



TESTING LABORATORY
CERTIFICATE #4820.01



FCC PART 24E,PART 27

MEASUREMENT AND TEST REPORT

For

A Beep, LLC

452 N CHICAGO ST, Joliet, Illinois, United States, 60432

FCC ID: 2APPUDTP8750

Report Type: Original Report	Product Type: MOBILE RADIO
Report Number: RXM190225052-00A	
Report Date: 2019-03-12	
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

EUT Name:	MOBILE RADIO
EUT Model:	DTP8750
Operation Frequency:	LTE Band 2: 1850-1910 MHz(TX), 1930-1990 MHz(RX) LTE band 4: 1710-1755 MHz(TX), 2110-2155 MHz(RX)
Rated Output Power (Conducted):	23 dBm
Modulation Type:	QPSK, 16QAM
Rated Input Voltage:	12V DC
External Dimension:	13cm(L)*10.2cm(W)*4cm(H)
Serial Number:	190225052
EUT Received Date:	2019.02.27

Objective

This report is prepared on behalf of **A Beep, LLC** in accordance with: Part 2-Subpart J, Part 24-Subpart E Part 27 of the Federal Communication Commissions 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, Sub-part J as well as the following parts:

Part 24 Subpart E - Personal Communication Services
Part 27 – Miscellaneous wireless communications services

Applicable Standards: TIA/EIA 603-D-2010.

All radiated and conducted emissions measurements were performed at Bay Area Compliance Laboratories Corp.(Dongguan).

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%

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industry Area, Tangxia, 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.

SYSTEM TEST CONFIGURATION

Justification

The EUT was configured for testing according to TIA/EIA-603-D 2010.

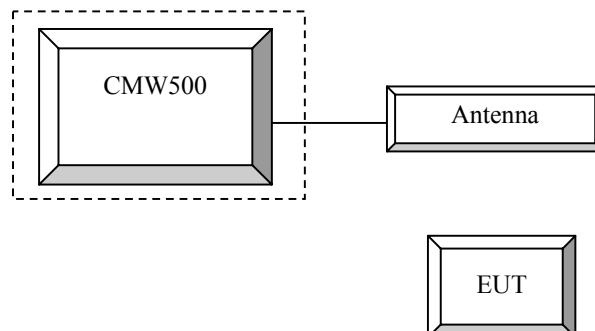
Equipment Modifications

No modification was made to the EUT.

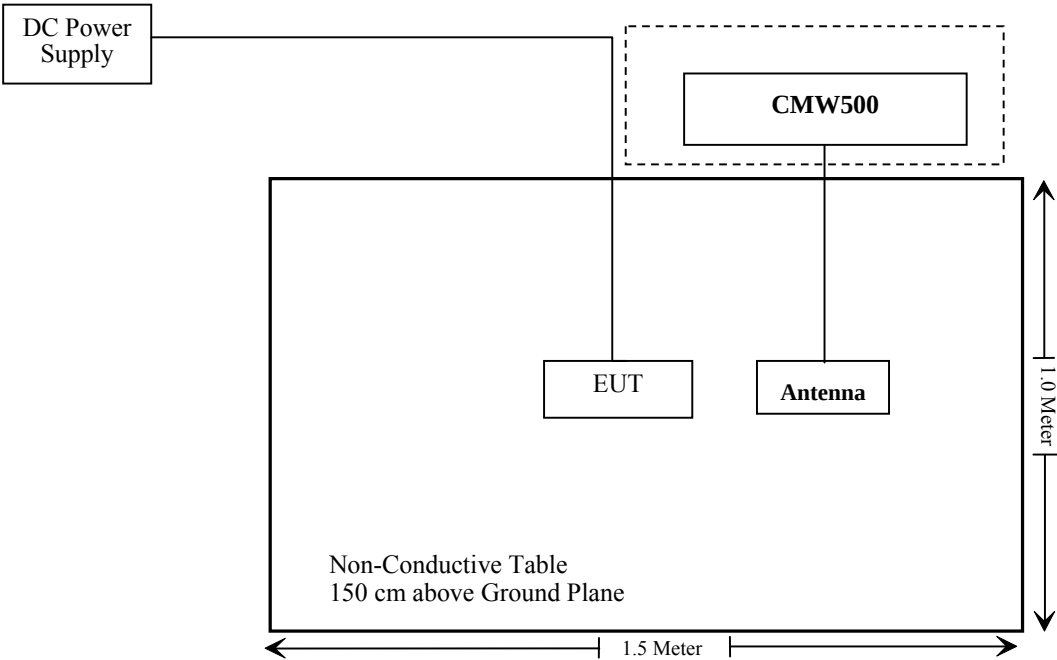
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
R&S	Wideband Radio Communication Tester	CMW500	147473
Pro instrument	DC Power Supply	pps3300	3300012
Un-known	ANTENNA	/	/

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

Rules	Description of Test	Result
§1.1310, §2.1091	Maximum Permissible Exposure	Compliance
FCC§2.1046; § 24.232 (c);§27.50	RF Output Power	Compliance
FCC§ 2.1047	Modulation Characteristics	Not Applicable
FCC§ 2.1049; § 24.238; §27.53	Occupied Bandwidth	Compliance
FCC§ 2.1051, § 24.238 (a); §27.53;	Spurious Emissions at Antenna Terminal	Compliance
FCC§ 2.1053 § 24.238 (a); §27.53	Field Strength of Spurious Radiation	Compliance
FCC§ 24.238 (a); §27.53;	Out of band emission, Band Edge	Compliance
FCC§ 2.1055 § 24.235; §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/cm ²)	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;

Calculation Formula:

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

$S = PG/4\pi R^2$ = 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);

Calculated Data:

Mode	Frequency (MHz)	Antenna Gain		Maximum Conducted Power including Tune-Up Tolerance		Evaluation Distance (cm)	Power Density	MPE Limit
		(dBi)	(numeric)	(dBm)	(mW)		(mW/cm ²)	(mW/cm ²)
LTE Band 2	1850-1910	3	2.00	23	200	20.00	0.08	1.0
LTE Band 4	1710-1755	3	2.00	23	200	20.00	0.08	1.0

Result: Compliance, The device meets MPE requirement for Devices Used by the General Public (Uncontrolled Environment) at distance ≥ 20 cm.

FCC §2.1047 - MODULATION CHARACTERISTIC

According to FCC § 2.1047(d), Part 24E, Part 27 there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

FCC § 2.1046, § 24.232 (c) & § 27.50- RF OUTPUT POWER

Applicable Standard

According to FCC §2.1046 and §24.232 (C), mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

According to §24.232 (d) Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of §24.51. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

According to §27.50

(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
64 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 Signalling 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.

Radiated method:

ANSI/TIA-603-D section 2.2.17

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2018-09-05	2019-09-05
Agilent	Spectrum Analyzer	E4440A	SG43360054	2019-01-04	2020-01-04
TDK RF	Horn Antenna	HRN-0118	130 084	2018-10-12	2021-10-12
ETS-Lindgren	Horn Antenna	3115	000 527 35	2018-10-12	2021-10-12
Unknown	Coaxial Cable	C-SJSJ-50	C-0800-01	2018-09-05	2019-09-05
Agilent	Signal Generator	E8247C	MY43321350	2018-12-10	2019-12-10
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	147473	2018-08-03	2019-08-03

*** 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:	23.7~25.2°C
Relative Humidity:	52~63 %
ATM Pressure:	100.5~101.1 kPa

** The testing was performed by Neil Liao, Tyler Pan,, Andy Huang on 2019-03-04~2019-03-06.*

Conducted Output Power**LTE Band 2**

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	RB1#0	22.07	22.47	22.33
		RB1#3	22.19	22.57	22.31
		RB1#5	22.05	22.48	22.19
		RB3#0	22.06	22.40	22.09
		RB3#3	22.00	22.45	22.07
		RB6#0	21.04	21.38	21.06
	16QAM	RB1#0	20.93	21.56	21.08
		RB1#3	21.15	21.61	21.22
		RB1#5	20.93	21.56	21.00
		RB3#0	21.04	21.48	21.11
		RB3#3	21.04	21.51	21.11
		RB6#0	20.00	20.44	19.98
3MHz	QPSK	RB1#0	22.16	22.41	22.23
		RB1#8	22.06	22.40	22.17
		RB1#14	22.10	22.32	22.17
		RB6#0	21.06	21.44	21.07
		RB6#9	21.05	21.44	21.08
		RB15#0	21.04	21.40	21.10
	16QAM	RB1#0	20.97	21.41	21.18
		RB1#8	21.05	21.37	21.20
		RB1#14	20.91	21.31	21.03
		RB6#0	20.01	20.47	19.95
		RB6#9	20.02	20.42	20.00
		RB15#0	20.09	20.46	20.10
5MHz	QPSK	RB1#0	21.98	22.28	22.13
		RB1#13	22.00	22.39	22.08
		RB1#24	21.99	22.27	22.07
		RB15#0	21.02	21.44	21.10
		RB15#10	21.03	21.41	21.08
		RB25#0	21.04	21.38	21.03
	16QAM	RB1#0	21.07	21.34	21.22
		RB1#13	21.02	21.53	21.16
		RB1#24	20.96	21.42	21.22
		RB15#0	20.07	20.48	20.06
		RB15#10	20.04	20.42	20.03
		RB25#0	20.04	20.44	20.00

10MHz	QPSK	RB1#0	22.21	22.38	22.38
		RB1#25	22.20	22.58	22.39
		RB1#49	22.25	22.46	22.28
		RB25#0	21.10	21.41	21.11
		RB25#25	21.07	21.54	21.07
		RB50#0	21.07	21.50	21.09
	16QAM	RB1#0	20.96	21.26	21.39
		RB1#25	21.03	21.52	21.32
		RB1#49	21.18	21.43	21.19
		RB25#0	20.05	20.47	20.12
		RB25#25	20.09	20.51	20.11
		RB50#0	20.08	20.50	20.11
15MHz	QPSK	RB1#0	22.23	22.30	22.11
		RB1#38	22.23	22.34	21.99
		RB1#74	22.32	22.43	22.01
		RB36#0	21.05	21.42	21.18
		RB36#39	21.08	21.30	21.10
		RB75#0	20.93	21.33	21.11
	16QAM	RB1#0	20.91	21.24	21.02
		RB1#38	20.98	21.29	20.93
		RB1#74	20.89	21.32	20.97
		RB36#0	20.01	20.41	20.17
		RB36#39	20.07	20.35	19.96
		RB75#0	19.96	20.36	20.03
20MHz	QPSK	RB1#0	21.97	22.30	22.25
		RB1#50	22.13	22.61	22.20
		RB1#99	22.20	22.45	22.09
		RB50#0	21.00	21.30	21.22
		RB50#50	21.14	21.31	21.16
		RB100#0	21.08	21.27	21.18
	16QAM	RB1#0	21.06	21.07	21.28
		RB1#50	21.31	21.41	21.25
		RB1#99	21.22	21.14	21.00
		RB50#0	19.96	20.33	20.24
		RB50#50	20.07	20.35	20.06
		RB100#0	20.08	20.38	20.19

LTE Band 4

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	RB1#0	20.44	22.48	22.73
		RB1#3	22.56	22.66	22.80
		RB1#5	22.54	22.57	22.74
		RB3#0	22.46	22.60	22.65
		RB3#3	22.46	22.58	22.66
		RB6#0	21.50	21.66	21.68
	16QAM	RB1#0	21.44	21.52	21.70
		RB1#3	21.57	21.69	21.85
		RB1#5	21.40	21.43	21.76
		RB3#0	21.40	21.64	21.66
		RB3#3	21.50	21.57	21.61
		RB6#0	20.52	20.61	20.71
3MHz	QPSK	RB1#0	22.49	22.45	22.71
		RB1#8	22.50	22.59	22.69
		RB1#14	22.43	22.55	22.68
		RB6#0	21.41	21.56	21.64
		RB6#9	21.48	21.62	21.67
		RB15#0	21.44	21.69	21.65
	16QAM	RB1#0	21.30	21.49	21.71
		RB1#8	21.40	21.44	21.74
		RB1#14	21.46	21.57	21.64
		RB6#0	20.37	20.48	20.74
		RB6#9	20.42	20.59	20.64
		RB15#0	20.49	20.67	20.73
5MHz	QPSK	RB1#0	22.35	22.47	22.61
		RB1#13	22.38	22.63	22.71
		RB1#24	22.36	22.56	22.79
		RB15#0	21.43	21.59	21.90
		RB15#10	21.49	21.72	21.79
		RB25#0	21.49	21.60	21.84
	16QAM	RB1#0	21.42	21.52	21.70
		RB1#13	21.50	21.62	21.86
		RB1#24	21.50	21.67	21.79
		RB15#0	20.47	20.61	20.93
		RB15#10	20.47	20.71	20.74
		RB25#0	20.51	20.59	20.66

10MHz	QPSK	RB1#0	22.65	22.68	22.90
		RB1#25	22.66	22.78	22.87
		RB1#49	22.72	22.77	22.96
		RB25#0	21.59	21.51	21.68
		RB25#25	21.57	21.62	21.89
		RB50#0	21.52	21.62	21.63
	16QAM	RB1#0	21.67	21.40	21.96
		RB1#25	21.74	21.83	21.96
		RB1#49	21.67	21.72	22.01
		RB25#0	20.59	20.56	20.71
		RB25#25	20.57	20.73	20.93
		RB50#0	20.61	20.60	20.77
15MHz	QPSK	RB1#0	22.56	22.70	22.95
		RB1#38	22.49	22.84	22.72
		RB1#74	22.68	22.94	22.85
		RB36#0	21.61	21.62	21.76
		RB36#39	21.59	21.85	21.93
		RB75#0	21.66	21.78	21.88
	16QAM	RB1#0	21.47	21.48	21.84
		RB1#38	21.45	21.53	21.74
		RB1#74	21.58	21.66	21.94
		RB36#0	20.54	20.64	20.80
		RB36#39	20.60	20.81	20.95
		RB75#0	20.60	20.79	20.83
20MHz	QPSK	RB1#0	22.61	22.55	22.78
		RB1#50	22.71	22.64	22.73
		RB1#99	22.89	22.86	22.82
		RB50#0	21.50	21.54	21.85
		RB50#50	21.73	21.76	21.70
		RB100#0	21.58	21.72	21.69
	16QAM	RB1#0	21.28	21.55	21.79
		RB1#50	21.53	21.79	21.94
		RB1#99	21.52	21.81	21.85
		RB50#0	20.51	20.54	20.86
		RB50#50	20.74	20.78	20.72
		RB100#0	20.58	20.72	20.91

PAR, Band 2

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	20 MHz	4.36	4.36	4.60	13
	100 RB		5.08	4.92	5.08	13
16QAM	1 RB	20 MHz	5.36	5.32	5.52	13
	100 RB		6.04	5.92	6.00	13

PAR, Band 4

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	20 MHz	4.48	6.08	4.20	13
	100 RB		5.00	5.20	5.08	13
16QAM	1 RB	20 MHz	5.40	5.60	5.12	13
	100 RB		6.00	6.08	6.00	13

Note: peak-to-average ratio (PAR) <13 dB.

ERP & EIRP

LTE Band 2

Frequency (MHz)	BW (MHz)	Modulation	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)			
1880.00	1.40	QPSK	H	86.74	14.13	11.66	2.66	23.13	33.00	9.87
1880.00			V	87.48	15.01	11.66	2.66	24.01	33.00	8.99
1880.00	3.00		H	86.59	13.98	11.66	2.66	22.98	33.00	10.02
1880.00			V	87.39	14.92	11.66	2.66	23.92	33.00	9.08
1880.00	5.00		H	86.38	13.77	11.66	2.66	22.77	33.00	10.23
1880.00			V	87.21	14.74	11.66	2.66	23.74	33.00	9.26
1880.00	10.00		H	85.44	12.83	11.66	2.66	21.83	33.00	11.17
1880.00			V	86.50	14.03	11.66	2.66	23.03	33.00	9.97
1880.00	15.00		H	85.47	12.86	11.66	2.66	21.86	33.00	11.14
1880.00			V	85.52	13.05	11.66	2.66	22.05	33.00	10.95
1880.00	20.00		H	87.22	14.61	11.66	2.66	23.61	33.00	9.39
1880.00			V	86.50	14.03	11.66	2.66	23.03	33.00	9.97
1880.00	1.40	16QAM	H	85.90	13.29	11.66	2.66	22.29	33.00	10.71
1880.00			V	86.65	14.18	11.66	2.66	23.18	33.00	9.82
1880.00	3.00		H	85.76	13.15	11.66	2.66	22.15	33.00	10.85
1880.00			V	86.57	14.10	11.66	2.66	23.10	33.00	9.90
1880.00	5.00		H	85.49	12.88	11.66	2.66	21.88	33.00	11.12
1880.00			V	86.41	13.94	11.66	2.66	22.94	33.00	10.06
1880.00	10.00		H	84.62	12.01	11.66	2.66	21.01	33.00	11.99
1880.00			V	85.27	12.80	11.66	2.66	21.80	33.00	11.20
1880.00	15.00		H	84.67	12.06	11.66	2.66	21.06	33.00	11.94
1880.00			V	85.67	13.20	11.66	2.66	22.20	33.00	10.80
1880.00	20.00		H	84.77	12.16	11.66	2.66	21.16	33.00	11.84
1880.00			V	85.80	13.33	11.66	2.66	22.33	33.00	10.67

LTE Band 4

Frequency (MHz)	BW (MHz)	Modulation	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)			
1732.50	1.40	QPSK	H	86.41	12.36	10.90	2.51	20.75	30.00	9.25
1732.50			V	86.67	12.30	10.90	2.51	20.69	30.00	9.31
1732.50	3.00		H	86.39	12.34	10.90	2.51	20.73	30.00	9.27
1732.50			V	86.55	12.18	10.90	2.51	20.57	30.00	9.43
1732.50	5.00		H	86.10	12.05	10.90	2.51	20.44	30.00	9.56
1732.50			V	86.28	11.91	10.90	2.51	20.30	30.00	9.70
1732.50	10.00		H	84.33	10.28	10.90	2.51	18.67	30.00	11.33
1732.50			V	84.46	10.09	10.90	2.51	18.48	30.00	11.52
1732.50	15.00		H	84.56	10.51	10.90	2.51	18.90	30.00	11.10
1732.50			V	84.69	10.32	10.90	2.51	18.71	30.00	11.29
1732.50	20.00		H	85.65	11.60	10.90	2.51	19.99	30.00	10.01
1732.50			V	85.71	11.34	10.90	2.51	19.73	30.00	10.27
1732.50	1.40	16QAM	H	85.43	11.38	10.90	2.51	19.77	30.00	10.23
1732.50			V	85.70	11.33	10.90	2.51	19.72	30.00	10.28
1732.50	3.00		H	85.40	11.35	10.90	2.51	19.74	30.00	10.26
1732.50			V	85.66	11.29	10.90	2.51	19.68	30.00	10.32
1732.50	5.00		H	85.24	11.19	10.90	2.51	19.58	30.00	10.42
1732.50			V	85.60	11.23	10.90	2.51	19.62	30.00	10.38
1732.50	10.00		H	84.70	10.65	10.90	2.51	19.04	30.00	10.96
1732.50			V	84.67	10.30	10.90	2.51	18.69	30.00	11.31
1732.50	15.00		H	84.37	10.32	10.90	2.51	18.71	30.00	11.29
1732.50			V	84.79	10.42	10.90	2.51	18.81	30.00	11.19
1732.50	20.00		H	84.56	10.51	10.90	2.51	18.90	30.00	11.10
1732.50			V	84.84	10.47	10.90	2.51	18.86	30.00	11.14

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 §2.1049,§24.238 & §27.53- OCCUPIED BANDWIDTH

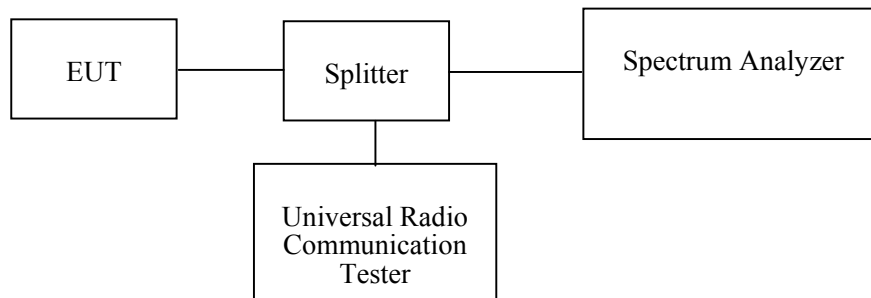
Applicable Standard

FCC §2.1049,§24.238 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
Rohde & Schwarz	Signal Analyzer	FSIQ26	831929/005	2018-08-03	2019-08-03
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A
Unknown	Coaxial Cable	C-SJ00-0010	C0010/02	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:	25.2°C
Relative Humidity:	52 %
ATM Pressure:	101.1 kPa

The testing was performed by Andy Huang on 2019-03-04.

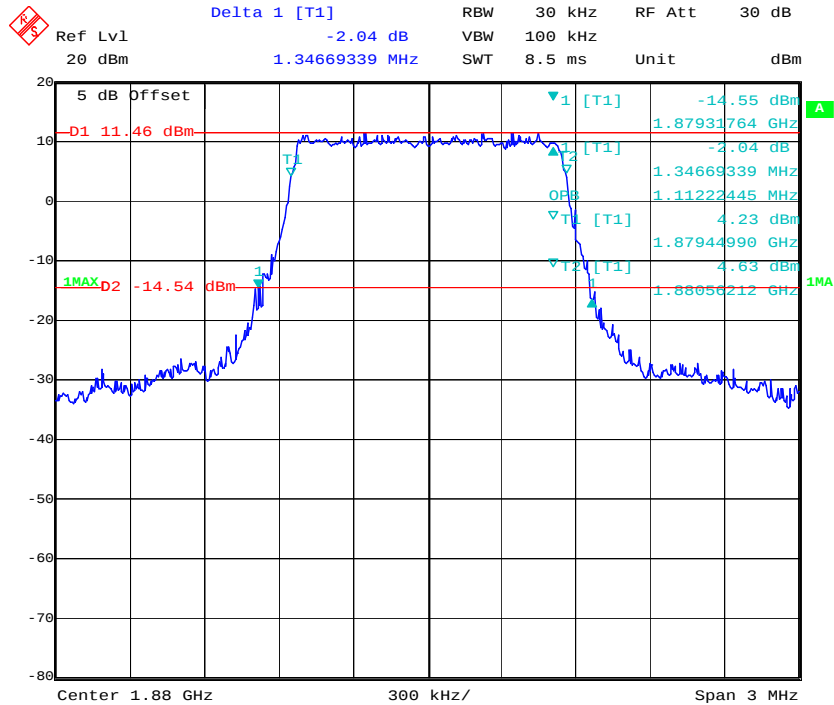
Test Mode: Transmitting

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

Band	Bandwidth	Modulation	99% occupied bandwidth (MHz)	26 dB bandwidth (MHz)
LTE Band 2	1.4 MHz	QPSK	1.112	1.347
		16QAM	1.100	1.299
	3 MHz	QPSK	2.693	2.958
		16QAM	2.693	2.946
	5 MHz	QPSK	4.529	5.030
		16QAM	4.529	5.010
	10 MHz	QPSK	8.938	9.780
		16QAM	8.938	9.699
	15 MHz	QPSK	13.467	14.790
		16QAM	13.467	14.850
	20 MHz	QPSK	17.796	19.319
		16QAM	17.956	19.399
LTE Band 4	1.4 MHz	QPSK	1.100	1.311
		16QAM	1.100	1.323
	3 MHz	QPSK	2.693	2.958
		16QAM	2.693	2.970
	5 MHz	QPSK	4.549	5.010
		16QAM	4.529	5.050
	10 MHz	QPSK	8.938	9.699
		16QAM	8.978	9.739
	15 MHz	QPSK	13.467	14.850
		16QAM	13.527	14.850
	20 MHz	QPSK	17.956	19.479
		16QAM	17.956	19.479

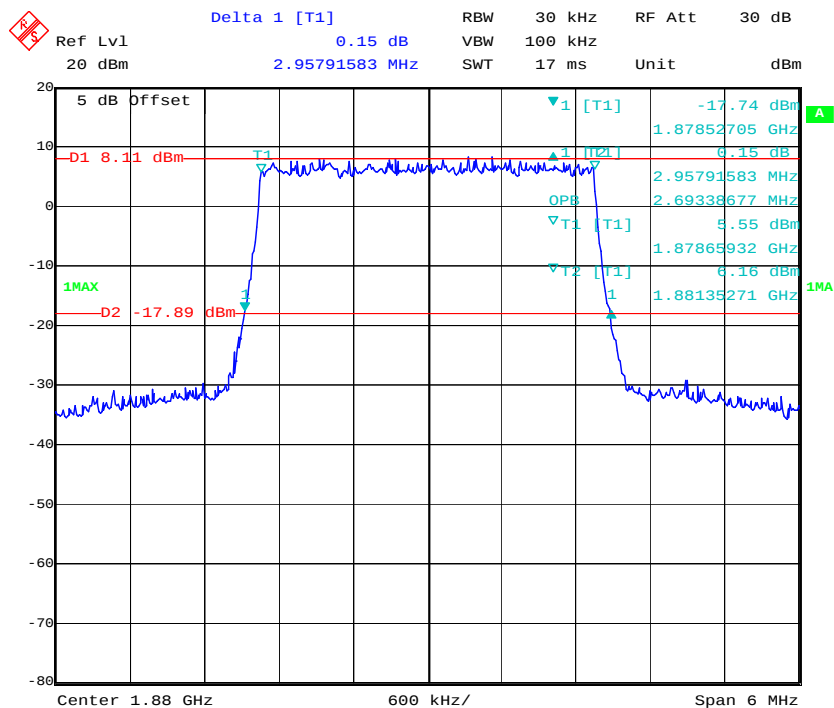
LTE Band 2

QPSK_1.4 MHz



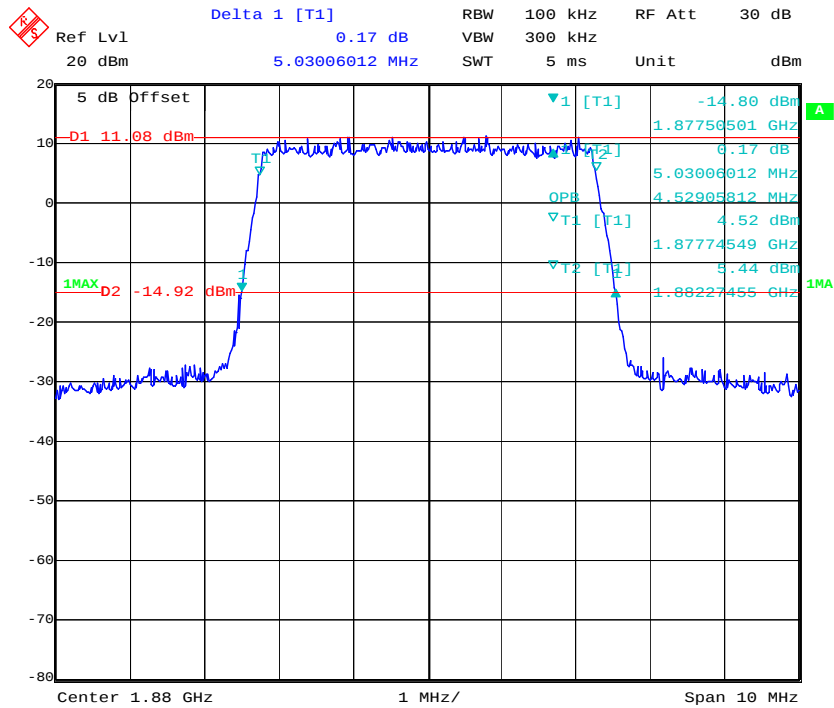
Date: 4.MAR.2019 20:14:13

QPSK_3 MHz

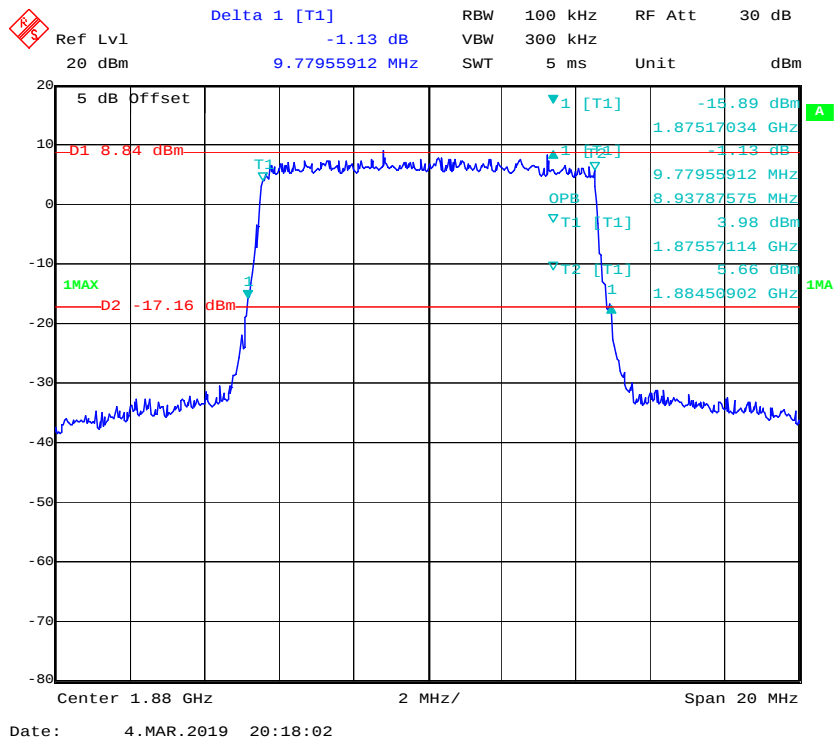


Date: 4.MAR.2019 20:15:31

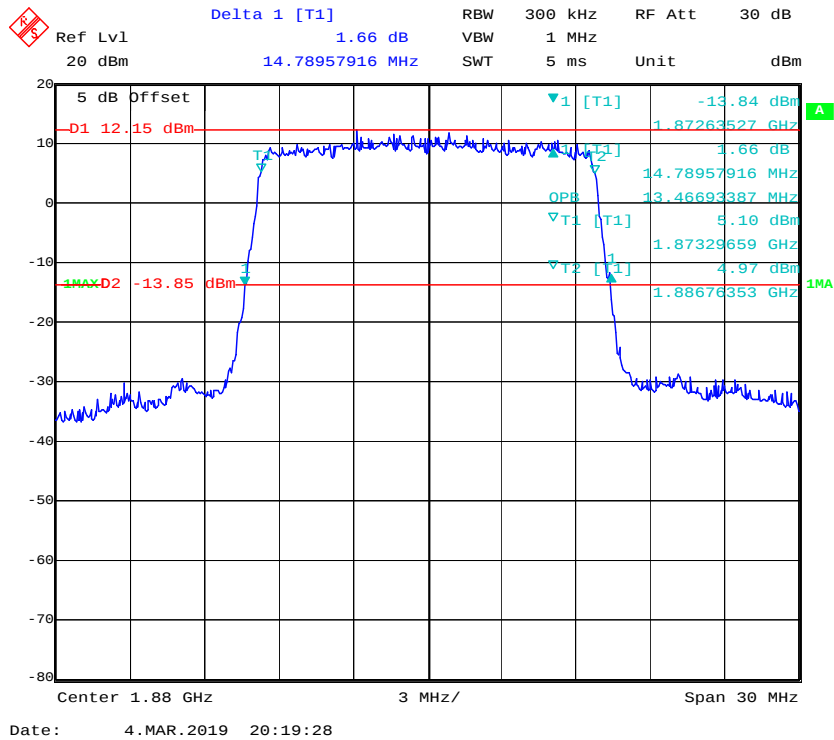
QPSK_5 MHz



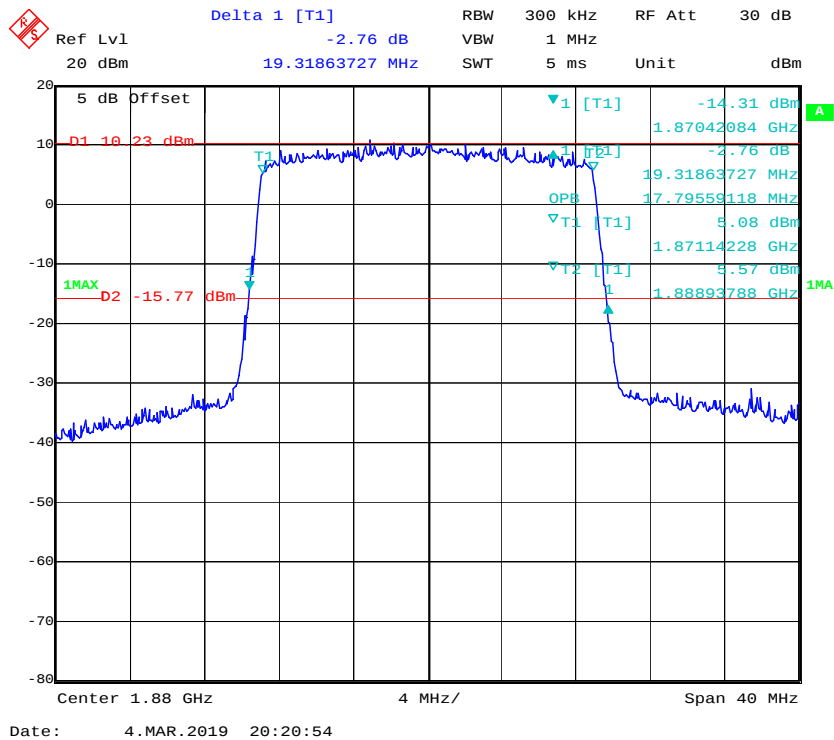
QPSK_10 MHz



QPSK_15 MHz



QPSK_20 MHz



[illegible]

Ref Lvl 0.92 dB RBW 30 kHz RF Att 30 dB
 20 dBm 2.94589178 MHz SWT 17 ms Unit dBm

5 dB Offset

D1 7.97 dBm

1MAX

D2 -18.03 dBm

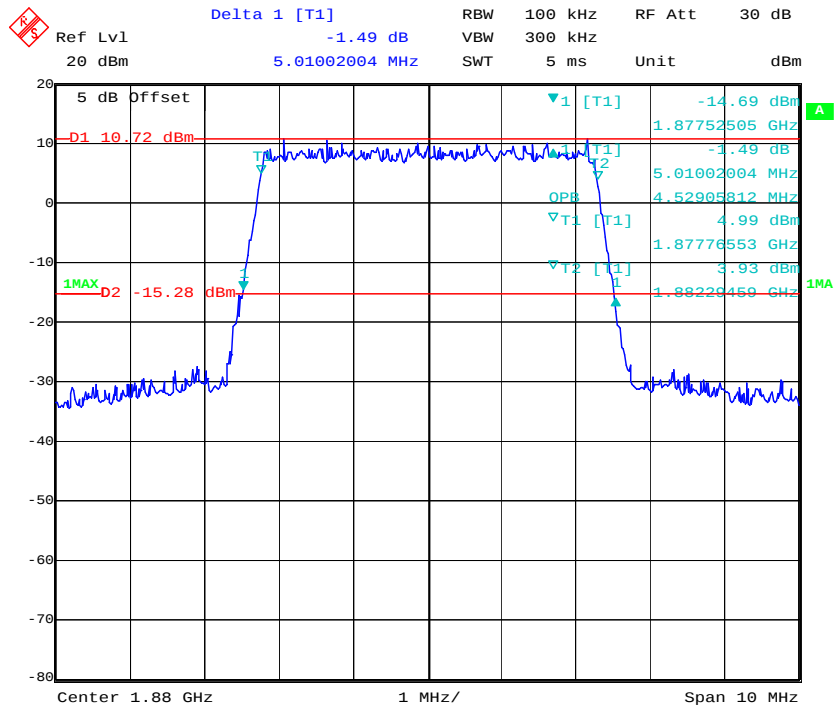
1MA

▼1 [T1] -15.34 dBm
 1.87852705 GHz
 ▲1 [T1] 6.92 dB
 2.94589178 MHz
 OPB 2.69338677 MHz
 ▼T1 [T1] 3.49 dBm
 1.87865932 GHz
 ▼T2 [T1] 3.38 dBm
 1.88135271 GHz

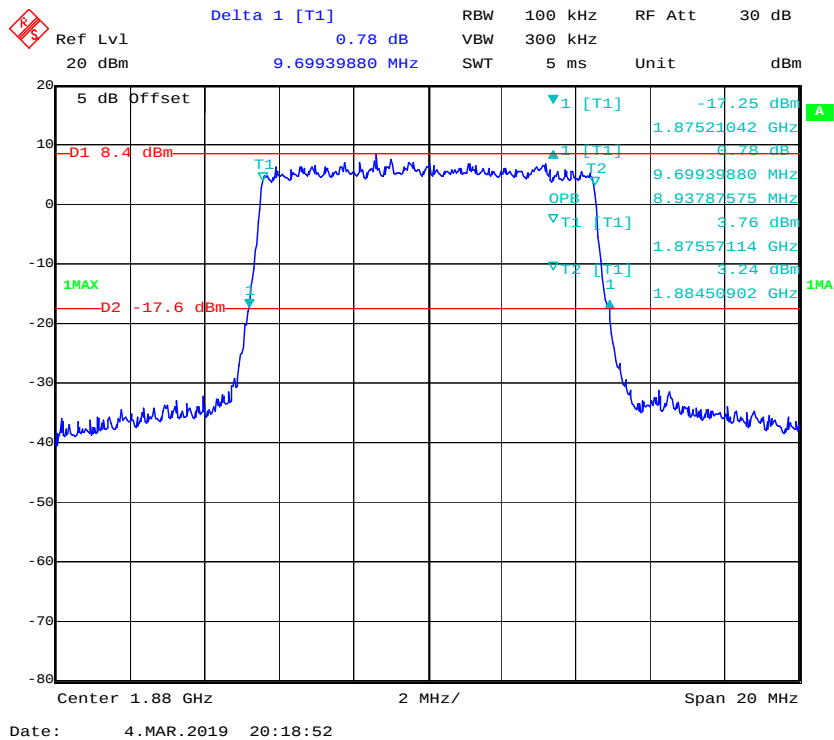
Center 1.88 GHz 600 kHz/ Span 6 MHz

Date: 4.MAR.2019 20:16:07

16QAM_5 MHz



16QAM_10 MHz



Ref Lvl 5 dB Offset

20 dBm

Delta 1 [T1] -2.42 dB

14.84969940 MHz

RBW 300 kHz

RF Att 30 dB

SWT 1 ms

Unit dBm

D1 9.77 dBm

D2 -16.23 dBm

1MAX

1 [T1] -14.21 dBm

1.87263527 GHz

2 [T1] -4.42 dBm

14.84969940 MHz

OPB 13.46693387 MHz

▽T1 [T1] 5.15 dBm

1.87329659 GHz

▽T2 [T1] 4.48 dBm

1.88676353 GHz

Center 1.88 GHz

3 MHz/

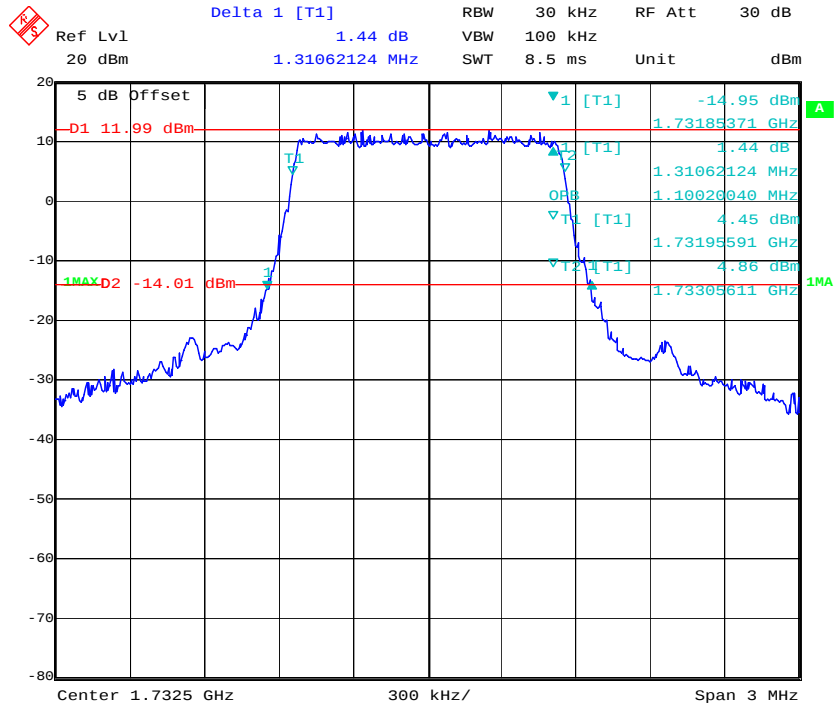
Span 30 MHz

Date: 4.MAR.2019 20:20:11

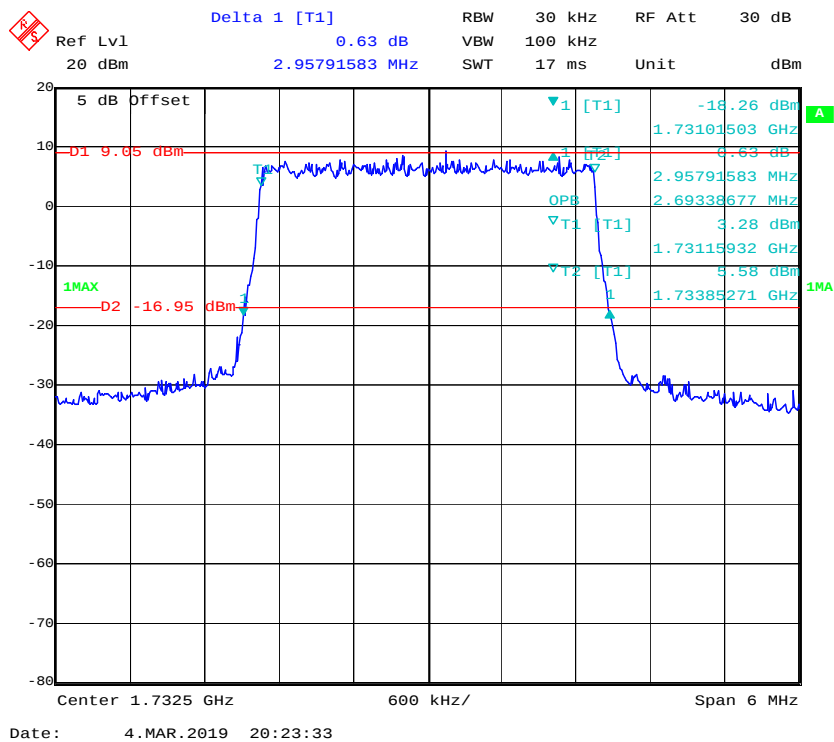
[illegible]

LTE Band 4

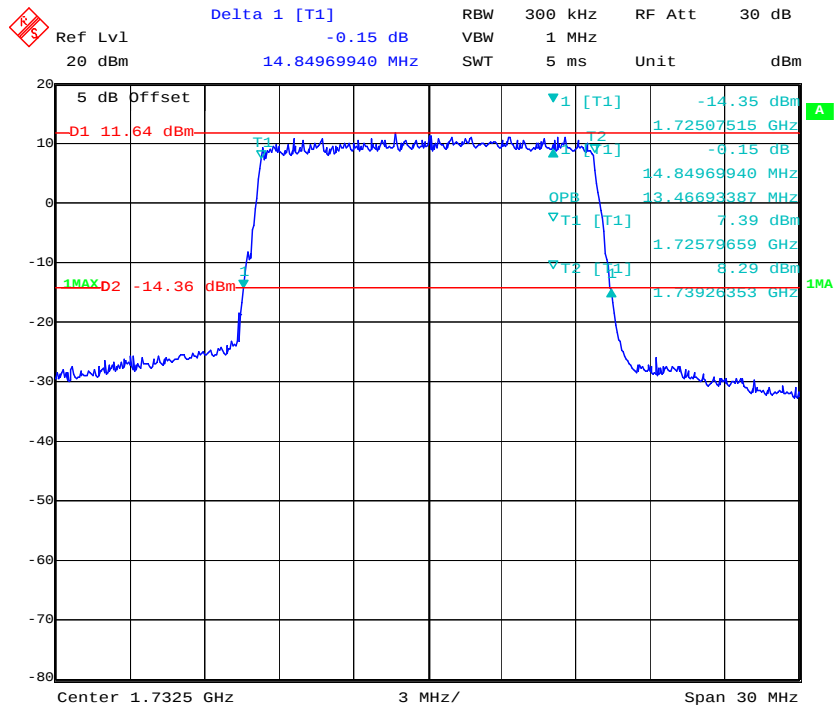
QPSK_1.4 MHz



QPSK_3 MHz

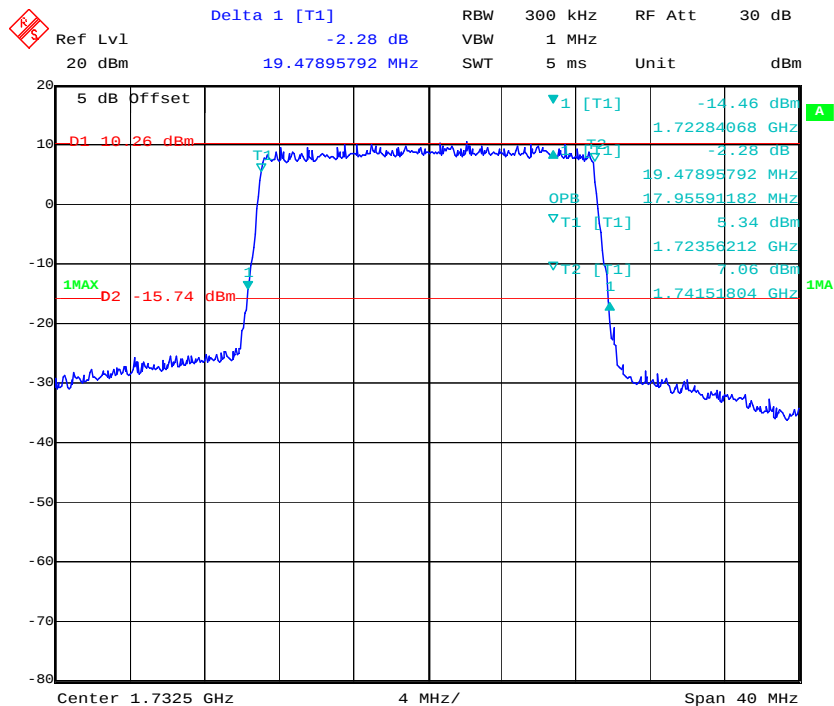


QPSK_15 MHz



Date: 4.MAR.2019 20:27:24

QPSK_20 MHz



Date: 4.MAR.2019 20:28:54

[illegible]

Ref Lvl 0.79 dB
20 dBm
Delta 1 [T1]
2.96993988 MHz
RBW 30 kHz
VBW 100 kHz
RF Att 30 dB
SWT 17 ms
Unit dBm

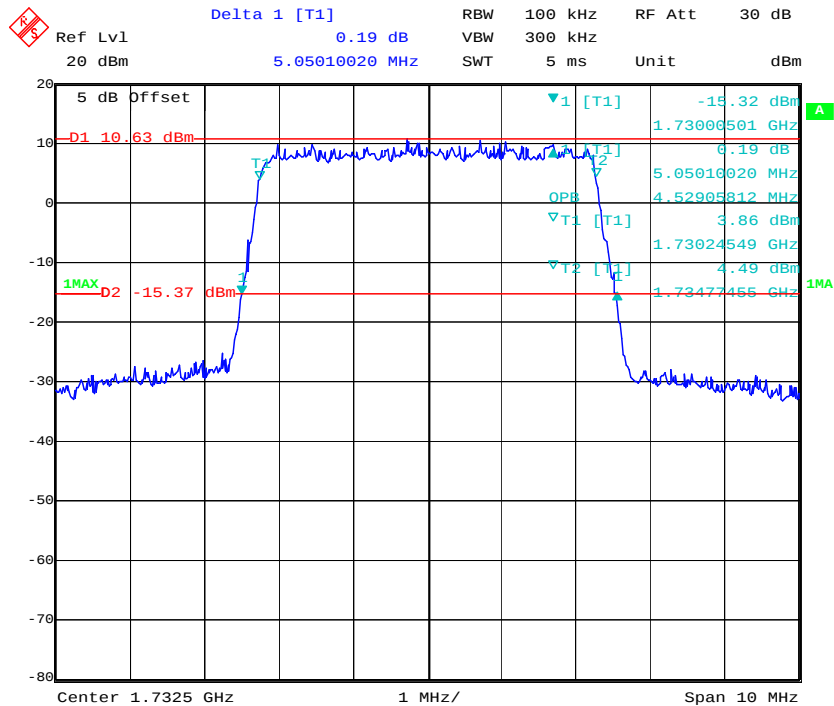
5 dB Offset
-D1 7.18 dBm
-D2 -18.82 dBm
1MAX
1MA

▼1 [T1] -15.87 dBm
▲1 [T1] 6.79 dB
OPB 2.96993988 MHz
▼T1 [T1] 2.42 dBm
▼T2 [T1] 3.33 dBm
1.73101503 GHz
2.69338677 MHz
1.73115932 GHz
1.73385271 GHz

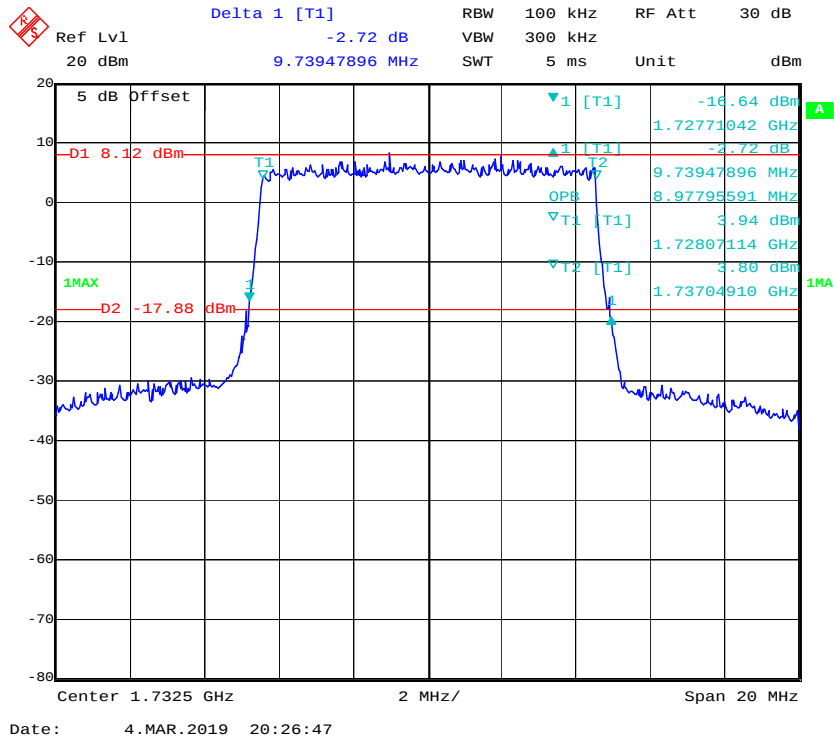
Center 1.7325 GHz
600 kHz/
Span 6 MHz

Date: 4.MAR.2019 20:24:12

16QAM_5 MHz



16QAM_10 MHz



[illegible]

Delta 1 [T1] -2.78 dB
 Ref Lvl 20 dBm 19.47895792 MHz
 RBW 300 kHz RF Att 30 dB
 VBW 1 MHz
 SWT 5 ms Unit dBm

5 dB Offset
 D1 -9.47 dBm
 1MAX -16.53 dBm
 T1
 OPB
 T1 [T1]
 T12 [T1]
 1

-13.85 dBm
 1.72284068 GHz
 -4.78 dB
 19.47895792 MHz
 17.95591182 MHz
 4.77 dBm
 1.72356212 GHz
 4.13 dBm
 1.74151804 GHz

Center 1.7325 GHz 4 MHz/
 Span 40 MHz

Date: 4.MAR.2019 20:29:37

FCC §2.1051, §24.238(a) & §27.53- SPURIOUS EMISSIONS AT ANTENNA TERMINALS

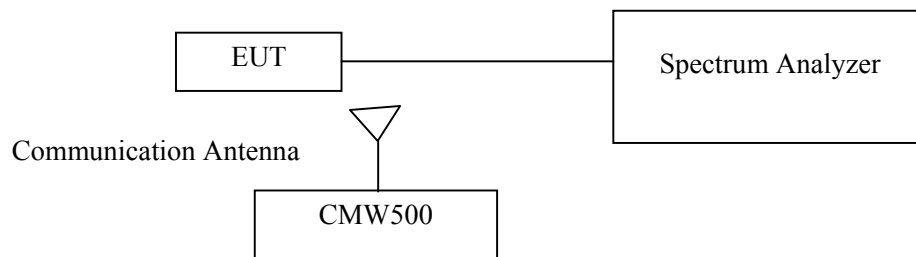
Applicable Standard

FCC §2.1051, §24.238(a) 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
Rohde & Schwarz	Signal Analyzer	FSIQ26	831929/005	2018-08-03	2019-08-03
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A
Un-known	Communication Antenna	700-3600	002	/	/

*** 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

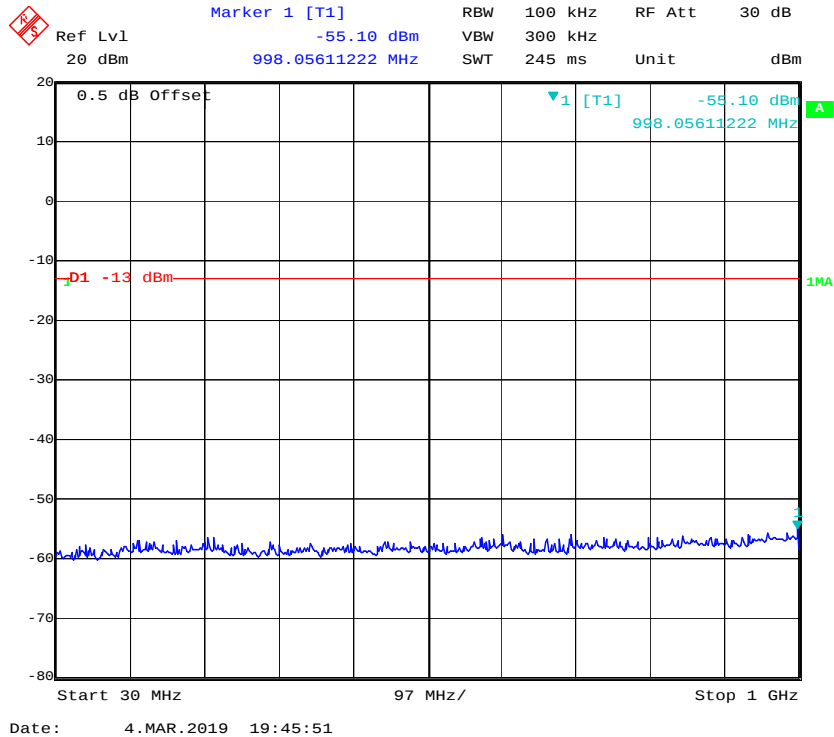
Temperature:	25.2°C
Relative Humidity:	52 %
ATM Pressure:	101.1 kPa

The testing was performed by Andy Huang on 2019-03-04.

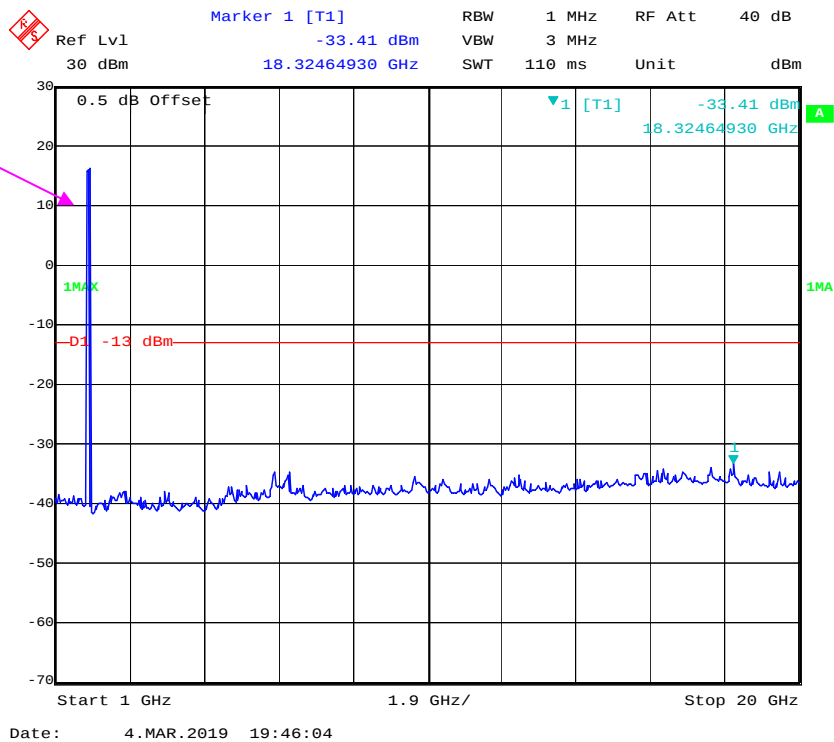
Please refer to the following plots.

LTE Band 2 (Middle Channel)

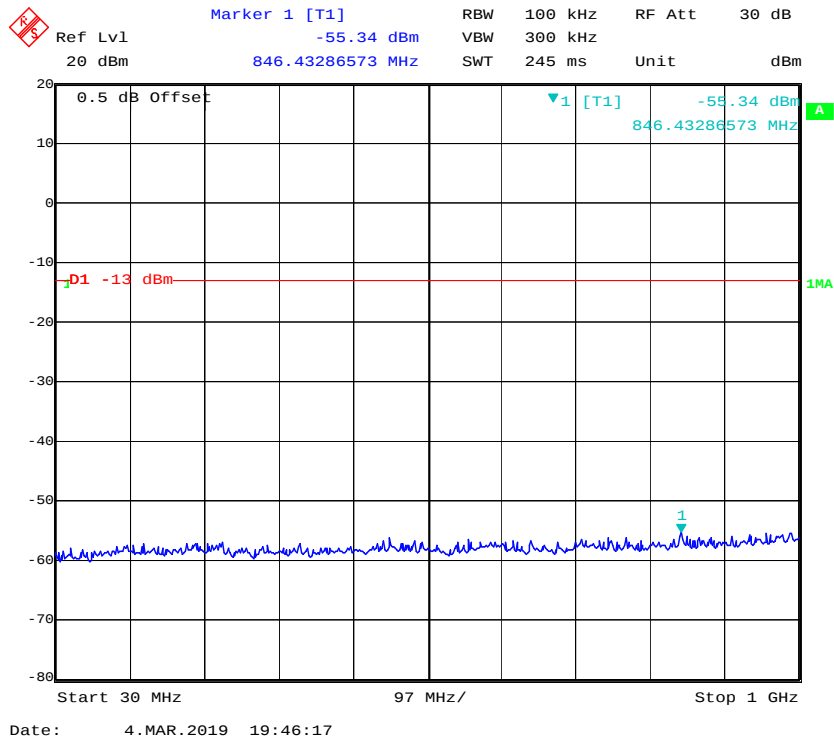
QPSK_1.4 MHz



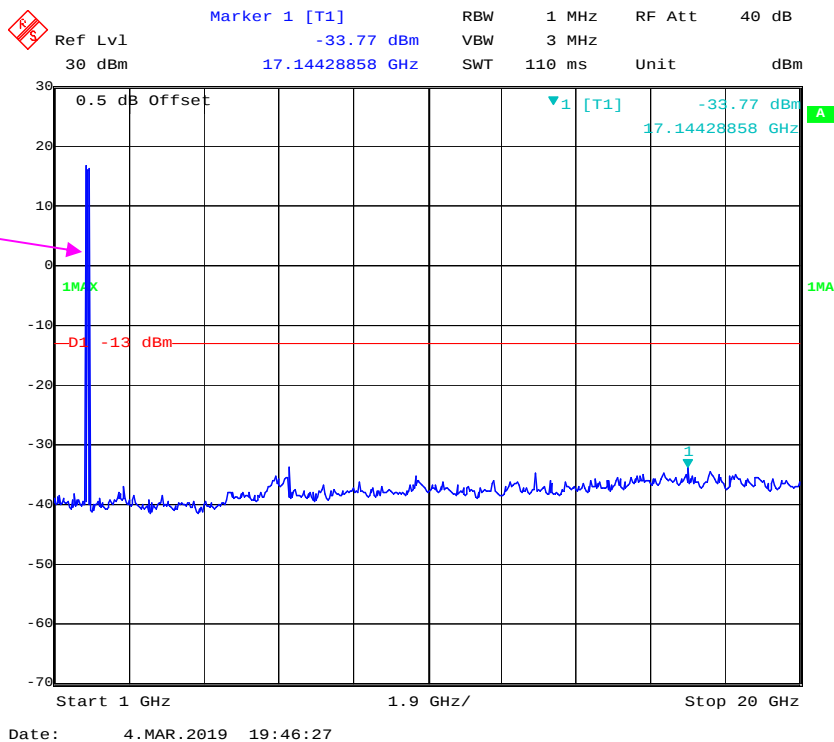
Fundamental



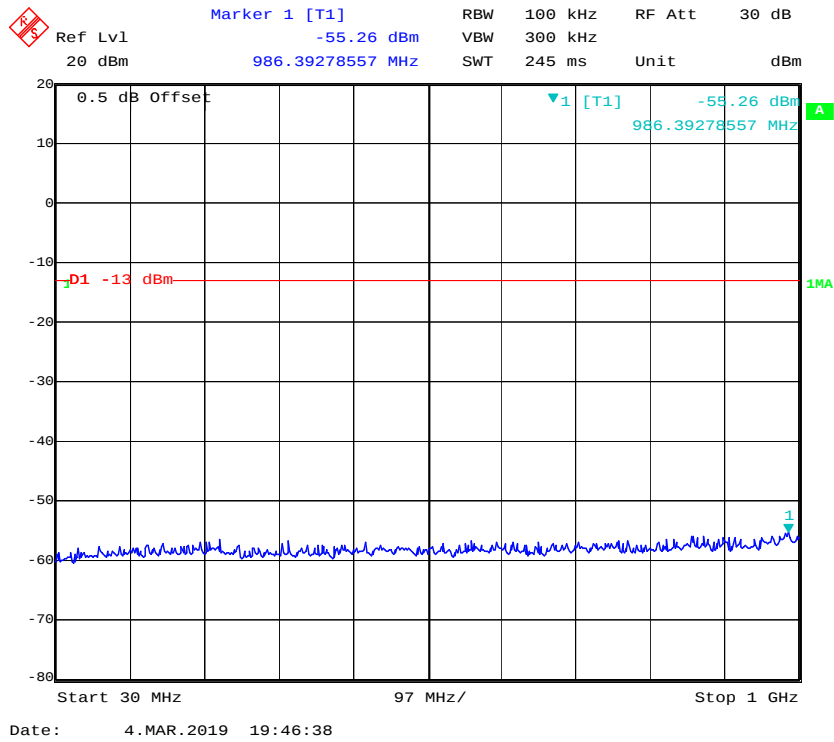
QPSK_3 MHz



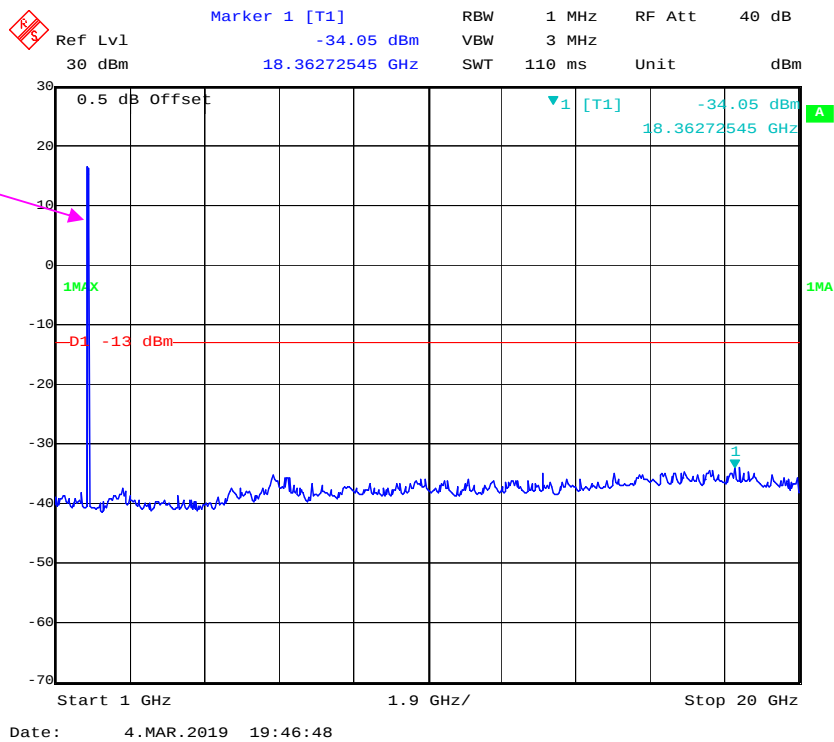
Fundamental



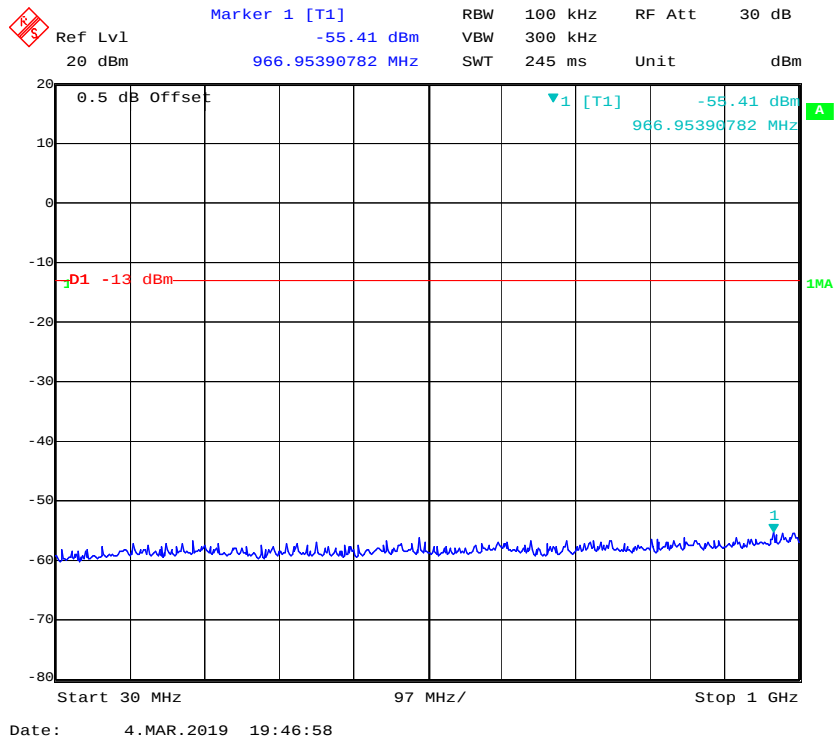
QPSK_5 MHz



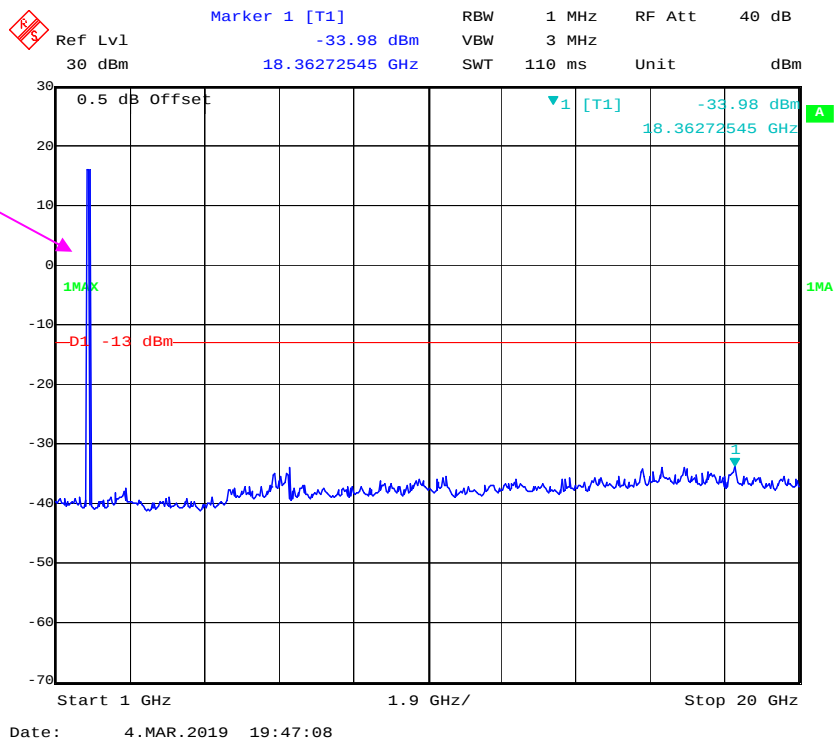
Fundamental



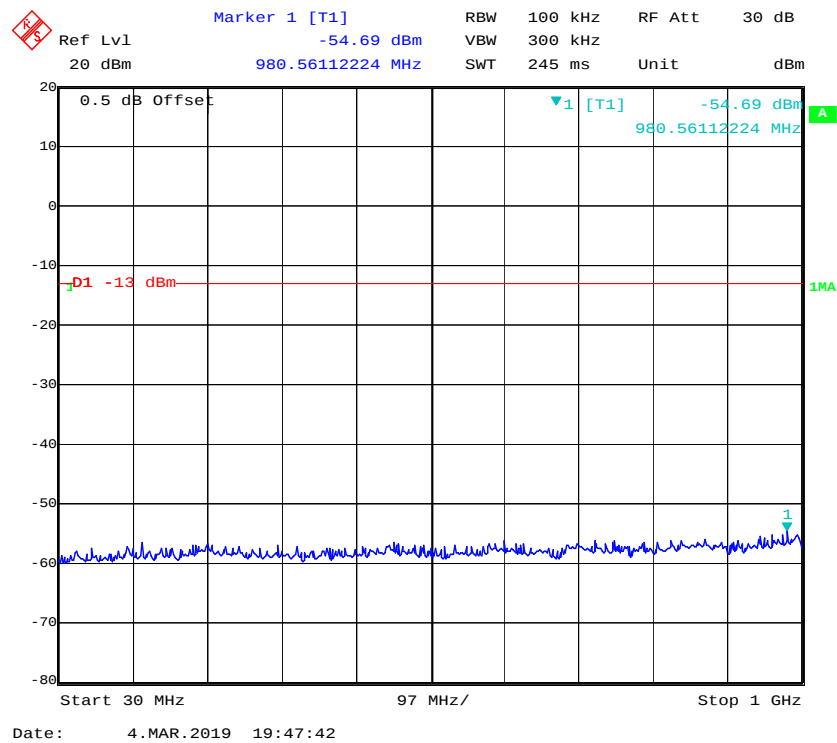
QPSK_10 MHz



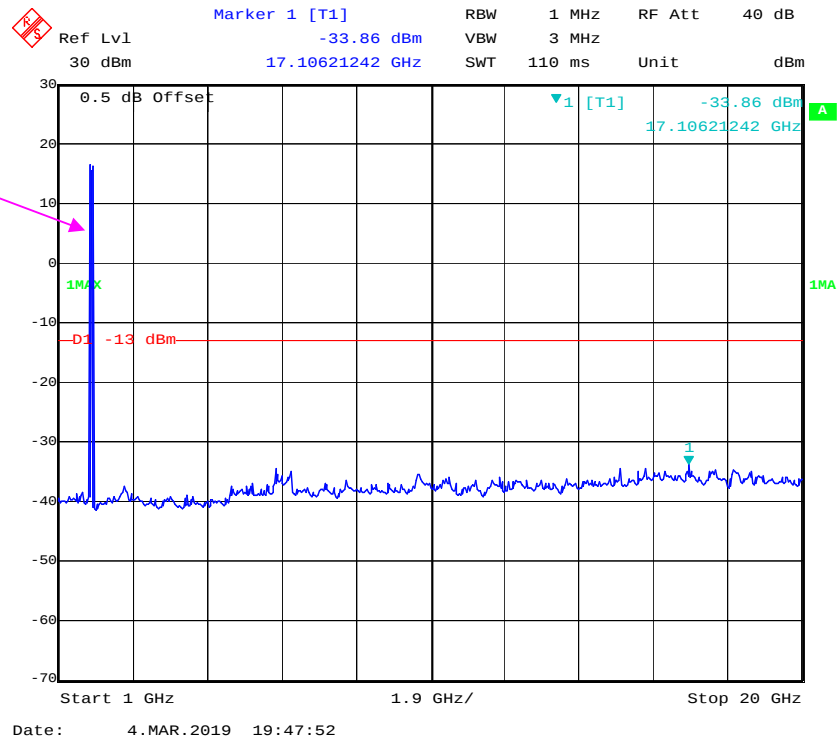
Fundamental



QPSK_20 MHz

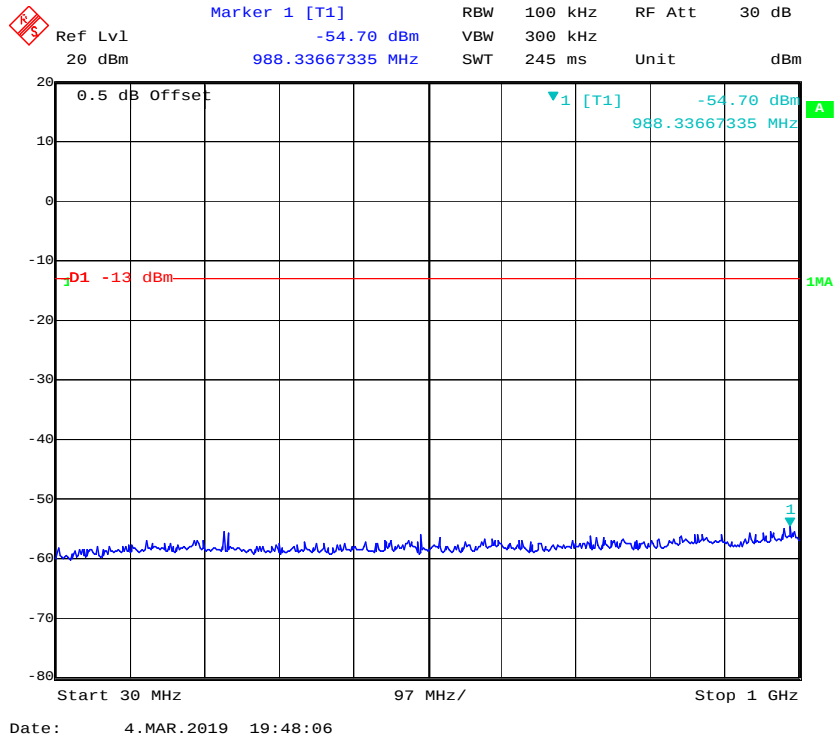


Fundamental

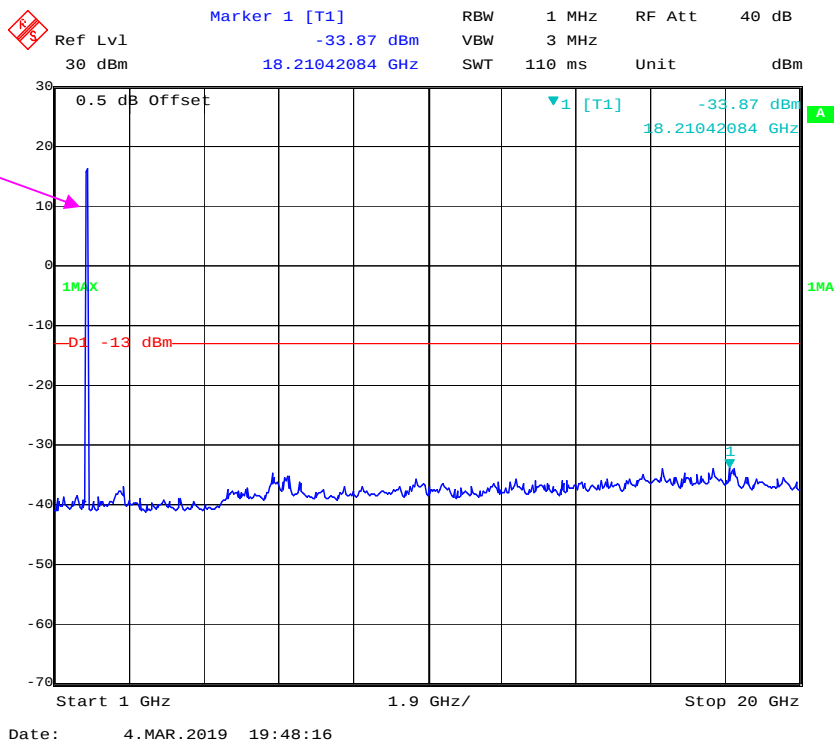


LTE Band 4 (Middle Channel)

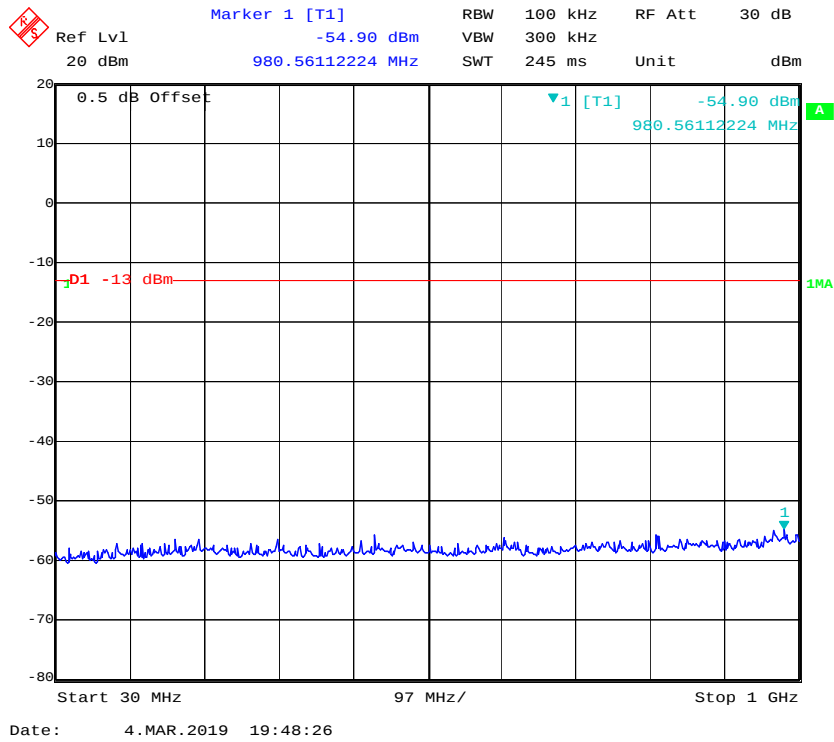
QPSK_1.4 MHz



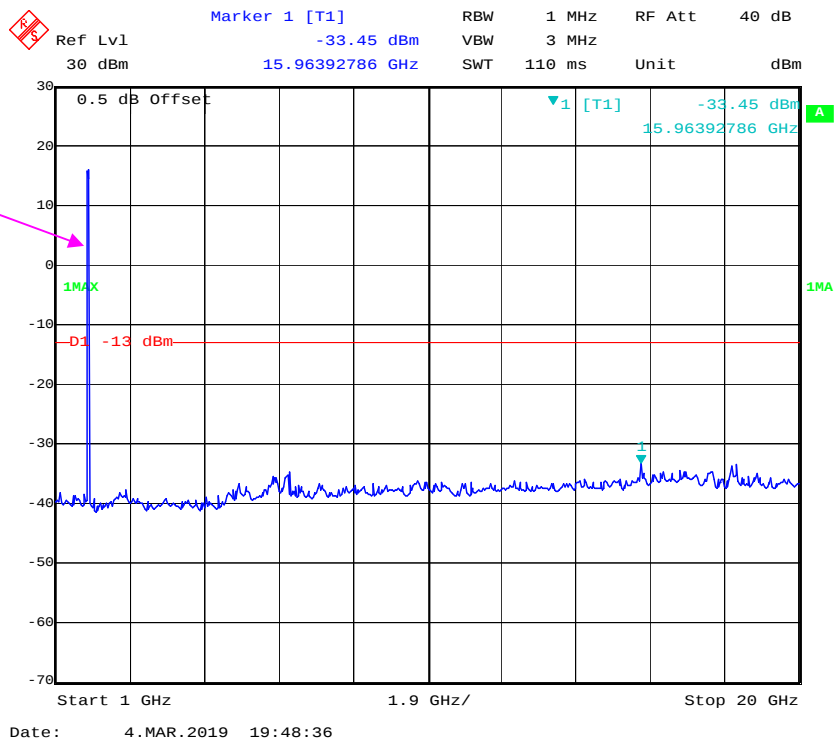
Fundamental



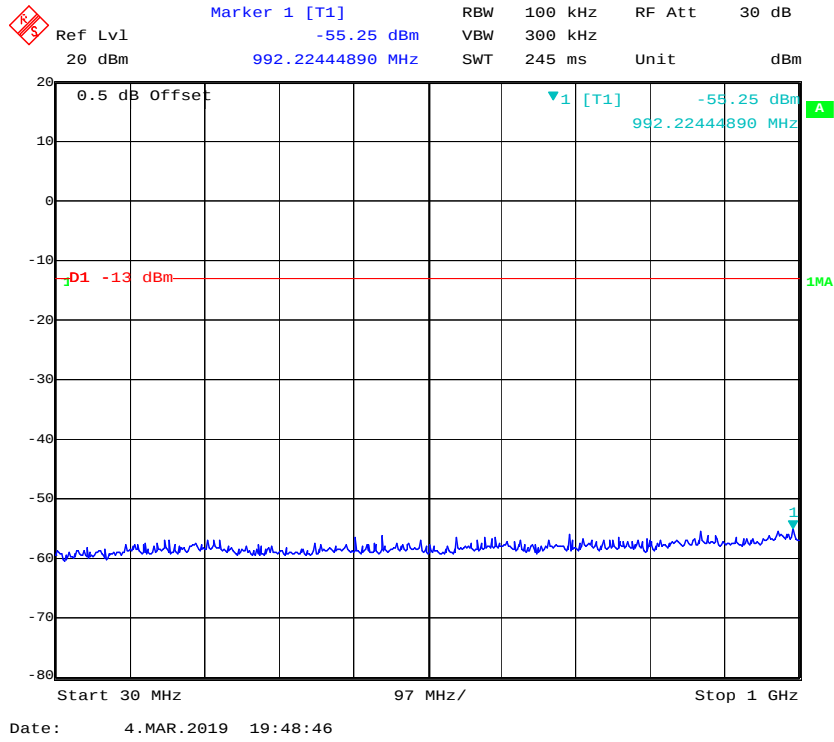
QPSK_3 MHz



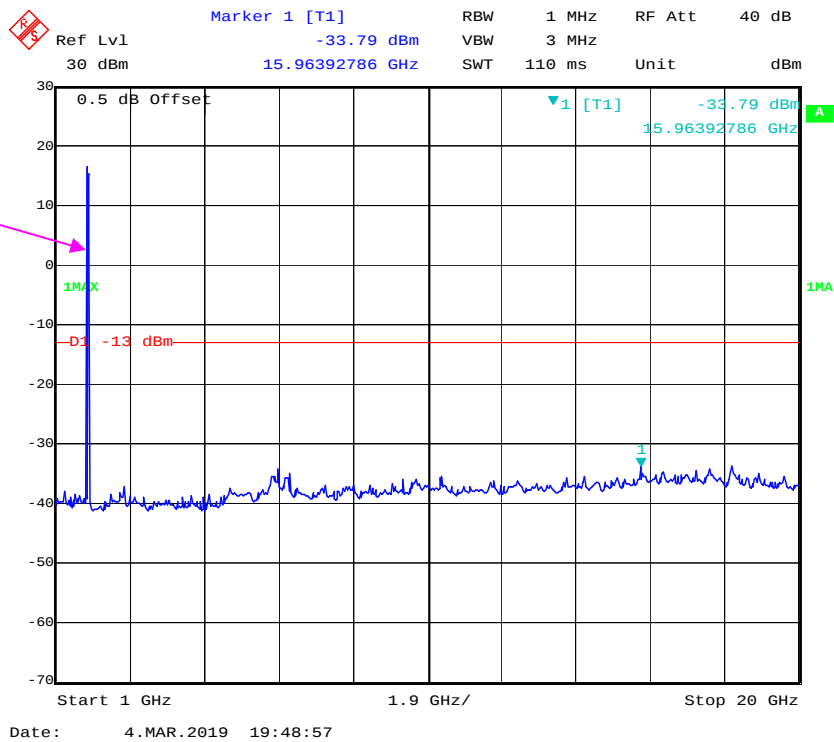
Fundamental



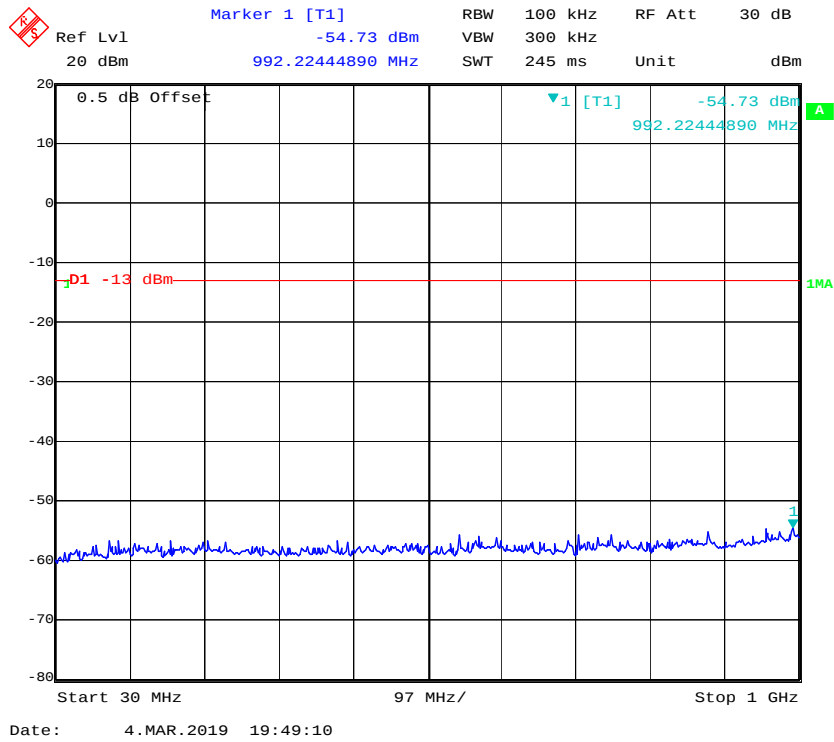
QPSK_5 MHz



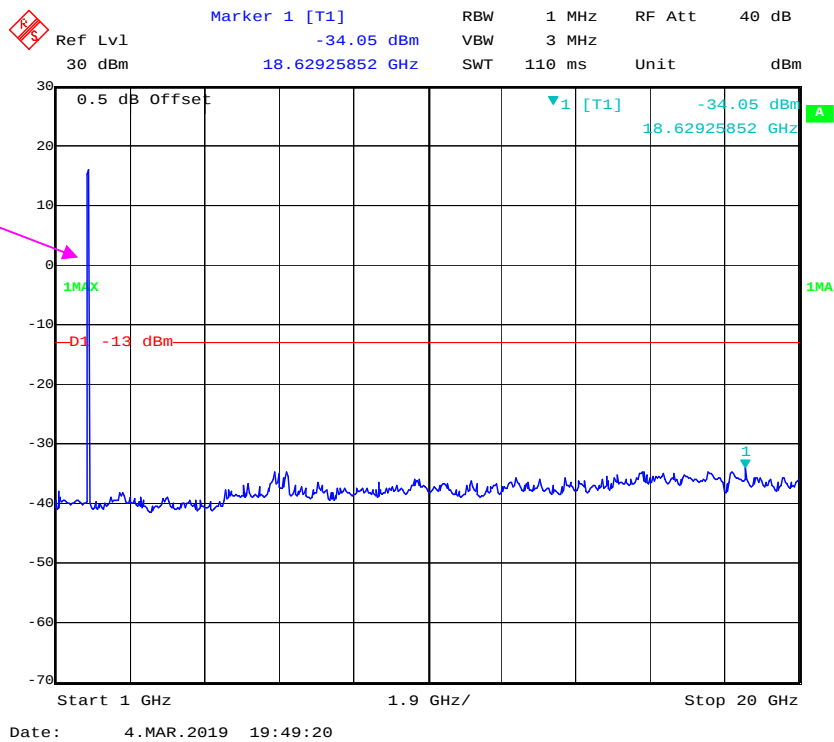
Fundamental



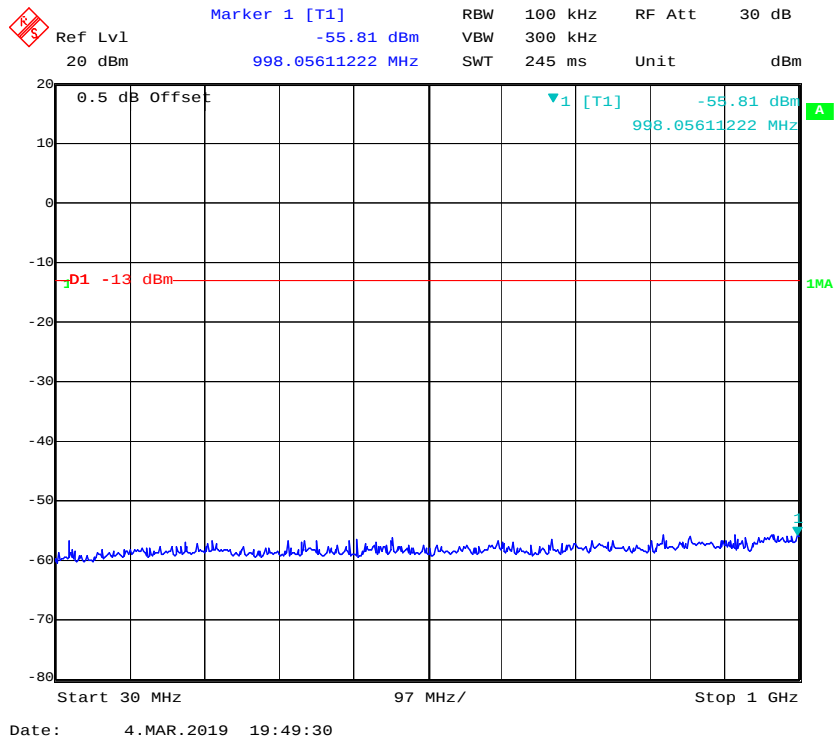
QPSK_10 MHz



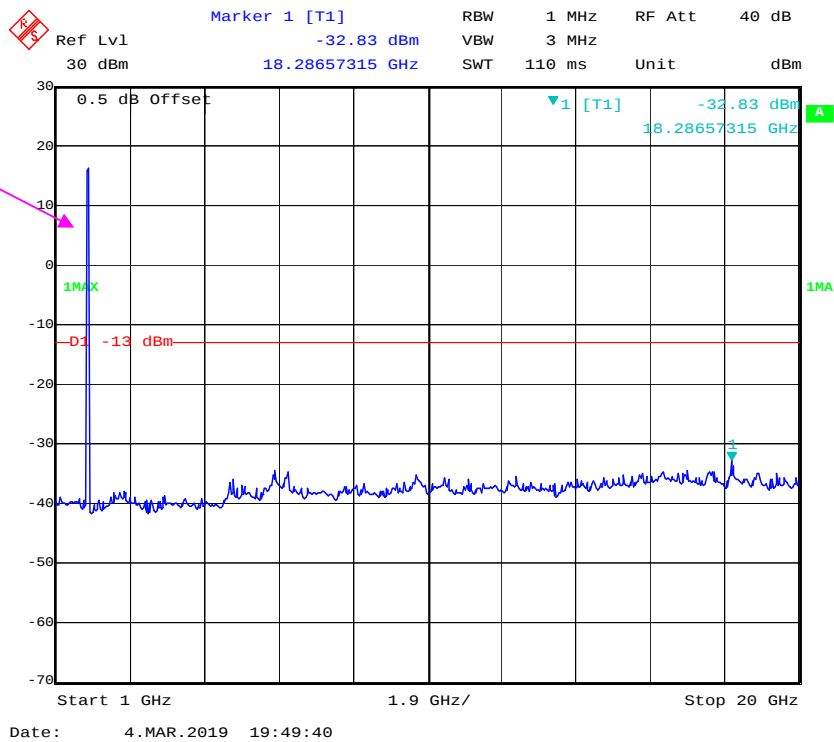
Fundamental



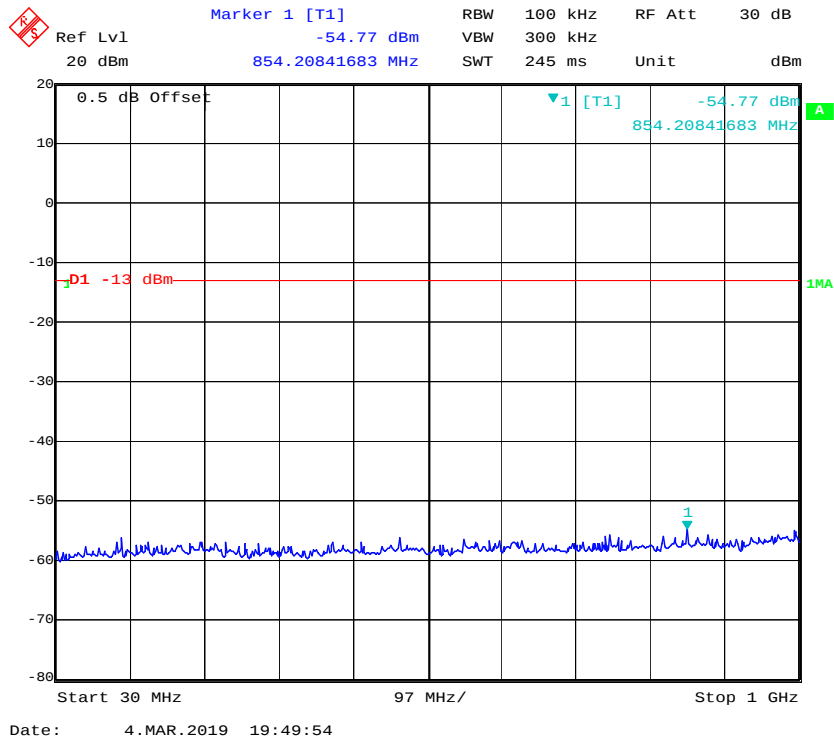
QPSK_15 MHz



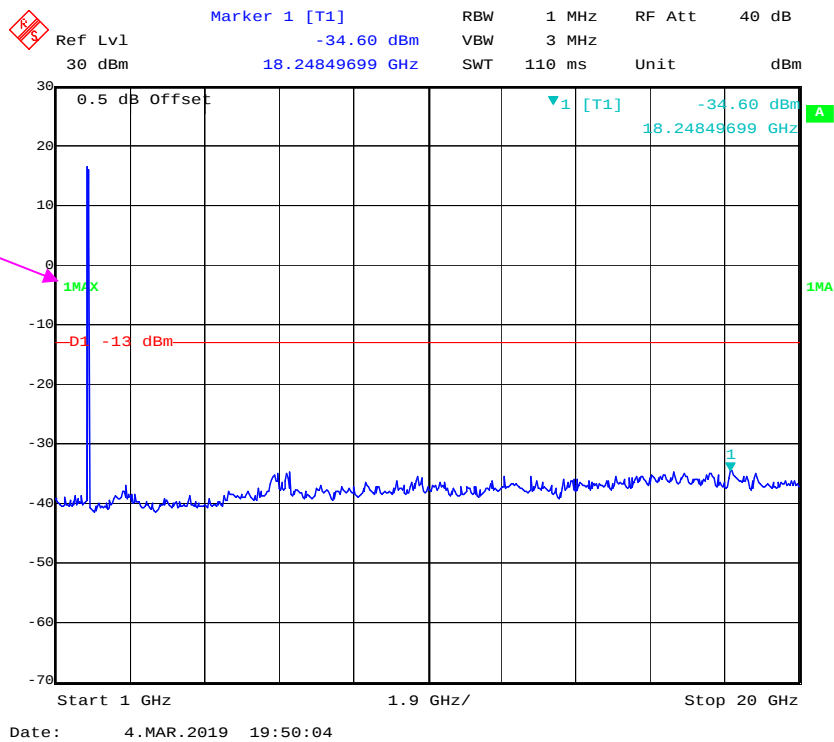
Fundamental



QPSK_20 MHz



Fundamental



FCC §2.1053, §24.238 & §27.53- SPURIOUS RADIATED EMISSIONS

Applicable Standard

FCC § 2.1053, § 24.238 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
R&S	EMI Test Receiver	ESCI	100224	2018-12-10	2019-12-10
Sunol Sciences	Antenna	JB3	A060611-1	2017-11-10	2020-11-10
EMCO	Adjustable Dipole Antenna	3121C	9109-753	N/A	N/A
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1400-01	2018-05-06	2019-05-06
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2018-09-05	2019-09-05
HP	Amplifier	8447D	2727A05902	2018-09-05	2019-09-05
Agilent	Spectrum Analyzer	E4440A	SG43360054	2019-01-04	2020-01-04
TDK RF	Horn Antenna	HRN-0118	130 084	2018-10-12	2021-10-12
ETS-Lindgren	Horn Antenna	3115	000 527 35	2018-10-12	2021-10-12
Unknown	Coaxial Cable	C-SJSJ-50	C-0800-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-2.4J2.4J-50	C-0700-02	2018-06-27	2019-06-27
MITEQ	Amplifier	AFS42-00101800-25-S-42	2001271	2018-09-05	2019-09-05
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-01 1304	2016-11-18	2019-11-18
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-02 1304	2016-11-18	2019-11-18
Quinstar	Amplifier	QLW-18405536-JO	15964001001	2018-06-27	2019-06-27
Agilent	Signal Generator	E8247C	MY43321350	2018-12-10	2019-12-10
Micro-tronics	High Pass Filter	HPM50111	S/N-G217	2018-06-16	2019-06-16
Sinoscite	Band-stop filter	BSF1710-1785MN-0383-003	0383003	2018-06-16	2019-06-16
Sinoscite	Band-stop filter	BSF1850-1910MS-0935V2	0935V2	2018-06-16	2019-06-16

*** 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**

Temperature:	23.7~24.8°C
Relative Humidity:	52~63 %
ATM Pressure:	100.5~101.1 kPa

* The testing was performed by Tyler Pan, Neil Liao on 2019-03-04~2019-03-06.

EUT Operation Mode: Transmitting

LTE Band 2 (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:1880.000 MHz								
3760.00	H	53.10	-55.70	13.76	1.63	-43.57	-13.00	30.57
3760.00	V	56.98	-51.69	13.76	1.63	-39.56	-13.00	26.56
5640.00	H	50.49	-55.54	14.02	1.31	-42.83	-13.00	29.83
5640.00	V	51.41	-54.50	14.02	1.31	-41.79	-13.00	28.79
7520.00	H	47.26	-53.06	13.20	1.33	-41.19	-13.00	28.19
7520.00	V	47.55	-53.24	13.20	1.33	-41.37	-13.00	28.37
208.48	H	70.66	-38.08	0.00	0.49	-38.57	-13.00	25.57
78.50	V	66.60	-50.70	-0.75	0.36	-51.81	-13.00	38.81

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:1732.500 MHz								
3465.00	H	52.55	-57.69	13.91	1.62	-45.40	-13.00	32.40
3465.00	V	55.07	-55.21	13.91	1.62	-42.92	-13.00	29.92
5197.50	H	46.58	-59.84	14.00	1.52	-47.36	-13.00	34.36
5197.50	V	47.23	-59.26	14.00	1.52	-46.78	-13.00	33.78
208.48	H	75.23	-33.51	0.00	0.49	-34.00	-13.00	21.00
88.20	V	76.18	-37.64	0.00	0.36	-38.00	-13.00	25.00

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 §24.238(a) & §27.53- BAND EDGES

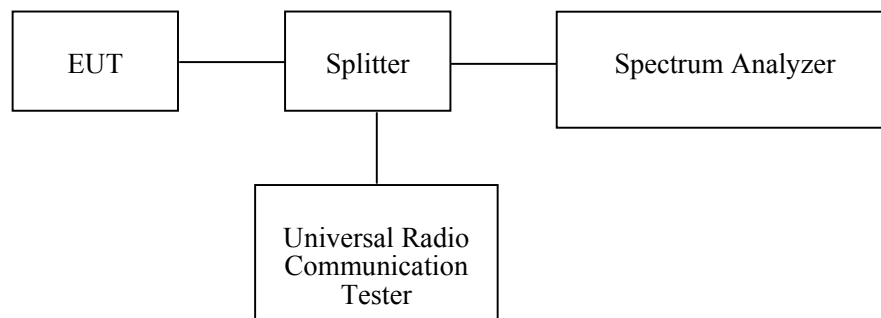
Applicable Standard

FCC § 2.1053, § 24.238 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
Rohde & Schwarz	Signal Analyzer	FSIQ26	831929/005	2018-08-03	2019-08-03
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A
Unknown	Coaxial Cable	C-SJ00-0010	C0010/02	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:	25.2°C
Relative Humidity:	52 %
ATM Pressure:	101.1 kPa

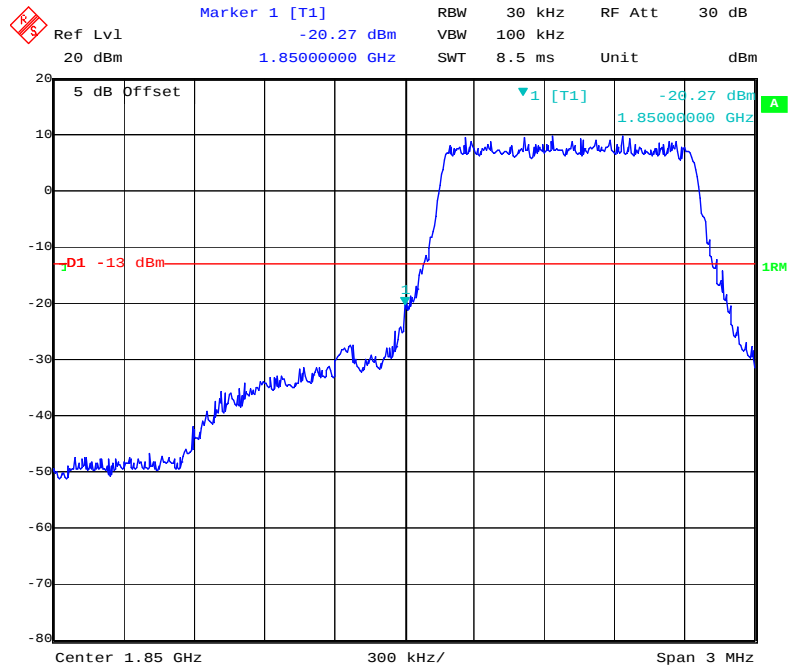
The testing was performed by Andy Huang on 2019-03-04.

Test Mode: Transmitting

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

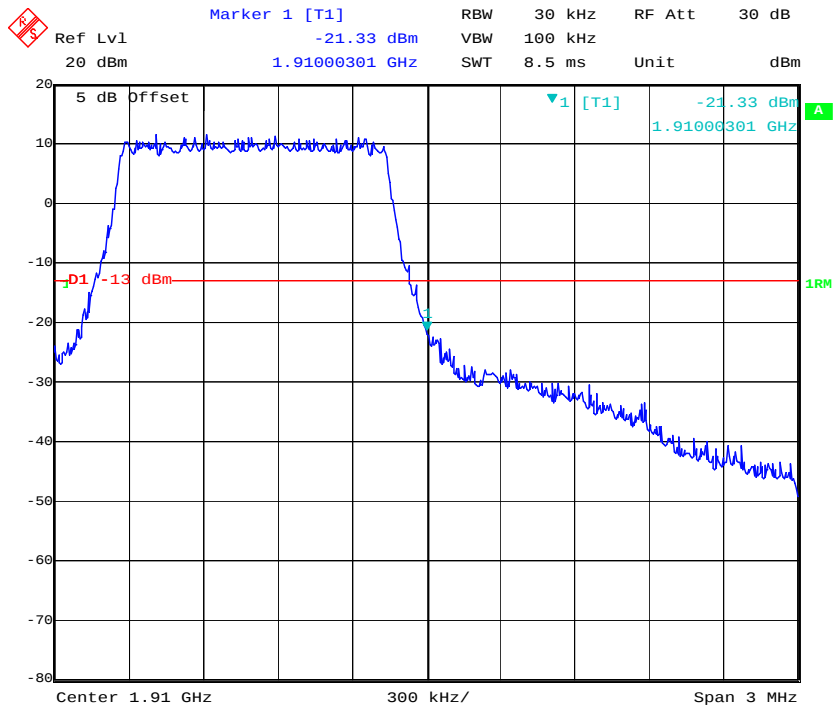
LTE Band 2

QPSK_1.4MHz_6 RB_ Left



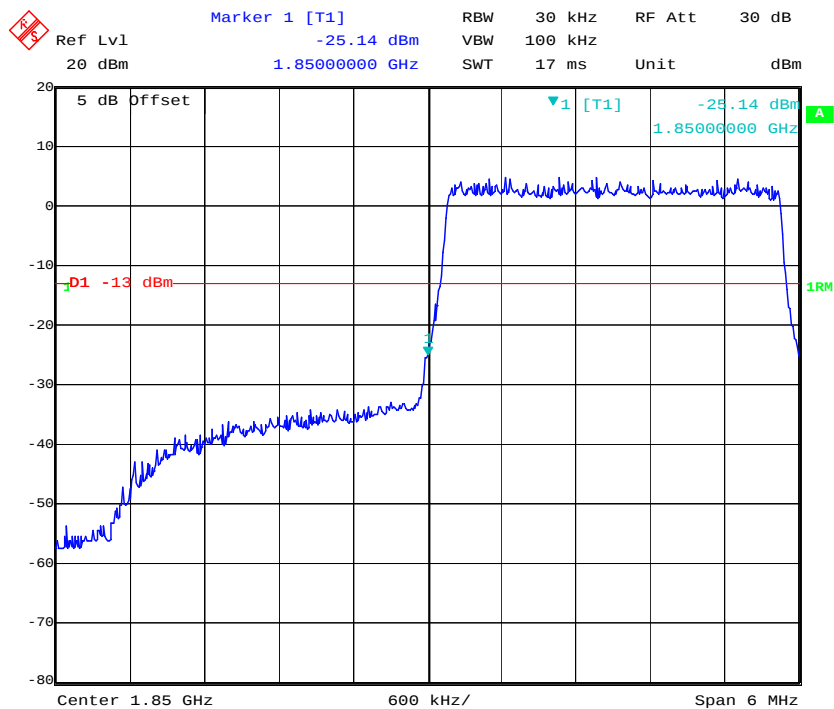
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QPSK_1.4MHz_6 RB_ Right

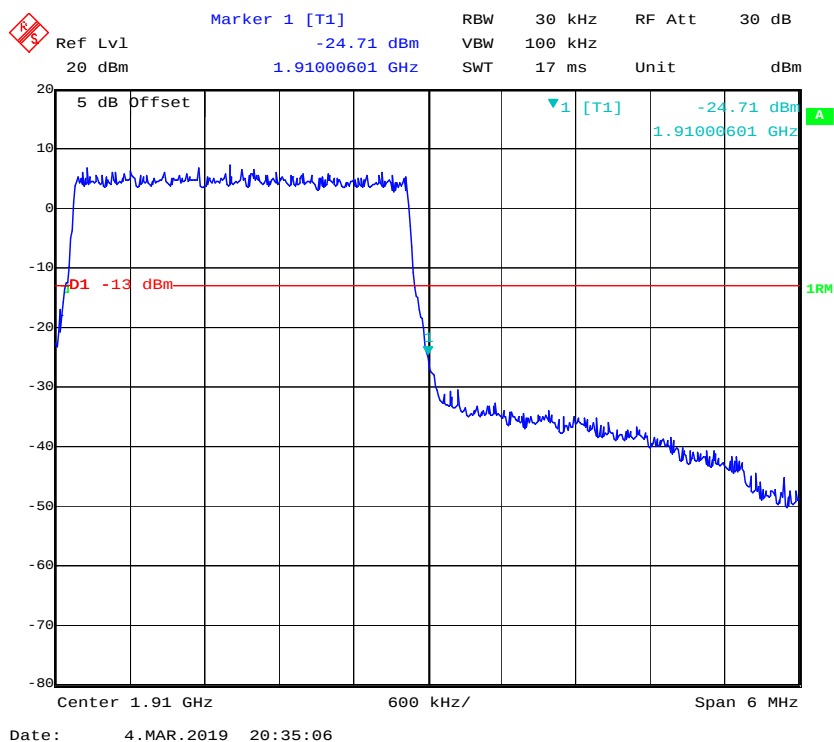


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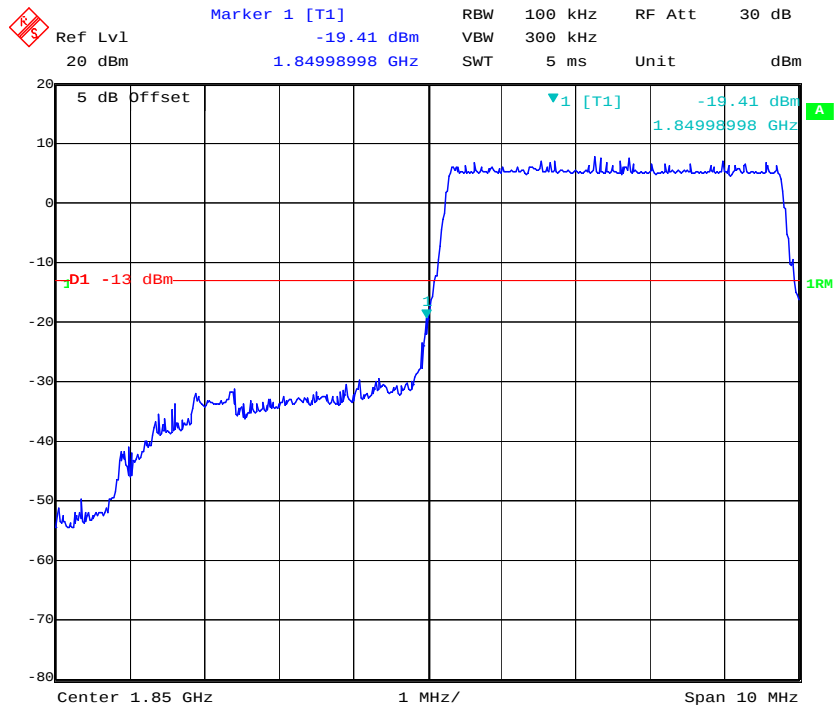
QPSK_3MHz_15 RB_ Left



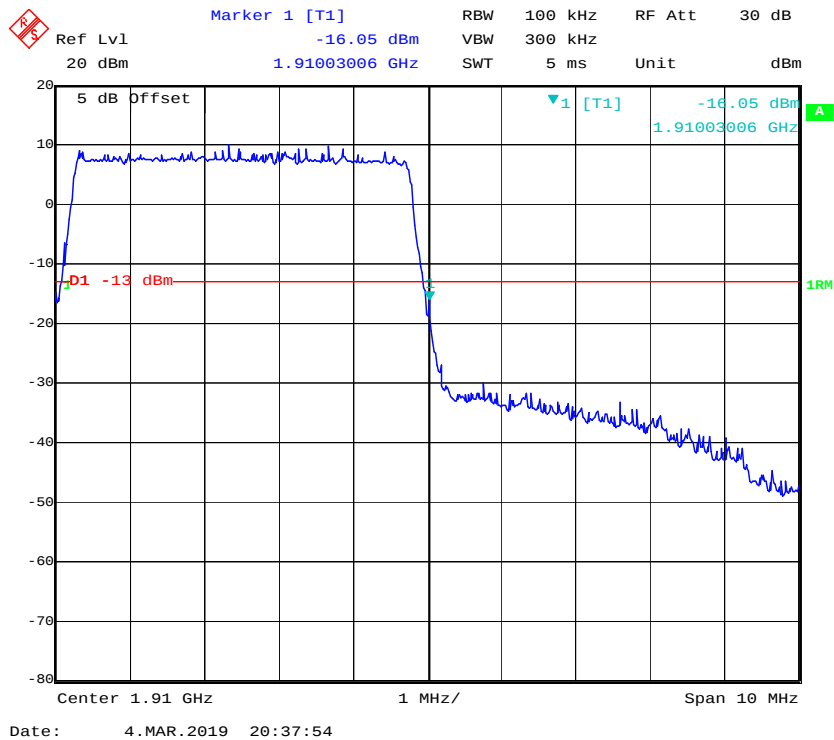
QPSK_3MHz_15 RB_ Right



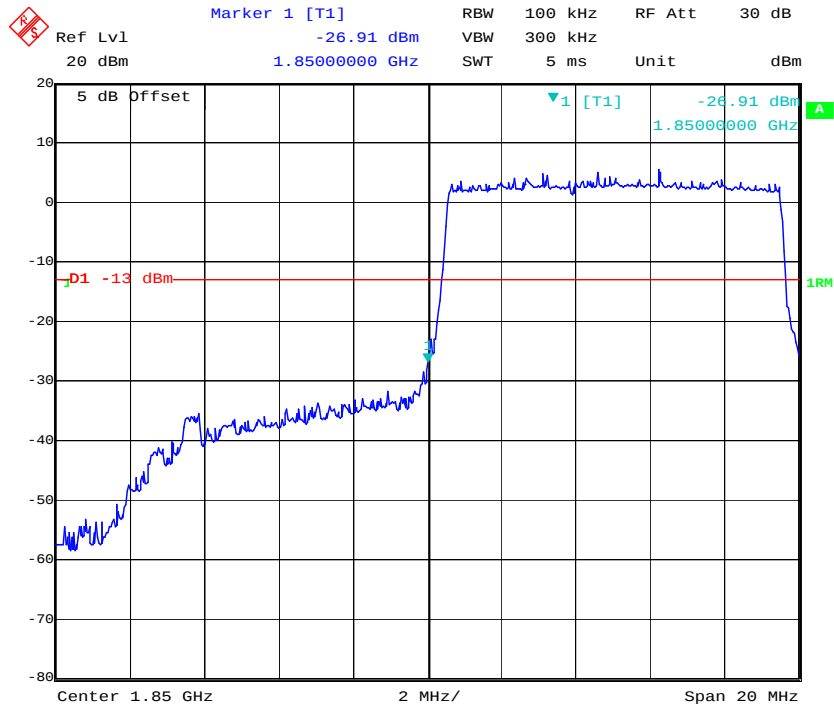
QPSK_5MHz_25 RB_ Left



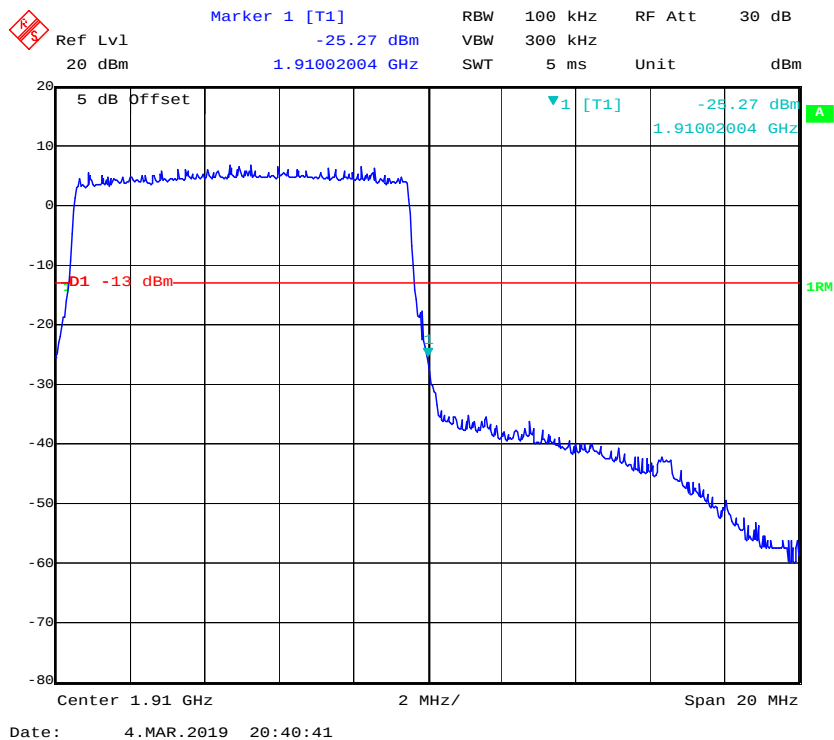
QPSK_5MHz_25 RB_ Right



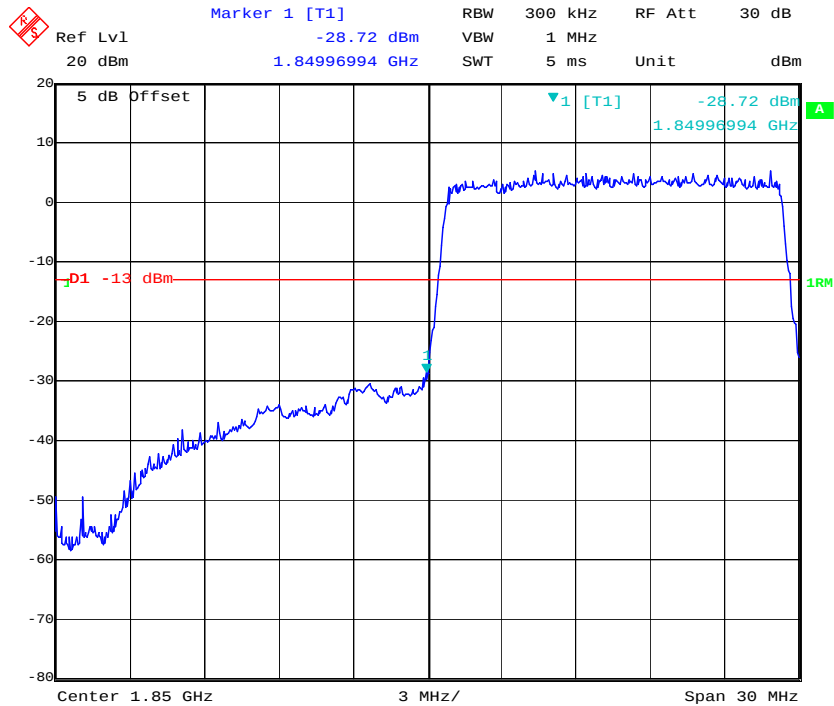
QPSK_10MHz_50 RB_ Left



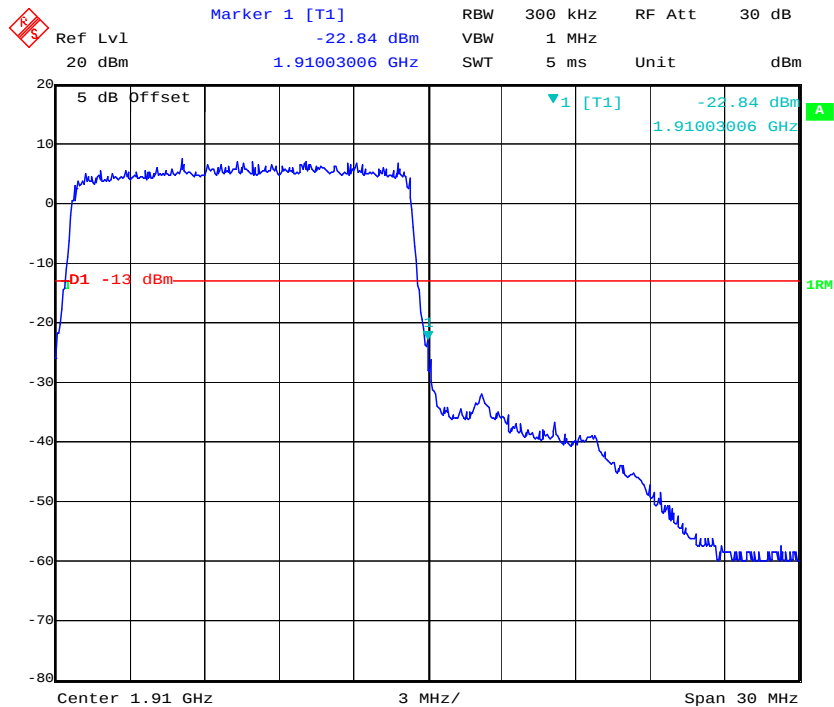
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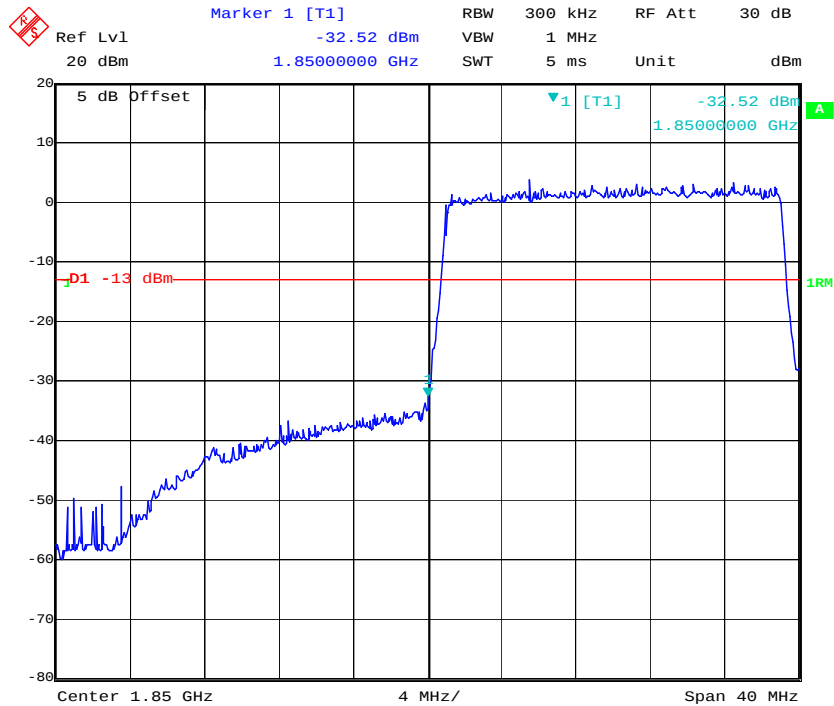
QPSK_15MHz_ 75 RB_ Left



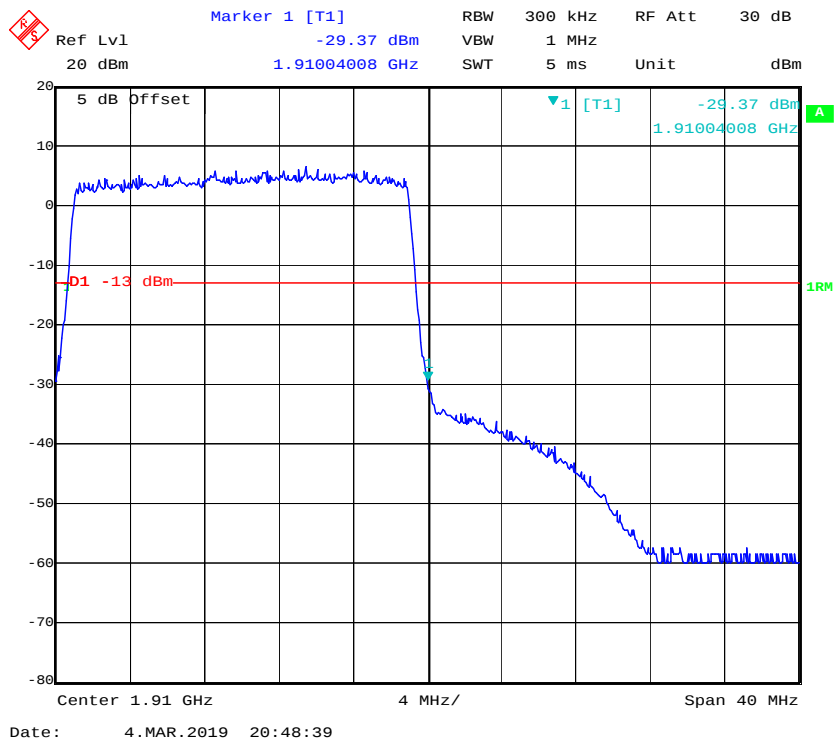
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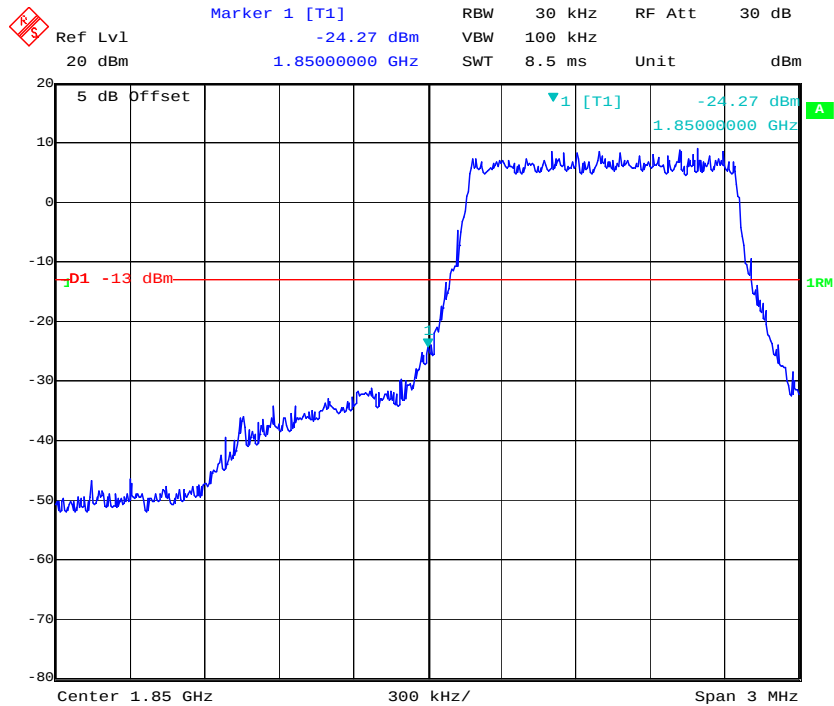
QPSK_20MHz_ FULL RB_ Left



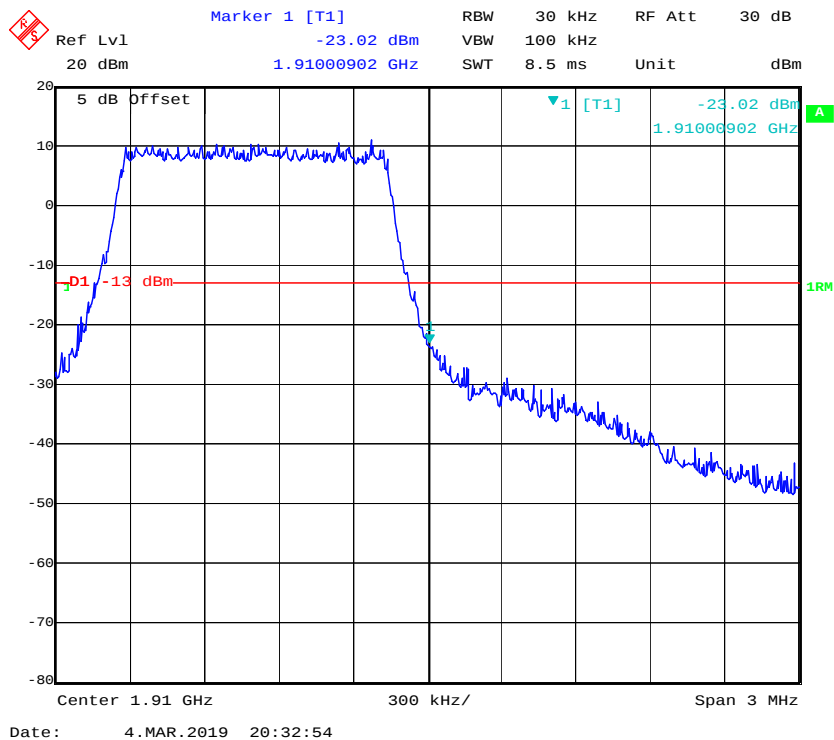
QPSK_20MHz_ FULL RB_ Right



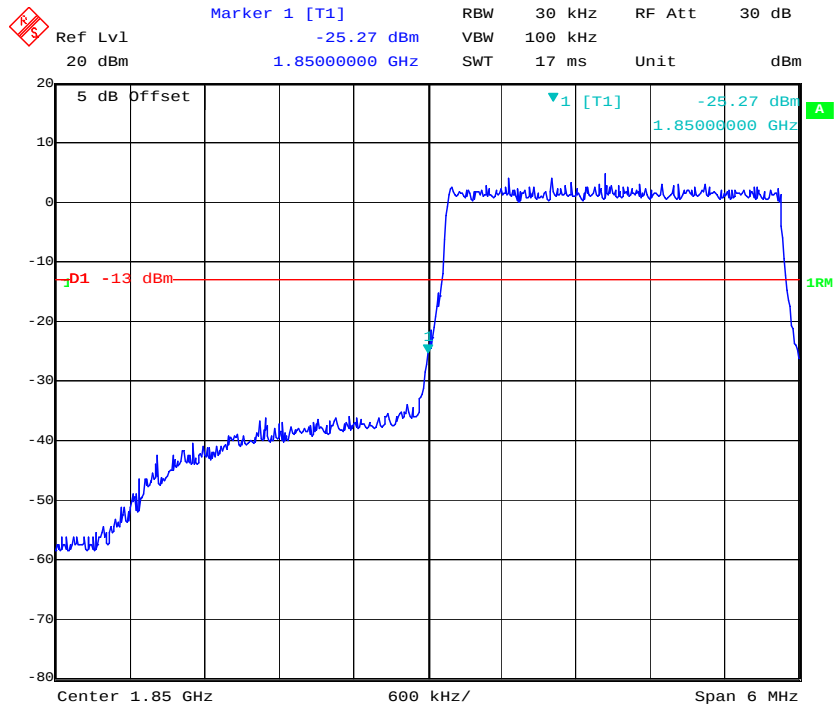
16QAM_1.4MHz_6 RB_ Left



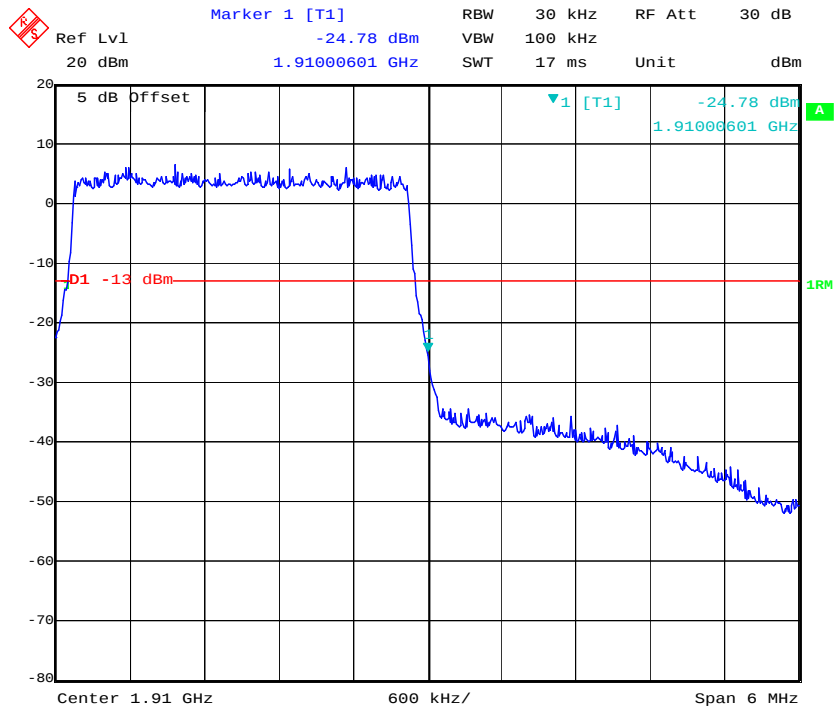
16QAM_1.4MHz_6 RB_ Right



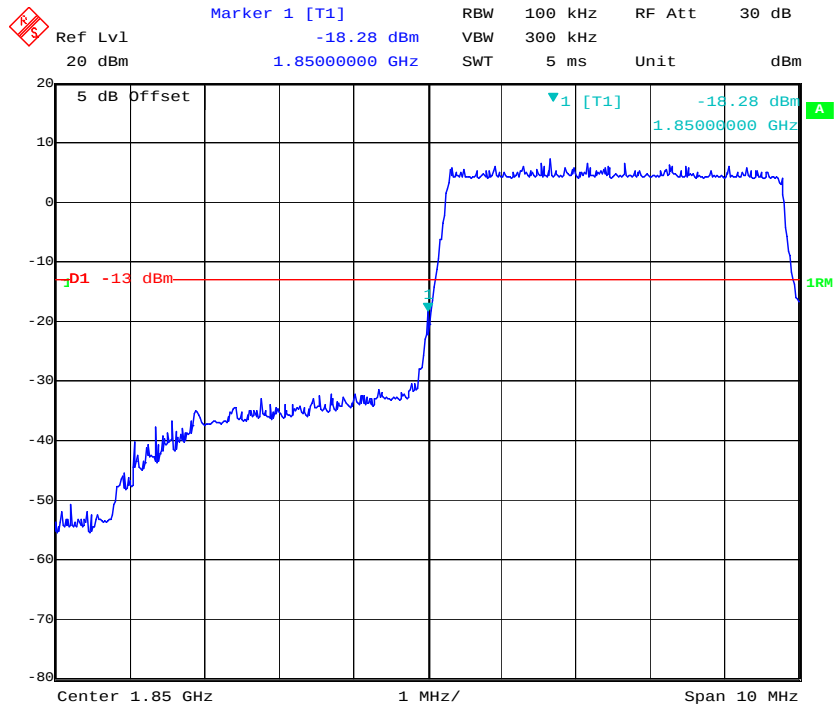
16QAM_3MHz_15 RB_ Left



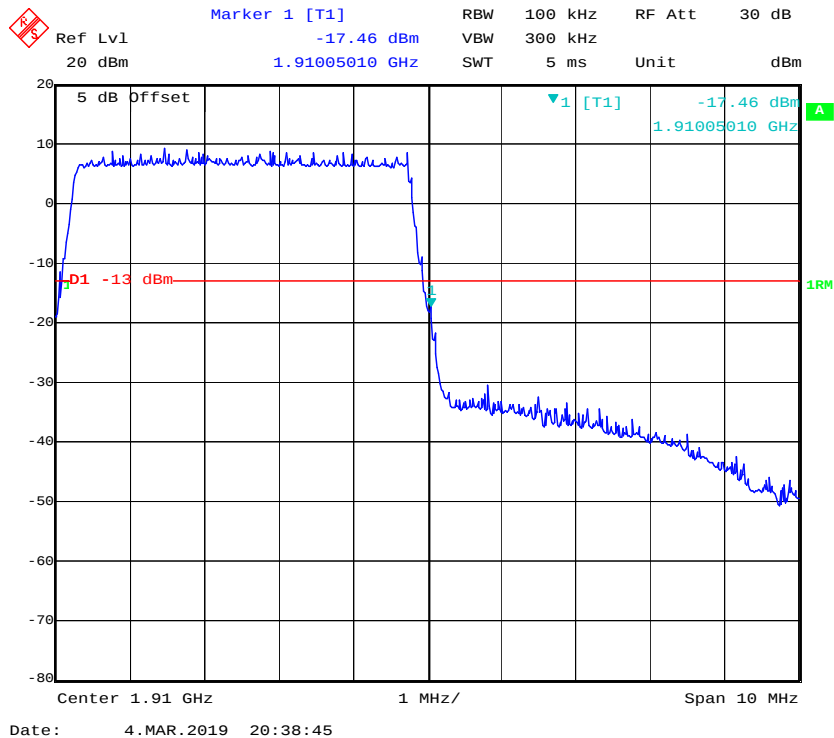
16QAM_3MHz_15 RB_ Right



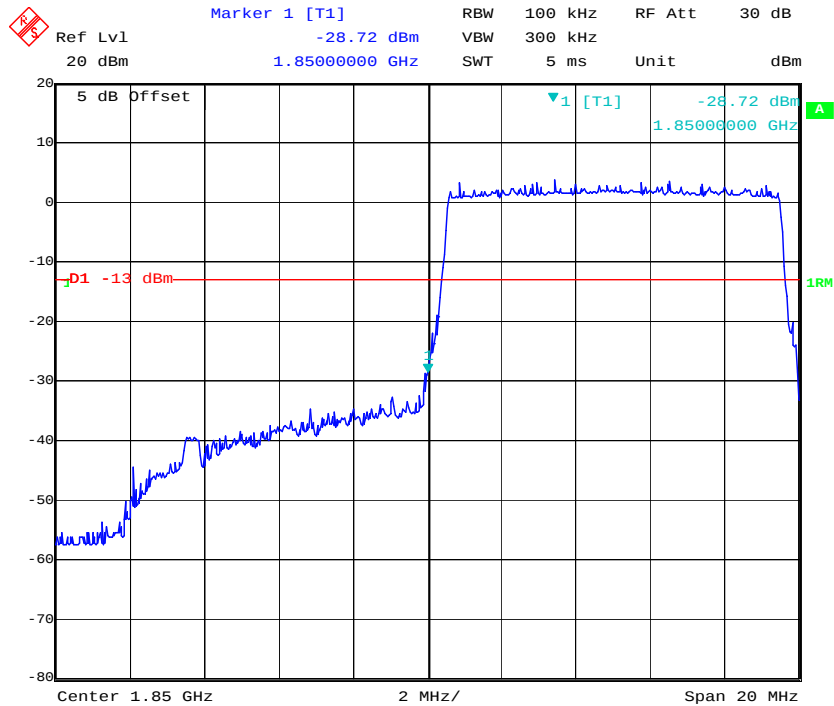
16QAM_5MHz_ 25 RB_ Left



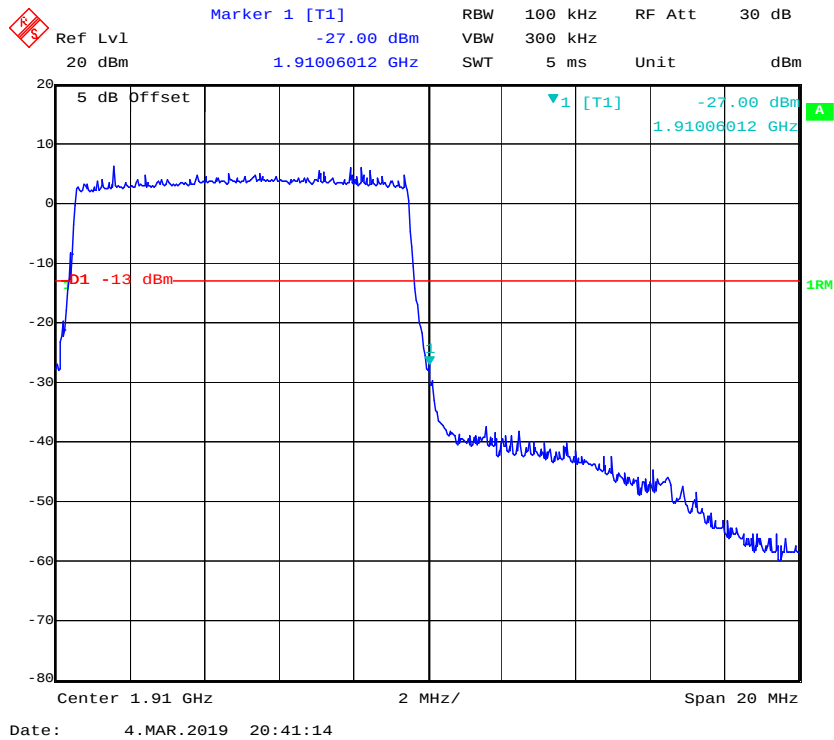
16QAM_5MHz_ 25 RB_ Right



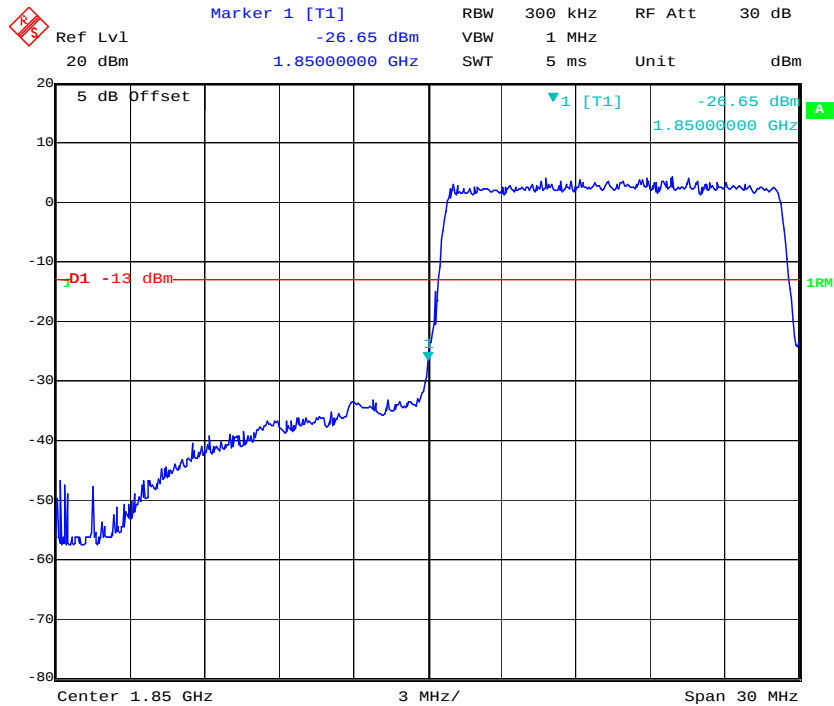
16QAM_10MHz_ 50 RB_ Left



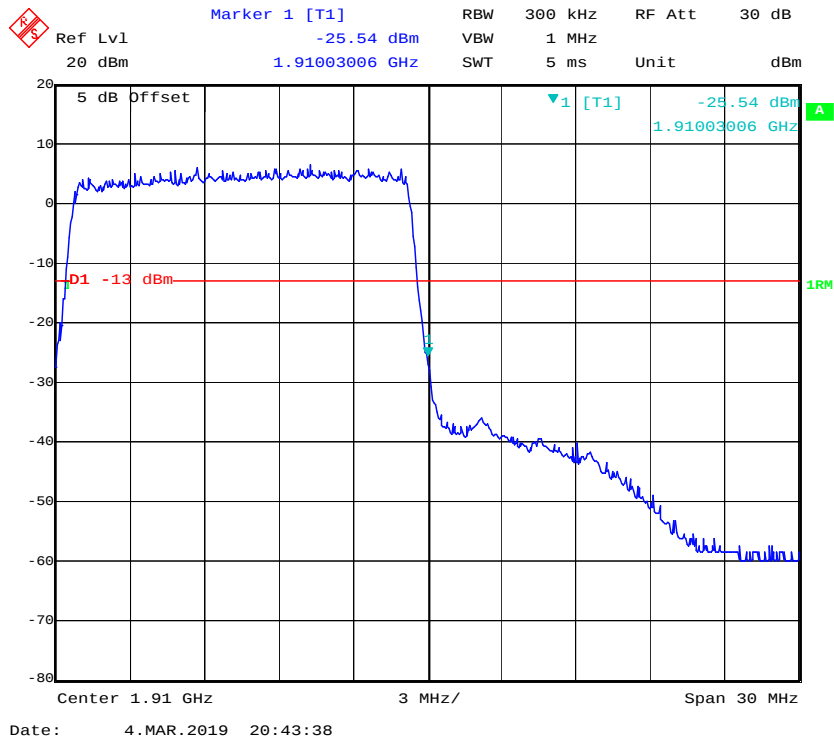
16QAM_10MHz_ 50 RB_ Right



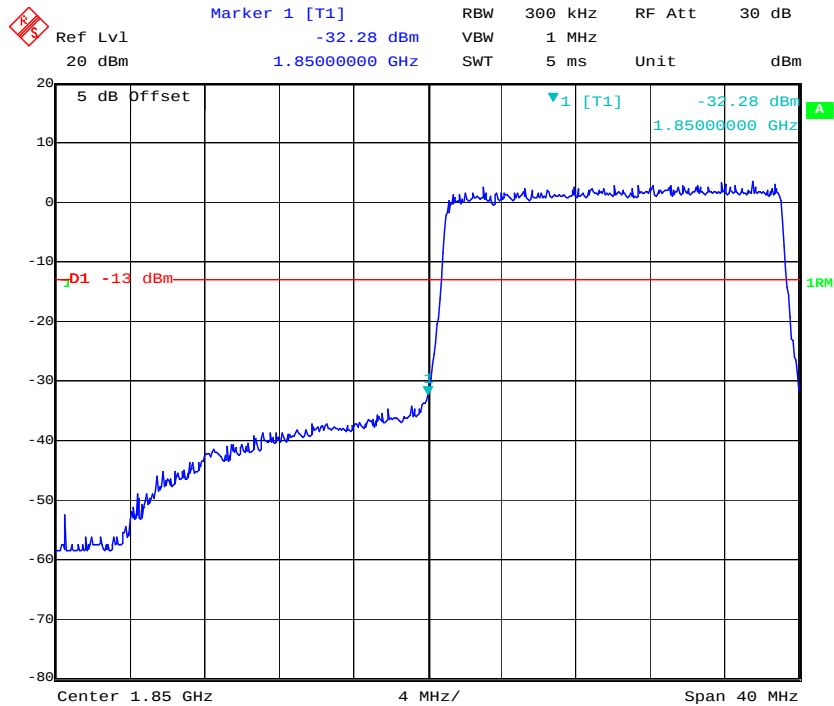
16QAM_15MHz_ 75 RB_ Left



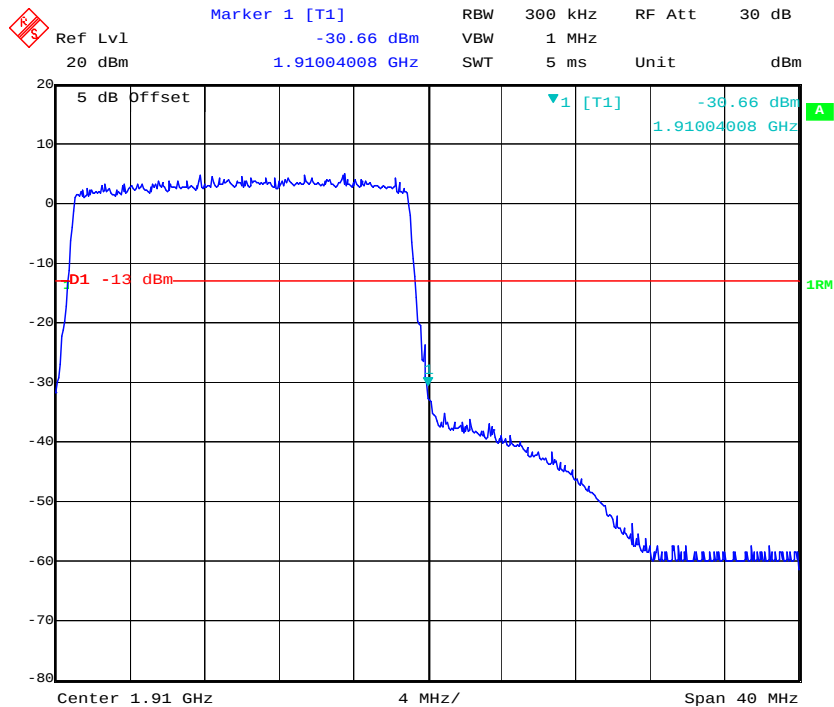
16QAM_15MHz_ 75 RB_ Right



16QAM_20MHz_ FULL RB_ Left

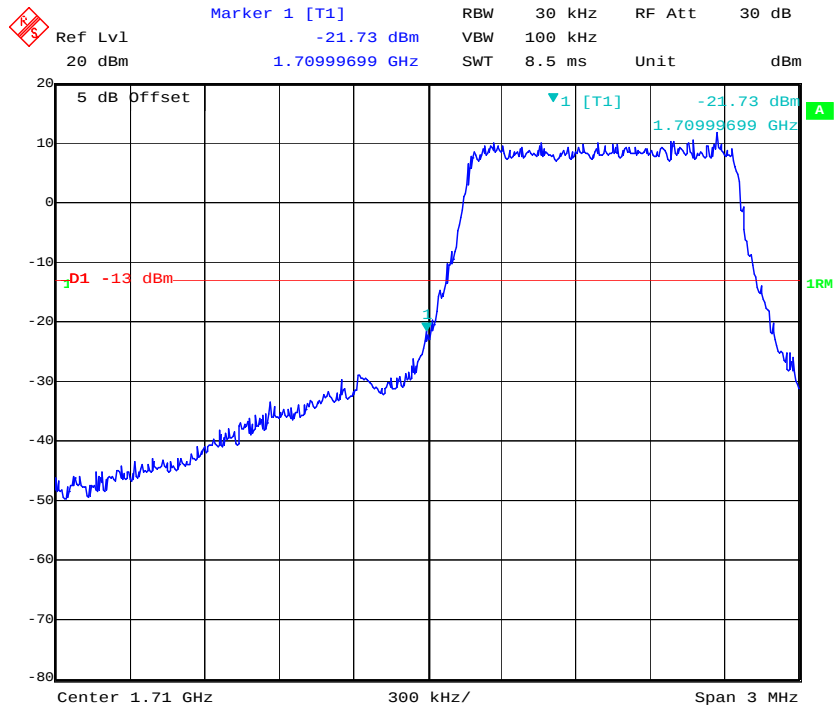


16QAM_20MHz_ FULL RB_ Right

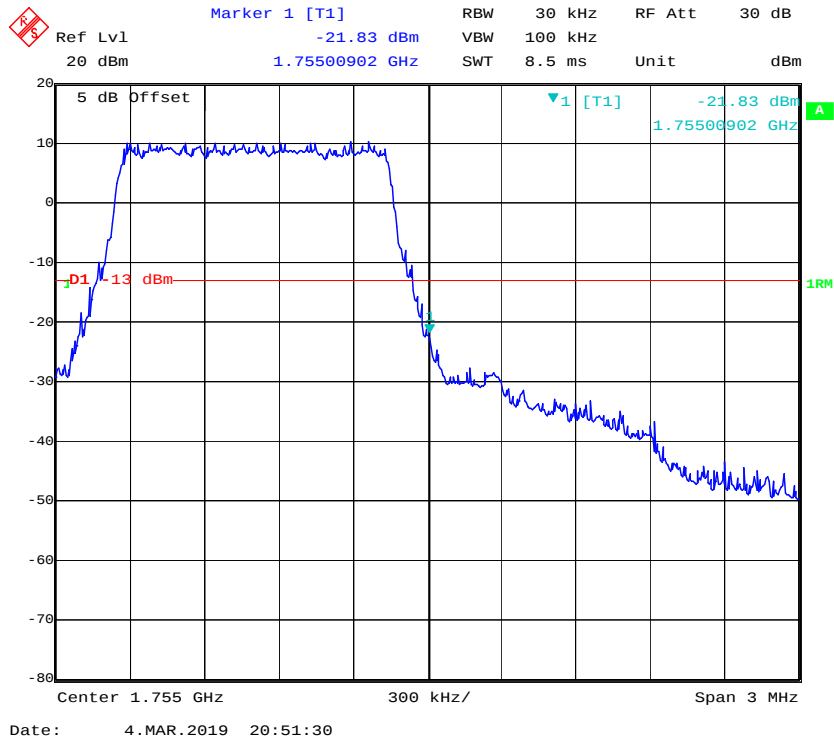


LTE Band 4

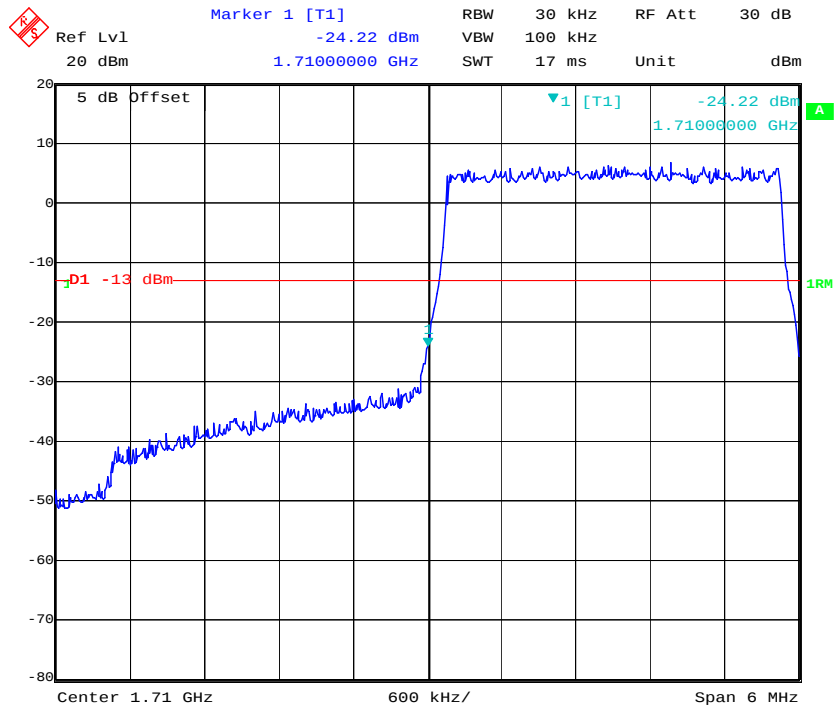
QPSK_1.4MHz_6 RB_Left



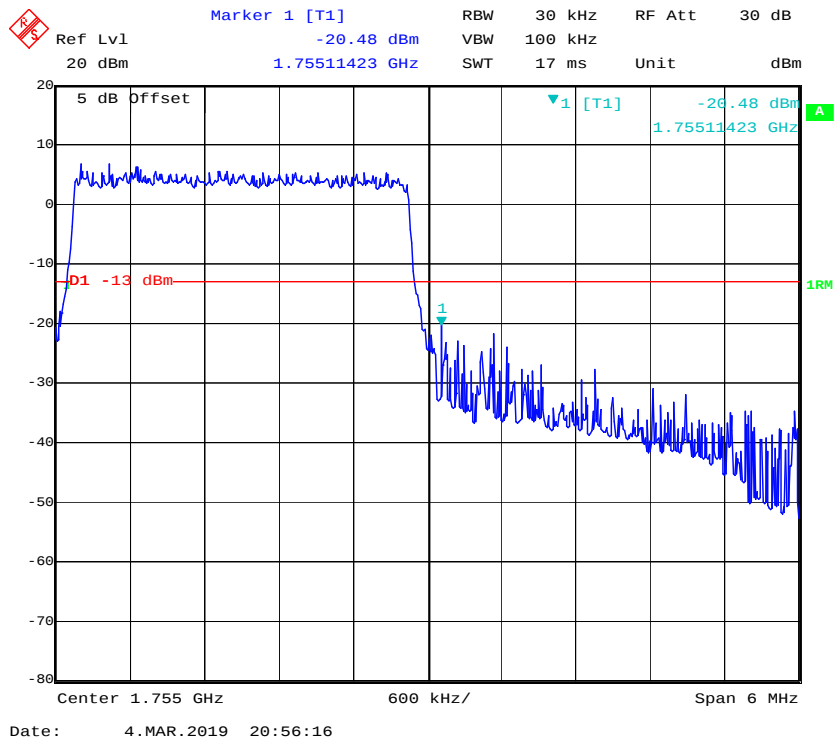
QPSK_1.4MHz_6 RB_Right



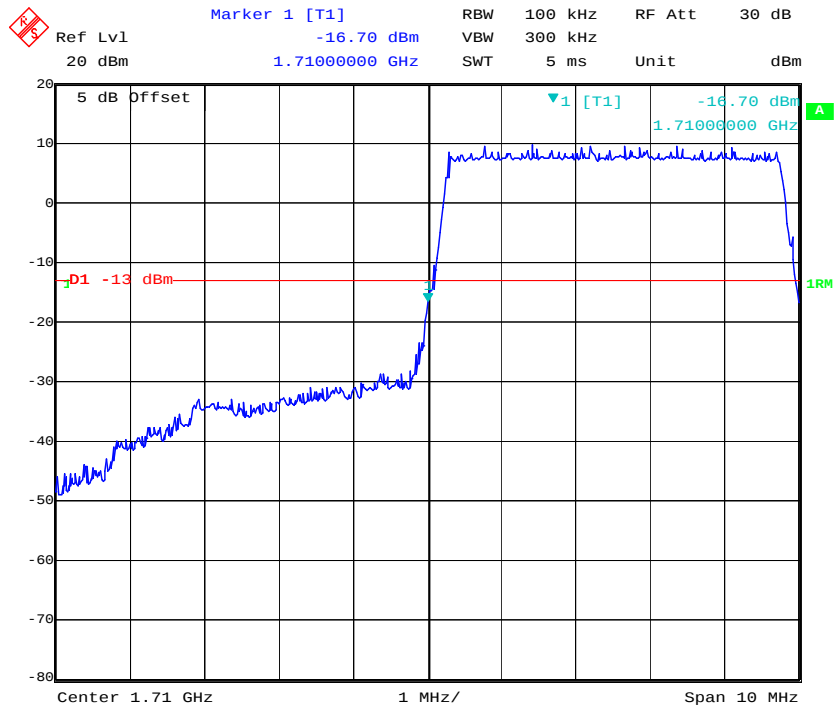
QPSK_3MHz_15 RB_ Left



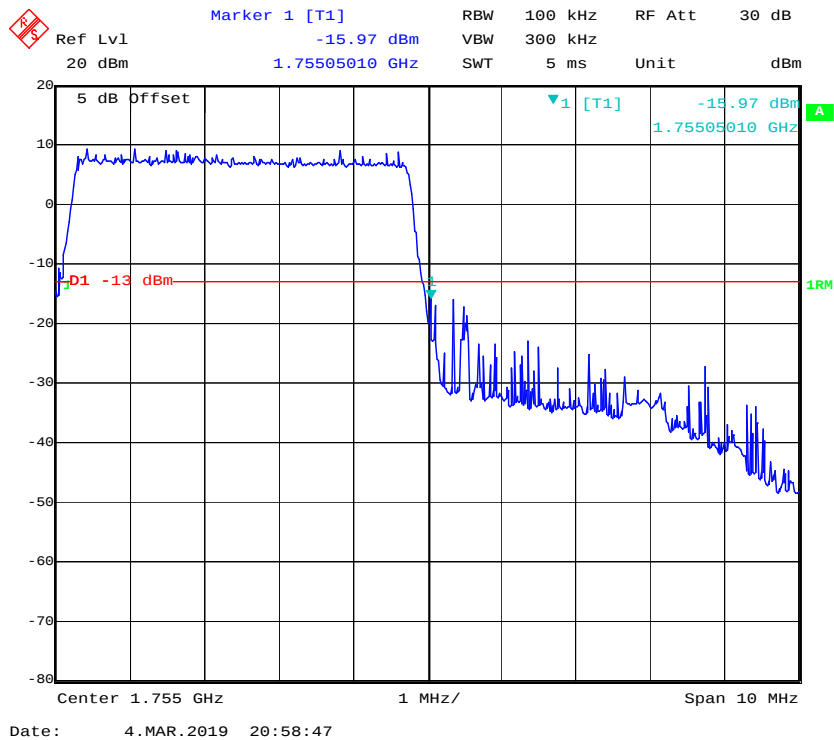
QPSK_3MHz_15 RB_ Right



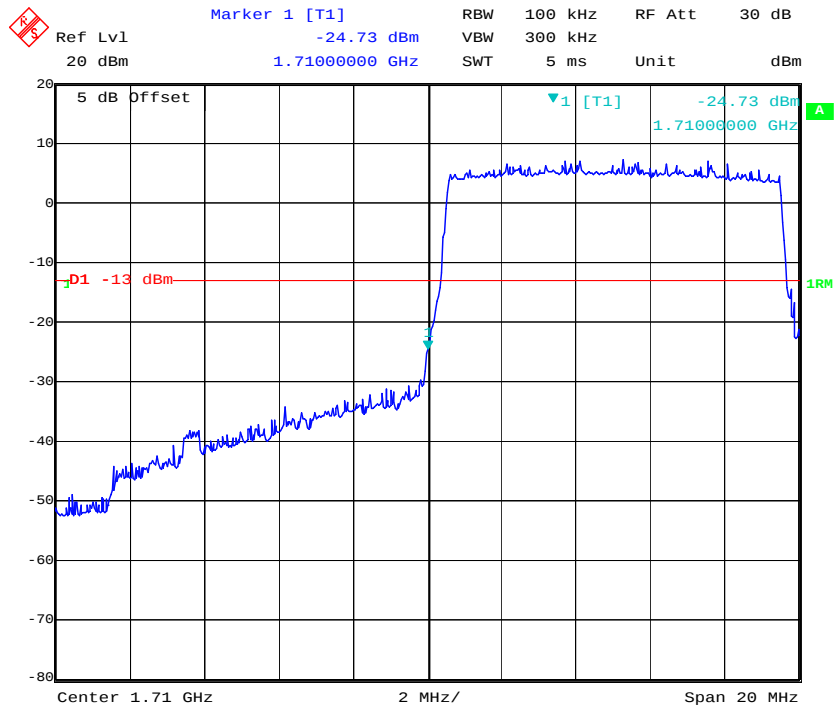
QPSK_5MHz_25 RB_ Left



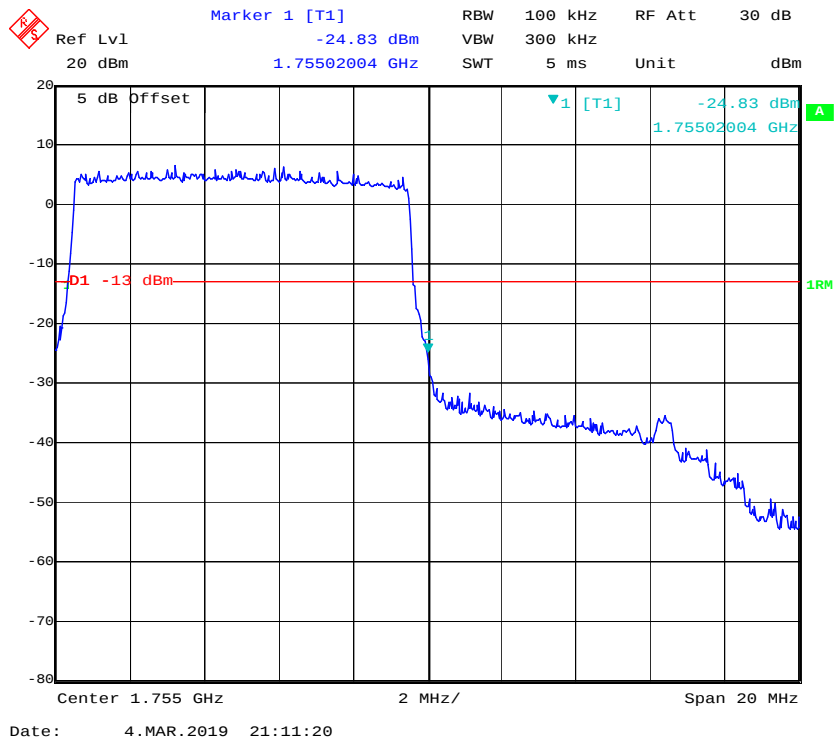
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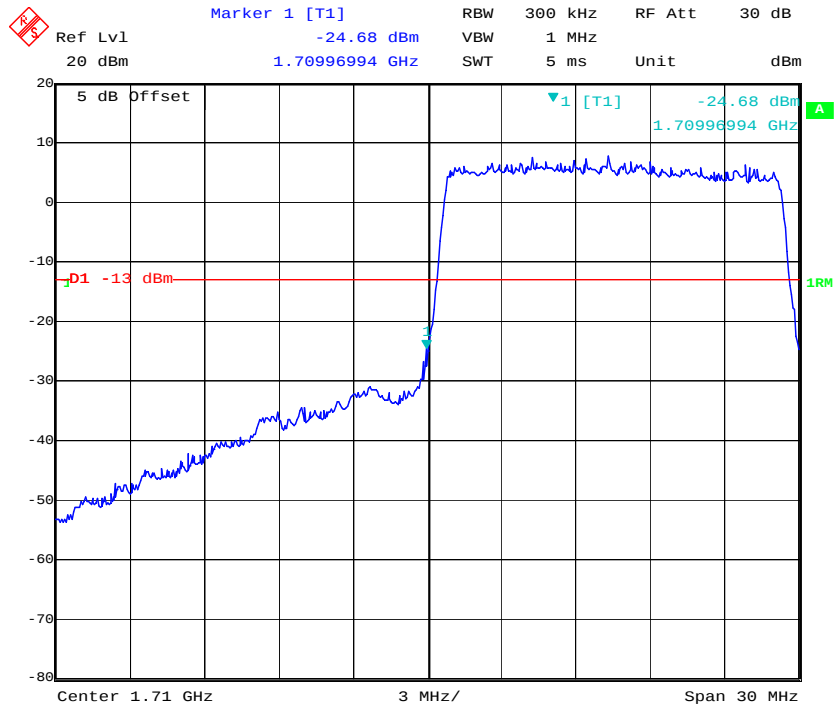
QPSK_10MHz_ 50 RB_ Left



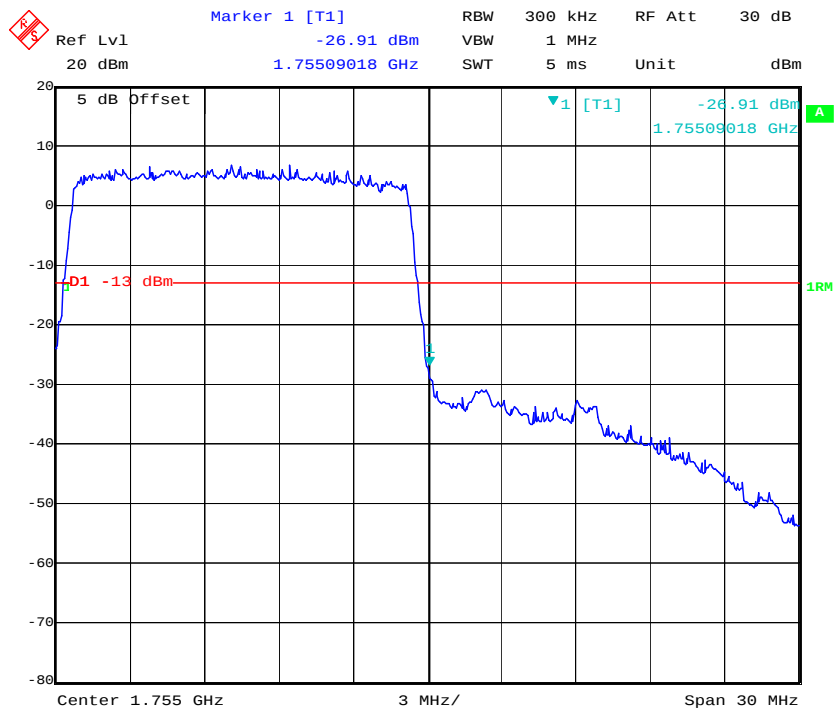
QPSK_10MHz_ 50 RB_ Right



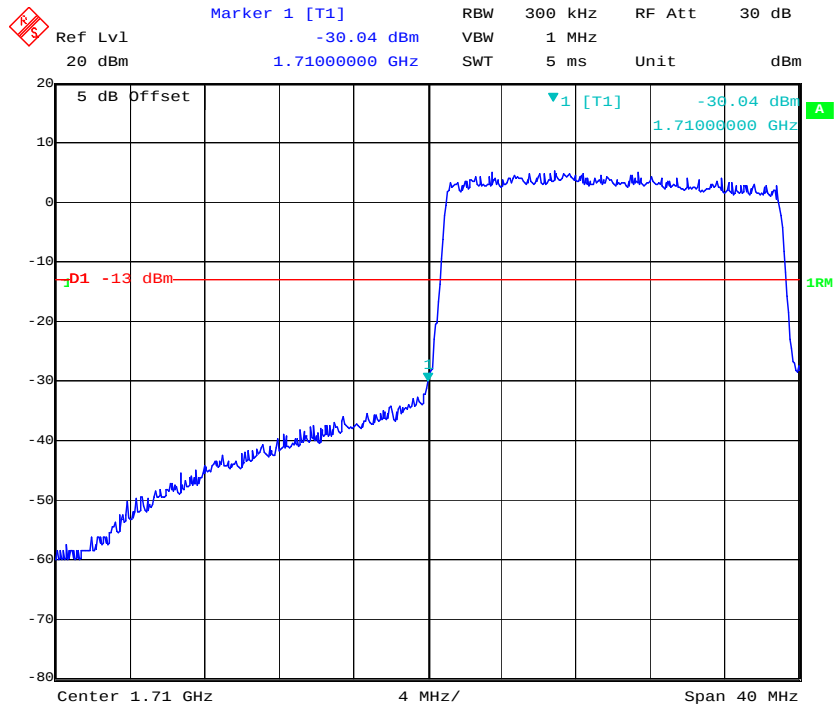
QPSK_15MHz_ 75 RB_ Left



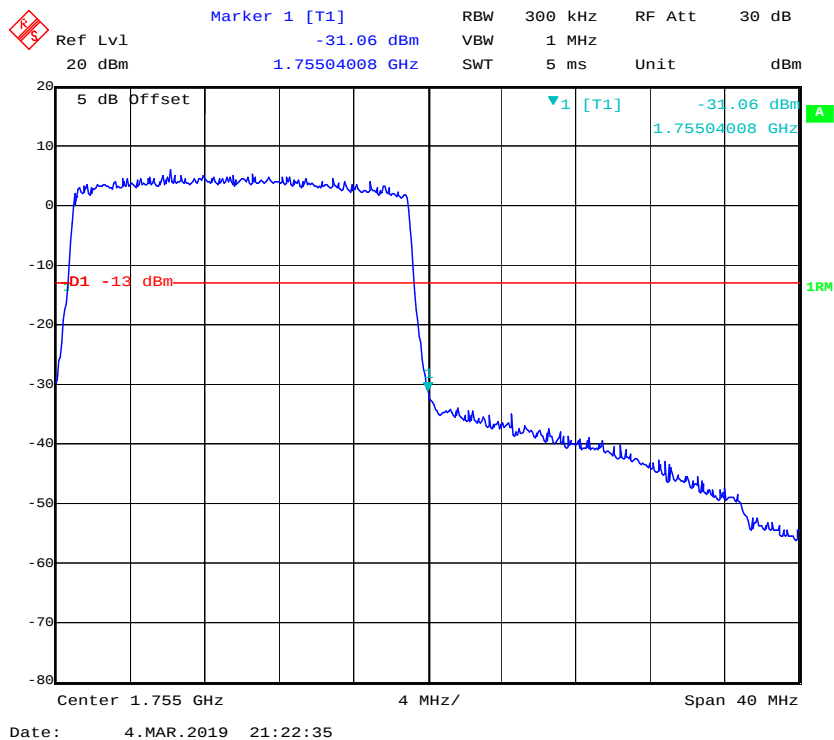
QPSK_15MHz_ 75 RB_ Right



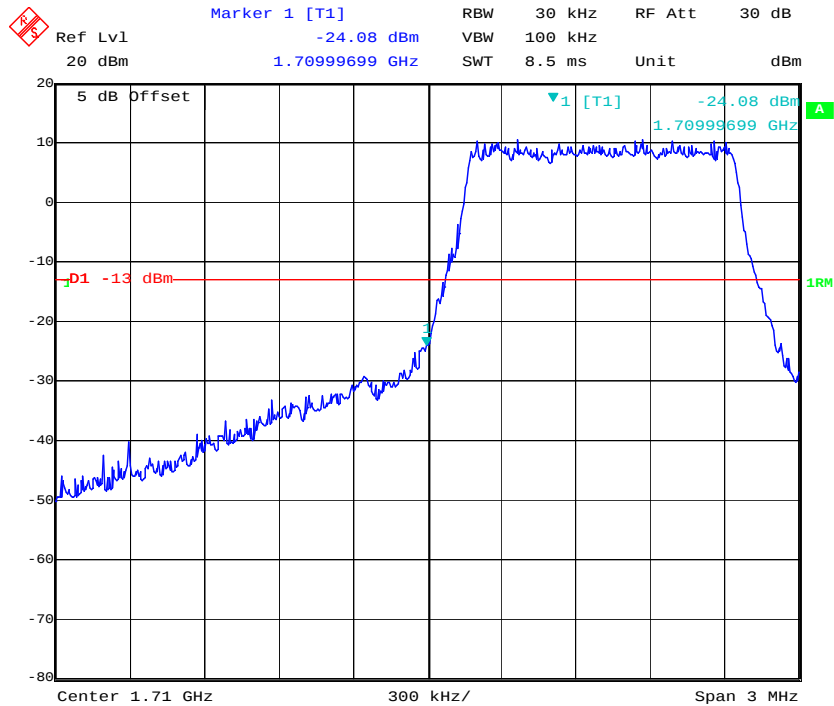
QPSK_20MHz_FULL RB_Left



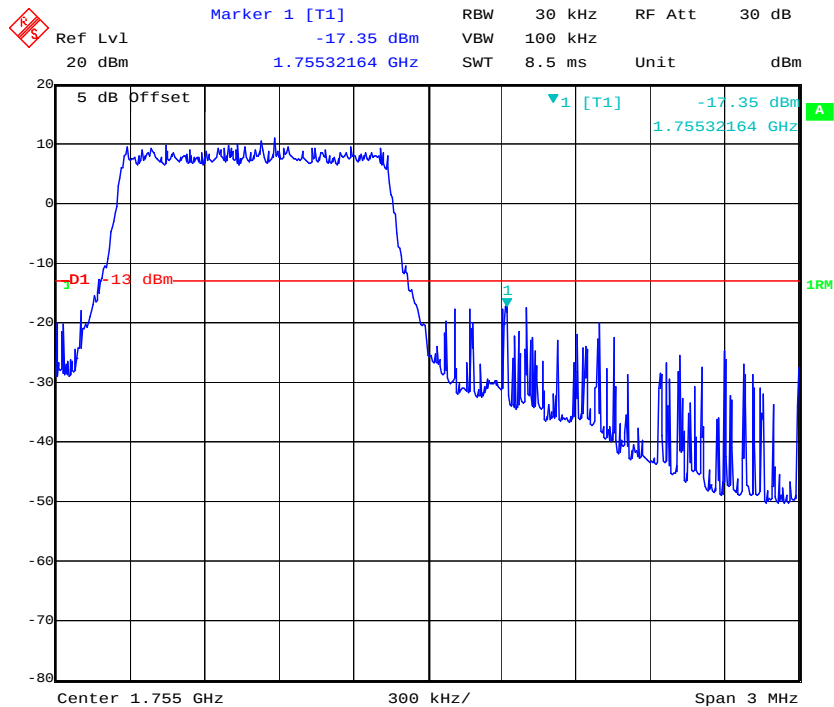
QPSK_20MHz_FULL RB_Right



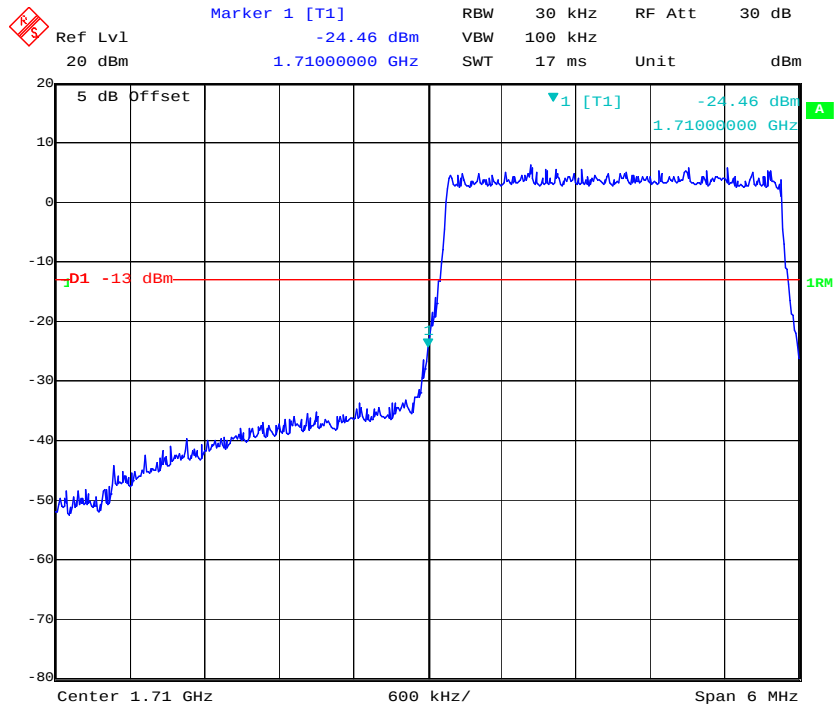
16QAM_1.4MHz_6 RB_ Left



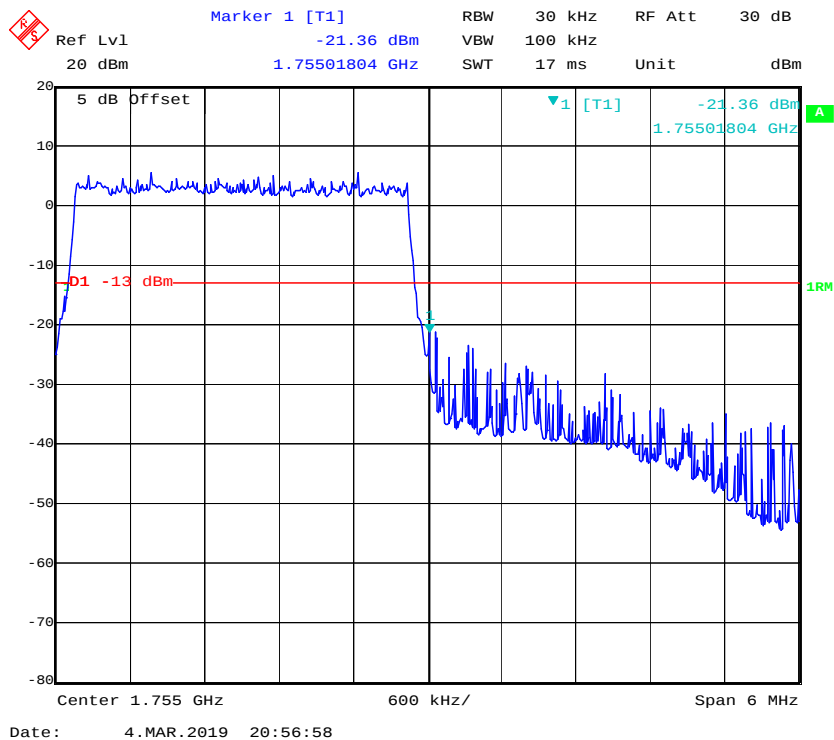
16QAM_1.4MHz_6 RB_ Right



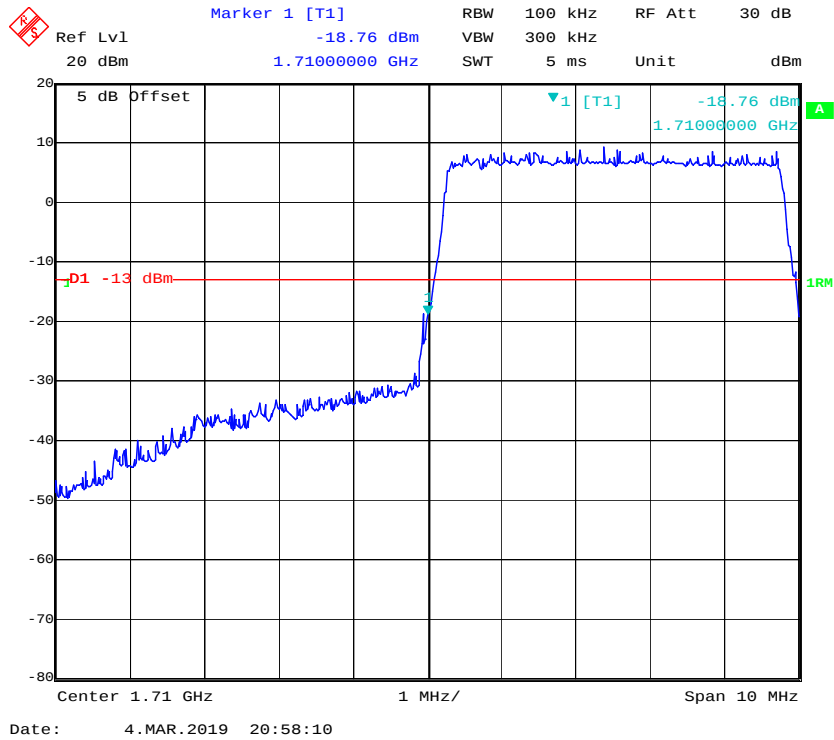
16QAM_3MHz_15 RB_ Left



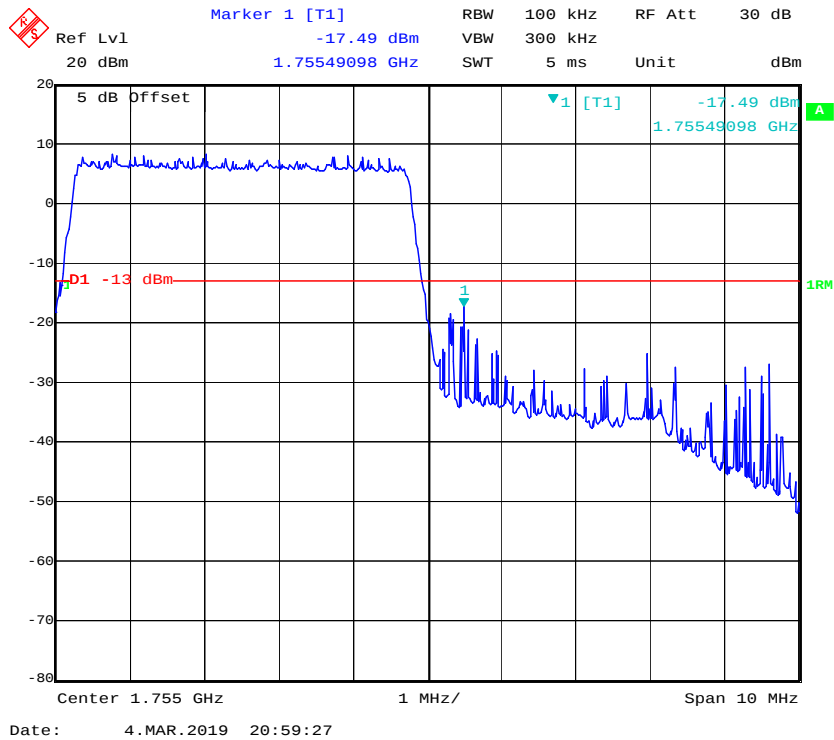
16QAM_3MHz_15 RB_ Right



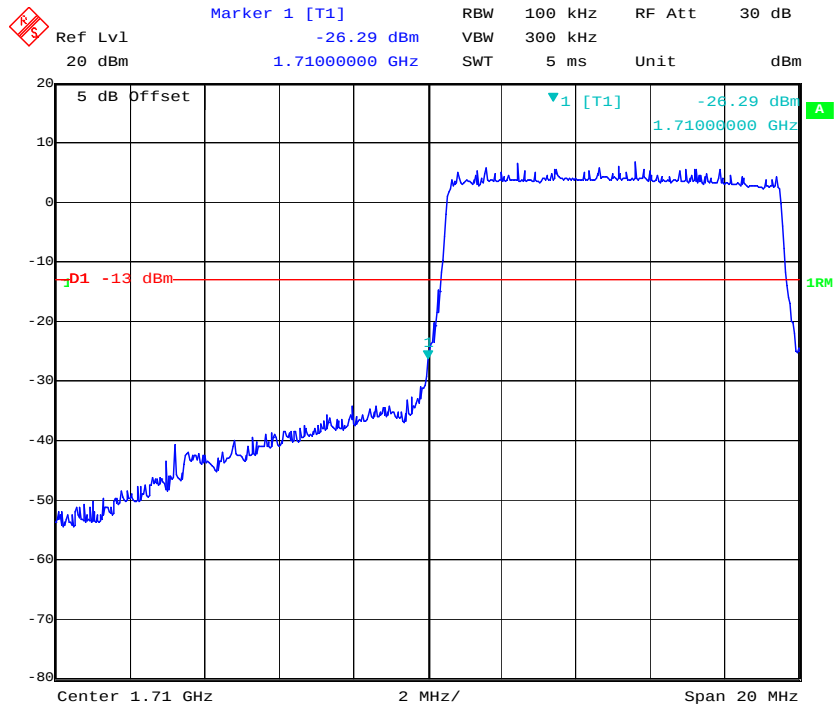
16QAM_5MHz_ 25 RB_ Left



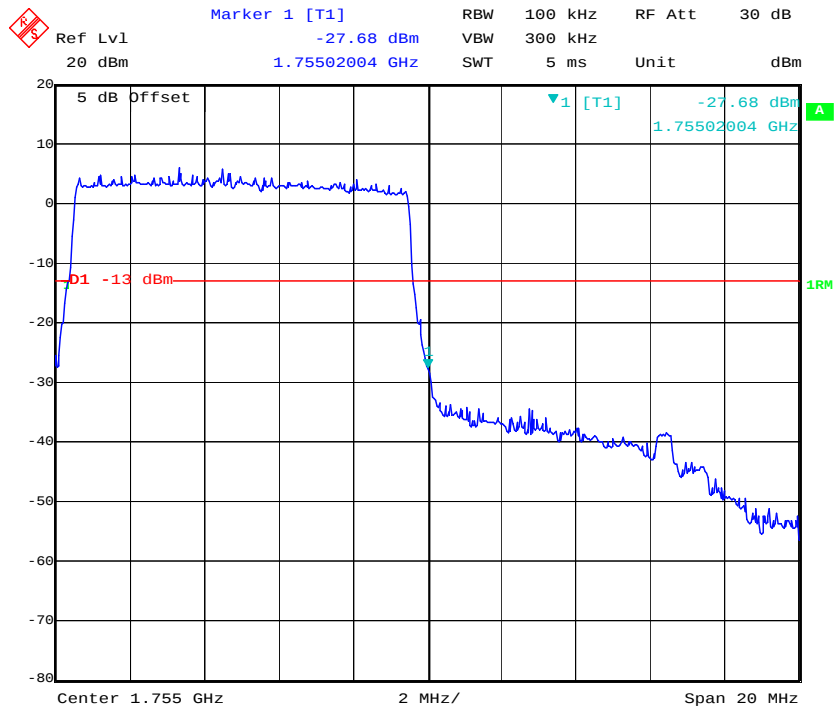
16QAM_5MHz_ 25 RB_ Right



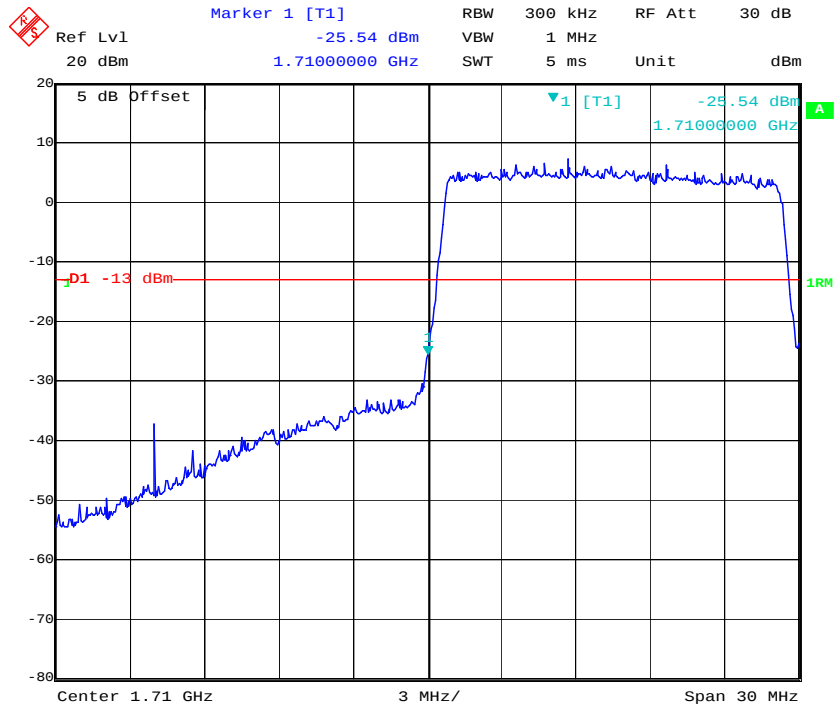
16QAM_10MHz_ 50 RB_ Left



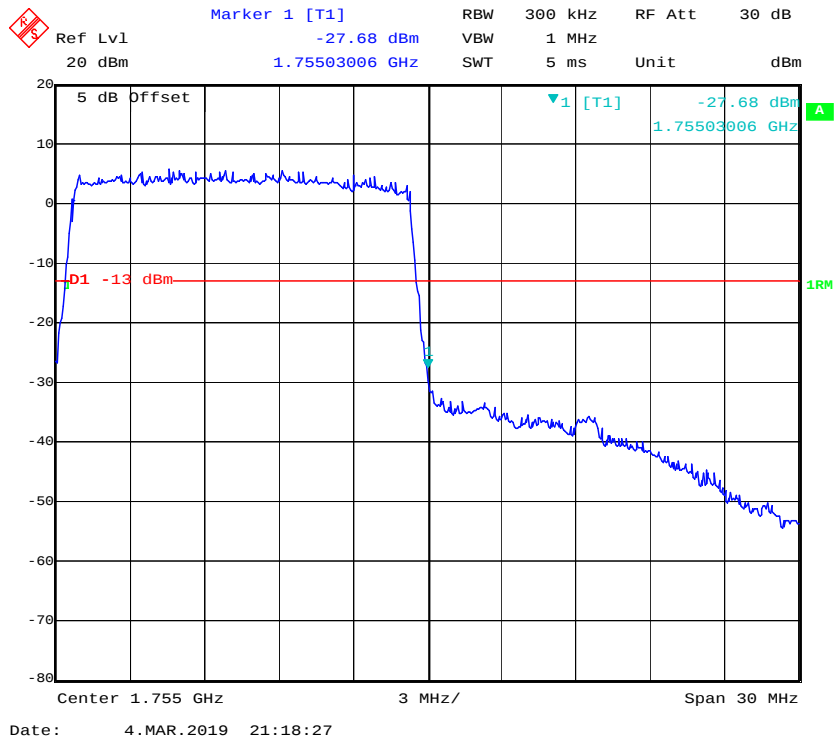
16QAM_10MHz_ 50 RB_ Right



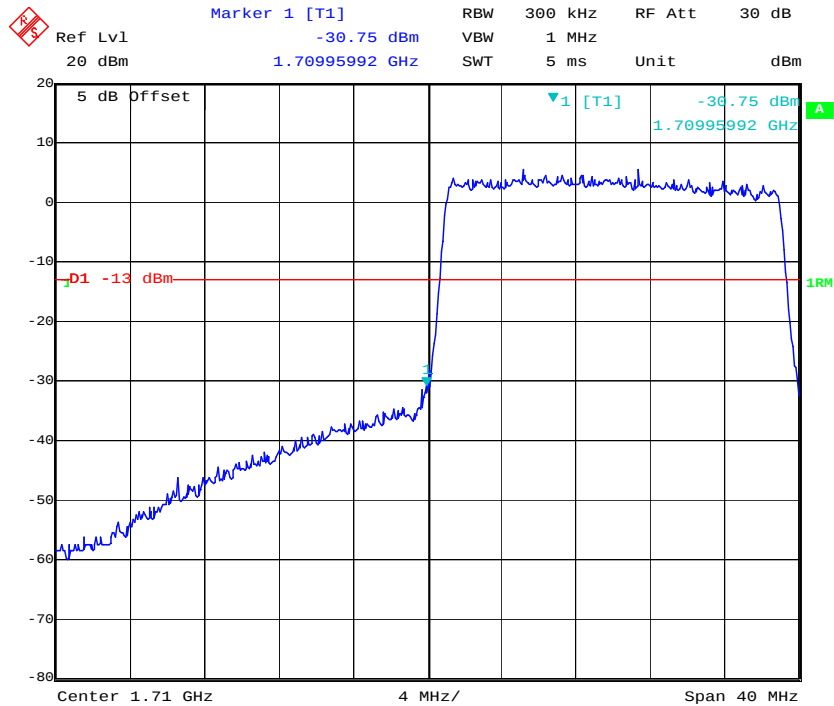
16QAM_15MHz_ 75 RB_ Left



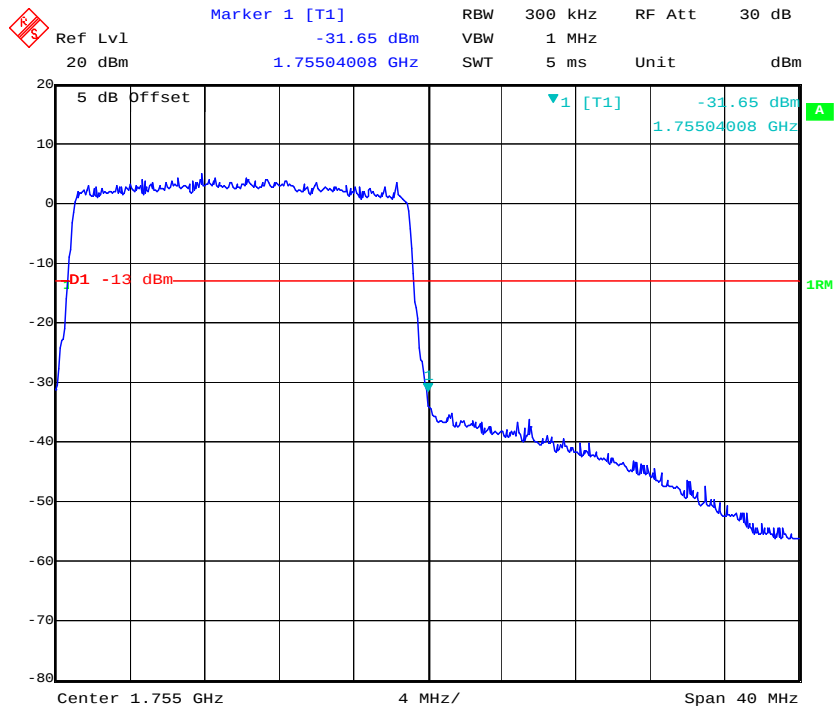
16QAM_15MHz_ 75 RB_ Right



16QAM_20MHz_ FULL RB_ Left



16QAM_20MHz_ FULL RB_ Right



FCC §2.1055, §24.235 & §27.54- FREQUENCY STABILITY

Applicable Standard

FCC § 2.1055 (a), § 2.1055 (d), §24.235, §27.54

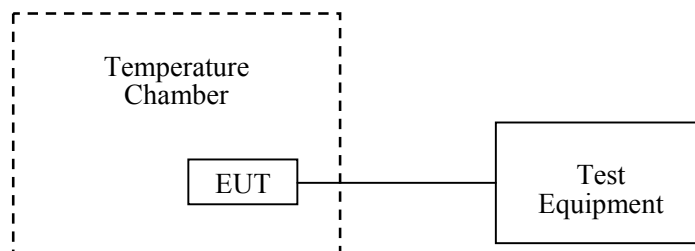
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external AC 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 AC 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 AC 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
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A
R&S	Wideband Radio Communication Tester	CMW500	147473	2018-08-03	2019-08-03
ESPEC	Constant temperature and humidity Tester	ESX-4CA	018 463	2018-03-26	2019-03-26
UNI-T	Multimeter	UT39A	M130199938	2018-07-24	2019-07-24
Rohde & Schwarz	Signal Analyzer	FSIQ26	831929/005	2018-08-03	2019-08-03
Pro instrument	DC Power Supply	pps3300	3300012	N/A	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:	25.2°C
Relative Humidity:	52 %
ATM Pressure:	101.1 kPa

The testing was performed by Andy Huang on 2019-03-04.

LTE Band 2:

QPSK, Channel Bandwidth:10MHz Middle Channel, $f_c = 1880$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Result
°C	V_{DC}	Hz	ppm	
-30	12	10	0.0053	Pass
-20		5	0.0027	
-10		8	0.0043	
0		12	0.0064	
10		11	0.0059	
20		7	0.0037	
30		4	0.0021	
40		6	0.0032	
50		9	0.0048	
20	10.8	13	0.0069	
20	36	15	0.0080	

16QAM, Channel Bandwidth:10MHz Middle Channel, $f_c = 1880$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Result
°C	V_{DC}	Hz	ppm	
-30	12	16	0.0085	Pass
-20		14	0.0074	
-10		17	0.0090	
0		15	0.0080	
10		7	0.0037	
20		11	0.0059	
30		13	0.0069	
40		15	0.0080	
50		12	0.0064	
20	10.8	11	0.0059	
20	36	17	0.0090	

LTE Band 4:

QPSK, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
°C	V_{DC}	F_L	F_H	F_L	F_H
-30	12	1710.531051	1754.509020	1710	1755
-20		1710.531055	1754.509022	1710	1755
-10		1710.531052	1754.509024	1710	1755
0		1710.531055	1754.509020	1710	1755
10		1710.531056	1754.509026	1710	1755
20		1710.531060	1754.509020	1710	1755
30		1710.531052	1754.509020	1710	1755
40		1710.531055	1754.509028	1710	1755
50		1710.531059	1754.509027	1710	1755
20	10.8	1710.531051	1754.509021	1710	1755
20	36	1710.531053	1754.509023	1710	1755

16QAM, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
°C	V_{DC}	F_L	F_H	F_L	F_H
-30	12	1710.531061	1754.509022	1710	1755
-20		1710.531062	1754.509021	1710	1755
-10		1710.531060	1754.509020	1710	1755
0		1710.531063	1754.509021	1710	1755
10		1710.531065	1754.509027	1710	1755
20		1710.531060	1754.509020	1710	1755
30		1710.531067	1754.509028	1710	1755
40		1710.531060	1754.509020	1710	1755
50		1710.531062	1754.509022	1710	1755
20	10.8	1710.531066	1754.509025	1710	1755
20	36	1710.531064	1754.509021	1710	1755

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 *******