TESTING LABORATORY
CERTIFICATE #4820.01

FCC PART 22H, PART 24E

FCC PART 27

MEASUREMENT AND TEST REPORT

For

HONGKONG UCLOUDLINK NETWORK TECHNOLOGY LIMITED

Suite 603, 6/F, Laws Commercial Plaza, 788 Cheung Sha Wan Road, Kowloon Hong Kong

FCC ID: 2AC88-C1-CN

Report Type:	Product Type:
Original Report	SIMBOX

Report Number:	RDG180803011-00B
Report Date:	2018-11-01
Reviewed By:	Jerry Zhang EMC Manager
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Dongguan) No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China Tel: +86-769-86858888 Fax: +86-769-86858891 www.baclcorp.com.cn

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

EUT Name:		SIMBOX
EUT Model:		C1-CN
FCC ID:		2AC88-C1-CN
Rated Input Voltage:		DC5V from adapter
Adapter 1 Information	**Model Name:**	PS10J050K2000UU
	Input:	AC 100-240V,50/60Hz, 0.35A
	Output:	DC 5V,2000mA
Adapter 2 Information	**Model Name:**	HJ-0502000W2-US
	Input:	AC 100-240V,50/60Hz, 0.3A
	Output:	DC 5V,2000mA
External Dimension:		80 mm(L)*80 mm(W)* 21 mm(H)
Serial Number:		180803011
EUT Received Date:		2018.08.03

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 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)

N/A

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

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, 7,17,38,40 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 17	5	706.5	710	713.5
	10	709	710	711
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.

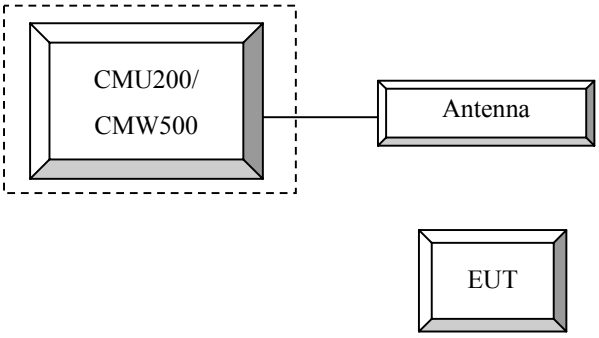
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
R&S	Universial Radio Communication Tester	CMU200	110 822
R&S	Wideband Radio Communication Tester	CMW500	149216
Unknown	ANTENNA	N/A	N/A

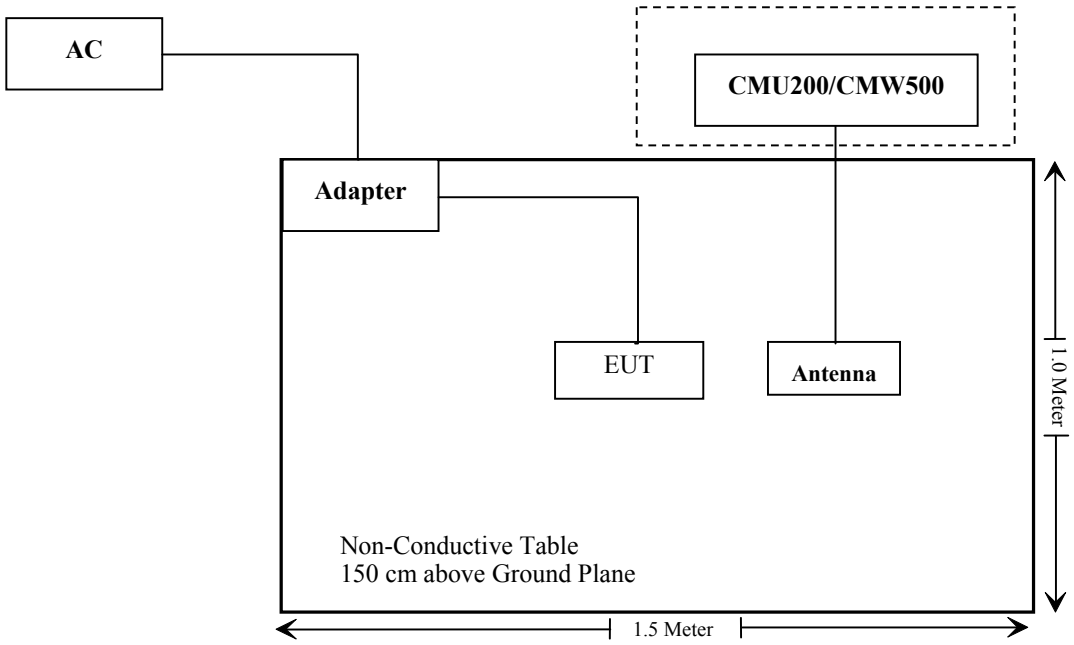
Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From	To
USB cable	no	no	0.8	adapter	EUT

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1310, §2.1091	Maximum Permissible Exposure	Compliance
§2.1046; § 22.913 (a); § 24.232 (c); §27.50	RF Output Power	Compliance
§ 2.1047	Modulation Characteristics	Not Applicable
§ 2.1049; § 22.905 § 22.917; § 24.238; §27.53	Occupied Bandwidth	Compliance
§ 2.1051, § 22.917 (a); § 24.238 (a); §27.5	Spurious Emissions at Antenna Terminal	Compliance
§ 2.1053 § 22.917 (a); § 24.238 (a); §27.53	Field Strength of Spurious Radiation	Compliance
§ 22.917 (a); § 24.238 (a); §27.53	Out of band emission, Band Edge	Compliance
§ 2.1055 § 22.355; § 24.235; §27.54	Frequency stability vs. temperature Frequency stability vs. voltage	Compliance

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

Applicable Standard

According to subpart 15.247(i)and subpart §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

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

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	**Electric Field Strength (V/m)**	**Magnetic Field Strength (A/m)**	**Power Density (mW/cm^2)**	**Averaging Time (minutes)**
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f²)	30
30–300	27.5	0.073	0.2	30
300–1500	/	/	f/1500	30
1500–100,000	/	/	1.0	30

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

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

Calculation formula:

Prediction of power density at the distance of the applicable MPE limit
$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm^2);
P = power input to the antenna (in appropriate units, e.g., mW);
G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

Calculated Data:

Mode	Frequency (MHz)	Antenna Gain		Conducted output power including Tune-up Tolerance		Evaluation Distance (cm)	Power Density (mW/cm^2)	MPE Limit (mW/cm^2)
		(dBi)	(numeric)	(dBm)	(mW)			
GPRS850	824-849	-0.17	0.96	31.5	1412.54	20.00	0.27	0.55
WCDMA Band 5	824-849	-0.17	0.96	21.5	141.25	20	0.03	0.55
LTE Band 5	824-849	-0.17	0.96	23.5	223.87	20	0.04	0.55
GPRS1900	1850-1910	1.29	1.35	30	1000.00	20	0.27	1.0
WCDMA band 2	1850-1910	1.29	1.35	22.5	177.83	20	0.05	1.0
LTE band 2	1850-1910	1.29	1.35	23.5	223.87	20	0.06	1.0
WCDMA Band 4	1710-1755	1.4	1.38	21.5	141.25	20	0.04	1.0
LTE band 4	1710-1755	1.4	1.38	23.5	223.87	20	0.06	1.0
LTE Band 7	2500-2570	1.8	1.51	22	158.49	20	0.05	1.0
LTE Band 17	704-716	-0.17	0.96	23	199.53	20	0.04	0.47
LTE Band 38	2570-2620	1.8	1.51	23	199.53	20	0.06	1.0
LTE Band 40 2305-2315MHz	2305-2315	1.25	1.33	23.5	223.87	20	0.06	1.0
LTE Band 40 2350-2360MHz	2350-2360	1.25	1.33	23.5	223.87	20	0.06	1.0
LTE band 41	2496-2690	1.8	3.02	23.5	223.87	20	0.1	1.0

Result: The device meet FCC MPE at 20 cm distance

FCC §2.1047 - MODULATION CHARACTERISTIC

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

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

Applicable Standard

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

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

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

According to §27.50

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

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

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

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

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

Test Procedure

GSM/GPRS/EGPRS

Function: Menu select > GSM Mobile Station > GSM 850/1900
Press Connection control to choose the different menus
Press RESET > choose all the reset all settings
Connection Press Signal Off to turn off the signal and change settings
Network Support > GSM + GPRS or GSM + EGSM
Main Service > Packet Data
Service selection > Test Mode A – Auto Slot Config. off
MS Signal Press Slot Config Bottom on the right twice to select and change the number of time slots and power setting
> Slot configuration > Uplink/Gamma
> 33 dBm for GPRS 850
> 30 dBm for GPRS 1900
> 27 dBm for EGPRS 850
> 26 dBm for EGPRS 1900
BS Signal Enter the same channel number for TCH channel (test channel) and BCCH channel
Frequency Offset > + 0 Hz
Mode > BCCH and TCH
BCCH Level > -85 dBm (May need to adjust if link is not stable)
BCCH Channel > choose desire test channel [Enter the same channel number for TCH channel (test channel) and BCCH channel]

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

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

WCDMA-Release 99

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

WCDMA General Settings	Loopback Mode	Test Mode 1
	Rel99 RMC	12.2kbps RMC
	Power Control Algorithm	Algorithm2
	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-0400-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2017-09-05	2018-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1000-01	2017-09-05	2018-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1000-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2017-09-05	2018-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2018-09-05	2019-09-05
R&S	Universal Radio Communication Tester	CMU200	110 822	2017-12-24	2018-12-14
R&S	Wideband Radio Communication Tester	CMW500	149216	2017-12-11	2018-12-11
Rohde & Schwarz	Signal Analyzer	FSIQ26	831929/005	2017-08-31	2018-08-31
Rohde & Schwarz	Signal Analyzer	FSIQ26	831929/005	2018-08-31	2019-08-31
Agilent	Signal Generator	E8247C	MY43321350	2017-12-11	2018-12-11
Agilent	Spectrum Analyzer	E4440A	SG43360054	2018-01-04	2019-01-04
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-SJSJ-50	C-0800-01	2017-09-05	2018-09-05
Unknown	Coaxial Cable	C-SJSJ-50	C-0800-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2017-09-05	2018-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2018-09-05	2019-09-05

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

Test Data

Environmental Conditions

Temperature:	26.6~29°C
Relative Humidity:	33~59 %
ATM Pressure:	99.1~100.5 kPa

** The testing was performed by Blake Yang & Vern Shen from 2018-08-07~ 2018-09-28.*

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	31.12	31.08	30.81	29.85	24.50	24.43	24.24	24.13
	190	31.00	30.83	30.52	29.77	24.42	24.36	24.33	24.28
	251	30.95	30.86	30.58	29.81	24.53	24.47	24.35	24.15
PCS	512	29.53	29.41	29.27	28.94	25.19	24.93	24.84	24.62
	661	29.42	29.11	29.38	28.89	25.03	24.91	24.78	24.59
	810	29.34	29.25	29.07	28.77	25.05	24.90	24.76	24.61

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	22.15	2.92	21.91	2.88	21.89	2.88
HSDPA	1	20.92	5.08	20.77	5.12	20.72	5.36
	2	20.82	4.98	20.68	5.06	20.67	5.30
	3	20.84	4.99	20.70	5.02	20.63	5.28
	4	20.86	5.00	20.66	5.01	20.65	5.28
HSUPA	1	20.41	5.24	20.31	6.28	20.24	6.16
	2	20.34	5.13	20.25	6.21	20.16	6.07
	3	20.35	5.16	20.21	6.22	20.19	6.08
	4	20.33	5.18	20.26	6.23	20.14	6.11
	5	20.33	5.17	20.21	6.18	20.16	6.11
HSPA+	1	20.36	5.19	20.21	6.23	20.14	6.07

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	21.26	2.84	21.12	2.88	21.07	2.96
HSDPA	1	19.96	4.87	19.94	5.20	19.88	4.48
	2	20.02	4.96	19.94	5.98	19.98	5.63
	3	19.92	4.30	19.97	5.91	19.98	5.20
	4	19.89	4.24	19.82	4.54	19.75	6.07
HSUPA	1	19.39	6.36	19.47	4.68	19.41	6.40
	2	19.29	5.82	19.33	5.23	19.47	5.83
	3	19.25	5.28	19.40	6.11	19.45	4.63
	4	19.50	5.28	19.39	4.91	19.27	5.39
	5	19.47	5.81	19.42	5.82	19.30	5.57
HSPA+	1	19.47	5.04	19.57	5.73	19.51	4.81

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	21.26	3.16	21.27	3.16	21.27	3.20
HSDPA	1	20.09	5.52	20.18	5.60	20.19	5.36
	2	20.00	5.47	20.11	5.51	20.09	5.29
	3	20.04	5.45	20.08	5.53	20.11	5.29
	4	19.98	5.47	20.08	5.55	20.09	5.31
HSUPA	1	19.56	6.32	19.59	6.32	19.61	6.16
	2	19.45	6.27	19.53	6.25	19.52	6.07
	3	19.49	6.26	19.49	6.21	19.56	6.07
	4	19.47	6.26	19.53	6.21	19.54	6.10
	5	19.49	6.25	19.49	6.24	19.50	6.10
HSPA+	1	19.56	6.32	19.59	6.32	19.61	6.16

LTE Band 2

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	1#0	23.27	22.40	22.42
		1#3	23.47	22.53	22.66
		1#5	22.62	22.45	22.56
		3#0	22.62	22.57	22.54
		3#3	22.63	22.62	22.88
		6#0	21.64	21.60	21.52
	16QAM	1#0	21.56	21.82	21.51
		1#3	21.51	21.96	21.79
		#5	21.62	21.77	21.28
		3#0	22.86	22.70	22.53
		3#3	22.81	22.73	22.73
		6#0	20.79	20.77	20.52
3MHz	QPSK	1#0	22.00	22.53	22.46
		1#8	22.68	22.41	22.52
		1#14	22.75	22.43	22.45
		6#0	21.92	21.68	21.45
		6#9	21.87	21.65	21.67
		15#0	21.87	21.73	21.57
	16QAM	1#0	22.00	22.16	21.48
		1#8	21.95	21.93	21.59
		1#14	22.02	21.75	21.44
		6#0	20.70	20.95	20.72
		6#9	20.69	21.04	21.00
		15#0	20.73	20.94	20.61
5MHz	QPSK	1#0	21.91	22.67	22.50
		1#13	22.70	22.75	22.68
		1#24	22.88	22.99	22.59
		15#0	21.89	21.68	21.59
		15#10	21.93	21.77	21.69
		25#0	21.85	21.71	21.52
	16QAM	1#0	21.64	22.30	21.74
		1#13	21.33	22.30	21.77
		1#24	21.81	22.39	21.79
		15#0	21.88	21.67	21.55
		15#10	21.87	21.75	21.71
		25#0	20.97	20.77	20.43

10MHz	QPSK	1#0	21.91	22.68	22.58
		1#25	23.22	22.98	22.78
		1#49	23.04	22.85	22.71
		25#0	22.04	21.71	21.63
		25#25	22.05	21.77	21.63
		50#0	22.01	21.82	21.71
	16QAM	1#0	22.08	22.16	21.71
		1#25	22.39	22.53	21.83
		1#49	22.01	22.22	21.74
		25#0	21.92	21.67	21.69
		25#25	22.00	21.75	21.64
		50#0	20.85	20.68	20.56
15MHz	QPSK	1#0	21.90	22.85	22.80
		1#38	22.80	22.69	22.58
		1#74	22.76	22.89	22.69
		36#0	22.10	21.74	21.91
		36#39	21.96	21.81	21.60
		75#0	21.97	21.71	21.68
	16QAM	1#0	22.13	22.08	22.11
		1#38	21.89	22.16	21.82
		1#74	21.91	22.62	21.90
		36#0	22.05	21.76	21.80
		36#39	21.91	21.84	21.62
		75#0	21.04	20.71	20.53
20MHz	QPSK	1#0	22.00	22.91	22.85
		1#50	23.32	23.13	22.57
		1#99	23.08	22.99	22.90
		50#0	22.11	21.76	21.86
		50#50	21.89	21.74	21.61
		100#0	21.99	21.69	21.73
	16QAM	1#0	22.03	22.18	22.53
		1#50	21.83	22.49	22.49
		1#99	21.65	22.27	22.53
		50#0	22.07	21.71	21.88
		50#50	21.85	21.81	21.60
		100#0	20.92	20.72	20.76

LTE Band 4

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	1#0	22.9	23.14	23.06
		1#3	23.04	23.11	22.99
		1#5	23	23.19	23.05
		3#0	23.06	23.09	23.09
		3#3	23.09	23.06	23.1
		6#0	22.13	22.12	22.11
	16QAM	1#0	21.71	22.07	22.31
		1#3	22.05	22.11	22.33
		1#5	21.77	21.81	22.04
		3#0	22.00	21.94	21.78
		3#3	22.01	21.90	21.86
		6#0	21.03	20.88	20.91
3MHz	QPSK	1#0	23.06	23.11	23.09
		1#8	23.1	22.87	23.02
		1#14	23.15	23	22.97
		6#0	22.09	22.21	22.22
		6#7	22.12	22.12	22.16
		15#0	22.19	22.14	22.12
	16QAM	1#0	22.98	22.24	21.81
		1#8	22.89	22.18	21.71
		1#14	22.95	22.29	21.81
		6#0	21.18	21.1	21.1
		6#7	21.2	20.93	21.16
		15#0	21.17	20.95	21.19
5MHz	QPSK	1#0	22.87	23.25	23.19
		1#13	22.89	22.92	23.04
		1#24	23.08	23.11	23.08
		15#0	22.19	22.31	22.21
		15#10	22.17	22.14	22.2
		25#0	22.18	22.24	22.22
	16QAM	1#0	21.79	22.36	22.32
		1#13	21.89	22.43	22.16
		1#24	21.8	22.5	22.16
		15#0	21.23	20.99	21.24
		15#10	21.14	21.04	21.25
		25#0	21.26	21.07	21.27

10MHz	QPSK	1#0	23.17	23.14	22.97
		1#24	23.32	23.22	23
		1#49	22.96	23.01	22.87
		25#0	22.12	22.2	22.28
		25#25	22.1	22.15	22.26
		50#0	22.08	22.23	22.28
	16QAM	1#0	22.3	22.12	21.75
		1#24	22.53	22.49	22.13
		1#49	22.12	22.28	21.92
		25#0	21.25	21.24	21.28
		25#25	21.15	21.18	21.29
		50#0	21.08	21.25	21.22
15MHz	QPSK	1#0	23.12	23.21	23.17
		1#38	22.97	22.9	23.06
		1#74	23.04	23.04	23.14
		36#0	22.25	22.26	22.23
		36#39	22.13	22.25	22.33
		75#0	22.23	22.28	22.28
	16QAM	1#0	22.38	22.49	22.6
		1#38	22.38	22.3	22.41
		1#74	22.27	22.27	22.56
		36#0	21.17	21.16	21.14
		36#39	21.17	21.08	21.15
		75#0	21.18	21.22	21.09
20MHz	QPSK	1#0	23	23.13	23.22
		1#49	23.1	23.05	23.14
		1#99	23.04	23.22	23.14
		50#0	22.19	22.31	22.25
		50#50	22.14	22.31	22.28
		100#0	22.27	22.25	22.18
	16QAM	1#0	22.51	22.16	22.87
		1#49	22.48	22.42	22.97
		1#99	21.81	22.4	22.57
		50#0	21.29	21.3	21.17
		50#50	21.32	21.22	21.31
		100#0	21.19	21.27	21.22

LTE Band 5

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	1#0	22.86	23.16	23.06
		1#3	23.20	23.04	23.17
		1#5	23.04	22.97	23.09
		3#0	23.01	23.18	23.13
		3#3	22.88	23.12	23.16
		6#0	21.96	22.24	22.18
	16QAM	1#0	21.94	22.42	21.71
		1#3	22.01	22.16	21.70
		1#5	22.25	22.15	21.62
		3#0	23.12	23.20	23.04
		3#3	22.95	23.04	23.18
		6#0	20.85	20.98	21.29
3MHz	QPSK	1#0	23.07	23.15	22.95
		1#8	22.84	22.90	23.01
		1#14	23.00	23.06	22.97
		6#0	22.07	22.36	22.04
		6#9	21.92	22.13	22.22
		15#0	21.95	22.25	22.17
	16QAM	1#0	22.30	22.66	22.03
		1#8	21.87	22.08	22.04
		1#14	22.16	21.95	22.03
		6#0	20.90	21.34	21.43
		6#9	20.78	21.13	21.43
		15#0	20.90	21.09	21.18
5MHz	QPSK	1#0	21.85	23.42	23.03
		1#13	22.76	23.15	23.17
		1#24	22.88	23.23	23.17
		15#0	21.96	22.30	22.09
		15#0	21.99	22.10	22.24
		25#0	22.01	22.14	22.19
	16QAM	1#0	22.25	23.13	22.31
		1#13	21.69	22.51	22.42
		1#24	22.00	22.40	22.43
		15#0	21.90	22.23	22.09
		15#10	22.05	22.12	22.15
		25#0	20.93	20.88	21.23
10MHz	QPSK	1#0	22.06	23.25	22.92
		1#25	23.06	23.13	23.18
		1#49	22.98	23.03	23.04
		25#0	22.09	22.25	22.05
		25#25	21.98	21.97	22.14
		50#0	22.02	22.12	22.12
	16QAM	1#0	22.36	22.26	22.03
		1#25	22.21	22.32	21.98
		1#49	22.20	22.06	21.81
		25#0	22.00	22.26	22.06
		25#25	22.07	21.96	22.22
		50#0	21.08	21.16	21.00

LTE Band 7

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	1#0	19.80	21.53	21.41
		1#13	21.52	21.39	21.43
		1#24	21.43	21.52	21.33
		15#0	20.63	20.49	20.43
		15#10	20.59	20.41	20.46
		25#0	20.68	20.39	20.46
	16QAM	1#0	20.14	21.12	20.60
		1#13	20.01	20.63	20.64
		1#24	20.00	20.96	20.60
		15#0	20.64	20.51	20.44
		15#0	20.57	20.40	20.48
		25#0	19.66	19.37	19.47
10MHz	QPSK	1#0	19.73	21.57	21.52
		1#24	21.46	21.37	21.54
		1#49	21.60	21.34	21.28
		25#0	20.62	20.46	20.50
		25#25	20.63	20.36	20.53
		50#0	20.74	20.40	20.54
	16QAM	1#0	20.99	20.72	20.19
		1#24	20.75	20.50	20.26
		1#49	20.69	20.29	20.17
		25#0	20.65	20.40	20.50
		25#25	20.65	20.34	20.51
		50#0	19.76	19.54	19.47
15MHz	QPSK	1#0	20.61	21.80	21.55
		1#38	21.53	21.33	21.50
		1#74	21.49	21.26	21.52
		36#0	20.67	20.45	20.65
		36#39	20.65	20.42	20.55
		75#0	20.65	20.35	20.48
	16QAM	1#0	21.29	21.18	20.84
		1#38	20.57	20.95	20.72
		1#74	20.68	21.22	20.68
		36#0	20.62	20.46	20.59
		36#39	20.61	20.43	20.56
		75#0	19.62	19.43	19.46
20MHz	QPSK	1#0	20.71	21.80	21.58
		1#49	21.75	21.86	21.47
		1#99	21.56	21.57	21.40
		50#0	20.83	20.54	20.56
		50#50	20.56	20.43	20.57
		100#0	20.71	20.50	20.56
	16QAM	1#0	21.11	20.79	21.06
		1#49	20.80	20.60	21.06
		1#99	20.77	20.69	20.87
		50#0	20.75	20.57	20.58
		50#50	20.56	20.45	20.57
		100#0	19.78	19.52	19.62

LTE Band 17

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	1#0	22.54	22.59	22.50
		1#13	22.40	22.60	22.43
		1#24	22.41	22.81	22.57
		15#0	21.58	21.51	21.76
		15#10	21.56	21.66	21.63
		25#0	21.60	21.57	21.70
	16QAM	1#0	21.75	21.77	21.84
		1#13	21.03	21.96	21.70
		1#24	21.30	22.55	21.96
		15#0	21.66	21.59	21.75
		15#10	21.56	21.72	21.55
		25#0	20.55	20.64	20.76
10MHz	QPSK	1#0	22.59	22.73	22.70
		1#25	22.52	22.67	22.76
		1#49	22.68	22.84	22.58
		25#0	21.73	21.63	21.56
		25#25	21.73	21.72	21.70
		50#0	21.66	21.62	21.61
	16QAM	1#0	21.86	22.03	21.29
		1#25	21.81	22.34	21.95
		1#49	21.86	22.46	21.29
		25#0	21.63	21.62	21.55
		25#25	21.73	21.72	21.75
		50#0	20.64	20.70	20.59

LTE Band 38

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	1#0	21.64	22.00	21.97
		1#13	21.65	22.06	21.95
		1#24	21.74	21.93	22.36
		15#0	20.75	20.86	20.96
		15#10	20.76	20.89	21.08
		25#0	20.77	20.88	21.02
	16QAM	1#0	20.27	21.37	20.97
		1#13	20.30	21.39	20.87
		1#24	20.52	21.41	20.83
		15#0	20.68	20.88	21.07
		15#10	20.77	20.95	21.06
		25#0	19.90	19.91	20.59
10MHz	QPSK	1#0	22.56	22.93	22.76
		1#25	22.40	22.99	22.75
		1#49	22.46	22.97	22.66
		25#0	21.39	21.73	21.56
		25#25	21.55	21.51	21.61
		50#0	21.57	21.55	21.69
	16QAM	1#0	21.35	21.78	21.76
		1#25	21.36	21.91	21.77
		1#49	21.39	21.84	21.37
		25#0	20.45	20.67	20.77
		25#25	20.41	20.63	20.62
		50#0	20.62	20.55	20.70
15MHz	QPSK	1#0	22.52	22.85	22.84
		1#38	22.46	22.78	22.31
		1#74	22.48	22.92	22.47
		36#0	21.58	21.66	21.67
		36#39	21.46	21.68	21.70
		75#0	21.50	21.70	21.72
	16QAM	1#0	21.55	21.83	21.99
		1#38	21.39	21.82	21.70
		1#74	21.59	21.92	21.88
		36#0	20.72	20.74	20.62
		36#39	20.64	20.81	20.54
		75#0	20.57	20.68	20.63
20MHz	QPSK	1#0	22.75	22.98	22.90
		1#50	22.77	22.17	22.65
		1#99	22.70	22.85	22.82
		50#0	21.64	21.80	21.87
		50#50	21.57	21.80	21.77
		100#0	21.59	21.86	21.82
	16QAM	1#0	21.70	21.77	22.39
		1#50	21.75	21.82	22.53
		1#99	21.58	21.70	22.04
		50#0	20.83	20.95	21.00
		50#50	20.81	20.94	20.83
		100#0	20.58	20.71	20.73

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	23.21	23.23	23.26
		1#13	23.16	23.18	22.85
		1#24	23.05	23.15	23.07
		15#0	22.19	22.08	22.24
		15#10	22.21	22.09	22.25
		25#0	22.17	22.21	22.23
	16QAM	1#0	22.16	21.53	21.65
		1#13	22.34	21.57	21.70
		1#24	22.37	21.68	21.63
		15#0	21.01	20.81	20.94
		15#10	21.04	20.87	21.05
		25#0	21.14	21.05	21.13
10MHz	QPSK	1#0	/	21.47	/
		1#25	/	21.64	/
		1#49	/	21.26	/
		25#0	/	20.09	/
		25#25	/	20.28	/
		50#0	/	20.34	/
	16QAM	1#0	/	20.16	/
		1#25	/	20.24	/
		1#49	/	20.21	/
		25#0	/	19.78	/
		25#25	/	19.71	/
		50#0	/	19.57	/

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	23.50
		1#25	23.46
		1#49	23.49
		25#0	22.09
		25#25	22.29
		50#0	22.16
	16QAM	1#0	22.40
		1#25	22.47
		1#49	22.50
		25#0	21.22
		25#25	21.28
		50#0	21.21

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	22.93	23.02	23.03
		1#13	23.00	22.90	22.83
		1#24	22.90	22.91	22.84
		15#0	22.11	22.13	21.99
		15#10	22.11	21.97	21.94
		25#0	22.09	22.02	21.97
	16QAM	1#0	22.16	22.30	21.56
		1#13	22.18	22.33	21.49
		1#24	22.21	22.21	21.43
		15#0	20.91	20.93	20.89
		15#10	20.92	20.75	20.83
		25#0	21.03	20.73	20.88
10MHz	QPSK	1#0	/	21.25	/
		1#25	/	20.98	/
		1#49	/	20.88	/
		25#0	/	20.10	/
		25#25	/	20.32	/
		50#0	/	20.24	/
	16QAM	1#0	/	19.78	/
		1#25	/	1.99	/
		1#49	/	19.75	/
		25#0	/	19.02	/
		25#25	/	19.78	/
		50#0	/	19.77	/

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	23.13
		1#25	22.85
		1#49	22.83
		25#0	22.10
		25#25	22.07
		50#0	22.02
	16QAM	1#0	21.77
		1#25	21.85
		1#49	21.62
		25#0	20.96
		25#25	20.91
		50#0	20.98

Duty cycle:
Band 40(2305-2315MHz)

Test Modulation	Test Bandwidth	Ton (ms)	Total (ms)	Duty Cycle (%)	Limit (%)
QPSK	5M	3.18	10.04	31.67	38
	10M	3.18	10.04	31.67	
16-QAM	5M	3.10	10.04	30.88	
	10M	3.10	10.04	30.88	

Band 40(2350-2360MHz)

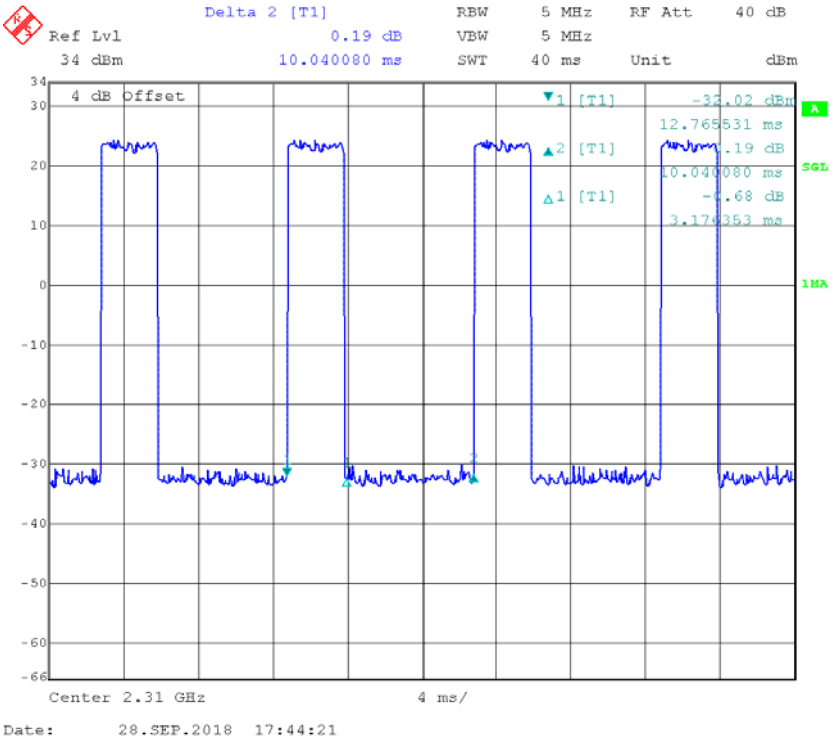
Test Modulation	Test Bandwidth	Ton (ms)	Total (ms)	Duty Cycle (%)	Limit (%)
QPSK	5M	3.19	10.04	31.77	38
	10M	3.11	10.04	30.98	
16-QAM	5M	3.11	10.04	30.98	
	10M	3.11	10.04	30.98	

Note: EUT setup is as following:

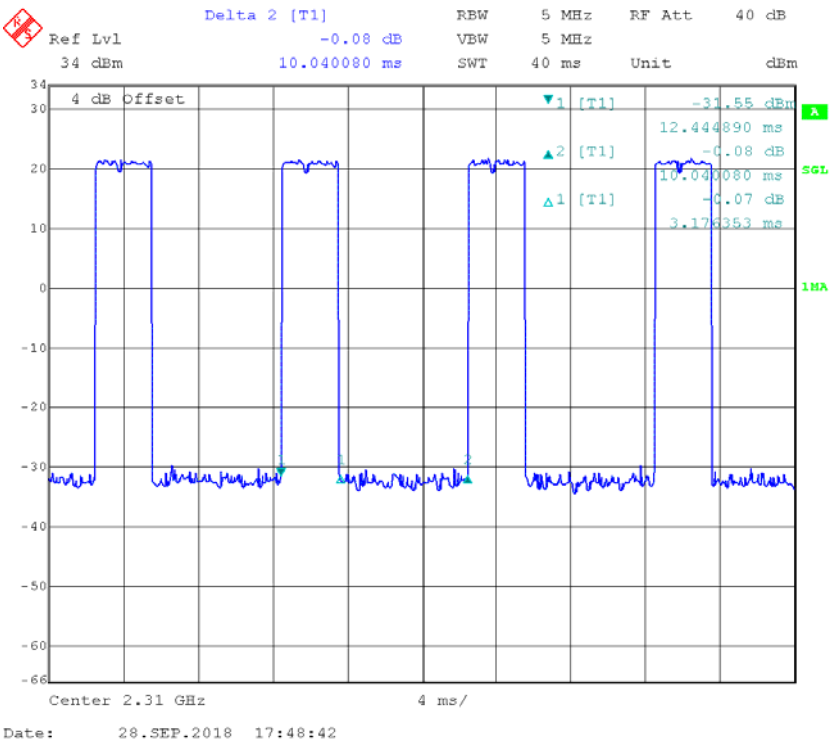
Uplink Downlink configuration	Subframe number									
	0	1	2	3	4	5	6	7	8	9
3	D	S	U	U	U	D	D	D	D	D

Duty cycle
2305-2315MHz:

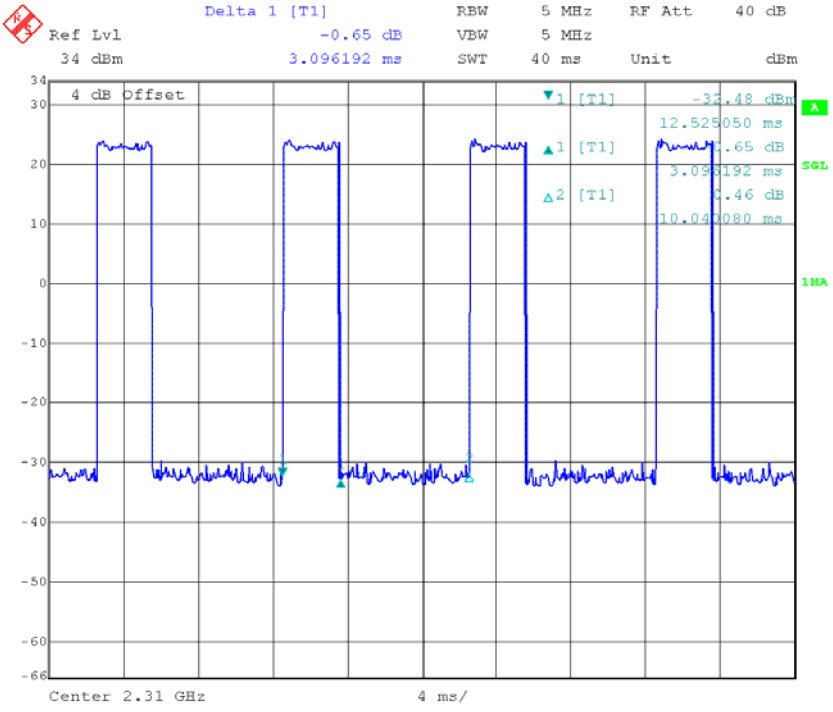
QPSK, 5MHz



QPSK, 10MHz

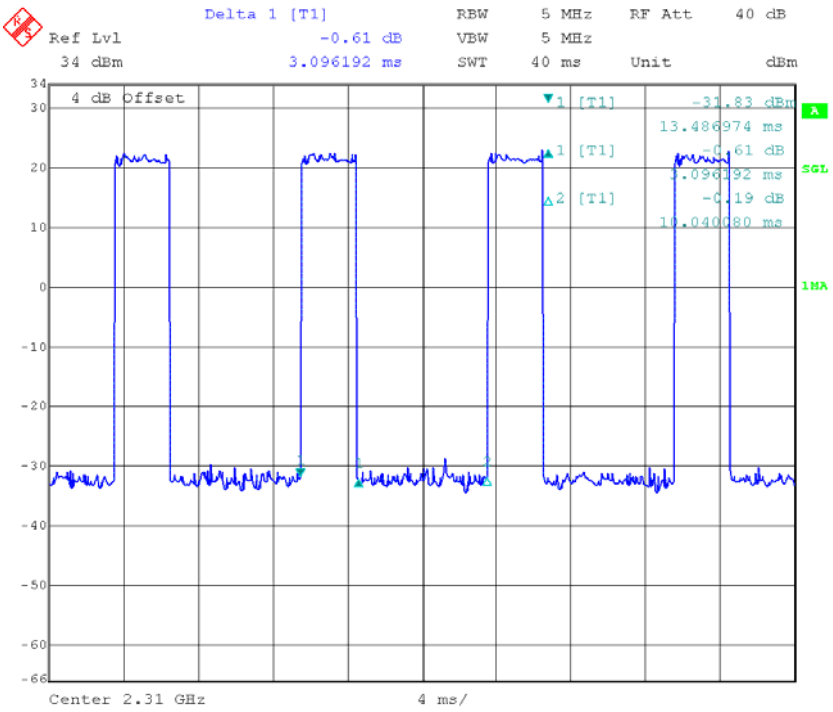


16QAM, 5MHz



Date: 28.SEP.2018 17:45:32

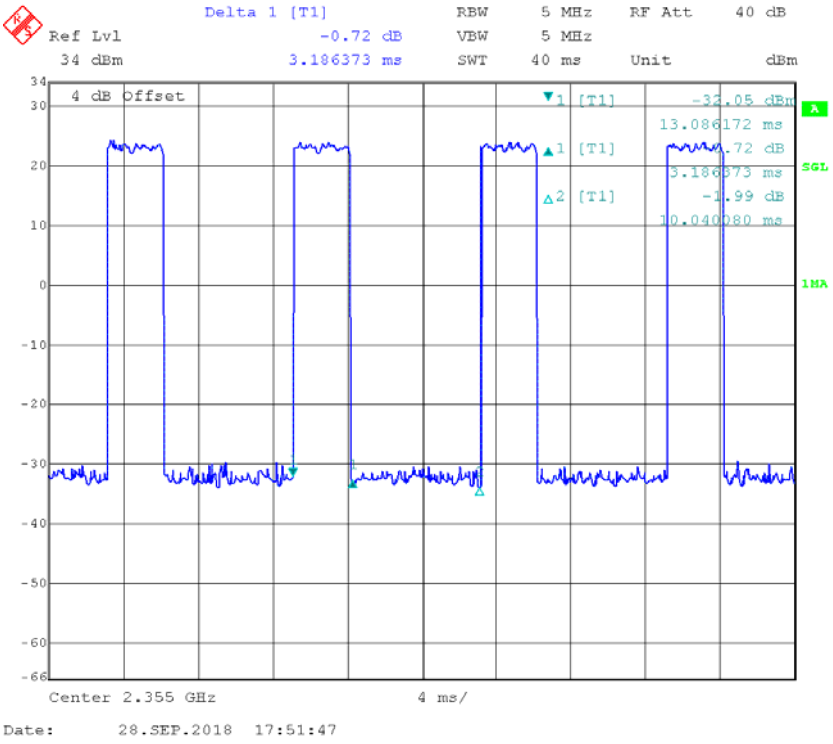
16QAM, 10MHz



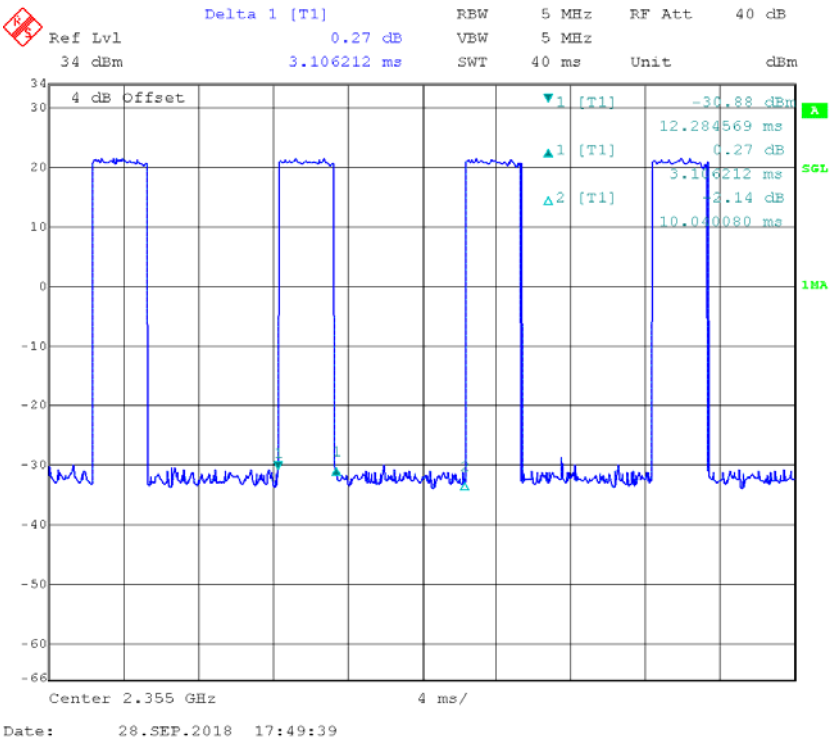
Date: 28.SEP.2018 17:47:42

2350-2360MHz:

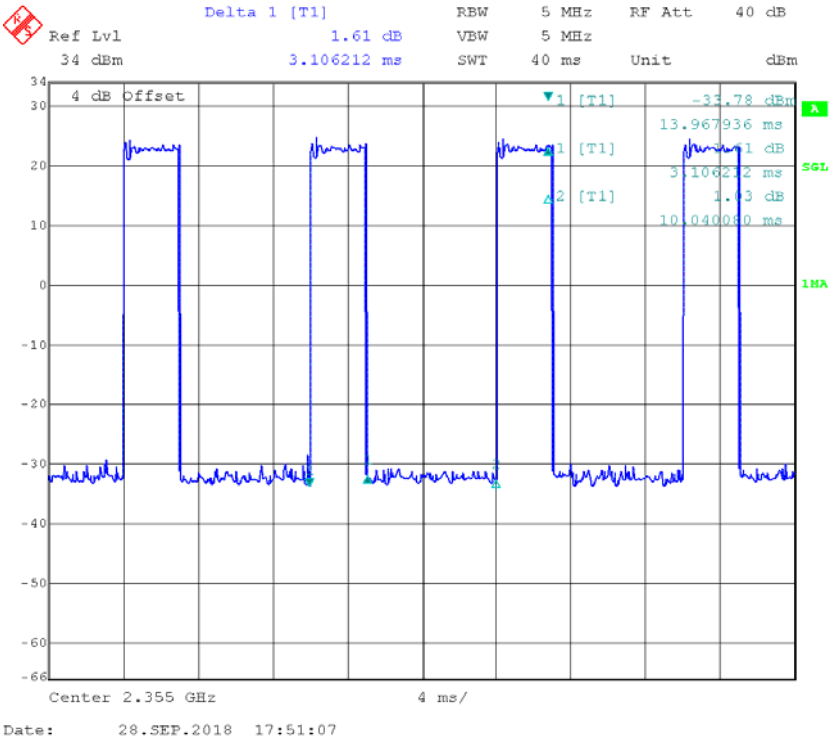
QPSK, 5MHz



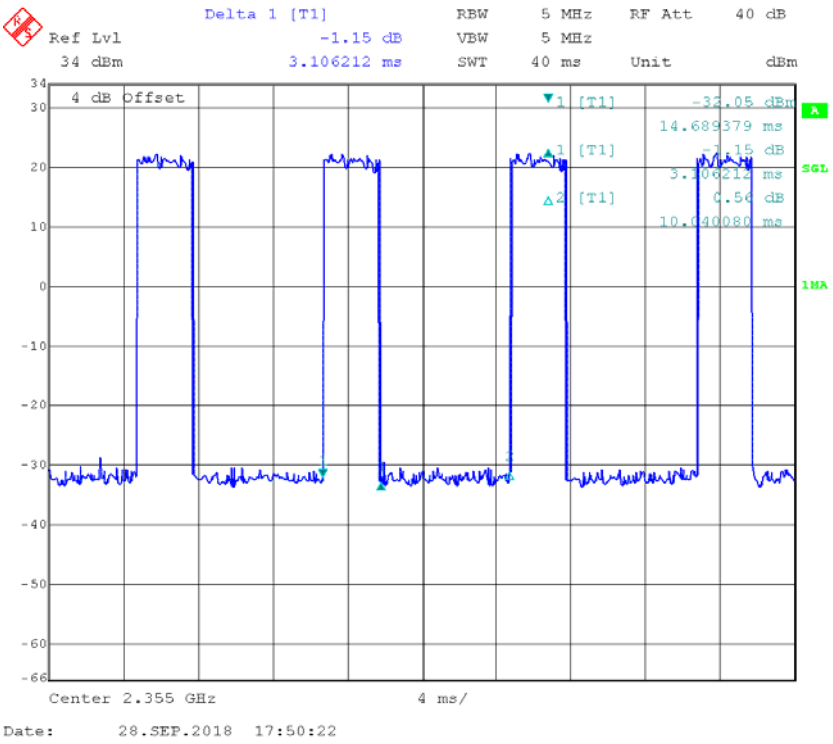
QPSK, 10MHz



16QAM, 5MHz



16QAM, 10MHz



LTE Band 41

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	1#0	23.05	22.84	22.78
		1#13	22.87	23.01	22.48
		1#24	23.15	22.82	22.43
		15#0	22.12	22.14	21.82
		15#10	22.24	22.11	21.71
		25#0	22.16	22.06	21.82
	16QAM	1#0	22.34	22.38	21.25
		1#13	22.30	22.36	21.41
		1#24	22.29	22.64	21.38
		15#0	20.99	20.84	20.81
		15#10	20.94	20.83	20.59
		25#0	21.08	20.82	20.87
10MHz	QPSK	1#0	23.17	23.21	23.03
		1#25	23.25	22.94	22.77
		1#49	23.24	22.94	22.03
		25#0	22.14	22.20	22.01
		25#25	22.16	22.11	21.88
		50#0	22.19	22.18	21.95
	16QAM	1#0	22.18	22.16	22.06
		1#25	22.34	21.93	21.88
		1#49	21.83	21.94	21.11
		25#0	21.37	21.06	20.98
		25#25	21.22	20.97	20.75
		50#0	21.13	21.11	20.97
15MHz	QPSK	1#0	22.26	22.25	21.99
		1#38	22.20	21.98	21.73
		1#74	22.29	22.06	21.46
		36#0	21.37	21.27	21.10
		36#39	21.11	20.99	20.85
		75#0	21.14	21.12	20.99
	16QAM	1#0	21.41	21.33	21.19
		1#38	21.21	21.16	20.95
		1#74	21.25	21.22	20.72
		36#0	20.02	20.32	19.92
		36#39	19.97	20.14	19.70
		75#0	20.01	20.14	20.08
20MHz	QPSK	1#0	22.20	22.40	22.41
		1#50	22.28	22.22	22.18
		1#99	22.05	22.31	21.30
		50#0	21.23	21.45	21.08
		50#50	21.06	21.14	20.96
		100#0	21.24	21.22	21.11
	16QAM	1#0	21.32	22.03	21.44
		1#50	21.29	21.61	21.48
		1#99	20.94	21.09	20.76
		50#0	20.17	20.42	20.11
		50#50	20.19	20.21	20.02
		100#0	20.19	20.16	20.03

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	4.40	4.32	4.32	13
	100 RB		6.28	6.52	6.36	13
16QAM	1 RB	20 MHz	5.56	5.00	5.20	13
	100 RB		7.00	7.20	6.96	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	4.68	4.68	4.60	13
	100 RB		6.36	6.32	6.36	13
16QAM	1 RB	20 MHz	5.44	5.44	5.52	13
	100 RB		7.04	7.08	7.12	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	4.36	4.40	4.36	13
	50 RB		5.16	5.52	5.32	13
16QAM	1 RB	10 MHz	5.20	5.28	5.20	13
	50 RB		6.08	6.24	6.12	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	3.96	2.24	3.92	13
	100 RB		6.28	6.44	6.40	13
16QAM	1 RB	20 MHz	5.28	3.00	5.00	13
	100 RB		7.16	6.92	7.08	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	3.96	3.84	3.84	13
	50 RB		5.44	5.40	5.48	13
16QAM	1 RB	10 MHz	4.68	4.56	4.48	13
	50 RB		6.28	6.28	6.40	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								
836.60	H	102.92	28.00	0.00	0.97	27.03	38.45	11.42
836.60	V	95.91	24.12	0.00	0.97	23.15	38.45	15.30
EDGE 850 Middle Channel								
836.60	H	96.68	21.76	0.00	0.97	20.79	38.45	17.66
836.60	V	92.78	20.99	0.00	0.97	20.02	38.45	18.43
WCDMA Band V Middle Channel								
836.60	H	92.98	18.06	0.00	0.97	17.09	38.45	21.36
836.60	V	90.76	18.97	0.00	0.97	18.00	38.45	20.45
GPRS 1900 Middle Channel								
1880.00	H	94.33	21.72	11.66	2.66	30.72	33.00	2.28
1880.00	V	93.95	21.48	11.66	2.66	30.48	33.00	2.52
EDGE 1900 Middle Channel								
1880.00	H	89.20	16.59	11.66	2.66	25.59	33.00	7.41
1880.00	V	88.41	15.94	11.66	2.66	24.94	33.00	8.06
WCDMA Band II Middle Channel								
1880.00	H	87.14	14.53	11.66	2.66	23.53	33.00	9.47
1880.00	V	85.82	13.35	11.66	2.66	22.35	33.00	10.65
WCDMA Band IV Middle Channel								
1732.60	H	88.48	14.43	10.90	2.51	22.82	30.00	7.18
1732.60	V	87.90	13.53	10.90	2.51	21.92	30.00	8.08

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)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
1880.000	1.4	QPSK	H	86.51	13.90	11.66	2.66	22.90	33.00	10.10
1880.000			V	87.54	15.07	11.66	2.66	24.07	33.00	8.93
1880.000	3		H	85.61	13.00	11.66	2.66	22.00	33.00	11.00
1880.000			V	86.87	14.40	11.66	2.66	23.40	33.00	9.60
1880.000	5		H	85.73	13.12	11.66	2.66	22.12	33.00	10.88
1880.000			V	87.11	14.64	11.66	2.66	23.64	33.00	9.36
1880.000	10		H	86.28	13.67	11.66	2.66	22.67	33.00	10.33
1880.000			V	87.53	15.06	11.66	2.66	24.06	33.00	8.94
1880.000	15		H	86.37	13.76	11.66	2.66	22.76	33.00	10.24
1880.000			V	88.03	15.56	11.66	2.66	**24.56**	33.00	8.44
1880.000	20		H	86.34	13.73	11.66	2.66	22.73	33.00	10.27
1880.000			V	87.66	15.19	11.66	2.66	**24.19**	33.00	8.81
1880.000	1.4	16QAM	H	86.46	13.85	11.66	2.66	22.85	33.00	10.15
1880.000			V	87.43	14.96	11.66	2.66	23.96	33.00	9.04
1880.000	3		H	85.41	12.80	11.66	2.66	21.80	33.00	11.20
1880.000			V	86.76	14.29	11.66	2.66	23.29	33.00	9.71
1880.000	5		H	85.85	13.24	11.66	2.66	22.24	33.00	10.76
1880.000			V	87.73	15.26	11.66	2.66	24.26	33.00	8.74
1880.000	10		H	86.01	13.40	11.66	2.66	22.40	33.00	10.60
1880.000			V	87.58	15.11	11.66	2.66	24.11	33.00	8.89
1880.000	15		H	85.45	12.84	11.66	2.66	21.84	33.00	11.16
1880.000			V	87.81	15.34	11.66	2.66	**24.34**	33.00	8.66
1880.000	20		H	85.93	13.32	11.66	2.66	22.32	33.00	10.68
1880.000			V	87.12	14.65	11.66	2.66	**23.65**	33.00	9.35

LTE Band 4

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
1732.500	1.4	QPSK	H	88.73	14.68	10.90	2.51	23.07	30.00	6.93
1732.500			V	88.90	14.53	10.90	2.51	22.92	30.00	7.08
1732.500	3		H	88.20	14.15	10.90	2.51	22.54	30.00	7.46
1732.500			V	88.44	14.07	10.90	2.51	22.46	30.00	7.54
1732.500	5		H	88.31	14.26	10.90	2.51	22.65	30.00	7.35
1732.500			V	88.82	14.45	10.90	2.51	22.84	30.00	7.16
1732.500	10		H	89.05	15.00	10.90	2.51	23.39	30.00	6.61
1732.500			V	89.63	15.26	10.90	2.51	23.65	30.00	6.35
1732.500	15		H	88.72	14.67	10.90	2.51	23.06	30.00	6.94
1732.500			V	89.83	15.66	10.90	2.51	**23.85**	30.00	6.15
1732.500	20		H	88.26	14.21	10.90	2.51	22.60	30.00	7.40
1732.500			V	89.30	14.93	10.90	2.51	**23.32**	30.00	6.68
1732.500	1.4	16QAM	H	88.34	14.29	10.90	2.51	22.68	30.00	7.32
1732.500			V	88.71	14.34	10.90	2.51	22.73	30.00	7.27
1732.500	3		H	87.87	13.82	10.90	2.51	22.21	30.00	7.79
1732.500			V	88.35	13.98	10.90	2.51	22.37	30.00	7.63
1732.500	5		H	87.70	13.65	10.90	2.51	22.04	30.00	7.96
1732.500			V	88.24	13.87	10.90	2.51	22.26	30.00	7.74
1732.500	10		H	88.35	14.30	10.90	2.51	22.69	30.00	7.31
1732.500			V	88.84	14.47	10.90	2.51	22.86	30.00	7.14
1732.500	15		H	88.71	14.66	10.90	2.51	23.05	30.00	6.95
1732.500			V	89.05	14.68	10.90	2.51	**23.07**	30.00	6.93
1732.500	20		H	87.83	13.78	10.90	2.51	22.17	30.00	7.83
1732.500			V	88.65	14.28	10.90	2.51	**22.67**	30.00	7.33

LTE Band 5

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
836.50	1.4	QPSK	H	95.78	20.85	0.00	0.97	19.88	38.45	18.57
836.50			V	89.58	17.79	0.00	0.97	16.82	38.45	21.63
836.50	3		H	95.47	20.54	0.00	0.97	19.57	38.45	18.88
836.50			V	90.13	18.34	0.00	0.97	17.37	38.45	21.08
836.50	5		H	95.05	20.12	0.00	0.97	19.15	38.45	19.30
836.50			V	89.00	17.21	0.00	0.97	16.24	38.45	22.21
836.50	10		H	95.88	20.95	0.00	0.97	**19.98**	38.45	18.47
836.50			V	89.77	17.98	0.00	0.97	17.01	38.45	21.44
836.50	1.4	16QAM	H	95.81	20.88	0.00	0.97	19.91	38.45	18.54
836.50			V	89.34	17.55	0.00	0.97	16.58	38.45	21.87
836.50	3		H	95.88	20.95	0.00	0.97	19.98	38.45	18.47
836.50			V	90.16	18.37	0.00	0.97	17.40	38.45	21.05
836.50	5		H	95.26	20.33	0.00	0.97	19.36	38.45	19.09
836.50			V	89.09	17.30	0.00	0.97	16.33	38.45	22.12
836.50	10		H	95.88	20.95	0.00	0.97	**19.98**	38.45	18.47
836.50			V	90.22	18.43	0.00	0.97	17.46	38.45	20.99

LTE Band 7

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2535.00	5	QPSK	H	84.91	12.30	13.14	3.10	22.34	33.00	10.66
2535.00			V	85.97	14.82	13.14	3.10	**24.86**	33.00	8.14
2535.00	10		H	84.24	11.63	13.14	3.10	21.67	33.00	11.33
2535.00			V	85.63	14.48	13.14	3.10	24.52	33.00	8.48
2535.00	15		H	83.93	11.32	13.14	3.10	21.36	33.00	11.64
2535.00			V	85.17	14.02	13.14	3.10	24.06	33.00	8.94
2535.00	20		H	84.32	11.71	13.14	3.10	21.75	33.00	11.25
2535.00			V	85.46	14.31	13.14	3.10	**24.35**	33.00	8.65
2535.00	5	16QAM	H	84.25	11.64	13.14	3.10	21.68	33.00	11.32
2535.00			V	85.54	14.39	13.14	3.10	**24.43**	33.00	8.57
2535.00	10		H	83.85	11.24	13.14	3.10	21.28	33.00	11.72
2535.00			V	84.51	13.36	13.14	3.10	23.40	33.00	9.60
2535.00	15		H	83.72	11.11	13.14	3.10	21.15	33.00	11.85
2535.00			V	84.76	13.61	13.14	3.10	23.65	33.00	9.35
2535.00	20		H	84.05	11.44	13.14	3.10	21.48	33.00	11.52
2535.00			V	84.94	13.79	13.14	3.10	**23.83**	33.00	9.17

LTE Band 17

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
710.00	5	QPSK	H	95.19	18.38	0.00	0.94	**17.44**	34.77	17.33
710.00			V	86.36	12.00	0.00	0.94	11.06	34.77	23.71
710.00	10		H	95.00	18.19	0.00	0.94	**17.25**	34.77	17.52
710.00			V	86.21	11.85	0.00	0.94	10.91	34.77	23.86
710.00	5	16QAM	H	95.32	18.51	0.00	0.94	**17.57**	34.77	17.20
710.00			V	86.44	12.08	0.00	0.94	11.14	34.77	23.63
710.00	10		H	95.22	18.41	0.00	0.94	**17.47**	34.77	17.30
710.00			V	86.35	11.99	0.00	0.94	11.05	34.77	23.72

LTE Band 38

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2595.00	5	QPSK	H	83.95	11.72	13.20	3.10	21.82	33.00	11.18
2595.00			V	85.25	14.88	13.20	3.10	**24.98**	33.00	8.02
2595.00	10		H	83.32	11.09	13.20	3.10	21.19	33.00	11.81
2595.00			V	85.04	14.67	13.20	3.10	24.77	33.00	8.23
2595.00	15		H	83.08	10.85	13.20	3.10	20.95	33.00	12.05
2595.00			V	84.87	14.50	13.20	3.10	24.60	33.00	8.40
2595.00	20		H	83.32	11.09	13.20	3.10	21.19	33.00	11.81
2595.00			V	85.04	14.67	13.20	3.10	**24.77**	33.00	8.23
2595.00	5	16QAM	H	83.65	11.42	13.20	3.10	21.52	33.00	11.48
2595.00			V	84.96	14.59	13.20	3.10	**24.69**	33.00	8.31
2595.00	10		H	82.95	10.72	13.20	3.10	20.82	33.00	12.18
2595.00			V	84.68	14.31	13.20	3.10	24.41	33.00	8.59
2595.00	15		H	82.77	10.54	13.20	3.10	20.64	33.00	12.36
2595.00			V	84.63	14.26	13.20	3.10	24.36	33.00	8.64
2595.00	20		H	83.01	10.78	13.20	3.10	20.88	33.00	12.12
2595.00			V	84.54	14.17	13.20	3.10	**24.27**	33.00	8.73

LTE Band 40(2305-2315MHz)

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm/5MHz)	Margin (dB)
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2310.00	5	QPSK	H	79.73	9.35	11.31	2.98	17.68	24.00	6.32
2310.00			V	81.97	12.27	11.31	2.98	**20.60**	24.00	3.4
2310.00	10		H	81.31	10.93	11.31	2.98	19.26	24.00	4.74
2310.00			V	81.65	11.95	11.31	2.98	**20.28**	24.00	3.72
2310.00	5	16QAM	H	79.64	9.26	11.31	2.98	17.59	24.00	6.41
2310.00			V	81.72	12.02	11.31	2.98	**20.35**	24.00	3.65
2310.00	10		H	79.18	8.80	11.31	2.98	17.13	24.00	6.87
2310.00			V	81.54	11.84	11.31	2.98	**20.17**	24.00	3.83

LTE Band 40(2350-2360MHz)

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm/5MHz)	Margin (dB)
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2355.00	5	QPSK	H	81.12	10.33	11.81	3.05	19.09	24.00	4.91
2355.00			V	81.61	11.58	11.81	3.05	**20.34**	24.00	3.66
2355.00	10		H	80.04	9.25	11.81	3.05	18.01	24.00	5.99
2355.00			V	80.96	10.93	11.81	3.05	**19.69**	24.00	4.31
2355.00	5	16QAM	H	80.51	9.72	11.81	3.05	18.48	24.00	5.52
2355.00			V	81.25	11.22	11.81	3.05	**19.98**	24.00	4.02
2355.00	10		H	79.91	9.12	11.81	3.05	17.88	24.00	6.12
2355.00			V	80.85	10.82	11.81	3.05	**19.58**	24.00	4.42

LTE Band 41

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2593.00	5	QPSK	H	82.31	10.07	13.19	3.10	20.16	33.00	12.84
2593.00			V	84.35	13.96	13.19	3.10	**24.05**	33.00	8.95
2593.00	10		H	81.58	9.34	13.19	3.10	19.43	33.00	13.57
2593.00			V	83.64	13.25	13.19	3.10	23.34	33.00	9.66
2593.00	15		H	82.05	9.81	13.19	3.10	19.90	33.00	13.10
2593.00			V	83.93	13.54	13.19	3.10	23.63	33.00	9.37
2593.00	20		H	81.71	9.47	13.19	3.10	19.56	33.00	13.44
2593.00			V	83.81	13.42	13.19	3.10	**23.51**	33.00	9.49
2593.00	5	16QAM	H	82.10	9.86	13.19	3.10	19.95	33.00	13.05
2593.00			V	84.08	13.69	13.19	3.10	**23.78**	33.00	9.22
2593.00	10		H	81.32	9.08	13.19	3.10	19.17	33.00	13.83
2593.00			V	83.57	13.18	13.19	3.10	23.27	33.00	9.73
2593.00	15		H	82.13	9.89	13.19	3.10	19.98	33.00	13.02
2593.00			V	83.86	13.47	13.19	3.10	23.56	33.00	9.44
2593.00	20		H	81.58	9.34	13.19	3.10	19.43	33.00	13.57
2593.00			V	83.32	12.93	13.19	3.10	**23.02**	33.00	9.98

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- OCCUPIED BANDWIDTH

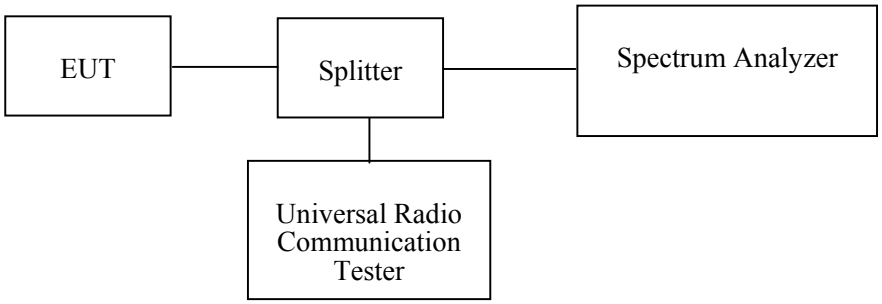
Applicable Standard

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

Test Procedure

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

The 26 dB & 99% bandwidth was recorded.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	831929/005	2017-08-31	2018-08-31
Rohde & Schwarz	Signal Analyzer	FSIQ26	831929/005	2018-08-31	2019-08-31
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41005011	Each Time	N/A
Unknown	Attenuator	UNAT-3+	15529	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:	24.8~27°C
Relative Humidity:	52~64 %
ATM Pressure:	99.4~100.5 kPa

The testing was performed by Swim Lv from 2018-08-10 to 2018-11-01.

Test Mode: Transmitting

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

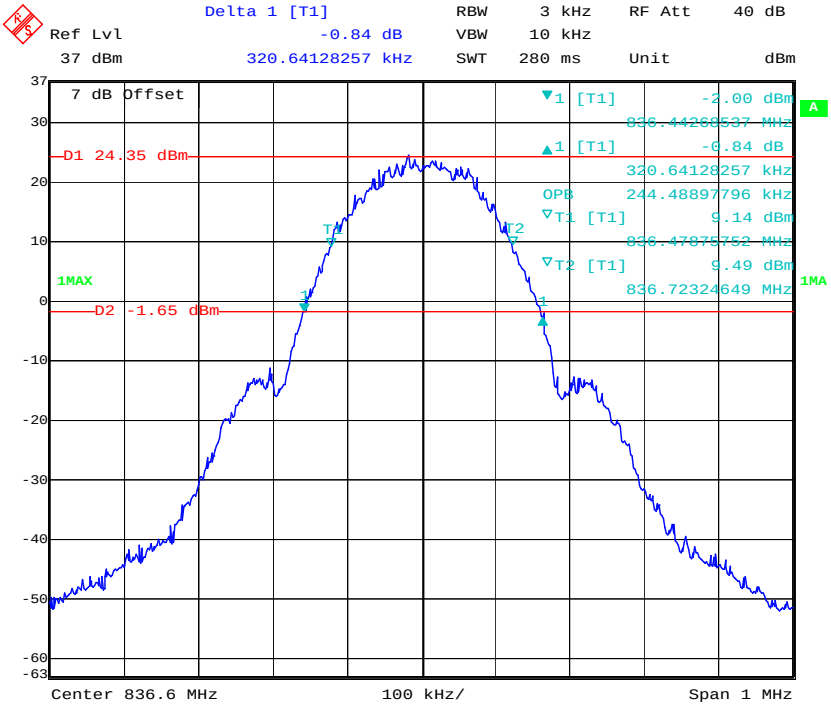
Band	Mode	99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)
Cellular	GPRS	0.244	0.321
	EDGE	0.244	0.305
PCS	GPRS	0.244	0.321
	EDGE	0.248	0.315
WCDMA Band II	Rel 99	4.188	4.790
	HSDPA	4.168	4.782
	HSUPA	4.188	4.780
WCDMA Band IV	Rel 99	4.188	4.782
	HSDPA	4.188	4.762
	HSUPA	4.168	4.796
WCDMA Band V	Rel 99	4.168	4.741
	HSDPA	4.168	4.788
	HSUPA	4.168	4.747

Band	Bandwidth	Modulation	99% occupied bandwidth (MHz)	26 dB bandwidth (MHz)
LTE Band 2	1.4 MHz	QPSK	1.112	1.341
		16QAM	1.112	1.341
	3 MHz	QPSK	2.705	2.955
		16QAM	2.705	3.046
	5 MHz	QPSK	4.569	5.331
		16QAM	4.549	5.331
	10 MHz	QPSK	8.978	10.076
		16QAM	8.978	9.715
	15 MHz	QPSK	13.587	15.122
		16QAM	13.587	14.942
	20 MHz	QPSK	17.956	19.473
		16QAM	18.036	19.633

Band	Bandwidth	Modulation	99% occupied bandwidth (MHz)	26 dB bandwidth (MHz)
LTE Band 4	1.4 MHz	QPSK	1.100	1.299
		16QAM	1.106	1.318
	3 MHz	QPSK	2.693	2.936
		16QAM	2.693	2.946
	5 MHz	QPSK	4.549	5.066
		16QAM	4.529	5.024
	10 MHz	QPSK	8.978	9.764
		16QAM	8.938	9.647
	15 MHz	QPSK	13.587	14.814
		16QAM	13.587	14.814
	20 MHz	QPSK	18.036	19.214
		16QAM	18.116	19.311
LTE Band 5	1.4 MHz	QPSK	1.112	1.347
		16QAM	1.106	1.341
	3 MHz	QPSK	2.705	2.968
		16QAM	2.705	3.090
	5 MHz	QPSK	4.459	5.114
		16QAM	4.459	5.140
	10 MHz	QPSK	8.978	9.909
		16QAM	9.018	9.748
LTE Band 7	5 MHz	QPSK	4.469	5.088
		16QAM	4.549	5.070
	10 MHz	QPSK	8.978	9.820
		16QAM	8.978	9.780
	15 MHz	QPSK	13.587	15.467
		16QAM	13.587	15.154
	20 MHz	QPSK	18.036	20.152
		16QAM	18.036	19.992
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

Band	Bandwidth	Modulation	99% occupied bandwidth (MHz)	26 dB bandwidth (MHz)
LTE Band 38	5 MHz	QPSK	4.509	4.956
		16QAM	4.529	5.337
	10 MHz	QPSK	8.978	9.868
		16QAM	8.978	9.760
	15 MHz	QPSK	13.587	16.088
		16QAM	13.647	15.998
	20 MHz	QPSK	18.036	19.555
		16QAM	18.036	19.916
LTE Band 40 (2305-2315MHz)	5 MHz	QPSK	4.529	5.068
		16QAM	4.529	5.064
	10 MHz	QPSK	8.938	9.980
		16QAM	8.978	9.731
LTE Band 40 (2350-2360MHz)	5 MHz	QPSK	4.549	5.307
		16QAM	4.529	5.297
	10 MHz	QPSK	9.018	9.944
		16QAM	8.978	9.772
LTE Band 41	5 MHz	QPSK	4.549	5.345
		16QAM	4.529	9.104
	10 MHz	QPSK	8.978	9.784
		16QAM	8.978	9.633
	15 MHz	QPSK	13.587	16.896
		16QAM	13.647	15.555
	20 MHz	QPSK	18.036	19.407
		16QAM	17.956	19.880

GPRS 850 Cellular Band



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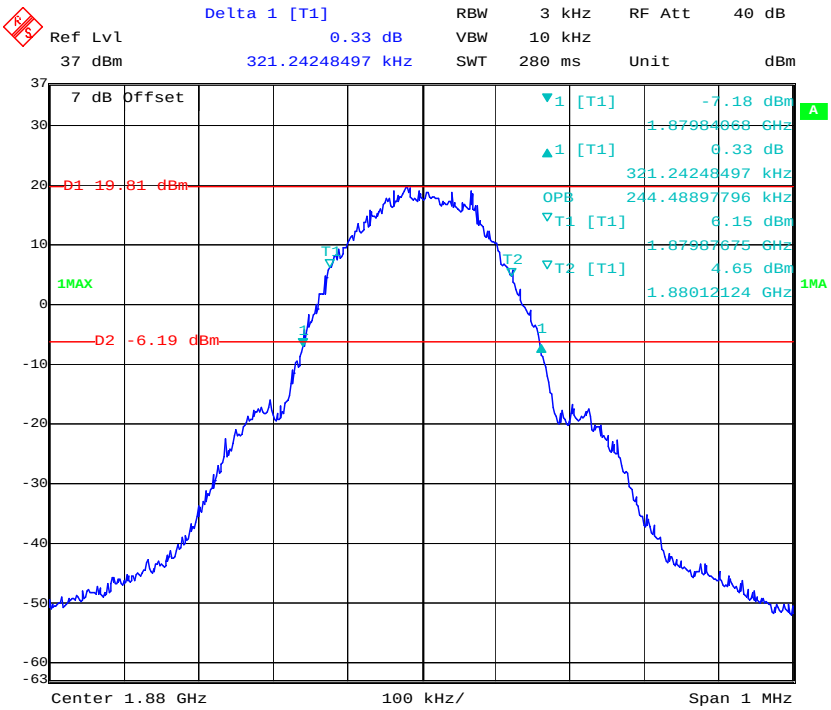
GPRS PCS1900 Cellular Band



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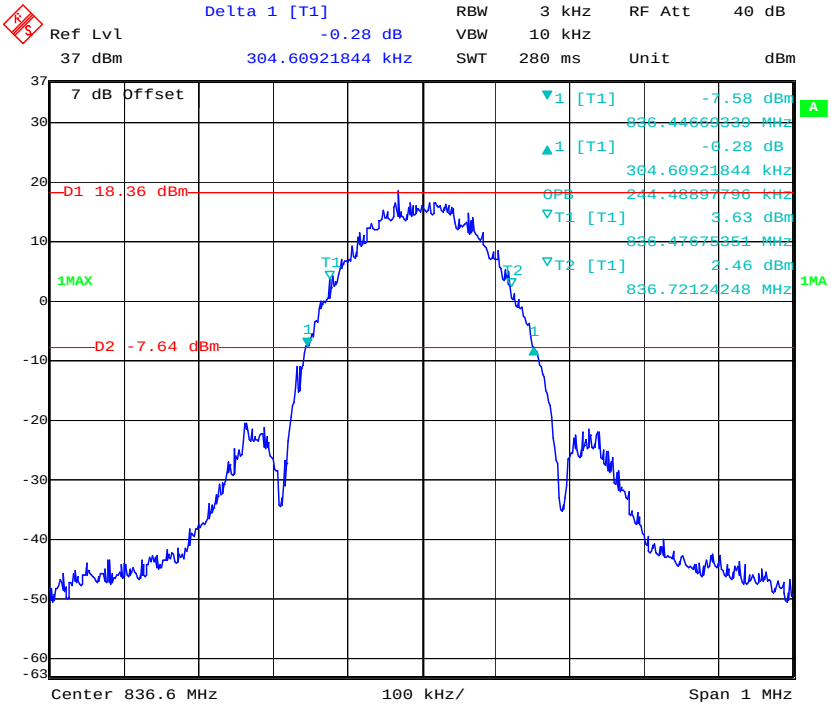
EDGE 850 Cellular Band



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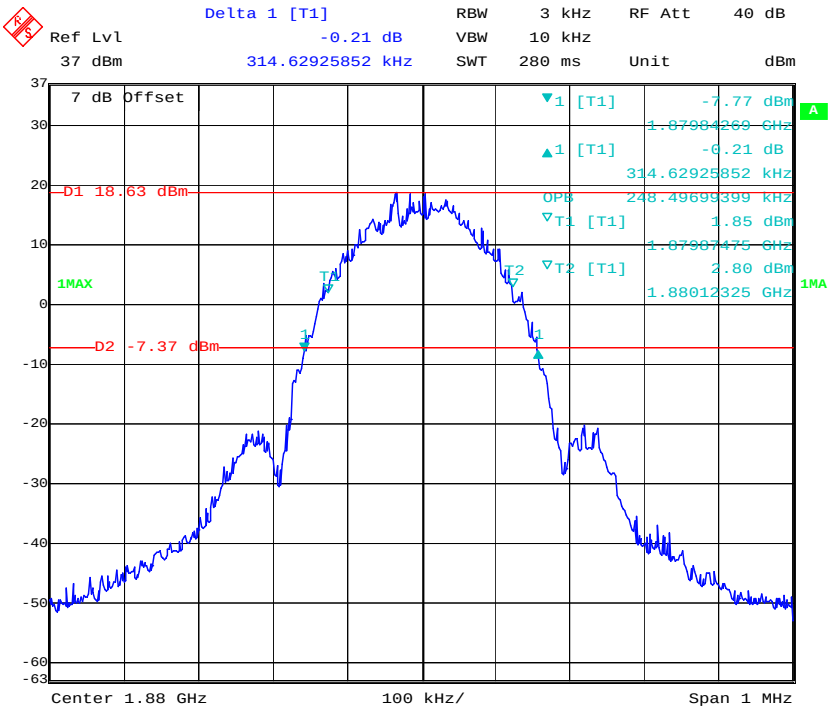
EDGE PCS1900 Cellular Band



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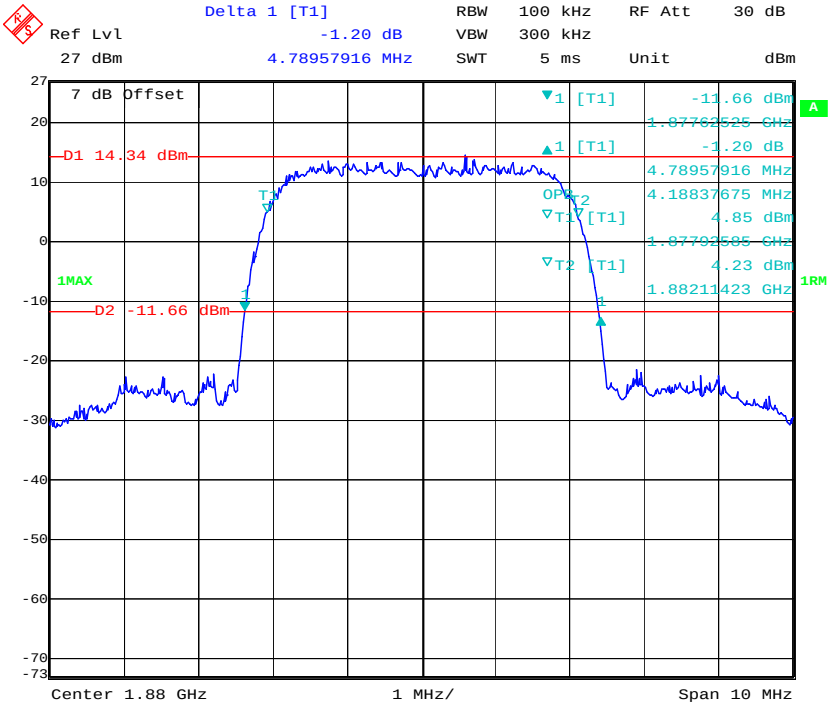

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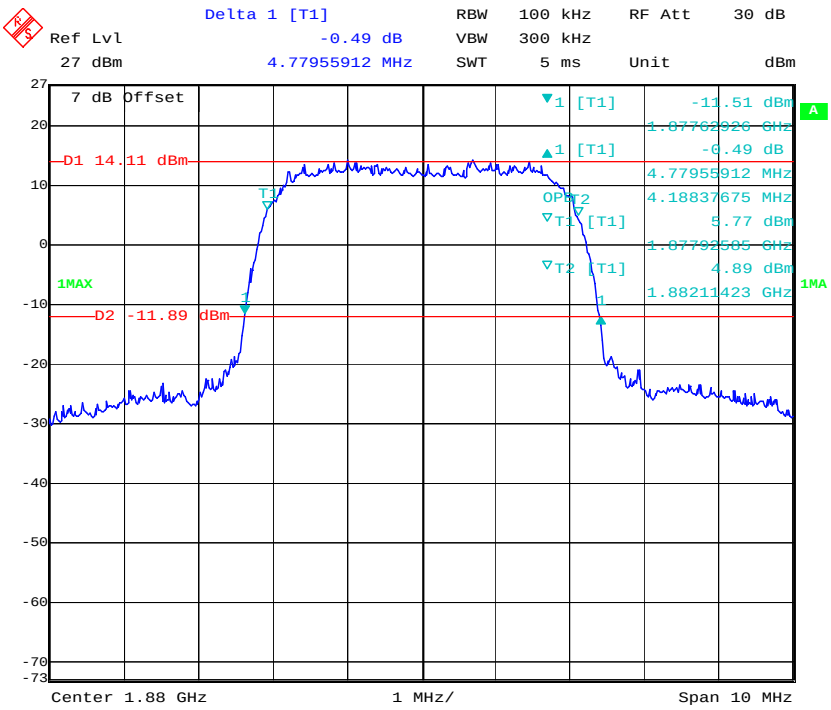
WCDMA Band II, HSUPA



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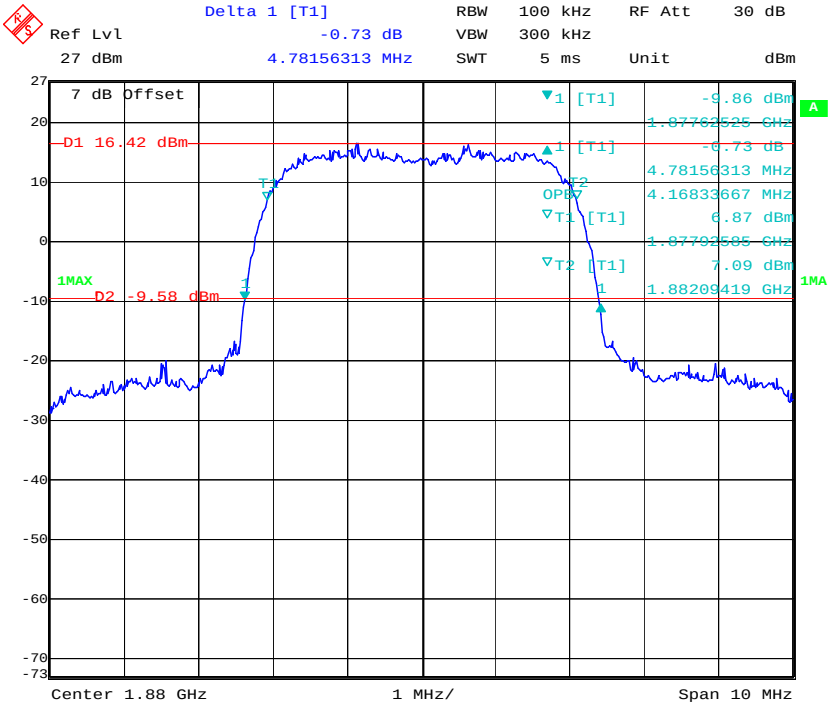
WCDMA Band II, HSDPA



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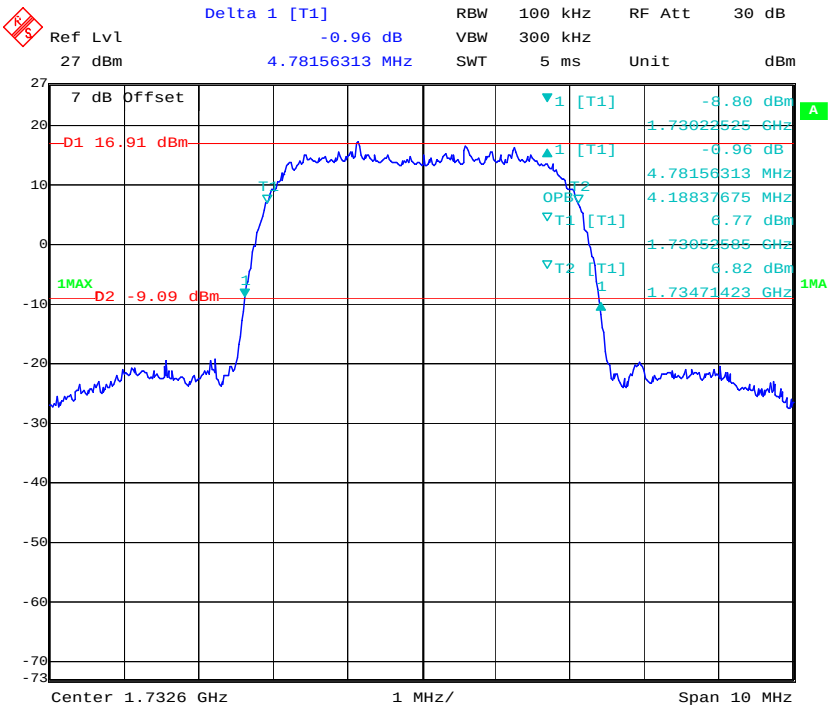
WCDMA Band IV, Rel 99



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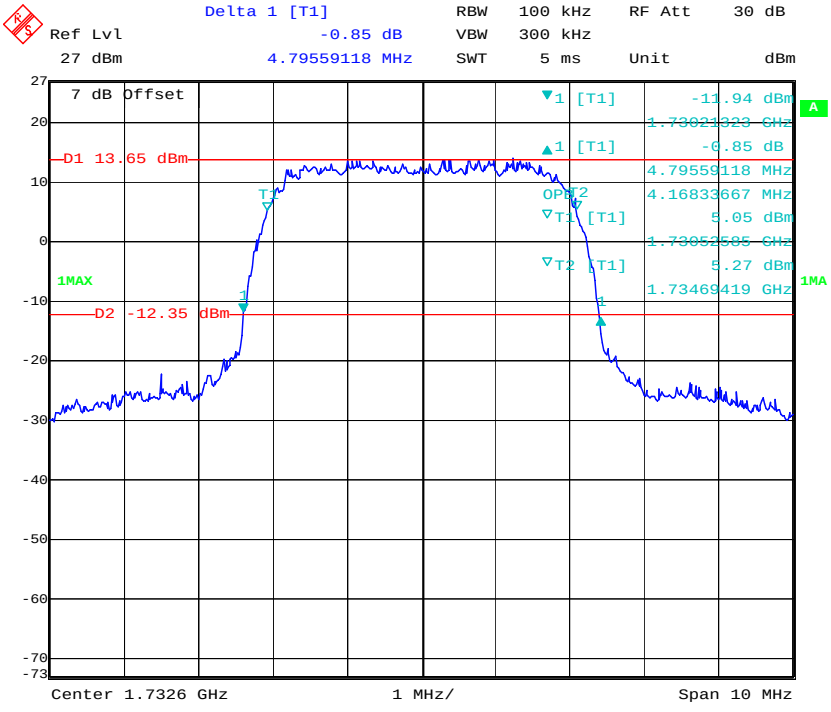
WCDMA Band IV, HSUPA



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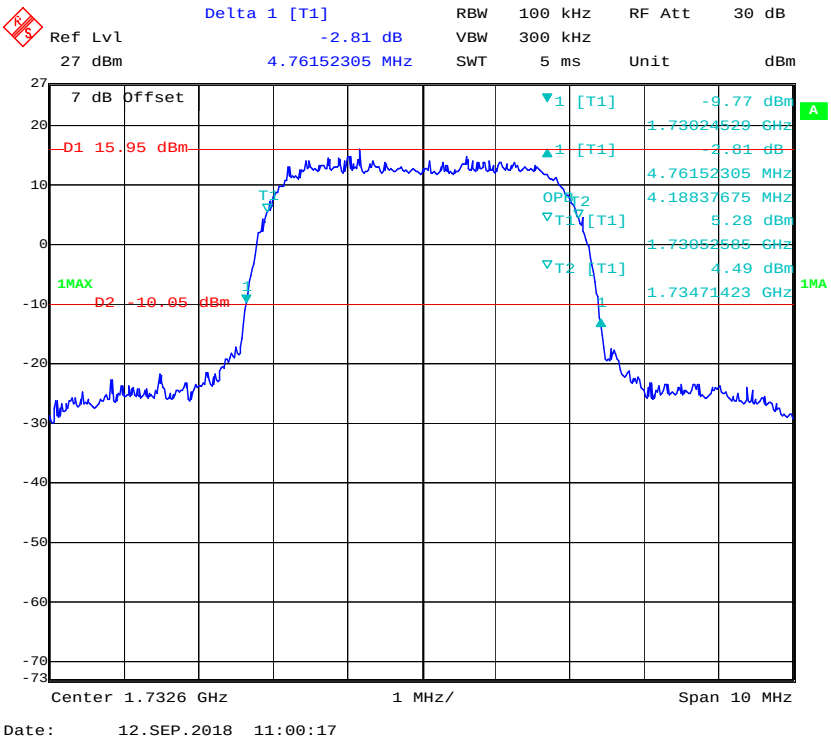

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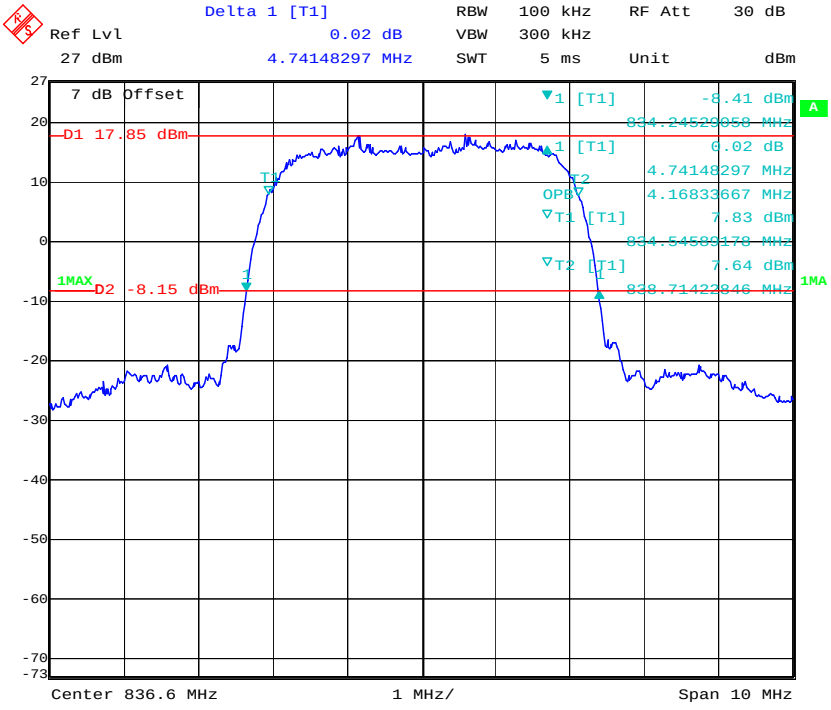

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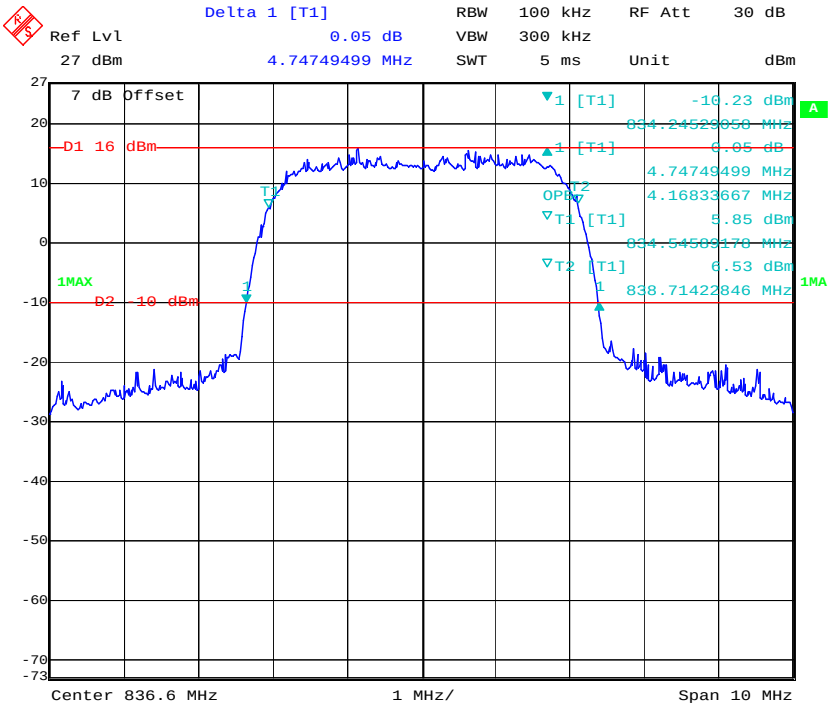
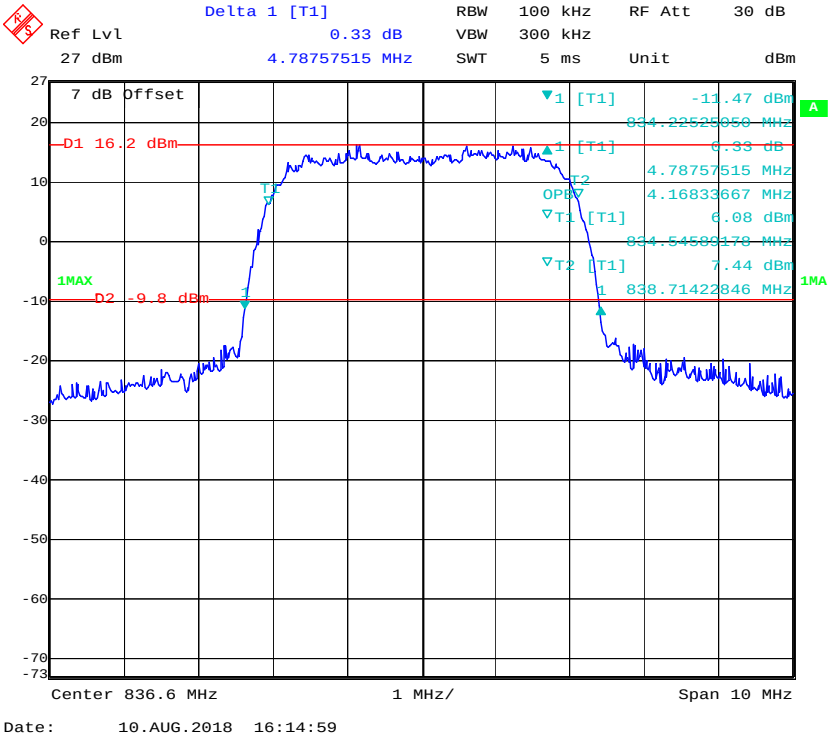


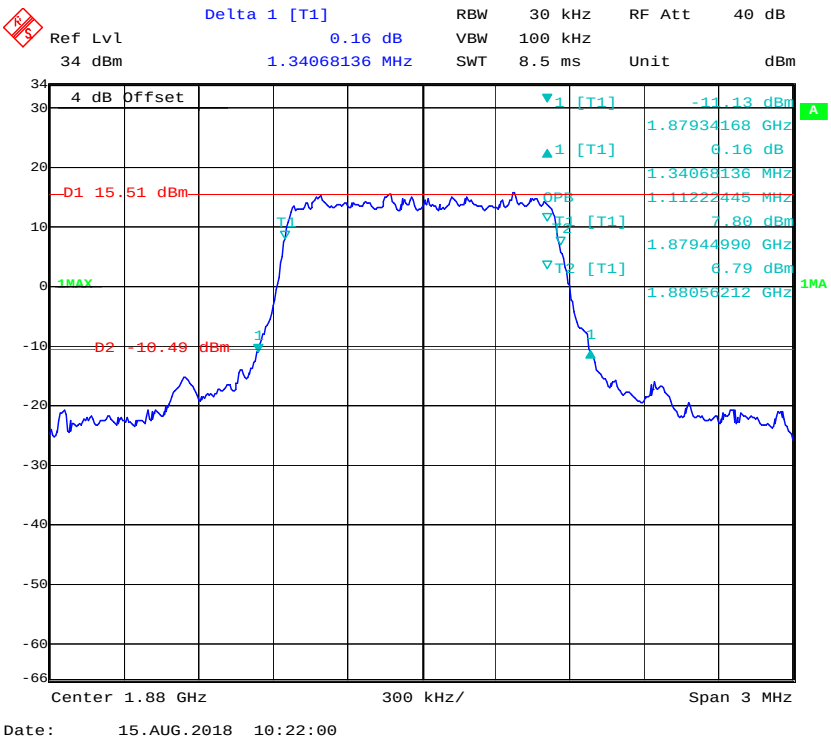
Date: 10.AUG.2018 16:17:40

WCDMA Band V, HSDPA



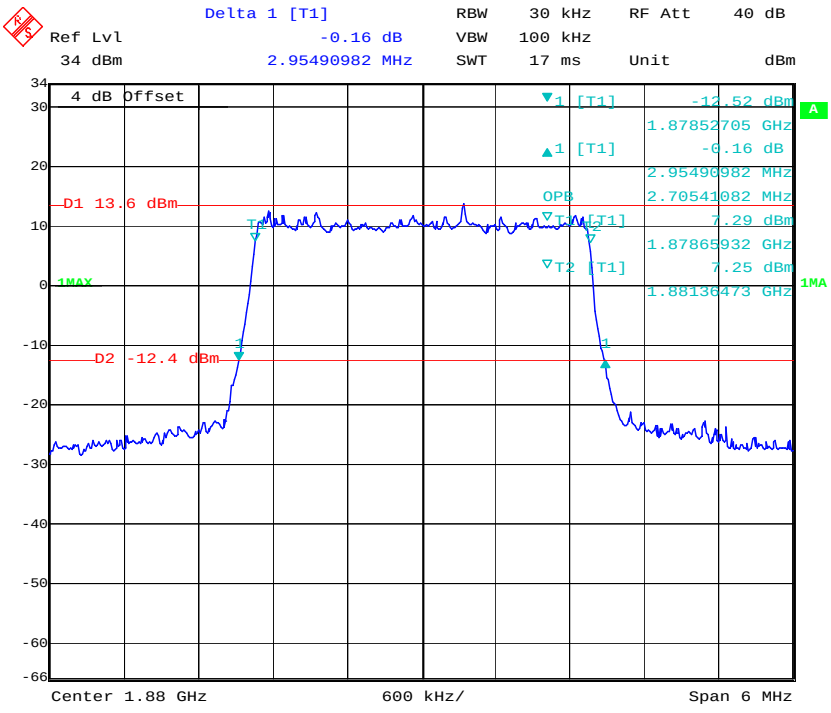
LTE Band 2

QPSK_1.4 MHz



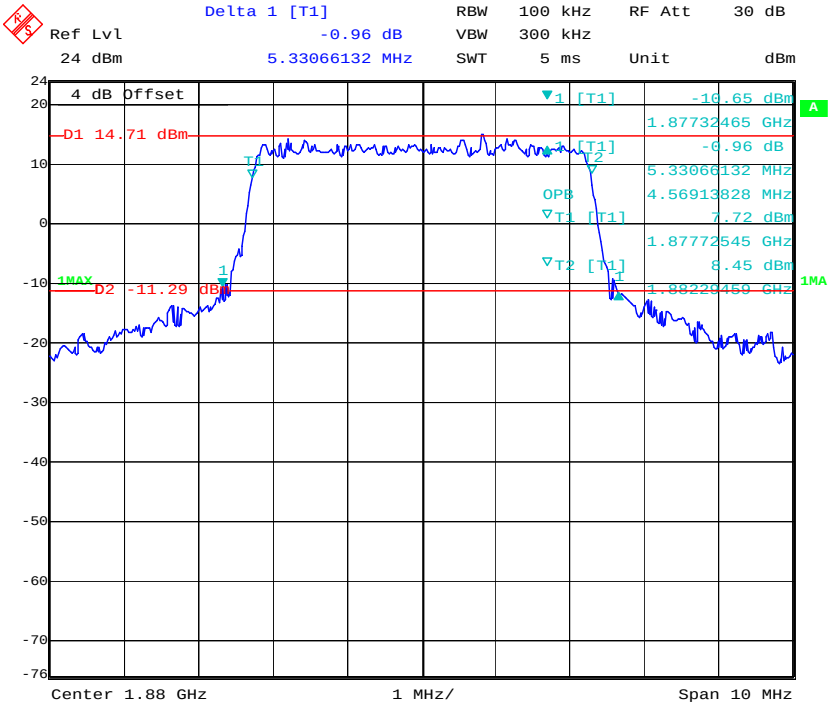
Date: 15.AUG.2018 10:22:00

QPSK_3 MHz



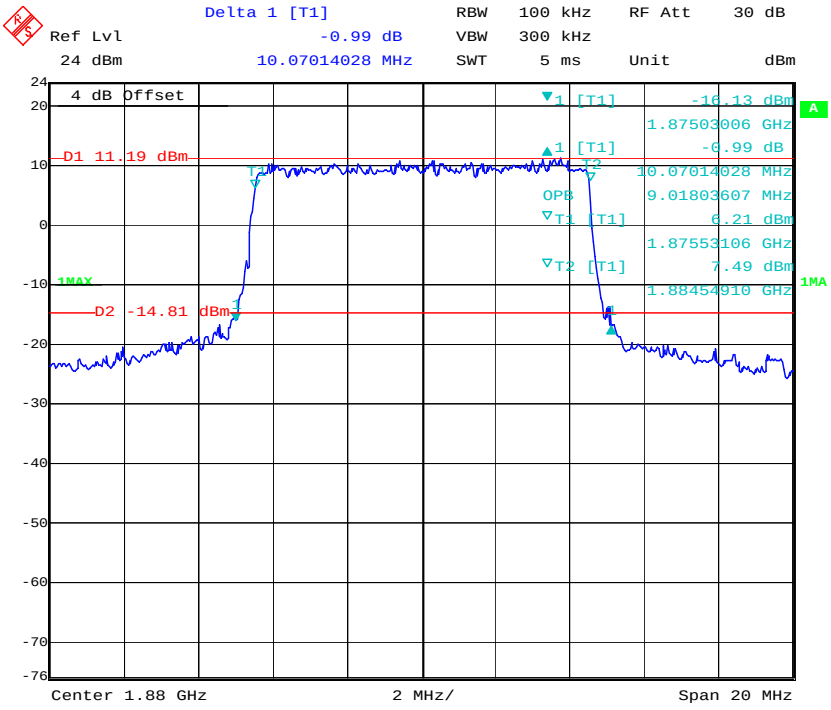
Date: 15.AUG.2018 10:25:42

QPSK_5 MHz



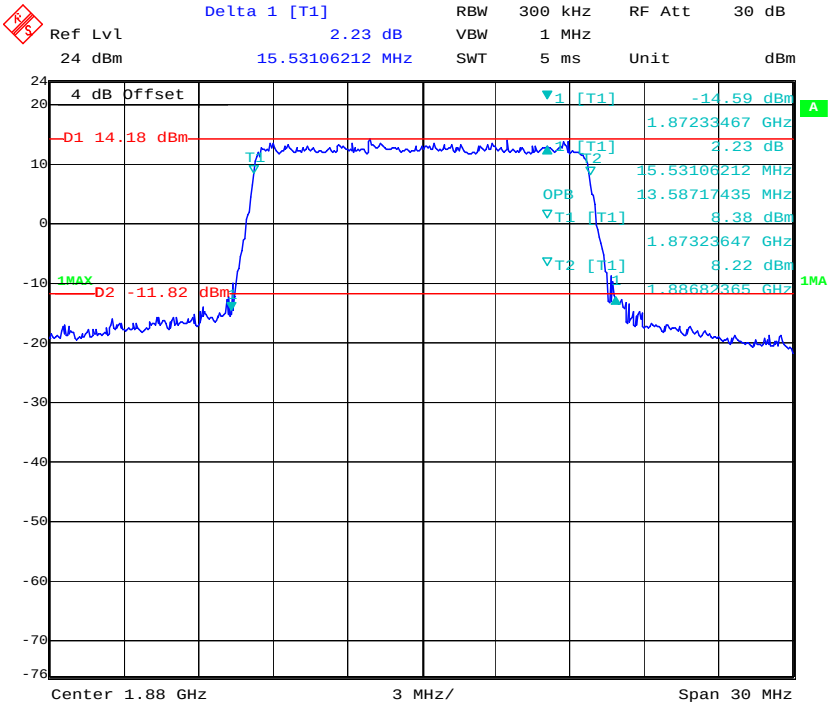
Date: 31.OCT.2018 18:40:17

QPSK_10 MHz

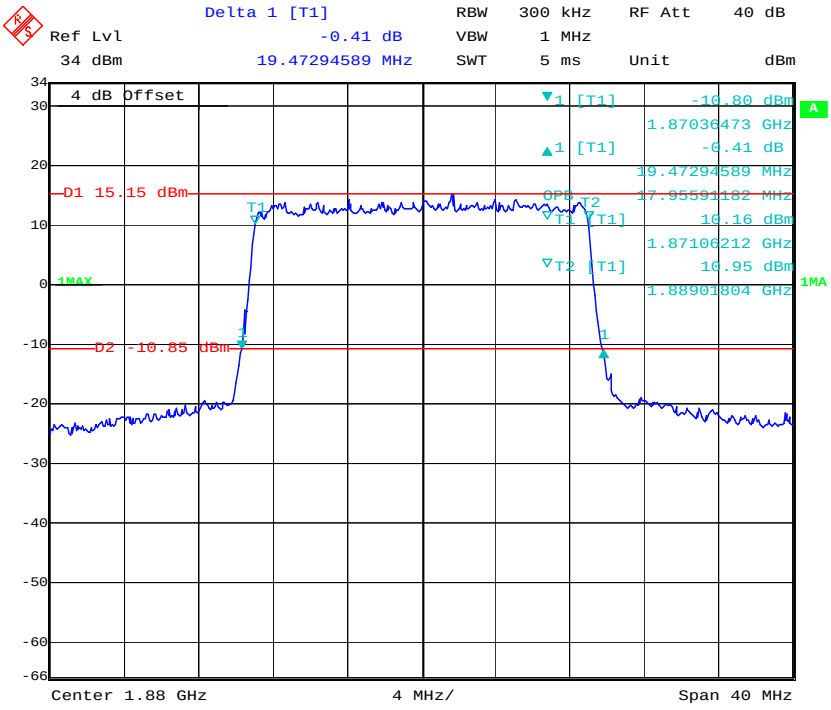


Date: 31.OCT.2018 18:42:52

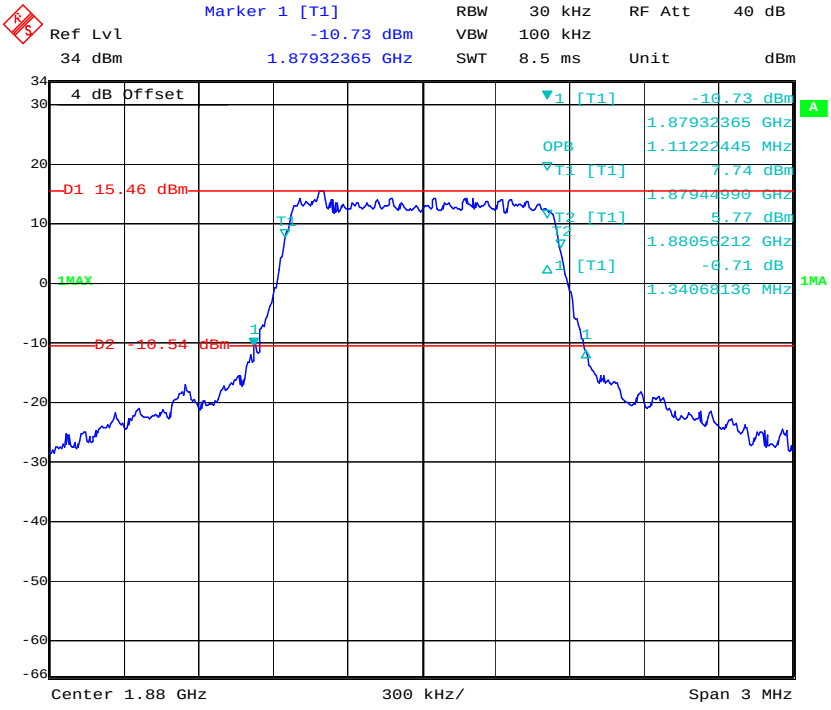
QPSK_15 MHz



QPSK_20 MHz

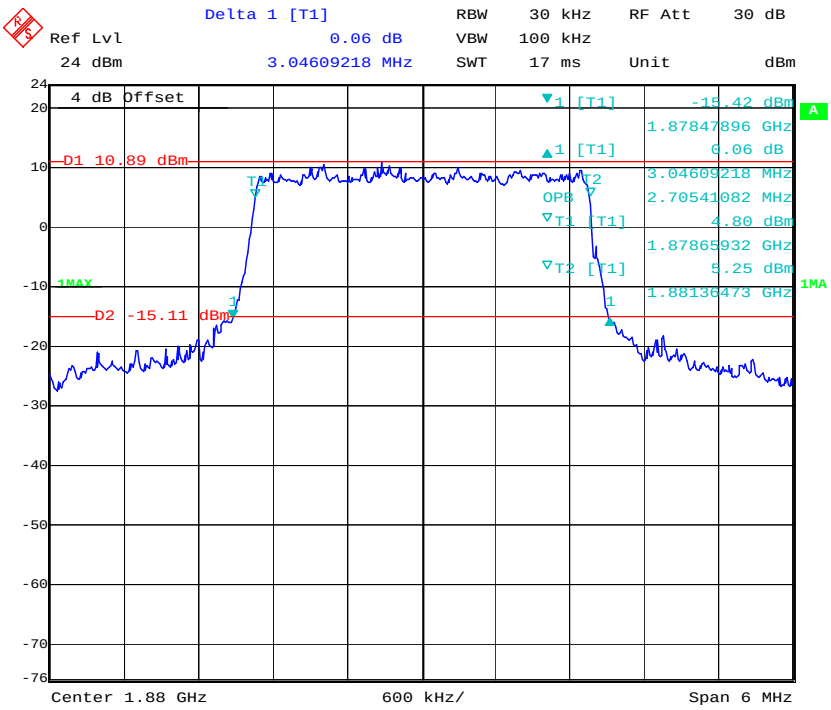


16QAM_1.4 MHz



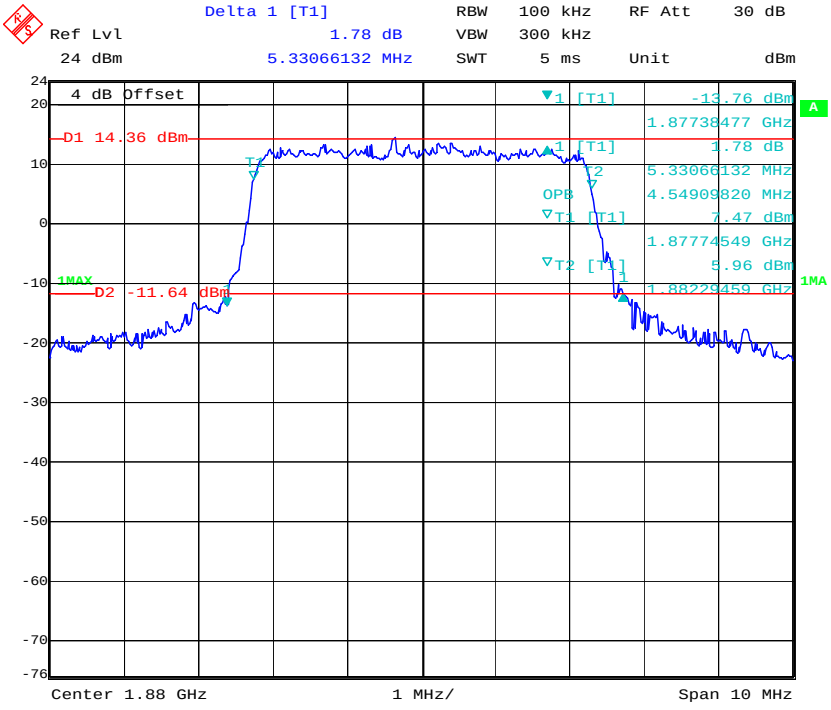
Date: 15.AUG.2018 10:23:50

16QAM_3 MHz



Date: 31.OCT.2018 18:49:18

16QAM_5 MHz



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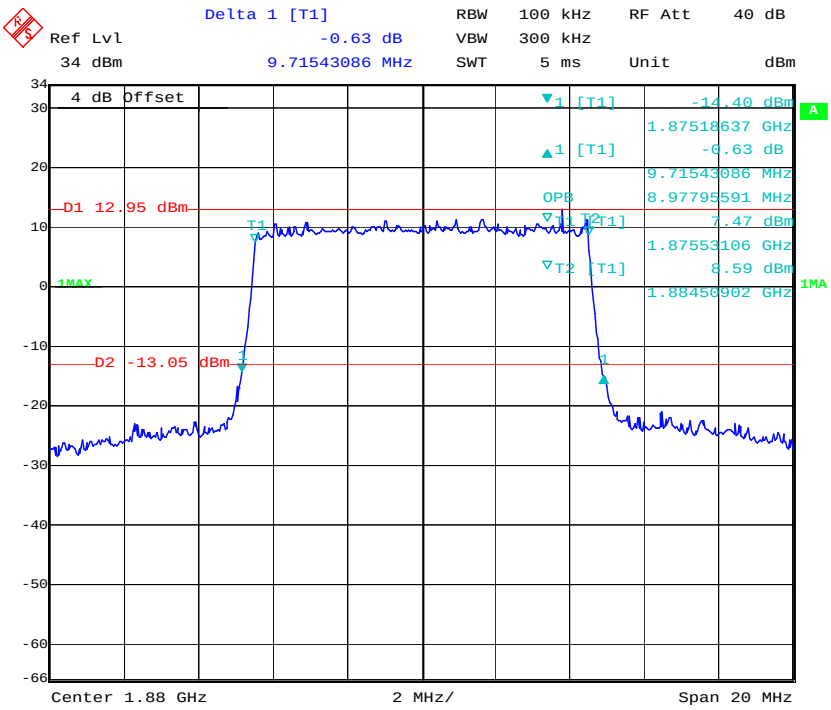
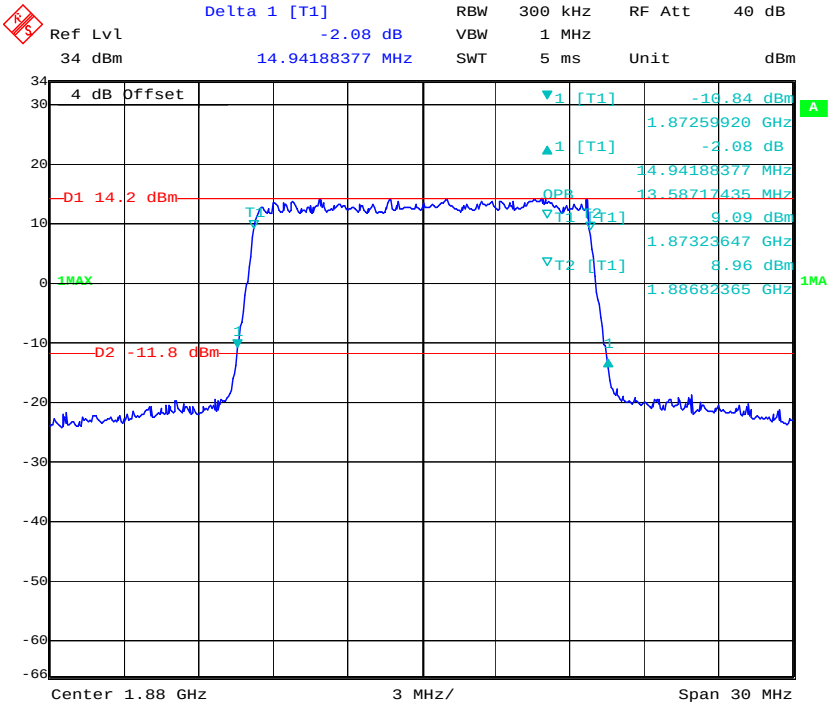
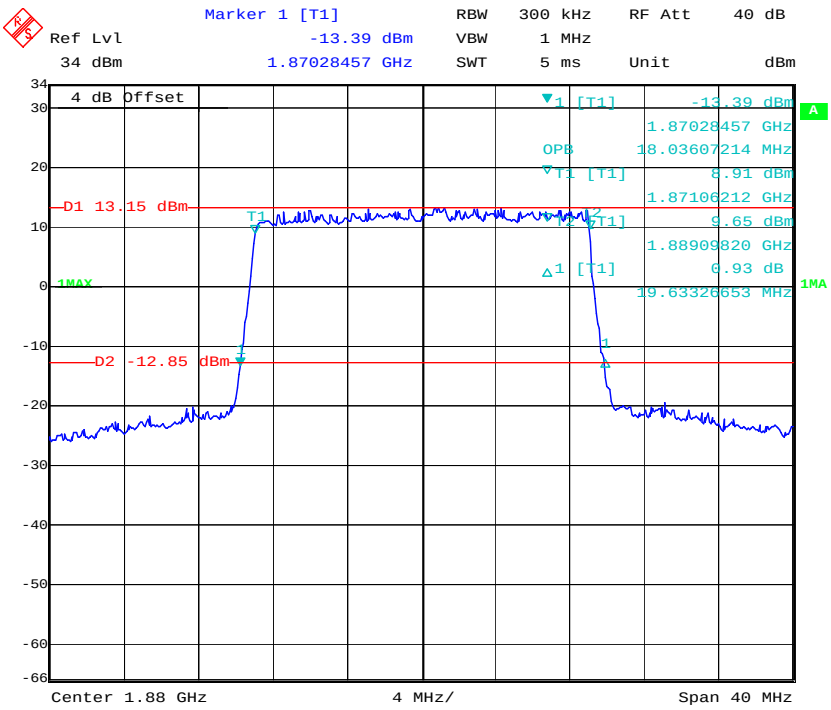


16QAM_15 MHz



Date: 15.AUG.2018 10:41:18

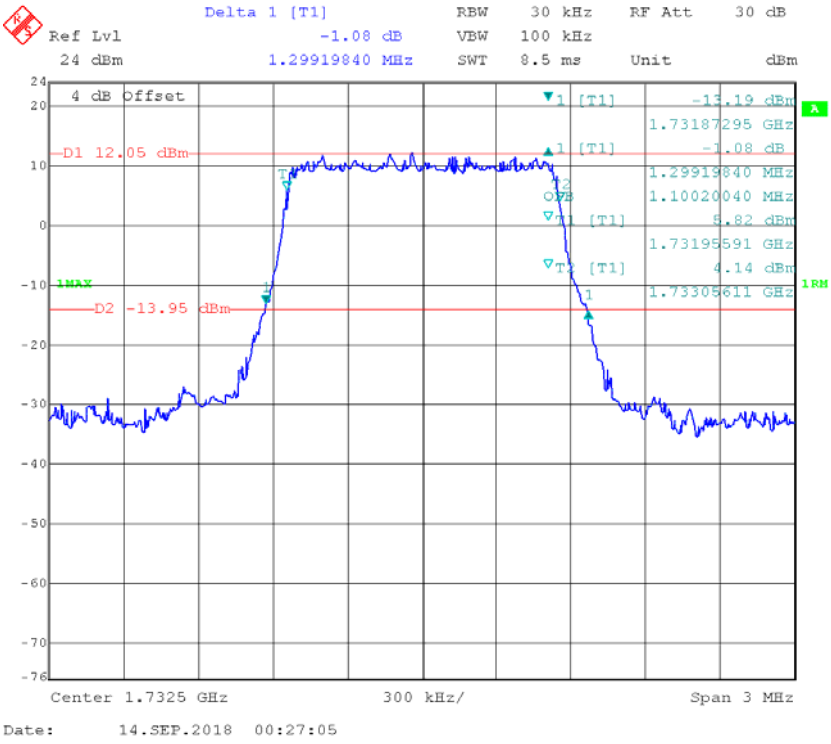
16QAM_20 MHz



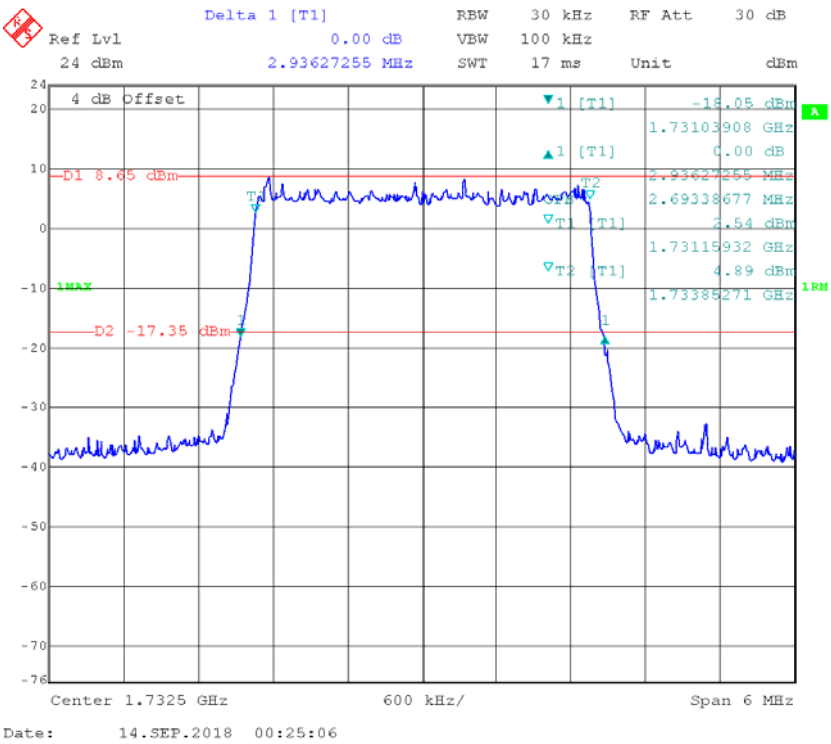
Date: 15.AUG.2018 10:47:19

LTE Band 4:

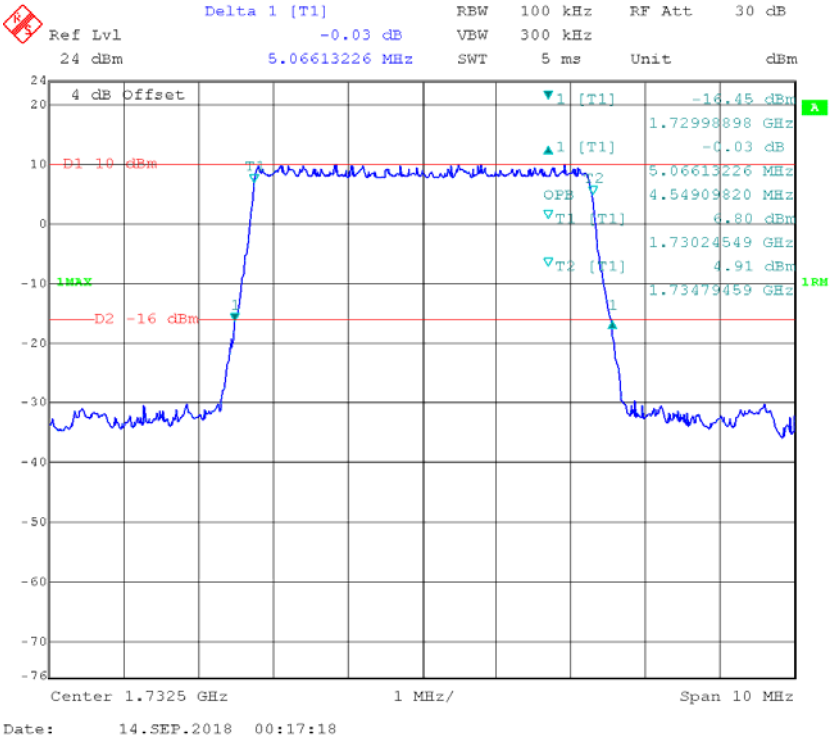
QPSK_1.4 MHz



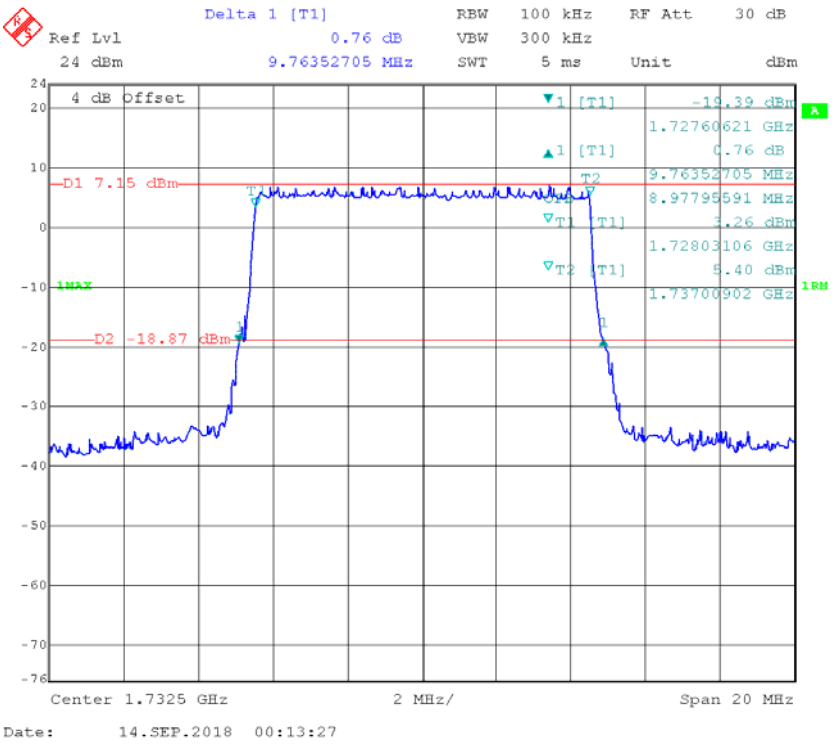
QPSK_3 MHz



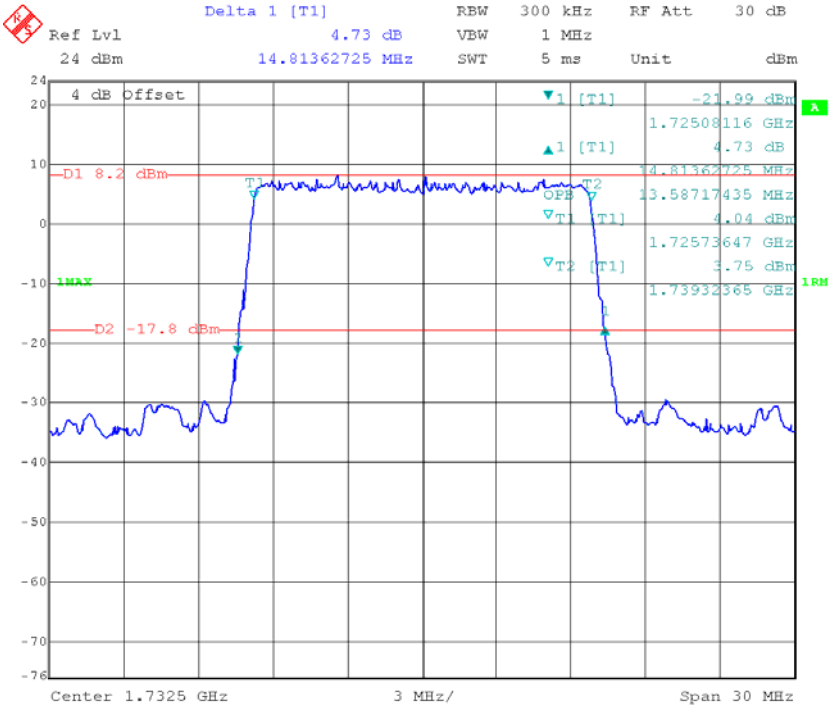
QPSK_5 MHz



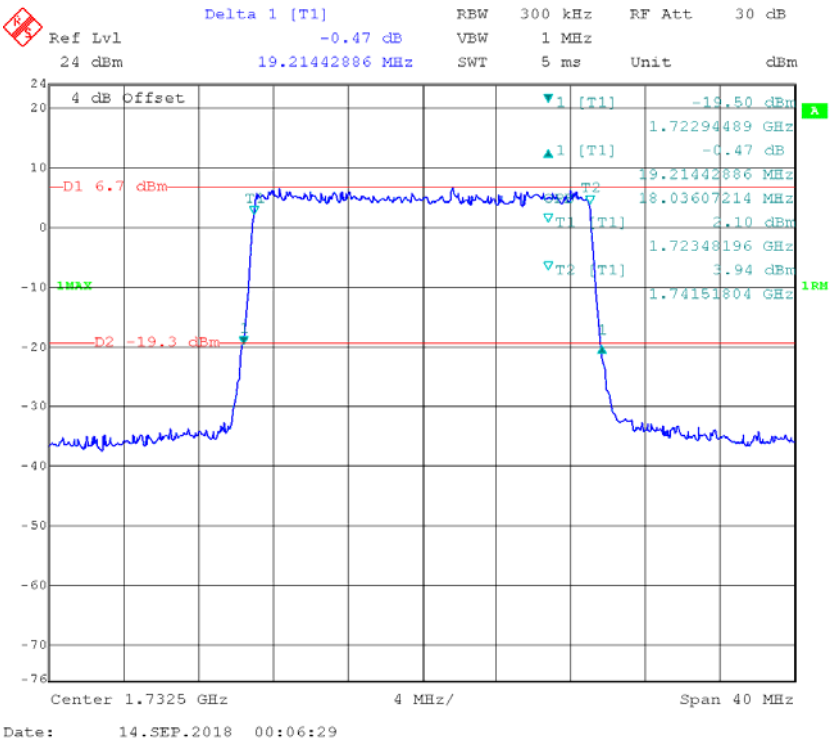
QPSK_10 MHz



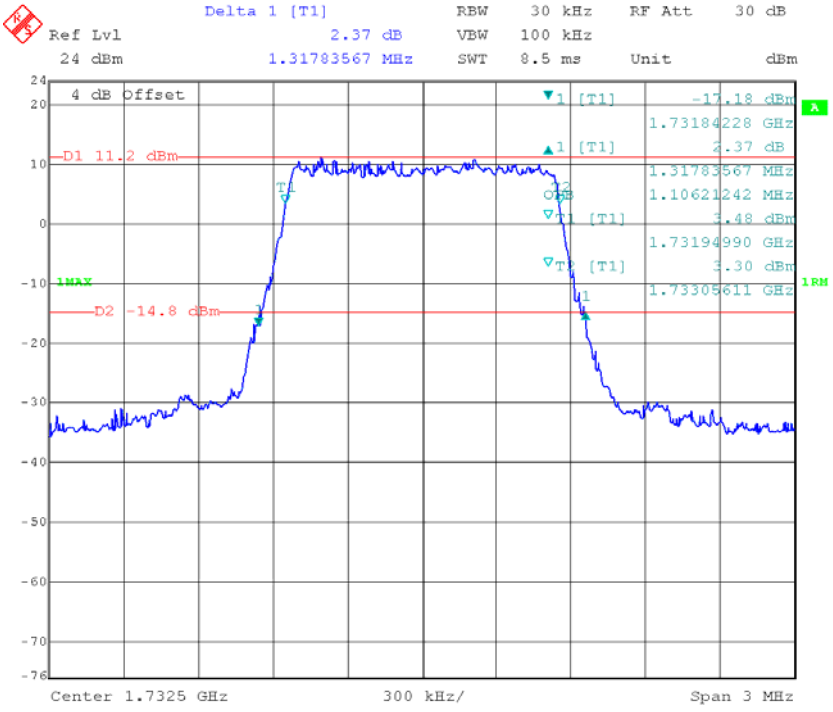
QPSK_15 MHz



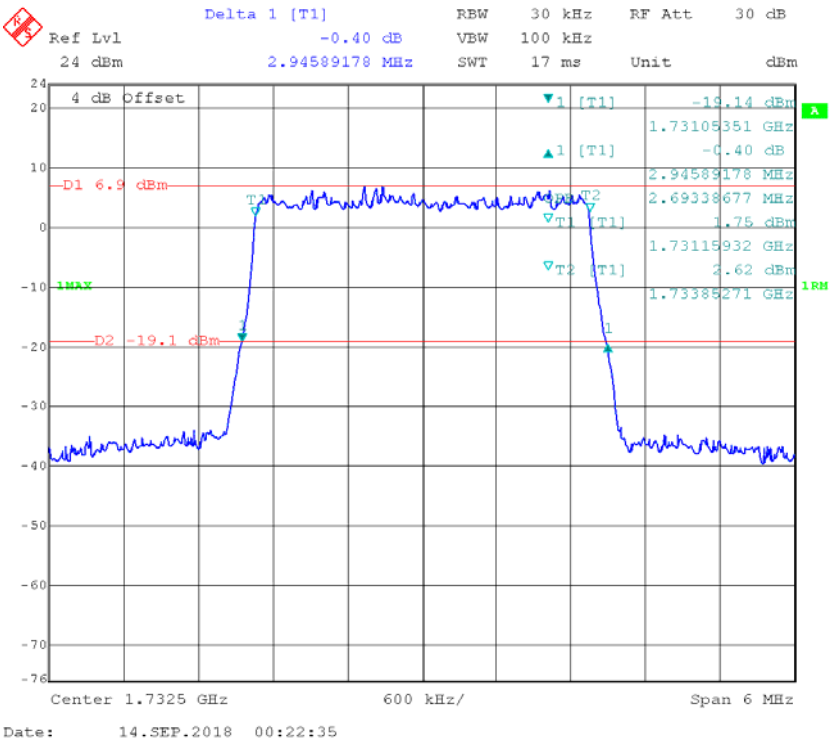
QPSK_20 MHz



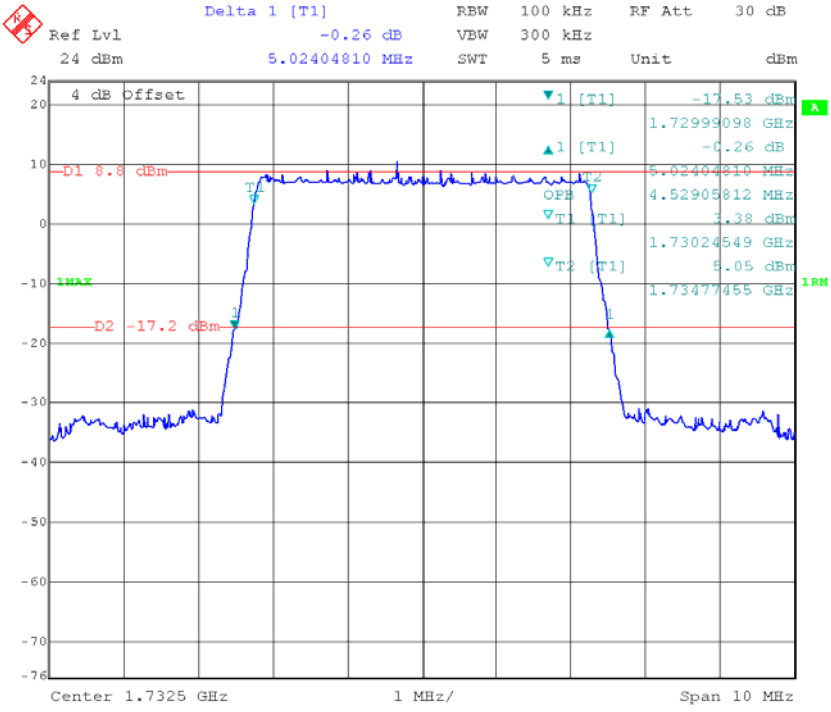
16QAM_1.4 MHz



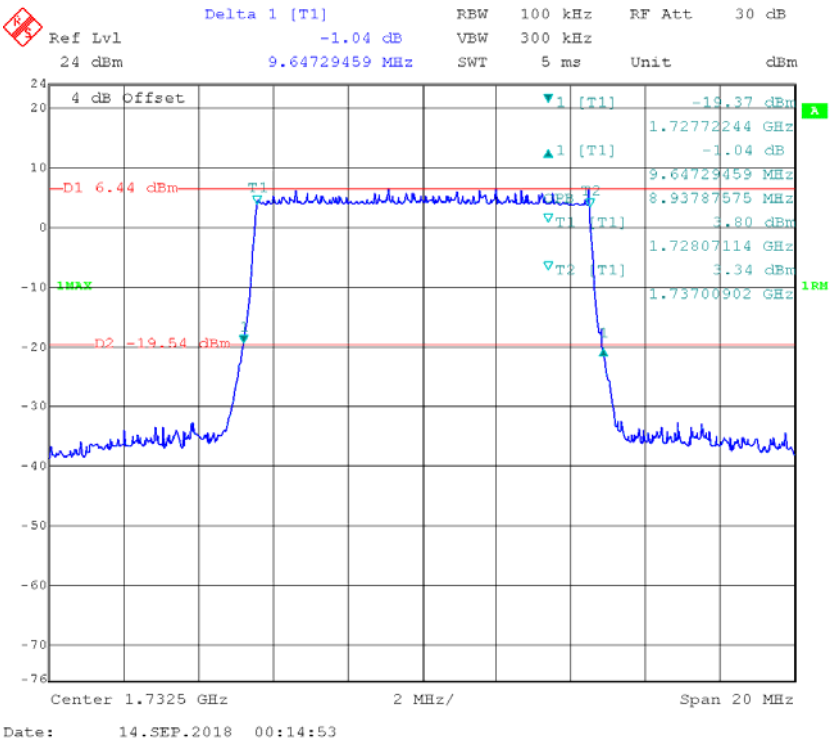
16QAM_3 MHz



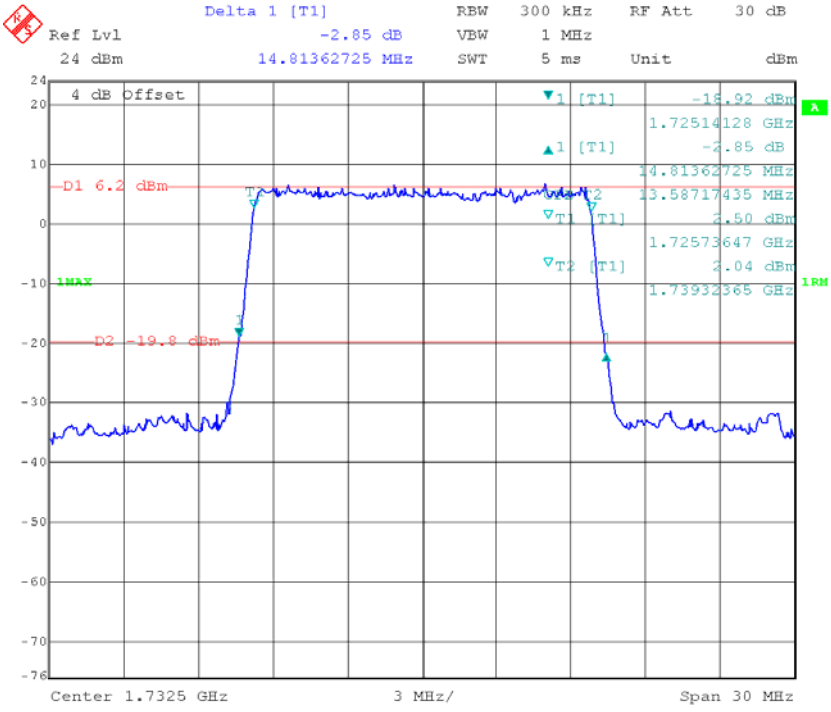
16QAM_5 MHz



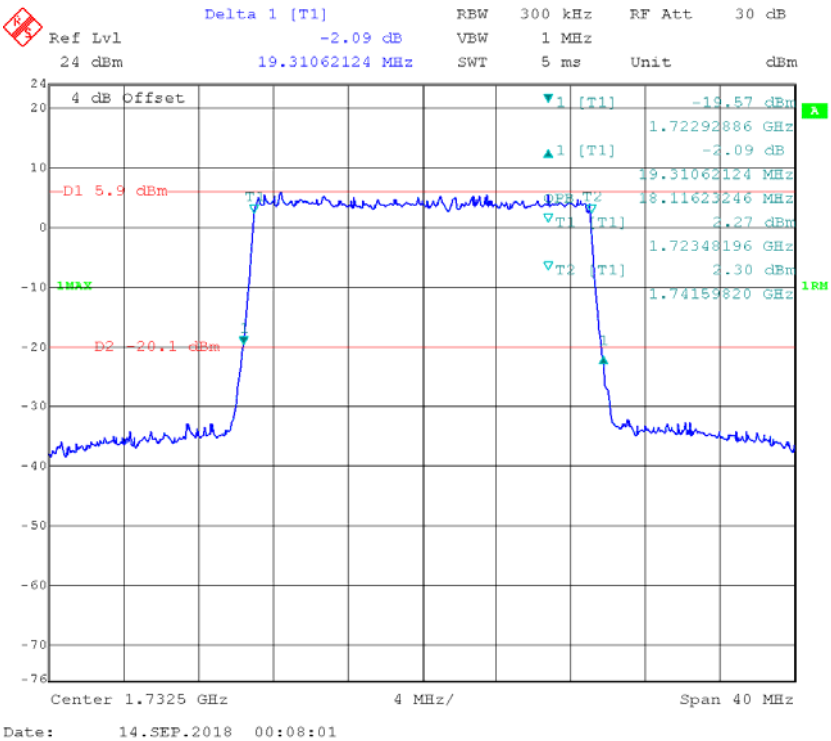
16QAM_10 MHz



16QAM_15 MHz

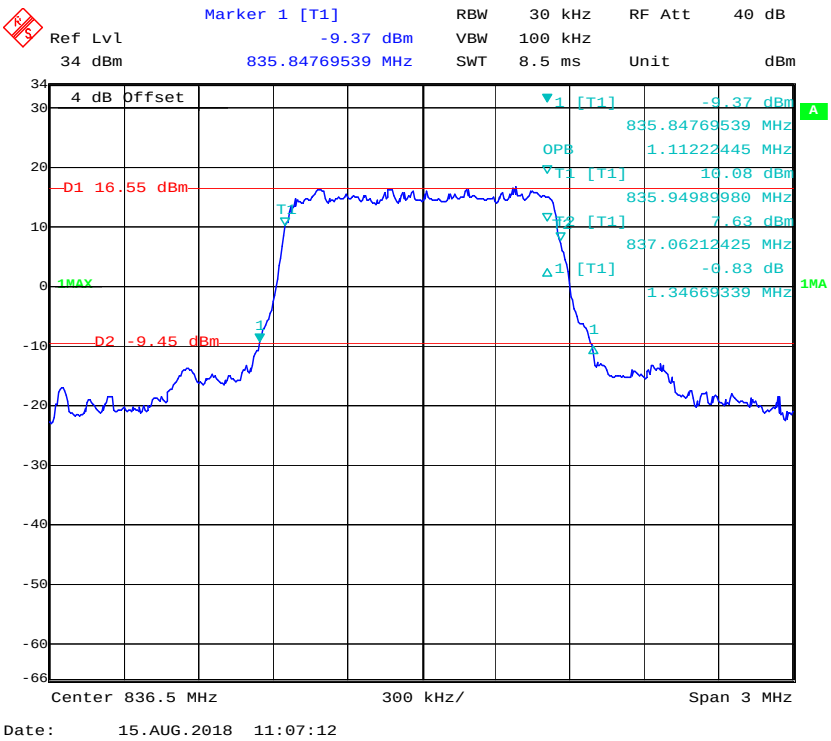


16QAM_20 MHz



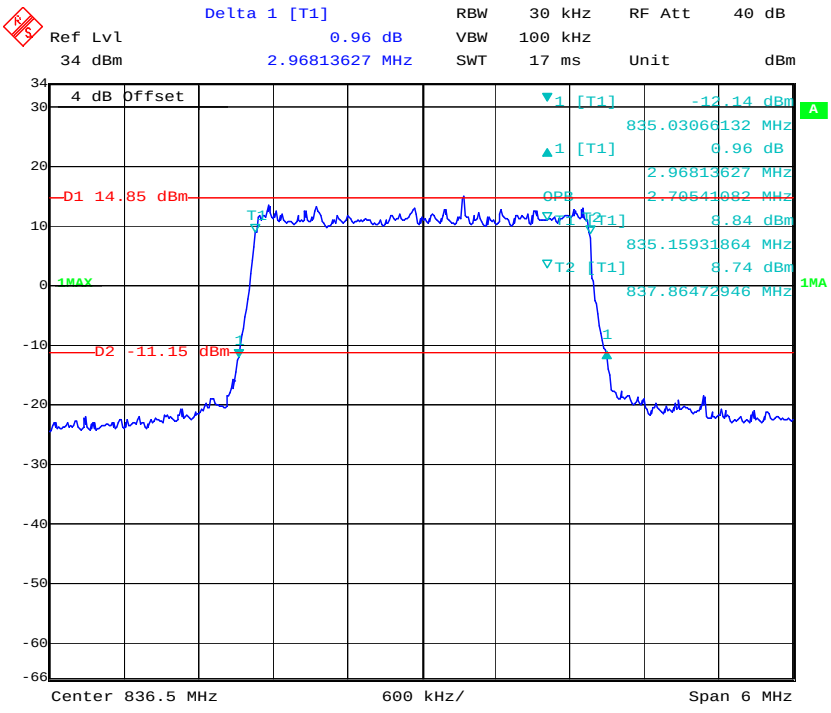
LTE Band 5:

QPSK_1.4 MHz



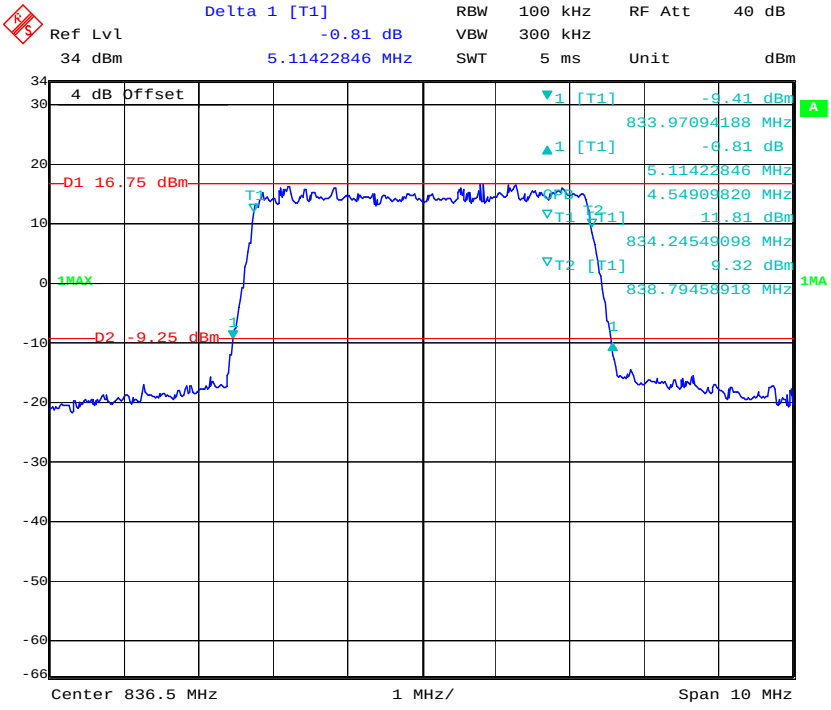
Date: 15.AUG.2018 11:07:12

QPSK_3 MHz



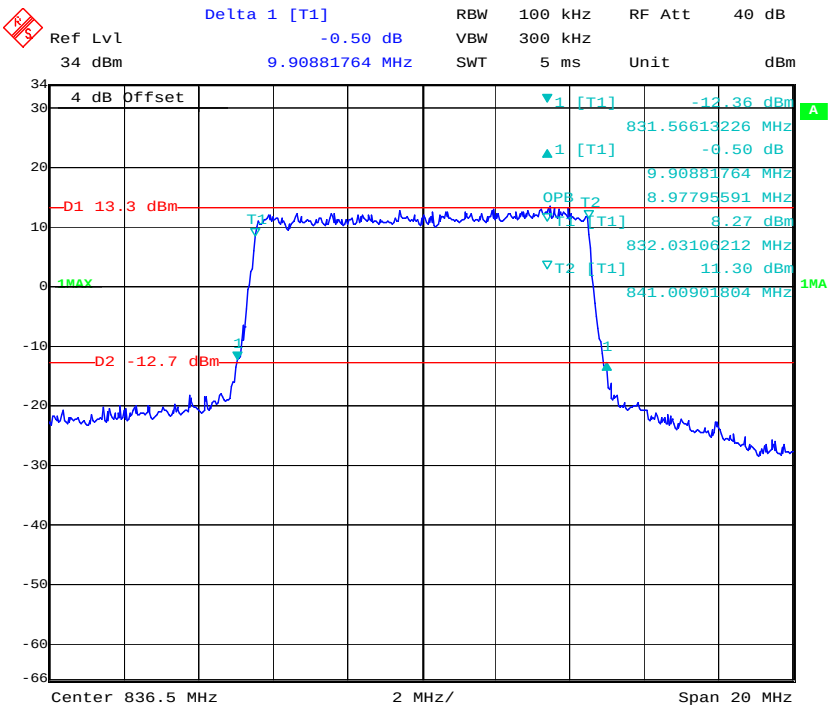
Date: 15.AUG.2018 10:56:26

QPSK_5 MHz



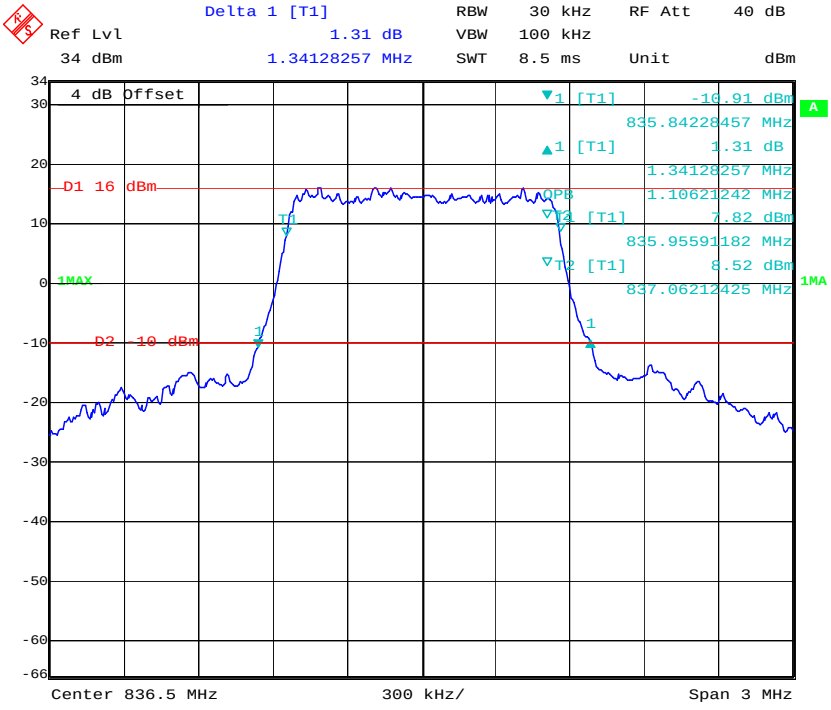
Date: 15.AUG.2018 11:01:13

QPSK_10 MHz



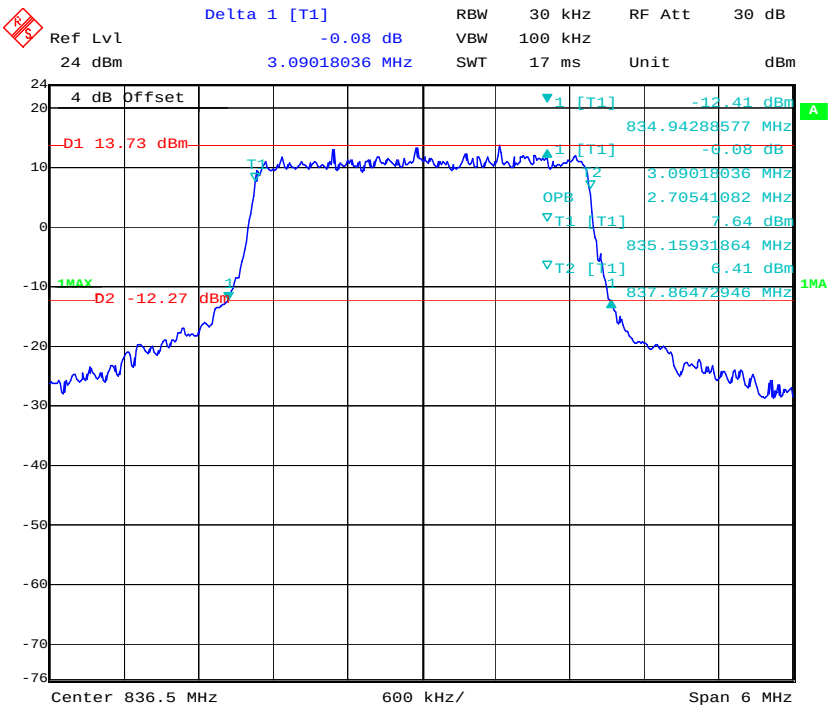
Date: 15.AUG.2018 11:09:31

16QAM_1.4 MHz



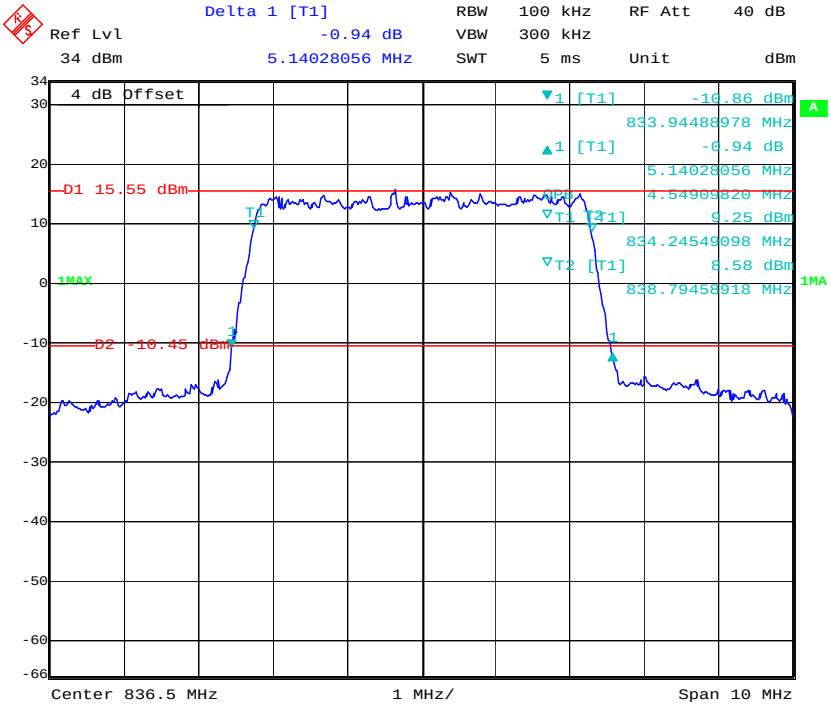
Date: 15.AUG.2018 10:50:56

16QAM_3 MHz



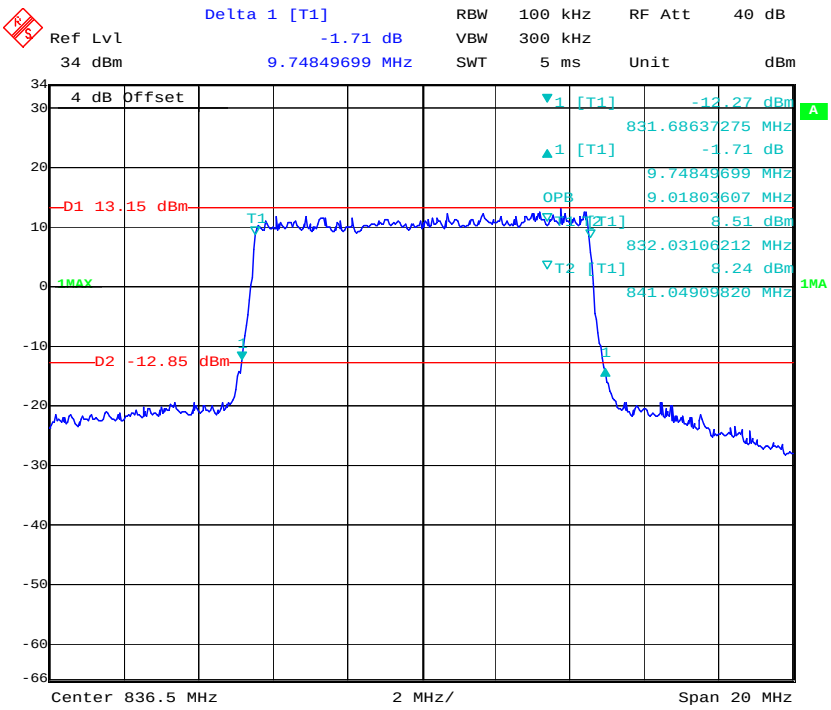
Date: 31.OCT.2018 18:51:33

16QAM_5 MHz



Date: 15.AUG.2018 11:05:23

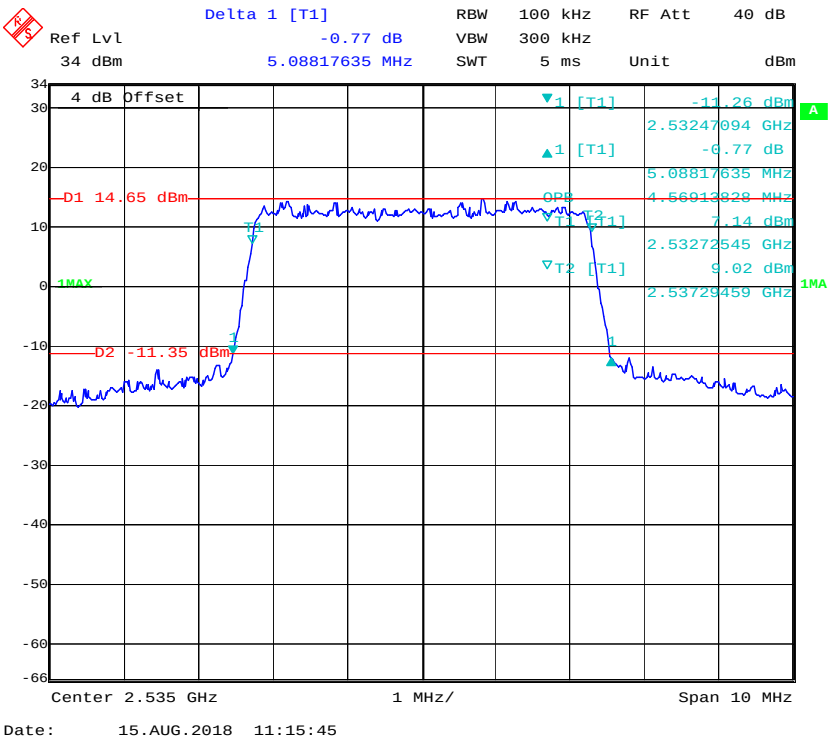
16QAM_10 MHz



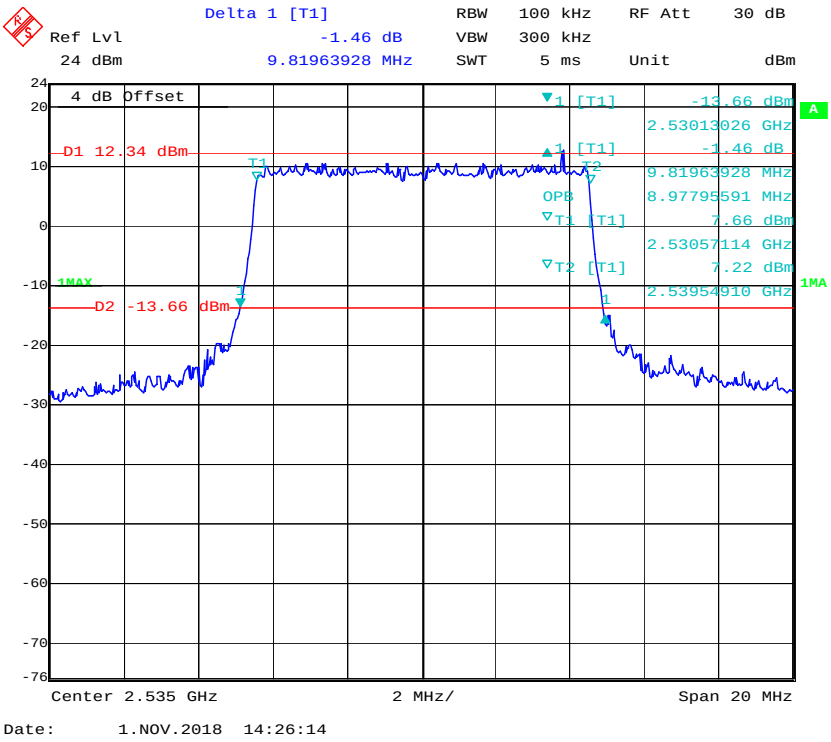
Date: 15.AUG.2018 11:12:42

LTE Band 7:

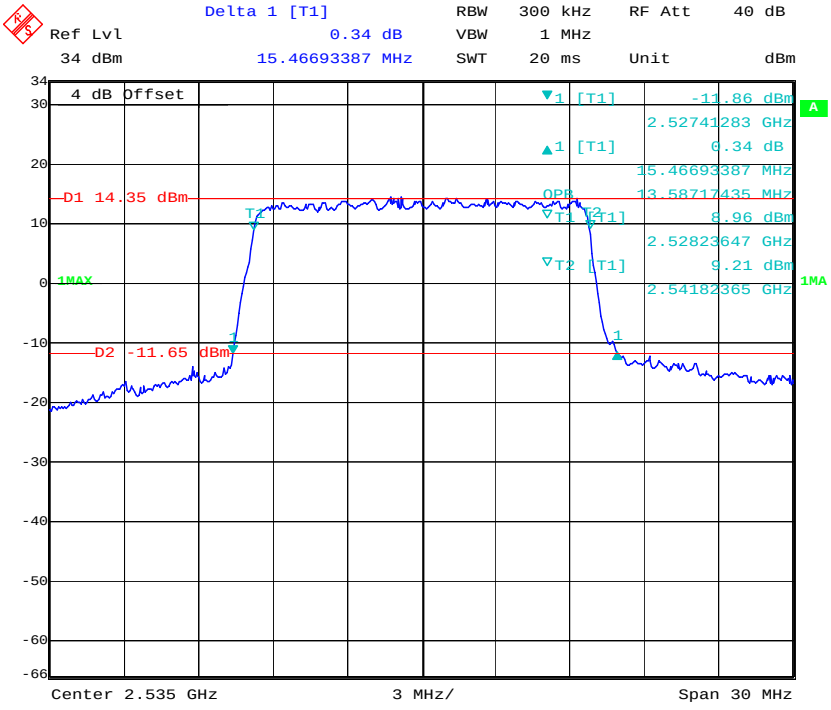
QPSK_5 MHz



QPSK_10 MHz

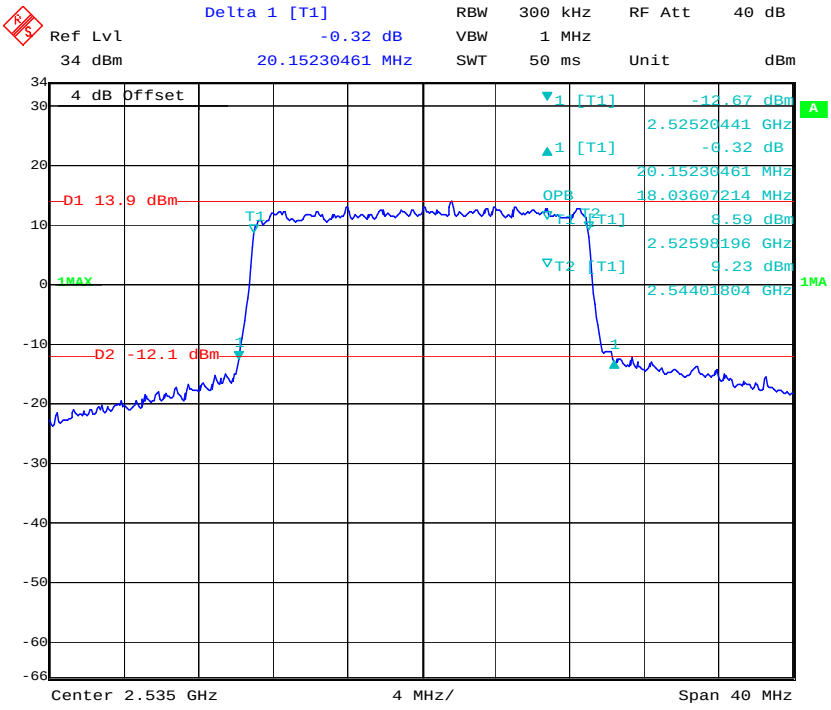


QPSK_15 MHz



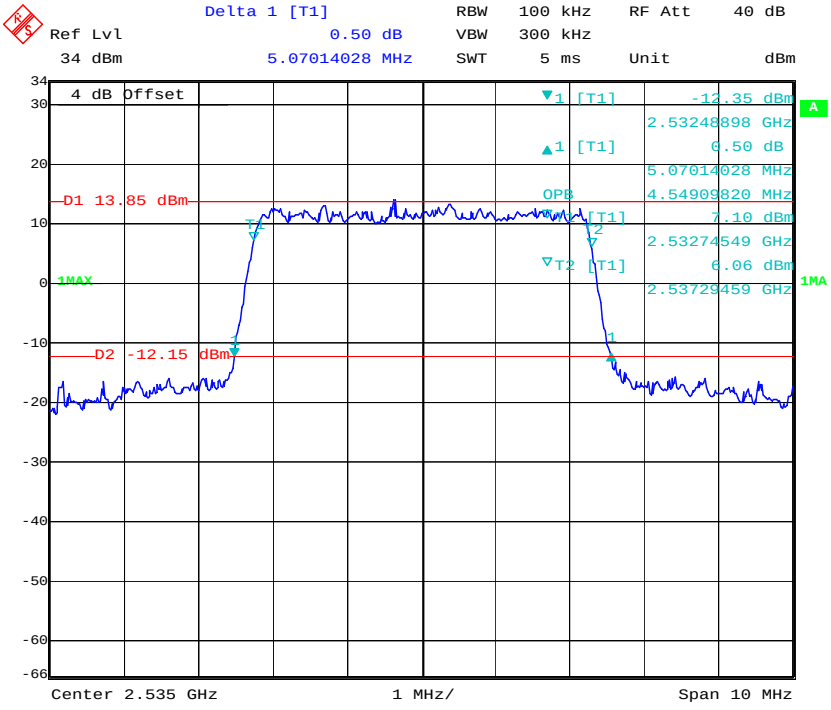
Date: 15.AUG.2018 11:29:43

QPSK_20 MHz



Date: 15.AUG.2018 11:48:53

16QAM_5 MHz



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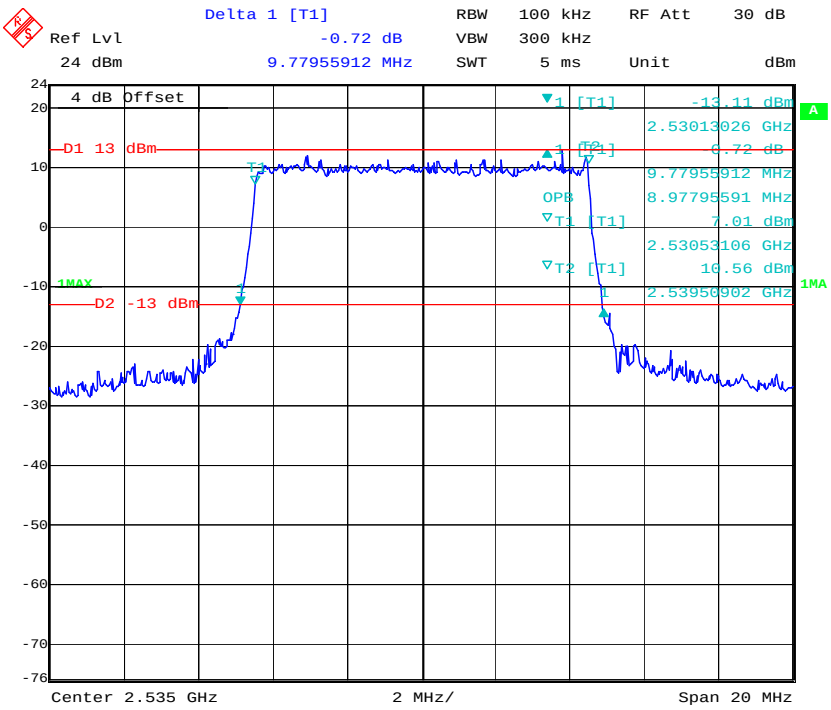
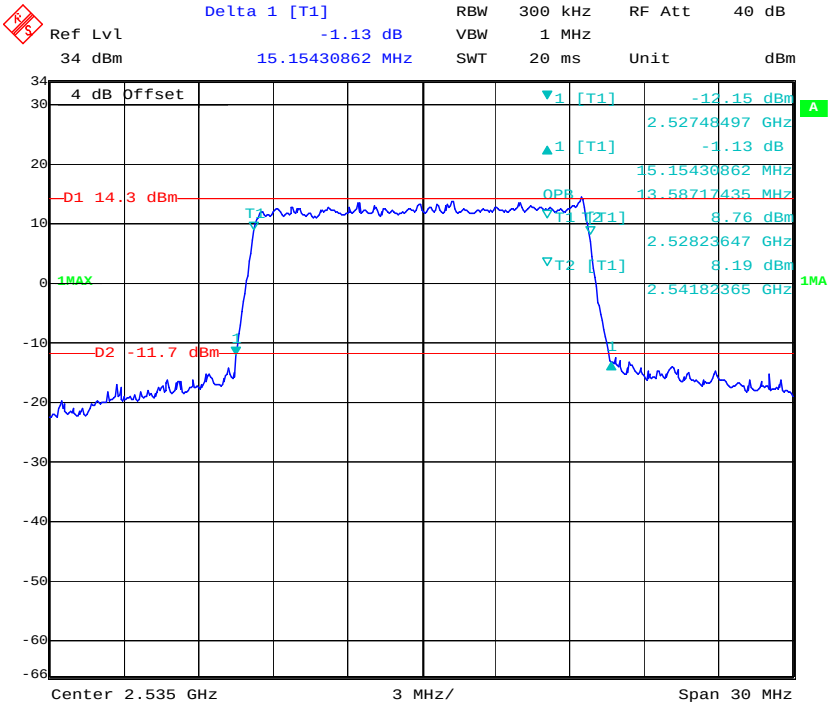
16QAM_10 MHz



Date: 1.NOV.2018 09:46:58

16QAM_15 MHz



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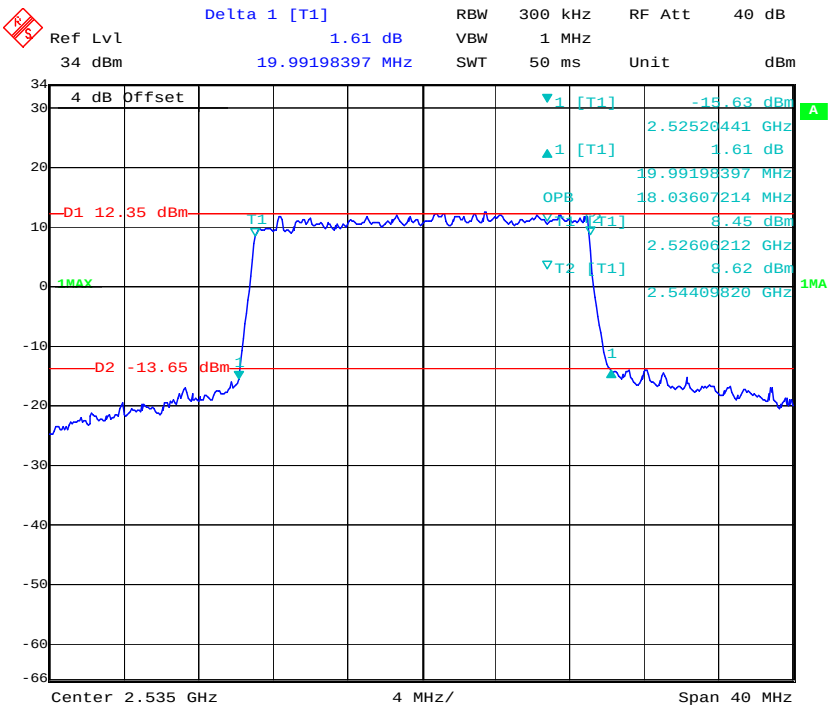
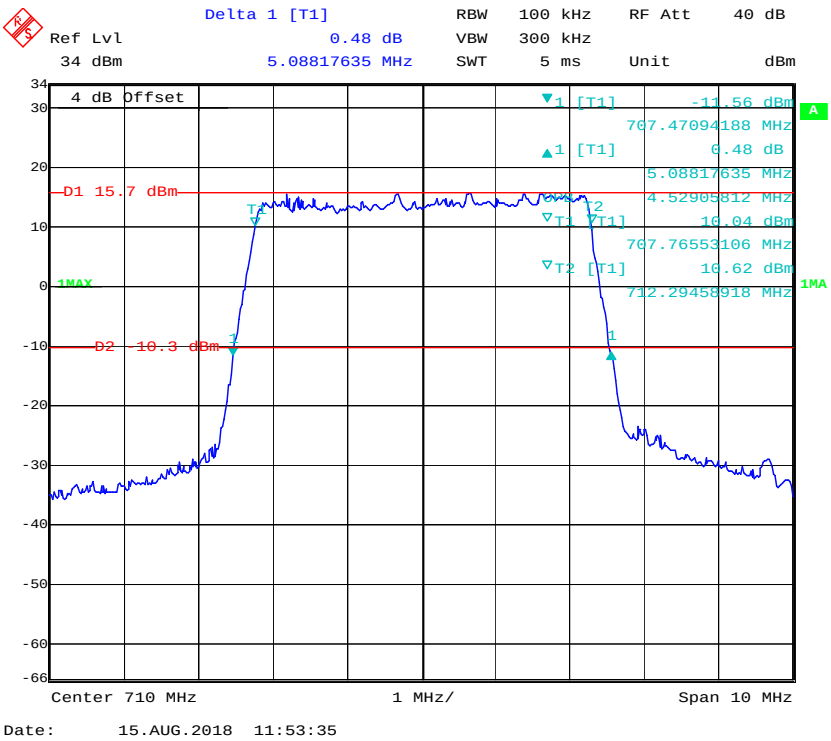
16QAM_20 MHz



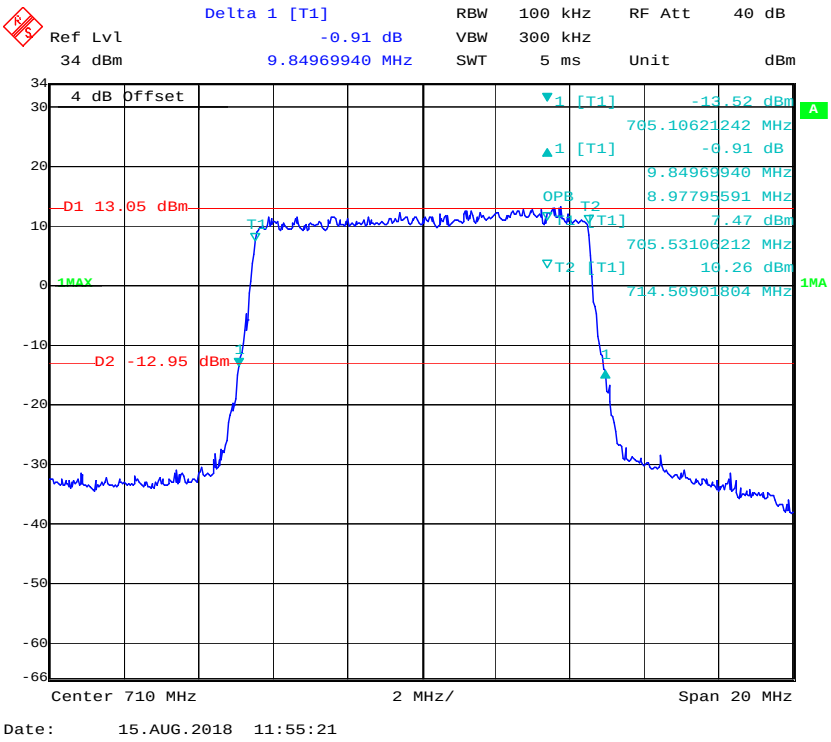
Date: 15.AUG.2018 11:45:33

LTE Band 17:

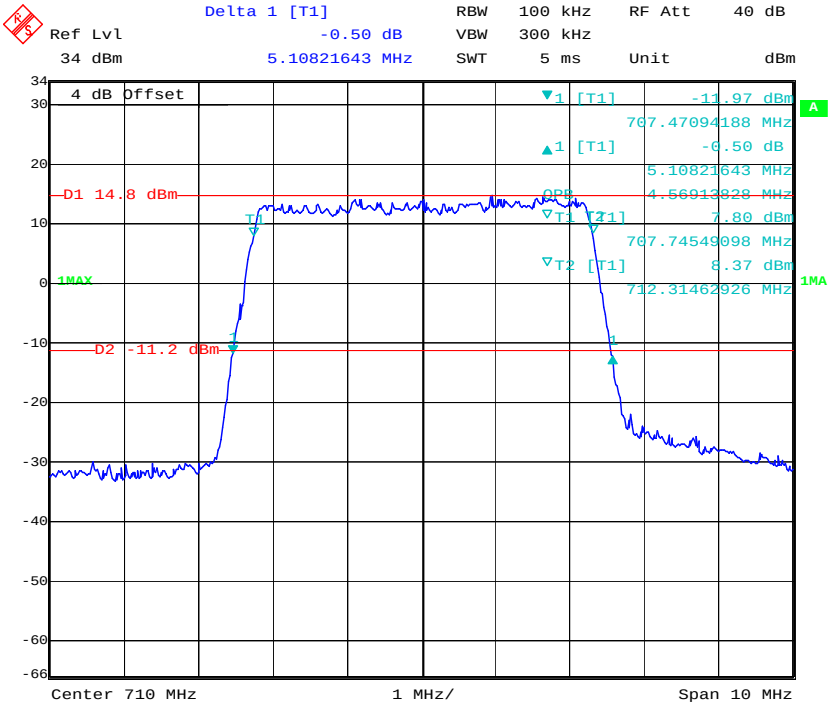
QPSK_5 MHz



QPSK_10 MHz

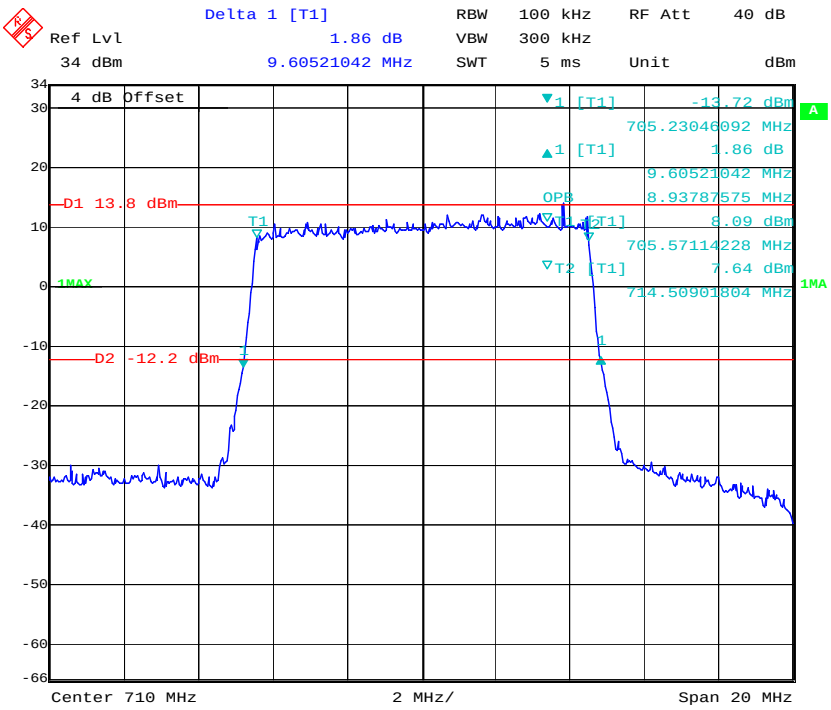


16QAM_5 MHz



Date: 15.AUG.2018 11:51:54

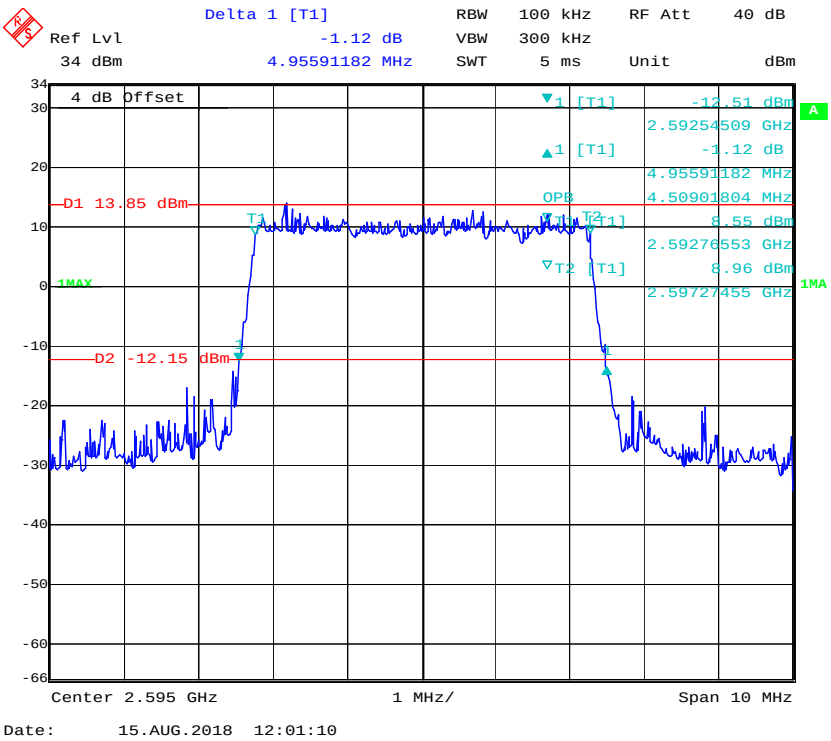
16QAM_10 MHz



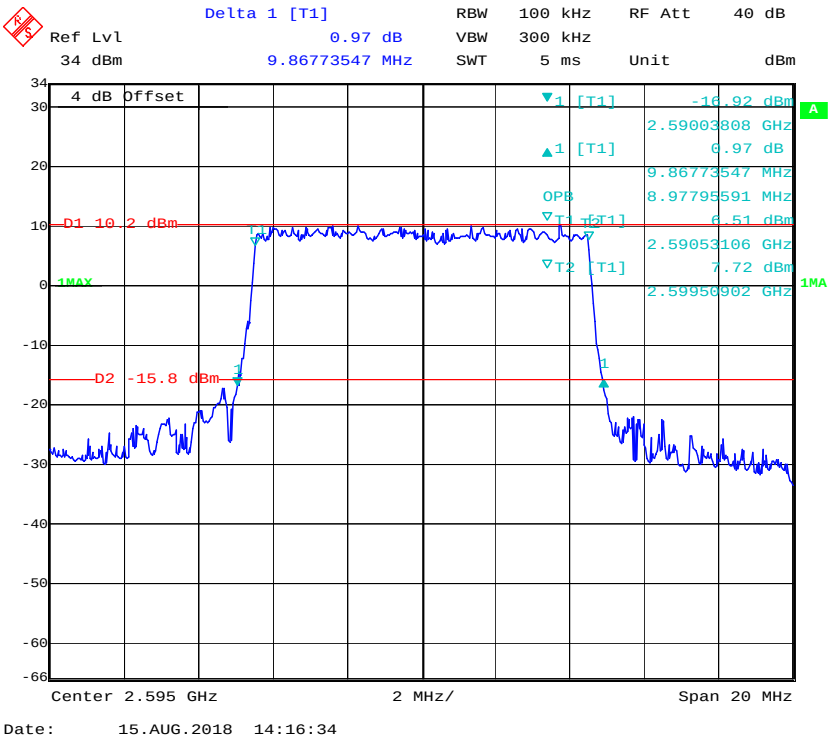
Date: 15.AUG.2018 11:57:00

LTE Band 38:

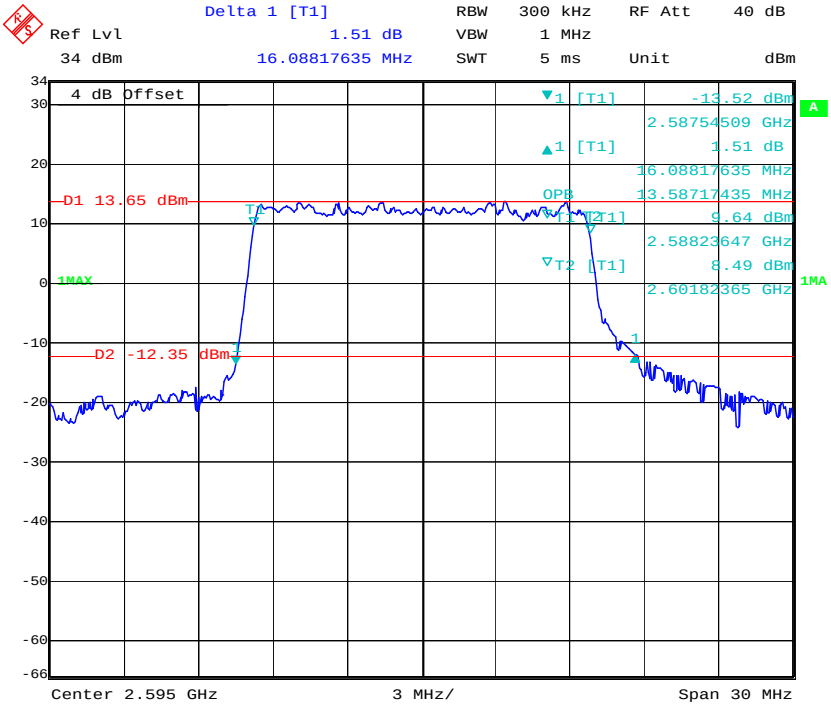
QPSK_5 MHz



QPSK_10 MHz

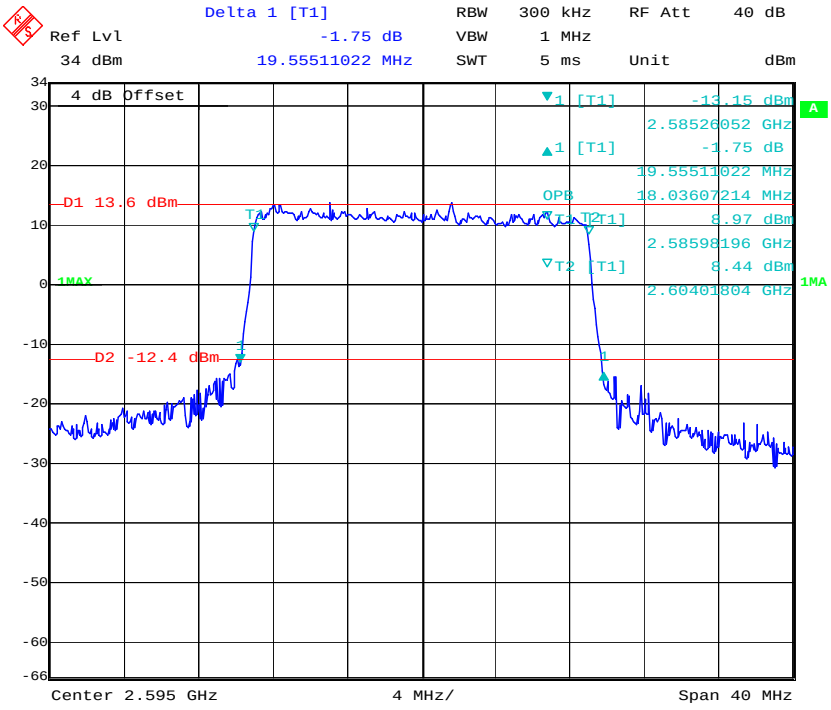


QPSK_15 MHz



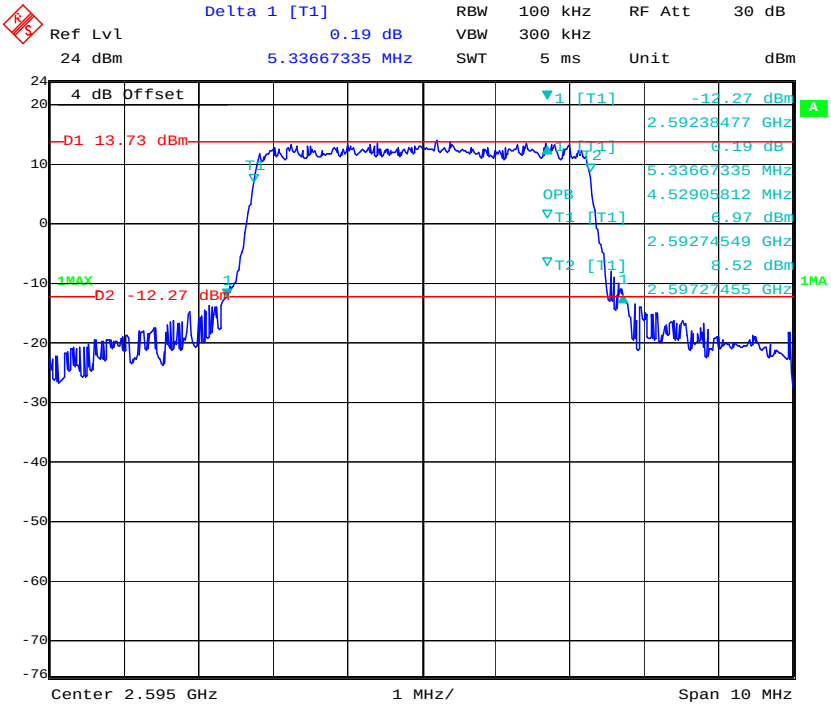
Date: 15.AUG.2018 14:26:11

QPSK_20 MHz

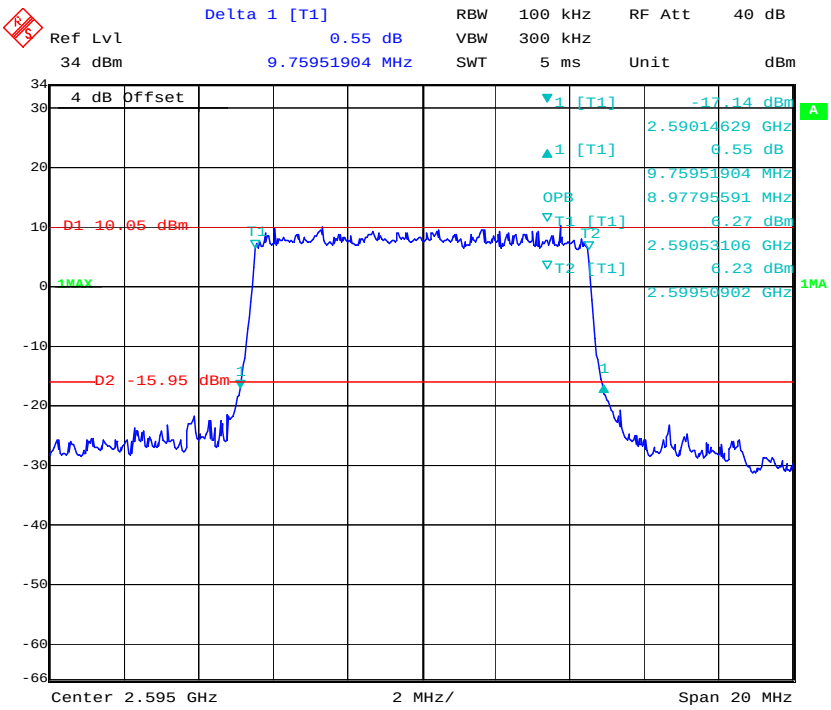


Date: 15.AUG.2018 14:39:51

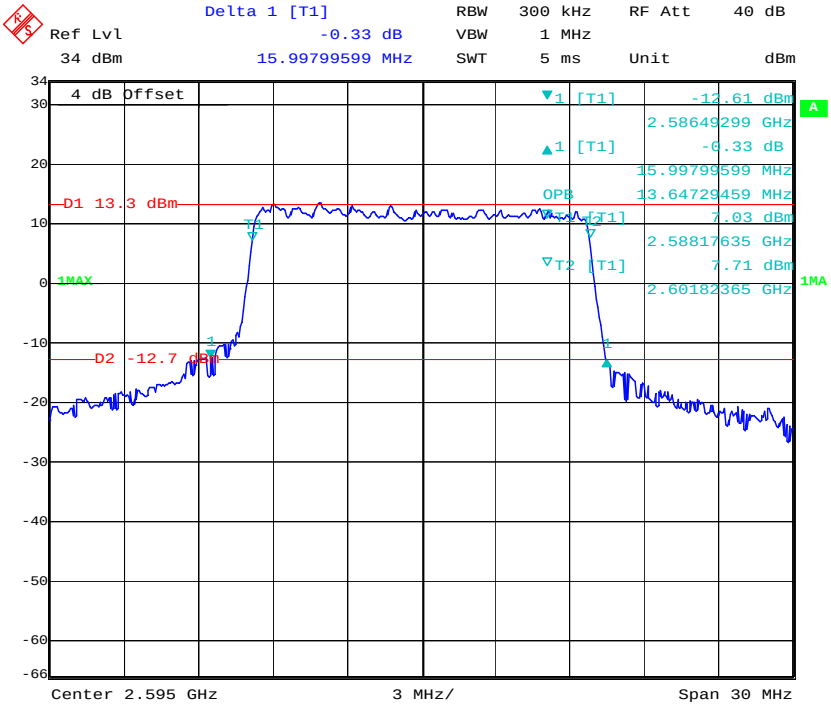
16QAM_5 MHz



16QAM_10 MHz

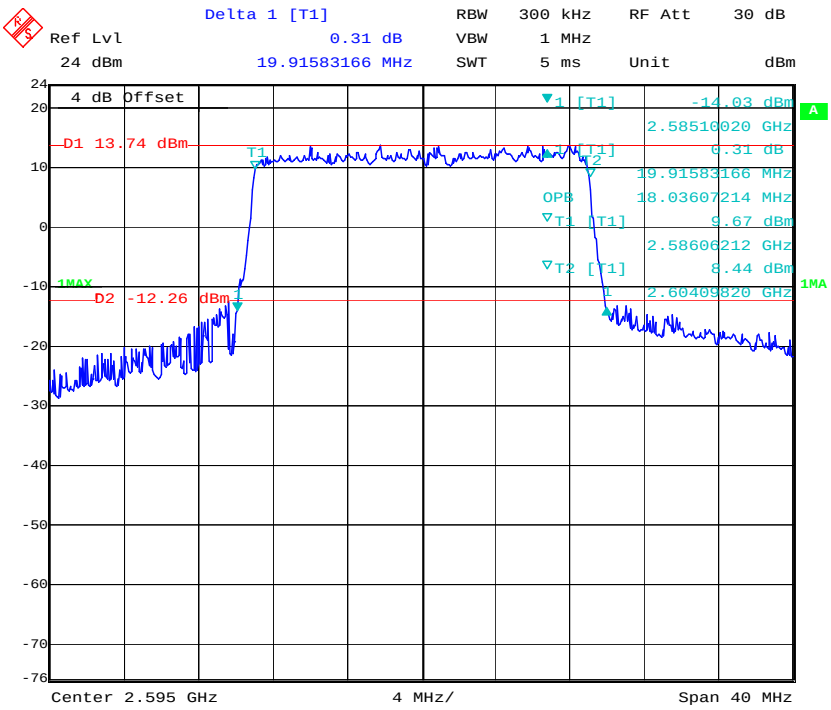


16QAM_15 MHz



Date: 15.AUG.2018 14:36:55

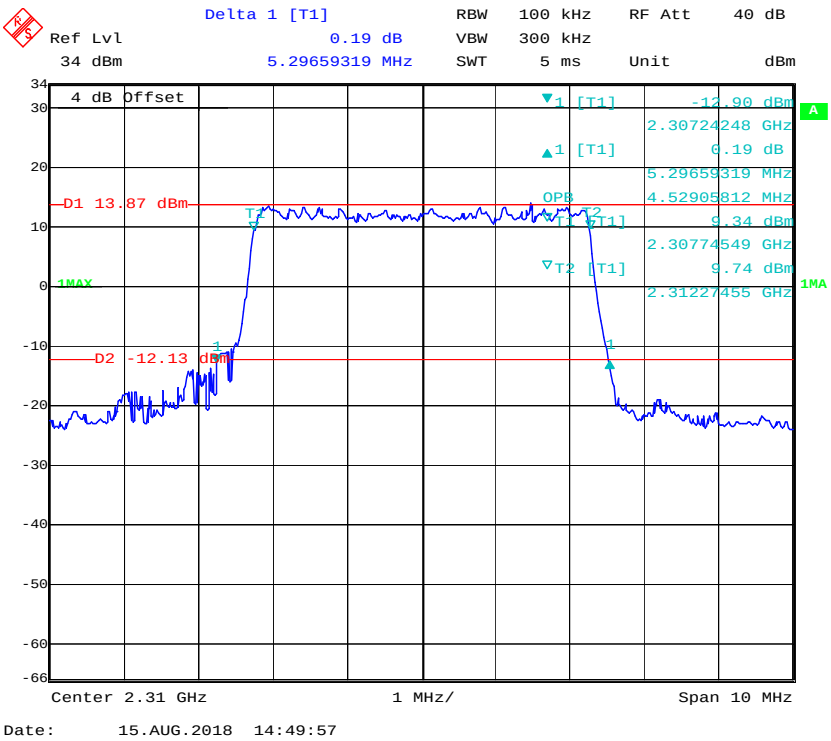
16QAM_20 MHz



Date: 31.OCT.2018 18:56:57

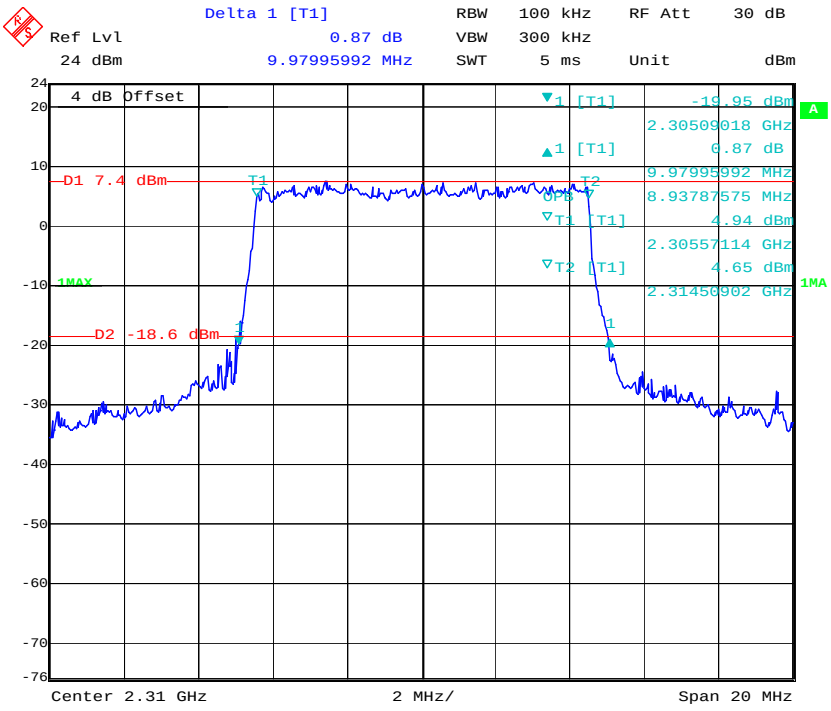
LTE Band 40(2305-2315MHz):

QPSK_5 MHz



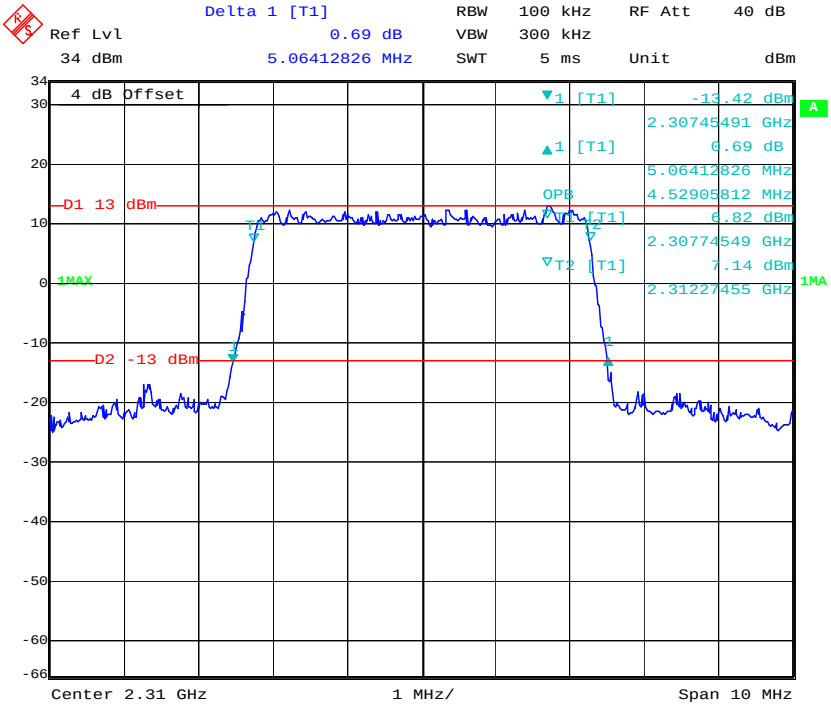
Date: 15.AUG.2018 14:49:57

QPSK_10 MHz



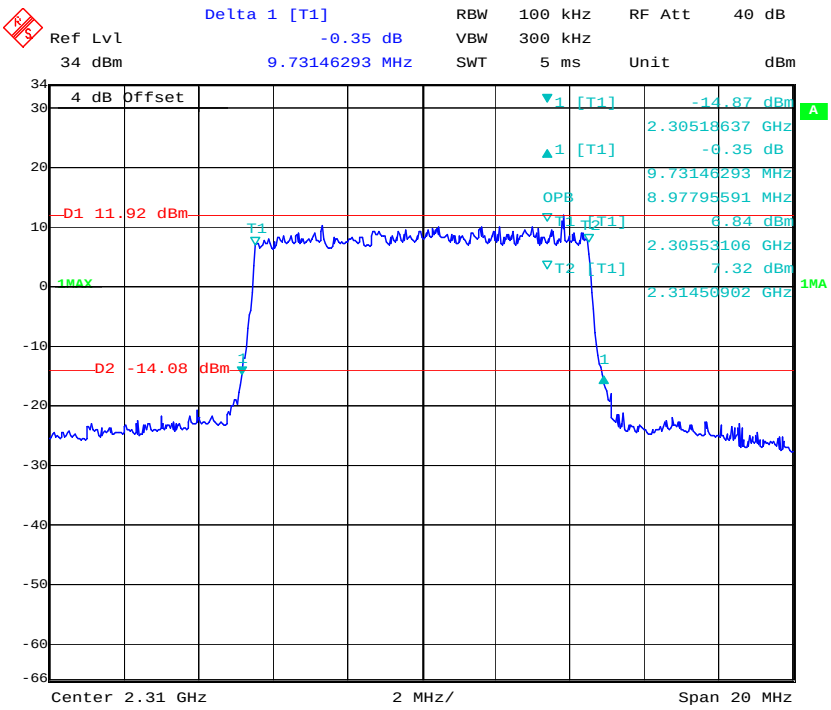
Date: 31.OCT.2018 19:00:10

16QAM_5 MHz



Date: 15.AUG.2018 14:51:39

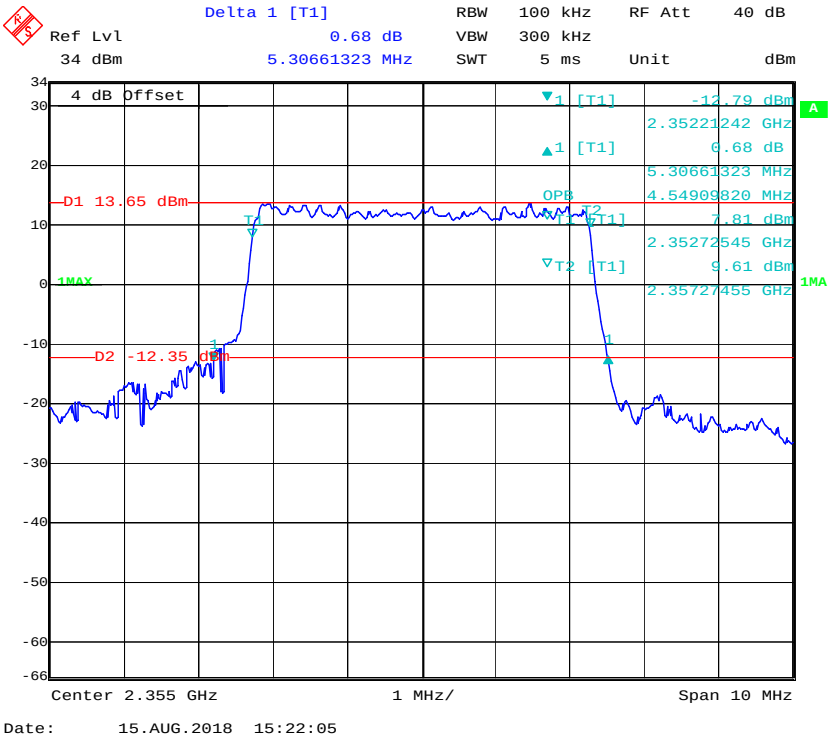
16QAM_10 MHz



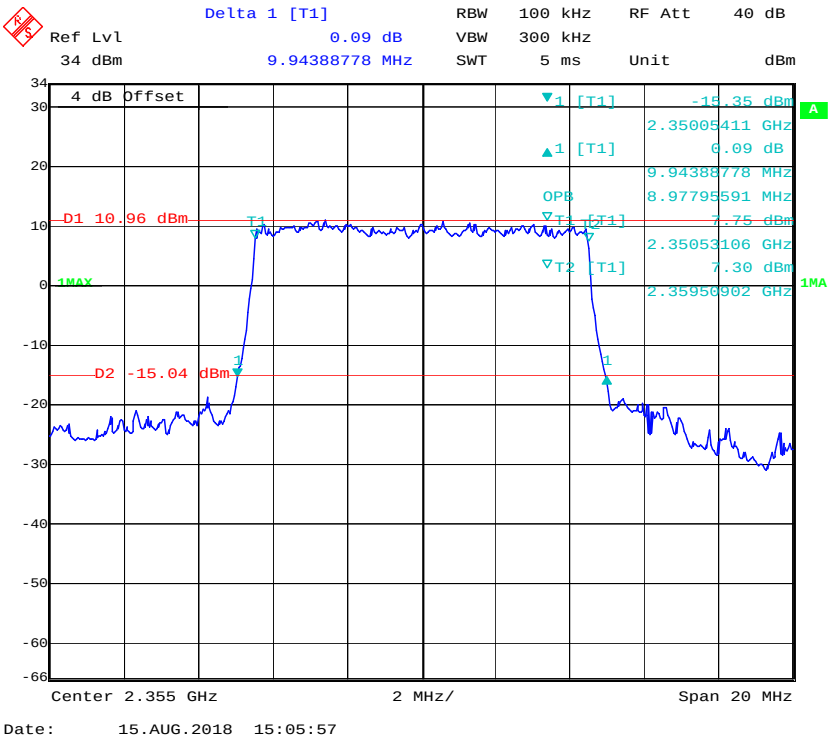
Date: 15.AUG.2018 15:13:04

LTE Band 40(2350-2360MHz):

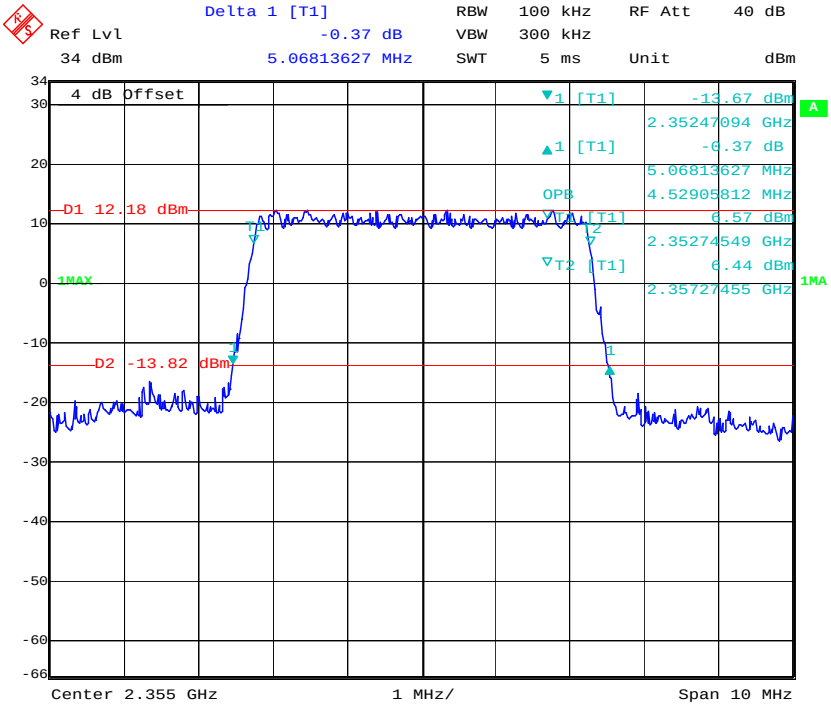
QPSK_5 MHz



QPSK_10 MHz

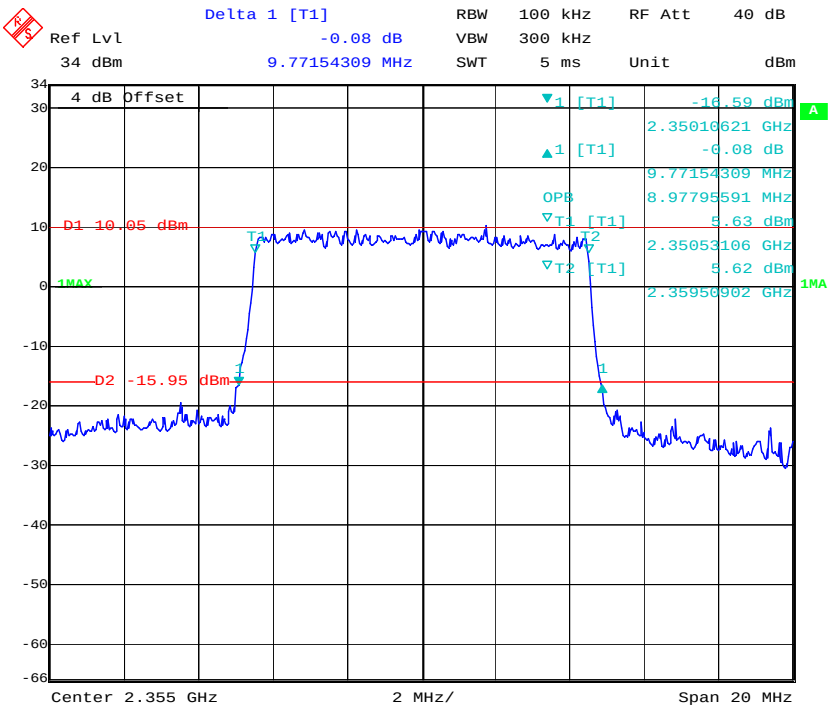


16QAM_5 MHz



Date: 15.AUG.2018 15:16:46

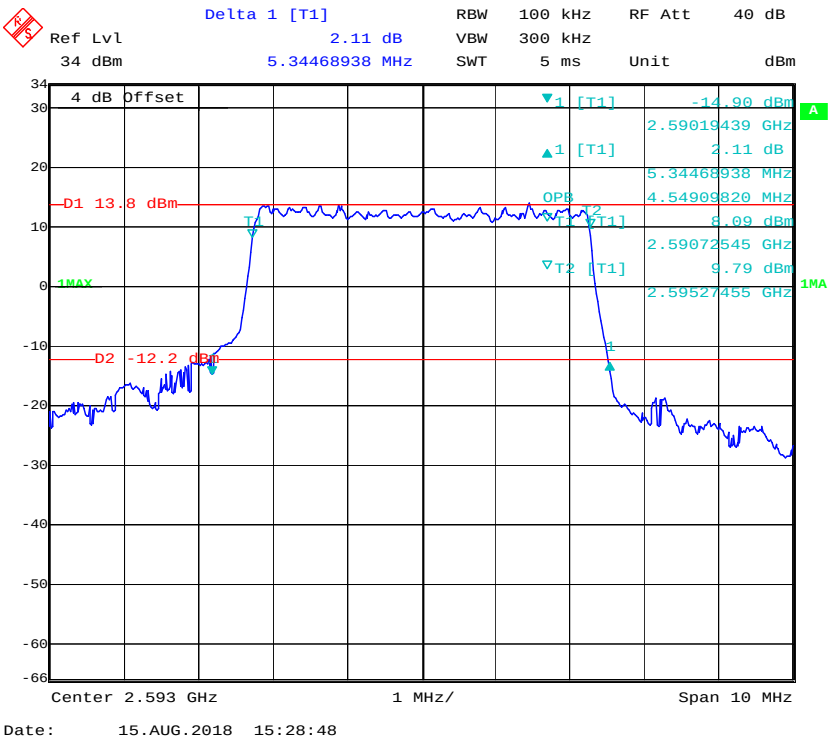
16QAM_10 MHz



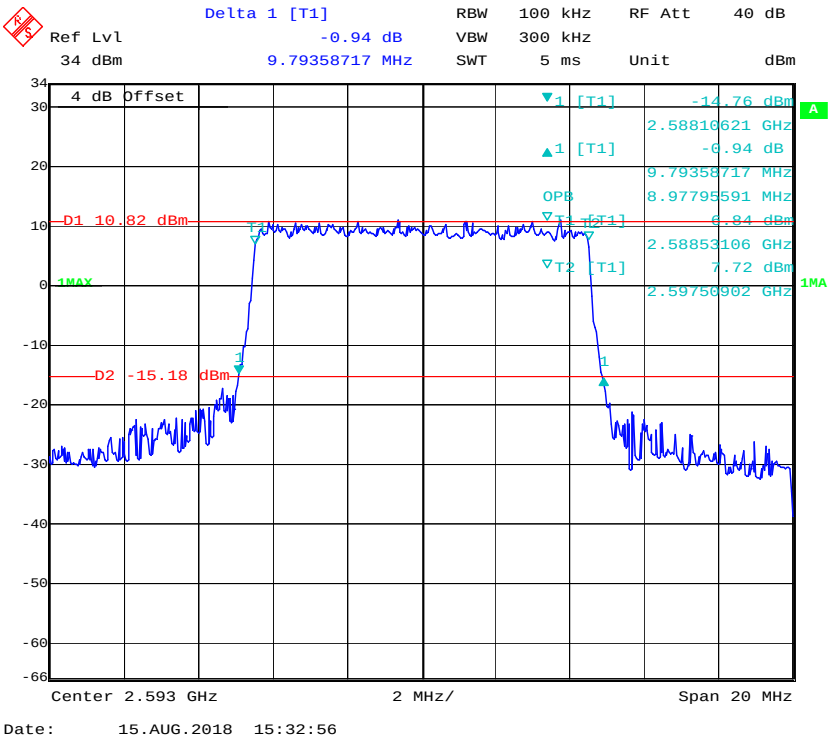
Date: 15.AUG.2018 15:11:10

LTE Band 41:

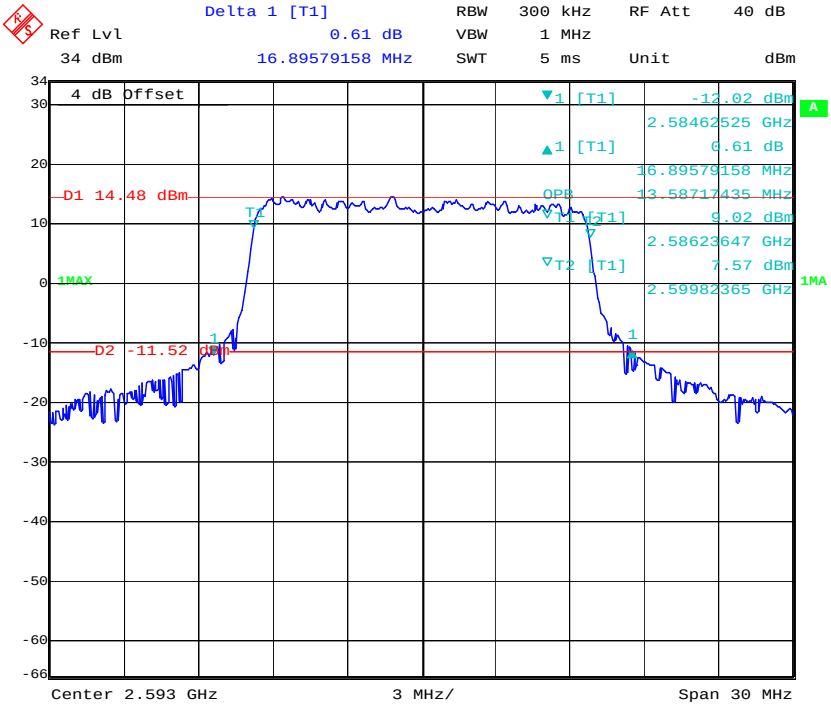
QPSK_5 MHz



QPSK_10 MHz

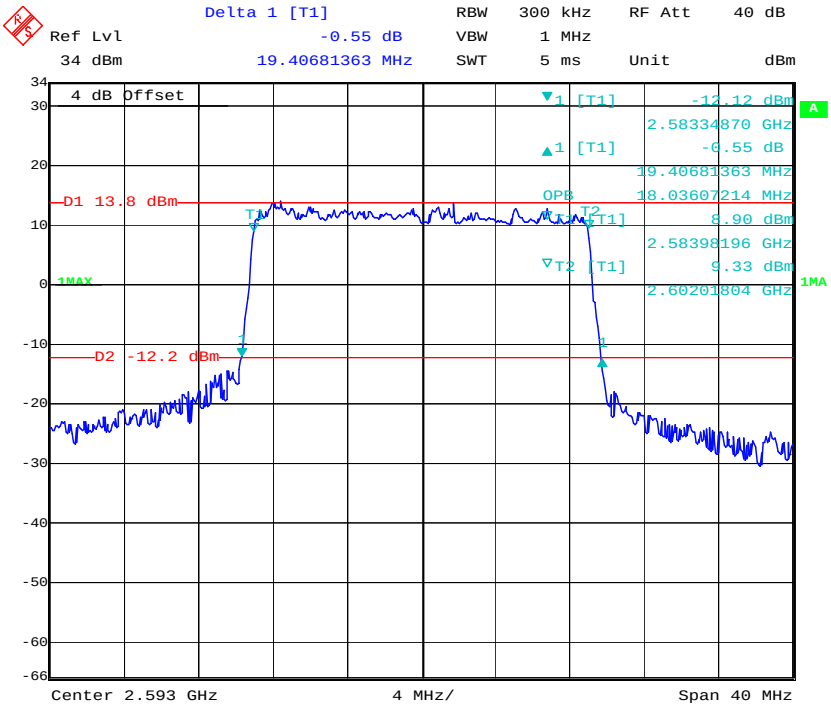


QPSK_15 MHz



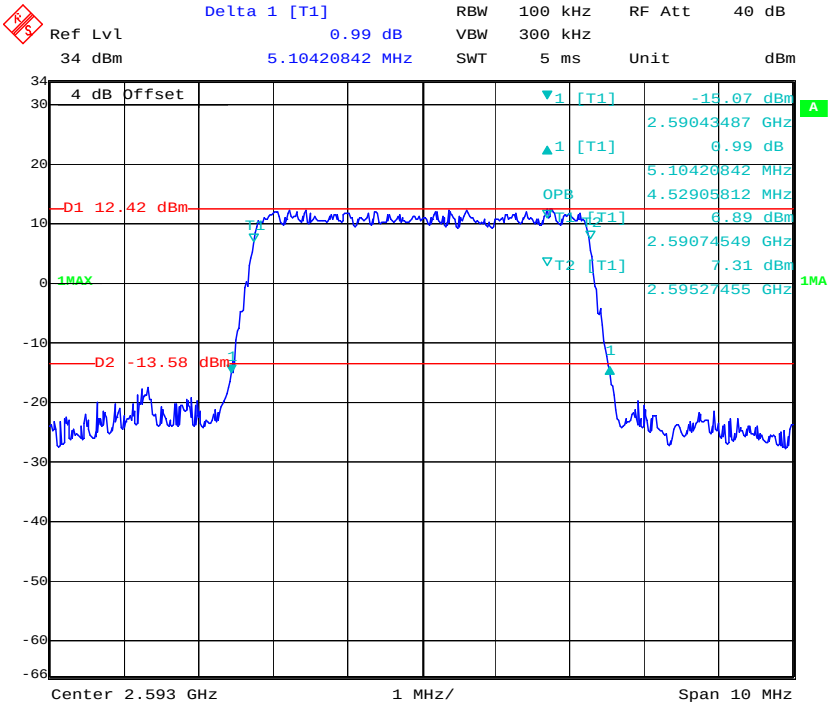
Date: 15.AUG.2018 15:44:19

QPSK_20 MHz



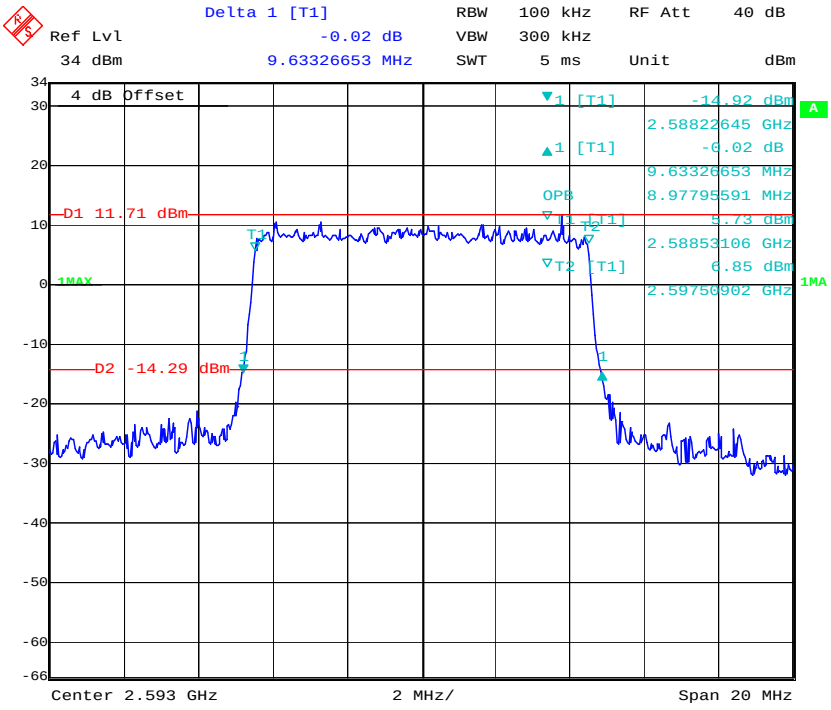
Date: 15.AUG.2018 15:55:25

16QAM_5 MHz



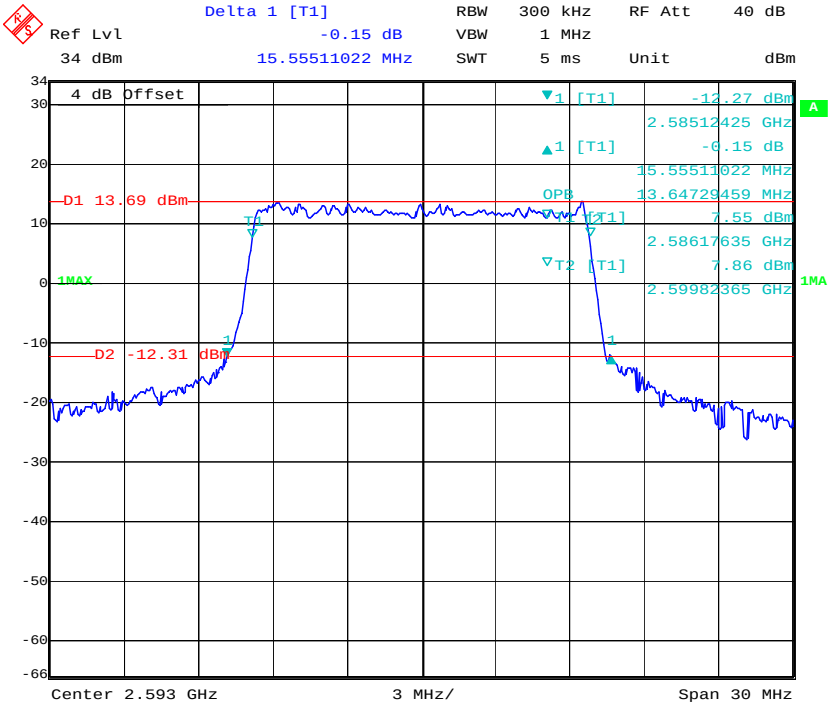
Date: 15.AUG.2018 15:30:43

16QAM_10 MHz



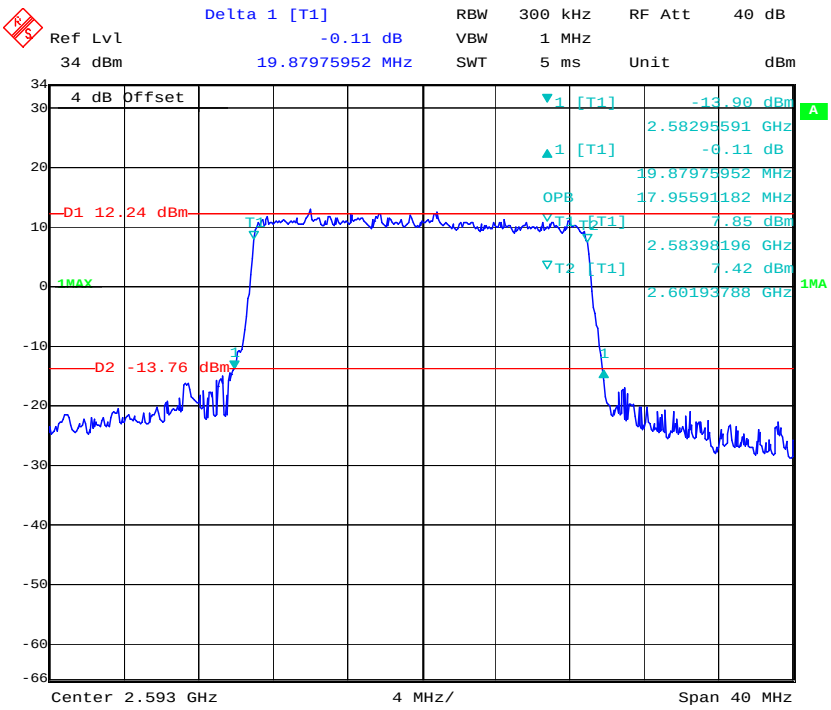
Date: 15.AUG.2018 15:34:58

16QAM_15 MHz



Date: 15.AUG.2018 15:49:25

16QAM_20 MHz



Date: 15.AUG.2018 15:52:27

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

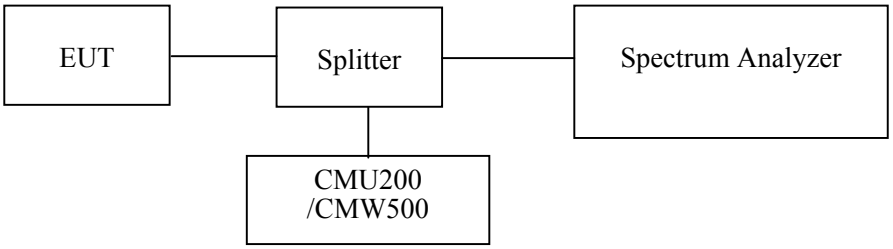
Applicable Standard

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

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

Test Procedure

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



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	831929/005	2017-08-31	2018-08-31
Rohde & Schwarz	Signal Analyzer	FSIQ26	831929/005	2018-08-31	2019-08-31
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41005011	Each Time	N/A
Unknown	Attenuator	UNAT-3+	15529	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

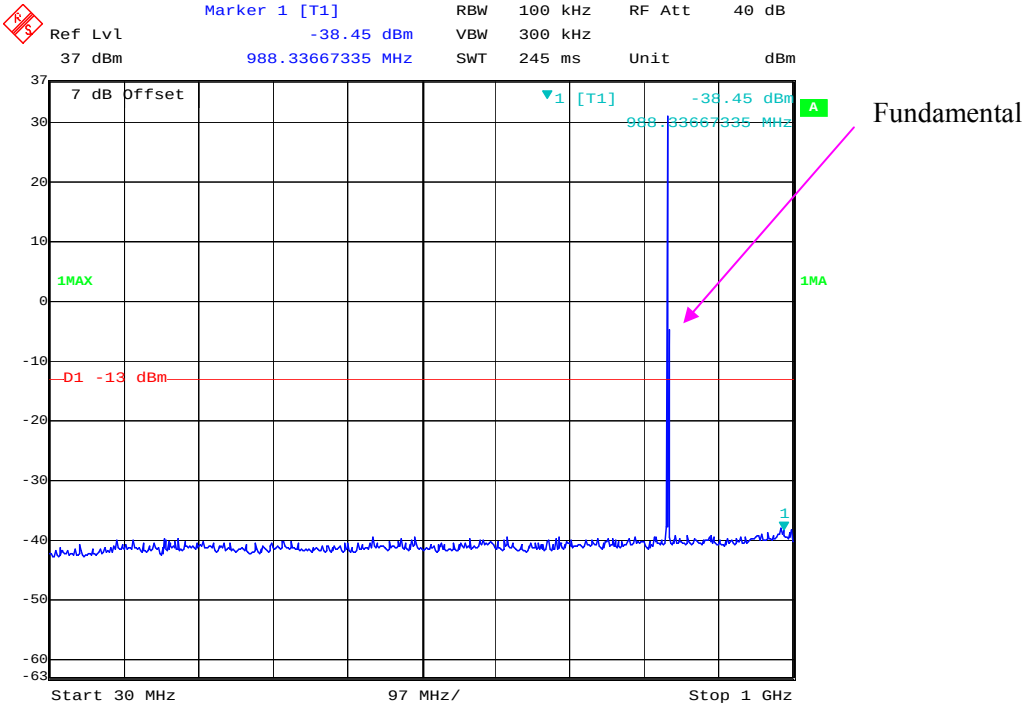
Environmental Conditions

Temperature:	24.8~28°C
Relative Humidity:	52 ~65 %
ATM Pressure:	99.1~100.9 kPa

The testing was performed by Swim Lv from 2018-08-10 to 2018-09-19.

Please refer to the following plots.

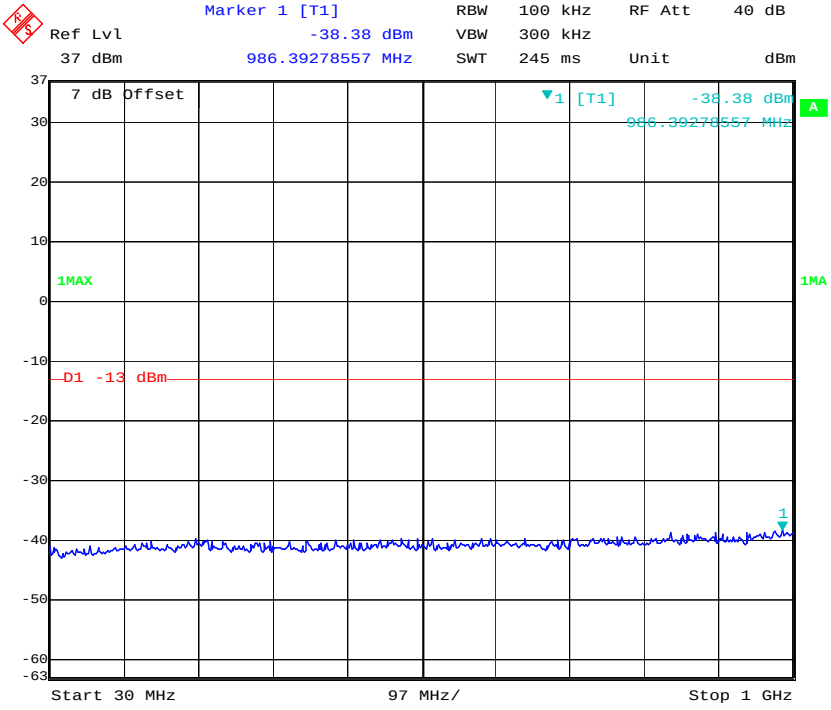
GPRS850_Middle Channel



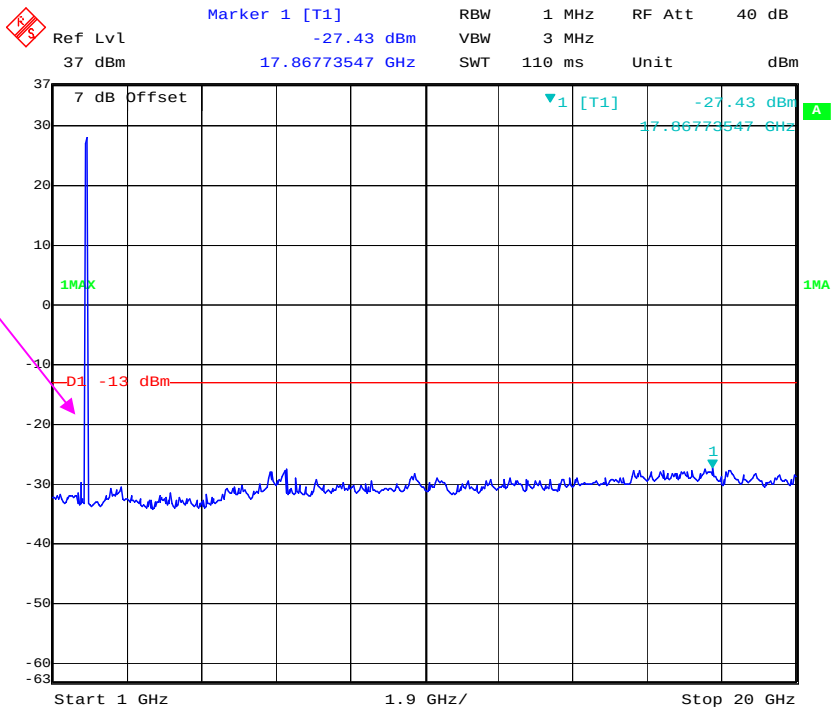
Date: 10.AUG.2018 14:37:14

Date: 10.AUG.2018 14:37:55

PCS 1900_ Middle Channel



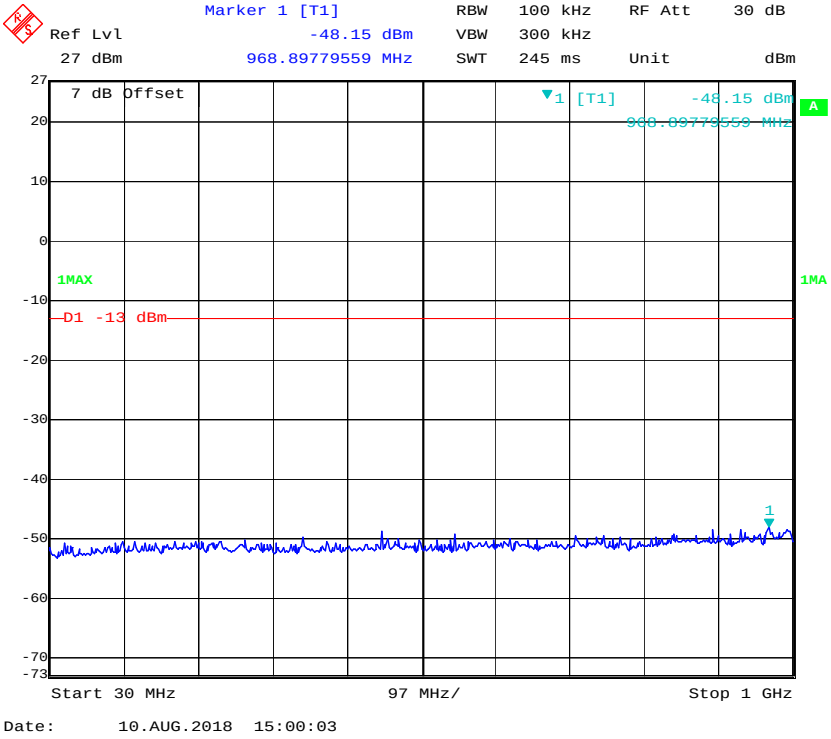
Date: 10.AUG.2018 14:17:18

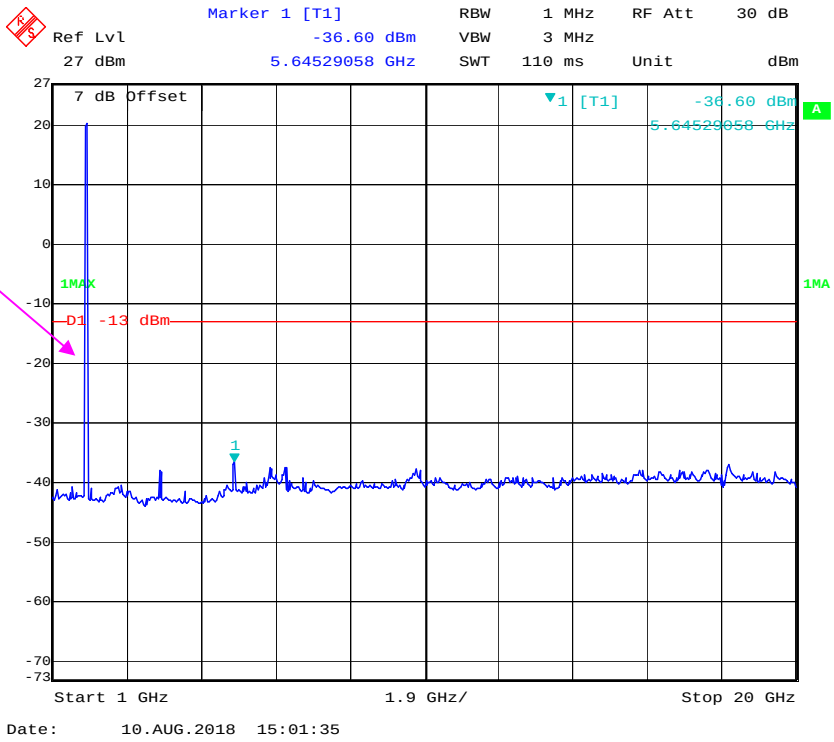


Fundamental

Date: 10.AUG.2018 14:18:12

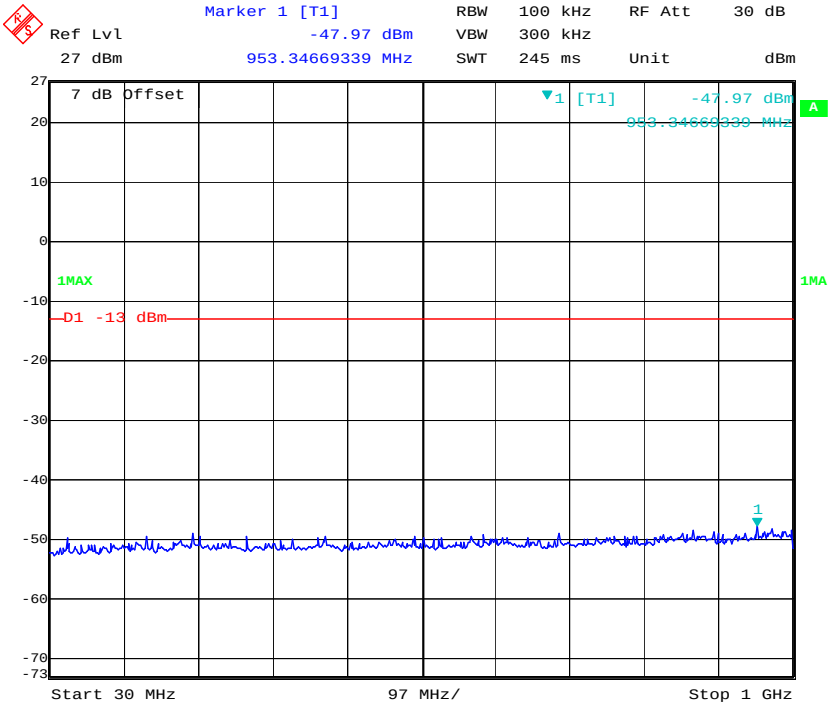
WCDMA Band II,Rel99

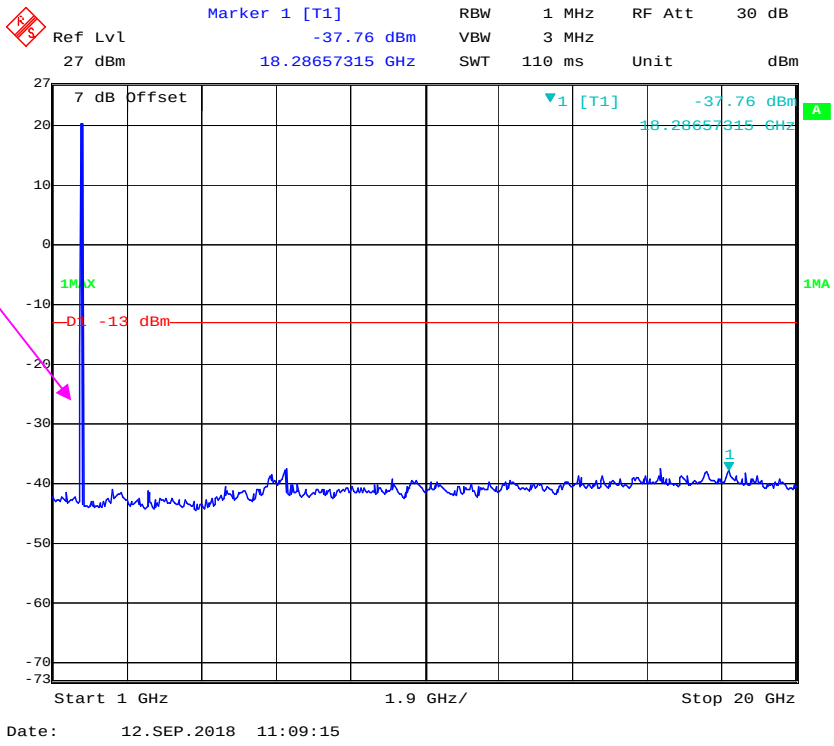




Fundamental

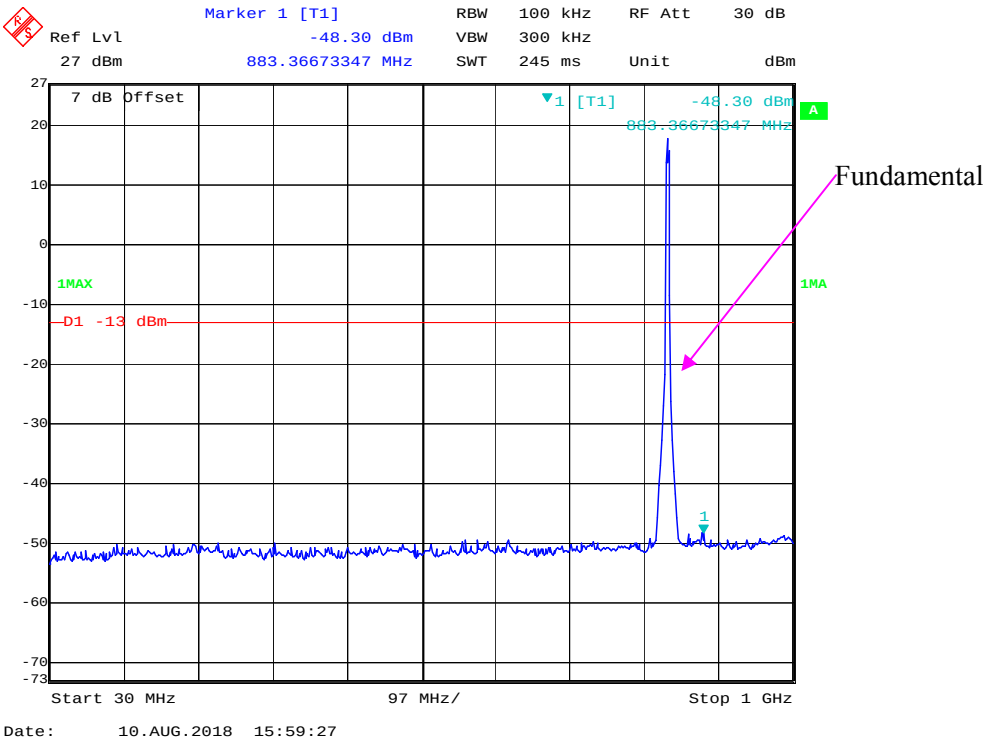
WCDMA Band IV,Rel99

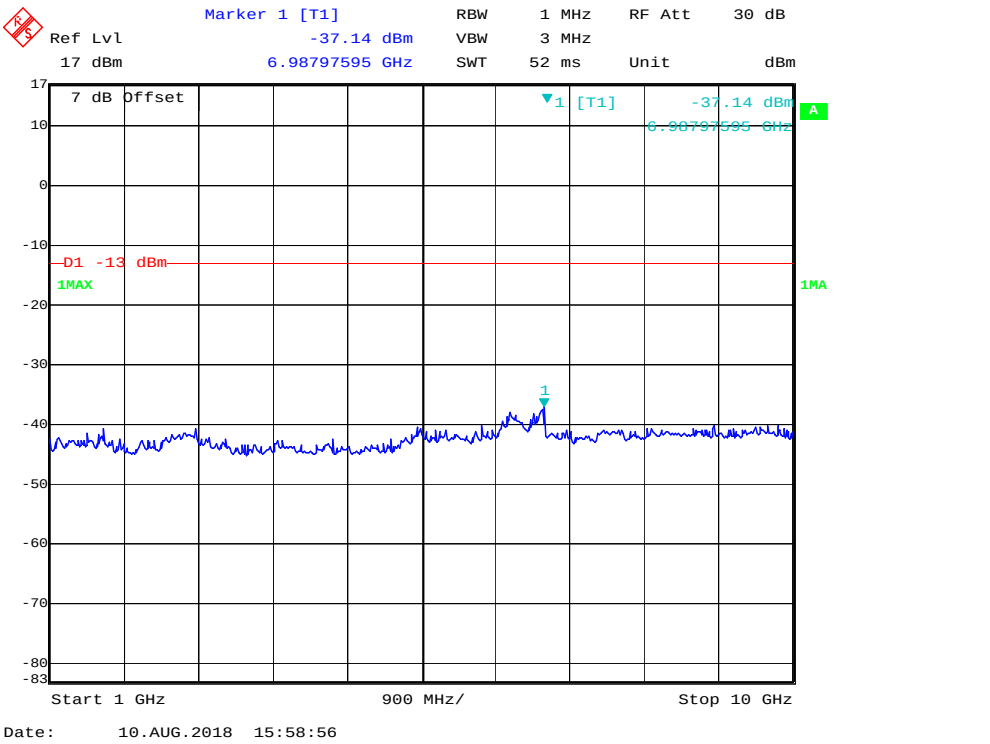




Fundamental

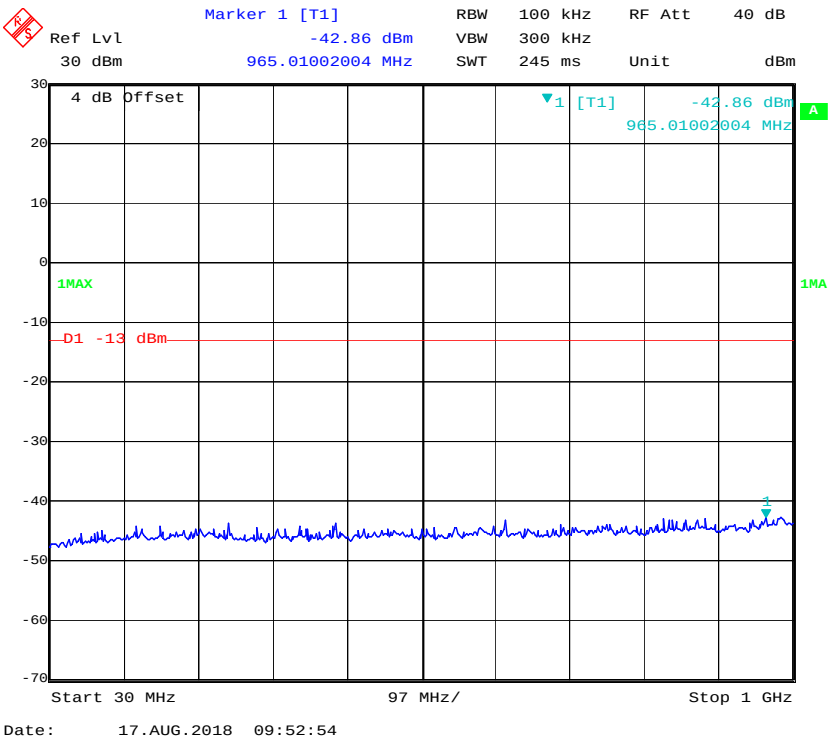
WCDMA Band V,Rel99

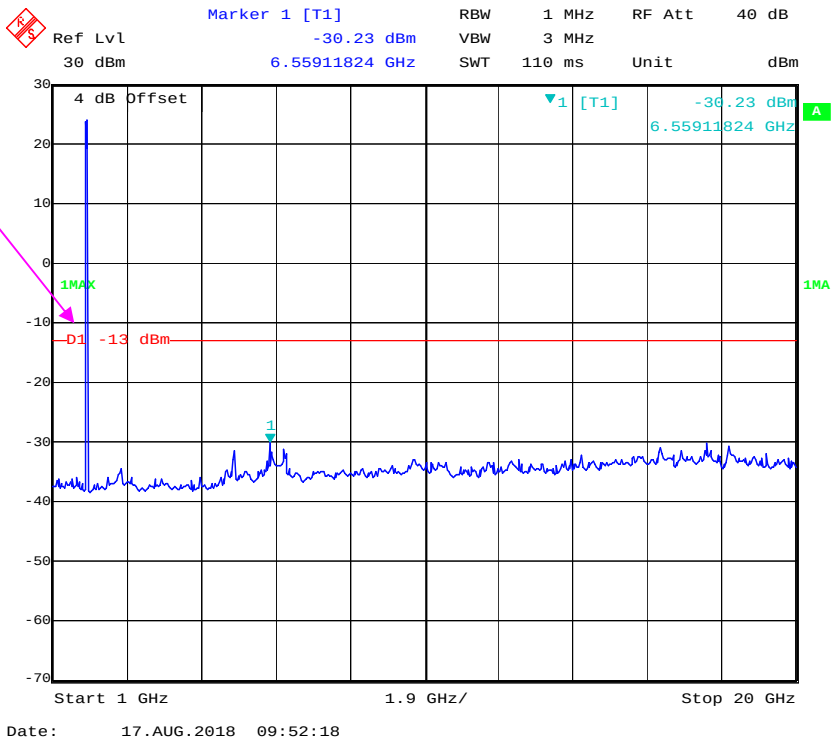




LTE Band 2 (Middle Channel)

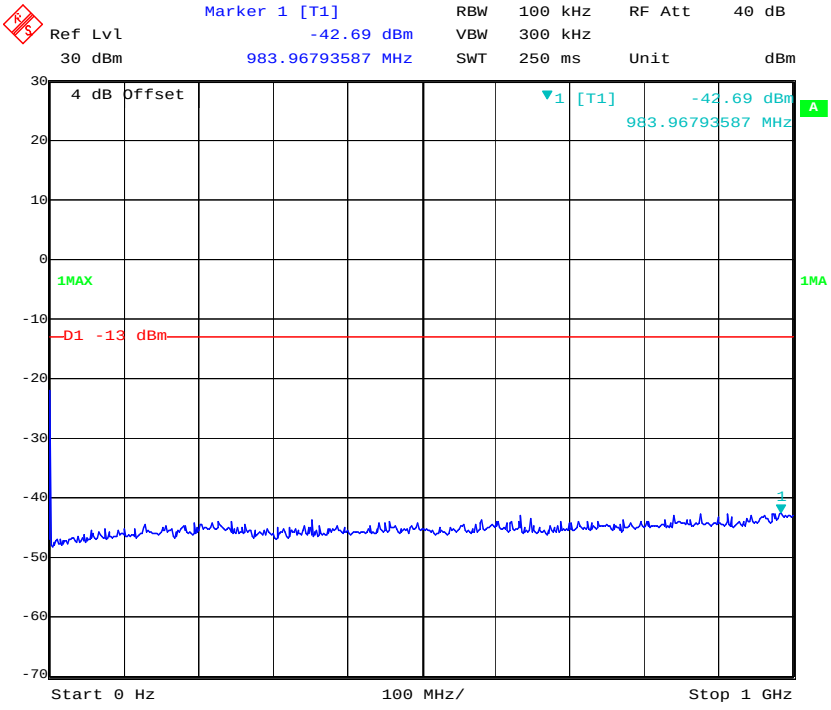
QPSK_1.4 MHz

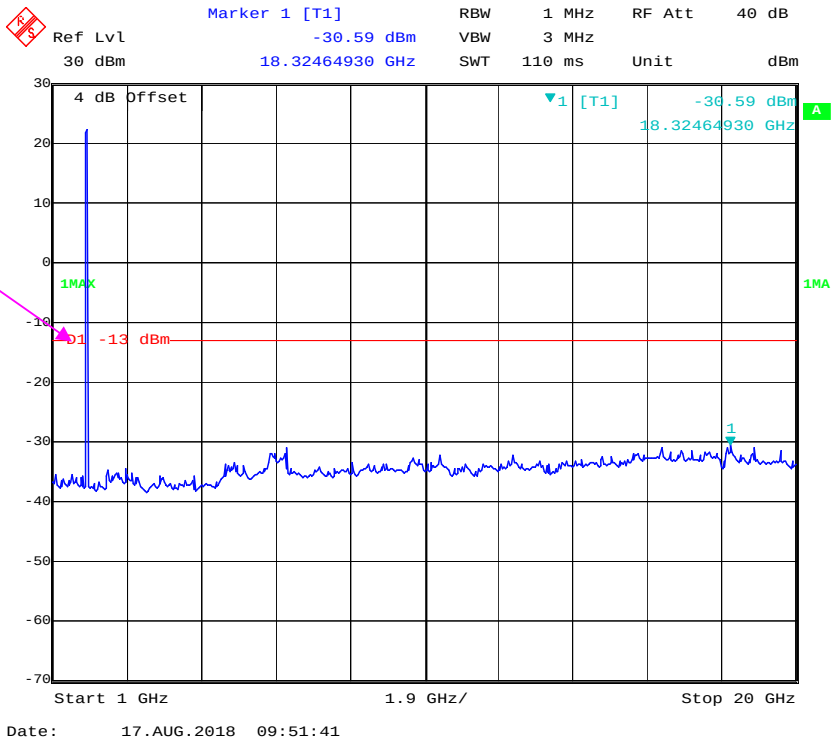




Fundamental

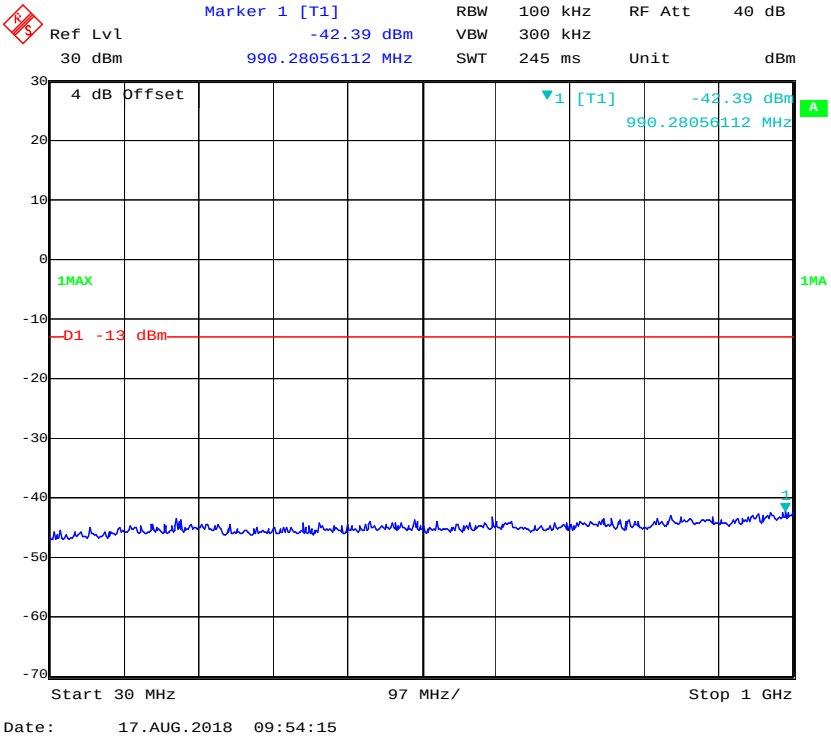
QPSK_3 MHz

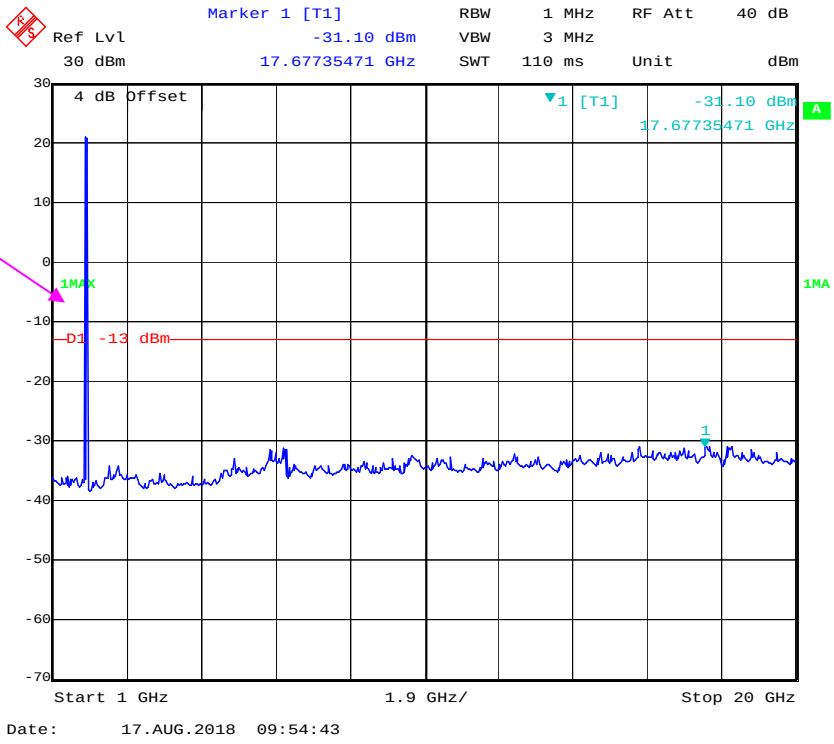




Fundamental

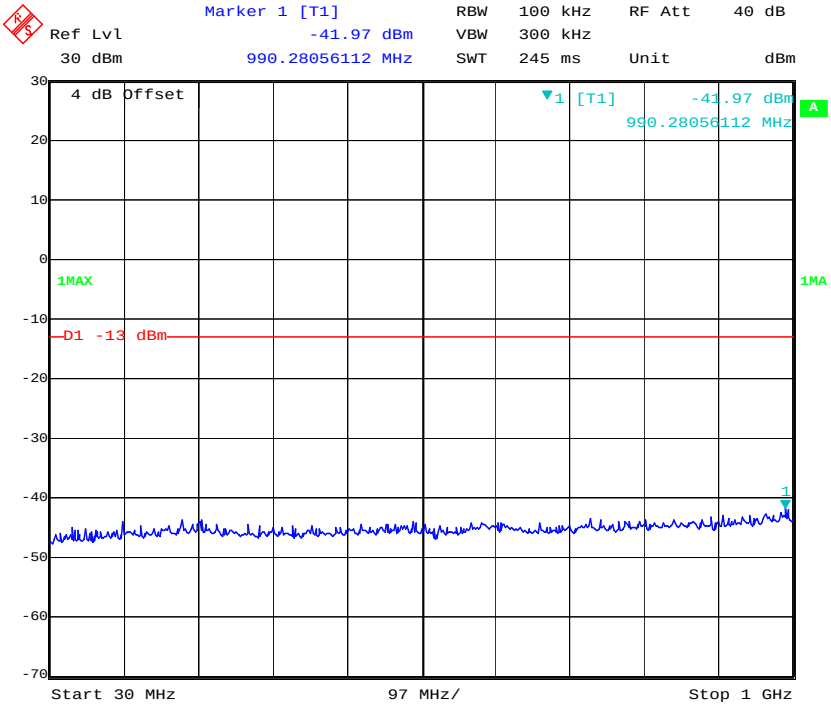
QPSK_5 MHz

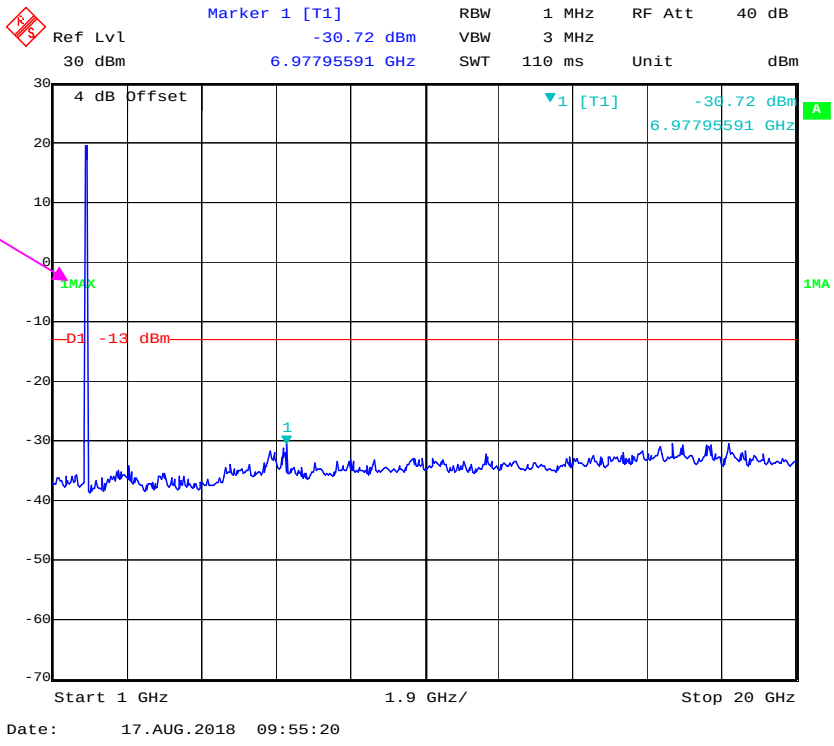




Fundamental

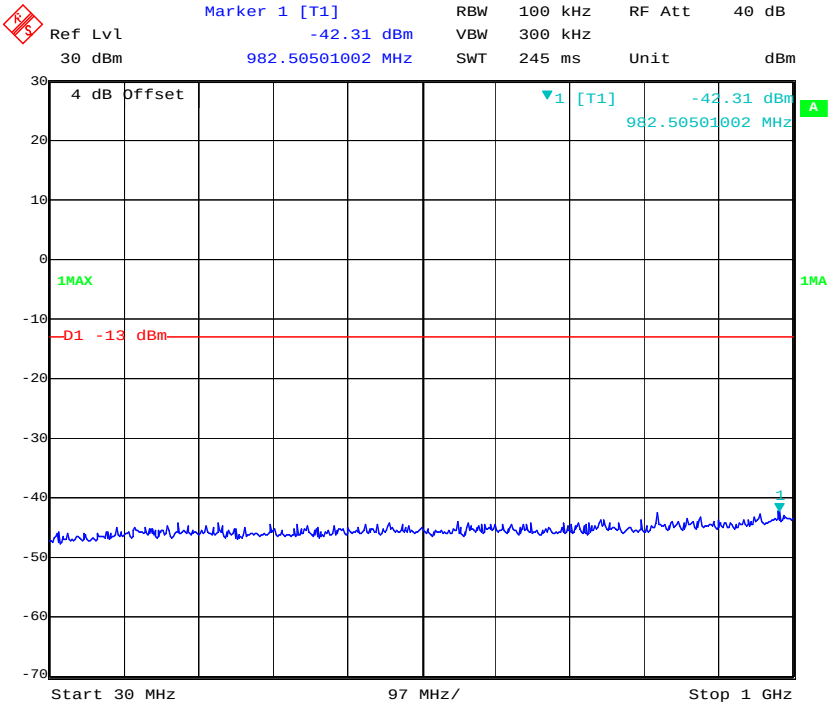
QPSK_10 MHz

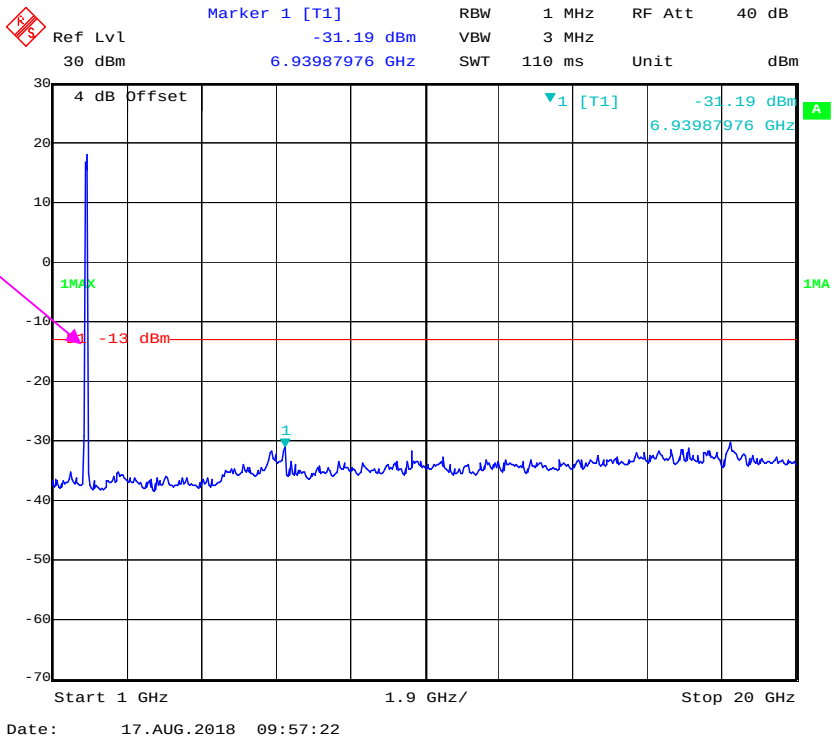




Fundamental

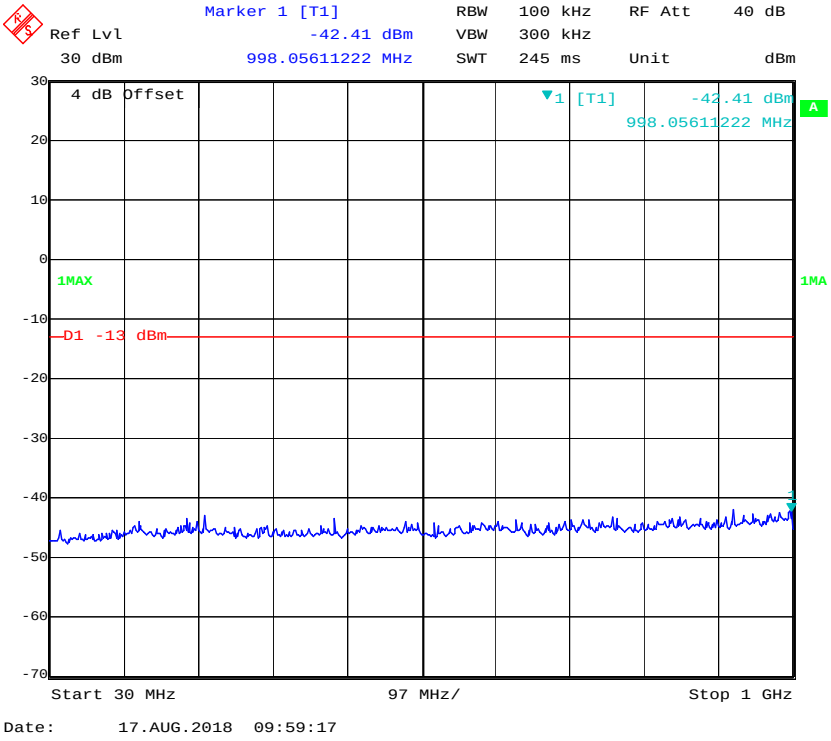
QPSK_15 MHz

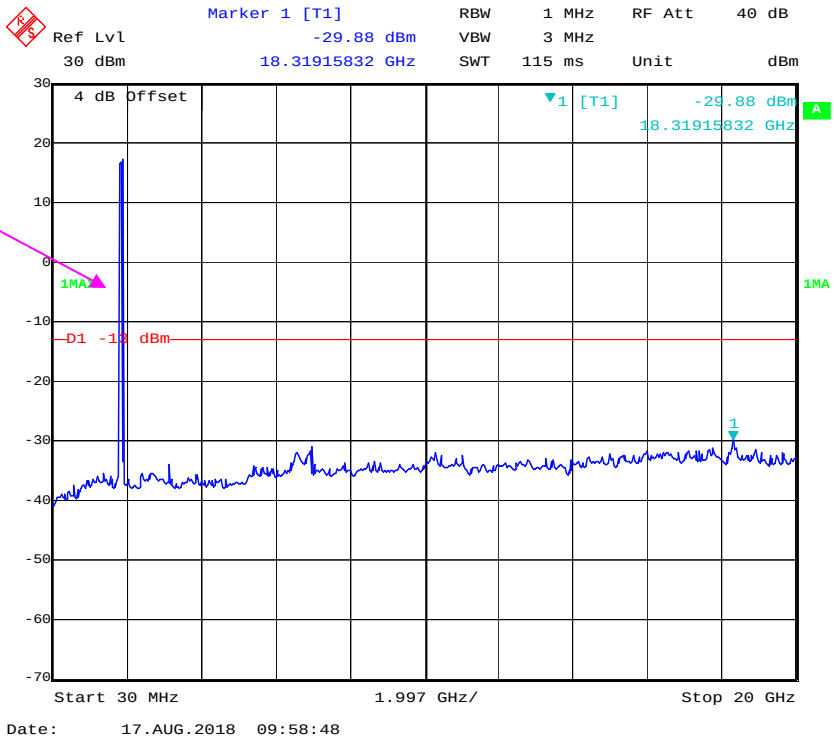




Fundamental

QPSK_20 MHz

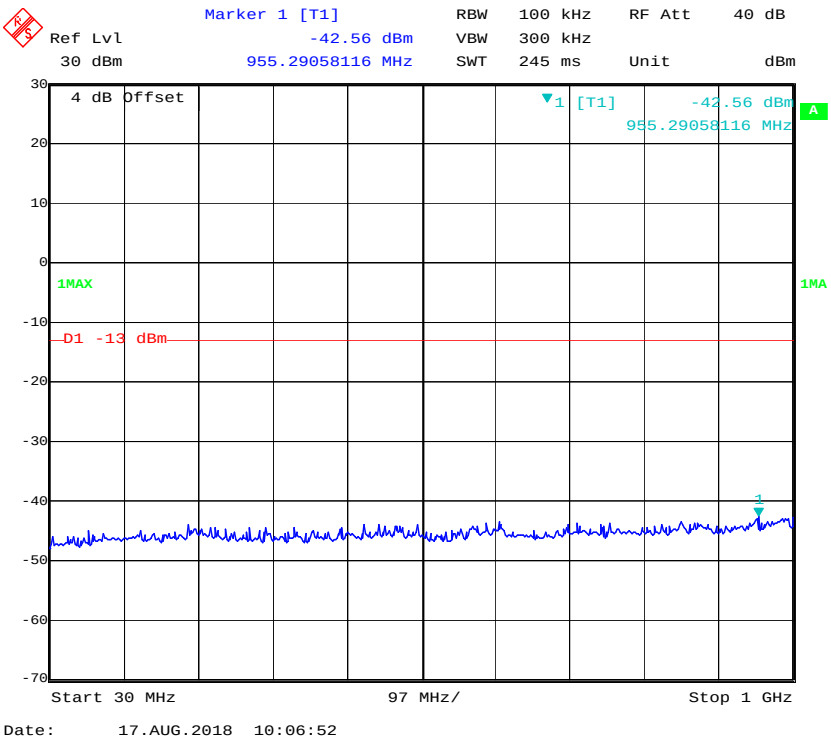




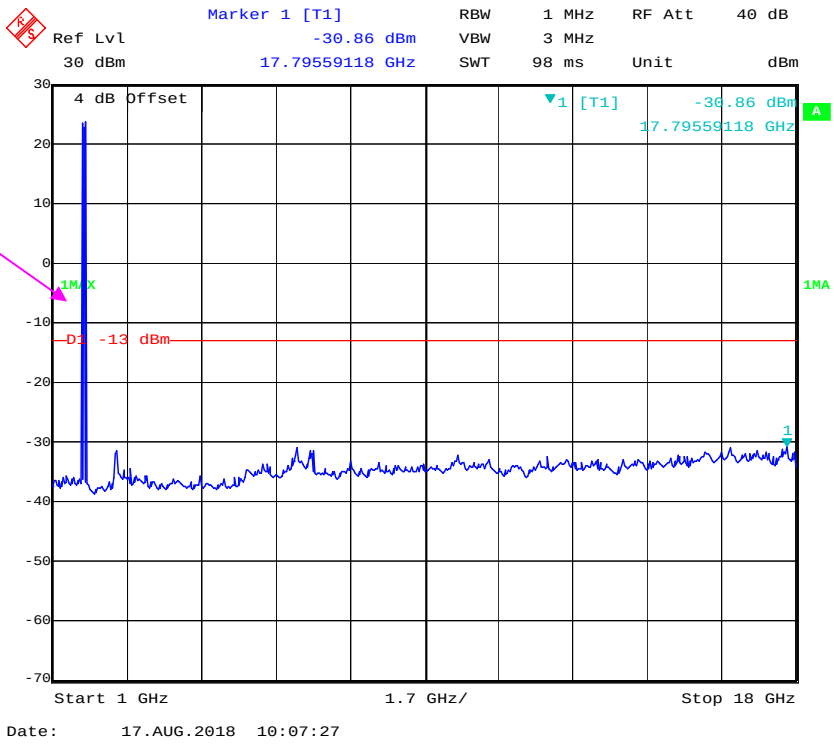
Fundamental

LTE Band 4 (Middle Channel)

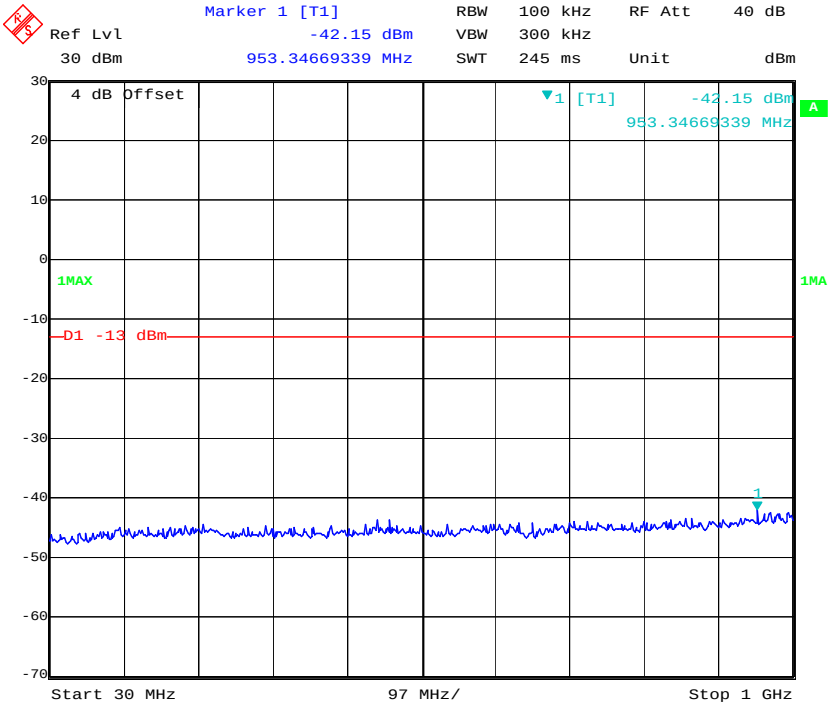
QPSK_1.4 MHz

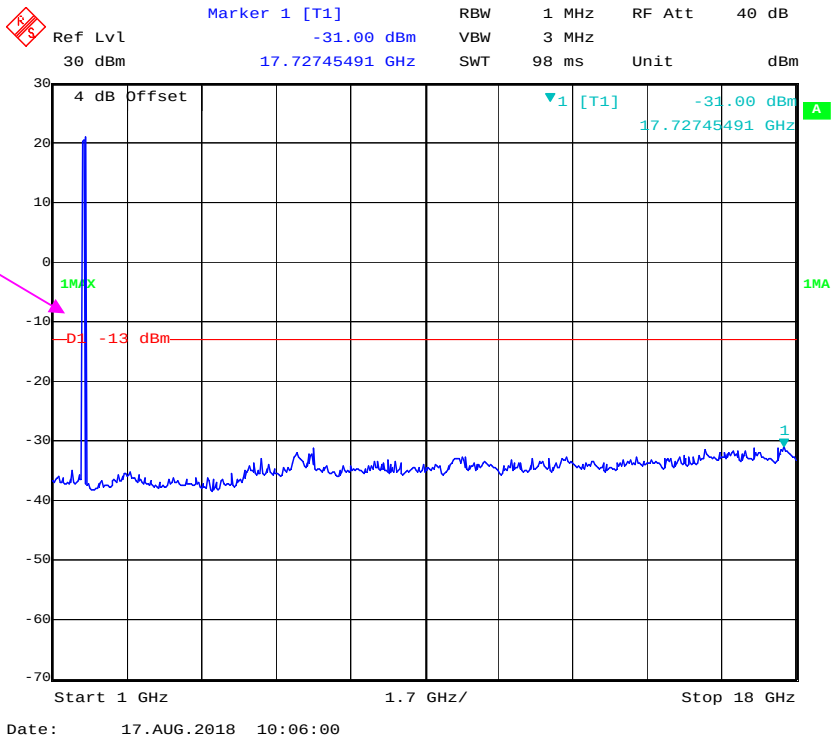


Fundamental



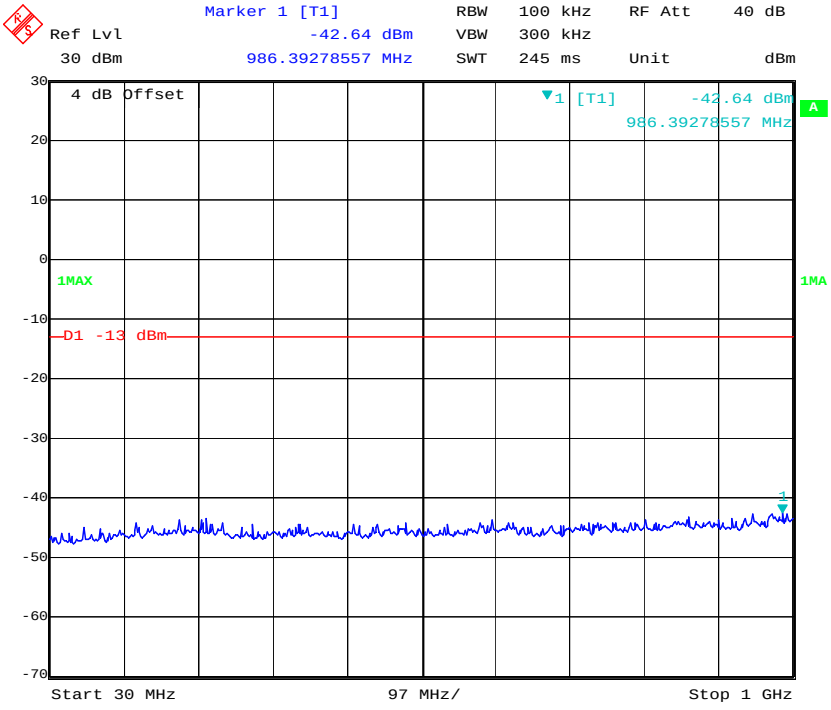
QPSK_3 MHz

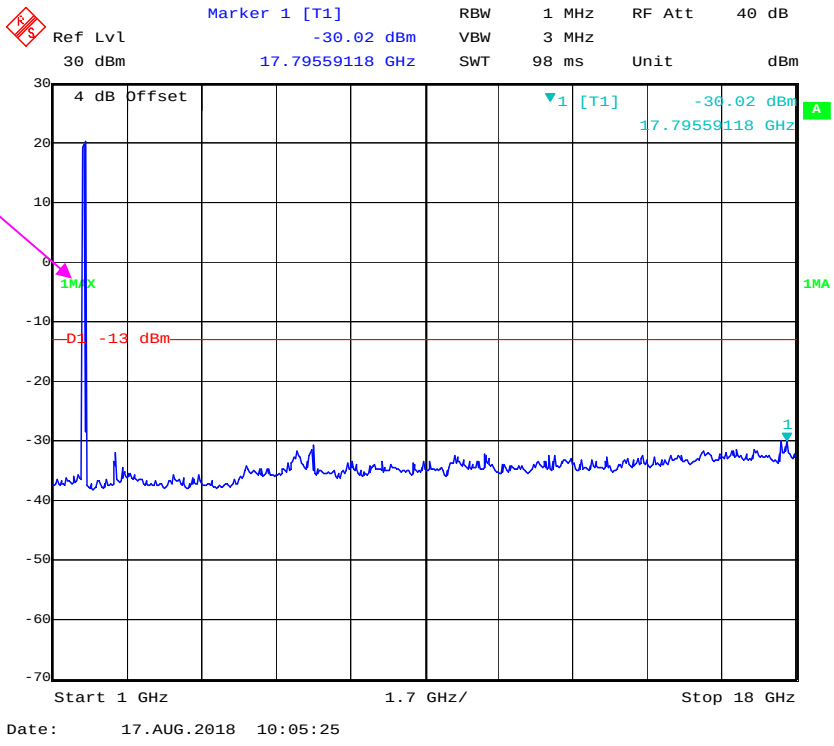




Fundamental

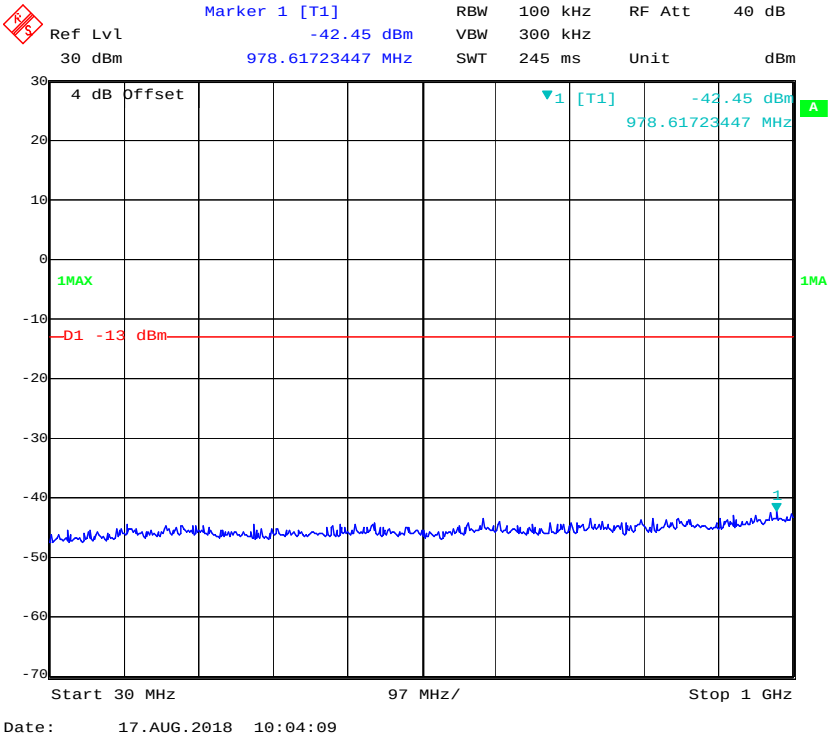
QPSK_5 MHz

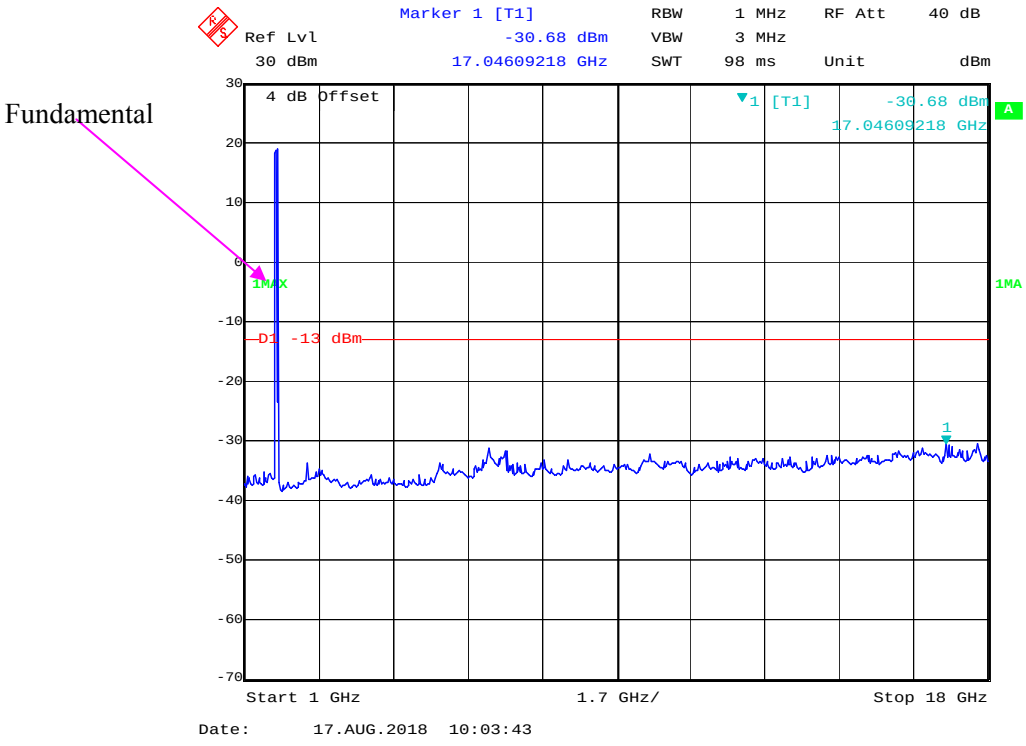




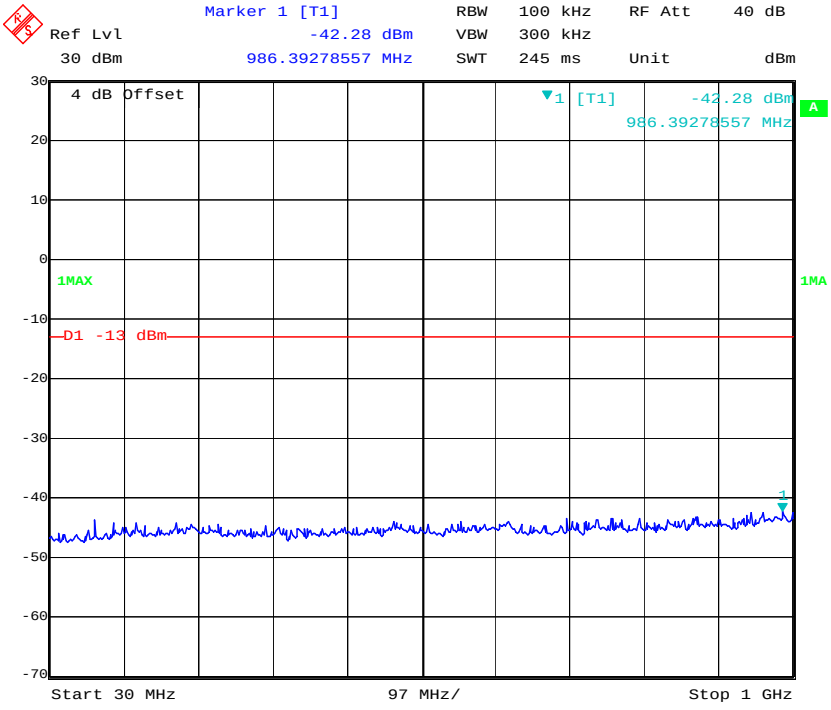
Fundamental

QPSK_10 MHz

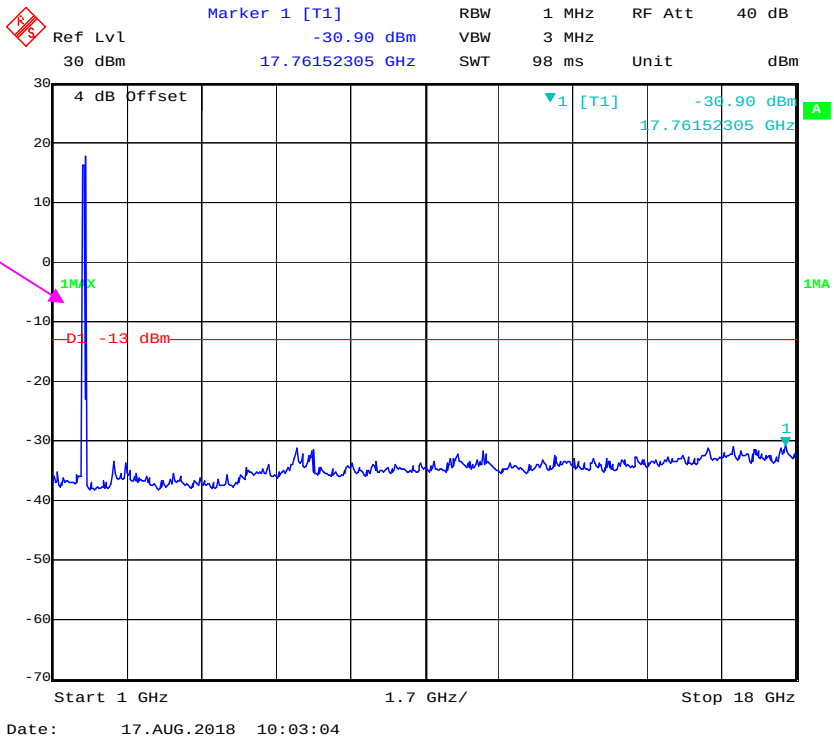

Marker 1 [T1]
Ref Lvl
30 dBm
-42.45 dBm
978.61723447 MHz
RBW 100 kHz
VBW 300 kHz
SWT 245 ms
RF Att 40 dB
Unit dBm
4 dB Offset
1 [T1] -42.45 dBm
978.61723447 MHz
1MAX
1MA
D1 -13 dBm
Start 30 MHz
97 MHz/
Stop 1 GHz
Date: 17.AUG.2018 10:04:09


Fundamental
Marker 1 [T1]
Ref Lvl
30 dBm
-30.68 dBm
17.04609218 GHz
RBW 1 MHz
VBW 3 MHz
SWT 98 ms
RF Att 40 dB
Unit dBm
4 dB Offset
1 [T1] -30.68 dBm
17.04609218 GHz
1MAX
1MA
D1 -13 dBm
Start 1 GHz
1.7 GHz/
Stop 18 GHz
Date: 17.AUG.2018 10:03:43

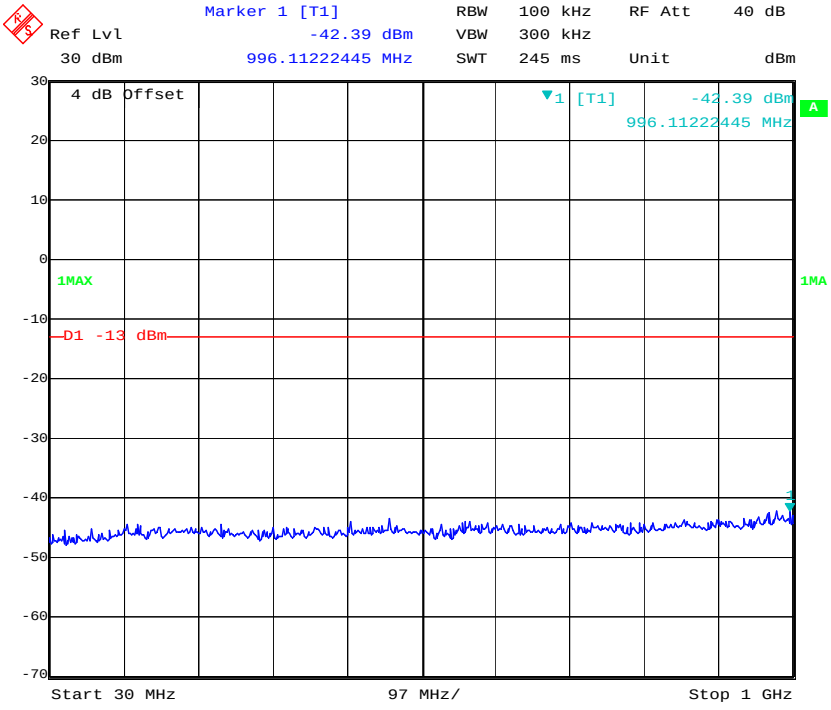
QPSK_15 MHz

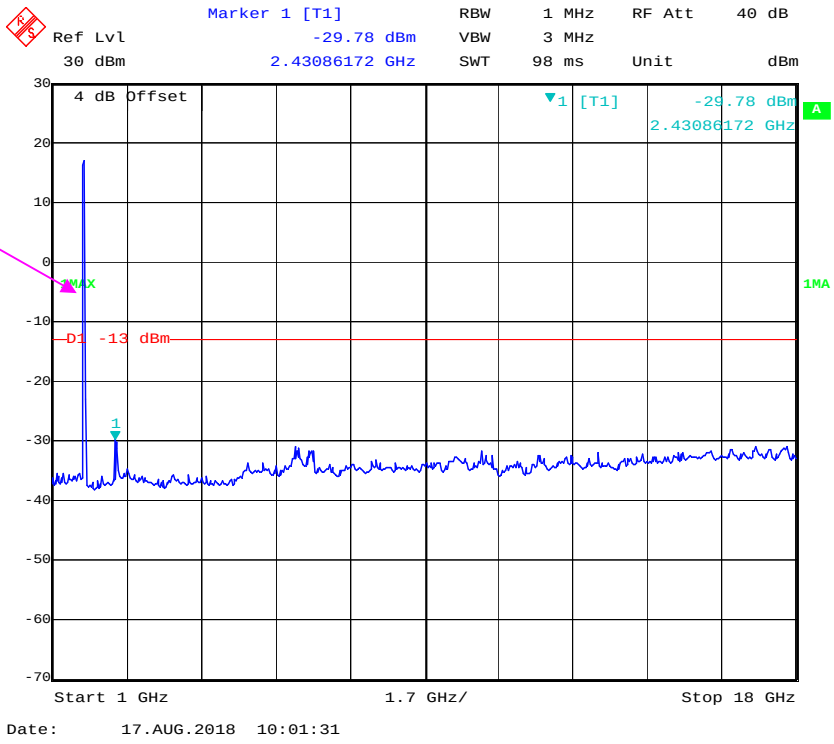


Fundamental



QPSK_20 MHz

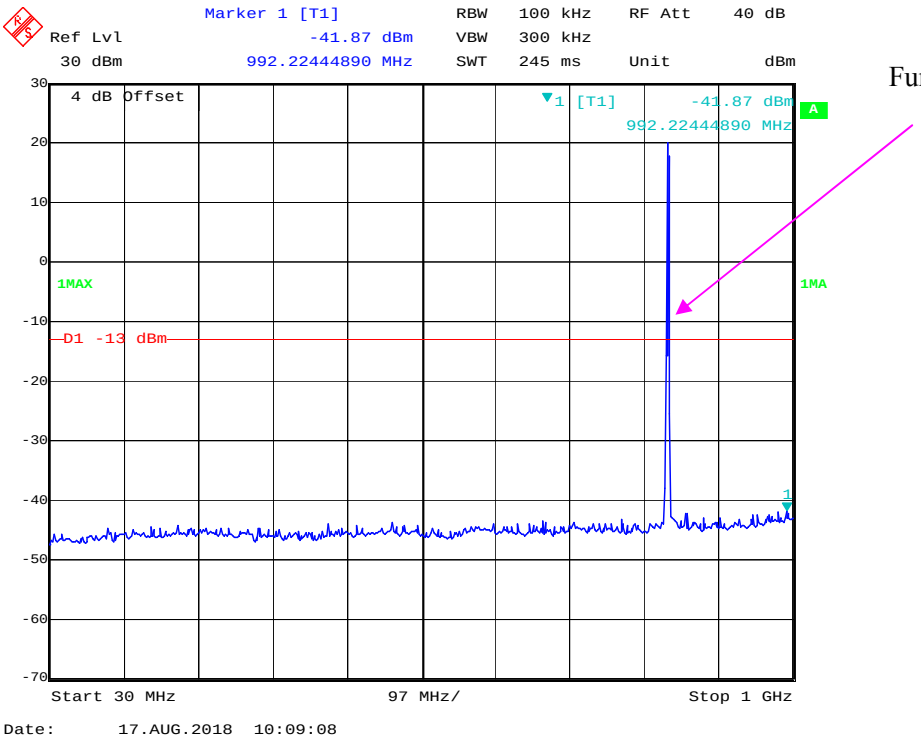




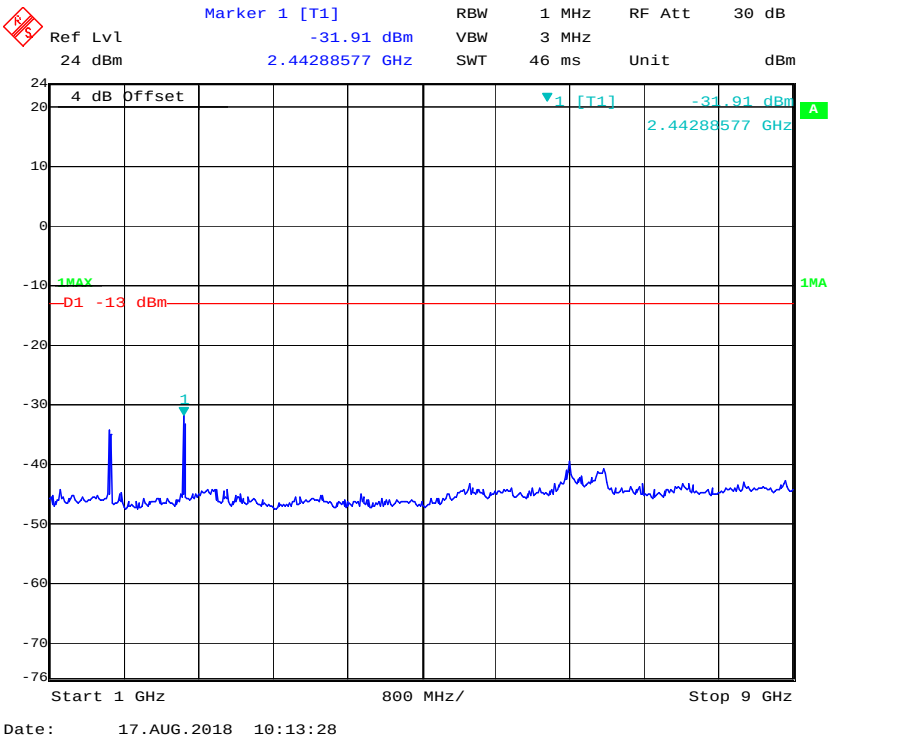
Fundamental

LTE Band 5 (Middle Channel)

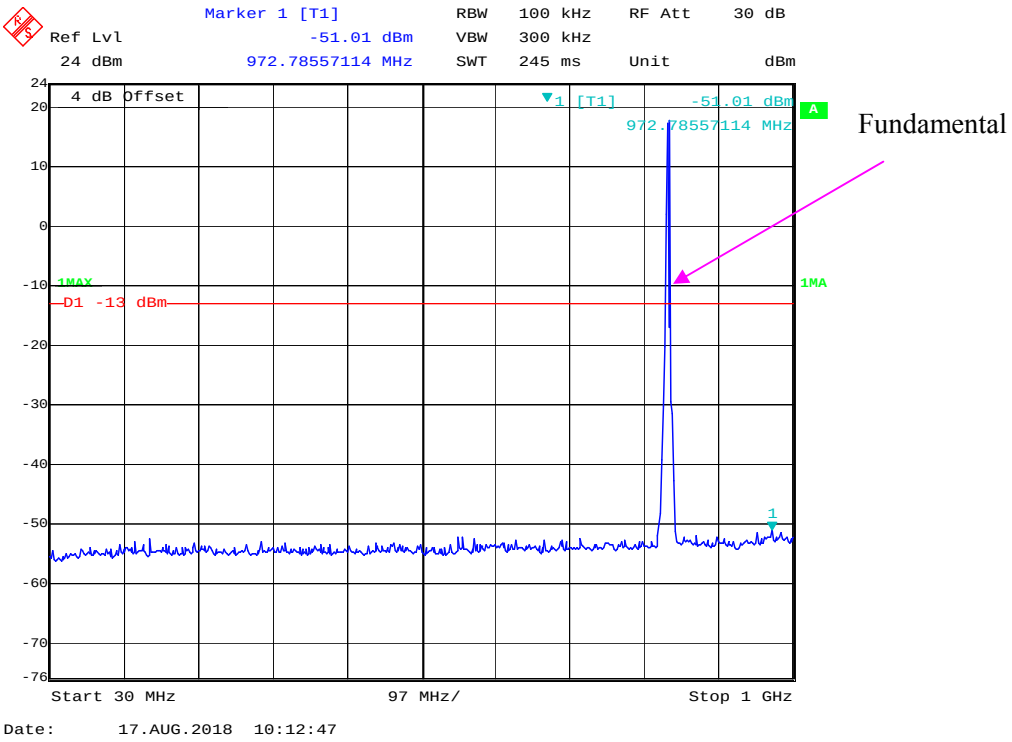
QPSK_1.4 MHz



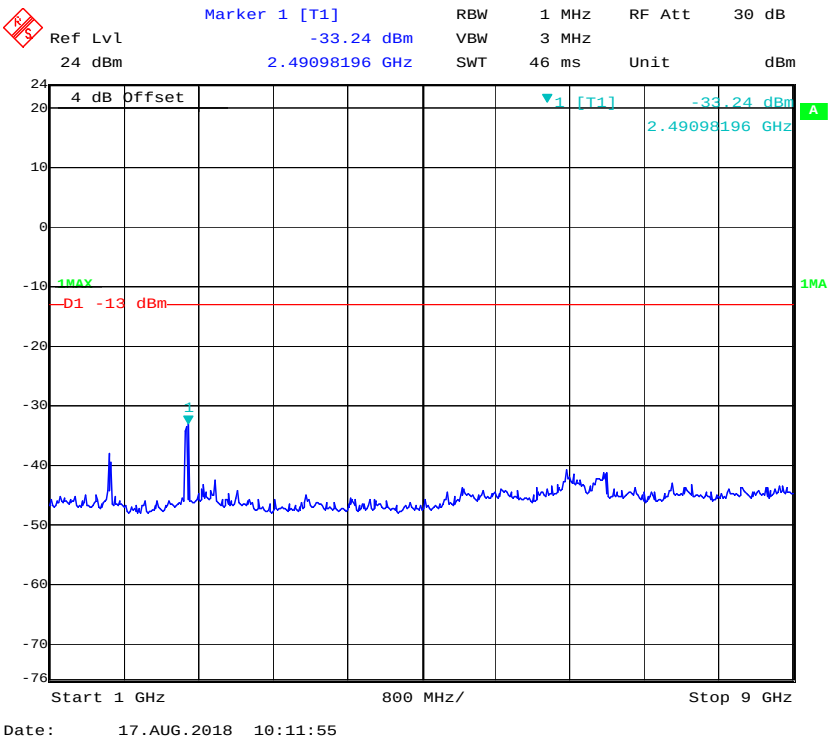
Fundamental



QPSK_3 MHz

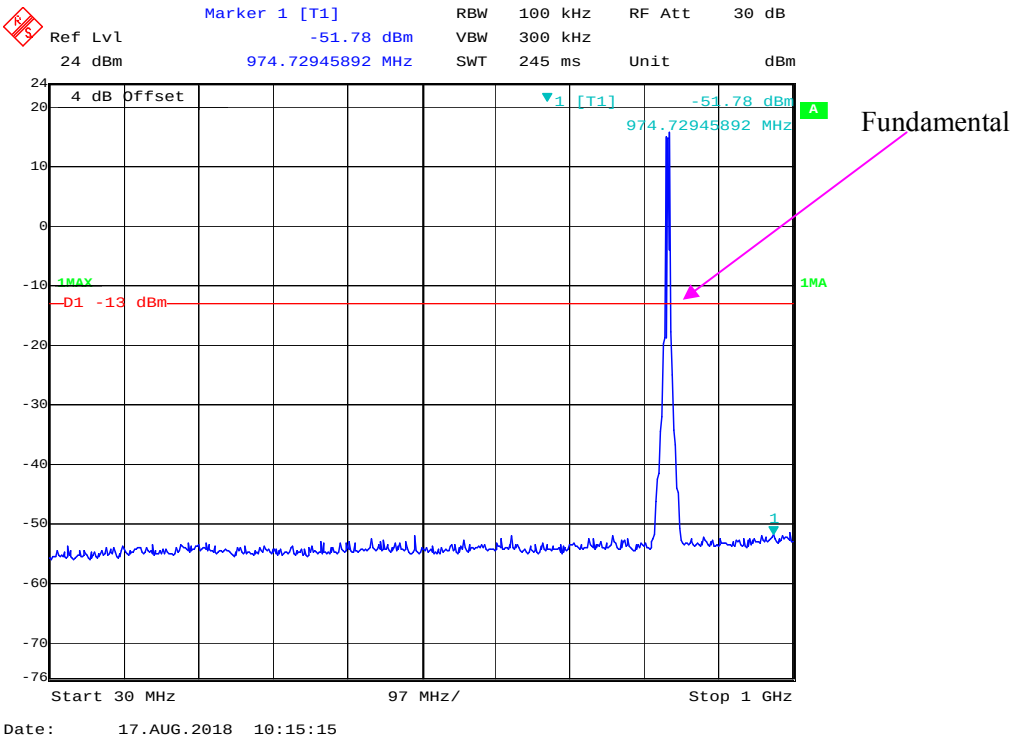


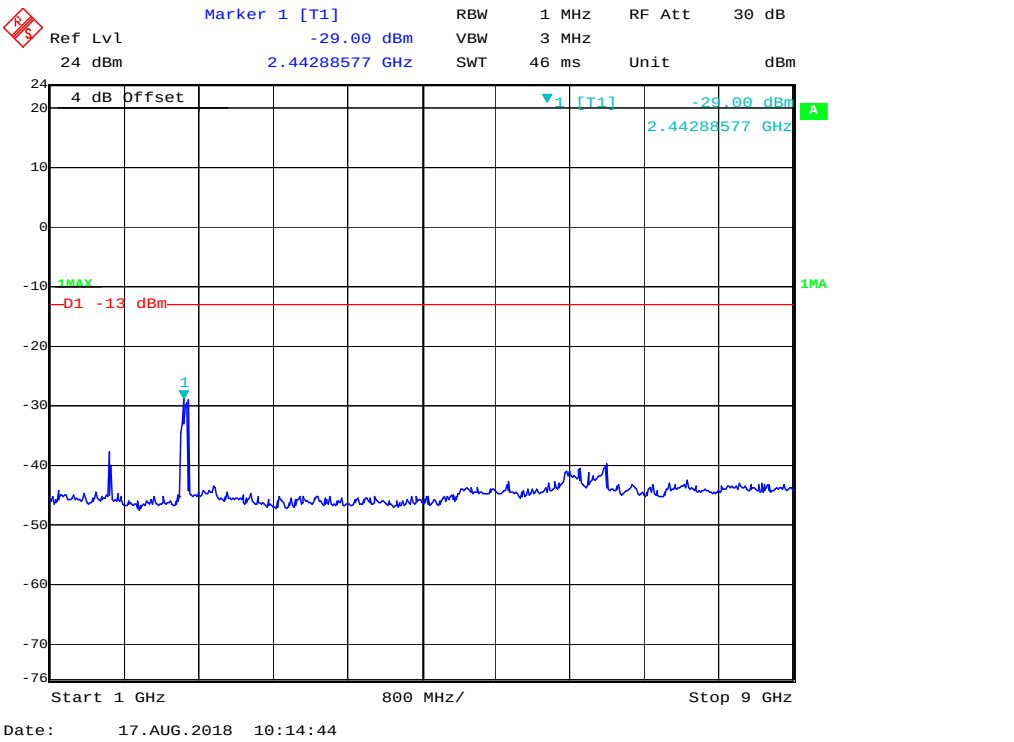
Date: 17.AUG.2018 10:12:47



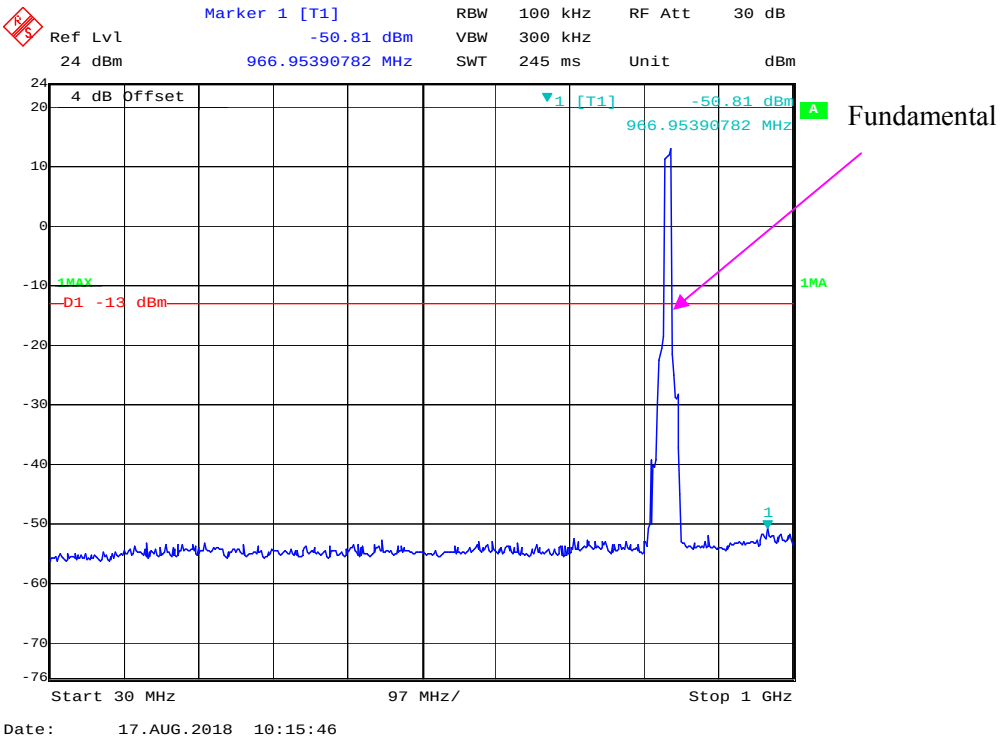
Date: 17.AUG.2018 10:11:55

QPSK_5 MHz

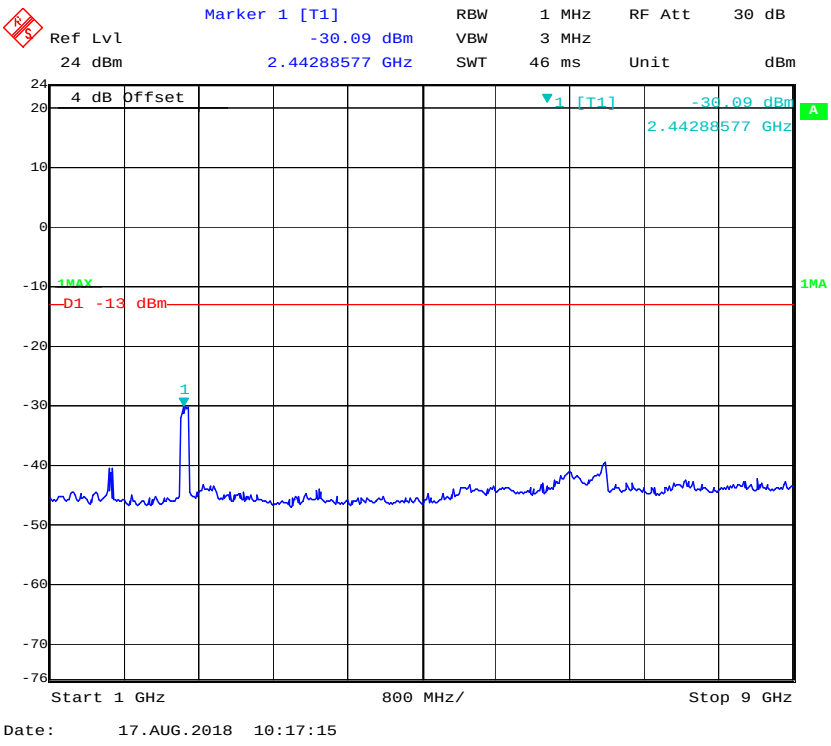

Marker 1 [T1]
Ref Lvl
24 dBm
-51.78 dBm
974.72945892 MHz
RBW 100 kHz
VBW 300 kHz
SWT 245 ms
RF Att 30 dB
Unit dBm
4 dB Offset
1 [T1]
-51.78 dBm
974.72945892 MHz
1MAX
D1 -13 dBm
1MA
Fundamental
Start 30 MHz
97 MHz/
Stop 1 GHz
Date: 17.AUG.2018 10:15:15


Marker 1 [T1]
Ref Lvl
24 dBm
-29.00 dBm
2.44288577 GHz
RBW 1 MHz
VBW 3 MHz
SWT 46 ms
RF Att 30 dB
Unit dBm
4 dB Offset
1 [T1]
-29.00 dBm
2.44288577 GHz
1MAX
D1 -13 dBm
1MA
Start 1 GHz
800 MHz/
Stop 9 GHz
Date: 17.AUG.2018 10:14:44

QPSK_10 MHz

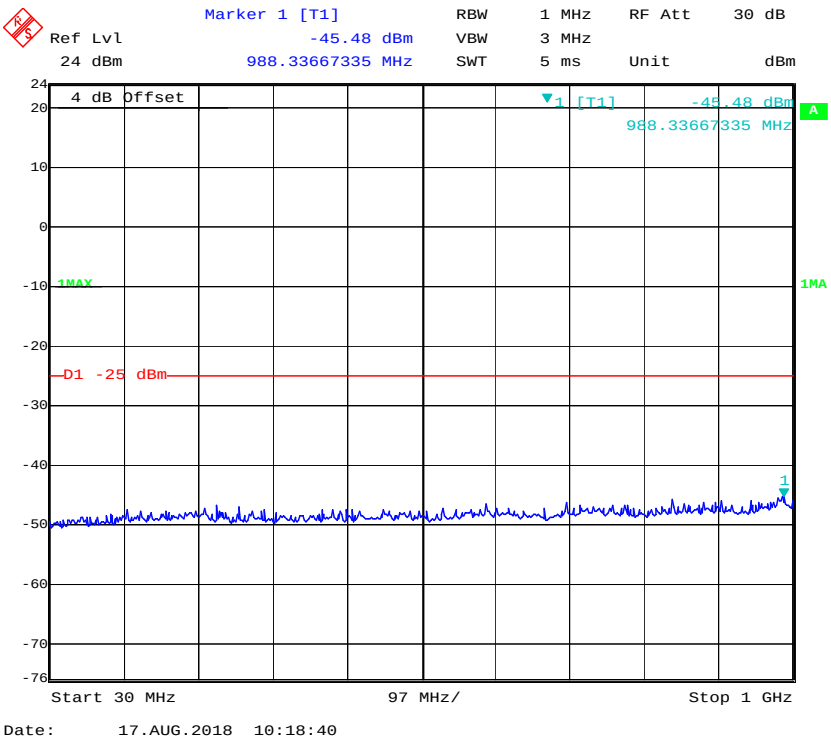


Fundamental

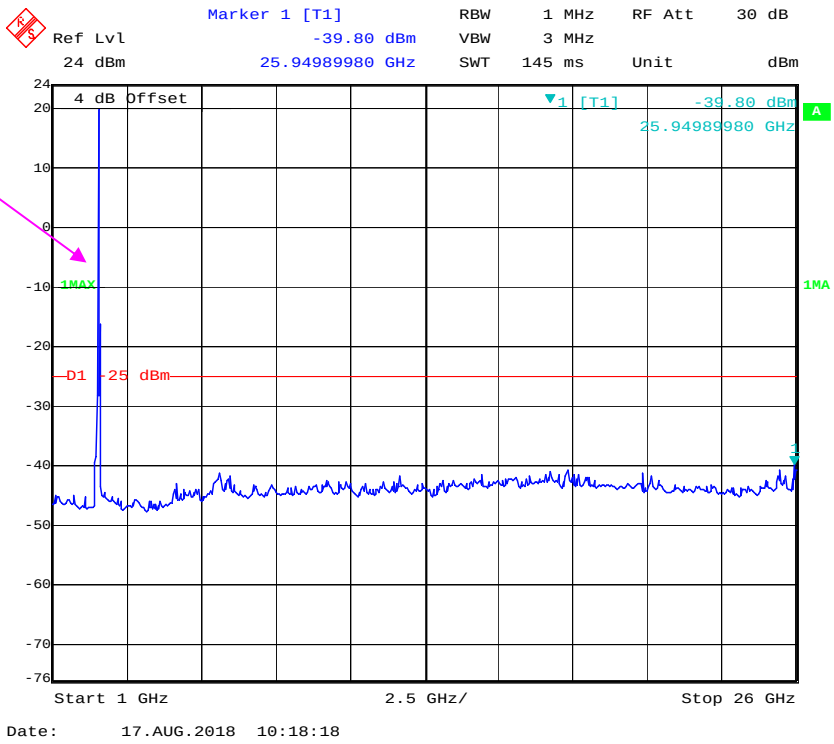


LTE Band 7 (Middle Channel)

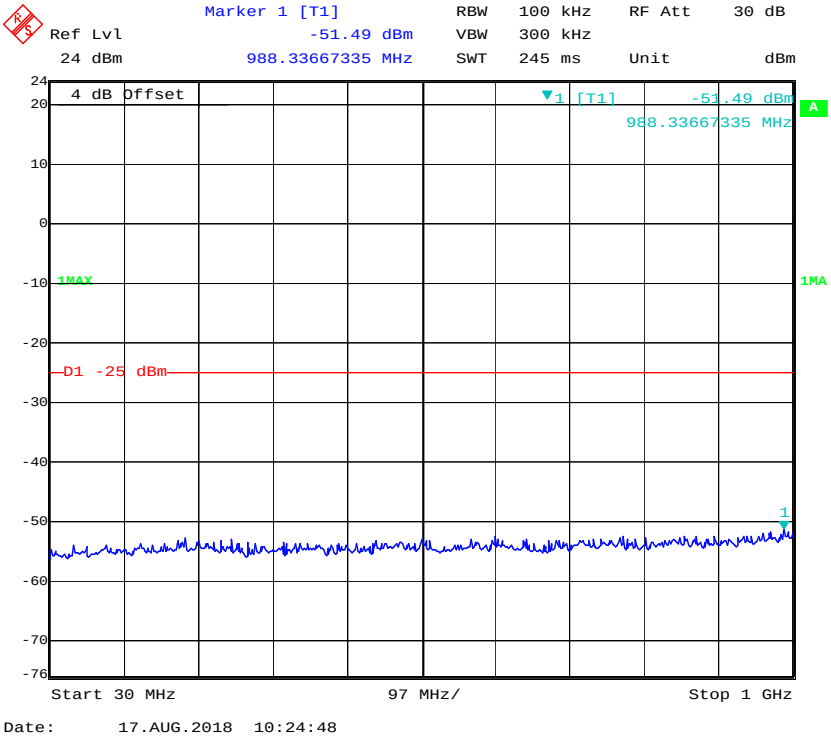
QPSK_5 MHz

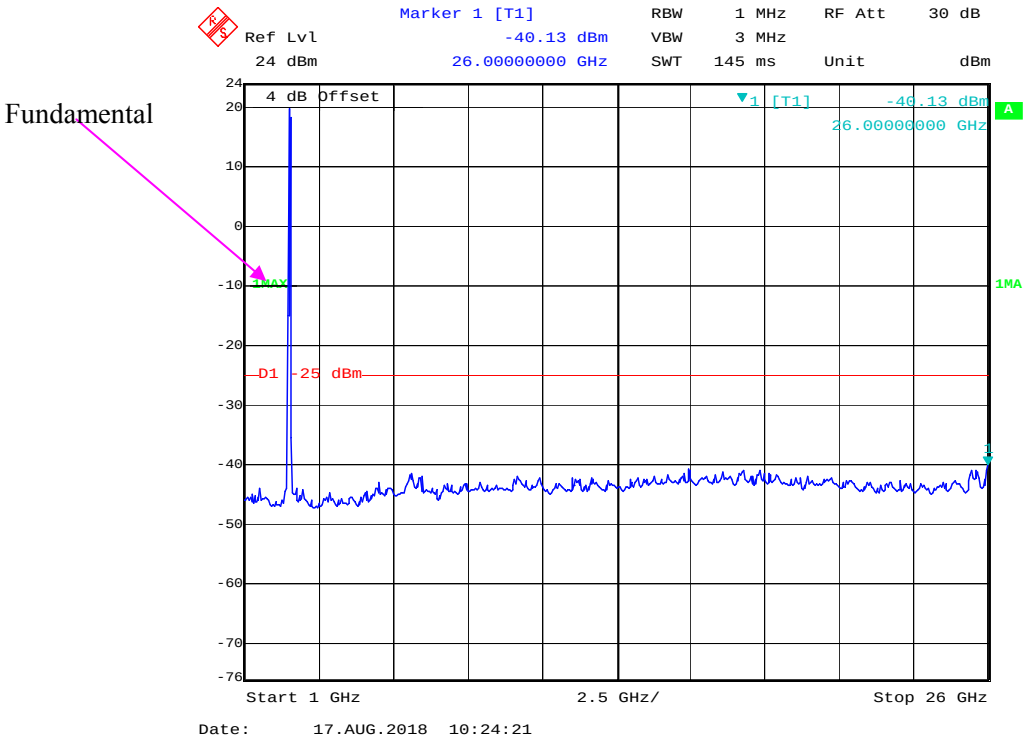


Fundamental

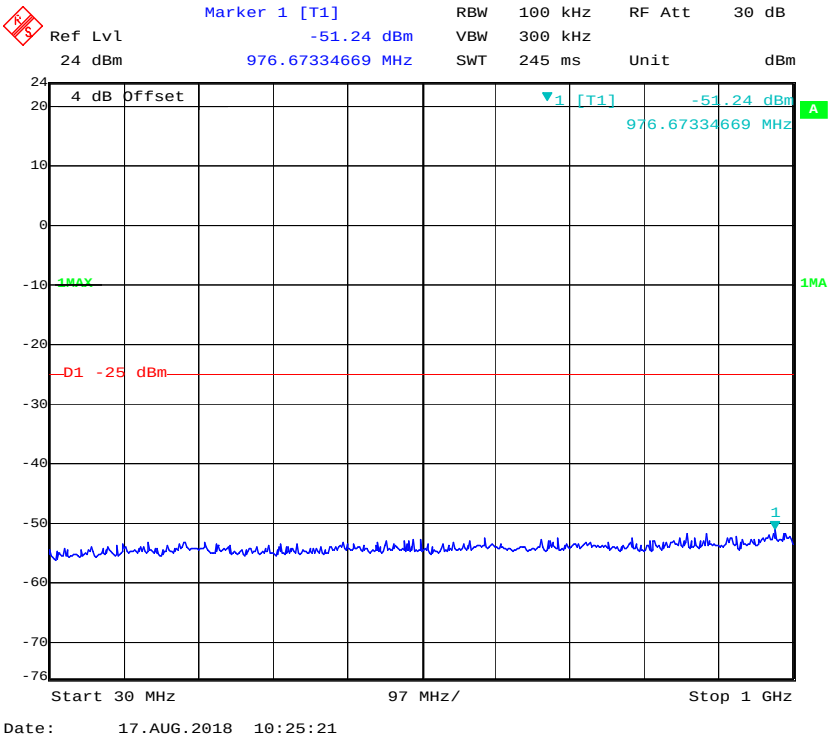


QPSK_10 MHz

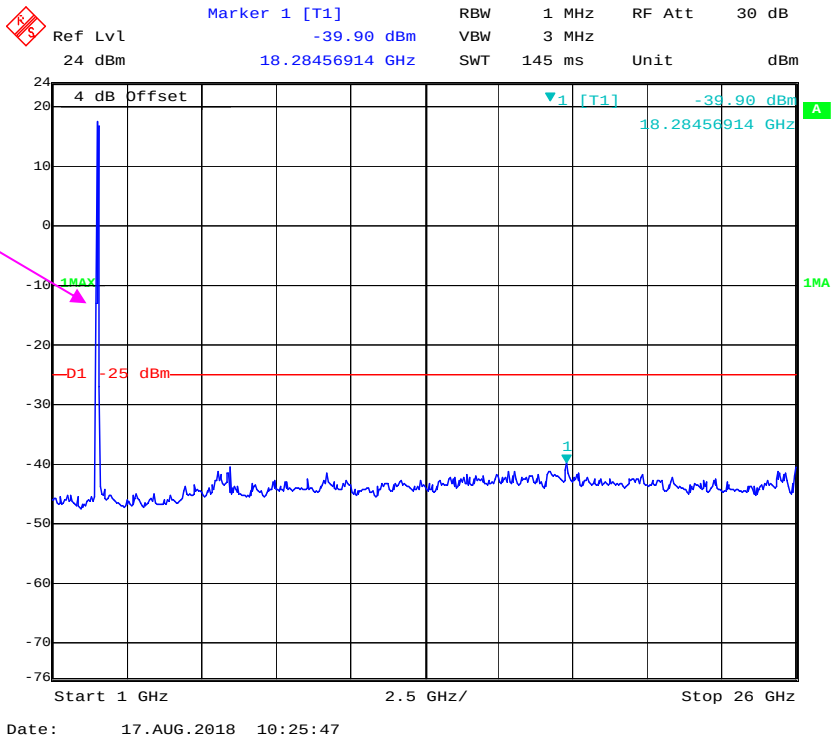

Marker 1 [T1]
Ref Lvl
24 dBm
-51.49 dBm
988.33667335 MHz
RBW 100 kHz
VBW 300 kHz
SWT 245 ms
RF Att 30 dB
Unit dBm
4 dB Offset
1 [T1] -51.49 dBm
988.33667335 MHz
1MAX
1MA
D1 -25 dBm
Start 30 MHz
97 MHz/
Stop 1 GHz
Date: 17.AUG.2018 10:24:48


Fundamental
Marker 1 [T1]
Ref Lvl
24 dBm
-40.13 dBm
26.00000000 GHz
RBW 1 MHz
VBW 3 MHz
SWT 145 ms
RF Att 30 dB
Unit dBm
4 dB Offset
1 [T1] -40.13 dBm
26.00000000 GHz
1MAX
1MA
D1 -25 dBm
Start 1 GHz
2.5 GHz/
Stop 26 GHz
Date: 17.AUG.2018 10:24:21

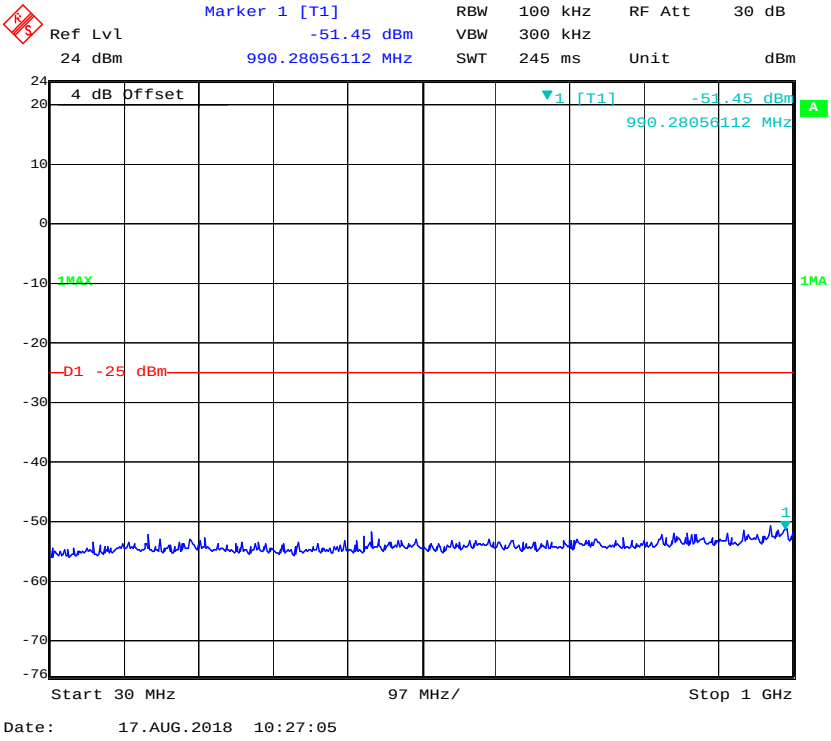
QPSK_15 MHz



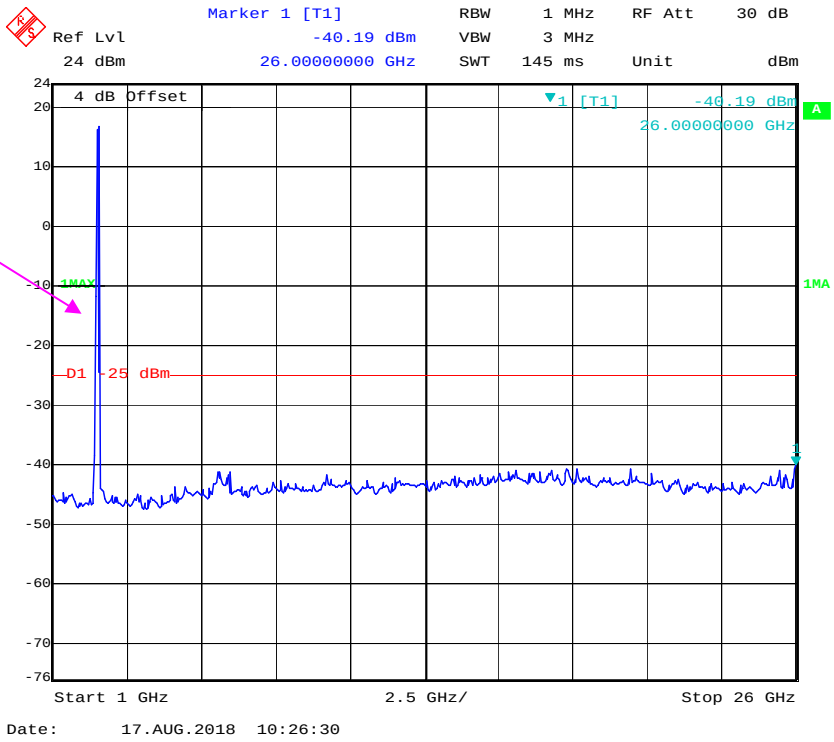
Fundamental



QPSK_20 MHz

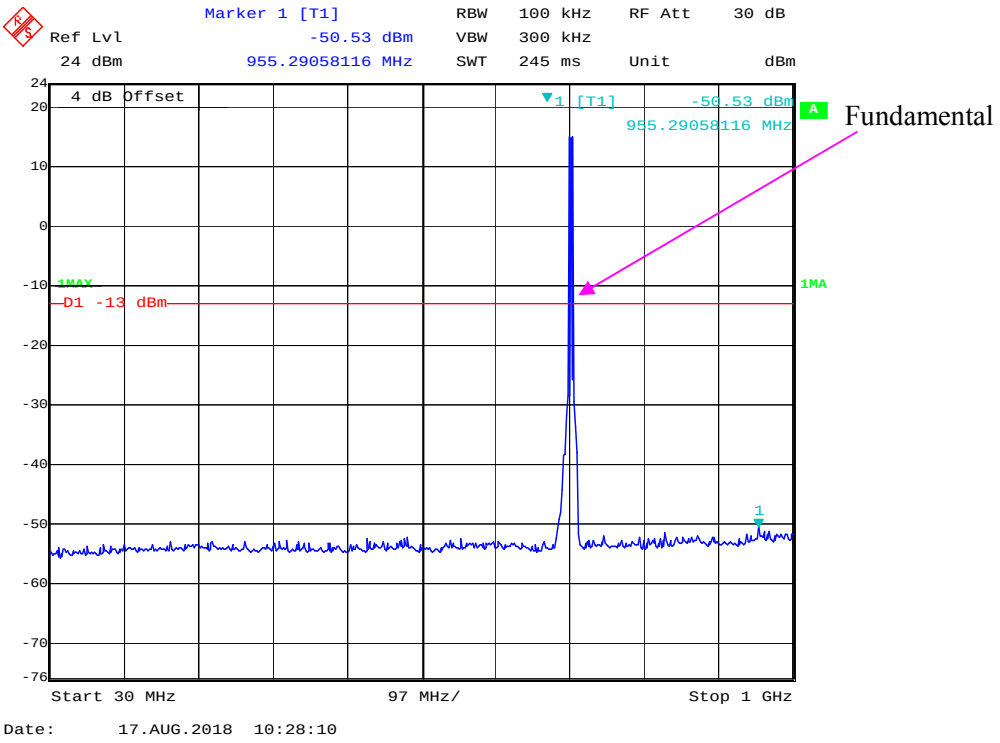


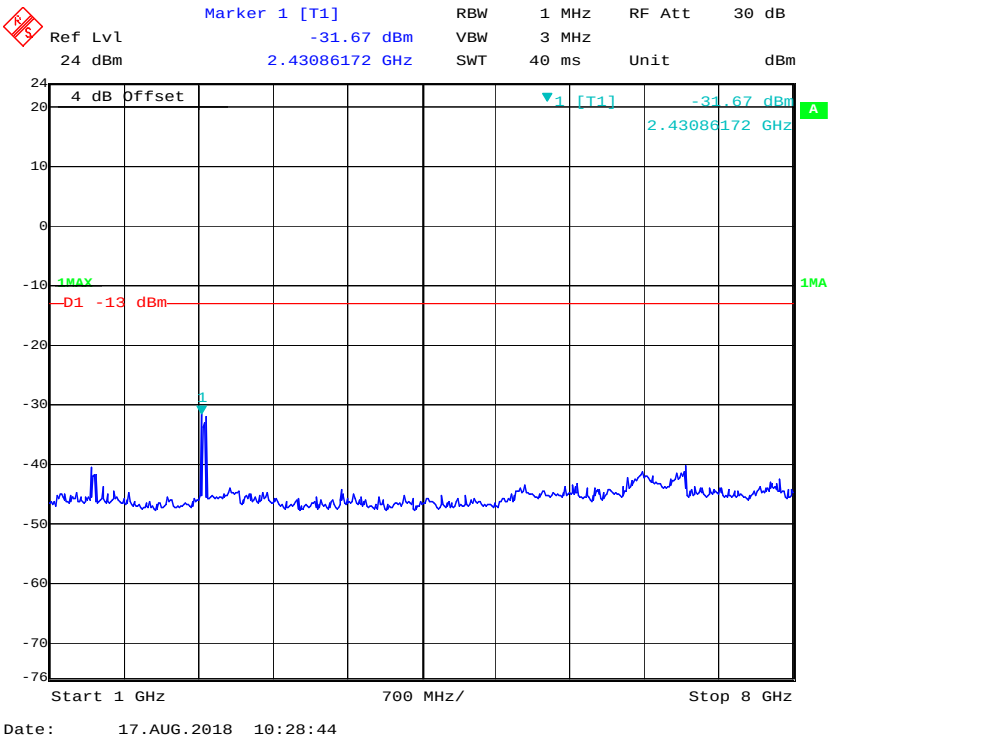
Fundamental



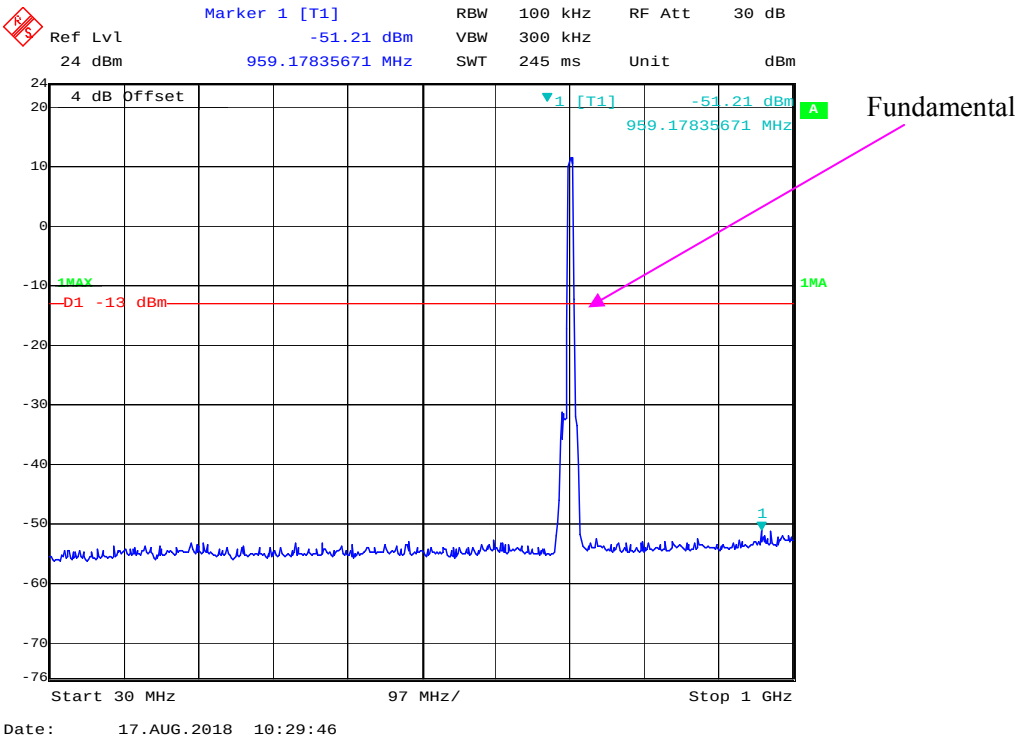
LTE Band 17 (Middle Channel)

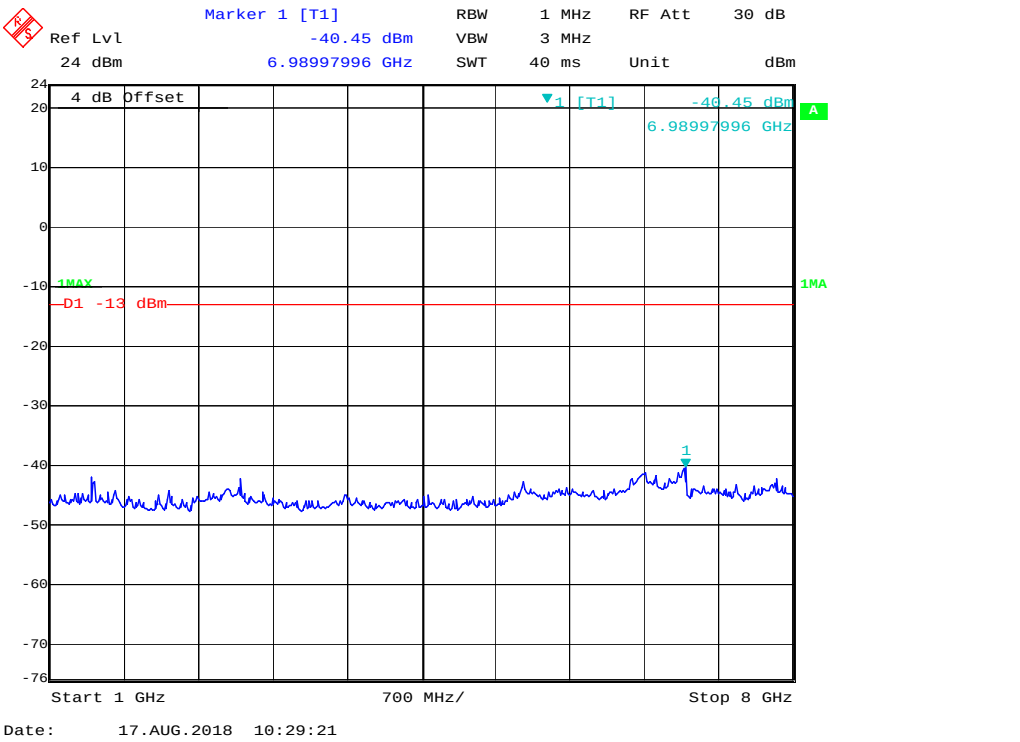
QPSK_5 MHz





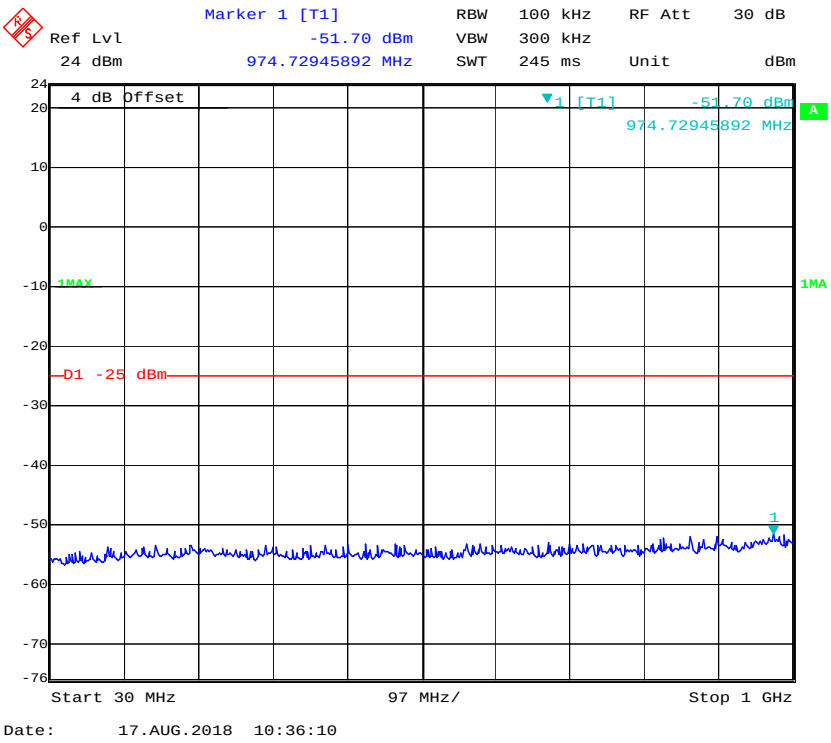
QPSK_10 MHz

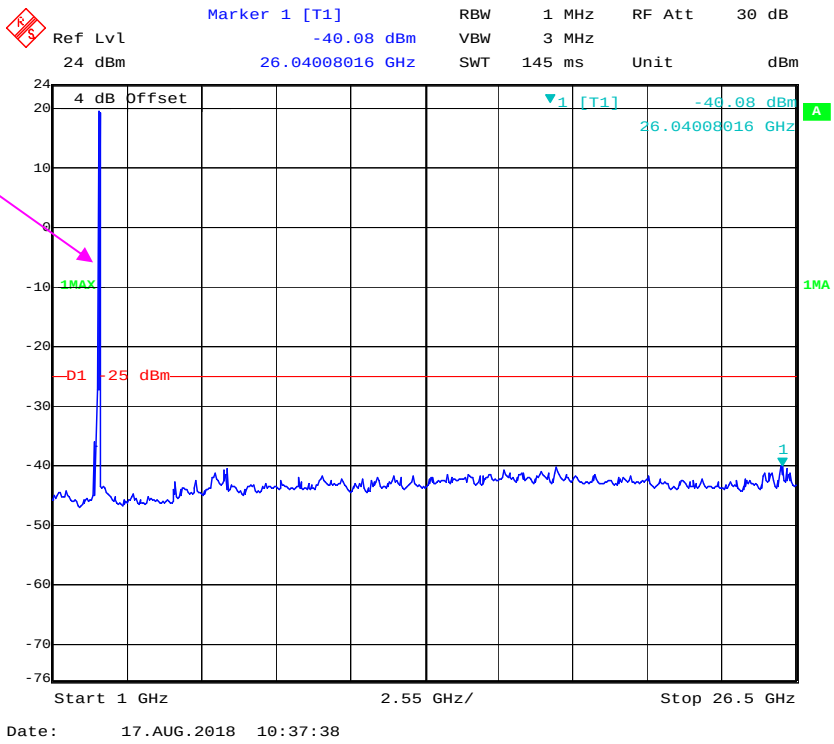

Marker 1 [T1]
Ref Lvl
24 dBm
-51.21 dBm
959.17835671 MHz
RBW 100 kHz
VBW 300 kHz
SWT 245 ms
RF Att 30 dB
Unit dBm
4 dB Offset
1 [T1] -51.21 dBm
959.17835671 MHz
1MAX
D1 -13 dBm
1MA
Fundamental
Start 30 MHz
97 MHz/
Stop 1 GHz
Date: 17.AUG.2018 10:29:46


Marker 1 [T1]
Ref Lvl
24 dBm
-40.45 dBm
6.98997996 GHz
RBW 1 MHz
VBW 3 MHz
SWT 40 ms
RF Att 30 dB
Unit dBm
4 dB Offset
1 [T1] -40.45 dBm
6.98997996 GHz
1MAX
D1 -13 dBm
1MA
Start 1 GHz
700 MHz/
Stop 8 GHz
Date: 17.AUG.2018 10:29:21

LTE Band 38 (Middle Channel)

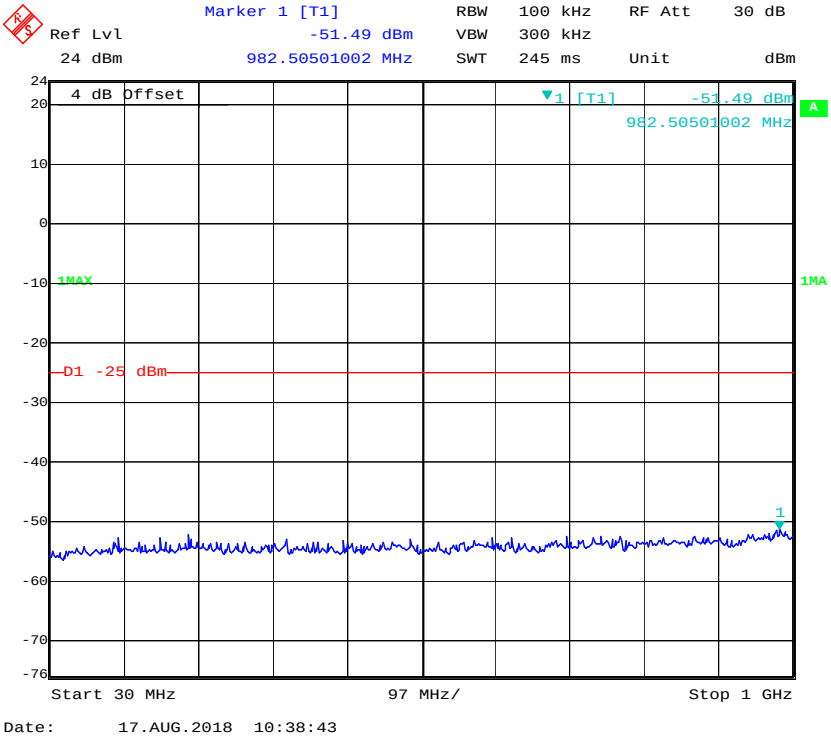
QPSK_5 MHz

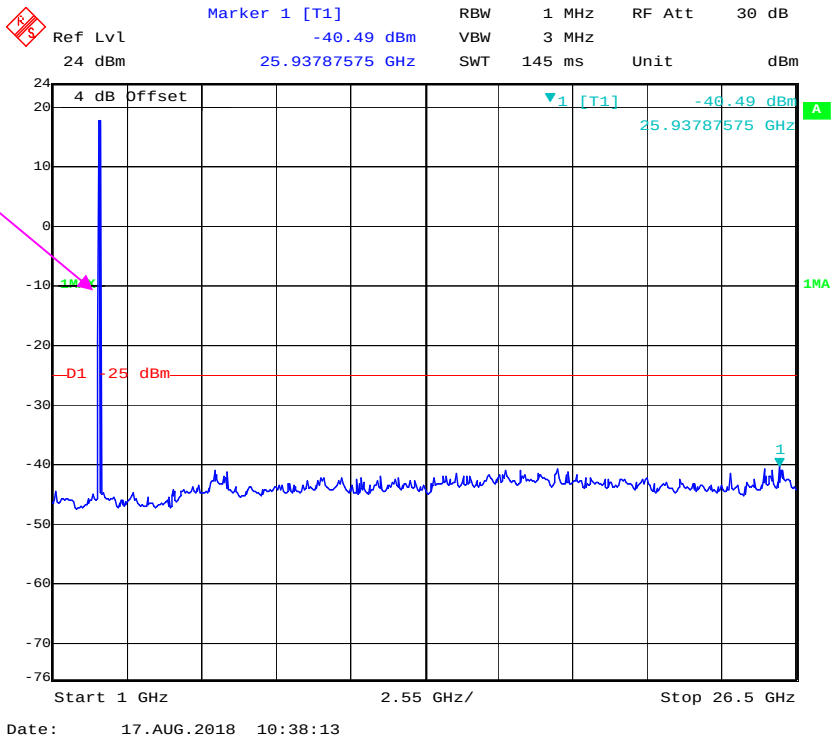




Fundamental

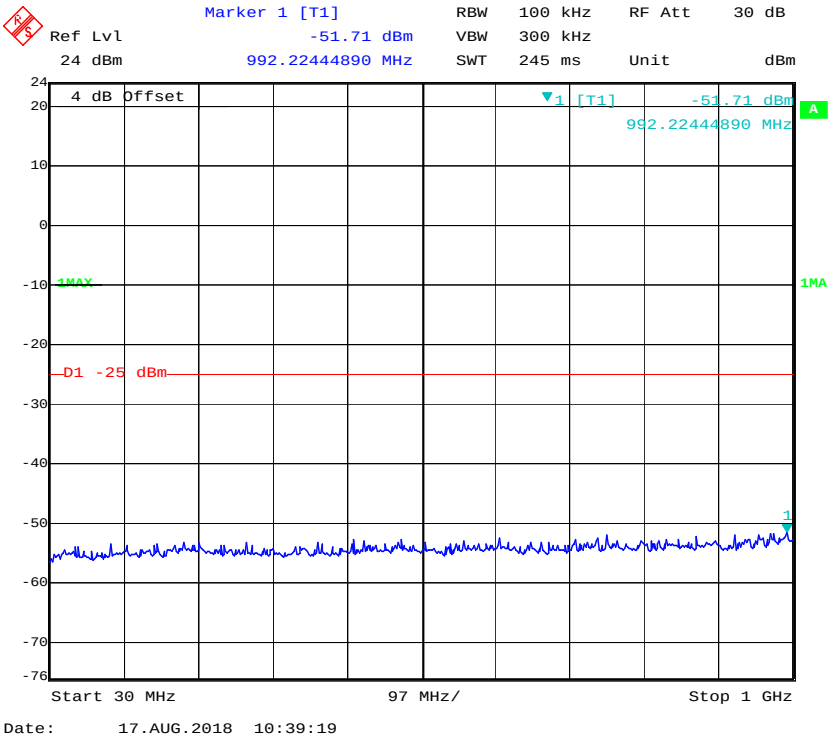
QPSK_10 MHz



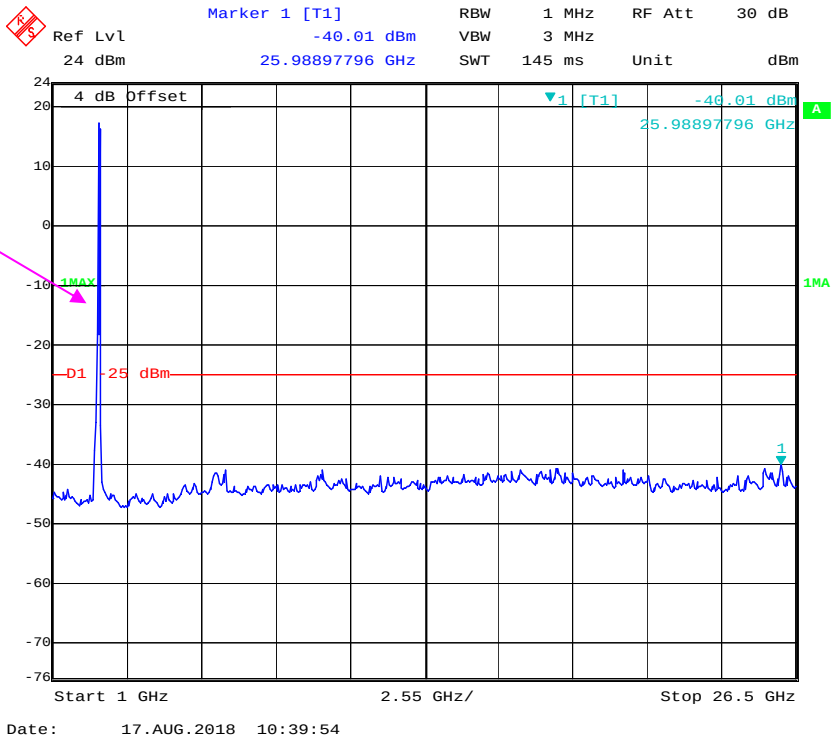


Fundamental

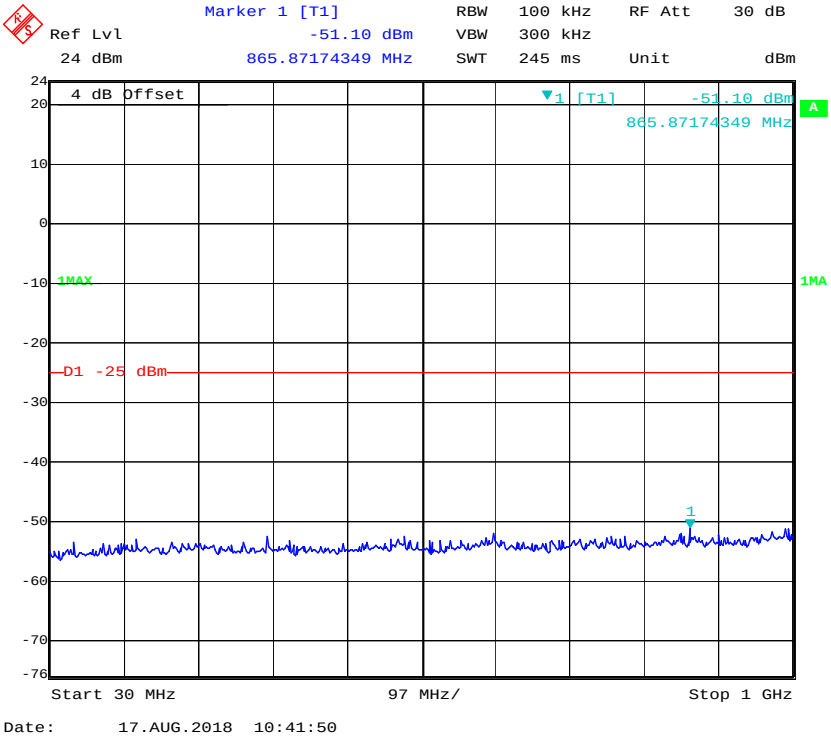
QPSK_15 MHz

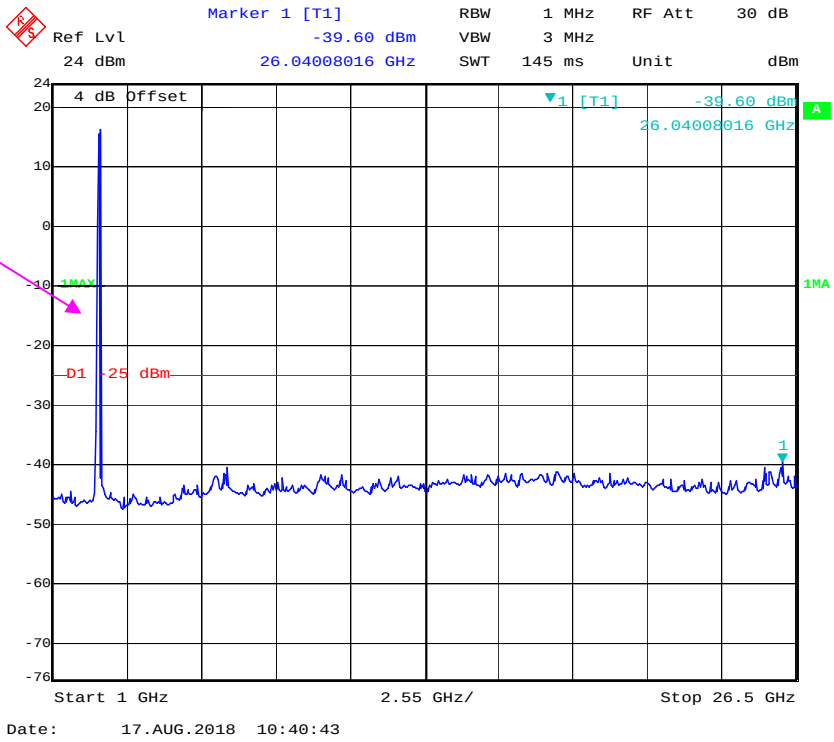


Fundamental



QPSK_20 MHz

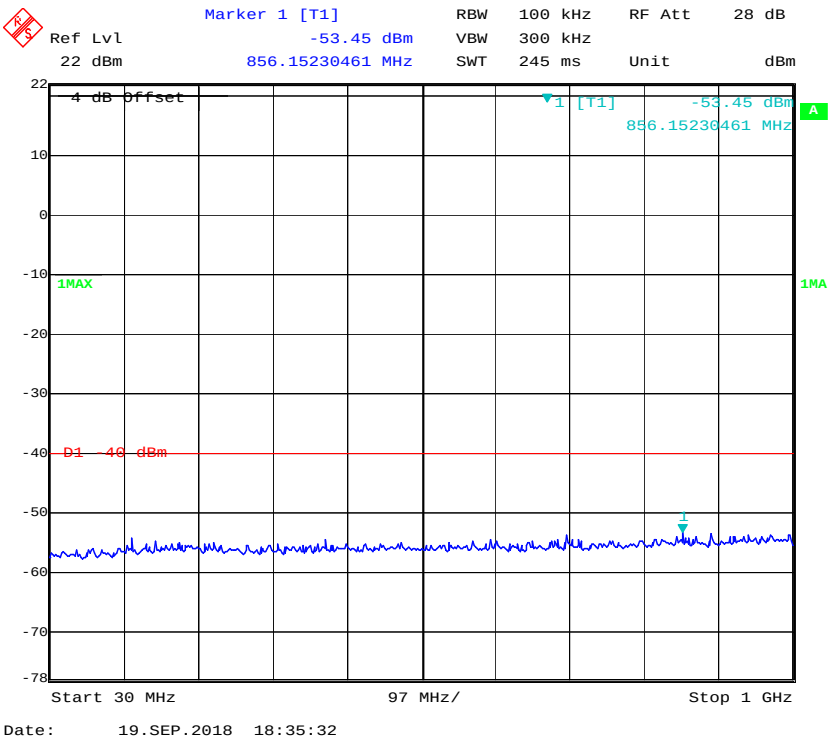




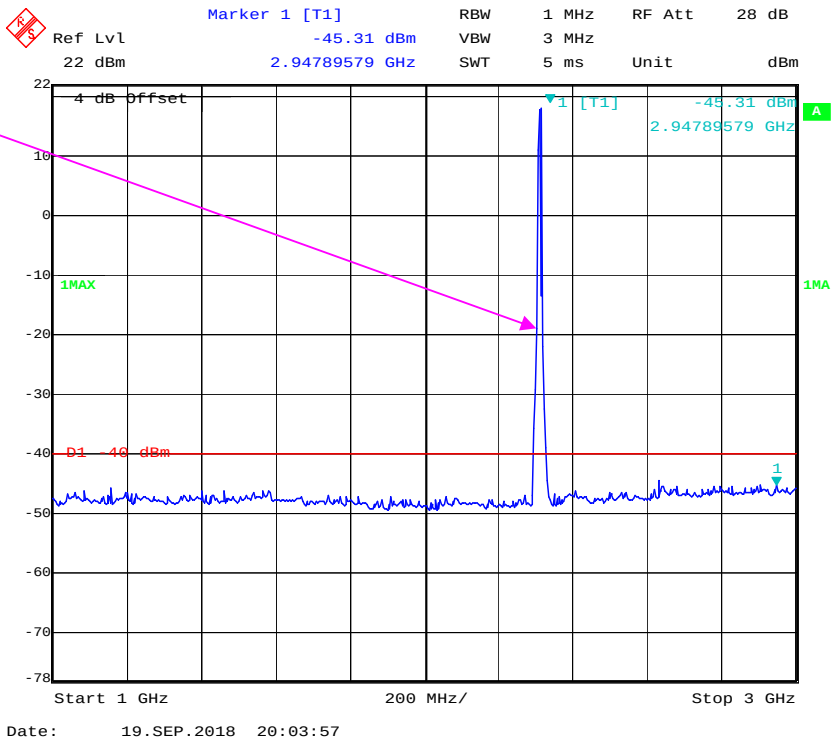
Fundamental

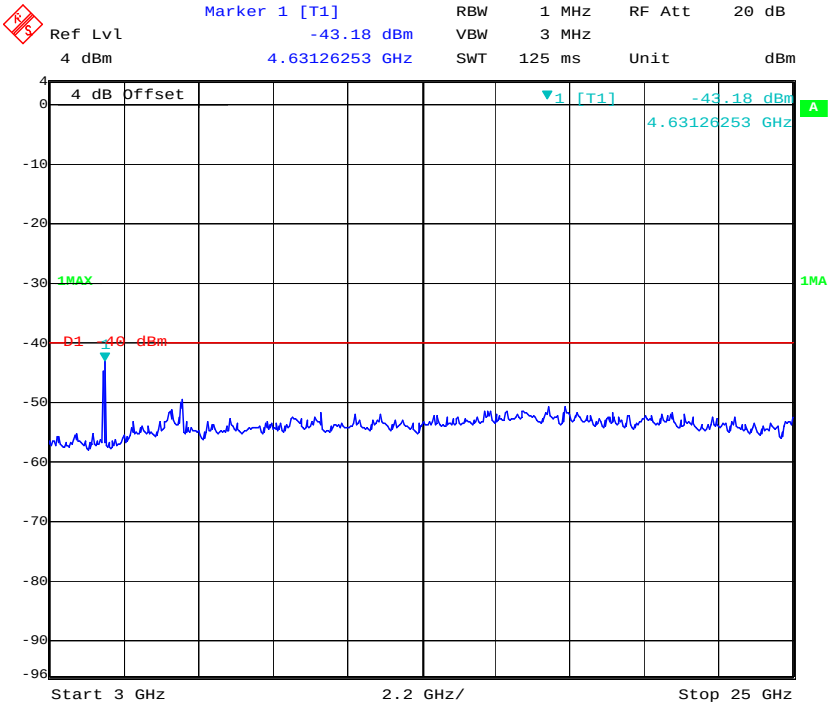
LTE Band 40 (2305-2315MHz Middle Channel)

QPSK_5 MHz

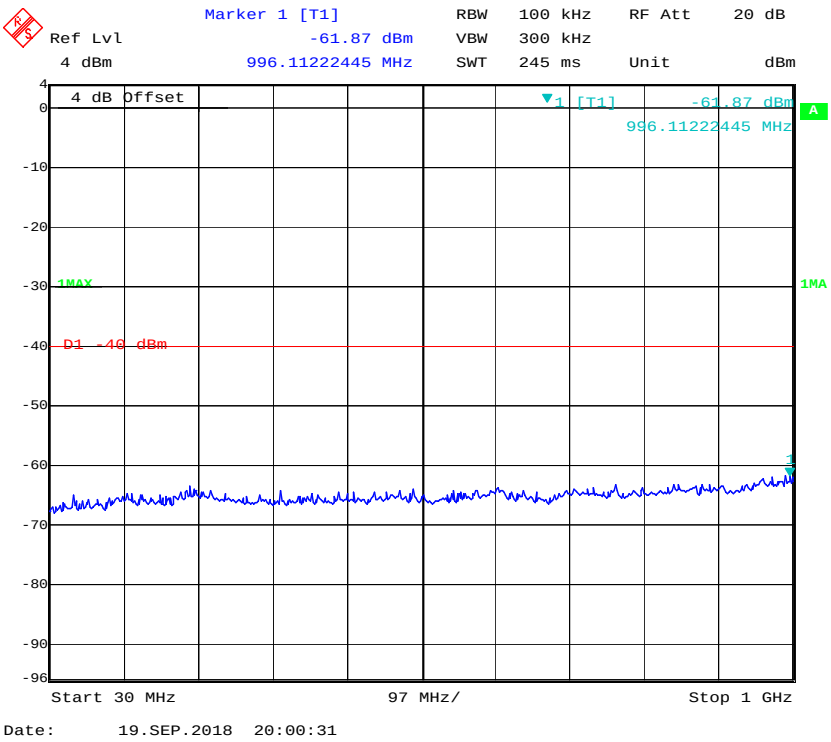


Fundamental

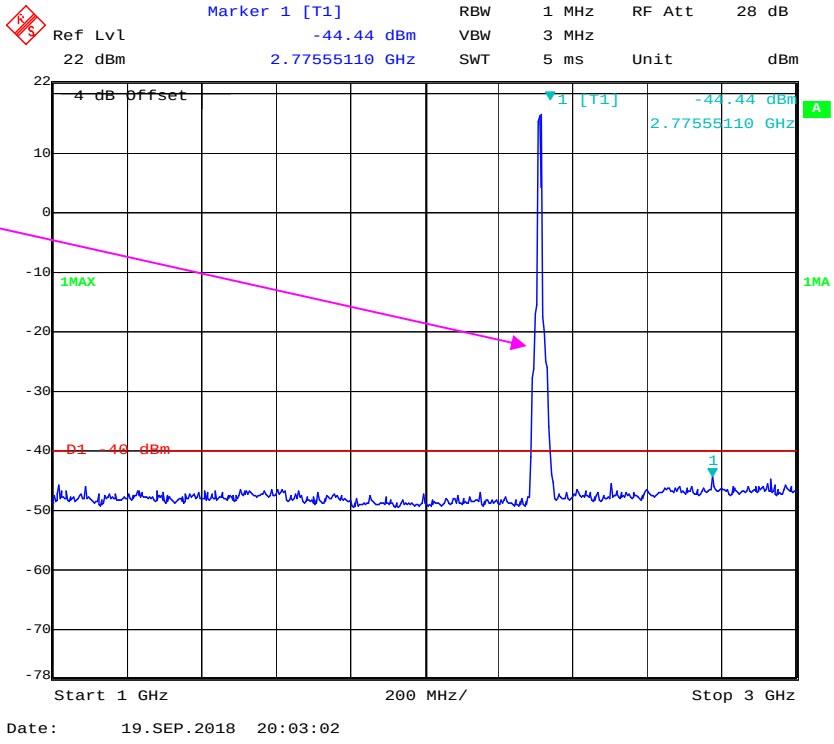


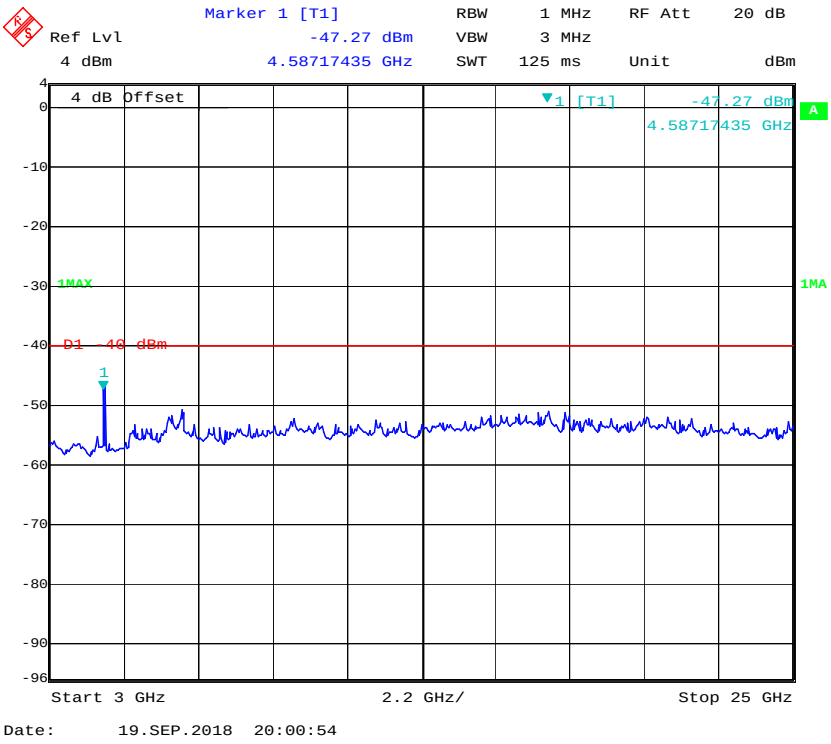

Marker 1 [T1]
Ref Lvl
4 dBm
-43.18 dBm
4.63126253 GHz
RBW 1 MHz
VBW 3 MHz
SWT 125 ms
RF Att 20 dB
Unit dBm
4 dB Offset
1 [T1] -43.18 dBm
4.63126253 GHz
1MAX
1MA
D1 -40 dBm
Start 3 GHz
2.2 GHz/
Stop 25 GHz
Date: 19.SEP.2018 19:59:10

QPSK_10 MHz


Marker 1 [T1]
Ref Lvl
4 dBm
-61.87 dBm
996.11222445 MHz
RBW 100 kHz
VBW 300 kHz
SWT 245 ms
RF Att 20 dB
Unit dBm
4 dB Offset
1 [T1] -61.87 dBm
996.11222445 MHz
1MAX
1MA
D1 -40 dBm
Start 30 MHz
97 MHz/
Stop 1 GHz
Date: 19.SEP.2018 20:00:31

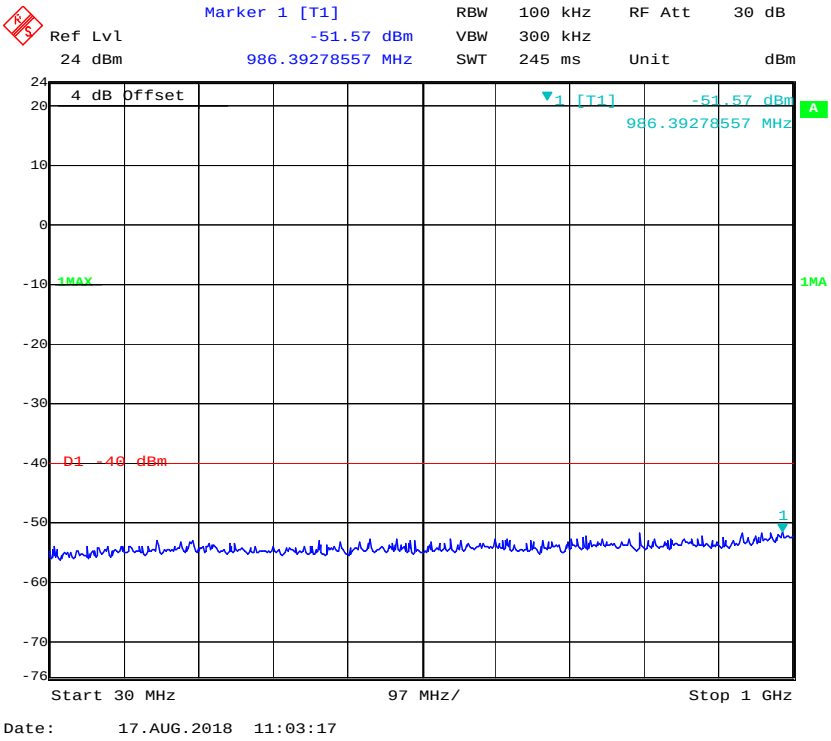
Fundamental

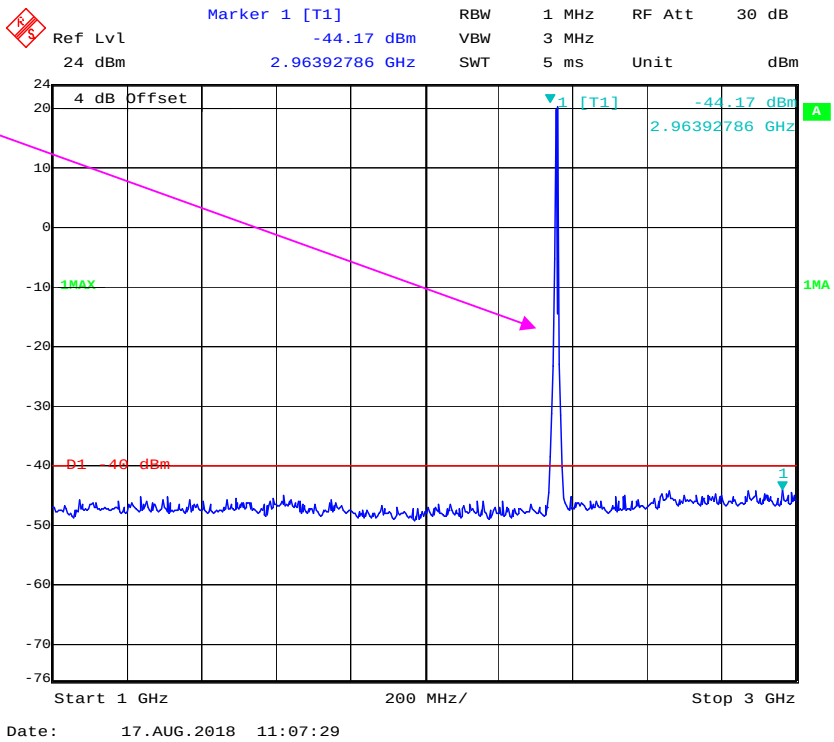




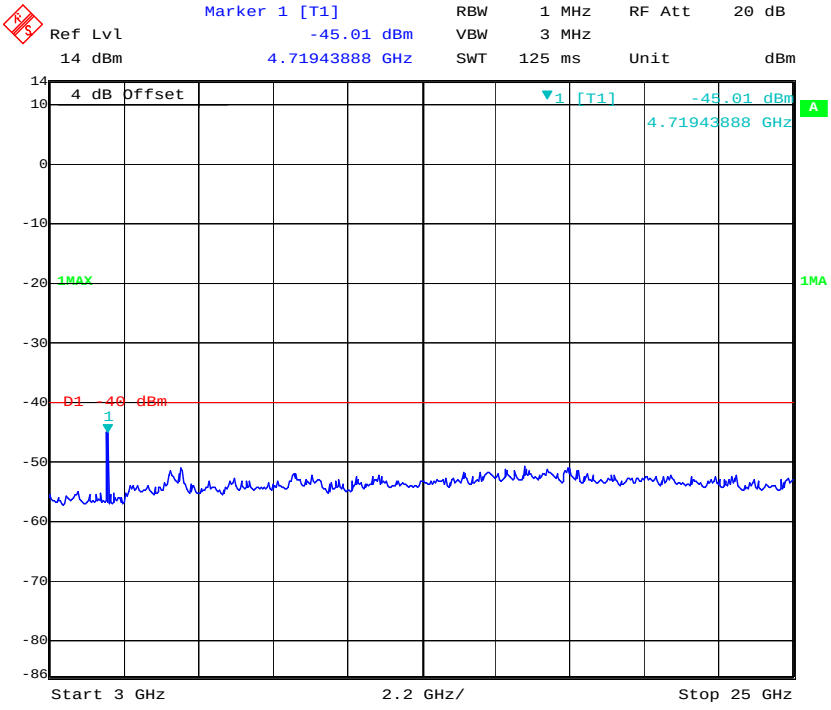
LTE Band 40 (2350-2360MHz Middle Channel)

QPSK_5 MHz

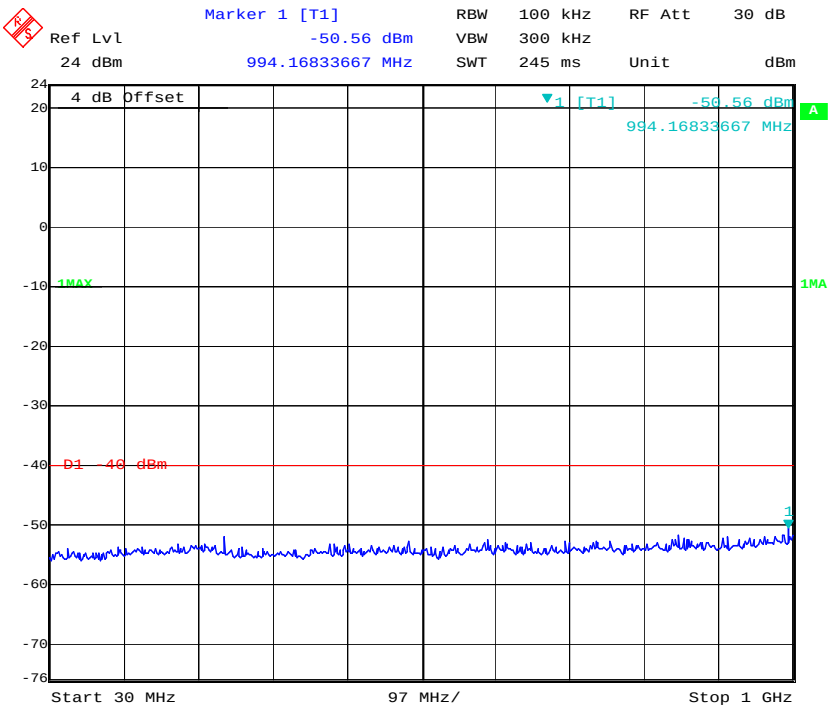




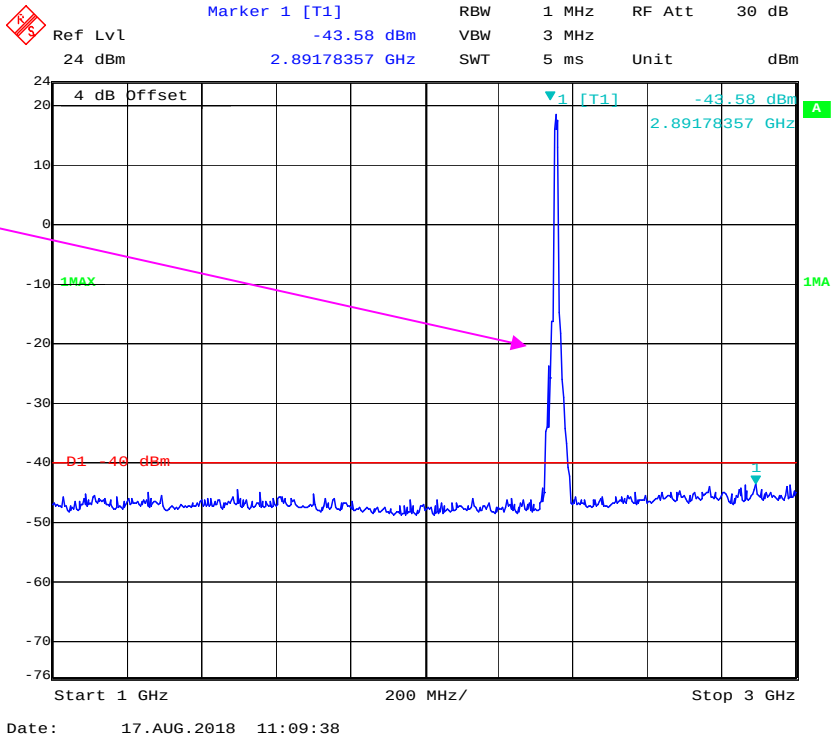
Fundamental

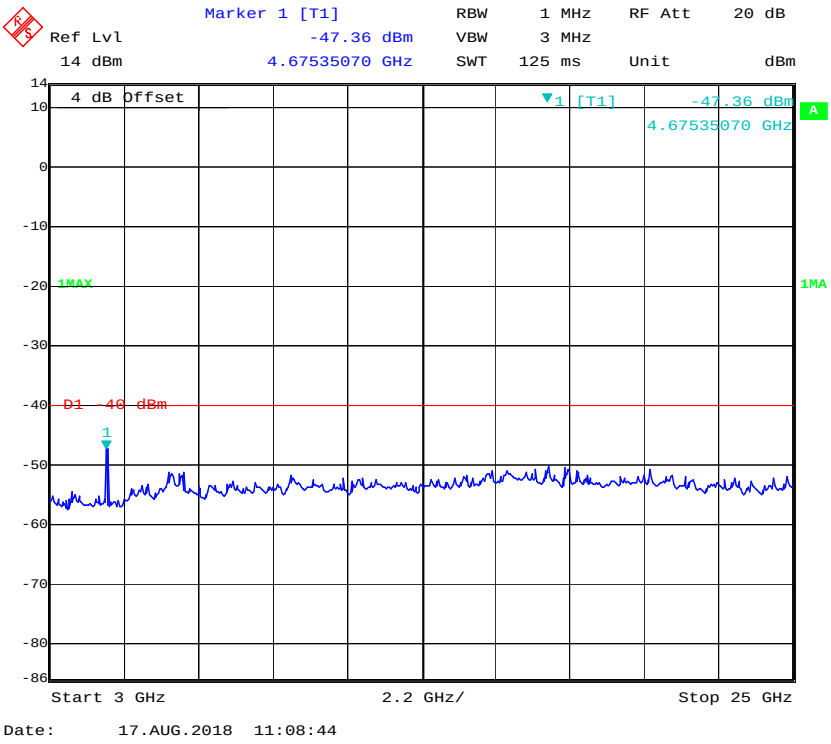

Marker 1 [T1]
RBW 1 MHz
RF Att 20 dB
Ref Lvl
-45.01 dBm
VBW 3 MHz
14 dBm
4.71943888 GHz
SWT 125 ms
Unit dBm
4 dB Offset
1 [T1]
-45.01 dBm
4.71943888 GHz
1MAX
1MA
D1 -40 dBm
Start 3 GHz
2.2 GHz/
Stop 25 GHz
Date: 17.AUG.2018 11:07:58

QPSK_10 MHz


Marker 1 [T1]
RBW 100 kHz
RF Att 30 dB
Ref Lvl
-50.56 dBm
VBW 300 kHz
24 dBm
994.16833667 MHz
SWT 245 ms
Unit dBm
4 dB Offset
1 [T1]
-50.56 dBm
994.16833667 MHz
1MAX
1MA
D1 -40 dBm
Start 30 MHz
97 MHz/
Stop 1 GHz
Date: 17.AUG.2018 11:10:15

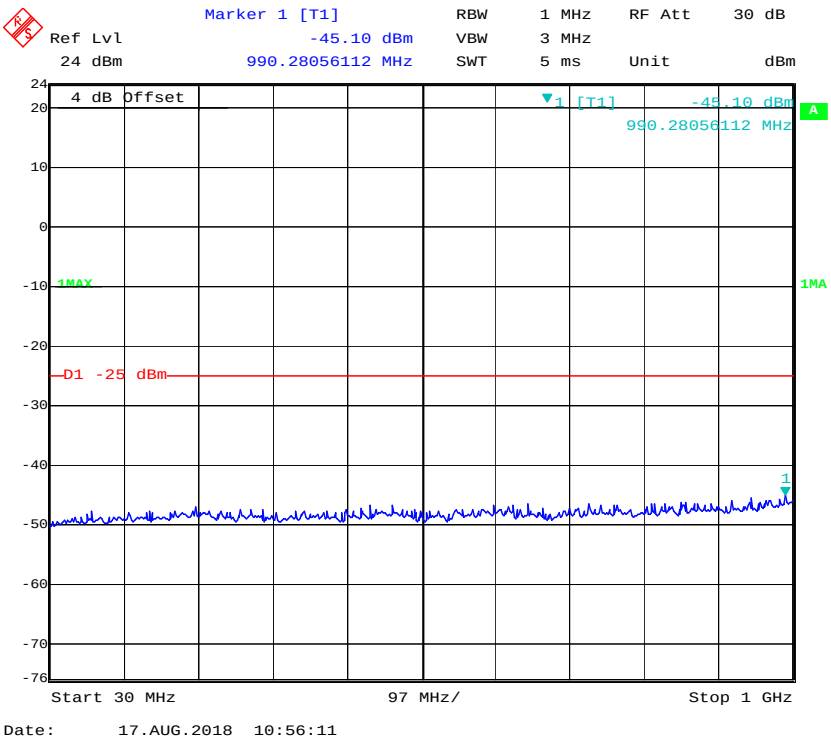
Fundamental

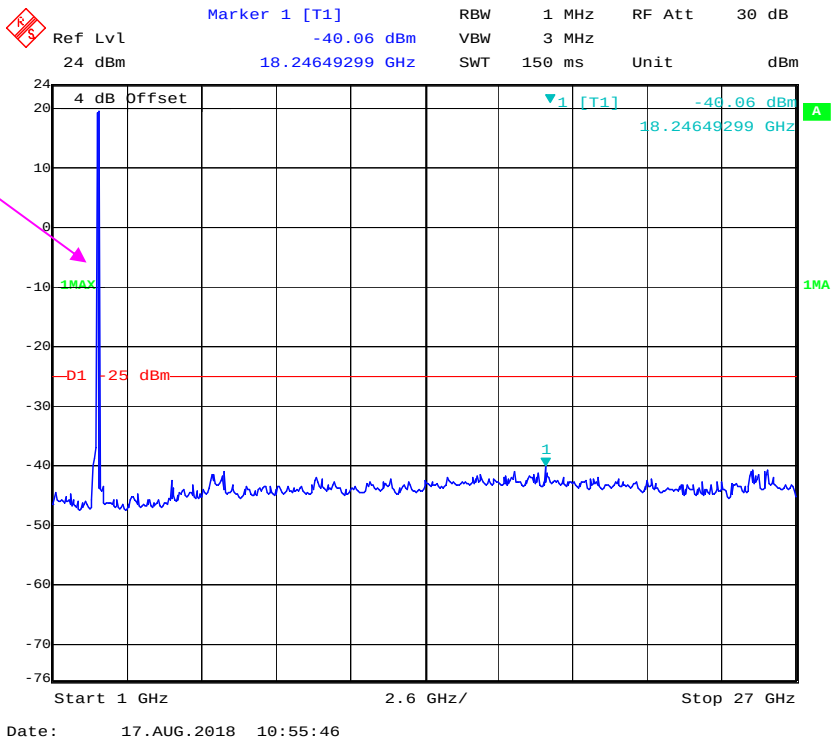




LTE Band 41 (Middle Channel)

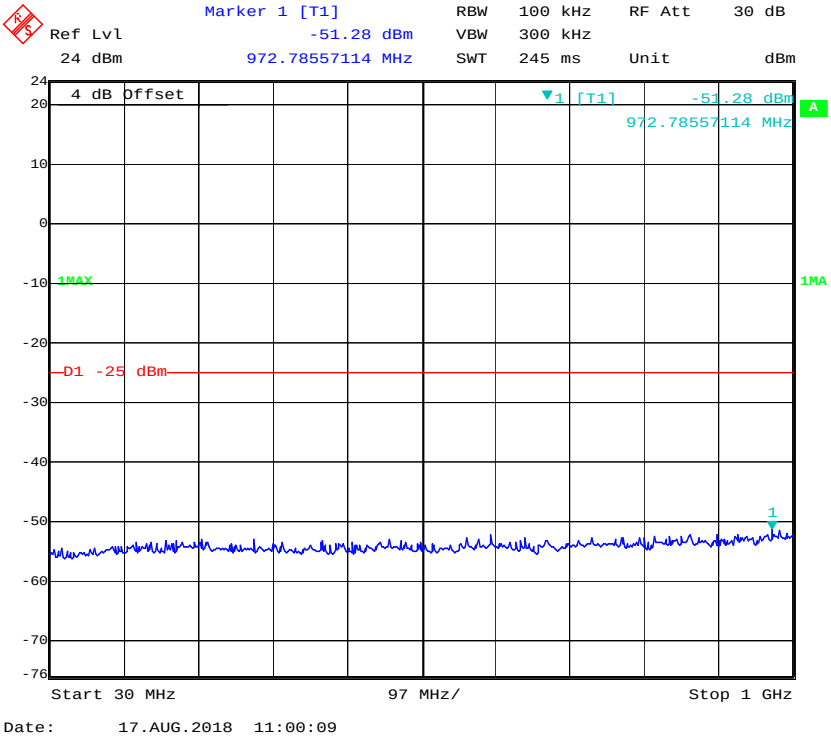
QPSK_5 MHz

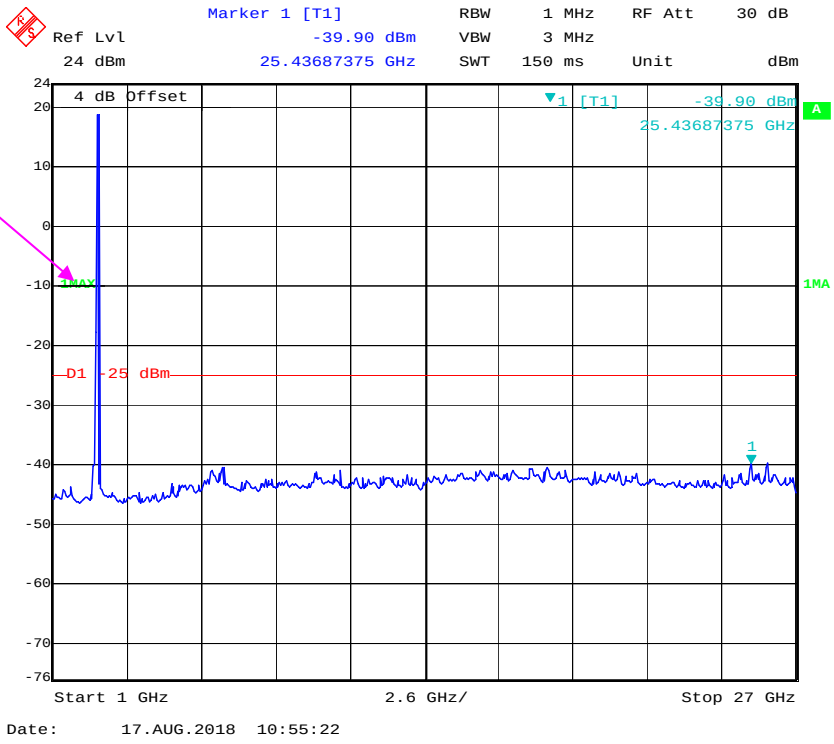




Fundamental

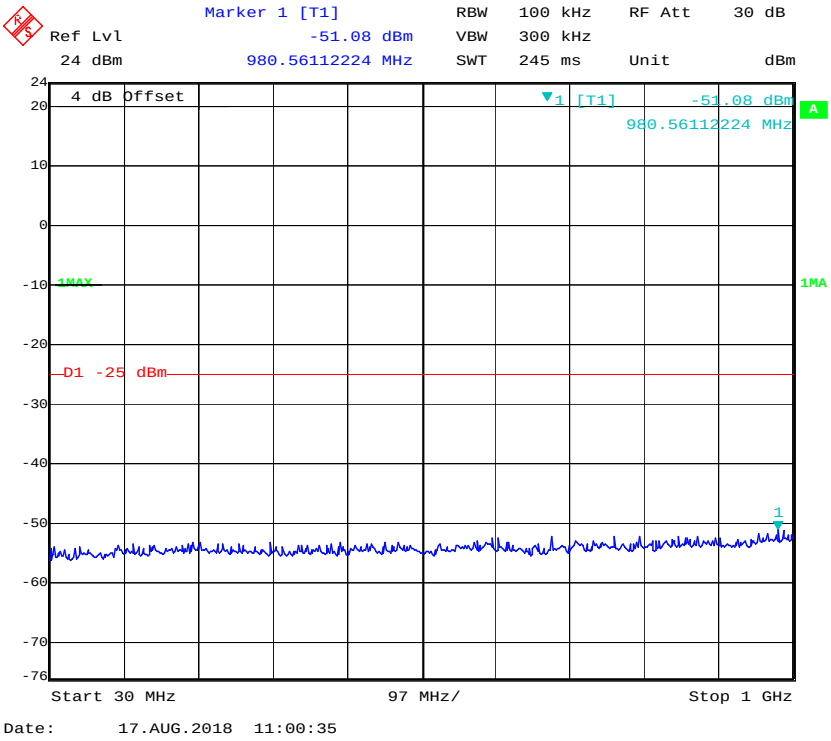
QPSK_10 MHz



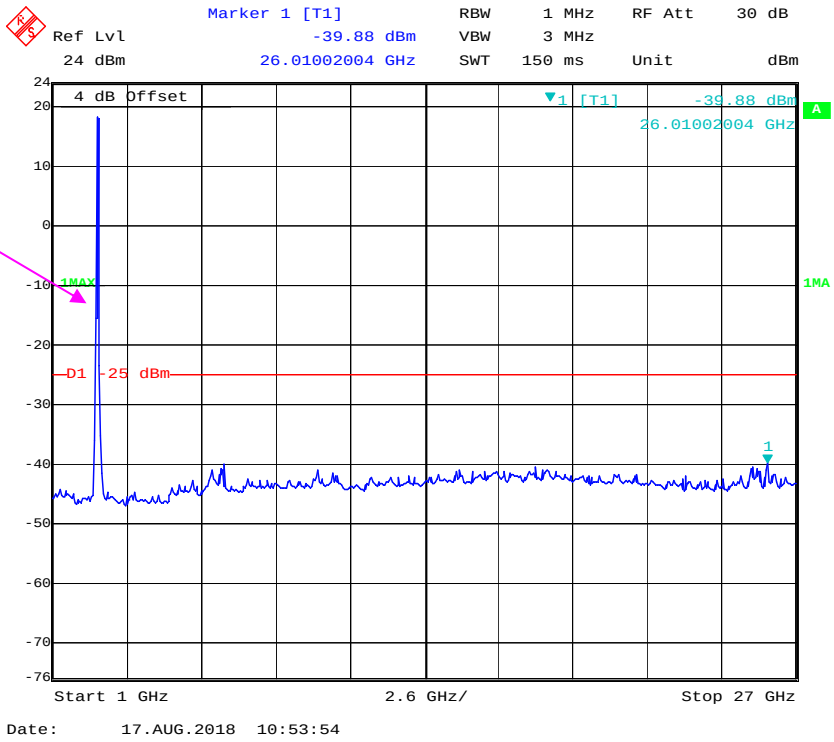


Fundamental

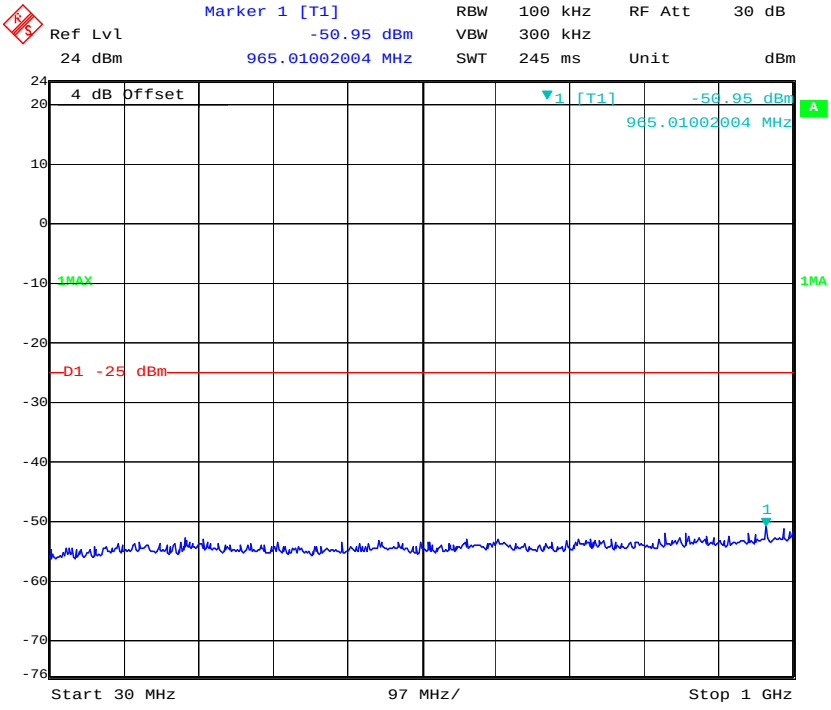
QPSK_15 MHz

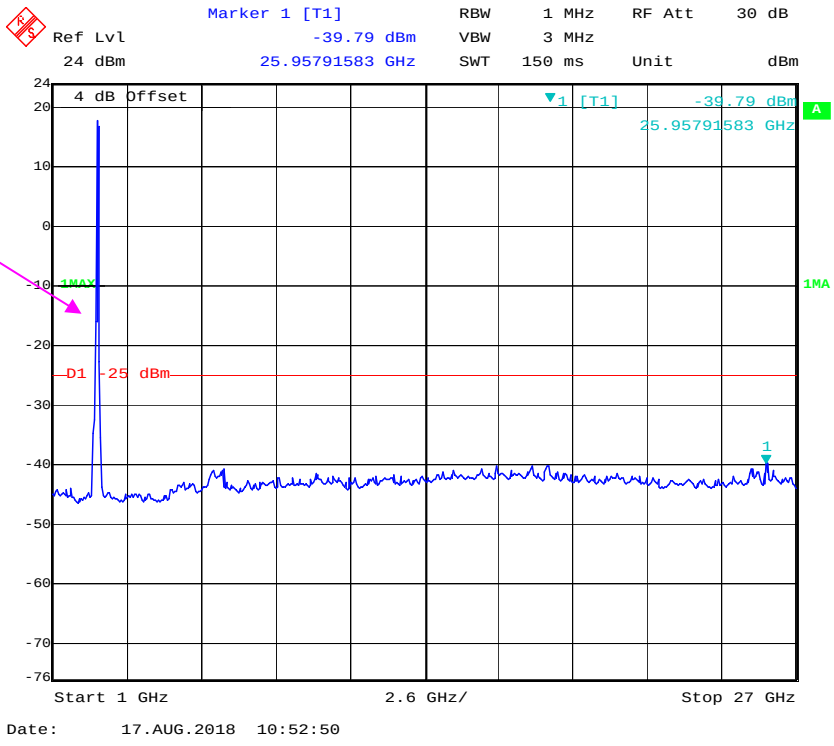


Fundamental



QPSK_20 MHz





Fundamental

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

Applicable Standard

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

Test Procedure

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

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

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

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

Spurious emissions in dB = 10 lg (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
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2017-09-05	2018-09-05
HP	Amplifier	8447D	2727A05902	2017-09-05	2018-09-05
R&S	Universal Radio Communication Tester	CMU200	110 822	2017-12-24	2018-12-14
Rohde & Schwarz	Signal Analyzer	FSIQ26	831929/005	2017-08-31	2018-08-31
Agilent	Signal Generator	E8247C	MY43321350	2017-12-11	2018-12-11
Agilent	Spectrum Analyzer	E4440A	SG43360054	2018-01-04	2019-01-04
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-SJSJ-50	C-0800-01	2017-09-05	2018-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2017-09-05	2018-09-05
MITEQ	Amplifier	AFS42-00101800-25-S-42	2001271	2017-09-05	2018-09-05

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

Test Data

Environmental Conditions

Temperature:	26.6~29°C
Relative Humidity:	33~59 %
ATM Pressure:	99.1~100.5 kPa

** The testing was performed by Blake Yang & Vern Shen on 2018-08-07 to 2018-08-21.*

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	50.87	-63.34	10.6	0.73	-53.5	-13.0	40.5
1673.200	V	49.32	-65.49	10.6	0.73	-55.6	-13.0	42.6
2509.800	H	61.73	-51.29	13.1	1.25	-39.4	-13.0	26.4
2509.800	V	58.12	-54.93	13.1	1.25	-43.1	-13.0	30.1
3346.400	H	50.24	-60.42	13.8	1.61	-48.2	-13.0	35.2
3346.400	V	48.03	-62.68	13.8	1.61	-50.5	-13.0	37.5
584.840	H	56.54	-45.91	0.0	0.75	-46.7	-13.0	33.7
594.540	V	53.12	-52.37	0.0	0.76	-53.1	-13.0	40.1
WCDMA Band V R99,Frequency:836.600 MHz								
1673.200	H	74.31	-39.9	10.6	0.73	-30.0	-13.0	17.0
1673.200	V	71.63	-43.18	10.6	0.73	-33.3	-13.0	20.3
2509.800	H	83.71	-29.31	13.1	1.25	-17.5	-13.0	4.5
2509.800	V	81.52	-31.53	13.1	1.25	-19.7	-13.0	6.7
3346.400	H	66.17	-44.49	13.8	1.61	-32.3	-13.0	19.3
3346.400	V	62.75	-47.96	13.8	1.61	-35.7	-13.0	22.7
179.380	H	50.29	-59.4	0.0	0.44	-59.8	-13.0	46.8
64.920	V	56.97	-53.52	-7.7	0.23	-61.4	-13.0	48.4

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)			
GPRS1900, Frequency:1880.000 MHz								
3760.000	H	57.43	-51.37	13.8	1.63	-39.2	-13.0	26.2
3760.000	V	55.81	-52.86	13.8	1.63	-40.7	-13.0	27.7
5640.000	H	53.67	-52.36	14.0	1.31	-39.7	-13.0	26.7
5640.000	V	51.39	-54.52	14.0	1.31	-41.8	-13.0	28.8
255.940	H	51.42	-57.75	0.0	0.51	-58.3	-13.0	45.3
62.980	V	53.86	-55.41	-8.7	0.23	-64.4	-13.0	51.4
WCDMA Band II, R99, Frequency:1880.000 MHz								
3760.000	H	76.12	-32.68	13.8	1.63	-20.6	-13.0	7.6
3760.000	V	75.43	-33.24	13.8	1.63	-21.1	-13.0	8.1
5640.000	H	65.68	-40.35	14.0	1.31	-27.6	-13.0	14.6
5640.000	V	65.52	-40.39	14.0	1.31	-27.7	-13.0	14.7
159.980	H	50.34	-56.76	0.0	0.4	-57.2	-13.0	44.2
433.520	V	43.97	-63.89	0.0	0.64	-64.5	-13.0	51.5

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	56.36	-53.88	13.9	1.62	-41.6	-13.0	28.6
3465.200	V	55.91	-54.36	13.9	1.62	-42.1	-13.0	29.1
5197.800	H	51.54	-54.88	14.0	1.52	-42.4	-13.0	29.4
5197.800	V	53.46	-53.03	14.0	1.52	-40.6	-13.0	27.6
159.980	H	50.41	-56.69	0.0	0.4	-57.1	-13.0	44.1
332.640	V	42.32	-67.07	0.0	0.55	-67.6	-13.0	54.6

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								
3760.00	H	77.51	-31.29	13.76	1.63	-19.16	-13.00	6.16
3760.00	V	82.22	-26.45	13.76	1.63	-14.32	-13.00	1.32
5640.00	H	64.60	-41.43	14.02	1.31	-28.72	-13.00	15.72
5640.00	V	65.02	-40.89	14.02	1.31	-28.18	-13.00	15.18
800.18	H	45.06	-53.59	0.00	0.93	-54.52	-13.00	41.52
800.18	V	43.17	-59.23	0.00	0.93	-60.16	-13.00	47.16

LTE Band 4 (30MHz-20GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK,Frequency:1732.500 MHz								
3465.00	H	83.56	-26.68	13.91	1.62	-14.39	-13.00	1.39
3465.00	V	83.72	-26.56	13.91	1.62	-14.27	-13.00	1.27
5197.50	H	74.88	-31.54	14.00	1.52	-19.06	-13.00	6.06
5197.50	V	75.26	-31.23	14.00	1.52	-18.75	-13.00	5.75
499.48	H	47.39	-56.84	0.00	0.71	-57.55	-13.00	44.55
299.66	V	50.76	-59.24	0.00	0.52	-59.76	-13.00	46.76

LTE Band 5 (30MHz-10GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK,Frequency: 836.500 MHz								
1673.00	H	58.46	-55.75	10.61	0.73	-45.87	-13.00	32.87
1673.00	V	61.32	-53.49	10.61	0.73	-43.61	-13.00	30.61
2509.50	H	50.17	-62.85	13.11	1.25	-50.99	-13.00	37.99
2509.50	V	53.95	-59.10	13.11	1.25	-47.24	-13.00	34.24
3346.00	H	45.31	-65.35	13.83	1.61	-53.13	-13.00	40.13
3346.00	V	46.44	-64.27	13.83	1.61	-52.05	-13.00	39.05
158.04	H	51.41	-55.57	0.00	0.39	-55.96	-13.00	42.96
64.92	V	55.27	-55.22	-7.69	0.23	-63.14	-13.00	50.14

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								
5070.00	H	55.72	-51.08	13.93	1.34	-38.49	-25.00	13.49
5070.00	V	55.98	-50.63	13.93	1.34	-38.04	-25.00	13.04
7605.00	H	53.67	-46.69	13.21	1.40	-34.88	-25.00	9.88
7605.00	V	53.73	-47.03	13.21	1.40	-35.22	-25.00	10.22
497.54	H	46.98	-57.26	0.00	0.71	-57.97	-25.00	32.97
400.54	V	48.41	-59.76	0.00	0.61	-60.37	-25.00	35.37

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								
1420.00	H	54.66	-58.94	9.10	1.23	-51.07	-13.00	38.07
1420.00	V	56.83	-57.27	9.10	1.23	-49.40	-13.00	36.40
2130.00	H	53.95	-58.80	11.22	1.11	-48.69	-13.00	35.69
2130.00	V	55.74	-56.98	11.22	1.11	-46.87	-13.00	33.87
2840.00	H	48.96	-63.08	13.42	1.36	-51.02	-13.00	38.02
2840.00	V	51.07	-61.21	13.42	1.36	-49.15	-13.00	36.15
156.10	H	50.19	-56.67	0.00	0.39	-57.06	-13.00	44.06
299.16	V	51.45	-58.58	0.00	0.52	-59.10	-13.00	46.10

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	56.39	-50.03	13.99	1.51	-37.55	-25.00	12.55
5190.00	V	60.14	-46.33	13.99	1.51	-33.85	-25.00	8.85
7785.00	H	46.32	-54.12	13.32	1.53	-42.33	-25.00	17.33
7785.00	V	46.85	-53.84	13.32	1.53	-42.05	-25.00	17.05
163.86	H	49.47	-58.15	0.00	0.41	-58.56	-25.00	33.56
299.66	V	50.17	-59.83	0.00	0.52	-60.35	-25.00	35.35

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	54.56	-53.89	14.24	1.81	-41.46	-40.00	1.46
4620.00	V	55.64	-52.91	14.24	1.81	-40.48	-40.00	0.48
6930.00	H	45.29	-57.01	13.64	1.81	-45.18	-40.00	5.18
6930.00	V	46.32	-55.84	13.64	1.81	-44.01	-40.00	4.01
347.81	H	43.12	-63.69	0.00	0.56	-64.25	-40.00	24.25
512.37	V	45.96	-61.07	0.00	0.72	-61.79	-40.00	21.79
QPSK,Frequency:2355.000 MHz								
4710.00	H	54.34	-54.17	14.39	1.66	-41.44	-40.00	1.44
4710.00	V	55.75	-52.86	14.39	1.66	-40.13	-40.00	0.13
7065.00	H	45.28	-56.55	13.31	1.76	-45.00	-40.00	5.00
7065.00	V	46.35	-55.40	13.31	1.76	-43.85	-40.00	3.85
365.62	H	42.82	-63.31	0.00	0.58	-63.89	-40.00	23.89
499.47	V	45.56	-61.70	0.00	0.71	-62.41	-40.00	22.41

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								
5186.00	H	55.46	-50.95	13.99	1.50	-38.46	-25.00	13.46
5186.00	V	58.19	-48.27	13.99	1.50	-35.78	-25.00	10.78
7779.00	H	50.09	-50.34	13.32	1.53	-38.55	-25.00	13.55
7779.00	V	51.25	-49.44	13.32	1.53	-37.65	-25.00	12.65
150.40	H	51.69	-54.82	0.00	0.38	-55.20	-25.00	30.20
62.98	V	55.90	-53.37	-8.72	0.23	-62.32	-25.00	37.32

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

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

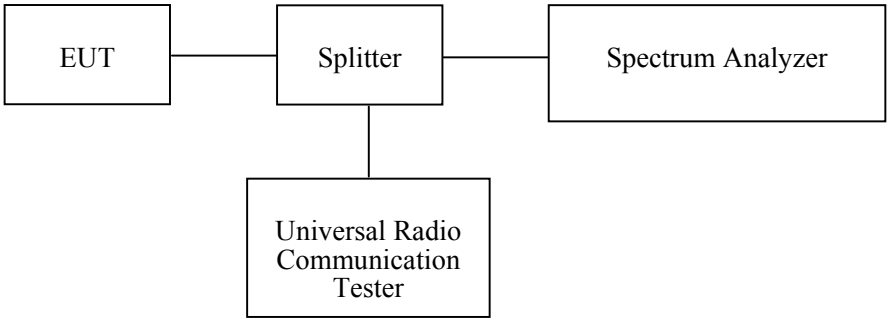
Applicable Standard

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

Test Procedure

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

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



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	831929/005	2017-08-31	2018-08-31
Rohde & Schwarz	Signal Analyzer	FSIQ26	831929/005	2018-08-31	2019-08-31
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41005011	Each Time	N/A
Unknown	Attenuator	UNAT-3+	15529	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

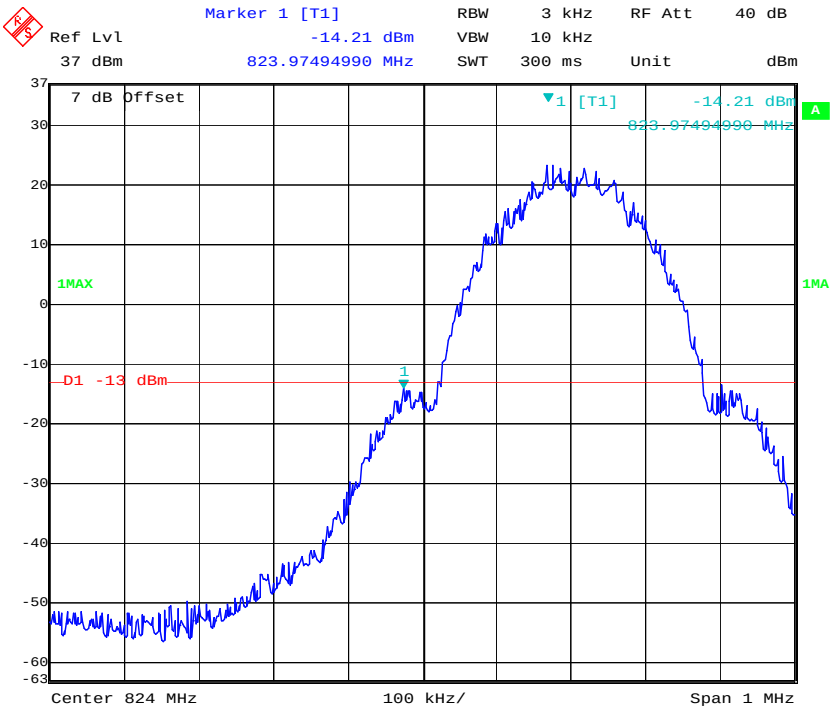
Temperature:	24.8~28°C
Relative Humidity:	52 ~ 65 %
ATM Pressure:	99.1~100.9 kPa

The testing was performed by Swim Lv from 2018-08-10 to 2018-10-31.

Test Mode: Transmitting

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

GPRS 850, Left Band Edge



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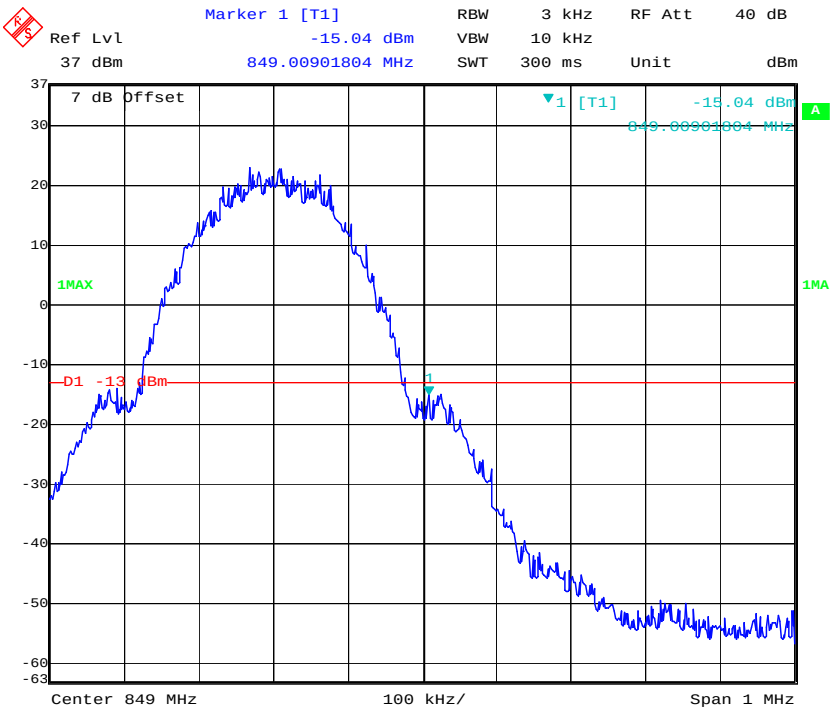
GPRS 850, Right Band Edge



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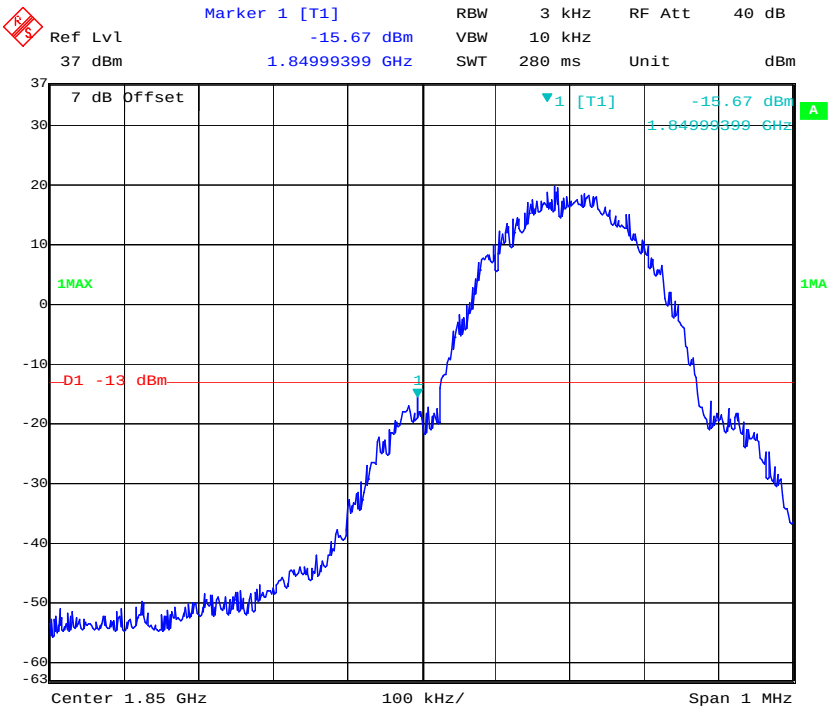
GPRS 1900, Left Band Edge



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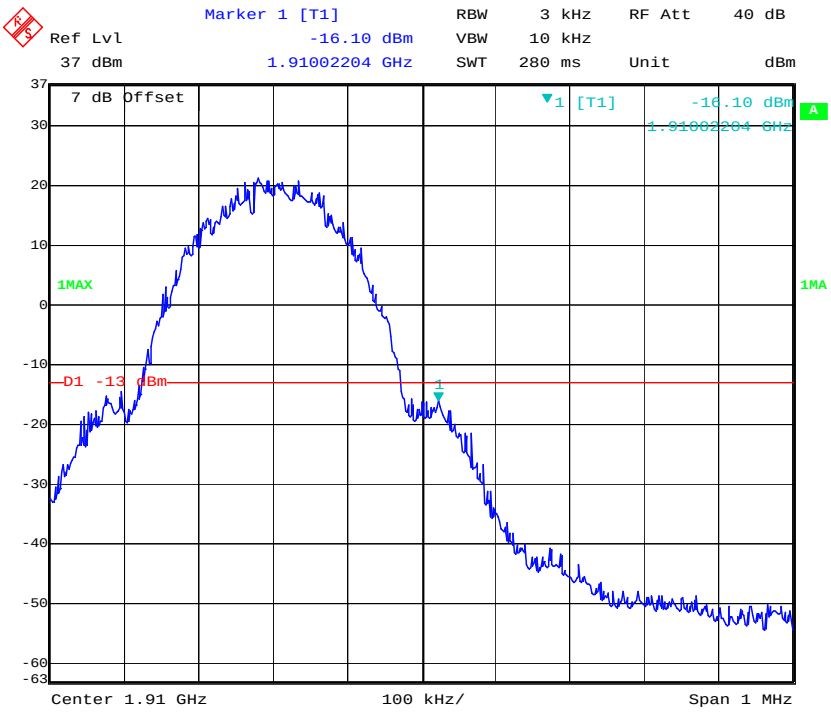
GPRS 1900, Right Band Edge



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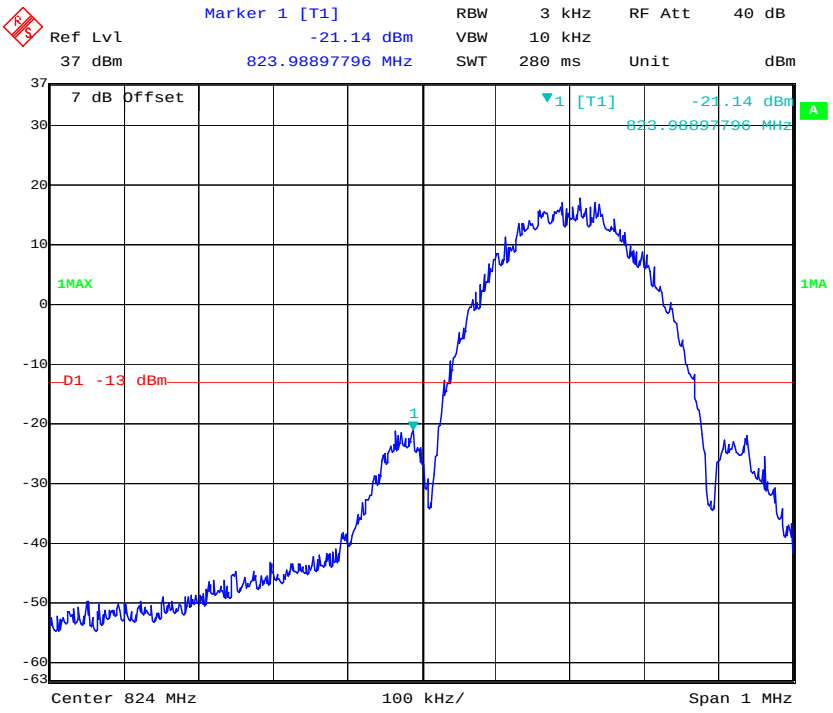
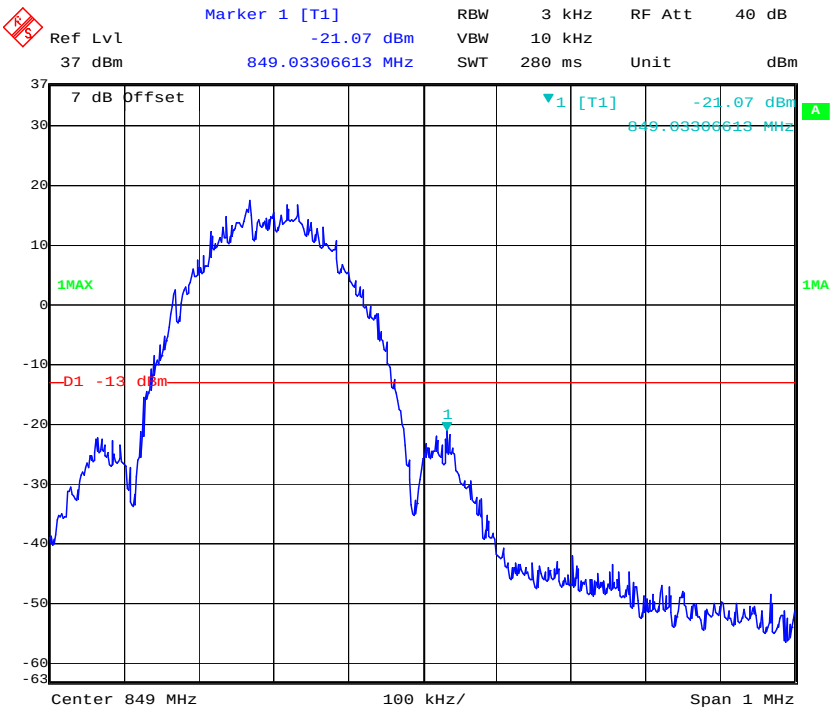
EDGE 850, Left Band Edge



Date: 10.AUG.2018 14:47:41

EDGE 850, Right Band Edge



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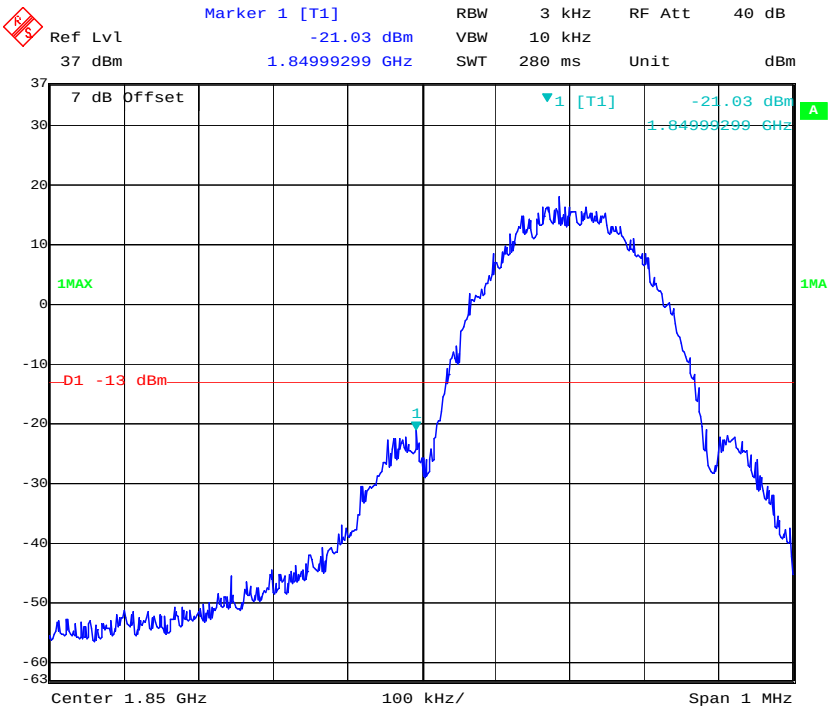
EDGE 1900, Left Band Edge



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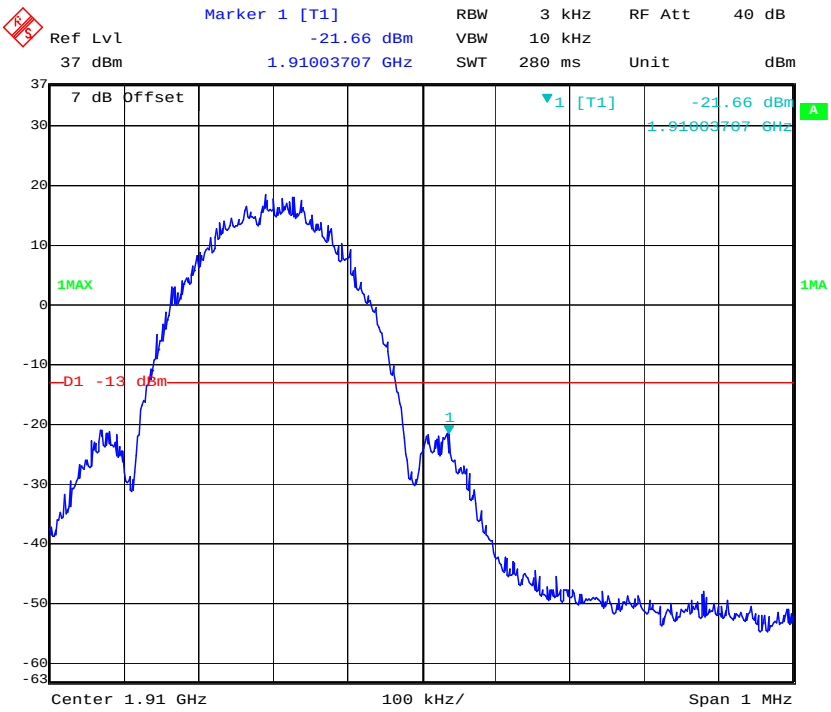
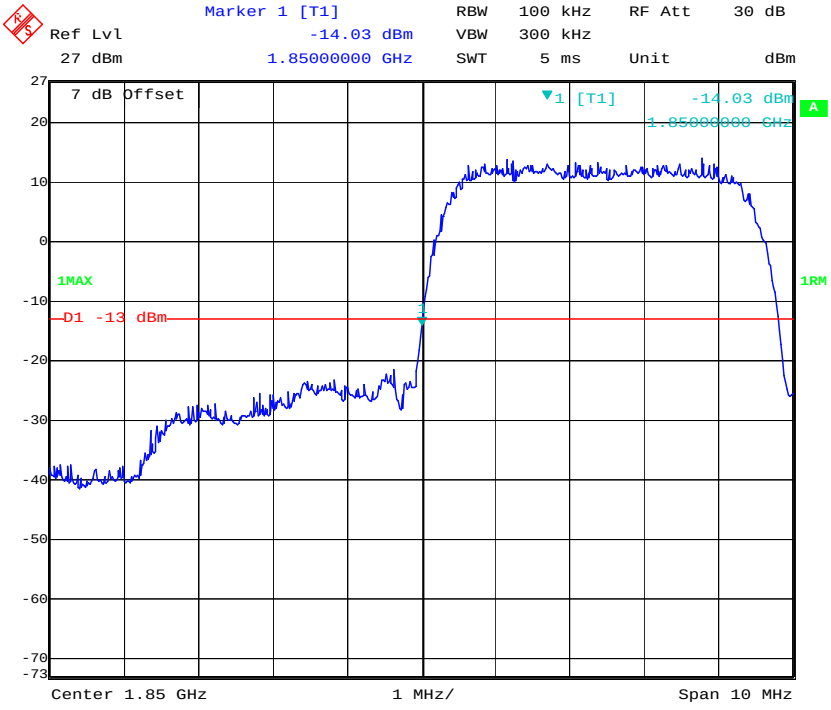
EDGE 1900, Right Band Edge



Date: 10.AUG.2018 14:26:45

WCDMA Band II Rel 99, Left Band Edge



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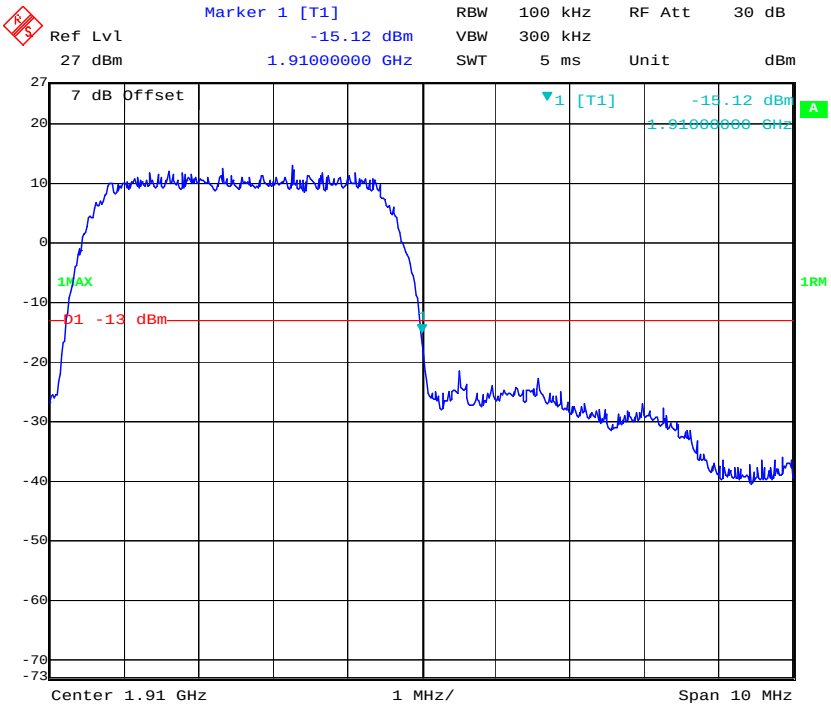
WCDMA Band II Rel 99, Right Band Edge



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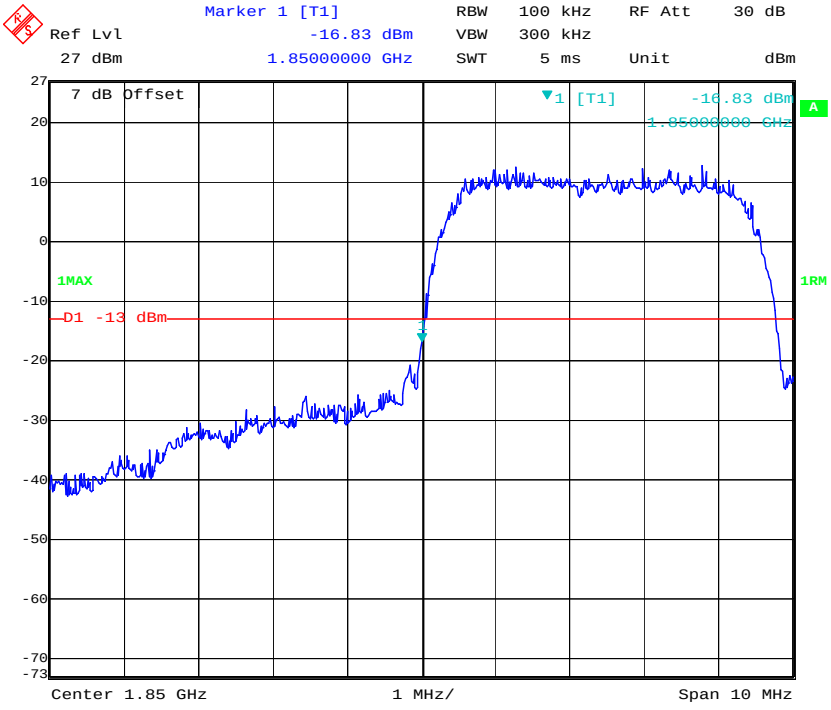
WCDMA Band II HSUPA, Left Band Edge



Date: 10.AUG.2018 15:06:37

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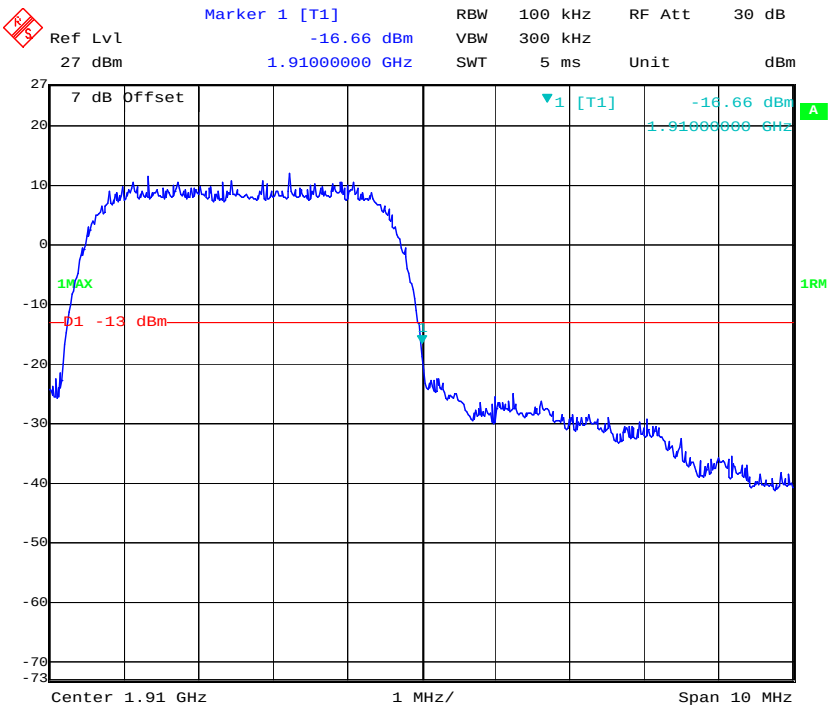

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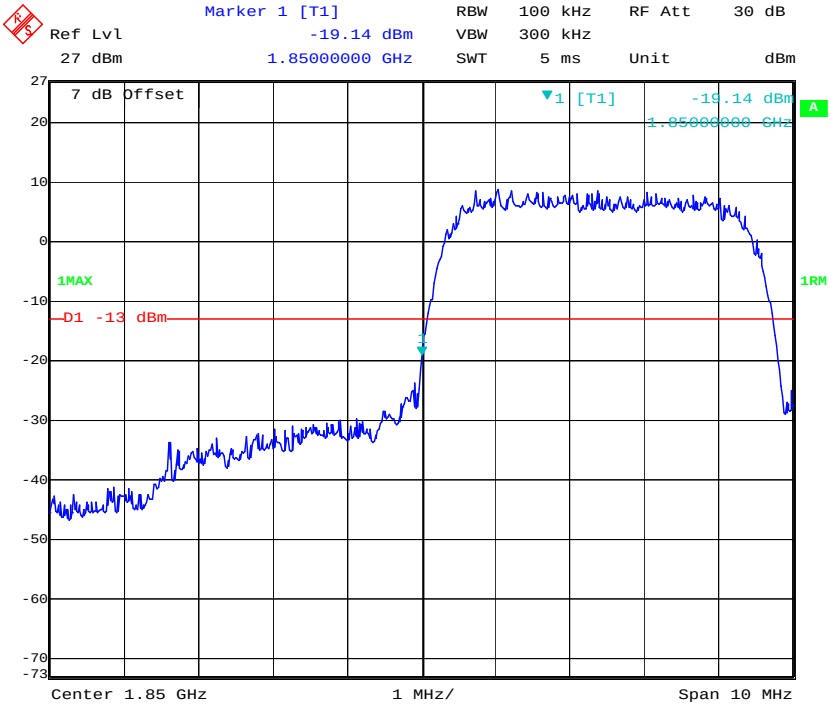
WCDMA Band II HSDPA, Left Band Edge



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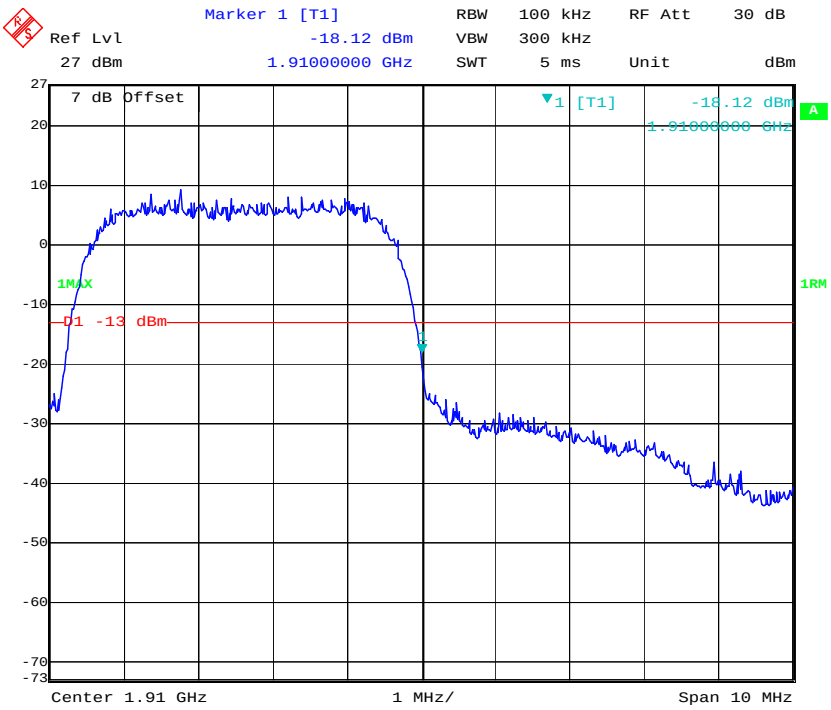
WCDMA Band II HSDPA, Right Band Edge



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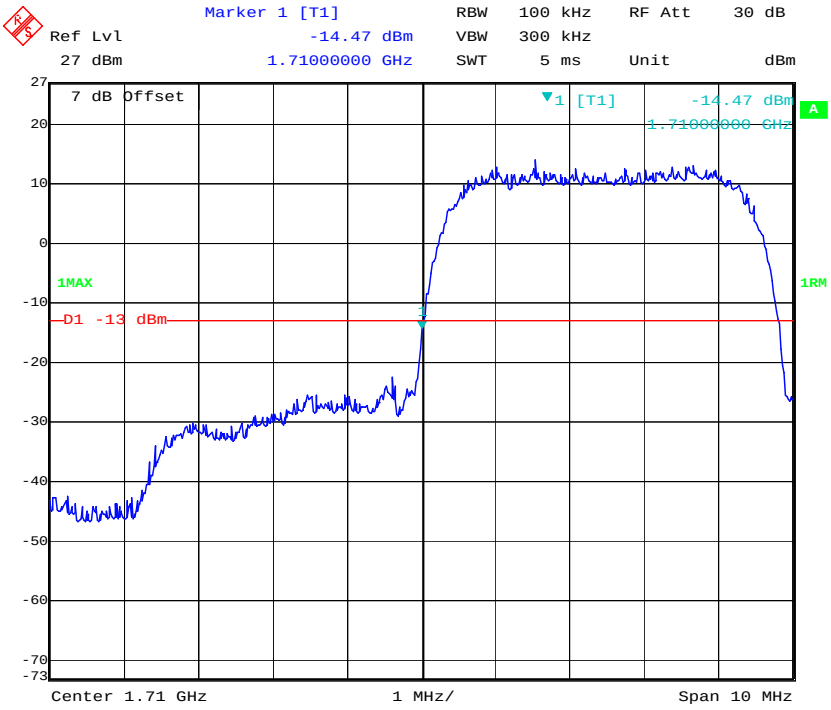
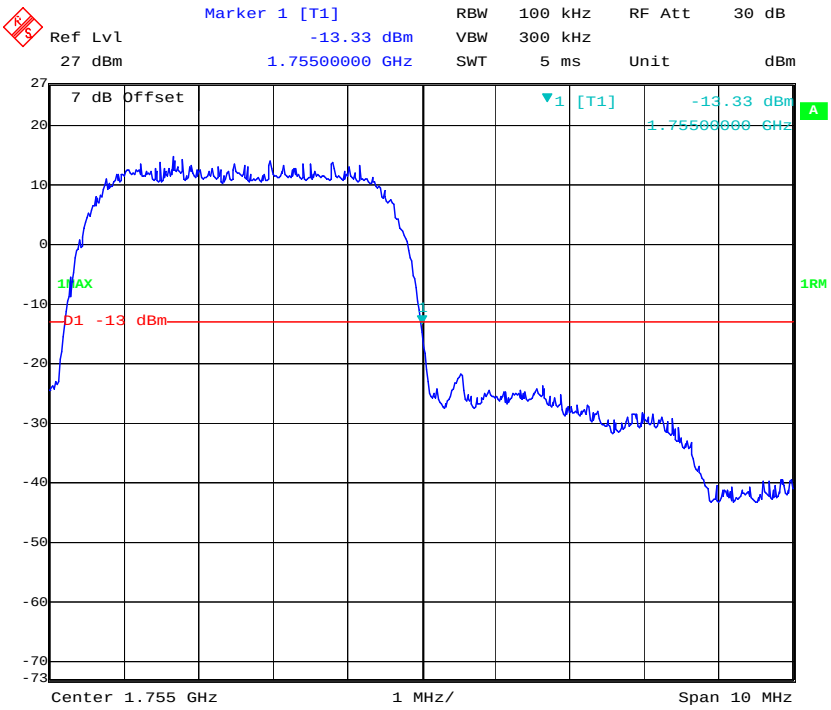
WCDMA Band IV Rel 99, Left Band Edge



Date: 12.SEP.2018 11:07:14

WCDMA Band IV Rel 99, Right Band Edge



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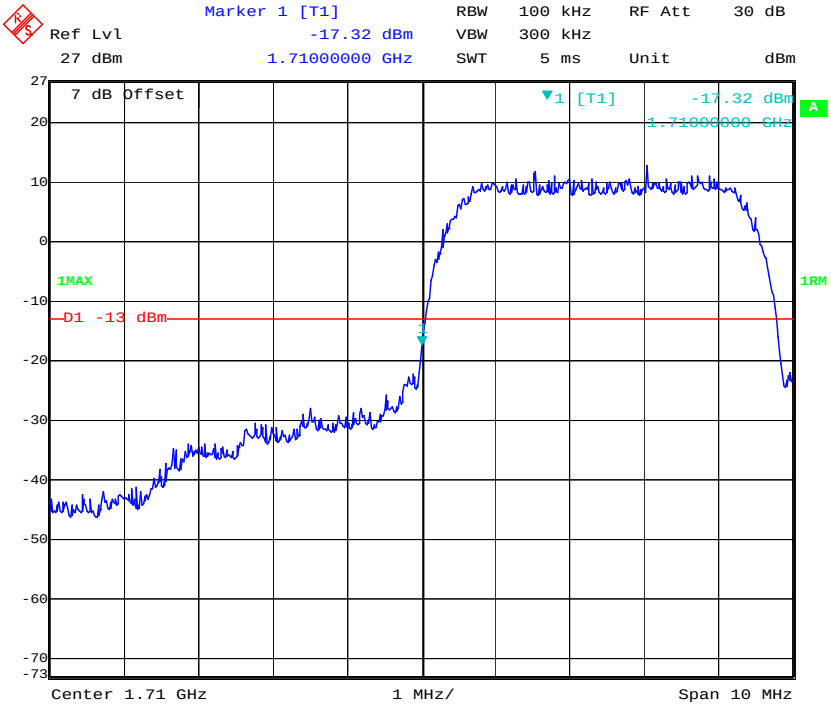

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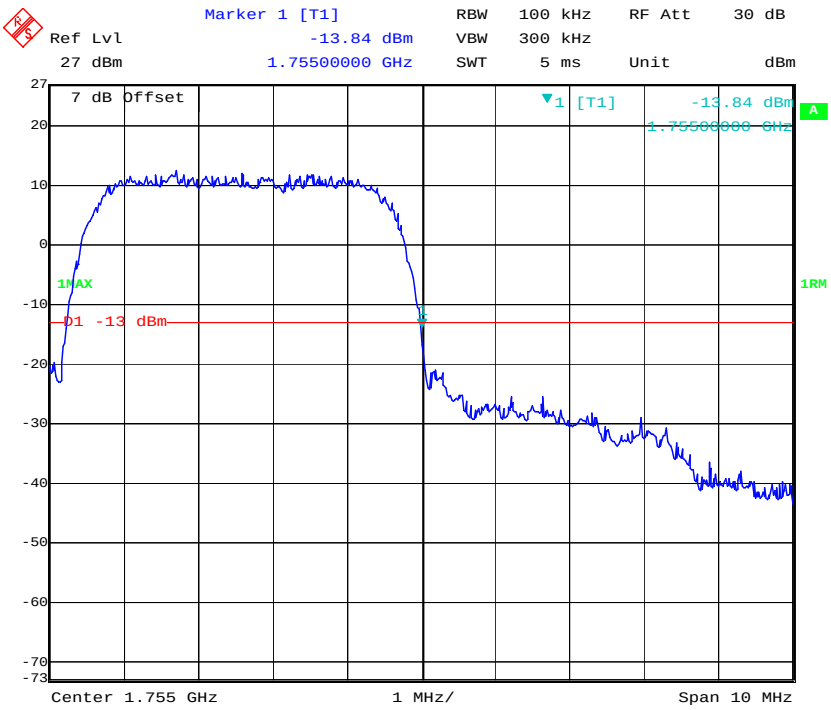
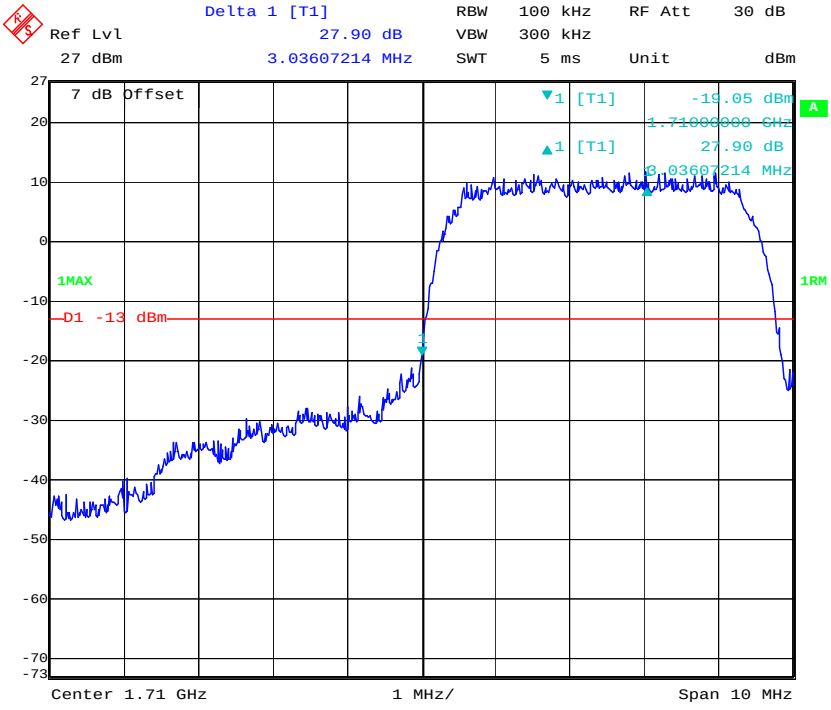


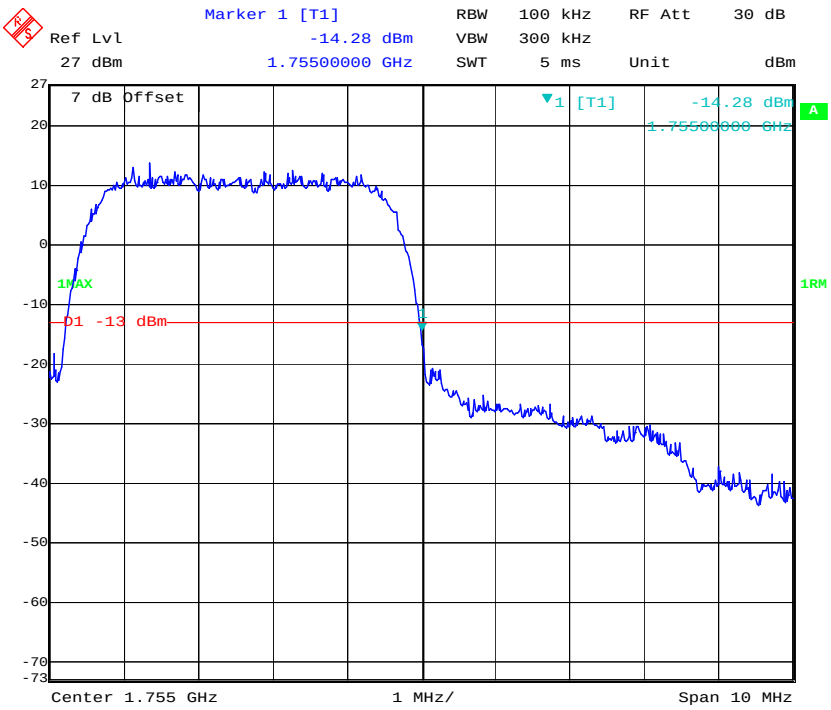
Date: 12.SEP.2018 11:04:20

WCDMA Band IV HSDPA, Left Band Edge



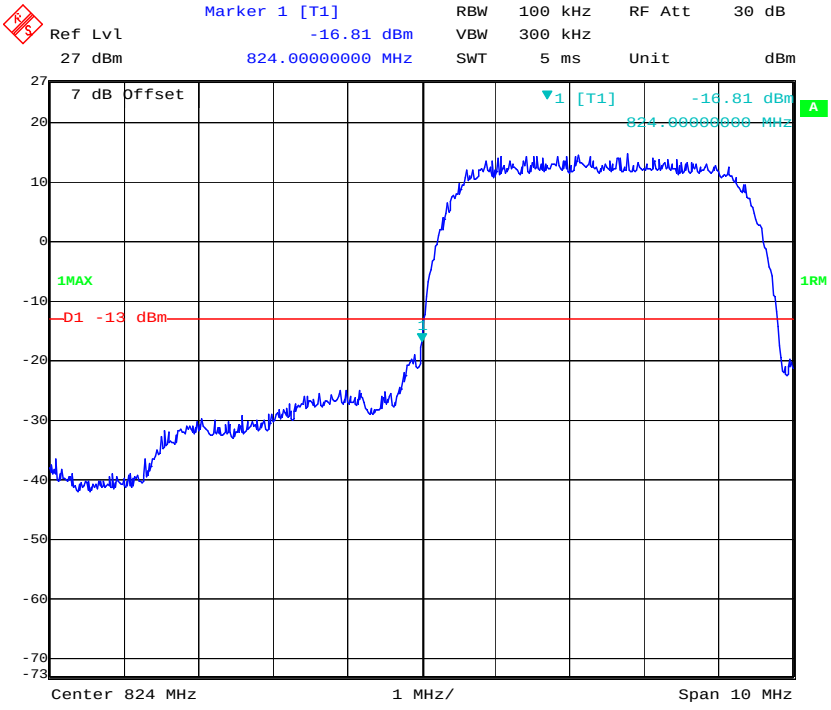
Date: 12.SEP.2018 11:05:24

WCDMA Band IV HSDPA, Right Band Edge



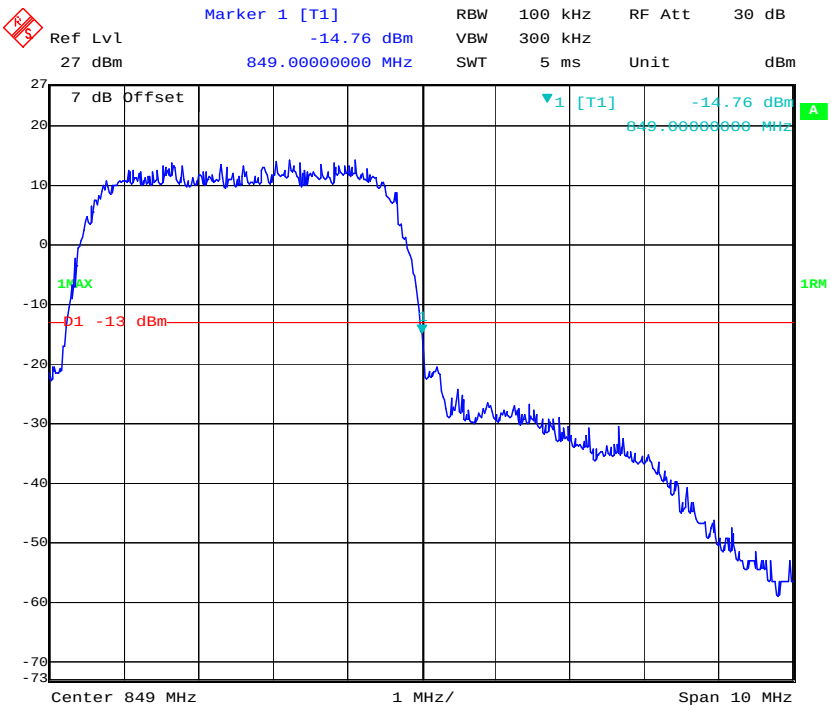
Date: 12.SEP.2018 11:05:58

WCDMA Band V Rel 99, Left Band Edge



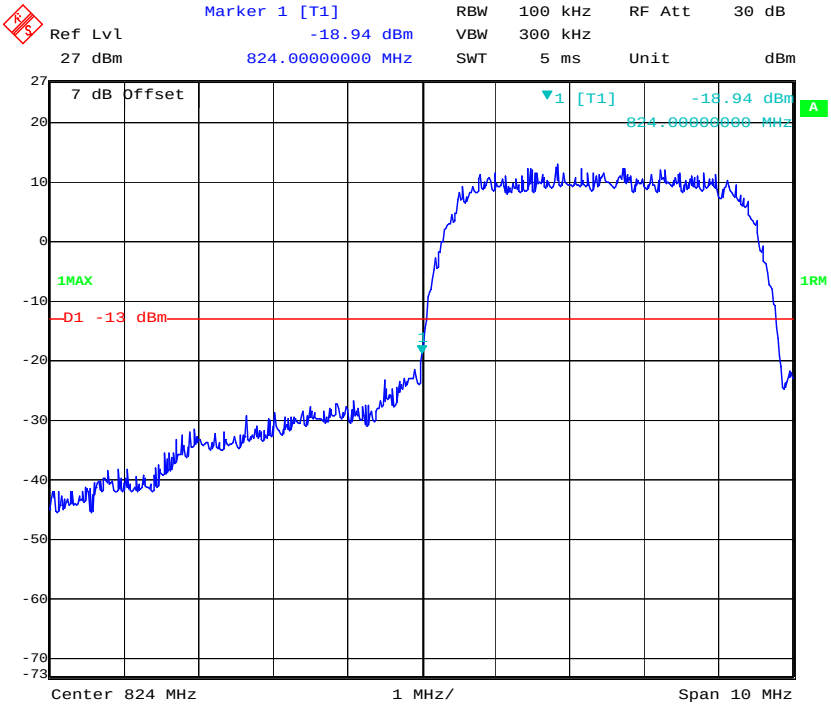
Date: 10.AUG.2018 16:08:59

WCDMA Band V Rel 99, Right Band Edge



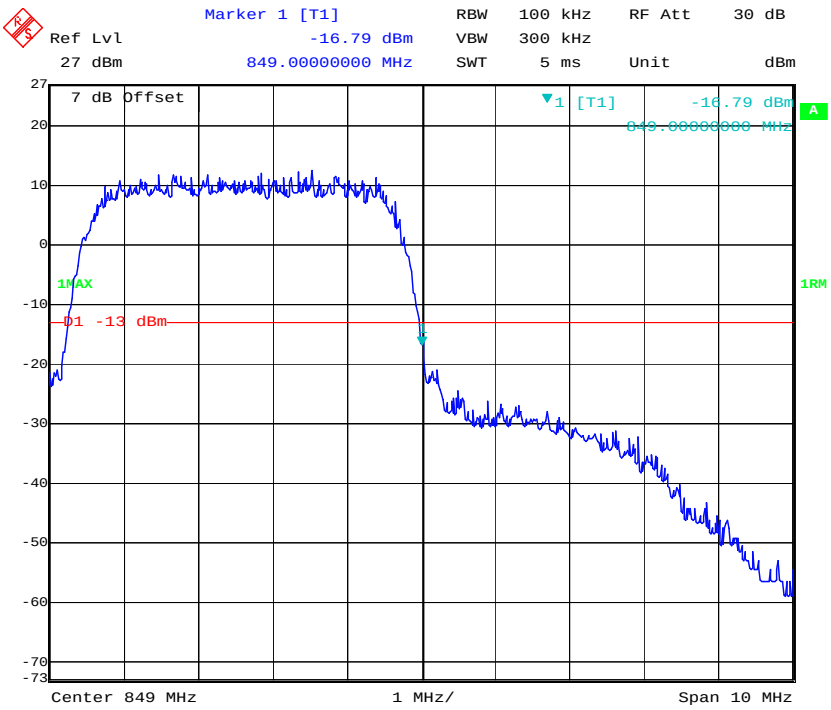
Date: 10.AUG.2018 16:10:26

WCDMA Band V HSUPA, Left Band Edge



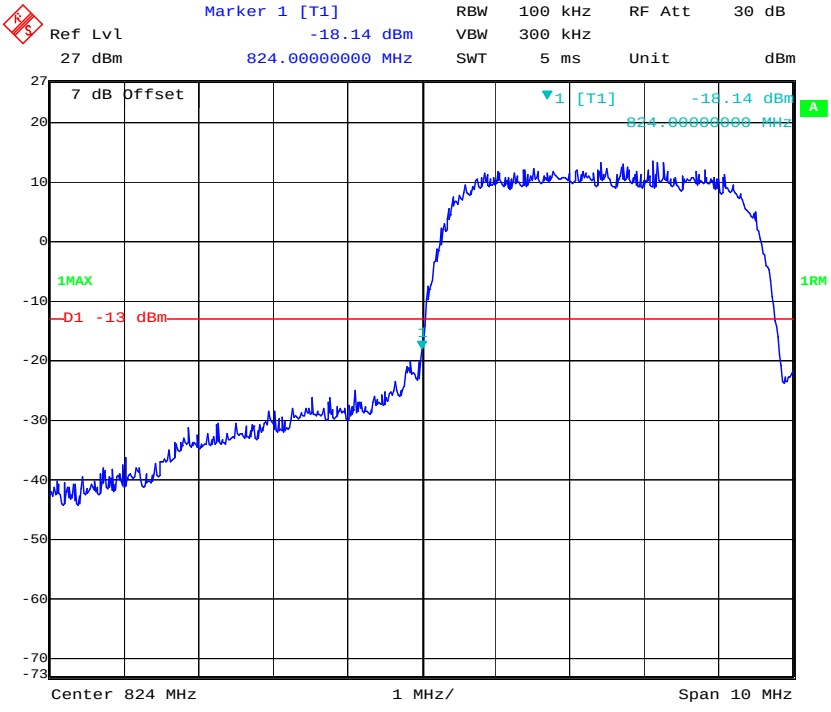
Date: 10.AUG.2018 16:20:56

WCDMA Band V HSUPA, Right Band Edge



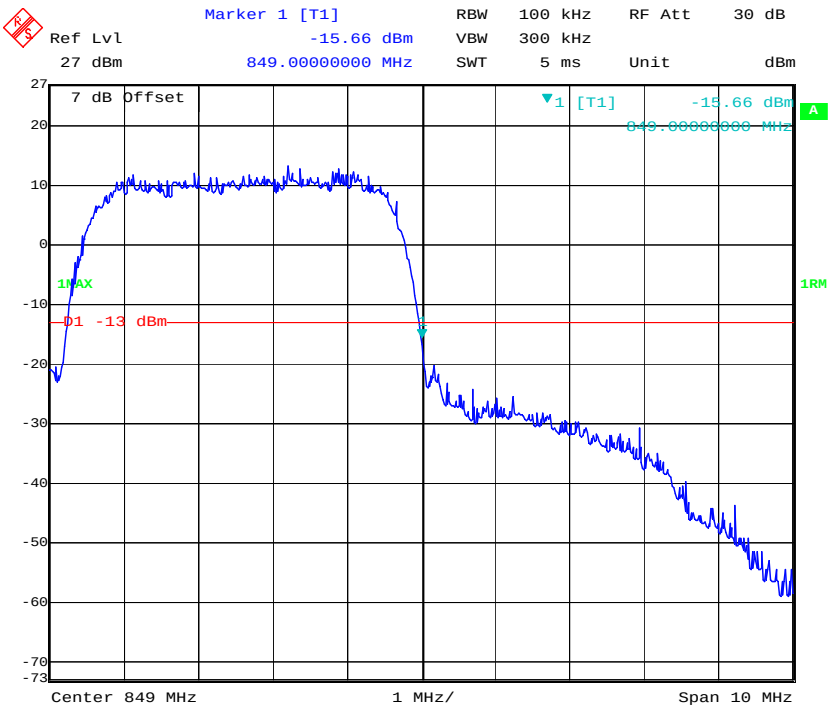
Date: 10.AUG.2018 16:20:35

WCDMA Band V HSDPA, Left Band Edge



Date: 10.AUG.2018 16:11:49

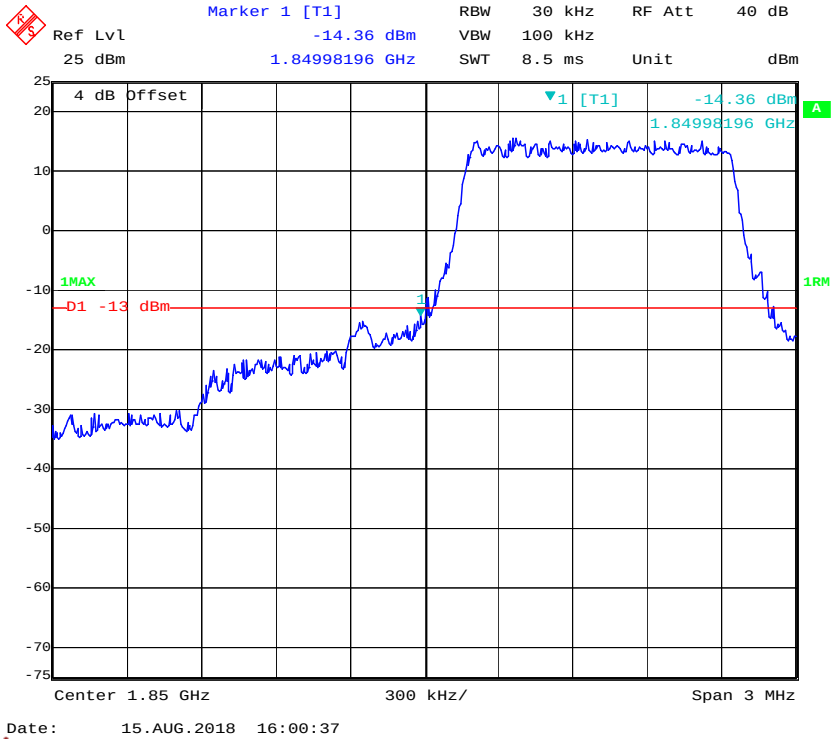
WCDMA Band V HSDPA, Right Band Edge



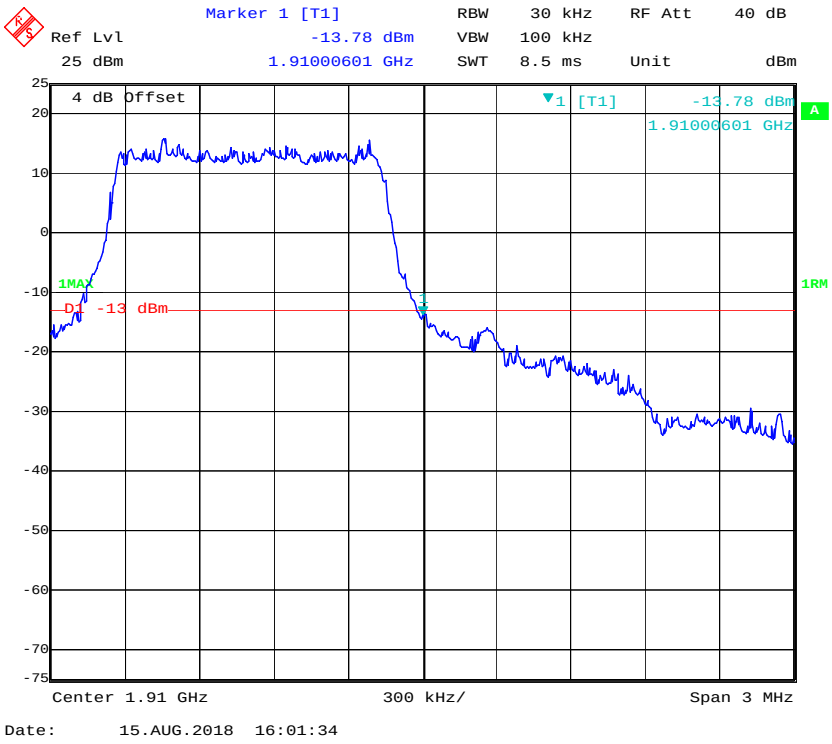
Date: 10.AUG.2018 16:11:07

LTE Band 2

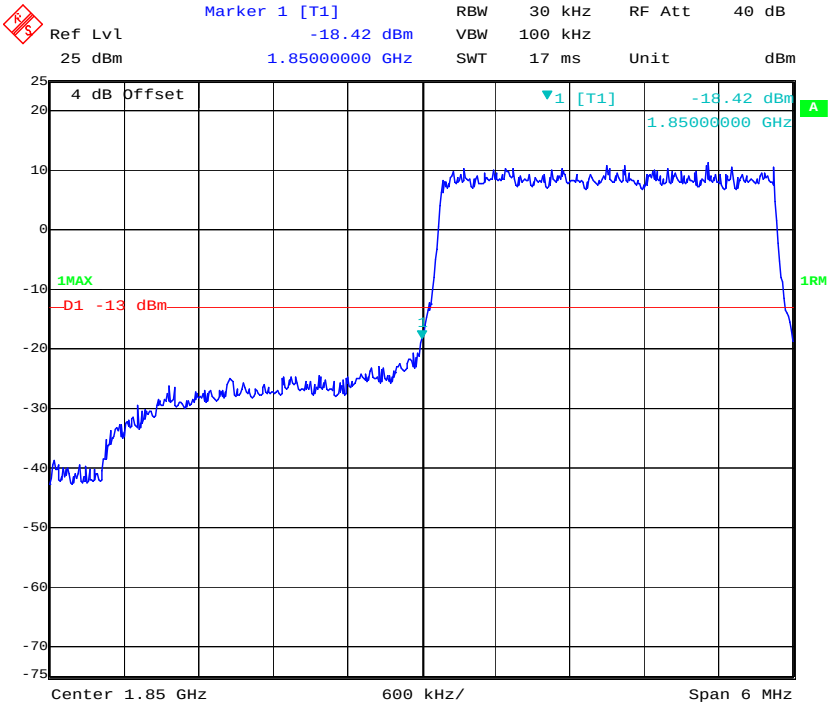
QPSK_1.4MHz_ 6 RB_ Left



QPSK_1.4MHz_ 6 RB_ Right

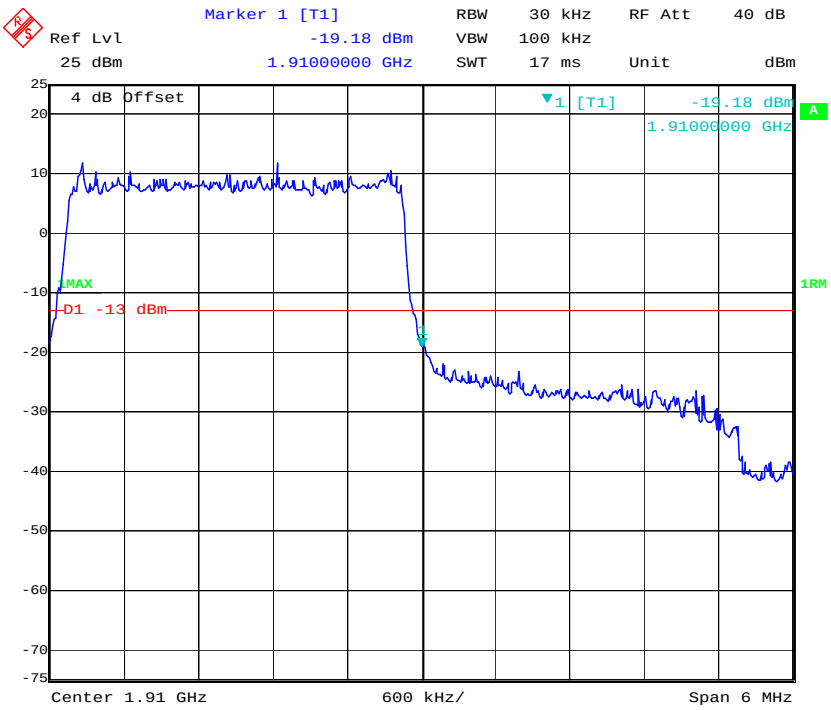


QPSK_3MHz_ 15 RB_ Left



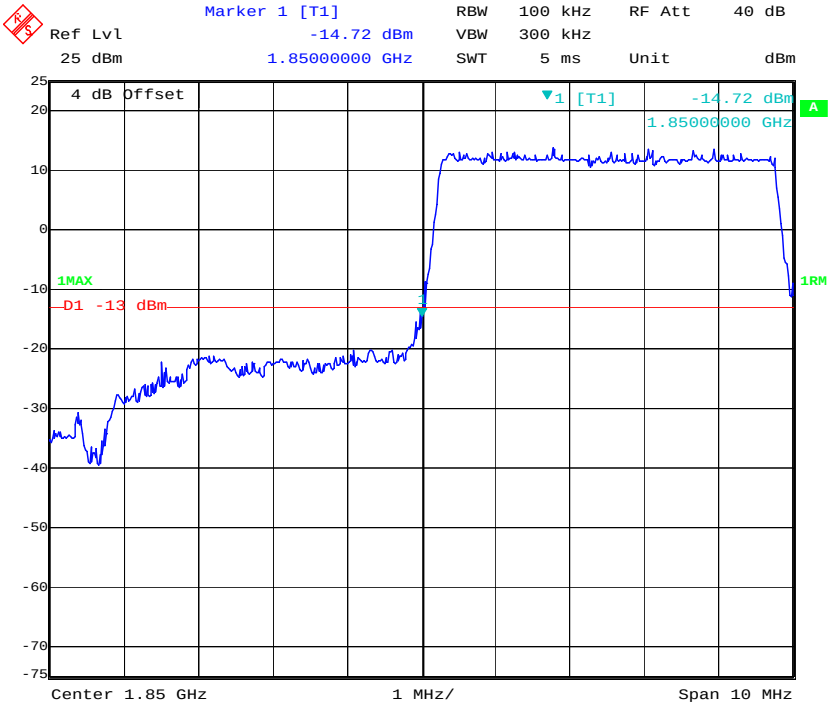
Date: 15.AUG.2018 16:06:06

QPSK_3MHz_ 15 RB_ Right



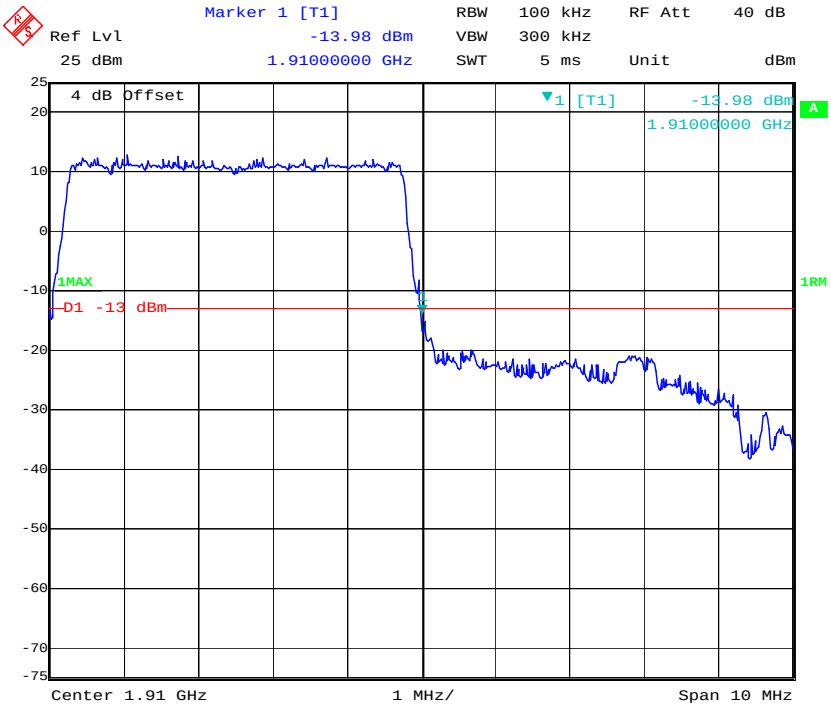
Date: 15.AUG.2018 16:05:14

QPSK_5MHz_ 25 RB_ Left



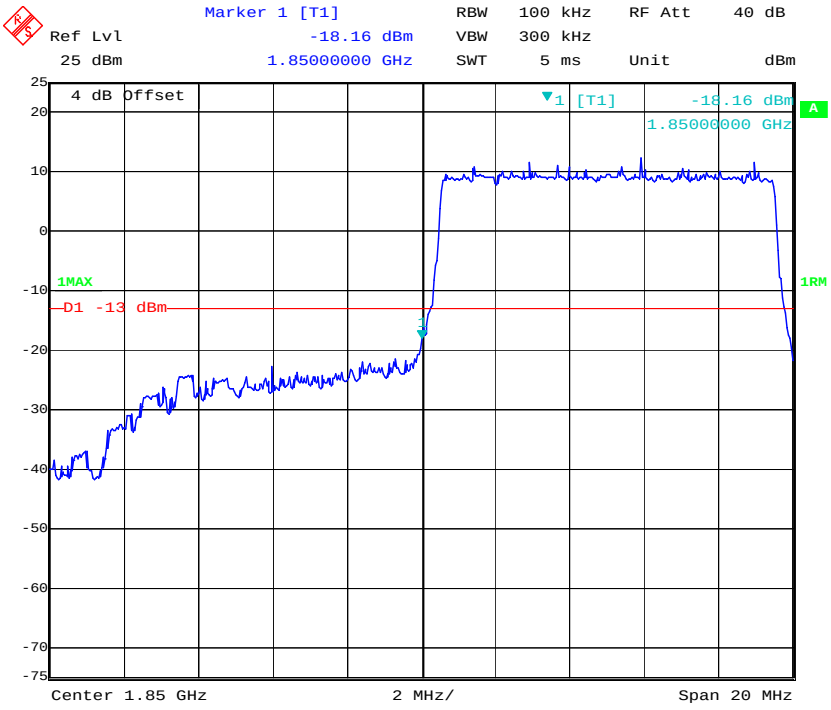
Date: 15.AUG.2018 16:08:35

QPSK_5MHz_ 25 RB_ Right



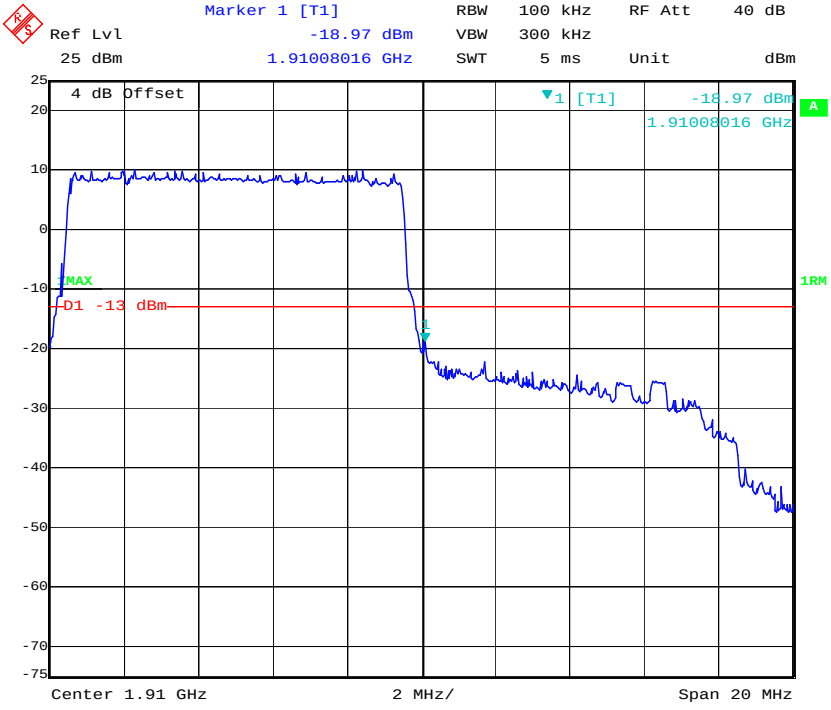
Date: 15.AUG.2018 16:09:53

QPSK_10MHz_ 50 RB_ Left



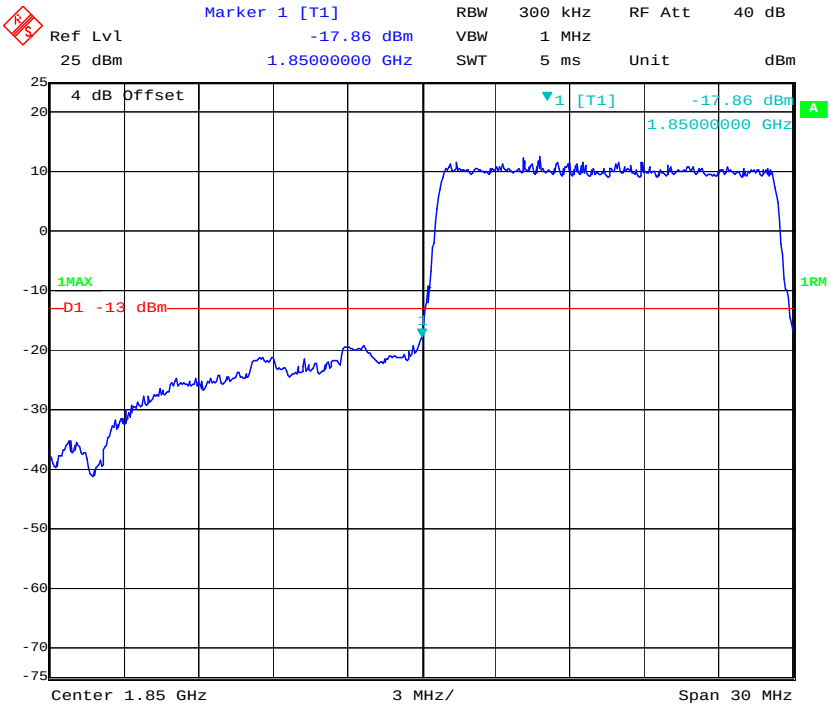
Date: 15.AUG.2018 16:13:24

QPSK_10MHz_ 50 RB_ Right



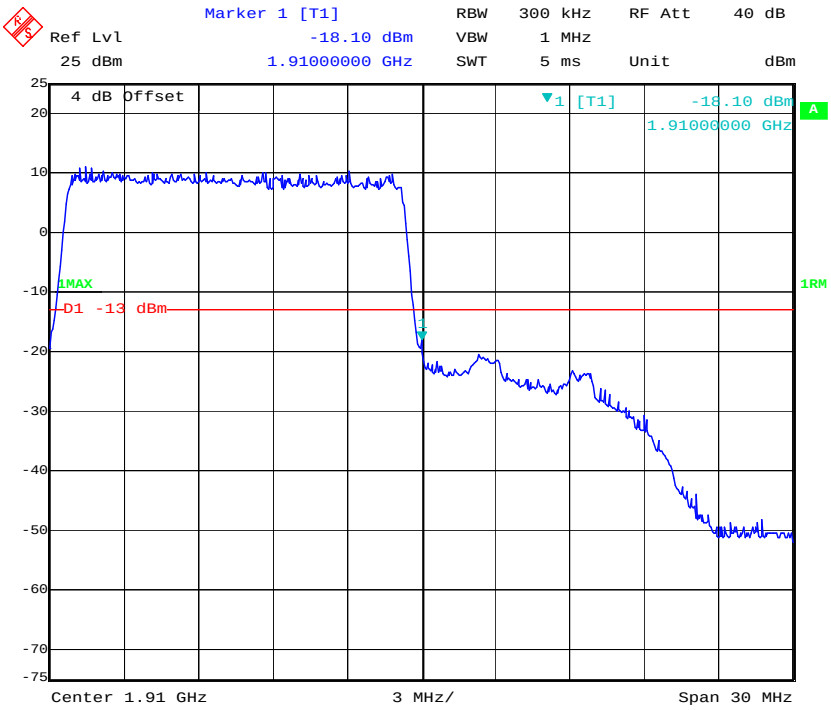
Date: 15.AUG.2018 16:12:27

QPSK_15MHz_ 75 RB_ Left



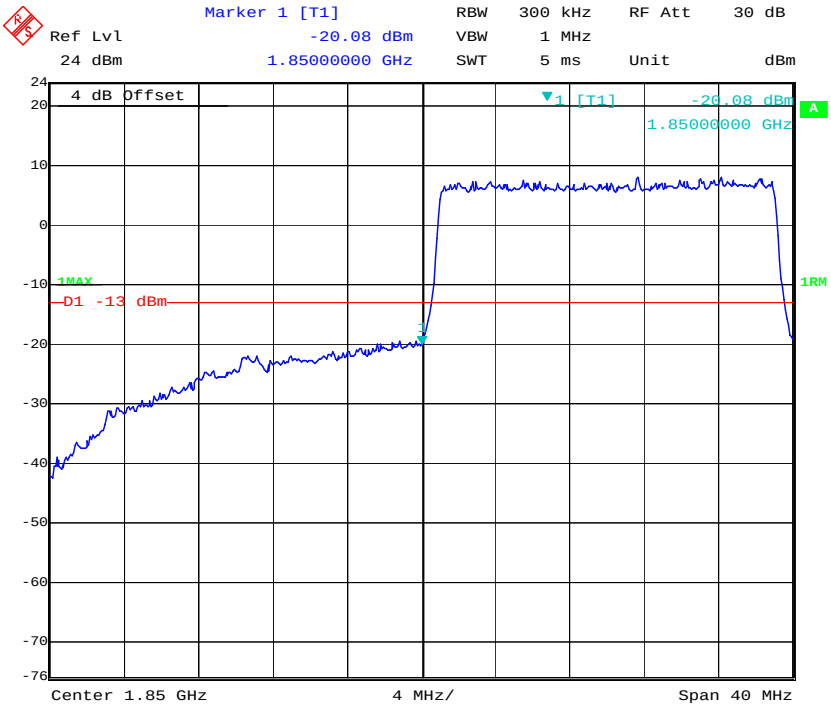
Date: 15.AUG.2018 16:20:21

QPSK_15MHz_ 75 RB_ Right



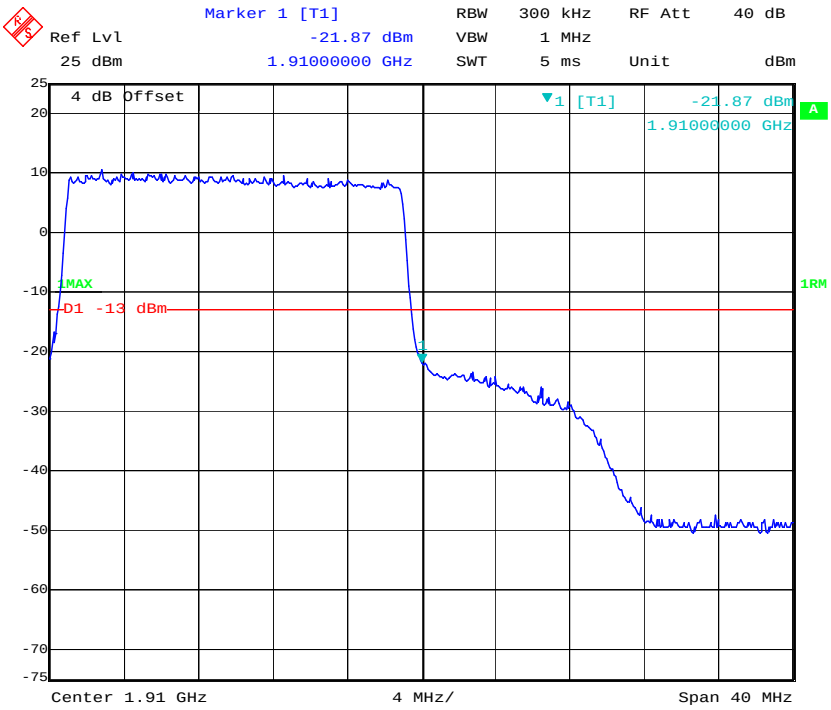
Date: 15.AUG.2018 16:21:17

QPSK_20MHz_ FULL RB_ Left



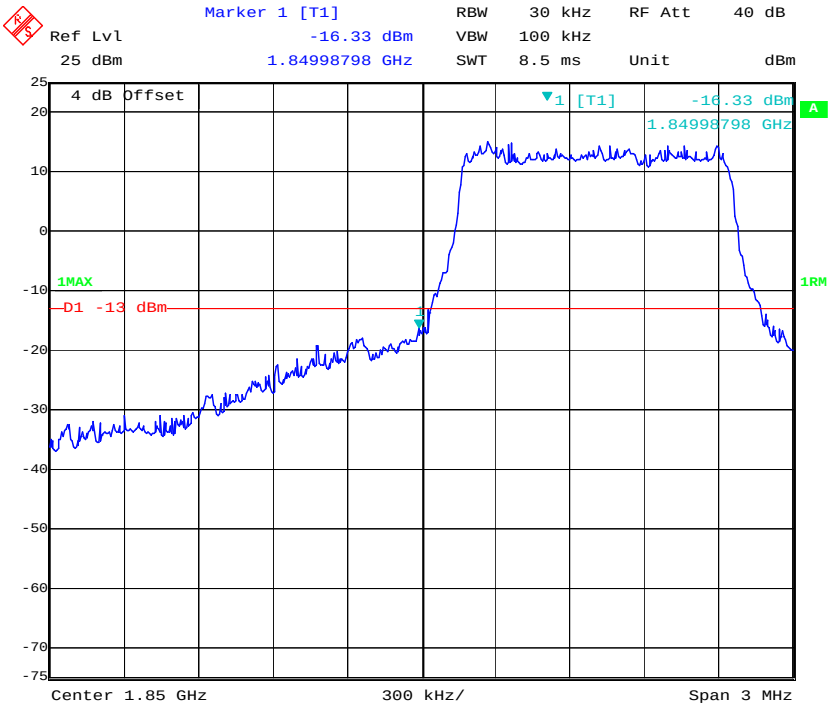
Date: 31.OCT.2018 18:34:05

QPSK_20MHz_ FULL RB_ Right



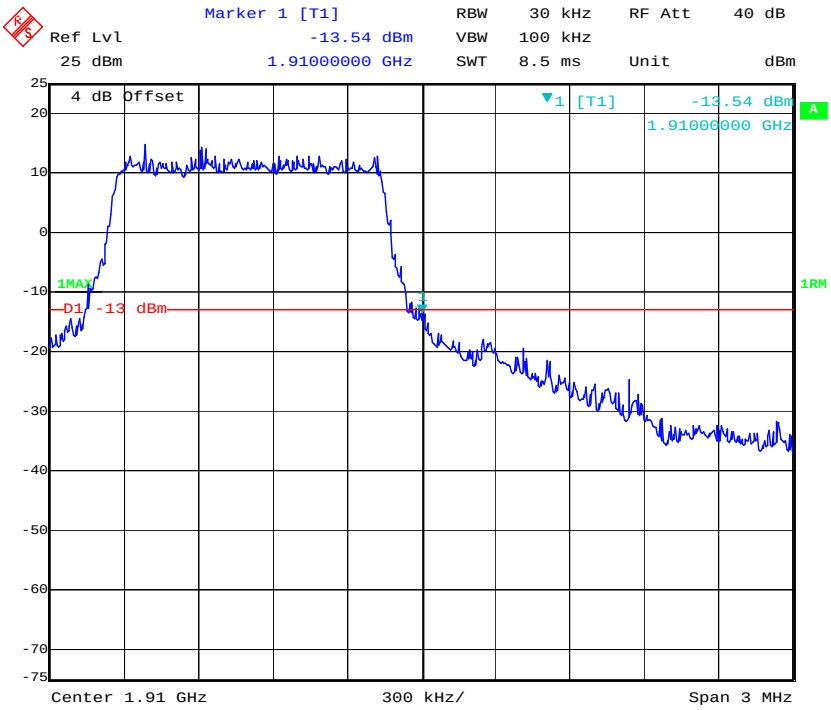
Date: 15.AUG.2018 16:25:19

16QAM_1.4MHz_ 6 RB_ Left



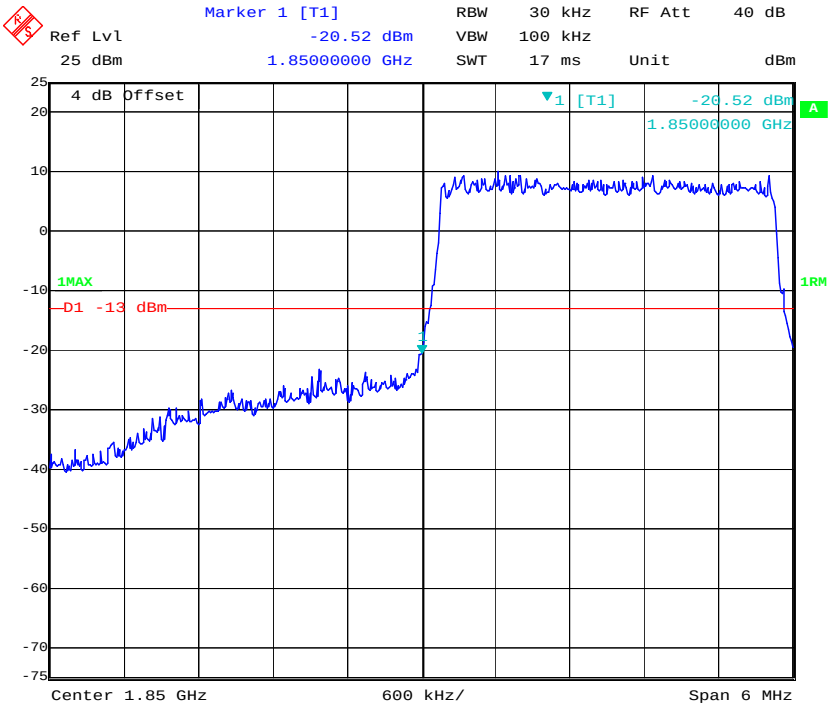
Date: 15.AUG.2018 15:58:53

16QAM_1.4MHz_ 6 RB_ Right



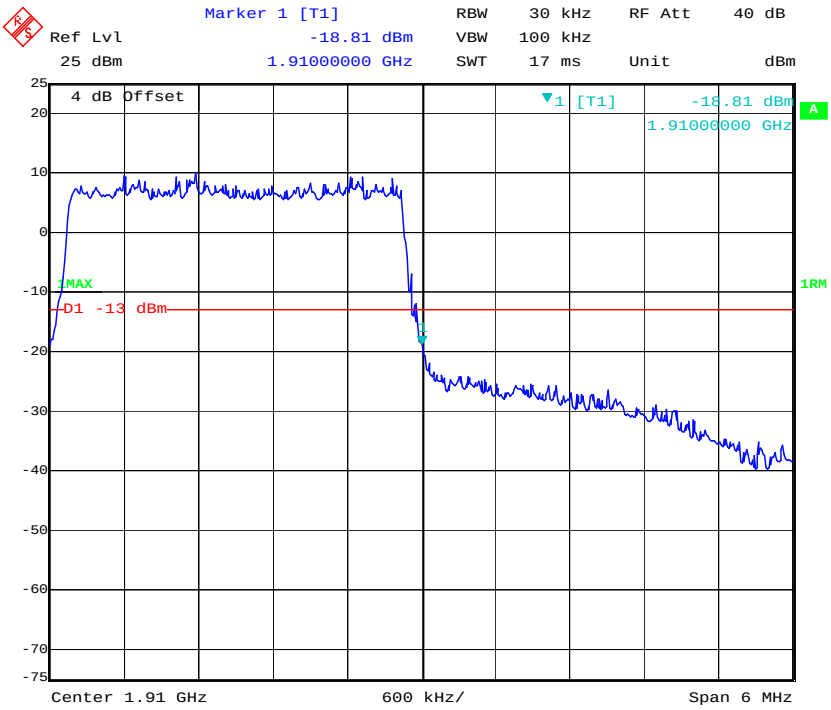
Date: 15.AUG.2018 16:02:24

16QAM_3MHz_ 15 RB_ Left



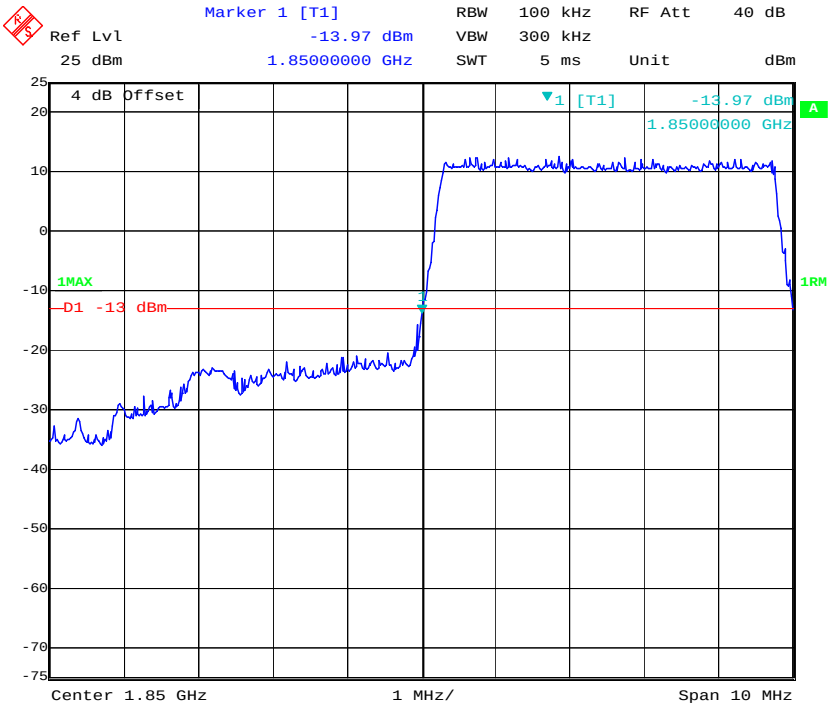
Date: 15.AUG.2018 16:06:44

16QAM_3MHz_ 15 RB_ Right



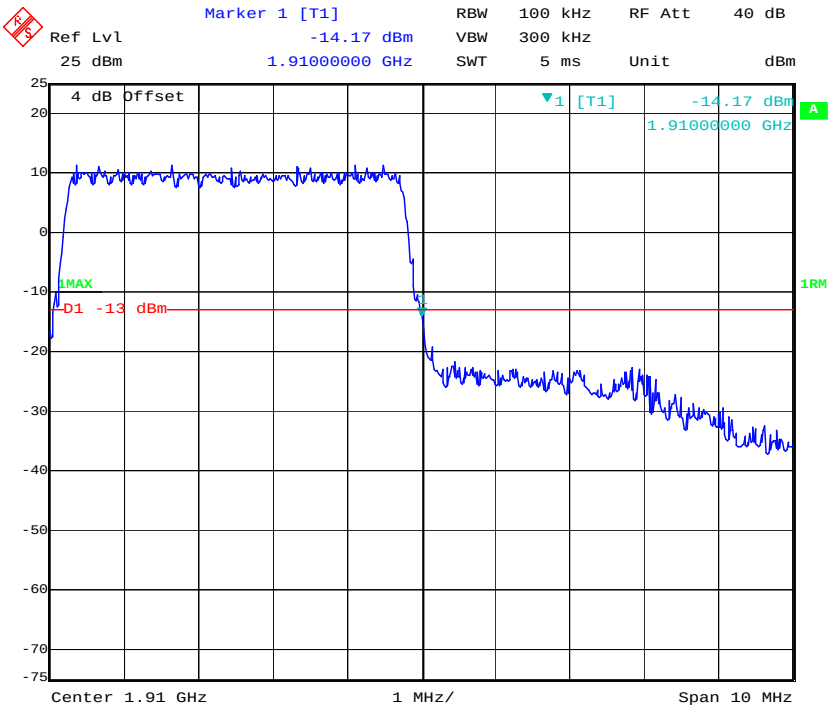
Date: 15.AUG.2018 16:04:15

16QAM_5MHz_ 25 RB_ Left



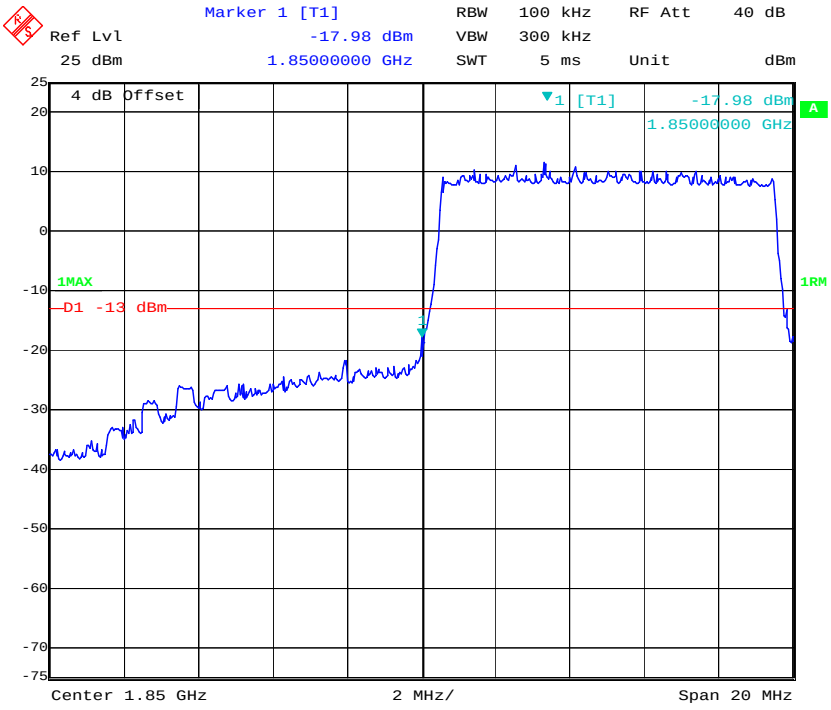
Date: 15.AUG.2018 16:07:56

16QAM_5MHz_ 25 RB_ Right



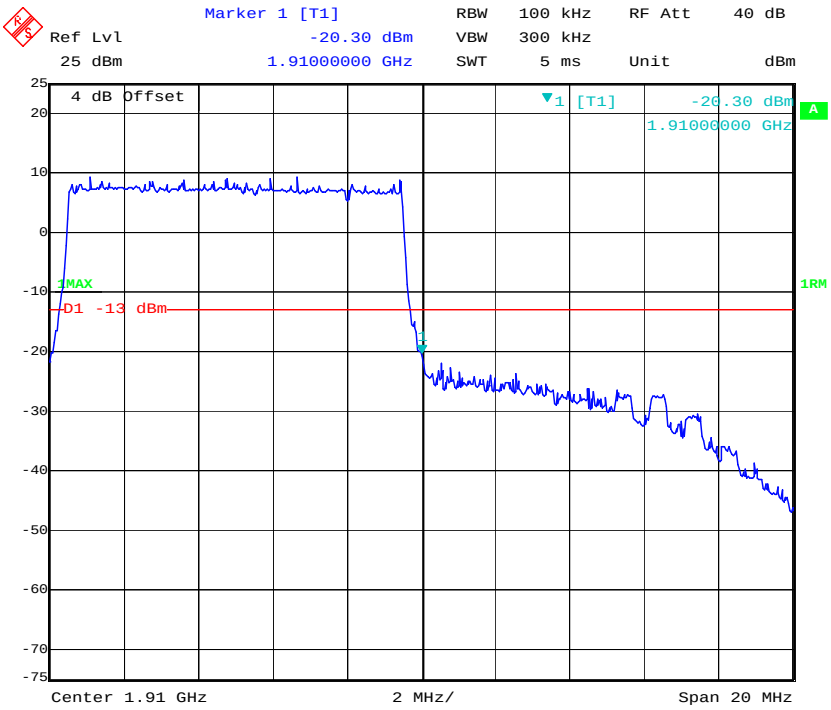
Date: 15.AUG.2018 16:10:52

16QAM_10MHz_ 50 RB_ Left



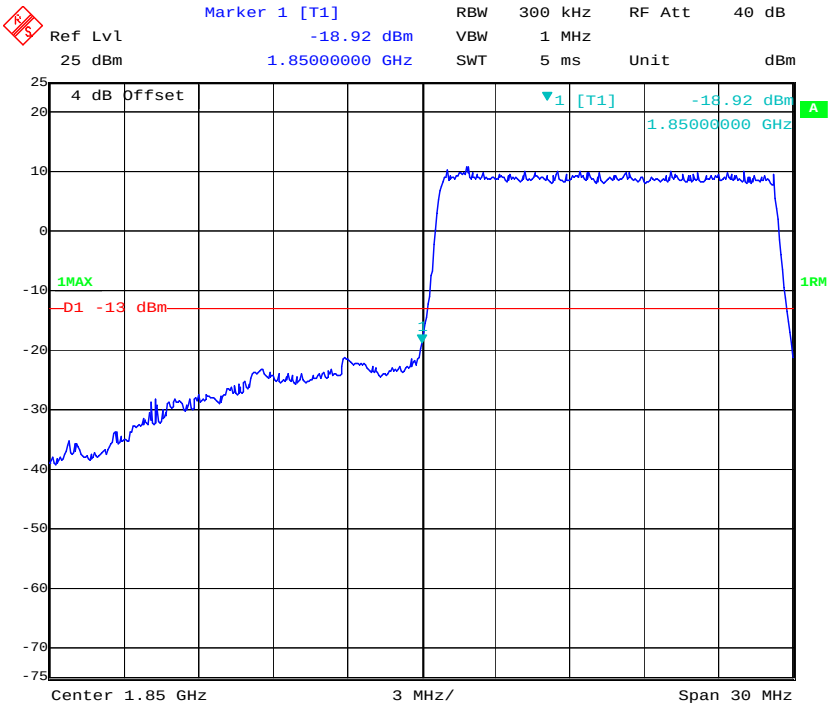
Date: 15.AUG.2018 16:16:46

16QAM_10MHz_ 50 RB_ Right



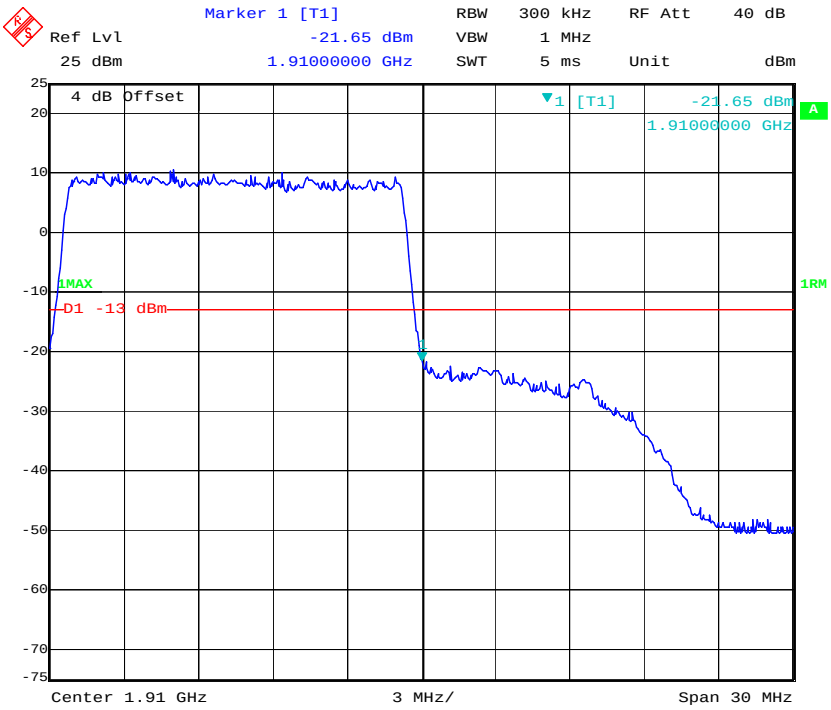
Date: 15.AUG.2018 16:11:46

16QAM_15MHz_ 75 RB_ Left



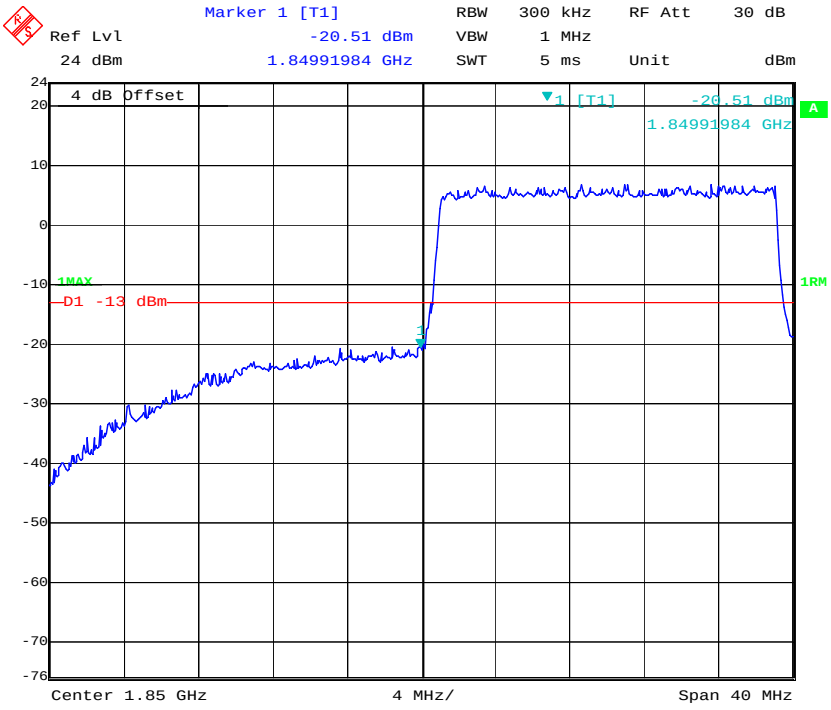
Date: 15.AUG.2018 16:18:50

16QAM_15MHz_ 75 RB_ Right



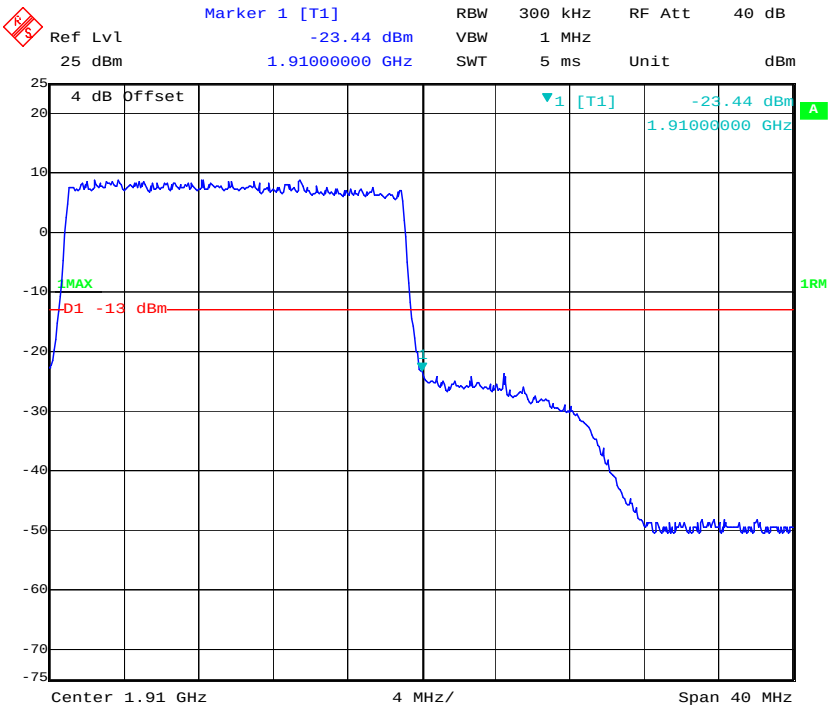
Date: 15.AUG.2018 16:22:15

16QAM_20MHz_ FULL RB_ Left



Date: 31.OCT.2018 18:34:53

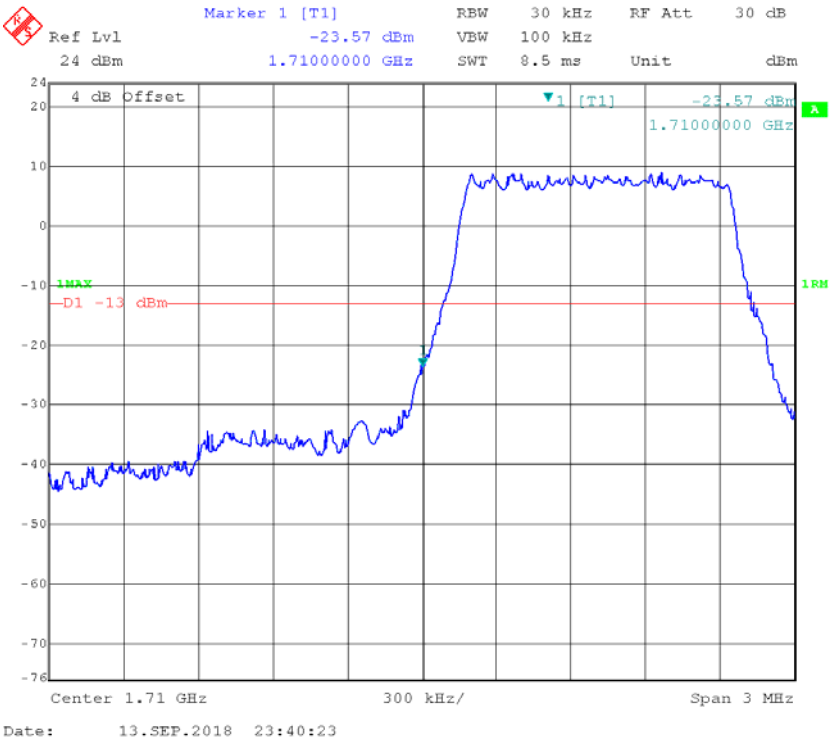
16QAM_20MHz_ FULL RB_ Right



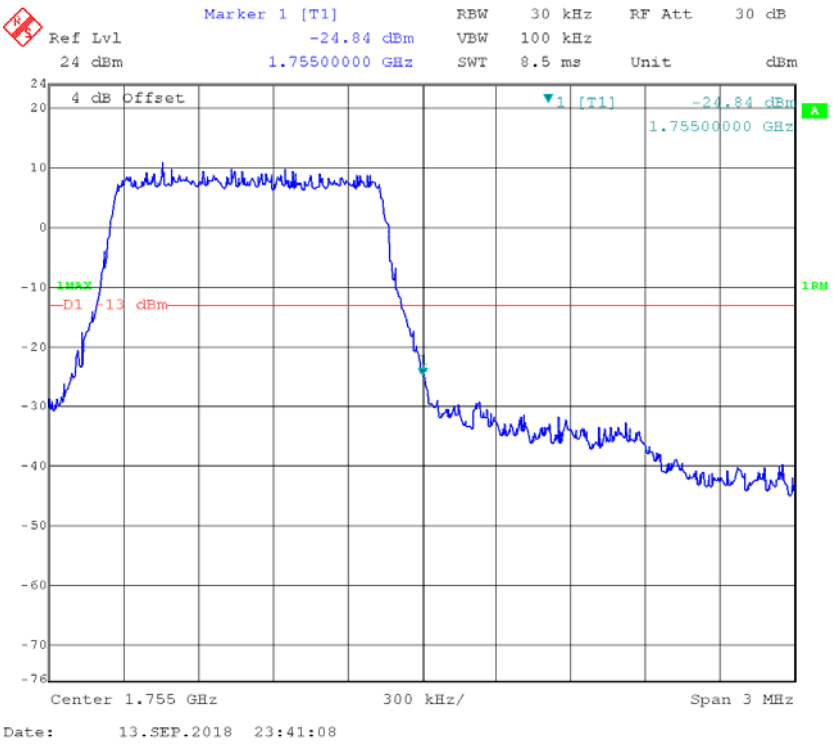
Date: 15.AUG.2018 16:26:44

LTE Band 4

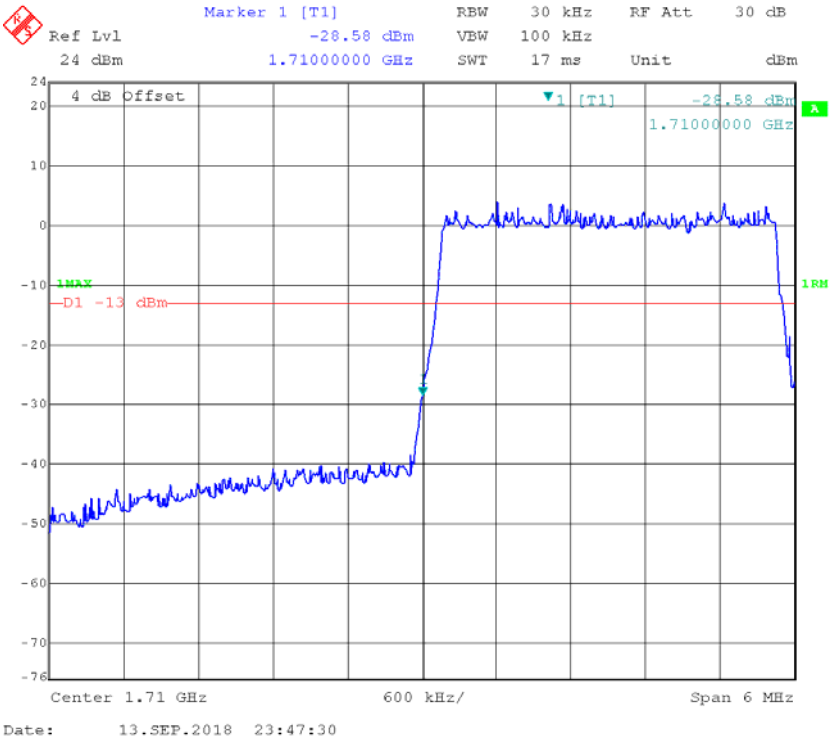
QPSK_1.4MHz_ 6 RB_ Left



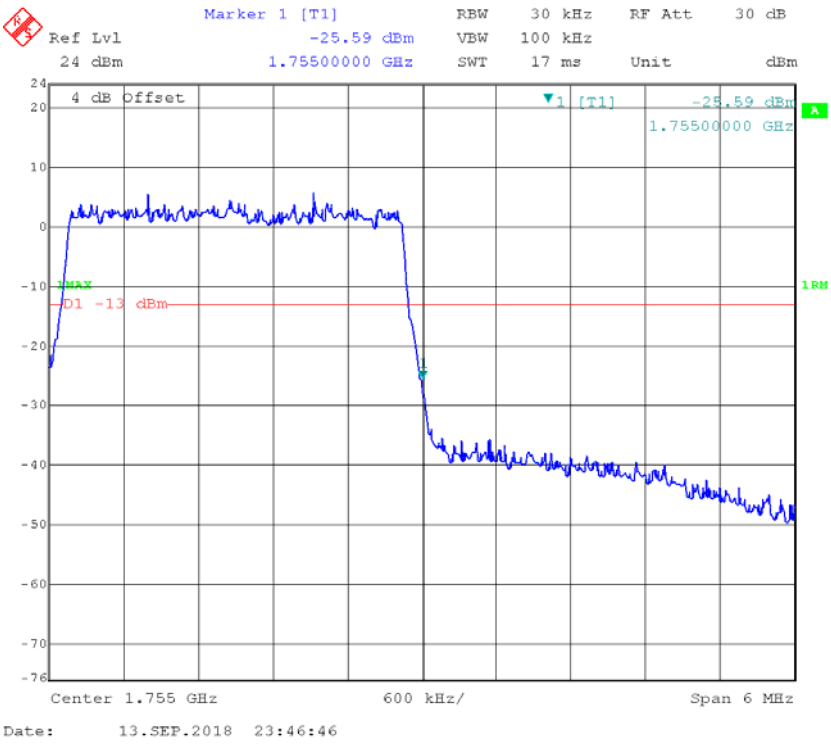
QPSK_1.4MHz_ 6 RB_ Right



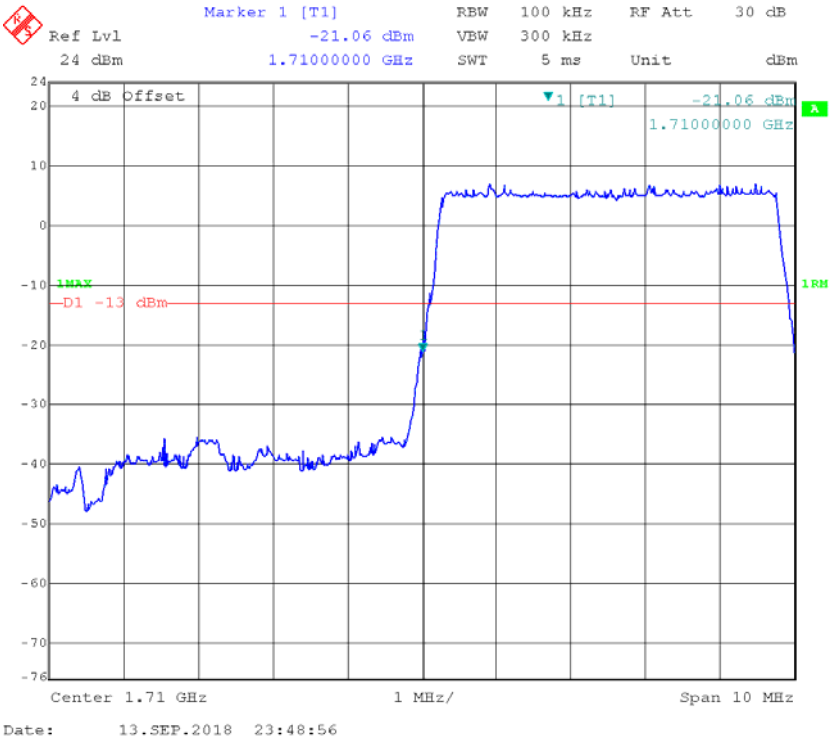
QPSK_3MHz_ 15 RB_ Left



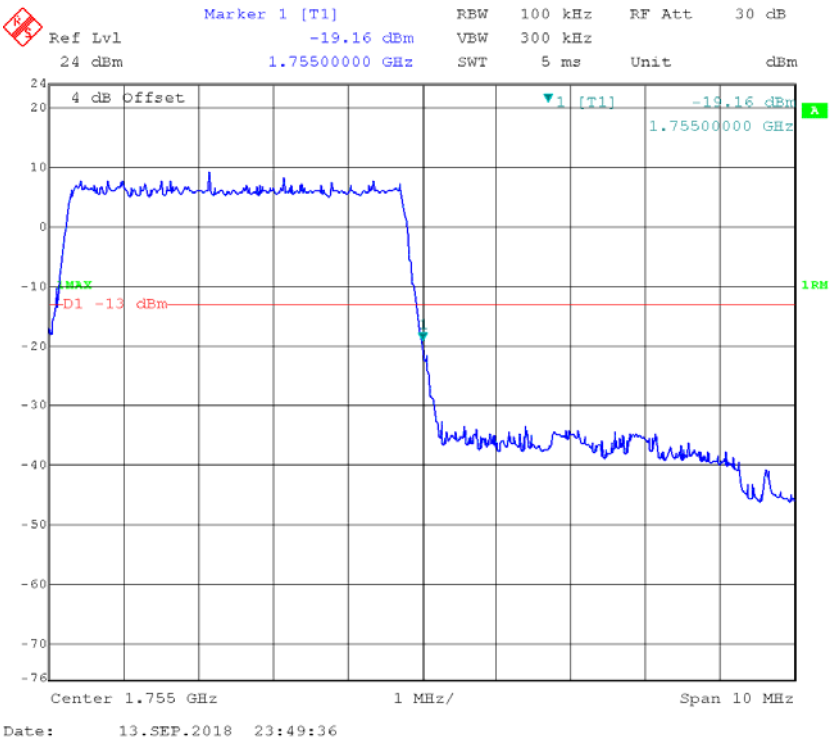
QPSK_3MHz_ 15 RB_ Right



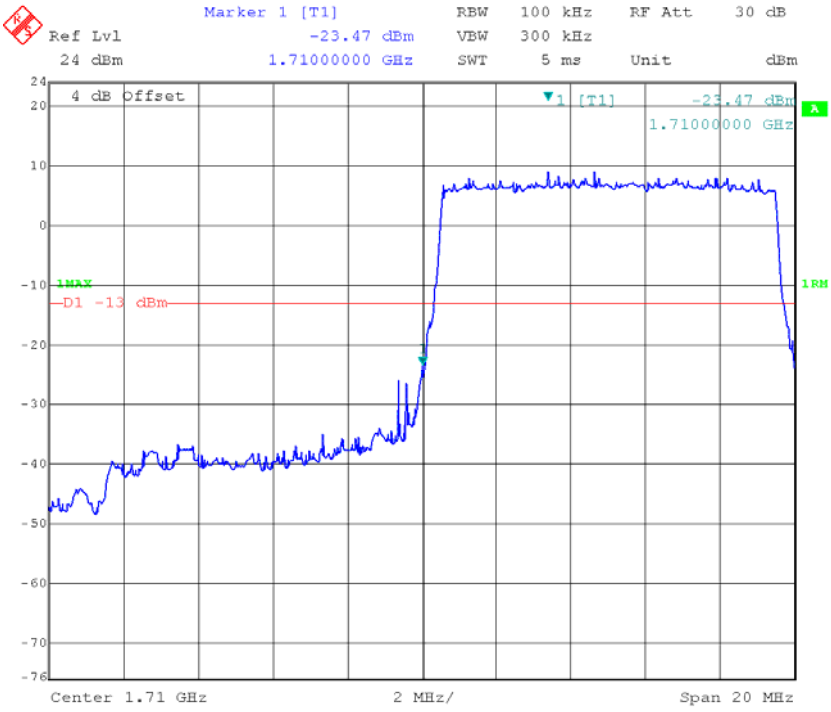
QPSK_5MHz_ 25 RB_ Left



QPSK_5MHz_ 25 RB_ Right

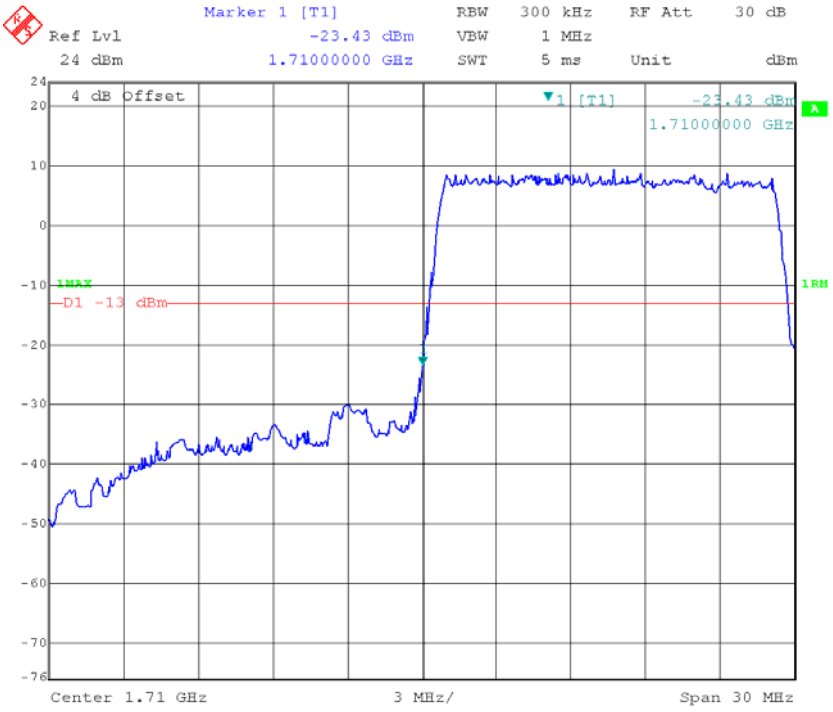


QPSK_10MHz_ 50 RB_ Left

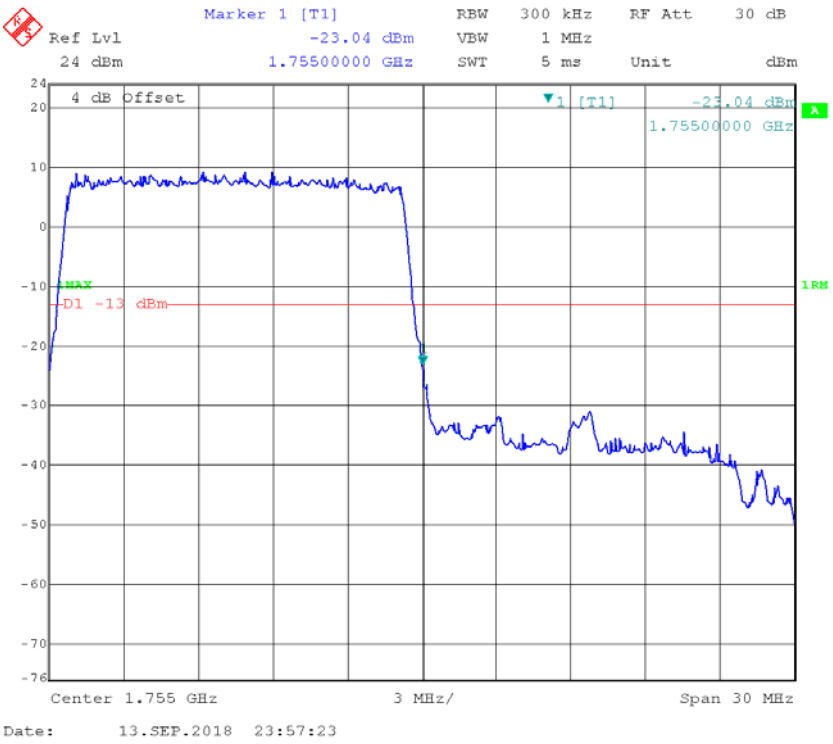


QPSK_10MHz_ 50 RB_ Right

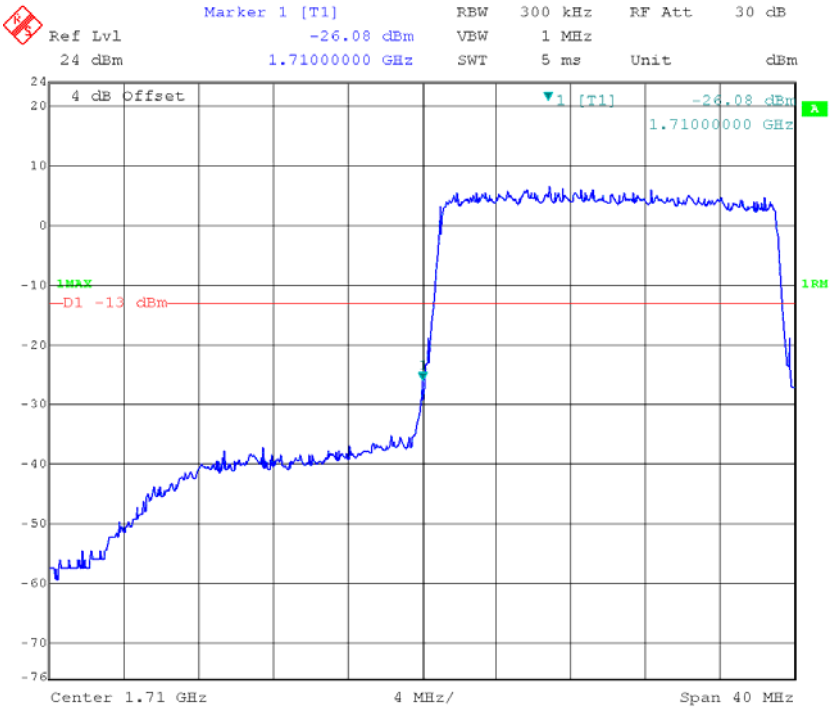
QPSK_15MHz_ 75 RB_ Left



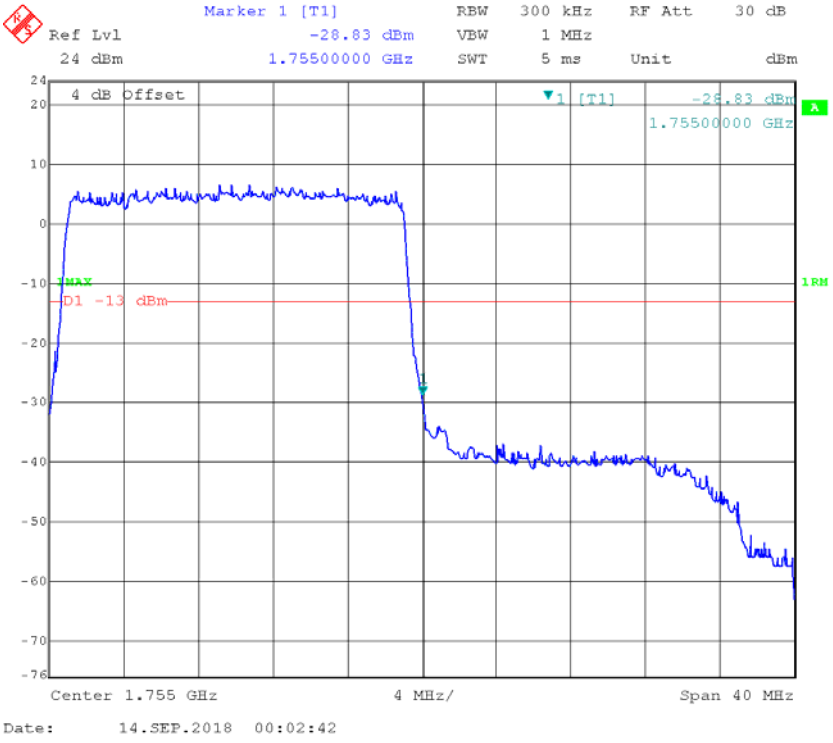
QPSK_15MHz_ 75 RB_ Right



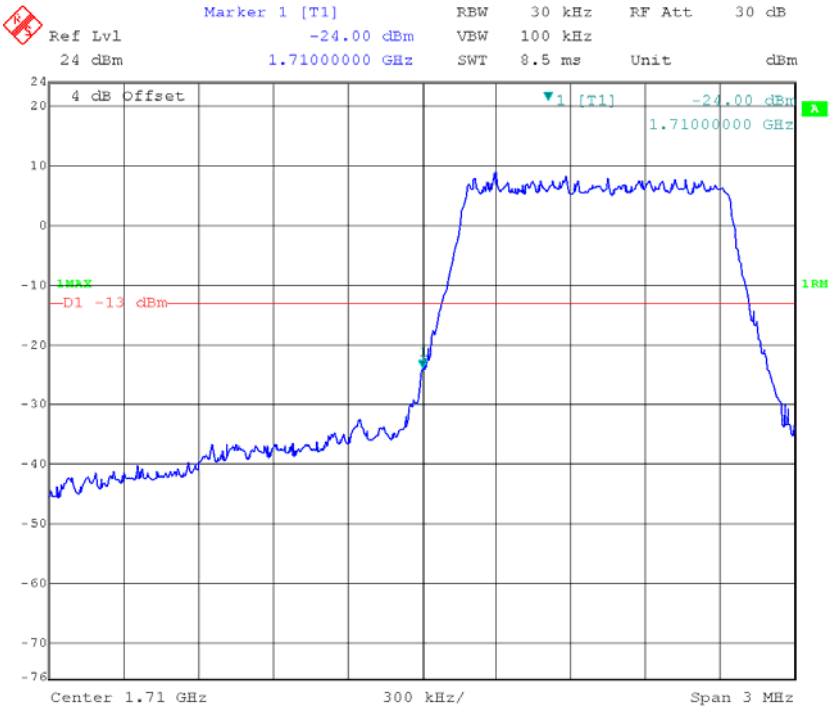
QPSK_20MHz_ FULL RB_ Left



QPSK_20MHz_ FULL RB_ Right

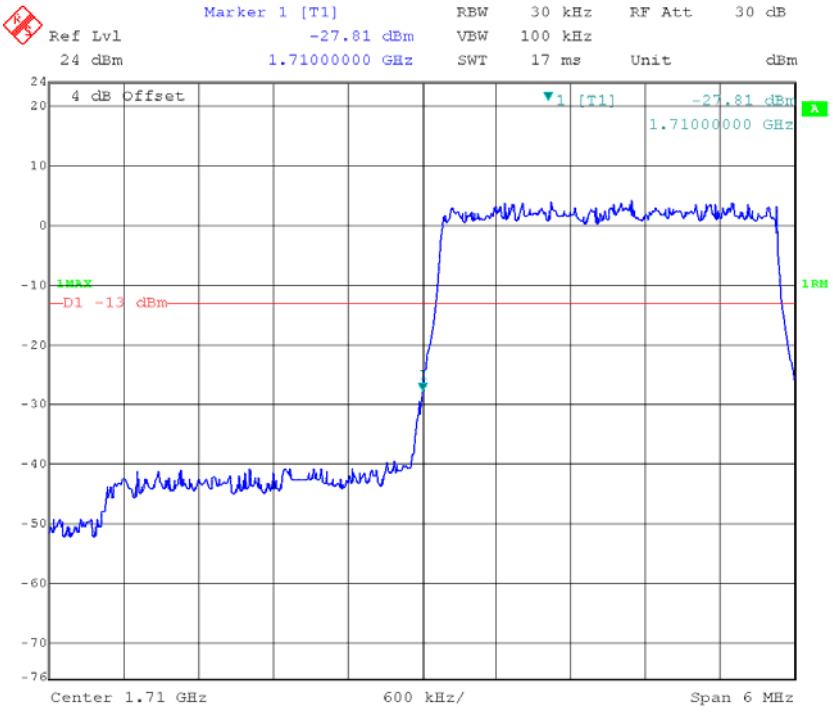


16QAM_1.4MHz_ 6 RB_ Left



16QAM_1.4MHz_ 6 RB_ Right

16QAM_3MHz_ 15 RB_ Left

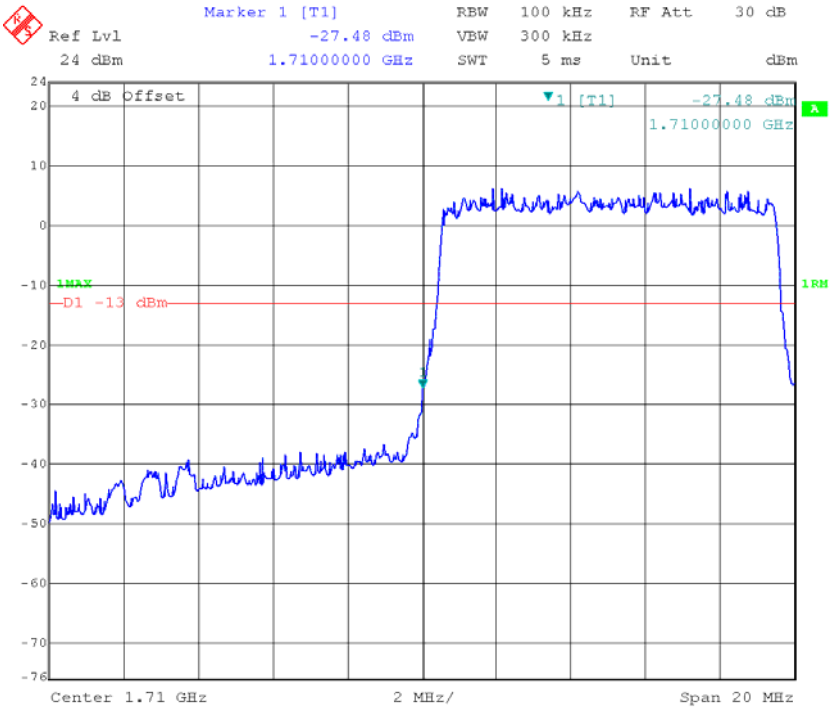


16QAM_3MHz_ 15 RB_ Right

16QAM_5MHz_ 25 RB_ Left

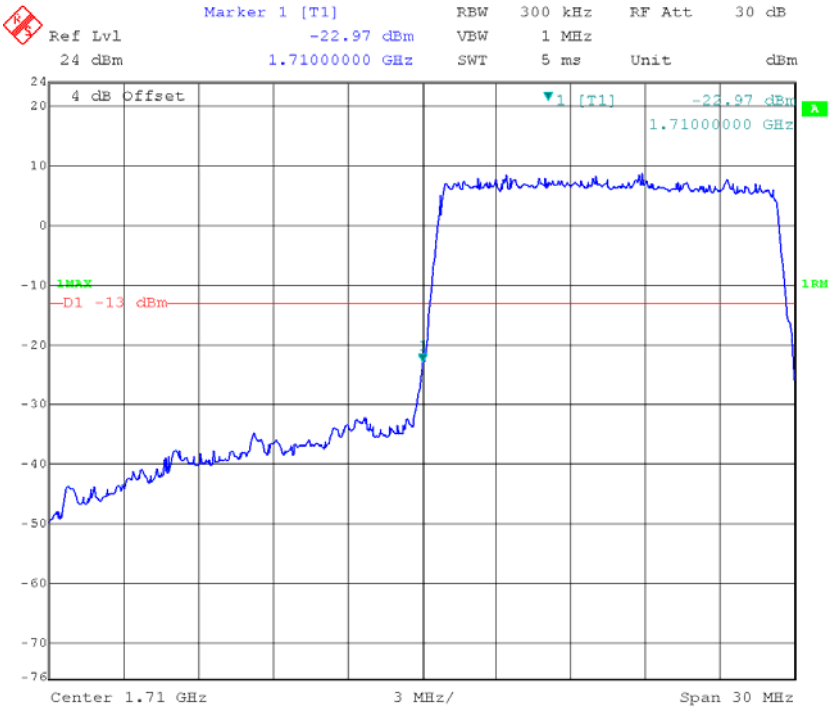
16QAM_5MHz_ 25 RB_ Right

16QAM_10MHz_ 50 RB_ Left

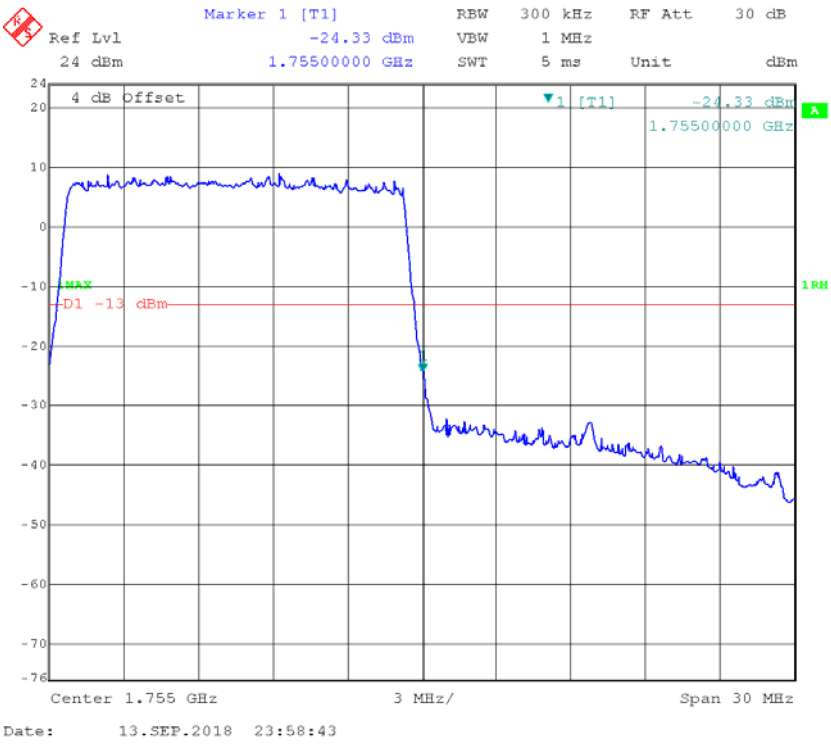


16QAM_10MHz_ 50 RB_ Right

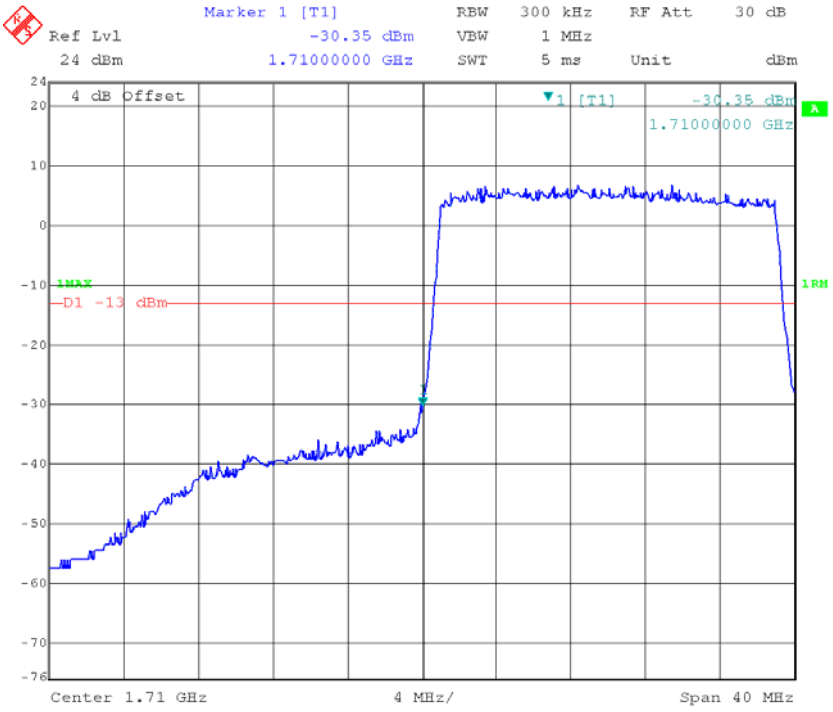
16QAM_15MHz_ 75 RB_ Left



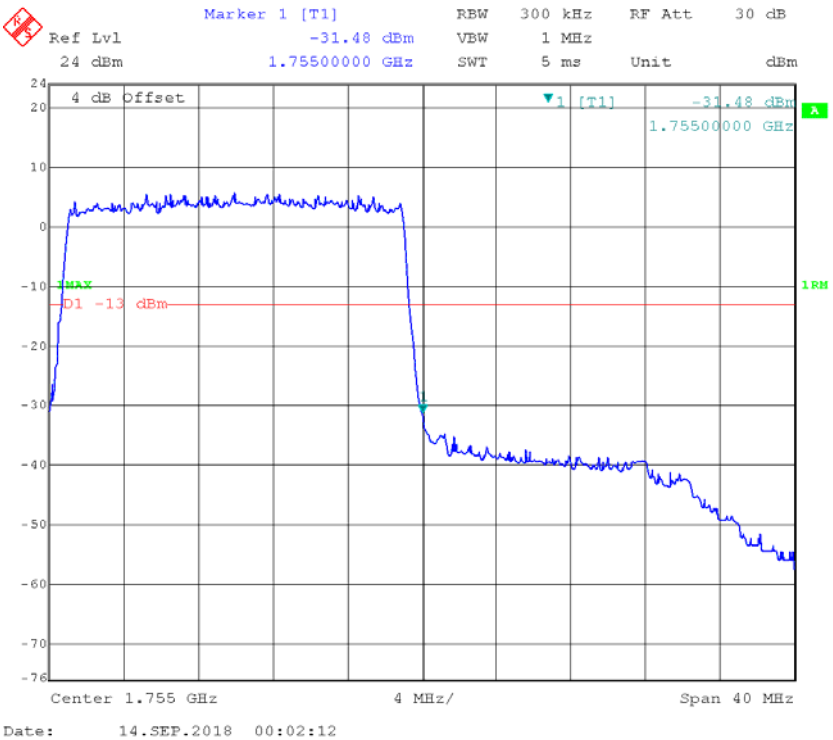
16QAM_15MHz_ 75 RB_ Right



16QAM_20MHz_ FULL RB_ Left

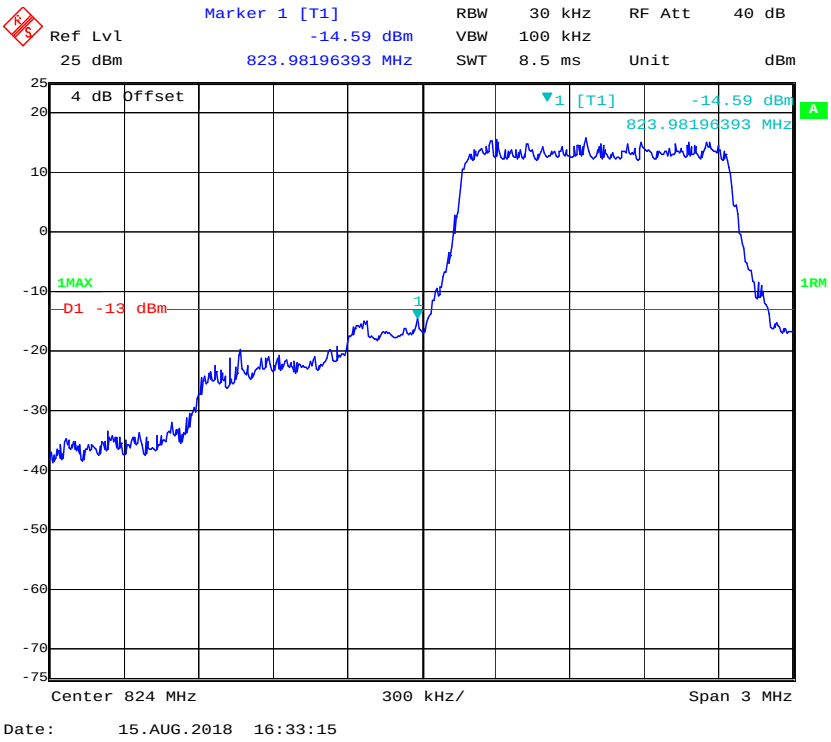


16QAM_20MHz_ FULL RB_ Right

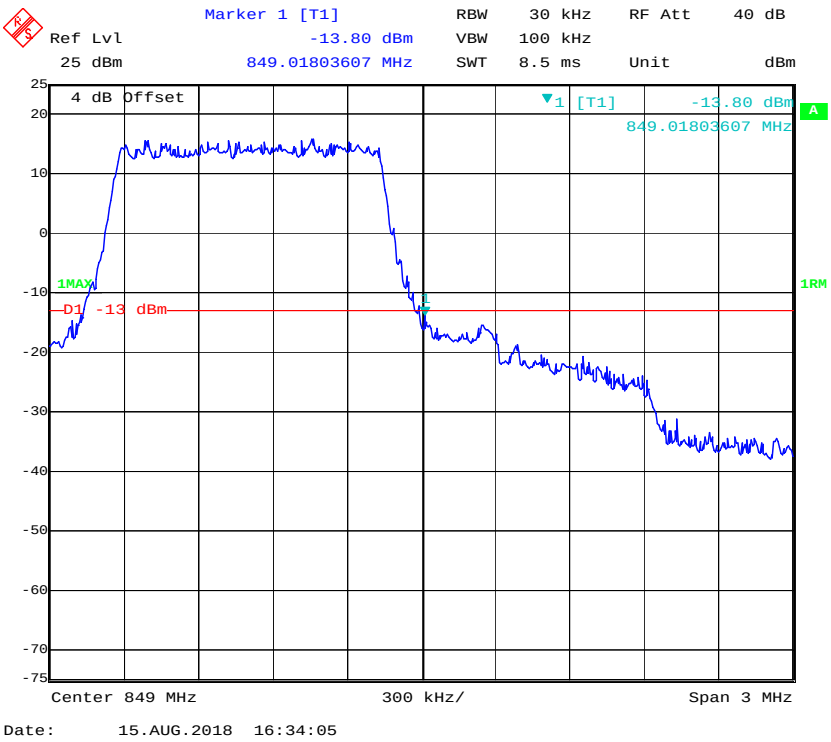


LTE Band 5

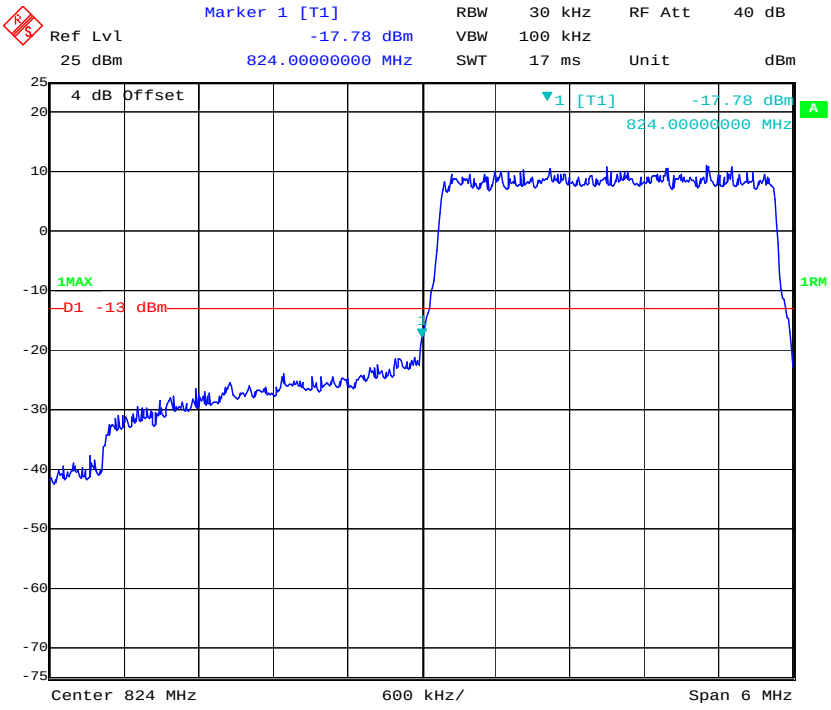
QPSK_1.4MHz_ 6 RB_ Left



QPSK_1.4MHz_ 6 RB_ Right

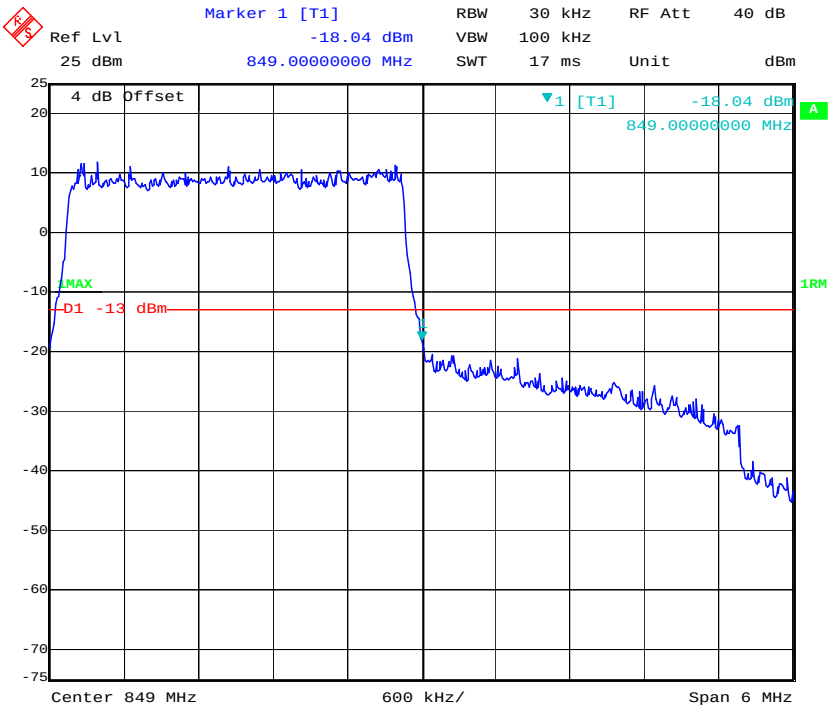


QPSK_3MHz_ 15 RB_ Left



Date: 15.AUG.2018 16:37:00

QPSK_3MHz_ 15 RB_ Right



Date: 15.AUG.2018 16:36:19

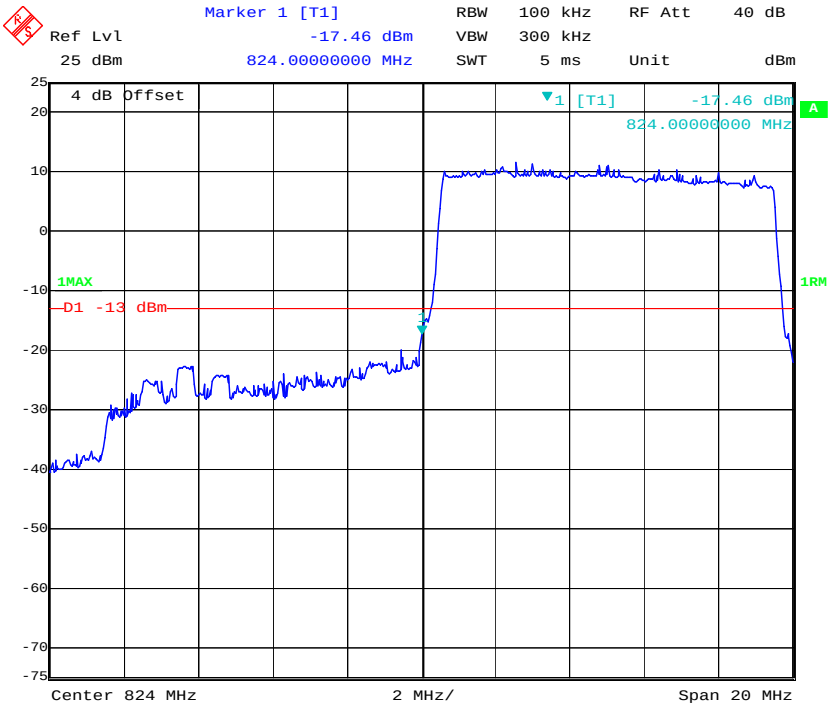
QPSK_5MHz_ 25 RB_ Left

Date: 15.AUG.2018 16:41:31

QPSK_5MHz_ 25 RB_ Right

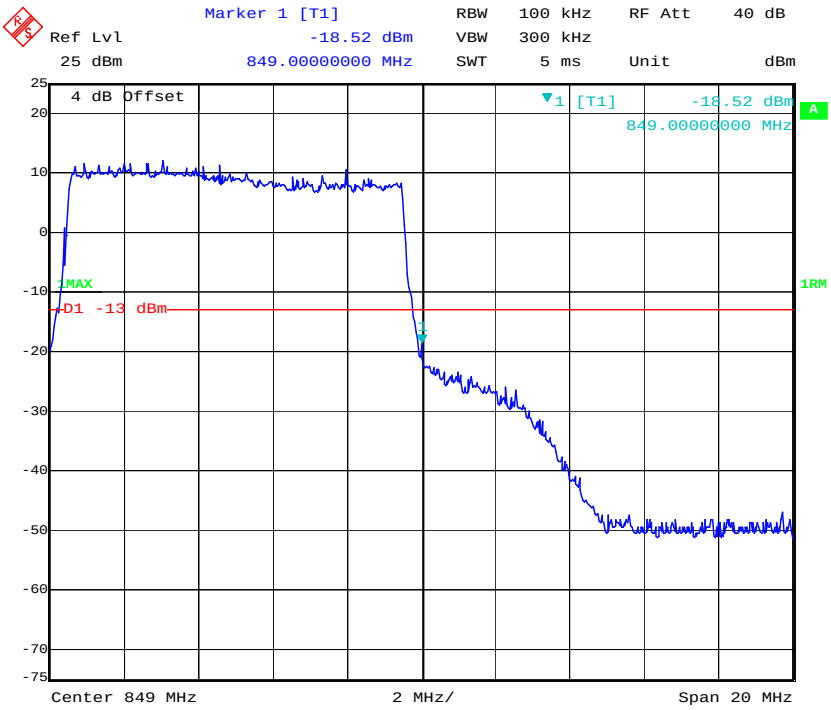
Date: 15.AUG.2018 16:45:25

QPSK_10MHz_ 50 RB_ Left



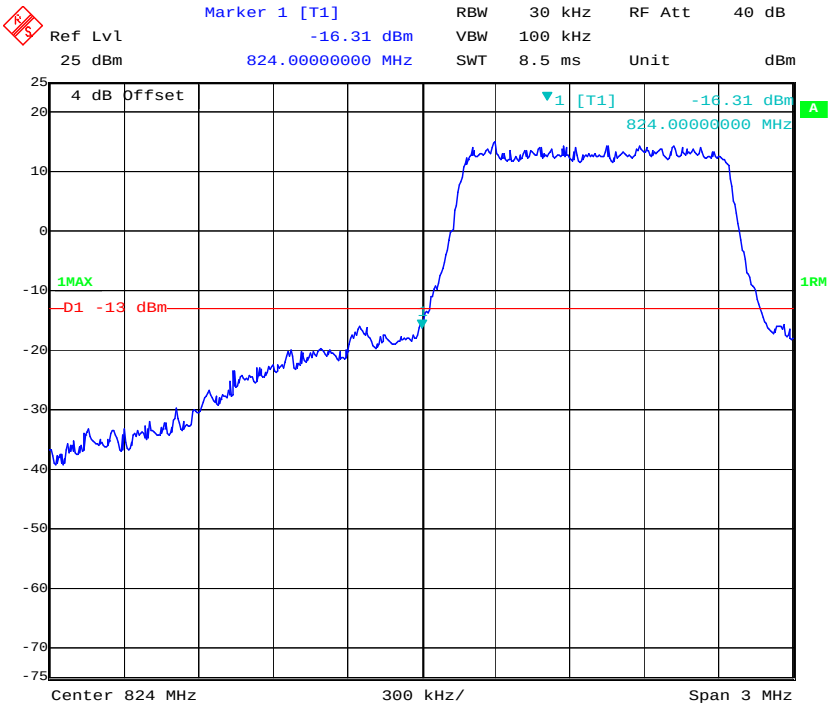
Date: 15.AUG.2018 16:51:14

QPSK_10MHz_ 50 RB_ Right



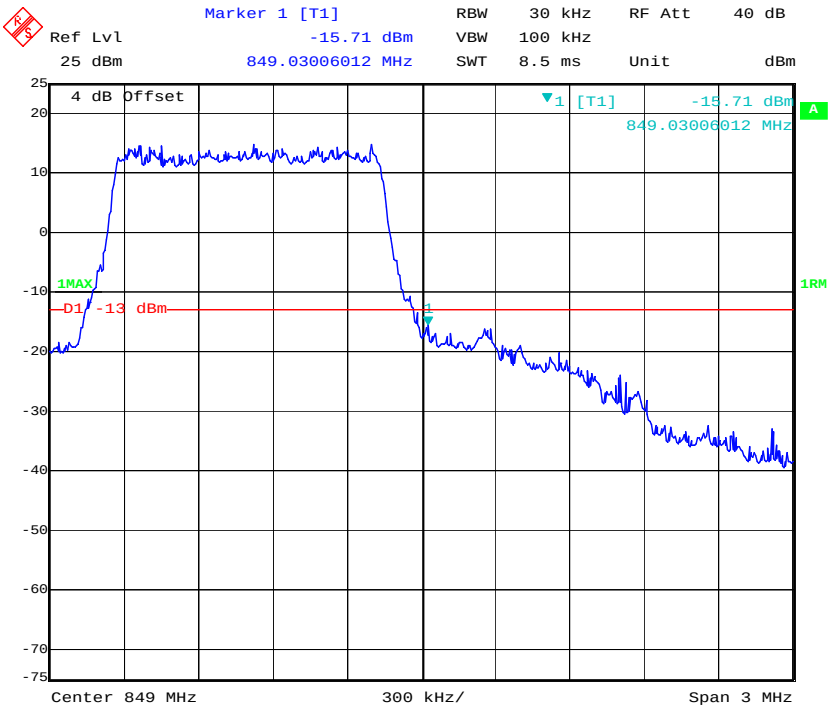
Date: 15.AUG.2018 16:48:45

16QAM_1.4MHz_ 6 RB_ Left



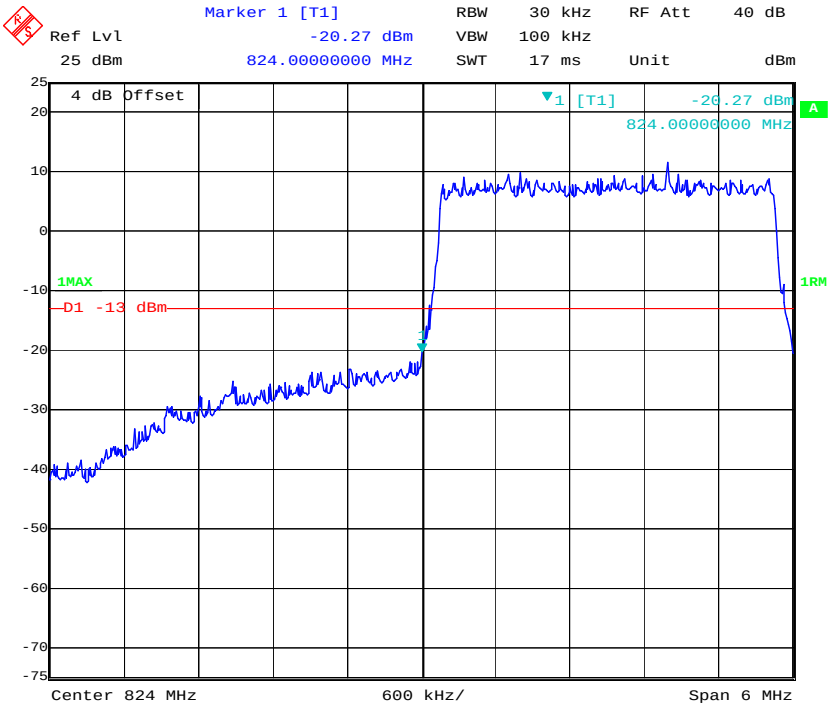
Date: 15.AUG.2018 16:32:42

16QAM_1.4MHz_ 6 RB_ Right



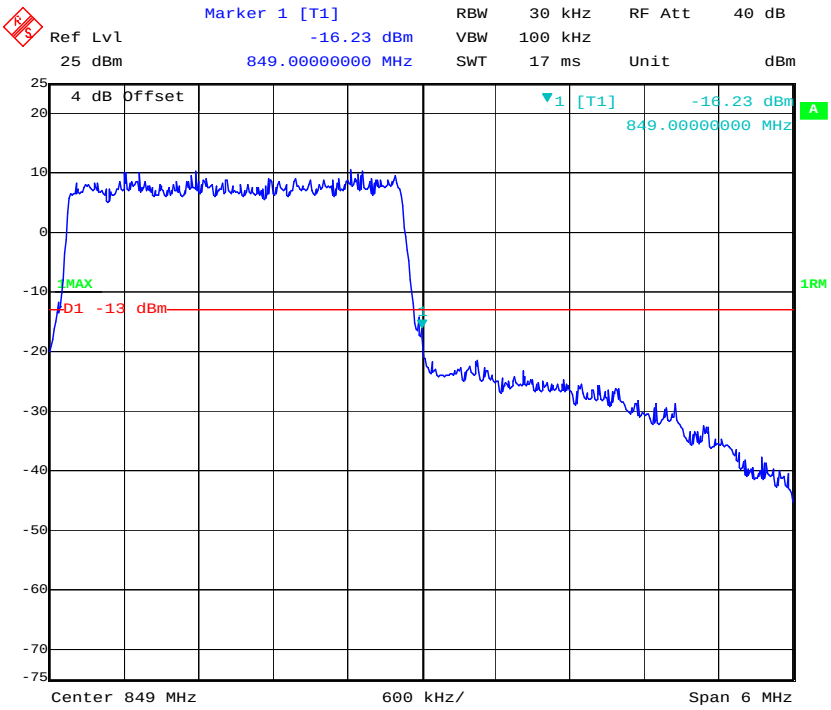
Date: 15.AUG.2018 16:34:47

16QAM_3MHz_ 15 RB_ Left



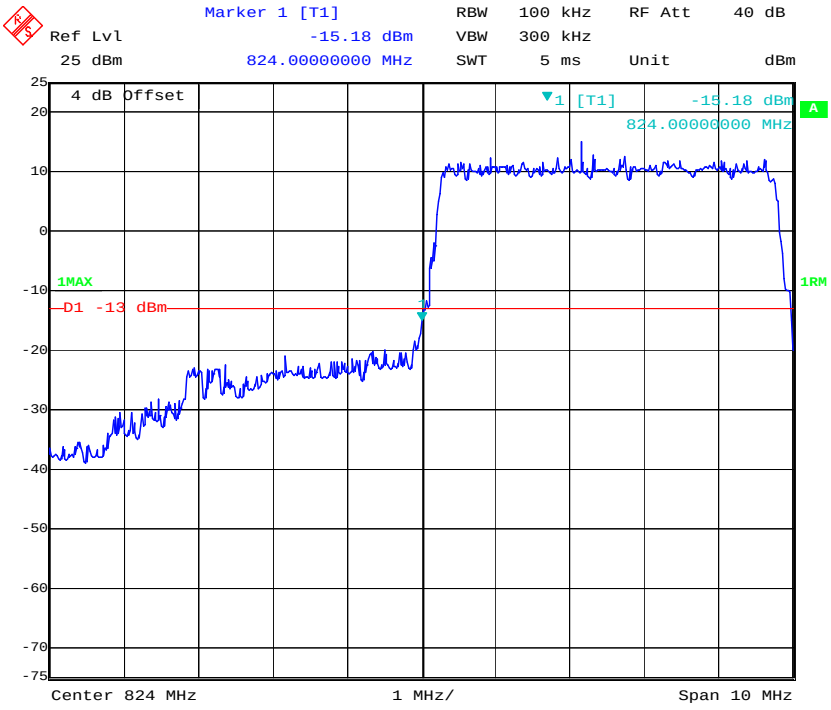
Date: 15.AUG.2018 16:40:02

16QAM_3MHz_ 15 RB_ Right



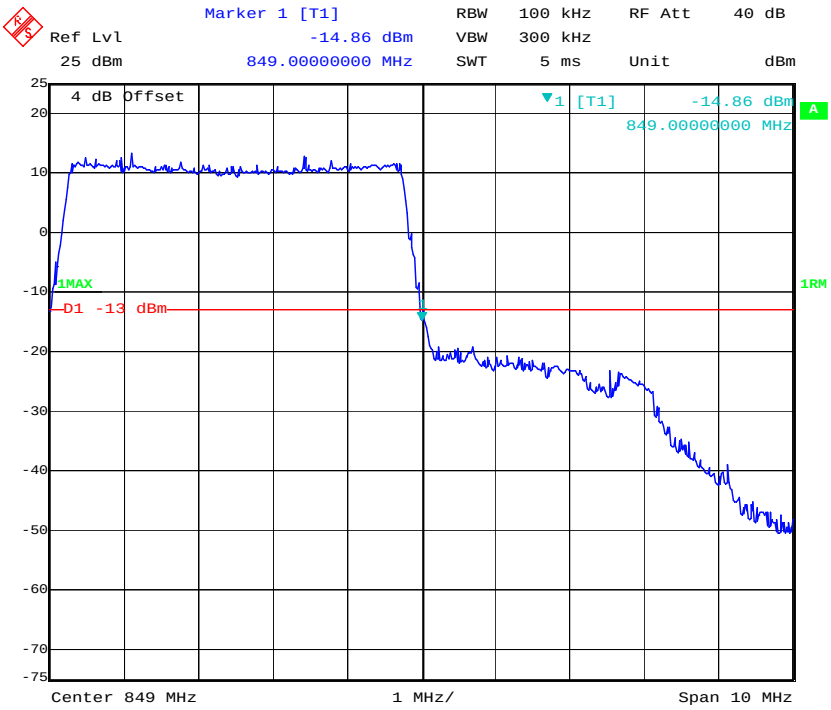
Date: 15.AUG.2018 16:35:42

16QAM_5MHz_ 25 RB_ Left



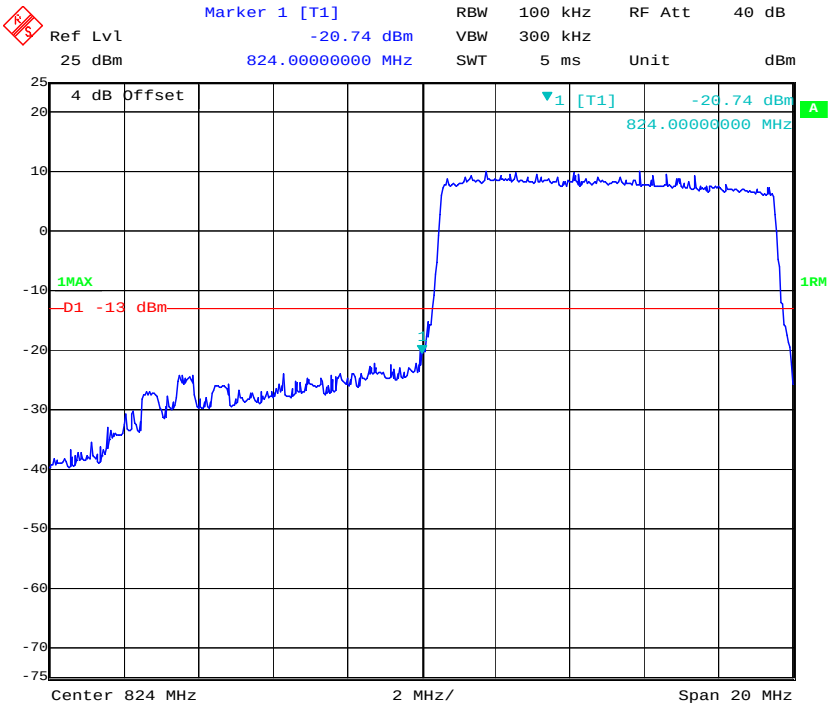
Date: 15.AUG.2018 16:42:45

16QAM_5MHz_ 25 RB_ Right



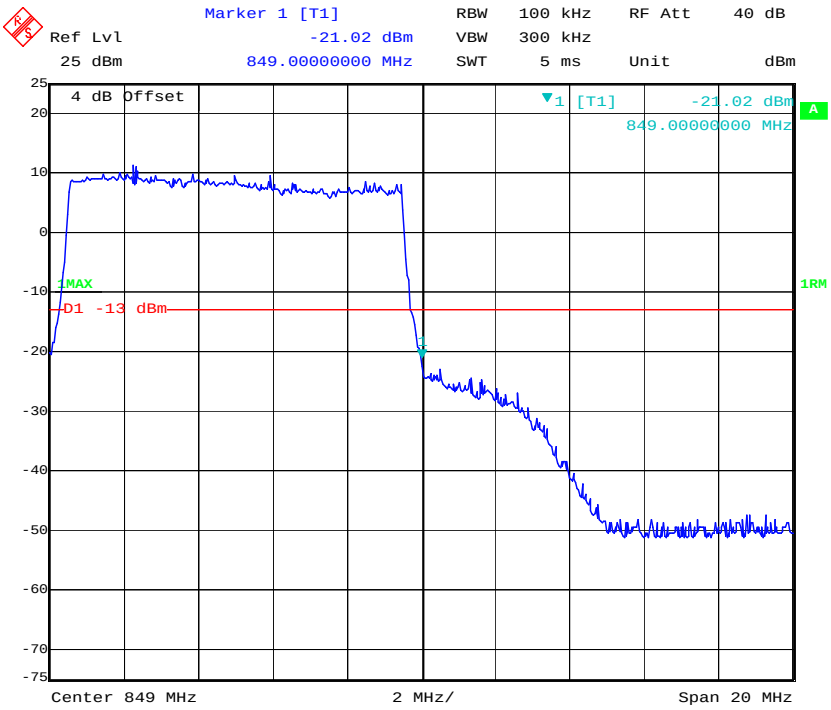
Date: 15.AUG.2018 16:44:09

16QAM_10MHz_ 50 RB_ Left



Date: 15.AUG.2018 16:50:34

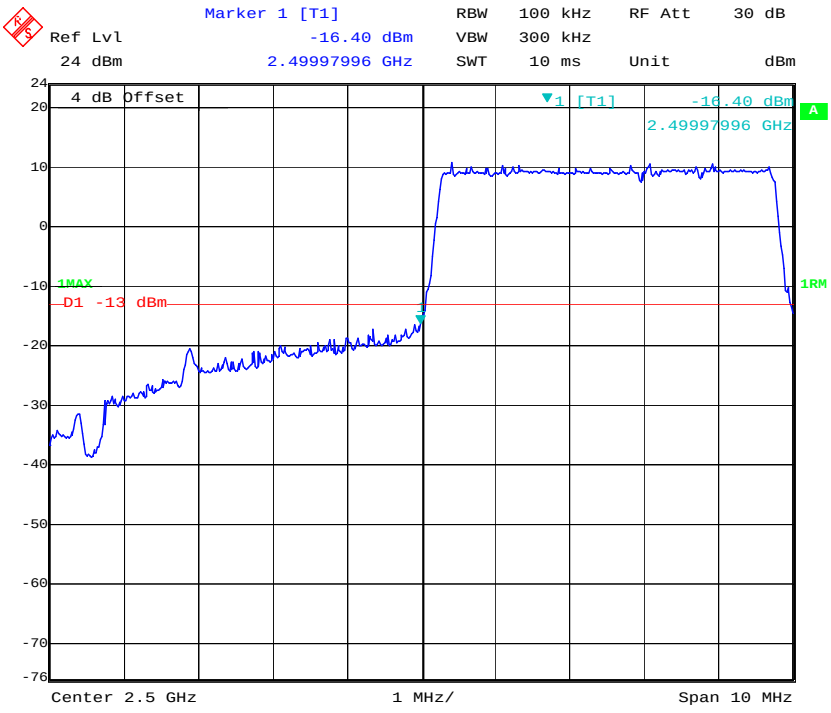
16QAM_10MHz_ 50 RB_ Right



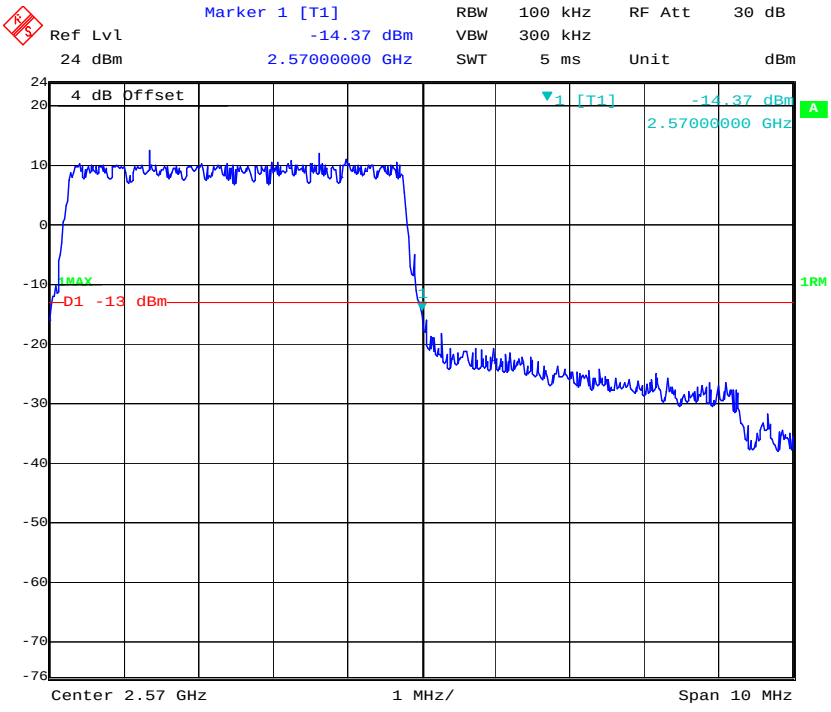
Date: 15.AUG.2018 16:49:50

LTE Band 7

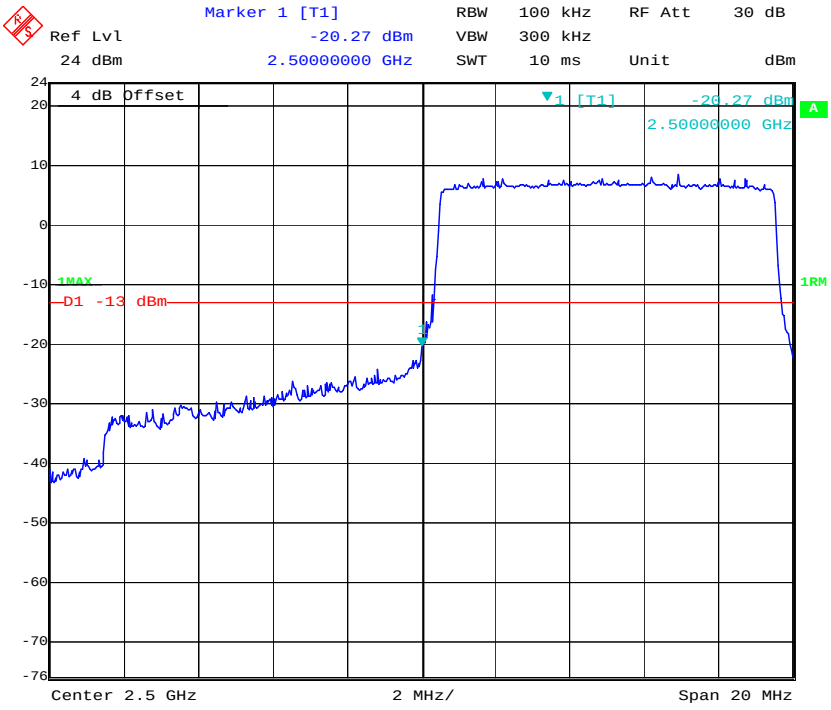
QPSK_5MHz_ 25 RB_ Left



QPSK_5MHz_ 25 RB_ Right

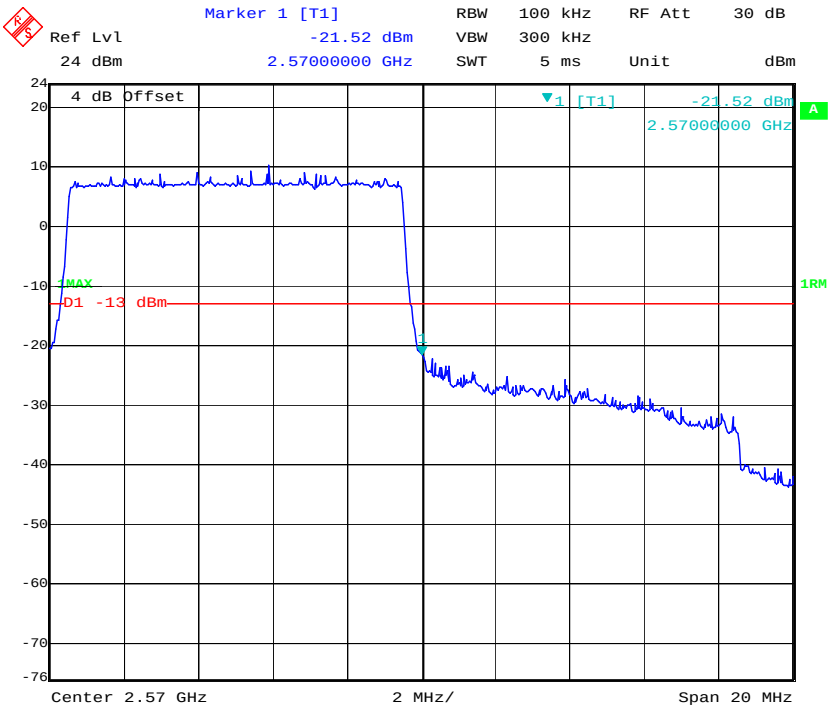


QPSK_10MHz_ 50 RB_ Left



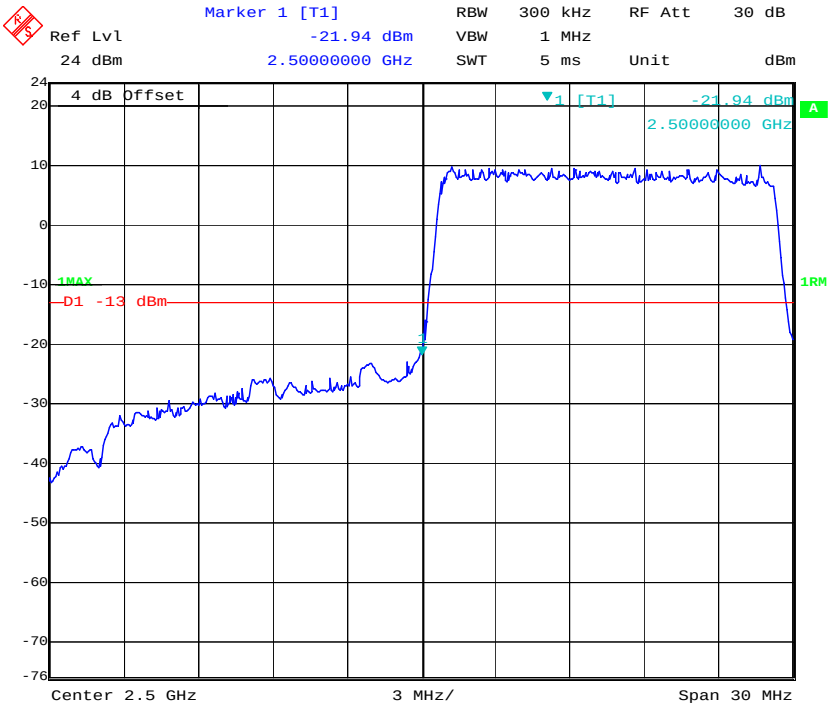
Date: 19.SEP.2018 17:30:55

QPSK_10MHz_ 50 RB_ Right



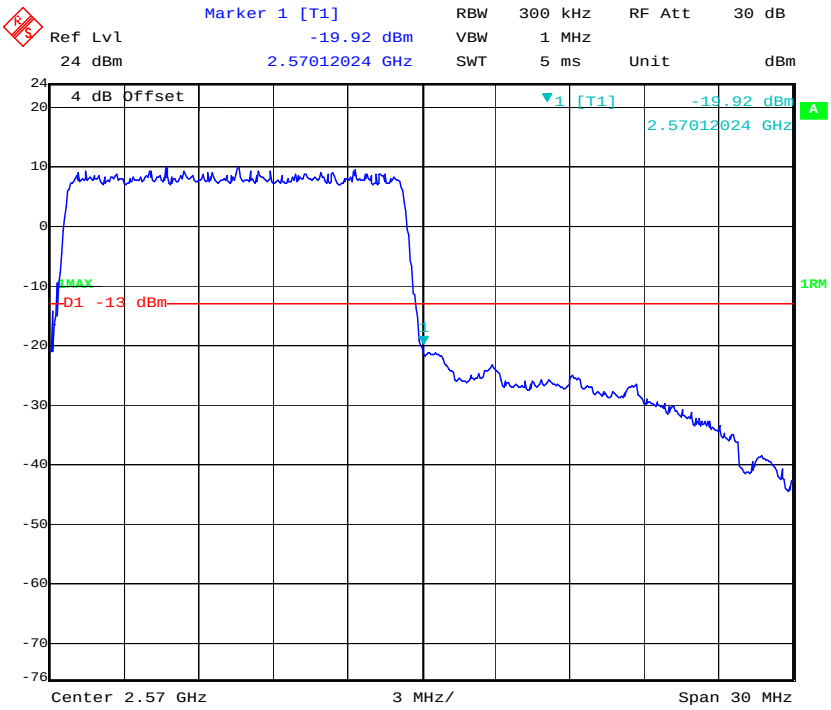
Date: 19.SEP.2018 17:33:30

QPSK_15MHz_ 75 RB_ Left



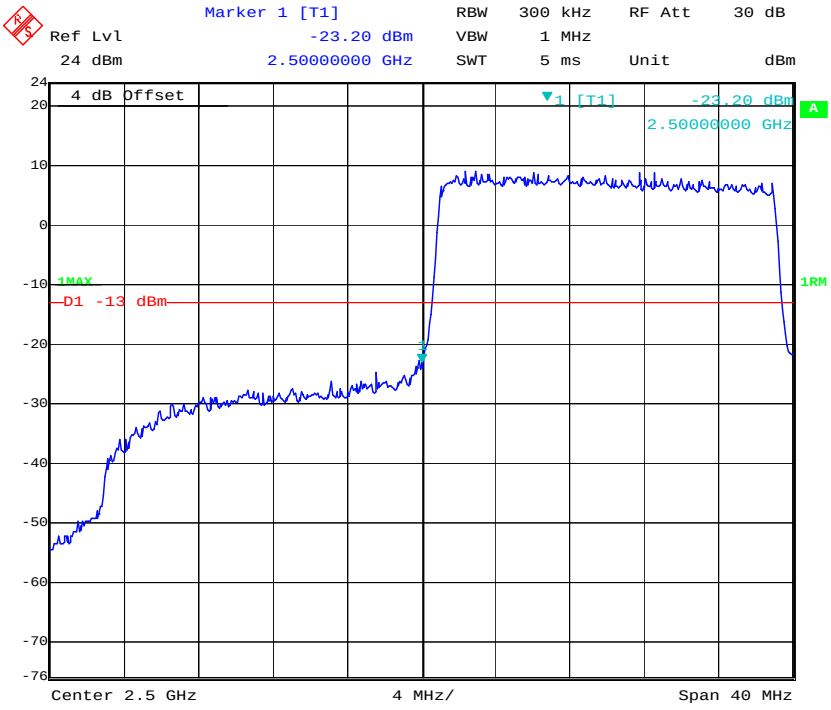
Date: 19.SEP.2018 17:37:20

QPSK_15MHz_ 75 RB_ Right



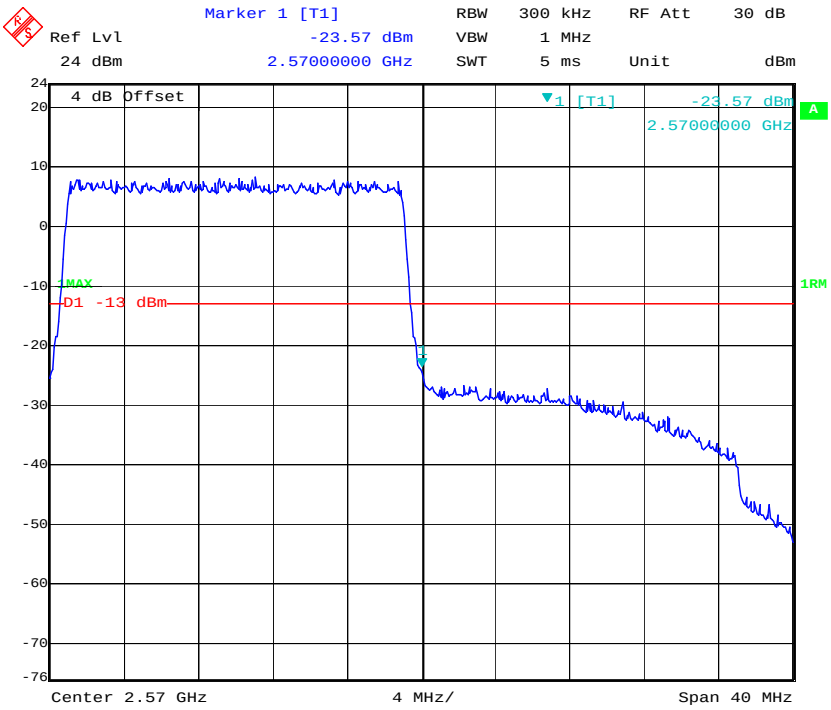
Date: 19.SEP.2018 17:35:31

QPSK_20MHz_ FULL RB_ Left



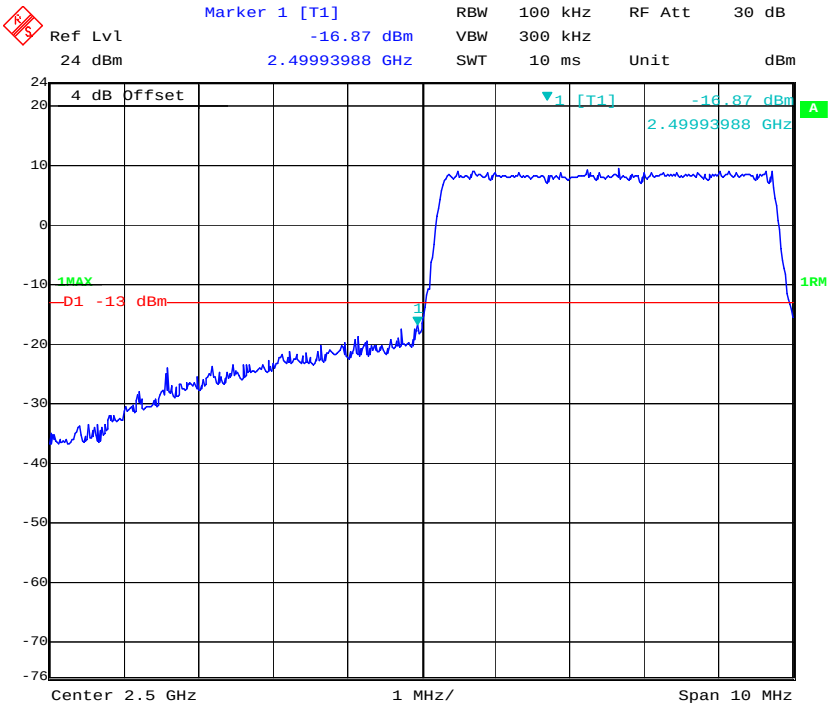
Date: 19.SEP.2018 17:38:13

QPSK_20MHz_ FULL RB_ Right



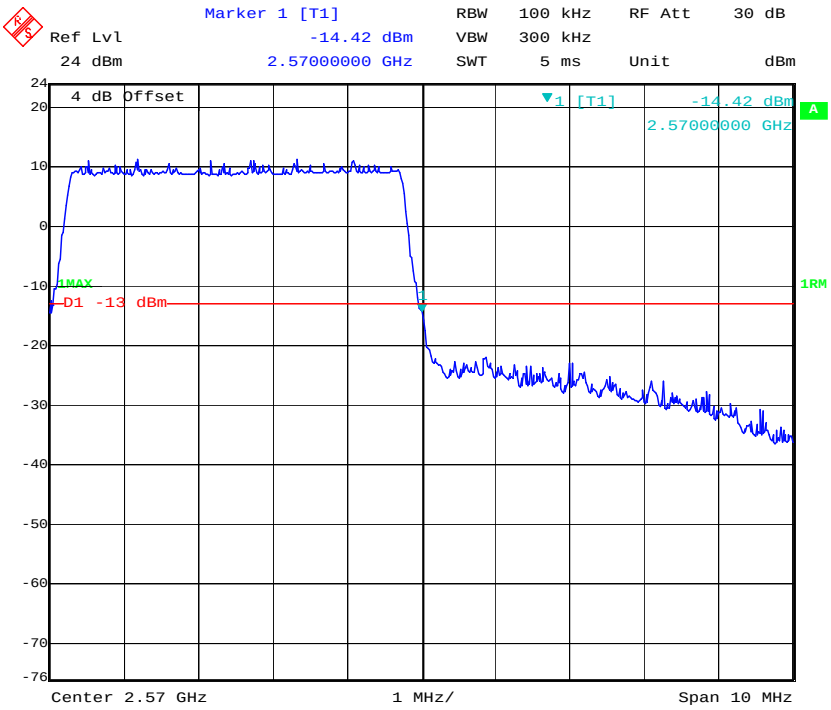
Date: 19.SEP.2018 17:39:52

16QAM_5MHz_ 25 RB_ Left



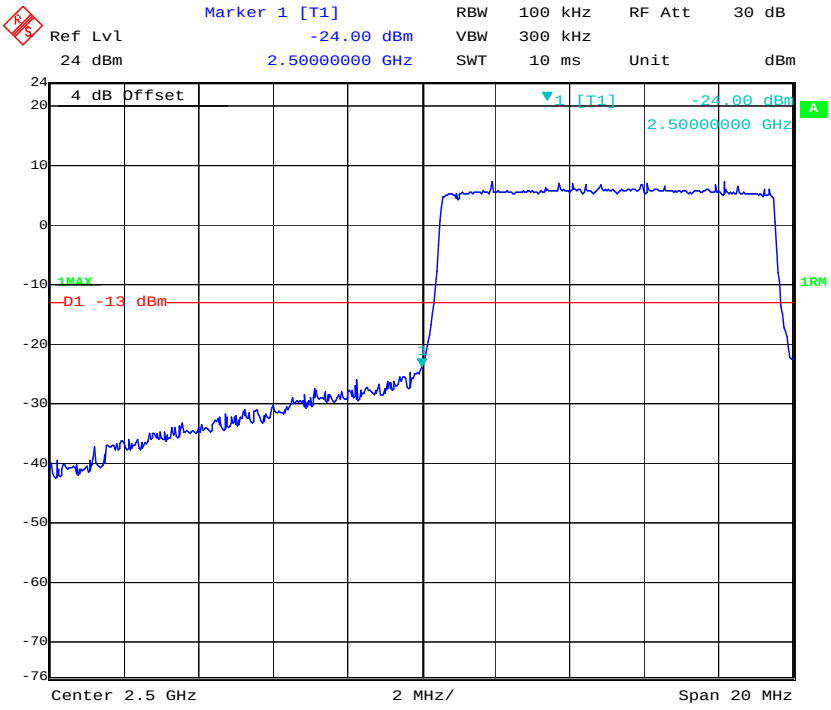
Date: 19.SEP.2018 17:27:37

16QAM_5MHz_ 25 RB_ Right



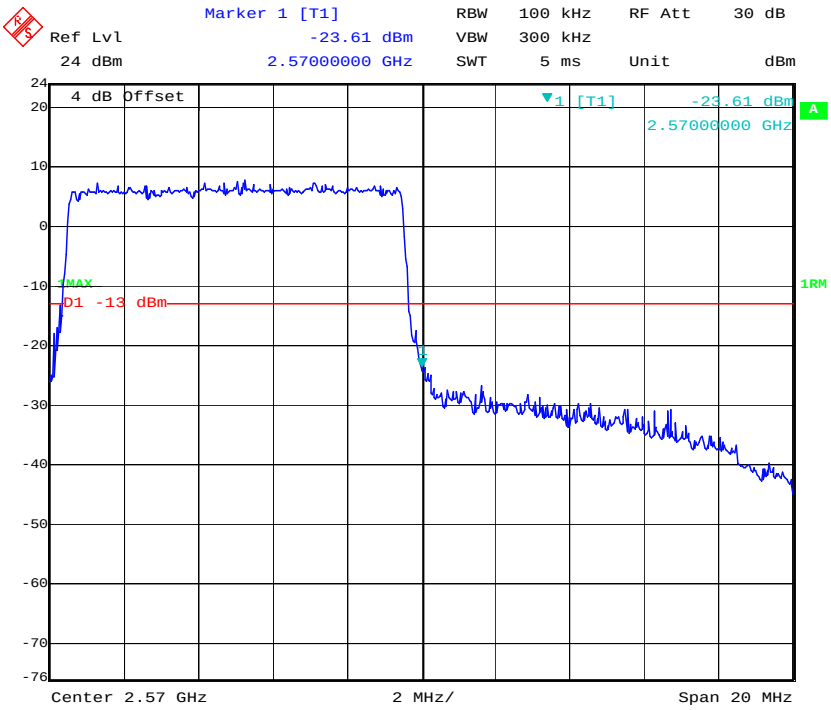
Date: 19.SEP.2018 17:25:48

16QAM_10MHz_ 50 RB_ Left



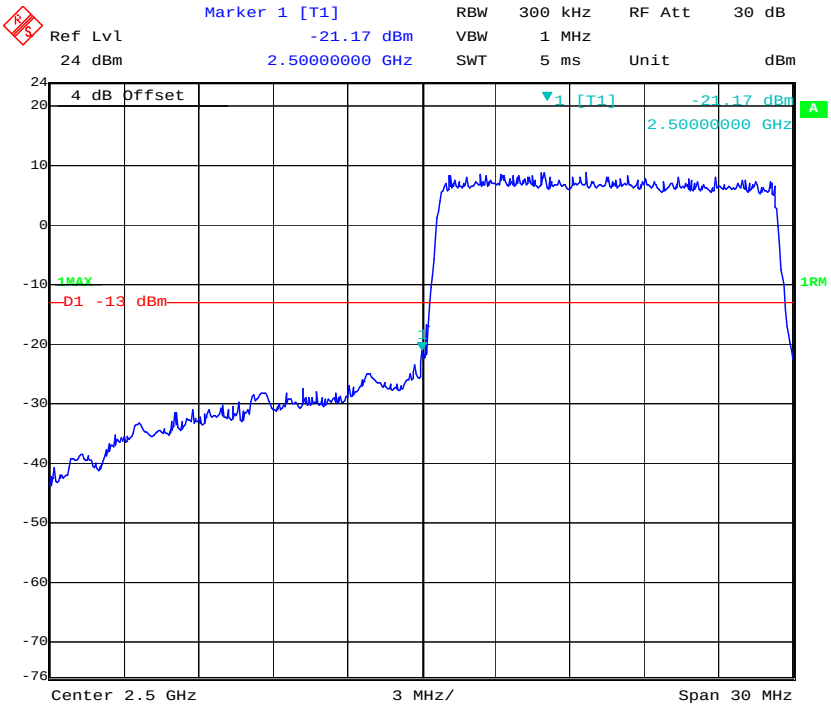
Date: 19.SEP.2018 17:31:52

16QAM_10MHz_ 50 RB_ Right



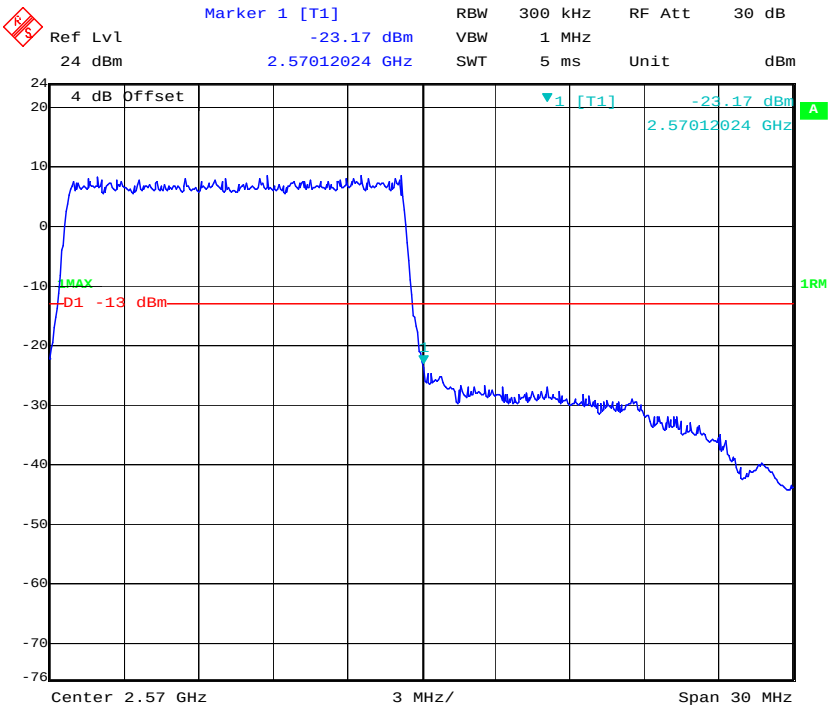
Date: 19.SEP.2018 17:32:45

16QAM_15MHz_ 75 RB_ Left



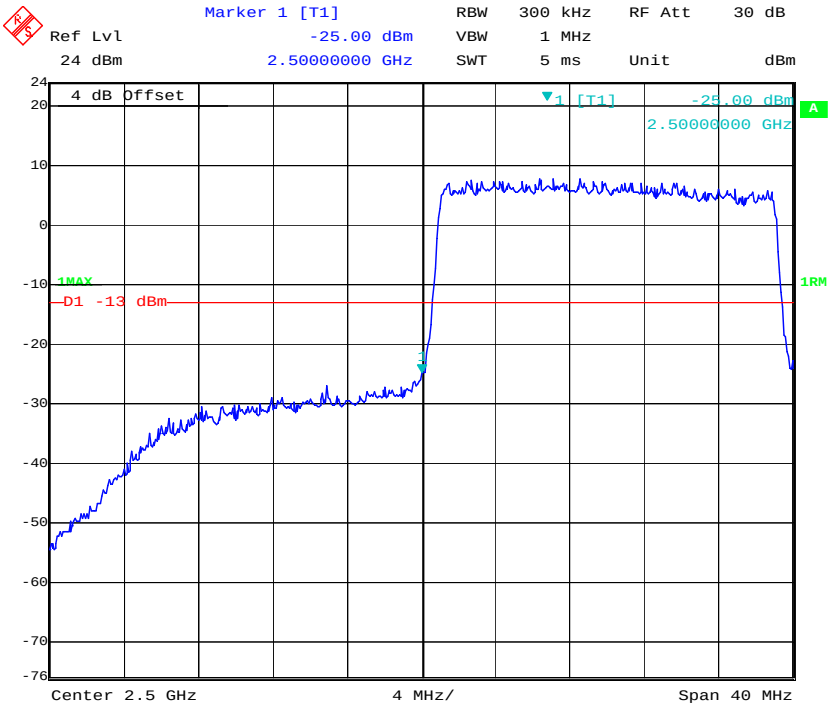
Date: 19.SEP.2018 17:36:45

16QAM_15MHz_ 75 RB_ Right



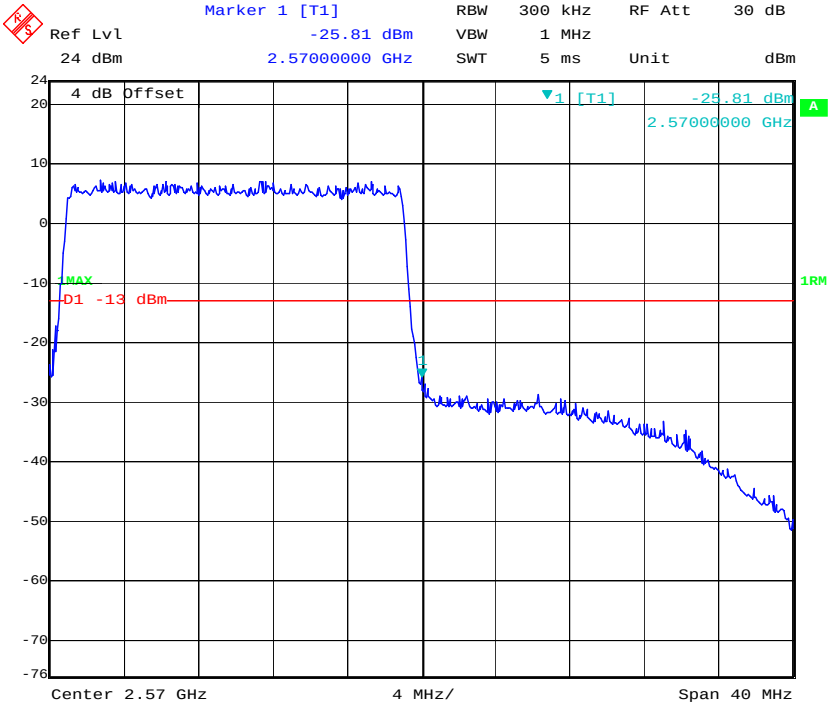
Date: 19.SEP.2018 17:36:04

16QAM_20MHz_ FULL RB_ Left



Date: 19.SEP.2018 17:38:42

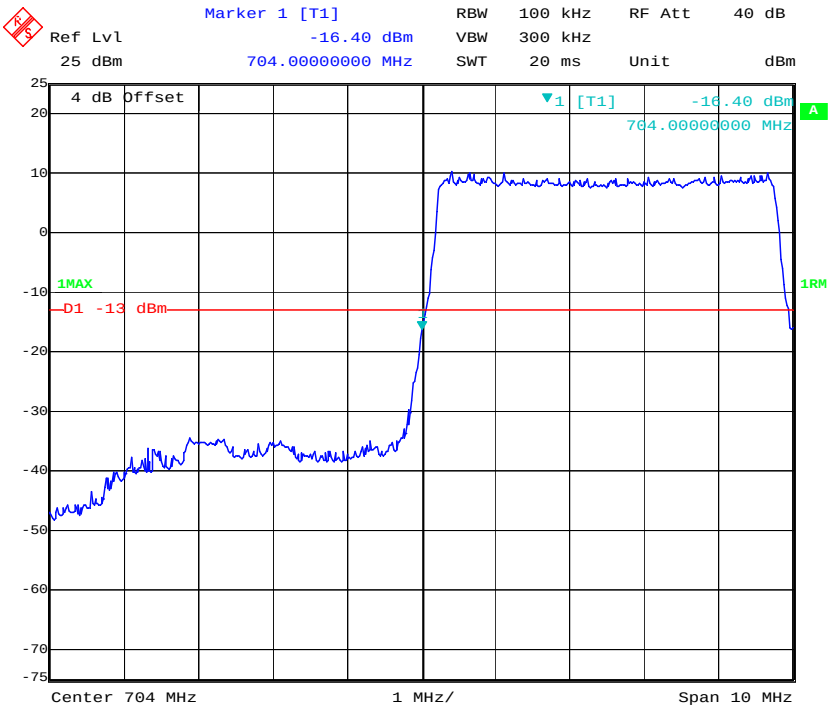
16QAM_20MHz_ FULL RB_ Right



Date: 19.SEP.2018 17:39:21

LTE Band 17

QPSK_5MHz_ 25 RB_ Left

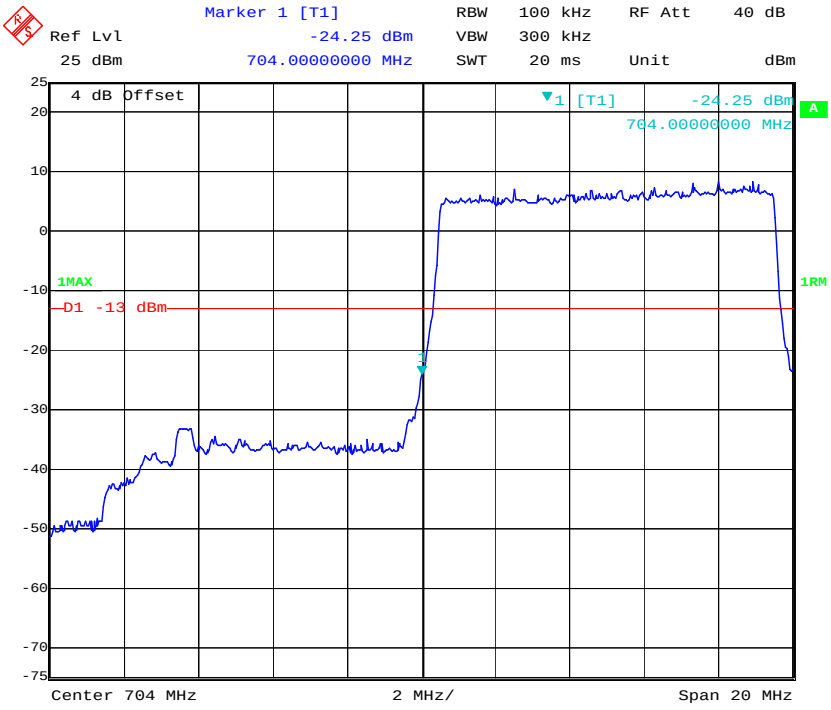


Date: 15.AUG.2018 16:55:53

QPSK_5MHz_ 25 RB_ Right

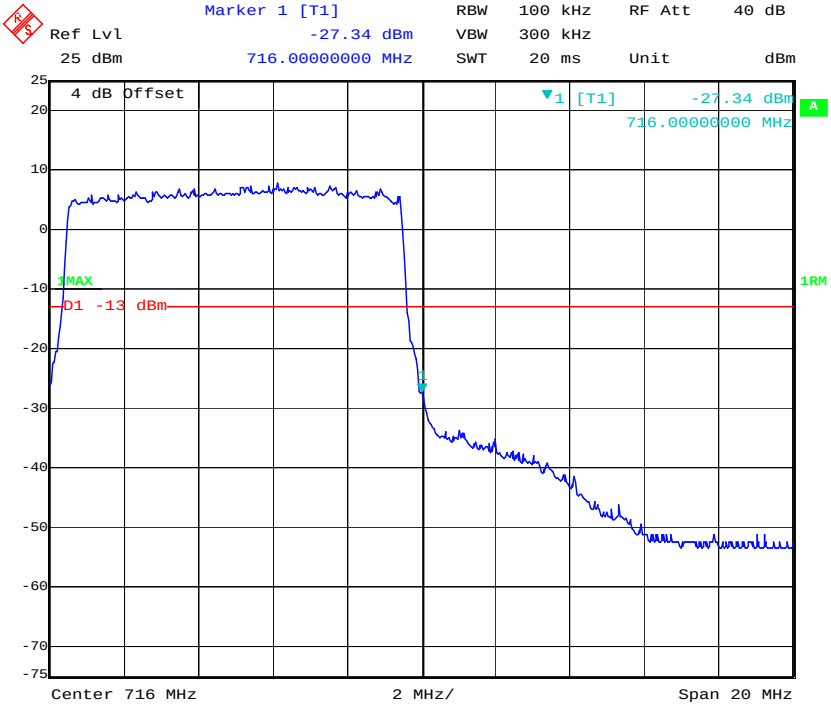
Date: 15.AUG.2018 16:59:44

QPSK_10MHz_ 50 RB_ Left



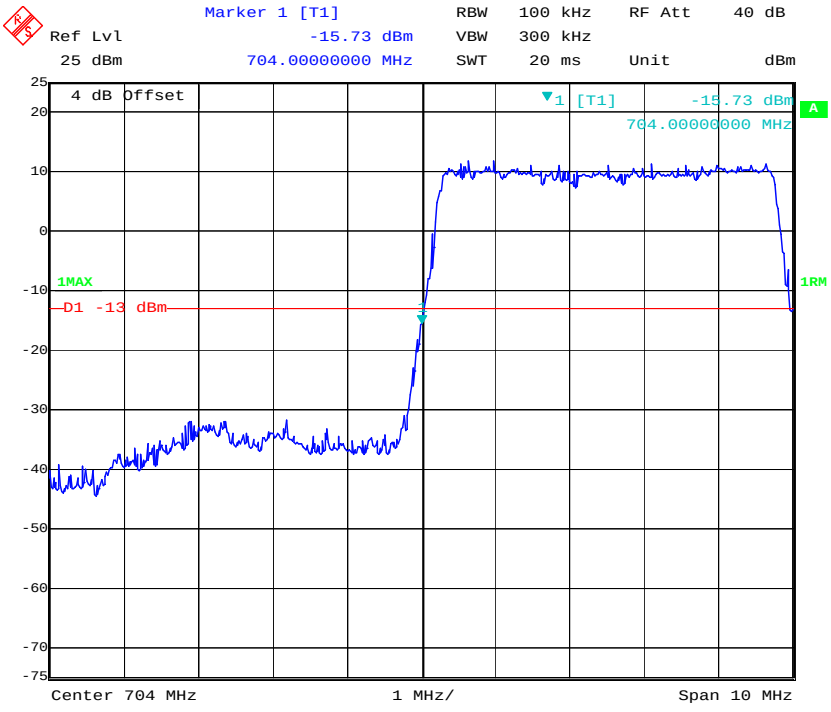
Date: 15.AUG.2018 17:00:51

QPSK_10MHz_ 50 RB_ Right



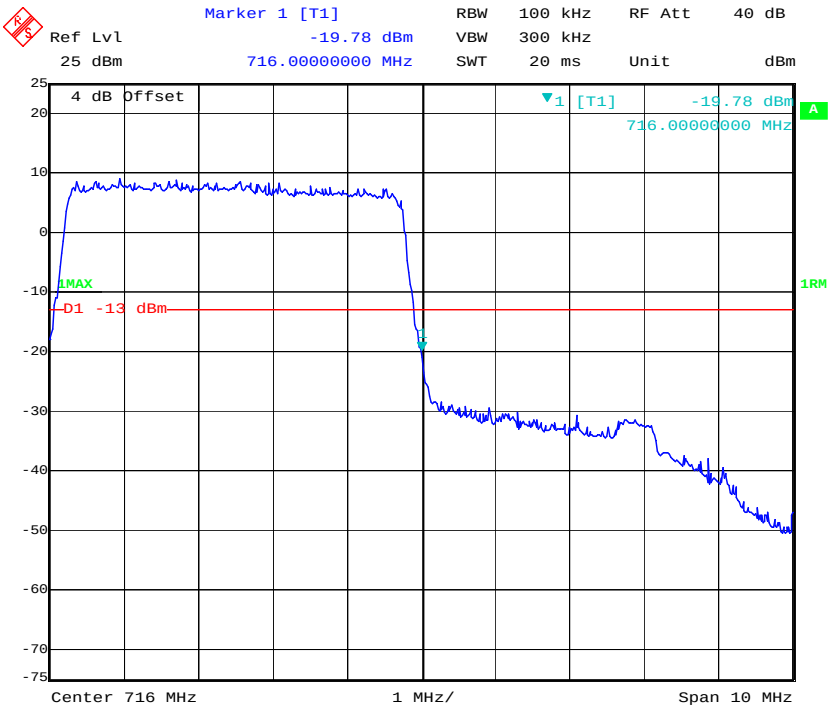
Date: 15.AUG.2018 17:03:19

16QAM_5MHz_ 25 RB_ Left



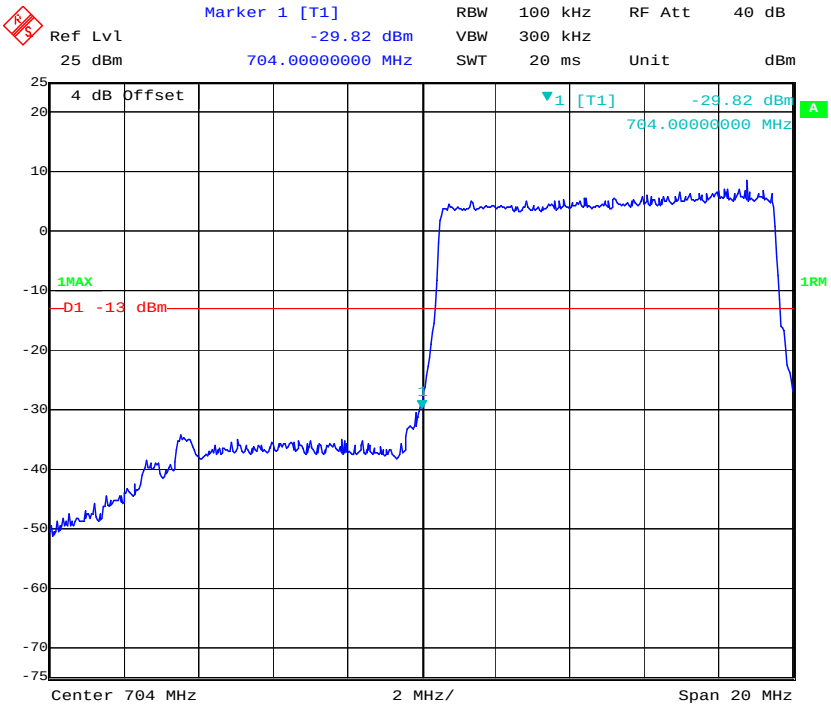
Date: 15.AUG.2018 16:58:35

16QAM_5MHz_ 25 RB_ Right



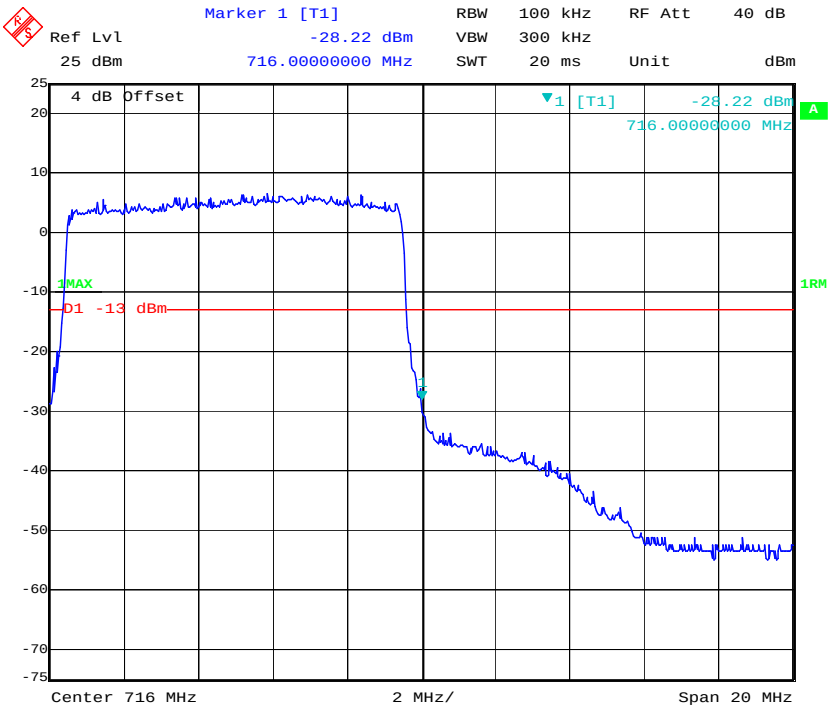
Date: 15.AUG.2018 16:59:14

16QAM_10MHz_ 50 RB_ Left



Date: 15.AUG.2018 17:01:17

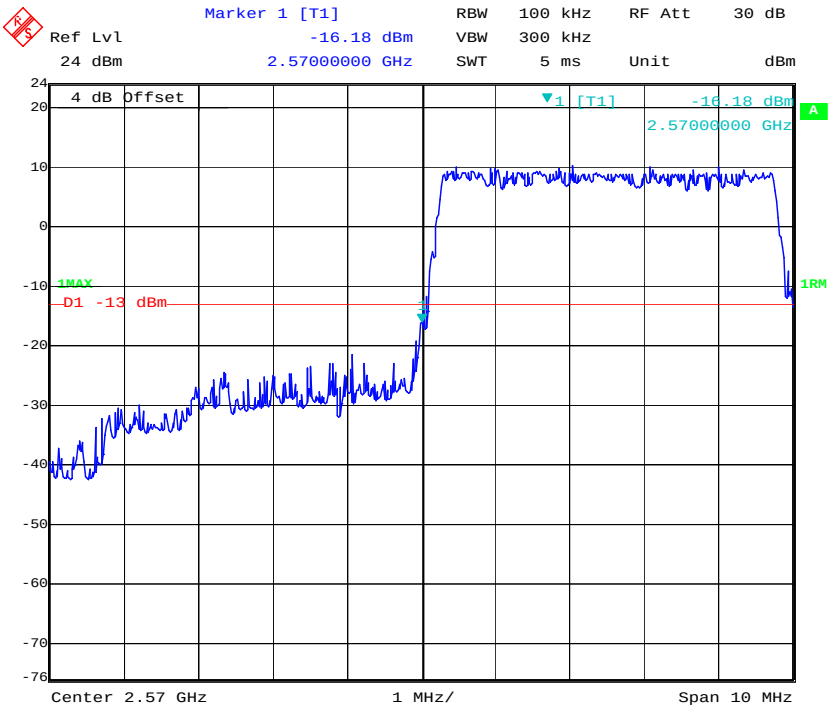
16QAM_10MHz_ 50 RB_ Right



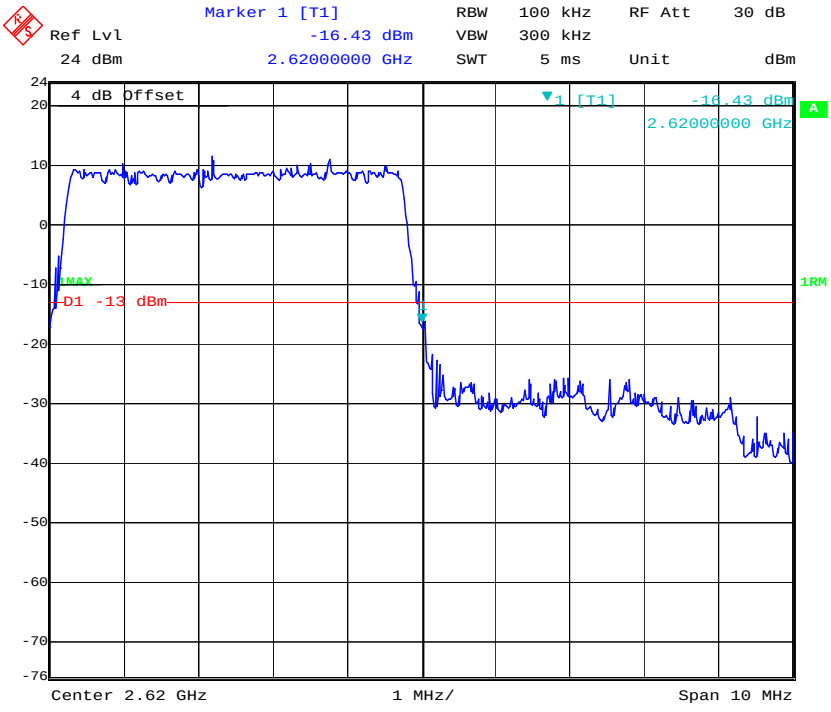
Date: 15.AUG.2018 17:02:49

LTE Band 38

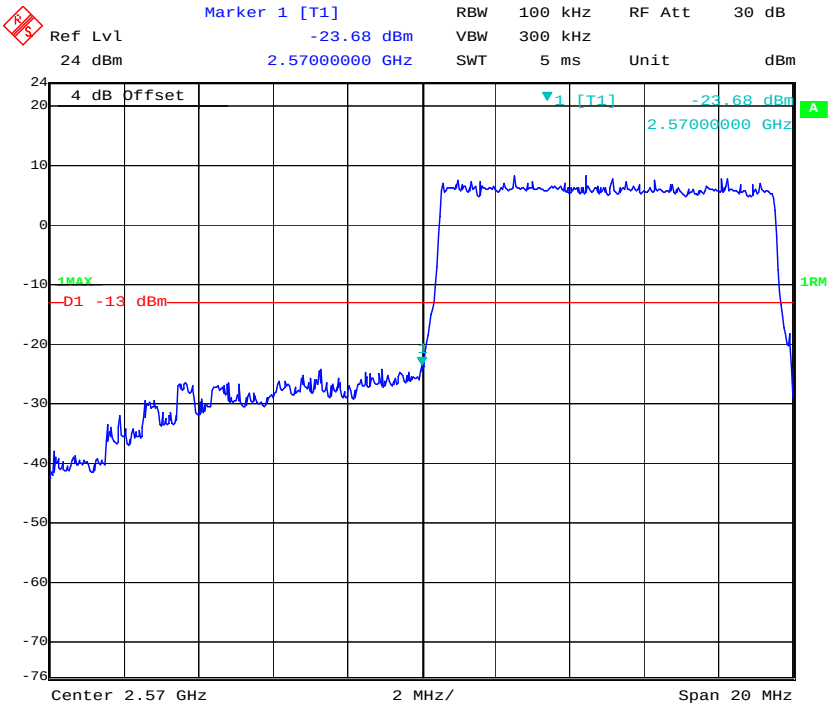
QPSK_5MHz_ 25 RB_ Left



QPSK_5MHz_ 25 RB_ Right

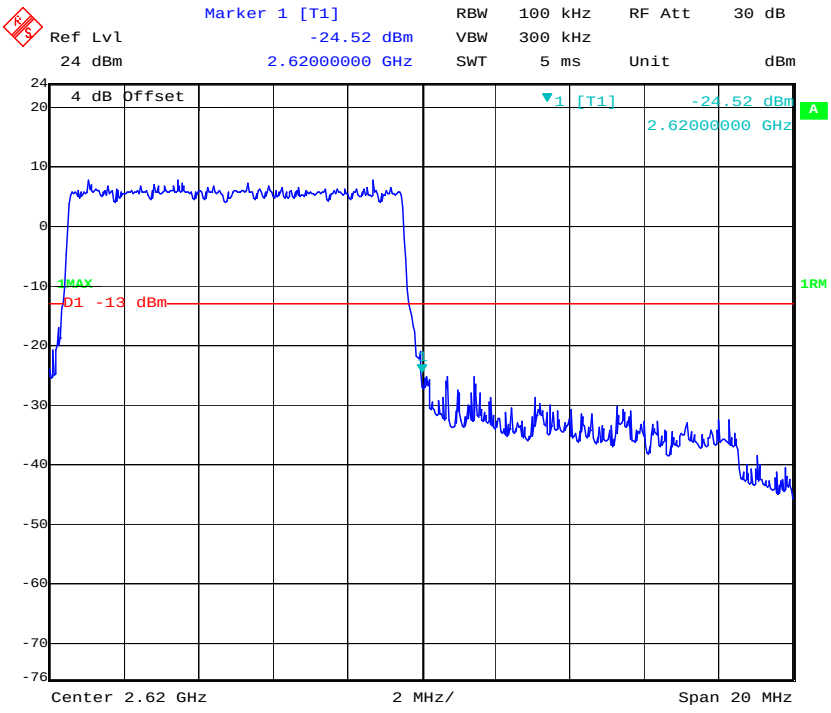


QPSK_10MHz_ 50 RB_ Left



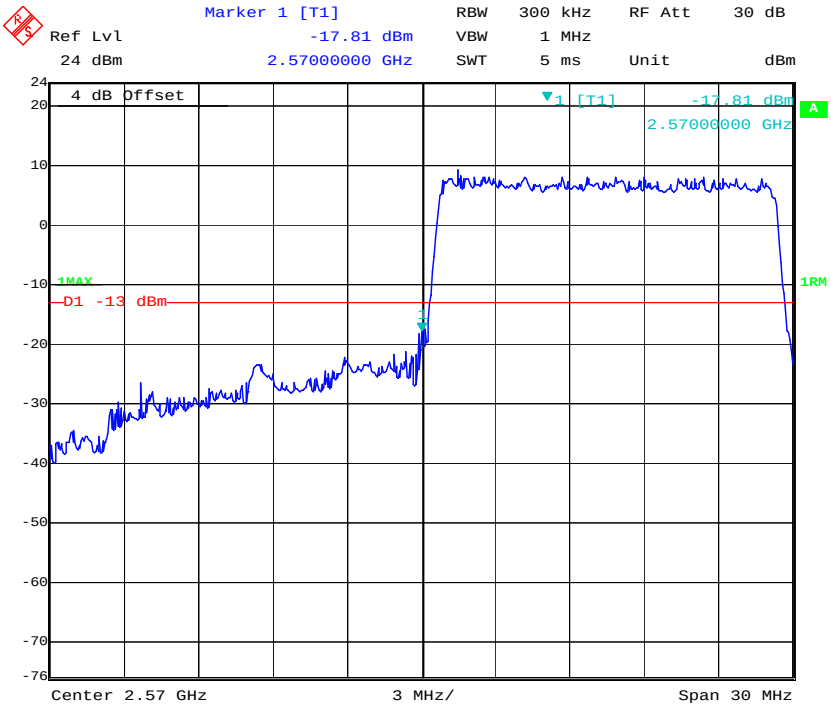
Date: 28.AUG.2018 16:13:08

QPSK_10MHz_ 50 RB_ Right



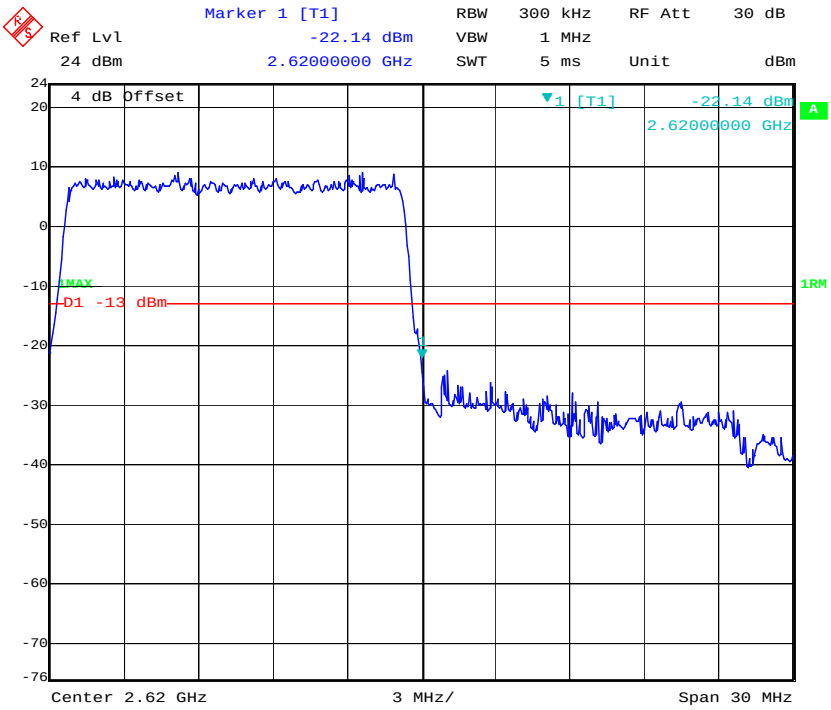
Date: 28.AUG.2018 16:14:59

QPSK_15MHz_ 75 RB_ Left



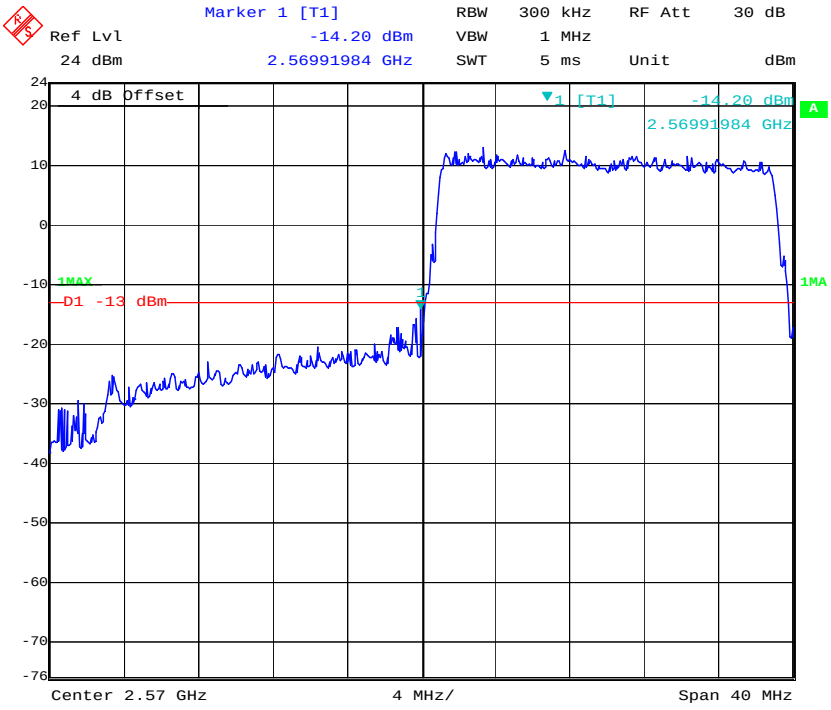
Date: 28.AUG.2018 16:16:44

QPSK_15MHz_ 75 RB_ Right



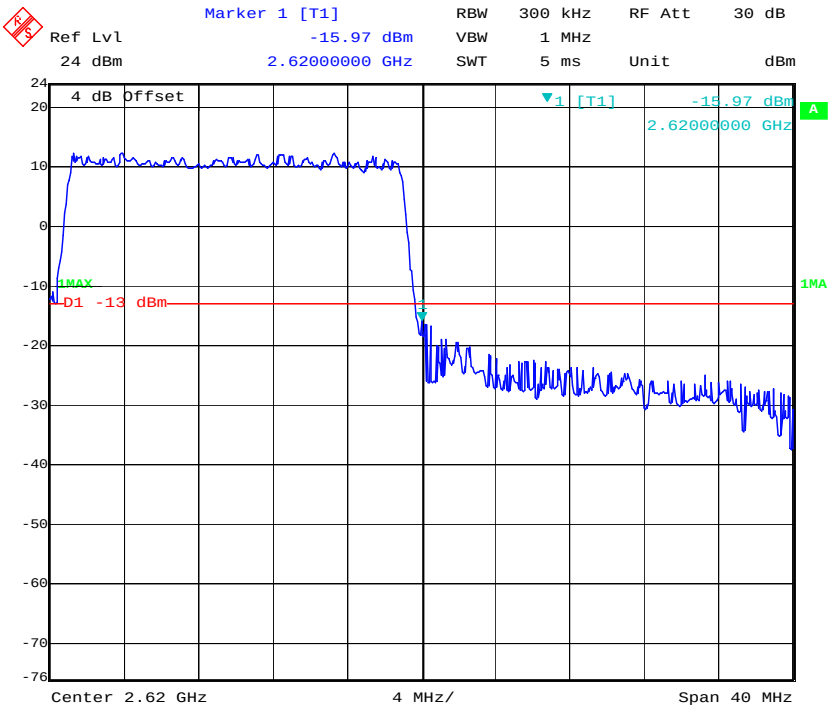
Date: 28.AUG.2018 16:17:40

QPSK_20MHz_ FULL RB_ Left



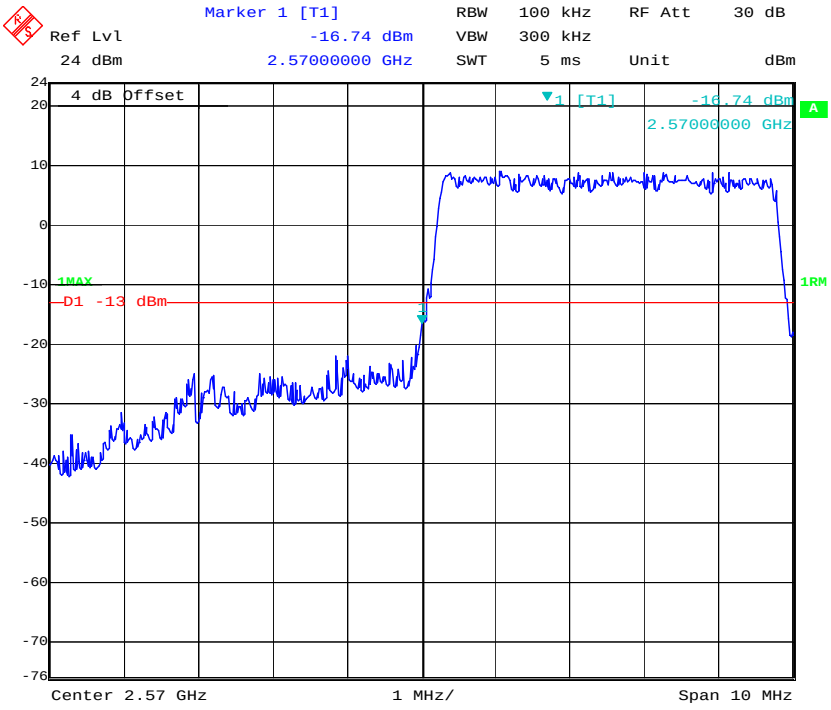
Date: 28.AUG.2018 16:41:44

QPSK_20MHz_ FULL RB_ Right



Date: 28.AUG.2018 16:40:56

16QAM_5MHz_ 25 RB_ Left

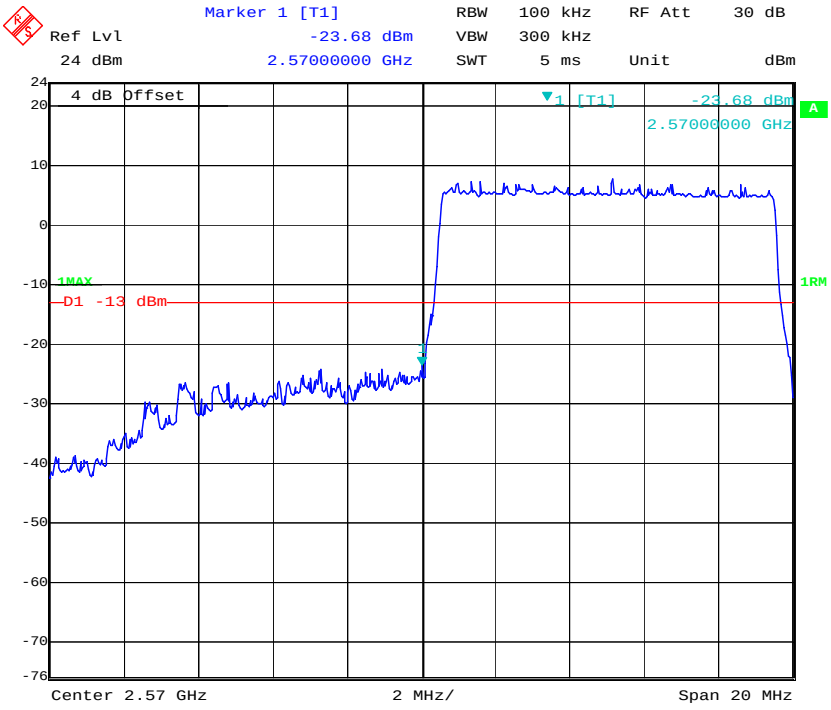


Date: 28.AUG.2018 15:57:45

16QAM_5MHz_ 25 RB_ Right

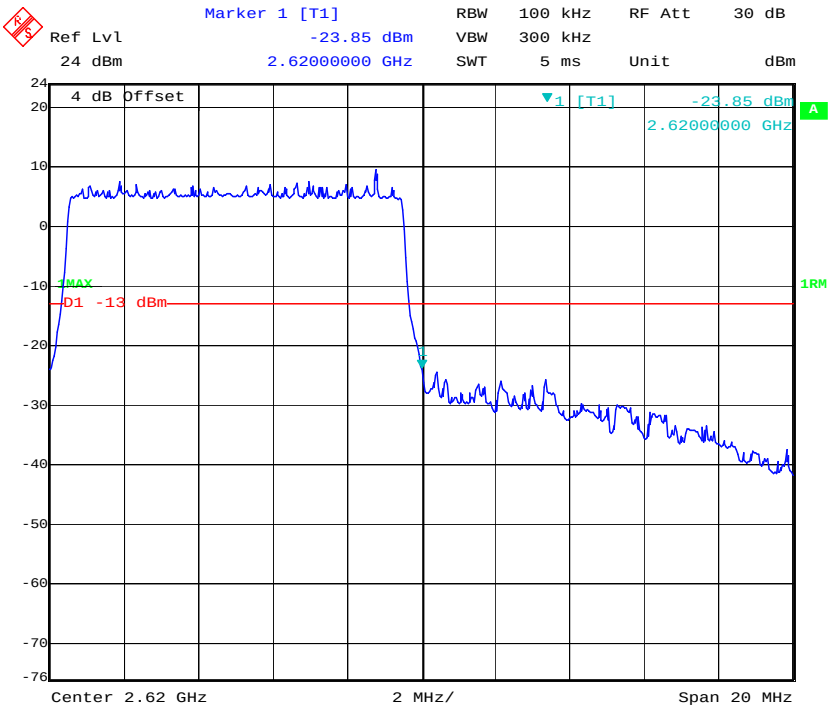
Date: 28.AUG.2018 15:58:29

16QAM_10MHz_ 50 RB_ Left



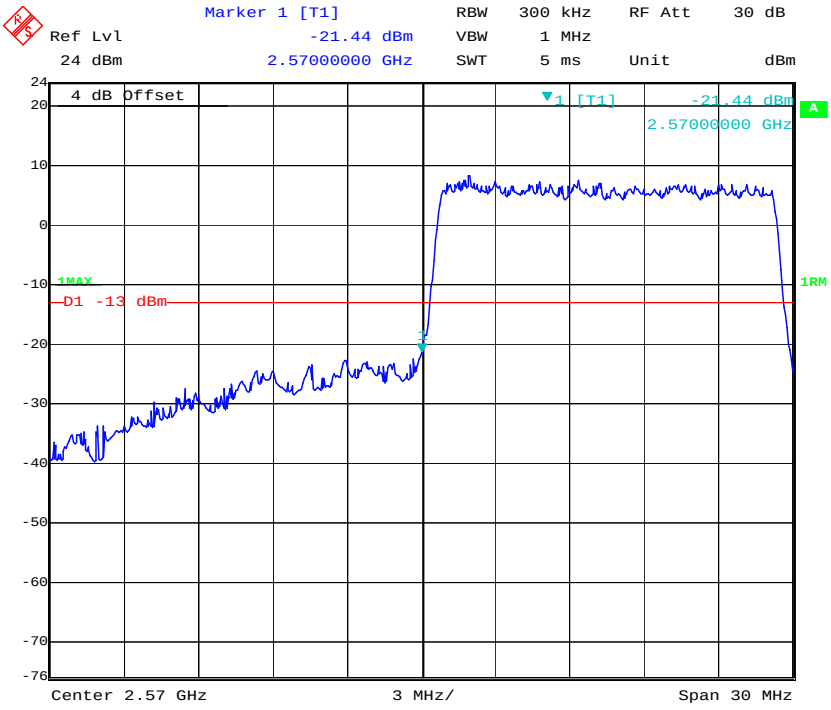
Date: 28.AUG.2018 16:12:03

16QAM_10MHz_ 50 RB_ Right



Date: 28.AUG.2018 16:08:43

16QAM_15MHz_ 75 RB_ Left

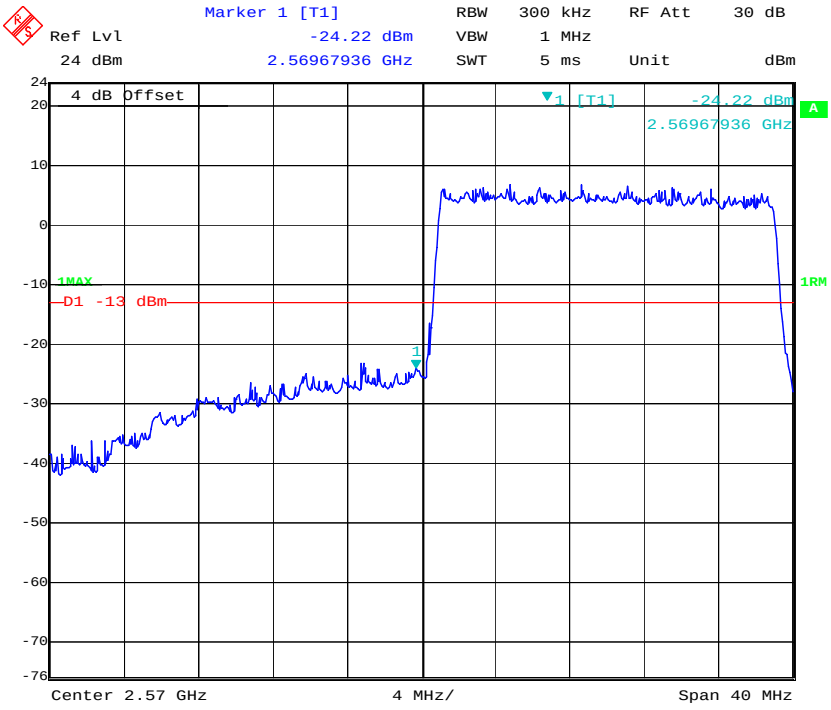


Date: 28.AUG.2018 16:19:34

16QAM_15MHz_ 75 RB_ Right

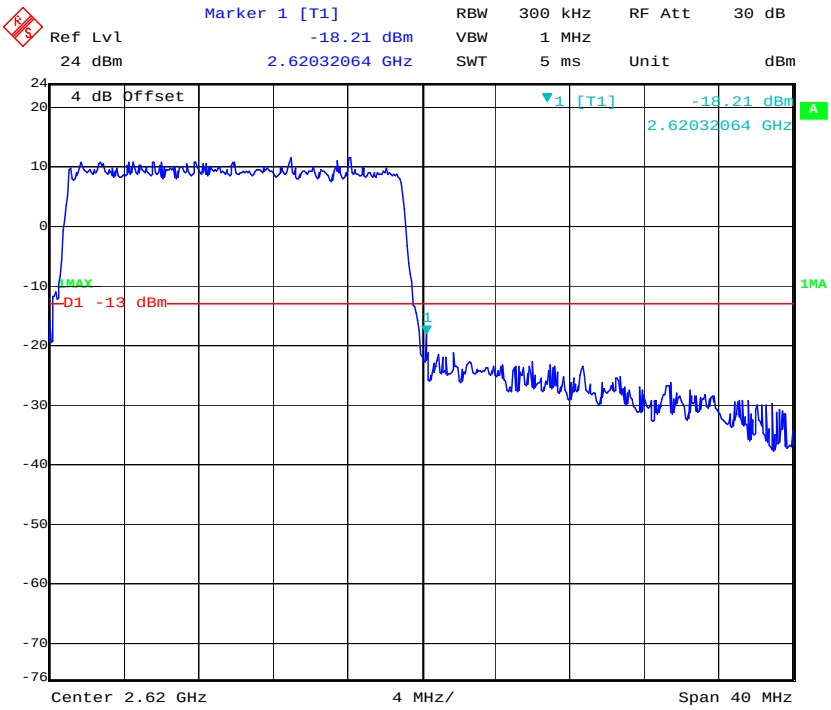
Date: 28.AUG.2018 16:18:40

16QAM_20MHz_ FULL RB_ Left



Date: 28.AUG.2018 16:22:57

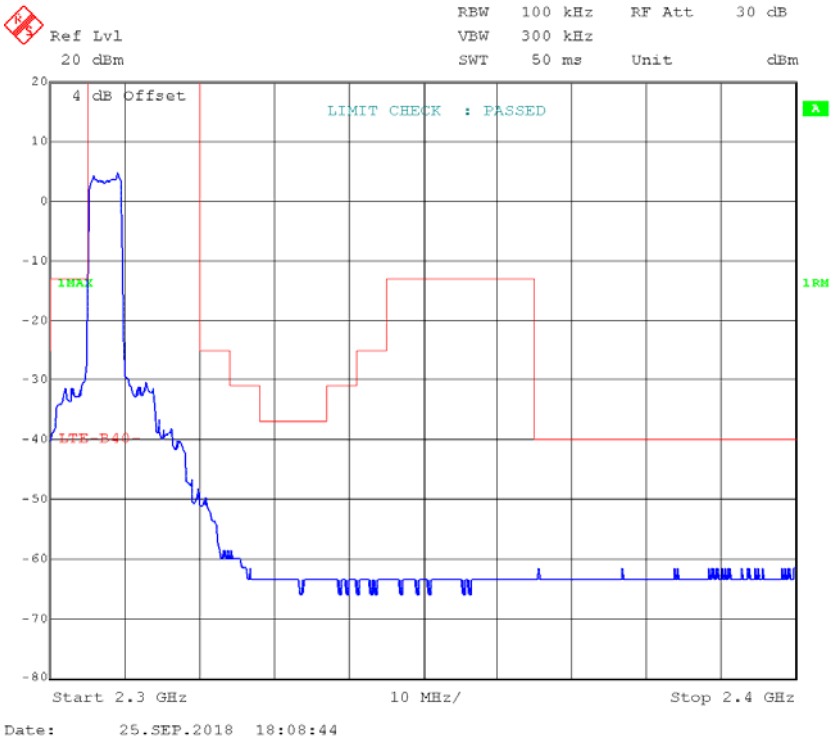
16QAM_20MHz_ FULL RB_ Right



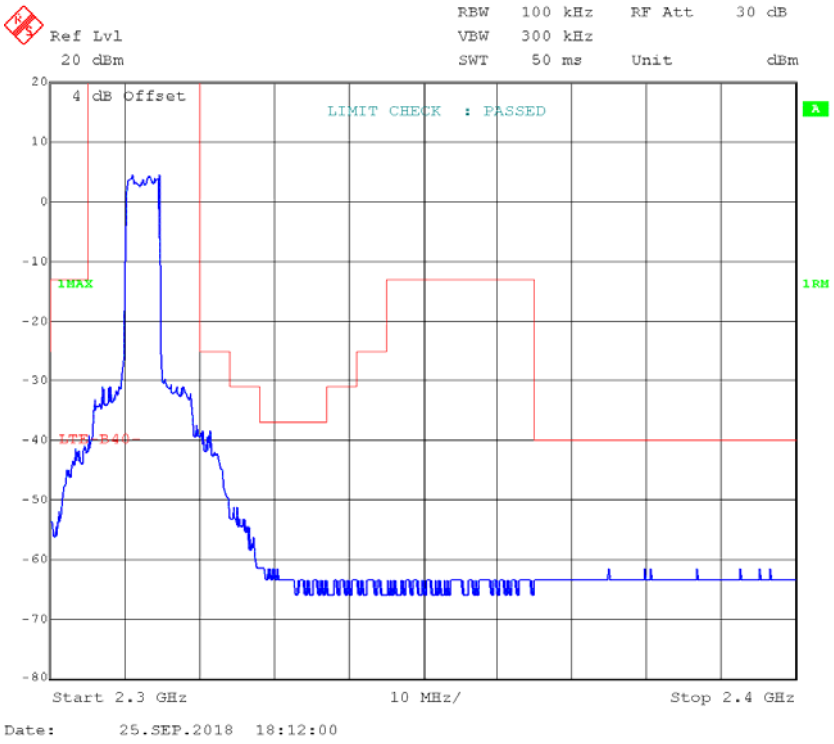
Date: 28.AUG.2018 16:39:06

LTE Band 40(2305-2315MHz)

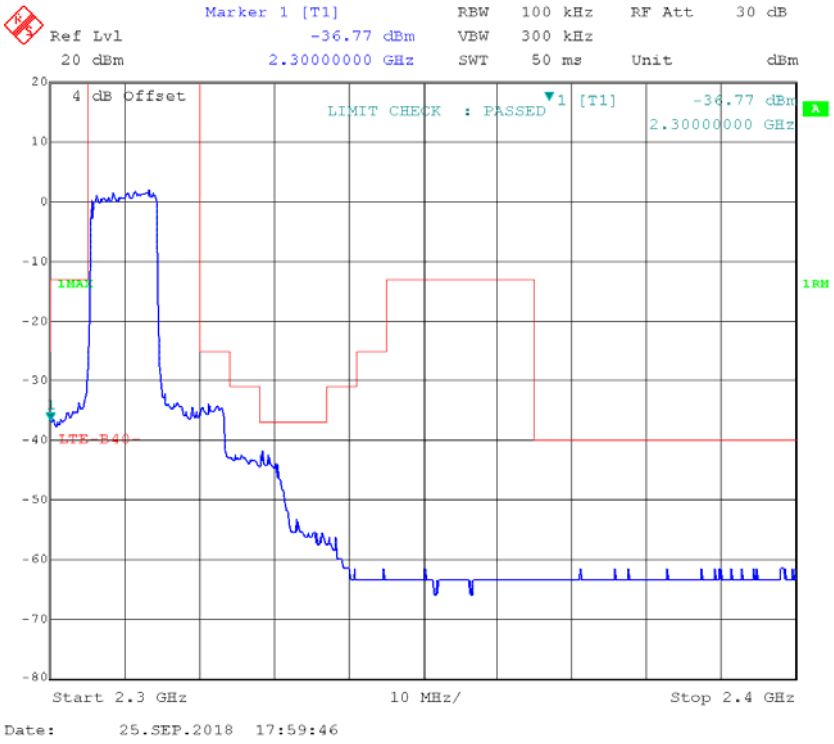
QPSK_5MHz_ 25 RB_ Left



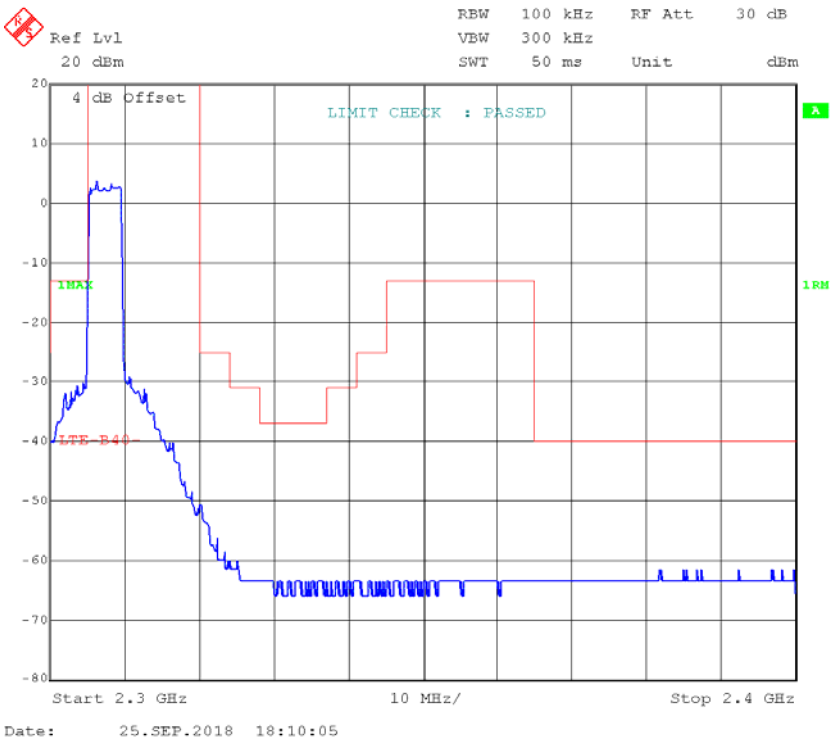
QPSK_5MHz_ 25 RB_ Right



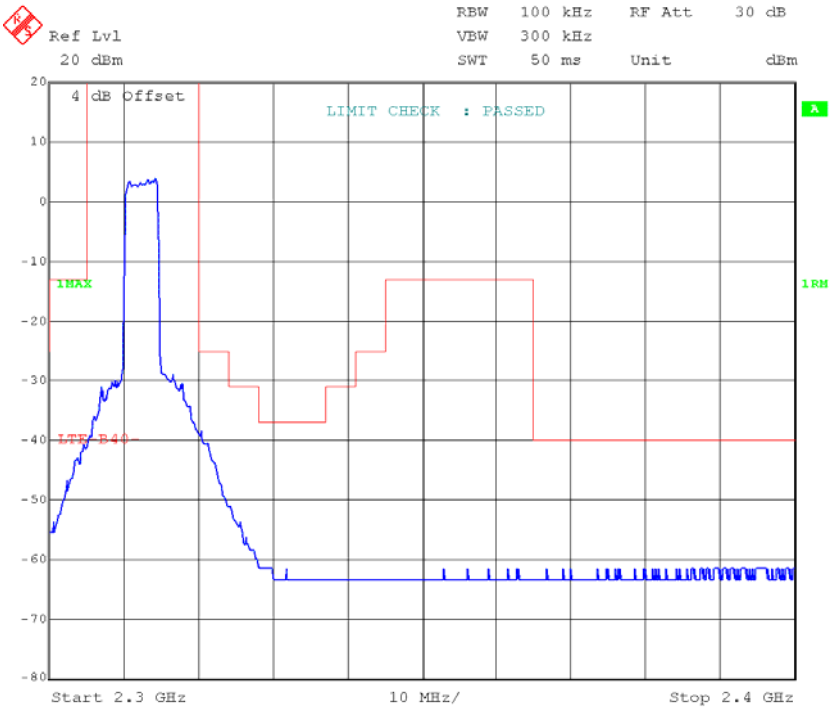
QPSK_10MHz_ 50 RB



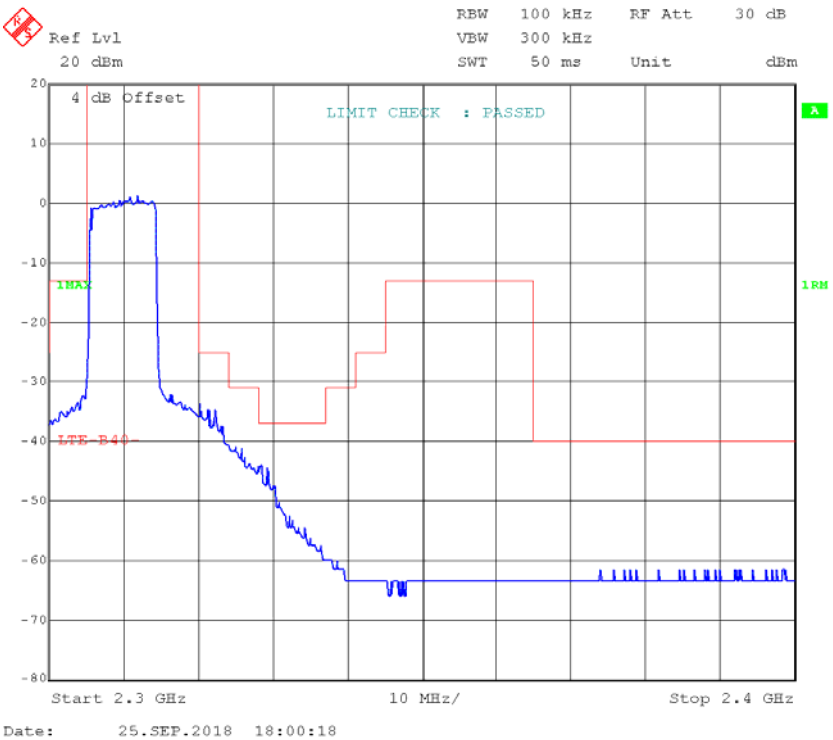
16QAM_5MHz_ 25 RB_ Left



16QAM_5MHz_ 25 RB_ Right

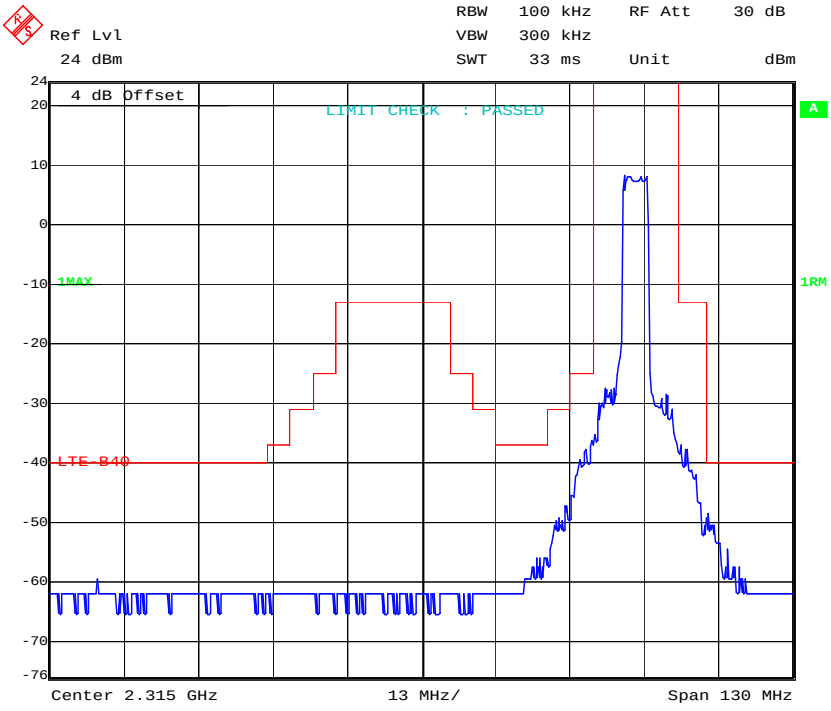


16QAM_10MHz_ 50 RB

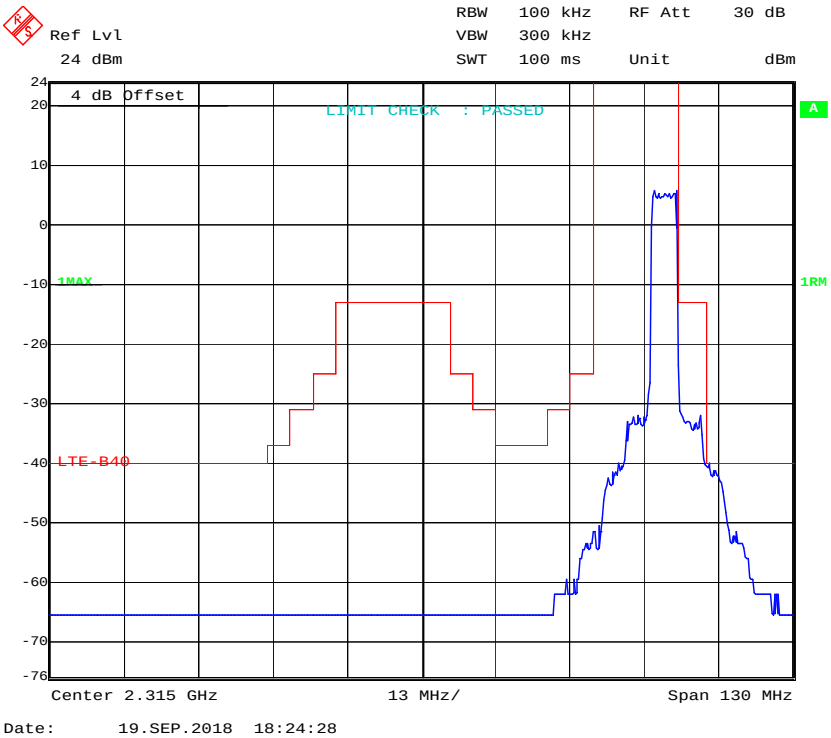


LTE Band 40(2350-2360MHz)

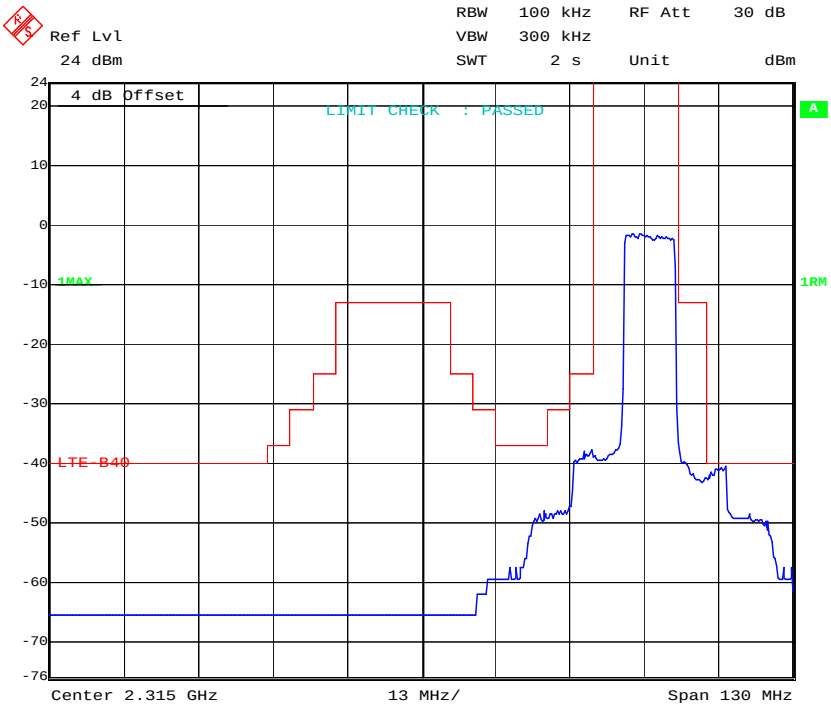
QPSK_5MHz_ 25 RB_ Left



QPSK_5MHz_ 25 RB_ Right

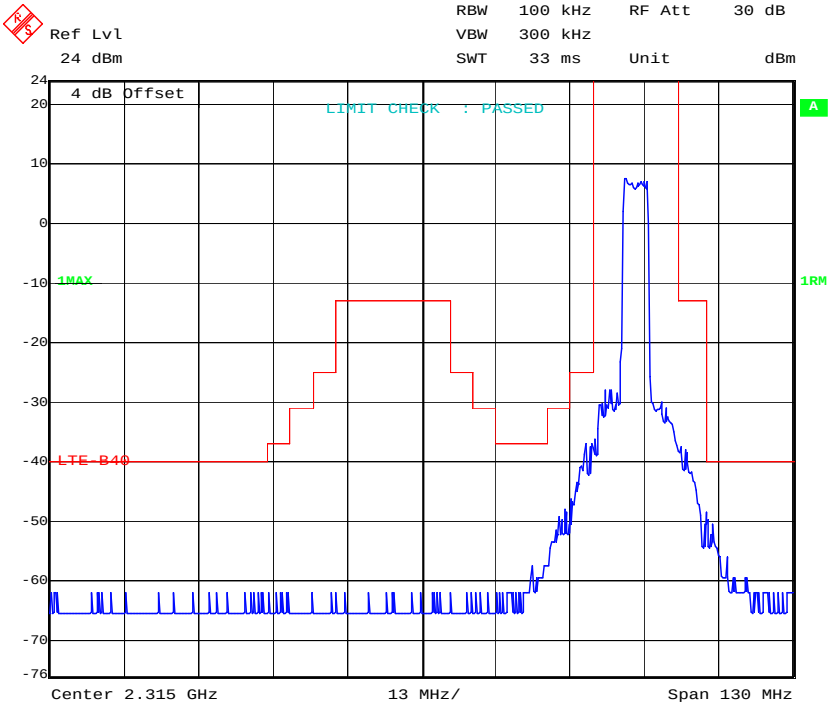


QPSK_10MHz_ 50 RB



Date: 19.SEP.2018 18:27:11

16QAM_5MHz_ 25 RB_ Left



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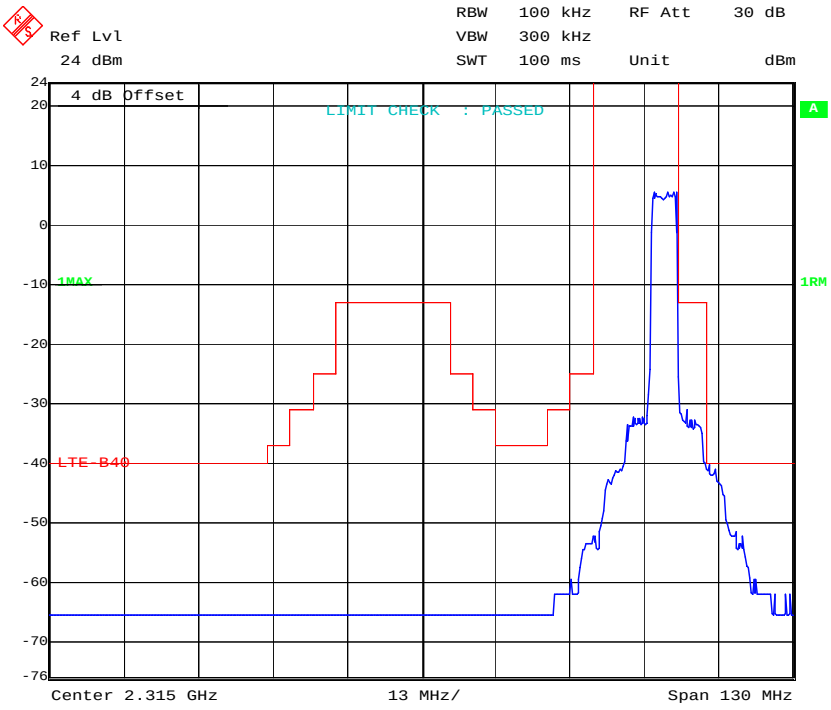
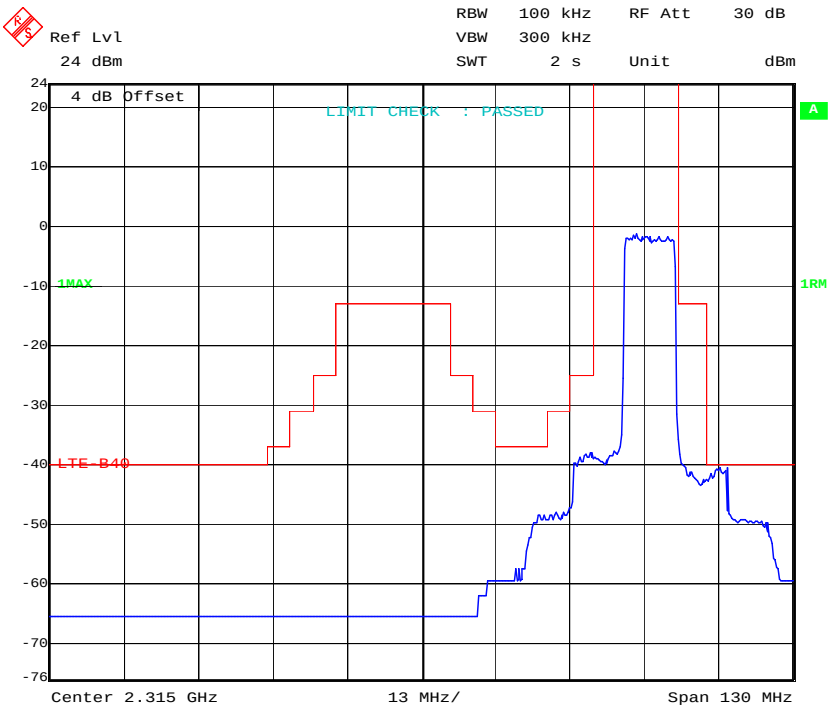
16QAM_5MHz_ 25 RB_ Right



Date: 19.SEP.2018 18:23:58

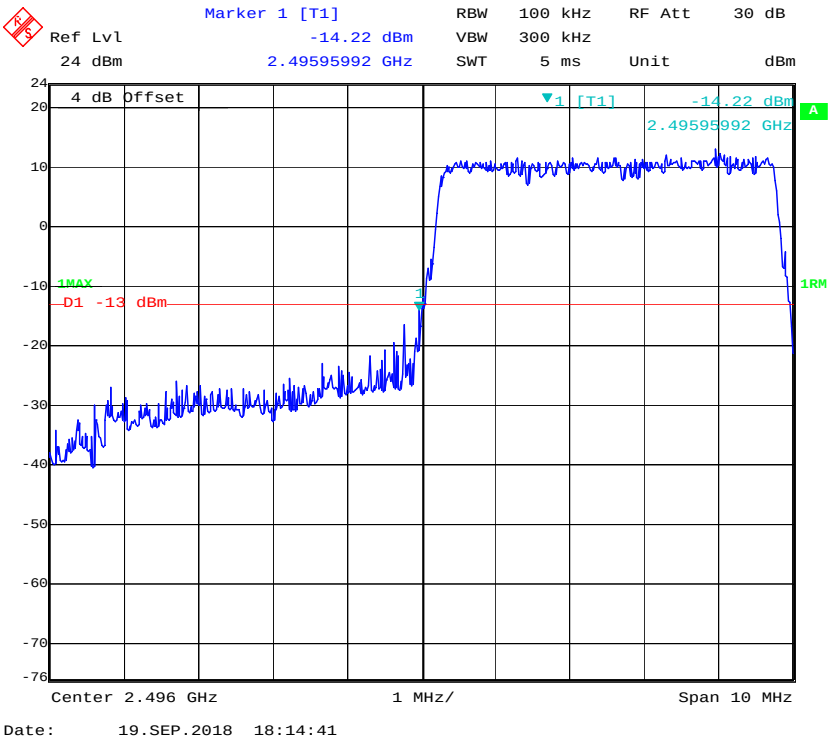
16QAM_10MHz_ 50 RB



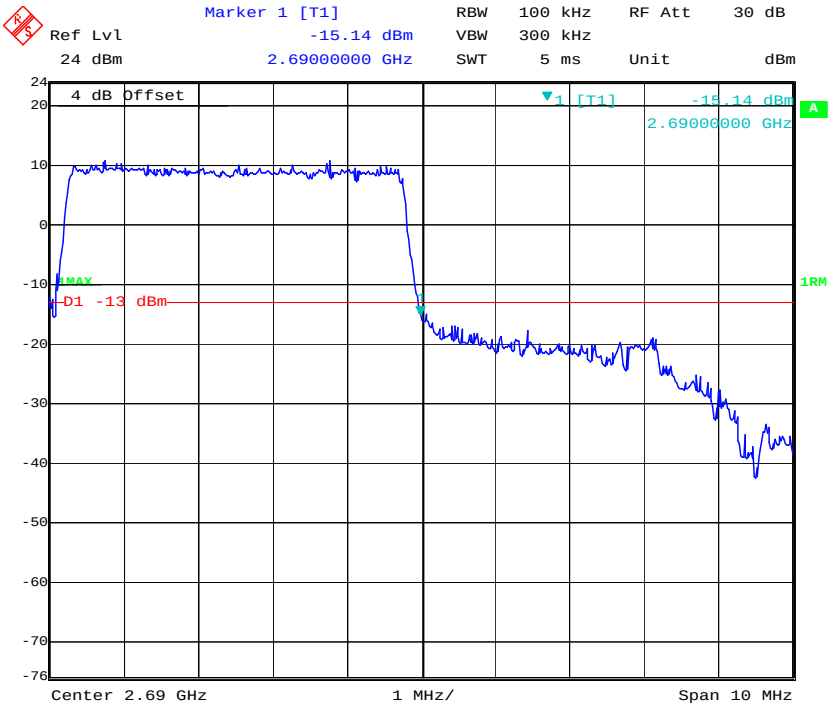
Date: 19.SEP.2018 18:27:49

LTE Band 41

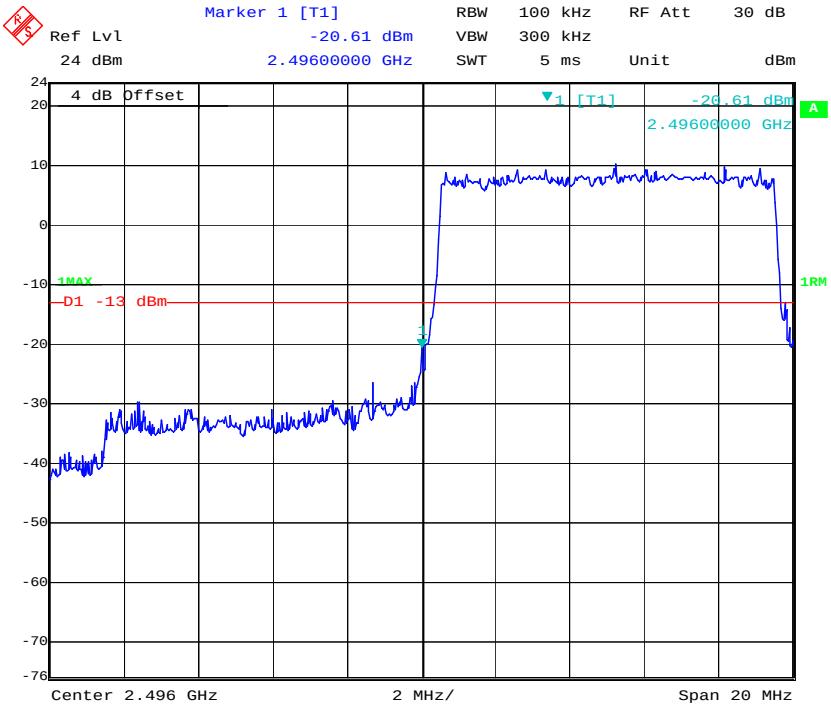
QPSK_5MHz_ 25 RB_ Left



QPSK_5MHz_ 25 RB_ Right

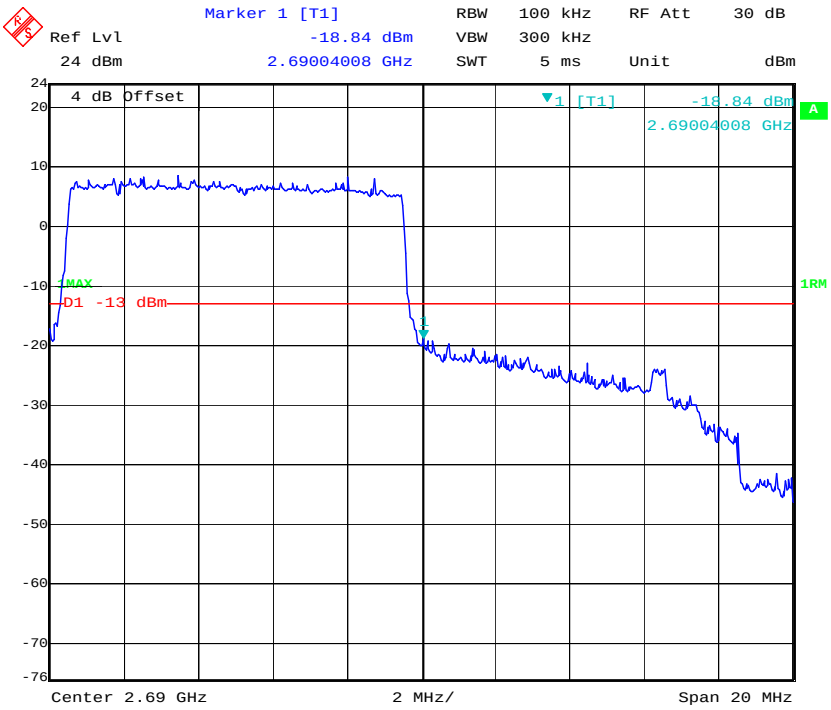


QPSK_10MHz_ 50 RB_ Left



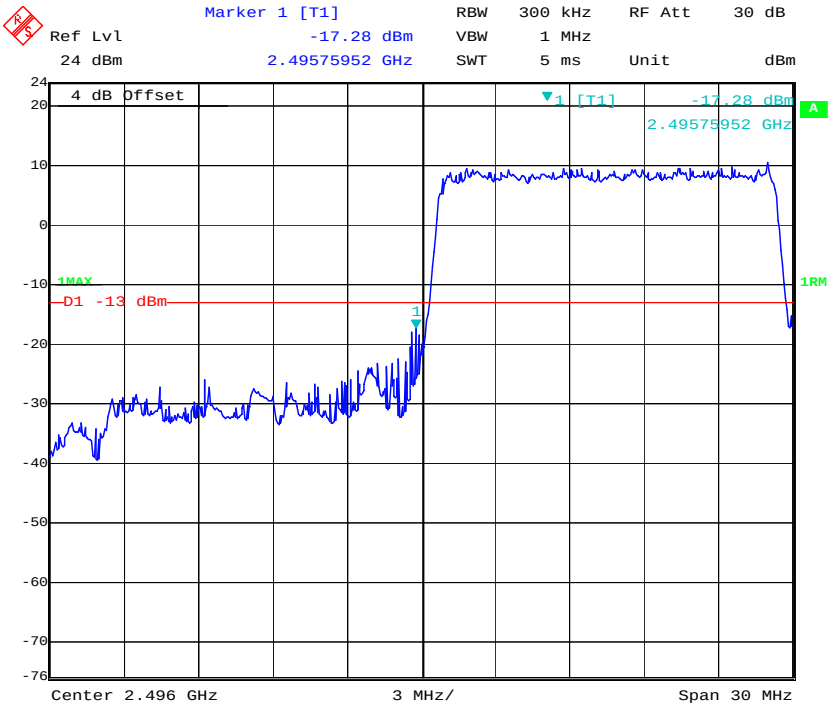
Date: 19.SEP.2018 17:56:33

QPSK_10MHz_ 50 RB_ Right



Date: 19.SEP.2018 18:09:53

QPSK_15MHz_ 75 RB_ Left



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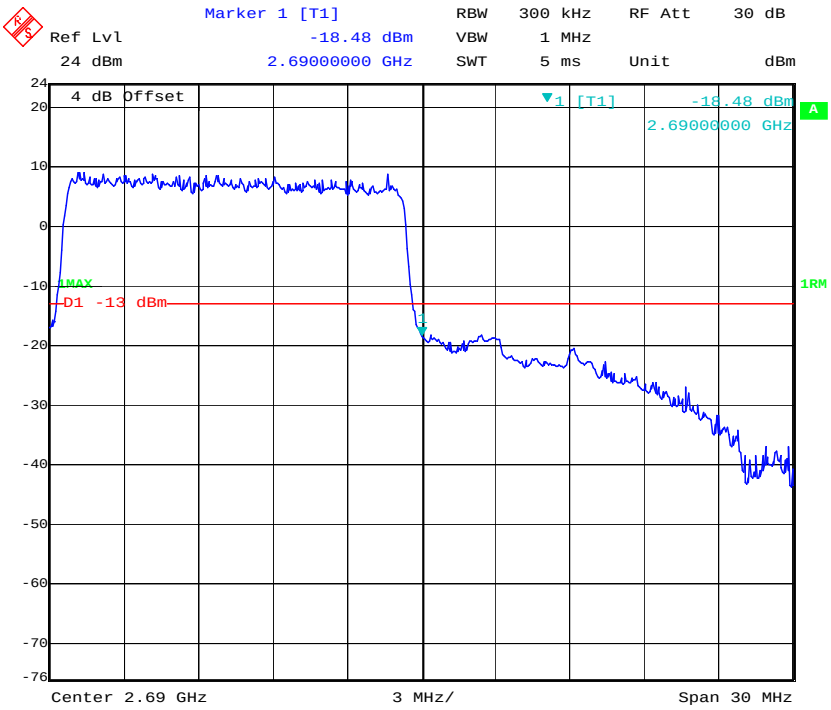
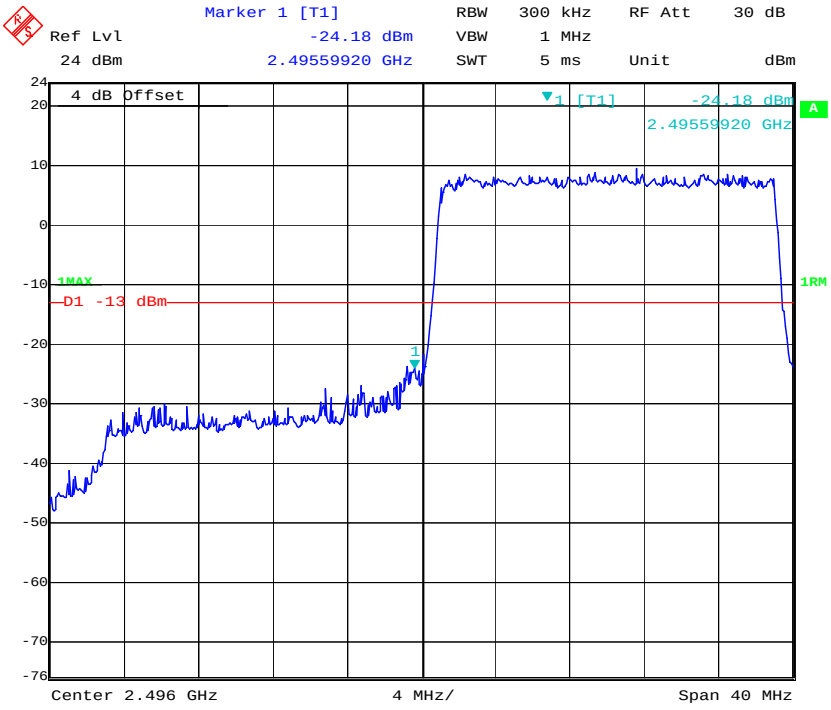
QPSK_15MHz_ 75 RB_ Right



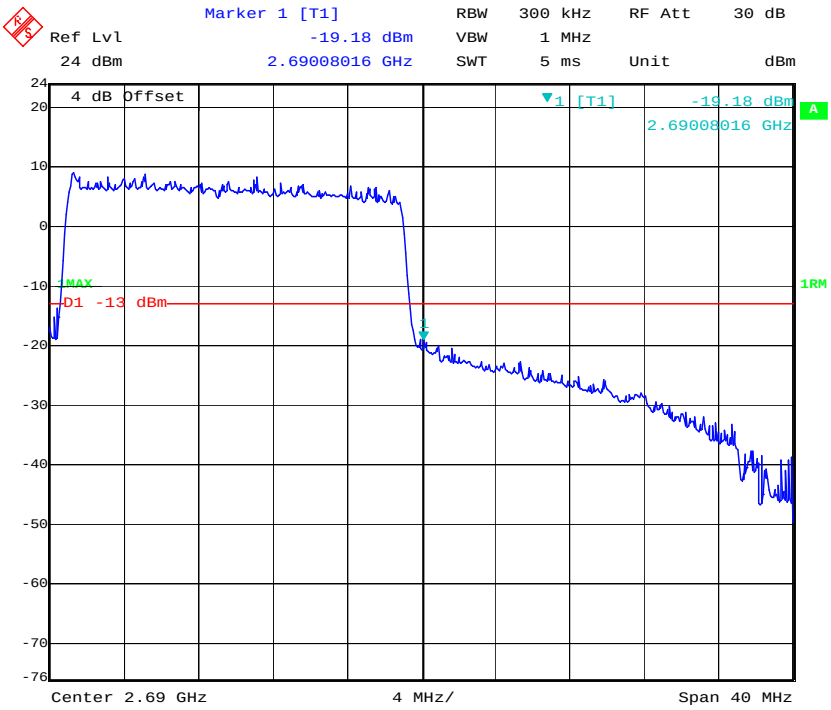
Date: 19.SEP.2018 17:49:33

QPSK_20MHz_ FULL RB_ Left



Date: 19.SEP.2018 17:45:07

QPSK_20MHz_ FULL RB_ Right



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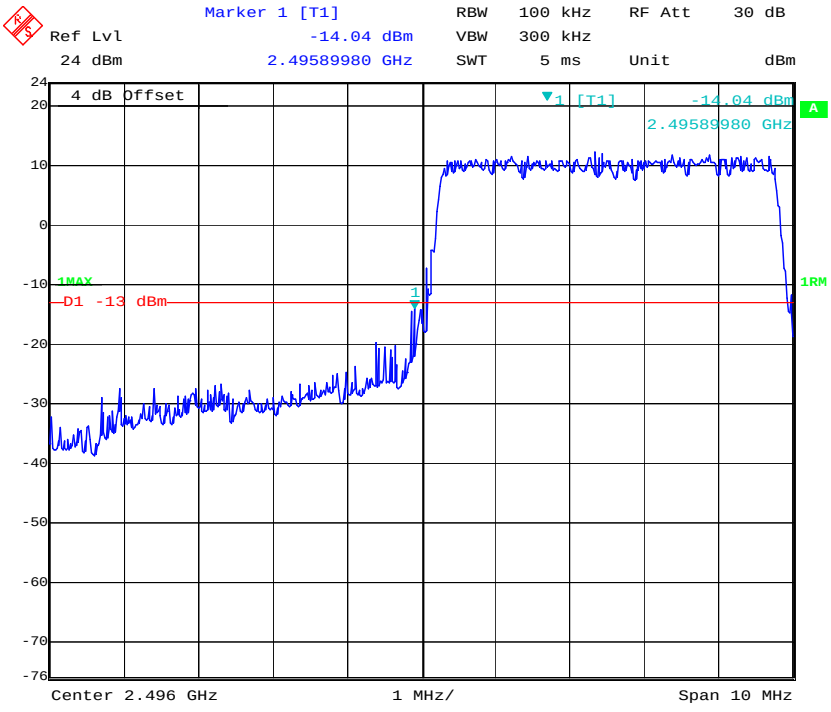
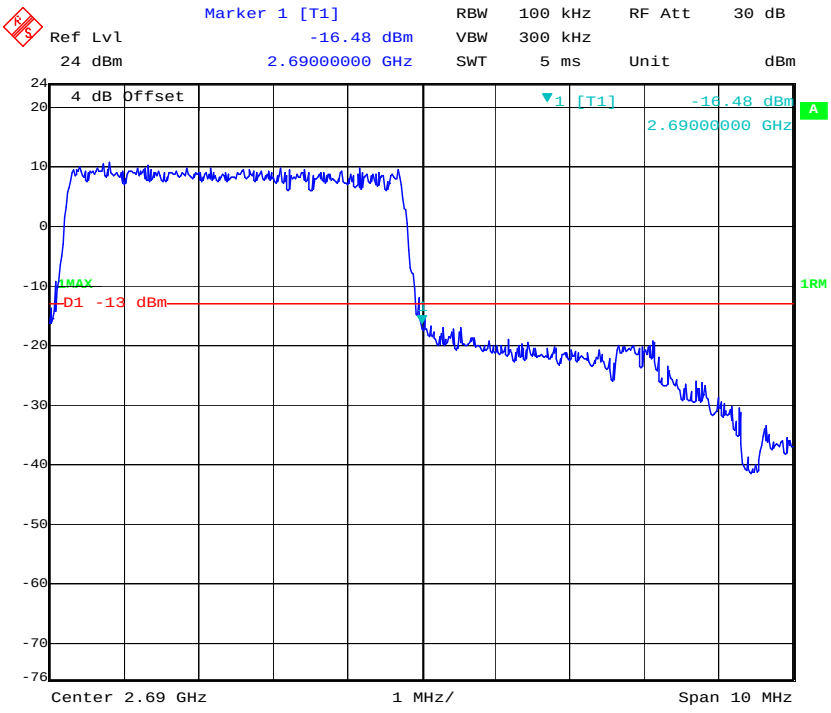
16QAM_5MHz_ 25 RB_ Left



Date: 19.SEP.2018 18:15:37

16QAM_5MHz_ 25 RB_ Right



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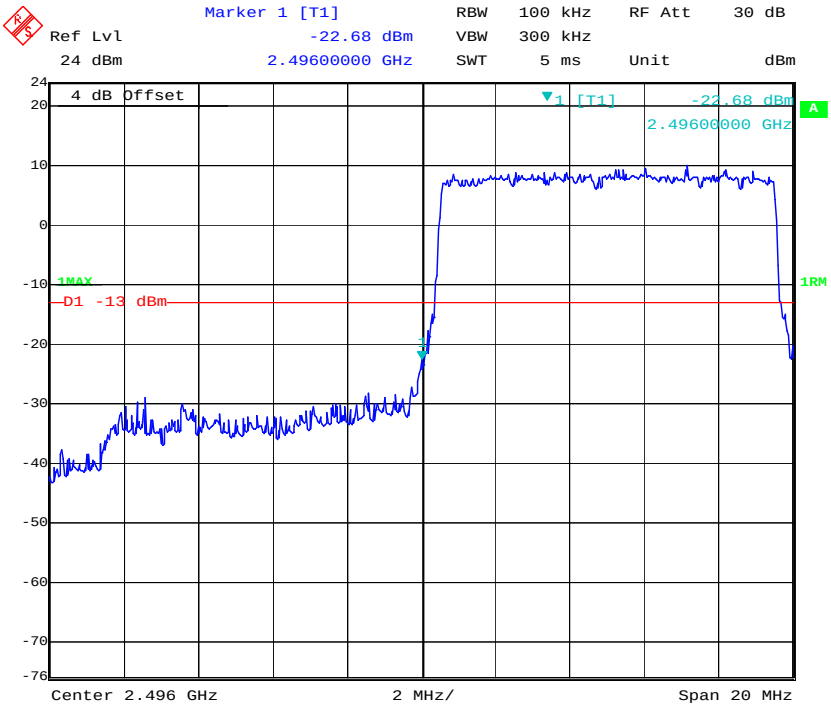
16QAM_10MHz_ 50 RB_ Left



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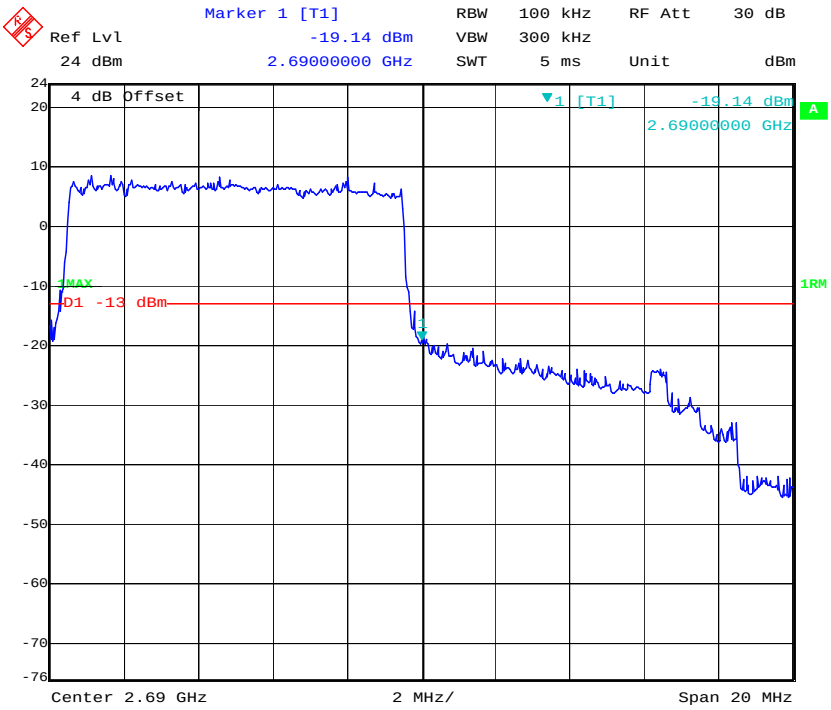
16QAM_10MHz_ 50 RB_ Right



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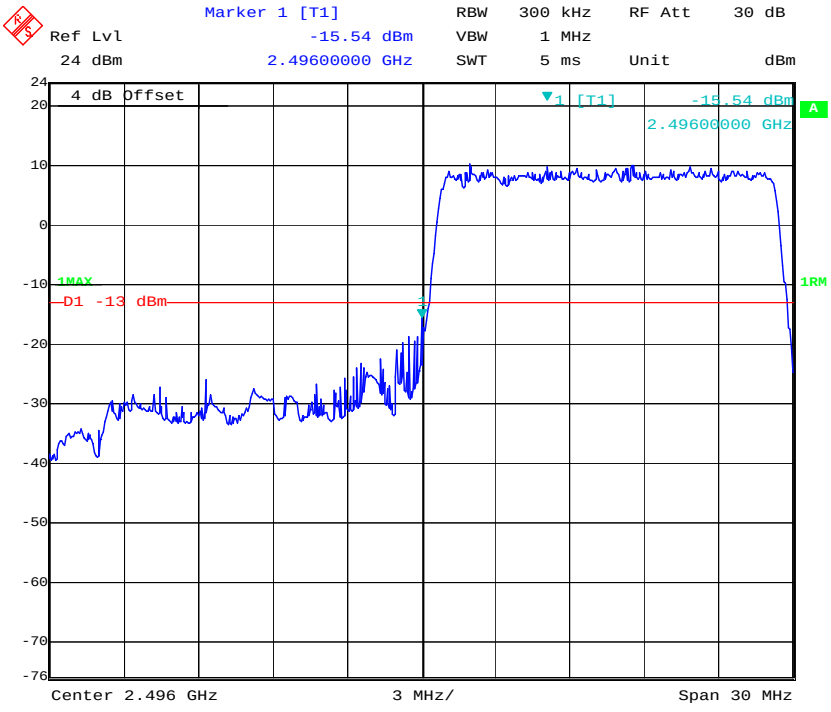
16QAM_15MHz_ 75 RB_ Left



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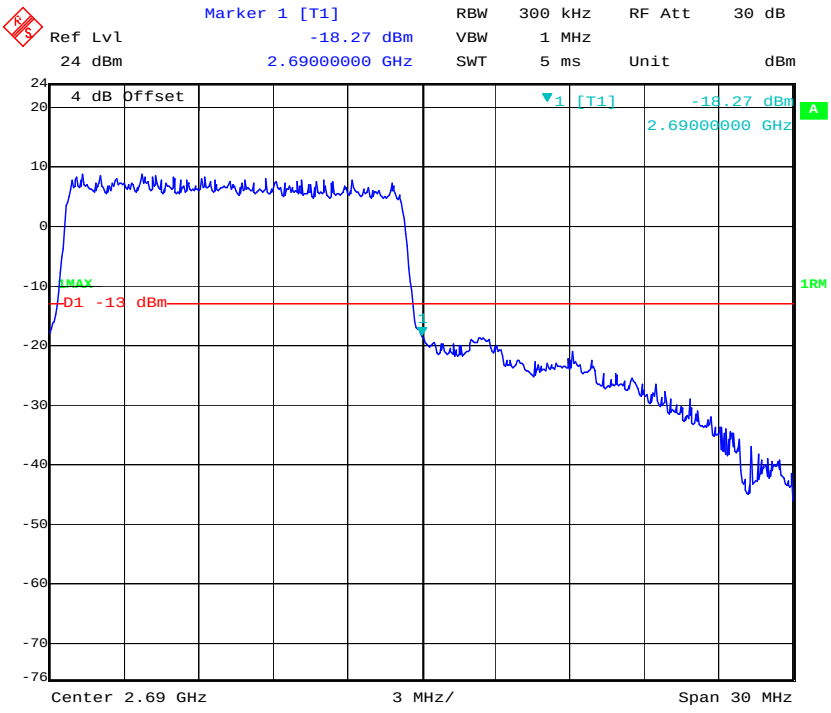
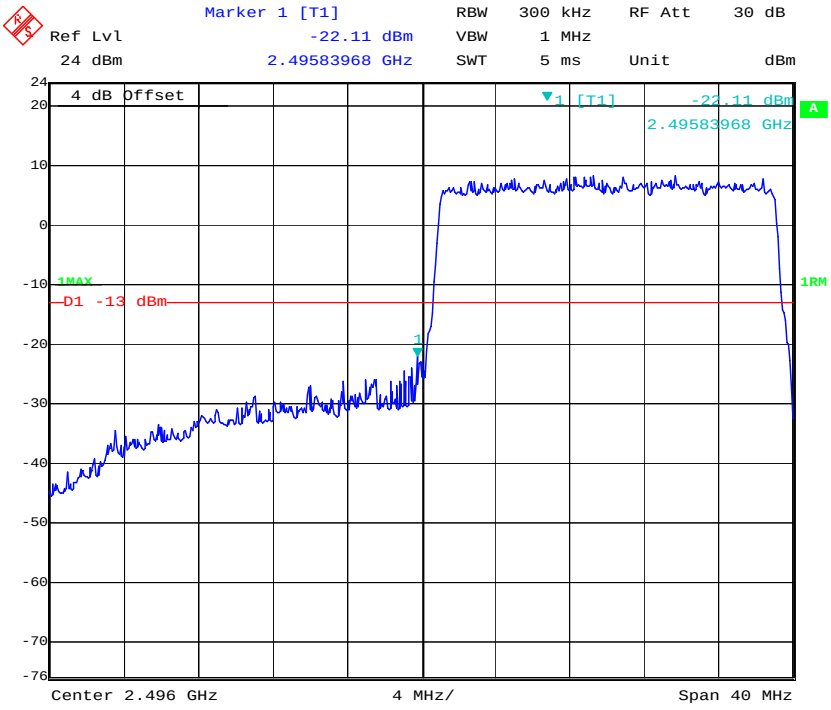
16QAM_15MHz_ 75 RB_ Right



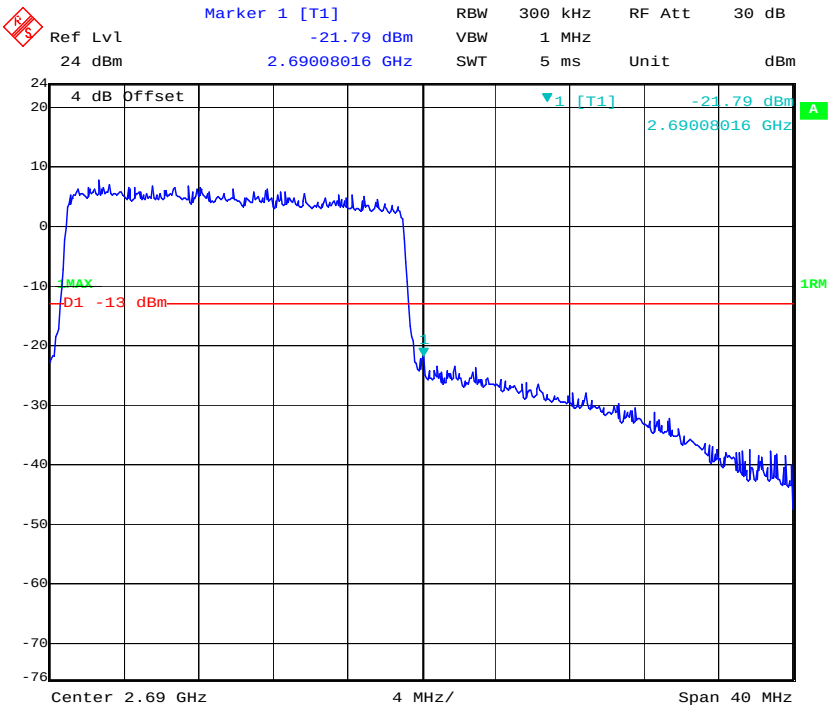
Date: 19.SEP.2018 17:49:59

16QAM_20MHz_ FULL RB_ Left



Date: 19.SEP.2018 17:46:28

16QAM_20MHz_ FULL RB_ Right



Date: 19.SEP.2018 17:47:23

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

Applicable Standard

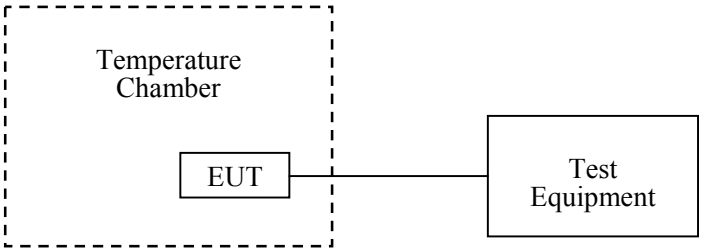
FCC § 2.1055 (a), § 2.1055 (d), §22.355, §24.235,§27.54

Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to communication test set via feed-through attenuators. The EUT was placed inside the temperature chamber. The 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
R&S	Universal Radio Communication Tester	CMU200	110 822	2017-12-24	2018-12-14
R&S	Wideband Radio Communication Tester	CMW500	149216	2017-12-11	2018-12-11
Dongzhixu	High Temperature Test Chamber	DP1000	201105083-4	2018-09-10	2019-09-09
UNI-T	Multimeter	UT39A	M130199938	2018-04-02	2019-04-02
Pro instrument	DC Power Supply	pps3300	N/A	N/A	N/A
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A

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

Test Data

Environmental Conditions

Temperature:	24.8~28°C
Relative Humidity:	52 ~ 65 %
ATM Pressure:	99.1~100.9 kPa

The testing was performed by Swim Lv from 2018-09-12 to 2018-09-19.

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Cellular Band (Part 22H)

GMSK, Middle Channel, f_c = 836.6 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Limit**
℃	**V_{AC}**	**Hz**	**ppm**	**ppm**
-30	120	13	0.015539087	2.5
-20		13	0.015539087	
-10		15	0.017929716	
0		2	0.002390629	
10		10	0.011953144	
20		4	0.004781257	
30		13	0.015539087	
40		15	0.017929716	
50		9	0.010757829	
25	102	3	0.003585943	
25	138	5	0.005976572	

8PSK, Middle Channel, f_c = 836.6 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Limit**
℃	**V_{AC}**	**Hz**	**ppm**	**ppm**
-30	120	13	0.015539087	2.5
-20		24	0.028687545	
-10		18	0.021515659	
0		10	0.011953144	
10		21	0.025101602	
20		17	0.020320344	
30		14	0.016734401	
40		22	0.026296916	
50		10	0.011953144	
25	102	16	0.01912503	
25	138	15	0.017929716	

PCS Band (Part 24E)

GMSK, Middle Channel, f_c = 1880.0 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Results**
℃	**V_{AC}**	**Hz**	**ppm**	
-30	120	25	0.013297872	Pass
-20		20	0.010638298	
-10		16	0.008510638	
0		22	0.011702128	
10		14	0.007446809	
20		22	0.011702128	
30		13	0.006914894	
40		16	0.008510638	
50		11	0.005851064	
25	102	11	0.005851064	
25	138	21	0.011170213	

8PSK, Middle Channel, f_c = 1880.0 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Results**
℃	**V_{AC}**	**Hz**	**ppm**	
-30	120	23	0.012234043	Pass
-20		13	0.006914894	
-10		11	0.005851064	
0		14	0.007446809	
10		14	0.007446809	
20		12	0.006382979	
30		22	0.011702128	
40		21	0.011170213	
50		16	0.008510638	
25	102	12	0.006382979	
25	138	10	0.005319149	

WCDMA Band II: R99

Middle Channel, f_c = 1880.0 MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Results
℃	V_{AC}	Hz	ppm	
-30	120	6	0.003191489	Pass
-20		6	0.003191489	
-10		-15	-0.007978723	
0		7	0.003723404	
10		-9	-0.004787234	
20		-7	-0.003723404	
30		-6	-0.003191489	
40		-12	-0.006382979	
50		-3	-0.001595745	
25	102	7	0.003723404	
25	138	9	0.004787234	

WCDMA Band IV: R99

Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{AC}	F_L	F_H	F_L	F_H
-30	120	1711.5455	1754.7141	1710	1755
-20		1711.5475	1754.7112	1710	1755
-10		1711.5460	1754.7129	1710	1755
0		1711.5467	1754.7166	1710	1755
10		1711.5489	1754.7121	1710	1755
20		1711.5480	1754.7140	1710	1755
30		1711.5472	1754.7128	1710	1755
40		1711.5497	1754.7137	1710	1755
50		1711.5470	1754.7166	1710	1755
25	102	1711.5460	1754.7129	1710	1755
25	138	1711.5464	1754.7125	1710	1755

WCDMA Band Ⅴ: R99

Middle Channel, f_c = 836.6 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Limit**
℃	**V_{AC}**	**Hz**	**ppm**	**ppm**
-30	120	10	0.011953144	2.5
-20		5	0.005976572	
-10		2	0.002390629	
0		-14	-0.016734401	
10		-14	-0.016734401	
20		-6	-0.007171886	
30		10	0.011953144	
40		2	0.002390629	
50		5	0.005976572	
25	102	-12	-0.014343772	
25	138	-5	-0.005976572	

LTE Band 2:

QPSK, Channel Bandwidth:10MHz Middle Channel, f_c = 1880 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Result**
℃	**V_{AC}**	**Hz**	**ppm**	
-30	120	-3.10	-0.0016	Pass
-20		-4.19	-0.0022	
-10		-2.82	-0.0015	
0		-0.32	-0.0002	
10		0.14	0.0001	
20		-2.00	-0.0011	
30		-1.39	-0.0007	
40		-2.73	-0.0015	
50		-2.78	-0.0015	
25	102	-0.04	0.0000	
25	138	-3.43	-0.0018	

16QAM, Channel Bandwidth:10MHz Middle Channel, f_c =1880 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Result**
℃	**V_{AC}**	**Hz**	**ppm**	
-30	120	-2.86	-0.0015	Pass
-20		-2.42	-0.0013	
-10		1.11	0.0006	
0		0.05	0.0000	
10		-0.43	-0.0002	
20		-0.91	-0.0005	
30		0.35	0.0002	
40		-2.06	-0.0011	
50		-2.63	-0.0014	
25	102	-0.37	-0.0002	
25	138	-1.90	-0.0010	

LTE Band 4:

QPSK, Channel Bandwidth:10MHz					
Temperature	**Voltage**	**Test Result (MHz)**		**Limit (MHz)**	
℃	V_{AC}	F_L	F_H	F_L	F_H
-30	120	1710.531035	1754.508978	1710	1755
-20		1710.531091	1754.509035	1710	1755
-10		1710.531023	1754.509017	1710	1755
0		1710.531104	1754.508974	1710	1755
10		1710.531037	1754.508979	1710	1755
20		1710.531059	1754.509000	1710	1755
30		1710.531103	1754.509046	1710	1755
40		1710.531082	1754.509049	1710	1755
50		1710.531099	1754.509025	1710	1755
25	102	1710.531060	1754.509020	1710	1755
25	138	1710.531030	1754.509003	1710	1755

16QAM, Channel Bandwidth:10MHz					
Temperature	**Voltage**	**Test Result (MHz)**		**Limit (MHz)**	
℃	V_{AC}	F_L	F_H	F_L	F_H
-30	120	1710.543077	1754.468932	1710	1755
-20		1710.543125	1754.468985	1710	1755
-10		1710.543074	1754.468946	1710	1755
0		1710.543139	1754.468946	1710	1755
10		1710.543072	1754.468975	1710	1755
20		1710.543078	1754.468957	1710	1755
30		1710.543110	1754.468894	1710	1755
40		1710.543080	1754.468987	1710	1755
50		1710.543087	1754.468936	1710	1755
25	102	1710.543106	1754.468940	1710	1755
25	138	1710.543120	1754.468936	1710	1755

LTE Band 5:

QPSK, Channel Bandwidth:10MHz Middle Channel, f_c = 836.5 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Limit**
℃	**V_{AC}**	**Hz**	**ppm**	**ppm**
-30	120	-0.82	-0.0010	2.5
-20		-1.51	-0.0018	
-10		-3.12	-0.0037	
0		-0.85	-0.0010	
10		0.03	0.0000	
20		0.11	0.0001	
30		-2.28	-0.0027	
40		0.68	0.0008	
50		-3.17	-0.0038	
25	102	2.93	0.0035	
25	138	-4.60	-0.0055	

16QAM, Channel Bandwidth:10MHz Middle Channel, f_c =836.5 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Limit**
℃	**V_{AC}**	**Hz**	**ppm**	**ppm**
-30	120	-1.50	-0.0018	2.5
-20		0.48	0.0006	
-10		1.53	0.0018	
0		2.93	0.0035	
10		1.08	0.0013	
20		1.81	0.0022	
30		0.42	0.0005	
40		-3.03	-0.0036	
50		-2.59	-0.0031	
25	102	1.38	0.0016	
25	138	-1.28	-0.0015	

LTE Band 7:

QPSK, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{AC}	F_L	F_H	F_L	F_H
-30	120	2500.531015	2569.509037	2500	2570
-20		2500.531096	2569.509066	2500	2570
-10		2500.531058	2569.508984	2500	2570
0		2500.531059	2569.508983	2500	2570
10		2500.531050	2569.508982	2500	2570
20		2500.531072	2569.509008	2500	2570
30		2500.531027	2569.509043	2500	2570
40		2500.531105	2569.509052	2500	2570
50		2500.531040	2569.509007	2500	2570
25	102	2500.531060	2569.509020	2500	2570
25	138	2500.531035	2569.509048	2500	2570

16QAM, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{AC}	F_L	F_H	F_L	F_H
-30	120	2500.531050	2569.509048	2500	2570
-20		2500.531015	2569.509029	2500	2570
-10		2500.531047	2569.508972	2500	2570
0		2500.531102	2569.509058	2500	2570
10		2500.531062	2569.509068	2500	2570
20		2500.531050	2569.508978	2500	2570
30		2500.531104	2569.509037	2500	2570
40		2500.531103	2569.509041	2500	2570
50		2500.531098	2569.509004	2500	2570
25	102	2500.531060	2569.509020	2500	2570
25	138	2500.531023	2569.508976	2500	2570

LTE Band 17:

QPSK, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{AC}	F_L	F_H	F_L	F_H
-30	120	705.531024	714.509046	704	716
-20		705.531025	714.509022	704	716
-10		705.531054	714.509054	704	716
0		705.531035	714.509049	704	716
10		705.531036	714.509065	704	716
20		705.531107	714.509002	704	716
30		705.531039	714.509036	704	716
40		705.531042	714.509050	704	716
50		705.531037	714.509053	704	716
25	102	705.531060	714.509020	704	716
25	138	705.531080	714.508979	704	716

16QAM, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{AC}	F_L	F_H	F_L	F_H
-30	120	705.571100	714.508988	704	716
-20		705.571191	714.509028	704	716
-10		705.571140	714.509059	704	716
0		705.571174	714.509025	704	716
10		705.571111	714.509007	704	716
20		705.571189	714.508980	704	716
30		705.571148	714.509050	704	716
40		705.571122	714.508973	704	716
50		705.571159	714.509023	704	716
25	102	705.571142	714.509020	704	716
25	138	705.571142	714.509020	704	716

LTE Band 38:

QPSK, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{AC}	F_L	F_H	F_L	F_H
-30	120	2570.517693	2619.508973	2570	2620
-20		2570.517767	2619.509011	2570	2620
-10		2570.517781	2619.509031	2570	2620
0		2570.517764	2619.509035	2570	2620
10		2570.517769	2619.508987	2570	2620
20		2570.517768	2619.509066	2570	2620
30		2570.517736	2619.509000	2570	2620
40		2570.517784	2619.509027	2570	2620
50		2570.517753	2619.509037	2570	2620
25	102	2570.517740	2619.509020	2570	2620
25	138	2570.517780	2619.509037	2570	2620

16QAM, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{AC}	F_L	F_H	F_L	F_H
-30	120	2570.531054	2619.509048	2570	2620
-20		2570.531097	2619.509011	2570	2620
-10		2570.531030	2619.509032	2570	2620
0		2570.531061	2619.509061	2570	2620
10		2570.531057	2619.509004	2570	2620
20		2570.531092	2619.509061	2570	2620
30		2570.531043	2619.509028	2570	2620
40		2570.531014	2619.509018	2570	2620
50		2570.531081	2619.509049	2570	2620
25	102	2570.531060	2619.509020	2570	2620
25	138	2570.531104	2619.509018	2570	2620

LTE Band 40(2305-2315MHz):

QPSK, Channel Bandwidth:10MHz					
Temperature	**Voltage**	**Test Result (MHz)**		**Limit (MHz)**	
℃	V_{AC}	F_L	F_H	F_L	F_H
-30	120	2305.553084	2314.549065	2305	2315
-20		2305.553087	2314.549090	2305	2315
-10		2305.553061	2314.549104	2305	2315
0		2305.553080	2314.549108	2305	2315
10		2305.553096	2314.549083	2305	2315
20		2305.553130	2314.549132	2305	2315
30		2305.553077	2314.549113	2305	2315
40		2305.553093	2314.549135	2305	2315
50		2305.553089	2314.549090	2305	2315
25	102	2305.553106	2314.549100	2305	2315
25	138	2305.553081	2314.549074	2305	2315

16QAM, Channel Bandwidth:10MHz					
Temperature	**Voltage**	**Test Result (MHz)**		**Limit (MHz)**	
℃	V_{AC}	F_L	F_H	F_L	F_H
-30	120	2305.553137	2314.549144	2305	2315
-20		2305.553111	2314.549080	2305	2315
-10		2305.553085	2314.549142	2305	2315
0		2305.553124	2314.549148	2305	2315
10		2305.553076	2314.549140	2305	2315
20		2305.553130	2314.549056	2305	2315
30		2305.553118	2314.549099	2305	2315
40		2305.553145	2314.549126	2305	2315
50		2305.553117	2314.549069	2305	2315
25	102	2305.553106	2314.549100	2305	2315
25	138	2305.553114	2314.549068	2305	2315

LTE Band 40(2350-2360MHz):

QPSK, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{AC}	F_L	F_H	F_L	F_H
-30	120	2350.531107	2359.509024	2350	2360
-20		2350.531074	2359.508971	2350	2360
-10		2350.531010	2359.508973	2350	2360
0		2350.531032	2359.508988	2350	2360
10		2350.531055	2359.508970	2350	2360
20		2350.531031	2359.509018	2350	2360
30		2350.531082	2359.509003	2350	2360
40		2350.531062	2359.509044	2350	2360
50		2350.531010	2359.509041	2350	2360
25	102	2350.531060	2359.509020	2350	2360
25	138	2359.509033	2359.509040	2350	2360

16QAM, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{AC}	F_L	F_H	F_L	F_H
-30	120	2350.531107	2359.509064	2350	2360
-20		2350.531049	2359.509046	2350	2360
-10		2350.531067	2359.509062	2350	2360
0		2350.531029	2359.509035	2350	2360
10		2350.531061	2359.508984	2350	2360
20		2350.531070	2359.509037	2350	2360
30		2350.531094	2359.508987	2350	2360
40		2350.531094	2359.508973	2350	2360
50		2350.531062	2359.509056	2350	2360
25	102	2350.531060	2359.509020	2350	2360
25	138	2350.531045	2359.508977	2350	2360

LTE Band 41:

QPSK, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{AC}	F_L	F_H	F_L	F_H
-30	120	2496.531020	2689.509043	2496	2690
-20		2496.531032	2689.509009	2496	2690
-10		2496.531053	2689.509066	2496	2690
0		2496.531109	2689.508982	2496	2690
10		2496.531053	2689.508972	2496	2690
20		2496.531023	2689.508989	2496	2690
30		2496.531018	2689.508999	2496	2690
40		2496.531067	2689.509002	2496	2690
50		2496.531029	2689.509003	2496	2690
25	102	2496.531060	2689.509020	2496	2690
25	138	2496.531088	2689.508974	2496	2690

16QAM, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{AC}	F_L	F_H	F_L	F_H
-30	120	2496.531028	2689.509043	2496	2690
-20		2496.531076	2689.508989	2496	2690
-10		2496.531081	2689.509015	2496	2690
0		2496.531025	2689.509035	2496	2690
10		2496.531076	2689.509024	2496	2690
20		2496.531024	2689.509034	2496	2690
30		2496.531024	2689.509003	2496	2690
40		2496.531052	2689.508972	2496	2690
50		2496.531064	2689.508999	2496	2690
25	102	2496.531060	2689.509020	2496	2690
25	138	2496.531014	2689.509028	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 *******