TESTING LABORATORY
CERTIFICATE #4820.01

FCC PART 22H, PART 24E

FCC PART 27, PART 90

MEASUREMENT AND TEST REPORT

For

HONGKONG UCLOUDLINK NETWORK TECHNOLOGY LIMITED

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FCC ID: 2AC88-GLMU18A01

Report Type:	Product Type:
Original Report	4G Wireless Data Terminal

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Report Date:	2018-08-28
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

EUT Name:	4G Wireless Data Terminal
EUT Model:	GLMU18A01
FCC ID:	2AC88-GLMU18A01
Rated Input Voltage:	DC3.8V from Battery or DC 5V from USB port
External Dimension:	Length (132 mm)*Width (72 mm)*High (14 mm)
Serial Number:	180523006
EUT Received Date:	2018.05.23

Objective

This report is prepared on behalf of ***HONGKONG UCLOUDLINK NETWORK TECHNOLOGY LIMITED*** in accordance with: Part 2-Subpart J, Part 22-Subpart H, Part 24-Subpart E, Part 27 and part 90 of the Federal Communication Commissions rules.

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

Related Submittal(s)/Grant(s)

FCC Part 15C DTS submissions with FCC ID: 2AC88-GLMU18A01.
FCC Part 15C DSS submissions with FCC ID: 2AC88-GLMU18A01.
FCC Part 15B JBP submissions with FCC ID: 2AC88-GLMU18A01.

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

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

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

Measurement Uncertainty

Parameter	Measurement Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±0.61dB
Unwanted Emissions, radiated	30MHz ~ 1GHz:5.85 dB 1G~26.5GHz: 5.23 dB
Unwanted Emissions, conducted	±1.5 dB
Temperature	±1℃
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 support GPRS/ EDGE 850 band and 1900 band, WCDMA/HSUPA/HPDPA/HSPA+ Band 2, Band 4 and band 5, LTE band 2,4, 5, 7,12,13,17,18,19,26,38,40 and 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 18	5	817.5	822.5	827.5
	10	820	822.5	825
	15	/	822.5	/
LTE Band 19	5	832.5	837.5	842.5
	10	835	837.5	840
	15	/	837.5	/

Frequency Bands	Bandwidth (MHz)	Test Frequency(MHz)		
		Low	Middle	High
LTE Band 26	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 38	5	2572.5	2595	2617.5
	10	2575	2595	2615
	15	2577.5	2595	2612.5
	20	2580	2595	2610
LTE Band 40 2305-2315MHz	5	2307.5	2310	2312.5
	10	/	2310	/
LTE Band 40 2350-2360MHz	5	2352.5	2355	2357.5
	10	/	2355	/
LTE Band 41	5	2498.5	2593	2687.5
	10	2501	2593	2685
	15	2503.5	2593	2682.5
	20	2506	2593	2680

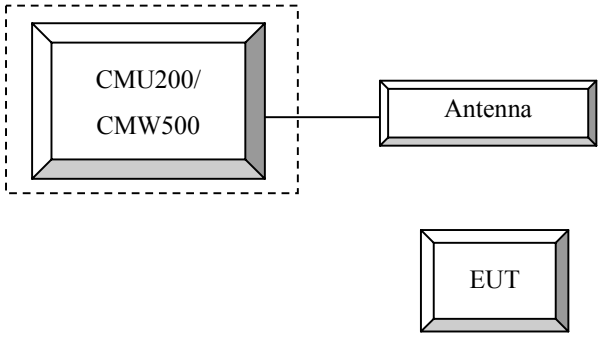
Equipment Modifications

No modification was made to the EUT.

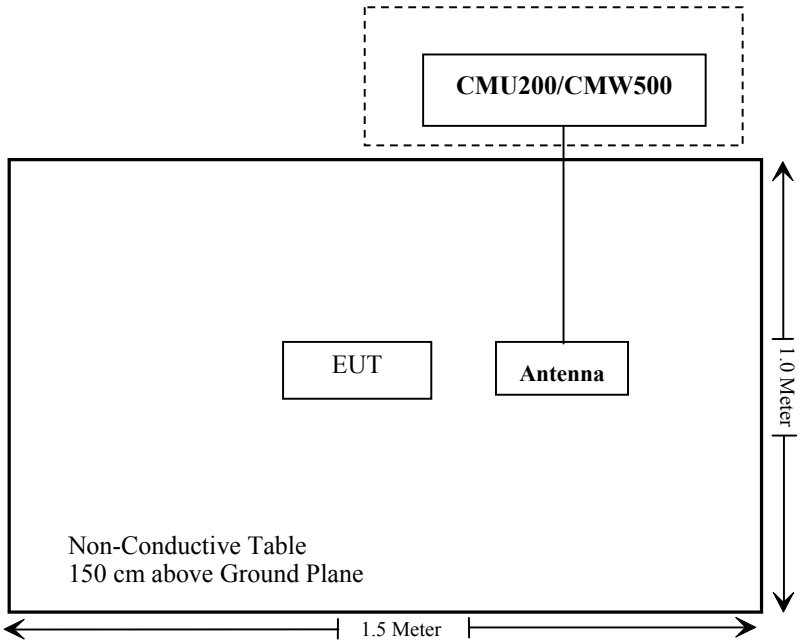
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
R&S	Universial Radio Communication Tester	CMU200	109038
R&S	Wideband Radio Communication Tester	CMW500	110479
N/A	ANTENNA	N/A	N/A

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1310, §2.1093	RF Exposure	Compliance
§2.1046; § 22.913 (a); § 24.232 (c); §27.50;§90.635	RF Output Power	Compliance
§ 2.1047	Modulation Characteristics	Not Applicable
§ 2.1049; § 22.905 § 22.917; § 24.238; §27.53;§90.209	Occupied Bandwidth	Compliance
§ 2.1051, § 22.917 (a); § 24.238 (a); §27.53;§90.691	Spurious Emissions at Antenna Terminal	Compliance
§ 2.1053 § 22.917 (a); § 24.238 (a); §27.53;§90.691	Field Strength of Spurious Radiation	Compliance
§ 22.917 (a); § 24.238 (a); §27.53;§90.691	Out of band emission, Band Edge	Compliance
§ 2.1055 § 22.355; § 24.235; §27.54 §90.213	Frequency stability vs. temperature Frequency stability vs. voltage	Compliance

FCC §1.1310 & §2.1093- RF EXPOSURE

Applicable Standard

FCC§1.1310 and §2.1093.

Test Result

Compliance, please refer to the SAR report: RDG180523006-20, RXZ180808004.

FCC §2.1047 - MODULATION CHARACTERISTIC

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

FCC § 2.1046, § 22.913 (a) & § 24.232 (c) & § 27.50& §90.635 - RF OUTPUT POWER

Applicable Standard

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

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

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

According to §27.50

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

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

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

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

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

According to §90.635

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

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
EMCO	Adjustable Dipole Antenna	3121C	9109-753	N/A	N/A
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2017-09-05	2018-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2017-09-05	2018-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1000-01	2017-09-05	2018-09-05
Rohde & Schwarz	Signal Analyzer	FSIQ26	831929/005	2017-08-31	2018-08-31
TDK RF	Horn Antenna	HRN-0118	130 084	2016-01-05	2019-01-04
ETS-Lindgren	Horn Antenna	3115	000 527 35	2016-01-05	2019-01-04
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2017-09-05	2018-09-05
MICRO-COAX	Coaxial Cable	UFA147-1-2362-100100	64639 231029-001	2018-02-24	2019-02-28
R&S	Universal Radio Communication Tester	CMU200	109 038	2017-07-21	2018-07-21
R&S	Universal Radio Communication Tester	CMU200	109 038	2018-07-21	2019-07-21
R&S	Wideband Radio Communication Tester	CMW500	110479	2017-12-11	2018-12-11
Agilent	Signal Generator	E8247C	MY43321350	2017-12-11	2018-12-11

*** 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:	27.4°C
Relative Humidity:	55 %
ATM Pressure:	101.4 kPa

** The testing was performed by Sunny Cen & Vern Shen from 2018-06-11~ 2018-08-28*

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	29.79	27.88	26.37	24.63	22.48	22.37	21.35	19.03
	190	29.82	27.94	26.42	24.68	22.47	22.38	21.35	19.01
	251	29.86	28.01	26.44	24.73	22.76	22.67	21.63	19.34
PCS	512	27.23	25.14	23.58	21.79	23.51	22.97	21.78	20.05
	661	27.18	25.19	23.64	21.81	23.35	23.26	21.75	19.97
	810	27.02	25.15	23.61	21.82	23.14	22.59	21.65	19.85

WCDMA Band II

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	20.63	2.52	20.34	2.68	20.33	2.76
HSDPA	1	19.53	3.72	19.34	3.00	19.16	3.52
	2	19.44	3.91	19.38	3.97	19.12	3.90
	3	19.37	3.86	19.32	3.92	19.09	3.90
	4	19.99	4.01	19.28	4.00	19.17	3.96
HSUPA	1	19.51	3.60	19.33	3.76	19.15	3.96
	2	19.33	3.96	20.23	3.92	19.11	3.93
	3	19.42	4.01	20.07	4.01	19.19	3.91
	4	19.45	4.00	20.14	3.89	19.21	3.91
	5	19.36	3.90	19.94	3.90	19.08	3.96
HSPA+	1	20.35	3.25	20.24	3.20	20.50	3.22

WCDMA Band IV

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	20.37	2.96	20.02	3.08	20.23	3.04
HSDPA	1	20.15	4.20	19.82	3.44	20.20	3.56
	2	20.33	4.15	19.99	3.45	20.21	3.64
	3	20.31	4.23	19.95	3.55	20.19	3.60
	4	20.25	4.21	19.86	3.36	20.18	3.45
HSUPA	1	20.12	3.84	19.72	3.56	20.15	3.88
	2	20.11	3.80	19.84	3.54	20.12	3.87
	3	20.21	3.78	19.75	3.59	20.20	3.82
	4	20.29	3.85	19.80	3.64	20.10	3.78
	5	20.30	3.86	19.71	3.49	20.18	3.89
HSPA+	1	20.34	3.74	19.80	3.40	20.22	3.80

WCDMA Band V

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	20.69	3.12	20.76	2.76	20.73	2.92
HSDPA	1	20.57	3.68	20.49	3.72	20.26	3.92
	2	20.55	3.65	20.56	3.75	20.69	3.96
	3	20.56	3.54	20.44	3.79	20.63	3.88
	4	20.46	3.56	20.50	3.80	20.56	3.89
HSUPA	1	20.58	4.32	20.49	3.76	20.24	3.32
	2	20.54	4.30	20.40	3.70	20.46	3.30
	3	20.49	4.38	20.38	3.56	20.25	3.56
	4	20.59	4.36	20.39	3.68	20.36	3.44
	5	20.60	4.29	20.46	3.89	20.15	3.46
HSPA+	1	20.64	4.22	20.56	3.79	20.22	3.52

LTE Band 2

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	1#0	21.02	21.30	21.37
		1#3	21.03	21.35	21.51
		1#5	21.03	21.37	21.50
		3#0	21.11	21.31	21.43
		3#3	21.11	21.30	21.47
		6#0	20.04	20.20	20.56
	16QAM	1#0	19.72	20.63	21.06
		1#3	19.69	20.30	21.03
		#5	19.91	20.35	20.54
		3#0	20.28	20.24	20.65
		3#3	20.27	20.36	20.70
		6#0	19.08	19.51	19.72
3MHz	QPSK	1#0	21.06	21.17	21.42
		1#8	21.02	21.20	21.47
		1#14	21.10	21.24	21.42
		6#0	20.07	20.23	20.46
		6#9	20.08	20.33	20.47
		15#0	20.13	20.24	20.47
	16QAM	1#0	20.28	20.78	20.25
		1#8	20.09	20.81	20.25
		1#14	20.09	20.78	20.24
		6#0	19.26	19.40	19.67
		6#9	19.07	19.42	19.67
		15#0	19.27	19.42	19.66
5MHz	QPSK	1#0	20.90	21.25	21.39
		1#13	20.97	21.28	21.40
		1#24	21.01	21.29	21.51
		15#0	20.09	20.27	20.50
		15#10	20.16	20.35	20.55
		25#0	20.09	20.23	20.35
	16QAM	1#0	19.78	20.18	20.00
		1#13	20.25	20.21	20.08
		1#24	20.26	20.23	20.10
		15#0	19.13	19.43	19.54
		15#10	19.14	19.42	19.58
		25#0	19.15	19.44	19.64

10MHz	QPSK	1#0	20.98	21.22	21.32
		1#25	21.03	21.22	21.39
		1#49	21.06	21.34	21.42
		25#0	20.12	20.41	20.45
		25#25	20.14	20.34	20.40
		50#0	20.12	20.38	20.36
	16QAM	1#0	20.31	20.42	20.19
		1#25	20.37	20.48	20.15
		1#49	20.57	20.56	20.20
		25#0	19.16	19.36	19.62
		25#25	19.25	19.48	19.72
		50#0	19.30	19.35	19.57
15MHz	QPSK	1#0	20.89	21.24	21.28
		1#38	20.97	21.26	21.29
		1#74	21.14	21.40	21.47
		36#0	20.29	20.33	20.43
		36#39	20.39	20.47	20.41
		75#0	20.21	20.30	20.42
	16QAM	1#0	20.36	20.38	20.23
		1#38	20.46	20.39	20.29
		1#74	20.62	20.52	20.45
		36#0	19.26	19.47	19.50
		36#39	19.34	19.49	19.60
		75#0	19.42	19.46	19.53
20MHz	QPSK	1#0	21.08	21.22	21.54
		1#50	21.20	21.23	21.48
		1#99	21.36	21.58	21.59
		50#0	20.24	20.33	20.53
		50#50	20.30	20.37	20.42
		100#0	20.25	20.33	20.51
	16QAM	1#0	20.13	20.27	21.16
		1#50	20.29	20.32	21.16
		1#99	20.41	20.39	21.28
		50#0	19.29	19.44	19.51
		50#50	19.46	19.53	19.60
		100#0	19.36	19.38	19.64

LTE Band 4

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	1#0	19.11	19.05	19.17
		1#3	19.12	19.08	19.12
		1#5	19.10	19.08	19.15
		3#0	19.15	19.14	18.94
		3#3	19.23	19.12	18.87
		6#0	19.21	19.13	18.89
	16QAM	1#0	19.22	19.02	18.91
		1#3	19.21	18.97	18.92
		1#5	19.23	18.98	19.12
		3#0	19.24	19.05	19.07
		3#3	19.28	19.07	19.02
		6#0	19.33	19.19	19.05
3MHz	QPSK	1#0	19.21	19.21	19.20
		1#8	19.25	19.19	19.24
		1#14	19.25	19.18	19.22
		6#0	19.30	19.32	19.10
		6#7	19.32	19.21	19.07
		15#0	19.26	19.32	19.06
	16QAM	1#0	19.35	19.61	18.93
		1#8	19.36	19.62	18.88
		1#14	19.34	19.61	18.86
		6#0	19.42	19.47	18.97
		6#7	19.51	19.45	18.94
		15#0	19.42	19.24	19.08
5MHz	QPSK	1#0	19.43	19.43	19.04
		1#13	19.48	19.42	19.06
		1#24	19.52	19.32	19.08
		15#0	19.32	19.32	19.13
		15#10	19.28	19.22	19.19
		25#0	19.26	19.23	19.05
	16QAM	1#0	19.40	19.95	18.81
		1#13	19.39	19.96	18.83
		1#24	19.45	19.94	18.87
		15#0	19.35	19.34	19.12
		15#10	19.37	19.32	19.07
		25#0	19.29	19.18	19.24

10MHz	QPSK	1#0	19.29	19.25	19.18
		1#24	19.35	19.18	19.09
		1#49	19.29	19.21	19.11
		25#0	19.28	19.22	19.17
		25#25	19.39	19.15	19.15
		50#0	19.27	19.25	19.08
	16QAM	1#0	19.44	19.36	18.91
		1#24	19.46	19.38	18.95
		1#49	19.45	19.35	18.97
		25#0	19.41	19.45	19.05
		25#25	19.39	19.46	19.07
		50#0	19.36	19.21	19.12
15MHz	QPSK	1#0	19.31	19.20	19.16
		1#38	19.25	19.24	19.13
		1#74	19.34	19.29	19.13
		36#0	19.34	19.25	19.21
		36#39	19.33	19.26	19.19
		75#0	19.42	19.36	19.18
	16QAM	1#0	19.41	19.33	19.17
		1#38	19.38	19.35	19.21
		1#74	19.42	19.33	19.18
		36#0	19.46	19.37	19.22
		36#39	19.43	19.32	19.17
		75#0	19.47	19.31	19.22
20MHz	QPSK	1#0	19.34	19.32	19.53
		1#49	19.34	19.31	19.29
		1#99	19.36	19.18	19.31
		50#0	19.33	19.29	19.25
		50#50	19.37	19.26	19.23
		100#0	19.25	19.28	19.31
	16QAM	1#0	19.47	19.25	19.93
		1#49	19.46	19.22	19.91
		1#99	19.44	19.31	19.81
		50#0	19.37	19.35	19.52
		50#50	19.35	19.27	19.47
		100#0	19.29	19.34	19.34

LTE Band 5

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	1#0	21.97	22.04	21.88
		1#3	21.93	22.00	21.86
		1#5	21.91	21.97	21.92
		3#0	21.90	22.02	21.88
		3#3	21.89	22.06	21.84
		6#0	20.94	21.03	21.01
	16QAM	1#0	21.04	21.09	20.68
		1#3	21.01	21.08	20.69
		1#5	21.04	21.09	20.72
		3#0	20.91	20.92	21.07
		3#3	20.95	20.92	21.04
		6#0	19.94	20.07	20.01
3MHz	QPSK	1#0	21.84	22.03	22.02
		1#8	21.88	21.97	21.93
		1#14	21.87	22.01	21.95
		6#0	20.89	20.99	21.03
		6#9	20.90	20.99	21.04
		15#0	20.94	20.93	20.93
	16QAM	1#0	21.25	21.07	20.73
		1#8	21.20	21.06	20.71
		1#14	21.05	21.08	20.71
		6#0	20.08	20.00	19.92
		6#9	20.10	20.07	19.95
		15#0	20.00	20.01	20.02
5MHz	QPSK	1#0	21.91	22.00	21.87
		1#13	21.91	21.95	21.88
		1#24	21.97	22.00	21.85
		15#0	20.87	20.97	20.93
		15#0	20.97	20.96	20.93
		25#0	20.89	21.05	21.05
	16QAM	1#0	20.48	21.18	20.92
		1#13	20.46	21.17	20.84
		1#24	20.62	21.11	20.79
		15#0	19.93	19.92	20.04
		15#10	19.99	19.99	19.94
		25#0	20.08	20.06	20.08
10MHz	QPSK	1#0	21.87	21.99	21.91
		1#25	21.90	21.94	21.83
		1#49	21.94	21.98	21.95
		25#0	20.97	20.87	21.07
		25#25	21.00	21.08	21.12
		50#0	20.90	20.88	20.92
	16QAM	1#0	21.10	21.27	20.67
		1#25	21.18	21.24	20.65
		1#49	21.28	21.34	20.70
		25#0	19.92	20.00	20.16
		25#25	20.04	20.12	20.24
		50#0	19.99	20.02	19.95

LTE Band 7

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	1#0	20.27	20.48	20.49
		1#13	20.35	20.47	20.54
		1#24	20.37	20.48	20.56
		15#0	19.40	19.42	19.69
		15#10	19.32	19.42	19.68
		25#0	19.32	19.48	19.72
	16QAM	1#0	18.87	19.62	19.54
		1#13	18.81	19.65	19.55
		1#24	18.93	19.65	19.56
		15#0	18.42	18.44	18.68
		15#0	18.42	18.51	18.72
		25#0	18.45	18.49	18.76
10MHz	QPSK	1#0	20.34	20.41	20.63
		1#24	20.36	20.41	20.56
		1#49	20.49	20.44	20.57
		25#0	19.32	19.54	19.63
		25#25	19.35	19.49	19.62
		50#0	19.43	19.54	19.64
	16QAM	1#0	19.51	19.19	19.41
		1#24	19.51	19.22	19.39
		1#49	19.56	19.29	19.41
		25#0	18.45	18.69	18.78
		25#25	18.51	18.70	18.78
		50#0	18.40	18.53	18.73
15MHz	QPSK	1#0	20.32	20.49	20.51
		1#38	20.40	20.51	20.53
		1#74	20.49	20.55	20.56
		36#0	19.44	19.61	19.54
		36#39	19.55	19.56	19.65
		75#0	19.43	19.49	19.65
	16QAM	1#0	19.57	19.50	19.57
		1#38	19.71	19.47	19.61
		1#74	19.72	19.53	19.63
		36#0	18.40	18.46	18.74
		36#39	18.48	18.49	18.71
		75#0	18.52	18.54	18.66
20MHz	QPSK	1#0	20.31	20.45	20.52
		1#49	20.41	20.41	20.55
		1#99	20.44	20.47	20.57
		50#0	19.43	19.49	19.60
		50#50	19.46	19.43	19.62
		100#0	19.39	19.53	19.47
	16QAM	1#0	19.89	19.53	19.52
		1#49	20.09	19.51	19.51
		1#99	20.17	19.57	19.53
		50#0	18.38	18.58	18.65
		50#50	18.34	18.64	18.64
		100#0	18.49	18.40	18.65

LTE Band 12

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	1#0	21.85	21.68	21.73
		1#3	21.83	21.72	21.79
		1#5	21.79	21.75	21.88
		3#0	21.77	21.77	21.92
		3#3	21.76	21.84	21.86
		6#0	20.89	20.81	20.93
	16QAM	1#0	20.76	21.19	20.53
		1#3	20.82	21.17	20.53
		1#5	20.78	20.94	20.58
		3#0	20.85	20.78	21.04
		3#3	20.88	20.85	20.96
		6#0	19.87	19.88	19.86
3MHz	QPSK	1#0	21.75	21.77	21.67
		1#8	21.70	21.85	21.69
		1#14	21.77	21.84	21.73
		10#0	20.91	20.88	20.81
		10#5	20.88	20.88	20.96
		15#0	20.86	20.91	20.84
	16QAM	1#0	21.20	21.15	20.98
		1#8	21.17	20.65	20.98
		1#14	21.08	20.59	21.06
		10#0	19.84	19.72	19.90
		10#5	19.81	19.72	19.89
		15#0	19.94	19.97	19.93
5MHz	QPSK	1#0	21.61	22.07	21.91
		1#13	21.82	22.01	21.90
		1#24	21.97	22.01	21.99
		10#0	20.99	20.99	20.97
		10#15	21.05	20.96	21.09
		25#0	20.96	20.96	21.11
	16QAM	1#0	20.53	21.19	20.81
		1#13	20.59	21.22	20.87
		1#24	20.70	21.28	20.91
		10#0	20.12	19.99	20.08
		10#15	20.01	20.00	20.02
		25#0	20.10	20.05	20.06
10MHz	QPSK	1#0	21.93	21.90	21.95
		1#25	21.99	21.94	21.86
		1#49	21.87	22.07	22.07
		25#0	20.91	21.02	20.97
		25#25	20.99	21.05	21.10
		50#0	21.02	21.15	21.05
	16QAM	1#0	21.27	20.99	20.68
		1#25	21.25	21.12	20.74
		1#49	21.27	21.13	20.81
		25#0	20.04	20.15	20.16
		25#25	20.05	20.07	20.11
		50#0	20.10	20.11	20.08

LTE Band 13

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	1#0	22.04	21.79	21.76
		1#13	21.88	21.86	21.83
		1#24	21.84	21.90	21.85
		15#0	21.01	20.85	20.80
		15#10	20.84	20.92	20.94
		25#0	20.88	20.85	20.83
	16QAM	1#0	20.60	20.98	20.64
		1#13	20.46	20.94	20.66
		1#24	20.47	20.95	20.85
		15#0	20.08	19.79	19.92
		15#10	19.98	19.74	19.92
		25#0	19.92	19.80	19.97
10MHz	QPSK	1#0	/	22.00	/
		1#25	/	21.71	/
		1#49	/	21.97	/
		25#0	/	20.92	/
		25#25	/	20.95	/
		50#0	/	20.98	/
	16QAM	1#0	/	21.16	/
		1#25	/	21.10	/
		1#49	/	21.25	/
		25#0	/	19.96	/
		25#25	/	19.97	/
		50#0	/	19.93	/

LTE Band 17

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	1#0	22.00	22.01	21.84
		1#13	21.94	21.97	21.86
		1#24	21.98	22.05	21.99
		15#0	21.06	21.08	21.02
		15#10	21.00	20.99	21.00
		25#0	20.98	20.99	21.03
	16QAM	1#0	20.48	21.21	20.73
		1#13	20.55	21.13	20.77
		1#24	20.60	21.19	20.98
		15#0	20.06	19.92	20.02
		15#10	20.13	19.99	20.09
		25#0	20.14	20.00	19.99
10MHz	QPSK	1#0	21.90	21.98	21.88
		1#25	21.91	21.92	21.83
		1#49	22.03	22.08	22.06
		25#0	20.99	21.09	20.95
		25#25	21.07	21.06	21.08
		50#0	21.03	21.08	21.03
	16QAM	1#0	21.20	21.07	20.69
		1#25	21.25	21.01	20.69
		1#49	21.26	21.33	20.83
		25#0	19.98	20.10	20.00
		25#25	20.08	20.07	20.20
		50#0	20.02	20.09	20.06

LTE Band 18

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	1#0	22.22	22.01	21.81
		1#13	22.07	21.96	21.90
		1#24	22.09	22.00	21.90
		15#0	21.22	20.99	20.87
		15#10	21.13	21.10	21.05
		25#0	21.12	21.08	20.92
	16QAM	1#0	20.76	21.20	20.84
		1#13	20.74	21.14	20.78
		1#24	20.73	21.11	20.82
		15#0	20.26	19.97	19.87
		15#10	20.16	19.98	19.90
		25#0	20.21	19.96	20.09
10MHz	QPSK	1#0	22.10	22.10	21.99
		1#25	22.02	21.93	21.88
		1#49	21.96	21.95	21.85
		25#0	21.07	21.07	20.95
		25#25	20.95	20.93	20.97
		50#0	21.11	21.13	20.91
	16QAM	1#0	21.36	21.44	20.74
		1#25	21.23	21.28	20.70
		1#49	21.29	21.09	20.66
		25#0	20.09	20.12	20.15
		25#25	20.03	20.04	20.13
		50#0	20.14	20.11	20.02
15MHz	QPSK	1#0	/	22.09	/
		1#38	/	22.01	/
		1#74	/	22.01	/
		36#0	/	21.12	/
		36#39	/	21.12	/
		75#0	/	21.04	/
	16QAM	1#0	/	21.40	/
		1#38	/	21.28	/
		1#74	/	21.29	/
		36#0	/	20.12	/
		36#39	/	20.11	/
		75#0	/	20.06	/

LTE Band 19

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	1#0	22.00	22.01	21.94
		1#13	21.95	21.99	21.86
		1#24	22.01	22.06	21.91
		15#0	20.95	21.06	21.05
		15#10	21.04	20.95	20.98
		25#0	20.98	21.10	20.91
	16QAM	1#0	20.51	21.20	20.87
		1#13	20.58	21.13	20.85
		1#24	20.56	21.16	20.97
		15#0	20.02	19.94	20.08
		15#10	20.07	20.03	20.04
		25#0	20.16	20.04	20.10
10MHz	QPSK	1#0	21.86	22.03	21.94
		1#25	21.91	21.96	21.92
		1#49	21.91	22.06	22.05
		25#0	21.01	21.06	20.95
		25#25	21.05	21.12	21.10
		50#0	21.00	21.08	21.09
	16QAM	1#0	21.16	21.08	20.72
		1#25	21.19	21.11	20.70
		1#49	21.18	21.14	20.79
		25#0	20.04	20.05	20.18
		25#25	20.08	20.10	20.18
		50#0	19.98	20.11	20.07
15MHz	QPSK	1#0	/	21.89	/
		1#38	/	21.92	/
		1#74	/	22.07	/
		36#0	/	21.07	/
		36#39	/	21.02	/
		75#0	/	21.00	/
	16QAM	1#0	/	21.16	/
		1#38	/	21.25	/
		1#74	/	21.25	/
		36#0	/	20.02	/
		36#39	/	20.10	/
		75#0	/	20.14	/

LTE Band 26

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	1#0	22.08	21.76	21.77
		1#3	21.99	21.86	21.72
		1#5	22.06	21.75	21.68
		3#0	22.12	21.78	21.73
		3#3	21.99	21.69	21.76
		6#0	21.18	20.75	20.82
	16QAM	1#0	20.78	20.65	20.97
		1#3	20.85	20.62	20.99
		1#5	20.78	20.67	20.94
		3#0	20.97	20.82	20.67
		3#3	20.92	20.80	20.65
		6#0	20.02	19.95	19.76
3MHz	QPSK	1#0	21.98	21.78	21.81
		1#8	21.89	21.75	21.75
		1#14	21.88	21.80	21.67
		6#0	20.97	20.84	20.86
		6#9	21.00	20.77	20.79
		15#0	21.10	20.86	20.85
	16QAM	1#0	21.22	20.91	20.63
		1#8	21.16	20.79	20.55
		1#14	21.15	20.89	20.46
		6#0	20.19	19.86	19.75
		6#9	20.11	19.86	19.74
		15#0	20.12	19.81	19.87
5MHz	QPSK	1#0	22.06	21.71	21.87
		1#13	21.99	21.77	21.72
		1#24	21.96	21.86	21.64
		15#0	21.11	20.81	20.95
		15#10	21.04	20.78	20.92
		25#0	21.05	20.90	20.81
	16QAM	1#0	20.61	20.94	20.83
		1#13	20.57	20.96	20.72
		1#24	20.62	20.95	20.62
		15#0	20.11	19.77	20.01
		15#10	20.09	19.79	19.83
		25#0	20.15	19.85	19.94

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
10MHz	QPSK	1#0	21.99	21.75	21.83
		1#25	21.80	21.75	21.81
		1#49	21.72	21.80	21.71
		25#0	20.93	20.81	21.01
		25#25	20.90	20.89	20.96
		50#0	20.91	20.86	20.85
	16QAM	1#0	21.27	20.88	20.68
		1#25	21.12	20.85	20.63
		1#49	21.04	20.97	20.51
		25#0	20.04	19.83	20.03
		25#25	19.94	19.98	19.95
		50#0	19.96	19.88	19.90
15MHz	QPSK	1#0	22.02	21.70	21.84
		1#38	21.87	21.70	21.92
		1#74	21.86	21.84	21.82
		36#0	20.99	20.76	20.99
		36#39	20.83	21.00	20.95
		75#0	20.90	20.96	21.02
	16QAM	1#0	21.31	21.08	20.88
		1#38	21.09	21.05	20.93
		1#74	21.11	21.25	20.85
		36#0	20.03	19.98	19.96
		36#39	19.93	20.00	19.93
		75#0	20.04	19.96	19.94

LTE Band 38

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	1#0	21.07	20.91	20.99
		1#13	21.10	21.37	21.06
		1#24	20.96	21.43	21.04
		15#0	19.94	20.33	20.08
		15#10	19.99	20.23	20.02
		25#0	19.94	20.26	20.02
	16QAM	1#0	19.65	20.17	19.73
		1#13	19.63	20.10	19.78
		1#24	19.62	20.10	19.71
		15#0	19.05	19.30	19.09
		15#10	19.09	19.36	19.16
		25#0	18.98	19.46	18.96
10MHz	QPSK	1#0	21.44	21.47	21.14
		1#25	21.44	21.38	21.15
		1#49	21.32	21.45	21.23
		25#0	20.37	20.44	20.33
		25#25	20.47	20.41	20.37
		50#0	20.38	20.41	20.35
	16QAM	1#0	21.22	19.94	19.98
		1#25	21.29	20.01	20.03
		1#49	21.23	20.04	19.95
		25#0	19.38	19.35	19.46
		25#25	19.44	19.36	19.50
		50#0	19.44	19.48	19.47
15MHz	QPSK	1#0	21.54	21.36	21.26
		1#38	21.44	21.41	21.37
		1#74	21.56	21.47	21.33
		36#0	20.44	20.36	20.25
		36#39	20.51	20.35	20.41
		75#0	19.92	20.39	20.41
	16QAM	1#0	19.99	20.06	20.34
		1#38	19.92	20.02	19.91
		1#74	20.01	20.11	20.09
		36#0	18.85	19.44	18.95
		36#39	18.95	19.33	18.97
		75#0	18.88	19.47	19.00
20MHz	QPSK	1#0	20.87	21.00	21.01
		1#50	20.91	21.02	20.92
		1#99	20.96	21.08	21.06
		50#0	20.56	20.04	19.95
		50#50	20.67	19.92	19.96
		100#0	20.51	19.99	20.03
	16QAM	1#0	20.02	19.70	20.59
		1#50	20.27	19.69	20.62
		1#99	20.56	19.78	20.77
		50#0	19.04	19.01	19.02
		50#50	19.03	19.05	19.03
		100#0	18.98	19.34	19.04

LTE Band 40(2305-2315MHz)

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm/5MHz)	Middle Channel (dBm/5MHz)	High Channel (dBm/5MHz)
5MHz	QPSK	1#0	22.18	21.25	21.69
		1#13	22.15	21.21	21.59
		1#24	22.17	21.16	21.65
		15#0	21.09	20.14	20.61
		15#10	21.18	20.04	20.64
		25#0	21.11	20.06	20.59
	16QAM	1#0	21.28	20.25	20.72
		1#13	21.19	20.10	20.67
		1#24	21.32	20.20	20.72
		15#0	20.09	19.15	20.17
		15#10	19.98	19.21	20.18
		25#0	20.21	19.26	20.17
10MHz	QPSK	1#0	/	19.74	/
		1#25	/	19.78	/
		1#49	/	19.32	/
		25#0	/	19.74	/
		25#25	/	19.26	/
		50#0	/	19.25	/
	16QAM	1#0	/	19.36	/
		1#25	/	19.44	/
		1#49	/	19.85	/
		25#0	/	19.26	/
		25#25	/	19.75	/
		50#0	/	19.78	/

Note: the device is a mobile station. For 5MHz mode, the channel power is equal to the test result in dBm/5MHz. For 10MHz mode, the channel power as below:

Channel Bandwidth	Modulation	Resource Block & RB offset	Middle Channel (dBm)
10MHz	QPSK	1#0	21.28
		1#25	21.26
		1#49	21.33
		25#0	20.07
		25#25	20.22
		50#0	20.24
	16QAM	1#0	21.56
		1#25	21.67
		1#49	21.70
		25#0	20.57
		25#25	20.66
		50#0	20.63

LTE Band 40(2350-2360MHz)

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm/5MHz)	Middle Channel (dBm/5MHz)	High Channel (dBm/5MHz)
5MHz	QPSK	1#0	21.15	21.25	20.96
		1#13	21.11	21.21	20.93
		1#24	21.17	21.16	21.08
		15#0	20.10	20.14	20.01
		15#10	20.09	20.04	19.97
		25#0	20.14	20.06	19.99
	16QAM	1#0	20.46	20.25	19.63
		1#13	20.36	20.10	19.60
		1#24	20.34	20.20	20.51
		15#0	19.62	19.15	19.18
		15#10	19.61	19.21	19.17
		25#0	19.73	19.26	19.37
10MHz	QPSK	1#0	/	18.98	/
		1#25	/	18.97	/
		1#49	/	19.02	/
		25#0	/	19.11	/
		25#25	/	19.01	/
		50#0	/	18.79	/
	16QAM	1#0	/	18.96	/
		1#25	/	18.97	/
		1#49	/	18.64	/
		25#0	/	18.76	/
		25#25	/	18.77	/
		50#0	/	18.95	/

Note: the device is a mobile station. For 5MHz mode, the channel power is equal to the test result in dBm/5MHz. For 10MHz mode, the channel power as below:

Channel Bandwidth	Modulation	Resource Block & RB offset	Middle Channel (dBm)
10MHz	QPSK	1#0	21.63
		1#25	21.69
		1#49	21.65
		25#0	20.69
		25#25	20.62
		50#0	20.66
	16QAM	1#0	20.37
		1#25	20.36
		1#49	20.29
		25#0	19.69
		25#25	19.63
		50#0	19.63

Duty cycle:
Band 40(2305-2315MHz)

Test Modulation	Test Bandwidth	Ton (ms)	Total (ms)	Duty Cycle (%)	Limit (%)
QPSK	5M	3.21	10.06	31.91	38
	10M	3.21	10.06	31.91	
16-QAM	5M	3.13	9.98	31.36	
	10M	3.21	10.06	31.91	

Band 40(2350-2360MHz)

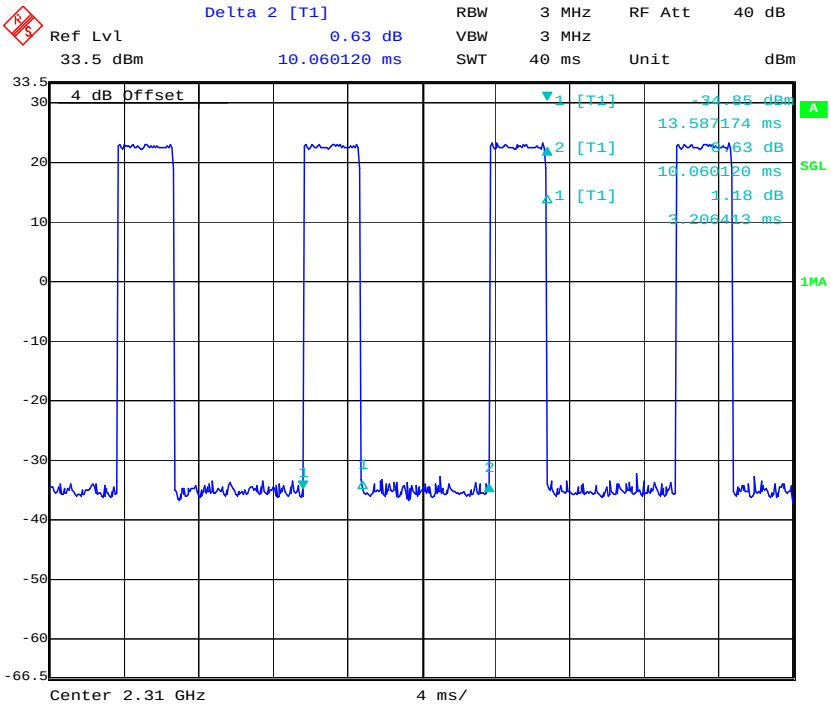
Test Modulation	Test Bandwidth	Ton (ms)	Total (ms)	Duty Cycle (%)	Limit (%)
QPSK	5M	3.21	10.06	31.91	38
	10M	3.21	10.06	31.91	
16-QAM	5M	3.13	10.06	31.11	
	10M	3.21	10.14	31.66	

Note: EUT setup is as following:

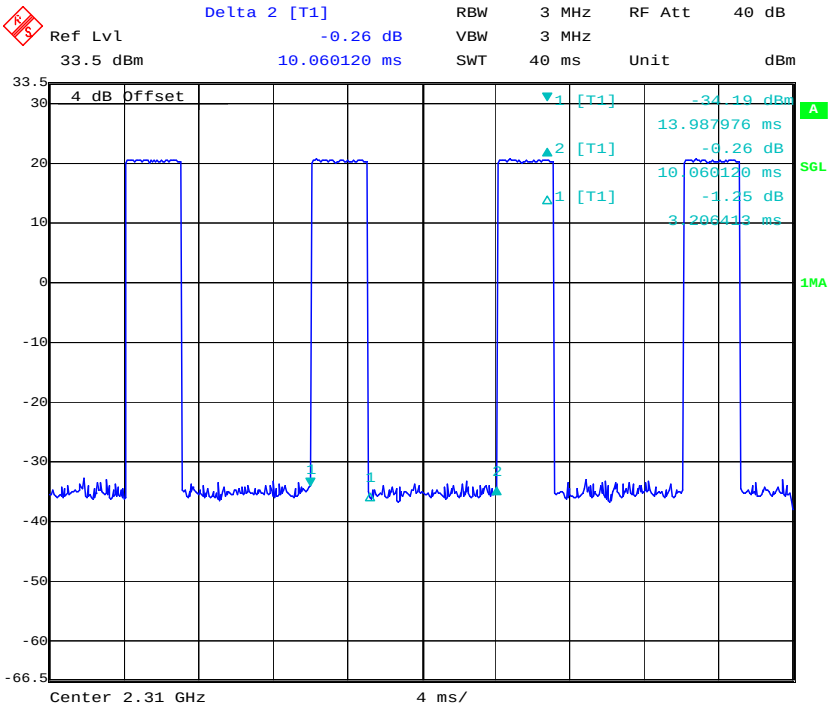
Uplink Downlink configuration	Subframe number									
	0	1	2	3	4	5	6	7	8	9
3	D	S	U	U	U	D	D	D	D	D

Duty cycle
2305-2315MHz:

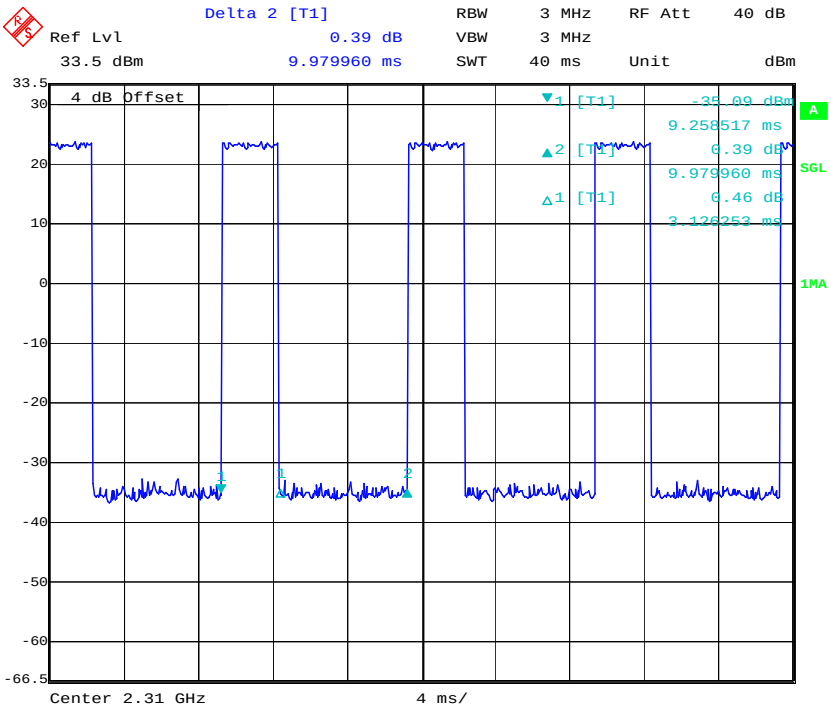
QPSK, 5MHz



QPSK, 10MHz

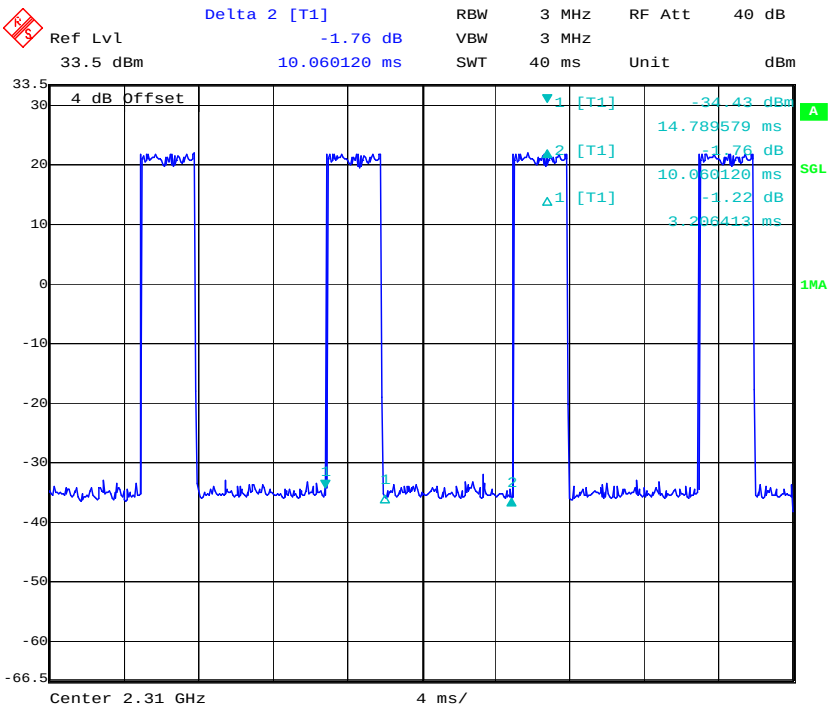


16QAM, 5MHz



Date: 28.AUG.2018 11:17:29

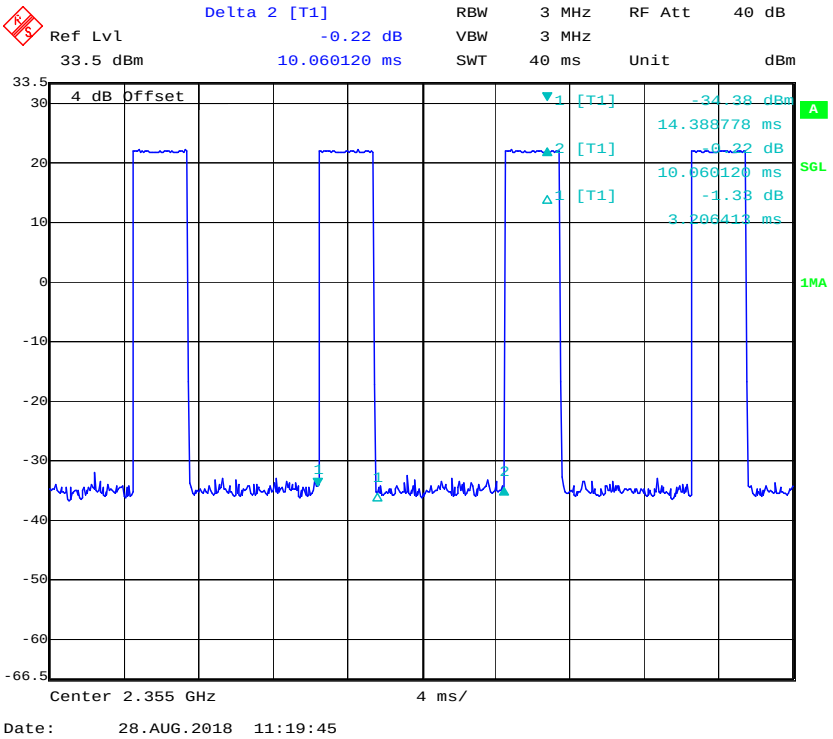
16QAM, 10MHz



Date: 28.AUG.2018 11:16:30

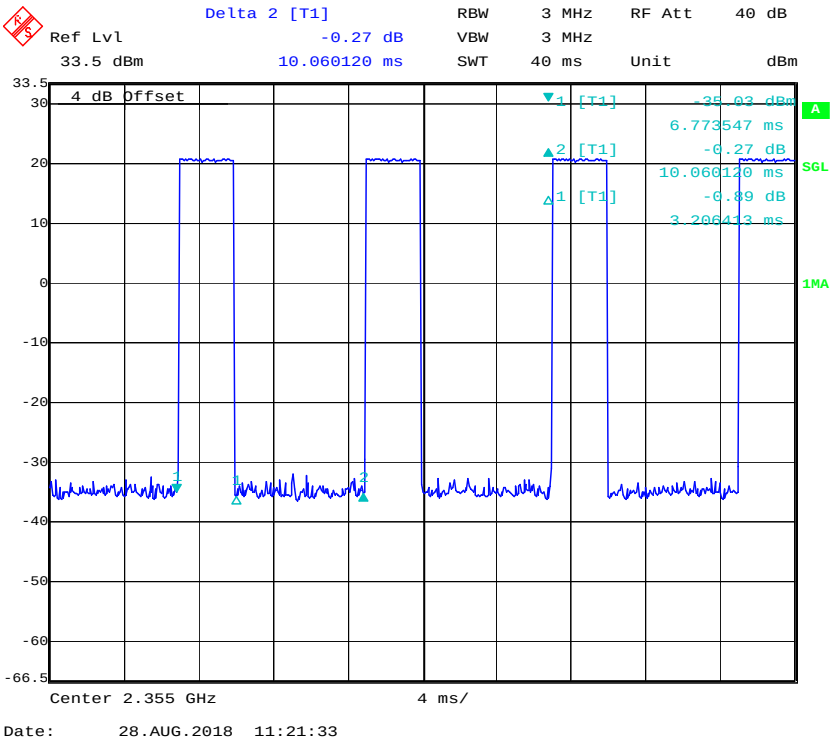
2350-2360MHz:

QPSK, 5MHz



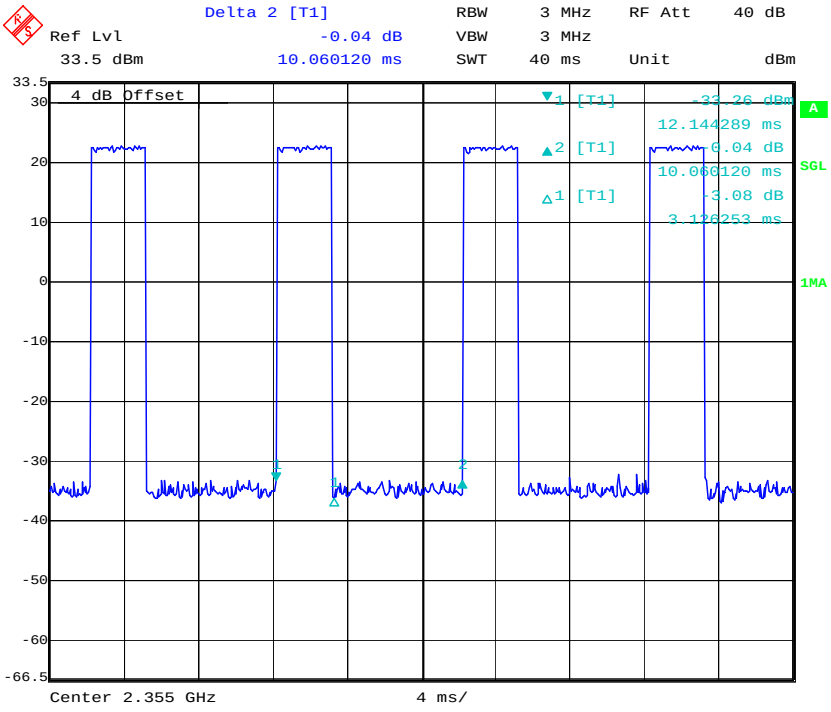
Date: 28.AUG.2018 11:19:45

QPSK, 10MHz



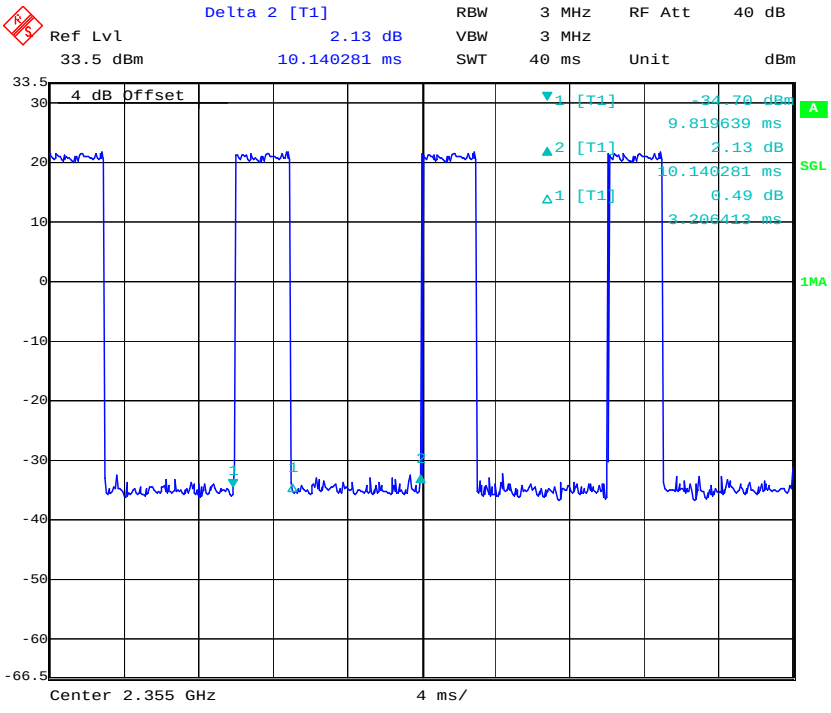
Date: 28.AUG.2018 11:21:33

16QAM, 5MHz



Date: 28.AUG.2018 11:19:02

16QAM, 10MHz



Date: 28.AUG.2018 11:20:46

LTE Band 41

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	1#0	18.96	19.87	20.39
		1#13	19.00	19.82	20.39
		1#24	19.05	19.85	20.44
		15#0	17.92	18.74	19.37
		15#10	18.02	18.82	19.43
		25#0	17.96	19.14	19.46
	16QAM	1#0	18.12	19.32	19.33
		1#13	18.11	19.27	19.16
		1#24	18.13	19.40	19.39
		15#0	17.06	18.09	18.41
		15#10	17.12	17.99	18.41
		25#0	17.08	18.17	18.53
10MHz	QPSK	1#0	19.42	20.15	20.44
		1#25	18.96	20.17	20.38
		1#49	19.08	20.21	20.41
		25#0	17.92	19.05	19.70
		25#25	17.99	19.09	19.68
		50#0	18.01	19.08	19.70
	16QAM	1#0	18.03	18.73	19.09
		1#25	18.06	18.86	19.04
		1#49	18.05	18.82	19.10
		25#0	16.97	18.06	18.73
		25#25	17.05	18.10	18.72
		50#0	16.94	18.17	18.74
15MHz	QPSK	1#0	19.52	19.88	20.50
		1#38	19.51	20.01	20.61
		1#74	19.60	20.10	20.55
		36#0	18.54	19.05	19.62
		36#39	18.64	19.08	19.65
		75#0	18.44	19.12	19.66
	16QAM	1#0	18.13	18.53	19.22
		1#38	18.23	18.59	19.15
		1#74	18.35	18.68	19.25
		36#0	17.47	18.11	18.59
		36#39	17.59	17.80	18.66
		75#0	17.56	17.70	18.72
20MHz	QPSK	1#0	18.87	19.62	20.41
		1#50	19.05	19.73	20.46
		1#99	19.06	19.80	20.45
		50#0	17.87	18.79	19.45
		50#50	18.03	18.75	19.50
		100#0	17.92	18.77	19.30
	16QAM	1#0	17.48	18.77	18.97
		1#50	17.63	18.80	18.98
		1#99	17.67	18.85	19.03
		50#0	16.87	17.84	18.33
		50#50	16.95	17.81	18.37
		100#0	16.96	17.79	18.40

PAR, Band 2

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	20 MHz	4.88	3.48	3.48	13
	100 RB		5.44	5.28	5.2	13
16QAM	1 RB	20 MHz	5.28	4.04	4.12	13
	100 RB		5.84	5.64	5.68	13

PAR, Band 4

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	20 MHz	4.16	3.72	4.2	13
	100 RB		5.4	5.28	5.4	13
16QAM	1 RB	20 MHz	4.68	4.56	4.44	13
	100 RB		5.84	5.68	5.8	13

PAR, 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	4.24	4.84	3.44	13
	50 RB		4.68	4.2	4.36	13
16QAM	1 RB	10 MHz	4.76	5.2	4.32	13
	50 RB		5.24	4.84	5.12	13

PAR, 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	4.68	3.84	4.16	13
	100 RB		5.36	5.32	5.28	13
16QAM	1 RB	20 MHz	5.32	4.52	4.76	13
	100 RB		5.8	5.68	5.8	13

PAR, 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	4.48	3.88	4.04	13
	50 RB		4.24	4.44	4.4	13
16QAM	1 RB	10 MHz	5.12	4.52	4.56	13
	50 RB		5	5.08	5.08	13

PAR, 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	/	3.32	/	13
	50 RB		/	4.48	/	13
16QAM	1 RB	10 MHz	/	3.96	/	13
	50 RB		/	5.08	/	13

PAR, 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	4.52	3.88	3.92	13
	50 RB		5.12	4.52	4.44	13
16QAM	1 RB	10 MHz	4.64	4.52	4.4	13
	50 RB		5.12	5.12	5.08	13

PAR, Band 18

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	10 MHz	4.53	3.32	4.55	13
	50 RB		5.23	4.76	5.53	13
16QAM	1 RB	10 MHz	4.45	3.88	4.62	13
	50 RB		5.21	5.28	5.23	13

PAR, Band 19

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	10 MHz	4.66	3.8	3.38	13
	50 RB		3.12	4.76	4.42	13
16QAM	1 RB	10 MHz	3.64	4.44	4.52	13
	50 RB		3.12	5.36	5.32	13

PAR, 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	3.24	4.76	3.4	13
	50 RB		4.72	5.24	5.12	13
16QAM	1 RB	10 MHz	4.04	5.2	4.24	13
	50 RB		5.24	5.68	5.52	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)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
GPRS 850 Middle Channel								
836.600	H	96.16	21.2	0.0	1	20.2	38.45	18.25
836.600	V	99.99	28.2	0.0	1	27.2	38.45	11.25
EDGE 850 Middle Channel								
836.600	H	90.09	15.2	0.0	1	14.2	38.45	24.25
836.600	V	95.39	23.6	0.0	1	22.6	38.45	15.85
WCDMA Band V Middle Channel								
836.600	H	87.61	12.7	0.0	1	11.7	38.45	26.75
836.600	V	90.91	19.1	0.0	1	18.1	38.45	20.35
GPRS 1900 Middle Channel								
1880.000	H	89.64	17	11.7	2.7	26.0	33.00	7.0
1880.000	V	91.21	18.7	11.7	2.7	27.7	33.00	5.3
EDGE 1900 Middle Channel								
1880.000	H	89.03	16.4	11.7	2.7	25.4	33.00	7.6
1880.000	V	90.40	17.9	11.7	2.7	26.9	33.00	6.1
WCDMA Band II Middle Channel								
1880.000	H	84.10	11.5	11.7	2.7	20.5	33.00	12.5
1880.000	V	86.31	13.8	11.7	2.7	22.8	33.00	10.2
WCDMA Band IV Middle Channel								
1732.600	H	83.09	9	10.9	2.5	17.4	30.00	12.6
1732.600	V	87.21	12.8	10.9	2.5	21.2	30.00	8.8

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 1.4 MHz Middle Channel								
1880.000	H	84.55	9.8	11.1	1.6	19.3	33.00	13.7
1880.000	V	87.53	12.6	11.1	1.6	22.1	33.00	10.9
16QAM 1.4 MHz Middle Channel								
1880.000	H	86.31	11.5	11.1	1.6	21.0	33.00	12.0
1880.000	V	89.75	14.8	11.1	1.6	24.3	33.00	8.7
QPSK 3 MHz Middle Channel								
1880.000	H	85.47	10.7	11.1	1.6	20.2	33.00	12.8
1880.000	V	88.56	13.6	11.1	1.6	23.1	33.00	9.9
16QAM 3 MHz Middle Channel								
1880.000	H	85.67	10.9	11.1	1.6	20.4	33.00	12.6
1880.000	V	88.75	13.8	11.1	1.6	23.3	33.00	9.7
QPSK 5 MHz Middle Channel								
1880.000	H	87.42	12.6	11.1	1.6	22.1	33.00	10.9
1880.000	V	77.53	2.6	11.1	1.6	12.1	33.00	20.9
16QAM 5 MHz Middle Channel								
1880.000	H	87.93	13.2	11.1	1.6	22.7	33.00	10.3
1880.000	V	77.31	2.3	11.1	1.6	11.8	33.00	21.2
QPSK 10 MHz Middle Channel								
1880.000	H	86.75	12	11.1	1.6	21.5	33.00	11.5
1880.000	V	90.34	15.4	11.1	1.6	24.9	33.00	8.1
16QAM 10 MHz Middle Channel								
1880.000	H	88.32	13.5	11.1	1.6	23.0	33.00	10.0
1880.000	V	90.66	15.7	11.1	1.6	25.2	33.00	7.8
QPSK 15 MHz Middle Channel								
1880.000	H	85.87	11.1	11.1	1.6	20.6	33.00	12.4
1880.000	V	88.86	13.9	11.1	1.6	23.4	33.00	9.6
16QAM 15 MHz Middle Channel								
1880.000	H	86.17	11.4	11.1	1.6	20.9	33.00	12.1
1880.000	V	89.18	14.2	11.1	1.6	23.7	33.00	9.3
QPSK 20 MHz Middle Channel								
1880.000	H	86.26	11.5	11.1	1.6	21.0	33.00	12.0
1880.000	V	89.53	14.6	11.1	1.6	24.1	33.00	8.9
16QAM 20 MHz Middle Channel								
1880.000	H	88.45	13.7	11.1	1.6	23.2	33.00	9.8
1880.000	V	90.31	15.3	11.1	1.6	24.8	33.00	8.2

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 1.4 MHz Middle Channel								
1732.500	H	84.95	9.7	10.7	1.5	18.9	30.00	11.1
1732.500	V	87.12	11.6	10.7	1.5	20.8	30.00	9.2
16QAM 1.4 MHz Middle Channel								
1732.500	H	85.56	10.3	10.7	1.5	19.5	30.00	10.5
1732.500	V	88.27	12.8	10.7	1.5	22.0	30.00	8.0
QPSK 3 MHz Middle Channel								
1732.500	H	84.96	9.7	10.7	1.5	18.9	30.00	11.1
1732.500	V	86.94	11.4	10.7	1.5	20.6	30.00	9.4
16QAM 3 MHz Middle Channel								
1732.500	H	84.28	9.1	10.7	1.5	18.3	30.00	11.7
1732.500	V	86.87	11.4	10.7	1.5	20.6	30.00	9.4
QPSK 5 MHz Middle Channel								
1732.500	H	84.56	9.3	10.7	1.5	18.5	30.00	11.5
1732.500	V	87.11	11.6	10.7	1.5	20.8	30.00	9.2
16QAM 5 MHz Middle Channel								
1732.500	H	83.20	8	10.7	1.5	17.2	30.00	12.8
1732.500	V	86.34	10.8	10.7	1.5	20.0	30.00	10.0
QPSK 10 MHz Middle Channel								
1732.500	H	85.52	10.3	10.7	1.5	19.5	30.00	10.5
1732.500	V	88.22	12.7	10.7	1.5	21.9	30.00	8.1
16QAM 10 MHz Middle Channel								
1732.500	H	83.07	7.9	10.7	1.5	17.1	30.00	12.9
1732.500	V	86.04	10.5	10.7	1.5	19.7	30.00	10.3
QPSK 15 MHz Middle Channel								
1732.500	H	84.20	9	10.7	1.5	18.2	30.00	11.8
1732.500	V	87.53	12	10.7	1.5	21.2	30.00	8.8
16QAM 15 MHz Middle Channel								
1732.500	H	82.39	7.2	10.7	1.5	16.4	30.00	13.6
1732.500	V	85.44	9.9	10.7	1.5	19.1	30.00	10.9
QPSK 20 MHz Middle Channel								
1732.500	H	83.82	8.6	10.7	1.5	17.8	30.00	12.2
1732.500	V	86.07	10.6	10.7	1.5	19.8	30.00	10.2
16QAM 20 MHz Middle Channel								
1732.500	H	83.85	8.6	10.7	1.5	17.8	30.00	12.2
1732.500	V	85.36	9.9	10.7	1.5	19.1	30.00	10.9

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 1.4 MHz Middle Channel								
836.500	H	82.97	8	0.0	1	7.00	38.45	31.45
836.500	V	94.84	23	0.0	1	22.00	38.45	16.45
16QAM 1.4 MHz Middle Channel								
836.500	H	82.75	7.8	0.0	1	6.80	38.45	31.65
836.500	V	94.67	22.9	0.0	1	21.90	38.45	16.55
QPSK 3 MHz Middle Channel								
836.500	H	82.59	7.7	0.0	1	6.70	38.45	31.75
836.500	V	94.41	22.6	0.0	1	21.60	38.45	16.85
16QAM 3 MHz Middle Channel								
836.500	H	82.42	7.5	0.0	1	6.50	38.45	31.95
836.500	V	94.26	22.5	0.0	1	21.50	38.45	16.95
QPSK 5 MHz Middle Channel								
836.500	H	82.63	7.7	0.0	1	6.70	38.45	31.75
836.500	V	94.59	22.8	0.0	1	21.80	38.45	16.65
16QAM 5 MHz Middle Channel								
836.500	H	82.27	7.3	0.0	1	6.30	38.45	32.15
836.500	V	94.38	22.6	0.0	1	21.60	38.45	16.85
QPSK 10 MHz Middle Channel								
836.500	H	81.69	6.8	0.0	1	5.80	38.45	32.65
836.500	V	94.24	22.4	0.0	1	21.40	38.45	17.05
16QAM 10 MHz Middle Channel								
836.500	H	81.21	6.3	0.0	1	5.30	38.45	33.15
836.500	V	94.08	22.3	0.0	1	21.30	38.45	17.15

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 5 MHz Middle Channel								
2535.000	H	83.71	10.6	12.2	1.8	21.0	33.00	12.0
2535.000	V	82.44	9.1	12.2	1.8	19.5	33.00	13.5
16QAM 5 MHz Middle Channel								
2535.000	H	86.78	13.7	12.2	1.8	24.1	33.00	8.9
2535.000	V	84.62	11.2	12.2	1.8	21.6	33.00	11.4
QPSK 10 MHz Middle Channel								
2535.000	H	85.67	12.6	12.2	1.8	23.0	33.00	10.0
2535.000	V	82.78	9.4	12.2	1.8	19.8	33.00	13.2
16QAM 10 MHz Middle Channel								
2535.000	H	86.61	13.5	12.2	1.8	23.9	33.00	9.1
2535.000	V	84.53	11.1	12.2	1.8	21.5	33.00	11.5
QPSK 15 MHz Middle Channel								
2535.000	H	85.54	12.5	12.2	1.8	22.9	33.00	10.1
2535.000	V	82.74	9.4	12.2	1.8	19.8	33.00	13.2
16QAM 15 MHz Middle Channel								
2535.000	H	85.72	12.6	12.2	1.8	23.0	33.00	10.0
2535.000	V	83.35	10	12.2	1.8	20.4	33.00	12.6
QPSK 20 MHz Middle Channel								
2535.000	H	84.62	11.5	12.2	1.8	21.9	33.00	11.1
2535.000	V	81.43	8	12.2	1.8	18.4	33.00	14.6
16QAM 20 MHz Middle Channel								
2535.000	H	84.26	11.2	12.2	1.8	21.6	33.00	11.4
2535.000	V	81.14	7.8	12.2	1.8	18.2	33.00	14.8

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 1.4 MHz Middle Channel								
707.500	H	87.73	10.9	0.0	0.9	10.0	34.77	24.77
707.500	V	92.75	18.3	0.0	0.9	17.4	34.77	17.37
16QAM 1.4 MHz Middle Channel								
707.500	H	85.57	8.7	0.0	0.9	7.8	34.77	26.97
707.500	V	92.27	17.9	0.0	0.9	17.0	34.77	17.77
QPSK 3 MHz Middle Channel								
707.500	H	85.48	8.6	0.0	0.9	7.7	34.77	27.07
707.500	V	92.29	17.9	0.0	0.9	17.0	34.77	17.77
16QAM 3 MHz Middle Channel								
707.500	H	85.40	8.5	0.0	0.9	7.6	34.77	27.17
707.500	V	92.32	17.9	0.0	0.9	17.0	34.77	17.77
QPSK 5 MHz Middle Channel								
707.500	H	84.96	8.1	0.0	0.9	7.2	34.77	27.57
707.500	V	91.65	17.2	0.0	0.9	16.3	34.77	18.47
16QAM 5 MHz Middle Channel								
707.500	H	85.02	8.2	0.0	0.9	7.3	34.77	27.47
707.500	V	91.59	17.2	0.0	0.9	16.3	34.77	18.47
QPSK 10 MHz Middle Channel								
707.500	H	85.96	9.1	0.0	0.9	8.2	34.77	26.57
707.500	V	91.91	17.5	0.0	0.9	16.6	34.77	18.17
16QAM 10 MHz Middle Channel								
707.500	H	85.35	8.5	0.0	0.9	7.6	34.77	27.17
707.500	V	91.85	17.4	0.0	0.9	16.5	34.77	18.27

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 5 MHz Middle Channel								
782.000	H	87.70	12.2	0.0	0.9	11.3	34.77	23.47
782.000	V	95.48	22.9	0.0	0.9	22.0	34.77	12.77
16QAM 5 MHz Middle Channel								
782.000	H	87.61	12.1	0.0	0.9	11.2	34.77	23.57
782.000	V	95.27	22.7	0.0	0.9	21.8	34.77	12.97
QPSK 10 MHz Middle Channel								
782.000	H	86.25	10.7	0.0	0.9	9.8	34.77	24.97
782.000	V	92.20	19.6	0.0	0.9	18.7	34.77	16.07
16QAM 10 MHz Middle Channel								
782.000	H	85.56	10	0.0	0.9	9.1	34.77	25.67
782.000	V	92.21	19.6	0.0	0.9	18.7	34.77	16.07

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 5 MHz Middle Channel								
710.000	H	82.30	5.5	0.0	0.9	4.6	34.77	30.17
710.000	V	92.15	17.8	0.0	0.9	16.9	34.77	17.87
16QAM 5 MHz Middle Channel								
710.000	H	82.41	5.6	0.0	0.9	4.7	34.77	30.07
710.000	V	92.28	17.9	0.0	0.9	17.0	34.77	17.77
QPSK 10 MHz Middle Channel								
710.000	H	82.16	5.3	0.0	0.9	4.4	34.77	30.37
710.000	V	91.57	17.2	0.0	0.9	16.3	34.77	18.47
16QAM 10 MHz Middle Channel								
710.000	H	82.27	5.5	0.0	0.9	4.6	34.77	30.17
710.000	V	92.00	17.6	0.0	0.9	16.7	34.77	18.07

LTE Band 18

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 5 MHz Middle Channel								
822.500	H	87.37	12.3	0.0	1	11.3	38.45	27.15
822.500	V	95.31	23.4	0.0	1	22.4	38.45	16.05
16QAM 5 MHz Middle Channel								
822.500	H	88.34	13.3	0.0	1	12.3	38.45	26.15
822.500	V	95.25	23.3	0.0	1	22.3	38.45	16.15
QPSK 10 MHz Middle Channel								
822.500	H	86.62	11.6	0.0	1	10.6	38.45	27.85
822.500	V	95.00	23.1	0.0	1	22.1	38.45	16.35
16QAM 10 MHz Middle Channel								
822.500	H	88.84	13.8	0.0	1	12.8	38.45	25.65
822.500	V	95.10	23.2	0.0	1	22.2	38.45	16.25
QPSK 15 MHz Middle Channel								
822.500	H	88.75	13.7	0.0	1	12.7	38.45	25.75
822.500	V	94.67	22.7	0.0	1	21.7	38.45	16.75
16QAM 15 MHz Middle Channel								
822.500	H	88.64	13.6	0.0	1	12.6	38.45	25.85
822.500	V	94.64	22.7	0.0	1	21.7	38.45	16.75

LTE Band 19

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 5 MHz Middle Channel								
837.500	H	89.88	15	0.0	1	14.0	38.45	24.45
837.500	V	96.07	24.3	0.0	1	23.3	38.45	15.15
16QAM 5 MHz Middle Channel								
837.500	H	89.75	14.8	0.0	1	13.8	38.45	24.65
837.500	V	96.08	24.3	0.0	1	23.3	38.45	15.15
QPSK 10 MHz Middle Channel								
837.500	H	88.62	13.7	0.0	1	12.7	38.45	25.75
837.500	V	95.93	24.1	0.0	1	23.1	38.45	15.35
16QAM 10 MHz Middle Channel								
837.500	H	88.75	13.8	0.0	1	12.8	38.45	25.65
837.500	V	95.92	24.1	0.0	1	23.1	38.45	15.35
QPSK 15 MHz Middle Channel								
837.500	H	87.77	12.9	0.0	1	11.9	38.45	26.55
837.500	V	95.25	23.5	0.0	1	22.5	38.45	15.95
16QAM 15 MHz Middle Channel								
837.500	H	88.26	13.3	0.0	1	12.3	38.45	26.15
837.500	V	95.68	23.9	0.0	1	22.9	38.45	15.55

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 1.4 MHz Middle Channel								
831.500	H	90.11	15.1	0.0	1	14.1	38.45	24.35
831.500	V	96.48	24.6	0.0	1	23.6	38.45	14.85
16QAM 1.4 MHz Middle Channel								
831.500	H	89.75	14.8	0.0	1	13.8	38.45	24.65
831.500	V	95.78	23.9	0.0	1	22.9	38.45	15.55
QPSK 3 MHz Middle Channel								
831.500	H	89.24	14.3	0.0	1	13.3	38.45	25.15
831.500	V	95.61	23.8	0.0	1	22.8	38.45	15.65
16QAM 3 MHz Middle Channel								
831.500	H	88.27	13.3	0.0	1	12.3	38.45	26.15
831.500	V	95.88	24	0.0	1	23.0	38.45	15.45
QPSK 5 MHz Middle Channel								
831.500	H	87.89	12.9	0.0	1	11.9	38.45	26.55
831.500	V	95.58	23.7	0.0	1	22.7	38.45	15.75
16QAM 5 MHz Middle Channel								
831.500	H	87.35	12.4	0.0	1	11.4	38.45	27.05
831.500	V	95.16	23.3	0.0	1	22.3	38.45	16.15
QPSK 10 MHz Middle Channel								
831.500	H	86.39	11.4	0.0	1	10.4	38.45	28.05
831.500	V	96.95	25.1	0.0	1	24.1	38.45	14.35
16QAM 10 MHz Middle Channel								
831.500	H	85.78	10.8	0.0	1	9.8	38.45	28.65
831.500	V	96.75	24.9	0.0	1	23.9	38.45	14.55
QPSK 15 MHz Middle Channel								
831.500	H	85.48	10.5	0.0	1	9.5	38.45	28.95
831.500	V	95.57	23.7	0.0	1	22.7	38.45	15.75
16QAM 15 MHz Middle Channel								
831.500	H	84.32	9.4	0.0	1	8.4	38.45	30.05
831.500	V	95.33	23.5	0.0	1	22.5	38.45	15.95

LTE Band 38

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 5 MHz Middle Channel								
2595.000	H	87.97	15	12.2	1.8	25.4	33.00	7.6
2595.000	V	84.36	11.1	12.2	1.8	21.5	33.00	11.5
16QAM 5 MHz Middle Channel								
2595.000	H	87.28	14.3	12.2	1.8	24.7	33.00	8.3
2595.000	V	83.87	10.6	12.2	1.8	21.0	33.00	12.0
QPSK 10 MHz Middle Channel								
2595.000	H	87.84	14.9	12.2	1.8	25.3	33.00	7.7
2595.000	V	84.18	10.9	12.2	1.8	21.3	33.00	11.7
16QAM 10 MHz Middle Channel								
2595.000	H	86.73	13.8	12.2	1.8	24.2	33.00	8.8
2595.000	V	83.45	10.2	12.2	1.8	20.6	33.00	12.4
QPSK 15 MHz Middle Channel								
2595.000	H	86.94	14	12.2	1.8	24.4	33.00	8.6
2595.000	V	83.77	10.5	12.2	1.8	20.9	33.00	12.1
16QAM 15 MHz Middle Channel								
2595.000	H	86.64	13.7	12.2	1.8	24.1	33.00	8.9
2595.000	V	82.79	9.5	12.2	1.8	19.9	33.00	13.1
QPSK 20 MHz Middle Channel								
2595.000	H	86.23	13.3	12.2	1.8	23.7	33.00	9.3
2595.000	V	83.12	9.9	12.2	1.8	20.3	33.00	12.7
16QAM 20 MHz Middle Channel								
2595.000	H	85.37	12.4	12.2	1.8	22.8	33.00	10.2
2595.000	V	81.97	8.7	12.2	1.8	19.1	33.00	13.9

LTE Band 40(2305-2315MHz)

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm/5MHz)	Limit (dBm/5MHz)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK 5 MHz Middle Channel								
2310.000	H	80.05	6.40	11.90	1.70	16.60	24.0	7.4
2310.000	V	82.63	8.80	11.90	1.70	19.00	24.0	5
16QAM 5 MHz Middle Channel								
2310.000	H	79.12	5.50	11.90	1.70	15.70	24.0	8.3
2310.000	V	81.75	7.90	11.90	1.70	18.10	24.0	5.9
QPSK 10 MHz Middle Channel								
2310.000	H	78.32	4.70	11.90	1.70	14.90	24.0	9.1
2310.000	V	81.07	7.20	11.90	1.70	17.40	24.0	6.6
16QAM 10 MHz Middle Channel								
2310.000	H	77.65	4.00	11.90	1.70	14.20	24.0	9.8
2310.000	V	80.12	6.20	11.90	1.70	16.40	24.0	7.6

LTE Band 40(2350-2360MHz)

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm/5MHz)	Limit (dBm/5MHz)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK 5 MHz Middle Channel								
2355.000	H	79.11	5.60	12.00	1.70	15.90	24.0	8.1
2355.000	V	81.53	7.80	12.00	1.70	18.10	24.0	5.9
16QAM 5 MHz Middle Channel								
2355.000	H	78.58	5.00	12.00	1.70	15.30	24.0	8.7
2355.000	V	80.82	7.00	12.00	1.70	17.30	24.0	6.7
QPSK 10 MHz Middle Channel								
2355.000	H	78.04	4.50	12.00	1.70	14.80	24.0	9.2
2355.000	V	80.45	6.70	12.00	1.70	17.00	24.0	7
16QAM 10 MHz Middle Channel								
2355.000	H	77.42	3.90	12.00	1.70	14.20	24.0	9.8
2355.000	V	79.53	5.80	12.00	1.70	16.10	24.0	7.9

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 5 MHz Middle Channel								
2593.000	H	86.84	13.9	12.2	1.8	24.3	33.00	8.7
2593.000	V	83.31	10.1	12.2	1.8	20.5	33.00	12.5
16QAM 5 MHz Middle Channel								
2593.000	H	86.74	13.8	12.2	1.8	24.2	33.00	8.8
2593.000	V	83.26	10	12.2	1.8	20.4	33.00	12.6
QPSK 10 MHz Middle Channel								
2593.000	H	86.24	13.3	12.2	1.8	23.7	33.00	9.3
2593.000	V	82.48	9.2	12.2	1.8	19.6	33.00	13.4
16QAM 10 MHz Middle Channel								
2593.000	H	86.53	13.6	12.2	1.8	24.0	33.00	9.0
2593.000	V	82.76	9.5	12.2	1.8	19.9	33.00	13.1
QPSK 15 MHz Middle Channel								
2593.000	H	85.67	12.7	12.2	1.8	23.1	33.00	9.9
2593.000	V	81.58	8.3	12.2	1.8	18.7	33.00	14.3
16QAM 15 MHz Middle Channel								
2593.000	H	86.21	13.3	12.2	1.8	23.7	33.00	9.3
2593.000	V	81.92	8.7	12.2	1.8	19.1	33.00	13.9
QPSK 20 MHz Middle Channel								
2593.000	H	84.43	11.5	12.2	1.8	21.9	33.00	11.1
2593.000	V	80.41	7.2	12.2	1.8	17.6	33.00	15.4
16QAM 20 MHz Middle Channel								
2593.000	H	85.57	12.6	12.2	1.8	23.0	33.00	10.0
2593.000	V	80.27	7	12.2	1.8	17.4	33.00	15.6

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- OCCUPIED BANDWIDTH

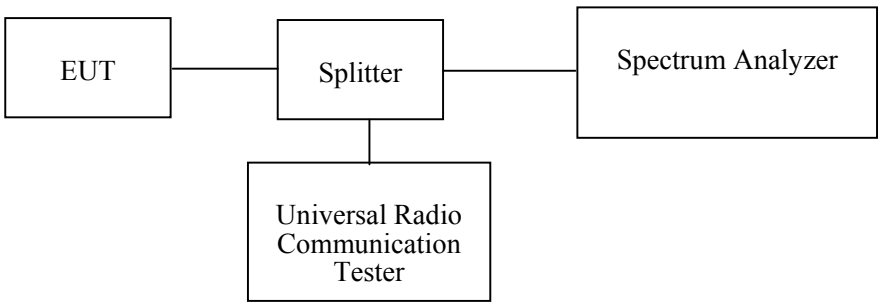
Applicable Standard

FCC §2.1049, §22.917, §22.905, §24.238, §27.53 and §90.209,

Test Procedure

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

The 26 dB & 99% bandwidth was recorded.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSP 38	100478	2017-12-08	2018-12-08
Rohde & Schwarz	Signal Analyzer	FSIQ26	831929/005	2017-08-31	2018-08-31
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A
Pasternack	RF Coaxial Cable	0.5m	C-5	Each Time	N/A
narda	Attenuator	6dB	6dB-1	Each time	N/A
E-Microwave	Two-way Spliter	ODP-1-6-2S	OE0120142	Each Time	N/A

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

Test Data

Environmental Conditions

Temperature:	26.5~29.2°C
Relative Humidity:	49~67 %
ATM Pressure:	99.8~101.9 kPa

The testing was performed by Swim Lv from 2018-06-08 to 2018-08-13.

Test Mode: Transmitting

Test Result: Compliance. 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	0.308
		EDGE	0.246	0.308
PCS		GPRS	0.240	0.304
		EDGE	0.242	0.304
WCDMA Band II		Rel 99	4.18	4.72
		HSDPA	4.18	4.72
		HSUPA	4.18	4.72
WCDMA Band IV		Rel 99	4.16	4.68
		HSDPA	4.16	4.70
		HSUPA	4.16	4.70
WCDMA Band V		Rel 99	4.16	4.72
		HSDPA	4.18	4.74
		HSUPA	4.18	4.70

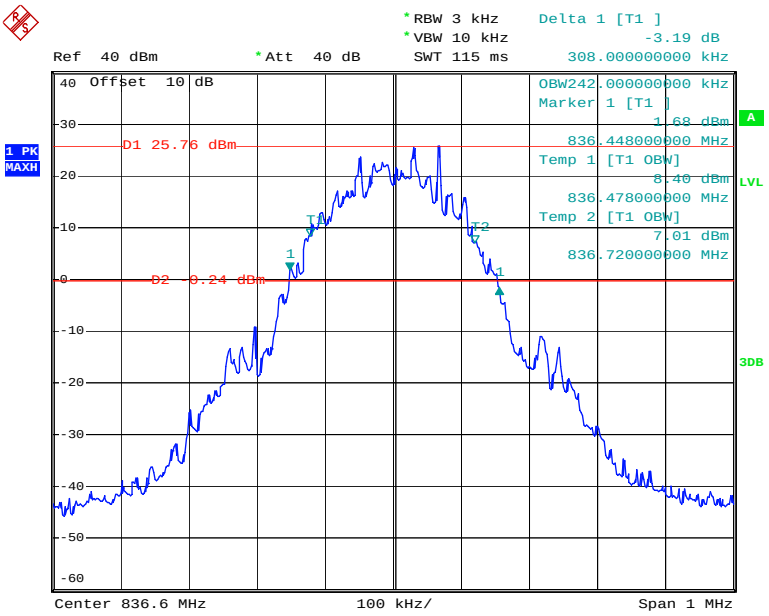
Band	Bandwidth	Modulation	99% occupied bandwidth (MHz)	26 dB bandwidth (MHz)
LTE Band 2	1.4 MHz	QPSK	1.11	1.34
		16QAM	1.12	1.32
	3 MHz	QPSK	2.71	3.14
		16QAM	2.71	3.03
	5 MHz	QPSK	4.57	5.23
		16QAM	4.55	5.41
	10 MHz	QPSK	9.02	9.90
		16QAM	9.02	9.90
	15 MHz	QPSK	13.65	15.63
		16QAM	13.59	15.09
	20 MHz	QPSK	18.04	20.12
		16QAM	18.04	19.88

Band	Bandwidth	Modulation	99% occupied bandwidth (MHz)	26 dB bandwidth (MHz)
LTE Band 4	1.4 MHz	QPSK	1.11	1.39
		16QAM	1.12	1.37
	3 MHz	QPSK	2.71	3.03
		16QAM	2.69	3.04
	5 MHz	QPSK	4.57	5.35
		16QAM	4.57	5.31
	10 MHz	QPSK	9.02	9.86
		16QAM	8.98	9.78
	15 MHz	QPSK	13.65	15.57
		16QAM	13.59	15.27
	20 MHz	QPSK	18.04	20.12
		16QAM	18.04	20.04
LTE Band 5	1.4 MHz	QPSK	1.11	1.30
		16QAM	1.12	1.29
	3 MHz	QPSK	2.71	3.03
		16QAM	2.71	3.03
	5 MHz	QPSK	4.55	5.31
		16QAM	4.51	4.85
	10 MHz	QPSK	8.98	9.82
		16QAM	8.98	9.82
LTE Band 7	5 MHz	QPSK	4.55	5.35
		16QAM	4.57	5.39
	10 MHz	QPSK	9.02	9.86
		16QAM	8.98	9.90
	15 MHz	QPSK	13.65	15.51
		16QAM	13.59	15.09
	20 MHz	QPSK	18.04	19.96
		16QAM	18.04	19.80
LTE Band 12	1.4 MHz	QPSK	1.11	1.44
		16QAM	1.12	1.30
	3 MHz	QPSK	2.71	3.11
		16QAM	2.71	3.02
	5 MHz	QPSK	4.55	5.35
		16QAM	4.53	5.27
	10 MHz	QPSK	8.94	9.86
		16QAM	8.94	9.86
LTE Band 13	5 MHz	QPSK	4.55	5.31
		16QAM	4.53	5.43
	10 MHz	QPSK	8.98	9.74
		16QAM	8.94	9.74

Band	Bandwidth	Modulation	99% occupied bandwidth (MHz)	26 dB bandwidth (MHz)
LTE Band 17	5 MHz	QPSK	4.55	5.31
		16QAM	4.55	5.45
	10 MHz	QPSK	9.02	9.86
		16QAM	8.98	9.90
LTE Band 18	5 MHz	QPSK	4.53	5.35
		16QAM	4.53	5.35
	10 MHz	QPSK	8.98	9.90
		16QAM	8.98	9.82
	15 MHz	QPSK	13.59	15.51
		16QAM	13.59	15.21
LTE Band 19	5 MHz	QPSK	4.57	5.25
		16QAM	4.55	5.39
	10 MHz	QPSK	8.98	9.86
		16QAM	8.98	9.82
	15 MHz	QPSK	13.59	15.45
		16QAM	13.59	15.45
LTE Band 26	1.4 MHz	QPSK	1.11	1.30
		16QAM	1.12	1.32
	3 MHz	QPSK	2.71	3.02
		16QAM	2.71	3.02
	5 MHz	QPSK	4.55	5.25
		16QAM	4.53	5.37
	10 MHz	QPSK	8.98	9.94
		16QAM	8.98	9.98
	15 MHz	QPSK	13.59	15.57
		16QAM	13.59	15.03
LTE Band 38	5 MHz	QPSK	4.51	5.11
		16QAM	4.55	5.19
	10 MHz	QPSK	8.98	9.78
		16QAM	9.02	9.78
	15 MHz	QPSK	13.59	15.21
		16QAM	13.59	15.27
	20 MHz	QPSK	18.04	20.28
		16QAM	17.96	19.80

Band	Bandwidth	Modulation	99% occupied bandwidth (MHz)	26 dB bandwidth (MHz)
LTE Band 40 (2305-2315MHz)	5 MHz	QPSK	4.53	5.33
		16QAM	4.55	5.21
	10 MHz	QPSK	8.98	9.70
		16QAM	8.98	9.80
LTE Band 40 (2350-2360MHz)	5 MHz	QPSK	4.53	5.22
		16QAM	4.55	5.42
	10 MHz	QPSK	8.98	10.01
		16QAM	8.98	9.93
LTE Band 41	5 MHz	QPSK	4.55	5.25
		16QAM	4.55	5.71
	10 MHz	QPSK	8.98	9.98
		16QAM	8.98	9.90
	15 MHz	QPSK	13.59	15.54
		16QAM	13.59	15.60
	20 MHz	QPSK	18.04	19.98
		16QAM	18.04	19.82

GPRS 850 Cellular Band



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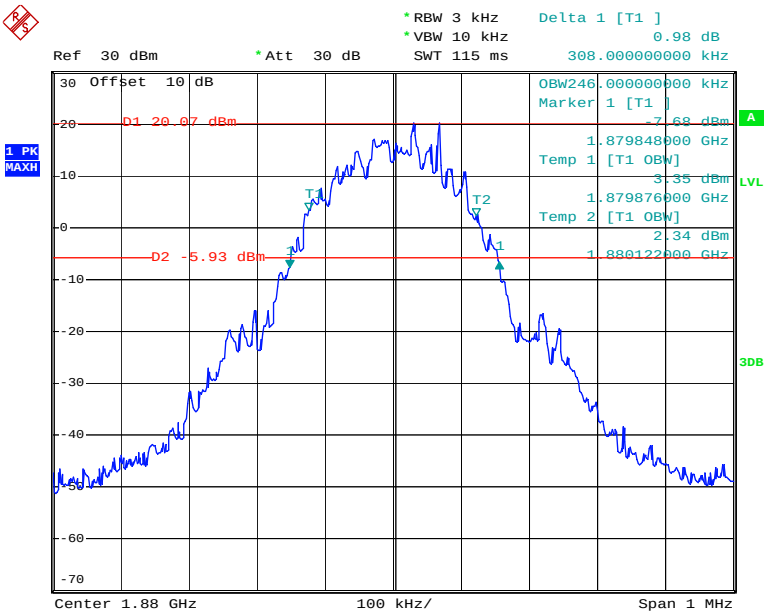
GPRS PCS1900 Cellular Band



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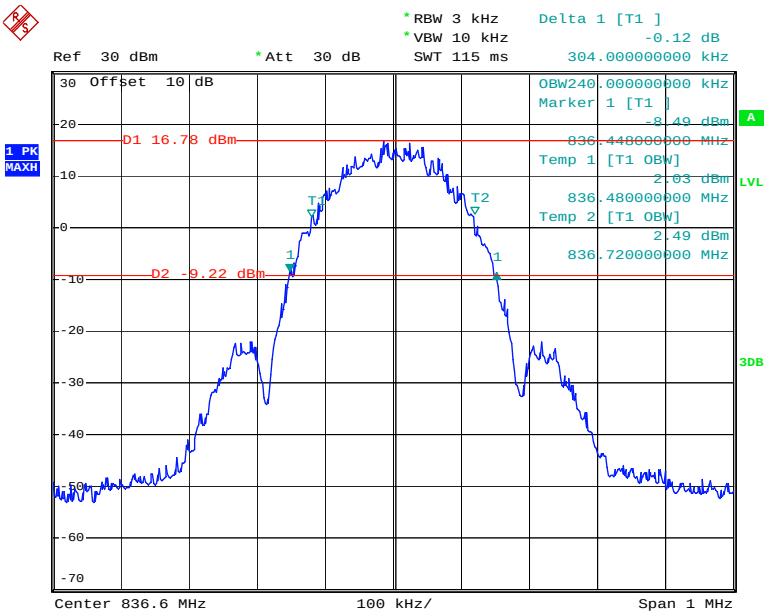
EDGE 850 Cellular Band



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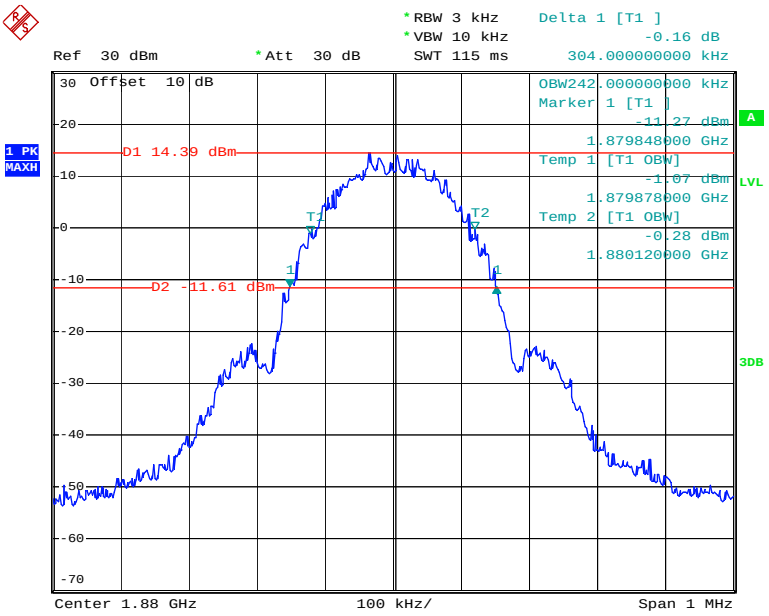
EDGE PCS1900 Cellular Band



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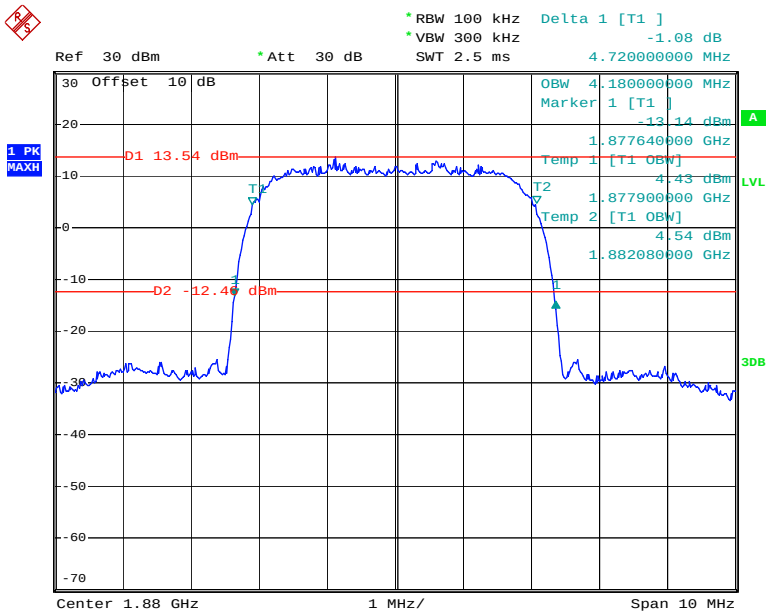
WCDMA Band II, Rel 99



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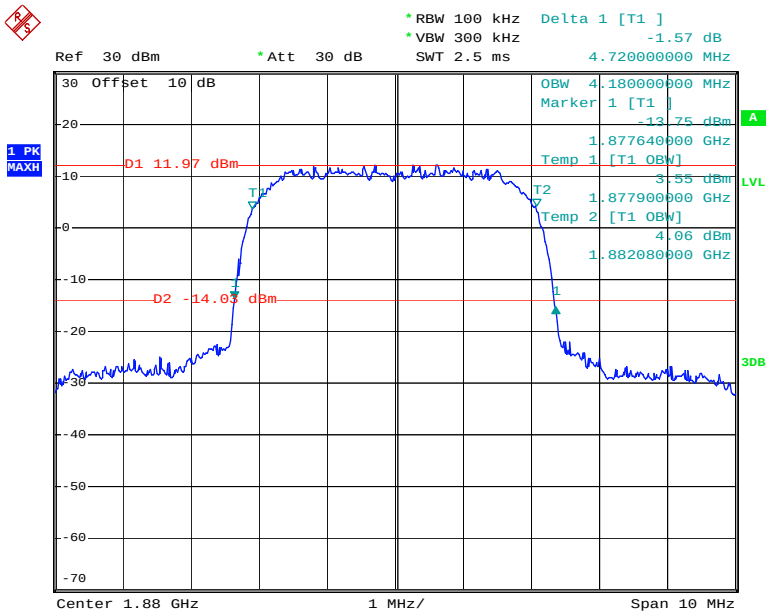
WCDMA Band II, HSUPA



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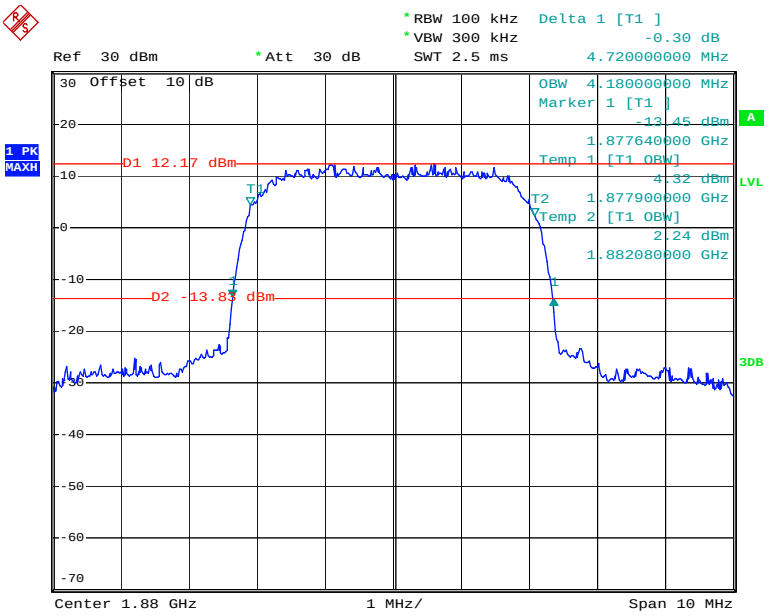
WCDMA Band II, HSDPA



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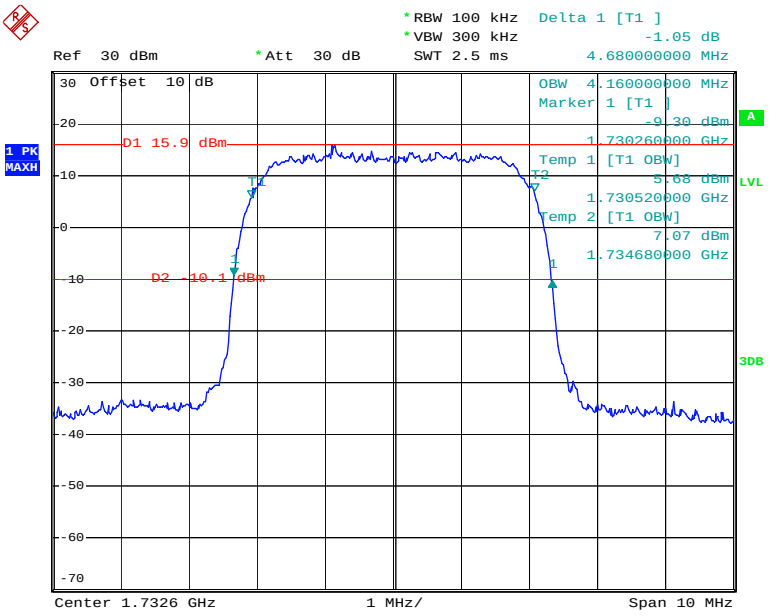
WCDMA Band IV, Rel 99



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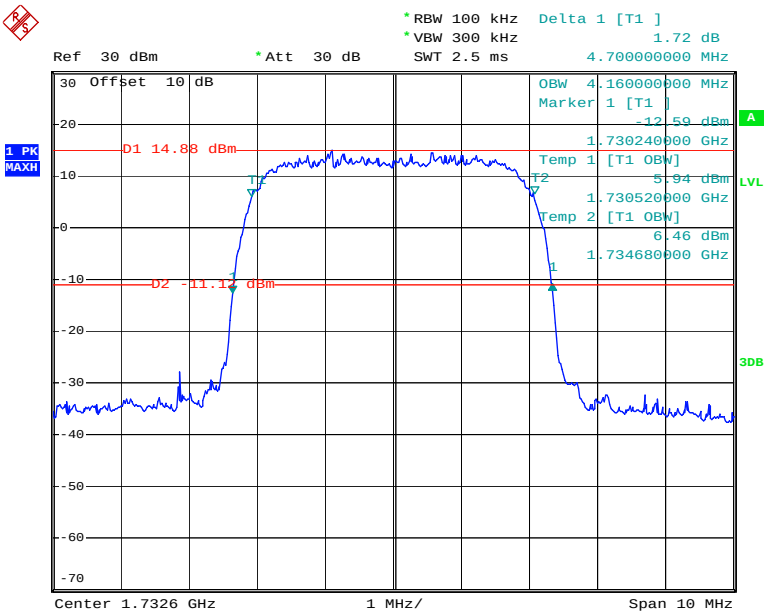
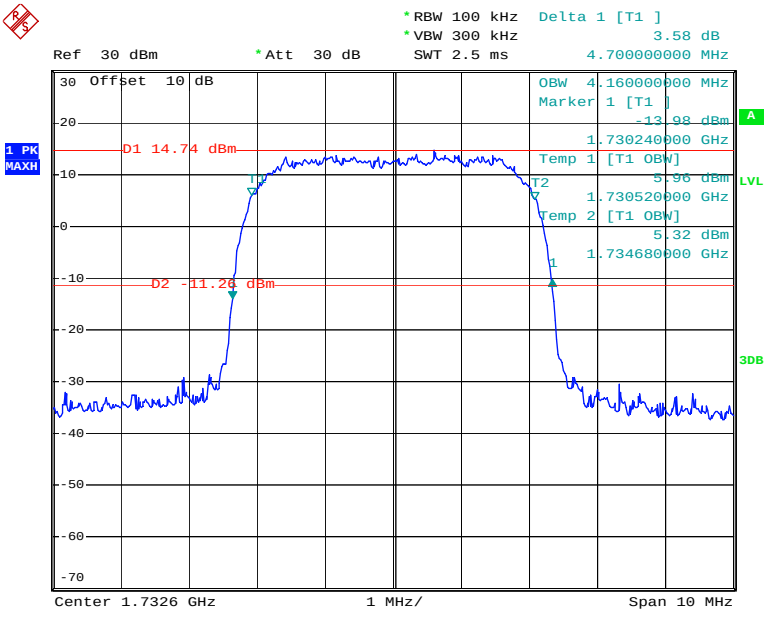
WCDMA Band IV, HSUPA



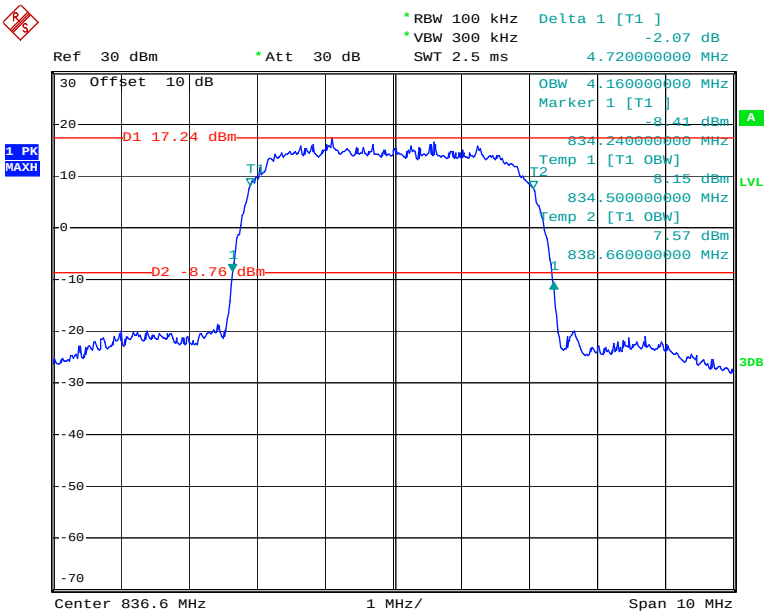
Date: 16.JUN.2018 18:13:40

WCDMA Band IV, HSDPA



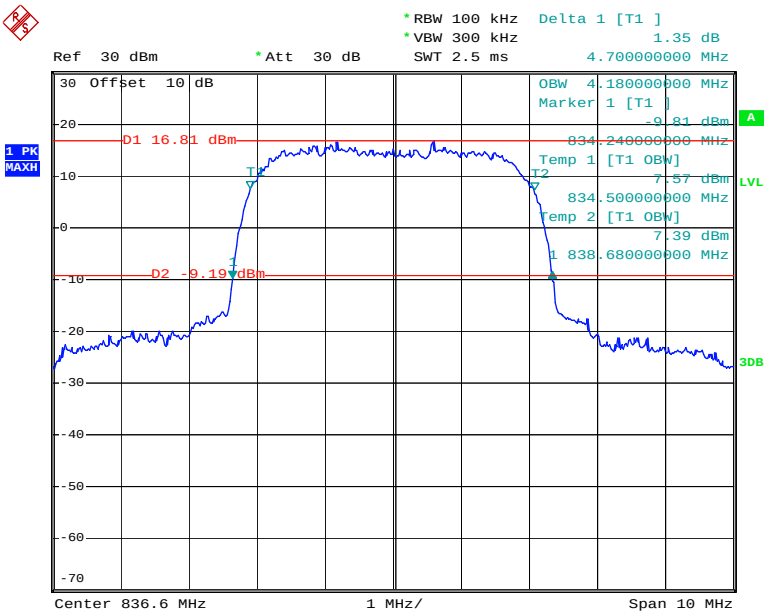
Date: 16.JUN.2018 18:12:15

WCDMA Band V, Rel 99



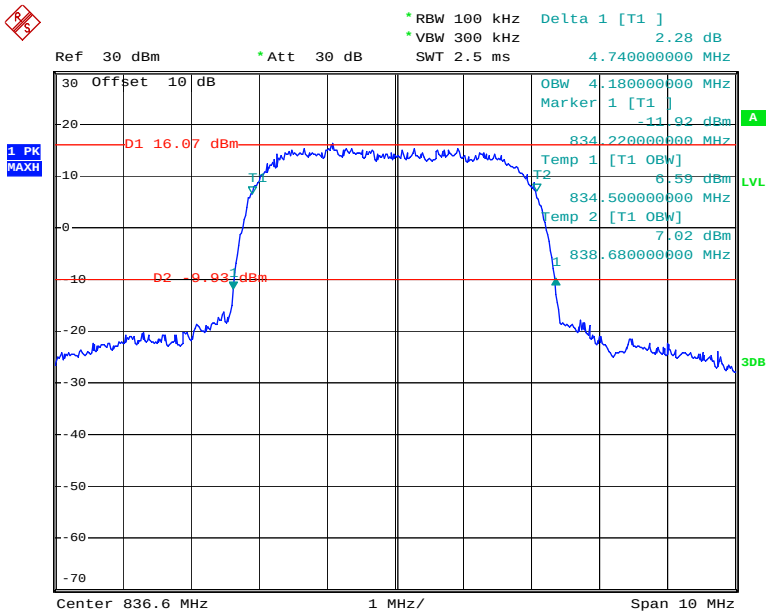
Date: 16.JUN.2018 18:26:35

WCDMA Band V, HSUPA



Date: 16.JUN.2018 18:21:51

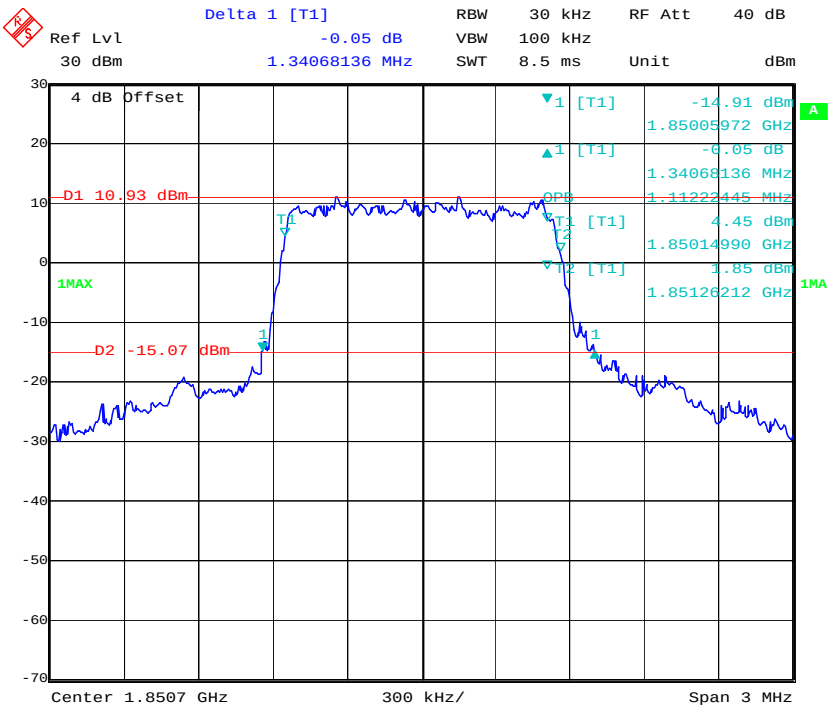
WCDMA Band V, HSDPA



Date: 16.JUN.2018 18:22:54

LTE Band 2

QPSK_1.4 MHz



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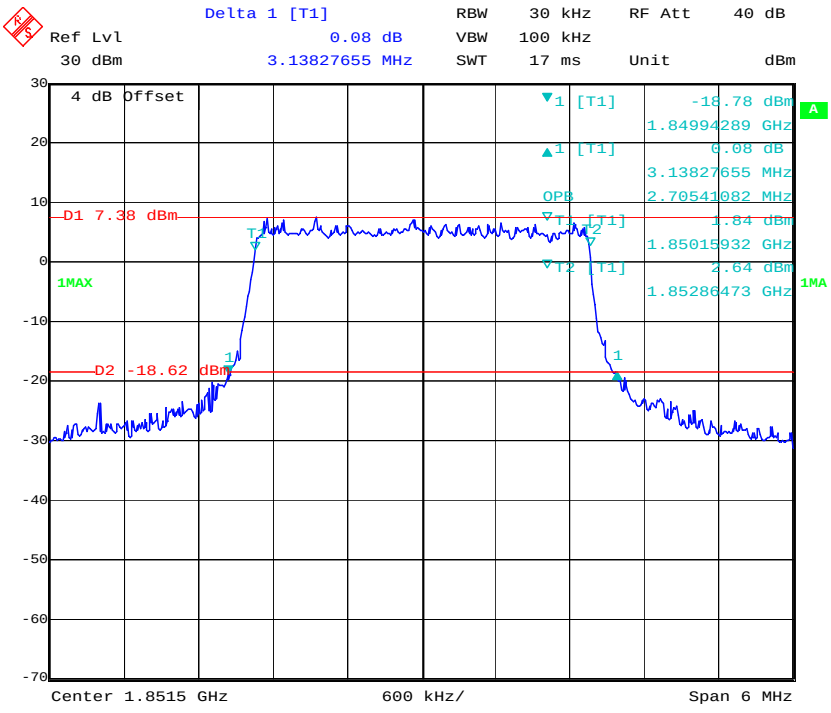
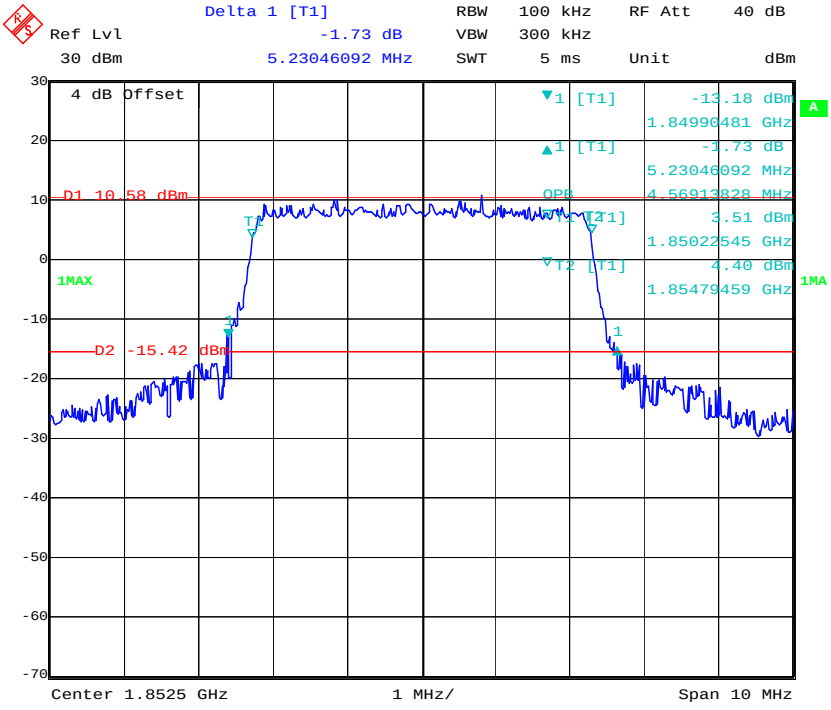


QPSK_5 MHz



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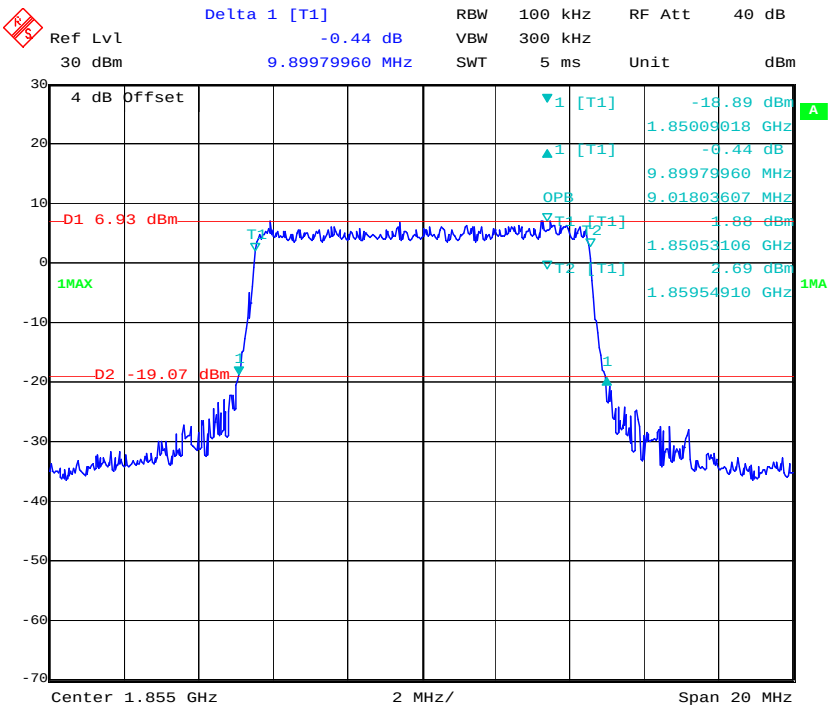

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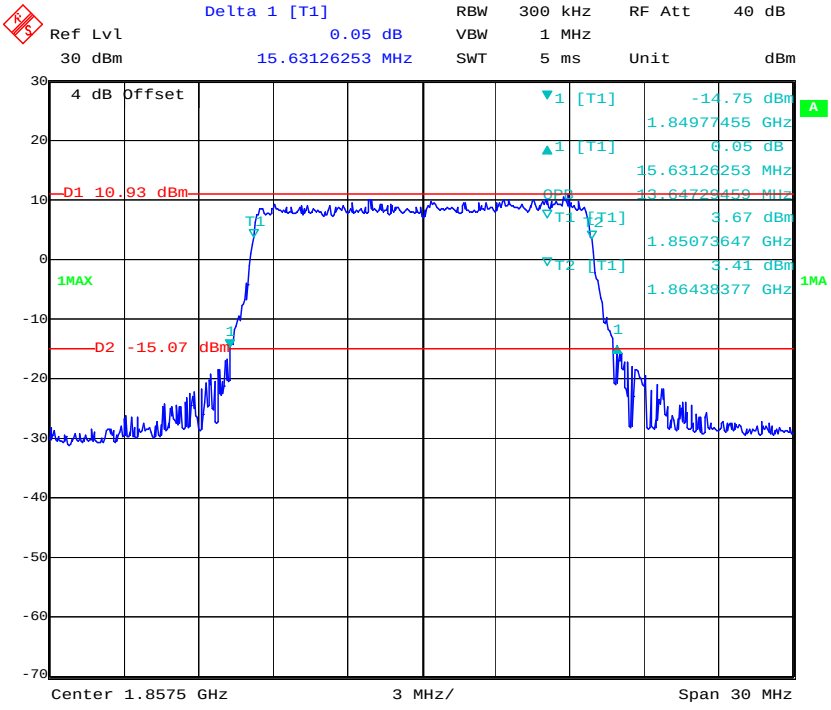

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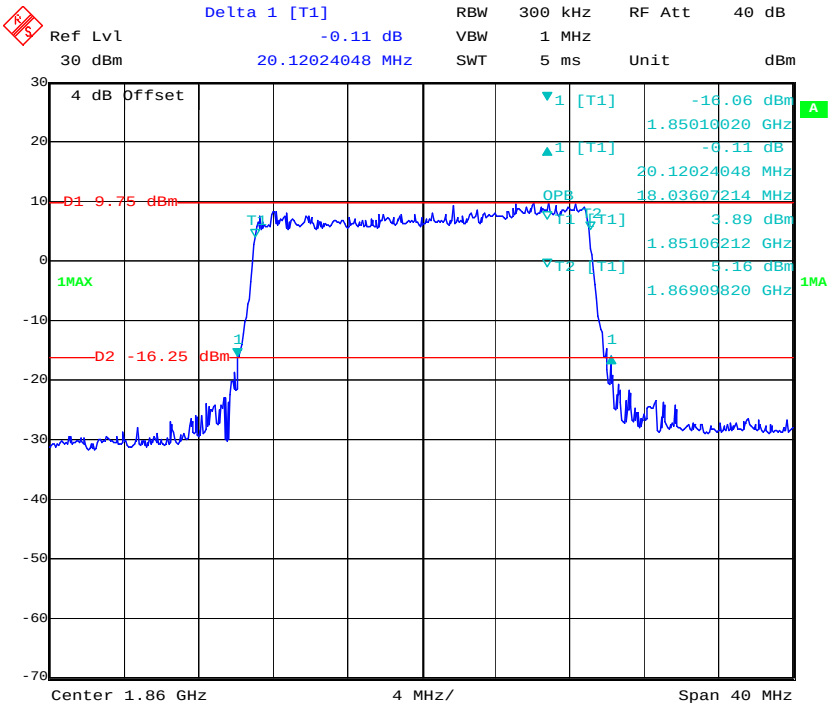

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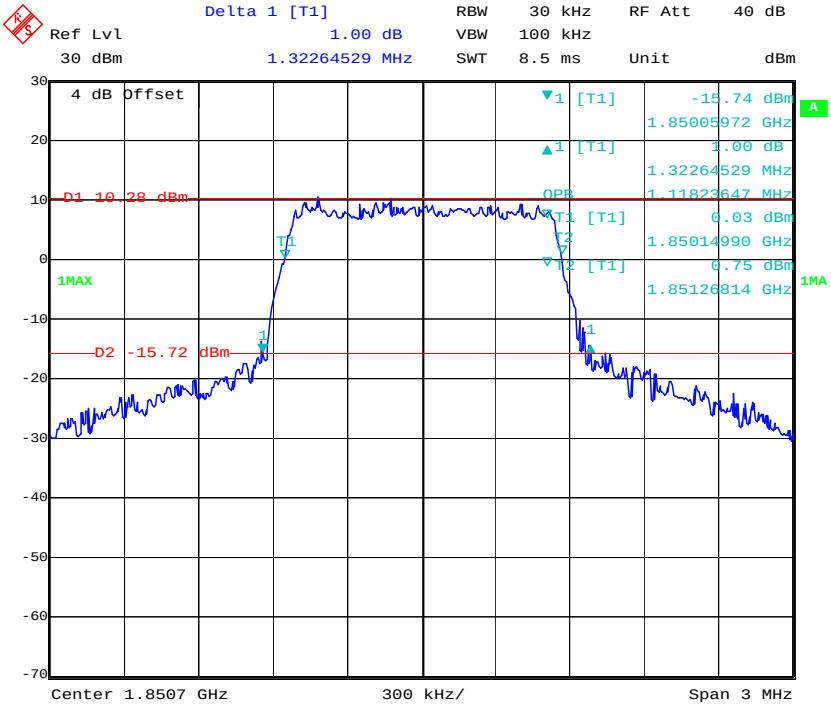
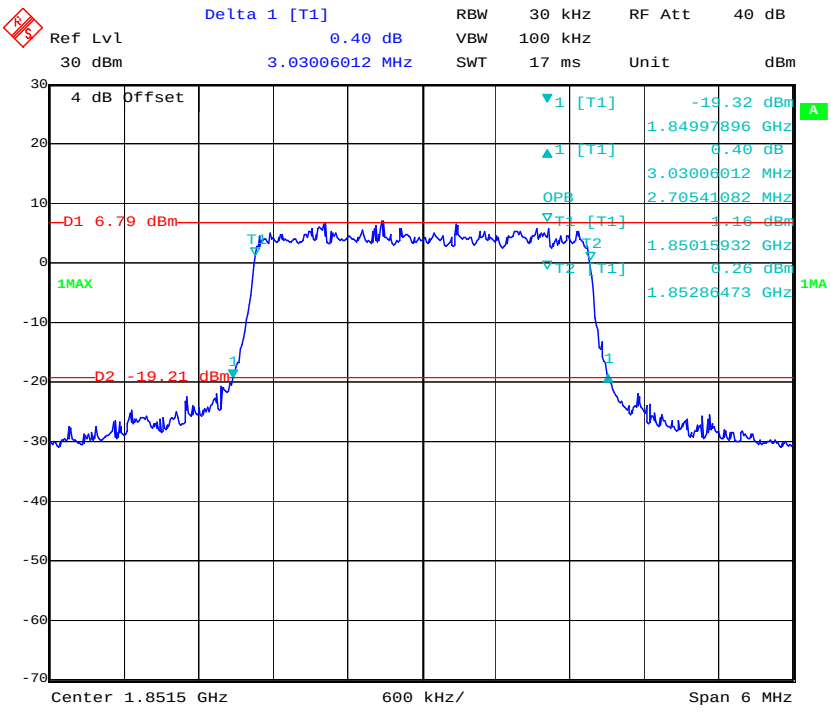


Date: 8.JUN.2018 22:08:27

16QAM_3 MHz



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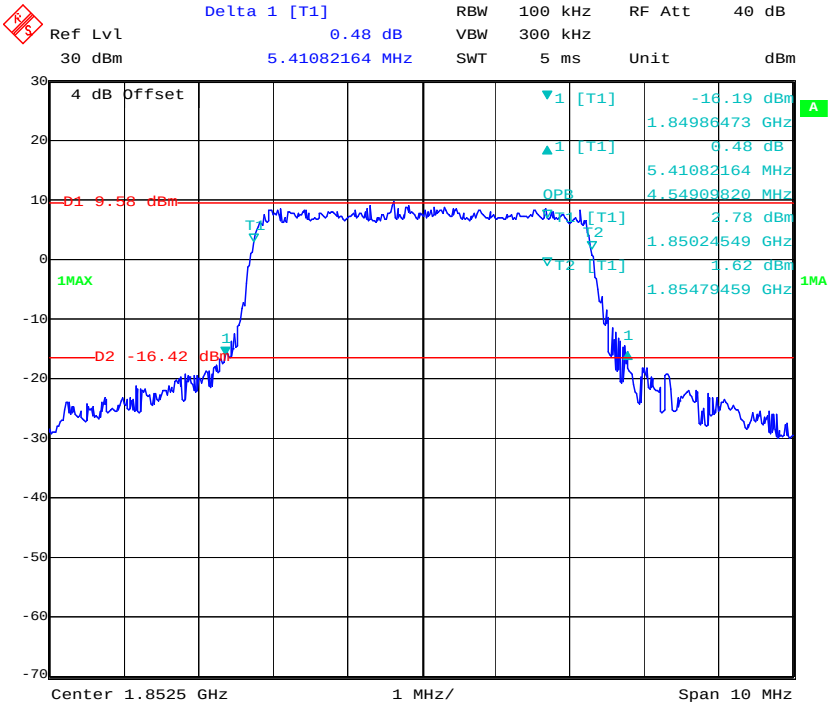
16QAM_5 MHz



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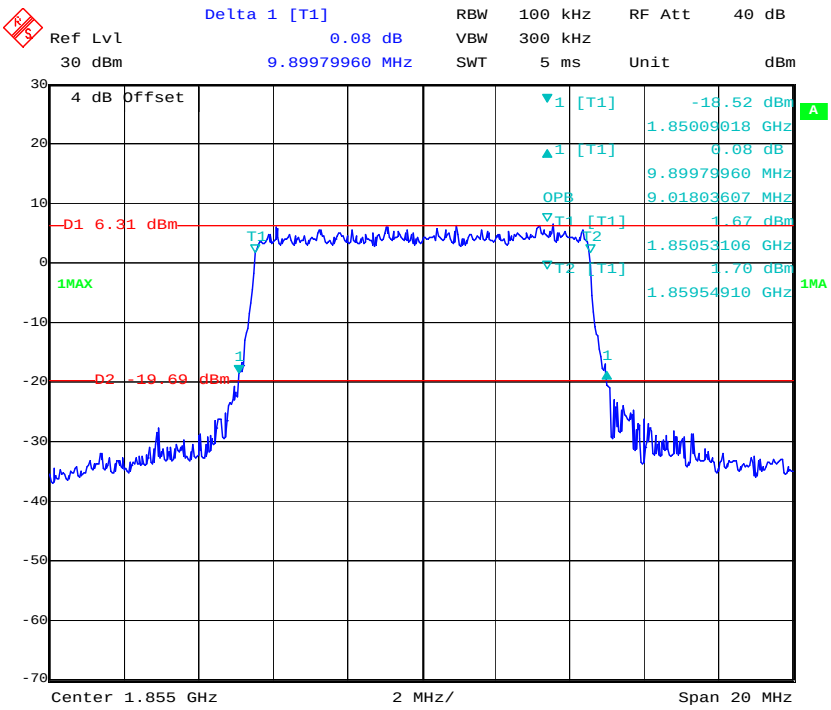

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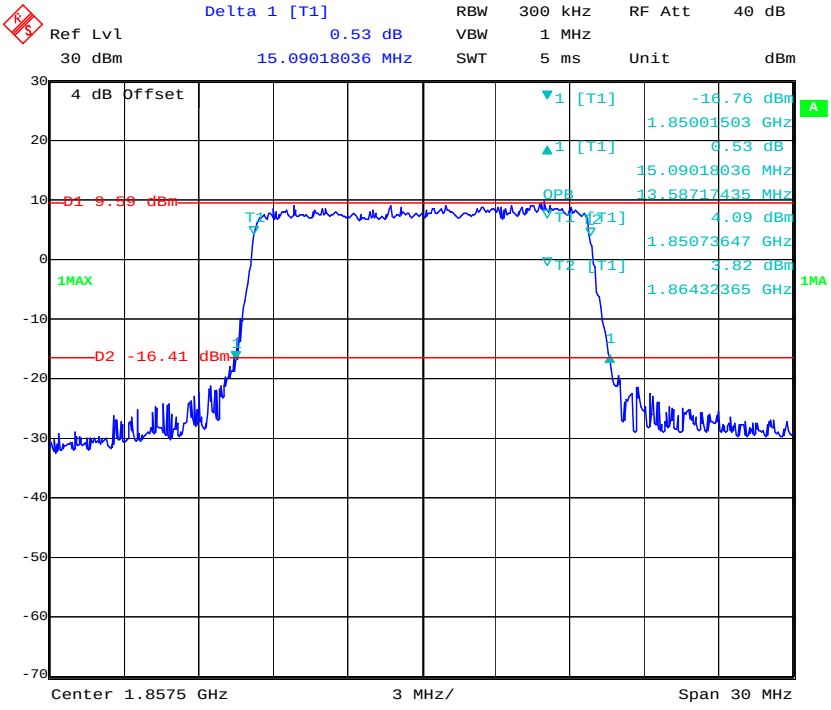

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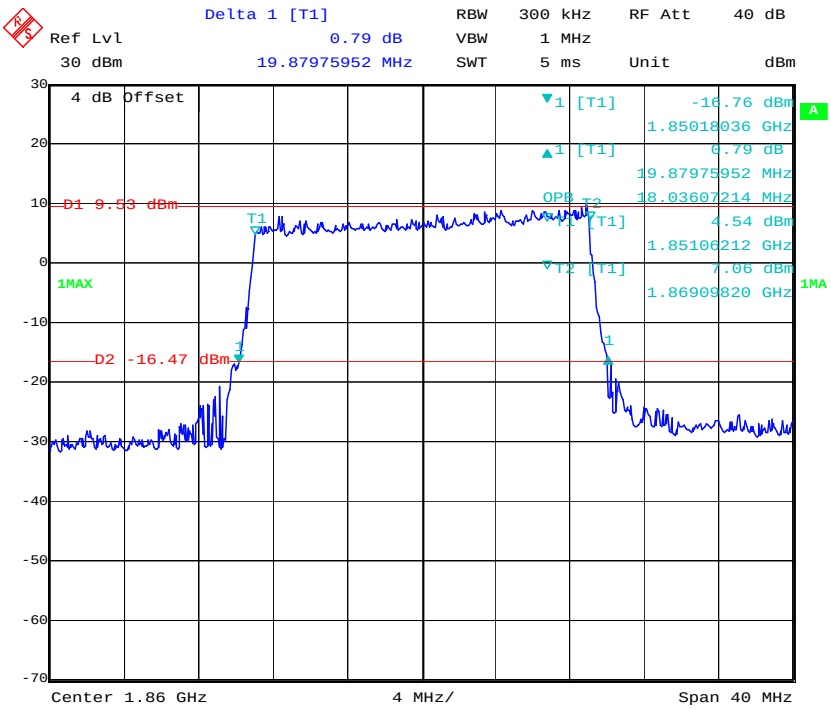
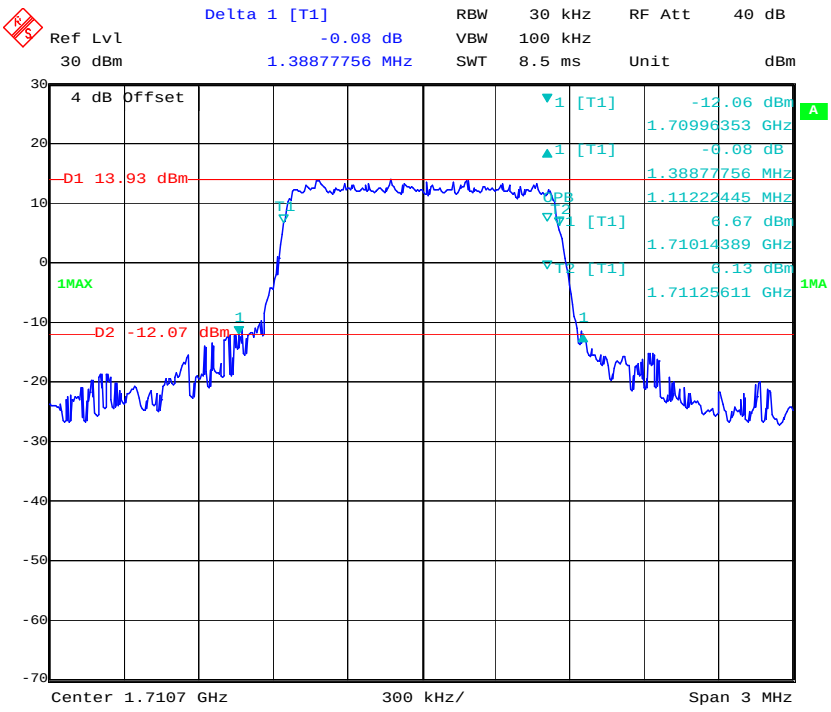
16QAM_20 MHz



Date: 8.JUN.2018 22:16:38

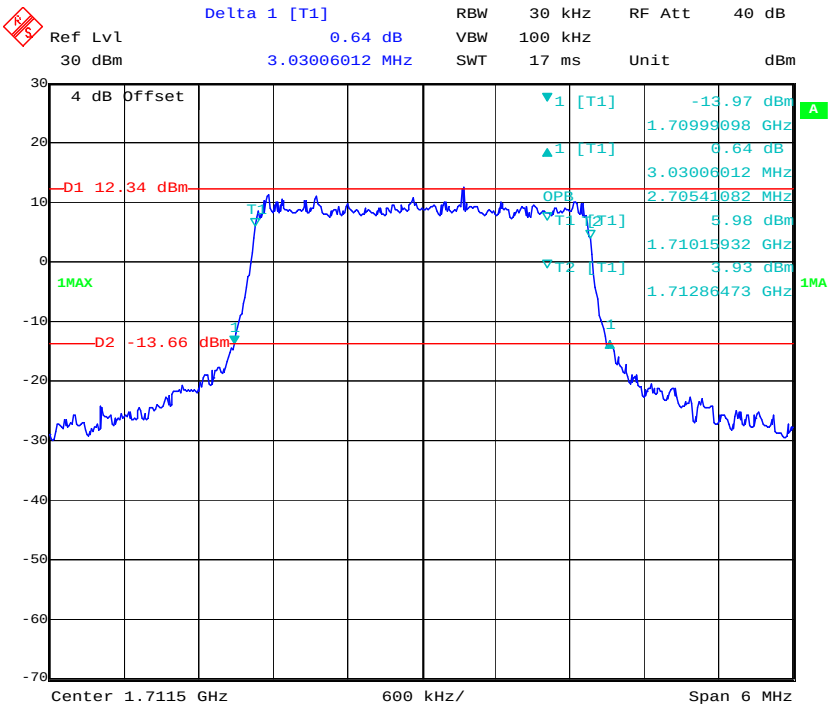
LTE Band 4:

QPSK_1.4 MHz



Date: 8.JUN.2018 22:17:24

QPSK_3 MHz



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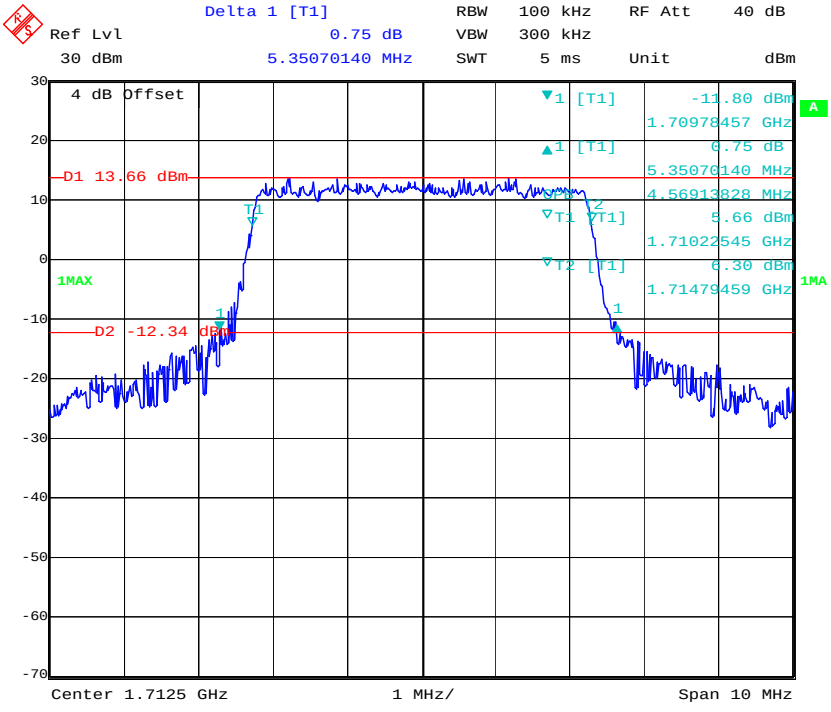
QPSK_5 MHz



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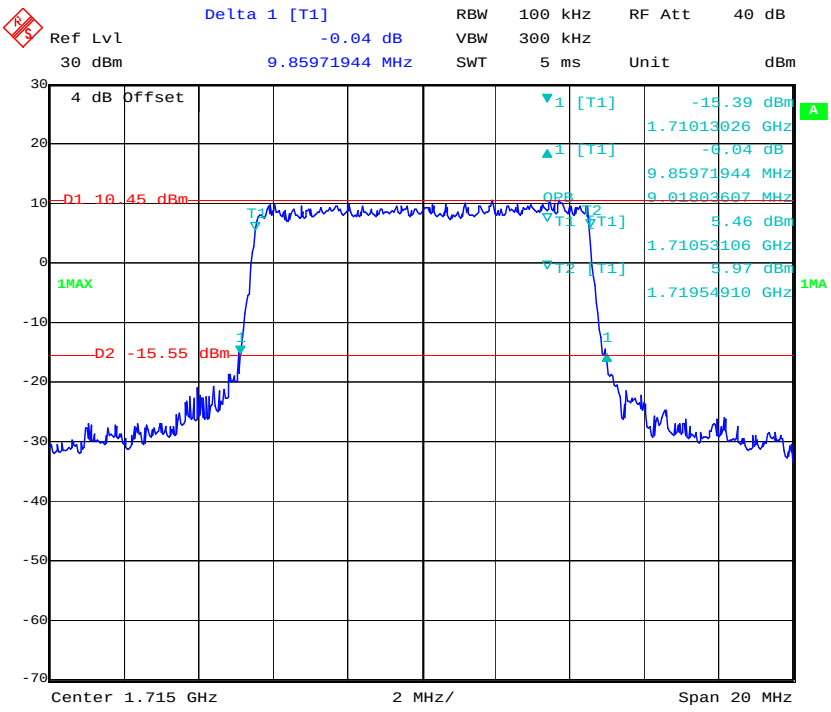
QPSK_10 MHz



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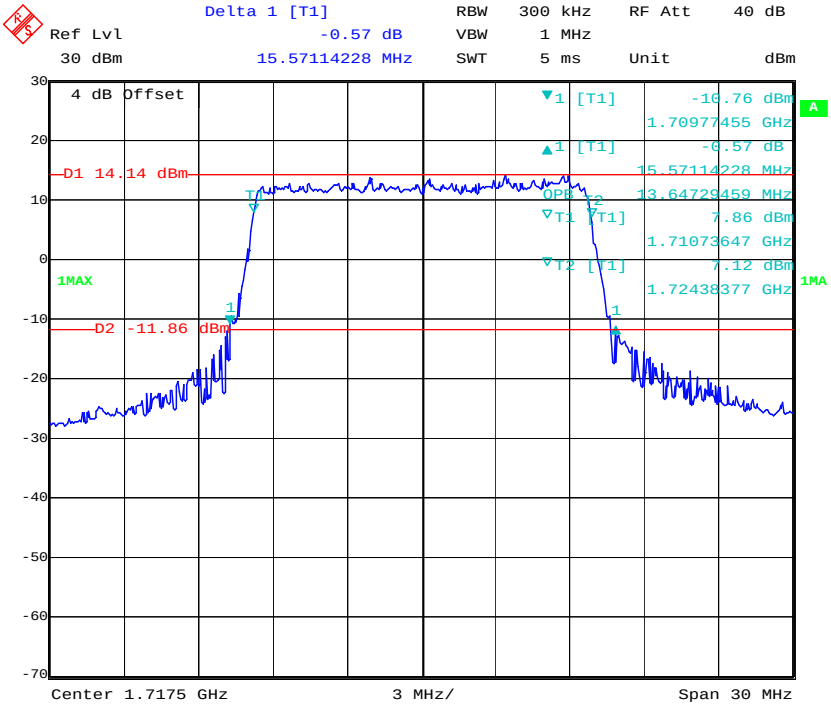

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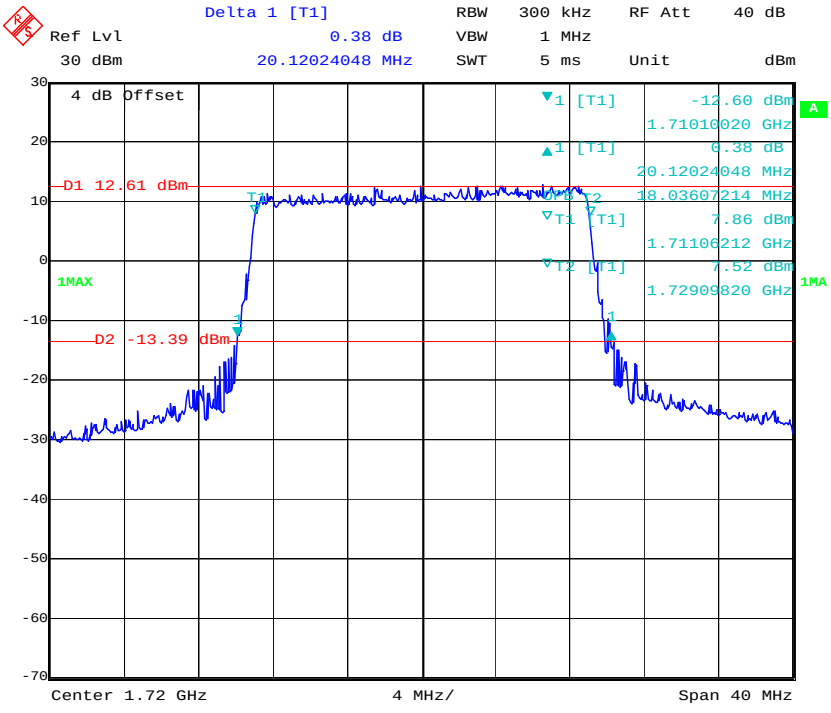
QPSK_20 MHz



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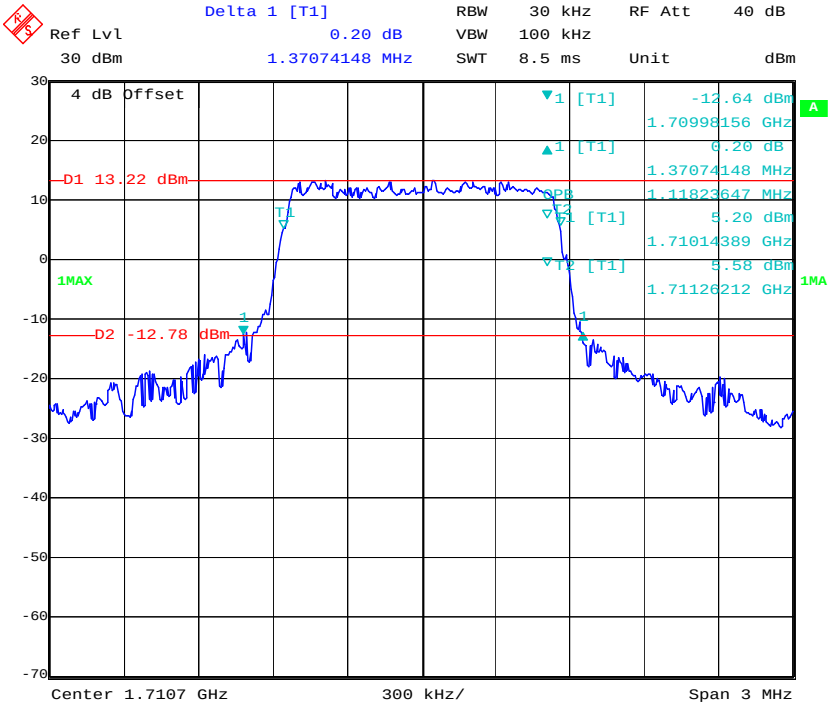
16QAM_1.4 MHz



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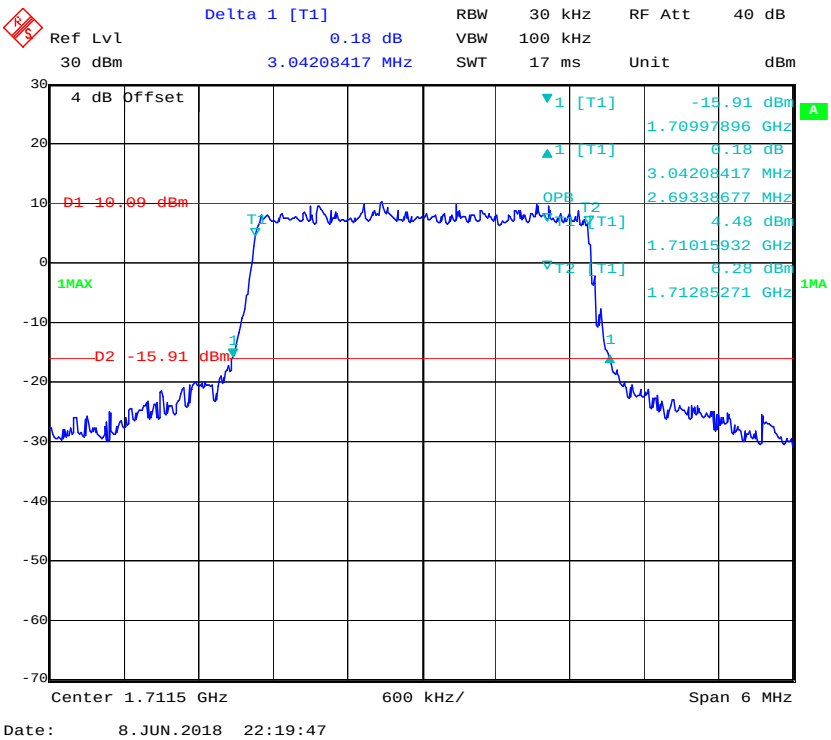

16QAM_5 MHz

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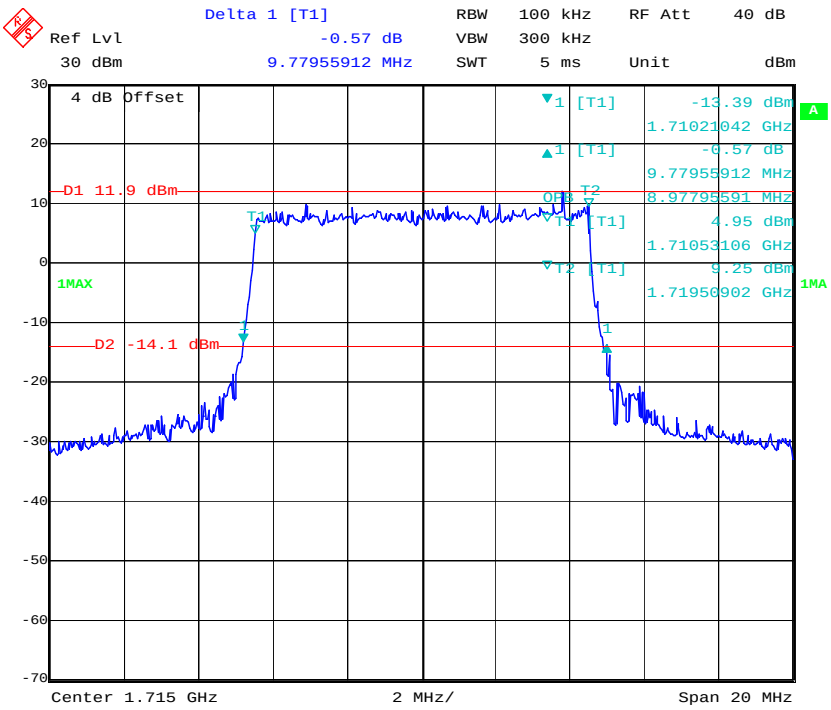
16QAM_10 MHz



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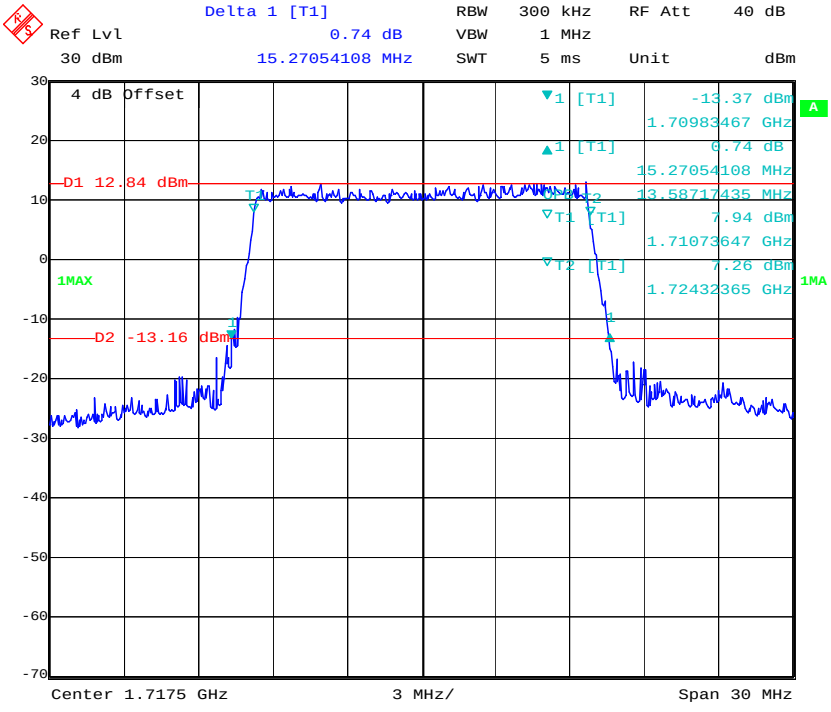
16QAM_15 MHz



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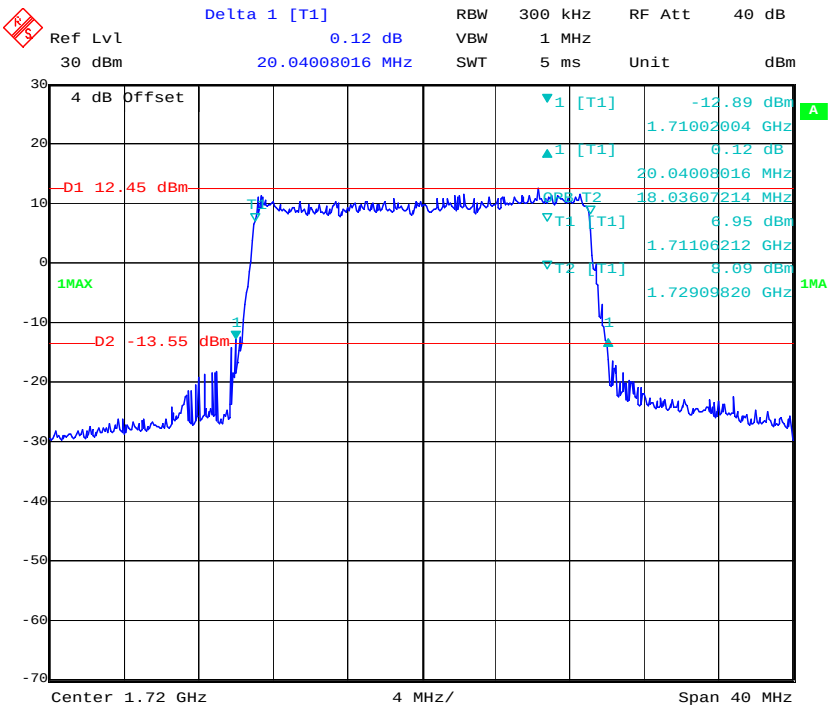
16QAM_20 MHz



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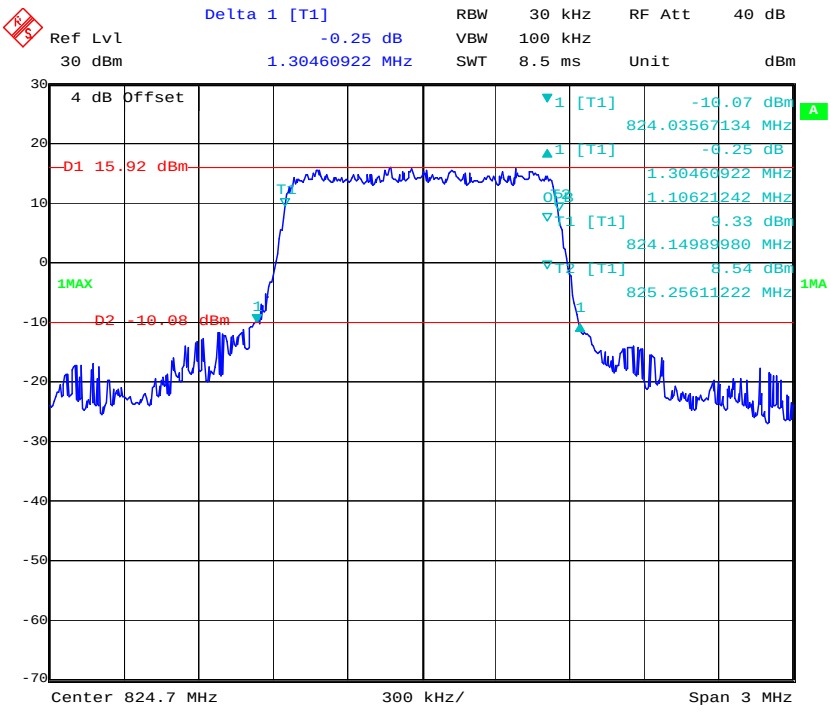
LTE Band 5:

QPSK_1.4 MHz



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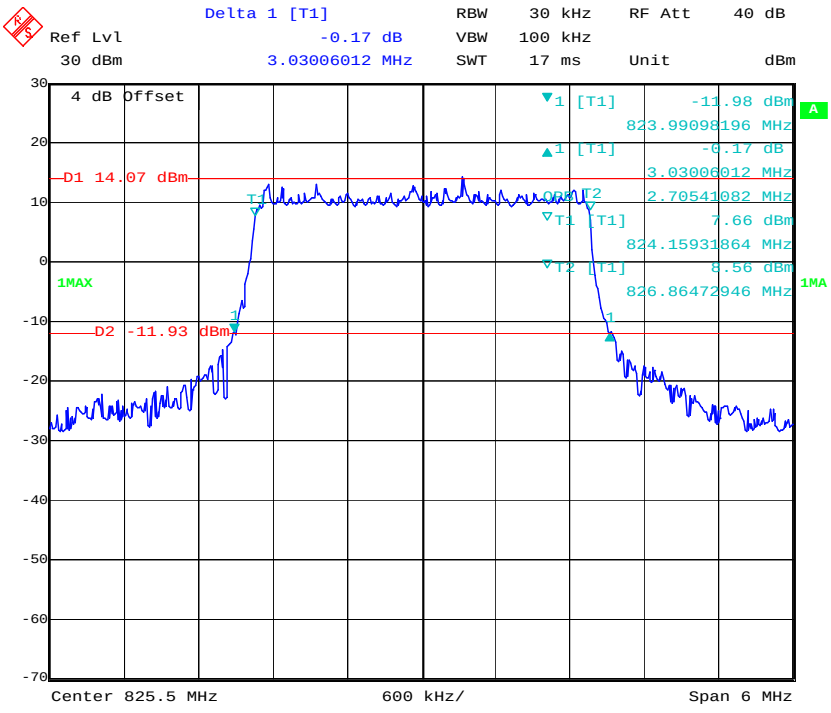
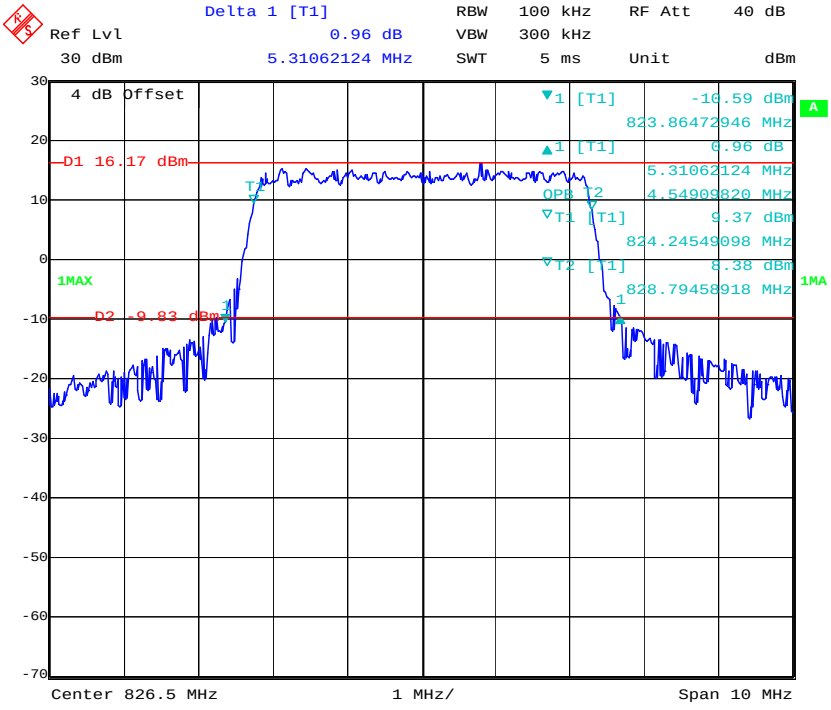


QPSK_5 MHz



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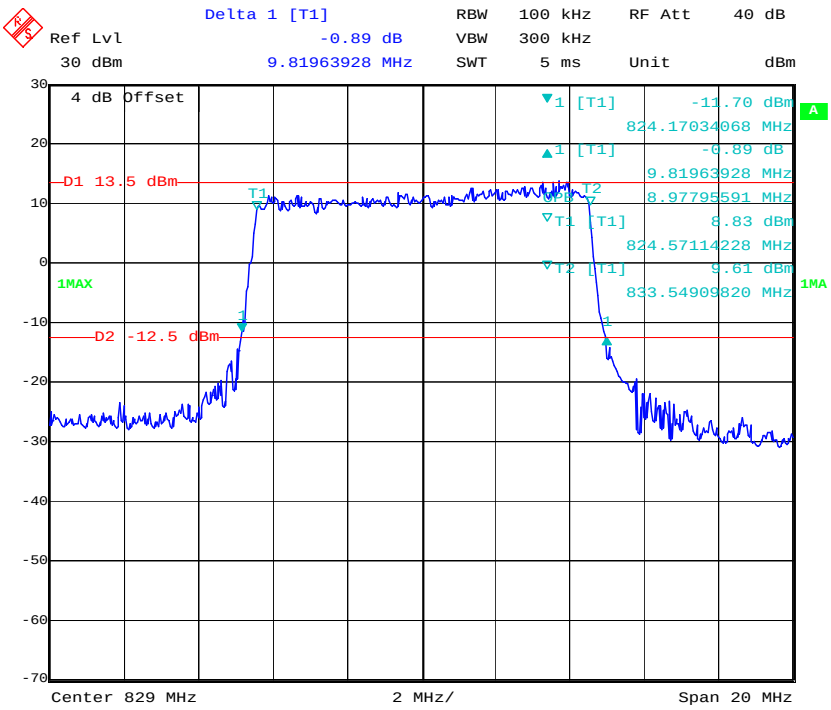
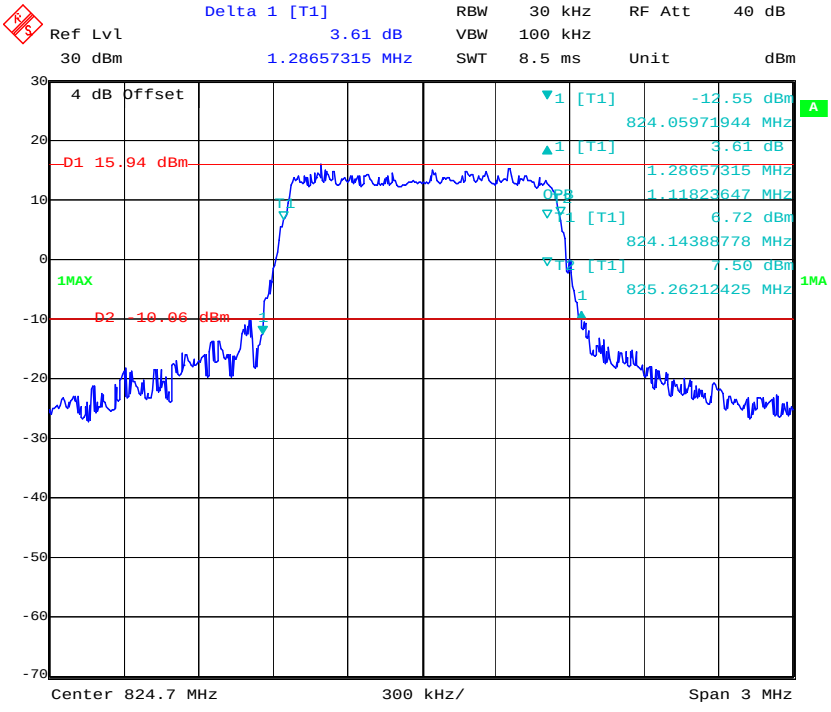
QPSK_10 MHz



Date: 8.JUN.2018 22:32:43

16QAM_1.4 MHz



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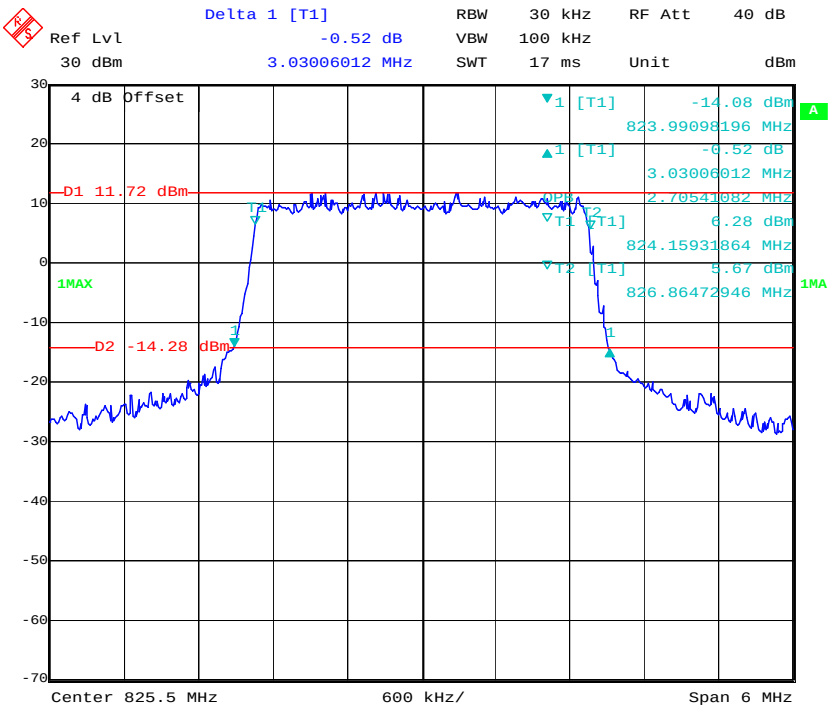
16QAM_3 MHz



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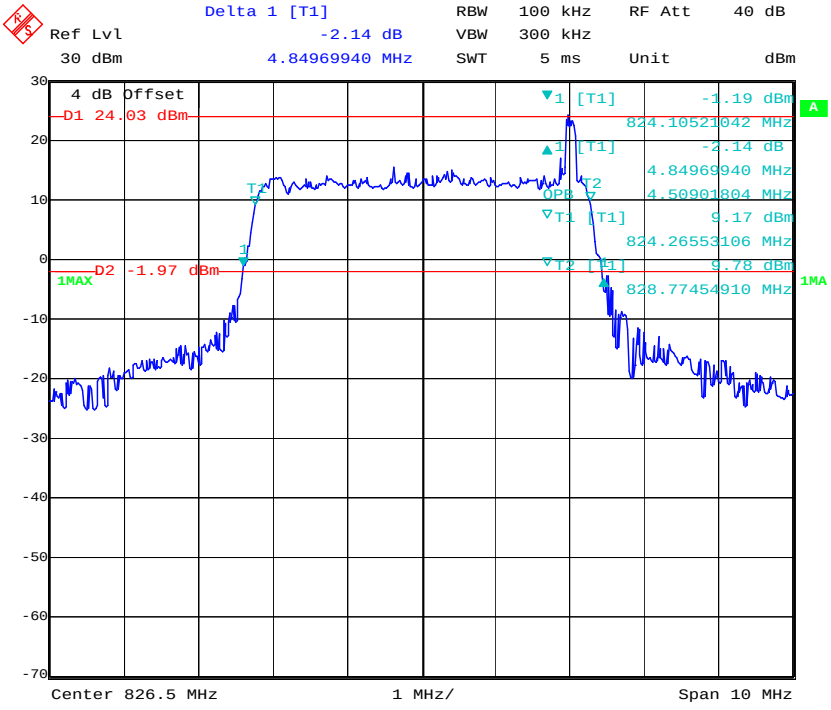
16QAM_5 MHz



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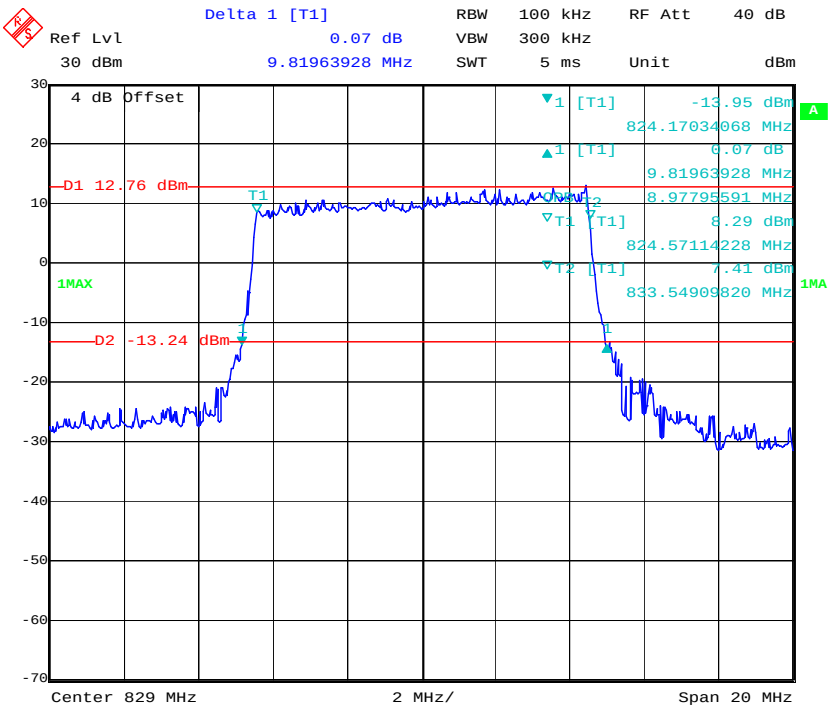
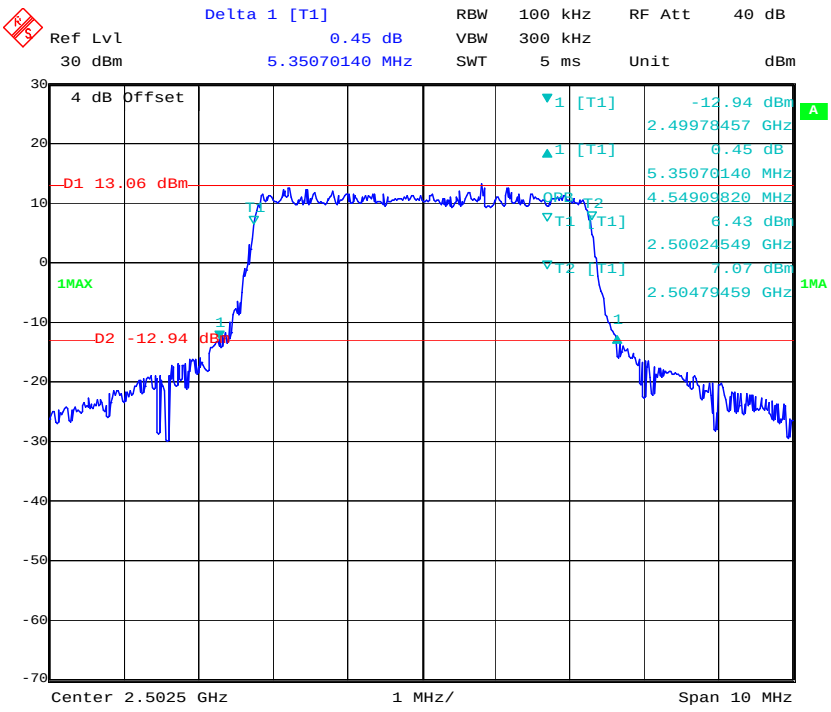
16QAM_10 MHz



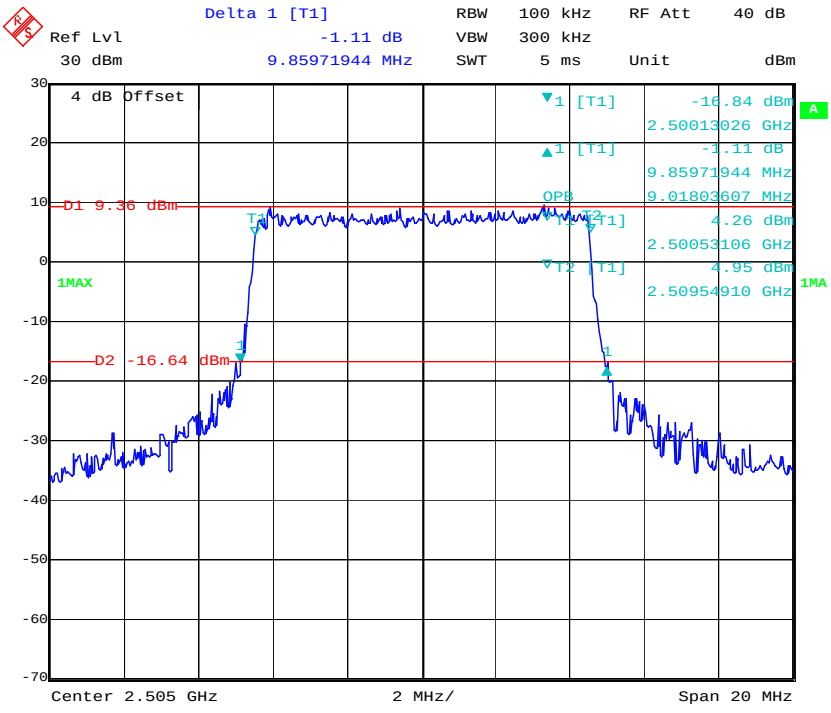
Date: 8.JUN.2018 22:33:35

LTE Band 7:

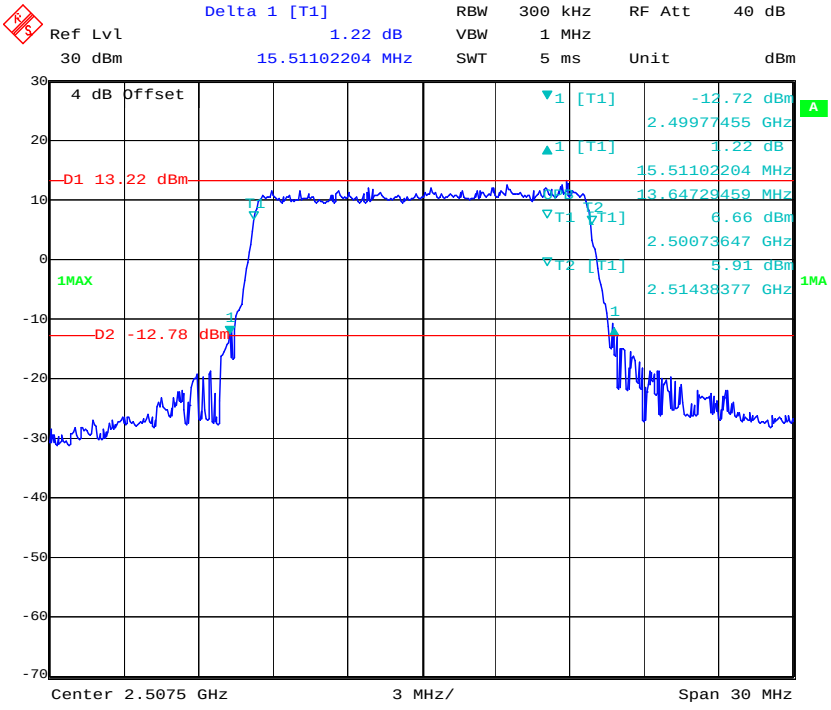
QPSK_5 MHz



QPSK_10 MHz



QPSK_15 MHz



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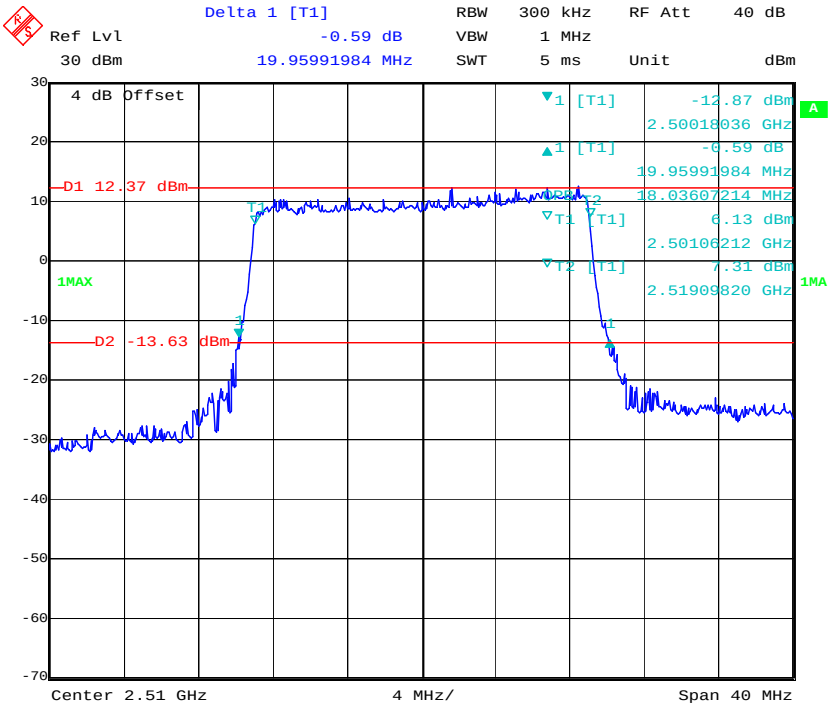
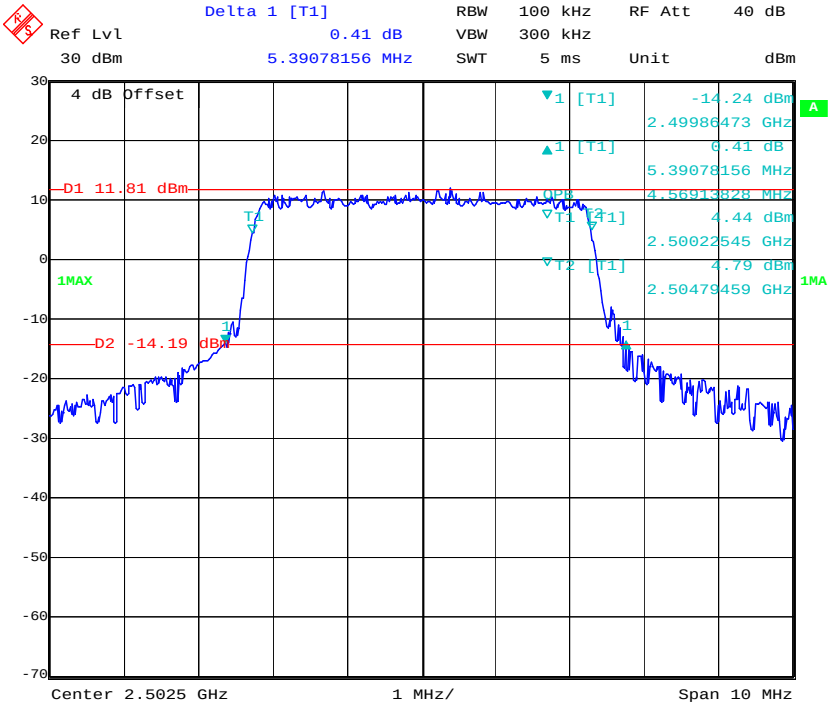
QPSK_20 MHz



Date: 8.JUN.2018 22:40:08

16QAM_5 MHz



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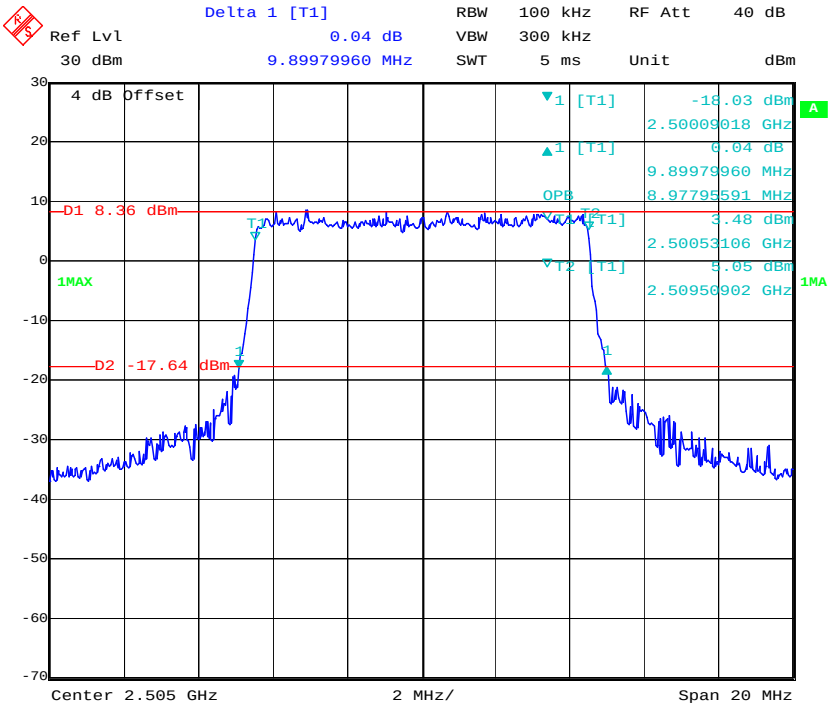

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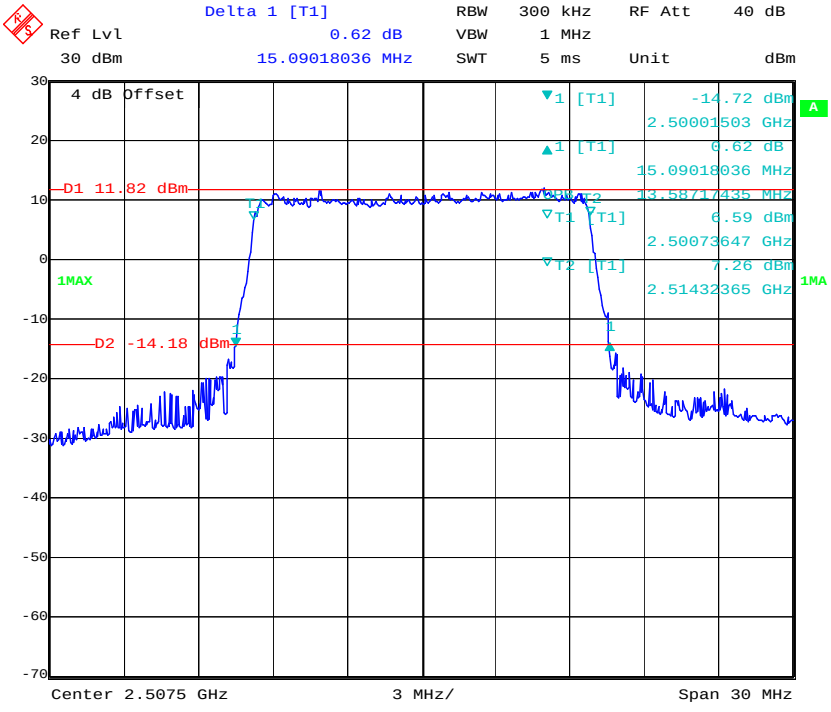

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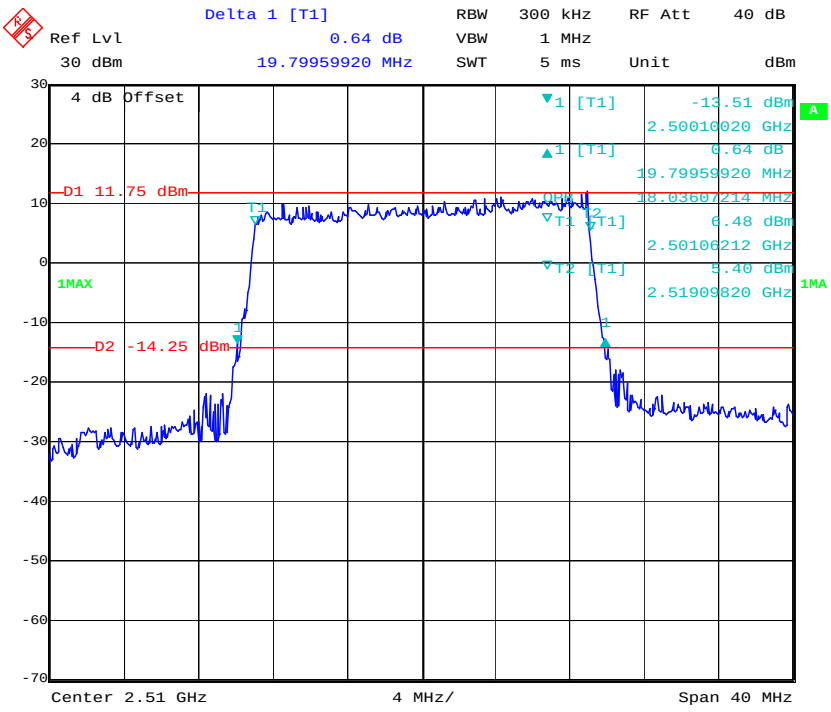

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LTE Band 12:

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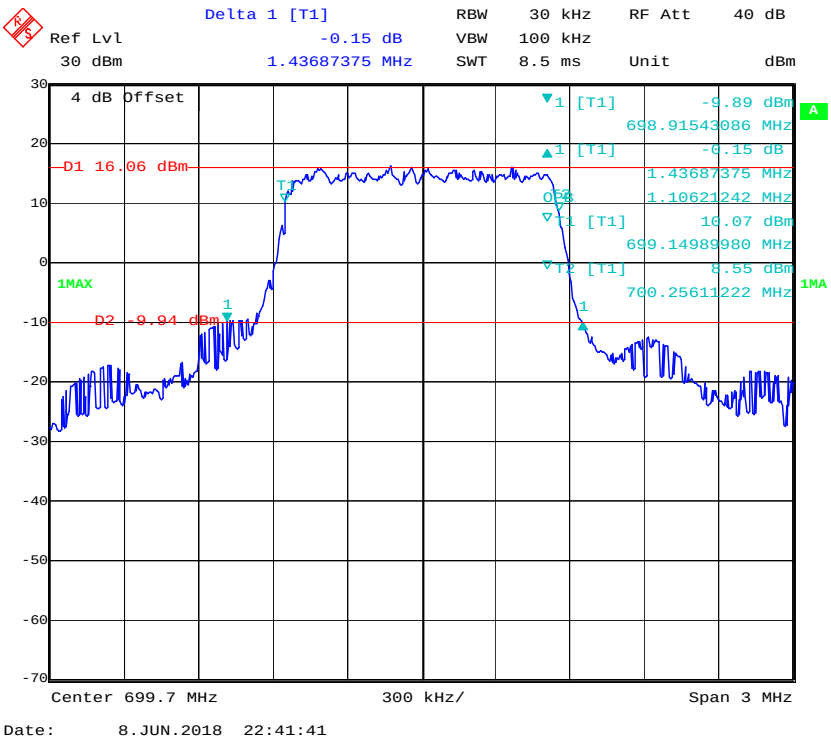

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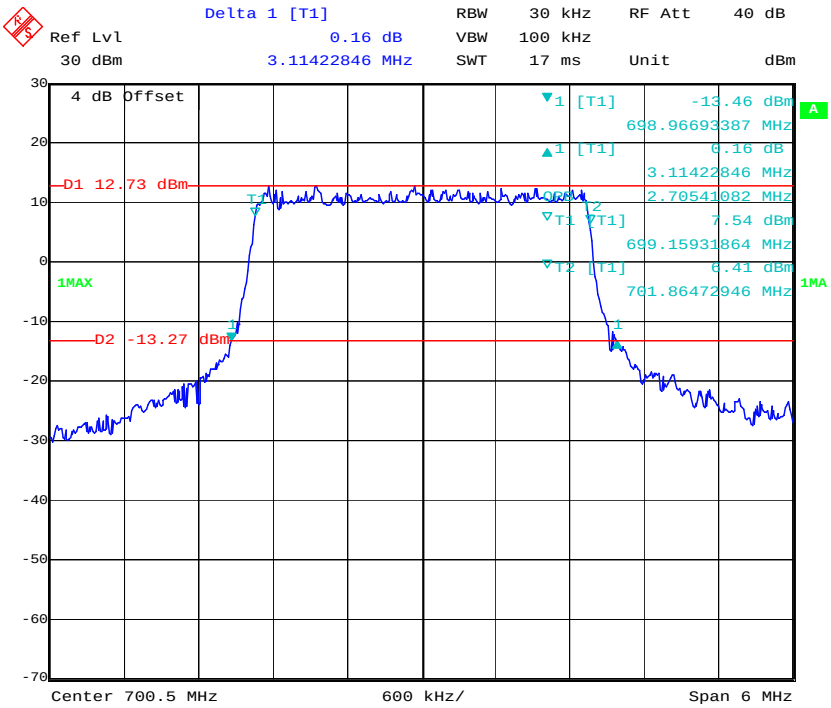
QPSK_3 MHz



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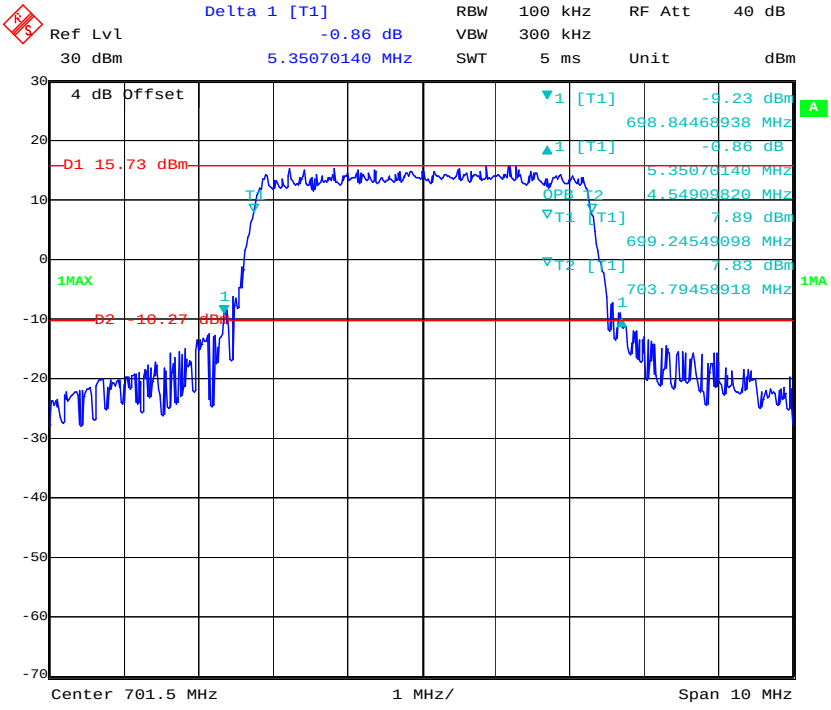
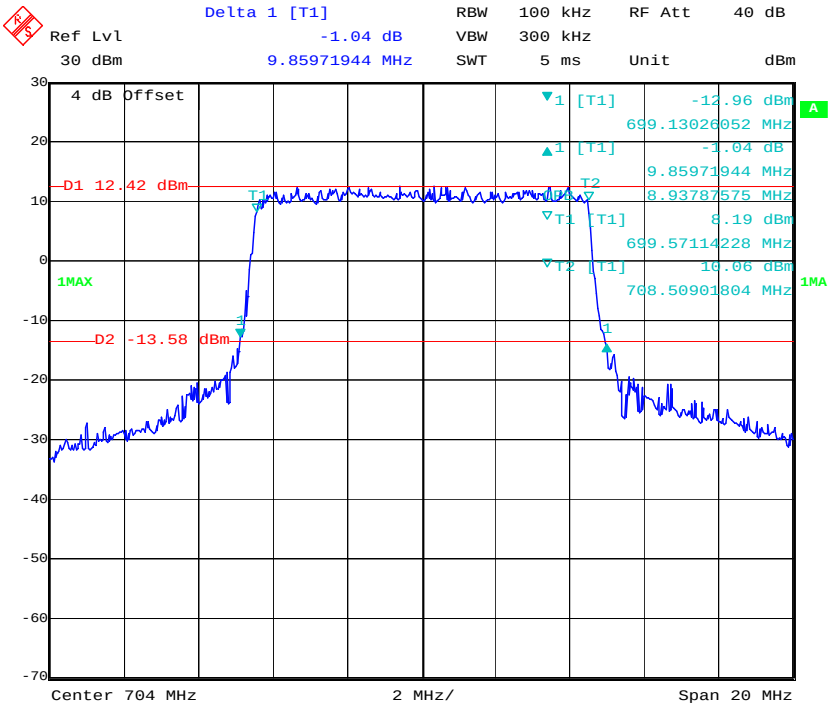
QPSK_5 MHz



QPSK_10 MHz



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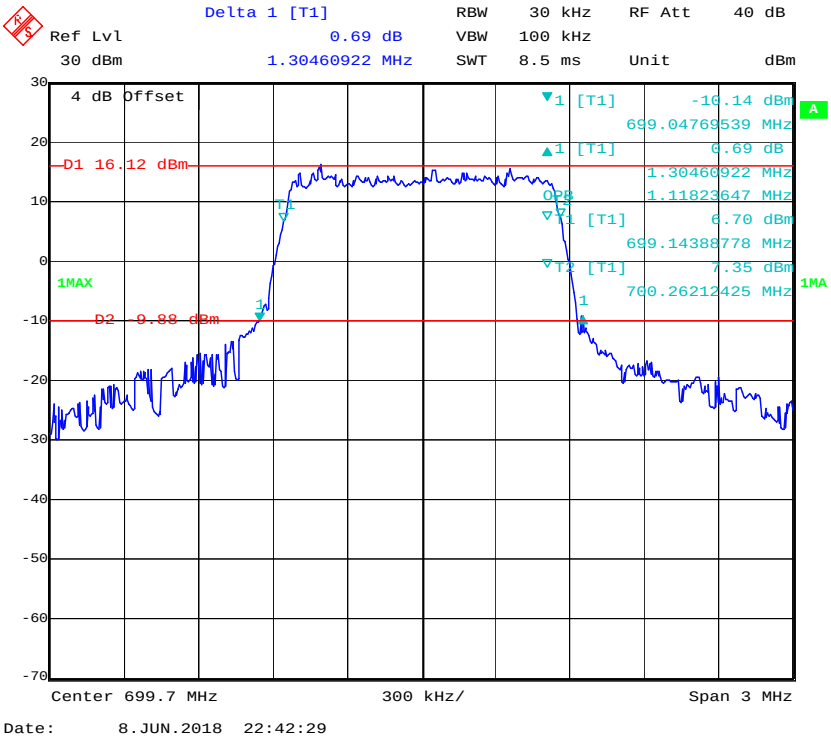

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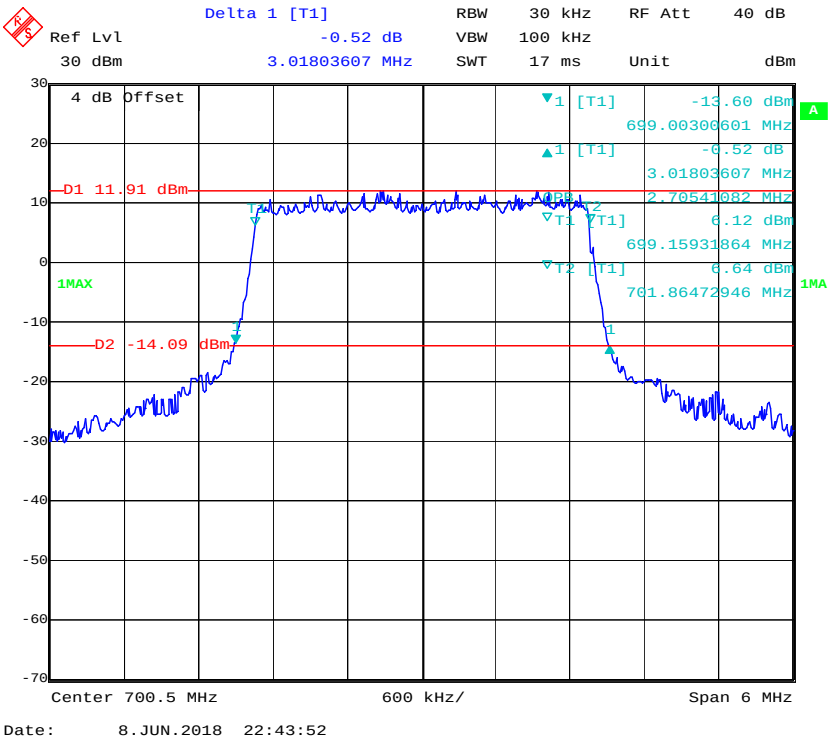

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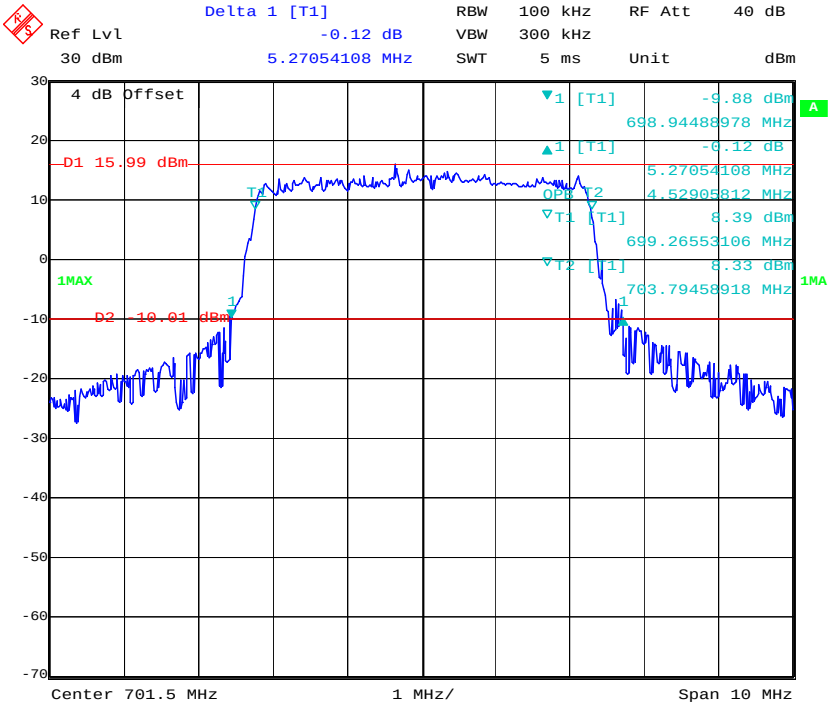
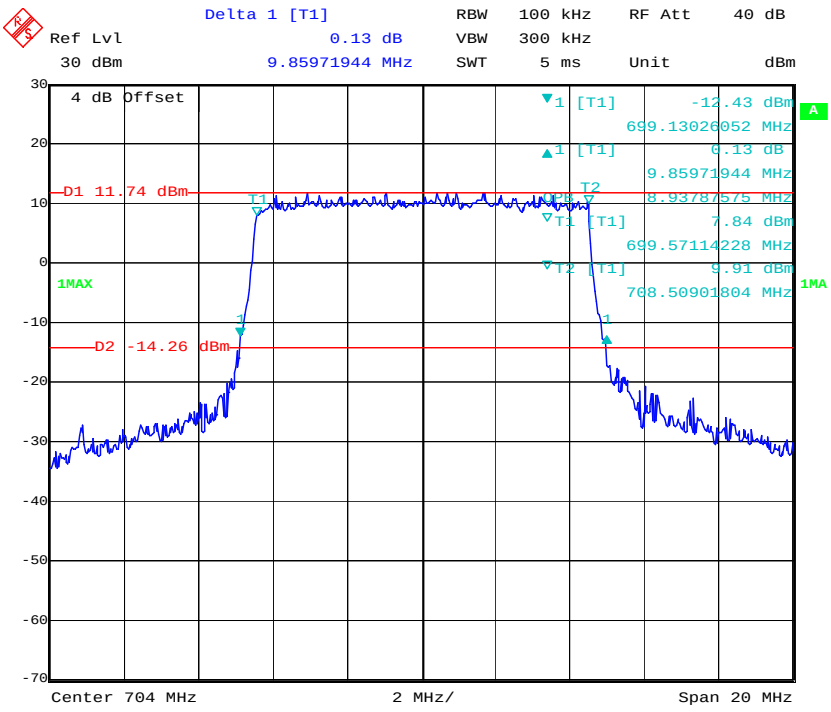


Date: 8.JUN.2018 22:45:25

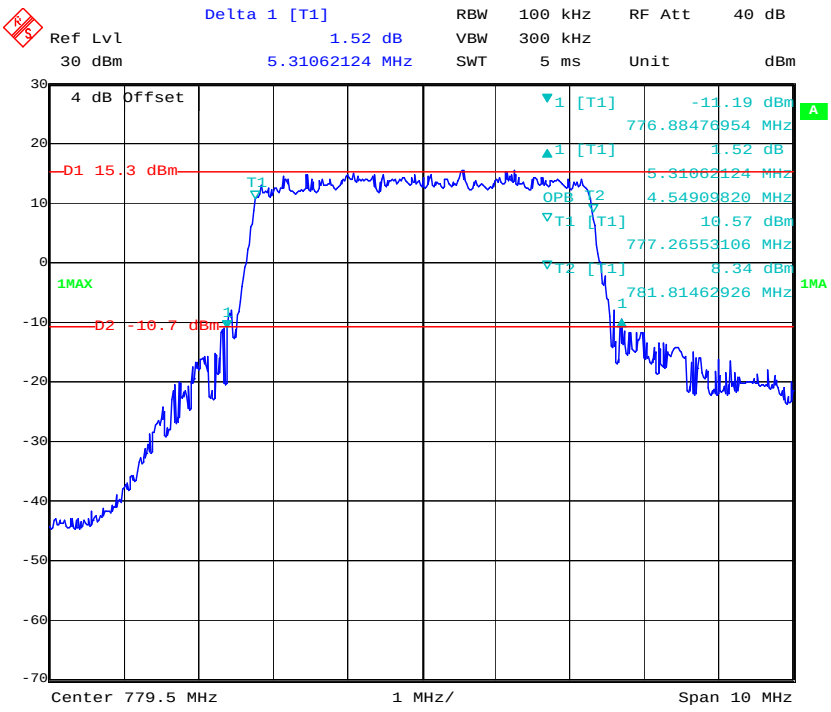
16QAM_10 MHz



Date: 8.JUN.2018 22:47:05

LTE Band 13:

QPSK_5 MHz



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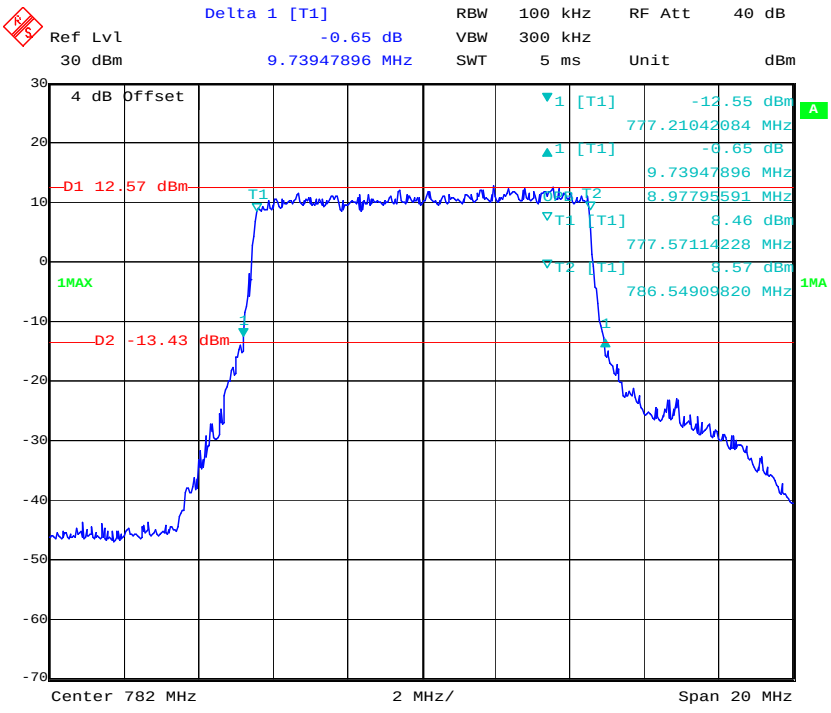

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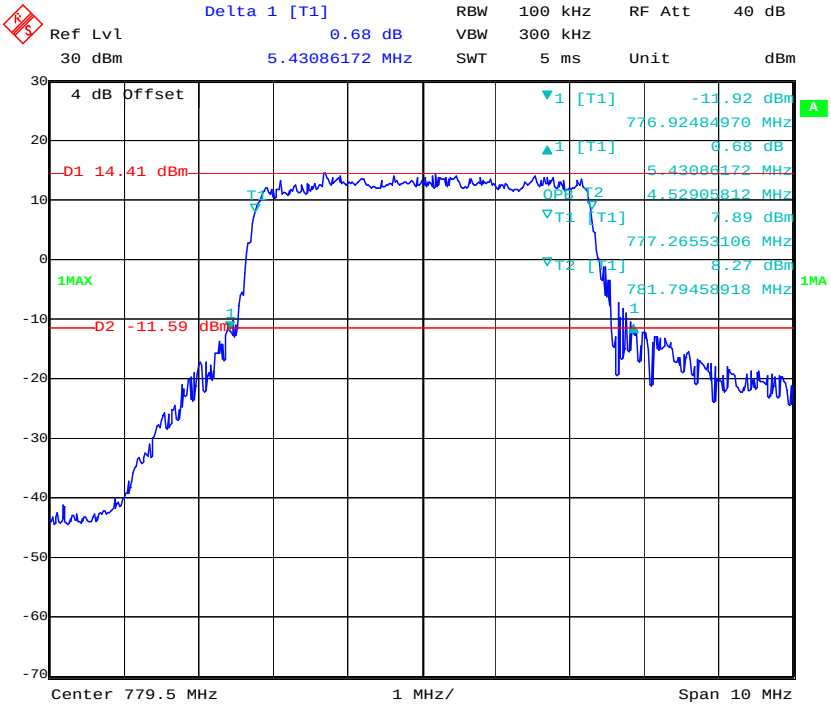
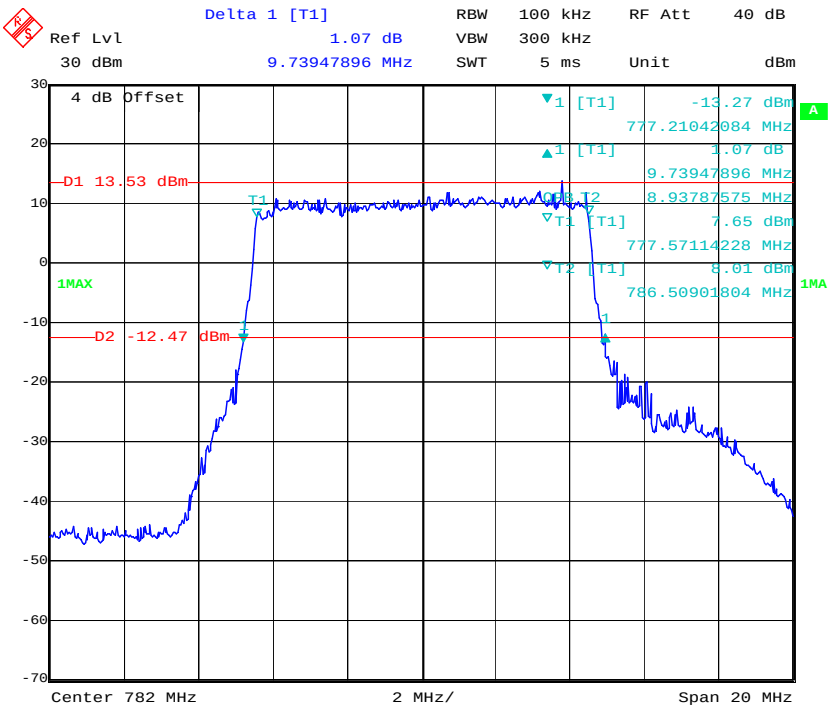


Date: 8.JUN.2018 22:48:39

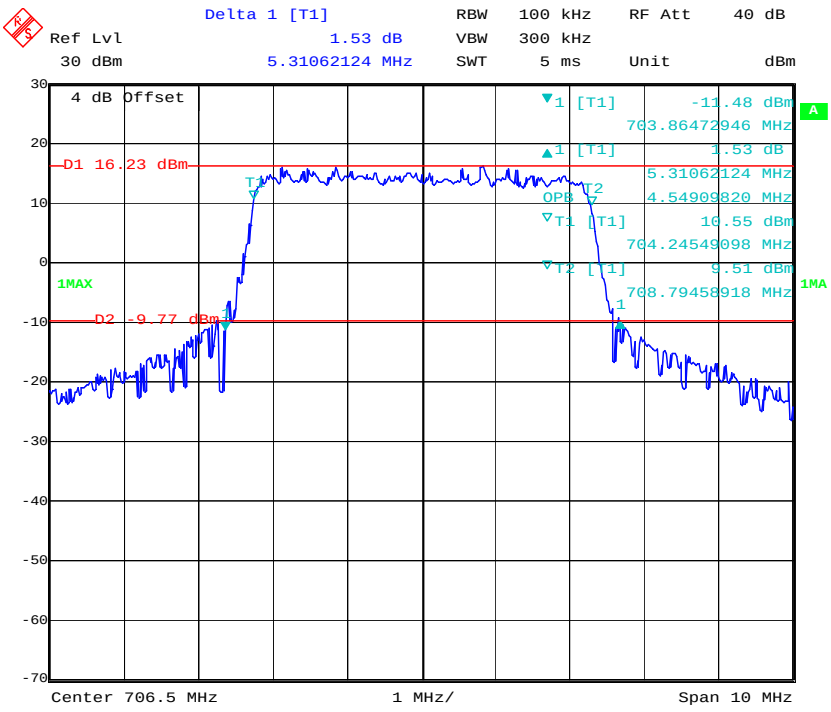
16QAM_10 MHz



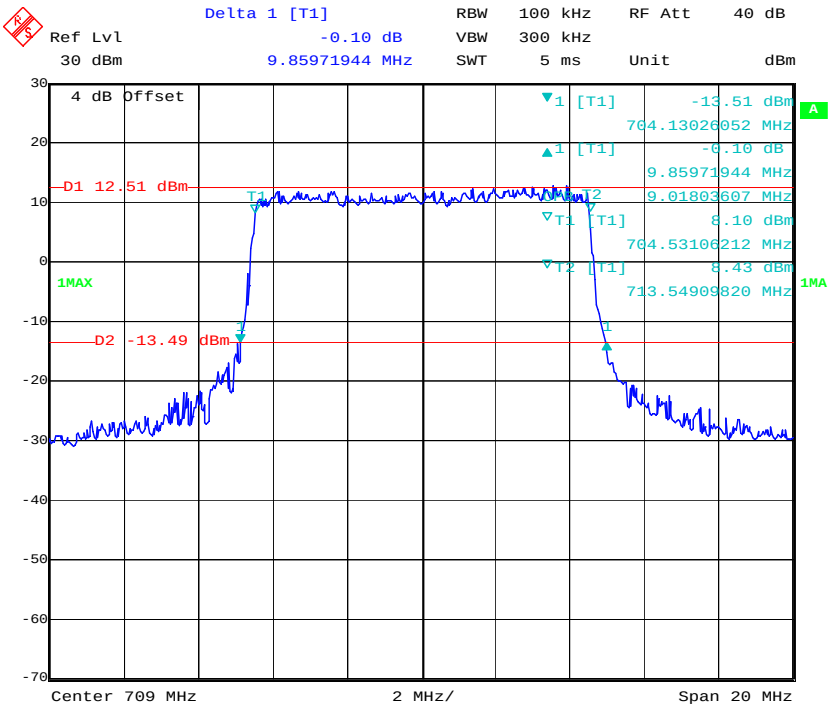
Date: 8.JUN.2018 22:50:20

LTE Band 17:

QPSK_5 MHz



QPSK_10 MHz



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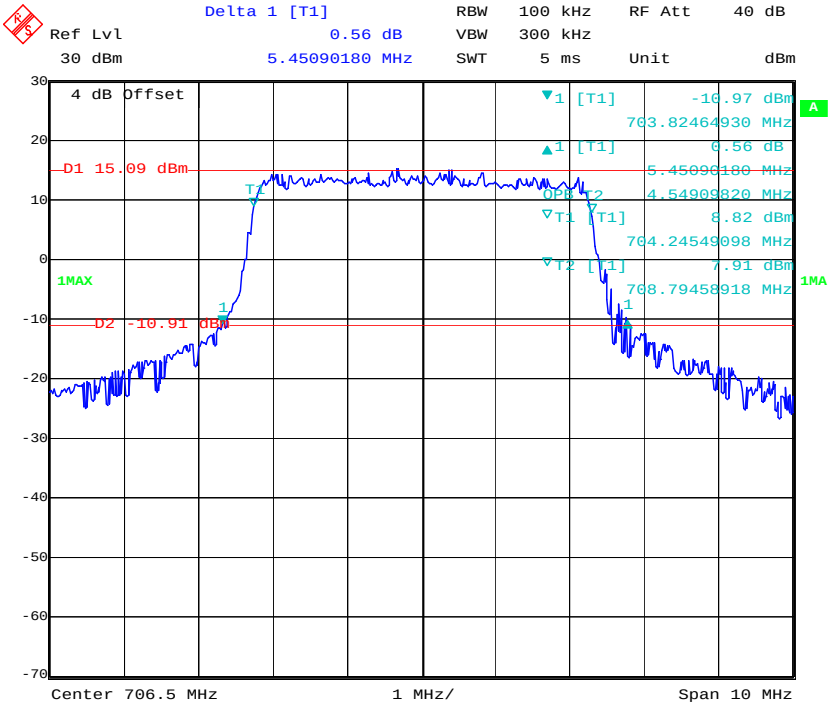
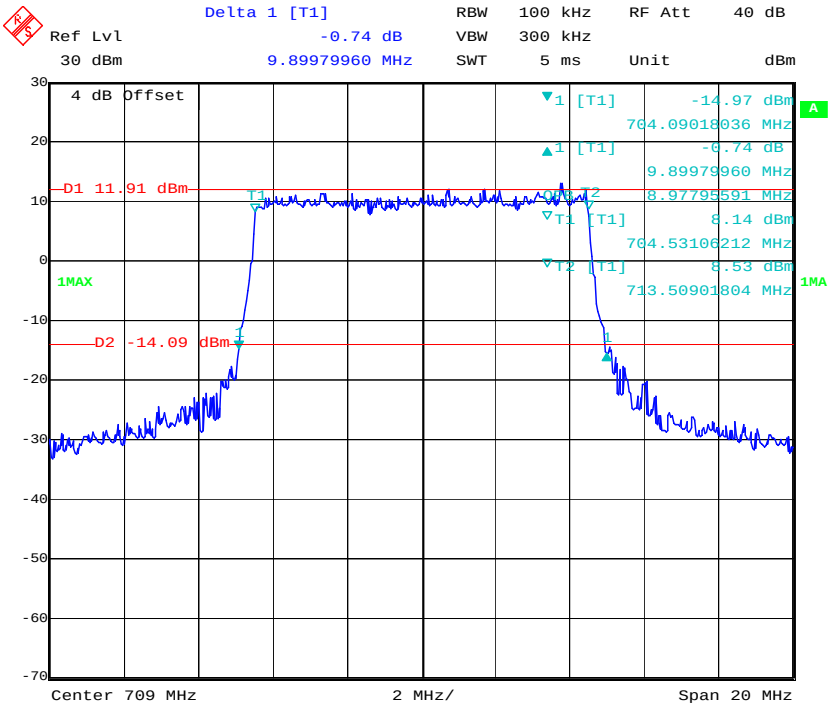


Date: 8.JUN.2018 22:52:29

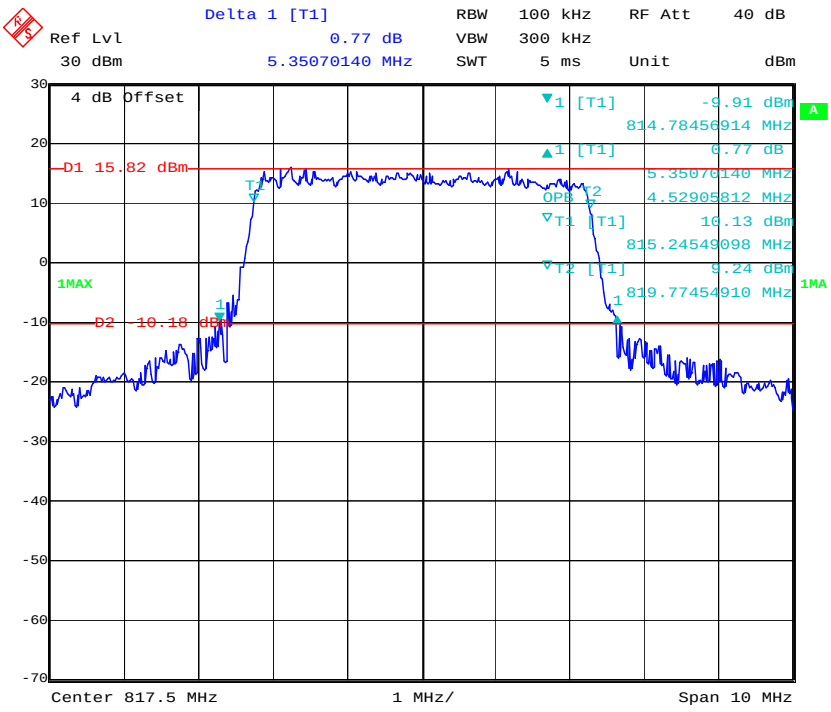
16QAM_10 MHz



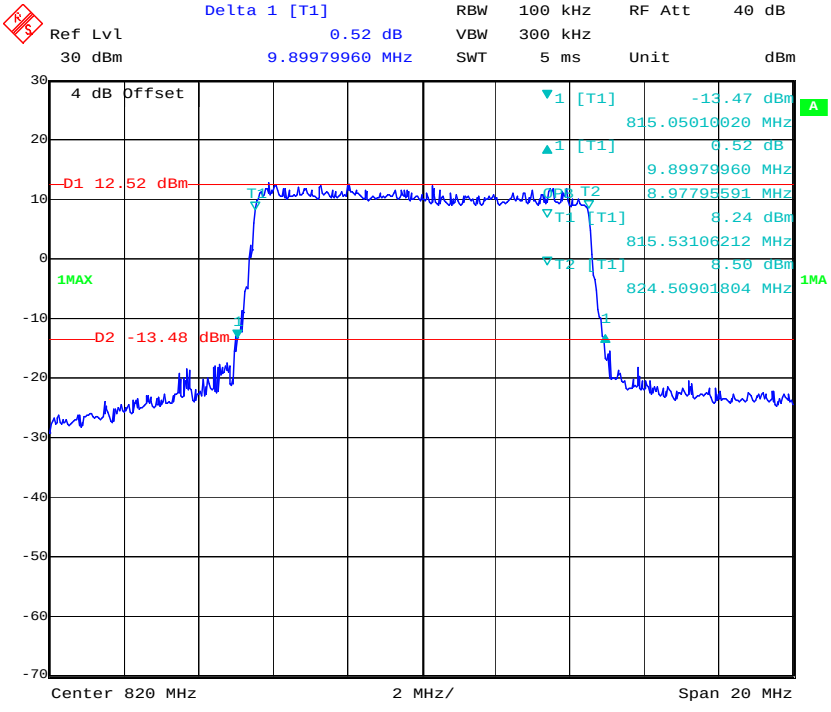
Date: 8.JUN.2018 22:54:09

LTE Band 18:

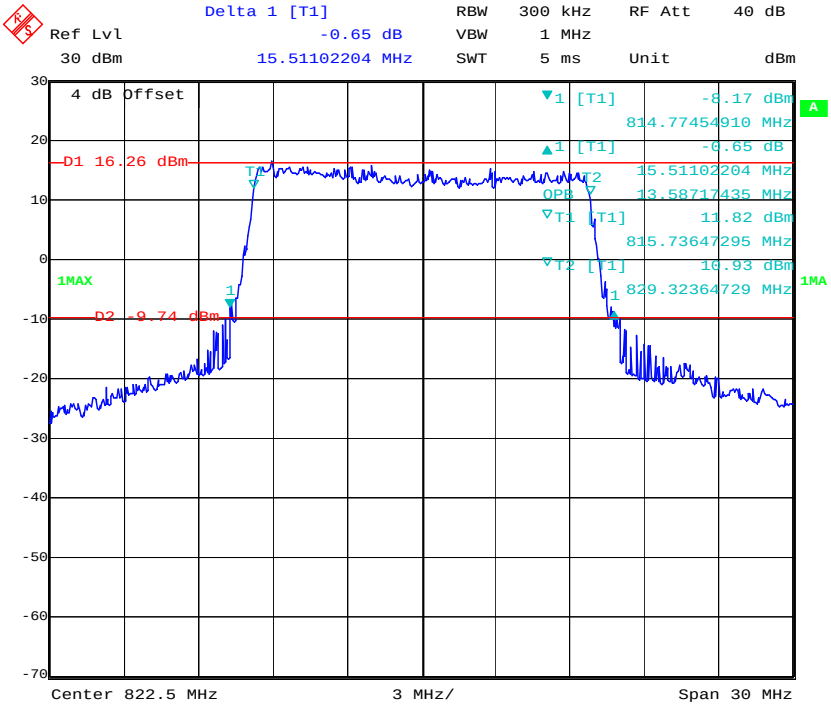
QPSK_5 MHz



QPSK_10 MHz

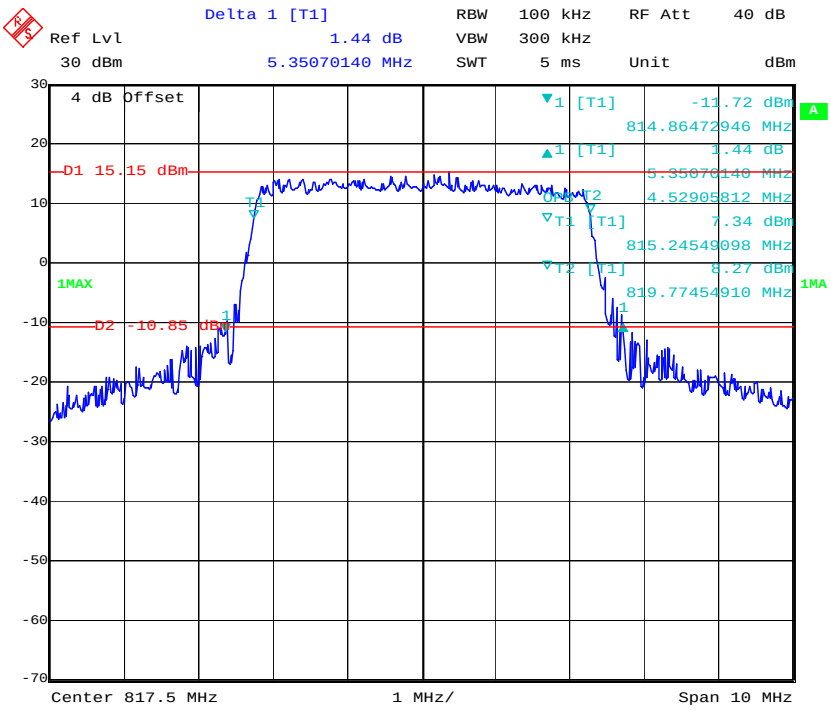


QPSK_15 MHz



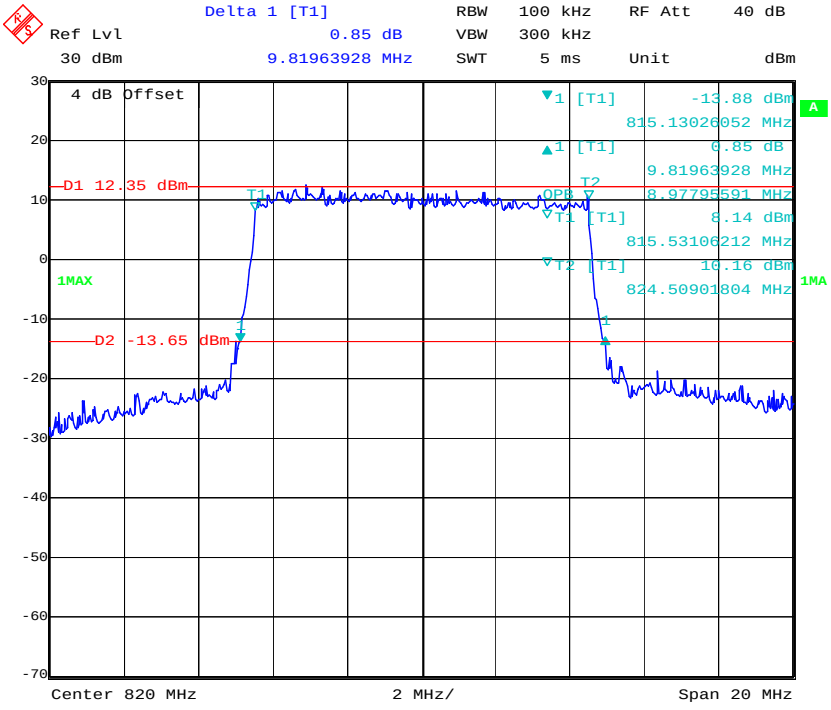
Date: 8.JUN.2018 22:57:44

16QAM_5 MHz



Date: 8.JUN.2018 22:55:36

16QAM_10 MHz



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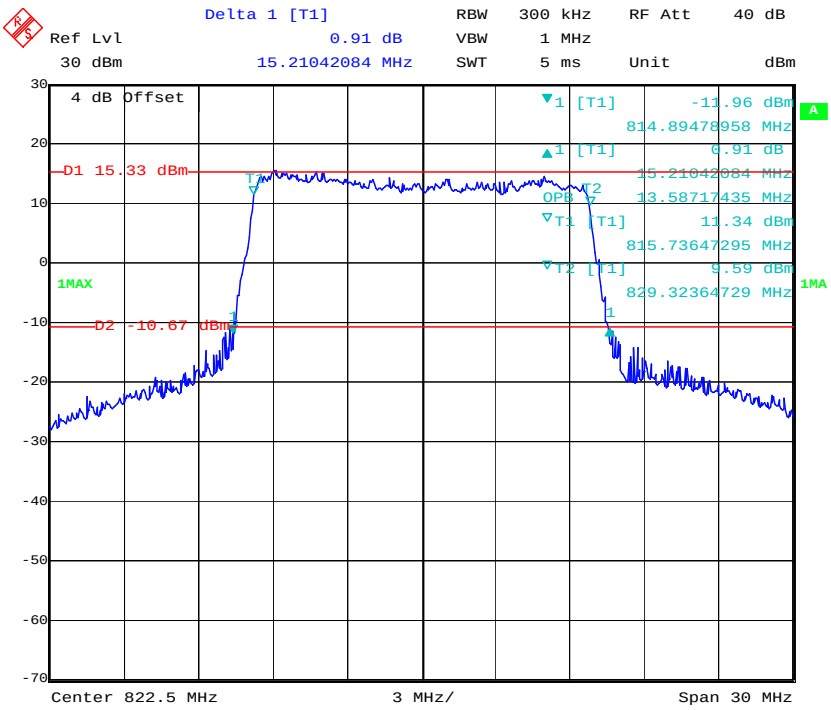
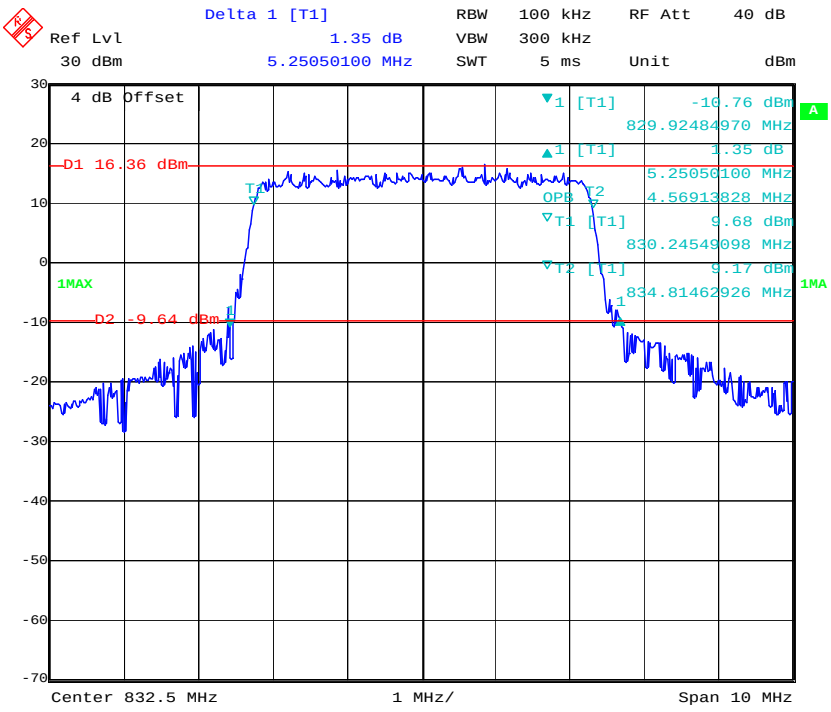
16QAM_15 MHz



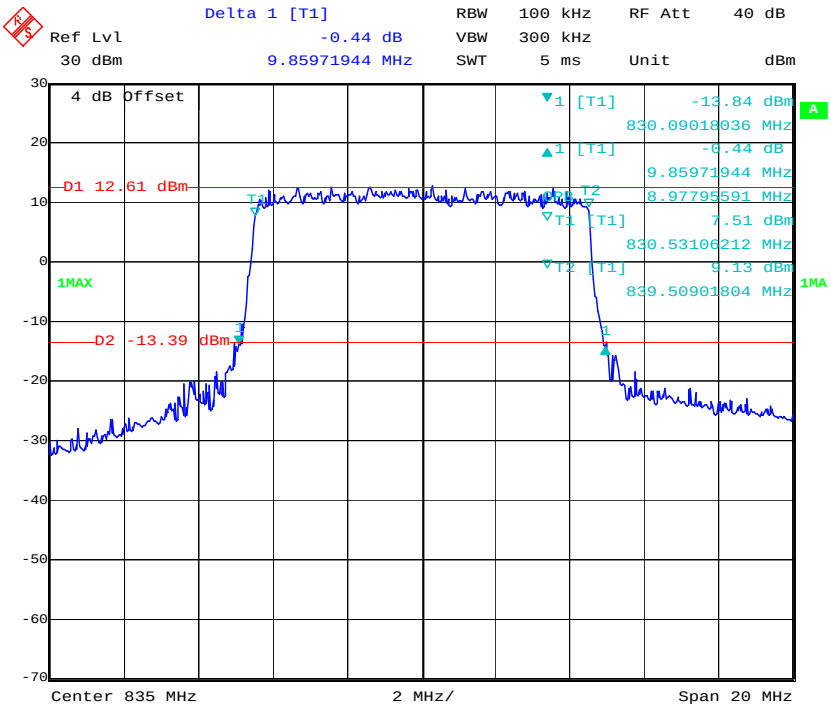
Date: 8.JUN.2018 22:58:32

LTE Band 19:

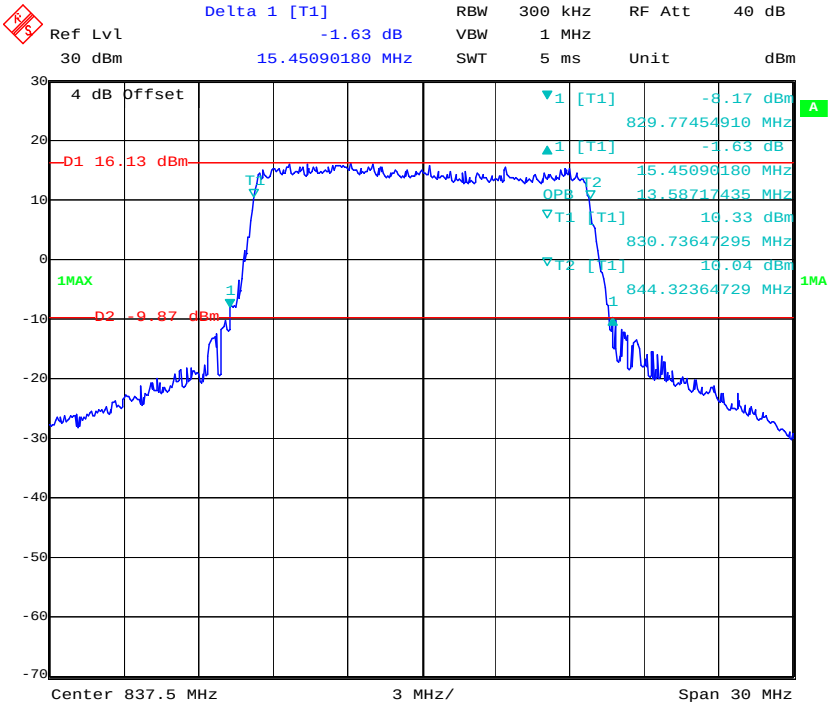
QPSK_5 MHz



QPSK_10 MHz

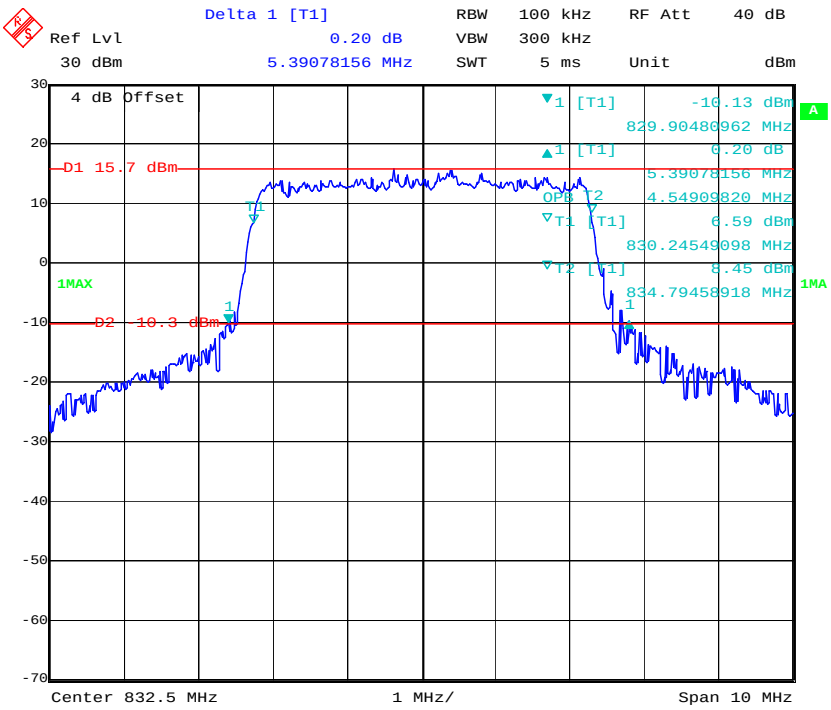


QPSK_15 MHz



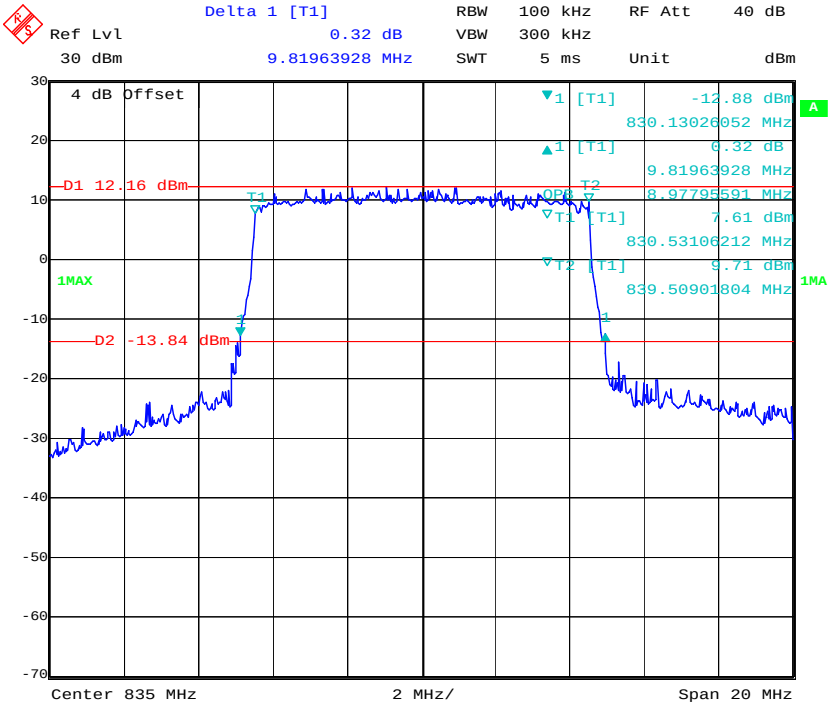
Date: 8.JUN.2018 23:02:52

16QAM_5 MHz



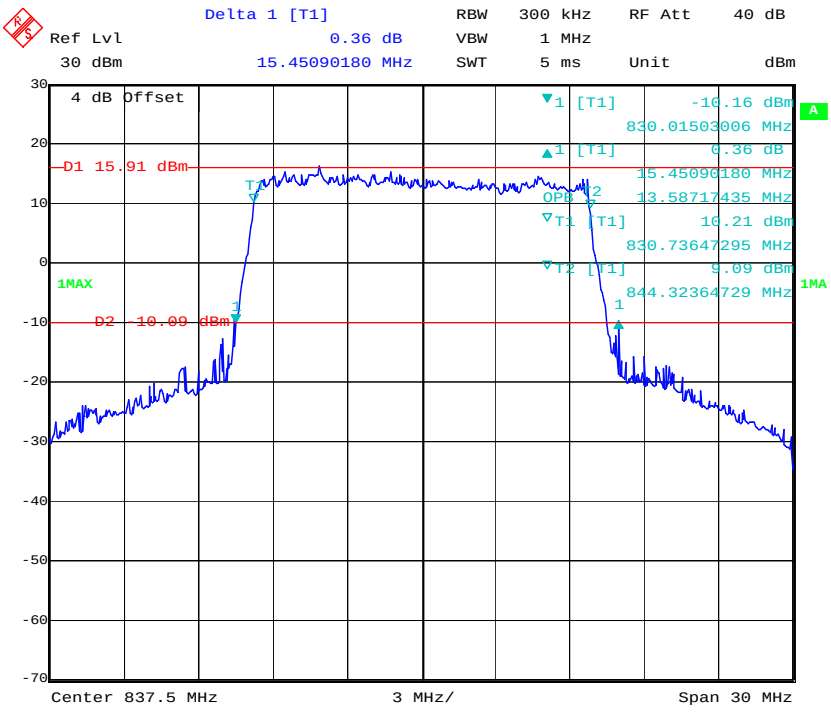
Date: 8.JUN.2018 23:00:38

16QAM_10 MHz



Date: 8.JUN.2018 23:02:00

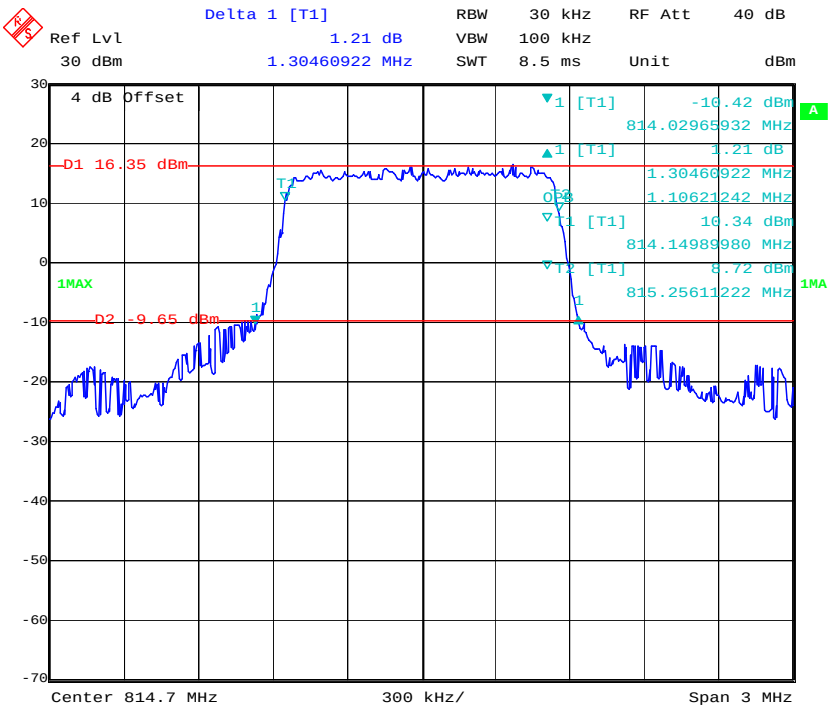
16QAM_15 MHz



Date: 8.JUN.2018 23:03:33

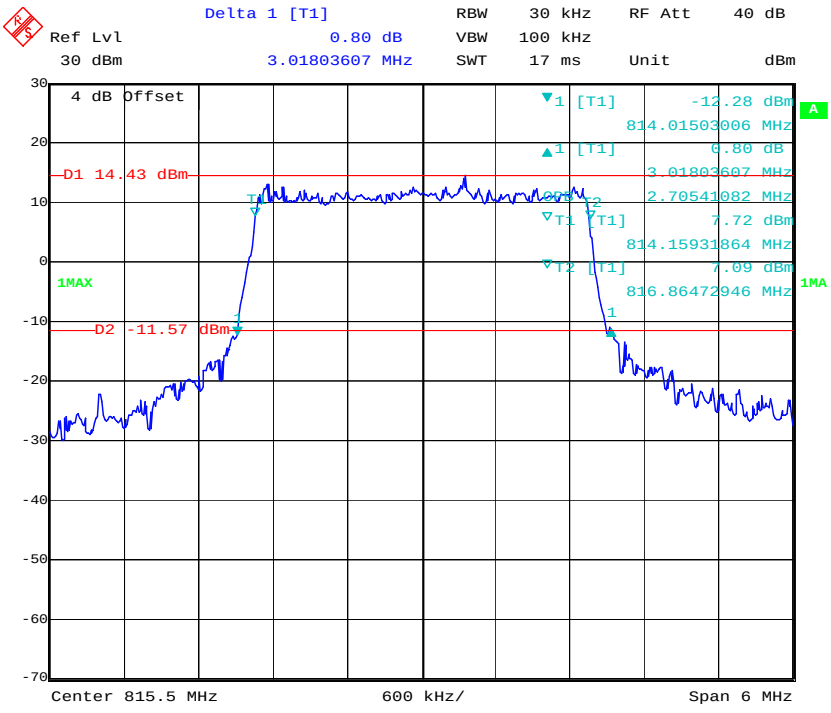
LTE Band 26:

QPSK_1.4 MHz



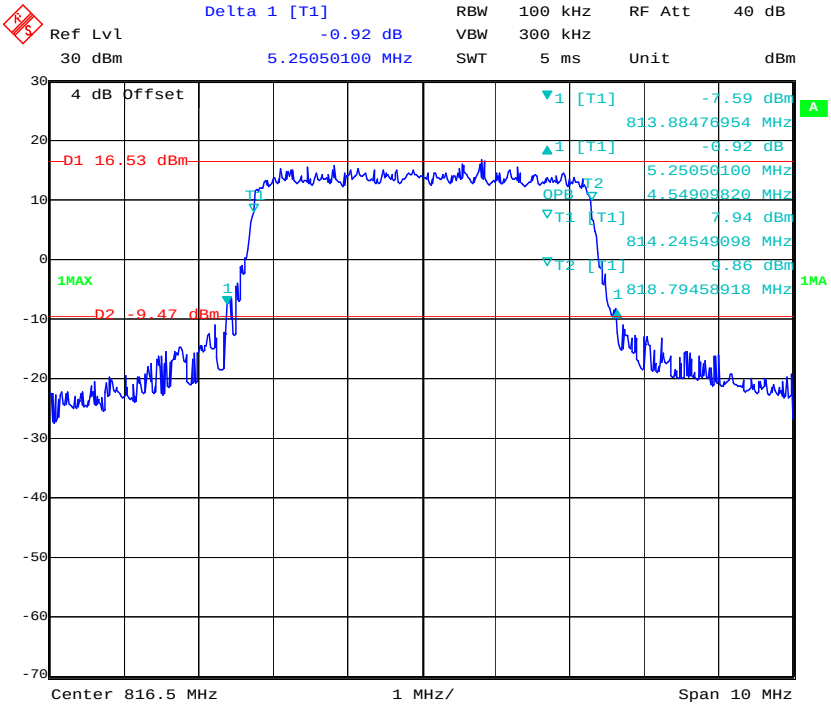
Date: 8.JUN.2018 23:04:28

QPSK_3 MHz

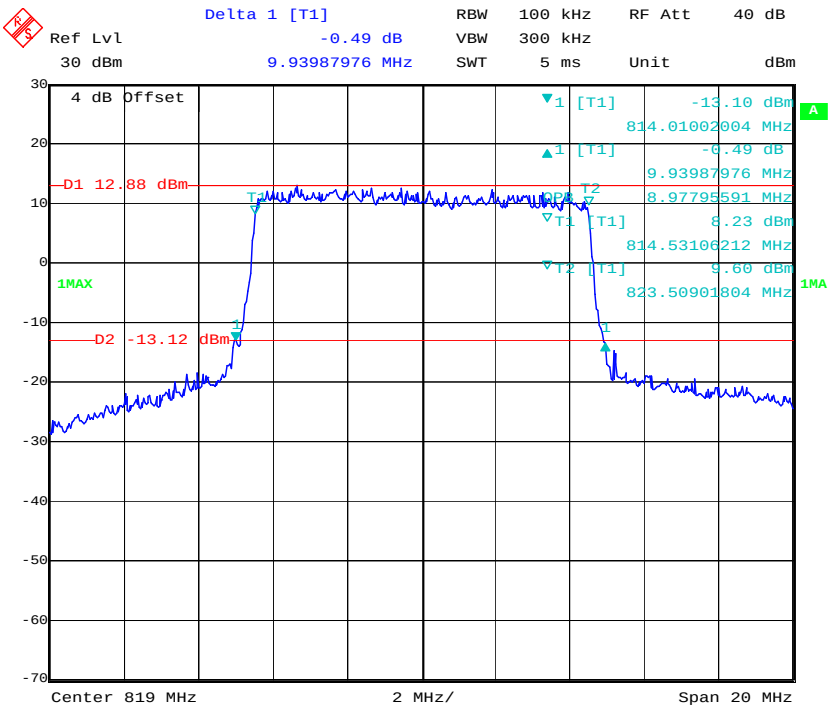


Date: 8.JUN.2018 23:06:13

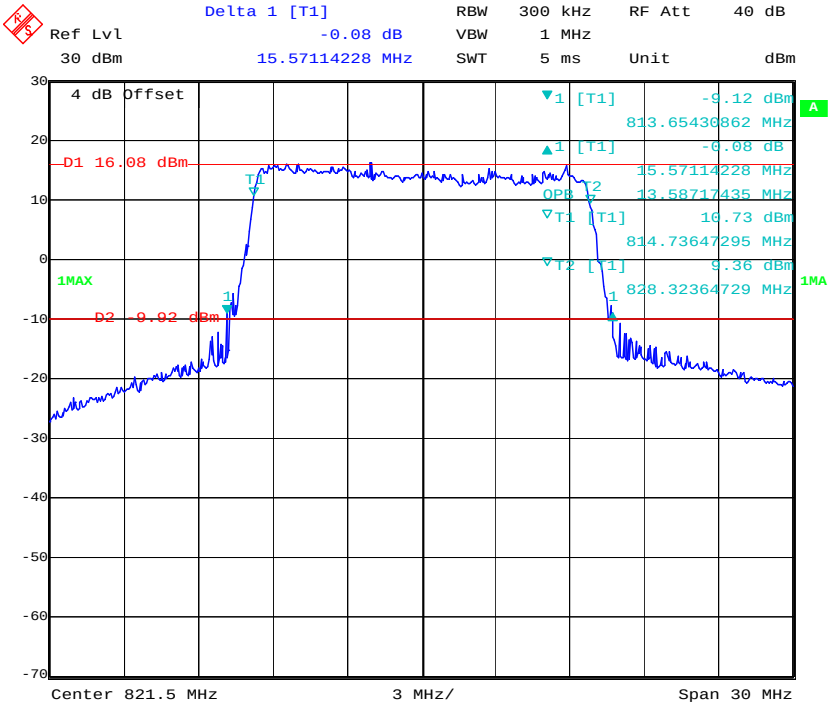
QPSK_5 MHz



QPSK_10 MHz

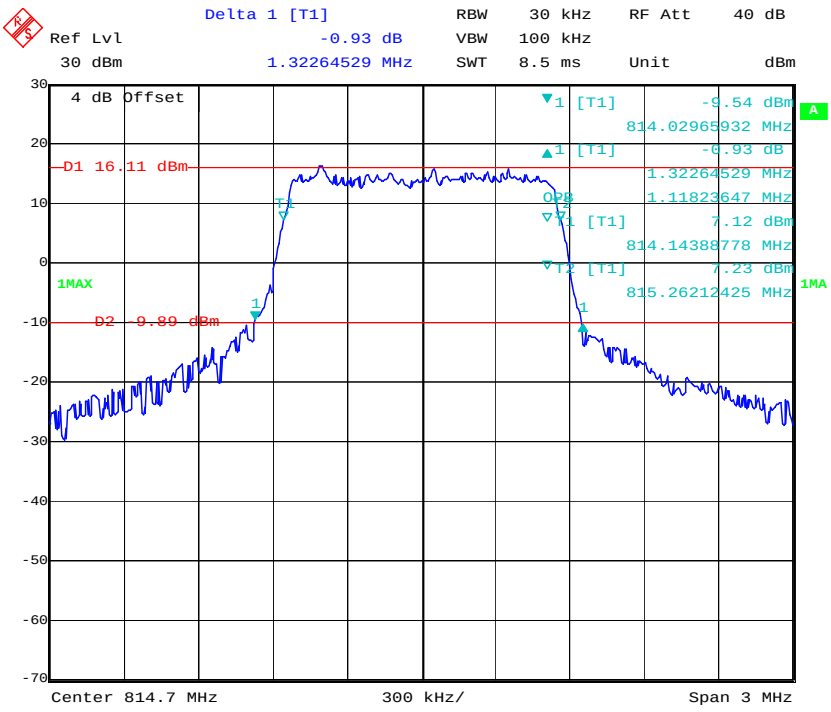


QPSK_15 MHz



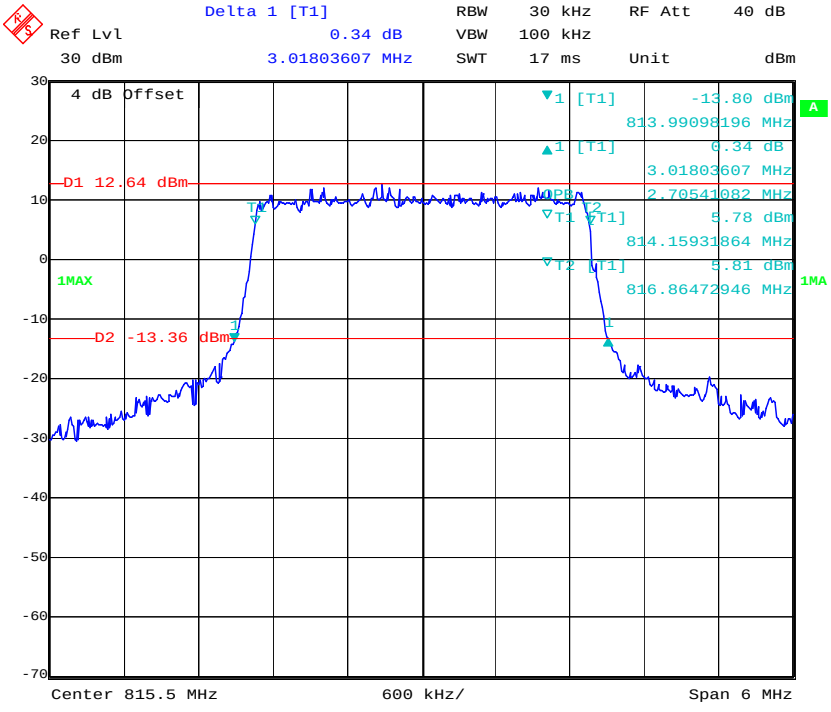
Date: 8.JUN.2018 23:10:31

16QAM_1.4 MHz



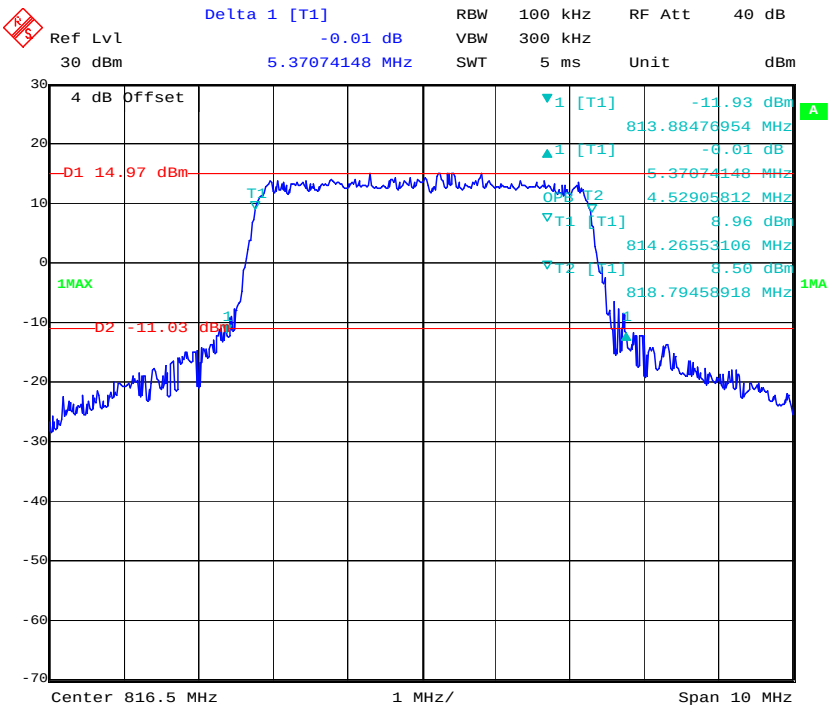
Date: 8.JUN.2018 23:05:25

16QAM_3 MHz



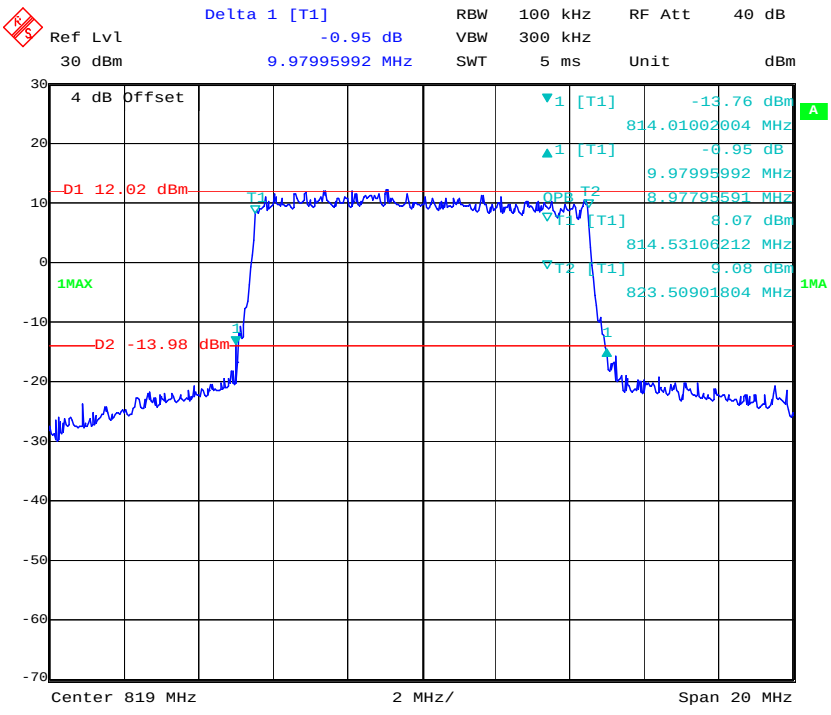
Date: 8.JUN.2018 23:06:54

16QAM_5 MHz



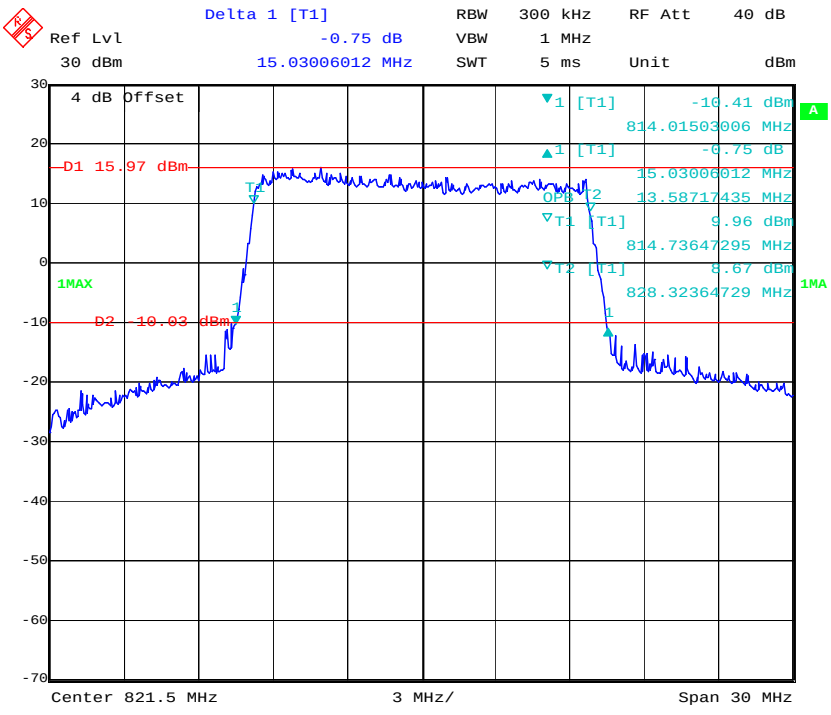
Date: 8.JUN.2018 23:08:20

16QAM_10 MHz



Date: 8.JUN.2018 23:09:46

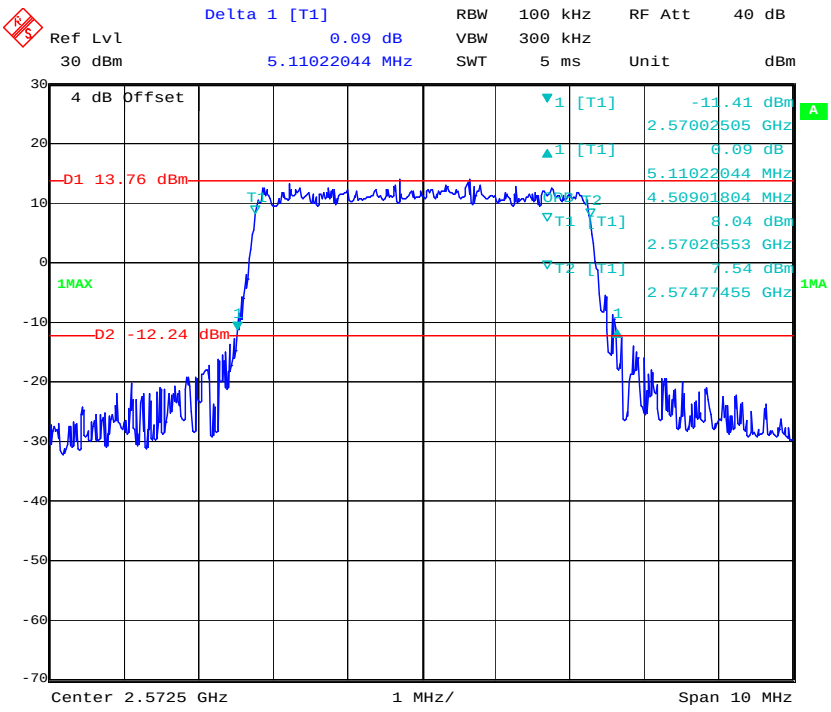
16QAM_15 MHz



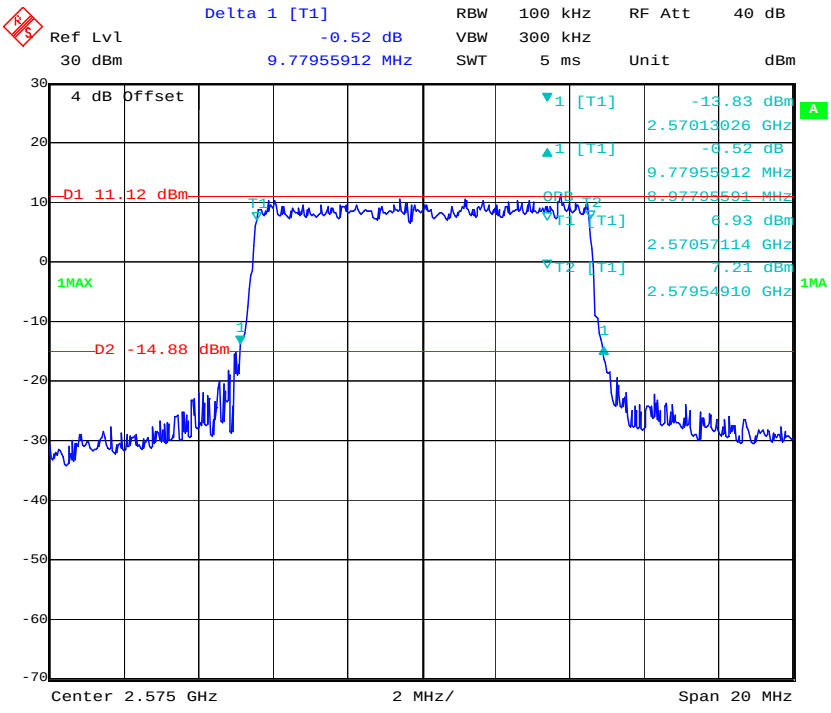
Date: 8.JUN.2018 23:11:16

LTE Band 38:

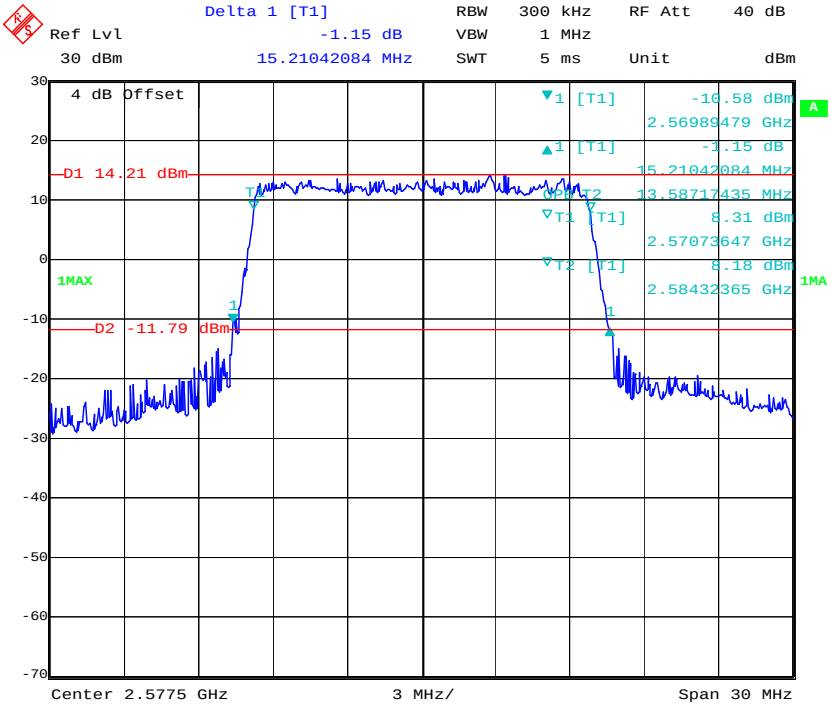
QPSK_5 MHz



QPSK_10 MHz

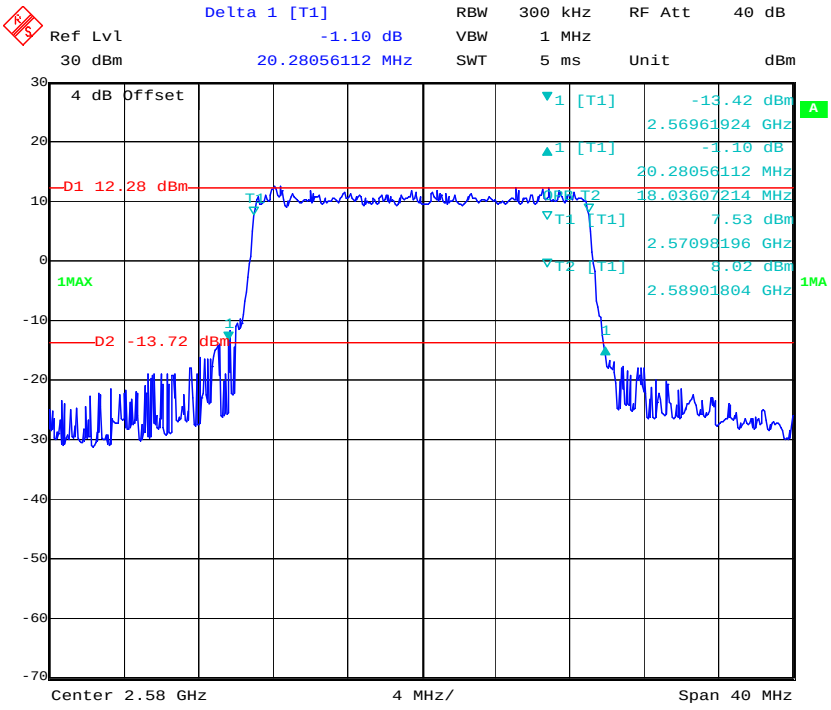


QPSK_15 MHz



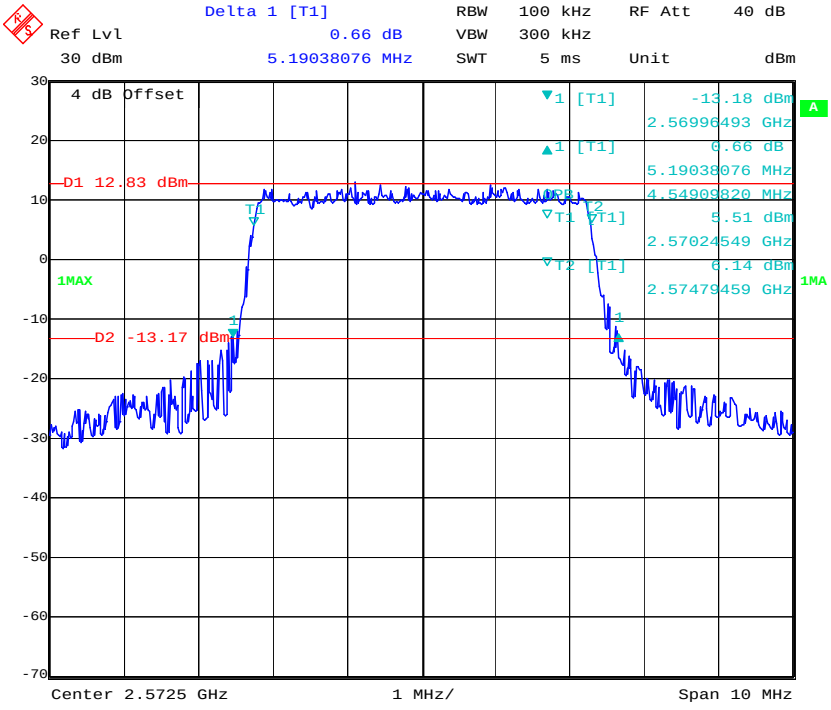
Date: 8.JUN.2018 23:16:04

QPSK_20 MHz

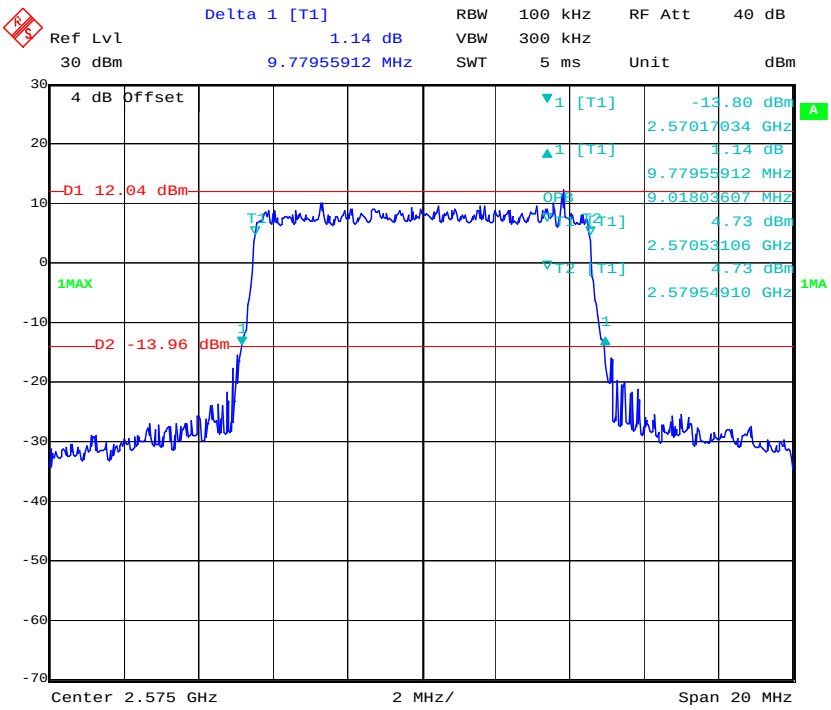


Date: 8.JUN.2018 23:17:53

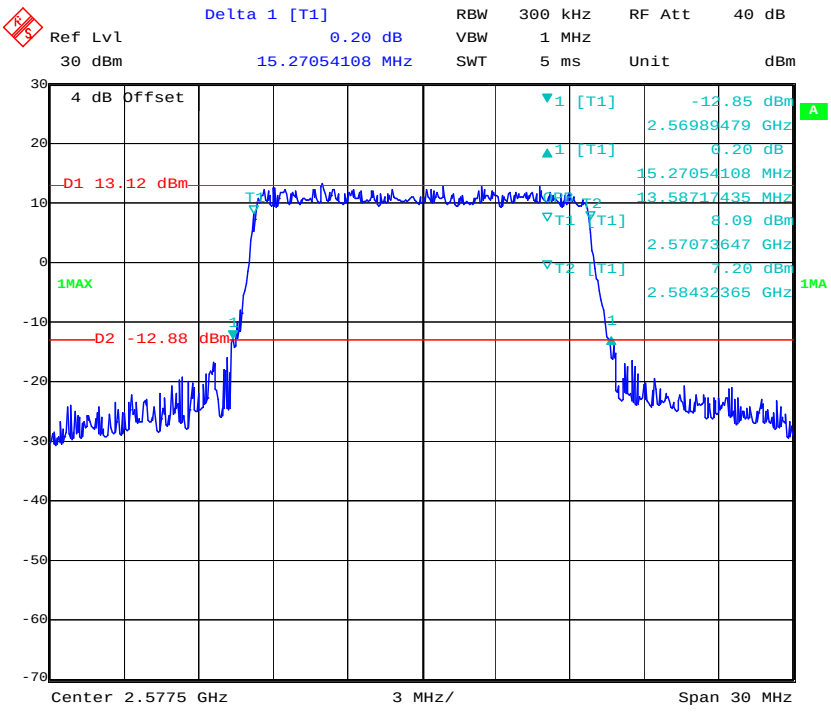
16QAM_5 MHz



16QAM_10 MHz



16QAM_15 MHz



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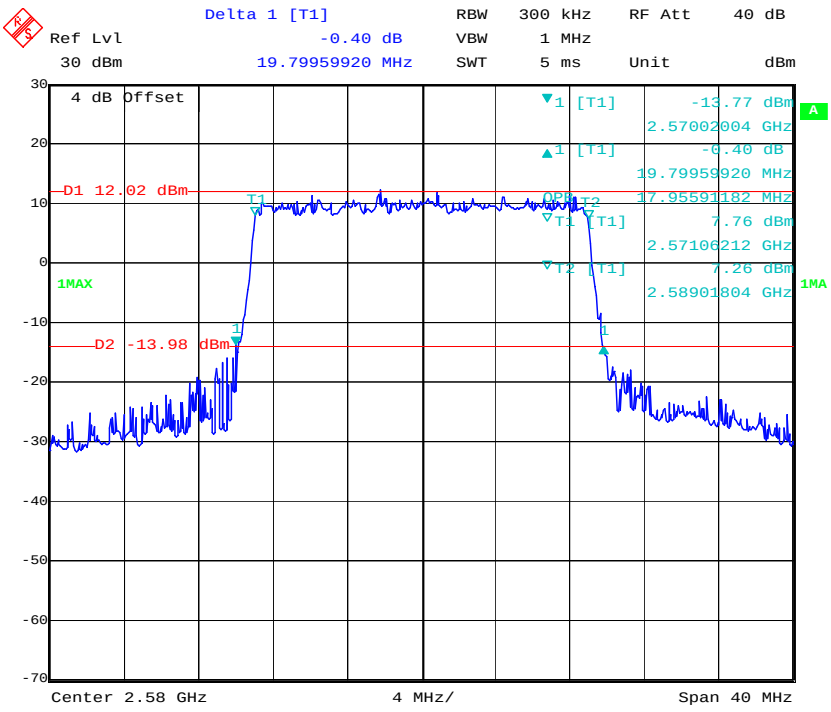
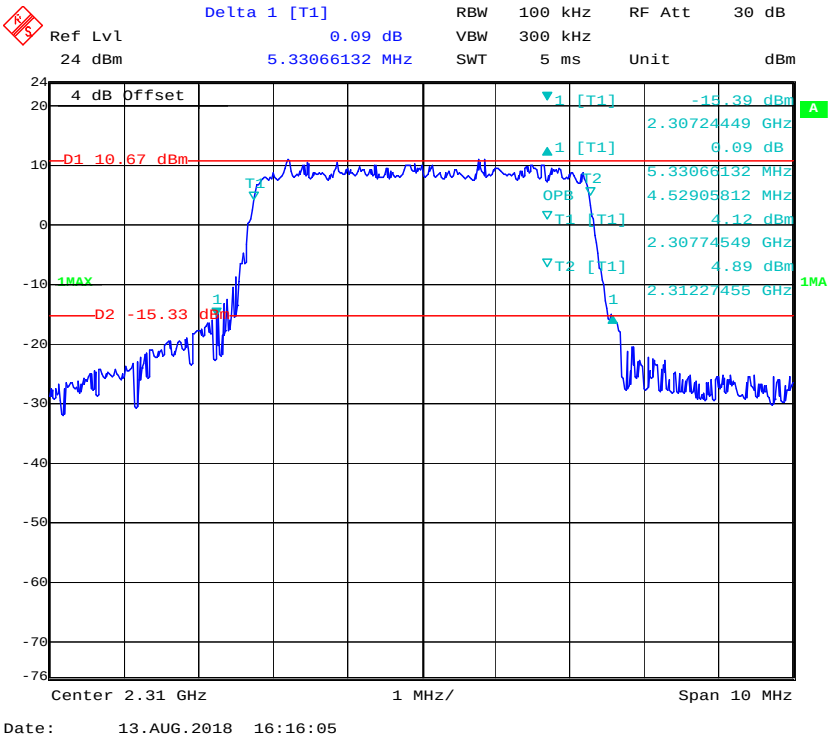
16QAM_20 MHz



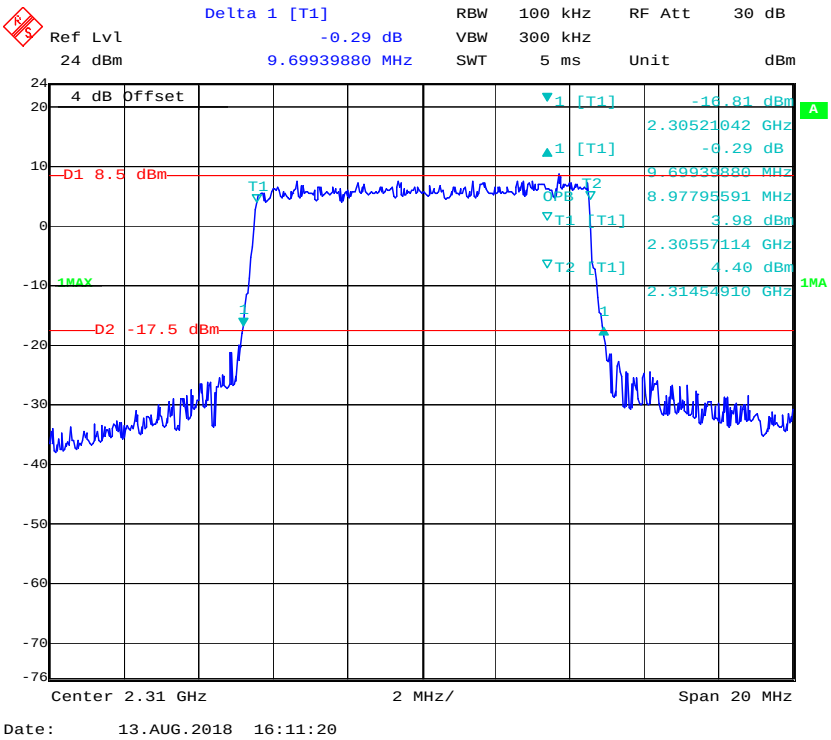
Date: 8.JUN.2018 23:18:41

LTE Band 40(2305-2315MHz):

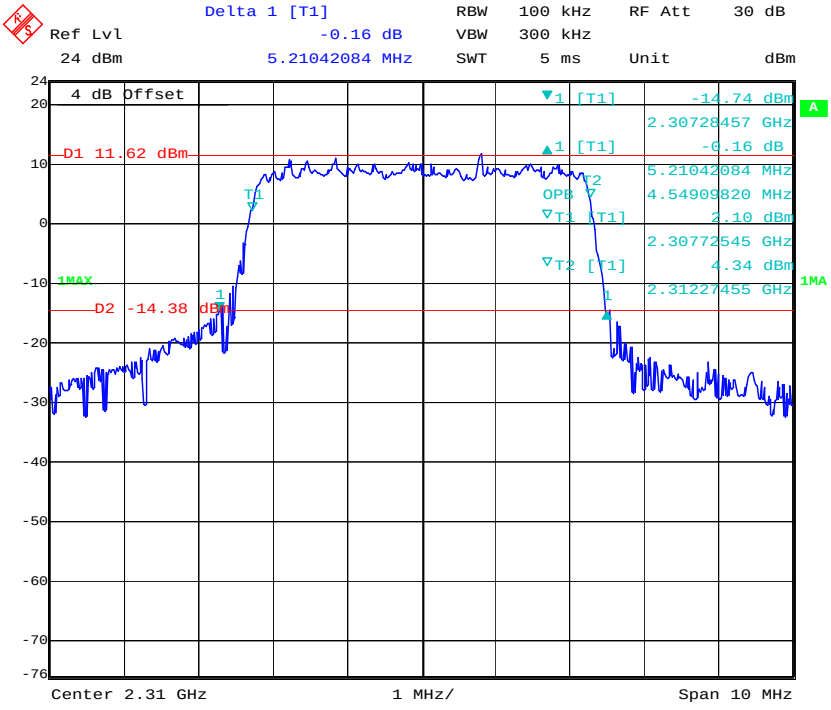
QPSK_5 MHz



QPSK_10 MHz

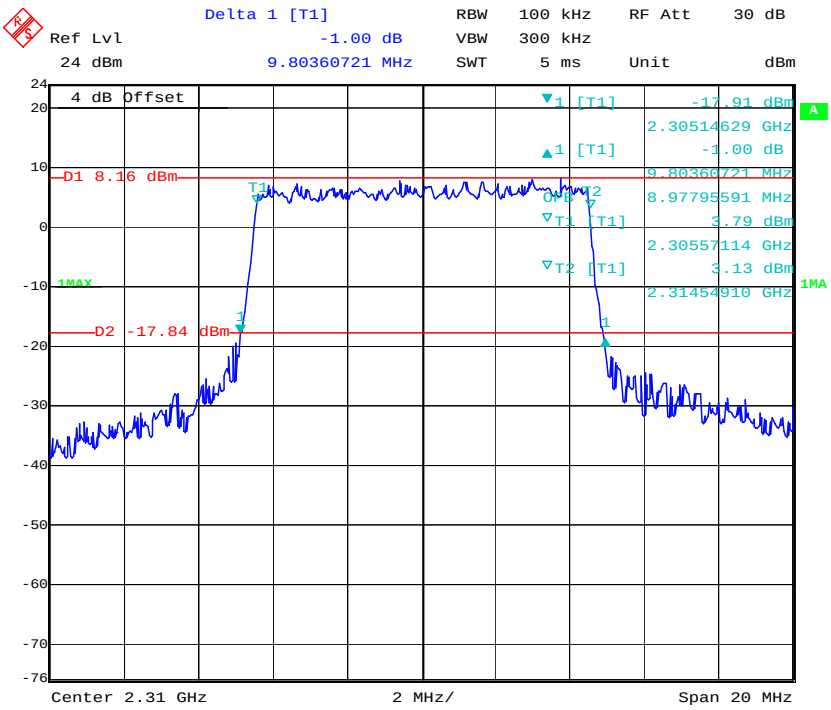


16QAM_5 MHz



Date: 13.AUG.2018 16:17:47

16QAM_10 MHz



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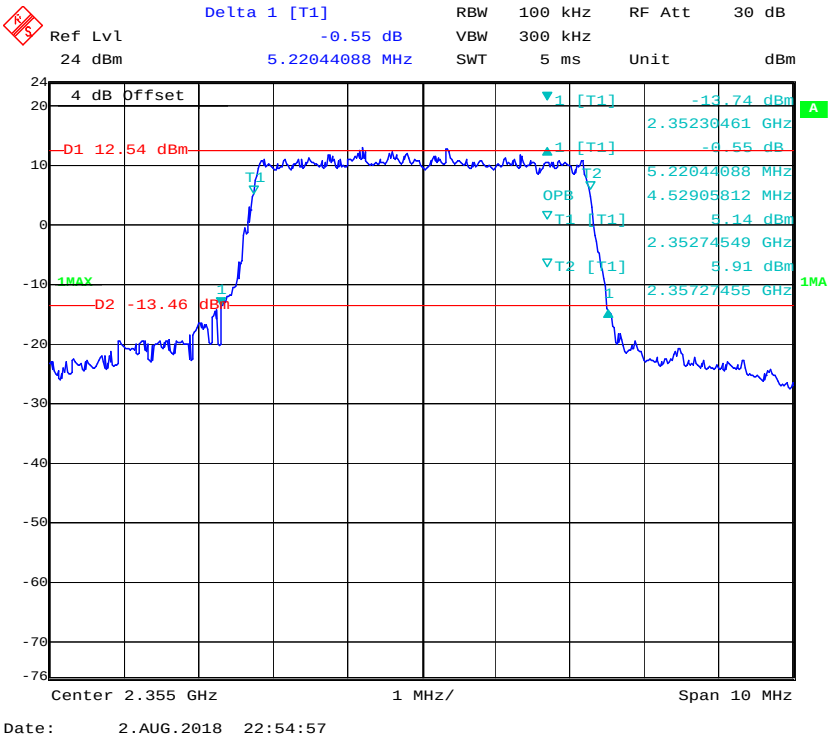
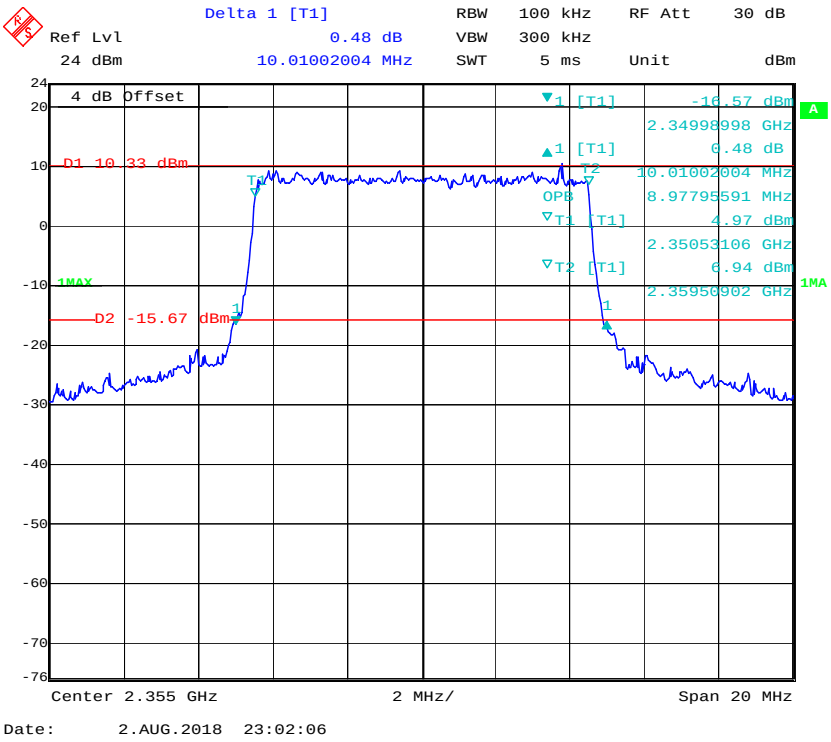
LTE Band 40(2350-2360MHz):

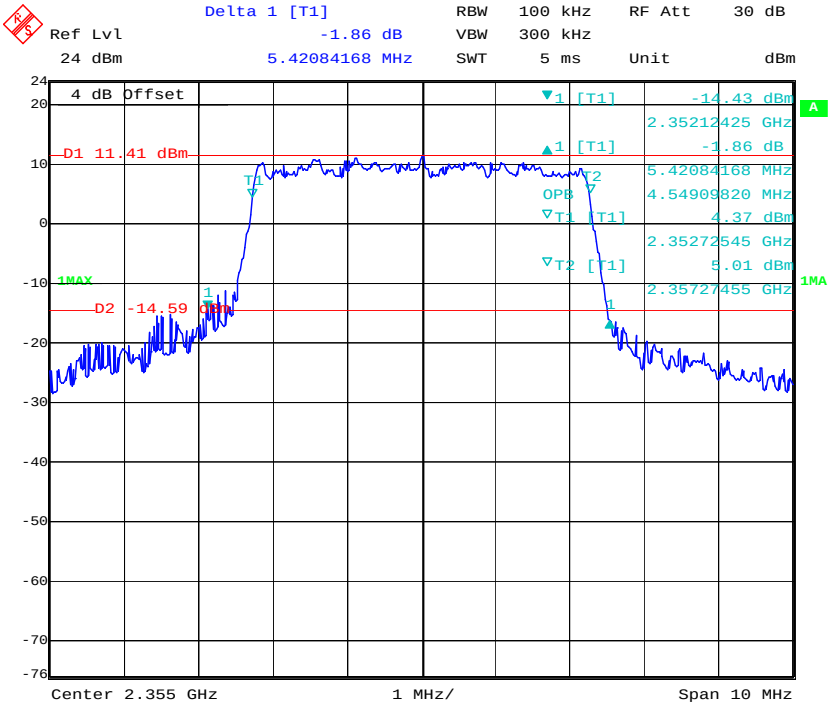
QPSK_5 MHz



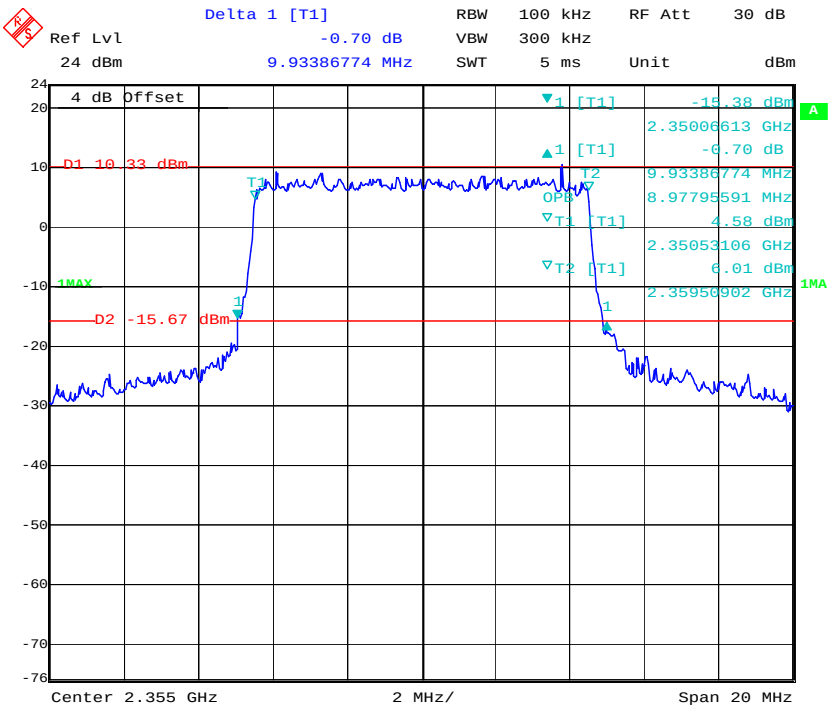
QPSK_10 MHz



16QAM_5 MHz

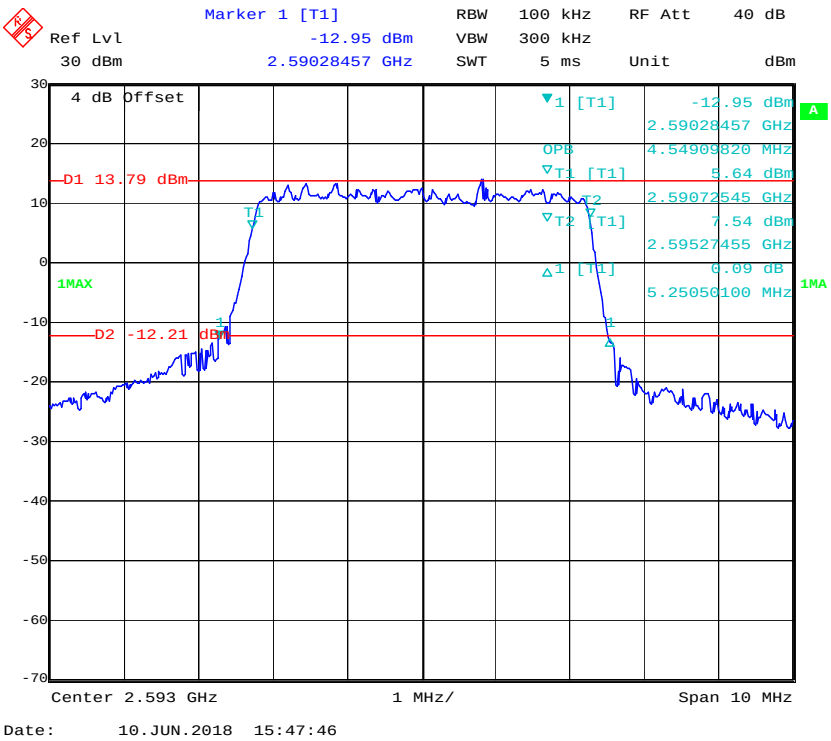


16QAM_10 MHz



LTE Band 41:

QPSK_5 MHz



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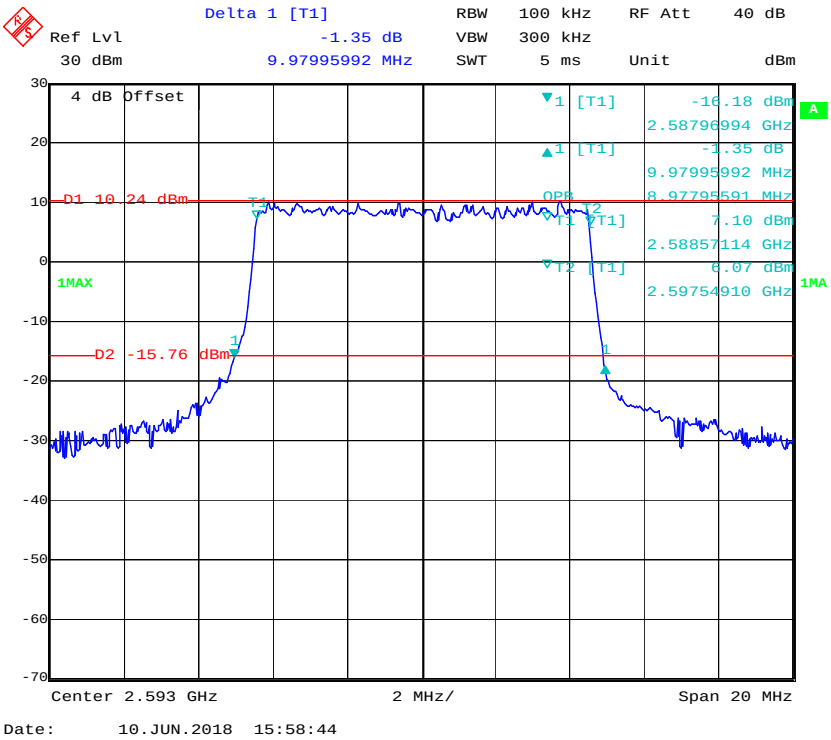
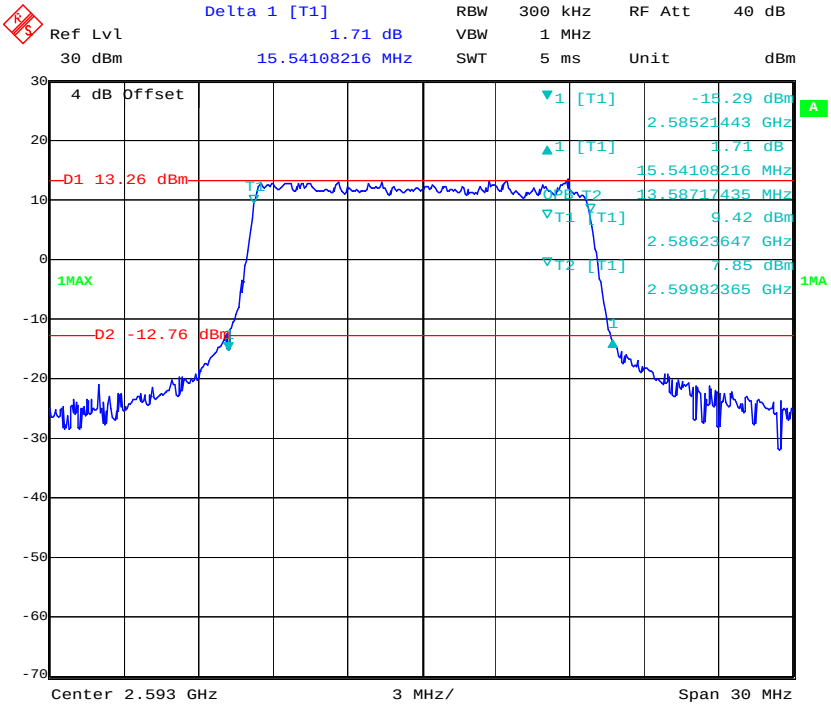
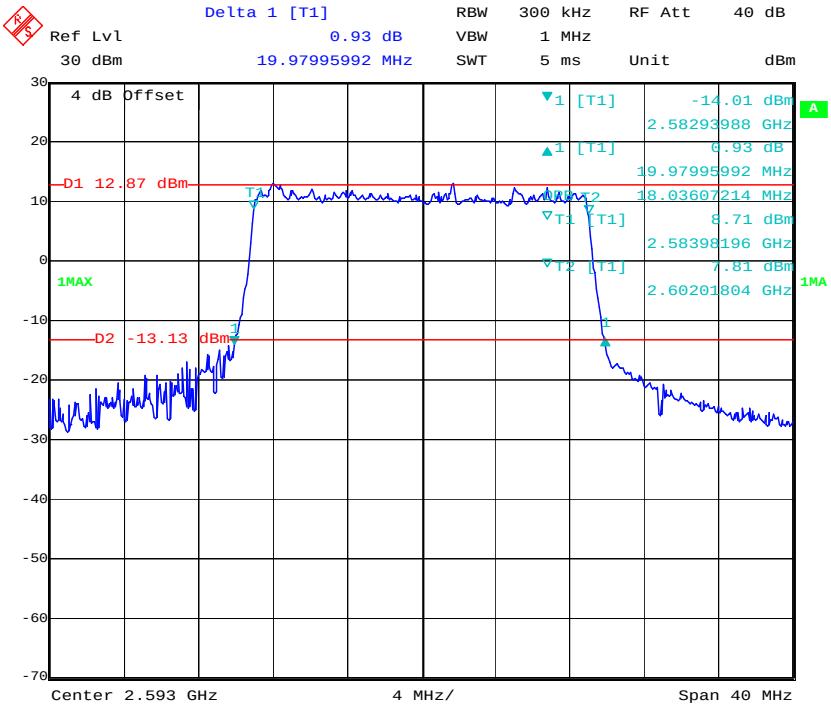


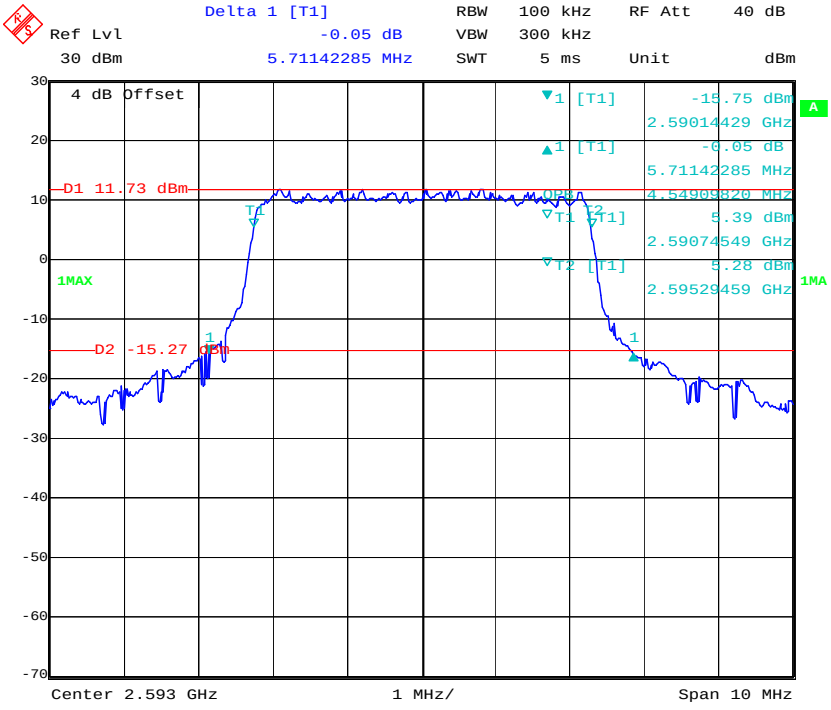
QPSK_15 MHz



QPSK_20 MHz

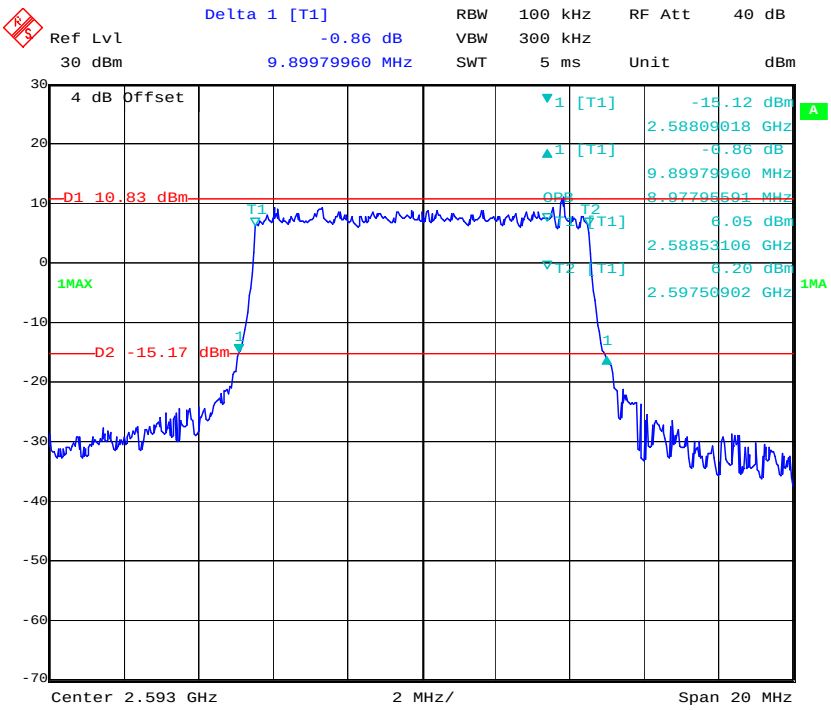


16QAM_5 MHz



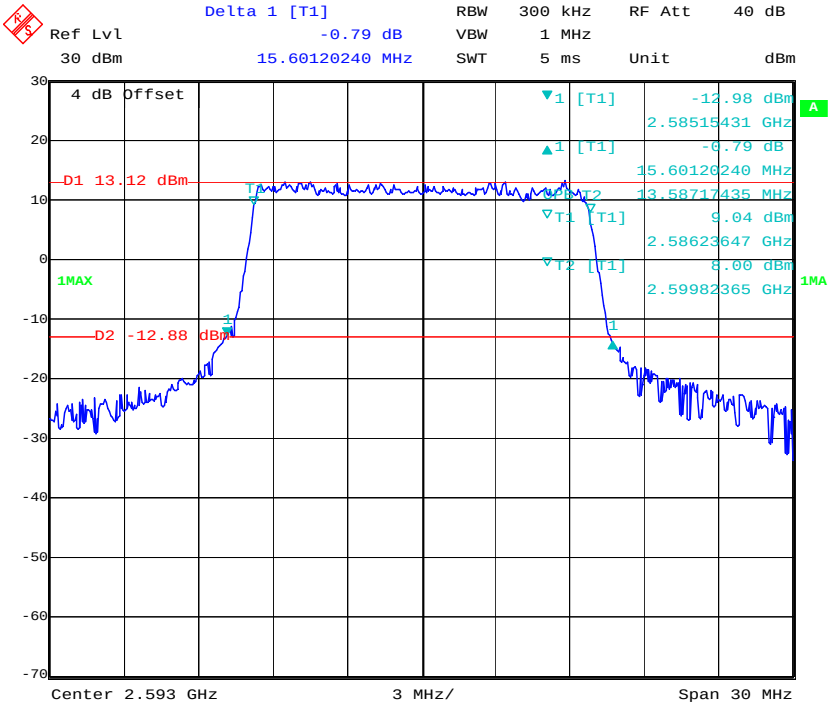
Date: 10.JUN.2018 15:52:17

16QAM_10 MHz



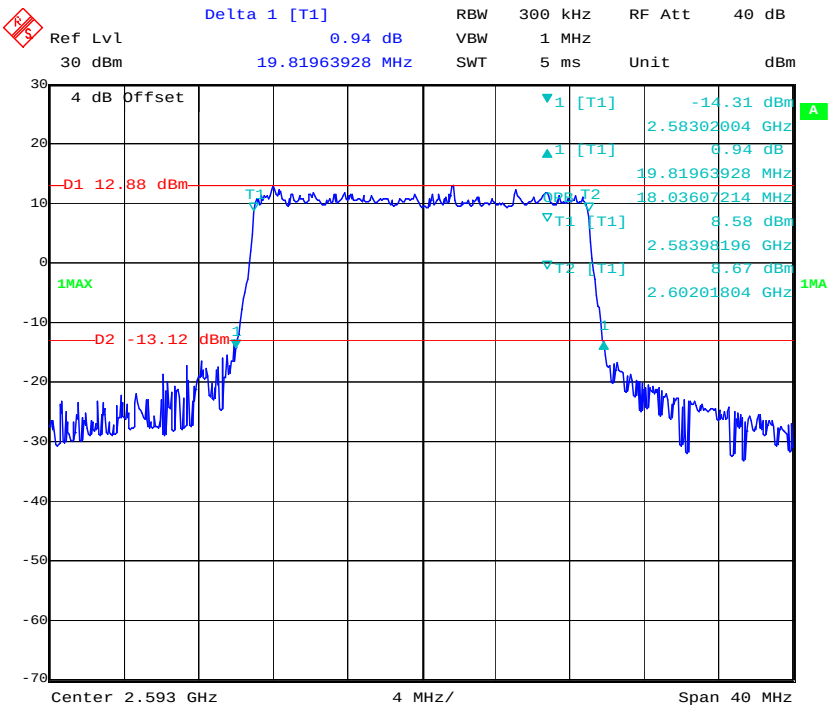
Date: 10.JUN.2018 16:01:53

16QAM_15 MHz



Date: 10.JUN.2018 16:05:51

16QAM_20 MHz



Date: 10.JUN.2018 16:17:48

FCC §2.1051, §22.917(a) & §24.238(a) & §27.53 &§90.691- SPURIOUS EMISSIONS AT ANTENNA TERMINALS

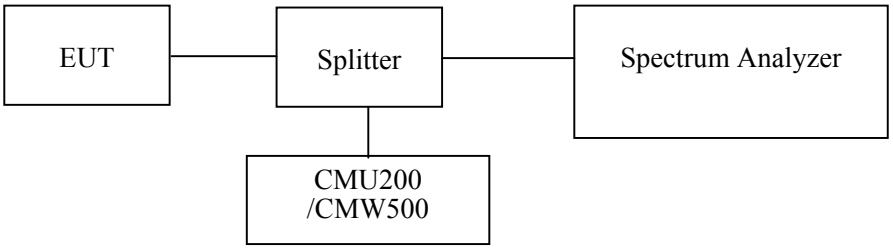
Applicable Standard

FCC §2.1051, §22.917(a) , §24.238(a),§27.53 and§90.691.

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

Test Procedure

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



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Universal Radio Communication Tester	CMU200	109 038	2017-07-21	2018-07-21
R&S	Universal Radio Communication Tester	CMU200	109 038	2018-07-21	2019-07-21
R&S	Wideband Radio Communication Tester	CMW500	110479	2017-12-11	2018-12-11
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A
Pasternack	RF Coaxial Cable	0.5m	C-5	Each Time	/
E-Microwave	Two-way Spliter	ODP-1-6-2S	OE0120142	Each Time	/
R&S	EMI Test Receiver	ESPI	100120	2017-12-11	2018-12-11
Rohde & Schwarz	Signal Analyzer	FSIQ26	831929/005	2017-08-31	2018-08-31
R&S	Spectrum Analyzer	FSP 38	100478	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

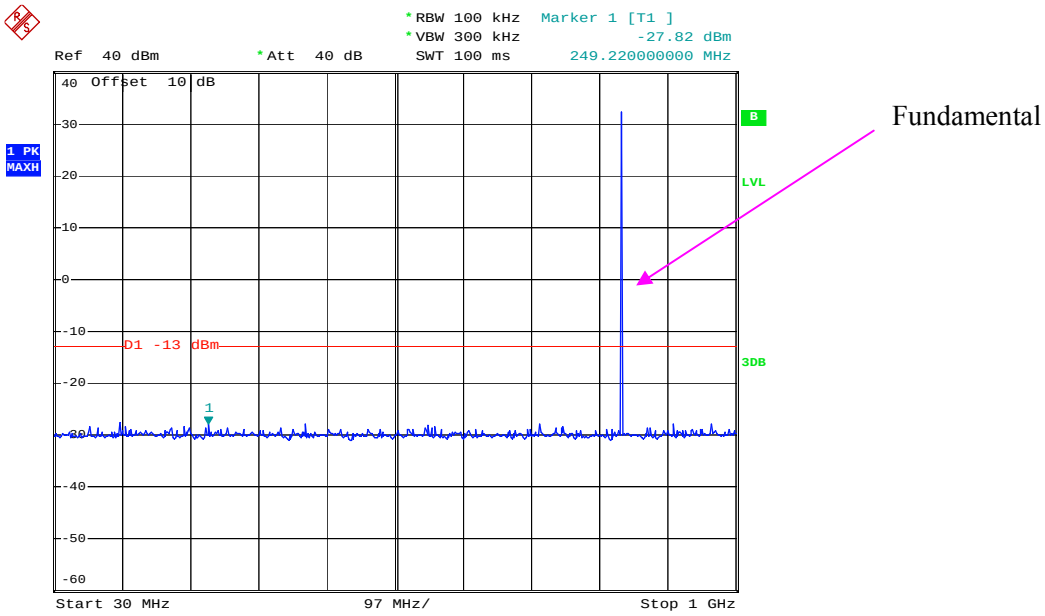
Environmental Conditions

Temperature:	27.1~29.9°C
Relative Humidity:	47 ~70 %
ATM Pressure:	99.5~101.8 kPa

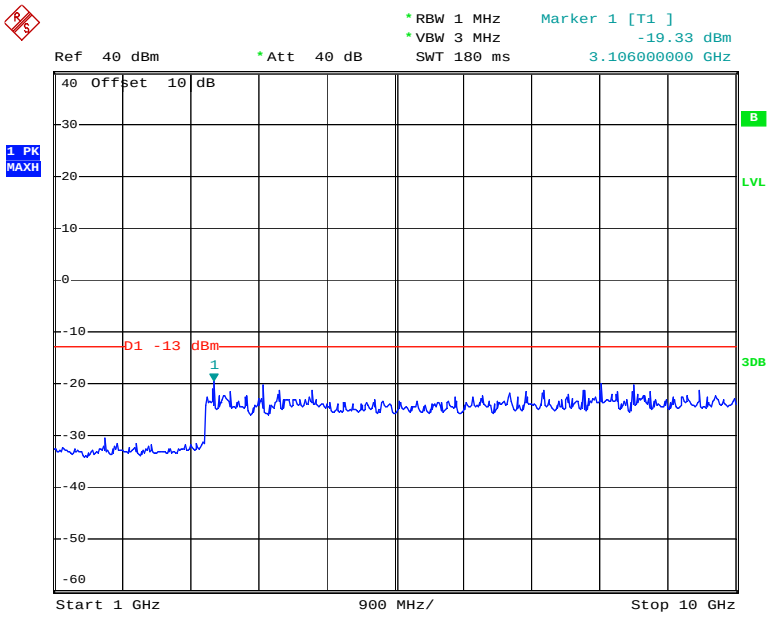
The testing was performed by Swim Lv from 2018-06-15 to 2018-08-13.

Please refer to the following plots.

GPRS850_Middle Channel

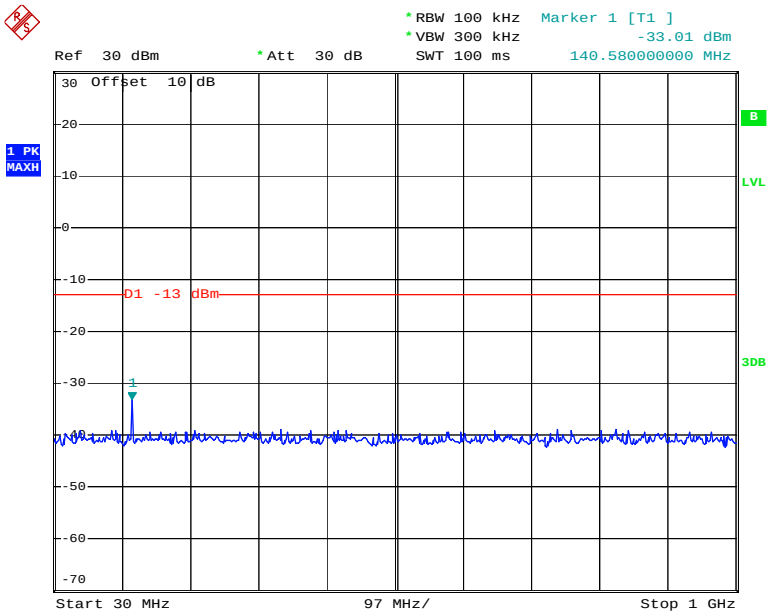


Date: 16.JUN.2018 17:17:16

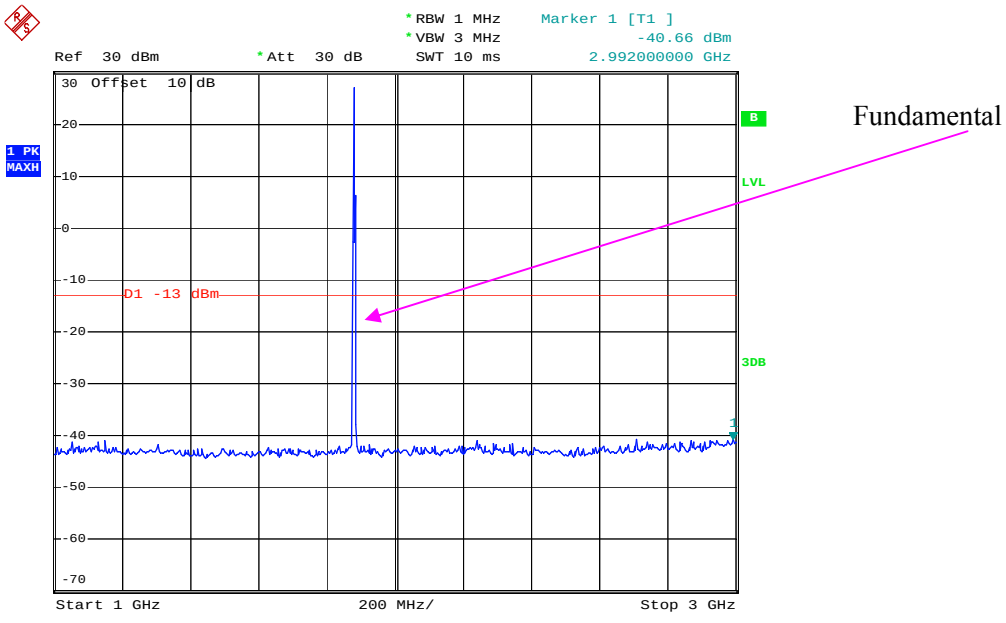


Date: 16.JUN.2018 17:18:58

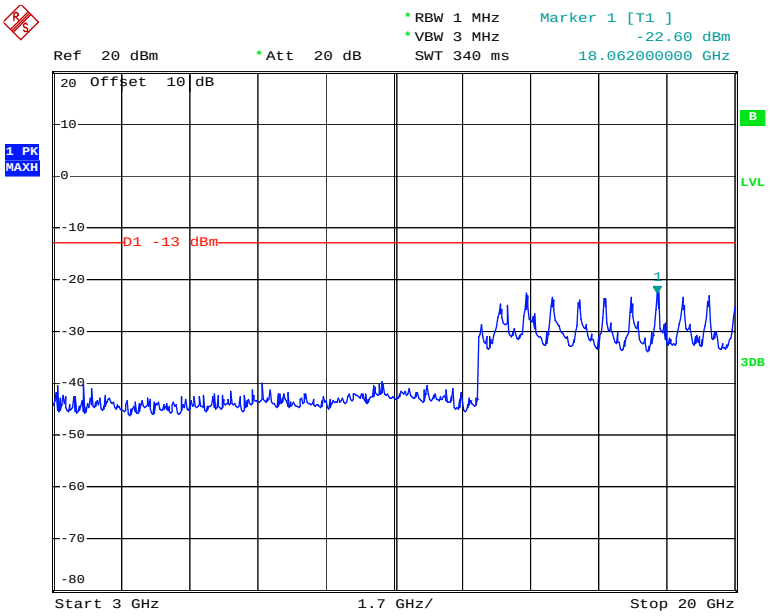
PCS 1900_ Middle Channel



Date: 16.JUN.2018 18:55:53



Date: 16.JUN.2018 18:54:50



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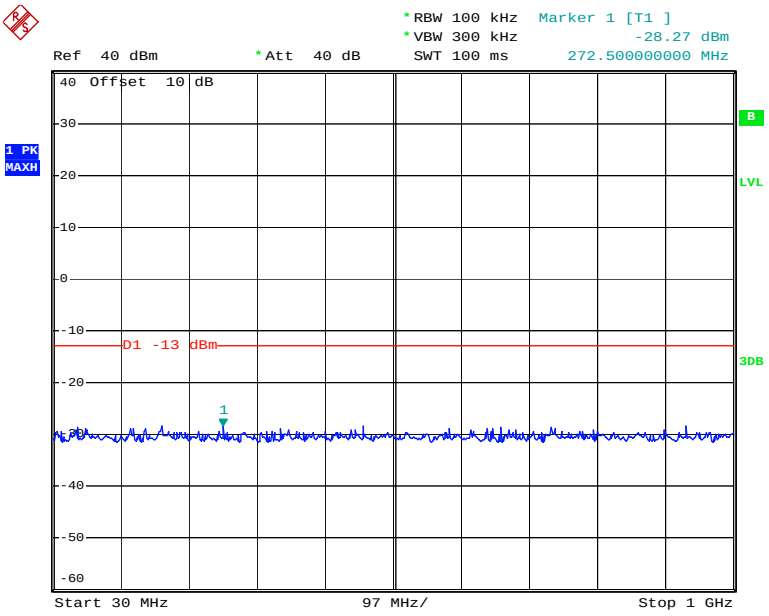
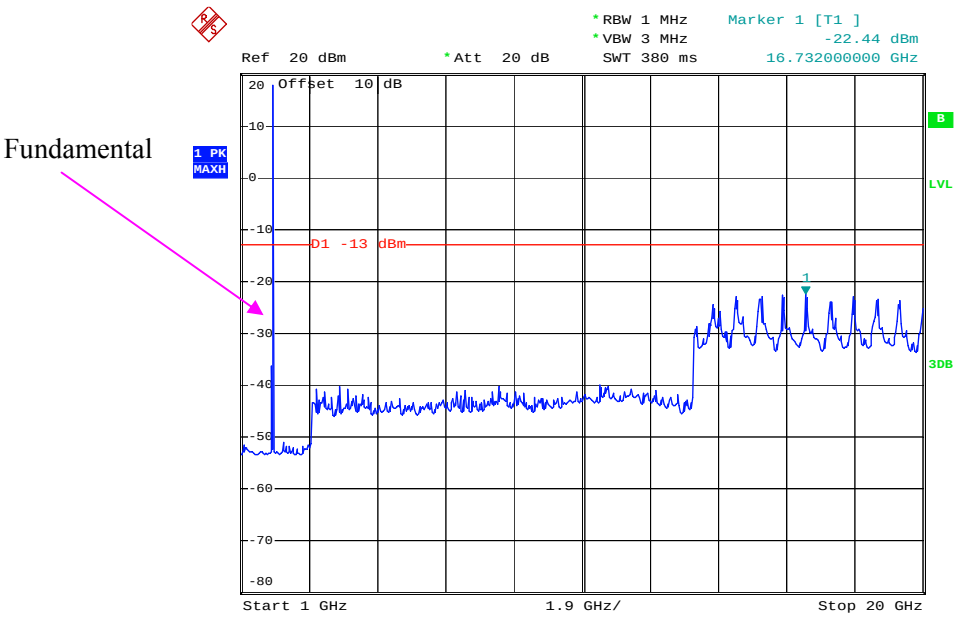
WCDMA Band II,Rel99

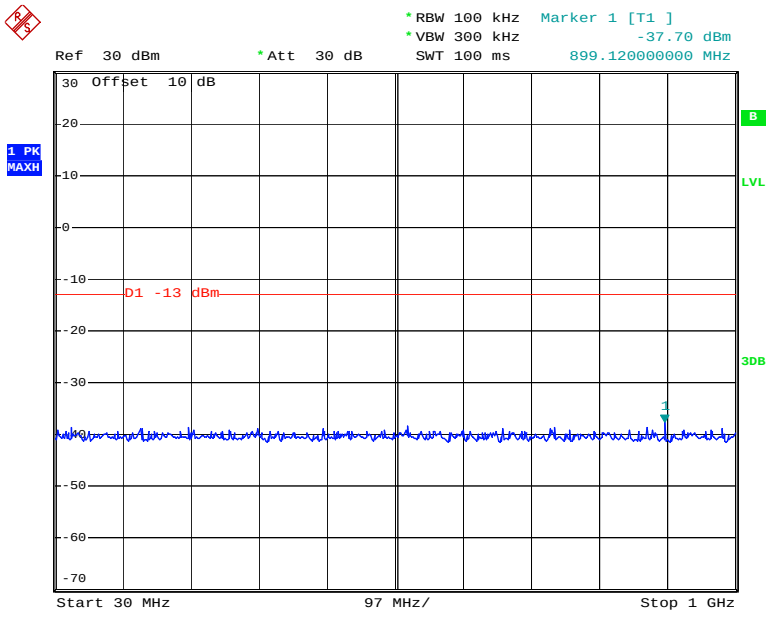


Date: 16.JUN.2018 17:55:53

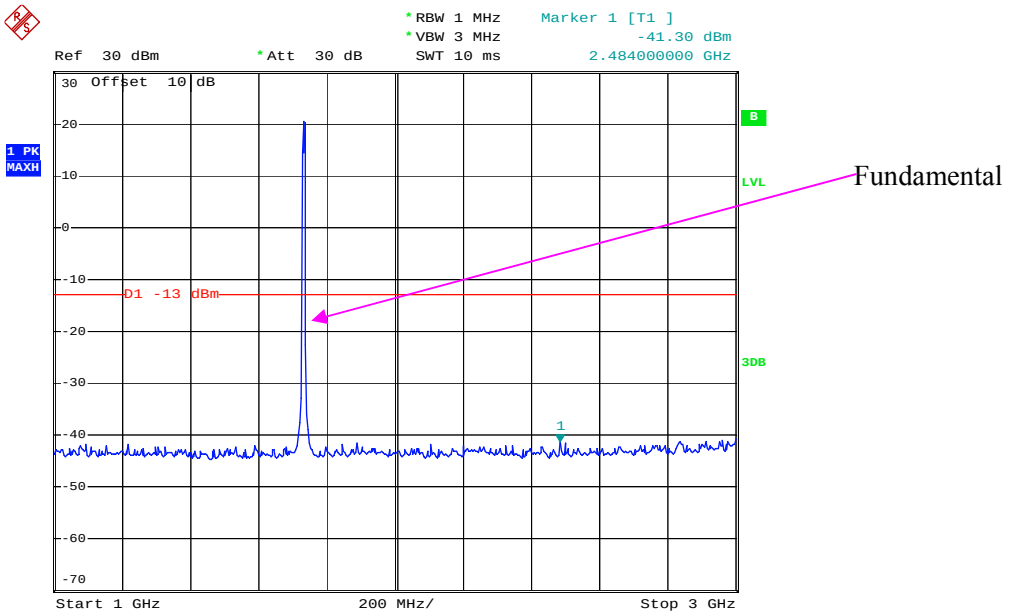


Date: 16.JUN.2018 17:56:30

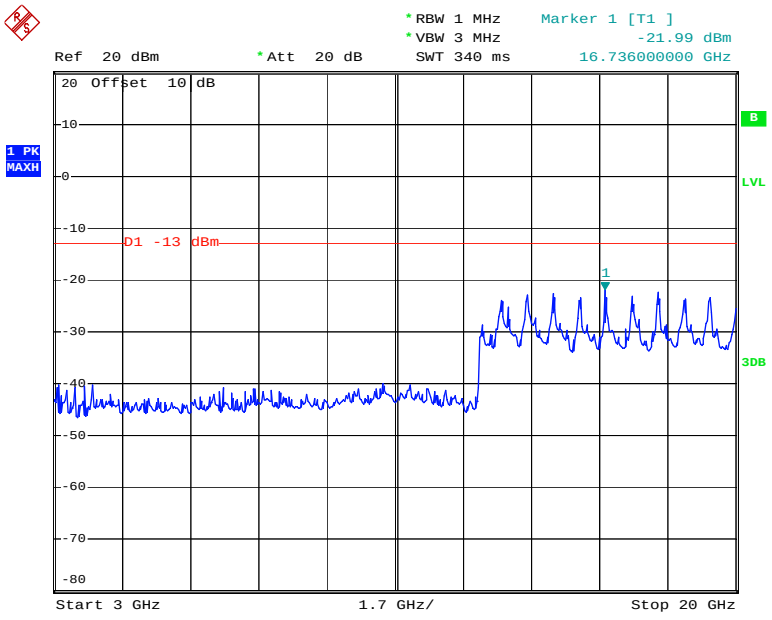
WCDMA Band IV,Rel99



Date: 16.JUN.2018 18:08:44

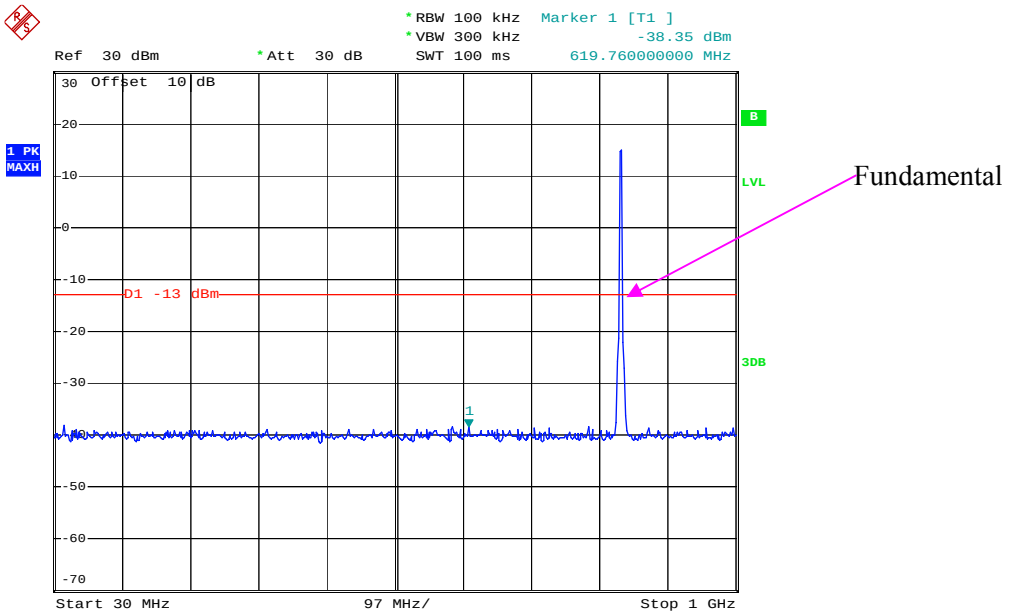


Date: 16.JUN.2018 18:08:13

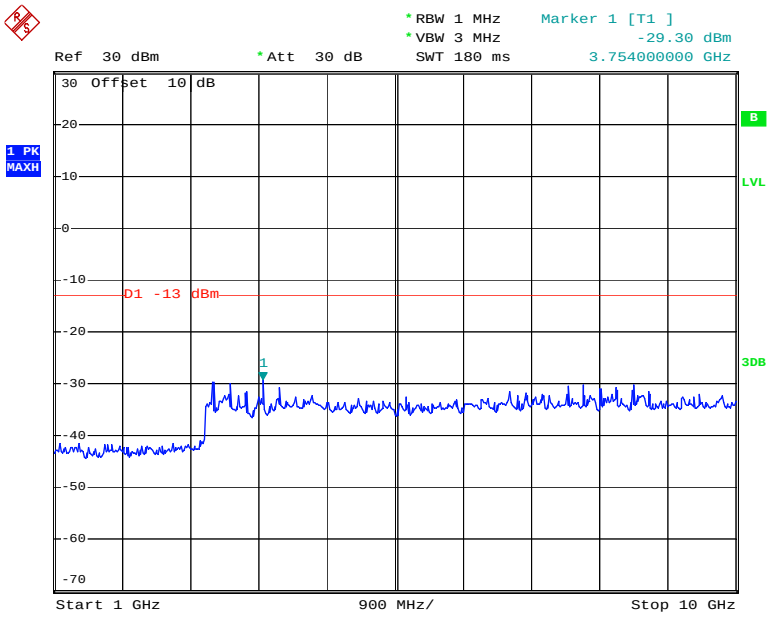


Date: 16.JUN.2018 18:07:44

WCDMA Band V,Rel99



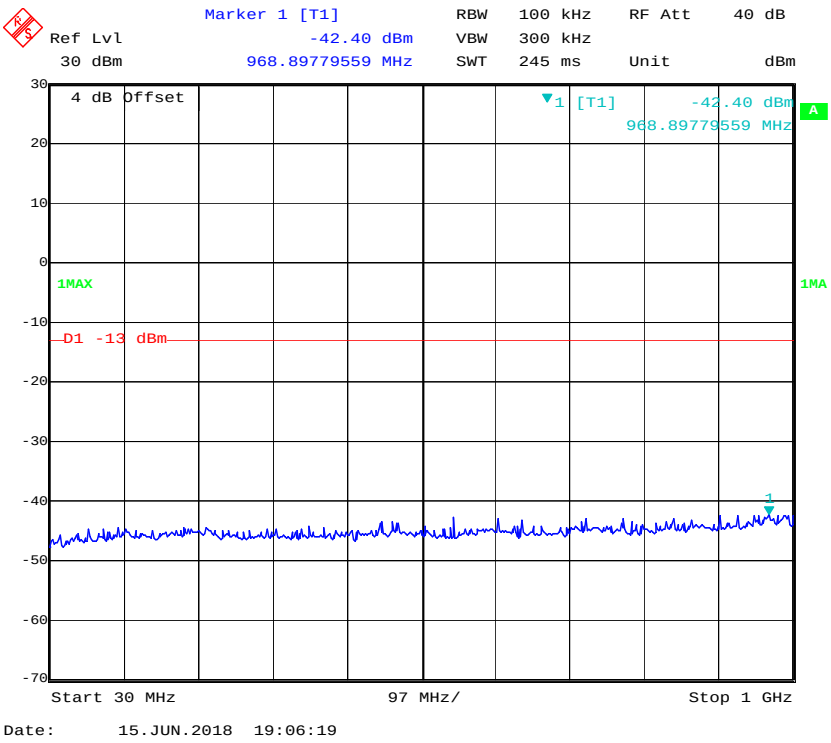
Date: 16.JUN.2018 18:27:30

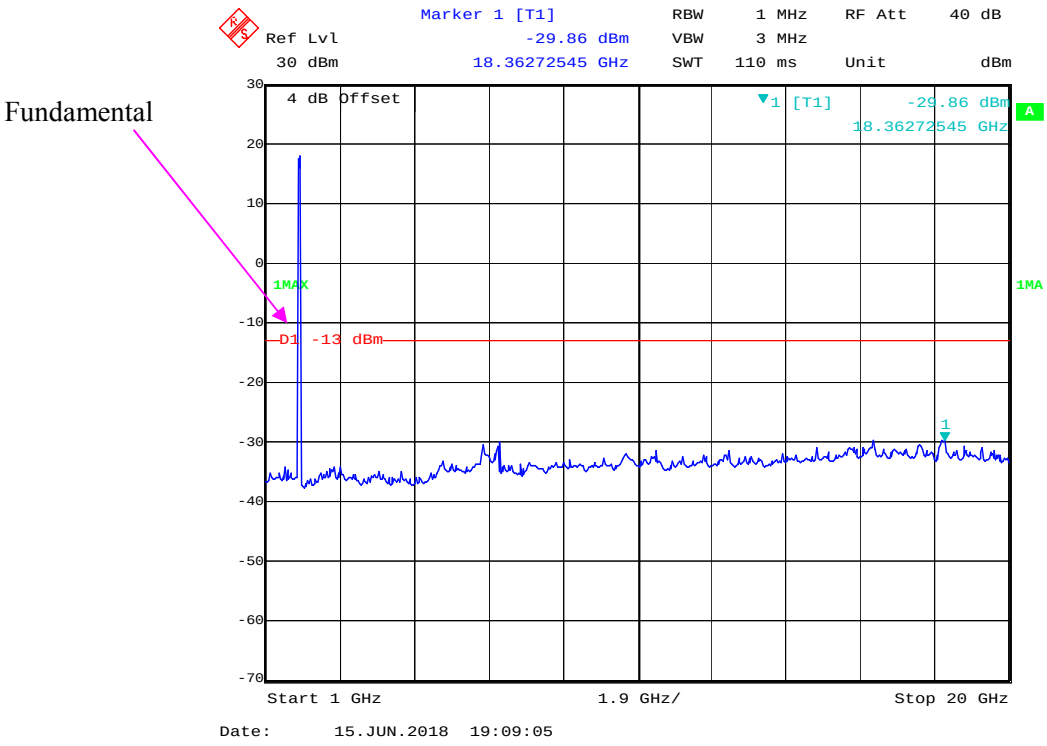


Date: 16.JUN.2018 18:27:54

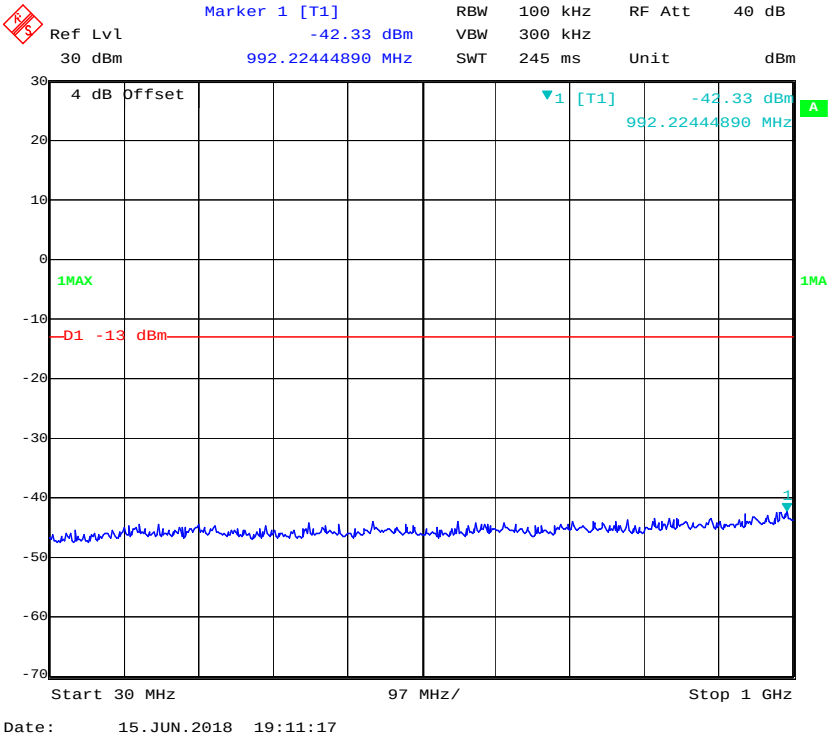
LTE Band 2 (Middle Channel)

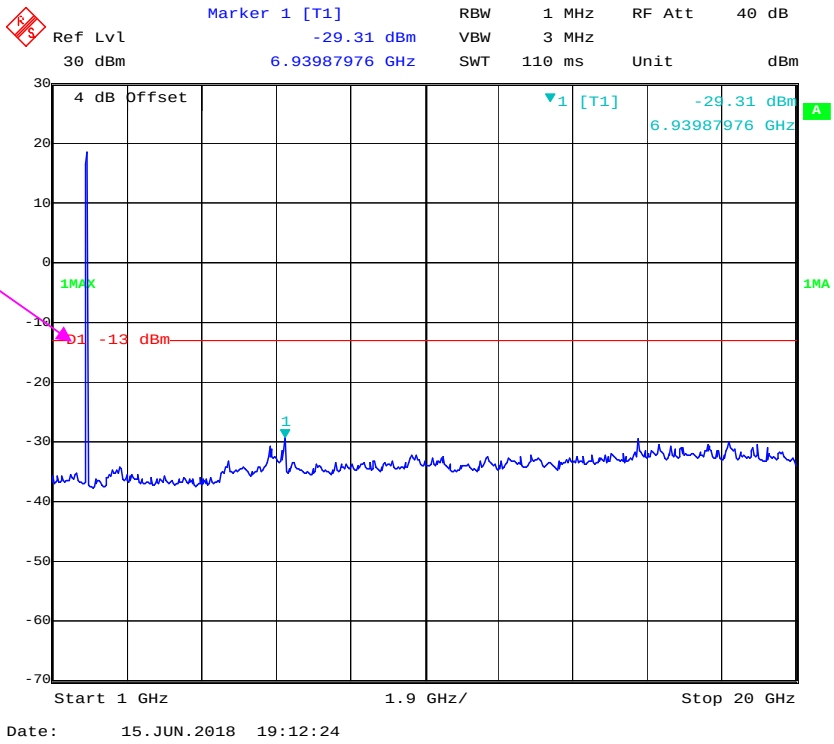
QPSK_1.4 MHz





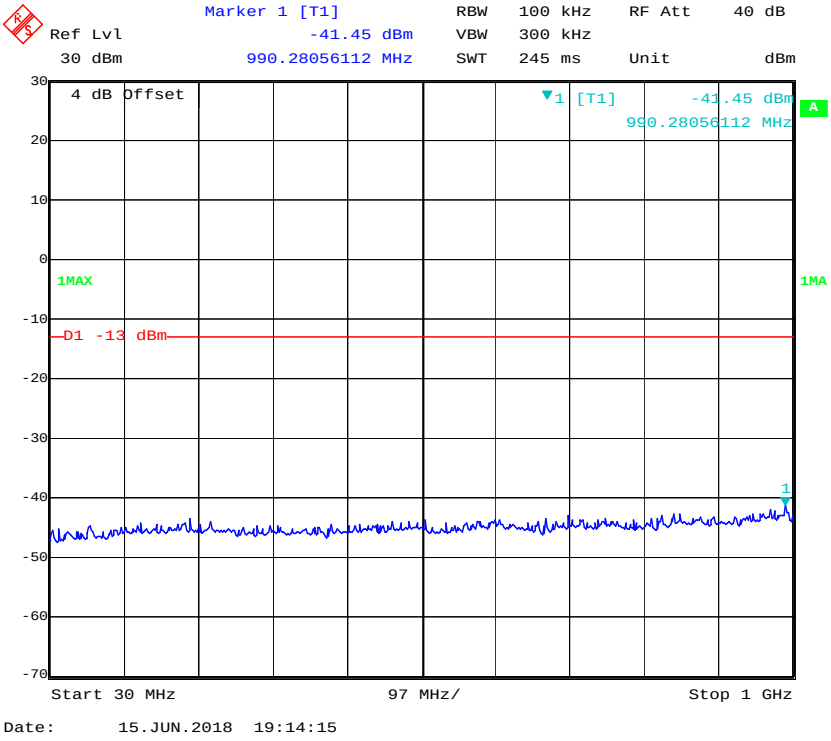
QPSK_3 MHz



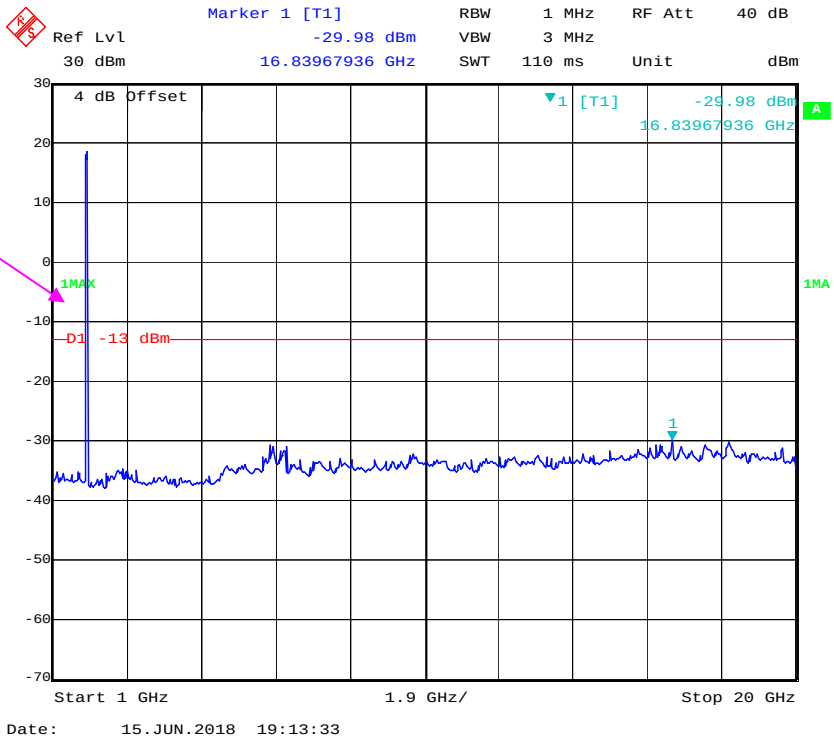


Fundamental

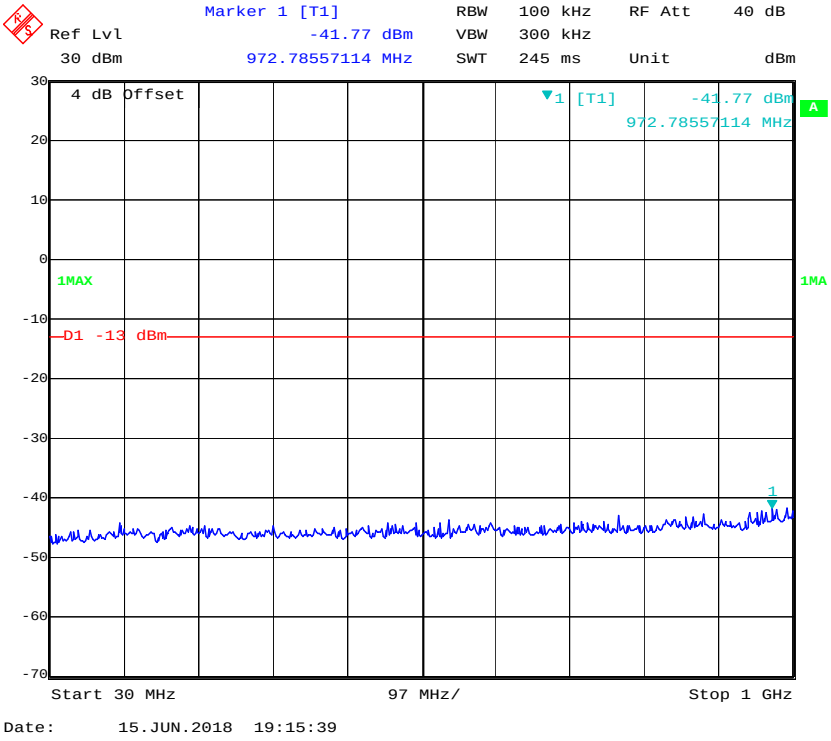
QPSK_5 MHz

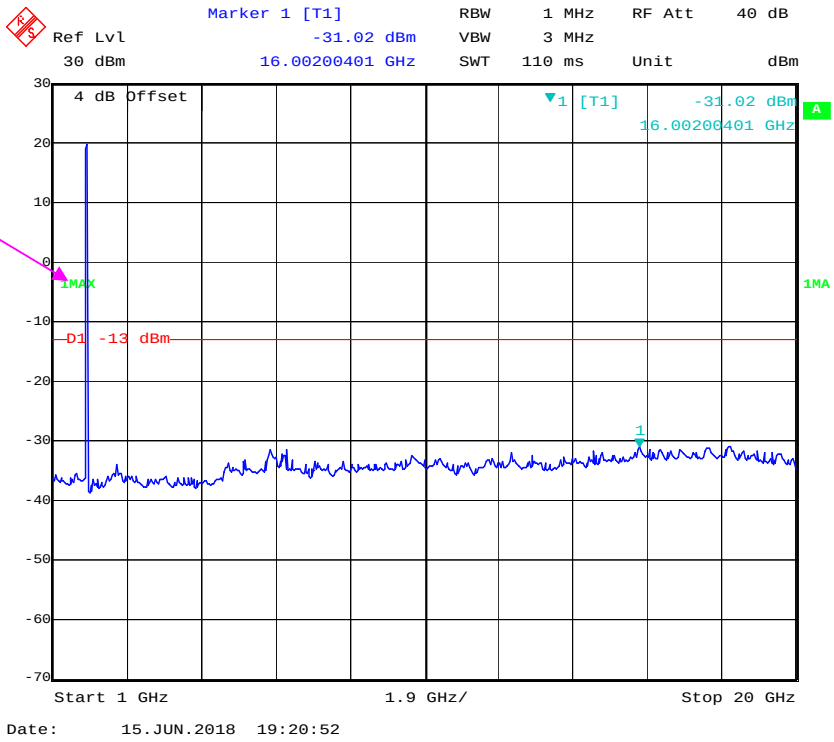


Fundamental



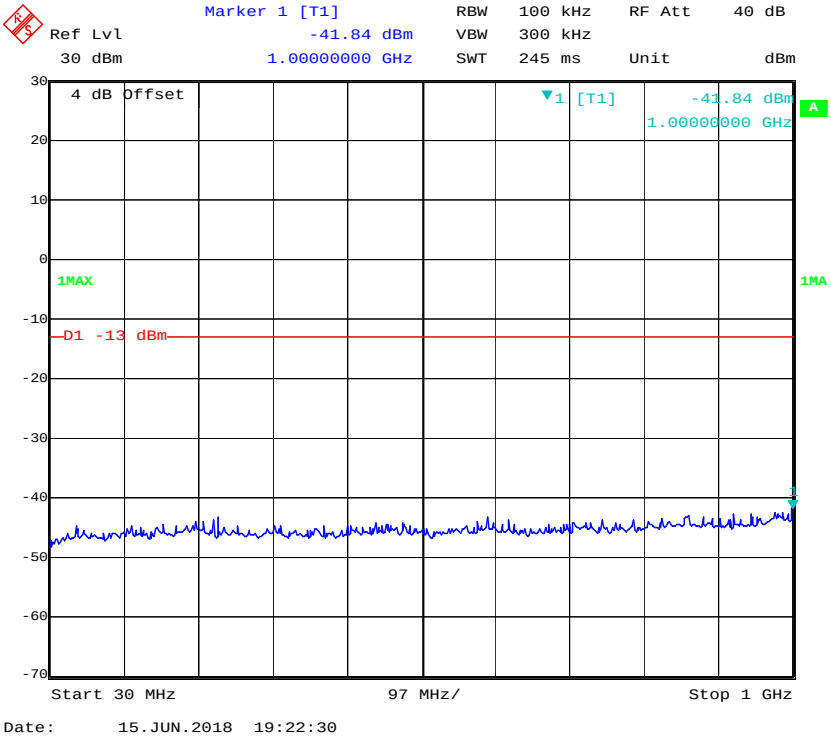
QPSK_10 MHz

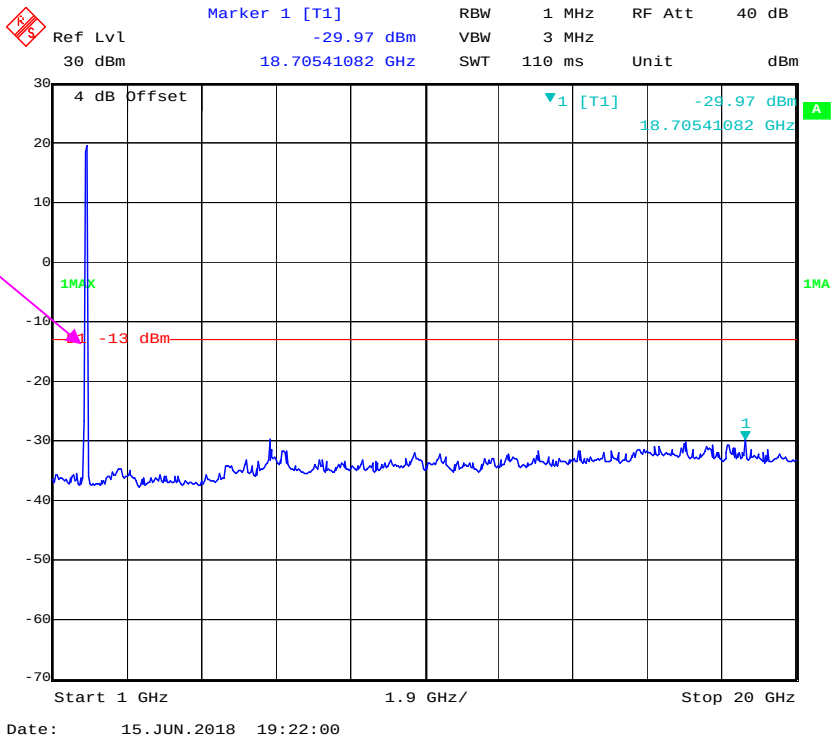




Fundamental

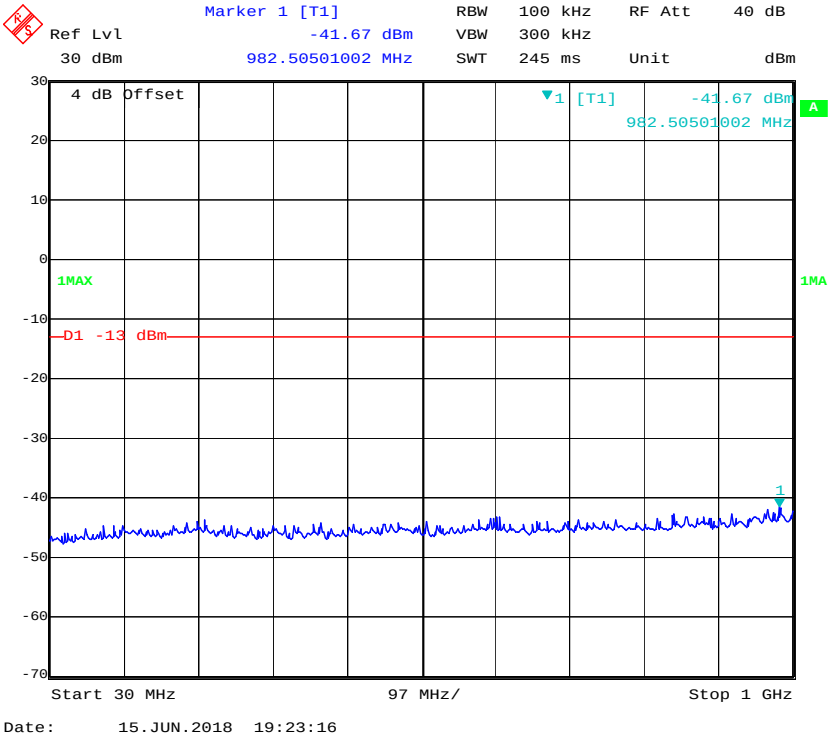
QPSK_15 MHz

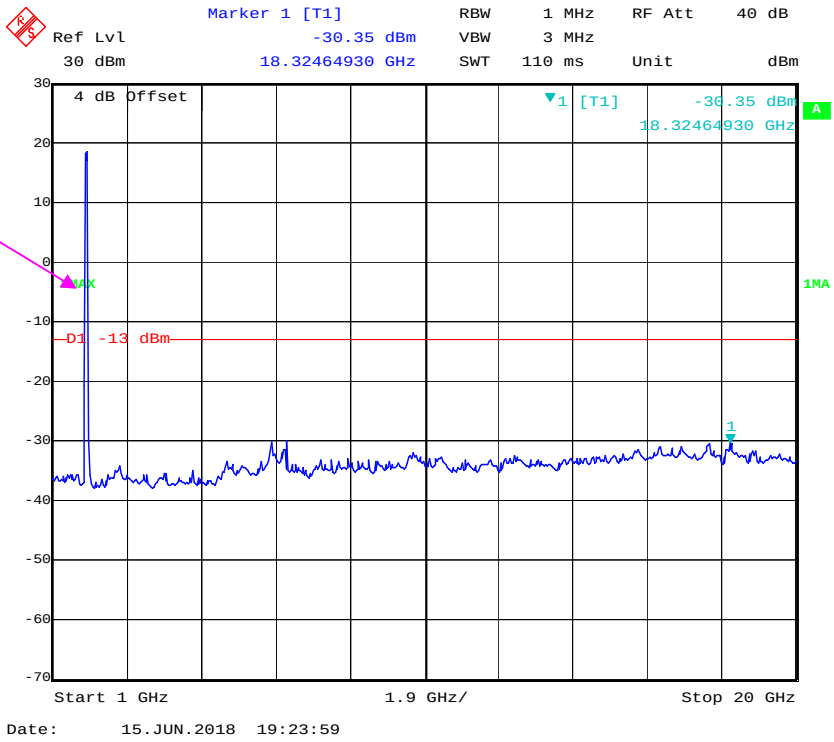




Fundamental

QPSK_20 MHz

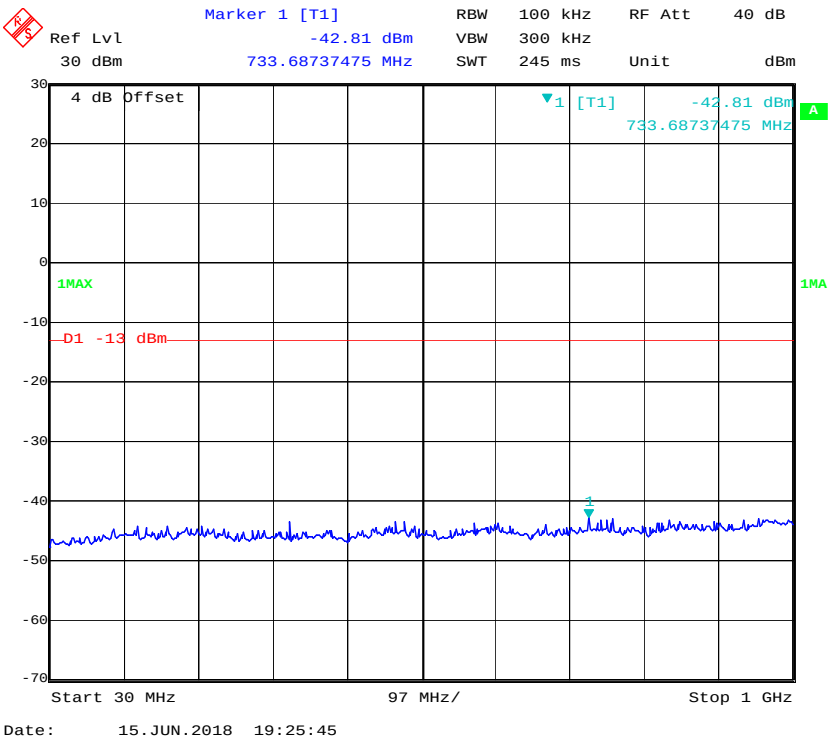




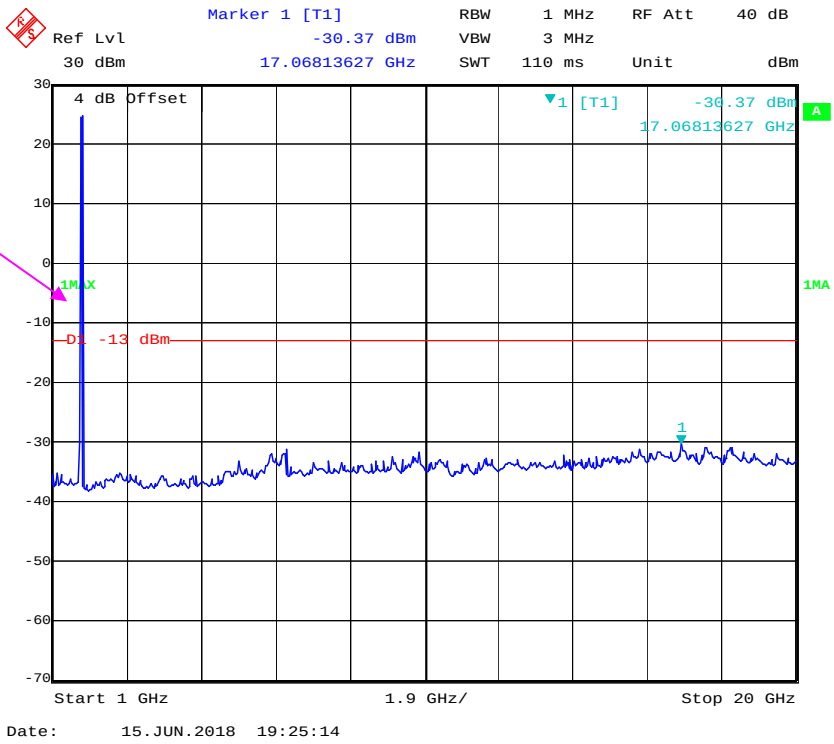
Fundamental

LTE Band 4 (Middle Channel)

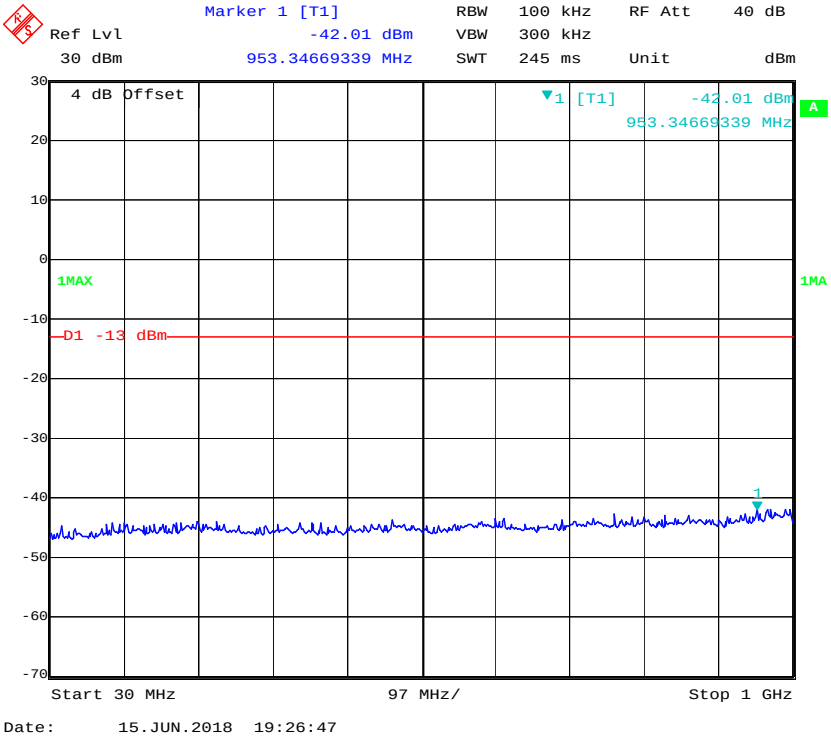
QPSK_1.4 MHz

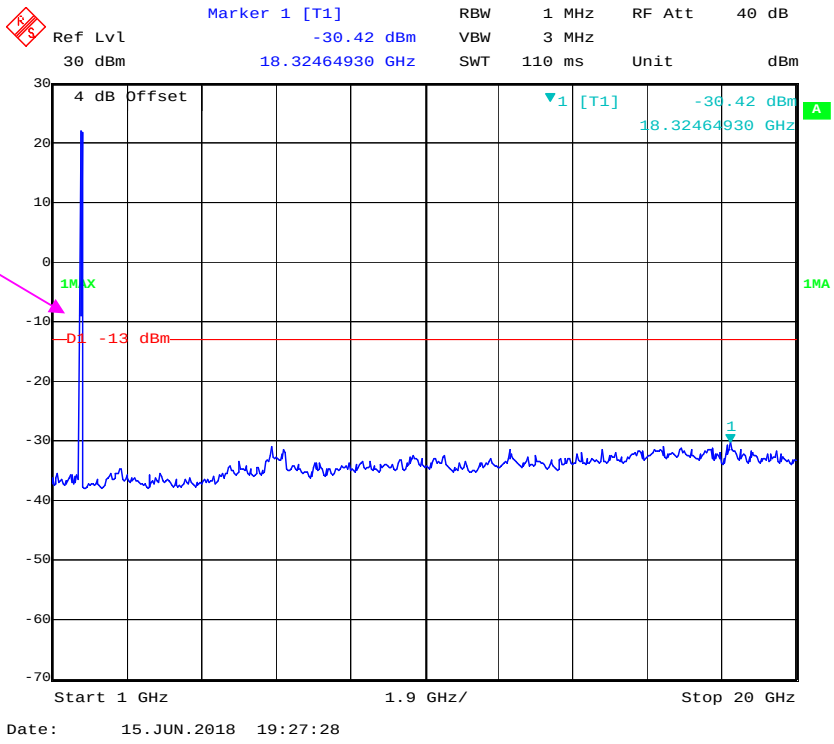


Fundamental



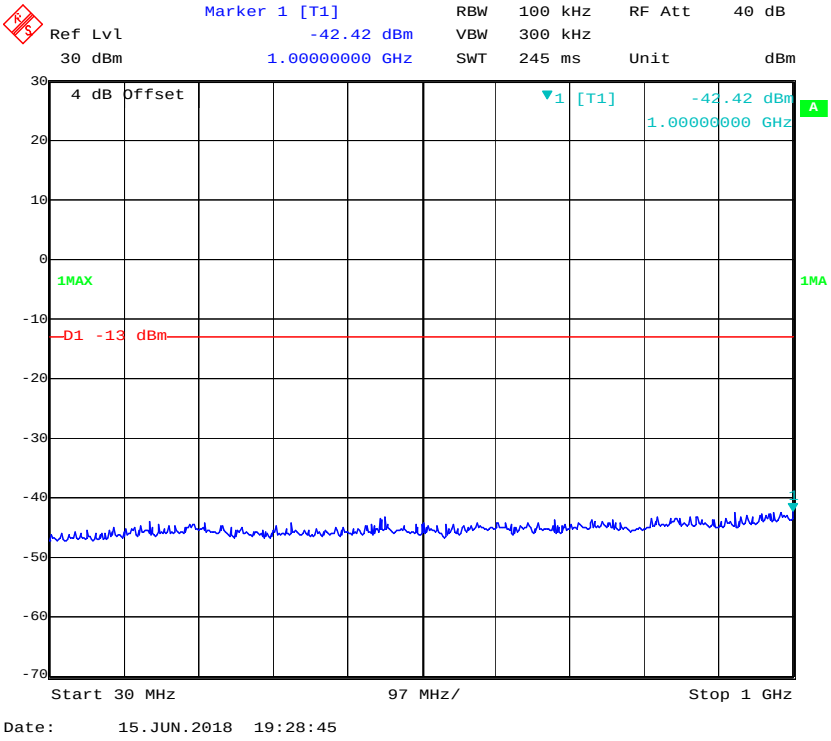
QPSK_3 MHz

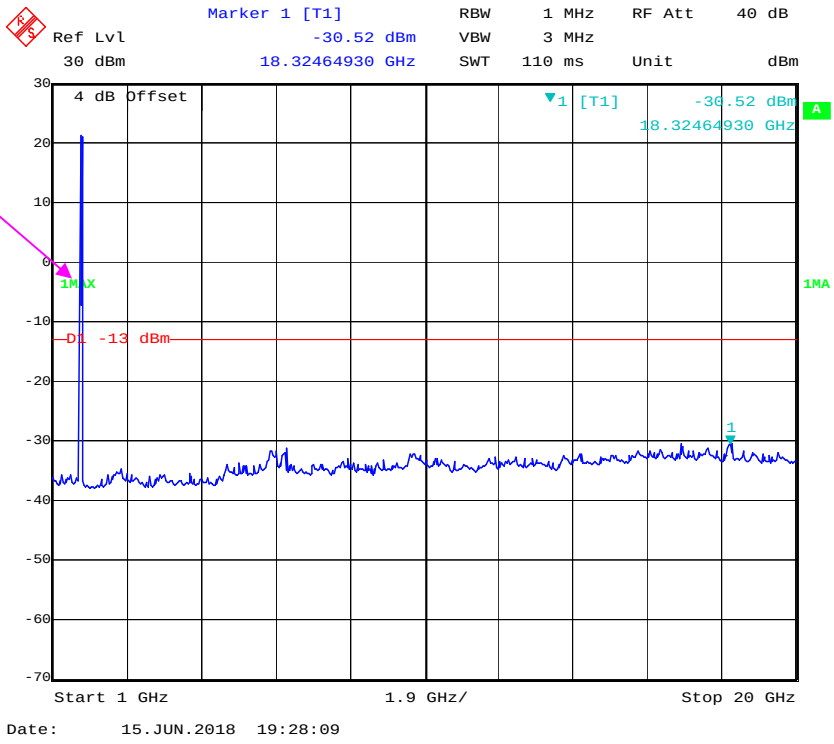




Fundamental

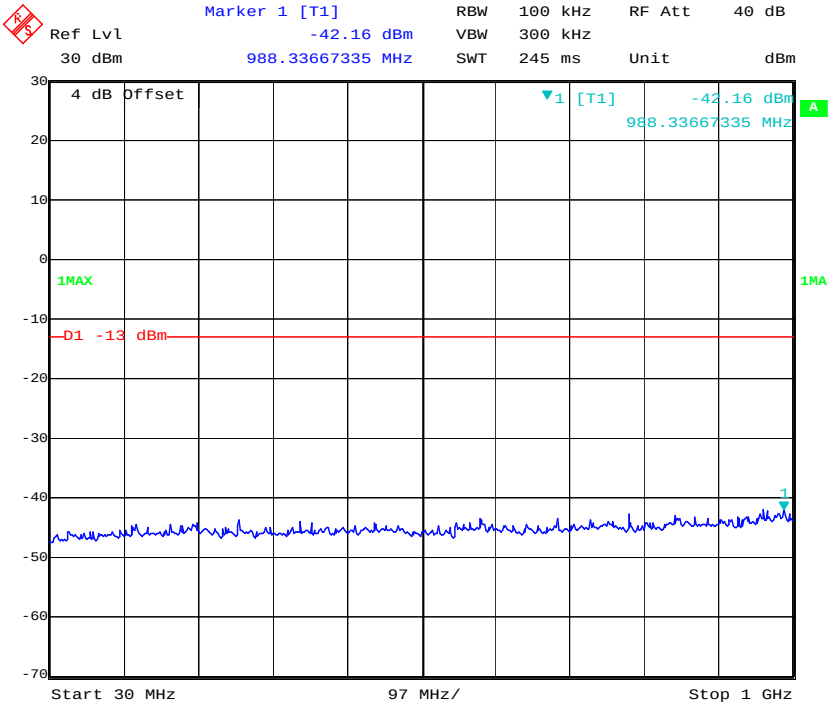
QPSK_5 MHz

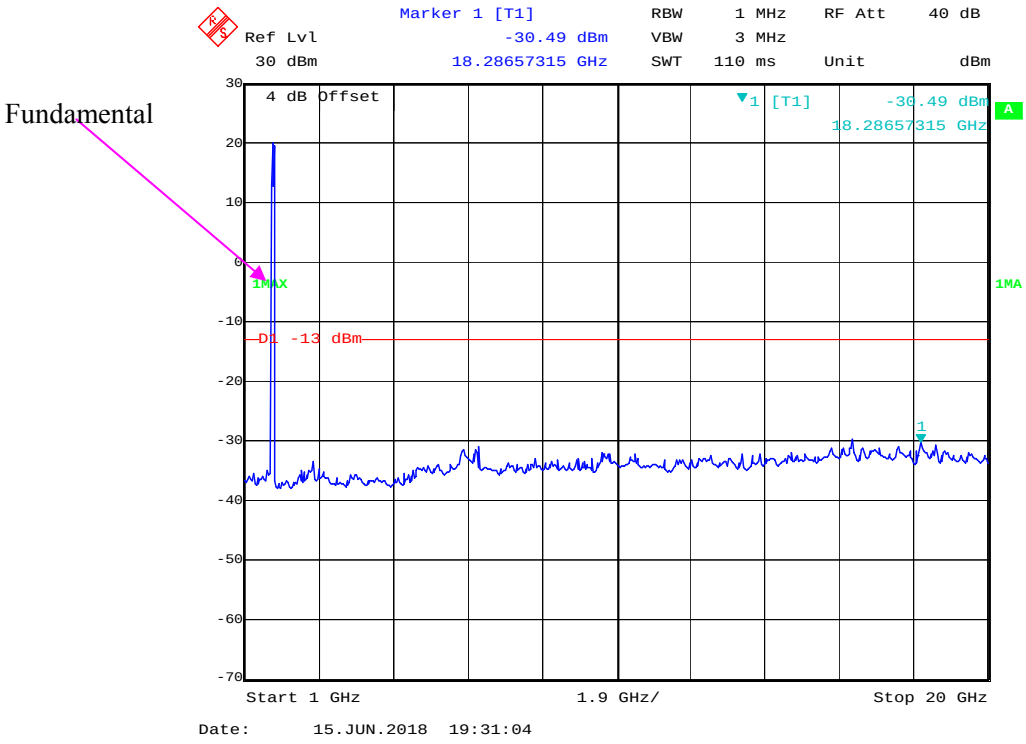




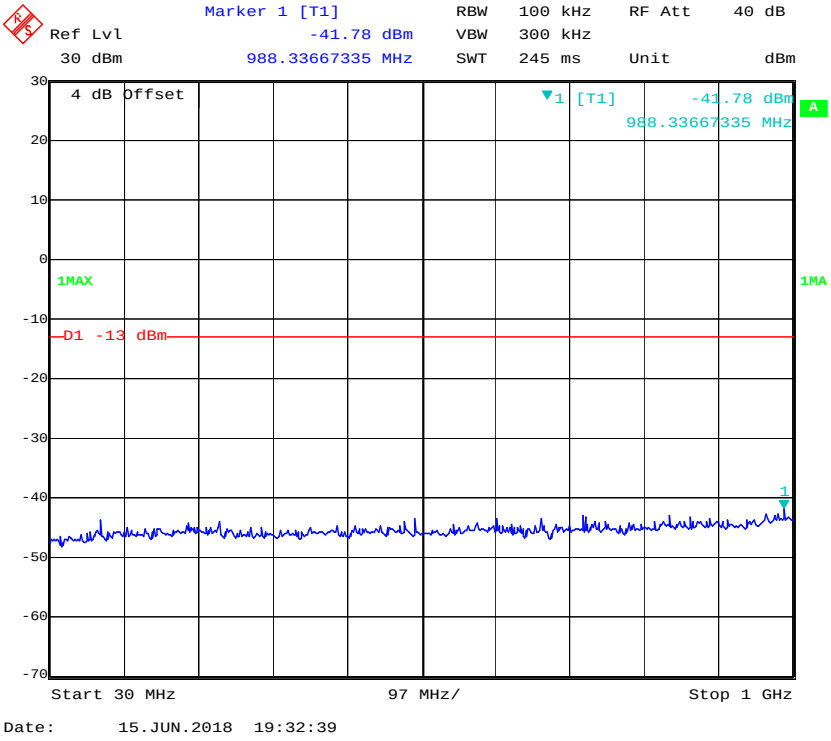
Fundamental

QPSK_10 MHz

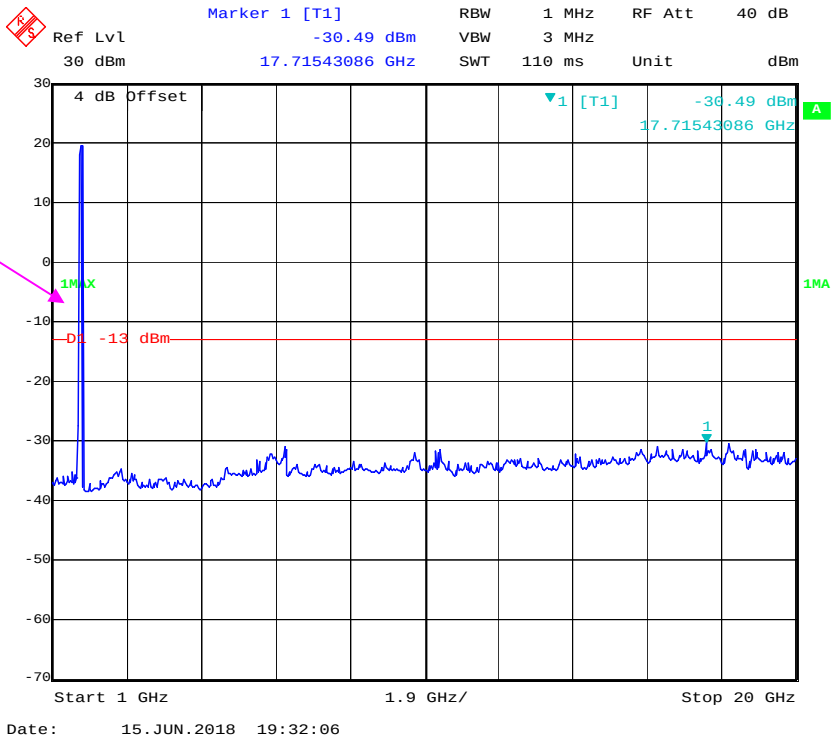

Marker 1 [T1]
Ref Lvl
30 dBm
-42.16 dBm
988.33667335 MHz
RBW 100 kHz
VBW 300 kHz
SWT 245 ms
RF Att 40 dB
Unit dBm
4 dB Offset
1 [T1]
-42.16 dBm
988.33667335 MHz
1MAX
1MA
D1 -13 dBm
Start 30 MHz
97 MHz/
Stop 1 GHz
Date: 15.JUN.2018 19:29:32


Fundamental
Marker 1 [T1]
Ref Lvl
30 dBm
-30.49 dBm
18.28657315 GHz
RBW 1 MHz
VBW 3 MHz
SWT 110 ms
RF Att 40 dB
Unit dBm
4 dB Offset
1 [T1]
-30.49 dBm
18.28657315 GHz
1MAX
1MA
D1 -13 dBm
Start 1 GHz
1.9 GHz/
Stop 20 GHz
Date: 15.JUN.2018 19:31:04

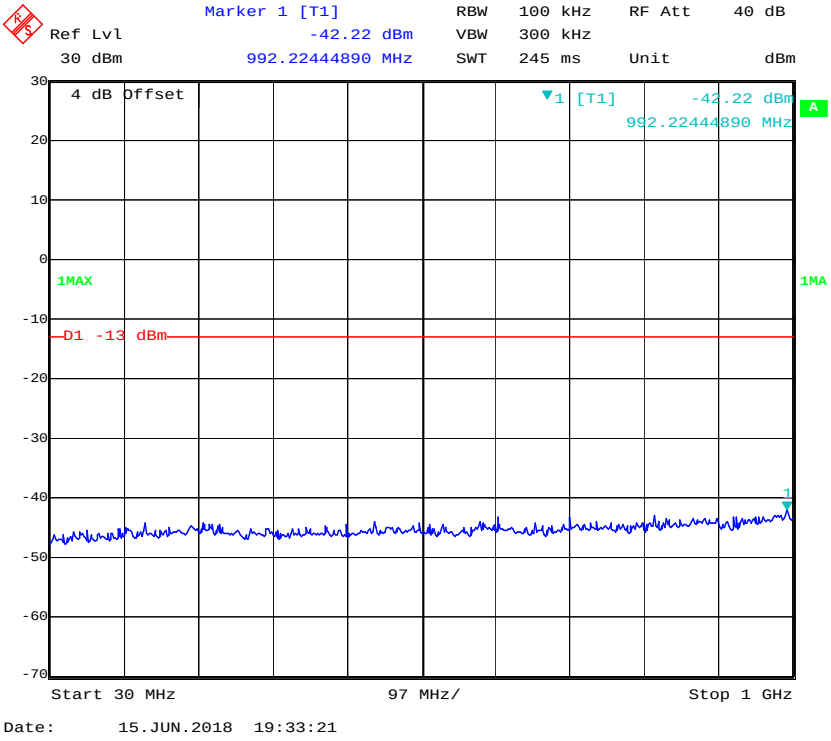
QPSK_15 MHz

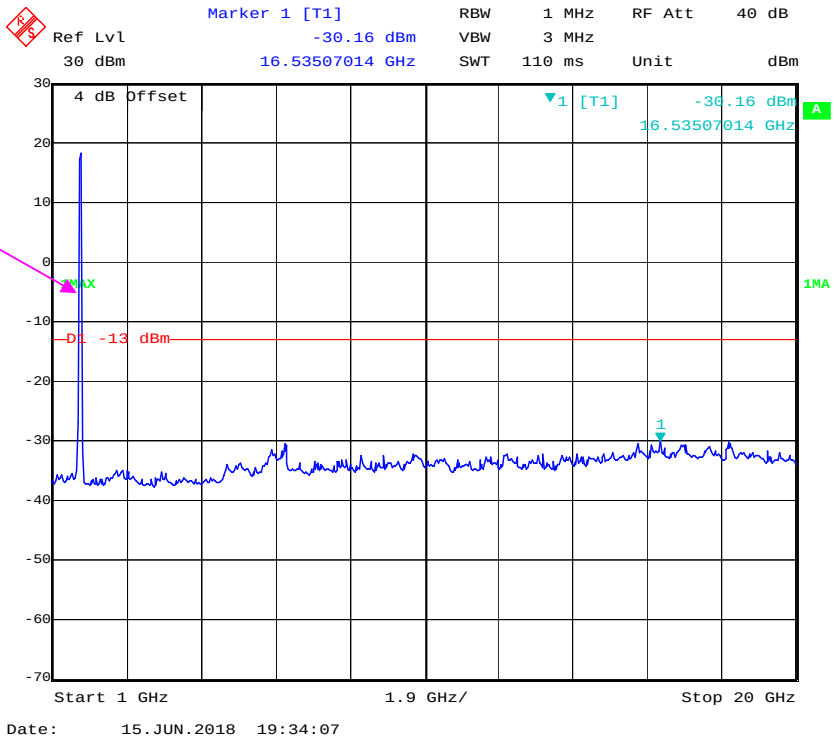


Fundamental



QPSK_20 MHz

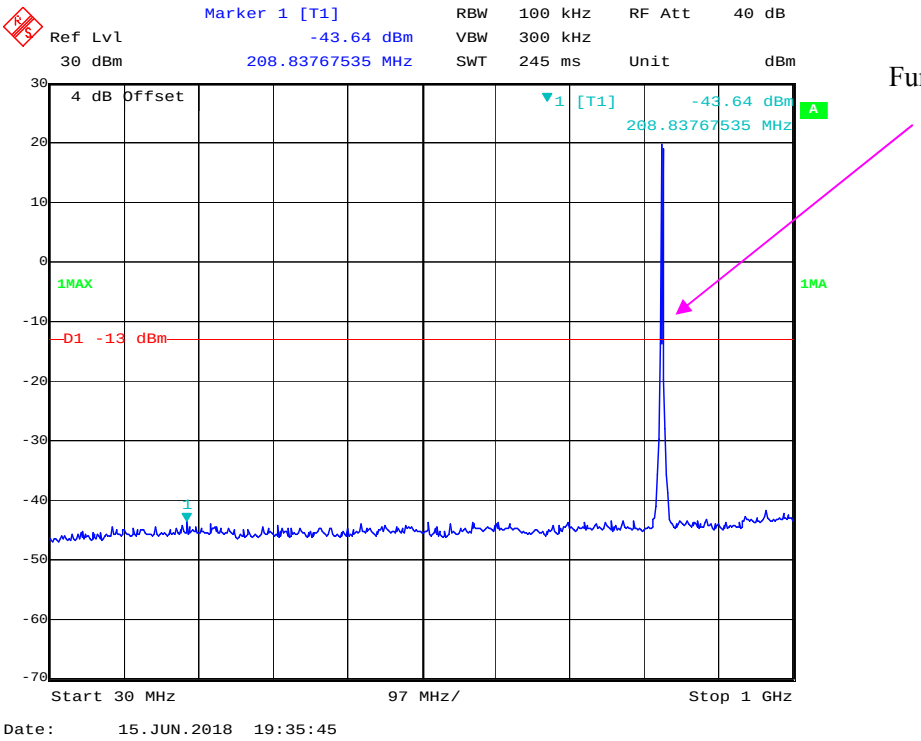




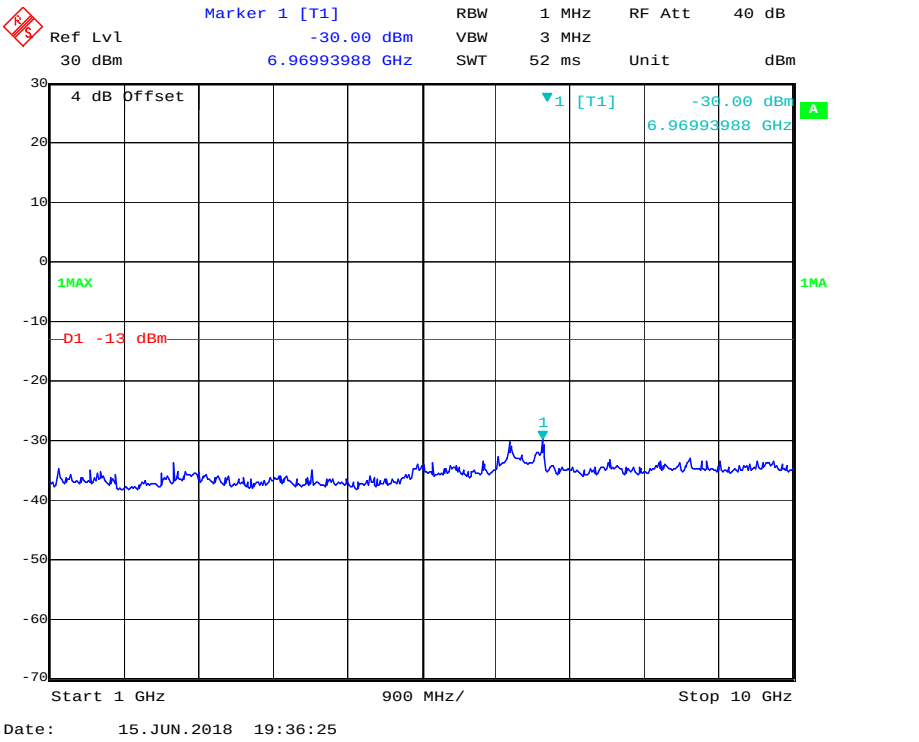
Fundamental

LTE Band 5 (Middle Channel)

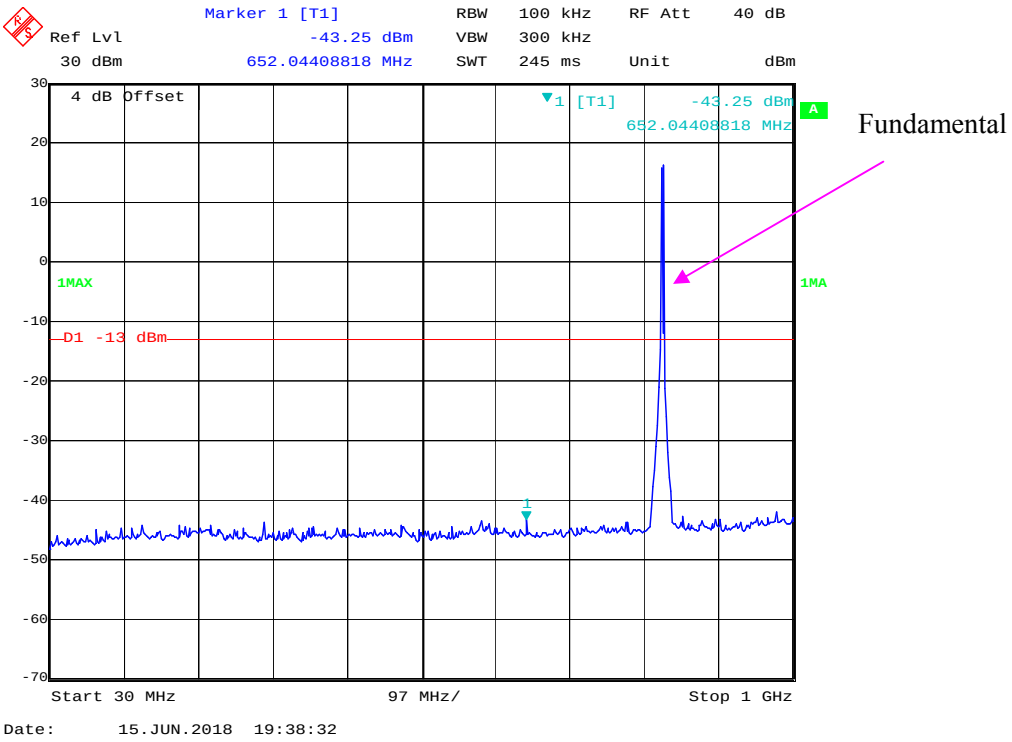
QPSK_1.4 MHz



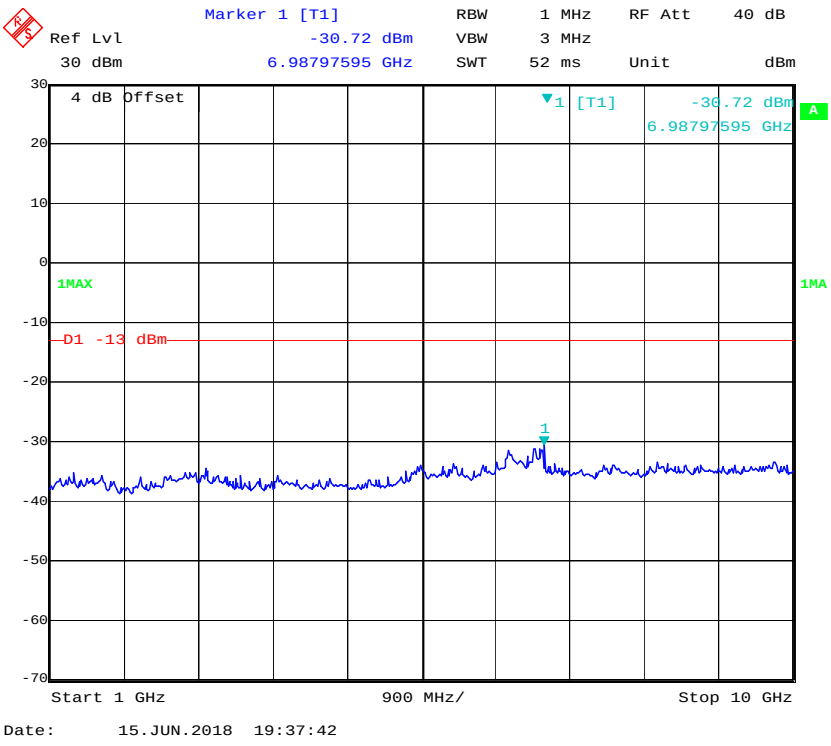
Fundamental



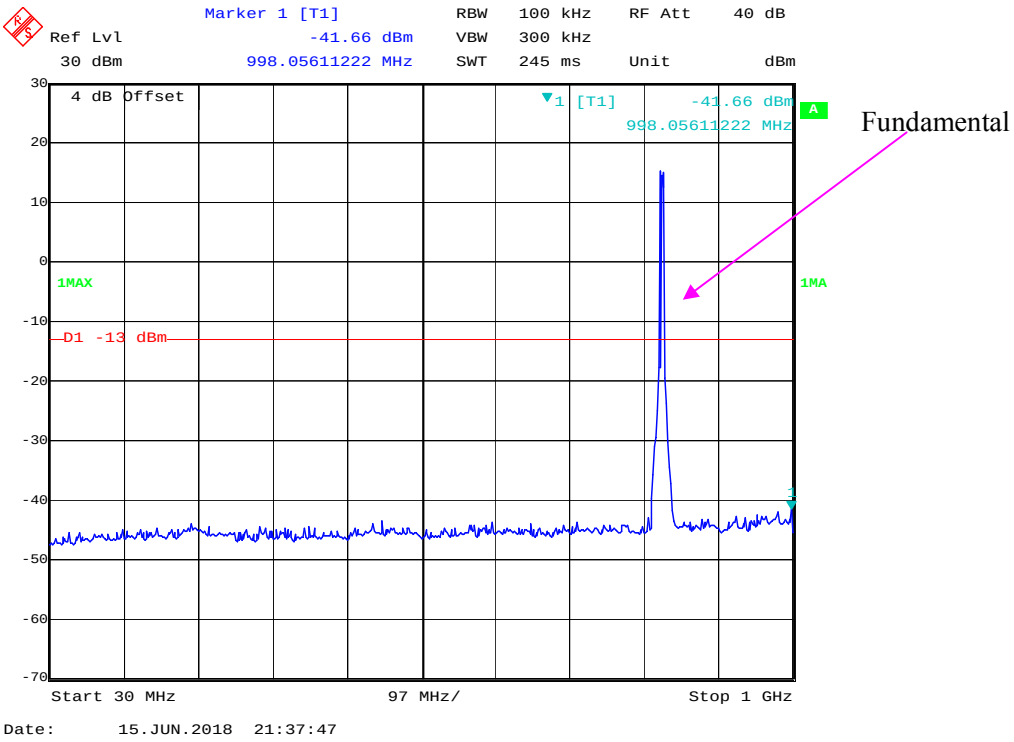
QPSK_3 MHz

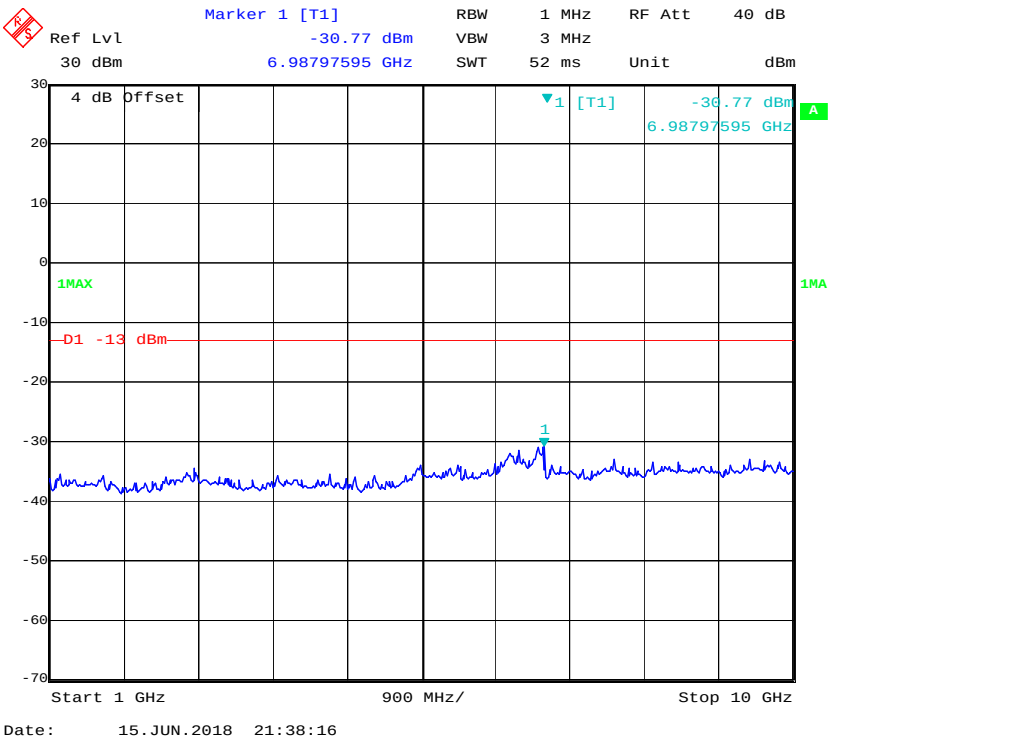


Fundamental

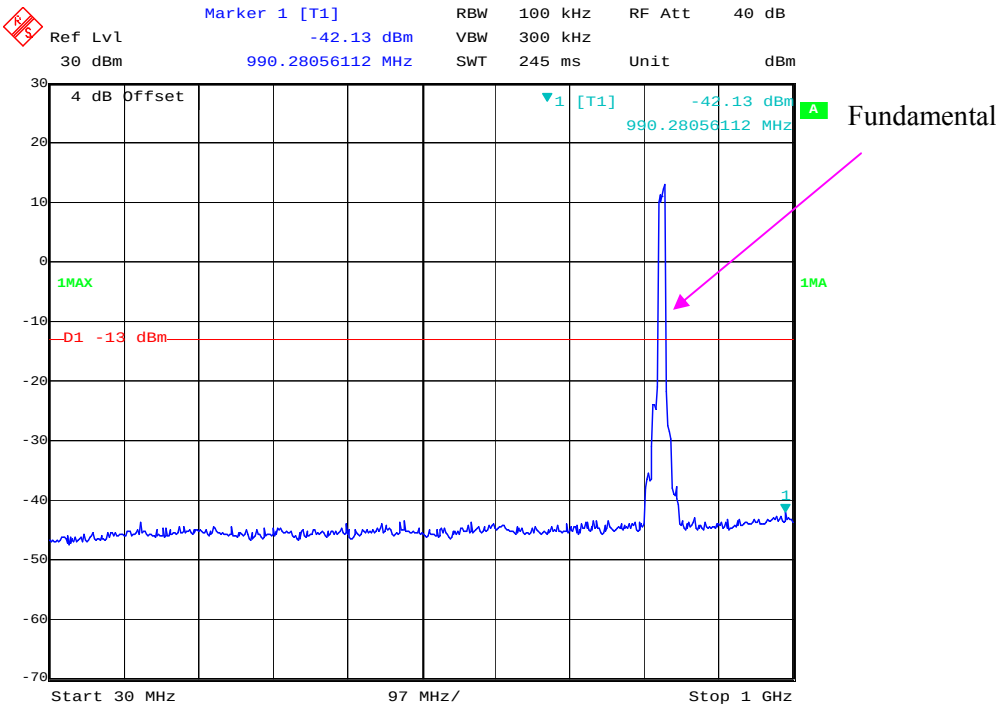


QPSK_5 MHz

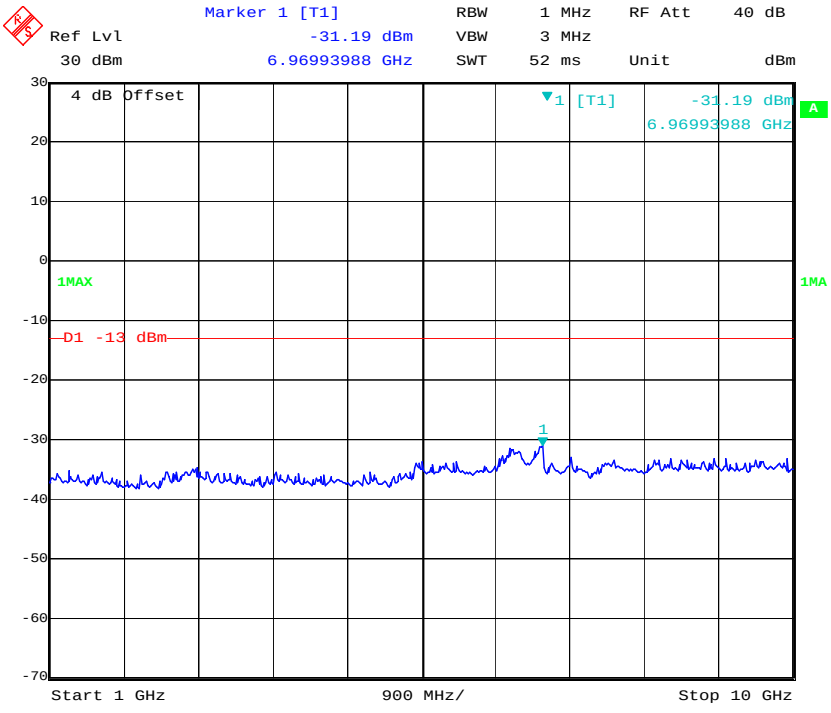

Marker 1 [T1]
Ref Lvl
30 dBm
-41.66 dBm
998.05611222 MHz
RBW 100 kHz
VBW 300 kHz
SWT 245 ms
RF Att 40 dB
Unit dBm
4 dB Offset
1 [T1]
-41.66 dBm
998.05611222 MHz
1MAX
D1 -13 dBm
1MA
Fundamental
Start 30 MHz
97 MHz/
Stop 1 GHz
Date: 15.JUN.2018 21:37:47


Marker 1 [T1]
Ref Lvl
30 dBm
-30.77 dBm
6.98797595 GHz
RBW 1 MHz
VBW 3 MHz
SWT 52 ms
RF Att 40 dB
Unit dBm
4 dB Offset
1 [T1]
-30.77 dBm
6.98797595 GHz
1MAX
D1 -13 dBm
1MA
Start 1 GHz
900 MHz/
Stop 10 GHz
Date: 15.JUN.2018 21:38:16

QPSK_10 MHz



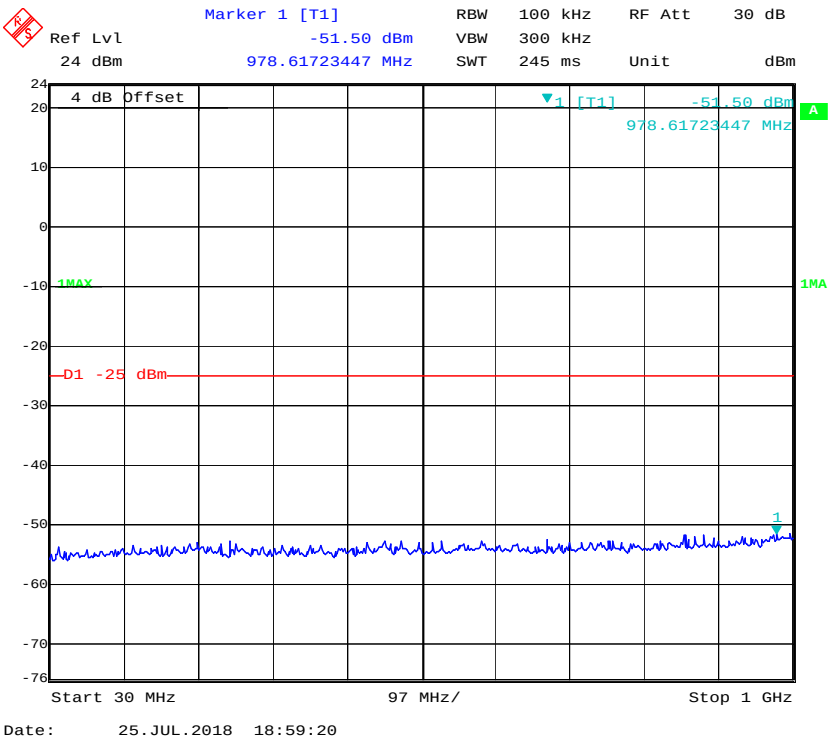
Date: 15.JUN.2018 21:39:49



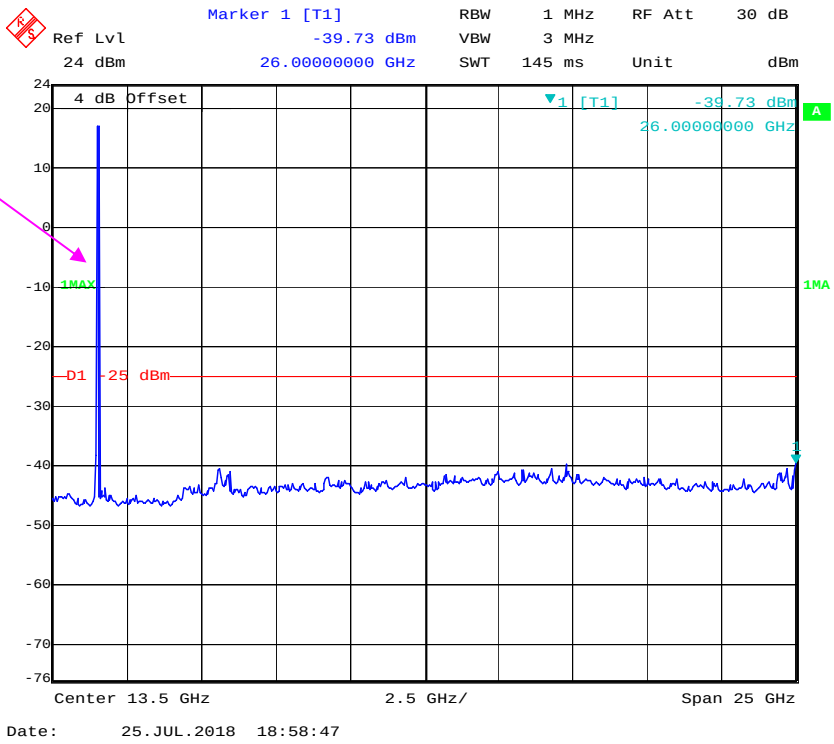
Date: 15.JUN.2018 21:38:59

LTE Band 7 (Middle Channel)

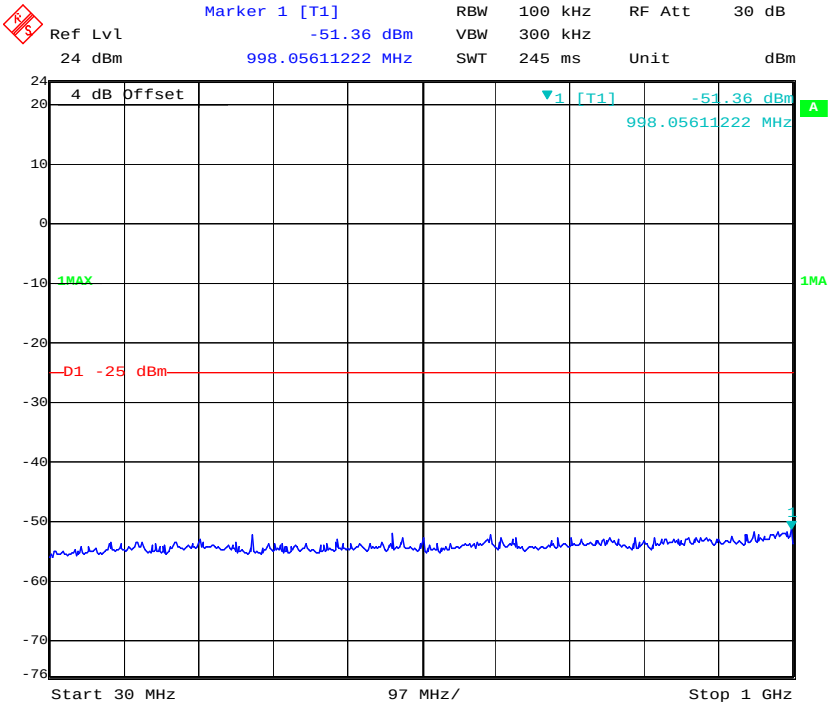
QPSK_5 MHz



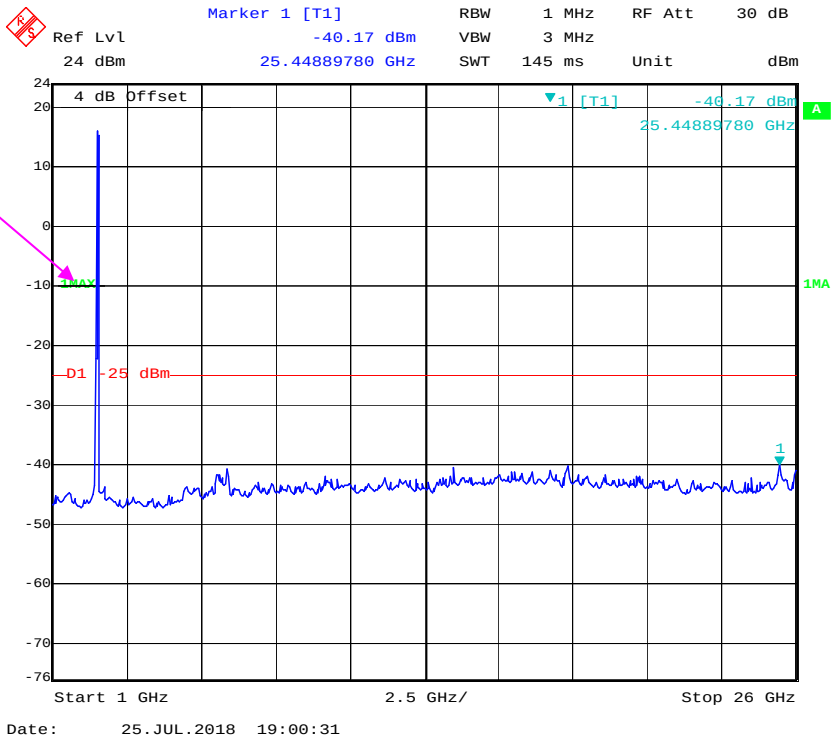
Fundamental



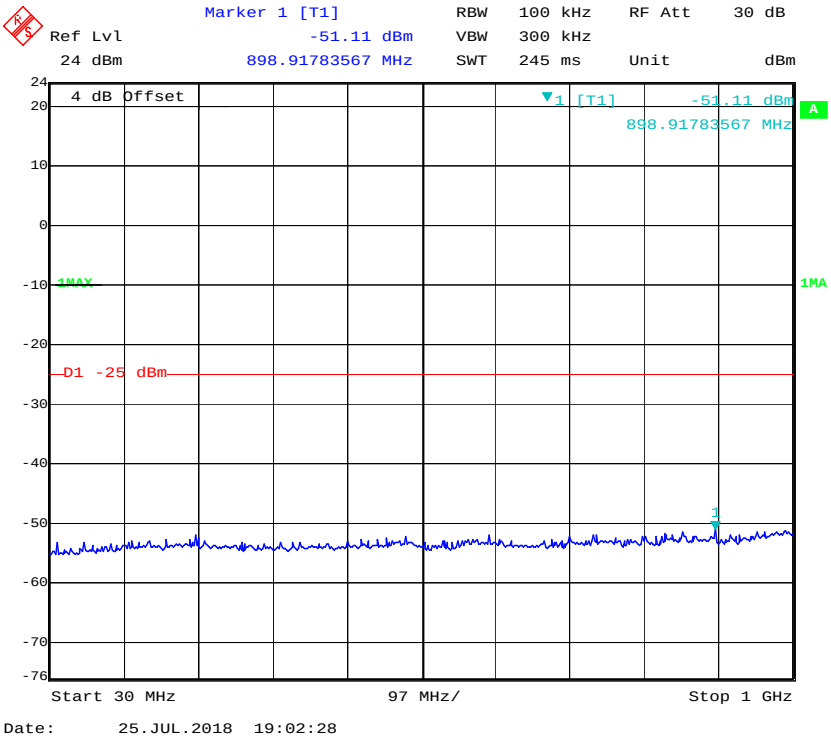
QPSK_10 MHz



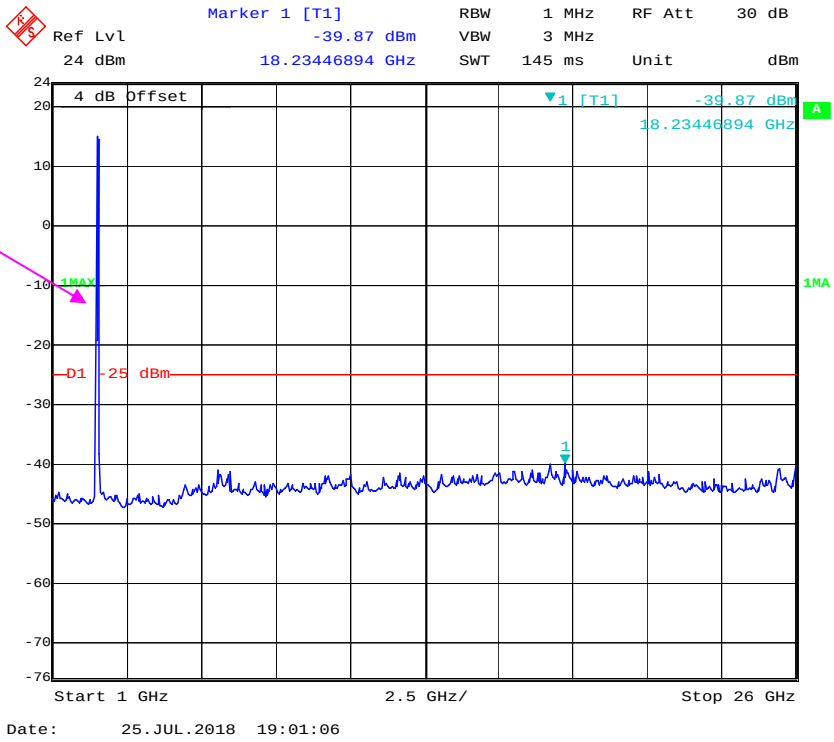
Fundamental



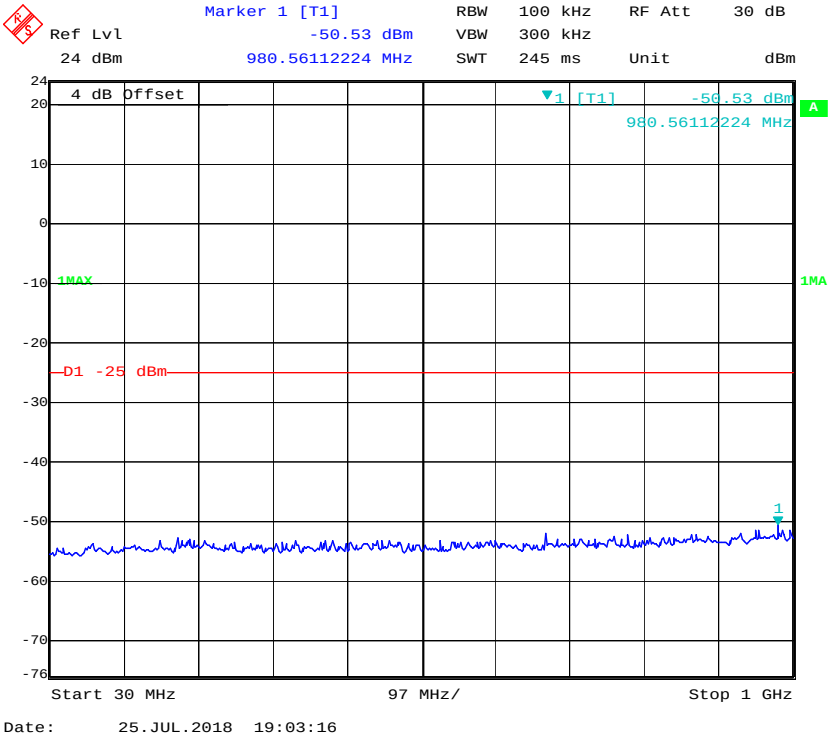
QPSK_15 MHz



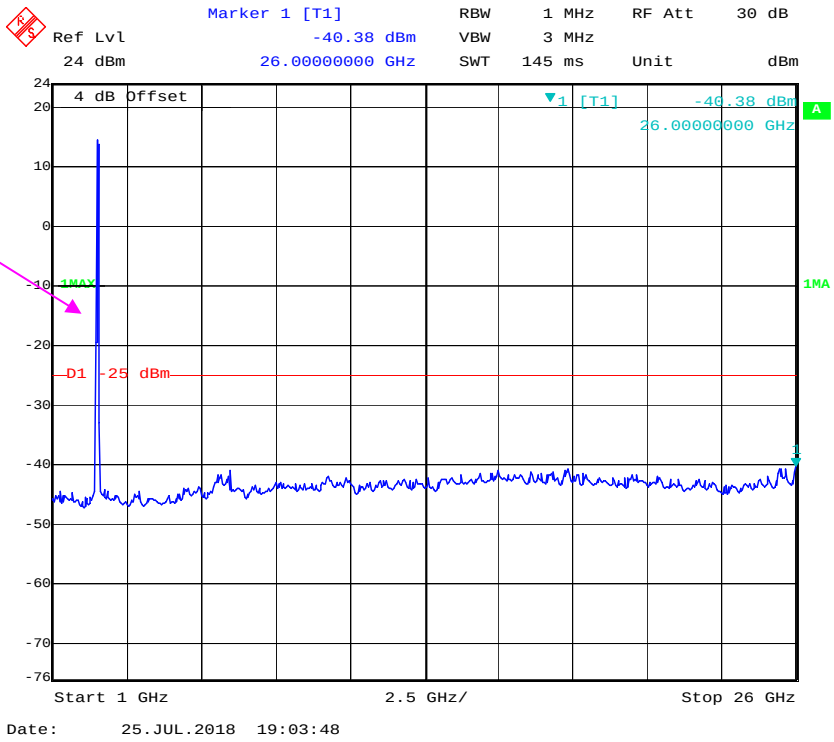
Fundamental



QPSK_20 MHz



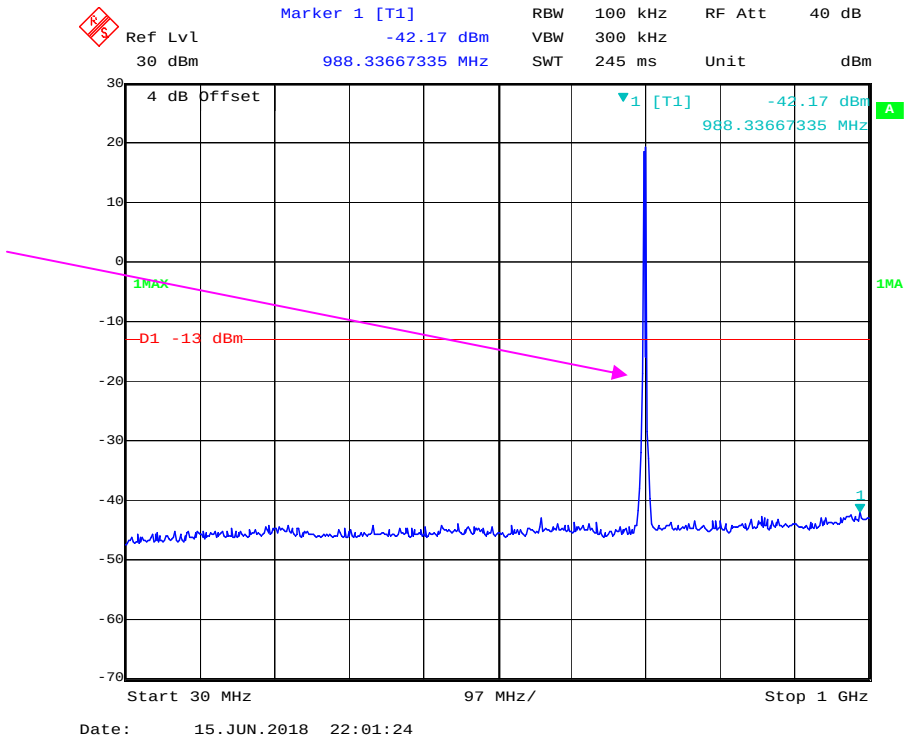
Fundamental

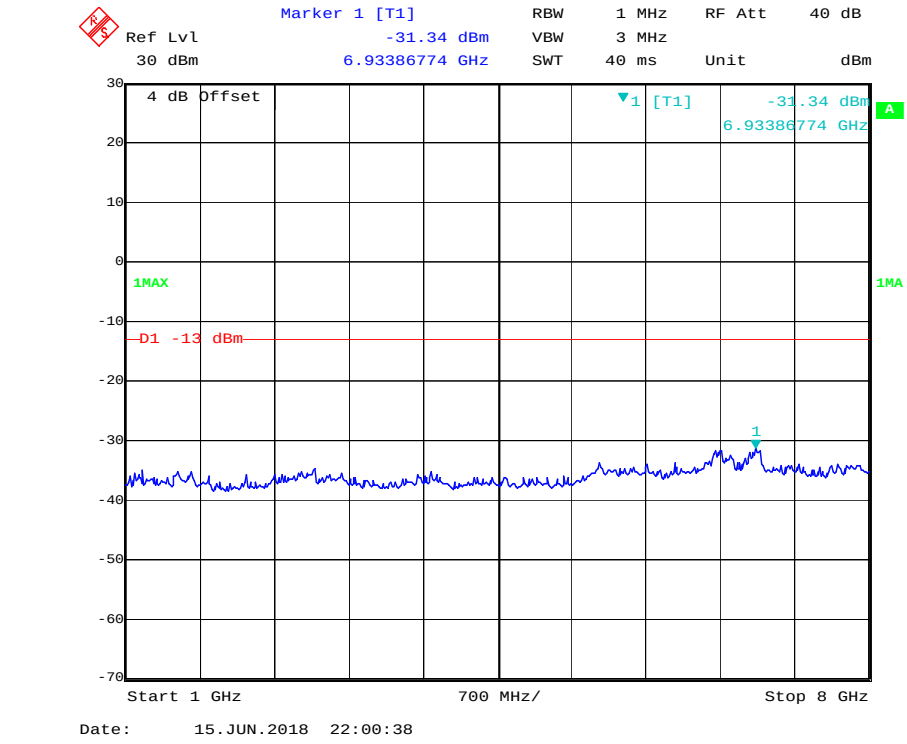


LTE Band 12 (Middle Channel)

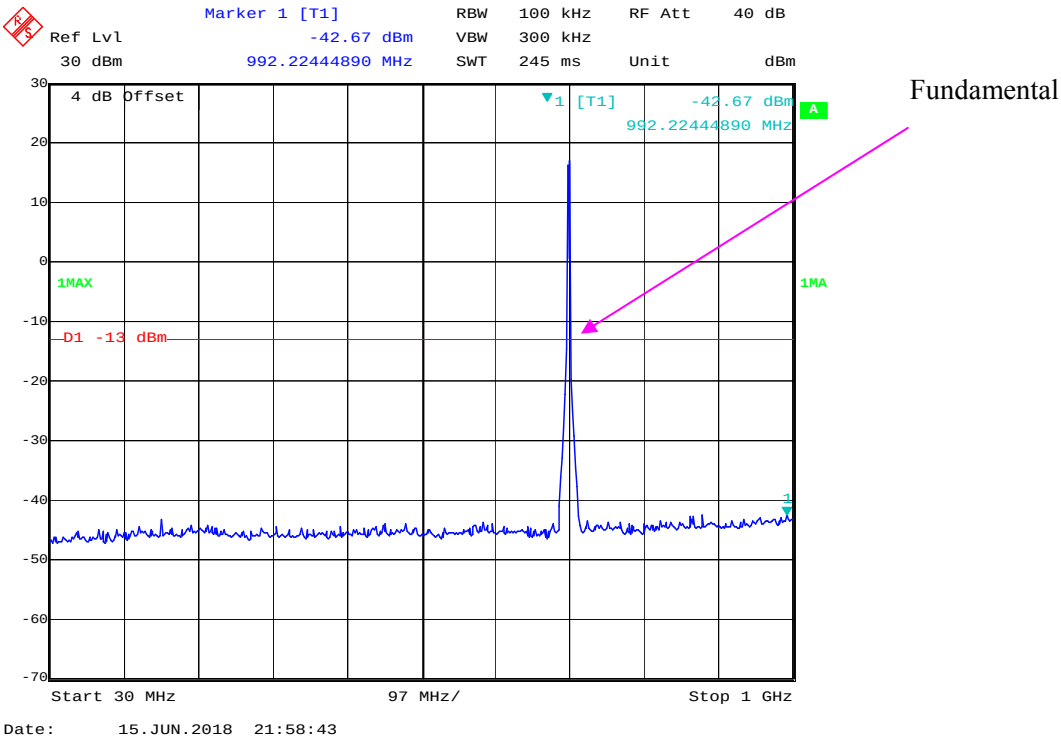
QPSK_1.4 MHz

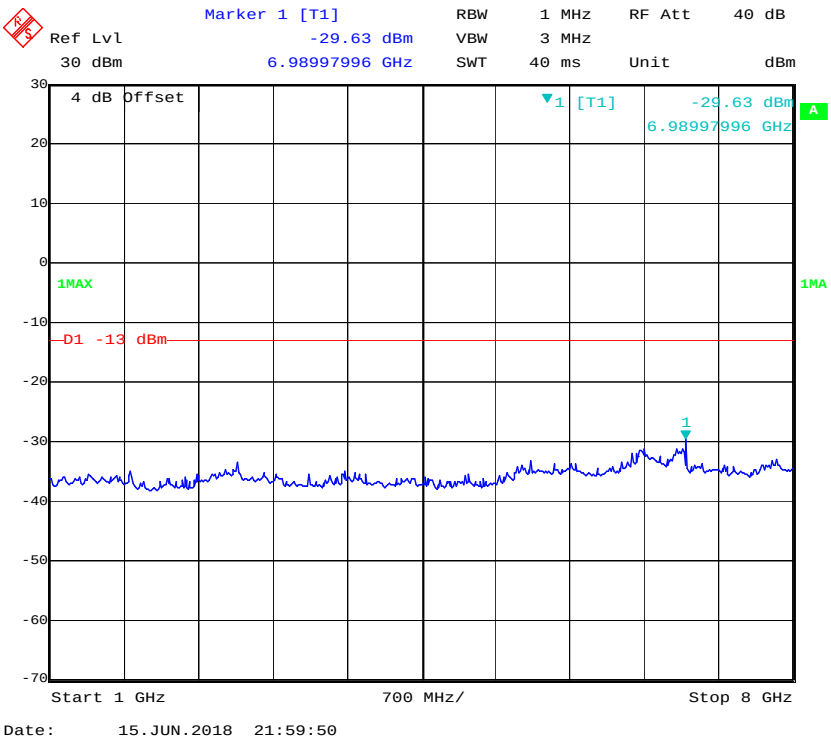
Fundamental



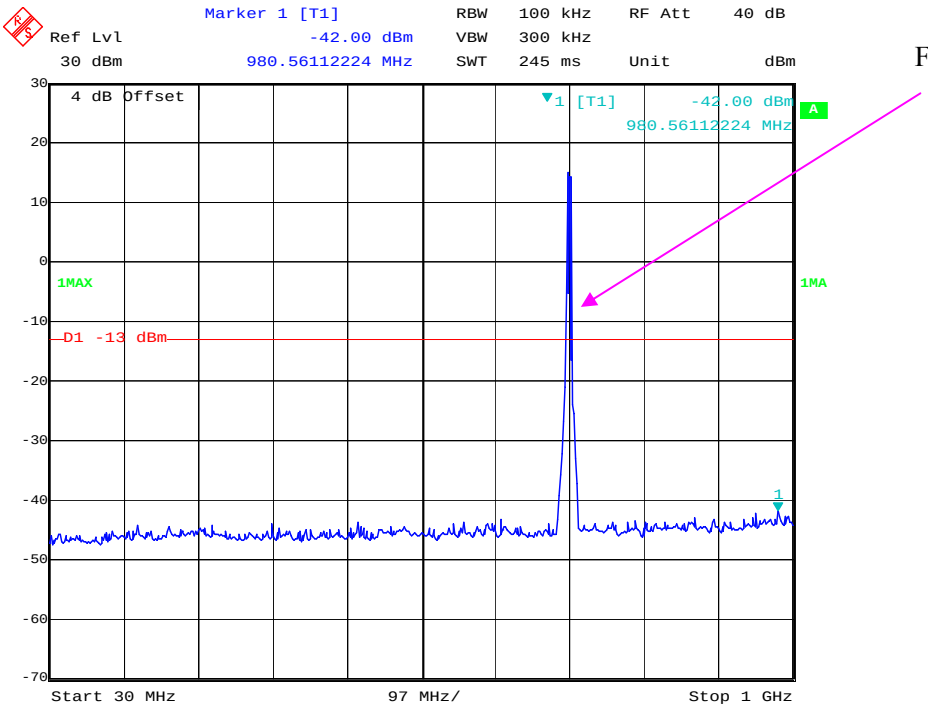


QPSK_3 MHz

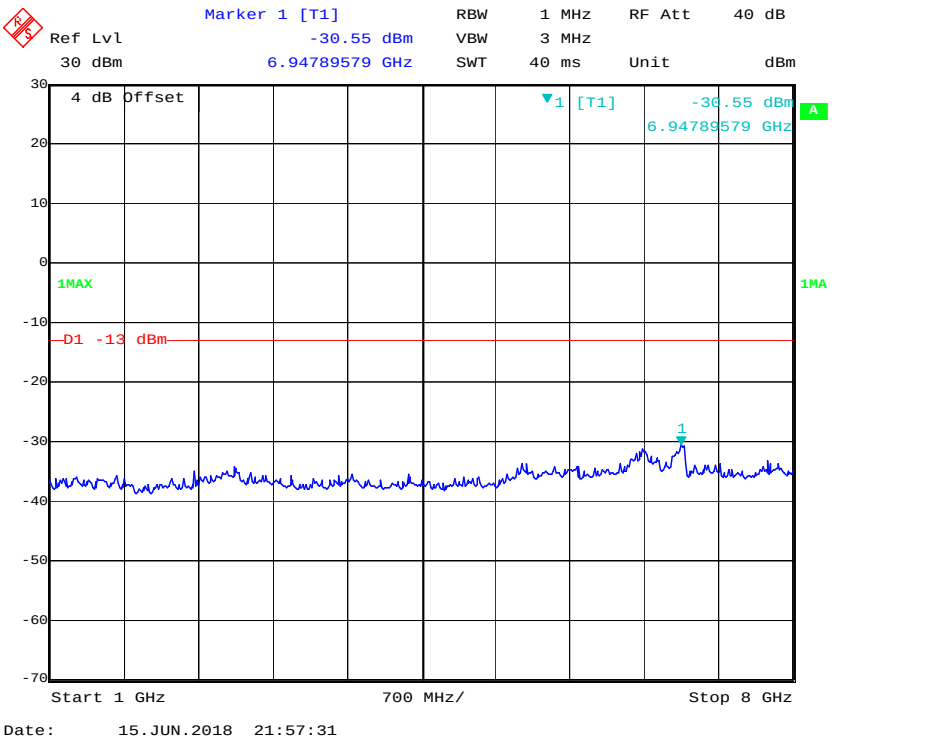

Marker 1 [T1]
RBW 100 kHz
RF Att 40 dB
Ref Lvl
-42.67 dBm
VBW 300 kHz
30 dBm
992.22444890 MHz
SWT 245 ms
Unit dBm
4 dB Offset
1 [T1]
-42.67 dBm
992.22444890 MHz
1MAX
1MA
D1 -13 dBm
Start 30 MHz
97 MHz/
Stop 1 GHz
Date: 15.JUN.2018 21:58:43
Fundamental


Marker 1 [T1]
RBW 1 MHz
RF Att 40 dB
Ref Lvl
-29.63 dBm
VBW 3 MHz
30 dBm
6.98997996 GHz
SWT 40 ms
Unit dBm
4 dB Offset
1 [T1]
-29.63 dBm
6.98997996 GHz
1MAX
1MA
D1 -13 dBm
Start 1 GHz
700 MHz/
Stop 8 GHz
Date: 15.JUN.2018 21:59:50

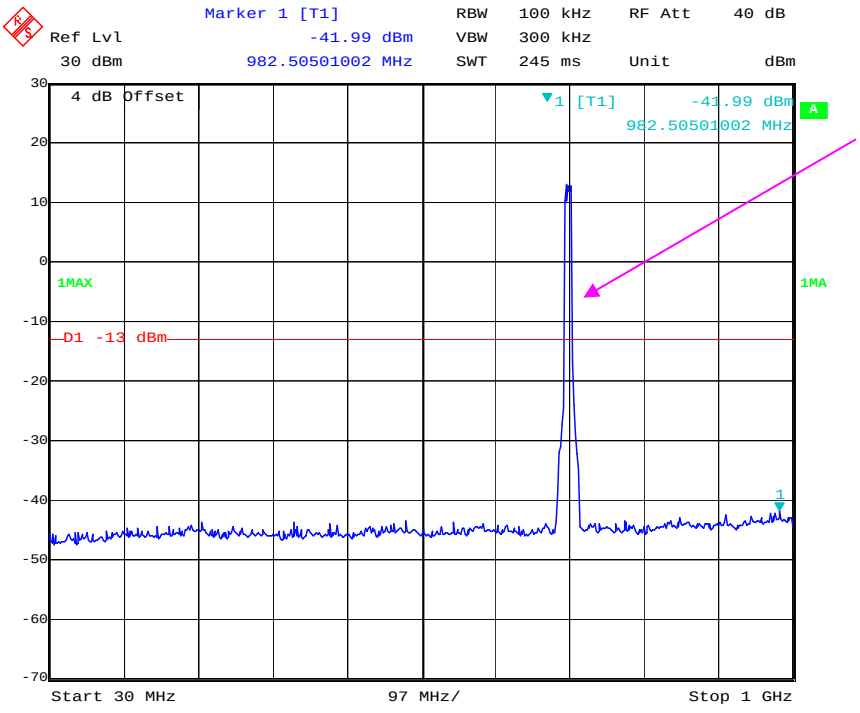
QPSK_5 MHz



Fundamental

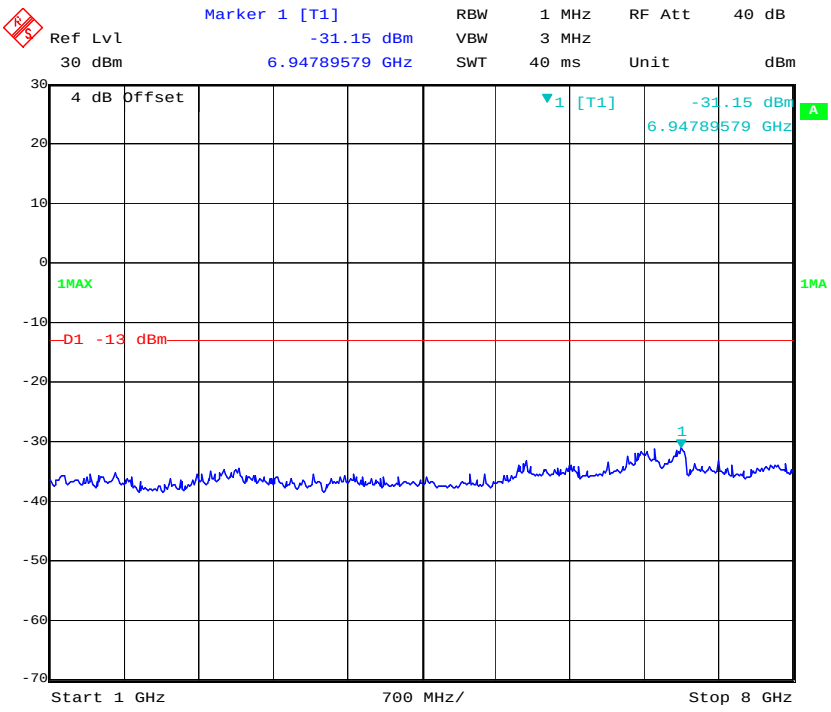


QPSK_10 MHz



Fundamental

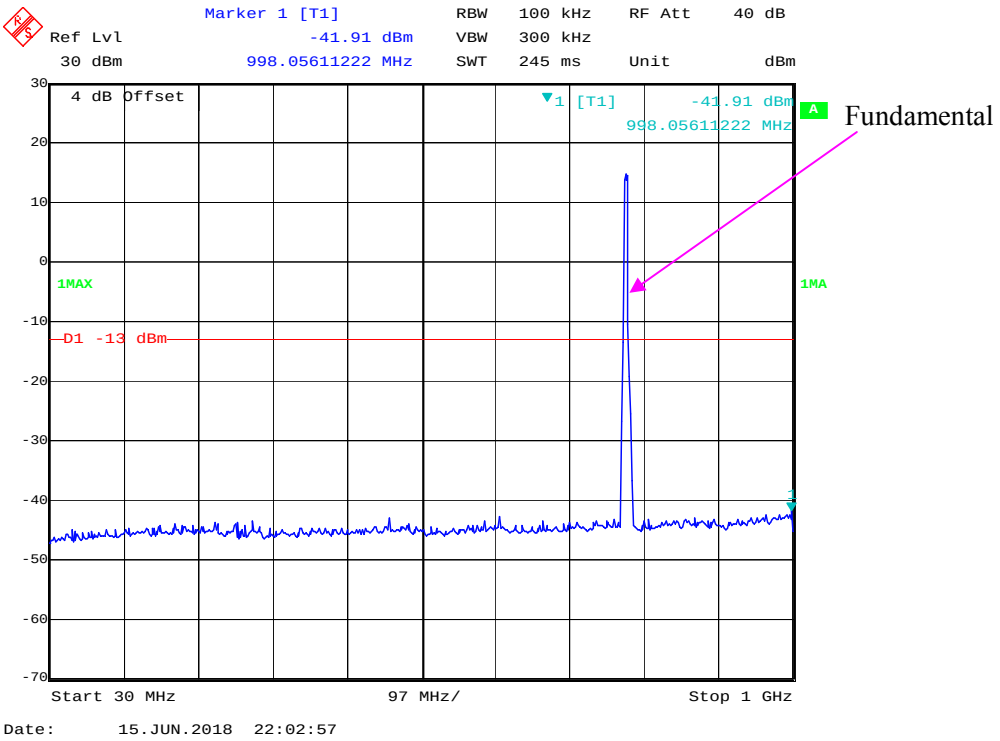
Date: 15.JUN.2018 21:55:17

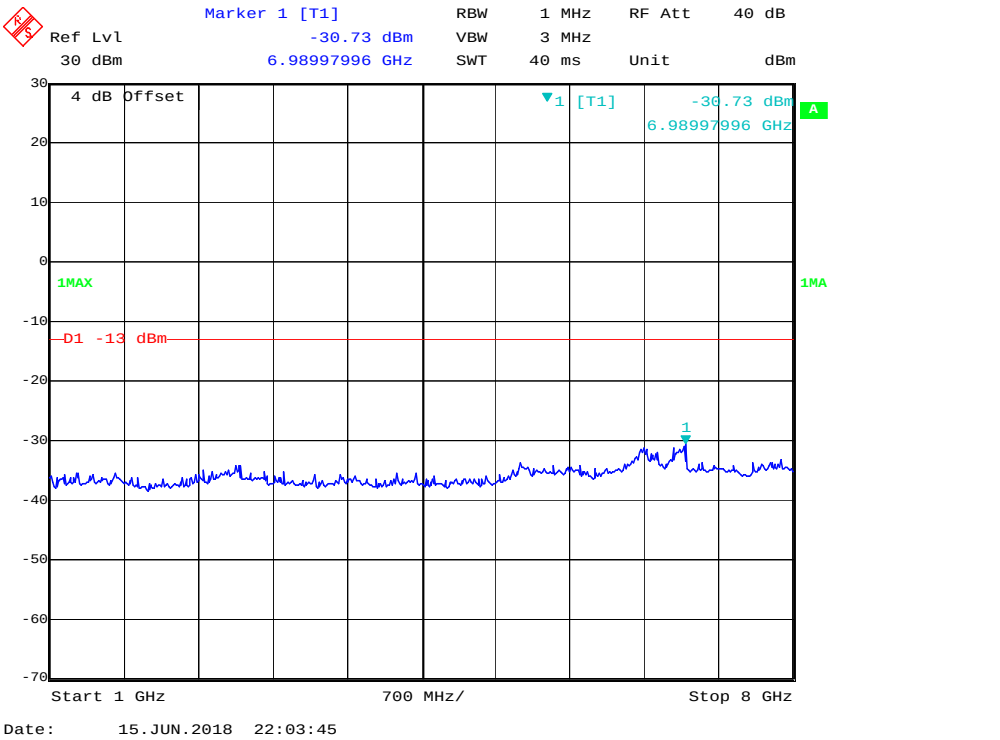


Date: 15.JUN.2018 21:56:46

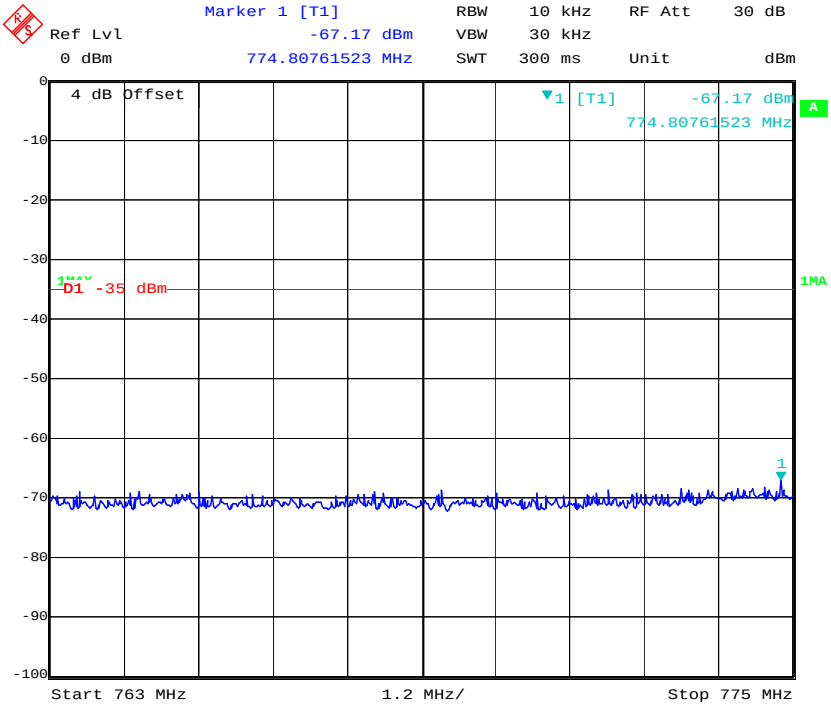
LTE Band 13 (Middle Channel)

QPSK_5 MHz



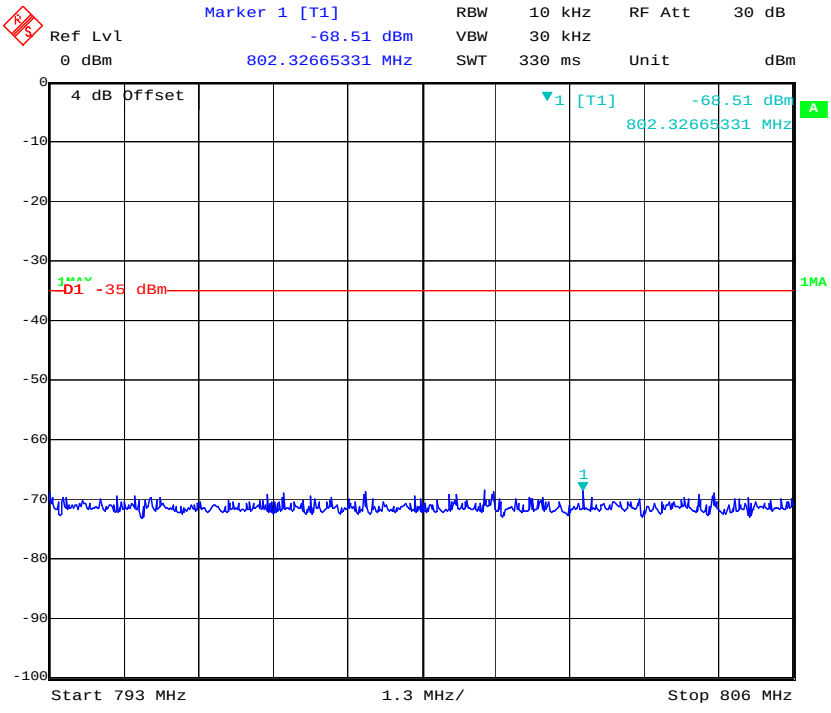


QPSK_5 MHz (763MHz-775MHz)



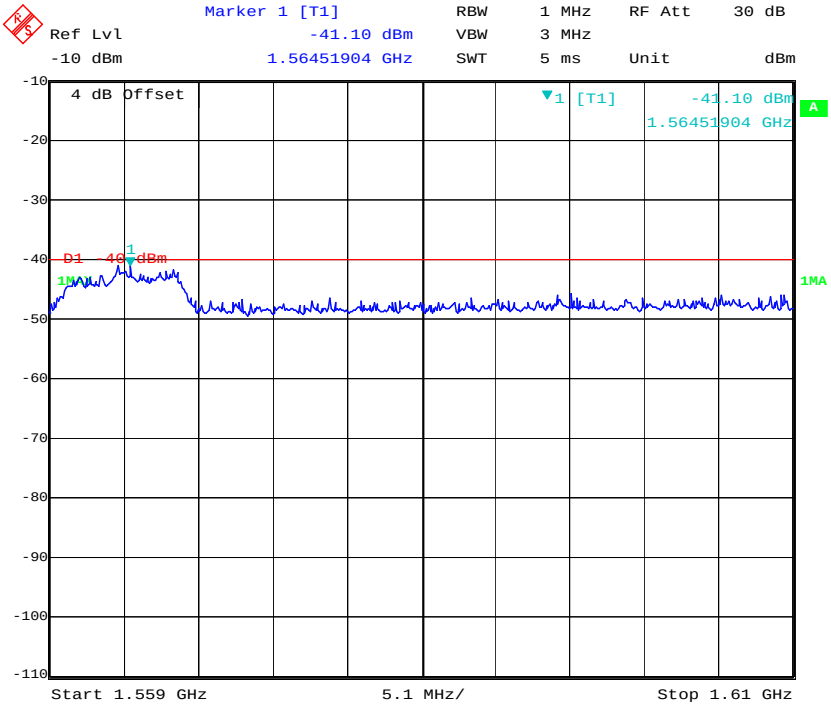
Date: 3.AUG.2018 21:16:12

QPSK_5 MHz (793MHz-806MHz)



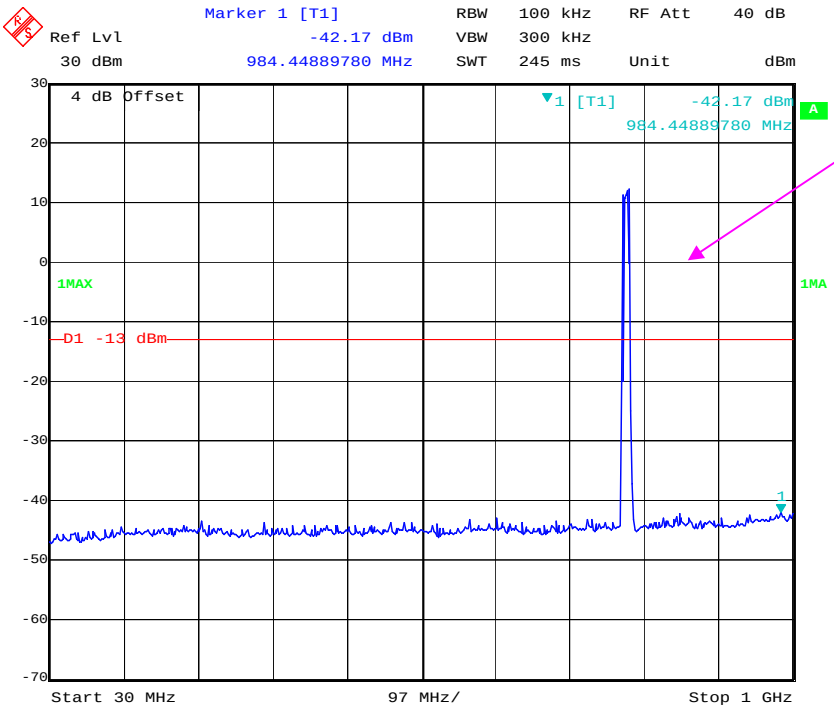
Date: 3.AUG.2018 21:17:10

QPSK_5 MHz (1559MHz-1610MHz)



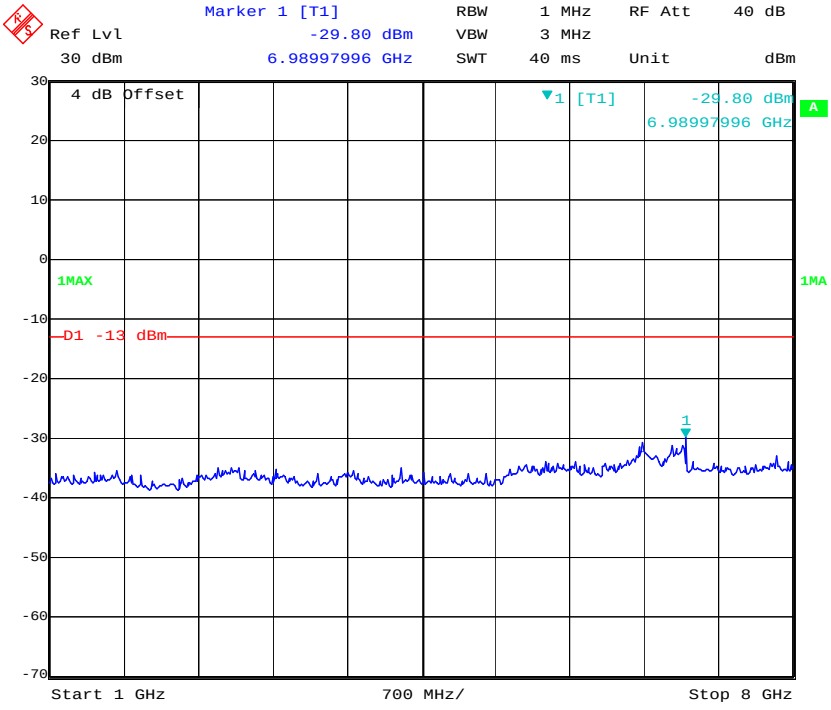
Date: 3.AUG.2018 21:26:51

QPSK_10 MHz

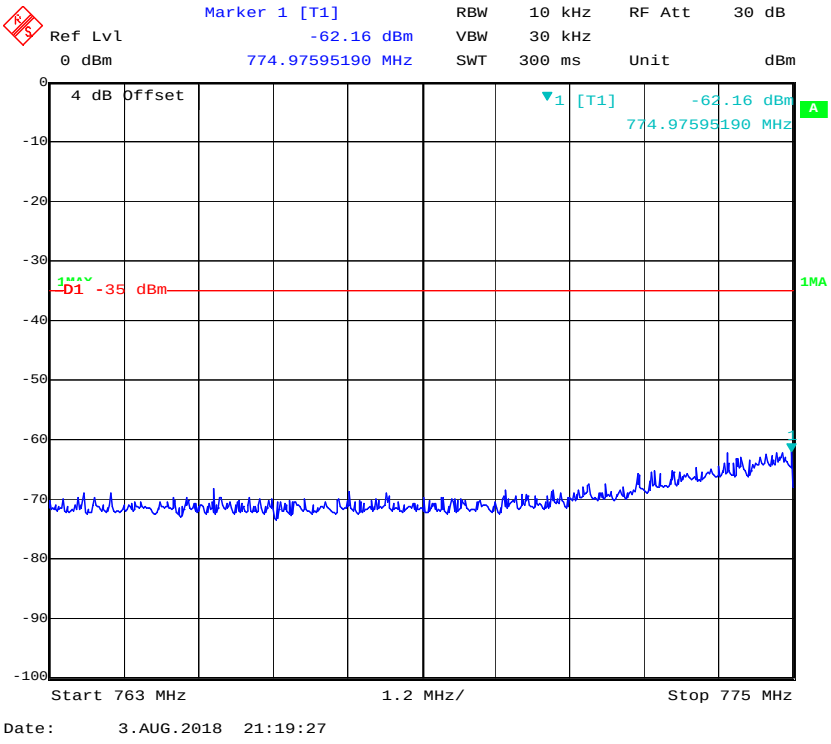


Fundamental

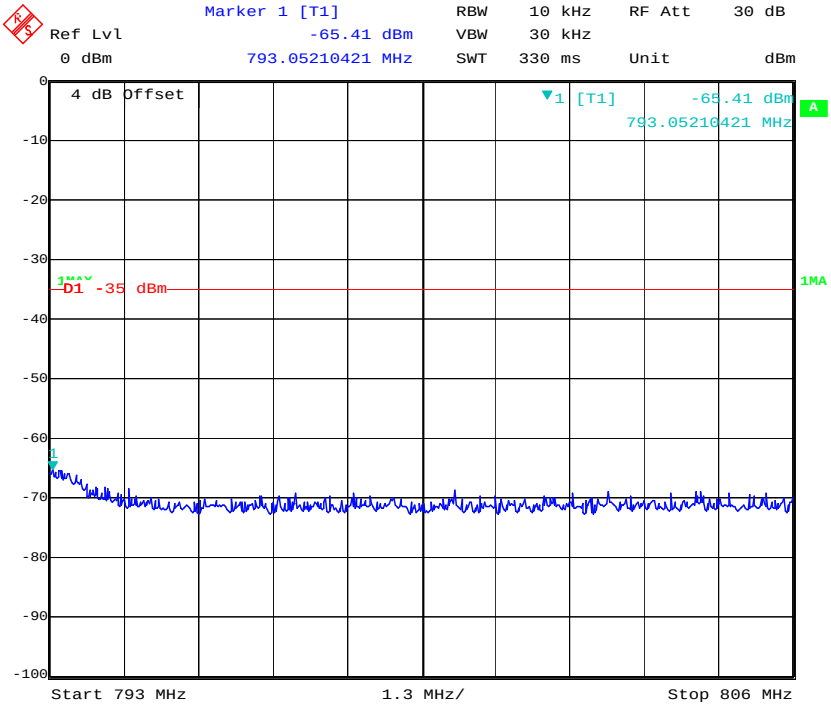
Date: 15.JUN.2018 22:05:44



QPSK_10 MHz (763MHz-775MHz)

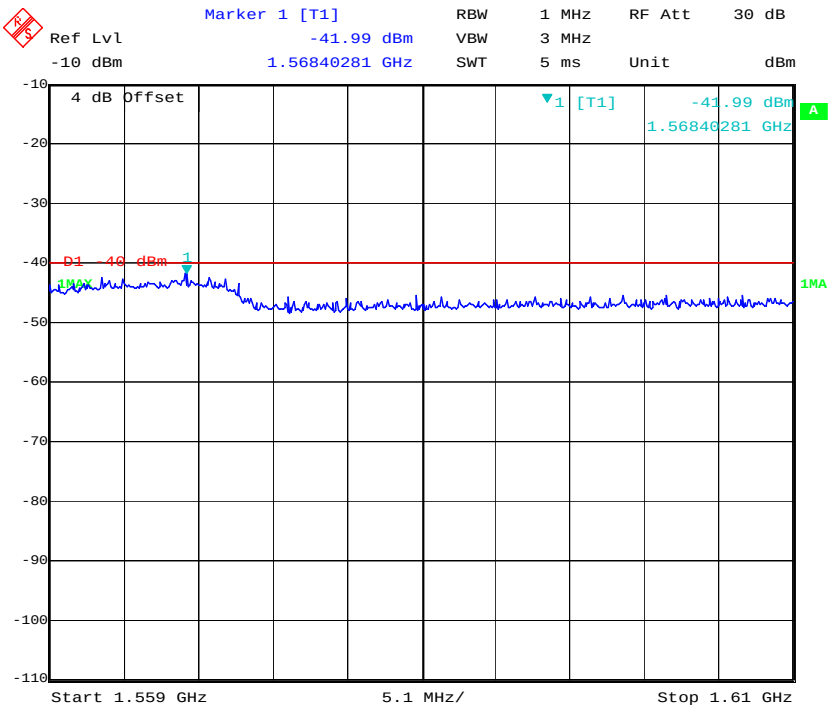


QPSK_10 MHz (793MHz-806MHz)



Date: 3.AUG.2018 21:19:07

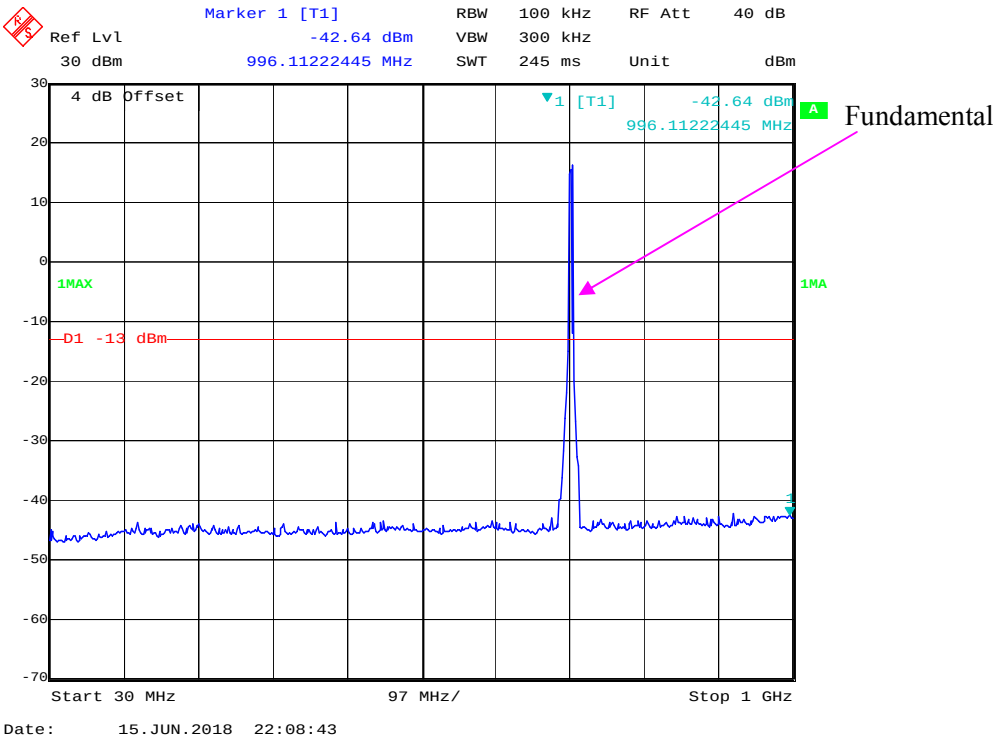
QPSK_10 MHz (1559MHz-1610MHz)

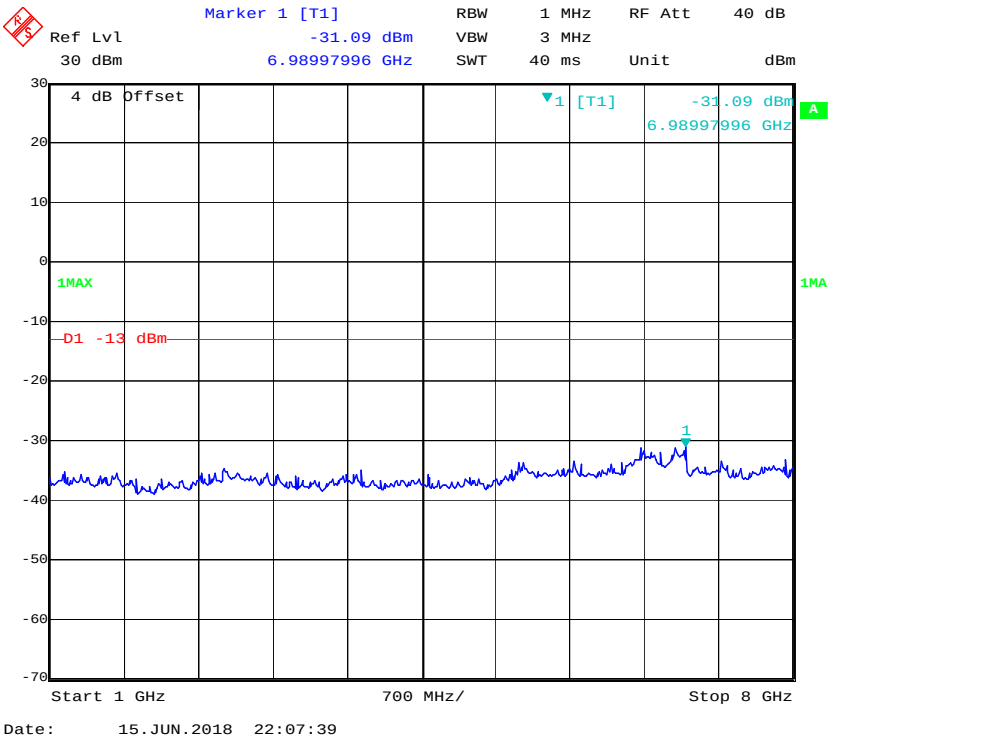


Date: 3.AUG.2018 21:26:30

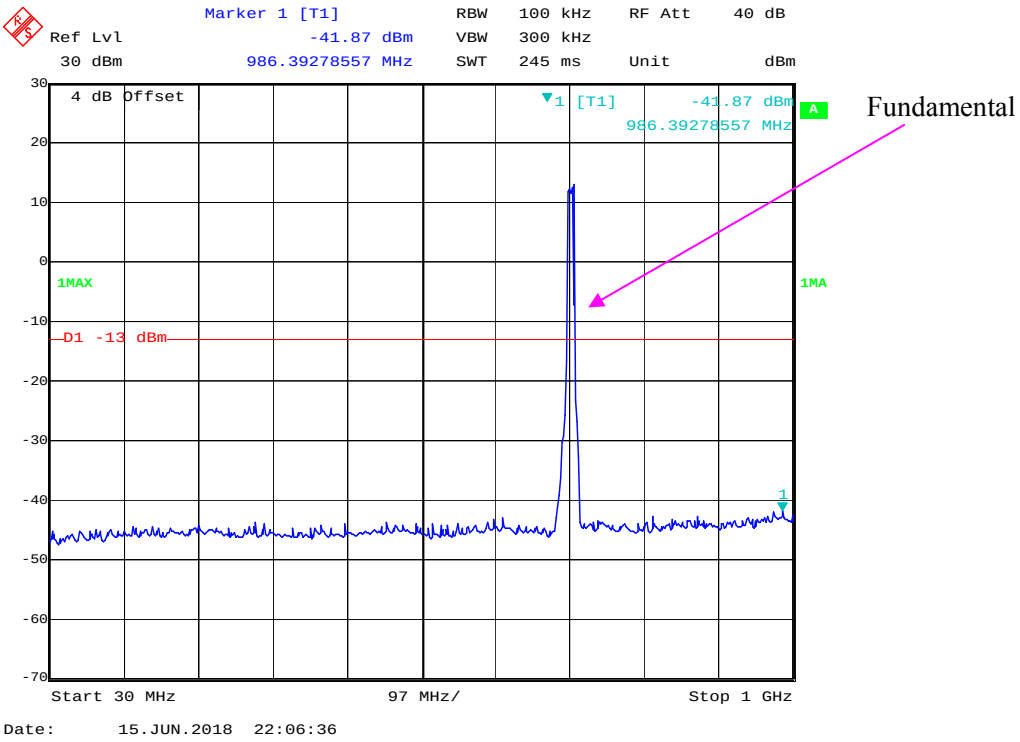
LTE Band 17 (Middle Channel)

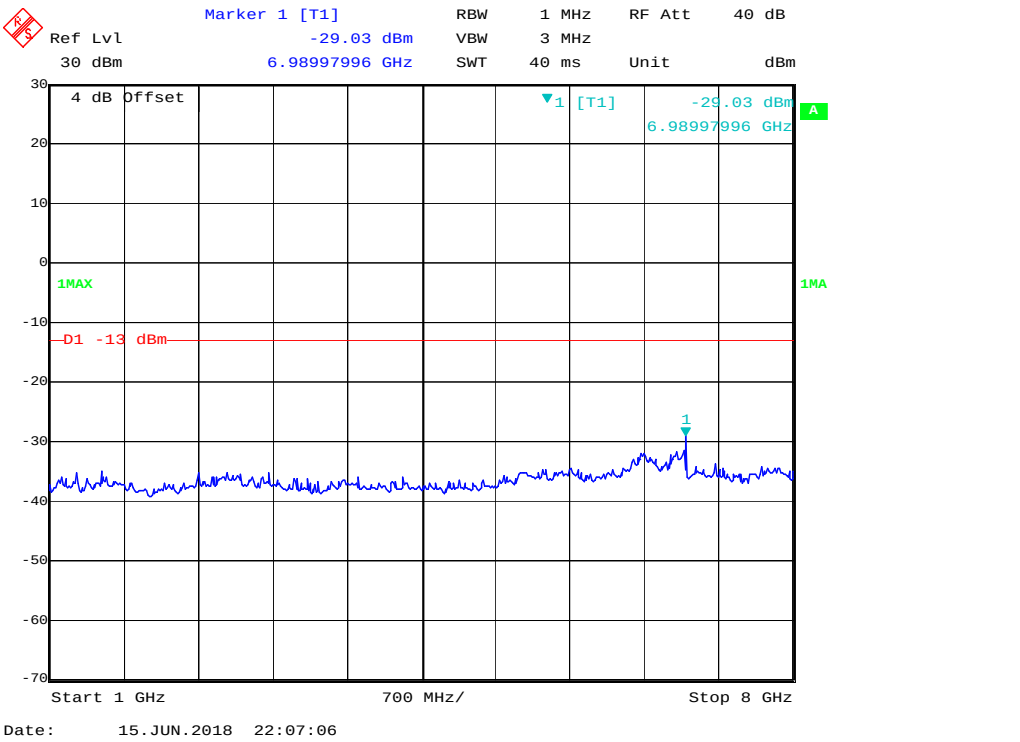
QPSK_5 MHz





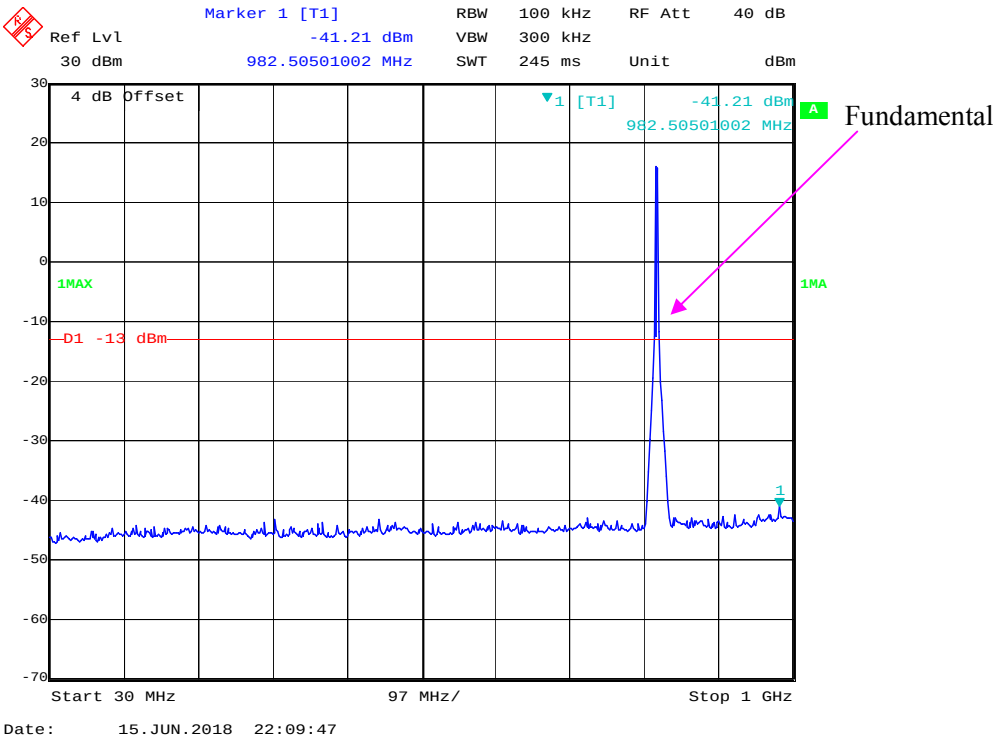
QPSK_10 MHz

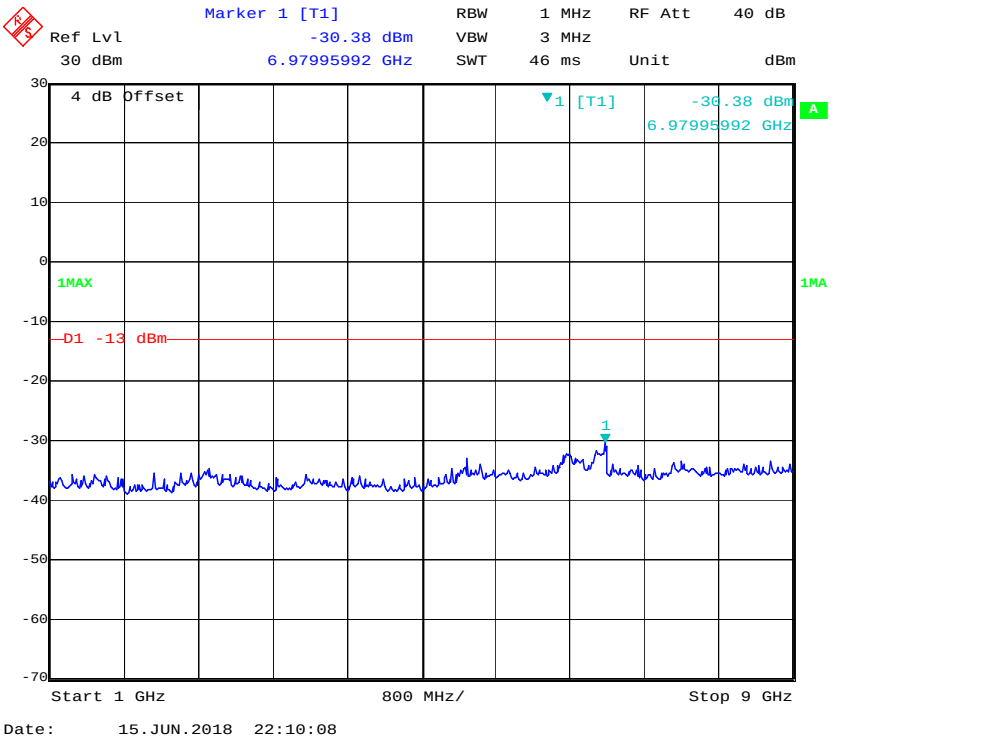

Marker 1 [T1]
Ref Lvl
30 dBm
-41.87 dBm
986.39278557 MHz
RBW 100 kHz
VBW 300 kHz
SWT 245 ms
RF Att 40 dB
Unit dBm
4 dB Offset
1 [T1]
-41.87 dBm
986.39278557 MHz
1MAX
1MA
D1 -13 dBm
Fundamental
Start 30 MHz
97 MHz/
Stop 1 GHz
Date: 15.JUN.2018 22:06:36


Marker 1 [T1]
Ref Lvl
30 dBm
-29.03 dBm
6.98997996 GHz
RBW 1 MHz
VBW 3 MHz
SWT 40 ms
RF Att 40 dB
Unit dBm
4 dB Offset
1 [T1]
-29.03 dBm
6.98997996 GHz
1MAX
1MA
D1 -13 dBm
Start 1 GHz
700 MHz/
Stop 8 GHz
Date: 15.JUN.2018 22:07:06

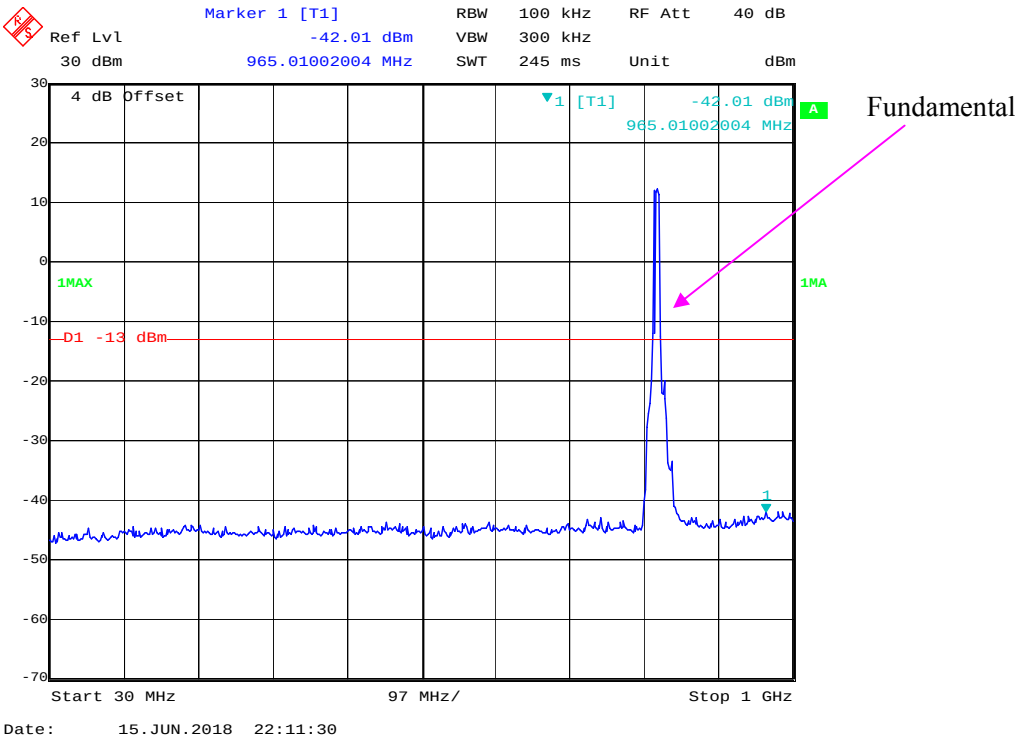
LTE Band 18 (Middle Channel)

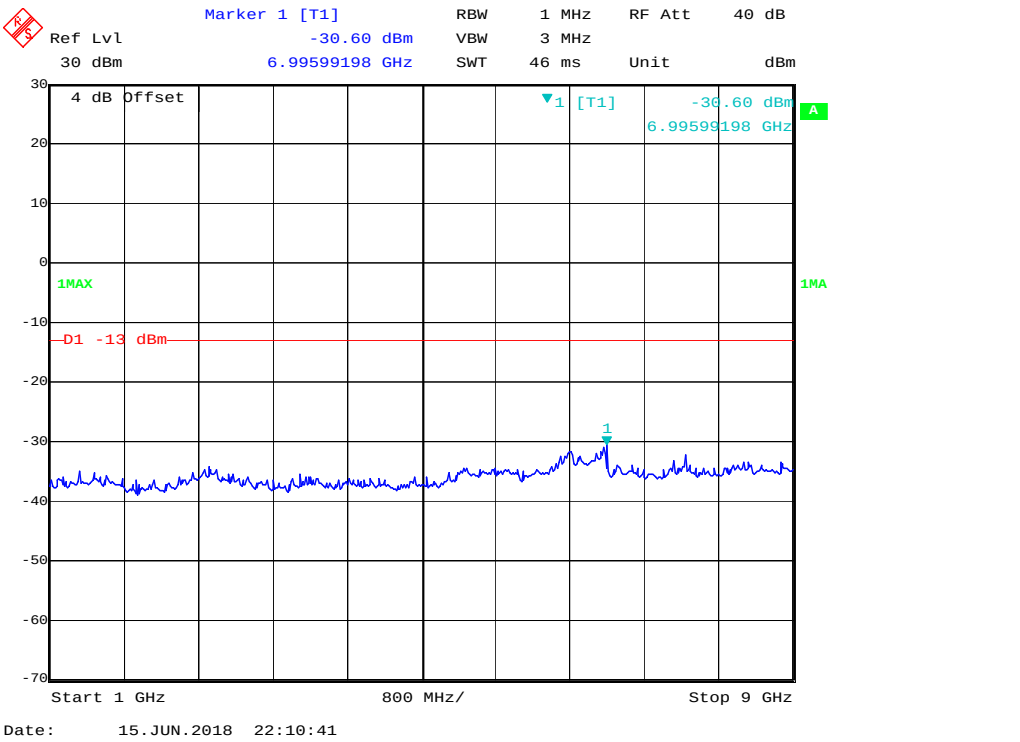
QPSK_5 MHz



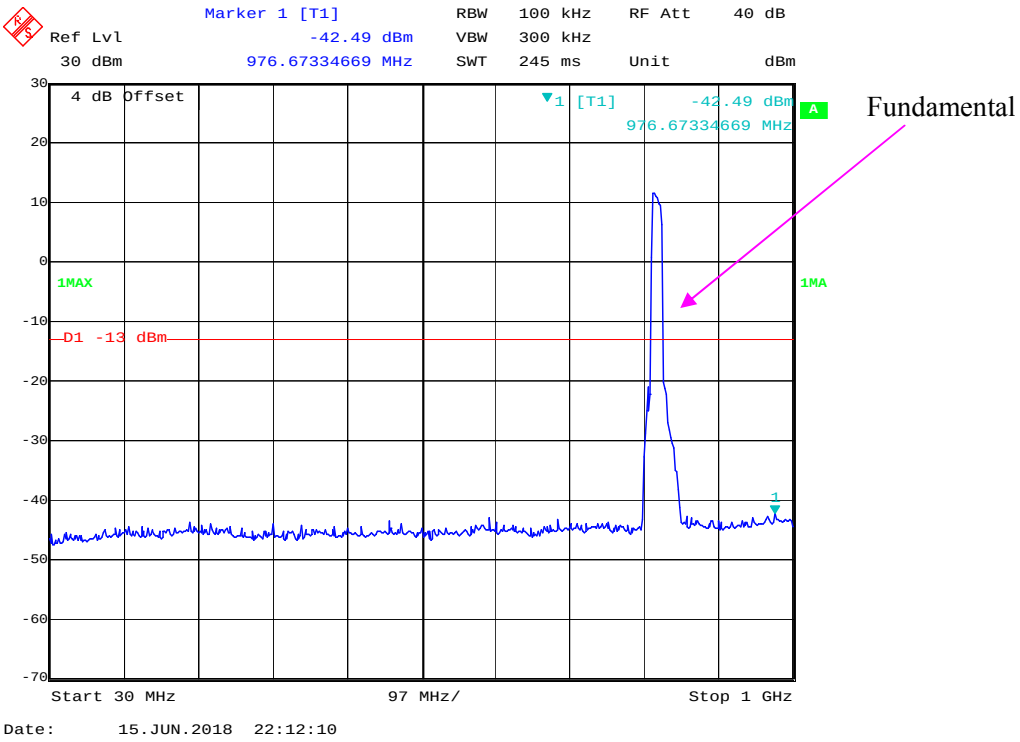


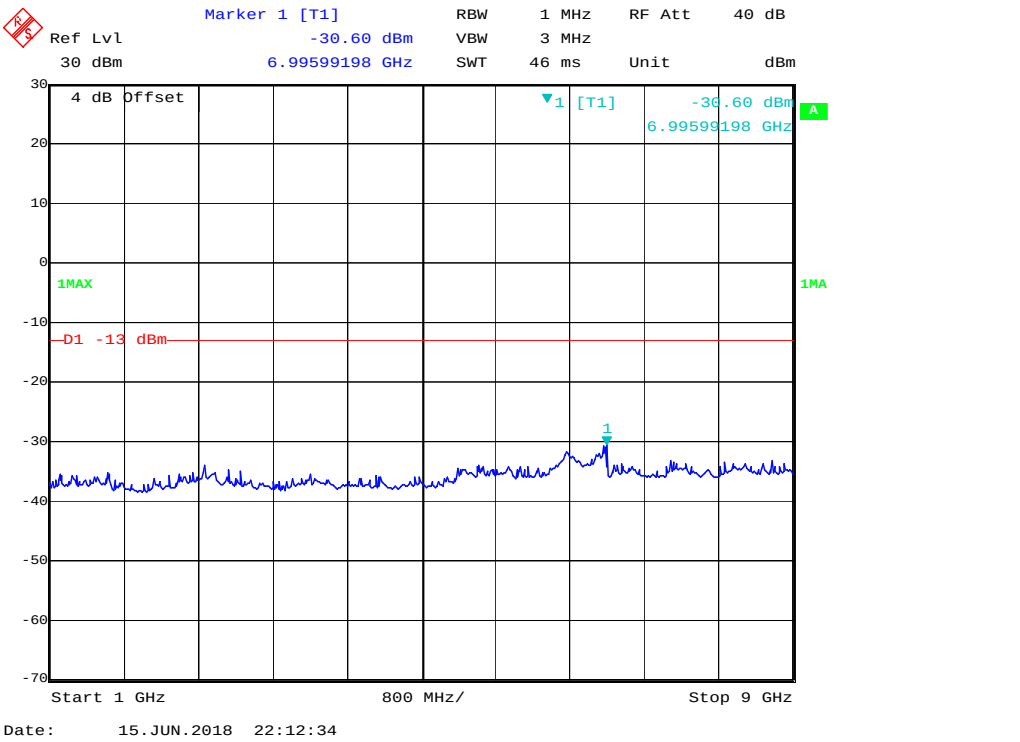
QPSK_10 MHz


Marker 1 [T1]
Ref Lvl
30 dBm
-42.01 dBm
965.01002004 MHz
RBW 100 kHz
VBW 300 kHz
SWT 245 ms
RF Att 40 dB
Unit dBm
4 dB Offset
1 [T1]
-42.01 dBm
965.01002004 MHz
A
1MAX
1MA
D1 -13 dBm
Fundamental
Start 30 MHz
97 MHz/
Stop 1 GHz
Date: 15.JUN.2018 22:11:30


Marker 1 [T1]
Ref Lvl
30 dBm
-30.60 dBm
6.99599198 GHz
RBW 1 MHz
VBW 3 MHz
SWT 46 ms
RF Att 40 dB
Unit dBm
4 dB Offset
1 [T1]
-30.60 dBm
6.99599198 GHz
A
1MAX
1MA
D1 -13 dBm
Start 1 GHz
800 MHz/
Stop 9 GHz
Date: 15.JUN.2018 22:10:41

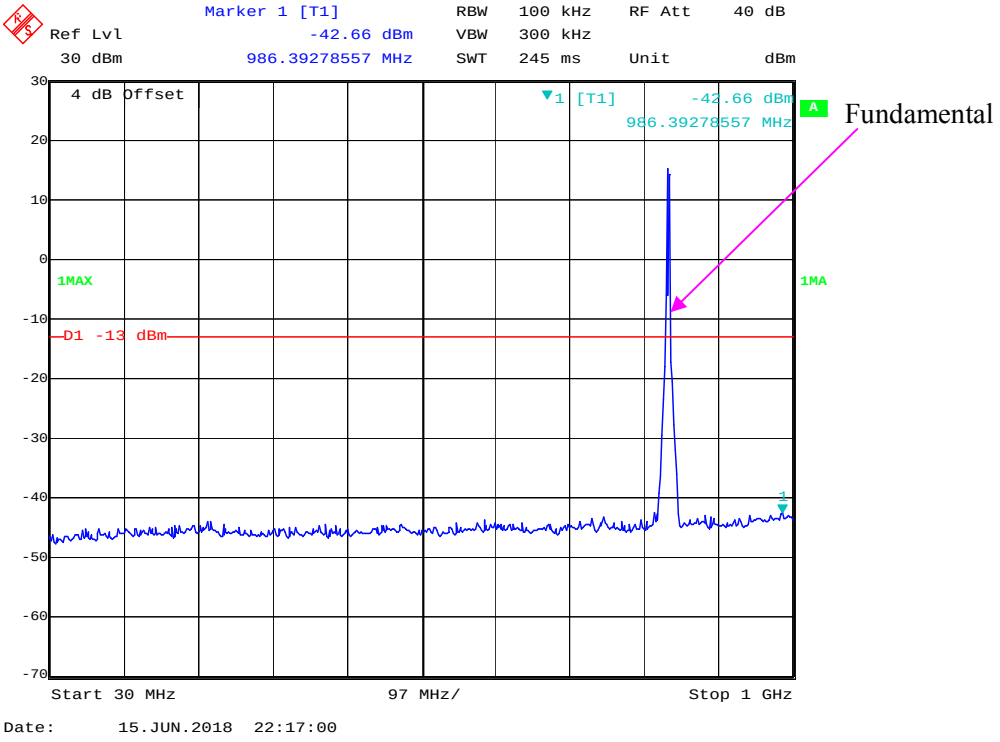
QPSK_15 MHz

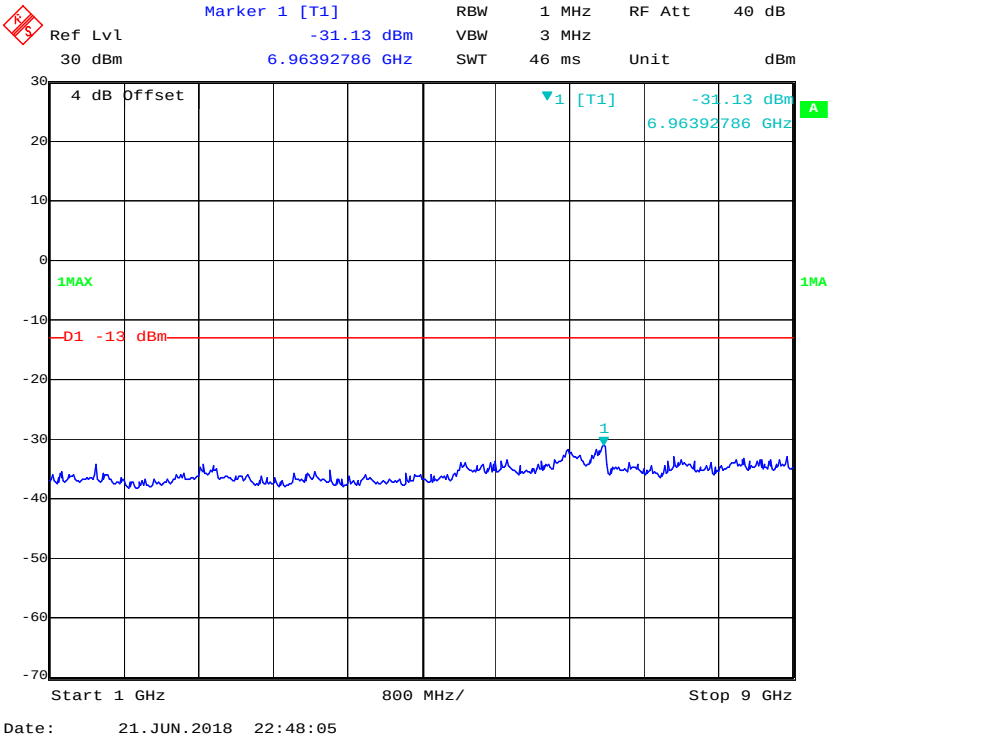

Marker 1 [T1]
RBW 100 kHz
RF Att 40 dB
Ref Lvl
-42.49 dBm
VBW 300 kHz
30 dBm
976.67334669 MHz
SWT 245 ms
Unit dBm
4 dB Offset
1 [T1]
-42.49 dBm
976.67334669 MHz
A
Fundamental
1MAX
1MA
D1 -13 dBm
Start 30 MHz
97 MHz/
Stop 1 GHz
Date: 15.JUN.2018 22:12:10


Marker 1 [T1]
RBW 1 MHz
RF Att 40 dB
Ref Lvl
-30.60 dBm
VBW 3 MHz
30 dBm
6.99599198 GHz
SWT 46 ms
Unit dBm
4 dB Offset
1 [T1]
-30.60 dBm
6.99599198 GHz
A
1MAX
1MA
D1 -13 dBm
Start 1 GHz
800 MHz/
Stop 9 GHz
Date: 15.JUN.2018 22:12:34

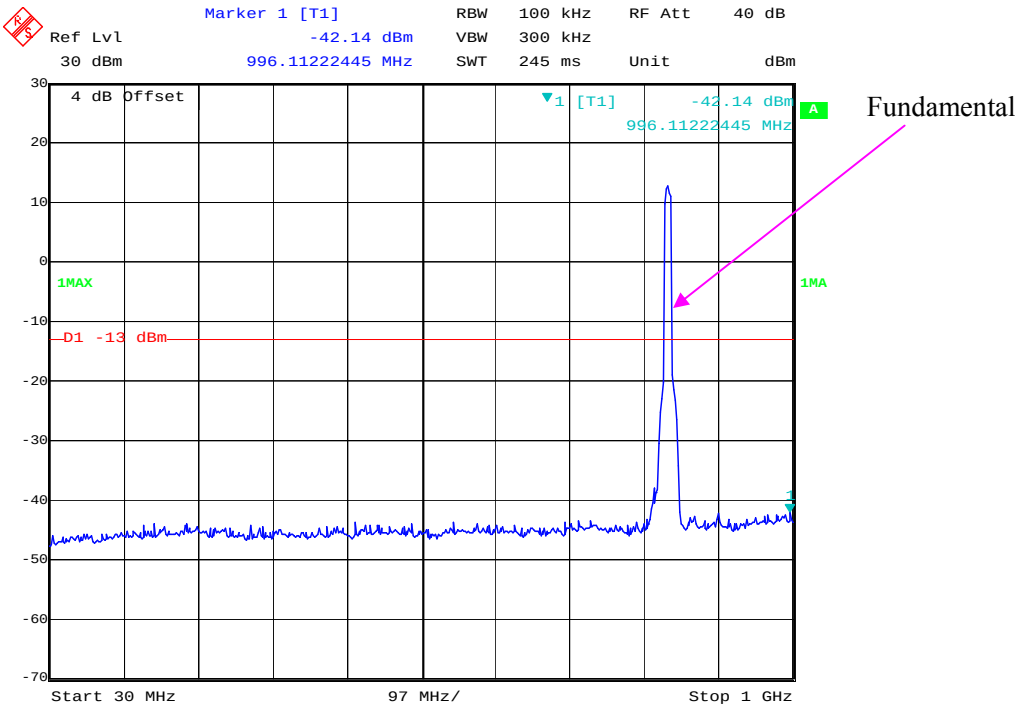
LTE Band 19 (Middle Channel)

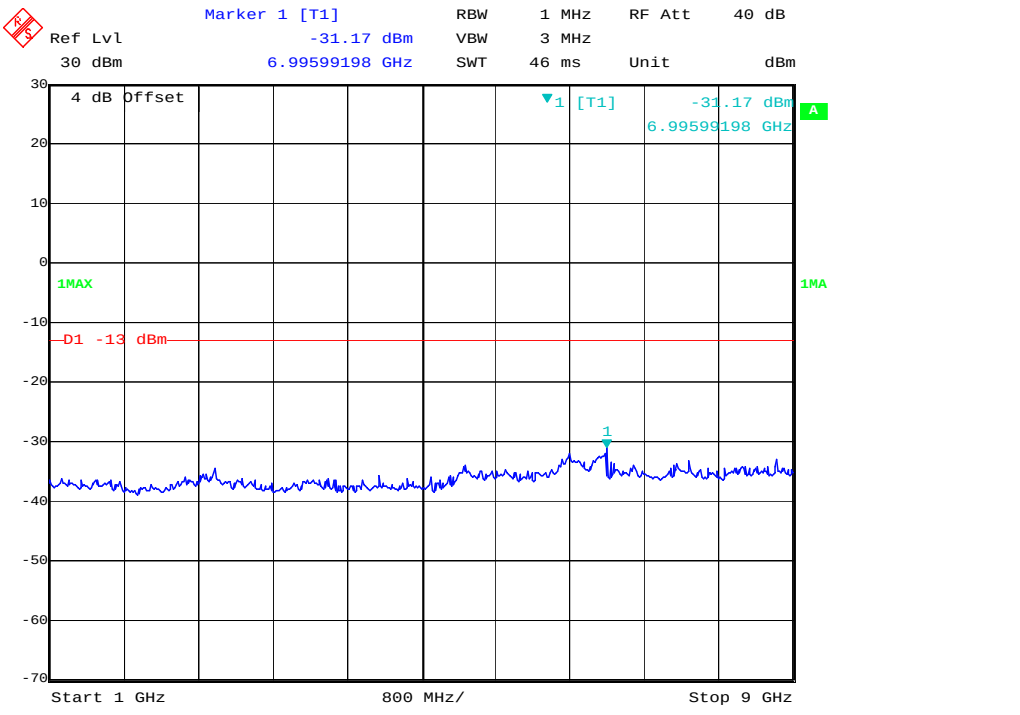
QPSK_5 MHz



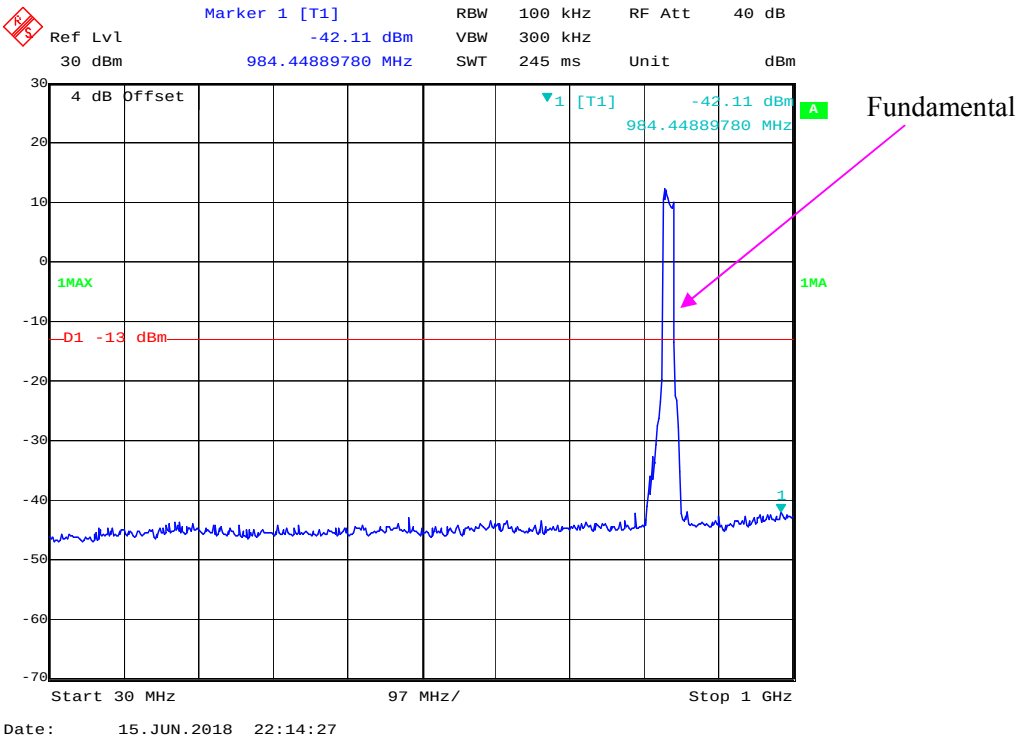


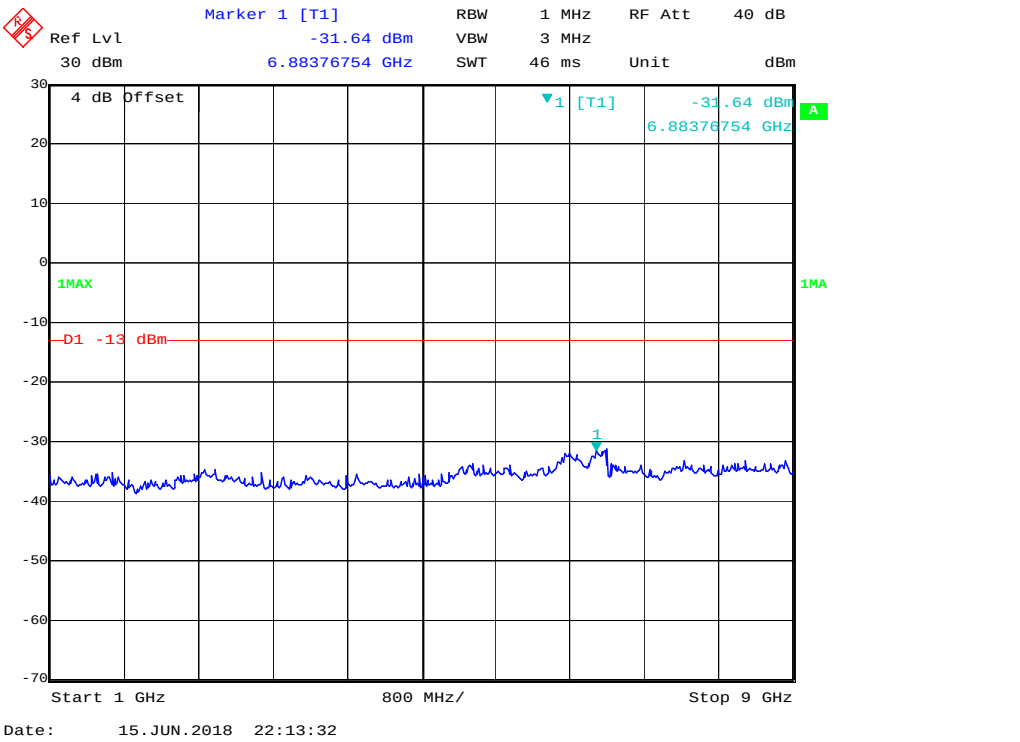
QPSK_10 MHz


Marker 1 [T1]
Ref Lvl
30 dBm
-42.14 dBm
996.11222445 MHz
RBW 100 kHz
VBW 300 kHz
SWT 245 ms
RF Att 40 dB
Unit dBm
4 dB Offset
1 [T1]
-42.14 dBm
996.11222445 MHz
A
1MAX
1MA
D1 -13 dBm
Fundamental
Start 30 MHz
97 MHz/
Stop 1 GHz
Date: 15.JUN.2018 22:15:11


Marker 1 [T1]
Ref Lvl
30 dBm
-31.17 dBm
6.99599198 GHz
RBW 1 MHz
VBW 3 MHz
SWT 46 ms
RF Att 40 dB
Unit dBm
4 dB Offset
1 [T1]
-31.17 dBm
6.99599198 GHz
A
1MAX
1MA
D1 -13 dBm
Start 1 GHz
800 MHz/
Stop 9 GHz
Date: 15.JUN.2018 22:15:38

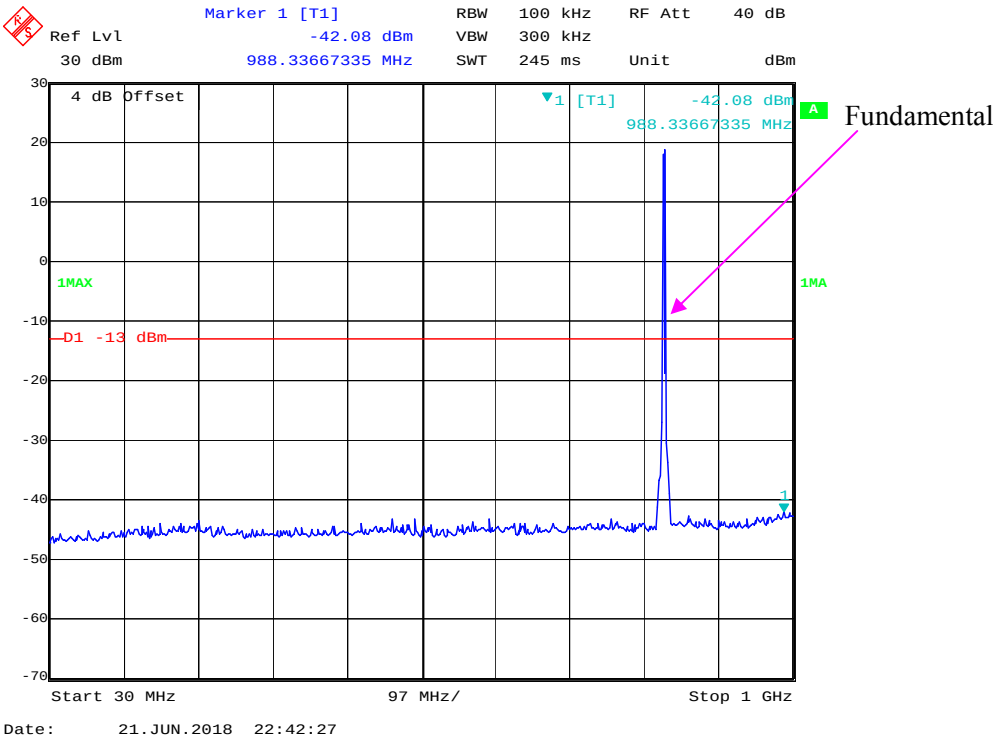
QPSK_15 MHz

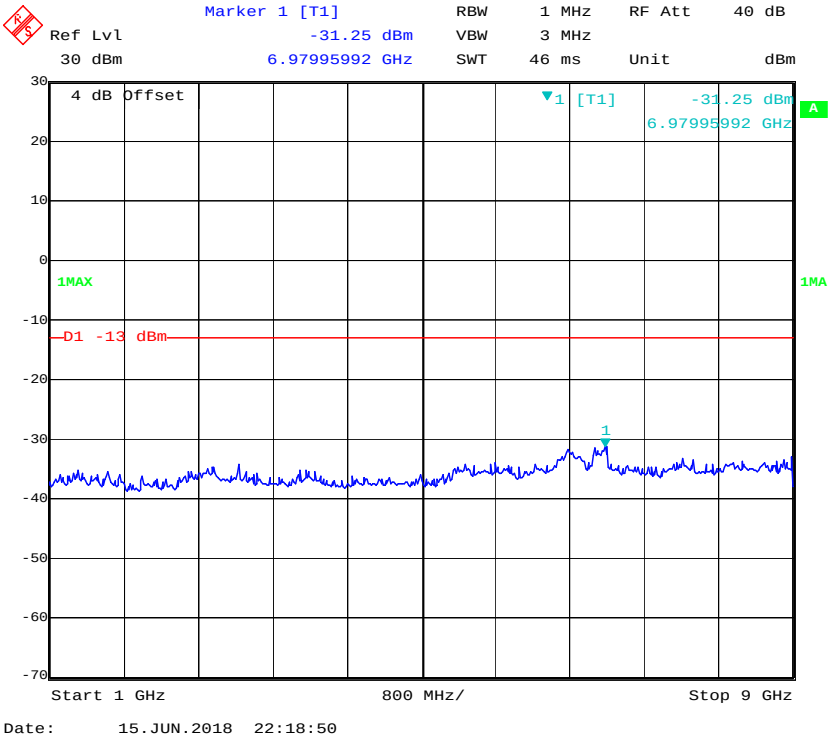

Marker 1 [T1]
Ref Lvl
30 dBm
-42.11 dBm
984.44889780 MHz
RBW 100 kHz
VBW 300 kHz
SWT 245 ms
RF Att 40 dB
Unit dBm
4 dB Offset
1 [T1]
-42.11 dBm
984.44889780 MHz
1MAX
1MA
D1 -13 dBm
Fundamental
Start 30 MHz
97 MHz/
Stop 1 GHz
Date: 15.JUN.2018 22:14:27


Marker 1 [T1]
Ref Lvl
30 dBm
-31.64 dBm
6.88376754 GHz
RBW 1 MHz
VBW 3 MHz
SWT 46 ms
RF Att 40 dB
Unit dBm
4 dB Offset
1 [T1]
-31.64 dBm
6.88376754 GHz
1MAX
1MA
D1 -13 dBm
Start 1 GHz
800 MHz/
Stop 9 GHz
Date: 15.JUN.2018 22:13:32

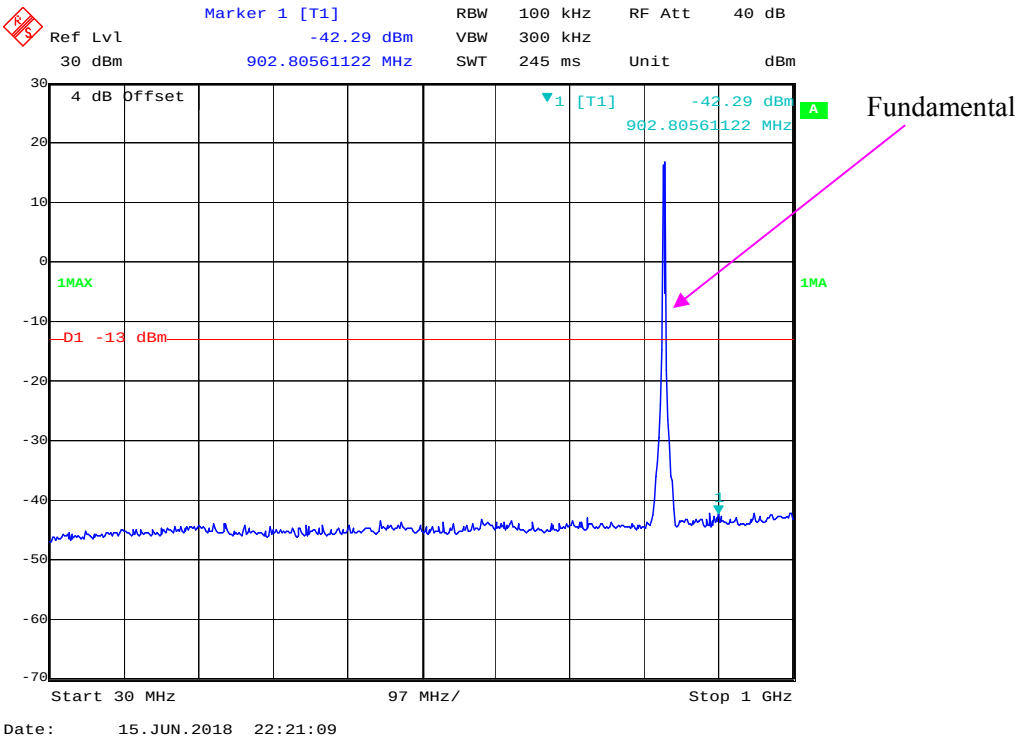
LTE Band 26 (Middle Channel)

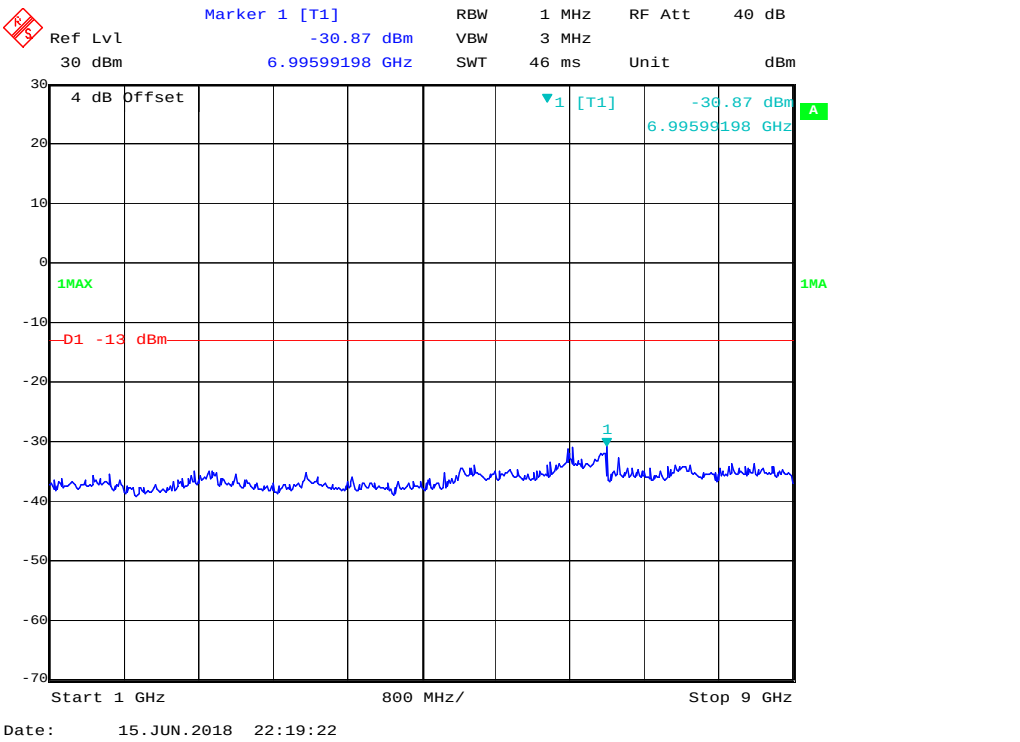
QPSK_1.4 MHz



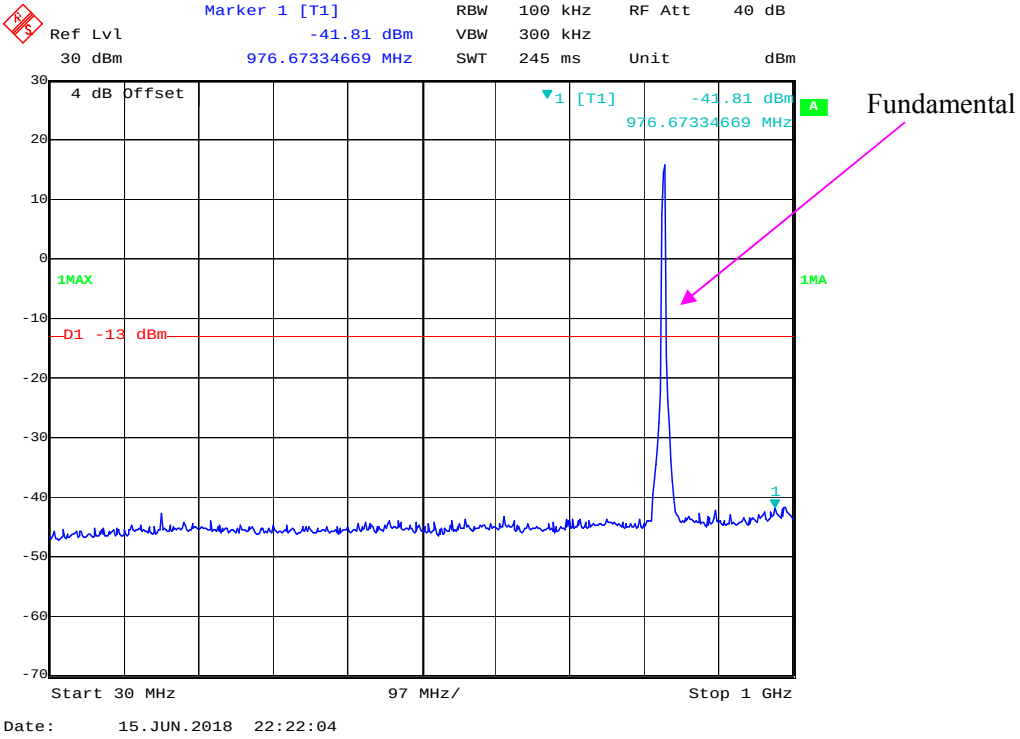


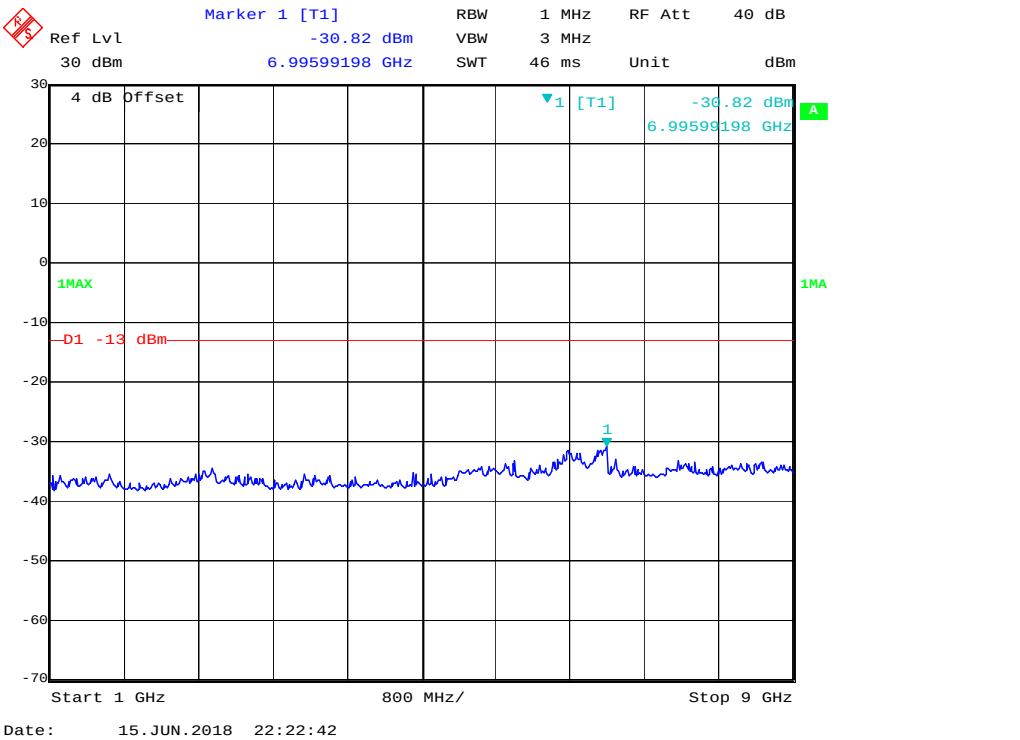
QPSK_3 MHz


Marker 1 [T1]
Ref Lvl
30 dBm
-42.29 dBm
902.80561122 MHz
RBW 100 kHz
VBW 300 kHz
SWT 245 ms
RF Att 40 dB
Unit dBm
4 dB Offset
1 [T1]
-42.29 dBm
902.80561122 MHz
A
1MAX
1MA
D1 -13 dBm
Fundamental
Start 30 MHz
97 MHz/
Stop 1 GHz
Date: 15.JUN.2018 22:21:09

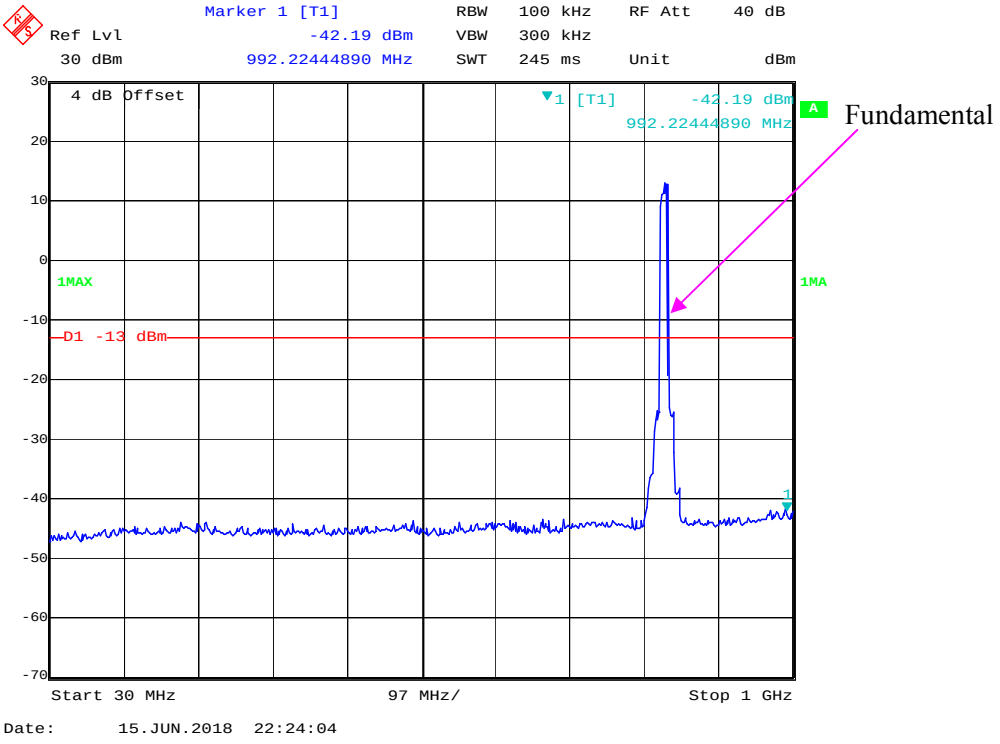

Marker 1 [T1]
Ref Lvl
30 dBm
-30.87 dBm
6.99599198 GHz
RBW 1 MHz
VBW 3 MHz
SWT 46 ms
RF Att 40 dB
Unit dBm
4 dB Offset
1 [T1]
-30.87 dBm
6.99599198 GHz
A
1MAX
1MA
D1 -13 dBm
Start 1 GHz
800 MHz/
Stop 9 GHz
Date: 15.JUN.2018 22:19:22

QPSK_5 MHz

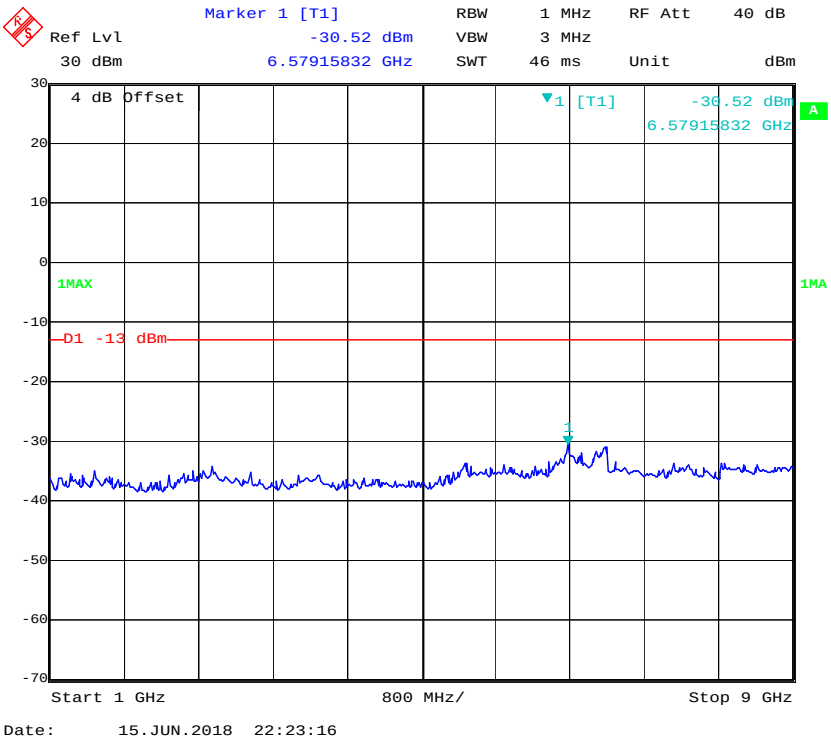

Marker 1 [T1]
Ref Lvl
30 dBm
-41.81 dBm
976.67334669 MHz
RBW 100 kHz
VBW 300 kHz
SWT 245 ms
RF Att 40 dB
Unit dBm
4 dB Offset
1 [T1]
-41.81 dBm
976.67334669 MHz
A
1MAX
1MA
D1 -13 dBm
Fundamental
Start 30 MHz
97 MHz/
Stop 1 GHz
Date: 15.JUN.2018 22:22:04


Marker 1 [T1]
Ref Lvl
30 dBm
-30.82 dBm
6.99599198 GHz
RBW 1 MHz
VBW 3 MHz
SWT 46 ms
RF Att 40 dB
Unit dBm
4 dB Offset
1 [T1]
-30.82 dBm
6.99599198 GHz
A
1MAX
1MA
D1 -13 dBm
Start 1 GHz
800 MHz/
Stop 9 GHz
Date: 15.JUN.2018 22:22:42

QPSK_10 MHz

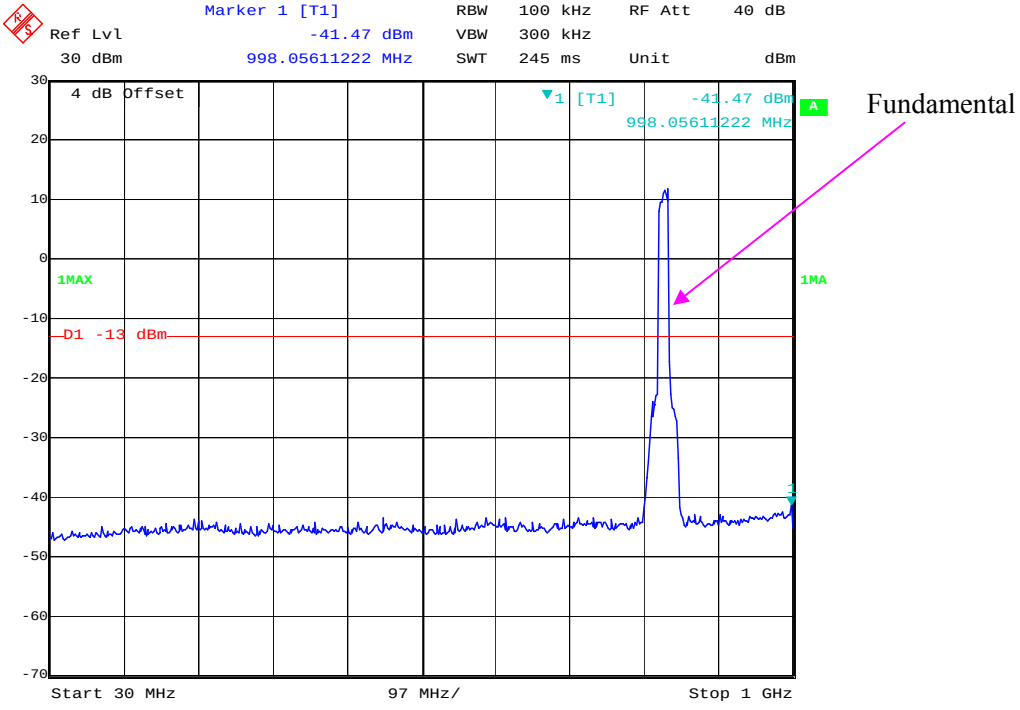


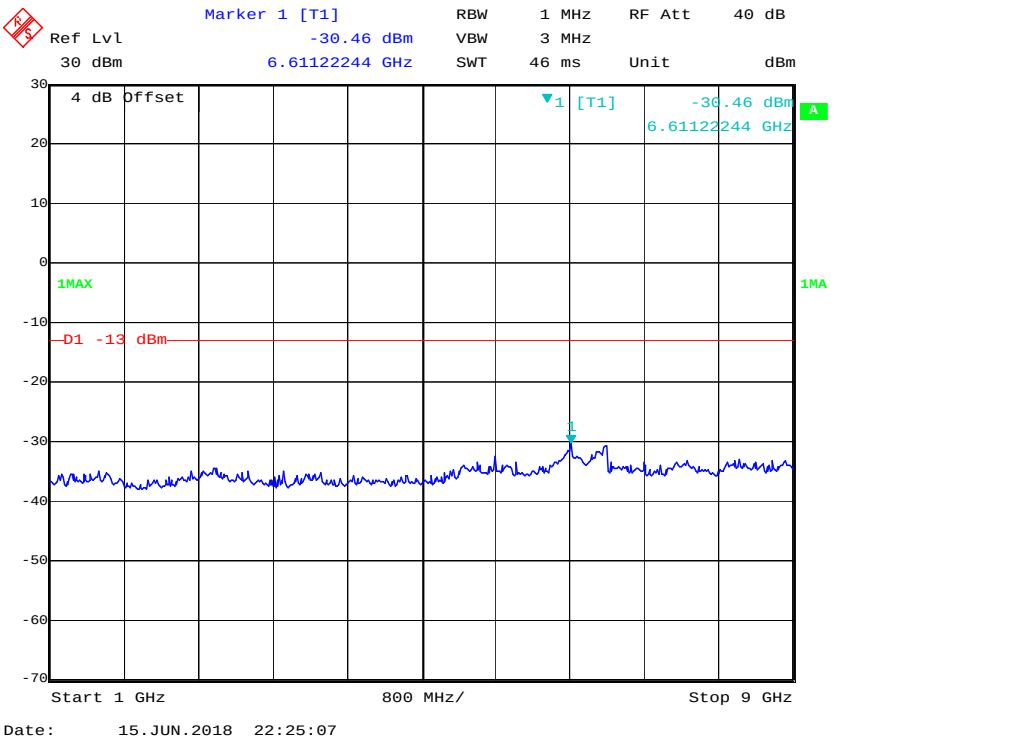
Date: 15.JUN.2018 22:24:04



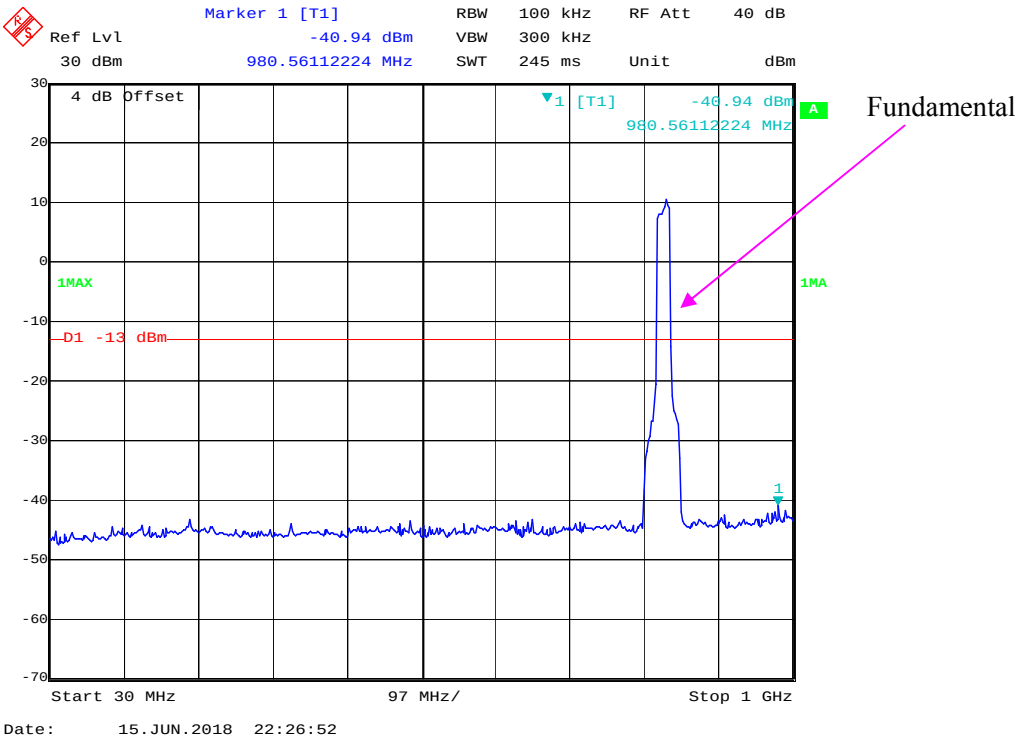
Date: 15.JUN.2018 22:23:16

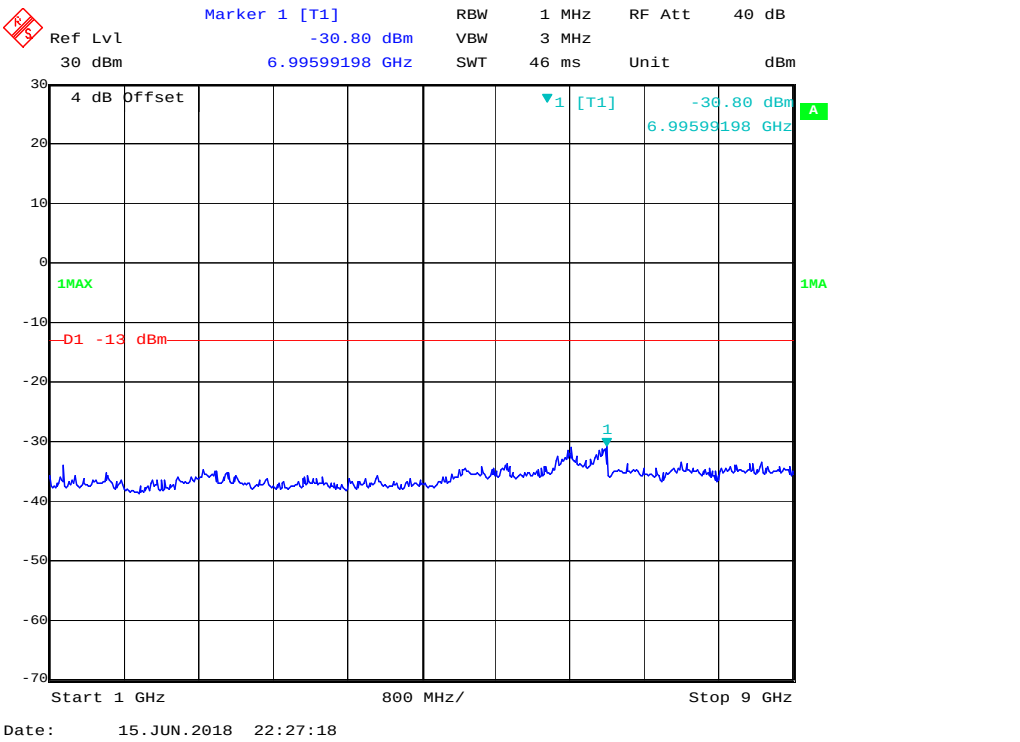
QPSK_15 MHz


Marker 1 [T1]
Ref Lvl
30 dBm
-41.47 dBm
998.05611222 MHz
RBW 100 kHz
VBW 300 kHz
SWT 245 ms
RF Att 40 dB
Unit dBm
4 dB Offset
1 [T1]
-41.47 dBm
998.05611222 MHz
1MAX
D1 -13 dBm
1MA
Fundamental
Start 30 MHz
97 MHz/
Stop 1 GHz
Date: 15.JUN.2018 22:25:54


Marker 1 [T1]
Ref Lvl
30 dBm
-30.46 dBm
6.61122244 GHz
RBW 1 MHz
VBW 3 MHz
SWT 46 ms
RF Att 40 dB
Unit dBm
4 dB Offset
1 [T1]
-30.46 dBm
6.61122244 GHz
1MAX
D1 -13 dBm
1MA
Start 1 GHz
800 MHz/
Stop 9 GHz
Date: 15.JUN.2018 22:25:07

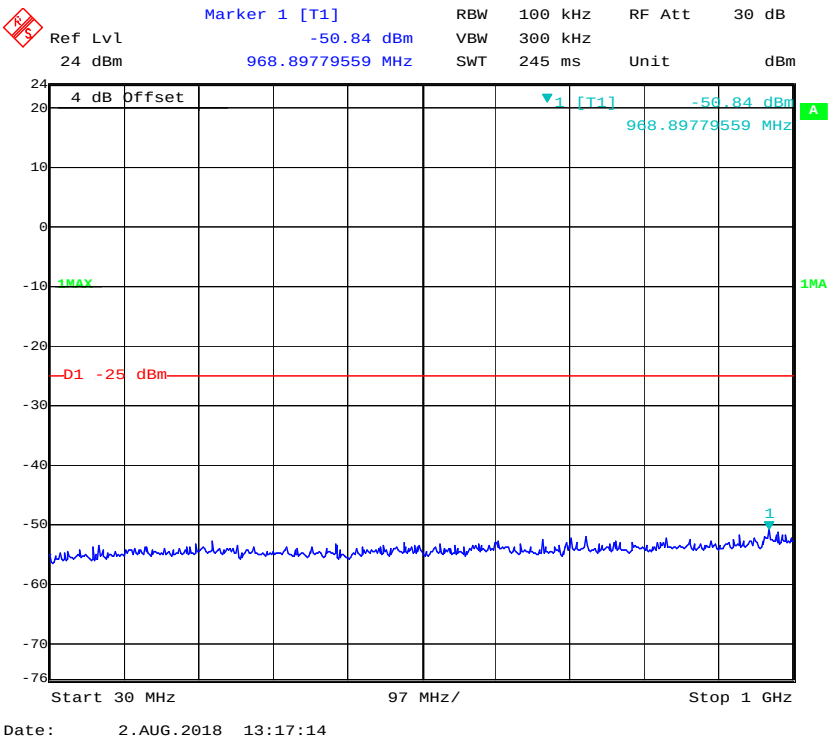
QPSK_20 MHz

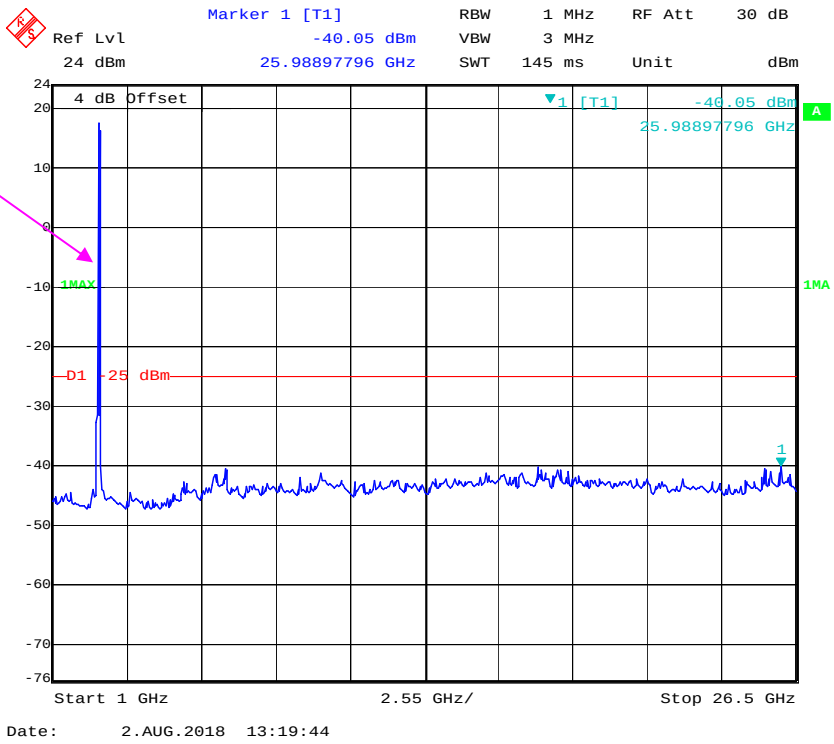

Marker 1 [T1]
RBW 100 kHz
RF Att 40 dB
Ref Lvl
-40.94 dBm
VBW 300 kHz
30 dBm
980.56112224 MHz
SWT 245 ms
Unit dBm
4 dB Offset
1 [T1]
-40.94 dBm
980.56112224 MHz
Fundamental
1MAX
1MA
D1 -13 dBm
Start 30 MHz
97 MHz/
Stop 1 GHz
Date: 15.JUN.2018 22:26:52


Marker 1 [T1]
RBW 1 MHz
RF Att 40 dB
Ref Lvl
-30.80 dBm
VBW 3 MHz
30 dBm
6.99599198 GHz
SWT 46 ms
Unit dBm
4 dB Offset
1 [T1]
-30.80 dBm
6.99599198 GHz
1MAX
1MA
D1 -13 dBm
Start 1 GHz
800 MHz/
Stop 9 GHz
Date: 15.JUN.2018 22:27:18

LTE Band 38 (Middle Channel)

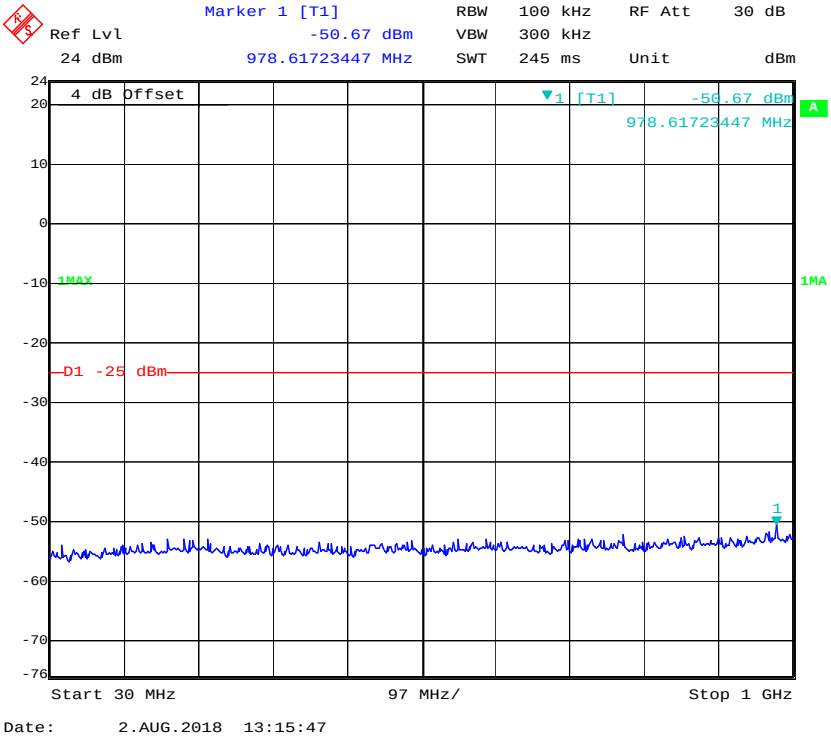
QPSK_5 MHz

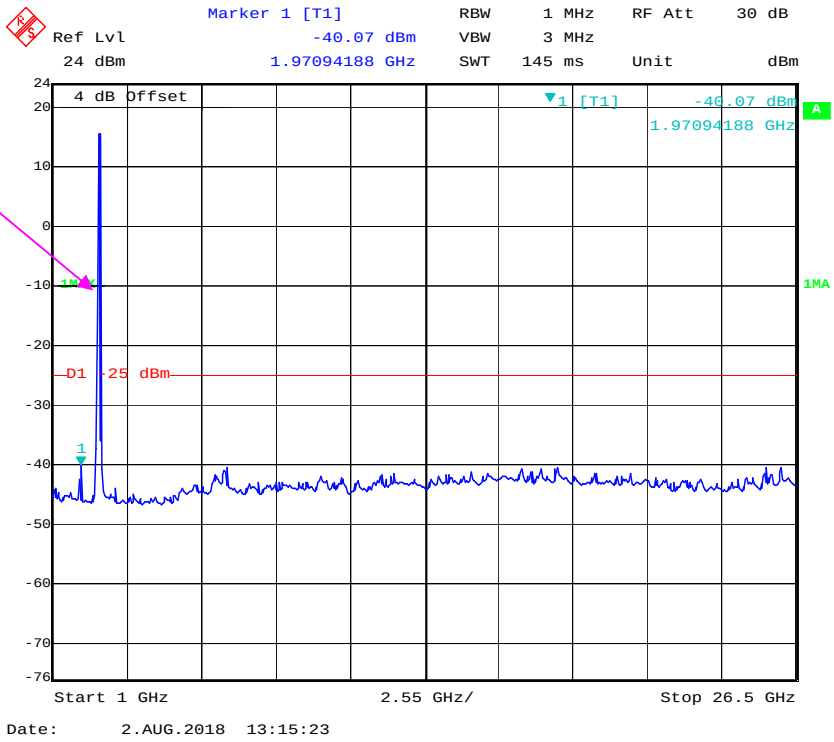




Fundamental

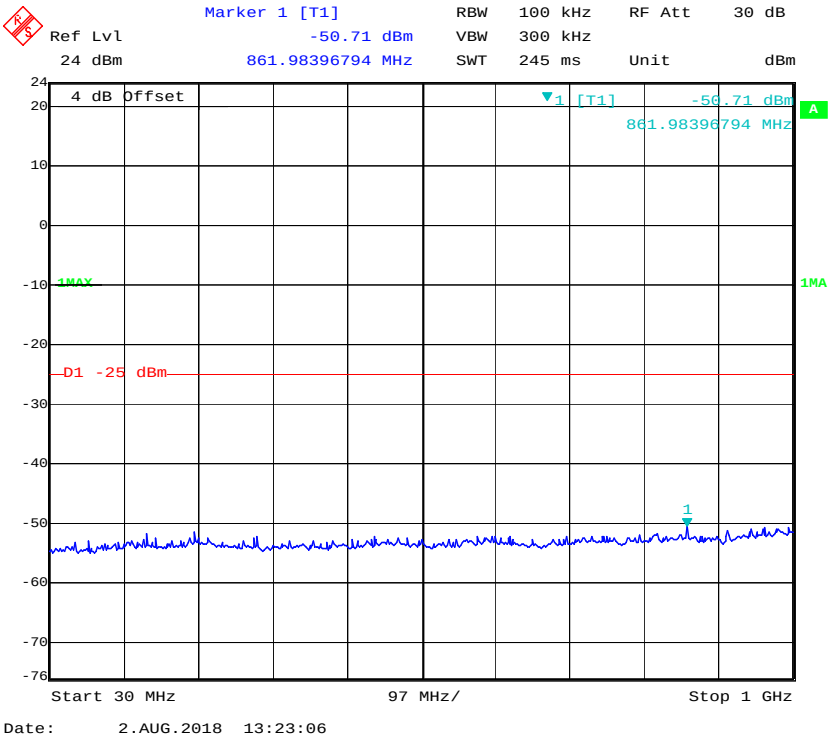
QPSK_10 MHz



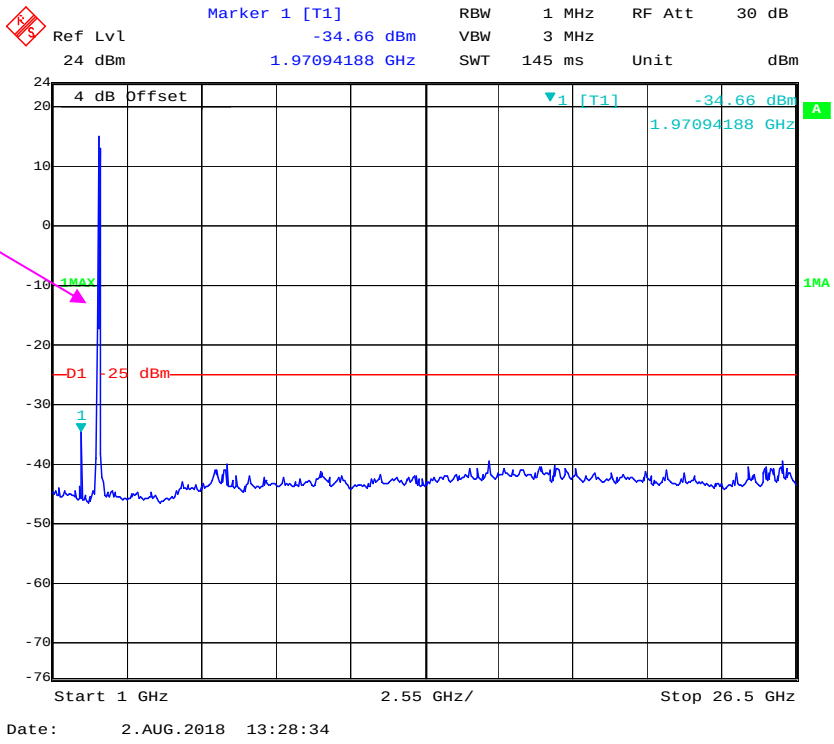


Fundamental

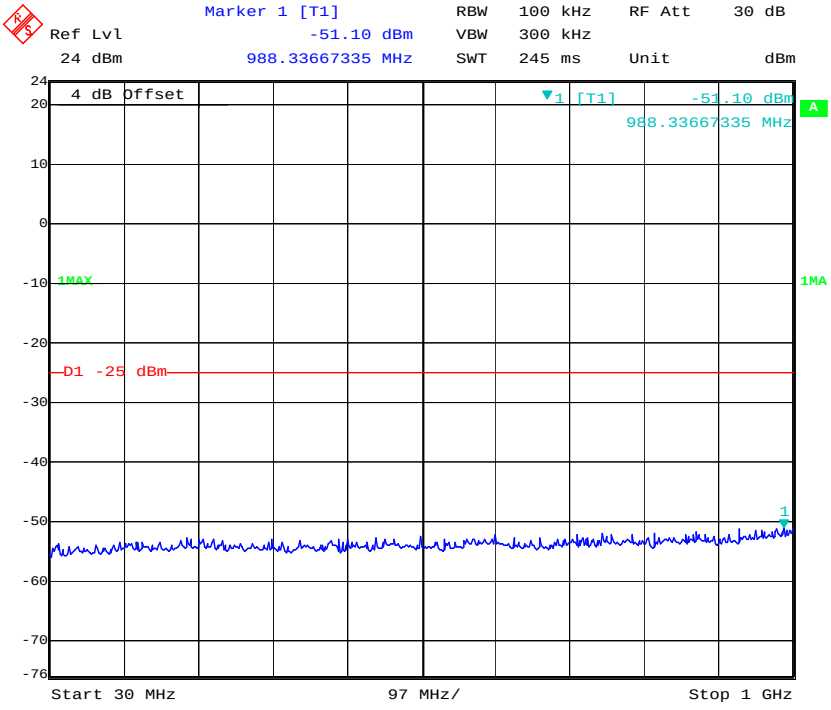
QPSK_15 MHz



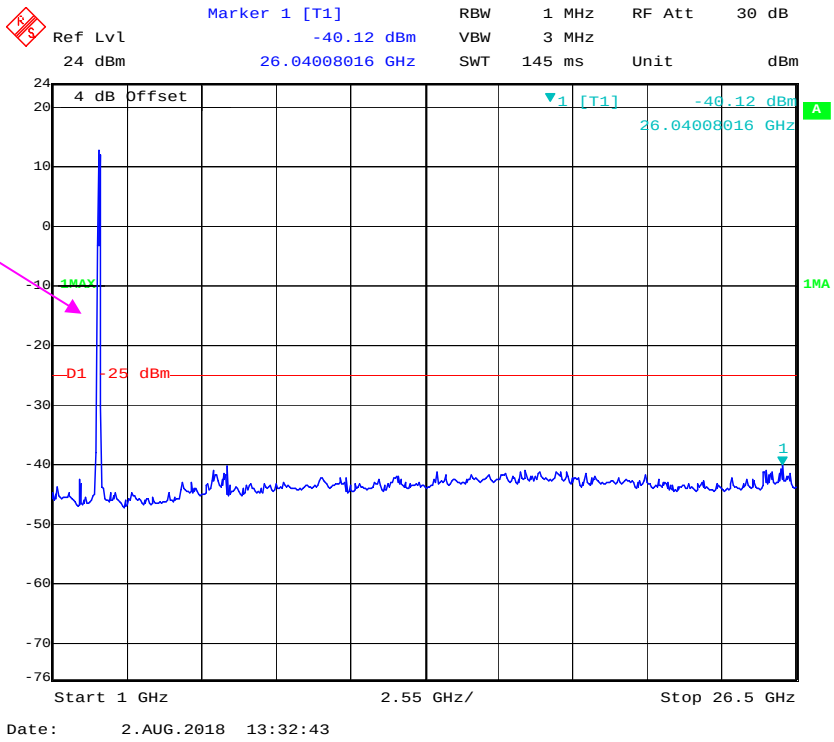
Fundamental



QPSK_20 MHz

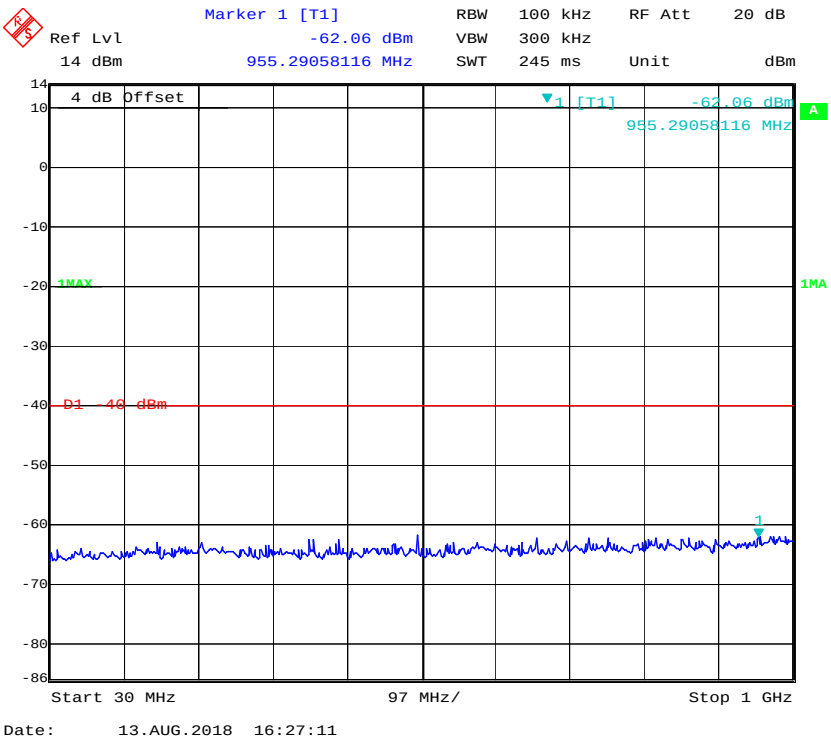


Fundamental

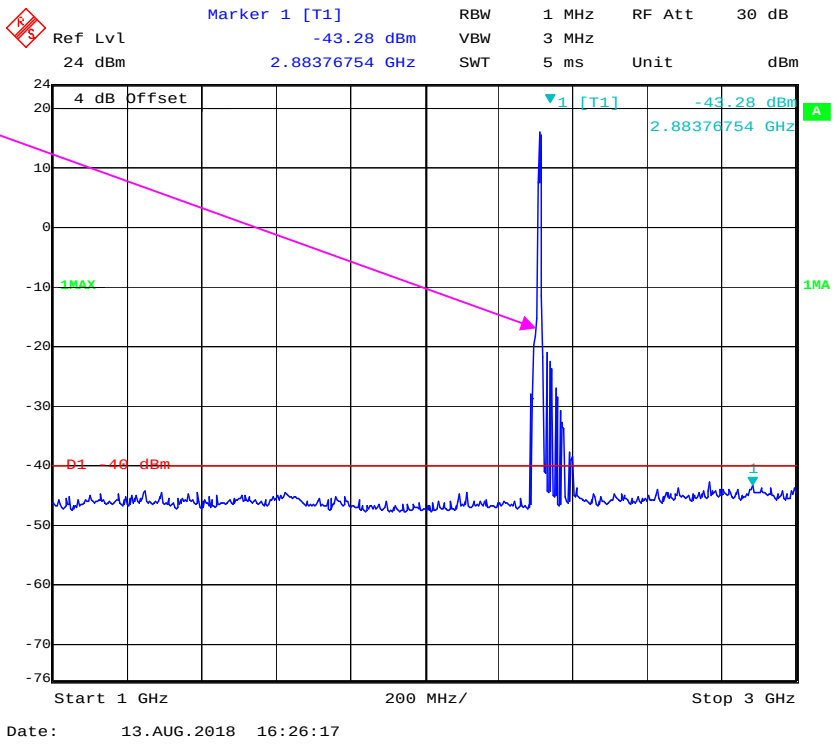


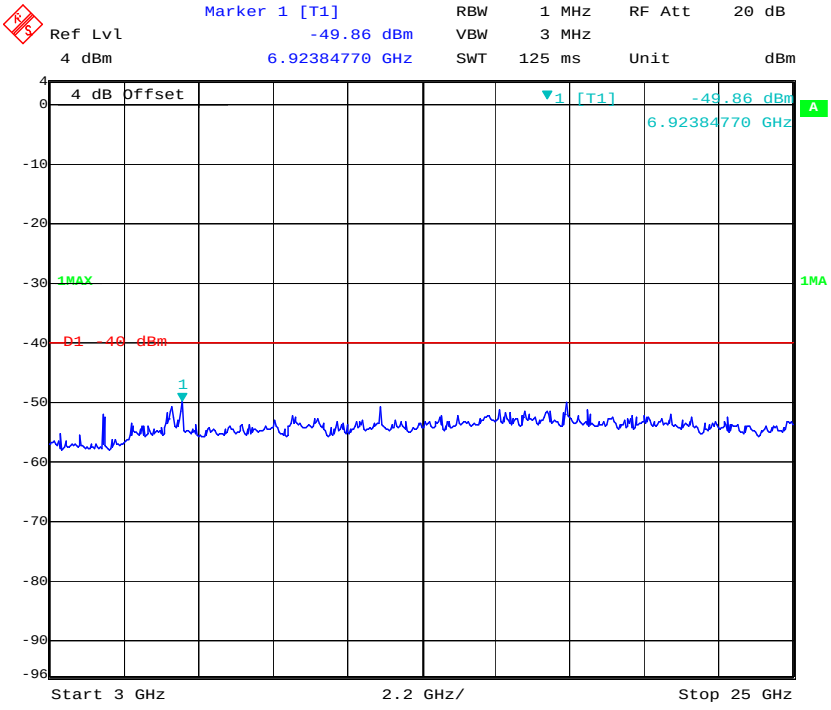
LTE Band 40 (2305-2315MHz Middle Channel)

QPSK_5 MHz

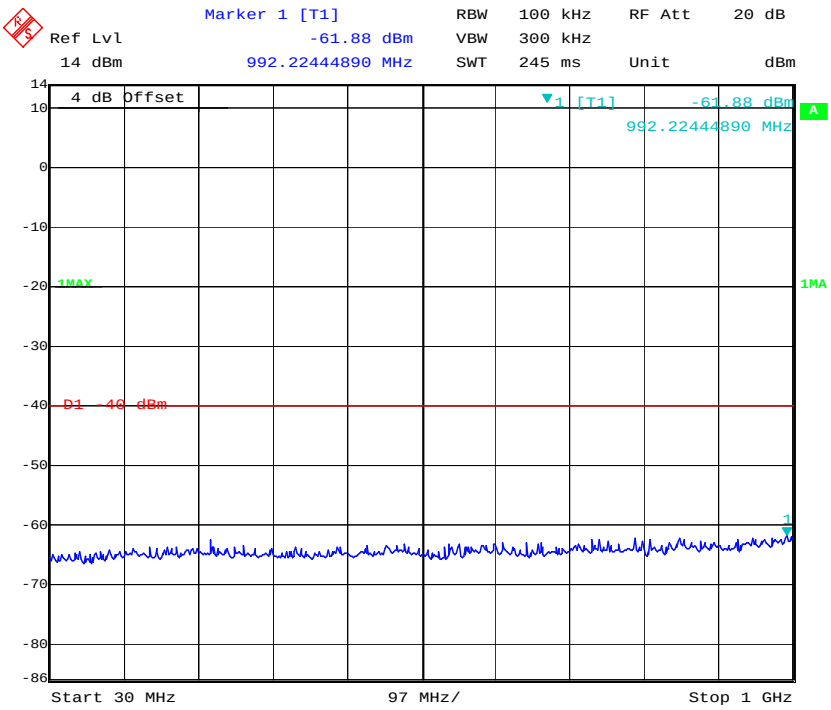


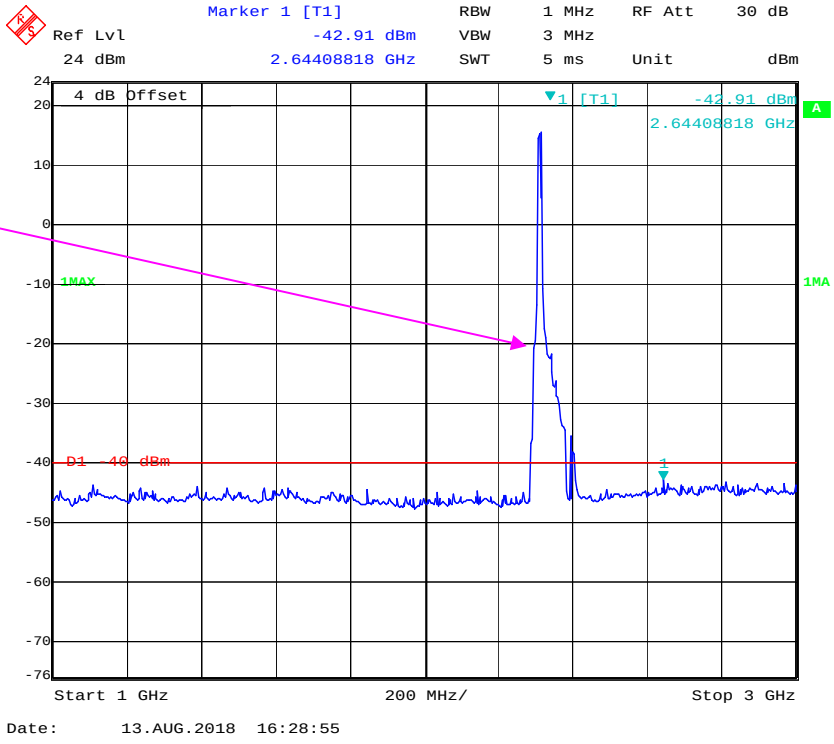
Fundamental



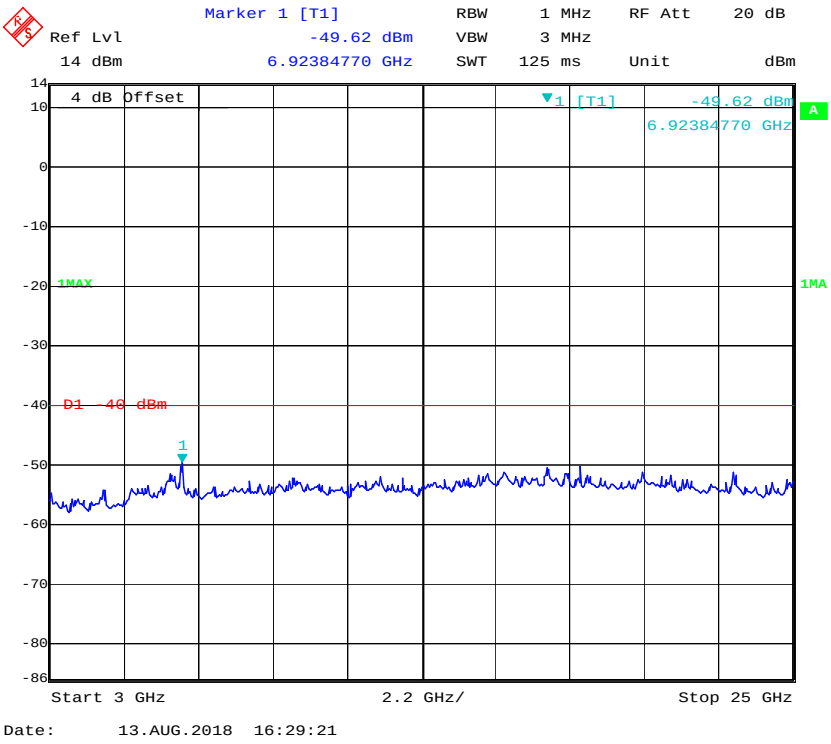

Marker 1 [T1]
Ref Lvl
4 dBm
-49.86 dBm
6.92384770 GHz
RBW 1 MHz
VBW 3 MHz
SWT 125 ms
RF Att 20 dB
Unit dBm
4 dB Offset
1 [T1] -49.86 dBm
6.92384770 GHz
1MAX
1MA
D1 -40 dBm
Start 3 GHz
2.2 GHz/
Stop 25 GHz
Date: 13.AUG.2018 16:25:39

QPSK_10 MHz


Marker 1 [T1]
Ref Lvl
14 dBm
-61.88 dBm
992.22444890 MHz
RBW 100 kHz
VBW 300 kHz
SWT 245 ms
RF Att 20 dB
Unit dBm
4 dB Offset
1 [T1] -61.88 dBm
992.22444890 MHz
1MAX
1MA
D1 -40 dBm
Start 30 MHz
97 MHz/
Stop 1 GHz
Date: 13.AUG.2018 16:27:51

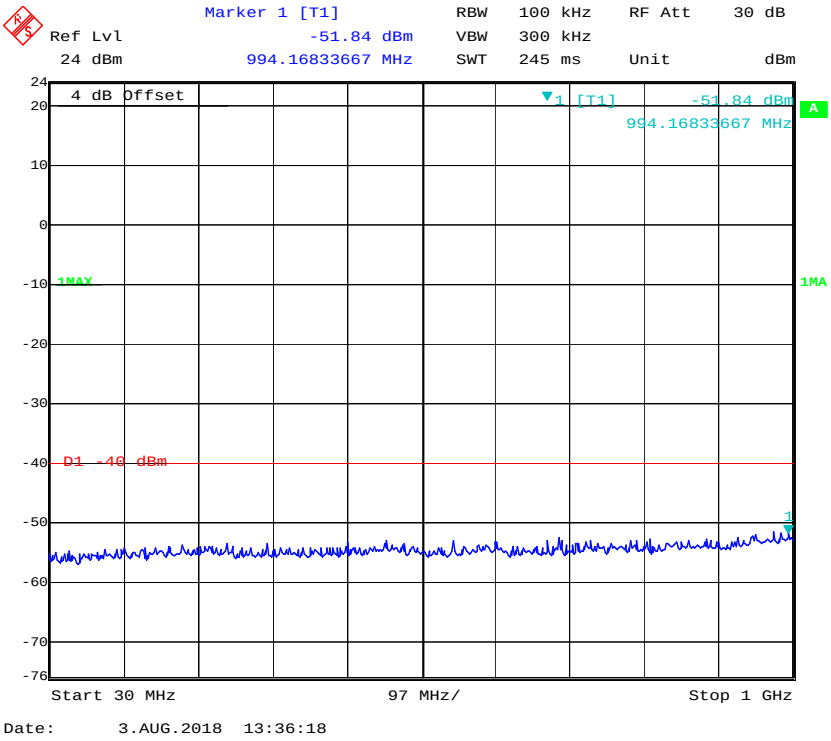


Fundamental

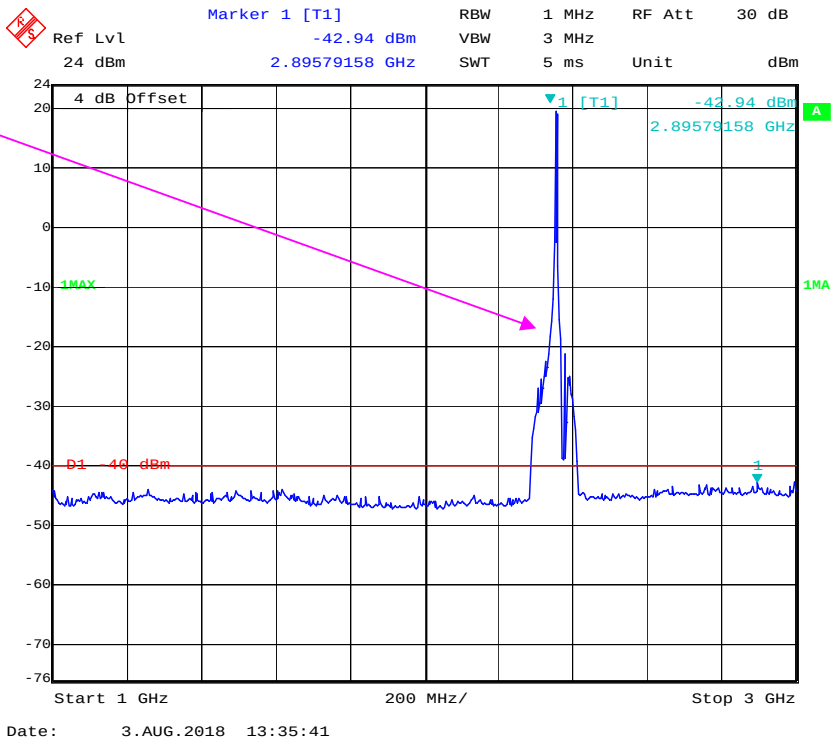


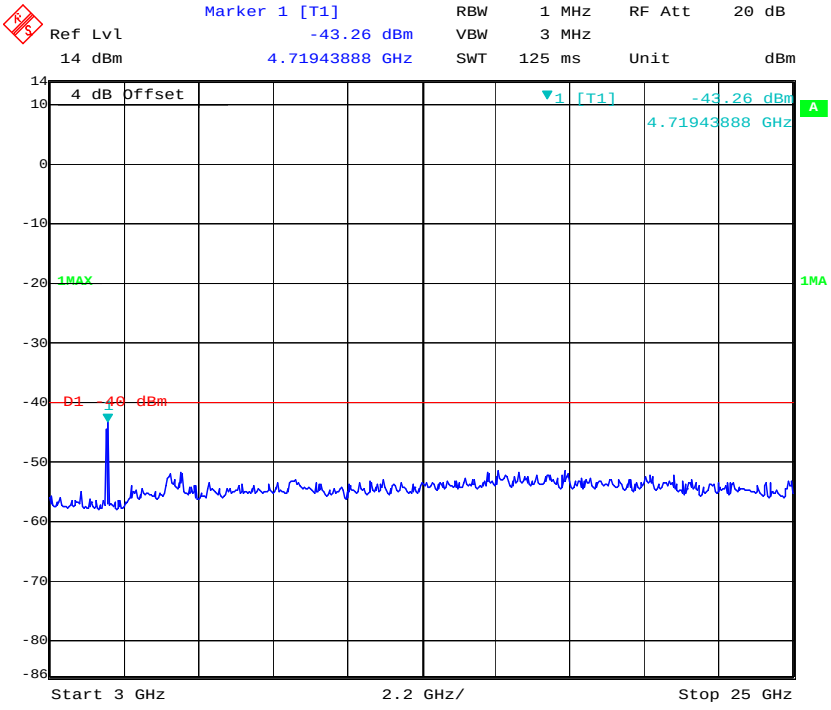
LTE Band 40 (2350-2360MHz Middle Channel)

QPSK_5 MHz

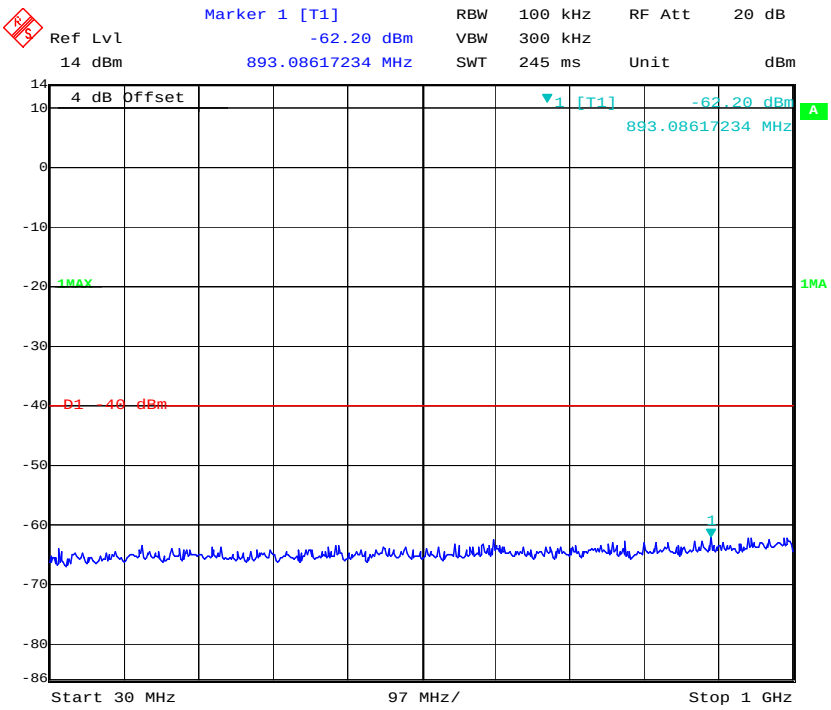


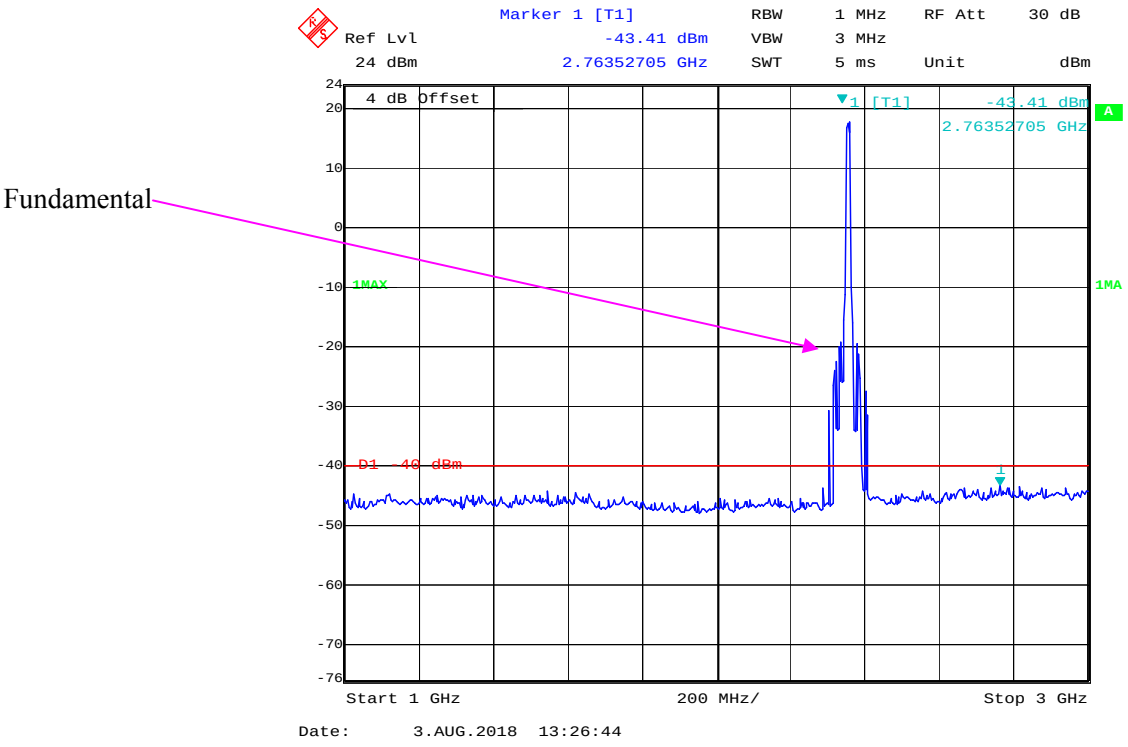
Fundamental

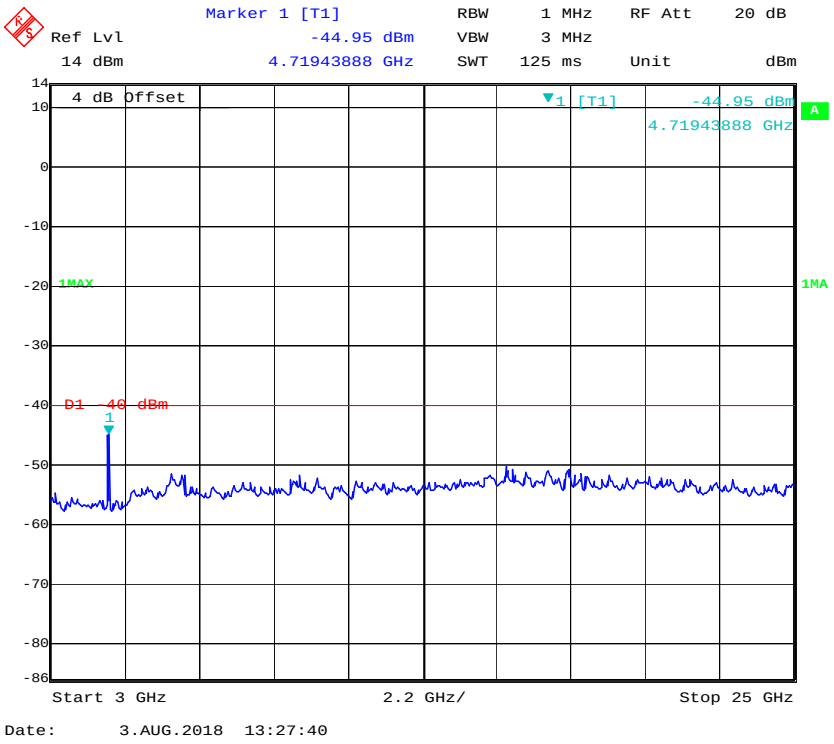



Marker 1 [T1]
RBW 1 MHz
RF Att 20 dB
Ref Lvl
-43.26 dBm
VBW 3 MHz
14 dBm
4.71943888 GHz
SWT 125 ms
Unit dBm
4 dB Offset
1 [T1] -43.26 dBm
4.71943888 GHz
1MAX
1MA
D1 -40 dBm
Start 3 GHz
2.2 GHz/
Stop 25 GHz
Date: 3.AUG.2018 13:33:41

QPSK_10 MHz

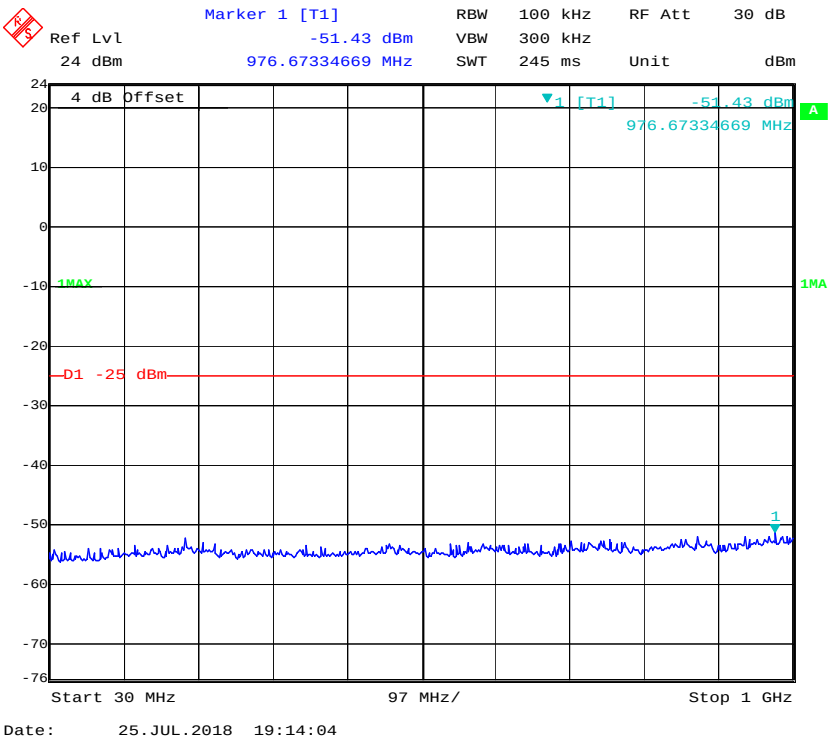

Marker 1 [T1]
RBW 100 kHz
RF Att 20 dB
Ref Lvl
-62.20 dBm
VBW 300 kHz
14 dBm
893.08617234 MHz
SWT 245 ms
Unit dBm
4 dB Offset
1 [T1] -62.20 dBm
893.08617234 MHz
1MAX
1MA
D1 -40 dBm
Start 30 MHz
97 MHz/
Stop 1 GHz
Date: 3.AUG.2018 13:30:04


Fundamental
Marker 1 [T1]
Ref Lvl
24 dBm
-43.41 dBm
2.76352705 GHz
RBW 1 MHz
VBW 3 MHz
SWT 5 ms
RF Att 30 dB
Unit dBm
4 dB Offset
1 [T1] -43.41 dBm
2.76352705 GHz
1MAX
1MA
D1 -40 dBm
Start 1 GHz
200 MHz/
Stop 3 GHz
Date: 3.AUG.2018 13:26:44

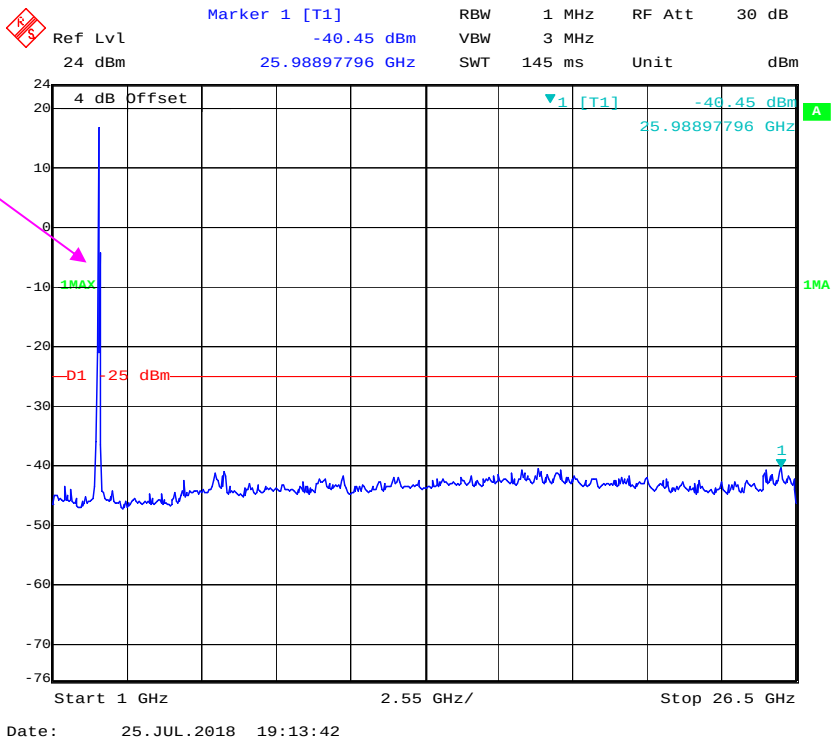

Marker 1 [T1]
Ref Lvl
14 dBm
-44.95 dBm
4.71943888 GHz
RBW 1 MHz
VBW 3 MHz
SWT 125 ms
RF Att 20 dB
Unit dBm
4 dB Offset
1 [T1] -44.95 dBm
4.71943888 GHz
1MAX
1MA
D1 -40 dBm
Start 3 GHz
2.2 GHz/
Stop 25 GHz
Date: 3.AUG.2018 13:27:40

LTE Band 41 (Middle Channel)

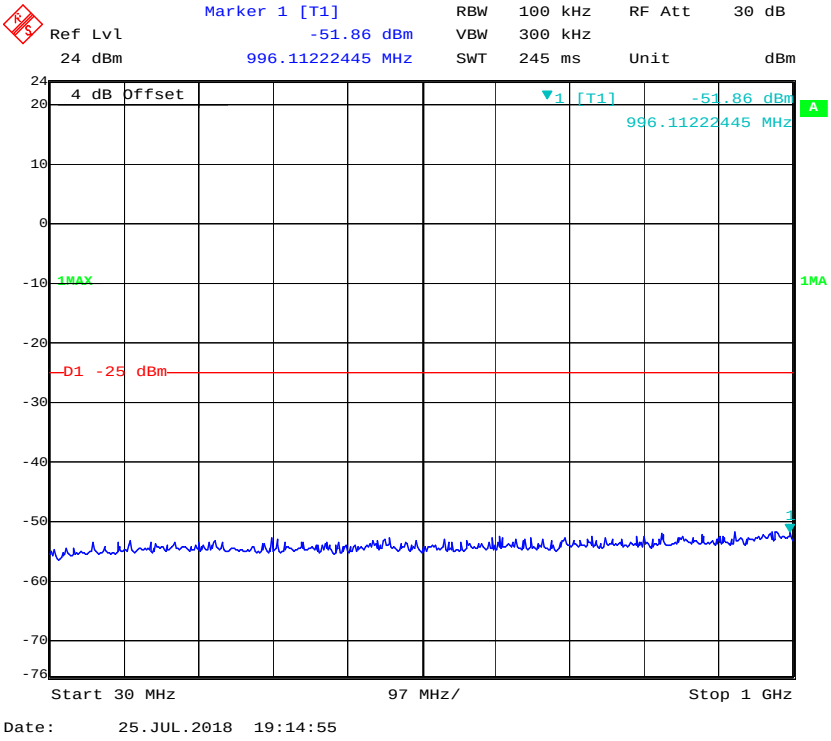
QPSK_5 MHz



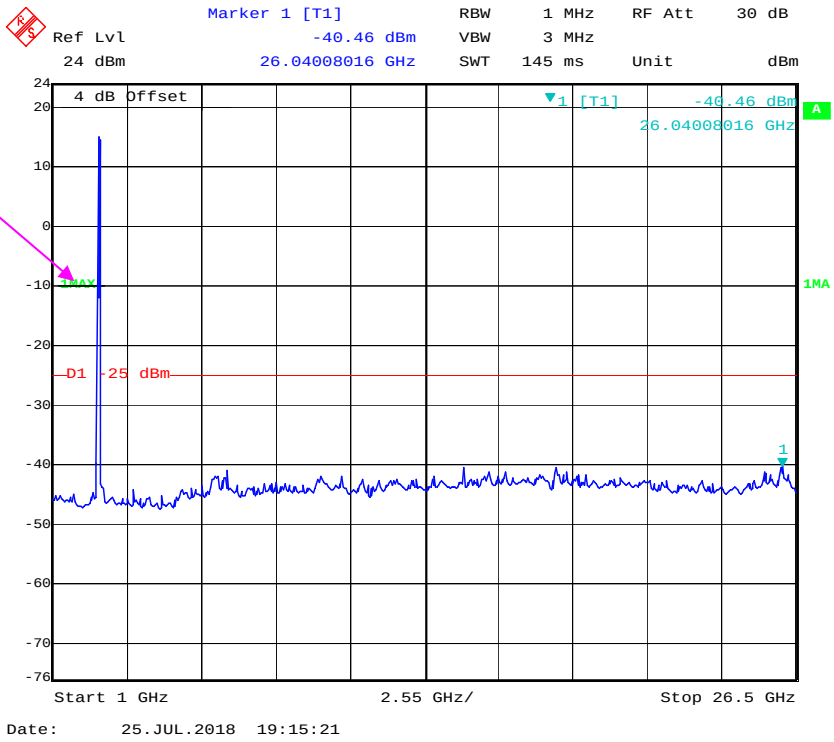
Fundamental



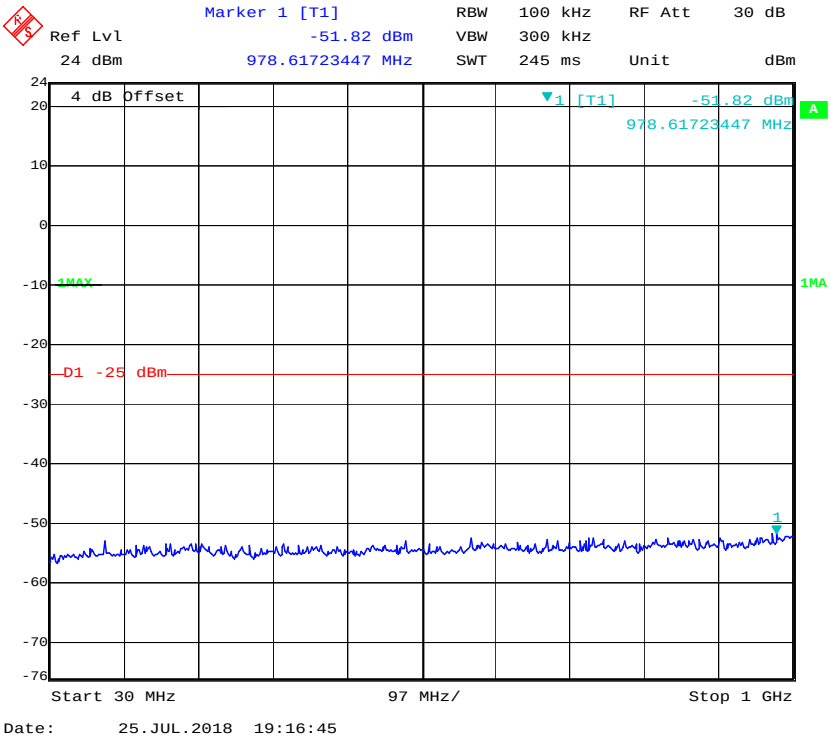
QPSK_10 MHz



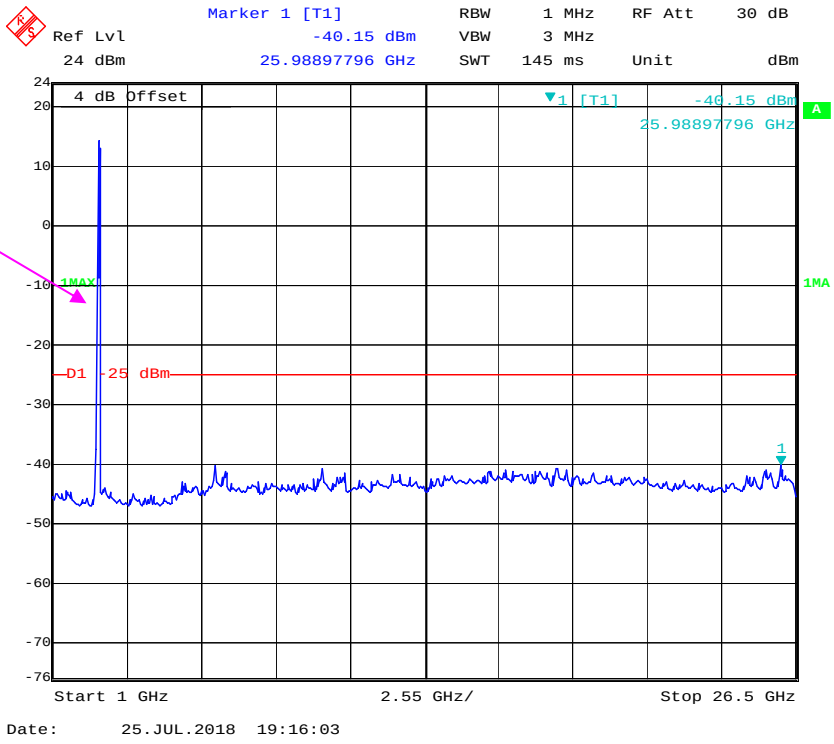
Fundamental



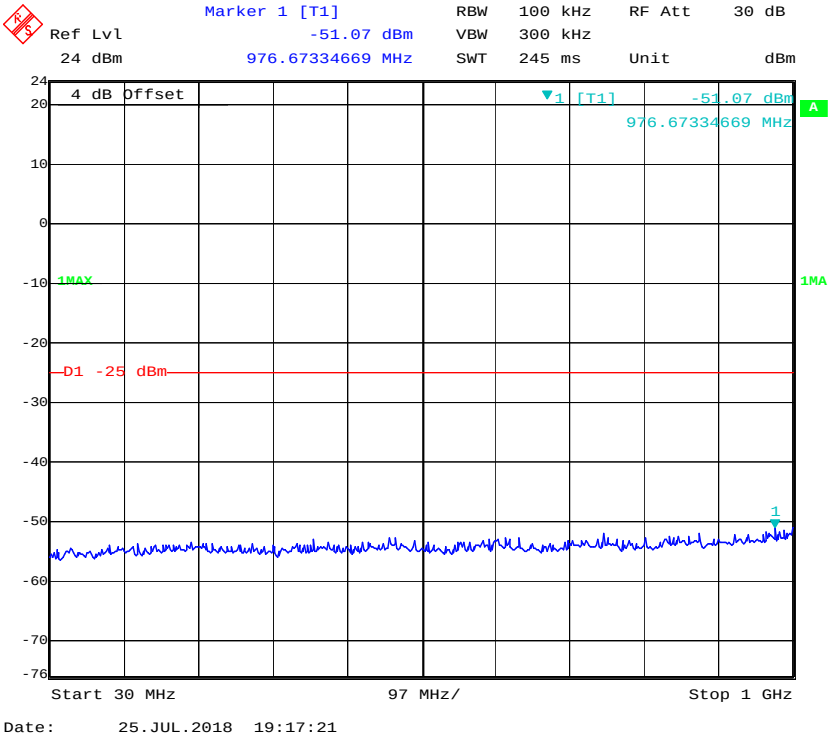
QPSK_15 MHz

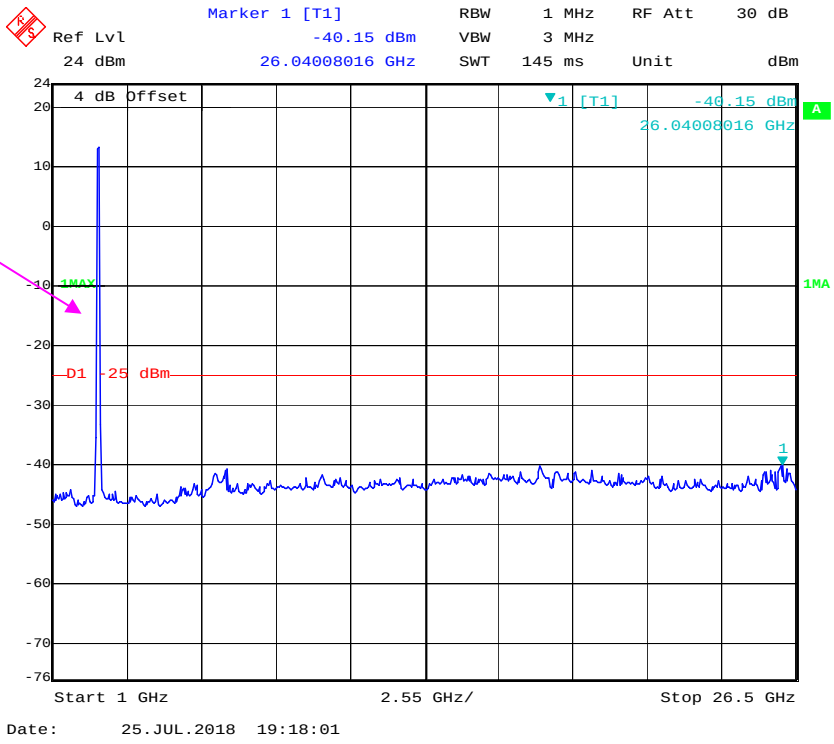


Fundamental



QPSK_20 MHz





Fundamental

FCC §2.1053, §22.917 & §24.238 & §27.53&§90.691 - SPURIOUS RADIATED EMISSIONS

Applicable Standard

FCC § 2.1053, §22.917, § 24.238 and § 27.53&§90.691.

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
EMCO	Adjustable Dipole Antenna	3121C	9109-753	N/A	N/A
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2017-09-05	2018-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2017-09-05	2018-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1000-01	2017-09-05	2018-09-05
HP	Amplifier	8447D	2727A05902	2017-09-05	2018-09-05
Rohde & Schwarz	Signal Analyzer	FSIQ26	831929/005	2017-08-31	2018-08-31
TDK RF	Horn Antenna	HRN-0118	130 084	2016-01-05	2019-01-04
ETS-Lindgren	Horn Antenna	3115	000 527 35	2016-01-05	2019-01-04
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2017-09-05	2018-09-05
MICRO-COAX	Coaxial Cable	UFA147-1-2362-100100	64639 231029-001	2018-02-24	2019-02-28
Mini	Pre-amplifier	ZVA-183-S+	5969001149	2017-09-05	2018-09-05
MITEQ	Amplifier	AFS42-00101800-25-S-42	2001271	2017-09-05	2018-09-05
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
R&S	Universal Radio Communication Tester	CMU200	109 038	2017-07-21	2018-07-21
R&S	Wideband Radio Communication Tester	CMW500	110479	2017-12-11	2018-12-11
Agilent	Signal Generator	E8247C	MY43321350	2017-12-11	2018-12-11

*** 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:	27.4 °C
Relative Humidity:	55 %
ATM Pressure:	101.4 kPa

** The testing was performed by Sunny Cen & Vern Shen on 2018-06-11*

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	43.72	-60.7	10.5	1.3	-51.5	-13.0	38.5
1673.200	V	47.51	-56.8	10.5	1.3	-47.6	-13.0	34.6
2509.800	H	42.65	-60.1	12.2	1.2	-49.1	-13.0	36.1
2509.800	V	46.85	-57.3	12.2	1.2	-46.3	-13.0	33.3
3346.400	H	43.62	-57.6	12.3	1.6	-46.9	-13.0	33.9
3346.400	V	48.22	-51.9	12.3	1.6	-41.2	-13.0	28.2
284.000	H	54.38	-54.5	0.0	0.5	-55.0	-13.0	42.0
284.000	V	57.54	-53.3	0.0	0.5	-53.8	-13.0	40.8
WCDMA Band V R99,Frequency:836.600 MHz								
1673.200	H	43.85	-60.5	10.5	1.3	-51.3	-13.0	38.3
1673.200	V	47.64	-56.7	10.5	1.3	-47.5	-13.0	34.5
2509.800	H	43.62	-59.2	12.2	1.2	-48.2	-13.0	35.2
2509.800	V	47.58	-56.6	12.2	1.2	-45.6	-13.0	32.6
3346.400	H	45.88	-55.3	12.3	1.6	-44.6	-13.0	31.6
3346.400	V	49.64	-50.5	12.3	1.6	-39.8	-13.0	26.8
166.000	H	55.62	-52.3	0.0	0.4	-52.7	-13.0	39.7
166.000	V	58.41	-53.9	0.0	0.4	-54.3	-13.0	41.3

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	43.87	-56.3	12.3	1.5	-45.5	-13.0	32.5
3760.000	V	46.92	-53	12.3	1.5	-42.2	-13.0	29.2
5640.000	H	44.85	-50.4	13.0	1.3	-38.7	-13.0	25.7
5640.000	V	45.72	-49.9	13.0	1.3	-38.2	-13.0	25.2
264.000	H	52.83	-56.2	0.0	0.5	-56.7	-13.0	43.7
264.000	V	56.37	-55.5	0.0	0.5	-56.0	-13.0	43.0
WCDMA Band II, R99, Frequency:1880.000 MHz								
3760.000	H	45.85	-54.4	12.3	1.5	-43.6	-13.0	30.6
3760.000	V	49.62	-50.3	12.3	1.5	-39.5	-13.0	26.5
5640.000	H	43.75	-51.5	13.0	1.3	-39.8	-13.0	26.8
5640.000	V	46.56	-49	13.0	1.3	-37.3	-13.0	24.3
231.000	H	55.87	-53.1	0.0	0.5	-53.6	-13.0	40.6
231.000	V	57.92	-53.9	0.0	0.5	-54.4	-13.0	41.4

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 IV, R99, Frequency: 1732.600 MHz								
3465.200	H	42.72	-58.2	12.2	1.6	-47.6	-13.0	34.6
3465.200	V	46.85	-52.7	12.2	1.6	-42.1	-13.0	29.1
383.000	H	55.34	-50.1	0.0	0.6	-50.7	-13.0	37.7
383.000	V	57.45	-51	0.0	0.6	-51.6	-13.0	38.6

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	43.88	-56.30	12.30	1.50	-45.50	-13.00	32.50
3760.000	V	45.72	-54.20	12.30	1.50	-43.40	-13.00	30.40
5640.000	H	42.57	-52.70	13.00	1.30	-41.00	-13.00	28.00
5640.000	V	43.66	-51.90	13.00	1.30	-40.20	-13.00	27.20
273.000	H	53.45	-55.50	0.00	0.50	-56.00	-13.00	43.00
273.000	V	56.72	-54.70	0.00	0.50	-55.20	-13.00	42.20

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	44.91	-56.10	12.20	1.60	-45.50	-13.00	32.50
3465.000	V	47.37	-52.20	12.20	1.60	-41.60	-13.00	28.60
5197.500	H	43.54	-52.50	12.90	1.40	-41.00	-13.00	28.00
5197.500	V	45.19	-50.90	12.90	1.40	-39.40	-13.00	26.40
517.000	H	54.57	-49.30	0.00	0.70	-50.00	-13.00	37.00
517.000	V	57.66	-49.30	0.00	0.70	-50.00	-13.00	37.00

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: 836.600 MHz								
1673.200	H	44.20	-60.20	10.50	1.30	-51.00	-13.00	38.00
1673.200	V	45.90	-58.40	10.50	1.30	-49.20	-13.00	36.20
2509.800	H	43.67	-59.10	12.20	1.20	-48.10	-13.00	35.10
2509.800	V	45.41	-58.80	12.20	1.20	-47.80	-13.00	34.80
3346.400	H	42.57	-58.60	12.30	1.60	-47.90	-13.00	34.90
3346.400	V	44.73	-55.40	12.30	1.60	-44.70	-13.00	31.70
394.000	H	52.64	-52.40	0.00	0.60	-53.00	-13.00	40.00
394.000	V	55.77	-52.50	0.00	0.60	-53.10	-13.00	40.10

LTE Band 7 (30MHz-26.5GHz):

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	44.07	-52.20	13.00	1.40	-40.60	-25.00	15.60
5070.000	V	46.90	-49.20	13.00	1.40	-37.60	-25.00	12.60
7605.000	H	43.83	-47.60	12.80	1.40	-36.20	-25.00	11.20
7605.000	V	44.40	-47.70	12.80	1.40	-36.30	-25.00	11.30
197.000	H	53.64	-55.20	0.00	0.50	-55.70	-25.00	30.70
197.000	V	55.54	-55.20	0.00	0.50	-55.70	-25.00	30.70

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	43.22	-60.70	9.60	1.20	-52.30	-13.00	39.30
1415.000	V	45.10	-58.90	9.60	1.20	-50.50	-13.00	37.50
2122.500	H	42.10	-61.60	11.70	1.20	-51.10	-13.00	38.10
2122.500	V	43.52	-60.50	11.70	1.20	-50.00	-13.00	37.00
2830.000	H	41.63	-60.50	12.30	1.40	-49.60	-13.00	36.60
2830.000	V	43.36	-59.20	12.30	1.40	-48.30	-13.00	35.30
388.000	H	52.45	-52.80	0.00	0.60	-53.40	-13.00	40.40
388.000	V	54.78	-53.60	0.00	0.60	-54.20	-13.00	41.20

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	43.79	-60.70	10.20	1.30	-51.80	-13.00	38.80
1564.000	V	45.08	-59.30	10.20	1.30	-50.40	-13.00	37.40
2346.000	H	43.71	-59.50	12.00	1.20	-48.70	-13.00	35.70
2346.000	V	43.91	-60.20	12.00	1.20	-49.40	-13.00	36.40
3128.000	H	40.90	-60.70	12.30	1.50	-49.90	-13.00	36.90
3128.000	V	44.18	-57.00	12.30	1.50	-46.20	-13.00	33.20
476.000	H	53.44	-50.90	0.00	0.70	-51.60	-13.00	38.60
476.000	V	55.47	-52.00	0.00	0.70	-52.70	-13.00	39.70

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	42.35	-61.60	9.70	1.30	-53.20	-13.00	40.20
1420.000	V	45.55	-58.40	9.70	1.30	-50.00	-13.00	37.00
2130.000	H	41.98	-61.70	11.70	1.20	-51.20	-13.00	38.20
2130.000	V	43.74	-60.30	11.70	1.20	-49.80	-13.00	36.80
2840.000	H	40.90	-61.20	12.30	1.40	-50.30	-13.00	37.30
2840.000	V	43.51	-59.00	12.30	1.40	-48.10	-13.00	35.10
348.000	H	54.75	-52.10	0.00	0.60	-52.70	-13.00	39.70
348.000	V	58.62	-50.50	0.00	0.60	-51.10	-13.00	38.10

LTE Band 18 (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:822.500 MHz								
1645.000	H	42.76	-61.60	10.40	1.30	-52.50	-13.00	39.50
1645.000	V	45.84	-58.50	10.40	1.30	-49.40	-13.00	36.40
2467.500	H	43.24	-59.60	12.20	1.20	-48.60	-13.00	35.60
2467.500	V	44.79	-59.40	12.20	1.20	-48.40	-13.00	35.40
3290.000	H	41.26	-60.00	12.30	1.60	-49.30	-13.00	36.30
3290.000	V	44.33	-56.00	12.30	1.60	-45.30	-13.00	32.30
348.000	H	54.75	-52.10	0.00	0.60	-52.70	-13.00	39.70
348.000	V	58.62	-50.50	0.00	0.60	-51.10	-13.00	38.10

LTE Band 19 (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:837.500 MHz								
1675.000	H	45.34	-59.00	10.50	1.30	-49.80	-13.00	36.80
1675.000	V	44.73	-59.60	10.50	1.30	-50.40	-13.00	37.40
2512.500	H	43.95	-58.80	12.20	1.20	-47.80	-13.00	34.80
2512.500	V	44.68	-59.50	12.20	1.20	-48.50	-13.00	35.50
148.340	H	46.63	-59.80	0.00	0.40	-60.20	-13.00	47.20
51.340	V	47.41	-54.80	-14.30	0.20	-69.30	-13.00	56.30

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	43.27	-61.10	10.50	1.30	-51.90	-13.00	38.90
1663.000	V	45.61	-58.70	10.50	1.30	-49.50	-13.00	36.50
2494.500	H	42.99	-59.80	12.20	1.20	-48.80	-13.00	35.80
2494.500	V	44.62	-59.60	12.20	1.20	-48.60	-13.00	35.60
3326.000	H	41.23	-60.00	12.30	1.60	-49.30	-13.00	36.30
3326.000	V	44.19	-56.00	12.30	1.60	-45.30	-13.00	32.30
294.000	H	53.65	-55.10	0.00	0.50	-55.60	-13.00	42.60
294.000	V	55.84	-54.50	0.00	0.50	-55.00	-13.00	42.00

LTE Band 38 (30MHz-26.5 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)			
QPSK,Frequency:2595.000 MHz								
5190.00	H	44.07	-52.00	12.90	1.40	-40.50	-25.0	27.50
5190.00	V	46.02	-50.00	12.90	1.40	-38.50	-25.0	25.50
7785.00	H	42.92	-48.20	12.90	1.50	-36.80	-25.0	23.80
7785.00	V	43.87	-47.80	12.90	1.50	-36.40	-25.0	23.40
348.00	H	54.75	-52.10	0.00	0.60	-52.70	-25.0	39.70
348.00	V	58.62	-50.50	0.00	0.60	-51.10	-25.0	38.10

LTE Band 40 (30MHz-26.5GHz)

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:2310.000 MHz								
4620.00	H	38.73	-58.90	13.30	1.50	-47.10	-40.00	7.10
4620.00	V	39.82	-58.00	13.30	1.50	-46.20	-40.00	6.20
6930.00	H	38.12	-53.80	13.50	1.80	-42.10	-40.00	2.10
6930.00	V	38.37	-53.80	13.50	1.80	-42.10	-40.00	2.10
294.00	H	47.12	-61.60	0.00	0.50	-62.10	-40.00	22.10
294.00	V	48.97	-61.30	0.00	0.50	-61.80	-40.00	21.80
QPSK,Frequency:2355.000 MHz								
4710.00	H	38.60	-58.80	13.20	1.50	-47.10	-40.00	7.10
4710.00	V	39.40	-58.00	13.20	1.50	-46.30	-40.00	6.30
7065.00	H	36.00	-55.70	13.30	1.80	-44.20	-40.00	4.20
7065.00	V	37.87	-54.10	13.30	1.80	-42.60	-40.00	2.60
294.00	H	46.65	-62.10	0.00	0.50	-62.60	-40.00	22.60
294.00	V	48.84	-61.50	0.00	0.50	-62.00	-40.00	22.00

LTE Band 41 (30MHz-26.5GHz)

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	45.25	-50.90	12.90	1.40	-39.40	-25.00	14.40
5186.000	V	47.32	-48.70	12.90	1.40	-37.20	-25.00	12.20
7779.000	H	42.59	-48.50	12.90	1.50	-37.10	-25.00	12.10
7779.000	V	44.27	-47.50	12.90	1.50	-36.10	-25.00	11.10
572.000	H	55.47	-47.20	0.00	0.70	-47.90	-25.00	22.90
572.000	V	57.70	-48.20	0.00	0.70	-48.90	-25.00	23.90

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 & §90.691- BAND EDGES

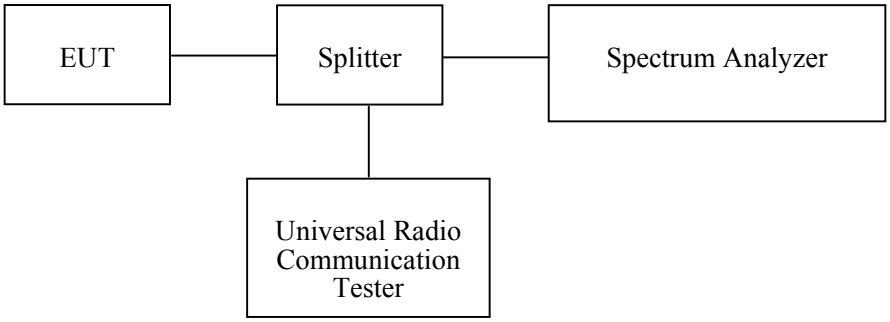
Applicable Standard

FCC § 2.1053, §22.917, § 24.238 and § 27.53& §90.691.

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	2017-07-21	2018-07-21
R&S	Universal Radio Communication Tester	CMU200	109 038	2018-07-21	2019-07-21
R&S	Wideband Radio Communication Tester	CMW500	110479	2017-12-11	2018-12-11
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	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	EMI Test Receiver	ESPI	100120	2017-12-11	2018-12-11
Rohde & Schwarz	Signal Analyzer	FSIQ26	831929/005	2017-08-31	2018-08-31
R&S	Spectrum Analyzer	FSP 38	100478	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

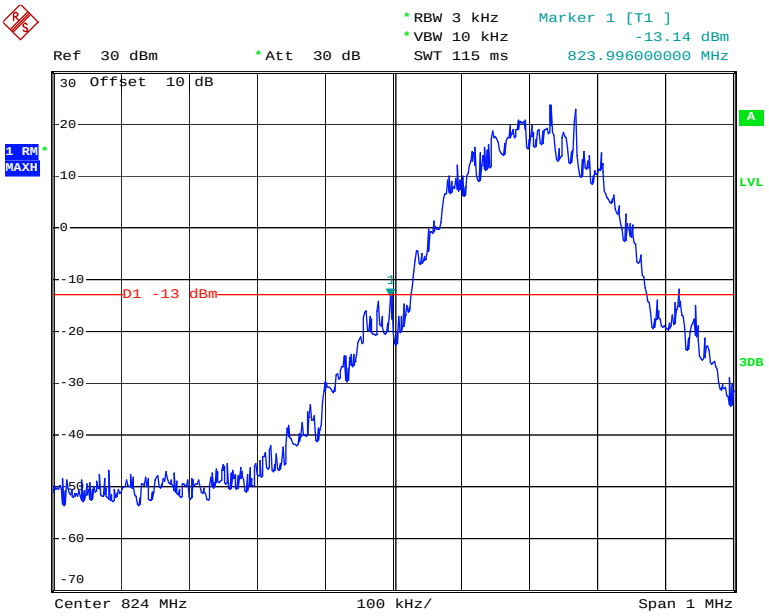
Temperature:	26.5~29.2°C
Relative Humidity:	49 ~ 67 %
ATM Pressure:	99.8~101.9 kPa

The testing was performed by Swim Lv from 2018-06-08 to 2018-08-13.

Test Mode: Transmitting

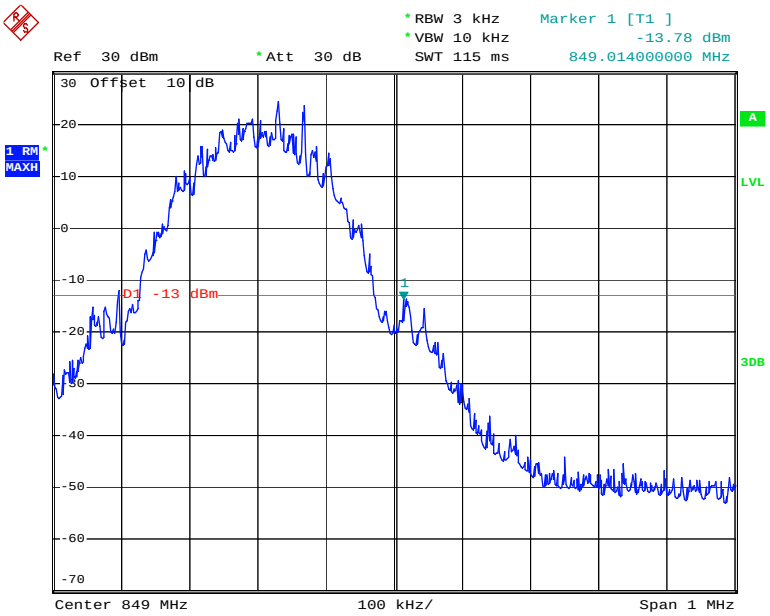
Test Result: Compliance. Please refer to the following plots.

GPRS 850, Left Band Edge



Date: 16.JUN.2018 17:22:32

GPRS 850, Right Band Edge



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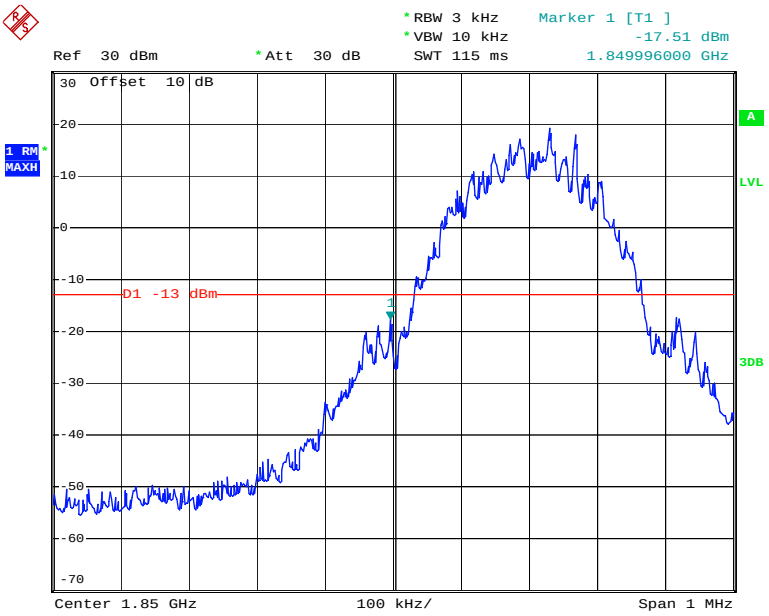
GPRS 1900, Left Band Edge



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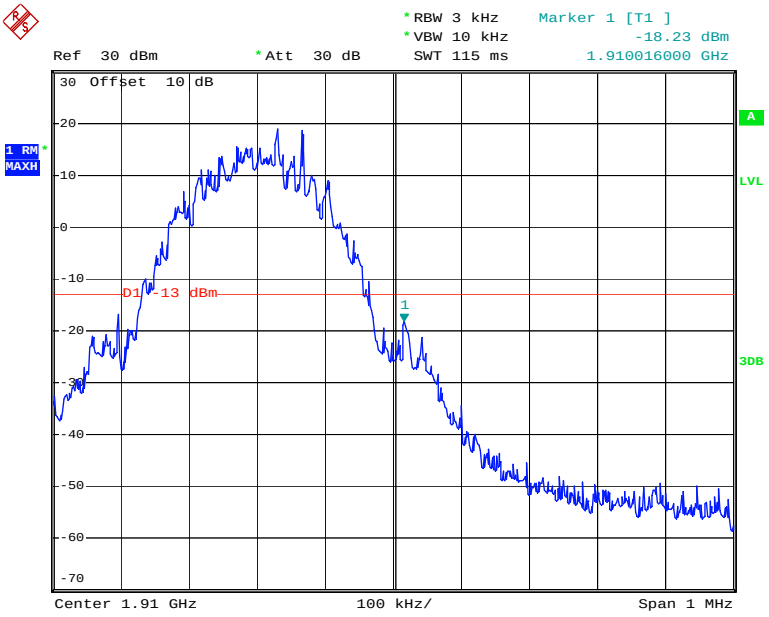
GPRS 1900, Right Band Edge



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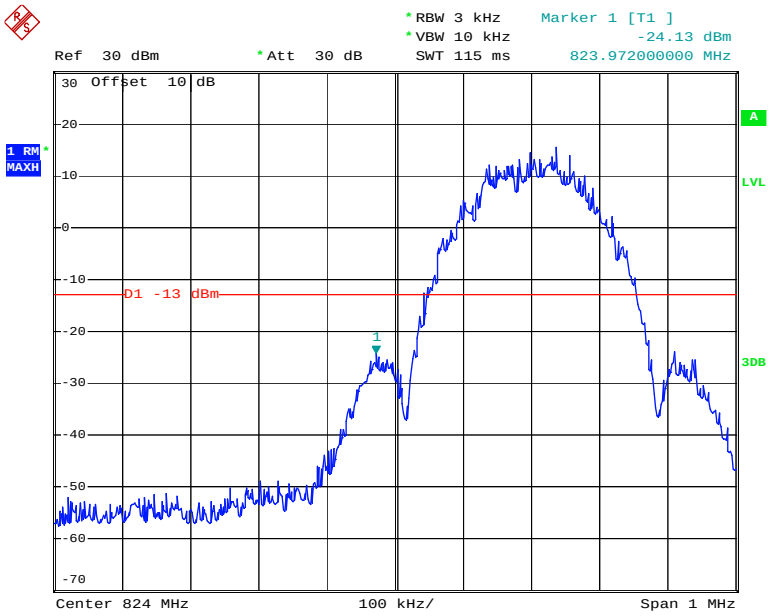
EDGE 850, Left Band Edge



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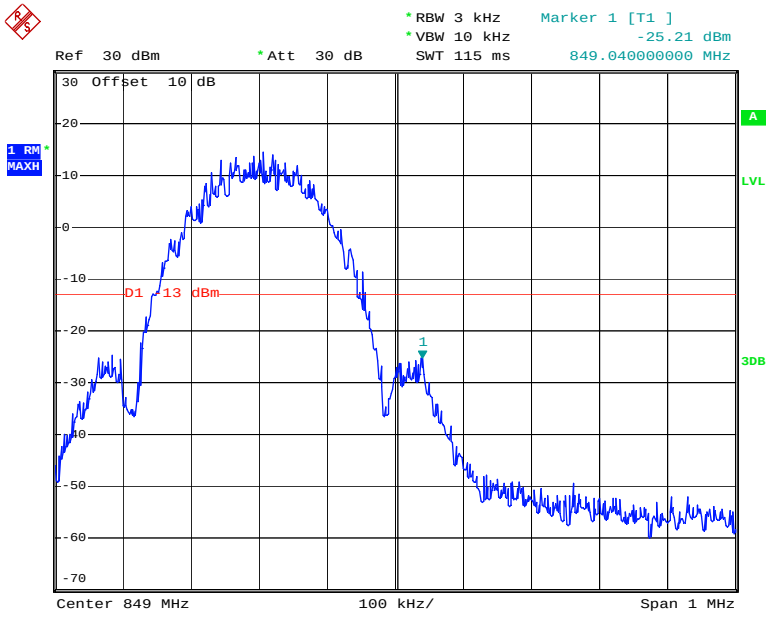
EDGE 850, Right Band Edge



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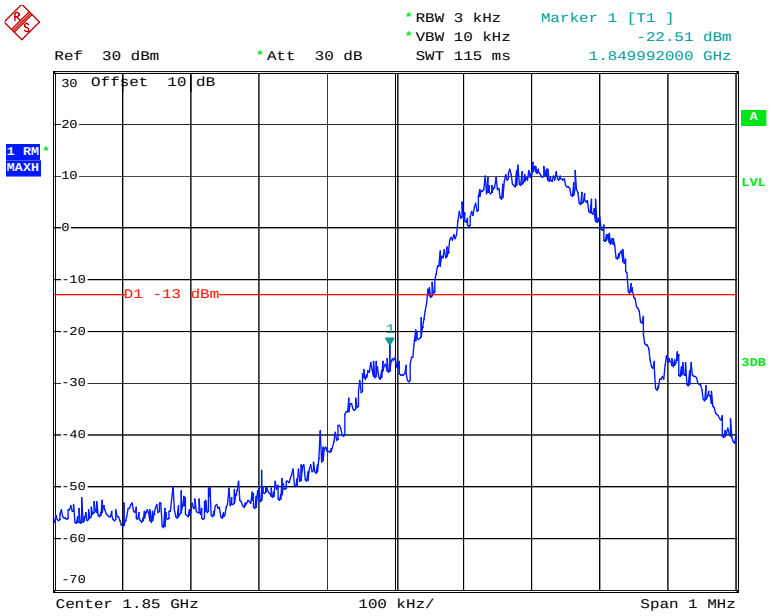
EDGE 1900, Left Band Edge



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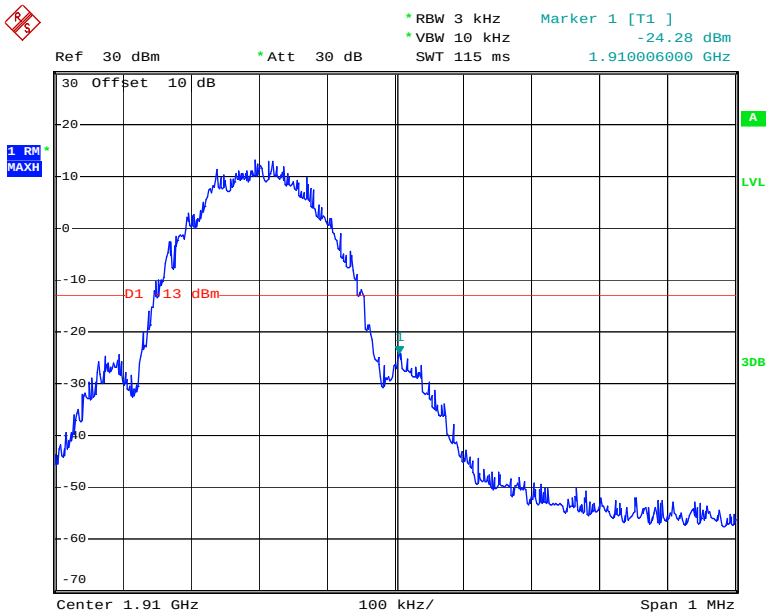
EDGE 1900, Right Band Edge



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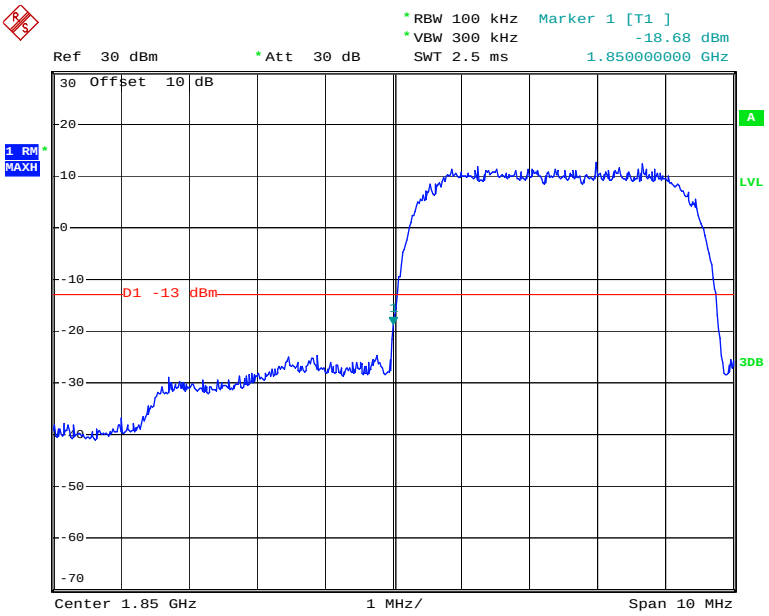
WCDMA Band II Rel 99, Left Band Edge



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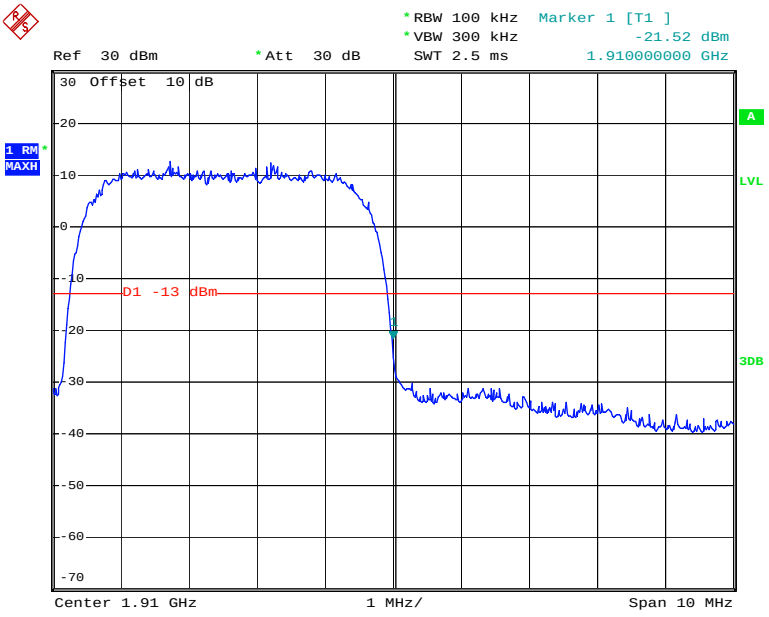
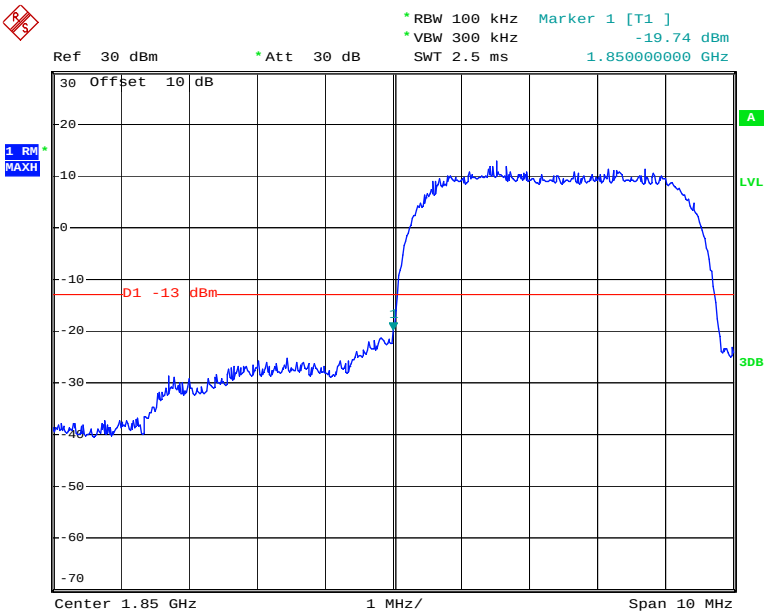
WCDMA Band II Rel 99, Right Band Edge



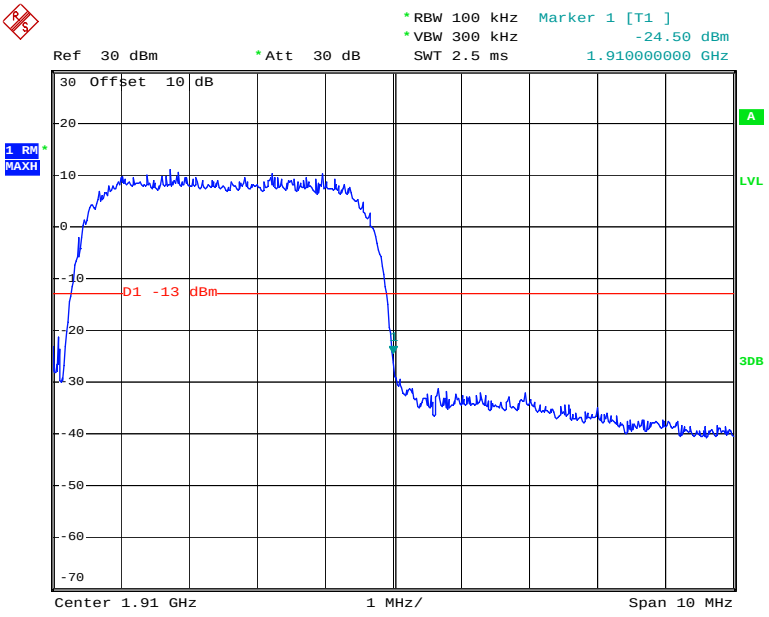
Date: 16.JUN.2018 17:57:55

WCDMA Band II HSUPA, Left Band Edge



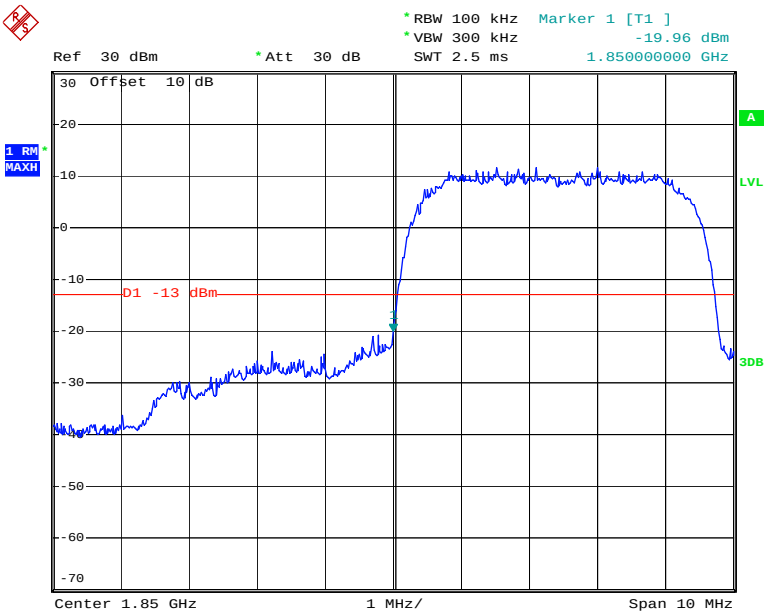
Date: 16.JUN.2018 18:00:29

WCDMA Band II HSUPA, Right Band Edge



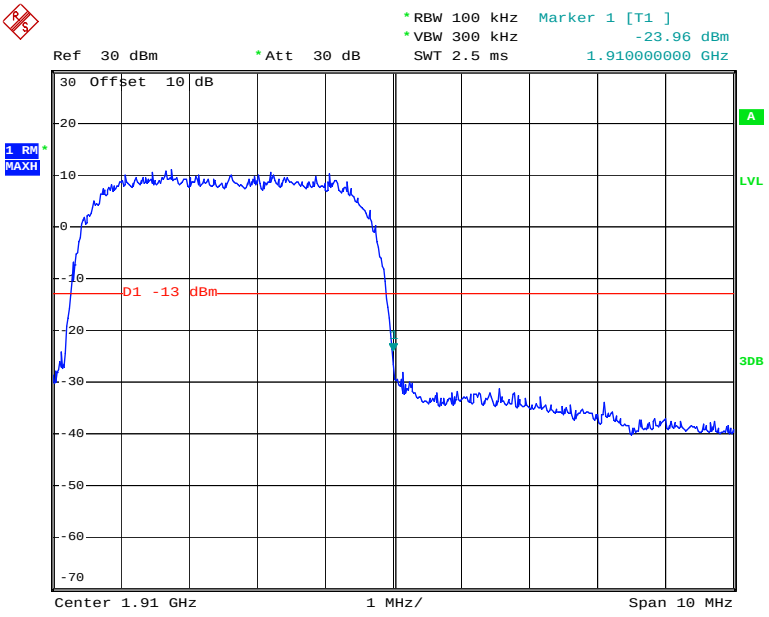
Date: 16.JUN.2018 18:01:03

WCDMA Band II HSDPA, Left Band Edge



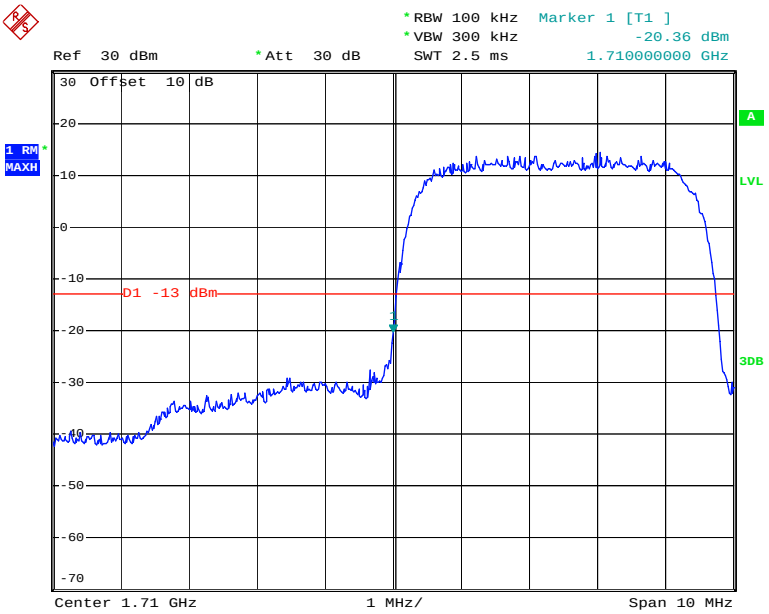
Date: 16.JUN.2018 18:04:33

WCDMA Band II HSDPA, Right Band Edge



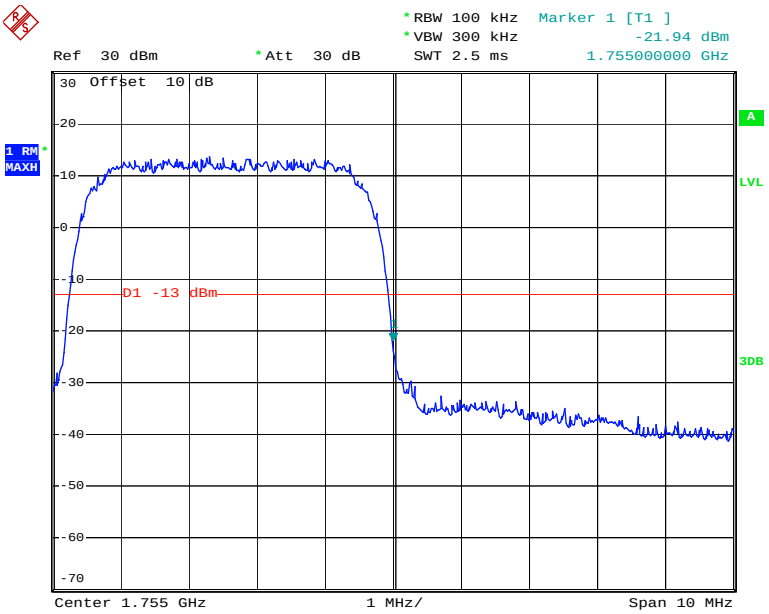
Date: 16.JUN.2018 18:04:09

WCDMA Band IV Rel 99, Left Band Edge



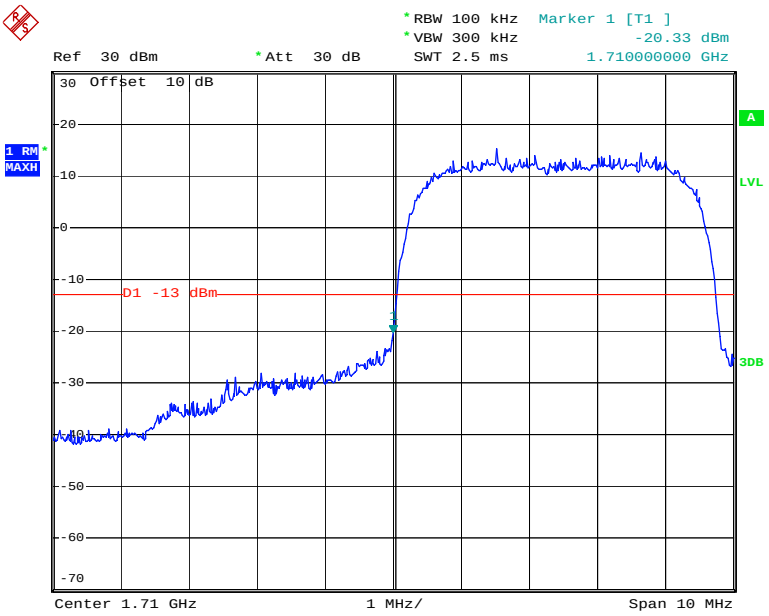
Date: 16.JUN.2018 18:09:24

WCDMA Band IV Rel 99, Right Band Edge



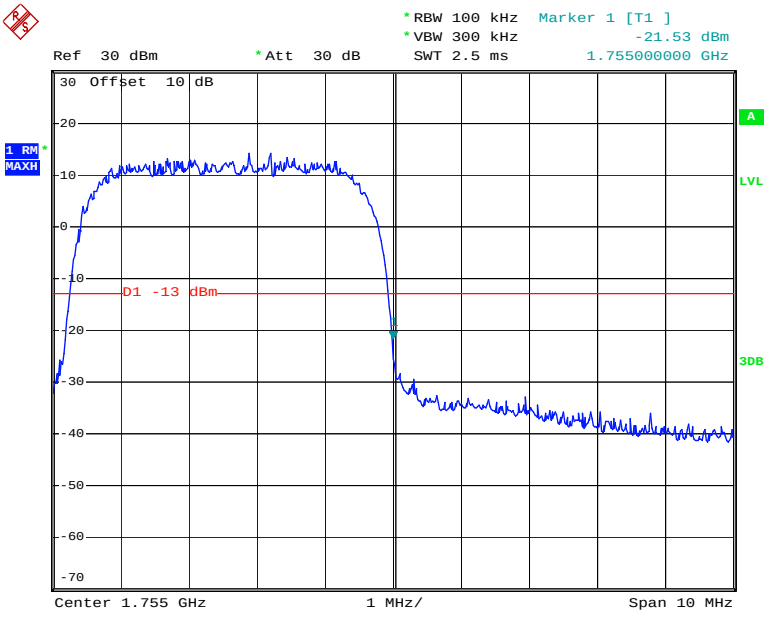
Date: 16.JUN.2018 18:09:47

WCDMA Band IV HSUPA, Left Band Edge



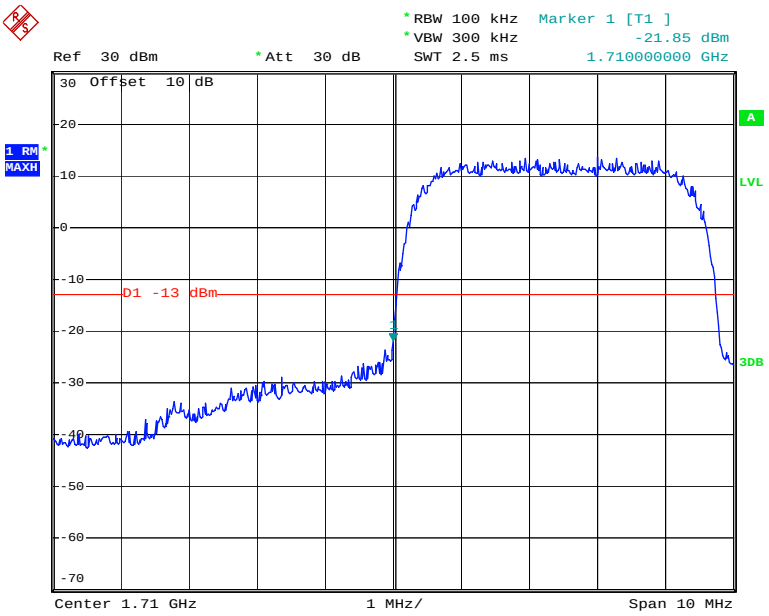
Date: 16.JUN.2018 18:14:16

WCDMA Band IV HSUPA, Right Band Edge



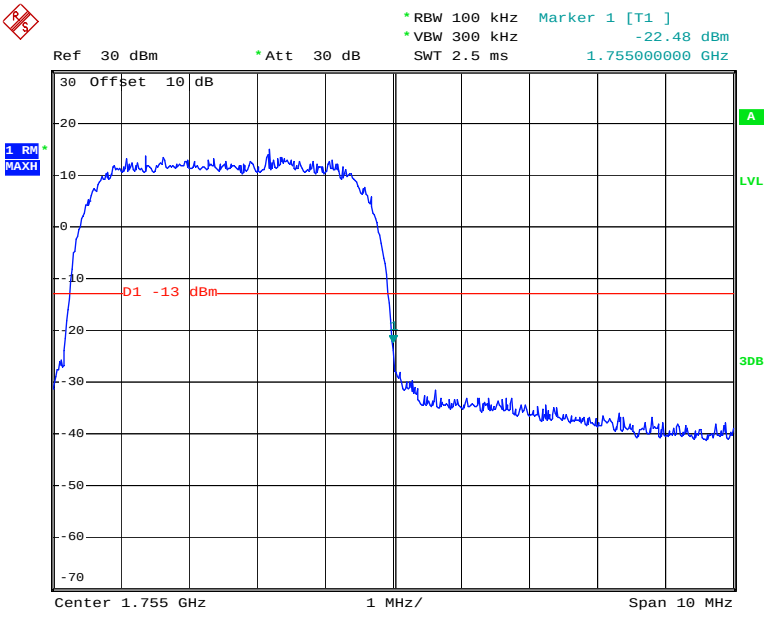
Date: 16.JUN.2018 18:14:36

WCDMA Band IV HSDPA, Left Band Edge



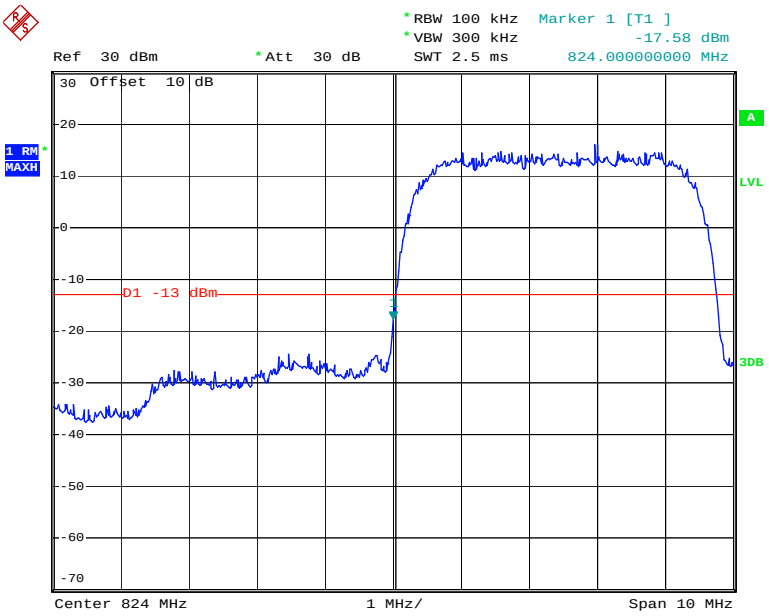
Date: 16.JUN.2018 18:11:04

WCDMA Band IV HSDPA, Right Band Edge



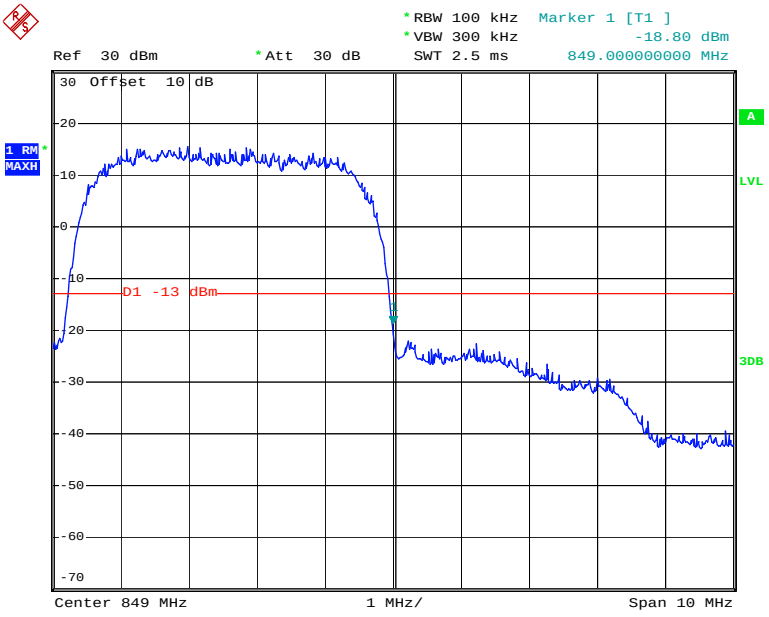
Date: 16.JUN.2018 18:10:38

WCDMA Band V Rel 99, Left Band Edge



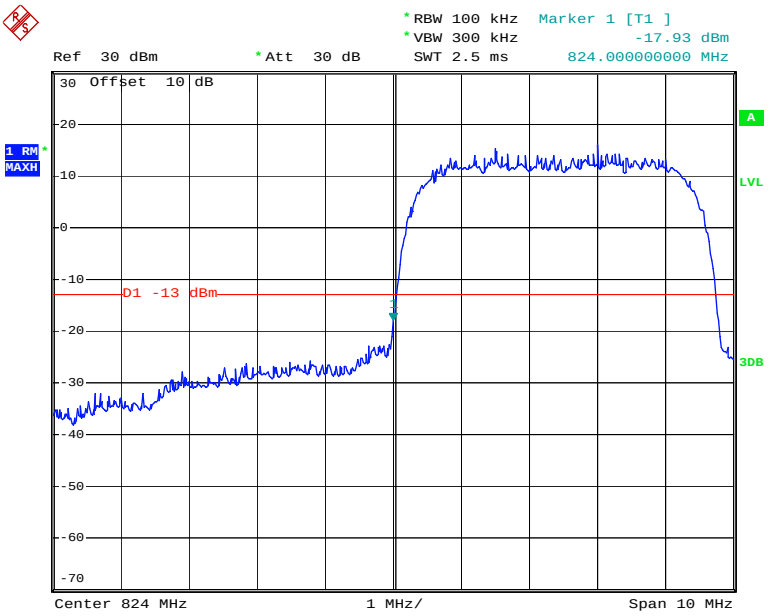
Date: 16.JUN.2018 18:24:56

WCDMA Band V Rel 99, Right Band Edge



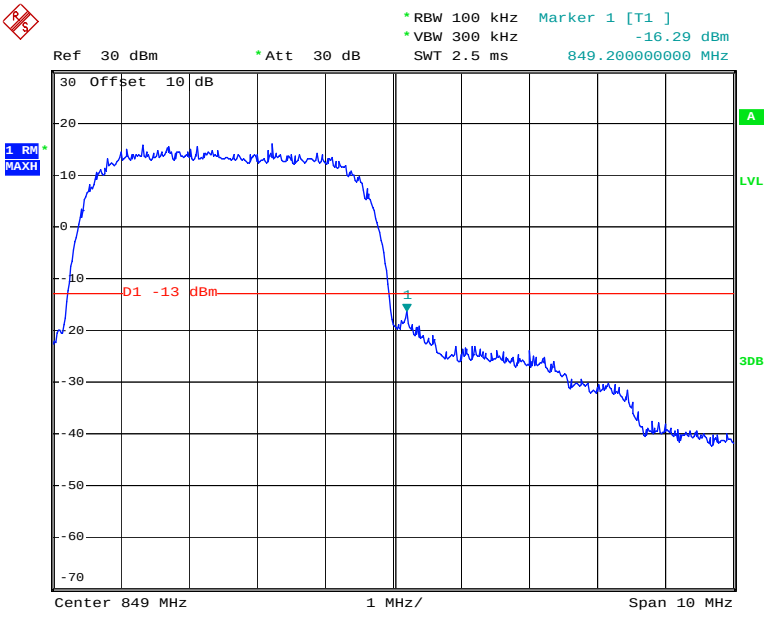
Date: 16.JUN.2018 18:25:16

WCDMA Band V HSUPA, Left Band Edge



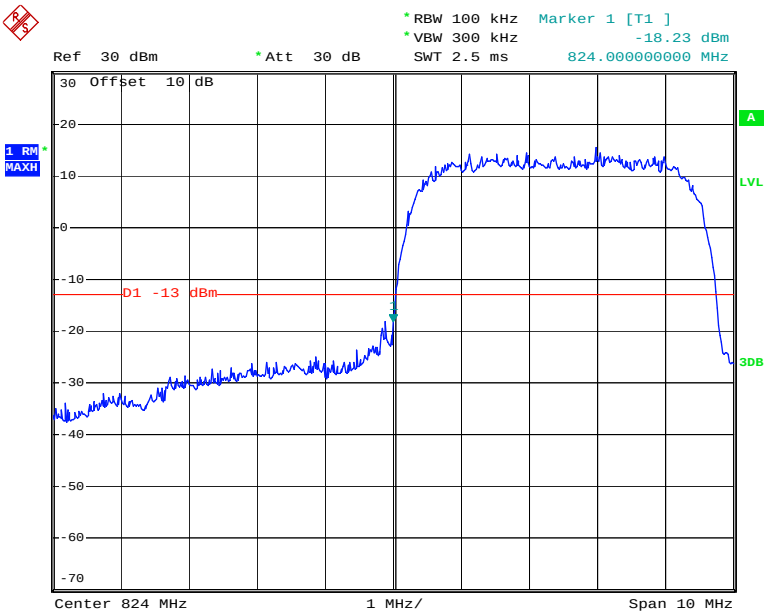
Date: 16.JUN.2018 18:19:53

WCDMA Band V HSUPA, Right Band Edge



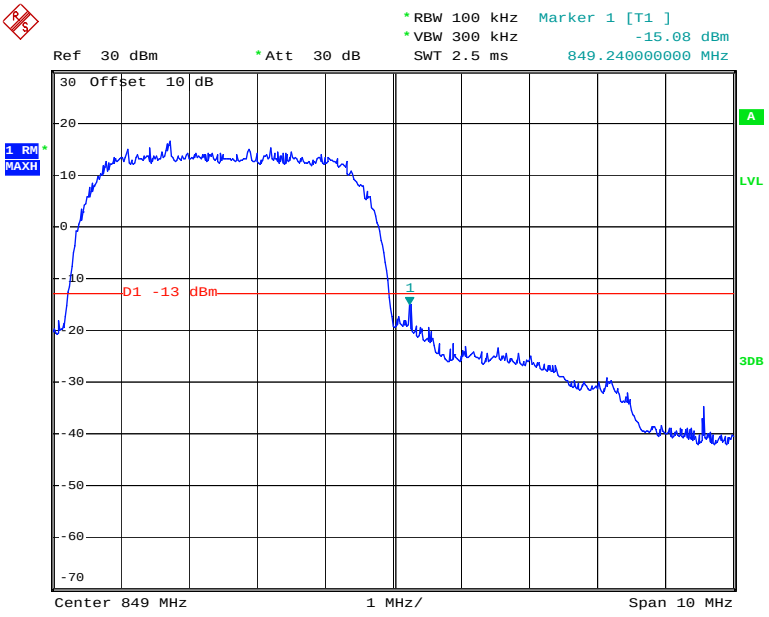
Date: 16.JUN.2018 18:19:25

WCDMA Band V HSDPA, Left Band Edge



Date: 16.JUN.2018 18:24:14

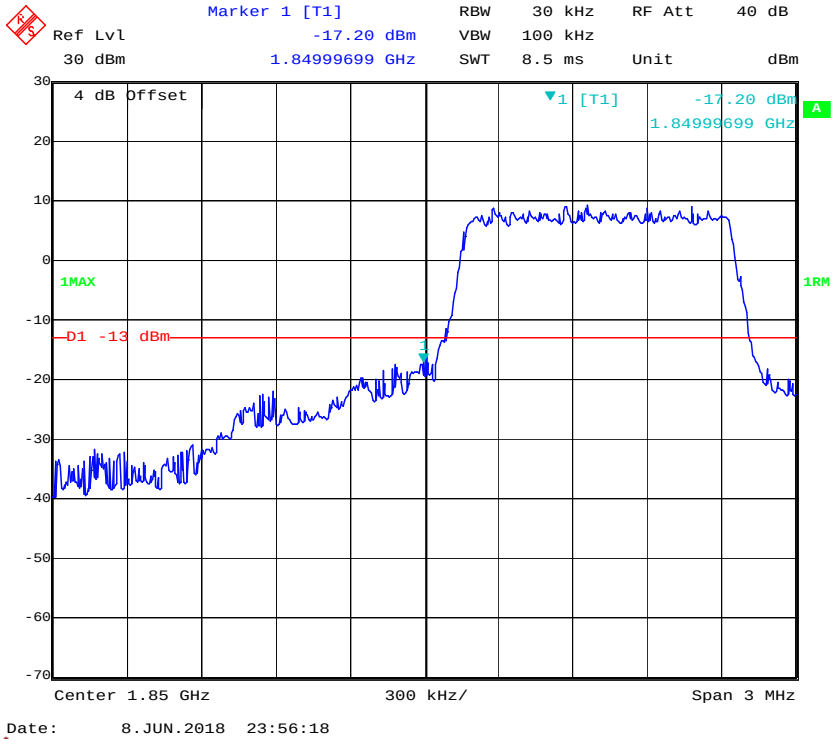
WCDMA Band V HSDPA, Right Band Edge



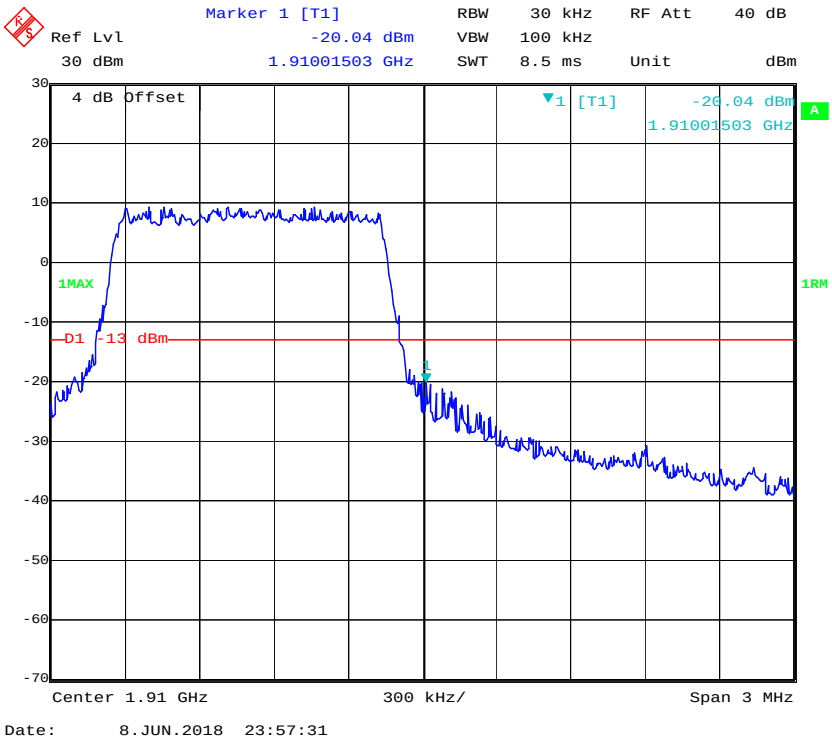
Date: 16.JUN.2018 18:23:42

LTE Band 2

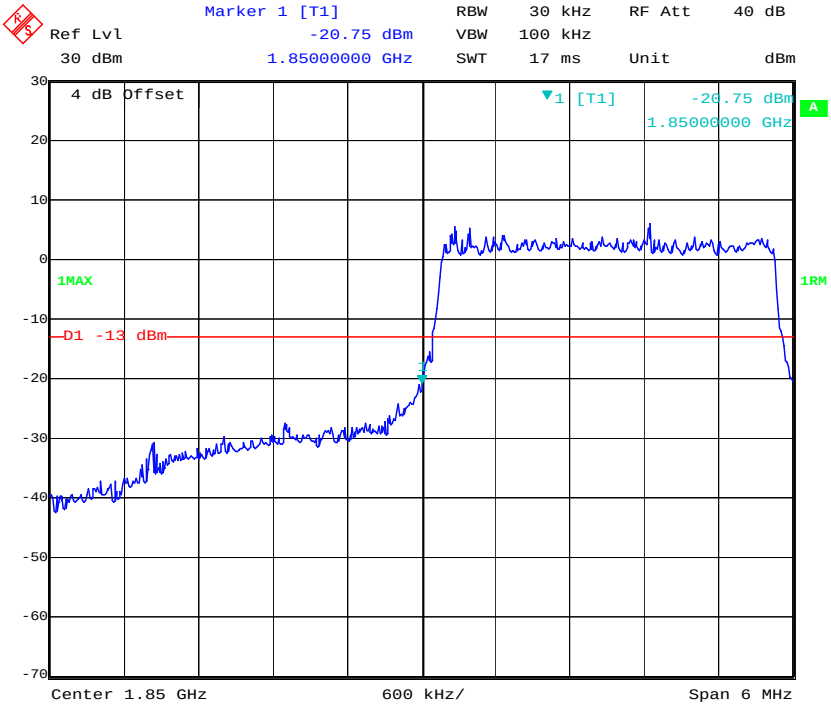
QPSK_1.4MHz_ 6 RB_ Left



QPSK_1.4MHz_ 6 RB_ Right



QPSK_3MHz_ 15 RB_ Left

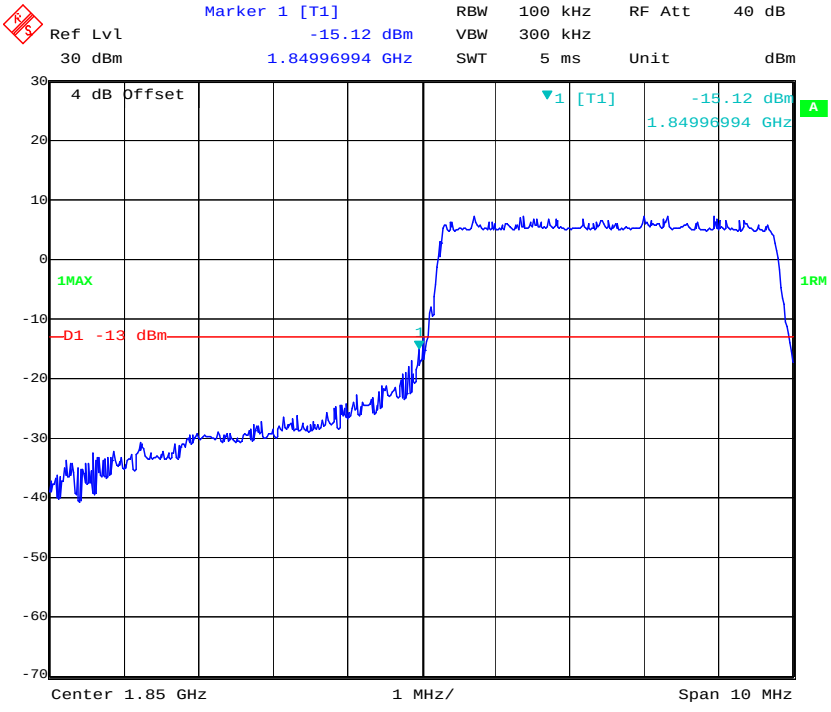


Date: 8.JUN.2018 23:59:04

QPSK_3MHz_ 15 RB_ Right

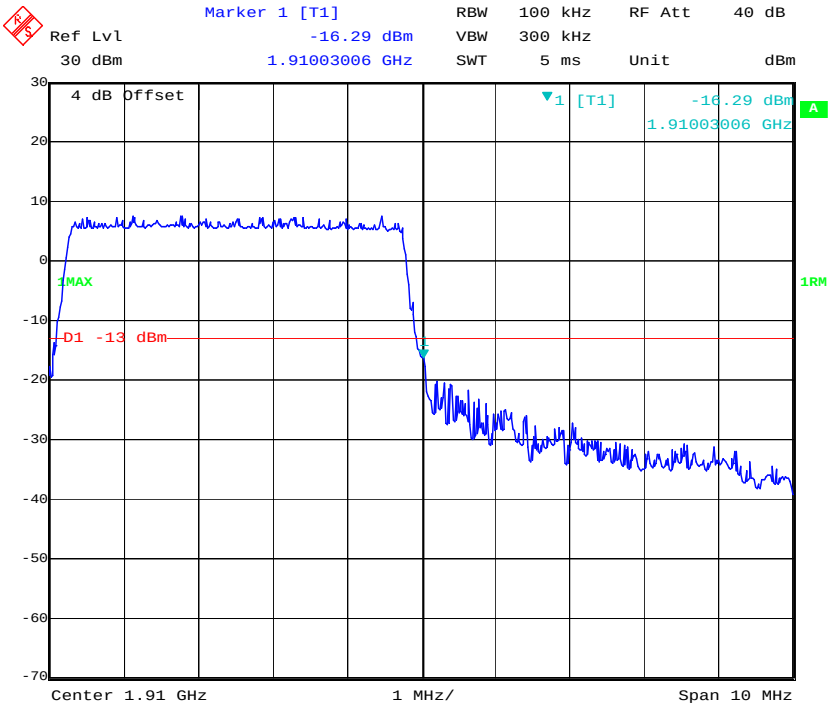
Date: 9.JUN.2018 00:00:23

QPSK_5MHz_ 25 RB_ Left



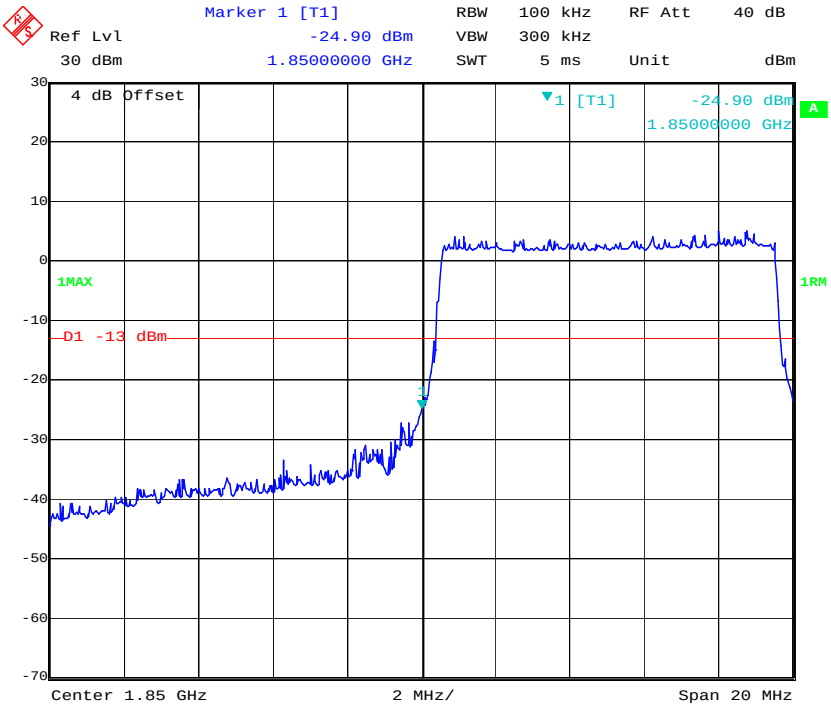
Date: 9.JUN.2018 00:01:54

QPSK_5MHz_ 25 RB_ Right



Date: 9.JUN.2018 00:03:22

QPSK_10MHz_ 50 RB_ Left

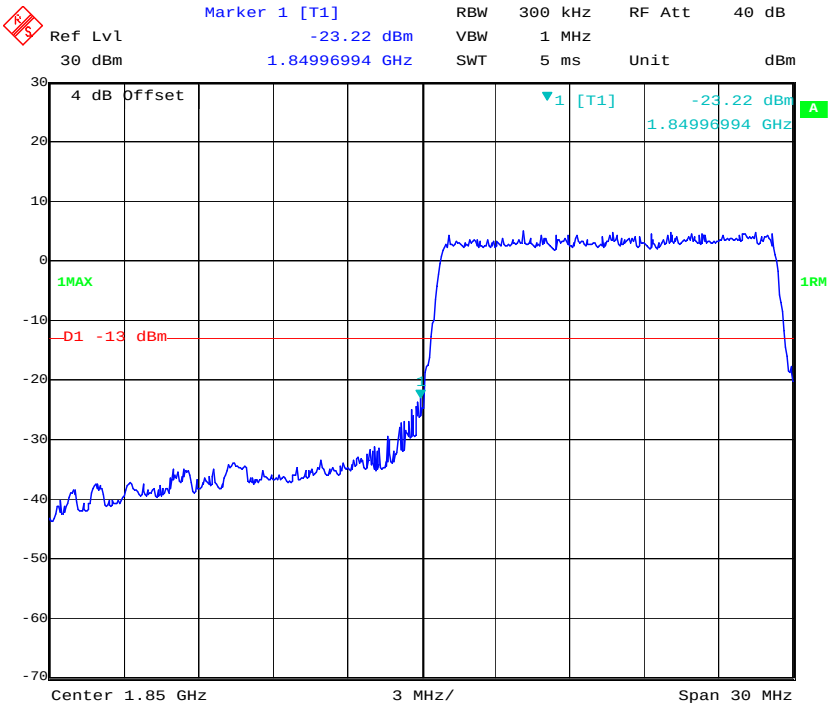


Date: 9.JUN.2018 00:04:51

QPSK_10MHz_ 50 RB_ Right

Date: 9.JUN.2018 00:06:19

QPSK_15MHz_ 75 RB_ Left

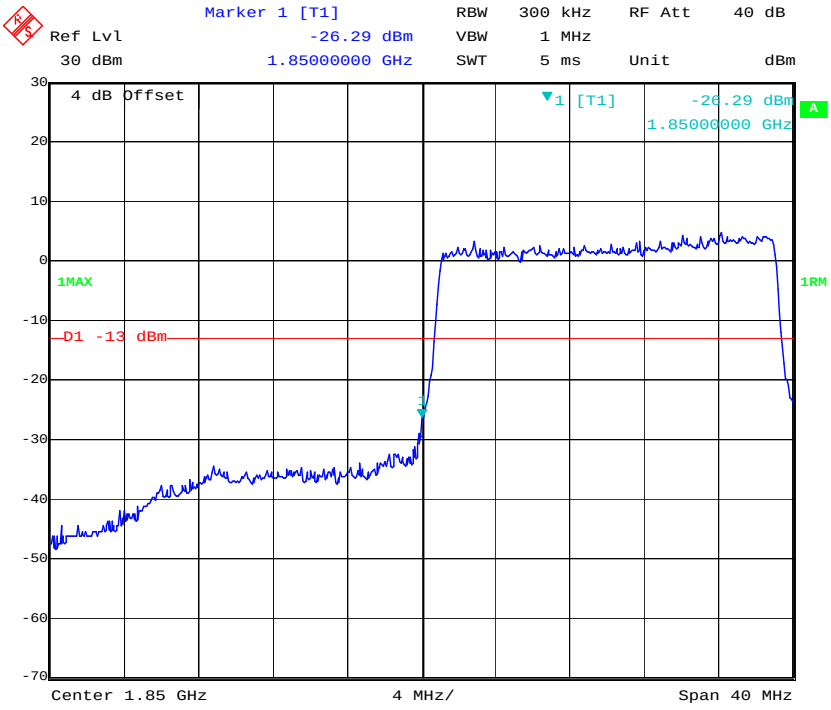


Date: 9.JUN.2018 00:07:36

QPSK_15MHz_ 75 RB_ Right

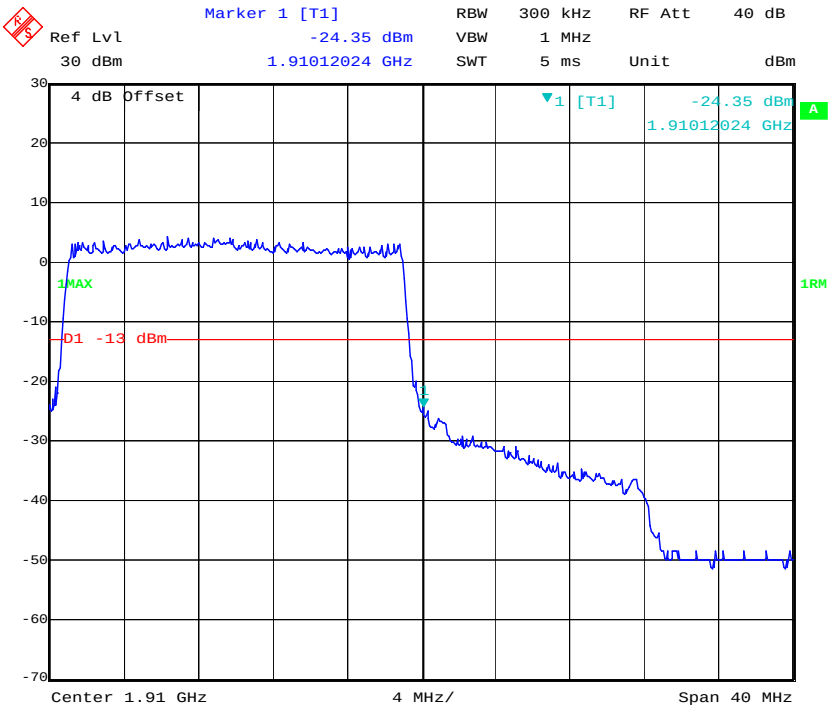
Date: 9.JUN.2018 00:09:04

QPSK_20MHz_ FULL RB_ Left



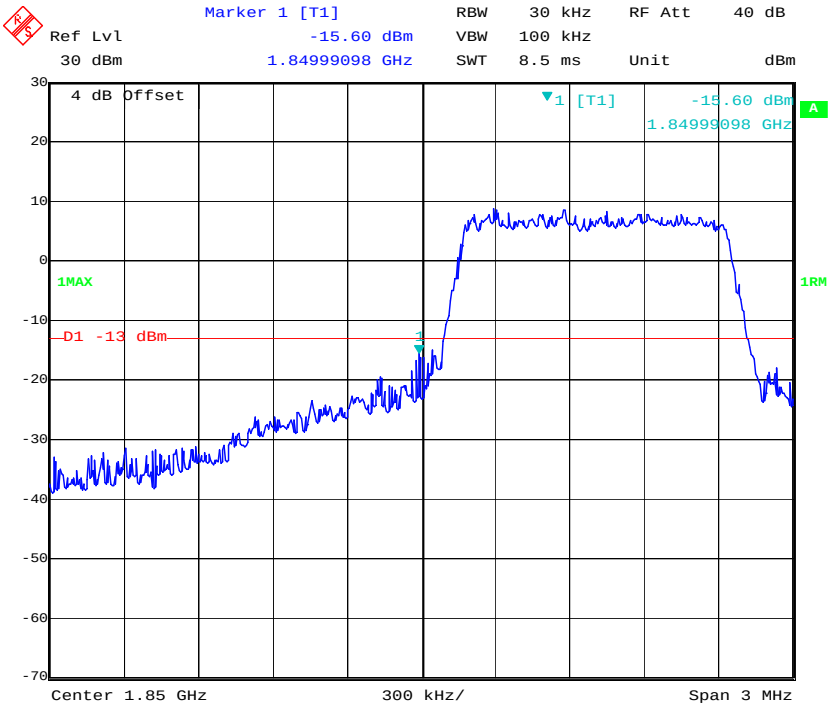
Date: 9.JUN.2018 00:10:23

QPSK_20MHz_ FULL RB_ Right



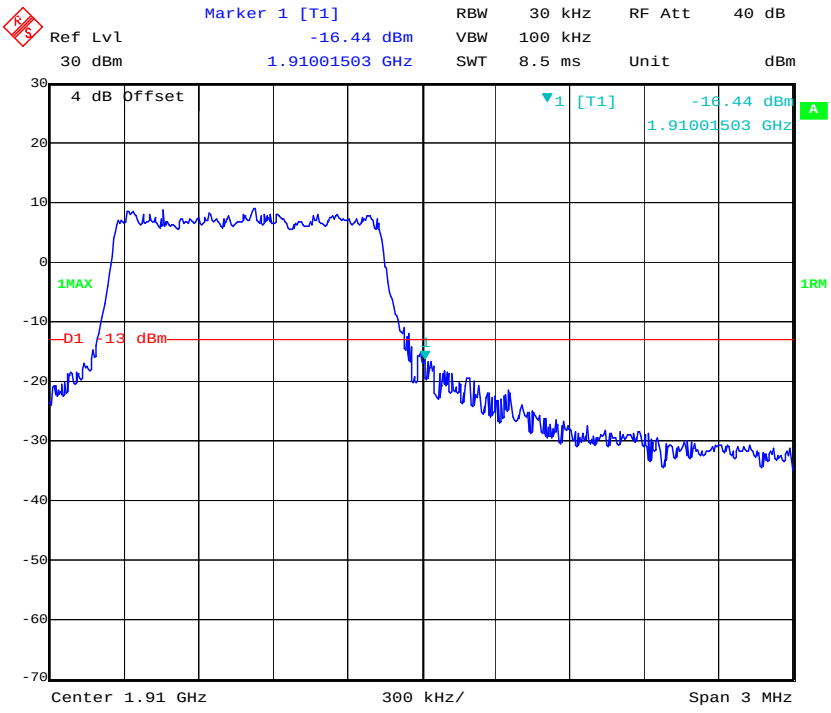
Date: 9.JUN.2018 00:11:36

16QAM_1.4MHz_ 6 RB_ Left



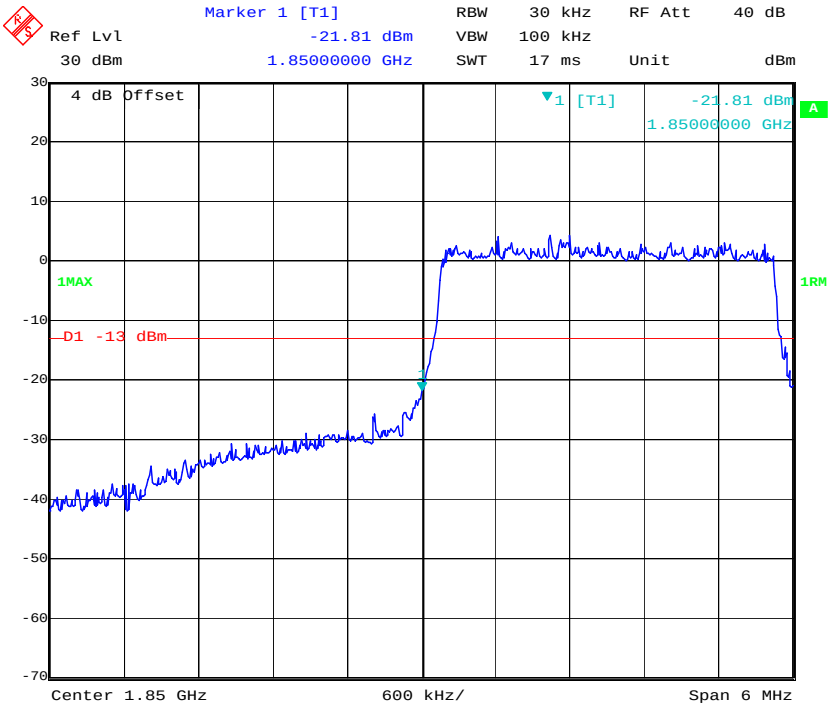
Date: 8.JUN.2018 23:56:55

16QAM_1.4MHz_ 6 RB_ Right



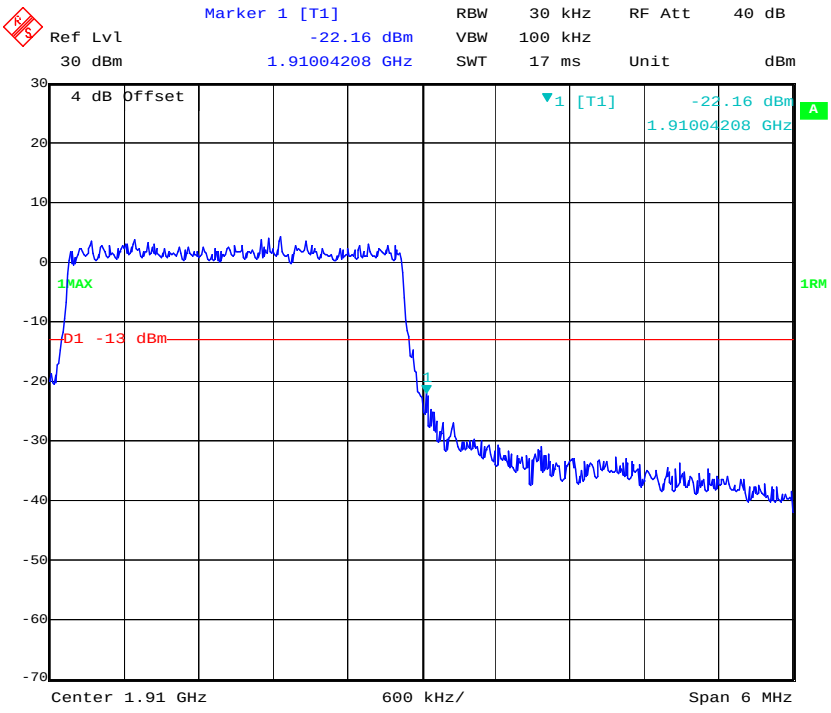
Date: 8.JUN.2018 23:58:21

16QAM_3MHz_ 15 RB_ Left



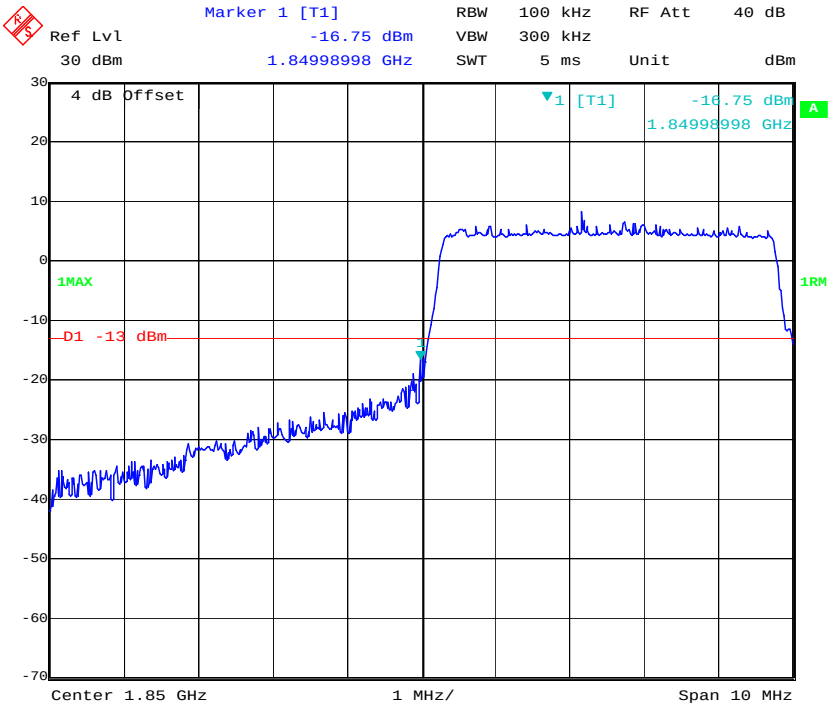
Date: 8.JUN.2018 23:59:41

16QAM_3MHz_ 15 RB_ Right



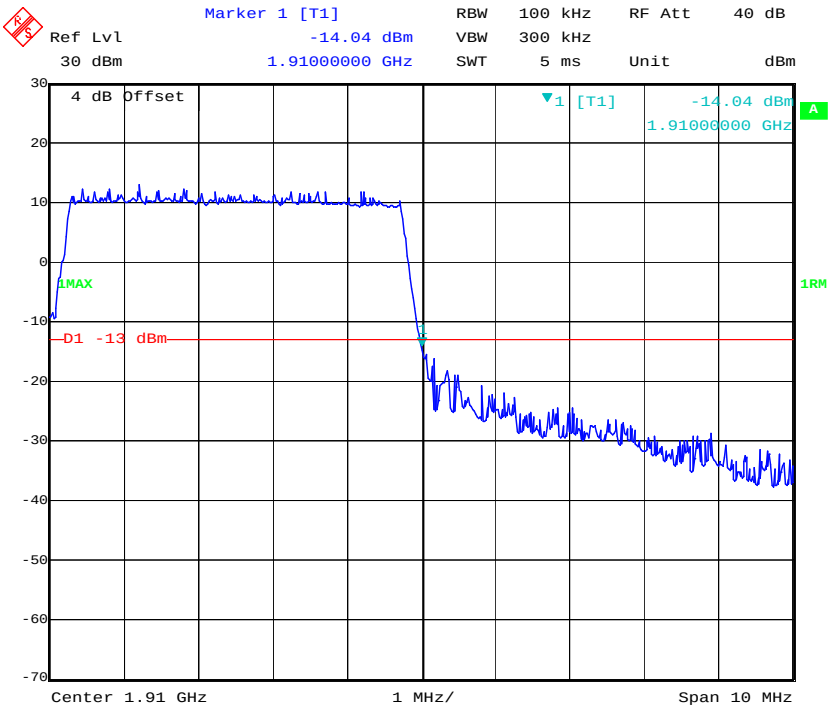
Date: 9.JUN.2018 00:01:01

16QAM_5MHz_ 25 RB_ Left



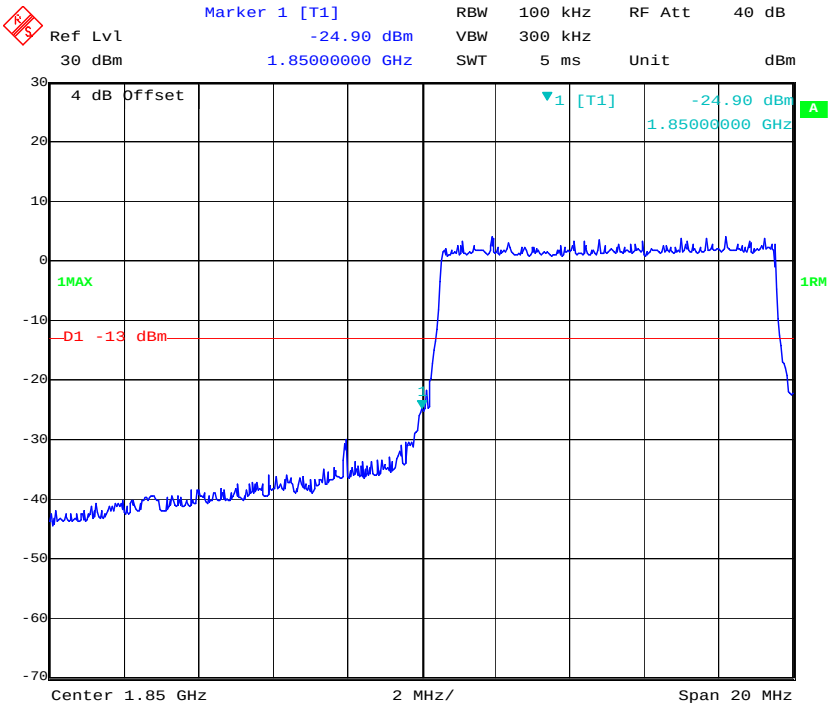
Date: 9.JUN.2018 00:02:41

16QAM_5MHz_ 25 RB_ Right



Date: 12.JUN.2018 23:01:13

16QAM_10MHz_ 50 RB_ Left

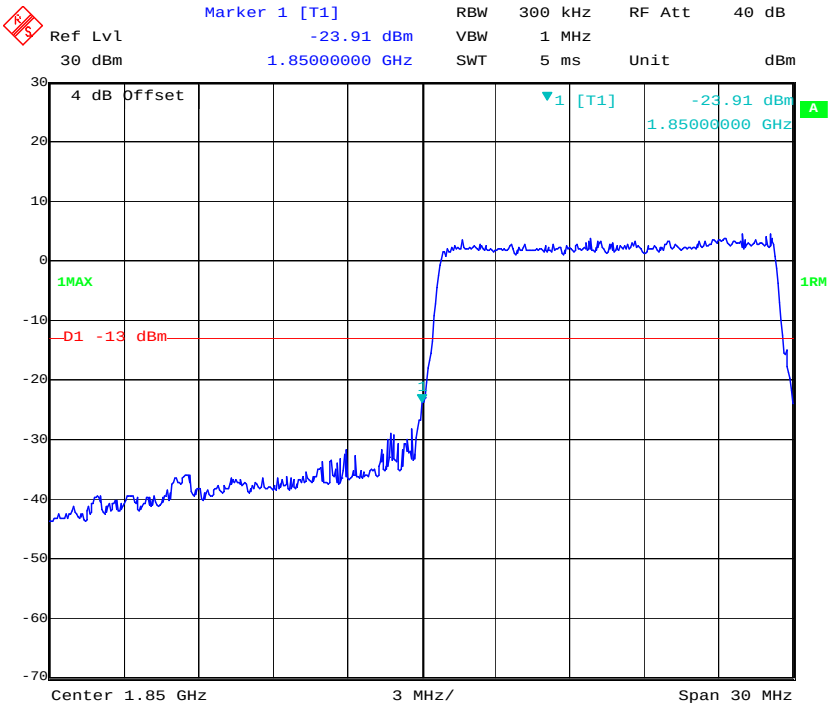


Date: 9.JUN.2018 00:05:44

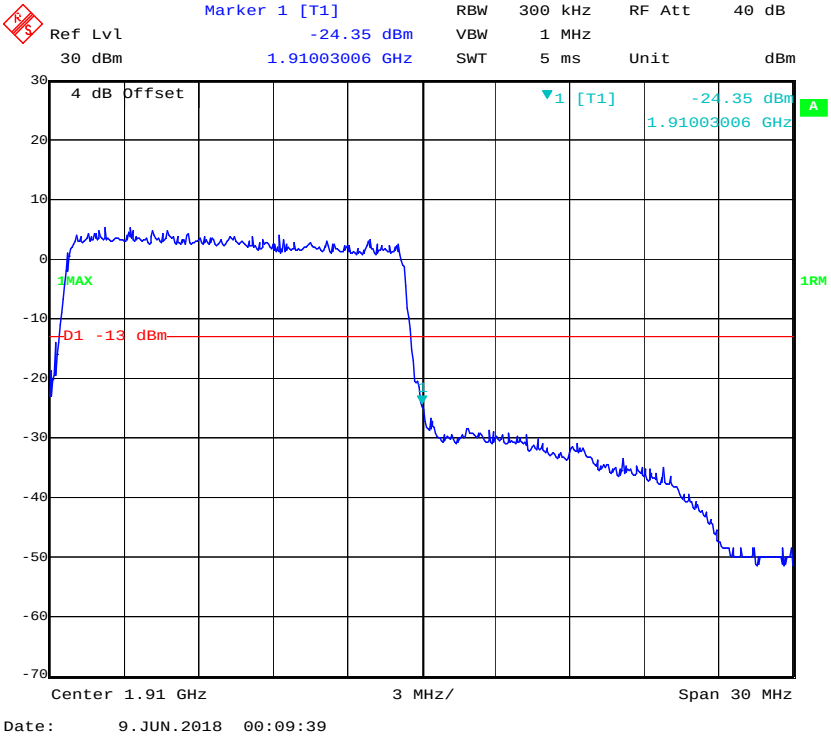
16QAM_10MHz_ 50 RB_ Right

Date: 9.JUN.2018 00:06:57

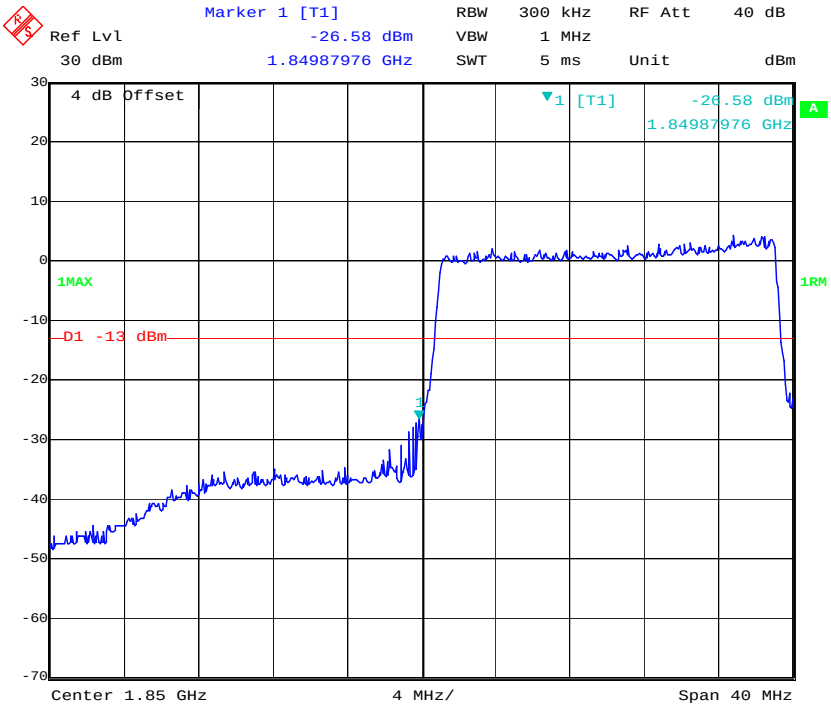
16QAM_15MHz_ 75 RB_ Left



16QAM_15MHz_ 75 RB_ Right

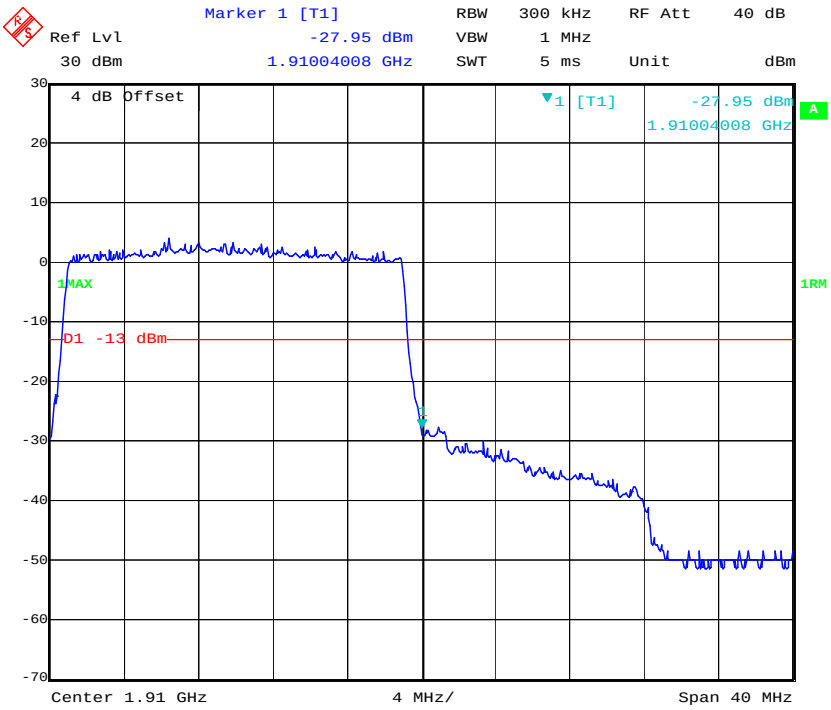


16QAM_20MHz_ FULL RB_ Left



Date: 9.JUN.2018 00:11:01

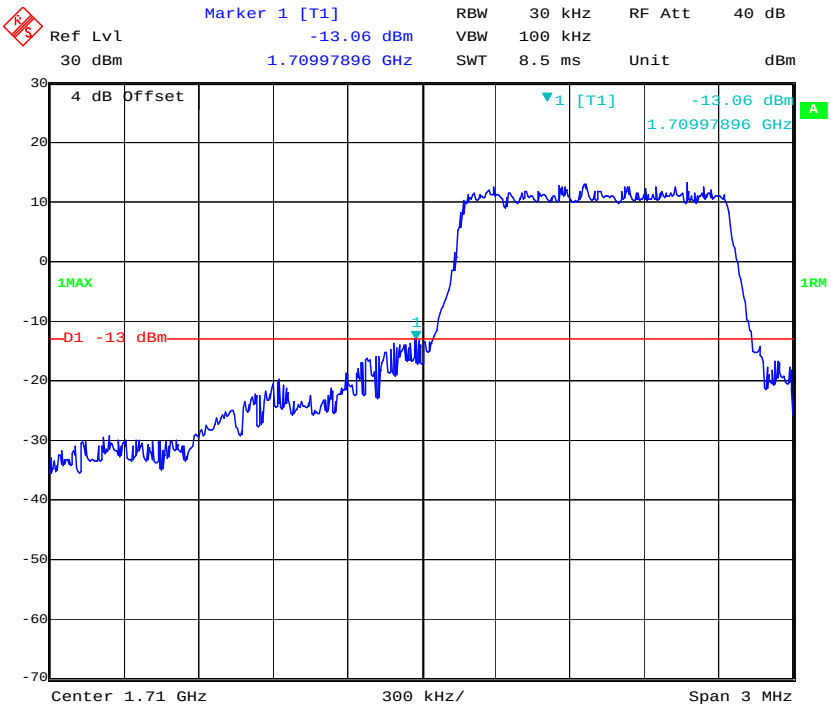
16QAM_20MHz_ FULL RB_ Right



Date: 9.JUN.2018 00:12:08

LTE Band 4

QPSK_1.4MHz_ 6 RB_ Left

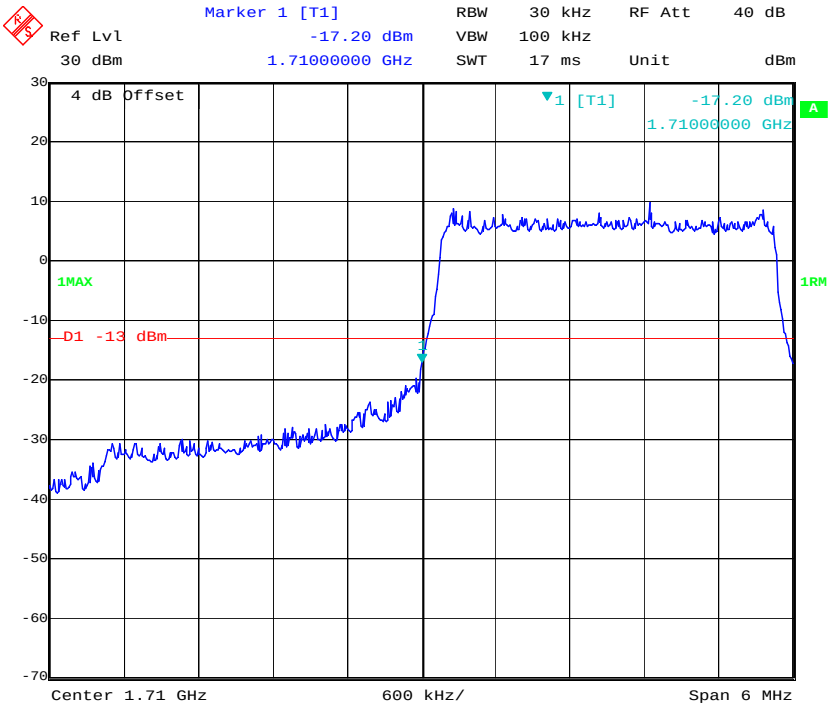


Date: 9.JUN.2018 00:12:58

QPSK_1.4MHz_ 6 RB_ Right

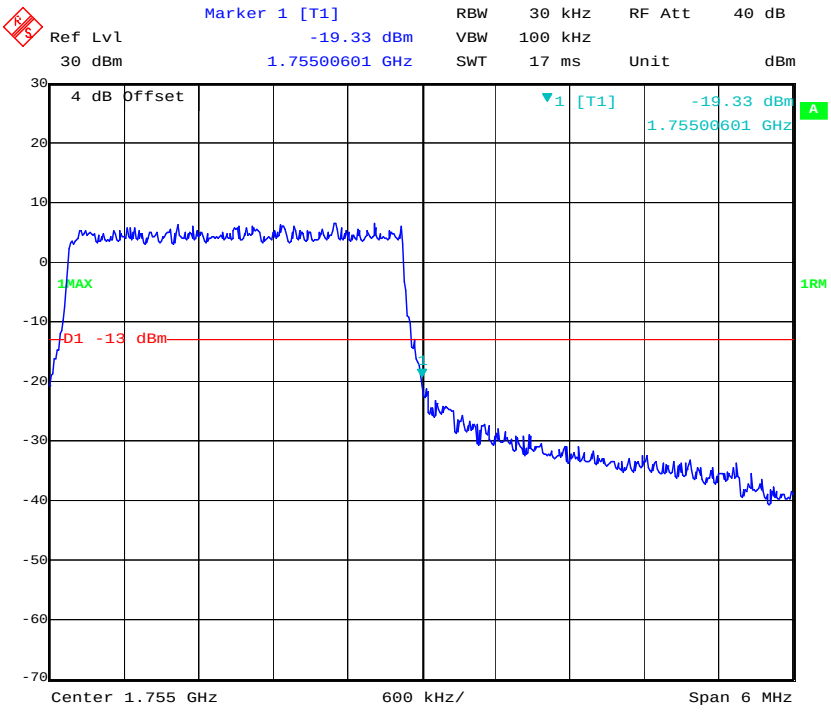
Date: 9.JUN.2018 00:14:21

QPSK_3MHz_ 15 RB_ Left



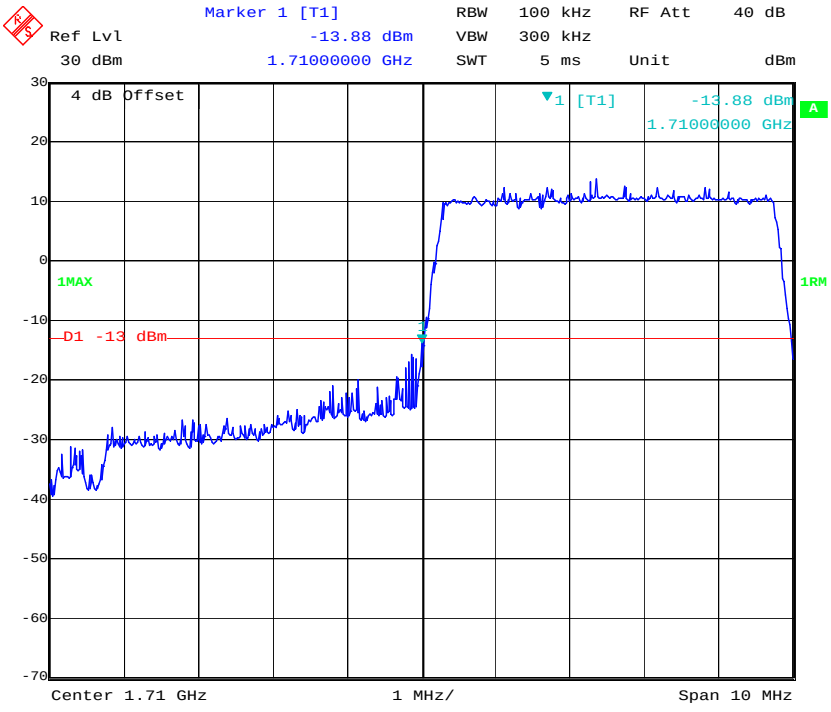
Date: 9.JUN.2018 00:15:48

QPSK_3MHz_ 15 RB_ Right



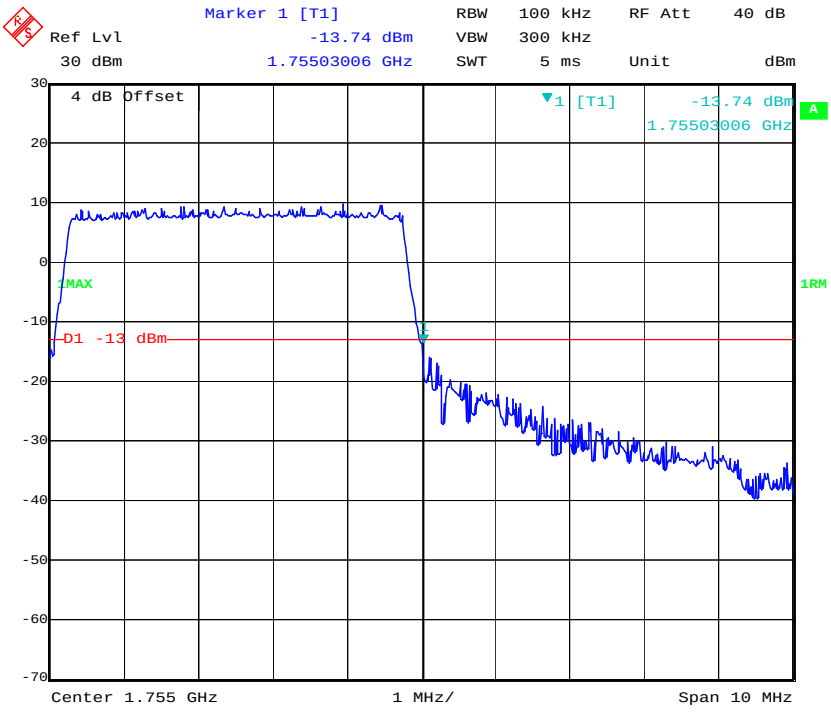
Date: 9.JUN.2018 00:17:00

QPSK_5MHz_ 25 RB_ Left



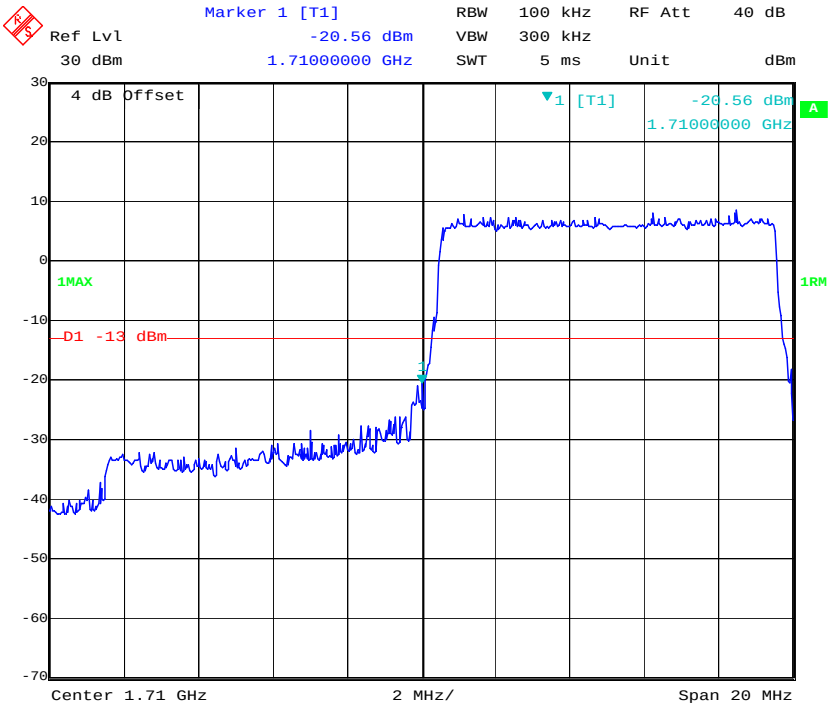
Date: 12.JUN.2018 23:04:01

QPSK_5MHz_ 25 RB_ Right



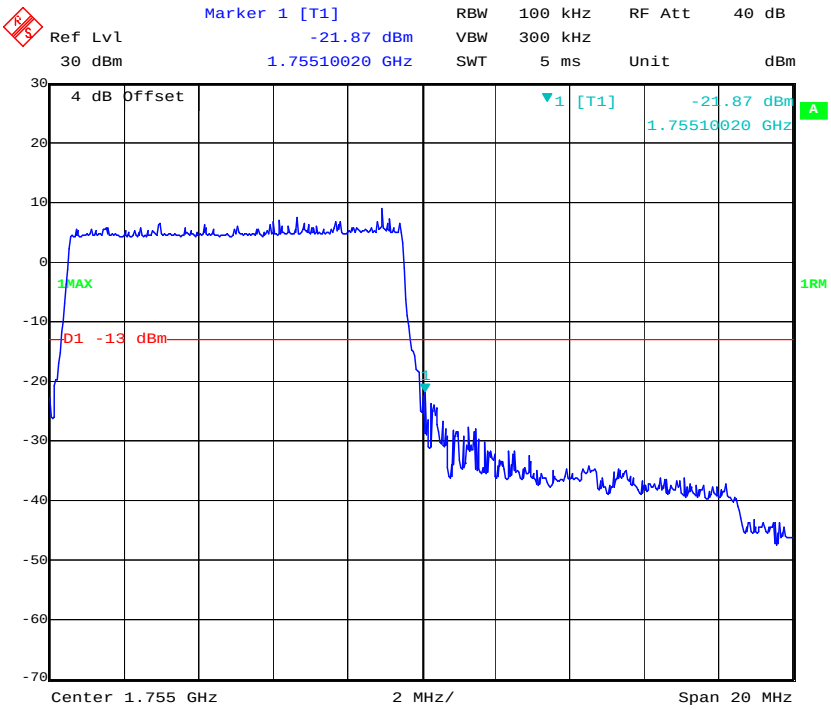
Date: 9.JUN.2018 00:19:55

QPSK_10MHz_ 50 RB_ Left



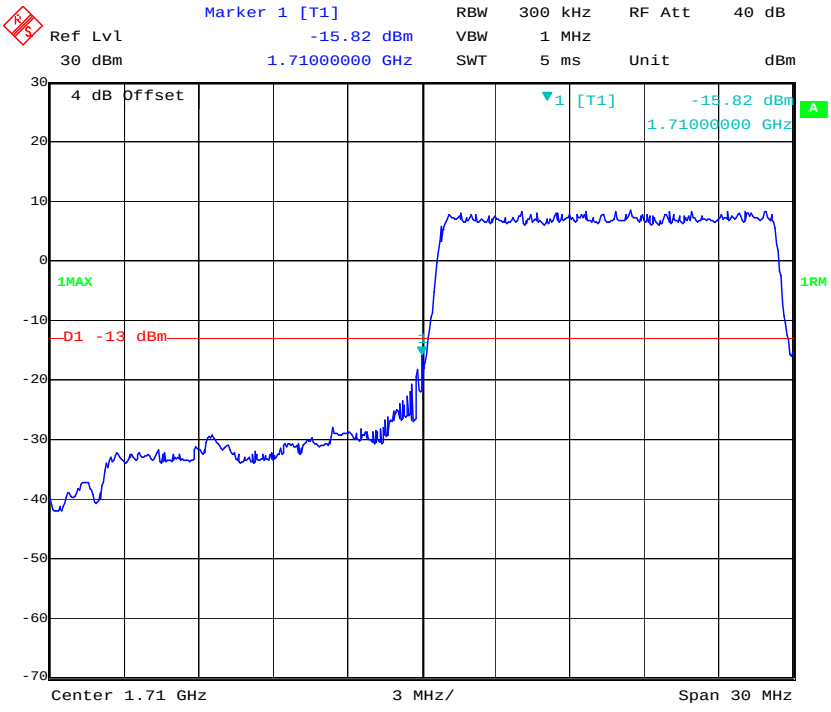
Date: 9.JUN.2018 00:21:18

QPSK_10MHz_ 50 RB_ Right



Date: 9.JUN.2018 00:22:32

QPSK_15MHz_ 75 RB_ Left

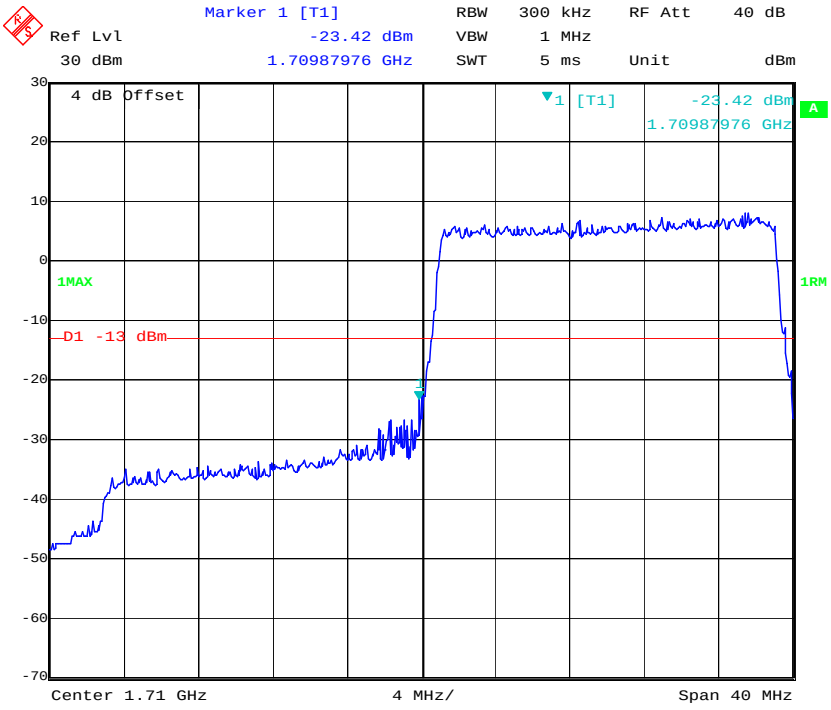


Date: 9.JUN.2018 00:23:52

QPSK_15MHz_ 75 RB_ Right

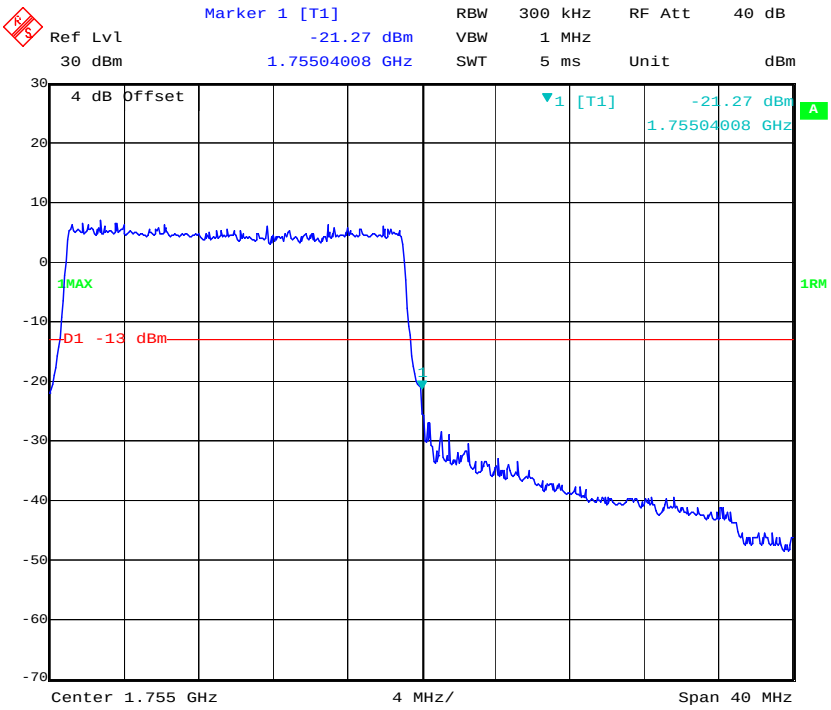
Date: 9.JUN.2018 00:25:21

QPSK_20MHz_ FULL RB_ Left



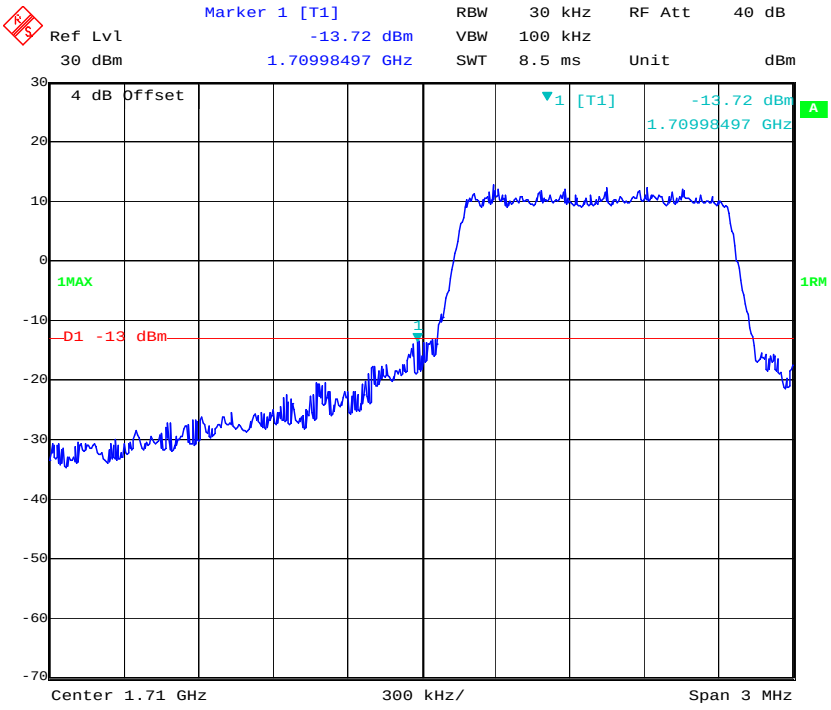
Date: 9.JUN.2018 00:27:44

QPSK_20MHz_ FULL RB_ Right



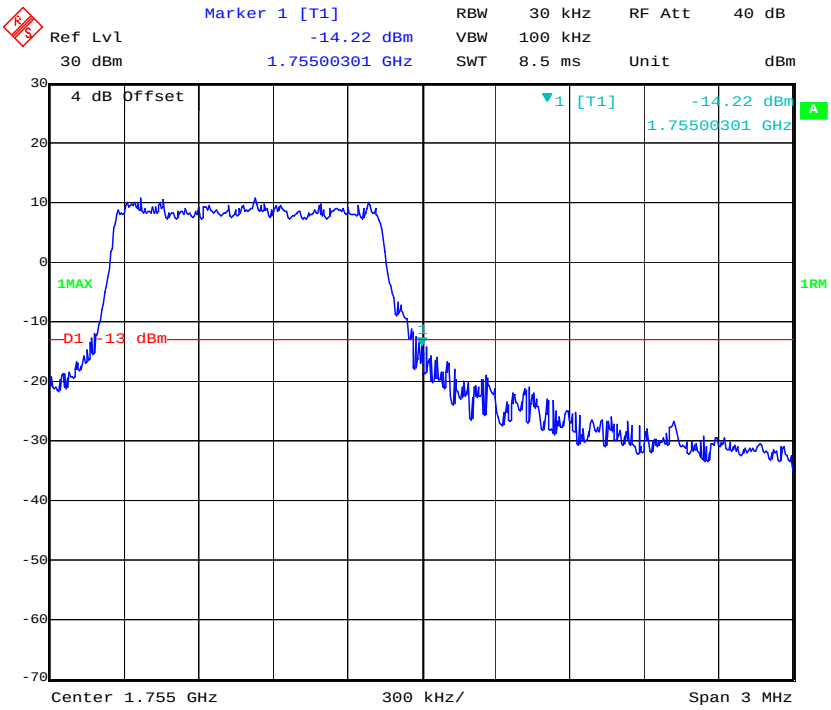
Date: 9.JUN.2018 00:28:56

16QAM_1.4MHz_ 6 RB_ Left



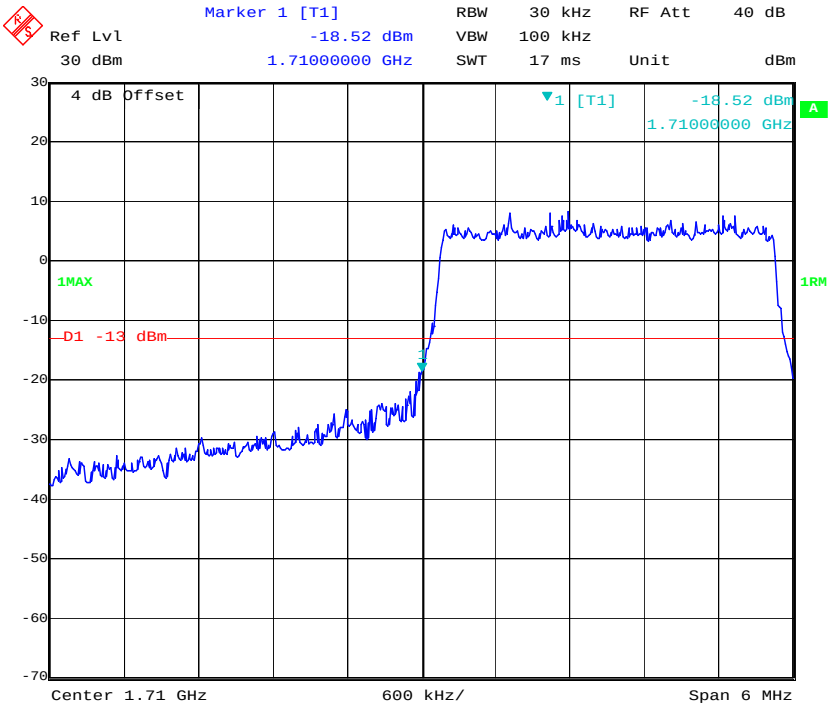
Date: 9.JUN.2018 00:13:45

16QAM_1.4MHz_ 6 RB_ Right



Date: 9.JUN.2018 00:15:07

16QAM_3MHz_ 15 RB_ Left

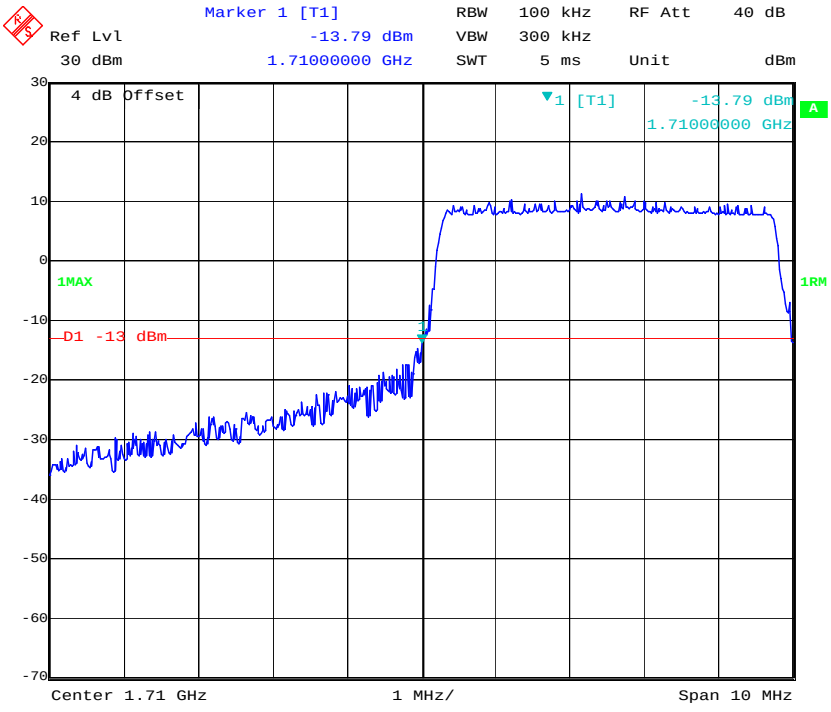


Date: 9.JUN.2018 00:16:22

16QAM_3MHz_ 15 RB_ Right

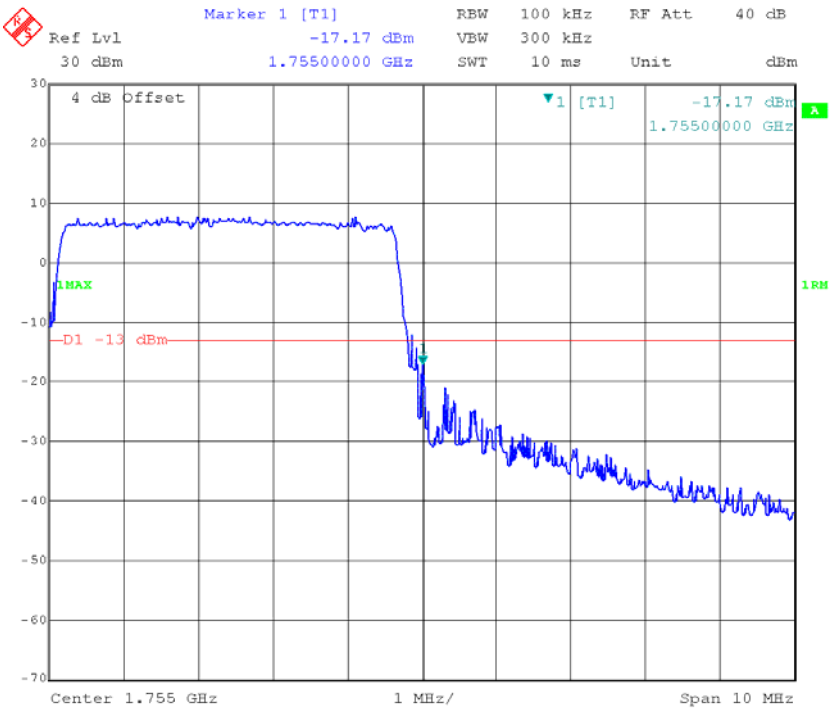
Date: 9.JUN.2018 00:17:33

16QAM_5MHz_ 25 RB_ Left



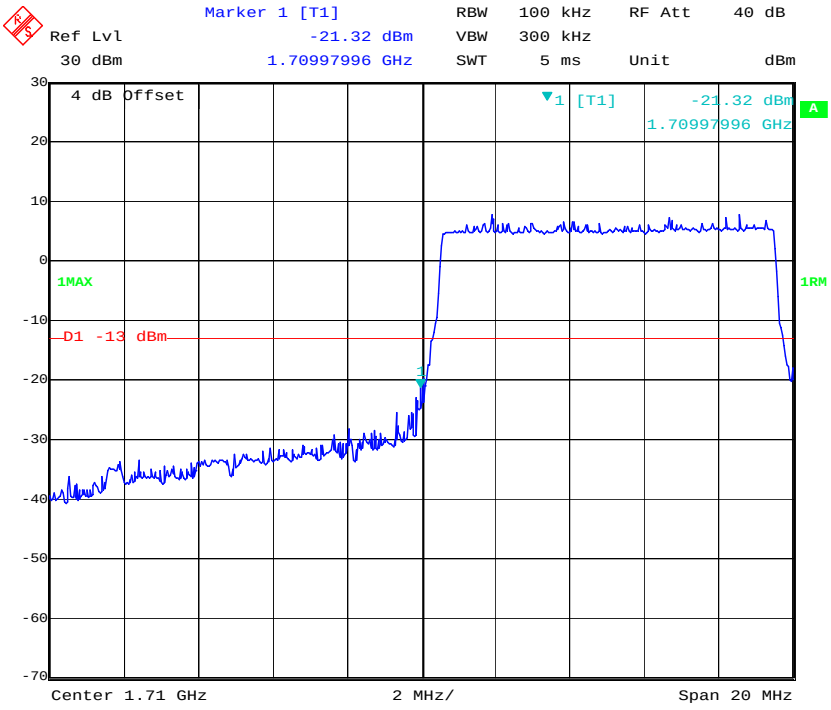
Date: 9.JUN.2018 00:19:09

16QAM_5MHz_ 25 RB_ Right



Date: 27.JUL.2018 16:32:44

16QAM_10MHz_ 50 RB_ Left

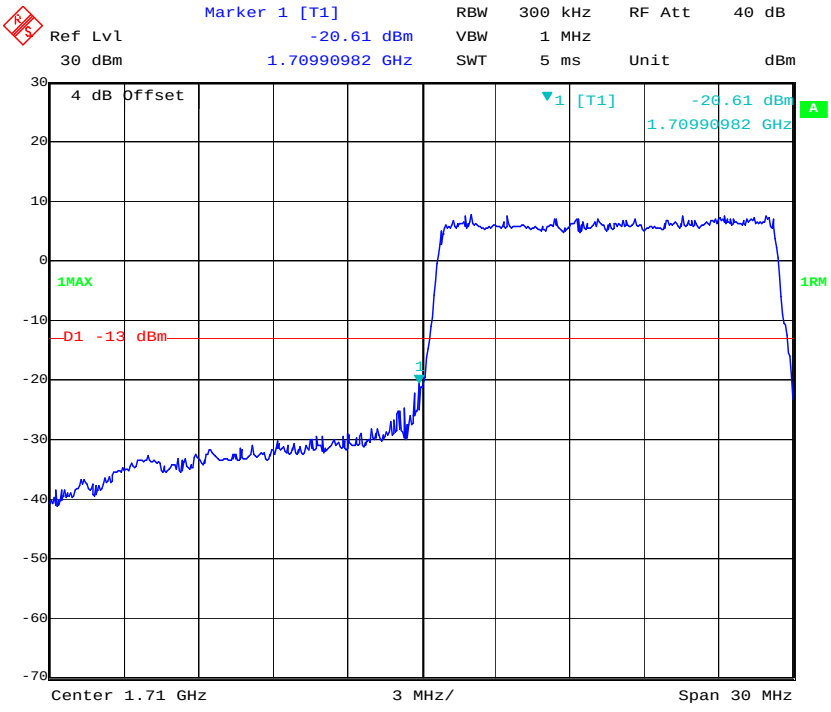


Date: 9.JUN.2018 00:21:52

16QAM_10MHz_ 50 RB_ Right

Date: 9.JUN.2018 00:23:10

16QAM_15MHz_ 75 RB_ Left

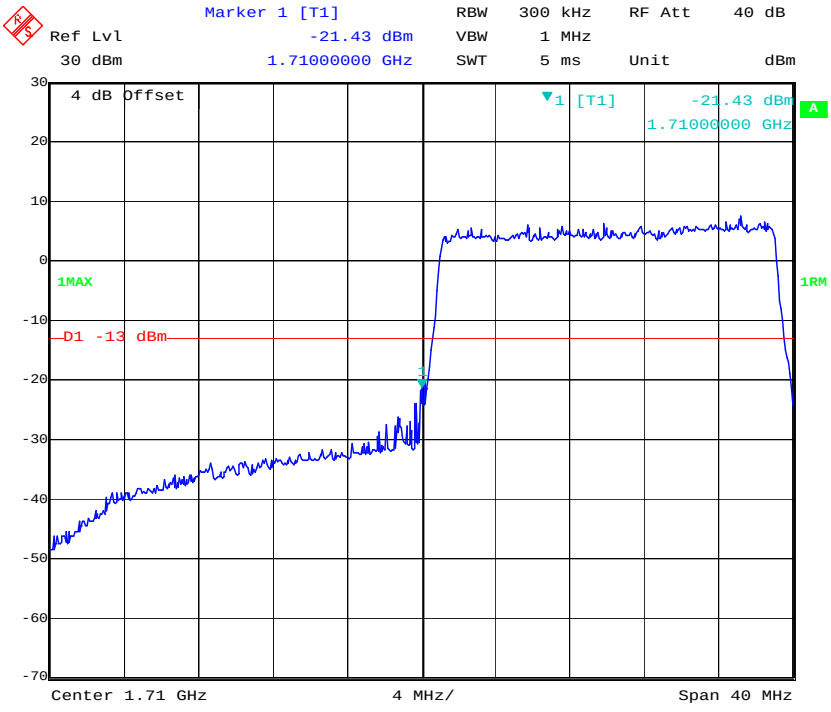


Date: 9.JUN.2018 00:24:30

16QAM_15MHz_ 75 RB_ Right

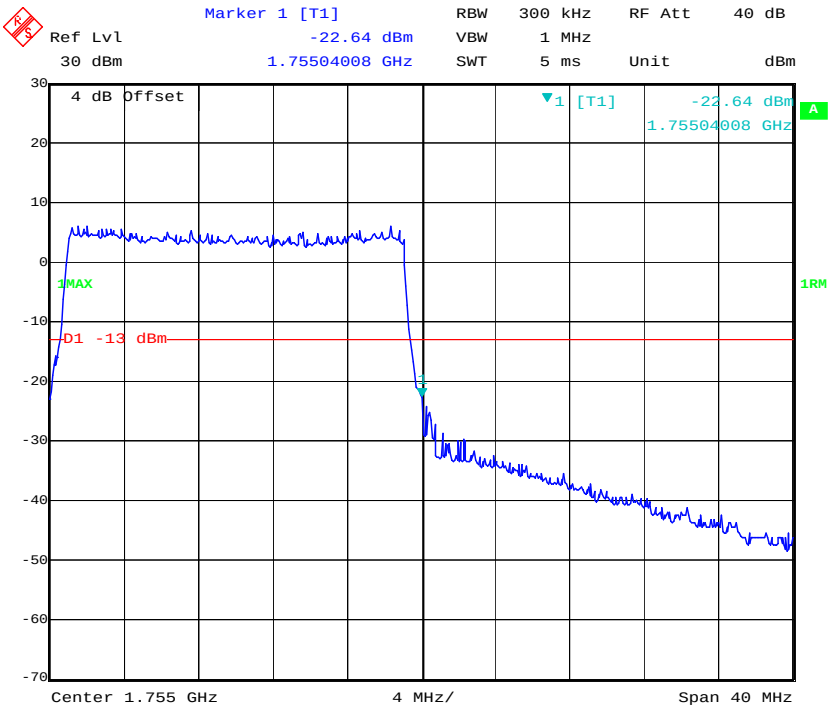
Date: 9.JUN.2018 00:26:05

16QAM_20MHz_ FULL RB_ Left



Date: 9.JUN.2018 00:28:21

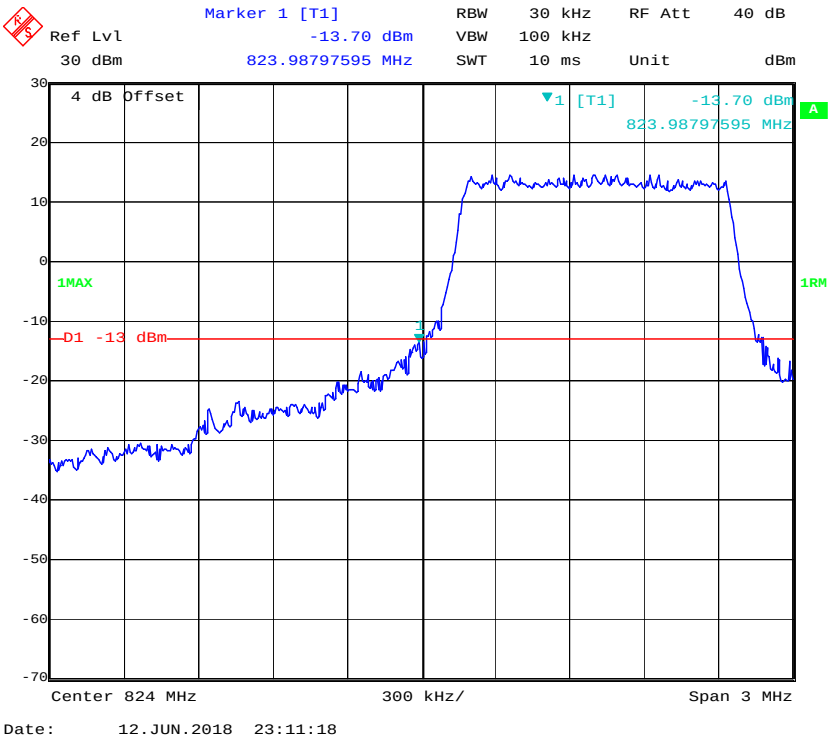
16QAM_20MHz_ FULL RB_ Right



Date: 9.JUN.2018 00:29:33

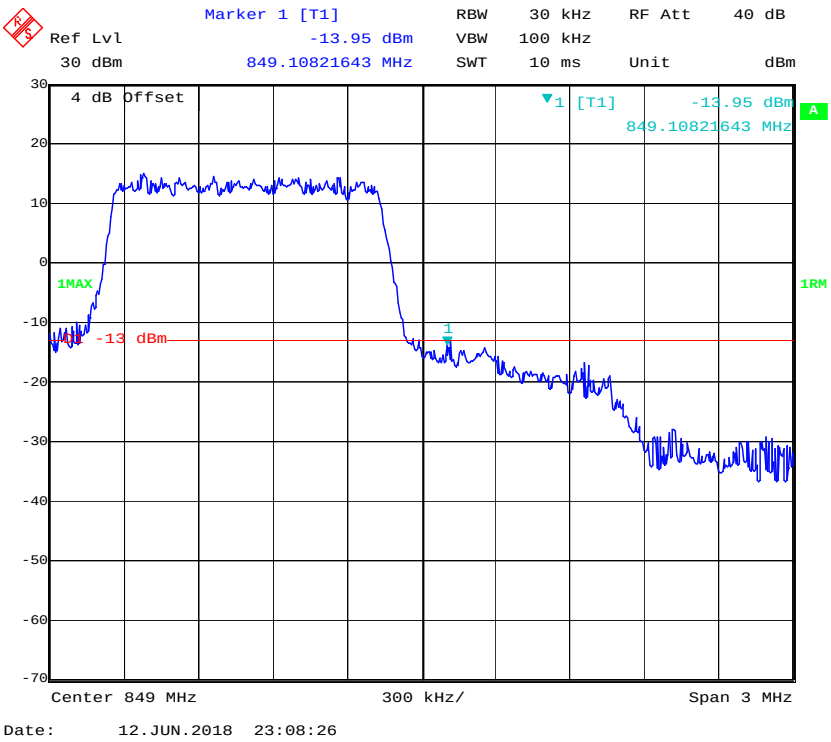
LTE Band 5

QPSK_1.4MHz_ 6 RB_ Left



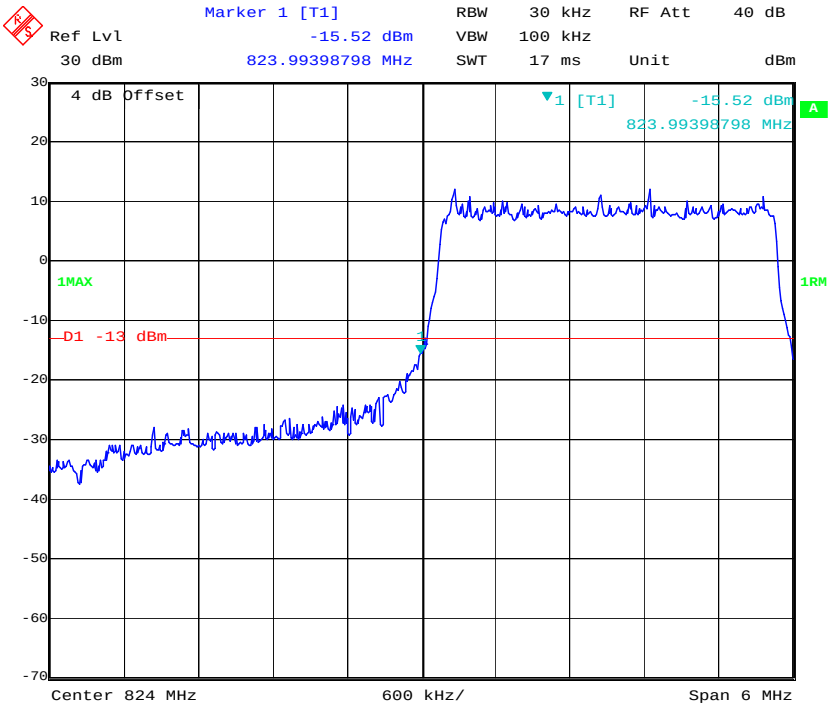
Date: 12.JUN.2018 23:11:18

QPSK_1.4MHz_ 6 RB_ Right

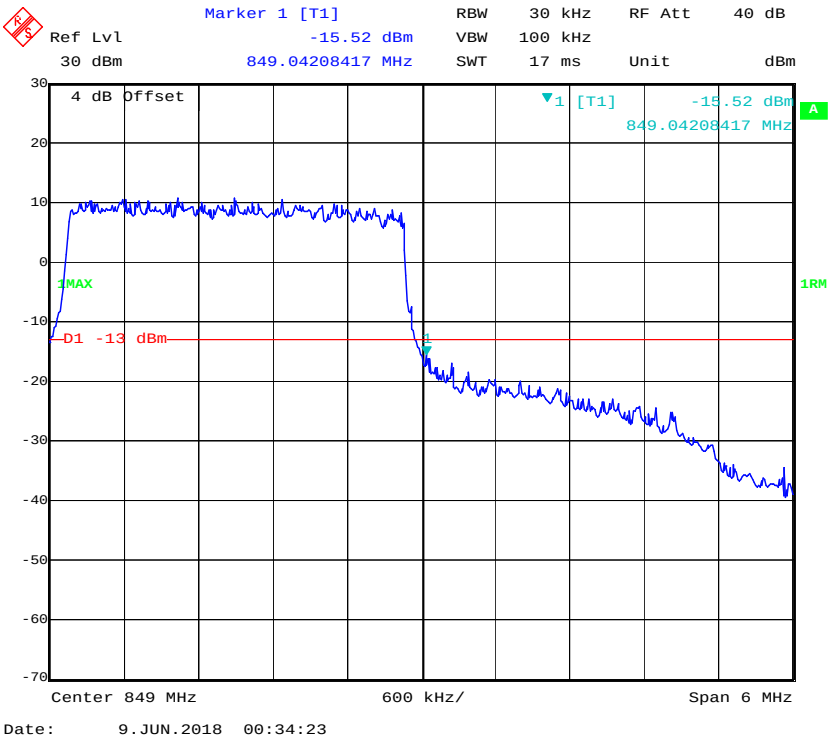


Date: 12.JUN.2018 23:08:26

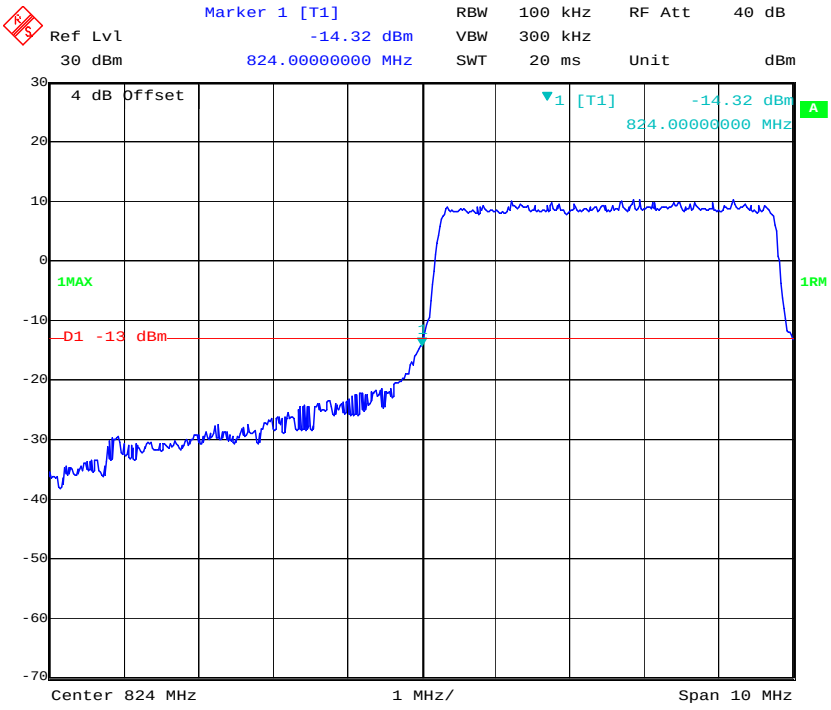
QPSK_3MHz_ 15 RB_ Left



QPSK_3MHz_ 15 RB_ Right

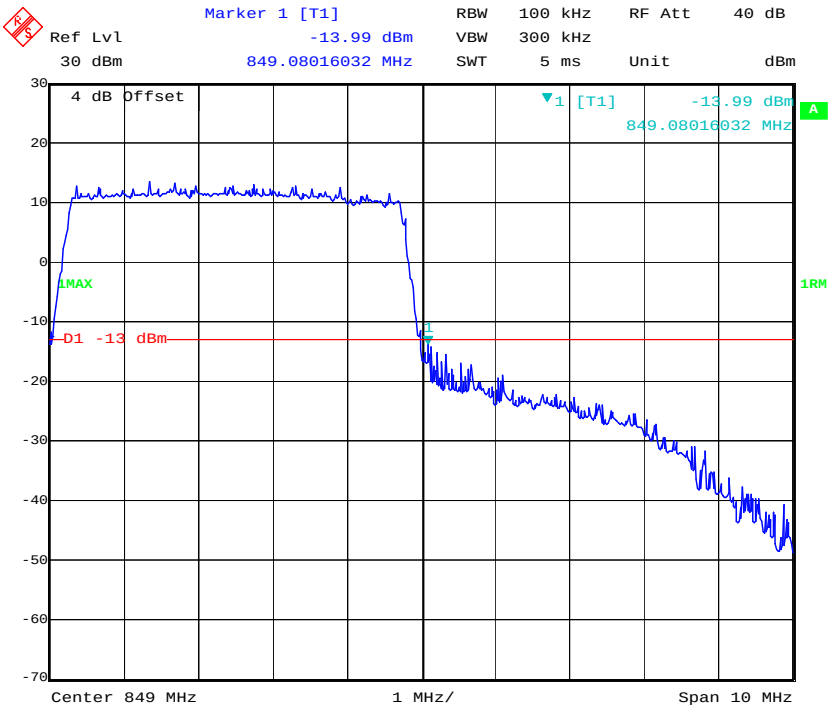


QPSK_5MHz_ 25 RB_ Left



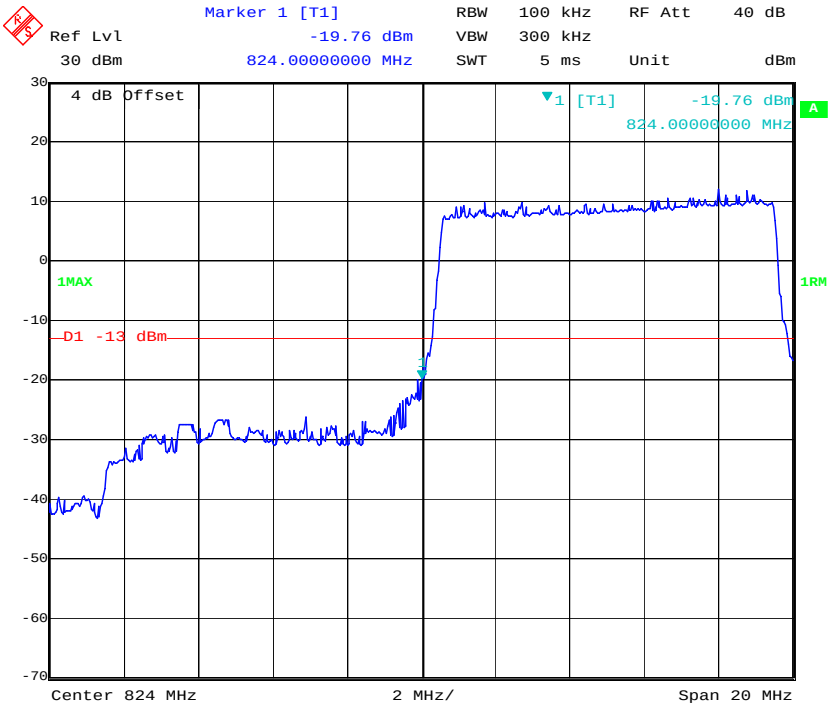
Date: 12.JUN.2018 23:18:12

QPSK_5MHz_ 25 RB_ Right



Date: 12.JUN.2018 23:14:26

QPSK_10MHz_ 50 RB_ Left

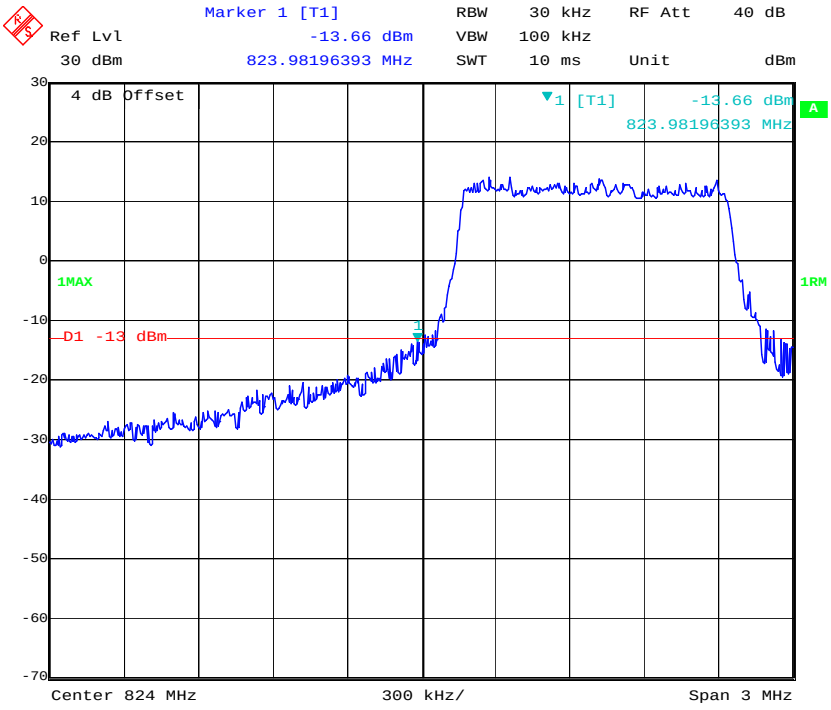


Date: 9.JUN.2018 00:38:47

QPSK_10MHz_ 50 RB_ Right

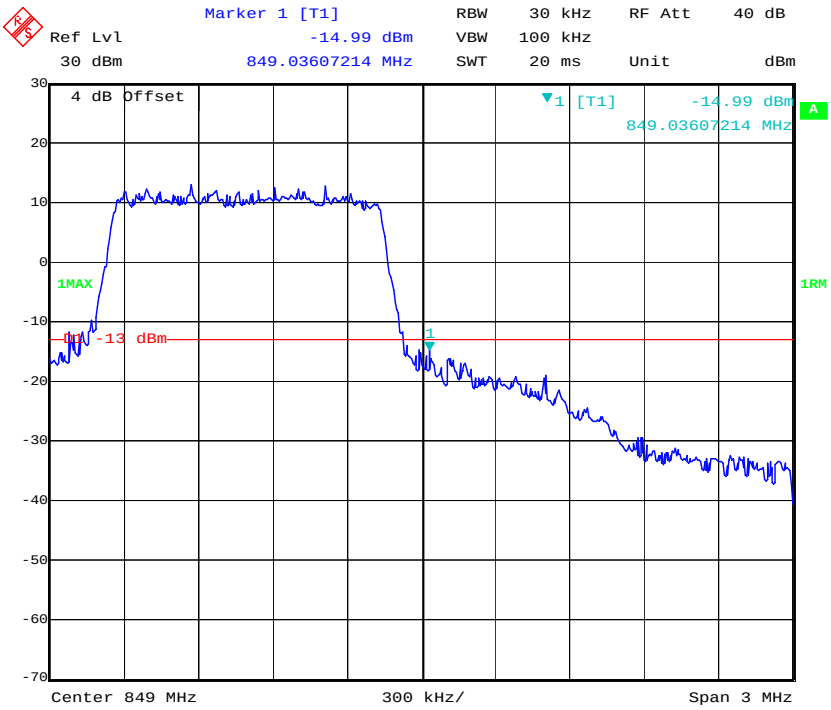
Date: 9.JUN.2018 00:39:46

16QAM_1.4MHz_ 6 RB_ Left



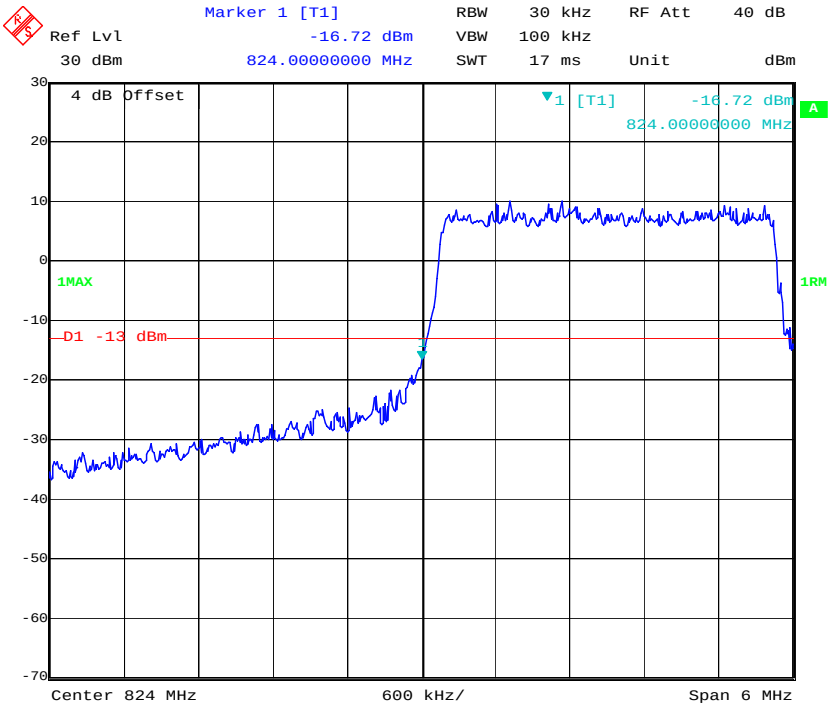
Date: 12.JUN.2018 23:10:06

16QAM_1.4MHz_ 6 RB_ Right



Date: 12.JUN.2018 23:07:13

16QAM_3MHz_ 15 RB_ Left

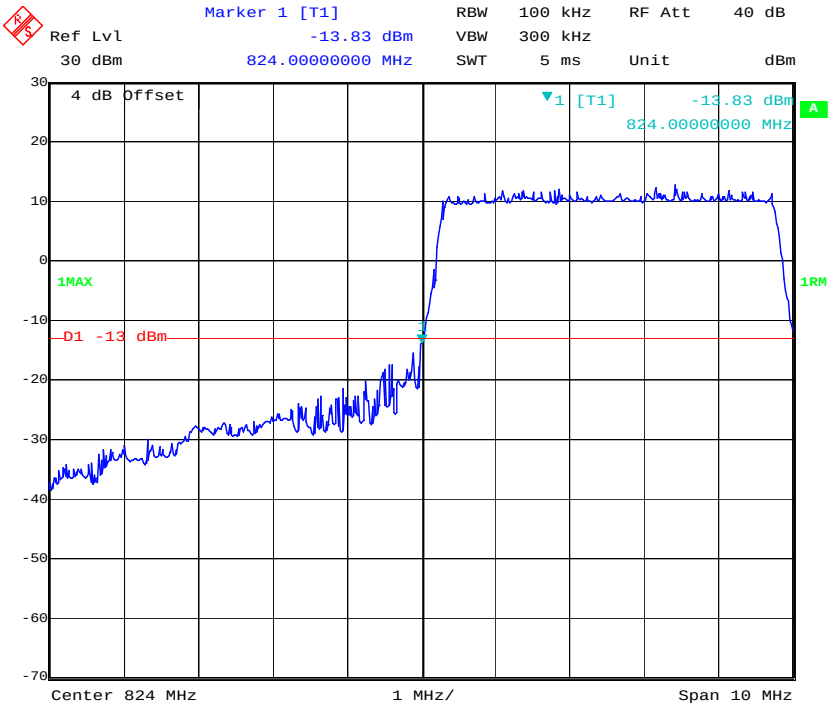


Date: 9.JUN.2018 00:33:44

16QAM_3MHz_ 15 RB_ Right

Date: 9.JUN.2018 00:35:00

16QAM_5MHz_ 25 RB_ Left

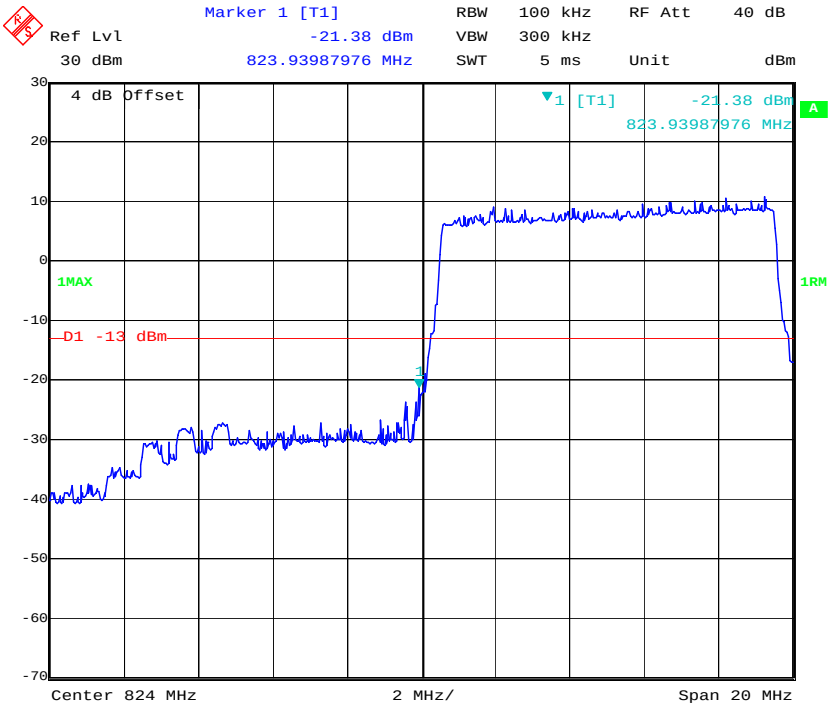


Date: 12.JUN.2018 23:16:42

16QAM_5MHz_ 25 RB_ Right

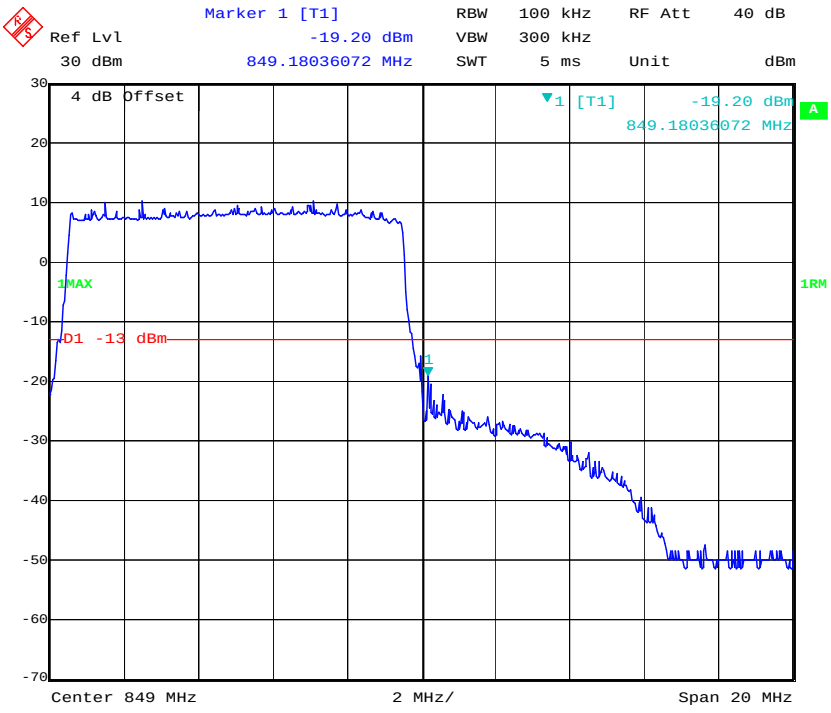
Date: 12.JUN.2018 23:13:23

16QAM_10MHz_ 50 RB_ Left



Date: 9.JUN.2018 00:39:19

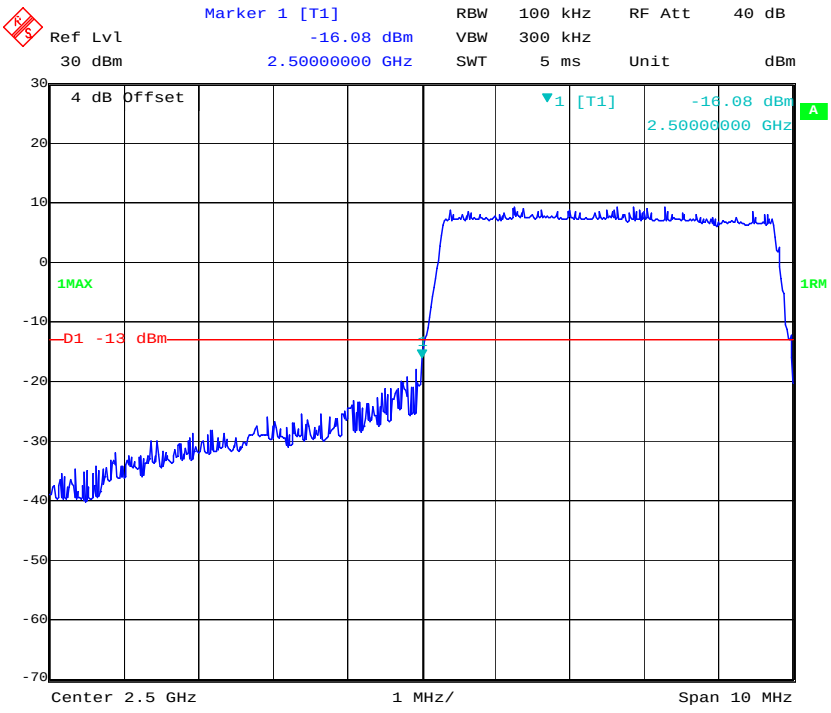
16QAM_10MHz_ 50 RB_ Right



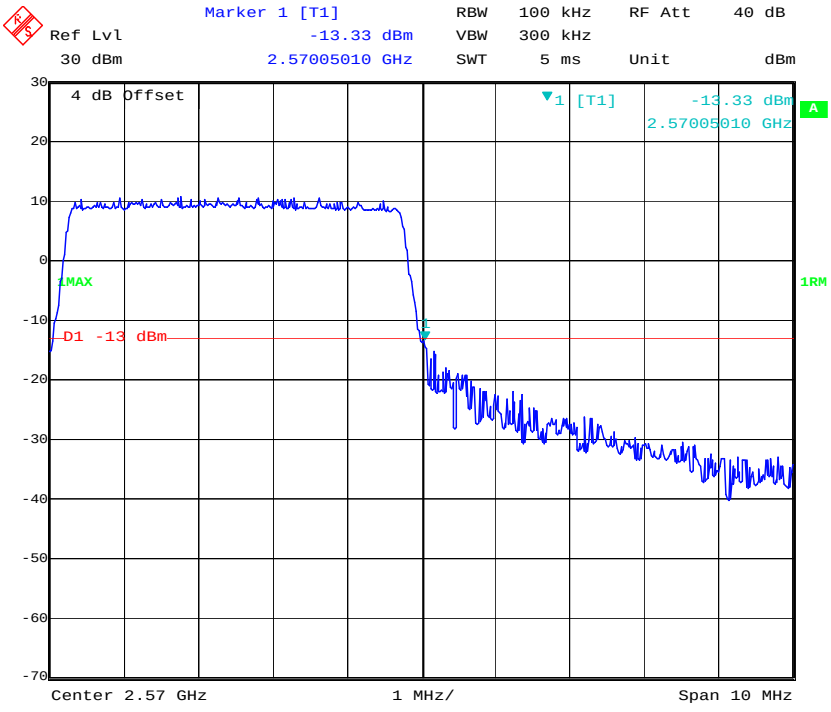
Date: 9.JUN.2018 00:40:24

LTE Band 7

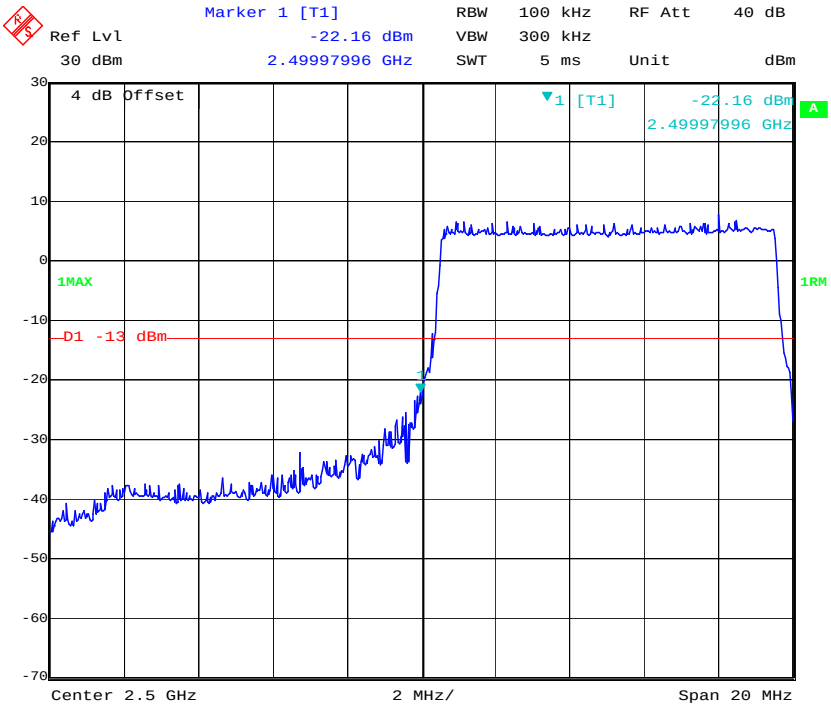
QPSK_5MHz_ 25 RB_ Left



QPSK_5MHz_ 25 RB_ Right

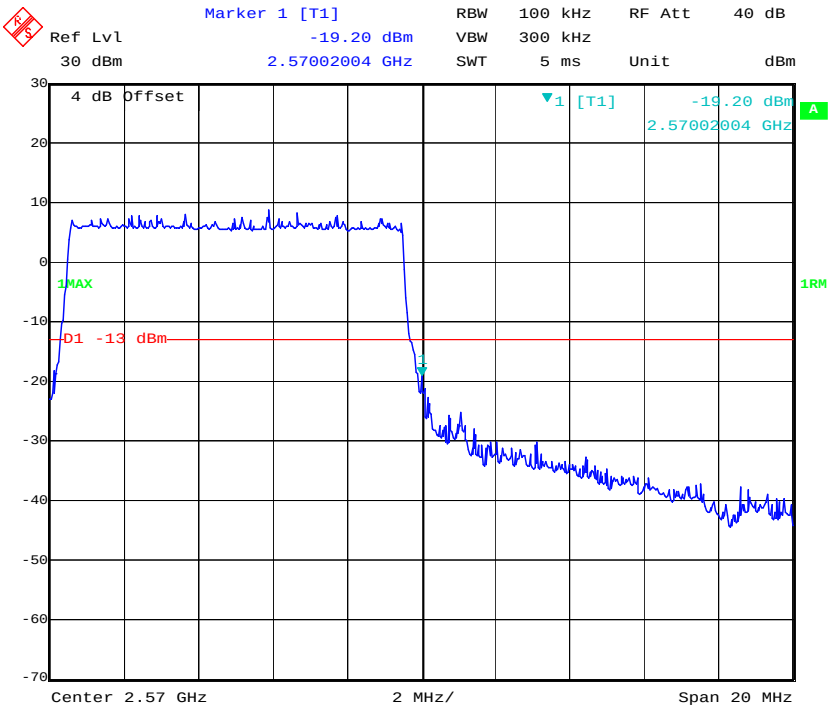


QPSK_10MHz_ 50 RB_ Left



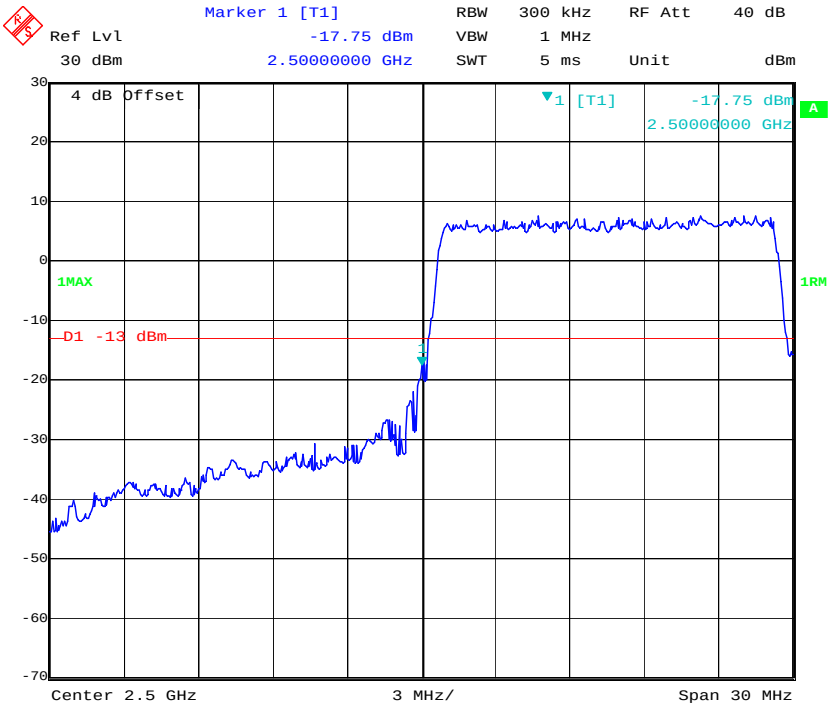
Date: 9.JUN.2018 00:44:22

QPSK_10MHz_ 50 RB_ Right



Date: 9.JUN.2018 00:45:40

QPSK_15MHz_ 75 RB_ Left

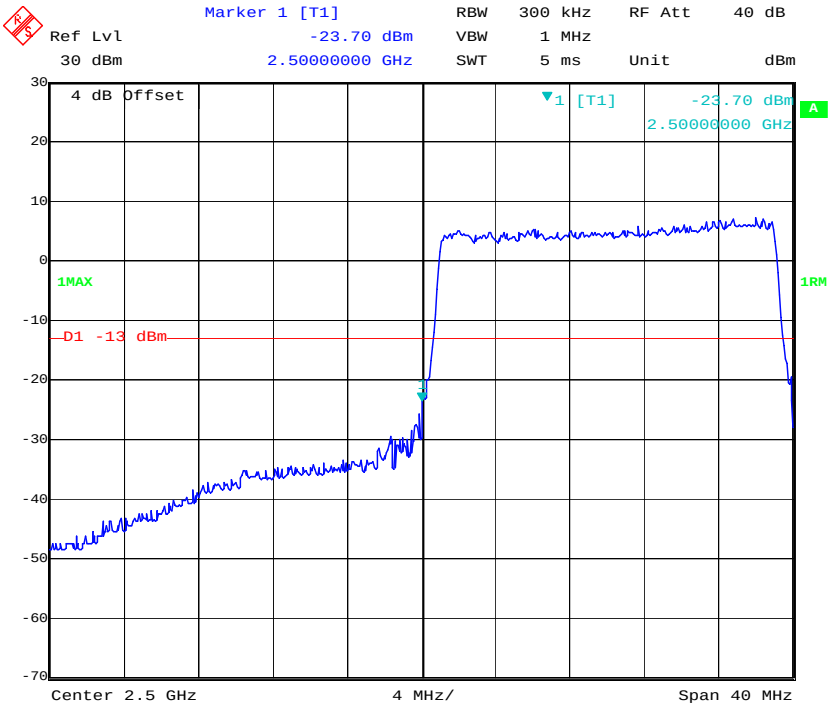


Date: 9.JUN.2018 00:47:02

QPSK_15MHz_ 75 RB_ Right

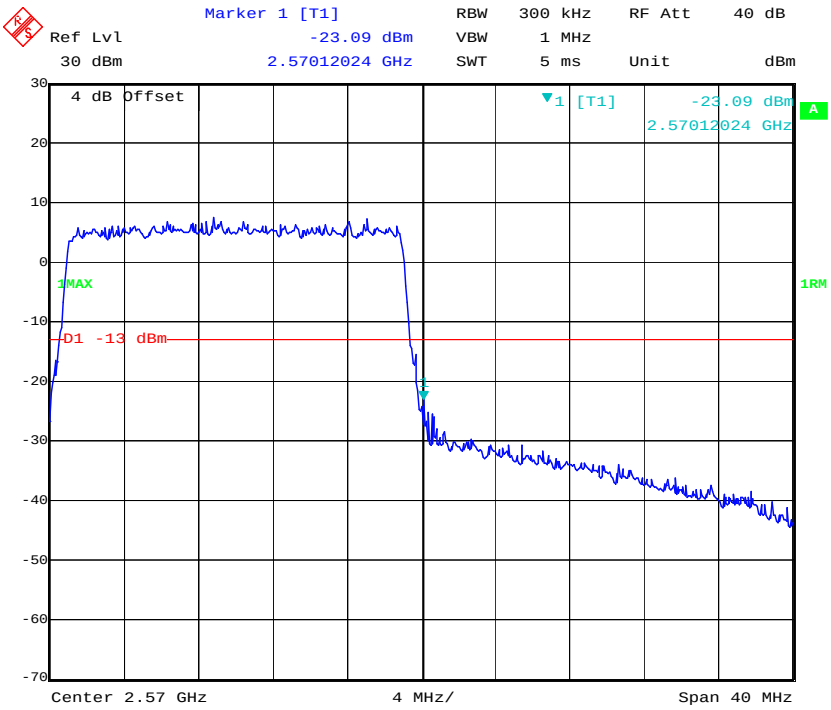
Date: 9.JUN.2018 00:48:23

QPSK_20MHz_ FULL RB_ Left



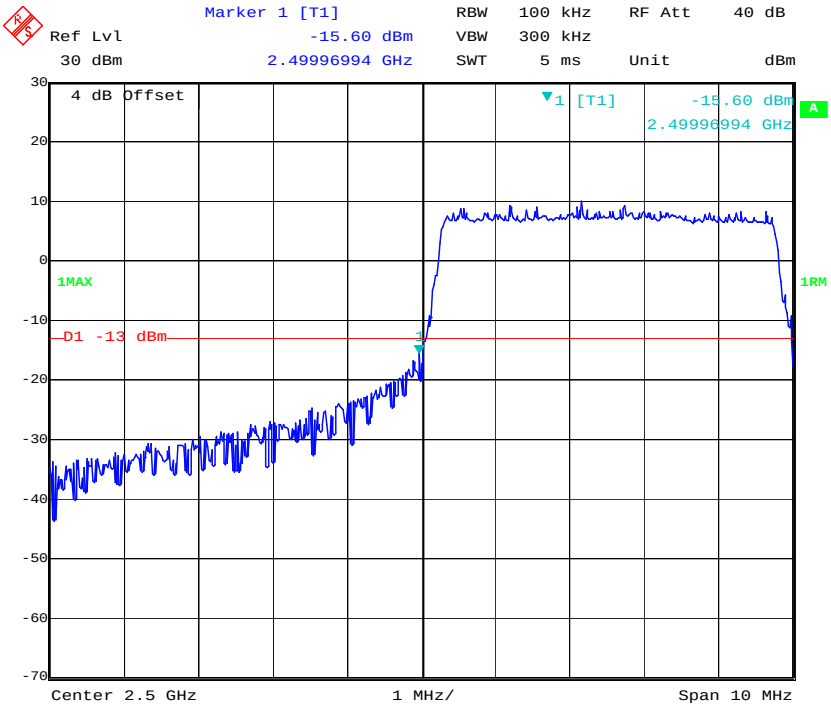
Date: 9.JUN.2018 00:49:52

QPSK_20MHz_ FULL RB_ Right



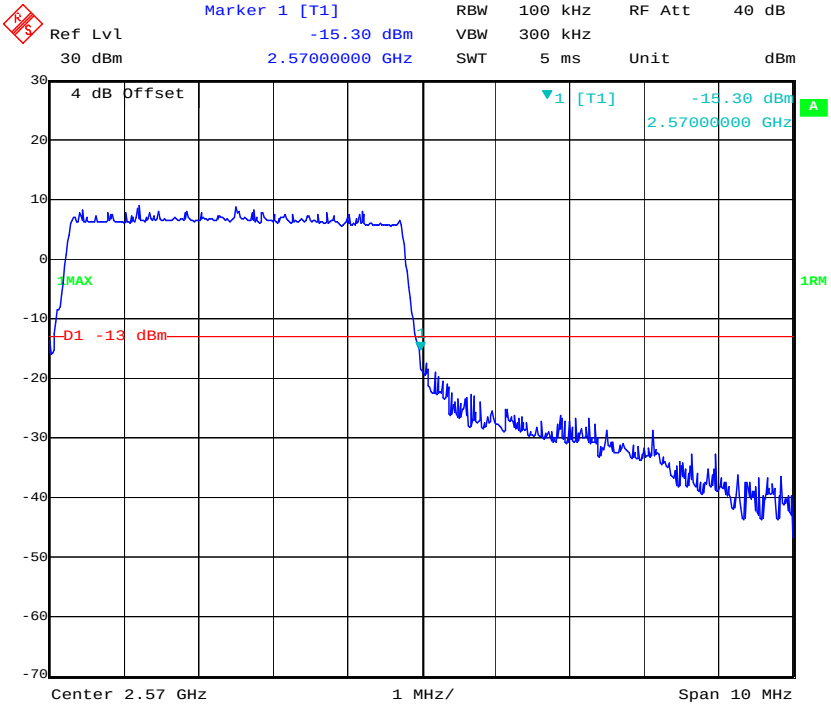
Date: 9.JUN.2018 00:51:04

16QAM_5MHz_ 25 RB_ Left



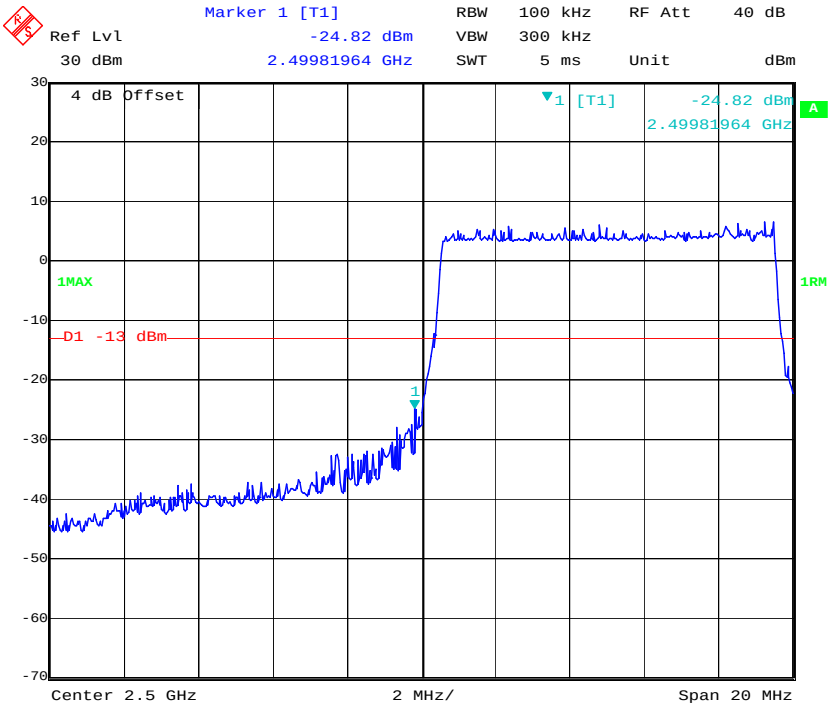
Date: 9.JUN.2018 00:42:06

16QAM_5MHz_ 25 RB_ Right



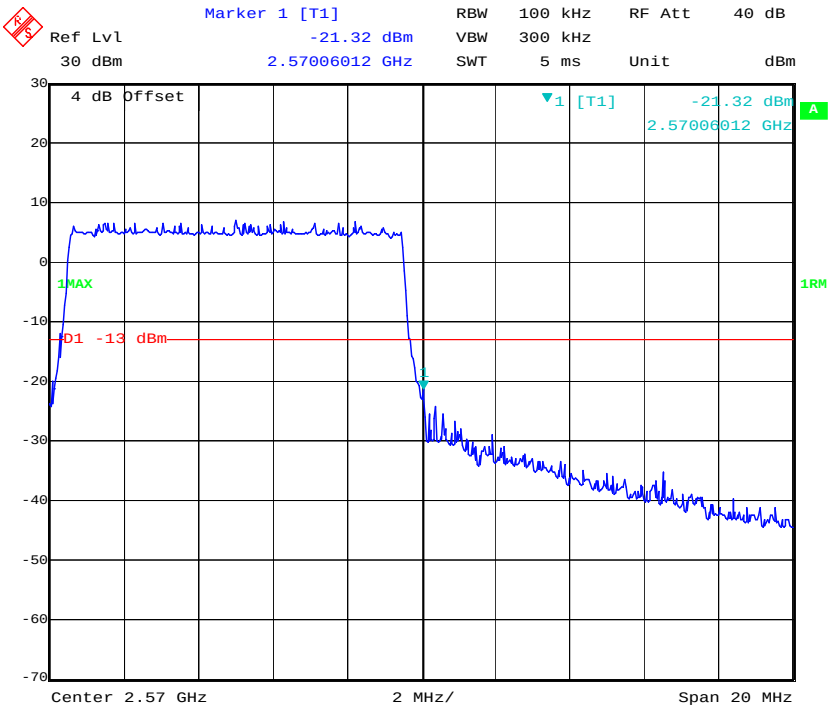
Date: 12.JUN.2018 23:19:36

16QAM_10MHz_ 50 RB_ Left



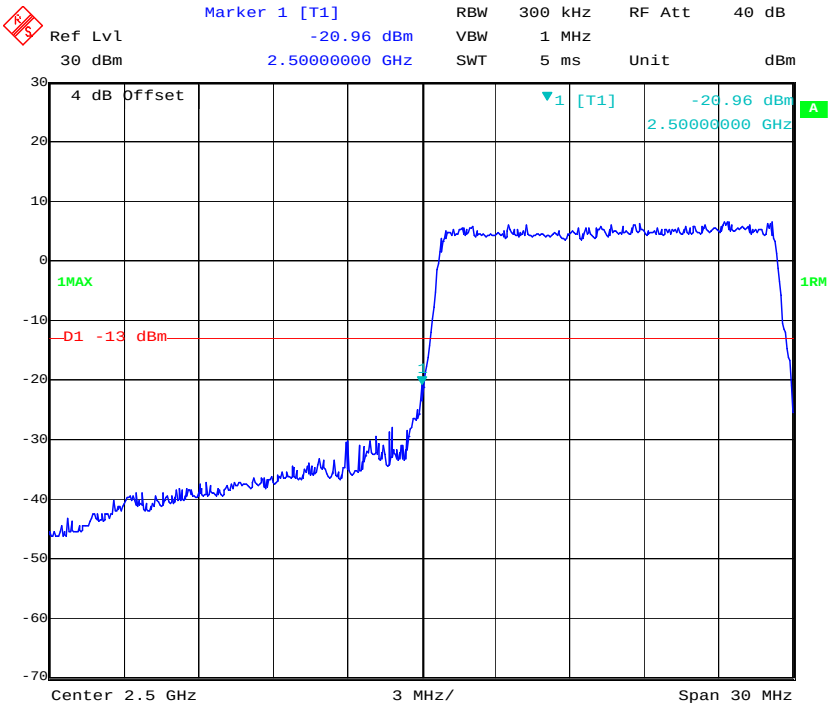
Date: 9.JUN.2018 00:44:57

16QAM_10MHz_ 50 RB_ Right



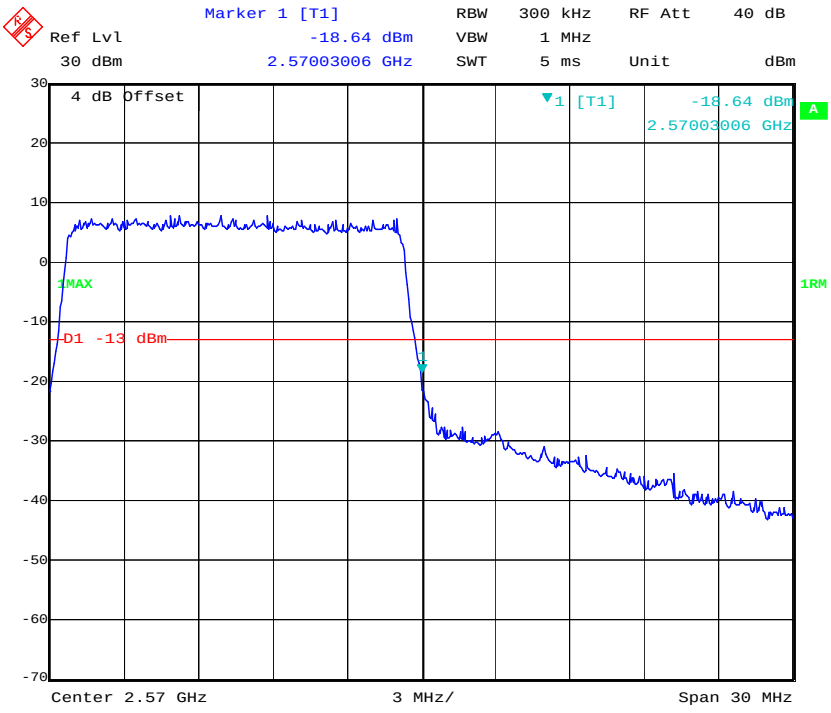
Date: 9.JUN.2018 00:46:16

16QAM_15MHz_ 75 RB_ Left



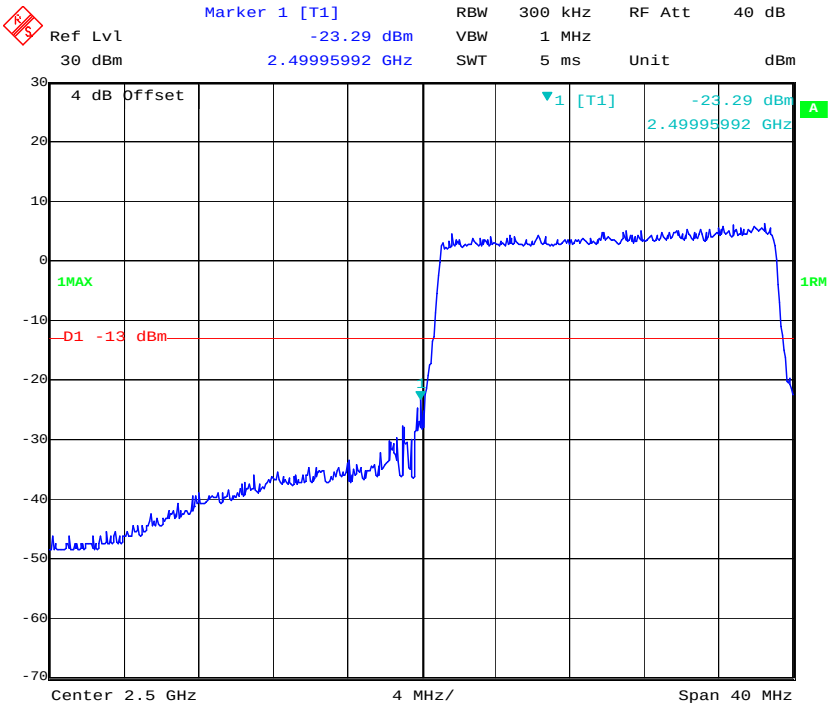
Date: 9.JUN.2018 00:47:39

16QAM_15MHz_ 75 RB_ Right



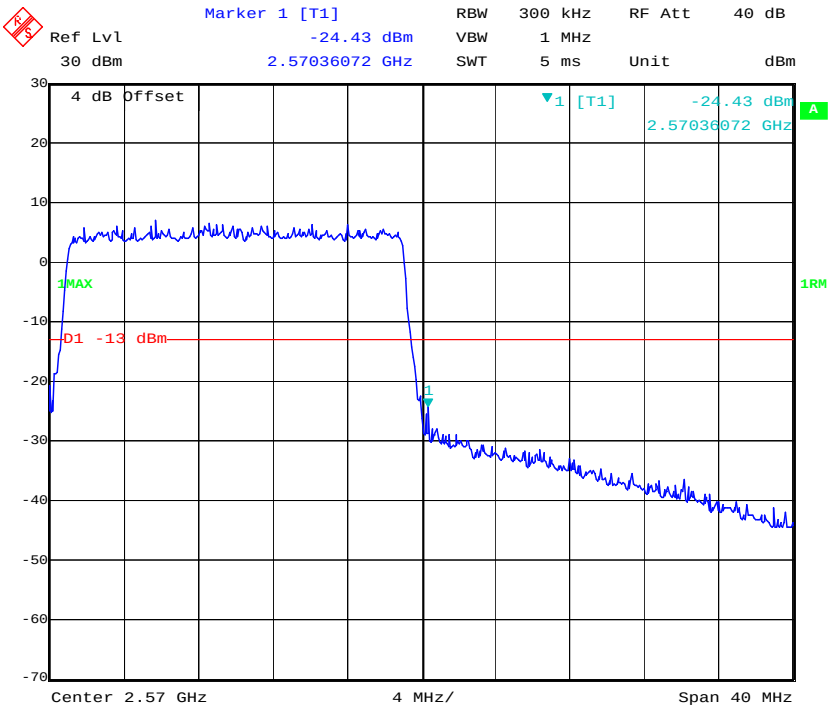
Date: 9.JUN.2018 00:49:07

16QAM_20MHz_ FULL RB_ Left



Date: 9.JUN.2018 00:50:33

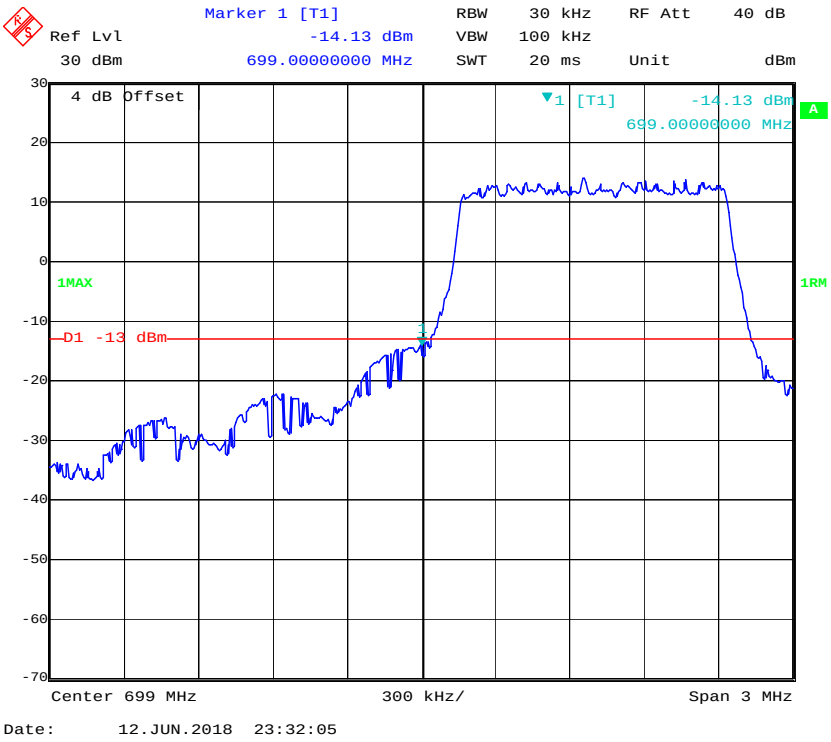
16QAM_20MHz_ FULL RB_ Right



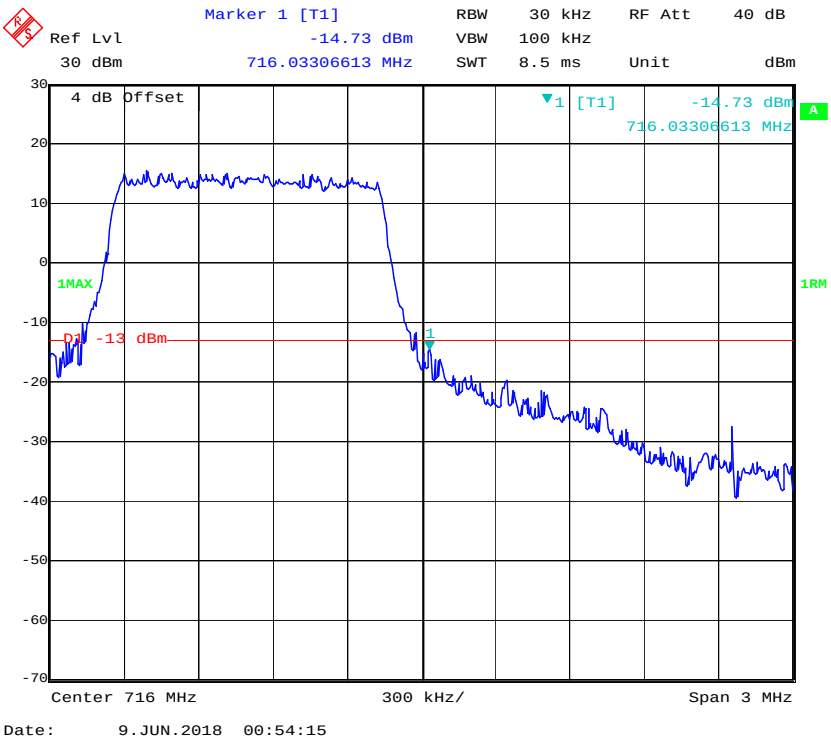
Date: 9.JUN.2018 00:51:34

LTE Band 12

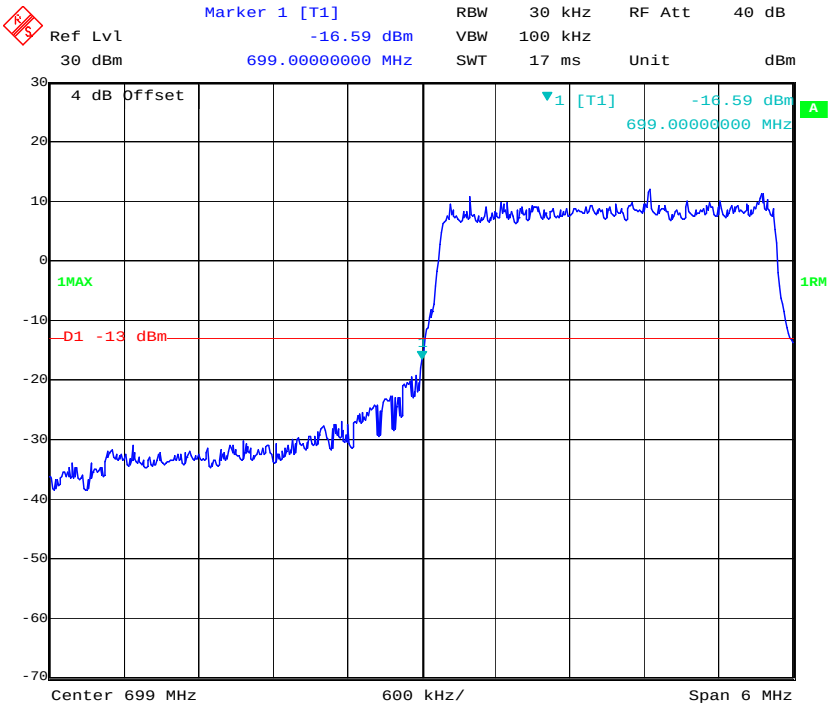
QPSK_1.4MHz_ 6 RB_ Left



QPSK_1.4MHz_ 6 RB_ Right

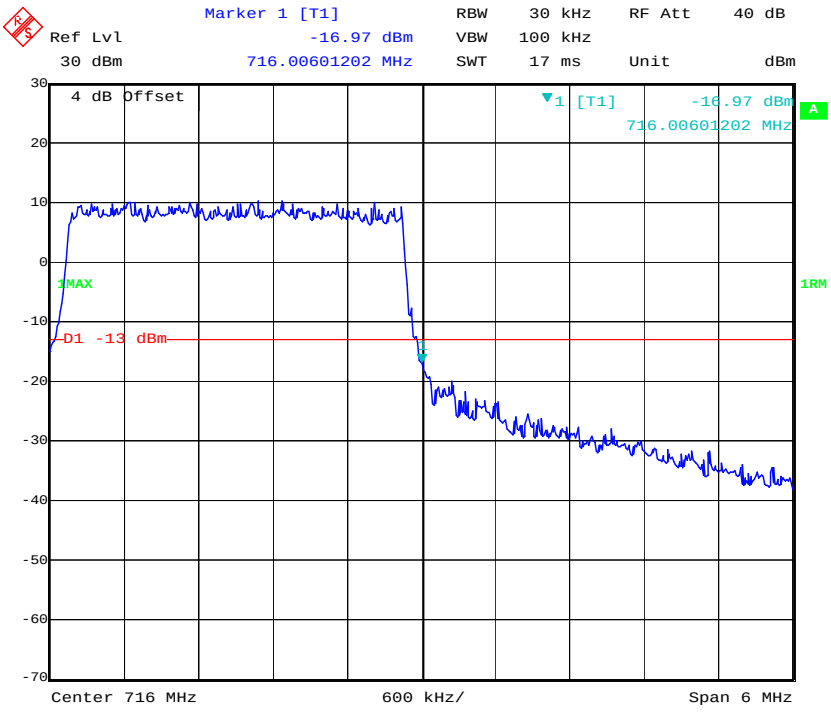


QPSK_3MHz_ 15 RB_ Left



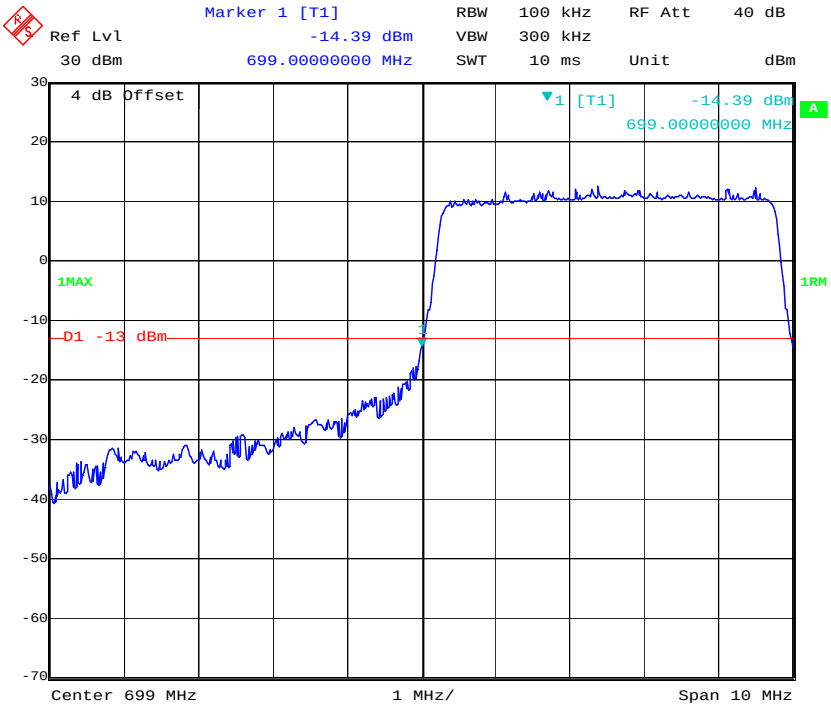
Date: 9.JUN.2018 00:55:43

QPSK_3MHz_ 15 RB_ Right



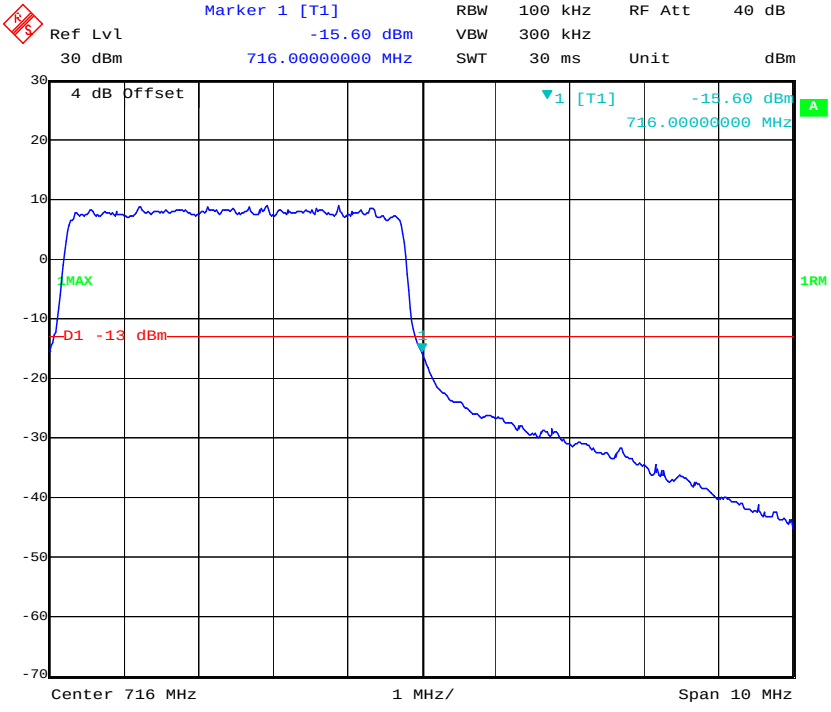
Date: 9.JUN.2018 00:57:02

QPSK_5MHz_ 25 RB_ Left



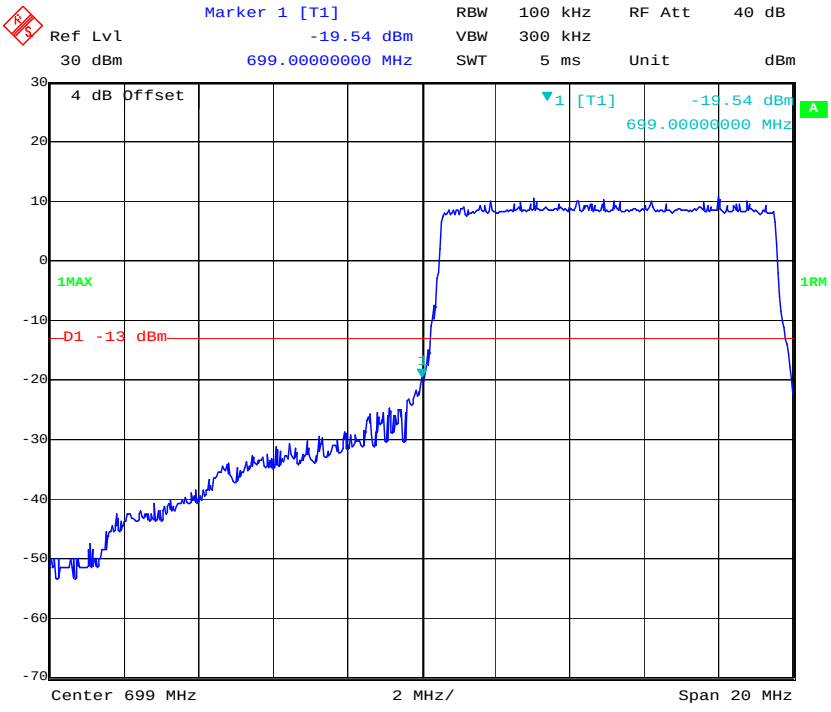
Date: 12.JUN.2018 23:34:28

QPSK_5MHz_ 25 RB_ Right



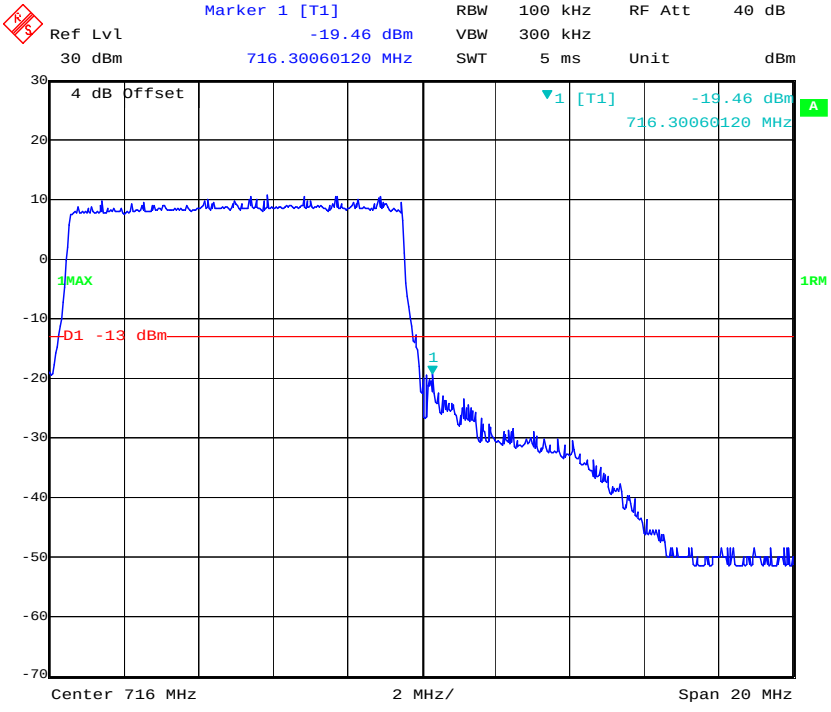
Date: 2.AUG.2018 12:53:18

QPSK_10MHz_ 50 RB_ Left



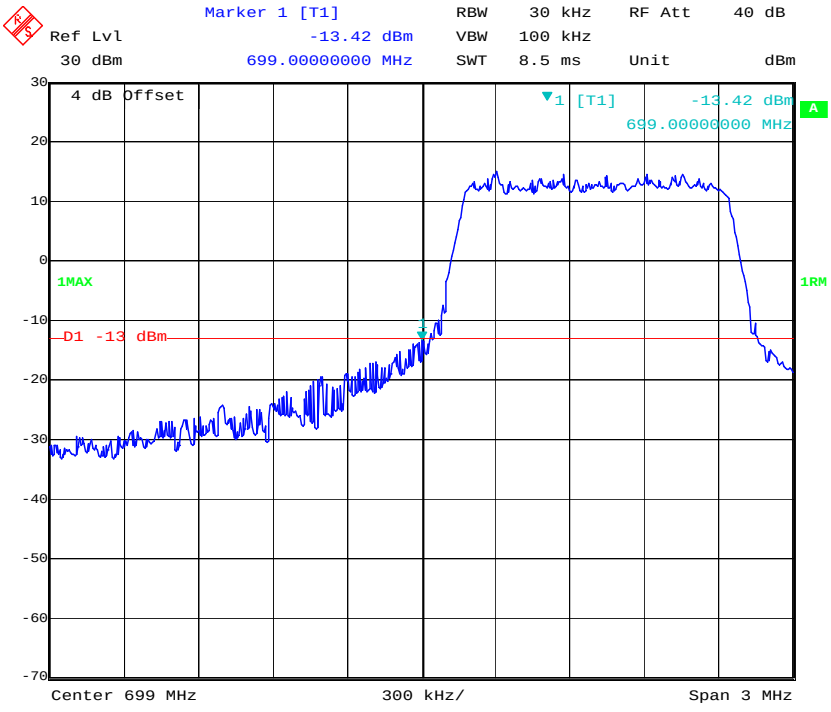
Date: 9.JUN.2018 01:01:20

QPSK_10MHz_ 50 RB_ Right



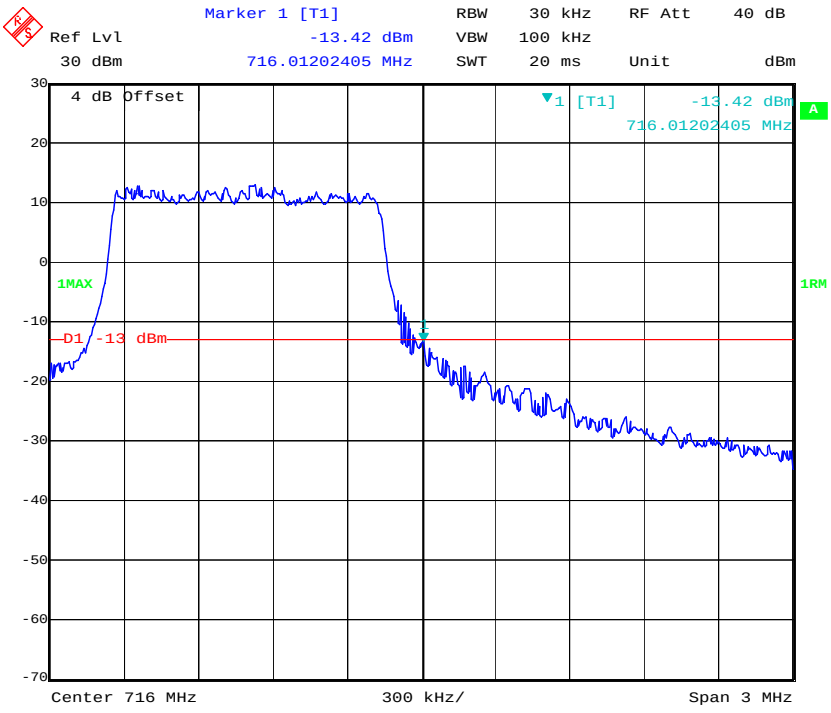
Date: 9.JUN.2018 01:02:35

16QAM_1.4MHz_ 6 RB_ Left



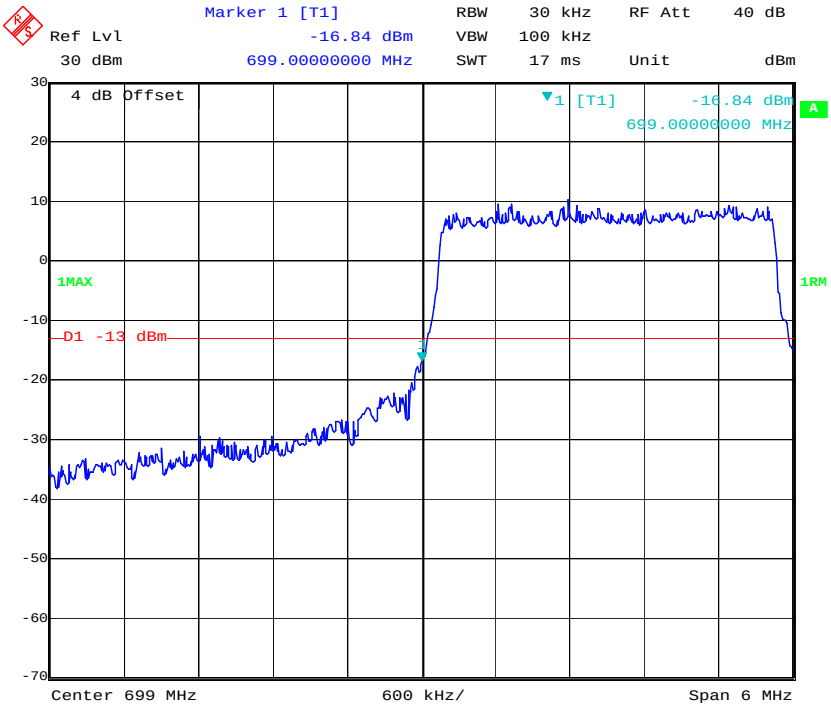
Date: 9.JUN.2018 00:53:22

16QAM_1.4MHz_ 6 RB_ Right



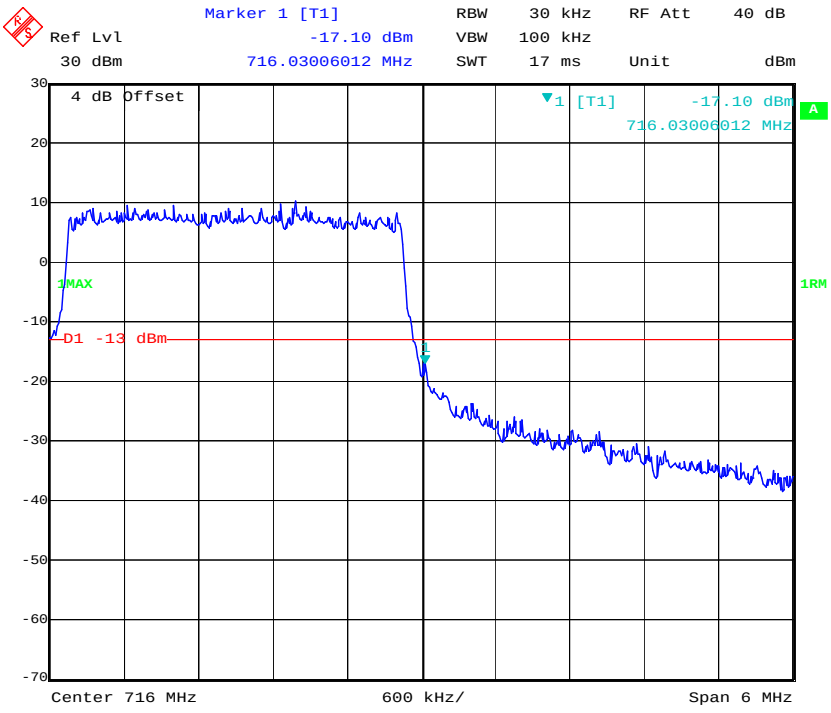
Date: 12.JUN.2018 23:25:39

16QAM_3MHz_ 15 RB_ Left



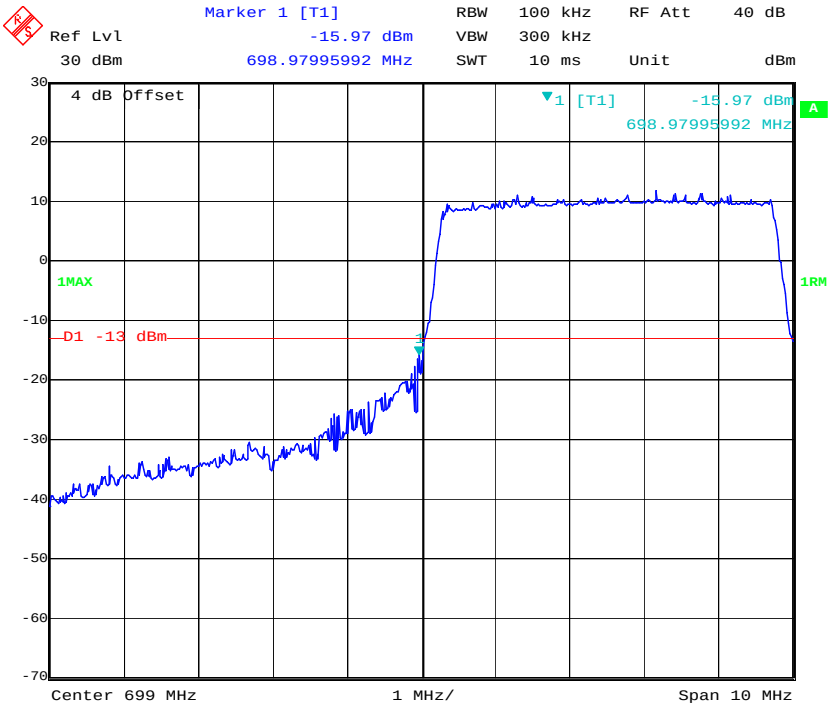
Date: 9.JUN.2018 00:56:20

16QAM_3MHz_ 15 RB_ Right



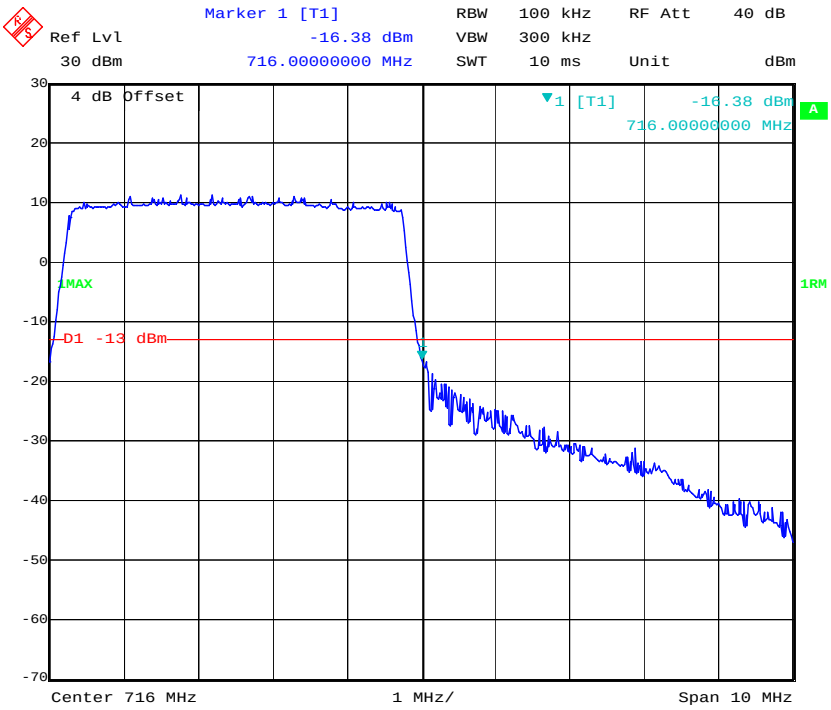
Date: 9.JUN.2018 00:57:42

16QAM_5MHz_ 25 RB_ Left



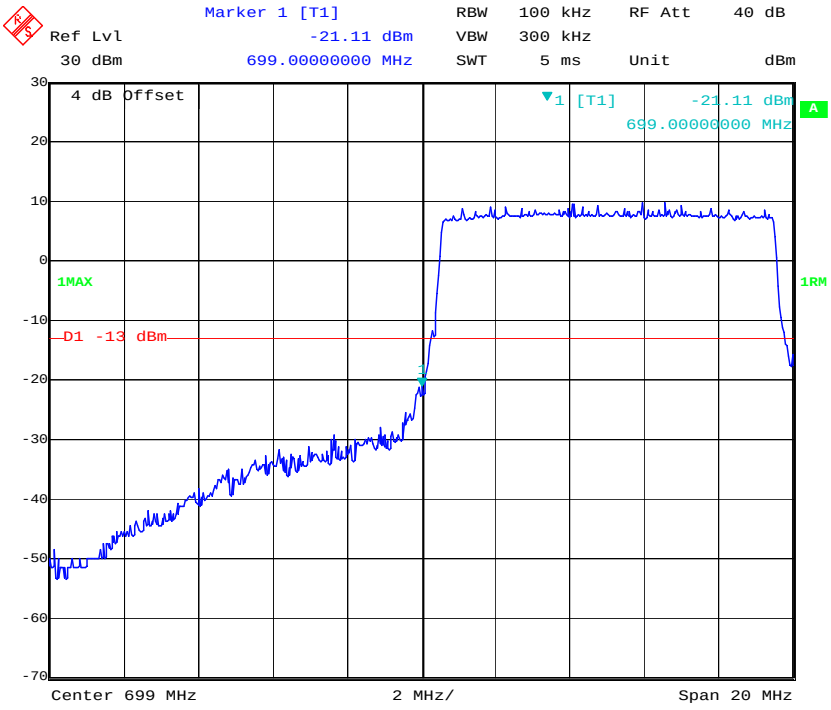
Date: 12.JUN.2018 23:30:02

16QAM_5MHz_ 25 RB_ Right



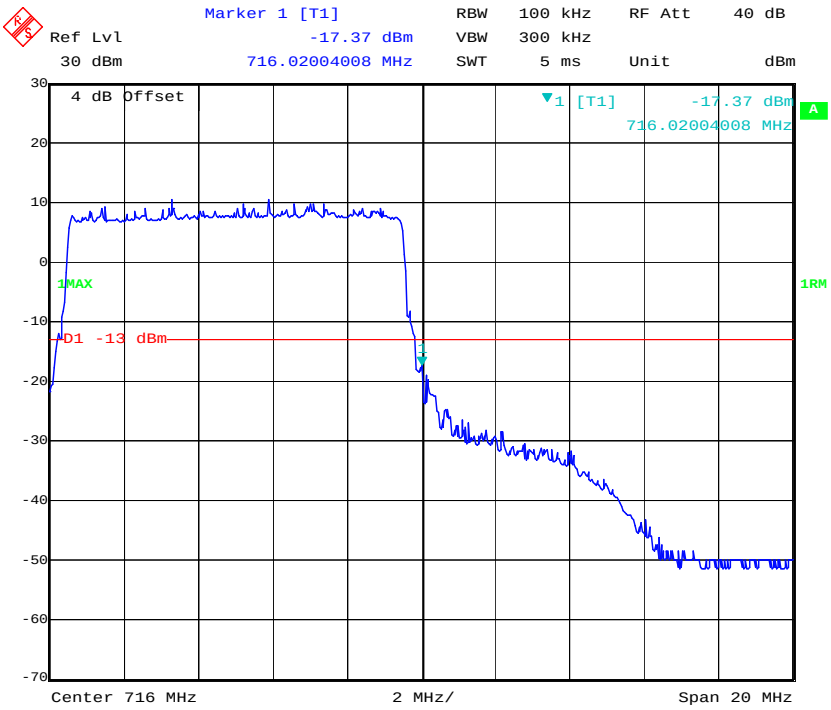
Date: 12.JUN.2018 23:28:47

16QAM_10MHz_ 50 RB_ Left



Date: 9.JUN.2018 01:01:52

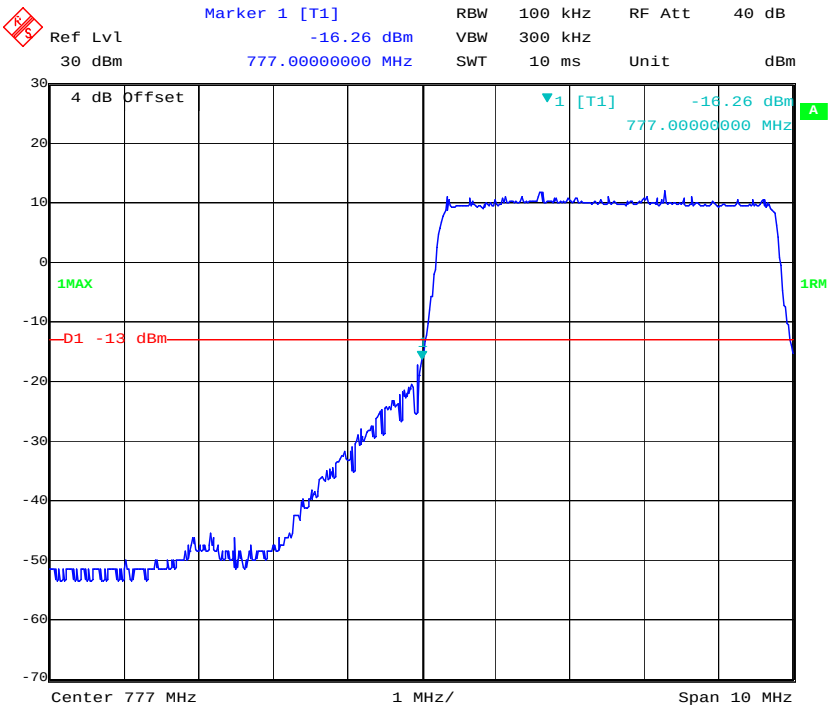
16QAM_10MHz_ 50 RB_ Right



Date: 9.JUN.2018 01:03:33

LTE Band 13

QPSK_5MHz_ 25 RB_ Left

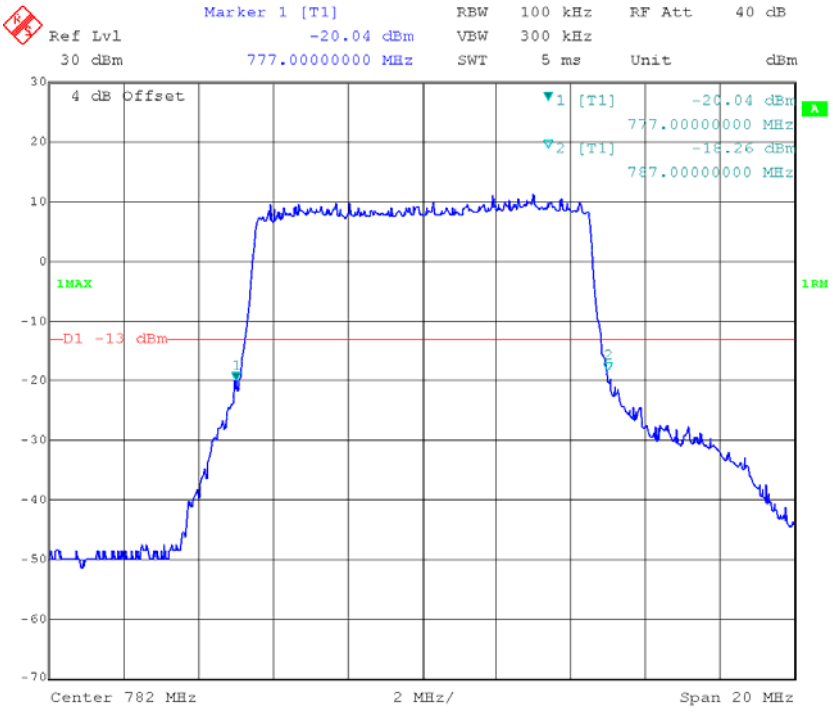


Date: 12.JUN.2018 23:39:18

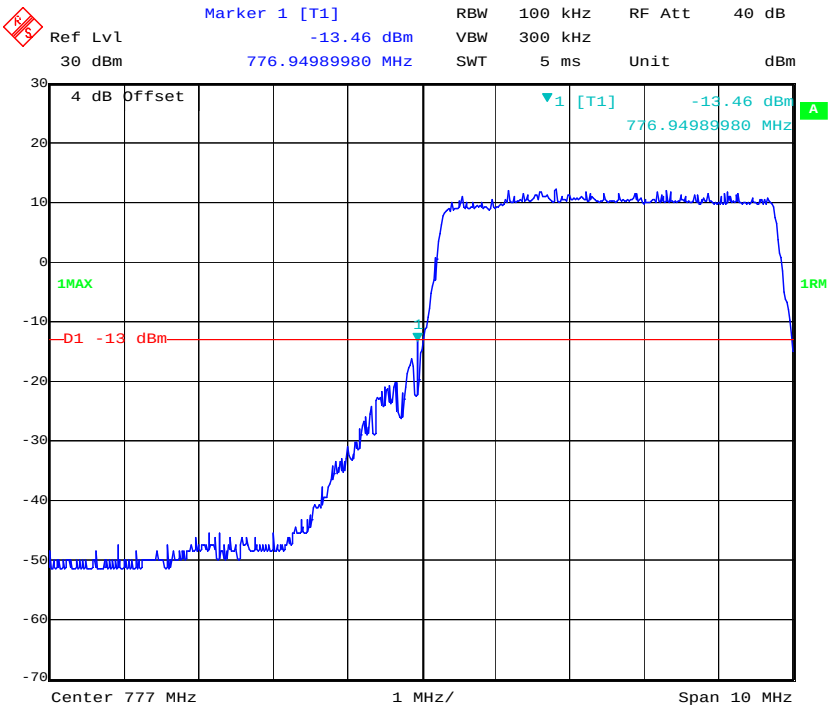
QPSK_5MHz_ 25 RB_ Right

Date: 12.JUN.2018 23:37:46

QPSK_10MHz_ 50 RB

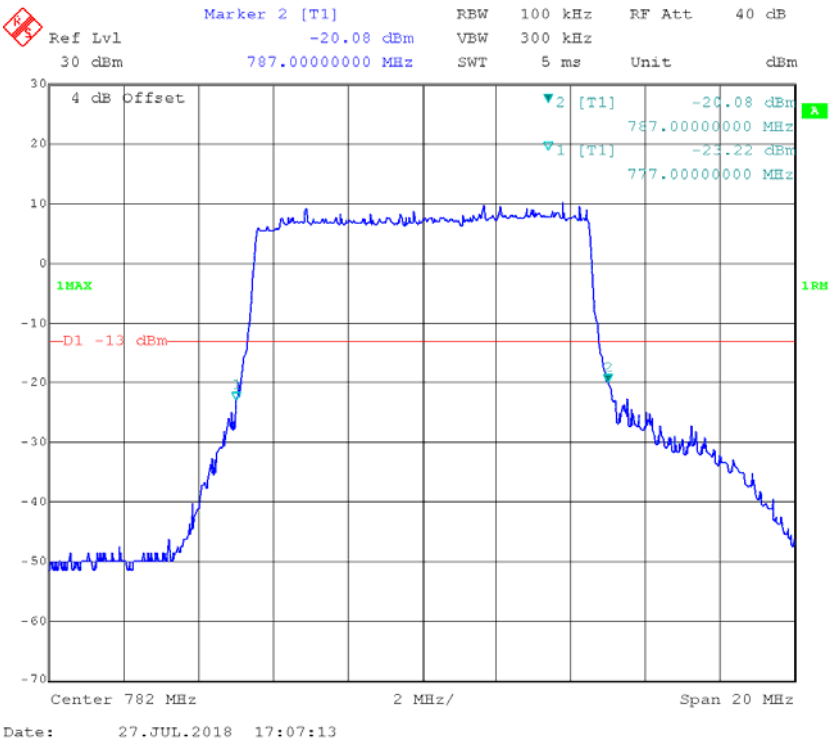


16QAM_5MHz_ 25 RB_ Left



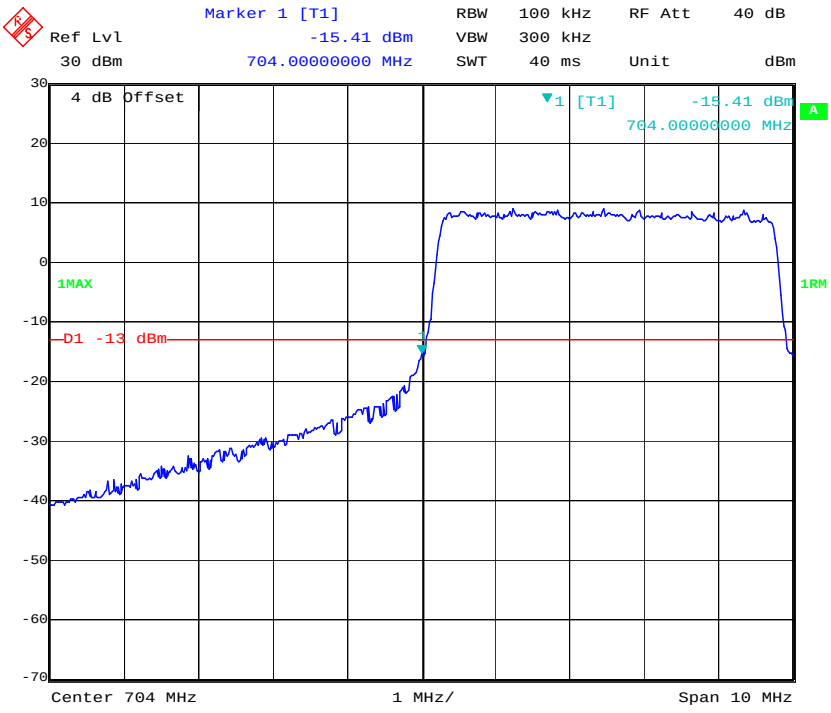
16QAM_5MHz_ 25 RB_ Right

16QAM_10MHz_ 50 RB



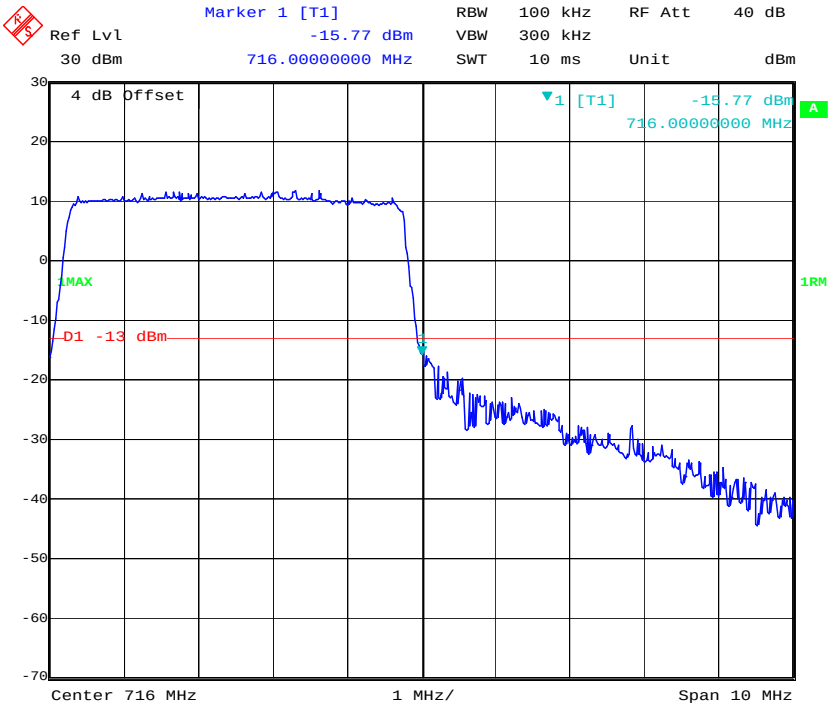
LTE Band 17

QPSK_5MHz_ 25 RB_ Left



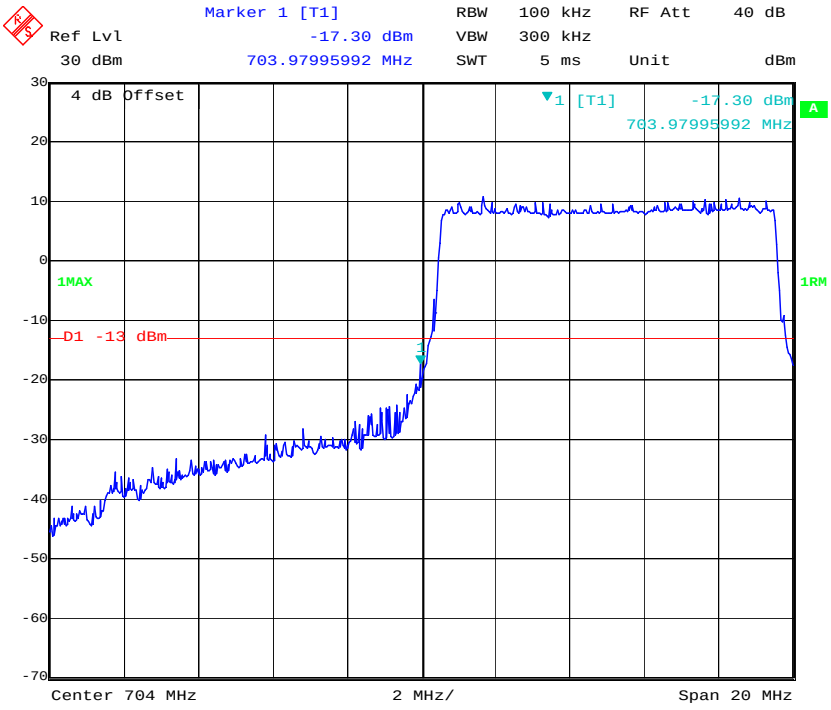
Date: 12.JUN.2018 23:44:37

QPSK_5MHz_ 25 RB_ Right



Date: 12.JUN.2018 23:41:52

QPSK_10MHz_ 50 RB_ Left

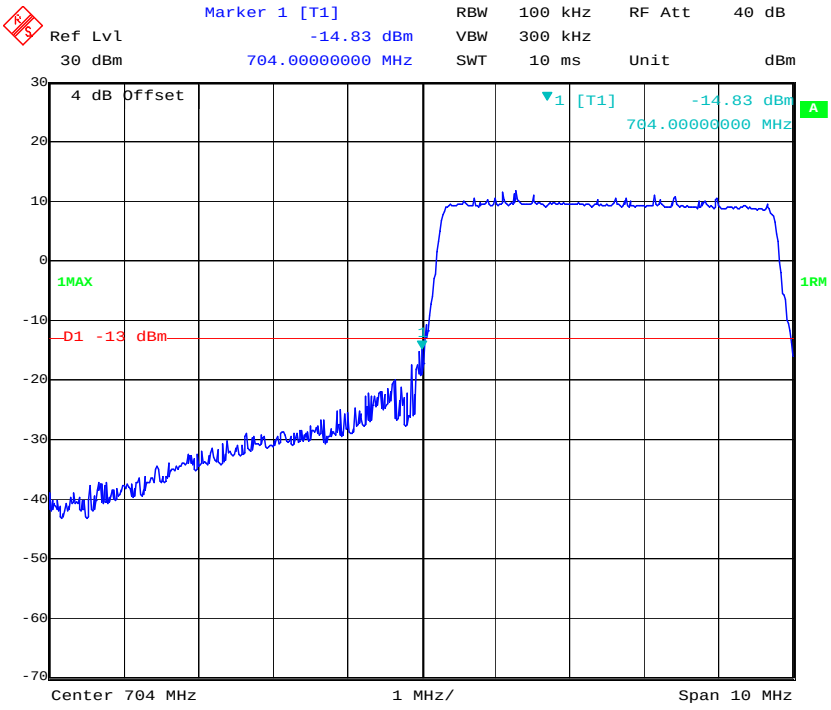


Date: 9.JUN.2018 01:11:57

QPSK_10MHz_ 50 RB_ Right

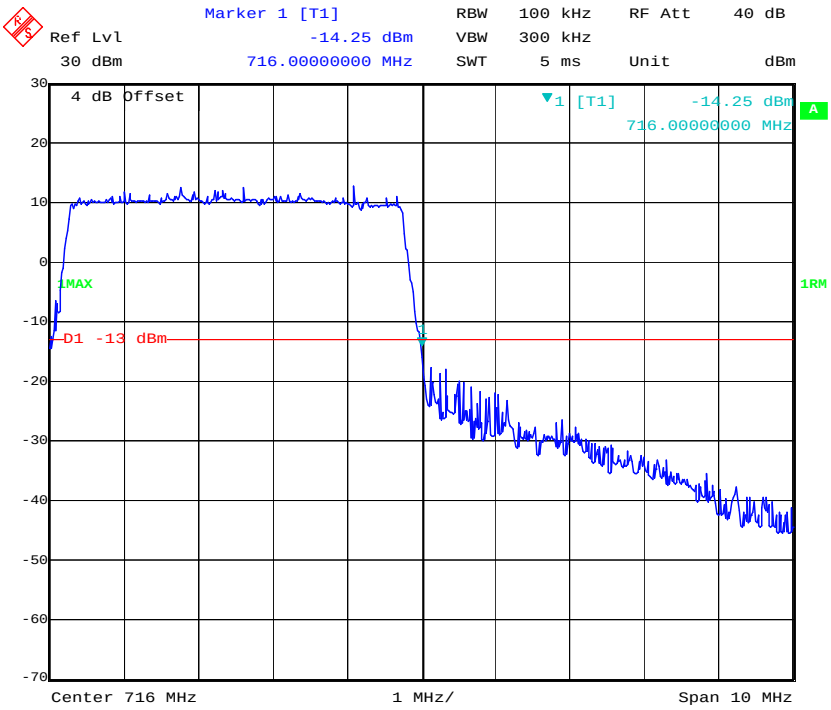
Date: 9.JUN.2018 01:13:28

16QAM_5MHz_ 25 RB_ Left



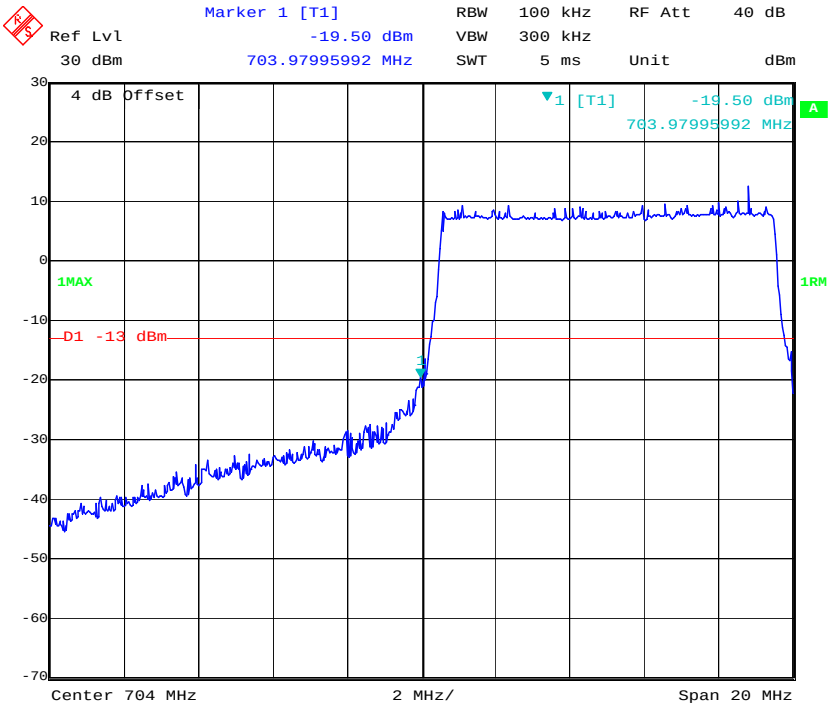
Date: 12.JUN.2018 23:43:18

16QAM_5MHz_ 25 RB_ Right



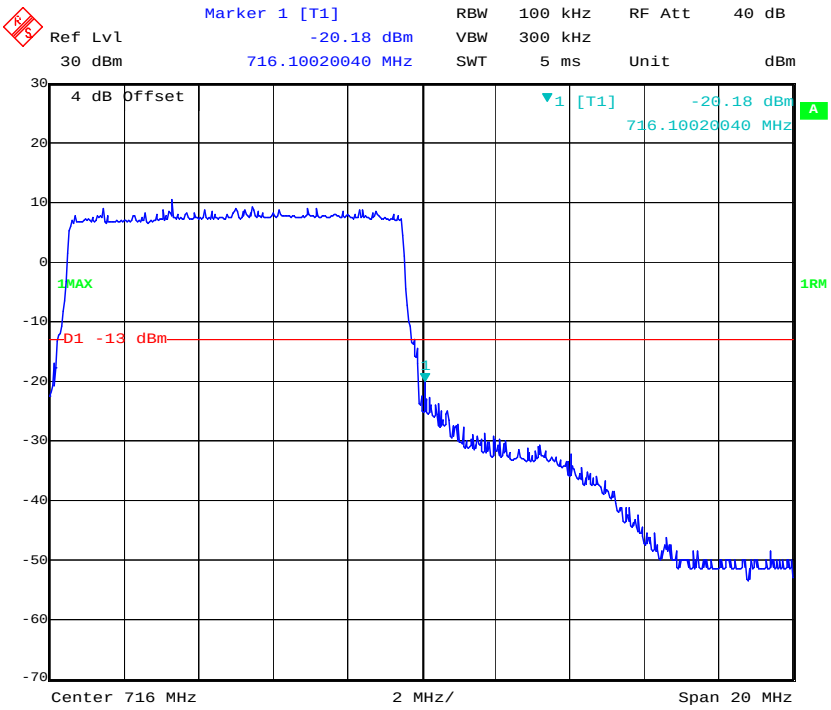
Date: 12.JUN.2018 23:40:54

16QAM_10MHz_ 50 RB_ Left



Date: 9.JUN.2018 01:12:39

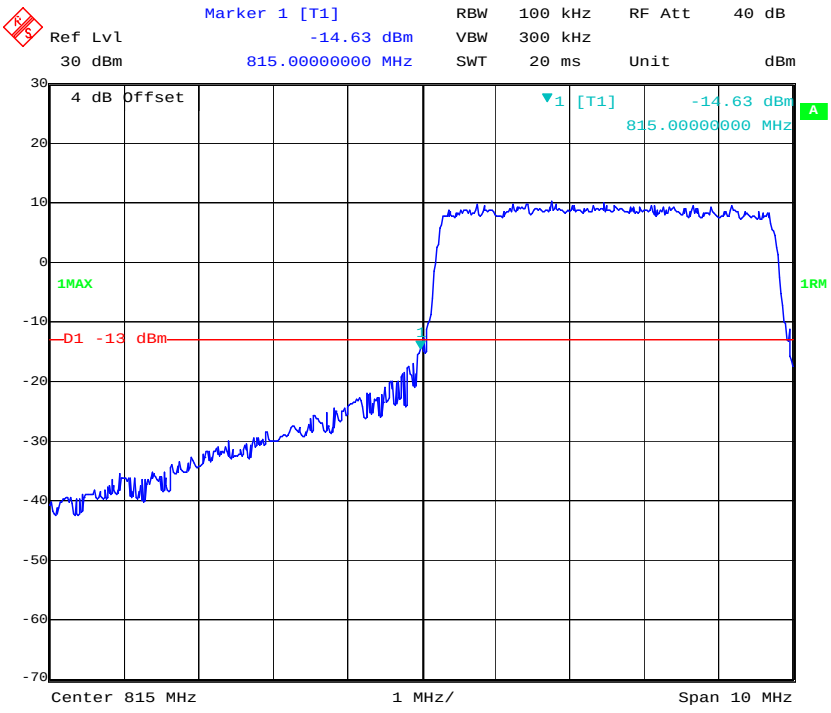
16QAM_10MHz_ 50 RB_ Right



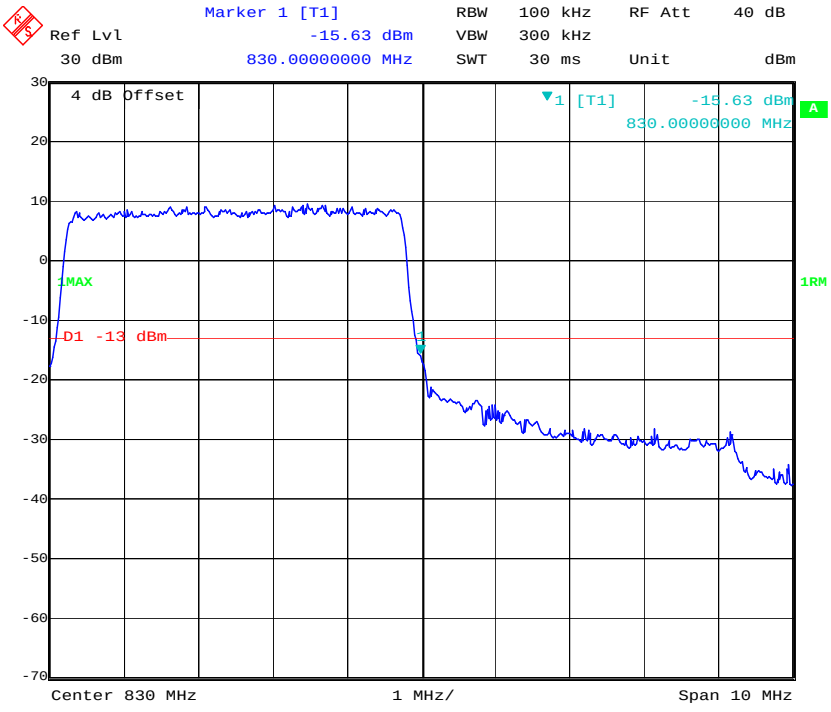
Date: 9.JUN.2018 01:14:03

LTE Band 18

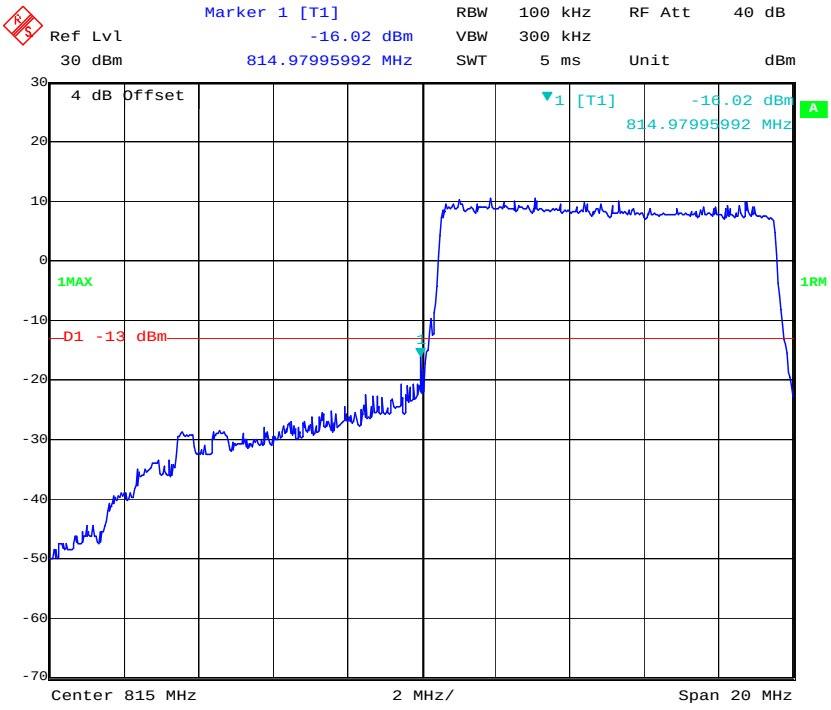
QPSK_5MHz_ 25 RB_ Left



QPSK_5MHz_ 25 RB_ Right

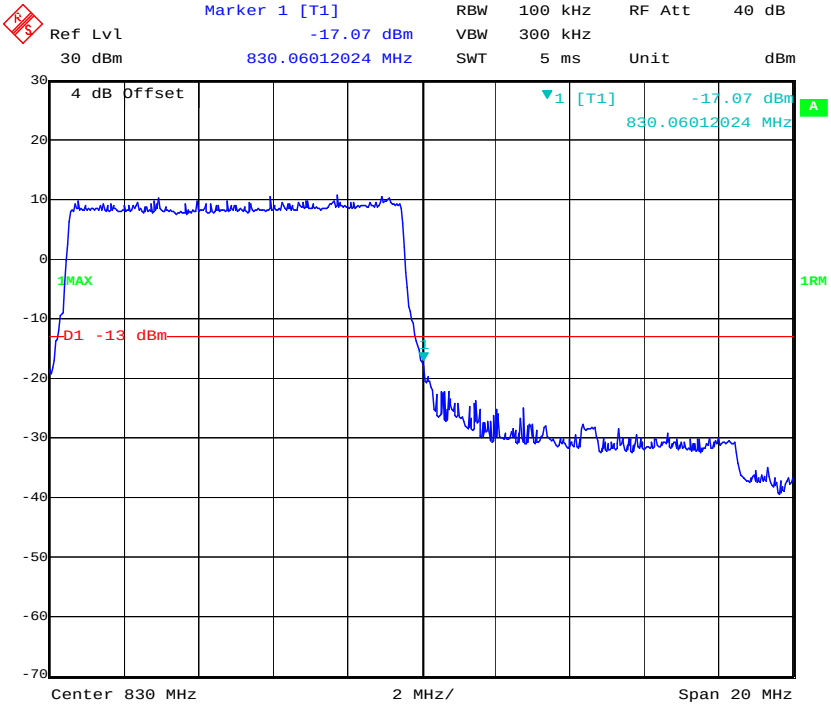


QPSK_10MHz_ 50 RB_ Left



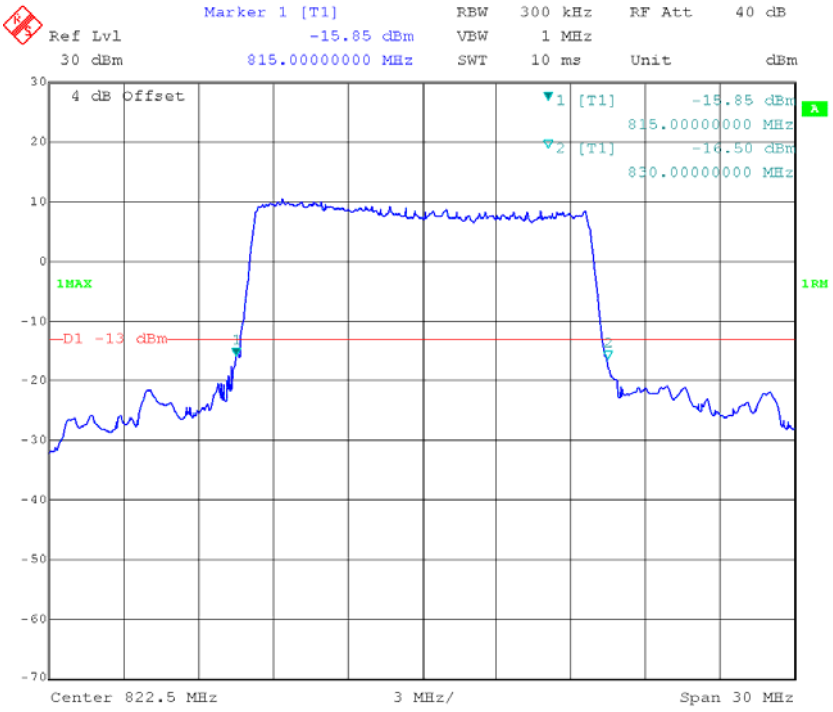
Date: 9.JUN.2018 01:17:38

QPSK_10MHz_ 50 RB_ Right

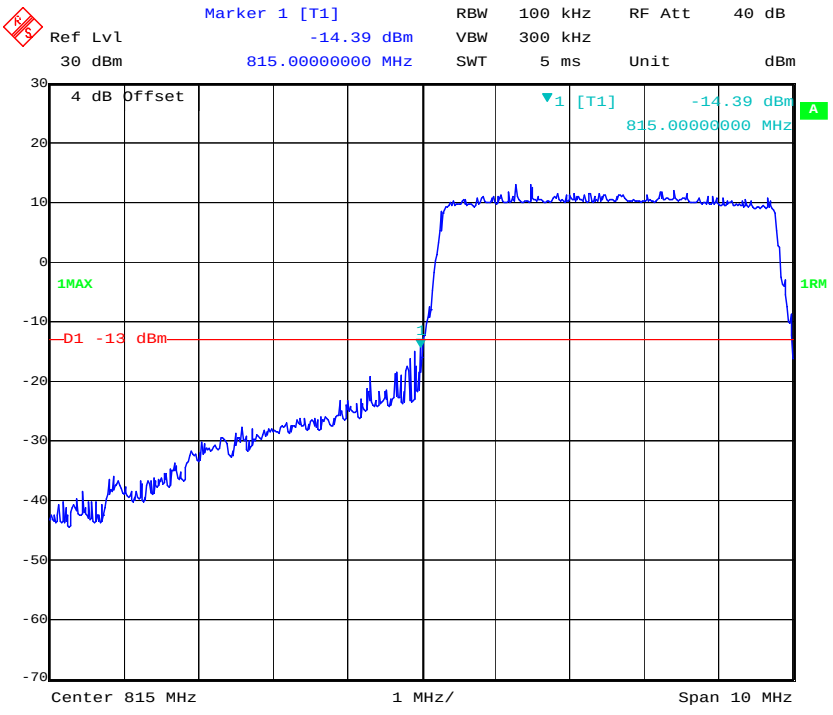


Date: 9.JUN.2018 01:18:58

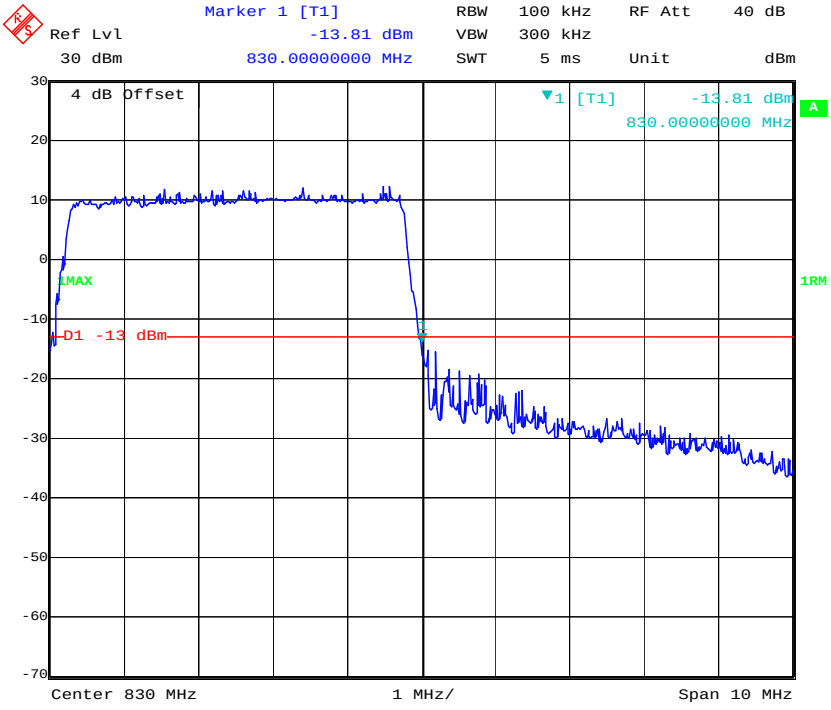
QPSK_15MHz_ 75 RB



16QAM_5MHz_ 25 RB_ Left

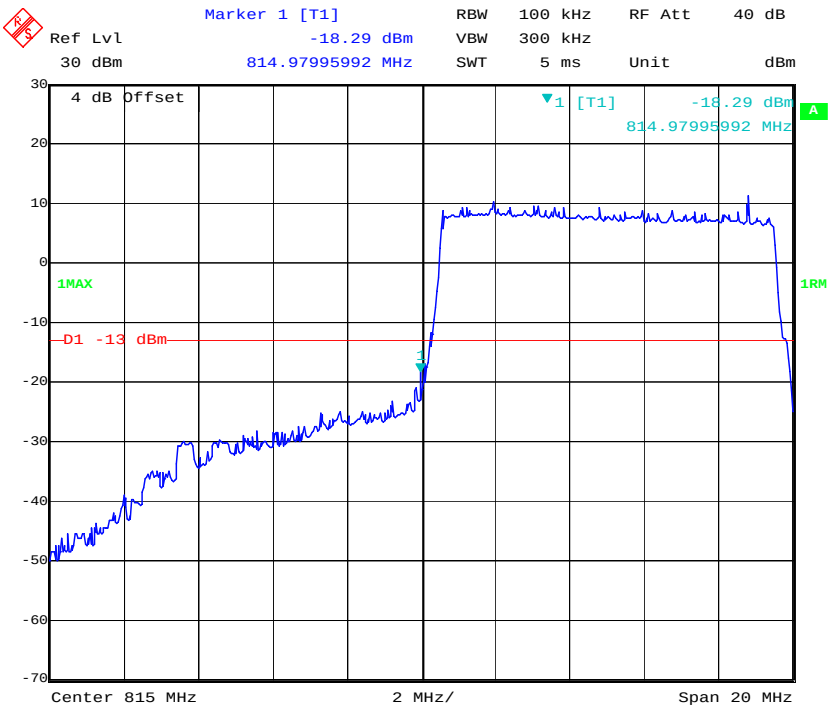


16QAM_5MHz_ 25 RB_ Right



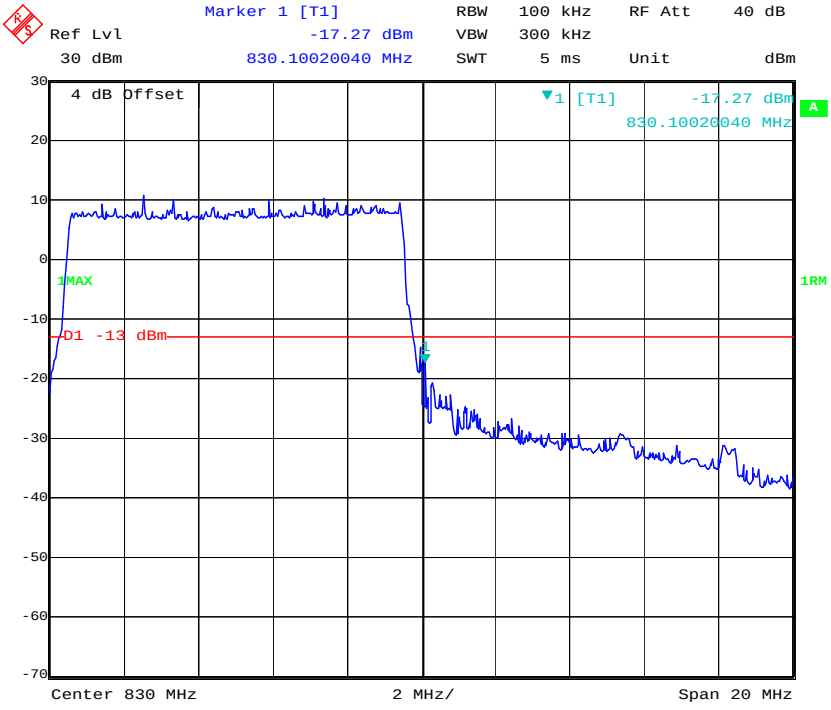
Date: 12.JUN.2018 23:45:40

16QAM_10MHz_ 50 RB_ Left



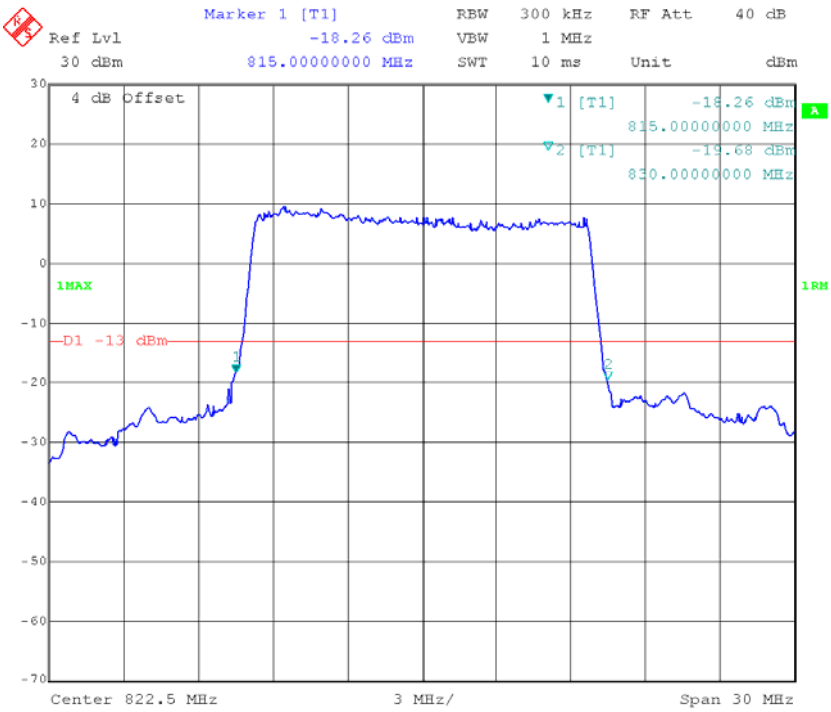
Date: 9.JUN.2018 01:18:15

16QAM_10MHz_ 50 RB_ Right



Date: 9.JUN.2018 01:19:39

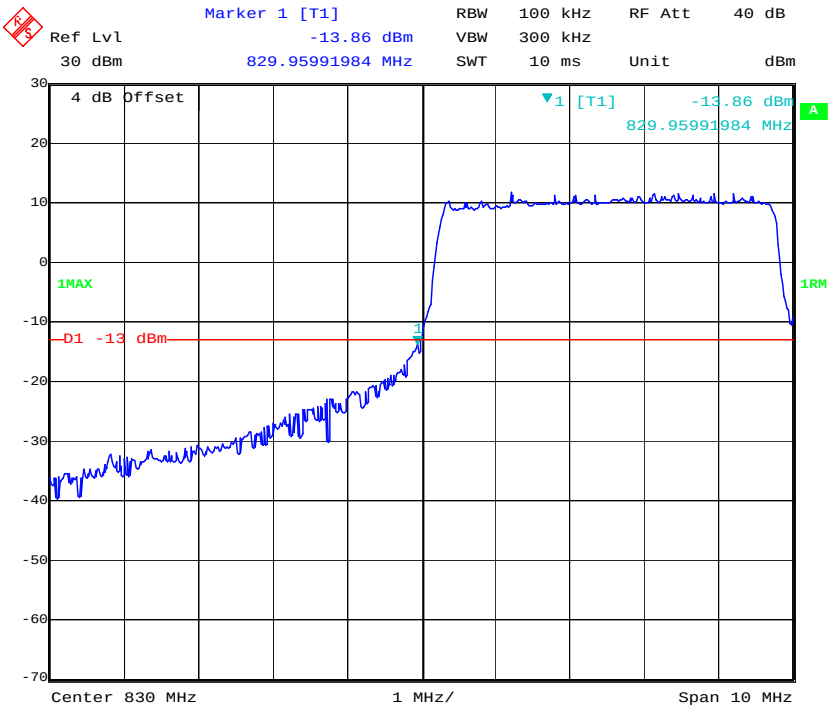
16QAM_15MHz_ 75 RB



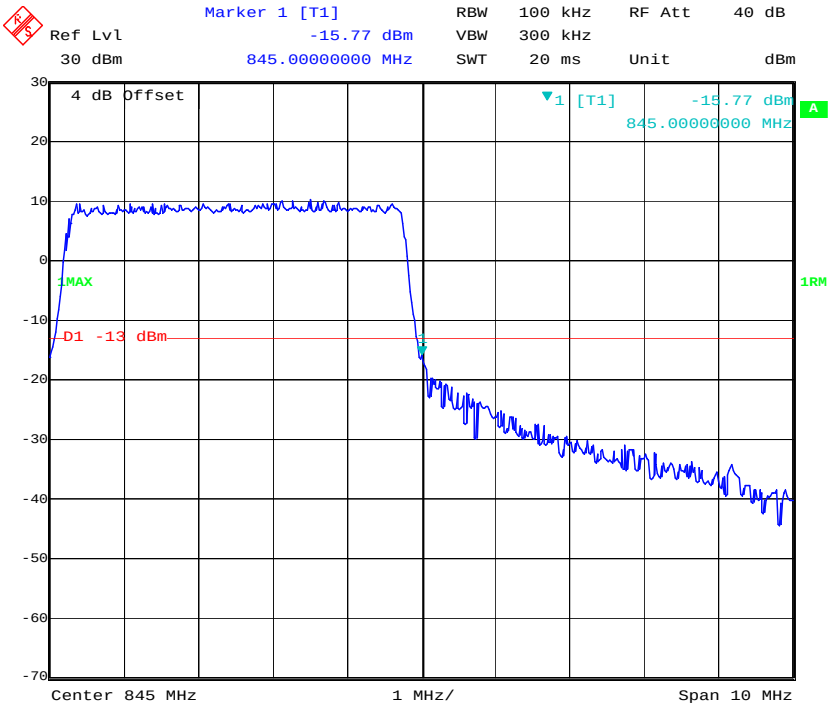
Date: 27.JUL.2018 17:02:54

LTE Band 19

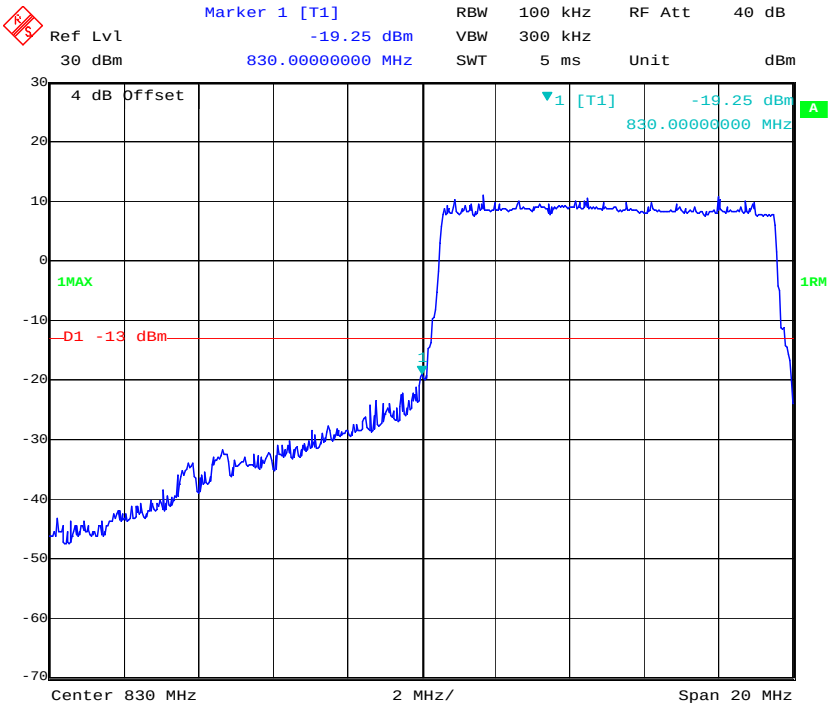
QPSK_5MHz_ 25 RB_ Left



QPSK_5MHz_ 25 RB_ Right



QPSK_10MHz_ 50 RB_ Left

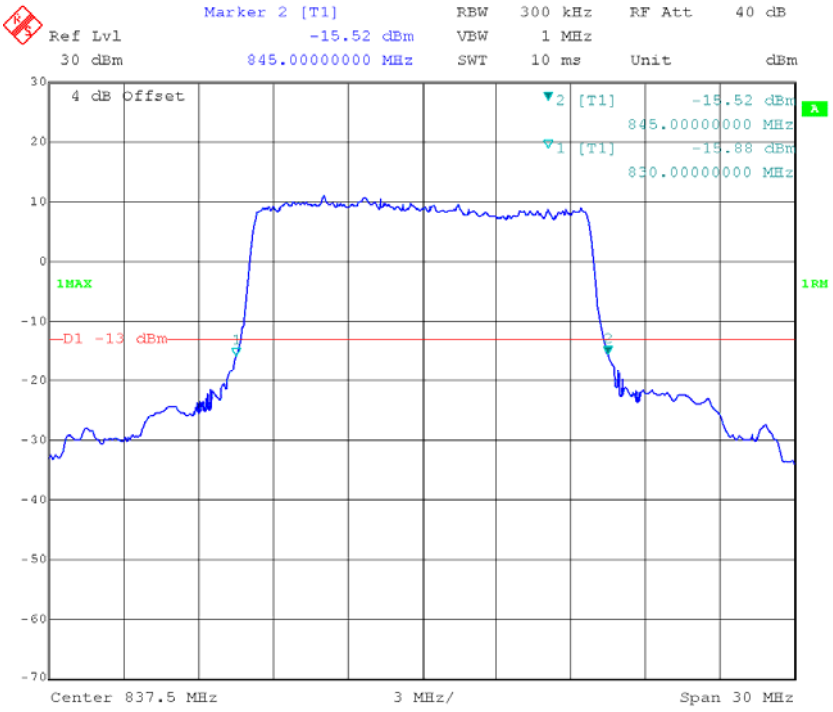


Date: 9.JUN.2018 01:26:46

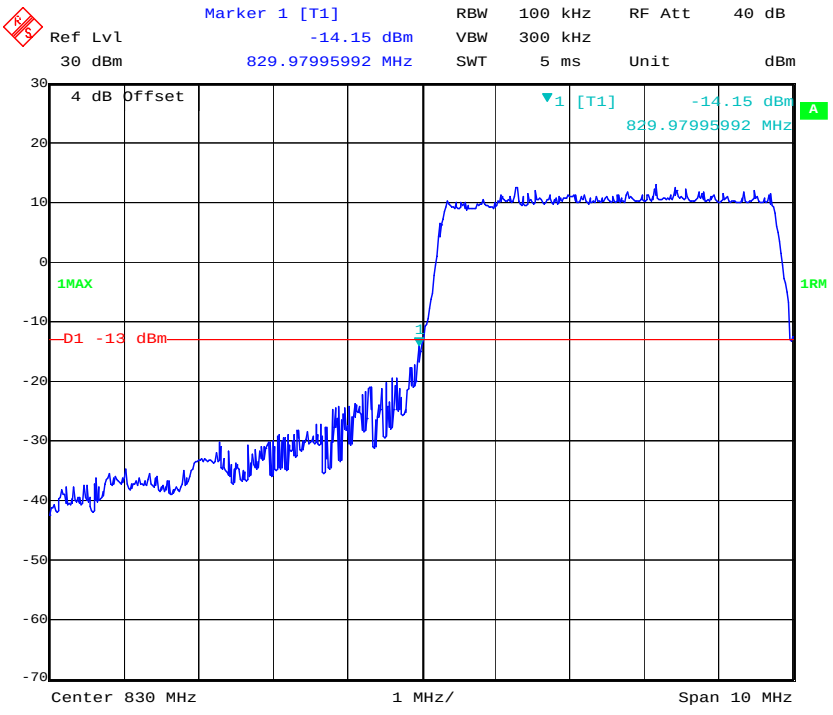
QPSK_10MHz_ 50 RB_ Right

Date: 9.JUN.2018 01:27:58

QPSK_15MHz_ 75 RB



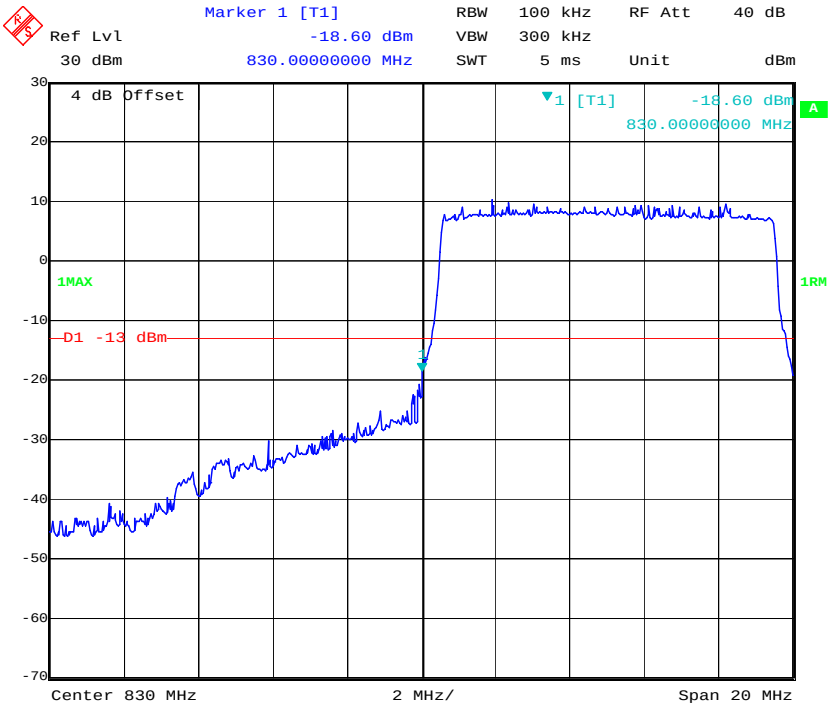
16QAM_5MHz_ 25 RB_ Left



16QAM_5MHz_ 25 RB_ Right

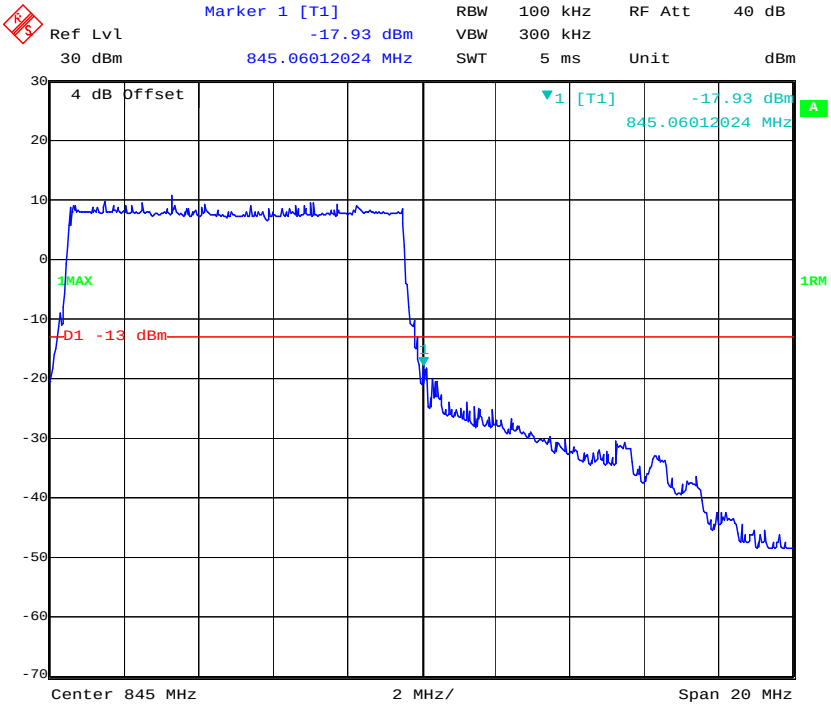
Date: 12.JUN.2018 23:50:50

16QAM_10MHz_ 50 RB_ Left



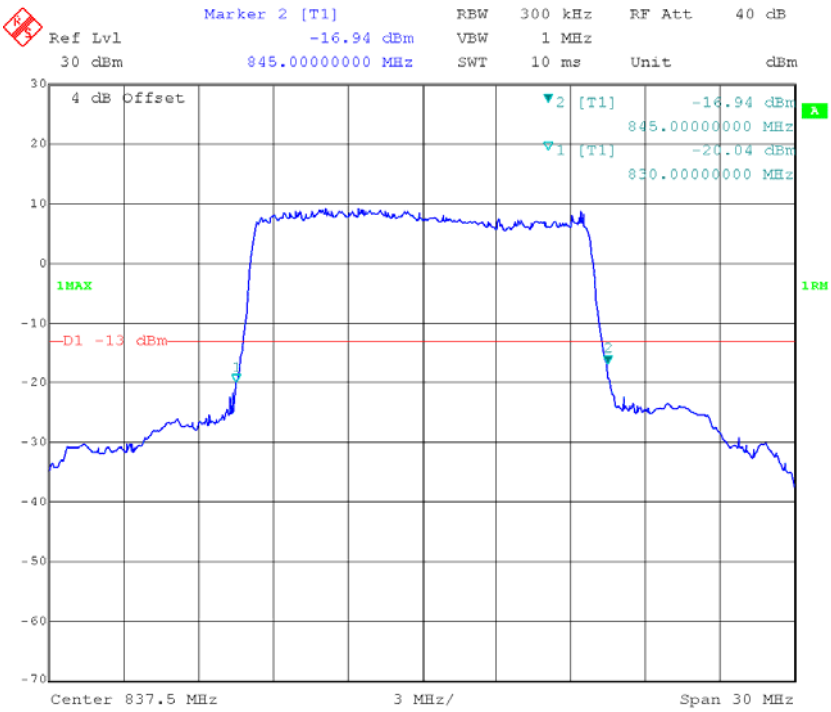
Date: 9.JUN.2018 01:27:22

16QAM_10MHz_ 50 RB_ Right



Date: 9.JUN.2018 01:28:36

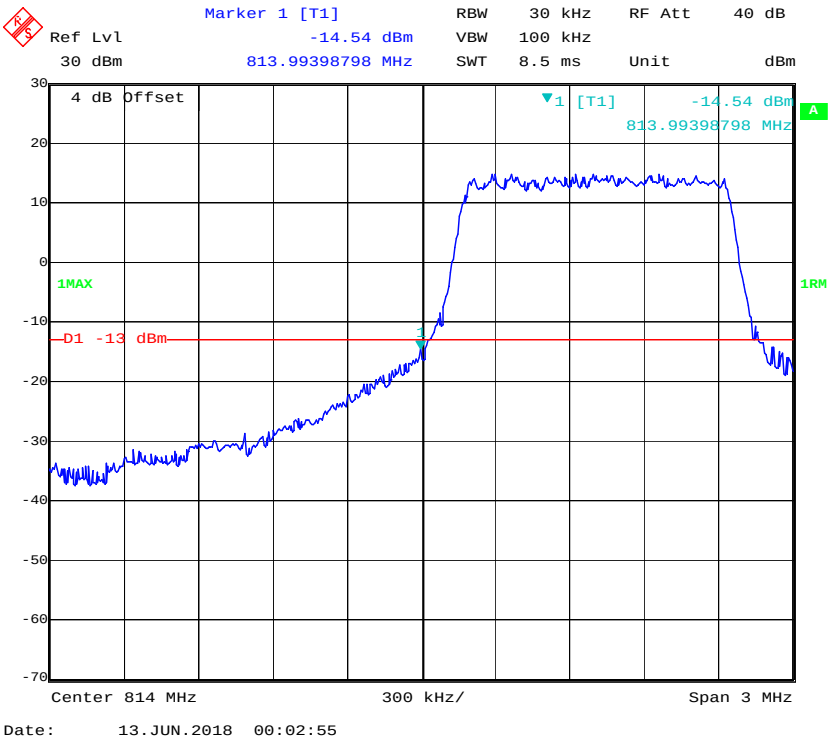
16QAM_15MHz_ 75 RB_ Left



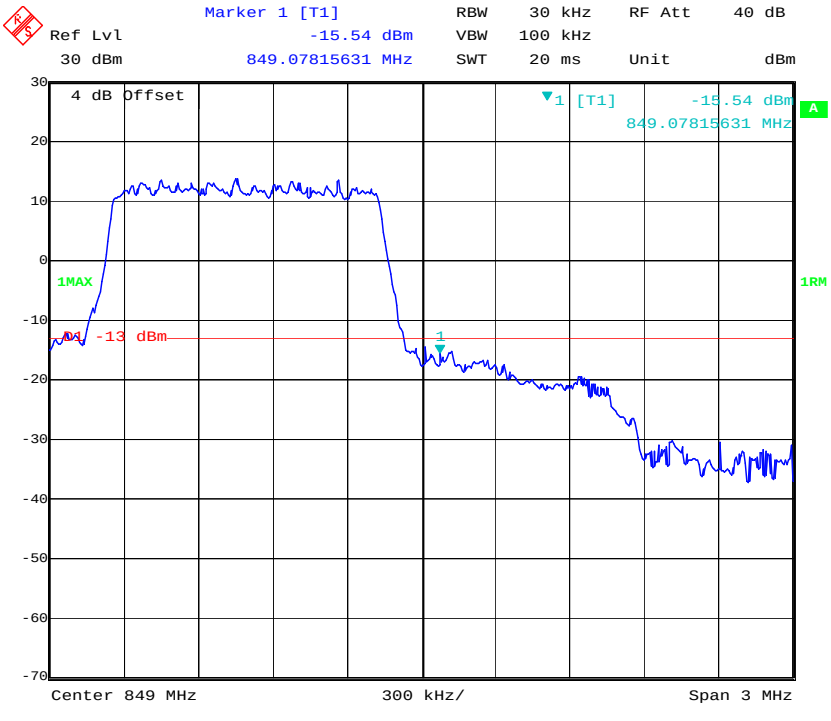
Date: 27.JUL.2018 17:03:54

LTE Band 26

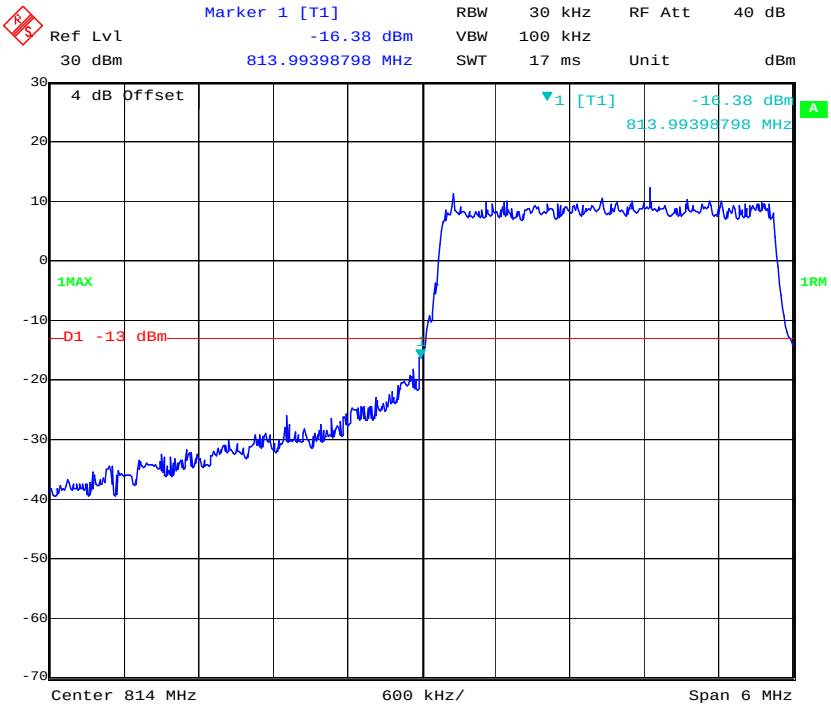
QPSK_1.4MHz_ 6 RB_ Left



QPSK_1.4MHz_ 6 RB_ Right

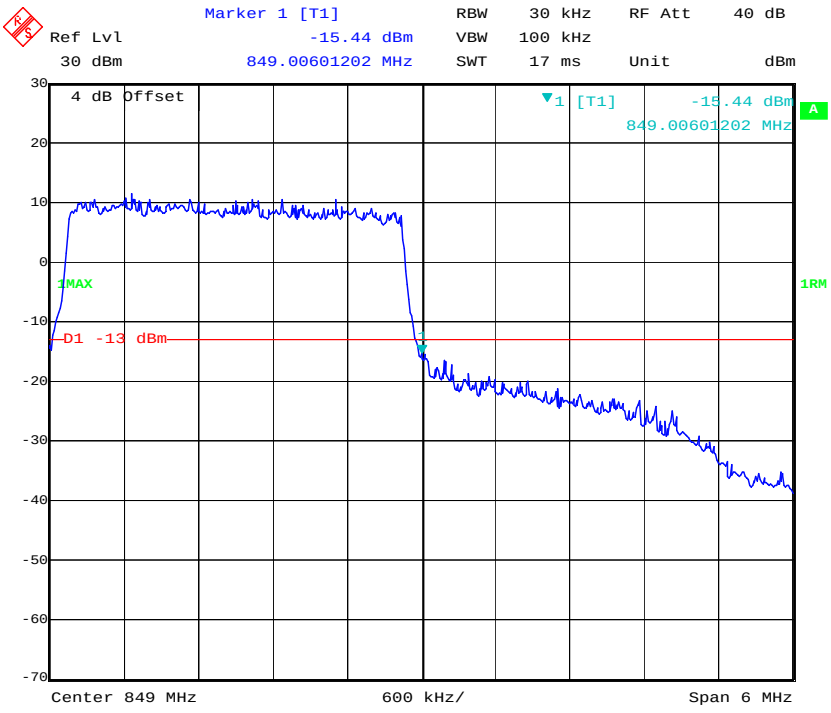


QPSK_3MHz_ 15 RB_ Left



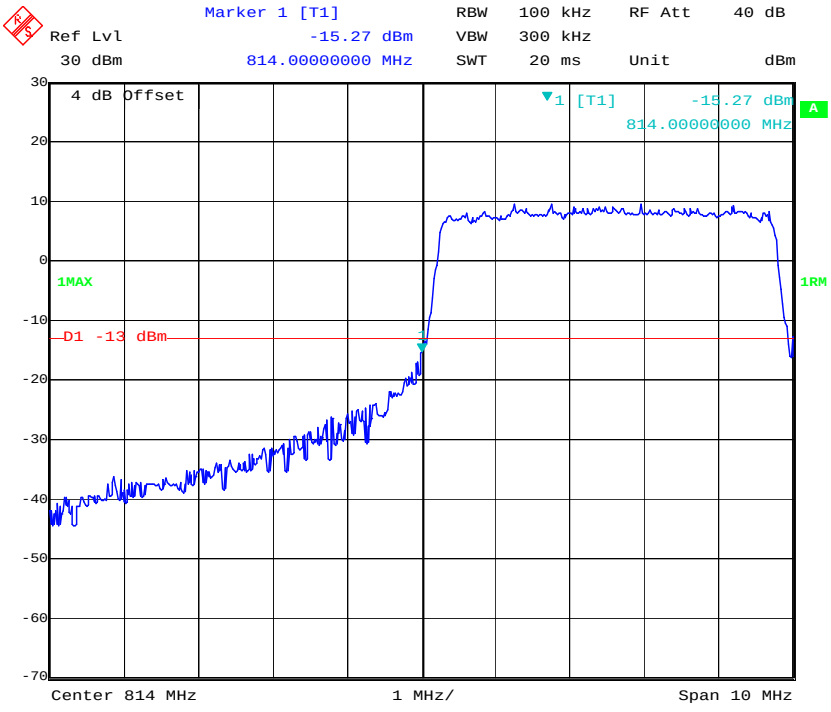
Date: 9.JUN.2018 01:33:26

QPSK_3MHz_ 15 RB_ Right



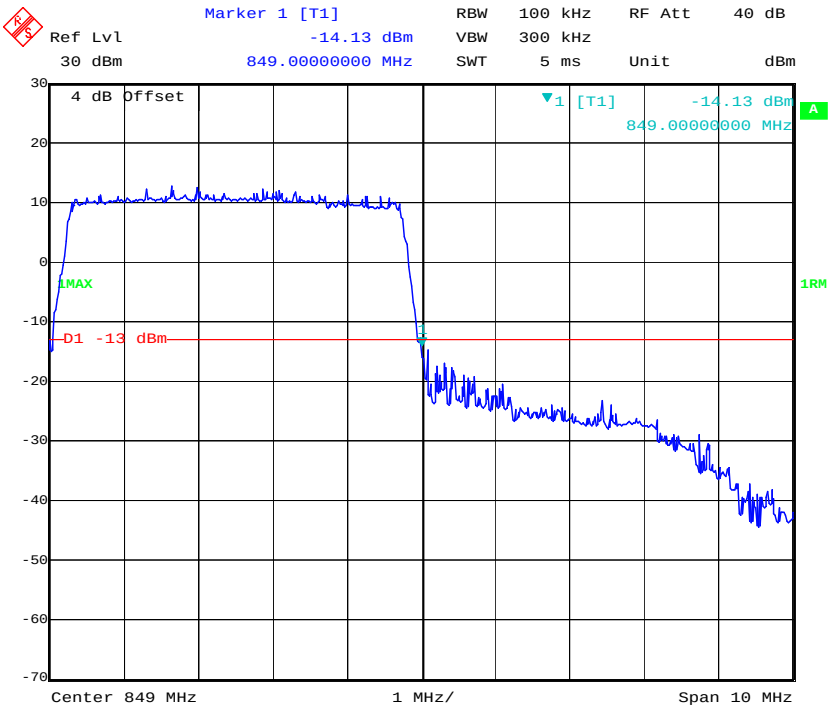
Date: 9.JUN.2018 01:34:52

QPSK_5MHz_ 25 RB_ Left



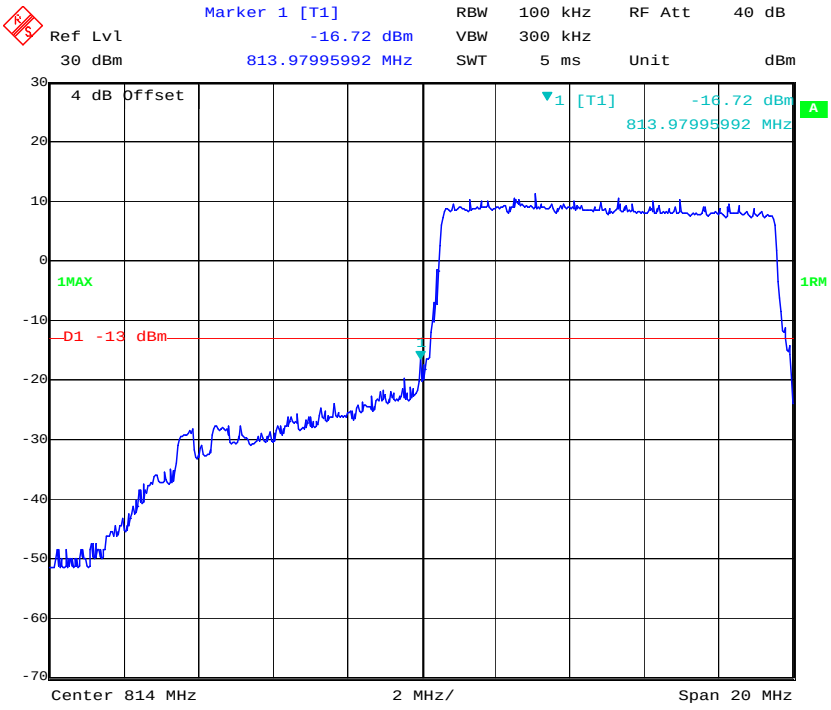
Date: 2.AUG.2018 13:00:04

QPSK_5MHz_ 25 RB_ Right



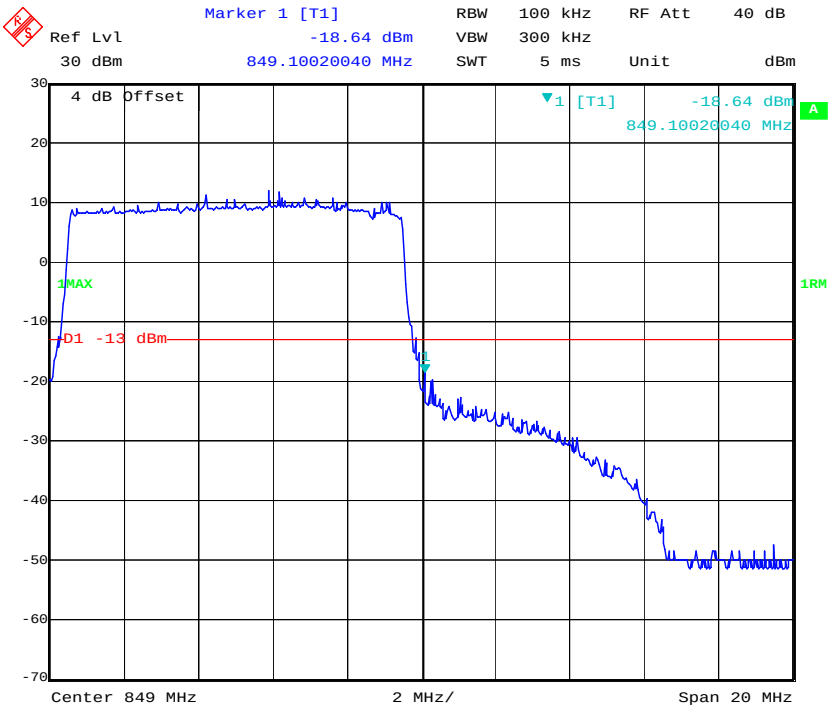
Date: 2.AUG.2018 12:58:06

QPSK_10MHz_ 50 RB_ Left



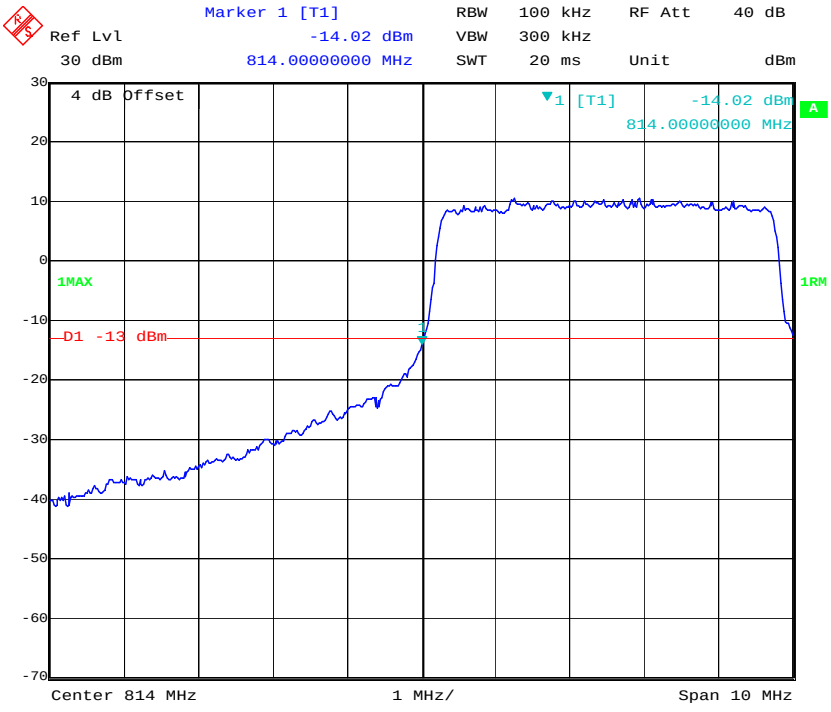
Date: 9.JUN.2018 01:38:45

QPSK_10MHz_ 50 RB_ Right



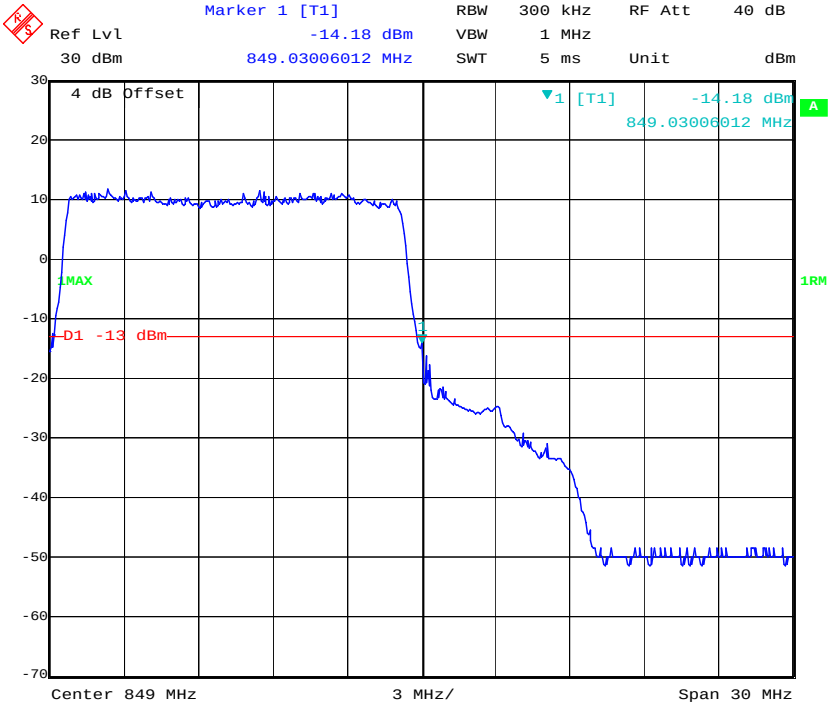
Date: 9.JUN.2018 01:39:53

QPSK_15MHz_ 75 RB_ Left



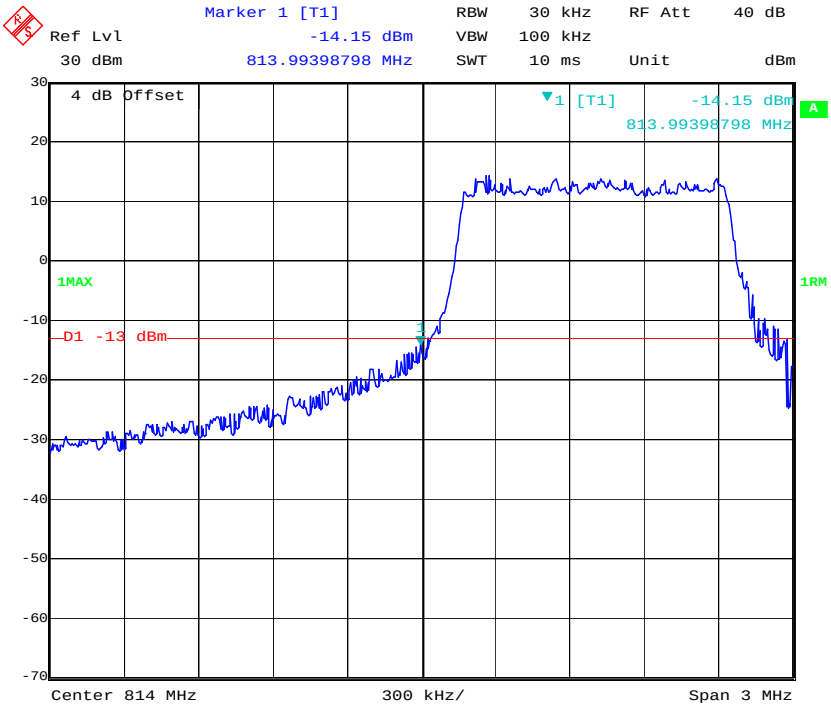
Date: 13.JUN.2018 00:07:47

QPSK_15MHz_ 75 RB_ Right



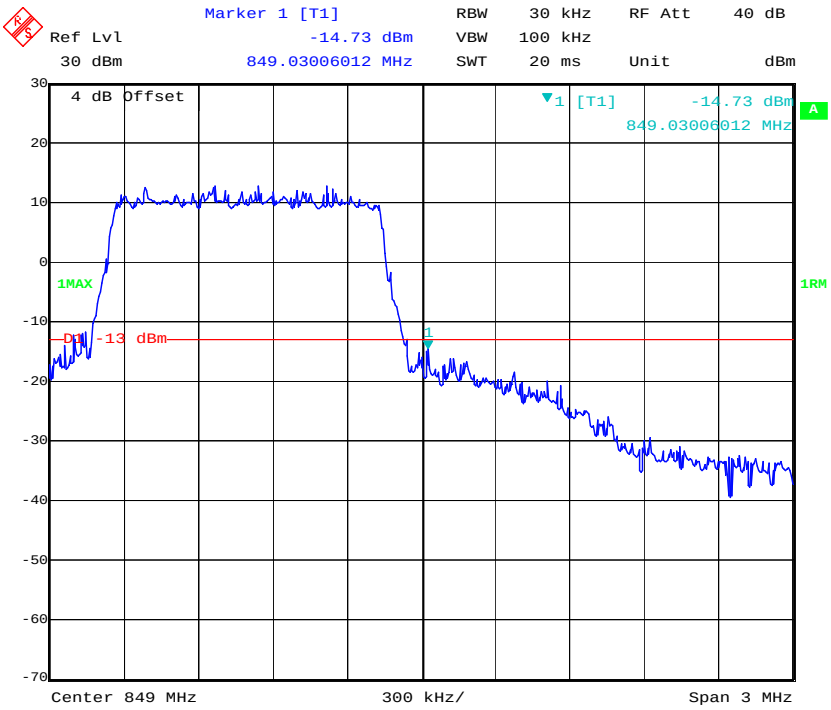
Date: 9.JUN.2018 01:42:25

16QAM_1.4MHz_ 6 RB_ Left



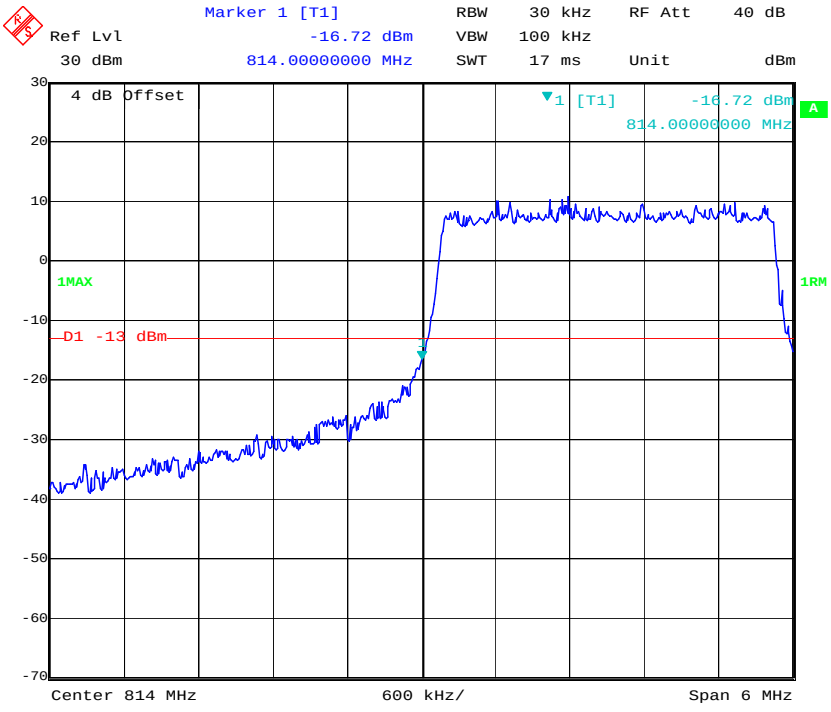
Date: 13.JUN.2018 00:03:58

16QAM_1.4MHz_ 6 RB_ Right



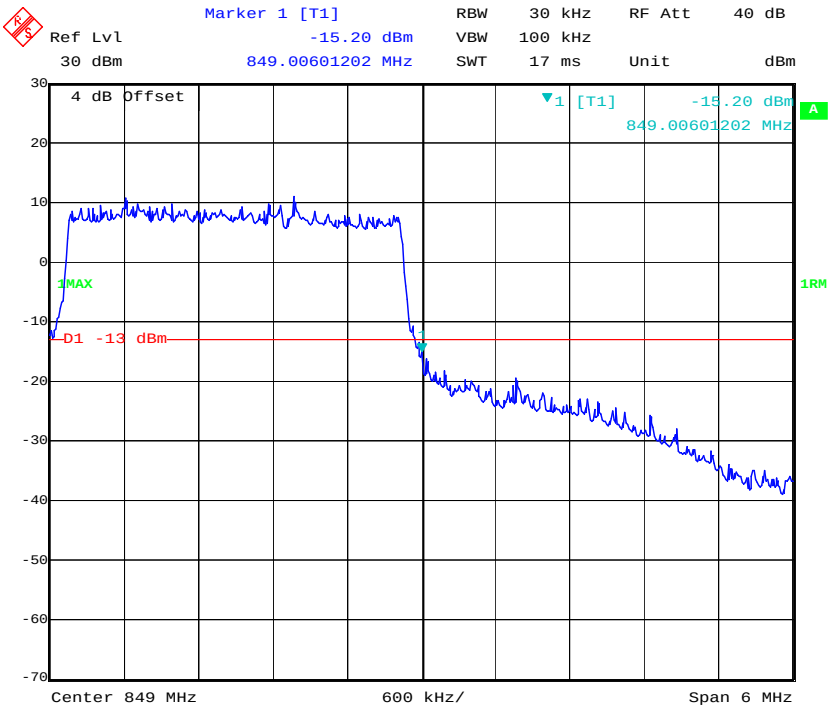
Date: 12.JUN.2018 23:58:51

16QAM_3MHz_ 15 RB_ Left



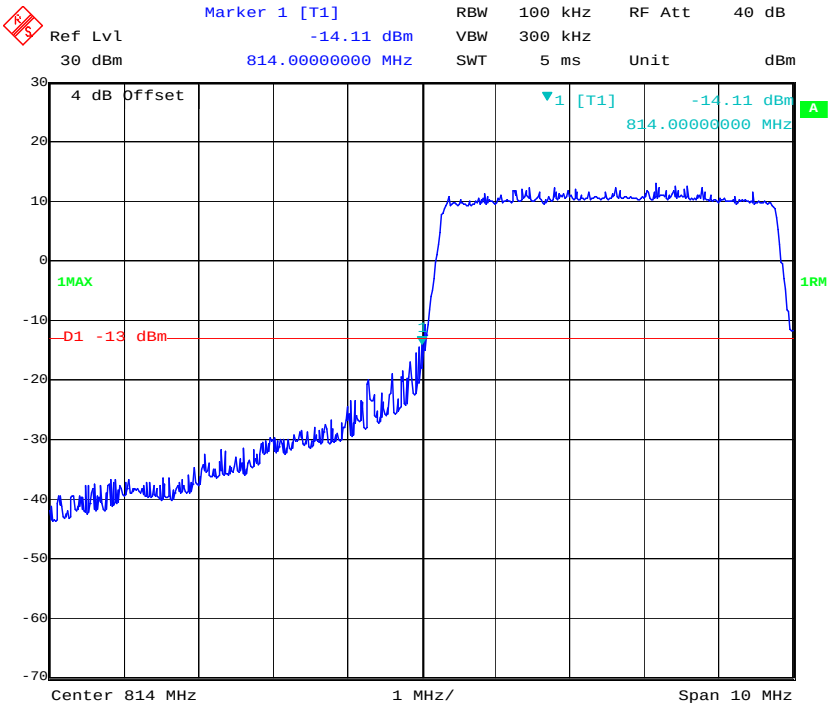
Date: 9.JUN.2018 01:34:07

16QAM_3MHz_ 15 RB_ Right



Date: 9.JUN.2018 01:35:29

16QAM_5MHz_ 25 RB_ Left

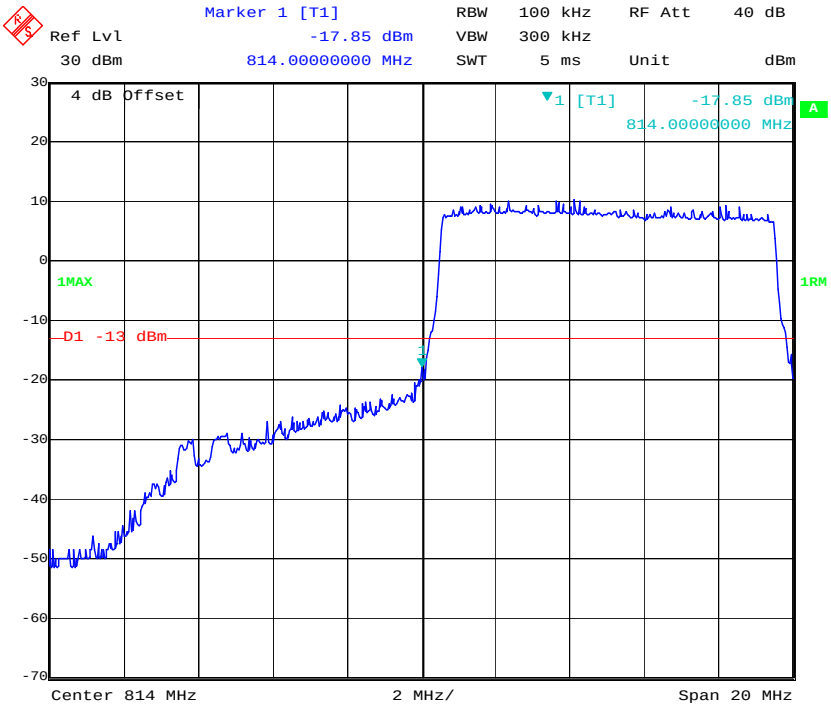


Date: 13.JUN.2018 00:08:44

16QAM_5MHz_ 25 RB_ Right

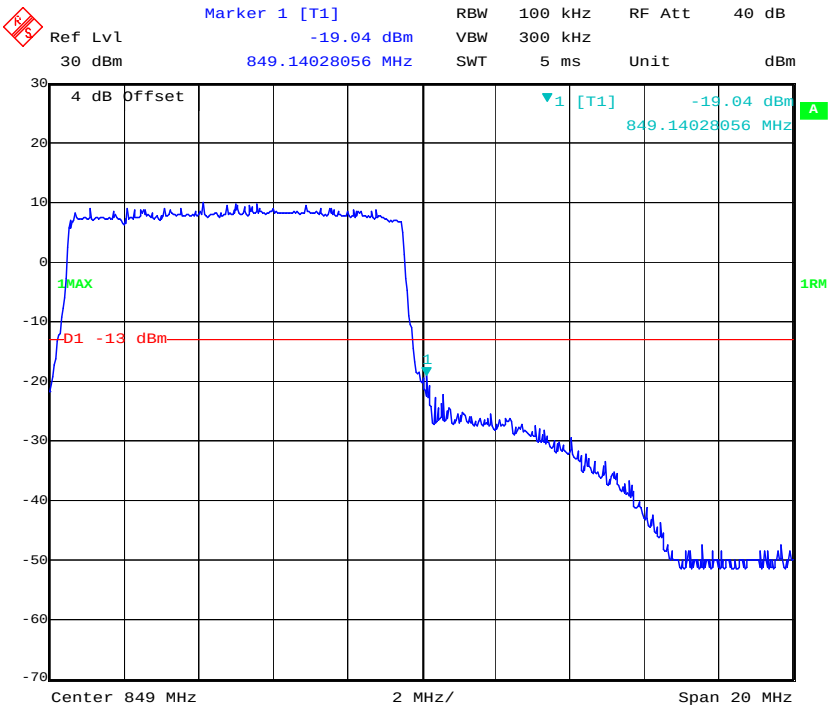
Date: 13.JUN.2018 00:05:27

16QAM_10MHz_ 50 RB_ Left



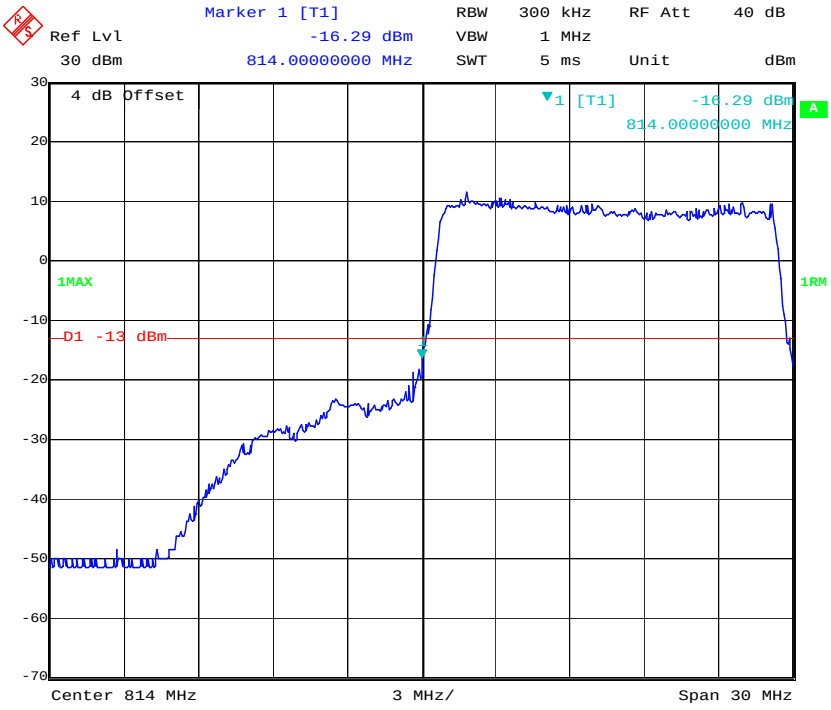
Date: 9.JUN.2018 01:39:23

16QAM_10MHz_ 50 RB_ Right



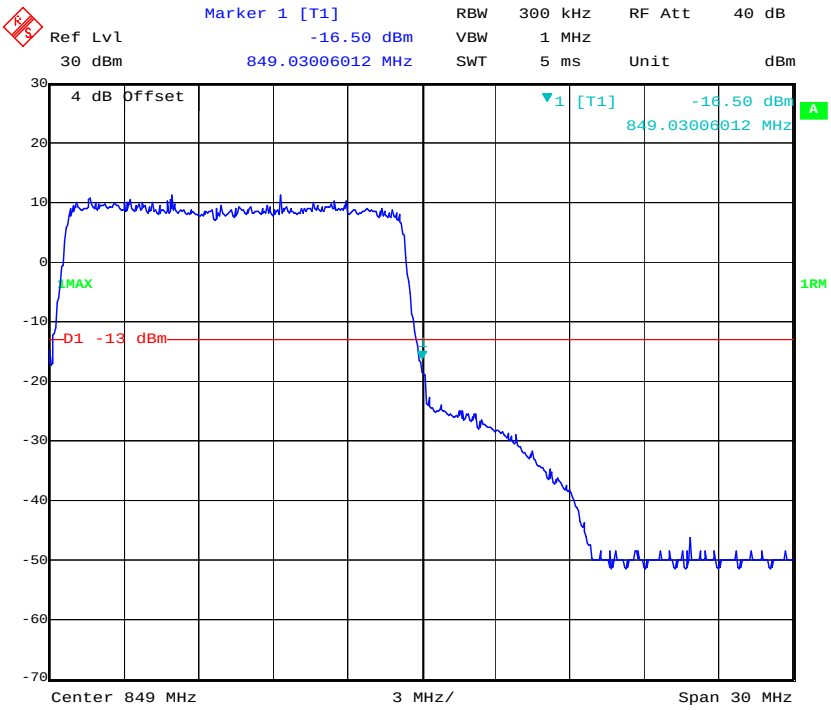
Date: 9.JUN.2018 01:40:24

16QAM_15MHz_ 75 RB_ Left



Date: 9.JUN.2018 01:41:44

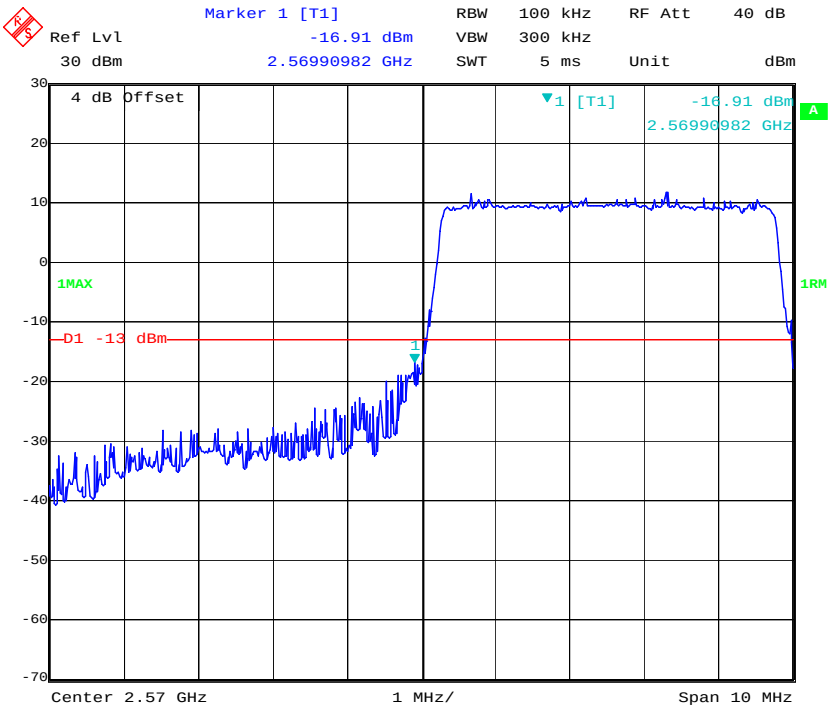
16QAM_15MHz_ 75 RB_ Right



Date: 9.JUN.2018 01:43:01

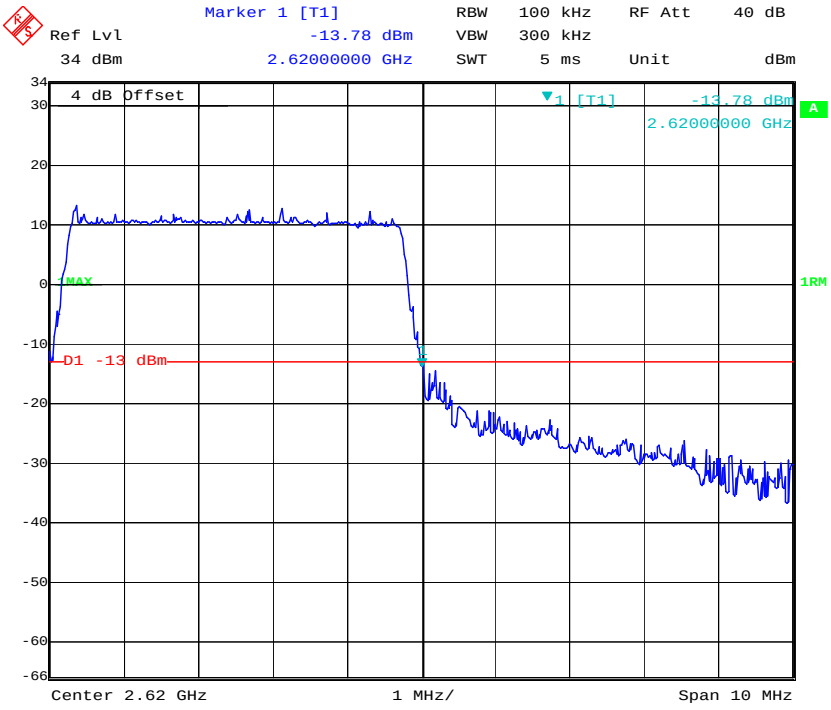
LTE Band 38

QPSK_5MHz_ 25 RB_ Left



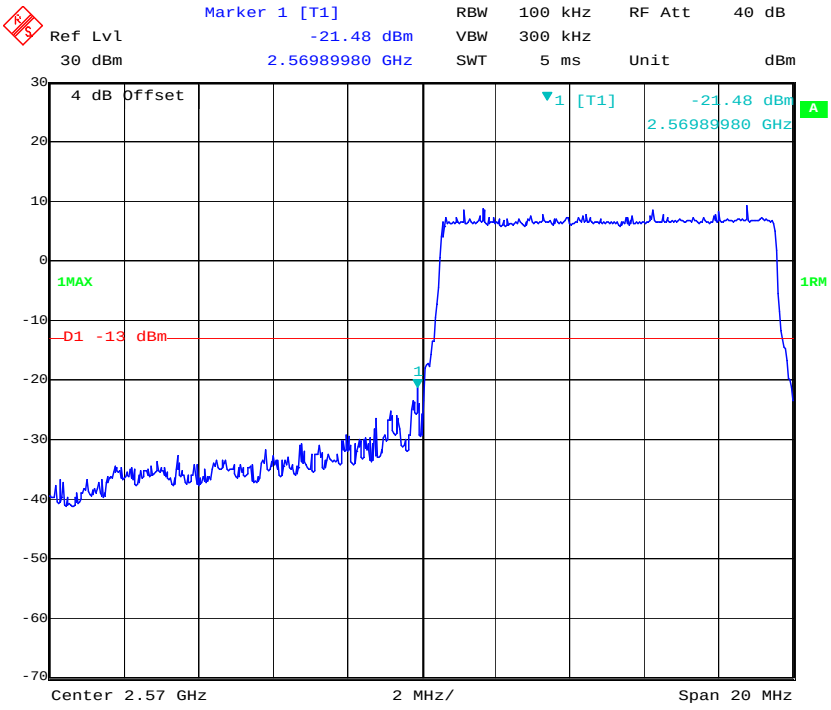
Date: 9.JUN.2018 01:44:13

QPSK_5MHz_ 25 RB_ Right



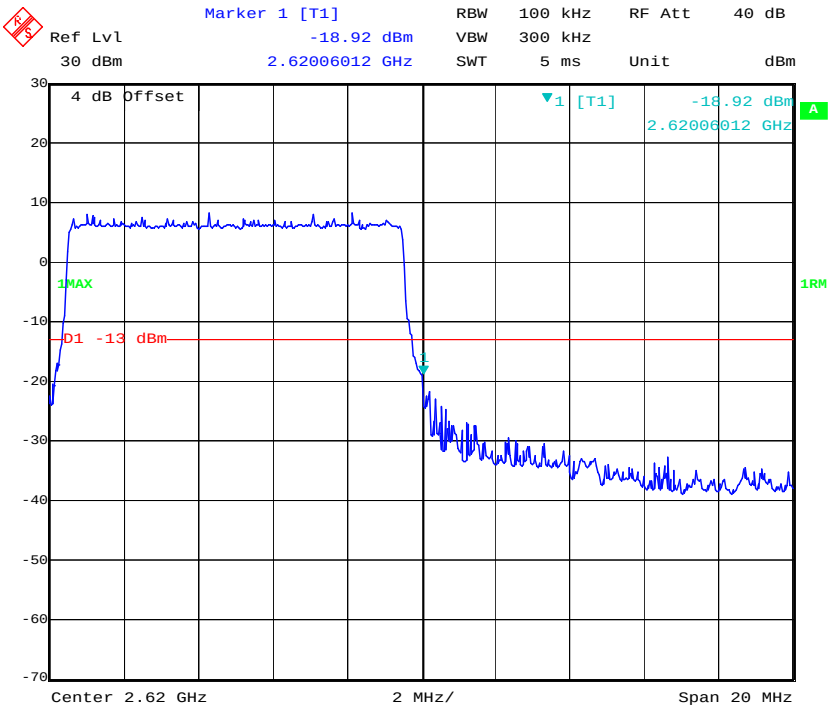
Date: 6.AUG.2018 21:16:02

QPSK_10MHz_ 50 RB_ Left



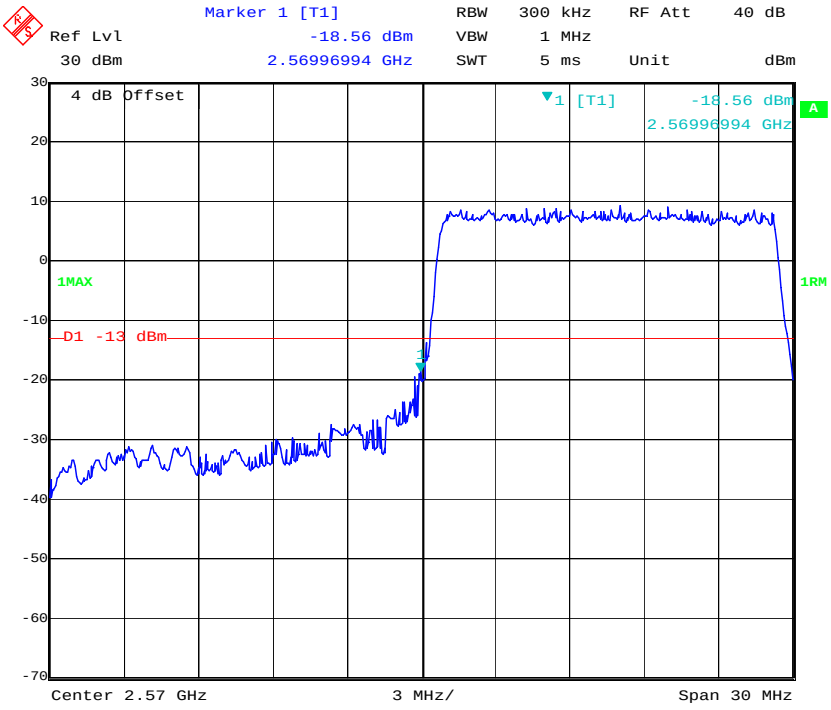
Date: 9.JUN.2018 01:47:17

QPSK_10MHz_ 50 RB_ Right



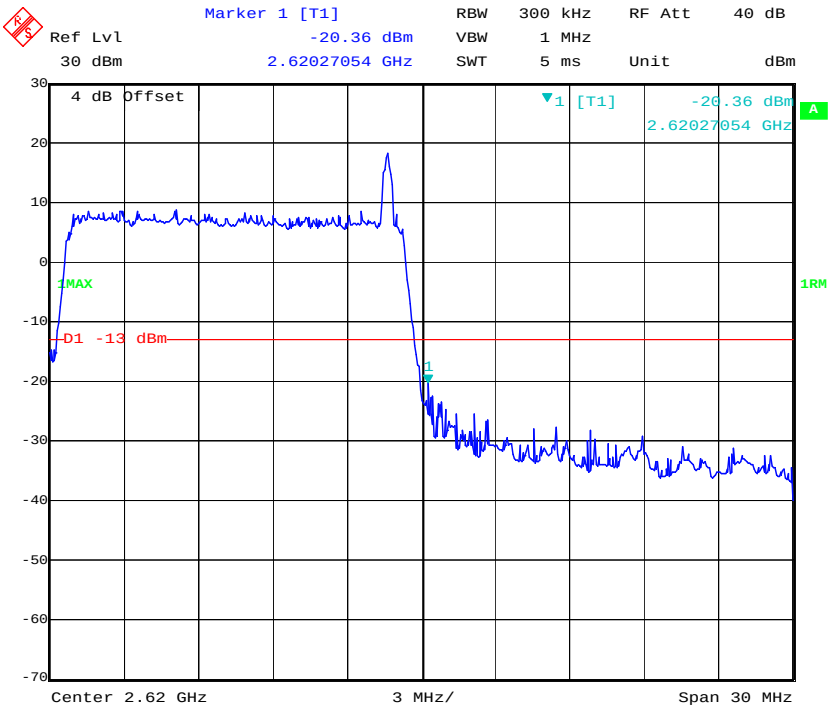
Date: 9.JUN.2018 01:49:04

QPSK_15MHz_ 75 RB_ Left



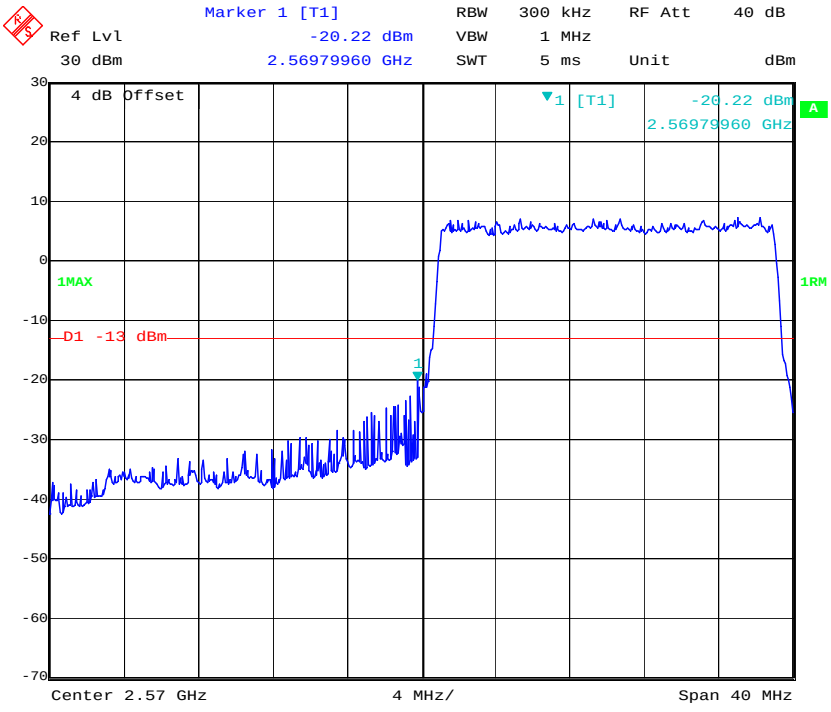
Date: 9.JUN.2018 01:50:35

QPSK_15MHz_ 75 RB_ Right



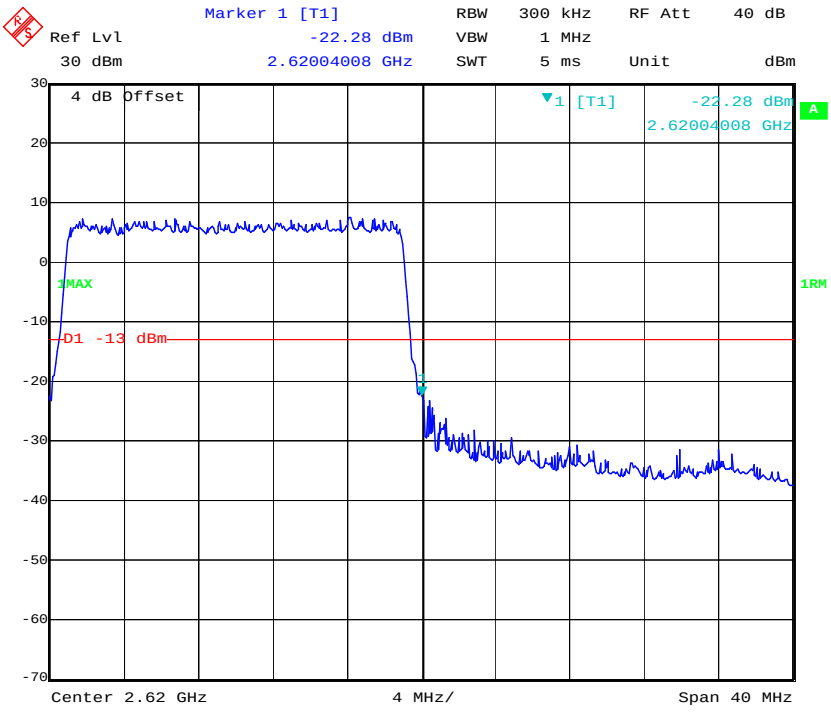
Date: 9.JUN.2018 01:51:57

QPSK_20MHz_ FULL RB_ Left



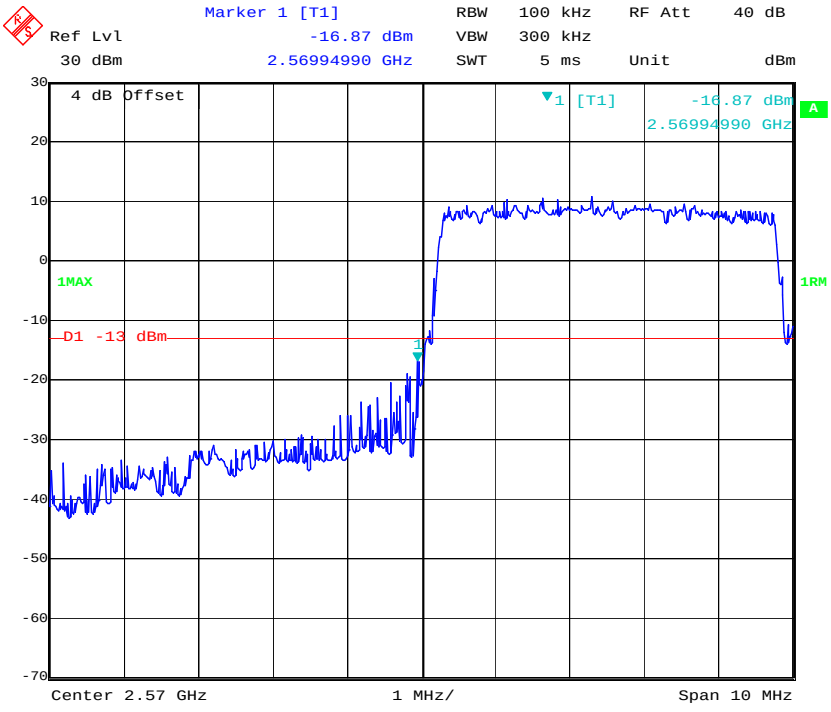
Date: 9.JUN.2018 01:53:25

QPSK_20MHz_ FULL RB_ Right



Date: 9.JUN.2018 01:55:21

16QAM_5MHz_ 25 RB_ Left



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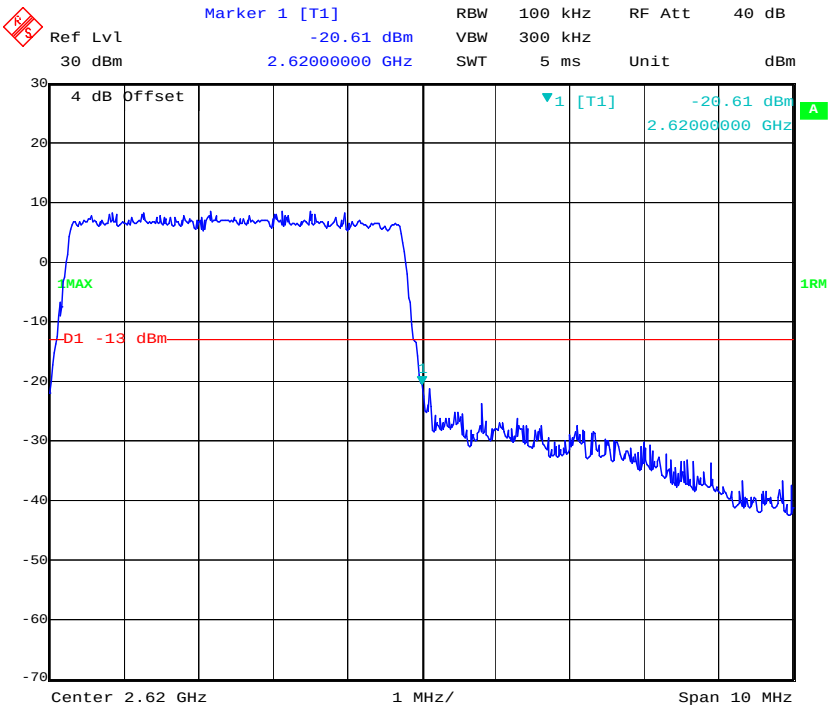
16QAM_5MHz_ 25 RB_ Right



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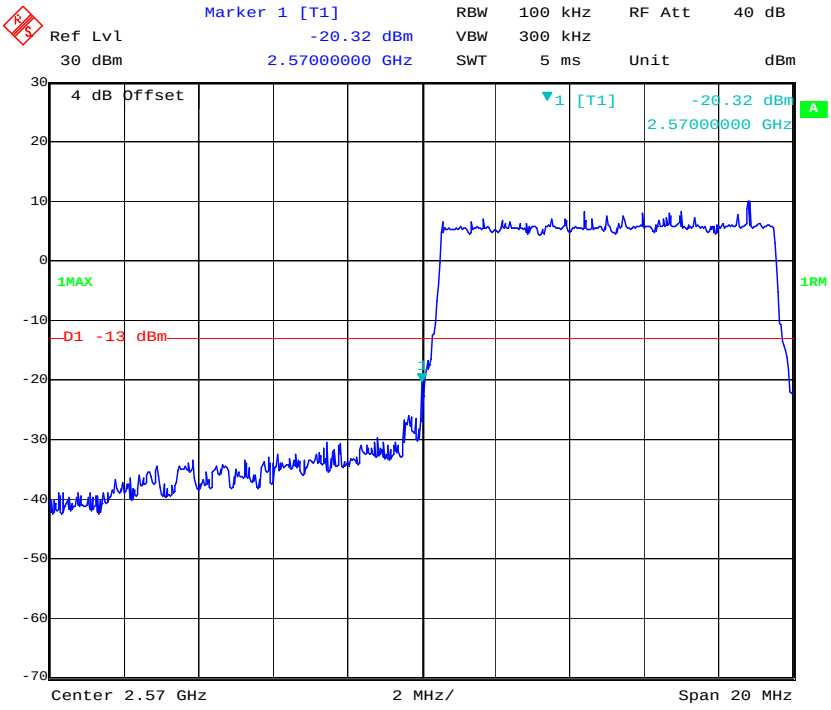
16QAM_10MHz_ 50 RB_ Left



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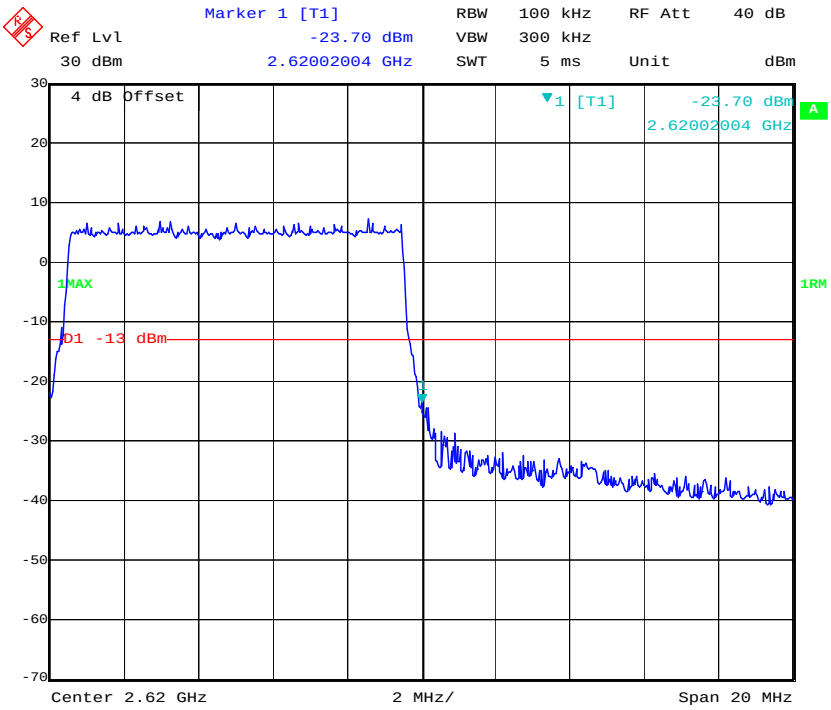
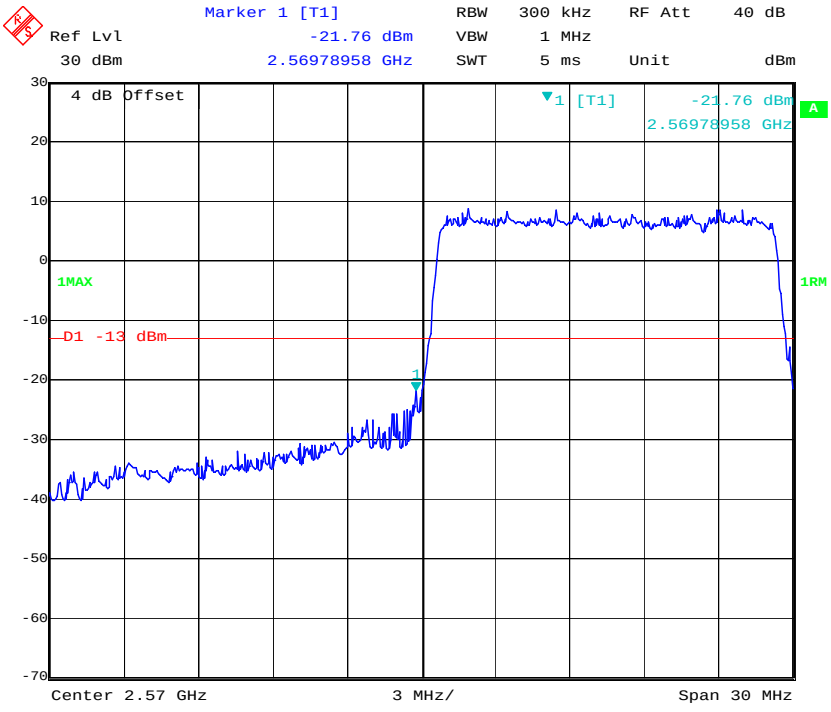
16QAM_10MHz_ 50 RB_ Right



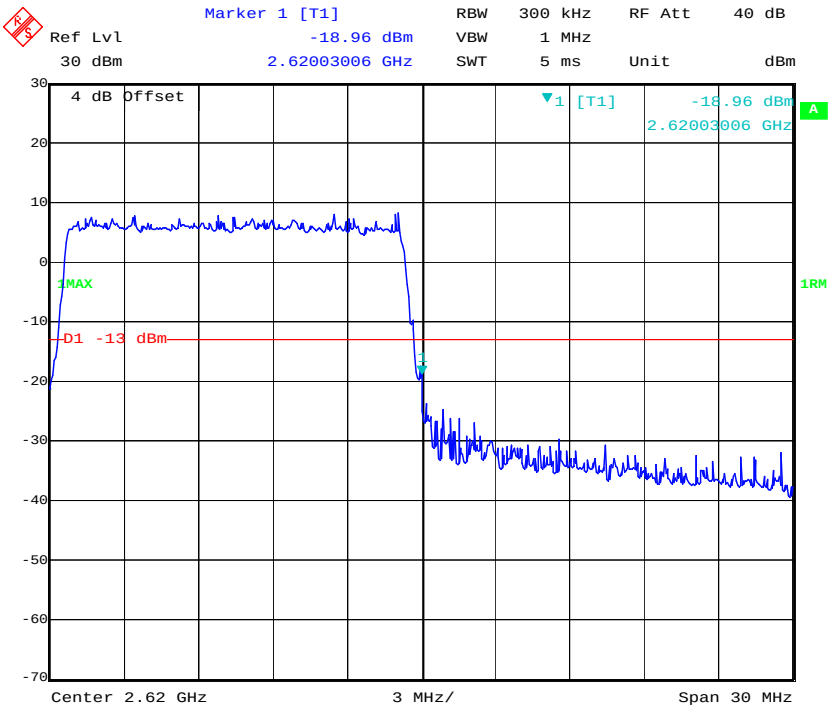
Date: 9.JUN.2018 01:49:51

16QAM_15MHz_ 75 RB_ Left



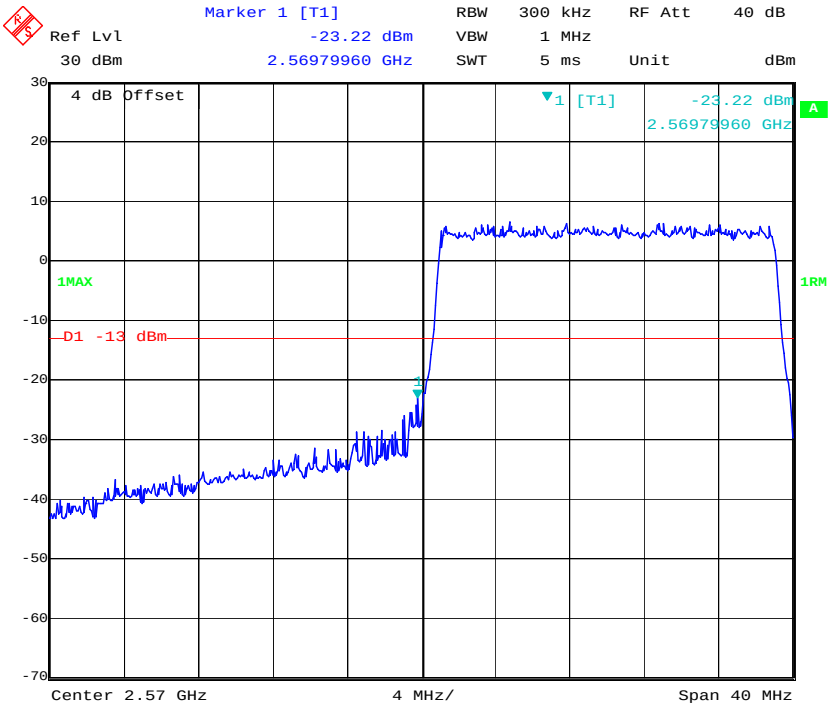
Date: 9.JUN.2018 01:51:13

16QAM_15MHz_ 75 RB_ Right



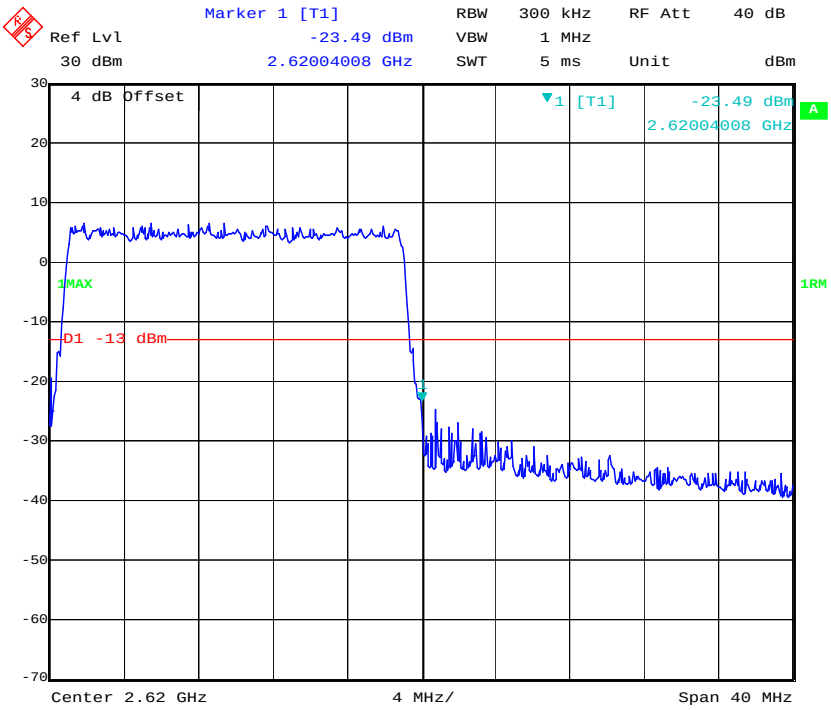
Date: 9.JUN.2018 01:52:37

16QAM_20MHz_ FULL RB_ Left



Date: 9.JUN.2018 01:54:10

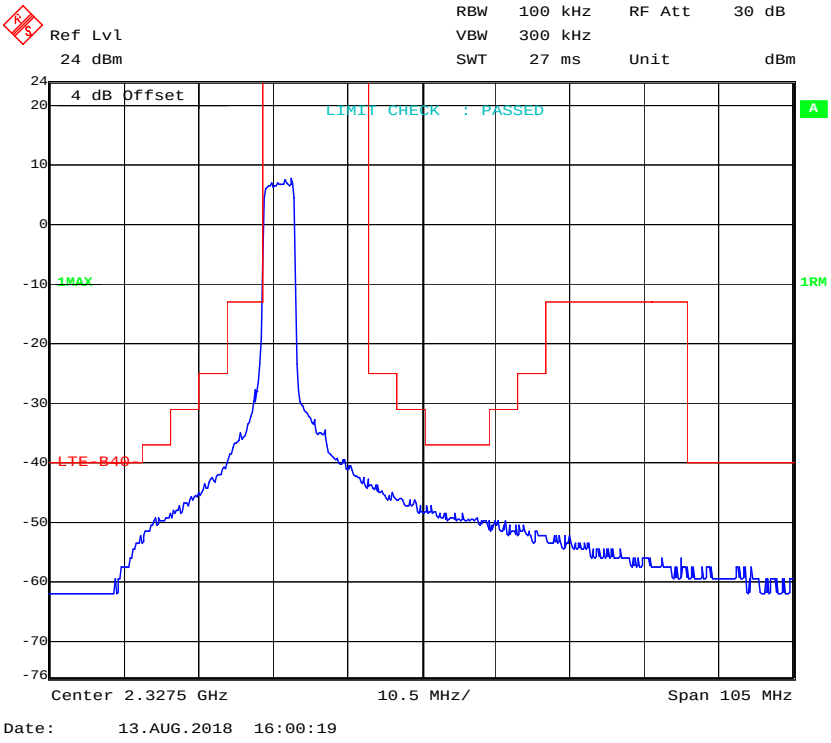
16QAM_20MHz_ FULL RB_ Right



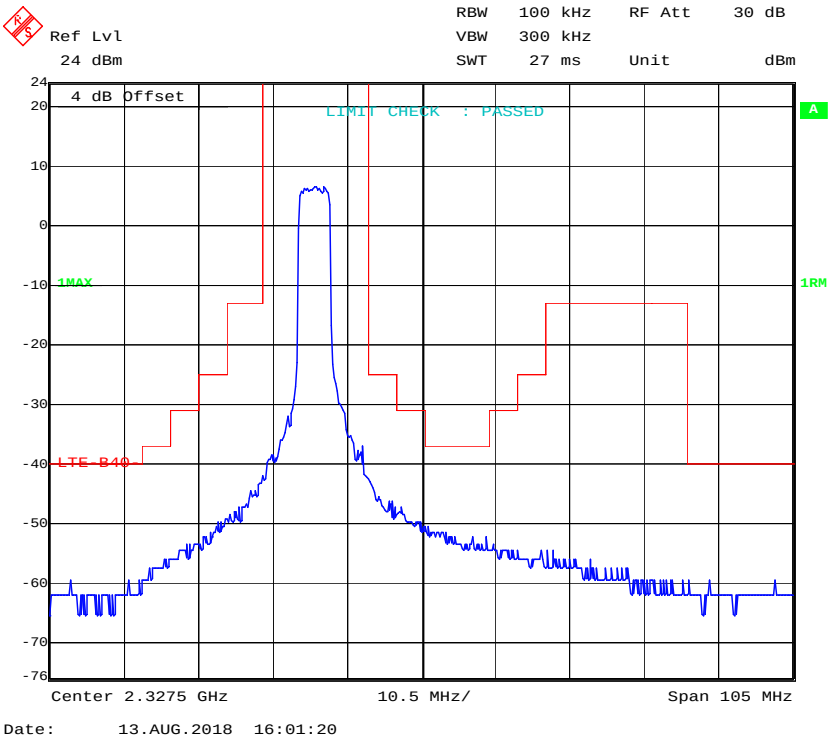
Date: 9.JUN.2018 01:56:02

LTE Band 40(2305-2315MHz)

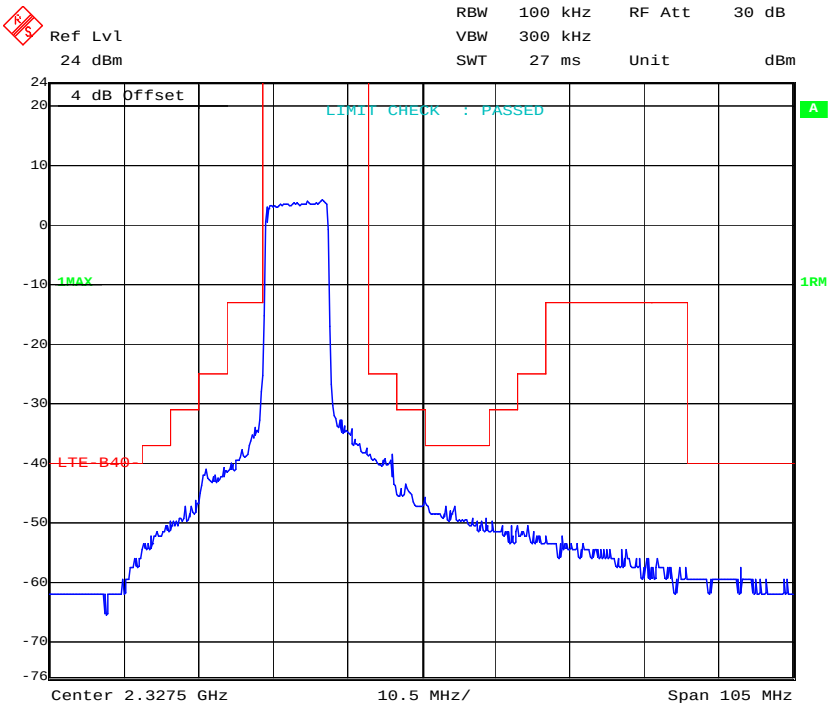
QPSK_5MHz_ 25 RB_ Left



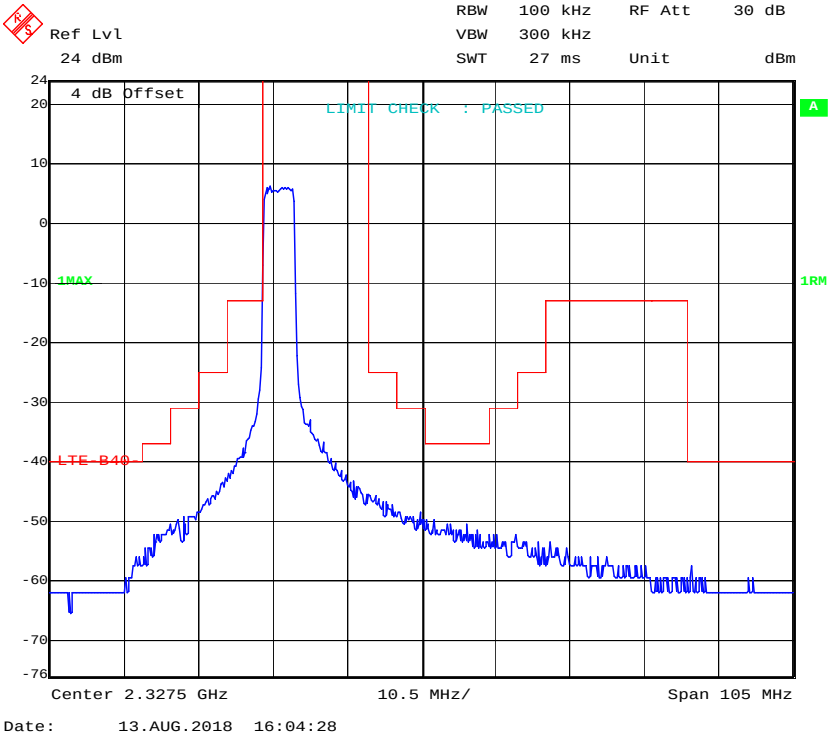
QPSK_5MHz_ 25 RB_ Right



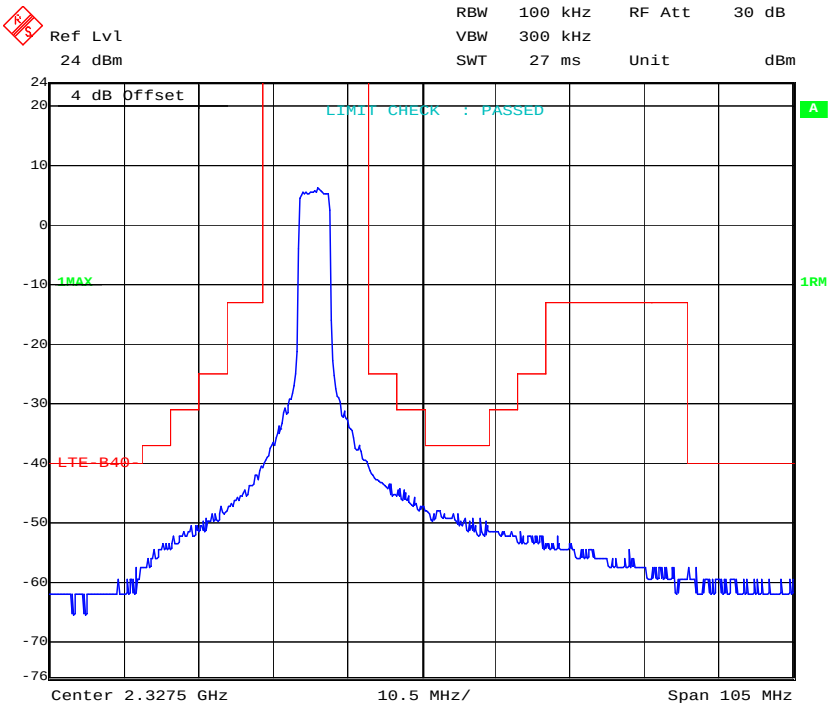
QPSK_10MHz_ 50 RB



16QAM_5MHz_ 25 RB_ Left

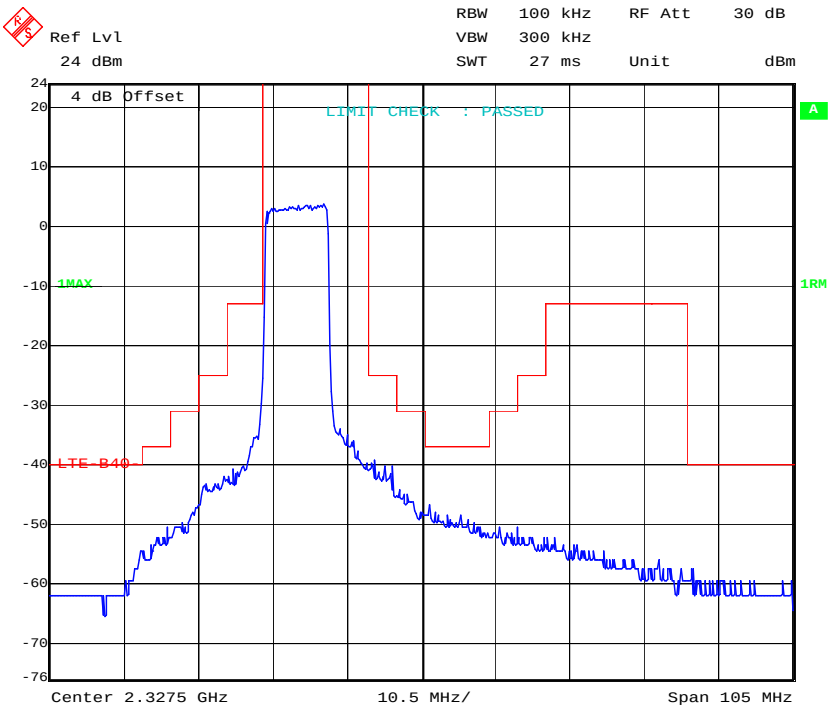


16QAM_5MHz_ 25 RB_ Right



Date: 13.AUG.2018 16:03:14

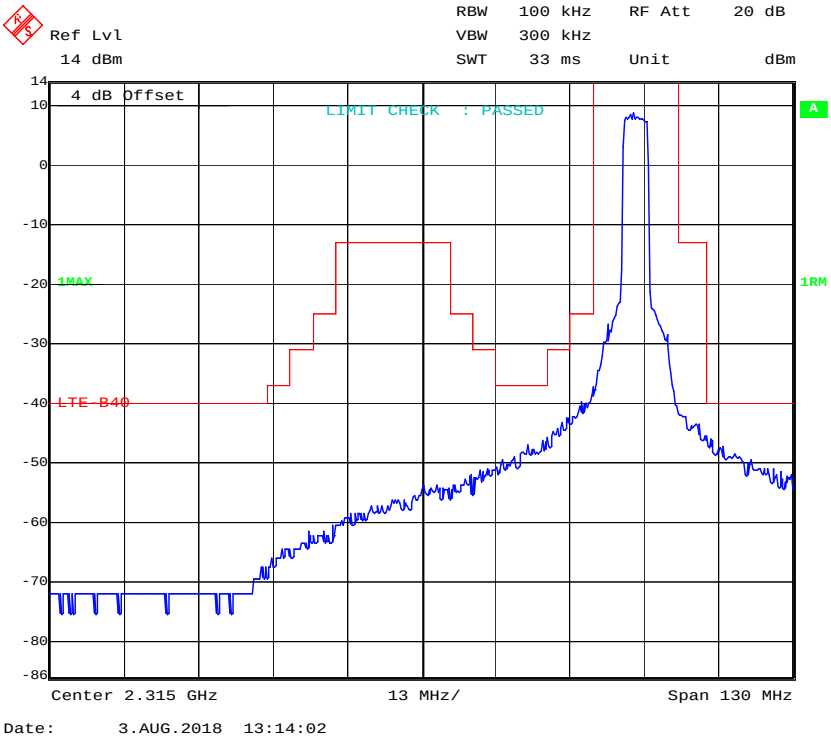
16QAM_10MHz_ 50 RB



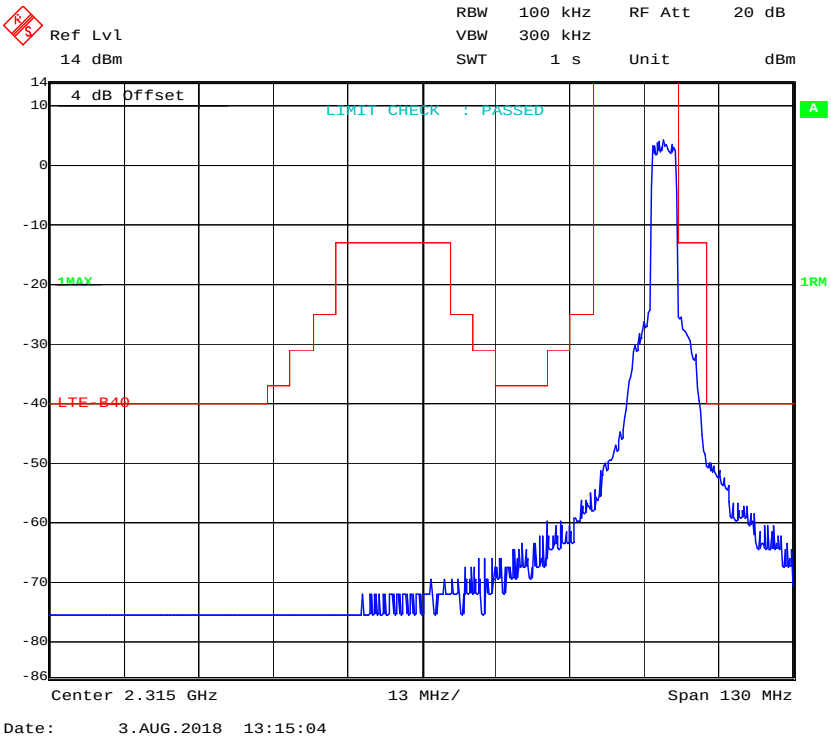
Date: 13.AUG.2018 16:05:49

LTE Band 40(2350-2360MHz)

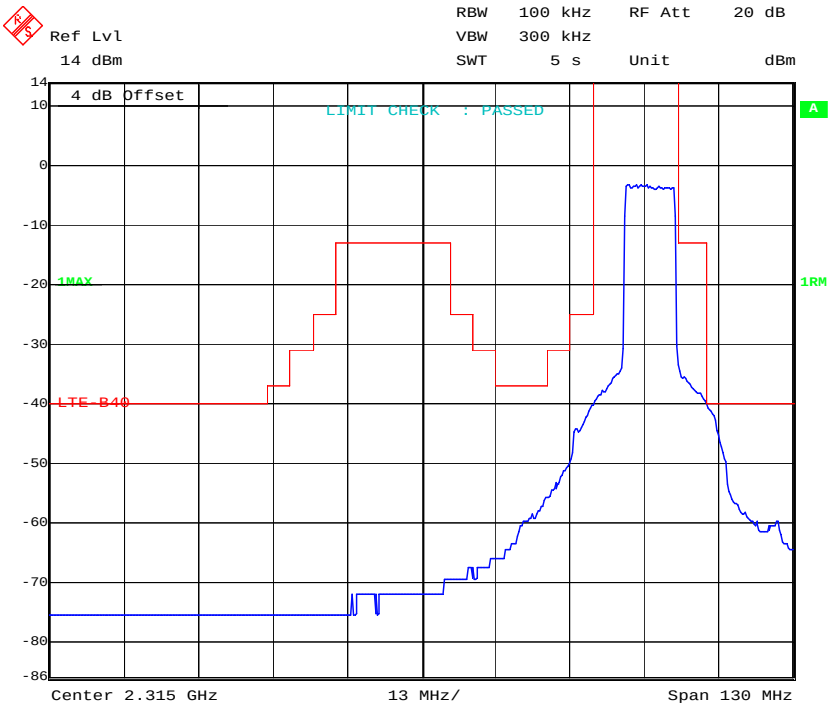
QPSK_5MHz_ 25 RB_ Left



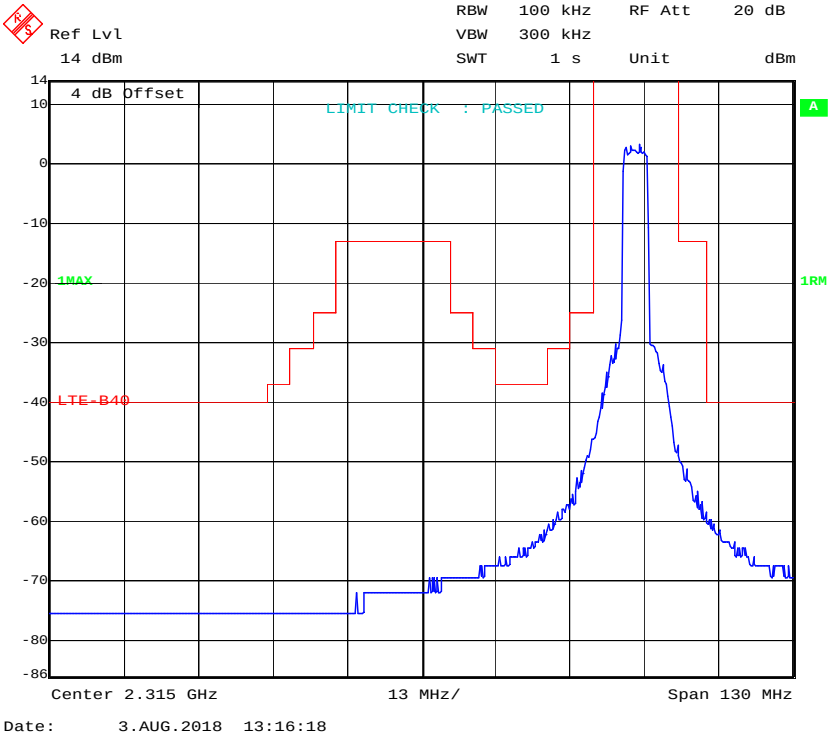
QPSK_5MHz_ 25 RB_ Right



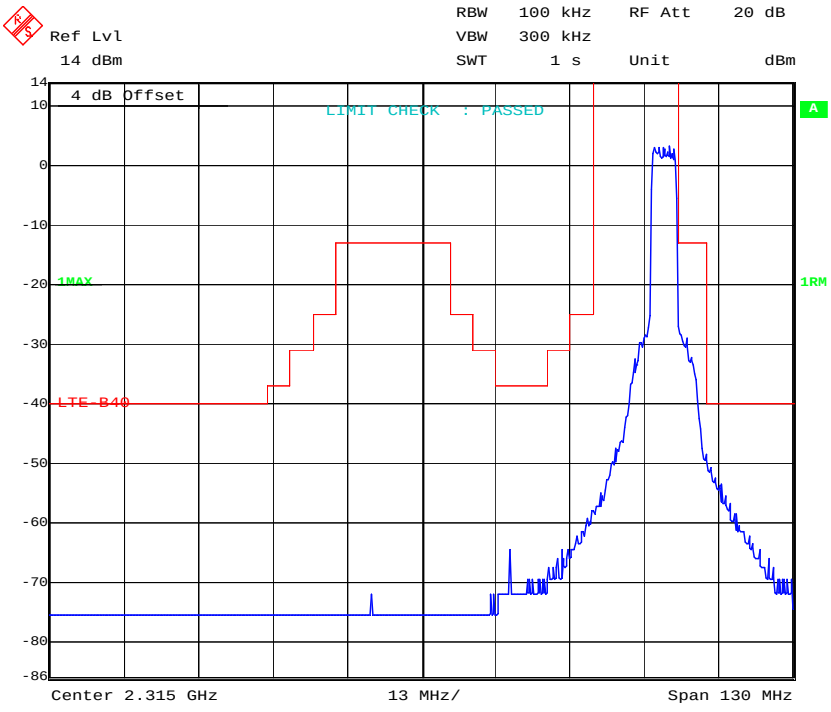
QPSK_10MHz_ 50 RB



16QAM_5MHz_ 25 RB_ Left

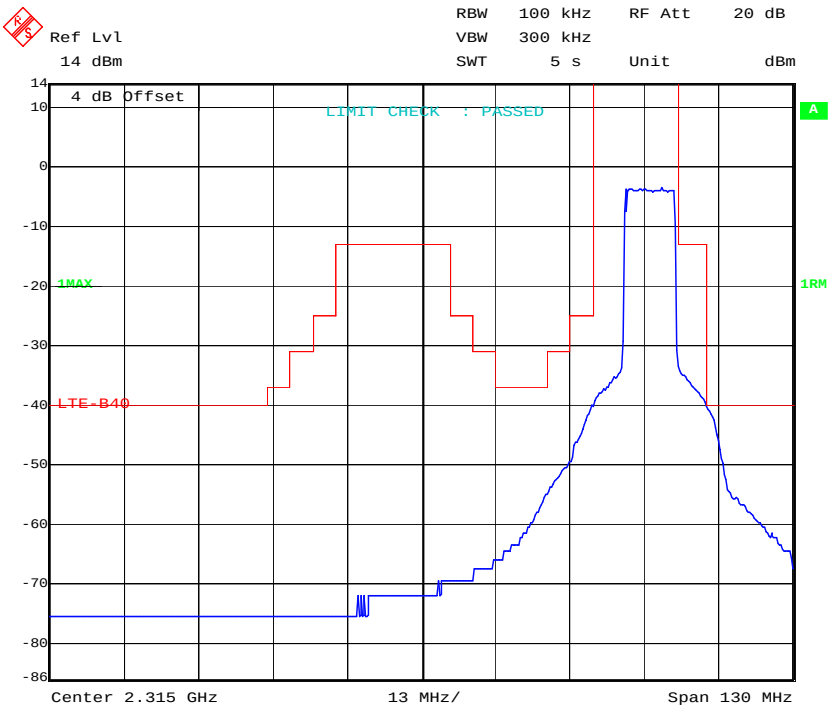


16QAM_5MHz_ 25 RB_ Right



Date: 3.AUG.2018 13:15:45

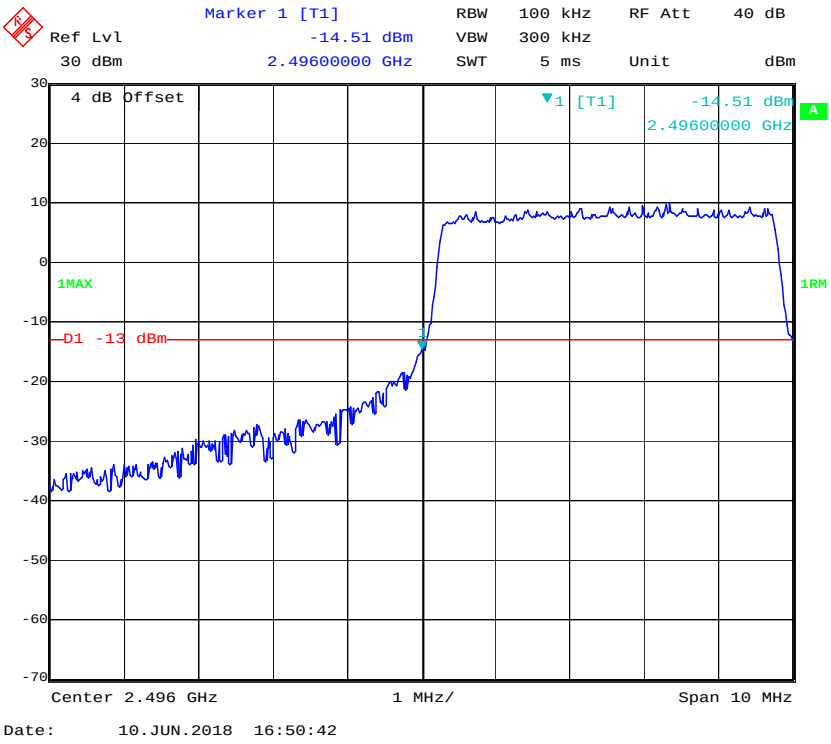
16QAM_10MHz_ 50 RB



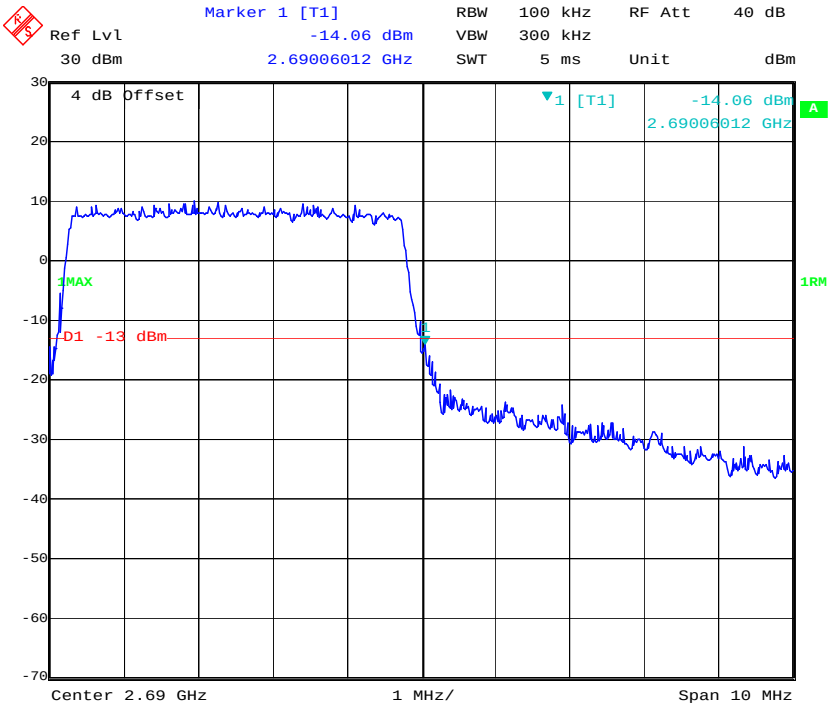
Date: 3.AUG.2018 13:19:00

LTE Band 41

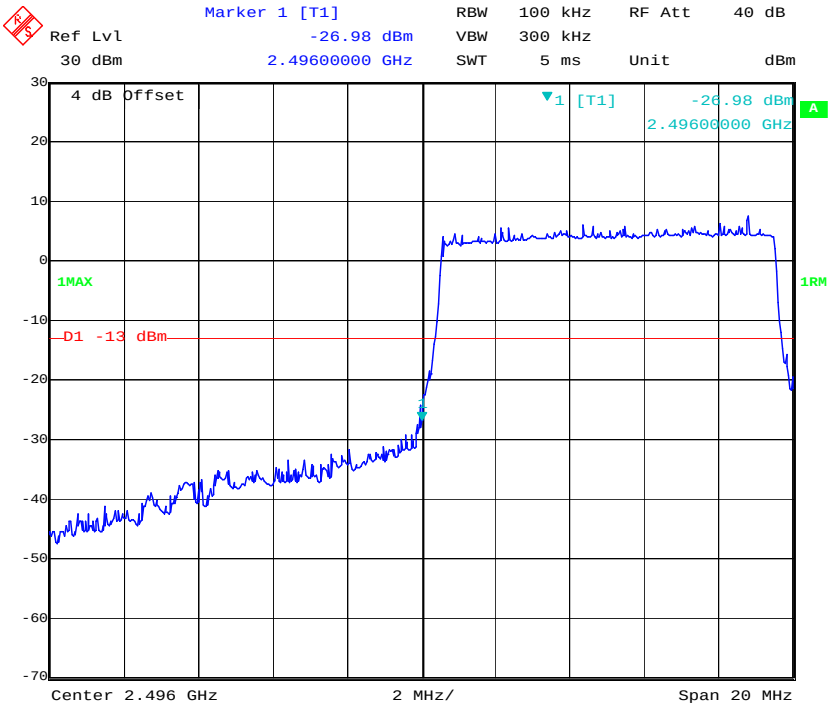
QPSK_5MHz_ 25 RB_ Left



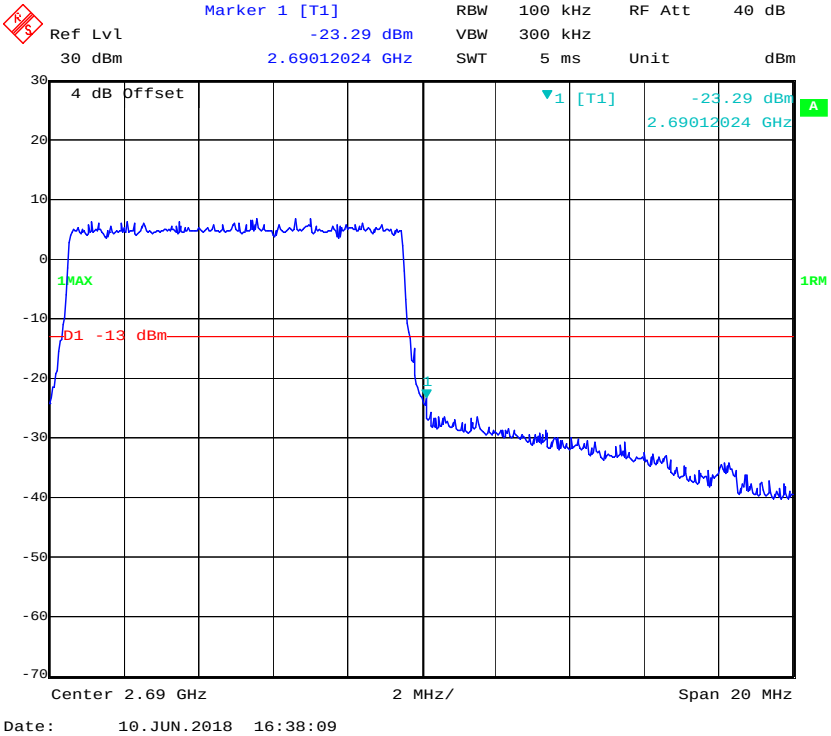
QPSK_5MHz_ 25 RB_ Right



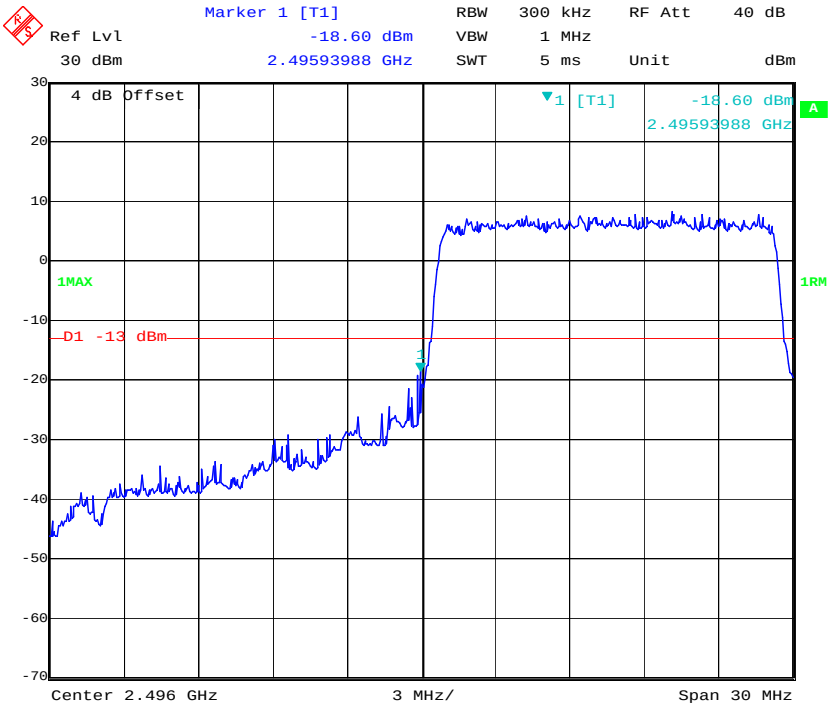
QPSK_10MHz_ 50 RB_ Left



QPSK_10MHz_ 50 RB_ Right

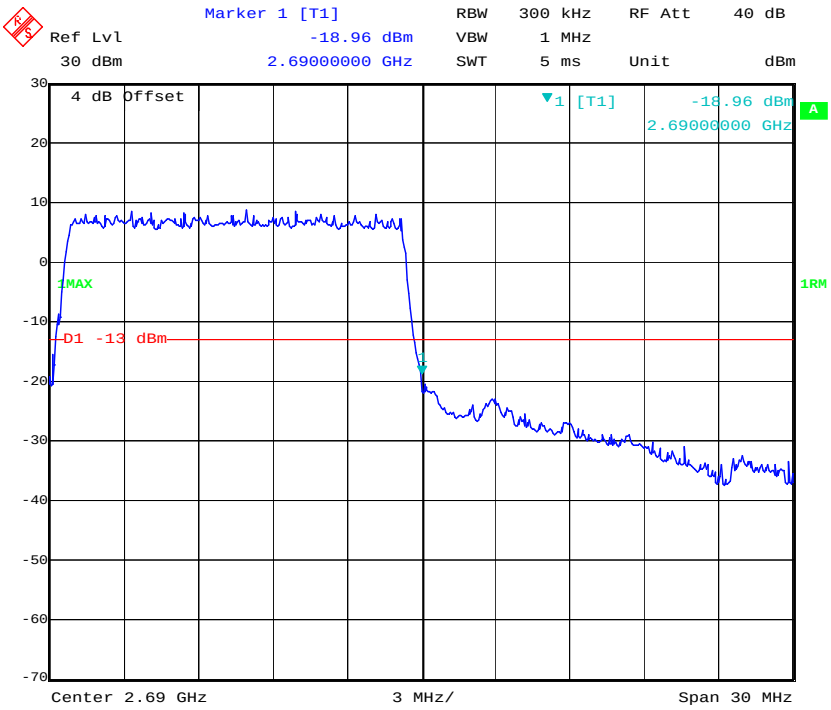


QPSK_15MHz_ 75 RB_ Left



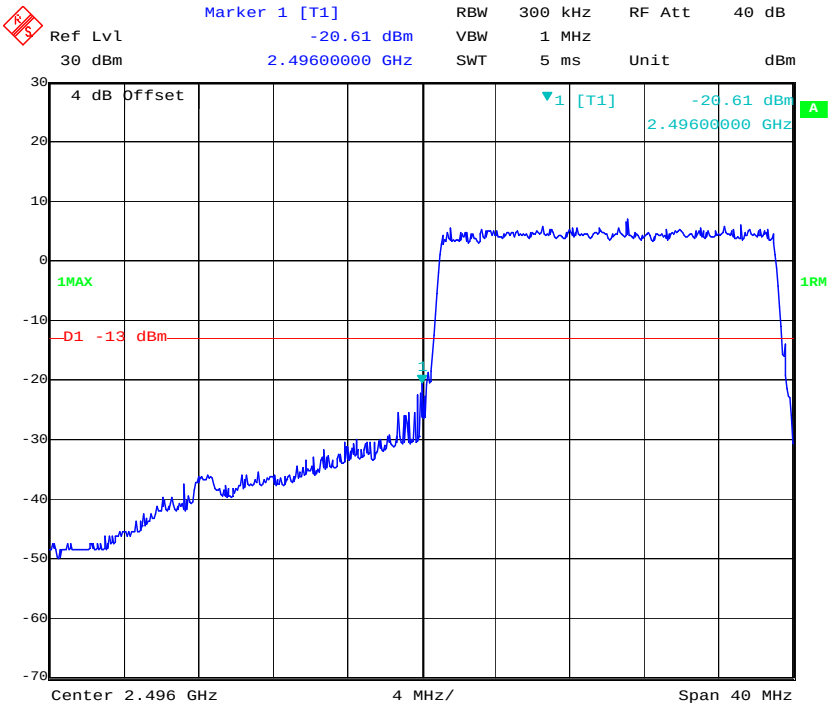
Date: 10.JUN.2018 16:32:02

QPSK_15MHz_ 75 RB_ Right



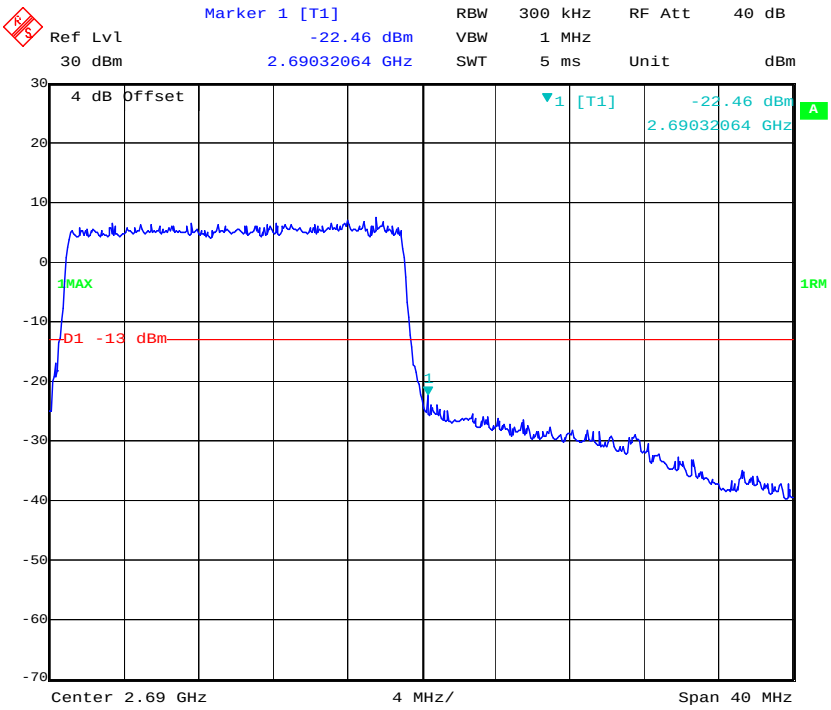
Date: 10.JUN.2018 16:28:48

QPSK_20MHz_ FULL RB_ Left



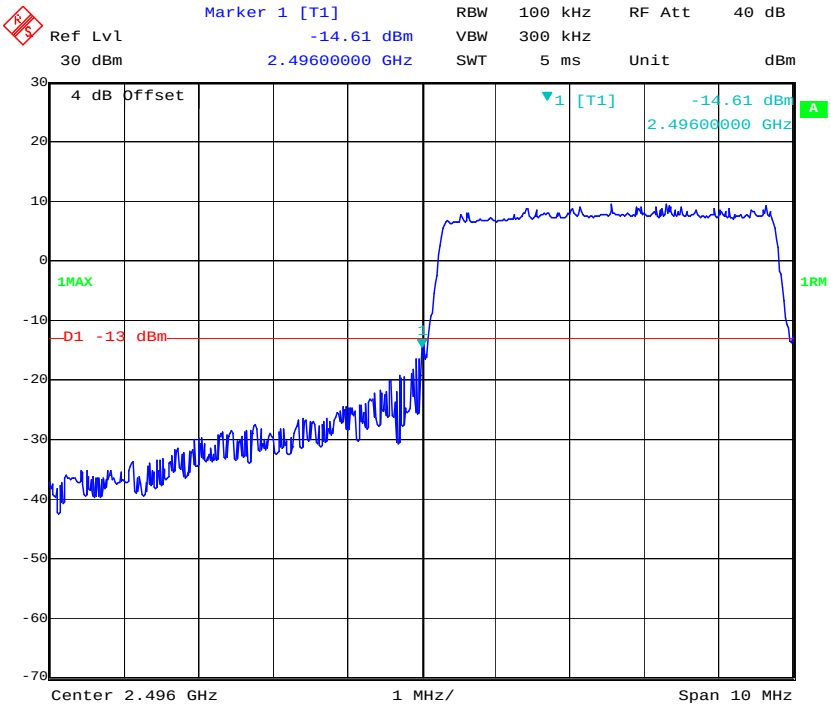
Date: 10.JUN.2018 16:23:24

QPSK_20MHz_ FULL RB_ Right



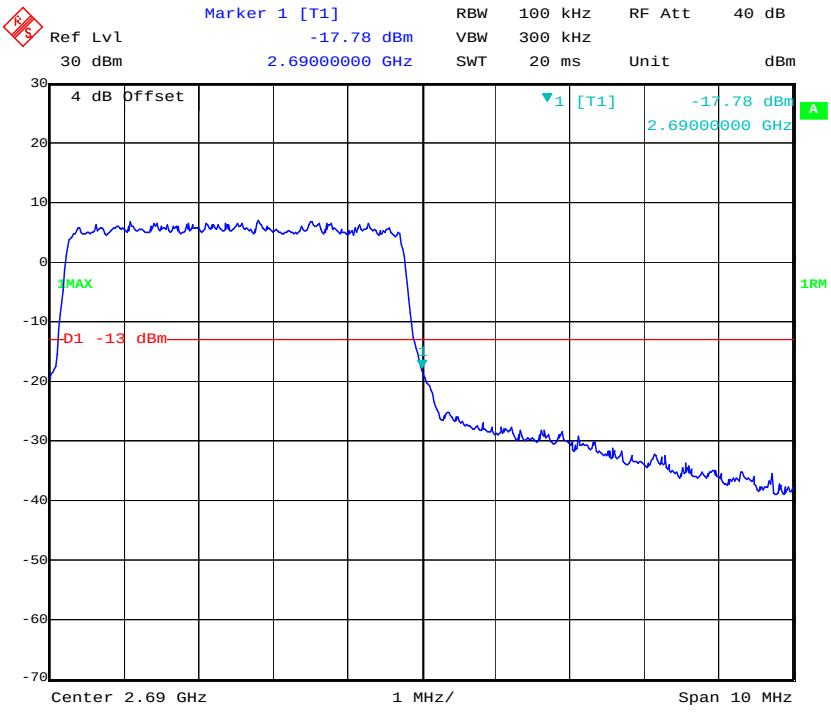
Date: 10.JUN.2018 16:27:22

16QAM_5MHz_ 25 RB_ Left



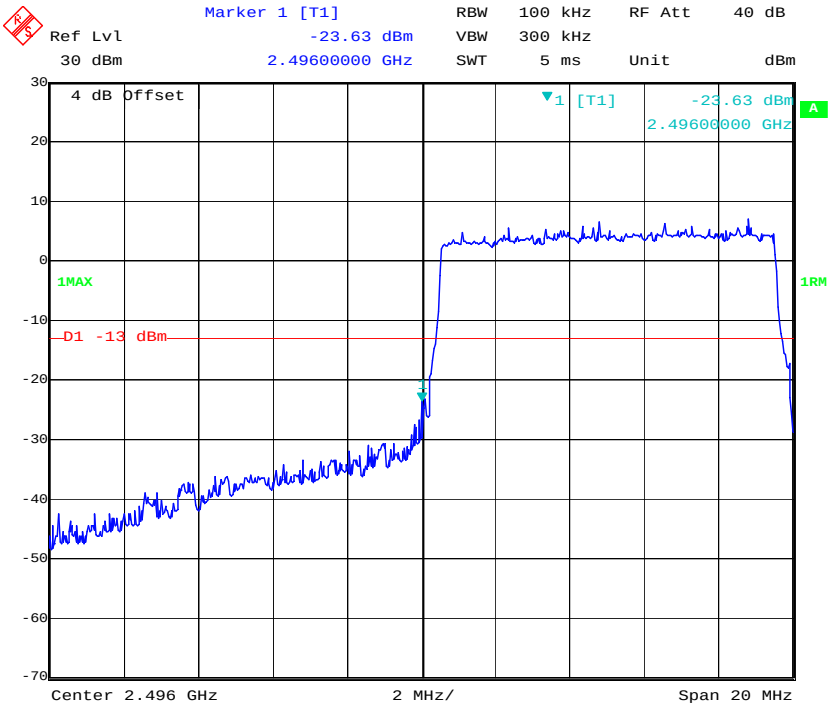
Date: 10.JUN.2018 16:46:50

16QAM_5MHz_ 25 RB_ Right



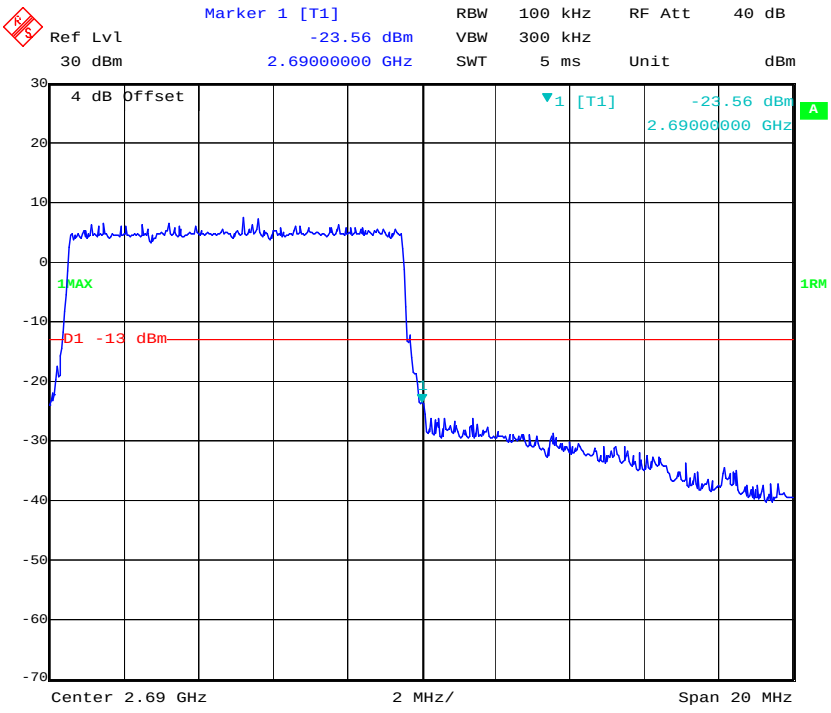
Date: 10.JUN.2018 16:43:06

16QAM_10MHz_ 50 RB_ Left



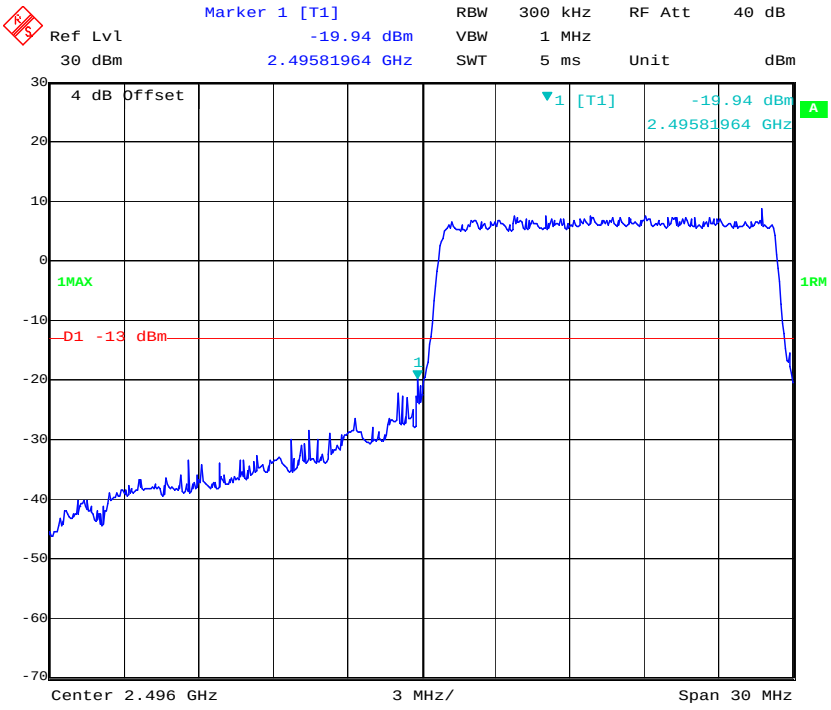
Date: 10.JUN.2018 16:36:00

16QAM_10MHz_ 50 RB_ Right



Date: 10.JUN.2018 16:37:10

16QAM_15MHz_ 75 RB_ Left

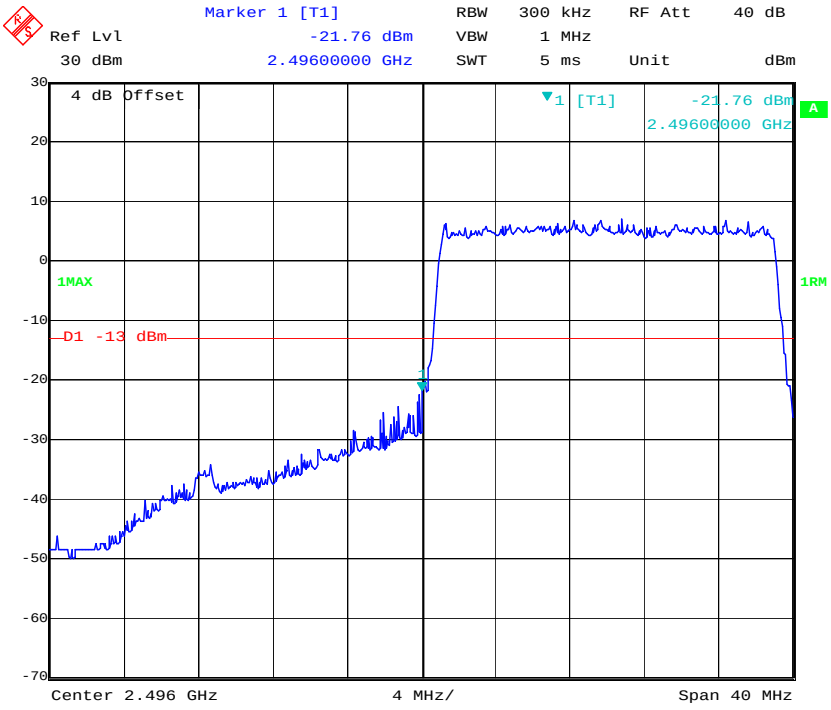


Date: 10.JUN.2018 16:31:22

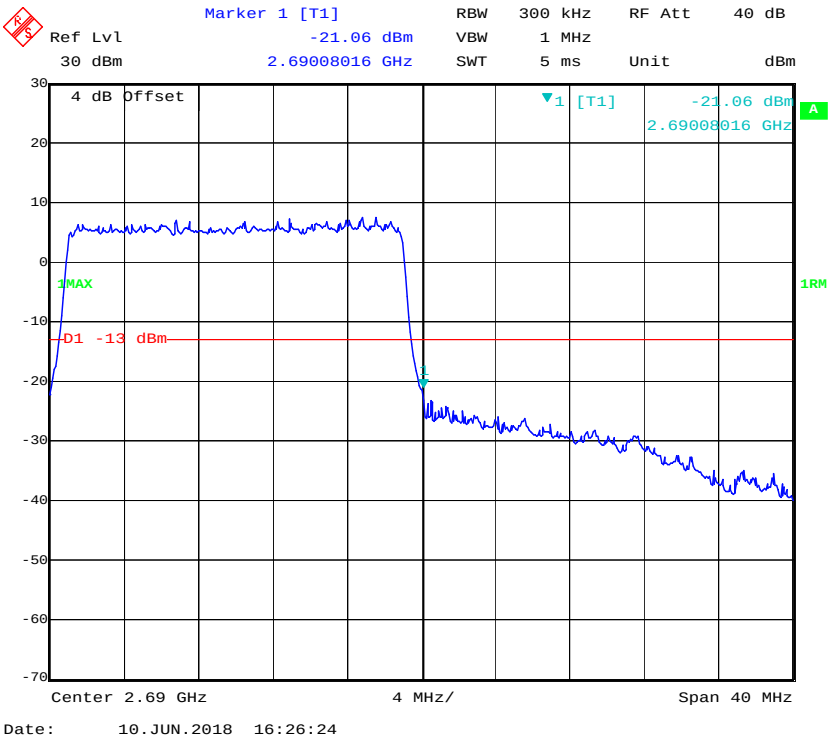
16QAM_15MHz_ 75 RB_ Right

Date: 10.JUN.2018 16:29:32

16QAM_20MHz_ FULL RB_ Left



16QAM_20MHz_ FULL RB_ Right



FCC §2.1055, §22.355 & §24.235 & §27.54& §90.213 - FREQUENCY STABILITY

Applicable Standard

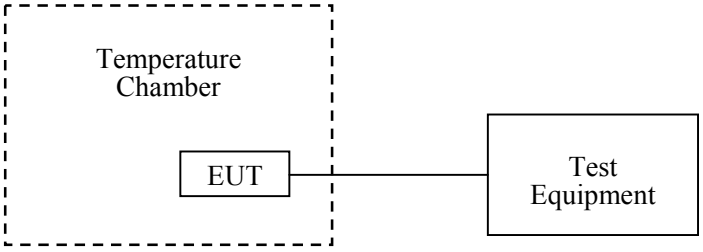
FCC § 2.1055 (a), § 2.1055 (d), §22.355, §24.235,§27.54 &§90.213

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	2017-09-10	2018-09-09
R&S	Universal Radio Communication Tester	CMU200	109 038	2017-07-21	2018-07-21
R&S	Universal Radio Communication Tester	CMU200	109 038	2018-07-21	2019-07-21
R&S	Wideband Radio Communication Tester	CMW500	110479	2017-12-11	2018-12-11
UNI-T	Multimeter	UT39A	M130199938	2018-04-02	2019-04-02
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A
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:	26.5 ~ 29.9 °C
Relative Humidity:	47 ~70 %
ATM Pressure:	99.5~ 101.9 kPa

The testing was performed by Swim Lv from 2018-06-08 to 2018-07-26.

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Cellular Band (Part 22H)

GMSK, Middle Channel, f_c = 836.6 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Limit**
℃	**V_{DC}**	**Hz**	**ppm**	**ppm**
-30	3.8	-16	-0.019	2.5
-20		-18	-0.022	
-10		-17	-0.020	
0		-16	-0.019	
10		-18	-0.022	
20		-15	-0.018	
30		-17	-0.020	
40		-18	-0.022	
50		-16	-0.019	
25	3.4	-18	-0.022	
25	4.3	-17	-0.020	

8PSK, Middle Channel, f_c = 836.6 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Limit**
℃	**V_{DC}**	**Hz**	**ppm**	**ppm**
-30	3.8	-12	-0.014	2.5
-20		-19	-0.023	
-10		-15	-0.018	
0		-11	-0.013	
10		-22	-0.026	
20		-24	-0.029	
30		-11	-0.013	
40		-26	-0.031	
50		-17	-0.020	
25	3.4	-21	-0.025	
25	4.3	-15	-0.018	

PCS Band (Part 24E)

GMSK, Middle Channel, f_c = 1880.0 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Results**
℃	**V_{DC}**	**Hz**	**ppm**	
-30	3.8	7	0.004	Pass
-20		6	0.003	
-10		8	0.004	
0		7	0.004	
10		5	0.003	
20		7	0.004	
30		9	0.005	
40		8	0.004	
50		6	0.003	
25	3.4	5	0.003	
25	4.3	8	0.004	

8PSK, Middle Channel, f_c = 1880.0 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Results**
℃	**V_{DC}**	**Hz**	**ppm**	
-30	3.8	16	0.009	Pass
-20		7	0.004	
-10		5	0.003	
0		9	0.005	
10		11	0.006	
20		15	0.008	
30		13	0.007	
40		12	0.006	
50		10	0.005	
25	3.4	8	0.004	
25	4.3	5	0.003	

WCDMA Band II: R99

Middle Channel, f_c = 1880.0 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Results**
℃	**V_{DC}**	**Hz**	**ppm**	
-30	3.8	-1	-0.001	Pass
-20		-10	-0.005	
-10		-9	-0.005	
0		4	0.002	
10		-11	-0.006	
20		-7	-0.004	
30		-1	-0.001	
40		-7	-0.004	
50		-11	-0.006	
25	3.4	-6	-0.003	
25	4.3	-6	-0.003	

WCDMA Band IV: R99

Temperature	**Voltage**	**Test Result (MHz)**		**Limit (MHz)**	
℃	**V_{DC}**	**F_L**	**F_H**	**F_L**	**F_H**
-30	3.8	1710.320000	1754.680000	1710	1755
-20		1710.330000	1754.620000	1710	1755
-10		1710.420000	1754.650000	1710	1755
0		1710.360000	1754.690000	1710	1755
10		1710.340000	1754.710000	1710	1755
20		1710.320000	1754.680000	1710	1755
30		1710.370000	1754.640000	1710	1755
40		1710.290000	1754.650000	1710	1755
50		1710.300000	1754.610000	1710	1755
25	3.4	1710.360000	1754.640000	1710	1755
25	4.3	1710.330000	1754.630000	1710	1755

WCDMA Band Ⅴ: R99

Middle Channel, f_c = 836.6 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Limit**
℃	**V_{DC}**	**Hz**	**ppm**	**ppm**
-30	3.8	2	0.002	2.5
-20		0	0.000	
-10		-3	-0.004	
0		-1	-0.001	
10		-4	-0.005	
20		-1	-0.001	
30		1	0.001	
40		-3	-0.004	
50		-2	-0.002	
25	3.4	1	0.001	
25	4.3	2	0.002	

LTE Band 2:

QPSK, Channel Bandwidth:10MHz Middle Channel, f_c = 1880 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Result**
℃	**V_{DC}**	**Hz**	**ppm**	
-30	3.8	36.32	0.01932	Pass
-20		35.39	0.01882	
-10		36.79	0.01957	
0		37.56	0.01998	
10		38.36	0.02040	
20		36.19	0.01925	
30		36.79	0.01957	
40		35.12	0.01868	
50		38.35	0.02040	
25	3.4	34.98	0.01861	
25	4.3	36.99	0.01968	

16QAM, Channel Bandwidth:10MHz Middle Channel, f_c =1880 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Result**
℃	**V_{DC}**	**Hz**	**ppm**	
-30	3.8	-4.52	-0.0024	Pass
-20		-0.80	-0.0004	
-10		-2.34	-0.0012	
0		-2.31	-0.0012	
10		-0.88	-0.0005	
20		-2.98	-0.0016	
30		-1.50	-0.0008	
40		-3.40	-0.0018	
50		-4.07	-0.0022	
25	3.4	-2.52	-0.0013	
25	4.3	-0.89	-0.0005	

LTE Band 4:

QPSK, Channel Bandwidth:10MHz					
Temperature	**Voltage**	**Test Result (MHz)**		**Limit (MHz)**	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	3.8	1710.370000	1754.610000	1710	1755
-20		1710.580000	1754.220000	1710	1755
-10		1710.400000	1754.450000	1710	1755
0		1710.580000	1754.690000	1710	1755
10		1710.750000	1754.770000	1710	1755
20		1710.520000	1754.480000	1710	1755
30		1710.570000	1754.340000	1710	1755
40		1710.290000	1754.450000	1710	1755
50		1710.600000	1754.510000	1710	1755
25	3.4	1710.460000	1754.540000	1710	1755
25	4.3	1710.530000	1754.730000	1710	1755

16QAM, Channel Bandwidth:10MHz					
Temperature	**Voltage**	**Test Result (MHz)**		**Limit (MHz)**	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	3.8	1710.640000	1754.370000	1710	1755
-20		1710.520000	1754.390000	1710	1755
-10		1710.440000	1754.630000	1710	1755
0		1710.380000	1754.710000	1710	1755
10		1710.340000	1754.690000	1710	1755
20		1710.520000	1754.480000	1710	1755
30		1710.290000	1754.460000	1710	1755
40		1710.690000	1754.570000	1710	1755
50		1710.160000	1754.600000	1710	1755
25	3.4	1710.370000	1754.730000	1710	1755
25	4.3	1710.500000	1754.290000	1710	1755

LTE Band 5:

QPSK, Channel Bandwidth:10MHz Middle Channel, f_c = 836.5 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Limit**
℃	**V_{DC}**	**Hz**	**ppm**	**ppm**
-30	3.8	2.10	0.00251	2.5
-20		-0.76	-0.00091	
-10		2.80	0.00335	
0		0.71	0.00085	
10		-1.72	-0.00206	
20		0.31	0.00037	
30		-1.44	-0.00172	
40		-0.10	-0.00012	
50		-1.26	-0.00151	
25	3.4	0.44	0.00053	
25	4.3	0.07	0.00008	

16QAM, Channel Bandwidth:10MHz Middle Channel, f_c =836.5 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Limit**
℃	**V_{DC}**	**Hz**	**ppm**	**ppm**
-30	3.8	23.75	0.02839	2.5
-20		22.98	0.02747	
-10		24.78	0.02962	
0		21.52	0.02573	
10		23.80	0.02845	
20		23.70	0.02833	
30		23.94	0.02862	
40		23.77	0.02842	
50		21.65	0.02588	
25	3.4	22.40	0.02678	
25	4.3	23.50	0.02809	

LTE Band 7:

QPSK, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	3.8	2500.720000	2569.360000	2500	2570
-20		2500.760000	2569.360000	2500	2570
-10		2500.660000	2569.540000	2500	2570
0		2500.650000	2569.910000	2500	2570
10		2500.450000	2569.250000	2500	2570
20		2500.520000	2569.480000	2500	2570
30		2500.380000	2569.250000	2500	2570
40		2500.620000	2569.380000	2500	2570
50		2500.330000	2569.710000	2500	2570
25	3.4	2500.300000	2569.410000	2500	2570
25	4.3	2500.290000	2569.510000	2500	2570

16QAM, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	3.8	2500.670000	2569.320000	2500	2570
-20		2500.550000	2569.090000	2500	2570
-10		2500.810000	2569.160000	2500	2570
0		2500.440000	2569.660000	2500	2570
10		2500.270000	2569.500000	2500	2570
20		2500.520000	2569.480000	2500	2570
30		2500.690000	2569.550000	2500	2570
40		2500.210000	2569.040000	2500	2570
50		2500.650000	2569.300000	2500	2570
25	3.4	2500.550000	2569.920000	2500	2570
25	4.3	2500.440000	2569.280000	2500	2570

LTE Band 12:

QPSK, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	3.8	699.530000	715.390000	699	716
-20		699.480000	715.870000	699	716
-10		699.680000	715.540000	699	716
0		699.510000	715.620000	699	716
10		699.740000	715.550000	699	716
20		699.560000	715.480000	699	716
30		699.770000	715.700000	699	716
40		699.680000	715.540000	699	716
50		699.620000	715.650000	699	716
25	3.4	699.600000	715.610000	699	716
25	4.3	699.530000	715.520000	699	716

16QAM, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	3.8	699.570000	715.340000	699	716
-20		699.680000	715.510000	699	716
-10		699.610000	715.310000	699	716
0		699.550000	715.620000	699	716
10		699.740000	715.360000	699	716
20		699.560000	715.480000	699	716
30		699.560000	715.570000	699	716
40		699.600000	715.630000	699	716
50		699.910000	715.300000	699	716
25	3.4	699.820000	715.450000	699	716
25	4.3	699.810000	715.790000	699	716

LTE Band 13:

QPSK, Channel Bandwidth:10MHz					
Temperature	**Voltage**	**Test Result (MHz)**		**Limit (MHz)**	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	3.8	777.490000	786.560000	777	787
-20		777.390000	786.240000	777	787
-10		777.800000	786.280000	777	787
0		777.600000	786.800000	777	787
10		777.760000	786.580000	777	787
20		777.560000	786.480000	777	787
30		777.410000	786.320000	777	787
40		777.650000	786.400000	777	787
50		777.310000	786.680000	777	787
25	3.4	777.370000	786.630000	777	787
25	4.3	777.370000	786.270000	777	787

16QAM, Channel Bandwidth:10MHz					
Temperature	**Voltage**	**Test Result (MHz)**		**Limit (MHz)**	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	3.8	777.750000	786.480000	777	787
-20		777.650000	786.290000	777	787
-10		777.720000	786.350000	777	787
0		777.180000	786.900000	777	787
10		777.580000	786.600000	777	787
20		777.560000	786.480000	777	787
30		777.470000	786.640000	777	787
40		777.360000	786.100000	777	787
50		777.800000	786.310000	777	787
25	3.4	777.460000	786.700000	777	787
25	4.3	777.300000	786.610000	777	787

LTE Band 17:

QPSK, Channel Bandwidth:10MHz					
Temperature	**Voltage**	**Test Result (MHz)**		**Limit (MHz)**	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	3.8	704.490000	715.620000	704	716
-20		704.600000	715.520000	704	716
-10		704.370000	715.560000	704	716
0		704.590000	715.950000	704	716
10		704.370000	715.460000	704	716
20		704.520000	715.480000	704	716
30		704.330000	715.500000	704	716
40		704.730000	715.700000	704	716
50		704.680000	715.700000	704	716
25	3.4	704.400000	715.540000	704	716
25	4.3	704.420000	715.580000	704	716

16QAM, Channel Bandwidth:10MHz					
Temperature	**Voltage**	**Test Result (MHz)**		**Limit (MHz)**	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	3.8	704.480000	715.260000	704	716
-20		704.510000	715.480000	704	716
-10		704.570000	715.550000	704	716
0		704.780000	715.820000	704	716
10		704.150000	715.530000	704	716
20		704.520000	715.480000	704	716
30		704.460000	715.360000	704	716
40		704.400000	715.330000	704	716
50		704.730000	715.850000	704	716
25	3.4	704.470000	715.950000	704	716
25	4.3	704.370000	715.500000	704	716

LTE Band 18:

QPSK, Channel Bandwidth:10MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Result**
℃	**V_{DC}**	**Hz**	**ppm**	
-30	3.8	4.98	0.00605	Pass
-20		6.79	0.00826	
-10		6.59	0.00801	
0		3.74	0.00455	
10		7.98	0.00970	
20		5.61	0.00682	
30		5.78	0.00703	
40		3.20	0.00389	
50		5.53	0.00672	
25	3.4	7.64	0.00929	
25	4.3	4.61	0.00560	

16QAM, Channel Bandwidth:10MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Result**
℃	**V_{DC}**	**Hz**	**ppm**	
-30	3.8	34.21	0.04159	Pass
-20		30.79	0.03743	
-10		32.02	0.03893	
0		32.30	0.03927	
10		33.48	0.04071	
20		32.93	0.04004	
30		32.57	0.03960	
40		30.84	0.03750	
50		31.39	0.03816	
25	3.4	30.94	0.03762	
25	4.3	34.16	0.04153	

LTE Band 19:

QPSK, Channel Bandwidth:10MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Result**
℃	**V_{DC}**	**Hz**	**ppm**	
-30	3.8	1.11	0.00133	Pass
-20		5.23	0.00624	
-10		1.72	0.00205	
0		5.28	0.00630	
10		3.16	0.00377	
20		16.71	0.01995	
30		2.91	0.00347	
40		4.95	0.00591	
50		5.14	0.00614	
25	3.4	3.91	0.00467	
25	4.3	0.93	0.00111	

16QAM, Channel Bandwidth:10MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Result**
℃	**V_{DC}**	**Hz**	**ppm**	
-30	3.8	5.24	0.00626	Pass
-20		5.33	0.00636	
-10		2.45	0.00293	
0		0.63	0.00075	
10		1.21	0.00144	
20		2.86	0.00341	
30		3.89	0.00464	
40		3.95	0.00472	
50		3.91	0.00467	
25	3.4	4.23	0.00505	
25	4.3	3.20	0.00382	

LTE Band 26:

QPSK, Channel Bandwidth:10MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Result**
℃	**V_{DC}**	**Hz**	**ppm**	
-30	3.8	-8.00	-0.00962	Pass
-20		-6.44	-0.00775	
-10		-6.20	-0.00746	
0		-6.17	-0.00742	
10		-7.84	-0.00943	
20		-6.92	-0.00832	
30		-4.59	-0.00552	
40		-7.99	-0.00961	
50		-7.09	-0.00853	
25	3.4	-9.25	-0.01112	
25	4.3	-6.22	-0.00748	

16QAM, Channel Bandwidth:10MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Result**
℃	**V_{DC}**	**Hz**	**ppm**	
-30	3.8	5.37	0.00646	Pass
-20		3.90	0.00469	
-10		6.20	0.00746	
0		4.47	0.00538	
10		5.74	0.00690	
20		5.29	0.00636	
30		4.72	0.00568	
40		6.73	0.00809	
50		6.78	0.00815	
25	3.4	3.05	0.00367	
25	4.3	3.67	0.00441	

LTE Band 38:

QPSK, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	3.8	2570.370000	2619.460000	2570	2620
-20		2570.290000	2619.460000	2570	2620
-10		2570.400000	2619.550000	2570	2620
0		2570.290000	2619.320000	2570	2620
10		2570.700000	2619.470000	2570	2620
20		2570.520000	2619.520000	2570	2620
30		2570.590000	2619.560000	2570	2620
40		2570.610000	2619.370000	2570	2620
50		2570.350000	2619.320000	2570	2620
25	3.4	2570.550000	2619.650000	2570	2620
25	4.3	2570.590000	2619.440000	2570	2620

16QAM, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	3.8	2570.520000	2619.510000	2570	2620
-20		2570.700000	2619.380000	2570	2620
-10		2570.860000	2619.400000	2570	2620
0		2570.300000	2619.240000	2570	2620
10		2570.640000	2619.790000	2570	2620
20		2570.520000	2619.480000	2570	2620
30		2570.310000	2619.730000	2570	2620
40		2570.530000	2619.320000	2570	2620
50		2570.420000	2619.240000	2570	2620
25	3.4	2570.580000	2619.180000	2570	2620
25	4.3	2570.370000	2619.470000	2570	2620

LTE Band 40(2305-2315MHz):

QPSK, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	3.8	2305.570890	2314.548750	2305	2315
-20		2305.570920	2314.548640	2305	2315
-10		2305.571010	2314.549230	2305	2315
0		2305.571420	2314.548830	2305	2315
10		2305.571070	2314.549110	2305	2315
20		2305.571140	2314.549100	2305	2315
30		2305.571230	2314.549230	2305	2315
40		2305.571060	2314.549350	2305	2315
50		2305.571330	2314.549170	2305	2315
25	3.4	2305.571040	2314.549190	2305	2315
25	4.3	2305.571090	2314.549020	2305	2315

16QAM, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	3.8	2305.571020	2314.548740	2305	2315
-20		2305.571260	2314.548520	2305	2315
-10		2305.571020	2314.548910	2305	2315
0		2305.571140	2314.548370	2305	2315
10		2305.571080	2314.549020	2305	2315
20		2305.571140	2314.549100	2305	2315
30		2305.570980	2314.549180	2305	2315
40		2305.570860	2314.549240	2305	2315
50		2305.570980	2314.549360	2305	2315
25	3.4	2305.571140	2314.548700	2305	2315
25	4.3	2305.571020	2314.548940	2305	2315

LTE Band 40(2350-2360MHz):

QPSK, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	3.8	2350.680000	2359.430000	2350	2360
-20		2350.410000	2359.370000	2350	2360
-10		2350.590000	2359.610000	2350	2360
0		2350.410000	2359.600000	2350	2360
10		2350.410000	2359.330000	2350	2360
20		2350.520000	2359.520000	2350	2360
30		2350.390000	2359.300000	2350	2360
40		2350.340000	2359.720000	2350	2360
50		2350.600000	2359.510000	2350	2360
25	3.4	2350.650000	2359.490000	2350	2360
25	4.3	2350.590000	2359.420000	2350	2360

16QAM, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	3.8	2350.550000	2359.760000	2350	2360
-20		2350.140000	2359.430000	2350	2360
-10		2350.130000	2359.840000	2350	2360
0		2350.360000	2359.280000	2350	2360
10		2350.680000	2359.670000	2350	2360
20		2350.520000	2359.480000	2350	2360
30		2350.670000	2359.560000	2350	2360
40		2350.180000	2359.470000	2350	2360
50		2350.110000	2359.870000	2350	2360
25	3.4	2350.430000	2359.540000	2350	2360
25	4.3	2350.580000	2359.540000	2350	2360

LTE Band 41:

QPSK, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	3.8	2496.570000	2689.290000	2496	2690
-20		2496.550000	2689.290000	2496	2690
-10		2496.300000	2689.680000	2496	2690
0		2496.370000	2689.810000	2496	2690
10		2496.480000	2689.580000	2496	2690
20		2496.520000	2689.520000	2496	2690
30		2495.680000	2689.270000	2496	2690
40		2496.180000	2689.490000	2496	2690
50		2496.470000	2689.730000	2496	2690
25	3.4	2496.350000	2689.710000	2496	2690
25	4.3	2496.520000	2689.500000	2496	2690

16QAM, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30	3.8	2496.550000	2689.300000	2496	2690
-20		2496.820000	2689.420000	2496	2690
-10		2496.650000	2689.170000	2496	2690
0		2496.470000	2689.770000	2496	2690
10		2496.320000	2689.570000	2496	2690
20		2496.520000	2689.520000	2496	2690
30		2496.710000	2689.480000	2496	2690
40		2496.480000	2689.290000	2496	2690
50		2496.560000	2689.670000	2496	2690
25	3.4	2496.530000	2689.430000	2496	2690
25	4.3	2496.760000	2689.710000	2496	2690

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

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