



TESTING LABORATORY
CERTIFICATE #4820.01



FCC PART 27 MEASUREMENT AND TEST REPORT

For

YEALINK(XIAMEN) NETWORK TECHNOLOGY CO.,LTD.

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FCC ID: T2C-T67


Report Type: Original Report	Product Type: Prime LTE Desk Phone
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

EUT Name:	Prime LTE Desk Phone
EUT Model:	T67-LTE
Operation modes:	FDD-LTE
Operation Frequency:	LTE Band 4:1710-1755 MHz(TX), 2110-2155 MHz(RX) LTE Band 13: 777-787 MHz(TX), 746-756 MHz(RX)
Antenna Gain▲:	LTE B4: -2.6 dBi LTE B13: -2.6 dBi(-4.75dBd)
Modulation Type:	QPSK, 16QAM
Rated Input Voltage:	DC 12V from Adapter
Adapter Information	Model: YLPS121000C-US
	Input: AC 100-240V, 50/60Hz, 0.5A
	Output: DC 12V, 1.0A
Serial Number:	RSZ210316007-RF-S1
EUT Received Date:	2021.03.18
EUT Received Status:	Good

Note: the device built in a certified WLAN/Bluetooth Module, FCC ID: T2C-YL1023.

Objective

This report is prepared on behalf of **YEALINK(XIAMEN) NETWORK TECHNOLOGY CO.,LTD.** in accordance with: Part 2-Subpart J, Part 27 of the Federal Communications Commission's rules.

The objective is to determine compliance with FCC Rules for output power, modulation characteristic, occupied bandwidth, spurious emissions at antenna terminal, spurious radiated emission, frequency stability and band edge.

Related Submittal(s)/Grant(s)

No related submittal(s)/grant(s)

Test Methodology

All tests and measurements indicated in this document were performed in accordance with:

The Code of federal Regulations Title 47, Part 2, Part 27.

ANSI C63.26-2015, American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services

All emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Dongguan). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement Uncertainty

Parameter	Measurement Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±0.61dB
Unwanted Emissions, radiated	30MHz ~ 1GHz: 5.85 dB 1G~26.5GHz: 5.23 dB
Unwanted Emissions, conducted	±1.5 dB
Temperature	±1 °C
Humidity	±5%
DC and low frequency voltages	±0.4%
Duty Cycle	1%

Note: Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.12, Pulong East 1st Road, Tangxia Town, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 897218, the FCC Designation No. : CN1220.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0022.

Declarations

BACL is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol “▲”. Customer model name, addresses, names, trademarks etc. are not considered data.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

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SYSTEM TEST CONFIGURATION

Justification

The EUT was configured for testing according to ANSI C63.26-2015.

The test items were performed with the EUT operating at testing mode. The device operates on LTE band 4/13, test was performed with channels as below table:

Frequency Bands	Bandwidth (MHz)	Test Frequency(MHz)		
		Low	Middle	High
LTE Band 4	1.4	1710.7	1732.5	1754.3
	3	1711.5	1732.5	1753.5
	5	1712.5	1732.5	1752.5
	10	1715	1732.5	1750
	15	1717.5	1732.5	1747.5
	20	1720	1732.5	1745
LTE Band 13	5	779.5	782	784.5
	10	/	782	/

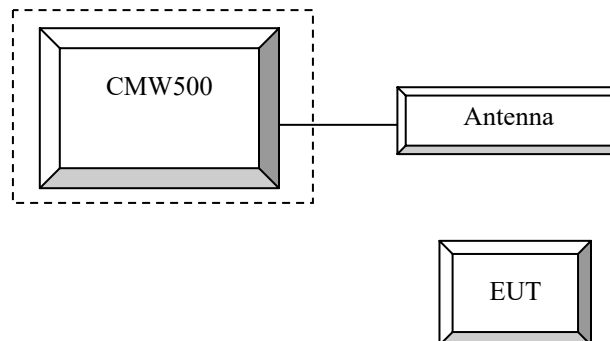
Equipment Modifications

No modification was made to the EUT.

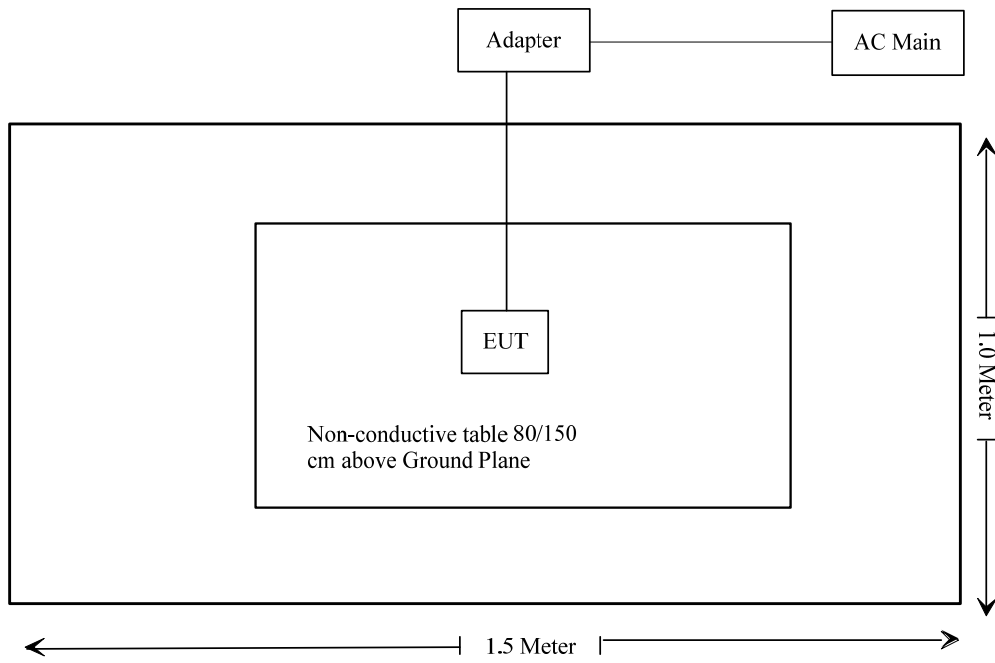
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
R&S	Wideband Radio Communication Tester	CMW500	147473
Un-Known	ANTENNA	Un-Known	Un-Known

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

Rules	Description of Test	Result
FCC§1.1310, §2.1091	Maximum Permissible Exposure (MPE)	Compliance
FCC§2.1046 ;§27.50	RF Output Power	Compliance
FCC§ 2.1047	Modulation Characteristics	Not Applicable
FCC§ 2.1049; §27.53	Occupied Bandwidth	Compliance
FCC§ 2.1051, §27.53	Spurious Emissions at Antenna Terminal	Compliance
FCC§ 2.1053 §27.53	Field Strength of Spurious Radiation	Compliance
FCC§27.53;	Out of band emission, Band Edge	Compliance
FCC§ 2.1055 §27.54	Frequency stability vs. temperature Frequency stability vs. voltage	Compliance

FCC§1.1310 & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to subpart §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission’s guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm²)	Averaging Time (minutes)
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	30
30–300	27.5	0.073	0.2	30
300–1500	/	/	f/1500	30
1500–100,000	/	/	1.0	30

f = frequency in MHz; * = Plane-wave equivalent power density;

According to §1.1310 and §2.1091 RF exposure is calculated.

Calculation formula:

Prediction of power density at the distance of the applicable MPE limit

S = PG/4πR² = power density (in appropriate units, e.g. mW/cm²);

P = power input to the antenna (in appropriate units, e.g., mW);

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

For simultaneously transmit system, the calculated power density should comply with:

$$\sum_i \frac{S_i}{S_{Limit,i}} \leq 1$$

Calculated Data:

Mode	Frequency (MHz)	Antenna Gain		Conducted output power including Tune-up Tolerance		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
		(dBi)	(numeric)	(dBm)	(mW)			
LTE B4	1710-1755	-2.6	0.55	23	199.53	20.00	0.022	1.0
LTE B13	777-787	-2.6	0.55	24	251.19	20.00	0.028	0.52
WLAN 2.4G	2412-2462	3	2.00	20	100.00	20.00	0.04	1.0
WLAN 5G	5180-5825	3	2.00	17	50.12	20.00	0.02	1.0
Bluetooth	2402-2480	3	2.00	7	5.01	20.00	0.002	1.0

The WLAN 2.4G, 5G or Bluetooth can't transmit simultaneously, can transmit simultaneously with WWAN:

$$\sum_i \frac{S_i}{S_{Limit,i}}$$

$$= S_{WLAN} / S_{limit-WLAN} + S_{WWAN} / S_{limit-WWAN}$$

$$= 0.04 / 1 + 0.028 / 0.52$$

$$= 0.09$$

$$< 1.0$$

Result: The device meet FCC MPE at 20 cm distance

FCC §2.1047 - MODULATION CHARACTERISTIC

According to FCC § 2.1047(d), part 27 there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

FCC § 2.1046, § 27.50- RF OUTPUT POWER

Applicable Standard

According to §27.50

(a)(3) Mobile and portable stations. (i) For mobile and portable stations transmitting in the 2305-2315 MHz band or the 2350-2360 MHz band, the average EIRP must not exceed 50 milliwatts within any 1 megahertz of authorized bandwidth, except that for mobile and portable stations compliant with 3GPP LTE standards or another advanced mobile broadband protocol that avoids concentrating energy at the edge of the operating band the average EIRP must not exceed 250 milliwatts within any 5 megahertz of authorized bandwidth but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth. For mobile and portable stations using time division duplexing (TDD) technology, the duty cycle must not exceed 38 percent in the 2305-2315 MHz and 2350-2360 MHz bands. Mobile and portable stations using FDD technology are restricted to transmitting in the 2305-2315 MHz band. Power averaging shall not include intervals in which the transmitter is off.

(b)(10) Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

(c) (10) Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

(d), (4) Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP. Fixed stations operating in the 1710-1755 MHz band are limited to a maximum antenna height of 10 meters above ground. Mobile and portable stations operating in these bands must employ a means for limiting power to the minimum necessary for successful communications.

(h),(2) Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

Test Procedure

LTE (FDD):

The following tests were conducted according to the test requirements in 3GPP TS36.101

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

Modulation	Channel bandwidth / Transmission bandwidth (RB)						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of "NS_01".

Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)

Network Signalling value	Requirements (sub-clause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	NA
NS_03	6.6.2.2.1	2, 4, 10, 23, 25, 35, 36	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2	41	5	>6	≤ 1
			10, 15, 20	See Table 6.2.4-4	
NS_05	6.6.3.3.1	1	10,15,20	≥ 50	≤ 1
NS_06	6.6.2.2.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.6-1	n/a
NS_07	6.6.2.2.3	13	10	Table 6.2.4-2	Table 6.2.4-2
	6.6.3.3.2				
NS_08	6.6.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
NS_10		20	15, 20	Table 6.2.4-3	Table 6.2.4-3
NS_11	6.6.2.2.1	23 ¹	1.4, 3, 5, 10	Table 6.2.4-5	Table 6.2.4-5
..					
NS_32	-	-	-	-	-

Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A
E-Microwave	Blocking Control	EMDCB-00036	0E01201047	Each time	N/A
Unknown	Attenuator	UNAT-3+	15529	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	147473	2020-09-23	2021-09-22

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data**Environmental Conditions**

Temperature:	24.1 °C
Relative Humidity:	61%
ATM Pressure:	100.8 kPa
Tester:	Rita Huang
Test Date:	2021-03-29

Test Result: Compliance

LTE Band 4

Conducted Output Power:

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	RB1#0	22.80	22.43	22.51
		RB1#3	22.71	22.45	22.70
		RB1#5	22.73	22.61	22.38
		RB3#0	22.38	22.48	22.49
		RB3#3	22.38	22.45	22.72
	16QAM	RB6#0	21.50	21.47	21.54
		RB1#0	21.47	21.77	21.39
		RB1#3	21.59	22.01	21.33
		RB1#5	21.62	21.85	21.39
		RB3#0	21.40	21.79	21.44
3MHz	QPSK	RB3#3	21.32	21.70	21.42
		RB6#0	20.47	20.88	20.54
		RB1#0	22.15	22.46	22.27
		RB1#8	22.16	22.53	22.17
		RB1#14	22.44	22.41	22.24
	16QAM	RB6#9	21.10	21.32	21.36
		RB15#0	21.15	21.54	21.28
		RB1#0	21.27	22.26	21.82
		RB1#8	21.08	21.56	21.98
		RB1#14	21.07	21.38	22.02
5MHz	QPSK	RB6#0	20.16	20.47	20.52
		RB6#9	20.22	20.36	20.47
		RB15#0	20.25	20.36	20.68
		RB1#0	22.12	22.35	22.29
		RB1#13	22.13	22.21	22.34
	16QAM	RB1#24	22.23	22.28	22.46
		RB15#0	21.03	21.38	21.28
		RB15#10	21.03	21.27	21.34
		RB25#0	21.01	21.30	21.30
		RB1#0	21.31	20.87	21.40
10MHz	QPSK	RB1#13	21.64	20.89	21.28
		RB1#24	21.61	21.16	21.51
		RB15#0	19.94	20.38	20.44
		RB15#10	20.14	20.28	20.60
		RB25#0	20.15	20.40	20.60
	16QAM	RB1#0	22.27	22.50	22.49
		RB1#25	22.79	22.35	22.52
		RB1#49	22.46	22.46	22.41
		RB25#0	21.25	21.35	21.39
		RB25#25	21.44	21.28	21.33
16QAM	RB50#0	21.37	21.33	21.33	
	RB1#0	21.73	21.54	21.69	
	RB1#25	22.39	21.10	22.17	
	RB1#49	22.40	21.06	21.62	
	RB25#0	20.32	20.48	20.58	
		RB25#25	20.50	20.30	20.52
		RB50#0	20.38	20.34	20.46

15MHz	QPSK	RB1#0	22.31	22.15	22.44
		RB1#38	22.33	22.17	22.34
		RB1#74	22.40	22.30	22.36
		RB36#0	21.07	21.36	21.26
		RB36#39	21.35	21.16	21.34
		RB75#0	21.20	21.22	21.26
	16QAM	RB1#0	21.52	21.11	21.57
		RB1#38	21.66	20.71	21.48
		RB1#74	21.83	20.60	21.58
		RB36#0	19.97	20.41	20.36
		RB36#39	20.57	20.24	20.39
		RB75#0	20.25	20.29	20.32
20MHz	QPSK	RB1#0	22.16	22.31	22.37
		RB1#50	22.87	22.35	22.22
		RB1#99	22.51	22.48	22.28
		RB50#0	21.27	21.38	21.32
		RB50#50	21.71	21.22	21.32
		RB100#0	21.38	21.31	21.28
	16QAM	RB1#0	21.39	21.37	22.15
		RB1#50	21.84	21.19	22.20
		RB1#99	21.97	20.69	22.31
		RB50#0	20.44	20.42	20.46
		RB50#50	20.63	20.29	20.36
		RB100#0	20.35	20.30	20.49

PAR:

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	20 MHz	4.26	4.43	4.43	13
	100 RB		3.97	4.90	3.88	13
16QAM	1 RB	20 MHz	5.30	5.36	5.22	13
	100 RB		5.65	5.94	5.59	13

EIRP:

Channel Bandwidth	Modulation	Channel	Conducted Power (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	Result (dBm)	Limit (dBm)
1.4MHz	QPSK	Low	22.80	-2.60	0.70	19.50	30
		Middle	22.61	-2.60	0.70	19.31	30
		High	22.72	-2.60	0.70	19.42	30
	16QAM	Low	21.62	-2.60	0.70	18.32	30
		Middle	22.01	-2.60	0.70	18.71	30
		High	21.44	-2.60	0.70	18.14	30
3MHz	QPSK	Low	22.44	-2.60	0.70	19.14	30
		Middle	22.53	-2.60	0.70	19.23	30
		High	22.27	-2.60	0.70	18.97	30
	16QAM	Low	21.27	-2.60	0.70	17.97	30
		Middle	22.26	-2.60	0.70	18.96	30
		High	22.02	-2.60	0.70	18.72	30
5MHz	QPSK	Low	22.23	-2.60	0.70	18.93	30
		Middle	22.35	-2.60	0.70	19.05	30
		High	22.46	-2.60	0.70	19.16	30
	16QAM	Low	21.64	-2.60	0.70	18.34	30
		Middle	21.16	-2.60	0.70	17.86	30
		High	21.51	-2.60	0.70	18.21	30
10MHz	QPSK	Low	22.79	-2.60	0.70	19.49	30
		Middle	22.50	-2.60	0.70	19.20	30
		High	22.52	-2.60	0.70	19.22	30
	16QAM	Low	22.40	-2.60	0.70	19.10	30
		Middle	21.54	-2.60	0.70	18.24	30
		High	22.17	-2.60	0.70	18.87	30
15MHz	QPSK	Low	22.40	-2.60	0.70	19.10	30
		Middle	22.30	-2.60	0.70	19.00	30
		High	22.44	-2.60	0.70	19.14	30
	16QAM	Low	21.83	-2.60	0.70	18.53	30
		Middle	21.11	-2.60	0.70	17.81	30
		High	21.58	-2.60	0.70	18.28	30
20MHz	QPSK	Low	22.87	-2.60	0.70	19.57	30
		Middle	22.48	-2.60	0.70	19.18	30
		High	22.37	-2.60	0.70	19.07	30
	16QAM	Low	21.97	-2.60	0.70	18.67	30
		Middle	21.37	-2.60	0.70	18.07	30
		High	22.31	-2.60	0.70	19.01	30

LTE Band 13

Conducted Output Power:

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	RB1#0	23.05	22.95	22.96
		RB1#13	23.07	22.84	23.03
		RB1#24	22.97	23.05	23.02
		RB15#0	22.20	22.08	22.13
		RB15#10	22.15	22.06	22.13
	16QAM	RB25#0	22.26	22.14	22.14
		RB1#0	22.17	21.87	22.45
		RB1#13	21.62	21.63	22.67
		RB1#24	21.48	21.83	22.77
		RB15#0	21.18	21.21	20.96
		RB15#10	20.93	20.93	20.96
10MHz	QPSK	RB25#0	21.26	21.35	21.02
		RB1#0	/	23.07	/
		RB1#25	/	23.12	/
		RB1#49	/	23.19	/
		RB25#0	/	22.14	/
		RB25#25	/	22.07	/
	16QAM	RB50#0	/	22.05	/
		RB1#0	/	22.33	/
		RB1#25	/	21.99	/
		RB1#49	/	22.48	/
		RB25#0	/	21.20	/
RB25#25	/	21.04	/		
RB50#0	/	21.09	/		

PAR:

Test Modulation		Channel Bandwidth	Low Channel (dB)	Middle Channel (dB)	High Channel (dB)	Limit (dB)
QPSK	N1#0	10 MHz	/	4.52	/	13.00
	RB50#0		/	5.48	/	13.00
16QAM	N1#0	10 MHz	/	5.51	/	13.00
	RB50#0		/	6.46	/	13.00

EIRP:

Channel Bandwidth	Modulation	Channel	Conducted Power (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	Result (dBm)	Limit (dBm)
5MHz	QPSK	Low	23.07	-4.75	0.40	17.92	34.77
		Middle	23.05	-4.75	0.40	17.90	34.77
		High	23.03	-4.75	0.40	17.88	34.77
	16QAM	Low	22.17	-4.75	0.40	17.02	34.77
		Middle	21.87	-4.75	0.40	16.72	34.77
		High	22.77	-4.75	0.40	17.62	34.77
10MHz	QPSK	Middle	23.19	-4.75	0.40	18.04	34.77
	16QAM	Middle	22.48	-4.75	0.40	17.33	34.77

Note:

- 1) The unit of Antenna Gain is dBd for frequency below 1GHz, and the unit of Antenna Gain is dBi for frequency above 1GHz.
- 2) Result = Conducted Power - Cable loss + Antenna Gain
- 3) Antenna gain(dBd)= Antenna gain(dBi)-2.15

FCC §2.1049, §27.53- OCCUPIED BANDWIDTH

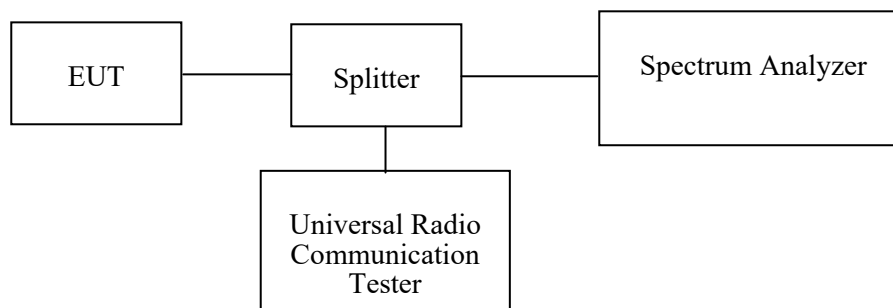
Applicable Standard

FCC §2.1049, and §27.53.

Test Procedure

The RF output of the transmitter was connected to the simulator and the spectrum analyzer through sufficient attenuation.

The 26 dB & 99% bandwidth was recorded.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101474	2020-07-07	2021-07-07
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41005011	Each time	N/A
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A
E-Microwave	Blocking Control	EMDCB-00036	0E01201047	Each time	N/A
Unknown	Attenuator	UNAT-3+	15529	Each time	N/A
E-Microwave	Two-way Splitter	ODP-1-6-2S	OE0120142	Each time	N/A

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	24.1 °C
Relative Humidity:	61%
ATM Pressure:	100.8kPa
Tester:	Rita Huang
Test Date:	2021-03-29

Test Mode: Transmitting

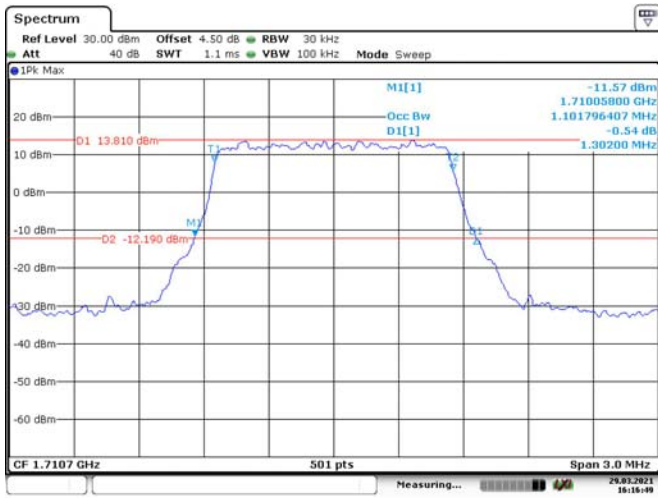
Test Result: Compliance. Please refer to the following table and plots.

LTE Bands:

Band	Bandwidth (MHz)	Modulation mode	Low Channel		Middle Channel		High Channel	
			99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)
LTE Band 4	1.4 MHz	QPSK	1.102	1.302	1.108	1.326	1.102	1.290
		16QAM	1.108	1.314	1.096	1.308	1.096	1.302
	3 MHz	QPSK	2.695	2.952	2.695	2.964	2.695	2.952
		16QAM	2.683	2.964	2.683	2.952	2.695	2.952
	5 MHz	QPSK	4.511	5.020	4.511	5.000	4.511	5.040
		16QAM	4.511	5.040	4.531	5.060	4.531	5.040
	10 MHz	QPSK	8.942	9.720	8.942	9.720	8.942	9.720
		16QAM	8.942	9.720	8.901	9.760	8.942	9.720
	15 MHz	QPSK	13.473	14.880	13.473	14.760	13.473	14.880
		16QAM	13.473	14.760	13.473	14.820	13.533	14.880
	20 MHz	QPSK	17.964	19.600	17.964	19.280	17.804	19.280
		16QAM	17.964	19.440	17.884	19.520	17.884	19.440
LTE Band 13	5 MHz	QPSK	4.531	5.040	4.511	5.040	4.511	5.000
		16QAM	4.511	5.040	4.531	5.040	4.531	5.040
	10 MHz	QPSK	/	/	8.981	9.840	/	/
		16QAM	/	/	8.942	9.720	/	/

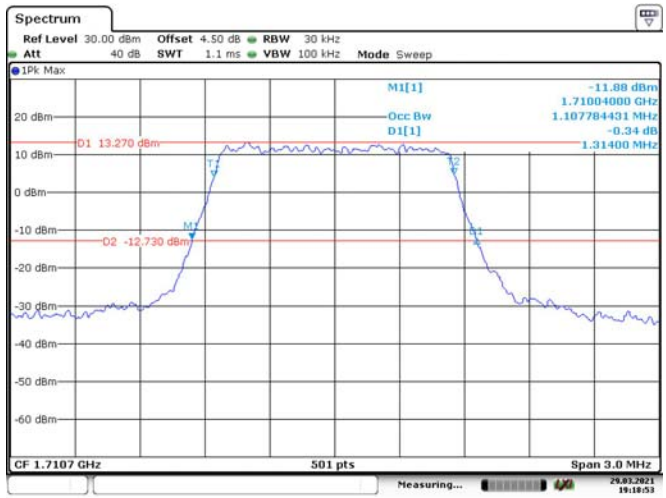
LTE Band 4:

1.4M, QPSK, Low Channel



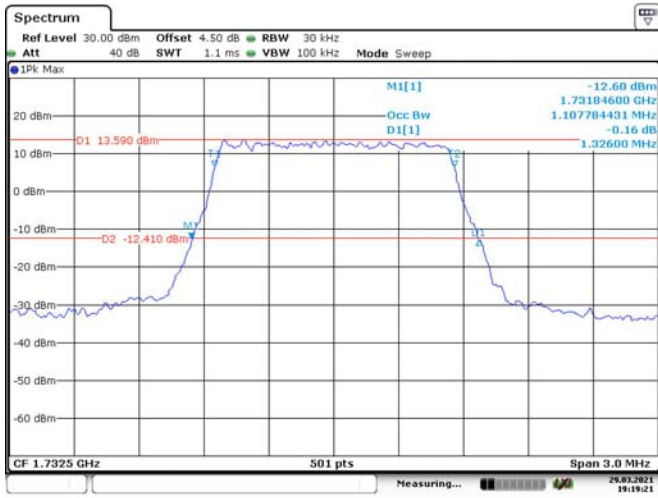
Date: 29.MAR.2021 16:16:50

1.4M, 16QAM, Low Channel



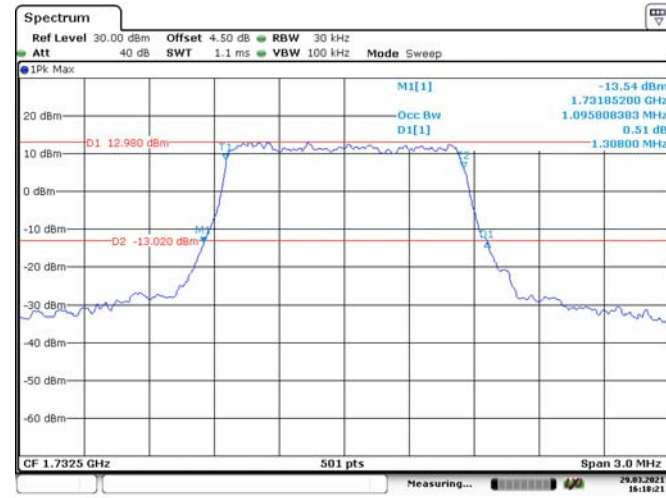
Date: 29.MAR.2021 19:18:54

1.4M, QPSK, Middle Channel



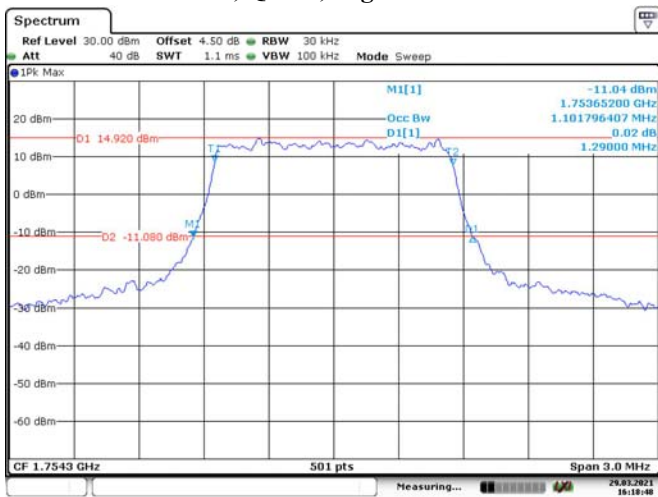
Date: 29.MAR.2021 19:19:21

1.4M, 16QAM, Middle Channel



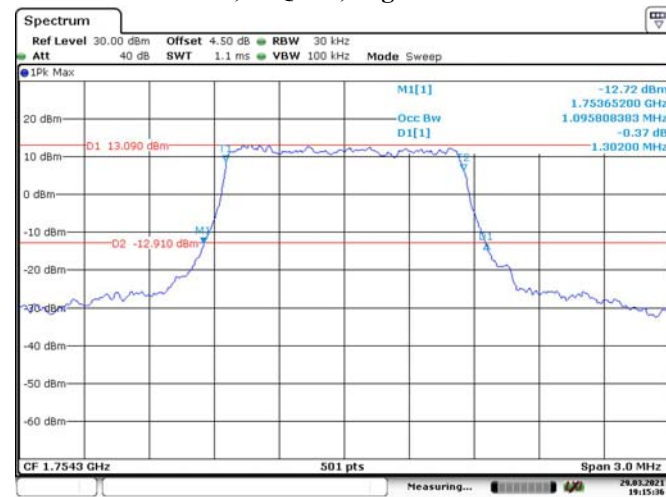
Date: 29.MAR.2021 16:18:22

1.4M, QPSK, High Channel



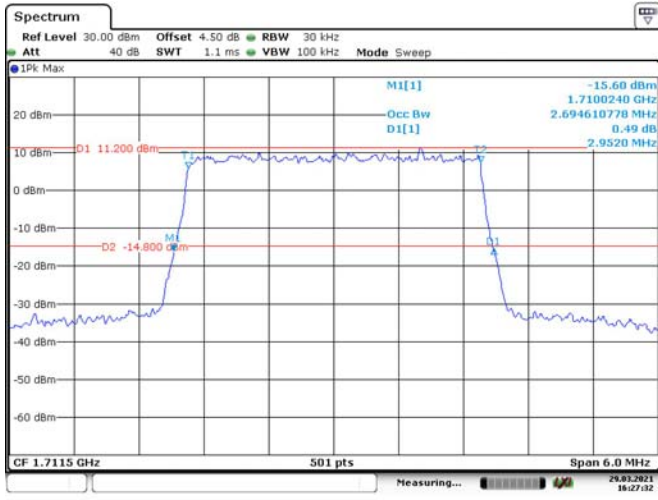
Date: 29.MAR.2021 16:18:48

1.4M, 16QAM, High Channel

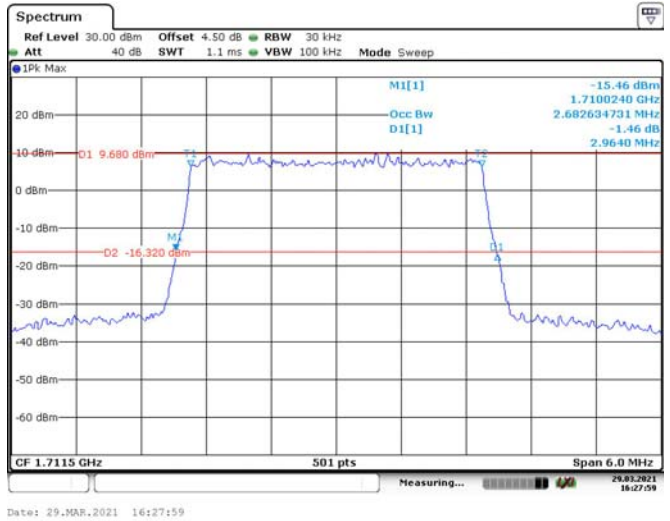


Date: 29.MAR.2021 19:15:37

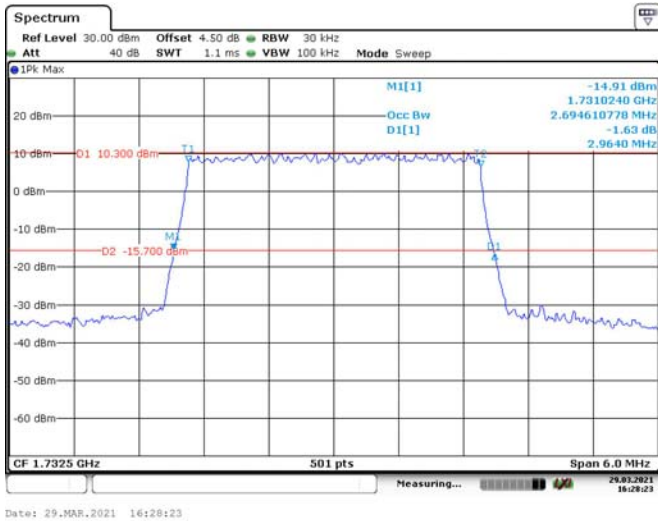
3M, QPSK, Low Channel



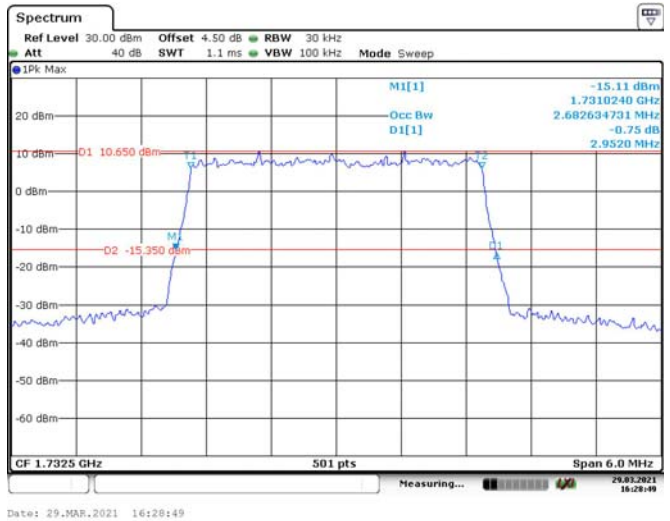
3M, 16QAM, Low Channel



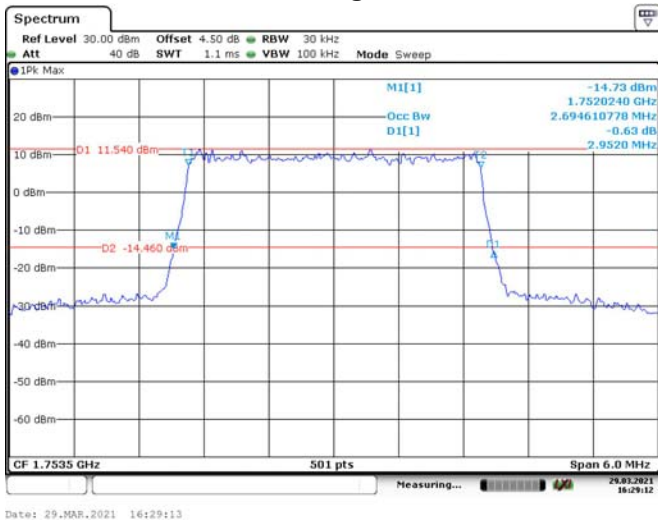
3M, QPSK, Middle Channel



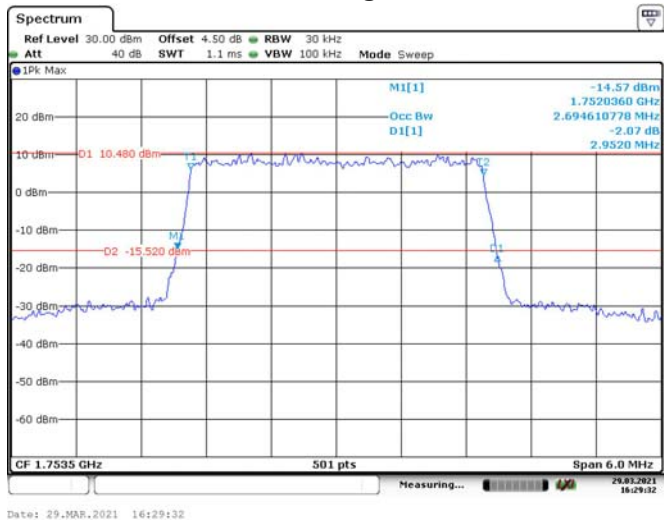
3M, 16QAM, Middle Channel



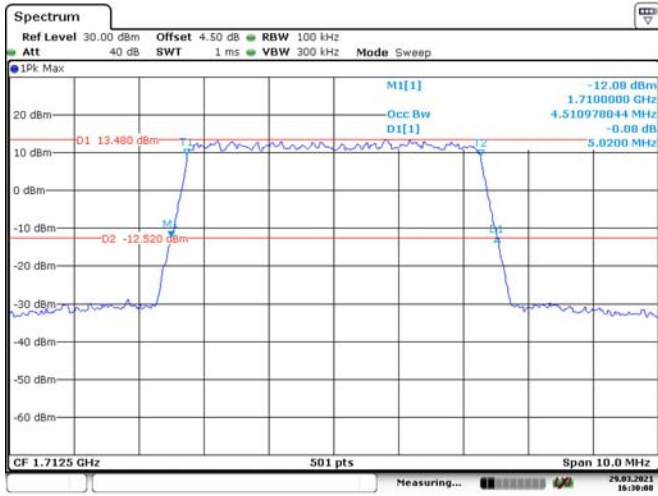
3M, QPSK, High Channel



3M, 16QAM, High Channel

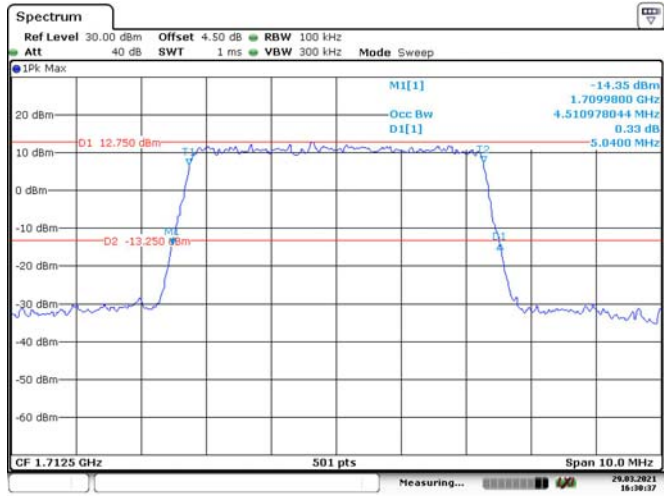


5M, QPSK, Low Channel



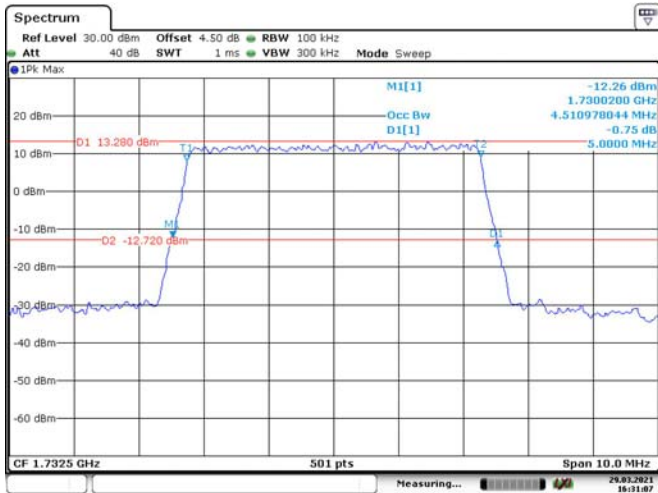
Date: 29.MAR.2021 16:30:09

5M, 16QAM, Low Channel



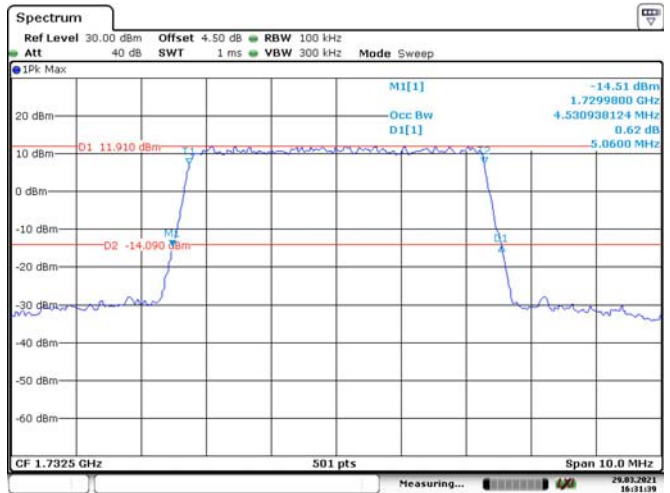
Date: 29.MAR.2021 16:30:38

5M, QPSK, Middle Channel



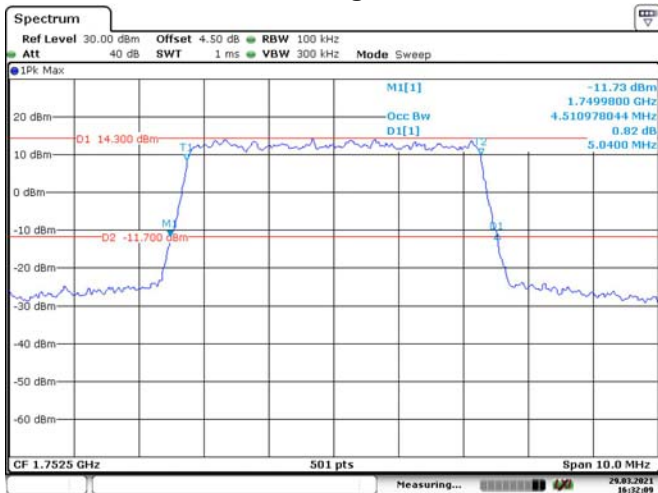
Date: 29.MAR.2021 16:31:08

5M, 16QAM, Middle Channel



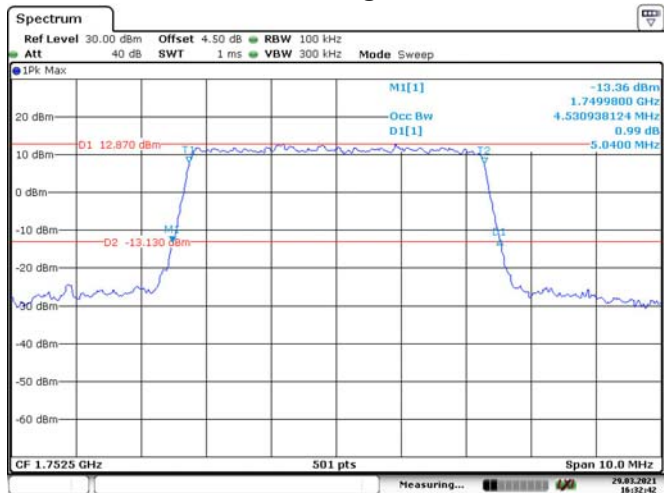
Date: 29.MAR.2021 16:31:40

5M, QPSK, High Channel



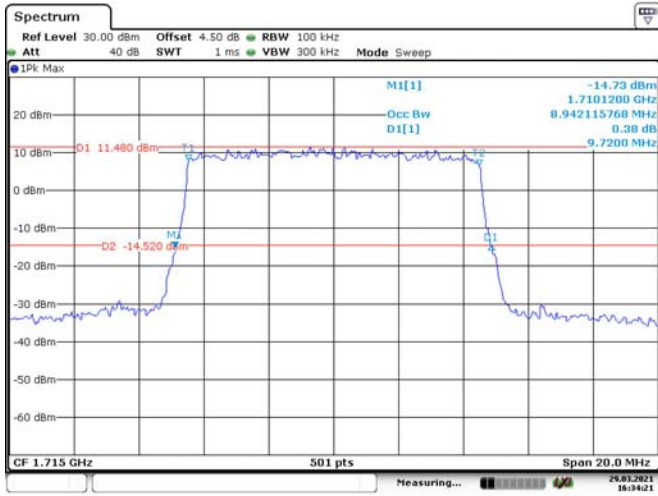
Date: 29.MAR.2021 16:32:10

5M, 16QAM, High Channel

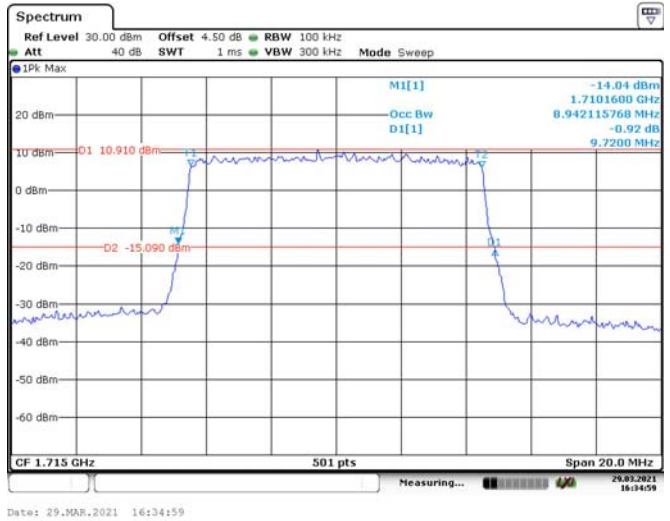


Date: 29.MAR.2021 16:32:42

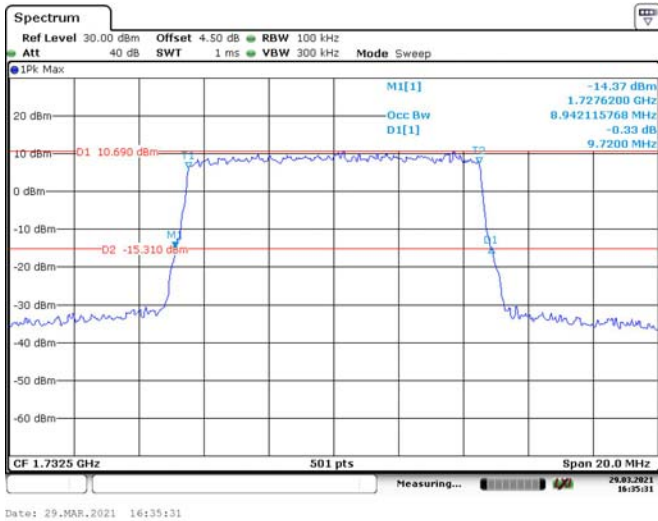
10M, QPSK, Low Channel



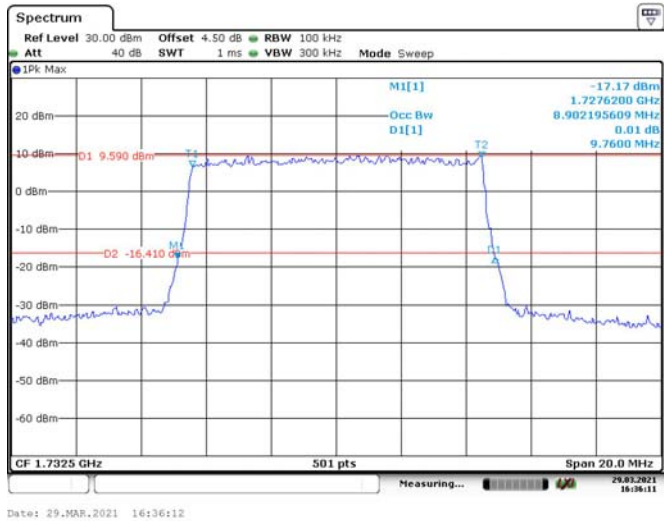
10M, 16QAM, Low Channel



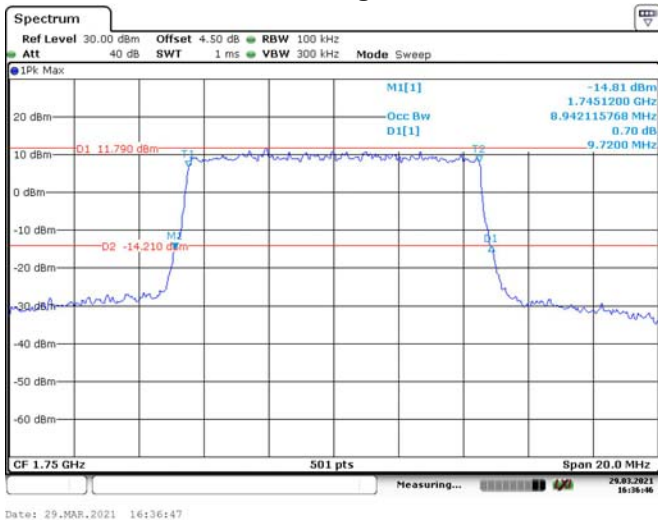
10M, QPSK, Middle Channel



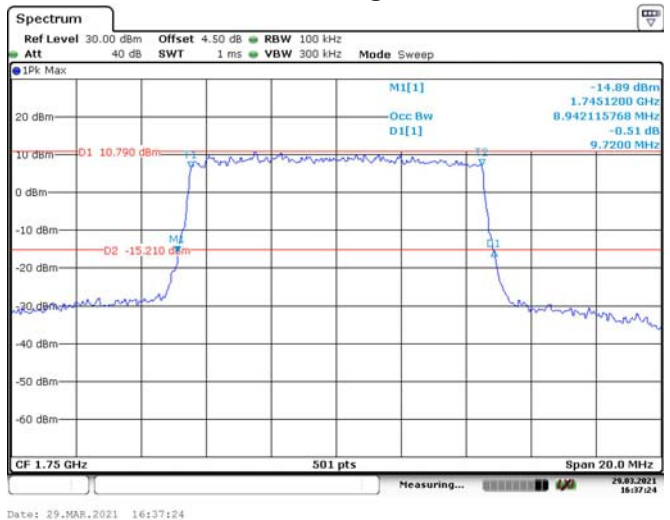
10M, 16QAM, Middle Channel



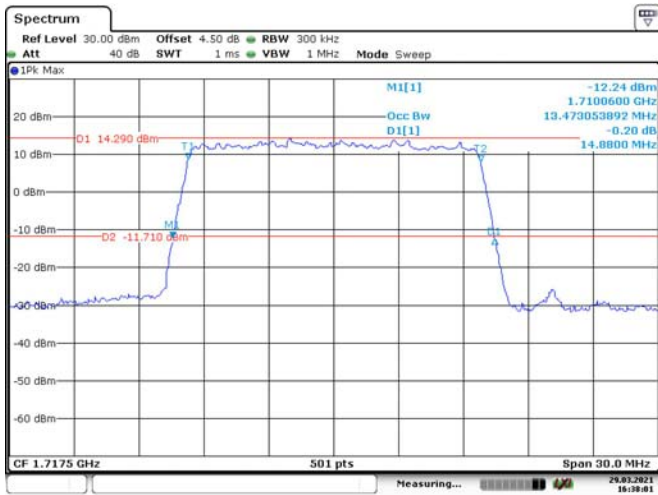
10M, QPSK, High Channel



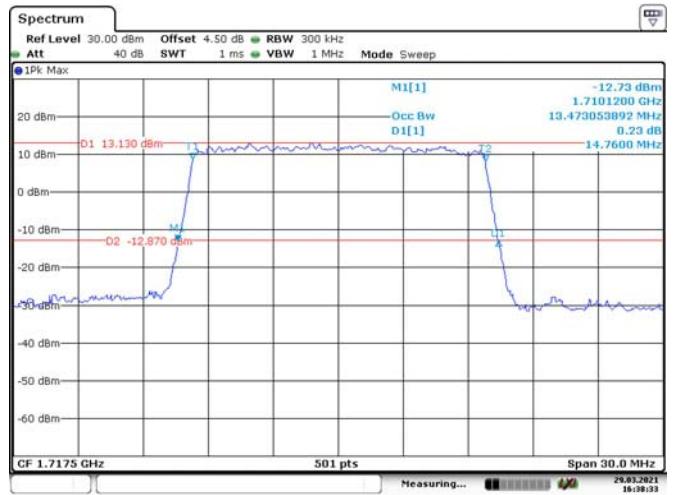
10M, 16QAM, High Channel



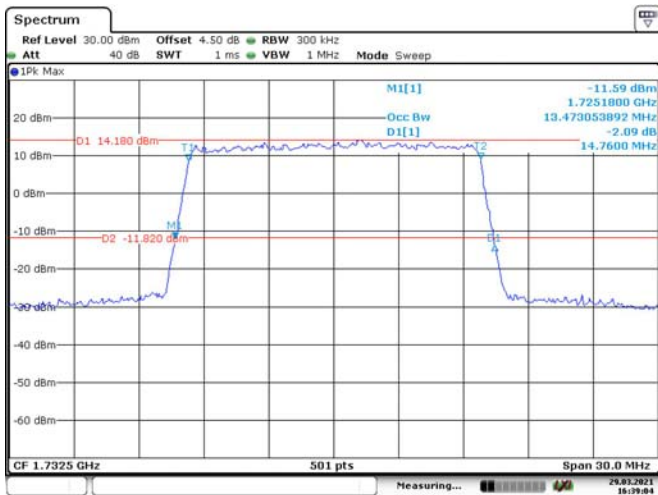
15M, QPSK, Low Channel



15M, 16QAM, Low Channel



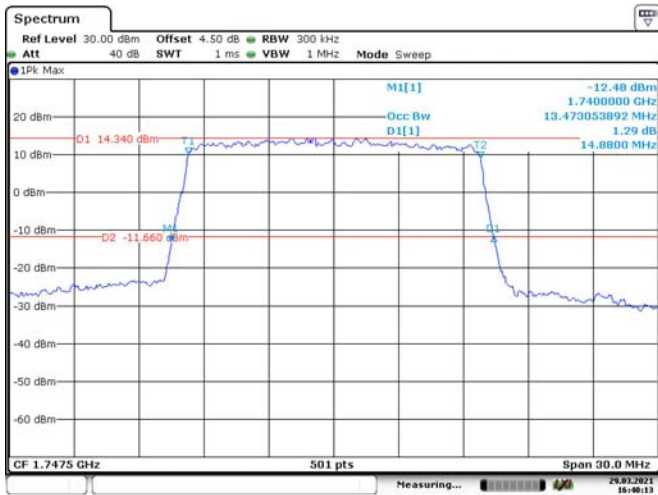
15M, QPSK, Middle Channel



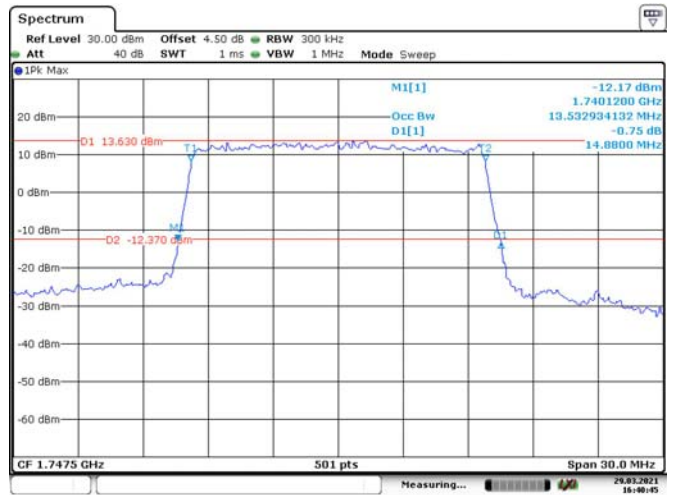
15M, 16QAM, Middle Channel



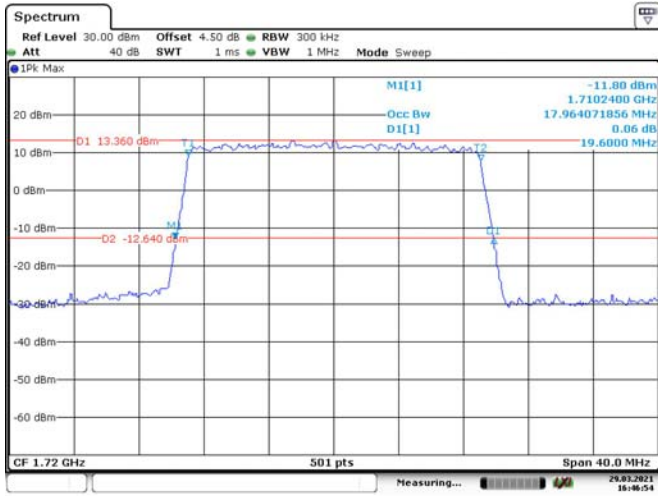
15M, QPSK, High Channel



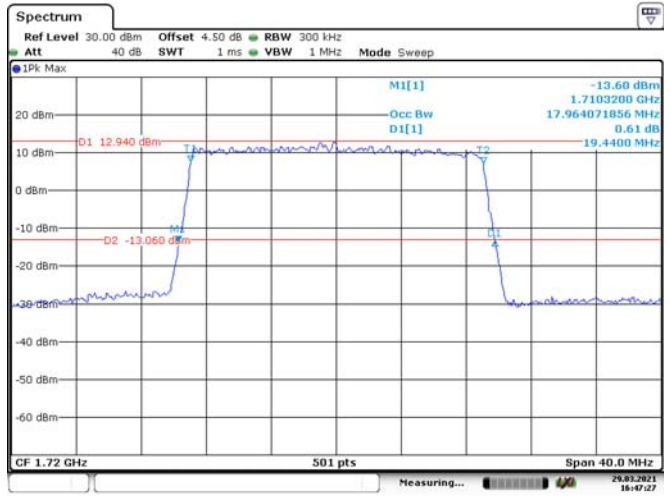
15M, 16QAM, High Channel



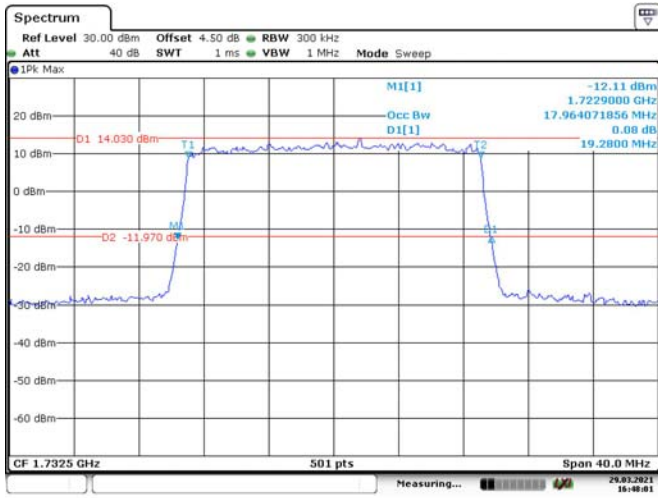
20M, QPSK, Low Channel



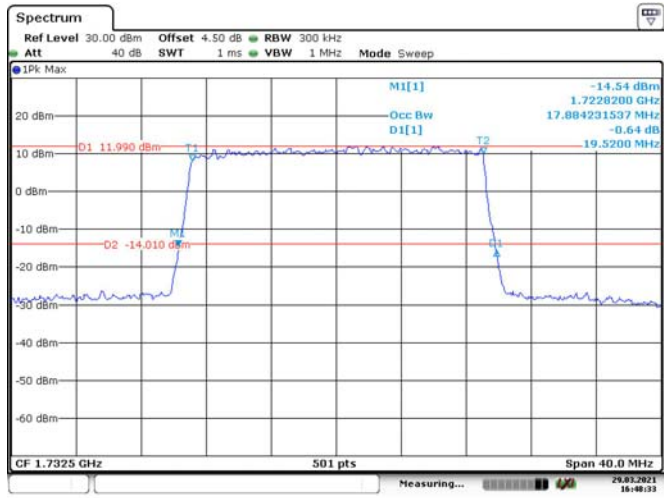
20M, 16QAM, Low Channel



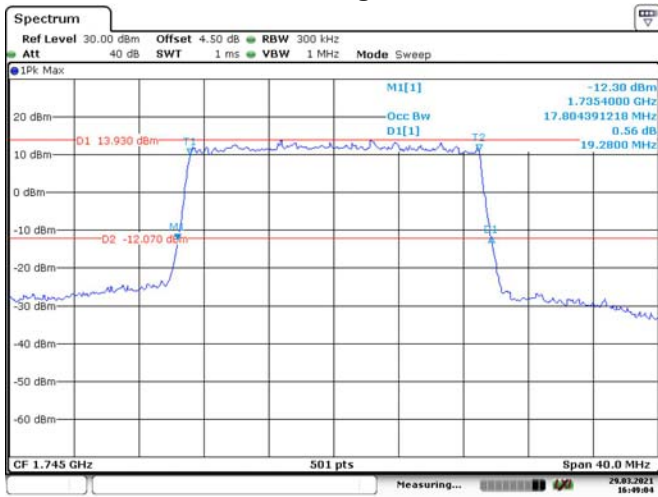
20M, QPSK, Middle Channel



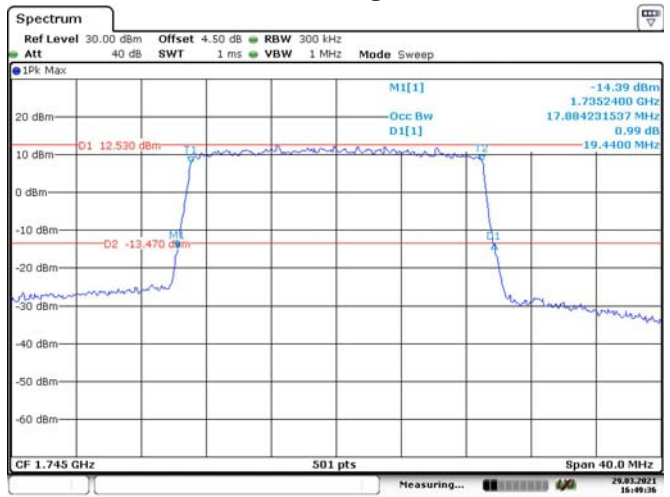
20M, 16QAM, Middle Channel



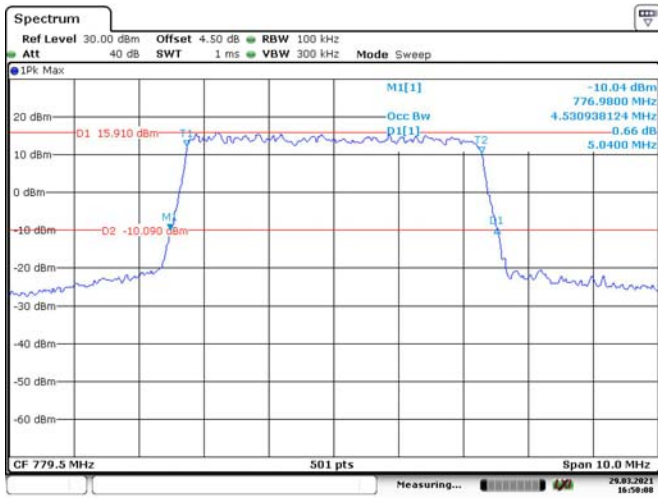
20M, QPSK, High Channel



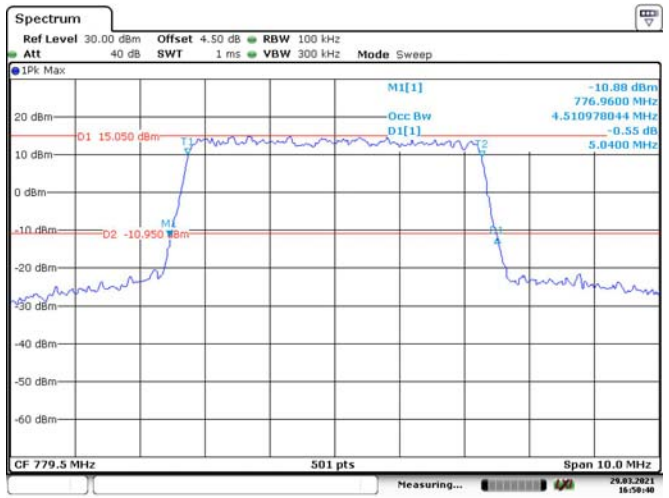
20M, 16QAM, High Channel



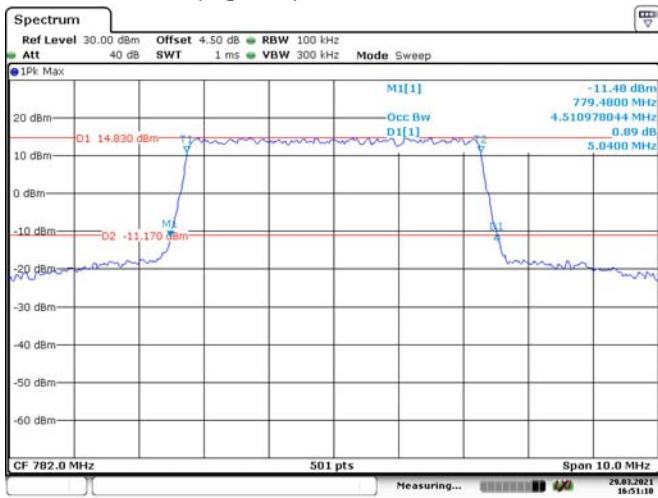
LTE Band 13: 5M, QPSK, Low Channel



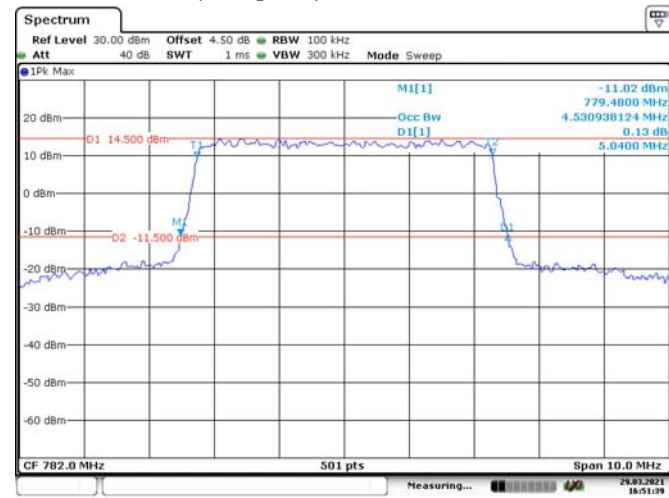
5M, 16QAM, Low Channel



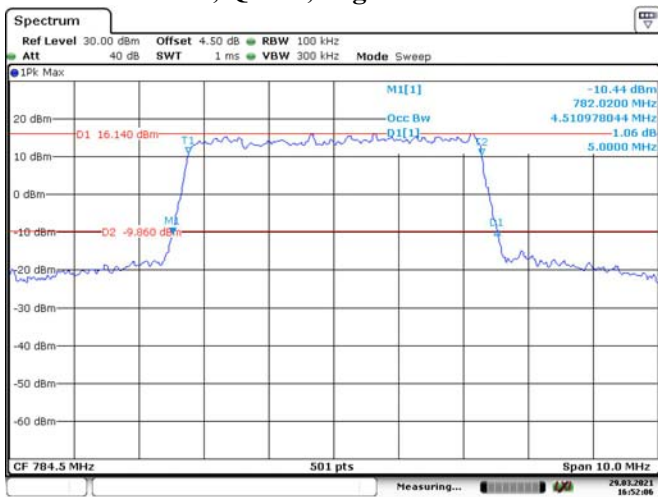
5M, QPSK, Middle Channel



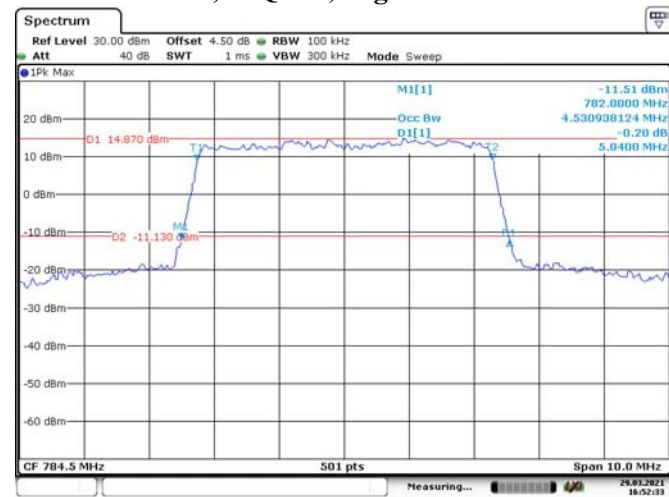
5M, 16QAM, Middle Channel



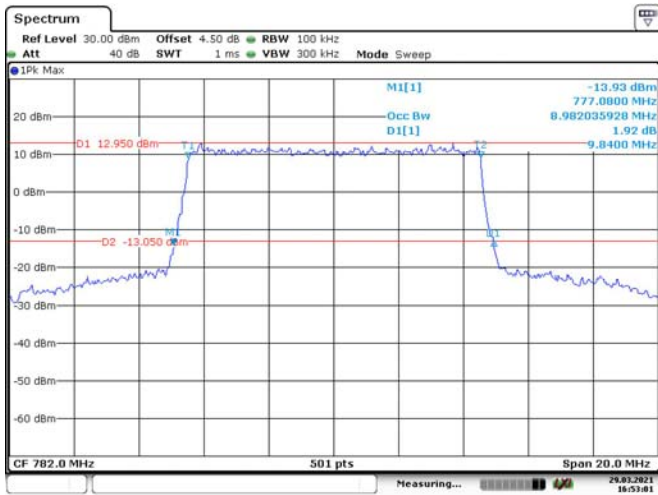
5M, QPSK, High Channel



5M, 16QAM, High Channel

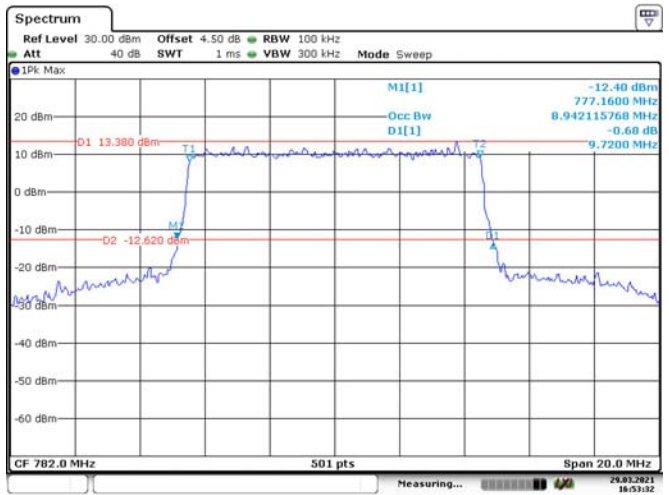


10M, QPSK, Middle Channel



Date: 29-MAR-2021 16:53:01

10M, 16QAM, Middle Channel



Date: 29-MAR-2021 16:53:02

FCC §2.1051, §27.53- SPURIOUS EMISSIONS AT ANTENNA TERMINALS

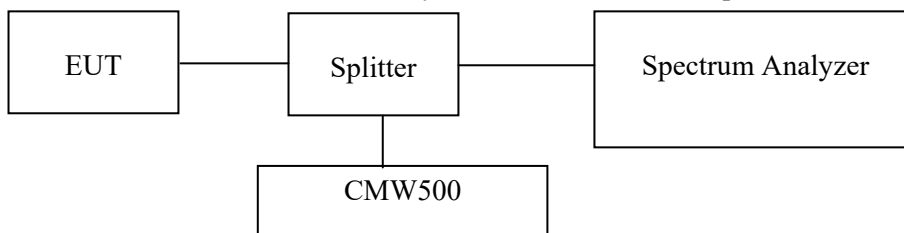
Applicable Standard

FCC §2.1051, and §27.53.

The spectrum was to be investigated to the tenth harmonics of the highest fundamental frequency as specified in § 2.1051.

Test Procedure

The RF output of the transceiver was connected to a spectrum analyzer and simulator through appropriate attenuation. Sufficient scans were taken to show any out of band emissions up to 10th harmonic.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101474	2020-07-07	2021-07-07
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41005011	Each time	N/A
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A
E-Microwave	Blocking Control	EMDCB-00036	0E01201047	Each time	N/A
Unknown	Attenuator	UNAT-3+	15529	Each time	N/A
E-Microwave	Two-way Splitter	ODP-1-6-2S	OE0120142	Each time	N/A

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

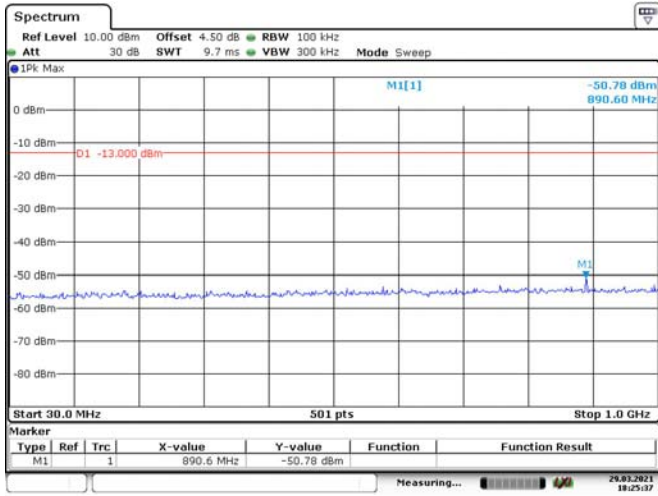
Environmental Conditions

Temperature:	24.1 °C
Relative Humidity:	61%
ATM Pressure:	100.8kPa
Tester:	Rita Huang
Test Date:	2021-03-29

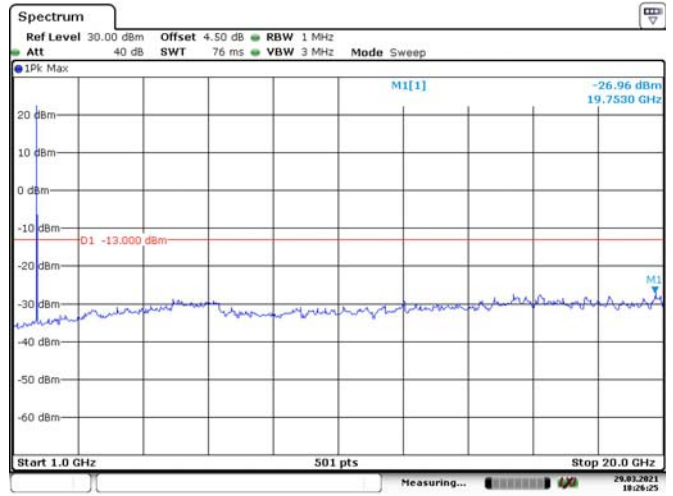
Test Result: Compliance. Please refer to the following plots.

LTE Band 4:

1.4M, QPSK, Low Channel

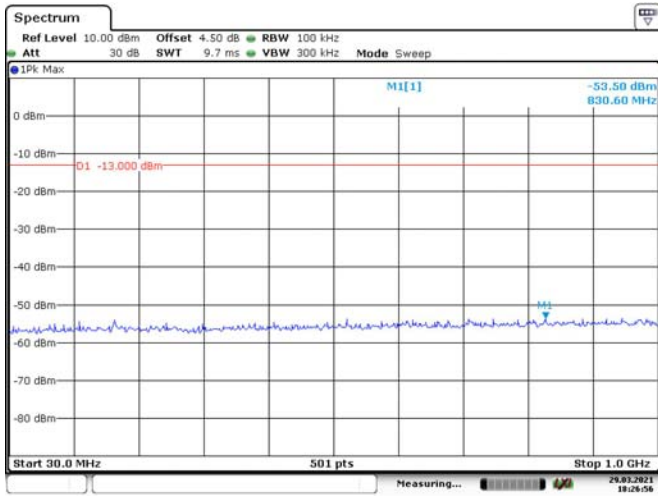


Date: 29.MAR.2021 18:25:37

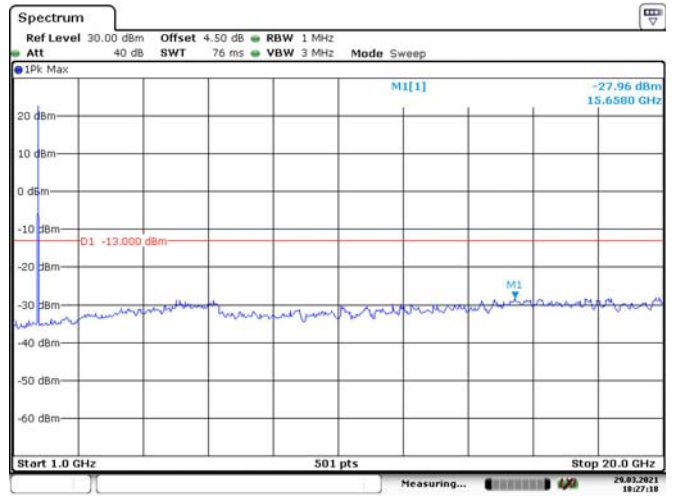


Date: 29.MAR.2021 18:26:25

1.4M, QPSK, Middle Channel

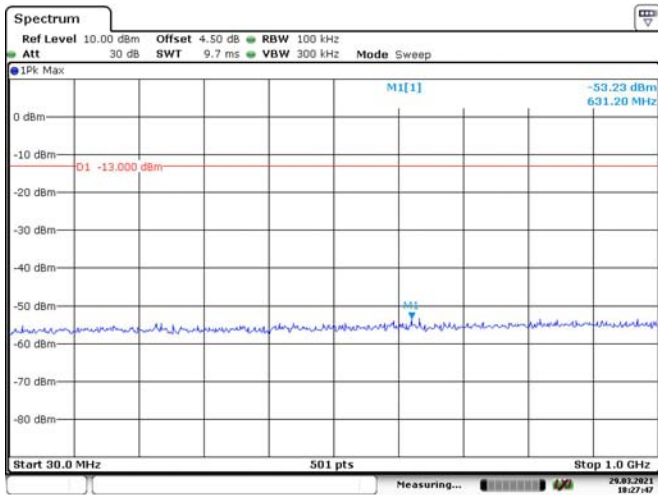


Date: 29.MAR.2021 18:26:57

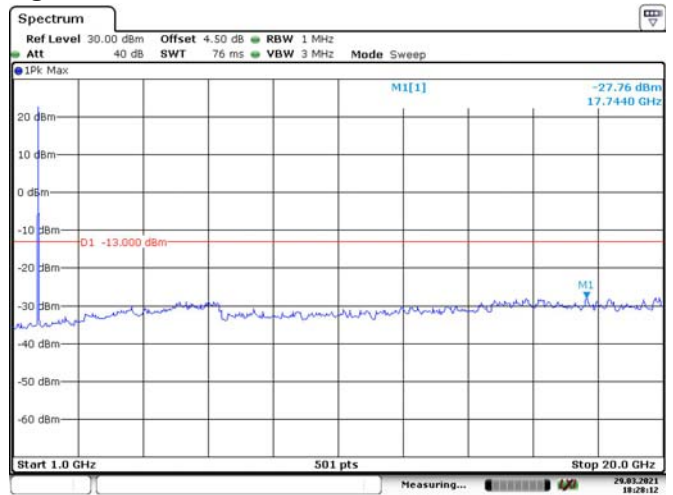


Date: 29.MAR.2021 18:27:19

1.4M, QPSK, High Channel

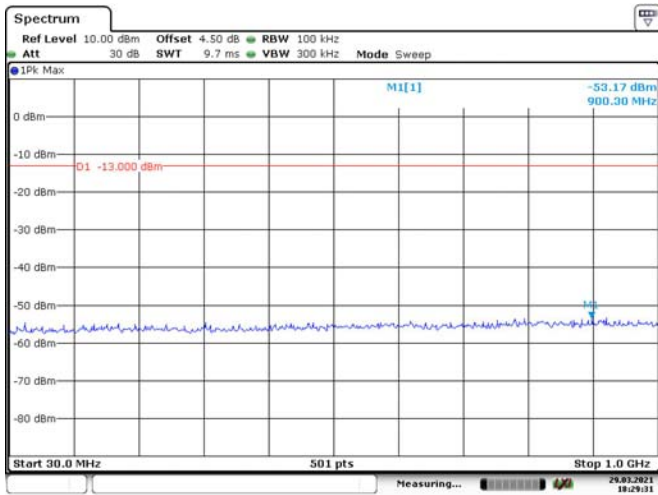


Date: 29.MAR.2021 18:27:48

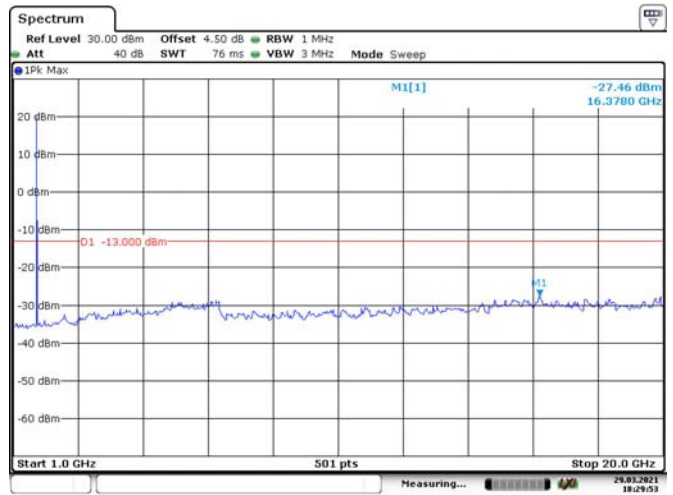


Date: 29.MAR.2021 18:28:13

3M, QPSK, Low Channel

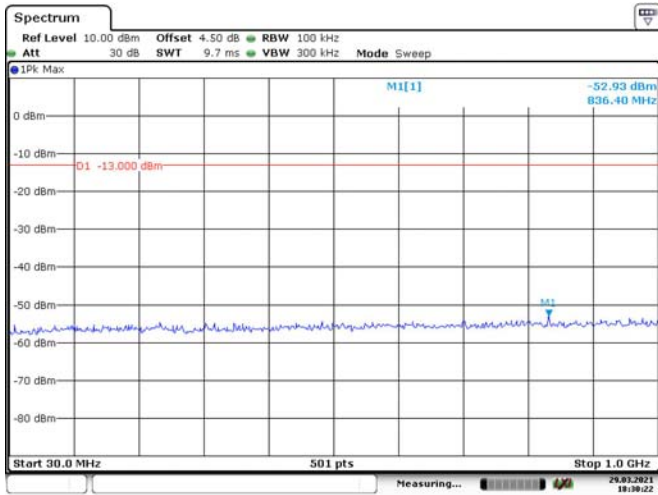


Date: 29.MAR.2021 18:29:32

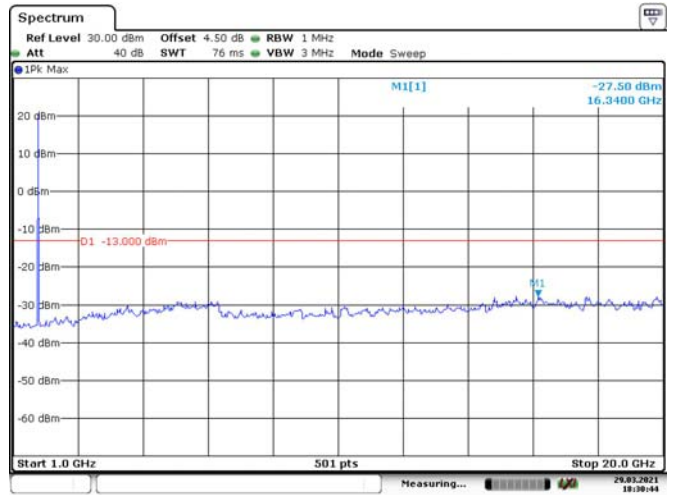


Date: 29.MAR.2021 18:29:54

3M, QPSK, Middle Channel

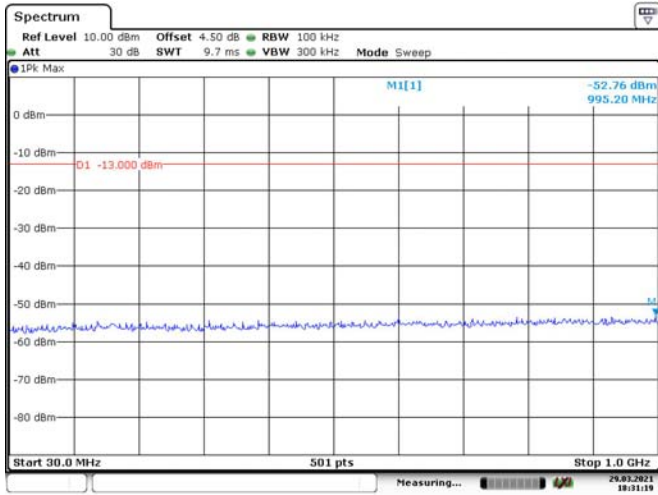


Date: 29.MAR.2021 18:30:23

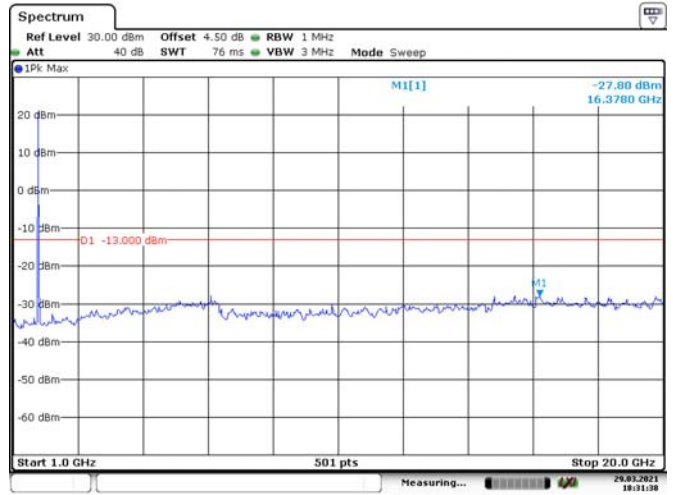


Date: 29.MAR.2021 18:30:45

3M, QPSK, High Channel

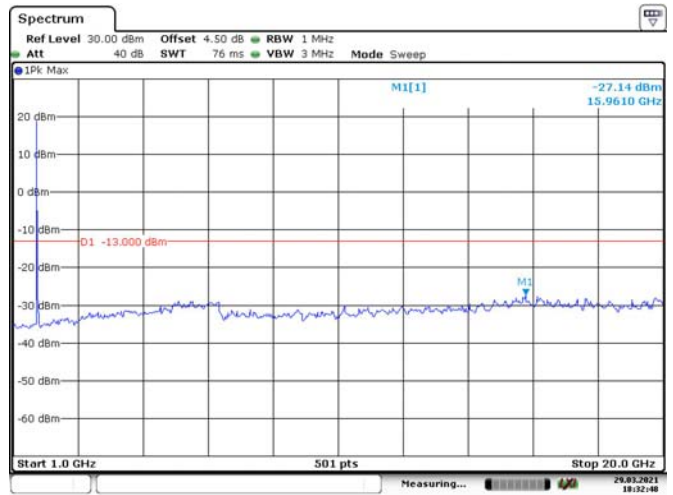
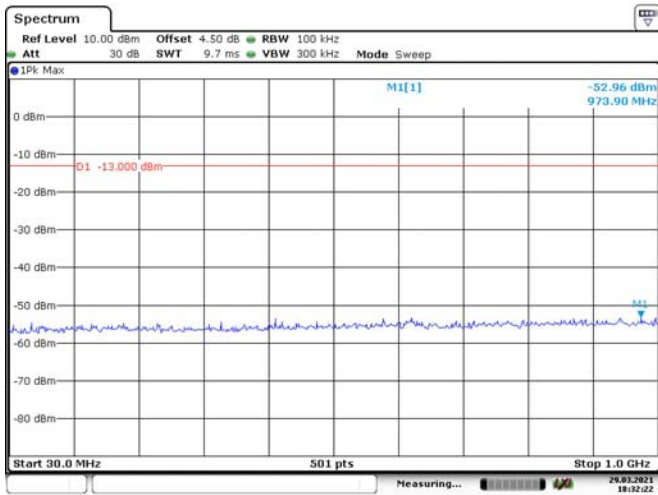


Date: 29.MAR.2021 18:31:19

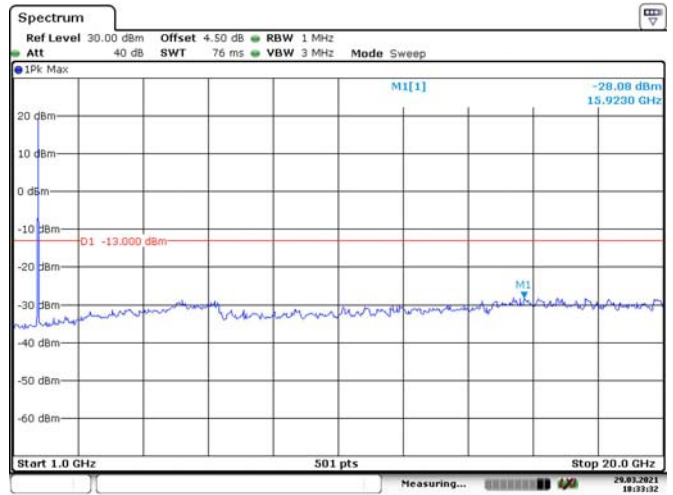
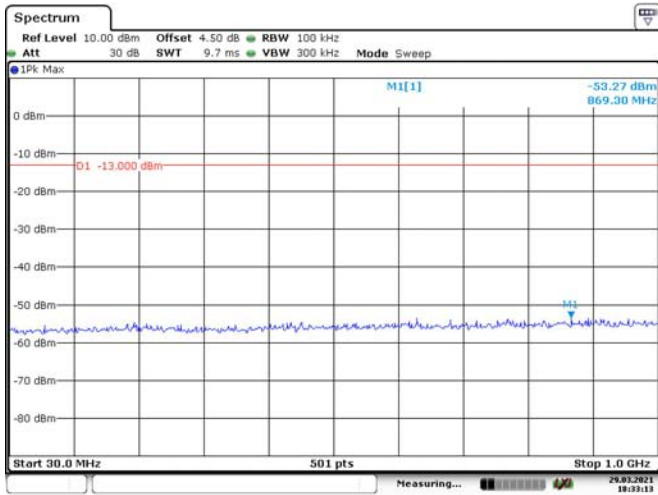


Date: 29.MAR.2021 18:31:38

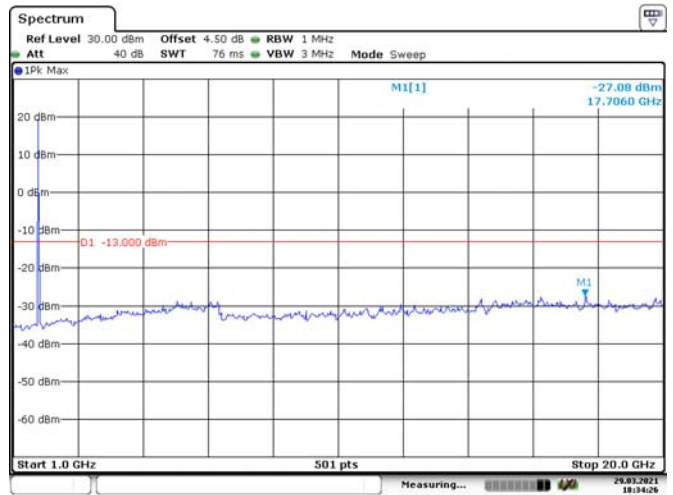
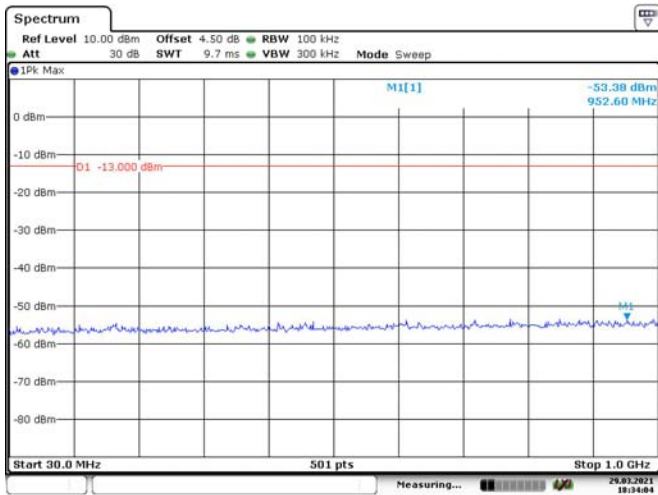
5M, QPSK, Low Channel



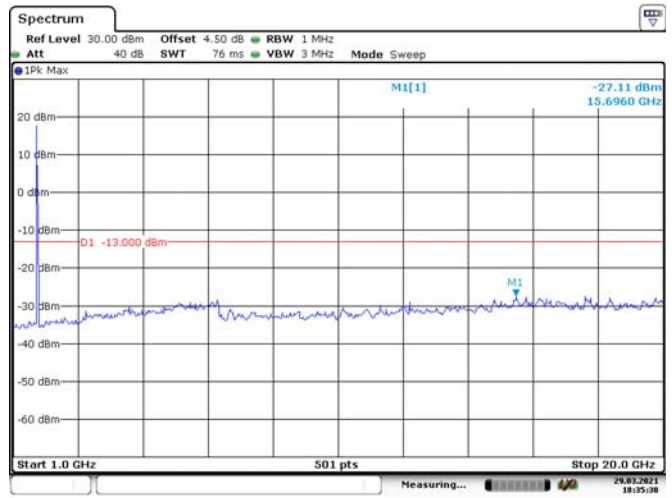
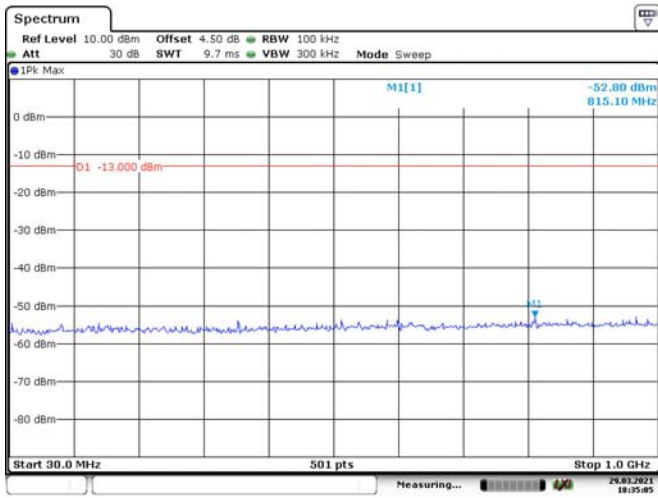
5M, QPSK, Middle Channel



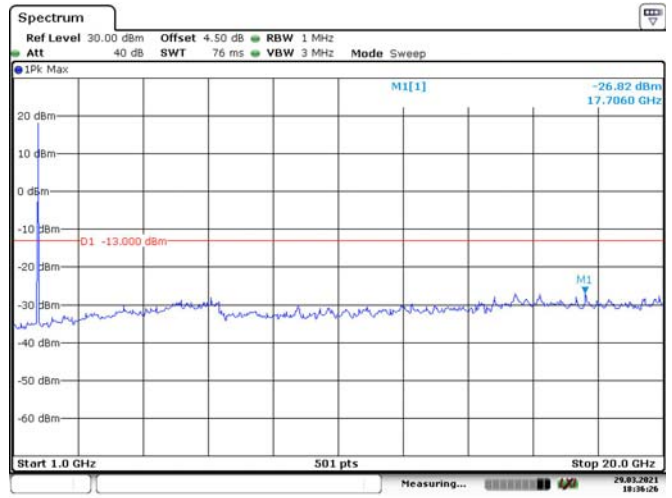
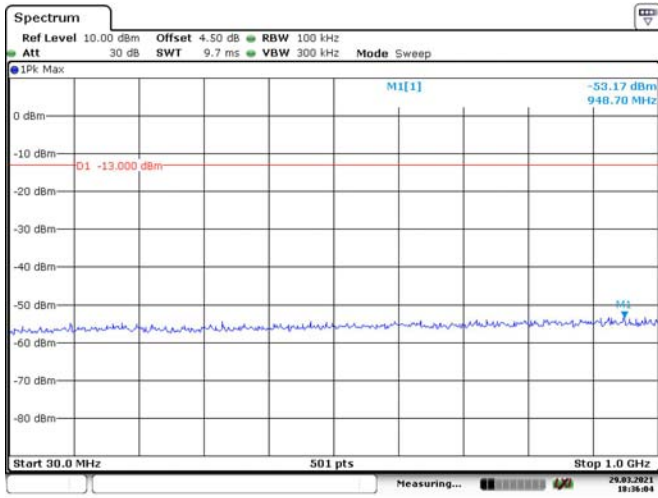
5M, QPSK, High Channel



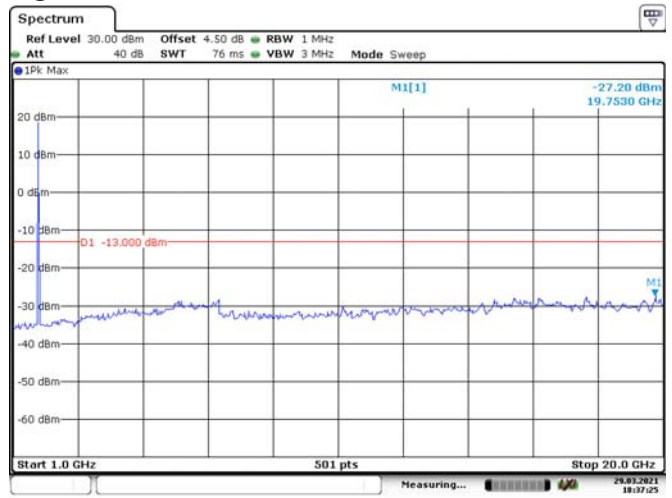
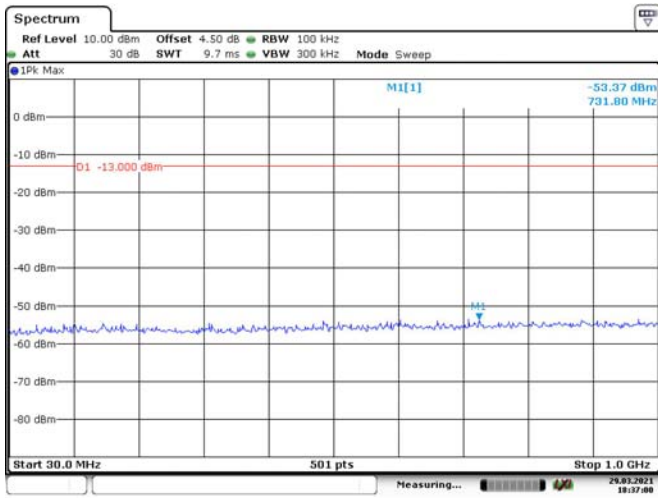
10M, QPSK, Low Channel



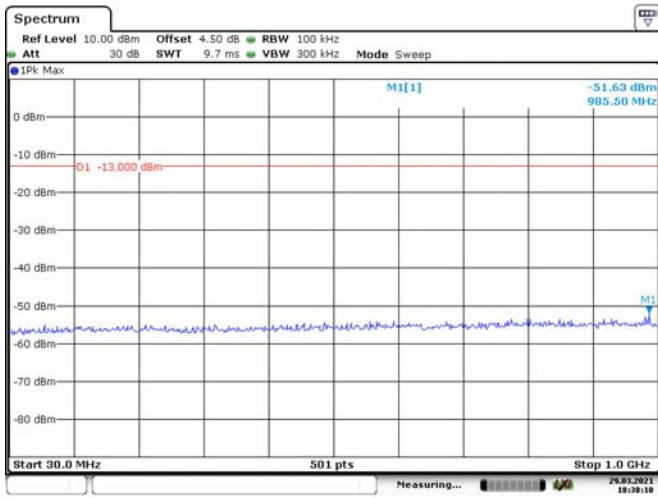
10M, QPSK, Middle Channel



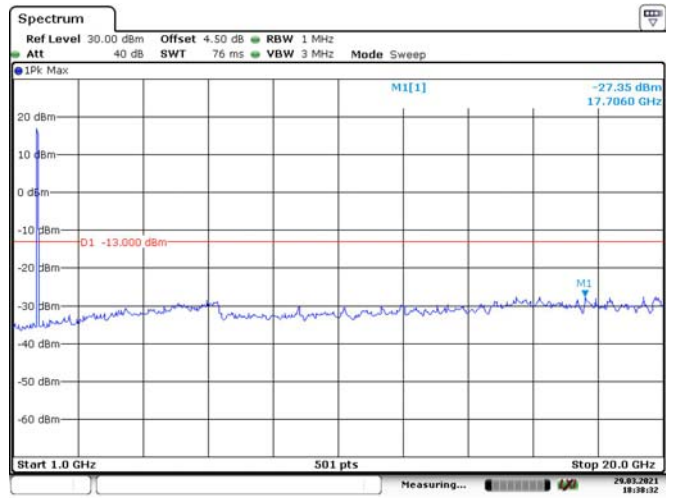
10M, QPSK, High Channel



15M, QPSK, Low Channel

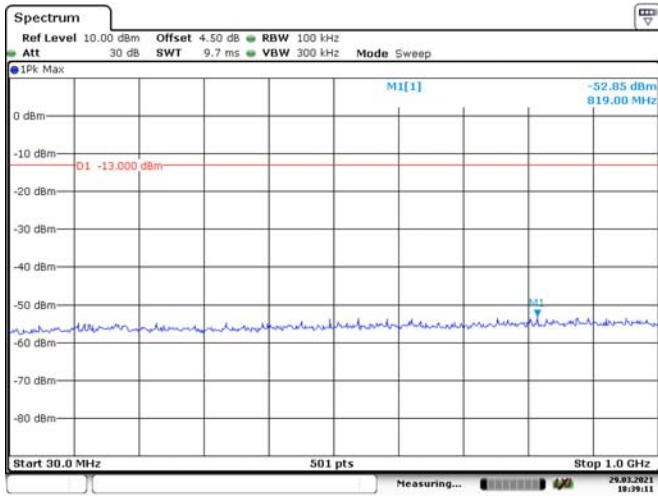


Date: 29.MAR.2021 18:38:11

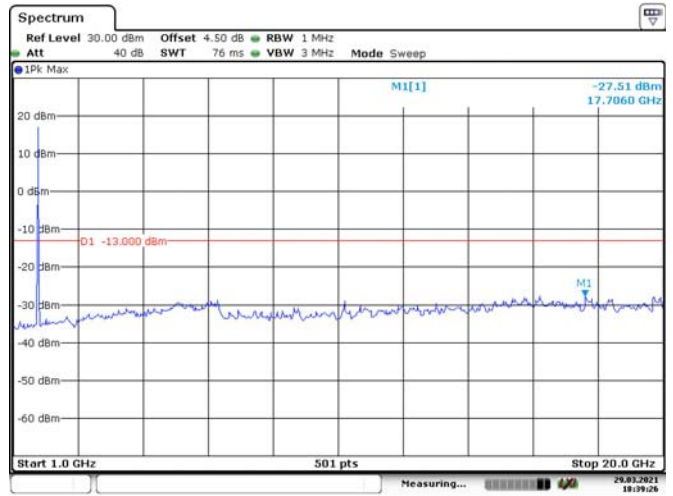


Date: 29.MAR.2021 18:38:33

15M, QPSK, Middle Channel

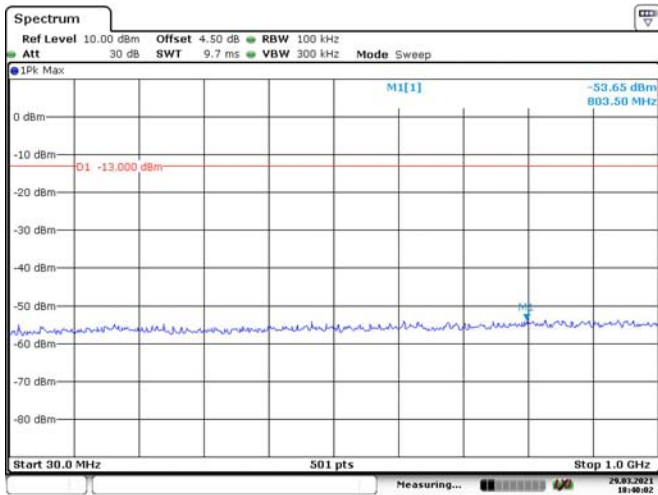


Date: 29.MAR.2021 18:39:11

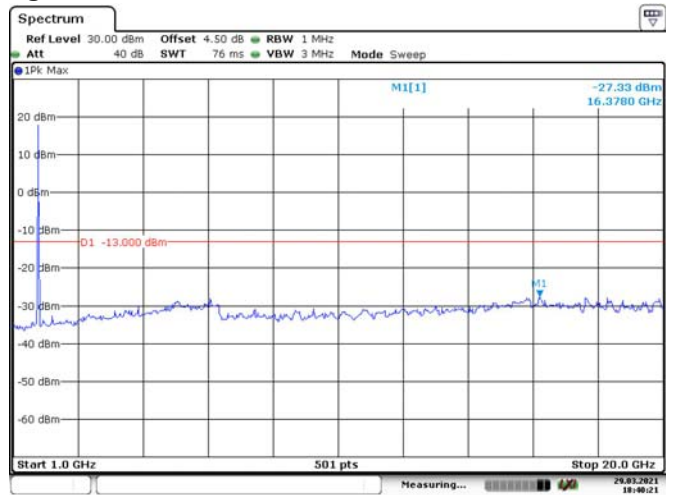


Date: 29.MAR.2021 18:39:27

15M, QPSK, High Channel

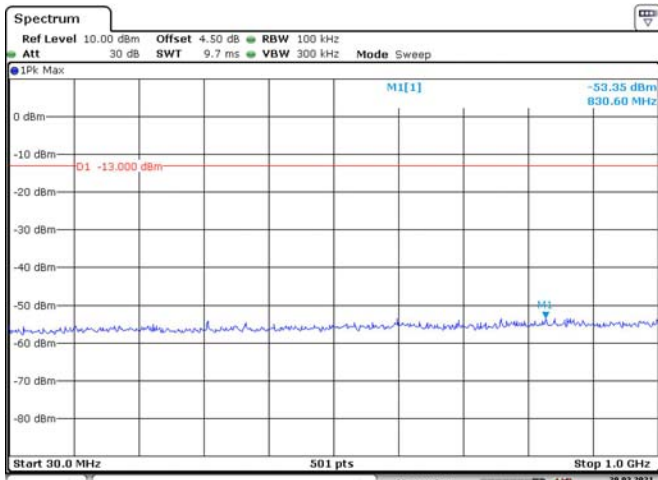


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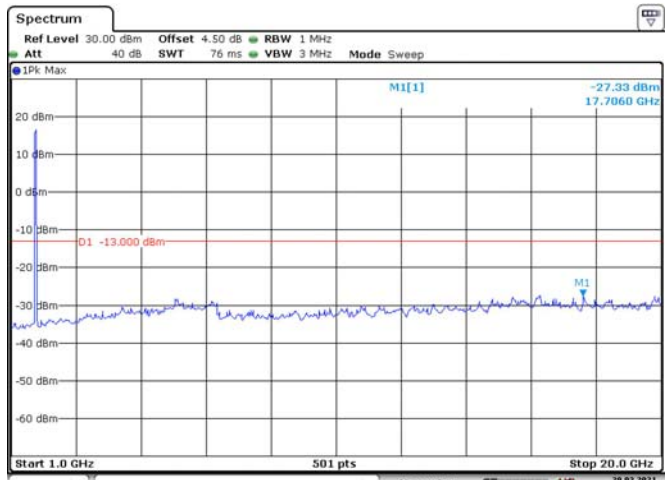


Date: 29.MAR.2021 18:40:21

20M, QPSK, Low Channel

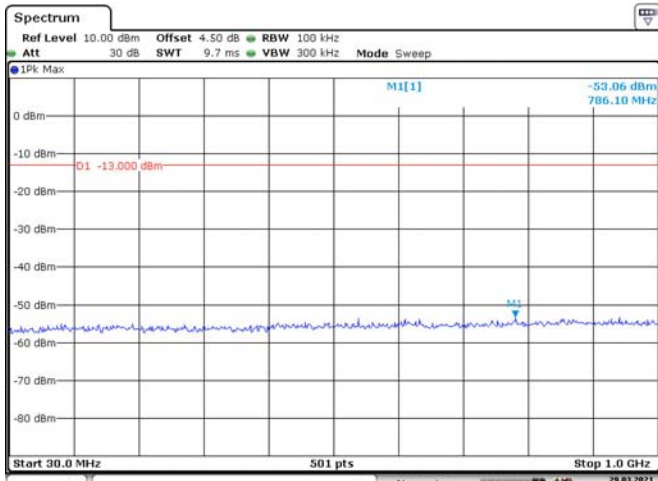


Date: 29.MAR.2021 18:46:29

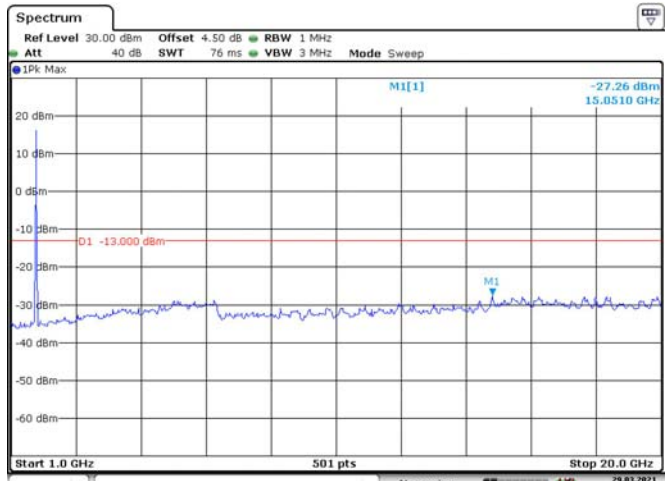


Date: 29.MAR.2021 18:46:51

20M, QPSK, Middle Channel

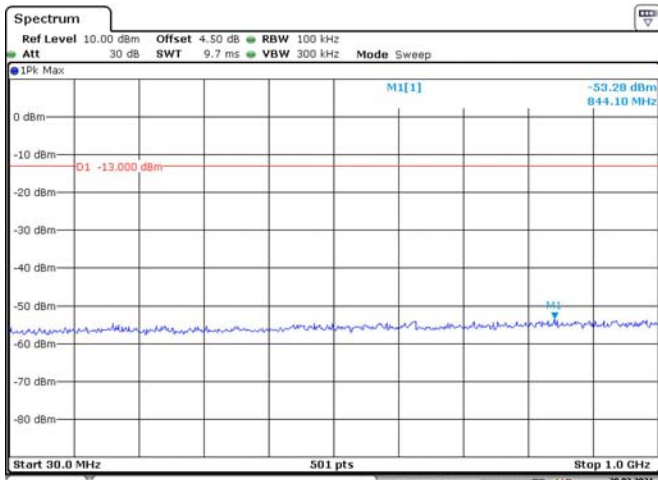


Date: 29.MAR.2021 18:47:36

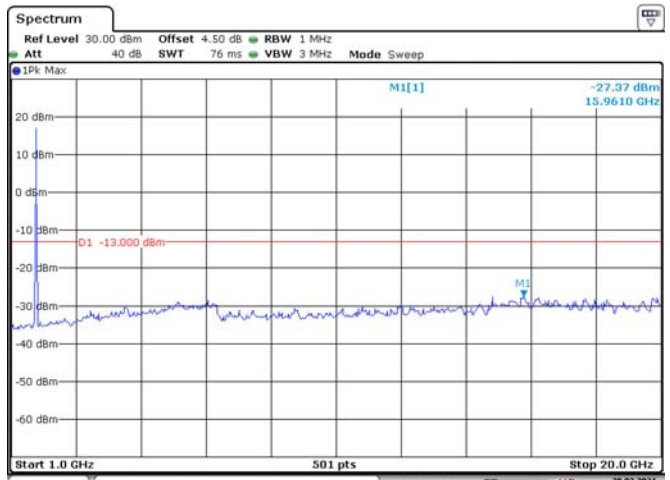


Date: 29.MAR.2021 18:48:01

20M, QPSK, High Channel



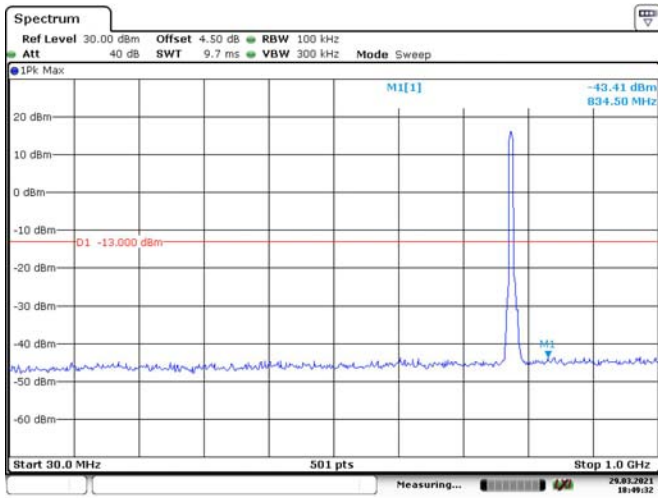
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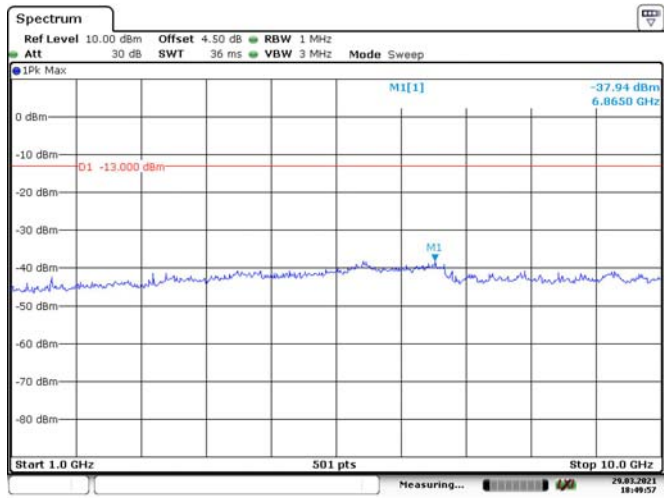
Date: 29.MAR.2021 18:48:59

Band 13

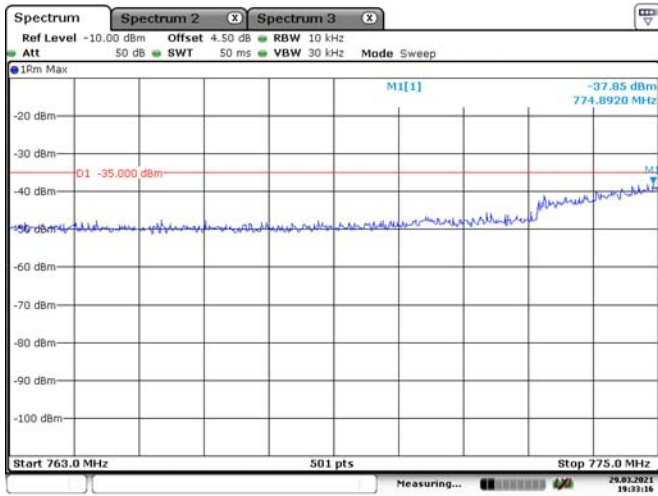
5M, QPSK, Low Channel



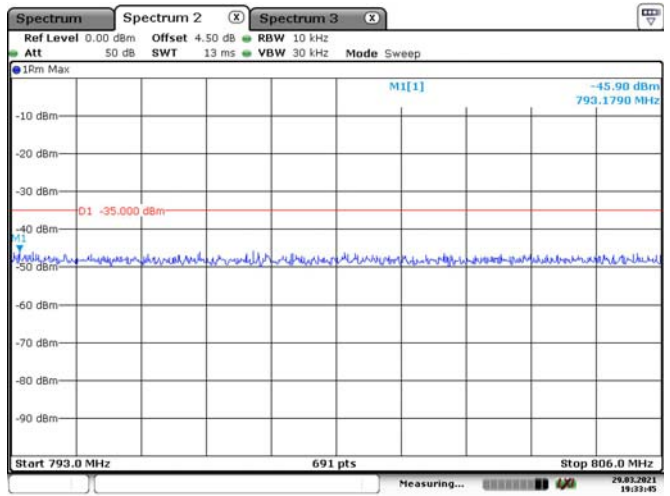
Date: 29.MAR.2021 18:49:32



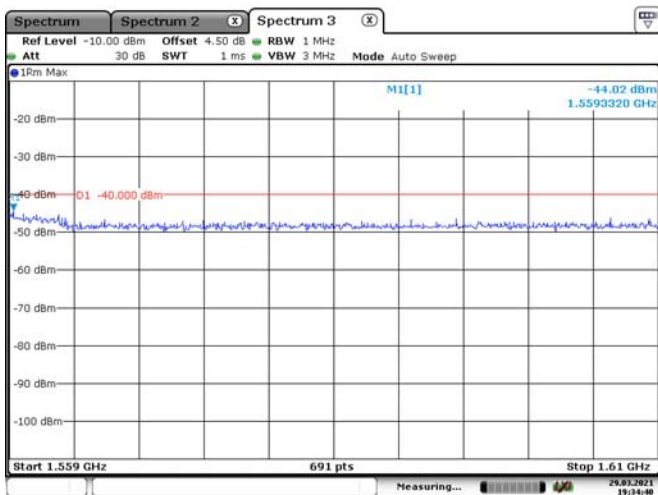
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Date: 29.MAR.2021 19:33:17

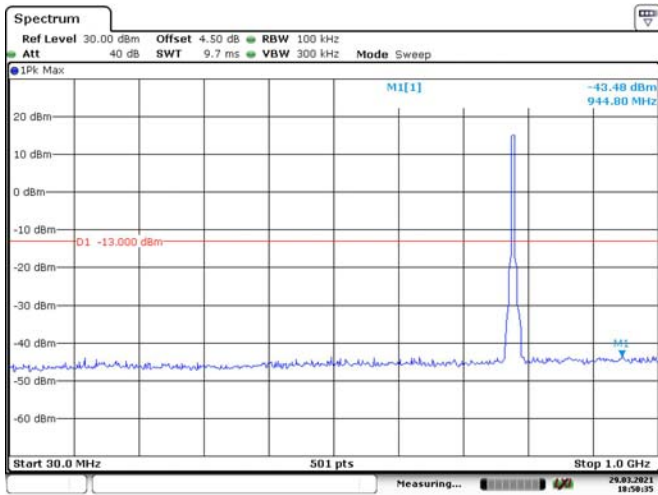


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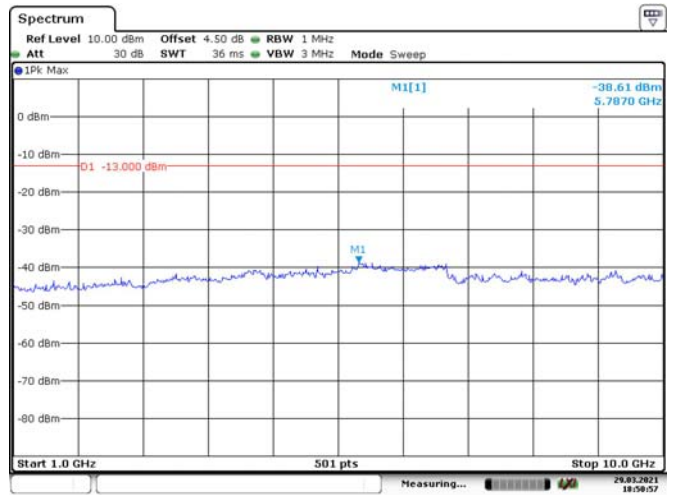


Date: 29.MAR.2021 19:34:41

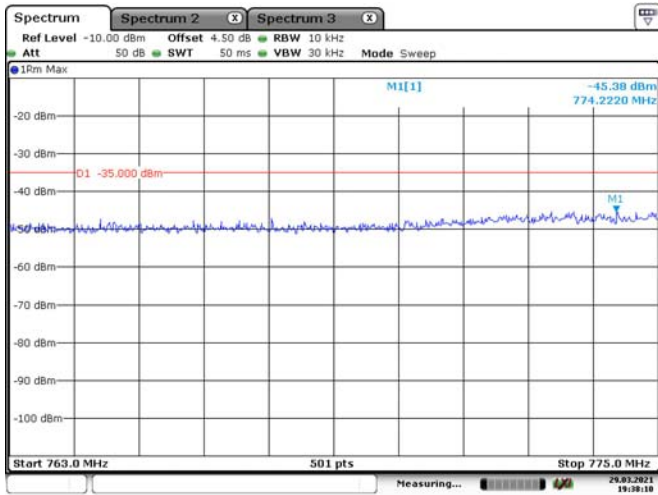
5M, QPSK, Middle Channel



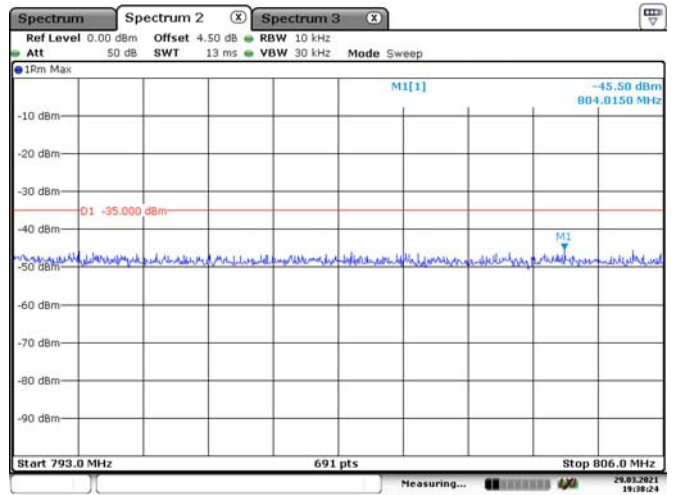
Date: 29.MAR.2021 18:50:36



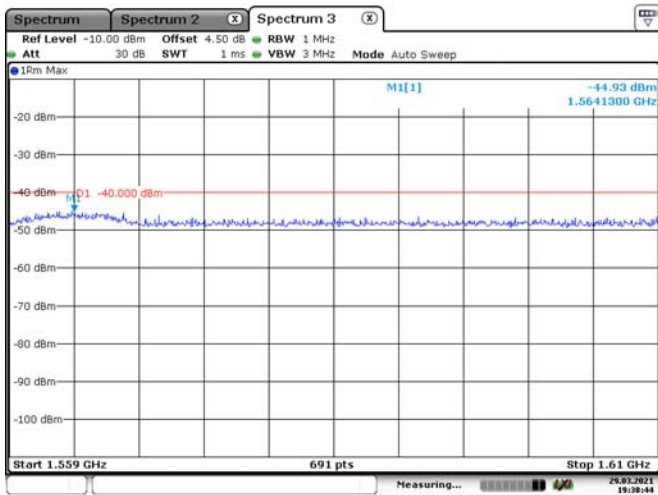
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Date: 29.MAR.2021 19:38:10

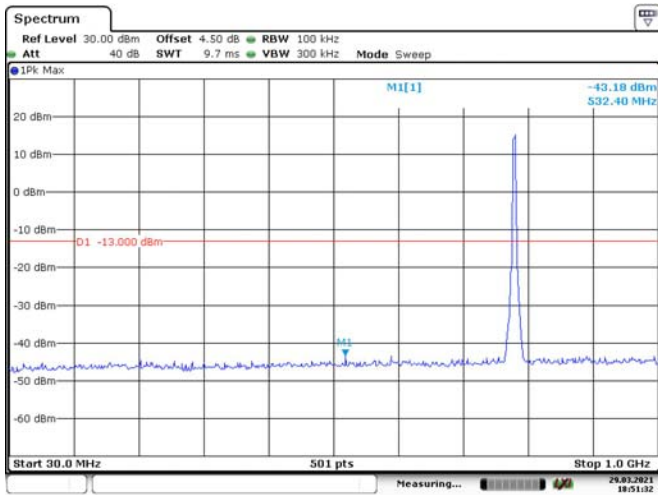


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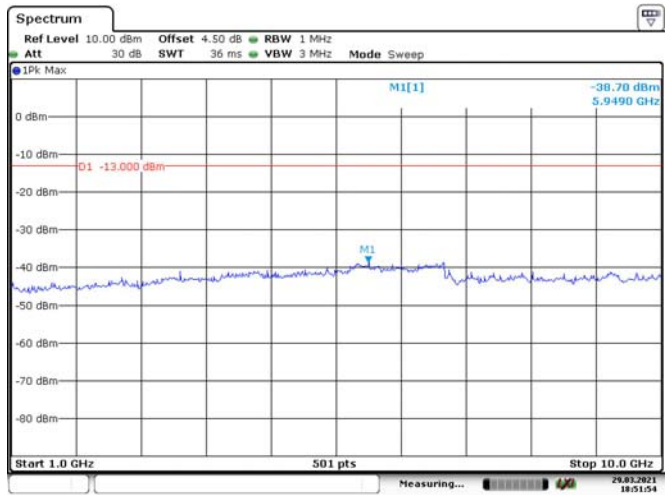


Date: 29.MAR.2021 19:38:44

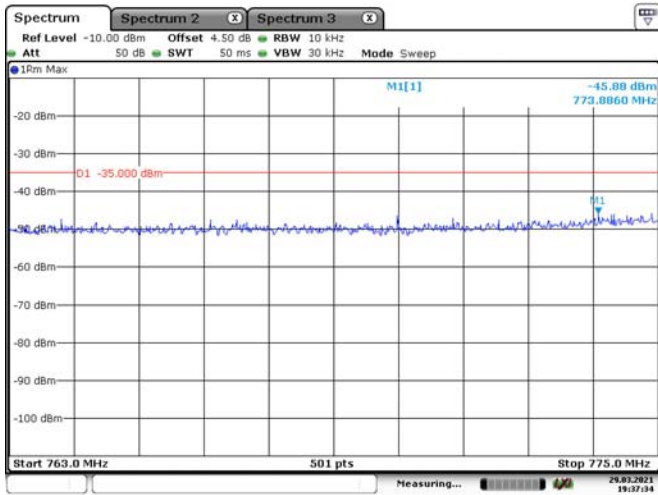
5M, QPSK, High Channel



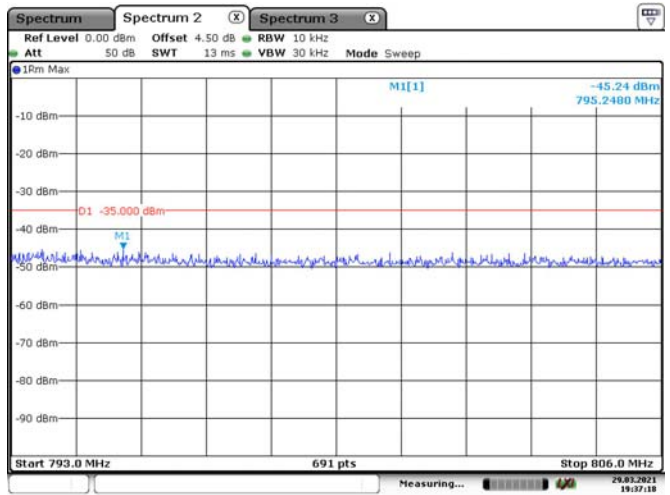
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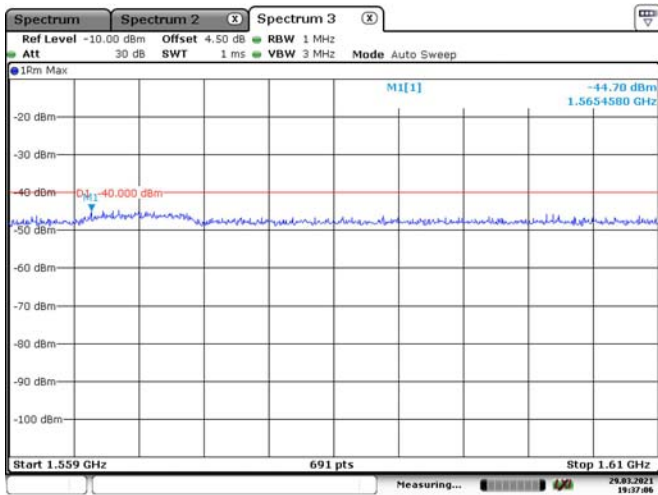
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Date: 29.MAR.2021 19:37:35

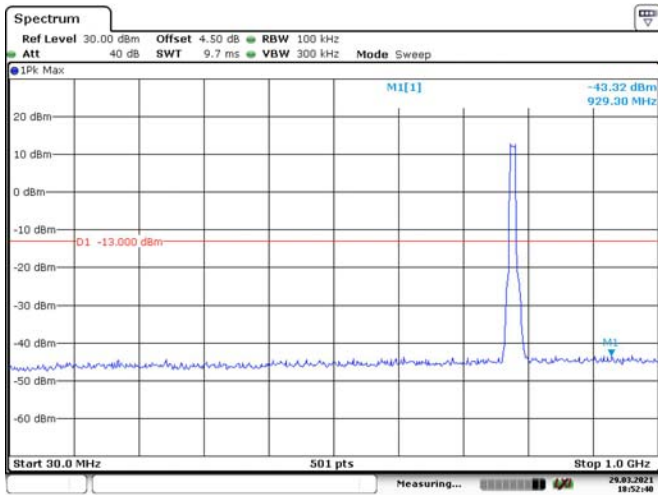


Date: 29.MAR.2021 19:37:19

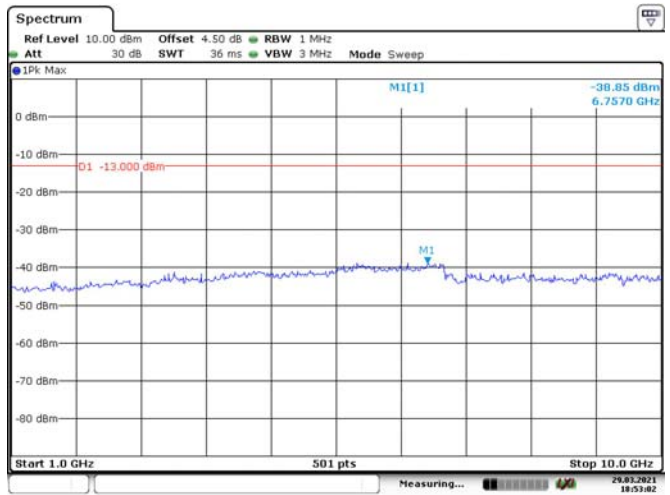


Date: 29.MAR.2021 19:37:06

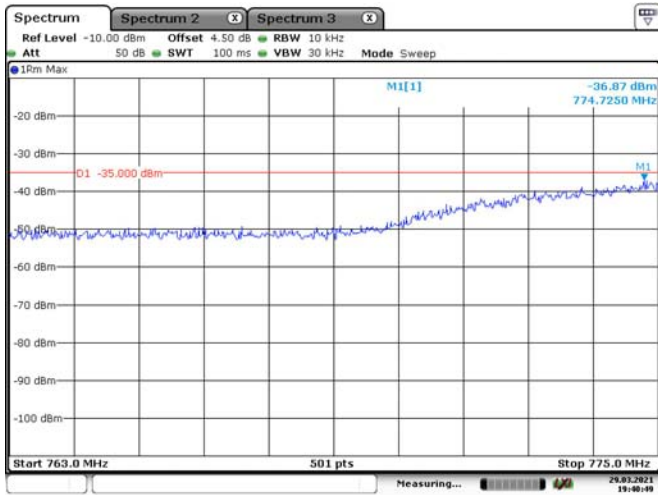
10M, QPSK, Middle Channel



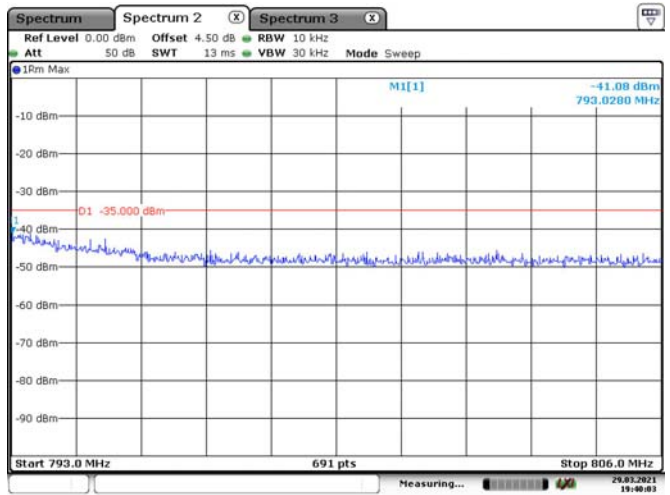
Date: 29.MAR.2021 18:52:40



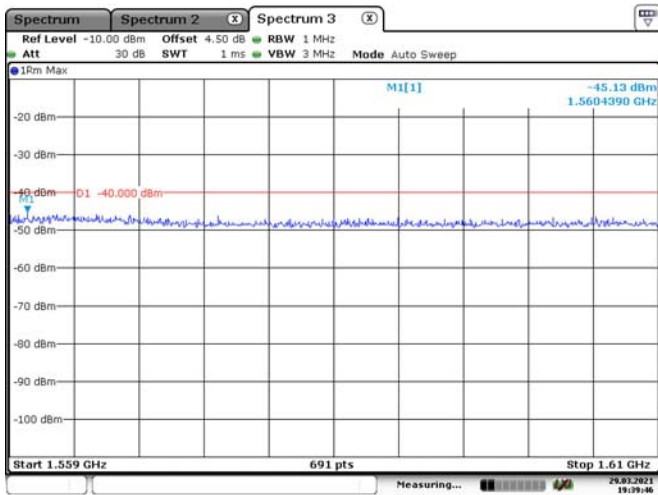
Date: 29.MAR.2021 18:53:03



Date: 29.MAR.2021 19:40:49



Date: 29.MAR.2021 19:40:04



Date: 29.MAR.2021 19:39:47

FCC §2.1053 & §27.53- SPURIOUS RADIATED EMISSIONS

Applicable Standard

FCC § 2.1053, and § 27.53;

Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious emissions in dB = $10 \lg (\text{TXpwr in Watts}/0.001)$ – the absolute level

Spurious attenuation limit in dB = $43 + 10 \text{Log}_{10} (\text{power out in Watts})$

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Antenna	JB3	A060611-2	2020-08-25	2023-08-25
R&S	EMI Test Receiver	ESCI	100224	2020-09-12	2021-09-12
Unknown	Coaxial Cable	C-NJNJ-50	C-1000-01	2020-09-05	2021-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-02	2020-09-05	2021-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0530-01	2020-09-24	2021-09-24
Sonoma	Amplifier	310N	185914	2020-10-13	2021-10-13
EMCO	Adjustable Dipole Antenna	3121C	9109-753	N/A	N/A
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2020-09-05	2021-09-05
Agilent	Signal Generator	E8247C	MY43321350	2020-12-09	2021-12-08
ETS-Lindgren	Horn Antenna	3115	000 527 35	2018-10-12	2021-10-12
Agilent	Spectrum Analyzer	E4440A	SG43360054	2020-07-07	2021-07-07
Unknown	Coaxial Cable	C-SJSJ-50	C-0800-01	2020-09-05	2021-09-05
Mini-Circuit	Amplifier	ZVA-213-S+	54201245	2020-09-05	2021-09-05
TDK RF	Horn Antenna	HRN-0118	130 084	2018-10-12	2021-10-12
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-02 1304	2020-12-06	2021-12-05
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-01 1304	2020-12-06	2021-12-05
Sinoscite	Band-stop filter	BSF1850-1910MS-0935V2	0935V2	2020-06-16	2021-06-16
Sinoscite	Band-stop filter	BSF824-862MS-1438-001	1438001	2020-06-16	2021-06-16

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Test Items	Radiation Below 1GHz	Radiation Above 1GHz
Temperature:	25.5°C	27.3°C
Relative Humidity:	46%	60 %
ATM Pressure:	101.1kPa	100.5kPa
Tester:	Asa Chen	Joker Chen
Test Date:	2021.03.26	2021.03.30

Test Result: Compliance.

EUT Operation Mode: Transmitting

LTE Band 4 (30MHz-20GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK, Frequency: 1710.7 MHz								
3421.40	H	38.97	-60.43	14.04	1.63	-48.02	-13.00	35.02
3421.40	V	36.59	-62.89	14.04	1.63	-50.48	-13.00	37.48
5132.10	H	39.99	-54.69	13.93	1.37	-42.13	-13.00	29.13
5132.10	V	39.87	-54.72	13.93	1.37	-42.16	-13.00	29.16
99.84	H	58.05	-53.50	0.00	0.10	-53.60	-13.00	40.60
99.84	V	52.52	-55.12	0.00	0.10	-55.22	-13.00	42.22
QPSK, Frequency: 1732.5 MHz								
3465.00	H	39.33	-59.86	13.91	1.62	-47.57	-13.00	34.57
3465.00	V	39.05	-60.17	13.91	1.62	-47.88	-13.00	34.88
5197.50	H	40.41	-54.28	14.00	1.52	-41.80	-13.00	28.80
5197.50	V	40.78	-53.98	14.00	1.52	-41.50	-13.00	28.50
99.84	H	57.24	-54.31	0.00	0.10	-54.41	-13.00	41.41
101.78	V	49.83	-57.52	0.00	0.11	-57.63	-13.00	44.63
QPSK, Frequency: 1754.3 MHz								
3508.60	H	37.72	-61.29	13.83	1.60	-49.06	-13.00	36.06
3508.60	V	37.48	-61.53	13.83	1.60	-49.30	-13.00	36.30
5262.90	H	38.31	-56.78	14.19	1.29	-43.88	-13.00	30.88
5262.90	V	38.36	-56.81	14.19	1.29	-43.91	-13.00	30.91
99.84	H	58.96	-52.59	0.00	0.10	-52.69	-13.00	39.69
101.78	V	50.27	-57.08	0.00	0.11	-57.19	-13.00	44.19

LTE Band 13 (30MHz-10GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dB μ V)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK, Frequency: 779.5 MHz								
1559.00	H	39.21	-65.52	9.85	0.95	-56.62	-40.00	16.62
1559.00	V	39.74	-65.38	9.85	0.95	-56.48	-40.00	16.48
2338.50	H	37.41	-64.86	11.62	1.25	-54.49	-13.00	41.49
2338.50	V	37.38	-64.90	11.62	1.25	-54.53	-13.00	41.53
3118.00	H	36.63	-63.07	13.27	1.78	-51.58	-13.00	38.58
3118.00	V	36.39	-63.32	13.27	1.78	-51.83	-13.00	38.83
99.84	H	58.90	-52.65	0.00	0.10	-52.75	-13.00	39.75
99.84	V	55.20	-52.44	0.00	0.10	-52.54	-13.00	39.54
QPSK, Frequency: 784.5 MHz								
1569.00	H	36.16	-68.55	9.91	0.89	-59.53	-40.00	19.53
1569.00	V	37.59	-67.56	9.91	0.89	-58.54	-40.00	18.54
2353.50	H	37.38	-64.94	11.79	1.26	-54.41	-13.00	41.41
2353.50	V	36.78	-65.60	11.79	1.26	-55.07	-13.00	42.07
3138.00	H	35.96	-63.49	13.35	1.73	-51.87	-13.00	38.87
3138.00	V	36.45	-63.02	13.35	1.73	-51.40	-13.00	38.40
99.84	H	55.86	-55.69	0.00	0.10	-55.79	-13.00	42.79
99.84	V	53.96	-53.68	0.00	0.10	-53.78	-13.00	40.78

Note:

- 1) The unit of Antenna Gain is dBd for frequency below 1GHz, and the unit of Antenna Gain is dBi for frequency above 1GHz.
- 2) Absolute Level = Substituted Level - Cable loss + Antenna Gain
- 3) Margin = Limit - Absolute Level

FCC §27.53 - BAND EDGES

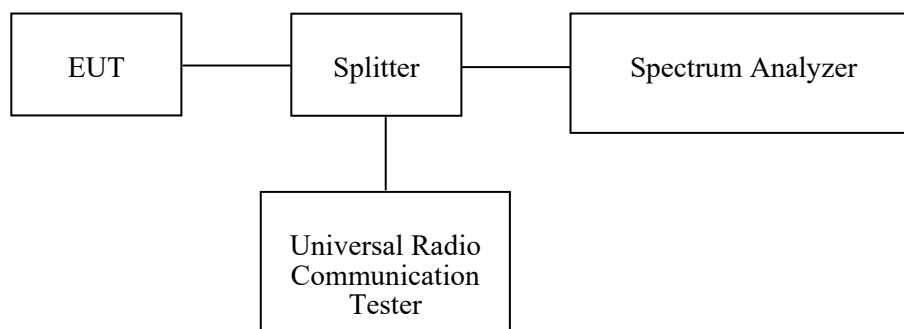
Applicable Standard

FCC § 2.1053, and § 27.53

Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

The center of the spectrum analyzer was set to block edge frequency.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101474	2020-07-07	2021-07-07
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41005011	Each time	N/A
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A
E-Microwave	Blocking Control	EMDCB-00036	0E01201047	Each time	N/A
Unknown	Attenuator	UNAT-3+	15529	Each time	N/A
E-Microwave	Two-way Splitter	ODP-1-6-2S	OE0120142	Each time	N/A

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

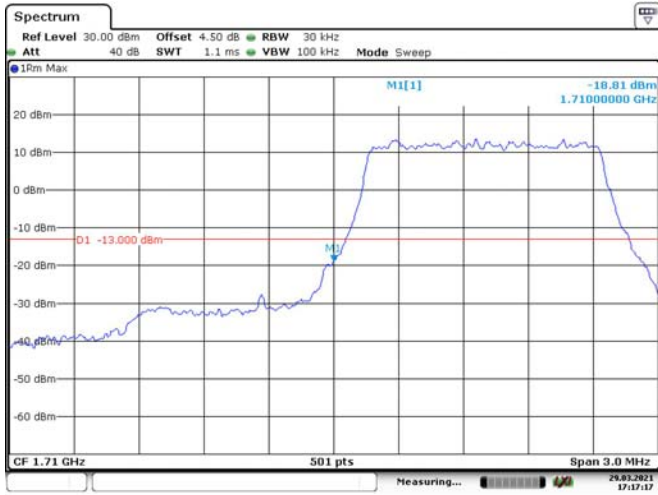
Temperature:	24.1 °C
Relative Humidity:	61%
ATM Pressure:	100.8kPa
Tester:	Rita Huang
Test Date:	2021-03-29

Test Mode: Transmitting

Test Result: Compliance. Please refer to the following plots.

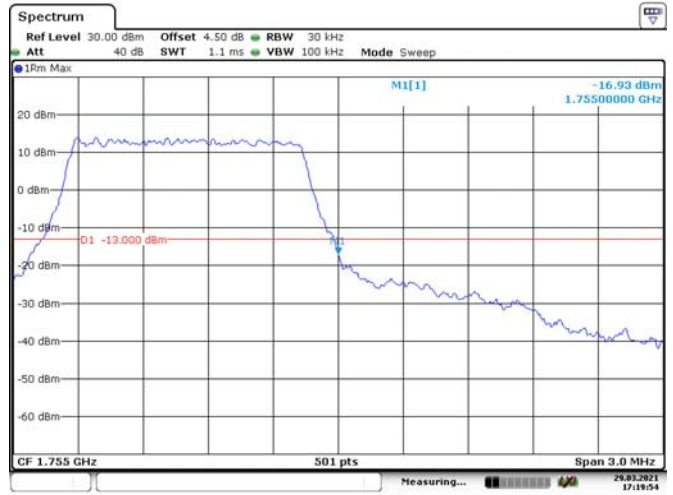
LTE Band 4:

1.4M, QPSK, Left Band Edge



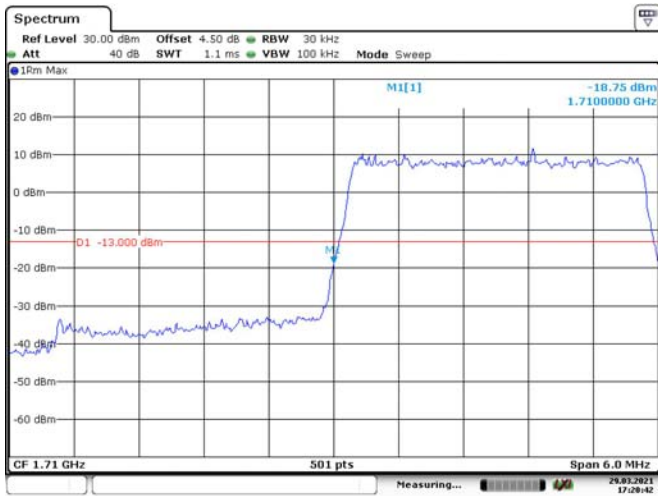
Date: 29.MAR.2021 17:17:18

1.4M, QPSK, Right Band Edge



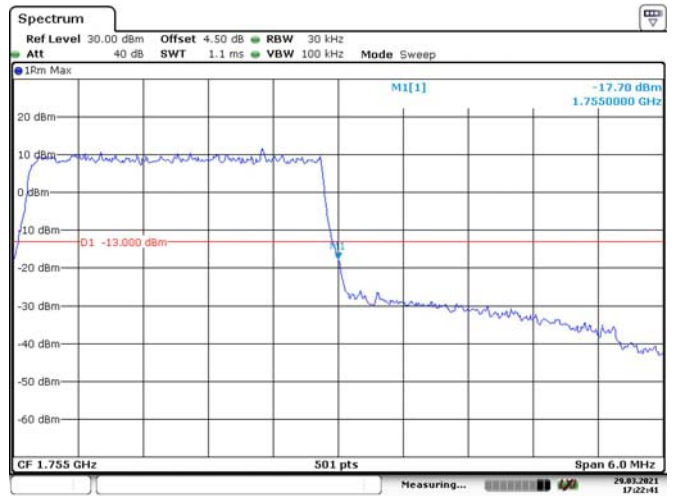
Date: 29.MAR.2021 17:19:55

3M, QPSK, Left Band Edge



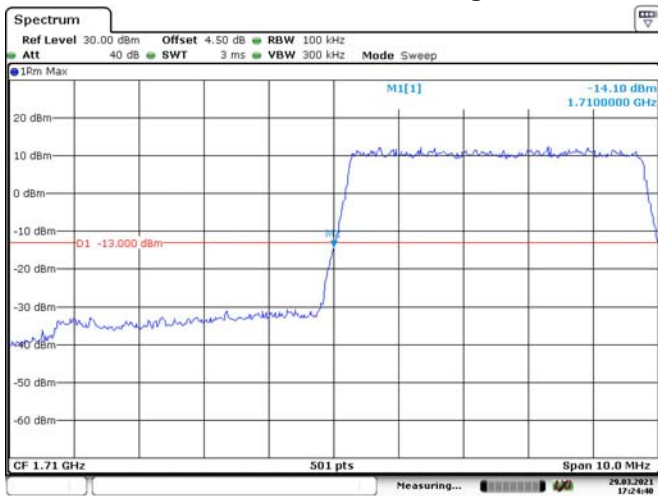
Date: 29.MAR.2021 17:20:42

3M, QPSK, Right Band Edge



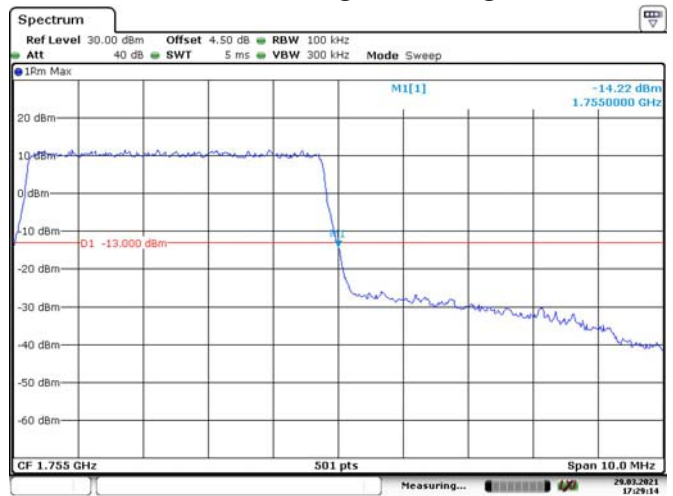
Date: 29.MAR.2021 17:22:41

5M, QPSK, Left Band Edge



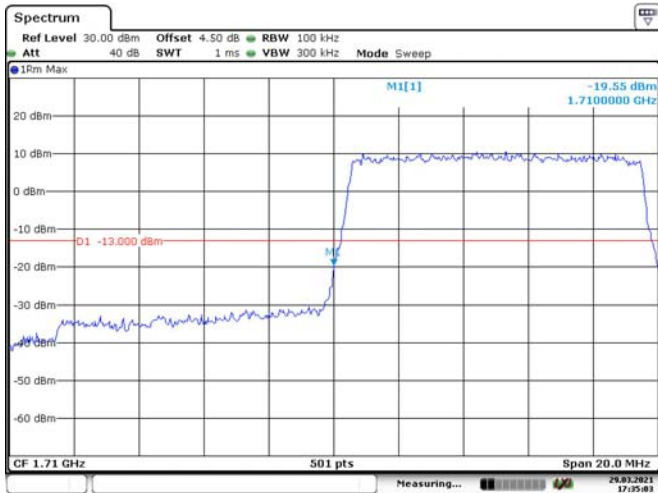
Date: 29.MAR.2021 17:24:41

5M, QPSK, Right Band Edge



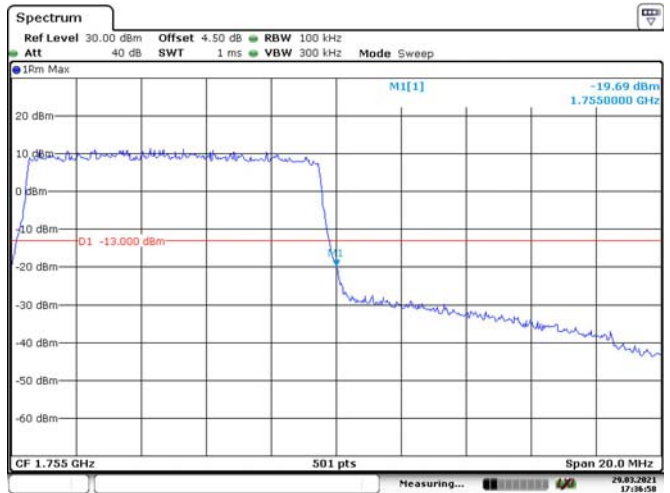
Date: 29.MAR.2021 17:29:15

10M, QPSK, Left Band Edge



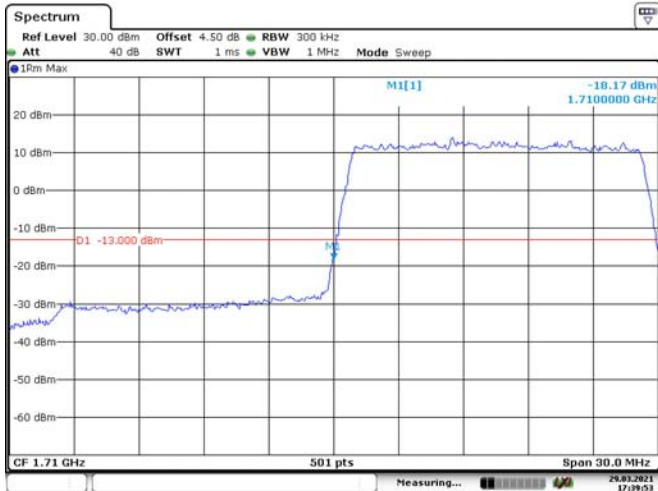
Date: 29-MAR-2021 17:35:04

10M, QPSK, Right Band Edge



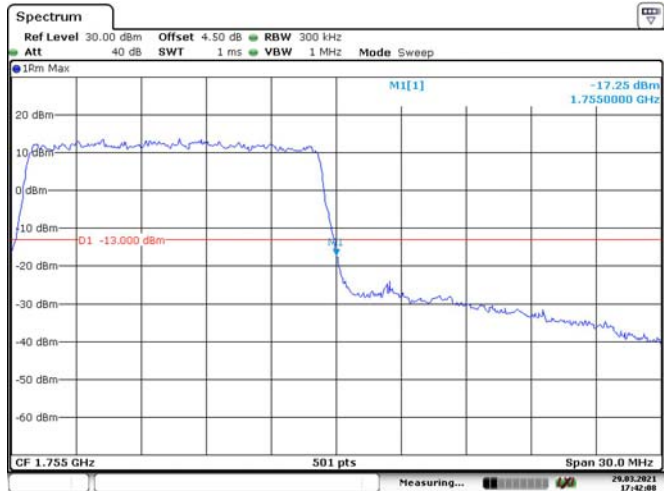
Date: 29-MAR-2021 17:36:59

15M, QPSK, Left Band Edge



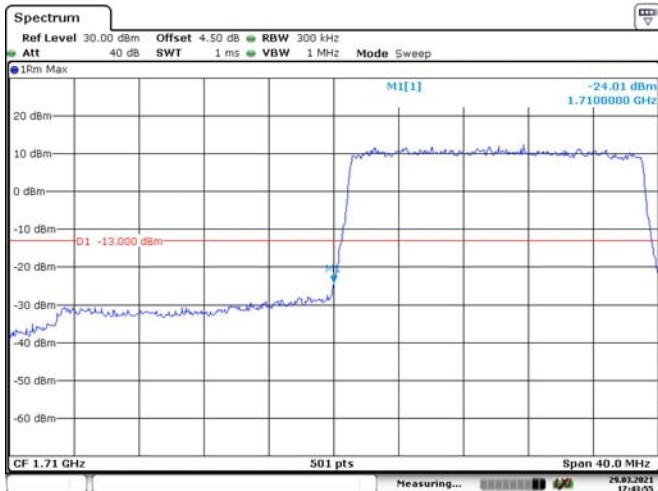
Date: 29-MAR-2021 17:39:53

15M, QPSK, Right Band Edge



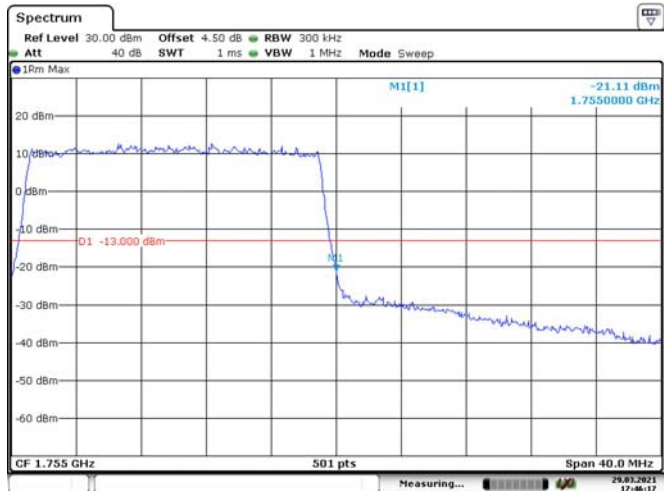
Date: 29-MAR-2021 17:42:08

20M, QPSK, Left Band Edge



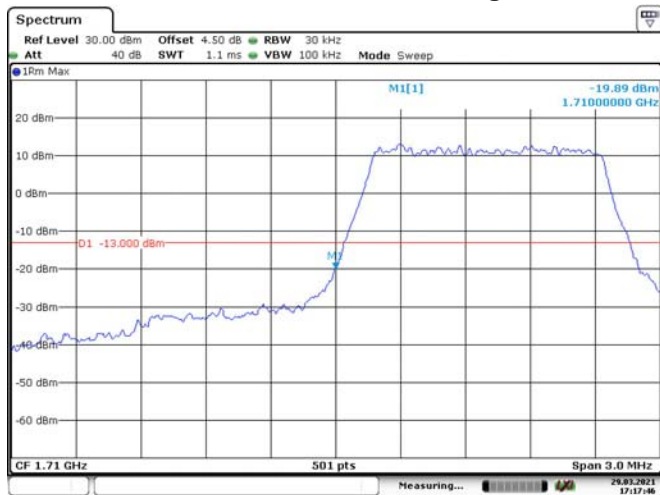
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20M, QPSK, Right Band Edge



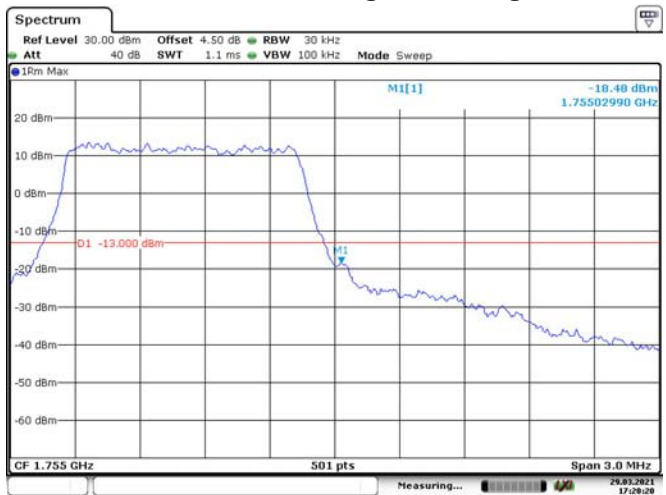
Date: 29-MAR-2021 17:46:17

1.4M, 16QAM, Left Band Edge



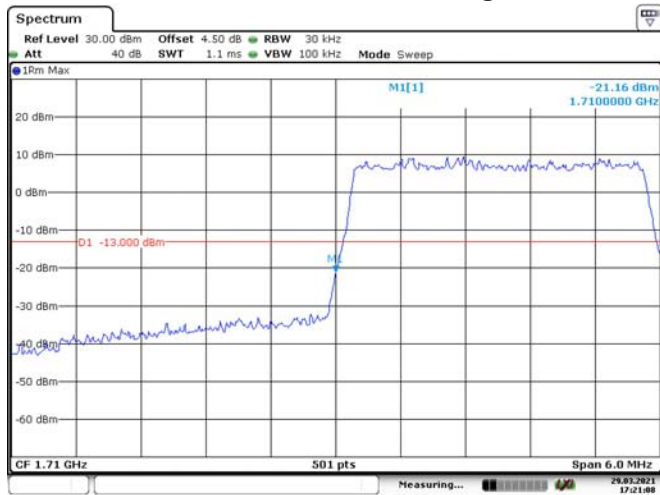
Date: 29-MAR-2021 17:17:47

1.4M, 16QAM, Right Band Edge



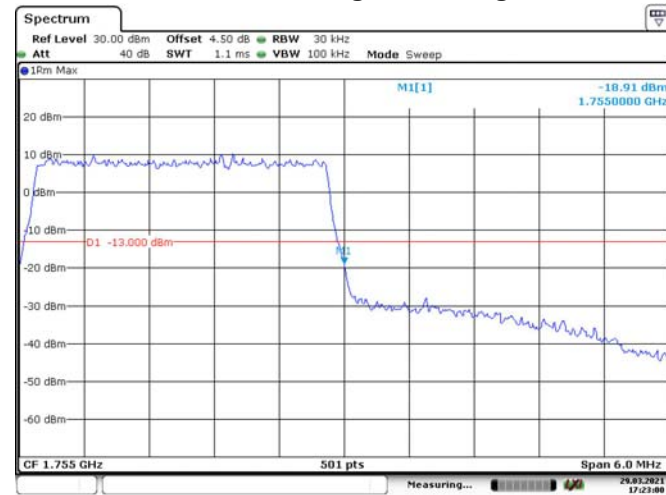
Date: 29-MAR-2021 17:20:21

3M, 16QAM, Left Band Edge



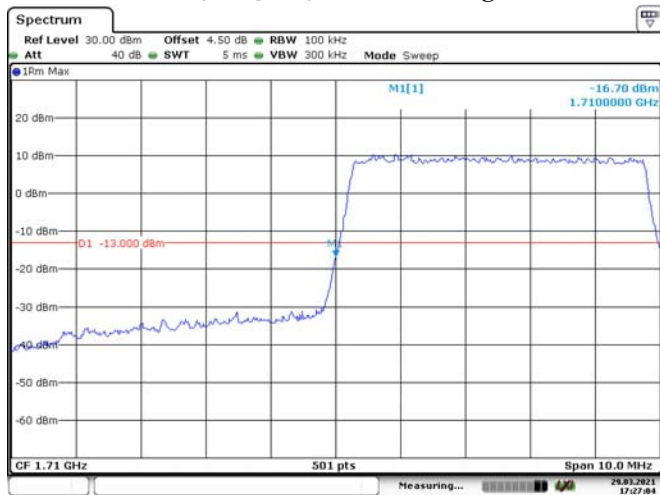
Date: 29-MAR-2021 17:21:08

3M, 16QAM, Right Band Edge



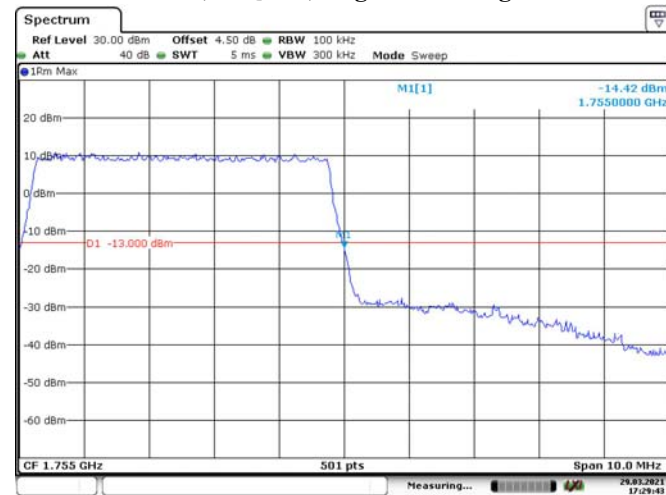
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5M, 16QAM, Left Band Edge



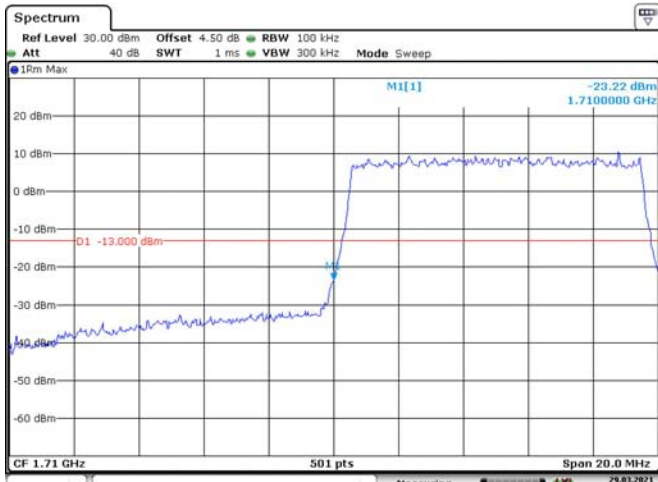
Date: 29-MAR-2021 17:27:05

5M, 16QAM, Right Band Edge



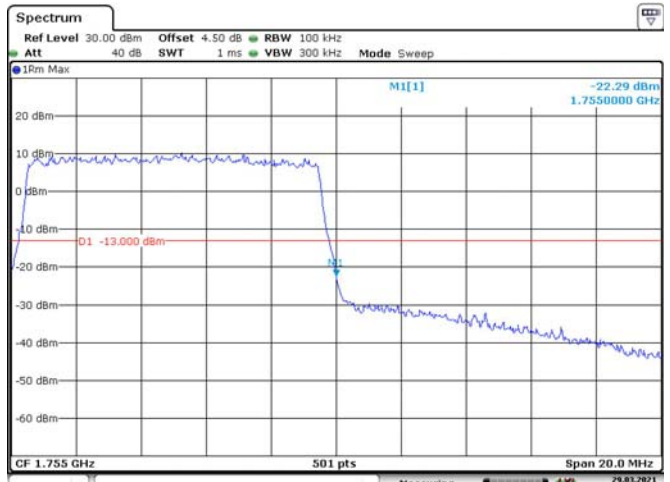
Date: 29-MAR-2021 17:29:44

10M, 16QAM, Left Band Edge



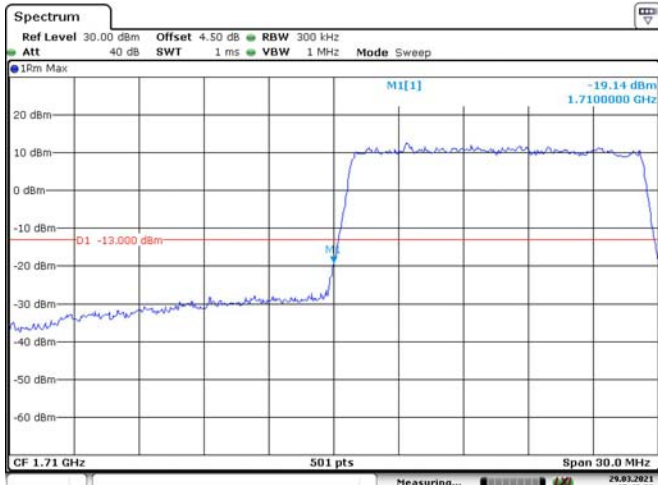
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10M, 16QAM, Right Band Edge



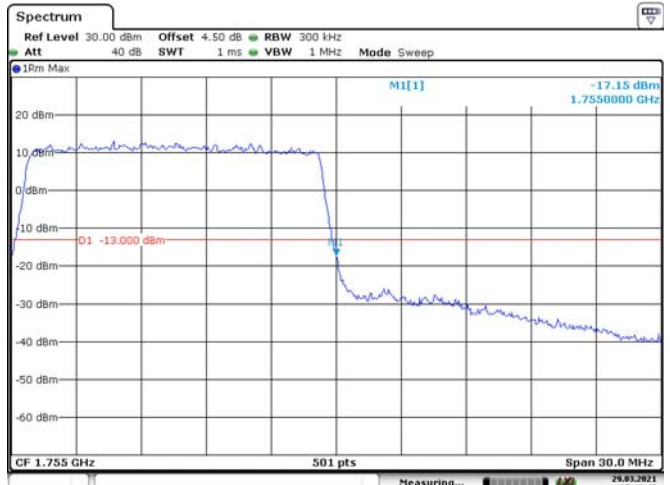
Date: 29-MAR-2021 17:37:30

15M, 16QAM, Left Band Edge



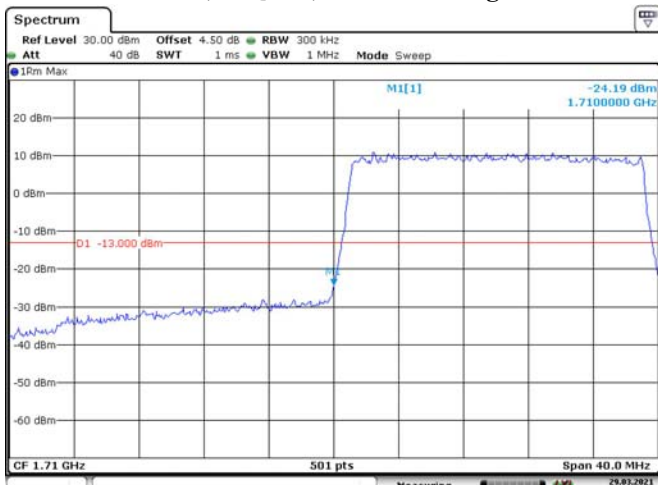
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15M, 16QAM, Right Band Edge



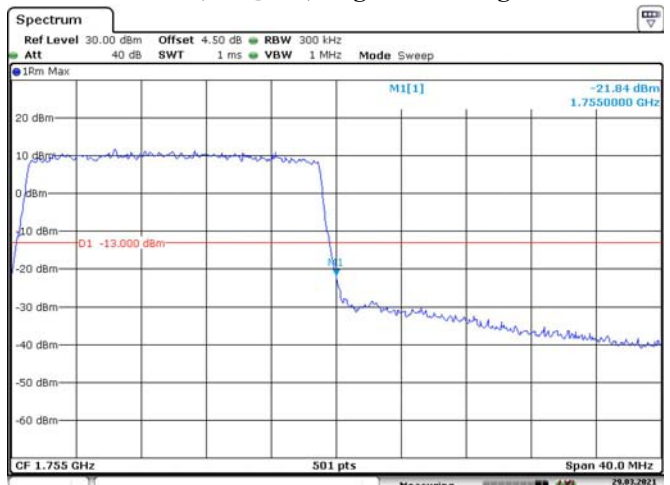
Date: 29-MAR-2021 17:42:44

20M, 16QAM, Left Band Edge



Date: 29-MAR-2021 17:44:28

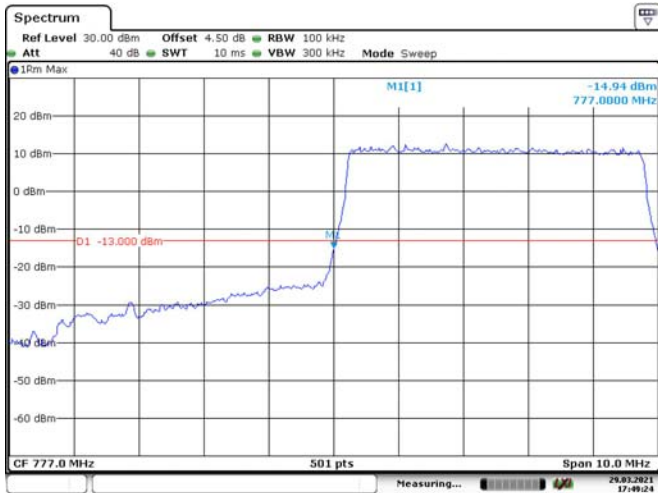
20M, 16QAM, Right Band Edge



Date: 29-MAR-2021 17:46:53

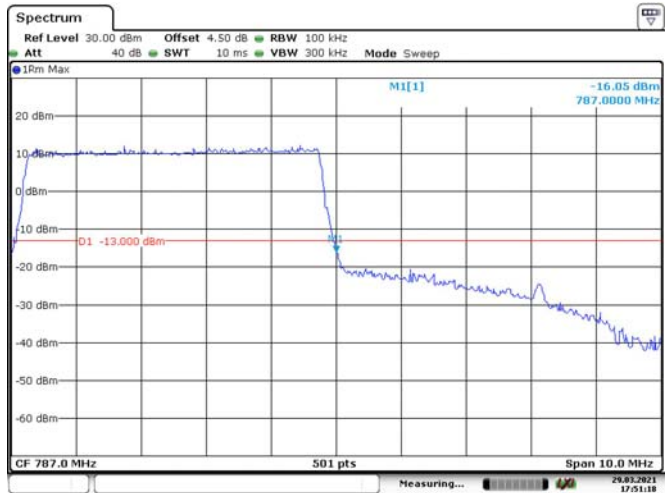
LTE Band 13:

5M, QPSK, Left Band Edge



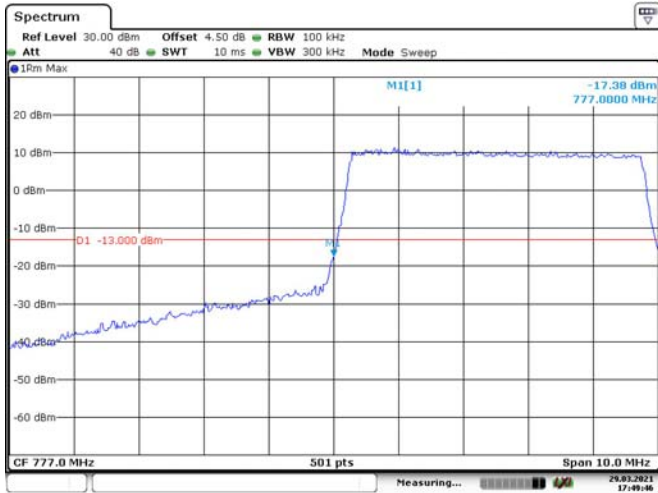
Date: 29.MAR.2021 17:49:24

5M, QPSK, Right Band Edge



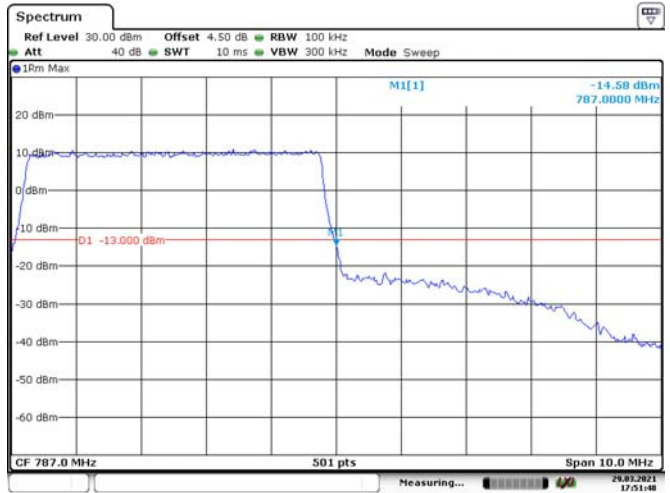
Date: 29.MAR.2021 17:51:18

5M, 16QAM, Left Band Edge



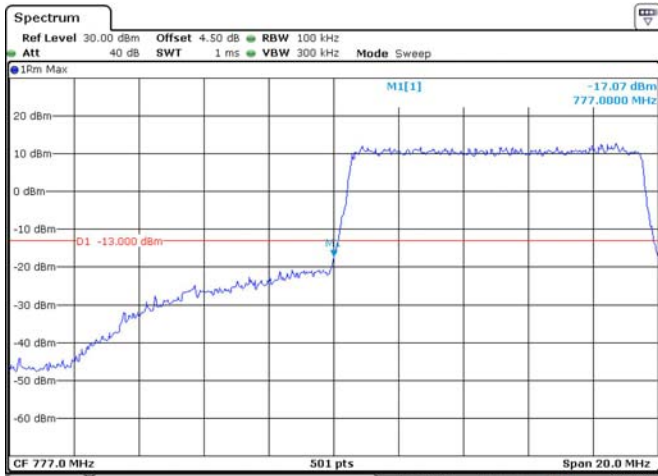
Date: 29.MAR.2021 17:49:47

5M, 16QAM, Right Band Edge



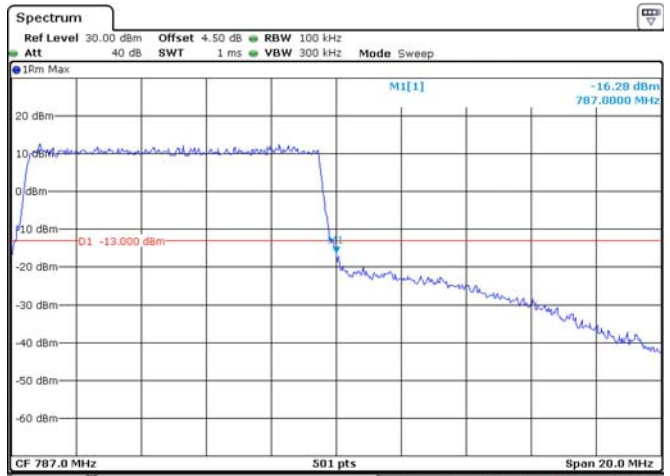
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10M, QPSK, Left Band Edge



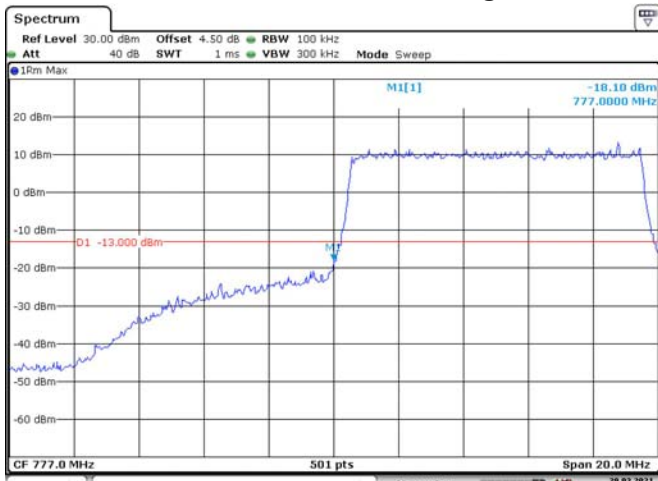
Date: 29.MAR.2021 18:01:05

10M, QPSK, Right Band Edge



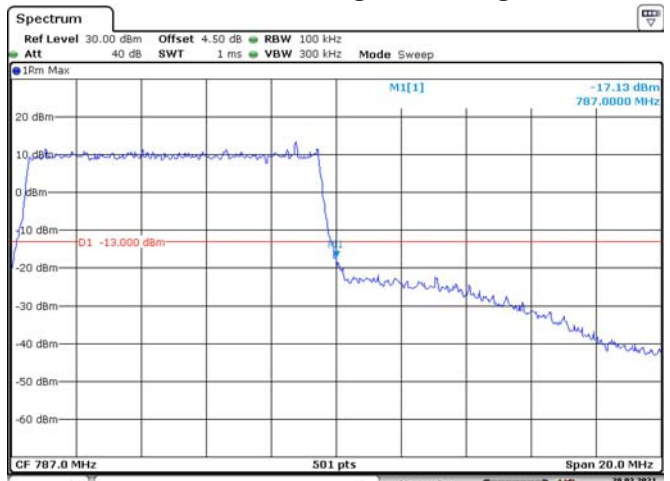
Date: 29.MAR.2021 18:04:21

10M, 16QAM, Left Band Edge



Date: 29.MAR.2021 18:01:56

10M, 16QAM, Right Band Edge



Date: 29.MAR.2021 18:02:39

FCC §2.1055, §27.54 - FREQUENCY STABILITY

Applicable Standard

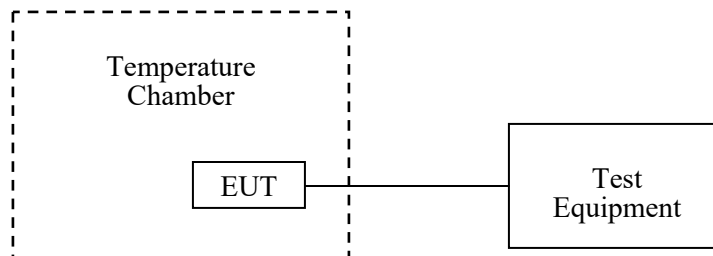
FCC § 2.1055 (a), § 2.1055 (d), §27.54

Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to communication test set via feed-through attenuators. The EUT was placed inside the temperature chamber. The leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the communication test set.

Frequency Stability vs. Voltage: An external variable DC power supply was connected to the battery terminals of the equipment under test. The voltage was set from 85% to 115% of the nominal value and was then decreased until the transmitter light no longer illuminated; i.e., the battery end point. The output frequency was recorded for each battery voltage.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101474	2020-07-07	2021-07-07
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41005011	Each time	N/A
E-Microwave	Blocking Control	EMDCB-00036	0E01201047	Each time	N/A
Unknown	Attenuator	UNAT-3+	15529	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	147473	2020-09-23	2021-09-22
ESPEC	Constant temperature and humidity Tester	ESX-4CA	018 463	2021-02-24	2022-02-23
UNI-T	Multimeter	UT39A	M130199938	2020-07-01	2021-07-01

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	24.1 °C
Relative Humidity:	61%
ATM Pressure:	100.8kPa
Tester:	Rita Huang
Test Date:	2021-03-29

Test Result: Compliance.

LTE Band 4

QPSK, Channel Bandwidth:10MHz					
Power Supplied	Temperature	F_L	Limit	F_H	Limit
Vac	°C	MHz	MHz	MHz	MHz
120	-30	1710.527700	1710	1754.471100	1755
	-20	1710.529800		1754.472600	
	-10	1710.527400		1754.470500	
	0	1710.529200		1754.473200	
	10	1710.530700		1754.472600	
	20	1710.528900		1754.471100	
	30	1710.526800		1754.473200	
	40	1710.529800		1754.473500	
50	1710.531600	1754.473500			
138	20	1710.530700		1754.472600	
102	20	1710.526200		1754.471700	

16-QAM, Channel Bandwidth:10MHz					
Power Supplied	Temperature	F_L	Limit	F_H	Limit
Vac	°C	MHz	MHz	MHz	MHz
120	-30	1710.531300	1710	1754.469300	1755
	-20	1710.528900		1754.472000	
	-10	1710.526200		1754.473800	
	0	1710.529200		1754.471400	
	10	1710.530700		1754.473800	
	20	1710.528900		1754.471100	
	30	1710.527400		1754.472900	
	40	1710.526800		1754.473500	
50	1710.531600	1754.468400			
138	20	1710.527400		1754.469300	
102	20	1710.529500		1754.471400	

LTE Band 13

QPSK, Channel Bandwidth:10MHz					
Power Supplied	Temperature	F_L	Limit	F_H	Limit
Vac	°C	MHz	MHz	MHz	MHz
120	-30	777.491100	777	786.509500	787
	-20	777.487800		786.509200	
	-10	777.486300		786.511600	
	0	777.487500		786.511900	
	10	777.487500		786.508900	
	20	777.489000		786.511000	
	30	777.487800		786.510100	
	40	777.489300		786.510700	
50	777.490200	786.509500			
138	20	777.491700		786.513700	
102	20	777.489600		786.511600	

16-QAM, Channel Bandwidth:10MHz					
Power Supplied	Temperature	F_L	Limit	F_H	Limit
Vac	°C	MHz	MHz	MHz	MHz
120	-30	777.526500	777	786.469600	787
	-20	777.531000		786.471100	
	-10	777.529500		786.470800	
	0	777.528600		786.473200	
	10	777.527400		786.470200	
	20	777.528900		786.471100	
	30	777.529800		786.468400	
	40	777.529800		786.473800	
50	777.530700	786.469000			
138	20	777.531000		786.470200	
102	20	777.526200		786.469600	

Note: The fundamental emissions stay within the authorized bands of operation based on the frequency deviation measured is small, the extreme voltage was declared by applicant.

******* END OF REPORT *******