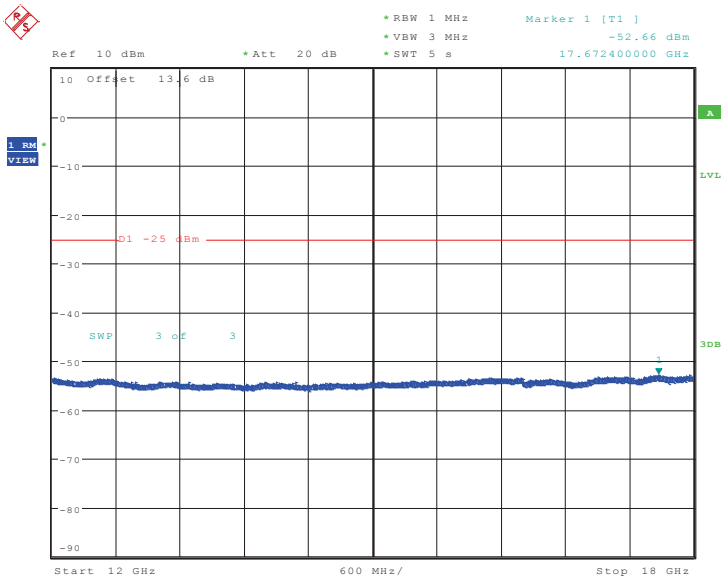




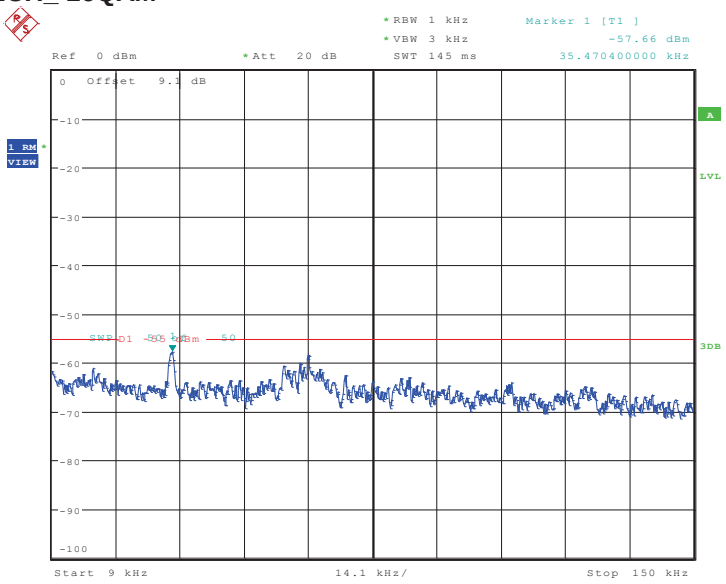

RBW 1 MHz
VBW 3 MHz
SWT 125 ms
Marker 1 [T1]
-34.31 dBm
186.008333333 MHz
Ref 25 dBm
Att 35 dB
Offset 9.2 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 32 of 50
Start 30 MHz
97 MHz/
Stop 1 GHz

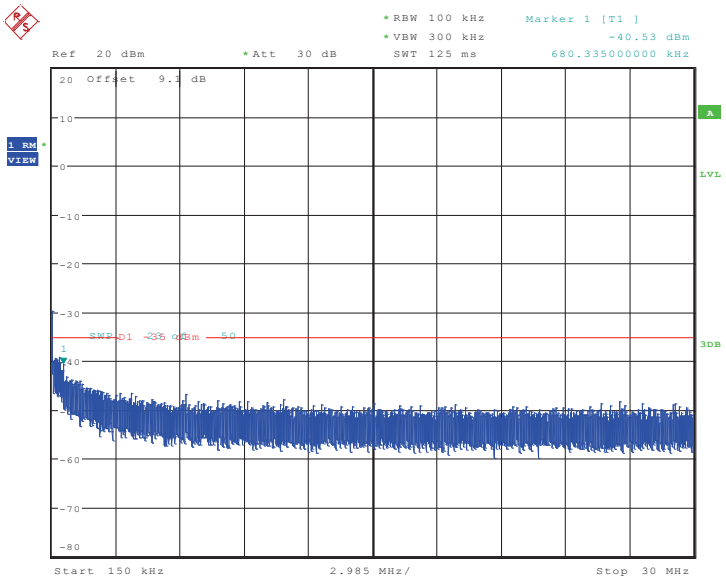

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 2 [T1]
-41.60 dBm
3.588000000 GHz
Marker 1 [T1]
22.06 dBm
2.500266667 GHz
Ref 25 dBm
Att 35 dB
Offset 10 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 1 GHz
400 MHz/
Stop 5 GHz

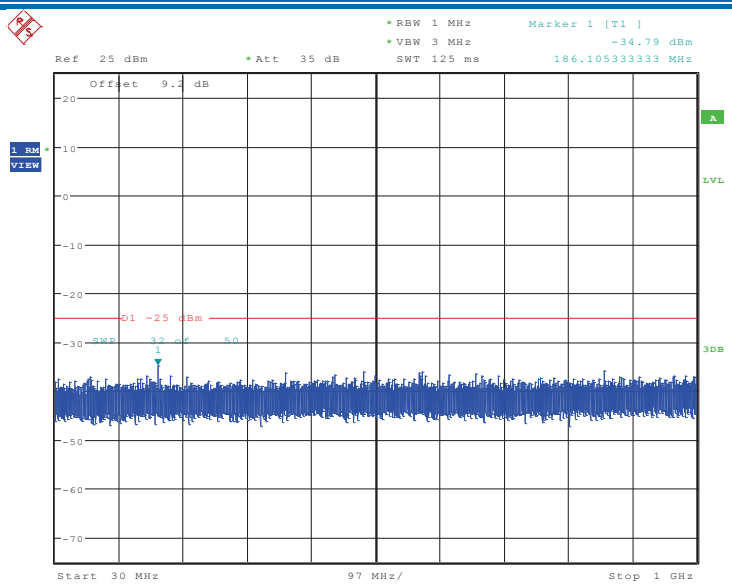

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-52.64 dBm
5.000700000 GHz
Ref 10 dBm
Att 20 dB
Offset 11.5 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 5 GHz
700 MHz/
Stop 12 GHz

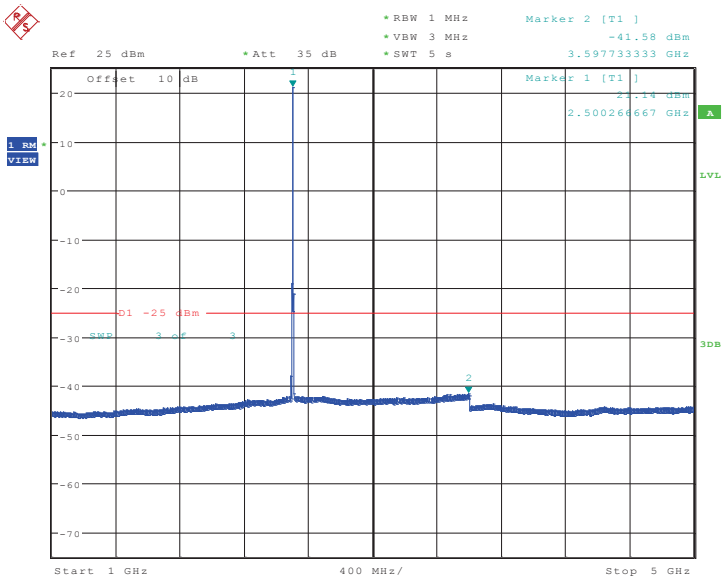

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-52.66 dBm
17.672400000 GHz
Ref 10 dBm
Att 20 dB
Offset 13.6 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 12 GHz
600 MHz/
Stop 18 GHz

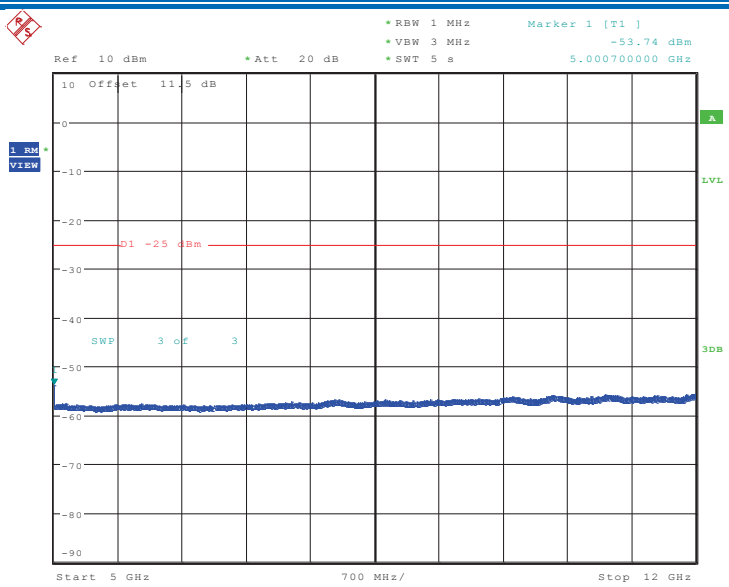
LCH_ 16QAM

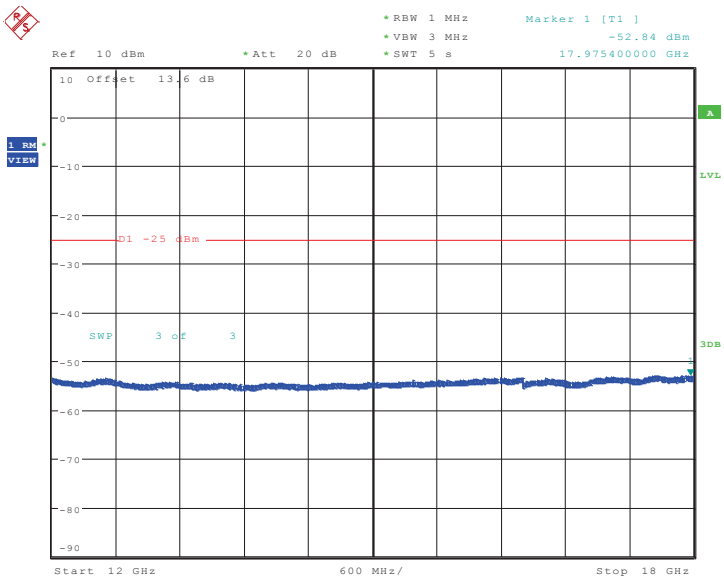

RBW 1 kHz
VBW 3 kHz
SWT 145 ms
Marker 1 [T1]
-57.66 dBm
35.470400000 kHz
Ref 0 dBm
Att 20 dB
Offset 9.1 dB
1 RM VIEW
A
LVL
3DB
SWP D1 -50.5 dBm -50
Start 9 kHz
14.1 kHz/
Stop 150 kHz


RBW 100 kHz
VBW 300 kHz
SWT 125 ms
Marker 1 [T1]
-40.53 dBm
680.335000000 kHz
Ref 20 dBm
Att 30 dB
Offset 9.1 dB
1 RM VIEW
A
LVL
3DB
SWP D1 -23.5 dBm -50
Start 150 kHz
2.985 MHz/
Stop 30 MHz

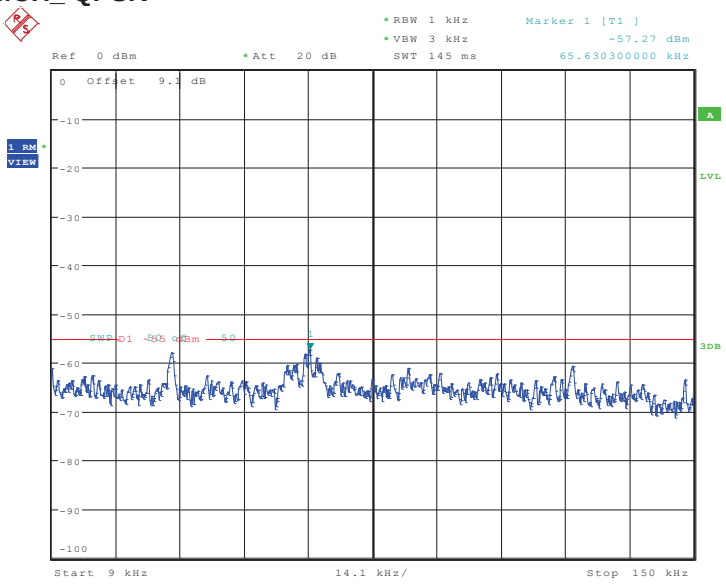

RBW 1 MHz
VBW 3 MHz
SWT 125 ms
Marker 1 [T1]
-34.79 dBm
186.105333333 MHz
Ref 25 dBm
Att 35 dB
Offset 9.2 dB
D1 -25 dBm
SWP 32 of 50
Start 30 MHz
97 MHz/
Stop 1 GHz
1 RM VIEW
A
LVL
3DB

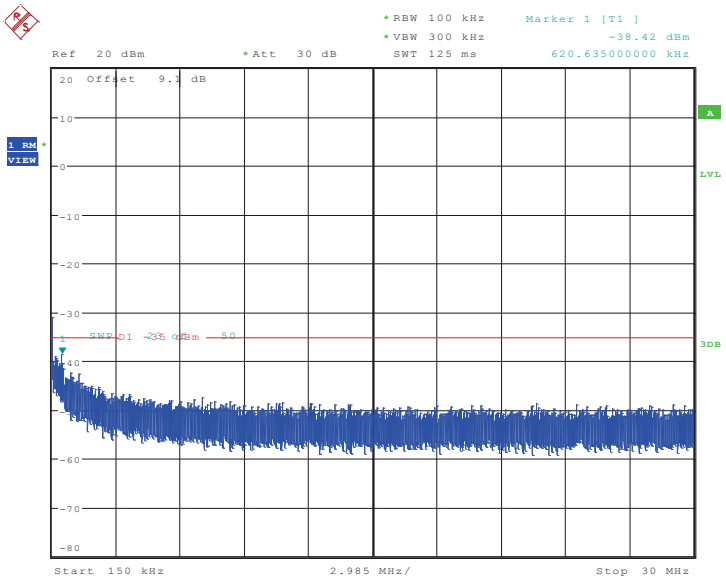

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 2 [T1]
-41.58 dBm
3.597733333 GHz
Marker 1 [T1]
2.500266667 GHz
Ref 25 dBm
Att 35 dB
Offset 10 dB
D1 -25 dBm
SWP 3 of 3
Start 1 GHz
400 MHz/
Stop 5 GHz
1 RM VIEW
A
LVL
3DB

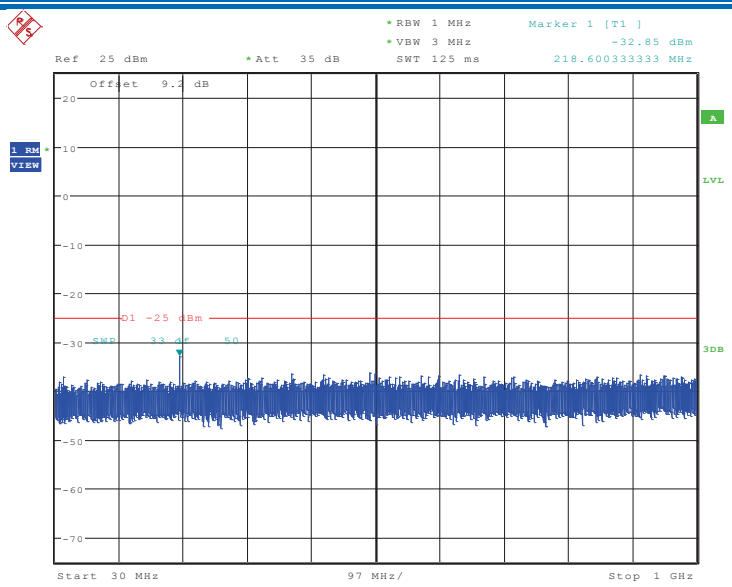

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-53.74 dBm
5.000700000 GHz
Ref 10 dBm
Att 20 dB
Offset 11.5 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 5 GHz
700 MHz/
Stop 12 GHz

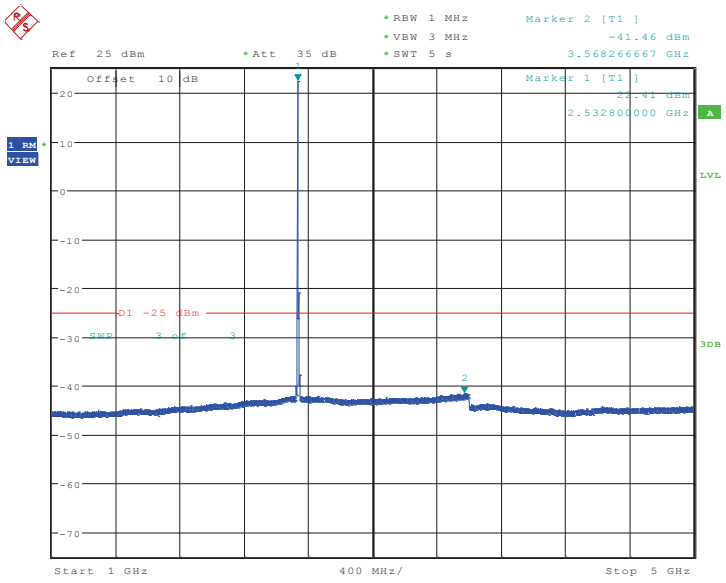

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-52.84 dBm
17.975400000 GHz
Ref 10 dBm
Att 20 dB
Offset 13.6 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 12 GHz
600 MHz/
Stop 18 GHz

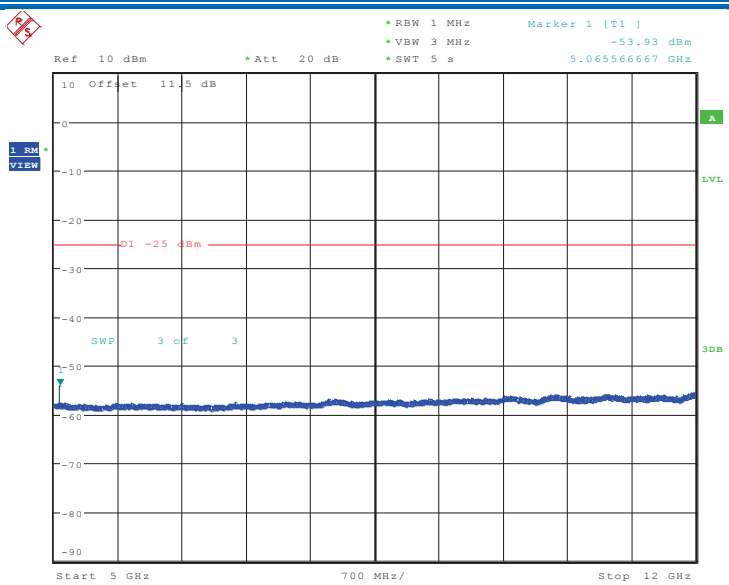
MCH_ QPSK

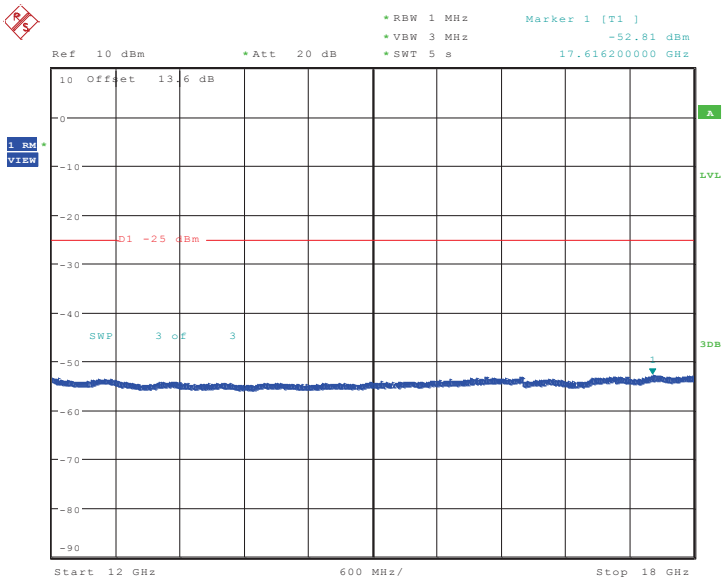

RBW 1 kHz
VBW 3 kHz
SWT 145 ms
Marker 1 [T1]
-57.27 dBm
65.630300000 kHz
Ref 0 dBm
Att 20 dB
Offset 9.1 dB
1 RM
VIEW
A
LVL
3DB
SWP D1 -50.5 dBm 50
Start 9 kHz
14.1 kHz/
Stop 150 kHz


RBW 100 kHz
VBW 300 kHz
SWT 125 ms
Marker 1 [T1]
-38.42 dBm
620.635000000 kHz
Ref 20 dBm
Att 30 dB
Offset 9.1 dB
1 RM
VIEW
A
LVL
3DB
SWP D1 -33.5 dBm 50
Start 150 kHz
2.985 MHz/
Stop 30 MHz

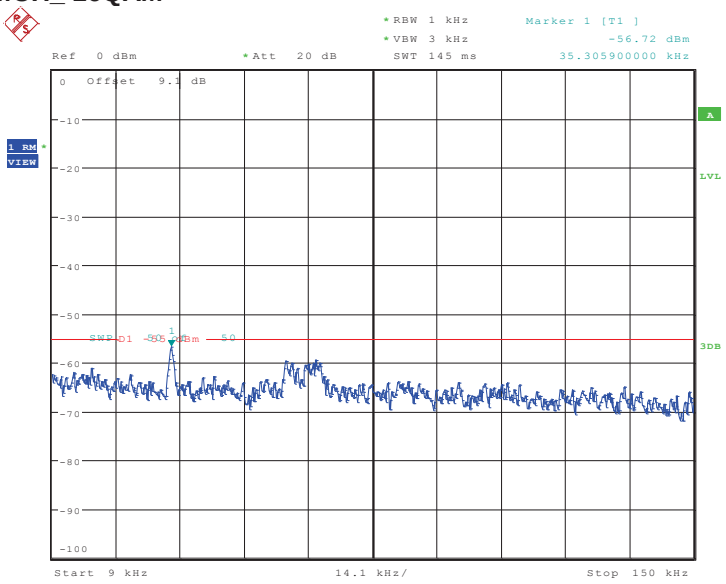

RBW 1 MHz
VBW 3 MHz
SWT 125 ms
Marker 1 [T1]
-32.85 dBm
218.600333333 MHz
Ref 25 dBm
Att 35 dB
Offset 9.2 dB
D1 -25 dBm
SWP 33 of 50
Start 30 MHz
97 MHz/
Stop 1 GHz

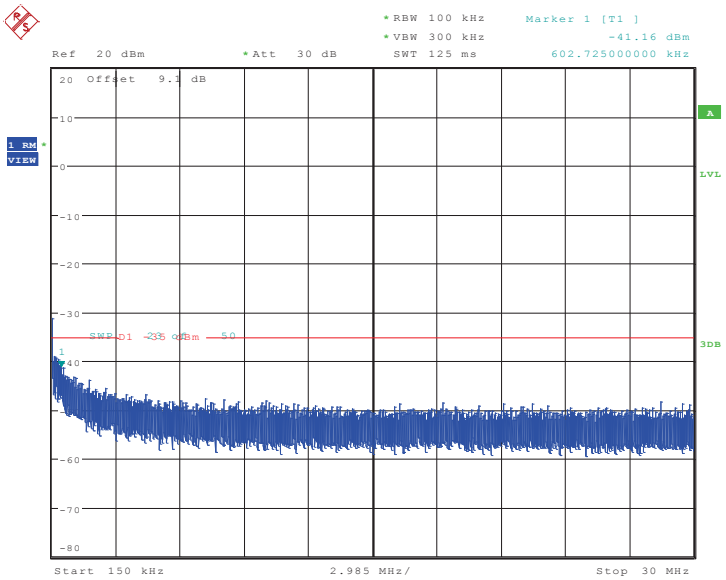

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 2 [T1]
-41.46 dBm
3.568266667 GHz
Marker 1 [T1]
2.532800000 GHz
Ref 25 dBm
Att 35 dB
Offset 10 dB
D1 -25 dBm
SWP 3 of 3
Start 1 GHz
400 MHz/
Stop 5 GHz

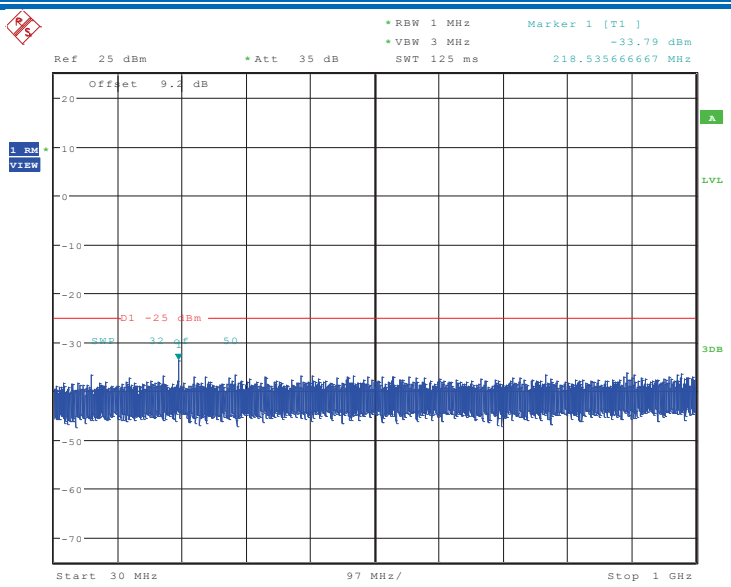

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-53.93 dBm
5.065566667 GHz
Ref 10 dBm
Att 20 dB
Offset 11.5 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 5 GHz
700 MHz/
Stop 12 GHz

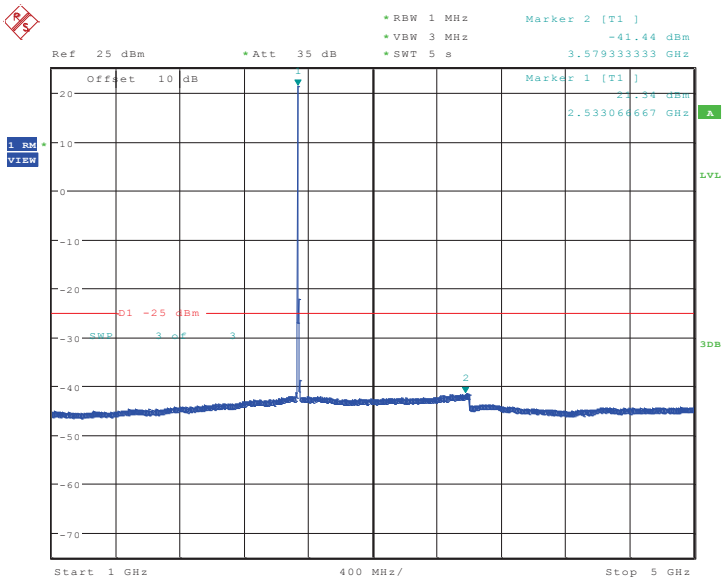

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-52.81 dBm
17.616200000 GHz
Ref 10 dBm
Att 20 dB
Offset 13.6 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 12 GHz
600 MHz/
Stop 18 GHz

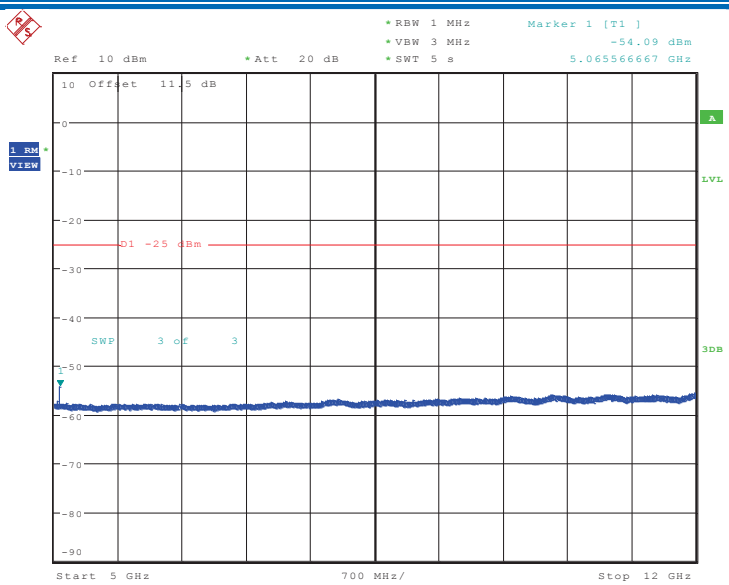
MCH_ 16QAM

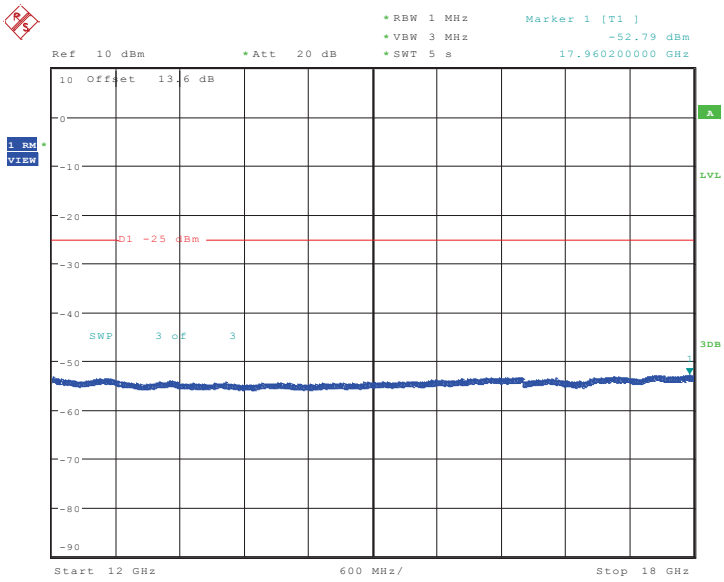

RBW 1 kHz
VBW 3 kHz
SWT 145 ms
Marker 1 [T1]
-56.72 dBm
35.305900000 kHz
Ref 0 dBm
Att 20 dB
Offset 9.1 dB
1 RM
VIEW
A
LVL
3DB
Start 9 kHz
14.1 kHz/
Stop 150 kHz


RBW 100 kHz
VBW 300 kHz
SWT 125 ms
Marker 1 [T1]
-41.16 dBm
602.725000000 kHz
Ref 20 dBm
Att 30 dB
Offset 9.1 dB
1 RM
VIEW
A
LVL
3DB
Start 150 kHz
2.985 MHz/
Stop 30 MHz

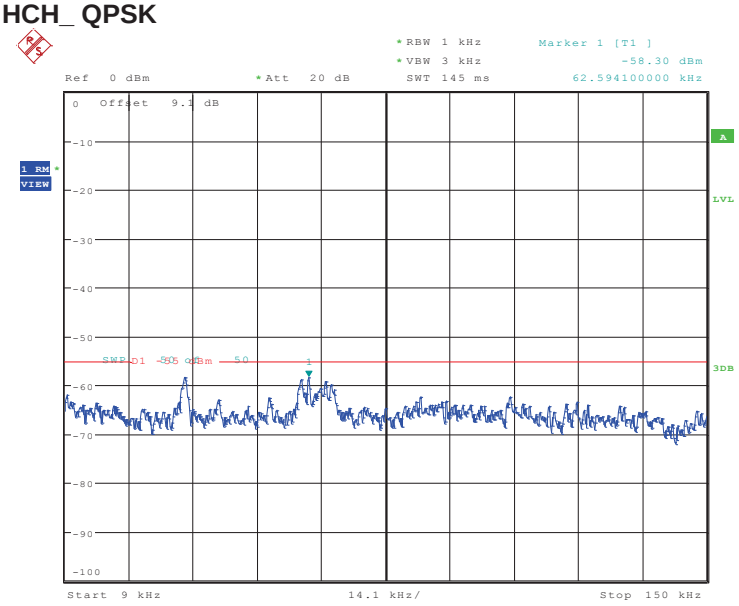

RBW 1 MHz
VBW 3 MHz
SWT 125 ms
Marker 1 [T1]
-33.79 dBm
218.535666667 MHz
Ref 25 dBm
Att 35 dB
Offset 9.2 dB
D1 -25 dBm
Start 30 MHz
97 MHz/
Stop 1 GHz

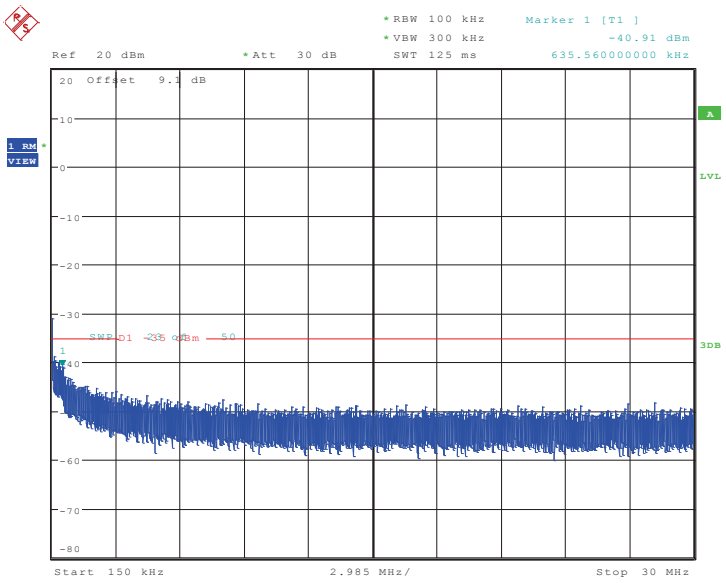

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 2 [T1]
-41.44 dBm
3.579333333 GHz
Marker 1 [T1]
2.533066667 GHz
Ref 25 dBm
Att 35 dB
Offset 10 dB
D1 -25 dBm
Start 1 GHz
400 MHz/
Stop 5 GHz

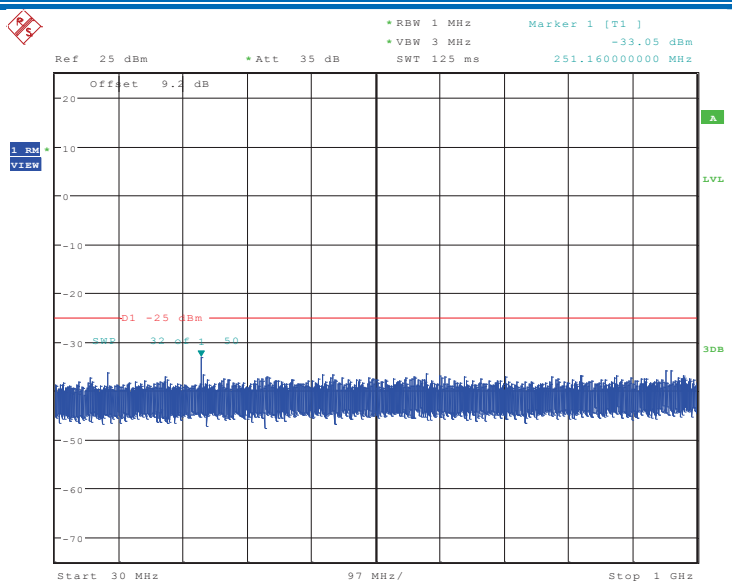

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-54.09 dBm
5.065566667 GHz
Ref 10 dBm
Att 20 dB
Offset 11.5 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 5 GHz
700 MHz/
Stop 12 GHz

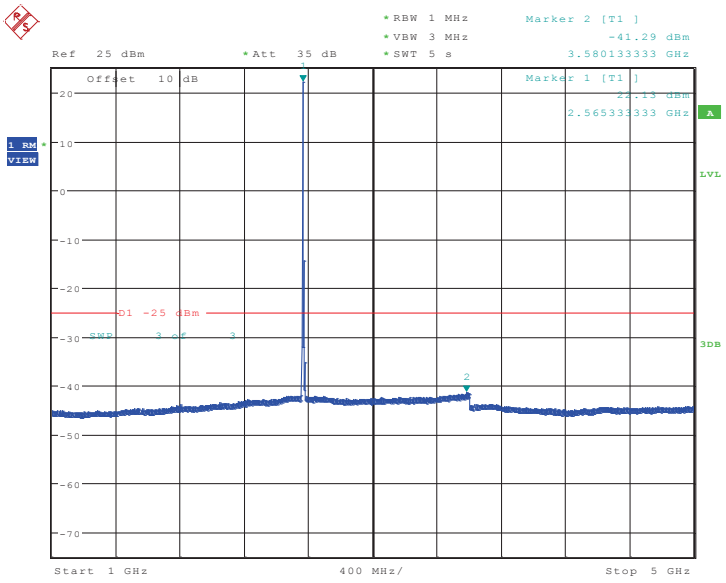

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-52.79 dBm
17.960200000 GHz
Ref 10 dBm
Att 20 dB
Offset 13.6 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 12 GHz
600 MHz/
Stop 18 GHz

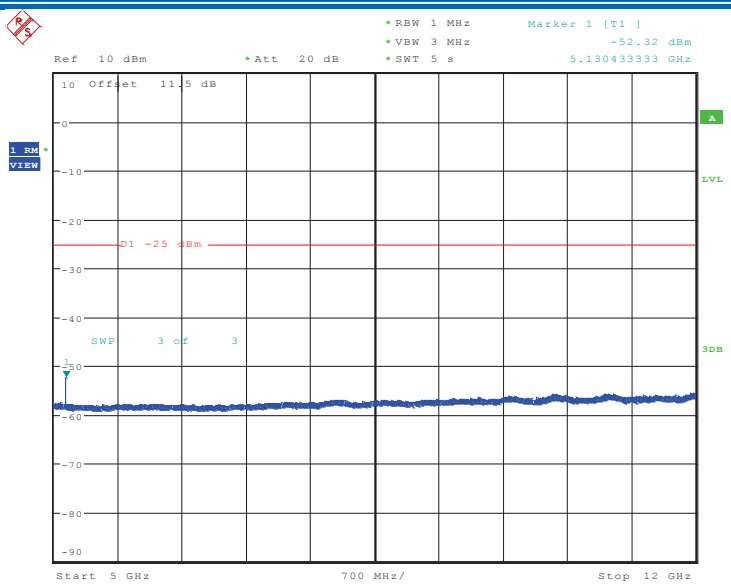
HCH_ QPSK

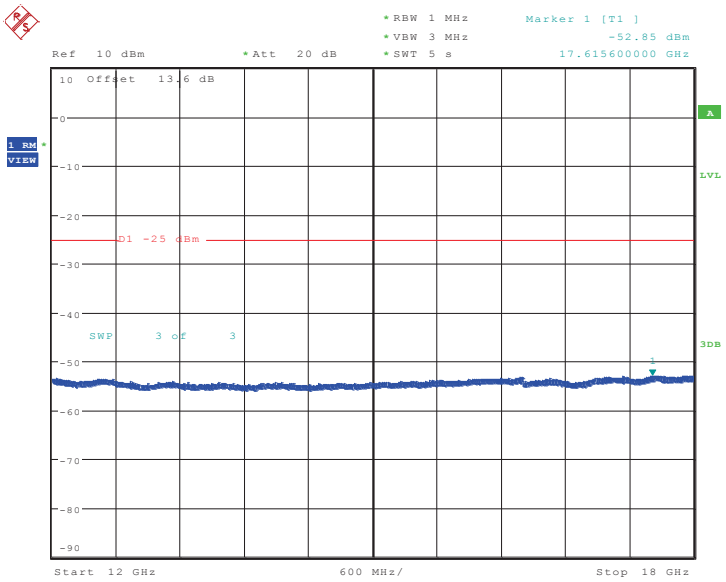

RBW 1 kHz
VBW 3 kHz
SWT 145 ms
Marker 1 [T1]
-58.30 dBm
62.594100000 kHz
Ref 0 dBm
Att 20 dB
Offset 9.1 dB
1 RM
VIEW
A
LVL
3DB
Start 9 kHz
14.1 kHz/
Stop 150 kHz


RBW 100 kHz
VBW 300 kHz
SWT 125 ms
Marker 1 [T1]
-40.91 dBm
635.560000000 kHz
Ref 20 dBm
Att 30 dB
Offset 9.1 dB
1 RM
VIEW
A
LVL
3DB
Start 150 kHz
2.985 MHz/
Stop 30 MHz

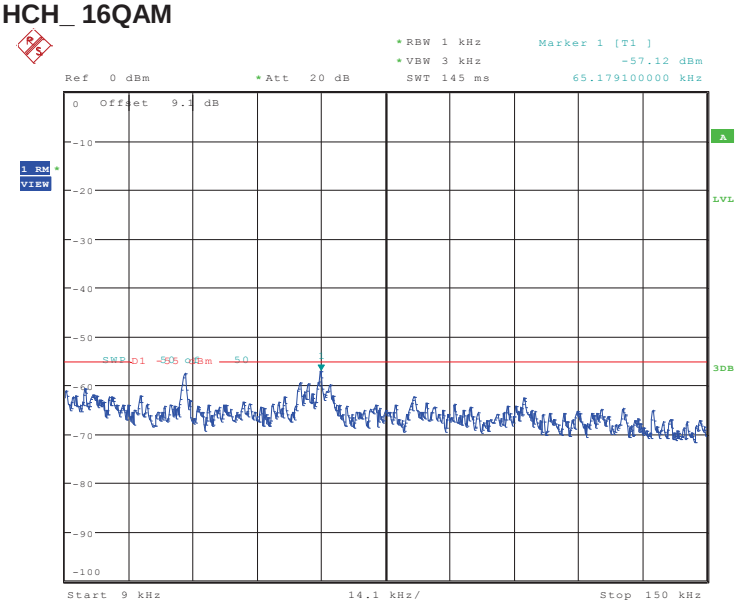

RBW 1 MHz
VBW 3 MHz
SWT 125 ms
Marker 1 [T1]
-33.05 dBm
251.160000000 MHz
Ref 25 dBm
Att 35 dB
Offset 9.2 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 32 of 1 50
Start 30 MHz
97 MHz/
Stop 1 GHz

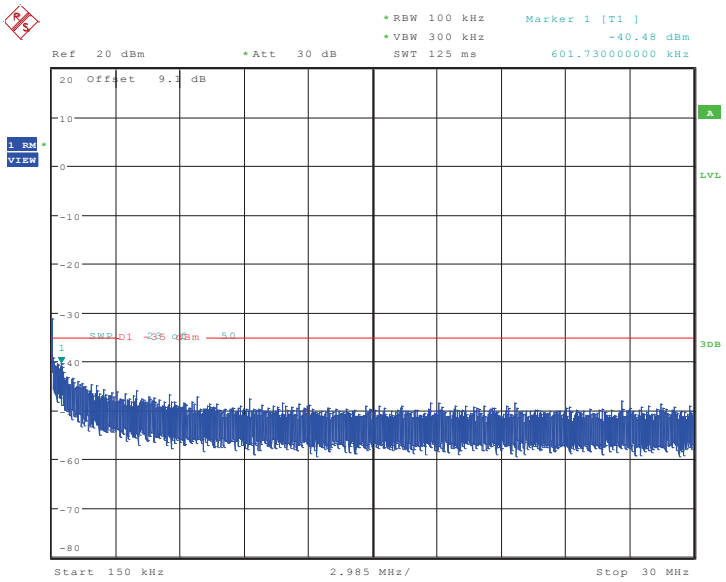

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 2 [T1]
-41.29 dBm
3.580133333 GHz
Marker 1 [T1]
2.565333333 GHz
Ref 25 dBm
Att 35 dB
Offset 10 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 1 GHz
400 MHz/
Stop 5 GHz

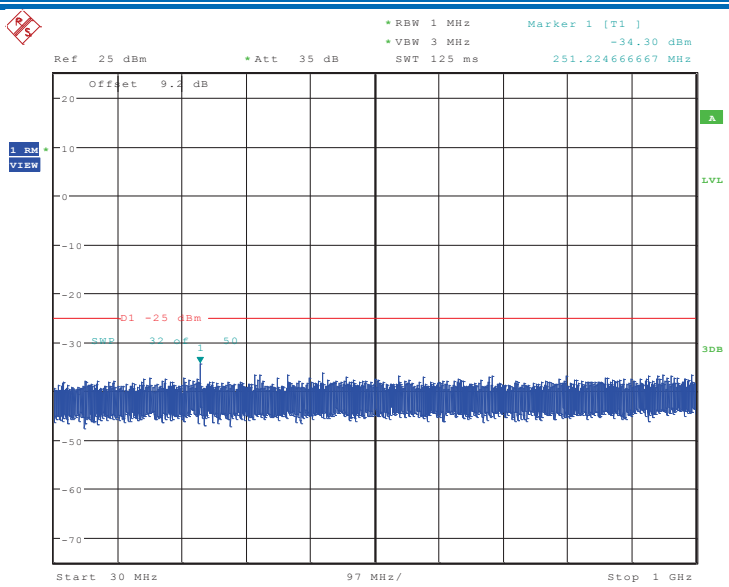

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-52.32 dBm
5.130433333 GHz
Ref 10 dBm
Att 20 dB
Offset 11.5 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 5 GHz
700 MHz/
Stop 12 GHz

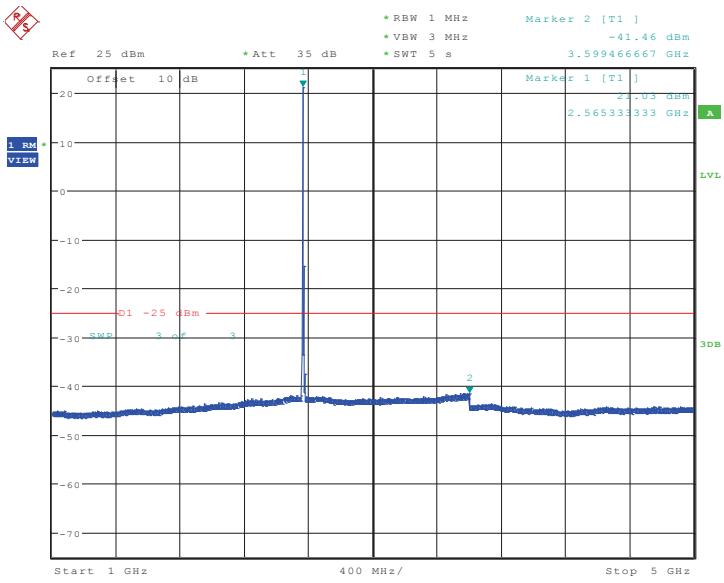

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-52.85 dBm
17.615600000 GHz
Ref 10 dBm
Att 20 dB
Offset 13.6 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 12 GHz
600 MHz/
Stop 18 GHz

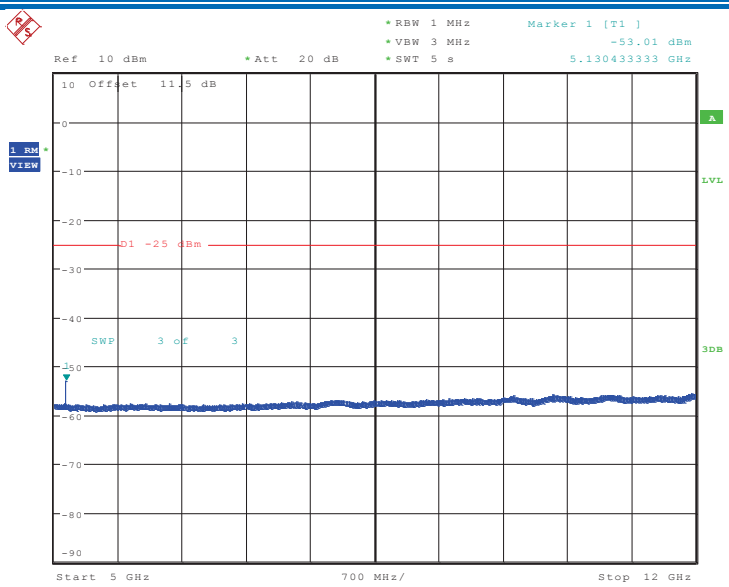
HCH_ 16QAM

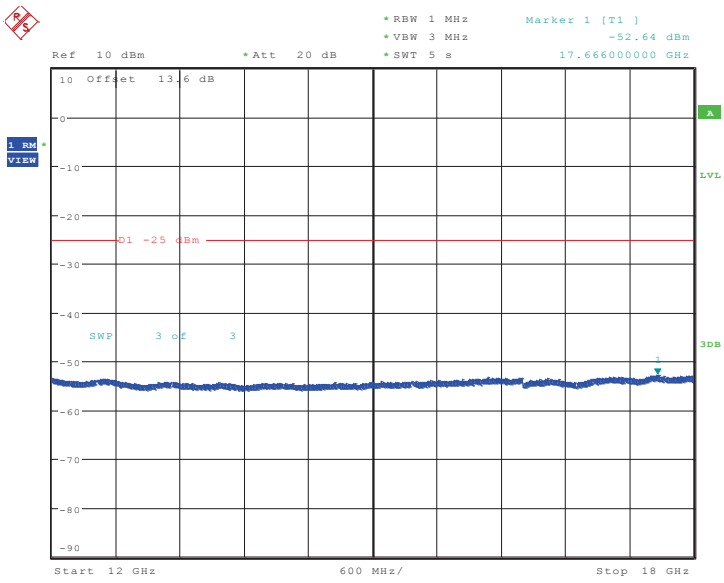

RBW 1 kHz
VBW 3 kHz
SWT 145 ms
Marker 1 [T1]
-57.12 dBm
65.179100000 kHz
Ref 0 dBm
Att 20 dB
Offset 9.1 dB
1 RM
VIEW
A
LVL
3DB
SWP 01 -50.5 dBm 50
Start 9 kHz
14.1 kHz/
Stop 150 kHz


RBW 100 kHz
VBW 300 kHz
SWT 125 ms
Marker 1 [T1]
-40.48 dBm
601.730000000 kHz
Ref 20 dBm
Att 30 dB
Offset 9.1 dB
1 RM
VIEW
A
LVL
3DB
SWP 01 -23.5 dBm 50
Start 150 kHz
2.985 MHz/
Stop 30 MHz


RBW 1 MHz
VBW 3 MHz
SWT 125 ms
Marker 1 [T1]
-34.30 dBm
251.224666667 MHz
Ref 25 dBm
Att 35 dB
Offset 9.2 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 32 of 50
Start 30 MHz
97 MHz/
Stop 1 GHz

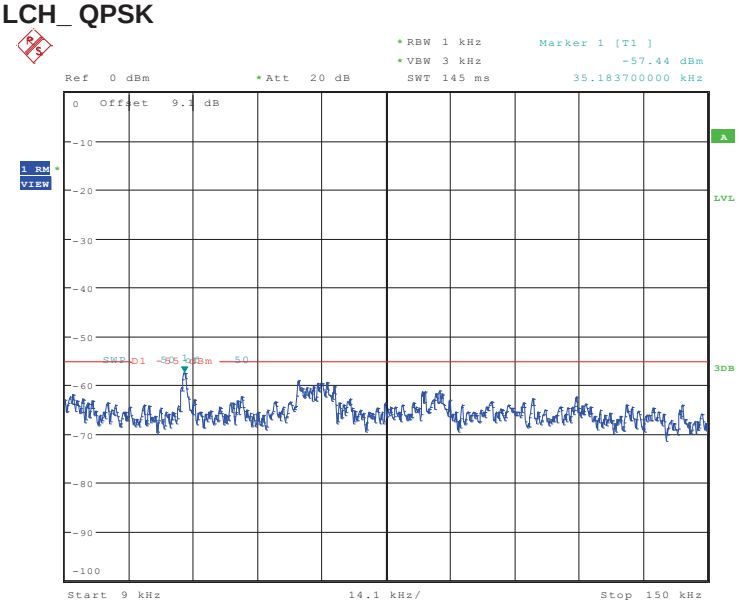

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 2 [T1]
-41.46 dBm
3.599466667 GHz
Ref 25 dBm
Att 35 dB
Offset 10 dB
Marker 1 [T1]
22.03 dBm
2.565333333 GHz
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 1 GHz
400 MHz/
Stop 5 GHz

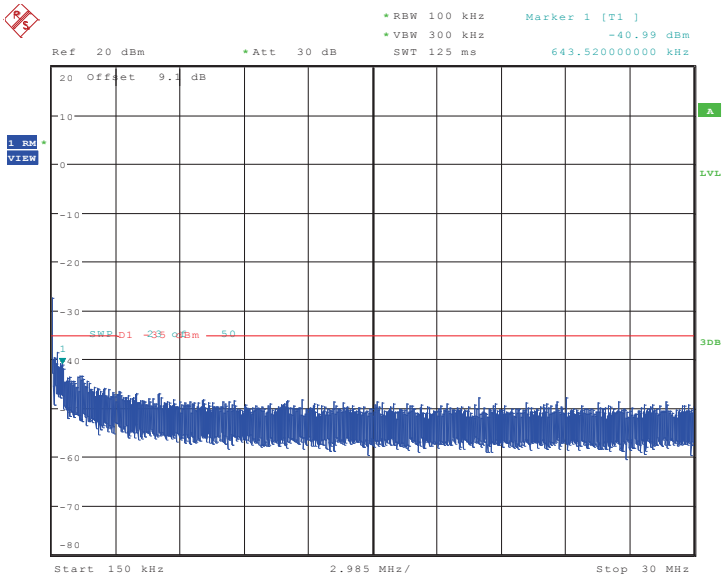

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-53.01 dBm
5.130433333 GHz
Ref 10 dBm
Att 20 dB
Offset 11.5 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 5 GHz
700 MHz/
Stop 12 GHz

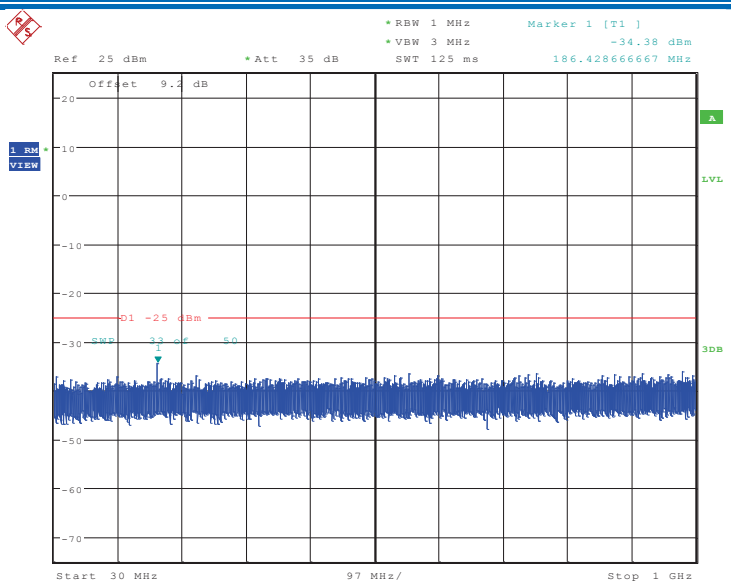

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-52.64 dBm
17.666000000 GHz
Ref 10 dBm
Att 20 dB
Offset 13.6 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 12 GHz
600 MHz/
Stop 18 GHz

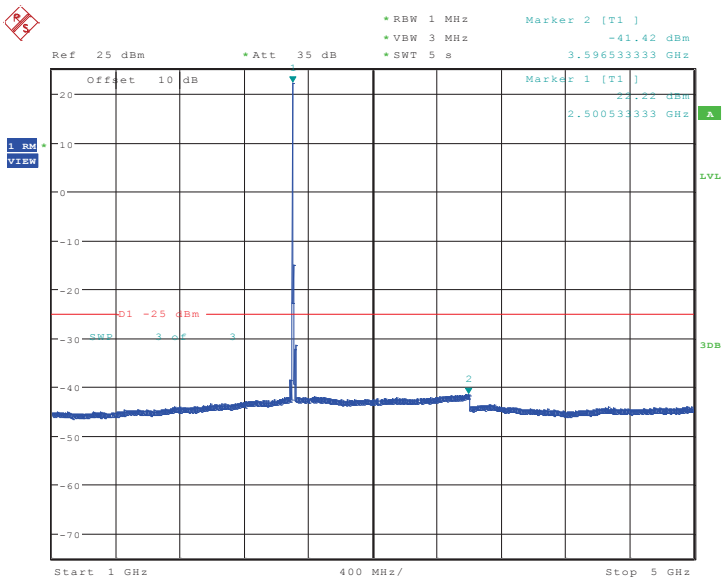
LTE_ Band 7_Channel Bandwidth: 10 MHz_1RB#0

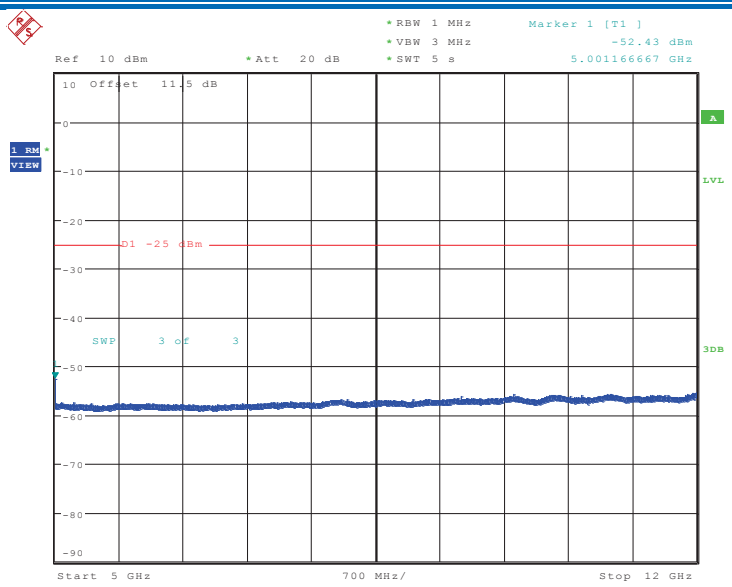
LCH_ QPSK

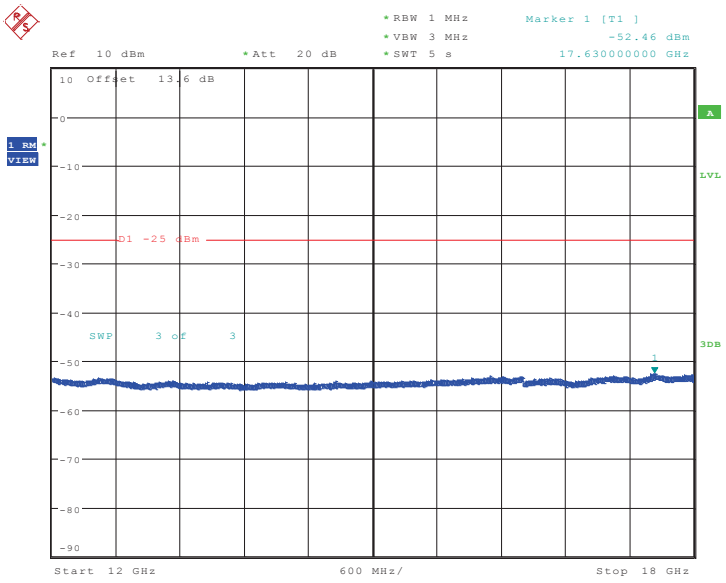




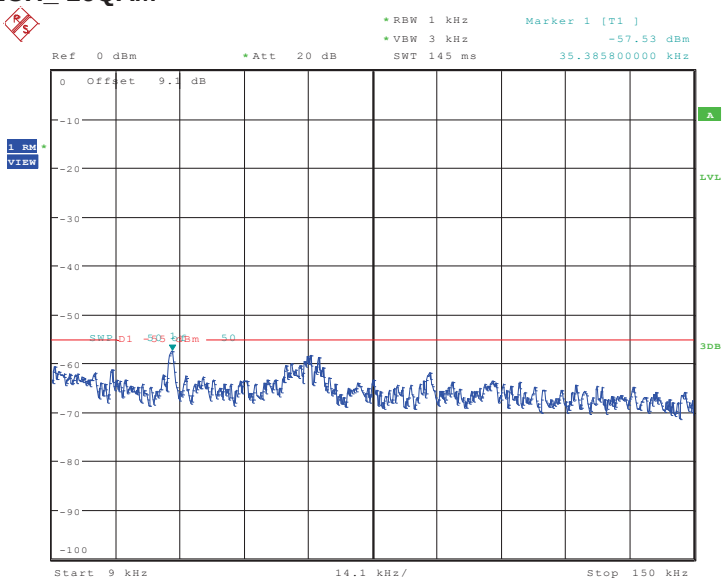

RBW 1 MHz
VBW 3 MHz
SWT 125 ms
Marker 1 [T1]
-34.38 dBm
186.428666667 MHz
Ref 25 dBm
Att 35 dB
Offset 9.2 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 33 of 50
Start 30 MHz
97 MHz/
Stop 1 GHz

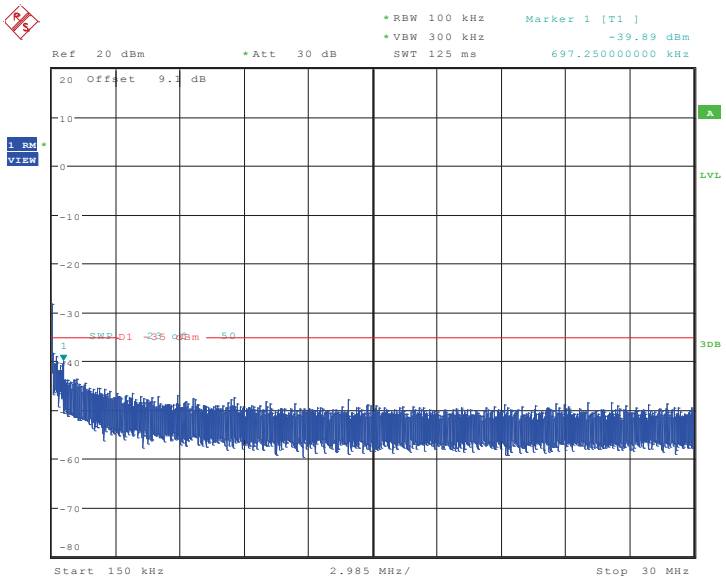

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 2 [T1]
-41.42 dBm
3.596533333 GHz
Ref 25 dBm
Att 35 dB
Offset 10 dB
Marker 1 [T1]
22.22 dBm
2.500533333 GHz
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 1 GHz
400 MHz/
Stop 5 GHz

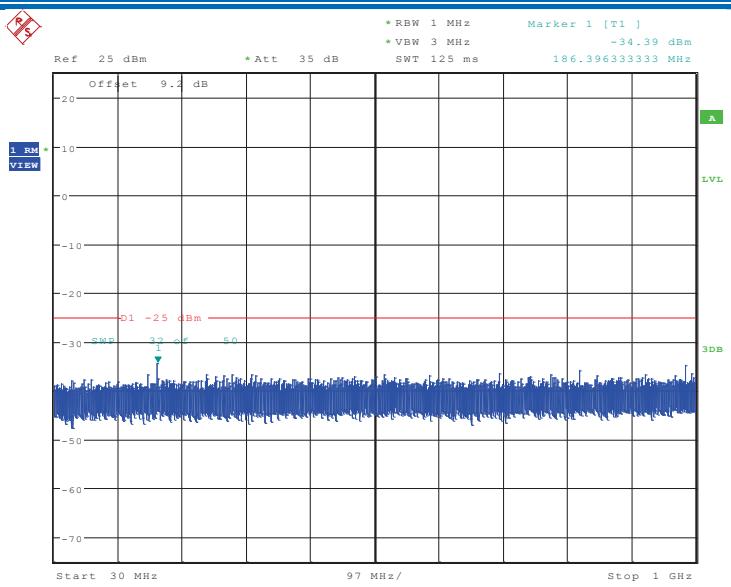

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-52.43 dBm
5.001166667 GHz
Ref 10 dBm
Att 20 dB
Offset 11.5 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 5 GHz
700 MHz/
Stop 12 GHz

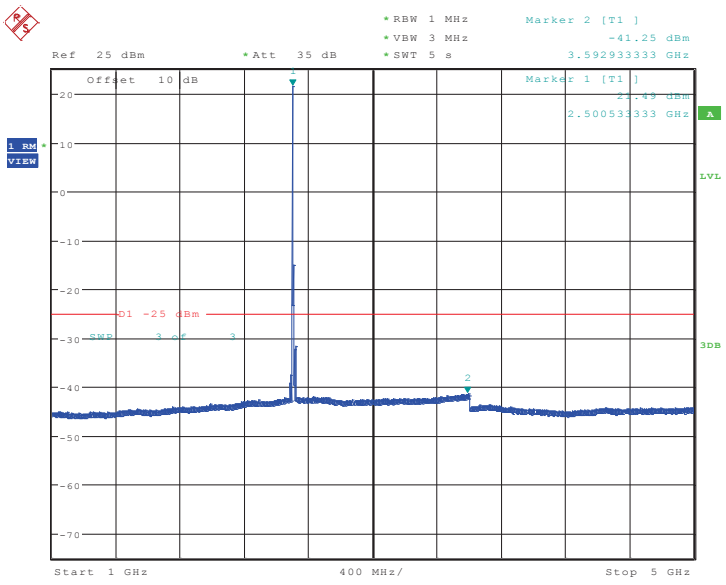

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-52.46 dBm
17.630000000 GHz
Ref 10 dBm
Att 20 dB
Offset 13.6 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 12 GHz
600 MHz/
Stop 18 GHz

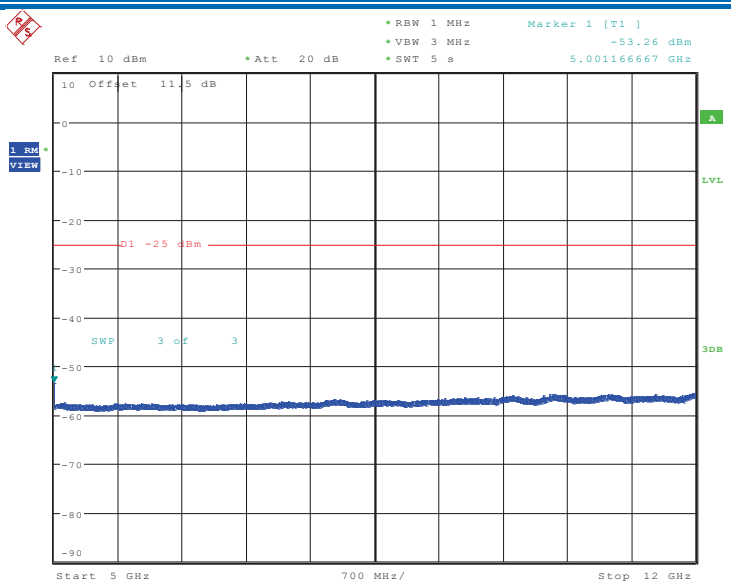
LCH_ 16QAM

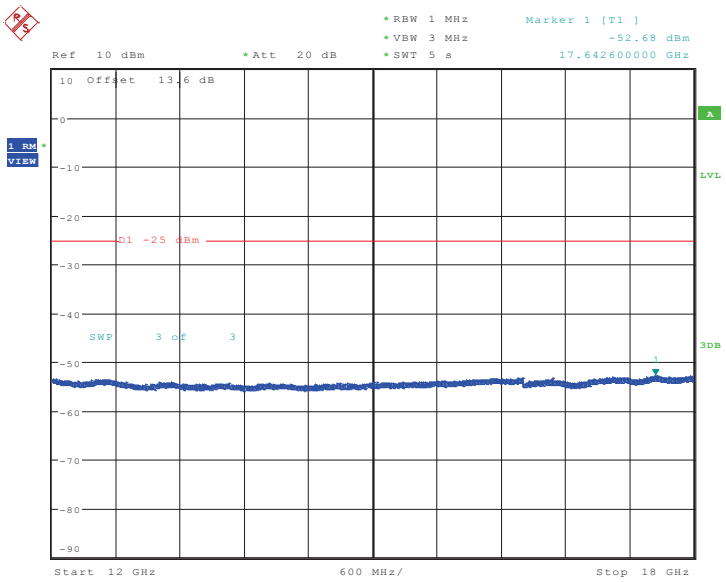

RBW 1 kHz
VBW 3 kHz
SWT 145 ms
Marker 1 [T1]
-57.53 dBm
35.385800000 kHz
Ref 0 dBm
Att 20 dB
Offset 9.1 dB
1 RM
VIEW
A
LVL
3DB
SWP 01 -50.5 dBm 50
Start 9 kHz
14.1 kHz/
Stop 150 kHz


RBW 100 kHz
VBW 300 kHz
SWT 125 ms
Marker 1 [T1]
-39.89 dBm
697.250000000 kHz
Ref 20 dBm
Att 30 dB
Offset 9.1 dB
1 RM
VIEW
A
LVL
3DB
SWP 01 -23.5 dBm 50
Start 150 kHz
2.985 MHz/
Stop 30 MHz

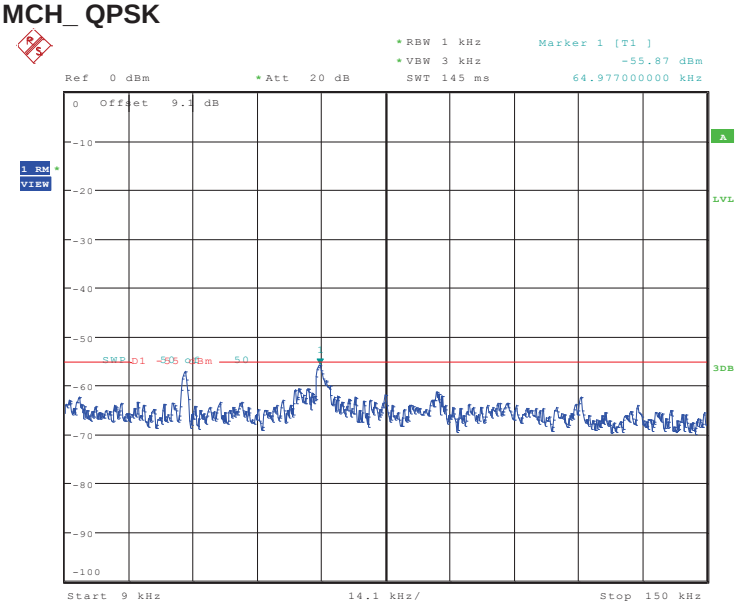

RBW 1 MHz
VBW 3 MHz
SWT 125 ms
Marker 1 [T1]
-34.39 dBm
186.396333333 MHz
Ref 25 dBm
Att 35 dB
Offset 9.2 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 32 of 50
Start 30 MHz
97 MHz/
Stop 1 GHz

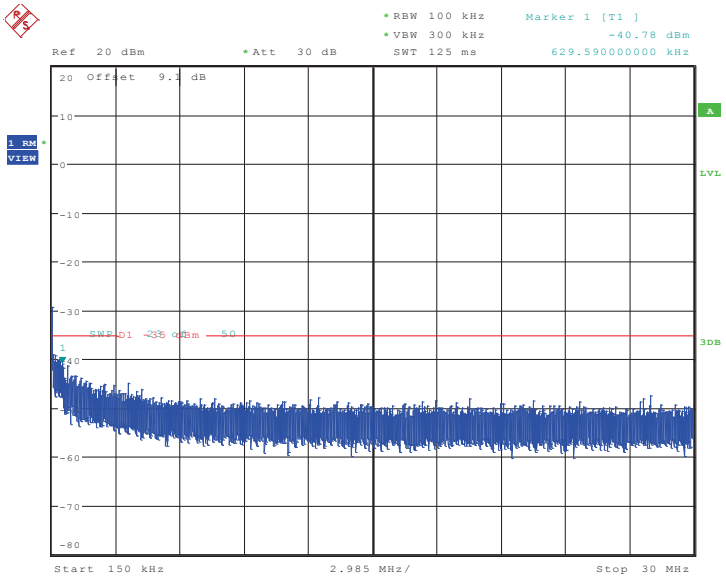

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 2 [T1]
-41.25 dBm
3.592933333 GHz
Marker 1 [T1]
2.500533333 GHz
Ref 25 dBm
Att 35 dB
Offset 10 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 1 GHz
400 MHz/
Stop 5 GHz

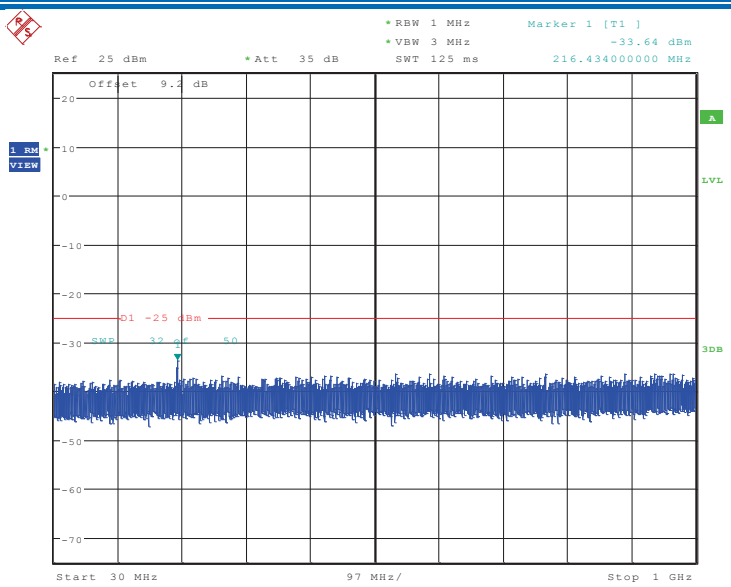

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-53.26 dBm
5.001166667 GHz
Ref 10 dBm
Att 20 dB
Offset 11.5 dB
1 RM
VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 5 GHz
700 MHz/
Stop 12 GHz

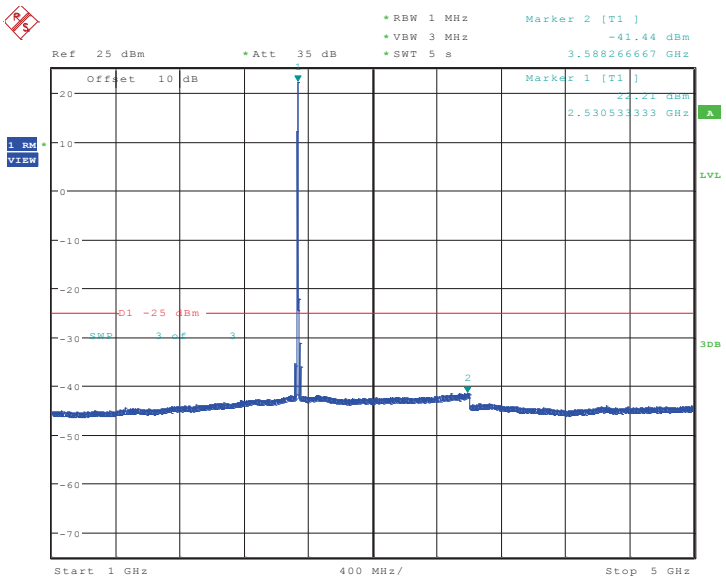

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-52.68 dBm
17.642600000 GHz
Ref 10 dBm
Att 20 dB
Offset 13.6 dB
1 RM
VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 12 GHz
600 MHz/
Stop 18 GHz

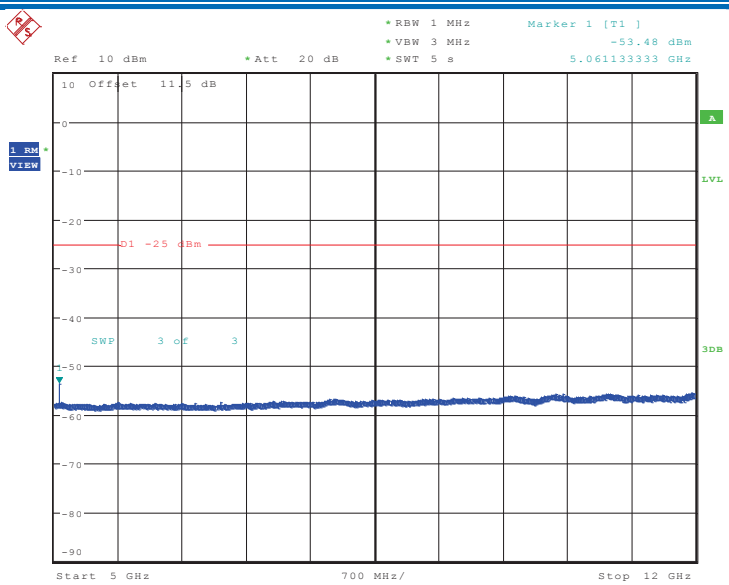
MCH_ QPSK

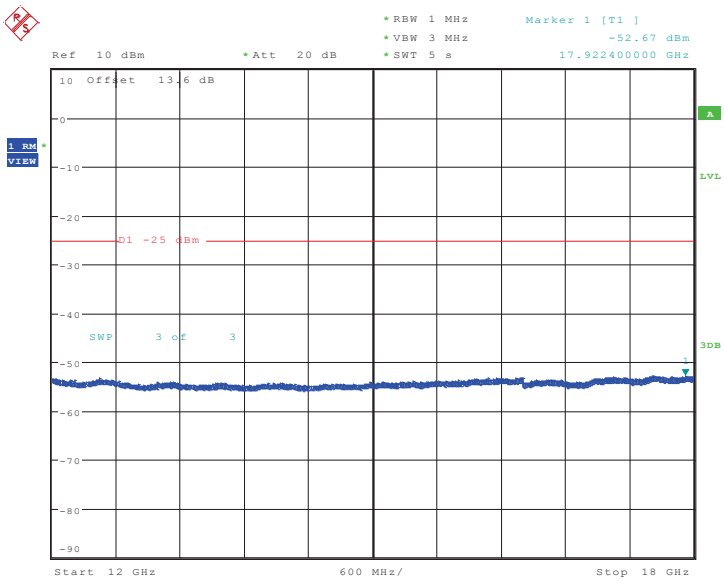

RBW 1 kHz
VBW 3 kHz
SWT 145 ms
Marker 1 [T1]
-55.87 dBm
64.977000000 kHz
Ref 0 dBm
Att 20 dB
Offset 9.1 dB
SWP-D1 -50.5 dBm 50
Start 9 kHz
14.1 kHz/
Stop 150 kHz


RBW 100 kHz
VBW 300 kHz
SWT 125 ms
Marker 1 [T1]
-40.78 dBm
629.590000000 kHz
Ref 20 dBm
Att 30 dB
Offset 9.1 dB
SWP-D1 -23.5 dBm 50
Start 150 kHz
2.985 MHz/
Stop 30 MHz

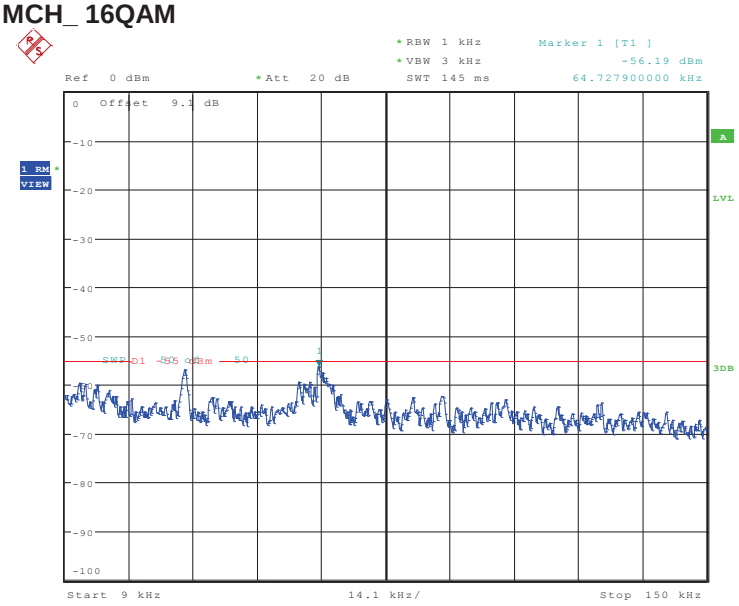

RBW 1 MHz
VBW 3 MHz
SWT 125 ms
Marker 1 [T1]
-33.64 dBm
216.434000000 MHz
Ref 25 dBm
Att 35 dB
Offset 9.2 dB
D1 -25 dBm
Start 30 MHz
97 MHz/
Stop 1 GHz

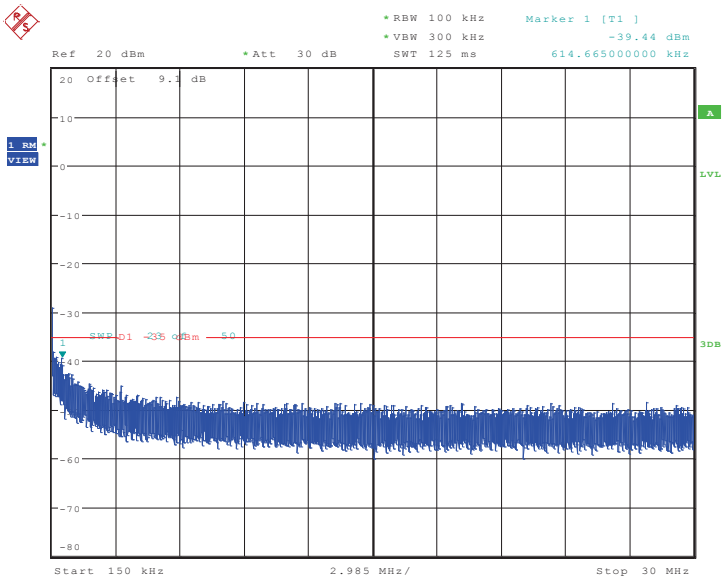

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 2 [T1]
-41.44 dBm
3.588266667 GHz
Ref 25 dBm
Att 35 dB
Offset 10 dB
Marker 1 [T1]
22.21 dBm
2.530533333 GHz
D1 -25 dBm
Start 1 GHz
400 MHz/
Stop 5 GHz

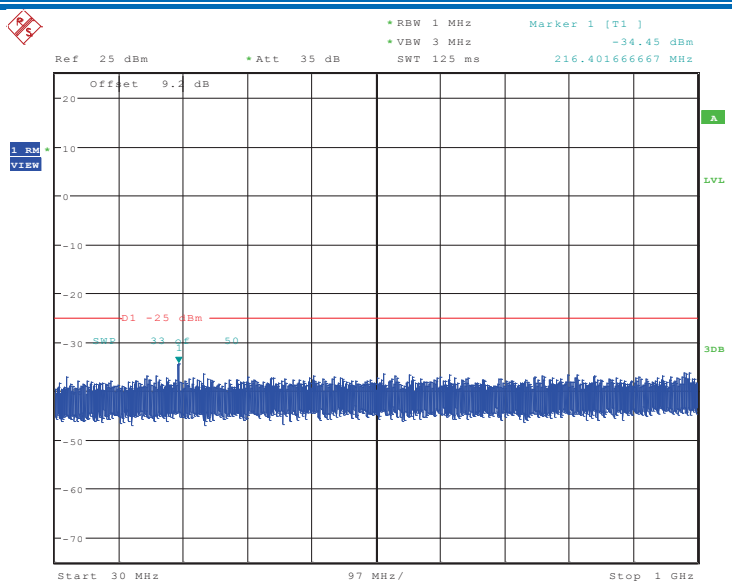

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-53.48 dBm
5.061133333 GHz
Ref 10 dBm
Att 20 dB
Offset 11.5 dB
1 RM
VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 5 GHz
700 MHz/
Stop 12 GHz

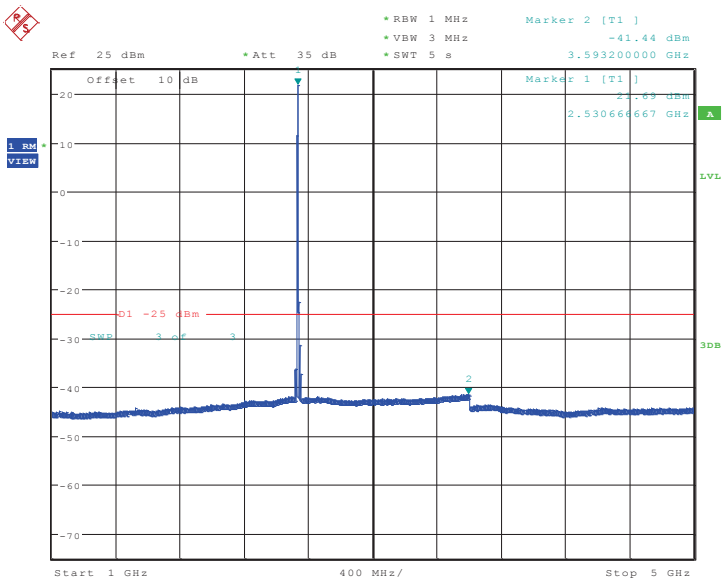

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-52.67 dBm
17.922400000 GHz
Ref 10 dBm
Att 20 dB
Offset 13.6 dB
1 RM
VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 12 GHz
600 MHz/
Stop 18 GHz

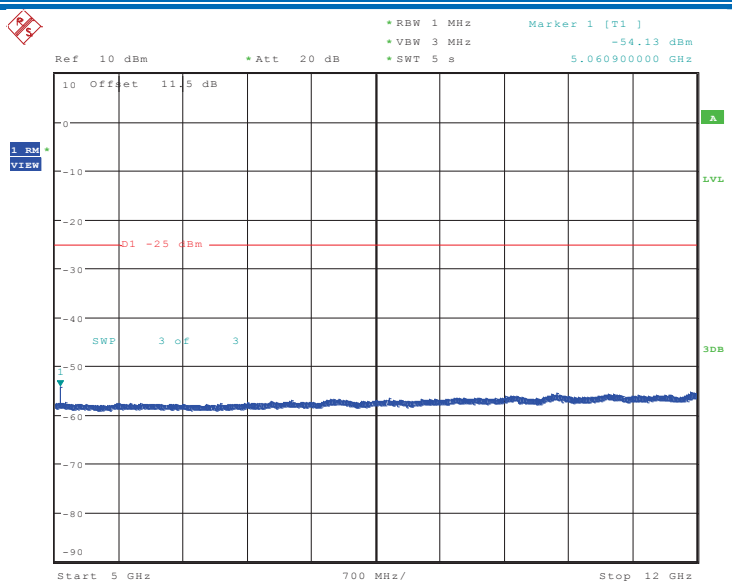
MCH_ 16QAM

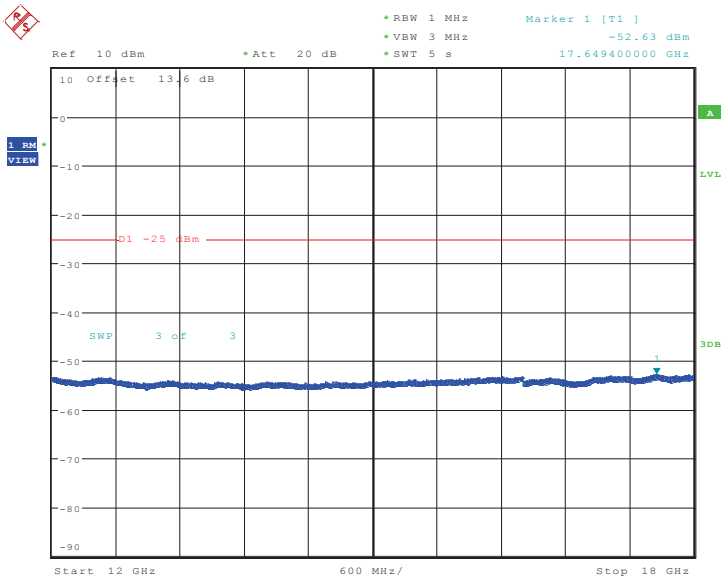

RBW 1 kHz
VBW 3 kHz
SWT 145 ms
Marker 1 [T1]
-56.19 dBm
64.727900000 kHz
Ref 0 dBm
Att 20 dB
Offset 9.1 dB
SWP D1 -50.5 dBm 50
Start 9 kHz
14.1 kHz/
Stop 150 kHz


RBW 100 kHz
VBW 300 kHz
SWT 125 ms
Marker 1 [T1]
-39.44 dBm
614.665000000 kHz
Ref 20 dBm
Att 30 dB
Offset 9.1 dB
SWP D1 -23.5 dBm 50
Start 150 kHz
2.985 MHz/
Stop 30 MHz

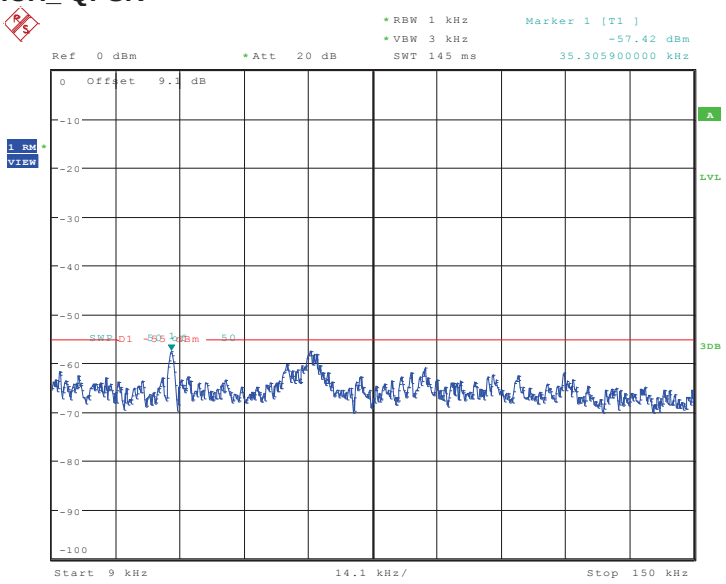

RBW 1 MHz
VBW 3 MHz
SWT 125 ms
Marker 1 [T1]
-34.45 dBm
216.401666667 MHz
Ref 25 dBm
Att 35 dB
Offset 9.2 dB
D1 -25 dBm
SWP 33 of 50
Start 30 MHz
97 MHz/
Stop 1 GHz

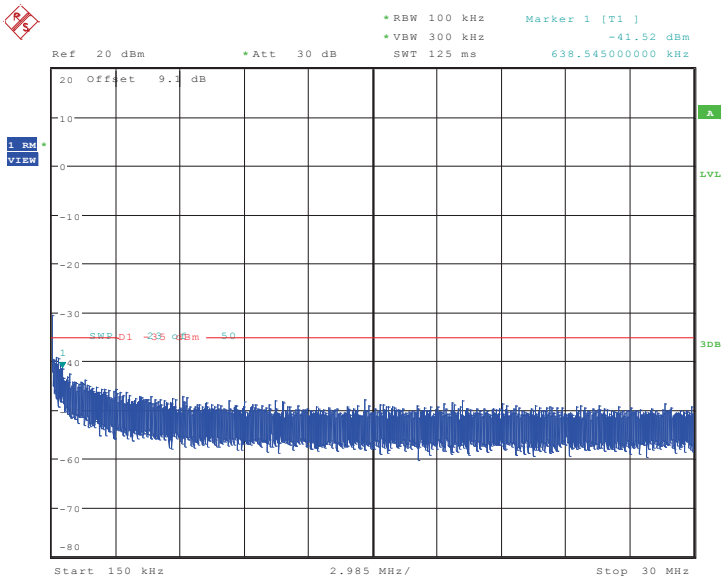

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 2 [T1]
-41.44 dBm
3.593200000 GHz
Marker 1 [T1]
2.530666667 GHz
Ref 25 dBm
Att 35 dB
Offset 10 dB
D1 -25 dBm
SWP 3 of 3
Start 1 GHz
400 MHz/
Stop 5 GHz

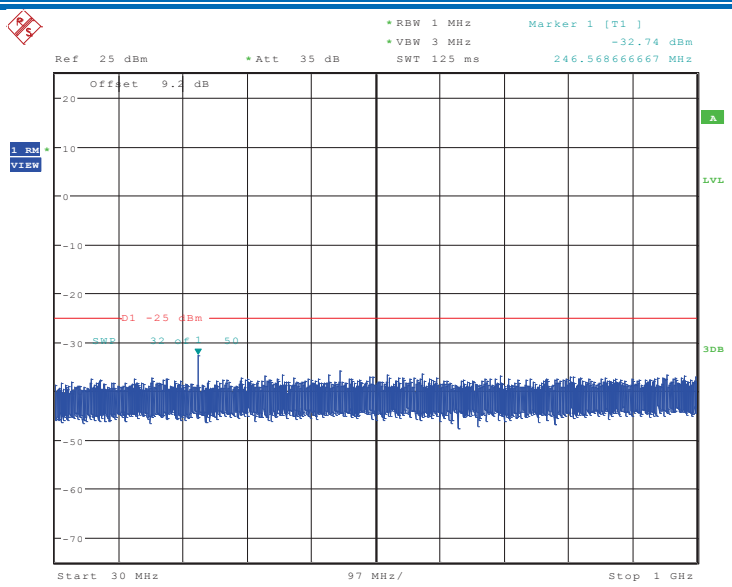

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-54.13 dBm
5.060900000 GHz
Ref 10 dBm
Att 20 dB
Offset 11.5 dB
D1 -25 dBm
SWP 3 of 3
Start 5 GHz
700 MHz/
Stop 12 GHz
1 RM VIEW
A
LVL
3DB

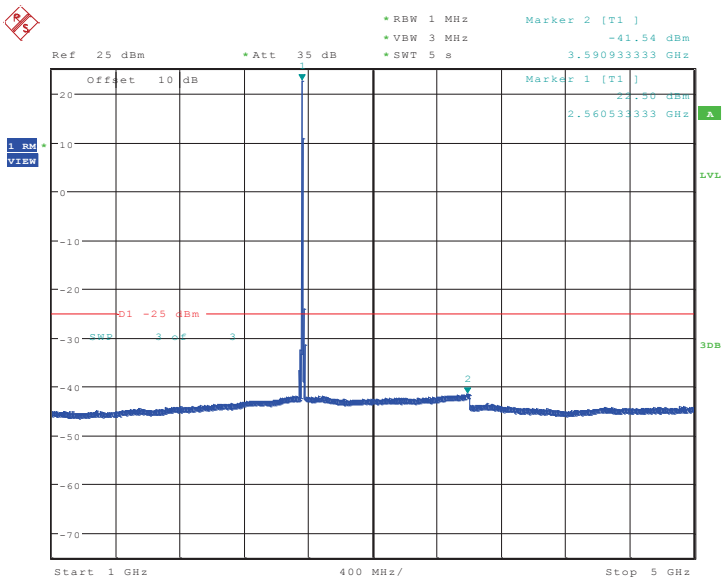

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-52.63 dBm
17.649400000 GHz
Ref 10 dBm
Att 20 dB
Offset 13.6 dB
D1 -25 dBm
SWP 3 of 3
Start 12 GHz
600 MHz/
Stop 18 GHz
1 RM VIEW
A
LVL
3DB

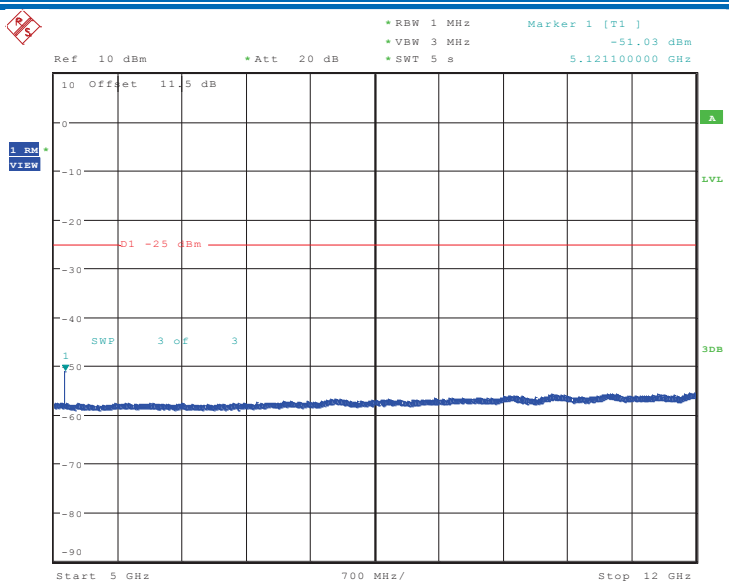
HCH_ QPSK

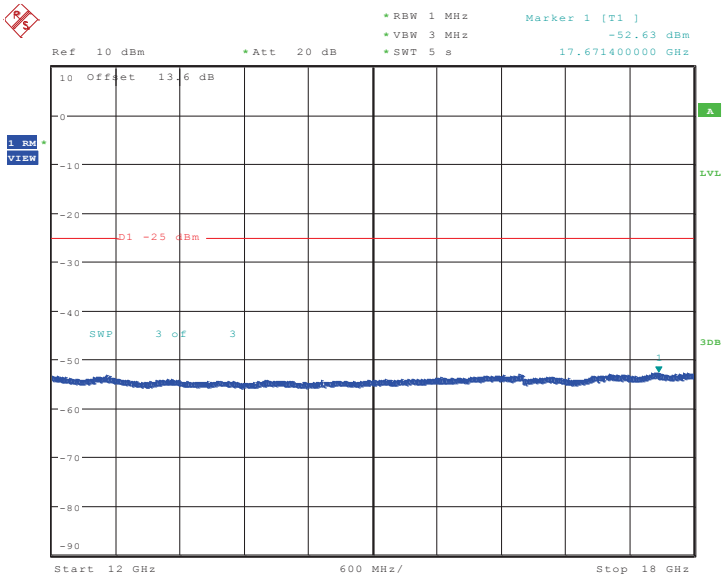

RBW 1 kHz
VBW 3 kHz
SWT 145 ms
Marker 1 [T1]
-57.42 dBm
35.305900000 kHz
Ref 0 dBm
Att 20 dB
Offset 9.1 dB
1 RM
VIEW
A
LVL
3DB
Start 9 kHz
14.1 kHz/
Stop 150 kHz


RBW 100 kHz
VBW 300 kHz
SWT 125 ms
Marker 1 [T1]
-41.52 dBm
638.545000000 kHz
Ref 20 dBm
Att 30 dB
Offset 9.1 dB
1 RM
VIEW
A
LVL
3DB
Start 150 kHz
2.985 MHz/
Stop 30 MHz

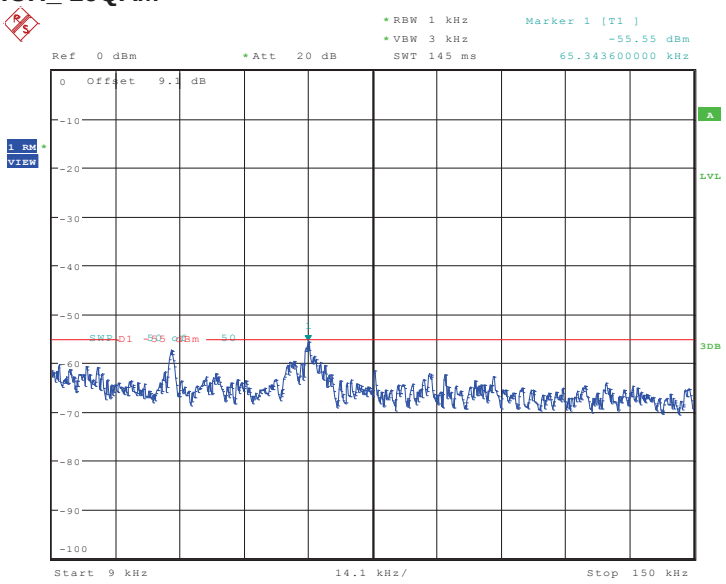

RBW 1 MHz
VBW 3 MHz
SWT 125 ms
Marker 1 [T1]
-32.74 dBm
246.568666667 MHz
Ref 25 dBm
Att 35 dB
Offset 9.2 dB
D1 -25 dBm
SWP 32 of 1 50
Start 30 MHz
97 MHz/
Stop 1 GHz

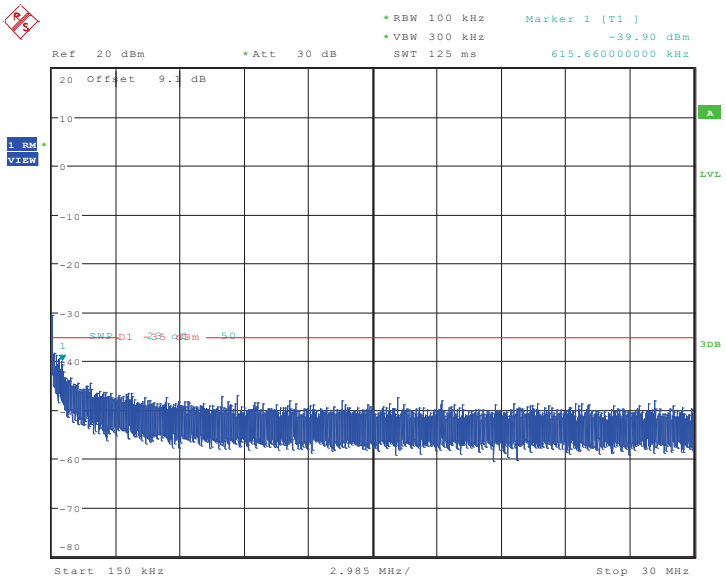

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 2 [T1]
-41.54 dBm
3.590933333 GHz
Marker 1 [T1]
2.560533333 GHz
Ref 25 dBm
Att 35 dB
Offset 10 dB
D1 -25 dBm
SWP 3 of 3
Start 1 GHz
400 MHz/
Stop 5 GHz

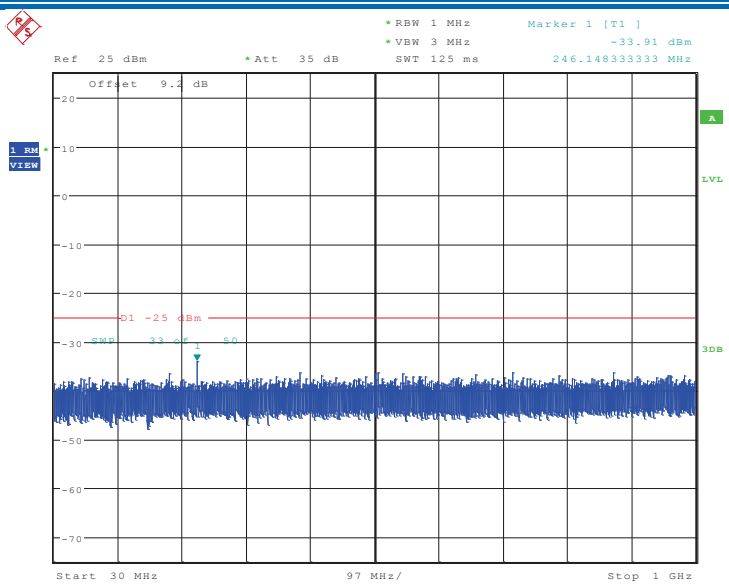

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-51.03 dBm
5.121100000 GHz
Ref 10 dBm
Att 20 dB
Offset 11.5 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 5 GHz
700 MHz/
Stop 12 GHz

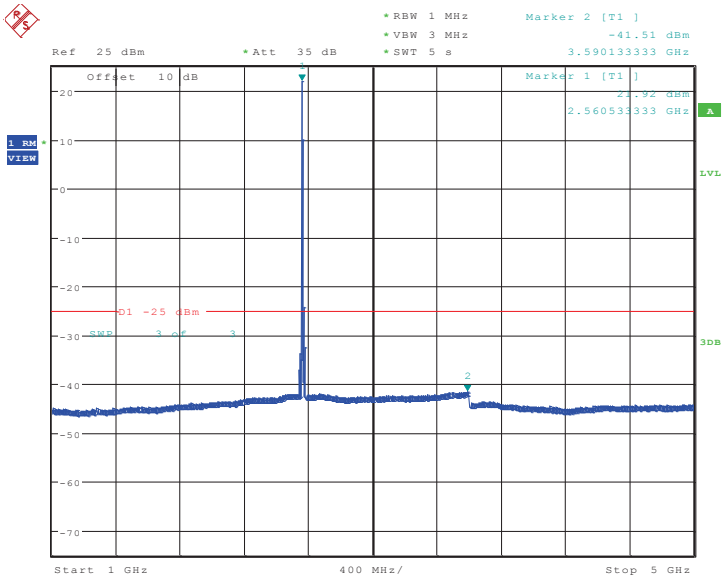

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-52.63 dBm
17.671400000 GHz
Ref 10 dBm
Att 20 dB
Offset 13.6 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 12 GHz
600 MHz/
Stop 18 GHz

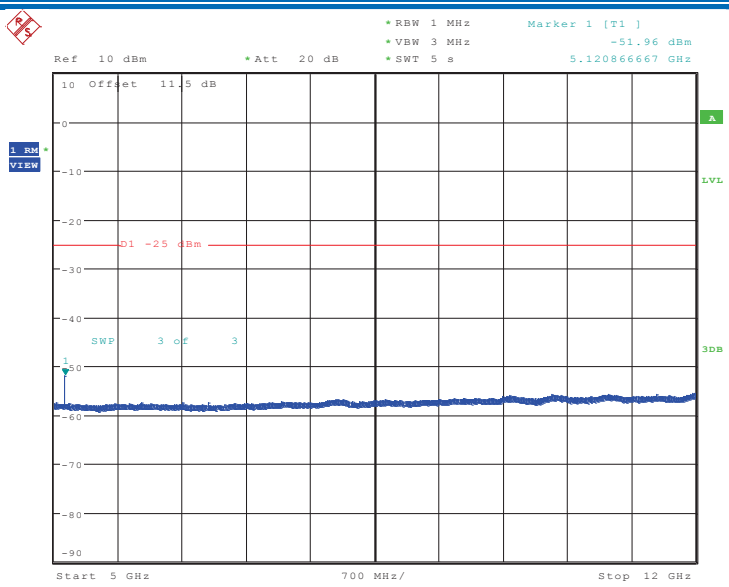
HCH_ 16QAM

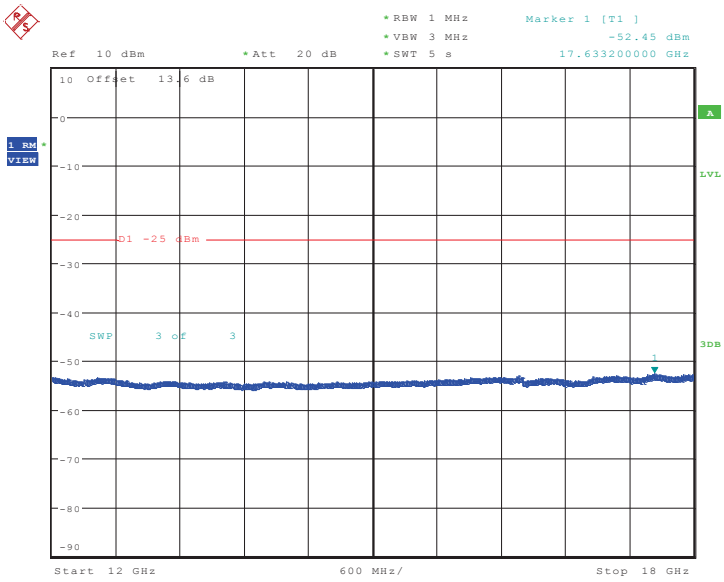

RBW 1 kHz
VBW 3 kHz
SWT 145 ms
Marker 1 [T1]
-55.55 dBm
65.343600000 kHz
Ref 0 dBm
Att 20 dB
Offset 9.1 dB
1 RM
VIEW
A
LVL
3DB
SWP 01 -50.5 dBm 50
Start 9 kHz
14.1 kHz/
Stop 150 kHz


RBW 100 kHz
VBW 300 kHz
SWT 125 ms
Marker 1 [T1]
-39.90 dBm
615.660000000 kHz
Ref 20 dBm
Att 30 dB
Offset 9.1 dB
1 RM
VIEW
A
LVL
3DB
SWP 01 -23.5 dBm 50
Start 150 kHz
2.985 MHz/
Stop 30 MHz


RBW 1 MHz
VBW 3 MHz
SWT 125 ms
Marker 1 [T1]
-33.91 dBm
246.148333333 MHz
Ref 25 dBm
Att 35 dB
Offset 9.2 dB
1 RM
VIEW
A
LVL
3DB
D1 -25 dBm
SWP 33 of 50
Start 30 MHz
97 MHz/
Stop 1 GHz

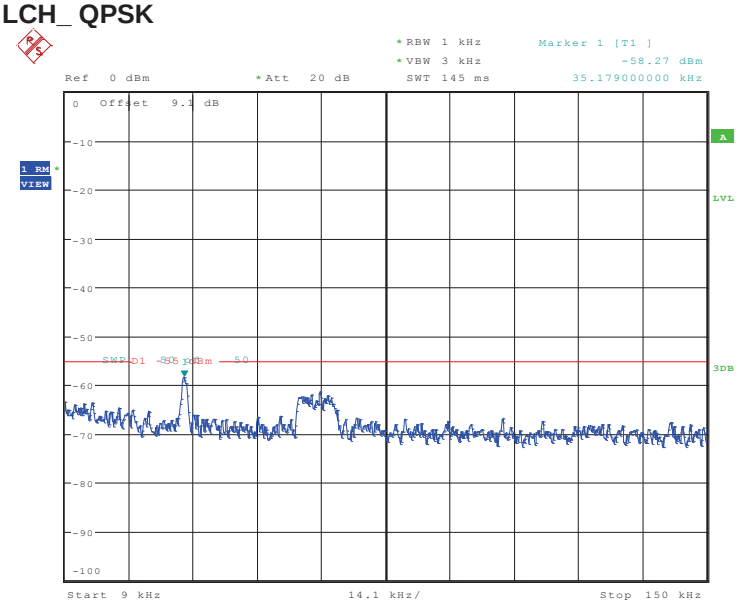

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 2 [T1]
-41.51 dBm
3.590133333 GHz
Ref 25 dBm
Att 35 dB
Offset 10 dB
Marker 1 [T1]
2.560533333 GHz
1 RM
VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 1 GHz
400 MHz/
Stop 5 GHz

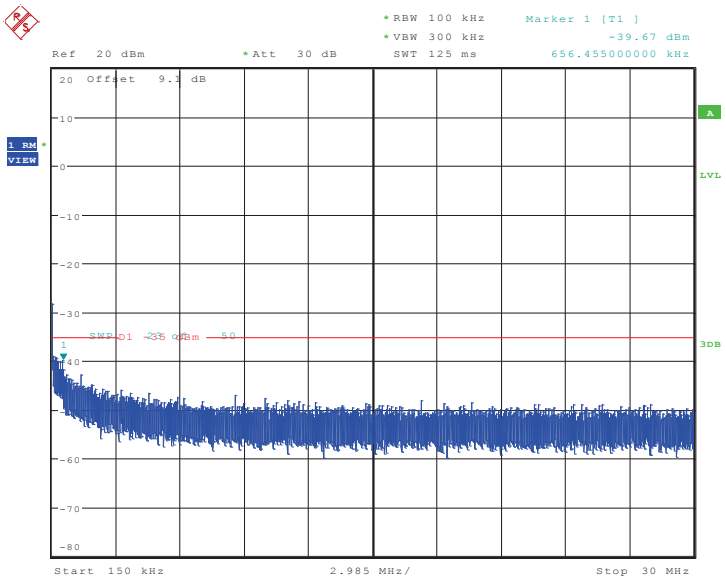

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-51.96 dBm
5.120866667 GHz
Ref 10 dBm
Att 20 dB
Offset 11.5 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 5 GHz
700 MHz/
Stop 12 GHz

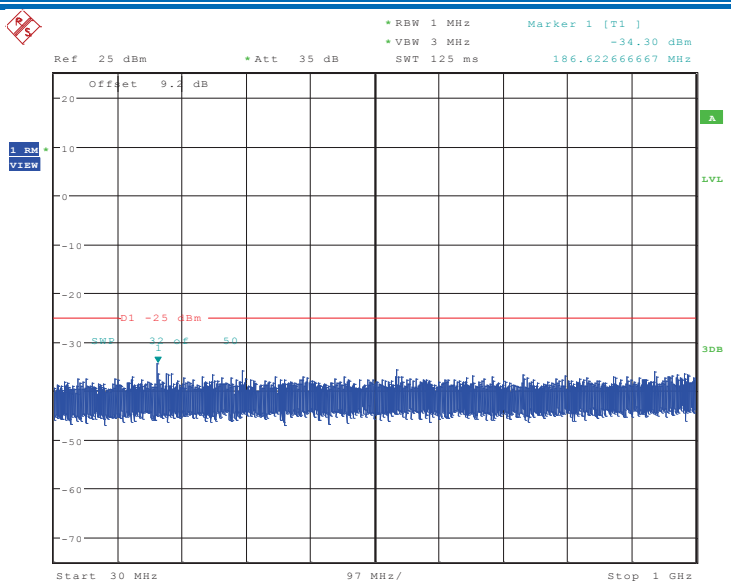

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-52.45 dBm
17.633200000 GHz
Ref 10 dBm
Att 20 dB
Offset 13.6 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 12 GHz
600 MHz/
Stop 18 GHz

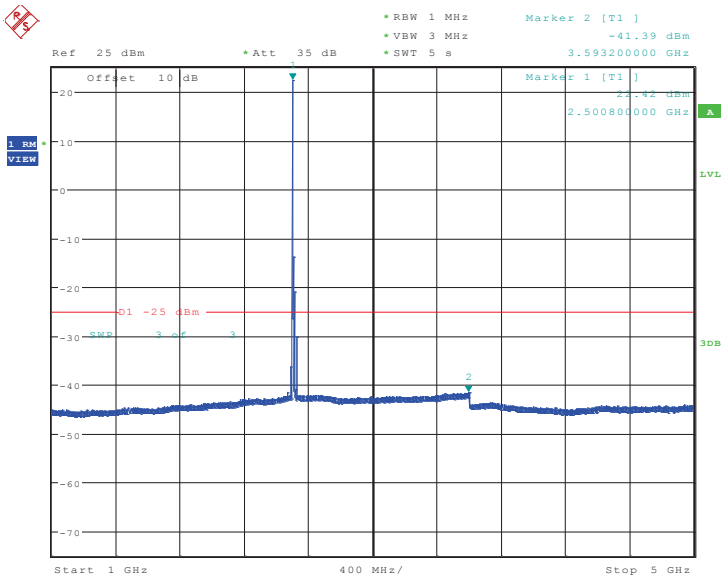
LTE_ Band 7_Channel Bandwidth: 15 MHz_1RB#0

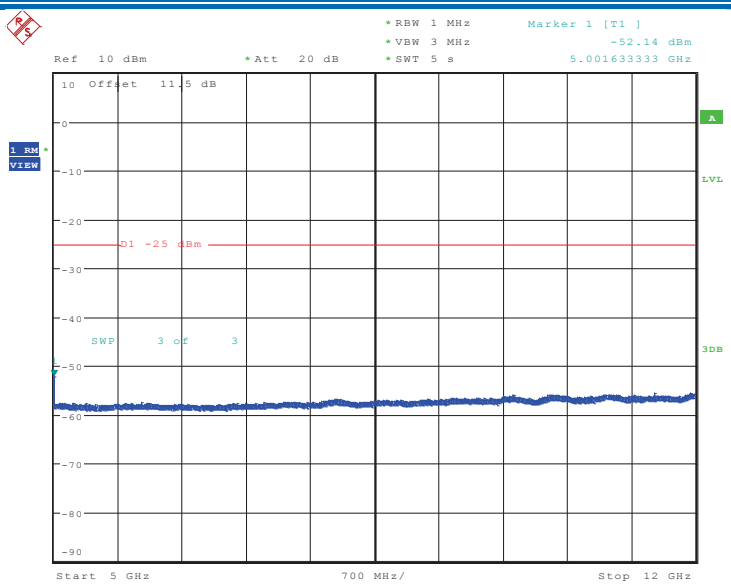
LCH_ QPSK

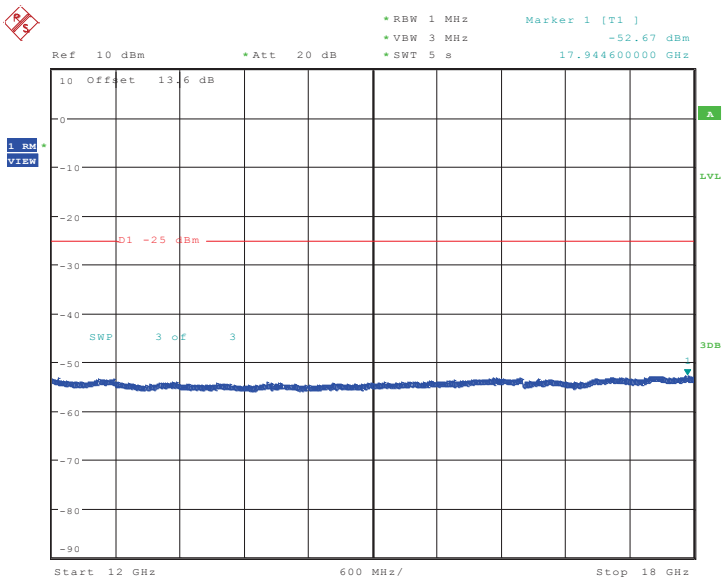




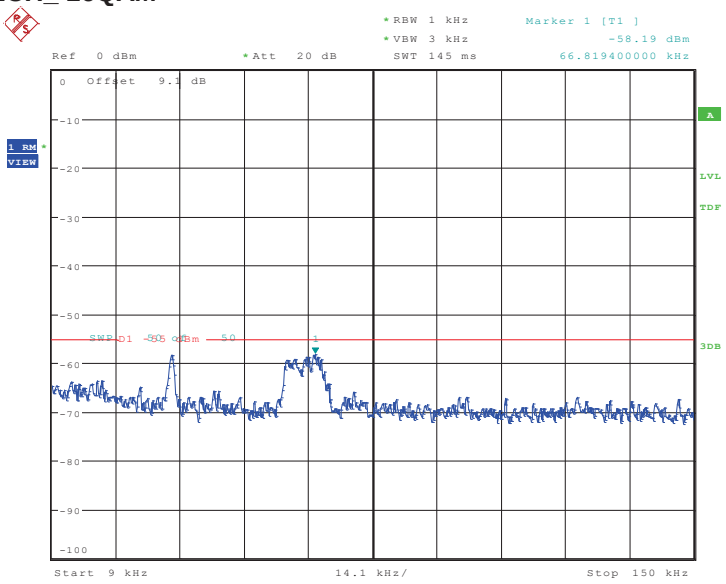

RBW 1 MHz
VBW 3 MHz
SWT 125 ms
Marker 1 [T1]
-34.30 dBm
186.622666667 MHz
Ref 25 dBm
Att 35 dB
Offset 9.2 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 32 of 50
Start 30 MHz
97 MHz/
Stop 1 GHz

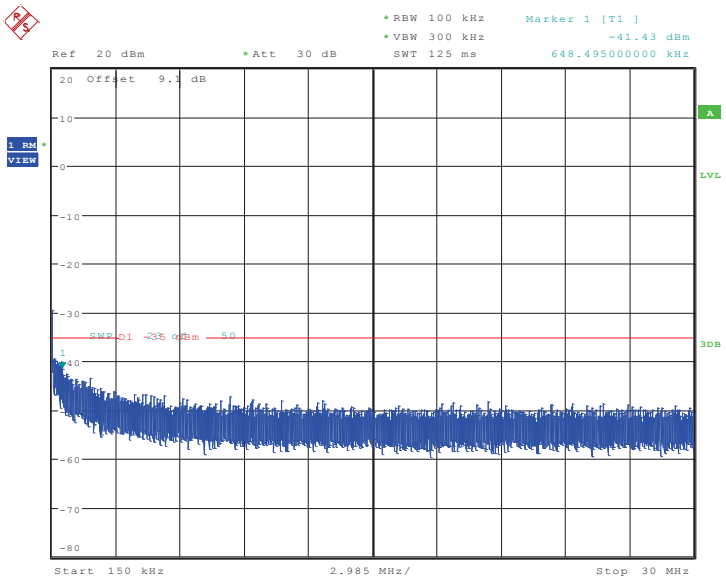

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 2 [T1]
-41.39 dBm
3.593200000 GHz
Marker 1 [T1]
2.500800000 GHz
Ref 25 dBm
Att 35 dB
Offset 10 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 1 GHz
400 MHz/
Stop 5 GHz

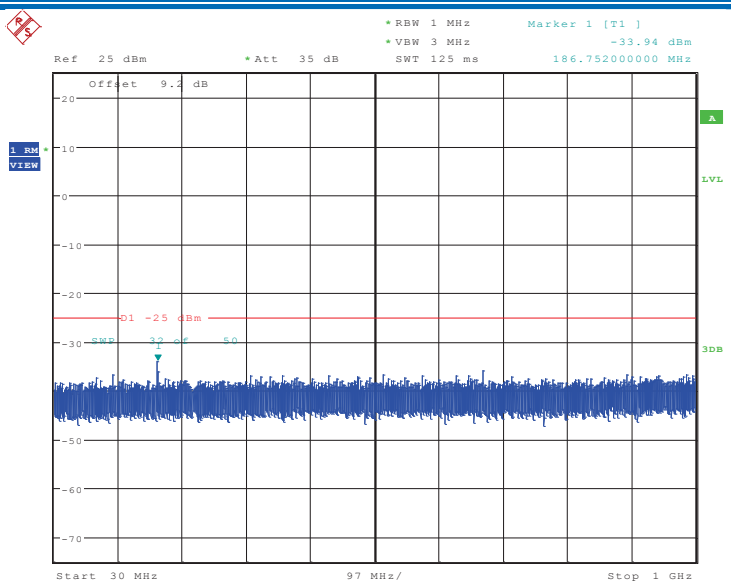

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-52.14 dBm
5.001633333 GHz
Ref 10 dBm
Att 20 dB
Offset 11.5 dB
1 RM
VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 5 GHz
700 MHz/
Stop 12 GHz

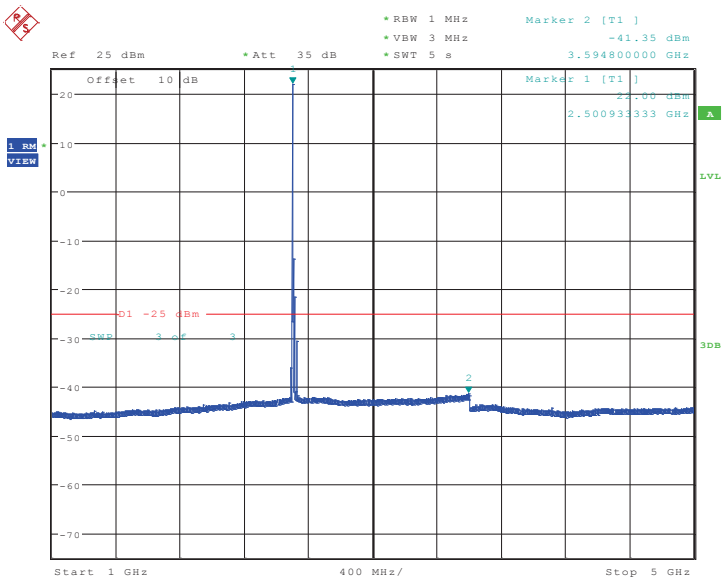

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-52.67 dBm
17.944600000 GHz
Ref 10 dBm
Att 20 dB
Offset 13.6 dB
1 RM
VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 12 GHz
600 MHz/
Stop 18 GHz

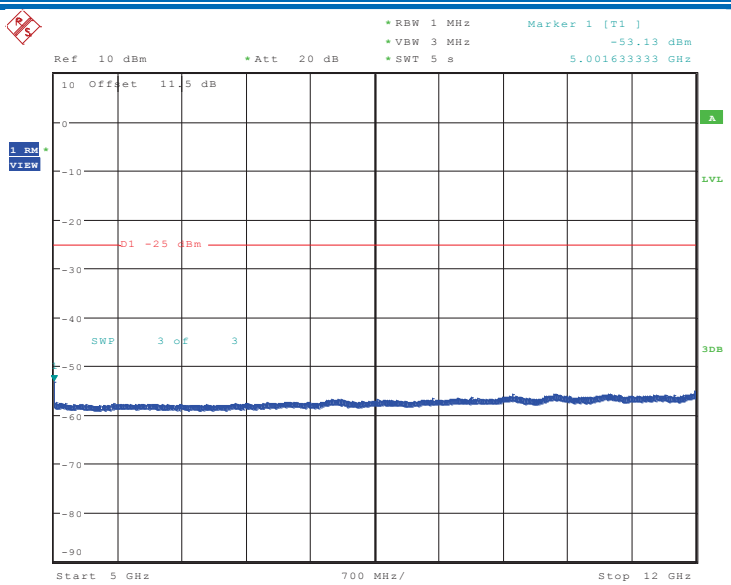
LCH_ 16QAM

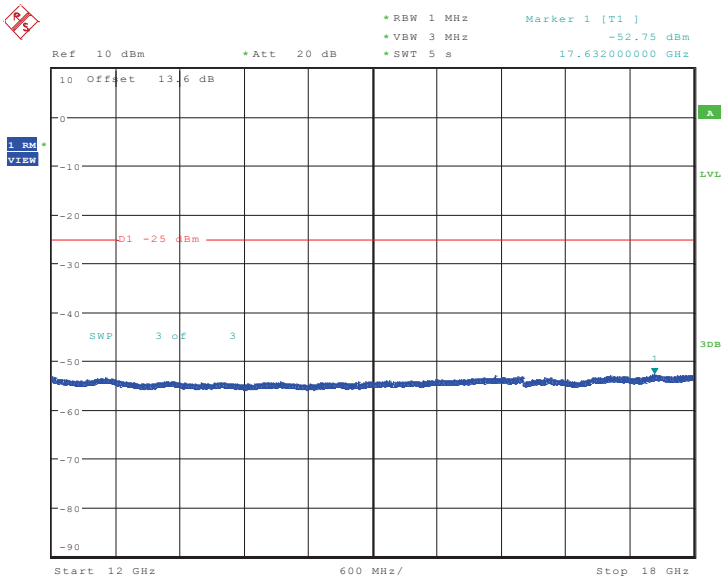

RBW 1 kHz
VBW 3 kHz
SWT 145 ms
Marker 1 [T1]
-58.19 dBm
66.819400000 kHz
Ref 0 dBm
Att 20 dB
Offset 9.1 dB
1 RM
VIEW
A
LVL
TDF
3DB
SWP 01 -50.5 dBm 50
Start 9 kHz
14.1 kHz/
Stop 150 kHz


RBW 100 kHz
VBW 300 kHz
SWT 125 ms
Marker 1 [T1]
-41.43 dBm
648.495000000 kHz
Ref 20 dBm
Att 30 dB
Offset 9.1 dB
1 RM
VIEW
A
LVL
3DB
SWP 01 -23.5 dBm 50
Start 150 kHz
2.985 MHz/
Stop 30 MHz

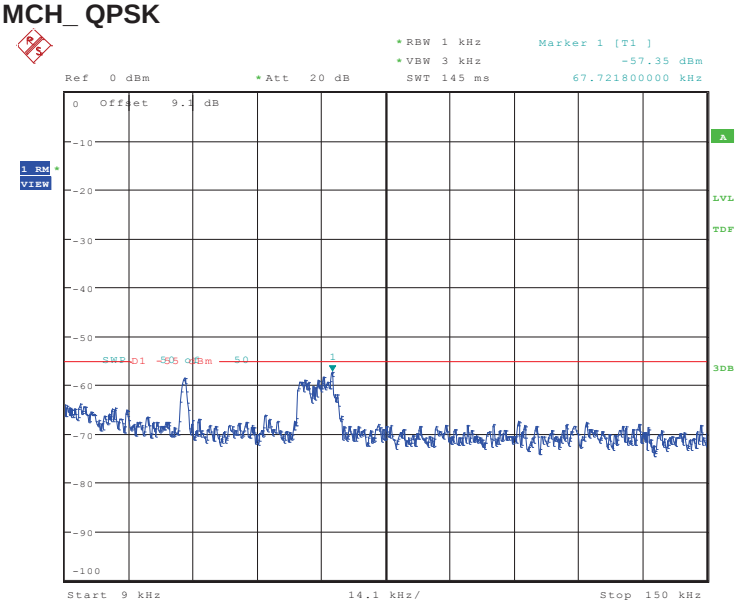

RBW 1 MHz
VBW 3 MHz
SWT 125 ms
Marker 1 [T1]
-33.94 dBm
186.752000000 MHz
Ref 25 dBm
Att 35 dB
Offset 9.2 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 32 of 50
Start 30 MHz
97 MHz/
Stop 1 GHz

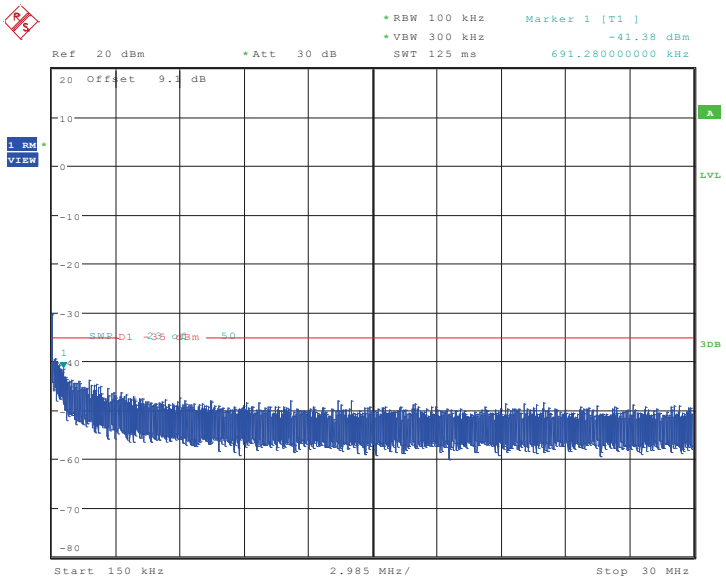

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 2 [T1]
-41.35 dBm
3.594800000 GHz
Marker 1 [T1]
2.500933333 GHz
Ref 25 dBm
Att 35 dB
Offset 10 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 1 GHz
400 MHz/
Stop 5 GHz

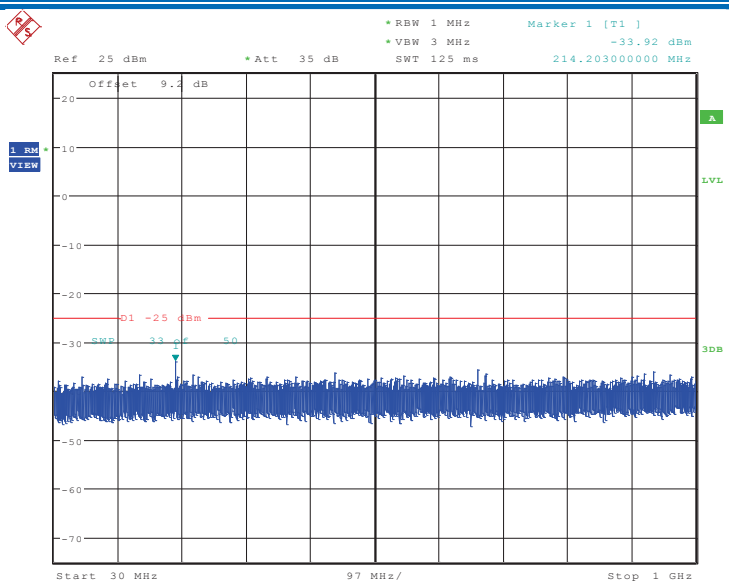

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-53.13 dBm
5.001633333 GHz
Ref 10 dBm
Att 20 dB
Offset 11.5 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 5 GHz
700 MHz/
Stop 12 GHz

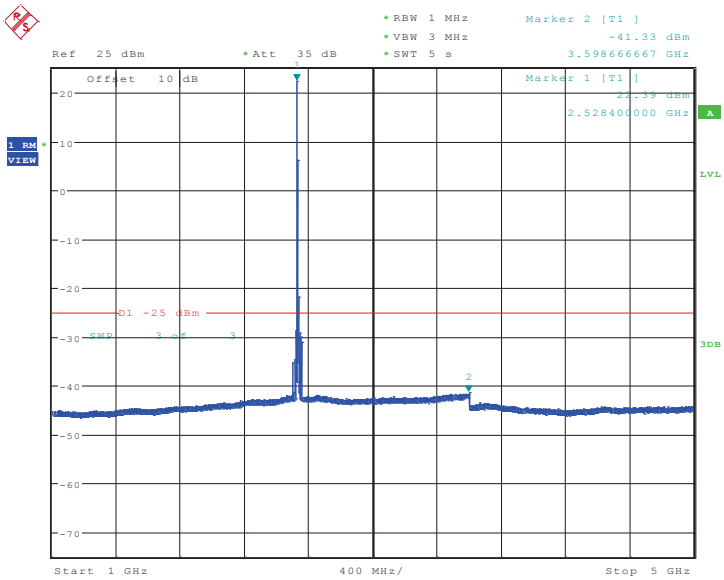

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-52.75 dBm
17.632000000 GHz
Ref 10 dBm
Att 20 dB
Offset 13.6 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 12 GHz
600 MHz/
Stop 18 GHz

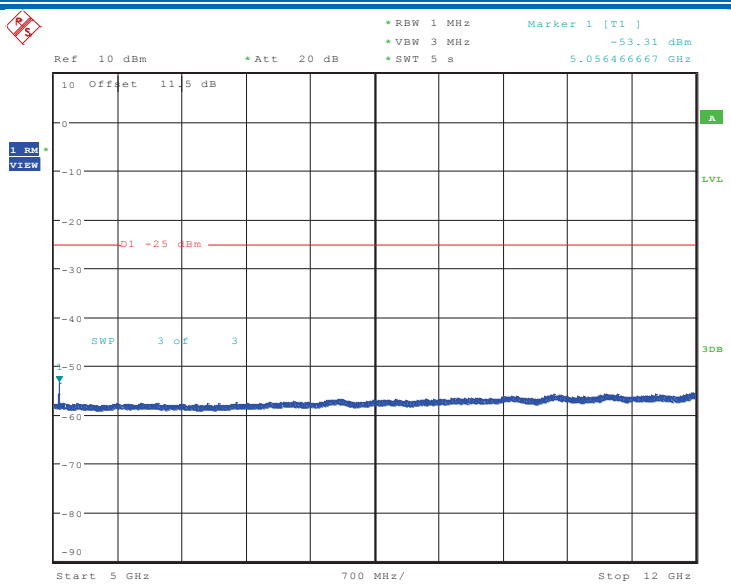
MCH_ QPSK

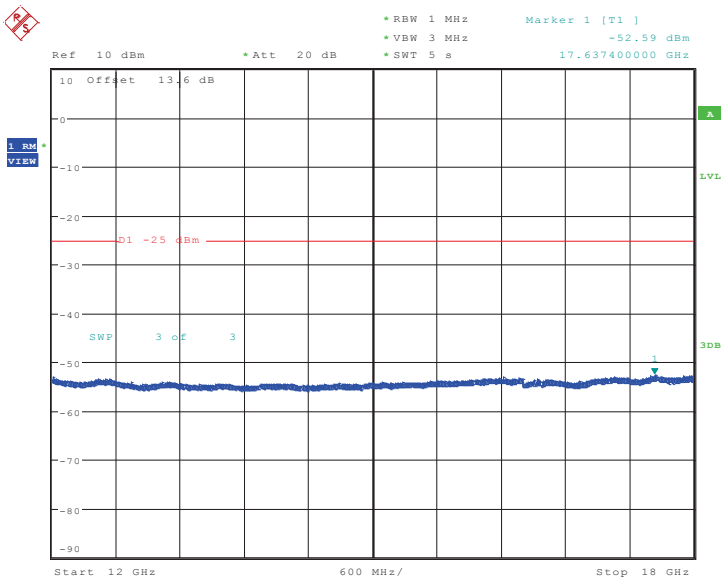

RBW 1 kHz
VBW 3 kHz
SWT 145 ms
Marker 1 [T1]
-57.35 dBm
67.721800000 kHz
Ref 0 dBm
Att 20 dB
Offset 9.1 dB
1 RM
VIEW
A
LVL
TDF
3DB
SWP 01 -50.5 dBm 50
Start 9 kHz
14.1 kHz/
Stop 150 kHz


RBW 100 kHz
VBW 300 kHz
SWT 125 ms
Marker 1 [T1]
-41.38 dBm
691.280000000 kHz
Ref 20 dBm
Att 30 dB
Offset 9.1 dB
1 RM
VIEW
A
LVL
3DB
SWP 01 -23.5 dBm 50
Start 150 kHz
2.985 MHz/
Stop 30 MHz

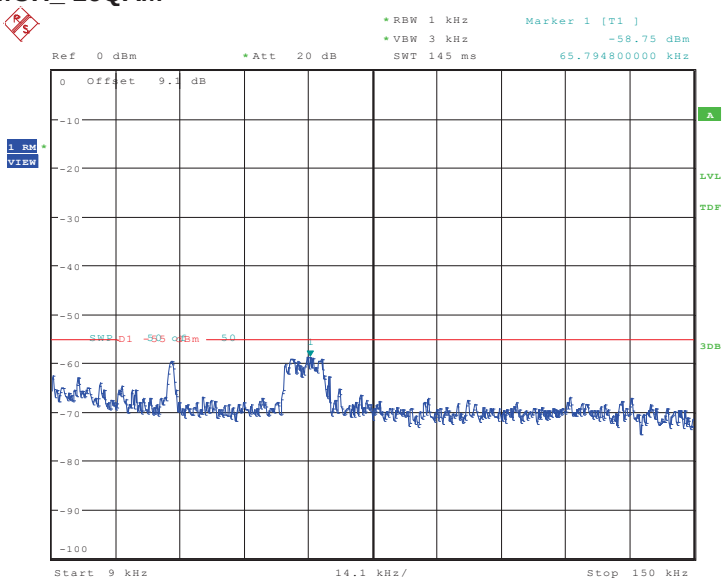

RBW 1 MHz
VBW 3 MHz
SWT 125 ms
Marker 1 [T1]
-33.92 dBm
214.203000000 MHz
Ref 25 dBm
Att 35 dB
Offset 9.2 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 33 of 50
Start 30 MHz
97 MHz/
Stop 1 GHz

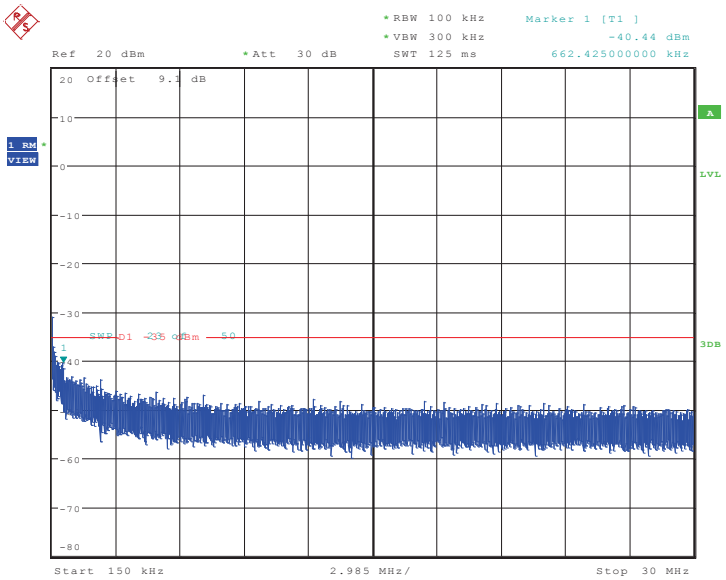

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 2 [T1]
-41.33 dBm
3.598666667 GHz
Ref 25 dBm
Att 35 dB
Offset 10 dB
Marker 1 [T1]
22.39 dBm
2.528400000 GHz
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 1 GHz
400 MHz/
Stop 5 GHz

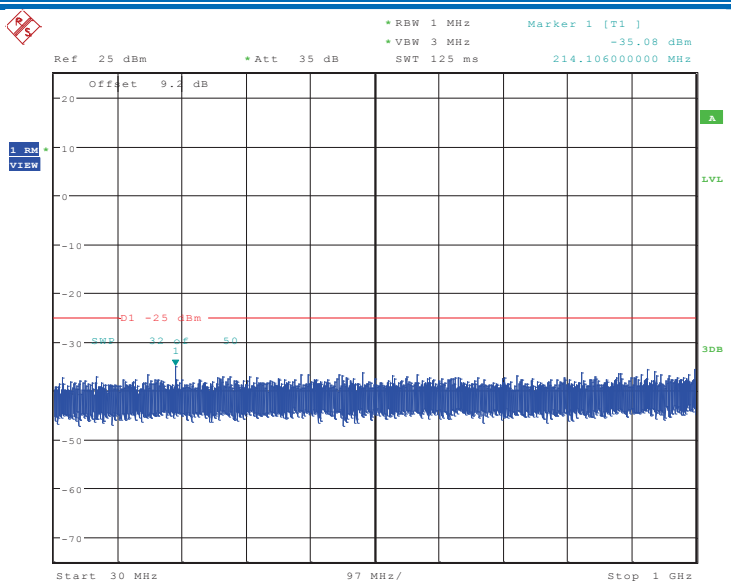

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-53.31 dBm
5.056466667 GHz
Ref 10 dBm
Att 20 dB
Offset 11.5 dB
1 RM
VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 5 GHz
700 MHz/
Stop 12 GHz

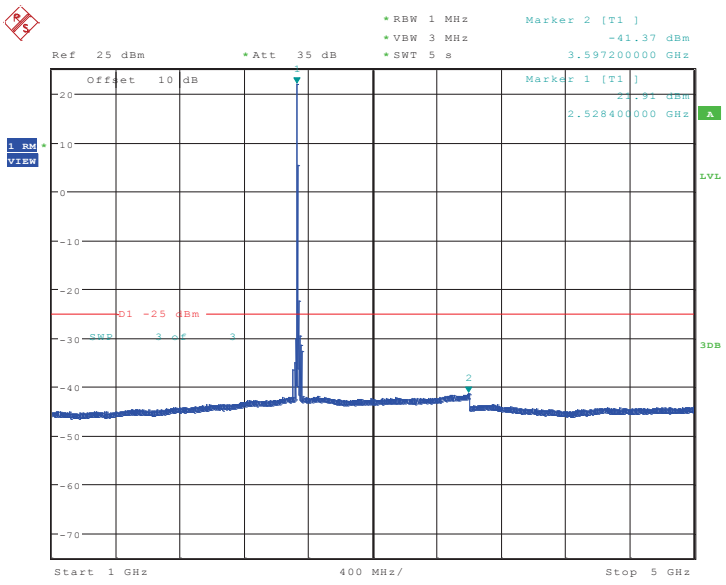

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-52.59 dBm
17.637400000 GHz
Ref 10 dBm
Att 20 dB
Offset 13.6 dB
1 RM
VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 12 GHz
600 MHz/
Stop 18 GHz

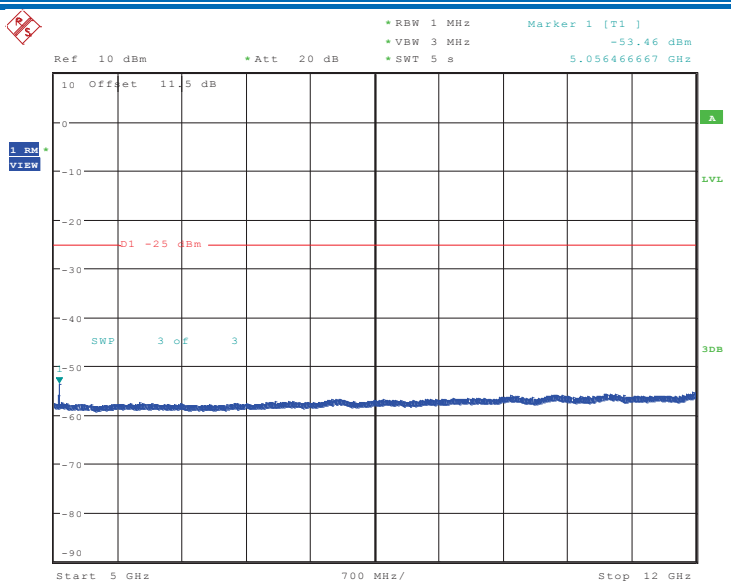
MCH_ 16QAM

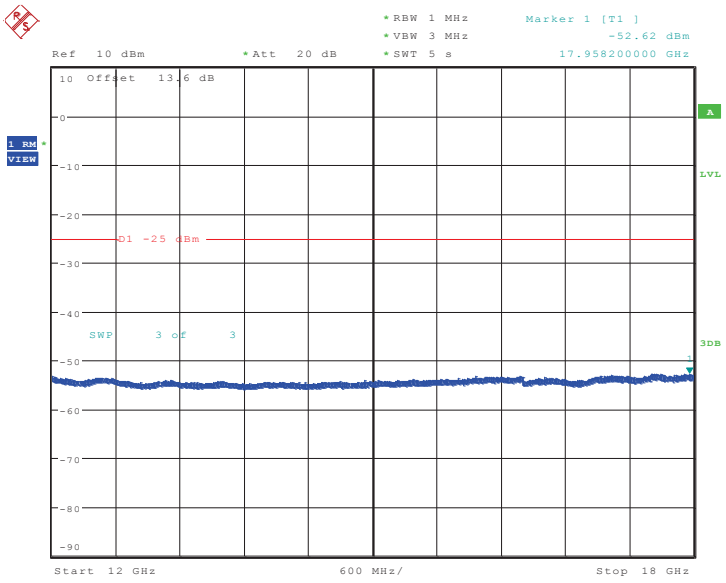

RBW 1 kHz
VBW 3 kHz
SWT 145 ms
Marker 1 [T1]
-58.75 dBm
65.794800000 kHz
Ref 0 dBm
Att 20 dB
Offset 9.1 dB
1 RM
VIEW
A
LVL
TDF
3DB
Start 9 kHz
14.1 kHz/
Stop 150 kHz


RBW 100 kHz
VBW 300 kHz
SWT 125 ms
Marker 1 [T1]
-40.44 dBm
662.425000000 kHz
Ref 20 dBm
Att 30 dB
Offset 9.1 dB
1 RM
VIEW
A
LVL
3DB
Start 150 kHz
2.985 MHz/
Stop 30 MHz

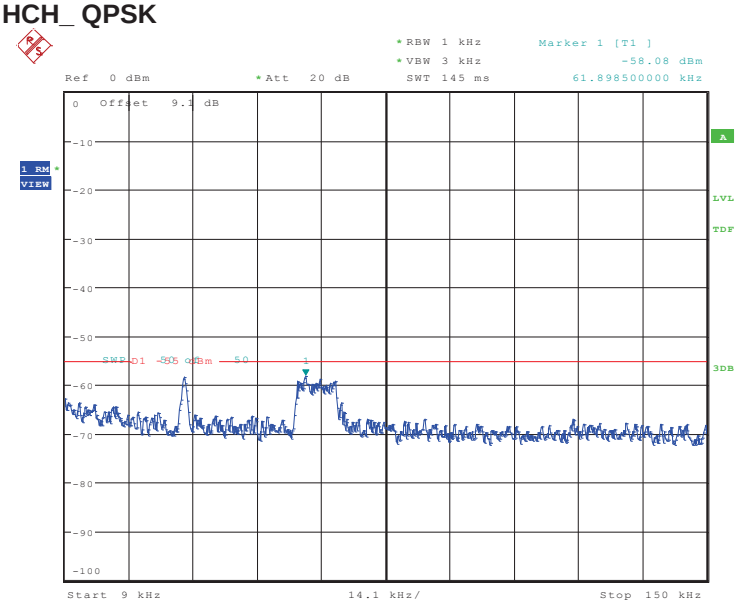

RBW 1 MHz
VBW 3 MHz
SWT 125 ms
Marker 1 [T1]
-35.08 dBm
214.106000000 MHz
Ref 25 dBm
Att 35 dB
Offset 9.2 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 32 of 50
Start 30 MHz
97 MHz/
Stop 1 GHz

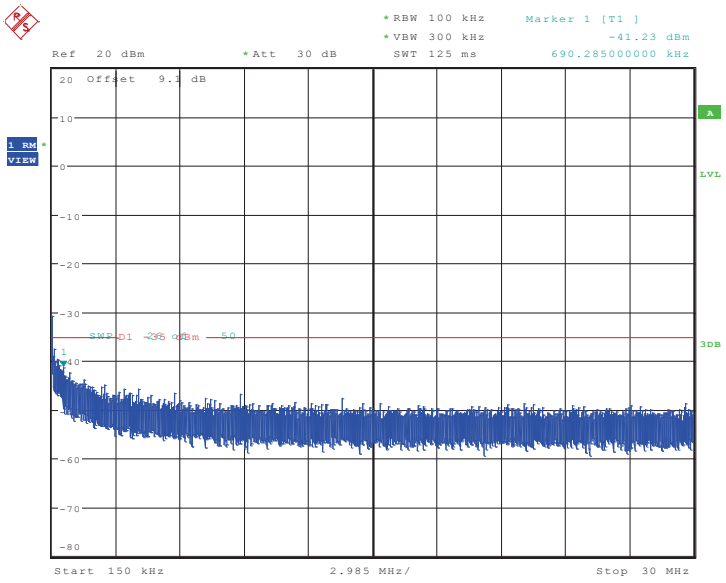

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 2 [T1]
-41.37 dBm
3.597200000 GHz
Marker 1 [T1]
2.528400000 GHz
Ref 25 dBm
Att 35 dB
Offset 10 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 1 GHz
400 MHz/
Stop 5 GHz

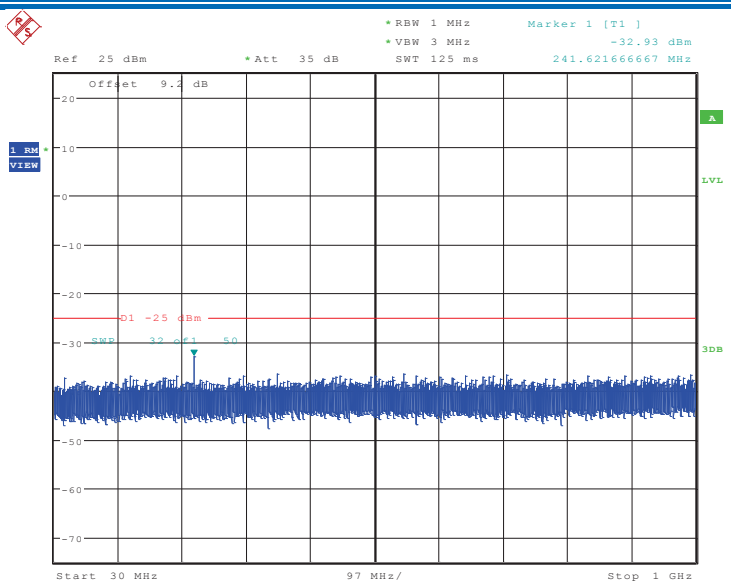

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-53.46 dBm
5.056466667 GHz
Ref 10 dBm
Att 20 dB
Offset 11.5 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 5 GHz
700 MHz/
Stop 12 GHz

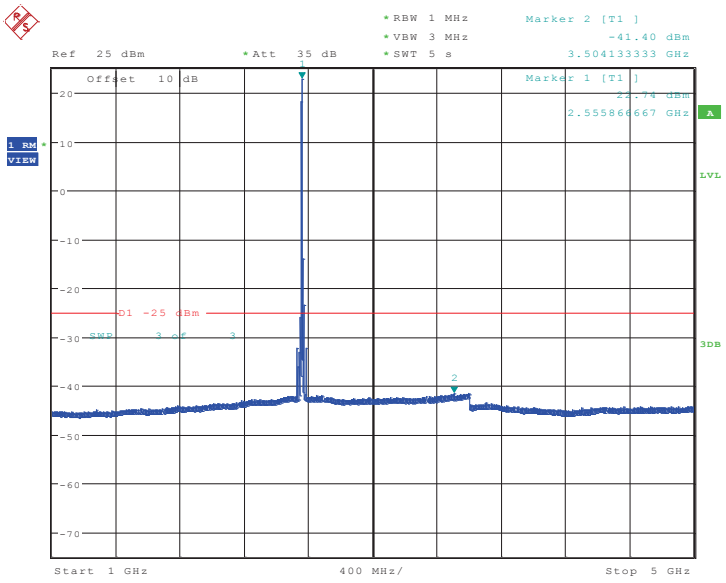

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-52.62 dBm
17.958200000 GHz
Ref 10 dBm
Att 20 dB
Offset 13.6 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 12 GHz
600 MHz/
Stop 18 GHz

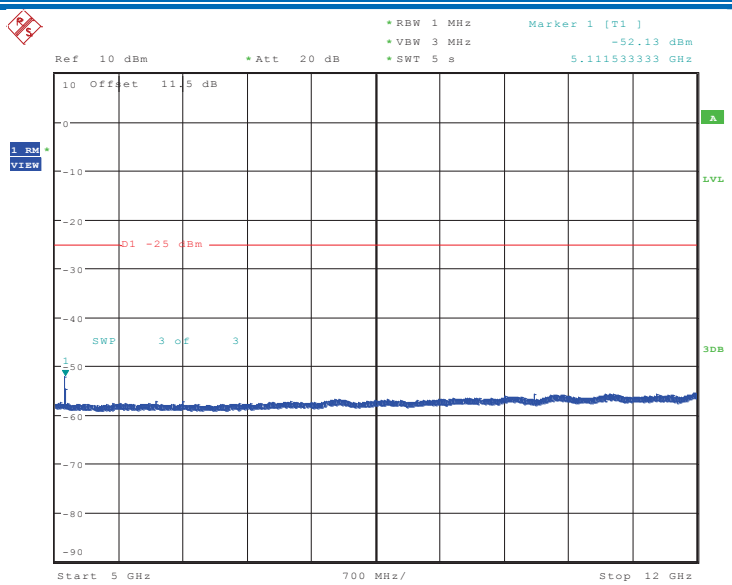
HCH_ QPSK

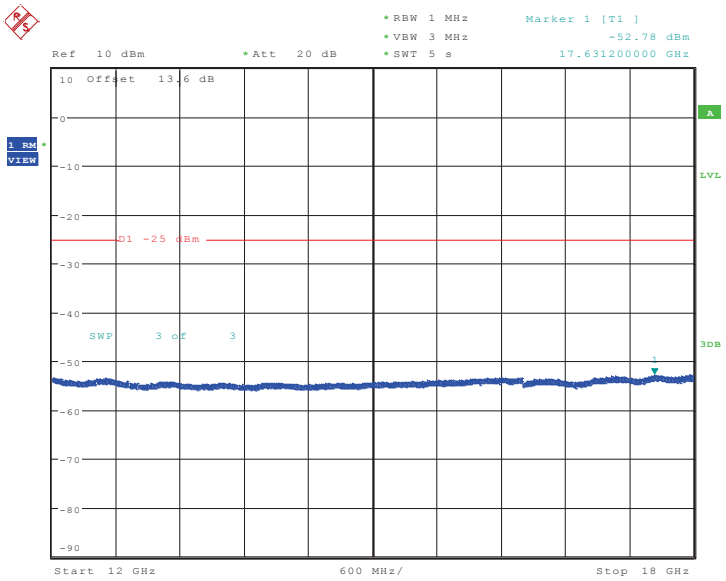

RBW 1 kHz
VBW 3 kHz
SWT 145 ms
Marker 1 [T1]
-58.08 dBm
61.898500000 kHz
Ref 0 dBm
Att 20 dB
Offset 9.1 dB
1 RM
VIEW
A
LVL
TDF
3DB
Start 9 kHz
14.1 kHz/
Stop 150 kHz


RBW 100 kHz
VBW 300 kHz
SWT 125 ms
Marker 1 [T1]
-41.23 dBm
690.285000000 kHz
Ref 20 dBm
Att 30 dB
Offset 9.1 dB
1 RM
VIEW
A
LVL
3DB
Start 150 kHz
2.985 MHz/
Stop 30 MHz

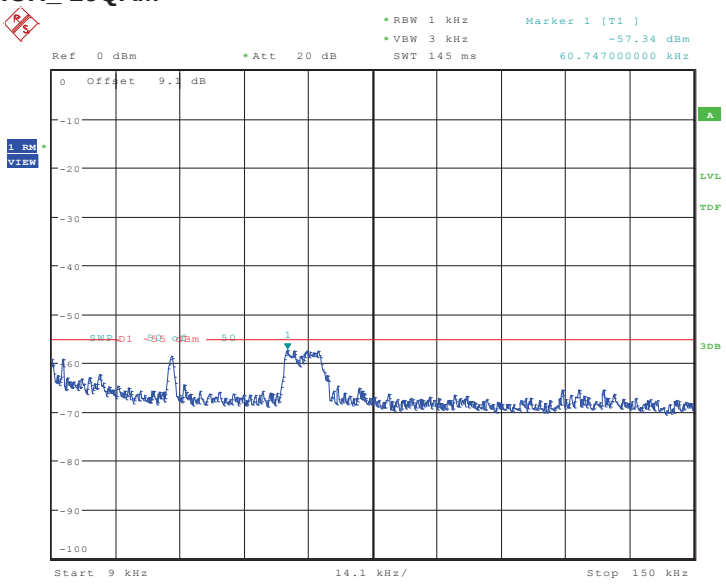

RBW 1 MHz
VBW 3 MHz
SWT 125 ms
Marker 1 [T1]
-32.93 dBm
241.621666667 MHz
Ref 25 dBm
Att 35 dB
Offset 9.2 dB
D1 -25 dBm
SWP 32 of 1 50
Start 30 MHz
97 MHz/
Stop 1 GHz

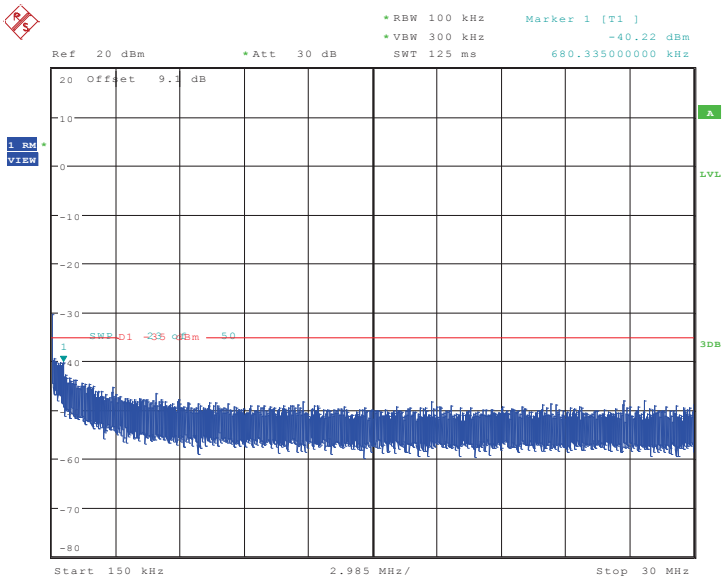

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 2 [T1]
-41.40 dBm
3.504133333 GHz
Marker 1 [T1]
2.555866667 GHz
Ref 25 dBm
Att 35 dB
Offset 10 dB
D1 -25 dBm
SWP 3 of 3
Start 1 GHz
400 MHz/
Stop 5 GHz

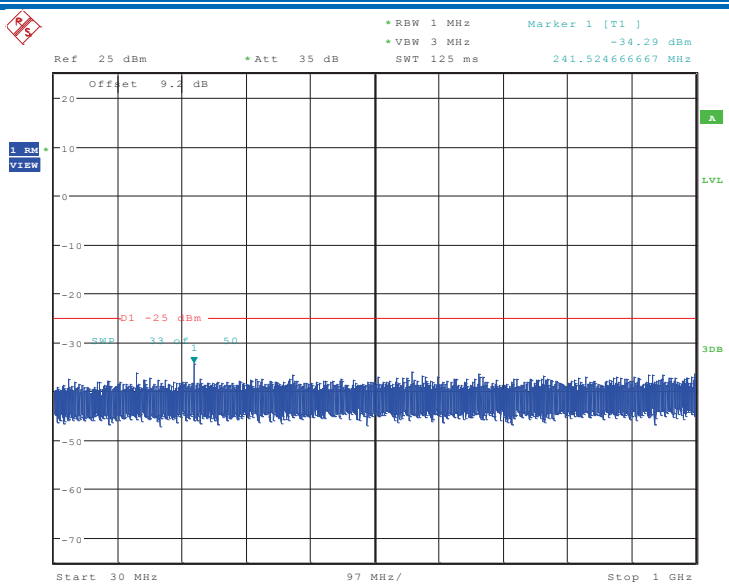

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-52.13 dBm
5.111533333 GHz
Ref 10 dBm
Att 20 dB
Offset 11.5 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 5 GHz
700 MHz/
Stop 12 GHz

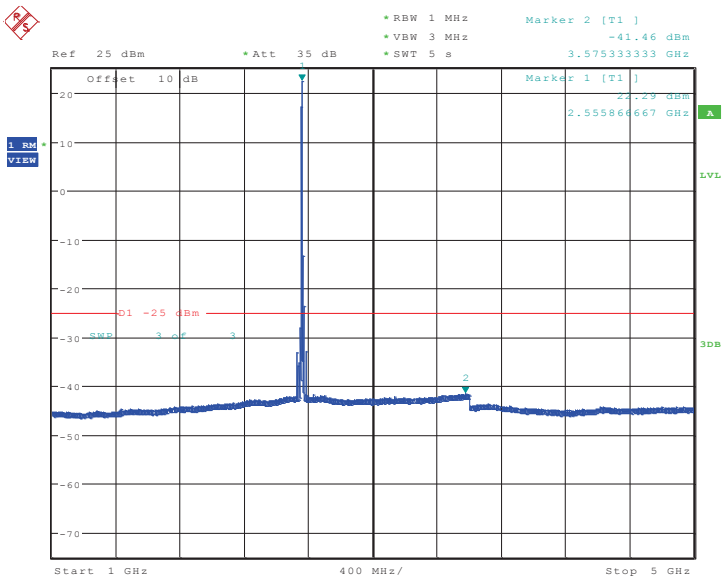

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-52.78 dBm
17.631200000 GHz
Ref 10 dBm
Att 20 dB
Offset 13.6 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 12 GHz
600 MHz/
Stop 18 GHz

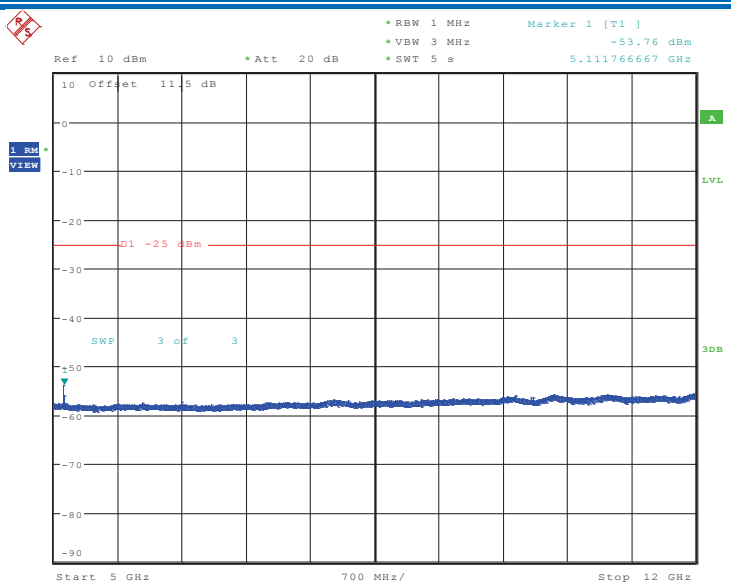
HCH_ 16QAM

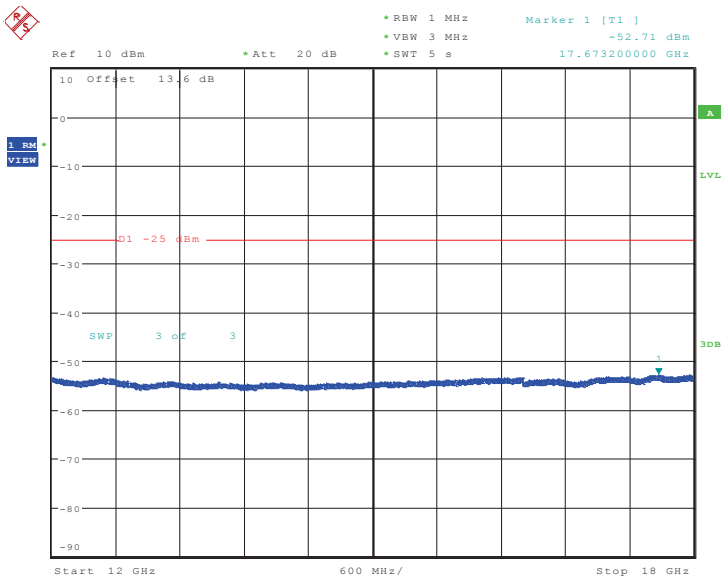

RBW 1 kHz
VBW 3 kHz
SWT 145 ms
Marker 1 [T1]
-57.34 dBm
60.747000000 kHz
Ref 0 dBm
Att 20 dB
Offset 9.1 dB
1 RM
VIEW
A
LVL
TDF
3DB
SWP D1 -50.5 dBm 50
Start 9 kHz
14.1 kHz/
Stop 150 kHz


RBW 100 kHz
VBW 300 kHz
SWT 125 ms
Marker 1 [T1]
-40.22 dBm
680.335000000 kHz
Ref 20 dBm
Att 30 dB
Offset 9.1 dB
1 RM
VIEW
A
LVL
3DB
SWP D1 -23.5 dBm 50
Start 150 kHz
2.985 MHz/
Stop 30 MHz


RBW 1 MHz
VBW 3 MHz
SWT 125 ms
Marker 1 [T1]
-34.29 dBm
241.524666667 MHz
Ref 25 dBm
Att 35 dB
Offset 9.2 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 33 of 50
Start 30 MHz
97 MHz/
Stop 1 GHz

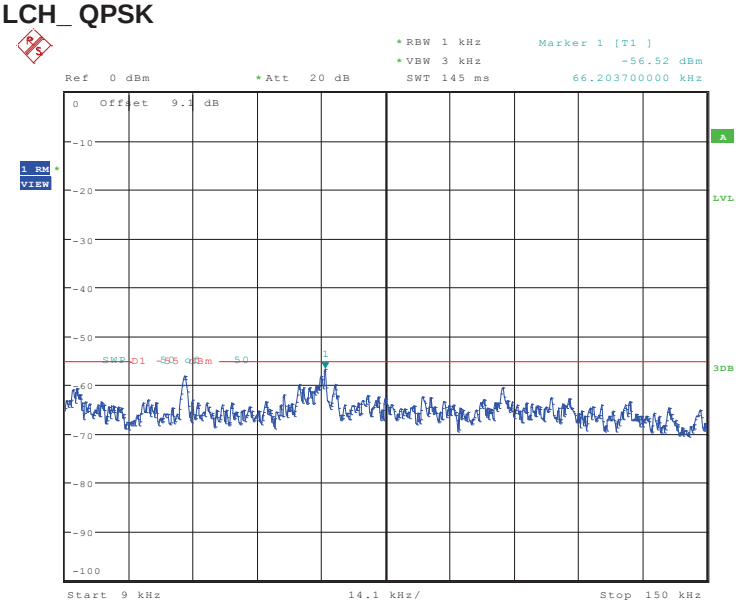

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 2 [T1]
-41.46 dBm
3.575333333 GHz
Ref 25 dBm
Att 35 dB
Offset 10 dB
Marker 1 [T1]
22.29 dBm
2.555866667 GHz
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 1 GHz
400 MHz/
Stop 5 GHz

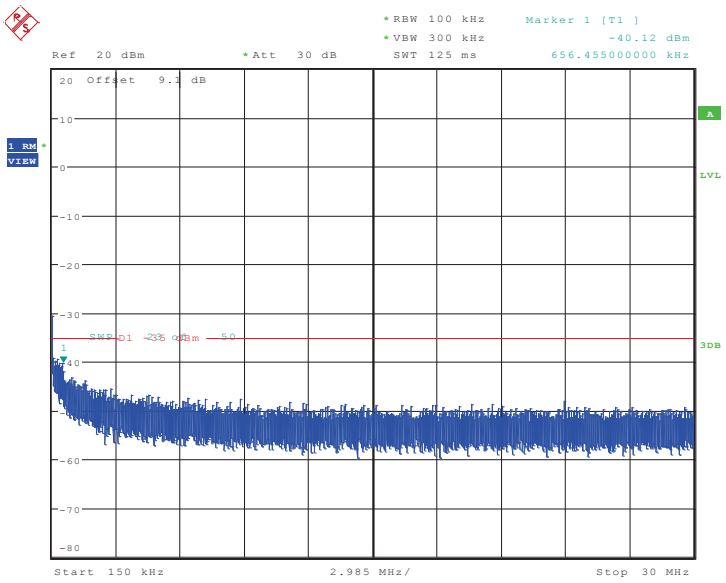

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-53.76 dBm
5.111766667 GHz
Ref 10 dBm
Att 20 dB
Offset 11.5 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 5 GHz
700 MHz/
Stop 12 GHz

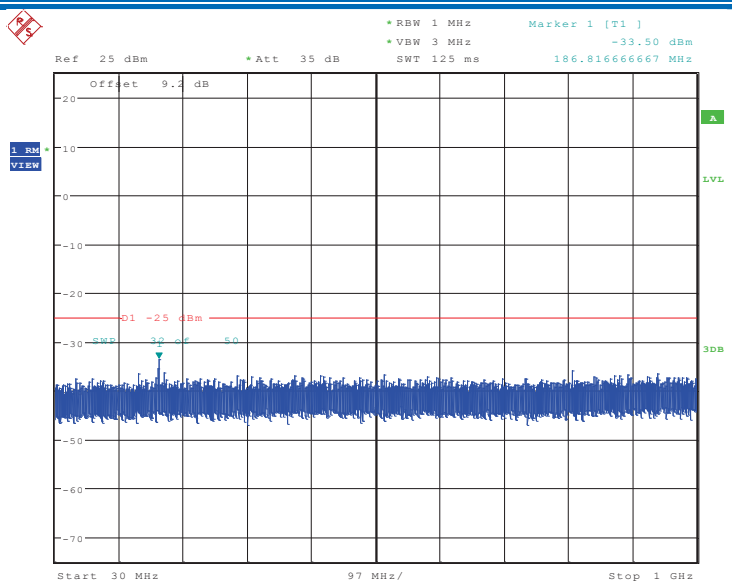

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-52.71 dBm
17.673200000 GHz
Ref 10 dBm
Att 20 dB
Offset 13.6 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 12 GHz
600 MHz/
Stop 18 GHz

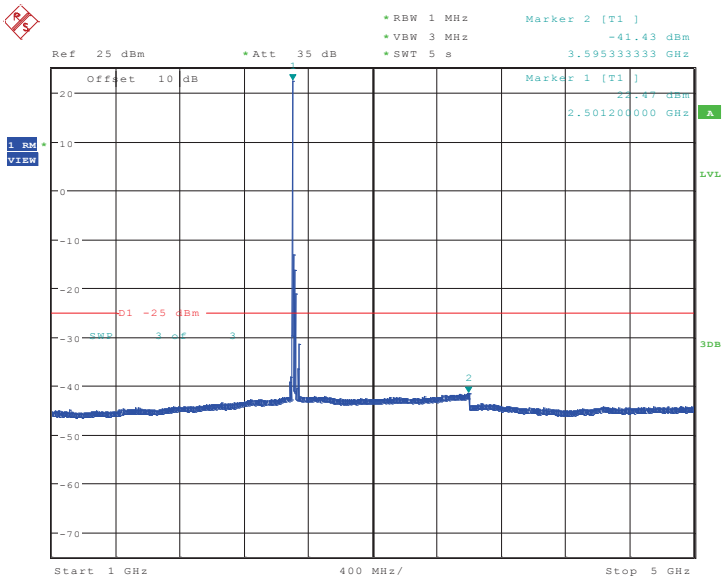
LTE_ Band 7_Channel Bandwidth: 20 MHz_1RB#0

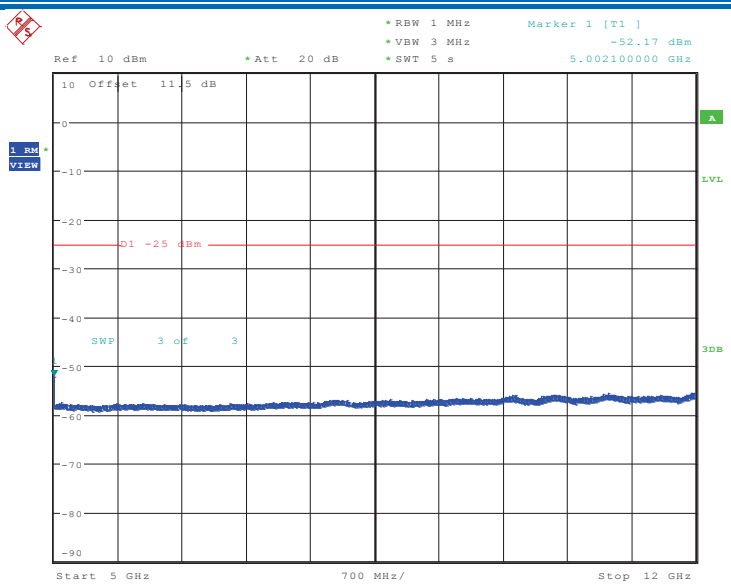
LCH_ QPSK

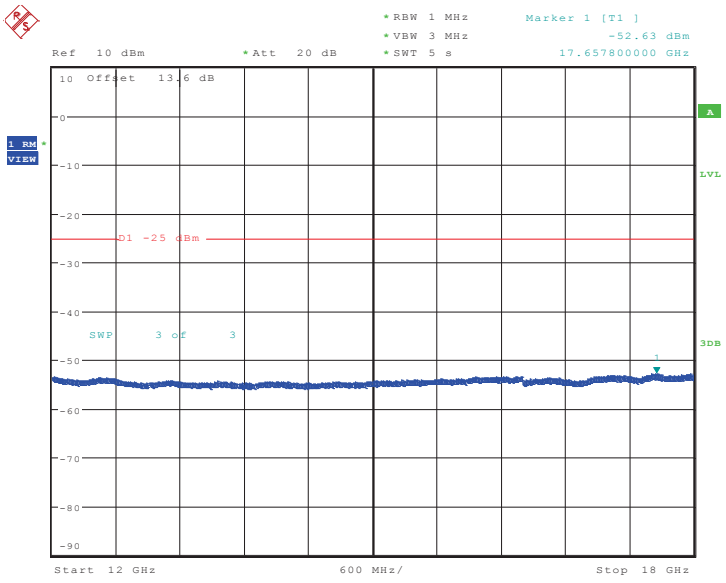




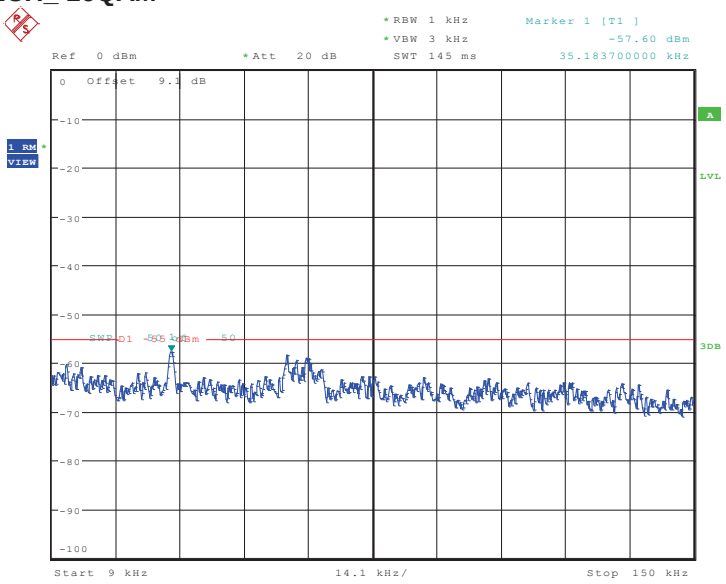

RBW 1 MHz
VBW 3 MHz
SWT 125 ms
Marker 1 [T1]
-33.50 dBm
186.816666667 MHz
Ref 25 dBm
Att 35 dB
Offset 9.2 dB
D1 -25 dBm
SWP 32 of 50
Start 30 MHz
97 MHz/
Stop 1 GHz

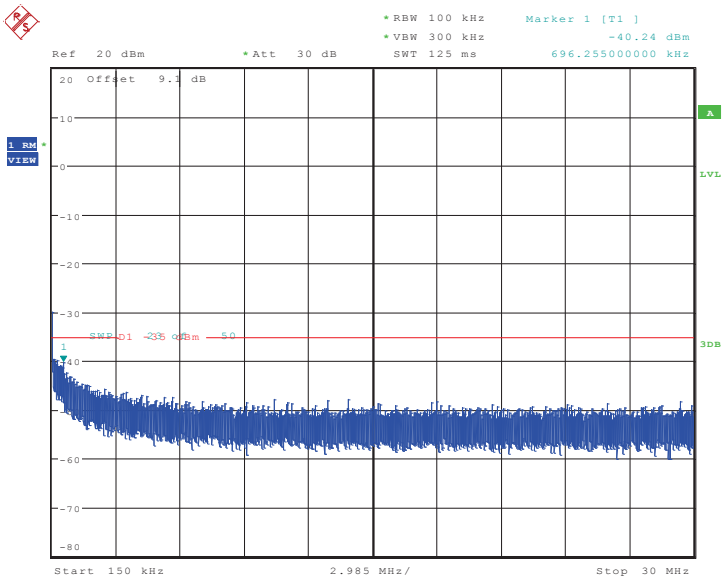

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 2 [T1]
-41.43 dBm
3.595333333 GHz
Marker 1 [T1]
2.501200000 GHz
Ref 25 dBm
Att 35 dB
Offset 10 dB
D1 -25 dBm
SWP 3 of 3
Start 1 GHz
400 MHz/
Stop 5 GHz

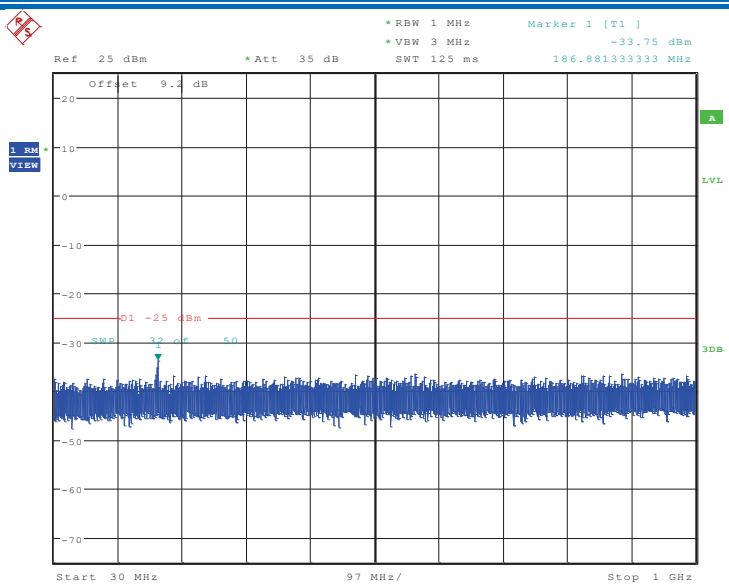

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-52.17 dBm
5.002100000 GHz
Ref 10 dBm
Att 20 dB
Offset 11.5 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 5 GHz
700 MHz/
Stop 12 GHz

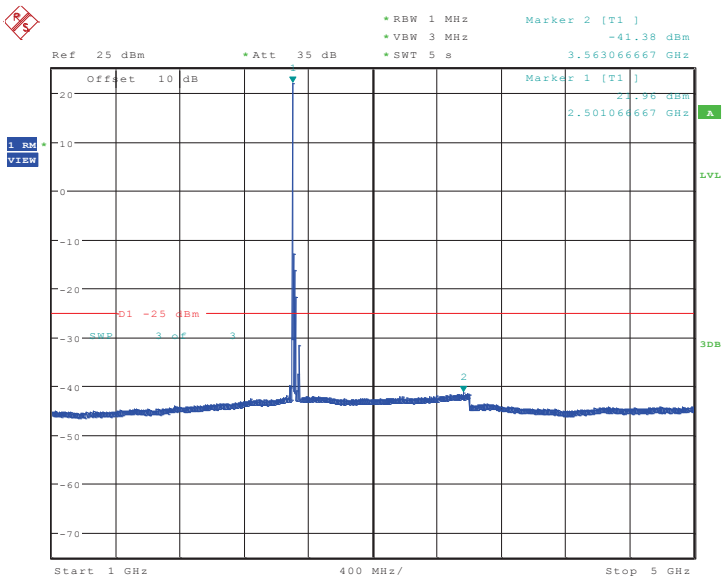

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-52.63 dBm
17.657800000 GHz
Ref 10 dBm
Att 20 dB
Offset 13.6 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 12 GHz
600 MHz/
Stop 18 GHz

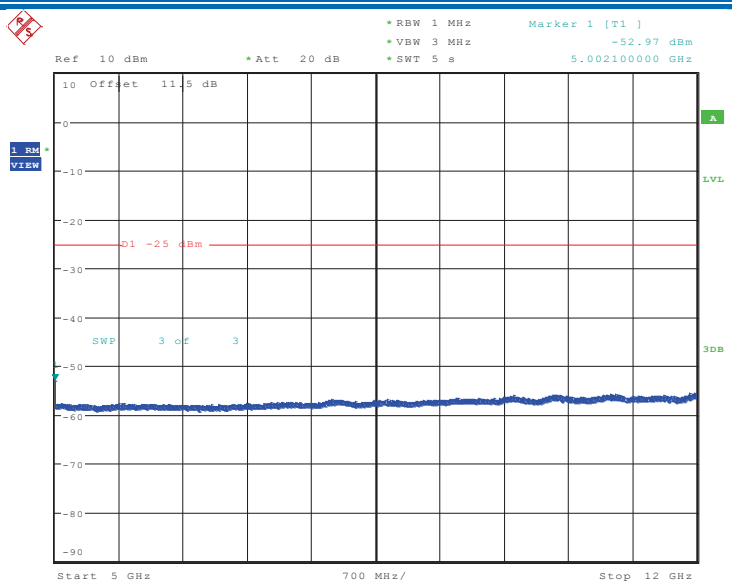
LCH_ 16QAM

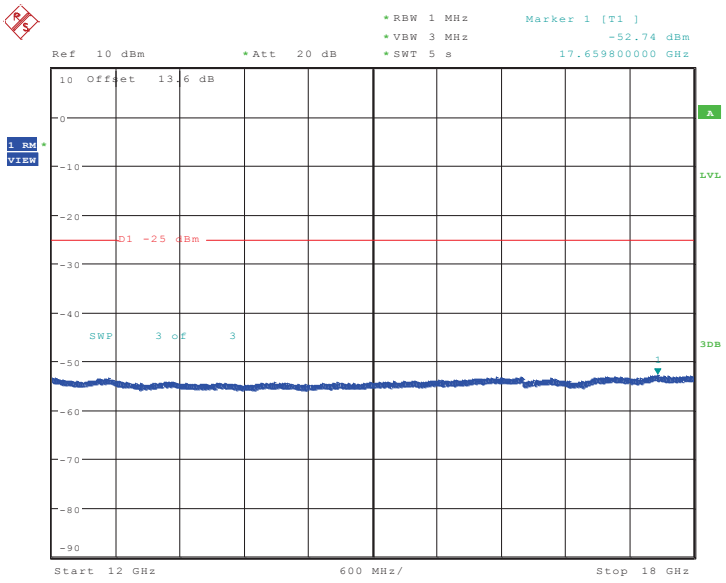

RBW 1 kHz
VBW 3 kHz
SWT 145 ms
Marker 1 [T1]
-57.60 dBm
35.183700000 kHz
Ref 0 dBm
Att 20 dB
Offset 9.1 dB
1 RM
VIEW
A
LVL
3DB
Start 9 kHz
14.1 kHz/
Stop 150 kHz


RBW 100 kHz
VBW 300 kHz
SWT 125 ms
Marker 1 [T1]
-40.24 dBm
696.255000000 kHz
Ref 20 dBm
Att 30 dB
Offset 9.1 dB
1 RM
VIEW
A
LVL
3DB
Start 150 kHz
2.985 MHz/
Stop 30 MHz

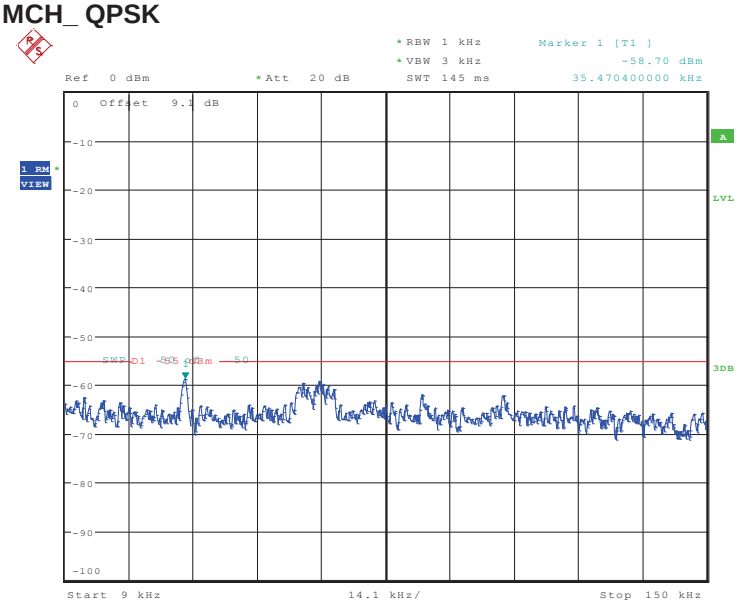

RBW 1 MHz
VBW 3 MHz
SWT 125 ms
Marker 1 [T1]
-33.75 dBm
186.881333333 MHz
Ref 25 dBm
Att 35 dB
Offset 9.2 dB
D1 -25 dBm
SWP 32 of 50
Start 30 MHz
97 MHz/
Stop 1 GHz

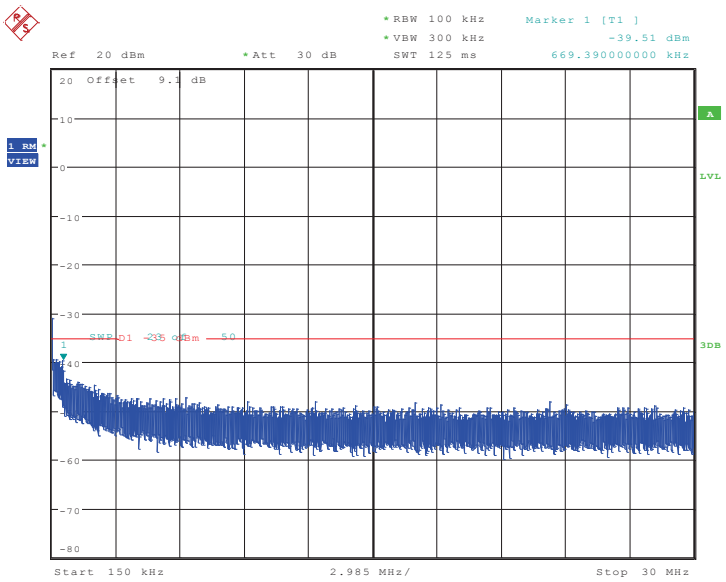

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 2 [T1]
-41.38 dBm
3.563066667 GHz
Marker 1 [T1]
2.501066667 GHz
Ref 25 dBm
Att 35 dB
Offset 10 dB
D1 -25 dBm
SWP 3 of 3
Start 1 GHz
400 MHz/
Stop 5 GHz

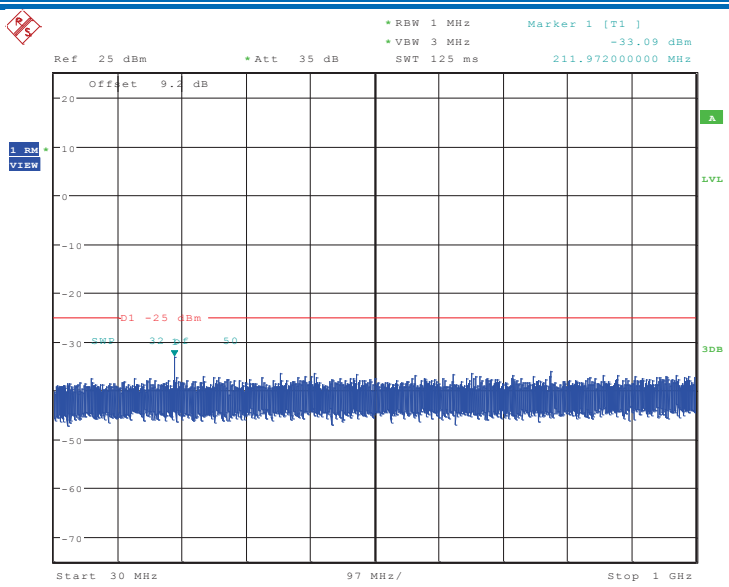

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-52.97 dBm
5.002100000 GHz
Ref 10 dBm
Att 20 dB
Offset 11.5 dB
D1 -25 dBm
SWP 3 of 3
Start 5 GHz
700 MHz/
Stop 12 GHz
1 RM VIEW
A
LVL
3DB

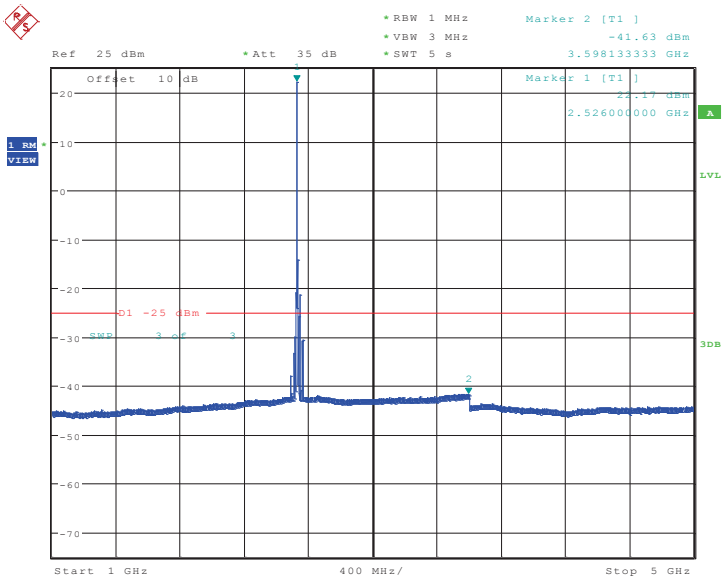

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-52.74 dBm
17.659800000 GHz
Ref 10 dBm
Att 20 dB
Offset 13.6 dB
D1 -25 dBm
SWP 3 of 3
Start 12 GHz
600 MHz/
Stop 18 GHz
1 RM VIEW
A
LVL
3DB

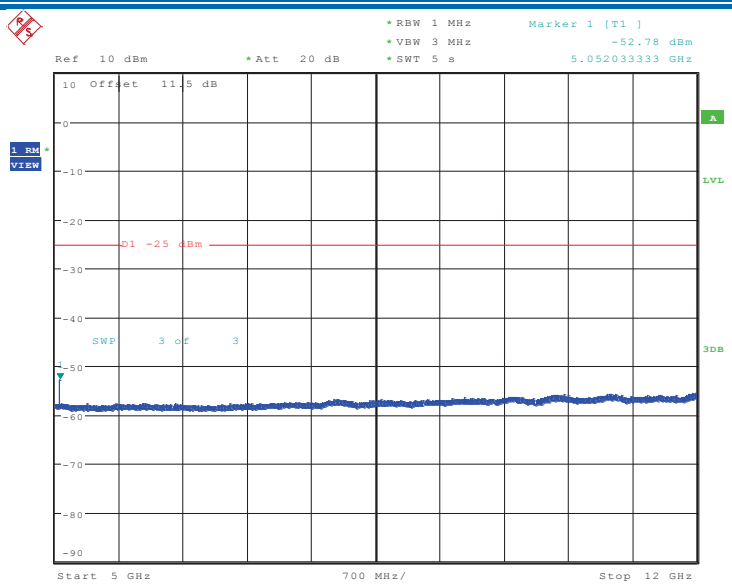
MCH_ QPSK

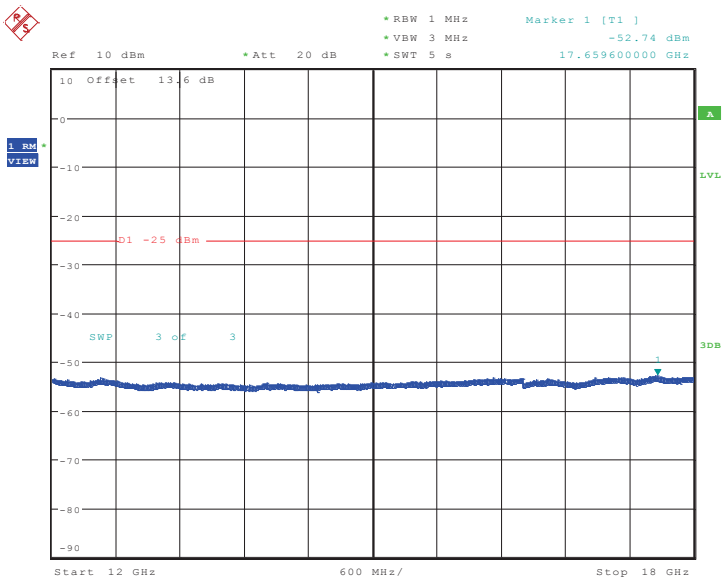

RBW 1 kHz
VBW 3 kHz
SWT 145 ms
Marker 1 [T1]
-58.70 dBm
35.470400000 kHz
Ref 0 dBm
Att 20 dB
Offset 9.1 dB
1 RM
VIEW
A
LVL
3DB
SWP 01 -50.5 dBm 50
Start 9 kHz
14.1 kHz/
Stop 150 kHz


RBW 100 kHz
VBW 300 kHz
SWT 125 ms
Marker 1 [T1]
-39.51 dBm
669.390000000 kHz
Ref 20 dBm
Att 30 dB
Offset 9.1 dB
1 RM
VIEW
A
LVL
3DB
SWP 01 -23.5 dBm 50
Start 150 kHz
2.985 MHz/
Stop 30 MHz

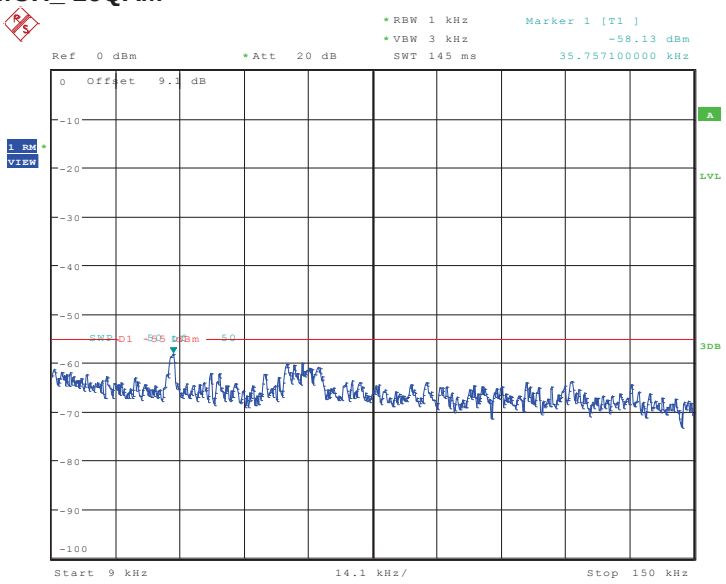

RBW 1 MHz
VBW 3 MHz
SWT 125 ms
Marker 1 [T1]
-33.09 dBm
211.972000000 MHz
Ref 25 dBm
Att 35 dB
Offset 9.2 dB
D1 -25 dBm
Start 30 MHz
97 MHz/
Stop 1 GHz

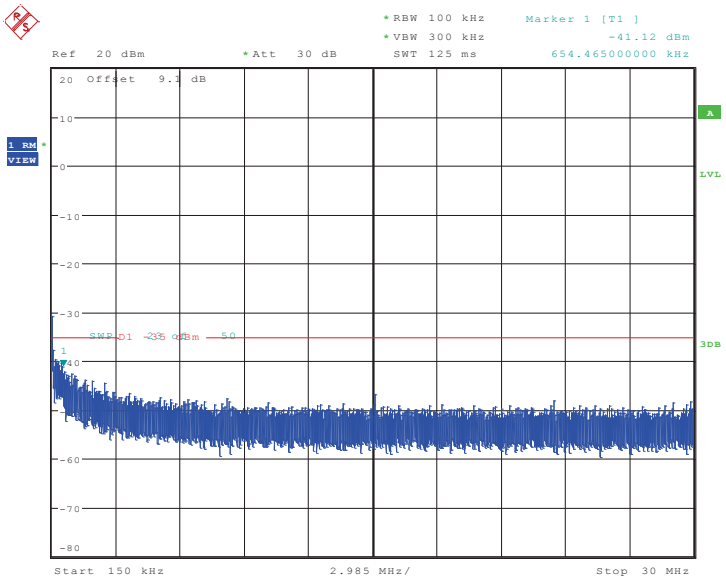

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 2 [T1]
-41.63 dBm
3.598133333 GHz
Marker 1 [T1]
2.526000000 GHz
Ref 25 dBm
Att 35 dB
Offset 10 dB
D1 -25 dBm
Start 1 GHz
400 MHz/
Stop 5 GHz

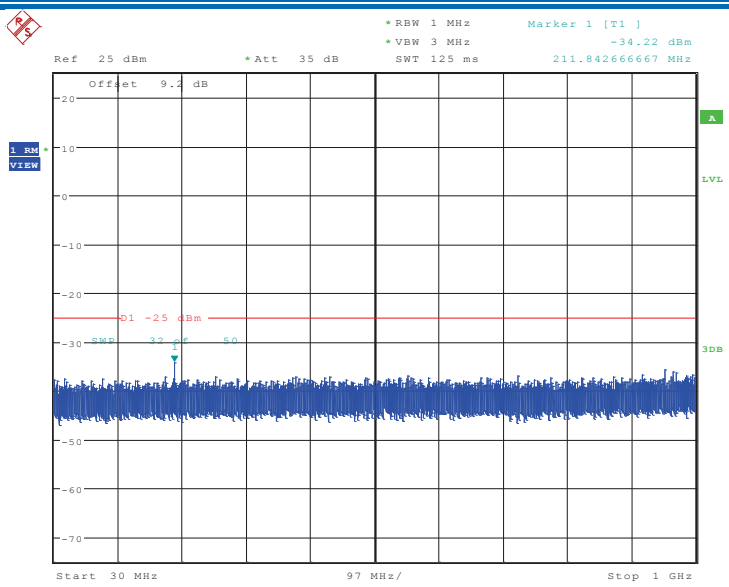

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-52.78 dBm
5.052033333 GHz
Ref 10 dBm
Att 20 dB
Offset 11.5 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 5 GHz
700 MHz/
Stop 12 GHz

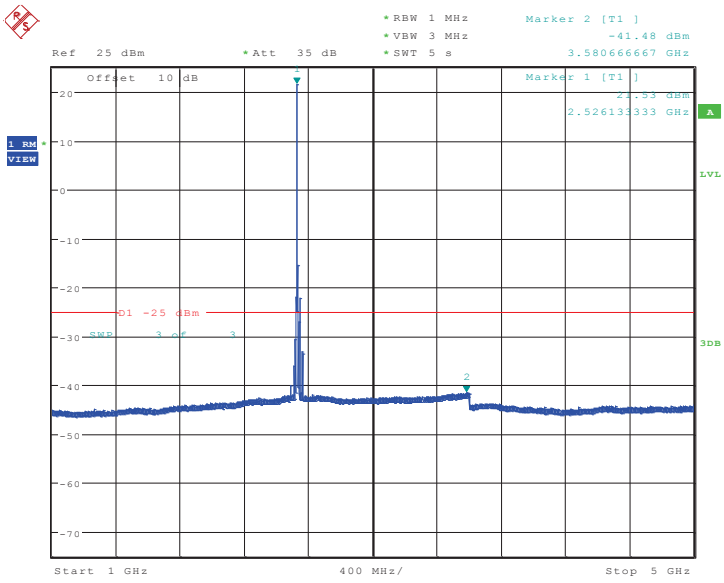

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-52.74 dBm
17.659600000 GHz
Ref 10 dBm
Att 20 dB
Offset 13.6 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 12 GHz
600 MHz/
Stop 18 GHz

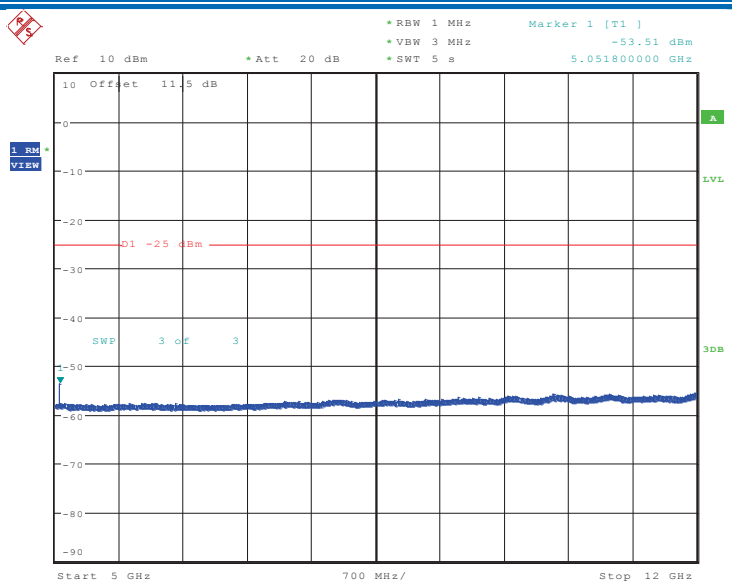
MCH_ 16QAM

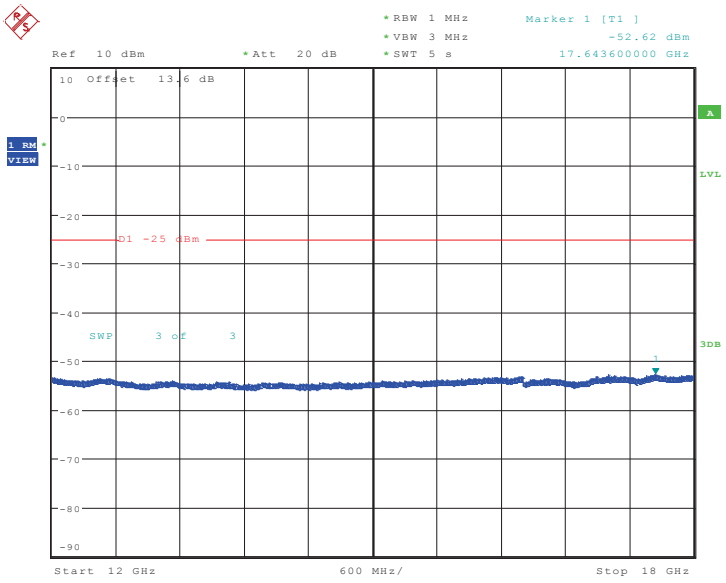

RBW 1 kHz
VBW 3 kHz
SWT 145 ms
Marker 1 [T1]
-58.13 dBm
35.757100000 kHz
Ref 0 dBm
Att 20 dB
Offset 9.1 dB
SWP D1 -50.5 dBm 50
Start 9 kHz
14.1 kHz/
Stop 150 kHz


RBW 100 kHz
VBW 300 kHz
SWT 125 ms
Marker 1 [T1]
-41.12 dBm
654.465000000 kHz
Ref 20 dBm
Att 30 dB
Offset 9.1 dB
SWP D1 -23.5 dBm 50
Start 150 kHz
2.985 MHz/
Stop 30 MHz

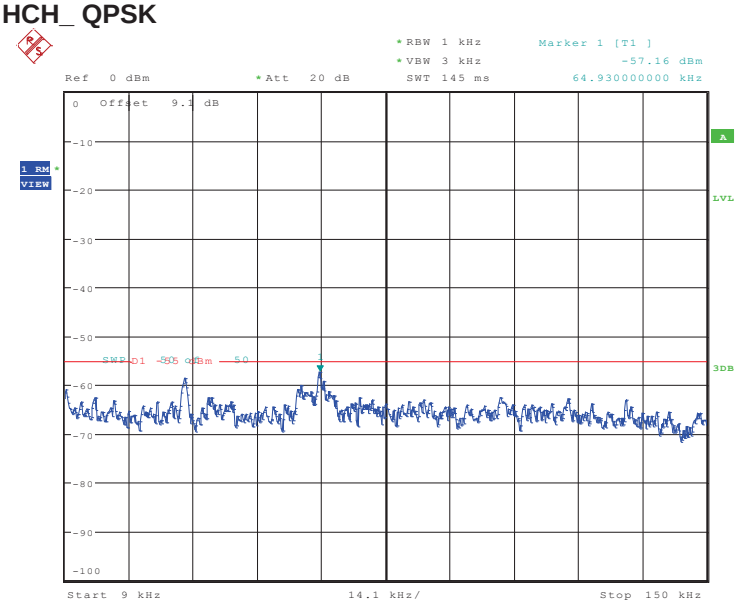

RBW 1 MHz
VBW 3 MHz
SWT 125 ms
Marker 1 [T1]
-34.22 dBm
211.842666667 MHz
Ref 25 dBm
Att 35 dB
Offset 9.2 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 32 of 50
Start 30 MHz
97 MHz/
Stop 1 GHz

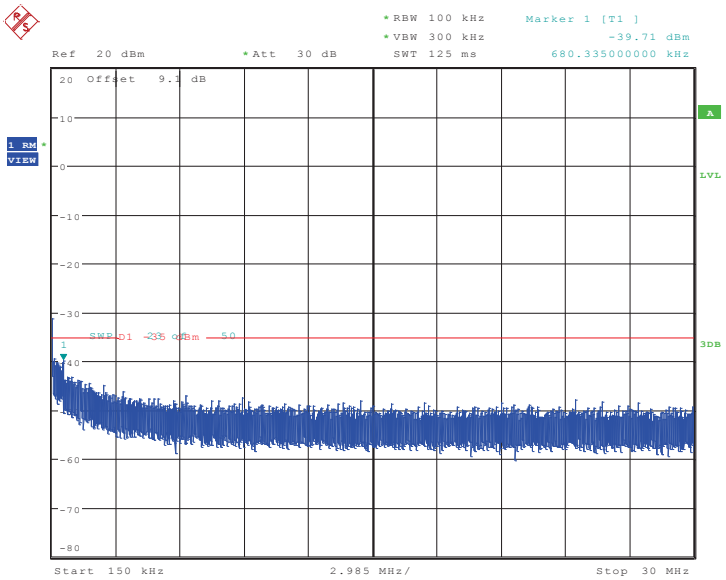

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 2 [T1]
-41.48 dBm
3.580666667 GHz
Ref 25 dBm
Att 35 dB
Offset 10 dB
Marker 1 [T1]
2.526133333 GHz
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 1 GHz
400 MHz/
Stop 5 GHz

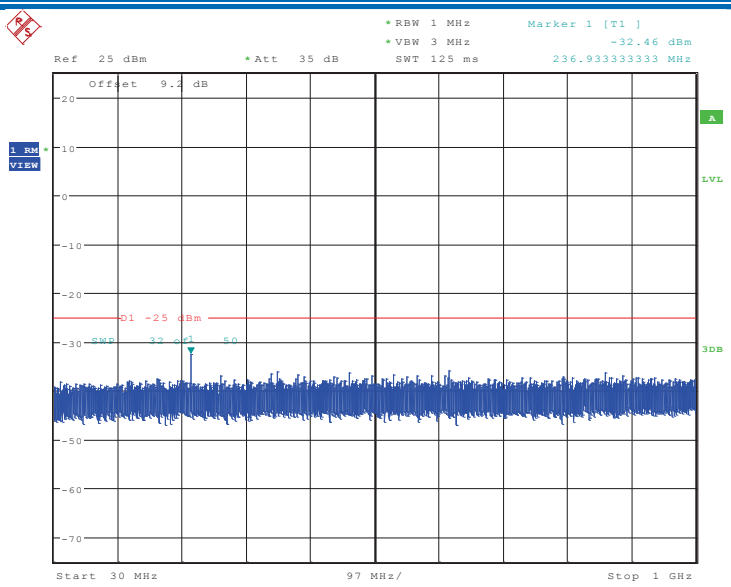

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-53.51 dBm
5.051800000 GHz
Ref 10 dBm
Att 20 dB
Offset 11.5 dB
D1 -25 dBm
SWP 3 of 3
Start 5 GHz
700 MHz/
Stop 12 GHz

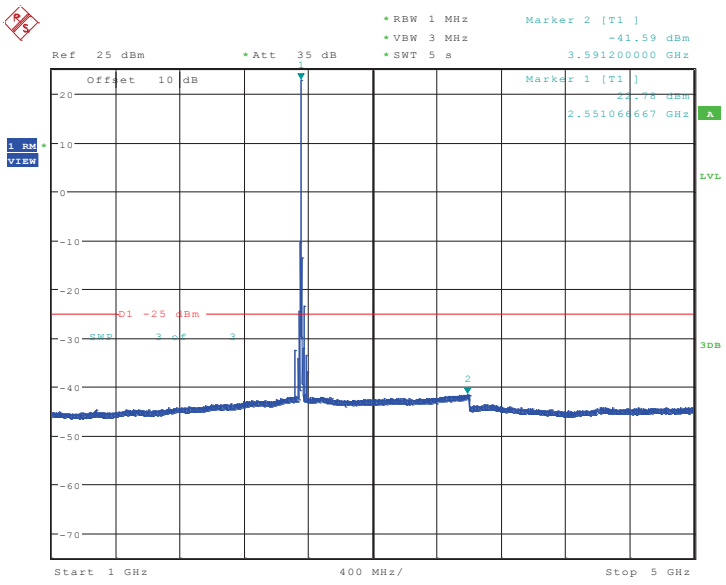

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-52.62 dBm
17.643600000 GHz
Ref 10 dBm
Att 20 dB
Offset 13.6 dB
D1 -25 dBm
SWP 3 of 3
Start 12 GHz
600 MHz/
Stop 18 GHz

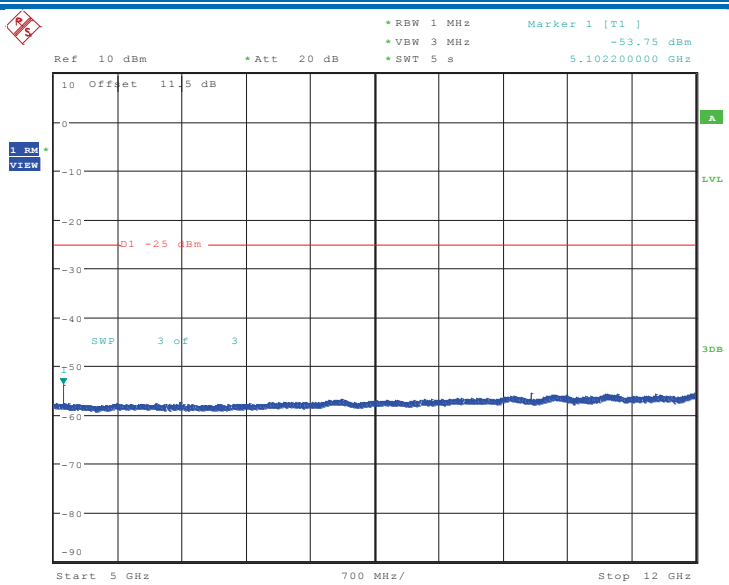
HCH_ QPSK

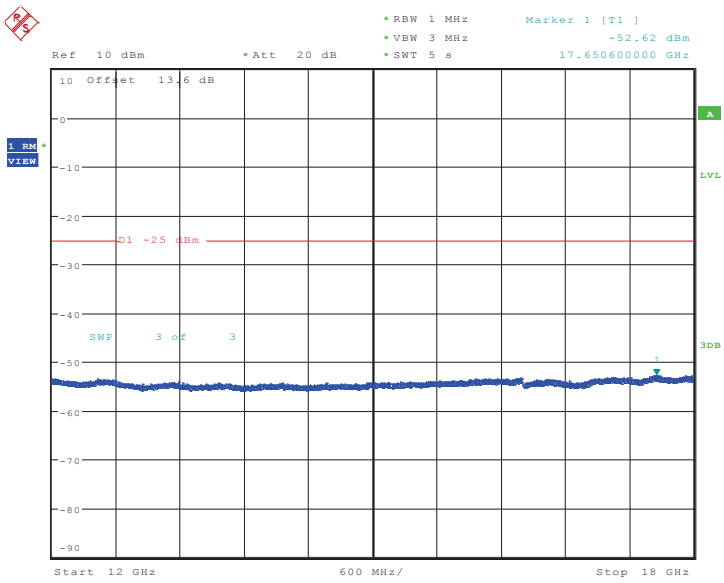

RBW 1 kHz
VBW 3 kHz
SWT 145 ms
Marker 1 [T1]
-57.16 dBm
64.930000000 kHz
Ref 0 dBm
Att 20 dB
Offset 9.1 dB
1 RM
VIEW
A
LVL
3DB
Start 9 kHz
14.1 kHz/
Stop 150 kHz


RBW 100 kHz
VBW 300 kHz
SWT 125 ms
Marker 1 [T1]
-39.71 dBm
680.335000000 kHz
Ref 20 dBm
Att 30 dB
Offset 9.1 dB
1 RM
VIEW
A
LVL
3DB
Start 150 kHz
2.985 MHz/
Stop 30 MHz

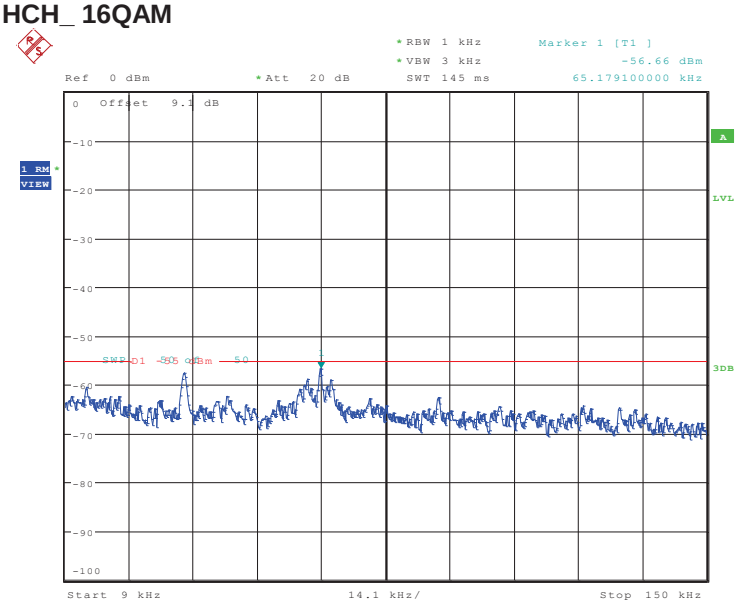

RBW 1 MHz
VBW 3 MHz
SWT 125 ms
Marker 1 [T1]
-32.46 dBm
236.933333333 MHz
Ref 25 dBm
Att 35 dB
Offset 9.2 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 32 of 50
Start 30 MHz
97 MHz/
Stop 1 GHz

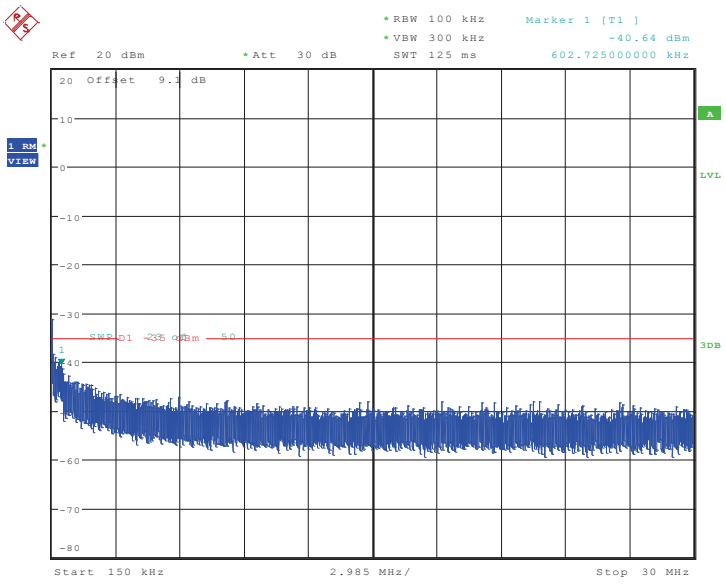

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 2 [T1]
-41.59 dBm
3.591200000 GHz
Marker 1 [T1]
22.78 dBm
2.551066667 GHz
Ref 25 dBm
Att 35 dB
Offset 10 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 1 GHz
400 MHz/
Stop 5 GHz

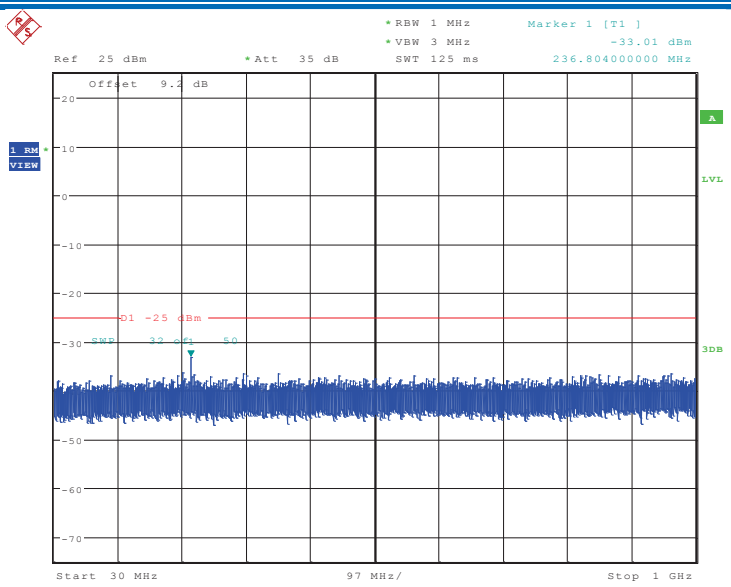

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-53.75 dBm
5.102200000 GHz
Ref 10 dBm
Att 20 dB
Offset 11.5 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 5 GHz
700 MHz/
Stop 12 GHz

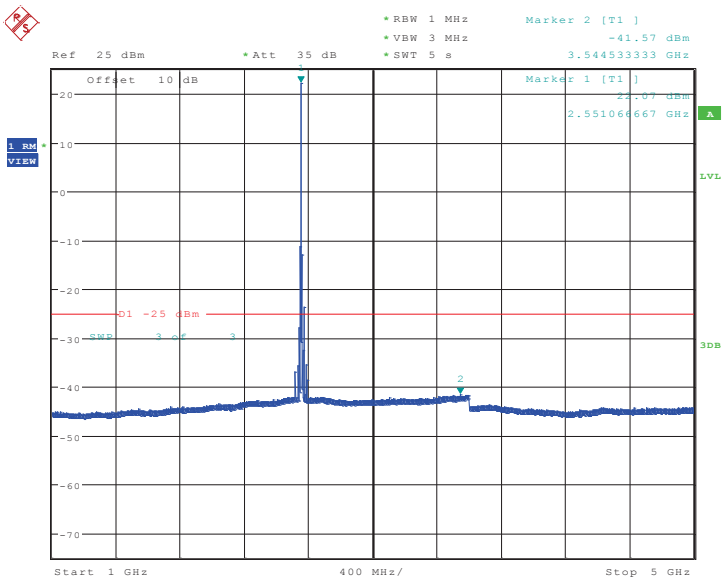

RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 1 [T1]
-52.62 dBm
17.650600000 GHz
Ref 10 dBm
Att 20 dB
Offset 13.6 dB
1 RM VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 12 GHz
600 MHz/
Stop 18 GHz

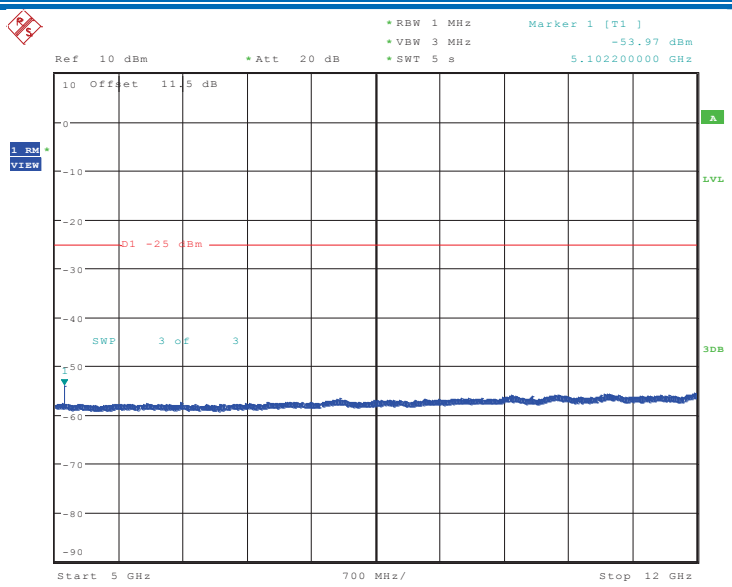
HCH_ 16QAM

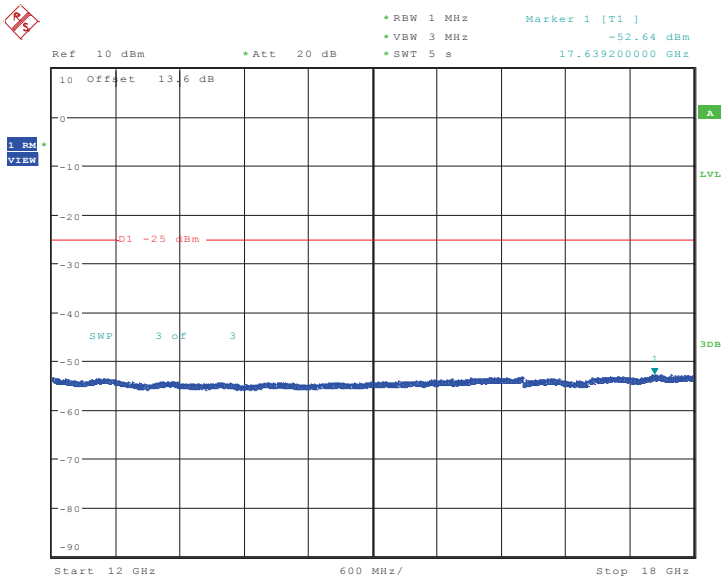

RBW 1 kHz
VBW 3 kHz
SWT 145 ms
Marker 1 [T1]
-56.66 dBm
65.179100000 kHz
Ref 0 dBm
Att 20 dB
Offset 9.1 dB
SWP D1 -50.5 dBm 50
Start 9 kHz
14.1 kHz/
Stop 150 kHz


RBW 100 kHz
VBW 300 kHz
SWT 125 ms
Marker 1 [T1]
-40.64 dBm
602.725000000 kHz
Ref 20 dBm
Att 30 dB
Offset 9.1 dB
SWP D1 -23.5 dBm 50
Start 150 kHz
2.985 MHz/
Stop 30 MHz


RBW 1 MHz
VBW 3 MHz
SWT 125 ms
Marker 1 [T1]
-33.01 dBm
236.804000000 MHz
Ref 25 dBm
Att 35 dB
Offset 9.2 dB
1 RM
VIEW
A
LVL
3DB
D1 -25 dBm
SWP 32 of 1 50
Start 30 MHz
97 MHz/
Stop 1 GHz


RBW 1 MHz
VBW 3 MHz
SWT 5 s
Marker 2 [T1]
-41.57 dBm
3.544533333 GHz
Marker 1 [T1]
22.07 dBm
2.551066667 GHz
Ref 25 dBm
Att 35 dB
Offset 10 dB
1 RM
VIEW
A
LVL
3DB
D1 -25 dBm
SWP 3 of 3
Start 1 GHz
400 MHz/
Stop 5 GHz





Remark:

1) Scan from 9kHz to 27GHz, the disturbance above 18GHz was very low. Therefore, the measurement values are not reflected in the report.

6.Frequency Stability

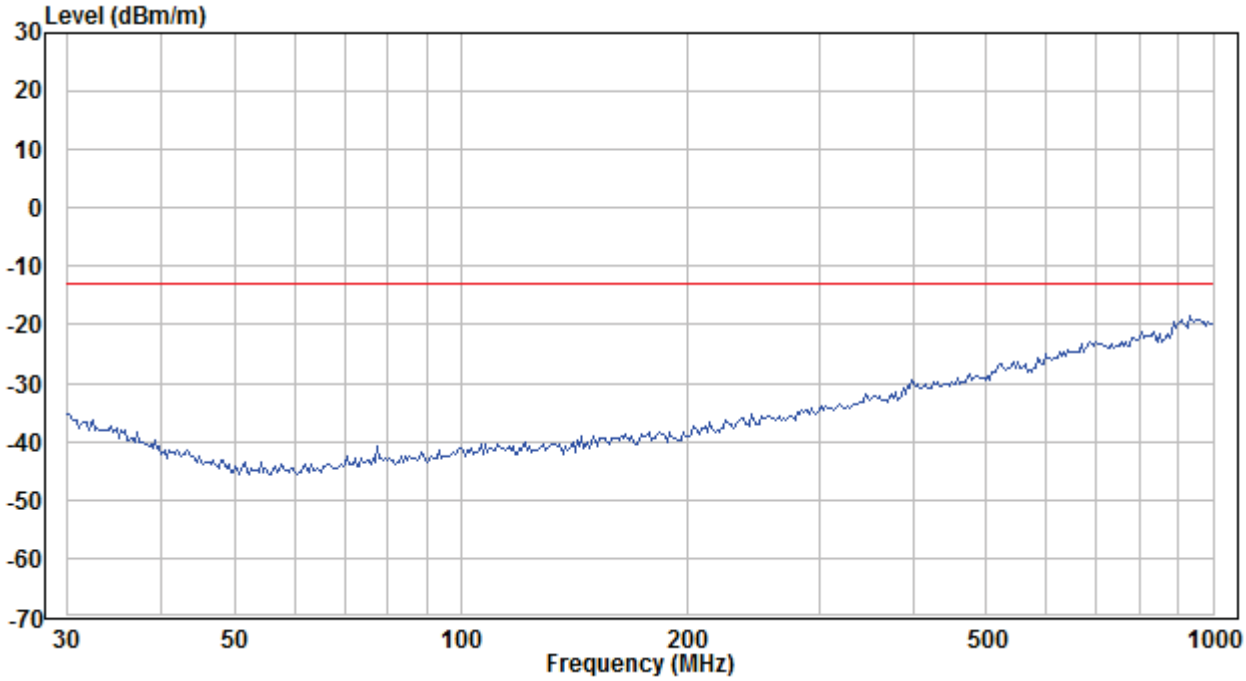
LTE Band 7：The worst case

Modulation	Channel/ Frequency (MHz)	Voltage (Vdc)	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Pass/ Fail
LTE Band 7; Channel Bandwidth: 20 MHz							
QPSK	21100/ 2535	3.5	Normal	-25	-0.010	± 2.5	PASS
		3.7		-23	-0.009	± 2.5	PASS
		4.2		-26	-0.010	± 2.5	PASS
		3.7	50	-29	-0.011	± 2.5	PASS
			40	-27	-0.011	± 2.5	PASS
			30	-24	-0.009	± 2.5	PASS
			20	-24	-0.009	± 2.5	PASS
			10	-23	-0.009	± 2.5	PASS
			0	-23	-0.009	± 2.5	PASS
			-10	7	0.003	± 2.5	PASS
			-20	12	0.005	± 2.5	PASS

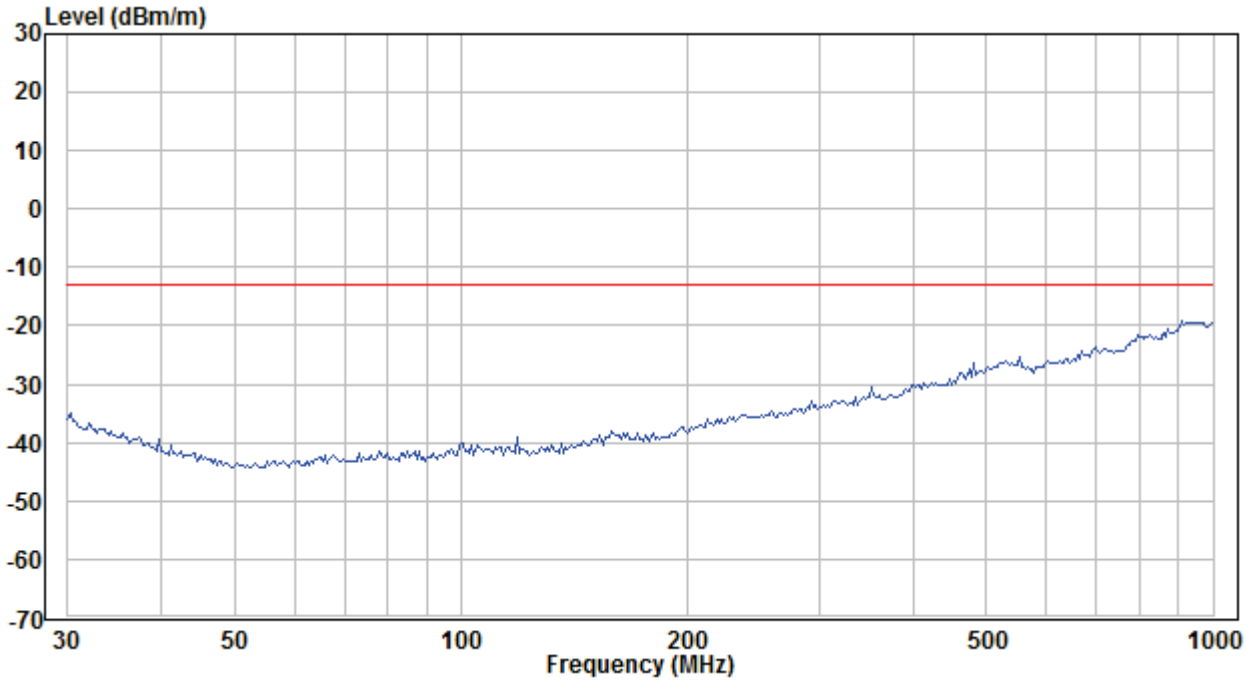
7.Field strength of spurious radiation

LTE Band 7_30MHz~1GHz

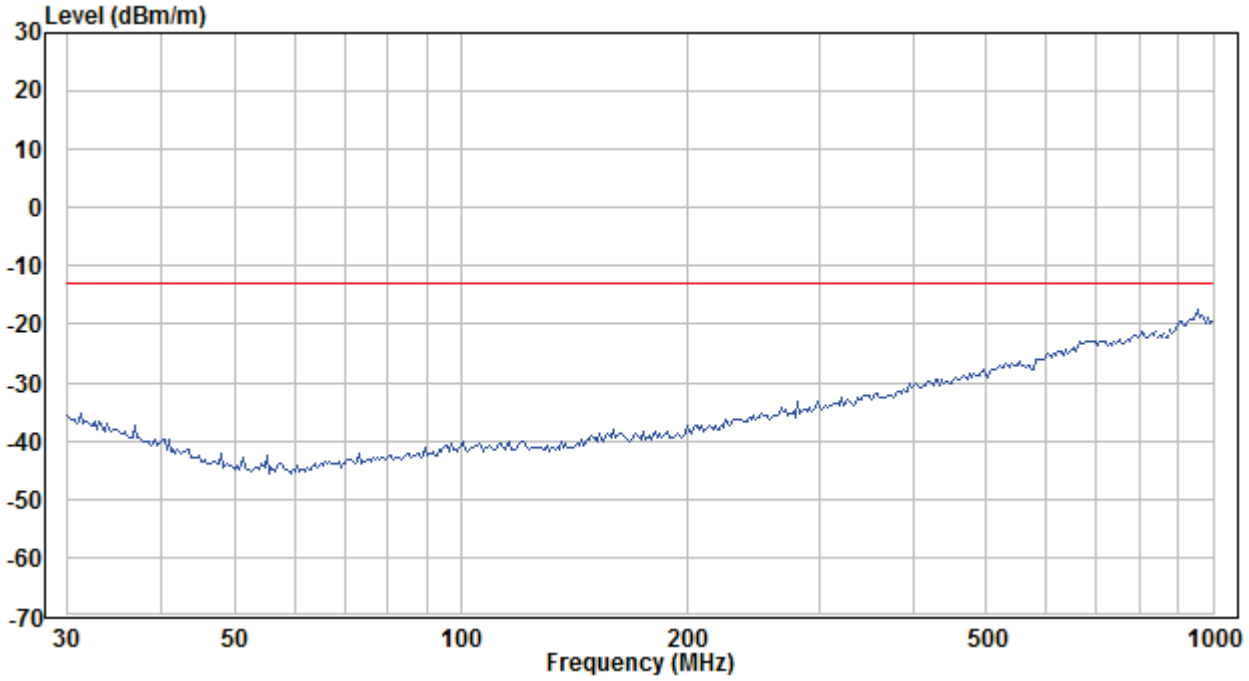
LTE Band 7; Bandwidth 5.0 MHz; Modulation: QPSK; RB:1;Mid Channel: 21100/2535MHz_Horizontal



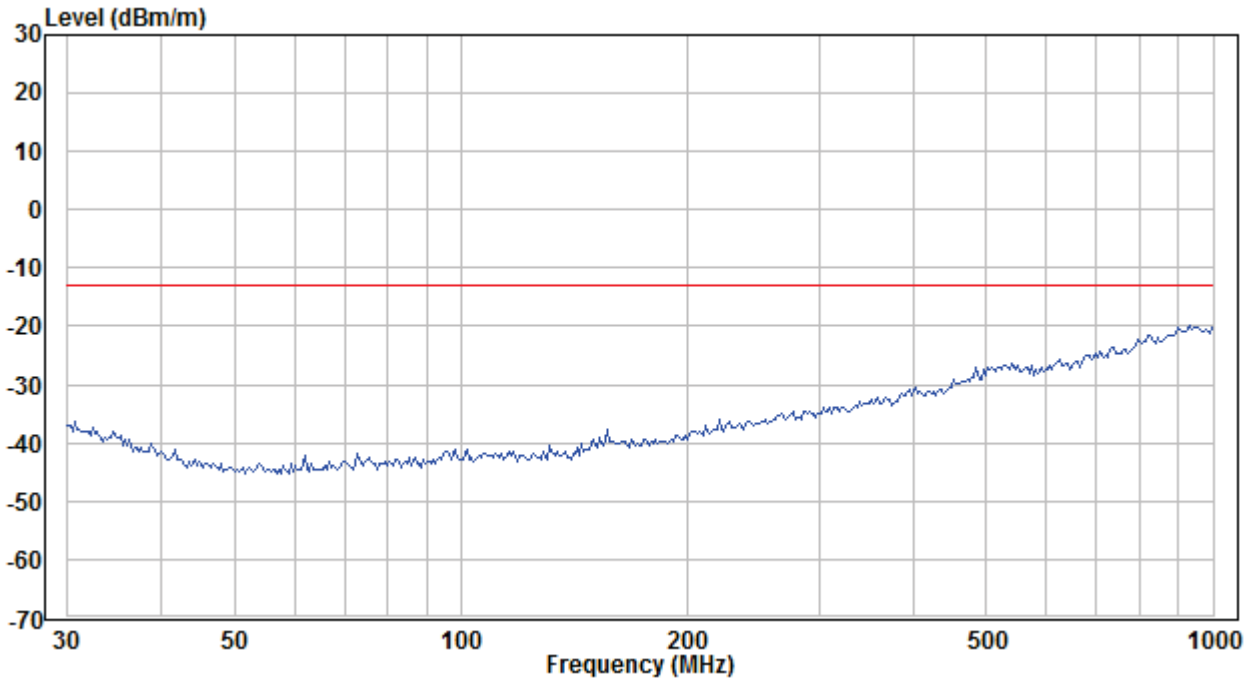
LTE Band 7; Bandwidth 5.0 MHz; Modulation: QPSK; RB:1; Mid Channel: 21100/2535MHz_Vertical



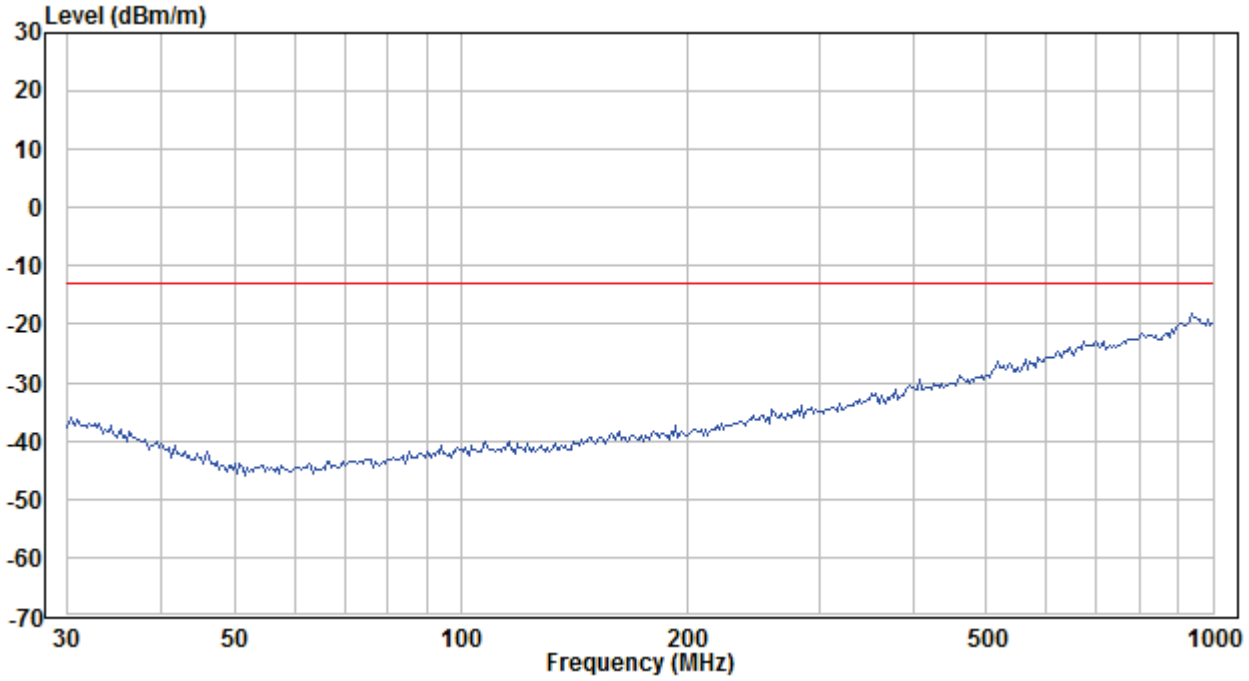
LTE Band 7; Bandwidth 10 MHz; Modulation: QPSK; RB:1;Mid Channel: 21100/2535MHz_Horizontal



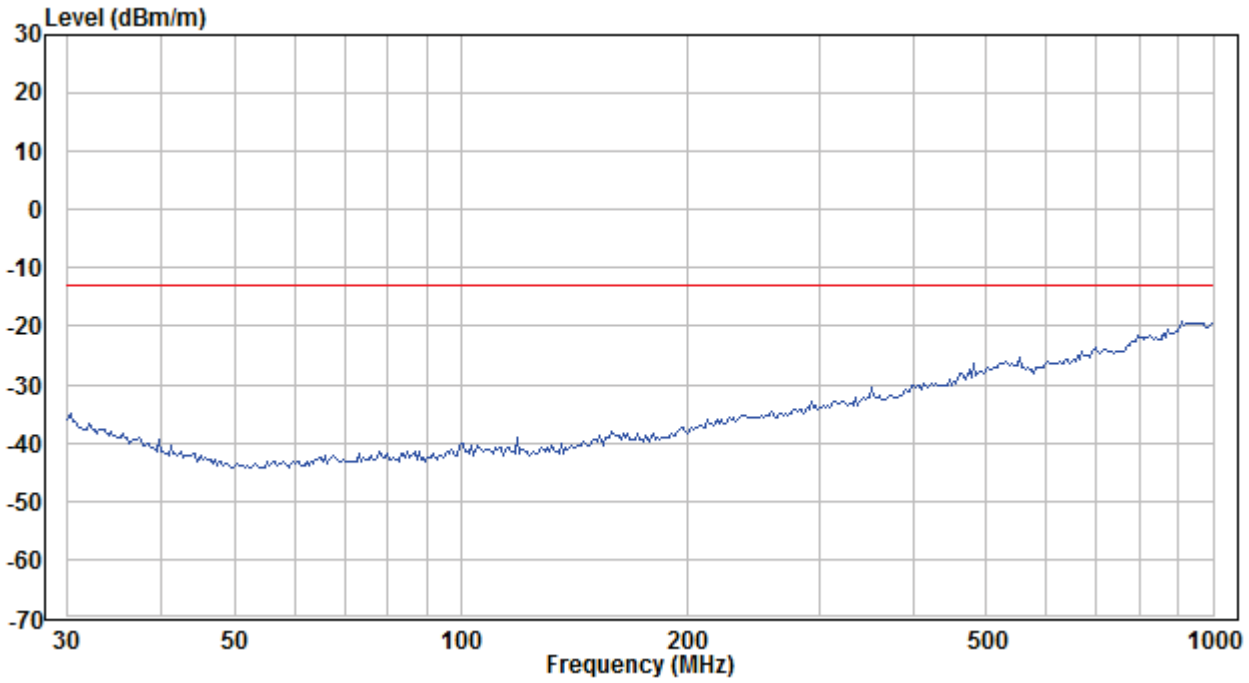
LTE Band 7; Bandwidth 10 MHz; Modulation: QPSK; RB:1; Mid Channel: 21100/2535MHz_Vertical



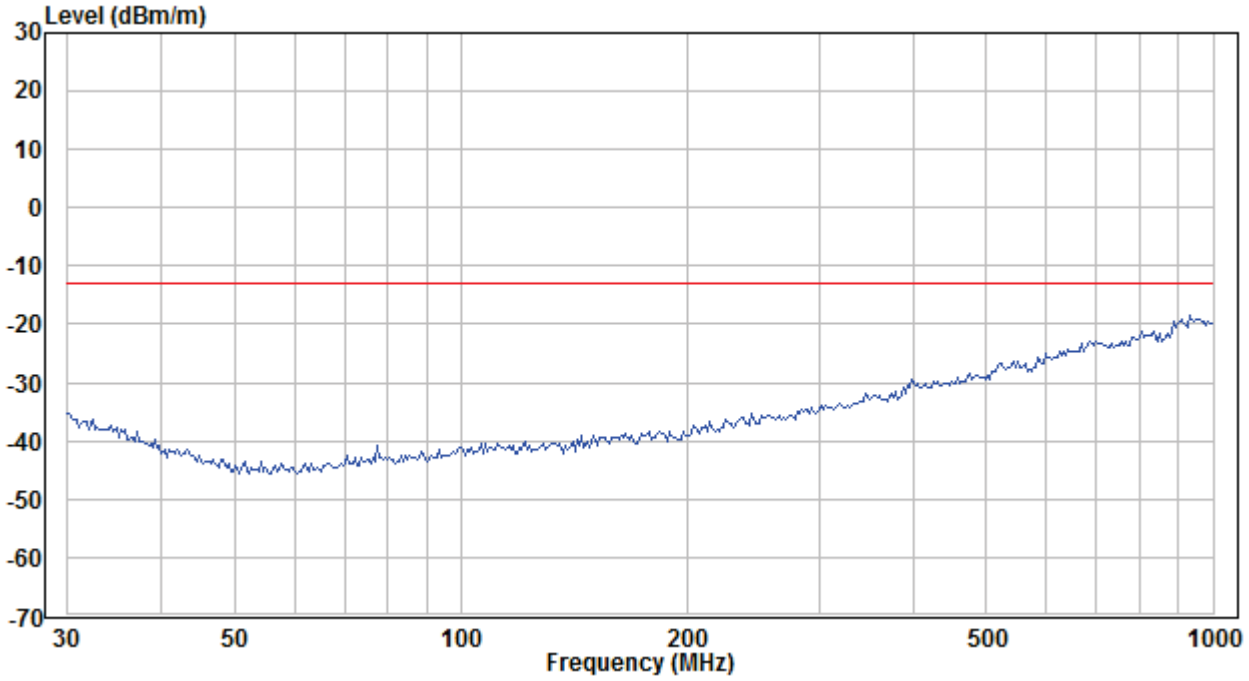
LTE Band 7; Bandwidth 15 MHz; Modulation: QPSK; RB:1;Mid Channel: 21100/2535MHz_Horizontal



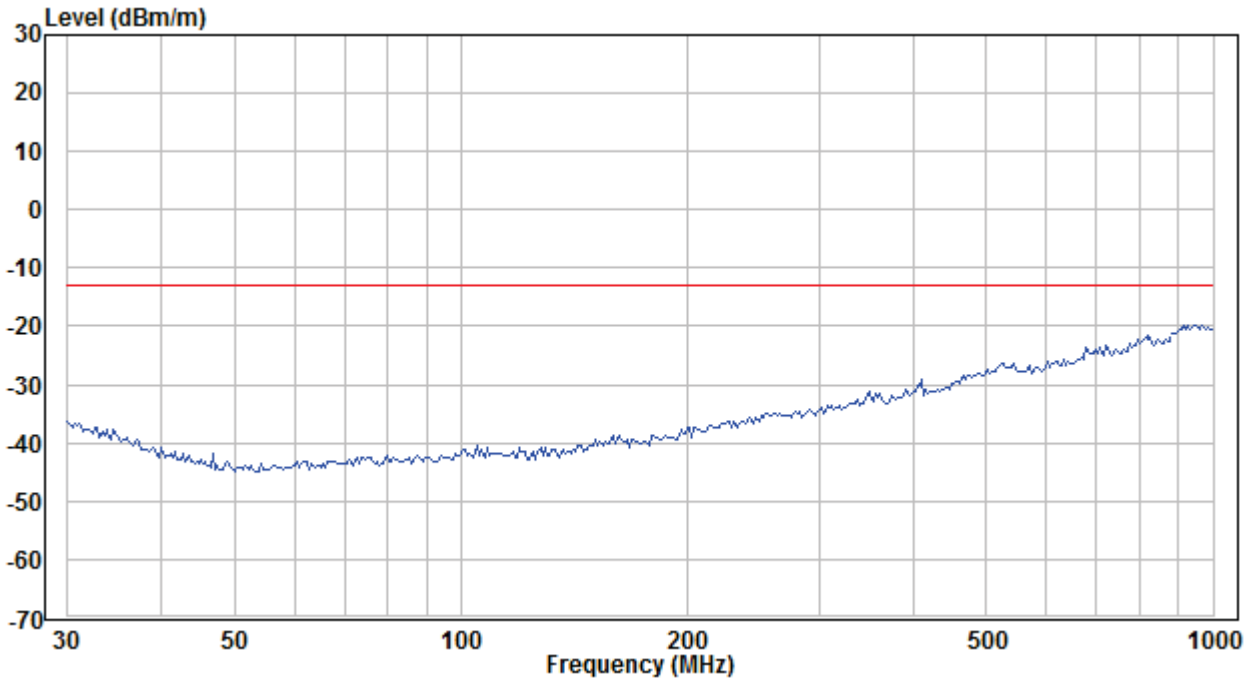
LTE Band 7; Bandwidth 15 MHz; Modulation: QPSK; RB:1; Mid Channel: 21100/2535MHz_Vertical



LTE Band 7; Bandwidth 20 MHz; Modulation: QPSK; RB:1;Mid Channel: 21100/2535MHz_Horizontal

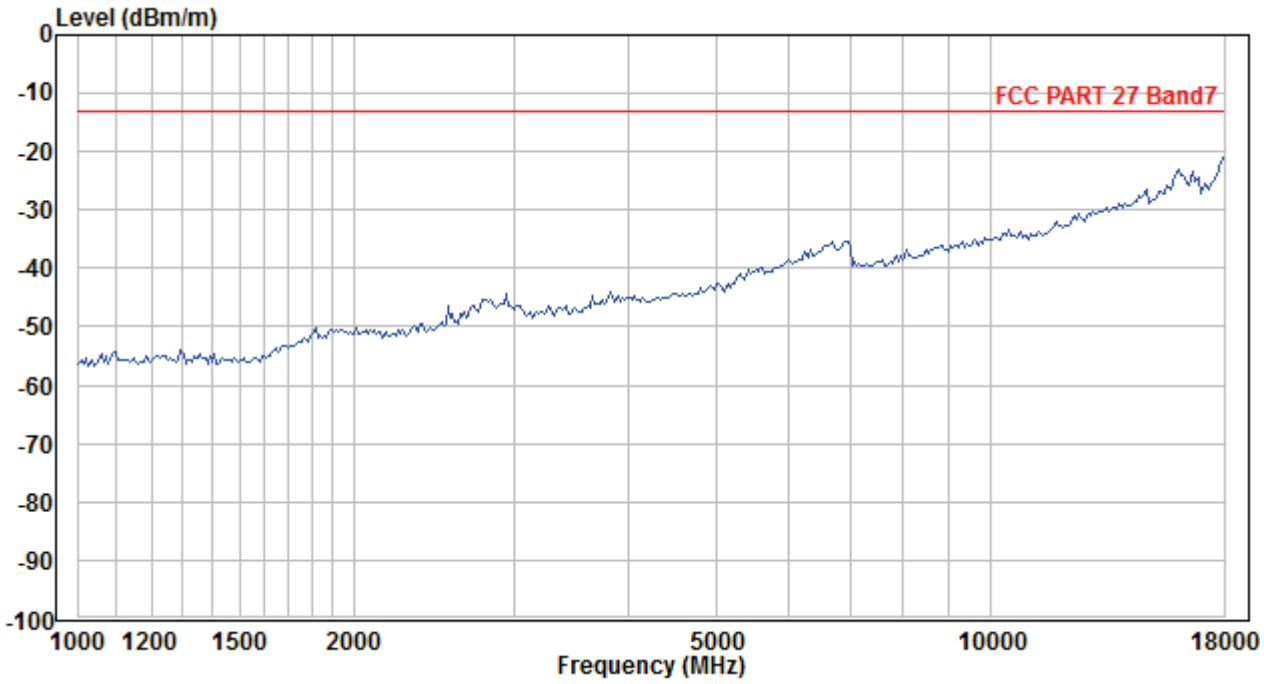


LTE Band 7; Bandwidth 20 MHz; Modulation: QPSK; RB:1; Mid Channel: 21100/2535MHz_Vertical

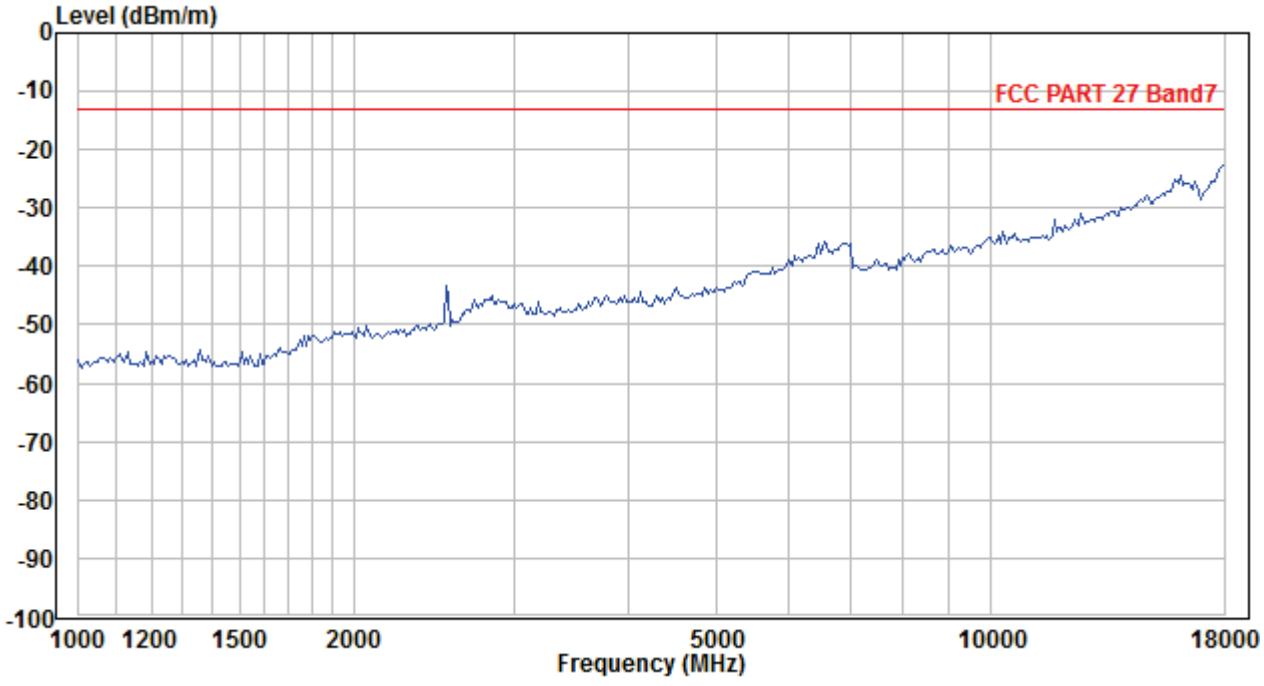


LTE Band 7_1GHz~18GHz

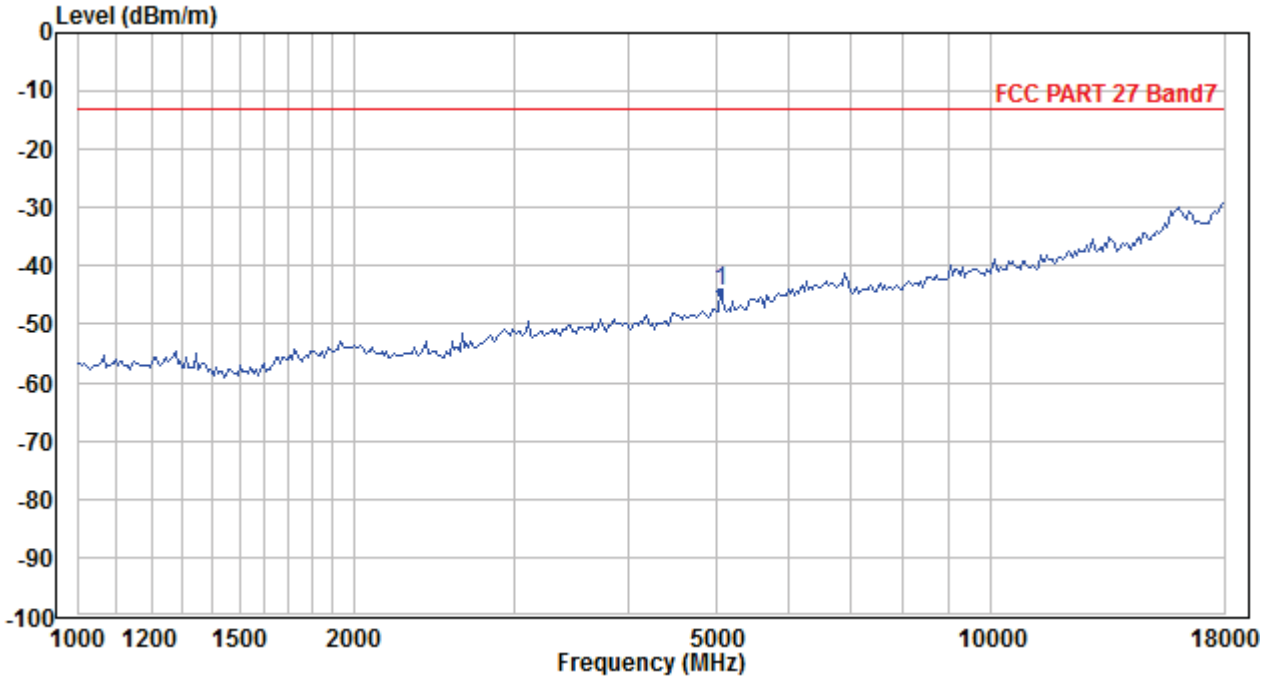
LTE Band 7; Bandwidth 5.0 MHz; Modulation: QPSK; RB:1;Mid Channel: 21100/2535MHz_Horizontal



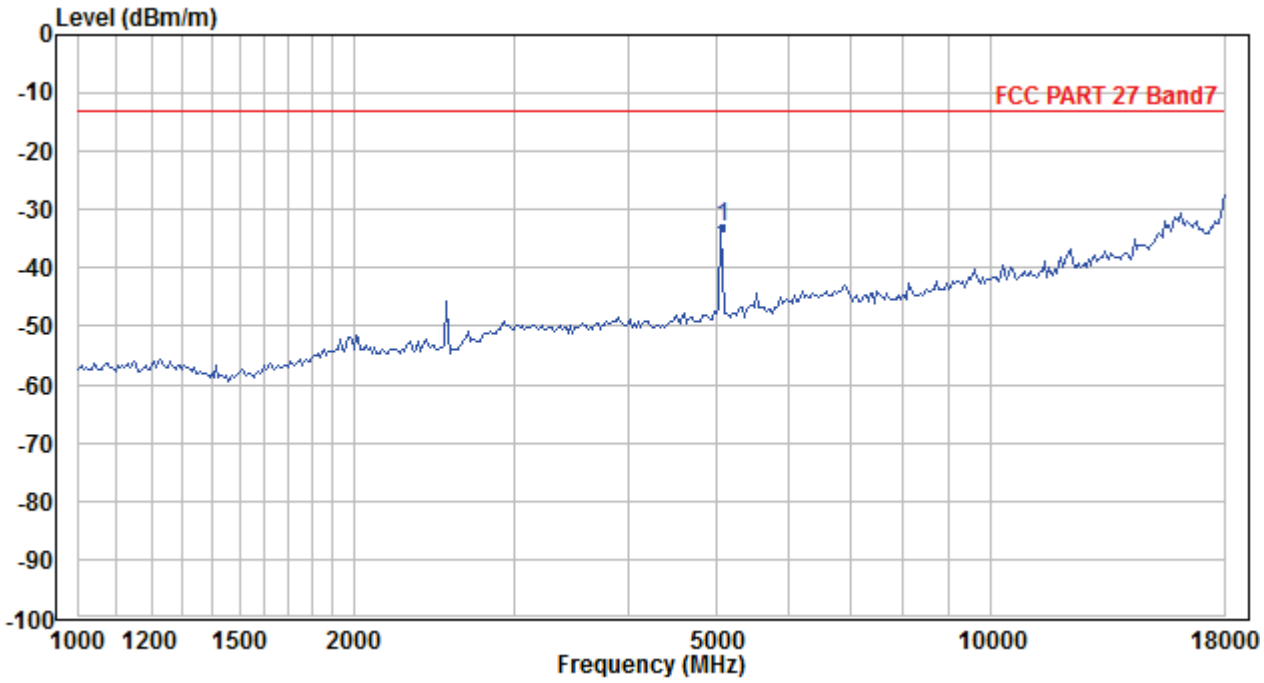
LTE Band 7; Bandwidth 5.0 MHz; Modulation: QPSK; RB:1; Mid Channel: 21100/2535MHz_Vertical



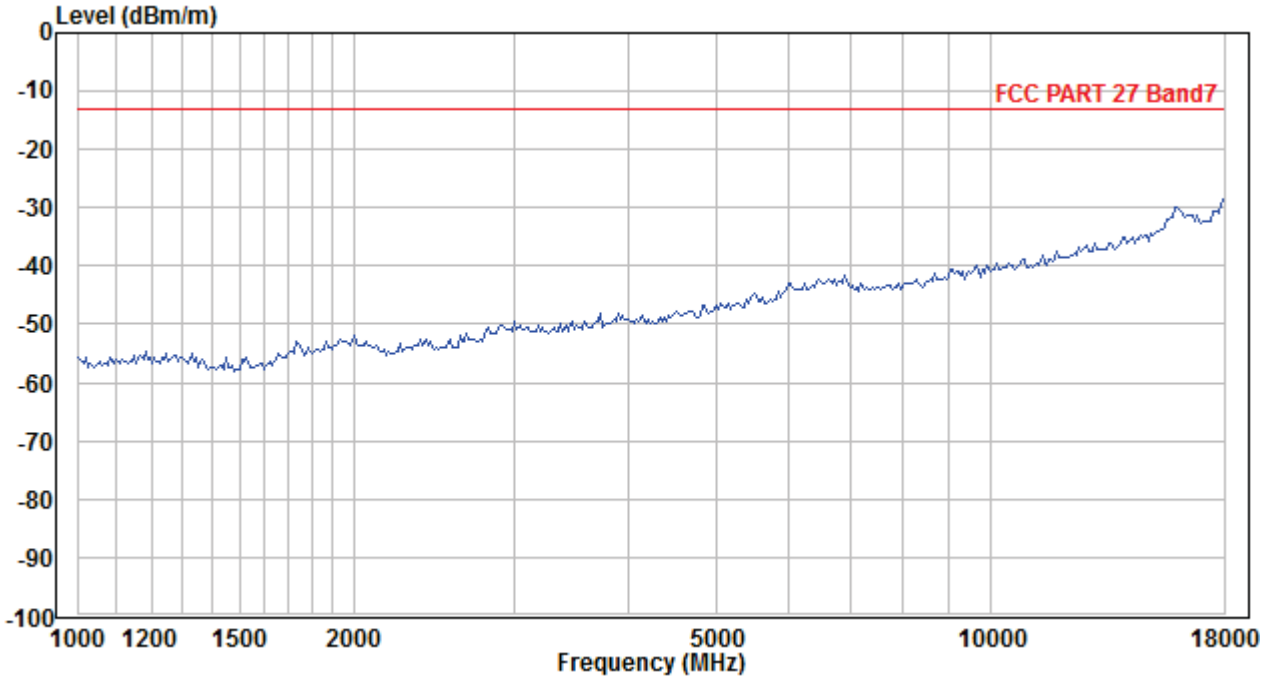
LTE Band 7; Bandwidth 10 MHz; Modulation: QPSK; RB:1;Mid Channel: 21100/2535MHz_Horizontal



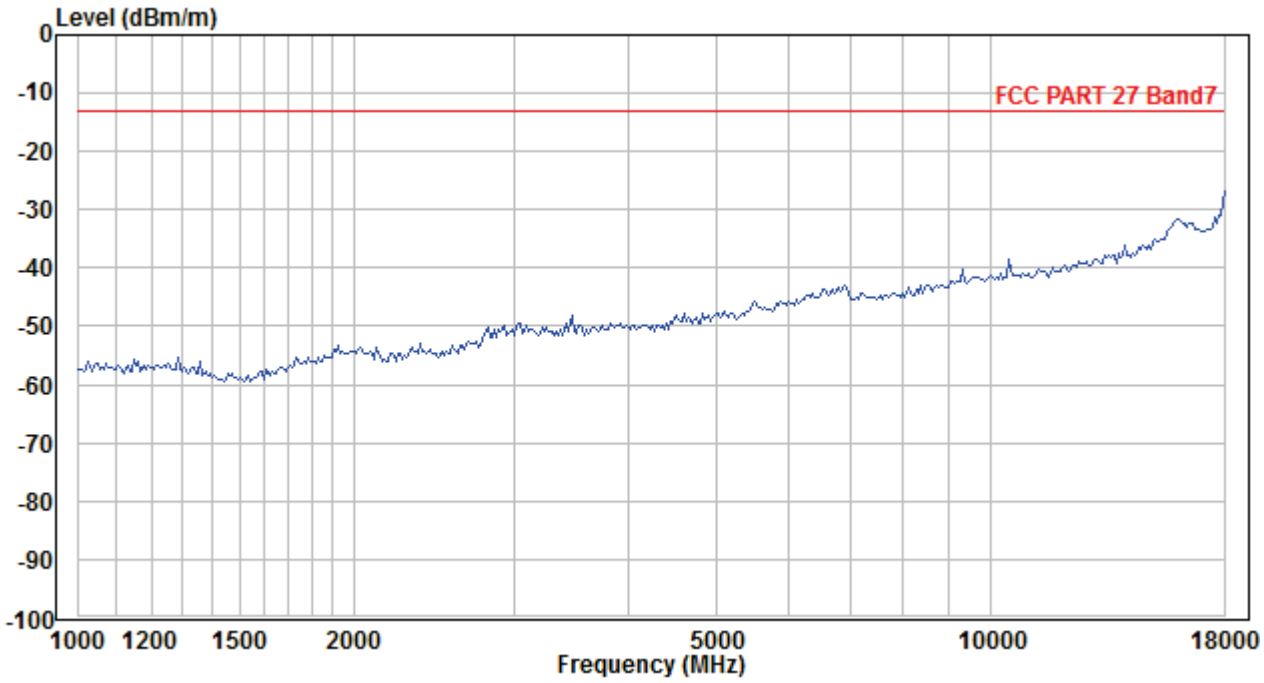
LTE Band 7; Bandwidth 10 MHz; Modulation: QPSK; RB:1; Mid Channel: 21100/2535MHz_Vertical



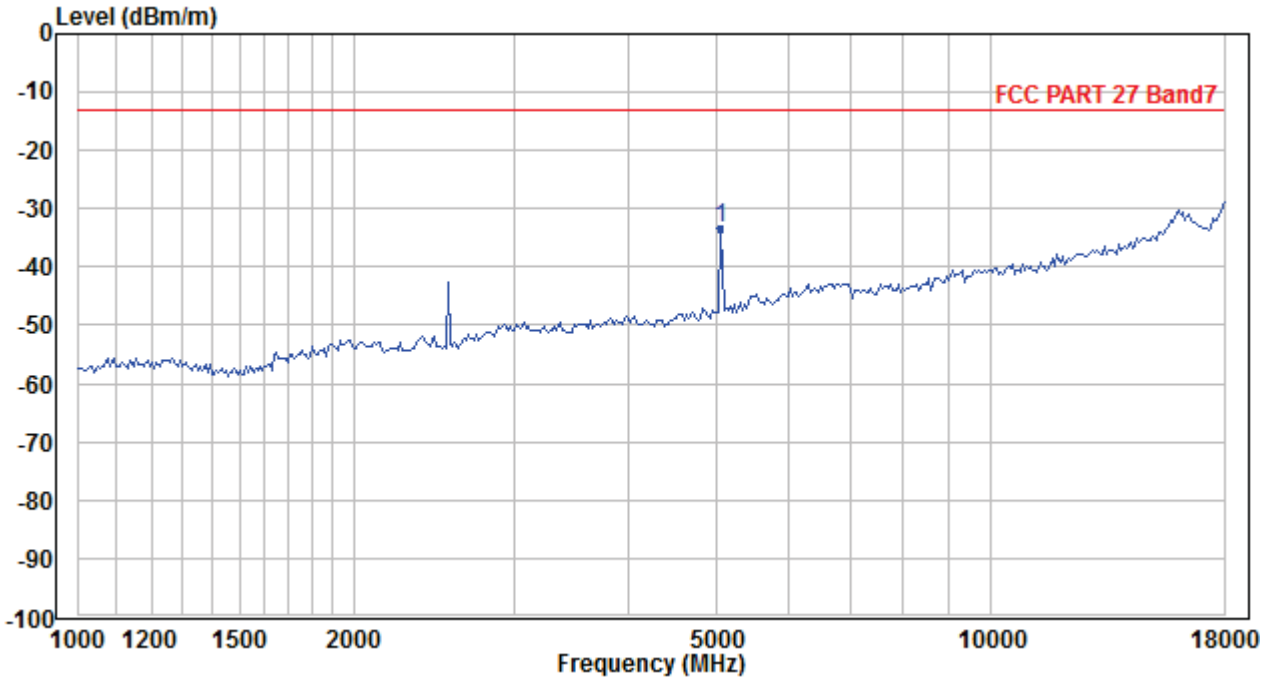
LTE Band 7; Bandwidth 15 MHz; Modulation: QPSK; RB:1;Mid Channel: 21100/2535MHz_Horizontal



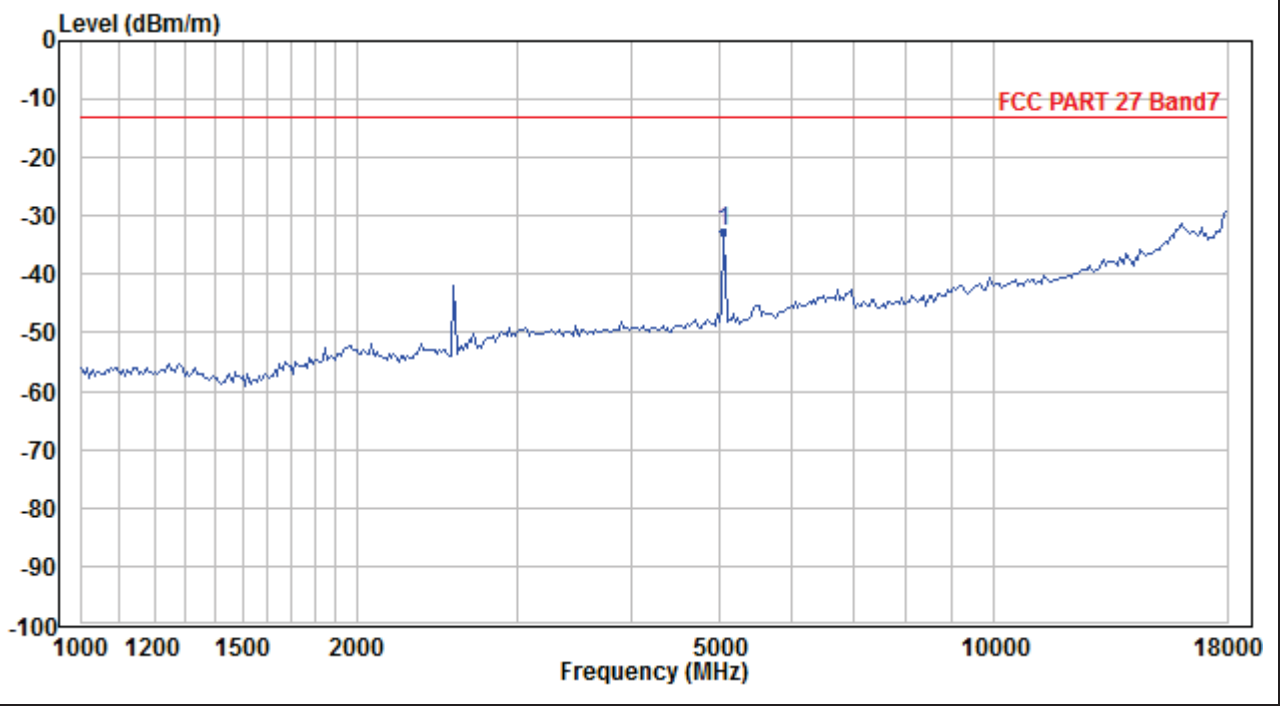
LTE Band 7; Bandwidth 15 MHz; Modulation: QPSK; RB:1; Mid Channel: 21100/2535MHz_Vertical



LTE Band 7; Bandwidth 20 MHz; Modulation: QPSK; RB:1;Mid Channel: 21100/2535MHz_Horizontal



LTE Band 7; Bandwidth 20 MHz; Modulation: QPSK; RB:1; Mid Channel: 21100/2535MHz_Vertical



Remark:

2) Scan from 9kHz to 27GHz, the disturbance above 18GHz and below 30MHz was very low. Therefore, the measurement values are not reflected in the report.

The End