TESTING LABORATORY
CERTIFICATE #4820.01

FCC PART 22H, PART 24E
FCC PART 27, PART 90
RSS-130 ISSUE 1, OCTOBER 2013
RSS-132 ISSUE 3, JANUARY 2013
RSS-133 ISSUE 6, JANUARY 2013
RSS-139 ISSUE 3, JULY 2015
RSS-199 ISSUE 3, DECEMBER 2016
RSS-GEN ISSUE 4, NOVEMBER 2014
MEASUREMENT AND TEST REPORT

For

Fujian LANDI Commercial Equipment Co., Ltd.

Building 17, Section A, Software Park, No. 89 Software Road, Gulou District, Fuzhou Municipality, Fujian Province, P.R. China.

FCC ID: 2AG6NAPOSA8LEWF
IC: 23725-APOSA8LEWF

Report Type:	**Product Type:**
Original Report	APOS A8

Report Number:	RXM171225059-00C
Report Date:	2018-05-18
Reviewed By:	Jerry Zhang EMC 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:		APOS A8
EUT Model:		APOS A8
FCC ID:		2AG6NAPOSA8LEWF
IC:		23725-APOSA8LEWF
Rated Input Voltage:		DC 7.2V from battery or DC 5V from adapter
Adapter #1 Information	**Model:**	HKC0115021-2D
	Input:	AC 100-240V~50/60Hz, 0.5A
	Output:	DC 5V, 2A
Adapter #2 Information	**Model:**	A8A-050200U-US1
	Input:	AC 100-240V~50/60Hz, 0.35A
	Output:	DC 5V, 2A
External Dimension:		Length (183mm)*Width (84mm)*High (64mm)
Serial Number:		171225059
EUT Received Date:		2017.12.25

Objective

This report is prepared on behalf of *Fujian LANDI Commercial Equipment Co., Ltd.* in accordance with: Part 2-Subpart J, Part 22-Subpart H, and Part 24-Subpart E Part 27 and part 90 of the Federal Communication Commissions rules and RSS-130 Issue 1, October 2013, RSS-132, Issue 3, January 2013, RSS-133, Issue 6, January 2013, RSS-139, Issue 3, RSS-199 Issue 3, December 2016 of the Innovation, Science and Economic Development Canada.

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: 2AG6NAPOSA8LEWF.
FCC Part 15C DTS submissions with FCC ID: 2AG6NAPOSA8LEWF.
FCC Part 15C DXX submissions with FCC ID: 2AG6NAPOSA8LEWF.
RSS-247 DTSs, RSS-247 DSSs, RSS-210 submissions with IC: 23725-APOSA8LEWF

Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2, Sub-part J as well as the following parts:

Part 22 Subpart H - Public Mobile Services
Part 24 Subpart E - Personal Communication Services
Part 27 – Miscellaneous wireless communications services
Part 90 –PRIVATE LAND MOBILE RADIO SERVICES

And:
RSS-130 Issue 1, October 2013, Mobile Broadband Services (MBS) Equipment Operating in the Frequency Bands 698-756 MHz and 777-787 MHz;
RSS-132, Issue 3, January 2013, Cellular Telephone Systems Operating in the Bands 824-849 MHz and 869-894 MHz;
RSS-133, Issue 6, January 2013, 2 GHz Personal Communication Services
RSS-139, Issue 3, JULY 2015, Advanced Wireless Services (AWS) Equipment Operating in the Bands 1710-1780 MHz and 2110-2180 MHz.
RSS-199, Issue 3, December 2016, Broadband Radio Service (BRS) Equipment Operating in the Band 2500–2690 MHz.

TIA/EIA 603-D-2010.

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

Measurement Uncertainty

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

Test Facility

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

The test site has been approved by the FCC 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 test site has been registered with ISED Canada under ISED Canada Registration Number 3062D.

SYSTEM TEST CONFIGURATION

Justification

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

The test items were performed with the EUT operating at testing mode. The device operates on GSM Band 850/1900MHz(only supports GPRS/EDGE),WCDMA Band 2/4/5, and LTE band 2/4/5/7/13/17/25/26/41, test was performed with channels as below table:

Frequency Bands	Bandwidth (MHz)	Test Frequency(MHz)		
		Low	Middle	High
GPRS/EDGE850	0.25	824.2	836.6	848.8
GPRS/EDGE1900	0.25	1850.2	1880	1909.8
WCDMA Band 2	4.2	1852.4	1880	1907.6
WCDMA Band 4	4.2	1712.4	1732.6	1752.6
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
LTE Band 5	1.4	824.7	836.5	848.3
	3	825.5	836.5	847.5
	5	826.5	836.5	846.5
	10	829	836.5	844
LTE Band 7	5	2502.5	2535	2567.5
	10	2505	2535	2565
	15	2507.5	2535	2562.5
	20	2510	2535	2560
LTE Band 12	1.4	699.7	707.5	715.3
	3	700.5	707.5	714.5
	5	701.5	707.5	713.5
	10	704	707.5	711
LTE Band 13	5	779.5	782	784.5
	10	/	782	/
LTE Band 17	5	706.5	710	713.5
	10	709	710	711
LTE Band 25	1.4	1850.7	1882.5	1914.3
	3	1851.5	1882.5	1913.5
	5	1852.5	1882.5	1912.5
	10	1855	1882.5	1910
	15	1857.5	1882.5	1907.5
	20	1860	1882.5	1905

Frequency Bands	Bandwidth (MHz)	Test Frequency(MHz)		
		Low	Middle	High
LTE Band 26[Note 1]	1.4	814.7	831.5	848.3
	3	815.5	831.5	847.5
	5	816.5	831.5	846.5
	10	819	831.5	844
	15	821.5	831.5	841.5
LTE Band 41[Note 2]	5	2498.5/2572.5	2593	2687.5/2617.5
	10	2501/2575	2593	2685/2615
	15	2503.5/2577.5	2593	2682.5/2612.5
	20	2506/2580	2593	2680/2610

Note 1: Band 26 for FCC only.
Note 2: Since different frequency range required by FCC and ISEDC, different low/high channels were tested.

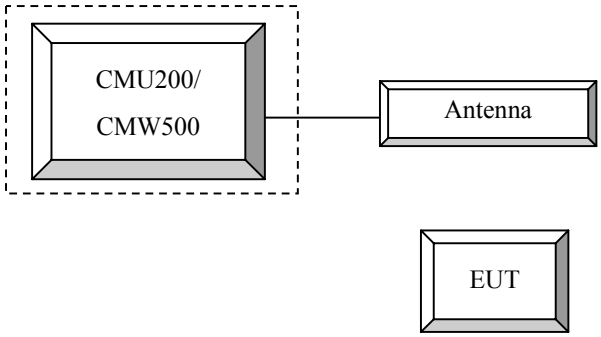
Equipment Modifications

No modification was made to the EUT.

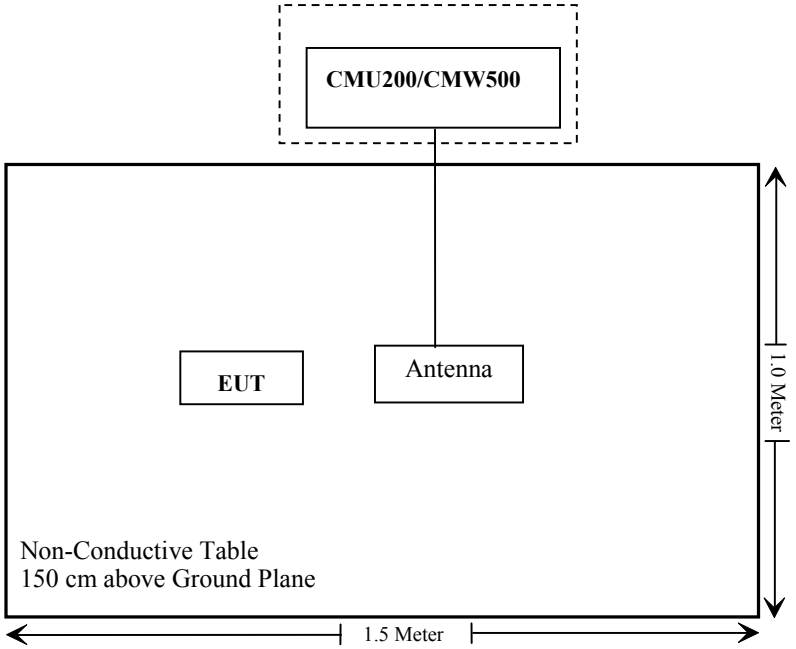
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
R&S	Universial Radio Communication Tester	CMU200	109038
R&S	Wideband Radio Communication Tester	CMW500	147473

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
FCC§1.1310, §2.1093 RSS-102 § 4	RF Exposure	Compliance
FCC§2.1046; § 22.913 (a); § 24.232 (c); §27.50;§90.635 RSS-130 §4.4;RSS-132 §5.4 RSS-133 §6.4;RSS-139 §6.5 RSS-199 § 4.4	RF Output Power	Compliance
FCC§ 2.1047	Modulation Characteristics	Not Applicable
RSS-130 §4.1;RSS-132 §5.2 RSS-133 §6.2;RSS-139 §6.2 RSS-199 § 4.1	Types of Modulation	Compliance
RSS-130 §4.2;RSS-132 §4.1 RSS-133 §6.1;RSS-139 §6.1 RSS-199 § 4.2	Frequency Sub-bands Frequency Plan	Compliance
FCC§ 2.1049; § 22.905 § 22.917; § 24.238; §27.53 §90.209 RSS-Gen §6.6	Occupied Bandwidth	Compliance
FCC§ 2.1051, § 22.917 (a); § 24.238 (a); §27.53;§90.691 RSS-130 §4.6;RSS-132 §5.5 RSS-133 §6.5;RSS-139 §6.6 RSS-199 § 4.5	Spurious Emissions at Antenna Terminal	Compliance
FCC§ 2.1053 § 22.917 (a); § 24.238 (a); §27.53 ;§90.691 RSS-130 §4.6;RSS-132 §5.5 RSS-133 §6.5;RSS-139 §6.6 RSS-199 § 4.5	Field Strength of Spurious Radiation	Compliance
FCC§ 22.917 (a); § 24.238 (a); §27.53;§90.691 RSS-130 §4.6;RSS-132 §5.5 RSS-133 §6.5;RSS-139 §6.6 RSS-199 § 4.5	Out of band emission, Band Edge	Compliance
FCC§ 2.1055 § 22.355; § 24.235; §27.54 §90.213 RSS-130 §4.3;RSS-132 §5.3 RSS-133 §6.3;RSS-139 §6.4 RSS-199 §4.3	Frequency stability vs. temperature Frequency stability vs. voltage	Compliance

FCC §1.1310 , §2.1093 &RSS-102 § 4- RF EXPOSURE

Applicable Standard

FCC§1.1310 and §2.1093, RSS-102 §4

Test Result

Compliant, please refer to the SAR report: RXM171225059-20.

FCC §2.1047 - MODULATION CHARACTERISTIC

According to FCC § 2.1047(d), Part 22H & 24E, Part 27 , Part 90 there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

RSS-130 §4.2 & RSS-132 §5.1 & RSS-133 §6.1 & RSS-139 §6.1 & RSS-199 §4.2- CHANNELLING ARRANGEMENTS & FREQUENCY PLAN

Applicable Standard

According to RSS-130 §4.2, the frequency bands 698-756 MHZ and 777-787 MHZ are divided into small frequency blocks as per SRSP- 518. Equipment shall operate according to the frequency plan given in the SRSP.

According to RSS-132 §5.1, the frequency bands 824-849 MHz and 869-894 MHz are divided into sub-bands as described in SRSP-503. These sub-bands are:

824-835 MHz, 835-845 MHz, 845-846.5 MHz, and 846.5-849 MHz for mobile transmit; and
869-880 MHz, 880-890 MHz, 890-891.5 MHz, and 891.5-894 MHz for base transmit.

According to RSS-133 §6.1, the frequency plan is described in SRSP-510.

According to RSS-139 §6.1, the frequency plan is described in SRSP-513.

According to RSS-199 §4.2, the channel bandwidth shall be equal to or greater than 1 MHz and shall be reported by the certification applicant.

Test Result

According to the test data, channeling arrangement meets all relevant conditions specified in SRSP-503, SRSP-510, SRSP-513, SRSP-517, SRSP-518.

RSS-130 §4.1 & RSS-132 §5.2 & RSS-133 §6.2 & RSS-139 §6.2 & RSS-199 §4.1- TYPES OF MODULATION

Applicable Standard

According to RSS-130 §4.1, equipment certified under this standard shall employ digital modulation.

According to RSS-132 §5.2, equipment certified under this standard shall use digital modulation.

According to RSS-133 §6.2, the devices shall employ digital modulation techniques.

According to RSS-139 §6.2, the devices may employ any type of modulation techniques. The type of modulation used must be reported.

According to RSS-199 §4.1, equipment certified under this standard shall employ digital modulation.

Test Result

The EUT uses GMSK, 8PSK, QPSK, 16QAM, 64QAM modulation.

FCC § 2.1046, § 22.913 (a) & § 24.232 (c) & § 27.50&§90.635 AND RSS-130 §4.4 & RSS-132 §5.4 & RSS-133 §6.4 & RSS-139 §6.5 RSS-199 § 4.4 - 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 FCC §2.1046 and §27.50 (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.

According to §27.50

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

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

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

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

According to §90.635

(b) The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw).

According to RSS-130 §4.4

The transmitter output power shall be measured in terms of average power.

For base and fixed equipment, refer to SRSP-518 for power limits.

The e.i.r.p. shall not exceed 50 watts for mobile equipment or for outdoor fixed subscriber equipment, nor shall it exceed 5 watts for portable equipment or for indoor fixed subscriber equipment.

In addition, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1% of the time and shall use a signal corresponding to the highest PAPR during periods of continuous transmission.

According to RSS-132 §5.4

The transmitter output power shall be measured in terms of average power. The equivalent isotropically radiated power (e.i.r.p.) for mobile equipment shall not exceed 11.5 watts. Refer to SRSP-503 for base station e.i.r.p. limits.

In addition, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1% of the time using a signal corresponding to the highest PAPR during periods of continuous transmission.

According to RSS-133 §6.4

The equivalent isotropically radiated power (e.i.r.p.) for transmitters shall not exceed the limits given in SRSP-510. Moreover, base station transmitters operating in the band 1930-1995 MHz shall not have output power exceeding 100 watts.

In addition, the transmitter's peak-to-average power ratio (PAPR) shall not exceed 13 dB for more than 0.1% of the time using a signal corresponding to the highest PAPR during periods of continuous transmission.

According to RSS-139 §6.5

The equivalent isotropically radiated power (e.i.r.p.) for mobile and portable transmitters shall not exceed one watt. The e.i.r.p. for fixed and base stations in the band 1710-1780 MHz shall not exceed one watt.

Consult SRSP-513 for e.i.r.p. limits on fixed and base stations operating in the band 2110-2180 MHz.

According to RSS-199 §4.4

The transmitter output power shall be measured in terms of average value.

For base station equipment, refer to SRSP-517 for the maximum permissible e.i.r.p.

For mobile subscriber equipment, the e.i.r.p. shall not exceed 2 W. For fixed subscriber equipment, the transmitter output power shall not exceed 2 W and the e.i.r.p. shall be limited to 40 W.

In addition, the peak to average power ratio (PAPR) of the equipment shall not exceed 13 dB for more than 0.1% of the time, using a signal that corresponds to the highest PAPR during periods of continuous transmission.

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
	βc / βd	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			
	βc	2/15	12/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	βd (SF)	64			
	βc/ βd	2/15	12/15	15/8	15/4
	βhs	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			
	Ahs=βhs/ βc	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				
	βc	11/15	6/15	15/15	2/15	15/15
	βd	15/15	15/15	9/15	15/15	0
	βec	209/225	12/15	30/15	2/15	5/15
	βc/ βd	11/15	6/15	15/9	2/15	-
	βhs	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				
	Ahs=βhs/ βc	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_{ed}1: 30/15 β_{ed}2: 30/15	β_{ed}3: 24/15 β_{ed}4: 24/15	3.5	2.5	14	105	105

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_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 β_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 6.6.3.3.2	13	10	Table 6.2.4-2	Table 6.2.4-2
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.

LTE(TDD):

Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS).

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	$6592 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$	$7680 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$
1	$19760 \cdot T_s$			$20480 \cdot T_s$		
2	$21952 \cdot T_s$			$23040 \cdot T_s$		
3	$24144 \cdot T_s$			$25600 \cdot T_s$		
4	$26336 \cdot T_s$			$7680 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
5	$6592 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$20480 \cdot T_s$		
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21952 \cdot T_s$			$12800 \cdot T_s$		
8	$24144 \cdot T_s$			-	-	-
9	$13168 \cdot T_s$			-	-	-

Table 4.2-2: Uplink-downlink configurations.

Uplink-downlink configuration	Downlink-to-Uplink Switch-point periodicity	Subframe number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U	U	D	S	U	U	D

Calculated Duty Cycle

Uplink-Downlink Configuration	Downlink-to-Uplink Switch-point Periodicity	Subframe Number										Calculated Duty Cycle (%)
		0	1	2	3	4	5	6	7	8	9	
0	5 ms	D	S	U	U	U	D	S	U	U	U	63.33
1	5 ms	D	S	U	U	D	D	S	U	U	D	43.33
2	5 ms	D	S	U	D	D	D	S	U	D	D	23.33
3	10 ms	D	S	U	U	U	D	D	D	D	D	31.67
4	10 ms	D	S	U	U	D	D	D	D	D	D	21.67
5	10 ms	D	S	U	D	D	D	D	D	D	D	11.67
6	5 ms	D	S	U	U	U	D	S	U	U	D	53.33

Calculated Duty Cycle = Extended cyclic prefix in uplink x (T_s) x # of S + # of U

Example for Calculated Duty Cycle for Uplink-Downlink Configuration 0:
Calculated Duty Cycle = 5120 x [1/(15000 x 2048)] x 2 + 6 ms = 63.33%
where
T_s = 1/(15000 x 2048) seconds

Radiated method:

ANSI/TIA-603-D section 2.2.17

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCI	100224	2017-12-11	2018-12-11
Sunol Sciences	Antenna	JB3	A060611-1	2017-11-10	2020-11-10
R&S	Spectrum Analyzer	FSU 26	200256	2017-12-08	2018-12-08
ETS LINDGREN	Horn Antenna	3115	000 527 35	2016-01-05	2019-01-04
HP	Signal Generator	1026	320408	2017-12-14	2018-12-14
EMCO	Adjustable Dipole Antenna	3121C	9109-753	N/A	N/A
TDK RF	Horn Antenna	HRN-0118	130 084	2016-01-05	2019-01-04
N/A	Coaxial Cable	C-NJNJ-50	C-0400-01	2017-09-05	2018-09-05
N/A	Coaxial Cable	C-NJNJ-50	C-0075-01	2017-09-05	2018-09-05
N/A	Coaxial Cable	C-NJNJ-50	C-1000-01	2017-09-05	2018-09-05
N/A	Coaxial Cable	C-SJSJ-50	C-0800-01	2017-09-05	2018-09-05
N/A	Coaxial Cable	C-SJ00-0010	C0010/01	Each Time	/
R&S	Universal Radio Communication Tester	CMU200	109 038	2017-07-18	2018-07-18
R&S	Wideband Radio Communication Tester	CMW500	147473	2017-08-31	2018-08-31

*** 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:	20.7~25.5 °C
Relative Humidity:	28~55 %
ATM Pressure:	100.9~102.1 kPa

The testing was performed by David Huang and Swim Lv on 2018-02-06 and 2018-04-18.

Conducted Output Power

Cellular Band & PCS Band

Band	Channel No.	Conducted Peak Output Power (dBm)							
		GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
Cellular	128	28.72	28.62	28.45	27.41	25.23	25.14	24.19	22.32
	190	29.11	28.99	28.80	27.63	25.35	25.25	24.21	22.41
	251	29.16	29.03	28.81	27.74	25.36	25.29	24.28	22.41
PCS	512	30.26	30.14	30.04	29.73	26.05	25.86	25.68	25.38
	661	30.13	30.00	29.87	29.69	25.94	25.74	25.52	25.26
	810	30.12	29.97	29.83	29.64	26.04	25.87	25.63	25.41

WCDMA Band 2

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	21.69	2.92	21.62	2.60	21.56	2.72
HSDPA	1	20.84	3.64	20.57	3.48	20.61	4.20
	2	20.87	3.62	20.40	3.39	20.53	4.31
	3	20.77	3.69	20.37	3.59	20.61	4.12
	4	20.90	3.57	20.44	3.61	20.61	4.29
HSUPA	1	20.34	4.84	20.12	4.20	20.18	3.56
	2	20.47	5.11	19.86	4.11	20.25	3.67
	3	20.49	5.19	19.92	4.33	20.23	3.70
	4	20.48	5.35	19.96	4.34	20.12	3.55
	5	20.52	5.13	19.93	4.24	20.22	3.44
DC-HSDPA	1	20.76	3.51	20.43	3.57	20.57	4.24
	2	20.86	3.63	20.44	3.50	20.56	4.11
	3	20.90	3.62	20.39	3.50	20.64	4.35
	4	20.93	3.53	20.45	3.59	20.71	4.11
HSPA+	1	20.95	3.37	20.83	3.48	20.88	3.22

WCDMA Band 4

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	21.95	2.64	21.98	2.88	21.89	2.64
HSDPA	1	20.82	3.52	20.98	4.16	20.79	3.76
	2	20.59	3.59	20.69	4.07	20.69	3.67
	3	20.68	3.52	20.80	4.30	20.71	3.74
	4	20.61	3.39	20.83	4.12	20.58	3.89
HSUPA	1	20.32	3.76	20.26	3.44	20.17	3.84
	2	20.07	3.68	20.28	3.32	20.16	3.82
	3	19.96	3.90	20.18	3.39	20.16	3.85
	4	20.09	3.71	20.17	3.41	20.12	3.72
	5	20.01	3.69	20.14	3.53	20.15	3.82
DC-HSDPA	1	20.6	3.38	20.83	4.27	20.62	3.7
	2	20.65	3.40	20.80	4.01	20.54	3.62
	3	20.52	3.59	20.65	4.08	20.61	3.88
	4	20.62	3.50	20.64	4.19	20.64	3.86
HSPA+	1	20.59	3.74	20.65	3.91	20.61	3.49

WCDMA Band 5

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	24.04	2.96	23.97	2.76	23.99	3
HSDPA	1	22.85	3.92	22.79	3.88	22.68	4.08
	2	22.92	4.01	22.81	3.87	22.64	3.97
	3	22.91	3.80	22.84	3.95	22.75	4.16
	4	22.75	3.83	22.74	3.84	22.69	4.02
HSUPA	1	22.27	4.08	22.23	3.84	22.09	3.92
	2	22.35	3.95	22.21	3.91	22.09	3.96
	3	22.18	4.17	22.26	3.77	22.11	3.79
	4	22.33	4.08	22.19	3.84	22.04	4.06
	5	22.33	4.17	22.27	3.86	22.03	3.92
DC-HSDPA	1	22.89	3.95	22.72	3.95	22.62	4.09
	2	22.77	3.91	22.88	3.83	22.70	4.15
	3	22.75	3.88	22.73	3.78	22.62	3.98
	4	22.94	4.01	22.88	3.87	22.59	4.21
HSPA+	1	22.74	3.70	22.68	4.06	22.64	3.94

LTE Band 2

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	1#0	21.51	21.30	21.49
		1#3	21.58	21.36	21.62
		1#5	21.41	21.28	21.47
		3#0	21.43	21.26	21.52
		3#3	21.40	21.28	21.47
		6#0	20.49	20.35	20.59
	16QAM	1#0	20.53	20.42	20.74
		1#3	20.65	20.63	20.86
		1#5	20.56	20.45	20.81
		3#0	20.34	20.41	20.63
		3#3	20.35	20.33	20.65
		6#0	19.49	19.32	19.66
3MHz	QPSK	1#0	21.52	21.36	21.48
		1#8	21.43	21.35	21.54
		1#14	21.44	21.42	21.51
		6#0	20.51	20.31	20.59
		6#9	20.49	20.31	20.53
		15#0	20.50	20.39	20.56
	16QAM	1#0	20.75	20.56	20.75
		1#8	20.65	20.45	20.59
		1#14	20.67	20.58	20.66
		6#0	19.45	19.31	19.61
		6#9	19.42	19.35	19.62
		15#0	19.49	19.37	19.55
5MHz	QPSK	1#0	21.34	21.27	21.37
		1#13	21.28	21.26	21.49
		1#24	21.46	21.31	21.22
		15#0	20.52	20.35	20.57
		15#10	20.56	20.33	20.63
		25#0	20.56	20.36	20.66
	16QAM	1#0	20.56	20.45	20.57
		1#13	20.68	20.58	20.77
		1#24	20.62	20.52	20.73
		15#0	19.51	19.42	19.55
		15#10	19.50	19.45	19.62
		25#0	19.52	19.43	19.65

10MHz	QPSK	1#0	21.67	21.49	21.71
		1#25	21.65	21.41	21.49
		1#49	21.59	21.63	21.62
		25#0	20.62	20.40	20.50
		25#25	20.65	20.52	20.72
		50#0	20.52	20.48	20.65
	16QAM	1#0	20.73	20.57	20.89
		1#25	20.85	20.53	20.72
		1#49	20.67	20.75	20.97
		25#0	19.56	19.46	19.51
		25#25	19.64	19.55	19.71
		50#0	19.56	19.49	19.64
15MHz	QPSK	1#0	21.65	21.49	21.66
		1#38	21.43	21.32	21.46
		1#74	21.53	21.59	21.62
		36#0	20.74	20.41	20.71
		36#39	20.53	20.53	20.56
		75#0	20.70	20.39	20.70
	16QAM	1#0	20.71	20.72	20.85
		1#38	20.59	20.49	20.61
		1#74	20.72	20.74	20.75
		36#0	19.72	19.46	19.74
		36#39	19.56	19.55	19.63
		75#0	19.68	19.49	19.68
20MHz	QPSK	1#0	21.76	21.55	21.91
		1#50	21.58	21.53	21.68
		1#99	21.49	21.68	21.67
		50#0	20.66	20.44	20.79
		50#50	20.53	20.66	20.73
		100#0	20.60	20.59	20.72
	16QAM	1#0	20.90	20.58	21.05
		1#50	20.87	20.55	20.92
		1#99	20.65	20.76	20.86
		50#0	19.64	19.53	19.78
		50#50	19.61	19.70	19.74
		100#0	19.61	19.61	19.75

LTE Band 4

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	1#0	22.81	23.15	22.56
		1#3	22.71	23.04	22.67
		1#5	22.96	22.88	22.88
		3#0	22.86	22.89	22.75
		3#3	22.78	22.97	22.80
		6#0	21.78	22.01	21.80
	16QAM	1#0	22.27	22.39	22.14
		1#3	22.23	22.45	22.12
		1#5	22.12	22.71	21.92
		3#0	22.86	22.99	22.77
		3#3	22.76	22.86	22.73
		6#0	20.86	21.01	20.79
3MHz	QPSK	1#0	22.55	22.84	21.82
		1#8	22.56	22.75	21.85
		1#14	22.60	22.85	21.87
		6#0	21.89	21.94	21.71
		6#9	21.68	21.92	21.69
		15#0	21.70	21.94	21.81
	16QAM	1#0	21.86	21.84	21.83
		1#8	21.64	21.80	21.94
		1#14	21.71	22.04	21.86
		6#0	20.90	21.02	20.83
		6#9	20.81	20.82	20.76
		15#0	20.80	21.04	20.85
5MHz	QPSK	1#0	22.76	23.19	22.63
		1#13	22.56	22.91	22.71
		1#24	22.53	23.02	22.74
		15#0	21.80	22.04	21.82
		15#10	21.75	21.88	21.77
		25#0	21.65	21.97	21.76
	16QAM	1#0	21.69	22.50	22.02
		1#13	21.08	22.33	22.01
		1#24	21.20	22.46	21.84
		15#0	21.69	22.05	21.81
		15#10	21.65	21.88	21.88
		25#0	20.83	20.87	20.96

10MHz	QPSK	1#0	22.87	22.89	22.76
		1#25	22.85	23.05	22.84
		1#49	22.83	23.03	22.53
		25#0	21.76	21.95	21.76
		25#25	21.89	21.95	21.91
		50#0	21.73	22.04	21.85
	16QAM	1#0	21.95	22.41	21.87
		1#25	21.96	22.77	21.90
		1#49	21.82	22.43	21.87
		25#0	21.66	22.05	21.78
		25#25	21.77	22.06	21.85
		50#0	20.71	20.98	20.93
15MHz	QPSK	1#0	22.93	22.98	22.84
		1#38	22.74	22.82	22.65
		1#74	22.96	22.94	22.81
		36#0	21.83	22.03	21.94
		36#39	21.82	22.04	21.78
		75#0	21.83	22.02	21.89
	16QAM	1#0	21.95	22.03	22.06
		1#38	21.87	21.97	22.20
		1#74	22.07	22.09	22.31
		36#0	21.84	21.98	21.94
		36#39	21.82	21.95	21.78
		75#0	20.88	20.91	20.98
20MHz	QPSK	1#0	22.98	22.98	23.10
		1#50	22.85	23.34	22.87
		1#99	22.93	22.69	22.65
		50#0	21.74	22.02	22.05
		50#50	22.00	22.05	21.94
		100#0	21.88	22.04	21.96
	16QAM	1#0	21.87	22.11	22.29
		1#50	21.97	22.36	22.15
		1#99	21.88	22.06	22.01
		50#0	21.69	22.02	21.95
		50#50	21.90	22.04	21.84
		100#0	20.77	20.97	20.85

LTE Band 5

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	1#0	23.41	23.28	23.23
		1#3	23.45	23.52	23.40
		1#5	23.52	23.44	23.21
		3#0	23.40	23.54	23.33
		3#3	23.34	23.54	23.28
		6#0	22.41	22.55	22.39
	16QAM	1#0	22.79	22.64	21.89
		1#3	22.65	22.51	22.36
		1#5	22.59	22.17	22.12
		3#0	22.27	22.63	22.47
		3#3	22.26	22.77	22.41
		6#0	21.54	21.25	21.46
3MHz	QPSK	1#0	23.36	23.36	23.42
		1#8	23.44	23.28	23.55
		1#14	23.50	23.22	23.31
		6#0	22.38	22.42	22.37
		6#9	22.49	22.52	22.30
		15#0	22.40	22.44	22.34
	16QAM	1#0	21.96	23.12	22.40
		1#8	21.95	22.93	22.35
		1#14	22.08	22.71	22.57
		6#0	21.48	21.40	21.14
		6#9	21.52	21.27	21.39
		15#0	21.64	21.27	21.29
5MHz	QPSK	1#0	23.26	23.46	23.38
		1#13	23.32	23.56	23.25
		1#24	23.17	23.63	23.24
		15#0	22.44	22.49	22.29
		15#10	22.47	22.61	22.29
		25#0	22.44	22.51	22.39
	16QAM	1#0	22.46	23.02	22.31
		1#13	22.34	22.51	21.82
		1#24	22.38	22.33	21.97
		15#0	22.45	22.49	22.39
		15#10	22.39	22.60	22.29
		25#0	21.42	21.36	21.18
10MHz	QPSK	1#0	23.12	23.34	23.29
		1#25	23.34	23.27	23.62
		1#49	23.30	23.14	23.28
		25#0	22.41	22.39	22.36
		25#25	22.50	22.47	22.33
		50#0	22.46	22.45	22.40
	16QAM	1#0	22.33	23.16	22.77
		1#25	22.13	23.36	22.63
		1#49	21.94	22.71	22.47
		25#0	22.40	22.39	22.48
		25#25	22.34	22.47	22.30
		50#0	21.37	21.35	21.34

LTE Band 7

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	1#0	21.61	21.90	21.67
		1#13	21.56	21.95	21.68
		1#24	21.80	21.88	21.57
		15#0	21.75	21.84	21.67
		15#10	20.99	20.95	21.00
		25#0	20.91	20.87	20.79
	16QAM	1#0	20.60	21.07	20.38
		1#13	20.54	21.03	20.32
		1#24	21.01	21.05	20.41
		15#0	20.95	20.86	20.45
		15#10	19.87	16.75	19.86
		25#0	19.80	19.62	19.77
10MHz	QPSK	1#0	22.05	21.96	21.84
		1#25	21.96	21.97	21.78
		1#49	21.86	21.91	21.74
		25#0	21.89	21.85	21.75
		25#25	20.86	20.82	20.94
		50#0	20.82	20.88	20.90
	16QAM	1#0	20.94	20.93	20.34
		1#25	20.87	20.75	20.32
		1#49	20.92	21.12	20.38
		25#0	20.83	21.18	20.42
		25#25	20.05	19.89	19.94
		50#0	19.99	19.96	19.83
15MHz	QPSK	1#0	22.06	22.03	21.95
		1#38	22.01	21.98	21.97
		1#74	21.98	21.94	21.82
		36#0	21.83	21.86	21.87
		36#39	20.85	20.78	20.74
		75#0	20.82	20.84	20.67
	16QAM	1#0	20.95	21.20	20.85
		1#38	20.84	21.15	20.81
		1#74	21.03	20.78	20.74
		36#0	20.99	20.84	20.86
		36#39	20.06	20.12	19.74
		75#0	19.96	20.05	19.78
20MHz	QPSK	1#0	22.02	22.12	22.00
		1#50	21.98	22.15	22.05
		1#99	22.16	21.96	21.86
		50#0	22.13	21.86	21.78
		50#50	20.92	20.93	20.81
		100#0	20.89	21.00	20.80
	16QAM	1#0	21.19	20.80	20.95
		1#50	21.15	20.76	20.84
		1#99	21.22	21.07	21.48
		50#0	21.12	20.86	21.15
		50#50	20.15	19.86	19.87
		100#0	20.01	19.94	19.96

LTE Band 12

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	1#0	23.21	23.43	23.03
		1#3	23.32	23.53	23.17
		1#5	23.24	23.37	23.12
		3#0	23.22	23.32	23.26
		3#3	23.30	23.20	23.22
		6#0	22.32	22.41	22.25
	16QAM	1#0	22.60	23.12	22.41
		1#3	22.73	23.16	22.34
		1#5	22.74	23.21	22.36
		3#0	22.10	22.42	22.31
		3#3	22.12	22.41	22.08
		6#0	21.13	21.36	21.38
3MHz	QPSK	1#0	23.24	23.37	23.44
		1#8	23.27	23.47	23.05
		1#14	23.24	23.39	22.94
		6#0	22.29	22.27	22.23
		6#9	22.30	22.34	22.16
		15#0	22.38	22.26	22.27
	16QAM	1#0	22.41	22.20	22.35
		1#8	22.16	22.28	22.12
		1#14	22.36	22.15	22.27
		6#0	21.41	21.44	21.22
		6#9	21.46	21.43	21.23
		15#0	21.55	21.27	21.41
5MHz	QPSK	1#0	23.24	23.36	23.11
		1#13	23.17	23.28	23.15
		1#24	23.05	23.31	22.96
		15#0	22.37	22.28	22.37
		15#10	22.18	22.29	22.23
		25#0	22.27	22.31	22.32
	16QAM	1#0	22.16	22.59	22.61
		1#13	21.85	22.15	21.98
		1#24	21.77	22.62	21.88
		15#0	21.27	21.22	21.12
		15#10	21.11	21.33	21.09
		25#0	21.32	21.31	21.36
10MHz	QPSK	1#0	22.95	23.03	23.42
		1#25	23.14	23.18	23.47
		1#49	23.26	23.11	23.01
		25#0	22.24	22.22	22.42
		25#25	22.33	22.16	22.30
		50#0	22.29	22.25	22.33
	16QAM	1#0	22.07	22.92	22.52
		1#25	22.06	23.19	23.39
		1#49	21.89	23.18	22.31
		25#0	21.28	21.13	21.38
		25#25	21.38	21.35	21.02
		50#0	21.18	21.23	21.36

LTE Band 13

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	1#0	23.31	23.27	23.30
		1#13	23.27	23.34	22.99
		1#24	23.44	23.25	23.22
		15#0	22.37	22.33	22.34
		15#10	22.42	22.28	22.27
		25#0	22.36	22.32	22.16
	16QAM	1#0	22.93	22.51	22.45
		1#13	22.61	22.46	21.75
		1#24	22.67	22.49	22.22
		15#0	21.43	21.10	20.98
		15#10	21.46	20.95	20.93
		25#0	21.15	21.15	21.20
10MHz	QPSK	1#0	/	23.32	/
		1#25	/	23.55	/
		1#49	/	23.11	/
		25#0	/	22.38	/
		25#25	/	22.21	/
		50#0	/	22.33	/
	16QAM	1#0	/	22.38	/
		1#25	/	22.66	/
		1#49	/	22.26	/
		25#0	/	21.13	/
		25#25	/	21.09	/
		50#0	/	21.28	/

LTE Band 17

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	1#0	23.21	23.15	23.35
		1#13	23.37	22.96	23.41
		1#24	23.29	23.19	23.20
		15#0	22.19	22.23	22.17
		15#10	22.29	22.15	22.22
		25#0	22.29	22.19	22.24
	16QAM	1#0	22.74	22.34	22.59
		1#13	22.47	21.87	22.13
		1#24	22.57	22.16	22.47
		15#0	20.99	21.19	21.28
		15#10	21.07	21.17	21.13
		25#0	21.21	21.42	21.02
10MHz	QPSK	1#0	23.39	23.34	23.17
		1#25	23.30	23.47	23.22
		1#49	23.17	23.16	23.28
		25#0	22.23	22.28	22.23
		25#25	22.32	22.27	22.35
		50#0	22.21	22.27	22.27
	16QAM	1#0	23.09	22.51	21.81
		1#25	23.06	23.22	22.27
		1#49	22.86	22.37	21.77
		25#0	21.04	21.17	21.09
		25#25	21.16	21.15	21.15
		50#0	21.37	21.29	21.18

LTE Band 25

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	1#0	22.41	22.44	22.51
		1#3	22.47	22.58	22.72
		1#5	22.65	22.43	22.32
		3#0	22.55	22.51	22.58
		3#3	22.47	22.54	22.71
		6#0	21.68	21.49	21.31
	16QAM	1#0	21.75	21.34	21.57
		1#3	21.75	21.56	21.43
		1#5	21.69	21.11	21.18
		3#0	22.65	22.46	22.25
		3#3	22.67	22.53	22.58
		6#0	20.69	21.54	21.45
3MHz	QPSK	1#0	22.56	22.39	22.67
		1#8	22.29	22.27	22.31
		1#14	22.35	22.56	22.56
		6#0	21.65	21.63	21.69
		6#9	21.74	21.43	21.48
		15#0	21.69	21.41	21.65
	16QAM	1#0	21.86	21.03	21.79
		1#8	21.79	20.96	22.03
		1#14	21.53	21.13	21.69
		6#0	20.45	20.36	20.65
		6#9	20.76	20.33	20.46
		15#0	20.36	20.56	20.56
5MHz	QPSK	1#0	22.33	22.28	22.48
		1#13	22.33	22.54	22.61
		1#24	22.76	22.54	22.70
		15#0	21.81	21.68	21.85
		15#10	21.45	21.62	21.71
		25#0	21.34	21.54	21.62
	16QAM	1#0	21.62	21.45	21.65
		1#13	21.13	21.29	21.39
		1#24	21.47	21.34	21.22
		15#0	21.69	21.46	21.67
		15#10	21.71	21.58	21.43
		25#0	21.63	21.59	21.72
10MHz	QPSK	1#0	22.41	22.42	22.63
		1#25	22.71	22.51	22.70
		1#49	22.64	22.48	22.48
		25#0	21.46	21.56	21.55
		25#25	21.51	21.39	21.19
		50#0	21.34	21.45	21.42
	16QAM	1#0	21.80	21.68	21.66
		1#25	21.71	21.85	21.93
		1#49	21.43	21.59	21.62
		25#0	21.64	21.49	21.31
		25#25	21.56	21.58	21.46
		50#0	21.32	21.45	21.68

15MHz	QPSK	1#0	22.31	22.47	22.35
		1#38	22.35	22.38	22.24
		1#74	22.47	22.54	22.65
		36#0	21.77	21.56	21.46
		36#39	21.79	21.69	21.88
		75#0	21.39	21.52	21.67
	16QAM	1#0	21.97	21.75	21.94
		1#38	22.18	21.98	22.18
		1#74	21.99	21.86	21.88
		36#0	21.70	21.52	21.73
		36#39	21.49	21.48	21.55
		75#0	21.37	21.52	21.38
20MHz	QPSK	1#0	22.55	22.69	22.58
		1#50	22.56	22.75	22.67
		1#99	22.80	22.64	22.83
		50#0	21.46	21.52	21.41
		50#50	21.67	21.65	21.85
		100#0	21.49	21.55	21.55
	16QAM	1#0	22.09	21.96	21.81
		1#50	21.94	21.85	21.69
		1#99	21.63	21.69	21.79
		50#0	21.51	21.65	21.44
		50#50	21.58	21.74	21.88
		100#0	21.40	21.56	21.52

LTE Band 26

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	1#0	23.26	23.31	23.38
		1#3	23.19	23.33	23.42
		1#5	23.28	23.48	23.22
		3#0	23.32	23.25	23.26
		3#3	23.30	23.35	23.28
		6#0	22.22	22.33	22.43
	16QAM	1#0	22.44	22.29	21.86
		1#3	22.48	22.33	22.31
		1#5	22.45	22.29	22.03
		3#0	22.28	22.54	21.94
		3#3	22.20	22.65	21.97
		6#0	21.26	21.43	21.43

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
3MHz	QPSK	1#0	23.30	23.41	23.24
		1#8	23.13	23.17	23.09
		1#14	23.17	23.40	23.11
		6#0	22.42	22.35	22.34
		6#9	22.44	22.38	22.21
		15#0	22.44	22.42	22.37
	16QAM	1#0	22.13	22.49	22.51
		1#8	22.12	22.38	22.39
		1#14	22.08	22.37	22.43
		6#0	21.36	21.45	21.17
		6#9	21.25	21.23	21.24
		15#0	21.49	21.36	21.46
5MHz	QPSK	1#0	23.22	23.53	23.62
		1#13	23.22	23.26	23.24
		1#24	23.13	23.44	23.18
		15#0	22.45	22.41	22.47
		15#10	22.25	22.39	22.34
		25#0	22.26	22.51	22.34
	16QAM	1#0	22.42	22.80	22.65
		1#13	21.98	22.62	22.29
		1#24	22.21	22.78	22.63
		15#0	21.39	21.31	21.22
		15#10	21.16	21.36	21.09
		25#0	21.28	21.41	21.21
10MHz	QPSK	1#0	23.29	23.49	23.28
		1#25	23.34	23.64	23.72
		1#49	23.30	23.57	23.20
		25#0	22.29	22.40	22.37
		25#25	22.24	22.51	22.36
		50#0	22.24	22.42	22.37
	16QAM	1#0	22.27	22.54	22.45
		1#25	22.36	23.21	22.65
		1#49	21.85	21.64	22.40
		25#0	21.36	21.33	21.22
		25#25	21.38	21.38	21.40
		50#0	21.29	21.26	21.32
15MHz	QPSK	1#0	23.46	23.14	23.66
		1#38	23.07	23.29	23.42
		1#74	23.61	23.46	23.26
		36#0	22.34	22.53	22.47
		36#39	22.34	22.56	22.44
		75#0	22.32	22.49	22.43
	16QAM	1#0	23.05	22.75	22.76
		1#38	22.37	23.12	22.00
		1#74	22.51	22.79	22.33
		36#0	21.36	21.59	21.30
		36#39	21.26	21.70	21.25
		75#0	21.36	21.43	21.37

LTE Band 41

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)		Middle Channel (dBm)	High Channel (dBm)	
			FCC	ISEDC		FCC	ISEDC
5MHz	QPSK	1#0	22.47	22.95	22.32	22.36	22.25
		1#13	22.41	22.97	22.49	22.34	22.19
		1#24	22.48	22.84	22.20	22.35	22.33
		15#0	21.46	22.14	21.65	21.47	21.05
		15#10	21.48	22.04	21.63	21.46	21.33
		25#0	21.46	22.03	21.68	21.41	21.41
	16QAM	1#0	22.44	22.88	22.32	22.37	22.33
		1#13	22.41	22.90	22.30	22.37	22.18
		1#24	22.49	22.77	22.19	22.31	22.16
		15#0	21.42	22.03	21.65	21.46	21.06
		15#10	21.45	21.95	21.63	21.44	21.34
		25#0	21.46	22.02	21.68	21.38	21.23
10MHz	QPSK	1#0	23.11	23.13	22.76	22.37	22.36
		1#25	23.17	22.90	22.66	22.32	22.18
		1#49	23.11	22.95	22.54	22.34	22.16
		25#0	22.08	22.09	21.77	21.43	21.37
		25#25	22.00	21.93	21.67	21.40	21.32
		50#0	22.11	21.92	21.69	21.42	21.15
	16QAM	1#0	22.28	23.11	22.75	22.37	22.34
		1#25	22.38	22.91	22.62	22.34	22.18
		1#49	22.27	22.92	22.54	22.34	22.19
		25#0	21.11	21.99	21.69	21.46	21.33
		25#25	20.98	22.07	21.58	21.45	21.33
		50#0	21.13	21.89	21.69	21.44	21.41
15MHz	QPSK	1#0	23.12	23.15	22.85	22.54	22.16
		1#38	22.95	22.81	22.55	22.38	22.28
		1#74	23.03	23.06	22.48	22.48	22.34
		36#0	22.14	21.97	22.46	21.45	21.41
		36#39	22.00	21.95	21.67	21.39	21.34
		75#0	22.01	21.89	21.43	21.43	21.54
	16QAM	1#0	23.12	23.21	22.81	22.51	22.36
		1#38	22.93	22.99	22.43	22.35	22.17
		1#74	23.03	23.17	22.52	22.46	22.36
		36#0	22.16	22.04	21.87	21.47	21.02
		36#39	21.99	22.03	21.67	21.41	21.22
		75#0	22.00	22.08	21.68	21.45	21.47
20MHz	QPSK	1#0	23.17	23.22	22.95	22.41	22.17
		1#50	23.05	23.13	22.79	22.37	22.29
		1#99	23.20	23.16	22.68	22.33	22.27
		50#0	22.13	22.15	21.81	21.38	21.36
		50#50	22.04	22.16	21.58	21.45	21.05
		100#0	22.05	22.08	21.62	21.33	21.37
	16QAM	1#0	23.17	23.24	22.15	22.41	22.14
		1#50	23.05	23.17	21.98	22.40	22.12
		1#99	23.21	23.17	21.95	22.36	22.36
		50#0	22.12	22.14	20.81	21.38	21.31
		50#50	22.04	22.15	20.57	21.33	21.39
		100#0	22.04	22.14	20.67	21.34	21.44

PAR, LTE Band 2

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	20 MHz	3.40	4.24	4.00	13
	100 RB		6.28	6.36	6.44	13
16QAM	1 RB	20 MHz	4.28	4.92	5.12	13
	100 RB		6.96	7.08	7.16	13

PAR, LTE Band 4

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	20 MHz	4.24	3.72	3.80	13
	100 RB		6.36	6.32	6.24	13
16QAM	1 RB	20 MHz	5.28	4.92	4.60	13
	100 RB		7.08	7.12	7.04	13

PAR, LTE Band 5

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	10 MHz	4.64	3.20	4.60	13
	50 RB		5.48	4.88	5.24	13
16QAM	1 RB	10 MHz	5.40	4.12	5.40	13
	50 RB		6.32	5.76	6.16	13

PAR, LTE Band 7

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	20 MHz	3.76	4.00	3.88	13
	100 RB		6.36	6.20	6.20	13
16QAM	1 RB	20 MHz	4.68	5.08	4.84	13
	100 RB		6.96	7.08	6.96	13

PAR, LTE Band 12

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	10 MHz	3.40	4.56	4.56	13
	50 RB		5.12	5.64	5.08	13
16QAM	1 RB	10 MHz	4.36	5.56	5.60	13
	50 RB		5.96	6.44	6.08	13

PAR, LTE Band 13

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	10 MHz	4.08	4.08	4.12	13
	50 RB		5.00	5.04	5.00	13
16QAM	1 RB	10 MHz	4.96	5.00	4.76	13
	50 RB		5.88	5.92	5.92	13

PAR, LTE Band 17

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	10 MHz	4.76	4.84	4.64	13
	50 RB		5.56	5.24	5.08	13
16QAM	1 RB	10 MHz	5.56	5.76	5.44	13
	50 RB		6.40	6.28	6.20	13

PAR, LTE Band 25

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	20 MHz	3.68	3.96	3.75	13
	100 RB		5.32	5.32	5.26	13
16QAM	1 RB	20 MHz	4.21	4.62	4.96	13
	100RB		6.25	6.33	6.44	13

PAR, LTE Band 26

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	10 MHz	3.00	4.48	4.56	13
	50 RB		4.56	5.08	5.16	13
16QAM	1 RB	10 MHz	3.92	5.16	5.44	13
	50RB		5.36	6.04	6.04	13

PAR, LTE Band 41

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)		Middle Channel PAR (dB)	High Channel PAR (dB)		Limit (dB)
			FCC	ISEDC		FCC	ISEDC	
QPSK	1 RB	20 MHz	4.26	4.58	4.79	4.40	4.32	13
	100 RB		5.52	5.83	5.99	5.71	5.61	13
16QAM	1 RB	20 MHz	4.27	4.53	4.77	4.41	4.21	13
	10 RB		5.57	5.76	6.05	5.82	5.93	13

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

ERP & EIRP

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
GPRS 850 Middle Channel								
836.600	H	94.33	19.4	0.0	1	18.4	38.45	20.1
836.600	V	100.45	28.7	0.0	1	27.7	38.45	10.8
EDGE 850 Middle Channel								
836.600	H	93.21	18.3	0.0	1	17.3	38.45	21.2
836.600	V	96.95	25.2	0.0	1	24.2	38.45	14.3
WCDMA Band 5 Middle Channel								
836.600	H	83.59	8.7	0.0	1	7.7	38.45	30.8
836.600	V	91.23	19.4	0.0	1	18.4	38.45	20.1
GPRS 1900 Middle Channel								
1880.000	H	91.16	18.2	11.1	1.6	27.7	33.00	5.3
1880.000	V	86.42	13.3	11.1	1.6	22.8	33.00	10.2
EGPRS 1900 Middle Channel								
1880.000	H	87.68	14.7	11.1	1.6	24.2	33.00	8.8
1880.000	V	84.22	11.1	11.1	1.6	20.6	33.00	12.4
WCDMA Band 2 Middle Channel								
1880.000	H	85.43	12.5	11.1	1.6	22.0	33.00	11.0
1880.000	V	83.57	10.4	11.1	1.6	19.9	33.00	13.1
WCDMA Band 4 Middle Channel								
1732.600	H	85.42	11.9	10.7	1.5	21.1	30.00	8.9
1732.600	V	84.29	10.5	10.7	1.5	19.7	30.00	10.3

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

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK 1.4M BW Middle Channel								
1880.000	H	84.43	11.8	11.7	2.7	20.8	33.00	12.2
1880.000	V	85.26	12.8	11.7	2.7	21.8	33.00	11.2
16QAM 1.4M BW Middle Channel								
1880.000	H	84.35	11.7	11.7	2.7	20.7	33.00	12.3
1880.000	V	85.14	12.7	11.7	2.7	21.7	33.00	11.3
QPSK 3M BW Middle Channel								
1880.000	H	85.45	12.8	11.7	2.7	21.8	33.00	11.2
1880.000	V	86.37	13.9	11.7	2.7	22.9	33.00	10.1
16QAM 3M BW Middle Channel								
1880.000	H	85.57	13	11.7	2.7	22.0	33.00	11.0
1880.000	V	86.23	13.8	11.7	2.7	22.8	33.00	10.2
QPSK 5M BW Middle Channel								
1880.000	H	85.24	12.6	11.7	2.7	21.6	33.00	11.4
1880.000	V	85.96	13.5	11.7	2.7	22.5	33.00	10.5
16QAM 5M BW Middle Channel								
1880.000	H	85.46	12.9	11.7	2.7	21.9	33.00	11.1
1880.000	V	85.78	13.3	11.7	2.7	22.3	33.00	10.7
QPSK 10M BW Middle Channel								
1880.000	H	84.98	12.4	11.7	2.7	21.4	33.00	11.6
1880.000	V	85.75	13.3	11.7	2.7	22.3	33.00	10.7
16QAM 10M BW Middle Channel								
1880.000	H	84.73	12.1	11.7	2.7	21.1	33.00	11.9
1880.000	V	85.46	13	11.7	2.7	22.0	33.00	11.0
QPSK 15M BW Middle Channel								
1880.000	H	84.39	11.8	11.7	2.7	20.8	33.00	12.2
1880.000	V	85.16	12.7	11.7	2.7	21.7	33.00	11.3
16QAM 15M BW Middle Channel								
1880.000	H	84.52	11.9	11.7	2.7	20.9	33.00	12.1
1880.000	V	85.13	12.7	11.7	2.7	21.7	33.00	11.3
QPSK 20M BW Middle Channel								
1880.000	H	84.75	12.1	11.7	2.7	21.1	33.00	11.9
1880.000	V	84.96	12.5	11.7	2.7	21.5	33.00	11.5
16QAM 20M BW Middle Channel								
1880.000	H	84.35	11.7	11.7	2.7	20.7	33.00	12.3
1880.000	V	84.84	12.4	11.7	2.7	21.4	33.00	11.6

LTE Band 4

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK 1.4M BW Middle Channel								
1732.500	H	87.67	13.6	10.9	2.5	22.0	30.00	8.0
1732.500	V	87.85	13.5	10.9	2.5	21.9	30.00	8.1
16QAM 1.4M BW Middle Channel								
1732.500	H	87.33	13.3	10.9	2.5	21.7	30.00	8.3
1732.500	V	87.72	13.4	10.9	2.5	21.8	30.00	8.2
QPSK 3M BW Middle Channel								
1732.500	H	86.94	12.9	10.9	2.5	21.3	30.00	8.7
1732.500	V	87.22	12.9	10.9	2.5	21.3	30.00	8.7
16QAM 3M BW Middle Channel								
1732.500	H	87.15	13.1	10.9	2.5	21.5	30.00	8.5
1732.500	V	87.43	13.1	10.9	2.5	21.5	30.00	8.5
QPSK 5M BW Middle Channel								
1732.500	H	87.67	13.6	10.9	2.5	22.0	30.00	8.0
1732.500	V	87.85	13.5	10.9	2.5	21.9	30.00	8.1
16QAM 5M BW Middle Channel								
1732.500	H	86.67	12.6	10.9	2.5	21.0	30.00	9.0
1732.500	V	87.14	12.8	10.9	2.5	21.2	30.00	8.8
QPSK 10M BW Middle Channel								
1732.500	H	87.67	13.6	10.9	2.5	22.0	30.00	8.0
1732.500	V	87.85	13.5	10.9	2.5	21.9	30.00	8.1
16QAM 10M BW Middle Channel								
1732.500	H	87.45	13.4	10.9	2.5	21.8	30.00	8.2
1732.500	V	87.73	13.4	10.9	2.5	21.8	30.00	8.2
QPSK 15M BW Middle Channel								
1732.500	H	86.54	12.5	10.9	2.5	20.9	30.00	9.1
1732.500	V	87.16	12.8	10.9	2.5	21.2	30.00	8.8
16QAM 15M BW Middle Channel								
1732.500	H	86.96	12.9	10.9	2.5	21.3	30.00	8.7
1732.500	V	87.24	12.9	10.9	2.5	21.3	30.00	8.7
QPSK 20M BW Middle Channel								
1732.500	H	86.25	12.2	10.9	2.5	20.6	30.00	9.4
1732.500	V	86.68	12.3	10.9	2.5	20.7	30.00	9.3
16QAM 20M BW Middle Channel								
1732.500	H	86.87	12.8	10.9	2.5	21.2	30.00	8.8
1732.500	V	86.58	12.2	10.9	2.5	20.6	30.00	9.4

LTE Band 5

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK 1.4M BW Middle Channel								
836.500	H	87.55	12.6	0.0	1	11.6	38.45	26.9
836.500	V	96.03	24.2	0.0	1	23.2	38.45	15.3
16-QAM 1.4M BW Middle Channel								
836.500	H	87.31	12.4	0.0	1	11.4	38.45	27.1
836.500	V	95.63	23.8	0.0	1	22.8	38.45	15.7
QPSK 3M BW Middle Channel								
836.500	H	85.40	10.5	0.0	1	9.5	38.45	29.0
836.500	V	95.14	23.3	0.0	1	22.3	38.45	16.2
16-QAM 3M BW Middle Channel								
836.500	H	85.16	10.2	0.0	1	9.2	38.45	29.3
836.500	V	94.86	23.1	0.0	1	22.1	38.45	16.4
QPSK 5M BW Middle Channel								
836.500	H	84.76	9.8	0.0	1	8.8	38.45	29.7
836.500	V	94.52	22.7	0.0	1	21.7	38.45	16.8
16-QAM 5M BW Middle Channel								
836.500	H	84.58	9.7	0.0	1	8.7	38.45	29.8
836.500	V	93.49	21.7	0.0	1	20.7	38.45	17.8
QPSK 10M BW Middle Channel								
836.500	H	84.36	9.4	0.0	1	8.4	38.45	30.1
836.500	V	93.16	21.4	0.0	1	20.4	38.45	18.1
16-QAM 10M BW Middle Channel								
836.500	H	83.53	8.6	0.0	1	7.6	38.45	30.9
836.500	V	92.42	20.6	0.0	1	19.6	38.45	18.9

LTE Band 7

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK 5M BW Middle Channel								
2535.000	H	83.57	11	13.1	3.1	21.0	33.00	12.0
2535.000	V	83.79	12.6	13.1	3.1	22.6	33.00	10.4
16QAM 5M BW Middle Channel								
2535.000	H	83.32	10.7	13.1	3.1	20.7	33.00	12.3
2535.000	V	83.54	12.4	13.1	3.1	22.4	33.00	10.6
QPSK 10M BW Middle Channel								
2535.000	H	83.44	10.8	13.1	3.1	20.8	33.00	12.2
2535.000	V	83.68	12.5	13.1	3.1	22.5	33.00	10.5
16QAM 10M BW Middle Channel								
2535.000	H	83.49	10.9	13.1	3.1	20.9	33.00	12.1
2535.000	V	83.77	12.6	13.1	3.1	22.6	33.00	10.4
QPSK 15M BW Middle Channel								
2535.000	H	83.75	11.1	13.1	3.1	21.1	33.00	11.9
2535.000	V	83.97	12.8	13.1	3.1	22.8	33.00	10.2
16QAM 15M BW Middle Channel								
2535.000	H	82.98	10.4	13.1	3.1	20.4	33.00	12.6
2535.000	V	83.32	12.2	13.1	3.1	22.2	33.00	10.8
QPSK 20M BW Middle Channel								
2535.000	H	83.35	10.7	13.1	3.1	20.7	33.00	12.3
2535.000	V	84.13	13	13.1	3.1	23.0	33.00	10.0
16QAM 20M BW Middle Channel								
2535.000	H	83.52	10.9	13.1	3.1	20.9	33.00	12.1
2535.000	V	83.89	12.7	13.1	3.1	22.7	33.00	10.3

LTE Band 12

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK 1.4M BW Middle Channel								
707.500	H	89.00	12.1	0.0	0.9	11.2	34.77	23.6
707.500	V	92.66	18.2	0.0	0.9	17.3	34.77	17.5
16QAM 1.4M BW Middle Channel								
707.500	H	89.01	12.2	0.0	0.9	11.3	34.77	23.5
707.500	V	92.48	18.1	0.0	0.9	17.2	34.77	17.6
QPSK 3M BW Middle Channel								
707.500	H	89.30	12.4	0.0	0.9	11.5	34.77	23.3
707.500	V	92.45	18	0.0	0.9	17.1	34.77	17.7
16QAM 3M BW Middle Channel								
707.500	H	89.06	12.2	0.0	0.9	11.3	34.77	23.5
707.500	V	92.39	18	0.0	0.9	17.1	34.77	17.7
QPSK 5M BW Middle Channel								
707.500	H	88.85	12	0.0	0.9	11.1	34.77	23.7
707.500	V	92.51	18.1	0.0	0.9	17.2	34.77	17.6
16QAM 5M BW Middle Channel								
707.500	H	88.25	11.4	0.0	0.9	10.5	34.77	24.3
707.500	V	92.63	18.2	0.0	0.9	17.3	34.77	17.5
QPSK 10M BW Middle Channel								
707.500	H	88.30	11.4	0.0	0.9	10.5	34.77	24.3
707.500	V	92.66	18.2	0.0	0.9	17.3	34.77	17.5
16QAM 10M BW Middle Channel								
707.500	H	88.54	11.7	0.0	0.9	10.8	34.77	24.0
707.500	V	92.77	18.4	0.0	0.9	17.5	34.77	17.3

Note: the stricter limit was used.

LTE Band 13

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK 5M BW Middle Channel								
782.000	H	88.12	12.6	0.0	0.9	11.7	34.77	23.1
782.000	V	91.66	19.1	0.0	0.9	18.2	34.77	16.6
16QAM 5M BW Middle Channel								
782.000	H	88.07	12.5	0.0	0.9	11.6	34.77	23.2
782.000	V	91.58	19	0.0	0.9	18.1	34.77	16.7
QPSK 10M BW Middle Channel								
782.000	H	87.59	12.1	0.0	0.9	11.2	34.77	23.6
782.000	V	90.69	18.1	0.0	0.9	17.2	34.77	17.6
16QAM 10M BW Middle Channel								
782.000	H	87.67	12.1	0.0	0.9	11.2	34.77	23.6
782.000	V	91.30	18.7	0.0	0.9	17.8	34.77	17.0

Note: the stricter limit was used.

LTE Band 17

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK 5M BW Middle Channel								
710.000	H	86.30	9.5	0.0	0.9	8.6	34.77	26.2
710.000	V	92.98	18.6	0.0	0.9	17.7	34.77	17.1
16-QAM 5M BW Middle Channel								
710.000	H	85.56	8.7	0.0	0.9	7.8	34.77	27.0
710.000	V	93.10	18.7	0.0	0.9	17.8	34.77	17.0
QPSK 10M BW Middle Channel								
710.000	H	84.48	7.7	0.0	0.9	6.8	34.77	28.0
710.000	V	92.82	18.5	0.0	0.9	17.6	34.77	17.2
16-QAM 10M BW Middle Channel								
710.000	H	84.59	7.8	0.0	0.9	6.9	34.77	27.9
710.000	V	93.19	18.8	0.0	0.9	17.9	34.77	16.9

LTE Band 25

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK 1.4M BW Middle Channel								
1882.500	H	86.82	14.2	11.7	2.7	23.2	33.00	9.8
1882.500	V	86.34	13.9	11.7	2.7	22.9	33.00	10.1
16QAM 1.4M BW Middle Channel								
1882.500	H	86.53	13.9	11.7	2.7	22.9	33.00	10.1
1882.500	V	86.24	13.8	11.7	2.7	22.8	33.00	10.2
QPSK 3M BW Middle Channel								
1882.500	H	86.97	14.4	11.7	2.7	23.4	33.00	9.6
1882.500	V	86.52	14.1	11.7	2.7	23.1	33.00	9.9
16QAM 3M BW Middle Channel								
1882.500	H	86.86	14.3	11.7	2.7	23.3	33.00	9.7
1882.500	V	86.37	13.9	11.7	2.7	22.9	33.00	10.1
QPSK 5M BW Middle Channel								
1882.500	H	87.21	14.6	11.7	2.7	23.6	33.00	9.4
1882.500	V	86.83	14.4	11.7	2.7	23.4	33.00	9.6
16QAM 5M BW Middle Channel								
1882.500	H	87.14	14.6	11.7	2.7	23.6	33.00	9.4
1882.500	V	86.67	14.2	11.7	2.7	23.2	33.00	9.8
QPSK 10M BW Middle Channel								
1882.500	H	87.03	14.4	11.7	2.7	23.4	33.00	9.6
1882.500	V	86.85	14.4	11.7	2.7	23.4	33.00	9.6
16QAM 10M BW Middle Channel								
1882.500	H	87.26	14.7	11.7	2.7	23.7	33.00	9.3
1882.500	V	86.87	14.4	11.7	2.7	23.4	33.00	9.6
QPSK 15M BW Middle Channel								
1882.500	H	87.12	14.5	11.7	2.7	23.5	33.00	9.5
1882.500	V	86.89	14.5	11.7	2.7	23.5	33.00	9.5
16QAM 15M BW Middle Channel								
1882.500	H	87.39	14.8	11.7	2.7	23.8	33.00	9.2
1882.500	V	87.16	14.7	11.7	2.7	23.7	33.00	9.3
QPSK 20M BW Middle Channel								
1882.500	H	87.18	14.6	11.7	2.7	23.6	33.00	9.4
1882.500	V	86.93	14.5	11.7	2.7	23.5	33.00	9.5
16QAM 20M BW Middle Channel								
1882.500	H	87.26	14.7	11.7	2.7	23.7	33.00	9.3
1882.500	V	86.99	14.6	11.7	2.7	23.6	33.00	9.4

LTE Band 26

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK 1.4M BW Middle Channel								
831.500	H	87.42	12.5	0.0	1	11.5	38.45	27.0
831.500	V	96.13	24.3	0.0	1	23.3	38.45	15.2
16QAM 1.4M BW Middle Channel								
831.500	H	87.08	12.1	0.0	1	11.1	38.45	27.4
831.500	V	95.84	24	0.0	1	23.0	38.45	15.5
QPSK 3M BW Middle Channel								
831.500	H	87.16	12.2	0.0	1	11.2	38.45	27.3
831.500	V	95.67	23.8	0.0	1	22.8	38.45	15.7
16QAM 3M BW Middle Channel								
831.500	H	86.84	11.9	0.0	1	10.9	38.45	27.6
831.500	V	95.25	23.4	0.0	1	22.4	38.45	16.1
QPSK 5M BW Middle Channel								
831.500	H	86.96	12	0.0	1	11.0	38.45	27.5
831.500	V	94.42	22.6	0.0	1	21.6	38.45	16.9
16QAM 5M BW Middle Channel								
831.500	H	86.64	11.7	0.0	1	10.7	38.45	27.8
831.500	V	94.35	22.5	0.0	1	21.5	38.45	17.0
QPSK 10M BW Middle Channel								
831.500	H	85.48	10.5	0.0	1	9.5	38.45	29.0
831.500	V	92.48	20.6	0.0	1	19.6	38.45	18.9
16QAM 10M BW Middle Channel								
831.500	H	85.75	10.8	0.0	1	9.8	38.45	28.7
831.500	V	93.88	22	0.0	1	21.0	38.45	17.5
QPSK 15M BW Middle Channel								
831.500	H	84.59	9.6	0.0	1	8.6	38.45	29.9
831.500	V	92.82	21	0.0	1	20.0	38.45	18.5
16QAM 15M BW Middle Channel								
831.500	H	84.32	9.4	0.0	1	8.4	38.45	30.1
831.500	V	92.14	20.3	0.0	1	19.3	38.45	19.2

LTE Band 41

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK 5M BW Middle Channel								
2593.000	H	84.54	12.3	13.2	3.1	22.4	33.00	10.6
2593.000	V	84.72	14.3	13.2	3.1	24.4	33.00	8.6
16QAM 5M BW Middle Channel								
2593.000	H	84.49	12.2	13.2	3.1	22.3	33.00	10.7
2593.000	V	84.53	14.1	13.2	3.1	24.2	33.00	8.8
QPSK 10M BW Middle Channel								
2593.000	H	84.67	12.4	13.2	3.1	22.5	33.00	10.5
2593.000	V	84.95	14.6	13.2	3.1	24.7	33.00	8.3
16QAM 10M BW Middle Channel								
2593.000	H	84.64	12.4	13.2	3.1	22.5	33.00	10.5
2593.000	V	84.79	14.4	13.2	3.1	24.5	33.00	8.5
QPSK 15M BW Middle Channel								
2593.000	H	83.68	11.4	13.2	3.1	21.5	33.00	11.5
2593.000	V	84.24	13.8	13.2	3.1	23.9	33.00	9.1
16QAM 15M BW Middle Channel								
2593.000	H	83.95	11.7	13.2	3.1	21.8	33.00	11.2
2593.000	V	84.14	13.7	13.2	3.1	23.8	33.00	9.2
QPSK 20M BW Middle Channel								
2593.000	H	83.84	11.6	13.2	3.1	21.7	33.00	11.3
2593.000	V	84.35	14	13.2	3.1	24.1	33.00	8.9
16QAM 20M BW Middle Channel								
2593.000	H	83.46	11.2	13.2	3.1	21.3	33.00	11.7
2593.000	V	84.23	13.8	13.2	3.1	23.9	33.00	9.1

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

FCC §2.1049, §22.917, §22.905 & §24.238 & §27.53&§90.209 AND RSS-GEN §6.6 - OCCUPIED BANDWIDTH

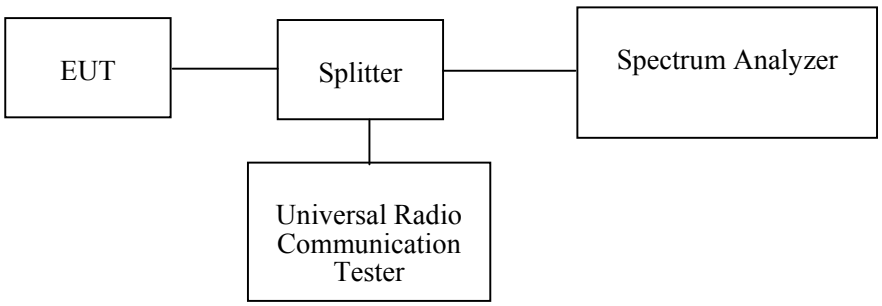
Applicable Standard

FCC §2.1049, §22.917, §22.905, §24.238, §27.53, §90.209, and RSS-GEN §6.6
0

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	FSU 26	200256	2017-12-08	2018-12-08
R&S	Universal Radio Communication Tester	CMU200	109 038	2017-07-18	2018-07-18
R&S	Wideband Radio Communication Tester	CMW500	147473	2017-08-31	2018-08-31
N/A	Coaxial Cable	C-SJ00-0010	C0010/01	Each Time	/
E-Microwave	RF Attenuator	10dB	10dB-2	Each Time	/
Pasternack	RF Coaxial Cable	0.5m	C-5	Each Time	/
E-Microwave	Two-way Spliter	ODP-1-6-2S	OE0120142	Each Time	/

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

Test Data

Environmental Conditions

Temperature:	24.6~24.9 °C
Relative Humidity:	46~55 %
ATM Pressure:	101~101.3 kPa

The testing was performed by David Huang and Swim Lv from 2018-01-24 to 2018-04-17.

Test Mode: Transmitting

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

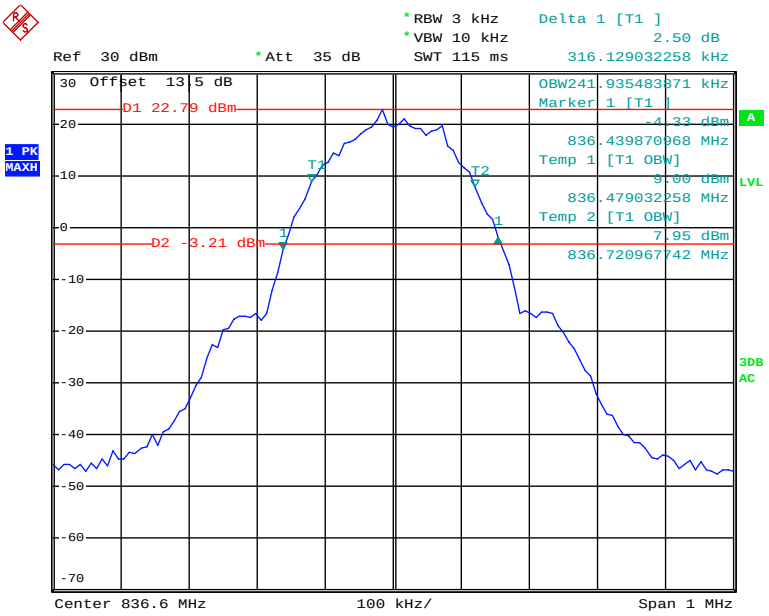
Band	Test Channel	Mode	99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)
Cellular	M	GPRS	0.242	0.316
		EDGE	0.250	0.328
PCS		GPRS	0.250	0.332
		EDGE	0.242	0.330
WCDMA Band 2		Rel 99	4.194	4.892
		HSDPA	4.194	4.861
		HSUPA	4.194	4.900
WCDMA Band 4		Rel 99	4.194	4.840
		HSDPA	4.194	4.880
		HSUPA	4.194	4.840
WCDMA Band 5		Rel 99	4.194	4.860
		HSDPA	4.194	4.787
		HSUPA	4.194	4.900

Band	Test Modulation	Test Bandwidth (MHz)	Test Channel	99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)
LTE Band 2	QPSK	1.4	M	1.104	1.327
		3		2.760	3.120
		5		4.560	5.098
		10		8.960	9.935
		15		13.560	15.078
		20		18.000	19.578
	16QAM	1.4	M	1.116	1.323
		3		2.760	3.088
		5		4.560	5.100
		10		8.960	9.862
		15		13.560	14.971
		20		18.000	19.566

Band	Test Modulation	Test Bandwidth (MHz)	Test Channel	99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)
LTE Band 4	QPSK	1.4	M	1.104	1.347
		3		2.748	3.101
		5		4.540	5.078
		10		8.960	9.768
		15		13.620	15.068
		20		18.000	19.693
	16QAM	1.4	M	1.110	1.346
		3		2.748	3.080
		5		4.520	5.110
		10		8.960	9.770
		15		13.500	15.017
		20		18.000	19.572
LTE Band 5	QPSK	1.4	M	1.110	1.348
		3		2.748	3.082
		5		4.540	5.039
		10		8.960	9.799
	16QAM	1.4	M	1.110	1.350
		3		2.748	3.085
		5		4.540	5.053
		10		8.960	9.818
LTE Band 7	QPSK	5	M	4.540	5.051
		10		8.960	9.785
		15		13.600	15.060
		20		18.000	19.686
	16QAM	5	M	4.540	5.045
		10		8.960	9.843
		15		13.520	14.935
		20		18.000	19.617
LTE Band 12	QPSK	1.4	M	1.110	1.329
		3		2.748	3.074
		5		4.540	5.101
		10		9.000	9.893
	16QAM	1.4	M	1.104	1.330
		3		2.748	3.088
		5		4.540	5.065
		10		9.000	9.888
LTE Band 13	QPSK	5	M	4.540	5.067
		10		8.960	9.808
	16QAM	5	M	4.560	5.087
		10		8.960	9.753
LTE Band 17	QPSK	5	M	4.540	5.071
		10		8.920	9.777
	16QAM	5	M	4.540	5.078
		10		8.920	9.809

Band	Test Modulation	Test Bandwidth (MHz)	Test Channel	99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)
LTE Band 25	QPSK	1.4	M	1.112	1.341
		3		2.754	3.150
		5		4.549	5.050
		10		8.978	9.910
		15		13.587	15.069
		20		17.956	19.448
	16QAM	1.4	M	1.112	1.329
		3		2.778	3.138
		5		4.529	5.130
		10		8.978	9.790
		15		13.527	14.949
		20		17.956	19.528
LTE Band 26	QPSK	1.4	M	1.104	1.341
		3		2.748	3.099
		5		4.540	5.021
		10		8.960	9.738
		15		13.560	15.059
	16QAM	1.4	M	1.104	1.353
		3		2.748	3.088
		5		4.540	5.073
		10		8.960	9.775
		15		13.500	14.976
LTE Band 41	QPSK	5	M	4.560	5.070
		10		9.000	9.896
		15		13.620	14.883
		20		18.000	19.975
	16QAM	5	M	4.520	5.080
		10		8.960	9.849
		15		13.560	15.124
		20		18.000	19.772

GPRS 850 Cellular Band



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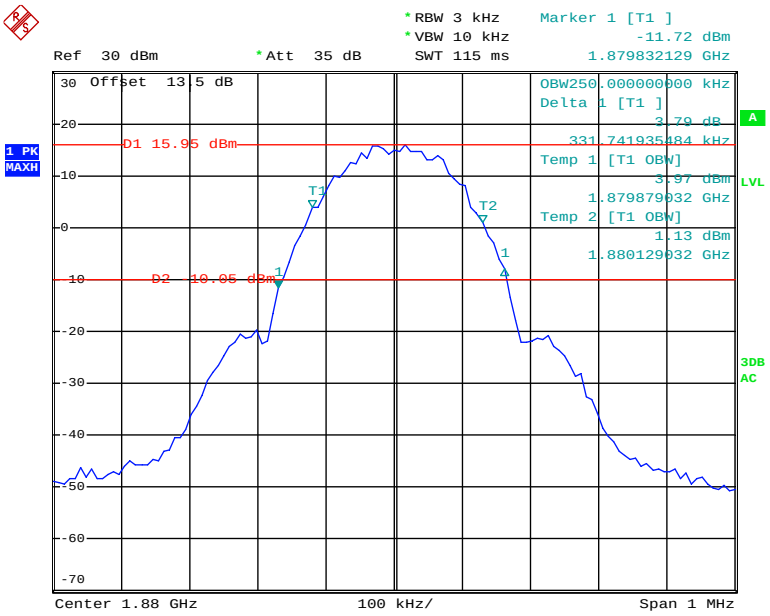
GPRS PCS1900 Cellular Band



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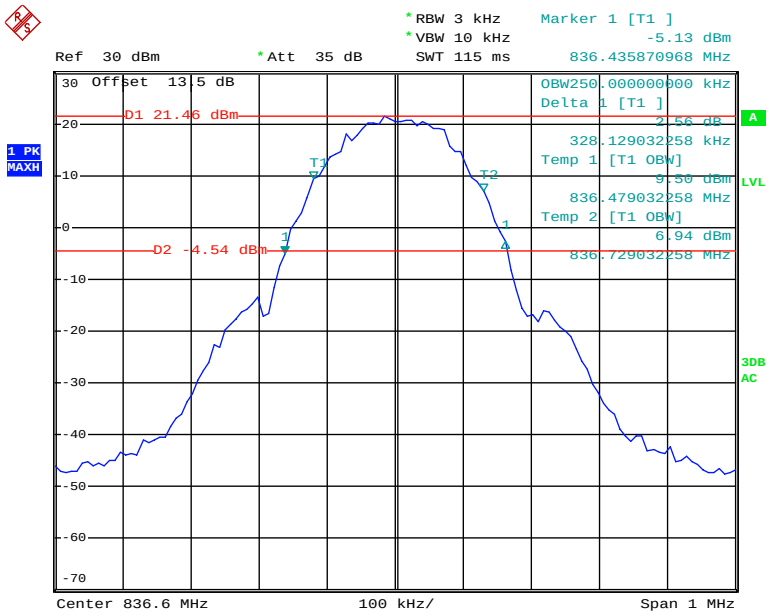
EDGE 850 Cellular Band



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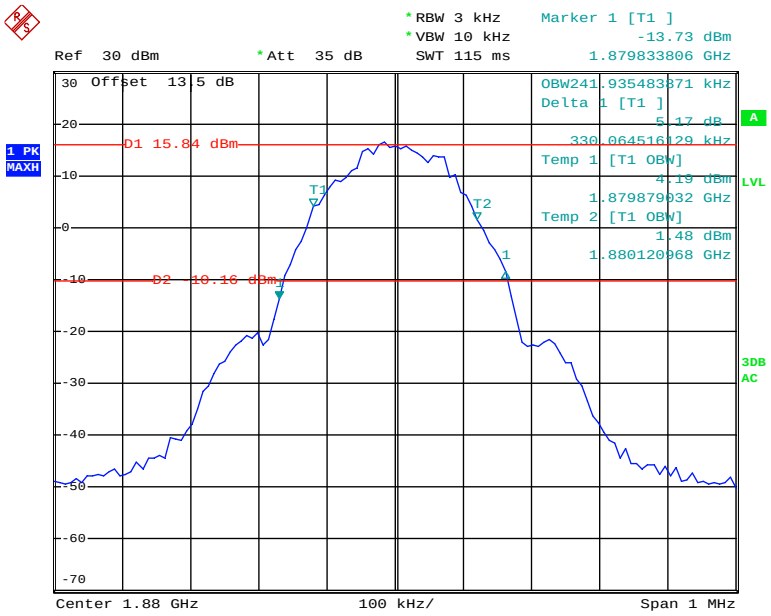
EDGE PCS1900 Cellular Band



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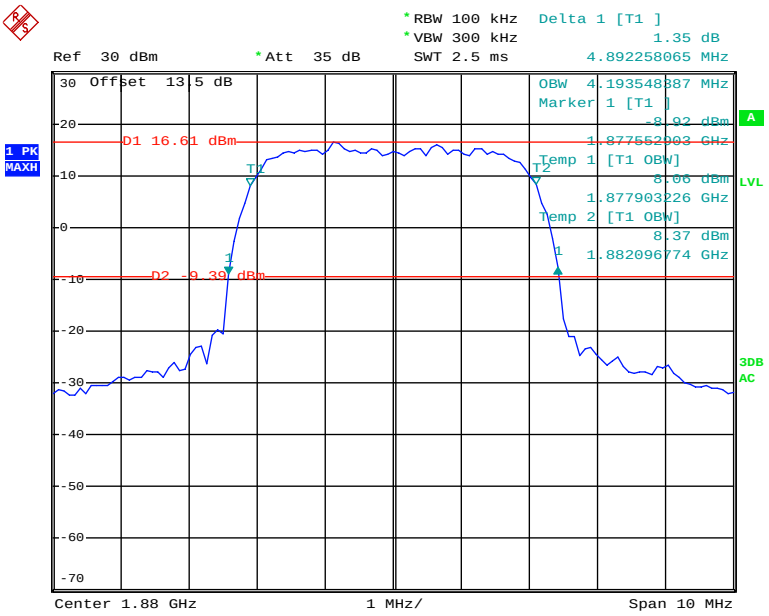
REL99 Band 2



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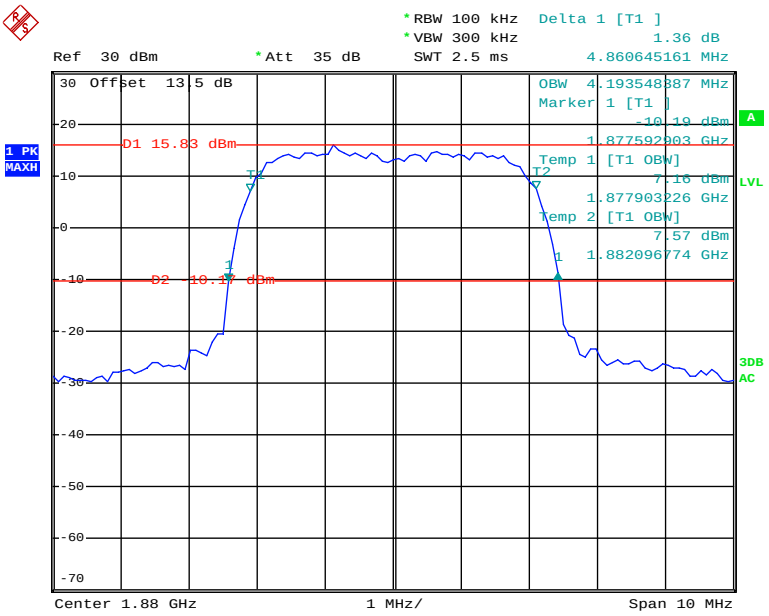
HSDPA Band 2



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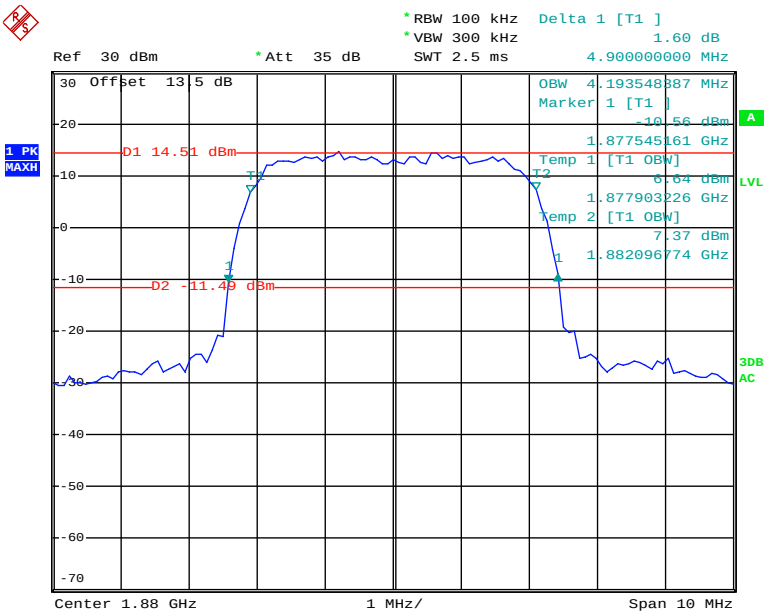
HSUPA Band 2



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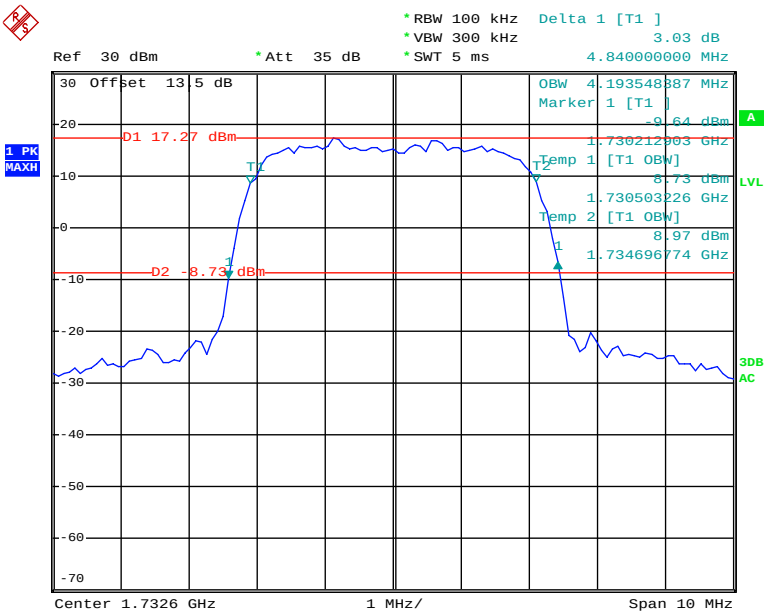
REL99 Band 4



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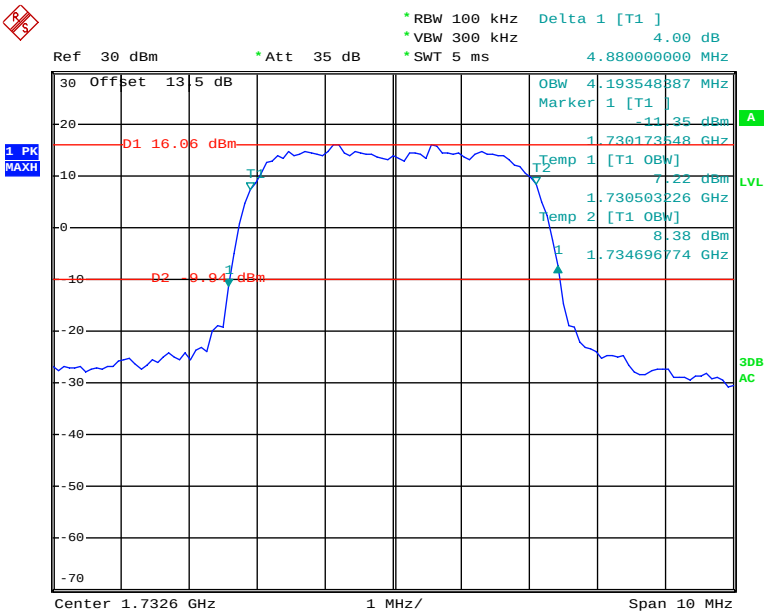
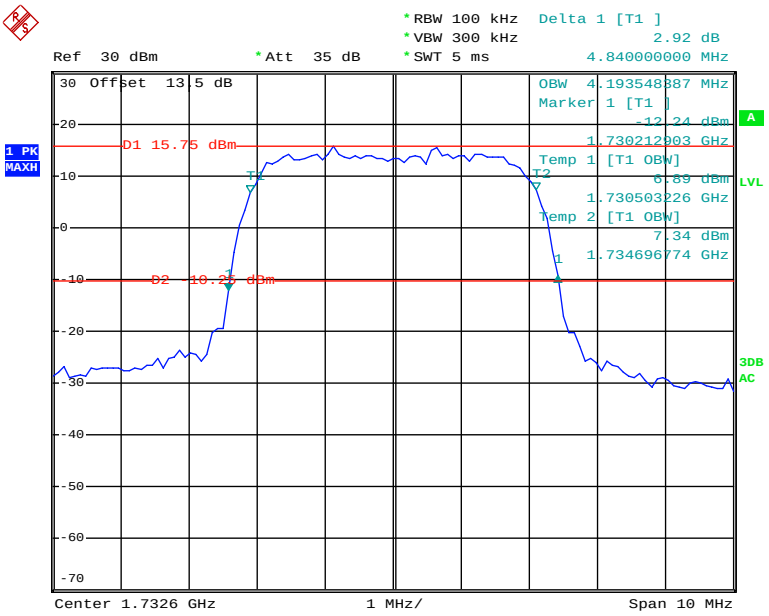
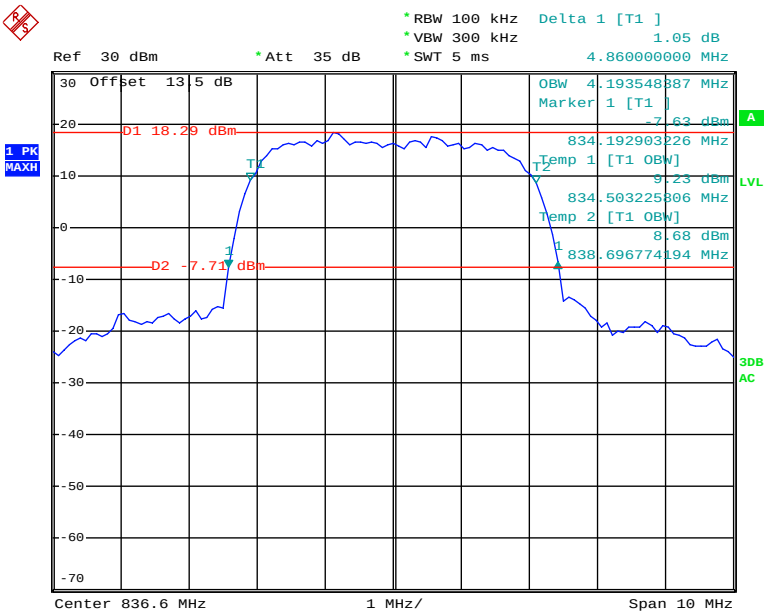
HSDPA Band Ⅳ



HSUPA Band Ⅳ



REL99 Band 5



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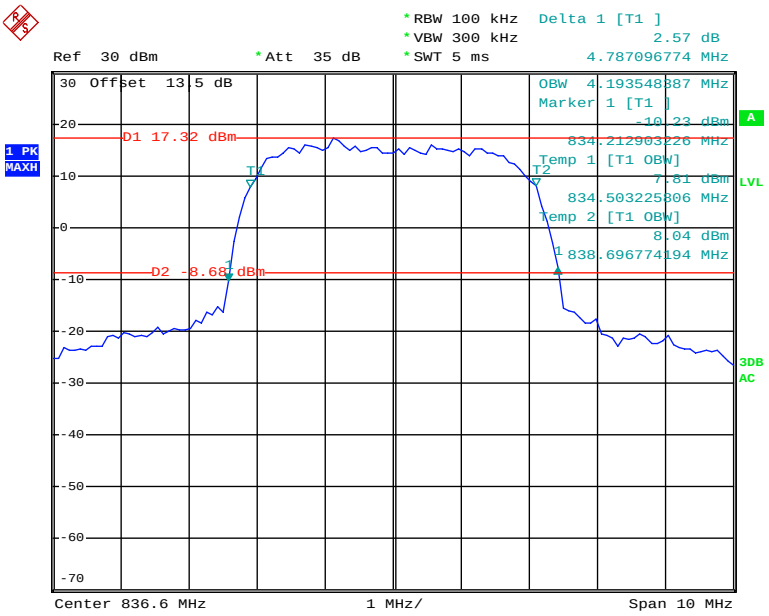
HSDPA Band 5



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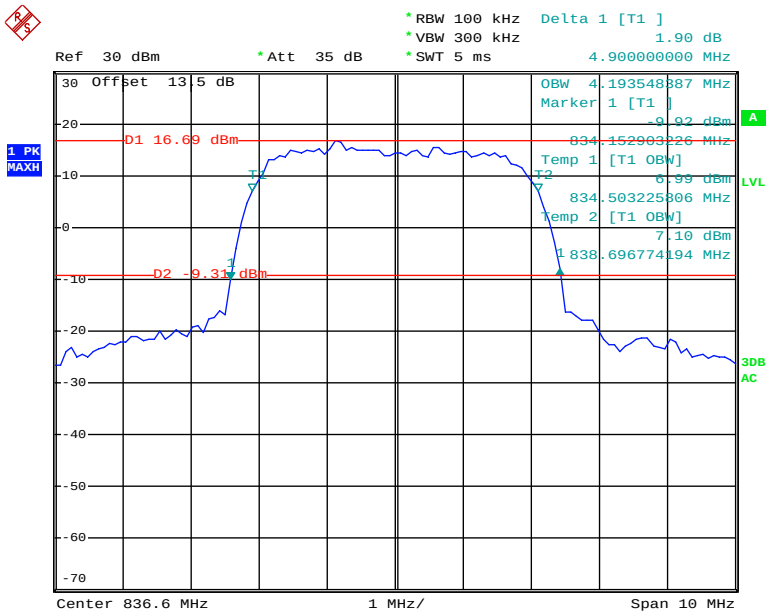
HSUPA Band 5



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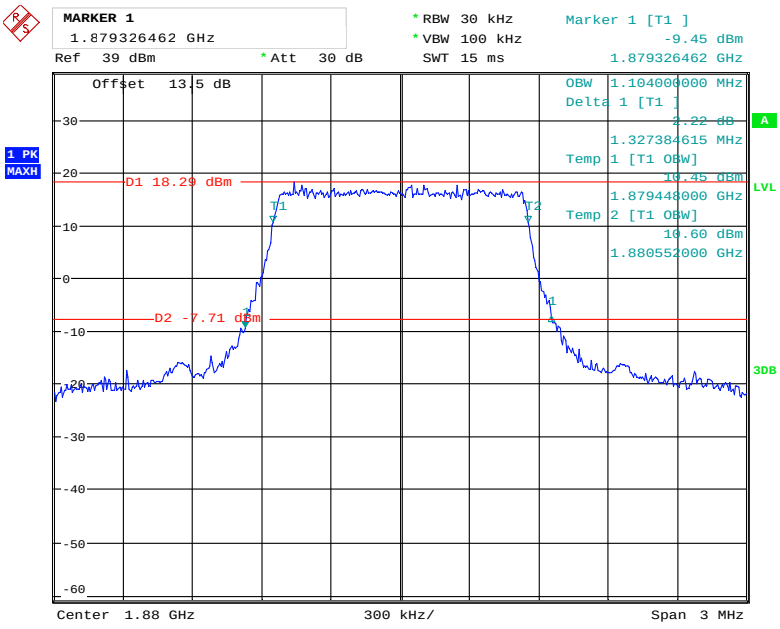
LTE Band 2

QPSK_1.4 MHz



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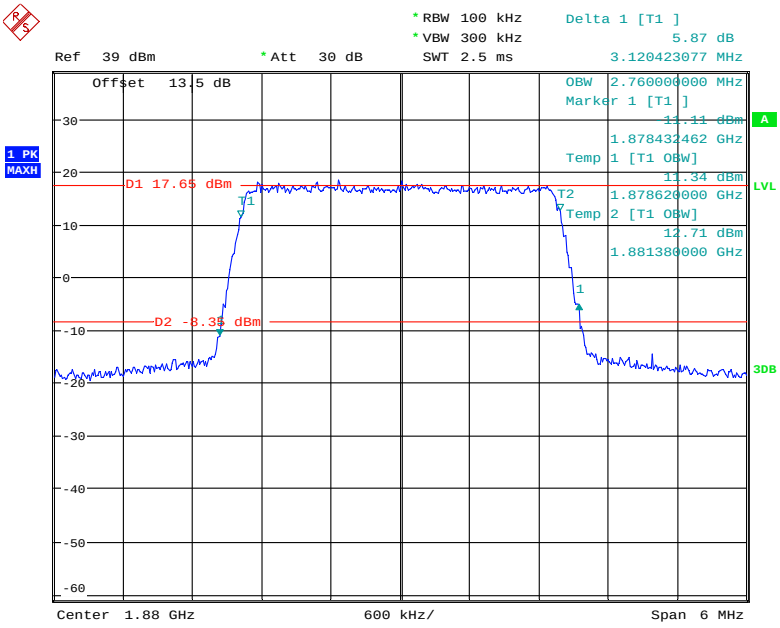
QPSK_3 MHz



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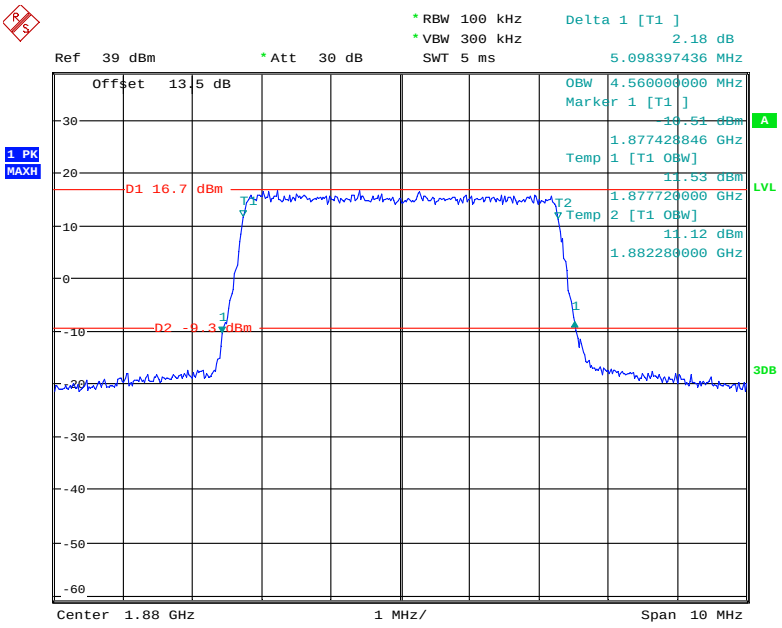
QPSK_5 MHz



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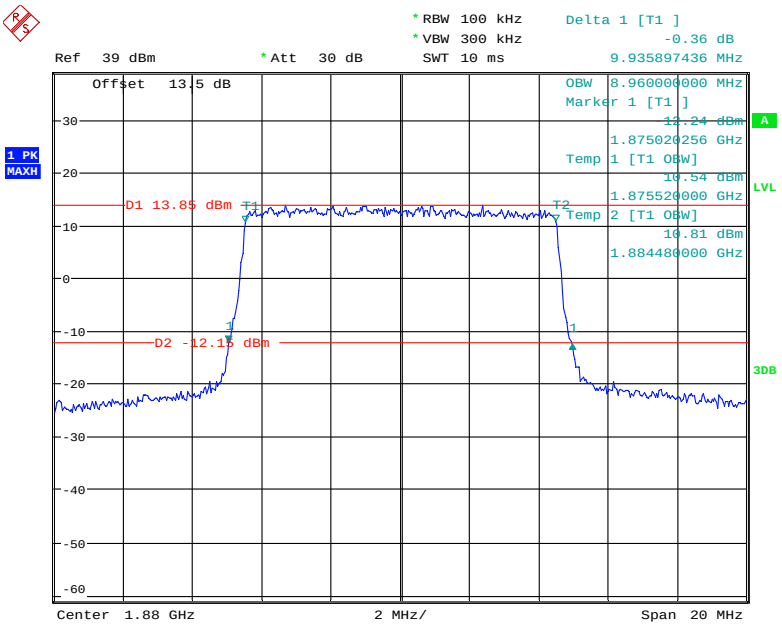
QPSK_10 MHz



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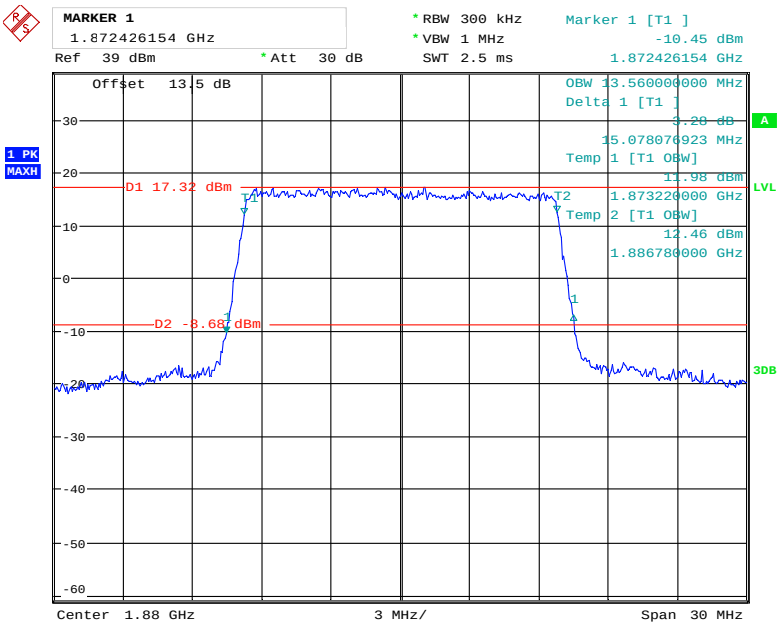
QPSK_15 MHz



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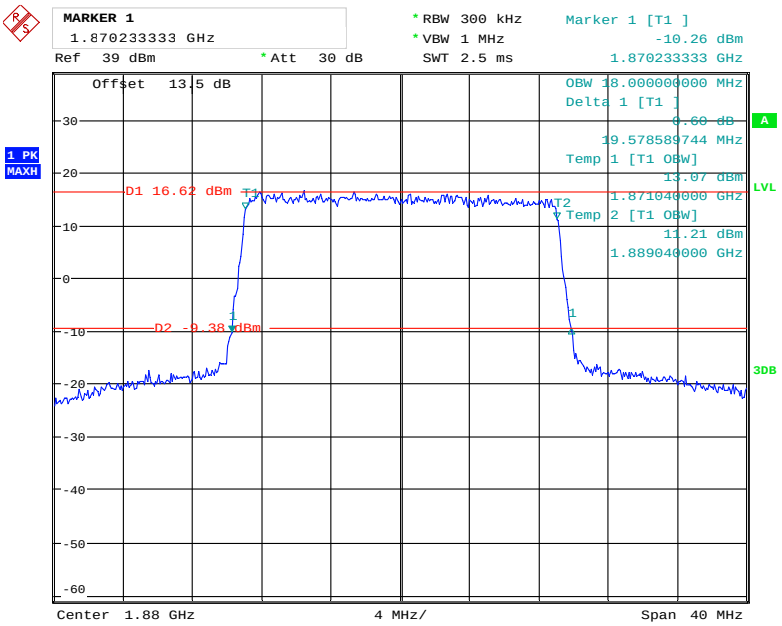
QPSK_20 MHz



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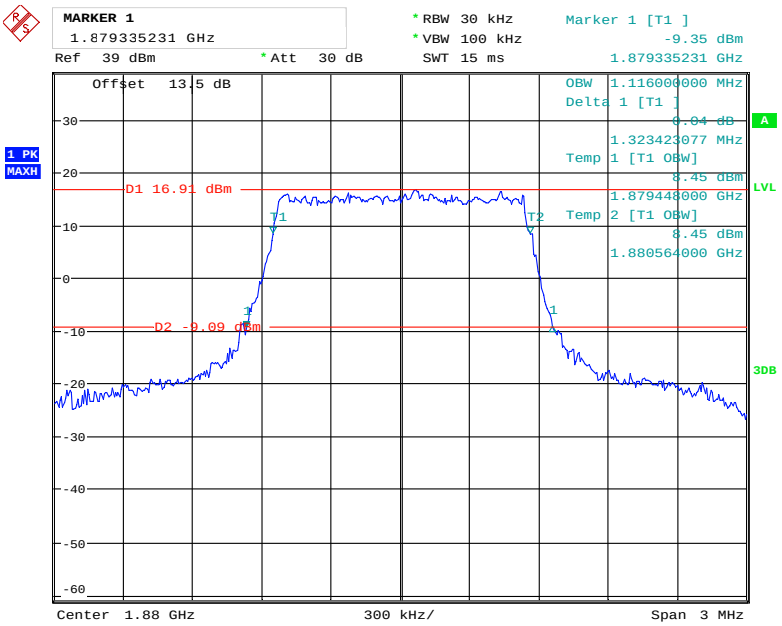
16QAM_1.4 MHz



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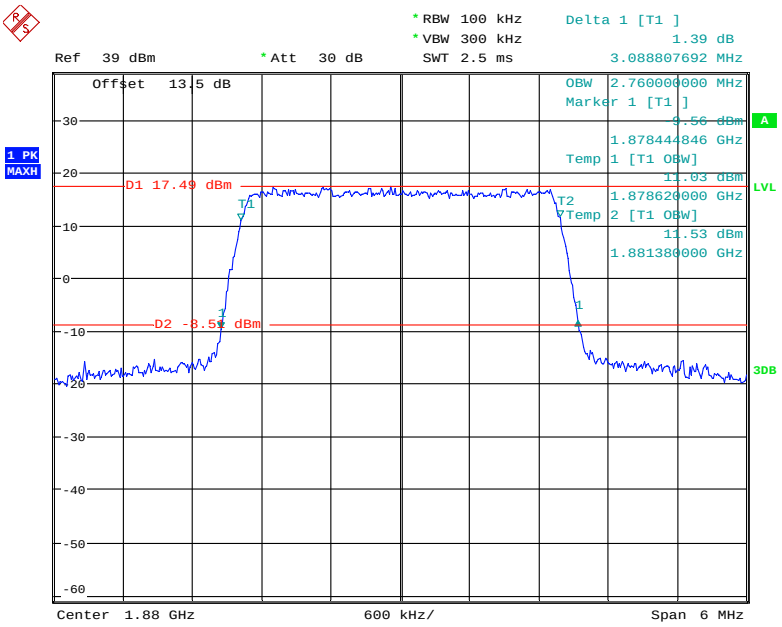
16QAM_3 MHz



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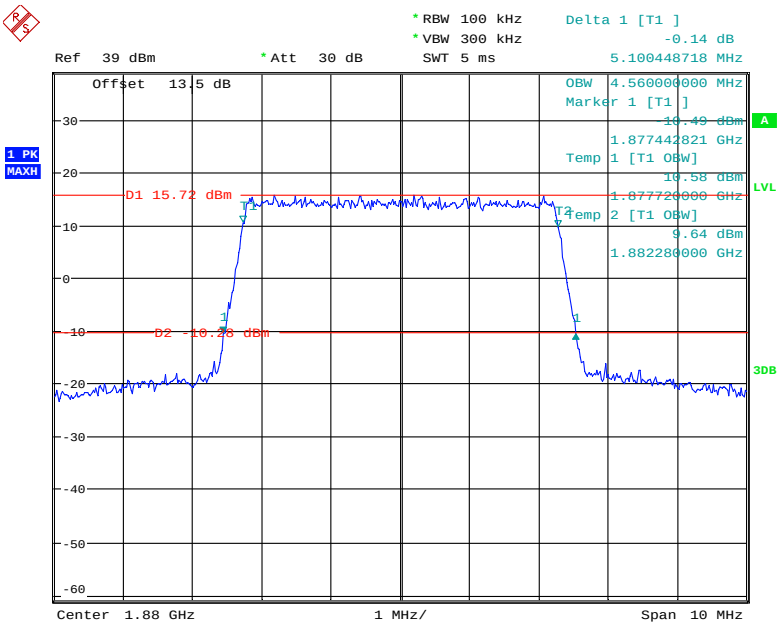
16QAM_5 MHz



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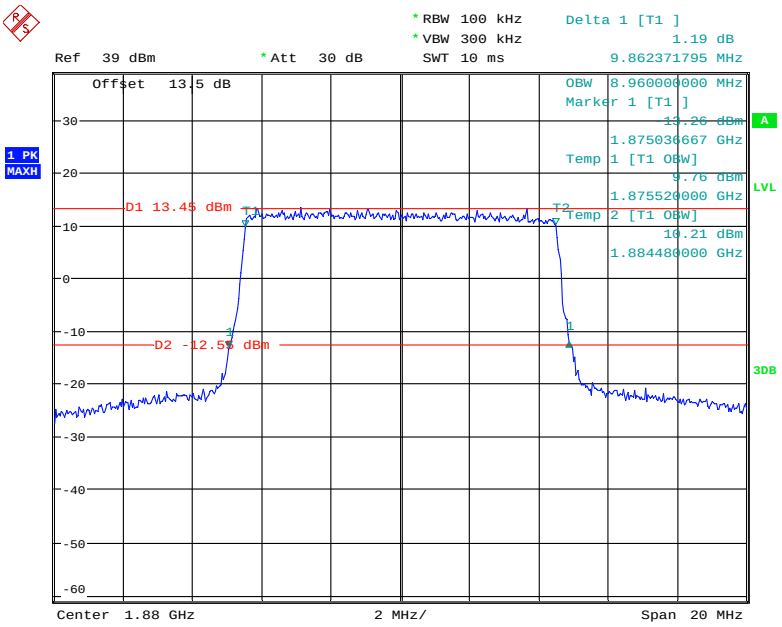
16QAM_10 MHz



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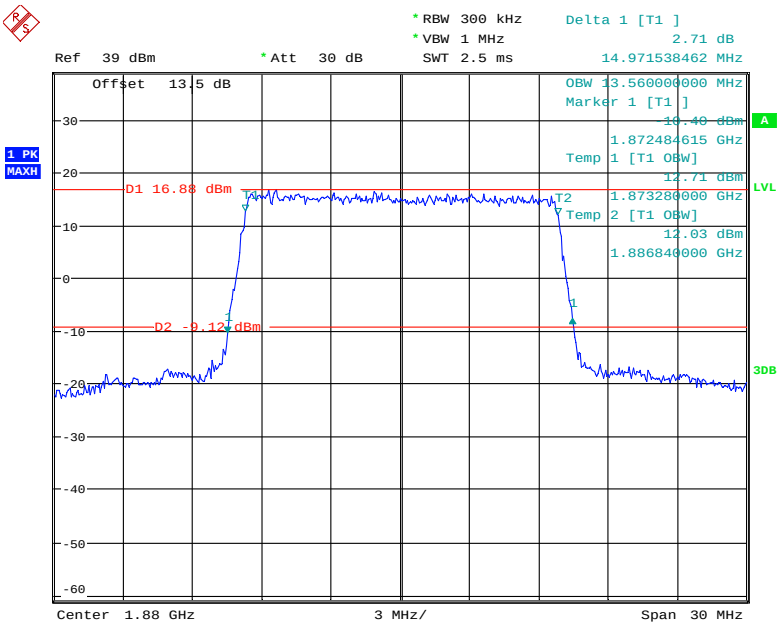
16QAM_15 MHz



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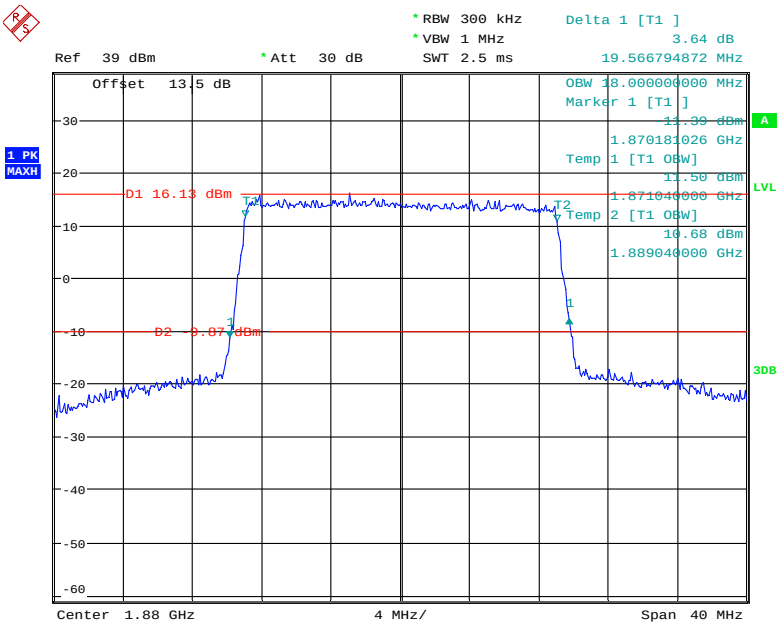
16QAM_20 MHz



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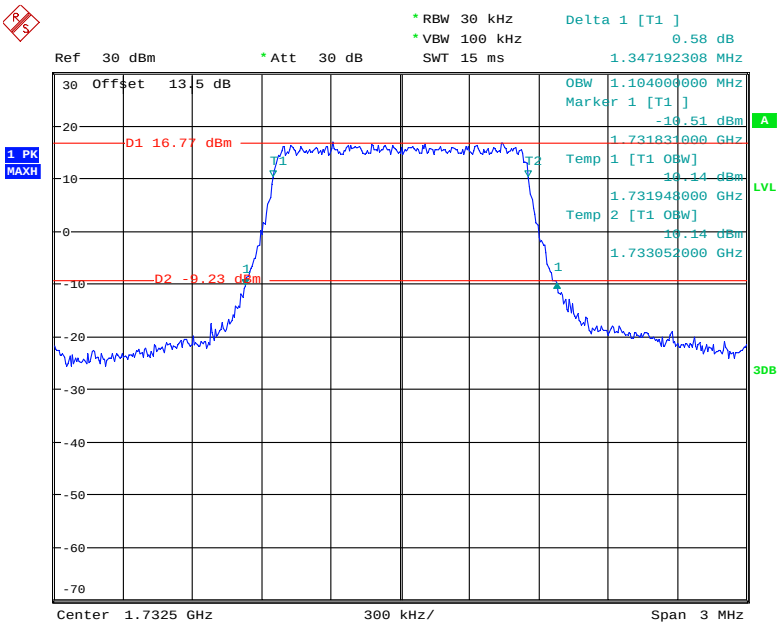
LTE Band 4:

QPSK_1.4 MHz



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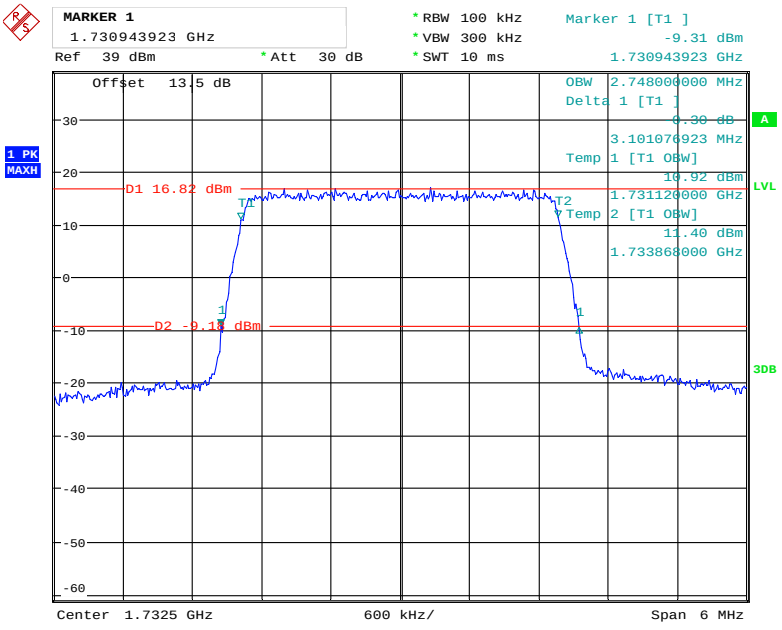
QPSK_3 MHz



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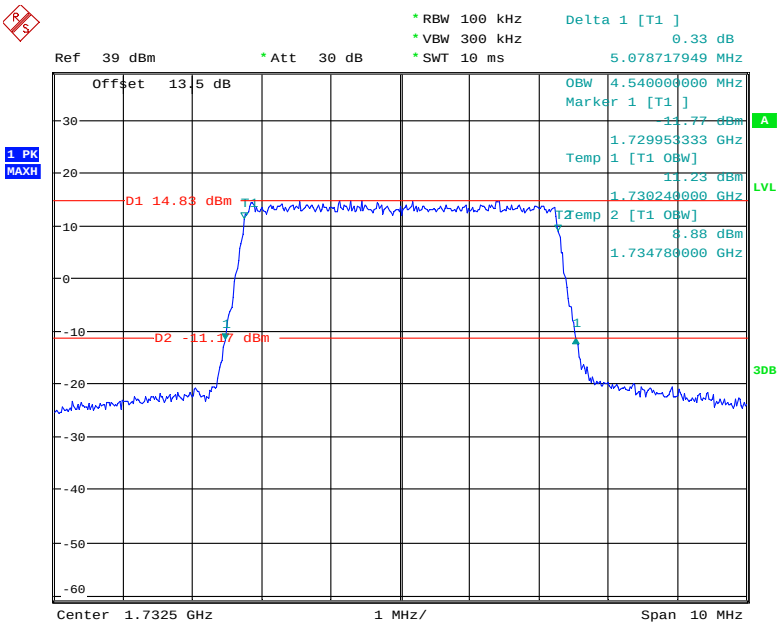
QPSK_5 MHz



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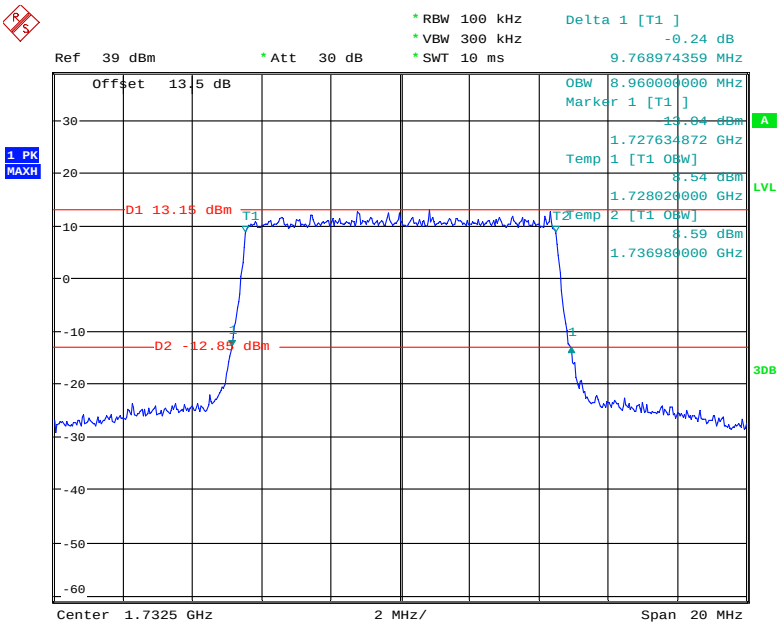
QPSK_10 MHz



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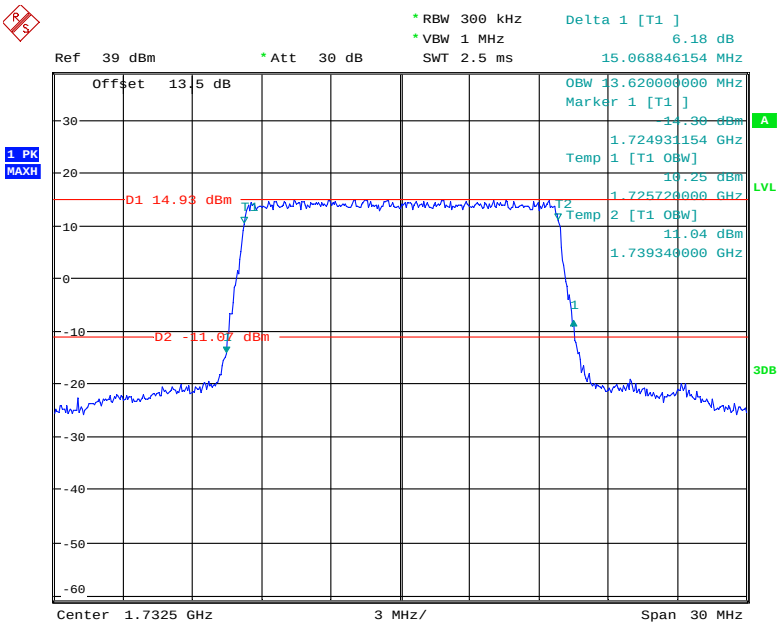
QPSK_15 MHz



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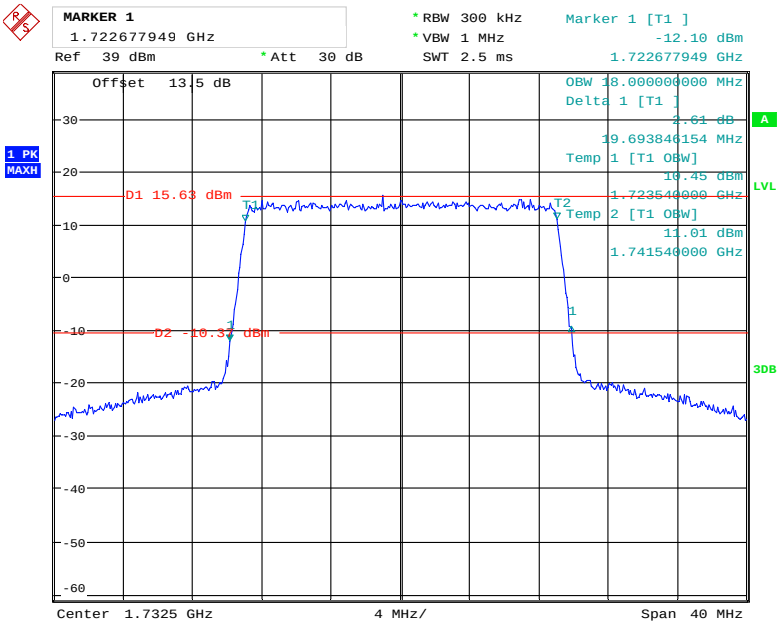
QPSK_20 MHz



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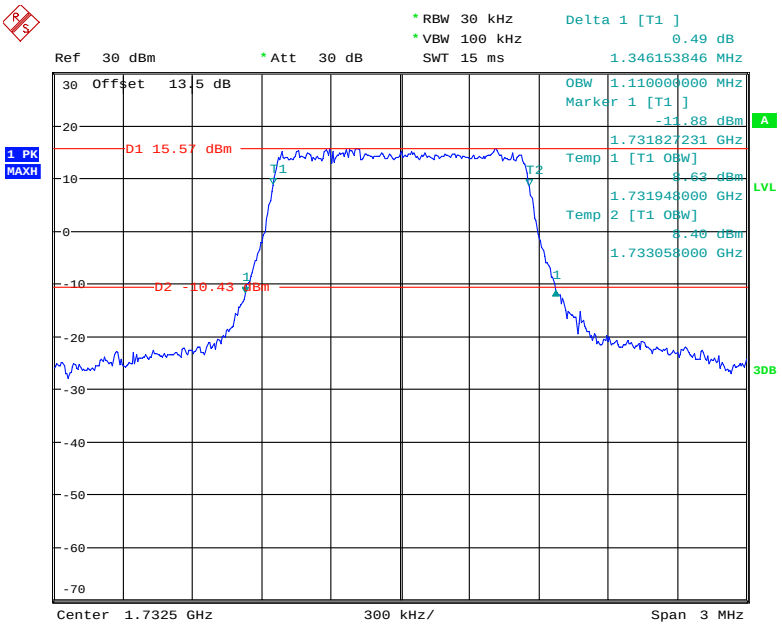
16QAM_1.4 MHz



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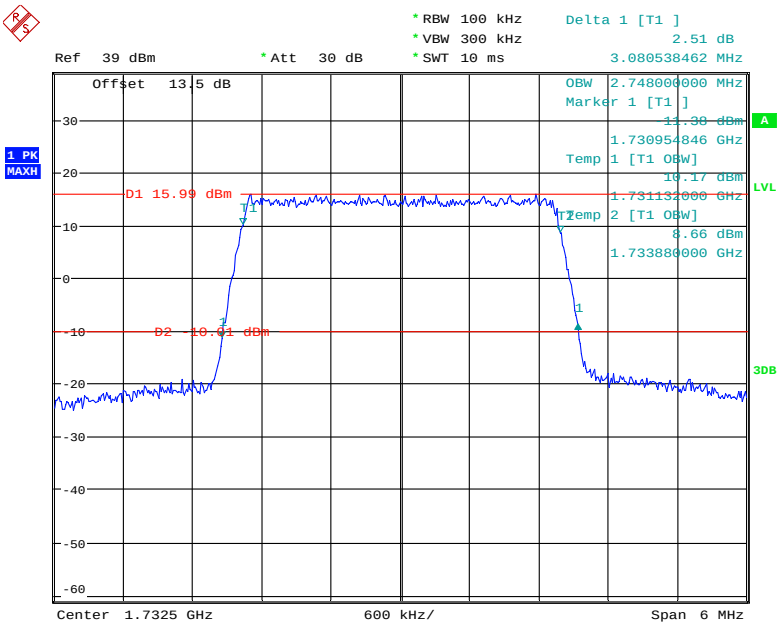
16QAM_3 MHz



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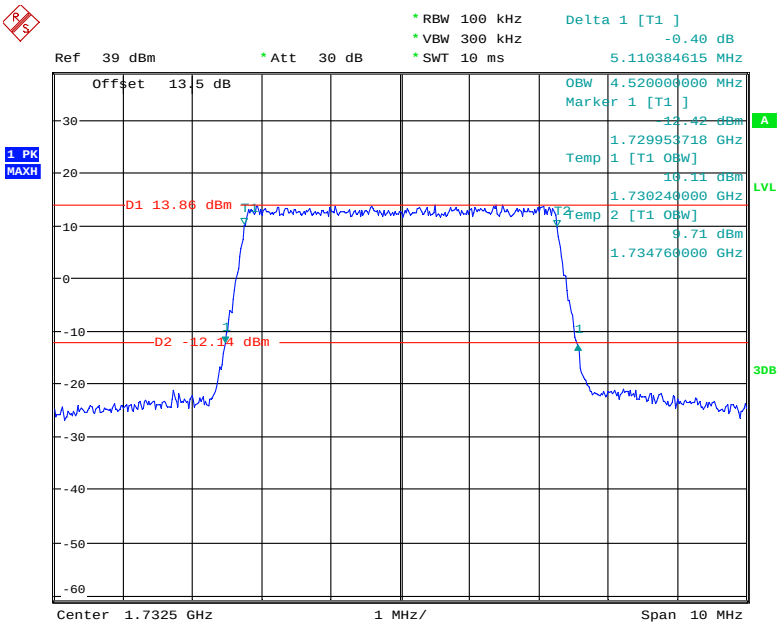

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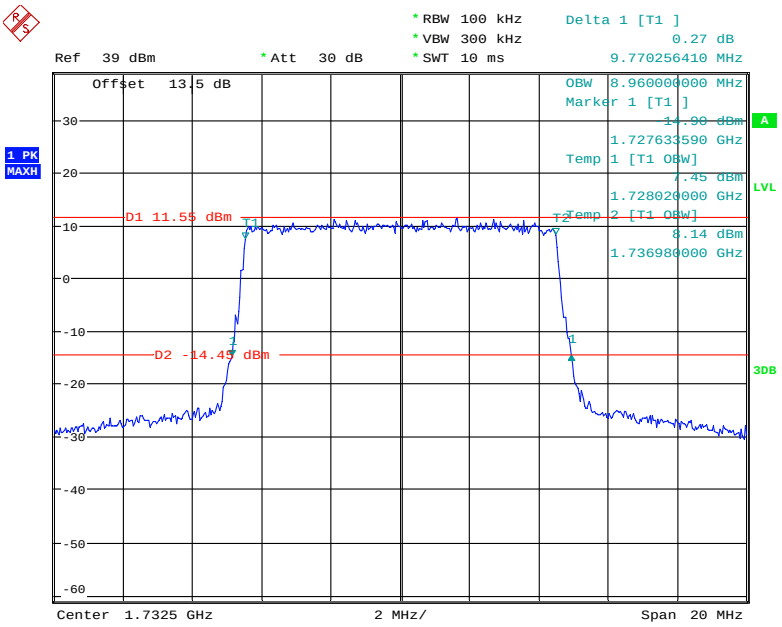
16QAM_10 MHz



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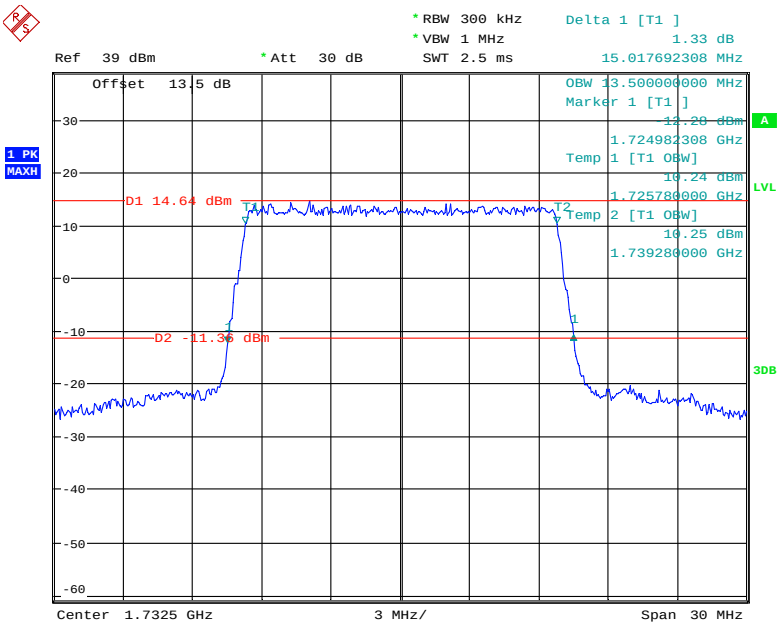

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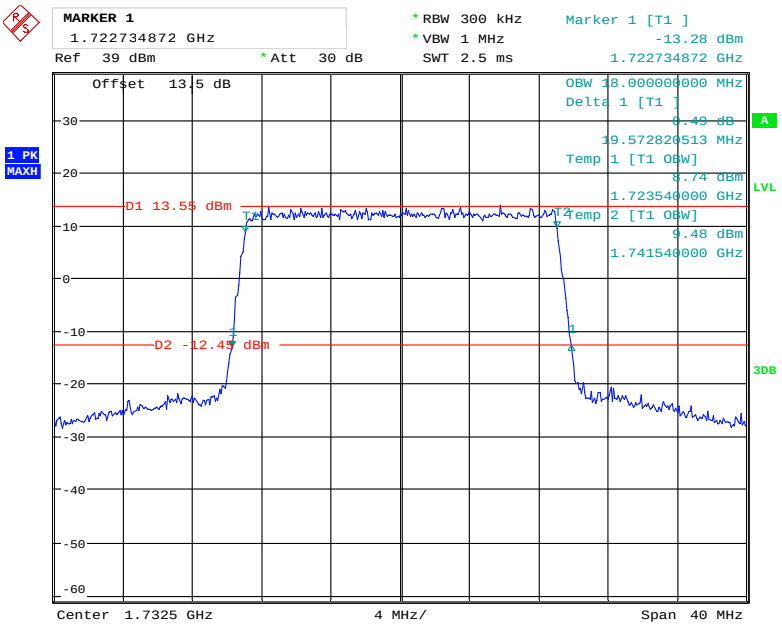
16QAM_20 MHz



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LTE Band 5:

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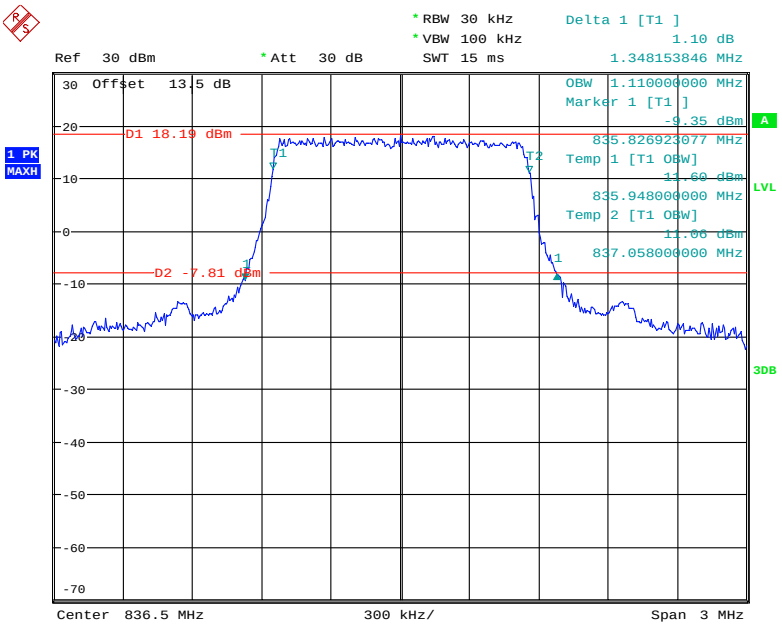

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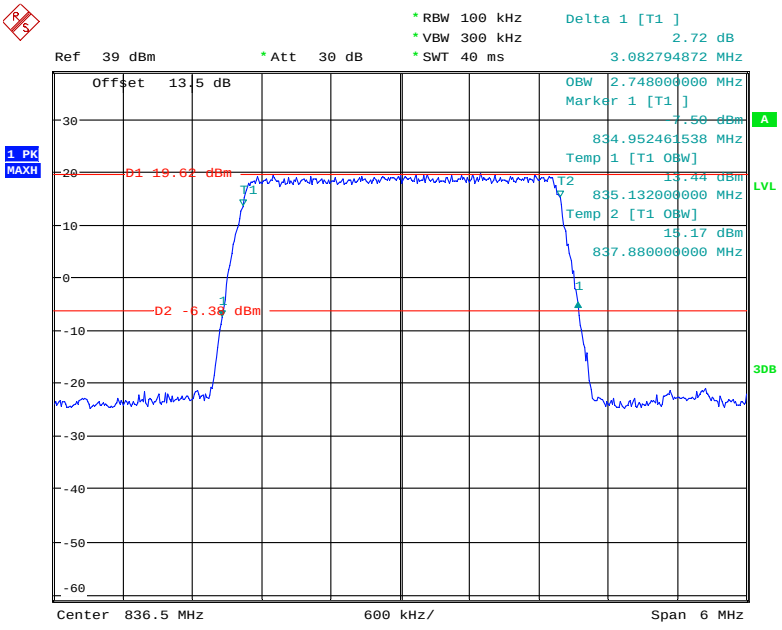

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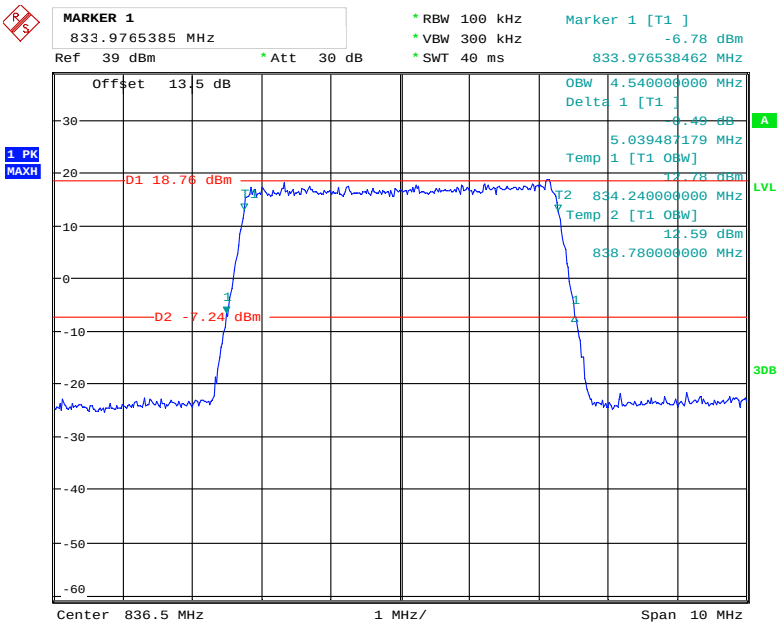

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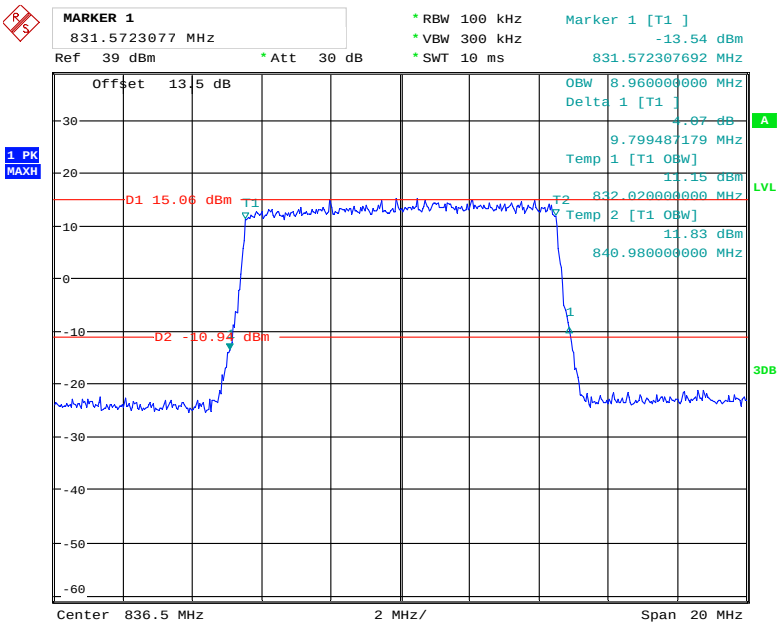

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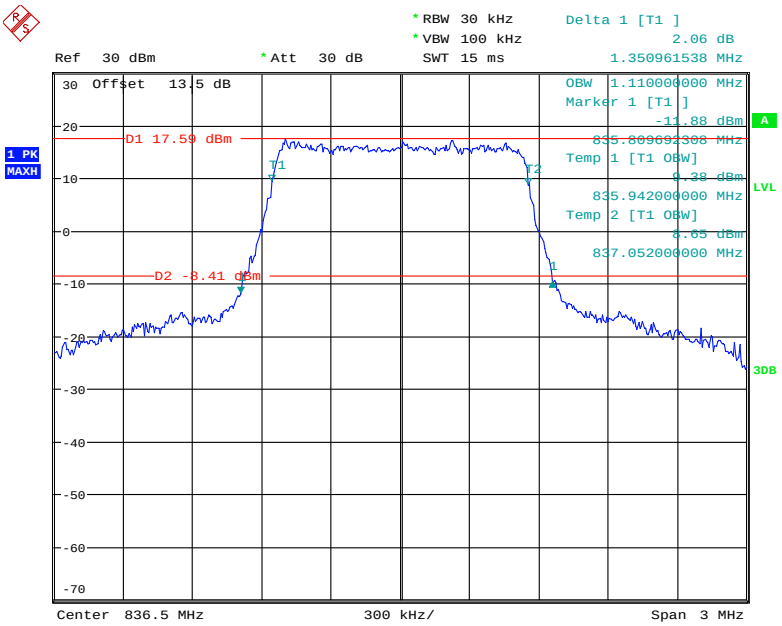

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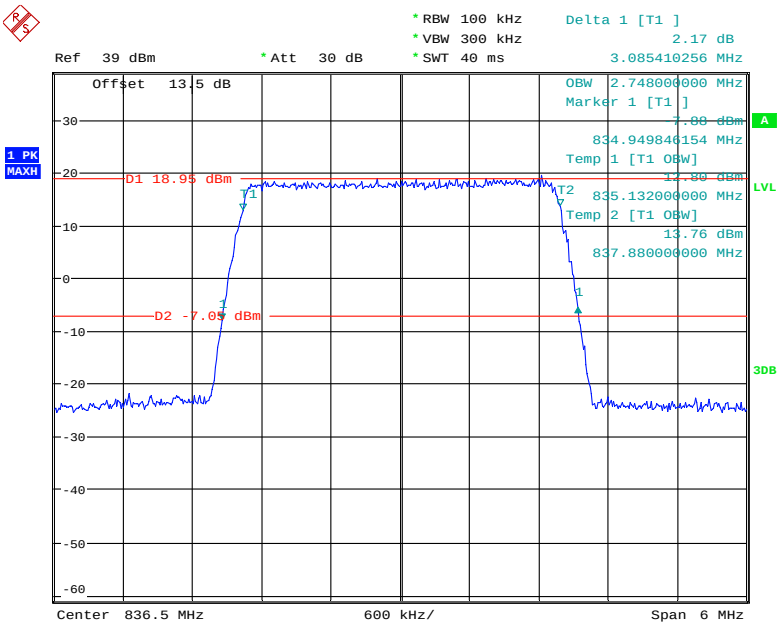

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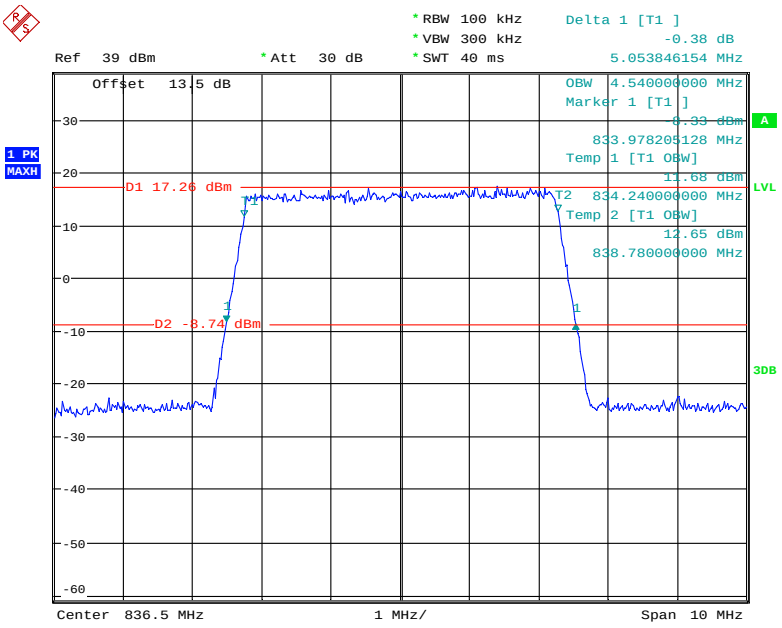

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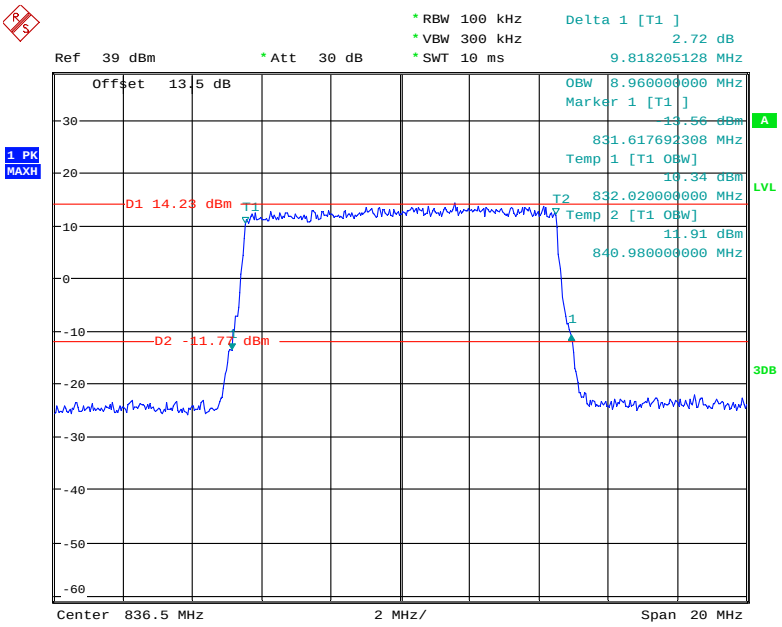

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LTE Band 7:

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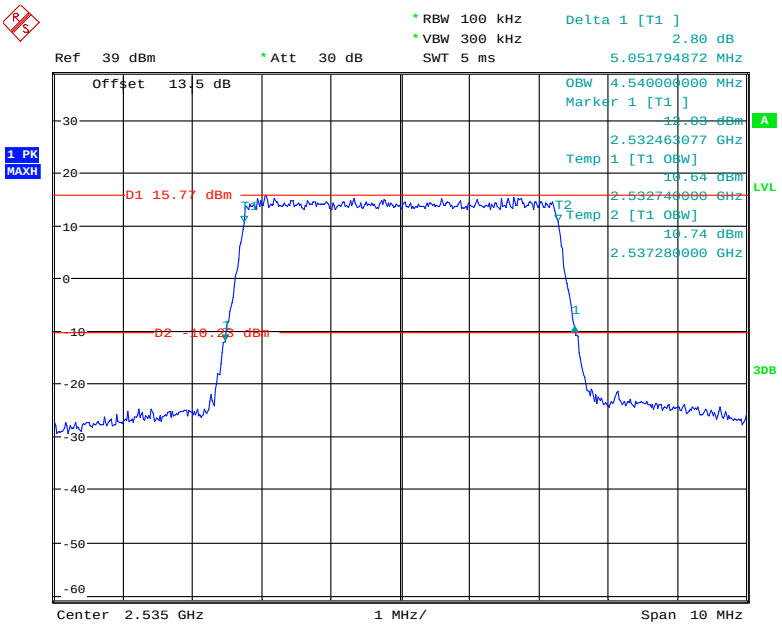

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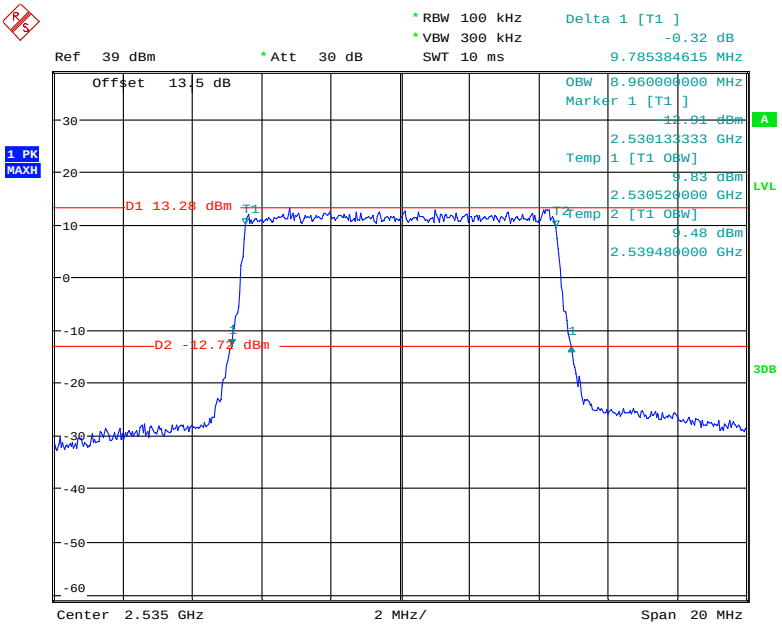
QPSK_10 MHz



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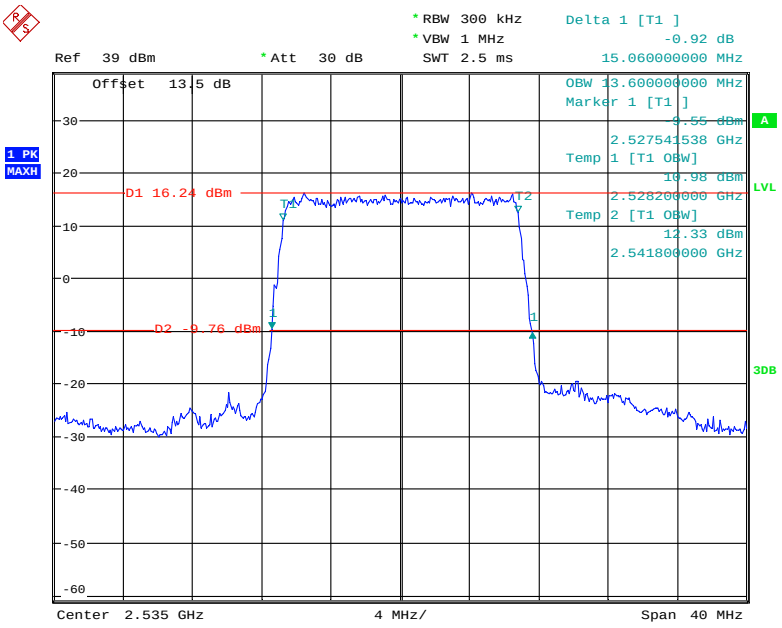

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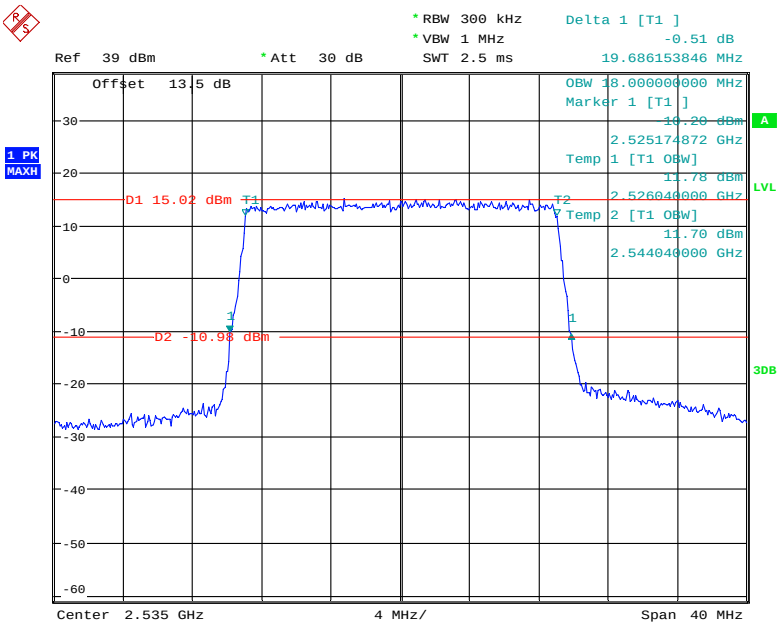

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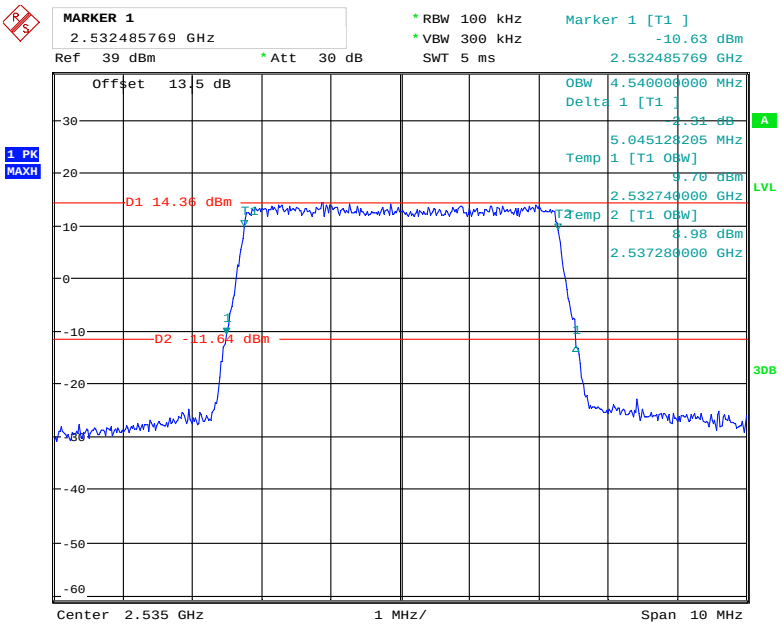

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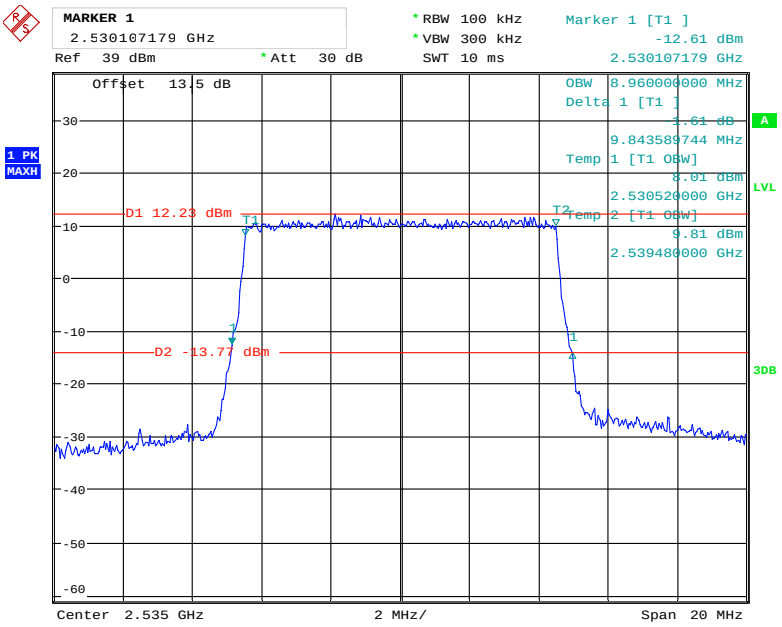
16QAM_10 MHz



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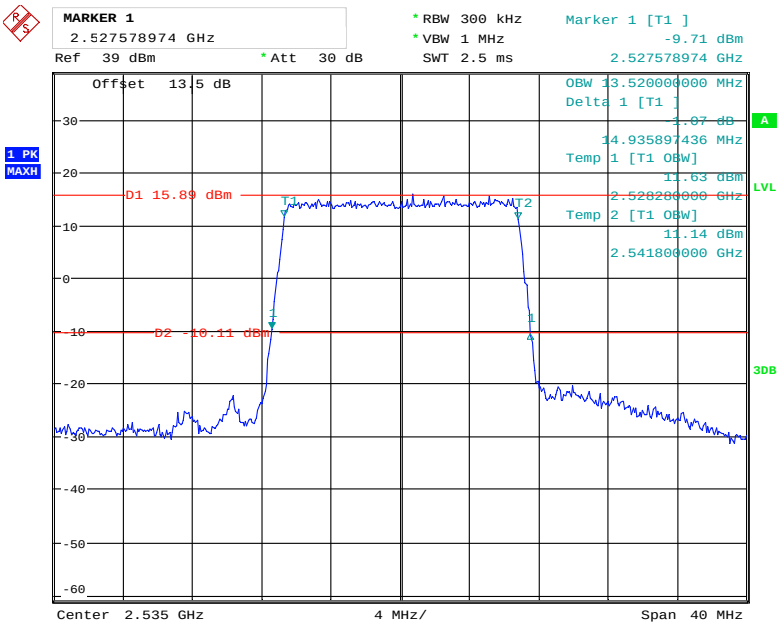
16QAM_15 MHz



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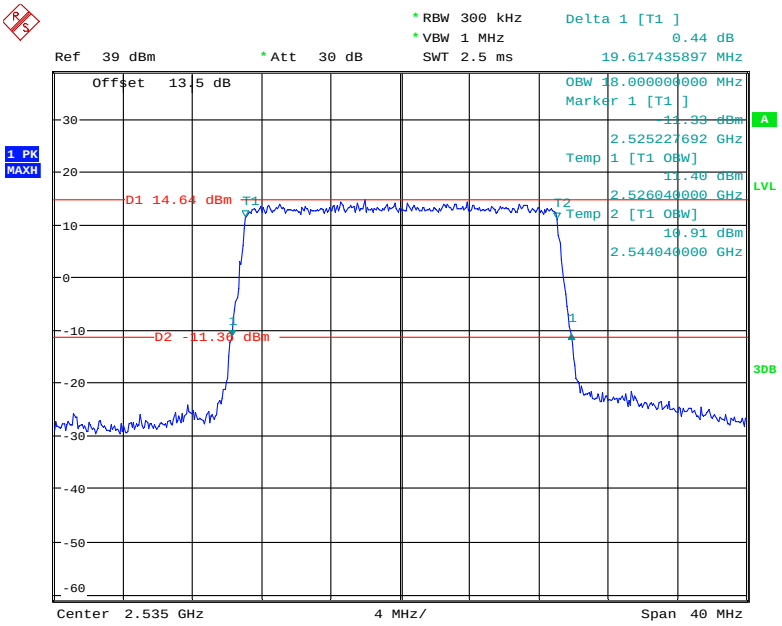
16QAM_20 MHz



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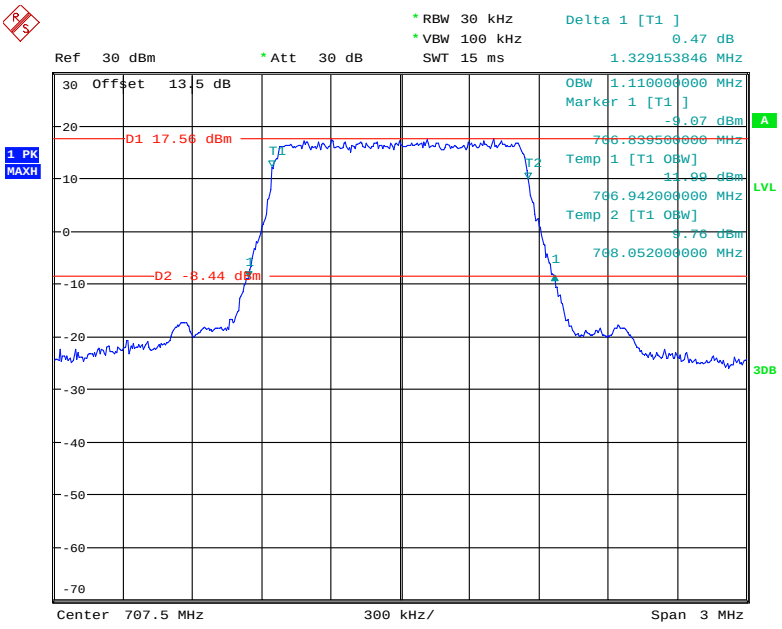
LTE Band 12:

QPSK_1.4 MHz



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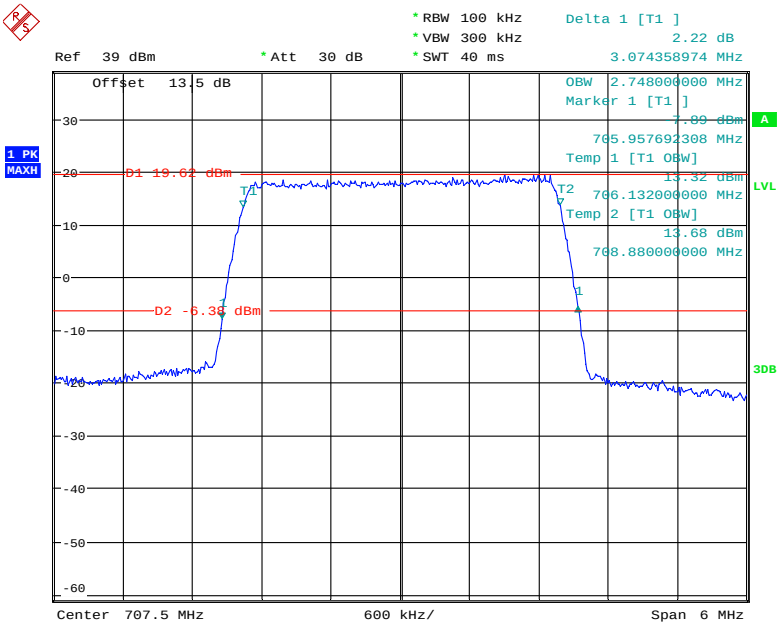
QPSK_3 MHz



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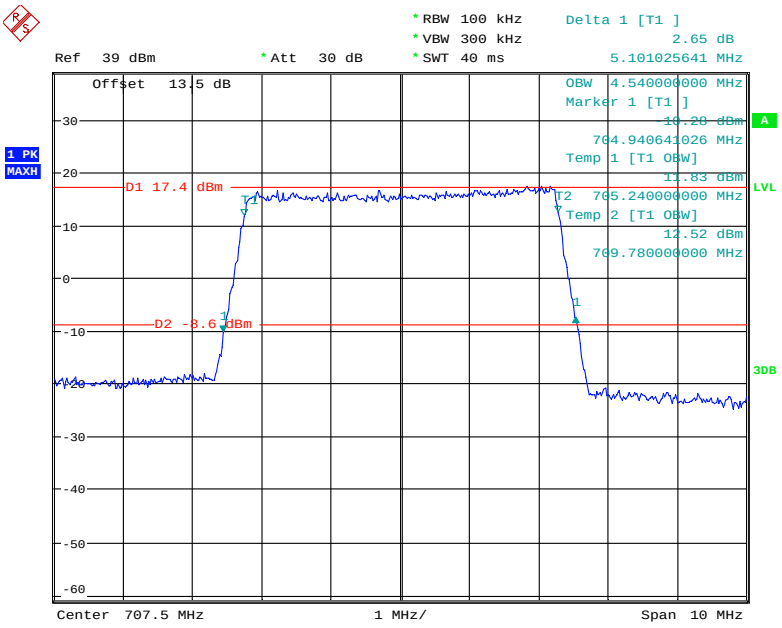
QPSK_5 MHz



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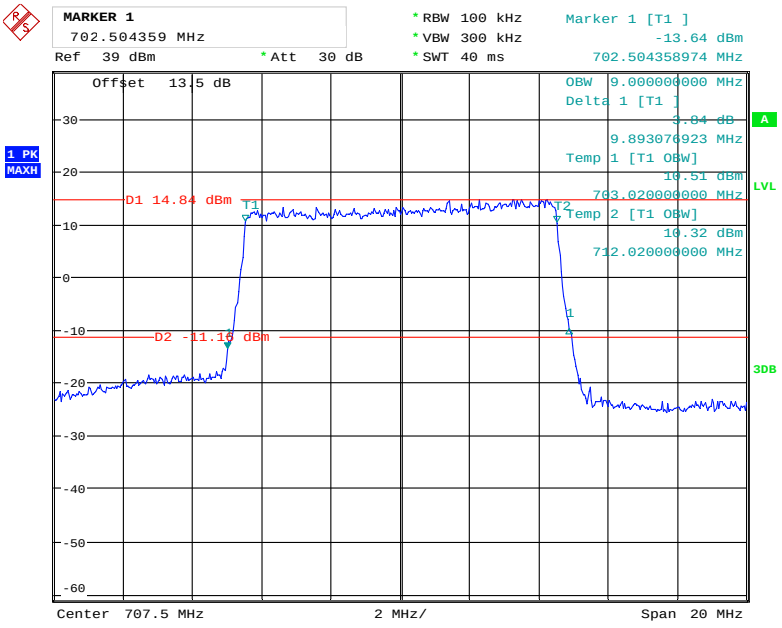
QPSK_10 MHz



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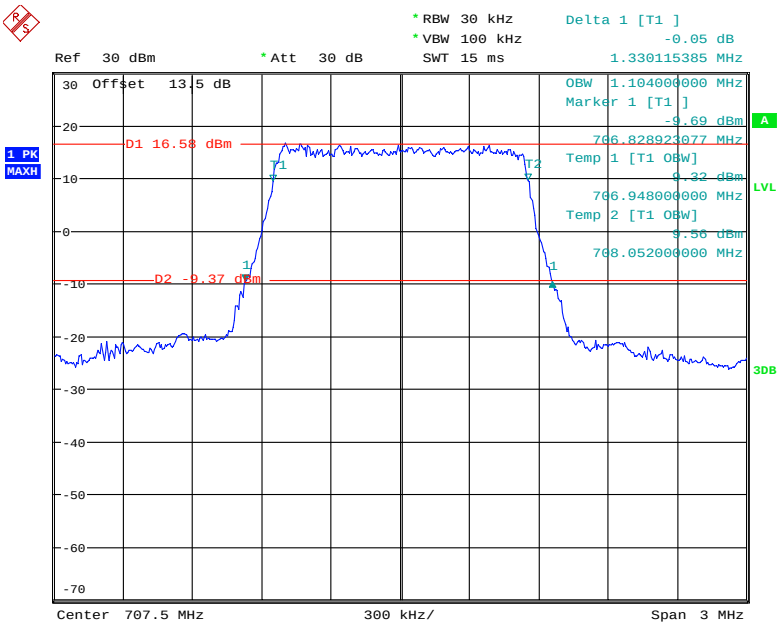
16QAM_1.4 MHz



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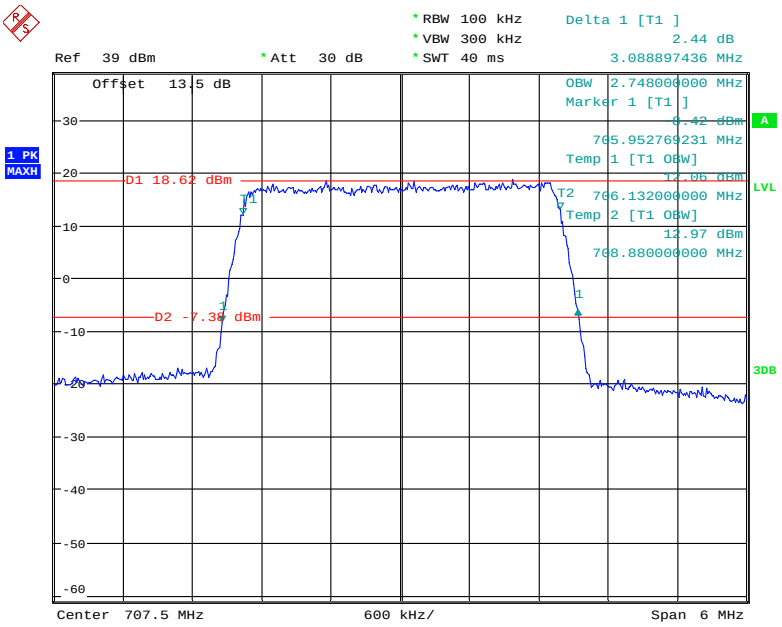
16QAM_3 MHz



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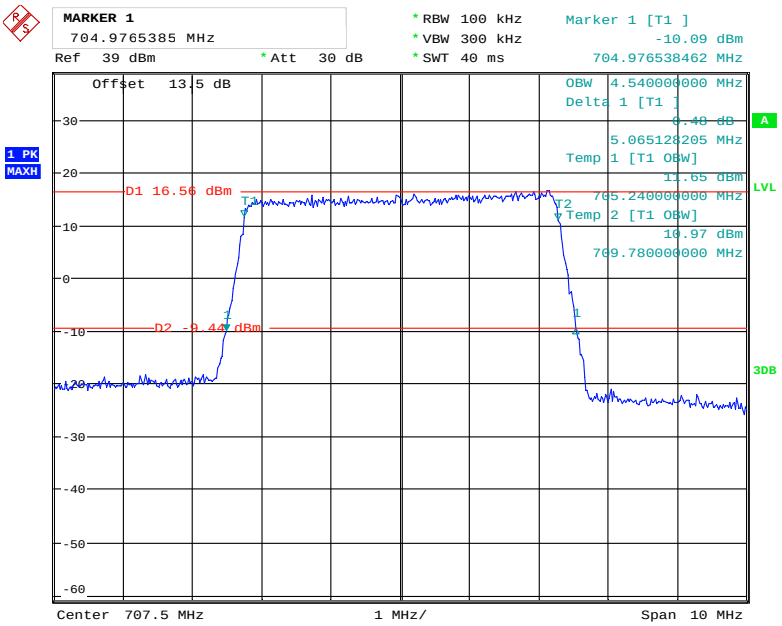
16QAM_5 MHz



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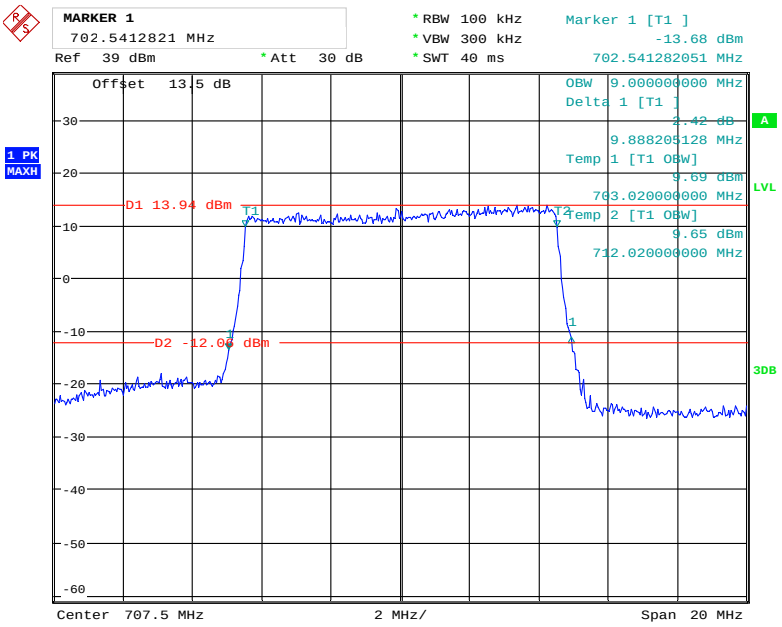
16QAM_10 MHz



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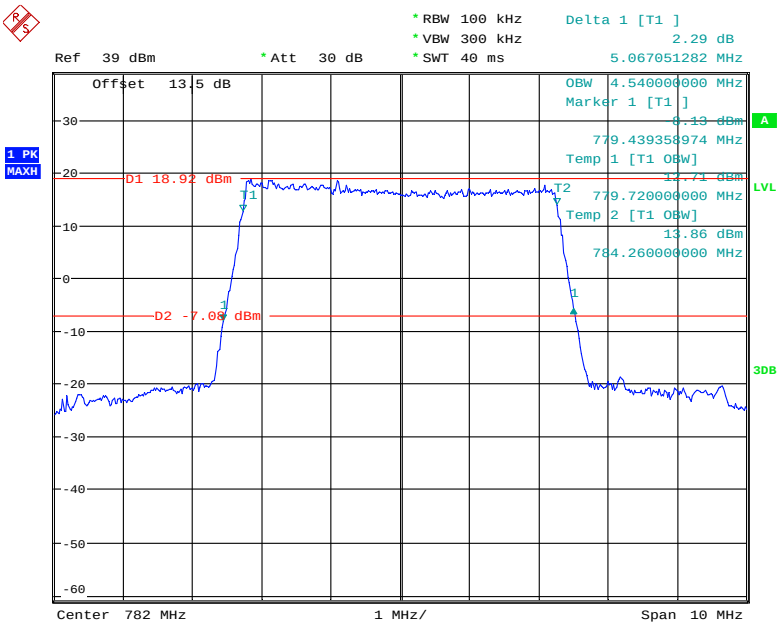
LTE Band 13:

QPSK_5 MHz



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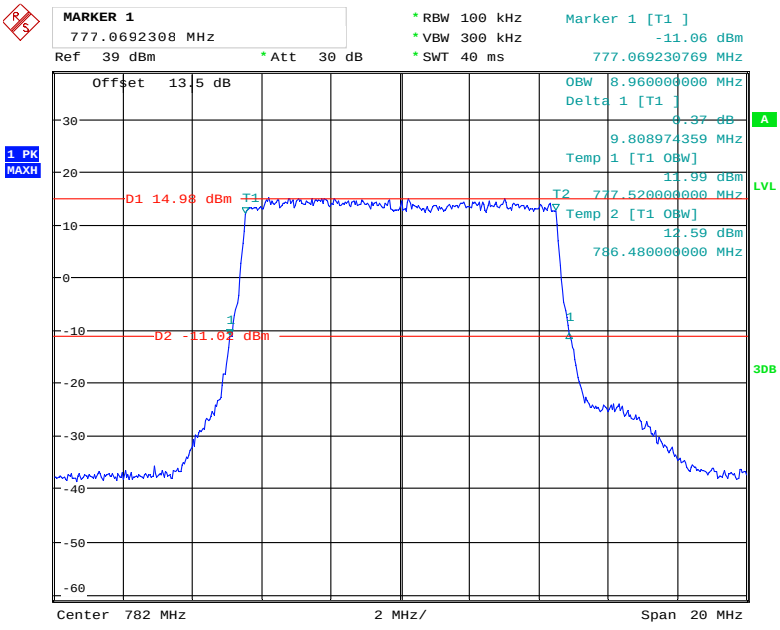
QPSK_10 MHz



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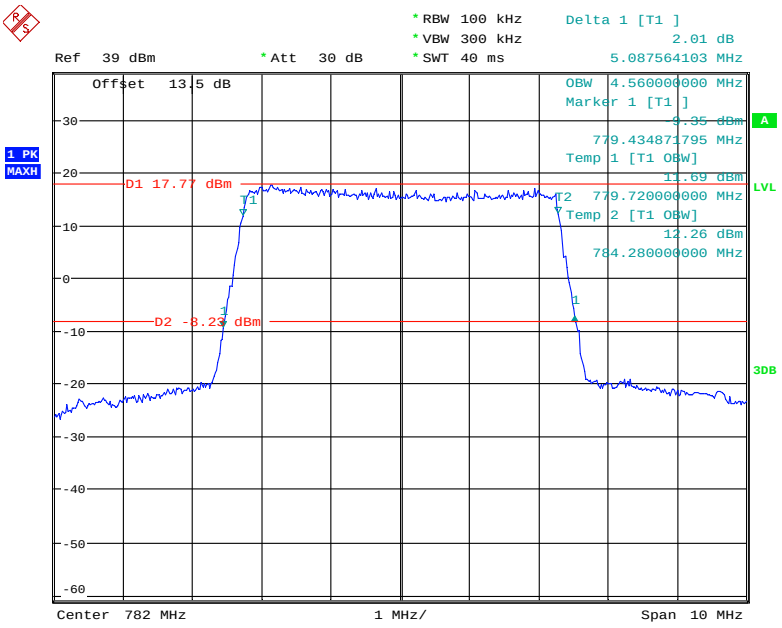
16QAM_5 MHz



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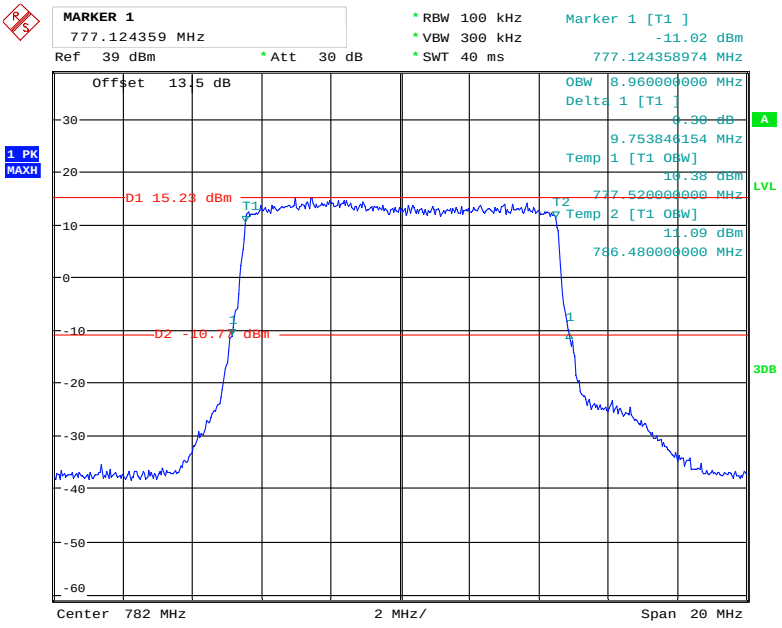

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LTE Band 17:

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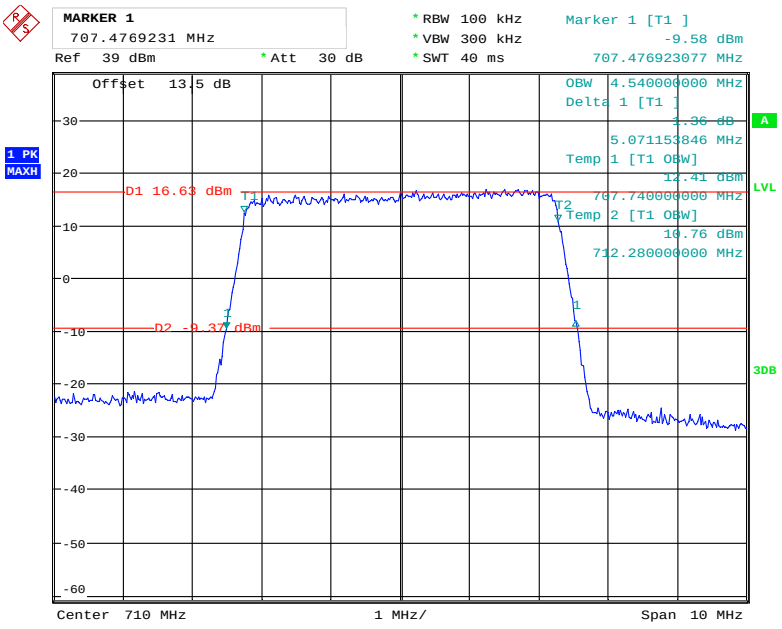

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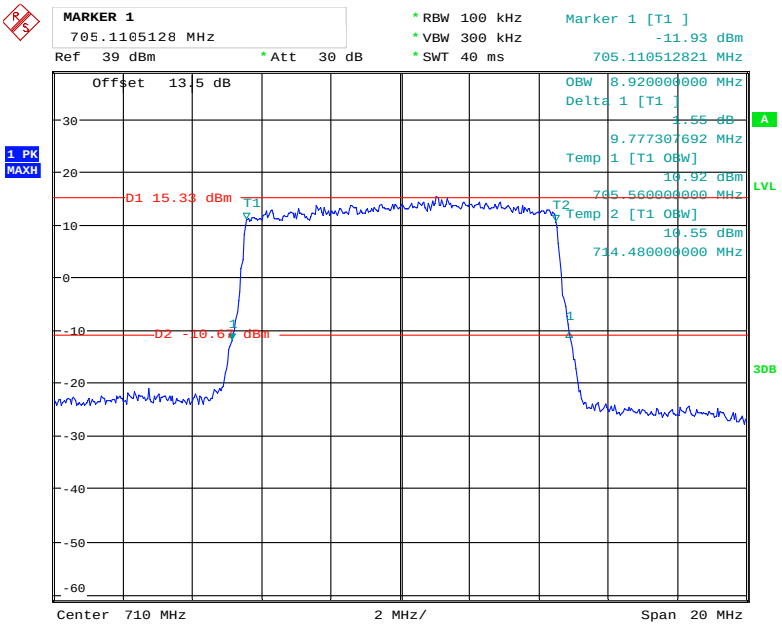
QPSK_10 MHz



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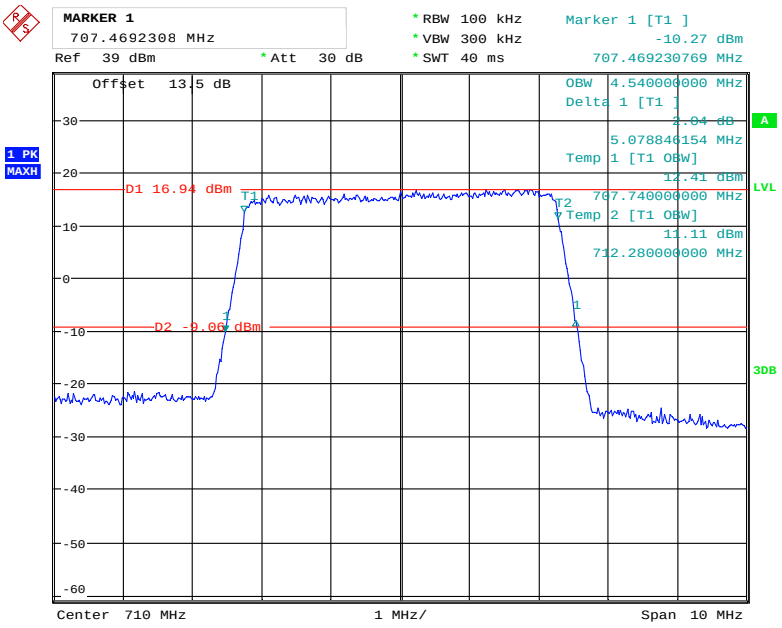

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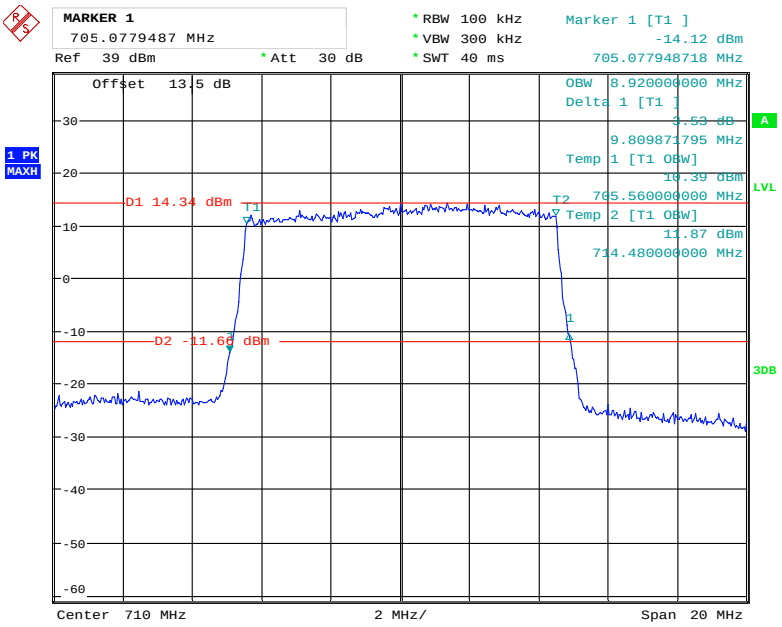

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LTE Band 25:

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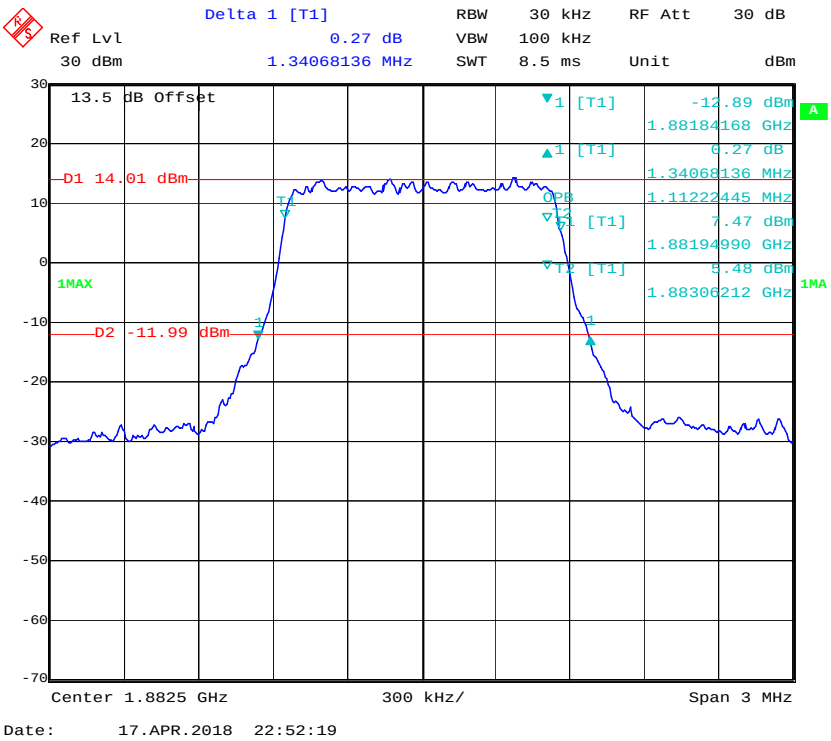
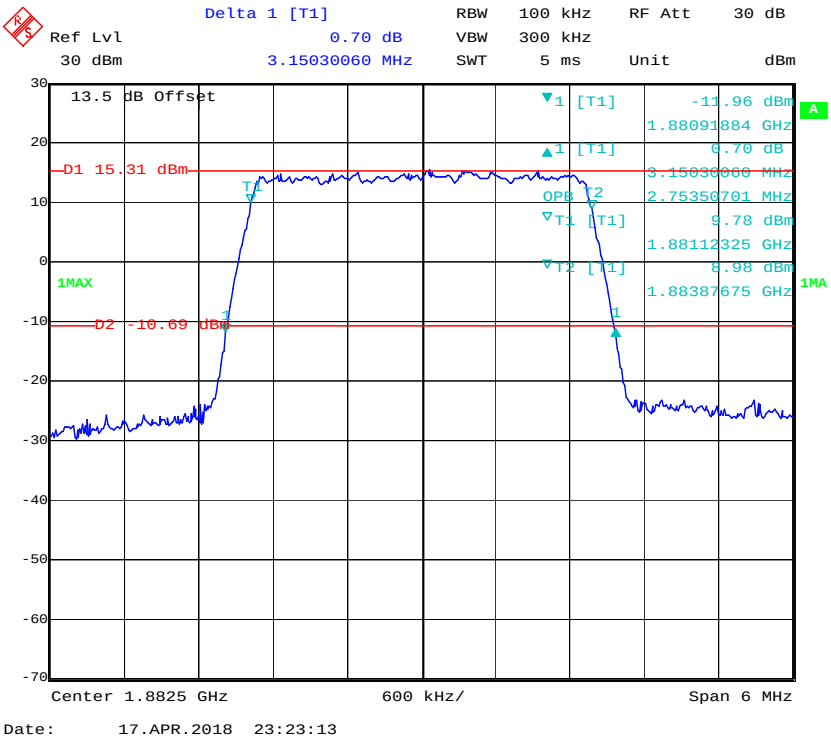


QPSK_3 MHz



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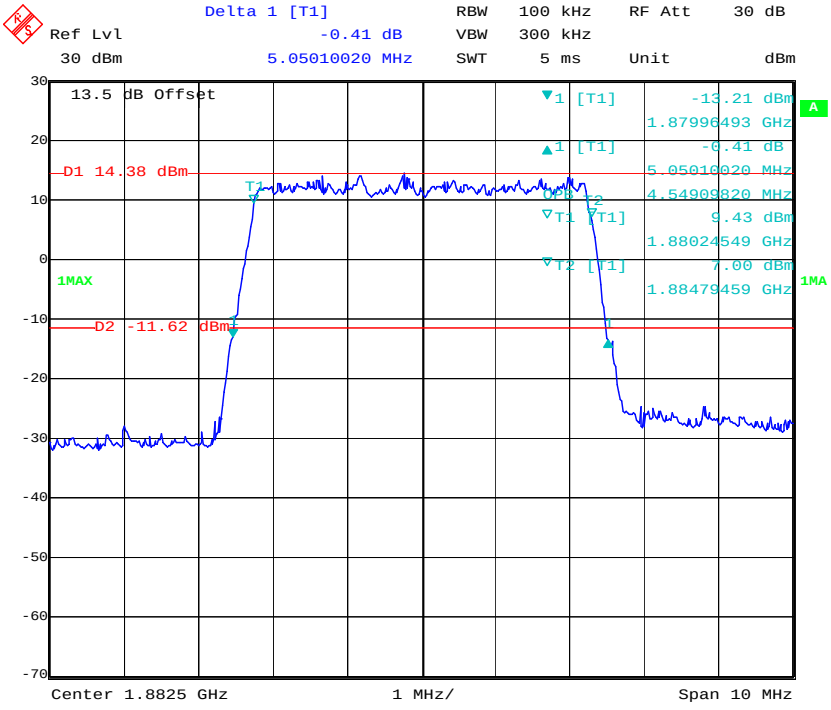

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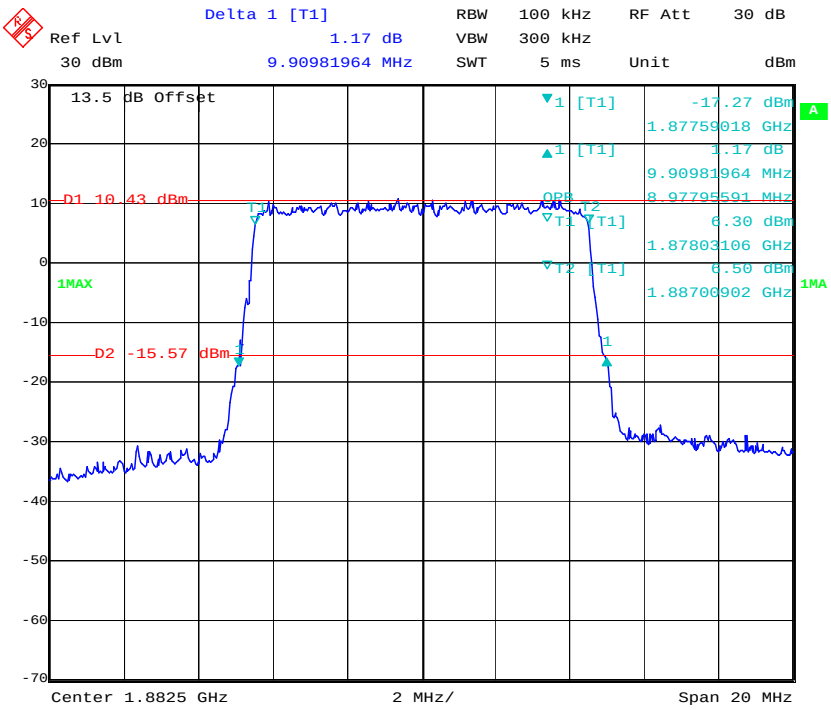
QPSK_10 MHz



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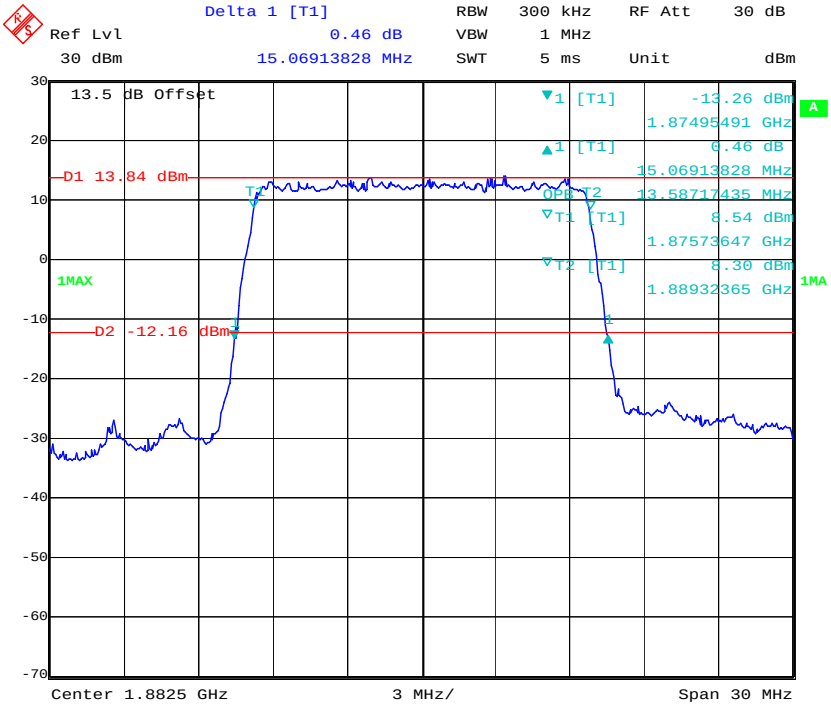
QPSK_15 MHz



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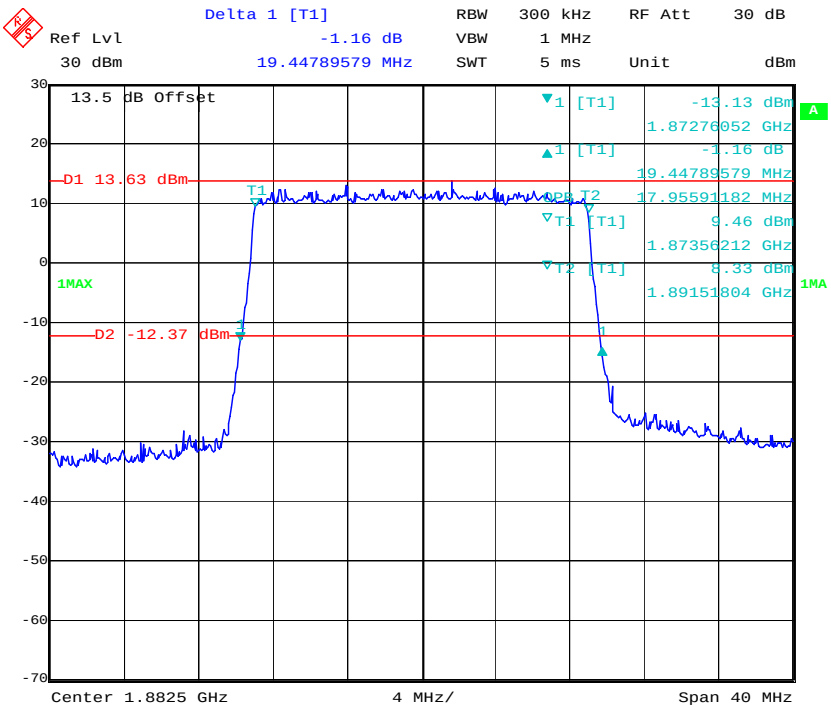
QPSK_20 MHz



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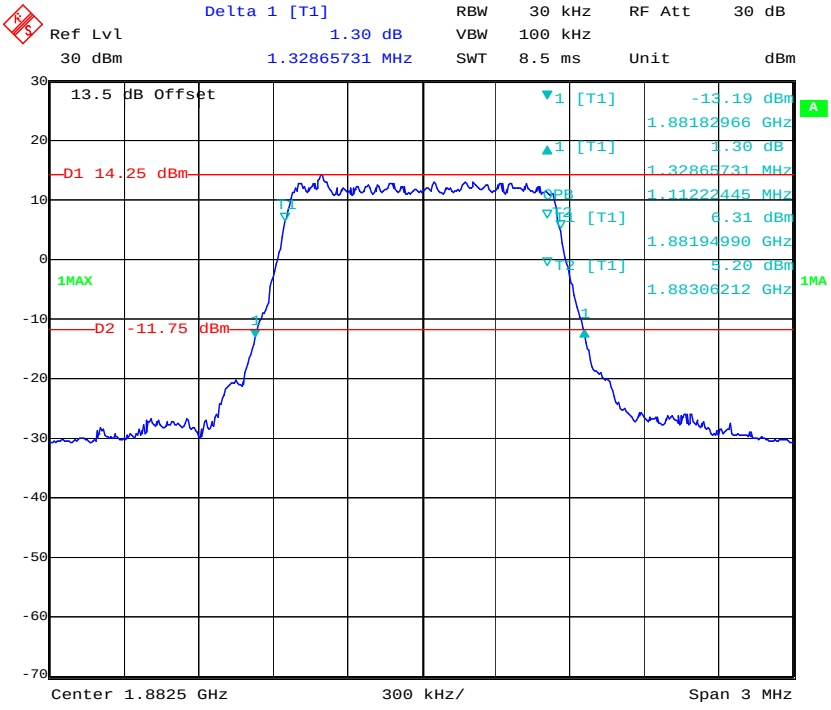
16QAM_1.4 MHz



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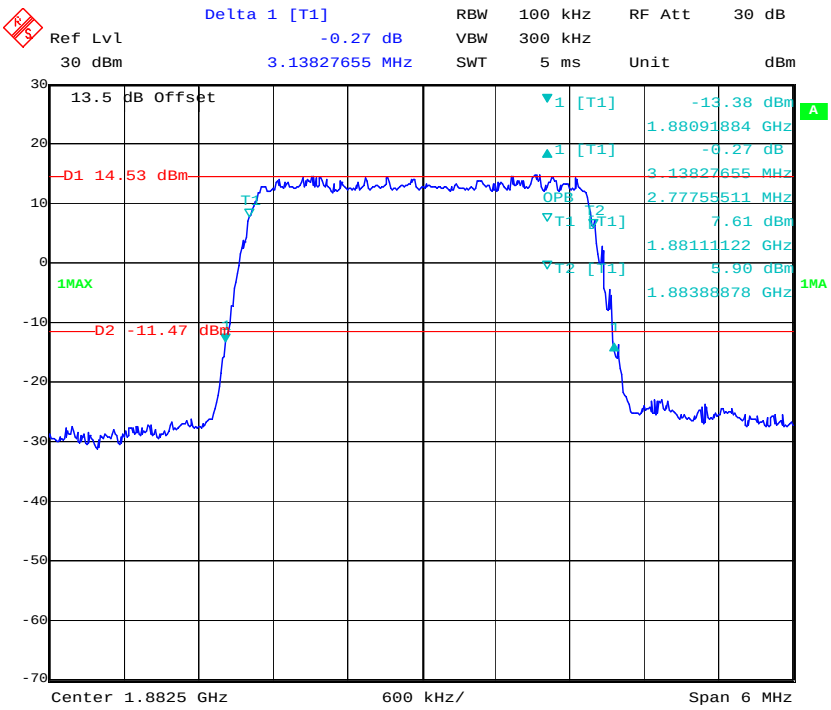

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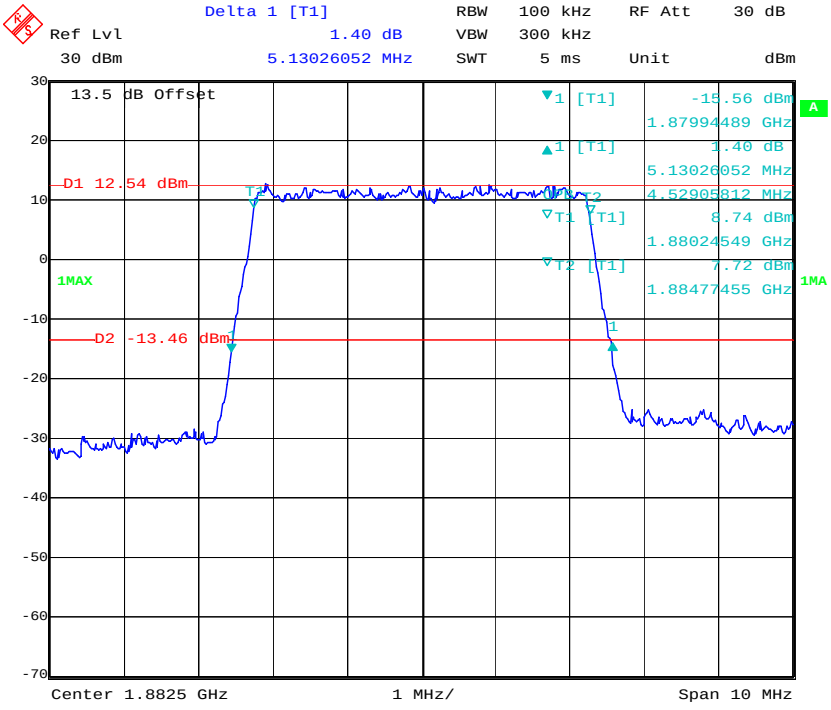

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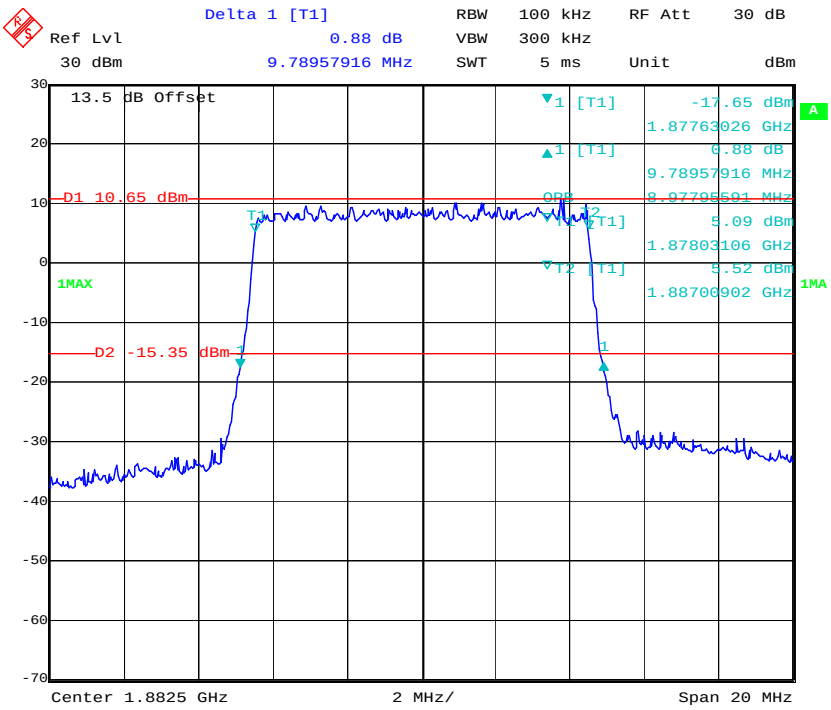

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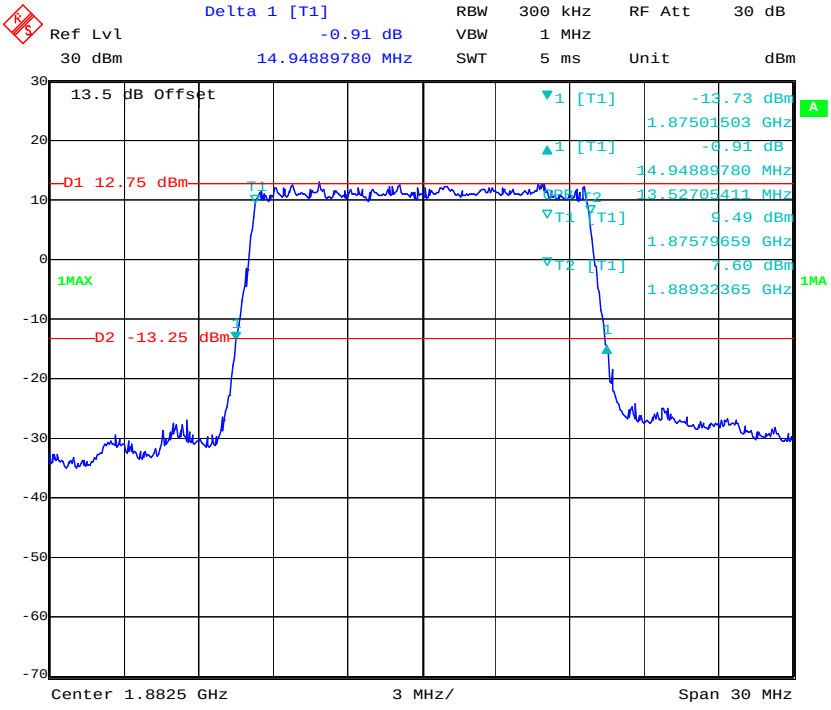

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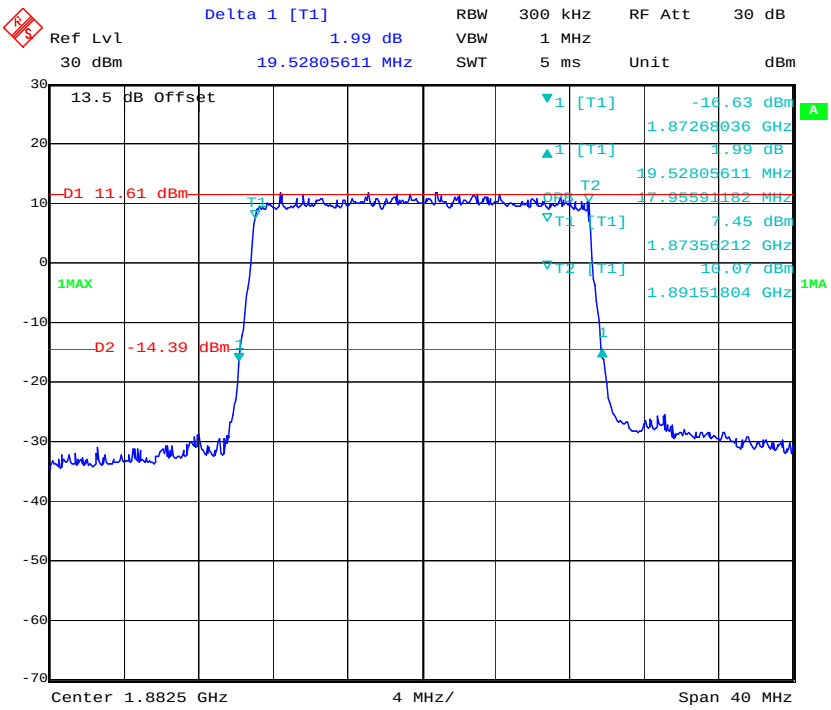

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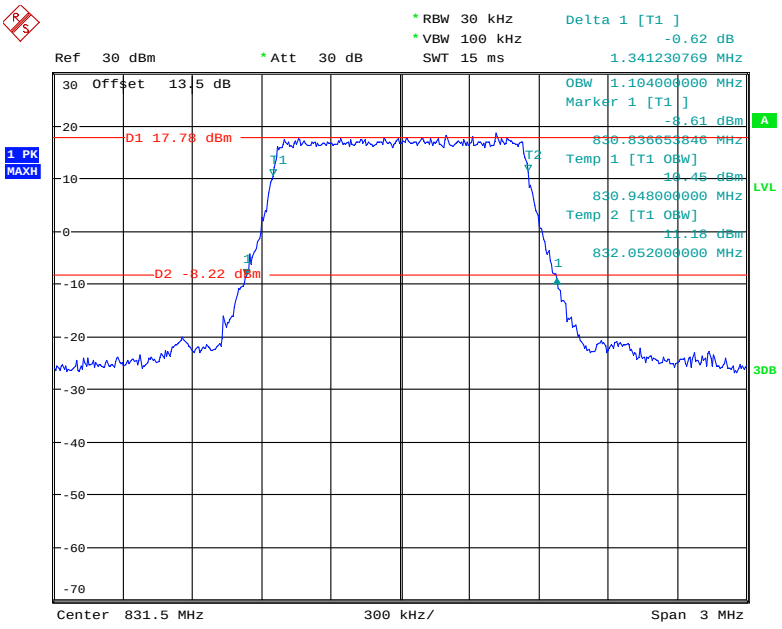
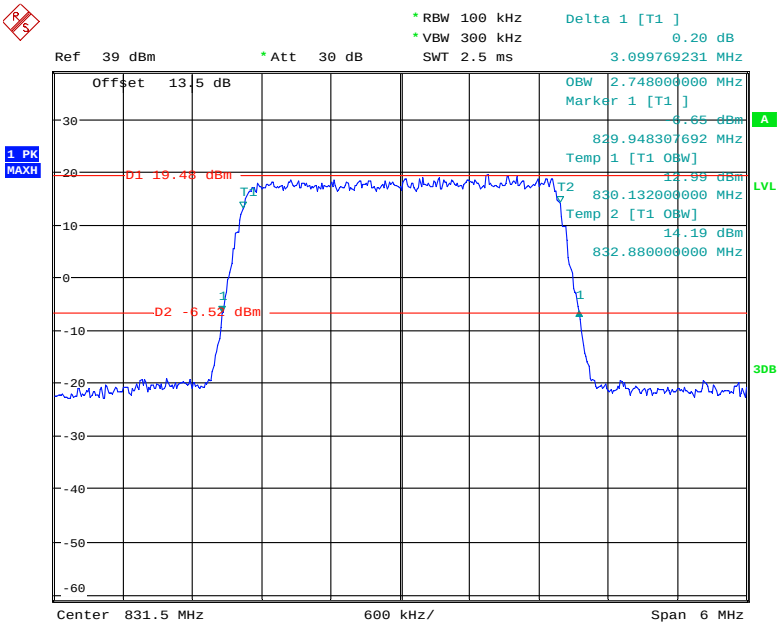
LTE Band 26:

QPSK_1.4 MHz



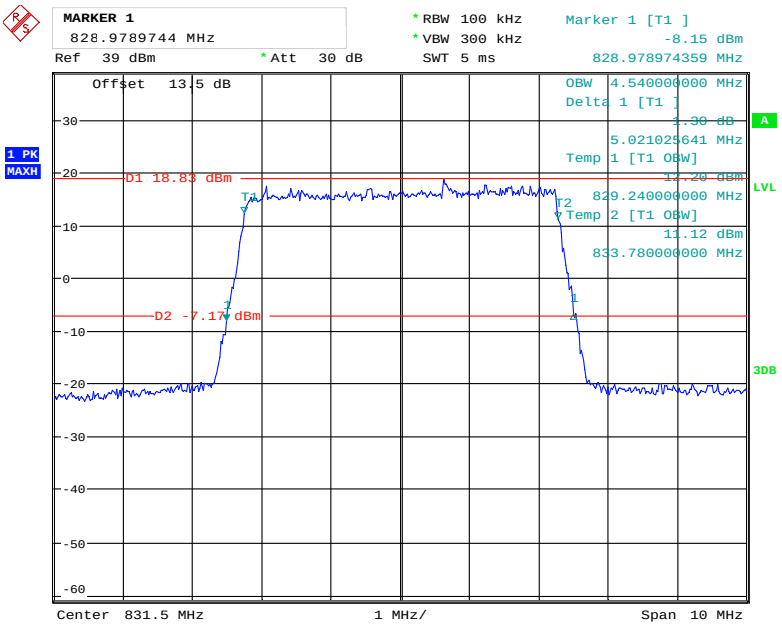
Date: 25.JAN.2018 19:48:16

QPSK_3 MHz



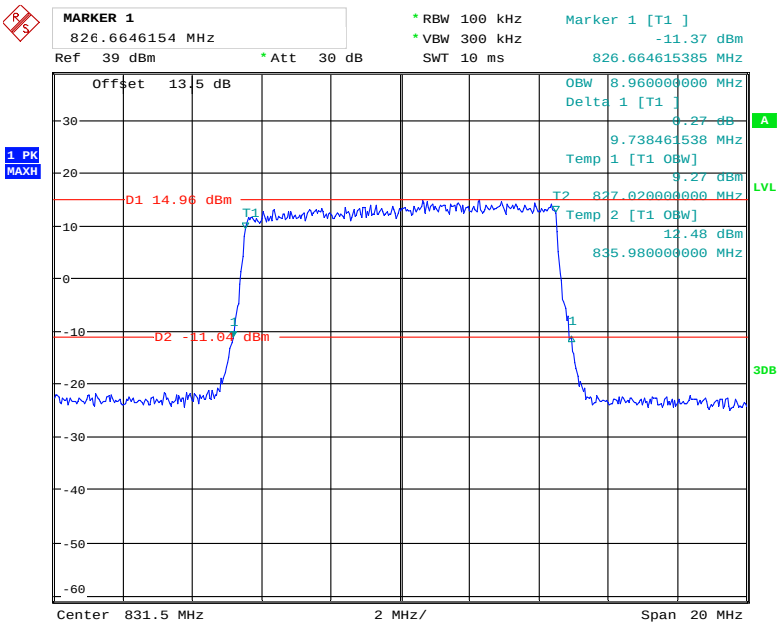
Date: 25.JAN.2018 17:33:58

QPSK_5 MHz



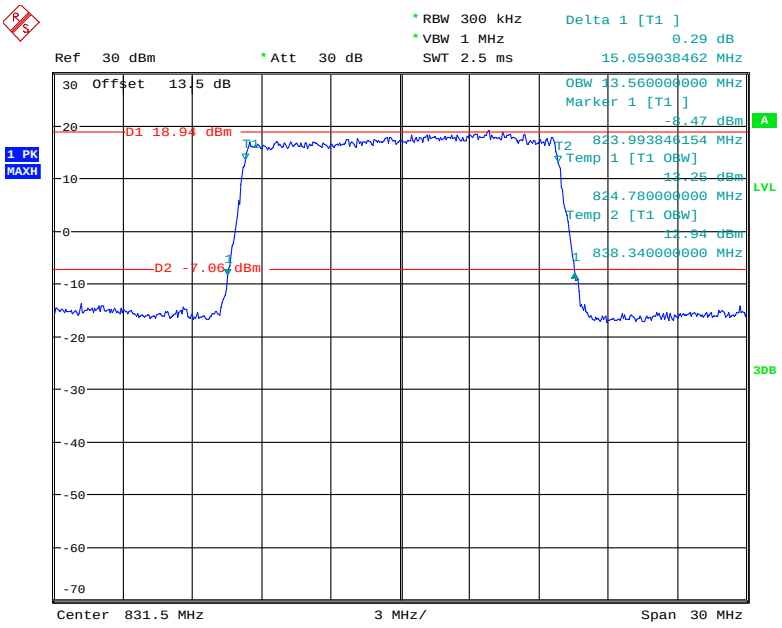
Date: 25.JAN.2018 17:30:10

QPSK_10 MHz



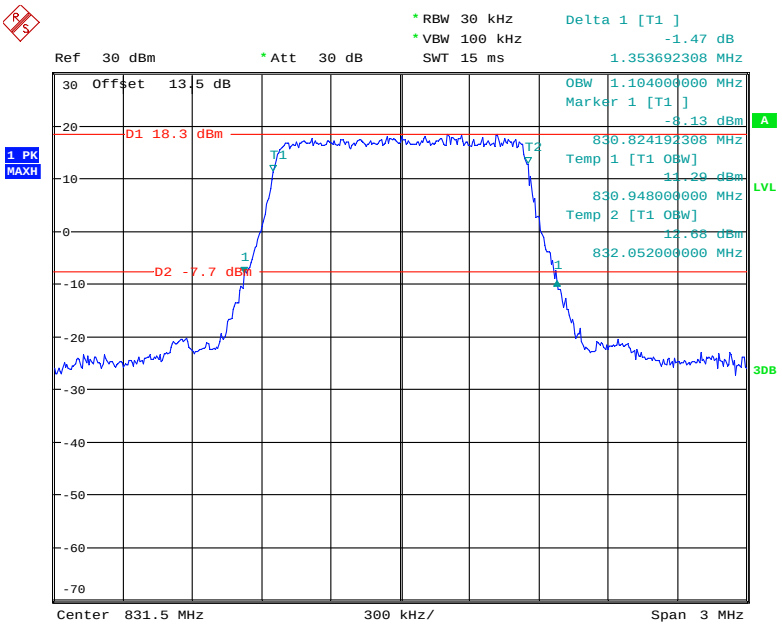
Date: 25.JAN.2018 17:22:49

QPSK_15 MHz



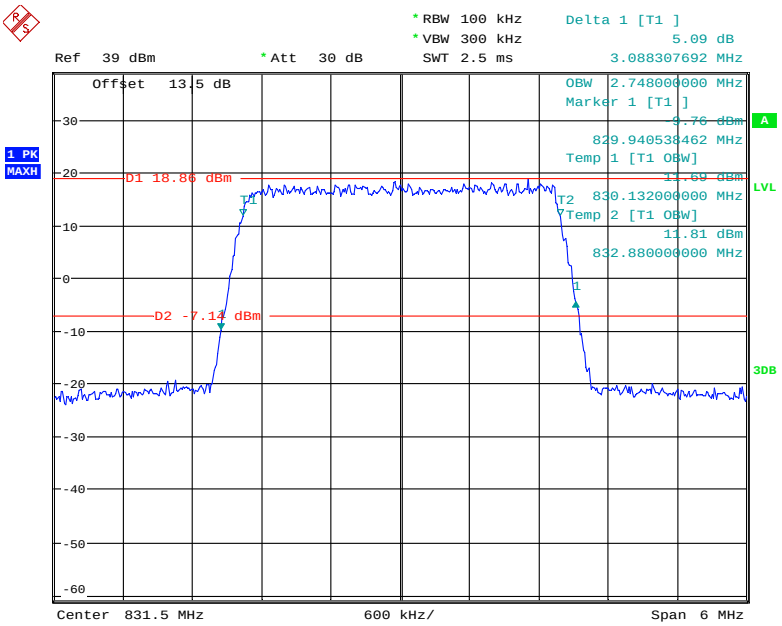
Date: 25.JAN.2018 20:04:44

16QAM_1.4 MHz



Date: 25.JAN.2018 19:46:24

16QAM_3 MHz



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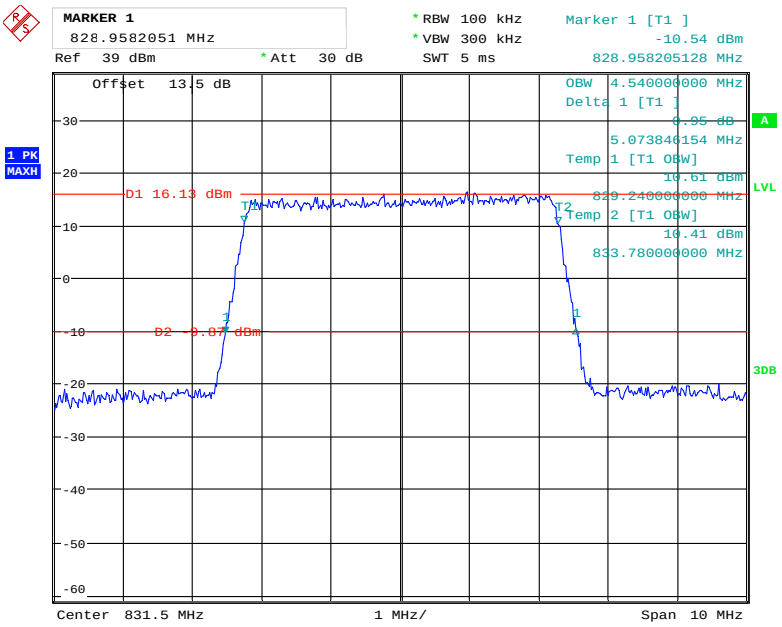
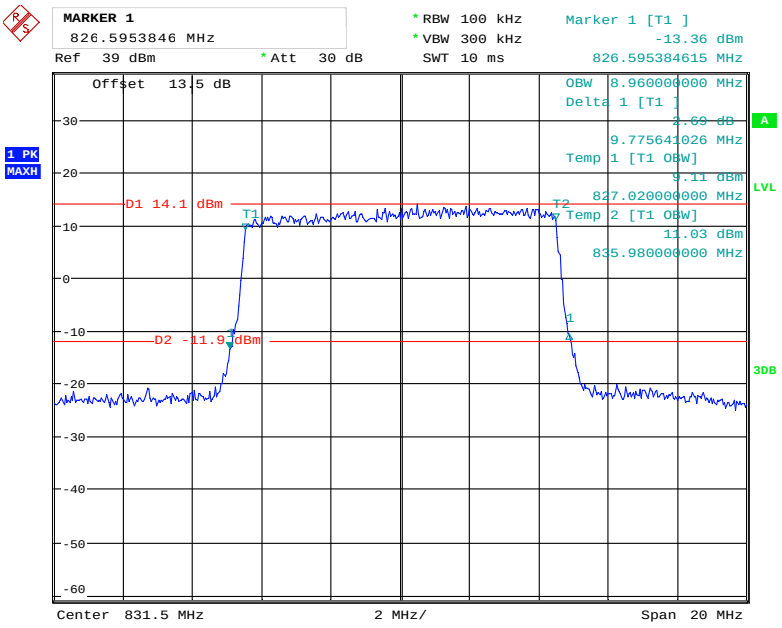
16QAM_5 MHz



Date: 25.JAN.2018 17:27:38

16QAM_10 MHz



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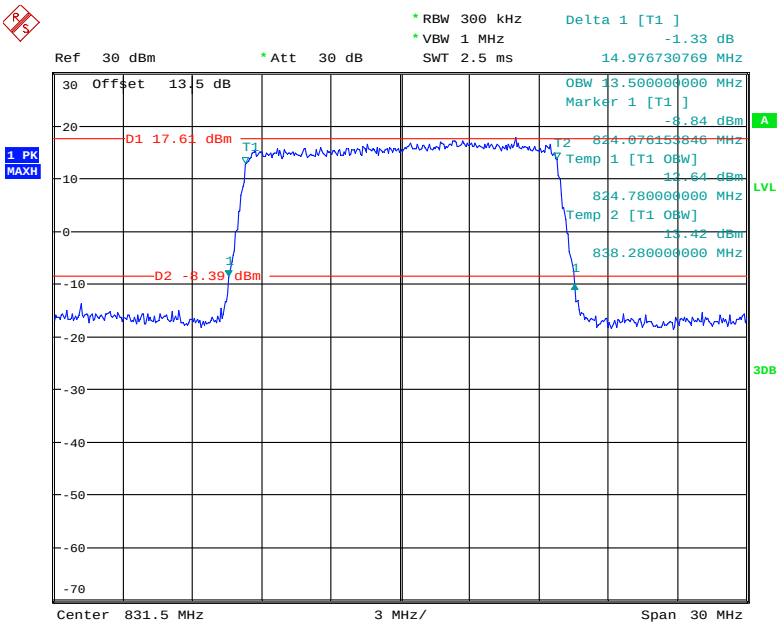
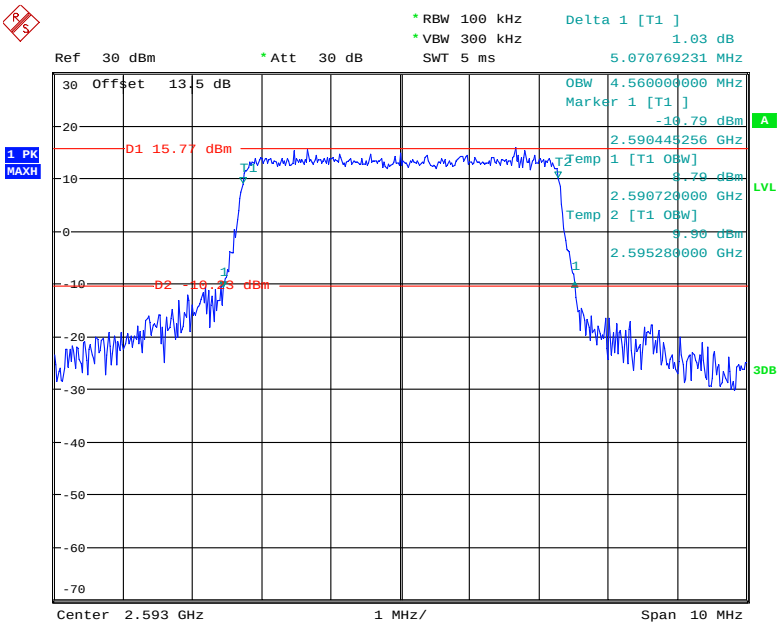
16QAM_15 MHz



Date: 25.JAN.2018 19:57:48

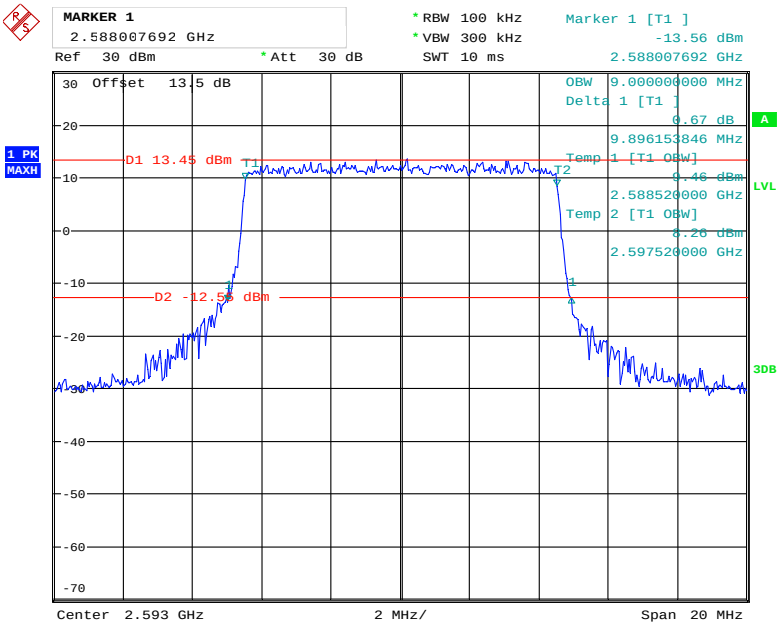
LTE Band 41:

QPSK_5 MHz



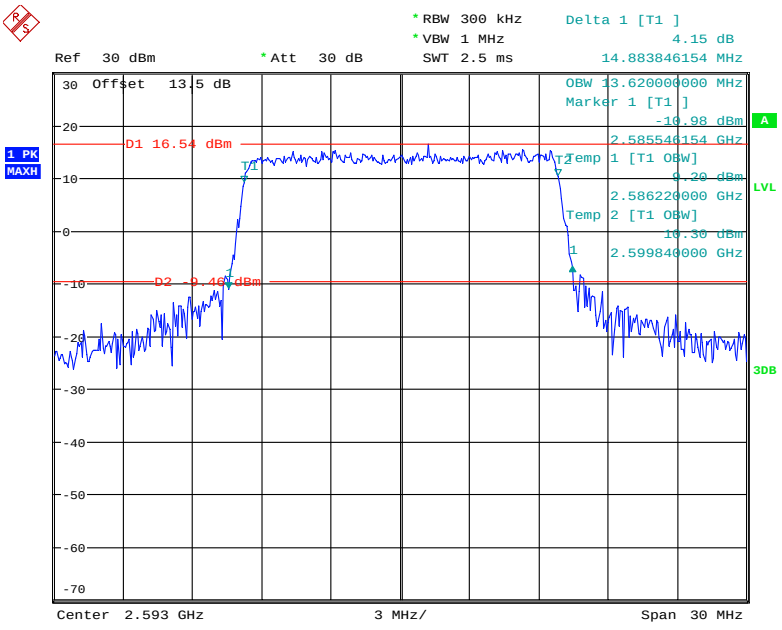
Date: 25.JAN.2018 18:04:33

QPSK_10 MHz



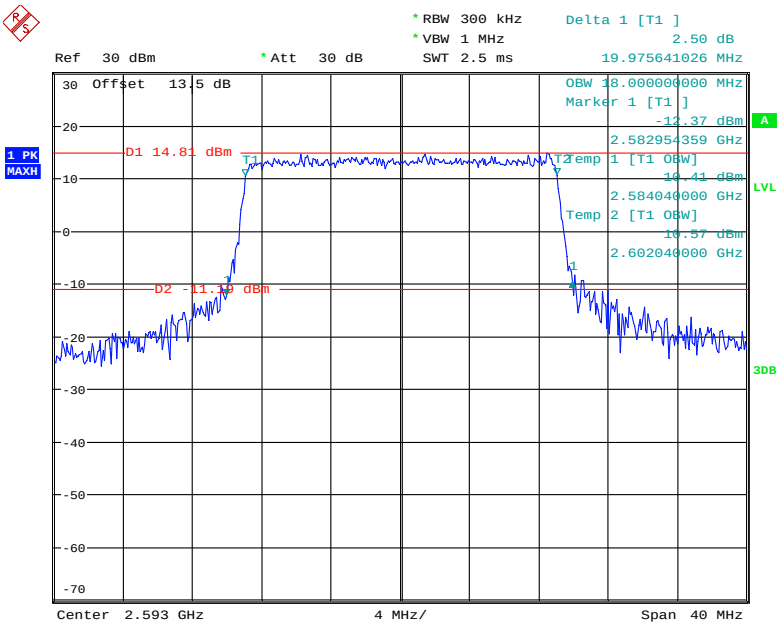
Date: 25.JAN.2018 17:55:26

QPSK_15 MHz



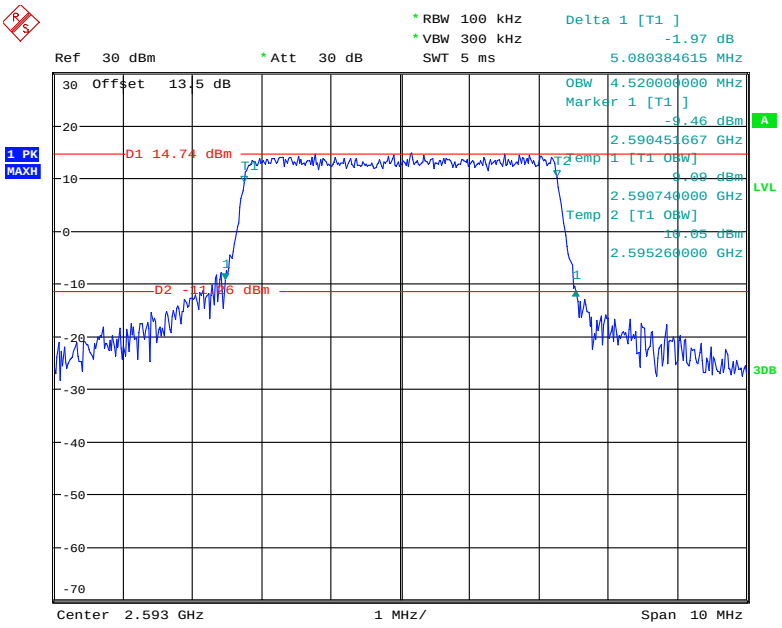
Date: 25.JAN.2018 18:23:30

QPSK_20 MHz



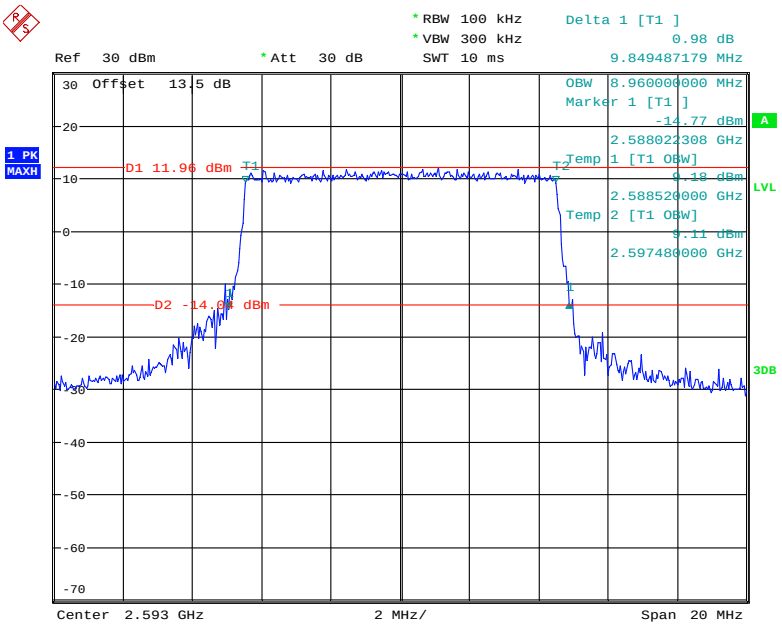
Date: 25.JAN.2018 18:18:41

16QAM_5 MHz



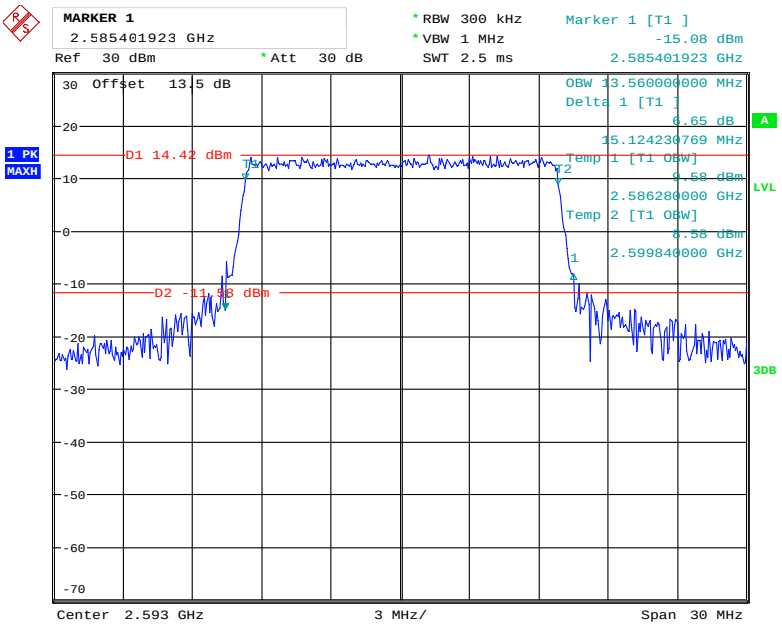
Date: 25.JAN.2018 18:07:11

16QAM_10 MHz



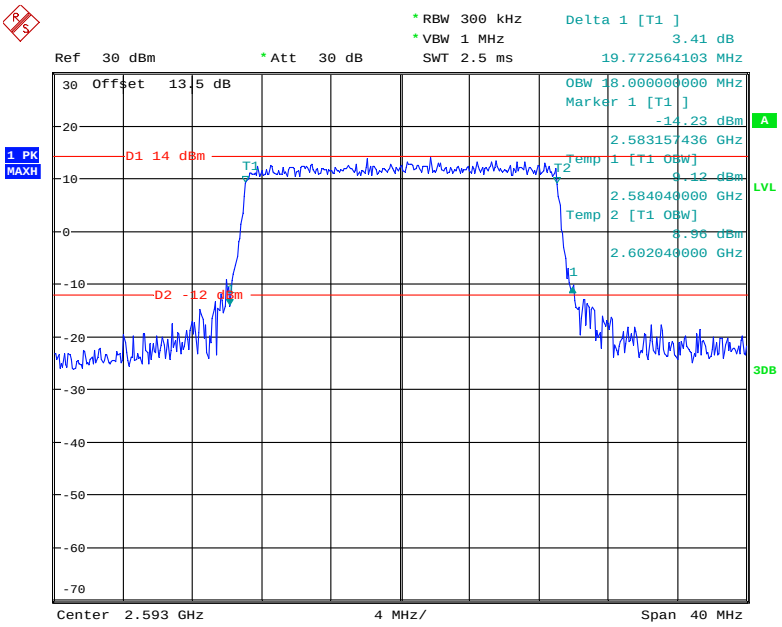
Date: 25.JAN.2018 18:02:33

16QAM_15 MHz



Date: 25.JAN.2018 18:24:48

16QAM_20 MHz



Date: 25.JAN.2018 18:20:26

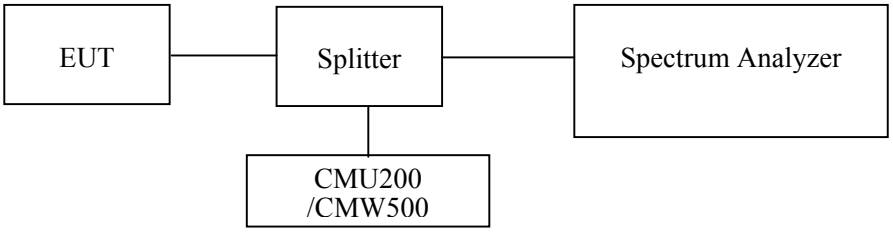
FCC §2.1051, §22.917(a) & §24.238(a) & §27.53& §90.691AND RSS-130 §4.6 & RSS-132 §5.5 & RSS-133 §6.5& RSS-139 §6.6& RSS-199 § 4.5 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Applicable Standard

FCC § 2.1053, §22.917, § 24.238 ,§ 27.53,§90.691 and RSS-130 §4.6 & RSS-132 §5.5 & RSS-133 §6.5 & RSS-139 §6.6.& RSS-199 § 4.5

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	Universal Radio Communication Tester	CMU200	109 038	2017-07-18	2018-07-18
R&S	Wideband Radio Communication Tester	CMW500	147473	2017-08-31	2018-08-31
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each Time	/
E-Microwave	RF Attenuator	10dB	10dB-2	Each Time	/
Pasternack	RF Coaxial Cable	0.5m	C-5	Each Time	/
E-Microwave	Two-way Spliter	ODP-1-6-2S	OE0120142	Each Time	/
R&S	Spectrum Analyzer	FSU 26	200256	2017-12-08	2018-12-08

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

Test Data

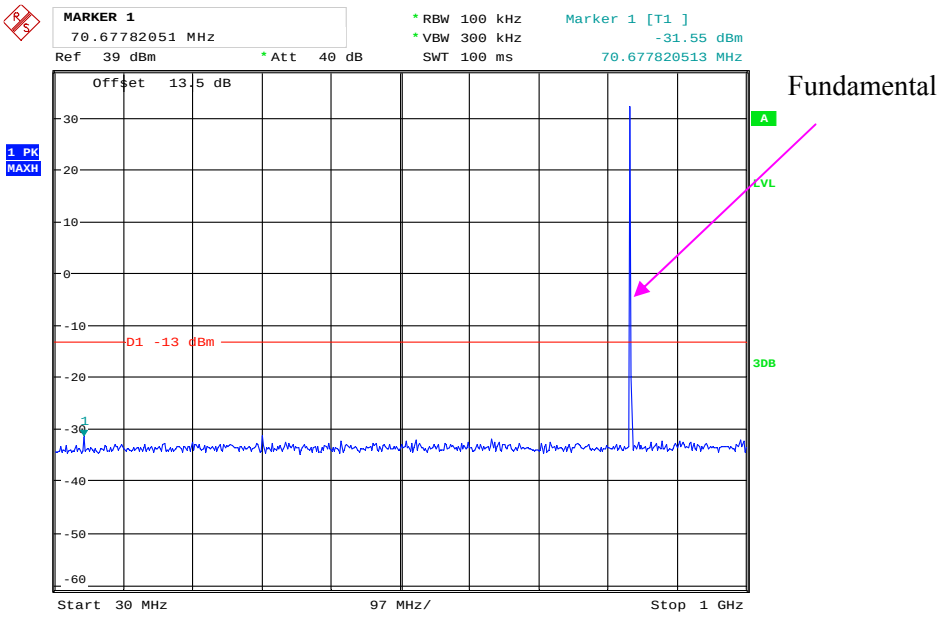
Environmental Conditions

Temperature:	24.3~25.5°C
Relative Humidity:	44~55 %
ATM Pressure:	100.9~101.1 kPa

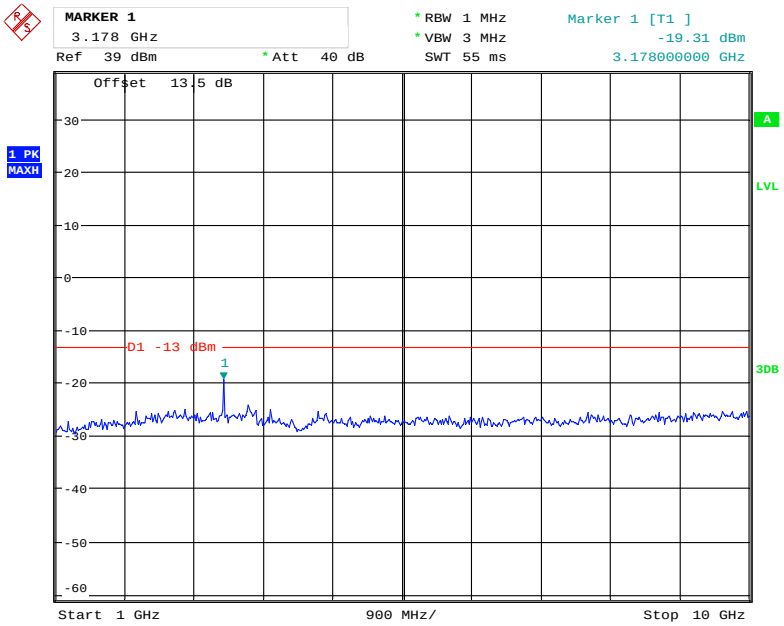
The testing was performed by David Huang and Swim Lv from 2018-01-25 to 2018-05-18.

Please refer to the following plots.

GSM850_Middle Channel

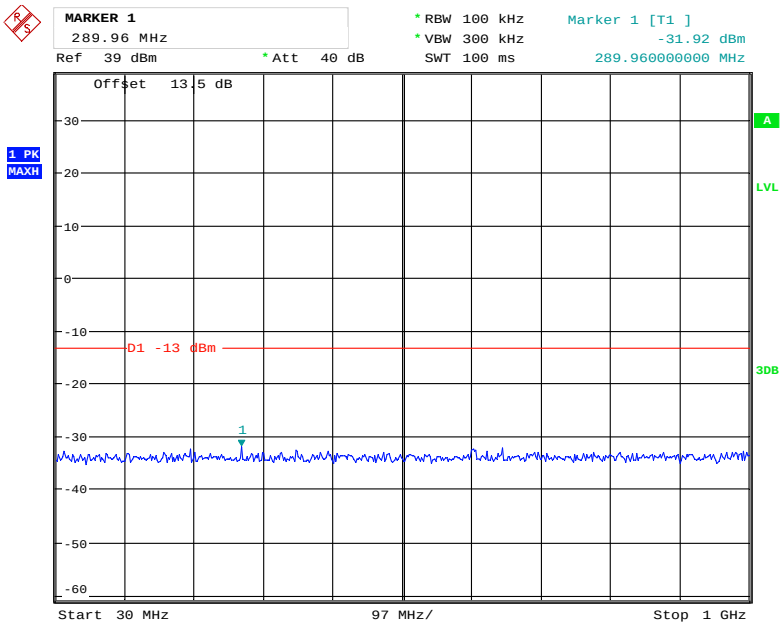


Date: 25.JAN.2018 10:43:07

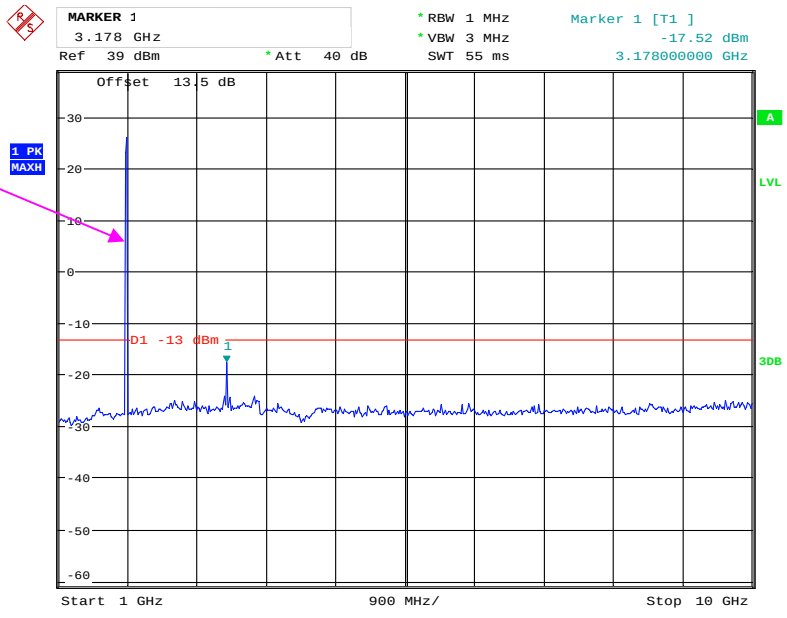


Date: 25.JAN.2018 10:41:14

PCS 1900_ Middle Channel

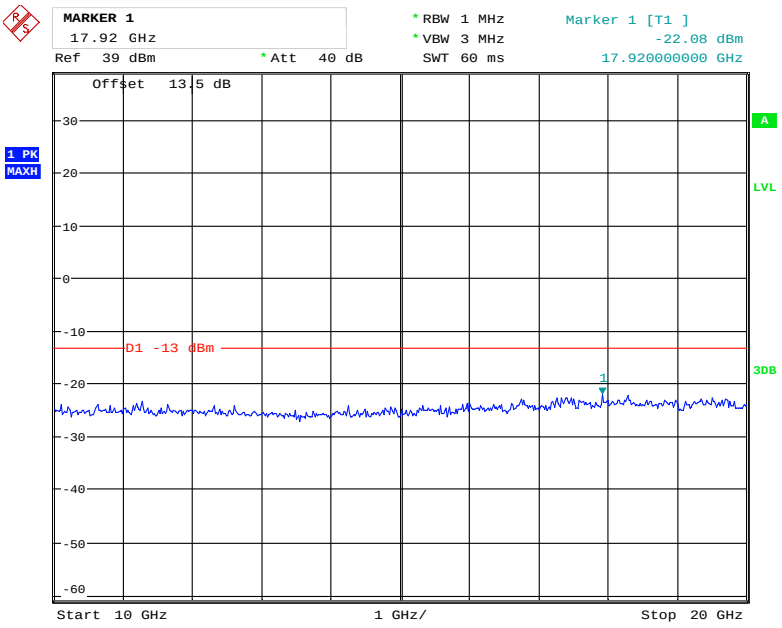


Date: 25.JAN.2018 10:47:07



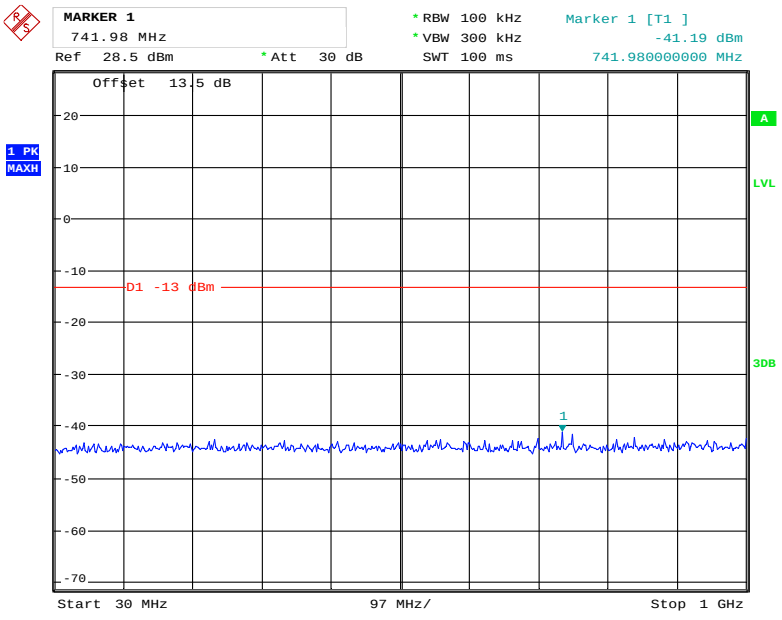
Fundamental

Date: 25.JAN.2018 10:49:04

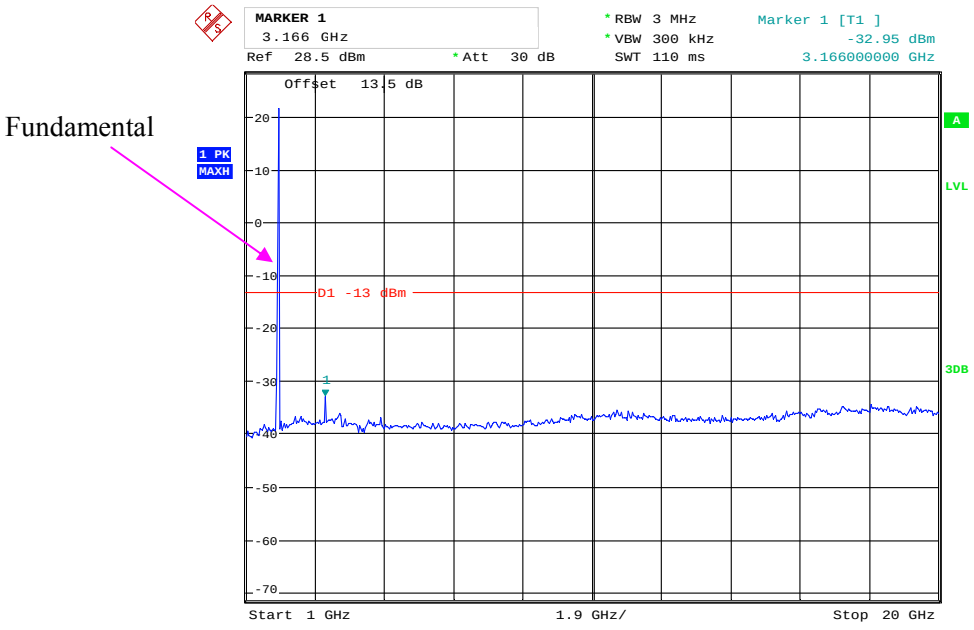


Date: 25.JAN.2018 10:49:35

REL99 Band 2_ Middle Channel

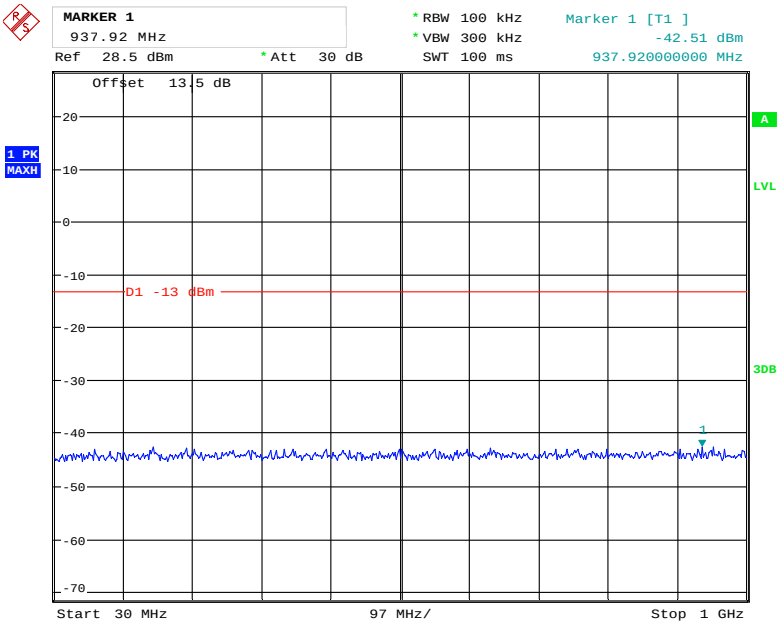


Date: 25.JAN.2018 10:03:45

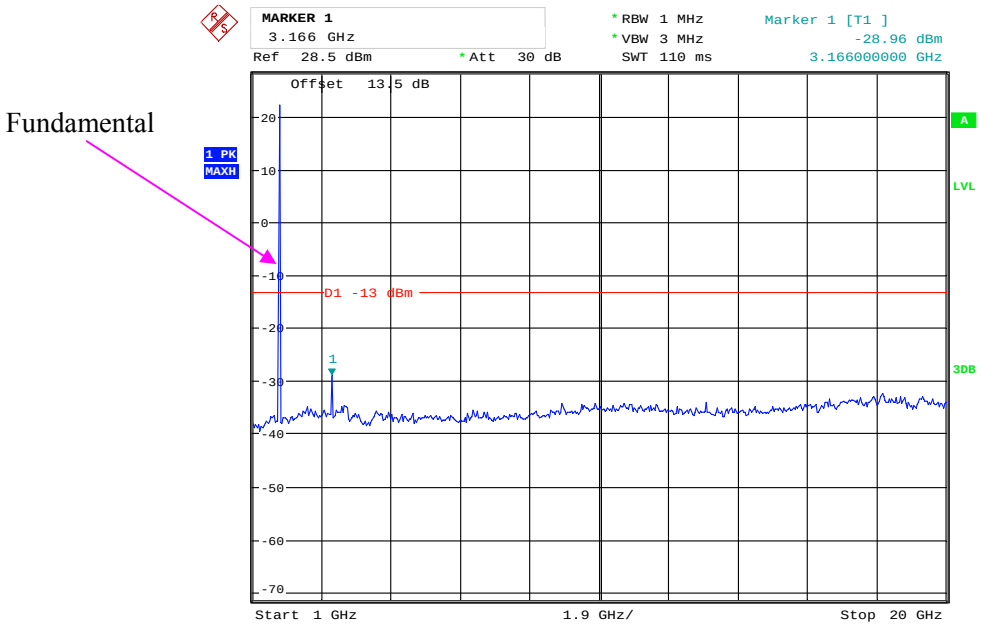


Date: 25.JAN.2018 10:02:42

Rel 99 Band 4_ Middle Channel

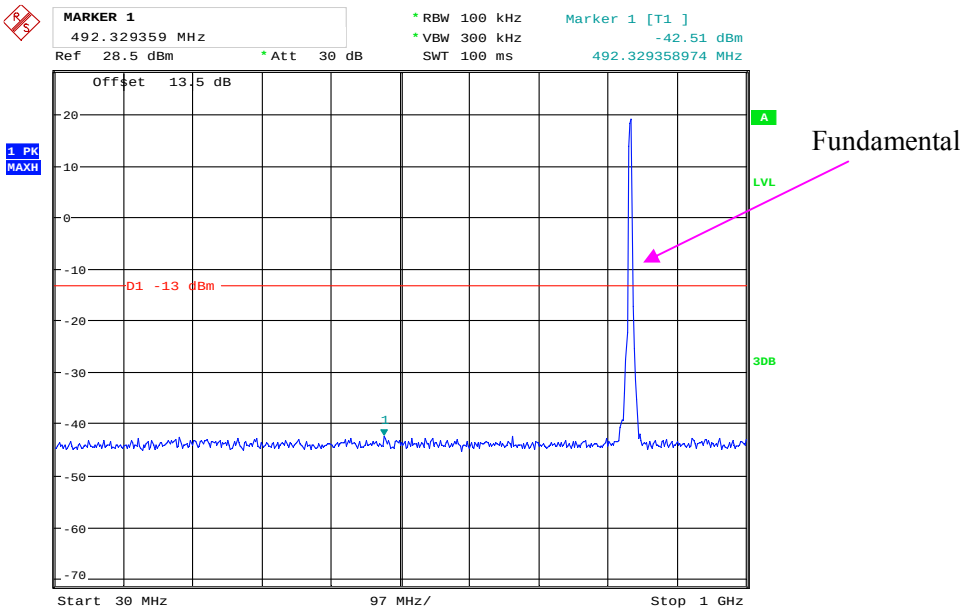


Date: 25.JAN.2018 10:04:48

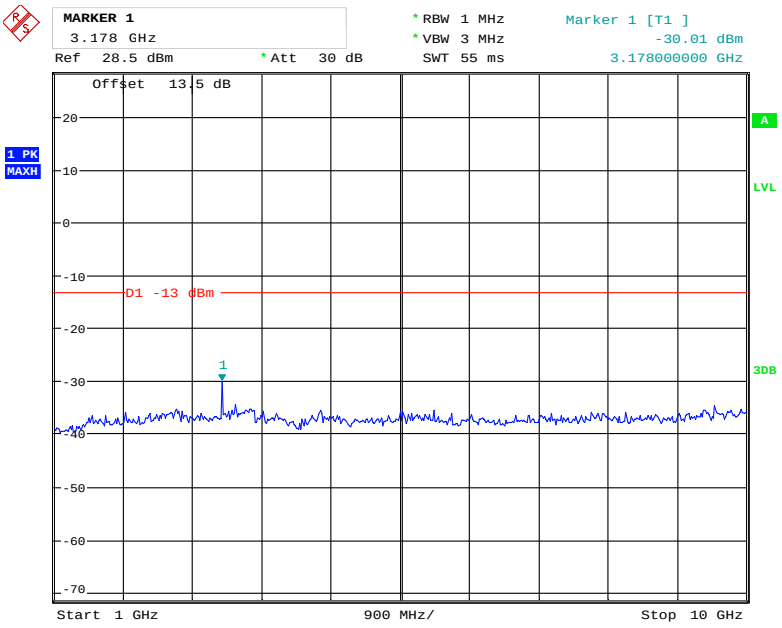


Date: 25.JAN.2018 10:05:43

Rel 99 Band 5_ Middle Channel



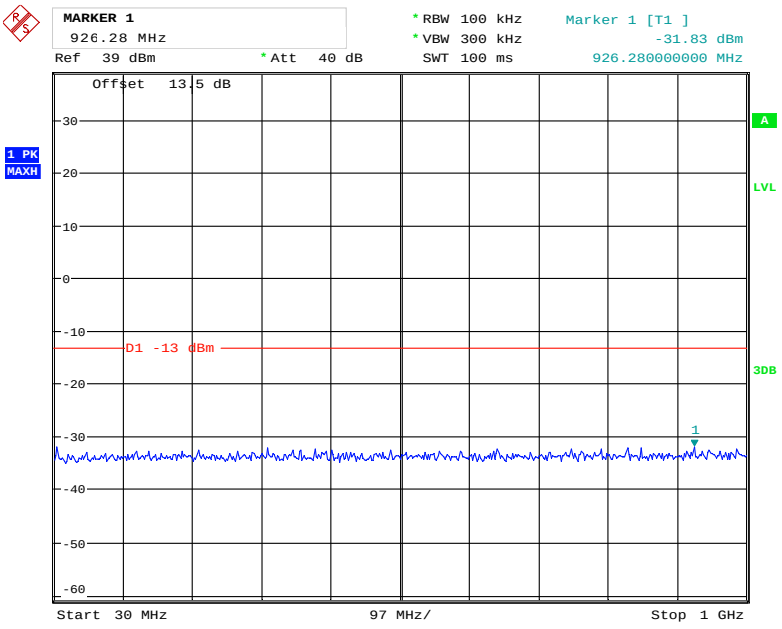
Date: 25.JAN.2018 10:09:33



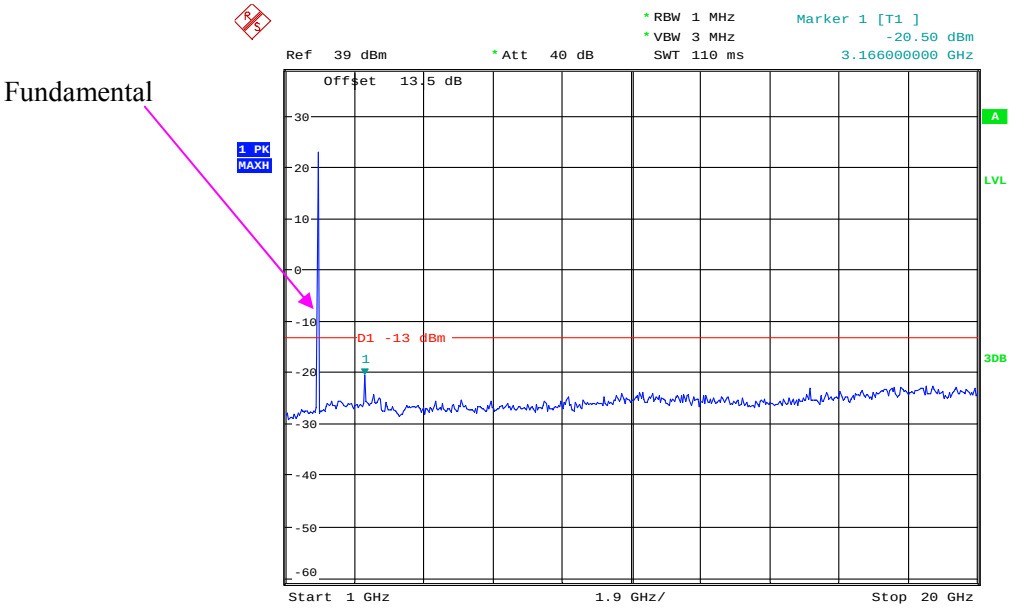
Date: 25.JAN.2018 10:08:09

LTE Band 2 (Middle Channel)

QPSK_1.4 MHz

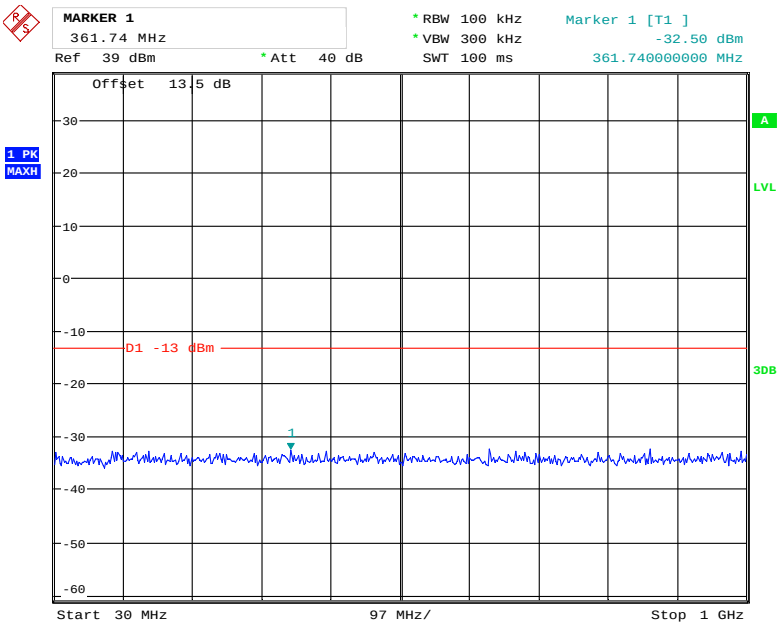


Date: 25.JAN.2018 11:24:11

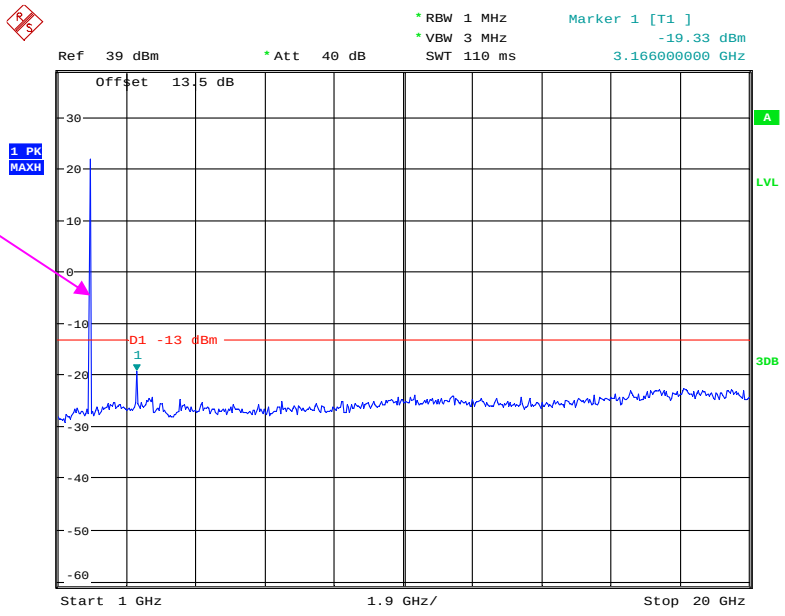


Date: 25.JAN.2018 11:46:20

QPSK_3 MHz



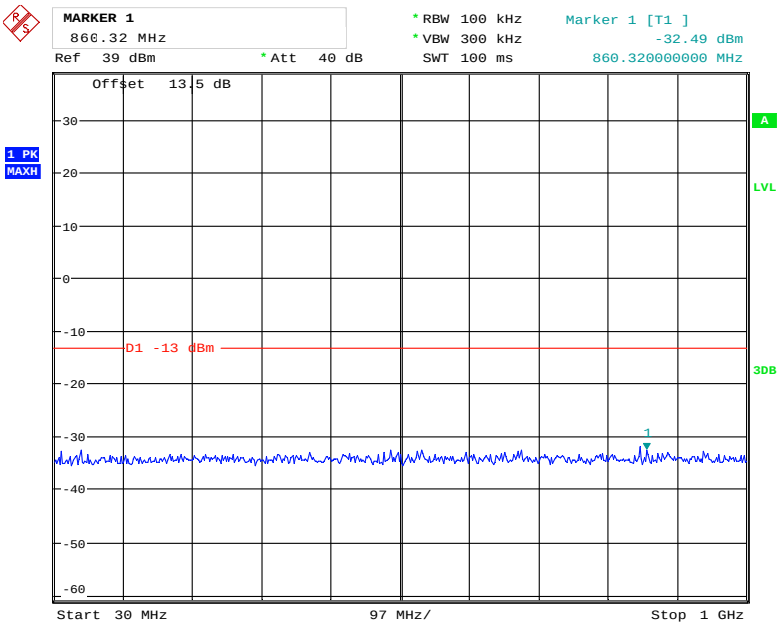
Date: 25.JAN.2018 11:29:53



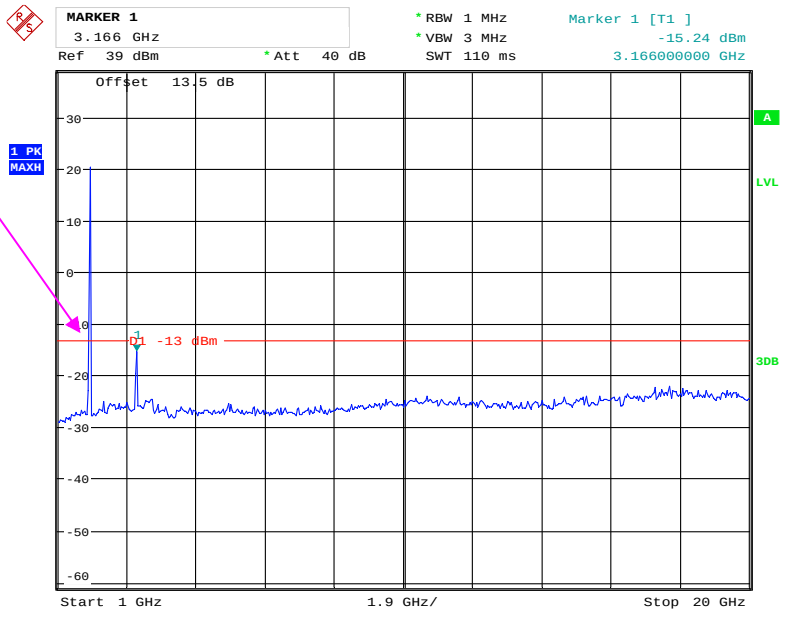
Fundamental

Date: 25.JAN.2018 11:45:34

QPSK_5 MHz



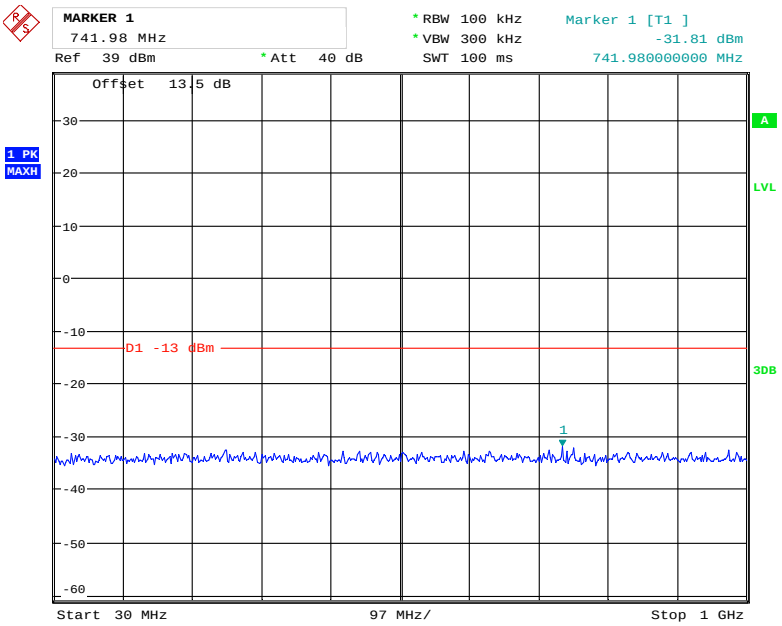
Date: 25.JAN.2018 11:38:02



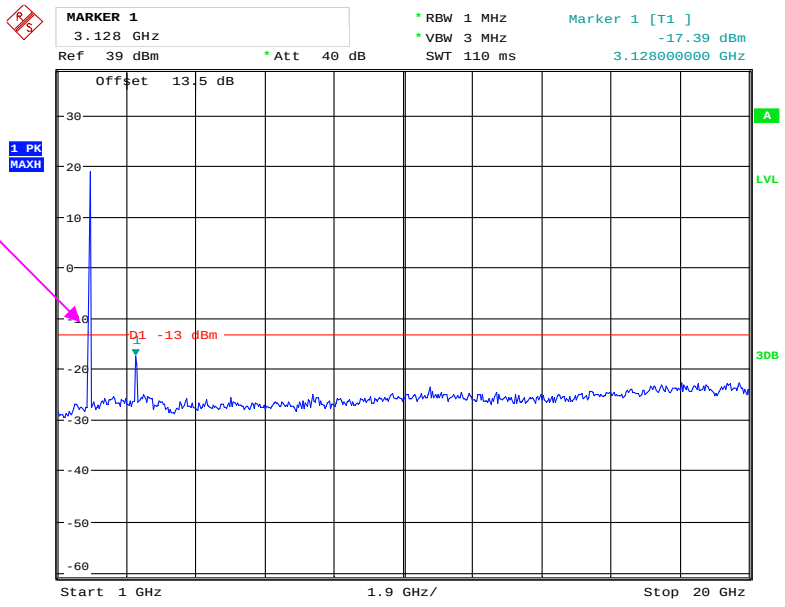
Fundamental

Date: 25.JAN.2018 11:37:13

QPSK_10 MHz



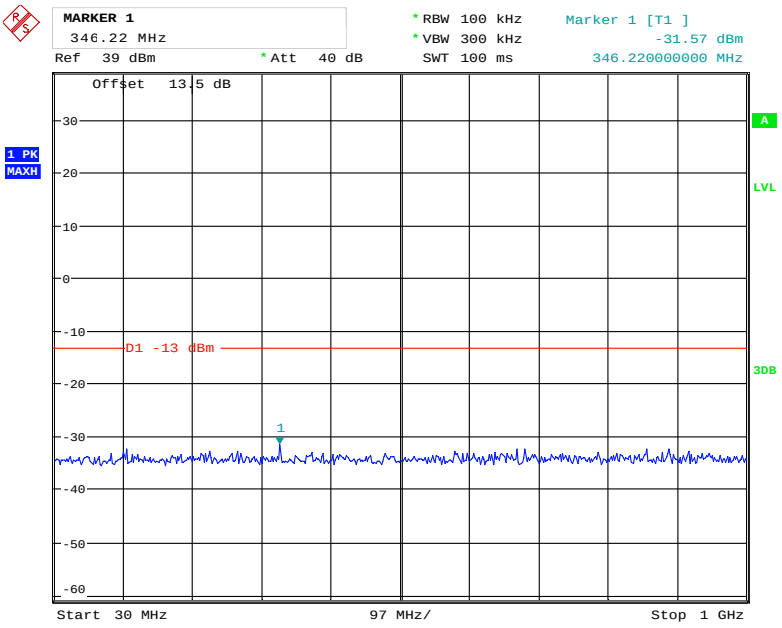
Date: 25.JAN.2018 11:40:10



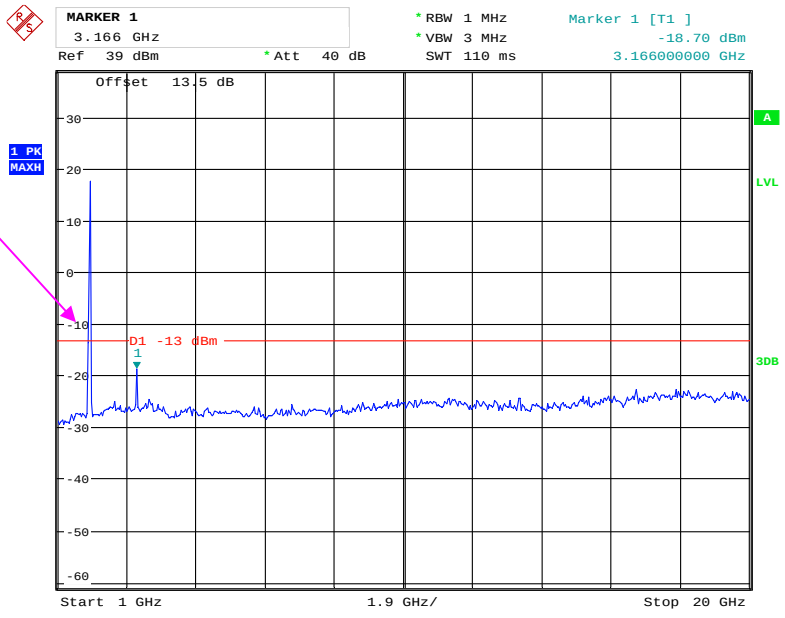
Fundamental

Date: 25.JAN.2018 11:40:40

QPSK_15 MHz



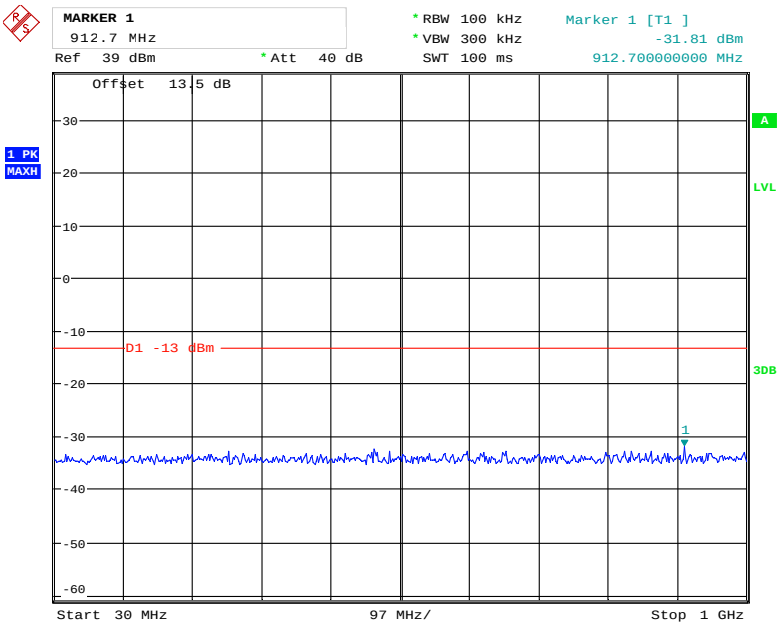
Date: 25.JAN.2018 11:42:47



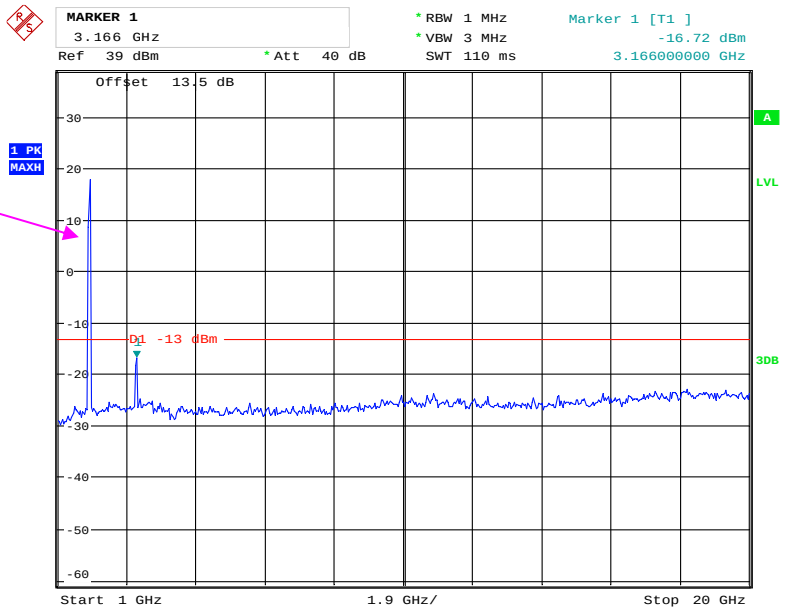
Fundamental

Date: 25.JAN.2018 11:42:07

QPSK_20 MHz



Date: 25.JAN.2018 11:44:03

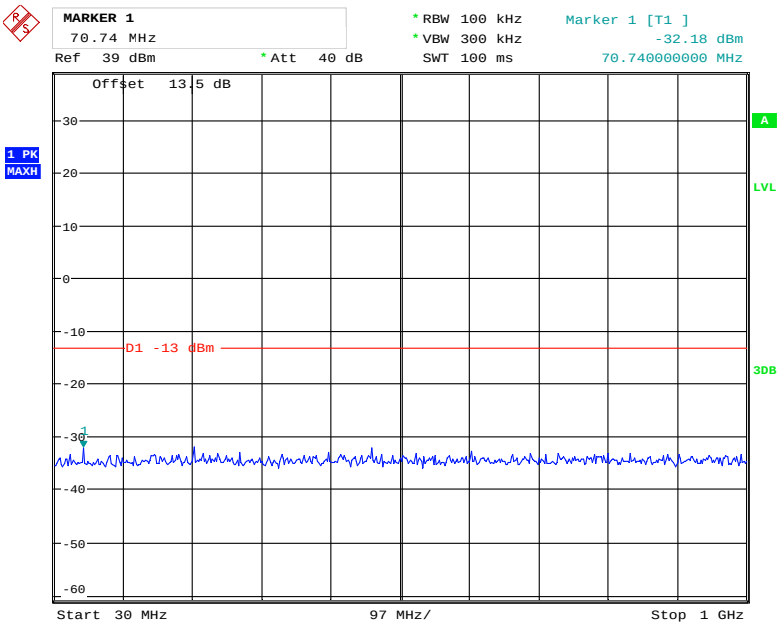


Fundamental

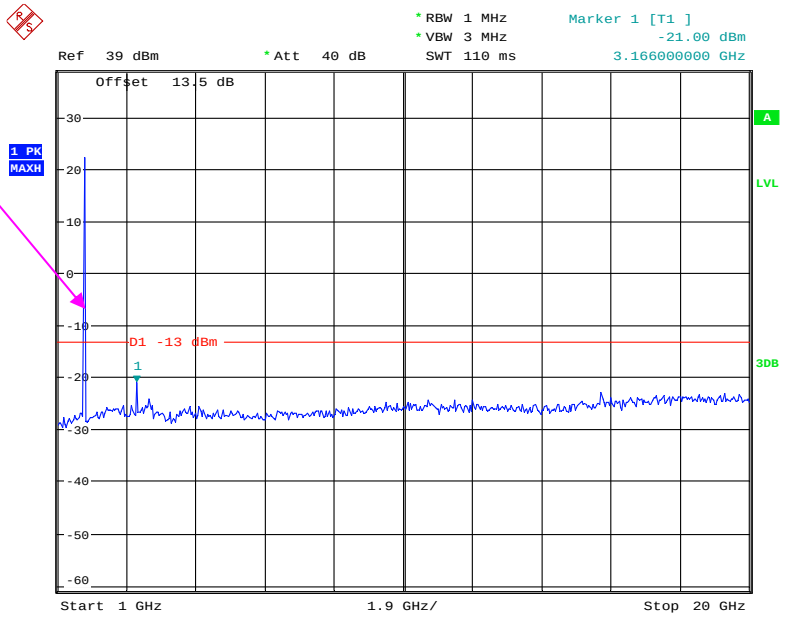
Date: 25.JAN.2018 11:44:31

LTE Band 4 (Middle Channel)

QPSK_1.4 MHz



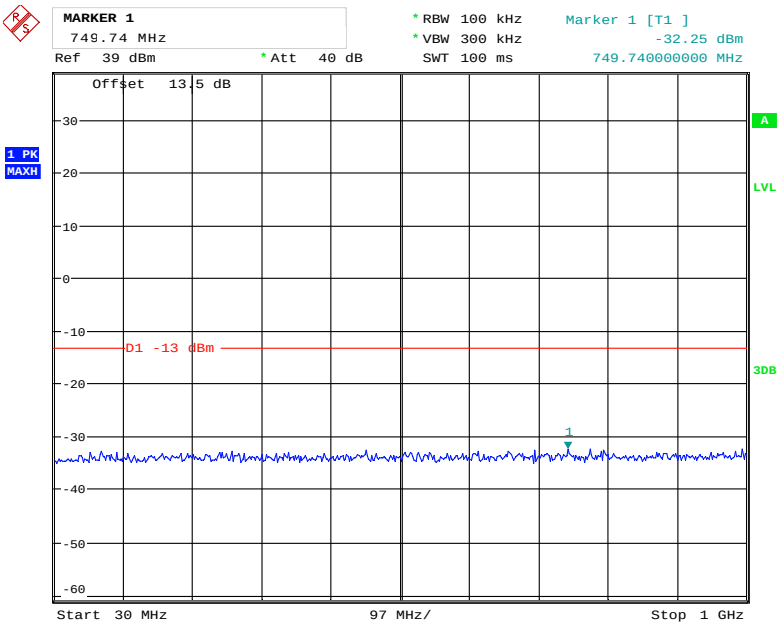
Date: 25.JAN.2018 11:48:09



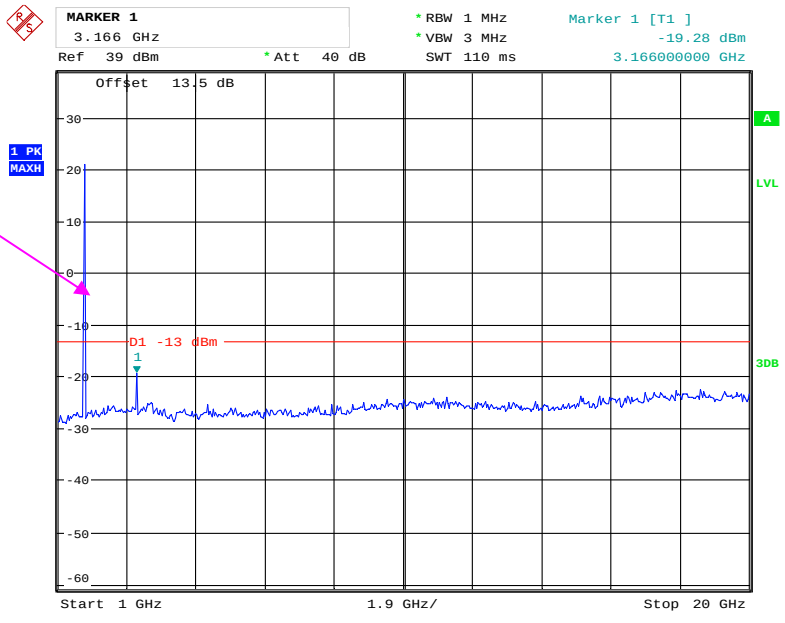
Fundamental

Date: 25.JAN.2018 11:47:38

QPSK_3 MHz



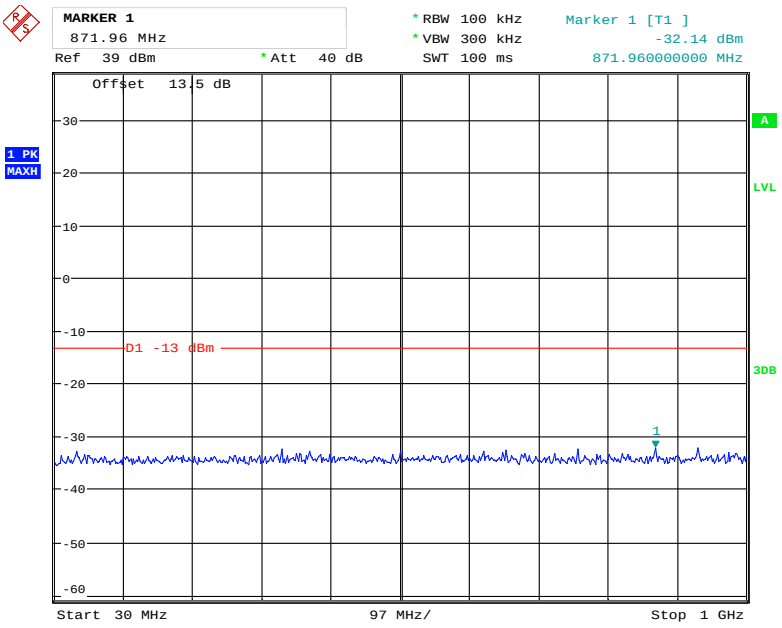
Date: 25.JAN.2018 11:49:44



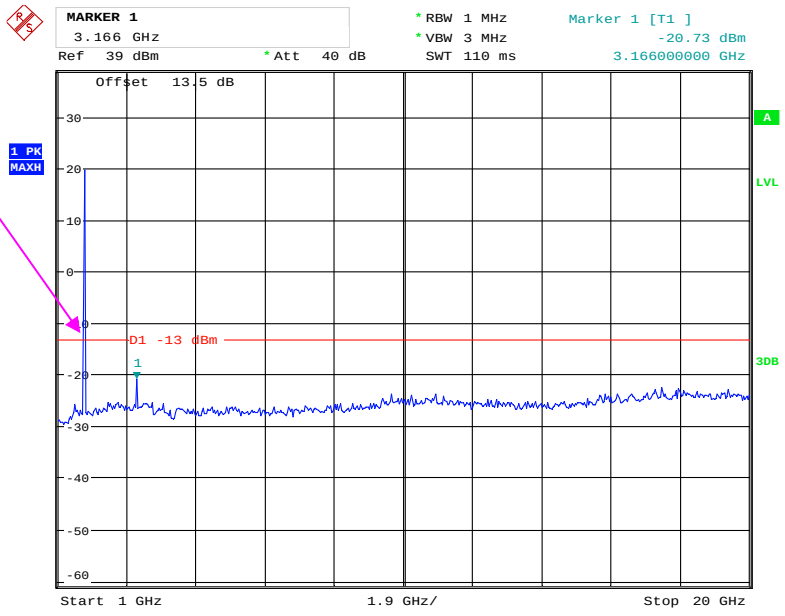
Fundamental

Date: 25.JAN.2018 11:50:24

QPSK_5 MHz



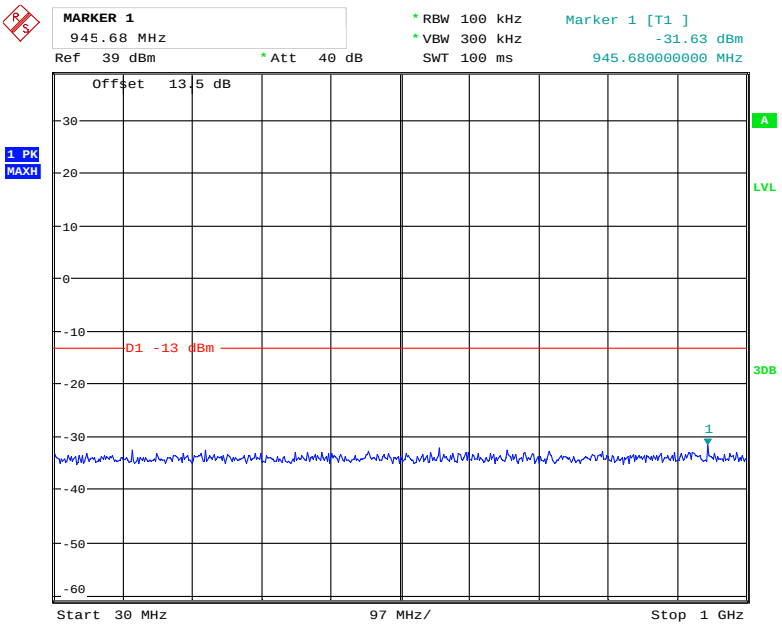
Date: 25.JAN.2018 11:52:11



Fundamental

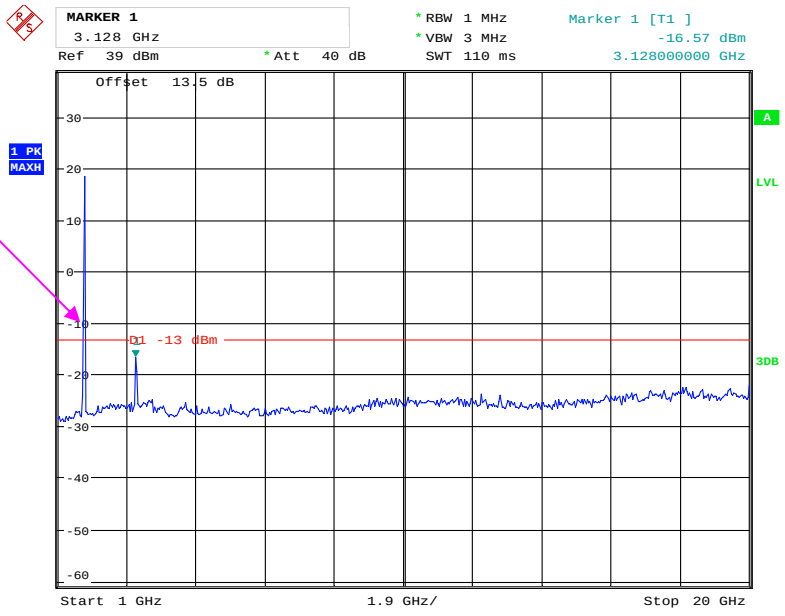
Date: 25.JAN.2018 11:51:32

QPSK_10 MHz



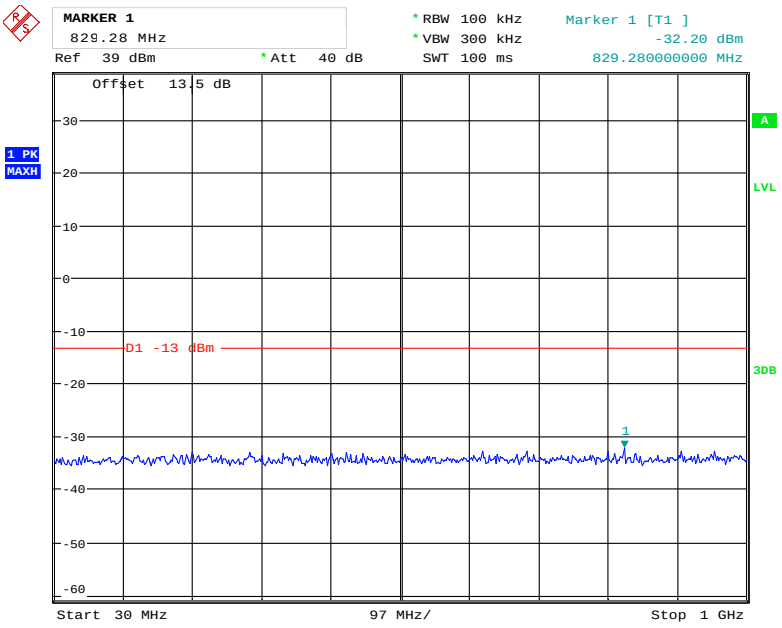
Date: 25.JAN.2018 11:52:59

Fundamental

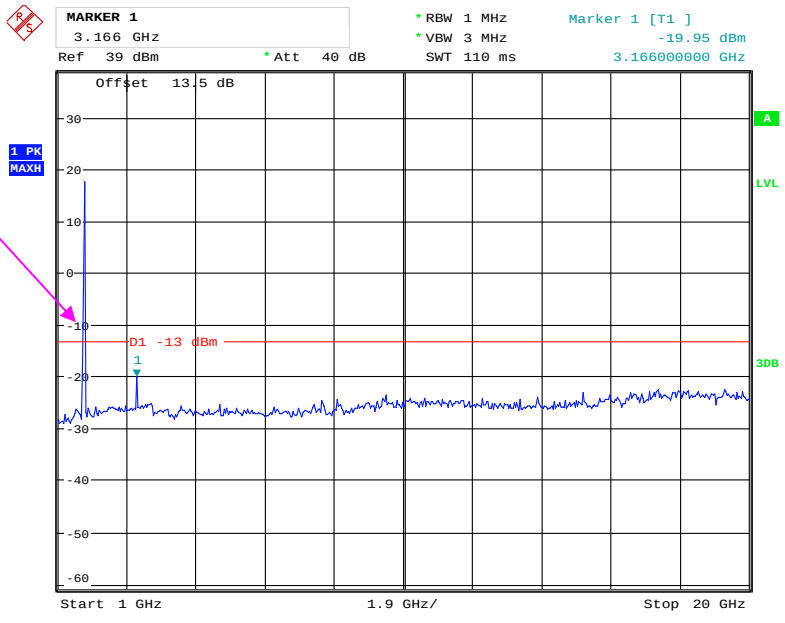


Date: 25.JAN.2018 11:53:35

QPSK_15 MHz



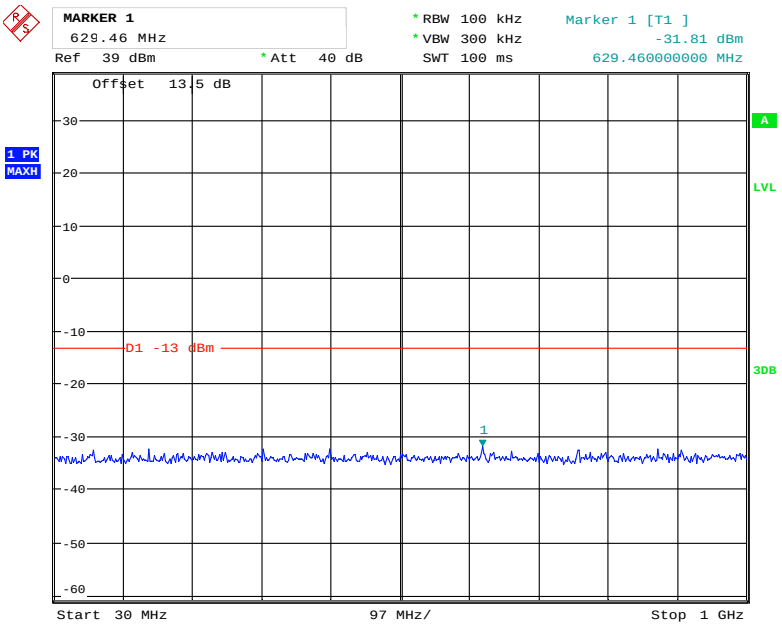
Date: 25.JAN.2018 11:55:06



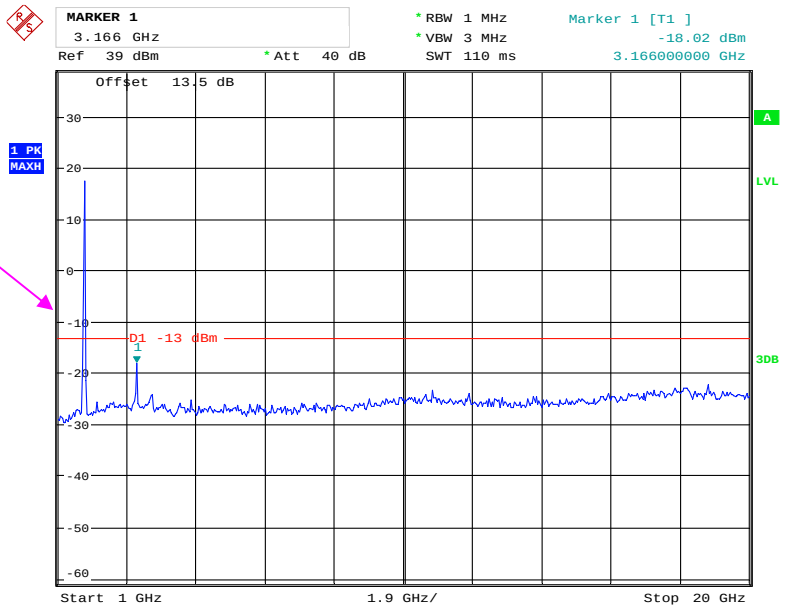
Fundamental

Date: 25.JAN.2018 11:54:26

QPSK_20 MHz



Date: 25.JAN.2018 13:15:54

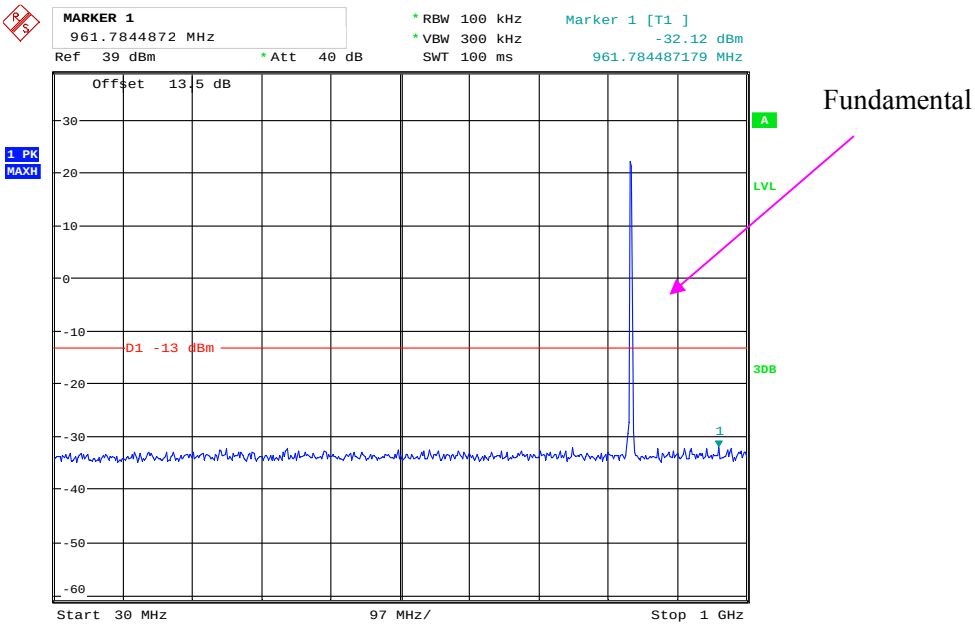


Fundamental

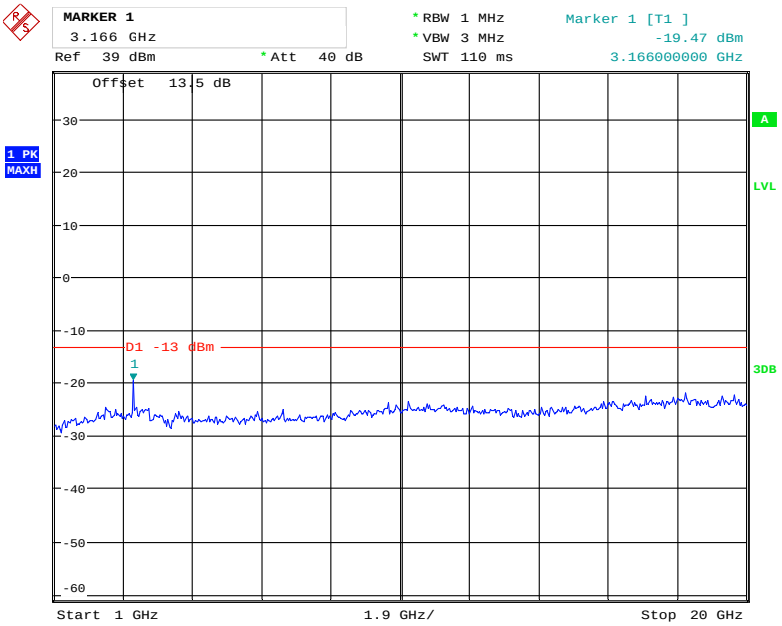
Date: 25.JAN.2018 13:16:24

LTE Band 5 (Middle Channel)

QPSK_1.4 MHz

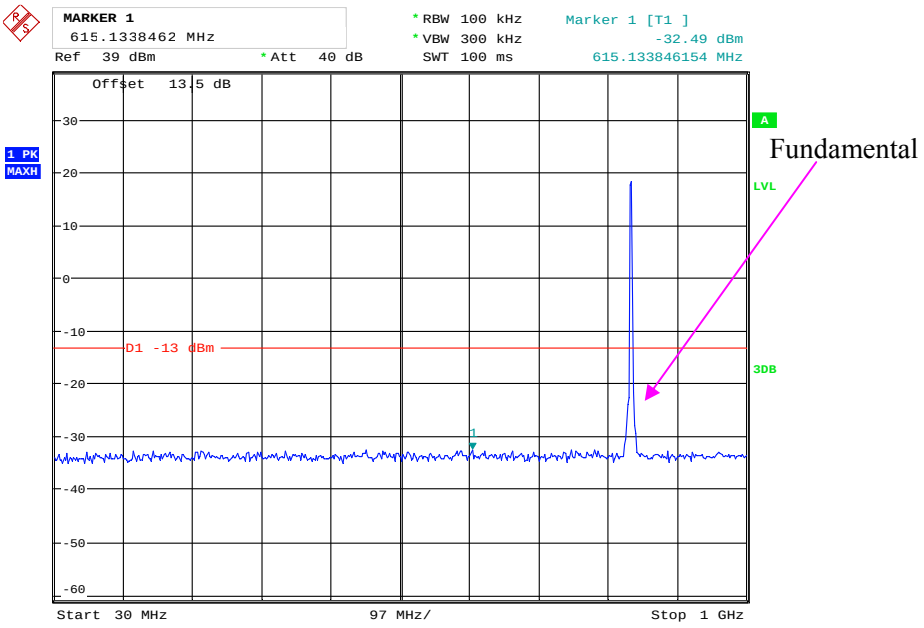


Date: 25.JAN.2018 13:21:23

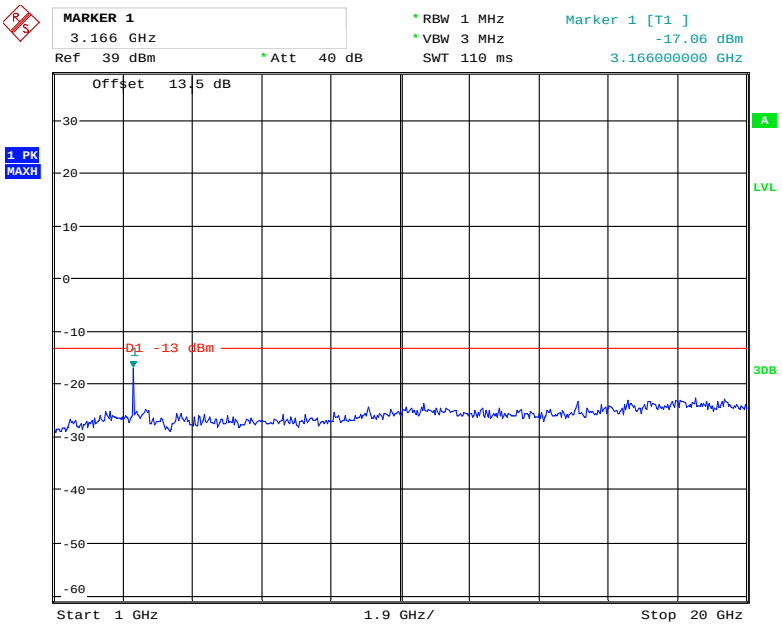


Date: 25.JAN.2018 13:20:08

QPSK_3 MHz

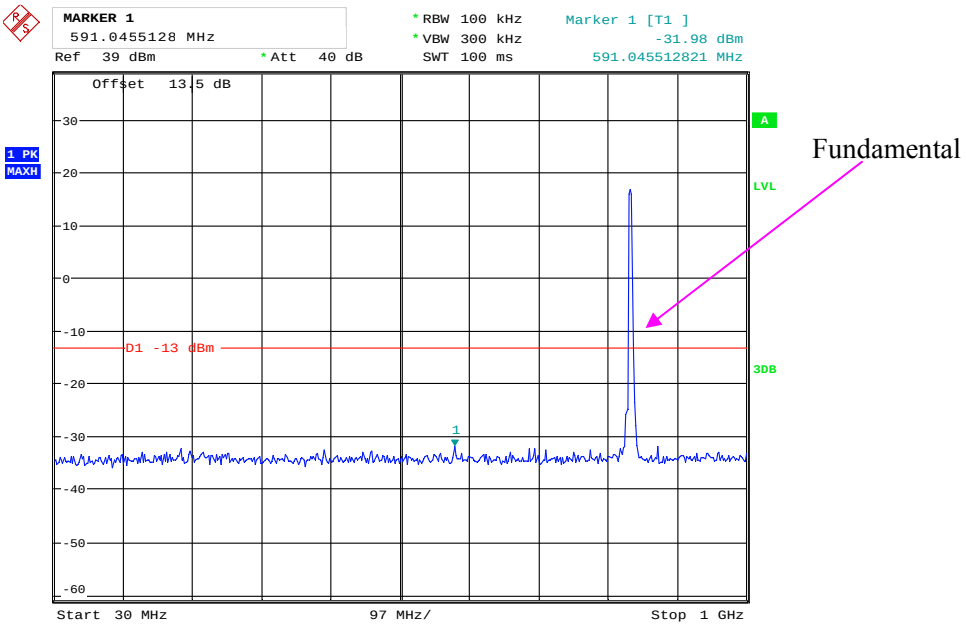


Date: 25.JAN.2018 13:22:41

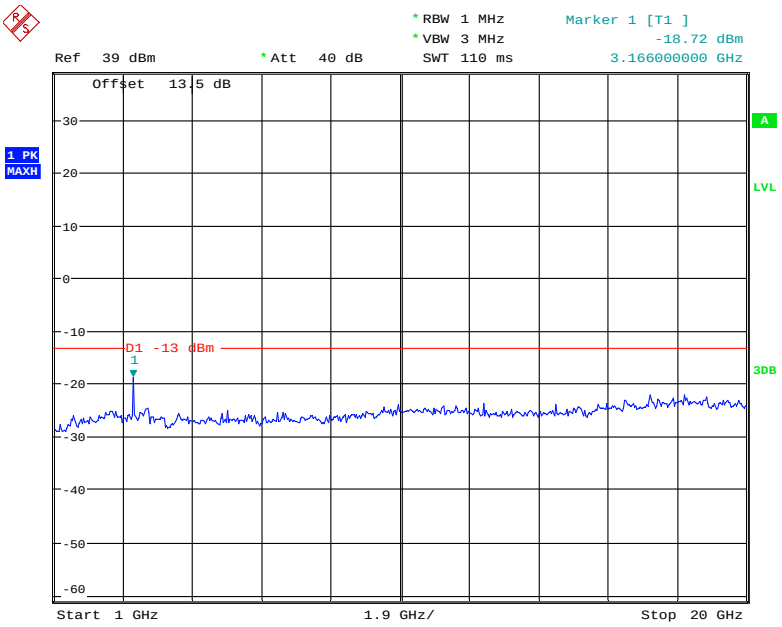


Date: 25.JAN.2018 13:23:48

QPSK_5 MHz

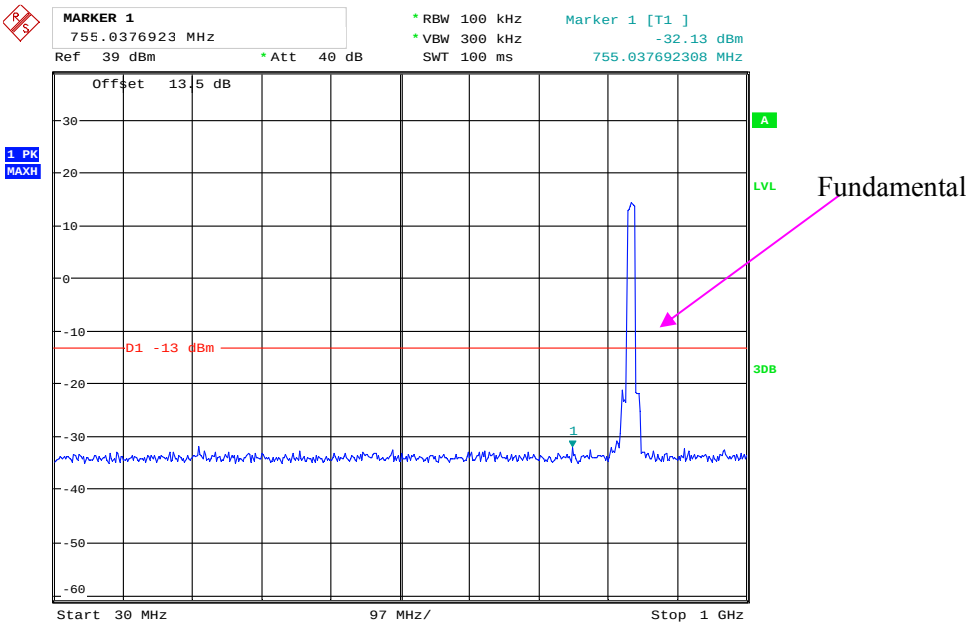


Date: 25.JAN.2018 13:25:09

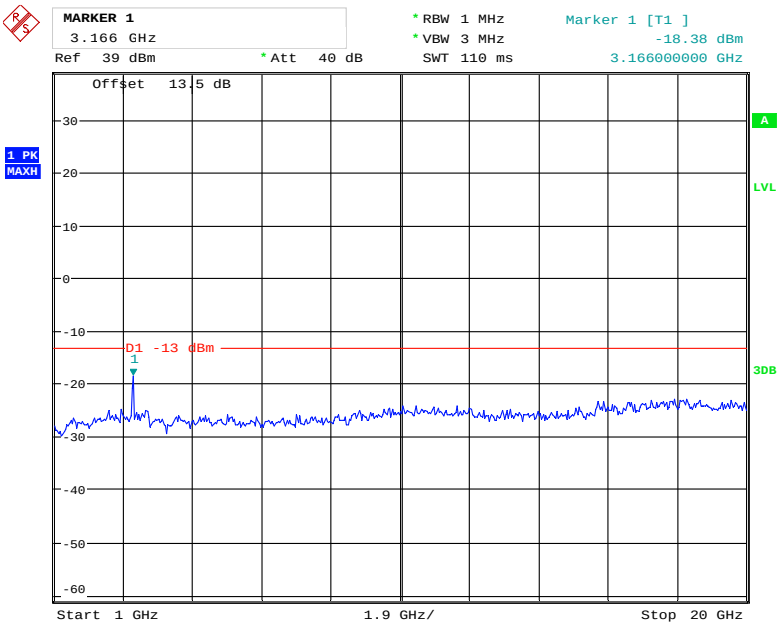


Date: 25.JAN.2018 13:24:32

QPSK_10 MHz



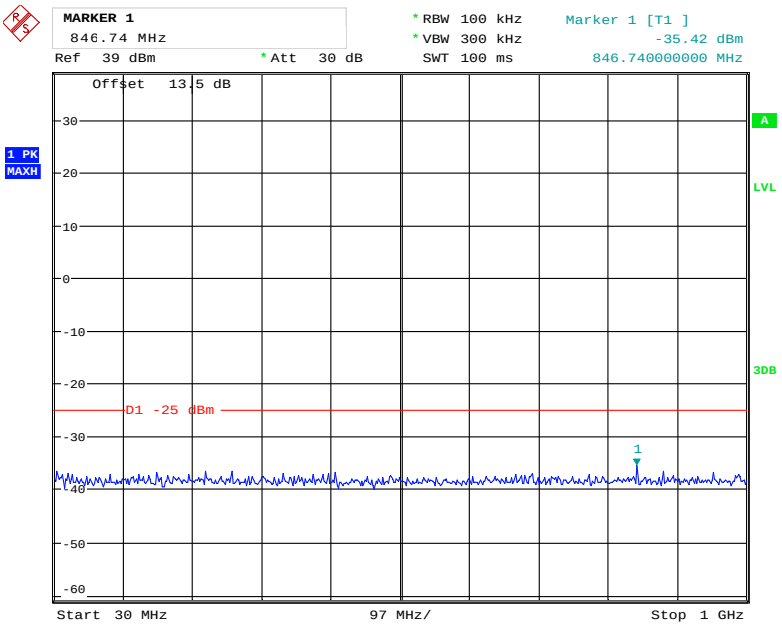
Date: 25.JAN.2018 13:26:00



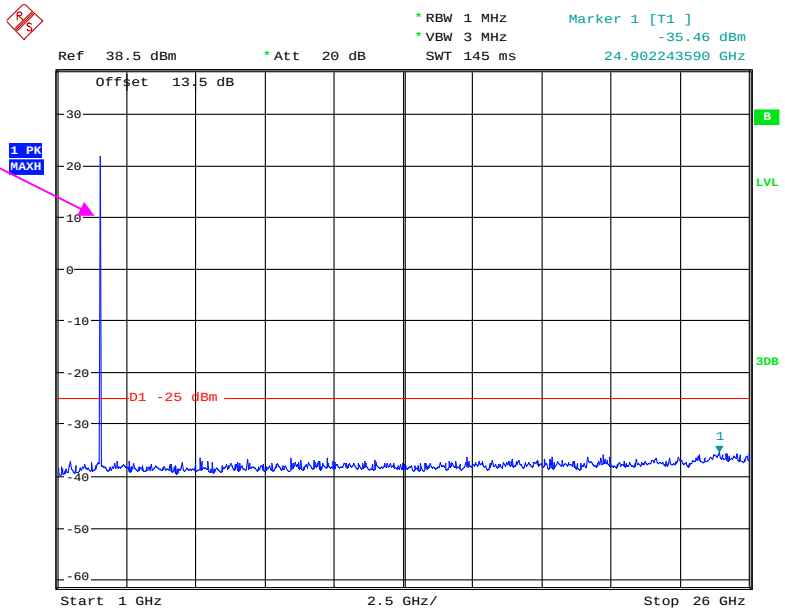
Date: 25.JAN.2018 13:26:34

LTE Band 7 (Middle Channel)

QPSK_5 MHz



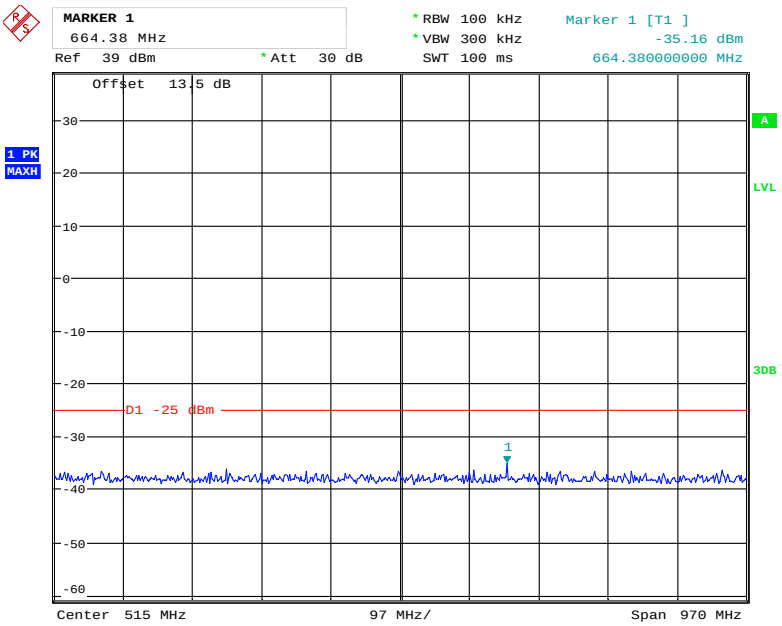
Date: 25.JAN.2018 14:14:29



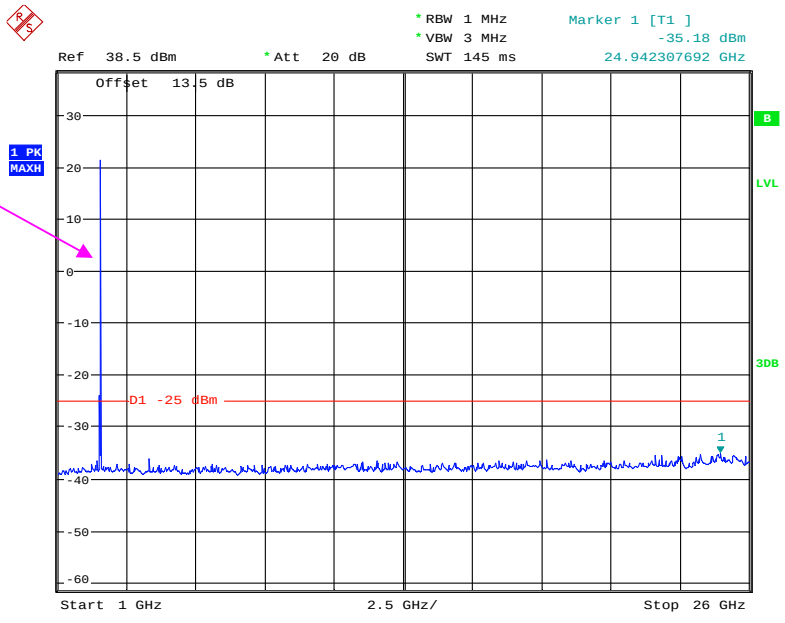
Fundamental

Date: 9.FEB.2018 16:04:50

QPSK_10 MHz



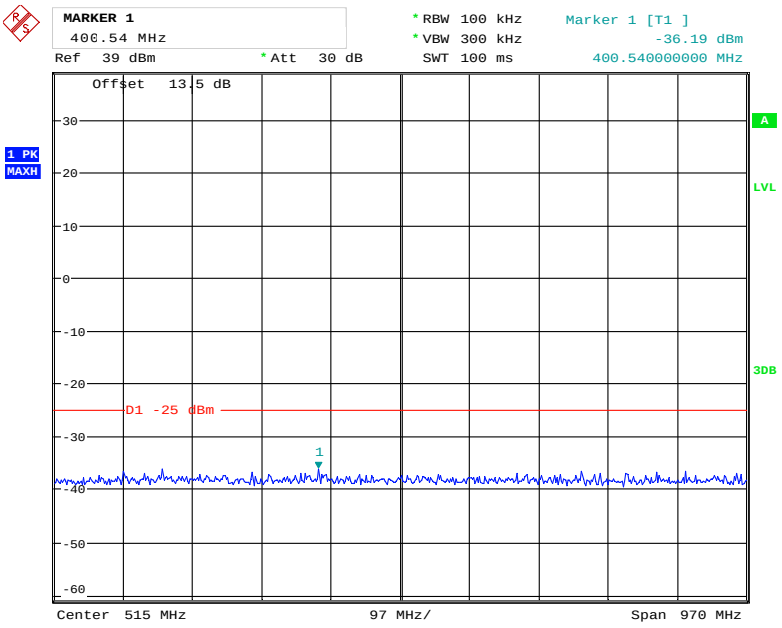
Date: 25.JAN.2018 14:19:20



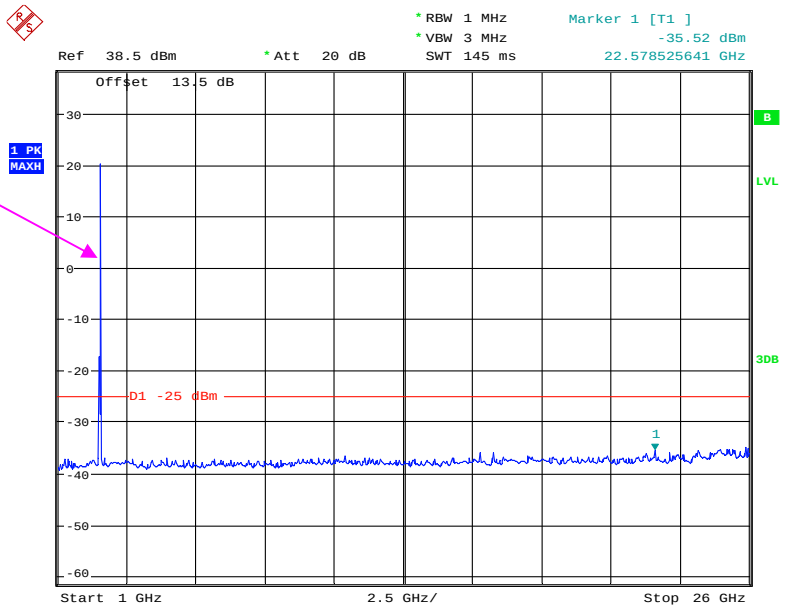
Fundamental

Date: 9.FEB.2018 16:04:06

QPSK_15 MHz



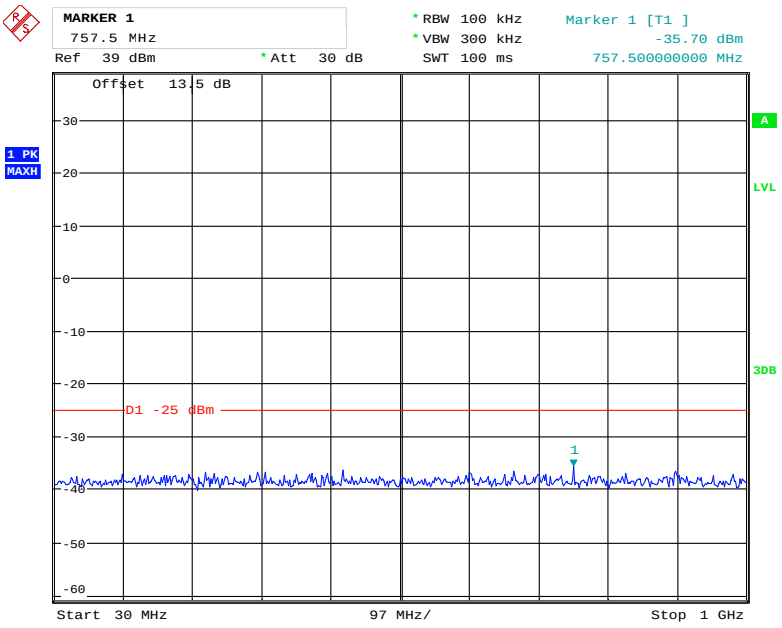
Date: 25.JAN.2018 14:19:55



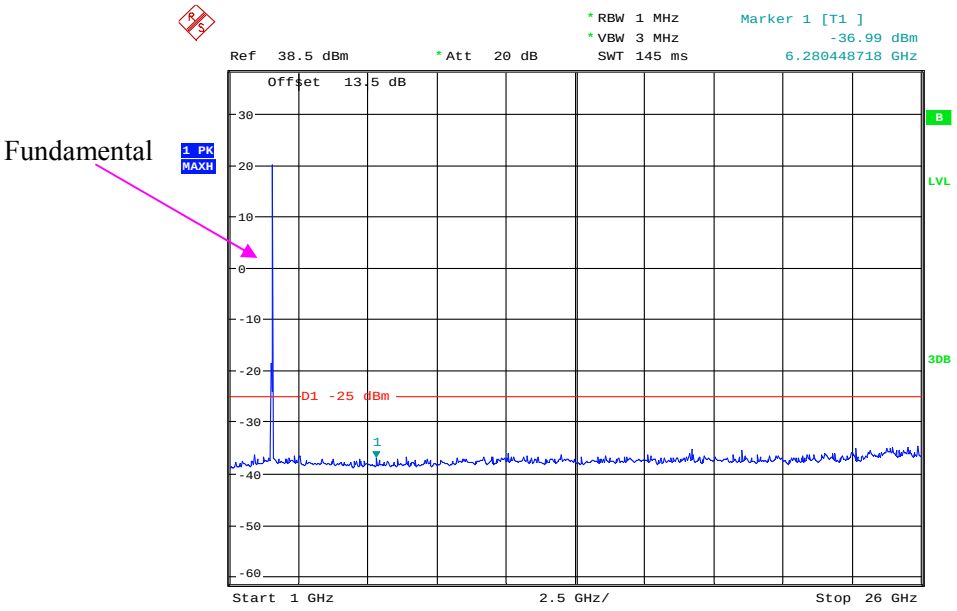
Fundamental

Date: 9.FEB.2018 16:03:12

QPSK_20 MHz



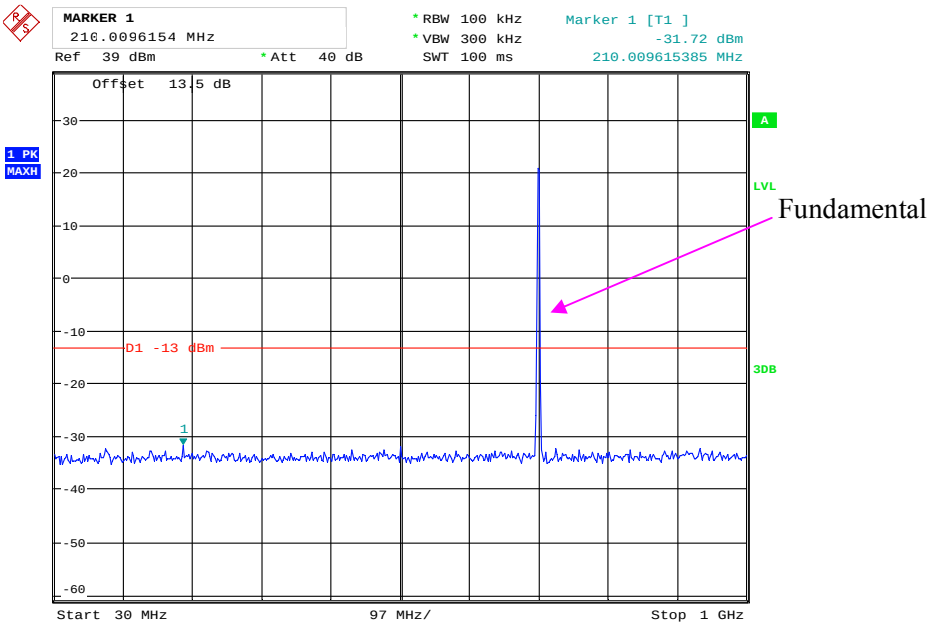
Date: 25.JAN.2018 14:22:10



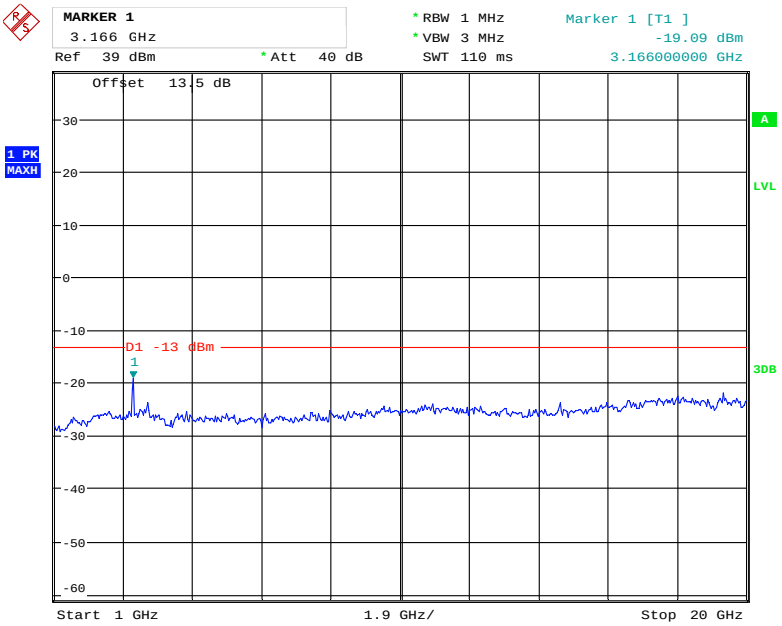
Date: 9.FEB.2018 16:02:03

LTE Band 12 (Middle Channel)

QPSK_1.4 MHz

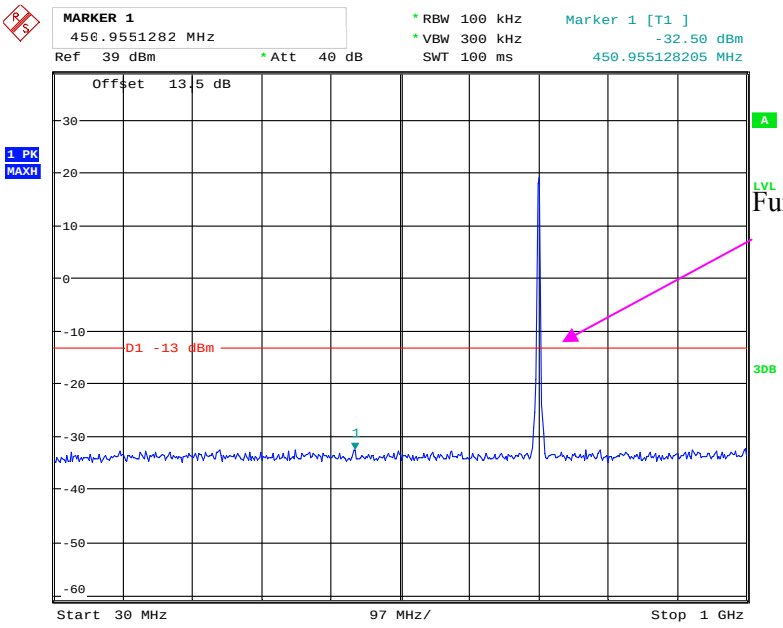


Date: 25.JAN.2018 13:38:30



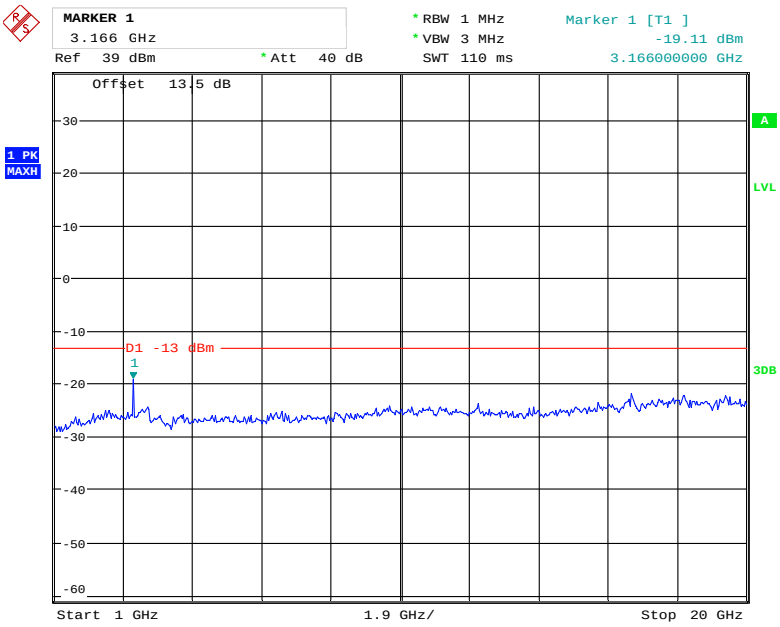
Date: 25.JAN.2018 13:39:18

QPSK_3 MHz



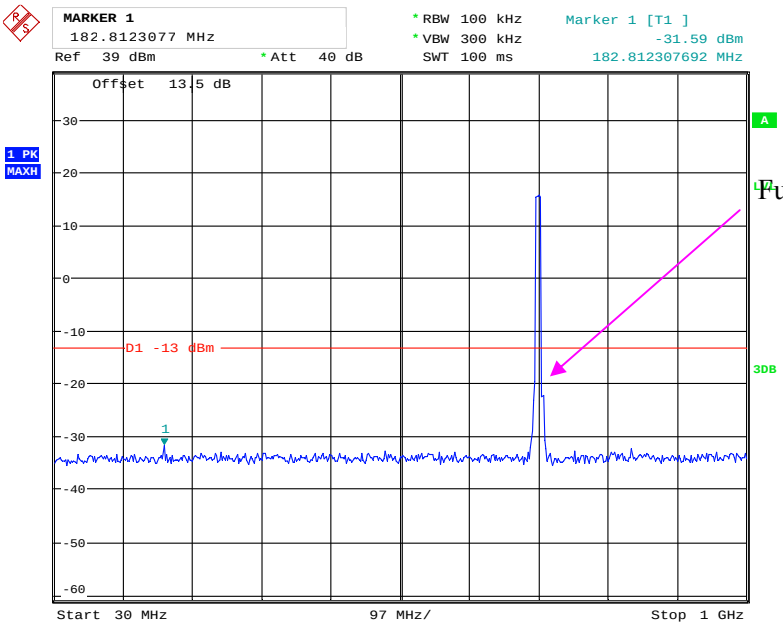
Fundamental

Date: 25.JAN.2018 13:37:31



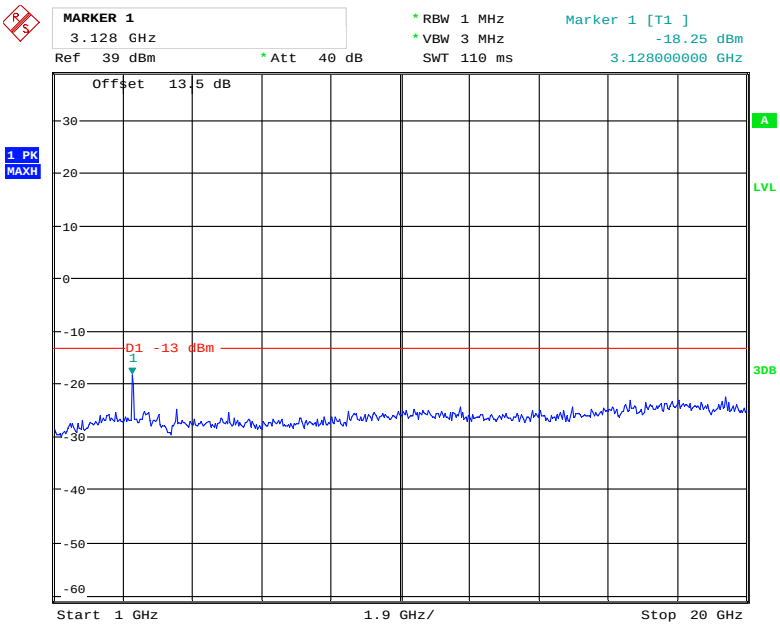
Date: 25.JAN.2018 13:36:17

QPSK_5 MHz



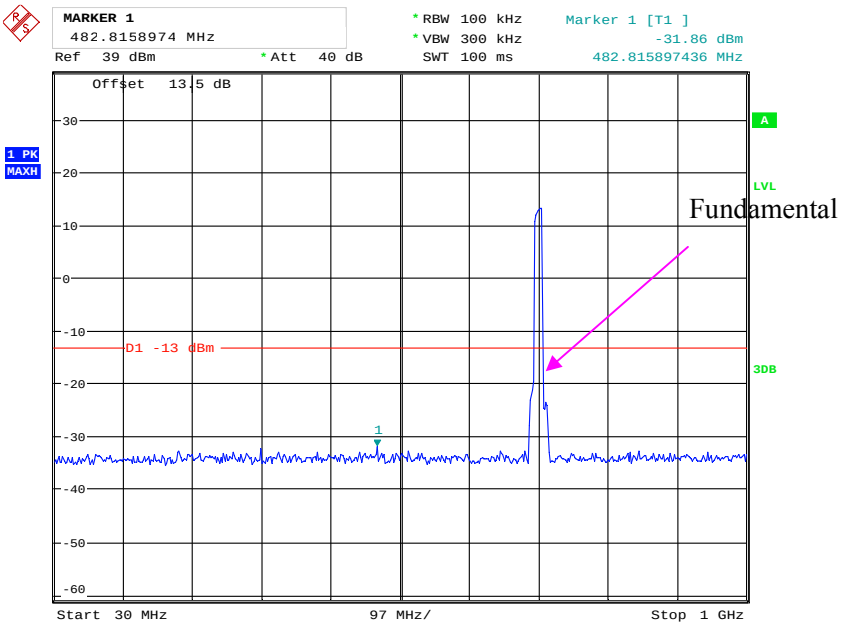
Fundamental

Date: 25.JAN.2018 13:35:01

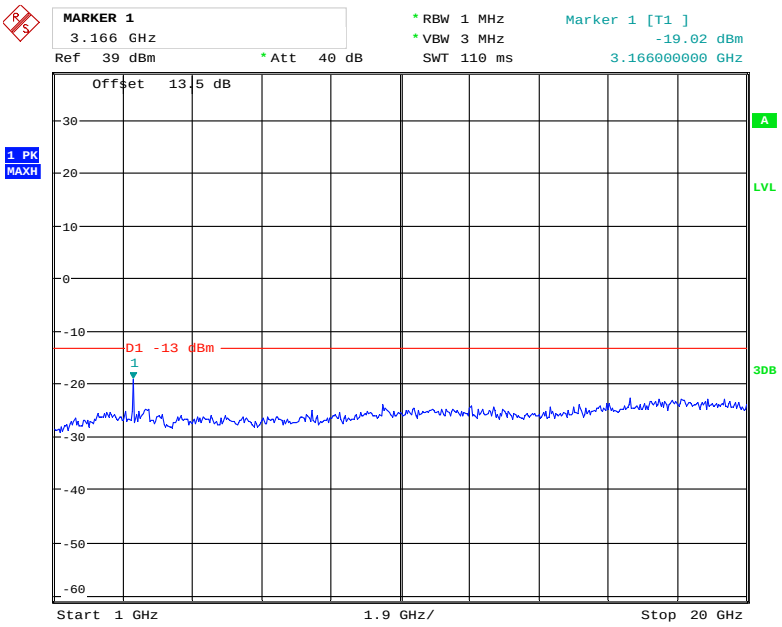


Date: 25.JAN.2018 13:35:30

QPSK_10 MHz



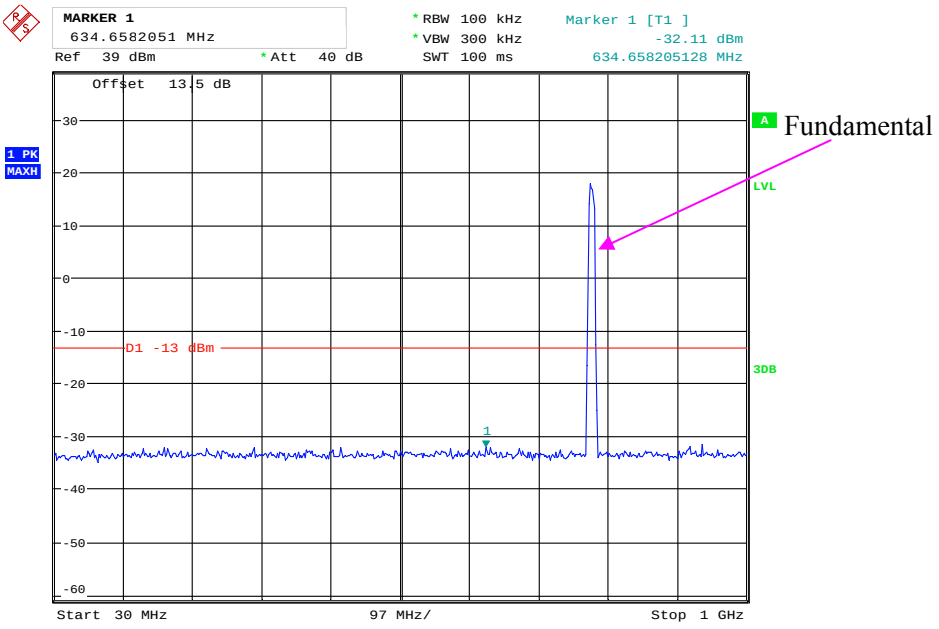
Date: 25.JAN.2018 13:32:44



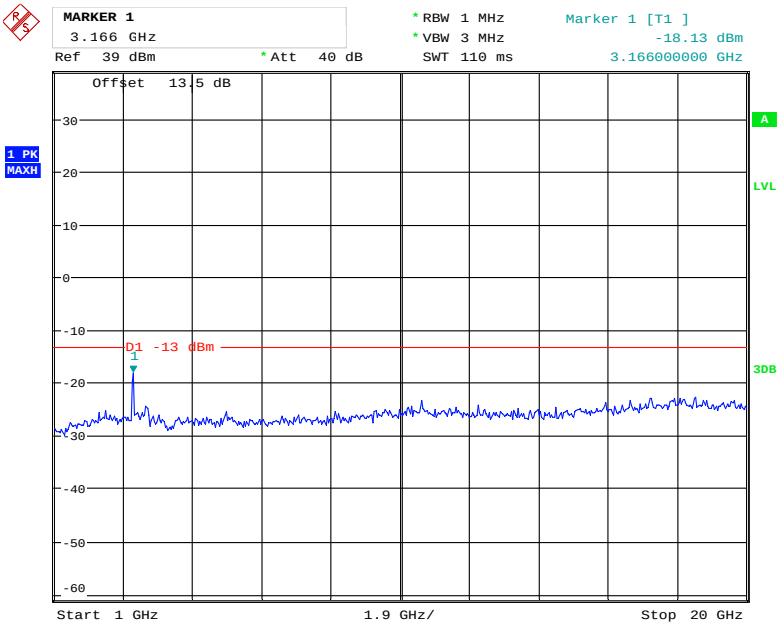
Date: 25.JAN.2018 13:31:54

LTE Band 13 (Middle Channel)

QPSK_5 MHz

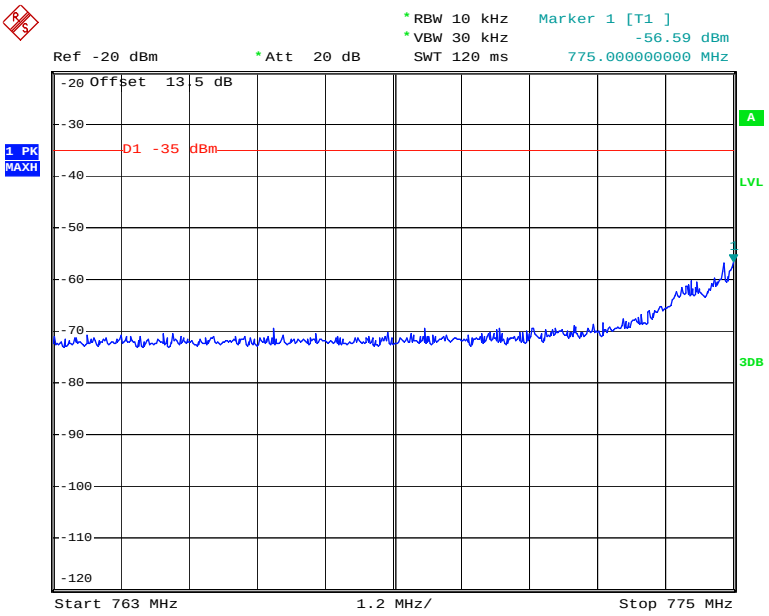


Date: 25.JAN.2018 13:44:37



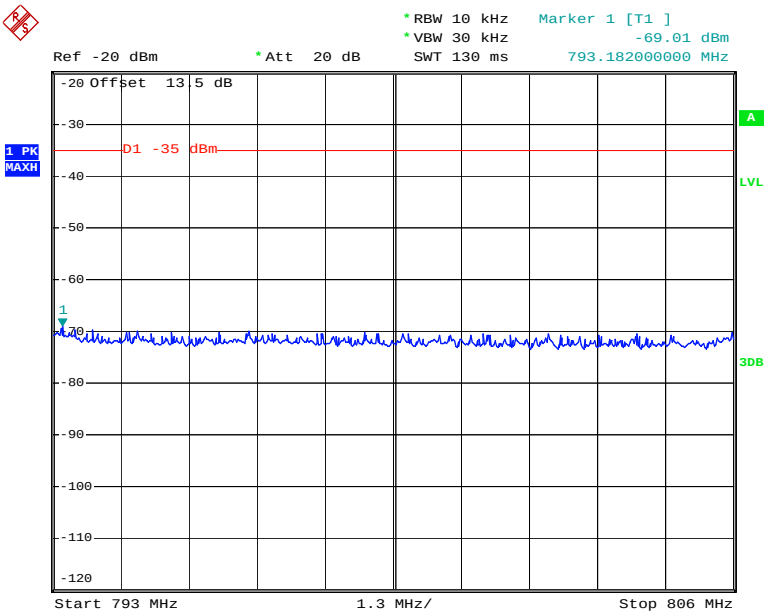
Date: 25.JAN.2018 13:45:12

763-775MHz



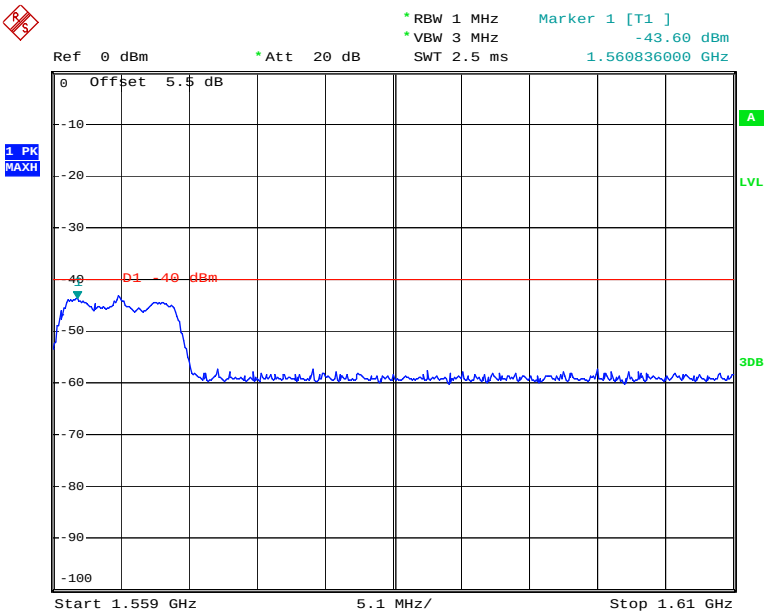
Date: 17.MAY.2018 20:59:11

793-806MHz



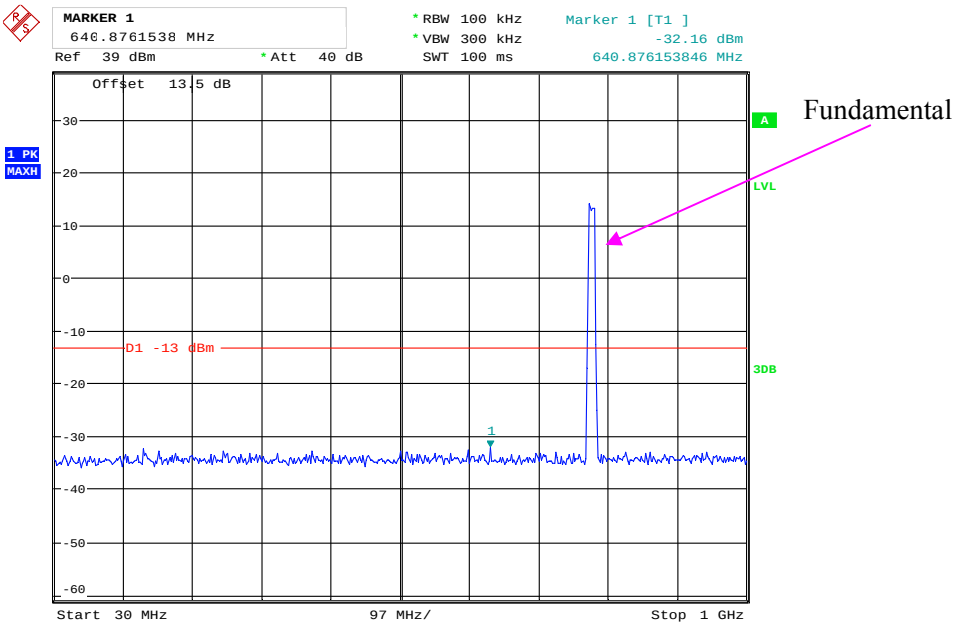
Date: 17.MAY.2018 20:56:38

1559-1610MHz

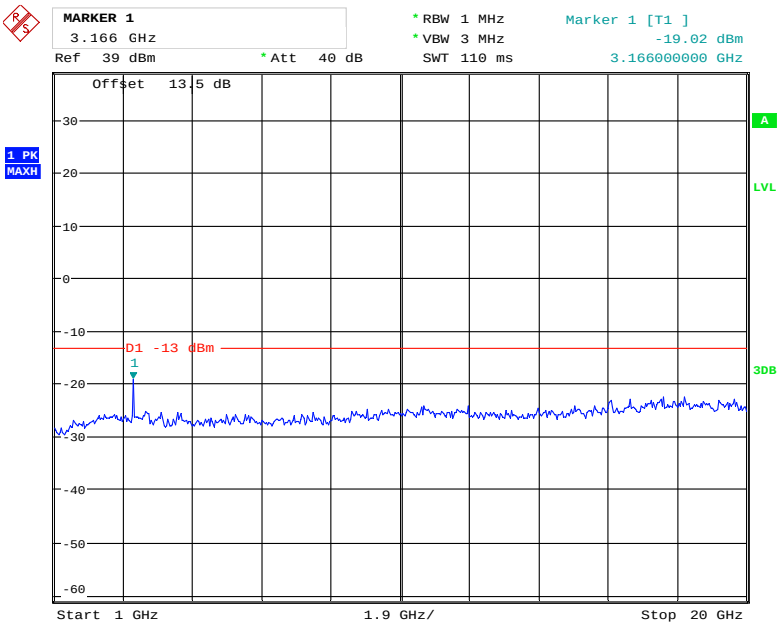


Date: 18.MAY.2018 11:19:49

QPSK_10 MHz

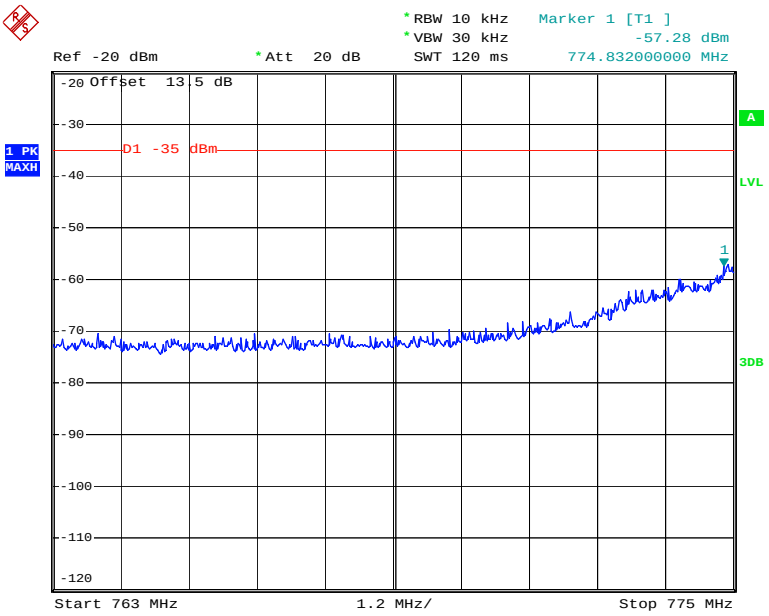


Date: 25.JAN.2018 13:42:39



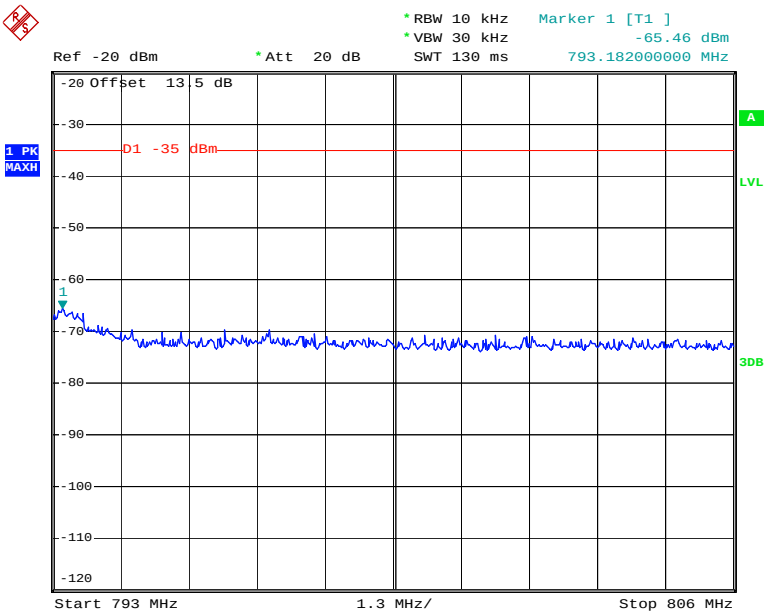
Date: 25.JAN.2018 13:41:54

763-775MHz



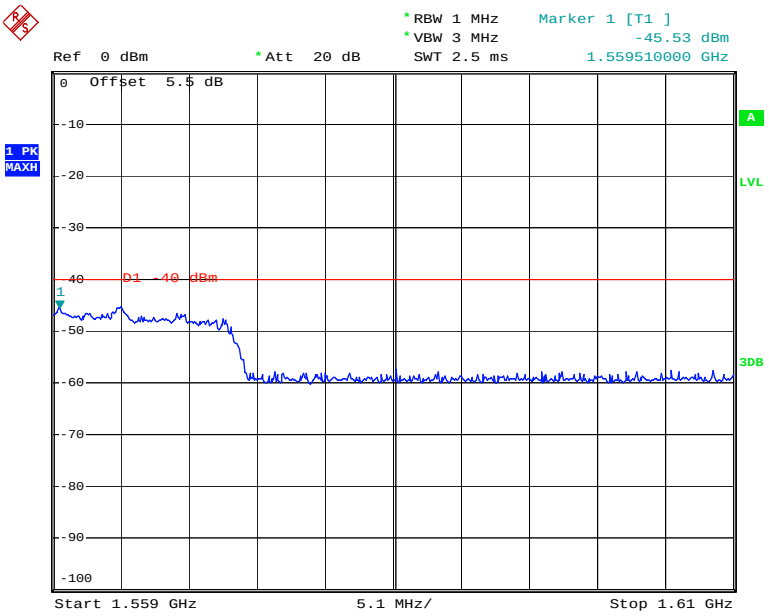
Date: 17.MAY.2018 20:53:21

793-806MHz



Date: 17.MAY.2018 20:54:23

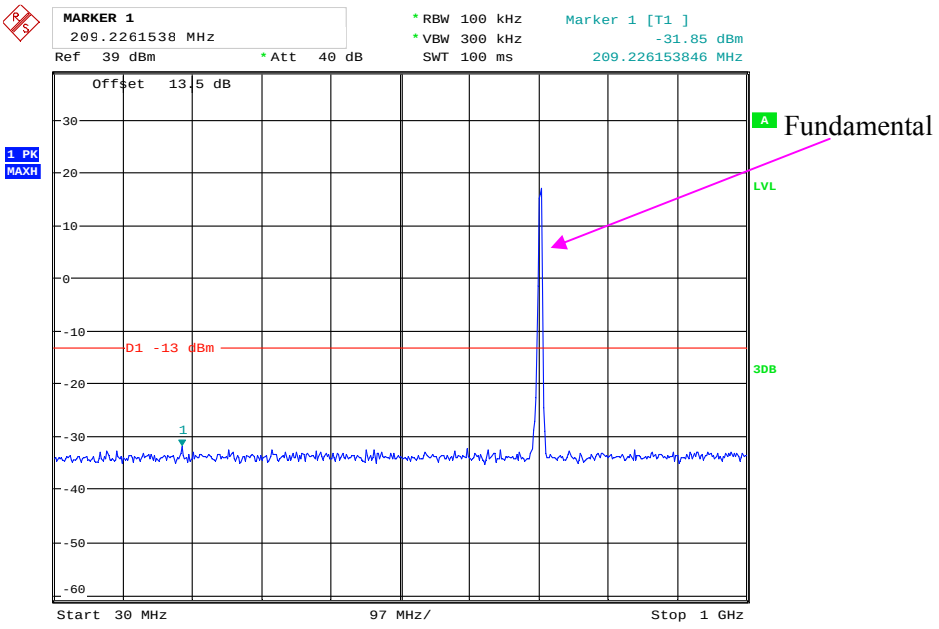
1559-1610MHz



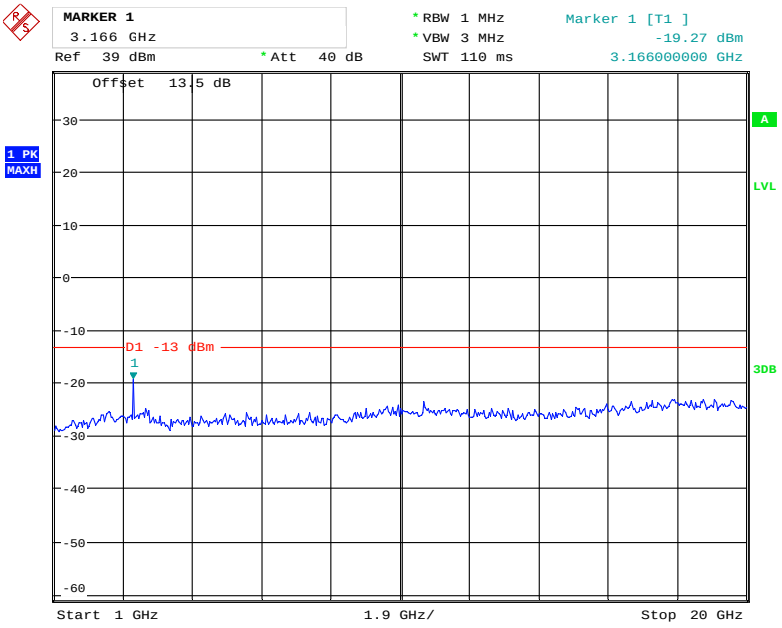
Date: 18.MAY.2018 11:20:29

LTE Band 17 (Middle Channel)

QPSK_5 MHz

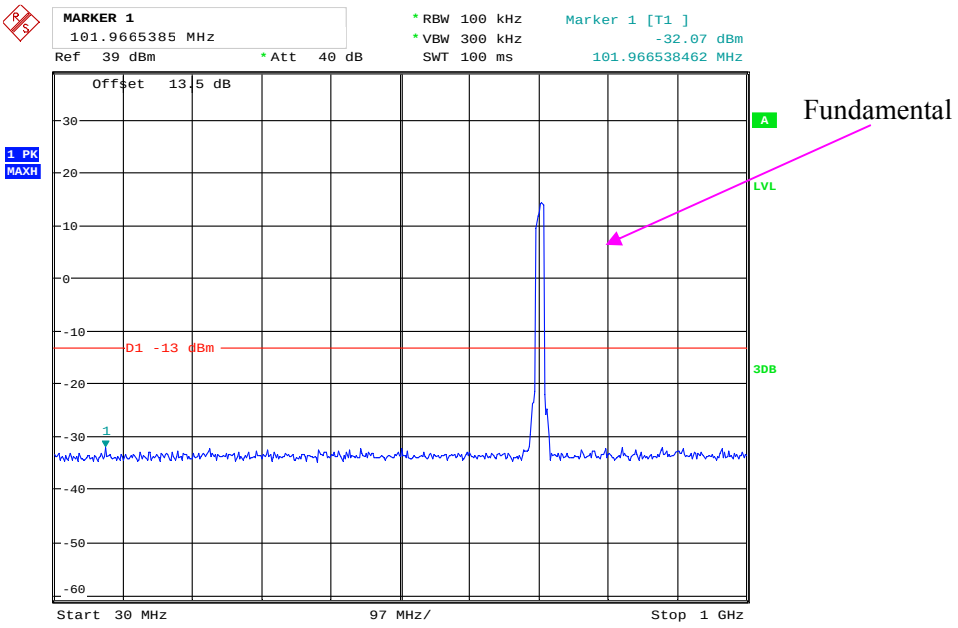


Date: 25.JAN.2018 13:47:13

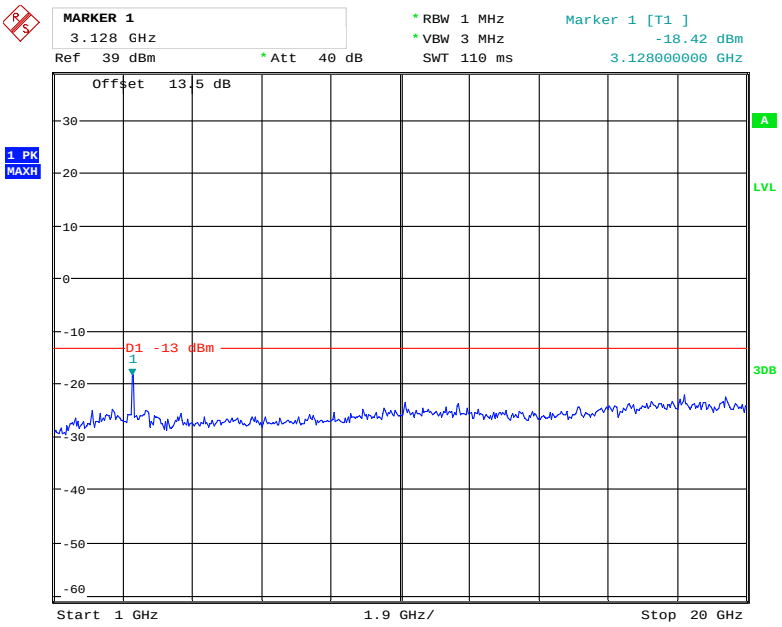


Date: 25.JAN.2018 13:46:15

QPSK_10 MHz



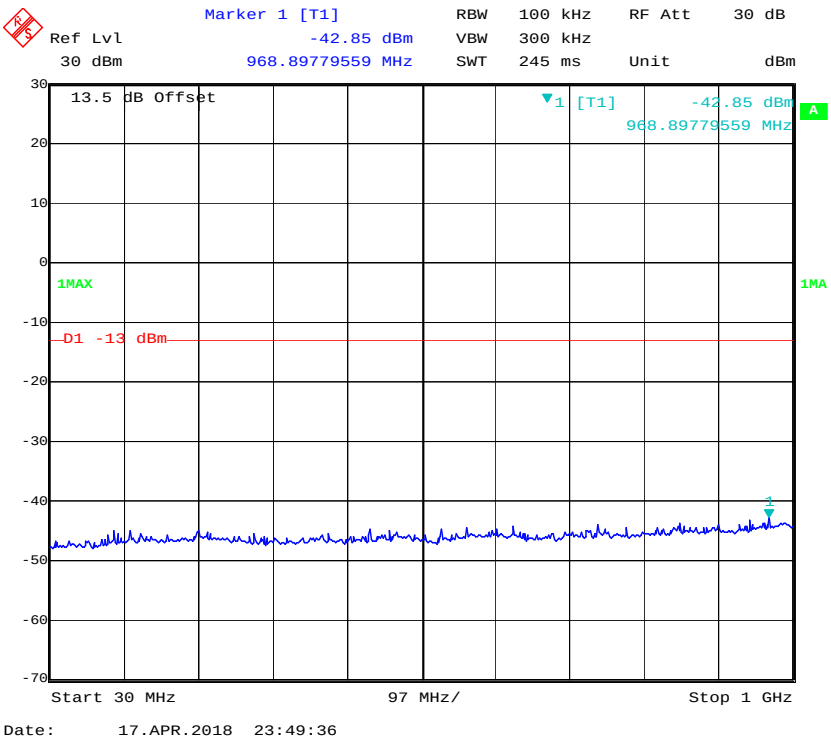
Date: 25.JAN.2018 13:48:43

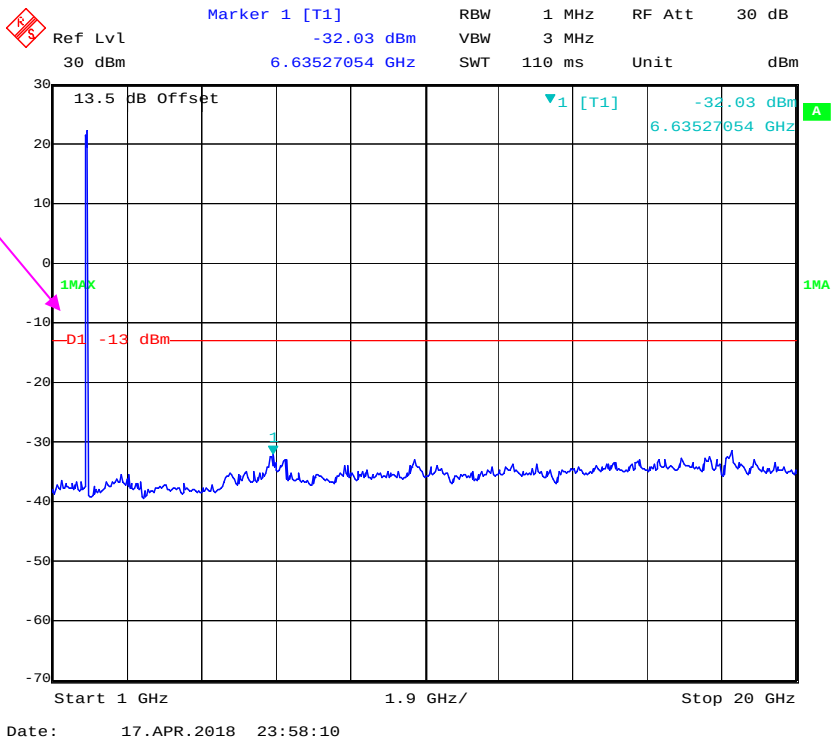


Date: 25.JAN.2018 13:49:11

LTE Band 25 (Middle Channel)

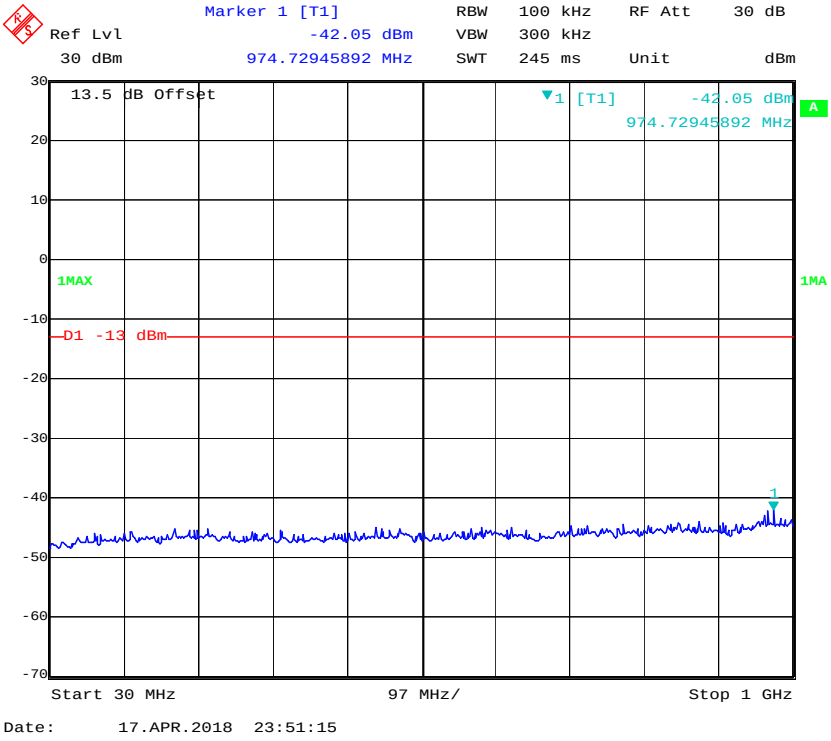
QPSK_1.4 MHz

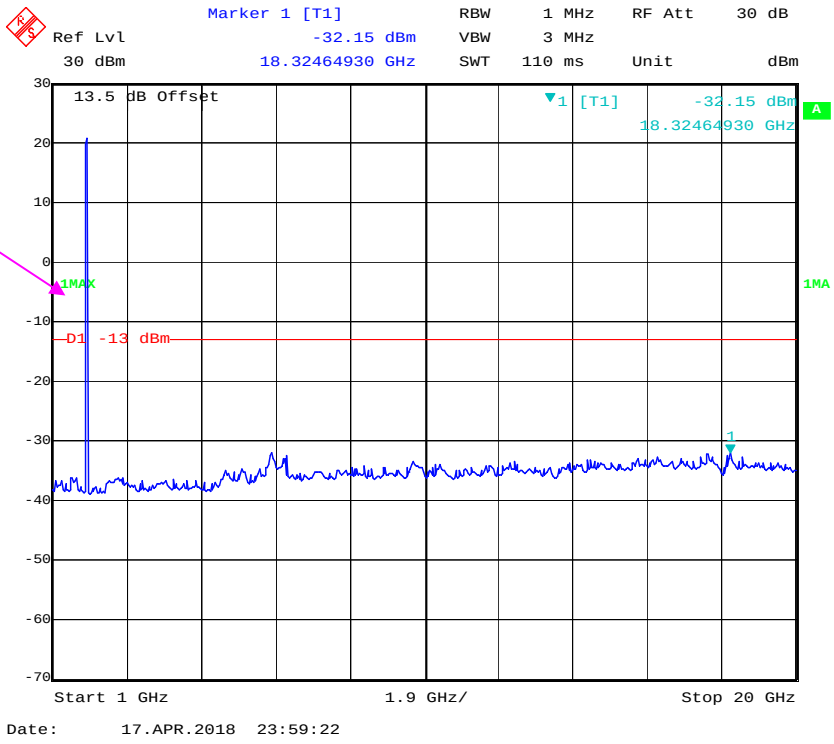




Fundamental

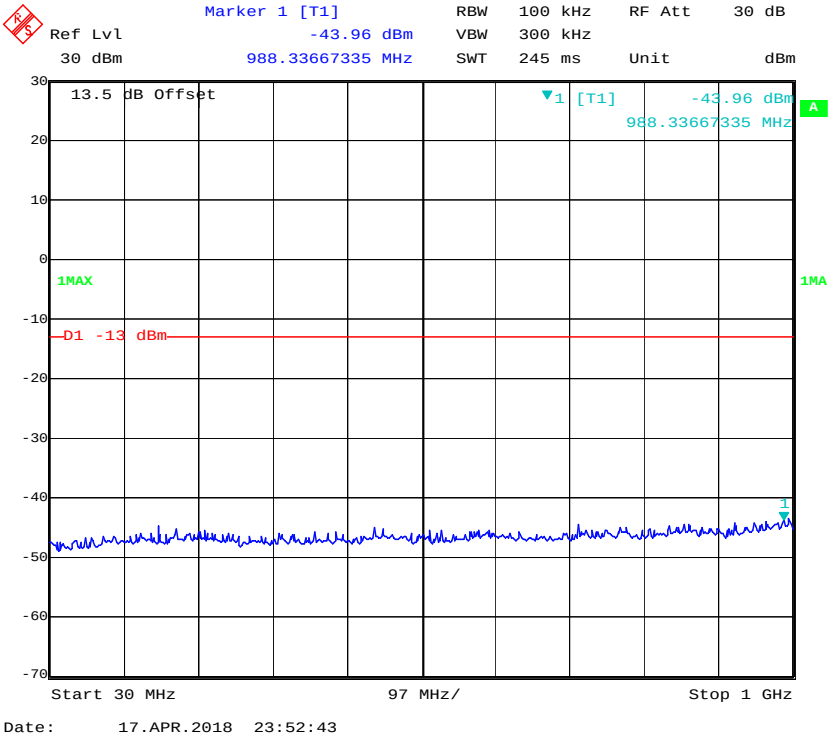
QPSK_3 MHz

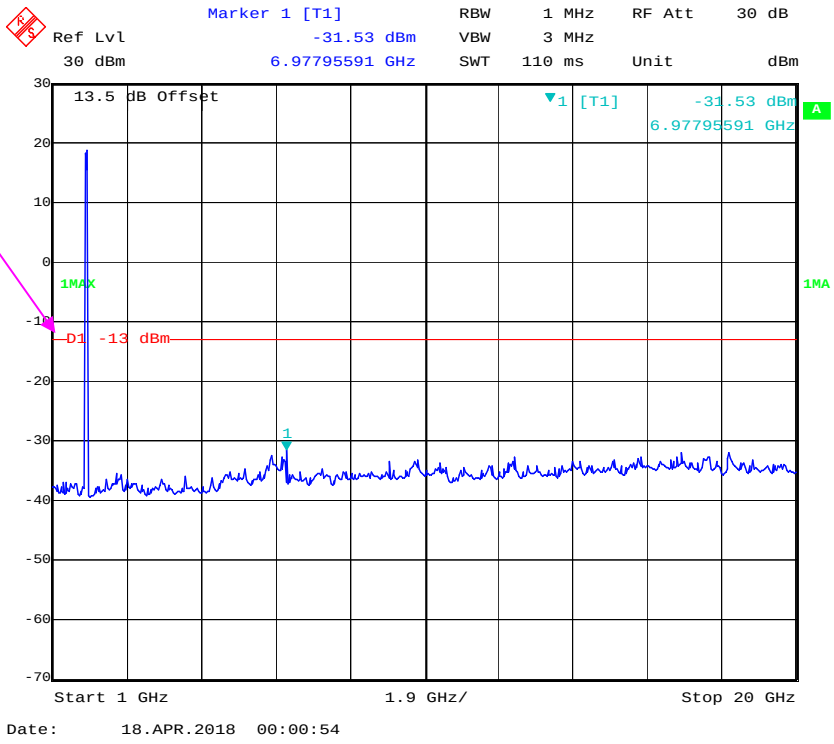




Fundamental

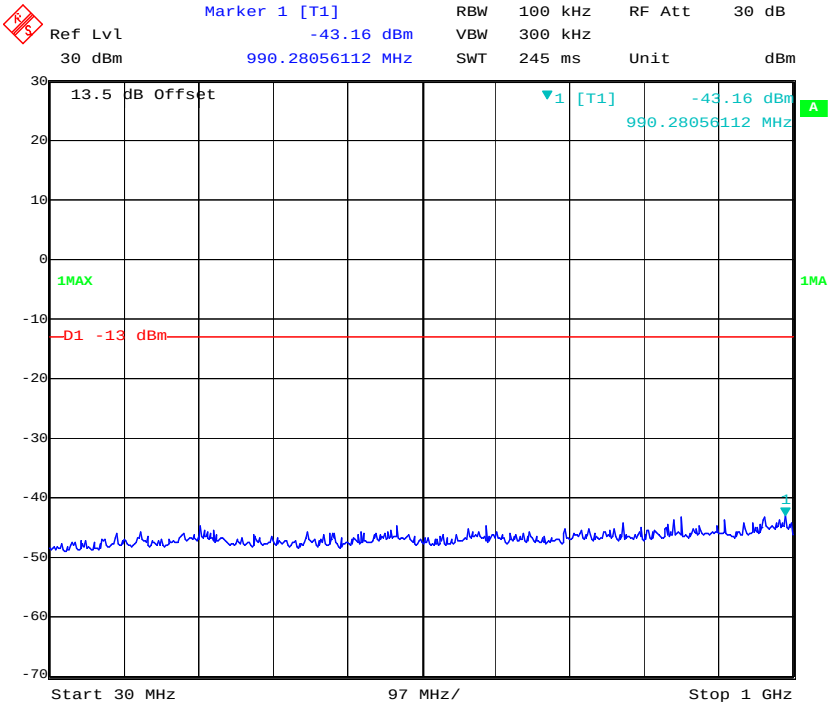
QPSK_5 MHz



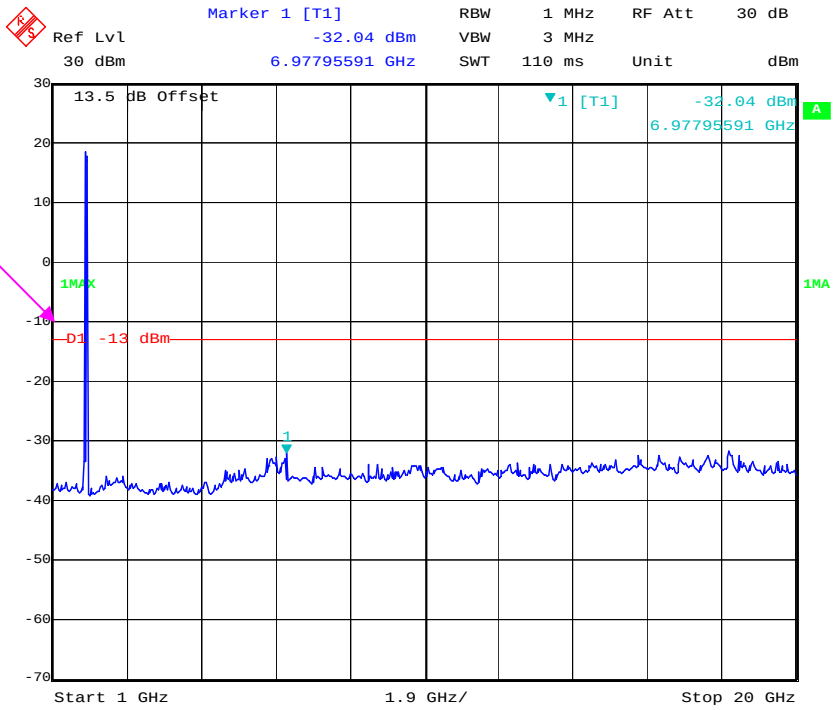


Fundamental

QPSK_10 MHz



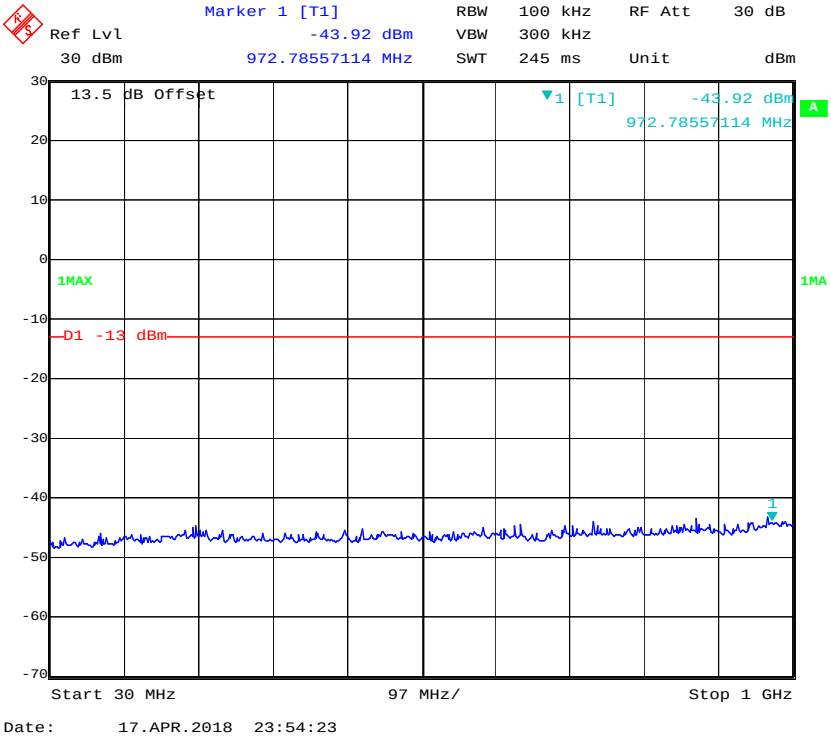
Date: 17.APR.2018 23:53:59

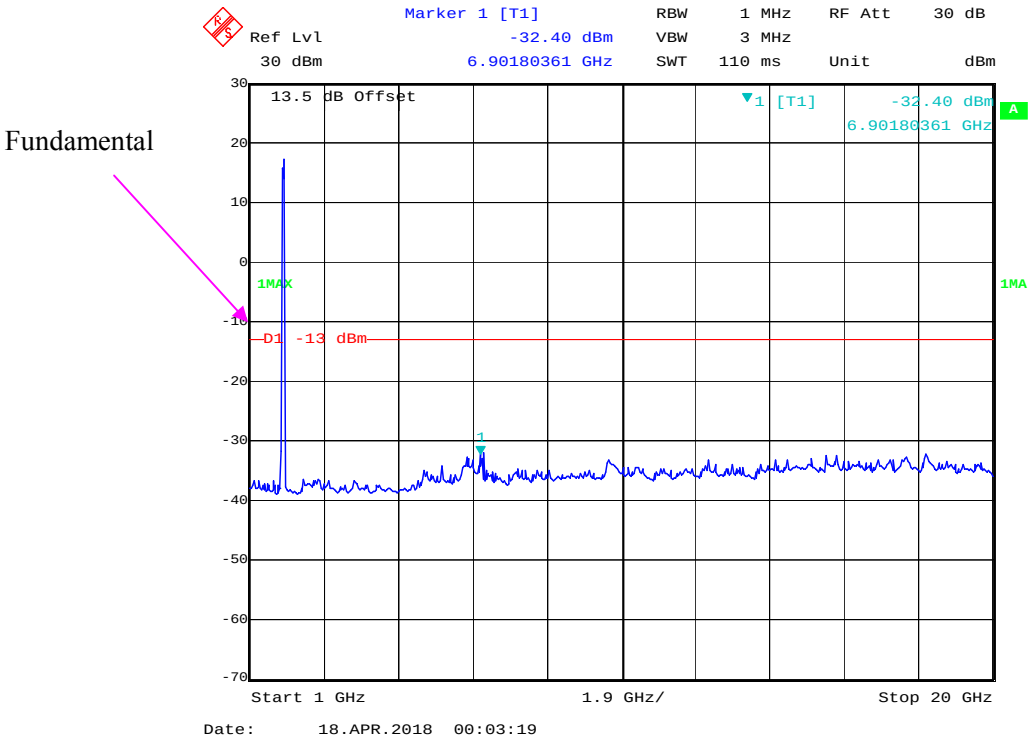


Fundamental

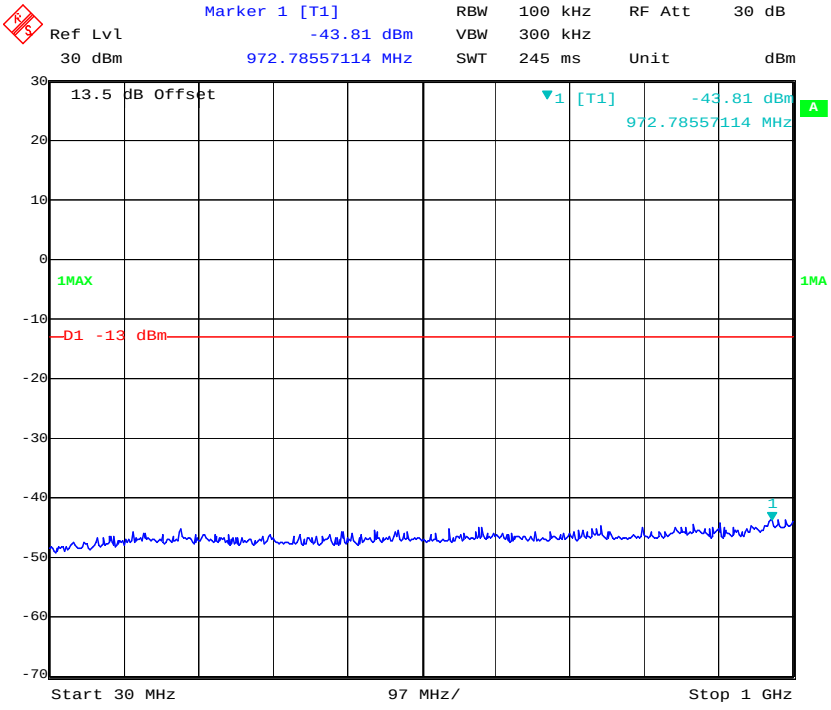
Date: 18.APR.2018 00:02:03

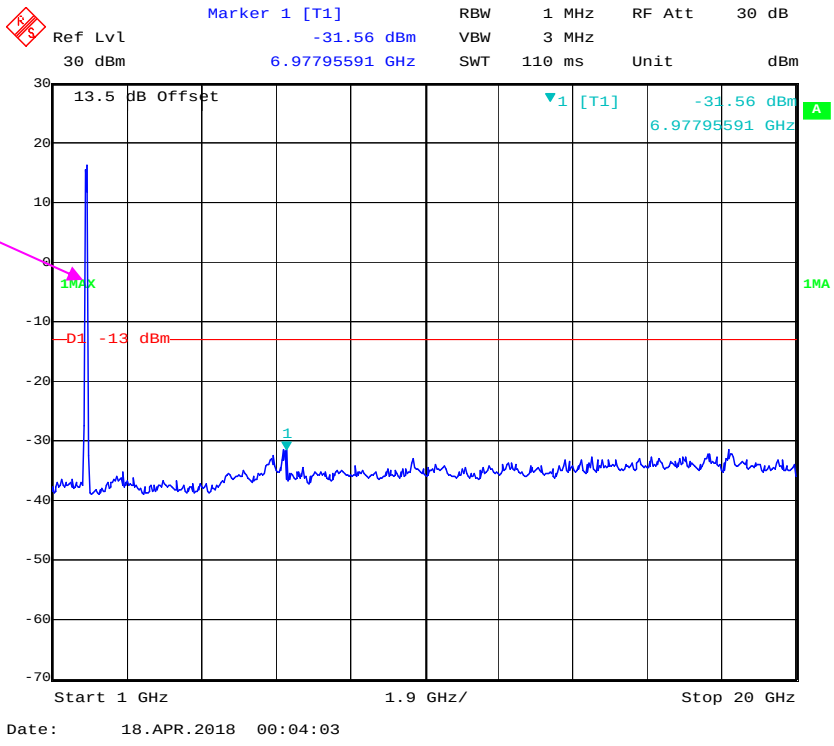
QPSK_15 MHz


Marker 1 [T1]
Ref Lvl
30 dBm
-43.92 dBm
972.78557114 MHz
RBW 100 kHz
VBW 300 kHz
SWT 245 ms
RF Att 30 dB
Unit dBm
13.5 dB Offset
1 [T1]
-43.92 dBm
972.78557114 MHz
1MAX
1MA
D1 -13 dBm
Start 30 MHz
97 MHz/
Stop 1 GHz
Date: 17.APR.2018 23:54:23


Fundamental
Marker 1 [T1]
Ref Lvl
30 dBm
-32.40 dBm
6.90180361 GHz
RBW 1 MHz
VBW 3 MHz
SWT 110 ms
RF Att 30 dB
Unit dBm
13.5 dB Offset
1 [T1]
-32.40 dBm
6.90180361 GHz
1MAX
1MA
D1 -13 dBm
Start 1 GHz
1.9 GHz/
Stop 20 GHz
Date: 18.APR.2018 00:03:19

QPSK_20 MHz

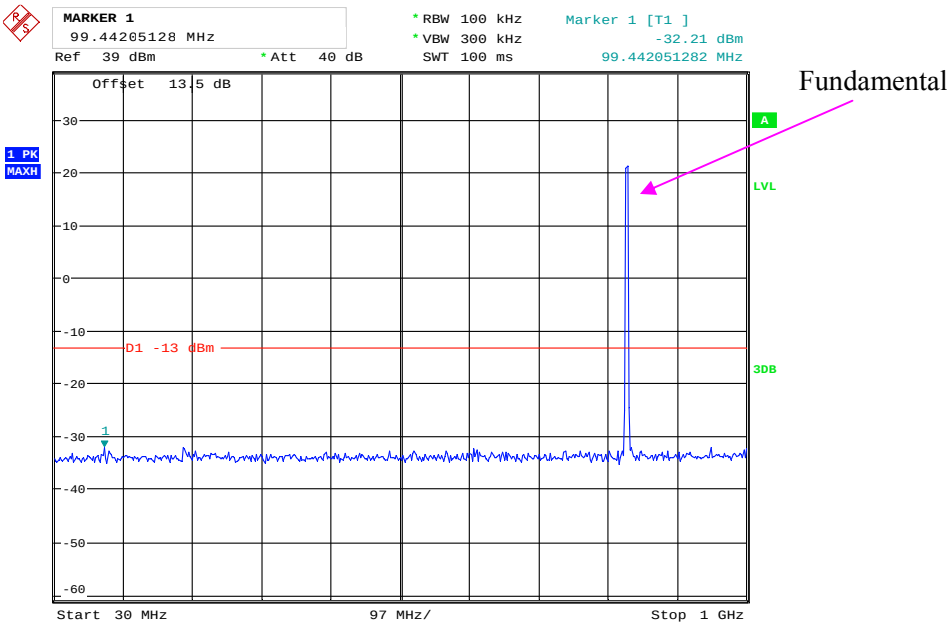




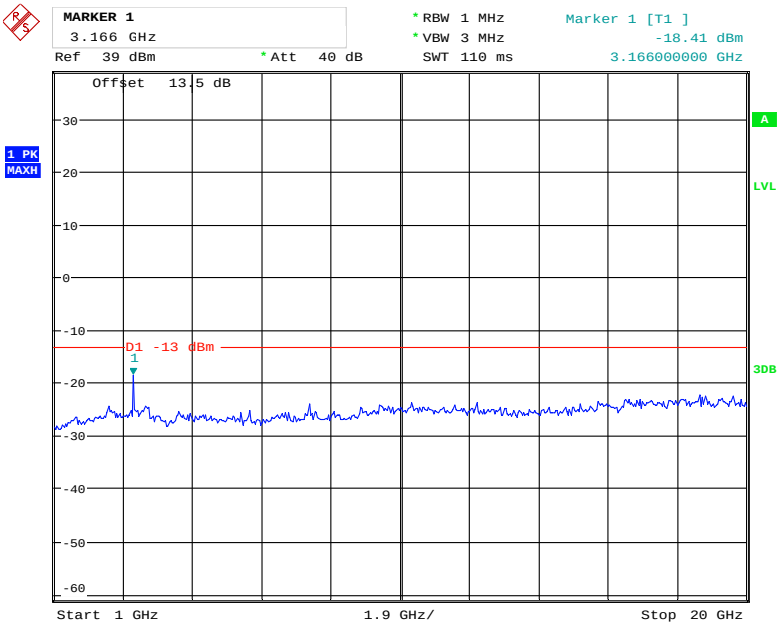
Fundamental

LTE Band 26 (Middle Channel)

QPSK_1.4 MHz

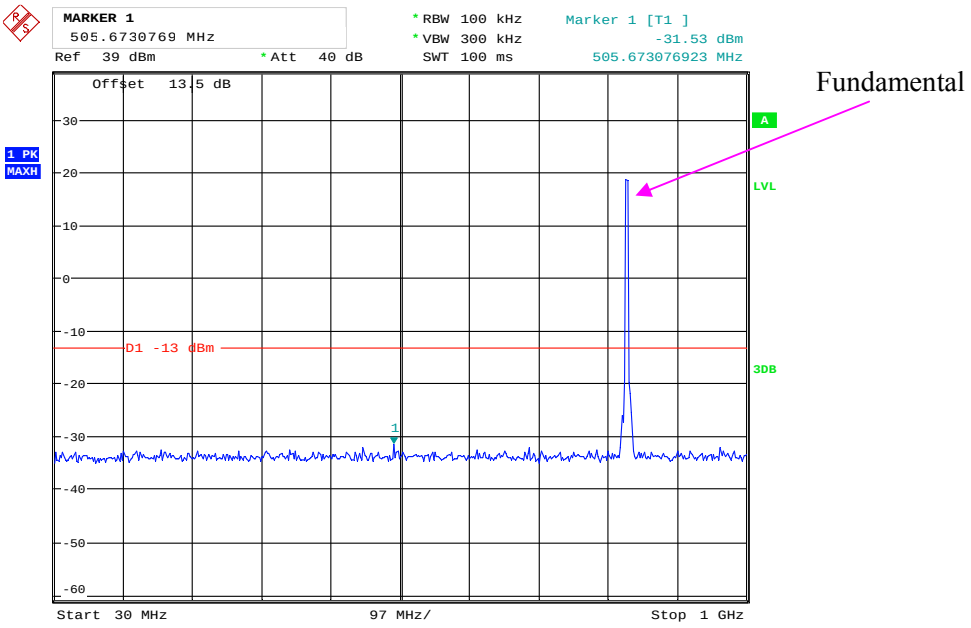


Date: 25.JAN.2018 13:58:31

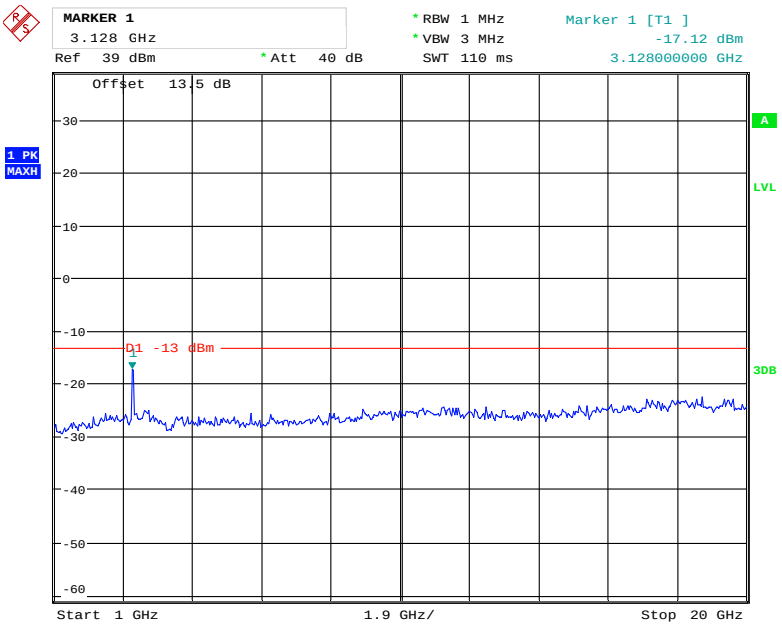


Date: 25.JAN.2018 13:57:25

QPSK_3 MHz

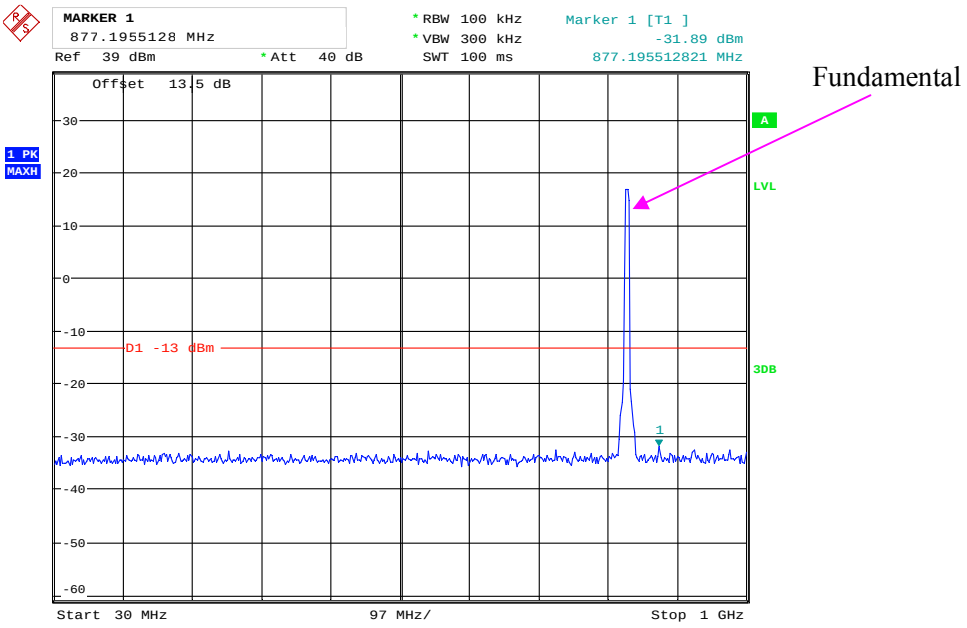


Date: 25.JAN.2018 13:56:02

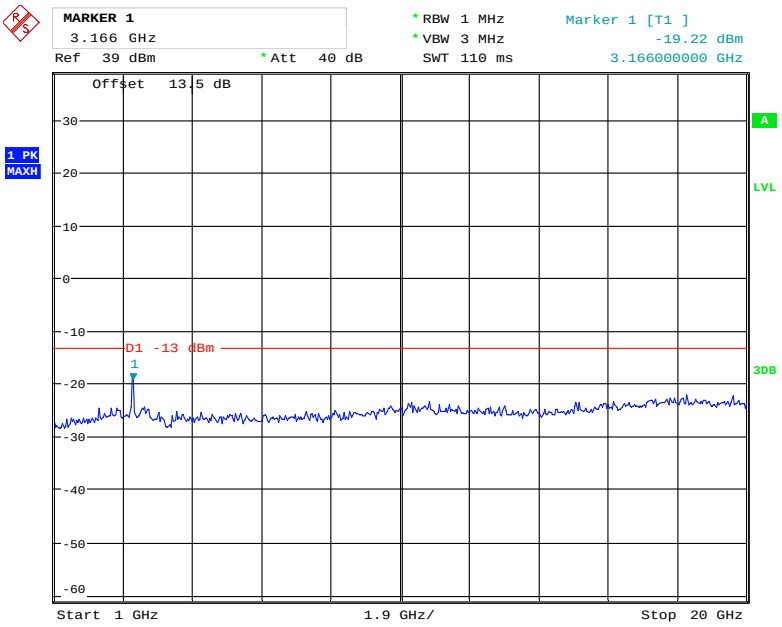


Date: 25.JAN.2018 13:56:30

QPSK_5 MHz

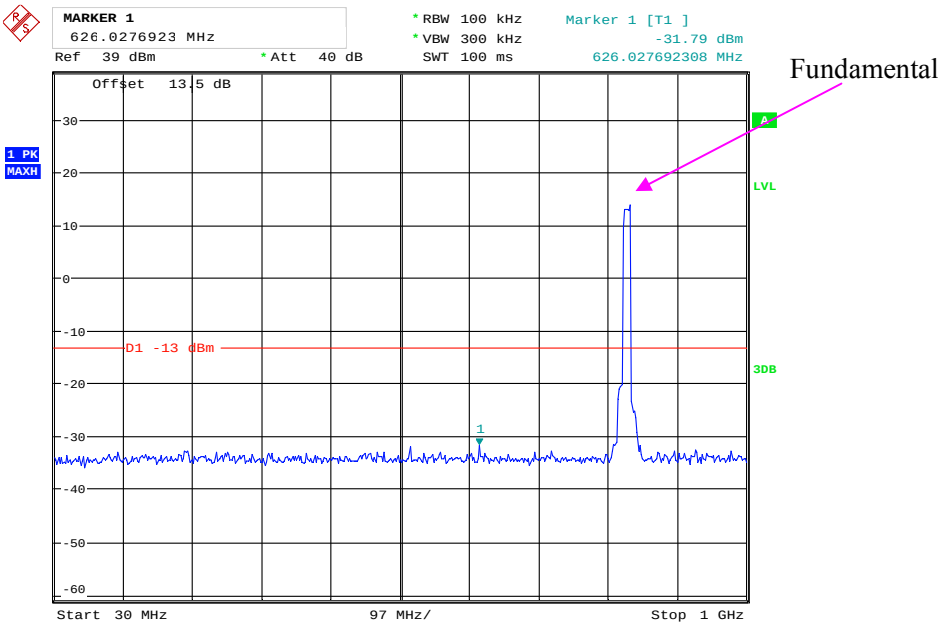


Date: 25.JAN.2018 13:54:50

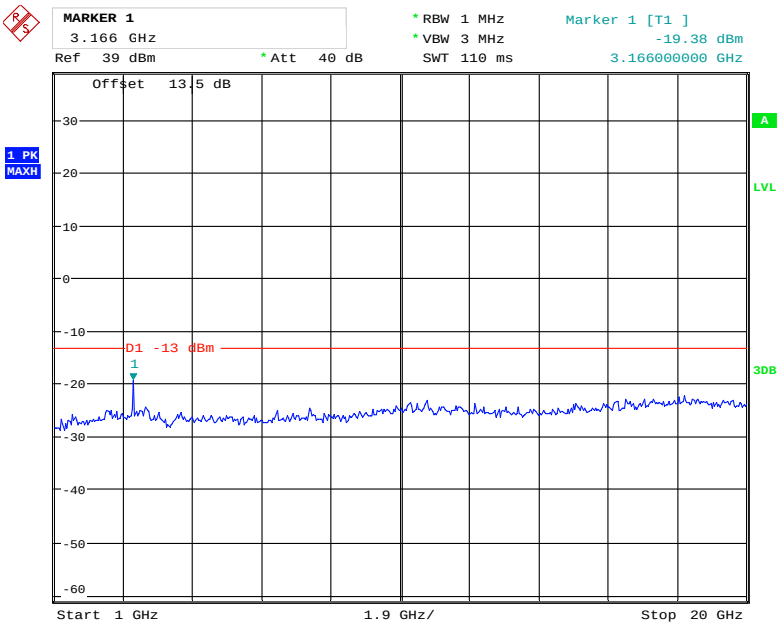


Date: 25.JAN.2018 13:54:06

QPSK_10 MHz

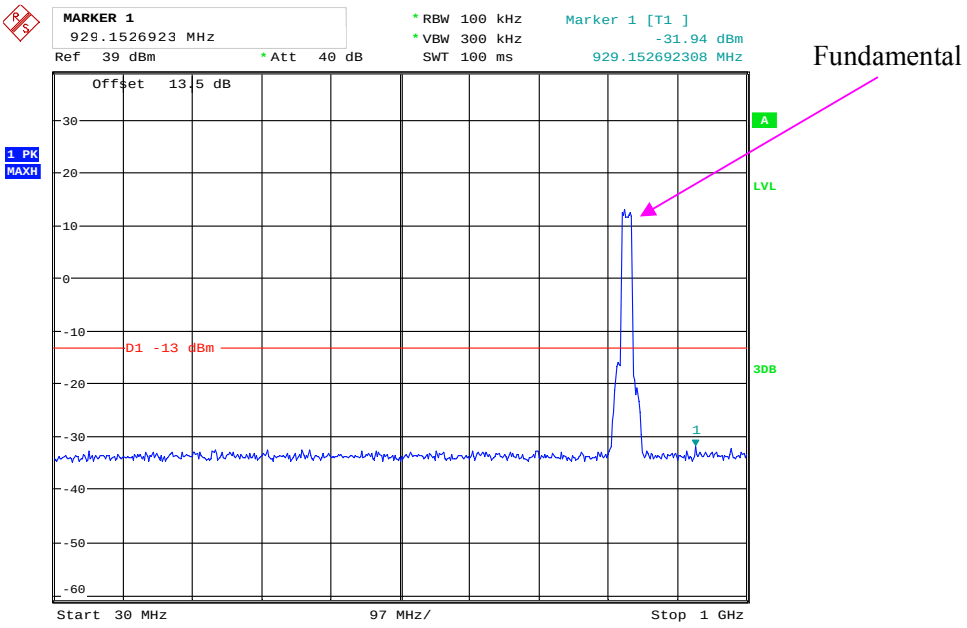


Date: 25.JAN.2018 13:51:07

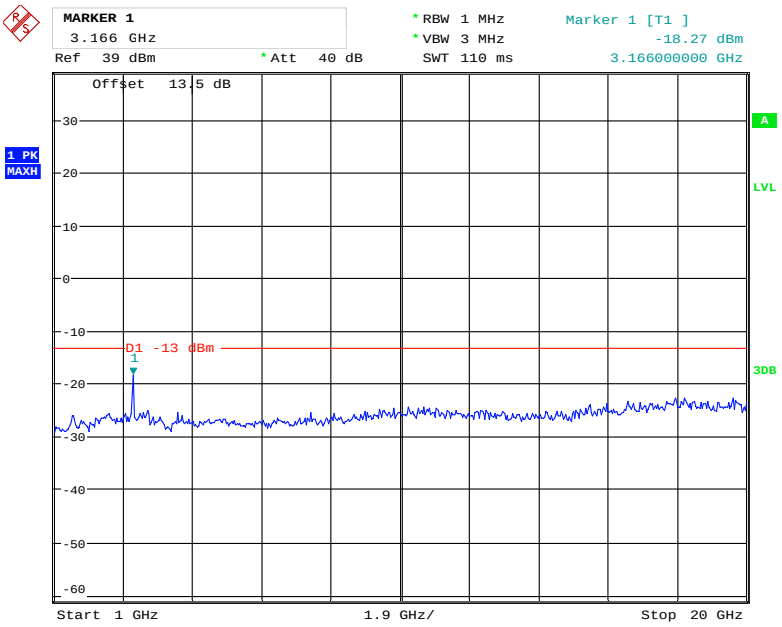


Date: 25.JAN.2018 13:50:28

QPSK_15 MHz



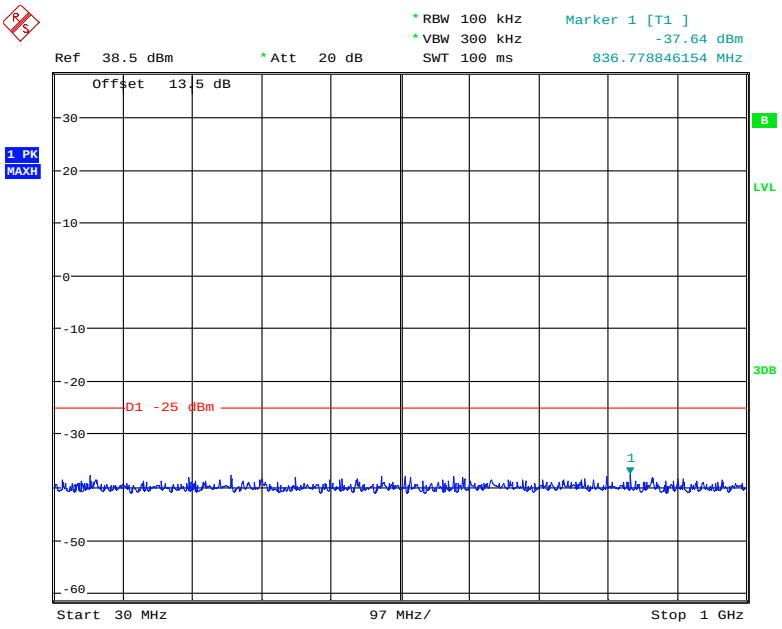
Date: 25.JAN.2018 13:52:29



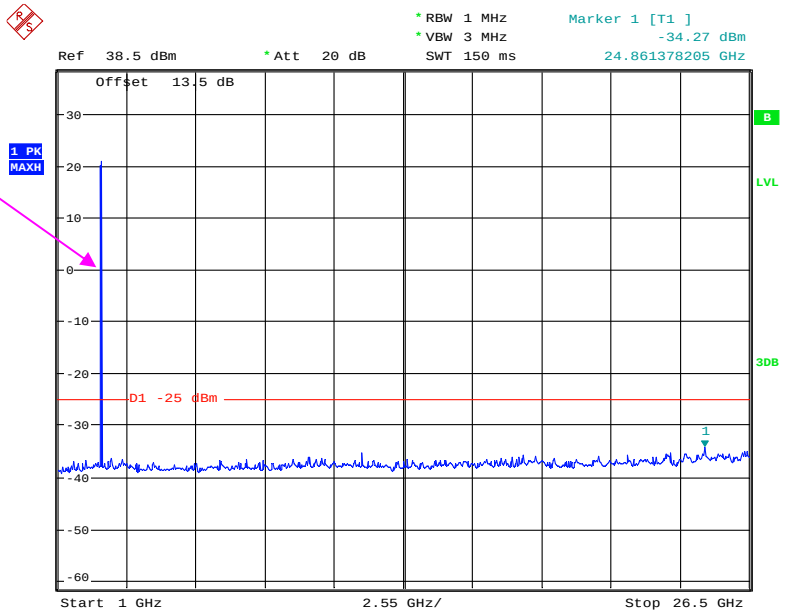
Date: 25.JAN.2018 13:53:00

LTE Band 41 (Middle Channel)

QPSK_5 MHz



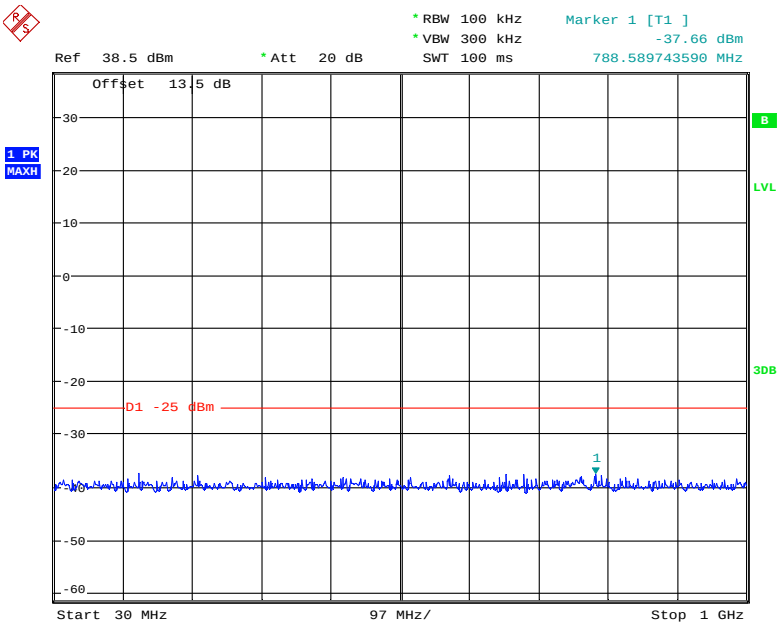
Date: 9.FEB.2018 16:36:42



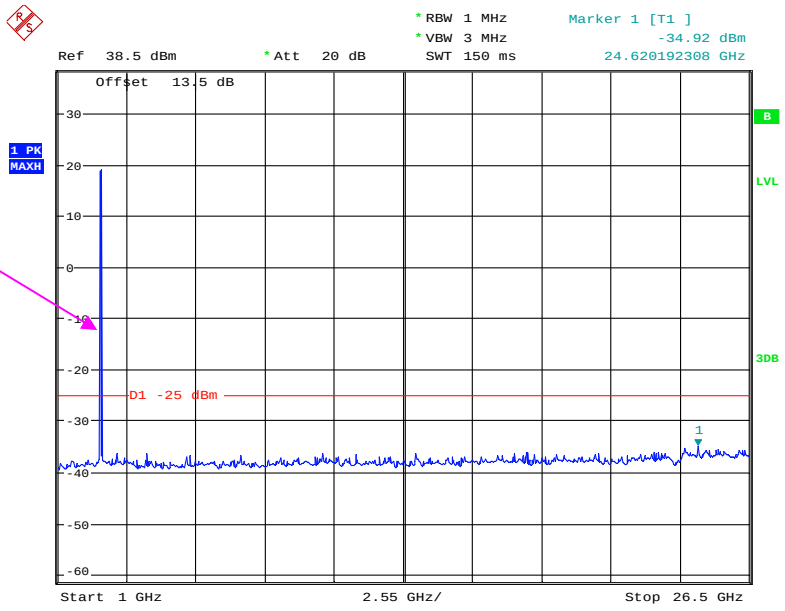
Fundamental

Date: 9.FEB.2018 16:36:18

QPSK_10 MHz



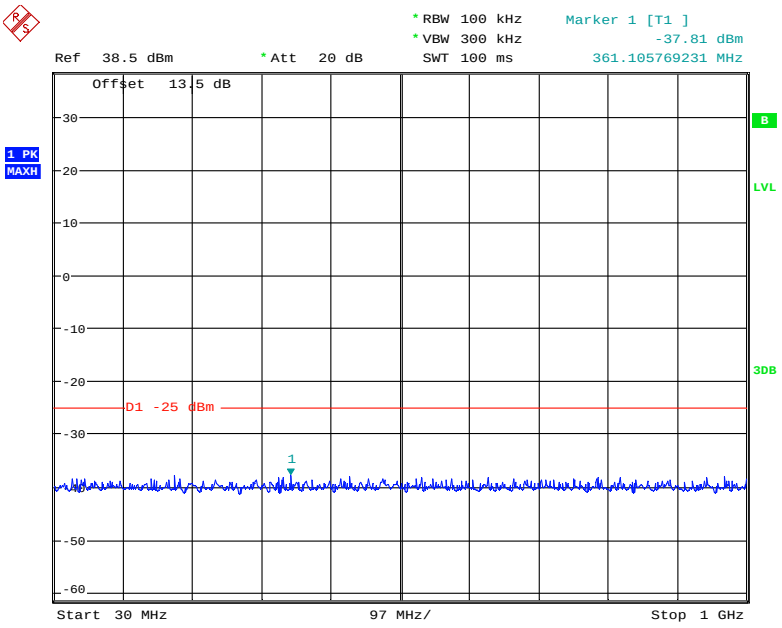
Date: 9.FEB.2018 16:37:05



Fundamental

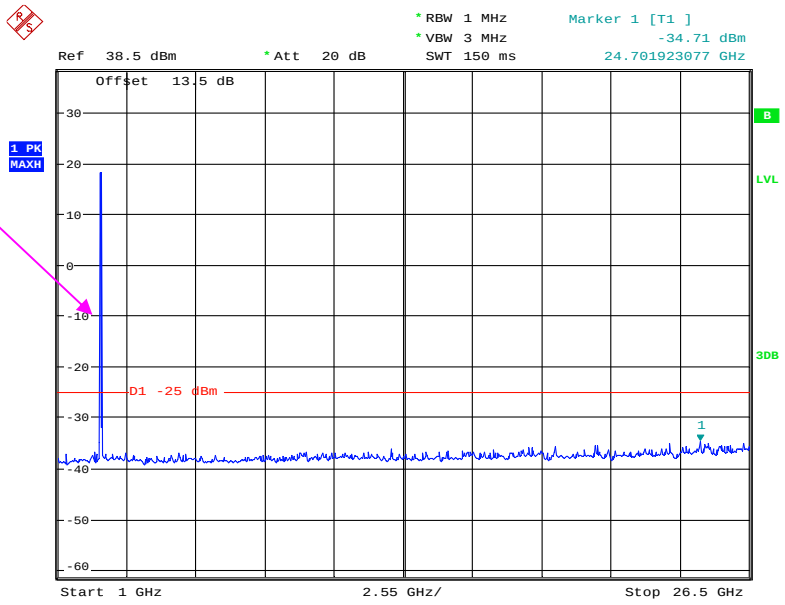
Date: 9.FEB.2018 16:37:25

QPSK_15 MHz



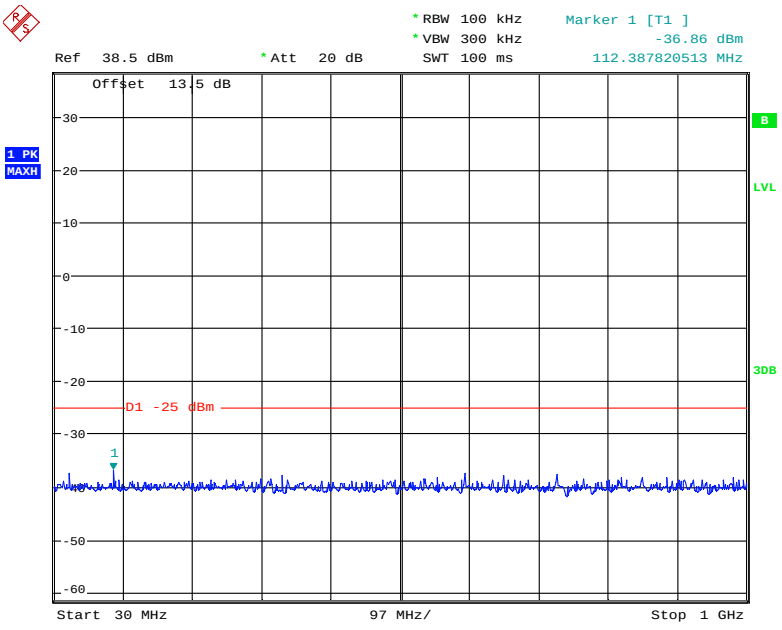
Date: 9.FEB.2018 16:38:16

Fundamental

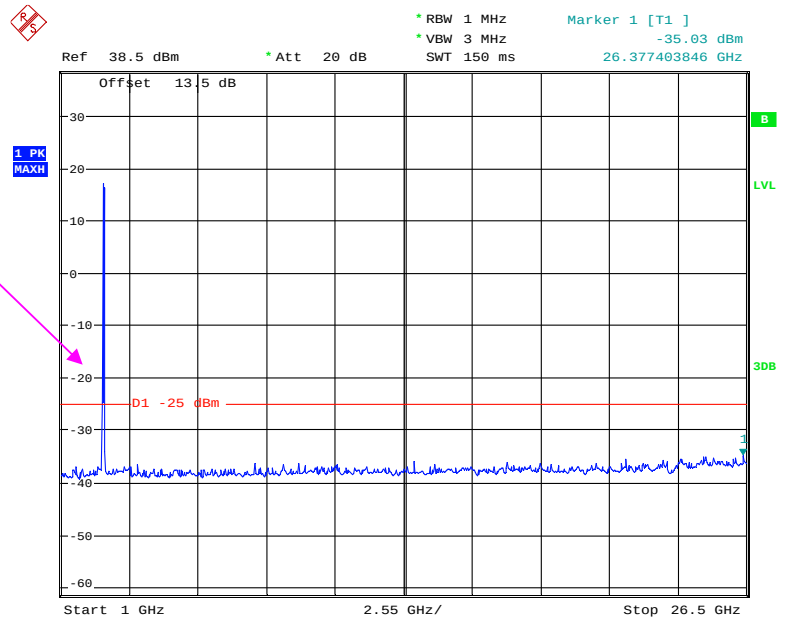


Date: 9.FEB.2018 16:37:57

QPSK_20 MHz



Date: 9.FEB.2018 16:39:13



Fundamental

Date: 9.FEB.2018 16:39:41

FCC §2.1053, §22.917 & §24.238 & §27.53& §90.691AND RSS-130 §4.6 & RSS-132 §5.5 & RSS-133 §6.5 & RSS-139 §6.6& RSS-199 §4.5 - SPURIOUS RADIATED EMISSIONS

Applicable Standard

FCC § 2.1053, §22.917, § 24.238 and § 27.53 &§90.691& RSS-130 §4.6 & RSS-132 §5.5 & RSS-133 §6.5 & RSS-139 §6.6& RSS-199 §4.5.

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 (TXpwr in Watts/0.001) – the absolute level

Spurious attenuation limit in dB = 43 + 10 Log_{10} (power out in Watts)

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCI	100224	2017-12-11	2018-12-11
Sunol Sciences	Antenna	JB3	A060611-1	2017-11-10	2020-11-10
HP	Amplifier	8447D	2727A05902	2017-09-05	2018-09-05
R&S	Spectrum Analyzer	FSU 26	200256	2017-12-08	2018-12-08
Agilent	Signal Generator	E8247C	MY43321350	2017-12-11	2018-12-11
ETS LINDGREN	Horn Antenna	3115	000 527 35	2016-01-05	2019-01-04
Mini-Circuit	Amplifier	AFS42-00101800-25-S-42	2001271	2017-09-05	2018-09-05
HP	Signal Generator	1026	320408	2017-12-08	2018-12-08
EMCO	Adjustable Dipole Antenna	3121C	9109-753	N/A	N/A
TDK RF	Horn Antenna	HRN-0118	130 084	2016-01-05	2019-01-04
Ducommun Technolagies	Horn Antenna	ARH-4223-02	1007726-02 1304	2017-06-16	2020-06-15
Ducommun Technolagies	Horn Antenna	ARH-4223-02	1007726-01 1304	2016-11-18	2019-11-18
N/A	Coaxial Cable	C-NJNJ-50	C-0400-01	2017-09-05	2018-09-05
N/A	Coaxial Cable	C-NJNJ-50	C-0075-01	2017-09-05	2018-09-05
N/A	Coaxial Cable	C-NJNJ-50	C-1000-01	2017-09-05	2018-09-05
N/A	Coaxial Cable	C-SJSJ-50	C-0800-01	2017-09-05	2018-09-05

*** 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:	20.5~25.5°C
Relative Humidity:	41~55 %
ATM Pressure:	100.9~102.2 kPa

** The testing was performed by George Pang on 2018-01-28 and 2018-04-18.*

EUT Operation Mode: Transmitting

30 MHz-10 GHz:

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
GPRS850, Frequency:836.600 MHz								
1673.200	H	44.63	-58.1	10.5	1.3	-48.9	-13.0	35.9
1673.200	V	43.24	-59.4	10.5	1.3	-50.2	-13.0	37.2
2509.800	H	45.62	-55.1	12.2	1.2	-44.1	-13.0	31.1
2509.800	V	44.05	-58.1	12.2	1.2	-47.1	-13.0	34.1
3346.400	H	42.36	-56.6	12.3	1.6	-45.9	-13.0	32.9
3346.400	V	41.73	-56.2	12.3	1.6	-45.5	-13.0	32.5
870.020	H	39.57	-58	0.0	1	-59.0	-13.0	46.0
359.240	V	41.58	-67.3	0.0	0.6	-67.9	-13.0	54.9
WCDMA Band 5 R99,Frequency:836.600 MHz								
1673.200	H	50.10	-52.6	10.5	1.3	-43.4	-13.0	30.4
1673.200	V	46.11	-56.5	10.5	1.3	-47.3	-13.0	34.3
2509.800	H	41.96	-58.8	12.2	1.2	-47.8	-13.0	34.8
2509.800	V	42.60	-59.5	12.2	1.2	-48.5	-13.0	35.5
441.280	H	44.67	-59.9	0.0	0.7	-60.6	-13.0	47.6
697.150	V	43.59	-60.4	0.0	0.9	-61.3	-13.0	48.3

30 MHz-20 GHz:

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
GPRS1900, Frequency:1880.000 MHz								
3760.000	H	44.26	-53.5	12.3	1.5	-42.7	-13.0	29.7
3760.000	V	43.18	-54.2	12.3	1.5	-43.4	-13.0	30.4
5640.000	H	45.06	-47.3	13.0	1.3	-35.6	-13.0	22.6
5640.000	V	43.85	-48.8	13.0	1.3	-37.1	-13.0	24.1
553.180	H	42.69	-60.4	0.0	0.7	-61.1	-13.0	48.1
478.500	V	40.57	-66.9	0.0	0.7	-67.6	-13.0	54.6
WCDMA Band 2, R99, Frequency:1880.000 MHz								
3760.000	H	41.10	-56.6	12.3	1.5	-45.8	-13.0	32.8
3760.000	V	40.55	-56.9	12.3	1.5	-46.1	-13.0	33.1
5640.000	H	41.01	-51.4	13.0	1.3	-39.7	-13.0	26.7
5640.000	V	40.57	-52.1	13.0	1.3	-40.4	-13.0	27.4
548.120	H	40.69	-62.5	0.0	0.7	-63.2	-13.0	50.2
596.170	V	45.18	-60.3	0.0	0.8	-61.1	-13.0	48.1

30 MHz-20 GHz:

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
WCDMA Band 4, R99, Frequency:1732.5 MHz								
3465.200	H	45.28	-53.4	12.2	1.6	-42.8	-13.0	29.8
3465.200	V	46.90	-50.4	12.2	1.6	-39.8	-13.0	26.8
5197.800	H	42.00	-51.2	12.9	1.4	-39.7	-13.0	26.7
5197.800	V	40.85	-52.3	12.9	1.4	-40.8	-13.0	27.8
386.470	H	42.24	-63.1	0.0	0.6	-63.7	-13.0	50.7
503.650	V	44.89	-62.3	0.0	0.7	-63.0	-13.0	50.0

LTE Band 2 (30MHz-20GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK,Frequency:1880.000 MHz								
3760.000	H	40.28	-57.4	12.3	1.5	-46.6	-13.0	33.6
3760.000	V	40.54	-56.9	12.3	1.5	-46.1	-13.0	33.1
5640.000	H	40.46	-51.9	13.0	1.3	-40.2	-13.0	27.2
5640.000	V	40.21	-52.5	13.0	1.3	-40.8	-13.0	27.8
465.000	H	48.75	-55.7	0.0	0.7	-56.4	-13.0	43.4
465.000	V	49.36	-58.2	0.0	0.7	-58.9	-13.0	45.9

LTE Band 4 (30MHz-20GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK,Frequency:1732.500 MHz								
3465.000	H	40.49	-58.2	12.2	1.6	-47.6	-13.0	34.6
3465.000	V	40.72	-56.6	12.2	1.6	-46.0	-13.0	33.0
5197.500	H	40.37	-52.8	12.9	1.4	-41.3	-13.0	28.3
5197.500	V	40.70	-52.4	12.9	1.4	-40.9	-13.0	27.9
272.000	H	47.65	-61.3	0.0	0.5	-61.8	-13.0	48.8
272.000	V	48.82	-62.7	0.0	0.5	-63.2	-13.0	50.2

LTE Band 5 (30MHz-10GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK, Frequency: 836.500 MHz								
1673.200	H	51.38	-51.3	10.5	1.3	-42.1	-13.0	29.1
1673.200	V	47.68	-54.9	10.5	1.3	-45.7	-13.0	32.7
2509.800	H	42.42	-58.3	12.2	1.2	-47.3	-13.0	34.3
2509.800	V	42.36	-59.8	12.2	1.2	-48.8	-13.0	35.8
3346.400	H	40.29	-58.7	12.3	1.6	-48.0	-13.0	35.0
3346.400	V	40.37	-57.5	12.3	1.6	-46.8	-13.0	33.8
364.000	H	48.26	-57.9	0.0	0.6	-58.5	-13.0	45.5
364.000	V	49.73	-59.1	0.0	0.6	-59.7	-13.0	46.7

LTE Band 7 (30MHz-26GHz)

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK,Frequency:2535.000 MHz								
5070.000	H	40.17	-53.2	13.0	1.4	-41.6	-25.0	16.6
5070.000	V	41.78	-51.3	13.0	1.4	-39.7	-25.0	14.7
7605.000	H	40.47	-47.6	12.8	1.4	-36.2	-25.0	11.2
7605.000	V	40.82	-47.9	12.8	1.4	-36.5	-25.0	11.5
402.000	H	47.85	-56.9	0.0	0.6	-57.5	-25.0	32.5
402.000	V	49.18	-59	0.0	0.6	-59.6	-25.0	34.6

LTE Band 12 (30MHz-10GHz)

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK,Frequency:707.500 MHz								
1415.000	H	46.10	-56.8	9.6	1.2	-48.4	-13.0	35.4
1415.000	V	43.66	-59.3	9.6	1.2	-50.9	-13.0	37.9
2122.500	H	43.64	-58.2	11.7	1.2	-47.7	-13.0	34.7
2122.500	V	43.45	-58.7	11.7	1.2	-48.2	-13.0	35.2
2830.000	H	40.36	-59.7	12.3	1.4	-48.8	-13.0	35.8
2830.000	V	40.71	-59.8	12.3	1.4	-48.9	-13.0	35.9
318.000	H	49.02	-58.9	0.0	0.5	-59.4	-13.0	46.4
318.000	V	50.28	-59.4	0.0	0.5	-59.9	-13.0	46.9

LTE Band 13 (30MHz-10GHz)

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK,Frequency:782.000 MHz								
1564.000	H	46.05	-56.8	10.2	1.3	-47.9	-13.0	34.9
1564.000	V	47.10	-55.7	10.2	1.3	-46.8	-13.0	33.8
2346.000	H	41.43	-59.8	12.0	1.2	-49.0	-13.0	36.0
2346.000	V	41.87	-60.3	12.0	1.2	-49.5	-13.0	36.5
3128.000	H	40.63	-58.8	12.3	1.5	-48.0	-13.0	35.0
3128.000	V	40.37	-58.6	12.3	1.5	-47.8	-13.0	34.8
561.000	H	48.21	-54.7	0.0	0.7	-55.4	-13.0	42.4
561.000	V	49.64	-56.5	0.0	0.7	-57.2	-13.0	44.2

LTE Band 17 (30MHz-10GHz)

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK,Frequency:710.000 MHz								
1420.000	H	45.79	-57.1	9.7	1.3	-48.7	-13.0	35.7
1420.000	V	44.95	-58	9.7	1.3	-49.6	-13.0	36.6
2130.000	H	41.62	-60.2	11.7	1.2	-49.7	-13.0	36.7
2130.000	V	42.59	-59.5	11.7	1.2	-49.0	-13.0	36.0
2840.000	H	40.87	-59.2	12.3	1.4	-48.3	-13.0	35.3
2840.000	V	40.22	-60.2	12.3	1.4	-49.3	-13.0	36.3
447.000	H	47.73	-56.8	0.0	0.7	-57.5	-13.0	44.5
447.000	V	49.25	-58.5	0.0	0.7	-59.2	-13.0	46.2

LTE Band 25 (30MHz-20GHz)

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK,Frequency:1882.500 MHz								
3765.000	H	47.86	-60.9	13.7	1.6	-48.8	-13.0	35.8
3765.000	V	47.35	-61.3	13.7	1.6	-49.2	-13.0	36.2
5647.500	H	52.24	-53.8	14.0	1.3	-41.1	-13.0	28.1
5647.500	V	50.19	-55.8	14.0	1.3	-43.1	-13.0	30.1
449.040	H	44.84	-59.7	0.0	0.7	-60.4	-13.0	47.4
449.040	V	46.38	-61.3	0.0	0.7	-62.0	-13.0	49.0

LTE Band 26 (30MHz-10GHz)

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK,Frequency:831.500 MHz								
1663.000	H	41.96	-60.8	10.5	1.3	-51.6	-13.0	38.6
1663.000	V	44.03	-58.6	10.5	1.3	-49.4	-13.0	36.4
2494.500	H	42.51	-58.3	12.2	1.2	-47.3	-13.0	34.3
2494.500	V	42.03	-60.2	12.2	1.2	-49.2	-13.0	36.2
3326.000	H	41.06	-57.9	12.3	1.6	-47.2	-13.0	34.2
3326.000	V	41.32	-56.7	12.3	1.6	-46.0	-13.0	33.0
285.000	H	47.35	-61.5	0.0	0.5	-62.0	-13.0	49.0
285.000	V	48.64	-62.1	0.0	0.5	-62.6	-13.0	49.6

LTE Band 41 (30MHz-26GHz)

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK,Frequency:2593.000 MHz								
5186.000	H	40.72	-52.5	12.9	1.4	-41.0	-25.0	16.0
5186.000	V	40.57	-52.6	12.9	1.4	-41.1	-25.0	16.1
7779.000	H	39.63	-48.1	12.9	1.5	-36.7	-25.0	11.7
7779.000	V	41.93	-46.4	12.9	1.5	-35.0	-25.0	10.0
372.000	H	47.83	-58.1	0.0	0.6	-58.7	-25.0	33.7
372.000	V	49.62	-59.1	0.0	0.6	-59.7	-25.0	34.7

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 AND RSS-130 §4.6 & §90.691& RSS-132 §5.5 & RSS-133& RSS-139 §6.6& RSS-199§4.5- BAND EDGES

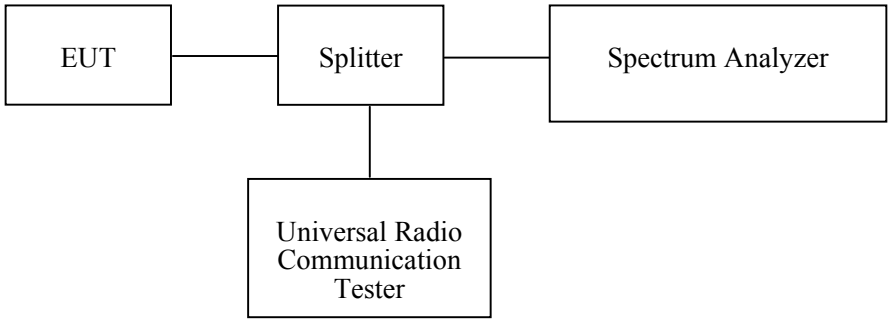
Applicable Standard

FCC § 2.1053, §22.917, § 24.238 and § 27.53 & §90.691 &RSS-130 §4.6 & RSS-132 §5.5 & RSS-133& RSS-139 §6.6.& RSS-199§4.5

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	Universal Radio Communication Tester	CMU200	109 038	2017-07-18	2018-07-18
R&S	Wideband Radio Communication Tester	CMW500	147473	2017-08-31	2018-08-31
N/A	Coaxial Cable	C-SJ00-0010	C0010/01	Each Time	/
E-Microwave	RF Attenuator	10dB	10dB-2	Each Time	/
Pasternack	RF Coaxial Cable	0.5m	C-5	Each Time	/
E-Microwave	Two-way Spliter	ODP-1-6-2S	OE0120142	Each Time	/
R&S	Spectrum Analyzer	FSU 26	200256	2017-12-08	2018-12-08

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

Test Data

Environmental Conditions

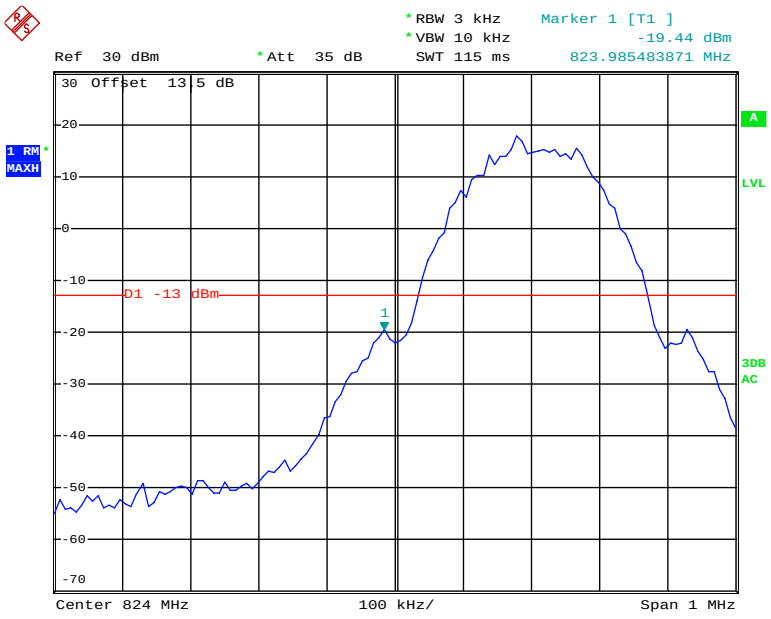
Temperature:	24.6~25.5°C
Relative Humidity:	46~55 %
ATM Pressure:	100.9~101 kPa

The testing was performed by David Huang from 2018-01-24 to 2018-04-18.

Test Mode: Transmitting

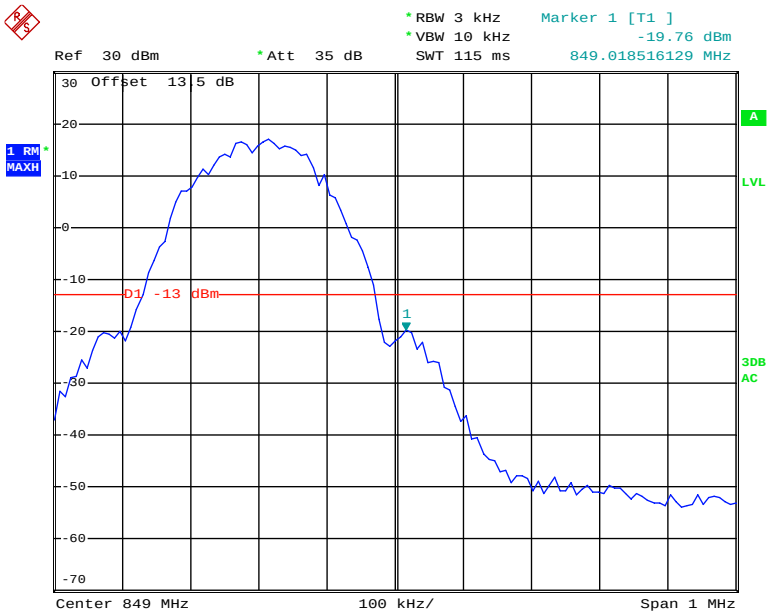
Test Result: Compliant. Please refer to the following plots.

GPRS 850, Left Band Edge



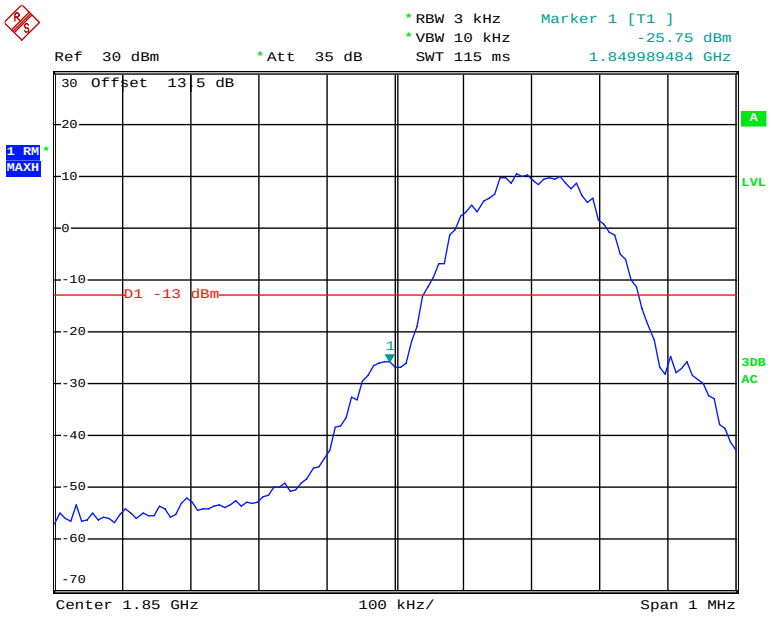
Date: 24.JAN.2018 15:39:50

GPRS 850, Right Band Edge



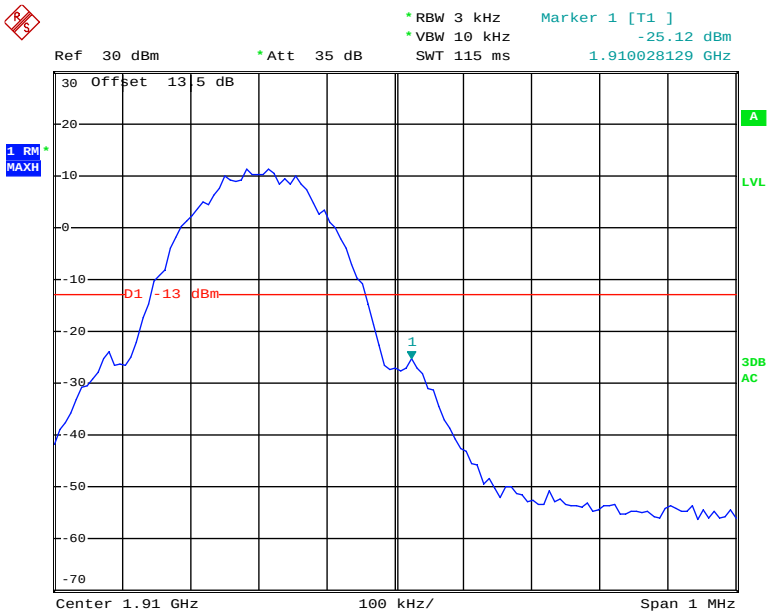
Date: 24.JAN.2018 15:41:36

GPRS 1900, Left Band Edge



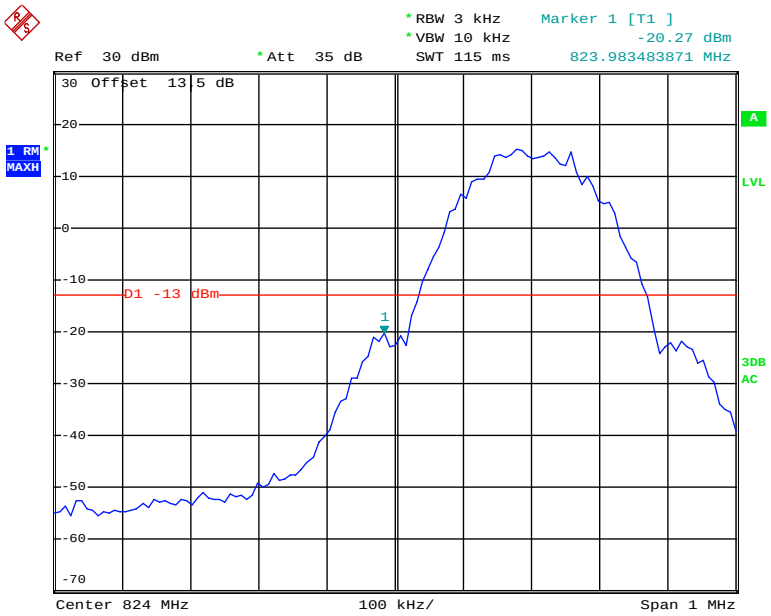
Date: 24.JAN.2018 15:59:53

GPRS 1900, Right Band Edge



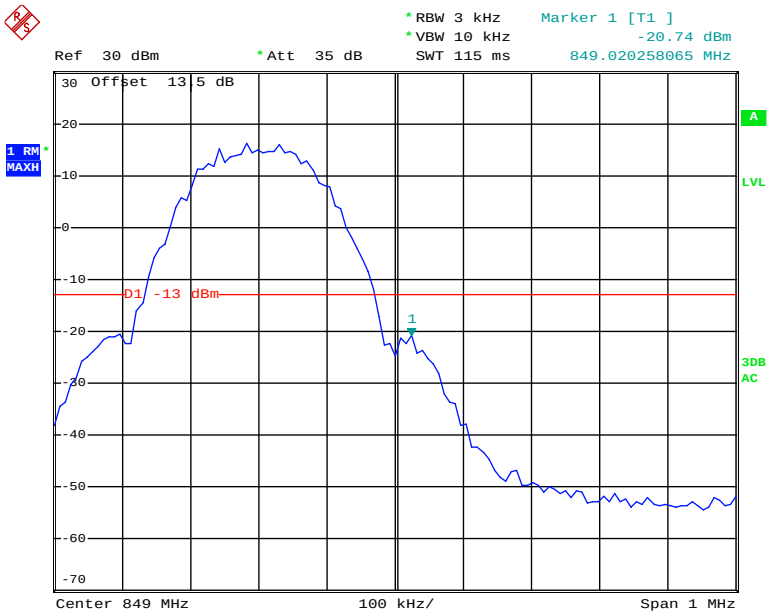
Date: 24.JAN.2018 16:01:13

EDGE 850, Left Band Edge



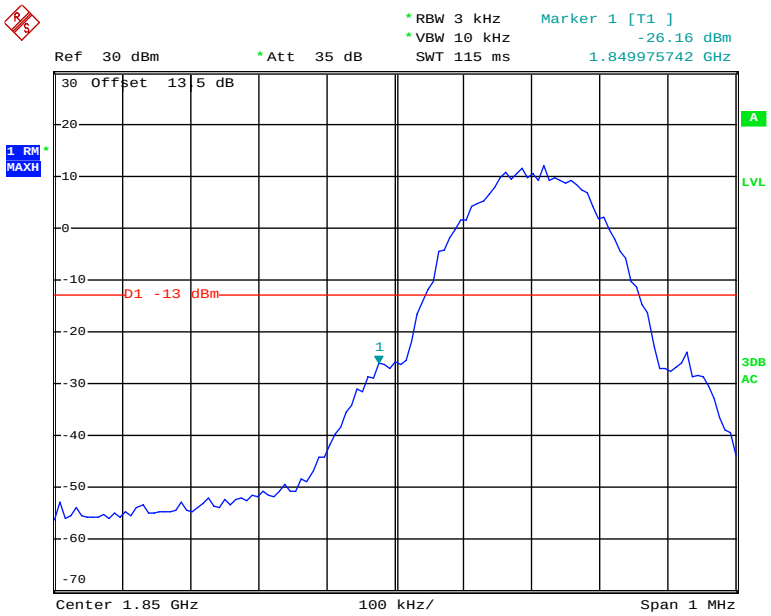
Date: 24.JAN.2018 15:47:31

EDGE 850, Right Band Edge



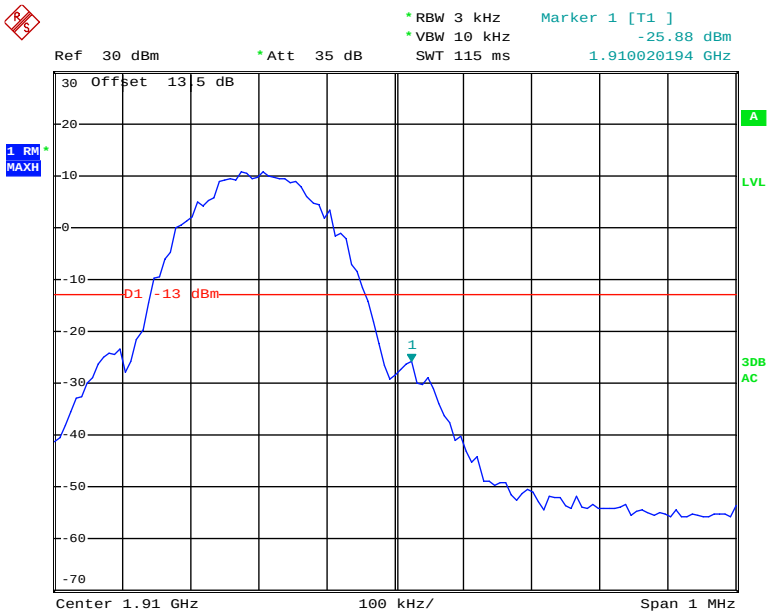
Date: 24.JAN.2018 15:46:04

EDGE 1900, Left Band Edge



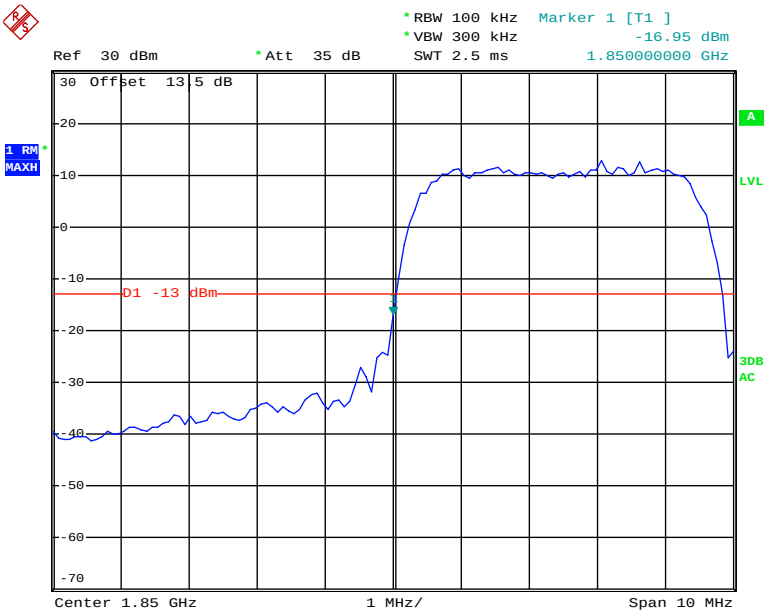
Date: 24.JAN.2018 16:07:03

EDGE 1900, Right Band Edge



WCDMA Band 2:

REL99 Band 2, Left Band Edge



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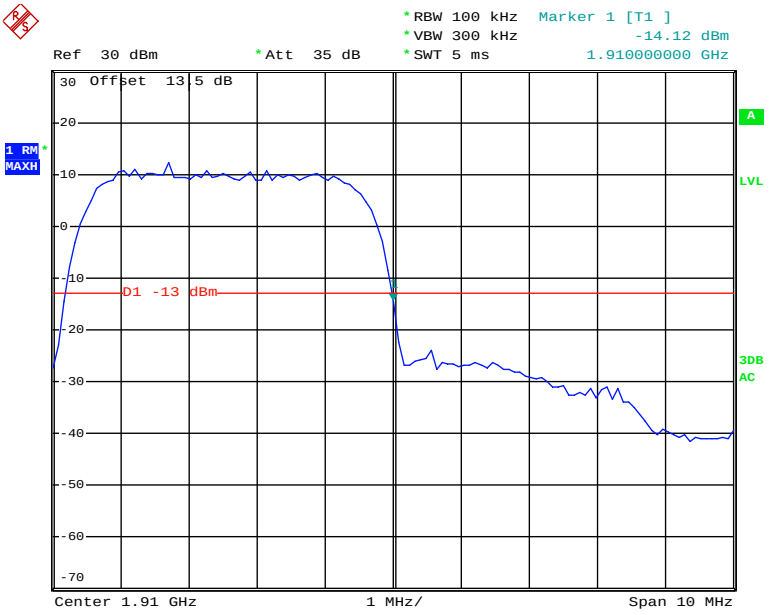
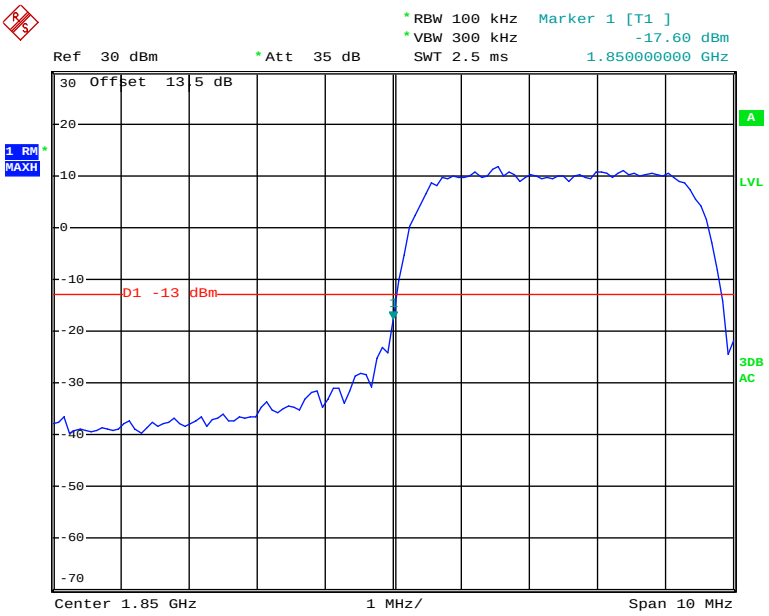
REL99 Band 2, Right Band Edge



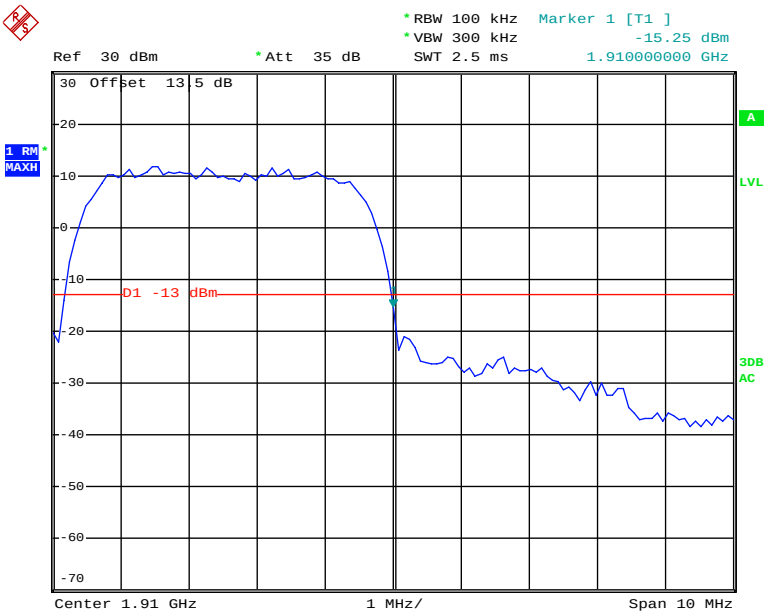
Date: 24.JAN.2018 17:29:28

HSDPA Band 2, Left Band Edge



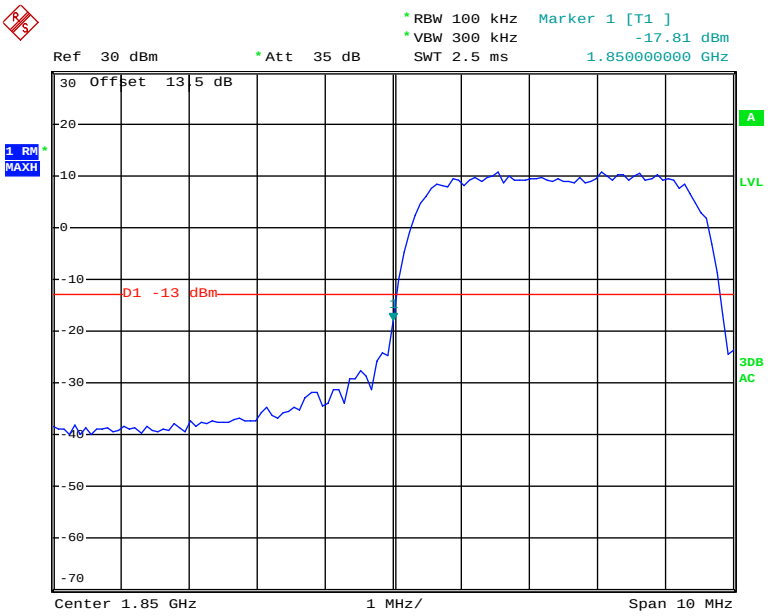
Date: 24.JAN.2018 16:56:24

HSDPA Band 2, Right Band Edge



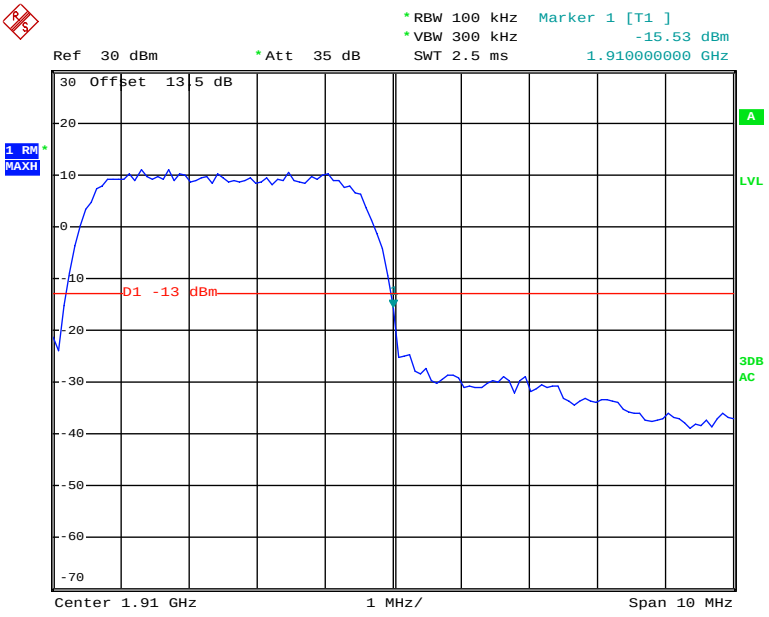
Date: 24.JAN.2018 16:57:08

HSUPA Band 2, Left Band Edge



Date: 24.JAN.2018 17:04:20

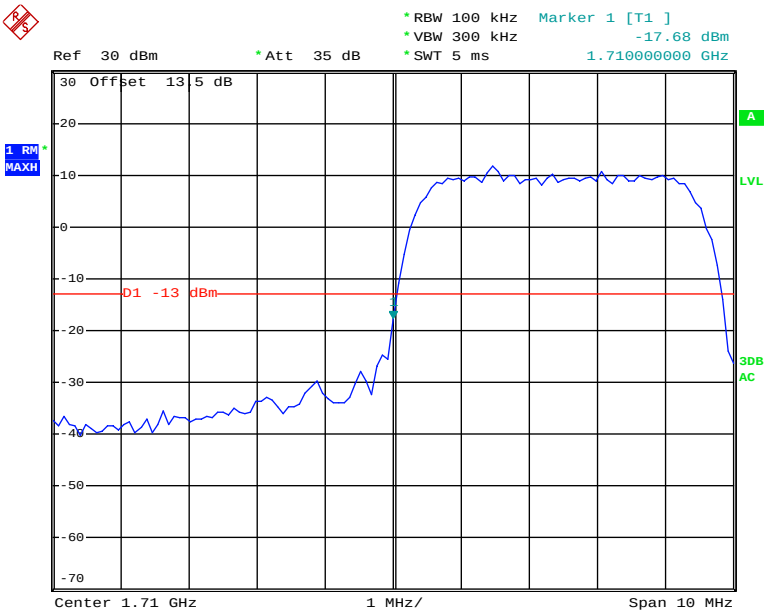
HSUPA Band 2, Right Band Edge



Date: 24.JAN.2018 17:02:56

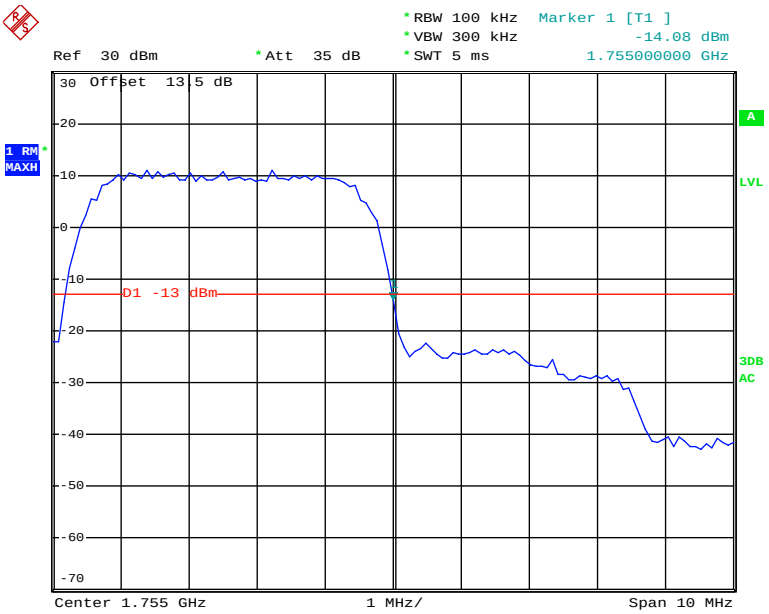
WCDMA Band 4:

REL99 Band 4, Left Band Edge



Date: 24.JAN.2018 17:36:47

REL99 Band 4, Right Band Edge



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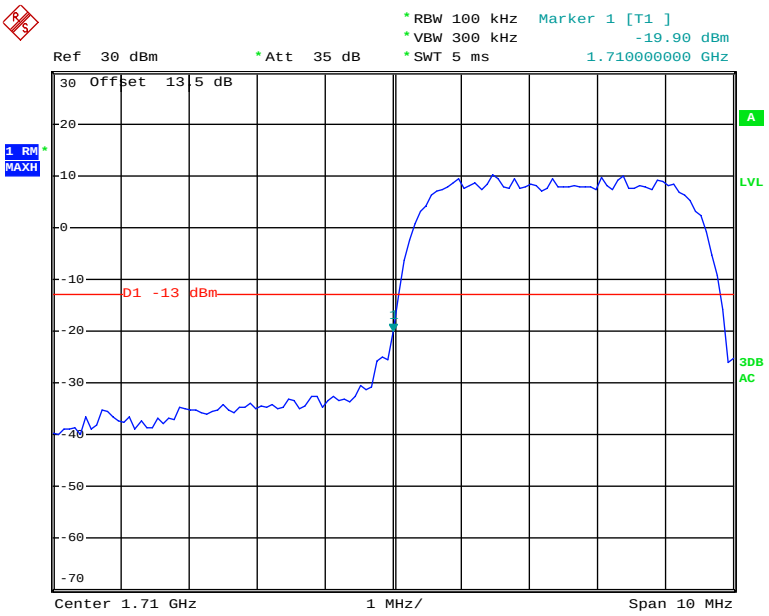
HSDPA Band 4, Left Band Edge



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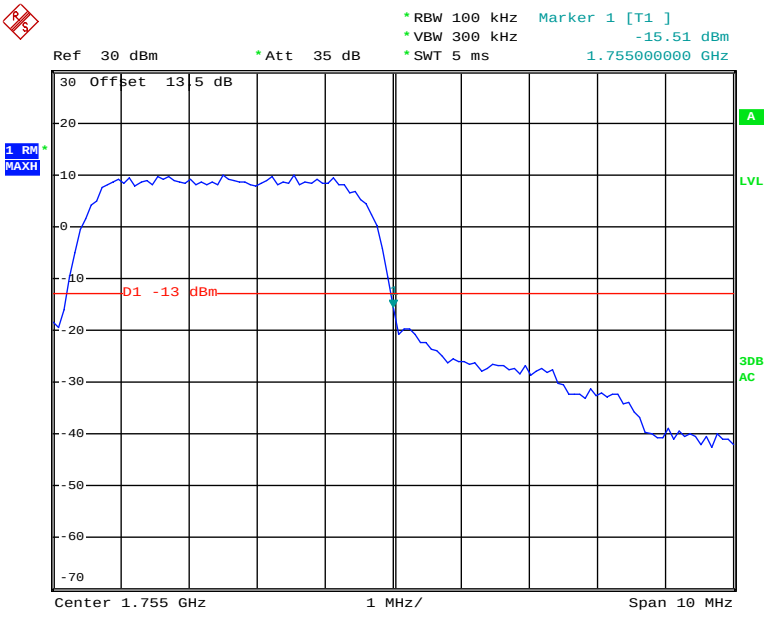
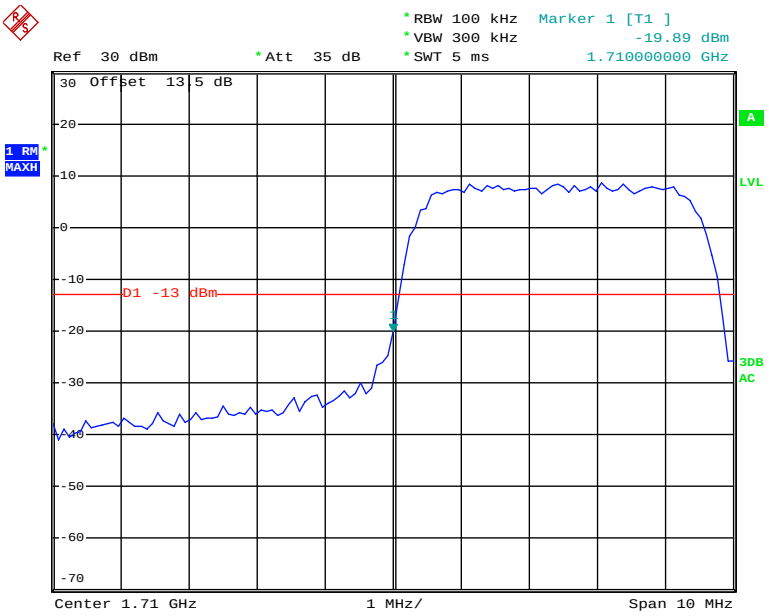
HSDPA Band 4, Right Band Edge



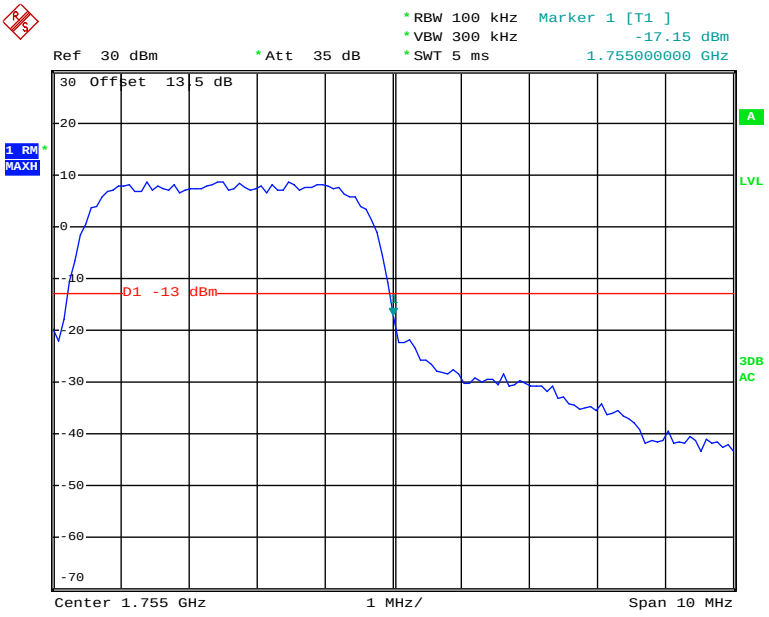
Date: 24.JAN.2018 17:51:00

HSUPA Band 4, Left Band Edge



Date: 24.JAN.2018 17:47:34

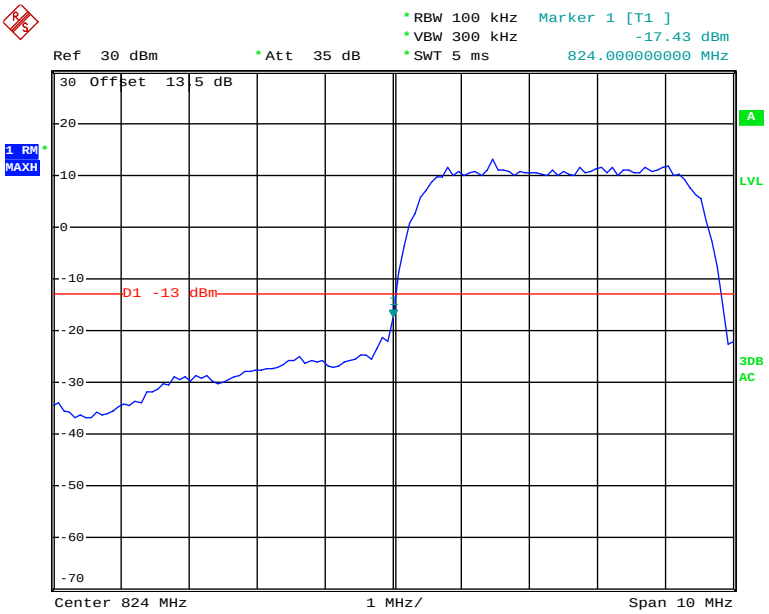
HSUPA Band 4, Right Band Edge



Date: 24.JAN.2018 17:48:15

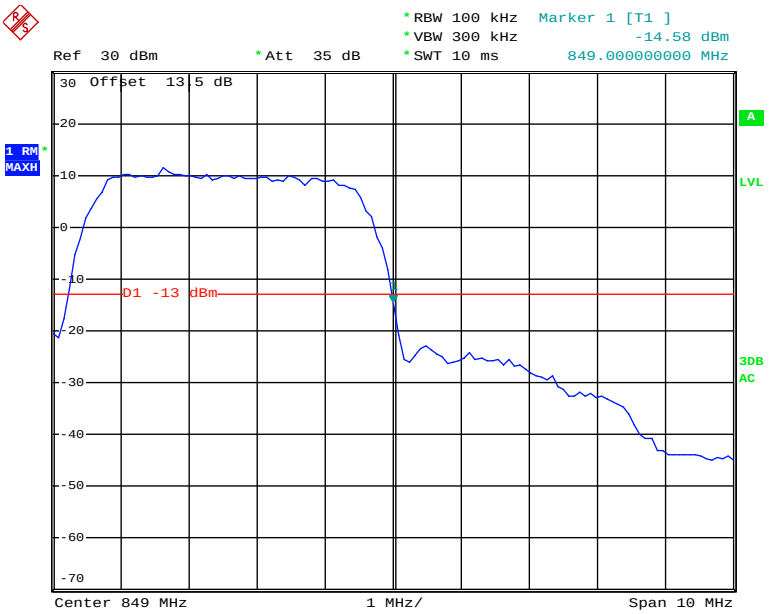
WCDMA Band 5

REL99 Band 5, Left Band Edge



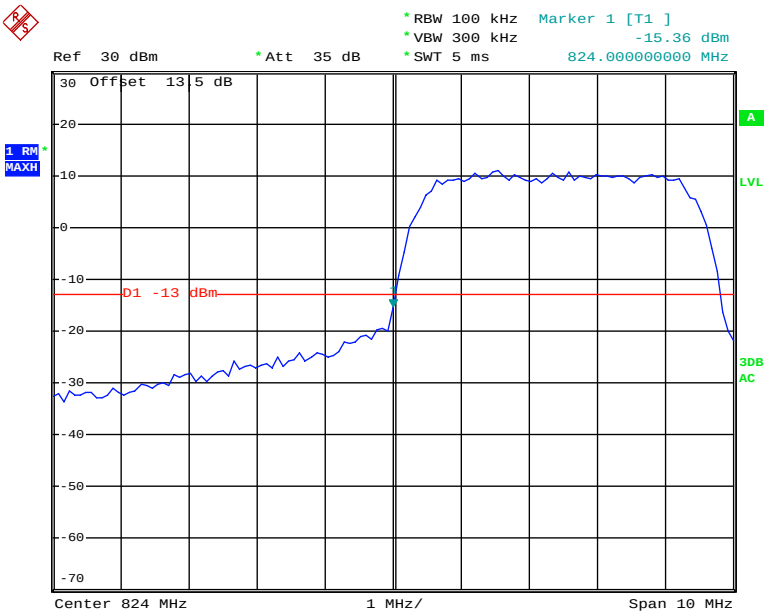
Date: 24.JAN.2018 18:09:58

REL99 Band 5 Right Band Edge



Date: 24.JAN.2018 18:11:12

HSDPA Band 5, Left Band Edge



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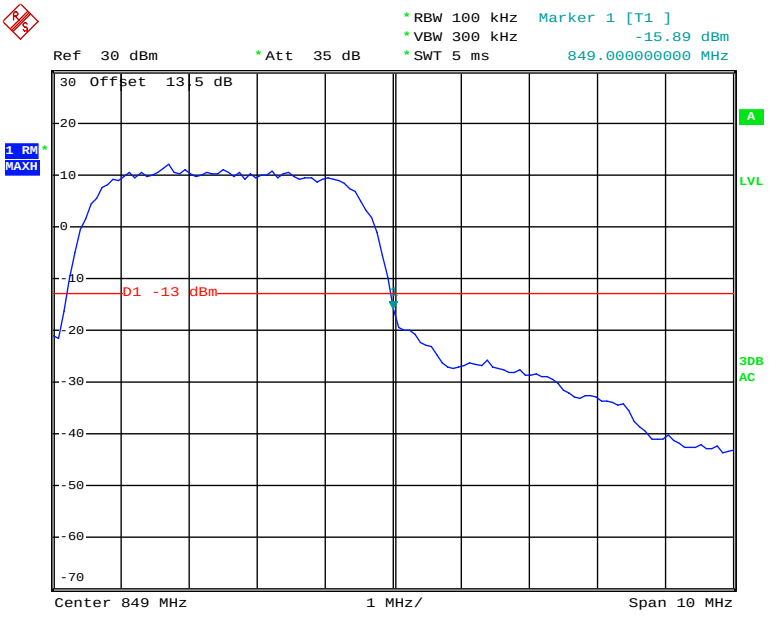
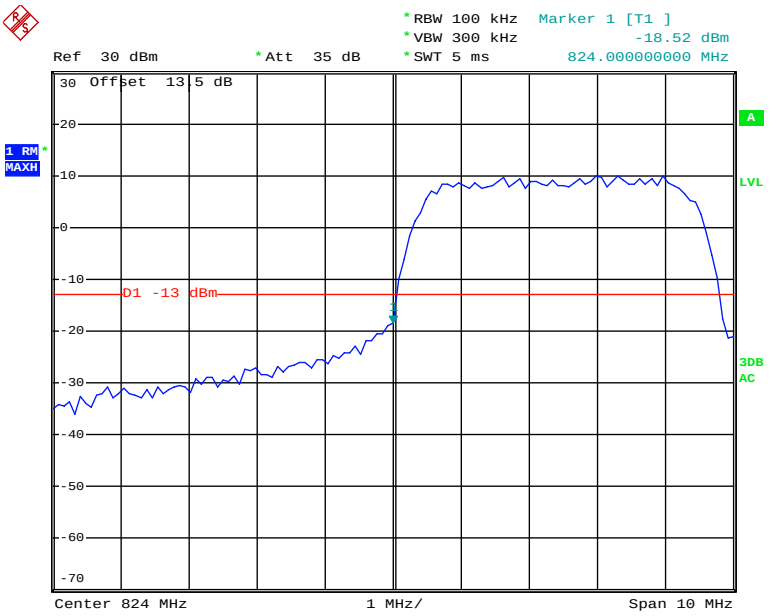
HSDPA Band 5, Right Band Edge



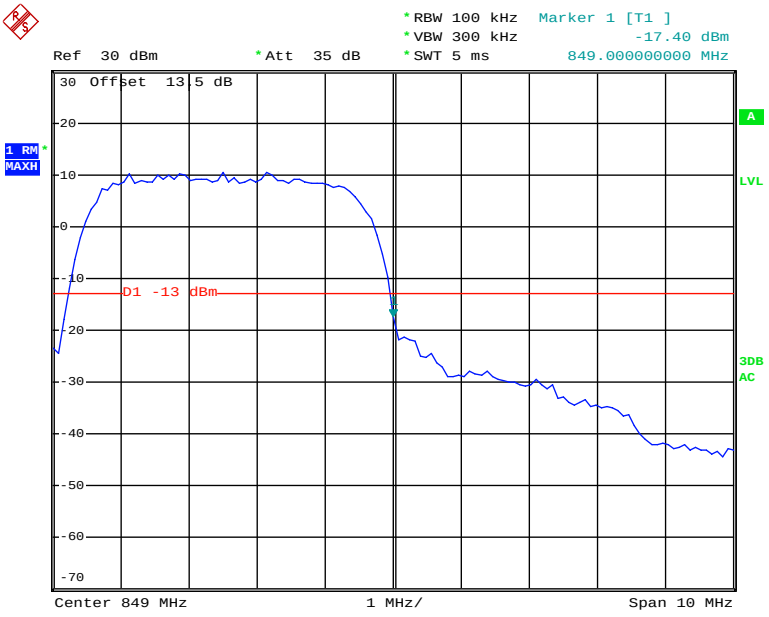
Date: 24.JAN.2018 17:59:18

HSUPA Band 5, Left Band Edge



Date: 24.JAN.2018 18:04:49

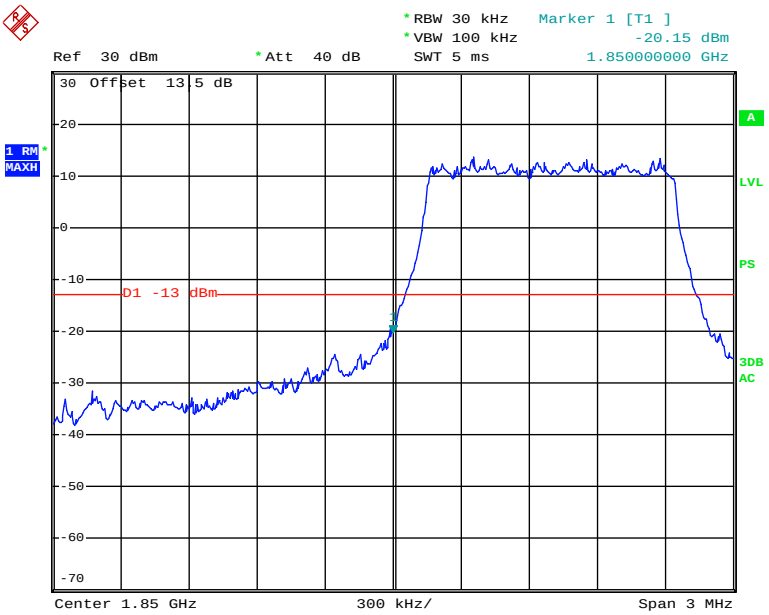
HSUPA Band 5, Right Band Edge



Date: 24.JAN.2018 18:04:13

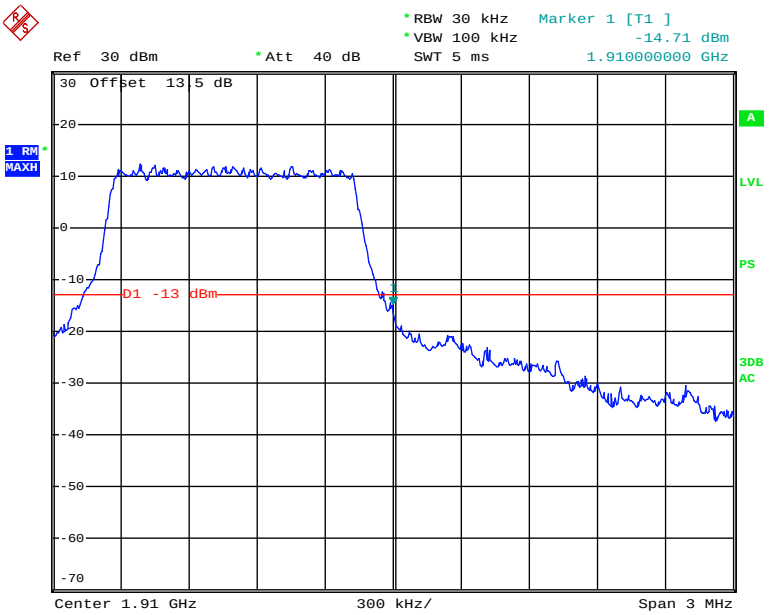
LTE Band 2

QPSK_1.4MHz_ 6 RB_ Left



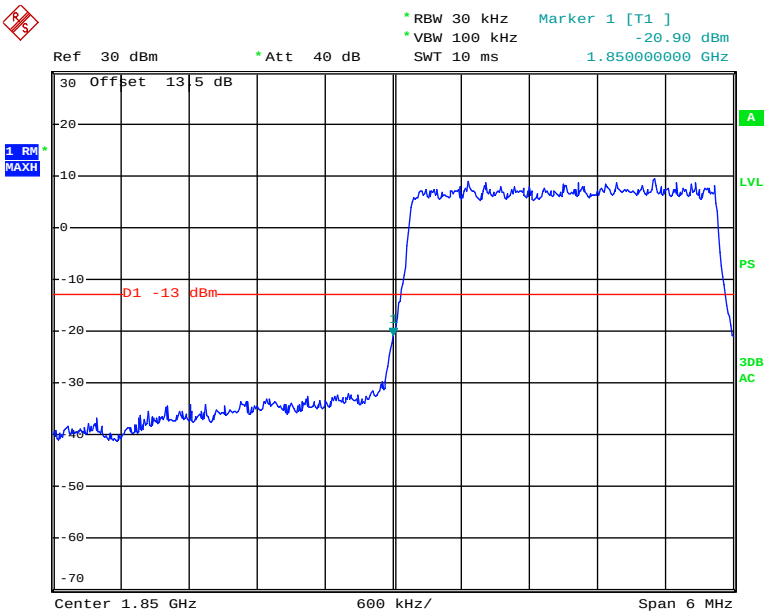
Date: 26.JAN.2018 09:47:40

QPSK_1.4MHz_ 6 RB_ Right



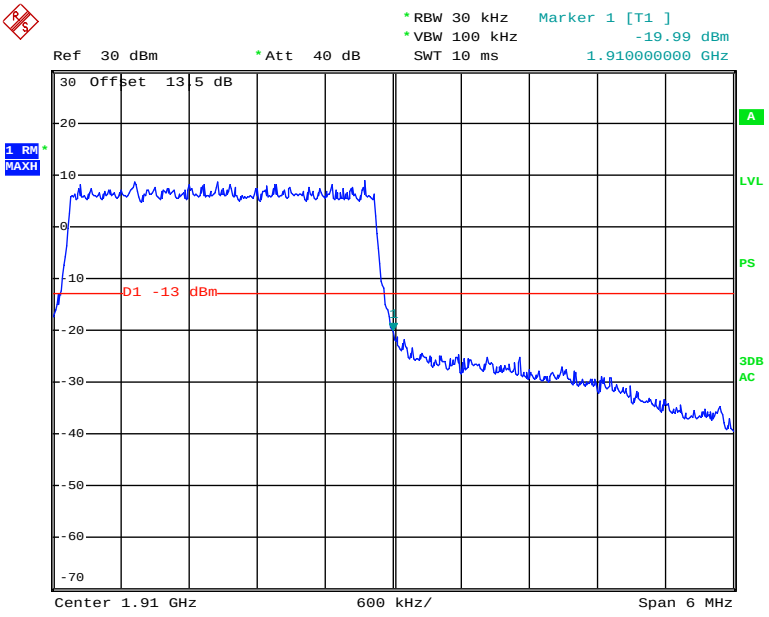
Date: 26.JAN.2018 09:45:42

QPSK_3MHz_ 15 RB_ Left



Date: 26.JAN.2018 09:41:35

QPSK_3MHz_ 15 RB_ Right



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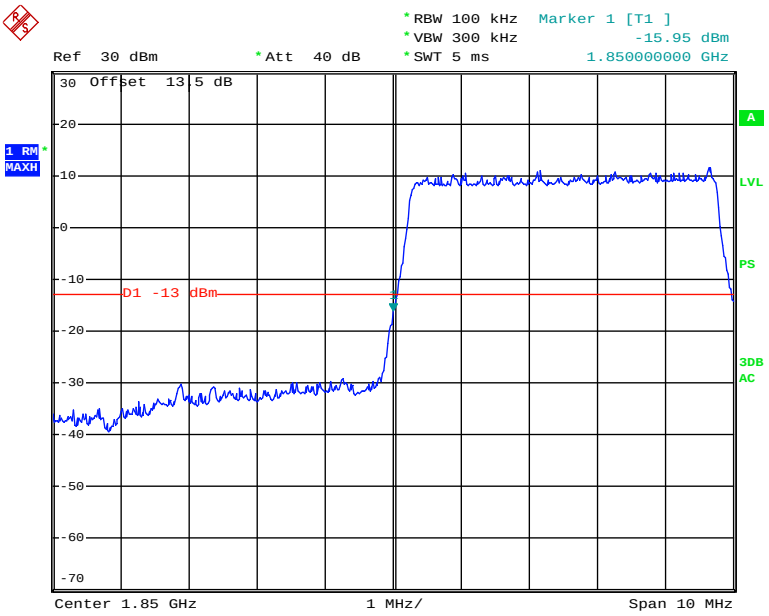
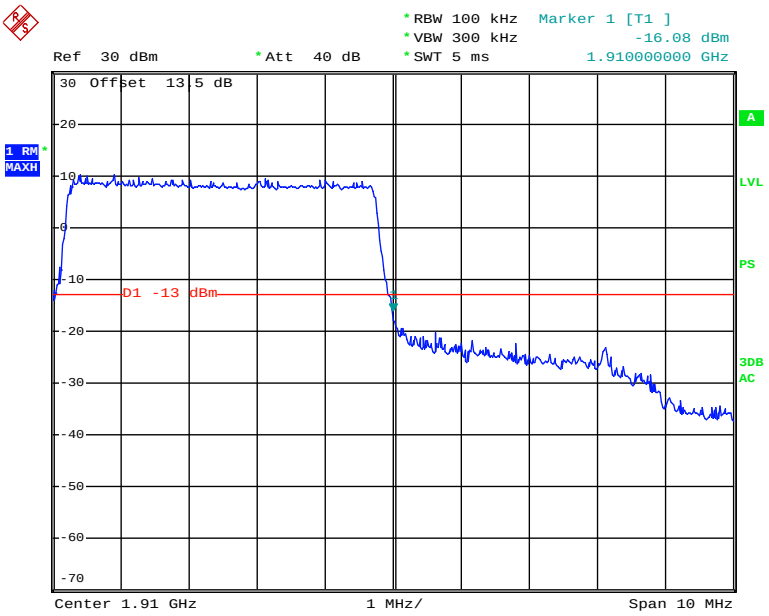
QPSK_5MHz_ 25 RB_ Left



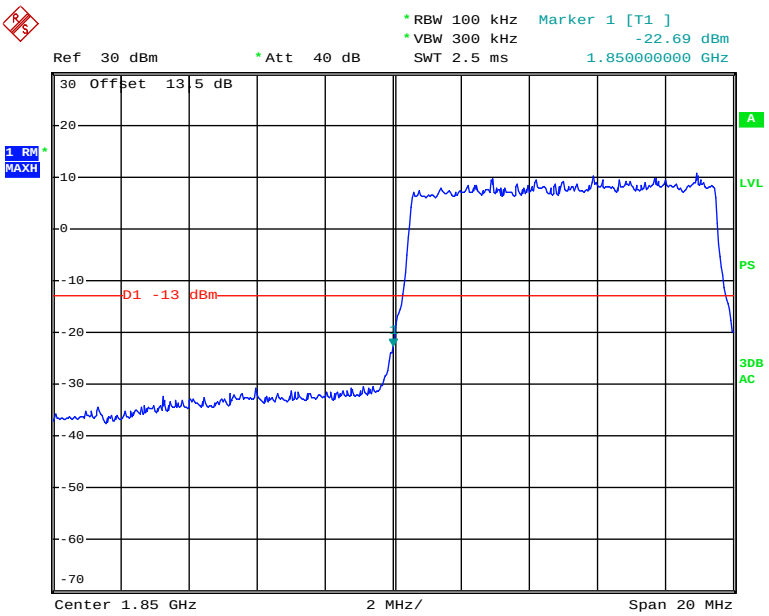
Date: 26.JAN.2018 09:38:44

QPSK_5MHz_ 25 RB_ Right



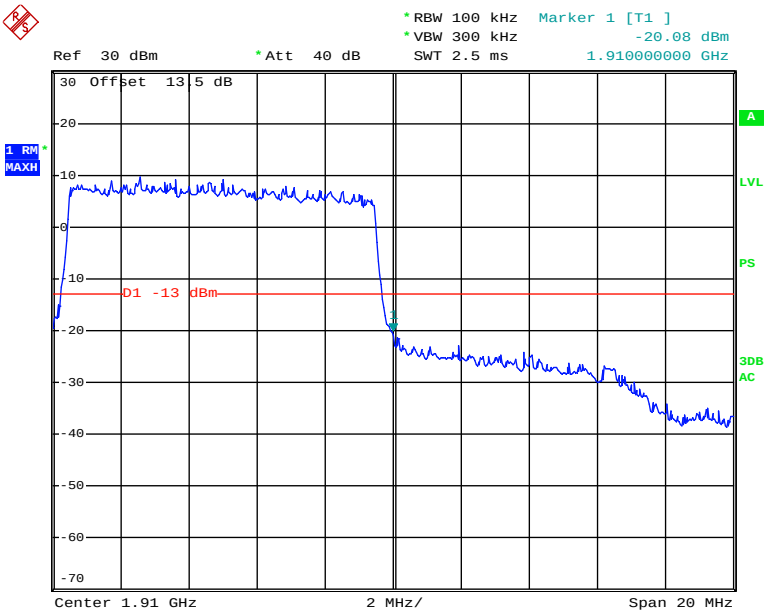
Date: 26.JAN.2018 09:35:54

QPSK_10MHz_ 50 RB_ Left



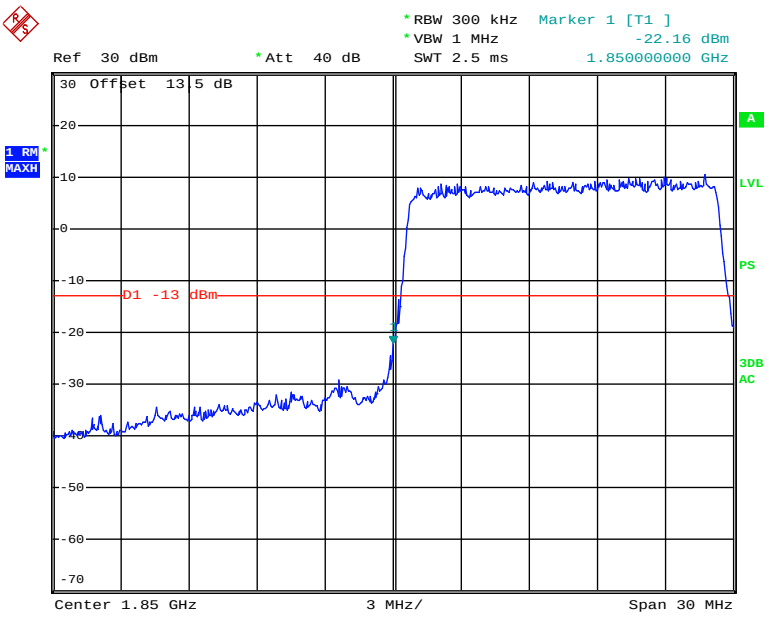
Date: 26.JAN.2018 09:25:57

QPSK_10MHz_ 50 RB_ Right



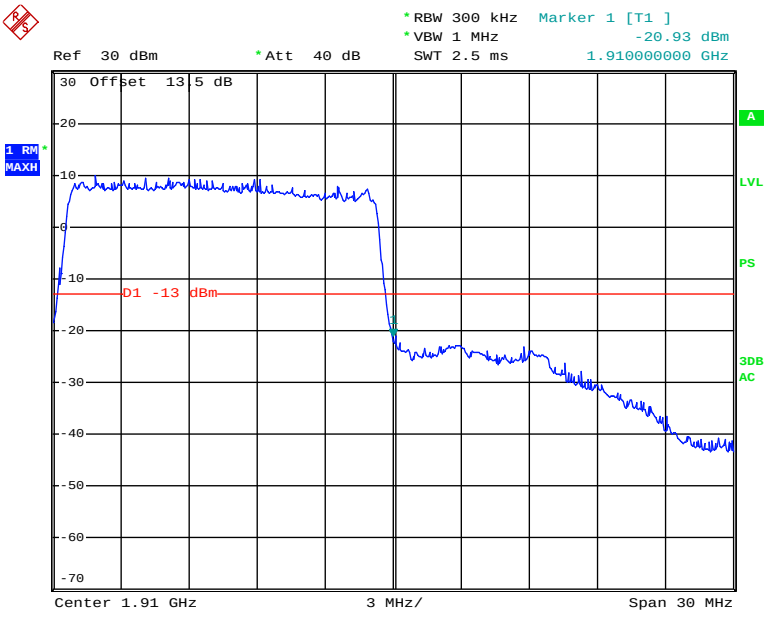
Date: 26.JAN.2018 09:33:17

QPSK_15MHz_ 75 RB_ Left



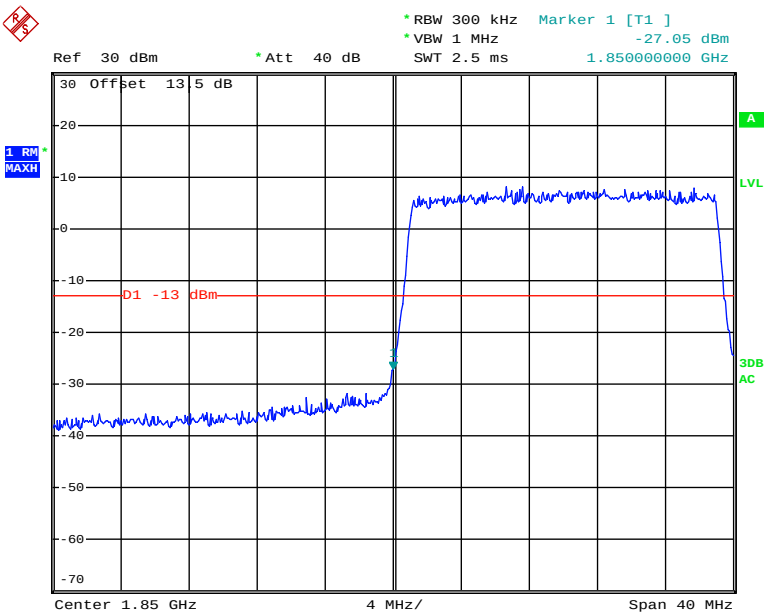
Date: 26.JAN.2018 10:21:55

QPSK_15MHz_ 75 RB_ Right



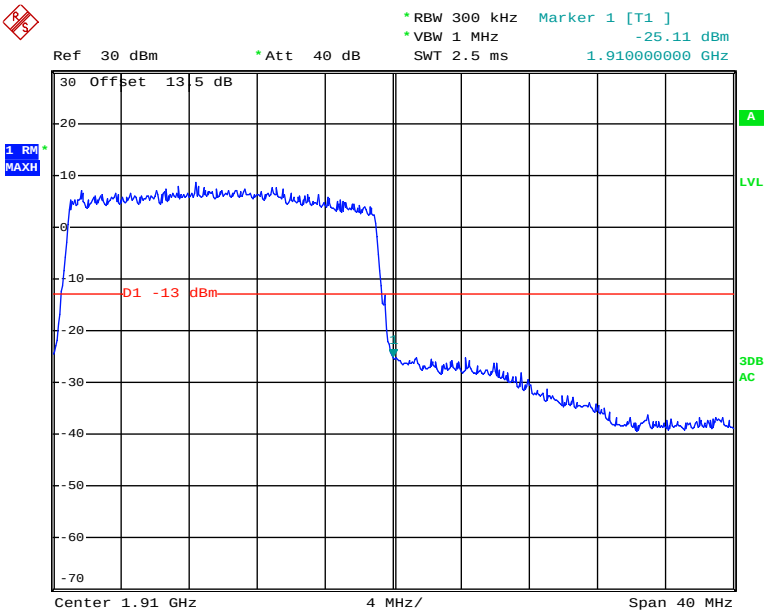
Date: 26.JAN.2018 10:24:13

QPSK_20MHz_ FULL RB_ Left



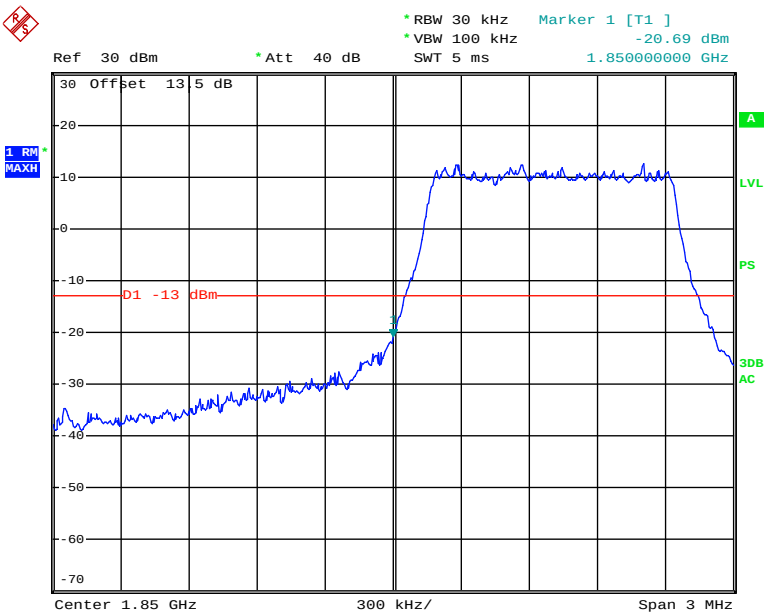
Date: 26.JAN.2018 14:00:24

QPSK_20MHz_ FULL RB_ Right



Date: 26.JAN.2018 14:02:55

16QAM_1.4MHz_ 6 RB_ Left



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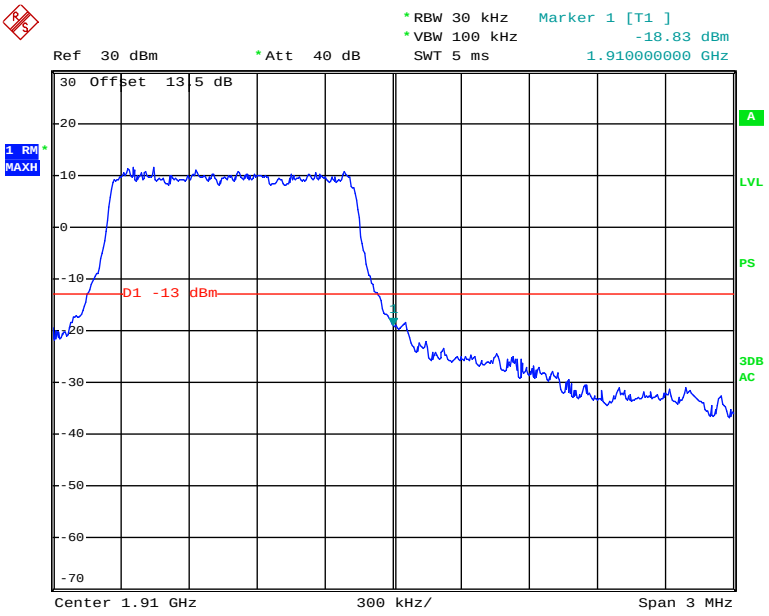
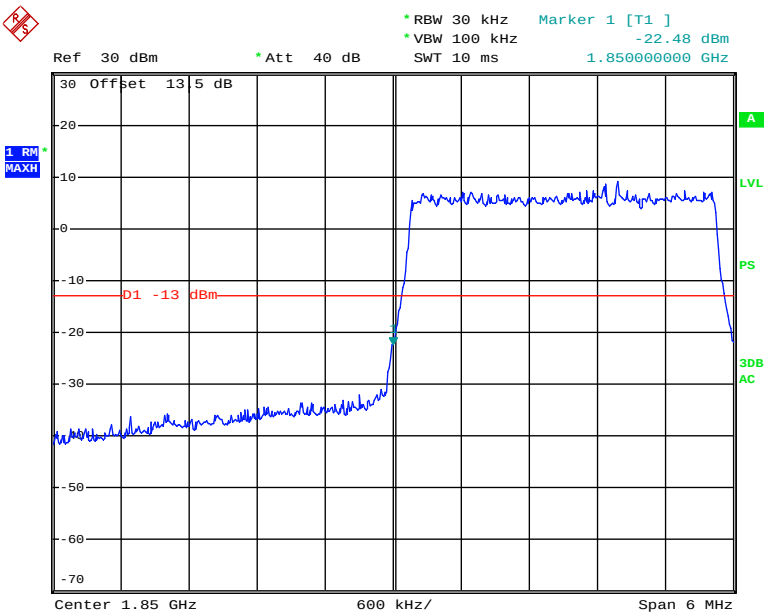
16QAM_1.4MHz_ 6 RB_ Right



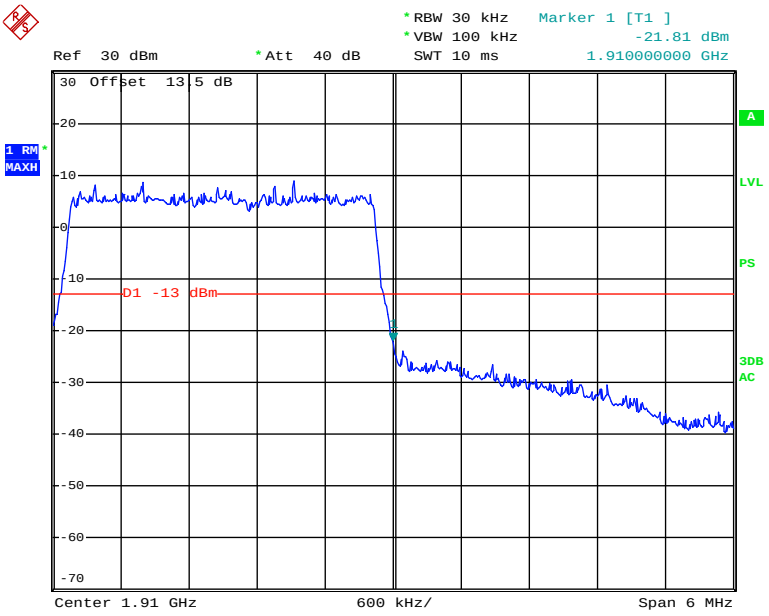
Date: 26.JAN.2018 09:46:25

16QAM_3MHz_ 15 RB_ Left



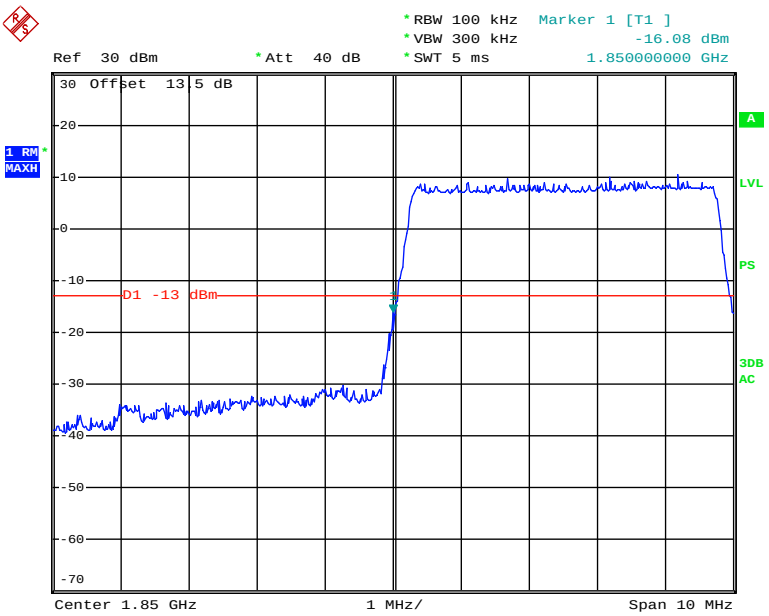
Date: 26.JAN.2018 09:42:22

16QAM_3MHz_ 15 RB_ Right



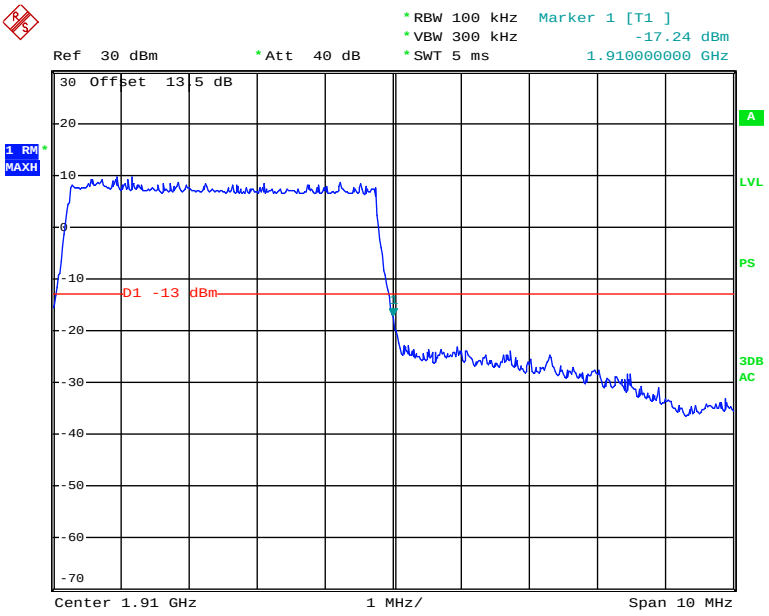
Date: 26.JAN.2018 09:43:37

16QAM_5MHz_ 25 RB_ Left



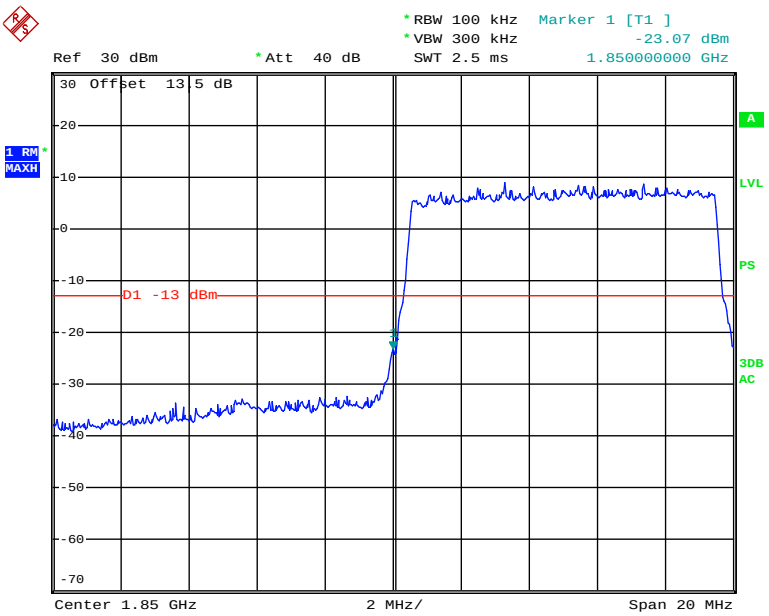
Date: 26.JAN.2018 09:37:47

16QAM_5MHz_ 25 RB_ Right



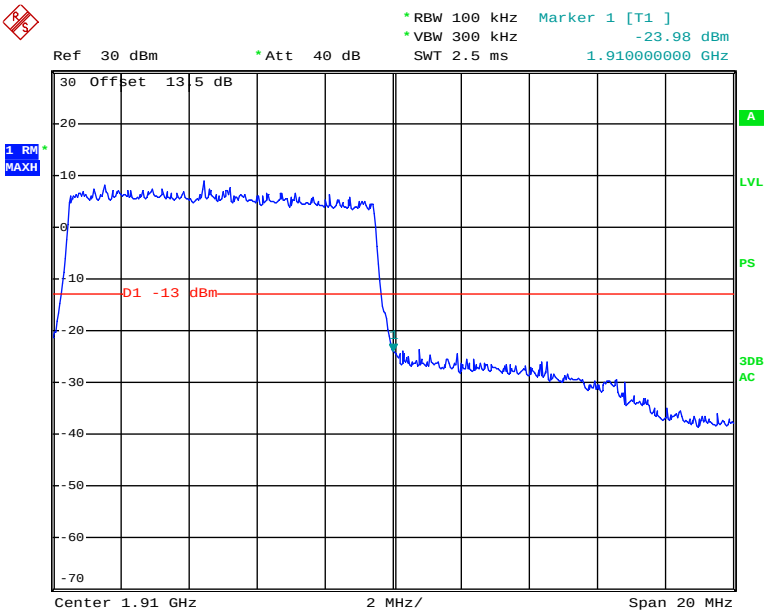
Date: 26.JAN.2018 09:36:55

16QAM_10MHz_ 50 RB_ Left



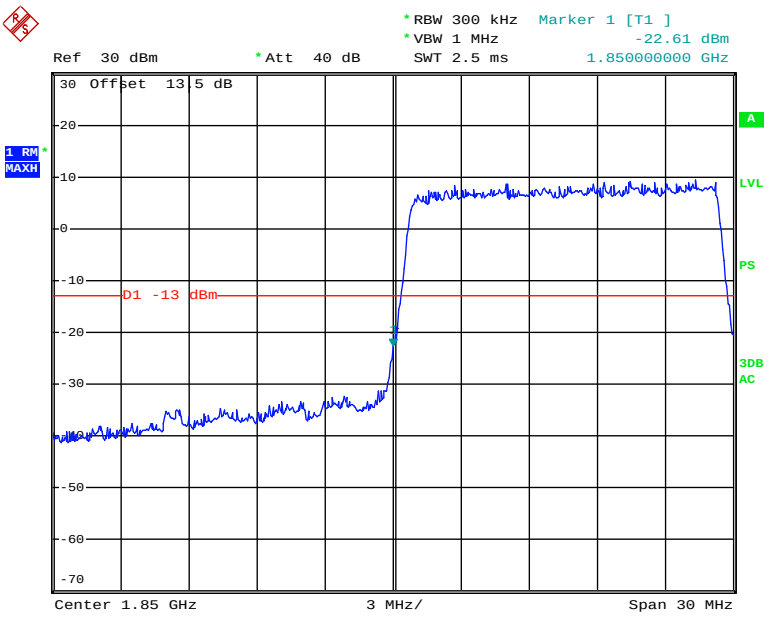
Date: 26.JAN.2018 09:27:55

16QAM_10MHz_ 50 RB_ Right



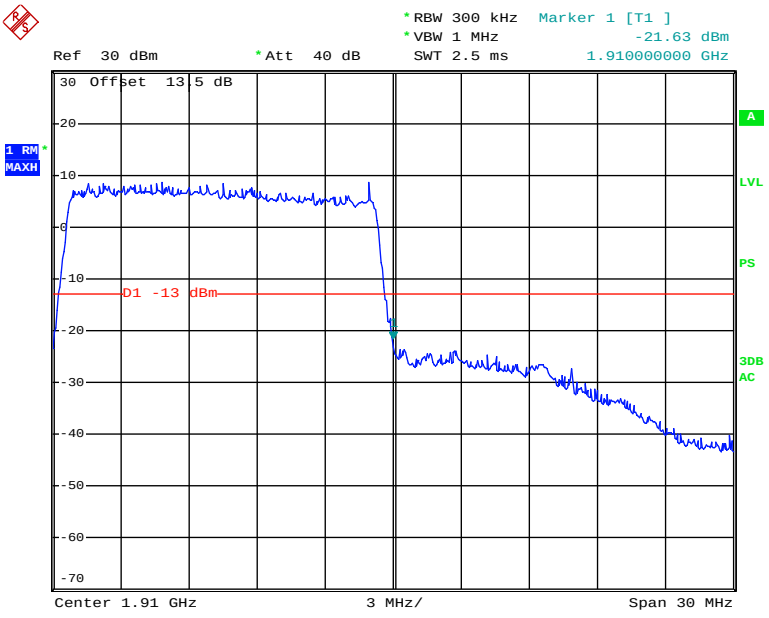
Date: 26.JAN.2018 09:31:25

16QAM_15MHz_ 75 RB_ Left



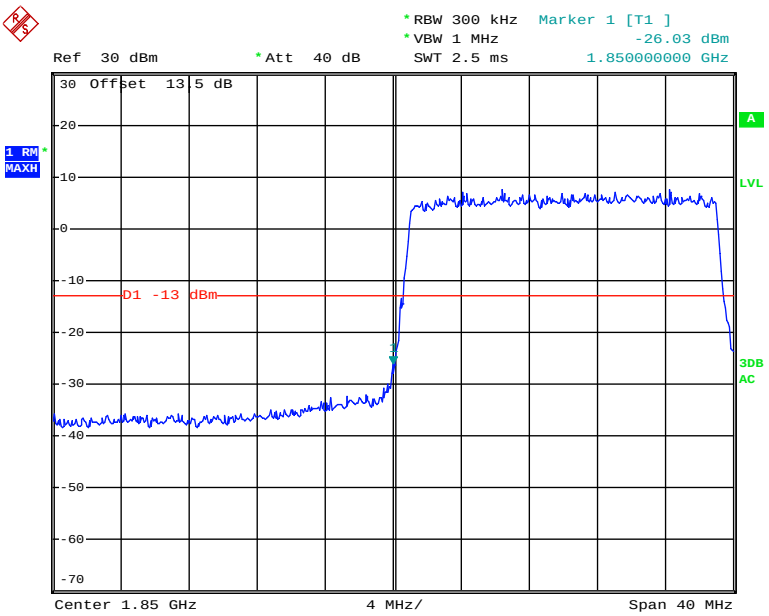
Date: 26.JAN.2018 10:22:41

16QAM_15MHz_ 75 RB_ Right



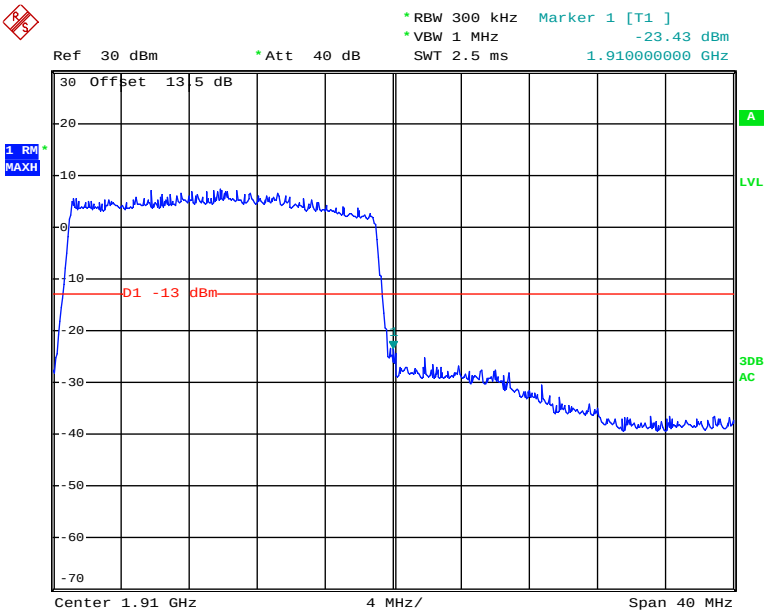
Date: 26.JAN.2018 10:23:31

16QAM_20MHz_ FULL RB_ Left



Date: 26.JAN.2018 14:01:18

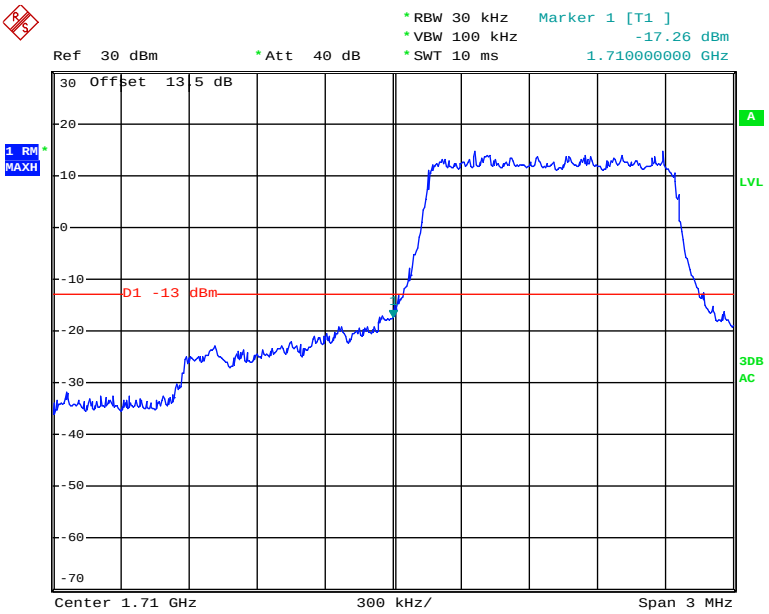
16QAM_20MHz_ FULL RB_ Right



Date: 26.JAN.2018 14:02:23

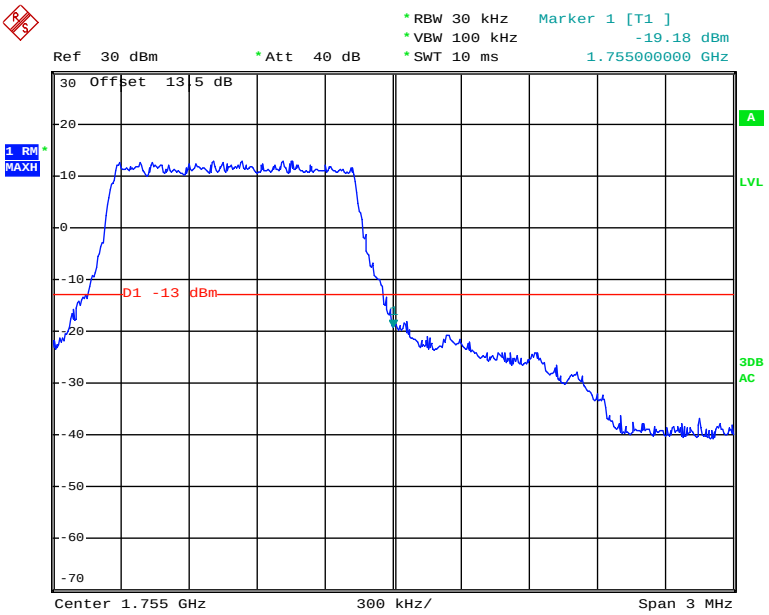
LTE Band 4:

QPSK_1.4MHz_ 6 RB_ Left



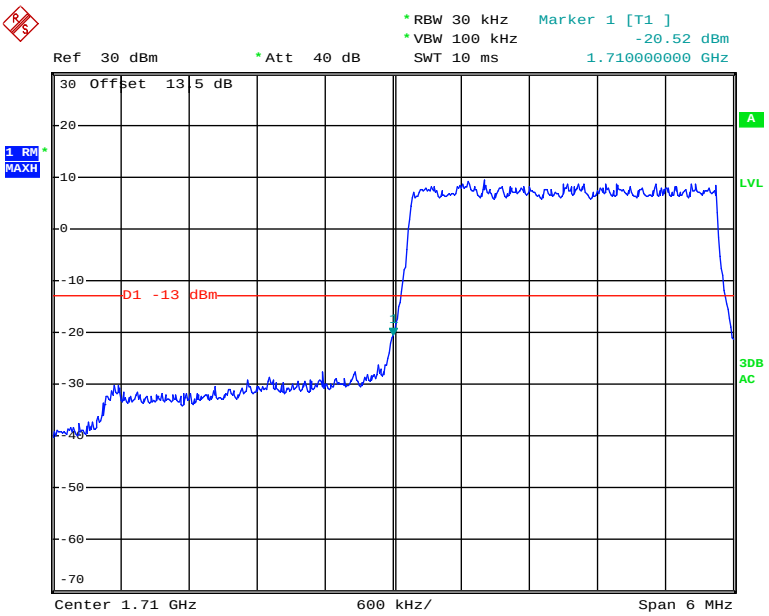
Date: 26.JAN.2018 12:30:51

QPSK_1.4MHz_ 6 RB_ Right



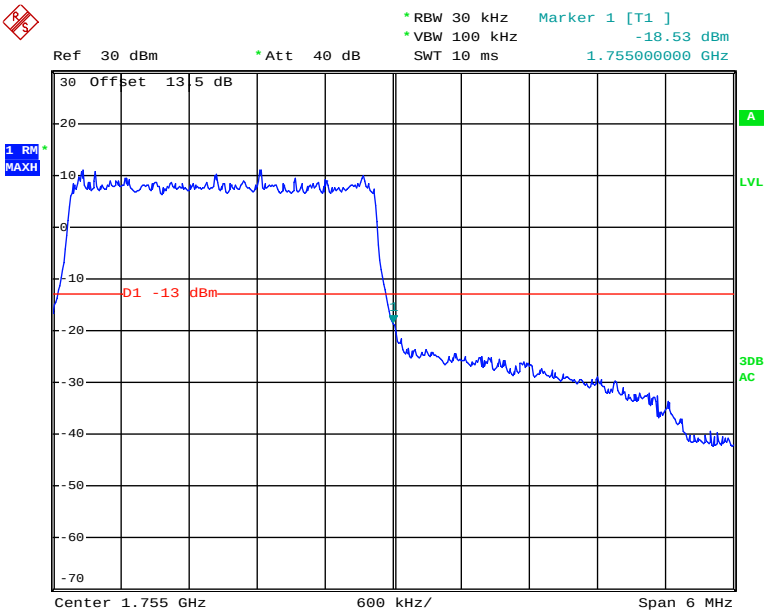
Date: 26.JAN.2018 12:28:14

QPSK_3MHz_ 15 RB_ Left



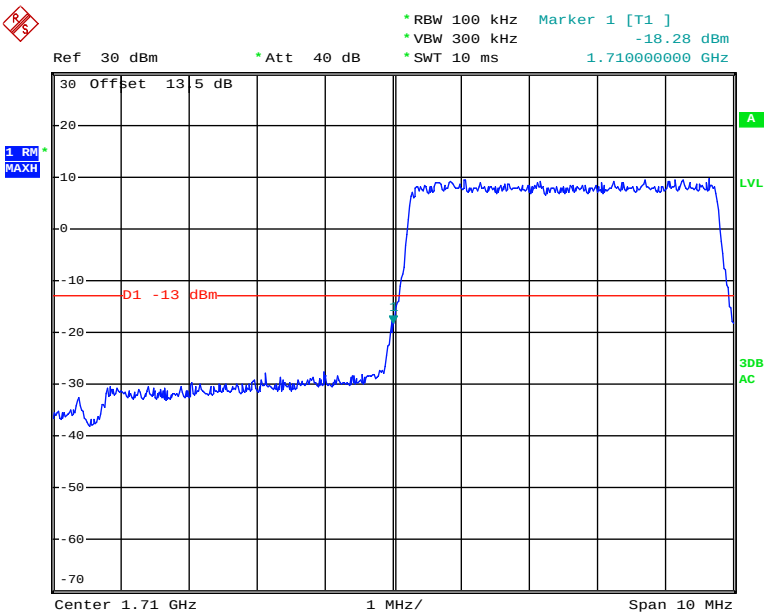
Date: 26.JAN.2018 11:02:59

QPSK_3MHz_ 15 RB_ Right



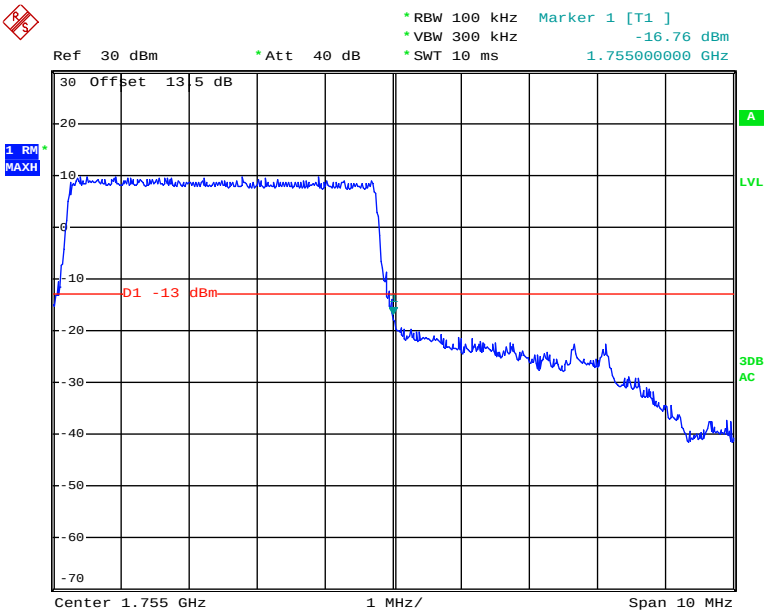
Date: 26.JAN.2018 12:24:23

QPSK_5MHz_ 25 RB_ Left



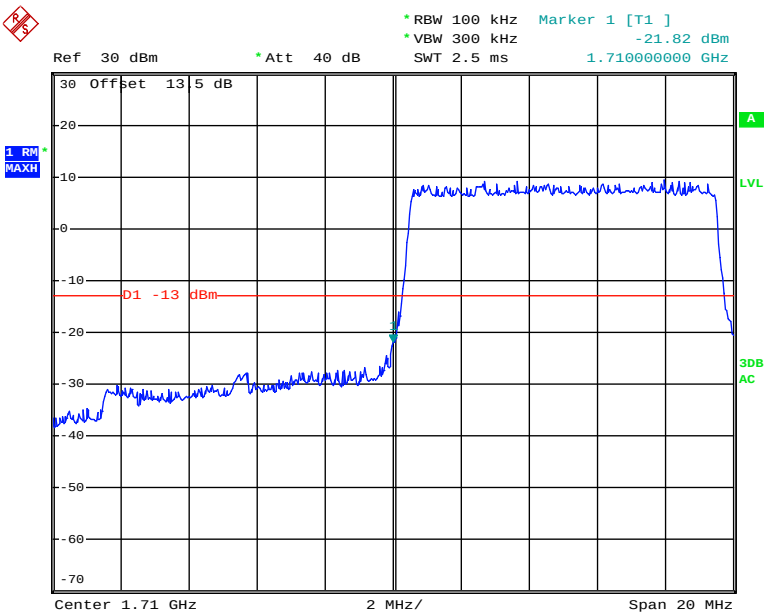
Date: 26.JAN.2018 11:01:31

QPSK_5MHz_ 25 RB_ Right



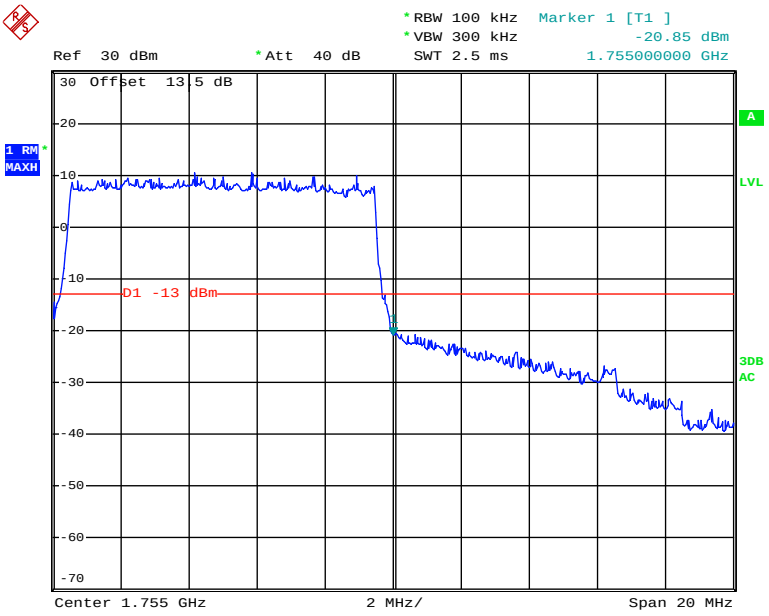
Date: 26.JAN.2018 10:59:10

QPSK_10MHz_ 50 RB_ Left



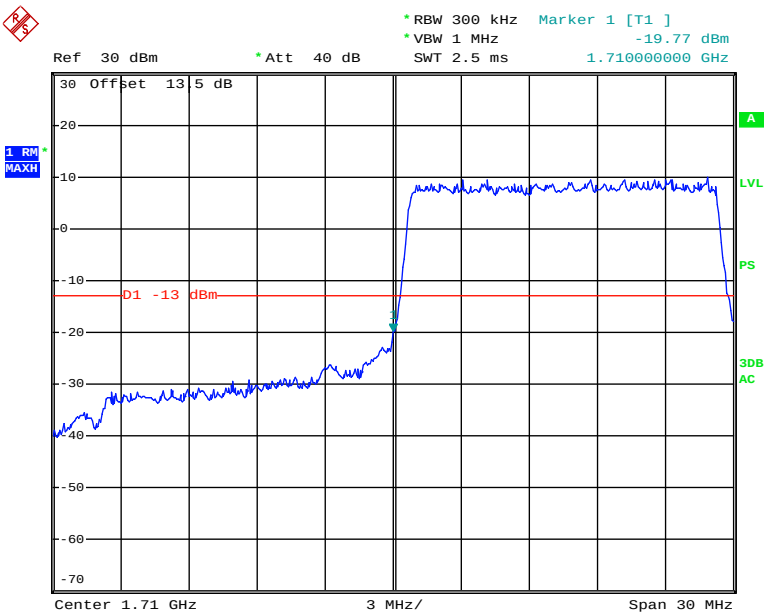
Date: 26.JAN.2018 10:53:41

QPSK_10MHz_ 50 RB_ Right



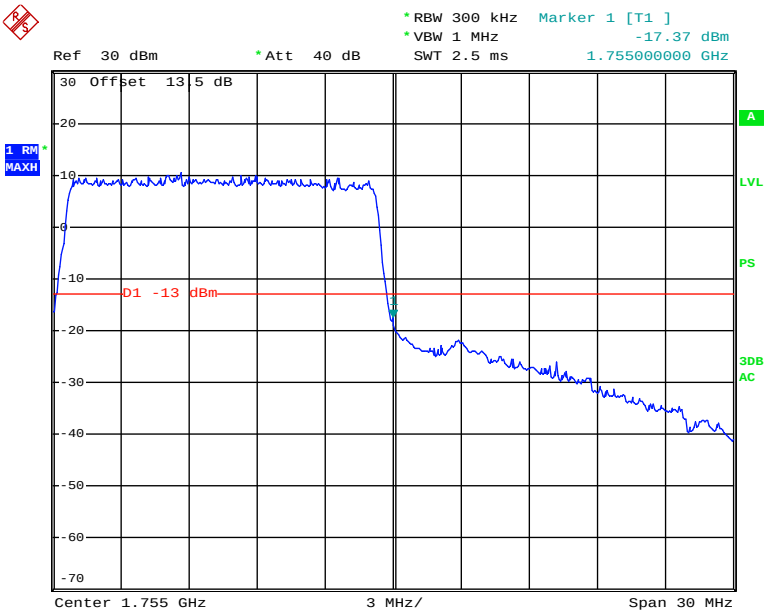
Date: 26.JAN.2018 10:55:48

QPSK_15MHz_ 75 RB_ Left



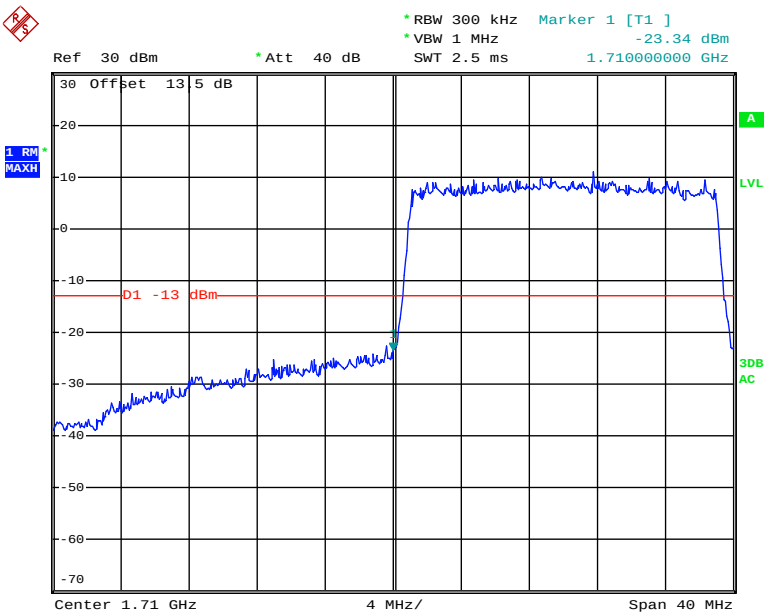
Date: 26.JAN.2018 10:35:46

QPSK_15MHz_ 75 RB_ Right



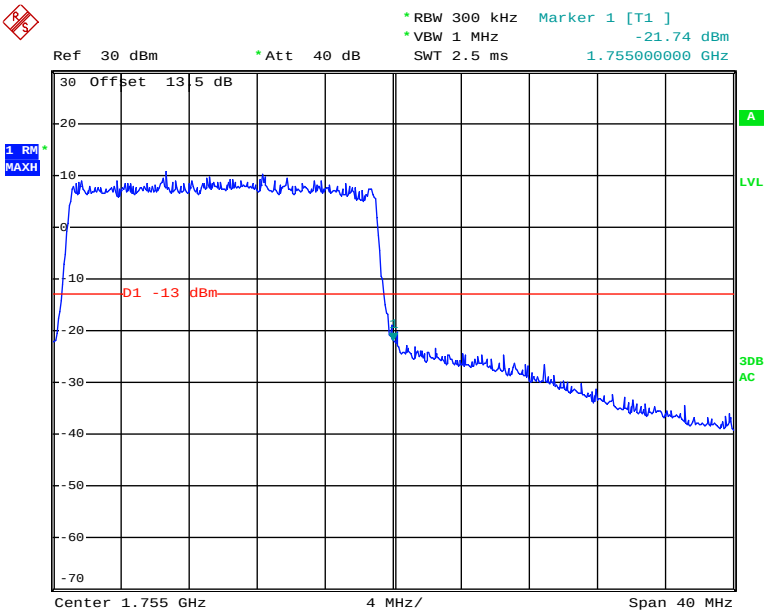
Date: 26.JAN.2018 10:47:10

QPSK_20MHz_ FULL RB_ Left



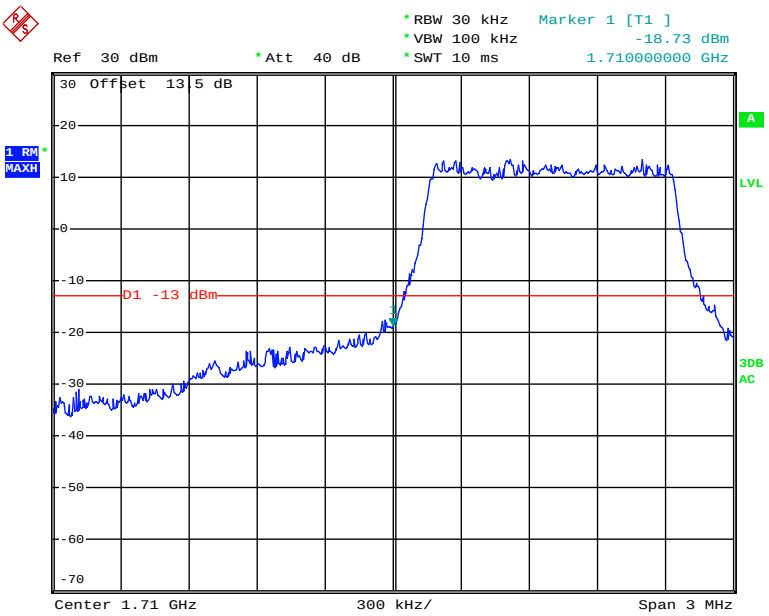
Date: 26.JAN.2018 14:03:56

QPSK_20MHz_ FULL RB_ Right



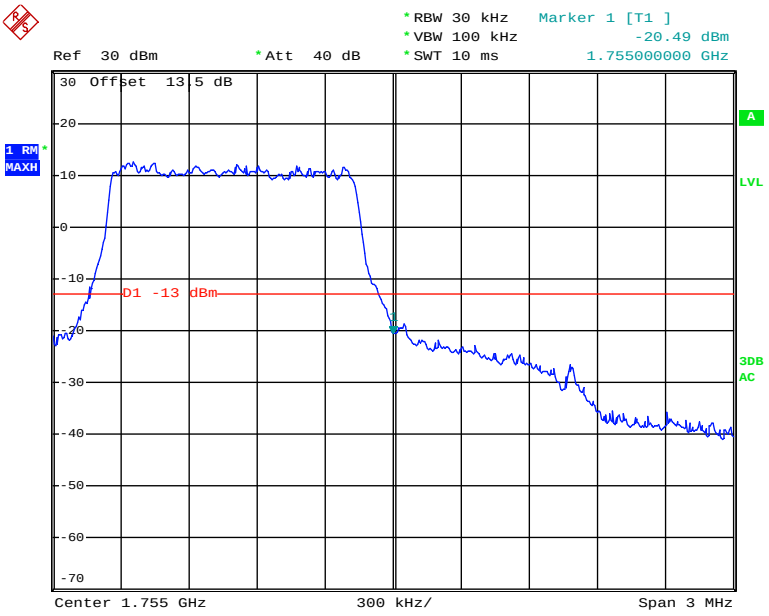
Date: 26.JAN.2018 14:05:56

16QAM_1.41MHz_ 6 RB_ Left



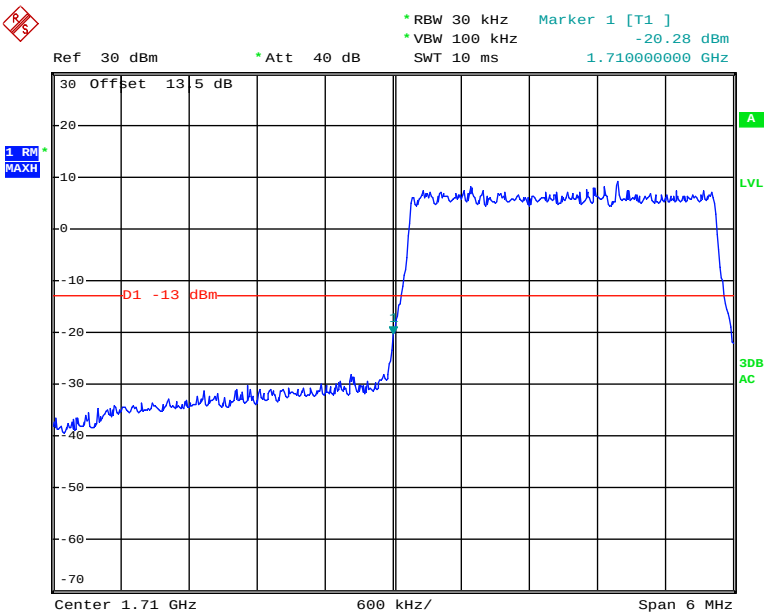
Date: 26.JAN.2018 12:30:06

16QAM_1.4MHz_ 6 RB_ Right



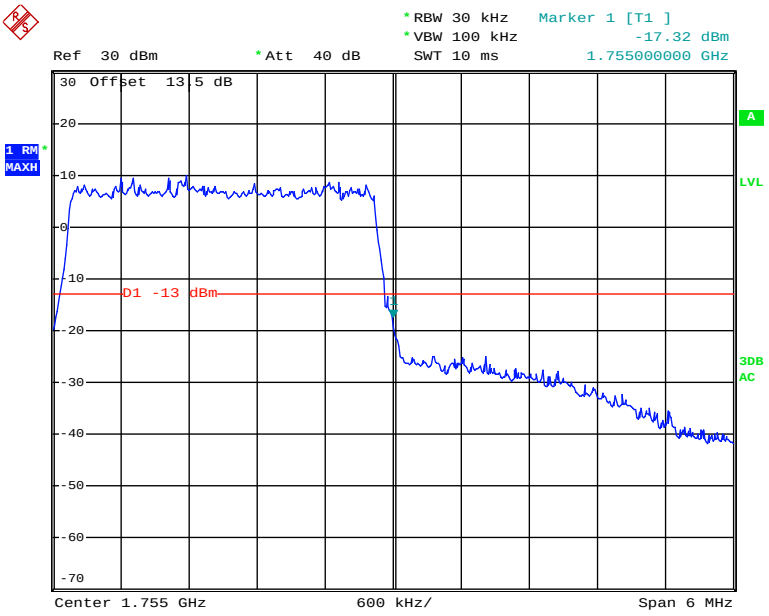
Date: 26.JAN.2018 12:29:08

16QAM_3MHz_ 15 RB_ Left



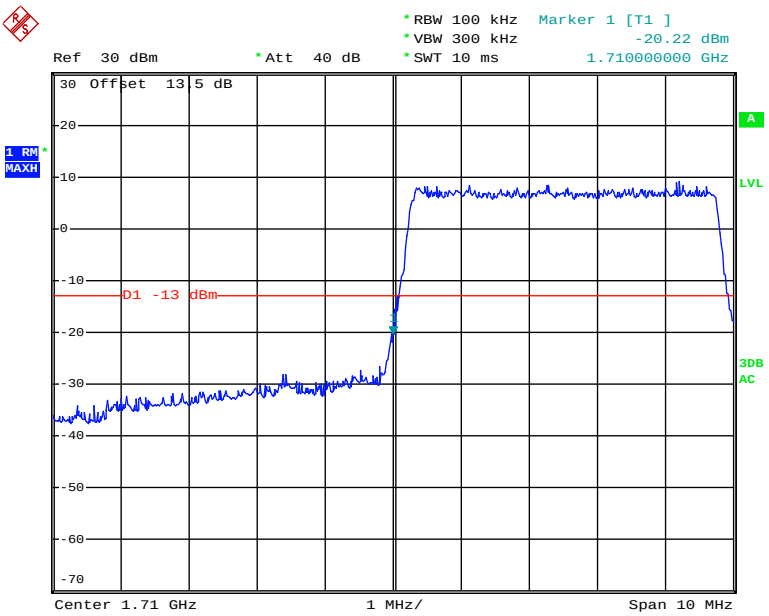
Date: 26.JAN.2018 11:03:48

16QAM_3MHz_ 15 RB_ Right



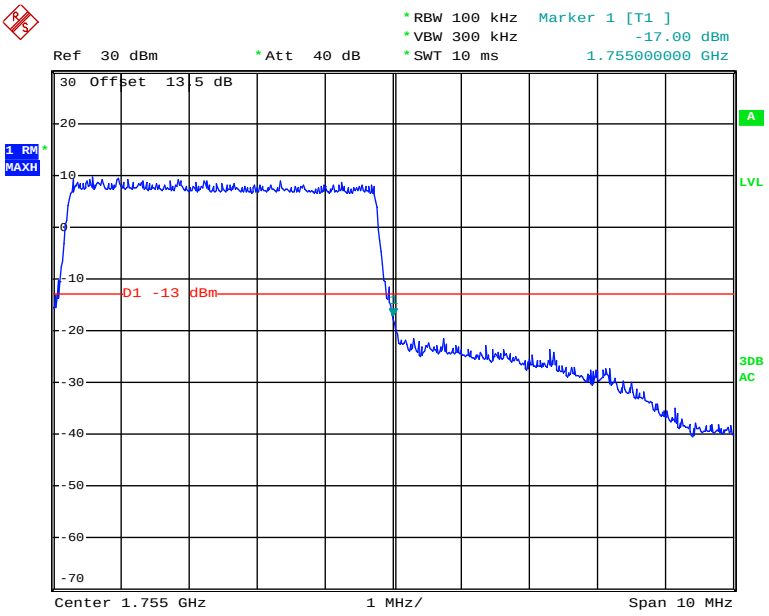
Date: 26.JAN.2018 12:25:37

16QAM_5MHz_ 25 RB_ Left



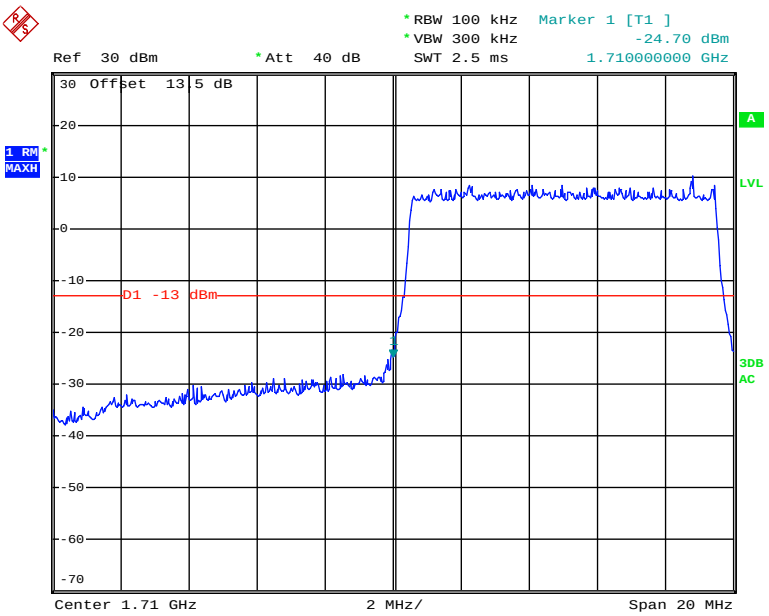
Date: 26.JAN.2018 11:00:56

16QAM_5MHz_ 25 RB_ Right



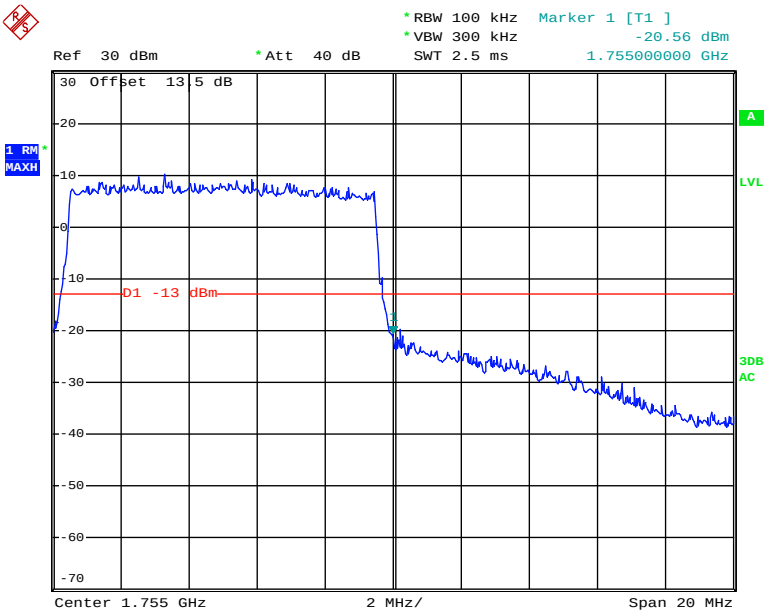
Date: 26.JAN.2018 10:59:53

16QAM_10MHz_ 50 RB_ Left



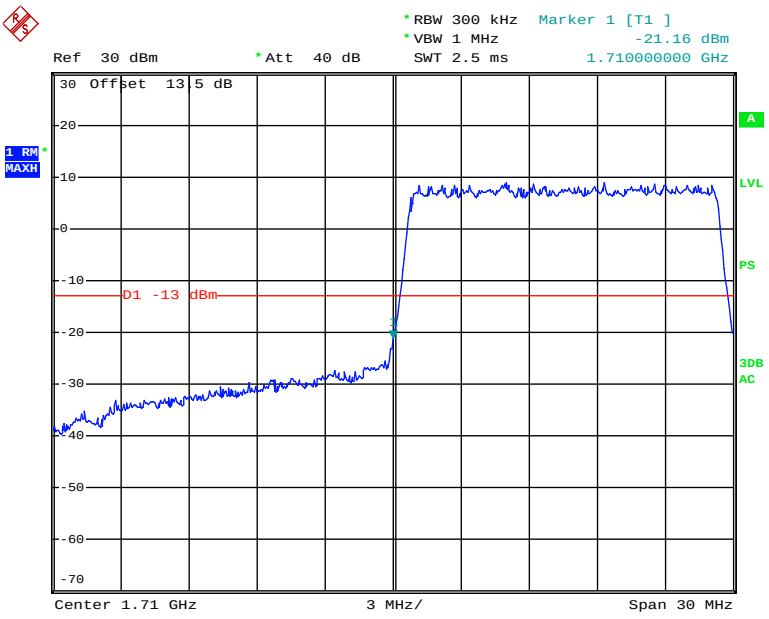
Date: 26.JAN.2018 10:54:15

16QAM_10MHz_ 50 RB_ Right



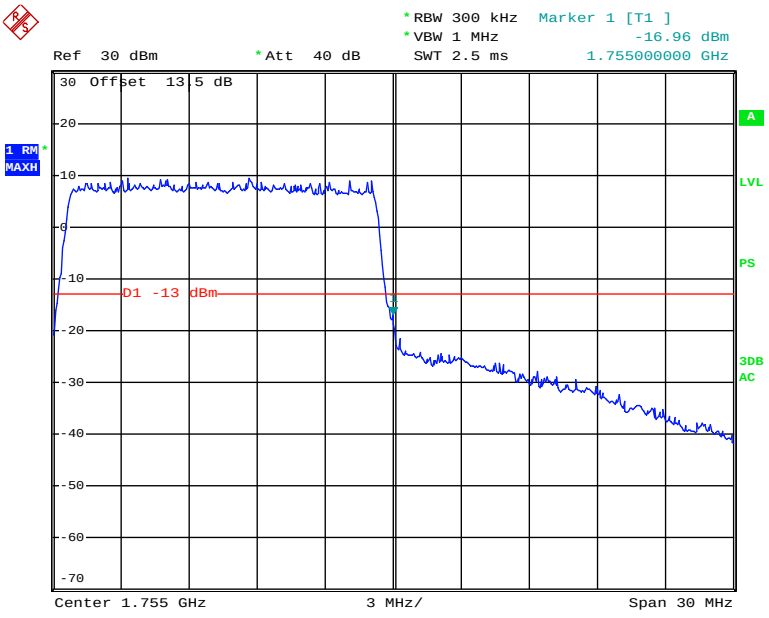
Date: 26.JAN.2018 10:55:19

16QAM_15MHz_ 75 RB_ Left



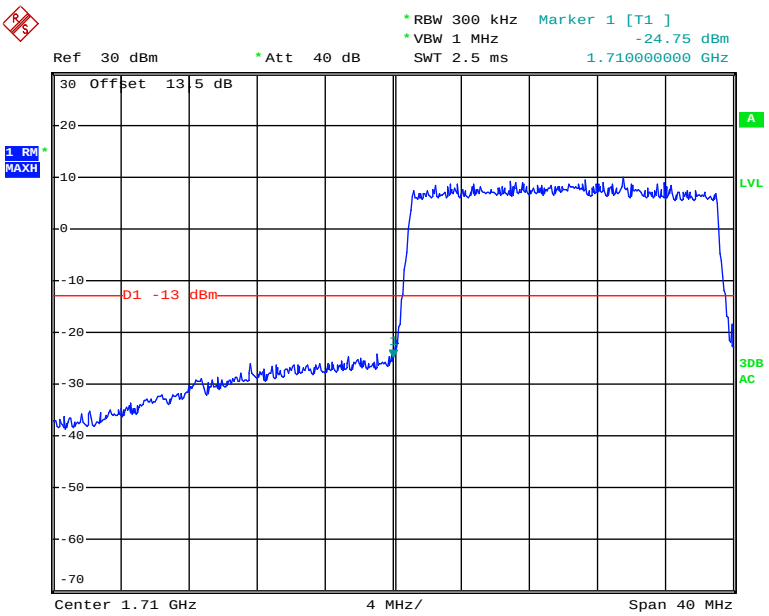
Date: 26.JAN.2018 10:36:45

16QAM_15MHz_ 75 RB_ Right



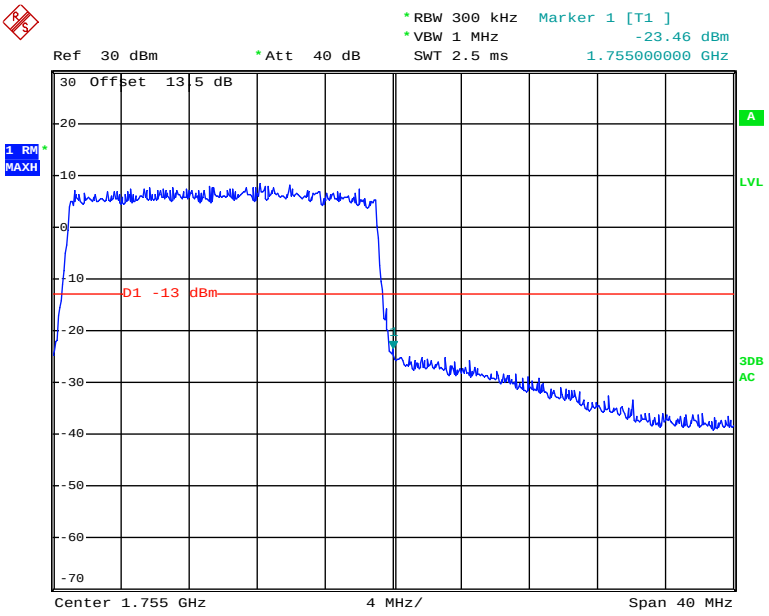
Date: 26.JAN.2018 10:48:03

16QAM_20MHz_ FULL RB_ Left



Date: 26.JAN.2018 14:04:34

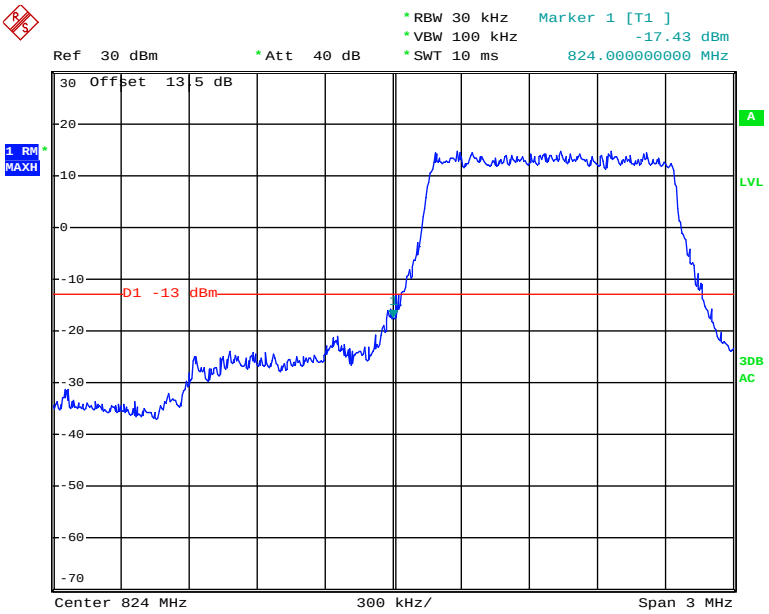
16QAM_20MHz_ FULL RB_ Right



Date: 26.JAN.2018 14:05:26

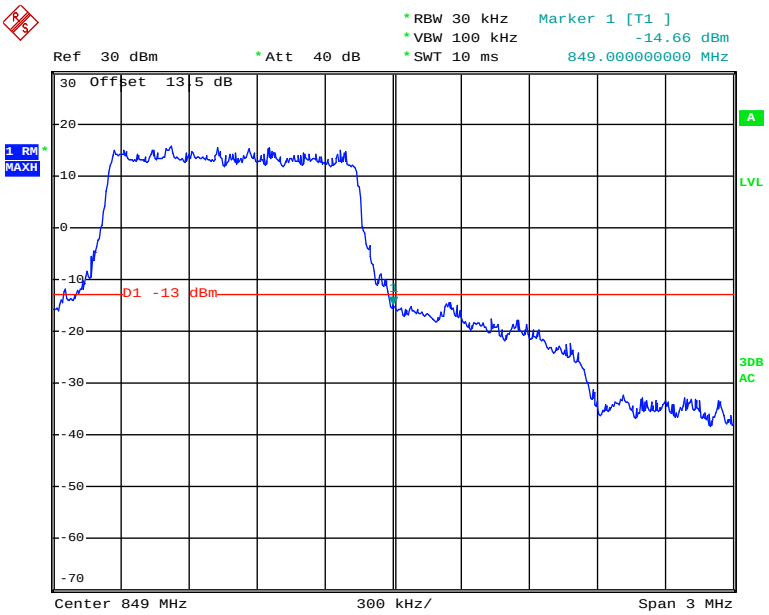
LTE Band 5:

QPSK_1.4MHz_ 6 RB_ Left



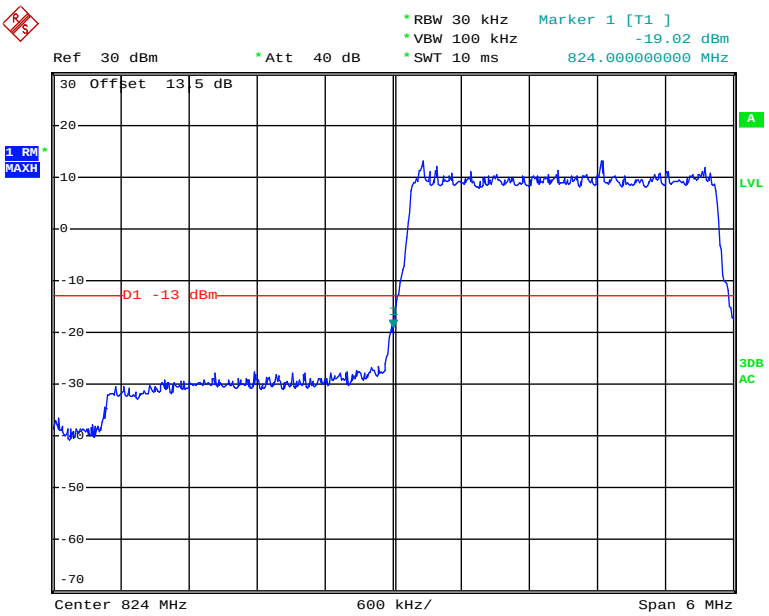
Date: 26.JAN.2018 12:36:55

QPSK_1.4MHz_ 6 RB_ Right



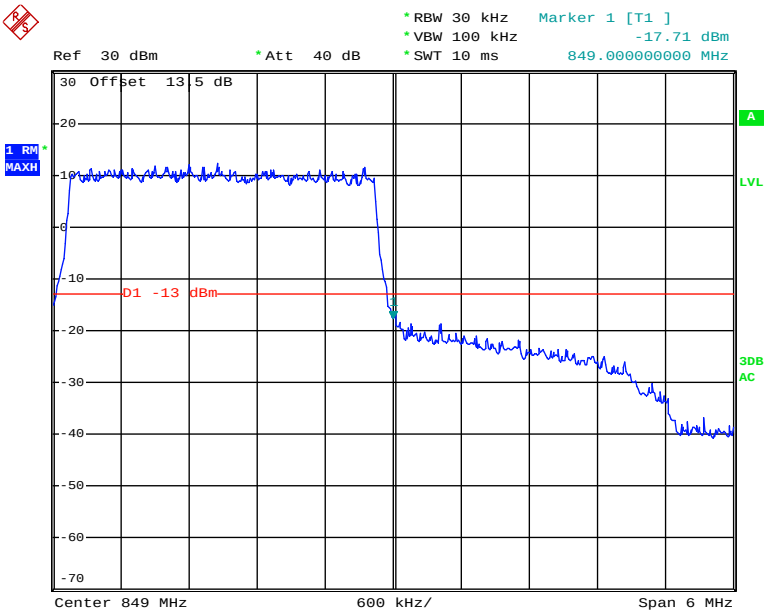
Date: 26.JAN.2018 12:40:25

QPSK_3MHz_ 15 RB_ Left



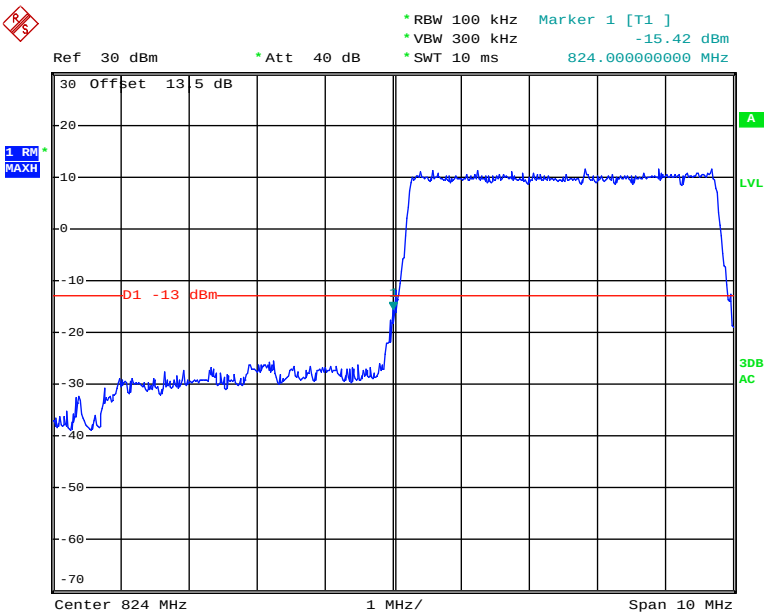
Date: 26.JAN.2018 12:45:22

QPSK_3MHz_ 15 RB_ Right



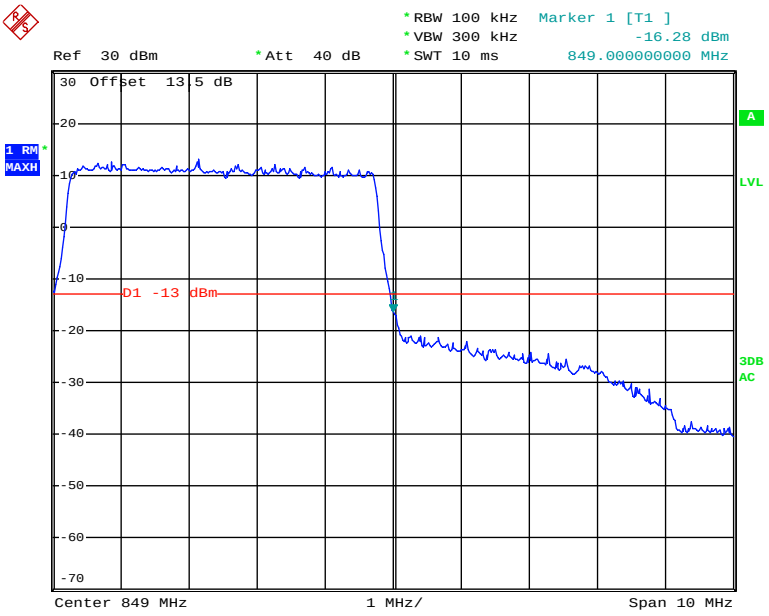
Date: 26.JAN.2018 12:44:32

QPSK_5MHz_ 25 RB_ Left



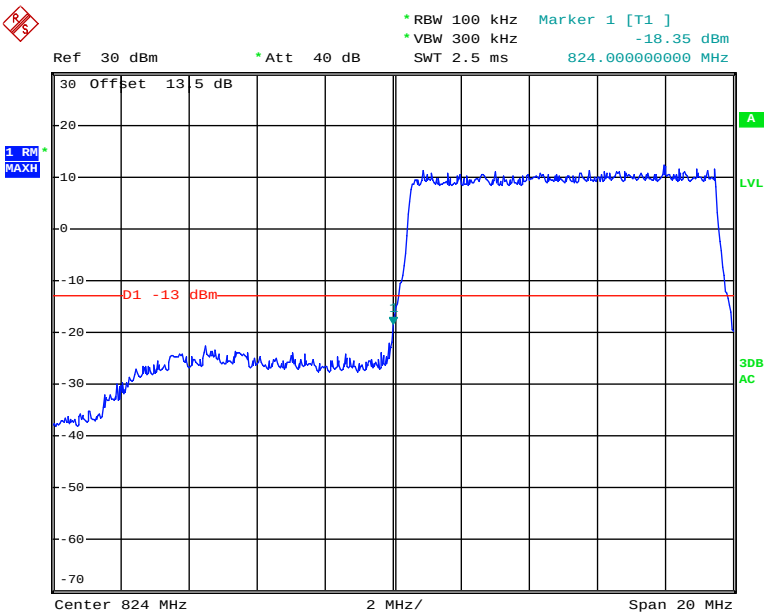
Date: 26.JAN.2018 12:50:56

QPSK_5MHz_ 25 RB_ Right



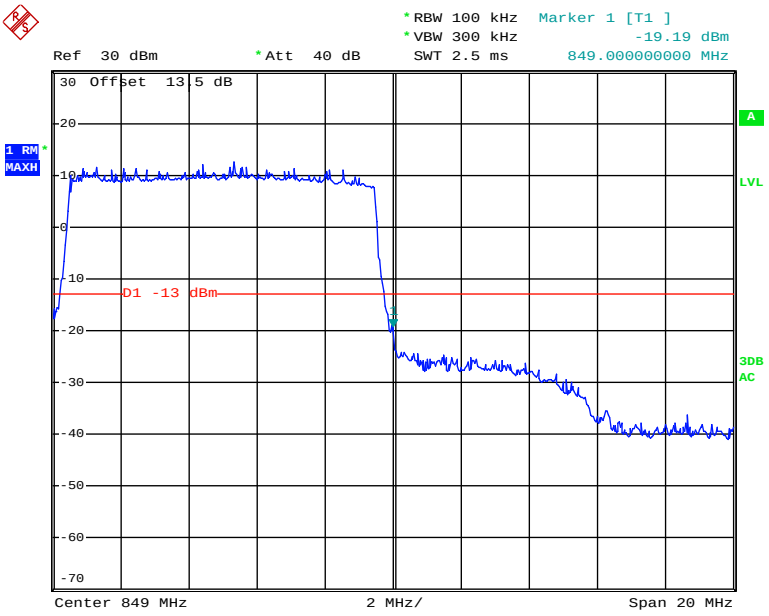
Date: 26.JAN.2018 12:53:32

QPSK_10MHz_ 50 RB_ Left



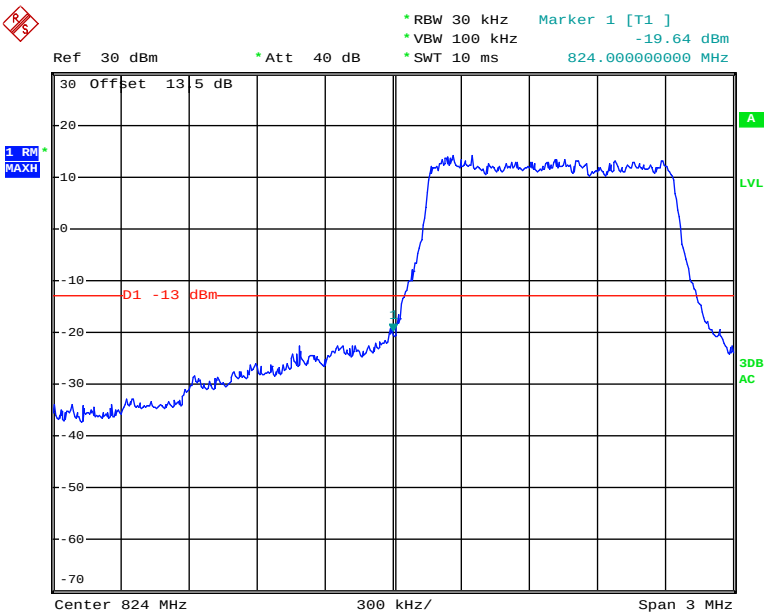
Date: 26.JAN.2018 12:59:53

QPSK_10MHz_ 50 RB_ Right



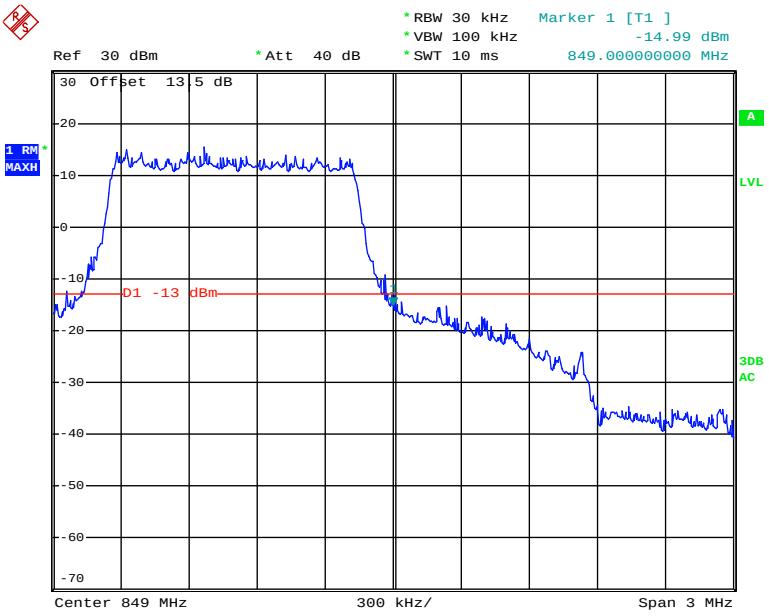
Date: 26.JAN.2018 12:57:35

16QAM_1.4MHz_ 6 RB_ Left



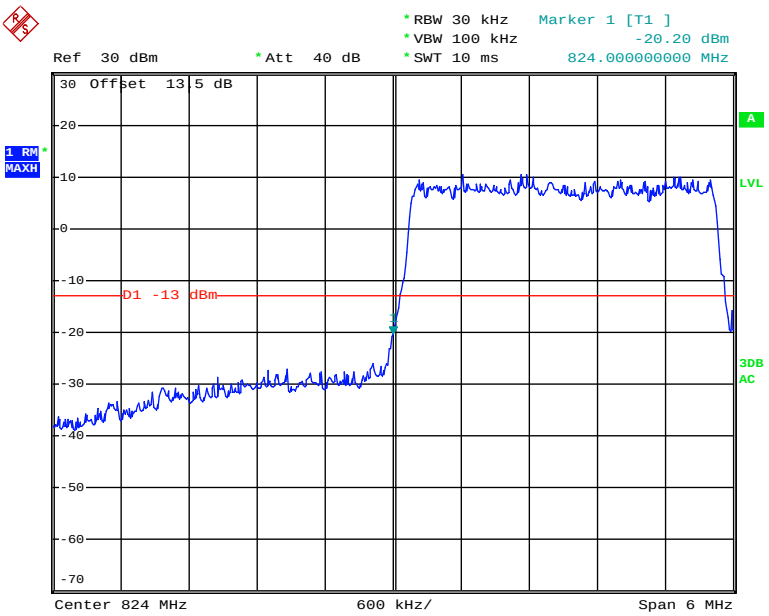
Date: 26.JAN.2018 12:37:50

16QAM_1.4MHz_ 6 RB_ Right



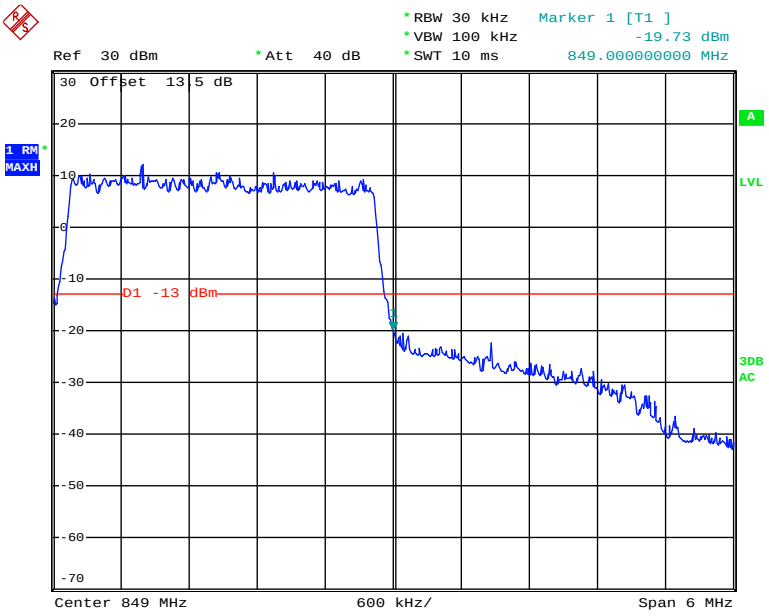
Date: 26.JAN.2018 12:39:18

16QAM_3MHz_ 15 RB_ Left



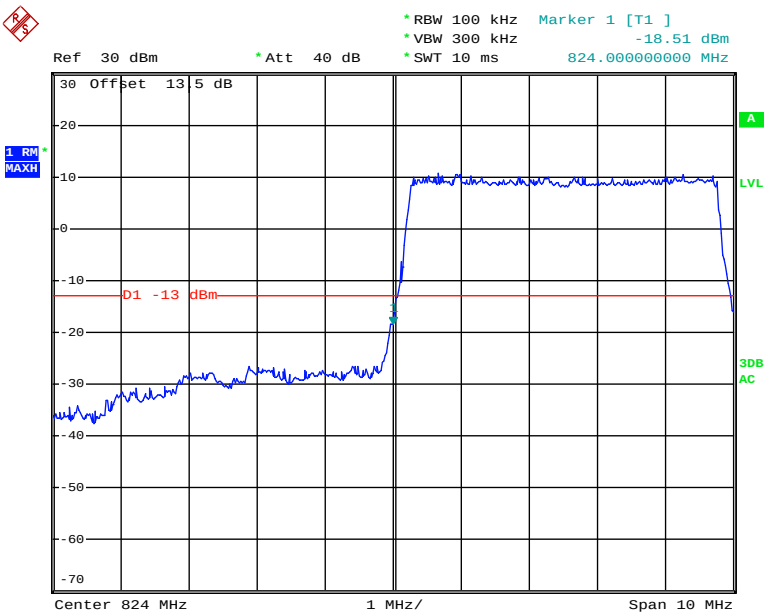
Date: 26.JAN.2018 12:45:53

16QAM_3MHz_ 15 RB_ Right



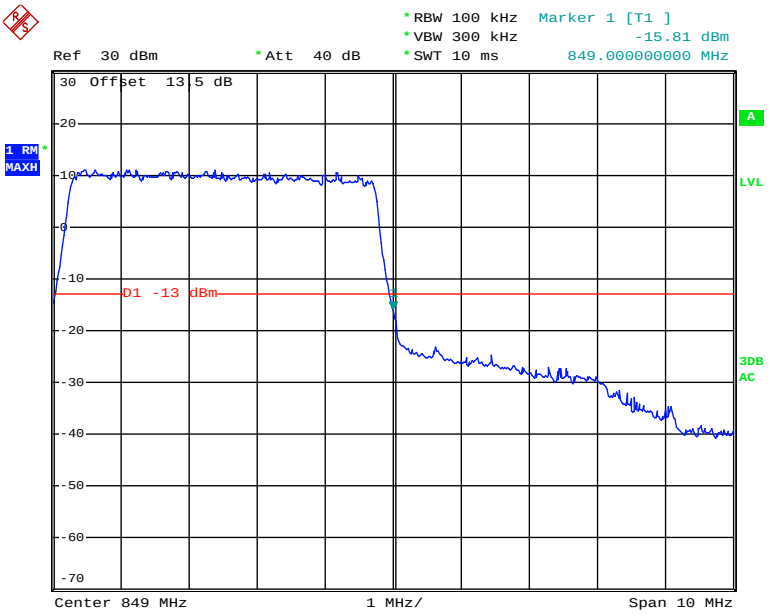
Date: 26.JAN.2018 12:43:44

16QAM_5MHz_ 25 RB_ Left



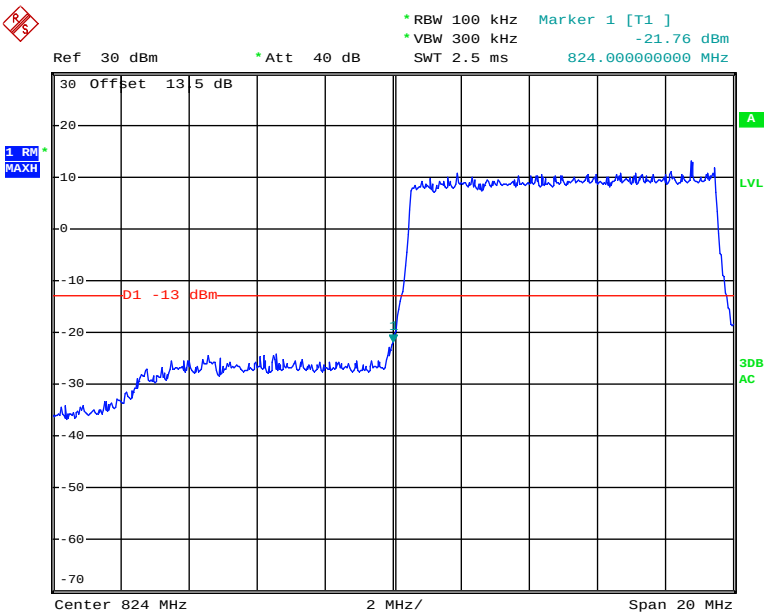
Date: 26.JAN.2018 12:51:36

16QAM_5MHz_ 25 RB_ Right



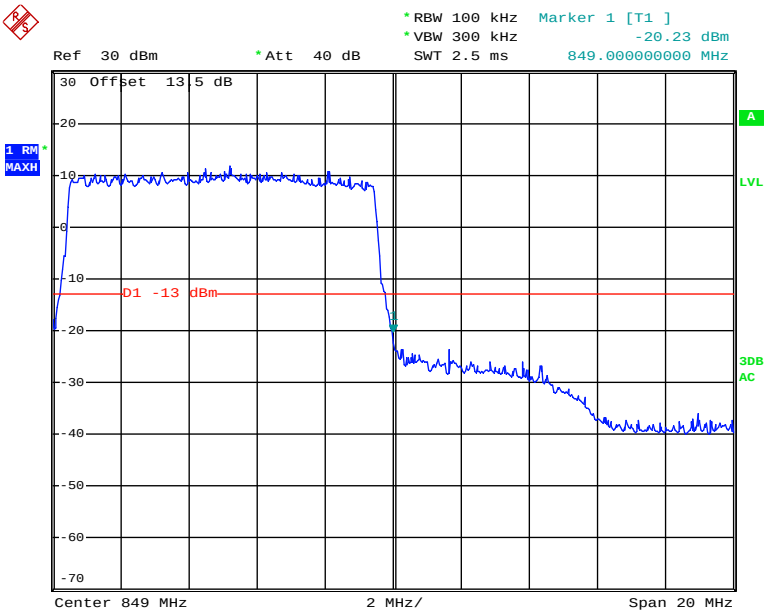
Date: 26.JAN.2018 12:52:35

16QAM_10MHz_ 50 RB_ Left



Date: 26.JAN.2018 12:59:19

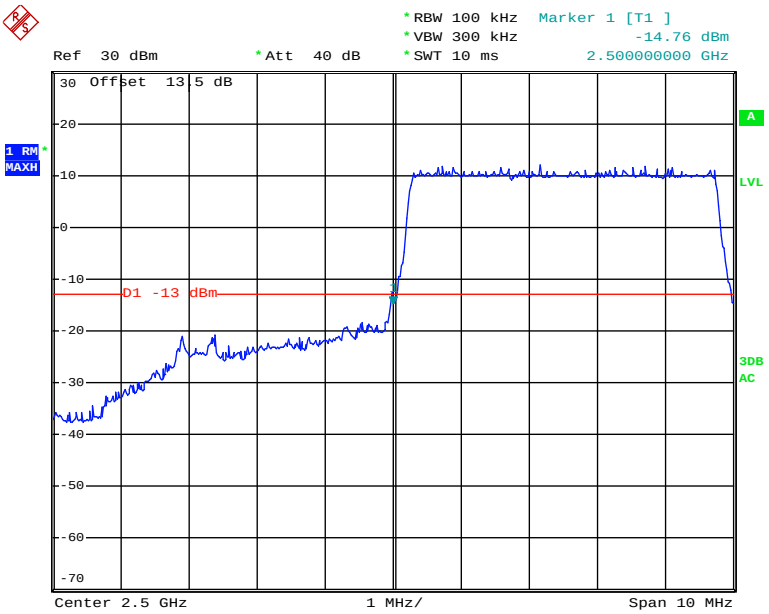
16QAM_10MHz_ 50 RB_ Right



Date: 26.JAN.2018 12:58:12

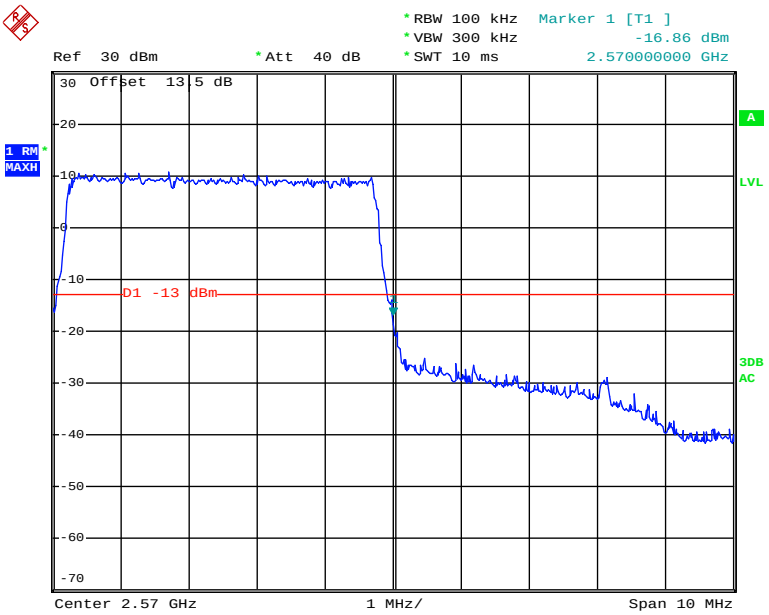
LTE Band 7:

QPSK_5MHz_ 25 RB_ Left



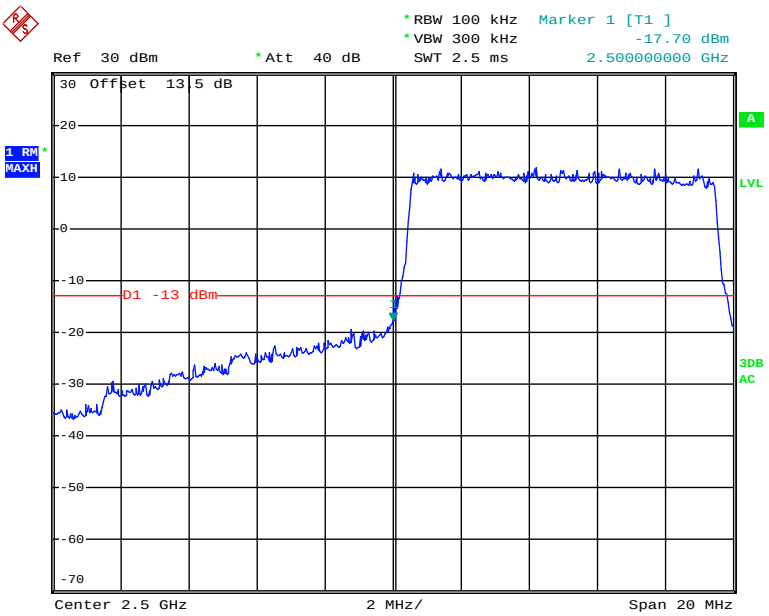
Date: 26.JAN.2018 13:08:28

QPSK_5MHz_ 25 RB_ Right



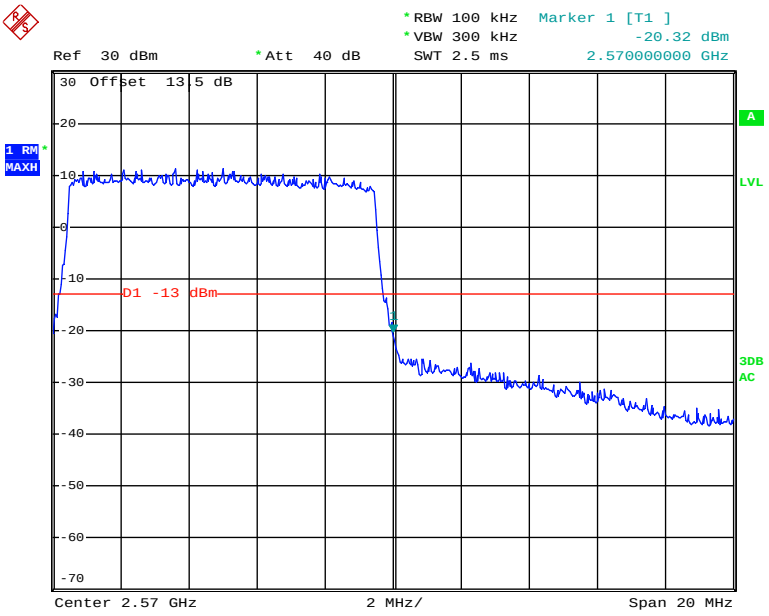
Date: 26.JAN.2018 13:05:44

QPSK_10MHz_ 50 RB_ Left



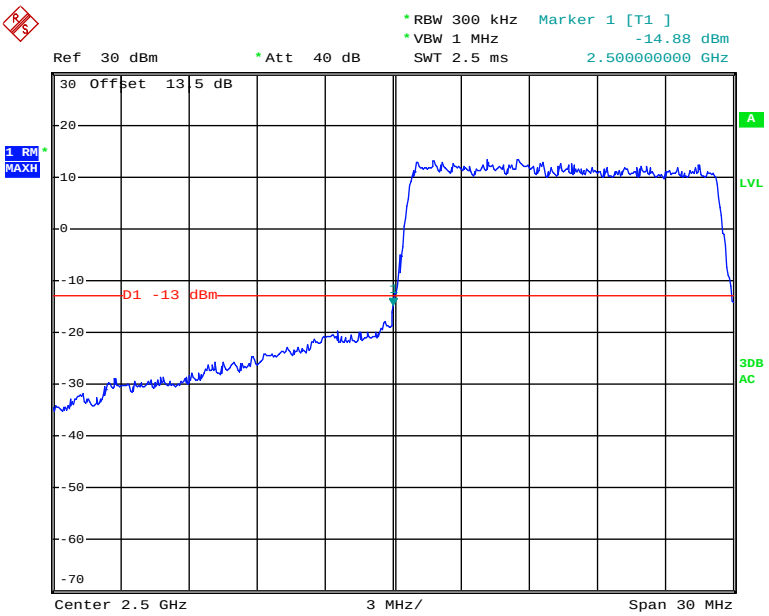
Date: 26.JAN.2018 13:02:17

QPSK_10MHz_ 50 RB_ Right



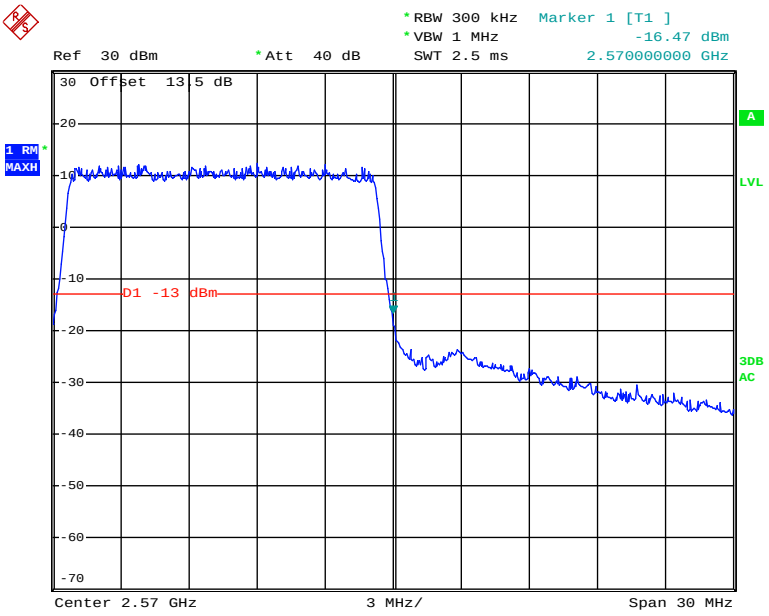
Date: 26.JAN.2018 13:04:43

QPSK_15MHz_ 75 RB_ Left



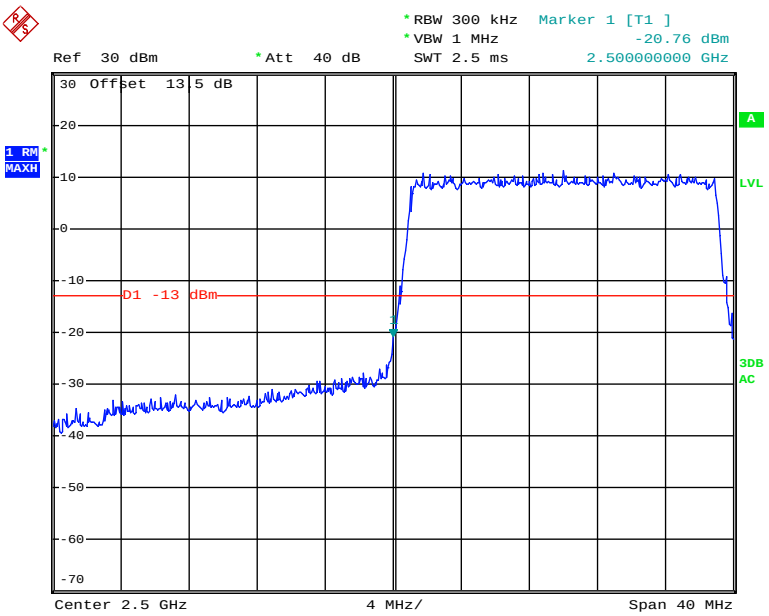
Date: 26.JAN.2018 13:13:33

QPSK_15MHz_ 75 RB_ Right



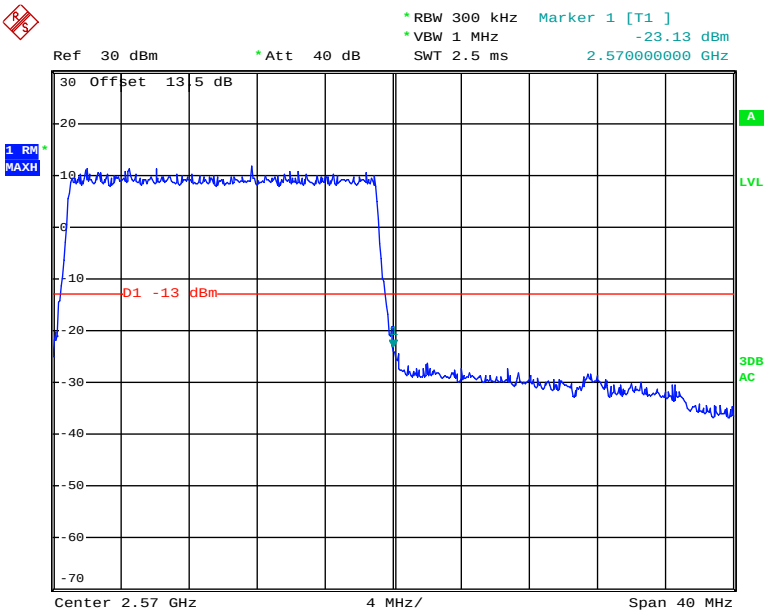
Date: 26.JAN.2018 13:14:41

QPSK_20MHz_ FULL RB_ Left



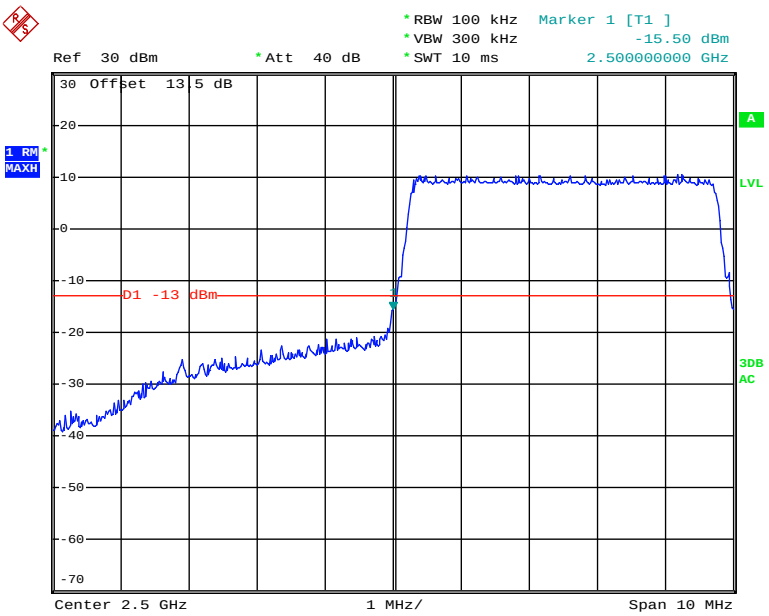
Date: 26.JAN.2018 14:07:02

QPSK_20MHz_ FULL RB_ Right



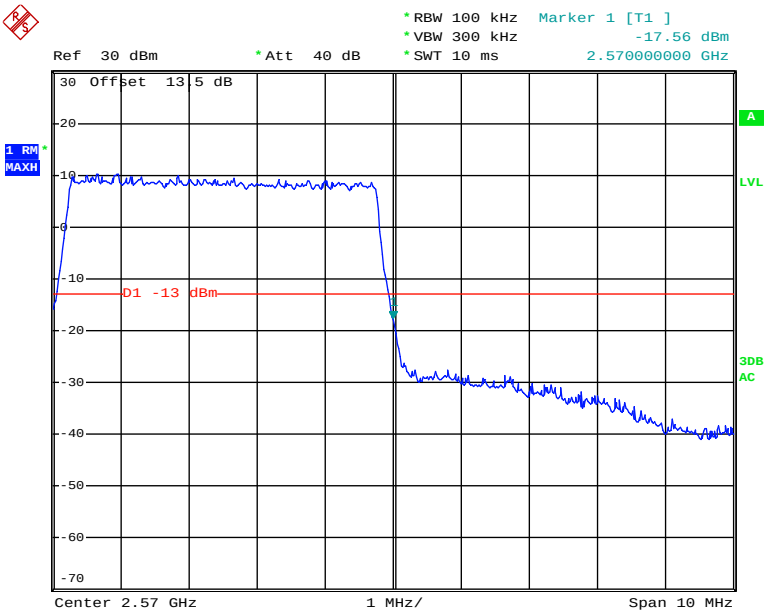
Date: 26.JAN.2018 14:09:09

16QAM_5MHz_ 25 RB_ Left



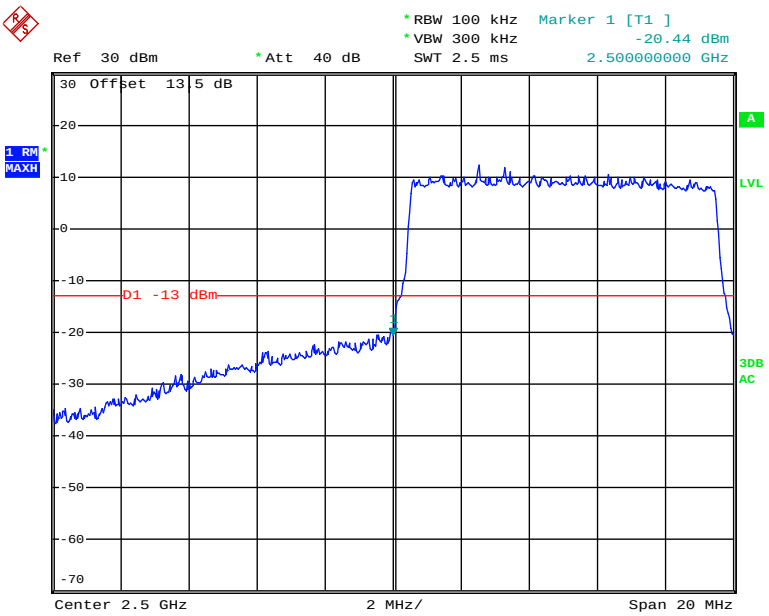
Date: 26.JAN.2018 13:07:28

16QAM_5MHz_ 25 RB_ Right



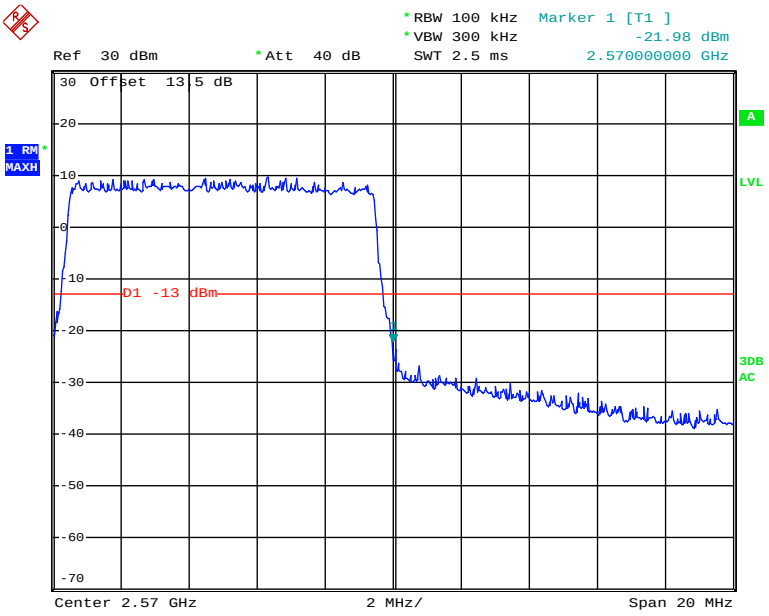
Date: 26.JAN.2018 13:06:23

16QAM_10MHz_ 50 RB_ Left



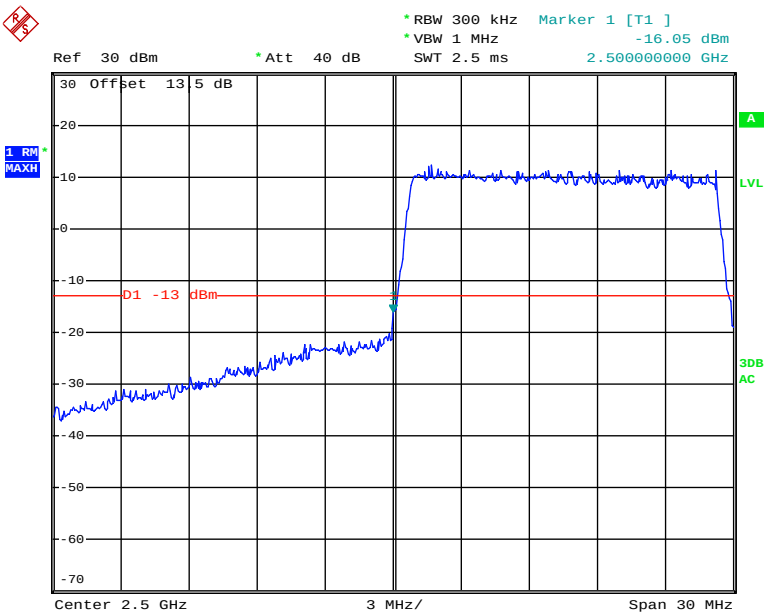
Date: 26.JAN.2018 13:02:59

16QAM_10MHz_ 50 RB_ Right



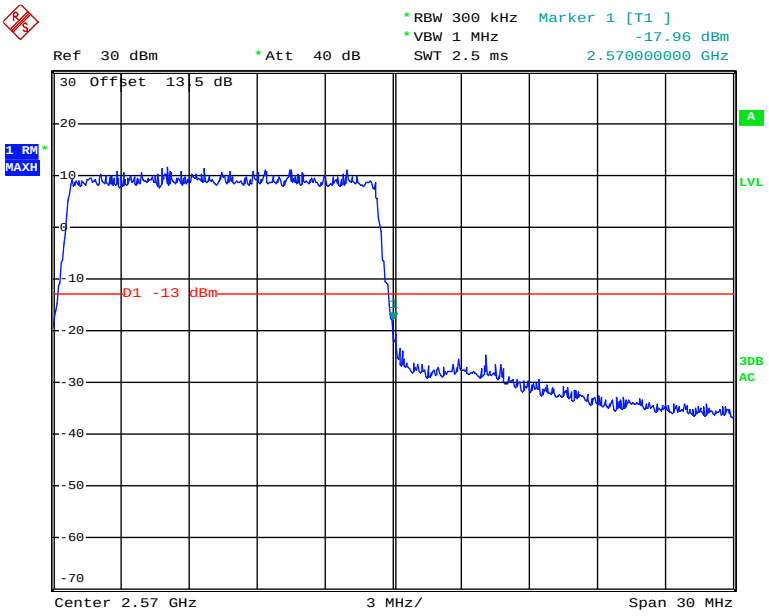
Date: 26.JAN.2018 13:04:04

16QAM_15MHz_ 75 RB_ Left



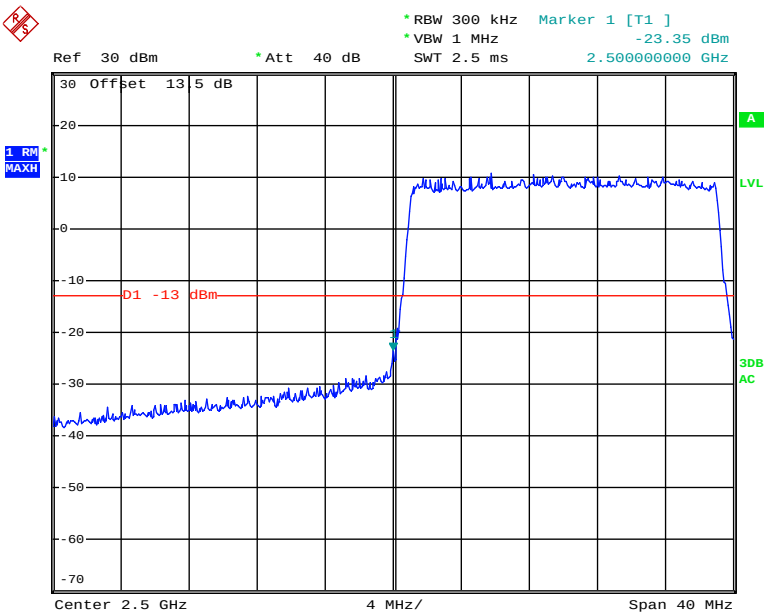
Date: 26.JAN.2018 13:12:34

16QAM_15MHz_ 75 RB_ Right



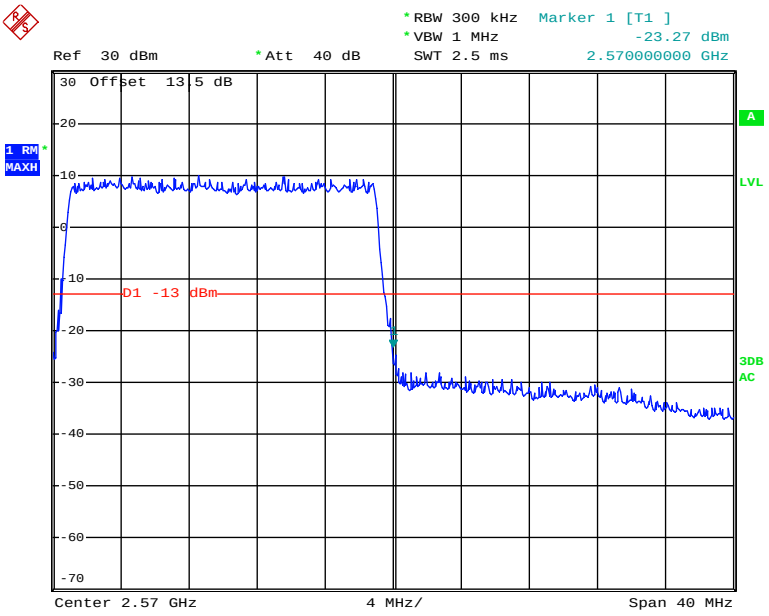
Date: 26.JAN.2018 13:15:12

16QAM_20MHz_ FULL RB_ Left



Date: 26.JAN.2018 14:07:44

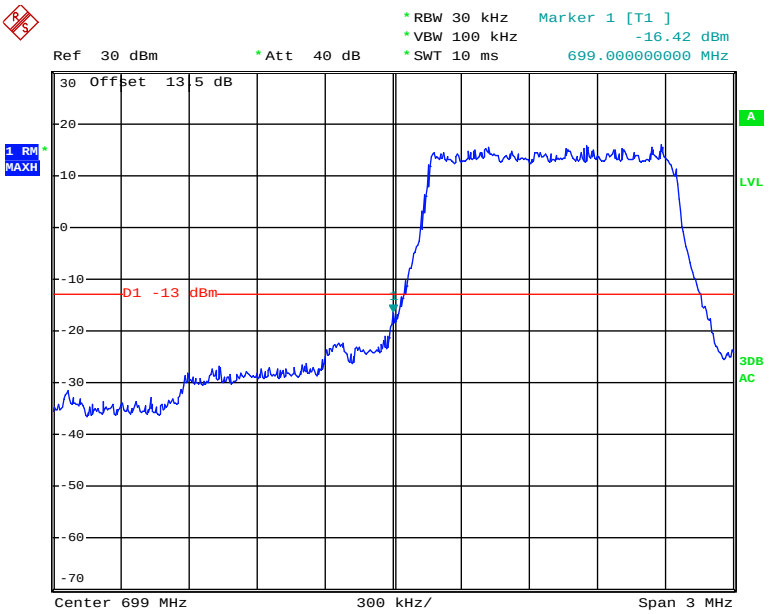
16QAM_20MHz_ FULL RB_ Right



Date: 26.JAN.2018 14:08:43

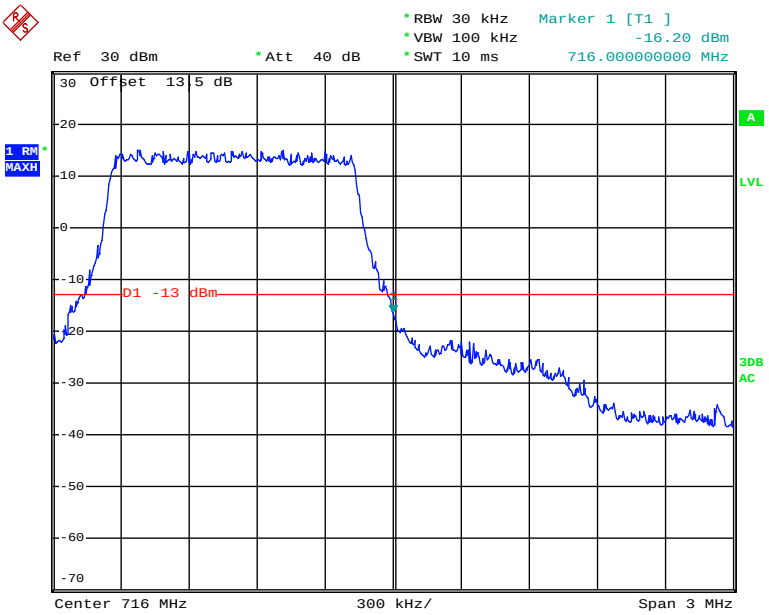
LTE Band 12:

QPSK_1.4MHz_ 6 RB_ Left



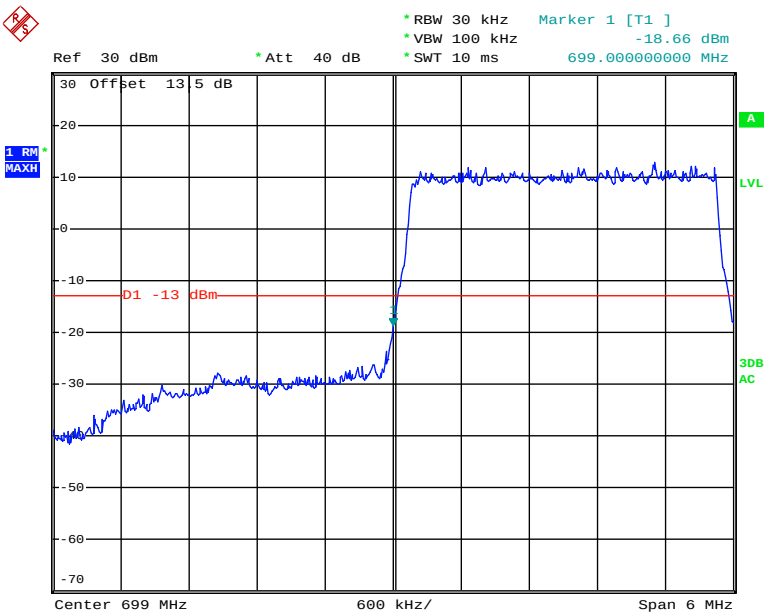
Date: 26.JAN.2018 13:28:58

QPSK_1.4MHz_ 6 RB_ Right



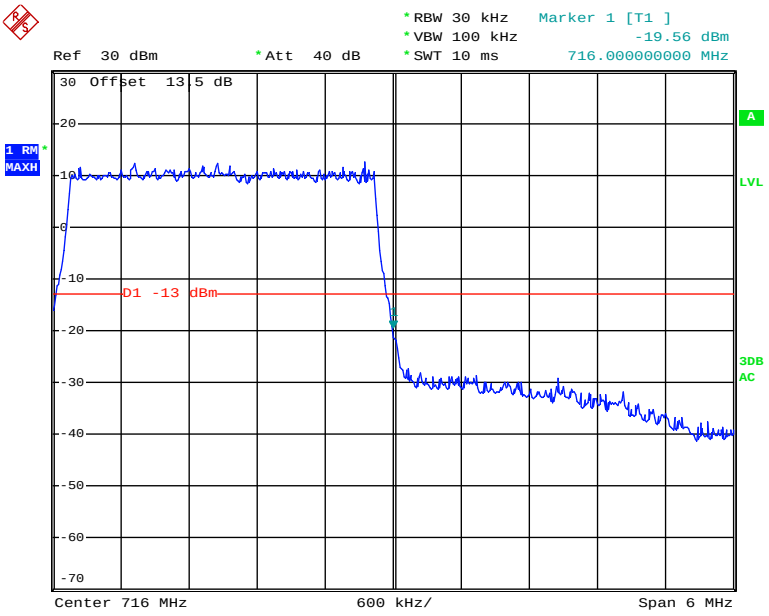
Date: 26.JAN.2018 13:26:29

QPSK_3MHz_ 15 RB_ Left



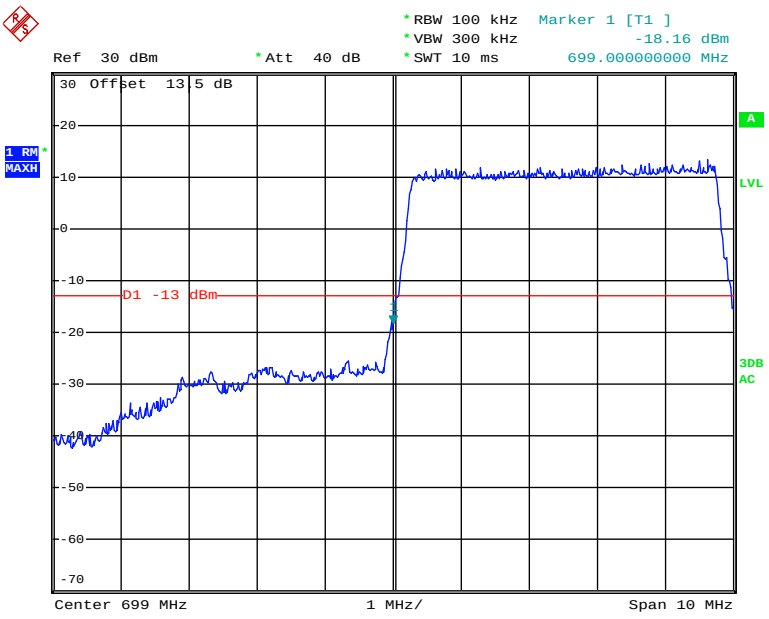
Date: 26.JAN.2018 13:24:24

QPSK_3MHz_ 15 RB_ Right



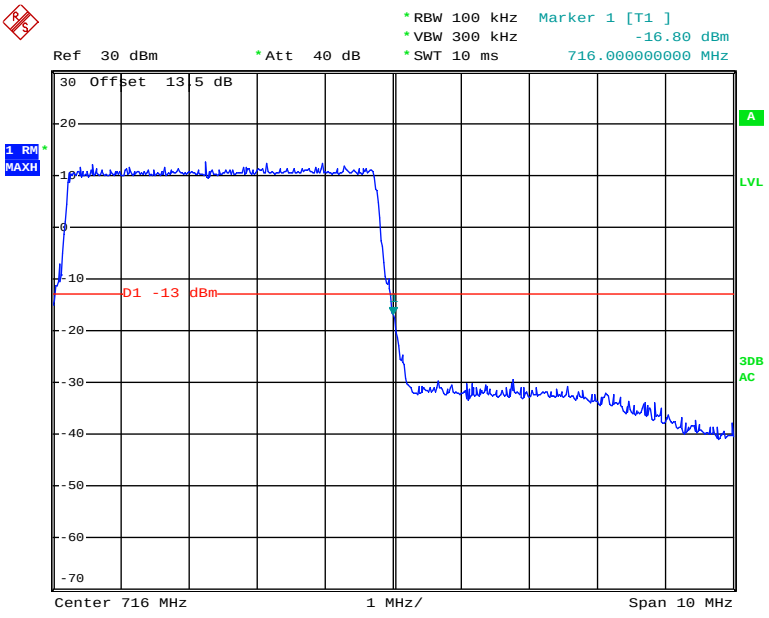
Date: 26.JAN.2018 13:25:12

QPSK_5MHz_ 25 RB_ Left



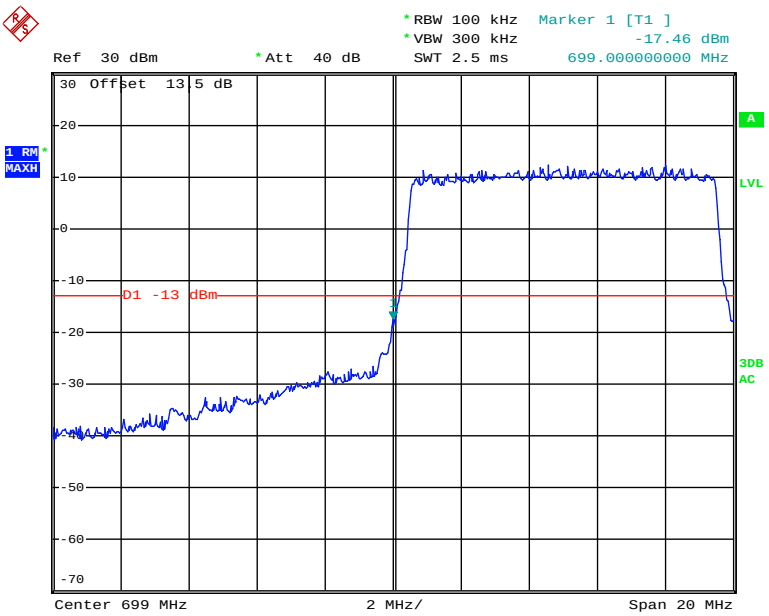
Date: 26.JAN.2018 13:22:34

QPSK_5MHz_ 25 RB_ Right



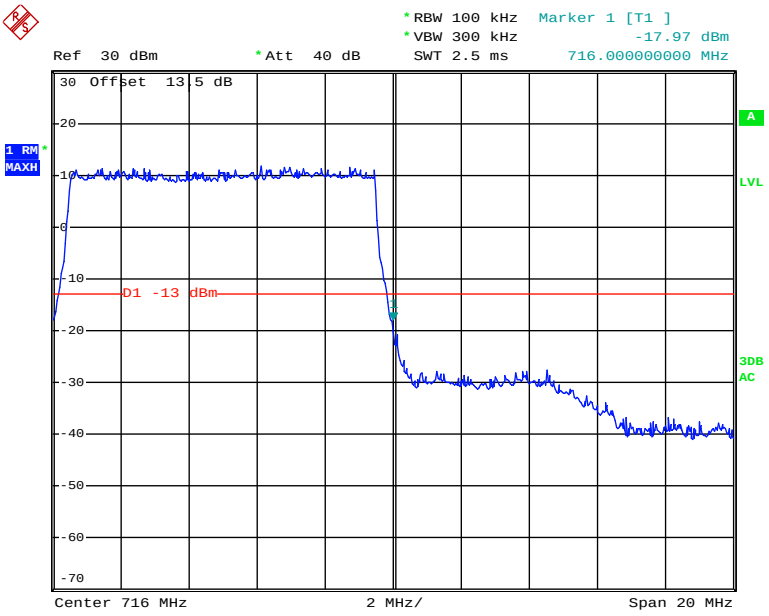
Date: 26.JAN.2018 13:20:09

QPSK_10MHz_ 50 RB_ Left



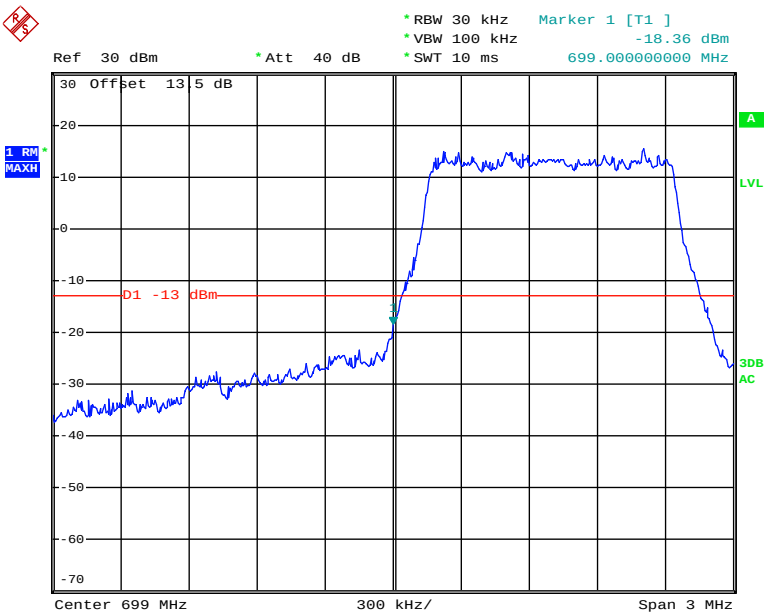
Date: 26.JAN.2018 13:16:47

QPSK_10MHz_ 50 RB_ Right



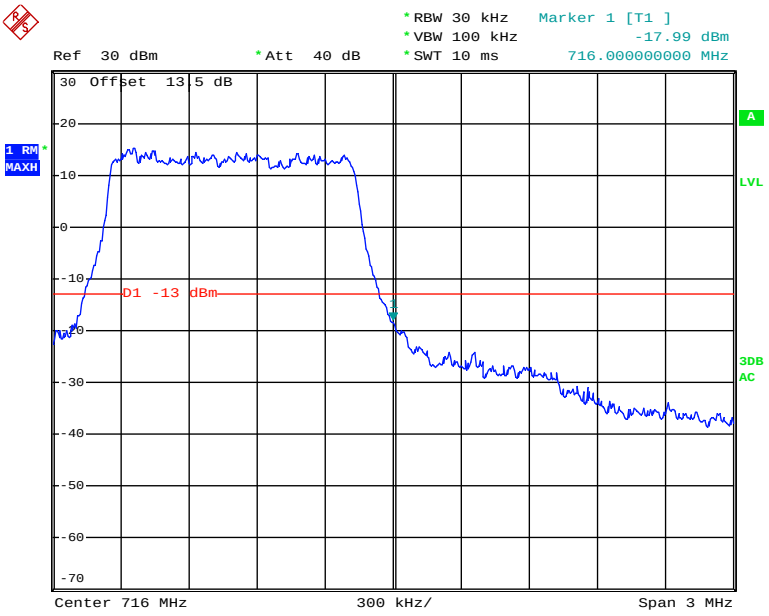
Date: 26.JAN.2018 13:18:55

16QAM_1.41MHz_ 6 RB_ Left



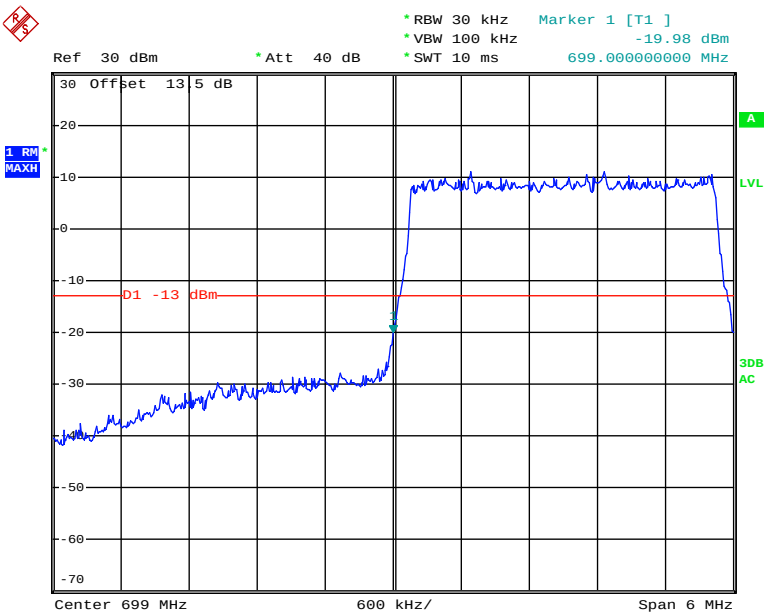
Date: 26.JAN.2018 13:28:30

16QAM_1.4MHz_ 6 RB_ Right



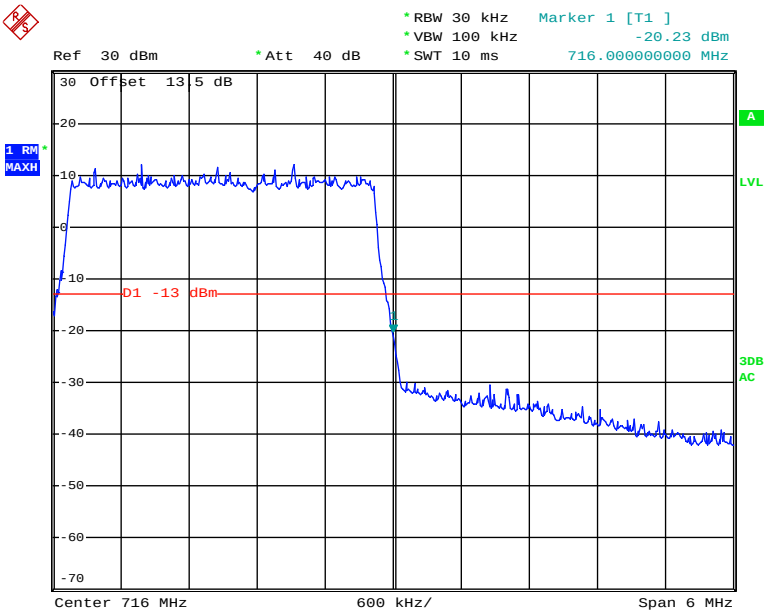
Date: 26.JAN.2018 13:27:43

16QAM_3MHz_ 15 RB_ Left



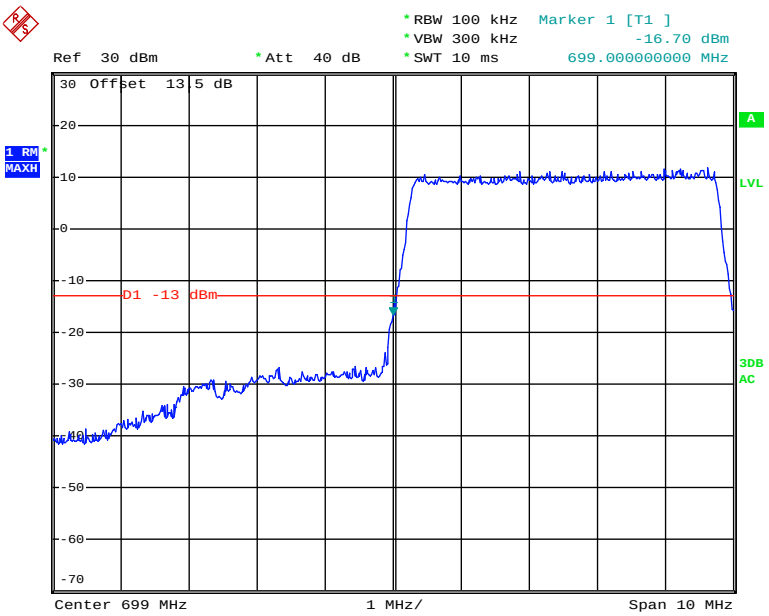
Date: 26.JAN.2018 13:23:36

16QAM_3MHz_ 15 RB_ Right



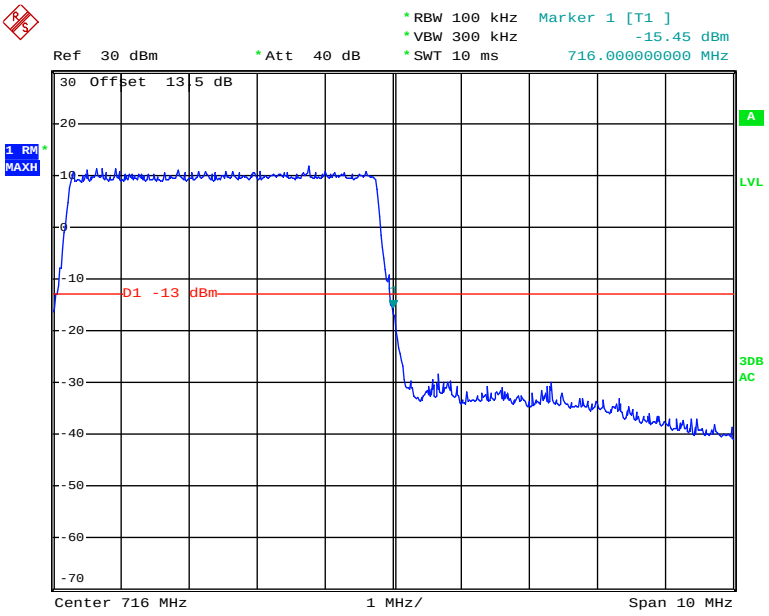
Date: 26.JAN.2018 13:25:40

16QAM_5MHz_ 25 RB_ Left



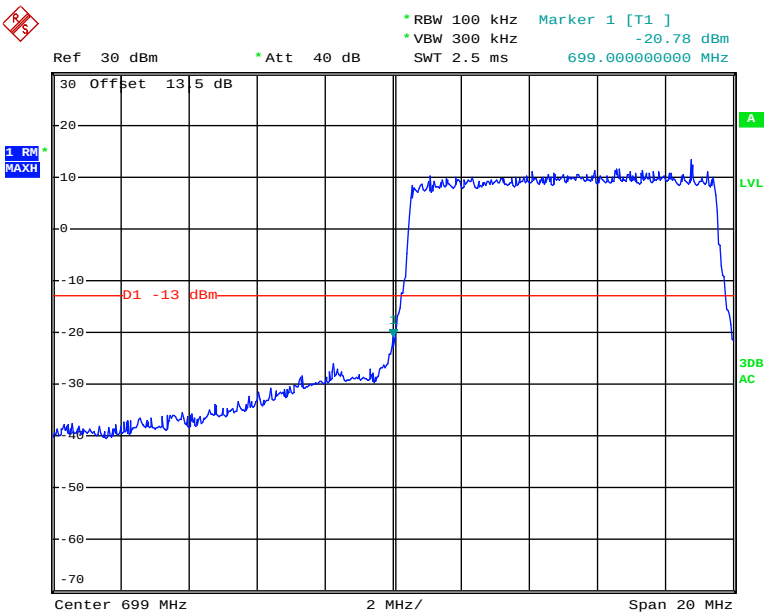
Date: 26.JAN.2018 13:21:59

16QAM_5MHz_ 25 RB_ Right



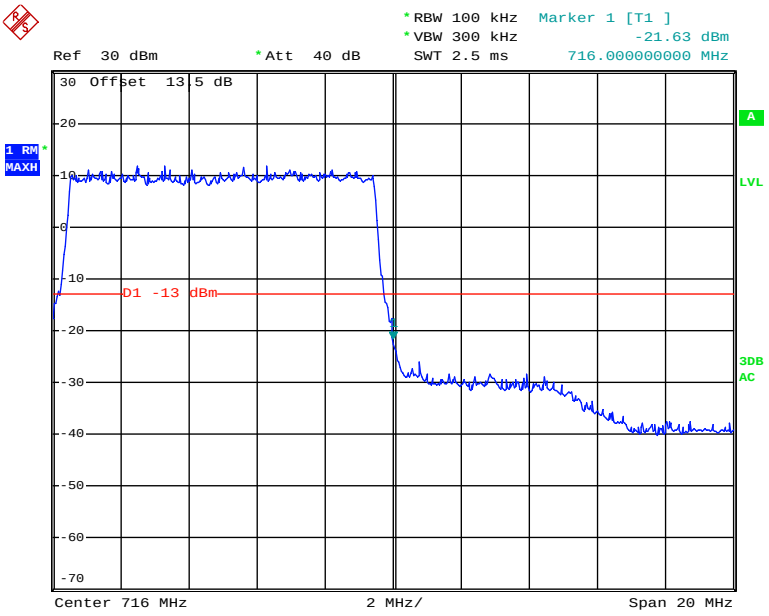
Date: 26.JAN.2018 13:21:04

16QAM_10MHz_ 50 RB_ Left



Date: 26.JAN.2018 13:17:24

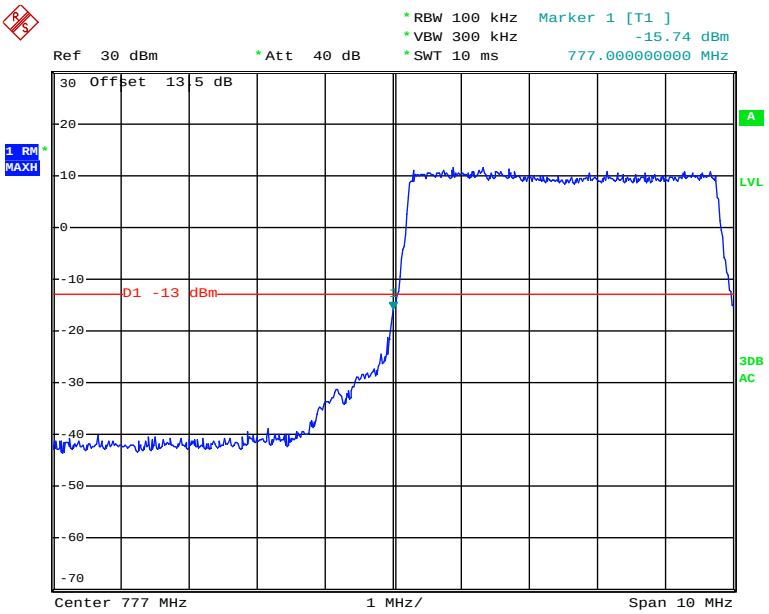
16QAM_10MHz_ 50 RB_ Right



Date: 26.JAN.2018 13:18:18

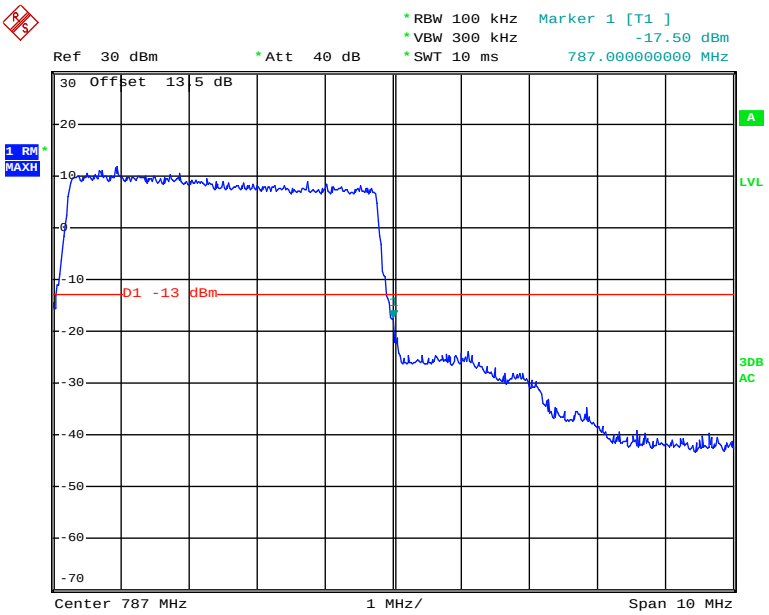
LTE Band 13:

QPSK_5MHz_ 25 RB_ Left



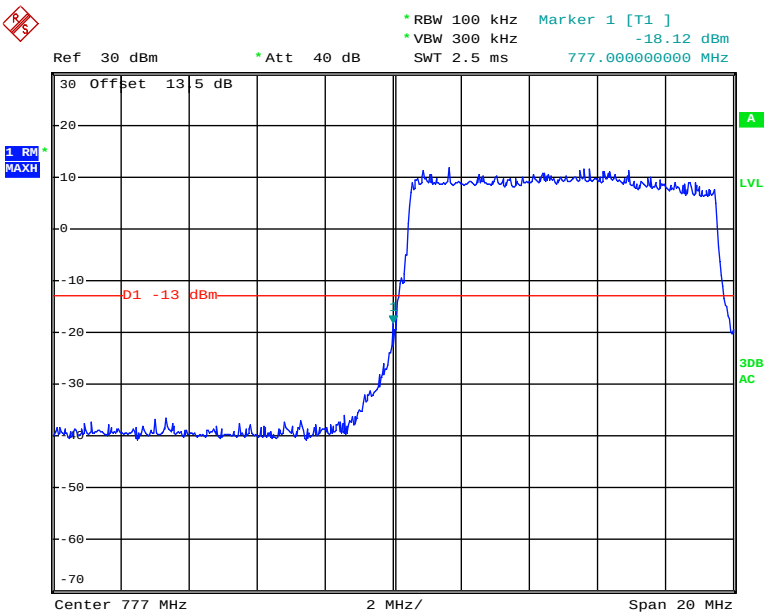
Date: 26.JAN.2018 14:29:21

QPSK_5MHz_ 25 RB_ Right



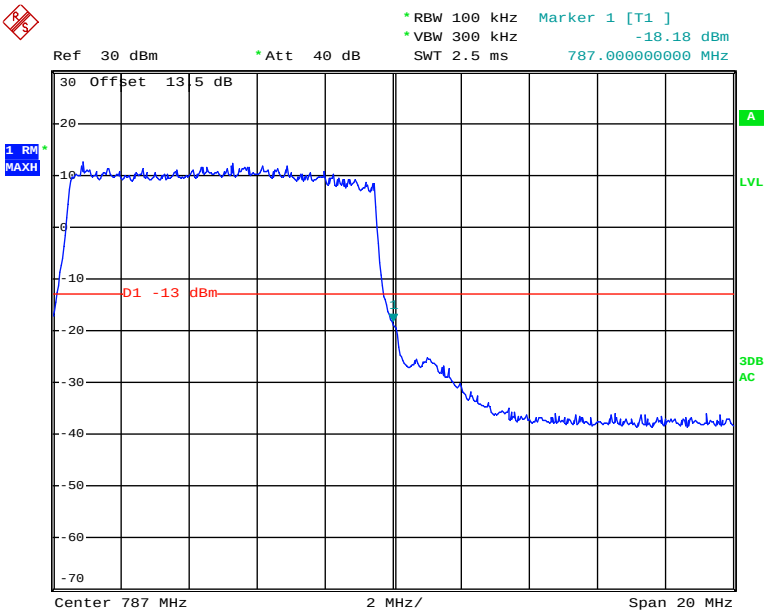
Date: 26.JAN.2018 14:31:02

QPSK_10MHz_ 50 RB_ Left



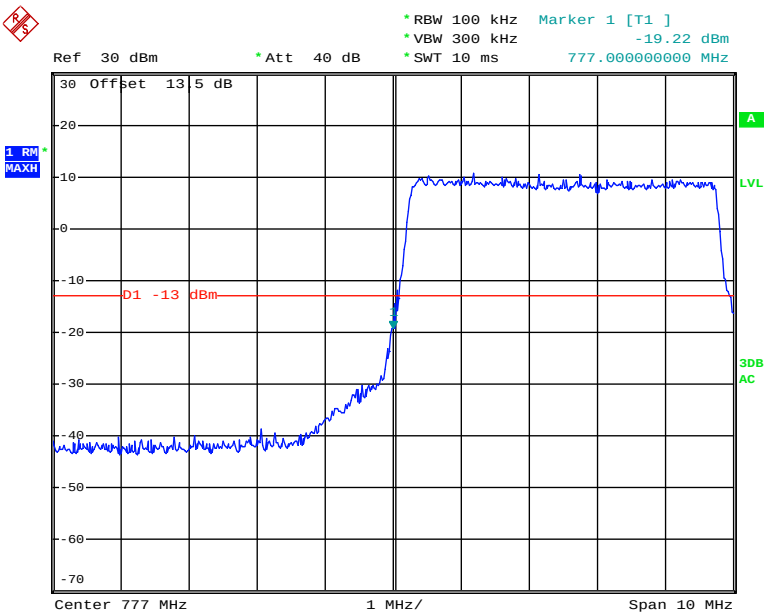
Date: 26.JAN.2018 14:42:28

QPSK_10MHz_ 50 RB_ Right



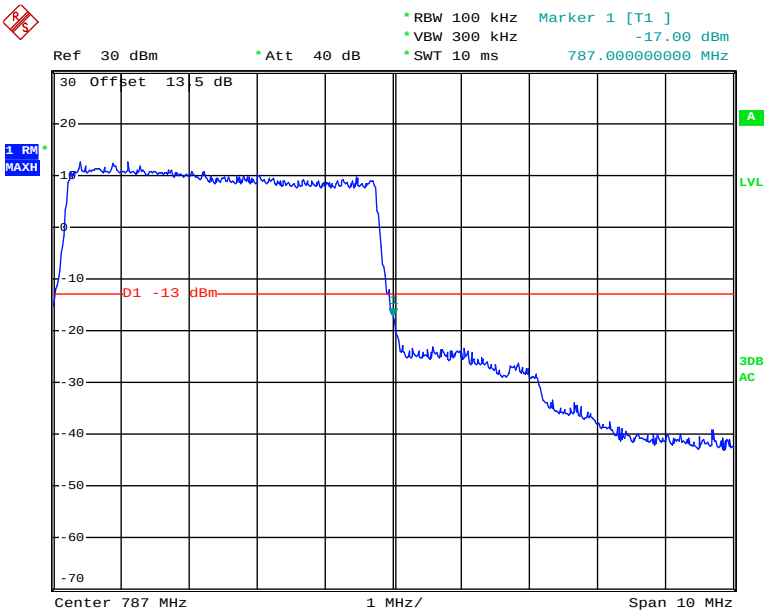
Date: 26.JAN.2018 14:41:50

16QAM_5MHz_ 25 RB_ Left



Date: 26.JAN.2018 14:29:47

16QAM_5MHz_ 25 RB_ Right



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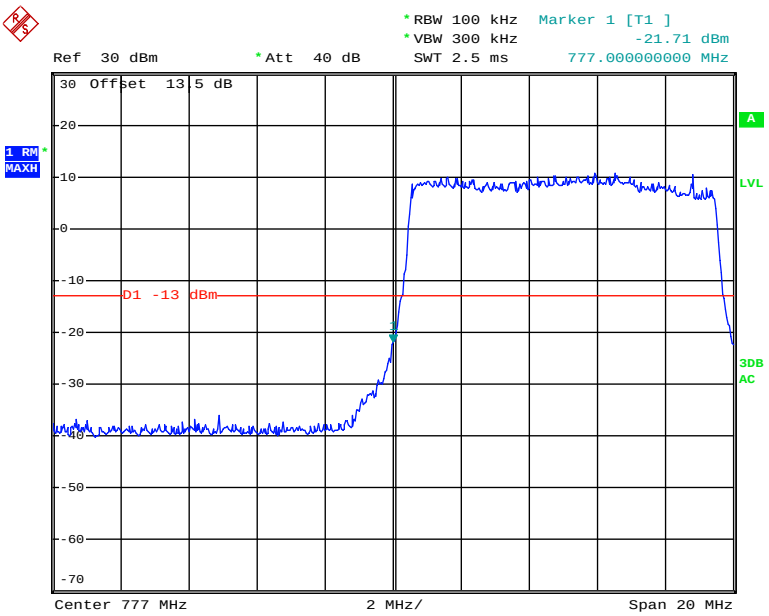
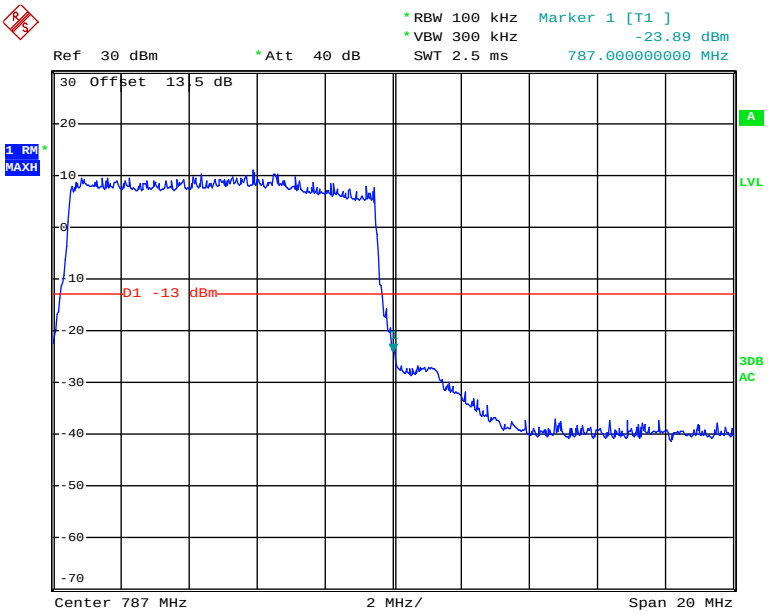
16QAM_10MHz_ 50 RB_ Left



Date: 26.JAN.2018 14:43:28

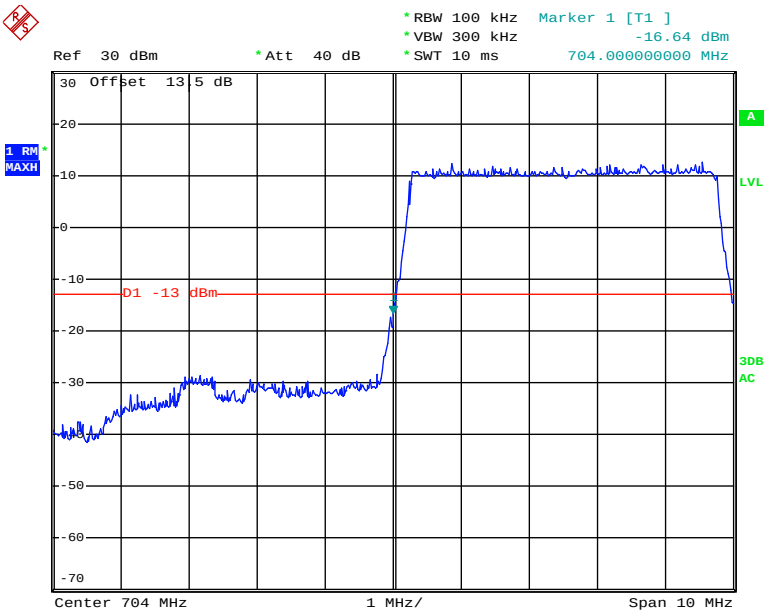
16QAM_10MHz_ 50 RB_ Right



Date: 26.JAN.2018 14:34:30

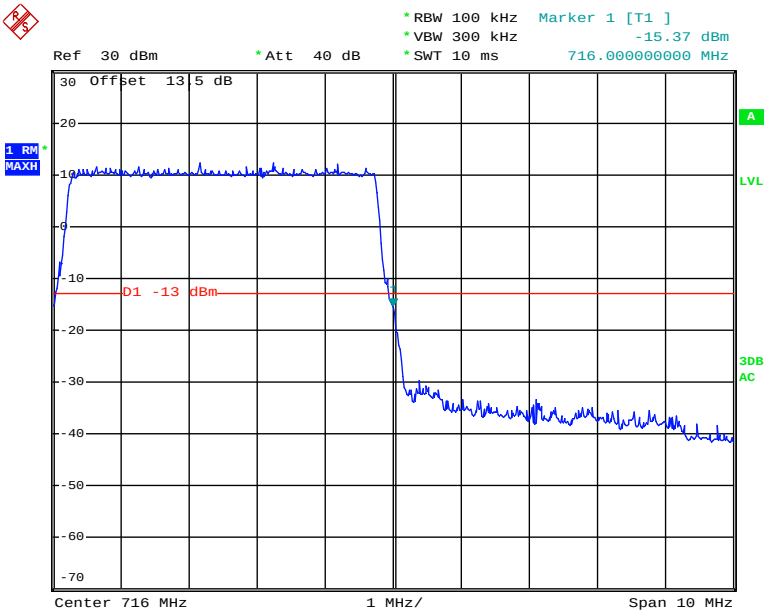
LTE Band 17:

QPSK_5MHz_ 25 RB_ Left



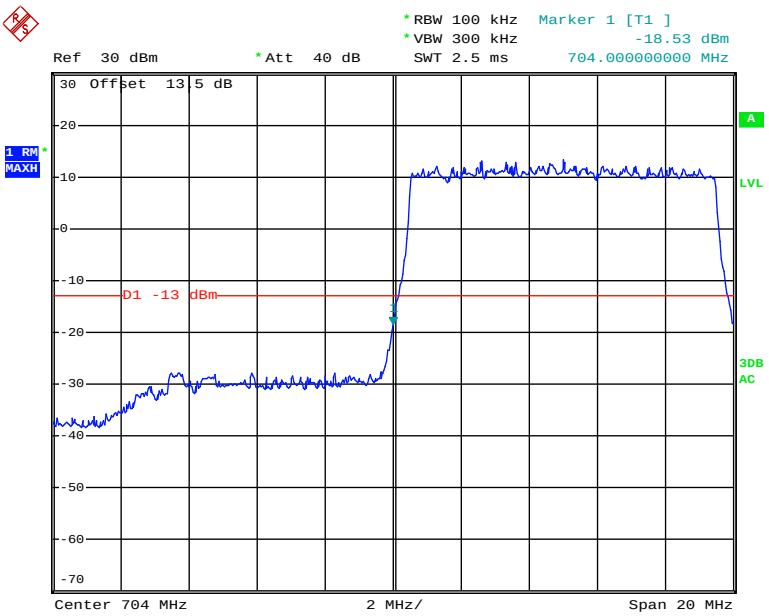
Date: 26.JAN.2018 14:55:52

QPSK_5MHz_ 25 RB_ Right



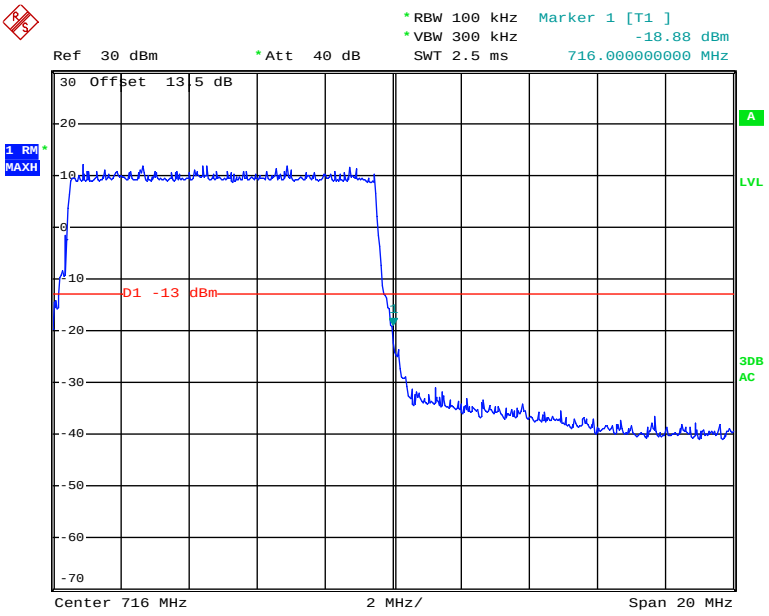
Date: 26.JAN.2018 14:54:02

QPSK_10MHz_ 50 RB_ Left



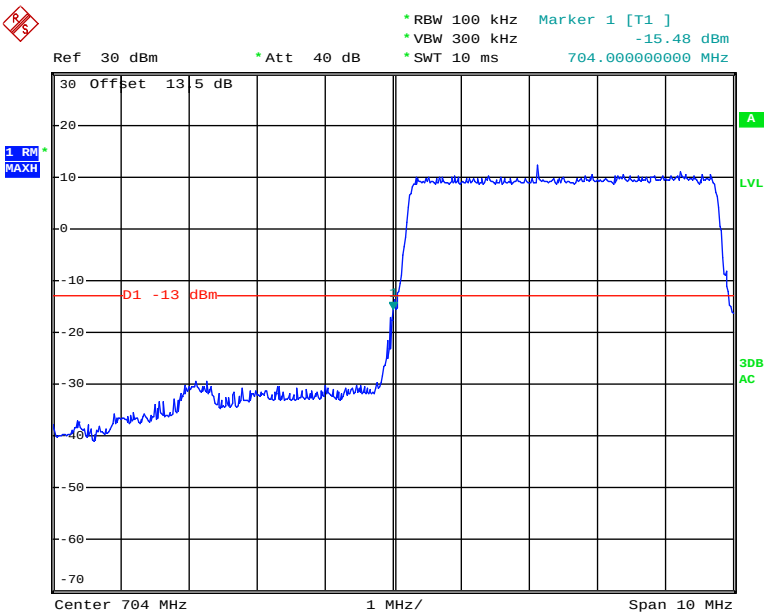
Date: 26.JAN.2018 14:49:34

QPSK_10MHz_ 50 RB_ Right



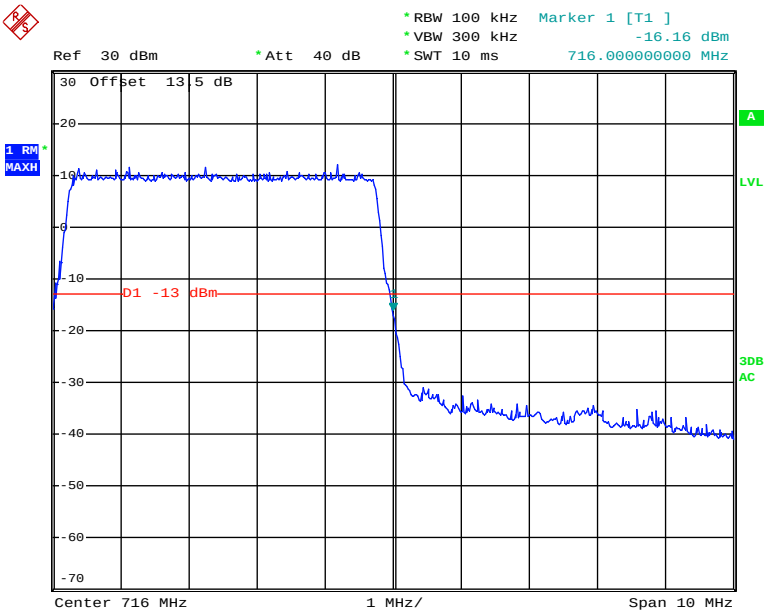
Date: 26.JAN.2018 14:52:07

16QAM_5MHz_ 25 RB_ Left



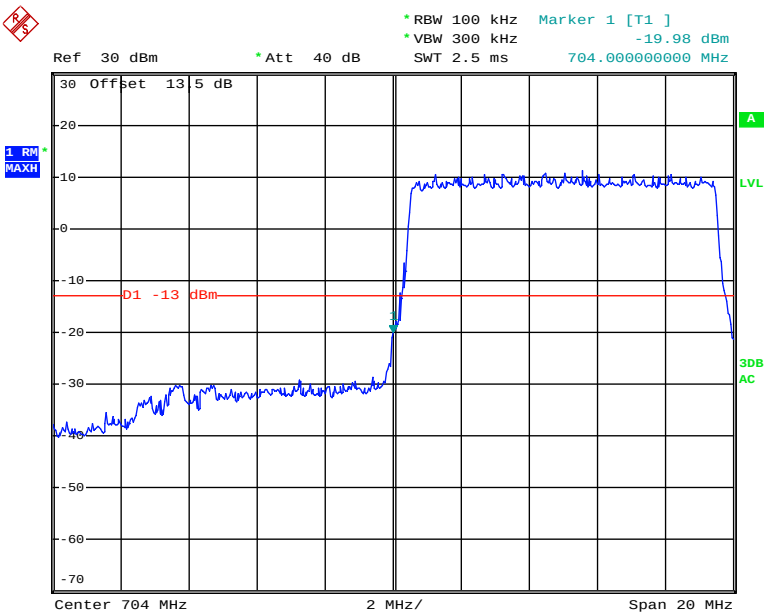
Date: 26.JAN.2018 14:55:29

16QAM_5MHz_ 25 RB_ Right



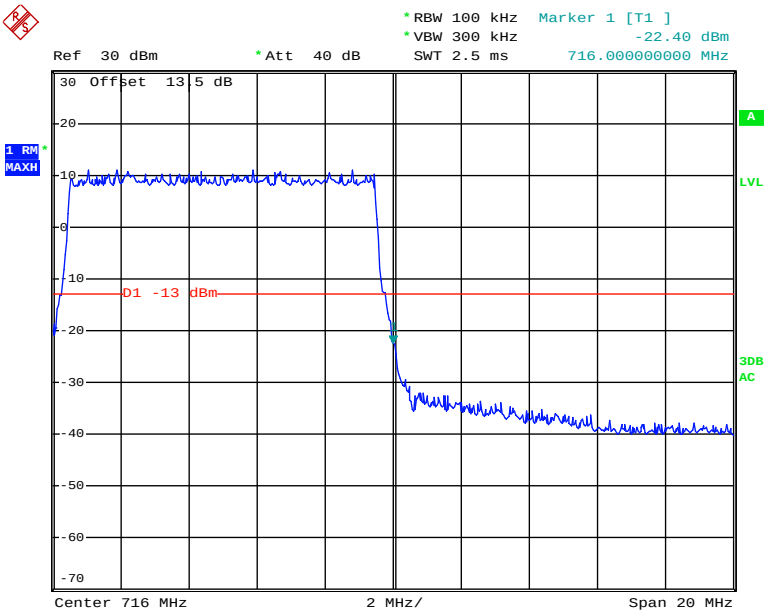
Date: 26.JAN.2018 14:54:33

16QAM_10MHz_ 50 RB_ Left



Date: 26.JAN.2018 14:45:20

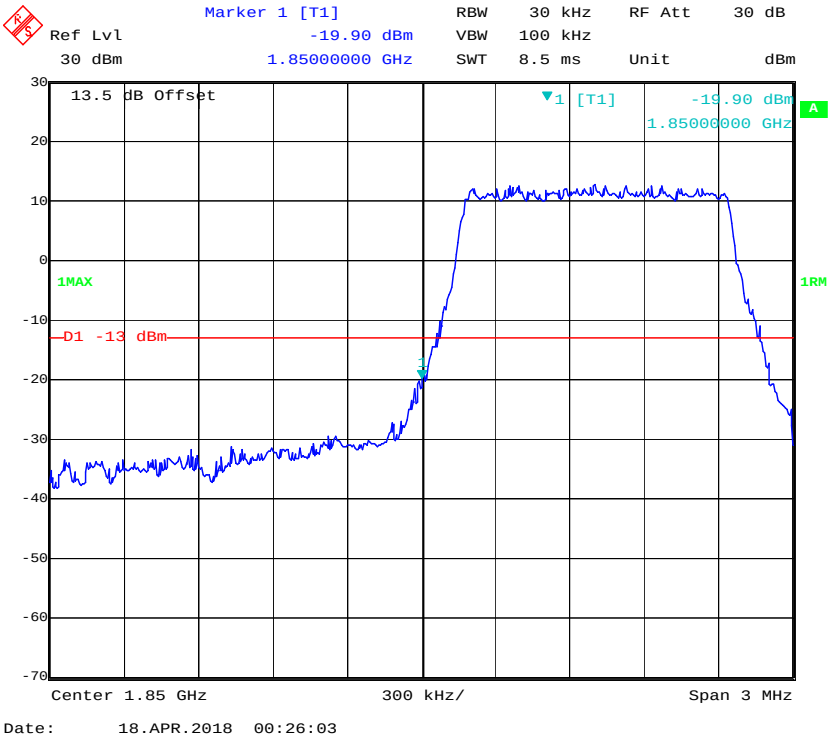
16QAM_10MHz_ 50 RB_ Right



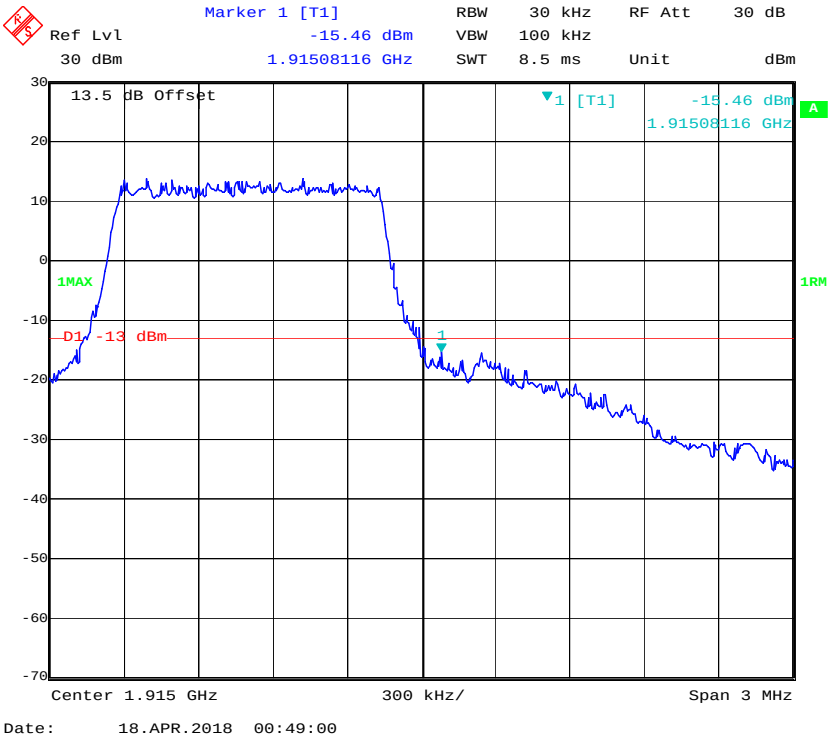
Date: 26.JAN.2018 14:52:42

LTE Band 25:

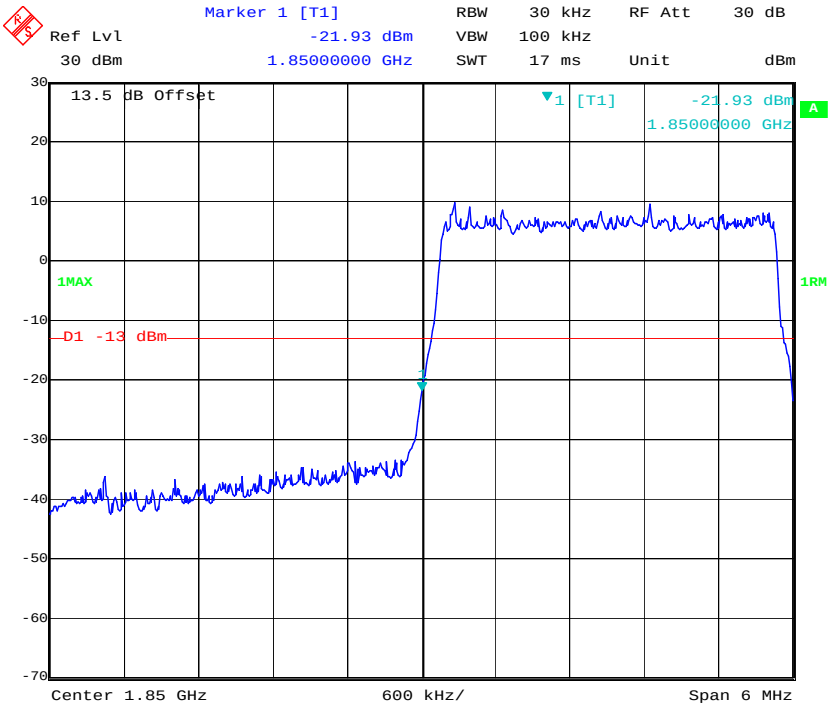
QPSK_1.4MHz_ 6 RB_ Left



QPSK_1.4MHz_ 6 RB_ Right

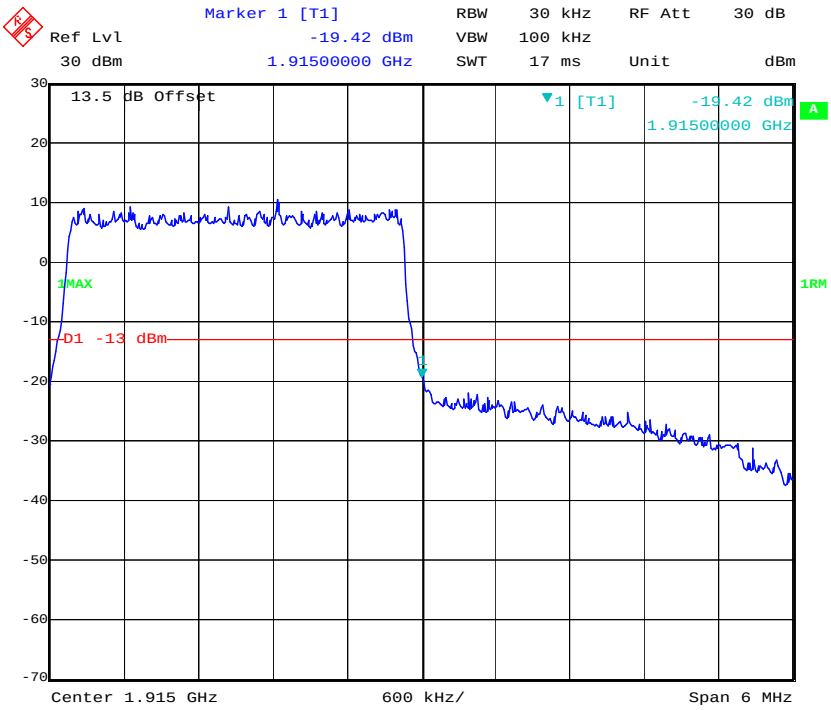


QPSK_3MHz_ 15 RB_ Left



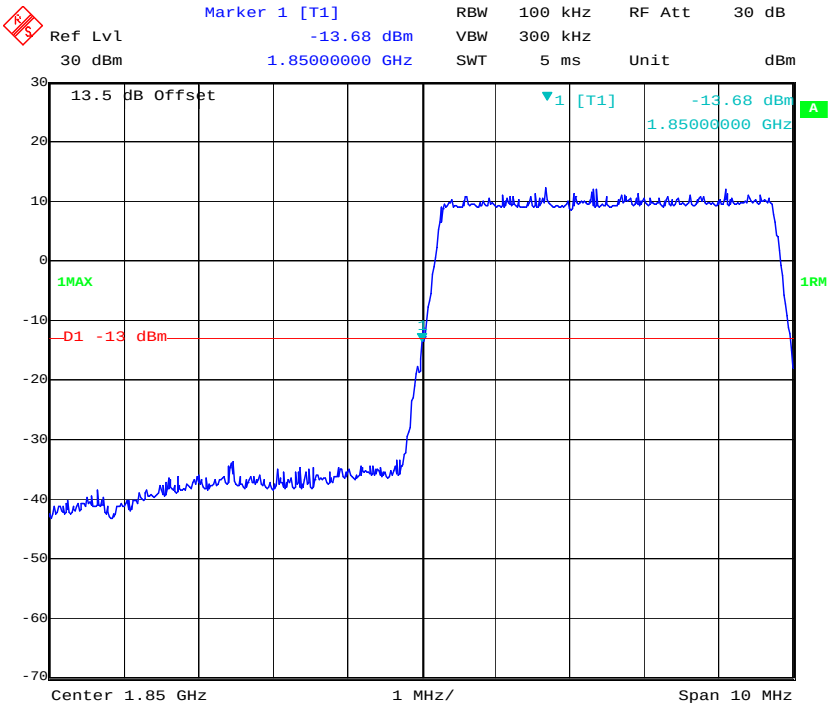
Date: 18.APR.2018 00:30:46

QPSK_3MHz_ 15 RB_ Right



Date: 18.APR.2018 00:52:08

QPSK_5MHz_ 25 RB_ Left

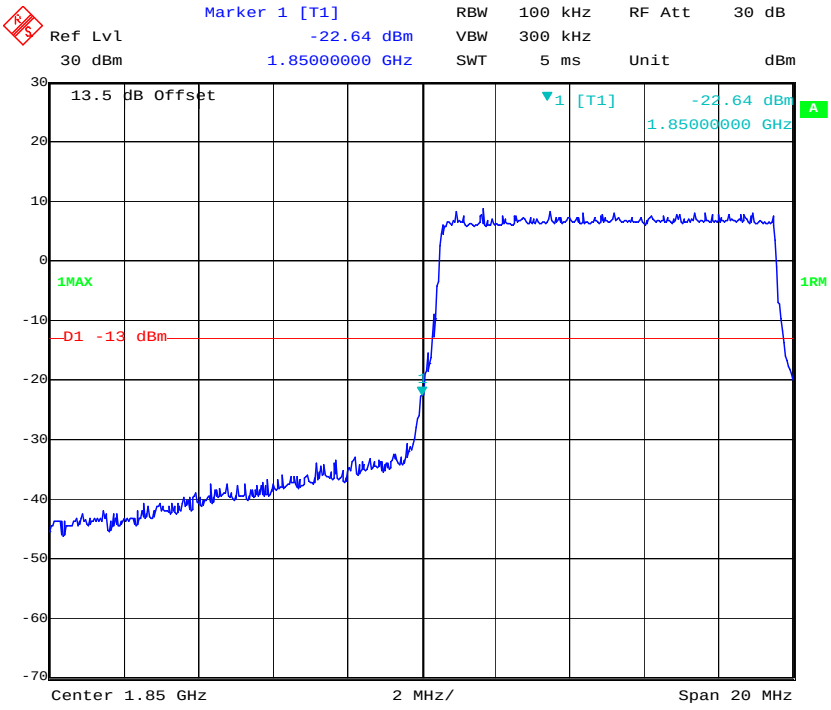


Date: 18.APR.2018 00:33:22

QPSK_5MHz_ 25 RB_ Right

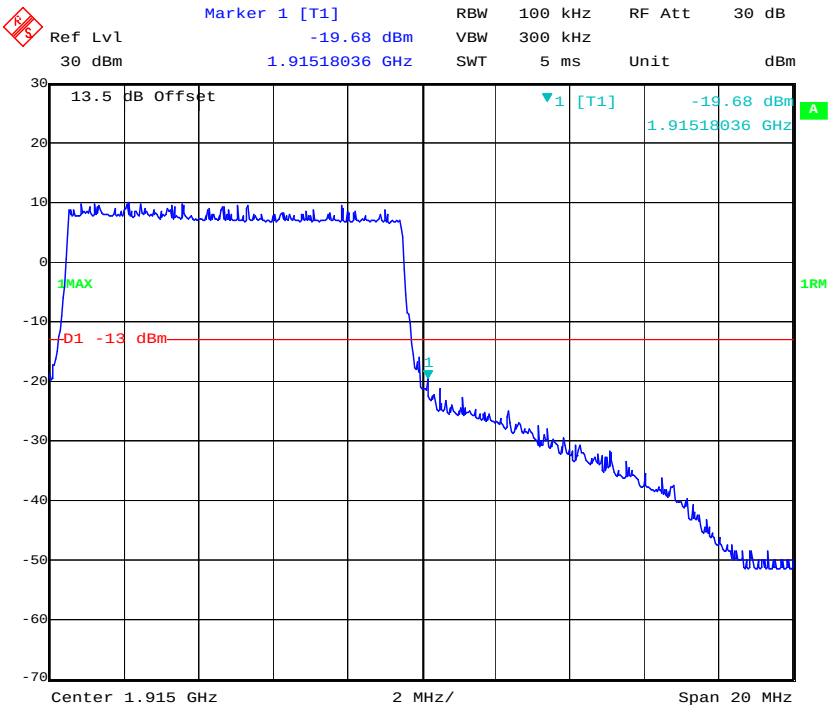
Date: 18.APR.2018 00:57:46

QPSK_10MHz_ 50 RB_ Left



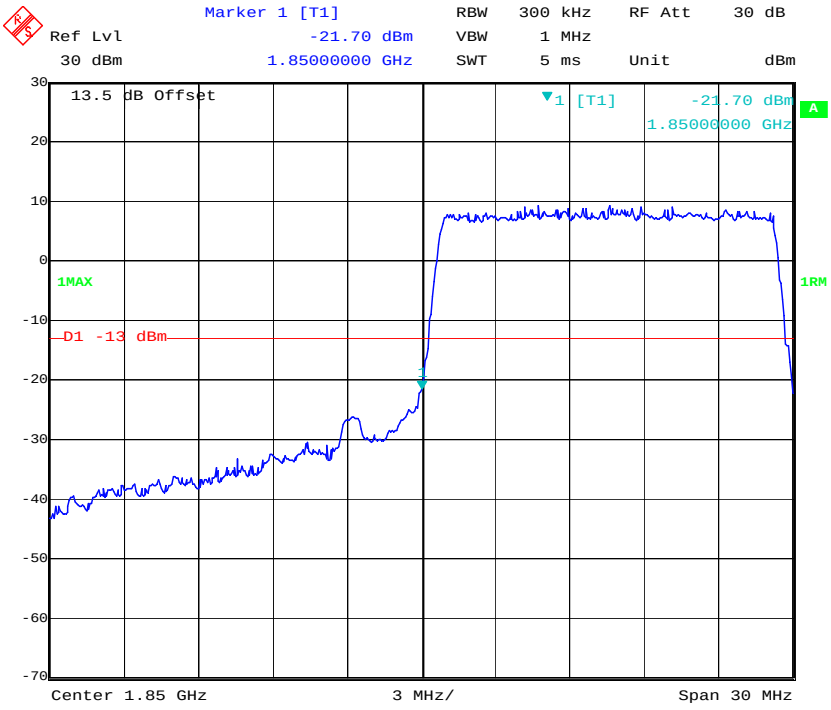
Date: 18.APR.2018 00:35:22

QPSK_10MHz_ 50 RB_ Right



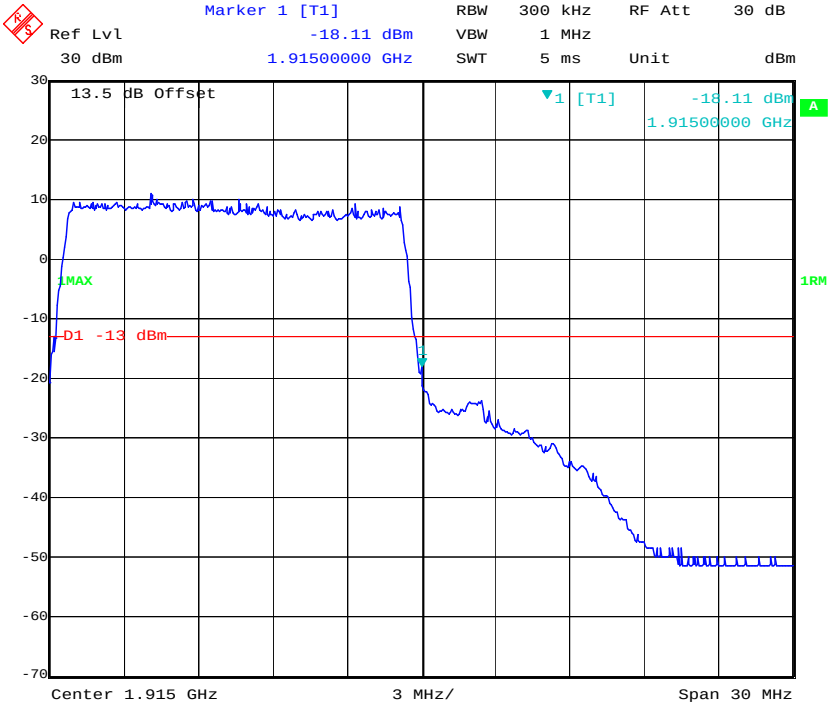
Date: 18.APR.2018 01:01:57

QPSK_15MHz_ 75 RB_ Left



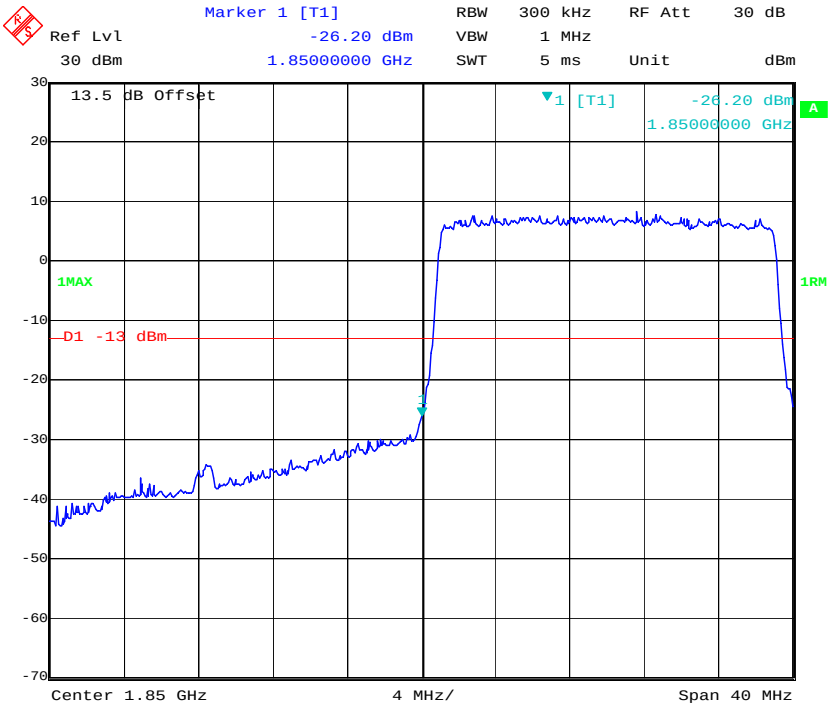
Date: 18.APR.2018 00:37:14

QPSK_15MHz_ 75 RB_ Right



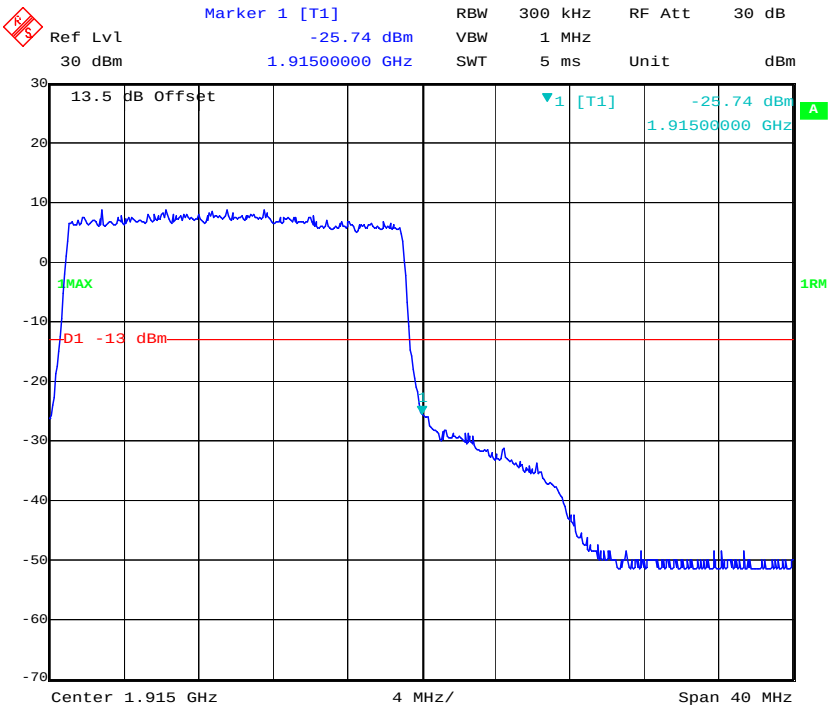
Date: 18.APR.2018 01:06:18

QPSK_20MHz_ FULL RB_ Left



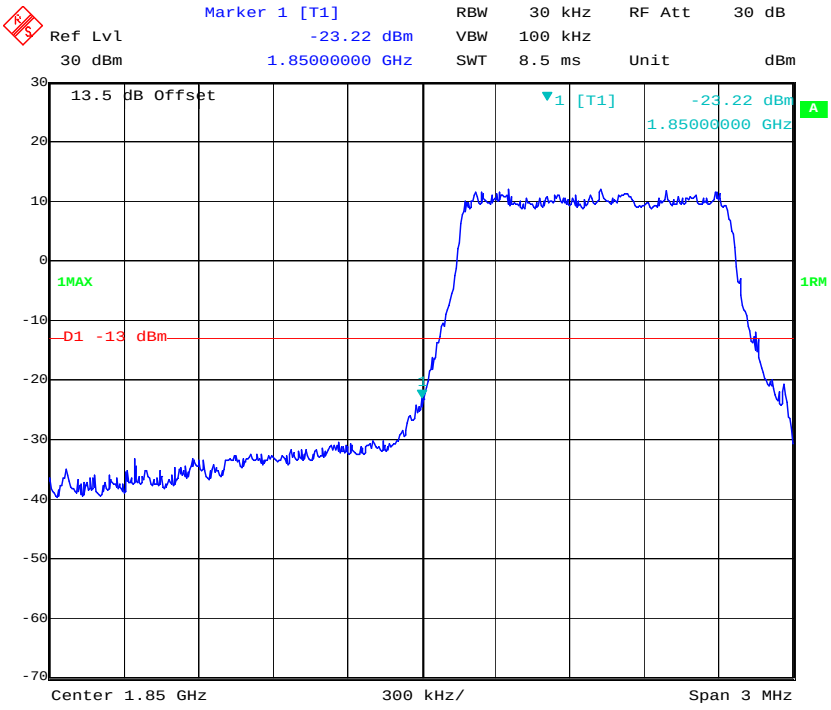
Date: 18.APR.2018 00:40:17

QPSK_20MHz_ FULL RB_ Right



Date: 18.APR.2018 00:44:39

16QAM_1.41MHz_ 6 RB_ Left

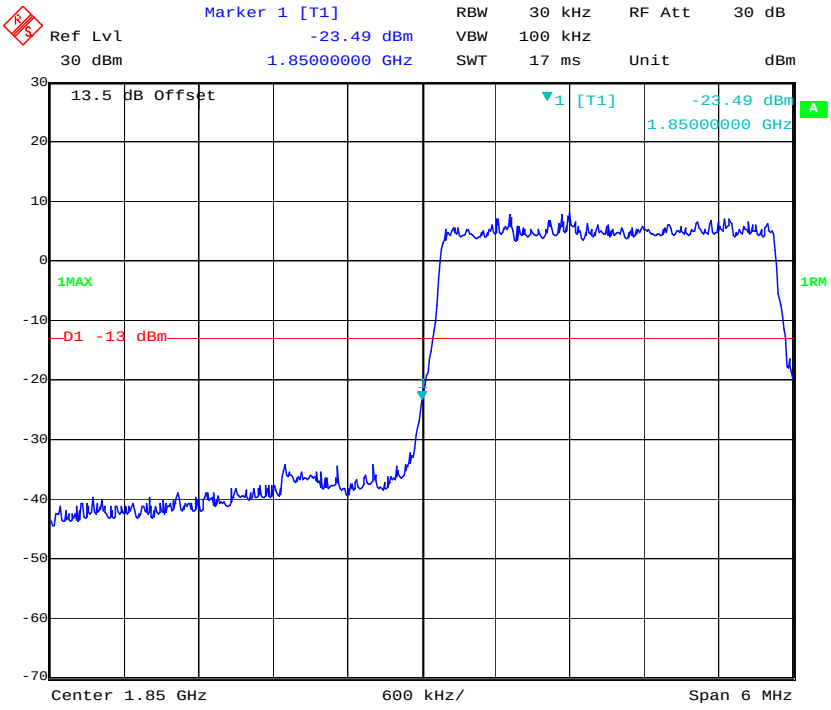


Date: 18.APR.2018 00:24:56

16QAM_1.4MHz_ 6 RB_ Right

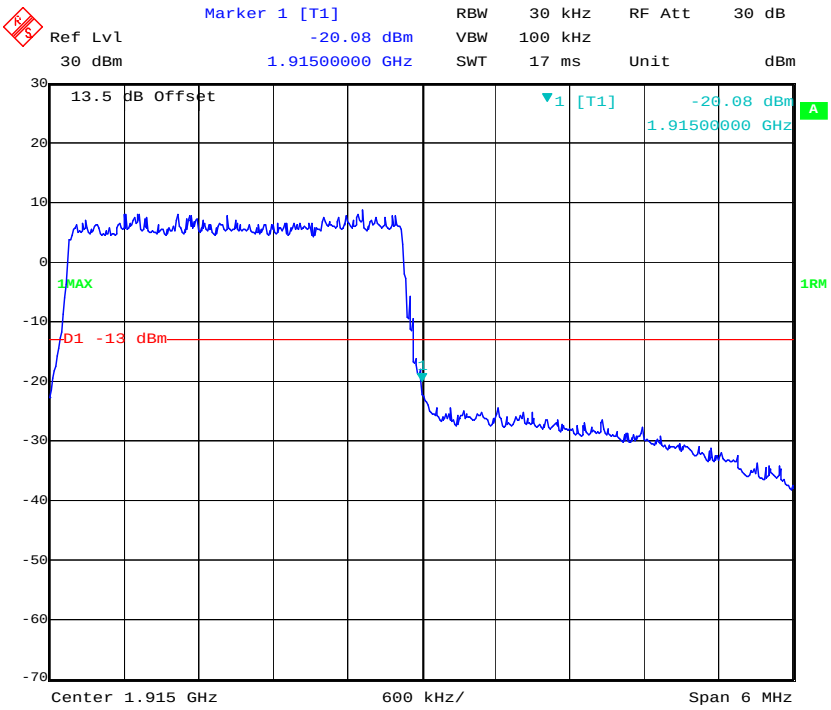
Date: 18.APR.2018 00:50:22

16QAM_3MHz_ 15 RB_ Left



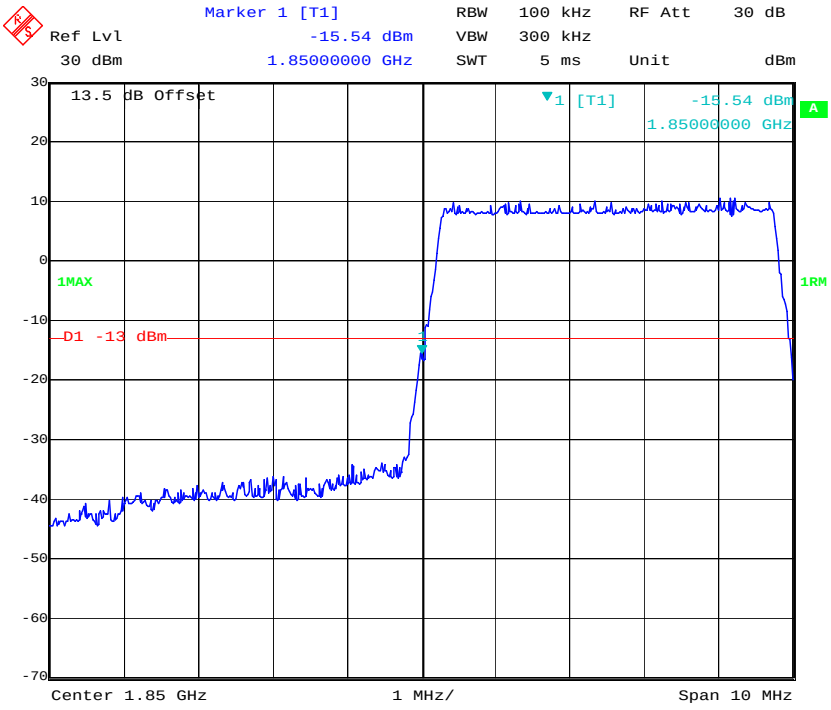
Date: 18.APR.2018 00:31:33

16QAM_3MHz_ 15 RB_ Right



Date: 18.APR.2018 00:52:50

16QAM_5MHz_ 25 RB_ Left

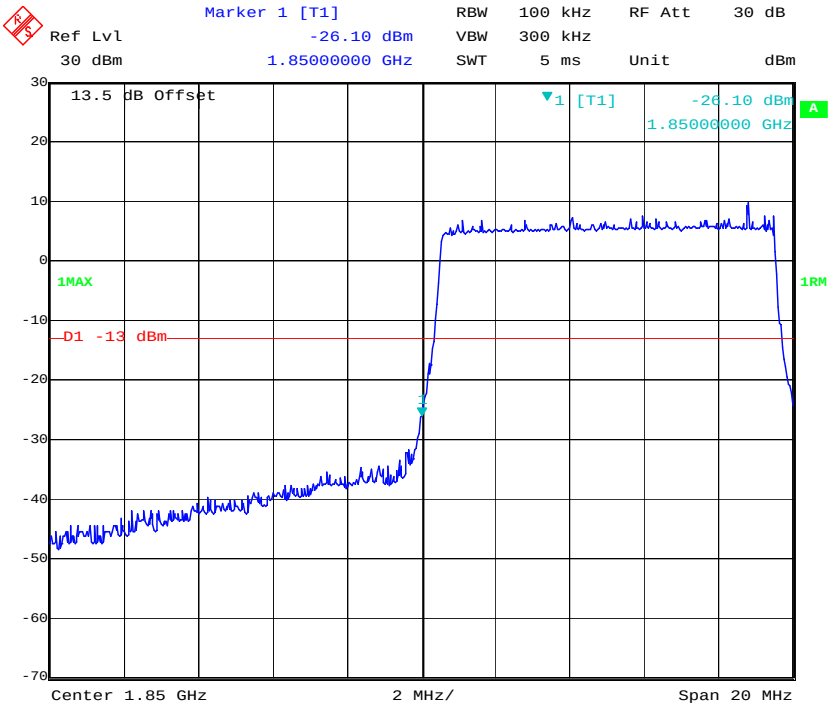


Date: 18.APR.2018 00:34:03

16QAM_5MHz_ 25 RB_ Right

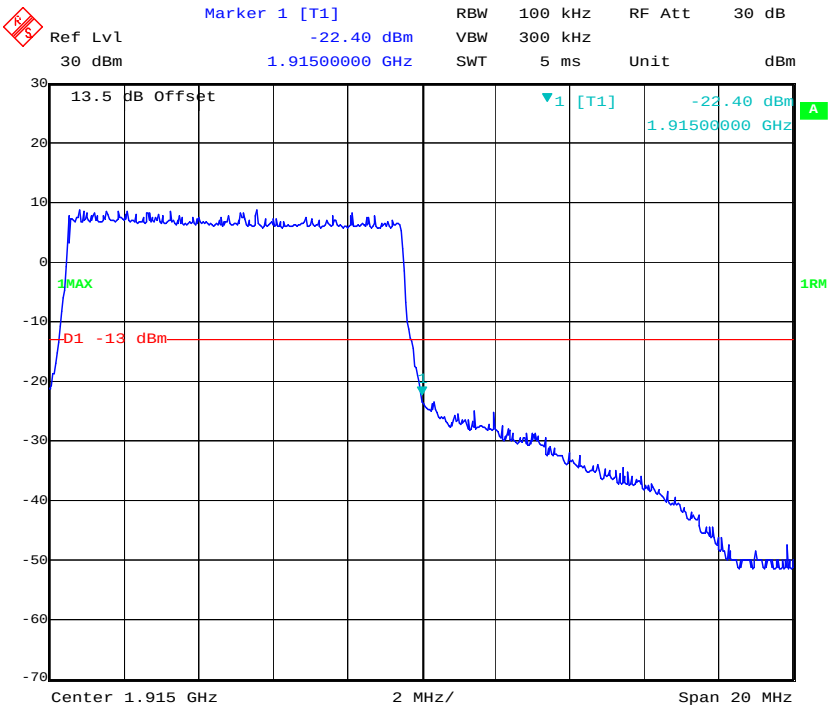
Date: 18.APR.2018 00:59:58

16QAM_10MHz_ 50 RB_ Left



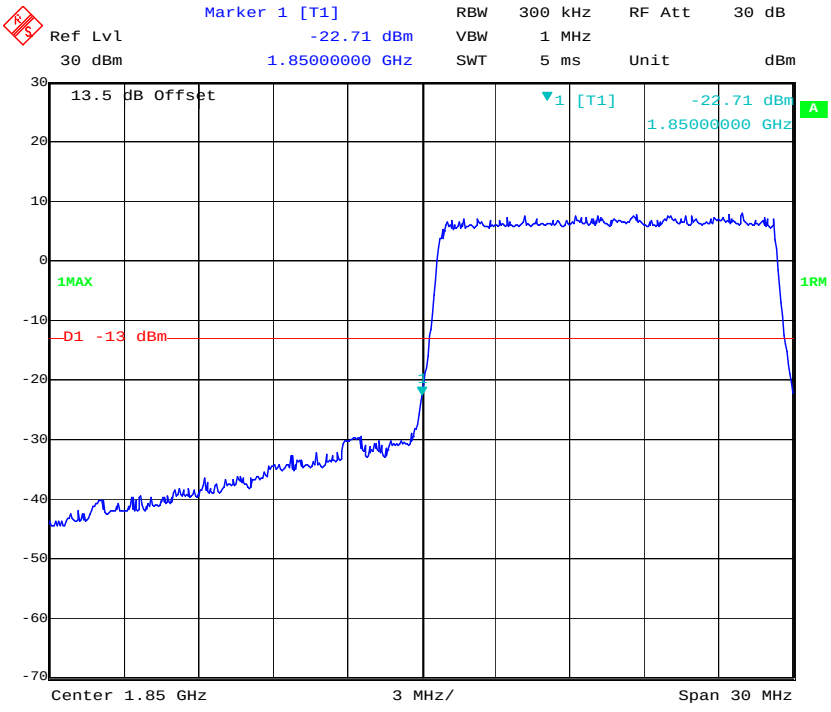
Date: 18.APR.2018 00:35:56

16QAM_10MHz_ 50 RB_ Right



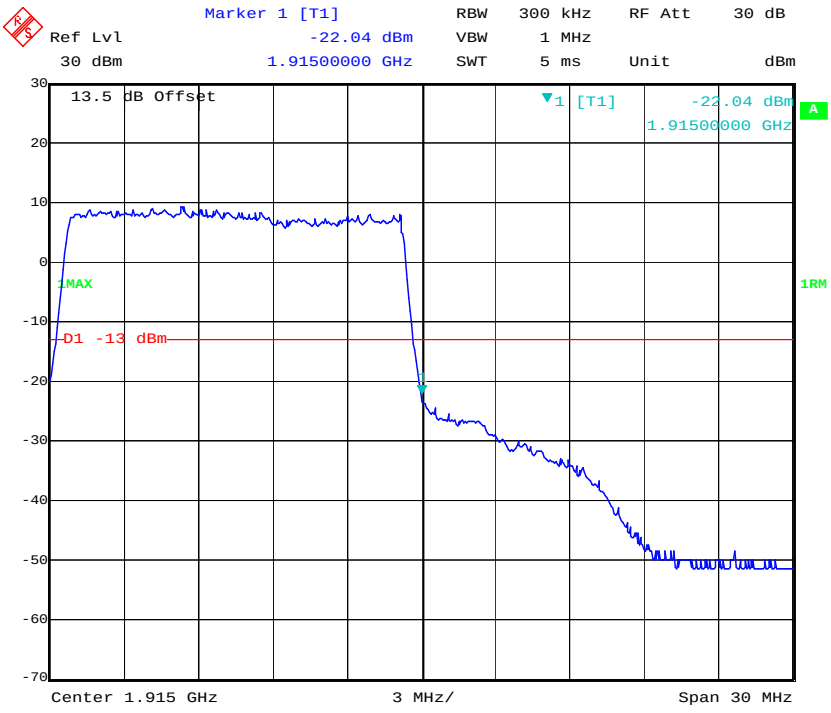
Date: 18.APR.2018 01:03:06

16QAM_15MHz_ 75 RB_ Left



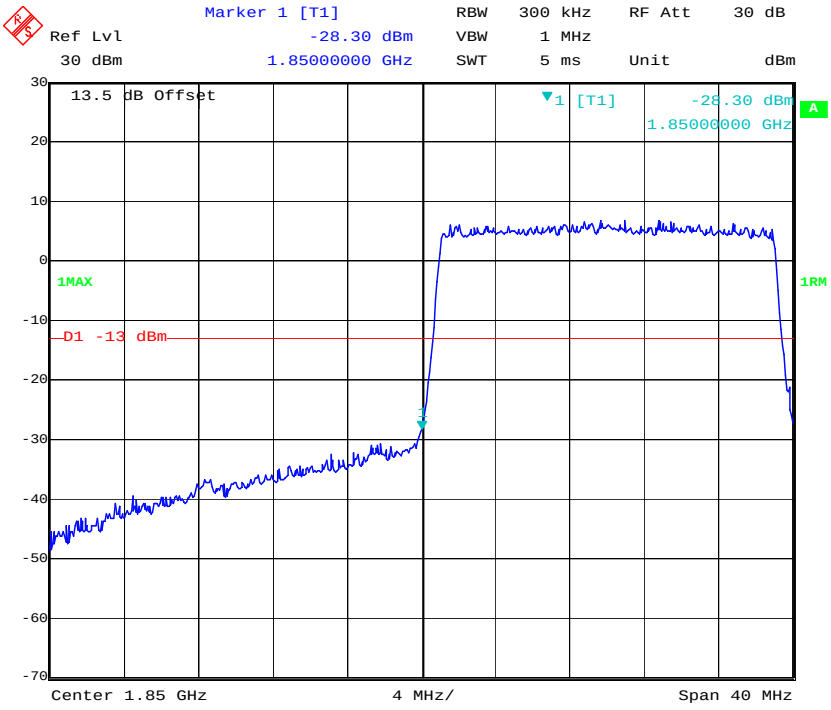
Date: 18.APR.2018 00:38:17

16QAM_15MHz_ 75 RB_ Right



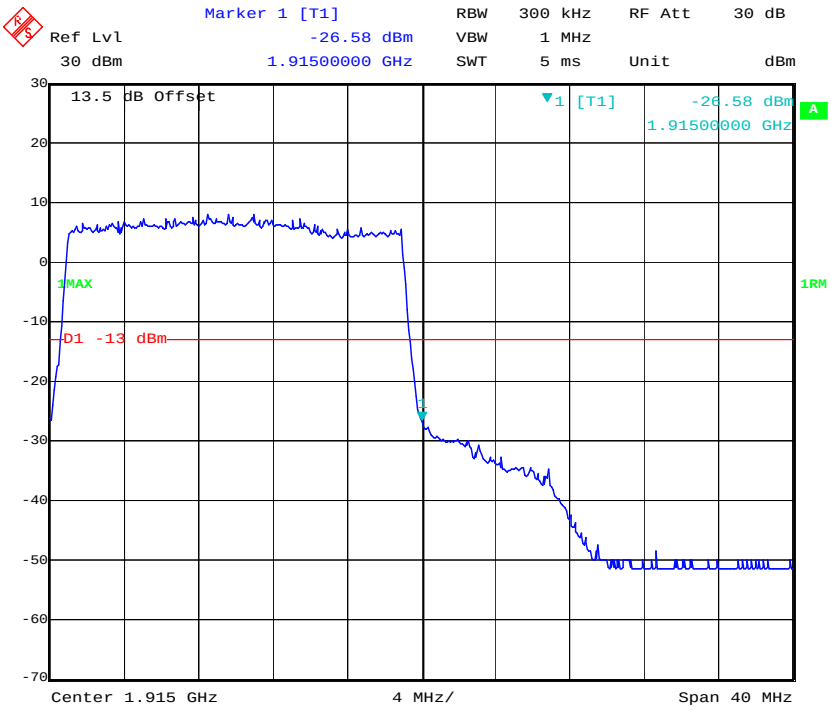
Date: 18.APR.2018 01:05:24

16QAM_20MHz_ FULL RB_ Left



Date: 18.APR.2018 00:41:09

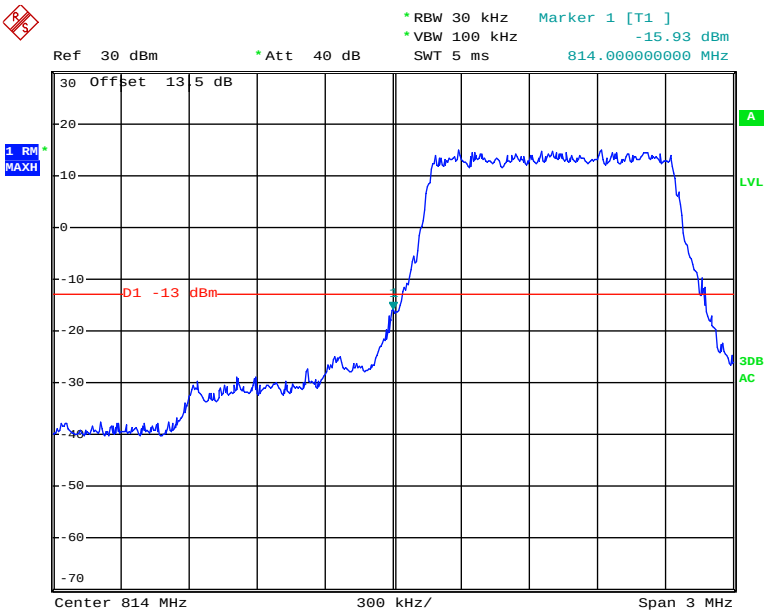
16QAM_20MHz_ FULL RB_ Right



Date: 18.APR.2018 00:45:31

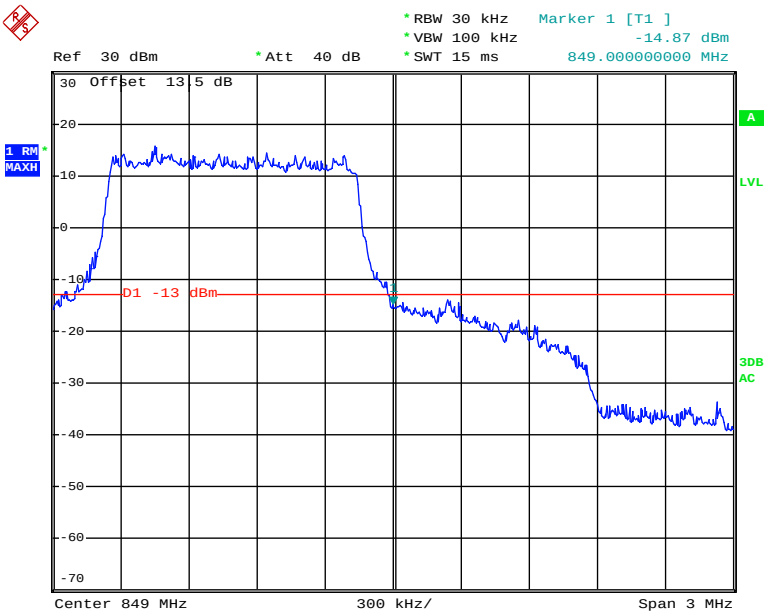
LTE Band 26:

QPSK_1.4MHz_ 6 RB_ Left



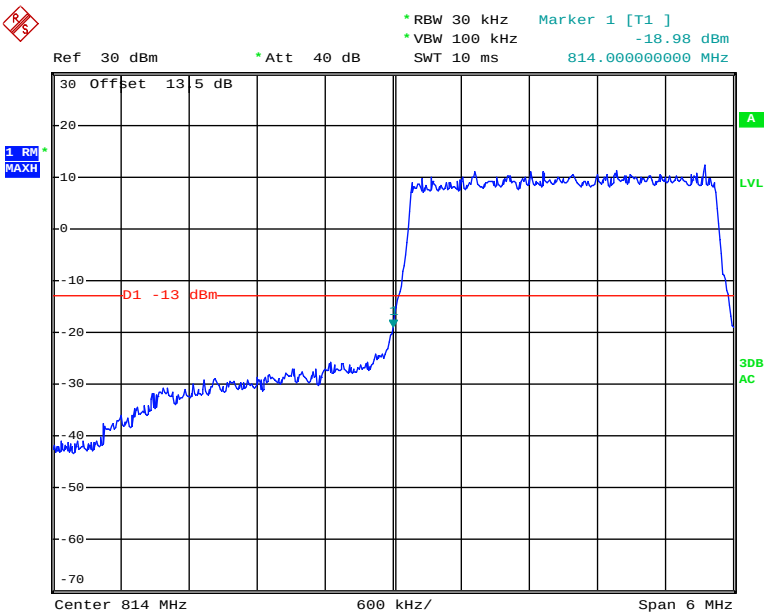
Date: 26.JAN.2018 15:16:28

QPSK_1.4MHz_ 6 RB_ Right



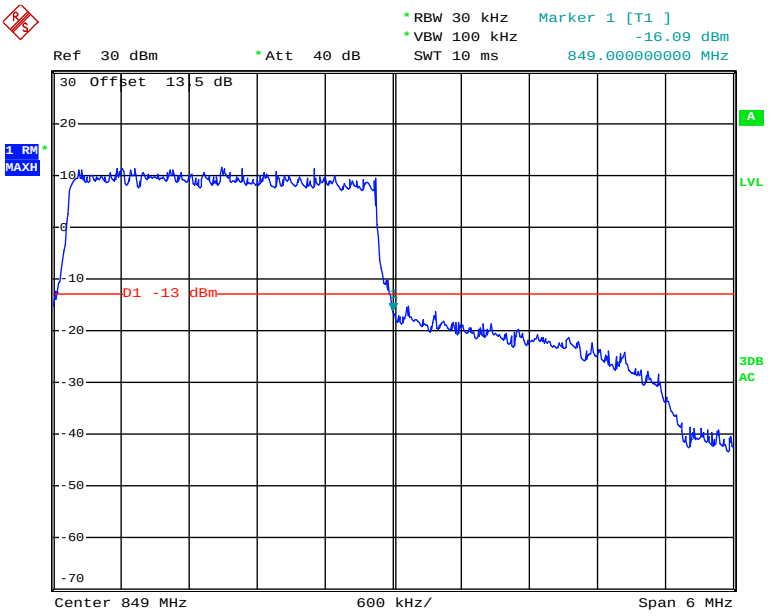
Date: 26.JAN.2018 15:19:41

QPSK_3MHz_ 15 RB_ Left



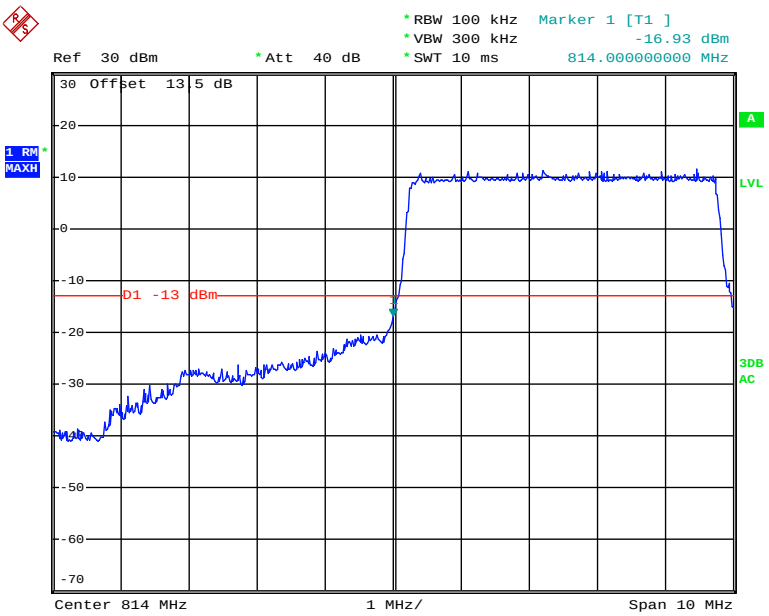
Date: 26.JAN.2018 15:15:40

QPSK_3MHz_ 15 RB_ Right



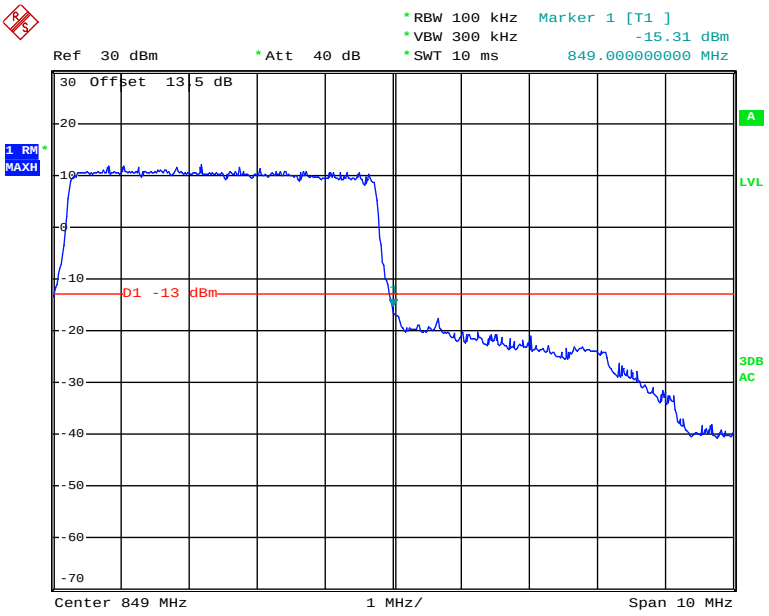
Date: 26.JAN.2018 15:13:34

QPSK_5MHz_ 25 RB_ Left



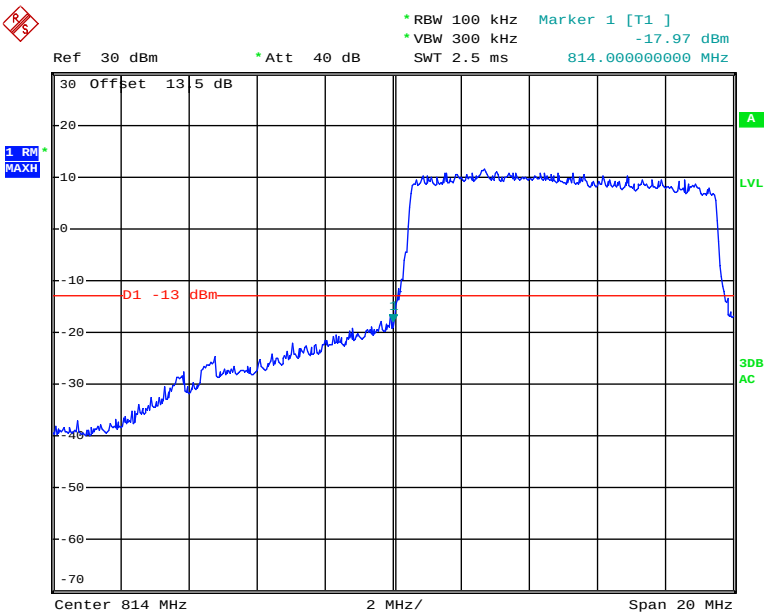
Date: 26.JAN.2018 14:57:15

QPSK_5MHz_ 25 RB_ Right



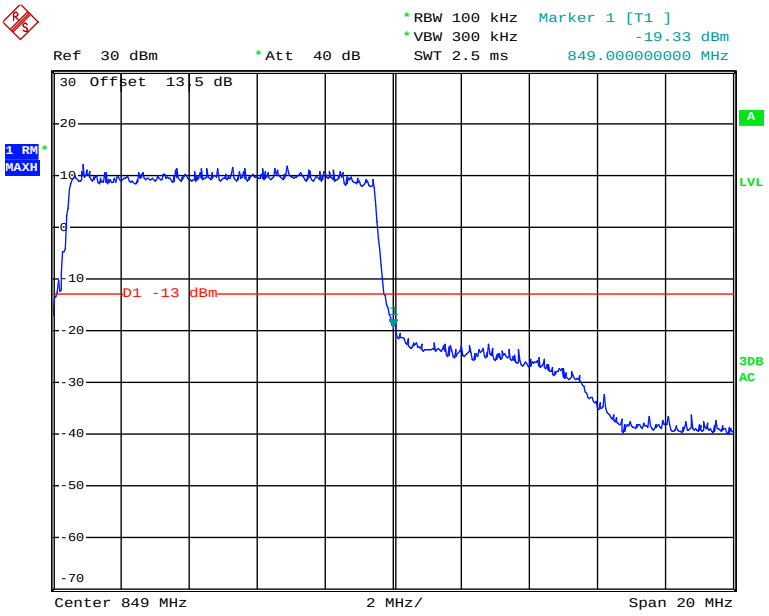
Date: 26.JAN.2018 14:59:19

QPSK_10MHz_ 50 RB_ Left



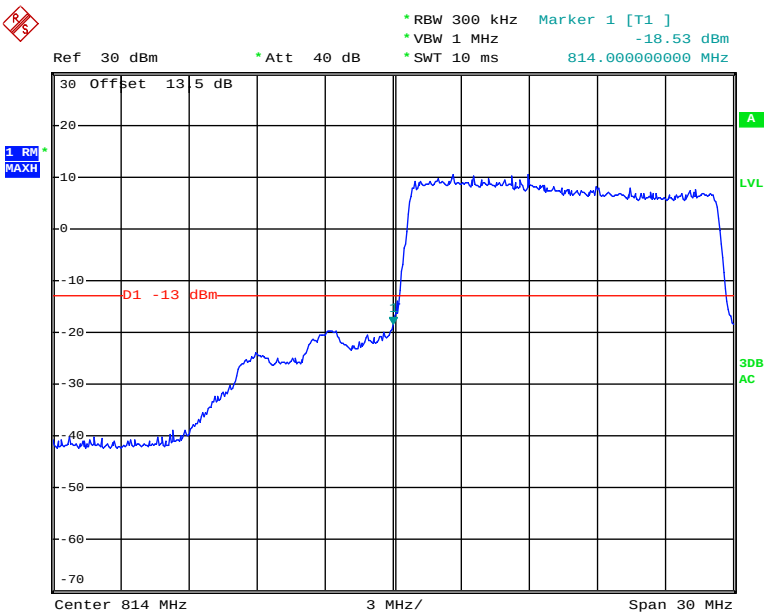
Date: 26.JAN.2018 15:04:42

QPSK_10MHz_ 50 RB_ Right



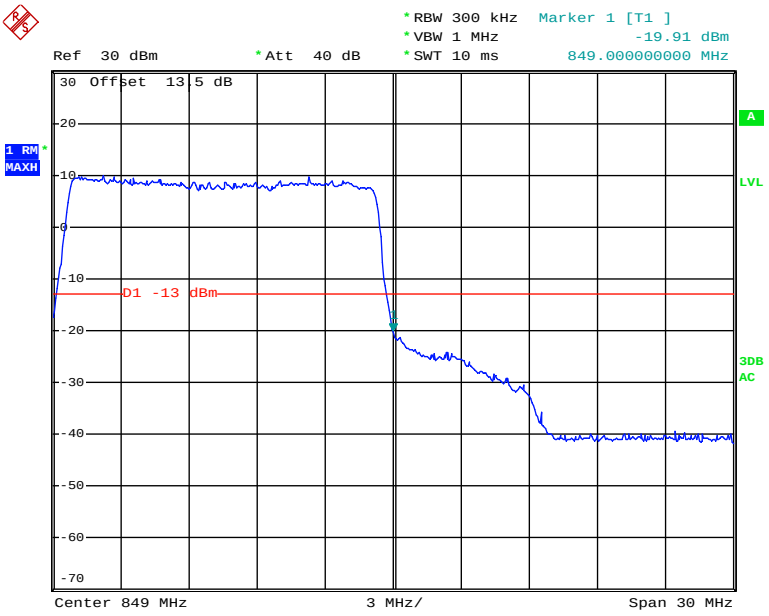
Date: 26.JAN.2018 15:01:43

QPSK_15MHz_ 75 RB_ Left



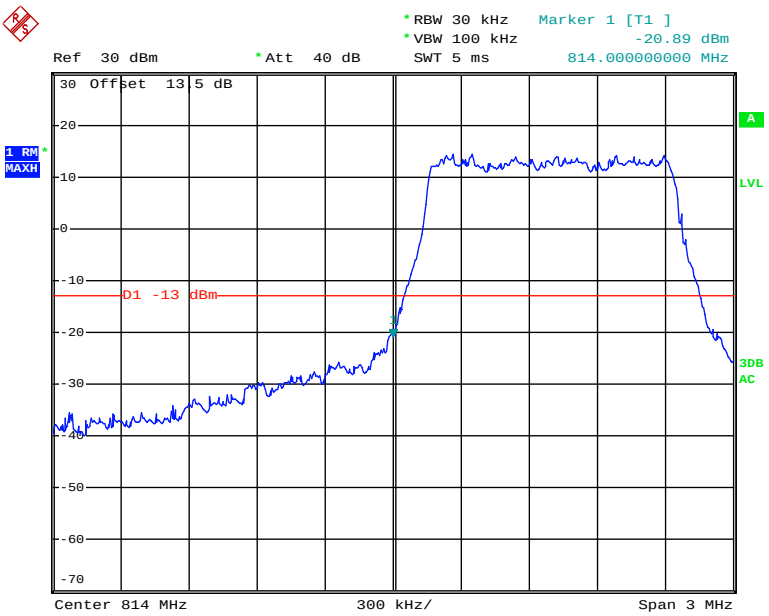
Date: 26.JAN.2018 15:09:13

QPSK_15MHz_ 75 RB_ Right



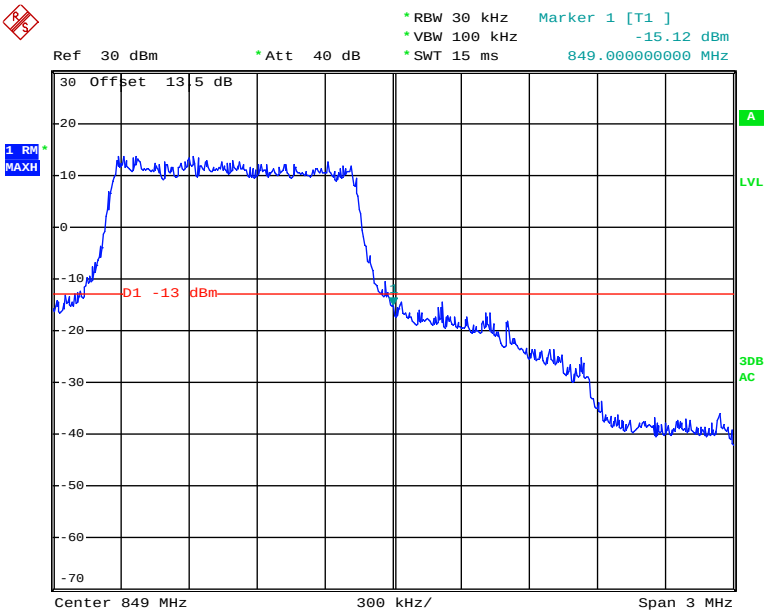
Date: 26.JAN.2018 15:12:06

16QAM_1.4MHz_ 6 RB_ Left



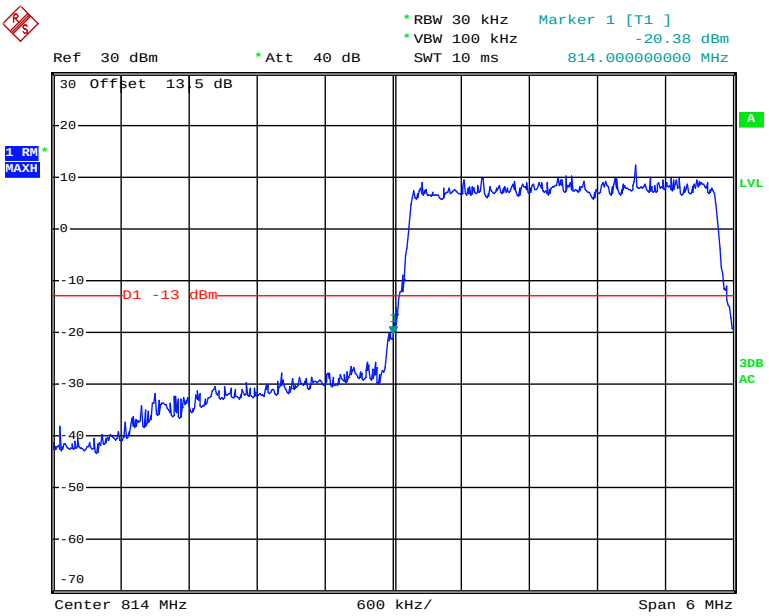
Date: 26.JAN.2018 15:17:12

16QAM_1.4MHz_ 6 RB_ Right



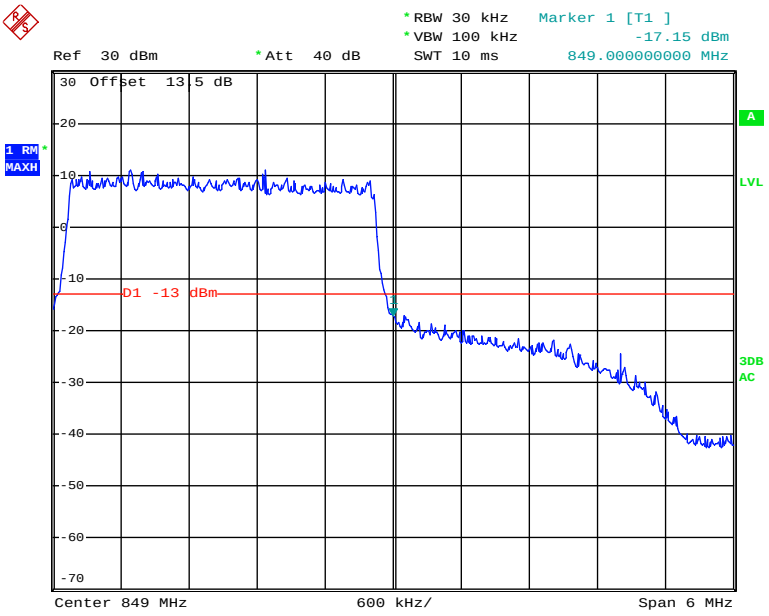
Date: 26.JAN.2018 15:19:06

16QAM_3MHz_ 15 RB_ Left



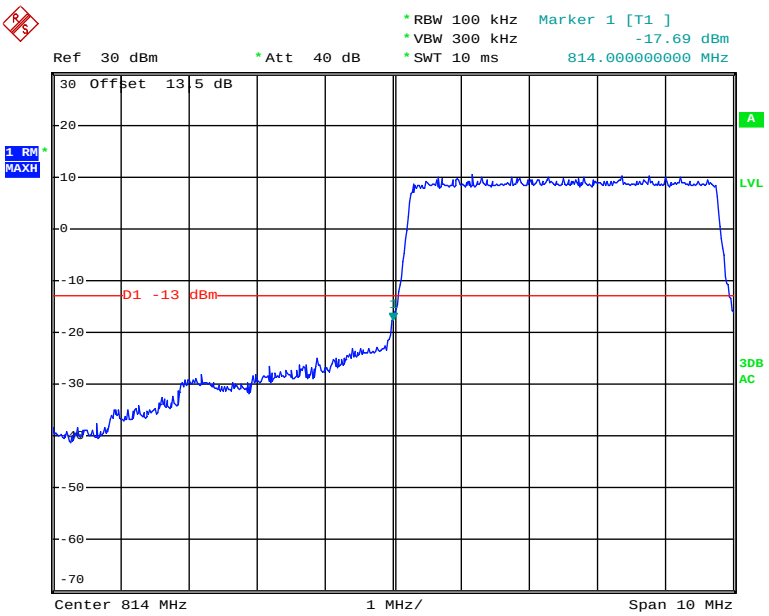
Date: 26.JAN.2018 15:15:08

16QAM_3MHz_ 15 RB_ Right



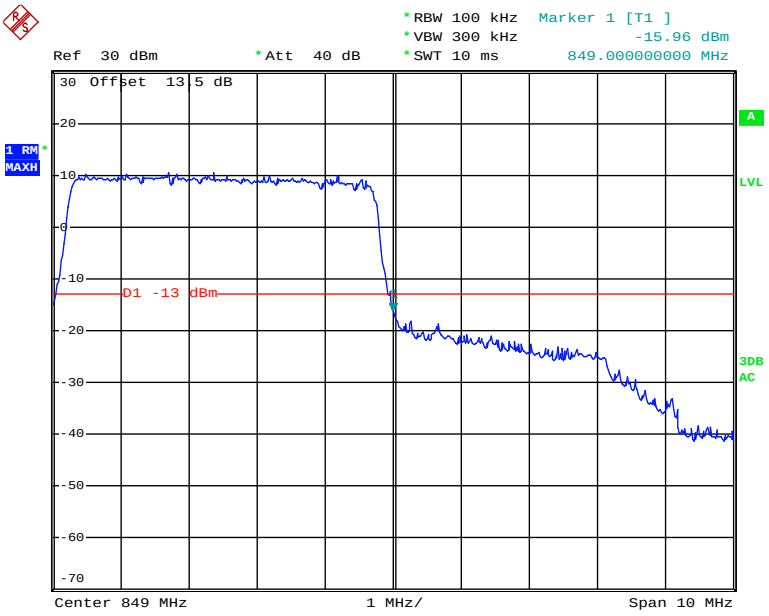
Date: 26.JAN.2018 15:14:22

16QAM_5MHz_ 25 RB_ Left



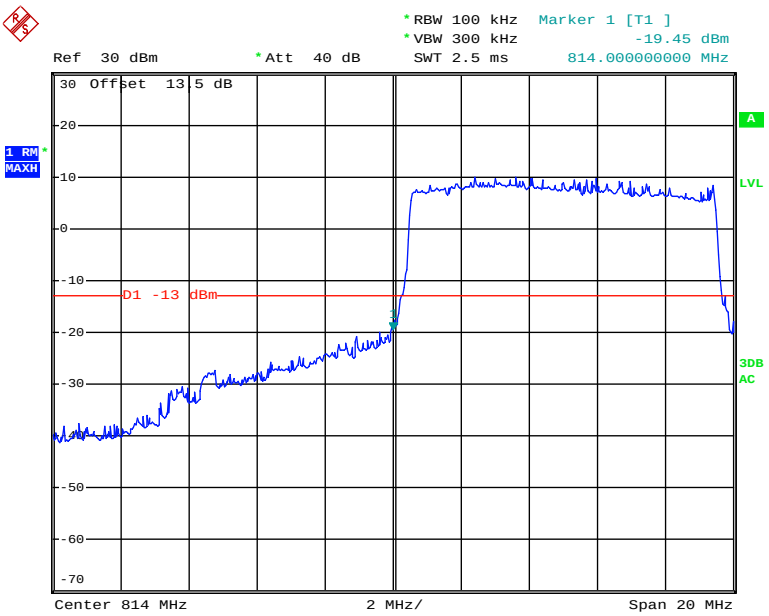
Date: 26.JAN.2018 14:57:53

16QAM_5MHz_ 25 RB_ Right



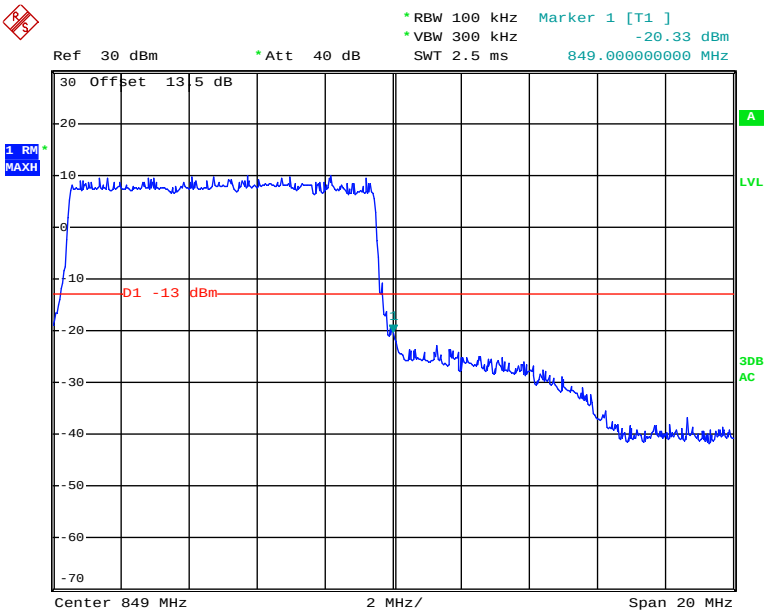
Date: 26.JAN.2018 14:58:54

16QAM_10MHz_ 50 RB_ Left



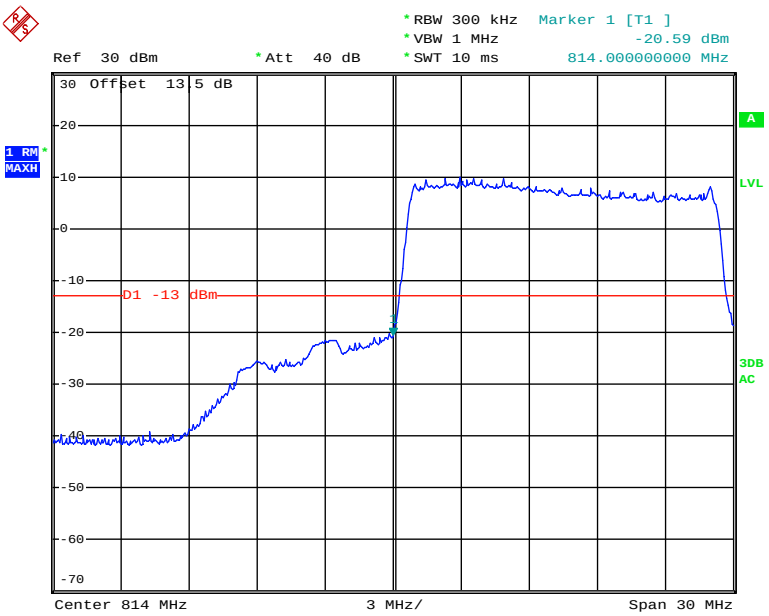
Date: 26.JAN.2018 15:05:04

16QAM_10MHz_ 50 RB_ Right



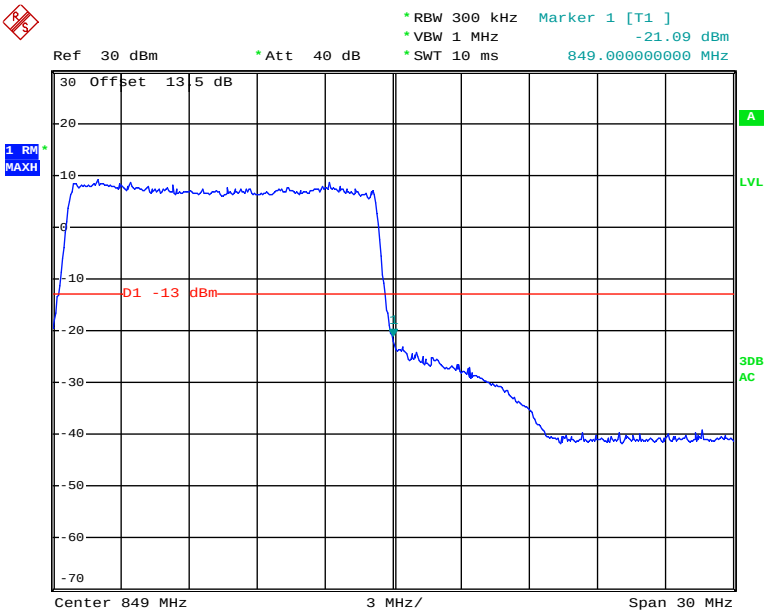
Date: 26.JAN.2018 15:01:09

16QAM_15MHz_ 75 RB_ Left



Date: 26.JAN.2018 15:10:24

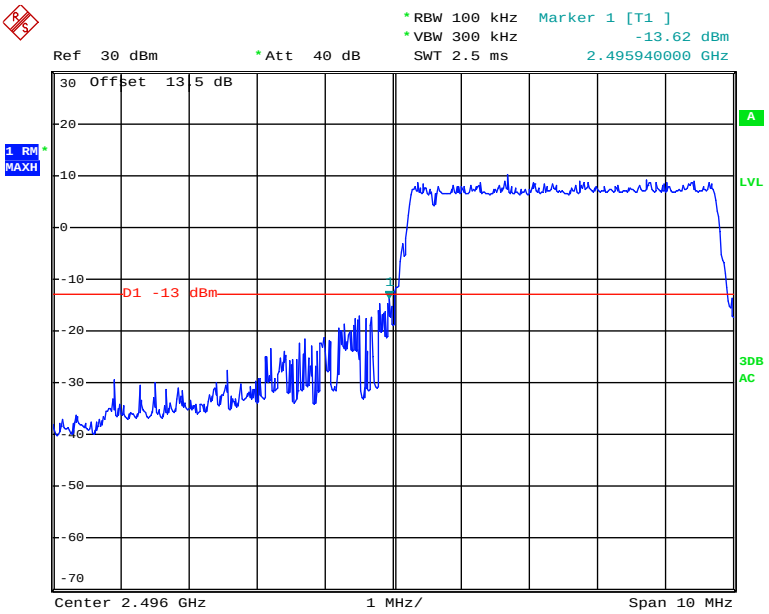
16QAM_15MHz_ 75 RB_ Right



Date: 26.JAN.2018 15:11:26

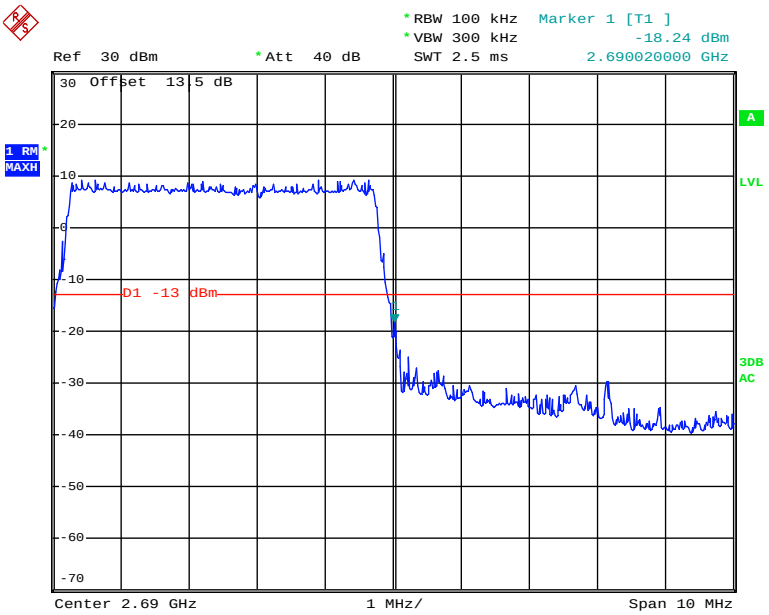
LTE Band 41(for FCC):

QPSK_5MHz_ 25 RB_ Left



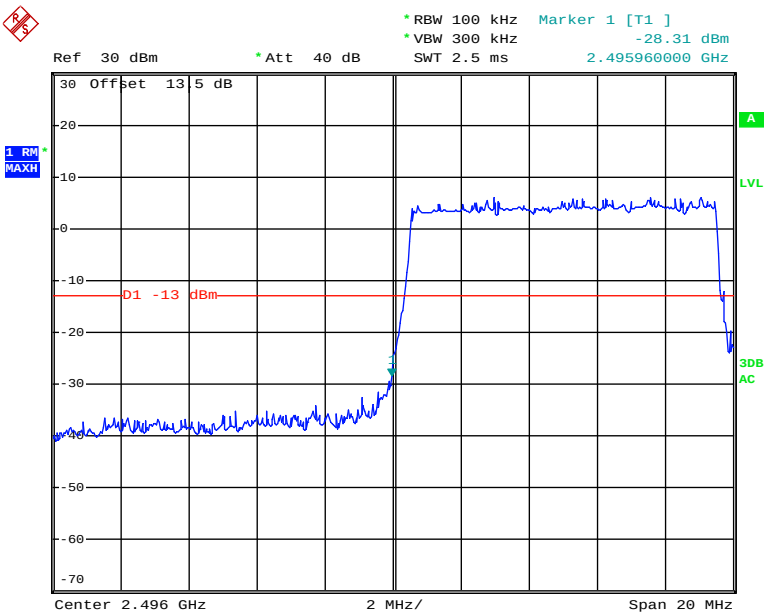
Date: 11.FEB.2018 15:23:33

QPSK_5MHz_ 25 RB_ Right



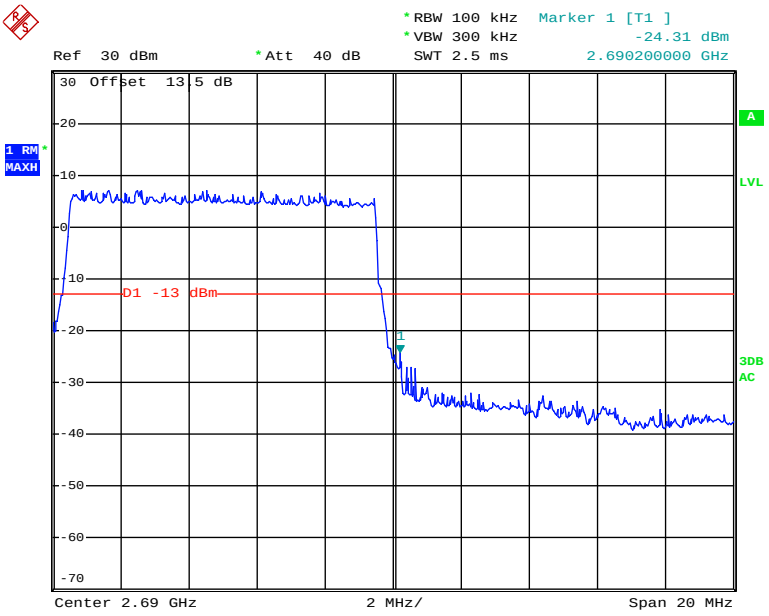
Date: 11.FEB.2018 15:30:59

QPSK_10MHz_ 50 RB_ Left



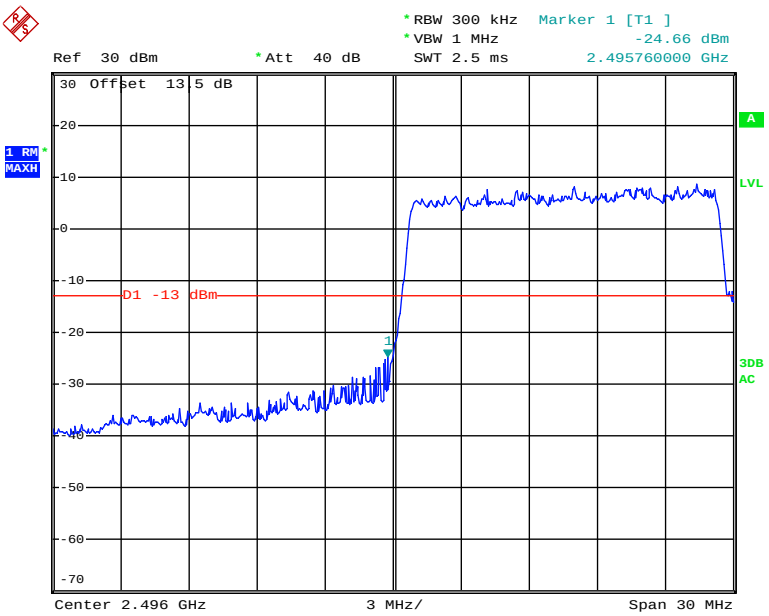
Date: 11.FEB.2018 15:35:54

QPSK_10MHz_ 25 RB_ Right



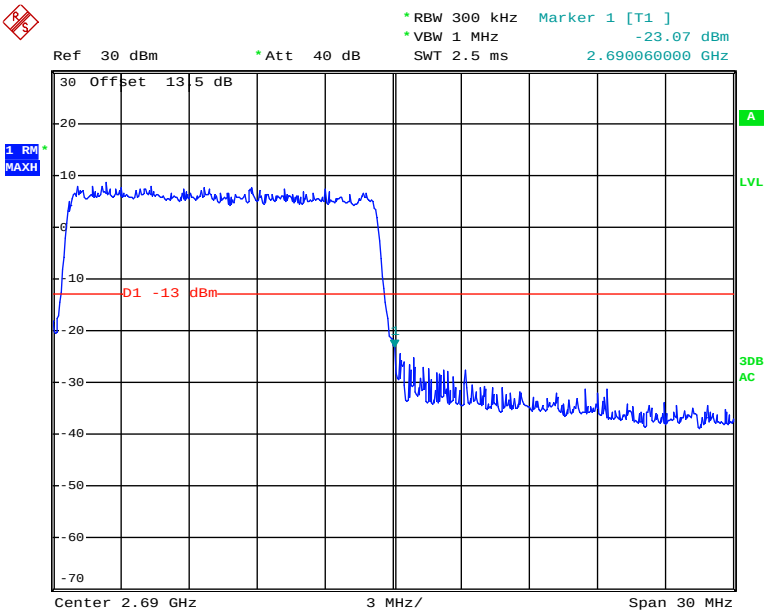
Date: 11.FEB.2018 15:33:20

QPSK_15MHz_ 75 RB_ Left



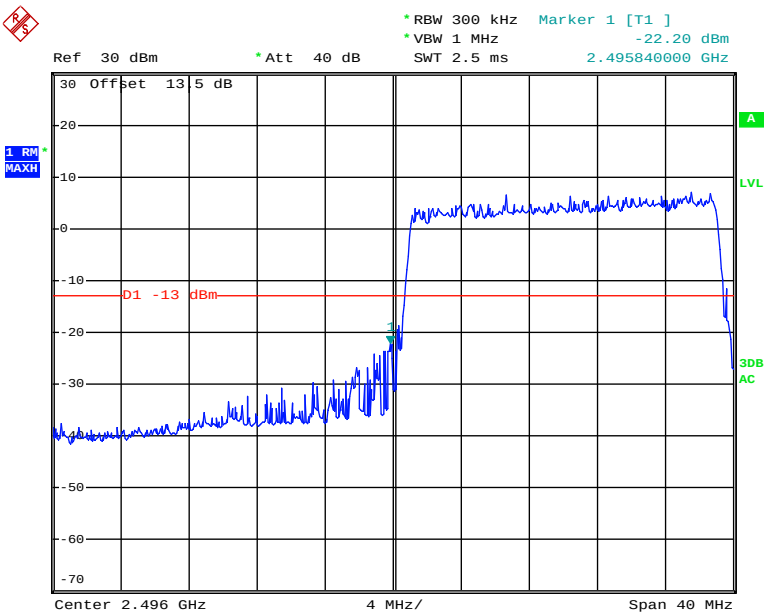
Date: 11.FEB.2018 15:37:56

QPSK_15MHz_ 15 RB_ Right



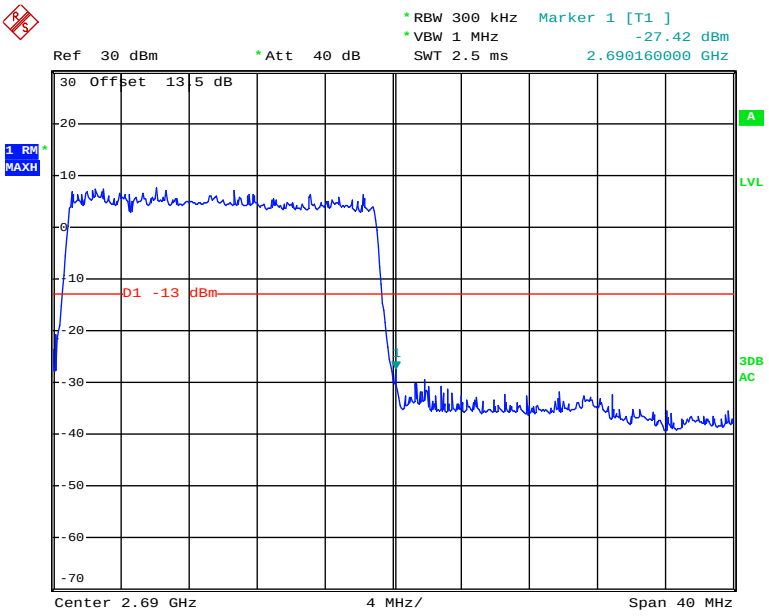
Date: 11.FEB.2018 15:40:46

QPSK_20MHz_ FULL RB_ Left



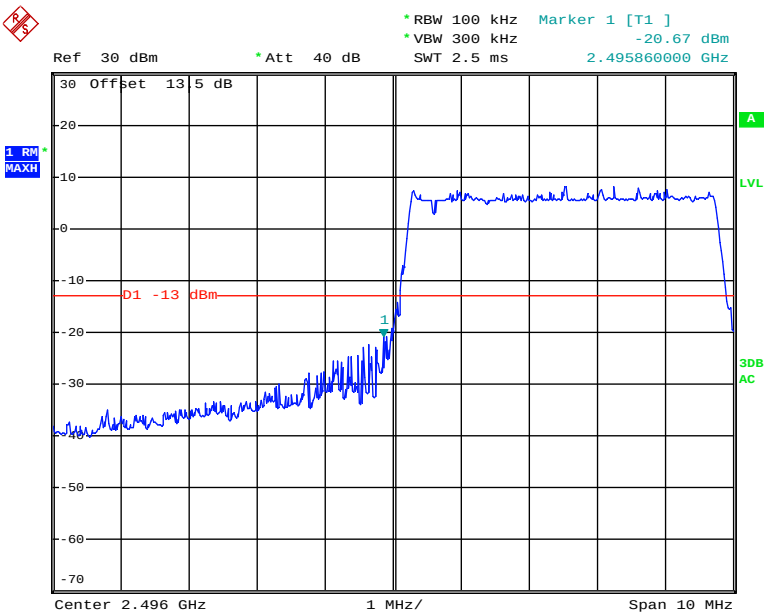
Date: 11.FEB.2018 15:44:20

QPSK_20MHz_ FULL RB_ Right



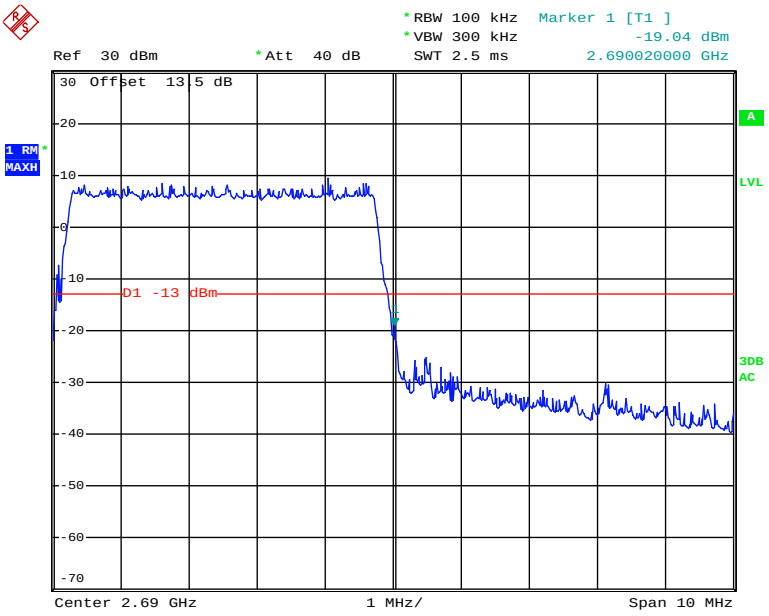
Date: 11.FEB.2018 15:42:11

16QAM _5MHz_ 25 RB_ Left



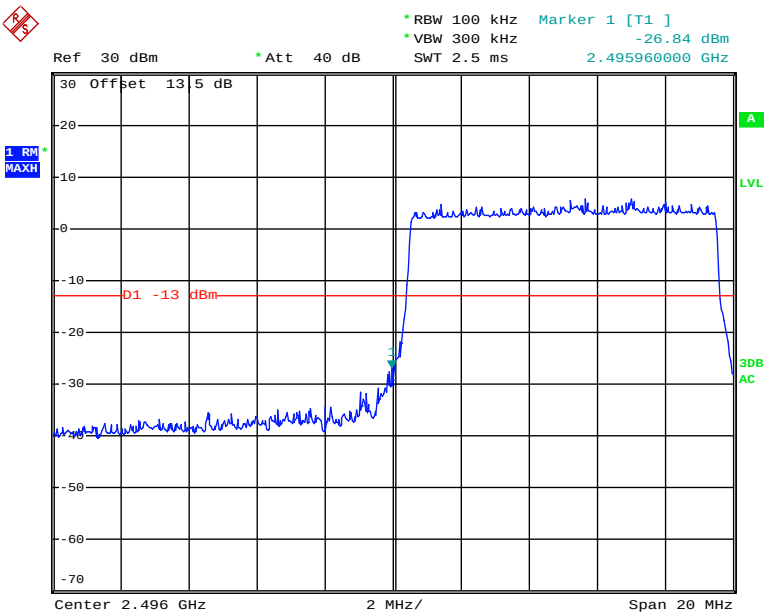
Date: 11.FEB.2018 15:29:13

16QAM _5MHz_ 25 RB_ Right



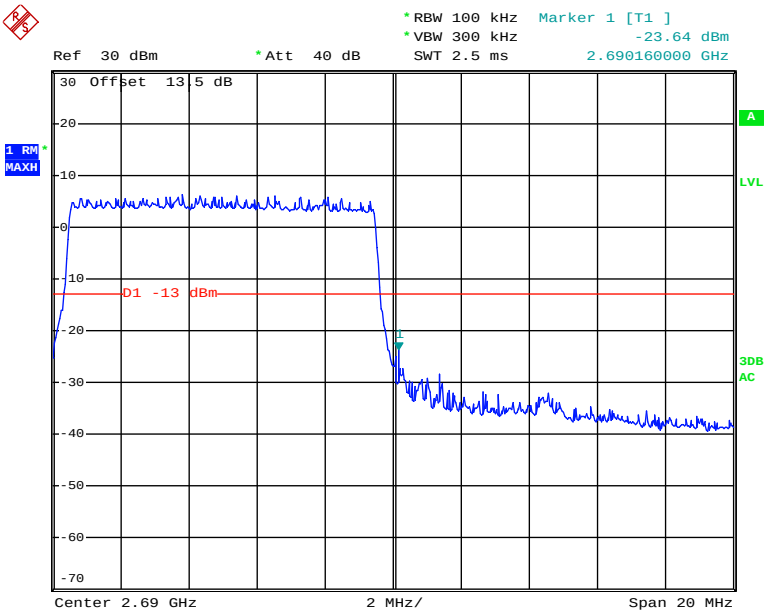
Date: 11.FEB.2018 15:30:25

16QAM_10MHz_ 50 RB_ Left



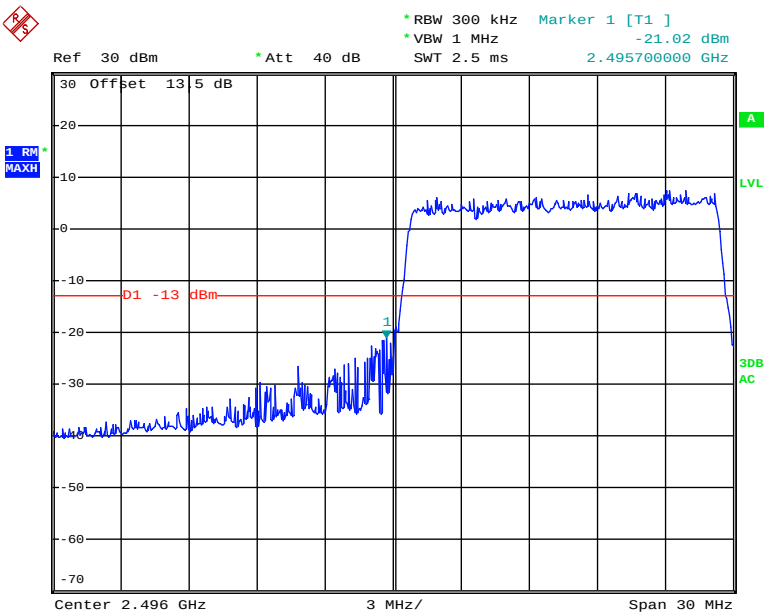
Date: 11.FEB.2018 15:35:23

16QAM_10MHz_ 50 RB_ Right



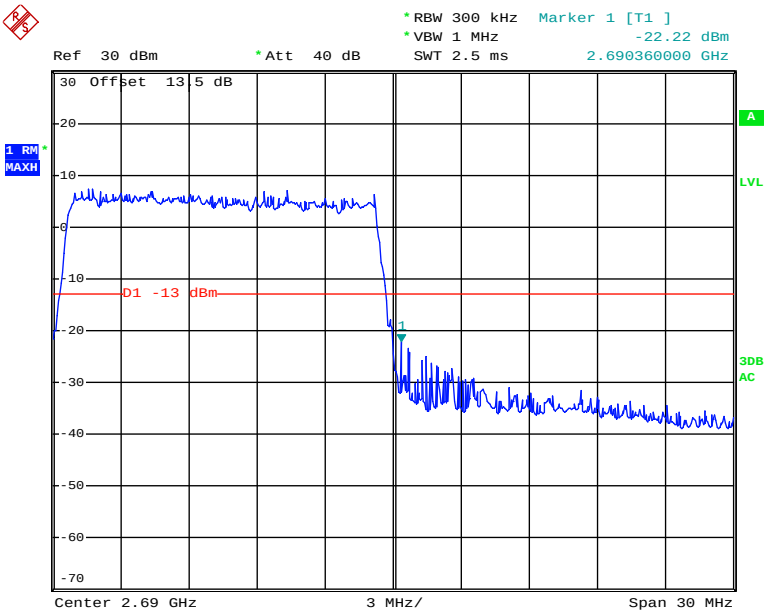
Date: 11.FEB.2018 15:34:15

16QAM_15MHz_ 75 RB_ Left



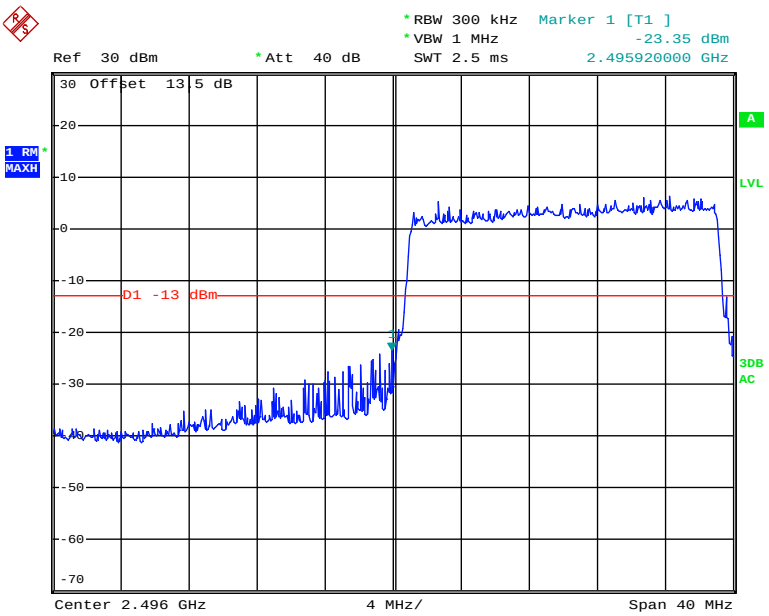
Date: 11.FEB.2018 15:38:38

16QAM_15MHz_ 75 RB_ Right



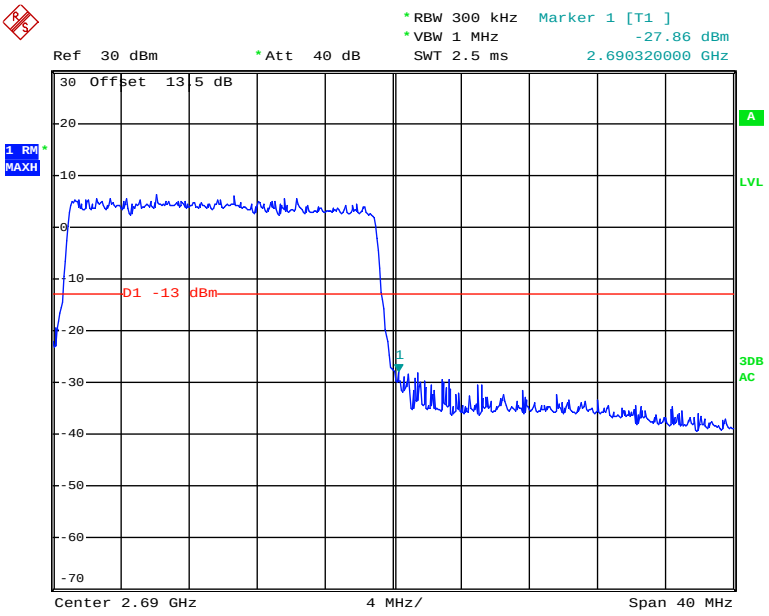
Date: 11.FEB.2018 15:39:33

16QAM_20MHz_ FULL RB_ Left



Date: 11.FEB.2018 15:43:44

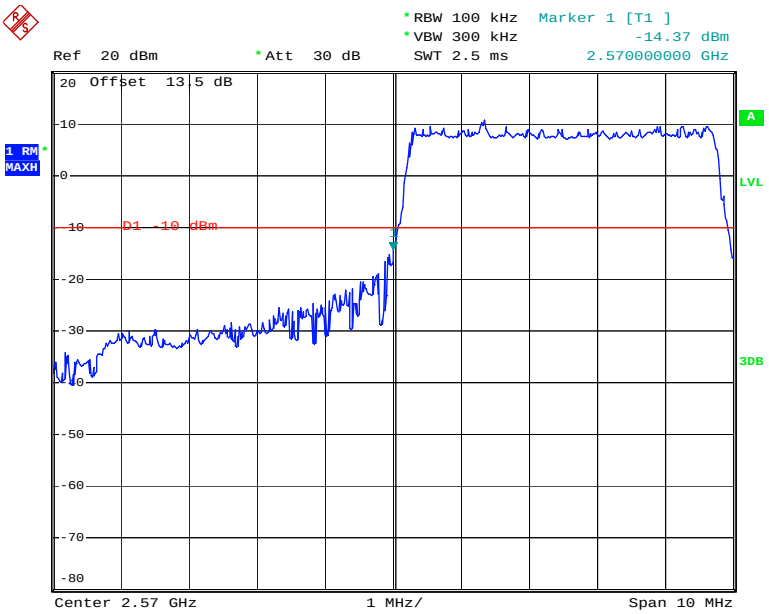
16QAM_20MHz_ FULL RB_ Right



Date: 11.FEB.2018 15:43:01

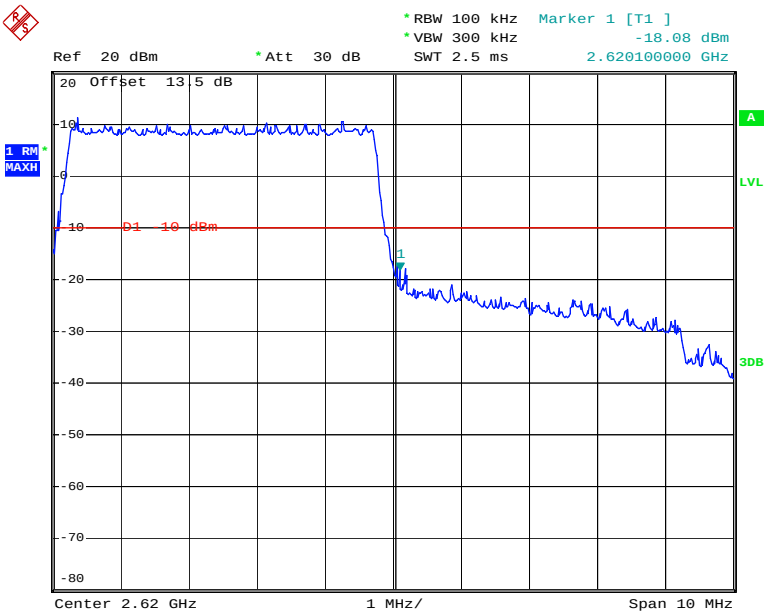
Band 41 for ISEDC:

QPSK_5MHz_ 25 RB_ Left



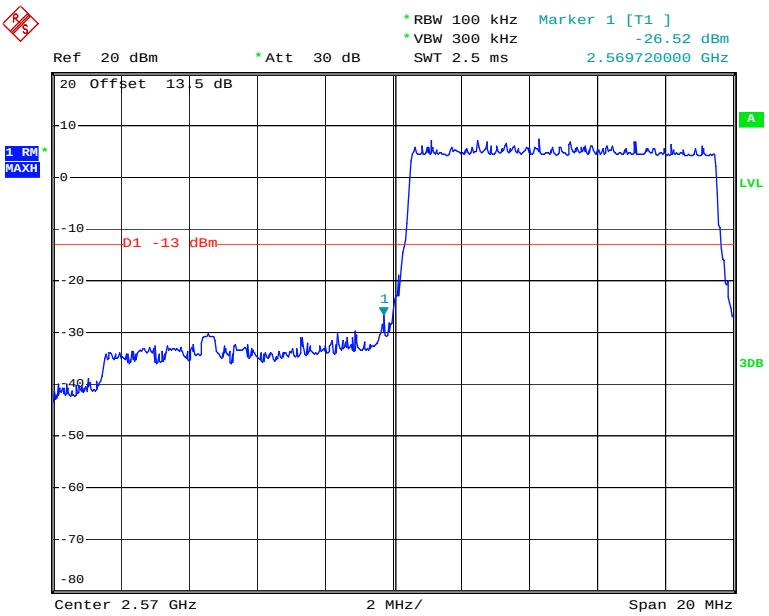
Date: 16.MAY.2018 00:49:30

QPSK_5MHz_ 25 RB_ Right



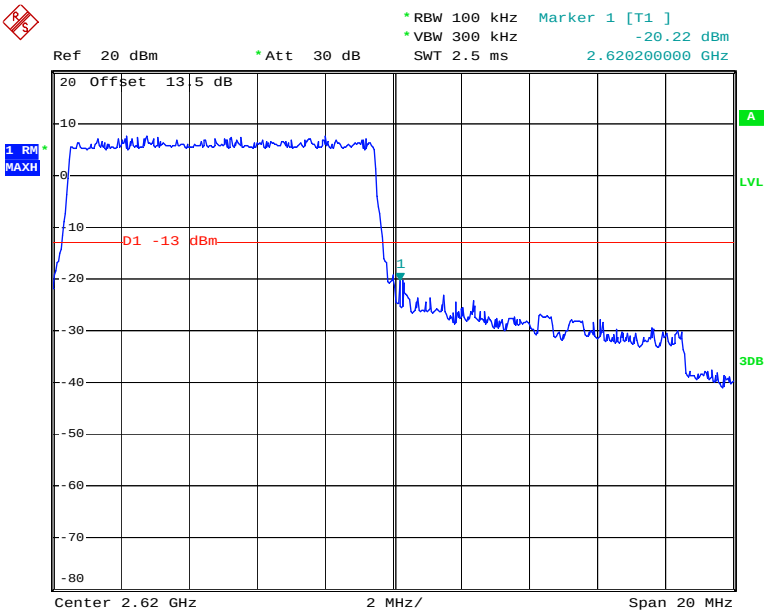
Date: 16.MAY.2018 00:51:17

QPSK_10MHz_ 50 RB_ Left



Date: 16.MAY.2018 00:46:49

QPSK_10MHz_ 50 RB_ Right



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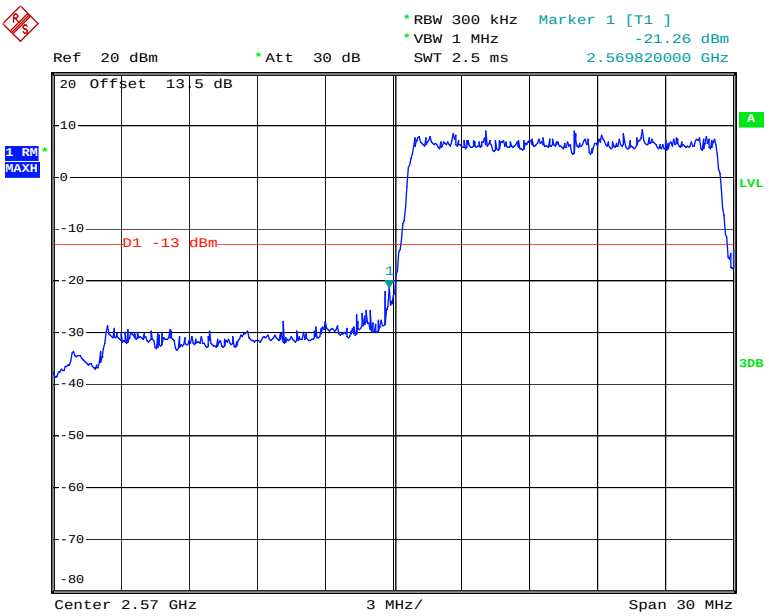
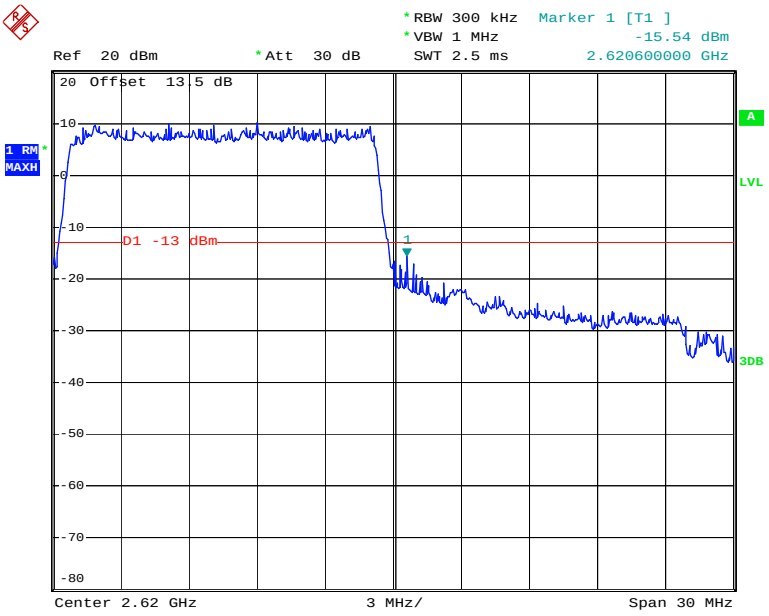
QPSK_15MHz_ 75 RB_ Left



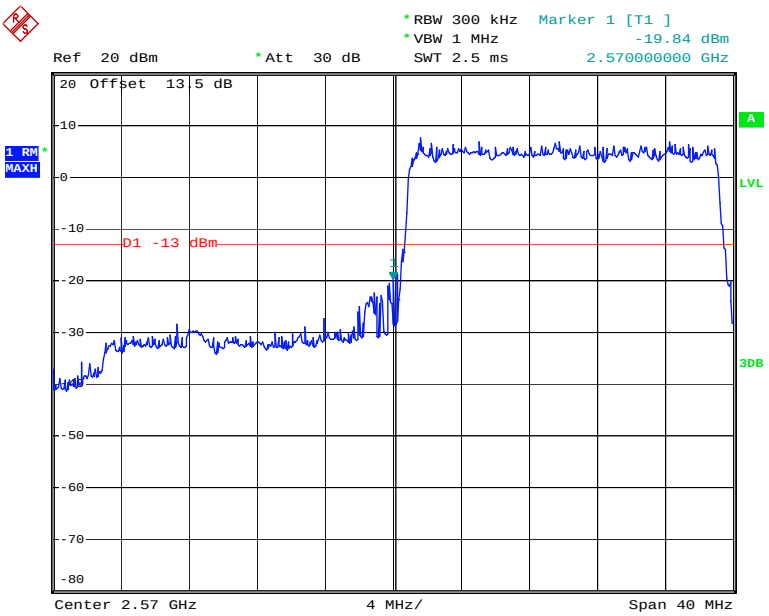
Date: 16.MAY.2018 00:40:49

QPSK_15MHz_ 75 RB_ Right



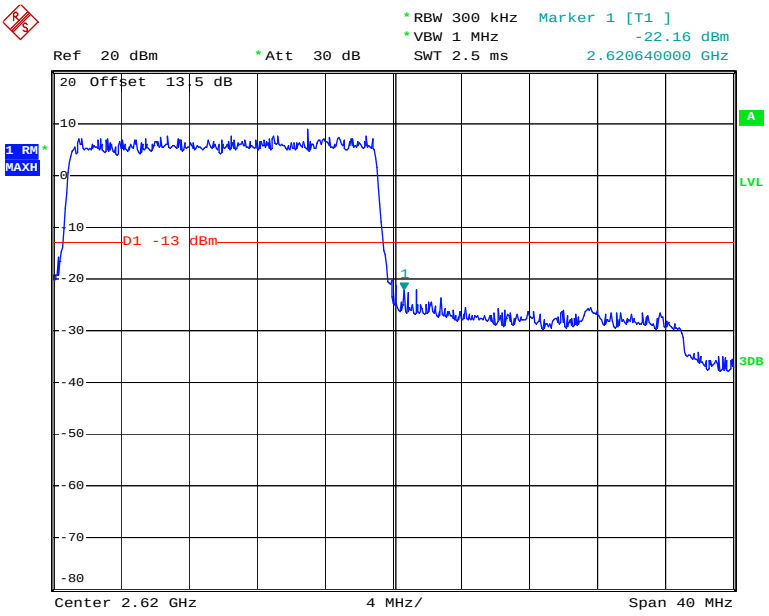
Date: 16.MAY.2018 00:38:49

QPSK_20MHz_ FULL RB_ Left



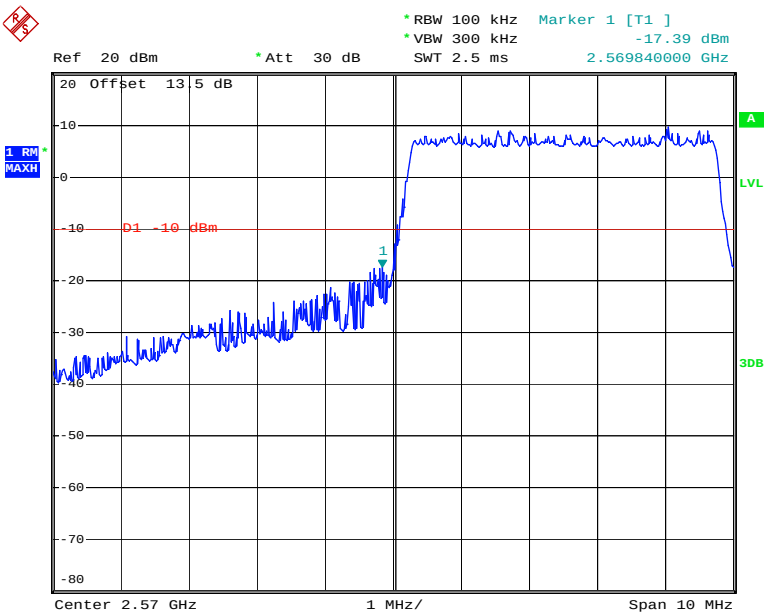
Date: 16.MAY.2018 00:42:56

QPSK_20MHz_ FULL RB_ Right



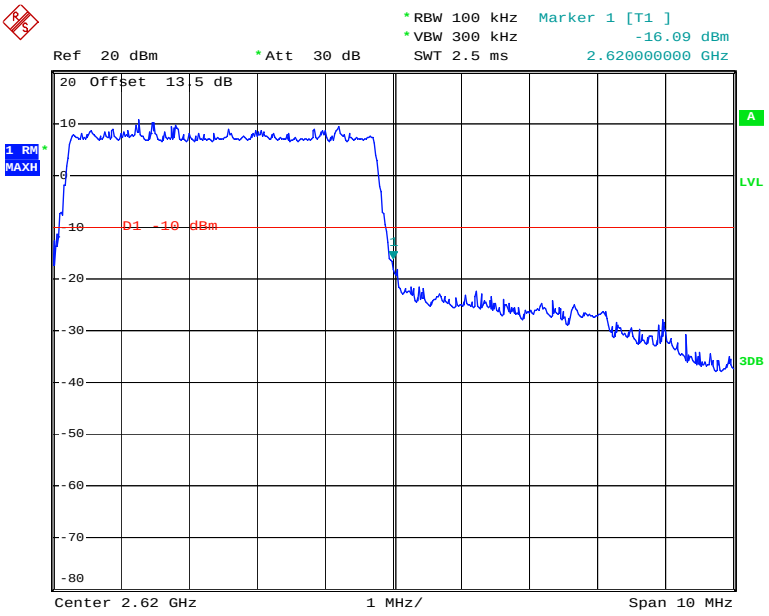
Date: 16.MAY.2018 00:43:33

16QAM _5MHz_ 25 RB_ Left



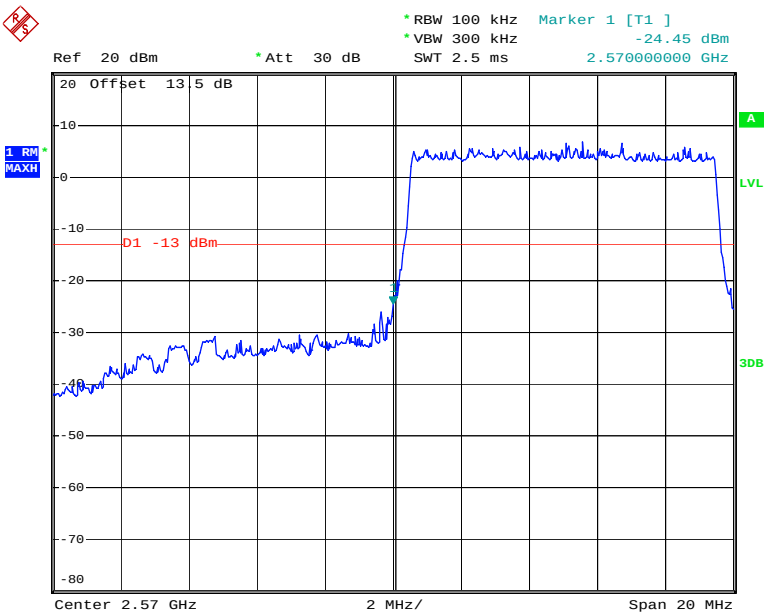
Date: 16.MAY.2018 00:50:05

16QAM _5MHz_ 25 RB_ Right



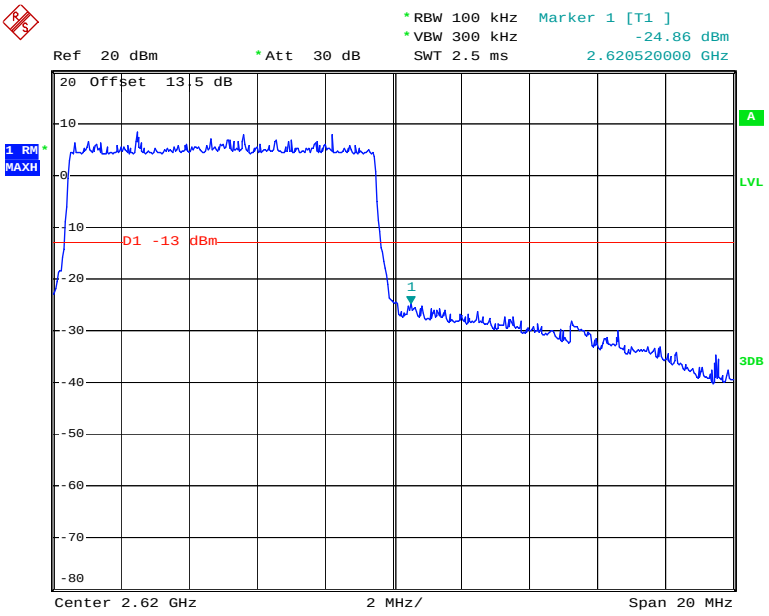
Date: 16.MAY.2018 00:50:45

16QAM_10MHz_ 50 RB_ Left



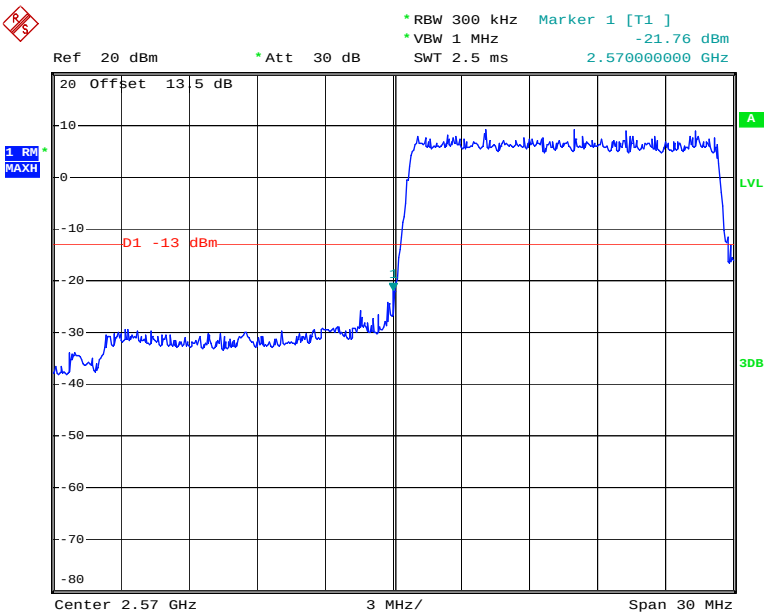
Date: 16.MAY.2018 00:47:32

16QAM_10MHz_ 50 RB_ Right



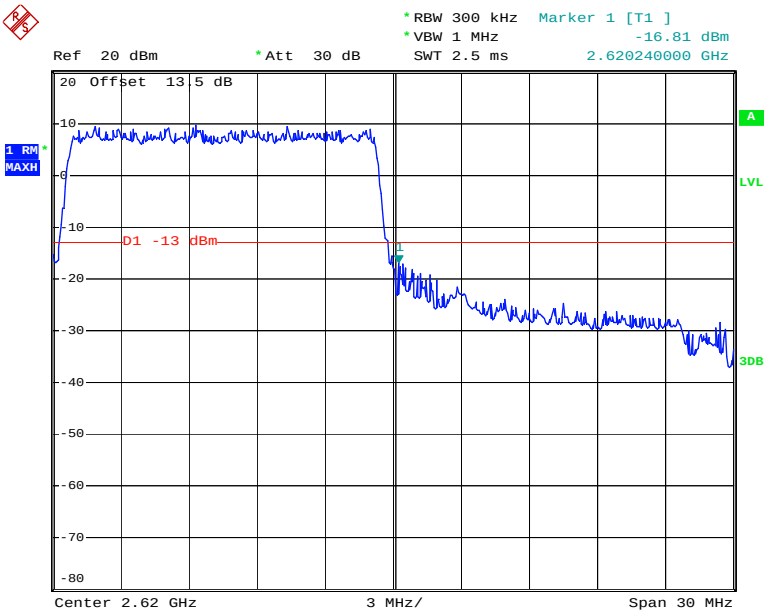
Date: 16.MAY.2018 00:45:25

16QAM_15MHz_ 75 RB_ Left



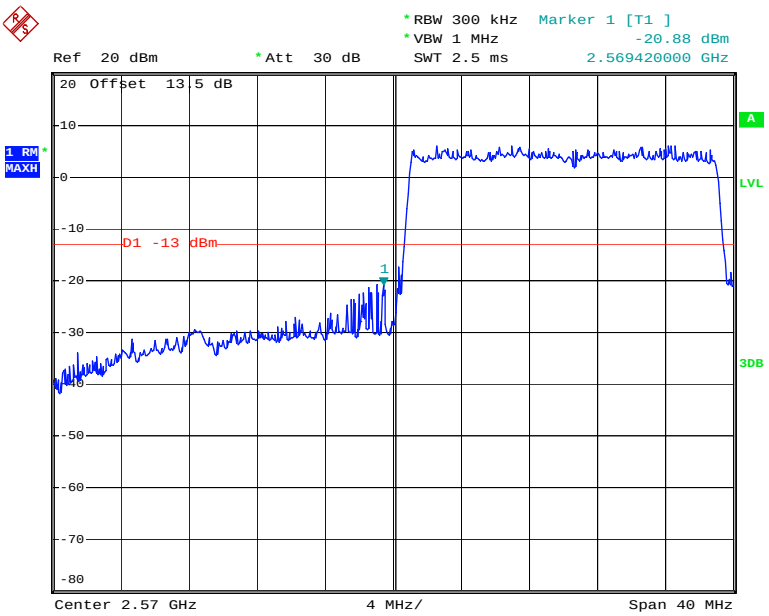
Date: 16.MAY.2018 00:40:20

16QAM_15MHz_ 75 RB_ Right



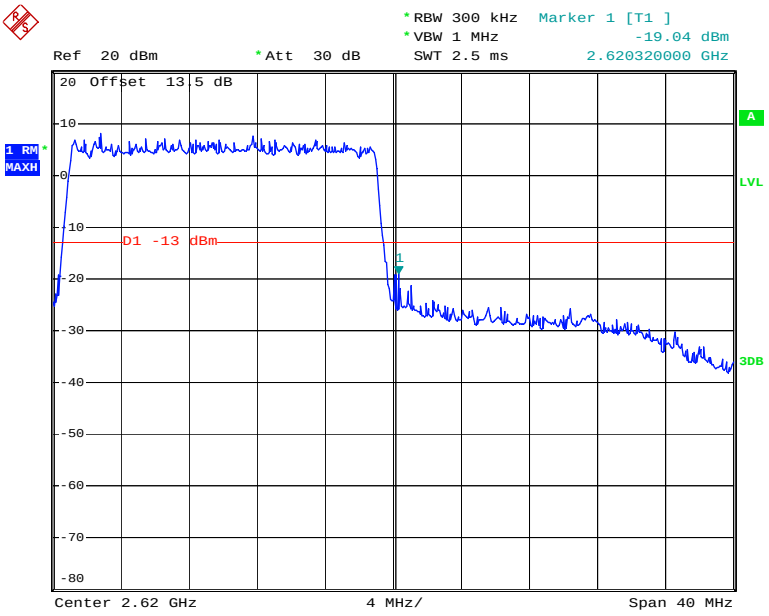
Date: 16.MAY.2018 00:39:24

16QAM_20MHz_ FULL RB_ Left



Date: 16.MAY.2018 00:42:24

16QAM_20MHz_ FULL RB_ Right



Date: 16.MAY.2018 00:44:04

FCC §2.1055, §22.355 & §24.235 & §27.54& §90.213 AND RSS-130 §4.3 & RSS-132 §5.3& RSS-133 §6.3 & RSS-139 §6.4& RSS-199 §4.3 - FREQUENCY STABILITY

Applicable Standard

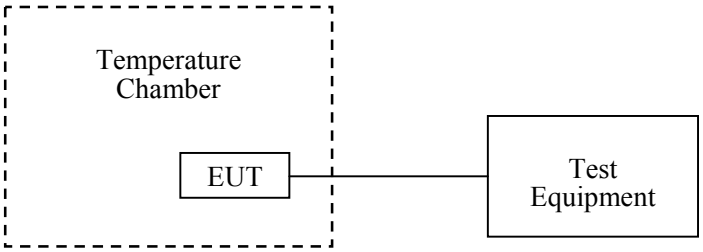
FCC § 2.1055 (a), § 2.1055 (d), §22.355, §24.235，§27.54, §90.213and RSS-130 §4.3 & RSS-132 §5.3 & RSS-133 §6.3 & RSS-139 §6.4& RSS-199 §4.3

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 DC 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
Dongzhixu	High Temperature Test Chamber	DP1000	201105083-4	2016-09-10	2017-09-09
R&S	Universal Radio Communication Tester	CMU200	109 038	2017-07-18	2018-07-18
R&S	Wideband Radio Communication Tester	CMW500	147473	2017-08-31	2018-08-31
UNI-T	Multimeter	UT39A	M130199938	2017-04-02	2018-04-02
N/A	Coaxial Cable	C-SJ00-0010	C0010/01	Each Time	/
Pro instrument	DC Power Supply	pps3300	N/A	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:	20.7~25.5 °C
Relative Humidity:	28~55 %
ATM Pressure:	100.9~102.1 kPa

The testing was performed by David Huang and Swim Lv on 2018-02-06 and 2018-04-18.

GPRS, Middle Channel, f_c = 836.6 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**FCC&ISEDC Limit**
℃	**V_{DC}**	**Hz**	**ppm**	**ppm**
-30	7.2	20	0.024	2.5
-20		21	0.025	
-10		20	0.024	
0		20	0.024	
10		21	0.025	
20		21	0.025	
30		19	0.023	
40		21	0.025	
50		18	0.022	
25	6.6	21	0.025	
25	8.4	19	0.023	

GPRS, Middle Channel, f_c = 1880.0 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**ISEDC Limit**
℃	**V_{DC}**	**Hz**	**ppm**	**ppm**
-30	7.2	15	0.008	2.5
-20		14	0.007	
-10		14	0.007	
0		15	0.008	
10		15	0.008	
20		16	0.009	
30		15	0.008	
40		16	0.009	
50		17	0.009	
25	6.6	14	0.007	
25	8.4	16	0.009	

Note: FCC no limit was specified.

EDGE, Middle Channel, f_c = 836.6 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**FCC&ISEDC Limit**
℃	**V_{DC}**	**Hz**	**ppm**	**ppm**
-30	7.2	16	0.019	2.5
-20		15	0.018	
-10		16	0.019	
0		15	0.018	
10		16	0.019	
20		18	0.022	
30		16	0.019	
40		14	0.017	
50		15	0.018	
25	6.6	18	0.022	
25	8.4	17	0.020	

EDGE, Middle Channel, f_c = 1880.0 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**ISEDC Limit**
℃	**V_{DC}**	**Hz**	**ppm**	**ppm**
-30	7.2	8	0.004	2.5
-20		8	0.004	
-10		9	0.005	
0		7	0.004	
10		8	0.004	
20		10	0.005	
30		9	0.005	
40		9	0.005	
50		7	0.004	
25	6.6	9	0.005	
25	8.4	7	0.004	

Note: FCC no limit was specified.

WCDMA Band 2: R99

Middle Channel, f_c = 1880.0 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**ISEDC Limit**
℃	**V_{DC}**	**Hz**	**ppm**	**ppm**
-30	7.2	-1	-0.001	2.5
-20		0	0.000	
-10		-1	-0.001	
0		-2	-0.001	
10		-1	-0.001	
20		-1	-0.001	
30		0	0.000	
40		-1	-0.001	
50		-1	-0.001	
25	6.6	-1	-0.001	
25	8.4	-2	-0.001	

Note: FCC no limit was specified.

WCDMA Band 4: R99

Temperature	**Voltage**	**Test Result (MHz)**		**FCC/ISEDC Limit (MHz)**	
℃	**V_{DC}**	**F_L**	**F_H**	**F_L**	**F_H**
-30	7.2	1710.5400000	1745.5700000	1710	1755
-20		1710.4800014	1745.5499986	1710	1755
-10		1710.5500017	1745.5999983	1710	1755
0		1710.5400012	1745.5899988	1710	1755
10		1710.4600019	1745.4699982	1710	1755
20		1710.5200010	1745.5199990	1710	1755
30		1710.5000005	1745.5199995	1710	1755
40		1710.5100002	1745.5399998	1710	1755
50		1710.5400003	1745.5099997	1710	1755
25	6.6	1710.5299995	1745.4600005	1710	1755
25	8.4	1710.5599996	1745.5400004	1710	1755

Note: the FL and FH was determined by OBW low point and high point in lowest and highest channels

WCDMA Band 5: R99

Middle Channel, f_c = 836.6 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**FCC&ISEDC Limit**
℃	**V_{DC}**	**Hz**	**ppm**	**ppm**
-30	7.2	-1	-0.001	2.5
-20		-1	-0.001	
-10		0	0.000	
0		-1	-0.001	
10		0	0.000	
20		0	0.000	
30		-1	-0.001	
40		-2	-0.002	
50		-1	-0.001	
25	6.6	0	0.000	
25	8.4	-1	-0.001	

LTE Band 2:

QPSK, Channel Bandwidth:10MHz Middle Channel, f_c = 1880 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**ISEDC Limit**
℃	**V_{DC}**	**Hz**	**ppm**	**ppm**
-30	7.2	-2.80	-0.0015	2.5
-20		-3.75	-0.0020	
-10		-3.79	-0.0020	
0		-3.25	-0.0017	
10		-3.19	-0.0017	
20		-1.93	-0.0010	
30		-2.25	-0.0012	
40		-3.77	-0.0020	
50		-3.40	-0.0018	
25	6.6	-4.32	-0.0023	
25	8.4	-3.82	-0.0020	

Note: FCC no limit was specified.

16QAM, Channel Bandwidth:10MHz Middle Channel, f_c =1880 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**ISEDC Limit**
℃	**V_{DC}**	**Hz**	**ppm**	**ppm**
-30	7.2	-2.72	-0.0014	2.5
-20		-3.46	-0.0018	
-10		-3.19	-0.0017	
0		-4.36	-0.0023	
10		-2.88	-0.0015	
20		-3.76	-0.0020	
30		-3.26	-0.0017	
40		-3.52	-0.0019	
50		-3.76	-0.0020	
25	6.6	-4.05	-0.0022	
25	8.4	-3.25	-0.0017	

Note: FCC no limit was specified.

LTE Band 4:

QPSK, Channel Bandwidth:20MHz					
Temperature	**Voltage**	**Test Result (MHz)**		**FCC/ISEDC Limit (MHz)**	
℃	**V_{DC}**	**F_L**	**F_H**	**F_L**	**F_H**
-30	7.2	1710.503264	1754.696774	1710	1755
-20		1710.503254	1754.696765	1710	1755
-10		1710.503232	1754.696767	1710	1755
0		1710.503253	1754.696777	1710	1755
10		1710.503224	1754.696775	1710	1755
20		1710.503263	1754.696765	1710	1755
30		1710.503254	1754.696739	1710	1755
40		1710.503258	1754.696774	1710	1755
50		1710.503255	1754.696733	1710	1755
25	6.6	1710.503251	1754.696752	1710	1755
25	8.4	1710.503269	1754.696724	1710	1755

16QAM, Channel Bandwidth:20MHz					
Temperature	Voltage	Test Result (MHz)		FCC/ISEDC Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	7.2	1710.1599993	1754.4800007	1710	1755
-20		1710.0900005	1754.5799995	1710	1755
-10		1710.1400008	1754.4799992	1710	1755
0		1710.1800008	1754.5099992	1710	1755
10		1710.1399999	1754.4500001	1710	1755
20		1710.1600004	1754.5199996	1710	1755
30		1710.1000014	1754.4899986	1710	1755
40		1710.1700006	1754.5599994	1710	1755
50		1710.2200007	1754.5999993	1710	1755
25	6.6	1710.2099993	1754.5700007	1710	1755
25	8.4	1710.2299991	1754.4800009	1710	1755

Note: the FL and FH was determined by OBW low point and high point in lowest and highest channels

LTE Band 5:

QPSK, Channel Bandwidth:10MHz Middle Channel, f_c = 836.5 MHz				
Temperature	Voltage	Frequency Error	Frequency Error	FCC&ISEDC Limit
℃	V_{DC}	Hz	ppm	ppm
-30	7.2	-1.39	-0.0017	2.5
-20		-0.56	-0.0007	
-10		-0.46	-0.0005	
0		-0.69	-0.0008	
10		-0.80	-0.0010	
20		-1.24	-0.0015	
30		-1.23	-0.0015	
40		-0.92	-0.0011	
50		-1.65	-0.0020	
25	6.6	-0.62	-0.0007	
25	8.4	-0.49	-0.0006	

16QAM, Channel Bandwidth:10MHz Middle Channel, f_c =836.5 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**FCC&ISEDC Limit**
℃	**V_{DC}**	**Hz**	**ppm**	**ppm**
-30	7.2	-1.20	-0.0014	2.5
-20		-1.17	-0.0014	
-10		-1.54	-0.0018	
0		-1.02	-0.0012	
10		-1.42	-0.0017	
20		-1.37	-0.0016	
30		-0.27	-0.0003	
40		-1.77	-0.0021	
50		-0.93	-0.0011	
25	6.6	-1.33	-0.0016	
25	8.4	-2.16	-0.0026	

LTE Band 7:

QPSK, Channel Bandwidth:20MHz					
Temperature	**Voltage**	**Test Result (MHz)**		**FCC/ISEDC Limit (MHz)**	
℃	**V_{DC}**	**F_L**	**F_H**	**F_L**	**F_H**
-30	7.2	2500.1400022	2569.7599978	2500	2570
-20		2500.1200025	2569.7899975	2500	2570
-10		2500.1100059	2569.8099942	2500	2570
0		2500.1200054	2569.8199946	2500	2570
10		2500.1300047	2569.7899953	2500	2570
20		2500.1200046	2569.7999954	2500	2570
30		2500.1000037	2569.7899963	2500	2570
40		2500.1100048	2569.8099952	2500	2570
50		2500.1200057	2569.7899943	2500	2570
25	6.6	2500.1200056	2569.7999944	2500	2570
25	8.4	2500.1400053	2569.8099948	2500	2570

16QAM, Channel Bandwidth:20MHz					
Temperature	Voltage	Test Result (MHz)		FCC/ISEDC Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	7.2	2500.1800018	2569.6899982	2500	2570
-20		2500.1900010	2569.6799990	2500	2570
-10		2500.1900045	2569.6899955	2500	2570
0		2500.2100055	2569.6999946	2500	2570
10		2500.2200051	2569.6699949	2500	2570
20		2500.2000014	2569.6799986	2500	2570
30		2500.2199999	2569.6600001	2500	2570
40		2500.2099998	2569.6700002	2500	2570
50		2500.1900006	2569.6799994	2500	2570
25	6.6	2500.1800010	2569.6599990	2500	2570
25	8.4	2500.2100010	2569.6799990	2500	2570

Note: the FL and FH was determined by unwanted emission limit low point and high point in lowest and highest channels

LTE Band 12:

QPSK, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		FCC/ISEDC Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	7.2	699.2100010	715.7999990	699	716
-20		699.2200016	715.8099984	699	716
-10		699.1900016	715.7899984	699	716
0		699.1900019	715.8099981	699	716
10		699.2000020	715.7999980	699	716
20		699.2000023	715.7999977	699	716
30		699.1900013	715.7899987	699	716
40		699.2000015	715.8199985	699	716
50		699.2100010	715.7999990	699	716
25	6.6	699.2000009	715.5099991	699	716
25	8.4	699.2100011	715.8199989	699	716

16QAM, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		FCC/ISEDC Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	7.2	699.2799996	715.8100004	699	716
-20		699.2700001	715.8199999	699	716
-10		699.2599991	715.7900009	699	716
0		699.2900004	715.7799996	699	716
10		699.2800006	715.8199994	699	716
20		699.2800000	715.8000000	699	716
30		699.2599998	715.7800002	699	716
40		699.2699999	715.7900001	699	716
50		699.2599993	715.7800007	699	716
25	6.6	699.2800014	715.7899986	699	716
25	8.4	699.2900018	715.8099982	699	716

Note: the FL and FH was determined by unwanted emission limit low point and high point in lowest and highest channels

LTE Band 13:

QPSK, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		FCC/ISEDC Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	7.2	777.1200015	786.8099985	777	787
-20		777.1200012	786.7899988	777	787
-10		777.1100018	786.8099983	777	787
0		777.1300014	786.7799986	777	787
10		777.1200009	786.8099991	777	787
20		777.1200009	786.7999991	777	787
30		777.1100014	786.7899986	777	787
40		777.1000017	786.8199983	777	787
50		777.1300027	786.7899973	777	787
25	6.6	777.1400019	786.8099981	777	787
25	8.4	777.1200007	786.7999993	777	787

16QAM, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		FCC/ISEDC Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	7.2	777.2000022	786.8099978	777	787
-20		777.2100028	786.8099972	777	787
-10		777.1900012	786.8099988	777	787
0		777.1800012	786.7999988	777	787
10		777.1900015	786.7999985	777	787
20		777.2000013	786.7999987	777	787
30		777.2000013	786.8099987	777	787
40		777.1900014	786.7899986	777	787
50		777.1900015	786.7899985	777	787
25	6.6	777.1900011	786.8099989	777	787
25	8.4	777.2000008	786.8099992	777	787

Note: the FL and FH was determined by unwanted emission limit low point and high point in lowest and highest channels

LTE Band 17:

QPSK, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		FCC/ISEDC Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	7.2	704.0900013	715.8499987	704	716
-20		704.0900017	715.8399984	704	716
-10		704.0800001	715.8499999	704	716
0		704.0700004	715.8599996	704	716
10		704.0700009	715.8599991	704	716
20		704.0800005	715.8399995	704	716
30		704.0800006	715.8399994	704	716
40		704.0800009	715.8499991	704	716
50		704.0900014	715.8399986	704	716
25	6.6	704.0800004	715.8399996	704	716
25	8.4	704.0800010	715.8299990	704	716

16QAM, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		FCC/ISEDC Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	7.2	704.2200003	715.8099997	704	716
-20		704.2100010	715.8099990	704	716
-10		704.2100009	715.7899991	704	716
0		704.1900013	715.7899987	704	716
10		704.1900002	715.7999998	704	716
20		704.2000013	715.7999987	704	716
30		704.1900013	715.8099987	704	716
40		704.2100012	715.8099988	704	716
50		704.2200010	715.8199990	704	716
25	6.6	704.2100009	715.8099991	704	716
25	8.4	704.2000005	715.8099995	704	716

Note: the FL and FH was determined by unwanted emission limit low point and high point in lowest and highest channels

LTE Band 25:

QPSK, Channel Bandwidth:10MHz Middle Channel, f_c = 1882.5 MHz				
Temperature	Voltage	Frequency Error	Frequency Error	ISEDC Limit
℃	V_{DC}	Hz	ppm	ppm
-30	7.2	2.07	0.0011	2.5
-20		1.06	0.0006	
-10		-0.31	-0.0002	
0		0.97	0.0005	
10		-0.33	-0.0002	
20		1.27	0.0007	
30		1.90	0.0010	
40		1.97	0.0010	
50		1.22	0.0006	
25	6.6	2.65	0.0014	
25	8.4	-1.85	-0.0010	

Note: FCC no limit was specified.

16QAM, Channel Bandwidth:10MHz Middle Channel, f_c =1882.5 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**ISEDC Limit**
℃	**V_{DC}**	**Hz**	**ppm**	**ppm**
-30	7.2	-4.08	-0.0022	2.5
-20		1.46	0.0008	
-10		-0.64	-0.0003	
0		0.75	0.0004	
10		0.63	0.0003	
20		-2.12	-0.0011	
30		-2.35	-0.0012	
40		-3.18	-0.0017	
50		-2.66	-0.0014	
25	6.6	-3.25	-0.0017	
25	8.4	-5.10	-0.0027	

Note: FCC no limit was specified.

LTE Band 26:

QPSK, Channel Bandwidth:10MHz Middle Channel, f_c = 831.5 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**FCC/ISEDC Limit**
℃	**V_{DC}**	**Hz**	**ppm**	**ppm**
-30	7.2	0.03	0.0000	2.5
-20		0.53	0.0006	
-10		-0.66	-0.0008	
0		-0.83	-0.0010	
10		-0.69	-0.0008	
20		-0.34	-0.0004	
30		-0.36	-0.0004	
40		-0.56	-0.0007	
50		-0.36	-0.0004	
25	6.6	-1.29	-0.0016	
25	8.4	-0.97	-0.0012	

16QAM, Channel Bandwidth:10MHz Middle Channel, f_c = 831.5 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**FCC/ISEDC Limit**
℃	**V_{DC}**	**Hz**	**ppm**	**ppm**
-30	7.2	-0.53	-0.0006	2.5
-20		-0.36	-0.0004	
-10		-0.33	-0.0004	
0		0.07	0.0001	
10		-0.92	-0.0011	
20		-0.44	-0.0005	
30		-0.83	-0.0010	
40		-0.90	-0.0011	
50		-0.82	-0.0010	
25	6.6	-1.06	-0.0013	
25	8.4	-0.03	0.0000	

LTE Band 41:
For FCC

QPSK, Channel Bandwidth:20MHz					
Temperature	**Voltage**	**Test Result (MHz)**		**FCC Limit (MHz)**	
℃	**V_{DC}**	**F_L**	**F_H**	**F_L**	**F_H**
-30	7.2	2496.1200054	2689.8199946	2496	2690
-20		2496.1300047	2689.7899953	2496	2690
-10		2496.1200046	2689.7999954	2496	2690
0		2496.1400022	2689.7599978	2496	2690
10		2496.1200025	2689.7899975	2496	2690
20		2496.1100059	2689.8099942	2496	2690
30		2496.1000037	2689.7899963	2496	2690
40		2496.1200056	2689.7999944	2496	2690
50		2496.1400053	2689.8099948	2496	2690
25	6.6	2496.1100048	2689.8099952	2496	2690
25	8.4	2496.1200057	2689.7899943	2496	2690

16QAM, Channel Bandwidth:20MHz					
Temperature	Voltage	Test Result (MHz)		FCC Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	7.2	2496.2200051	2689.6699949	2496	2690
-20		2496.2000014	2689.6799986	2496	2690
-10		2496.2199999	2689.6600001	2496	2690
0		2496.1800018	2689.6899982	2496	2690
10		2496.1900010	2689.6799990	2496	2690
20		2496.1900045	2689.6899955	2496	2690
30		2496.2100010	2689.6799990	2496	2690
40		2496.2099998	2689.6700002	2496	2690
50		2496.1900006	2689.6799994	2496	2690
25	6.6	2496.1800010	2689.6599990	2496	2690
25	8.4	2496.2100010	2689.6799990	2496	2690

For ISEDC:

QPSK, Channel Bandwidth:20MHz					
Temperature	Voltage	Test Result (MHz)		ISEDC Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	7.2	2570.1900007	2619.7699993	2570	2620
-20		2570.1900013	2619.7599987	2570	2620
-10		2570.1800033	2619.7699968	2570	2620
0		2570.2100043	2619.7699957	2570	2620
10		2570.2200004	2619.7799996	2570	2620
20		2570.2000018	2619.7599982	2570	2620
30		2570.2100036	2619.7899964	2570	2620
40		2570.2200027	2619.7899973	2570	2620
50		2570.1900032	2619.7799969	2570	2620
25	6.6	2570.1900012	2619.7799988	2570	2620
25	8.4	2570.1800008	2619.7899993	2570	2620

16QAM, Channel Bandwidth:20MHz					
Temperature	Voltage	Test Result (MHz)		ISEDC Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	7.2	2570.2900013	2619.7099988	2570	2620
-20		2570.2600019	2619.7099981	2570	2620
-10		2570.2600009	2619.7199992	2570	2620
0		2570.2500028	2619.7299973	2570	2620
10		2570.2600032	2619.7299968	2570	2620
20		2570.2800026	2619.7199974	2570	2620
30		2570.2900022	2619.7099978	2570	2620
40		2570.2800009	2619.7199991	2570	2620
50		2570.2800022	2619.7299978	2570	2620
25	6.6	2570.2800016	2619.7099984	2570	2620
25	8.4	2570.2800019	2619.7199982	2570	2620

Note: the FL and FH was determined by unwanted emission limit low point and high point in lowest and highest channels

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