



TESTING LABORATORY
CERTIFICATE #4820.01



FCC PART 22H, PART 24E, PART 27 MEASUREMENT AND TEST REPORT

For

G-TOUCH LLC

1750 NW 107TH AVENUE, STE P-411, MIAMI, FLORIDA, UNITED STATES

FCC ID: 2AJDZS2021

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Reviewed By:	Ivan Cao Assistant Manager 
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Dongguan) No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China Tel: +86-769-86858888 Fax: +86-769-86858891 www.baclcorp.com.cn

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

EUT Name:	Gtouch Speed 2021
EUT Model:	NEO 4G
Operation modes:	GSM Voice, GPRS/EDGE Data, WCDMA(R99 (Voice+Data), HSDPA,HSUPA) FDD-LTE
Operation Frequency:	GSM 850: 824-849 MHz(TX); 869-894 MHz(RX) PCS 1900: 1850-1910 MHz(TX); 1930-1990 MHz(RX) WCDMA Band 2: 1850-1910 MHz(TX); 1930-1990 MHz(RX) WCDMA Band 5: 824-849 MHz(TX); 869-894 MHz(RX) LTE Band 2:1850-1910 MHz(TX), 1930-1990 MHz(RX) LTE Band 4:1710-1755 MHz(TX), 2110-2155 MHz(RX)
Antenna Gain^Δ:	GSM850/WCDMA B5: -1.0 dBi PCS1900/WCDMA B2/LTE B2: 1.1 dBi LTE B4: 0.5 dBi
Modulation Type:	GMSK, BPSK, QPSK, 16QAM
Adapter Information	Model: Speed 2021
	Input: AC 100-240V, 50/60Hz, 0.3A
	Output: DC 5.0V, 2000mA
Rated Input Voltage:	DC 3.7V from Battery or DC 5V from Adapter
Serial Number:	RDG201029005-RF-S1
EUT Received Date:	2020.10.29
EUT Received Status:	Good

Objective

This report is prepared on behalf of **G-TOUCH LLC** in accordance with: Part 2-Subpart J, Part 22-Subpart H, Part 24-Subpart E, 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)

FCC Part 15C DSS submissions with FCC ID: 2AJDZS2021.
FCC Part 15C DTS submissions with FCC ID: 2AJDZS2021.

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 22H, Part 24E, 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	±0.61 dB
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.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.

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 GSM Band 850/1900MHz, WCDMA Band 2/5, and LTE band 2/4, test was performed with channels as below table:

Frequency Bands	Bandwidth (MHz)	Test Frequency(MHz)		
		Low	Middle	High
GSM/GPRS/EDGE 850	0.25	824.2	836.6	848.8
GSM/GPRS/EDGE 1900	0.25	1850.2	1880	1909.8
WCDMA Band 2	4.2	1852.4	1880	1907.6
WCDMA Band 5	4.2	826.4	836.6	846.6
LTE Band 2	1.4	1850.7	1880	1909.3
	3	1851.5	1880	1908.5
	5	1852.5	1880	1907.5
	10	1855	1880	1905
	15	1857.5	1880	1902.5
	20	1860	1880	1900
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

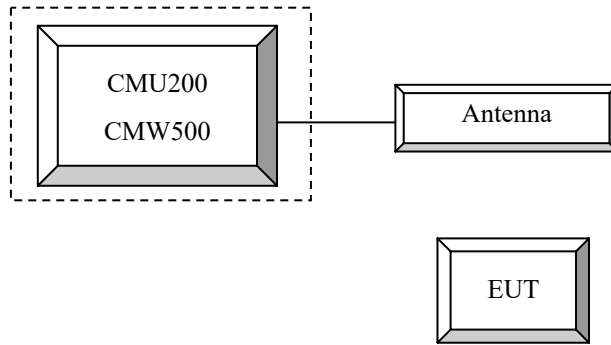
Equipment Modifications

No modification was made to the EUT.

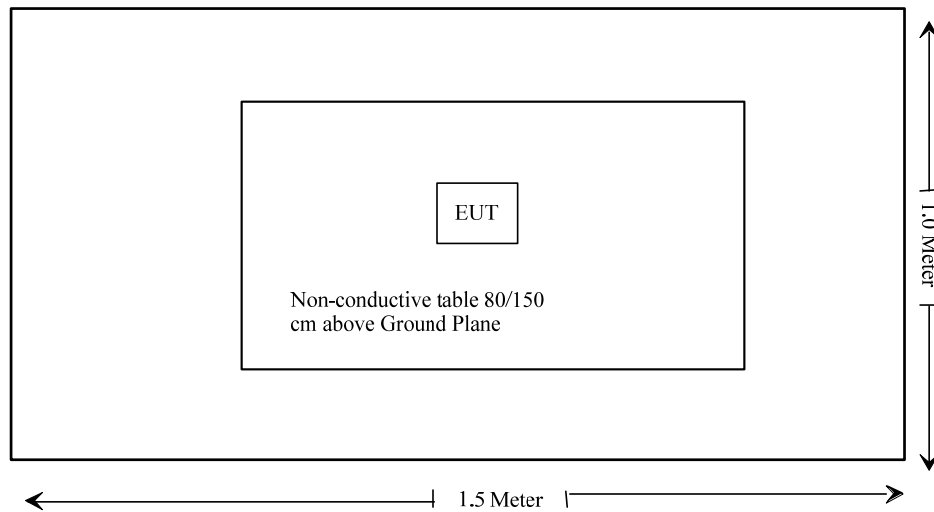
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
R&S	Universal Radio Communication Tester	CMU200	106 891
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, §2.1093	RF Exposure	Compliance
FCC§2.1046;§ 22.913 (a); § 24.232 (c);§27.50	RF Output Power	Compliance
FCC§ 2.1047	Modulation Characteristics	Not Applicable
FCC§ 2.1049; § 22.905 § 22.917; § 24.238; §27.53	Occupied Bandwidth	Compliance
FCC§ 2.1051, § 22.917 (a); § 24.238 (a); §27.53;	Spurious Emissions at Antenna Terminal	Compliance
FCC§ 2.1053 § 22.917 (a); § 24.238 (a); §27.53	Field Strength of Spurious Radiation	Compliance
FCC§ 22.917 (a); § 24.238 (a); §27.53;	Out of band emission, Band Edge	Compliance
FCC§ 2.1055 § 22.355; § 24.235; §27.54	Frequency stability vs. temperature Frequency stability vs. voltage	Compliance

FCC §1.1310 & §2.1093- RF EXPOSURE

Applicable Standard

FCC§1.1310 and §2.1093.

Test Result

Compliance, please refer to the SAR report: RDG201029005-20.

FCC §2.1047 - MODULATION CHARACTERISTIC

According to FCC § 2.1047(d), Part 22H & 24E, part 27 there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

FCC § 2.1046, § 22.913 (a) & § 24.232 (c) & § 27.50- RF OUTPUT POWER

Applicable Standard

According to FCC §2.1046 and §22.913 (a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

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

(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

GSM/GPRS/EGPRS

Function: Menu select > GSM Mobile Station > GSM 850/1900
 Press Connection control to choose the different menus
 Press RESET > choose all the reset all settings
 Connection Press Signal Off to turn off the signal and change settings
 Network Support > GSM + GPRS or GSM + EGSM
 Main Service > Packet Data
 Service selection > Test Mode A – Auto Slot Config. off
 MS Signal Press Slot Config Bottom on the right twice to select and change the number of time slots and power setting
 > Slot configuration > Uplink/Gamma
 > 33 dBm for GPRS 850
 > 30 dBm for GPRS 1900
 > 27 dBm for EGPRS 850
 > 26 dBm for EGPRS 1900
 BS Signal Enter the same channel number for TCH channel (test channel) and BCCH channel
 Frequency Offset > + 0 Hz
 Mode > BCCH and TCH

 BCCH Level > -85 dBm (May need to adjust if link is not stable)
 BCCH Channel > choose desire test channel [Enter the same channel number for TCH channel (test channel) and BCCH channel]

 Channel Type > Off
 P0 > 4 dB
 Slot Config > Unchanged (if already set under MS signal)
 TCH > choose desired test channel
 Hopping > Off
 Main Timeslot > 3
 Network Coding Scheme > CS4 (GPRS) and MCS5 (EGPRS)

 Bit Stream > 2E9-1 PSR Bit Stream
 AF/RF Enter appropriate offsets for Ext. Att. Output and Ext. Att. Input
 Connection Press Signal on to turn on the signal and change settings

WCDMA-Release 99

The following tests were conducted according to the test requirements outlines in section 5.2 of the 3GPP TS34.121-1 specification. The EUT has a nominal maximum output power of 24dBm (+1.7/-3.7).

WCDMA General Settings	Loopback Mode	Test Mode 1
	Rel99 RMC	12.2kbps RMC
	Power Control Algorithm	Algorithm2
	β_c / β_d	8/15

WCDMA HSDPA

The following tests were conducted according to the test requirements outlines in section 5.2 of the 3GPP TS34.121-1 specification.

	Mode	HSDPA	HSDPA	HSDPA	HSDPA
	Subset	1	2	3	4
WCDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set1			
	Power Control Algorithm	Algorithm2			
	β_c	2/15	12/15	15/15	15/15
	β_d	15/15	15/15	8/15	4/15
	β_d (SF)	64			
	β_c / β_d	2/15	12/15	15/8	15/4
	β_{hs}	4/15	24/15	30/15	30/15
	MPR(dB)	0	0	0.5	0.5
HSDPA Specific Settings	DACK	8			
	DNAK	8			
	DCQI	8			
	Ack-Nack repetition factor	3			
	CQI Feedback	4ms			
	CQI Repetition Factor	2			
	$A_{hs} = \beta_{hs} / \beta_c$	30/15			

WCDMA HSUPA

The following tests were conducted according to the test requirements outlines in section 5.2 of the 3GPP TS34.121-1 specification.

	Mode	HSUPA	HSUPA	HSUPA	HSUPA	HSUPA
	Subset	1	2	3	4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2kbps RMC				
	HSDPA FRC	H-Set1				
	HSUPA Test	HSUPA Loopback				
	Power Control Algorithm	Algorithm2				
	β_c	11/15	6/15	15/15	2/15	15/15
	β_d	15/15	15/15	9/15	15/15	0
	β_{ec}	209/225	12/15	30/15	2/15	5/15
	β_c / β_d	11/15	6/15	15/9	2/15	-
	β_{hs}	22/15	12/15	30/15	4/15	5/15
	CM(dB)	1.0	3.0	2.0	3.0	1.0
MPR(dB)	0	2	1	2	0	
HSDPA Specific Settings	DACK	8				
	DNAK	8				
	DCQI	8				
	Ack-Nack repetition factor	3				
	CQI Feedback	4ms				
	CQI Repetition Factor	2				
	$A_{hs} = \beta_{hs} / \beta_c$	30/15				
HSUPA Specific Settings	DE-DPCCH	6	8	8	5	7
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	21
	ETFCI	75	67	92	71	81
	Associated Max UL Data Rate kbps	242.1	174.9	482.8	205.8	308.9
	Reference E_FCIs	E-TFCI 11 E E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO23 E-TFCI 75 E-TFCI PO26 E-TFCI 81 E-TFCI PO 27	E-TFCI 11 E-TFCI PO4 E-TFCI 92 E-TFCI PO 18	E-TFCI 11 E E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO23 E-TFCI 75 E-TFCI PO26 E-TFCI 81 E-TFCI PO 27		

HSPA+

The following tests were conducted according to the test requirements in Table C.11.1.4 of 3GPP TS 34.121-1

Sub-test	β_c (Note3)	β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (2xSF2) (Note 4)	β_{ed} (2xSF4) (Note 4)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 4)	E-TFCI (Note 5)	E-TFCI (boost)
1	1	0	30/15	30/15	β_{ed1} : 30/15 β_{ed2} : 30/15	β_{ed3} : 24/15 β_{ed4} : 24/15	3.5	2.5	14	105	105

Note 1: $\Delta_{ACK}, \Delta_{NACK}$ and $\Delta_{CQI} = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$.

Note 2: CM = 3.5 and the MPR is based on the relative CM difference, MPR = MAX(CM-1,0).

Note 3: DPDCH is not configured, therefore the β_c is set to 1 and $\beta_d = 0$ by default.

Note 4: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signalled to use the extrapolation algorithm.

DC-HSDPA

The following tests were conducted according to the test requirements in Table C.8.1.12 of 3GPP TS 34.121-1

Table C.8.1.12: Fixed Reference Channel H-Set 12

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Processes	6
Information Bit Payload (N_{INF})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK

Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table.

Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.

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
R&S	Universal Radio Communication Tester	CMU200	106 891	2020-09-12	2021-09-12

** 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:	21.2~28.1 °C
Relative Humidity:	45~54%
ATM Pressure:	100.9~102.5kPa
Tester:	Theshy Xie
Test Date:	2020-11-21~2020-11-30

Test Result: Compliance

Conducted Output Power**Cellular Band & PCS Band**

Band	Channel No.	Conducted Peak Output Power (dBm)								
		GSM	GPRS 1 uplink slot	GPRS 2 uplink slots	GPRS 3 uplink slots	GPRS 4 uplink slots	EDGE 1 uplink slot	EDGE 2 uplink slots	EDGE 3 uplink slots	EDGE 4 uplink slots
Cellular	128	29.3	29.21	27.09	25.15	22.95	24.34	22.87	20.03	17.75
	190	29.2	29.23	27.10	25.20	23.00	24.62	23.26	20.33	17.95
	251	29.3	29.24	27.19	25.21	23.01	24.05	22.72	19.65	17.59
PCS	512	26.2	26.24	24.09	22.52	20.45	24.47	22.56	22.57	19.60
	661	26	26.06	23.81	22.26	20.19	25.04	23.25	22.23	20.13
	810	26.2	26.23	23.78	22.24	20.22	24.24	23.05	21.19	19.10

ERP/EIRP:

Band	Mode	Channel	Conducted Power	Antenna Gain	Cable Loss	Result	Limit
			(dBm)	(dBi/dBd)	(dB)	(dBm)	(dBm)
Cellular	GSM	Low	29.3	-3.15	0.2	25.95	38.45
		Middle	29.23	-3.15	0.2	25.88	38.45
		High	29.3	-3.15	0.2	25.95	38.45
	EDGE	Low	24.34	-3.15	0.2	20.99	38.45
		Middle	24.62	-3.15	0.2	21.27	38.45
		High	24.05	-3.15	0.2	20.7	38.45
PCS	GSM	Low	26.24	1.1	0.4	26.94	33
		Middle	26.06	1.1	0.4	26.76	33
		High	26.23	1.1	0.4	26.93	33
	EDGE	Low	24.47	1.1	0.4	25.17	33
		Middle	25.04	1.1	0.4	25.74	33
		High	24.24	1.1	0.4	24.94	33

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

WCDMA Band 2

Conducted Output Power and PAR:

Mode	3GPP Sub Test	Low Channel		Middle Channel		High Channel	
		Ave. Power (dBm)	PAR (dB)	Ave. Power (dBm)	PAR (dB)	Ave. Power (dBm)	PAR (dB)
Rel 99	1	19.74	2.90	19.71	2.64	19.42	1.88
HSDPA	1	19.69	3.39	19.68	3.33	19.14	2.67
	2	19.11	3.57	19.30	3.21	18.79	2.76
	3	18.68	3.36	18.95	3.48	18.41	2.64
	4	18.20	3.21	18.45	3.51	18.06	2.52
HSUPA	1	19.65	3.71	19.61	3.39	19.34	2.87
	2	19.23	3.77	18.99	3.21	18.75	2.90
	3	18.81	3.86	18.67	3.51	18.13	2.84
	4	18.45	3.80	18.02	3.39	17.57	2.87
	5	18.15	3.83	17.43	3.36	17.25	2.84
DC-HSDPA	1	19.12	3.64	19.19	3.24	19.03	2.93
	2	18.57	3.74	18.57	3.25	18.53	2.69
	3	17.88	3.80	18.19	3.42	18.21	2.74
	4	17.45	3.80	17.84	3.26	17.65	2.72
HSPA+ (16QAM)	1	17.44	3.53	18.14	3.54	18.09	2.83

EIRP:

Channel	Conducted Power (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	Result (dBm)	Limit (dBm)
Low	19.74	1.1	0.4	20.44	33
Middle	19.71	1.1	0.4	20.41	33
High	19.42	1.1	0.4	20.12	33

WCDMA Band 5

Conducted Output Power and PAR:

Mode	3GPP Sub Test	Low Channel		Middle Channel		High Channel	
		Ave. Power (dBm)	PAR (dB)	Ave. Power (dBm)	PAR (dB)	Ave. Power (dBm)	PAR (dB)
Rel 99	1	19.48	3.04	19.19	3.28	19.33	2.96
HSDPA	1	18.53	3.48	19.08	3.42	18.37	3.42
	2	18.19	3.60	18.72	3.33	18.16	3.54
	3	17.70	3.45	18.36	3.57	17.98	3.36
	4	17.48	3.39	18.09	3.51	17.71	3.48
HSUPA	1	18.54	3.62	19.13	3.65	18.42	3.54
	2	18.36	3.68	18.92	3.50	18.04	3.63
	3	17.97	3.47	18.53	3.74	18.02	3.69
	4	17.64	3.80	18.26	3.68	17.97	3.60
	5	17.39	3.44	17.87	3.47	17.71	3.63
DC-HSDPA	1	18.47	3.62	18.56	3.83	18.37	3.69
	2	18.35	3.59	18.23	3.50	17.92	3.54
	3	18.02	3.77	17.78	3.65	17.71	3.63
	4	17.78	3.71	17.48	3.68	17.46	3.42
HSPA+ (16QAM)	1	18.24	3.53	17.92	3.62	18.07	3.57

ERP:

Channel	Conducted Power (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	Result (dBm)	Limit (dBm)
Low	19.48	-3.15	0.2	16.13	38.45
Middle	19.19	-3.15	0.2	15.84	38.45
High	19.33	-3.15	0.2	15.98	38.45

LTE Band 2

Conducted Output Power:

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	RB1#0	19.14	19.34	19.32
		RB1#3	19.17	19.37	19.37
		RB1#5	19.17	19.38	19.34
		RB3#0	19.28	19.32	19.39
		RB3#3	19.37	19.30	19.40
		RB6#0	18.17	18.20	18.41
	16QAM	RB1#0	17.96	18.64	19.09
		RB1#3	17.96	18.54	19.09
		RB1#5	17.98	18.59	19.16
		RB3#0	18.36	18.33	18.31
		RB3#3	18.37	18.32	18.37
		RB6#0	17.49	17.58	17.55
3MHz	QPSK	RB1#0	19.11	19.23	19.23
		RB1#8	19.16	19.29	19.30
		RB1#14	19.11	19.22	19.33
		RB6#0	18.15	18.29	18.39
		RB6#9	18.26	18.34	18.38
		RB15#0	18.15	18.31	18.35
	16QAM	RB1#0	18.45	18.81	18.15
		RB1#8	18.38	18.82	18.15
		RB1#14	18.49	18.82	18.18
		RB6#0	17.40	17.56	17.66
		RB6#9	17.56	17.51	17.71
		RB15#0	17.33	17.34	17.54
5MHz	QPSK	RB1#0	19.16	19.42	19.33
		RB1#13	19.19	19.35	19.34
		RB1#24	19.13	19.36	19.34
		RB15#0	18.27	18.26	18.40
		RB15#10	18.27	18.22	18.43
		RB25#0	18.24	18.23	18.34
	16QAM	RB1#0	17.46	18.41	18.09
		RB1#13	17.56	18.50	18.09
		RB1#24	17.48	18.48	18.14
		RB15#0	17.38	17.38	17.51
		RB15#10	17.48	17.22	17.56
		RB25#0	17.48	17.44	17.36

10MHz	QPSK	RB1#0	19.15	19.33	19.34
		RB1#25	19.17	19.32	19.38
		RB1#49	19.16	19.37	19.38
		RB25#0	18.31	18.34	18.44
		RB25#25	18.27	18.35	18.41
		RB50#0	18.35	18.27	18.40
	16QAM	RB1#0	18.68	18.40	17.91
		RB1#25	18.66	18.52	17.93
		RB1#49	18.66	18.51	17.96
		RB25#0	17.37	17.48	17.62
		RB25#25	17.37	17.50	17.63
		RB50#0	17.40	17.49	17.48
15MHz	QPSK	RB1#0	19.14	19.16	19.28
		RB1#38	19.17	19.23	19.31
		RB1#74	19.27	19.28	19.36
		RB36#0	18.25	18.18	18.35
		RB36#39	18.28	18.36	18.35
		RB75#0	18.38	18.24	18.43
	16QAM	RB1#0	18.65	18.52	18.78
		RB1#38	18.73	18.56	18.83
		RB1#74	18.68	18.59	18.87
		RB36#0	17.35	17.34	17.51
		RB36#39	17.38	17.42	17.54
		RB75#0	17.38	17.45	17.48
20MHz	QPSK	RB1#0	19.30	19.31	19.31
		RB1#50	19.30	19.33	19.36
		RB1#99	19.40	19.51	19.48
		RB50#0	18.20	18.36	18.44
		RB50#50	18.32	18.34	18.33
		RB100#0	18.27	18.23	18.37
	16QAM	RB1#0	18.40	18.41	19.17
		RB1#50	18.51	18.37	19.14
		RB1#99	18.57	18.49	19.22
		RB50#0	17.42	17.41	17.41
		RB50#50	17.45	17.52	17.48
		RB100#0	17.38	17.40	17.53

PAR:

Test Modulation		Channel Bandwidth	Low Channel (dB)	Middle Channel (dB)	High Channel (dB)	Limit (dB)
QPSK	1 RB	20 MHz	4.76	5.28	5.64	13.00
	100 RB		5.52	5.48	5.64	13.00
16QAM	1 RB	20 MHz	5.72	5.96	6.84	13.00
	100 RB		6.48	6.36	6.52	13.00

EIRP:

Channel Bandwidth	Modulation	Channel	Conducted Power (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	Result (dBm)	Limit (dBm)
1.4MHz	QPSK	Low	19.37	1.1	0.4	20.07	33
		Middle	19.38	1.1	0.4	20.08	33
		High	19.40	1.1	0.4	20.10	33
	16QAM	Low	18.37	1.1	0.4	19.07	33
		Middle	18.64	1.1	0.4	19.34	33
		High	19.16	1.1	0.4	19.86	33
3MHz	QPSK	Low	19.16	1.1	0.4	19.86	33
		Middle	19.29	1.1	0.4	19.99	33
		High	19.33	1.1	0.4	20.03	33
	16QAM	Low	18.49	1.1	0.4	19.19	33
		Middle	18.82	1.1	0.4	19.52	33
		High	18.18	1.1	0.4	18.88	33
5MHz	QPSK	Low	19.19	1.1	0.4	19.89	33
		Middle	19.42	1.1	0.4	20.12	33
		High	19.34	1.1	0.4	20.04	33
	16QAM	Low	17.56	1.1	0.4	18.26	33
		Middle	18.50	1.1	0.4	19.20	33
		High	18.14	1.1	0.4	18.84	33
10MHz	QPSK	Low	19.17	1.1	0.4	19.87	33
		Middle	19.37	1.1	0.4	20.07	33
		High	19.38	1.1	0.4	20.08	33
	16QAM	Low	18.68	1.1	0.4	19.38	33
		Middle	18.52	1.1	0.4	19.22	33
		High	17.96	1.1	0.4	18.66	33
15MHz	QPSK	Low	19.27	1.1	0.4	19.97	33
		Middle	19.28	1.1	0.4	19.98	33
		High	19.36	1.1	0.4	20.06	33
	16QAM	Low	18.73	1.1	0.4	19.43	33
		Middle	18.59	1.1	0.4	19.29	33
		High	18.87	1.1	0.4	19.57	33
20MHz	QPSK	Low	19.40	1.1	0.4	20.10	33
		Middle	19.51	1.1	0.4	20.21	33
		High	19.48	1.1	0.4	20.18	33
	16QAM	Low	18.57	1.1	0.4	19.27	33
		Middle	18.49	1.1	0.4	19.19	33
		High	19.22	1.1	0.4	19.92	33

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	19.66	19.56	19.65
		RB1#3	19.68	19.60	19.54
		RB1#5	19.73	19.55	19.58
		RB3#0	19.73	19.64	19.49
		RB3#3	19.72	19.63	19.47
		RB6#0	18.71	18.66	18.43
	16QAM	RB1#0	19.41	19.31	18.57
		RB1#3	19.44	19.37	18.56
		RB1#5	19.42	19.42	18.63
		RB3#0	18.83	18.53	18.46
		RB3#3	18.86	18.58	18.49
		RB6#0	18.03	17.68	17.90
3MHz	QPSK	RB1#0	19.59	19.57	19.66
		RB1#8	19.57	19.63	19.66
		RB1#14	19.61	19.61	19.60
		RB6#0	18.62	18.59	18.34
		RB6#9	18.62	18.66	18.45
		RB15#0	18.68	18.66	18.44
	16QAM	RB1#0	19.12	19.30	18.57
		RB1#8	19.09	19.40	18.56
		RB1#14	19.03	19.41	18.62
		RB6#0	17.76	17.70	17.86
		RB6#9	17.63	17.73	17.89
		RB15#0	17.85	17.61	17.65
5MHz	QPSK	RB1#0	19.62	19.67	19.32
		RB1#13	19.63	19.62	19.31
		RB1#24	19.59	19.64	19.30
		RB15#0	18.65	18.47	18.39
		RB15#10	18.62	18.63	18.52
		RB25#0	18.59	18.60	18.49
	16QAM	RB1#0	17.99	18.76	18.10
		RB1#13	17.87	18.79	18.05
		RB1#24	17.91	18.78	18.13
		RB15#0	17.92	17.51	17.57
		RB15#10	17.82	17.57	17.57
		RB25#0	17.81	17.68	17.53
10MHz	QPSK	RB1#0	19.56	19.69	19.62
		RB1#25	19.52	19.64	19.59
		RB1#49	19.61	19.66	19.57
		RB25#0	18.67	18.61	18.42
		RB25#25	18.55	18.56	18.49
		RB50#0	18.73	18.55	18.38
	16QAM	RB1#0	19.08	18.80	18.07
		RB1#25	19.09	18.81	18.04
		RB1#49	19.07	18.73	18.02
		RB25#0	17.74	17.75	17.64
		RB25#25	17.78	17.80	17.66
		RB50#0	17.79	17.79	17.62

15MHz	QPSK	RB1#0	19.58	19.67	19.66
		RB1#38	19.50	19.60	19.68
		RB1#74	19.64	19.63	19.60
		RB36#0	18.63	18.60	18.54
		RB36#39	18.71	18.64	18.52
		RB75#0	18.57	18.56	18.46
	16QAM	RB1#0	18.88	18.78	18.89
		RB1#38	18.80	18.77	18.86
		RB1#74	18.90	18.68	18.89
		RB36#0	17.87	17.80	17.72
		RB36#39	17.78	17.81	17.66
		RB75#0	17.85	17.63	17.55
20MHz	QPSK	RB1#0	19.73	19.58	19.63
		RB1#50	19.74	19.62	19.56
		RB1#99	19.72	19.60	19.65
		RB50#0	18.67	18.62	18.56
		RB50#50	18.66	18.62	18.42
		RB100#0	18.53	18.65	18.59
	16QAM	RB1#0	18.66	19.09	19.16
		RB1#50	18.60	19.05	19.14
		RB1#99	18.60	19.03	19.08
		RB50#0	17.92	17.75	17.57
		RB50#50	17.77	17.82	17.59
		RB100#0	17.72	17.59	17.66

PAR:

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	20 MHz	5.00	5.36	5.04	13
	100 RB		5.72	5.48	5.52	13
16QAM	1 RB	20 MHz	6.08	6.48	5.92	13
	100 RB		6.60	6.48	6.40	13

EIRP:

Channel Bandwidth	Modulation	Channel	Conducted Power (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	Result (dBm)	Limit (dBm)
1.4MHz	QPSK	Low	19.73	0.5	0.4	19.83	30
		Middle	19.64	0.5	0.4	19.74	30
		High	19.65	0.5	0.4	19.75	30
	16QAM	Low	19.44	0.5	0.4	19.54	30
		Middle	19.42	0.5	0.4	19.52	30
		High	18.63	0.5	0.4	18.73	30
3MHz	QPSK	Low	19.61	0.5	0.4	19.71	30
		Middle	19.63	0.5	0.4	19.73	30
		High	19.66	0.5	0.4	19.76	30
	16QAM	Low	19.12	0.5	0.4	19.22	30
		Middle	19.41	0.5	0.4	19.51	30
		High	18.62	0.5	0.4	18.72	30
5MHz	QPSK	Low	19.63	0.5	0.4	19.73	30
		Middle	19.67	0.5	0.4	19.77	30
		High	19.32	0.5	0.4	19.42	30
	16QAM	Low	17.99	0.5	0.4	18.09	30
		Middle	18.79	0.5	0.4	18.89	30
		High	18.13	0.5	0.4	18.23	30
10MHz	QPSK	Low	19.61	0.5	0.4	19.71	30
		Middle	19.69	0.5	0.4	19.79	30
		High	19.62	0.5	0.4	19.72	30
	16QAM	Low	19.09	0.5	0.4	19.19	30
		Middle	18.81	0.5	0.4	18.91	30
		High	18.07	0.5	0.4	18.17	30
15MHz	QPSK	Low	19.64	0.5	0.4	19.74	30
		Middle	19.67	0.5	0.4	19.77	30
		High	19.68	0.5	0.4	19.78	30
	16QAM	Low	18.90	0.5	0.4	19.00	30
		Middle	18.78	0.5	0.4	18.88	30
		High	18.89	0.5	0.4	18.99	30
20MHz	QPSK	Low	19.74	0.5	0.4	19.84	30
		Middle	19.62	0.5	0.4	19.72	30
		High	19.65	0.5	0.4	19.75	30
	16QAM	Low	18.66	0.5	0.4	18.76	30
		Middle	19.09	0.5	0.4	19.19	30
		High	19.16	0.5	0.4	19.26	30

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

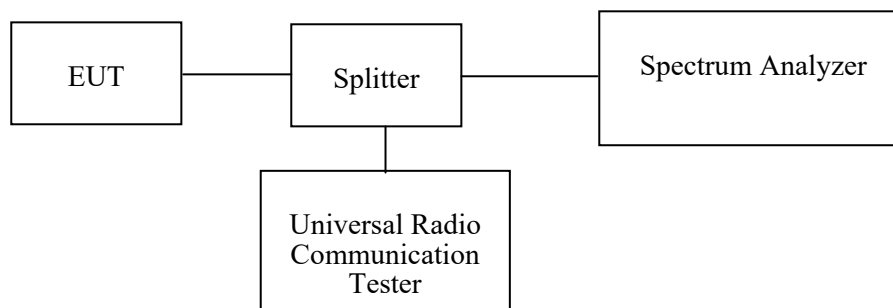
FCC §2.1049, §22.917, §22.905 & §24.238 & §27.53- OCCUPIED BANDWIDTH**Applicable Standard**

FCC §2.1049, §22.917, §22.905, §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
R&S	Spectrum Analyzer	FSP 38	100478	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:	25.4 ~26.3 °C
Relative Humidity:	35~41%
ATM Pressure:	101~101.9kPa
Tester:	Theshy Xie
Test Date:	2020-11-10~2020-11-14

Test Mode: Transmitting

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

GSM:

Band	Operation Mode	99% Occupied Bandwidth (MHz)			26 dB Occupied Bandwidth (MHz)		
		Low Channel	Middle Channel	High Channel	Low Channel	Middle Channel	High Channel
Cellular	GSM	0.244	0.246	0.246	0.318	0.316	0.314
PCS	GSM	0.248	0.248	0.248	0.318	0.314	0.316
Cellular	EDGE	0.248	0.248	0.246	0.318	0.316	0.318
PCS	EDGE	0.246	0.246	0.246	0.316	0.318	0.318

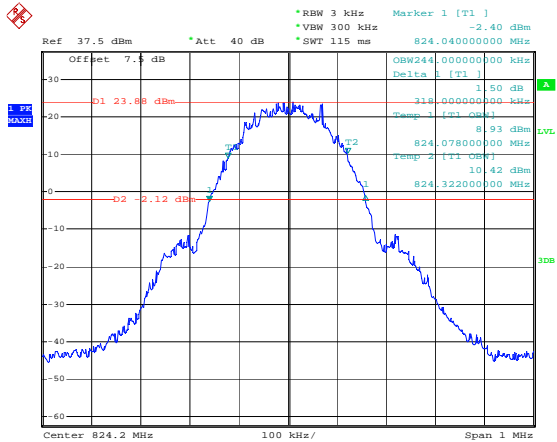
WCDMA:

Band	Operation Mode	99% Occupied Bandwidth (MHz)			26 dB Occupied Bandwidth (MHz)		
		Low Channel	Middle Channel	High Channel	Low Channel	Middle Channel	High Channel
Cellular	Rel 99	4.160	4.160	4.160	4.720	4.720	4.720
	HSDPA	4.160	4.160	4.160	4.720	4.700	4.720
	HSUPA	4.160	4.160	4.160	4.720	4.720	4.720
PCS	Rel 99	4.180	4.140	4.160	4.740	4.740	4.720
	HSDPA	4.180	4.140	4.160	4.720	4.720	4.720
	HSUPA	4.180	4.140	4.180	4.700	4.700	4.720

LTE Bands:

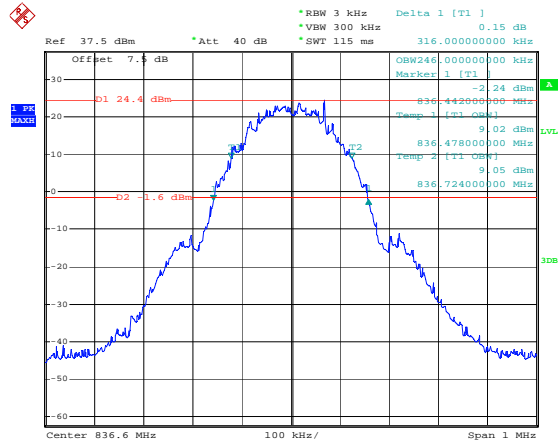
Band	Bandwidth (MHz)	Modulation mode	Low Channel		Middle Channel		High Channel	
			99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)
LTE Band 2	1.4 MHz	QPSK	1.110	1.296	1.098	1.266	1.098	1.308
		16QAM	1.104	1.296	1.104	1.284	1.098	1.278
	3 MHz	QPSK	2.700	3.036	2.700	3.024	2.688	3.012
		16QAM	2.700	3.012	2.688	3.060	2.700	3.048
	5 MHz	QPSK	4.560	5.340	4.540	5.240	4.520	5.320
		16QAM	4.540	5.380	4.560	5.340	4.560	5.440
	10 MHz	QPSK	9.000	9.920	8.960	9.800	8.960	9.880
		16QAM	8.960	9.760	8.960	9.920	9.000	10.080
	15 MHz	QPSK	13.560	15.360	13.500	15.300	13.500	15.600
		16QAM	13.560	15.060	13.560	15.180	13.560	14.940
	20 MHz	QPSK	18.080	19.840	17.920	20.080	18.000	20.000
		16QAM	18.080	20.000	18.000	19.680	18.000	20.000
LTE Band 4	1.4 MHz	QPSK	1.098	1.278	1.098	1.308	1.104	1.290
		16QAM	1.104	1.266	1.098	1.290	1.104	1.278
	3 MHz	QPSK	2.700	3.000	2.700	3.012	2.688	3.000
		16QAM	2.688	3.012	2.688	3.096	2.700	3.012
	5 MHz	QPSK	4.560	5.300	4.520	5.220	4.520	5.400
		16QAM	4.520	5.320	4.560	5.460	4.560	5.460
	10 MHz	QPSK	9.000	9.760	8.960	9.800	8.960	9.960
		16QAM	9.000	9.880	9.000	9.880	8.960	9.880
	15 MHz	QPSK	13.620	15.540	13.500	15.540	13.620	15.900
		16QAM	13.620	15.180	13.560	15.300	13.560	15.120
	20 MHz	QPSK	18.080	19.840	17.920	20.160	18.000	20.080
		16QAM	18.000	19.840	17.920	19.680	18.080	20.080

Cellular 850 Band, GSM, Low Channel



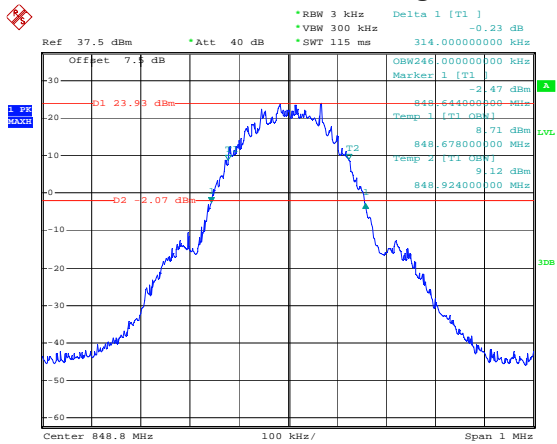
Date: 14.NOV.2020 12:19:28

Cellular 850 Band, GSM, Middle Channel



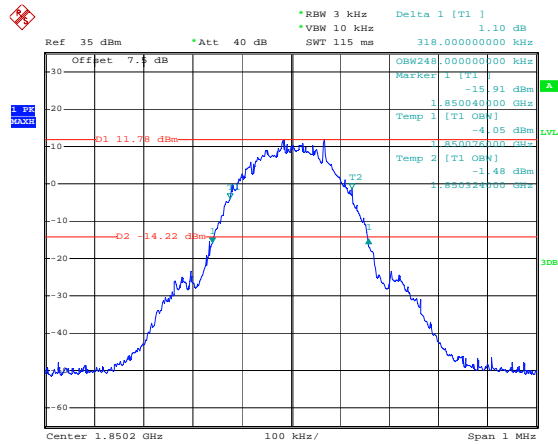
Date: 14.NOV.2020 12:22:47

Cellular 850 Band, GSM, High Channel



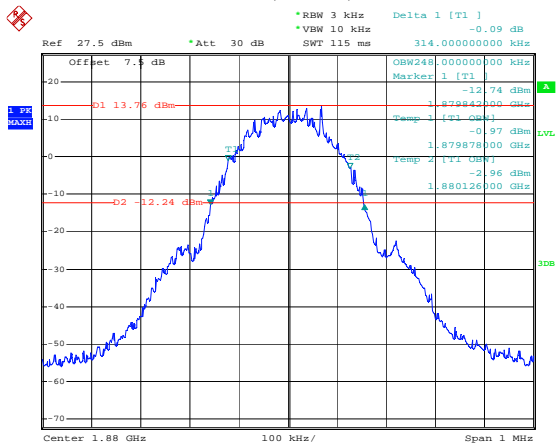
Date: 14.NOV.2020 12:24:25

PCS 1900 Band, GSM, Low Channel



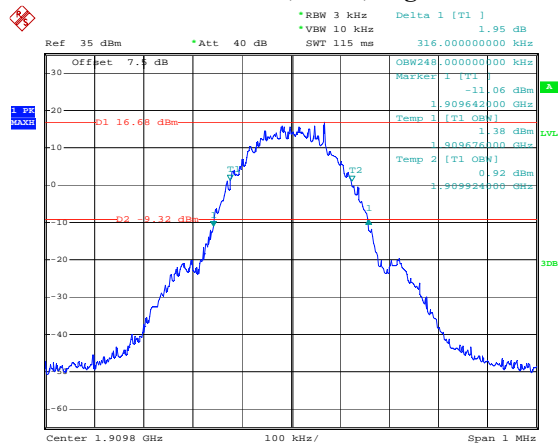
Date: 10.NOV.2020 09:25:26

PCS 1900 Band, GSM, Middle Channel



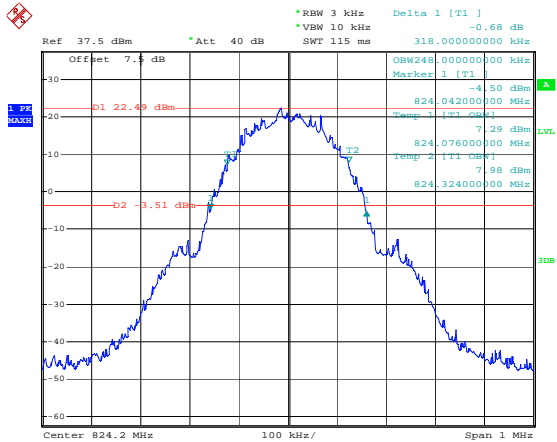
Date: 10.NOV.2020 09:56:02

PCS 1900 Band, GSM, High Channel



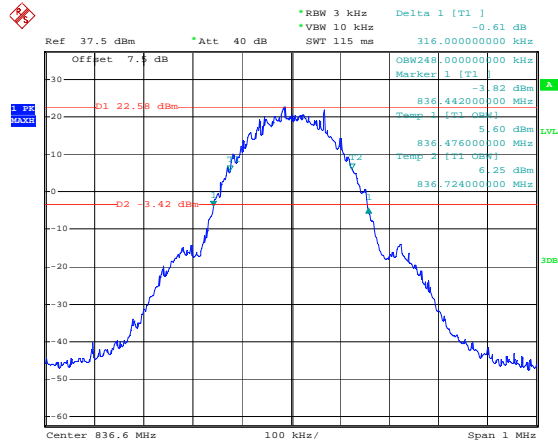
Date: 10.NOV.2020 09:28:51

Cellular 850 Band, EDGE, Low Channel



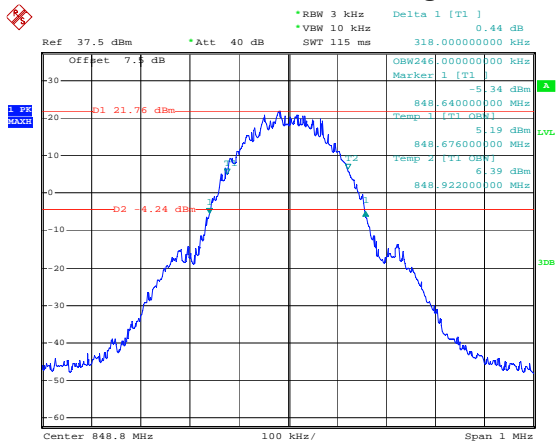
Date: 10.NOV.2020 10:29:36

Cellular 850 Band, EDGE, Middle Channel



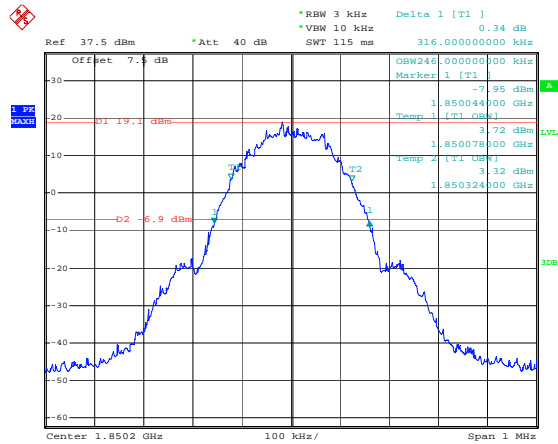
Date: 10.NOV.2020 10:32:29

Cellular 850 Band, EDGE, High Channel



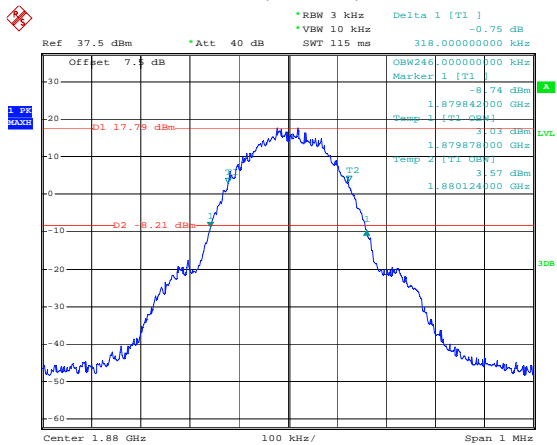
Date: 10.NOV.2020 10:34:38

PCS 1900 Band, EDGE, Low Channel



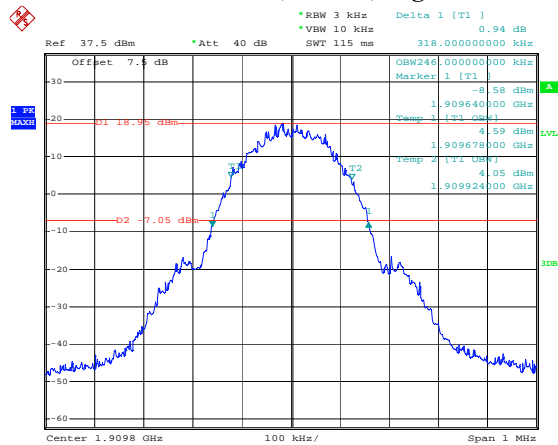
Date: 10.NOV.2020 15:36:11

PCS 1900 Band, EDGE, Middle Channel



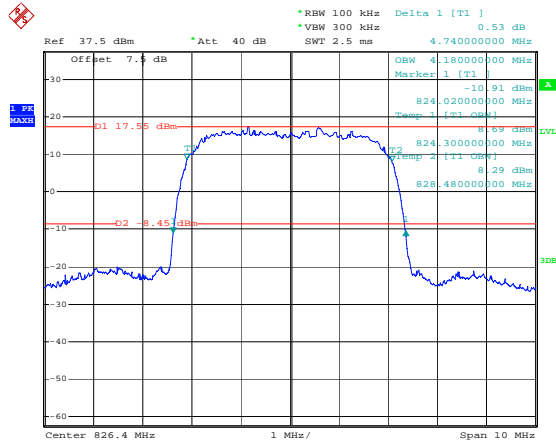
Date: 10.NOV.2020 15:41:22

PCS 1900 Band, EDGE, High Channel



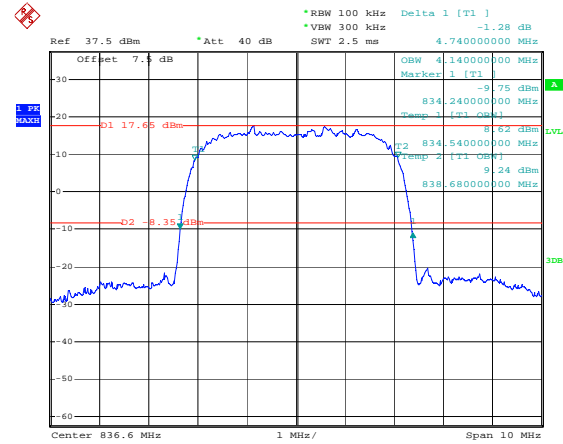
Date: 10.NOV.2020 15:38:49

WCDMA Band V, Rel99, Low Channel



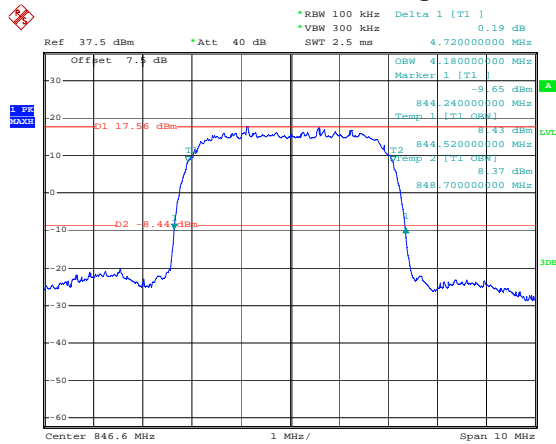
Date: 10.NOV.2020 13:04:04

WCDMA Band V, Rel99, Middle Channel



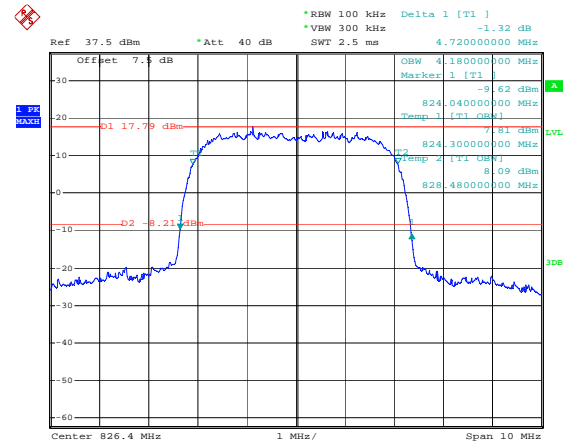
Date: 10.NOV.2020 13:12:42

WCDMA Band V, Rel99, High Channel



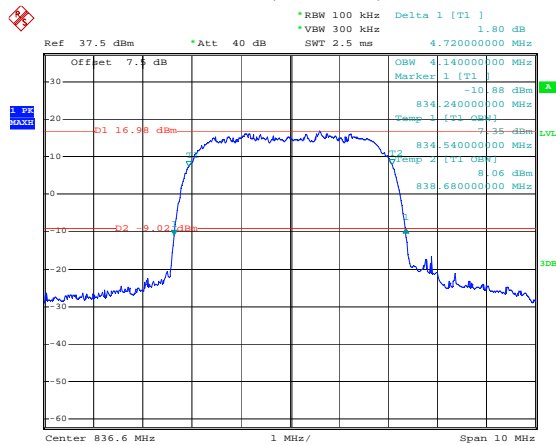
Date: 10.NOV.2020 13:08:39

WCDMA Band V, HSDPA, Low Channel



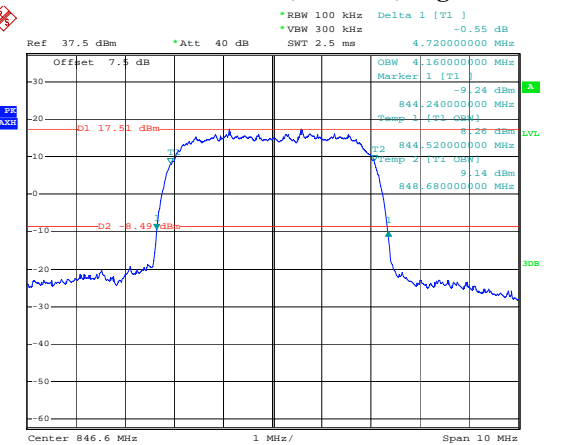
Date: 10.NOV.2020 14:09:30

WCDMA Band V, HSDPA, Middle Channel



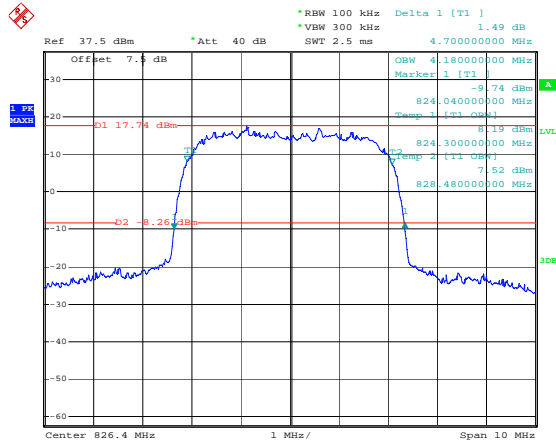
Date: 10.NOV.2020 14:13:40

WCDMA Band V, HSDPA, High Channel



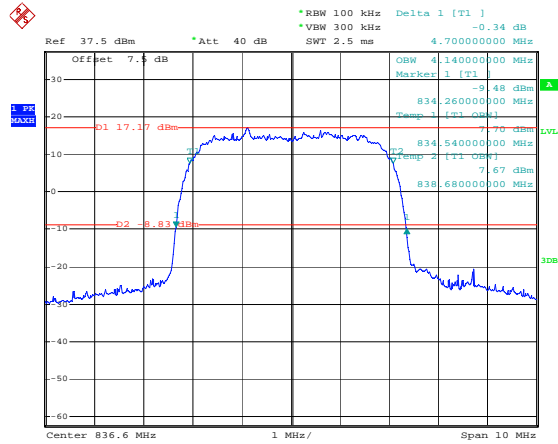
Date: 10.NOV.2020 14:17:38

WCDMA Band V, HSUPA, Low Channel



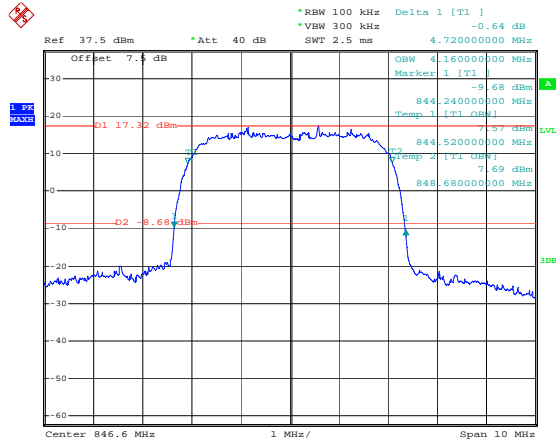
Date: 10.NOV.2020 15:06:55

WCDMA Band V, HSUPA, Middle Channel



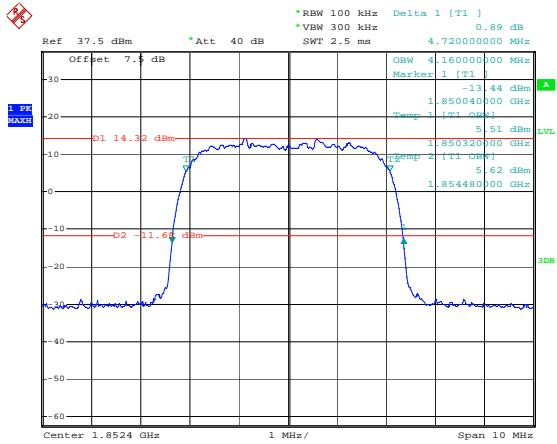
Date: 10.NOV.2020 15:09:21

WCDMA Band V, HSUPA, High Channel



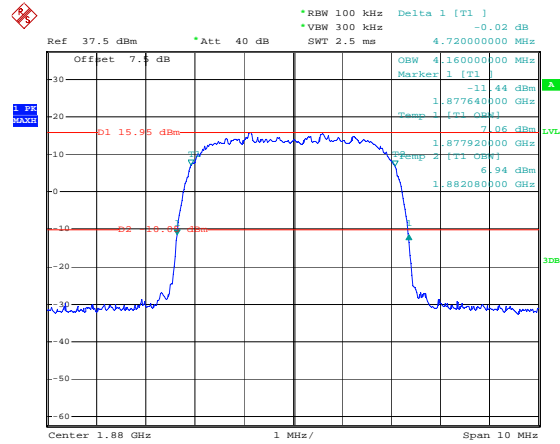
Date: 10.NOV.2020 15:12:32

WCDMA Band II, Rel99, Low Channel



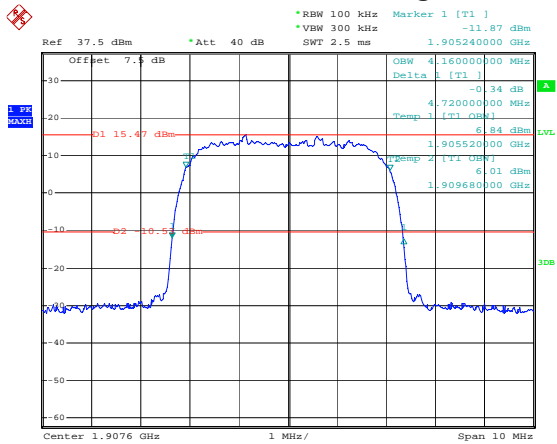
Date: 10.NOV.2020 12:03:05

WCDMA Band II, Rel99, Middle Channel



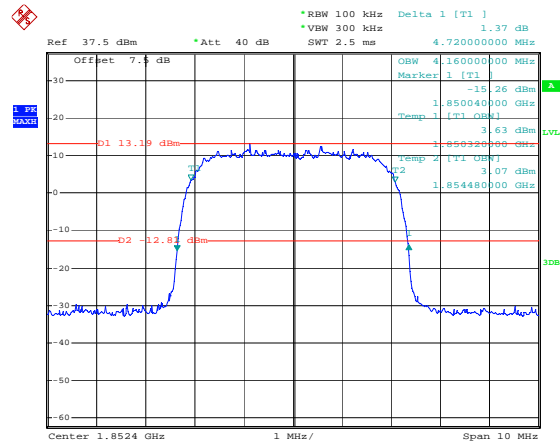
Date: 14.NOV.2020 09:03:53

WCDMA Band II, Rel99, High Channel



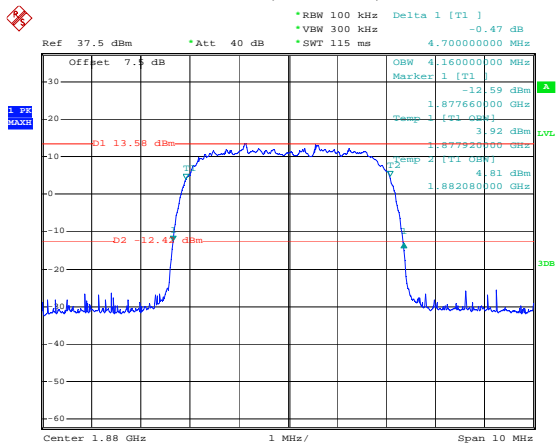
Date: 14.NOV.2020 09:10:11

WCDMA Band II, HSDPA, Low Channel



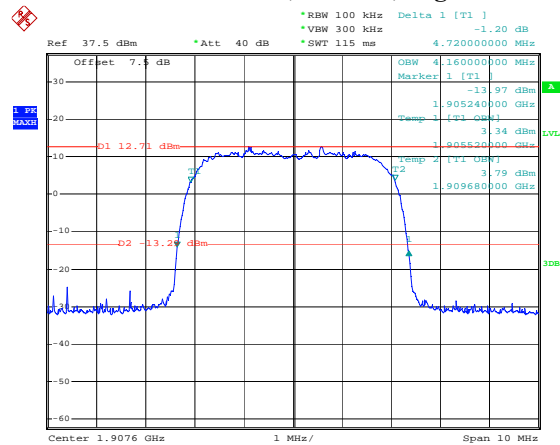
Date: 10.NOV.2020 13:20:07

WCDMA Band II, HSDPA, Middle Channel



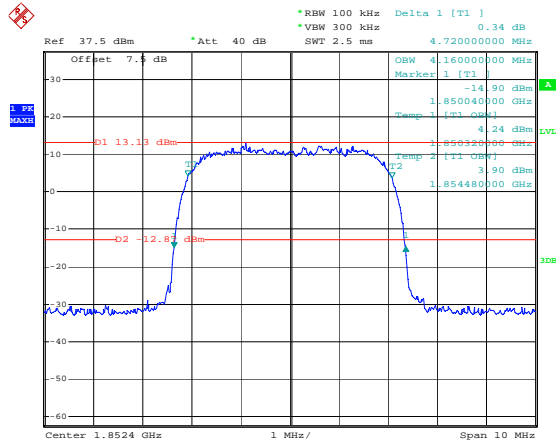
Date: 14.NOV.2020 12:29:49

WCDMA Band II, HSDPA, High Channel



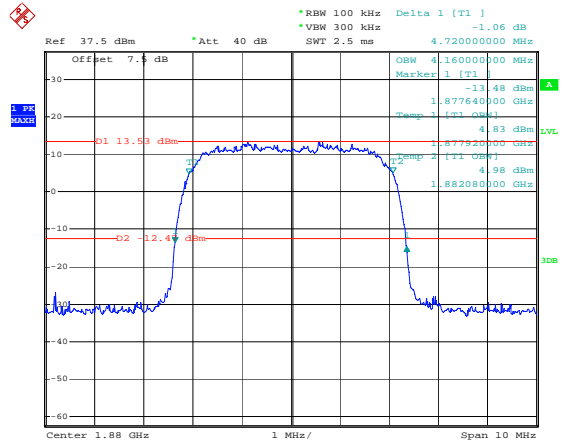
Date: 14.NOV.2020 12:31:39

WCDMA Band II, HSUPA, Low Channel



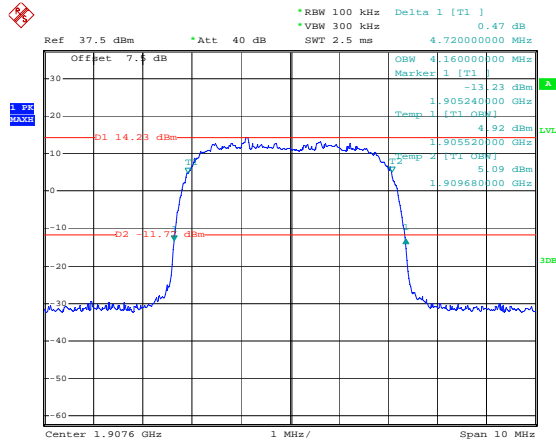
Date: 10.NOV.2020 15:26:00

WCDMA Band II, HSUPA, Middle Channel



Date: 10.NOV.2020 15:23:43

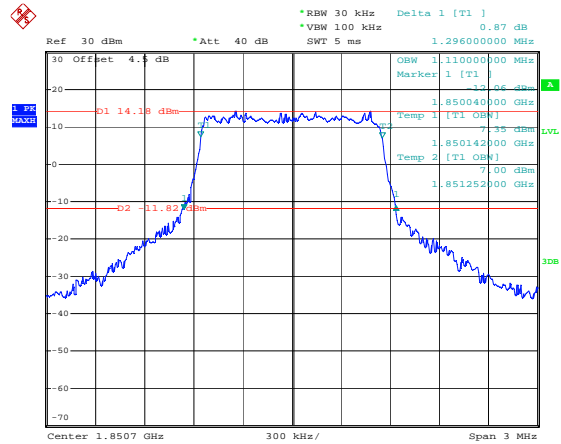
WCDMA Band II, HSUPA, High Channel



Date: 10.NOV.2020 15:20:43

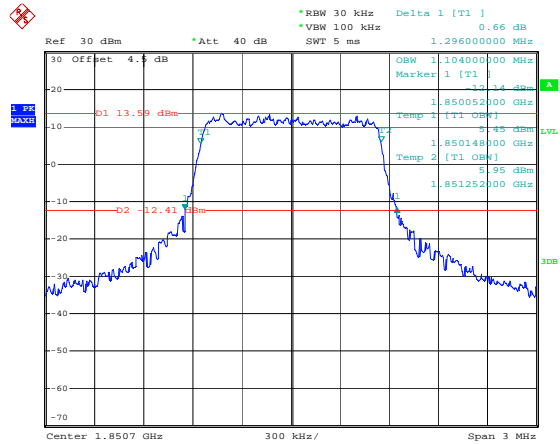
LTE Band 2

1.4M, QPSK, Low Channel



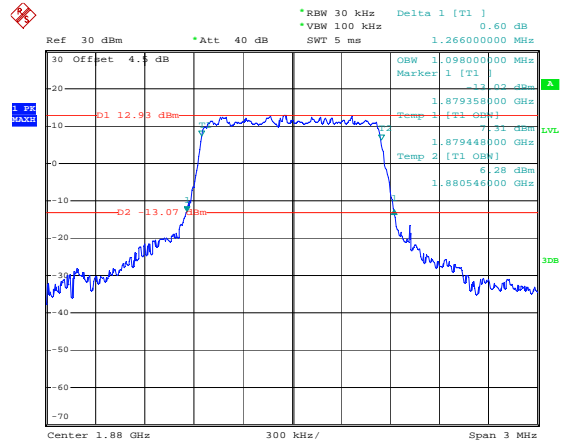
Date: 12.NOV.2020 08:40:41

1.4M, 16QAM, Low Channel



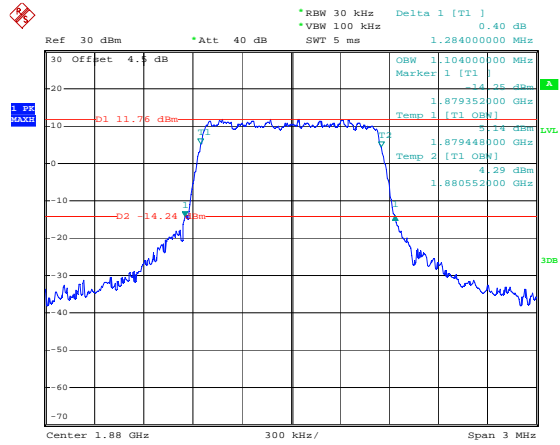
Date: 12.NOV.2020 08:41:06

1.4M, QPSK, Middle Channel



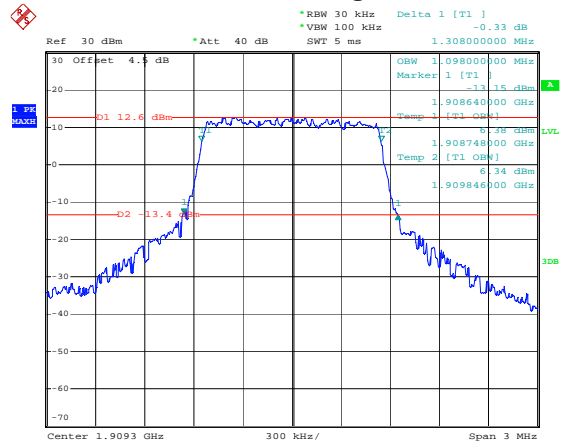
Date: 12.NOV.2020 08:41:30

1.4M, 16QAM, Middle Channel



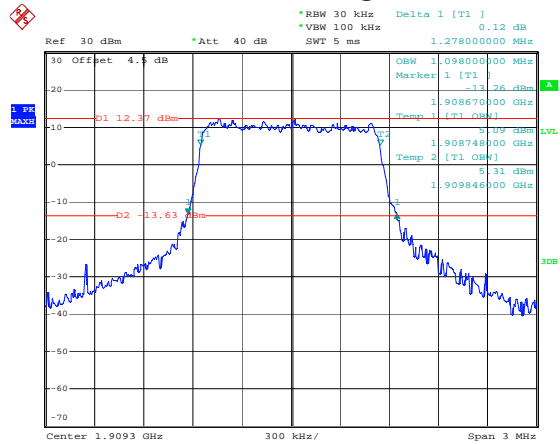
Date: 12.NOV.2020 08:41:51

1.4M, QPSK, High Channel



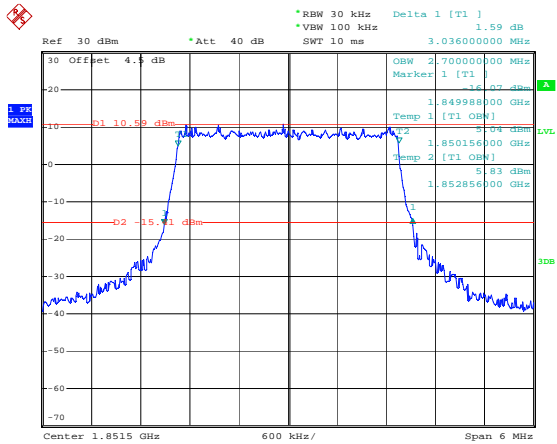
Date: 12.NOV.2020 08:42:16

1.4M, 16QAM, High Channel



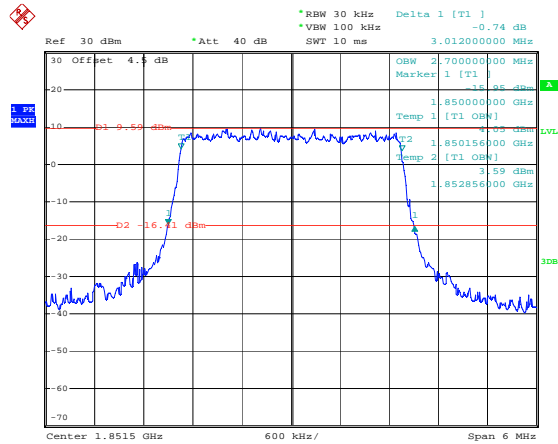
Date: 12.NOV.2020 08:42:37

3M, QPSK, Low Channel



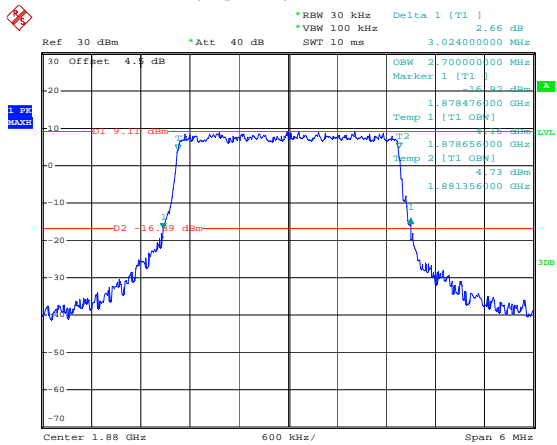
Date: 12.NOV.2020 08:43:01

3M, 16QAM, Low Channel



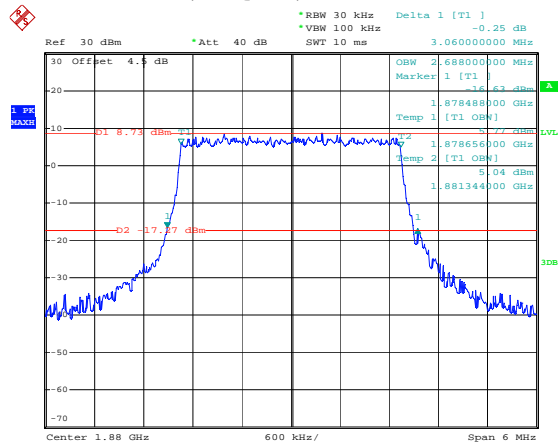
Date: 12.NOV.2020 08:43:25

3M, QPSK, Middle Channel



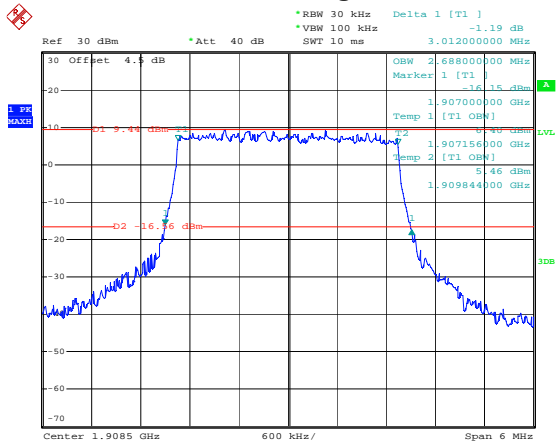
Date: 12.NOV.2020 08:43:50

3M, 16QAM, Middle Channel



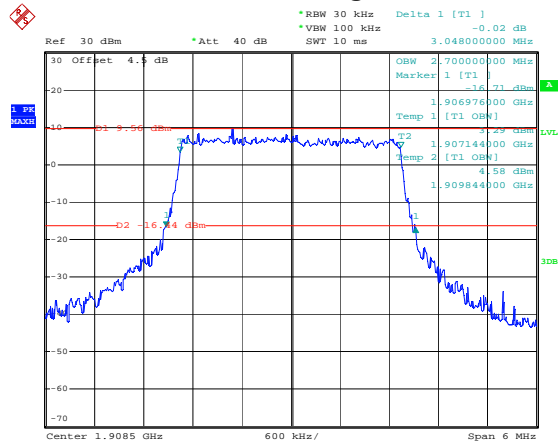
Date: 12.NOV.2020 08:44:11

3M, QPSK, High Channel



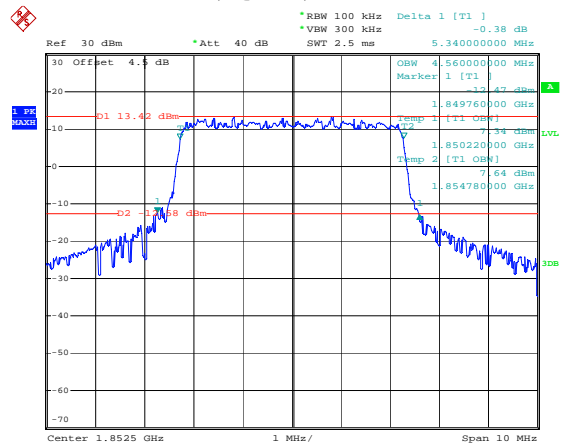
Date: 12.NOV.2020 08:44:33

3M, 16QAM, High Channel



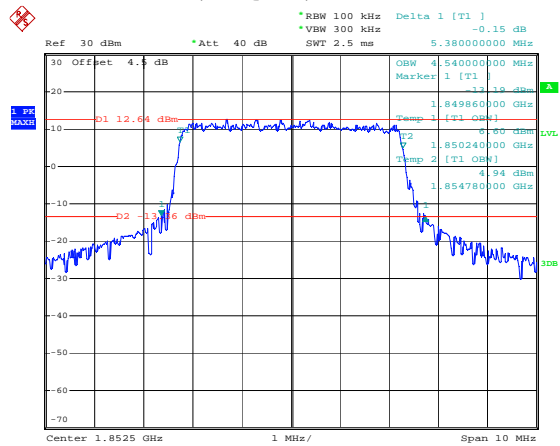
Date: 12.NOV.2020 08:44:54

5M, QPSK, Low Channel



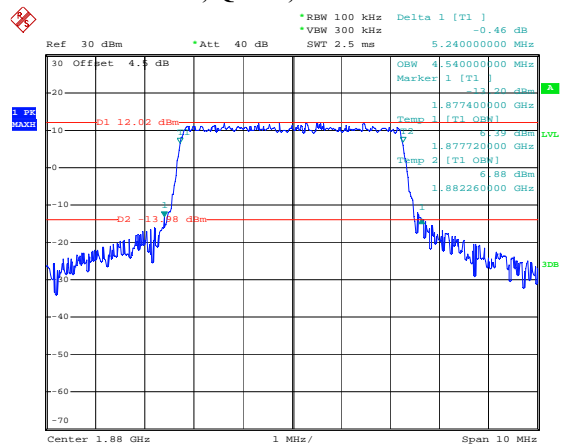
Date: 12.NOV.2020 08:45:28

5M, 16QAM, Low Channel



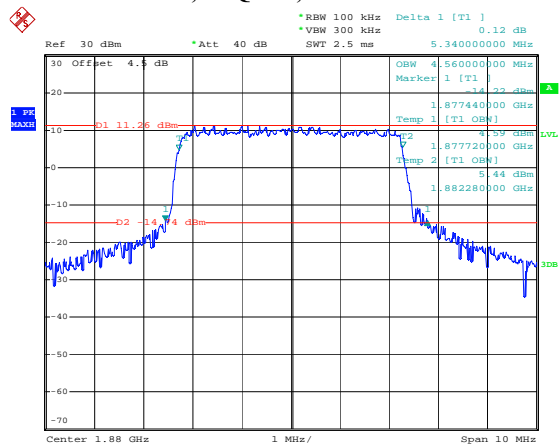
Date: 12.NOV.2020 08:45:58

5M, QPSK, Middle Channel



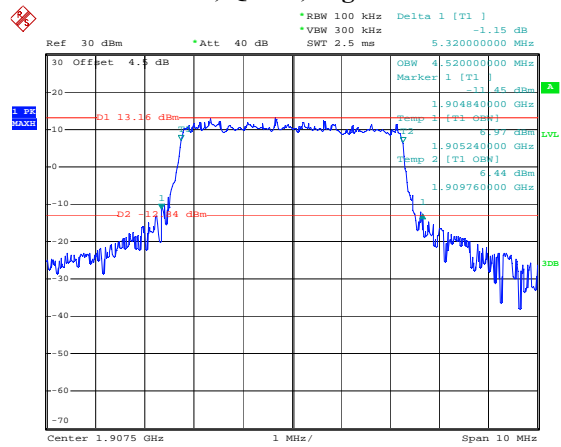
Date: 12.NOV.2020 08:46:30

5M, 16QAM, Middle Channel



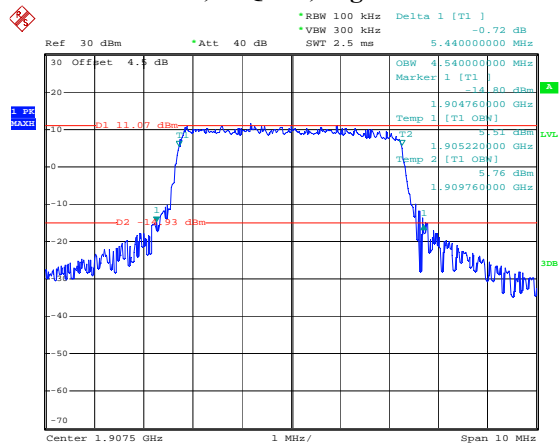
Date: 12.NOV.2020 08:47:00

5M, QPSK, High Channel



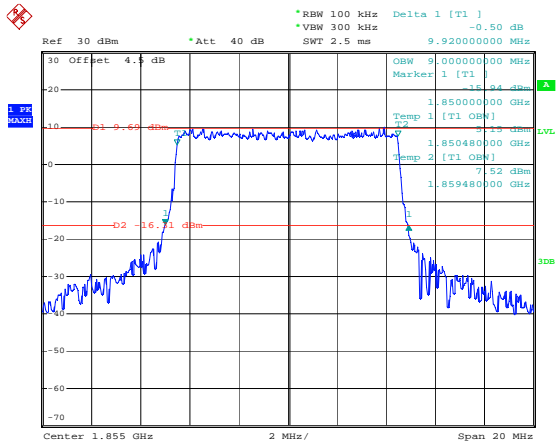
Date: 12.NOV.2020 08:47:31

5M, 16QAM, High Channel



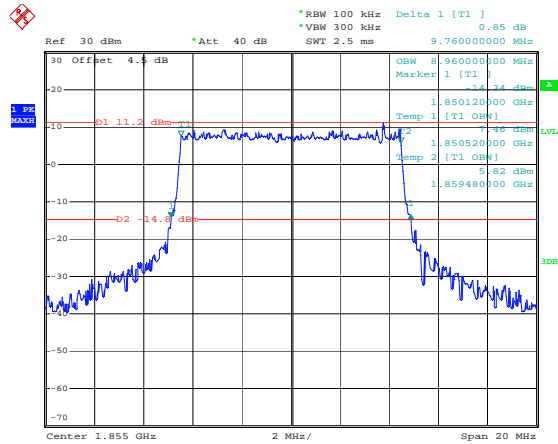
Date: 12.NOV.2020 08:48:02

10M, QPSK, Low Channel



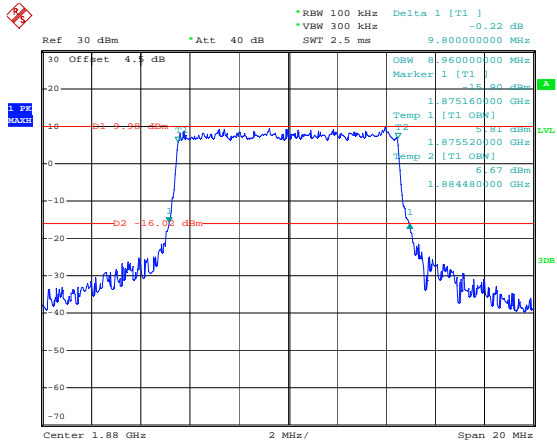
Date: 12.NOV.2020 08:48:27

10M, 16QAM, Low Channel



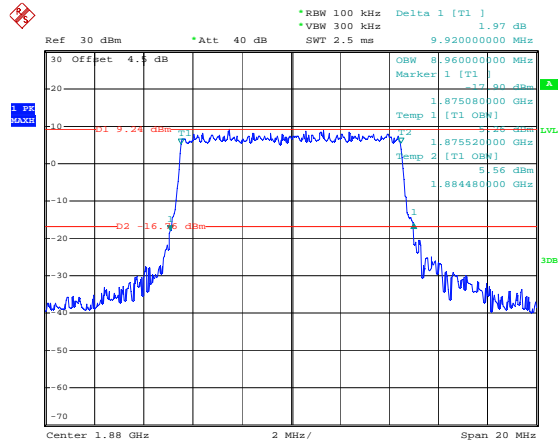
Date: 12.NOV.2020 08:48:55

10M, QPSK, Middle Channel



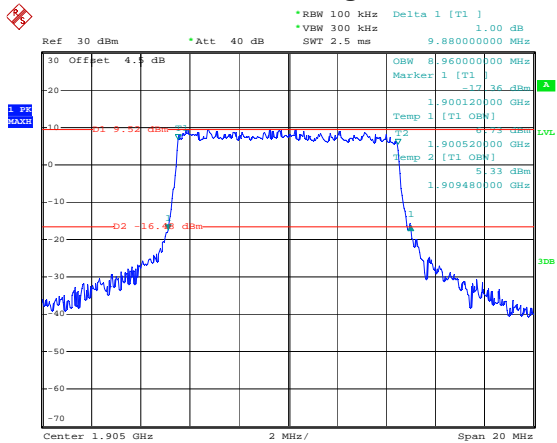
Date: 12.NOV.2020 08:49:21

10M, 16QAM, Middle Channel



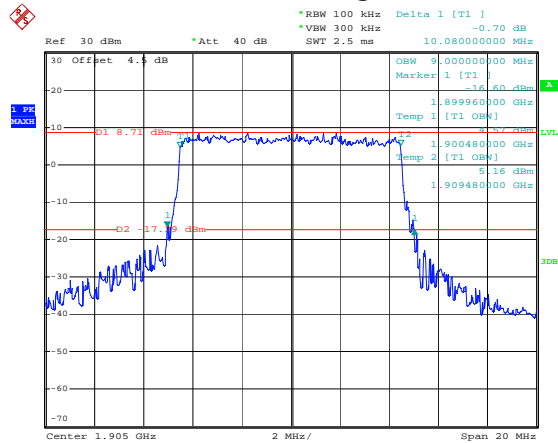
Date: 12.NOV.2020 08:49:47

10M, QPSK, High Channel



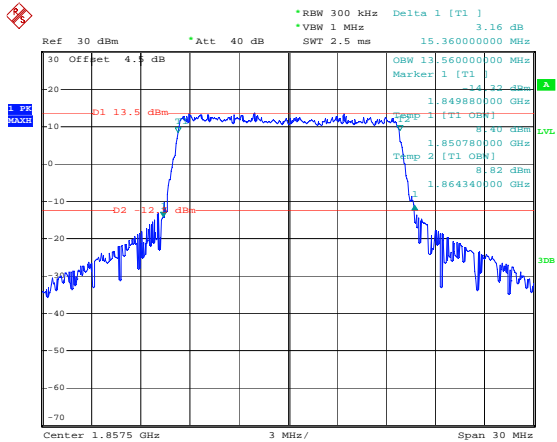
Date: 12.NOV.2020 08:50:16

10M, 16QAM, High Channel



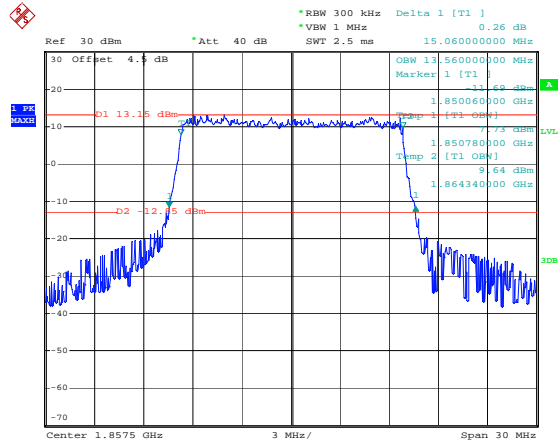
Date: 12.NOV.2020 08:50:44

15M, QPSK, Low Channel



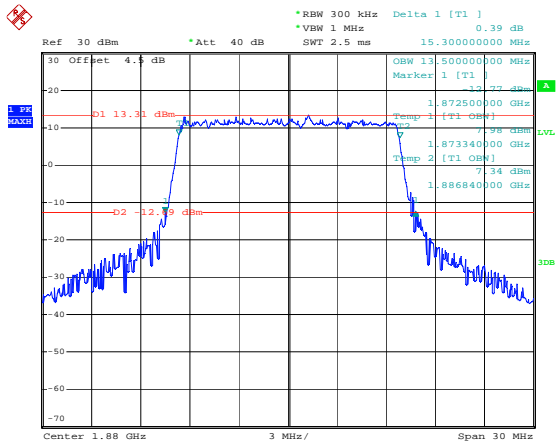
Date: 12.NOV.2020 08:51:18

15M, 16QAM, Low Channel



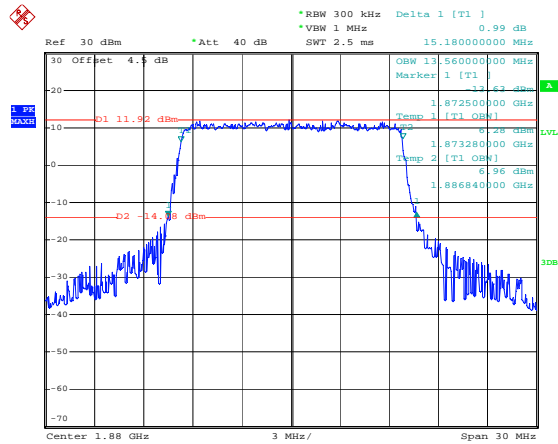
Date: 12.NOV.2020 08:51:45

15M, QPSK, Middle Channel



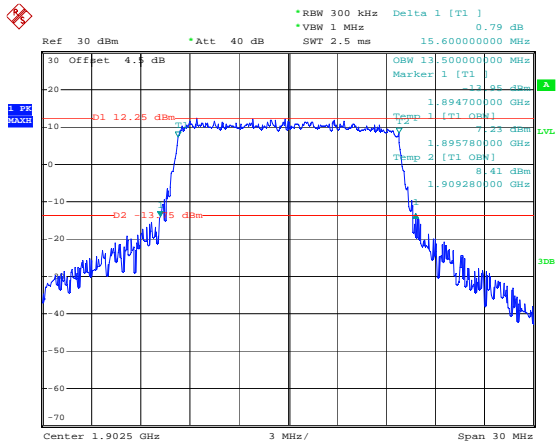
Date: 12.NOV.2020 08:52:17

15M, 16QAM, Middle Channel



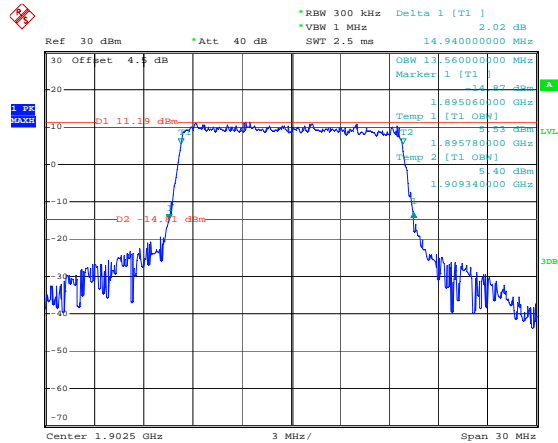
Date: 12.NOV.2020 08:52:44

15M, QPSK, High Channel



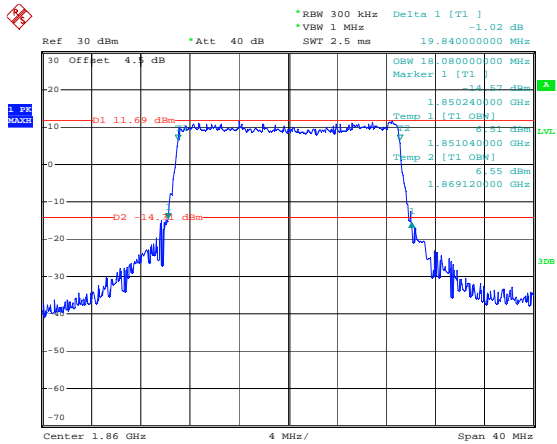
Date: 12.NOV.2020 08:53:15

15M, 16QAM, High Channel



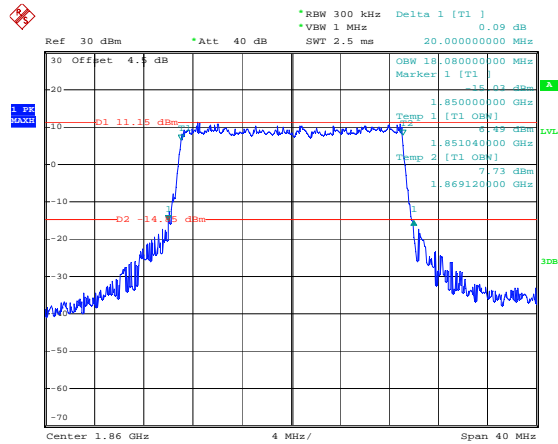
Date: 12.NOV.2020 08:53:46

20M, QPSK, Low Channel



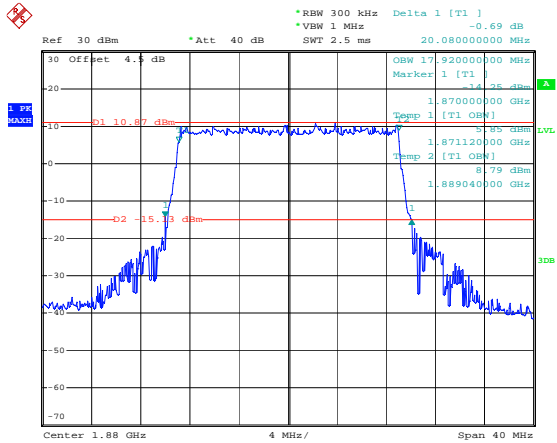
Date: 12.NOV.2020 09:10:21

20M, 16QAM, Low Channel



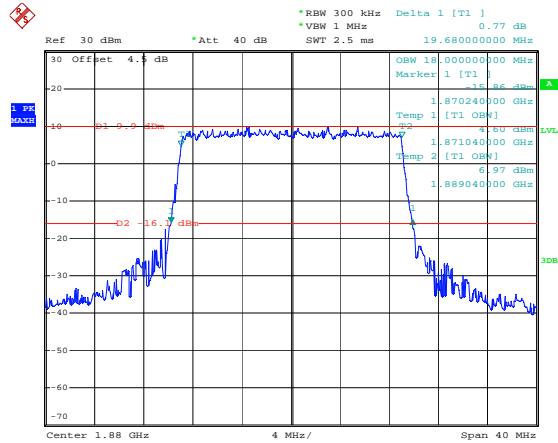
Date: 12.NOV.2020 09:10:51

20M, QPSK, Middle Channel



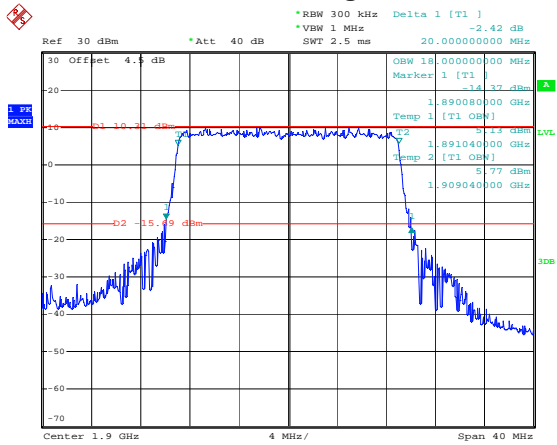
Date: 12.NOV.2020 09:11:20

20M, 16QAM, Middle Channel



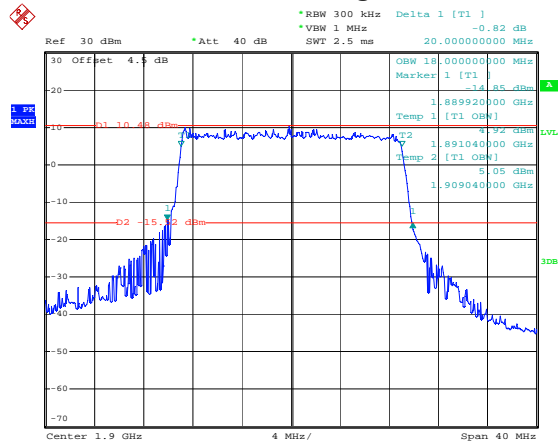
Date: 12.NOV.2020 09:11:47

20M, QPSK, High Channel



Date: 12.NOV.2020 09:12:15

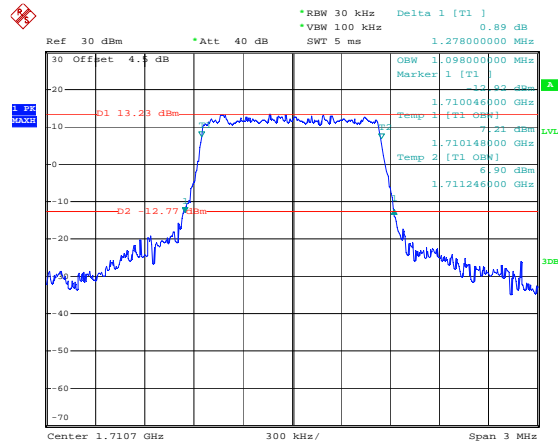
20M, 16QAM, High Channel



Date: 12.NOV.2020 09:12:49

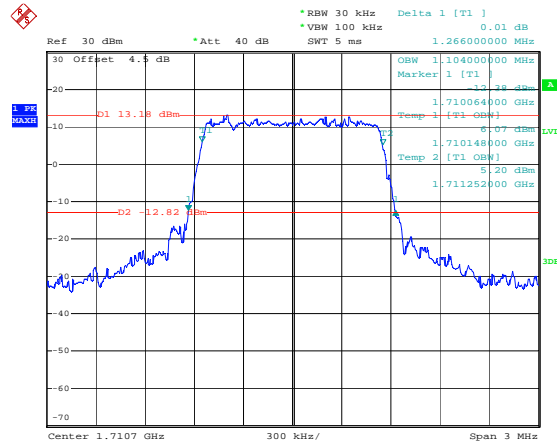
LTE Band 4:

1.4M, QPSK, Low Channel



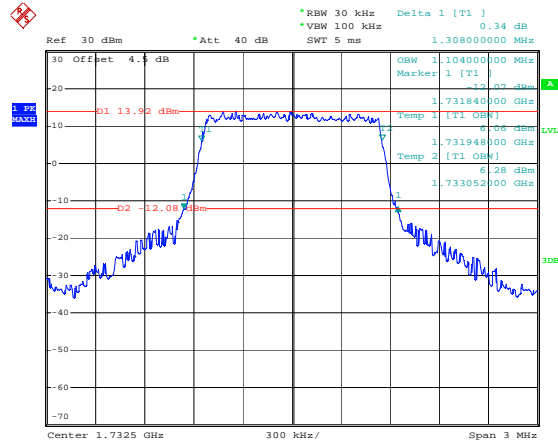
Date: 12.NOV.2020 09:13:13

1.4M, 16QAM, Low Channel



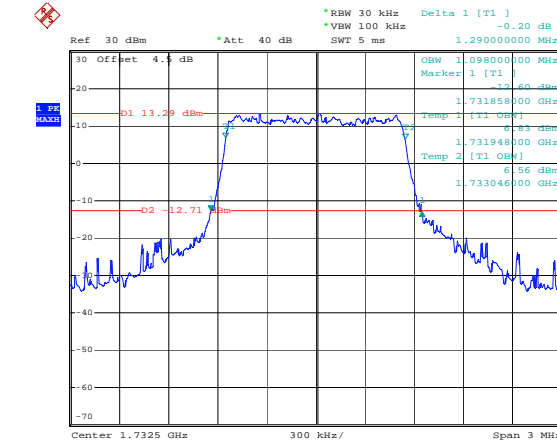
Date: 12.NOV.2020 09:13:34

1.4M, QPSK, Middle Channel



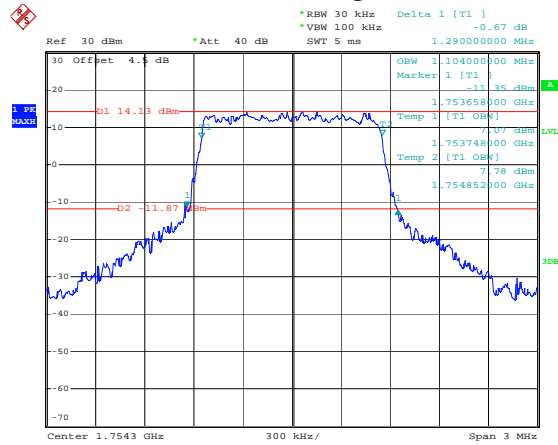
Date: 12.NOV.2020 09:13:55

1.4M, 16QAM, Middle Channel



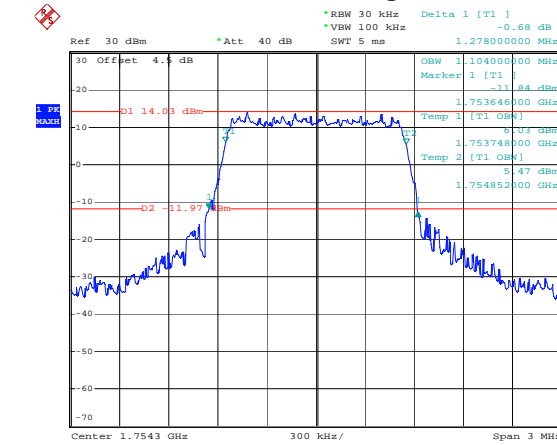
Date: 12.NOV.2020 09:14:19

1.4M, QPSK, High Channel



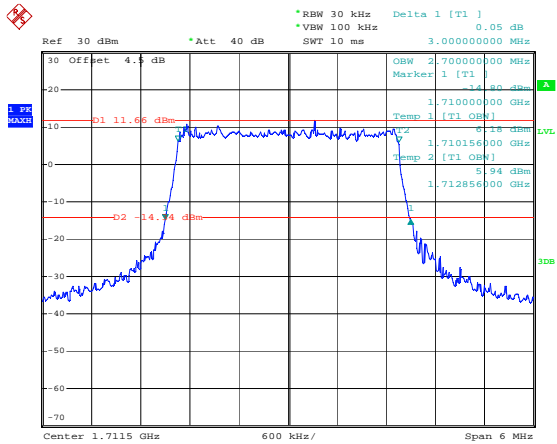
Date: 12.NOV.2020 09:14:41

1.4M, 16QAM, High Channel



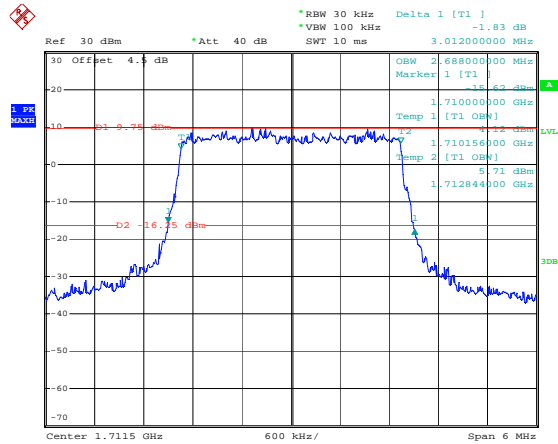
Date: 12.NOV.2020 09:14:59

3M, QPSK, Low Channel



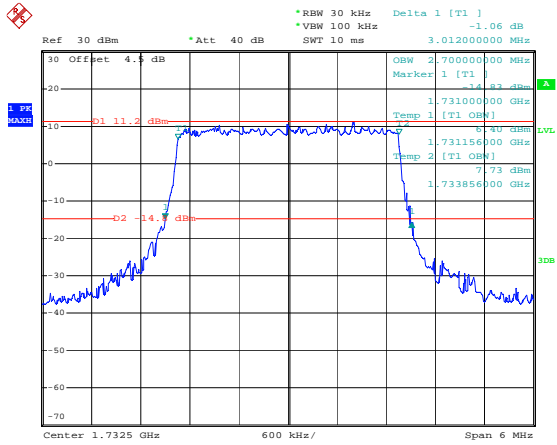
Date: 12.NOV.2020 09:15:26

3M, 16QAM, Low Channel



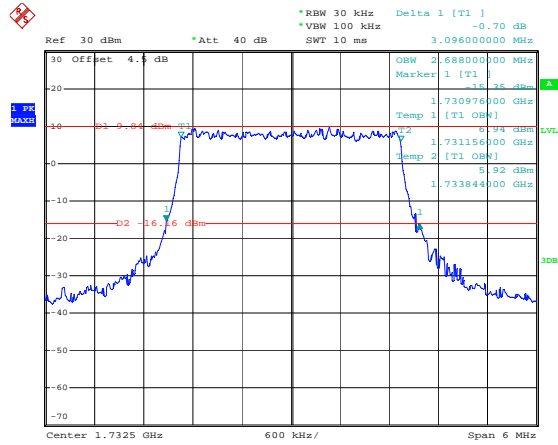
Date: 12.NOV.2020 09:15:47

3M, QPSK, Middle Channel



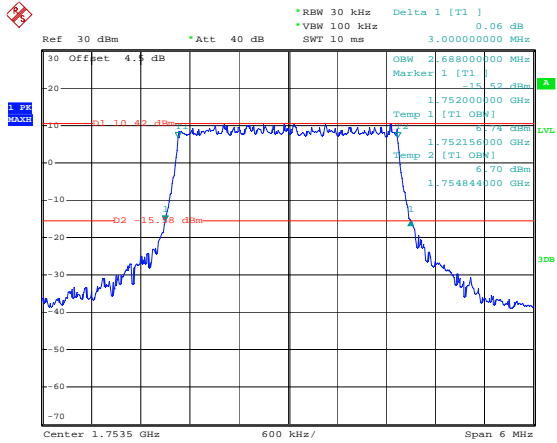
Date: 12.NOV.2020 09:16:12

3M, 16QAM, Middle Channel



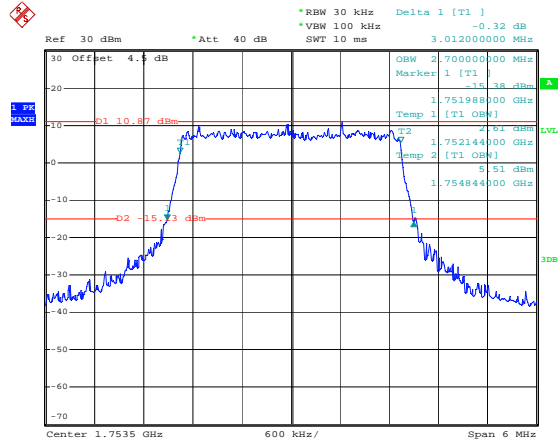
Date: 12.NOV.2020 09:16:36

3M, QPSK, High Channel



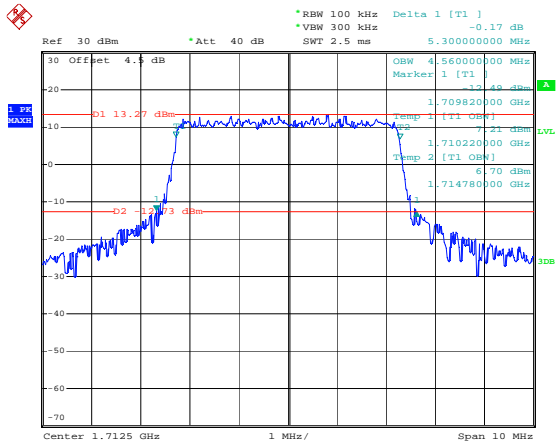
Date: 12.NOV.2020 09:16:58

3M, 16QAM, High Channel



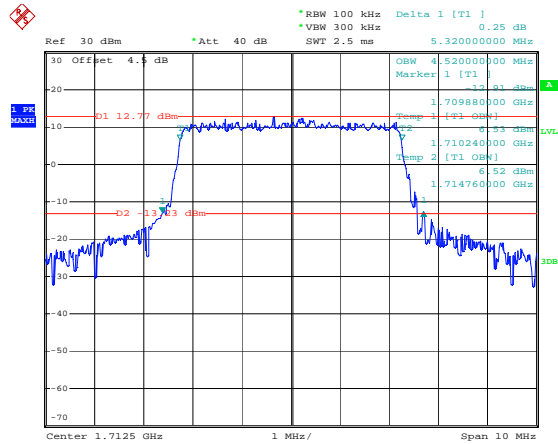
Date: 12.NOV.2020 09:17:19

5M, QPSK, Low Channel



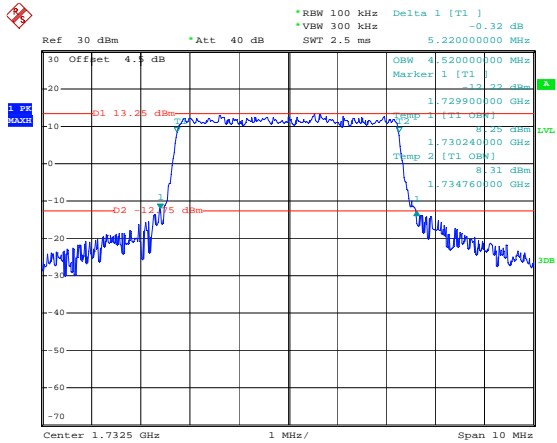
Date: 12.NOV.2020 09:17:52

5M, 16QAM, Low Channel



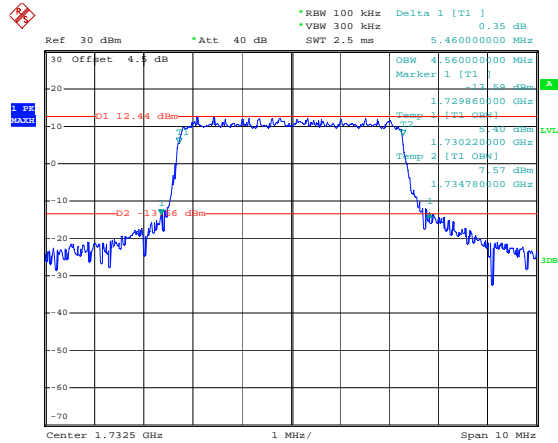
Date: 12.NOV.2020 09:18:20

5M, QPSK, Middle Channel



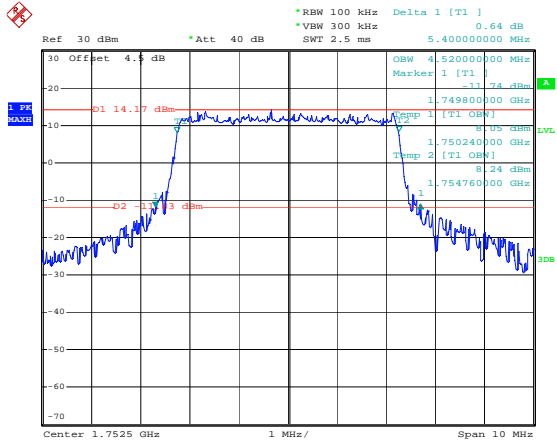
Date: 12.NOV.2020 09:18:48

5M, 16QAM, Middle Channel



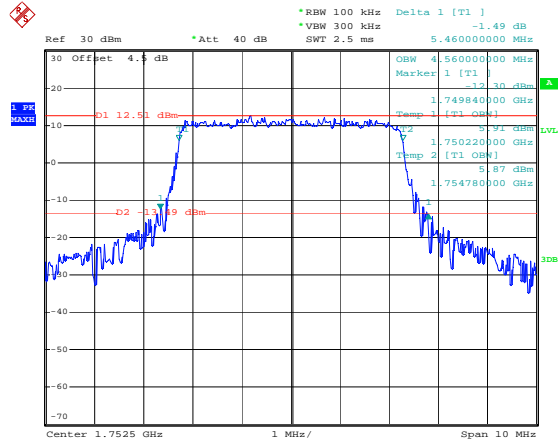
Date: 12.NOV.2020 09:19:16

5M, QPSK, High Channel



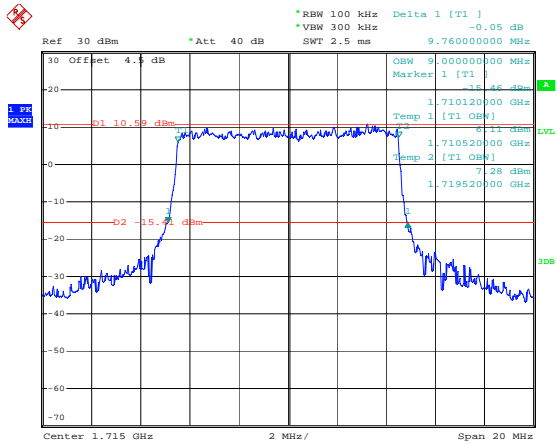
Date: 12.NOV.2020 09:19:44

5M, 16QAM, High Channel



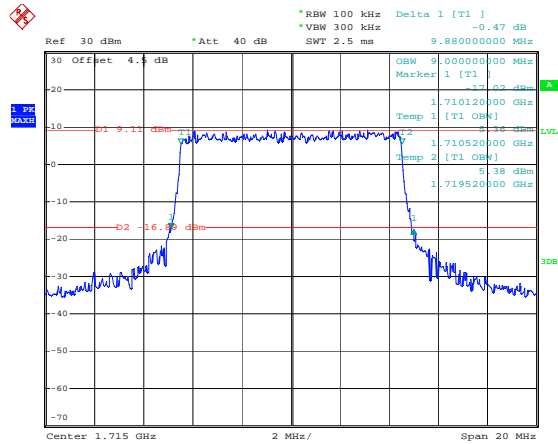
Date: 12.NOV.2020 09:20:08

10M, QPSK, Low Channel



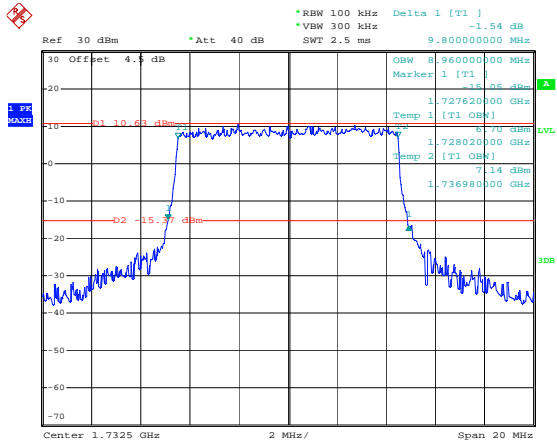
Date: 12.NOV.2020 09:20:37

10M, 16QAM, Low Channel



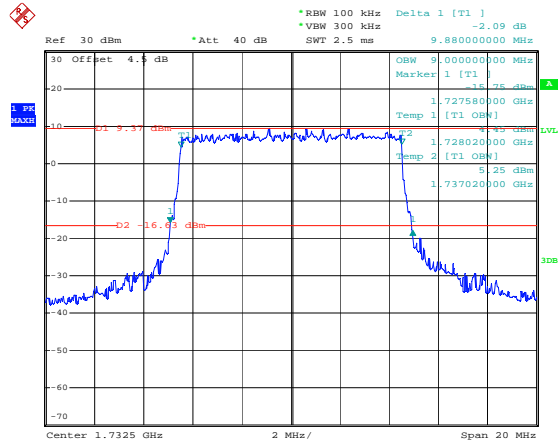
Date: 12.NOV.2020 09:21:02

10M, QPSK, Middle Channel



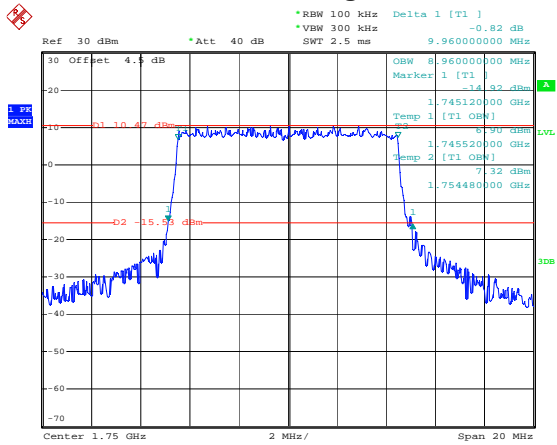
Date: 12.NOV.2020 09:21:28

10M, 16QAM, Middle Channel



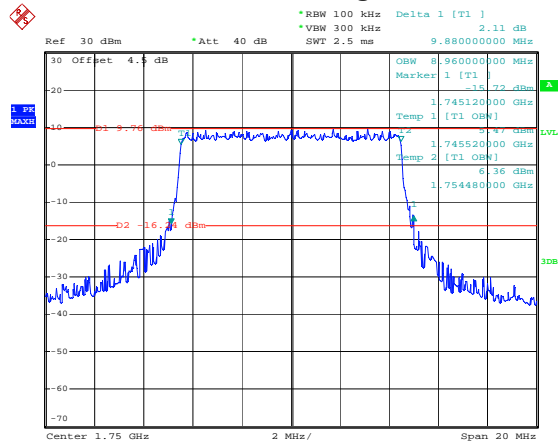
Date: 12.NOV.2020 09:21:54

10M, QPSK, High Channel



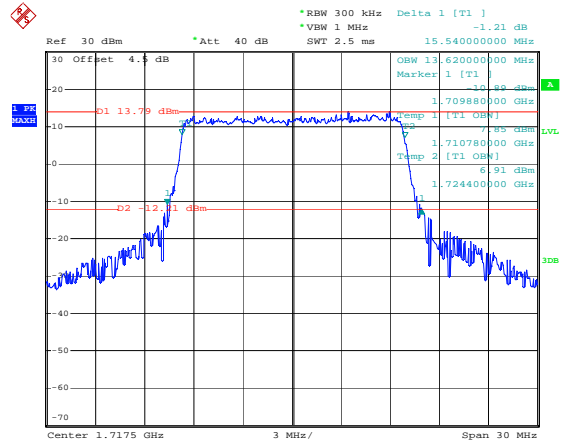
Date: 12.NOV.2020 09:22:20

10M, 16QAM, High Channel



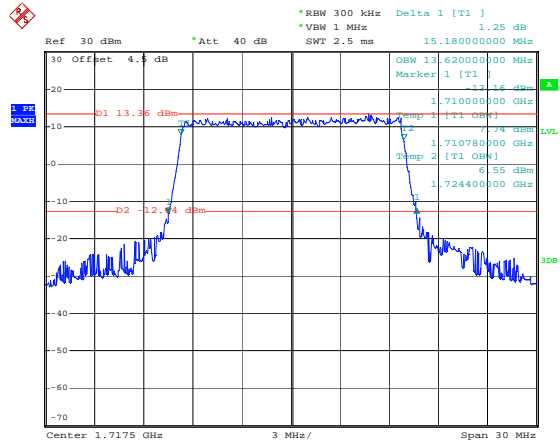
Date: 12.NOV.2020 09:22:46

15M, QPSK, Low Channel



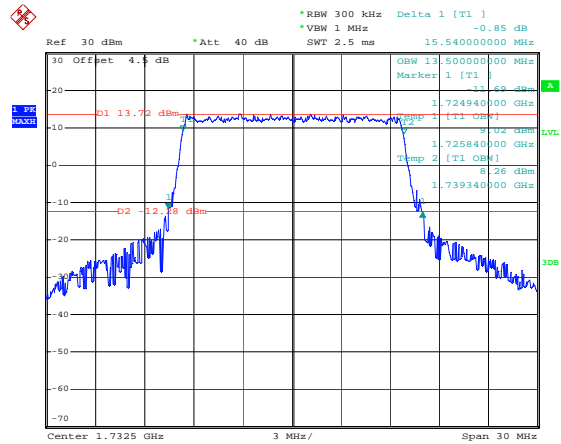
Date: 12.NOV.2020 09:23:16

15M, 16QAM, Low Channel



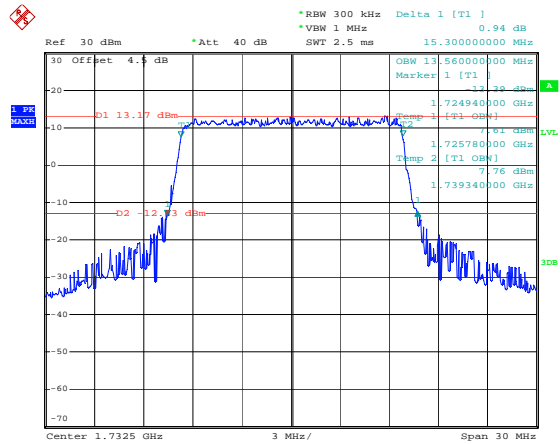
Date: 12.NOV.2020 09:23:47

15M, QPSK, Middle Channel



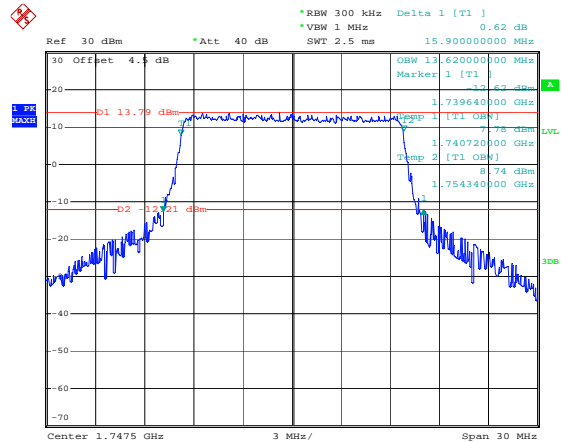
Date: 12.NOV.2020 09:24:22

15M, 16QAM, Middle Channel



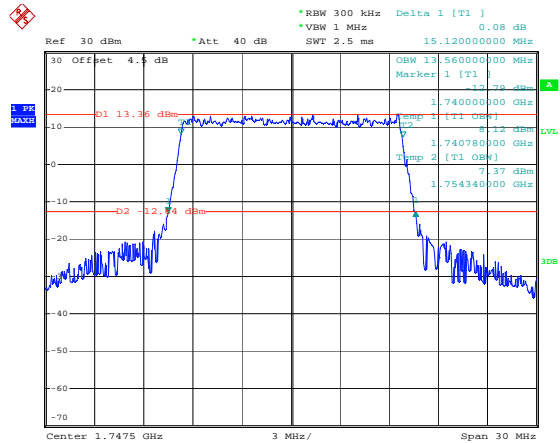
Date: 12.NOV.2020 09:24:49

15M, QPSK, High Channel



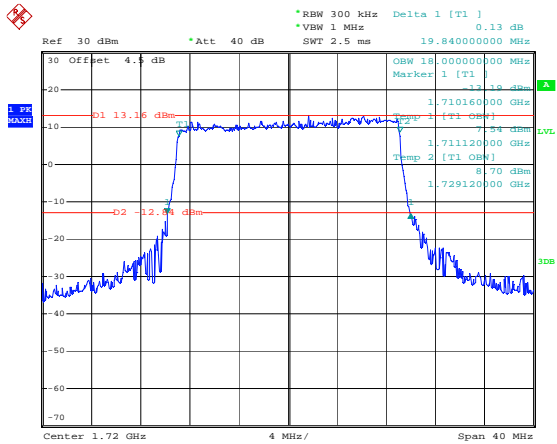
Date: 12.NOV.2020 09:25:20

15M, 16QAM, High Channel



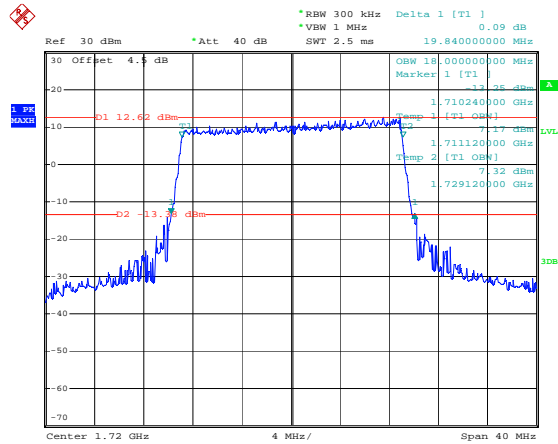
Date: 12.NOV.2020 09:25:51

20M, QPSK, Low Channel



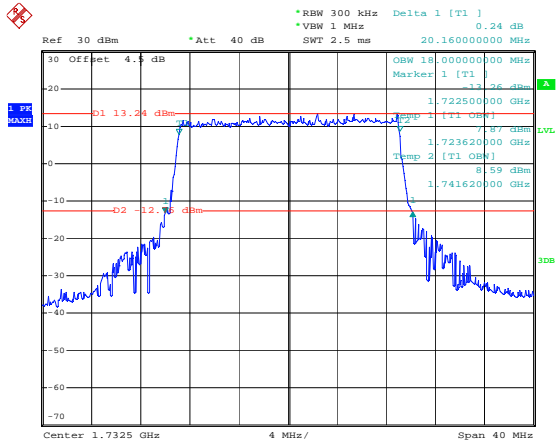
Date: 12.NOV.2020 09:26:22

20M, 16QAM, Low Channel



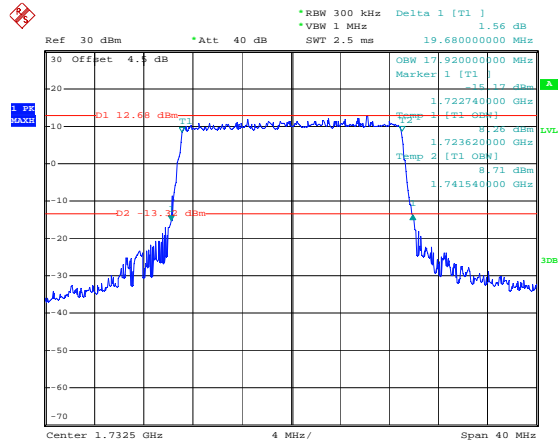
Date: 12.NOV.2020 09:26:46

20M, QPSK, Middle Channel



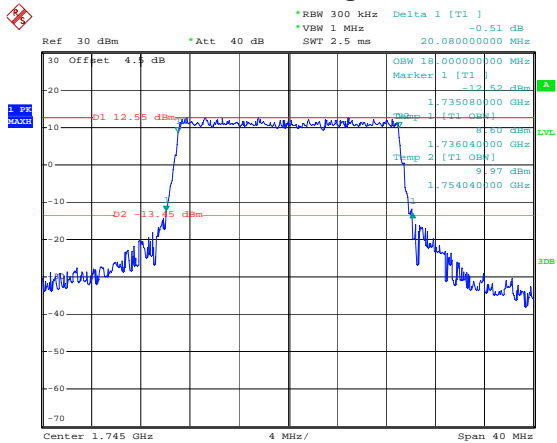
Date: 12.NOV.2020 09:27:14

20M, 16QAM, Middle Channel



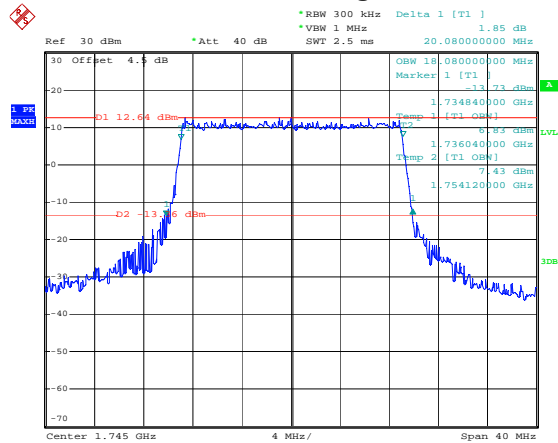
Date: 12.NOV.2020 09:27:48

20M, QPSK, High Channel



Date: 12.NOV.2020 09:28:19

20M, 16QAM, High Channel



Date: 12.NOV.2020 09:28:53

FCC §2.1051, §22.917(a) & §24.238(a) & §27.53- SPURIOUS EMISSIONS AT ANTENNA TERMINALS

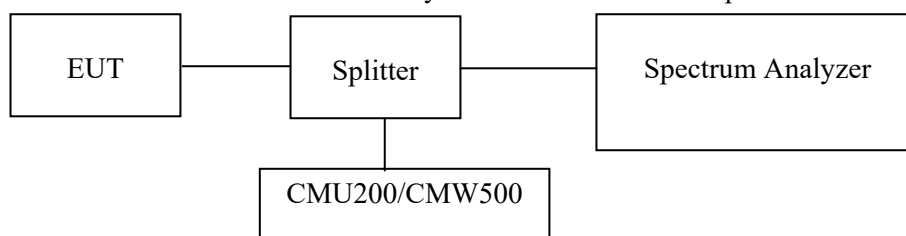
Applicable Standard

FCC §2.1051, §22.917(a) , §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
R&S	Spectrum Analyzer	FSP 38	100478	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).

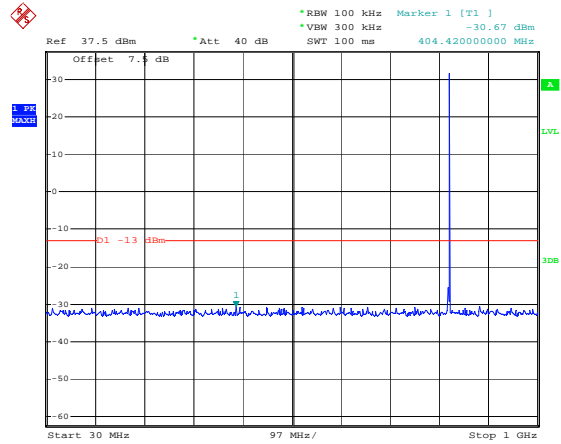
Test Data

Environmental Conditions

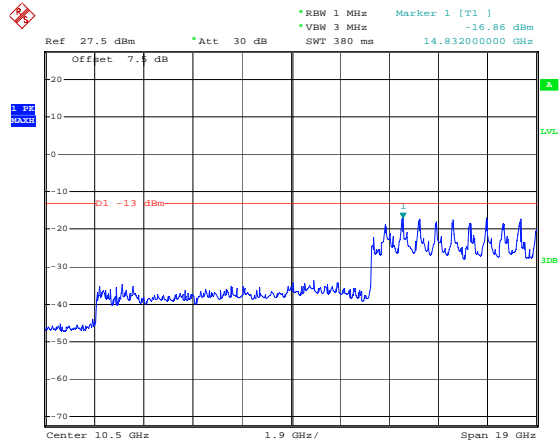
Temperature:	25.4~26.3 °C
Relative Humidity:	35~41%
ATM Pressure:	101~101.9kPa
Tester:	Theshy Xie
Test Date:	2020-11-09~2020-11-14

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

GSM 850, Low Channel

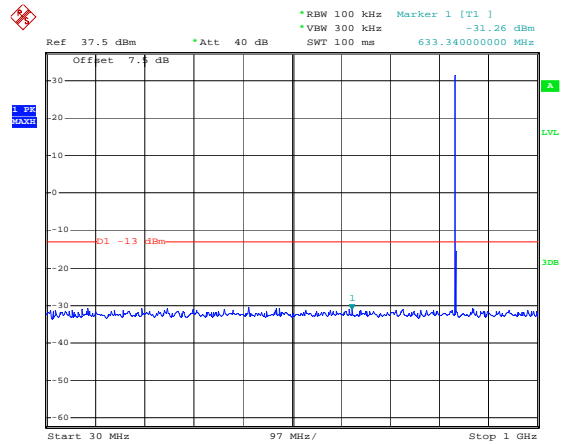


Date: 9.NOV.2020 15:24:04

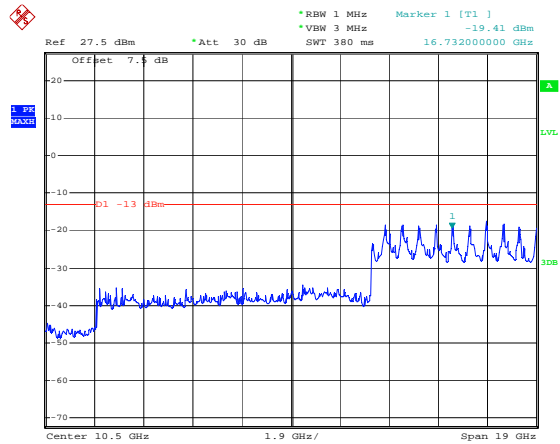


Date: 14.NOV.2020 12:58:51

GSM 850, Middle Channel

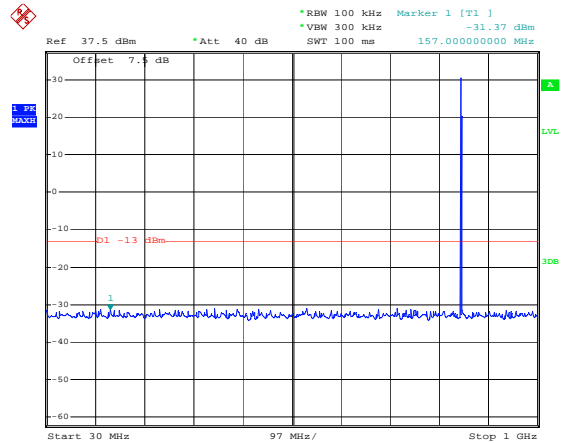


Date: 10.NOV.2020 10:15:27

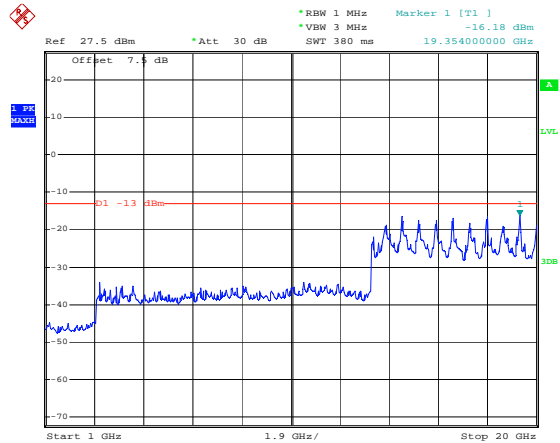


Date: 10.NOV.2020 16:54:22

GSM 850, High Channel

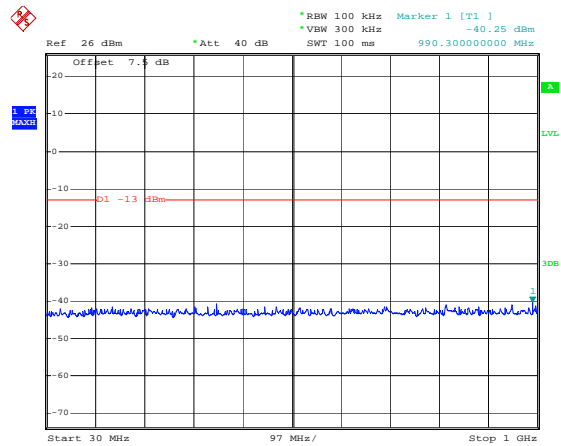


Date: 10.NOV.2020 10:17:27

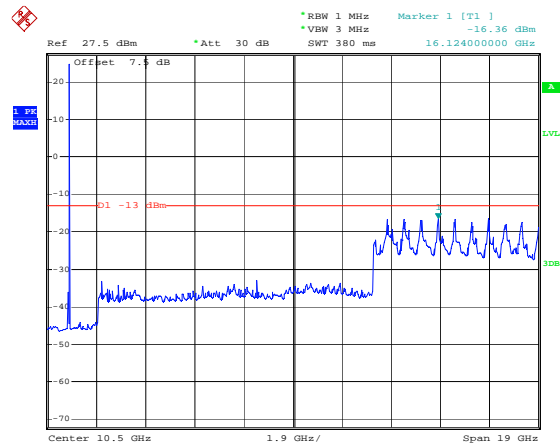


Date: 14.NOV.2020 12:48:43

PCS 1900, Low Channel

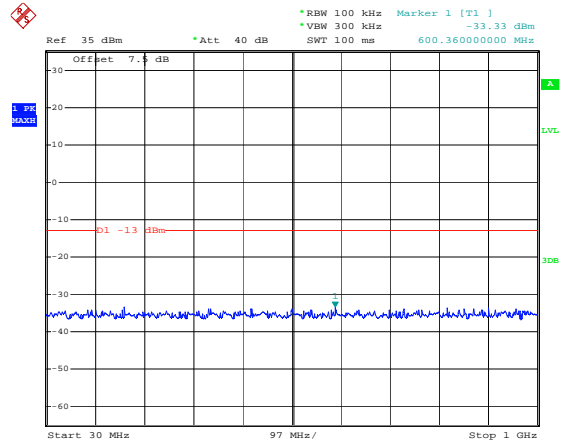


Date: 9.NOV.2020 15:57:30

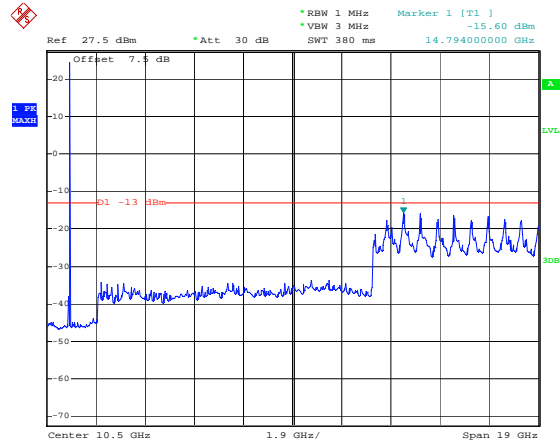


Date: 10.NOV.2020 16:49:07

PCS 1900, Middle Channel

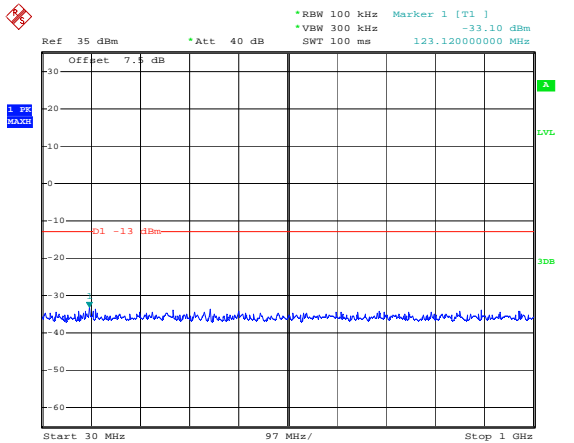


Date: 10.NOV.2020 09:37:14

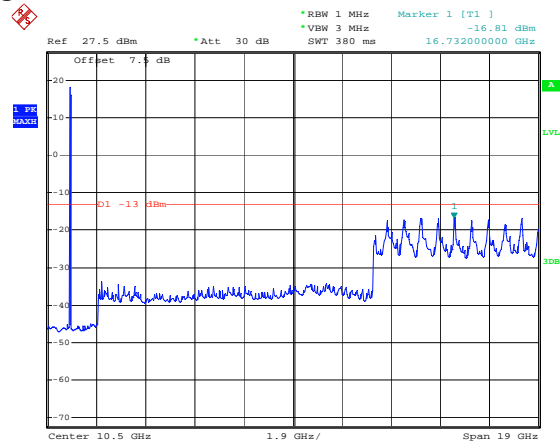


Date: 10.NOV.2020 16:49:56

PCS 1900, High Channel

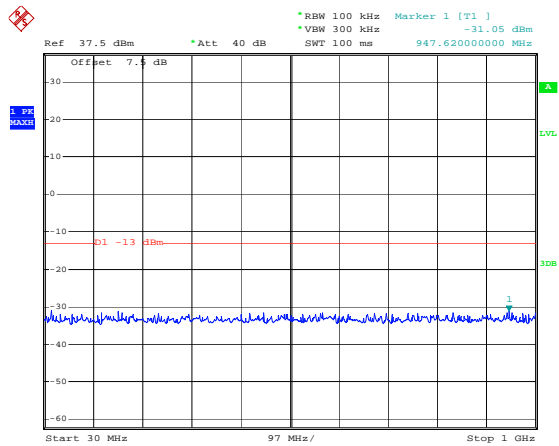


Date: 10.NOV.2020 09:39:28

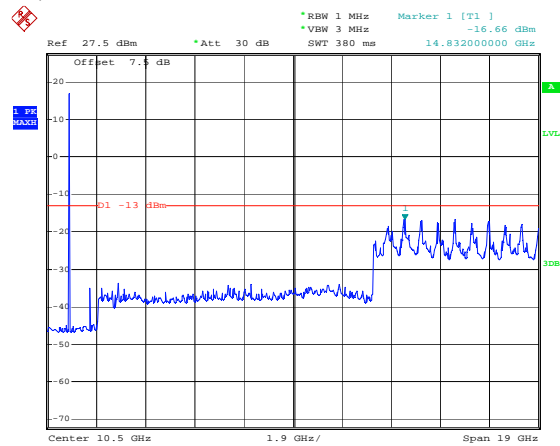


Date: 10.NOV.2020 16:50:43

WCDMA Band II, R99, Low Channel

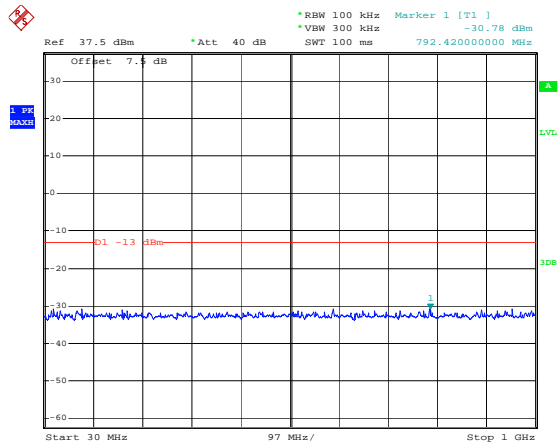


Date: 10.NOV.2020 12:30:01

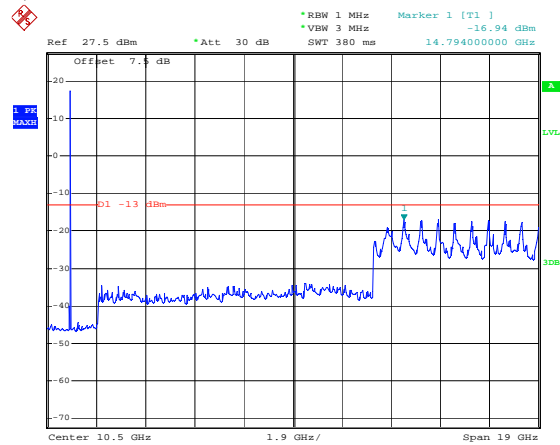


Date: 10.NOV.2020 17:37:01

WCDMA Band II, R99, Middle Channel

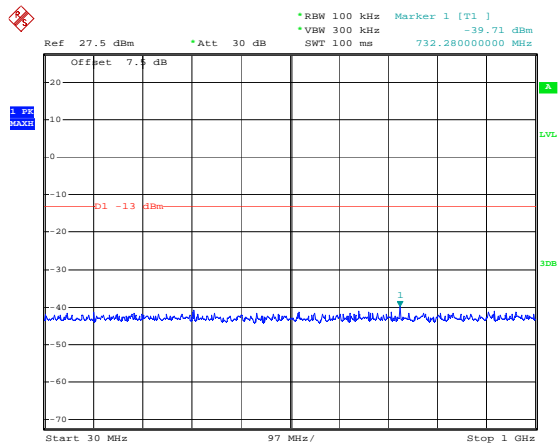


Date: 10.NOV.2020 12:27:33

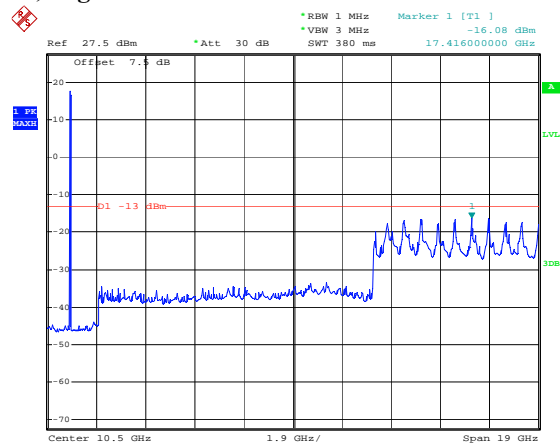


Date: 10.NOV.2020 16:34:44

WCDMA Band II, R99, High Channel

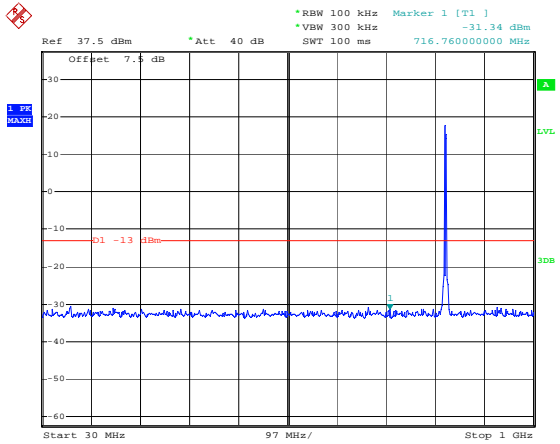


Date: 10.NOV.2020 17:39:20

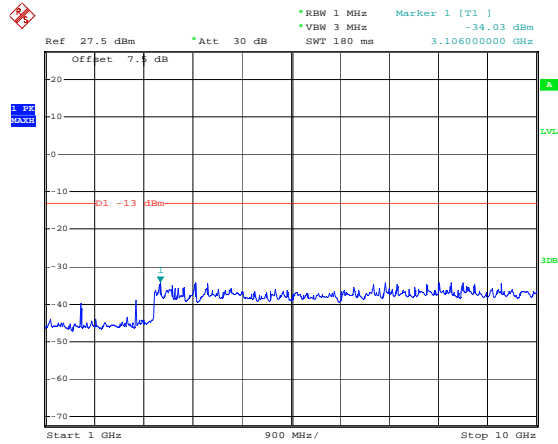


Date: 14.NOV.2020 12:51:55

WCDMA Band V, R99, Low Channel

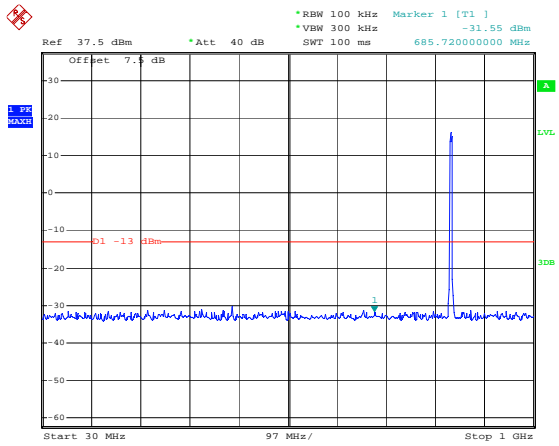


Date: 10.NOV.2020 12:45:04

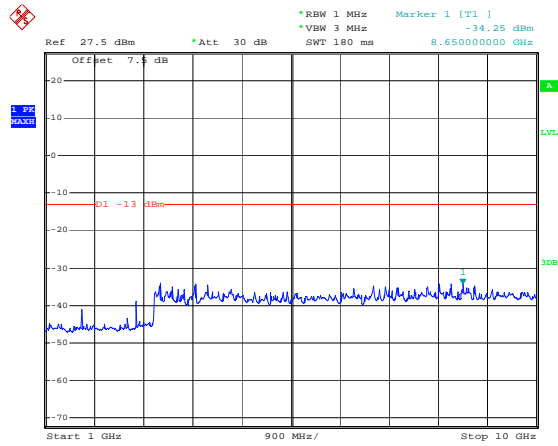


Date: 10.NOV.2020 16:42:37

WCDMA Band V, R99, Middle Channel

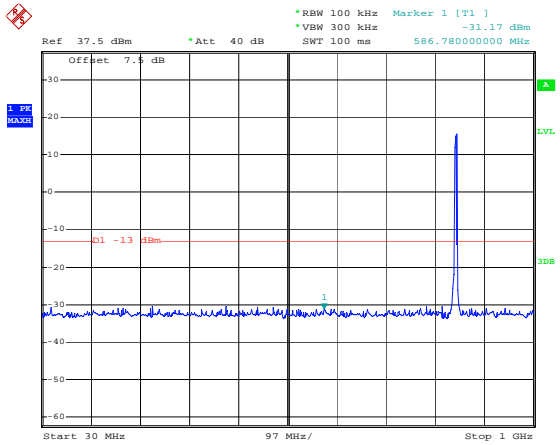


Date: 10.NOV.2020 12:43:13

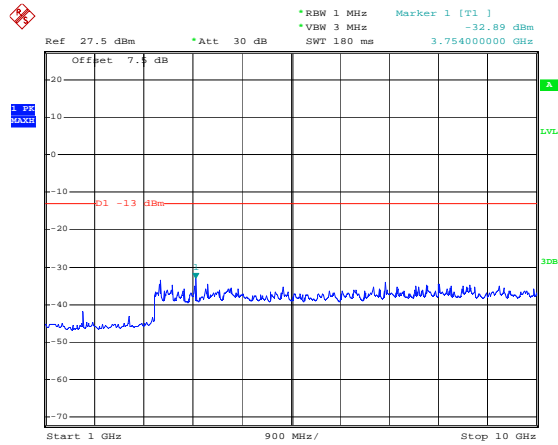


Date: 10.NOV.2020 16:42:03

WCDMA Band V, R99, High Channel



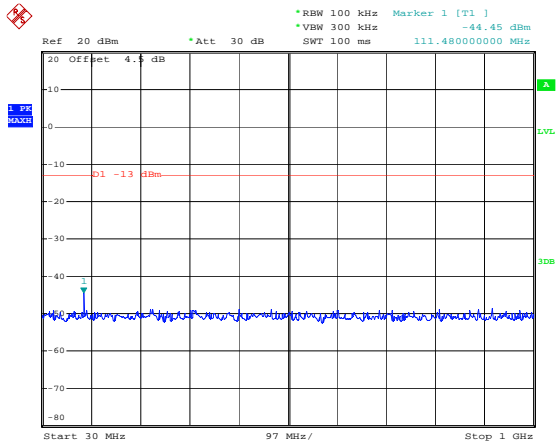
Date: 10.NOV.2020 12:40:44



Date: 10.NOV.2020 16:41:02

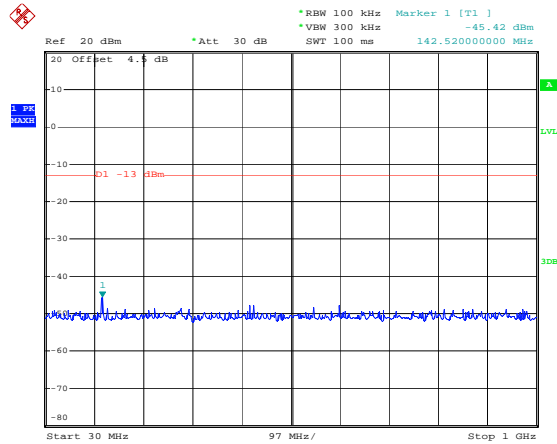
LTE Band 2:

1.4M, QPSK, Low Channel

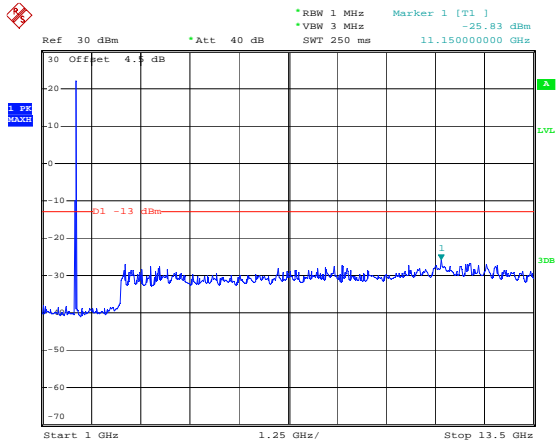


Date: 12.NOV.2020 09:38:04

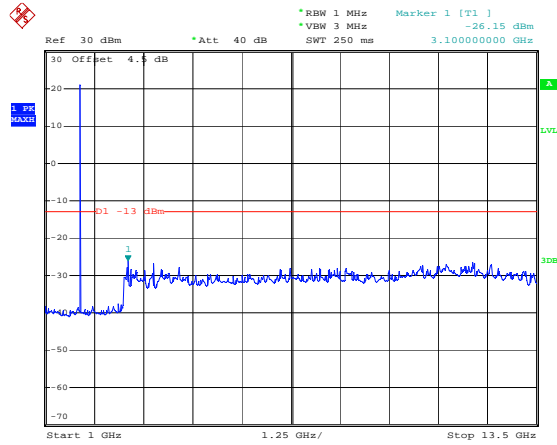
1.4M, QPSK, Middle Channel



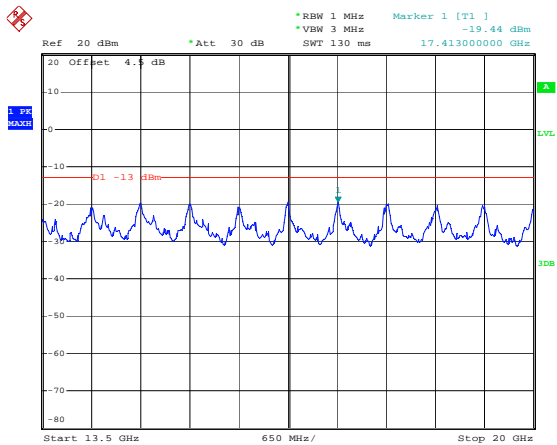
Date: 12.NOV.2020 09:38:50



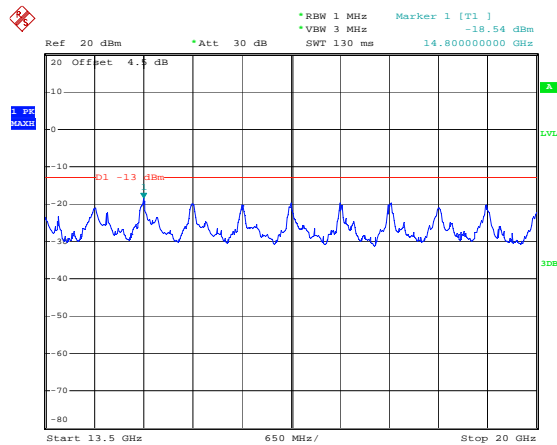
Date: 12.NOV.2020 09:38:20



Date: 12.NOV.2020 09:39:03

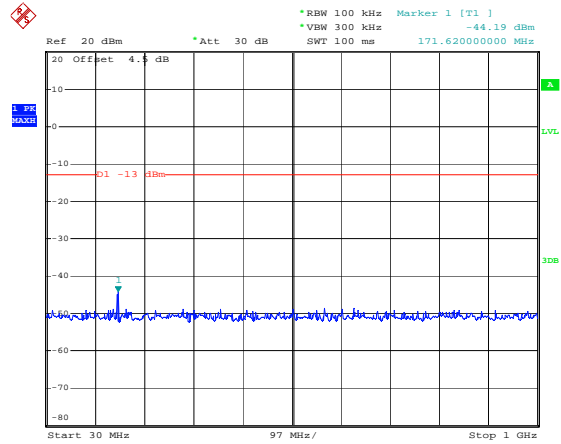


Date: 12.NOV.2020 09:38:33



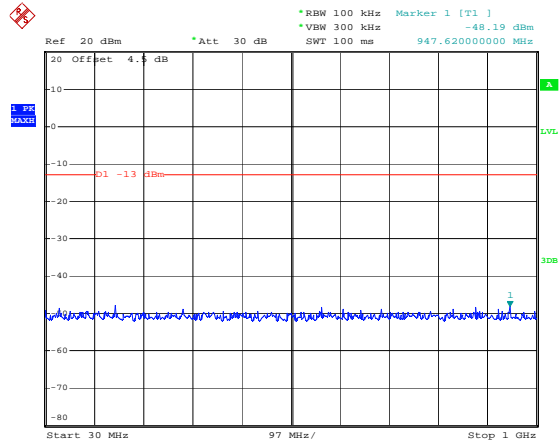
Date: 12.NOV.2020 09:39:16

1.4M, QPSK, High Channel

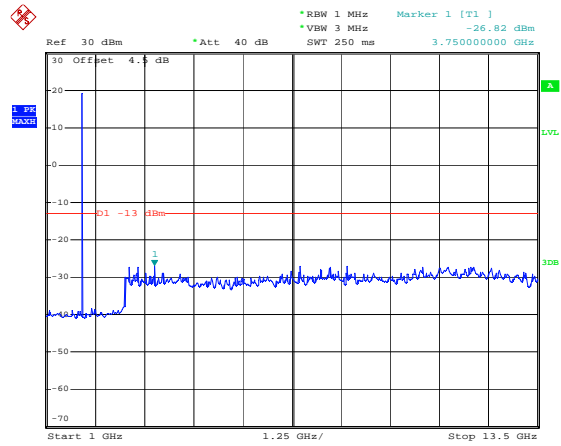


Date: 12.NOV.2020 09:39:33

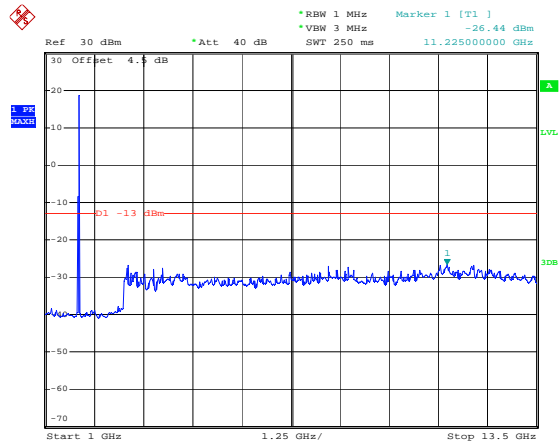
3M, QPSK, Low Channel



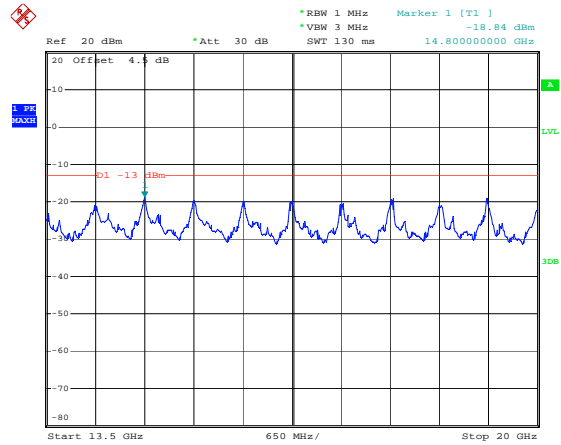
Date: 12.NOV.2020 09:40:19



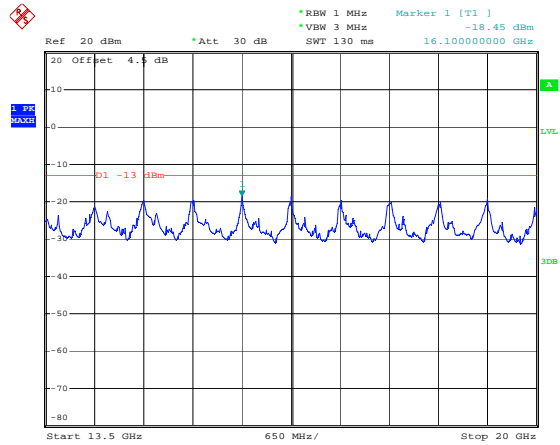
Date: 12.NOV.2020 09:39:46



Date: 12.NOV.2020 09:40:31

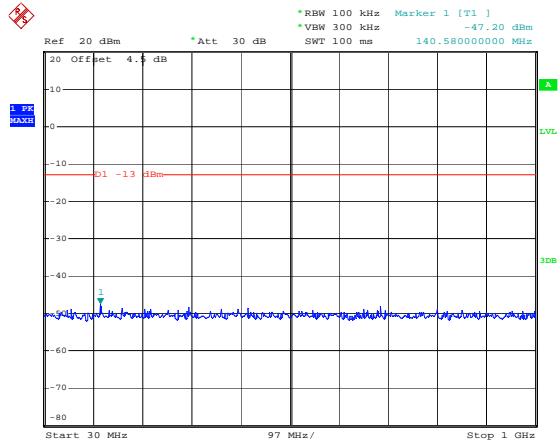


Date: 12.NOV.2020 09:39:59



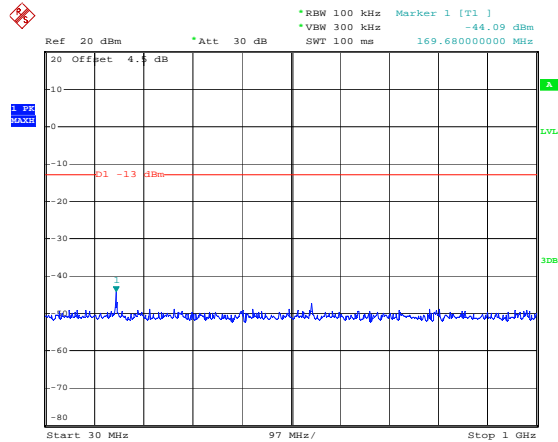
Date: 12.NOV.2020 09:40:44

3M, QPSK, Middle Channel

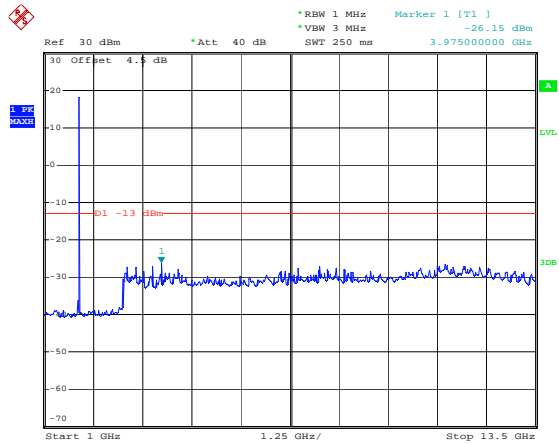


Date: 12.NOV.2020 09:41:04

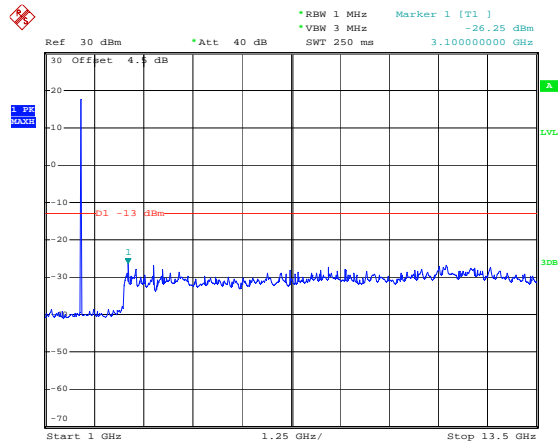
3M, QPSK, High Channel



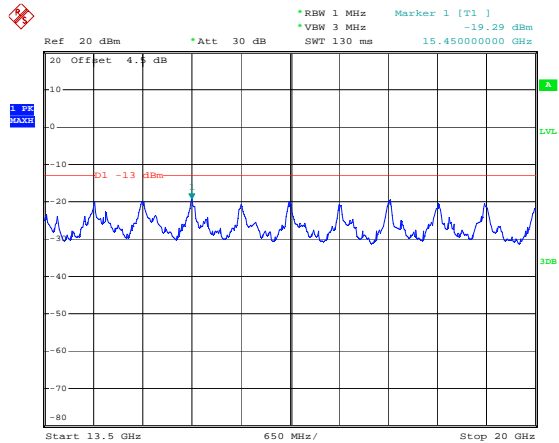
Date: 12.NOV.2020 09:41:50



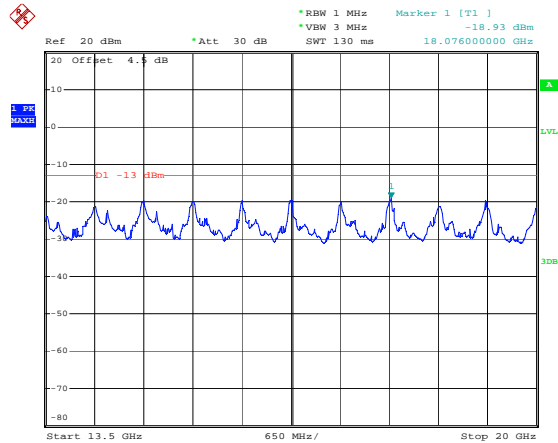
Date: 12.NOV.2020 09:41:20



Date: 12.NOV.2020 09:42:03

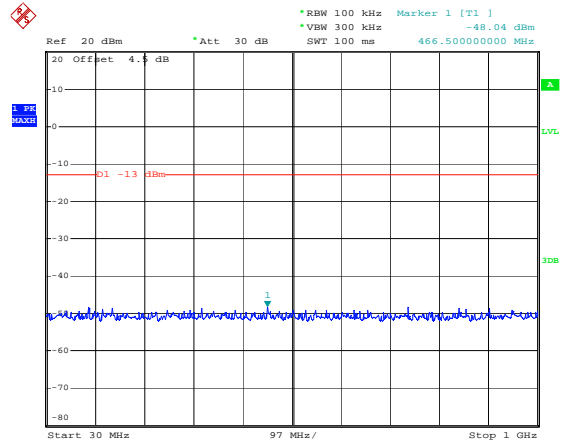


Date: 12.NOV.2020 09:41:33



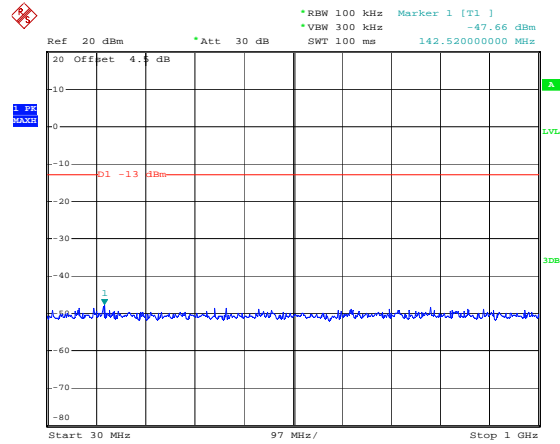
Date: 12.NOV.2020 09:42:16

5M, QPSK, Low Channel

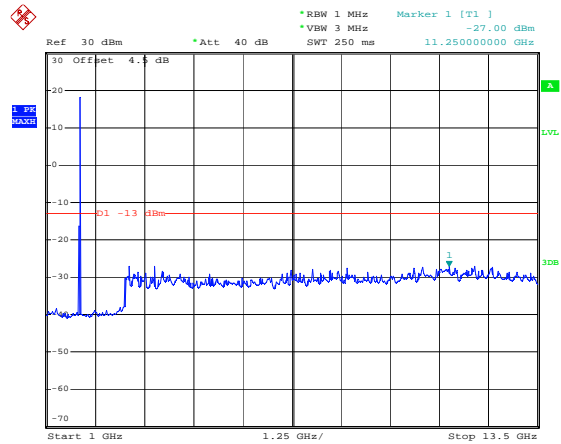


Date: 12.NOV.2020 09:42:36

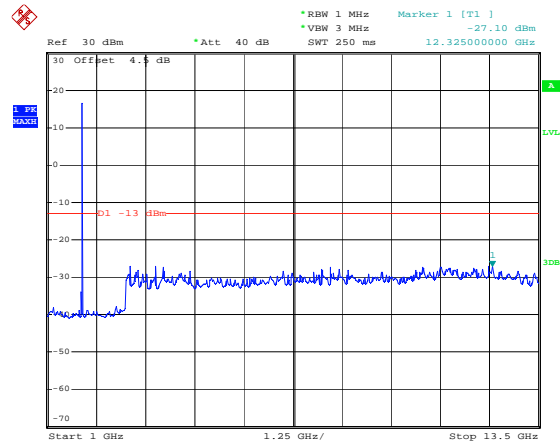
5M, QPSK, Middle Channel



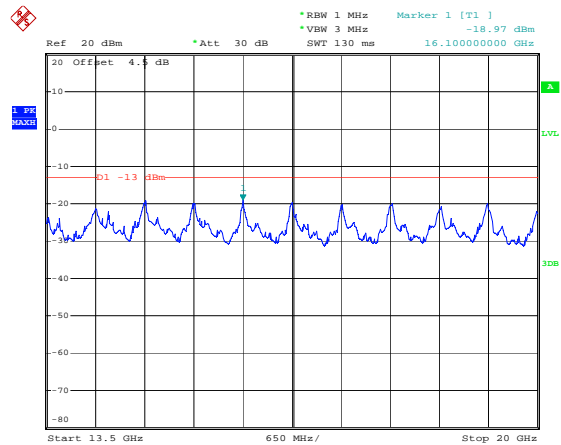
Date: 12.NOV.2020 09:43:22



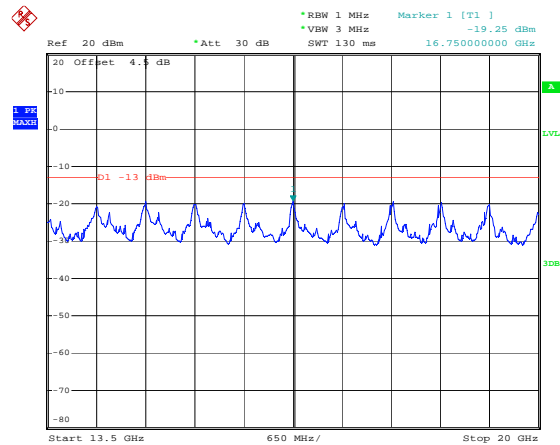
Date: 12.NOV.2020 09:42:49



Date: 12.NOV.2020 09:43:35

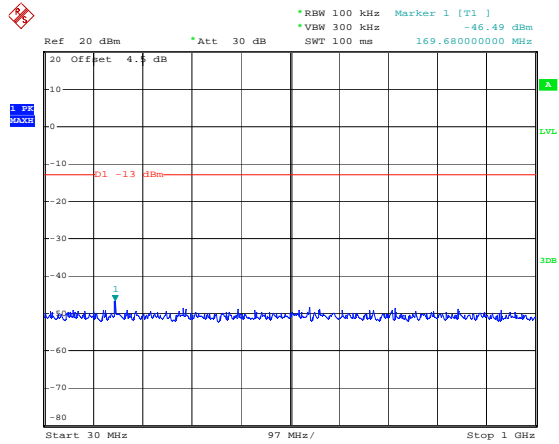


Date: 12.NOV.2020 09:43:02



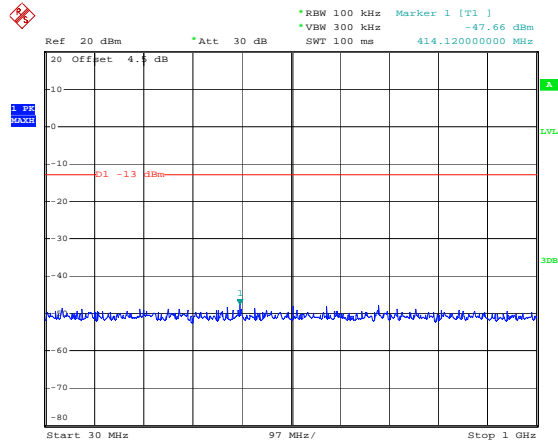
Date: 12.NOV.2020 09:43:48

5M, QPSK, High Channel

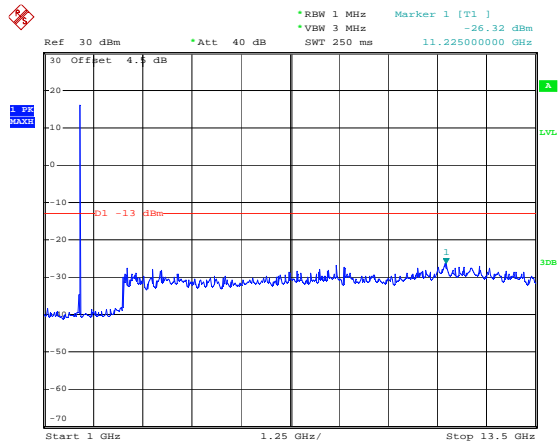


Date: 12.NOV.2020 09:44:05

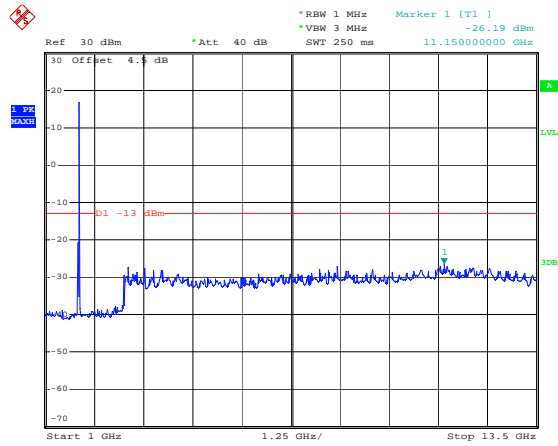
10M, QPSK, Low Channel



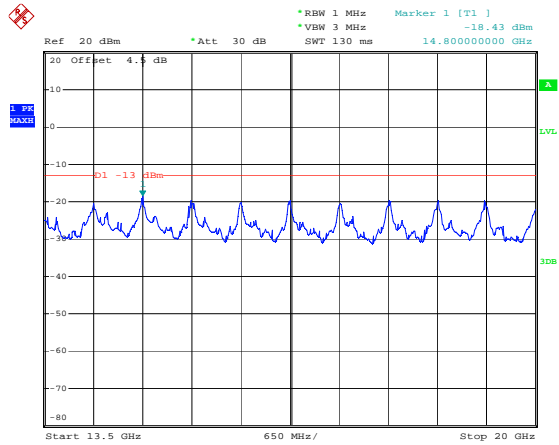
Date: 12.NOV.2020 09:44:51



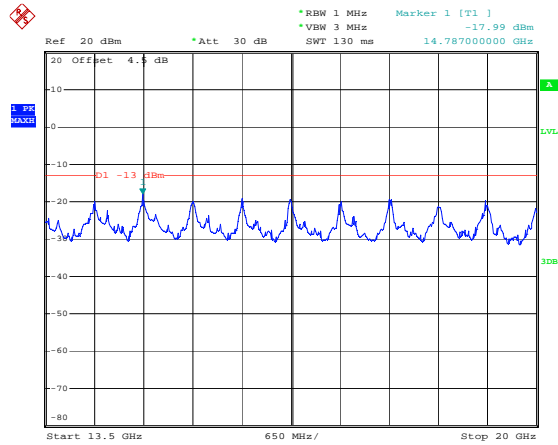
Date: 12.NOV.2020 09:44:18



Date: 12.NOV.2020 09:45:04

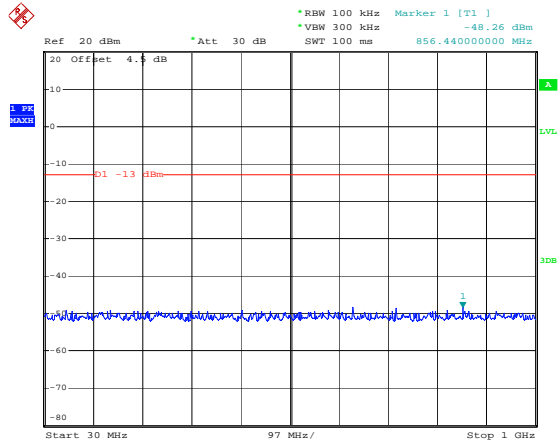


Date: 12.NOV.2020 09:44:30



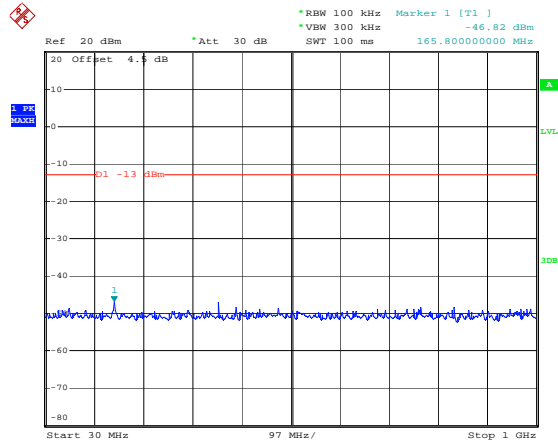
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10M, QPSK, Middle Channel

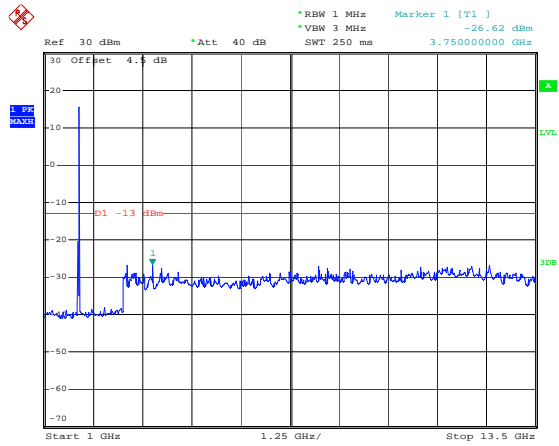


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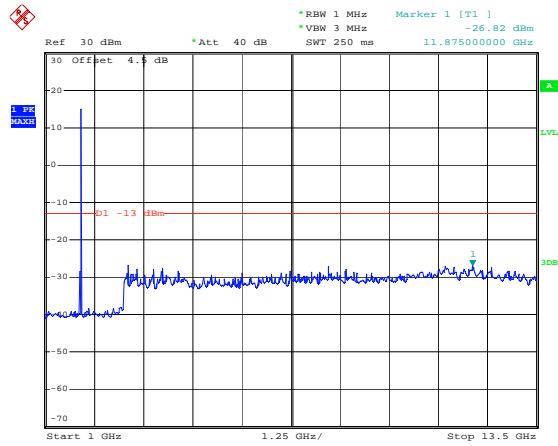
10M, QPSK, High Channel



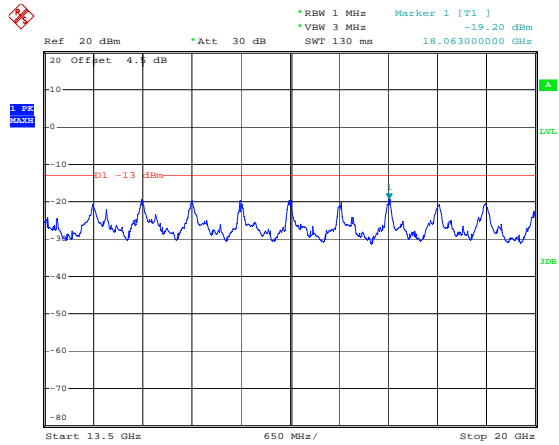
Date: 12.NOV.2020 09:46:22



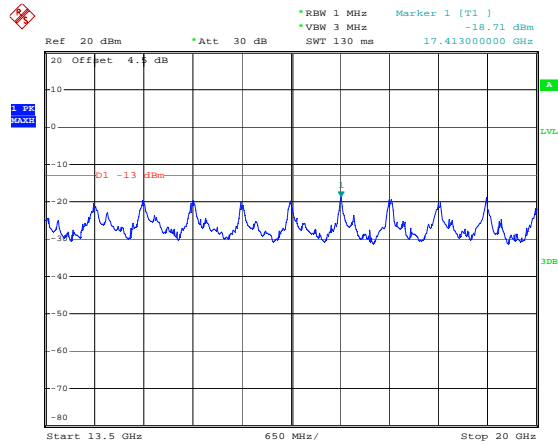
Date: 12.NOV.2020 09:45:48



Date: 12.NOV.2020 09:46:35

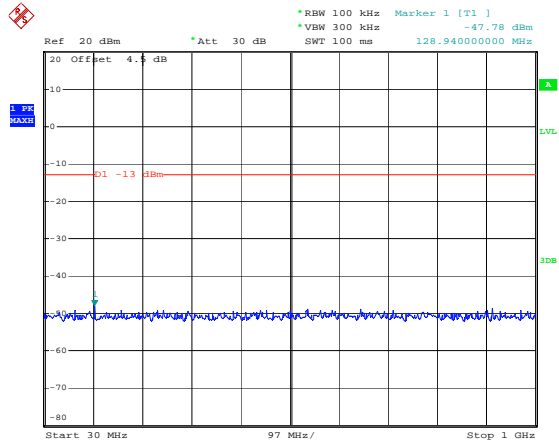


Date: 12.NOV.2020 09:46:01



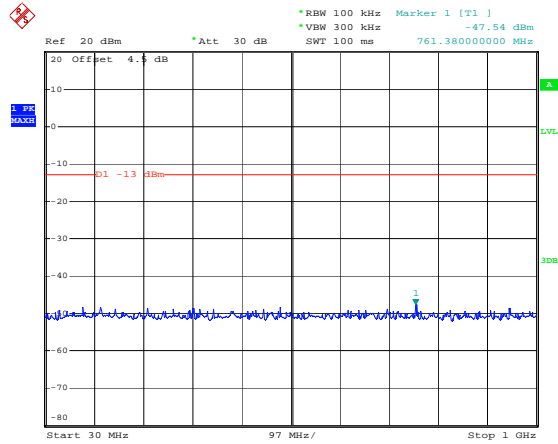
Date: 12.NOV.2020 09:46:48

15M, QPSK, Low Channel

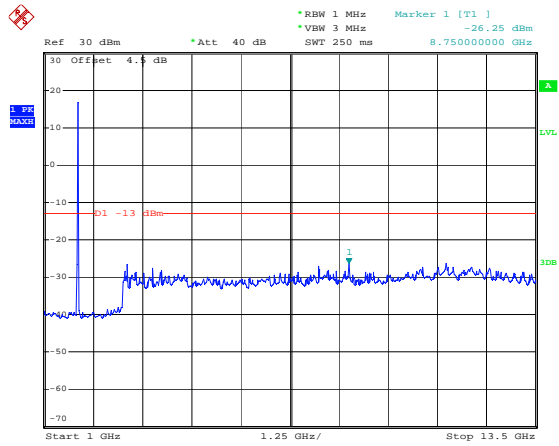


Date: 12.NOV.2020 09:47:11

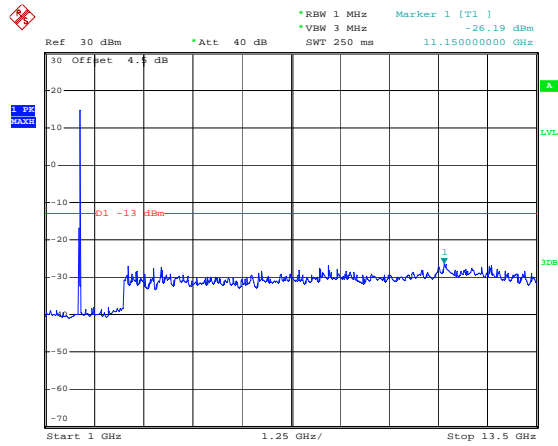
15M, QPSK, Middle Channel



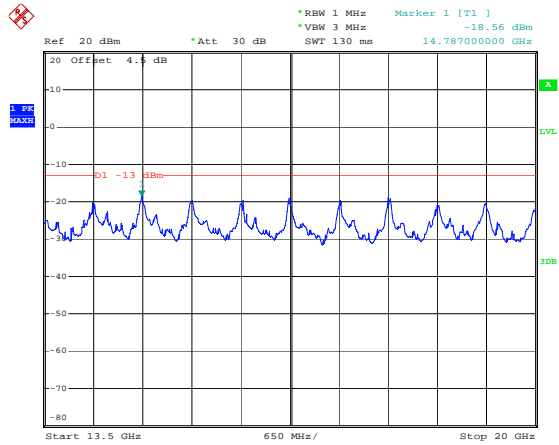
Date: 12.NOV.2020 09:48:00



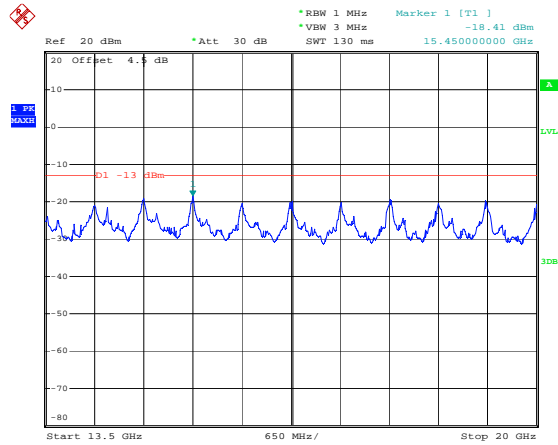
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Date: 12.NOV.2020 09:48:16

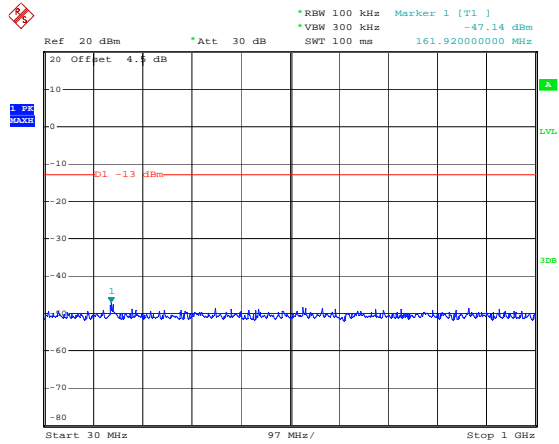


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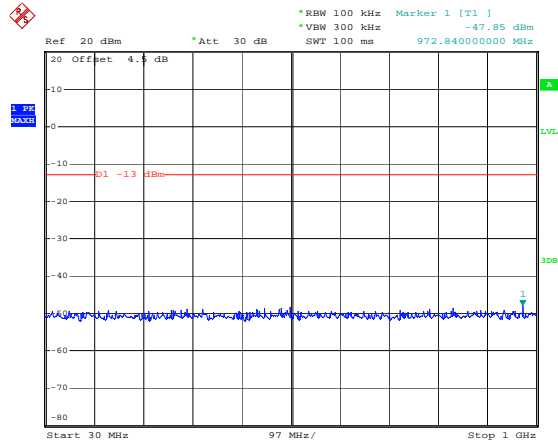
Date: 12.NOV.2020 09:48:29

15M, QPSK, High Channel

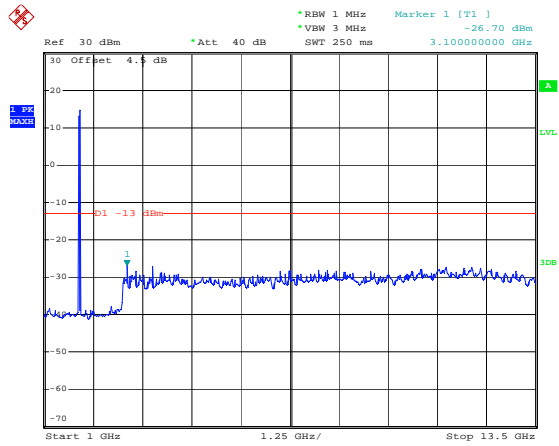


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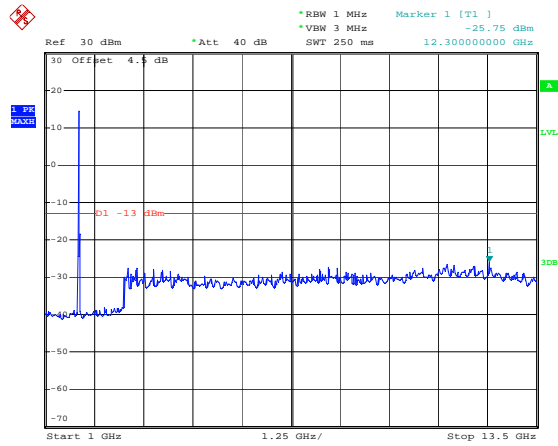
20M, QPSK, Low Channel



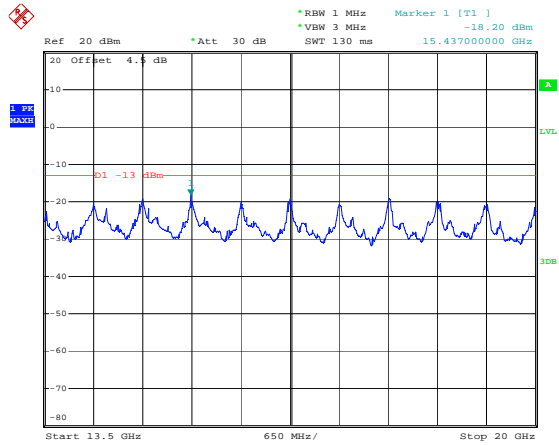
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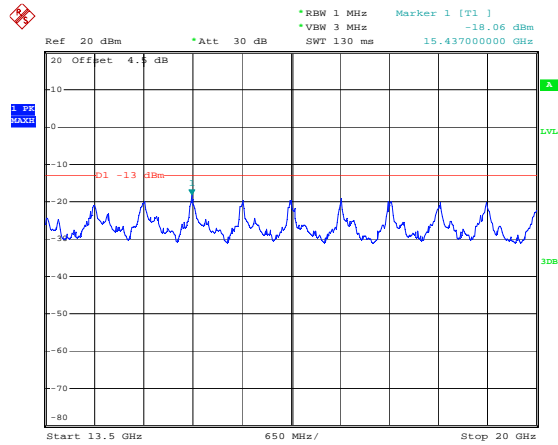
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Date: 12.NOV.2020 09:49:57

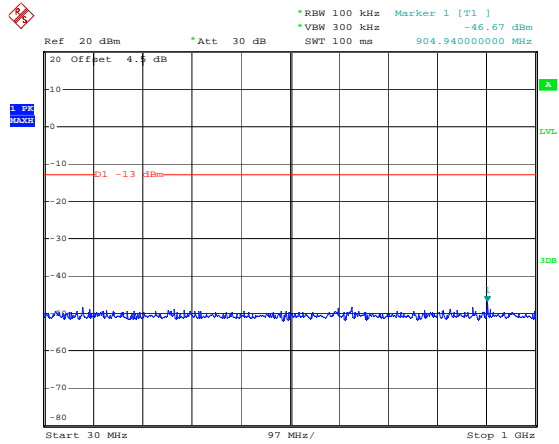


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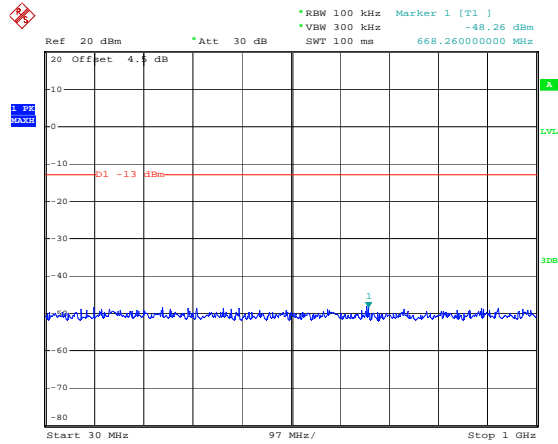
Date: 12.NOV.2020 09:50:10

20M, QPSK, Middle Channel

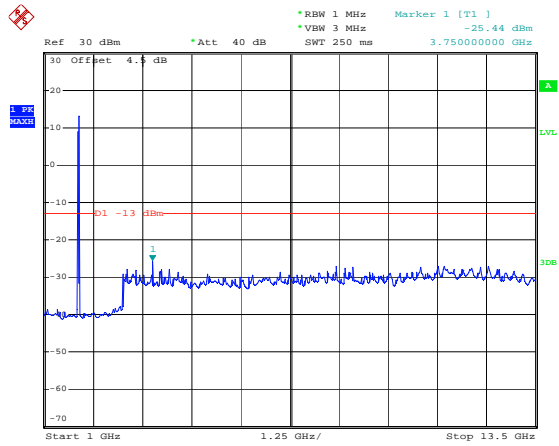


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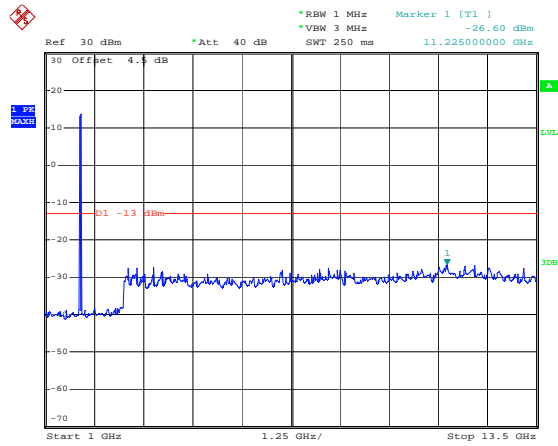
20M, QPSK, High Channel



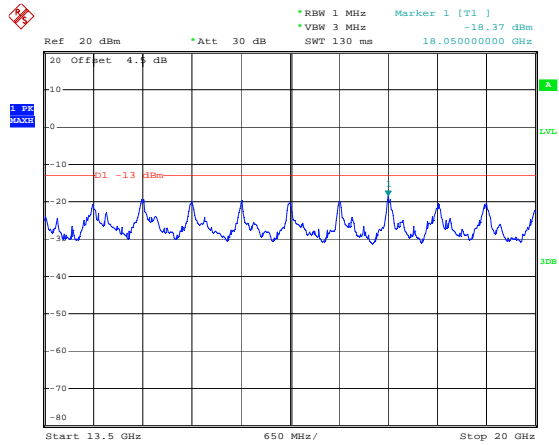
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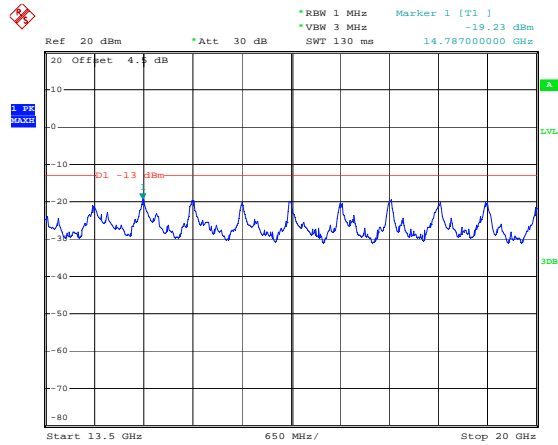
Date: 12.NOV.2020 09:50:46



Date: 12.NOV.2020 09:51:36



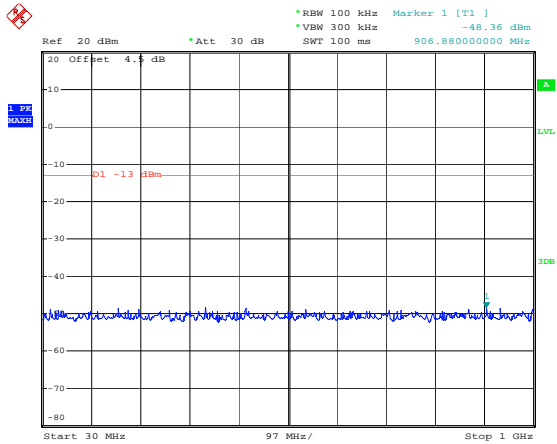
Date: 12.NOV.2020 09:50:59



Date: 12.NOV.2020 09:51:51

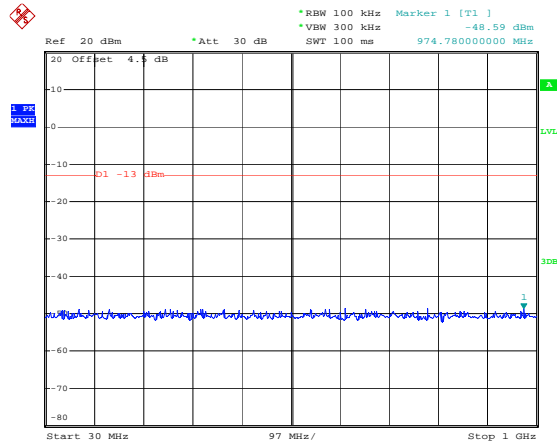
LTE Band 4:

1.4M, QPSK, Low Channel

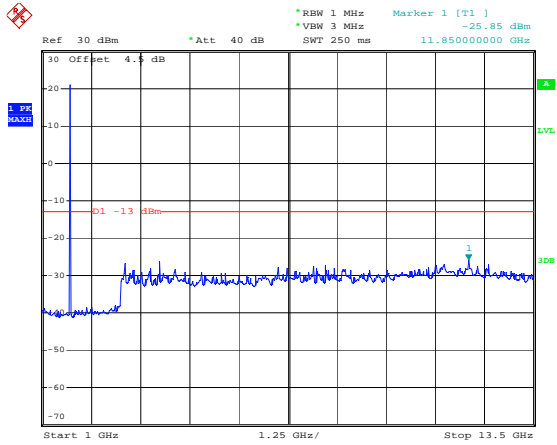


Date: 12.NOV.2020 09:52:10

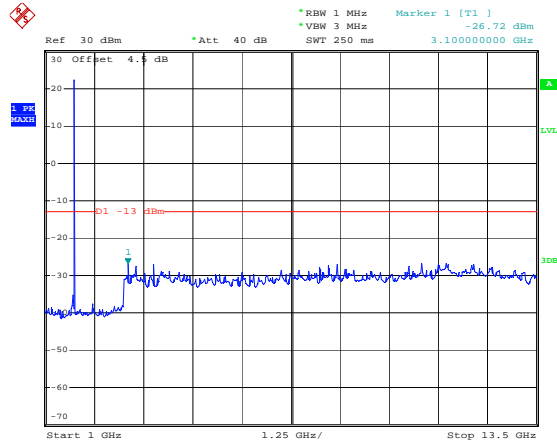
1.4M, QPSK, Middle Channel



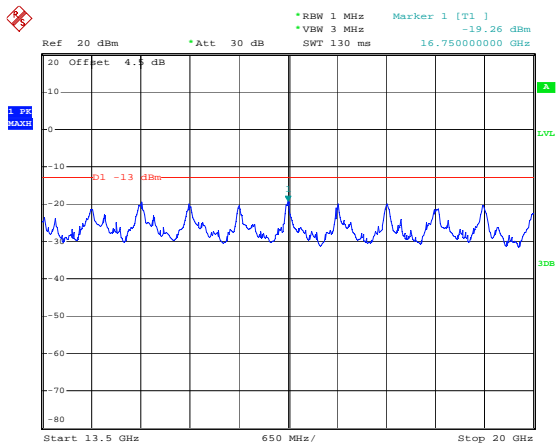
Date: 12.NOV.2020 09:52:56



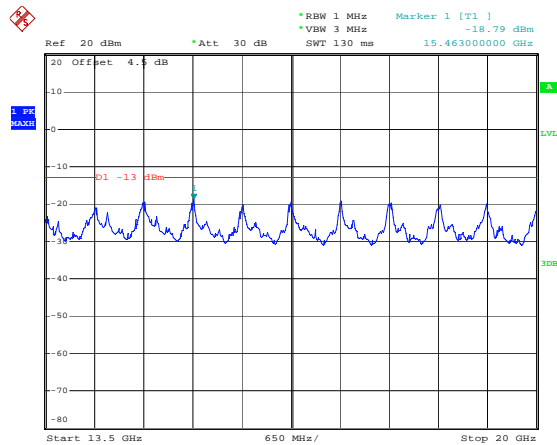
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Date: 12.NOV.2020 09:53:09

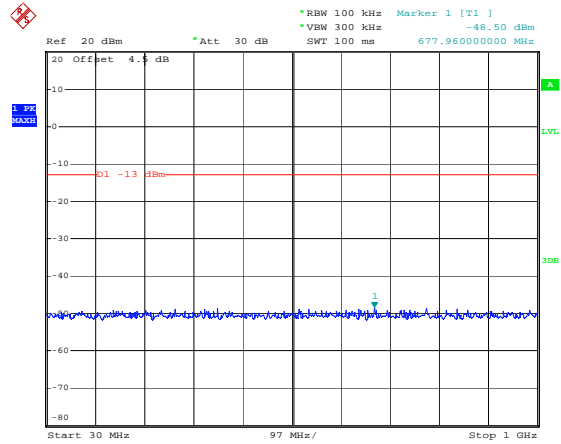


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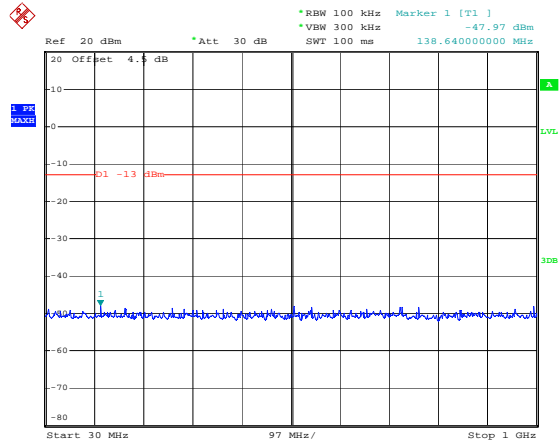
Date: 12.NOV.2020 09:53:22

1.4M, QPSK, High Channel

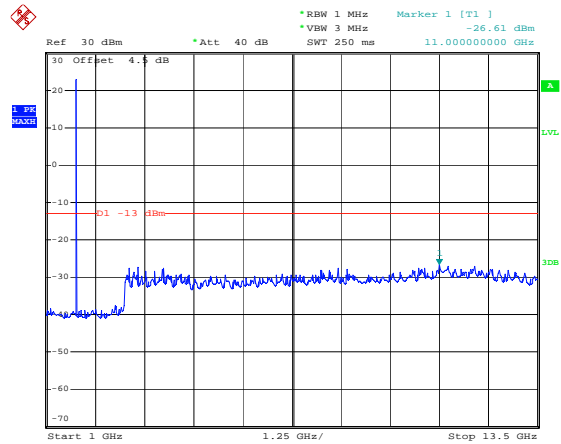


Date: 12.NOV.2020 09:53:43

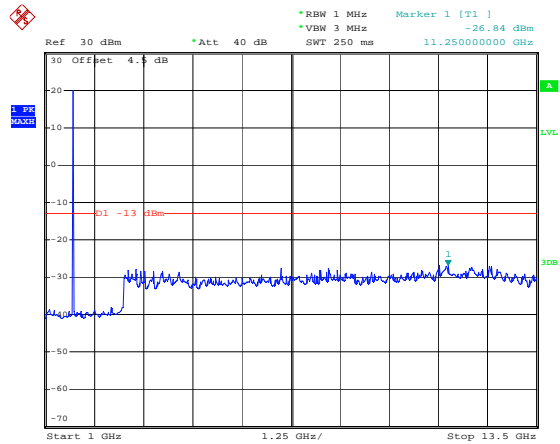
3M, QPSK, Low Channel



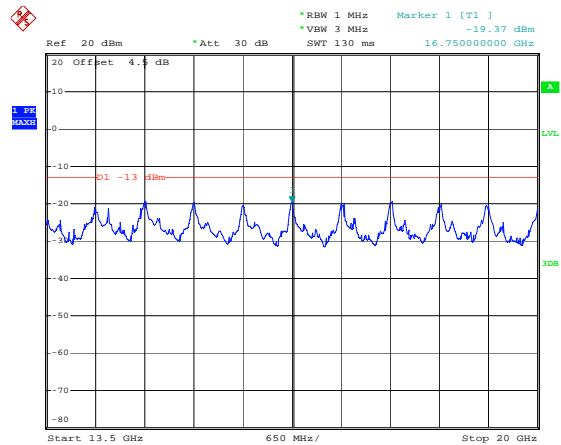
Date: 12.NOV.2020 09:54:30



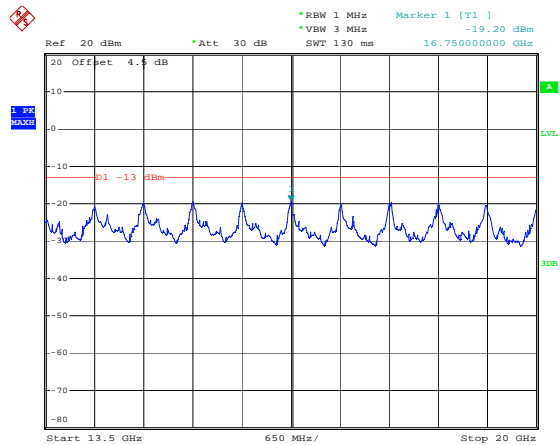
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Date: 12.NOV.2020 09:54:43

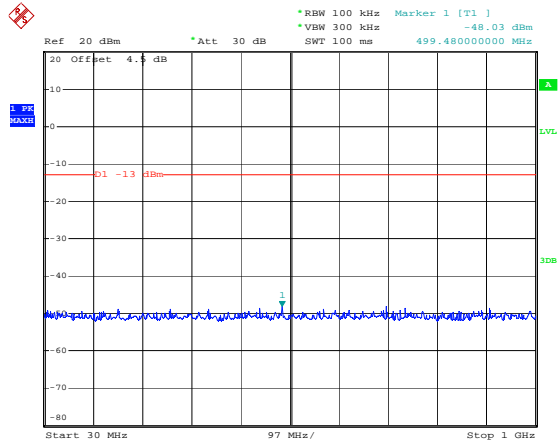


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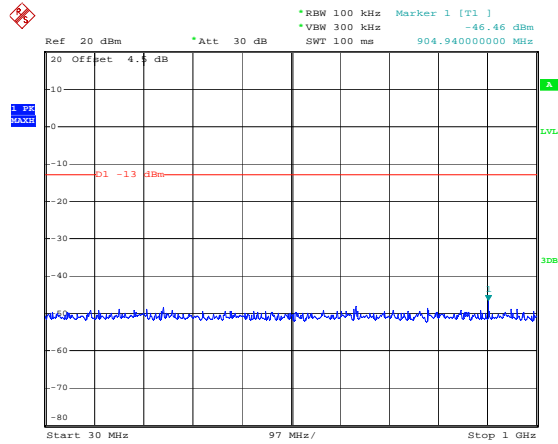
Date: 12.NOV.2020 09:54:56

3M, QPSK, Middle Channel

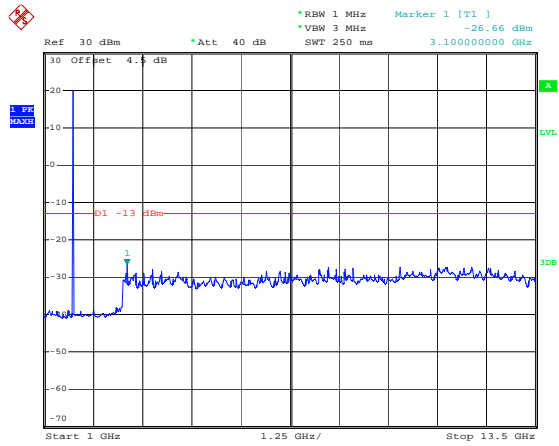


Date: 12.NOV.2020 09:55:13

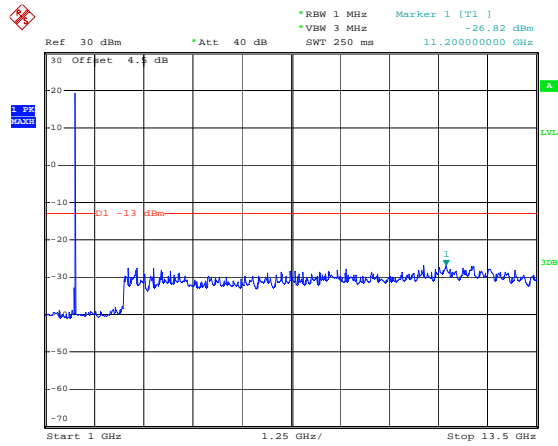
3M, QPSK, High Channel



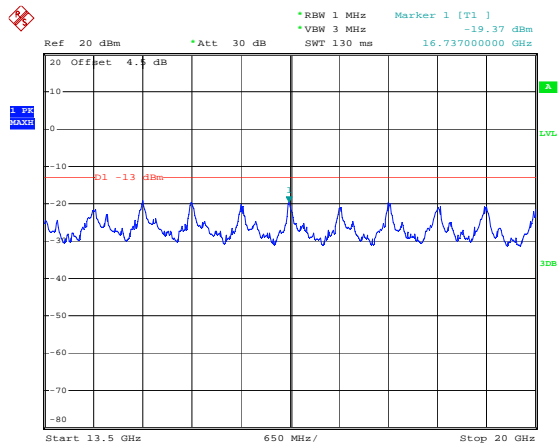
Date: 12.NOV.2020 09:55:56



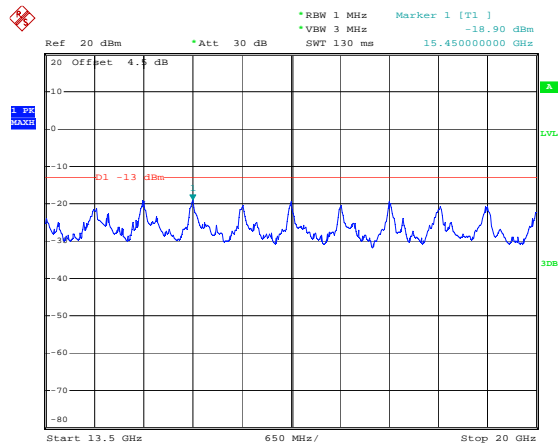
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Date: 12.NOV.2020 09:56:09

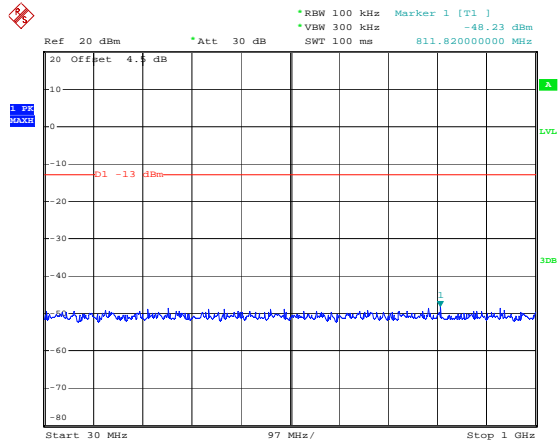


Date: 12.NOV.2020 09:55:39



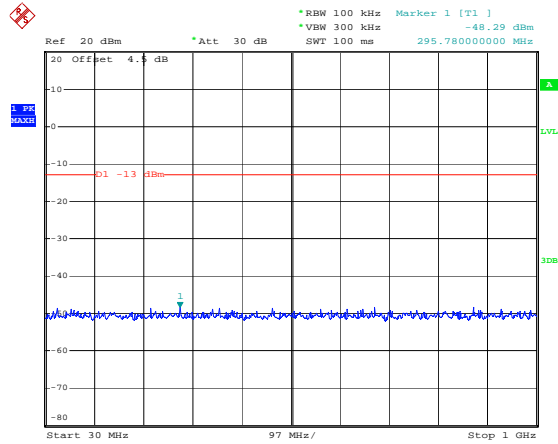
Date: 12.NOV.2020 09:56:22

5M, QPSK, Low Channel

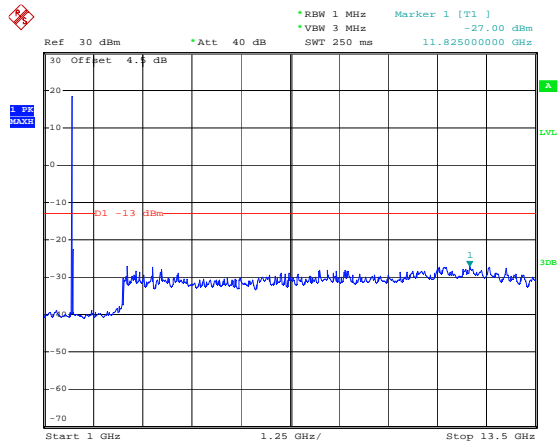


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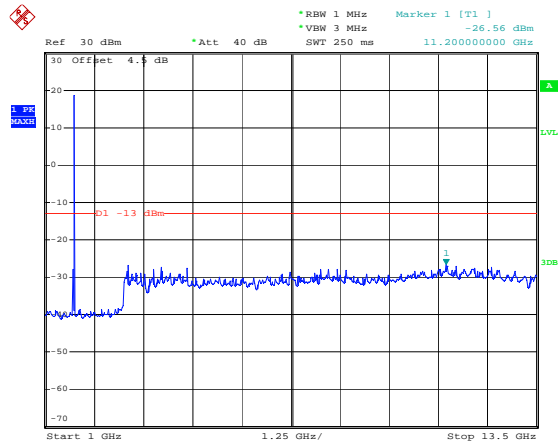
5M, QPSK, Middle Channel



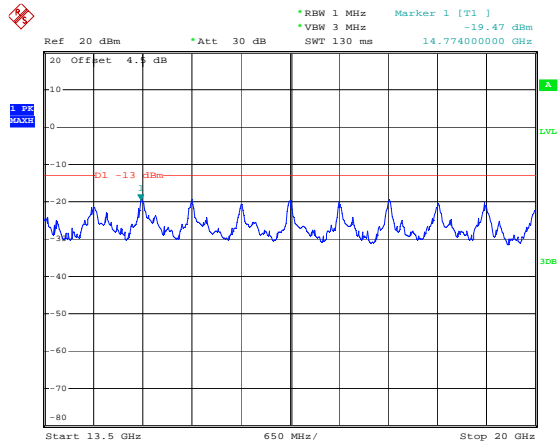
Date: 12.NOV.2020 09:57:27



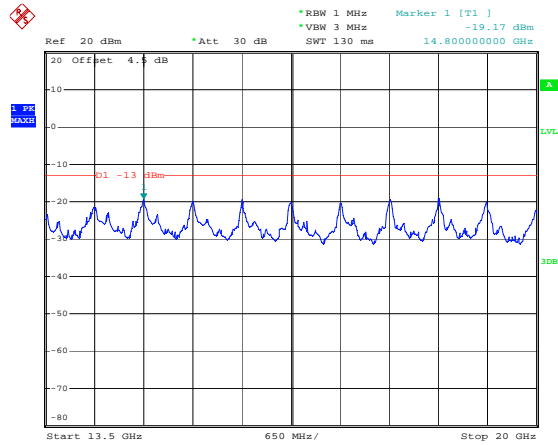
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Date: 12.NOV.2020 09:57:40

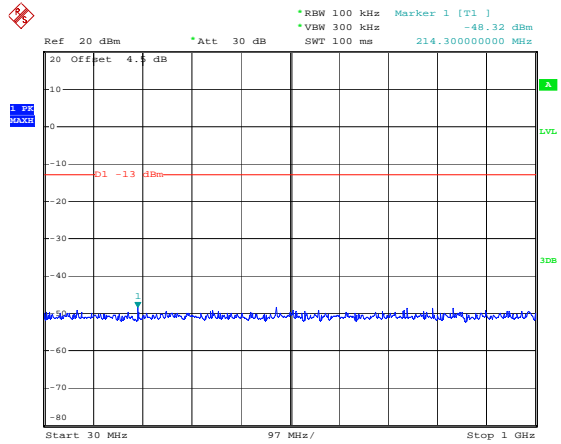


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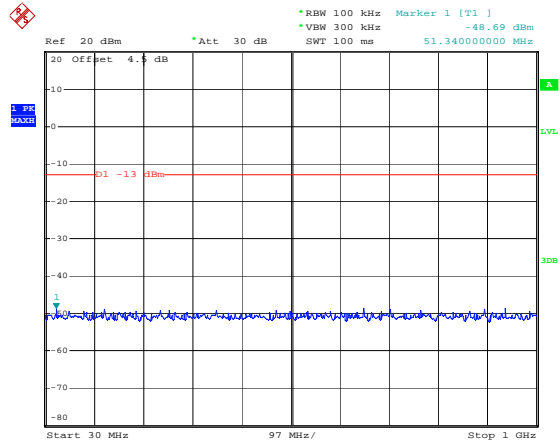
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5M, QPSK, High Channel

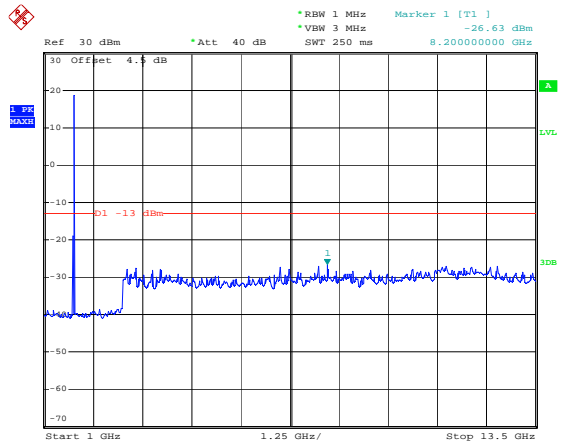


Date: 12.NOV.2020 09:58:10

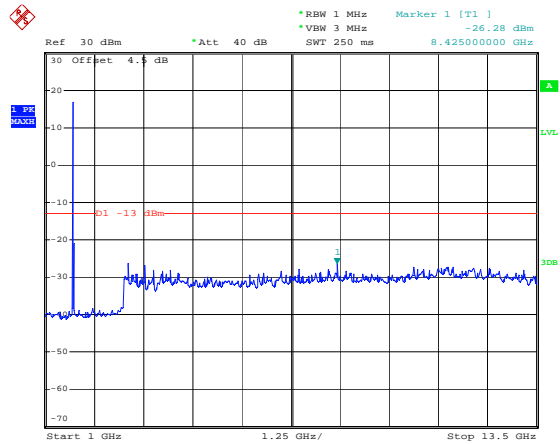
10M, QPSK, Low Channel



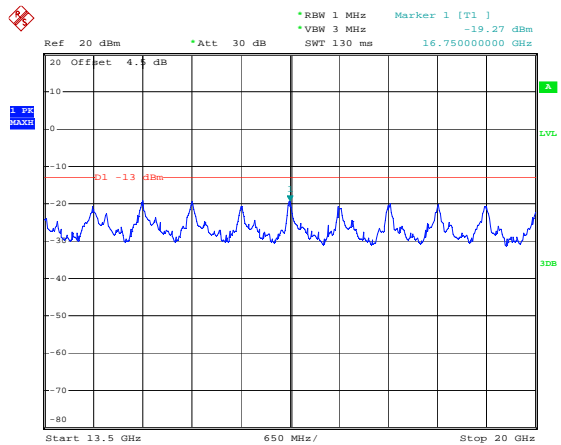
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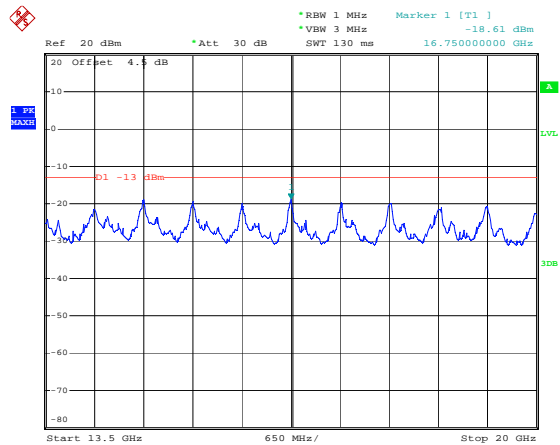
Date: 12.NOV.2020 09:58:23



Date: 12.NOV.2020 09:59:09

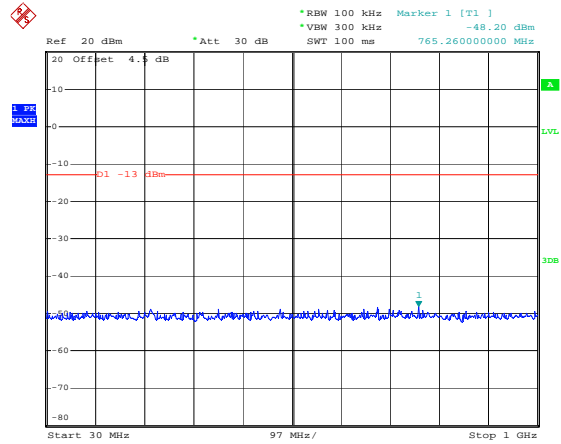


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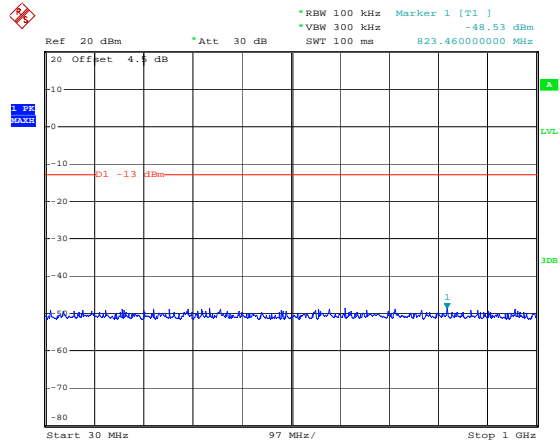
Date: 12.NOV.2020 09:59:22

10M, QPSK, Middle Channel

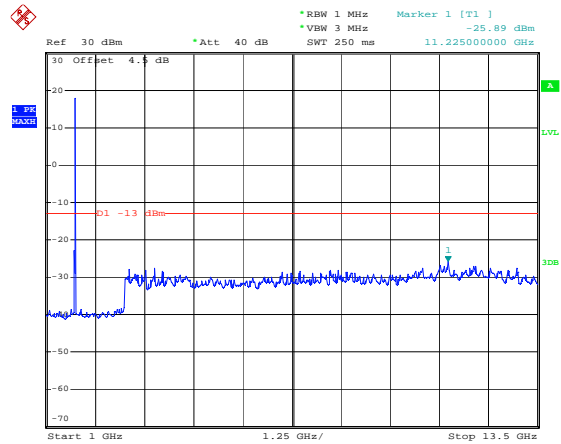


Date: 12.NOV.2020 09:59:40

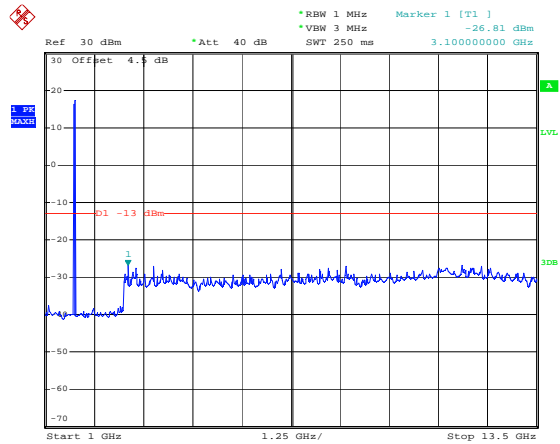
10M, QPSK, High Channel



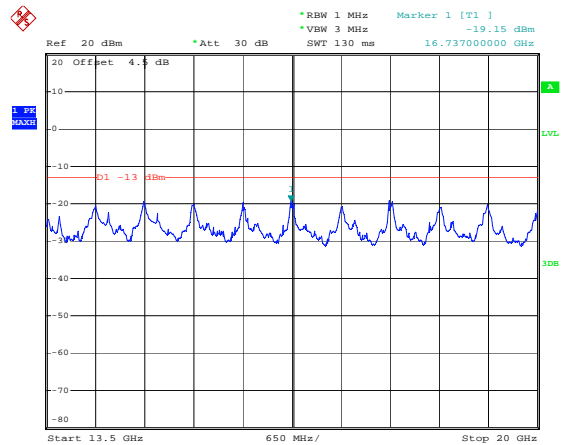
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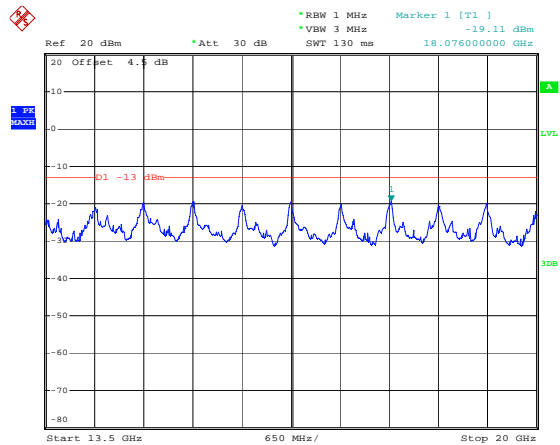
Date: 12.NOV.2020 09:59:53



Date: 12.NOV.2020 10:00:40

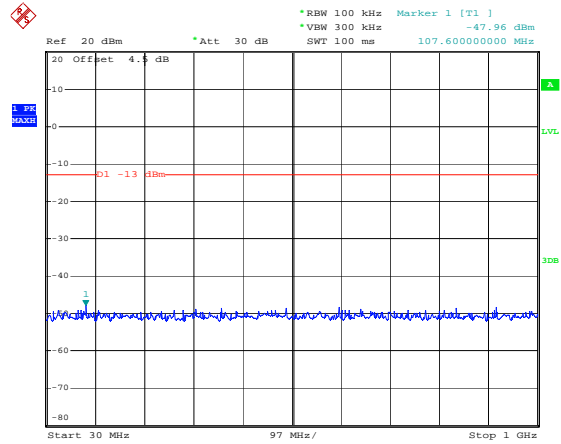


Date: 12.NOV.2020 10:00:06



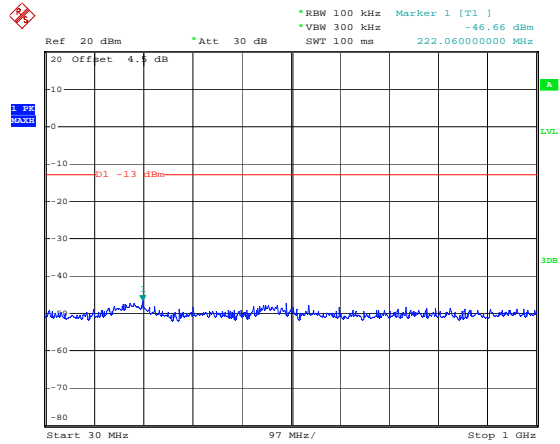
Date: 12.NOV.2020 10:00:53

15M, QPSK, Low Channel

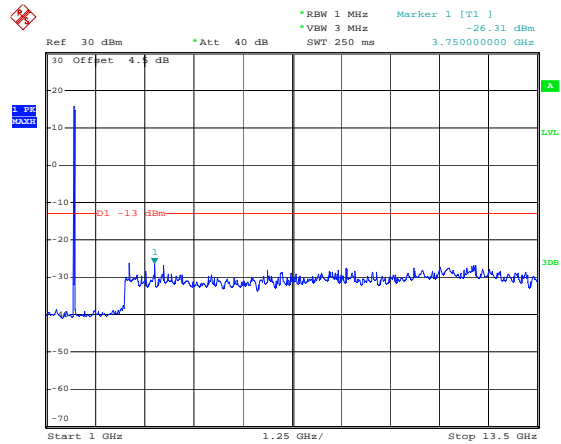


Date: 12.NOV.2020 10:01:16

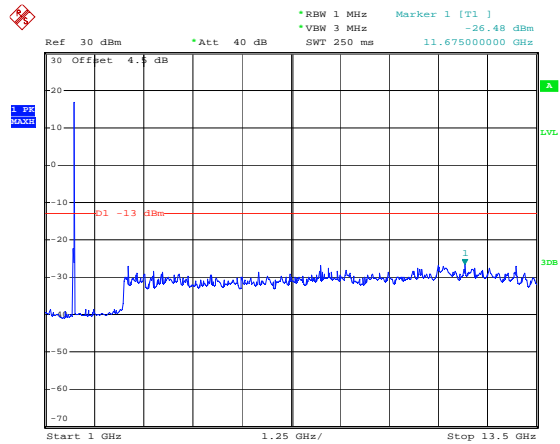
15M, QPSK, Middle Channel



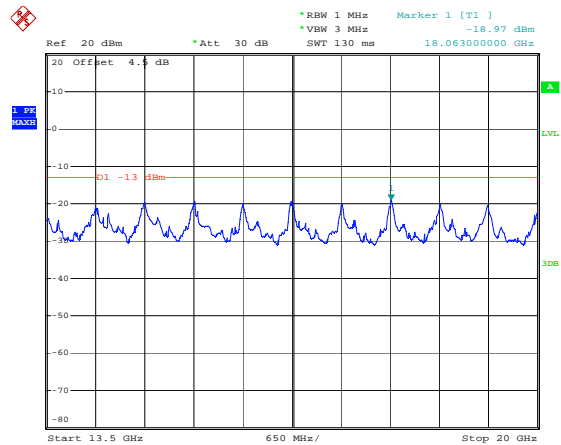
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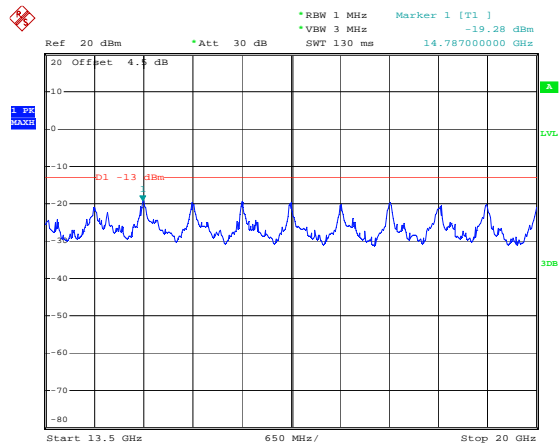
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Date: 12.NOV.2020 10:02:15

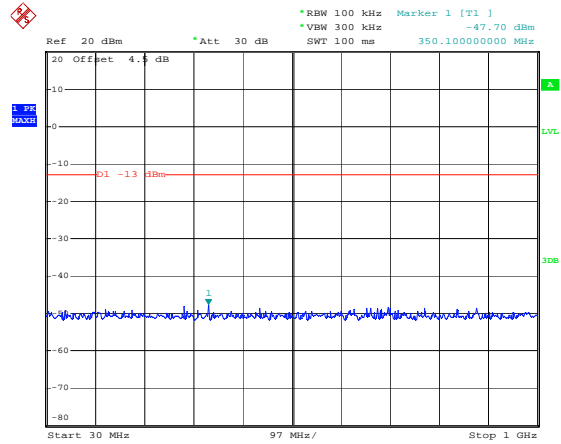


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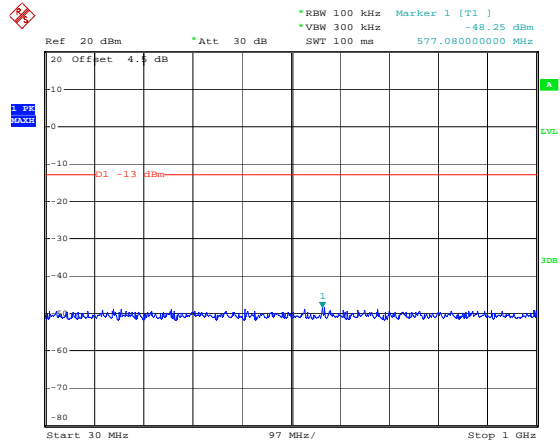
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15M, QPSK, High Channel

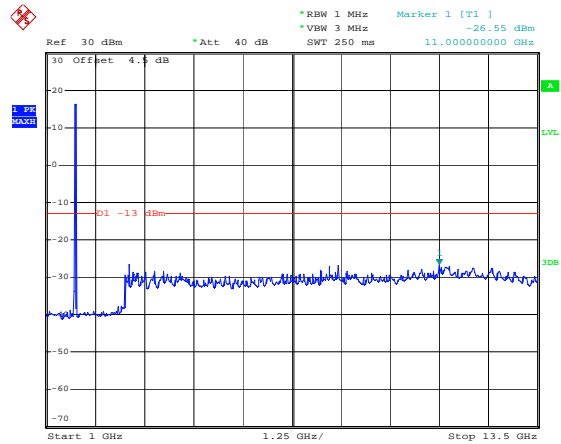


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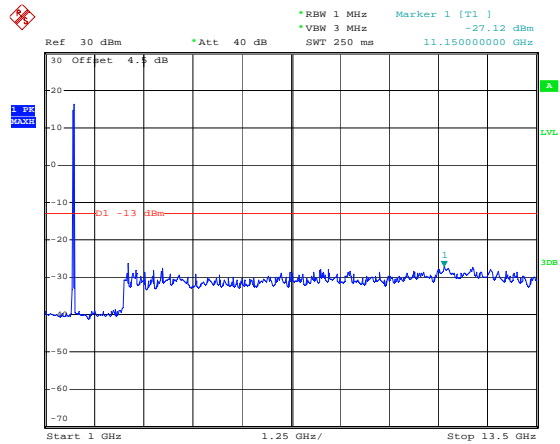
20M, QPSK, Low Channel



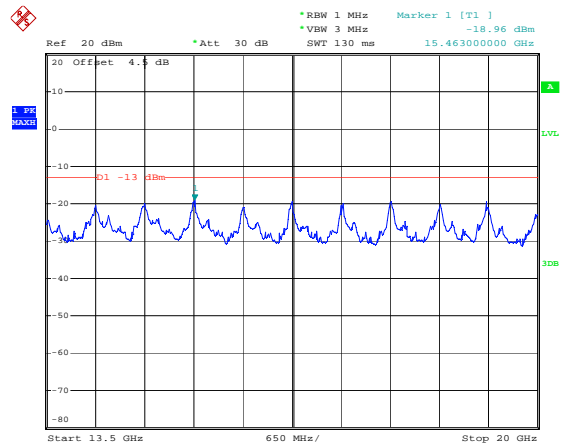
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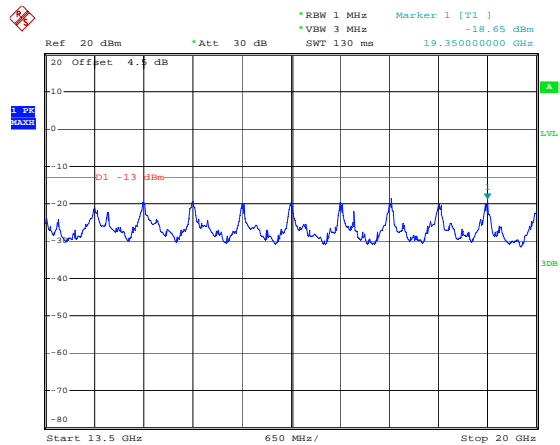
Date: 12.NOV.2020 10:03:04



Date: 12.NOV.2020 10:03:57

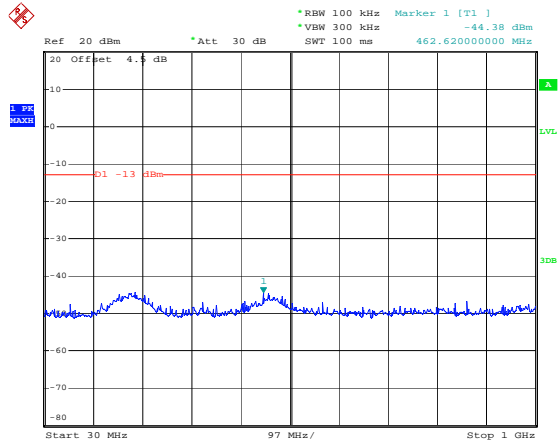


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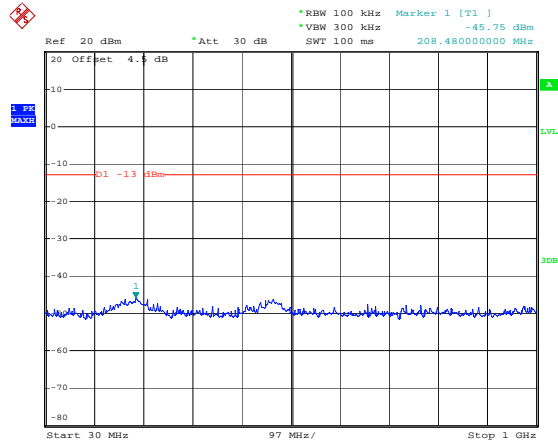
Date: 12.NOV.2020 10:04:09

20M, QPSK, Middle Channel

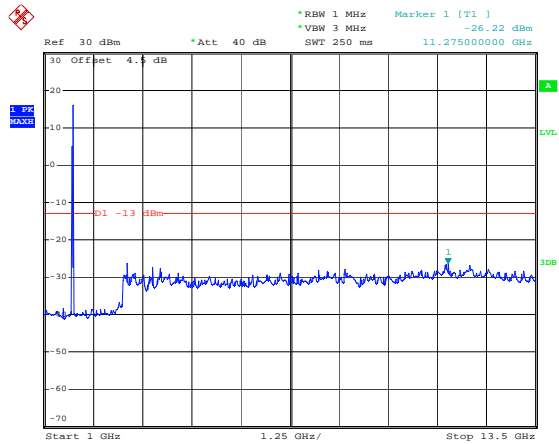


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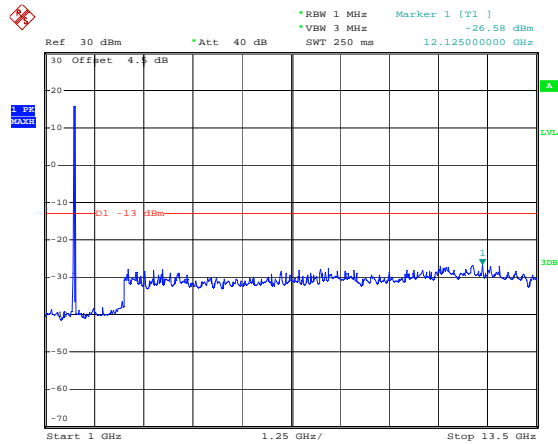
20M, QPSK, High Channel



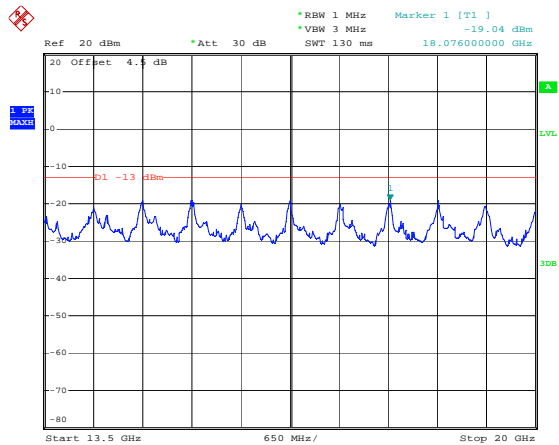
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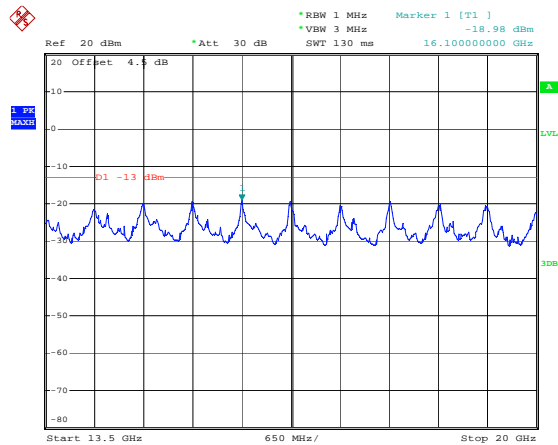
Date: 12.NOV.2020 10:04:46



Date: 12.NOV.2020 10:05:35



Date: 12.NOV.2020 10:04:59



Date: 12.NOV.2020 10:05:48

FCC §2.1053, §22.917 & §24.238 & §27.53- SPURIOUS RADIATED EMISSIONS

Applicable Standard

FCC § 2.1053, §22.917, § 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
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	2019-12-10	2020-12-10
ETS-Lindgren	Horn Antenna	3115	000 527 35	2018-10-12	2021-10-12
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-01 1304	2017-12-06	2020-12-05
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
Unknown	Coaxial Cable	C-2.4J2.4J-50	C-0700-02	2020-06-27	2021-06-27
Mini-Circuit	Amplifier	ZVA-213-S+	54201245	2020-09-05	2021-09-05
Quinstar	Amplifier	QLW-18405536-JO	15964001001	2020-06-27	2021-06-27
TDK RF	Horn Antenna	HRN-0118	130 084	2018-10-12	2021-10-12
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-02 1304	2017-12-06	2020-12-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2020-09-05	2021-09-05
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:	27.4°C	26.9°C
Relative Humidity:	41 %	27 %
ATM Pressure:	101 kPa	101.9 kPa
Tester:	Asa Chen	Bond Qin
Test Date:	2020-11-10	2020-11-29

Test Result: Compliance.

EUT Operation Mode: Transmitting

Cellular Band (PART 22H)

30 MHz-10 GHz:

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)			
GSM850 Frequency:824.2MHz								
1648.40	H	54.64	-49.54	10.44	0.71	-39.81	-13.00	26.81
1648.40	V	53.87	-50.91	10.44	0.71	-41.18	-13.00	28.18
2472.60	H	45.55	-57.23	12.88	1.25	-45.60	-13.00	32.60
2472.60	V	44.88	-57.95	12.88	1.25	-46.32	-13.00	33.32
3296.80	H	46.26	-53.52	13.60	1.59	-41.51	-13.00	28.51
3296.80	V	43.45	-56.34	13.60	1.59	-44.33	-13.00	31.33
652.74	H	35.88	-65.74	0.00	0.37	-66.11	-13.00	53.11
573.20	V	36.98	-63.76	0.00	0.36	-64.12	-13.00	51.12
GSM850 Frequency:836.6MHz								
1673.20	H	53.27	-50.67	10.61	0.73	-40.79	-13.00	27.79
1673.20	V	50.10	-54.44	10.61	0.73	-44.56	-13.00	31.56
2509.80	H	47.73	-55.18	13.11	1.25	-43.32	-13.00	30.32
2509.80	V	46.39	-56.55	13.11	1.25	-44.69	-13.00	31.69
3346.40	H	44.71	-54.97	13.83	1.61	-42.75	-13.00	29.75
3346.40	V	42.66	-57.06	13.83	1.61	-44.84	-13.00	31.84
526.64	H	36.35	-68.27	0.00	0.35	-68.62	-13.00	55.62
681.84	V	35.40	-62.58	0.00	0.38	-62.96	-13.00	49.96
GSM850 Frequency:848.8MHz								
1697.60	H	51.85	-51.85	10.78	0.75	-41.82	-13.00	28.82
1697.60	V	49.05	-55.25	10.78	0.75	-45.22	-13.00	32.22
2546.40	H	45.79	-57.16	13.15	1.27	-45.28	-13.00	32.28
2546.40	V	44.36	-58.73	13.15	1.27	-46.85	-13.00	33.85
3395.20	H	43.15	-56.37	14.08	1.64	-43.93	-13.00	30.93
3395.20	V	40.74	-58.88	14.08	1.64	-46.44	-13.00	33.44
625.58	H	36.89	-65.15	0.00	0.37	-65.52	-13.00	52.52
672.14	V	35.98	-62.24	0.00	0.37	-62.61	-13.00	49.61

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)			
WCDMA Band 5 Frequency:826.4 MHz								
1652.80	H	44.32	-59.81	10.47	0.72	-50.06	-13.00	37.06
1652.80	V	42.39	-62.34	10.47	0.72	-52.59	-13.00	39.59
2479.20	H	39.55	-63.26	12.93	1.25	-51.58	-13.00	38.58
2479.20	V	39.63	-63.22	12.93	1.25	-51.54	-13.00	38.54
3305.60	H	42.20	-57.60	13.63	1.59	-45.56	-13.00	32.56
3305.60	V	41.14	-58.67	13.63	1.59	-46.63	-13.00	33.63
589.64	H	36.98	-65.76	0.00	0.36	-66.12	-13.00	53.12
628.58	V	36.54	-62.76	0.00	0.37	-63.13	-13.00	50.13
WCDMA Band 5 Frequency:836.6MHz								
1673.20	H	41.92	-62.02	10.61	0.73	-52.14	-13.00	39.14
1673.20	V	40.78	-63.76	10.61	0.73	-53.88	-13.00	40.88
2509.80	H	40.12	-62.79	13.11	1.25	-50.93	-13.00	37.93
2509.80	V	40.66	-62.28	13.11	1.25	-50.42	-13.00	37.42
3346.40	H	40.75	-58.93	13.83	1.61	-46.71	-13.00	33.71
3346.40	V	40.74	-58.98	13.83	1.61	-46.76	-13.00	33.76
590.66	H	36.54	-66.17	0.00	0.36	-66.53	-13.00	53.53
656.62	V	36.24	-62.37	0.00	0.37	-62.74	-13.00	49.74
WCDMA Band 5 Frequency:846.6MHz								
1693.20	H	41.53	-62.22	10.75	0.75	-52.22	-13.00	39.22
1693.20	V	41.18	-63.17	10.75	0.75	-53.17	-13.00	40.17
2539.80	H	39.99	-62.95	13.14	1.27	-51.08	-13.00	38.08
2539.80	V	40.38	-62.68	13.14	1.27	-50.81	-13.00	37.81
3386.40	H	40.38	-59.17	14.03	1.63	-46.77	-13.00	33.77
3386.40	V	39.97	-59.67	14.03	1.63	-47.27	-13.00	34.27
650.80	H	36.25	-65.40	0.00	0.37	-65.77	-13.00	52.77
672.14	V	36.08	-62.14	0.00	0.37	-62.51	-13.00	49.51

PCS Band (PART 24E)**30 MHz-20 GHz:**

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)			
GSM1900 Frequency:1850.2MHz								
3700.40	H	39.25	-58.74	14.00	1.83	-46.57	-13.00	33.57
3700.40	V	38.10	-59.87	14.00	1.83	-47.70	-13.00	34.70
5550.60	H	38.87	-55.10	13.95	1.27	-42.42	-13.00	29.42
5550.60	V	37.56	-56.26	13.95	1.27	-43.58	-13.00	30.58
530.52	H	36.52	-67.98	0.00	0.35	-68.33	-13.00	55.33
547.98	V	36.98	-64.44	0.00	0.35	-64.79	-13.00	51.79
GSM 1900 Frequency:1880MHz								
3760.00	H	39.36	-58.28	13.76	1.63	-46.15	-13.00	33.15
3760.00	V	37.23	-60.27	13.76	1.63	-48.14	-13.00	35.14
5640.00	H	38.23	-55.36	14.02	1.31	-42.65	-13.00	29.65
5640.00	V	37.26	-56.22	14.02	1.31	-43.51	-13.00	30.51
627.52	H	35.29	-66.72	0.00	0.37	-67.09	-13.00	54.09
641.10	V	35.83	-63.16	0.00	0.37	-63.53	-13.00	50.53
GSM 1900 Frequency:1909.8MHz								
3819.60	H	39.45	-57.80	13.56	1.50	-45.74	-13.00	32.74
3819.60	V	38.01	-59.06	13.56	1.50	-47.00	-13.00	34.00
5729.40	H	38.20	-55.51	13.96	1.31	-42.86	-13.00	29.86
5729.40	V	37.03	-56.65	13.96	1.31	-44.00	-13.00	31.00
582.90	H	35.68	-67.26	0.00	0.36	-67.62	-13.00	54.62
476.20	V	35.96	-67.10	0.00	0.36	-67.46	-13.00	54.46

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)			
WCDMA Band II, Frequency:1852.4 MHz								
3704.80	H	39.87	-58.09	13.98	1.81	-45.92	-13.00	32.92
3704.80	V	39.81	-58.12	13.98	1.81	-45.95	-13.00	32.95
5557.20	H	38.83	-55.06	13.97	1.27	-42.36	-13.00	29.36
5557.20	V	41.52	-52.22	13.97	1.27	-39.52	-13.00	26.52
643.04	H	36.03	-65.74	0.00	0.37	-66.11	-13.00	53.11
664.38	V	37.44	-60.97	0.00	0.37	-61.34	-13.00	48.34
WCDMA Band II, Frequency:1880 MHz								
3760.00	H	38.76	-58.88	13.76	1.63	-46.75	-13.00	33.75
3760.00	V	39.48	-58.02	13.76	1.63	-45.89	-13.00	32.89
5640.00	H	37.60	-55.99	14.02	1.31	-43.28	-13.00	30.28
5640.00	V	41.36	-52.12	14.02	1.31	-39.41	-13.00	26.41
499.48	H	36.29	-69.13	0.00	0.35	-69.48	-13.00	56.48
631.40	V	35.85	-63.38	0.00	0.37	-63.75	-13.00	50.75
WCDMA Band II, Frequency:1907.6MHz								
3815.20	H	40.81	-56.47	13.57	1.50	-44.40	-13.00	31.40
3815.20	V	40.36	-56.74	13.57	1.50	-44.67	-13.00	31.67
5722.80	H	41.20	-52.56	13.95	1.32	-39.93	-13.00	26.93
5722.80	V	44.33	-49.39	13.95	1.32	-36.76	-13.00	23.76
641.10	H	35.88	-65.92	0.00	0.37	-66.29	-13.00	53.29
594.54	V	35.87	-64.29	0.00	0.36	-64.65	-13.00	51.65

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

LTE Band 2 (30MHz-20GHz):

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: 1850.7 MHz								
3701.40	H	40.84	-57.14	13.99	1.83	-44.98	-13.00	31.98
3701.40	V	41.39	-56.57	13.99	1.83	-44.41	-13.00	31.41
5552.10	H	40.39	-53.56	13.96	1.27	-40.87	-13.00	27.87
5552.10	V	45.56	-48.24	13.96	1.27	-35.55	-13.00	22.55
602.30	H	36.56	-65.83	0.00	0.36	-66.19	-13.00	53.19
580.96	V	35.89	-64.64	0.00	0.36	-65.00	-13.00	52.00
QPSK, Frequency: 1880 MHz								
3760.00	H	39.61	-58.03	13.76	1.63	-45.90	-13.00	32.90
3760.00	V	40.23	-57.27	13.76	1.63	-45.14	-13.00	32.14
5640.00	H	44.96	-48.63	14.02	1.31	-35.92	-13.00	22.92
5640.00	V	49.78	-43.70	14.02	1.31	-30.99	-13.00	17.99
617.82	H	35.83	-66.33	0.00	0.36	-66.69	-13.00	53.69
631.40	V	35.91	-63.32	0.00	0.37	-63.69	-13.00	50.69
QPSK, Frequency: 1909.3 MHz								
3818.60	H	43.59	-53.67	13.56	1.50	-41.61	-13.00	28.61
3818.60	V	43.17	-53.90	13.56	1.50	-41.84	-13.00	28.84
5727.90	H	45.52	-48.20	13.96	1.31	-35.55	-13.00	22.55
5727.90	V	48.64	-45.05	13.96	1.31	-32.40	-13.00	19.40
656.62	H	36.85	-64.71	0.00	0.37	-65.08	-13.00	52.08
586.78	V	36.67	-63.70	0.00	0.36	-64.06	-13.00	51.06

LTE Band 4 (30MHz-20GHz):

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: 1710.7 MHz								
3421.40	H	47.56	-51.84	14.04	1.63	-39.43	-13.00	26.43
3421.40	V	44.23	-55.25	14.04	1.63	-42.84	-13.00	29.84
5132.10	H	41.86	-52.82	13.93	1.37	-40.26	-13.00	27.26
5132.10	V	45.10	-49.49	13.93	1.37	-36.93	-13.00	23.93
685.72	H	36.85	-64.27	0.00	0.38	-64.65	-13.00	51.65
561.56	V	36.52	-64.53	0.00	0.36	-64.89	-13.00	51.89
QPSK, Frequency: 1732.5 MHz								
3465.00	H	44.36	-54.83	13.91	1.62	-42.54	-13.00	29.54
3465.00	V	43.39	-55.83	13.91	1.62	-43.54	-13.00	30.54
5197.50	H	37.63	-57.06	14.00	1.52	-44.58	-13.00	31.58
5197.50	V	41.12	-53.64	14.00	1.52	-41.16	-13.00	28.16
643.04	H	36.85	-64.92	0.00	0.37	-65.29	-13.00	52.29
573.20	V	35.69	-65.05	0.00	0.36	-65.41	-13.00	52.41
QPSK, Frequency: 1754.3 MHz								
3508.60	H	50.66	-48.35	13.83	1.60	-36.12	-13.00	23.12
3508.60	V	46.94	-52.07	13.83	1.60	-39.84	-13.00	26.84
5262.90	H	47.55	-47.54	14.19	1.29	-34.64	-13.00	21.64
5262.90	V	40.67	-54.50	14.19	1.29	-41.60	-13.00	28.60
547.98	H	36.28	-67.70	0.00	0.35	-68.05	-13.00	55.05
600.36	V	36.32	-63.68	0.00	0.36	-64.04	-13.00	51.04

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 §22.917(a) & §24.238(a) & §27.53 - BAND EDGES

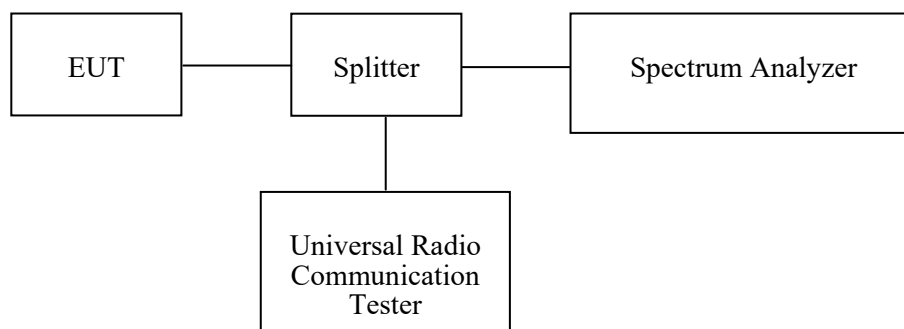
Applicable Standard

FCC § 2.1053, §22.917, § 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
R&S	Spectrum Analyzer	FSP 38	100478	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

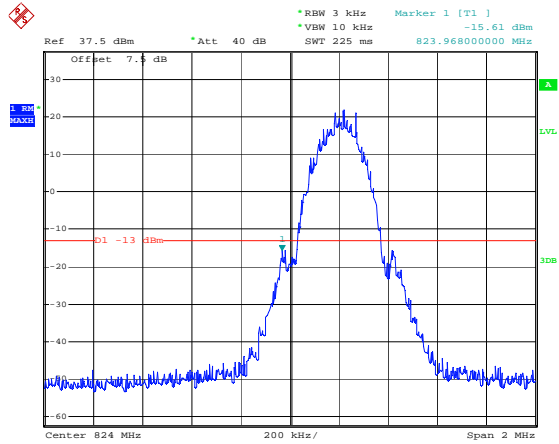
Environmental Conditions

Temperature:	25.4~26.3 °C
Relative Humidity:	35~41%
ATM Pressure:	101~101.9kPa
Tester:	Theshy Xie
Test Date:	2020-11-09~2020-11-17

Test Mode: Transmitting

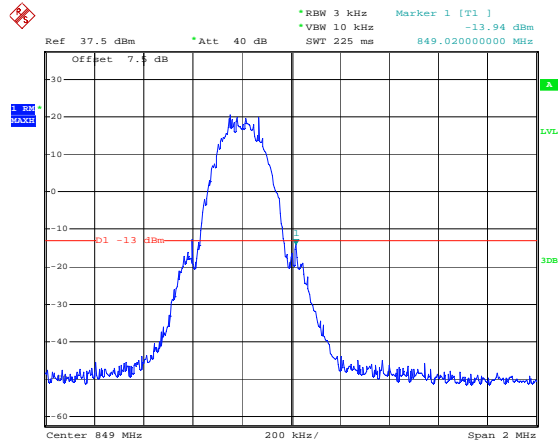
Test Result: Compliance. Please refer to the following plots.

GSM 850, Left Band Edge



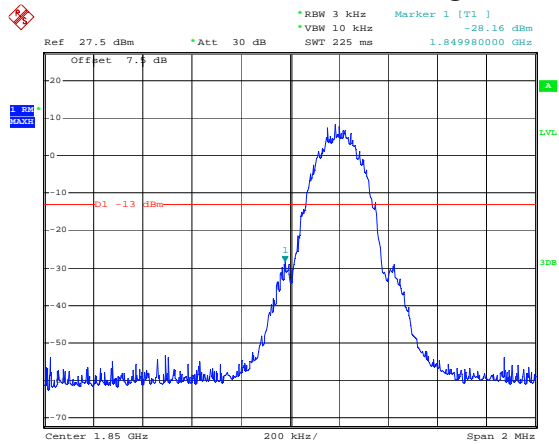
Date: 9.NOV.2020 15:30:55

GSM 850, Right Band Edge



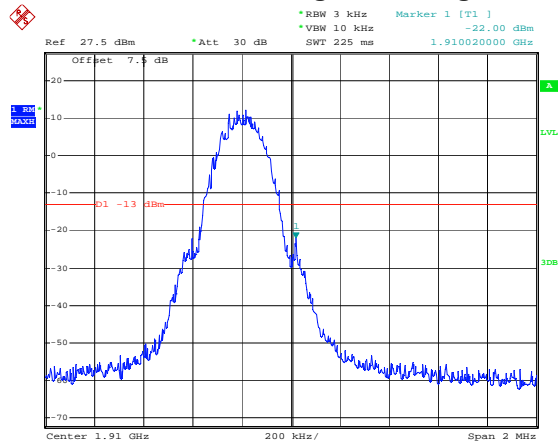
Date: 9.NOV.2020 15:32:54

PCS 1900, Left Band Edge



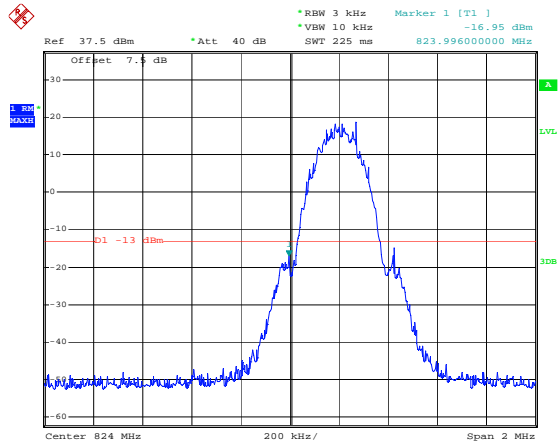
Date: 10.NOV.2020 09:49:25

PCS 1900, Right Band Edge



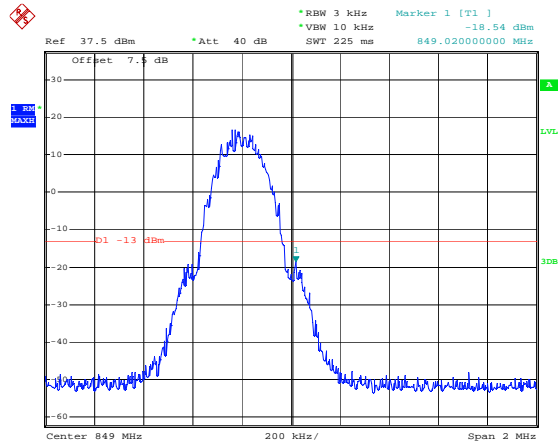
Date: 10.NOV.2020 09:51:21

EDGE 850, Left Band Edge



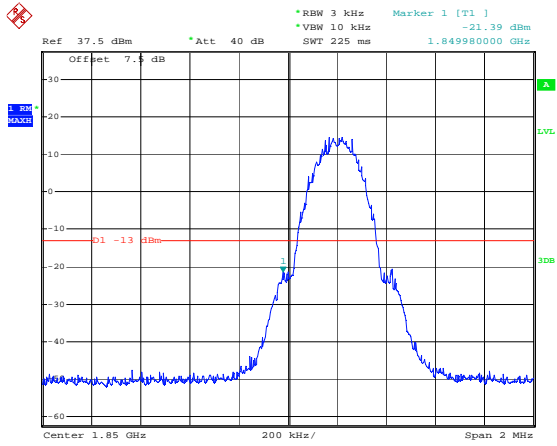
Date: 10.NOV.2020 10:38:47

EDGE 850, Right Band Edge



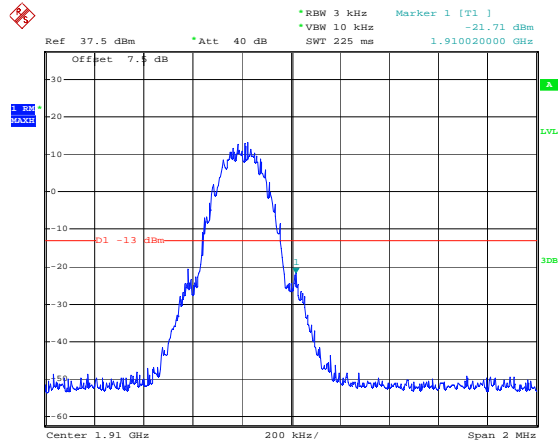
Date: 10.NOV.2020 10:39:40

EDGE 1900, Left Band Edge



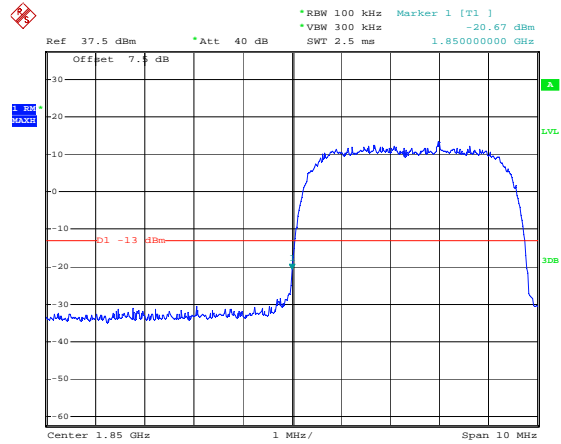
Date: 10.NOV.2020 15:47:08

EDGE 1900, Right Band Edge



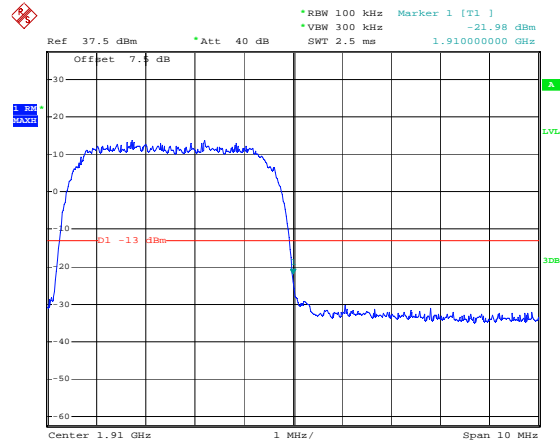
Date: 10.NOV.2020 15:48:13

WCDMA Band II,Rel99, Left Band Edge



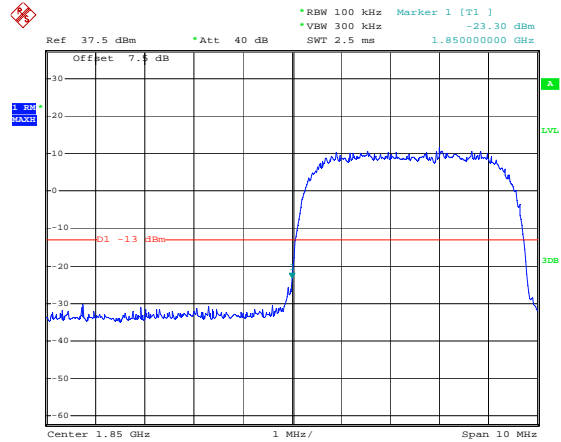
Date: 10.NOV.2020 12:32:40

WCDMA Band II,Rel99, Right Band Edge



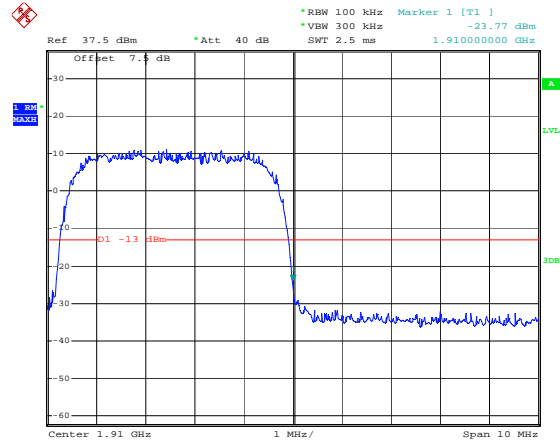
Date: 10.NOV.2020 12:34:12

WCDMA Band II,HSDPA, Left Band Edge



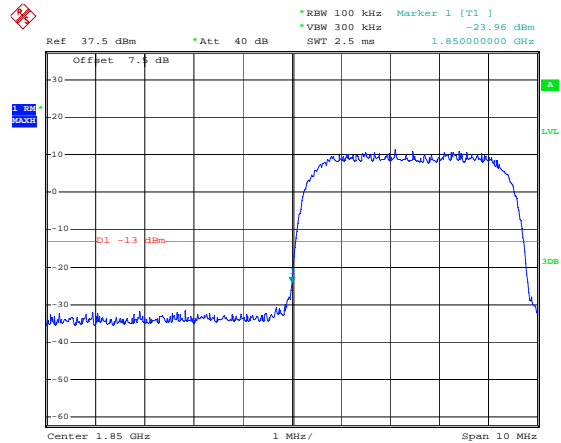
Date: 10.NOV.2020 14:25:03

WCDMA Band II,HSDPA,Right Band Edge



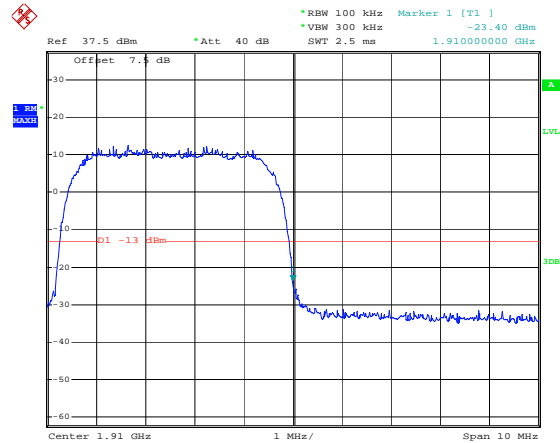
Date: 10.NOV.2020 14:42:18

WCDMA Band II,HSUPA, Left Band Edge



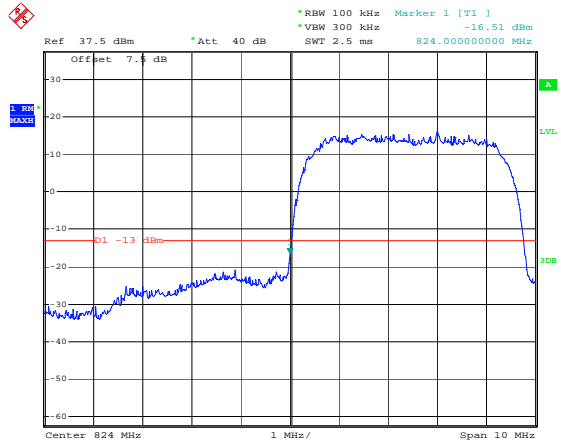
Date: 10.NOV.2020 14:57:43

WCDMA Band II,HSUPA, Right Band Edge



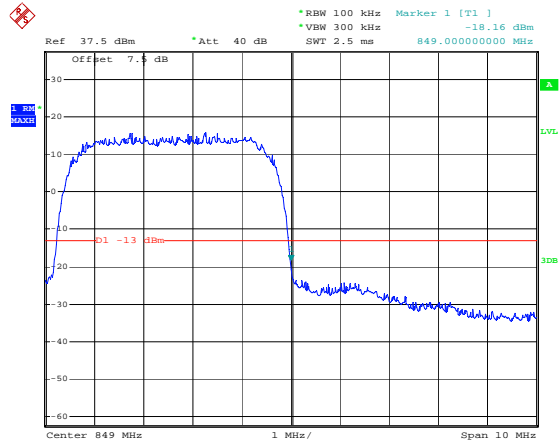
Date: 10.NOV.2020 14:59:17

WCDMA Band V,Rel99, Left Band Edge



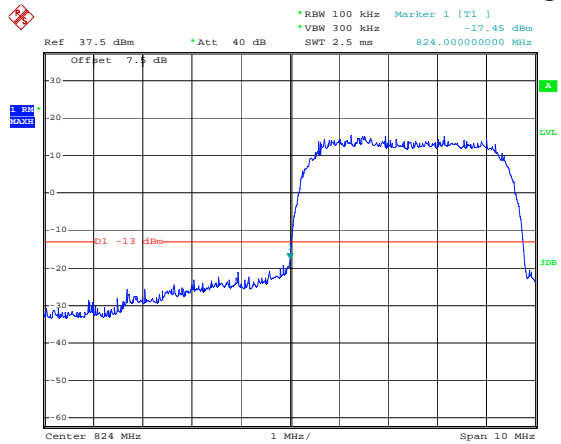
Date: 10.NOV.2020 12:36:34

WCDMA Band V,Rel99, Right Band Edge



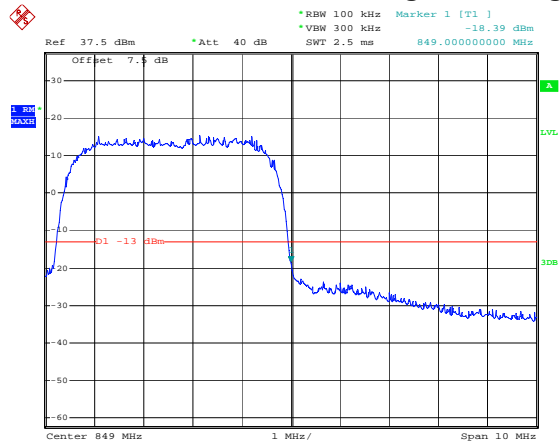
Date: 10.NOV.2020 12:37:33

WCDMA Band V,HSDPA, Left Band Edge



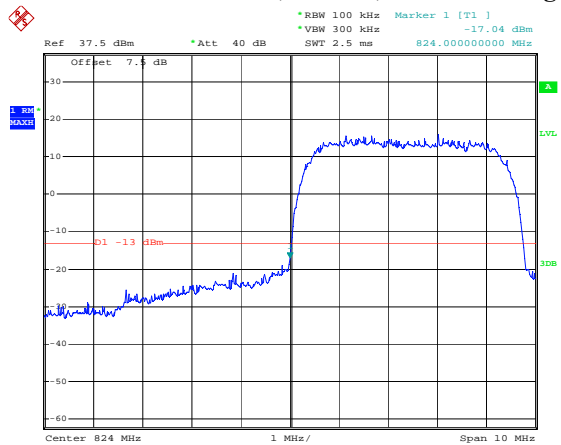
Date: 10.NOV.2020 14:21:57

WCDMA Band V,HSDPA, Right Band Edge



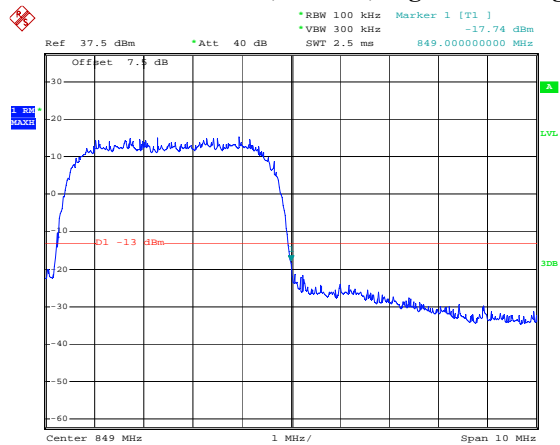
Date: 10.NOV.2020 14:20:02

WCDMA Band V,HSUPA, Left Band Edge



Date: 10.NOV.2020 15:00:57

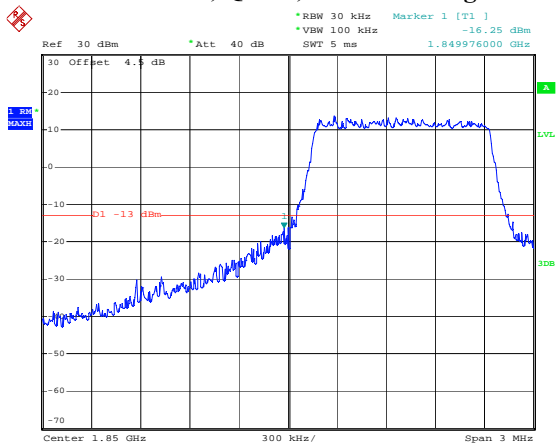
WCDMA Band V,HSUPA, Right Band Edge



Date: 10.NOV.2020 15:01:46

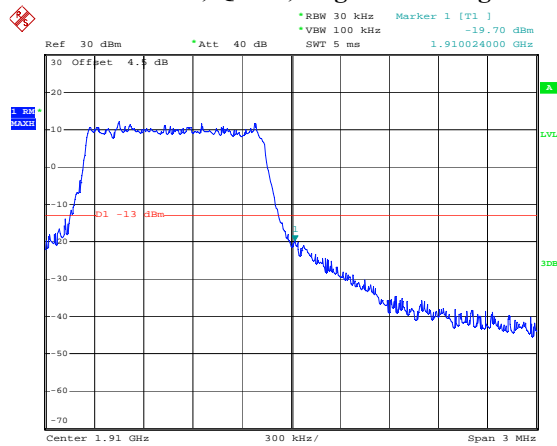
LTE Band 2:

1.4M, QPSK, Left Band Edge



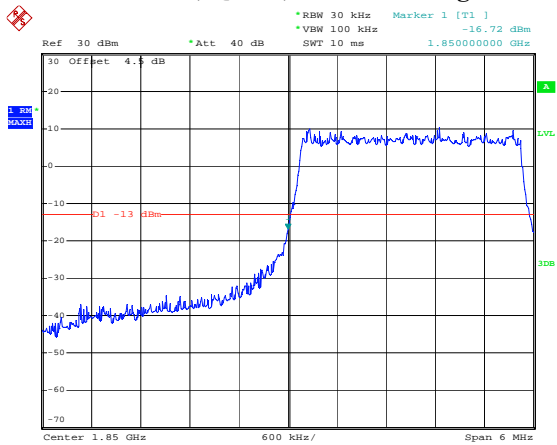
Date: 12.NOV.2020 10:25:34

1.4M, QPSK, Right Band Edge



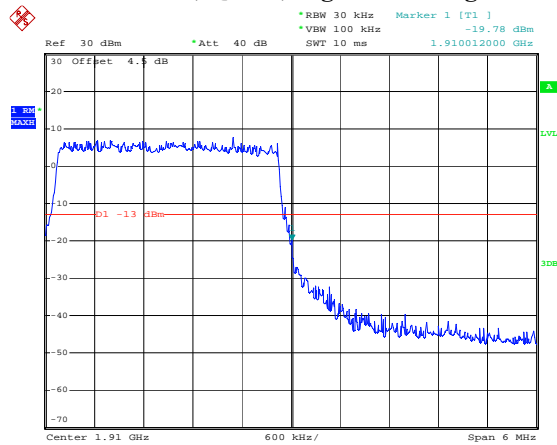
Date: 12.NOV.2020 10:26:18

3M, QPSK, Left Band Edge



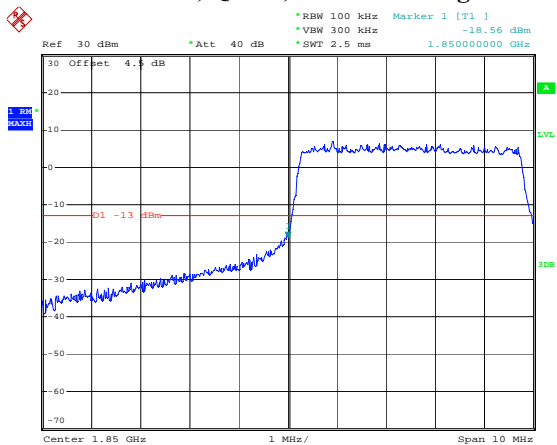
Date: 12.NOV.2020 10:27:04

3M, QPSK, Right Band Edge



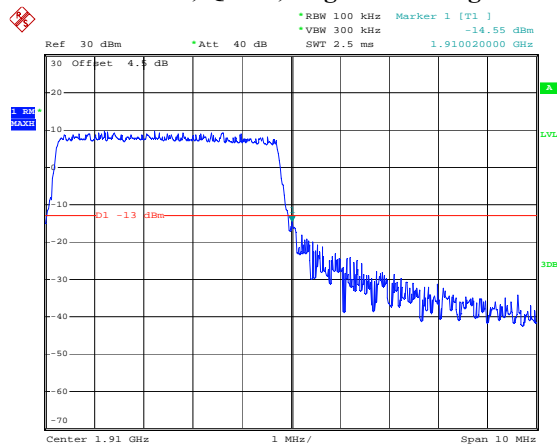
Date: 12.NOV.2020 10:27:45

5M, QPSK, Left Band Edge



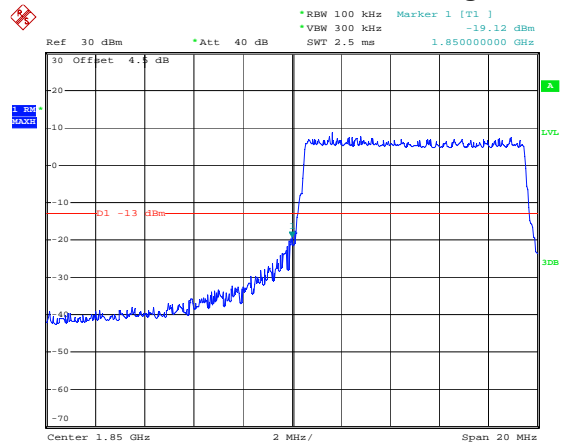
Date: 17.NOV.2020 15:26:56

5M, QPSK, Right Band Edge



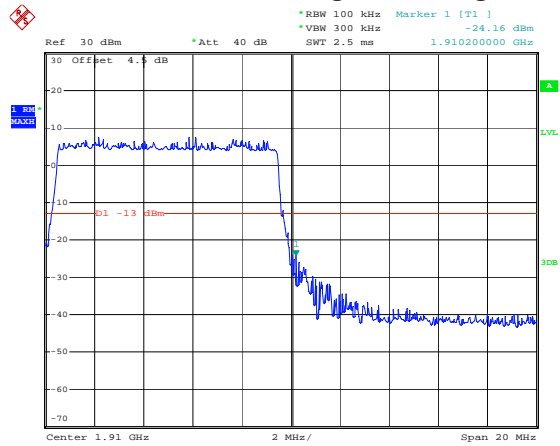
Date: 12.NOV.2020 10:31:47

10M, QPSK, Left Band Edge



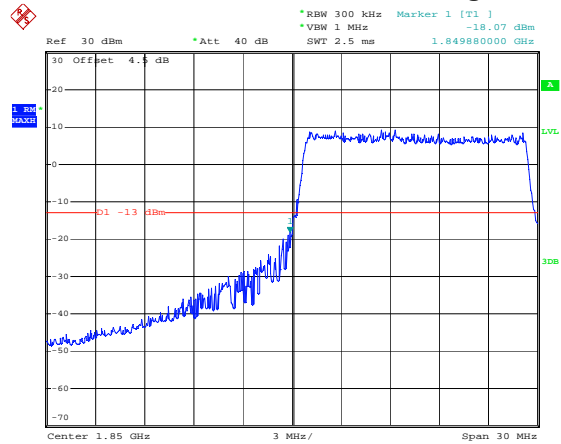
Date: 12.NOV.2020 10:32:40

10M, QPSK, Right Band Edge



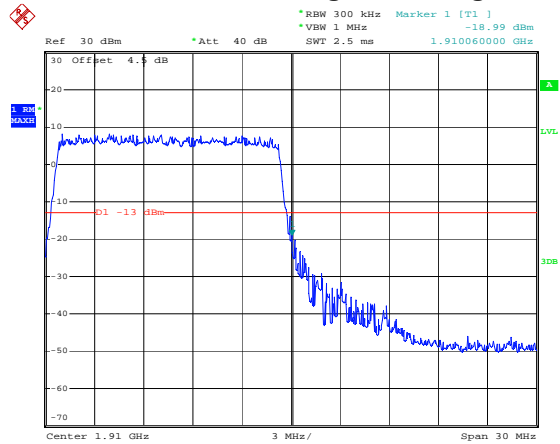
Date: 12.NOV.2020 10:33:26

15M, QPSK, Left Band Edge



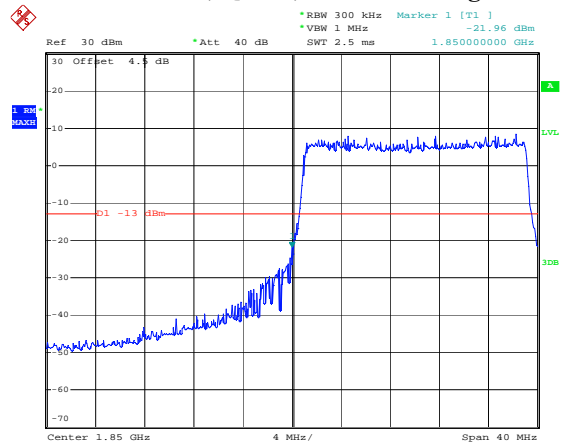
Date: 12.NOV.2020 10:34:17

15M, QPSK, Right Band Edge



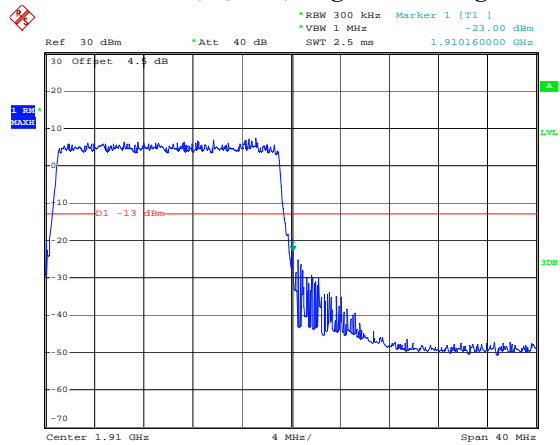
Date: 12.NOV.2020 10:35:08

20M, QPSK, Left Band Edge



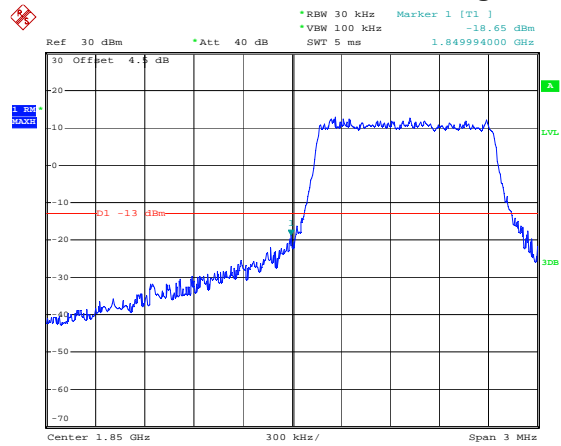
Date: 12.NOV.2020 10:35:58

20M, QPSK, Right Band Edge



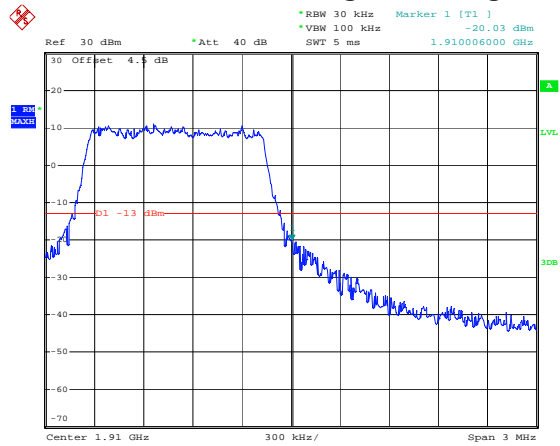
Date: 12.NOV.2020 10:36:45

1.4M, 16QAM, Left Band Edge



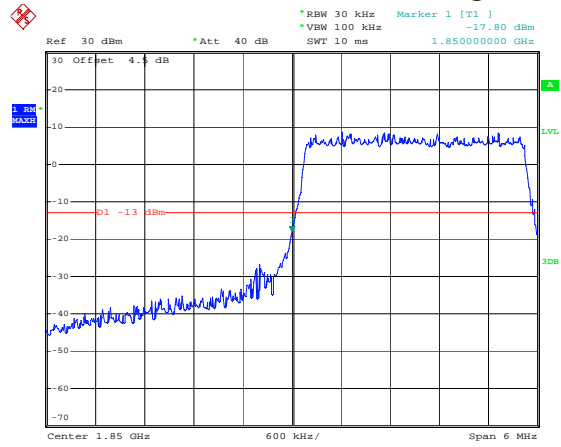
Date: 12.NOV.2020 10:25:54

1.4M, 16QAM, Right Band Edge



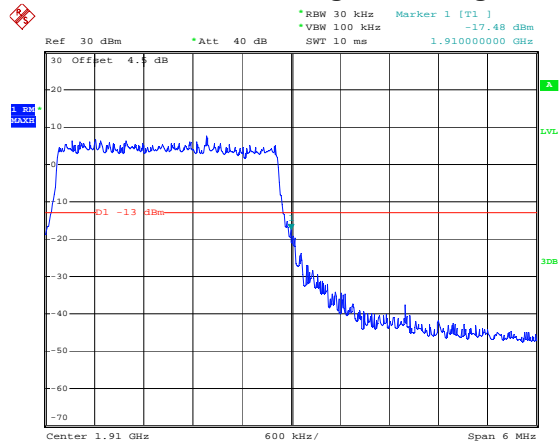
Date: 12.NOV.2020 10:26:41

3M, 16QAM, Left Band Edge



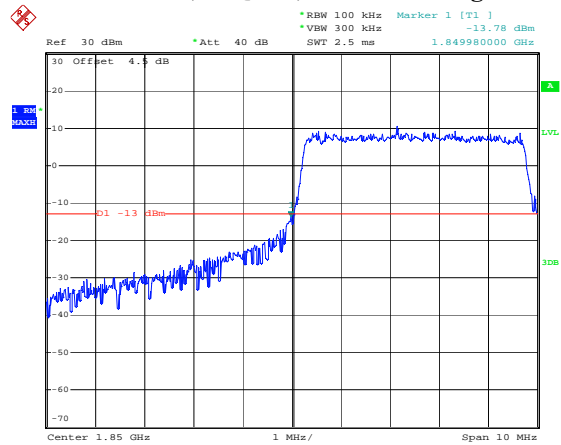
Date: 12.NOV.2020 10:27:24

3M, 16QAM, Right Band Edge



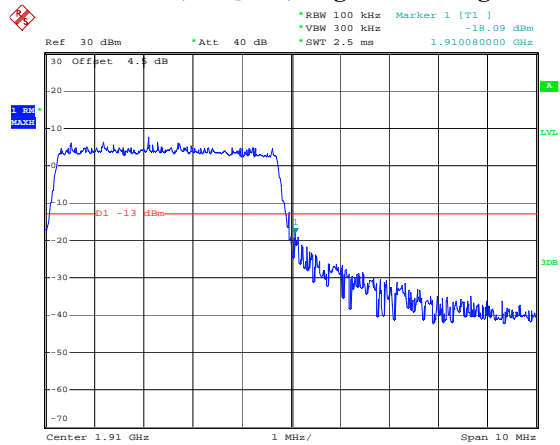
Date: 12.NOV.2020 10:28:05

5M, 16QAM, Left Band Edge



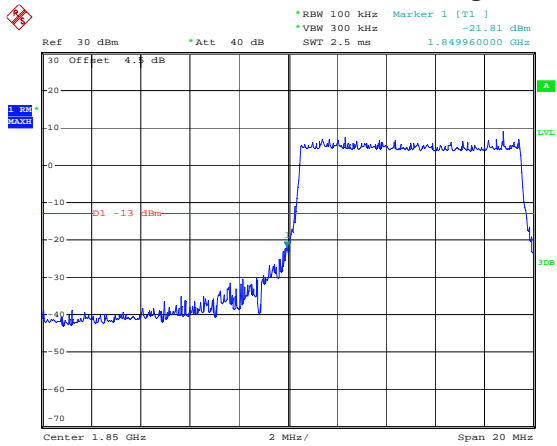
Date: 12.NOV.2020 10:29:01

5M, 16QAM, Right Band Edge



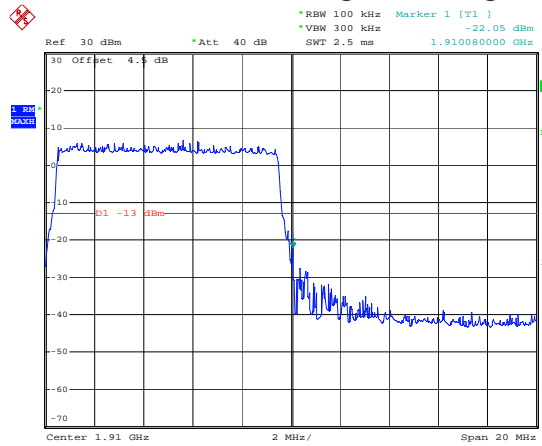
Date: 17.NOV.2020 15:32:27

10M, 16QAM, Left Band Edge



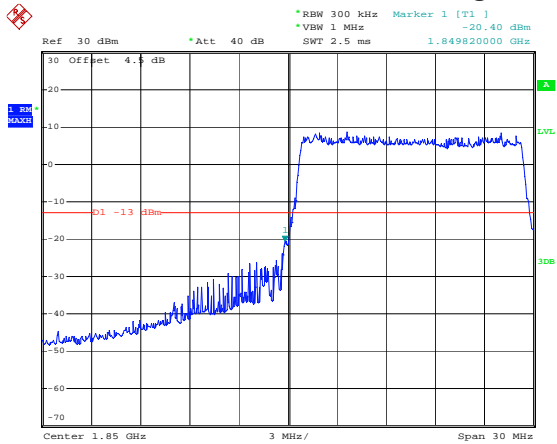
Date: 12.NOV.2020 10:33:01

10M, 16QAM, Right Band Edge



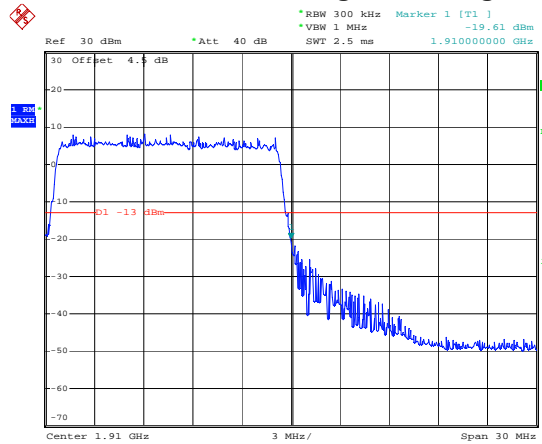
Date: 12.NOV.2020 10:33:48

15M, 16QAM, Left Band Edge



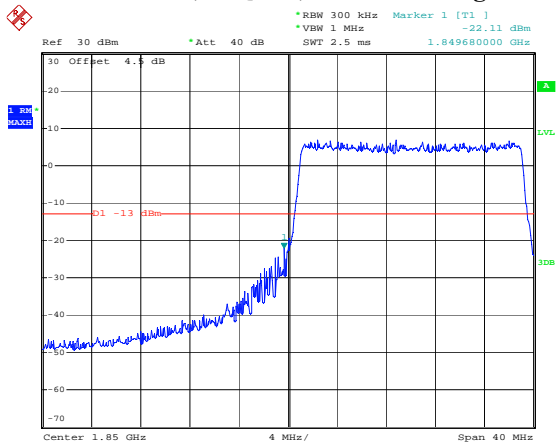
Date: 12.NOV.2020 10:34:44

15M, 16QAM, Right Band Edge



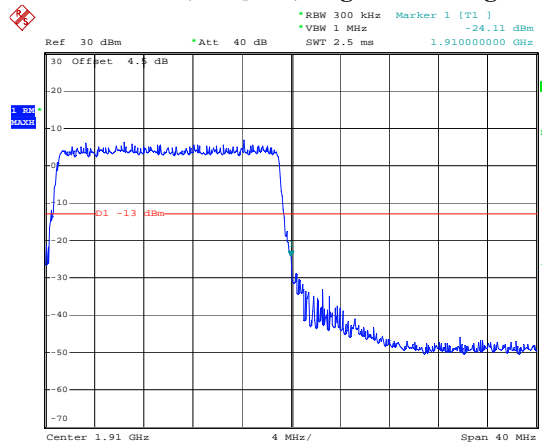
Date: 12.NOV.2020 10:35:35

20M, 16QAM, Left Band Edge



Date: 12.NOV.2020 10:36:24

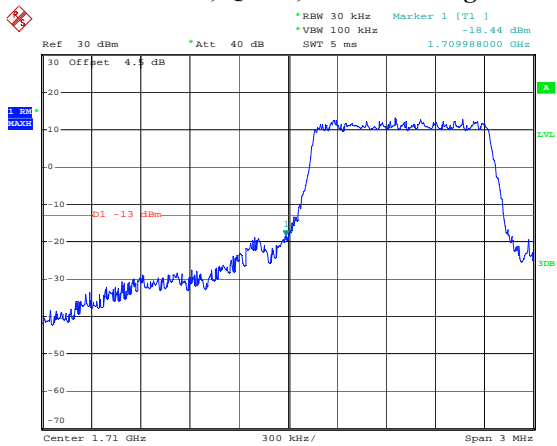
20M, 16QAM, Right Band Edge



Date: 12.NOV.2020 10:37:05

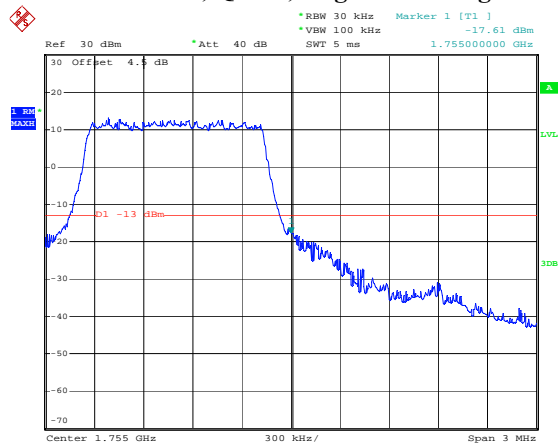
LTE Band 4:

1.4M, QPSK, Left Band Edge



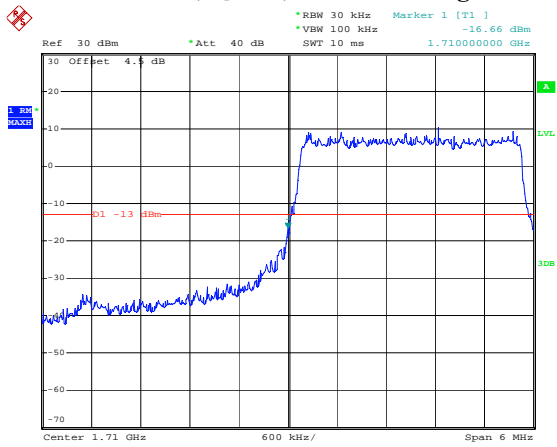
Date: 12.NOV.2020 10:37:31

1.4M, QPSK, Right Band Edge



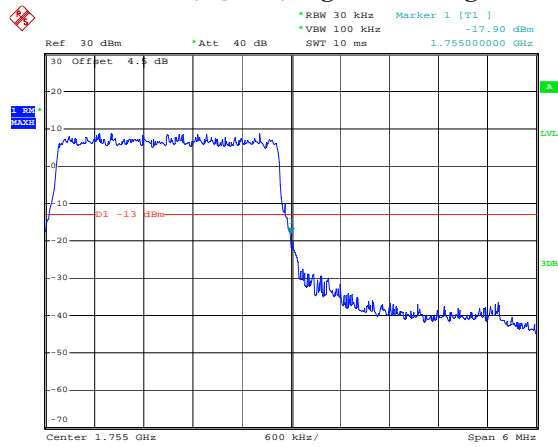
Date: 12.NOV.2020 10:38:15

3M, QPSK, Left Band Edge



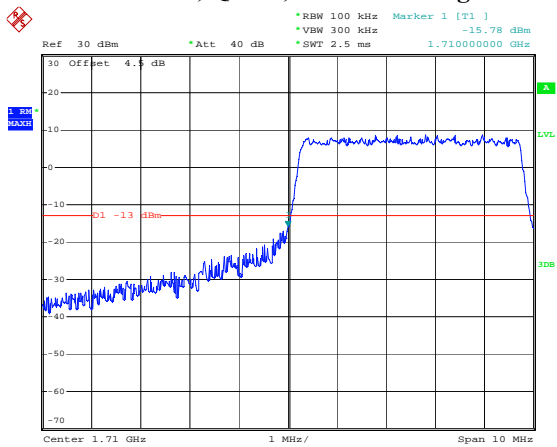
Date: 12.NOV.2020 10:38:58

3M, QPSK, Right Band Edge



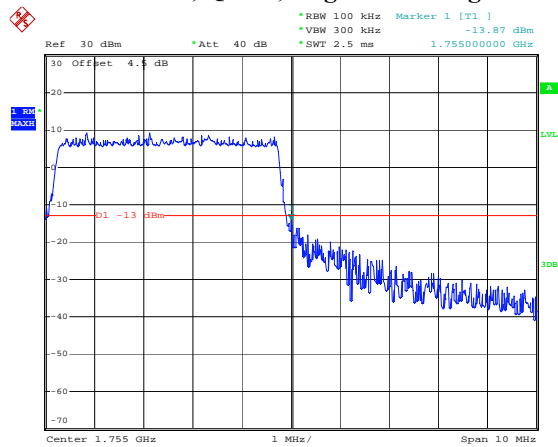
Date: 12.NOV.2020 10:39:39

5M, QPSK, Left Band Edge



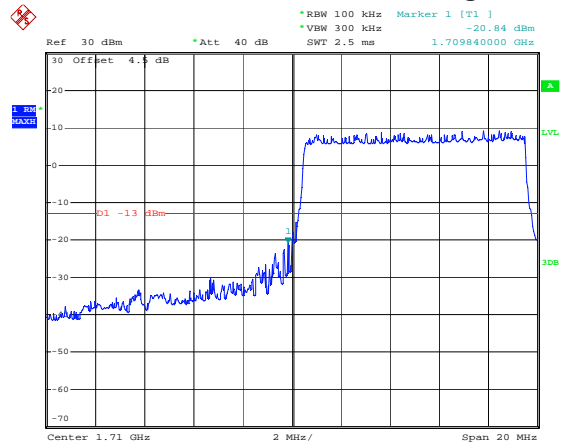
Date: 17.NOV.2020 15:34:40

5M, QPSK, Right Band Edge



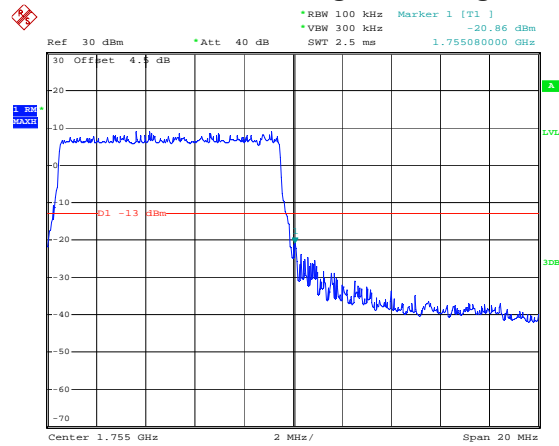
Date: 17.NOV.2020 15:44:40

10M, QPSK, Left Band Edge



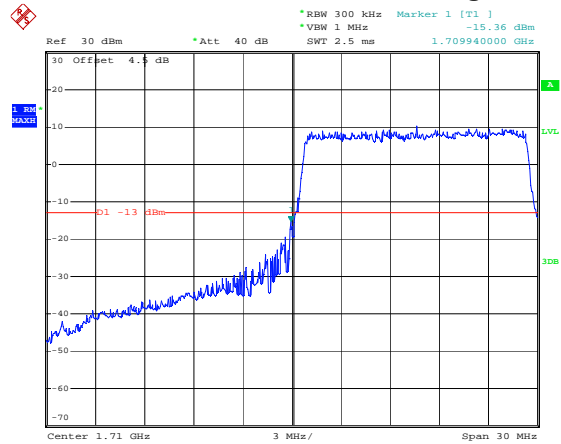
Date: 12.NOV.2020 10:42:03

10M, QPSK, Right Band Edge



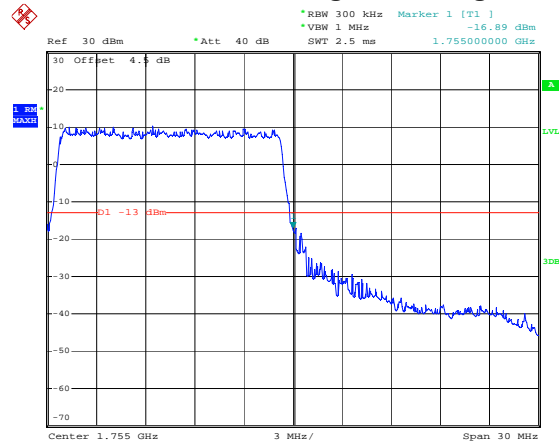
Date: 12.NOV.2020 10:42:46

15M, QPSK, Left Band Edge



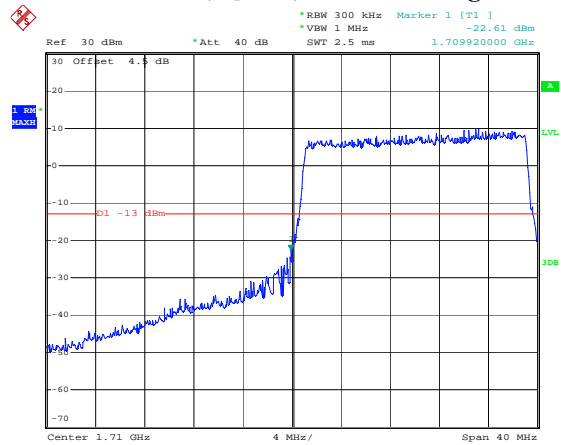
Date: 12.NOV.2020 10:43:34

15M, QPSK, Right Band Edge



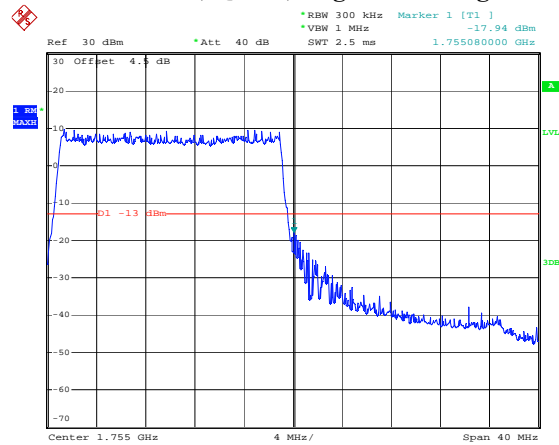
Date: 12.NOV.2020 10:44:25

20M, QPSK, Left Band Edge



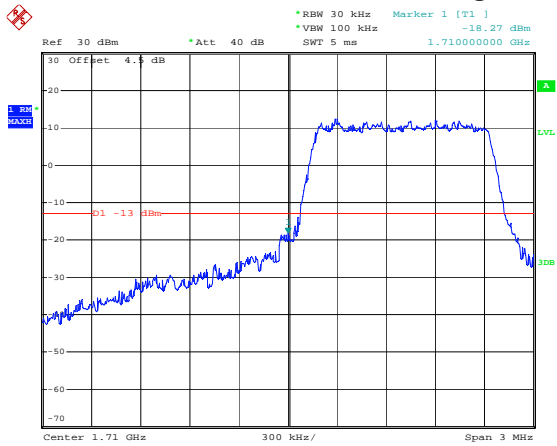
Date: 12.NOV.2020 10:45:15

20M, QPSK, Right Band Edge



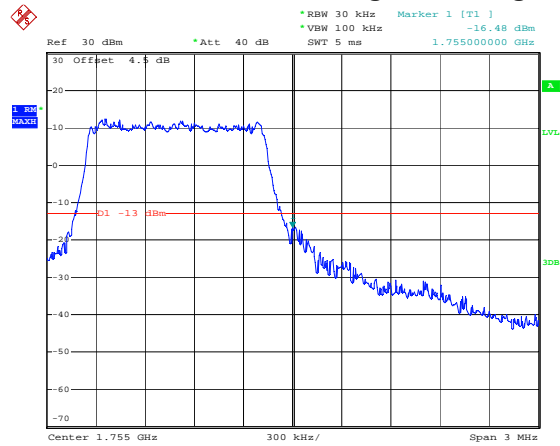
Date: 12.NOV.2020 10:46:03

1.4M, 16QAM, Left Band Edge



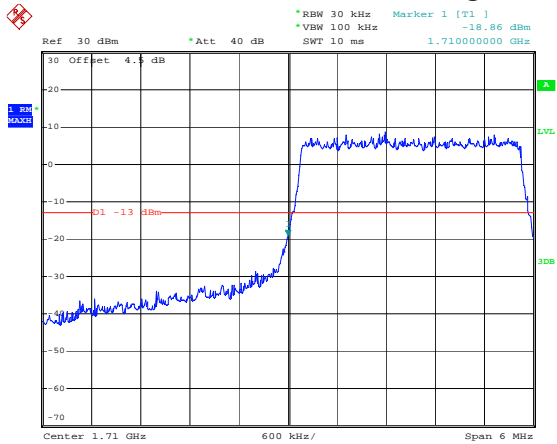
Date: 12.NOV.2020 10:37:51

1.4M, 16QAM, Right Band Edge



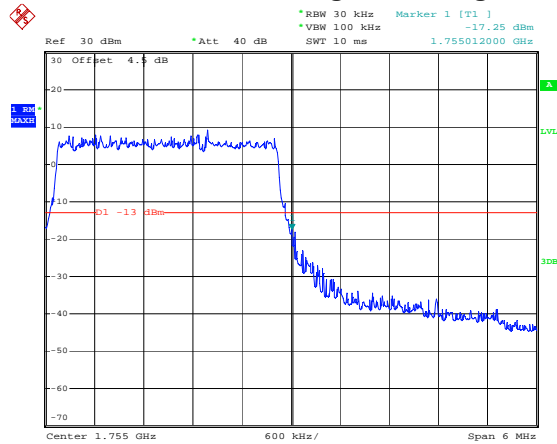
Date: 12.NOV.2020 10:38:35

3M, 16QAM, Left Band Edge



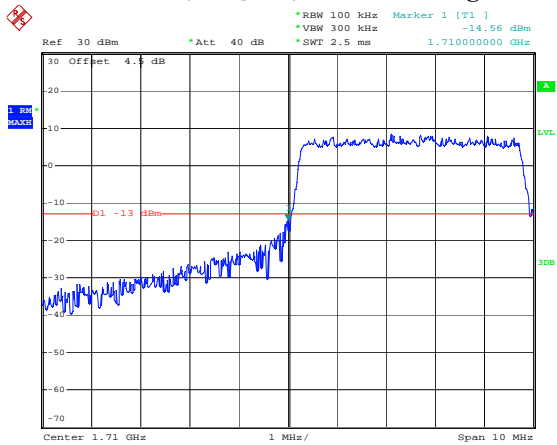
Date: 12.NOV.2020 10:39:18

3M, 16QAM, Right Band Edge



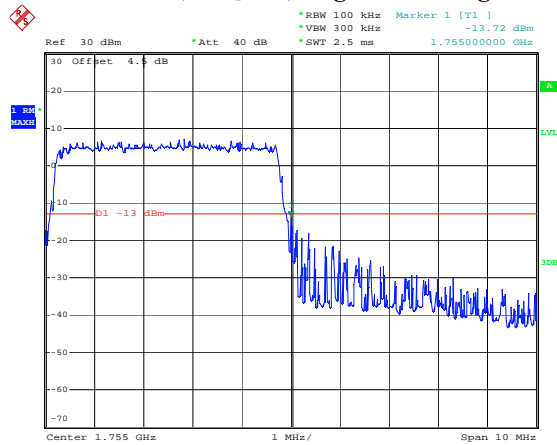
Date: 12.NOV.2020 10:39:56

5M, 16QAM, Left Band Edge



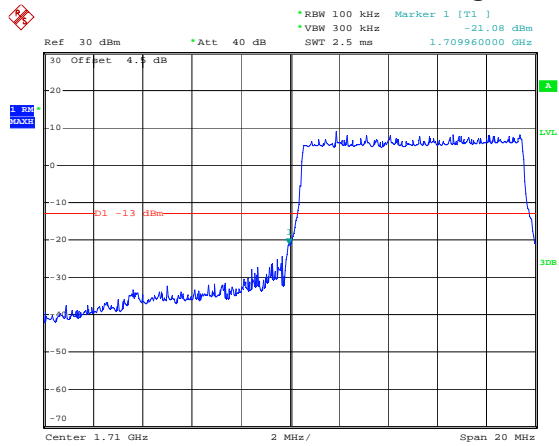
Date: 17.NOV.2020 15:40:21

5M, 16QAM, Right Band Edge



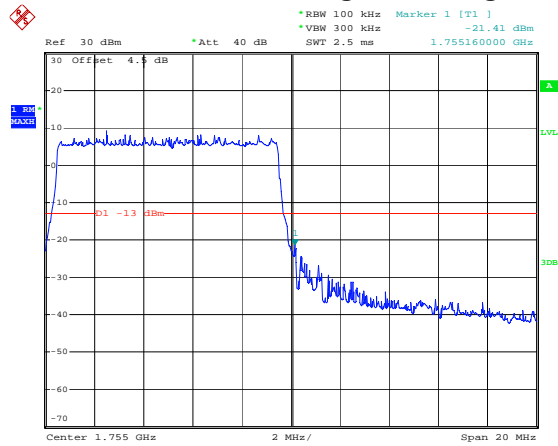
Date: 17.NOV.2020 15:50:46

10M, 16QAM, Left Band Edge



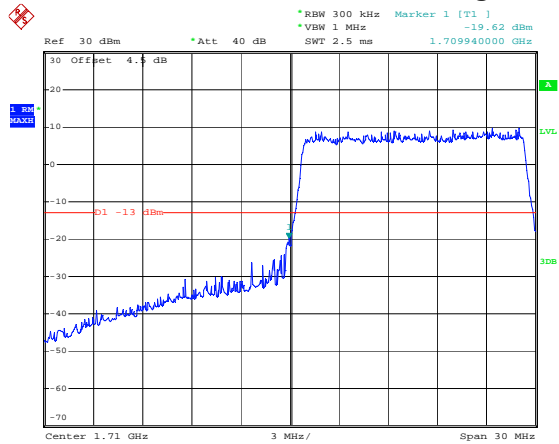
Date: 12.NOV.2020 10:42:24

10M, 16QAM, Right Band Edge



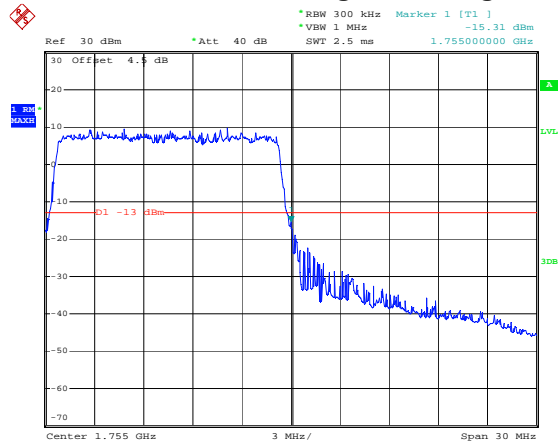
Date: 12.NOV.2020 10:43:08

15M, 16QAM, Left Band Edge



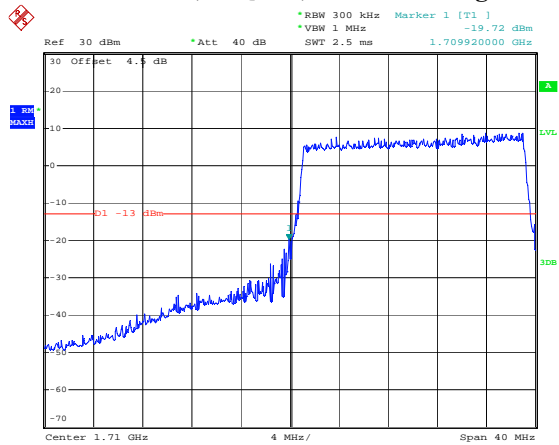
Date: 12.NOV.2020 10:43:57

15M, 16QAM, Right Band Edge



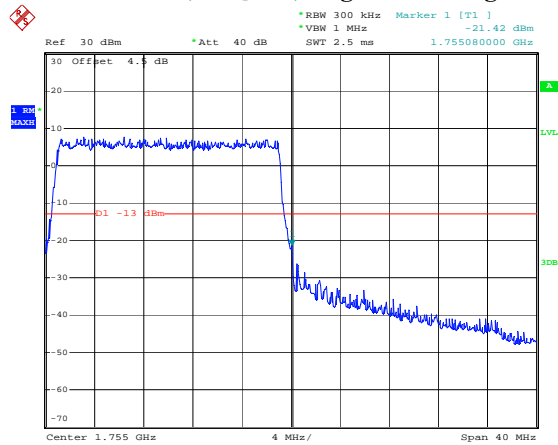
Date: 12.NOV.2020 10:44:48

20M, 16QAM, Left Band Edge



Date: 12.NOV.2020 10:45:39

20M, 16QAM, Right Band Edge



Date: 12.NOV.2020 10:46:26

FCC §2.1055, §22.355 & §24.235 & §27.54 - FREQUENCY STABILITY

Applicable Standard

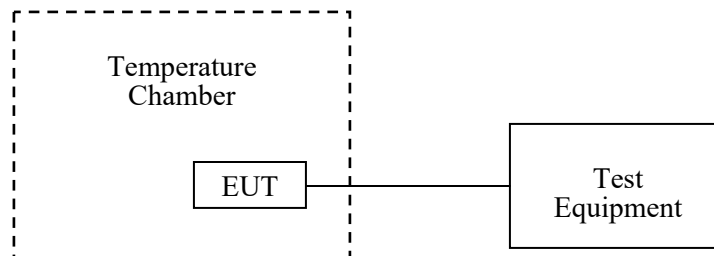
FCC § 2.1055 (a), § 2.1055 (d), §22.355, §24.235, §27.54

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	FSP 38	100478	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
R&S	Universal Radio Communication Tester	CMU200	106 891	2020-09-12	2021-09-12
ESPEC	Constant temperature and humidity Tester	ESX-4CA	018 463	2020-03-10	2021-03-09
UNI-T	Multimeter	UT39A	M130199938	2020-07-01	2021-07-01
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:	25.4~26.3 °C
Relative Humidity:	35~41%
ATM Pressure:	101~101.9kPa
Tester:	Theshy Xie
Test Date:	2020-11-10~2020-11-14

Test Result: Compliance.

GMSK, Middle Channel, $f_c = 836.6$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Limit
°C	V _{DC}	Hz	ppm	ppm
-30	3.7	5	0.00598	2.5
-20		-10	-0.01195	
-10		-14	-0.01673	
0		-4	-0.00478	
10		-5	-0.00598	
20		22	0.02630	
30		14	0.01673	
40		-17	-0.02032	
50		-13	-0.01554	
20		3.5	12	
20	4.2	8	0.00956	

GMSK, Middle Channel, $f_c = 1880$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Result
°C	V _{DC}	Hz	ppm	
-30	3.7	6	0.00319	Pass
-20		-2	-0.00106	
-10		-5	-0.00266	
0		-7	-0.00372	
10		-4	-0.00213	
20		11	0.00585	
30		9	0.00479	
40		-7	-0.00372	
50		-4	-0.00213	
20		3.5	4	
20	4.2	3	0.00160	

8PSK, Middle Channel, $f_c = 836.6$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Limit
°C	V _{DC}	Hz	ppm	ppm
-30	3.7	8	0.00956	2.5
-20		-13	-0.01554	
-10		12	0.01434	
0		-4	-0.00478	
10		-10	-0.01195	
20		-14	-0.01673	
30		14	0.01673	
40		-17	-0.02032	
50		-5	-0.00598	
20		3.5	22	
20	4.2	5	0.00598	

8PSK, Middle Channel, $f_c = 1880$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Result
°C	V _{DC}	Hz	ppm	
-30	3.7	4	0.00213	Pass
-20		-2	-0.00106	
-10		-7	-0.00372	
0		-4	-0.00213	
10		3	0.00160	
20		11	0.00585	
30		9	0.00479	
40		-5	-0.00266	
50		-7	-0.00372	
20		3.5	-4	
20	4.2	6	0.00319	

WCDMA Band II: R99

Middle Channel, $f_c = 1880.0$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Result
°C	V _{DC}	Hz	ppm	
-30	3.7	4	0.00213	Pass
-20		-1	-0.00053	
-10		4	0.00213	
0		-6	-0.00319	
10		11	0.00585	
20		4	0.00213	
30		6	0.00319	
40		-8	-0.00426	
50		-11	-0.00585	
20		3.5	9	
20	4.2	-5	-0.00266	

WCDMA Band V: R99

Middle Channel, $f_c = 836.6$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Limit
°C	V _{DC}	Hz	ppm	ppm
-30	3.7	-4	-0.00478	2.5
-20		4	0.00478	
-10		6	0.00717	
0		10	0.01195	
10		-4	-0.00478	
20		5	0.00598	
30		-6	-0.00717	
40		-4	-0.00478	
50		-5	-0.00598	
20		3.5	3	
20	4.2	2	0.00239	

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	3.7	-1.79	-0.001	Pass
-20		5.66	0.003	
-10		5.76	0.0031	
0		-5.84	-0.0031	
10		7.84	0.0042	
20		8.75	0.0047	
30		-9.02	-0.0048	
40		6.87	0.0037	
50		8.40	0.0045	
20		3.5	-5.36	
20	4.2	-5.59	-0.003	

16QAM, Channel Bandwidth:10MHz Middle Channel, $f_c = 1880$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Result
°C	V_{DC}	Hz	ppm	
-30	3.7	-24.68	-0.0131	Pass
-20		8.43	0.0045	
-10		-9.02	-0.0048	
0		-9.72	-0.0052	
10		-6.69	-0.0036	
20		-5.73	-0.003	
30		8.17	0.0043	
40		7.98	0.0042	
50		7.08	0.0038	
20		3.5	-5.90	
20	4.2	7.41	0.0039	

LTE Band 4

QPSK, Channel Bandwidth:10MHz					
Power Supplied	Temperature	F_L	Limit	F_H	Limit
Vdc	°C	MHz	MHz	MHz	MHz
3.7	-30	1710.830000	1710	1754.270000	1755
	-20	1710.300000		1754.660000	
	-10	1710.570000		1754.270000	
	0	1710.560000		1754.360000	
	10	1710.330000		1754.970000	
	20	1710.920000		1754.480000	
	30	1710.052000		1754.380000	
	40	1710.250000		1754.430000	
50	1710.530000	1754.290000			
3.5	20	1710.560000		1754.350000	
4.2	20	1710.470000		1754.280000	

16-QAM, Channel Bandwidth:10MHz					
Power Supplied	Temperature	F_L	Limit	F_H	Limit
Vdc	°C	MHz	MHz	MHz	MHz
3.7	-30	1710.210000	1710	1754.230000	1755
	-20	1710.380000		1754.270000	
	-10	1710.270000		1754.710000	
	0	1710.290000		1754.650000	
	10	1710.850000		1754.990000	
	20	1710.120000		1754.520000	
	30	1710.830000		1754.580000	
	40	1710.650000		1754.280000	
50	1710.970000	1754.580000			
3.5	20	1710.450000		1754.860000	
4.2	20	1710.190000		1754.310000	

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 *******