FCC PART 22H, PART 24E,PART 27, PART 90 MEASUREMENT AND TEST REPORT

For

INGENICO

9 Avenue de la gare - Rolvatain TGV, Valence Cedex 9, 26958, France

FCC ID: XKB-APOSA8AMLEWF

Report Type:	Product Type:
Original Report	Smart POS Terminal

Report Number:	RXM191226052-00D
Report Date:	2020-04-14
Reviewed By:	Ivan Cao Assistant manager
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Dongguan) No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China Tel: +86-769-86858888 Fax: +86-769-86858891 www.baclcorp.com.cn

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

EUT Name:		Smart POS Terminal
EUT Model:		APOS A8
Rated Input Voltage:		DC 7.2V from battery or DC 5V from Adapter
Adapter#1 Information:	**Manufacturer:**	Something High Electric(Xiamen) Company Inc.
	Model:	P12GUSB050200
	Input:	AC 100-240V, 50/60Hz, 0.3A
	Output:	DC 5.0V, 2.0A
Adapter#2 Information:	**Manufacturer:**	Jiangxi Jian Aohai Technology Co.,Ltd
	Model:	A8-050200U-US3
	Input:	AC 100-240V, 50/60Hz, 0.35A
	Output:	DC 5V, 2A
Serial Number:		RXM191226052-RF-S4 RXM191226052-RF-S25
EUT Received Date:		2019.12.31
EUT Received Status:		Good

Note: Per pre-test of FCC Part 15B test, the adapter#1 and EUT configuration #1 was the worst, and was selected to perform the test items in this report. The EUT configuration information as below, and more please refer to the Product similarity declaration.

EUT Configuration	Screen Model	Manufacturer	Serial Number
#1	MDT0550B	SKYWORTH LCD MODULES(SHENZHEN) CO., LTD	RXM191226052-RF-S4
#2	MDT0550B	TIANMA MICRO-ELECTRONICS Corporation	RXM191226052-RF-S25

Objective

This report is prepared on behalf of ***INGENICO*** in accordance with: Part 2-Subpart J, Part 22-Subpart H, Part 24-Subpart E, Part 27, Part 90 of the Federal Communication Commissions rules.

Related Submittal(s)/Grant(s)

FCC Part 15C DSS, DTS, DXX, 15B JAB submissions with FCC ID: XKB-APOSA8AMLEWF.

Test Methodology

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

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

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%

Note: Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

Test Facility

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

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 897218, the FCC Designation No. : CN1220.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier : CN0022.

Declarations

BACL is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol "△ ". Customer model name, addresses, names, trademarks etc. are not considered data.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

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SYSTEM TEST CONFIGURATION

Justification

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

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

Frequency Bands	Bandwidth (MHz)	Test Frequency(MHz)		
		Low	Middle	High
GPRS/EDGE850	0.25	824.2	836.6	848.8
GPRS/EDGE1900	0.25	1850.2	1880	1909.8
WCDMA Band 2	4.2	1852.4	1880	1907.6
WCDMA Band 4	4.2	1712.4	1732.6	1752.6
WCDMA Band 5	4.2	826.4	836.6	846.6
LTE Band 2	1.4	1850.7	1880	1909.3
	3	1851.5	1880	1908.5
	5	1852.5	1880	1907.5
	10	1855	1880	1905
	15	1857.5	1880	1902.5
	20	1860	1880	1900
LTE Band 4	1.4	1710.7	1732.5	1754.3
	3	1711.5	1732.5	1753.5
	5	1712.5	1732.5	1752.5
	10	1715	1732.5	1750
	15	1717.5	1732.5	1747.5
	20	1720	1732.5	1745
LTE Band 5	1.4	824.7	836.5	848.3
	3	825.5	836.5	847.5
	5	826.5	836.5	846.5
	10	829	836.5	844
LTE Band 7	5	2502.5	2535	2567.5
	10	2505	2535	2565
	15	2507.5	2535	2562.5
	20	2510	2535	2560
LTE Band 12	1.4	699.7	707.5	715.3
	3	700.5	707.5	714.5
	5	701.5	707.5	713.5
	10	704	707.5	711
LTE Band 13	5	779.5	782	784.5
	10	/	782	/
LTE Band 17	5	706.5	710	713.5
	10	709	710	711
LTE Band 25	1.4	1850.7	1882.5	1914.3
	3	1851.5	1882.5	1913.5
	5	1852.5	1882.5	1912.5
	10	1855	1882.5	1910
	15	1857.5	1882.5	1907.5
	20	1860	1882.5	1905

Frequency Bands	Bandwidth (MHz)	Test Frequency(MHz)		
		Low	Middle	High
LTE Band 26	1.4	814.7	831.5	848.3
	3	815.5	831.5	847.5
	5	816.5	831.5	846.5
	10	819	831.5	844
	15	821.5	831.5	841.5
LTE Band 41	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	Universal Radio Communication Tester	CMU200	106 891
R&S	Wideband Radio Communication Tester	CMW500	147473
Unknown	ANTENNA	Unknown	/

Configuration of Test Setup
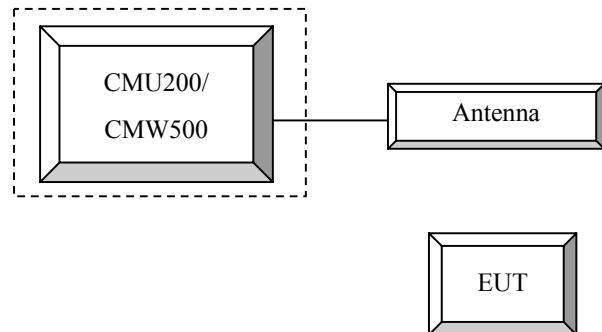
Block Diagram of Test Setup

CMW500/CMU200

EUT

Antenna

1.0 Meter

Non-Conductive Table
150 cm above Ground Plane

1.5 Meter
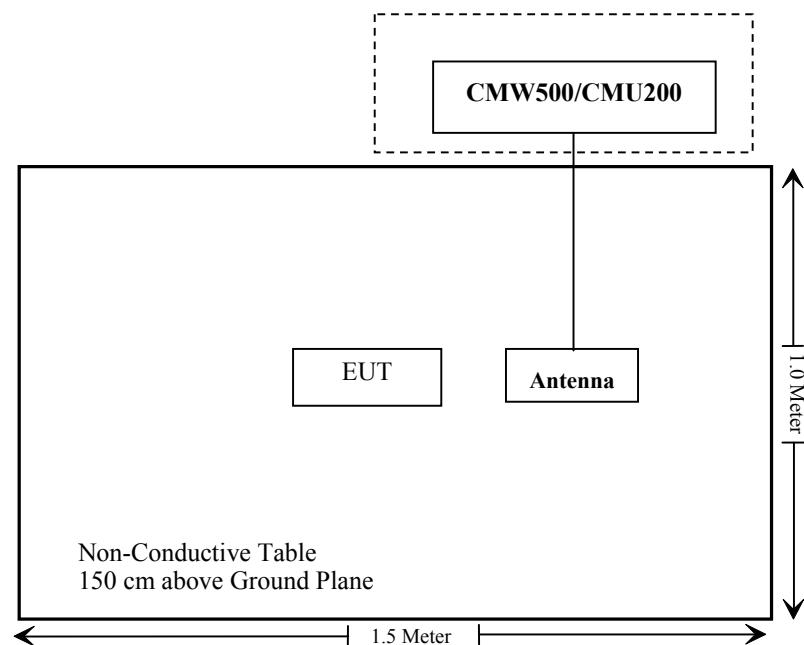
SUMMARY OF TEST RESULTS

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

FCC §1.1310 , §2.1093 - RF EXPOSURE

Applicable Standard

FCC§1.1310 and §2.1093.

Test Result

Compliant, please refer to the SAR report: RXM191226052-20A.

FCC §2.1047 - MODULATION CHARACTERISTIC

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

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

Applicable Standard

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

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

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

According to FCC §2.1046 and §27.50 (d), (4) Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP. Fixed stations operating in the 1710-1755 MHz band are limited to a maximum antenna height of 10 meters above ground. Mobile and portable stations operating in these bands must employ a means for limiting power to the minimum necessary for successful communications.

According to §27.50

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

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

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

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

According to §90.635

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

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
	$\beta c/\beta d$	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=$\beta hs/\beta c$	30/15				
HSUPA Specific Settings	DE-DPCCH	6	8	8	5	7
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	21
	ETFCI	75	67	92	71	81
	Associated Max UL Data Rate kbps	242.1	174.9	482.8	205.8	308.9
	Reference E_FCls		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	Proces ses	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	≤ 18	≤ 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	$6592 \cdot T_s$			$7680 \cdot T_s$		
1	$19760 \cdot T_s$			$20480 \cdot T_s$		
2	$21952 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$	$23040 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$
3	$24144 \cdot T_s$			$25600 \cdot T_s$		
4	$26336 \cdot T_s$			$7680 \cdot T_s$		
5	$6592 \cdot T_s$			$20480 \cdot T_s$		
6	$19760 \cdot T_s$			$23040 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
7	$21952 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$12800 \cdot T_s$		
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	ESR3	102453	2019-06-26	2020-06-26
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	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1400-01	2019-05-06	2020-05-06
Agilent	Spectrum Analyzer	E4440A	SG43360054	2019-05-09	2020-05-09
TDK RF	Horn Antenna	HRN-0118	130 084	2018-10-12	2021-10-12
ETS-Lindgren	Horn Antenna	3115	000 527 35	2018-10-12	2021-10-12
Unknown	Coaxial Cable	C-SJSJ-50	C-0800-01	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2019-09-05	2020-09-05
R&S	Universal Radio Communication Tester	CMU200	106 891	2019-12-14	2020-12-14
R&S	Wideband Radio Communication Tester	CMW500	147473	2019-08-03	2020-08-03
Agilent	Signal Generator	E8247C	MY43321350	2019-12-10	2020-12-10
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

Test Items:	Radiation Below 1GHz	Radiation Above 1GHz	Conducted Output Power
Temperature:	23.1°C	25°C	25.8 °C
Relative Humidity:	41%	47%	61 %
ATM Pressure:	101.9 kPa	101.9 kPa	101.8 kPa
Tester:	Vern Shen	FelixWang	Lily Xie
Test Date:	2020-01-16	2020-01-16	2020-01-06

Conducted Output Power

Cellular Band & PCS Band

Band	Channel No.	Conducted Peak Output Power (dBm)				Conducted Peak Output Power (dBm)			
		GPRS 1 TX Slot	GPRS 2 TX Slots	GPRS 3 TX Slots	GPRS 4 TX Slots	EGPRS 1 uplink slot	EGPRS 2 uplink slots	EGPRS 3 uplink slots	EGPRS 4 uplink slots
Cellular	128	32.27	32.01	31.25	28.94	26.25	26.12	24.94	22.86
	190	32.31	32.04	31.24	29.01	26.23	26.14	24.94	22.83
	251	32.31	32.16	31.13	28.93	26.19	26.03	24.87	22.75
PCS	512	30.13	30.05	29.96	29.86	26.29	26.19	26.07	25.83
	661	30.13	30.07	29.99	29.91	26.21	26.03	25.88	25.77
	810	29.91	29.88	29.79	29.71	26.12	25.94	25.81	25.64

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	23.56	2.76	23.57	2.56	23.51	2.60
HSDPA	1	21.63	5.84	21.54	2.92	21.31	5.12
	2	21.25	5.47	21.70	2.49	21.41	5.19
	3	21.45	5.38	21.28	2.42	21.60	5.09
	4	21.31	5.21	21.32	2.62	21.34	5.34
HSUPA	1	21.98	4.48	21.68	4.20	21.44	6.00
	2	22.09	4.84	21.82	4.86	21.53	5.67
	3	21.47	4.78	21.26	4.20	21.90	5.99
	4	21.90	4.62	21.72	4.65	21.63	5.74
	5	21.74	4.25	21.95	4.48	21.75	6.39
DC-HSDPA	1	21.74	4.51	21.93	4.58	21.48	5.95
	2	22.11	4.39	21.50	4.42	21.75	6.08
	3	21.60	4.64	21.48	4.55	21.54	6.22
	4	21.88	4.16	21.58	4.16	21.76	6.19
HSPA+ (16QAM)	1	21.52	4.55	21.99	4.90	21.59	6.05

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	23.01	2.84	23.08	2.64	23.19	2.56
HSDPA	1	21.09	3.04	21.22	3.68	21.32	3.04
	2	20.58	2.54	20.61	3.30	20.86	3.50
	3	20.59	2.48	20.11	2.87	21.01	3.32
	4	20.31	2.49	20.26	2.67	21.15	3.04
HSUPA	1	21.05	4.72	21.35	5.96	21.53	4.12
	2	20.20	4.79	20.52	6.07	20.80	3.63
	3	20.35	4.58	20.44	5.81	20.81	3.92
	4	20.13	4.82	20.37	6.12	20.31	4.10
	5	19.82	4.13	19.97	6.10	19.98	4.21
DC-HSDPA	1	21.00	3.67	21.05	3.79	20.47	3.72
	2	21.04	4.34	20.85	4.09	21.08	4.19
	3	20.57	4.21	21.15	3.89	21.10	3.79
	4	20.71	3.91	20.46	4.28	20.97	3.76
HSPA+ (16QAM)	1	19.24	4.46	20.11	5.72	20.11	4.24

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	23.11	2.52	23.36	3.24	23.18	3.20
HSDPA	1	21.23	3.52	20.96	3.52	21.12	5.16
	2	21.04	3.15	20.67	2.73	21.24	5.28
	3	20.67	2.69	21.15	2.96	21.17	5.18
	4	20.67	3.35	20.81	2.78	20.93	4.90
HSUPA	1	21.65	5.24	21.38	6.72	21.05	5.24
	2	21.33	5.28	20.93	6.29	20.92	4.66
	3	21.23	4.98	21.00	6.38	20.75	5.32
	4	20.80	5.38	20.71	6.88	21.03	5.26
	5	21.26	4.94	20.79	6.60	21.22	5.29
DC-HSDPA	1	21.28	4.70	21.32	6.35	21.17	5.20
	2	21.01	5.24	20.96	6.85	20.98	5.13
	3	20.83	5.05	21.25	6.39	21.30	5.30
	4	20.85	4.73	21.25	6.39	20.68	5.15
HSPA+ (16QAM)	1	21.38	5.27	21.29	6.18	21.32	5.25

LTE Band 2

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	RB1#0	22.27	22.03	22.38
		RB1#3	22.27	22.44	22.36
		RB1#5	22.18	22.19	22.33
		RB3#0	22.27	22.23	22.58
		RB3#3	22.30	22.28	22.57
		RB6#0	21.33	21.05	21.41
	16QAM	RB1#0	21.66	20.68	21.56
		RB1#3	21.45	20.65	21.51
		RB1#5	21.55	20.57	21.50
		RB3#0	21.07	20.97	21.40
		RB3#3	21.26	20.90	21.53
		RB6#0	20.12	20.08	20.29
3MHz	QPSK	RB1#0	22.40	22.03	22.43
		RB1#8	22.19	22.29	22.31
		RB1#14	22.31	22.41	22.33
		RB6#0	21.34	21.19	21.42
		RB6#9	21.34	21.15	21.40
		RB15#0	21.41	21.09	21.44
	16QAM	RB1#0	21.59	21.15	21.50
		RB1#8	21.51	21.04	21.36
		RB1#14	21.69	21.45	21.41
		RB6#0	20.23	20.01	20.25
		RB6#9	20.27	19.89	20.42
		RB15#0	20.23	19.93	20.36
5MHz	QPSK	RB1#0	22.25	22.24	22.17
		RB1#13	22.25	22.38	22.19
		RB1#24	21.91	22.30	22.36
		RB15#0	21.32	21.20	21.40
		RB15#10	21.27	21.25	21.40
		RB25#0	21.26	21.10	21.35
	16QAM	RB1#0	21.17	21.40	21.02
		RB1#13	21.20	20.85	21.38
		RB1#24	20.87	20.79	21.40
		RB15#0	20.12	19.88	20.05
		RB15#10	19.97	20.04	20.39
		RB25#0	20.16	20.06	20.24

		RB1#0	22.40	22.20	22.39
10MHz	QPSK	RB1#25	22.35	22.39	22.38
		RB1#49	22.05	22.19	22.22
		RB25#0	21.32	21.32	21.35
		RB25#25	21.34	21.22	21.39
		RB50#0	21.32	21.17	21.35
	16QAM	RB1#0	21.47	21.46	21.45
		RB1#25	21.36	22.05	21.35
		RB1#49	21.24	22.19	21.29
		RB25#0	20.19	20.02	20.32
		RB25#25	20.09	20.19	20.26
		RB50#0	20.24	20.16	20.23
15MHz	QPSK	RB1#0	22.27	22.35	22.33
		RB1#38	22.14	22.23	22.24
		RB1#74	22.16	22.15	22.35
		RB36#0	21.25	21.21	21.40
		RB36#39	21.27	21.23	21.24
		RB75#0	21.18	21.21	21.30
	16QAM	RB1#0	21.65	21.82	21.63
		RB1#38	21.28	21.98	21.02
		RB1#74	21.45	22.26	21.69
		RB36#0	20.33	20.03	20.36
		RB36#39	20.24	20.20	20.31
		RB75#0	20.05	20.29	20.28
20MHz	QPSK	RB1#0	22.59	22.36	22.28
		RB1#50	22.36	22.55	22.25
		RB1#99	22.43	22.31	22.20
		RB50#0	21.30	21.46	21.41
		RB50#50	21.24	21.26	21.25
		RB100#0	21.28	21.20	21.44
	16QAM	RB1#0	21.82	21.94	21.96
		RB1#50	21.51	21.85	21.79
		RB1#99	20.99	21.71	21.71
		RB50#0	20.23	20.35	20.10
		RB50#50	20.18	20.11	20.06
		RB100#0	20.25	20.20	20.30

LTE Band 4

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	RB1#0	22.80	22.97	22.51
		RB1#3	22.86	23.03	22.76
		RB1#5	23.13	23.00	22.72
		RB3#0	22.95	23.00	22.80
		RB3#3	22.94	22.88	22.80
		RB6#0	21.92	21.98	21.84
	16QAM	RB1#0	22.02	22.34	21.60
		RB1#3	21.99	22.37	21.87
		RB1#5	22.31	22.30	21.85
		RB3#0	22.35	22.41	21.64
		RB3#3	22.34	22.32	21.62
		RB6#0	21.02	21.29	20.72
3MHz	QPSK	RB1#0	22.83	22.94	22.85
		RB1#8	22.62	22.81	22.55
		RB1#14	22.63	22.91	22.72
		RB6#0	21.95	21.98	21.89
		RB6#9	21.81	22.04	21.90
		RB15#0	21.83	21.97	21.87
	16QAM	RB1#0	22.28	22.37	21.46
		RB1#8	22.09	22.19	21.28
		RB1#14	21.97	22.36	21.25
		RB6#0	20.97	21.07	20.86
		RB6#9	20.85	21.05	20.96
		RB15#0	20.86	21.21	21.00
5MHz	QPSK	RB1#0	22.66	22.53	22.71
		RB1#13	22.63	22.45	22.80
		RB1#24	22.59	22.63	22.75
		RB15#0	21.81	21.98	21.96
		RB15#10	21.78	21.86	21.87
		RB25#0	21.81	21.97	21.93
	16QAM	RB1#0	21.93	21.56	22.04
		RB1#13	21.68	20.95	22.17
		RB1#24	21.76	20.98	21.99
		RB15#0	20.73	20.88	20.65
		RB15#10	20.69	20.86	20.65
		RB25#0	20.71	20.98	20.91

10MHz	QPSK	RB1#0	22.94	23.01	22.88
		RB1#25	22.84	23.01	22.90
		RB1#49	22.75	22.83	22.69
		RB25#0	21.95	21.99	22.06
		RB25#25	21.78	21.90	21.99
		RB50#0	21.93	22.00	21.99
	16QAM	RB1#0	22.37	22.49	22.08
		RB1#25	22.06	22.84	22.08
		RB1#49	21.95	22.36	21.94
		RB25#0	20.94	21.07	21.14
		RB25#25	20.78	20.88	21.08
		RB50#0	20.88	20.98	20.95
15MHz	QPSK	RB1#0	22.95	23.03	23.02
		RB1#38	22.65	22.95	22.67
		RB1#74	22.87	22.91	22.87
		RB36#0	21.98	22.13	22.01
		RB36#39	21.89	21.96	21.95
		RB75#0	21.94	22.04	21.97
	16QAM	RB1#0	22.35	22.22	22.43
		RB1#38	21.86	22.17	22.05
		RB1#74	21.91	22.53	22.14
		RB36#0	20.87	21.12	21.00
		RB36#39	20.78	20.95	20.87
		RB75#0	20.83	20.95	21.06
20MHz	QPSK	RB1#0	22.75	22.56	22.67
		RB1#50	22.74	22.56	22.62
		RB1#99	22.69	22.66	22.33
		RB50#0	21.66	21.82	21.76
		RB50#50	21.67	21.63	21.68
		RB100#0	21.63	21.73	21.76
	16QAM	RB1#0	21.98	21.85	22.25
		RB1#50	22.02	22.02	22.17
		RB1#99	21.91	21.88	21.94
		RB50#0	20.78	20.75	20.71
		RB50#50	20.72	20.56	20.65
		RB100#0	20.73	20.78	20.68

LTE Band 5

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	RB1#0	22.95	23.16	23.34
		RB1#3	22.92	23.32	23.13
		RB1#5	23.21	23.26	23.11
		RB3#0	23.35	23.30	23.35
		RB3#3	23.30	23.32	23.19
		RB6#0	22.31	22.36	22.34
	16QAM	RB1#0	22.67	22.11	22.35
		RB1#3	22.66	22.27	22.23
		RB1#5	22.77	22.26	22.05
		RB3#0	22.32	22.38	22.06
		RB3#3	22.11	22.19	21.97
		RB6#0	21.39	21.32	20.98
3MHz	QPSK	RB1#0	22.46	23.42	23.48
		RB1#8	23.28	23.33	23.63
		RB1#14	23.23	23.26	23.59
		RB6#0	22.56	22.56	22.64
		RB6#9	22.44	22.53	22.60
		RB15#0	22.51	22.53	22.70
	16QAM	RB1#0	22.93	22.46	22.76
		RB1#8	22.81	22.17	22.82
		RB1#14	22.83	22.05	22.88
		RB6#0	21.82	21.47	21.53
		RB6#9	21.81	21.53	21.73
		RB15#0	21.78	21.63	21.72
5MHz	QPSK	RB1#0	22.84	23.00	23.29
		RB1#13	22.86	22.81	23.17
		RB1#24	22.89	23.26	23.23
		RB15#0	22.08	22.22	22.37
		RB15#10	22.17	22.18	22.40
		RB25#0	22.20	22.21	22.36
	16QAM	RB1#0	21.82	22.39	22.30
		RB1#13	21.38	21.90	22.19
		RB1#24	21.26	22.35	22.07
		RB15#0	21.15	21.22	21.13
		RB15#10	21.21	20.99	21.23
		RB25#0	21.20	21.04	21.26
10MHz	QPSK	RB1#0	23.09	23.07	23.20
		RB1#25	23.27	23.16	23.50
		RB1#49	23.16	23.02	23.30
		RB25#0	22.29	22.26	22.37
		RB25#25	22.27	22.24	22.41
		RB50#0	22.27	22.24	22.43
	16QAM	RB1#0	22.45	22.10	22.60
		RB1#25	23.13	22.08	22.48
		RB1#49	23.03	21.82	22.59
		RB25#0	21.32	21.47	21.39
		RB25#25	21.28	21.28	21.31
		RB50#0	21.29	21.30	21.41

LTE Band 7

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	RB1#0	22.19	21.59	20.72
		RB1#13	22.07	21.28	20.39
		RB1#24	22.35	21.60	20.57
		RB15#0	21.80	21.30	20.49
		RB15#10	21.73	21.32	20.42
		RB25#0	21.66	21.33	20.46
	16QAM	RB1#0	21.02	20.91	19.87
		RB1#13	21.00	20.66	19.56
		RB1#24	21.34	20.98	19.74
		RB15#0	20.92	20.44	19.68
		RB15#10	20.86	20.47	19.62
		RB25#0	20.91	20.50	19.65
10MHz	QPSK	RB1#0	21.43	20.84	20.25
		RB1#25	22.07	21.11	20.26
		RB1#49	21.81	20.91	19.78
		RB25#0	21.85	21.03	20.32
		RB25#25	21.86	21.10	20.10
		RB50#0	21.85	21.06	20.21
	16QAM	RB1#0	21.01	20.08	19.36
		RB1#25	21.70	20.39	19.41
		RB1#49	21.43	20.18	18.93
		RB25#0	21.01	20.24	19.59
		RB25#25	20.84	20.29	19.36
		RB50#0	20.80	20.25	19.42
15MHz	QPSK	RB1#0	21.79	21.10	21.07
		RB1#38	22.04	20.90	20.18
		RB1#74	21.98	21.38	20.15
		RB36#0	21.93	21.01	20.67
		RB36#39	21.82	21.18	20.18
		RB75#0	21.84	21.07	20.41
	16QAM	RB1#0	21.37	20.33	20.60
		RB1#38	21.65	20.17	19.76
		RB1#74	21.62	20.66	19.72
		RB36#0	20.83	20.22	19.85
		RB36#39	20.71	20.38	19.36
		RB75#0	20.72	20.30	19.60
20MHz	QPSK	RB1#0	21.43	20.84	21.05
		RB1#50	22.04	20.96	20.29
		RB1#99	21.09	21.13	19.71
		RB50#0	21.86	20.86	20.80
		RB50#50	21.67	21.08	20.02
		RB100#0	21.76	20.97	20.44
	16QAM	RB1#0	20.76	20.16	20.75
		RB1#50	21.43	20.31	20.03
		RB1#99	20.49	20.45	19.44
		RB50#0	20.99	20.07	20.00
		RB50#50	20.71	20.27	19.21
		RB100#0	20.76	20.20	19.64

LTE Band 12

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	RB1#0	23.02	23.10	22.98
		RB1#3	23.35	23.23	23.33
		RB1#5	23.23	23.23	23.22
		RB3#0	23.13	23.20	23.06
		RB3#3	23.13	23.42	23.28
		RB6#0	22.22	22.33	22.25
	16QAM	RB1#0	22.29	22.46	21.87
		RB1#3	22.51	22.54	21.95
		RB1#5	22.41	23.09	22.07
		RB3#0	22.37	22.05	22.05
		RB3#3	22.30	22.09	22.04
		RB6#0	21.29	21.03	21.20
3MHz	QPSK	RB1#0	23.14	23.20	23.02
		RB1#8	23.04	23.43	23.04
		RB1#14	22.98	23.50	23.12
		RB6#0	22.21	22.31	22.19
		RB6#9	22.17	22.22	22.22
		RB15#0	22.29	22.26	22.31
	16QAM	RB1#0	22.29	22.74	22.19
		RB1#8	22.28	23.08	21.65
		RB1#14	22.33	23.04	21.76
		RB6#0	21.17	21.39	21.36
		RB6#9	21.13	21.59	21.14
		RB15#0	21.20	21.36	21.31
5MHz	QPSK	RB1#0	22.94	23.34	22.89
		RB1#13	22.92	23.29	22.85
		RB1#24	22.95	23.33	23.09
		RB15#0	22.21	22.22	22.16
		RB15#10	22.25	22.28	22.15
		RB25#0	22.14	22.25	22.08
	16QAM	RB1#0	21.85	22.46	22.01
		RB1#13	21.35	22.42	20.98
		RB1#24	21.13	21.91	20.90
		RB15#0	21.20	20.97	21.27
		RB15#10	21.08	21.00	20.98
		RB25#0	21.18	21.00	20.95
10MHz	QPSK	RB1#0	22.98	22.98	23.13
		RB1#25	23.27	23.50	23.29
		RB1#49	23.39	22.92	23.21
		RB25#0	22.15	22.29	22.34
		RB25#25	22.27	22.18	22.19
		RB50#0	22.21	22.22	22.21
	16QAM	RB1#0	22.32	22.57	22.30
		RB1#25	22.50	23.07	22.23
		RB1#49	22.33	22.95	21.85
		RB25#0	21.09	21.10	21.36
		RB25#25	21.29	21.18	21.26
		RB50#0	21.17	21.39	21.23

LTE Band 13

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	RB1#0	22.91	23.17	23.20
		RB1#13	23.00	23.11	23.18
		RB1#24	23.33	23.28	23.36
		RB15#0	22.37	22.38	22.35
		RB15#10	22.39	22.30	22.33
		RB25#0	22.42	22.37	22.27
	16QAM	RB1#0	21.94	22.36	22.19
		RB1#13	21.31	21.97	21.04
		RB1#24	21.48	21.84	22.11
		RB15#0	21.25	21.30	21.12
		RB15#10	21.31	21.06	21.03
		RB25#0	21.32	21.13	21.19
10MHz	QPSK	RB1#0	/	23.42	/
		RB1#25	/	23.33	/
		RB1#49	/	22.98	/
		RB25#0	/	22.29	/
		RB25#25	/	22.33	/
		RB50#0	/	22.32	/
	16QAM	RB1#0	/	22.74	/
		RB1#25	/	23.02	/
		RB1#49	/	22.26	/
		RB25#0	/	21.19	/
		RB25#25	/	21.26	/
		RB50#0	/	21.34	/

LTE Band 17

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	RB1#0	22.73	23.20	23.05
		RB1#13	22.92	23.27	23.13
		RB1#24	23.02	23.57	22.85
		RB15#0	22.27	22.29	22.31
		RB15#10	22.29	22.31	22.24
		RB25#0	22.20	22.28	22.24
	16QAM	RB1#0	21.76	22.07	21.86
		RB1#13	21.35	21.67	21.08
		RB1#24	21.20	22.43	20.88
		RB15#0	20.99	21.06	21.43
		RB15#10	21.10	21.25	20.97
		RB25#0	21.34	21.06	21.21
10MHz	QPSK	RB1#0	23.27	23.42	23.27
		RB1#25	23.52	23.33	23.34
		RB1#49	23.29	22.98	23.14
		RB25#0	22.30	22.29	22.36
		RB25#25	22.40	22.33	22.32
		RB50#0	22.33	22.32	22.37
	16QAM	RB1#0	22.64	22.74	21.94
		RB1#25	22.47	23.02	22.39
		RB1#49	22.43	22.26	21.72
		RB25#0	21.23	21.19	21.30
		RB25#25	21.28	21.26	21.33
		RB50#0	21.23	21.34	21.21

LTE Band 25					
Channel Bandwidth	**Modulation**	**Resource Block & RB offset**	**Low Channel (dBm)**	**Middle Channel (dBm)**	**High Channel (dBm)**
1.4MHz	QPSK	RB1#0	22.23	22.06	22.49
		RB1#3	22.19	22.28	22.48
		RB1#5	22.20	22.04	22.33
		RB3#0	22.41	22.01	22.53
		RB3#3	22.44	22.21	22.47
		RB6#0	21.24	21.29	21.45
	16QAM	RB1#0	21.59	21.06	21.71
		RB1#3	21.83	21.07	21.58
		RB1#5	21.80	20.69	21.46
		RB3#0	21.48	21.01	21.58
		RB3#3	21.22	21.05	21.55
		RB6#0	20.49	20.14	20.13
3MHz	QPSK	RB1#0	22.49	22.26	22.38
		RB1#8	22.50	22.22	22.51
		RB1#14	22.56	22.20	22.43
		RB6#0	21.31	21.14	21.37
		RB6#9	21.44	21.23	21.46
		RB15#0	21.40	21.27	21.40
	16QAM	RB1#0	21.34	21.97	21.52
		RB1#8	21.36	22.03	21.39
		RB1#14	21.30	22.12	21.41
		RB6#0	20.36	20.12	20.58
		RB6#9	20.18	20.53	20.61
		RB15#0	20.45	20.01	20.60
5MHz	QPSK	RB1#0	22.21	22.16	22.52
		RB1#13	22.03	22.13	22.52
		RB1#24	22.11	22.27	22.14
		RB15#0	21.46	21.20	21.34
		RB15#10	21.41	21.26	21.33
		RB25#0	21.17	21.17	21.37
	16QAM	RB1#0	20.95	21.43	21.35
		RB1#13	20.99	21.42	21.27
		RB1#24	20.92	21.37	21.33
		RB15#0	20.46	19.96	20.42
		RB15#10	20.30	20.03	20.52
		RB25#0	20.34	20.03	20.44
10MHz	QPSK	RB1#0	22.44	22.12	22.17
		RB1#25	22.54	22.35	22.39
		RB1#49	22.40	22.35	22.50
		RB25#0	21.43	21.44	21.39
		RB25#25	21.33	21.30	21.38
		RB50#0	21.37	21.36	21.36
	16QAM	RB1#0	21.71	21.53	21.05
		RB1#25	21.57	22.08	21.12
		RB1#49	21.31	21.80	20.84
		RB25#0	20.37	20.12	20.39
		RB25#25	20.37	20.37	20.45
		RB50#0	20.24	20.29	20.25

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
15MHz	QPSK	RB1#0	22.38	22.26	22.50
		RB1#38	22.38	22.14	22.16
		RB1#74	22.38	22.39	22.67
		RB36#0	21.38	21.24	21.43
		RB36#39	21.40	21.28	21.41
		RB75#0	21.35	21.22	21.40
	16QAM	RB1#0	21.57	21.64	21.63
		RB1#38	21.47	22.03	21.46
		RB1#74	21.38	22.22	21.59
		RB36#0	20.31	20.24	20.40
		RB36#39	20.31	20.28	20.46
		RB75#0	20.25	20.33	20.41
20MHz	QPSK	RB1#0	22.54	22.30	22.38
		RB1#50	22.61	22.65	22.45
		RB1#99	22.43	22.36	22.63
		RB50#0	21.54	21.39	21.43
		RB50#50	21.33	21.25	21.32
		RB100#0	21.40	21.33	21.43
	16QAM	RB1#0	21.77	21.49	21.61
		RB1#50	21.44	21.75	21.52
		RB1#99	21.11	21.93	21.62
		RB50#0	20.66	20.27	20.36
		RB50#50	20.38	20.32	20.25
		RB100#0	20.48	20.16	20.31

LTE Band 26

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	RB1#0	23.18	23.38	23.57
		RB1#3	23.38	23.45	23.36
		RB1#5	23.33	23.48	23.54
		RB3#0	23.38	23.58	23.92
		RB3#3	23.43	23.44	23.61
		RB6#0	22.45	22.41	22.62
	16QAM	RB1#0	22.21	22.04	22.89
		RB1#3	22.28	22.13	22.81
		RB1#5	22.26	22.17	23.04
		RB3#0	22.40	22.08	22.79
		RB3#3	22.35	22.01	22.56
		RB6#0	21.35	21.08	21.96
3MHz	QPSK	RB1#0	23.40	23.34	23.59
		RB1#8	23.25	23.28	23.41
		RB1#14	23.45	23.46	23.58
		RB6#0	22.46	22.46	22.60
		RB6#9	22.50	22.50	22.68
		RB15#0	22.47	22.50	22.75
	16QAM	RB1#0	23.28	22.50	22.68
		RB1#8	22.47	22.47	22.08
		RB1#14	22.50	22.39	22.17
		RB6#0	21.31	21.22	22.02
		RB6#9	21.30	21.17	21.76
		RB15#0	21.29	21.27	22.01
5MHz	QPSK	RB1#0	23.24	23.01	23.43
		RB1#13	23.24	23.19	23.46
		RB1#24	23.02	23.54	23.44
		RB15#0	22.47	22.47	22.69
		RB15#10	22.45	22.51	22.61
		RB25#0	22.49	22.42	22.69
	16QAM	RB1#0	22.18	22.51	22.41
		RB1#13	22.08	22.48	22.52
		RB1#24	21.59	22.19	22.33
		RB15#0	21.45	21.35	21.69
		RB15#10	21.21	21.33	21.36
		RB25#0	21.44	21.42	21.58
10MHz	QPSK	RB1#0	23.48	23.19	23.46
		RB1#25	23.46	23.67	23.66
		RB1#49	23.40	23.30	23.49
		RB25#0	22.50	22.41	22.49
		RB25#25	22.54	22.44	22.68
		RB50#0	22.44	22.48	22.62
	16QAM	RB1#0	22.51	22.78	22.46
		RB1#25	22.62	23.26	22.54
		RB1#49	22.67	22.94	22.35
		RB25#0	21.51	21.25	21.72
		RB25#25	21.46	21.40	21.74
		RB50#0	21.44	21.41	21.48

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
15MHz	QPSK	RB1#0	22.59	23.53	23.60
		RB1#38	23.51	23.53	23.50
		RB1#74	23.58	23.56	23.90
		RB36#0	22.76	22.69	22.77
		RB36#39	22.59	22.70	22.83
		RB75#0	22.76	22.72	22.72
	16QAM	RB1#0	22.89	22.85	22.90
		RB1#38	22.94	22.90	22.69
		RB1#74	22.94	22.92	23.00
		RB36#0	21.73	21.59	21.70
		RB36#39	21.60	21.56	21.78
		RB75#0	21.74	21.57	21.72

LTE Band 41

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	RB1#0	22.60	22.43	20.90
		RB1#13	22.64	22.74	20.41
		RB1#24	22.44	22.95	20.41
		RB15#0	21.54	21.70	20.68
		RB15#10	21.60	21.75	20.47
		RB25#0	21.57	21.82	20.59
	16QAM	RB1#0	21.50	21.12	20.03
		RB1#13	21.89	21.33	19.58
		RB1#24	21.78	21.12	19.54
		RB15#0	20.39	20.50	19.77
		RB15#10	20.38	20.53	19.59
		RB25#0	20.50	20.69	19.73
10MHz	QPSK	RB1#0	22.42	22.44	20.61
		RB1#25	22.47	22.79	20.66
		RB1#49	22.44	22.44	19.72
		RB25#0	21.65	21.76	20.79
		RB25#25	21.64	21.81	20.36
		RB50#0	21.62	21.87	20.58
	16QAM	RB1#0	21.30	21.35	19.82
		RB1#25	21.38	21.78	19.89
		RB1#49	21.26	21.44	18.95
		RB25#0	20.42	20.50	19.90
		RB25#25	20.58	20.58	19.49
		RB50#0	20.46	20.63	19.69
15MHz	QPSK	RB1#0	22.68	22.79	21.41
		RB1#38	22.49	22.68	20.72
		RB1#74	23.04	22.88	20.18
		RB36#0	21.67	21.75	21.17
		RB36#39	21.57	21.81	20.59
		RB75#0	21.57	21.79	20.90
	16QAM	RB1#0	21.69	21.71	20.68
		RB1#38	21.18	21.63	20.01
		RB1#74	21.68	21.86	19.50
		RB36#0	20.65	20.81	20.32
		RB36#39	20.58	20.71	19.75
		RB75#0	20.55	20.71	20.01
20MHz	QPSK	RB1#0	22.45	22.33	21.28
		RB1#50	22.75	22.68	21.01
		RB1#99	22.74	22.54	19.84
		RB50#0	21.67	21.89	21.20
		RB50#50	21.79	21.80	20.53
		RB100#0	21.75	21.89	20.92
	16QAM	RB1#0	21.71	21.35	20.59
		RB1#50	21.73	21.76	20.34
		RB1#99	21.89	21.62	19.18
		RB50#0	20.66	20.87	20.31
		RB50#50	20.75	20.91	19.64
		RB100#0	20.77	20.64	20.02

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	3.92	3.40	3.92	13
	100 RB		5.28	5.00	4.96	13
16QAM	1 RB	20 MHz	4.92	4.60	4.48	13
	100 RB		6.36	5.92	5.88	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	4.36	3.88	4.24	13
	100 RB		5.28	5.00	5.20	13
16QAM	1 RB	20 MHz	5.28	4.76	5.24	13
	100 RB		6.28	5.92	6.12	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	3.36	4.64	3.88	13
	50 RB		5.36	5.36	5.40	13
16QAM	1 RB	10 MHz	4.48	5.56	4.84	13
	50 RB		6.12	6.32	6.28	13

PAR, Band 7

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	20 MHz	4.08	4.64	4.76	13
	100 RB		5.12	5.32	5.36	13
16QAM	1 RB	20 MHz	5.00	5.56	5.72	13
	100 RB		6.08	6.28	6.40	13

PAR, LTE Band 12

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	10 MHz	4.20	3.84	4.60	13
	50 RB		5.44	5.44	5.04	13
16QAM	1 RB	10 MHz	5.16	4.72	5.72	13
	50 RB		6.28	6.48	6.00	13

PAR, LTE Band 13

Test Modulation		Channel Bandwidth	Middle Channel (dB)	Limit (dB)
QPSK	1 RB	10 MHz	4.04	13
	50 RB		5.32	13
16QAM	1 RB	10 MHz	5.12	13
	50 RB		6.32	13

PAR, LTE Band 17

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	10 MHz	4.08	4.32	4.56	13
	50 RB		5.20	5.08	4.96	13
16QAM	1 RB	10 MHz	5.04	5.40	5.44	13
	50 RB		6.20	6.08	6.00	13

PAR, LTE Band 25

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	20 MHz	3.72	3.48	3.28	13
	100 RB		5.24	5.00	5.48	13
16QAM	1 RB	20 MHz	4.72	4.44	4.32	13
	100RB		6.24	5.96	6.40	13

PAR, LTE Band 26

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	10 MHz	4.44	3.60	3.88	13
	50 RB		5.08	5.44	5.36	13
16QAM	1 RB	10 MHz	5.52	4.36	4.60	13
	50 RB		5.62	4.39	4.87	13

PAR, Band 41

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	20 MHz	4.58	3.48	4.34	13
	100 RB		5.77	5.56	5.81	13
16QAM	1 RB	20 MHz	5.53	4.34	5.93	13
	100 RB		6.54	5.57	6.32	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	97.50	22.58	0.00	0.97	21.61	38.45	16.84
836.60	V	102.87	31.08	0.00	0.97	30.11	38.45	8.34
EDGE 850 Middle Channel								
836.60	H	94.66	19.74	0.00	0.97	18.77	38.45	19.68
836.60	V	99.09	27.30	0.00	0.97	26.33	38.45	12.12
WCDMA Band V Middle Channel								
836.60	H	86.03	11.11	0.00	0.97	10.14	38.45	28.31
836.60	V	94.15	22.36	0.00	0.97	21.39	38.45	17.06
GPRS 1900 Middle Channel								
1880.00	H	93.48	20.87	11.66	2.66	29.87	33.00	3.13
1880.00	V	95.31	22.84	11.66	2.66	31.84	33.00	1.16
EDGE 1900 Middle Channel								
1880.00	H	87.25	14.64	11.66	2.66	23.64	33.00	9.36
1880.00	V	89.25	16.78	11.66	2.66	25.78	33.00	7.22
WCDMA Band II Middle Channel								
1880.00	H	84.47	11.86	11.66	2.66	20.86	33.00	12.14
1880.00	V	86.26	13.79	11.66	2.66	22.79	33.00	10.21
WCDMA Band IV Middle Channel								
1732.60	H	85.15	11.10	10.90	2.51	19.49	30.00	10.51
1732.60	V	82.56	8.19	10.90	2.51	16.58	30.00	13.42

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)			
1880.00	1.40	QPSK	H	84.17	11.56	11.66	2.66	20.56	33.00	12.44
1880.00			V	86.25	13.78	11.66	2.66	22.78	33.00	10.22
1880.00	3.00		H	84.76	12.15	11.66	2.66	21.15	33.00	11.85
1880.00			V	87.07	14.60	11.66	2.66	23.60	33.00	9.40
1880.00	5.00		H	84.64	12.03	11.66	2.66	21.03	33.00	11.97
1880.00			V	86.68	14.21	11.66	2.66	23.21	33.00	9.79
1880.00	10.00		H	85.36	12.75	11.66	2.66	21.75	33.00	11.25
1880.00			V	85.76	13.29	11.66	2.66	22.29	33.00	10.71
1880.00	15.00		H	86.72	14.11	11.66	2.66	23.11	33.00	9.89
1880.00			V	86.98	14.51	11.66	2.66	23.51	33.00	9.49
1880.00	20.00		H	86.04	13.43	11.66	2.66	22.43	33.00	10.57
1880.00			V	87.17	14.70	11.66	2.66	23.70	33.00	9.30
1880.00	1.40	16QAM	H	84.47	11.86	11.66	2.66	20.86	33.00	12.14
1880.00			V	85.08	12.61	11.66	2.66	21.61	33.00	11.39
1880.00	3.00		H	84.57	11.96	11.66	2.66	20.96	33.00	12.04
1880.00			V	85.07	12.60	11.66	2.66	21.60	33.00	11.40
1880.00	5.00		H	84.44	11.83	11.66	2.66	20.83	33.00	12.17
1880.00			V	84.80	12.33	11.66	2.66	21.33	33.00	11.67
1880.00	10.00		H	84.40	11.79	11.66	2.66	20.79	33.00	12.21
1880.00			V	86.21	13.74	11.66	2.66	22.74	33.00	10.26
1880.00	15.00		H	84.68	12.07	11.66	2.66	21.07	33.00	11.93
1880.00			V	86.89	14.42	11.66	2.66	23.42	33.00	9.58
1880.00	20.00		H	85.02	12.41	11.66	2.66	21.41	33.00	11.59
1880.00			V	86.20	13.73	11.66	2.66	22.73	33.00	10.27

LTE Band 4

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
1732.50	1.40	QPSK	H	83.00	8.95	10.90	2.51	17.34	30.00	12.66
1732.50			V	84.75	10.38	10.90	2.51	18.77	30.00	11.23
1732.50	3.00		H	82.96	8.91	10.90	2.51	17.30	30.00	12.70
1732.50			V	86.38	12.01	10.90	2.51	20.40	30.00	9.60
1732.50	5.00		H	82.74	8.69	10.90	2.51	17.08	30.00	12.92
1732.50			V	86.11	11.74	10.90	2.51	20.13	30.00	9.87
1732.50	10.00		H	82.70	8.65	10.90	2.51	17.04	30.00	12.96
1732.50			V	86.03	11.66	10.90	2.51	20.05	30.00	9.95
1732.50	15.00		H	82.74	8.69	10.90	2.51	17.08	30.00	12.92
1732.50			V	86.10	11.73	10.90	2.51	20.12	30.00	9.88
1732.50	20.00		H	82.80	8.75	10.90	2.51	17.14	30.00	12.86
1732.50			V	86.08	11.71	10.90	2.51	20.10	30.00	9.90
1732.50	1.40	16QAM	H	81.68	7.63	10.90	2.51	16.02	30.00	13.98
1732.50			V	85.40	11.03	10.90	2.51	19.42	30.00	10.58
1732.50	3.00		H	81.84	7.79	10.90	2.51	16.18	30.00	13.82
1732.50			V	85.09	10.72	10.90	2.51	19.11	30.00	10.89
1732.50	5.00		H	81.56	7.51	10.90	2.51	15.90	30.00	14.10
1732.50			V	84.91	10.54	10.90	2.51	18.93	30.00	11.07
1732.50	10.00		H	81.57	7.52	10.90	2.51	15.91	30.00	14.09
1732.50			V	84.80	10.43	10.90	2.51	18.82	30.00	11.18
1732.50	15.00		H	81.68	7.63	10.90	2.51	16.02	30.00	13.98
1732.50			V	84.73	10.36	10.90	2.51	18.75	30.00	11.25
1732.50	20.00		H	81.67	7.62	10.90	2.51	16.01	30.00	13.99
1732.50			V	85.06	10.69	10.90	2.51	19.08	30.00	10.92

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	1.40	QPSK	H	87.81	12.88	0.00	0.97	11.91	38.45	26.54
836.50			V	92.92	21.13	0.00	0.97	20.16	38.45	18.29
836.50	3.00		H	87.68	12.75	0.00	0.97	11.78	38.45	26.67
836.50			V	92.74	20.95	0.00	0.97	19.98	38.45	18.47
836.50	5.00		H	87.39	12.46	0.00	0.97	11.49	38.45	26.96
836.50			V	92.68	20.89	0.00	0.97	19.92	38.45	18.53
836.50	10.00		H	86.42	11.49	0.00	0.97	10.52	38.45	27.93
836.50			V	90.04	18.25	0.00	0.97	17.28	38.45	21.17
836.50	1.40	16QAM	H	86.96	12.03	0.00	0.97	11.06	38.45	27.39
836.50			V	91.85	20.06	0.00	0.97	19.09	38.45	19.36
836.50	3.00		H	86.61	11.68	0.00	0.97	10.71	38.45	27.74
836.50			V	91.74	19.95	0.00	0.97	18.98	38.45	19.47
836.50	5.00		H	86.66	11.73	0.00	0.97	10.76	38.45	27.69
836.50			V	91.27	19.48	0.00	0.97	18.51	38.45	19.94
836.50	10.00		H	85.90	10.97	0.00	0.97	10.00	38.45	28.45
836.50			V	90.64	18.85	0.00	0.97	17.88	38.45	20.57

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	5.00	QPSK	H	84.00	11.39	13.14	3.10	21.43	33.00	11.57
2535.00			V	85.93	14.78	13.14	3.10	24.82	33.00	8.18
2535.00	10.00		H	83.90	11.29	13.14	3.10	21.33	33.00	11.67
2535.00			V	85.87	14.72	13.14	3.10	24.76	33.00	8.24
2535.00	15.00		H	84.13	11.52	13.14	3.10	21.56	33.00	11.44
2535.00			V	86.01	14.86	13.14	3.10	24.90	33.00	8.10
2535.00	20.00		H	84.22	11.61	13.14	3.10	21.65	33.00	11.35
2535.00			V	86.04	14.89	13.14	3.10	24.93	33.00	8.07
2535.00	5.00	16QAM	H	82.88	10.27	13.14	3.10	20.31	33.00	12.69
2535.00			V	82.26	11.11	13.14	3.10	21.15	33.00	11.85
2535.00	10.00		H	82.94	10.33	13.14	3.10	20.37	33.00	12.63
2535.00			V	84.86	13.71	13.14	3.10	23.75	33.00	9.25
2535.00	15.00		H	83.00	10.39	13.14	3.10	20.43	33.00	12.57
2535.00			V	85.02	13.87	13.14	3.10	23.91	33.00	9.09
2535.00	20.00		H	83.23	10.62	13.14	3.10	20.66	33.00	12.34
2535.00			V	84.89	13.74	13.14	3.10	23.78	33.00	9.22

LTE Band 12

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)			
707.50	1.40	QPSK	H	85.53	8.67	0.00	0.94	7.73	34.77	27.04
707.50			V	91.91	17.49	0.00	0.94	16.55	34.77	18.22
707.50	3.00		H	85.15	8.29	0.00	0.94	7.35	34.77	27.42
707.50			V	91.87	17.45	0.00	0.94	16.51	34.77	18.26
707.50	5.00		H	84.62	7.76	0.00	0.94	6.82	34.77	27.95
707.50			V	91.82	17.40	0.00	0.94	16.46	34.77	18.31
707.50	10.00		H	83.86	7.00	0.00	0.94	6.06	34.77	28.71
707.50			V	91.08	16.66	0.00	0.94	15.72	34.77	19.05
707.50	1.40	16QAM	H	85.24	8.38	0.00	0.94	7.44	34.77	27.33
707.50			V	91.28	16.86	0.00	0.94	15.92	34.77	18.85
707.50	3.00		H	84.84	7.98	0.00	0.94	7.04	34.77	27.73
707.50			V	91.22	16.80	0.00	0.94	15.86	34.77	18.91
707.50	5.00		H	84.39	7.53	0.00	0.94	6.59	34.77	28.18
707.50			V	91.15	16.73	0.00	0.94	15.79	34.77	18.98
707.50	10.00		H	83.72	6.86	0.00	0.94	5.92	34.77	28.85
707.50			V	90.35	15.93	0.00	0.94	14.99	34.77	19.78

LTE Band 13

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)			
782.00	5.00	QPSK	H	85.67	10.14	0.00	0.93	9.21	34.77	25.56
782.00			V	93.07	20.46	0.00	0.93	19.53	34.77	15.24
782.00	10.00		H	84.27	8.74	0.00	0.93	7.81	34.77	26.96
782.00			V	92.30	19.69	0.00	0.93	18.76	34.77	16.01
782.00	5.00	16QAM	H	85.43	9.90	0.00	0.93	8.97	34.77	25.80
782.00			V	92.20	19.59	0.00	0.93	18.66	34.77	16.11
782.00	10.00		H	84.74	9.21	0.00	0.93	8.28	34.77	26.49
782.00			V	91.46	18.85	0.00	0.93	17.92	34.77	16.85

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	5.00	QPSK	H	85.46	8.65	0.00	0.94	7.71	34.77	27.06
710.00			V	92.07	17.71	0.00	0.94	16.77	34.77	18.00
710.00	10.00		H	84.68	7.87	0.00	0.94	6.93	34.77	27.84
710.00			V	91.64	17.28	0.00	0.94	16.34	34.77	18.43
710.00	5.00	16QAM	H	85.35	8.54	0.00	0.94	7.60	34.77	27.17
710.00			V	91.62	17.26	0.00	0.94	16.32	34.77	18.45
710.00	10.00		H	84.58	7.77	0.00	0.94	6.83	34.77	27.94
710.00			V	91.18	16.82	0.00	0.94	15.88	34.77	18.89

LTE Band 25

| Frequency (MHz) | BW (MHz) | Modulation | Polar (H/V) | Receiver Reading (dBµV) | Substituted Method | | | Absolute Level (dBm) | Limit (dBm) | Margin (dB) |
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
1880.00	1.40	QPSK	H	83.77	11.16	11.66	2.66	20.16	33.00	12.84
1880.00			V	87.67	15.20	11.66	2.66	24.20	34.00	8.80
1880.00	3.00		H	82.55	9.94	11.66	2.66	18.94	35.00	14.06
1880.00			V	87.22	14.75	11.66	2.66	23.75	36.00	9.25
1880.00	5.00		H	83.53	10.92	11.66	2.66	19.92	37.00	13.08
1880.00			V	87.14	14.67	11.66	2.66	23.67	38.00	9.33
1880.00	10.00		H	83.42	10.81	11.66	2.66	19.81	39.00	13.19
1880.00			V	87.18	14.71	11.66	2.66	23.71	40.00	9.29
1880.00	15.00		H	83.58	10.97	11.66	2.66	19.97	41.00	13.03
1880.00			V	86.91	14.44	11.66	2.66	23.44	42.00	9.56
1880.00	20.00		H	84.10	11.49	11.66	2.66	20.49	43.00	12.51
1880.00			V	87.44	14.97	11.66	2.66	23.97	44.00	9.03
1880.00	1.40	16QAM	H	82.95	10.34	11.66	2.66	19.34	45.00	13.66
1880.00			V	86.79	14.32	11.66	2.66	23.32	46.00	9.68
1880.00	3.00		H	83.68	11.07	11.66	2.66	20.07	47.00	12.93
1880.00			V	86.24	13.77	11.66	2.66	22.77	48.00	10.23
1880.00	5.00		H	82.29	9.68	11.66	2.66	18.68	49.00	14.32
1880.00			V	86.04	13.57	11.66	2.66	22.57	50.00	10.43
1880.00	10.00		H	82.22	9.61	11.66	2.66	18.61	51.00	14.39
1880.00			V	85.87	13.40	11.66	2.66	22.40	52.00	10.60
1880.00	15.00		H	82.86	10.25	11.66	2.66	19.25	53.00	13.75
1880.00			V	86.26	13.79	11.66	2.66	22.79	54.00	10.21
1880.00	20.00		H	82.77	10.16	11.66	2.66	19.16	55.00	13.84
1880.00			V	86.29	13.82	11.66	2.66	22.82	56.00	10.18

LTE Band 26

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)			
831.50	1.40	QPSK	H	86.91	11.95	0.00	0.97	10.98	38.45	27.47
831.50			V	92.30	20.45	0.00	0.97	19.48	38.45	18.97
831.50	3.00		H	86.92	11.96	0.00	0.97	10.99	38.45	27.46
831.50			V	92.16	20.31	0.00	0.97	19.34	38.45	19.11
831.50	5.00		H	86.78	11.82	0.00	0.97	10.85	38.45	27.60
831.50			V	91.92	20.07	0.00	0.97	19.10	38.45	19.35
831.50	10.00		H	86.56	11.60	0.00	0.97	10.63	38.45	27.82
831.50			V	91.40	19.55	0.00	0.97	18.58	38.45	19.87
831.50	15.00		H	85.87	10.91	0.00	0.97	9.94	38.45	28.51
831.50			V	90.65	18.80	0.00	0.97	17.83	38.45	20.62
831.50	1.40	16QAM	H	86.21	11.25	0.00	0.97	10.28	38.45	28.17
831.50			V	92.00	20.15	0.00	0.97	19.18	38.45	19.27
831.50	3.00		H	86.19	11.23	0.00	0.97	10.26	38.45	28.19
831.50			V	91.76	19.91	0.00	0.97	18.94	38.45	19.51
831.50	5.00		H	85.83	10.87	0.00	0.97	9.90	38.45	28.55
831.50			V	91.50	19.65	0.00	0.97	18.68	38.45	19.77
831.50	10.00		H	85.33	10.37	0.00	0.97	9.40	38.45	29.05
831.50			V	91.12	19.27	0.00	0.97	18.30	38.45	20.15
831.50	15.00		H	84.36	9.40	0.00	0.97	8.43	38.45	30.02
831.50			V	90.43	18.58	0.00	0.97	17.61	38.45	20.84

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	5.00	QPSK	H	81.37	9.13	13.19	3.10	19.22	33.00	13.78
2593.00			V	82.37	11.98	13.19	3.10	22.07	33.00	10.93
2593.00	10.00		H	83.37	11.13	13.19	3.10	21.22	33.00	11.78
2593.00			V	84.37	13.98	13.19	3.10	24.07	33.00	8.93
2593.00	15.00		H	81.01	8.77	13.19	3.10	18.86	33.00	14.14
2593.00			V	82.06	11.67	13.19	3.10	21.76	33.00	11.24
2593.00	20.00		H	81.69	9.45	13.19	3.10	19.54	33.00	13.46
2593.00			V	83.67	13.28	13.19	3.10	23.37	33.00	9.63
2593.00	5.00	16QAM	H	82.37	10.13	13.19	3.10	20.22	33.00	12.78
2593.00			V	83.37	12.98	13.19	3.10	23.07	33.00	9.93
2593.00	10.00		H	84.37	12.13	13.19	3.10	22.22	33.00	10.78
2593.00			V	83.37	12.98	13.19	3.10	23.07	33.00	9.93
2593.00	15.00		H	82.58	10.34	13.19	3.10	20.43	33.00	12.57
2593.00			V	82.49	12.1	13.19	3.10	22.19	33.00	10.81
2593.00	20.00		H	83.78	11.54	13.19	3.10	21.63	33.00	11.37
2593.00			V	83.45	13.06	13.19	3.10	23.15	33.00	9.85

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

FCC §2.1049, §22.917, §22.905 & §24.238 & §27.53&§90.209- OCCUPIED BANDWIDTH

Applicable Standard

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

Test Procedure

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

The 26 dB & 99% bandwidth was recorded.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSP 38	100478	2019-05-09	2020-05-09
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41005011	Each Time	/
E-Microwave	Two-way Spliter	ODP-1-6-2S	OE0120142	Each Time	/
Unknown	Coaxial Cable	C-SJ00-0010	C0010/04	Each Time	/
E-Microwave	Coaxial Attenuators	EMCA10-5RN-6	OE01203239	Each Time	/

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

Test Data

Environmental Conditions

Temperature:	23.6~26°C
Relative Humidity:	43~62 %
ATM Pressure:	101.2~102.2 kPa
Tester:	Lily Xie
Test Date:	2020-01-03~2020-01-13

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

Band	Test Channel	Mode	99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)
Cellular	M	GRRS	0.244	0.316
Cellular	M	EDGE	0.246	0.318
PCS	M	GRRS	0.246	0.316
PCS	M	EDGE	0.246	0.308
WCDMA Band II	M	Rel 99	4.180	4.780
WCDMA Band II	M	HSDPA	4.180	4.740
WCDMA Band II	M	HSUPA	4.180	4.760
WCDMA Band IV	M	Rel 99	4.180	4.760
WCDMA Band IV	M	HSDPA	4.200	4.740
WCDMA Band IV	M	HSUPA	4.200	4.740
WCDMA Band V	M	Rel 99	4.140	4.700
WCDMA Band V	M	HSDPA	4.160	4.740
WCDMA Band V	M	HSUPA	4.160	4.740

Band	Bandwidth	Modulation	99% occupied bandwidth (MHz)	26 dB bandwidth (MHz)
LTE Band 2	1.4 MHz	QPSK	1.104	1.320
		16QAM	1.104	1.314
	3 MHz	QPSK	2.700	2.928
		16QAM	2.688	2.940
	5 MHz	QPSK	4.540	5.040
		16QAM	4.540	5.040
	10 MHz	QPSK	9.000	9.800
		16QAM	8.960	9.720
	15 MHz	QPSK	13.560	14.940
		16QAM	13.560	14.940
	20 MHz	QPSK	18.000	19.360
		16QAM	18.000	19.440
LTE Band 4	1.4 MHz	QPSK	1.098	1.320
		16QAM	1.104	1.302
	3 MHz	QPSK	2.700	2.928
		16QAM	2.700	2.928
	5 MHz	QPSK	4.540	5.040
		16QAM	4.520	5.040
	10 MHz	QPSK	8.960	9.760
		16QAM	8.960	9.760
	15 MHz	QPSK	13.560	15.060
		16QAM	13.500	14.880
	20 MHz	QPSK	17.920	19.440
		16QAM	17.920	19.440
LTE Band 5	1.4 MHz	QPSK	1.098	1.302
		16QAM	1.104	1.296
	3 MHz	QPSK	2.700	2.916
		16QAM	2.700	2.952
	5 MHz	QPSK	4.540	5.060
		16QAM	4.520	5.000
	10 MHz	QPSK	9.000	9.720
		16QAM	8.960	9.640

Band	Bandwidth	Modulation	99% occupied bandwidth (MHz)	26 dB bandwidth (MHz)
LTE Band 7	5 MHz	QPSK	4.540	5.020
		16QAM	4.520	4.980
	10 MHz	QPSK	8.960	9.720
		16QAM	8.960	9.680
	15 MHz	QPSK	13.560	14.880
		16QAM	13.560	14.880
	20 MHz	QPSK	17.920	19.360
		16QAM	18.080	19.440
LTE Band 12	1.4 MHz	QPSK	1.104	1.296
		16QAM	1.104	1.314
	3 MHz	QPSK	2.688	2.940
		16QAM	2.700	2.940
	5 MHz	QPSK	4.540	5.040
		16QAM	4.540	5.000
	10 MHz	QPSK	9.000	9.680
		16QAM	9.000	9.600
LTE Band 13	5 MHz	QPSK	4.540	5.000
		16QAM	4.520	5.020
	10 MHz	QPSK	8.960	9.760
		16QAM	8.960	9.720
LTE Band 17	5 MHz	QPSK	4.540	4.980
		16QAM	4.500	4.940
	10 MHz	QPSK	8.920	9.600
		16QAM	8.920	9.560
LTE Band 25	1.4 MHz	QPSK	1.104	1.326
		16QAM	1.110	1.308
	3 MHz	QPSK	2.688	2.928
		16QAM	2.688	2.964
	5 MHz	QPSK	4.520	5.000
		16QAM	4.540	5.040
	10 MHz	QPSK	9.000	9.760
		16QAM	9.000	9.720
	15 MHz	QPSK	13.560	15.000
		16QAM	13.560	14.940
	20 MHz	QPSK	18.000	19.280
		16QAM	17.920	19.520
LTE Band 26	1.4 MHz	QPSK	1.098	1.314
		16QAM	1.104	1.284
	3 MHz	QPSK	2.700	2.940
		16QAM	2.700	2.964
	5 MHz	QPSK	4.520	5.060
		16QAM	4.520	5.020
	10 MHz	QPSK	9.000	9.840
		16QAM	8.960	9.640
	15 MHz	QPSK	13.620	15.000
		16QAM	13.620	15.060

LTE Band 41	5 MHz	QPSK	4.540	5.160
		16QAM	4.520	4.940
	10 MHz	QPSK	8.960	9.640
		16QAM	8.960	9.640
	15 MHz	QPSK	13.560	15.300
		16QAM	13.560	15.720
	20 MHz	QPSK	18.000	19.440
		16QAM	18.000	19.520

GPRS 850 Cellular Band
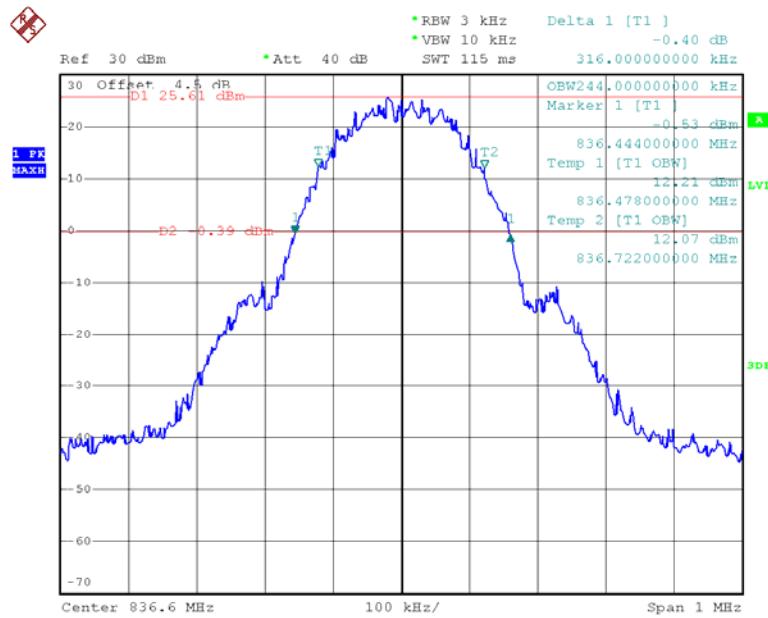
Date: 13.JAN.2020 11:36:22

GPRS PCS1900 Cellular Band
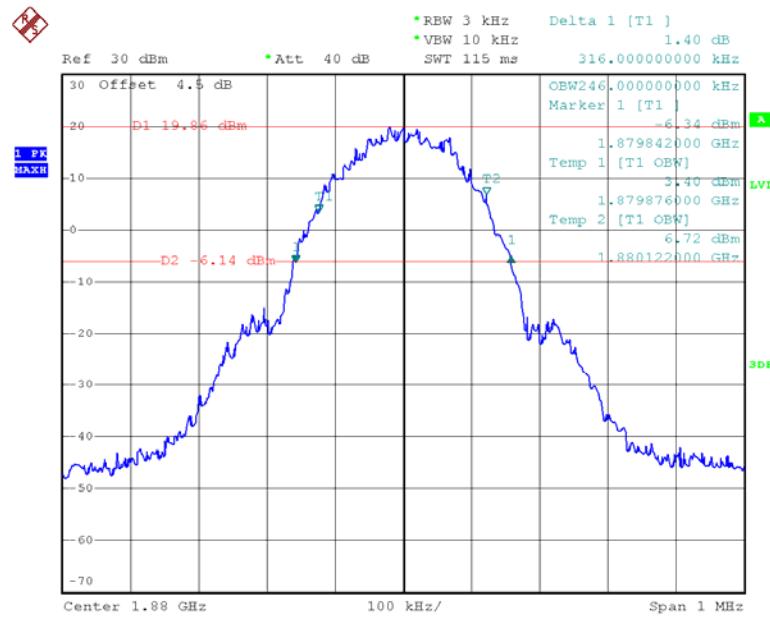
Date: 13.JAN.2020 11:30:09

EDGE 850 Cellular Band
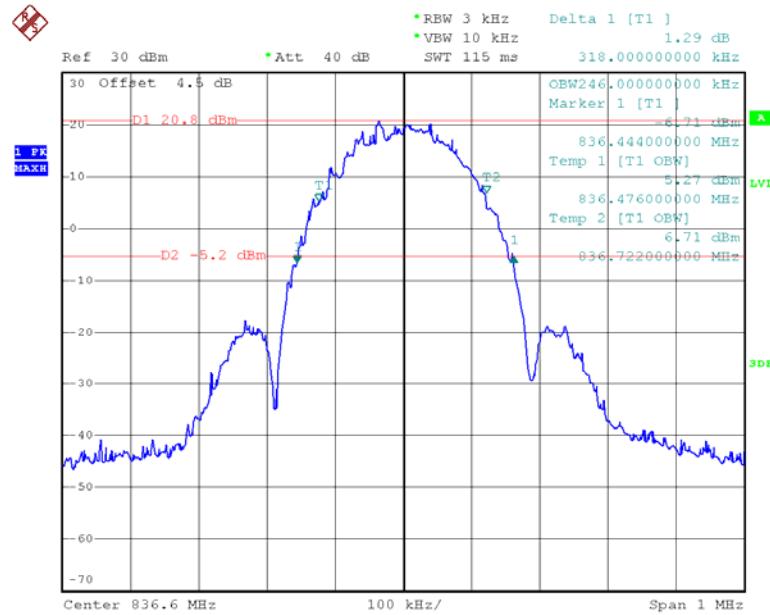
Date: 13.JAN.2020 11:43:09

EDGE PCS1900 Cellular Band
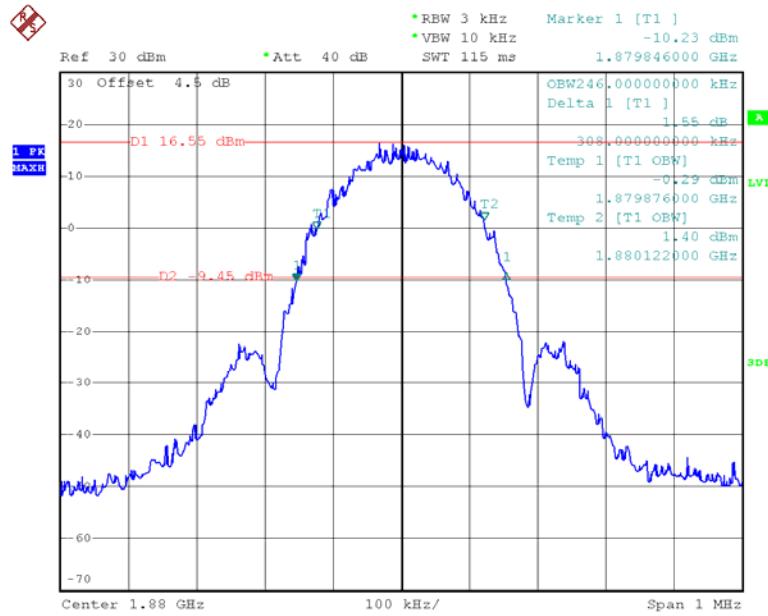
Date: 13.JAN.2020 11:47:38

WCDMA Band II, Rel 99
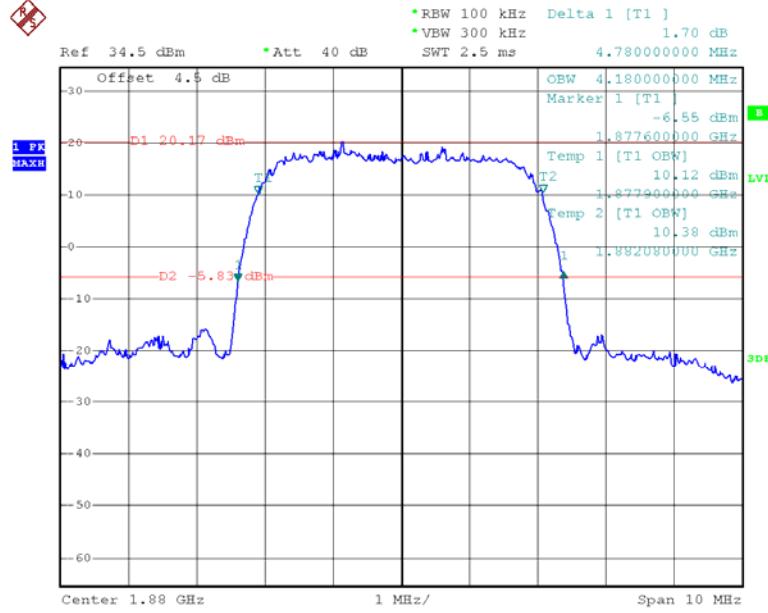
Date: 6.JAN.2020 10:06:16

WCDMA Band II, HSDPA
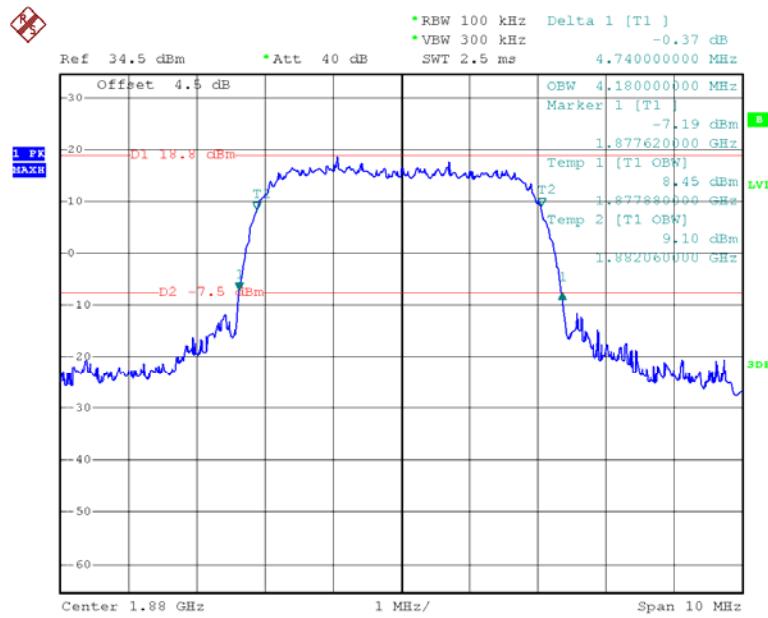
Date: 6.JAN.2020 09:45:55

WCDMA Band II, HSUPA
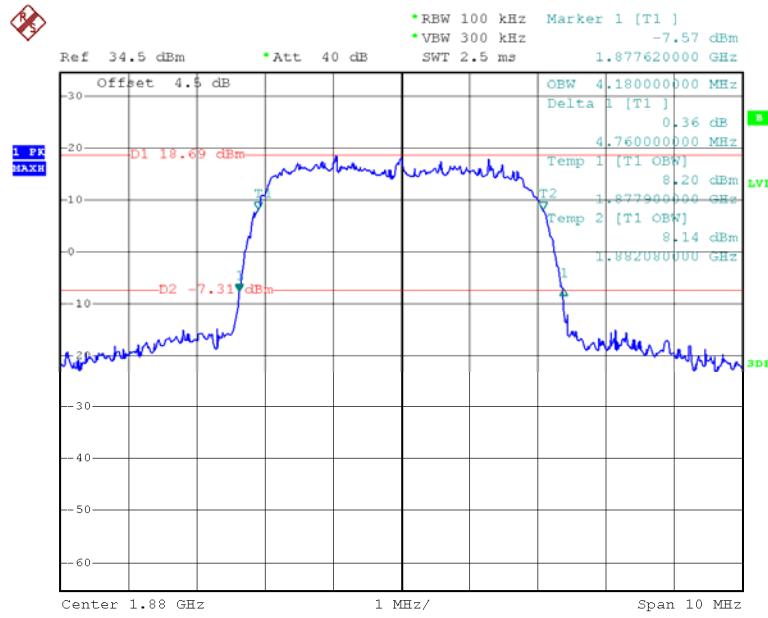
Date: 6.JAN.2020 09:19:24

WCDMA Band IV, Rel 99
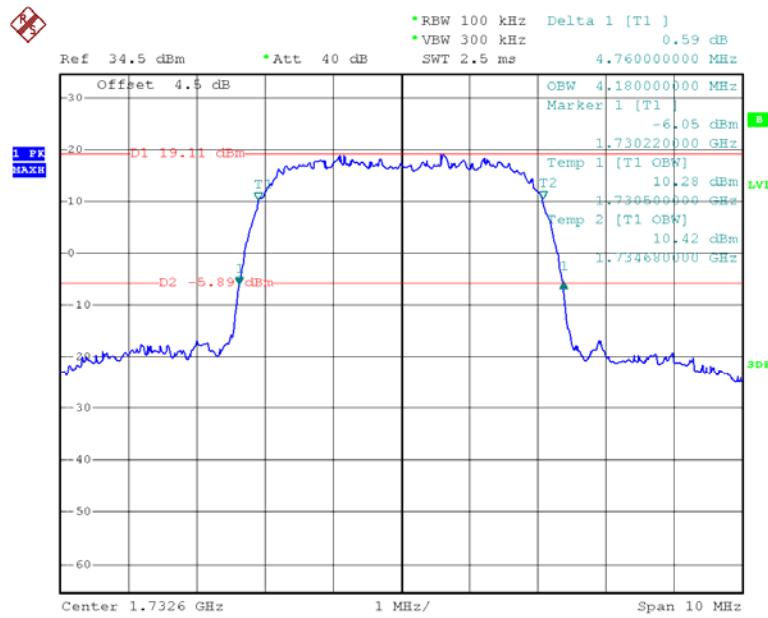
Date: 6.JAN.2020 10:04:29

WCDMA Band IV, HSDPA
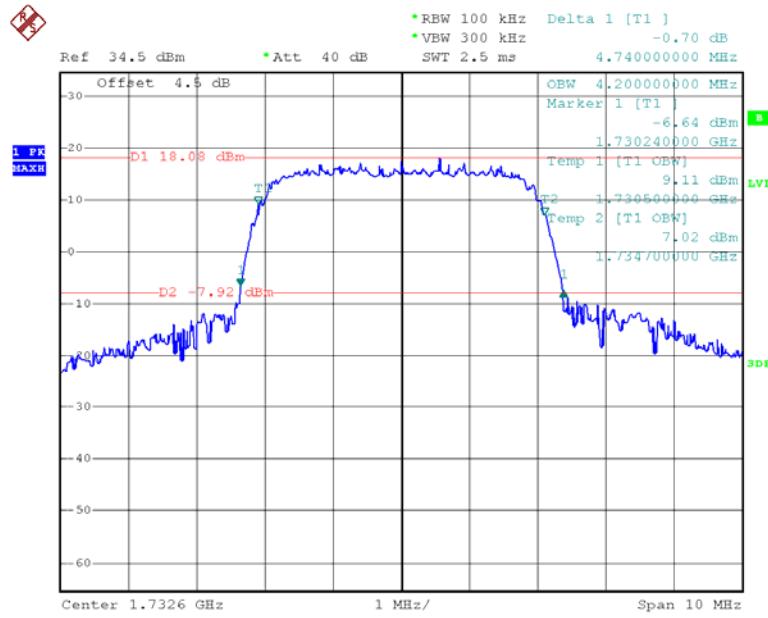
Date: 6.JAN.2020 09:44:35

WCDMA Band IV, HSUPA
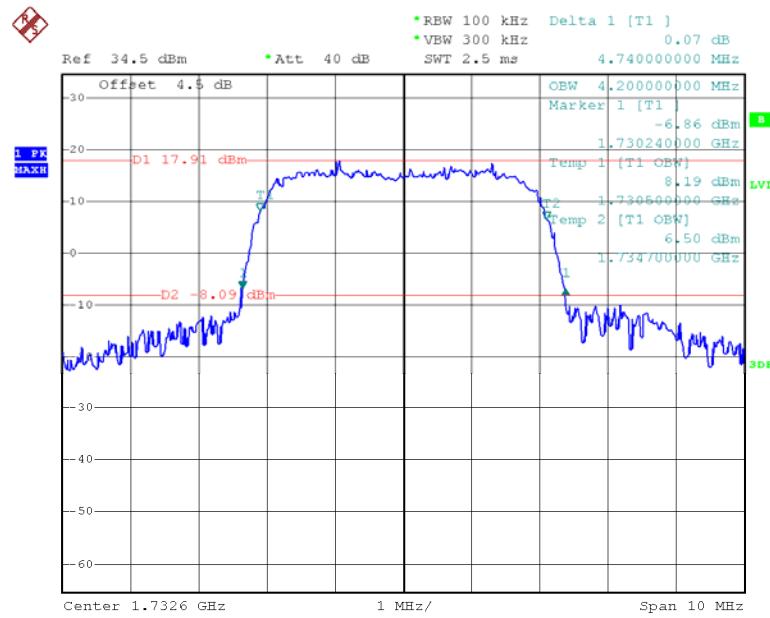
Date: 6.JAN.2020 09:18:03

WCDMA Band V, Rel 99
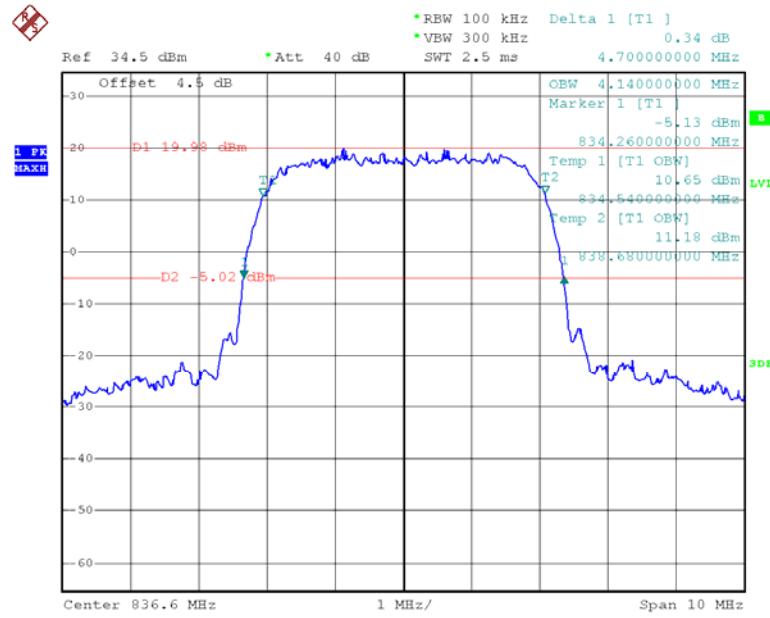
Date: 6.JAN.2020 10:07:07

WCDMA Band V, HSDPA
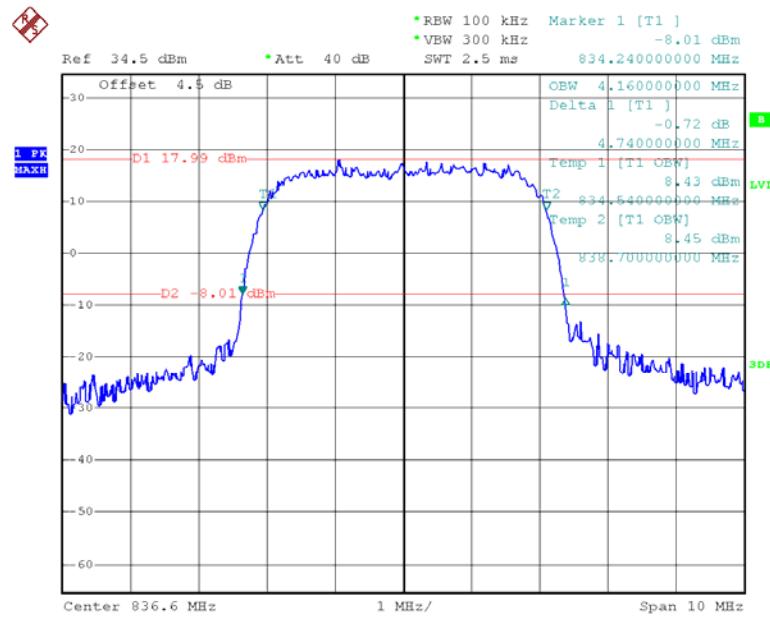
Date: 6.JAN.2020 09:43:06

WCDMA Band V, HSUPA
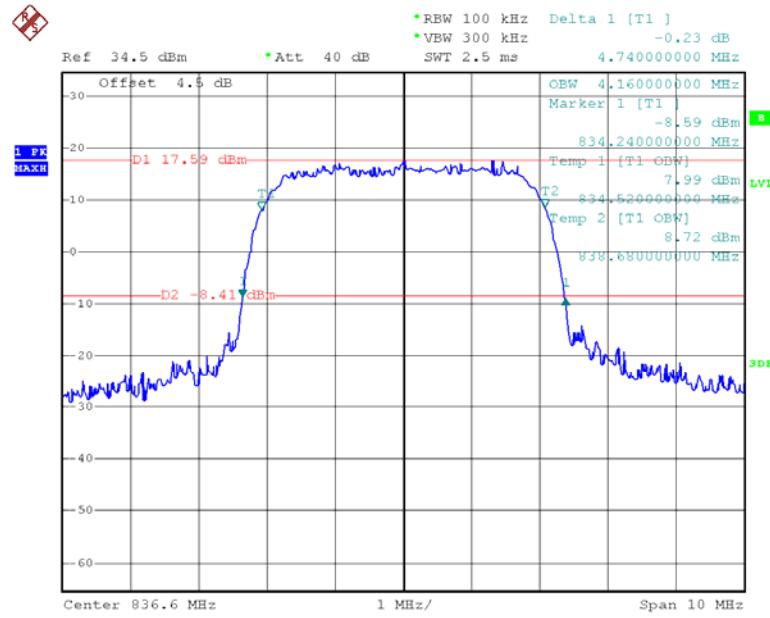
Date: 6.JAN.2020 09:14:43

LTE Band 2

QPSK_1.4 MHz
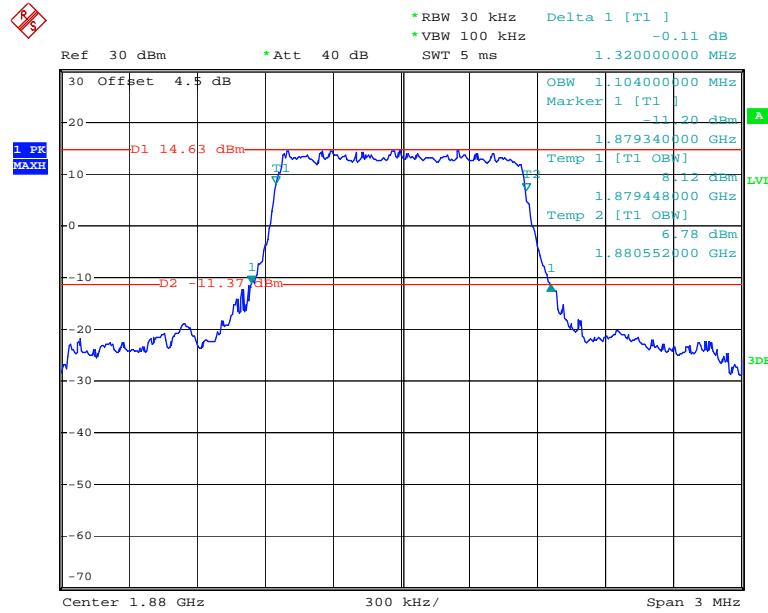
Date: 7.JAN.2020 07:45:52

QPSK_3 MHz
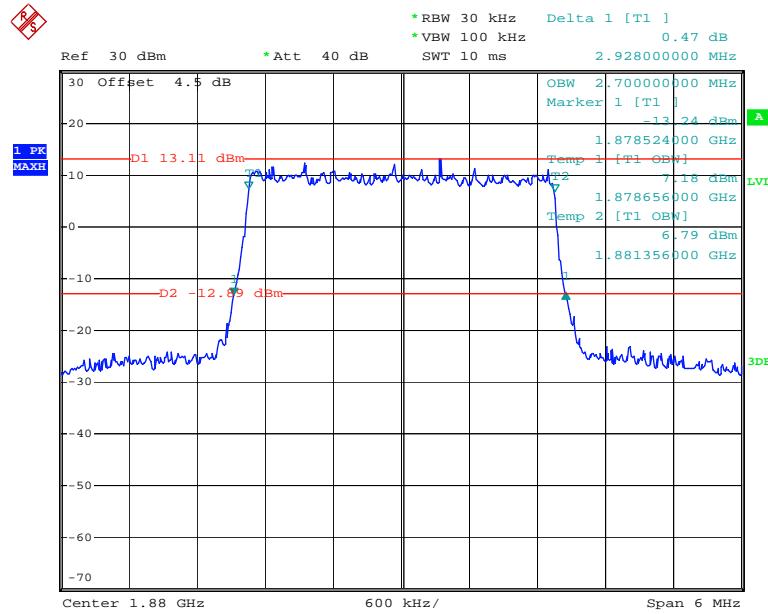
Date: 7.JAN.2020 07:46:35

QPSK_5 MHz
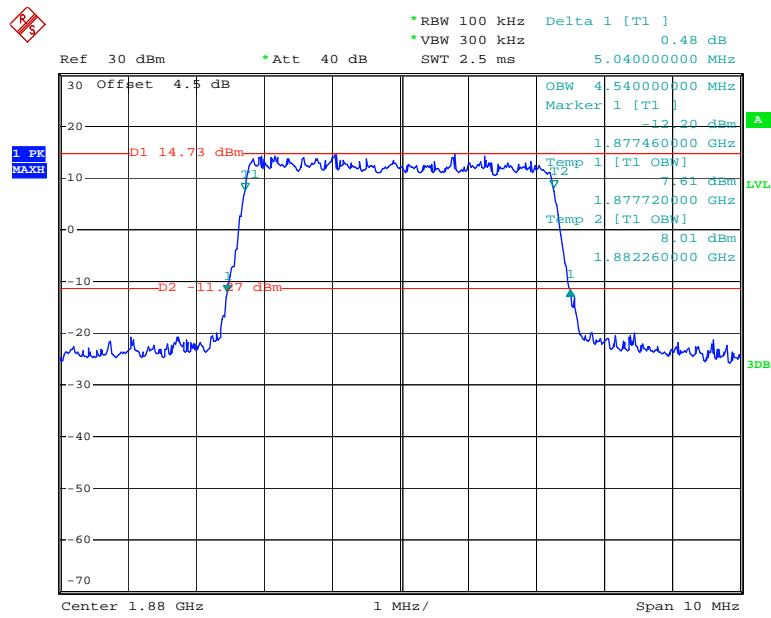
Date: 7.JAN.2020 07:47:24

QPSK_10 MHz
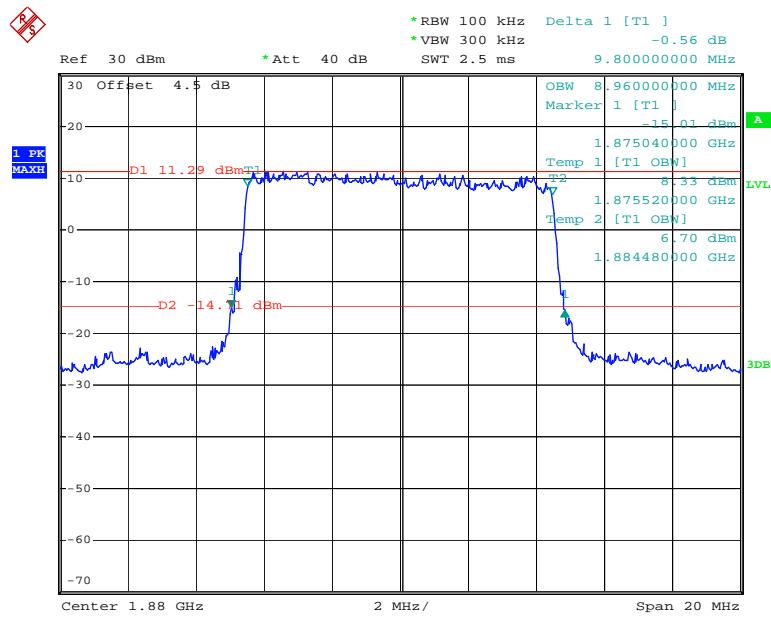
Date: 7.JAN.2020 07:48:15

QPSK_15 MHz
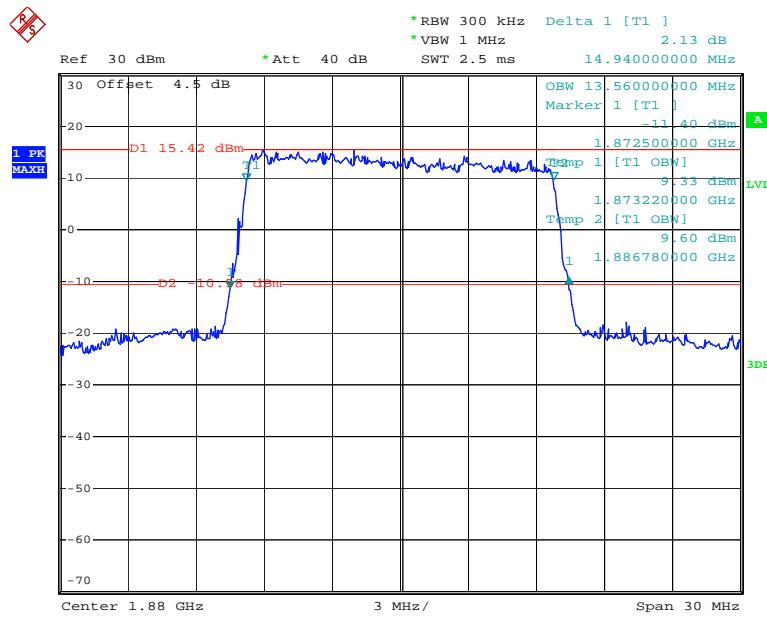
Date: 7.JAN.2020 07:49:03

QPSK_20 MHz
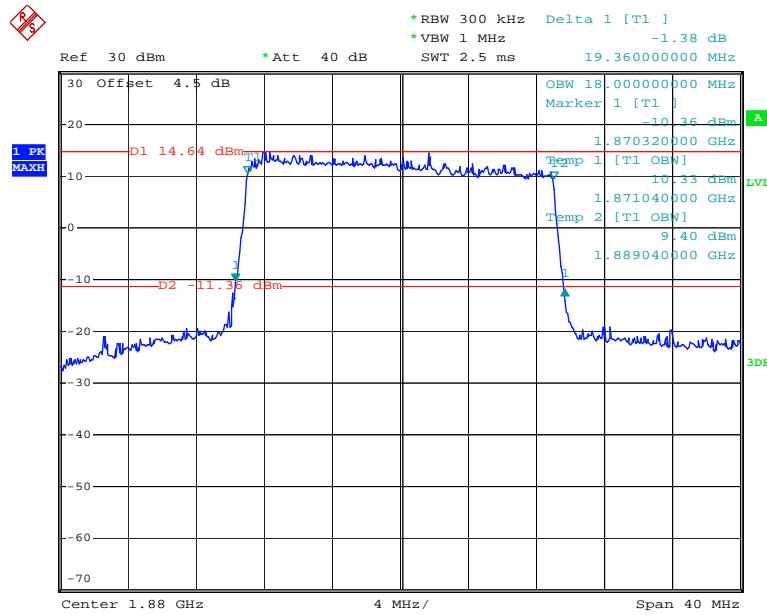
Date: 7.JAN.2020 07:49:58

16QAM_1.4 MHz
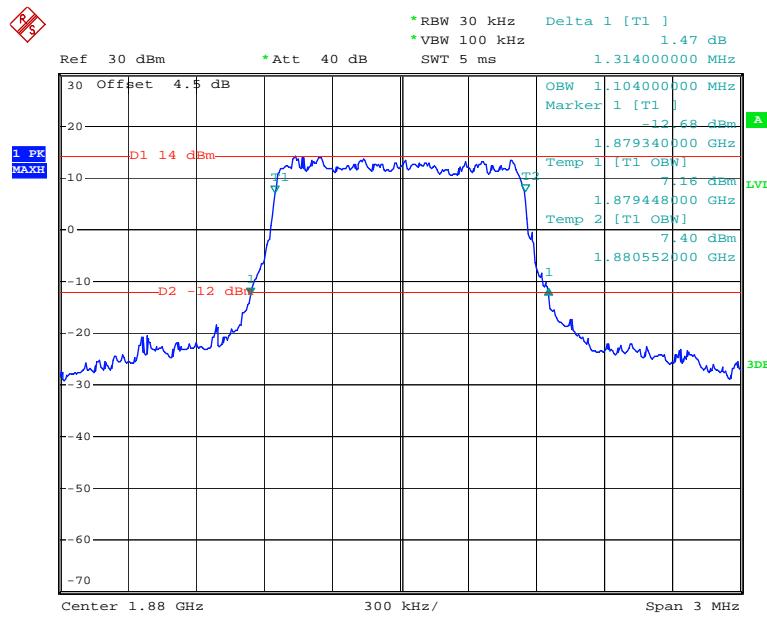
Date: 7.JAN.2020 07:46:14

16QAM_3 MHz
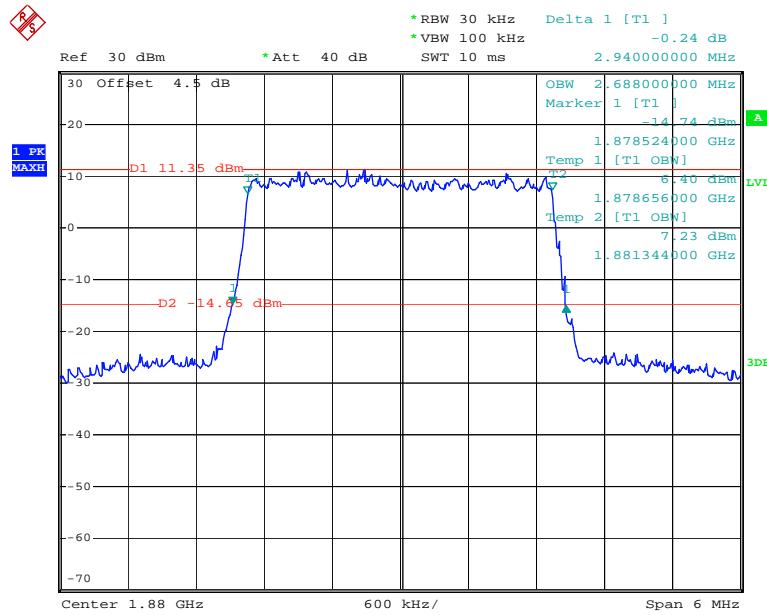
Date: 7.JAN.2020 07:46:59

16QAM_5 MHz
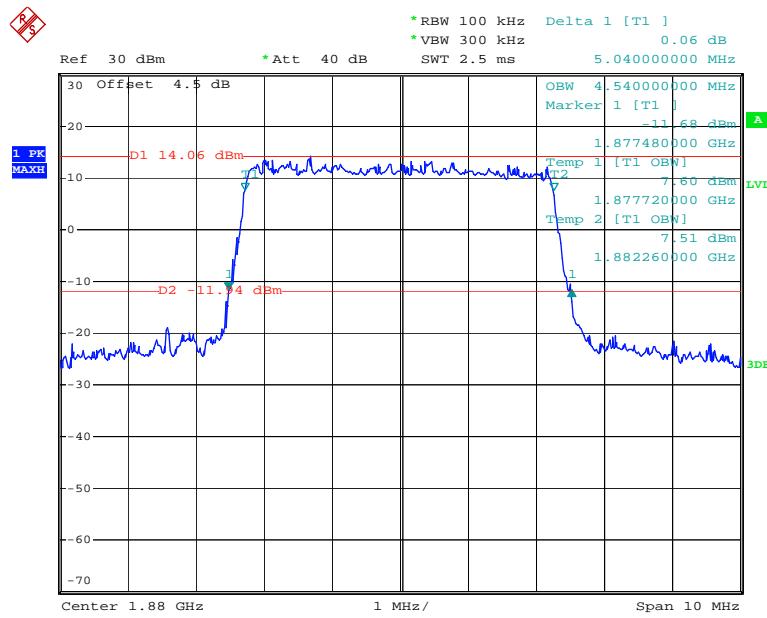
Date: 7.JAN.2020 07:47:50

16QAM_10 MHz
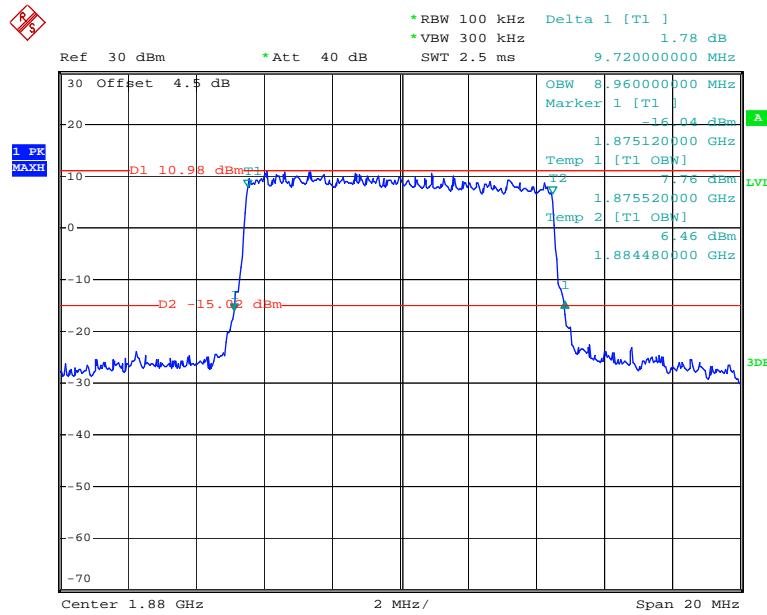
Date: 7.JAN.2020 07:48:38

16QAM_15 MHz
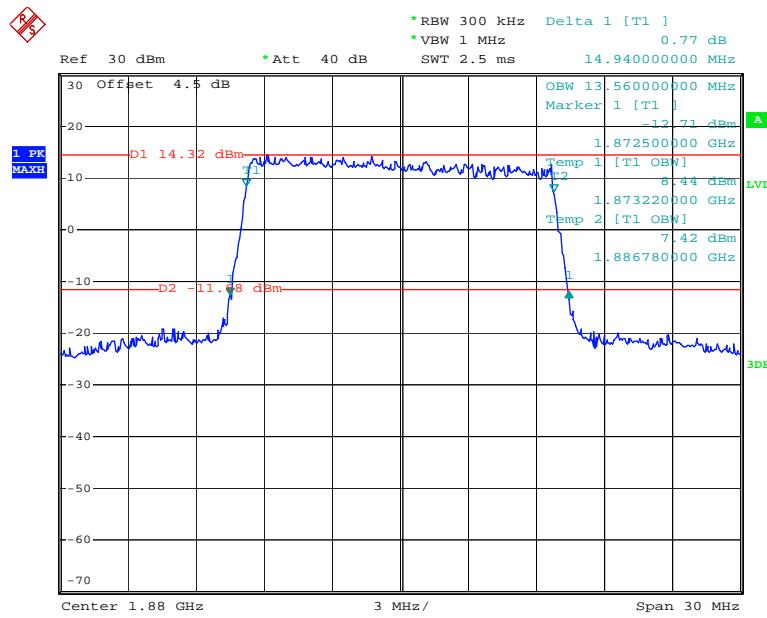
Date: 7.JAN.2020 07:49:29

16QAM_20 MHz
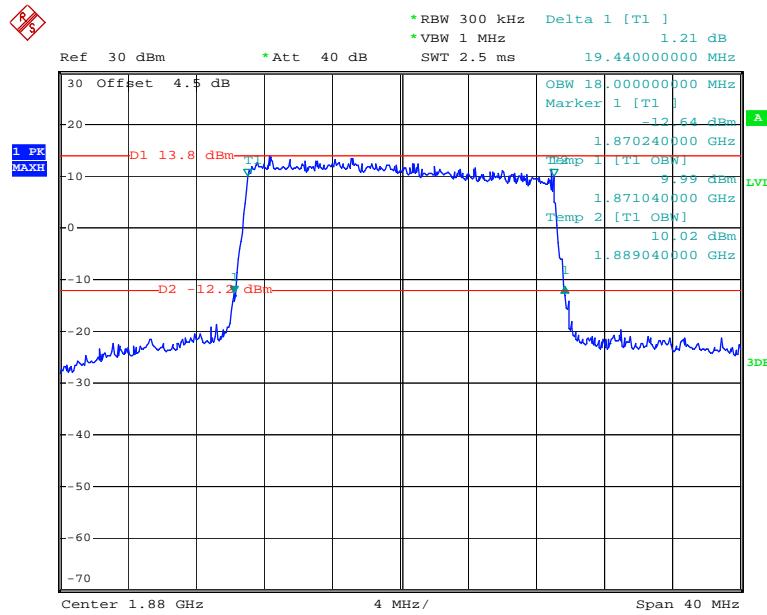
Date: 7.JAN.2020 07:50:24

LTE Band 4

QPSK_1.4 MHz
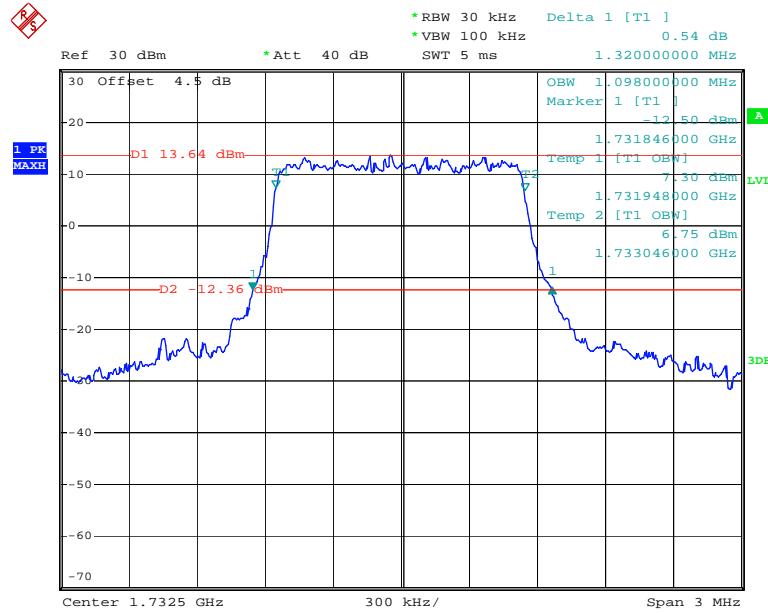
Date: 7.JAN.2020 07:50:52

QPSK_3 MHz
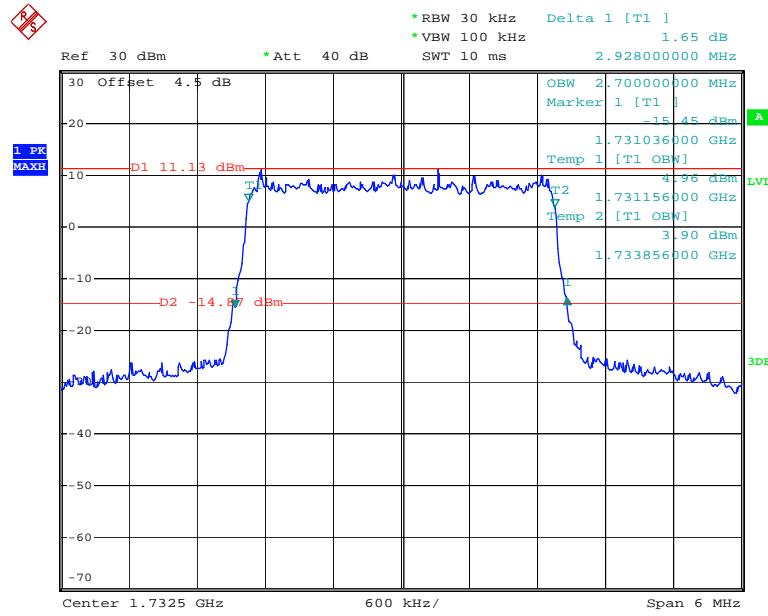
Date: 7.JAN.2020 07:51:34

QPSK_5 MHz
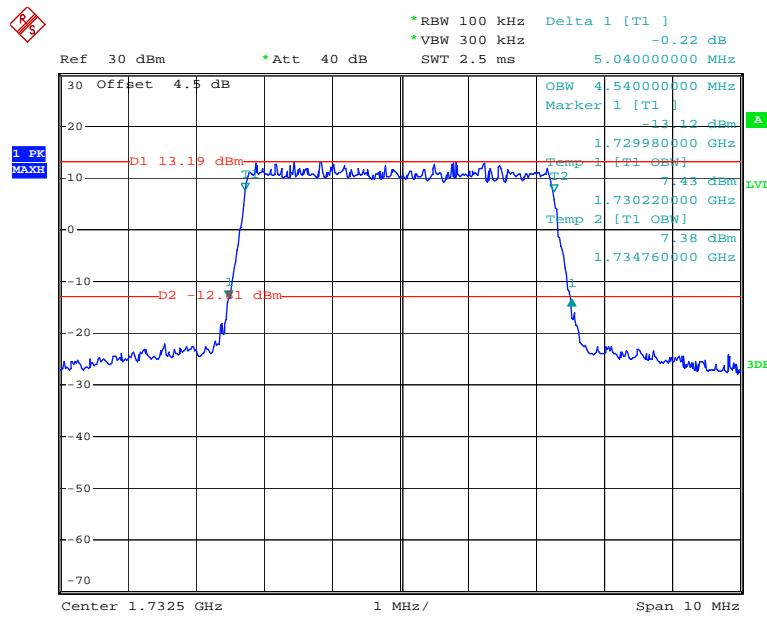
Date: 7.JAN.2020 07:52:21

QPSK_10 MHz
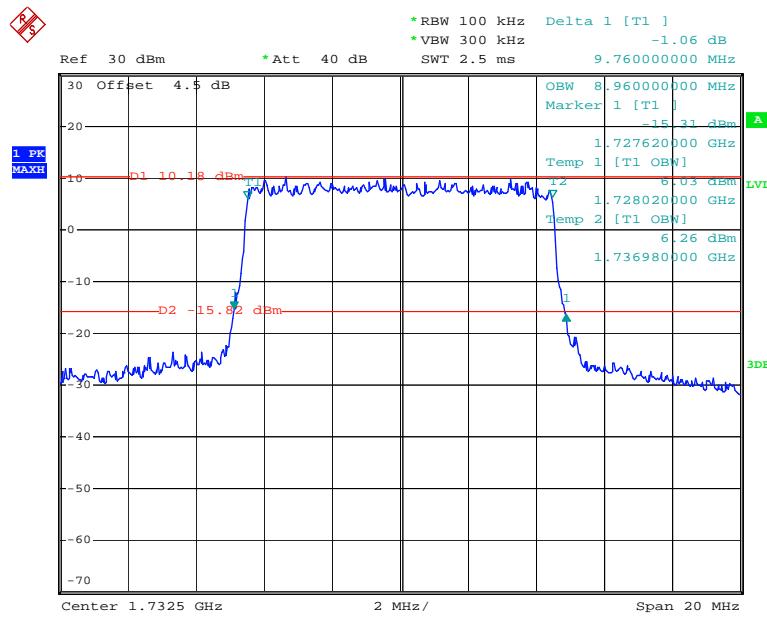
Date: 7.JAN.2020 07:53:08

QPSK_15 MHz
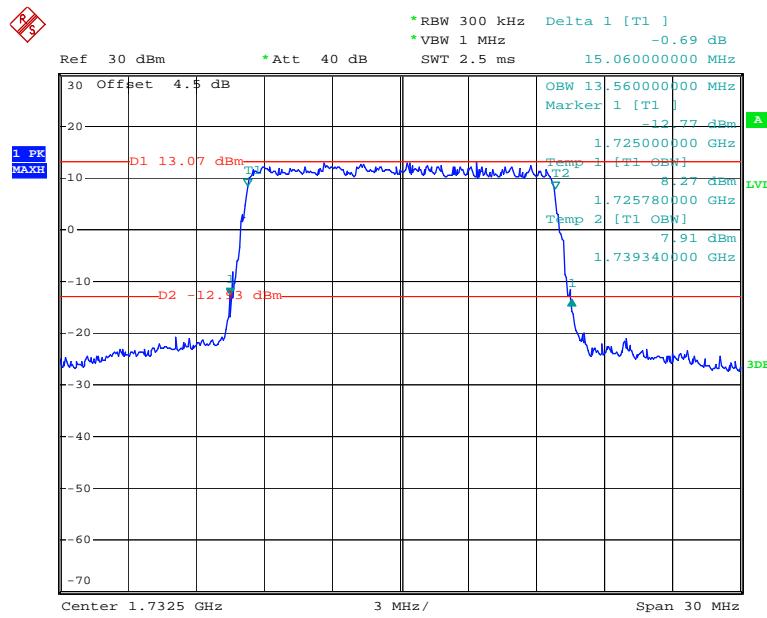
Date: 7.JAN.2020 07:54:00

QPSK_20 MHz
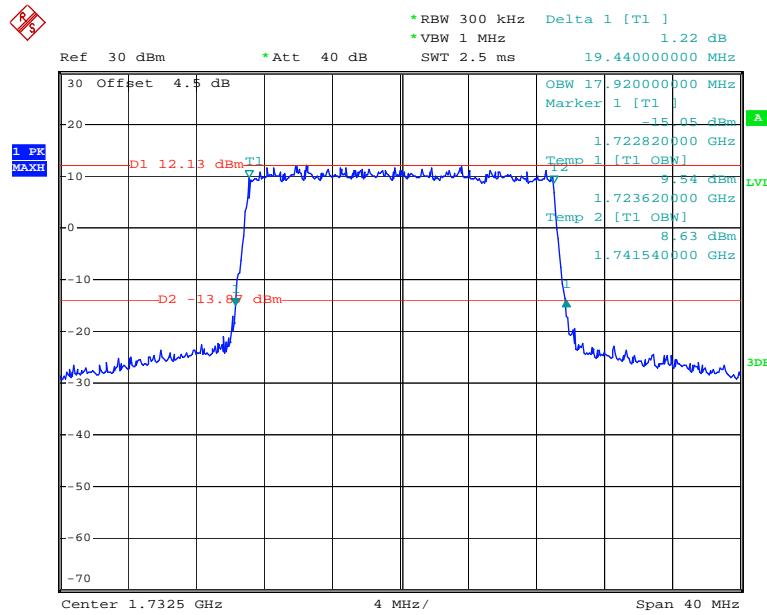
Date: 7.JAN.2020 07:54:51

16QAM_1.4 MHz
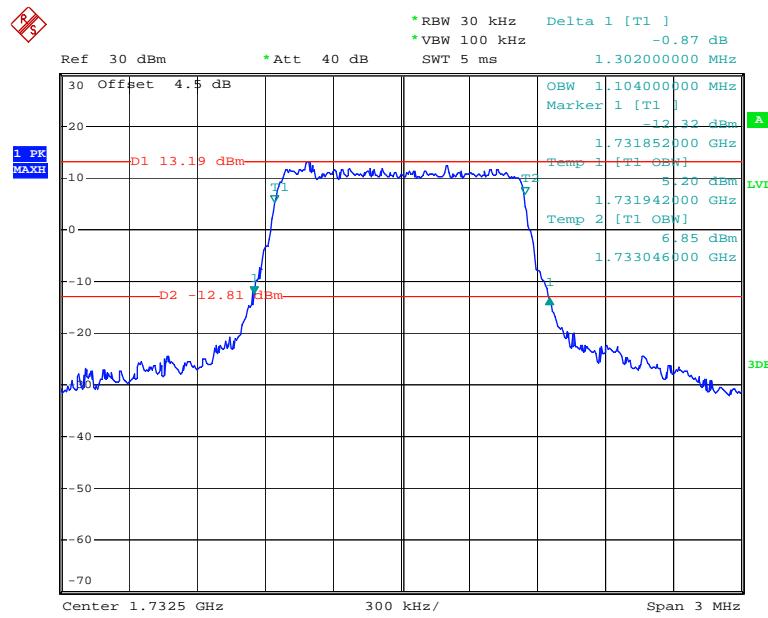
Date: 7.JAN.2020 07:51:13

16QAM_3 MHz
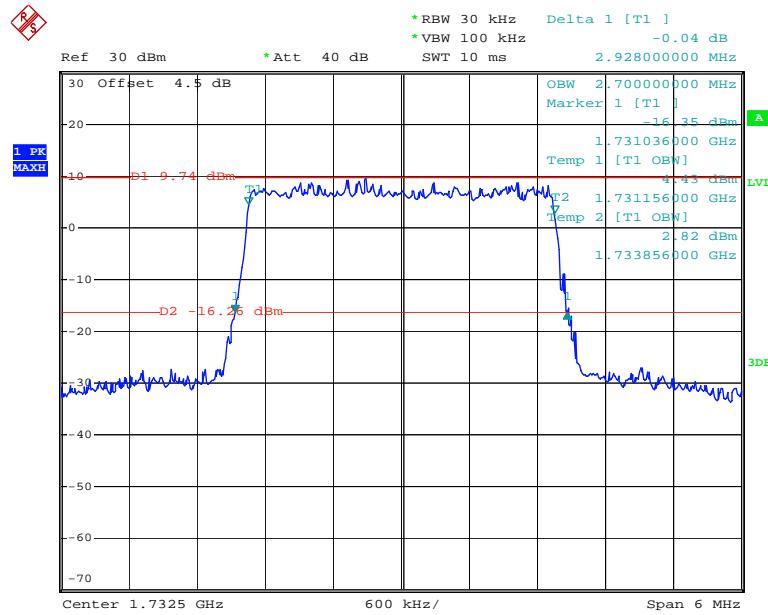
Date: 7.JAN.2020 07:51:55

16QAM_5 MHz
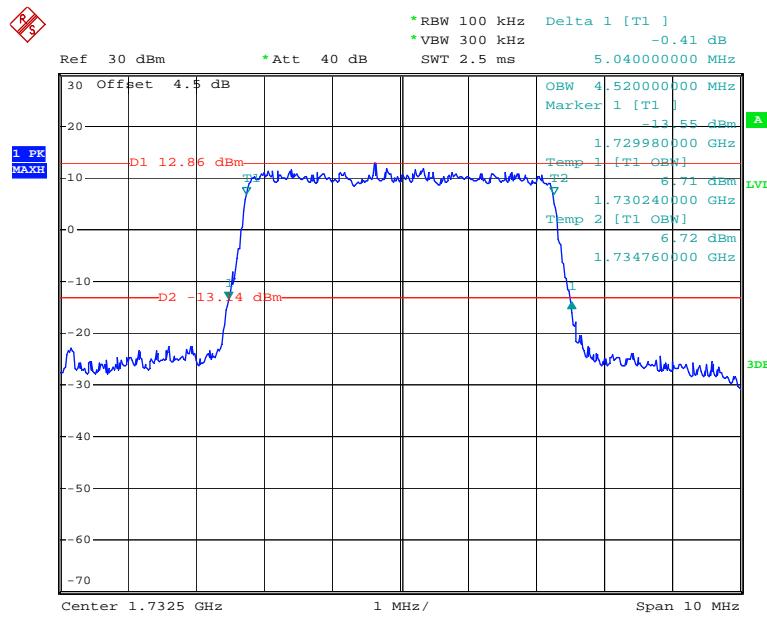
Date: 7.JAN.2020 07:52:46

16QAM_10 MHz
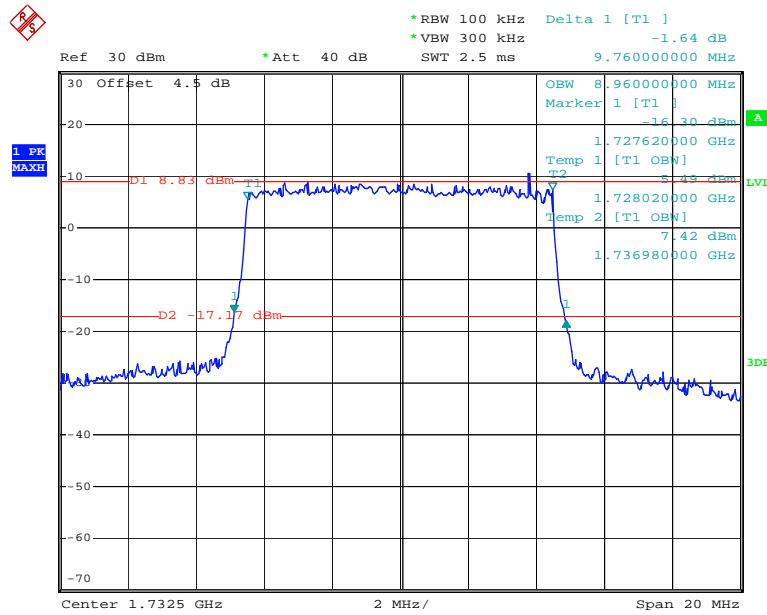
Date: 7.JAN.2020 07:53:34

16QAM_15 MHz
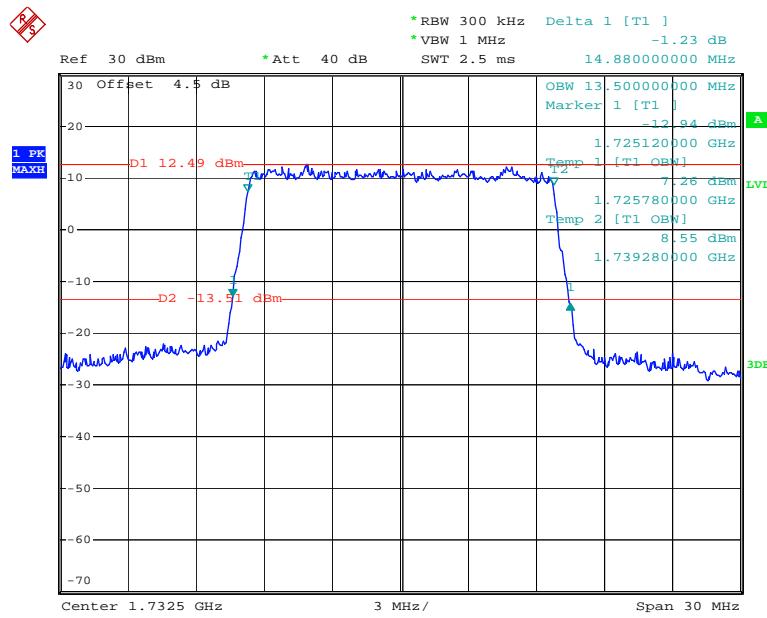
Date: 7.JAN.2020 07:54:25

16QAM_20 MHz
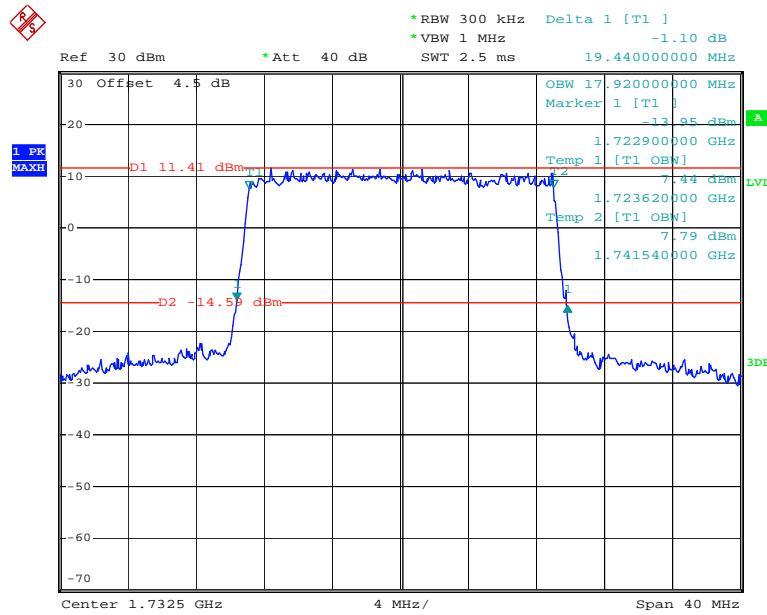
Date: 7.JAN.2020 07:55:17

LTE Band 5:

QPSK_1.4 MHz
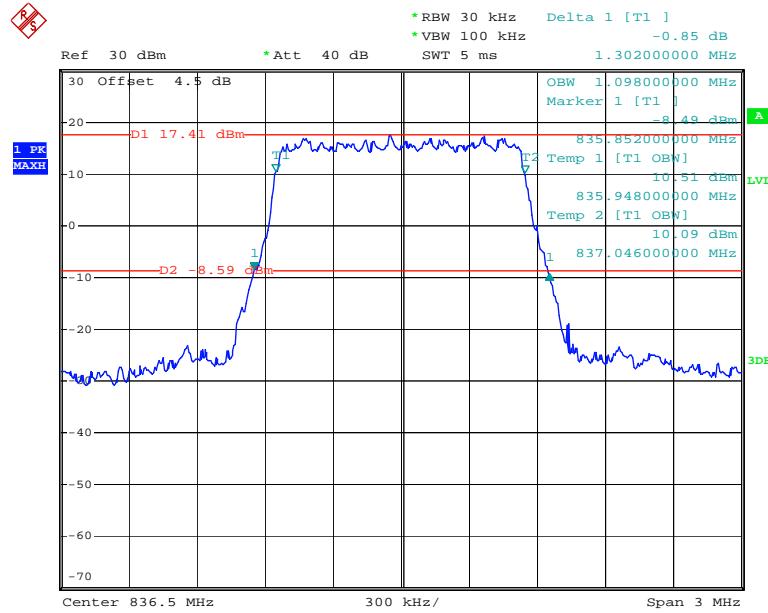
Date: 7.JAN.2020 07:55:44

QPSK_3 MHz
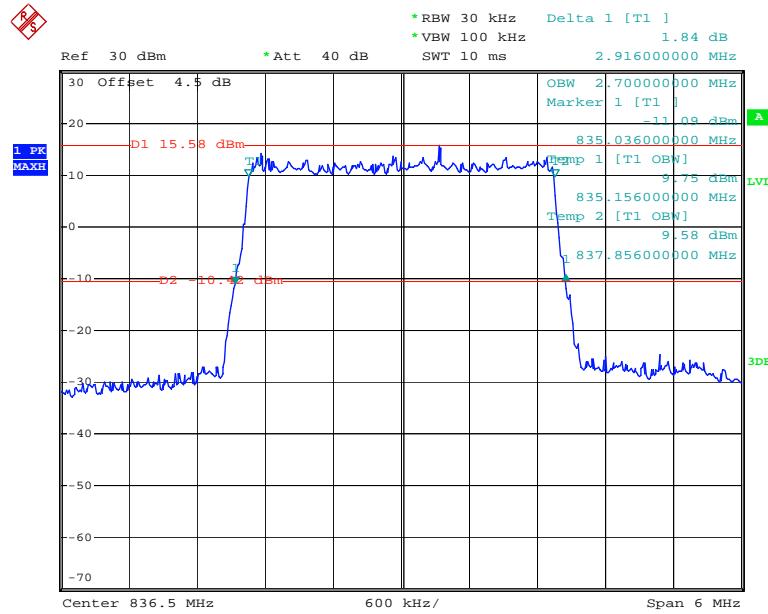
Date: 7.JAN.2020 07:56:23

QPSK_5 MHz
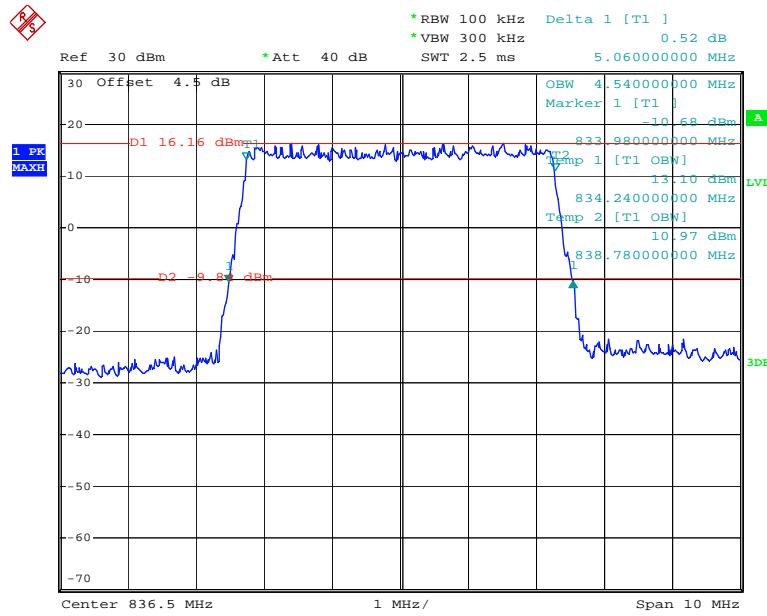
Date: 7.JAN.2020 07:57:03

QPSK_10 MHz
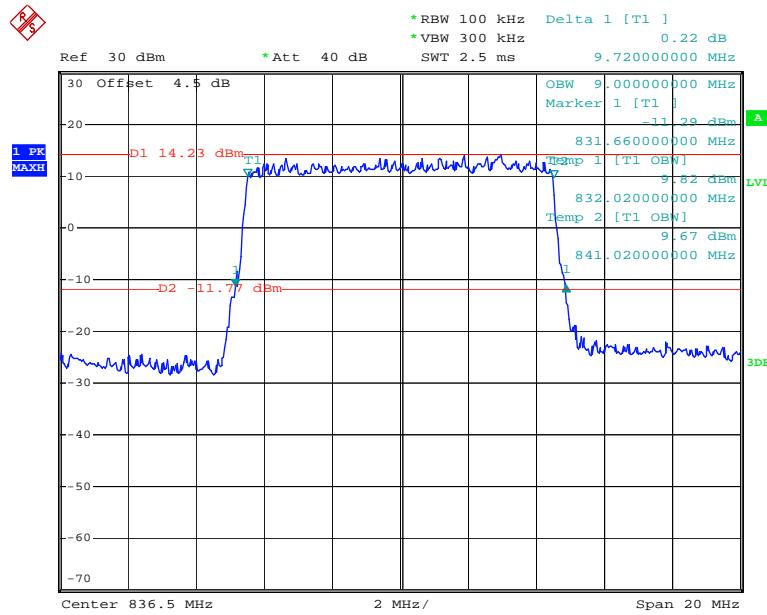
Date: 7.JAN.2020 07:57:54

16QAM_1.4 MHz
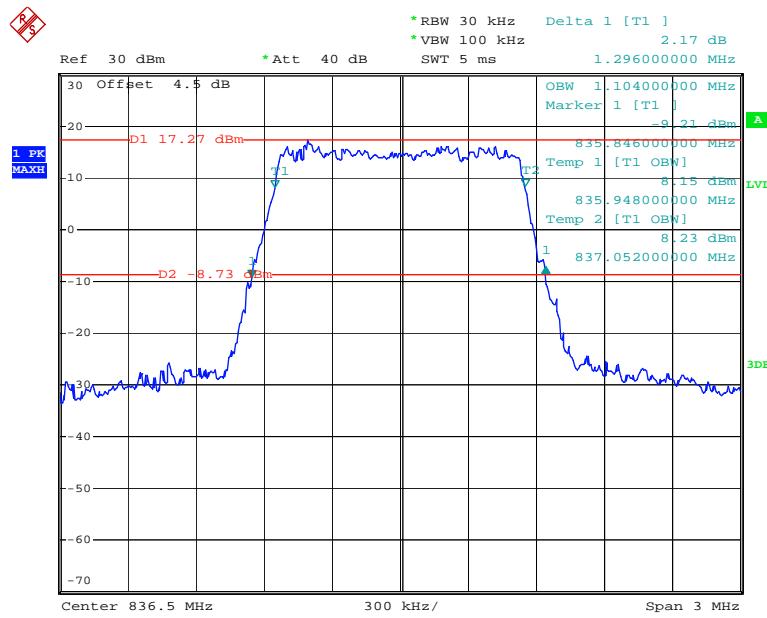
Date: 7.JAN.2020 07:56:02

16QAM_3 MHz
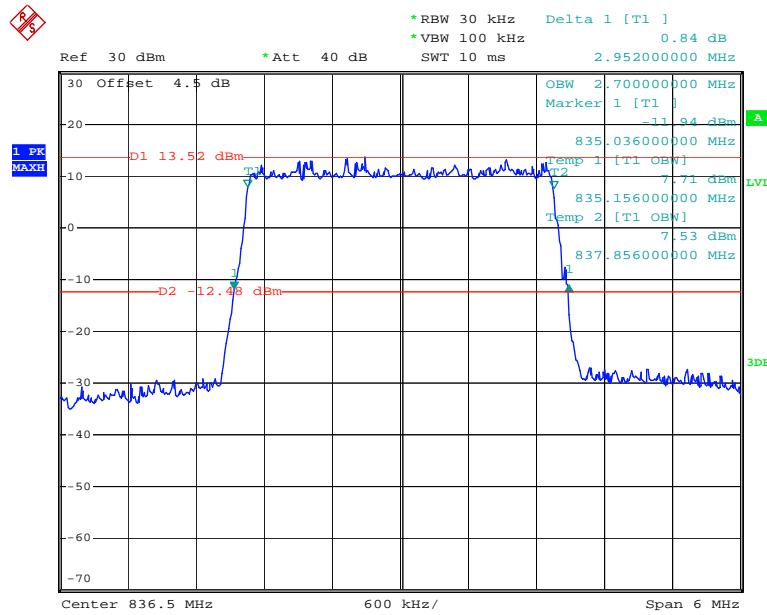
Date: 7.JAN.2020 07:56:41

16QAM_5 MHz
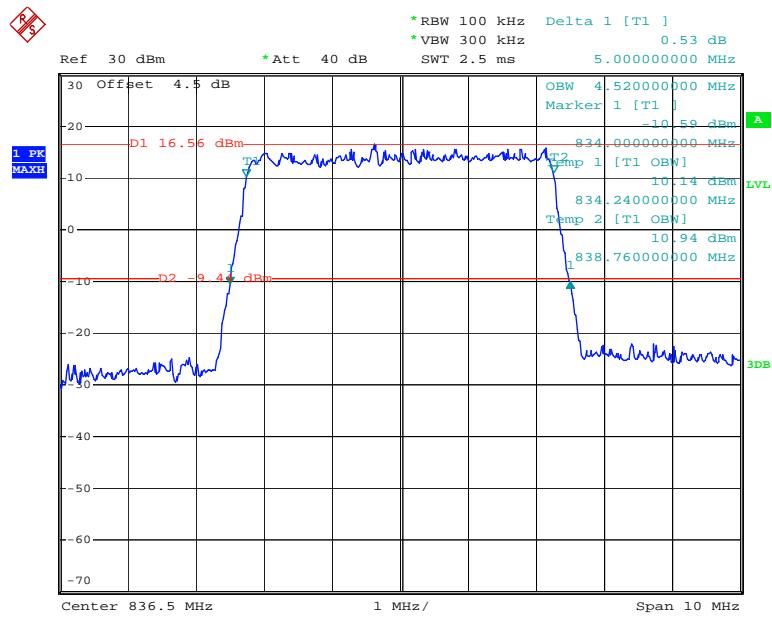
Date: 7.JAN.2020 07:57:29

16QAM_10 MHz
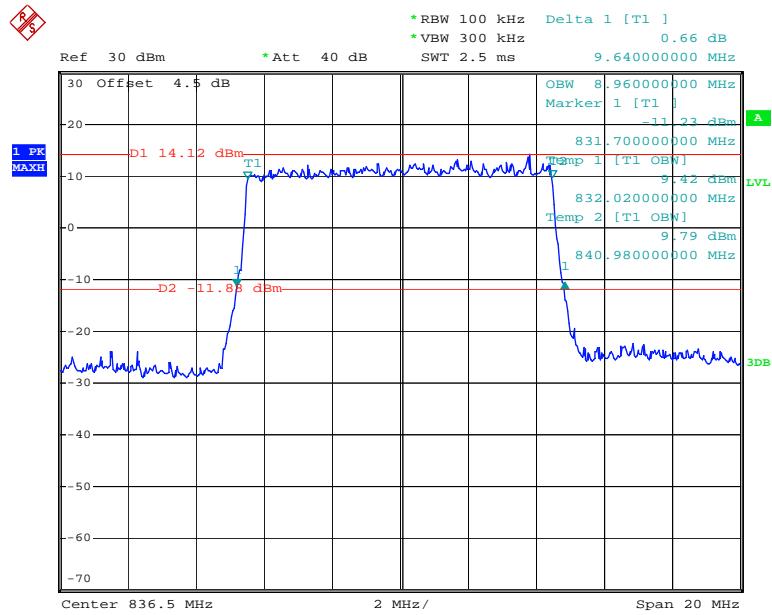
Date: 7.JAN.2020 07:58:20

LTE Band 7:

QPSK_5 MHz
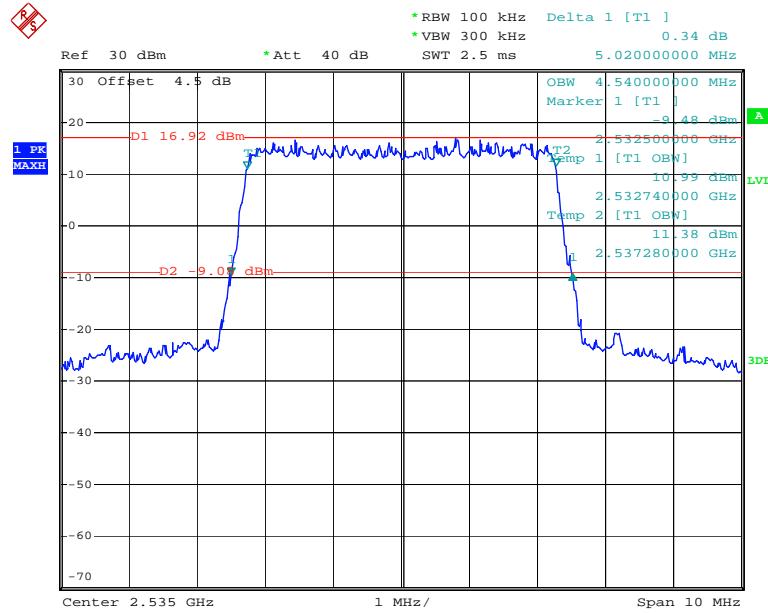
Date: 7.JAN.2020 07:58:53

QPSK_10 MHz
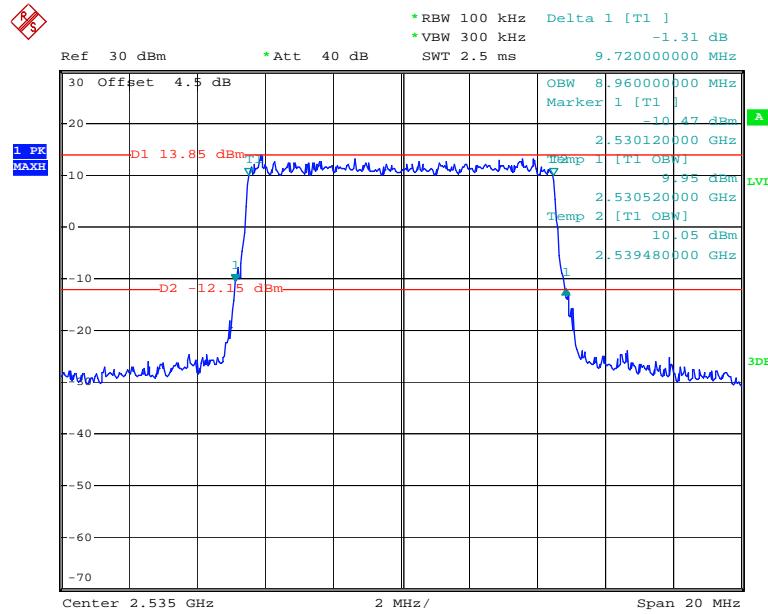
Date: 7.JAN.2020 07:59:42

QPSK_15 MHz
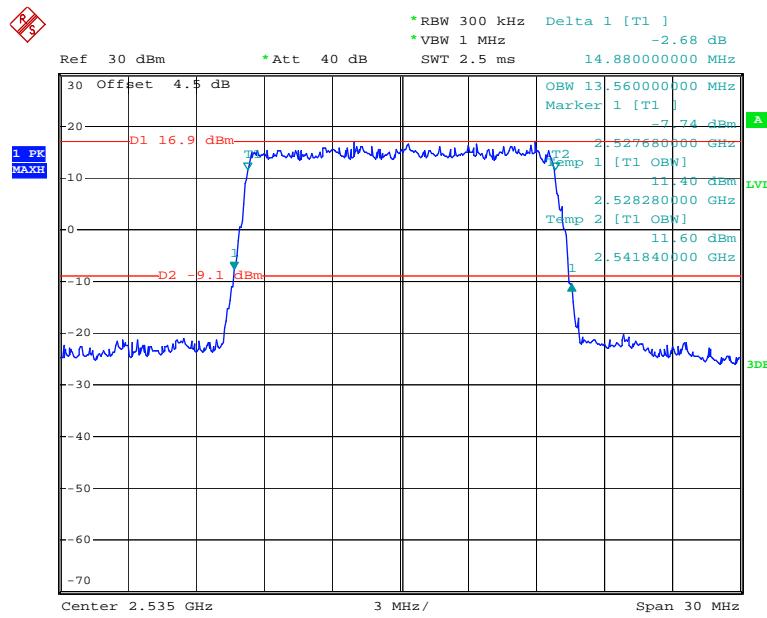
Date: 7.JAN.2020 08:00:30

QPSK_20 MHz
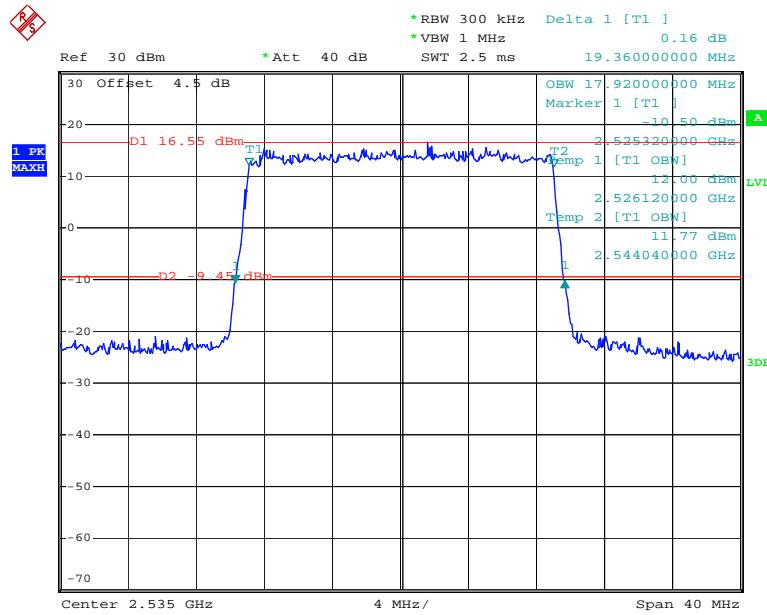
Date: 7.JAN.2020 08:01:24

16QAM_5 MHz
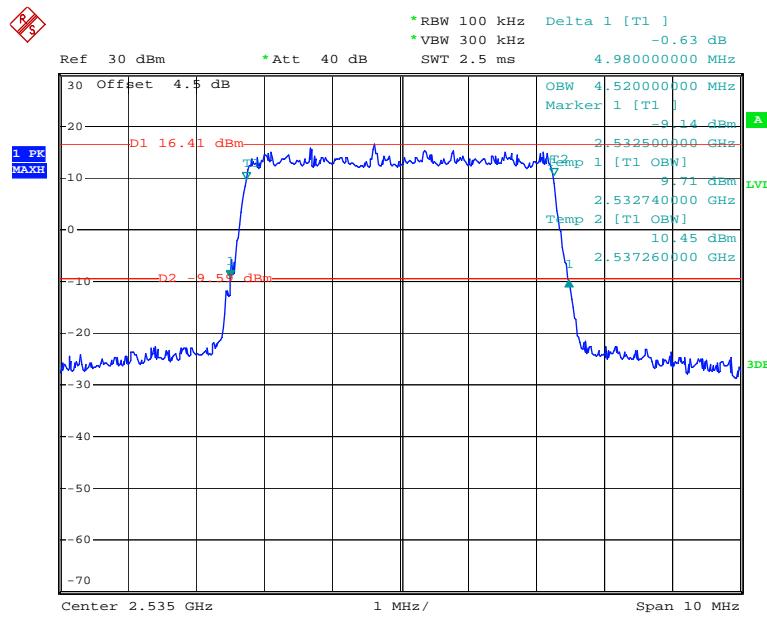
Date: 7.JAN.2020 07:59:16

16QAM_10 MHz
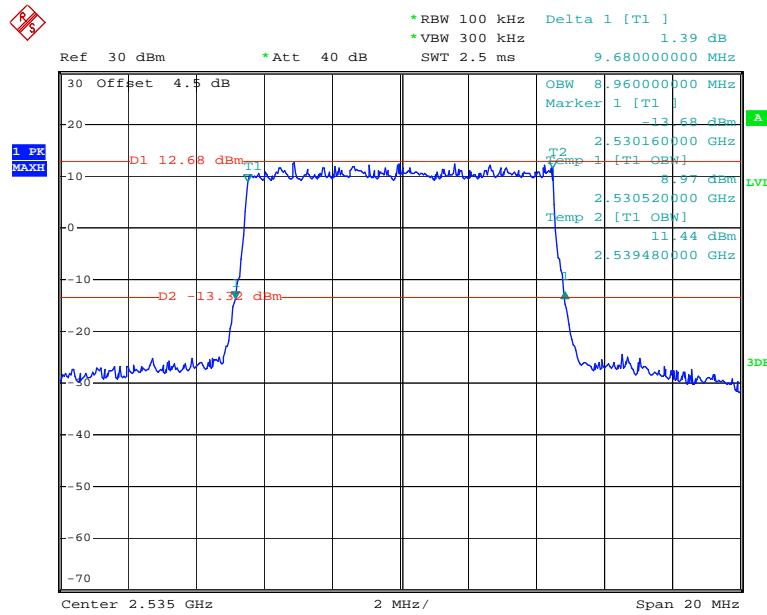
Date: 7.JAN.2020 08:00:04

16QAM_15 MHz
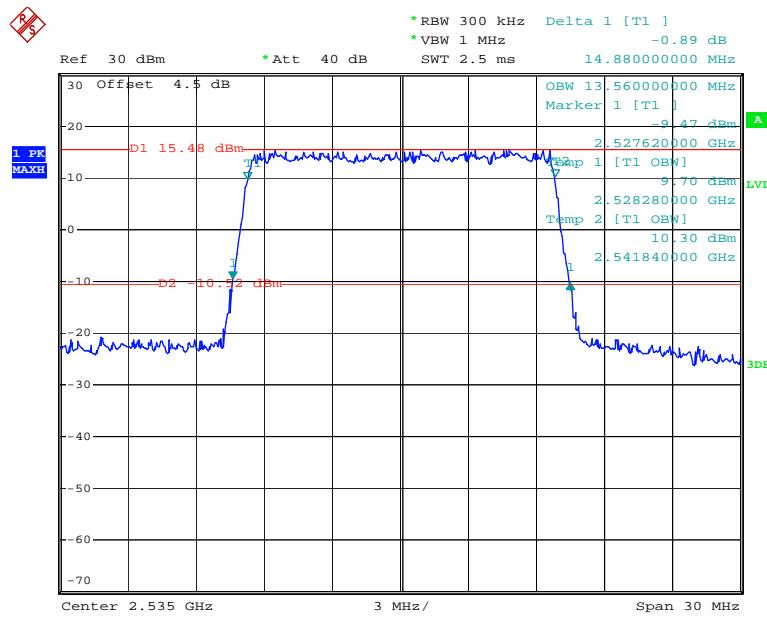
Date: 7.JAN.2020 08:00:56

16QAM_20 MHz
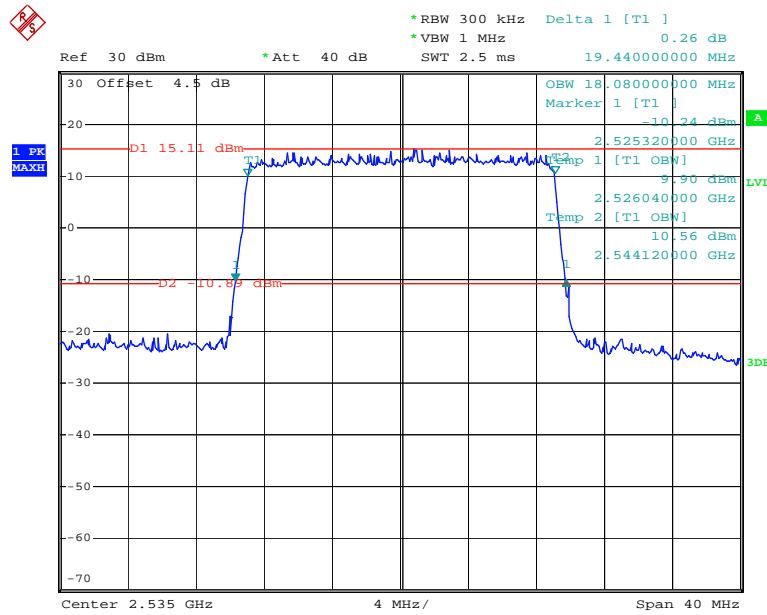
Date: 7.JAN.2020 08:01:50

LTE Band 12:

QPSK_1.4 MHz
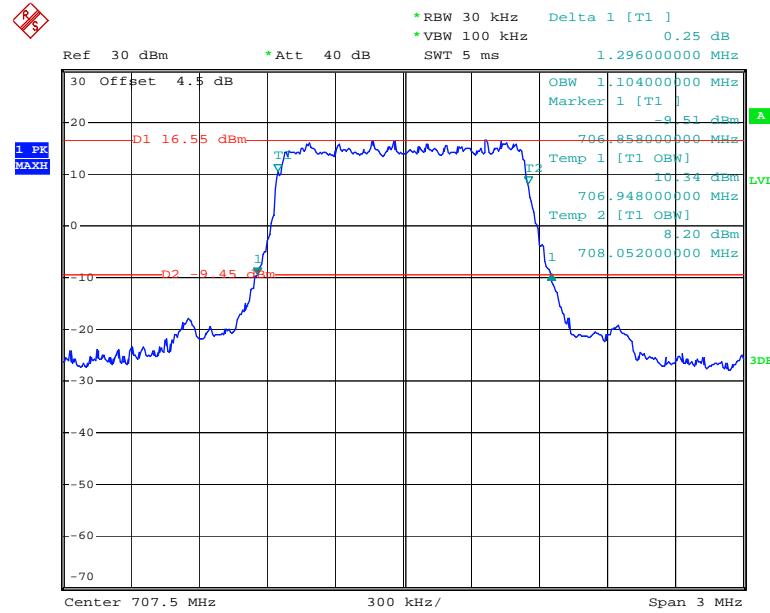
Date: 7.JAN.2020 08:02:21

QPSK_3 MHz
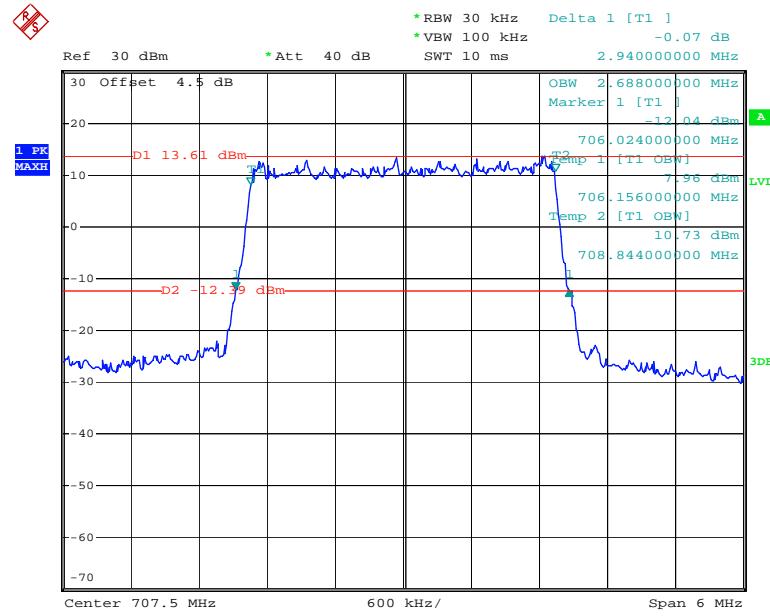
Date: 7.JAN.2020 08:03:03

QPSK_5 MHz
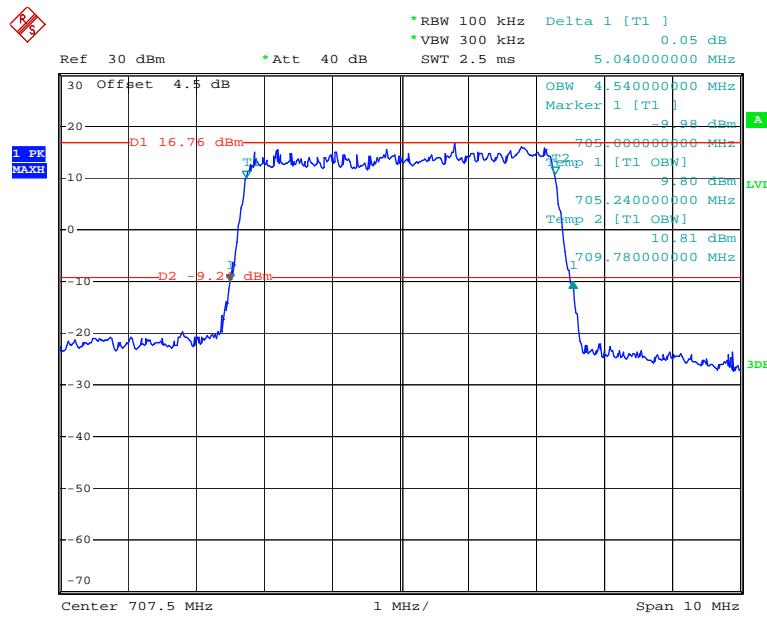
Date: 7.JAN.2020 08:03:49

QPSK_10 MHz
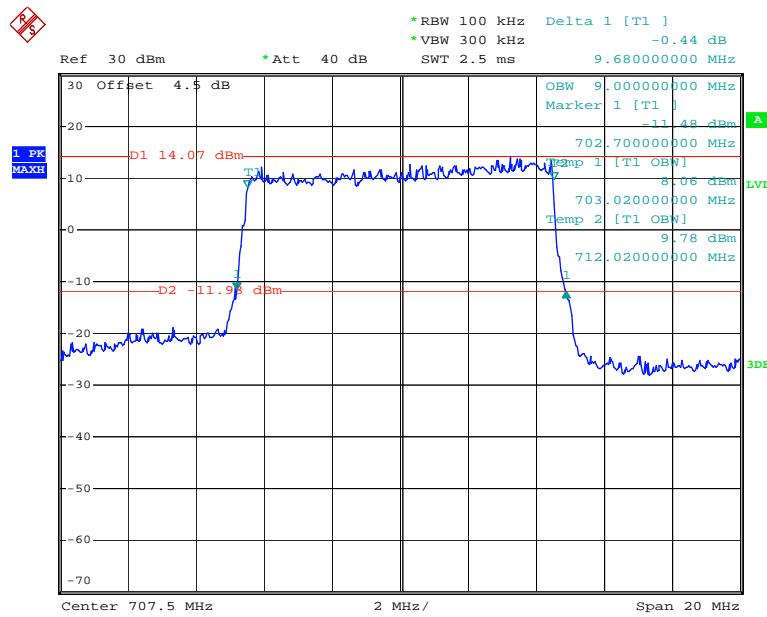
Date: 7.JAN.2020 08:04:37

16QAM_1.4 MHz
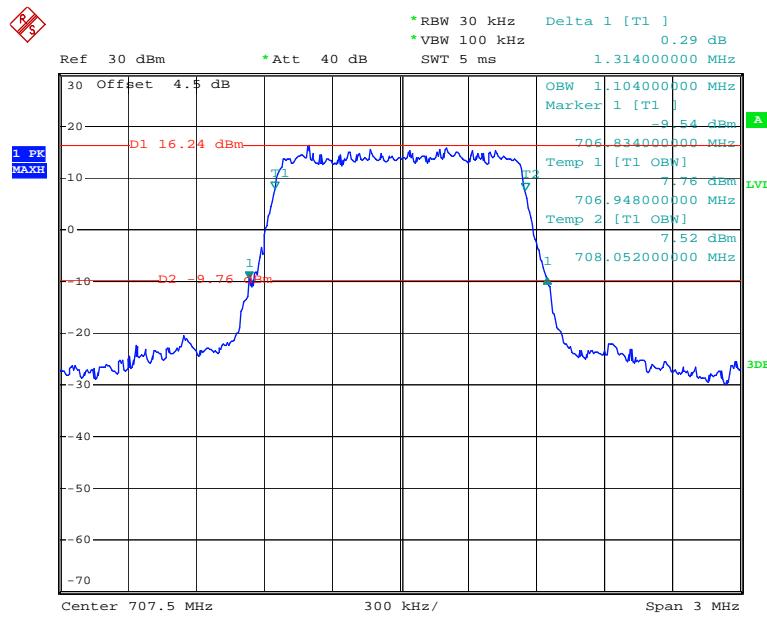
Date: 7.JAN.2020　08:02:39

16QAM_3 MHz
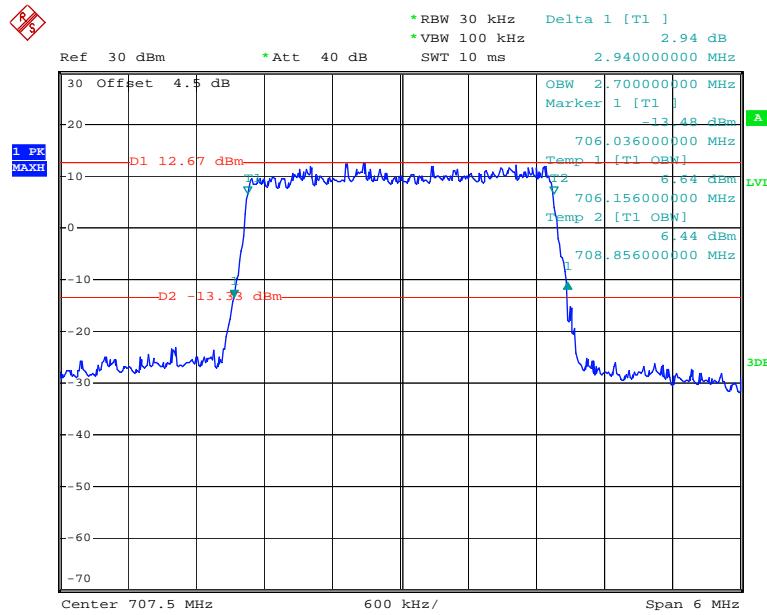
Date: 7.JAN.2020　08:03:24

16QAM_5 MHz
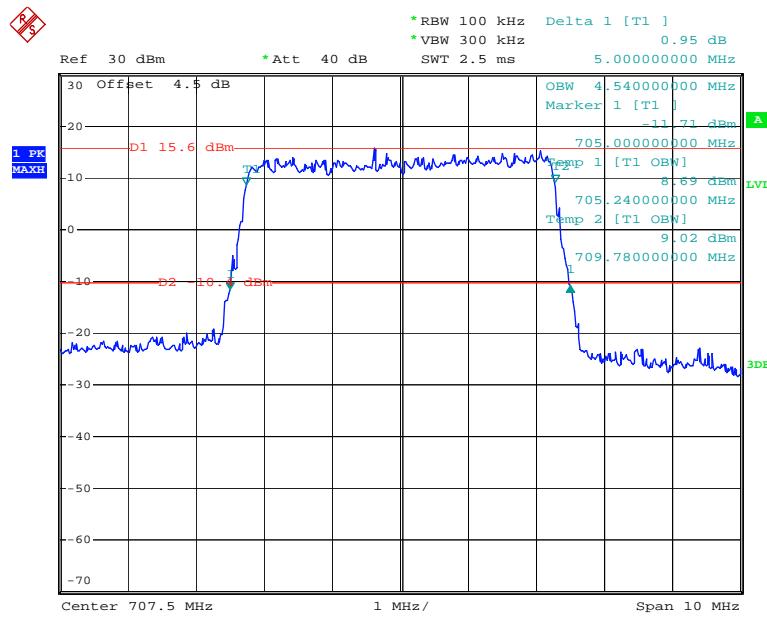
Date: 7.JAN.2020 08:04:12

16QAM_10 MHz
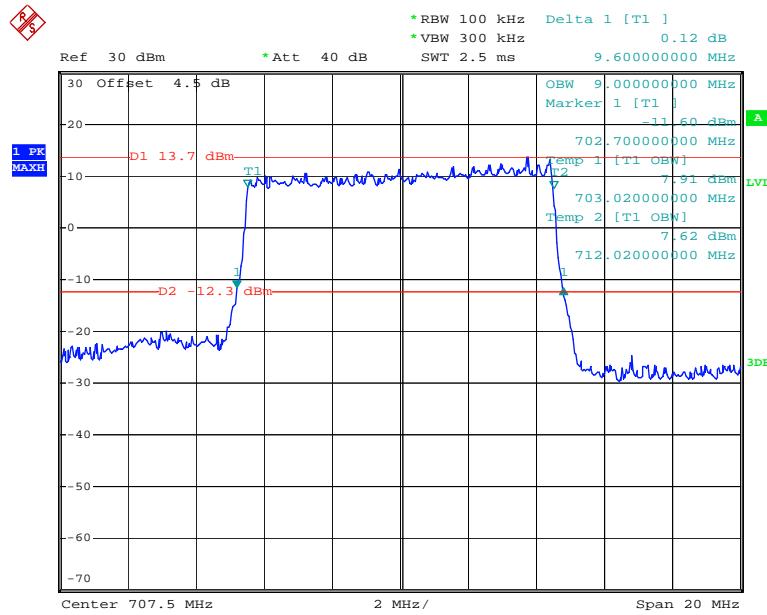
Date: 7.JAN.2020 08:05:00

LTE Band 13:

QPSK_5 MHz
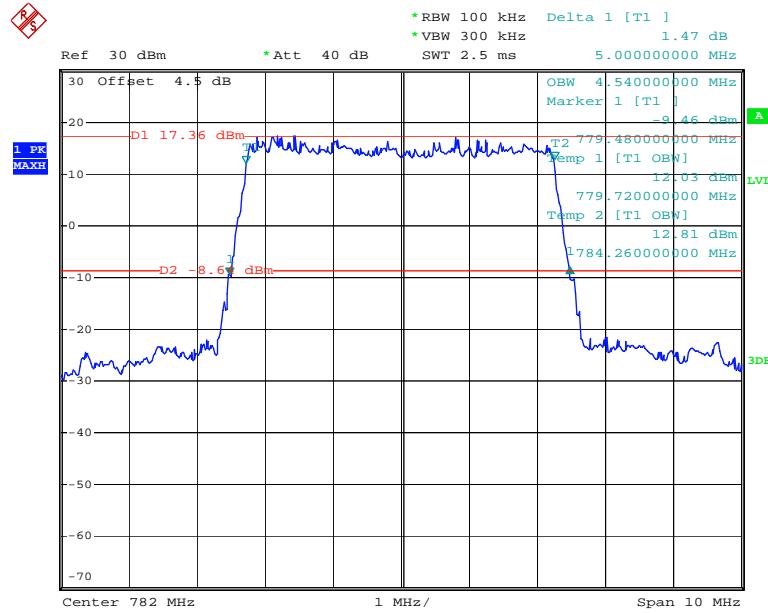
Date: 7.JAN.2020 08:05:37

QPSK_10 MHz
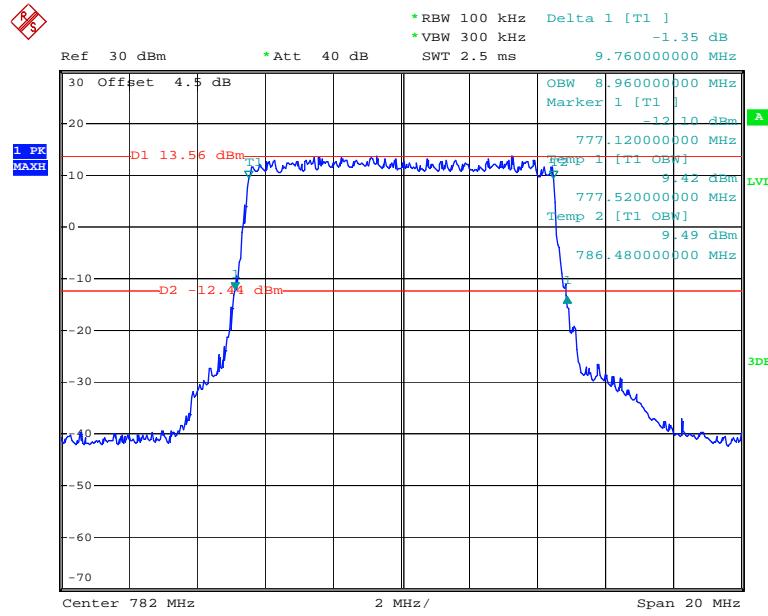
Date: 7.JAN.2020 08:06:22

16QAM_5 MHz
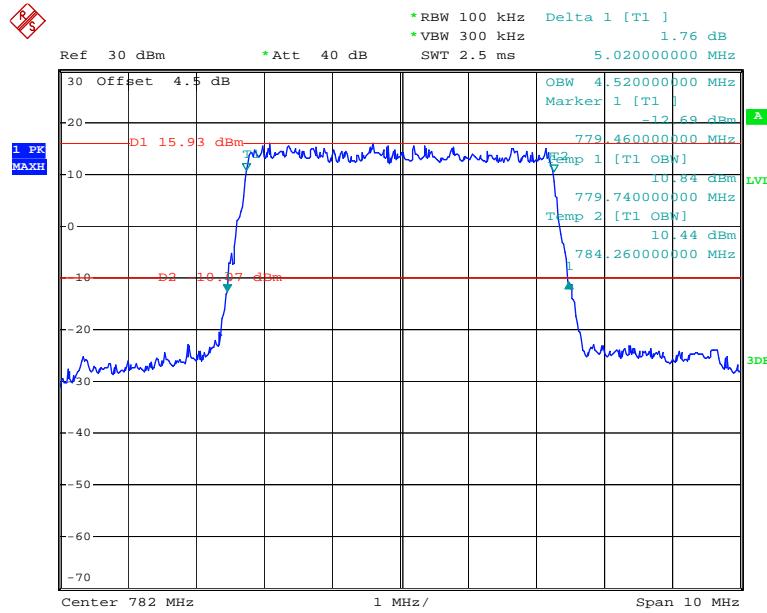
Date: 7.JAN.2020 08:05:56

16QAM_10MHz
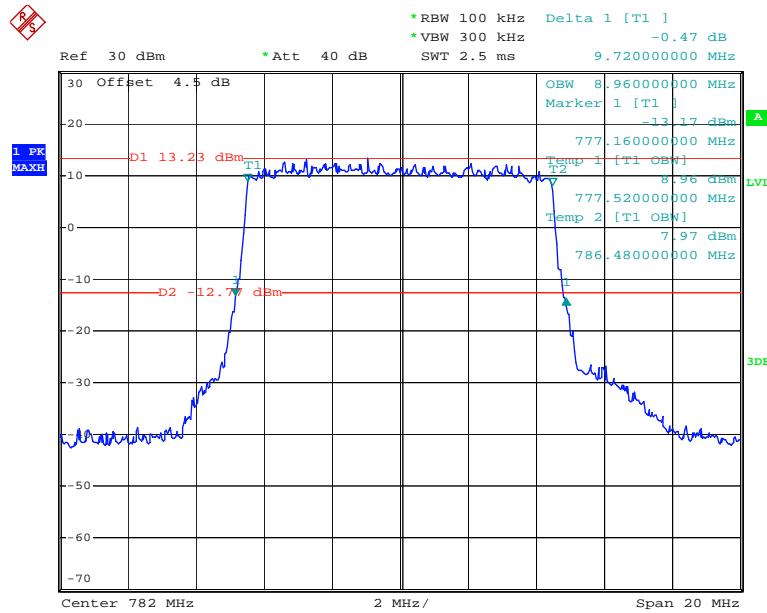
Date: 7.JAN.2020 08:06:44

LTE Band 17:

QPSK_5 MHz
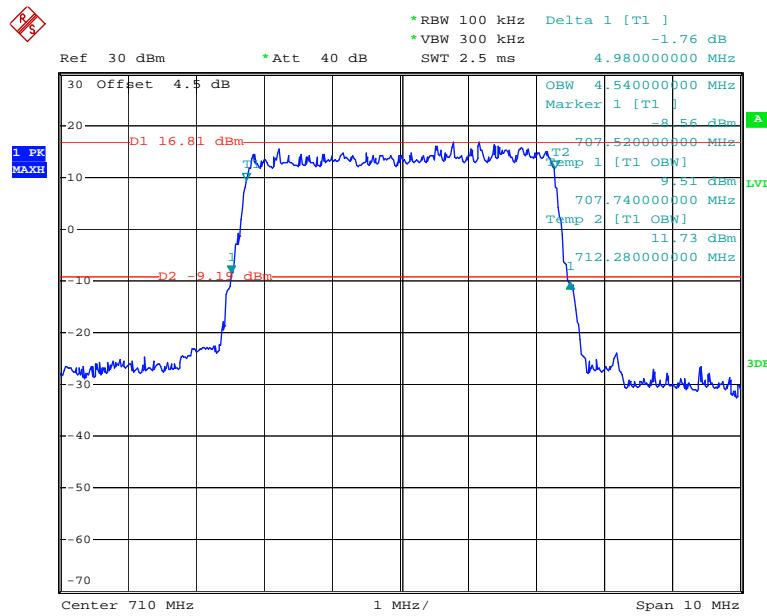
Date: 7.JAN.2020 08:07:17

QPSK_10 MHz
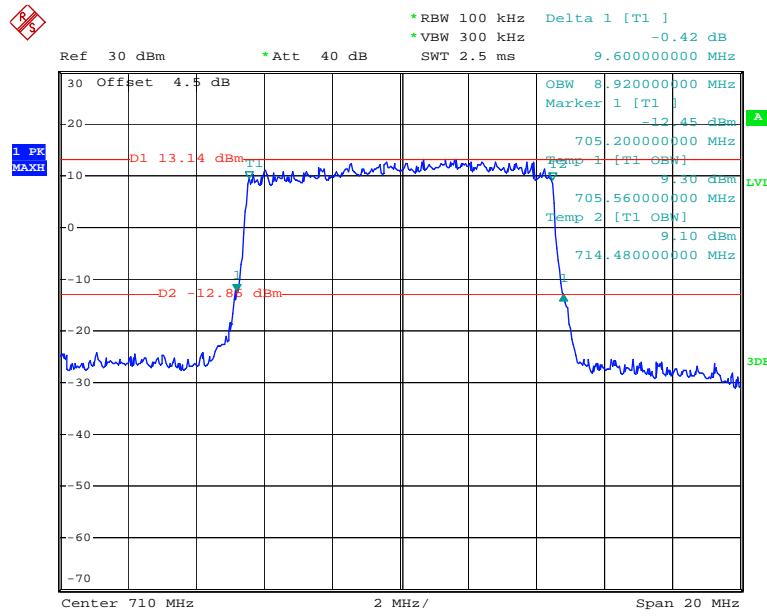
Date: 7.JAN.2020 08:08:04

16QAM_5 MHz
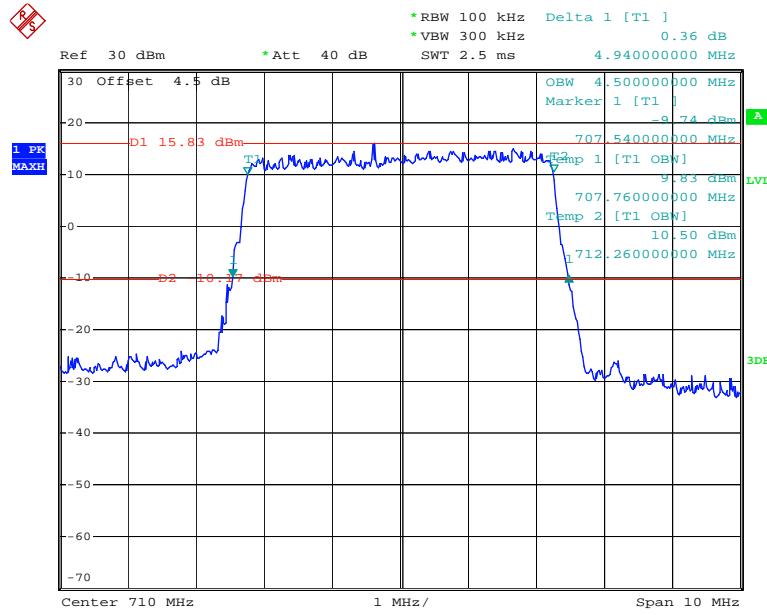
Date: 7.JAN.2020 08:07:39

16QAM_10MHz
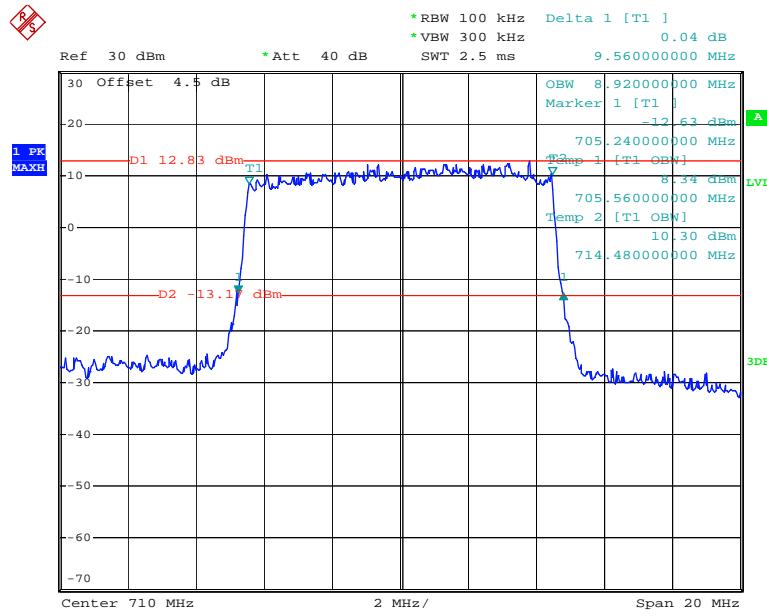
Date: 7.JAN.2020 08:08:27

LTE Band 25:

QPSK_1.4 MHz
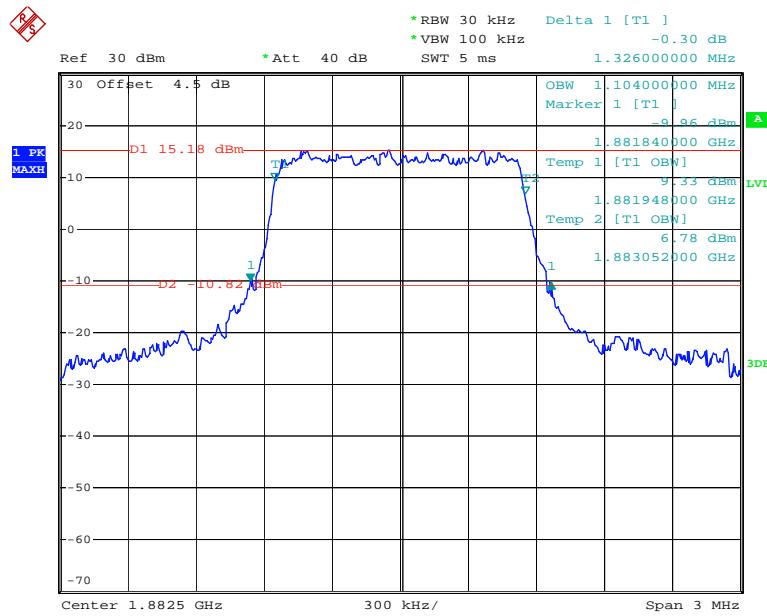
Date: 7.JAN.2020 08:08:54

QPSK_3 MHz
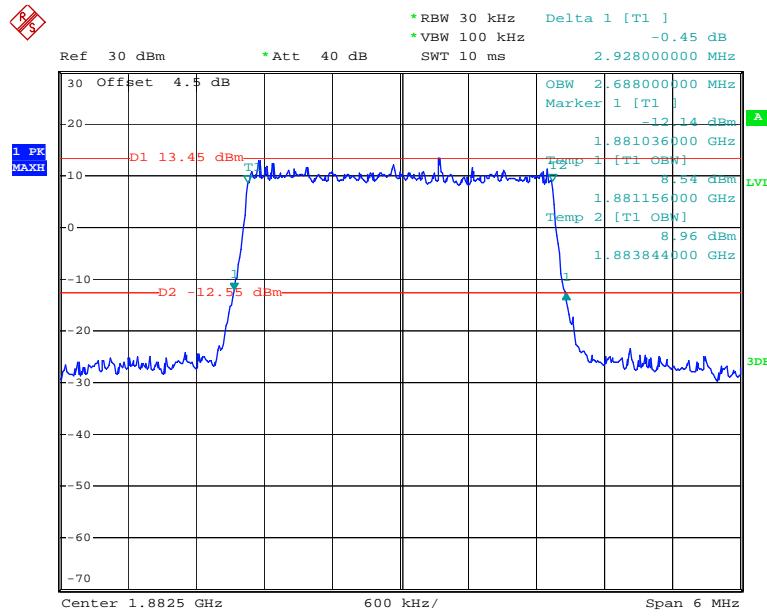
Date: 7.JAN.2020 08:09:39

QPSK_5 MHz
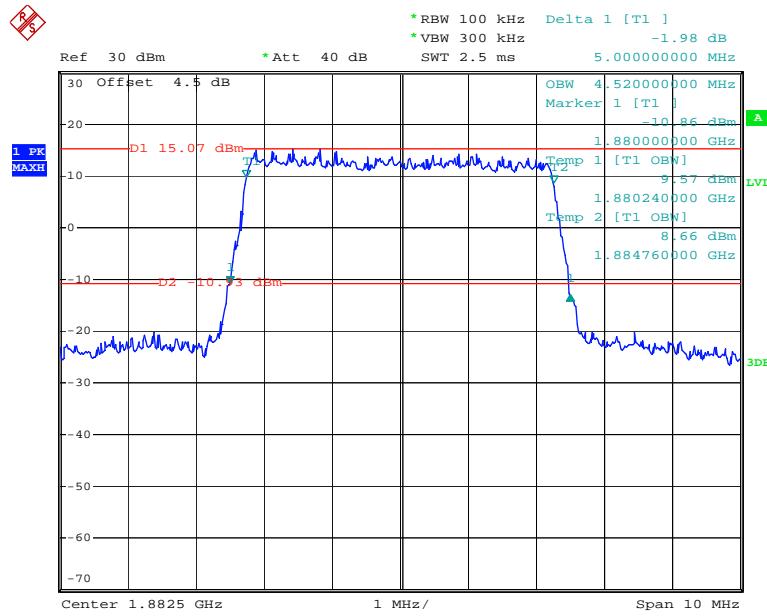
Date: 7.JAN.2020 08:10:19

QPSK_10 MHz
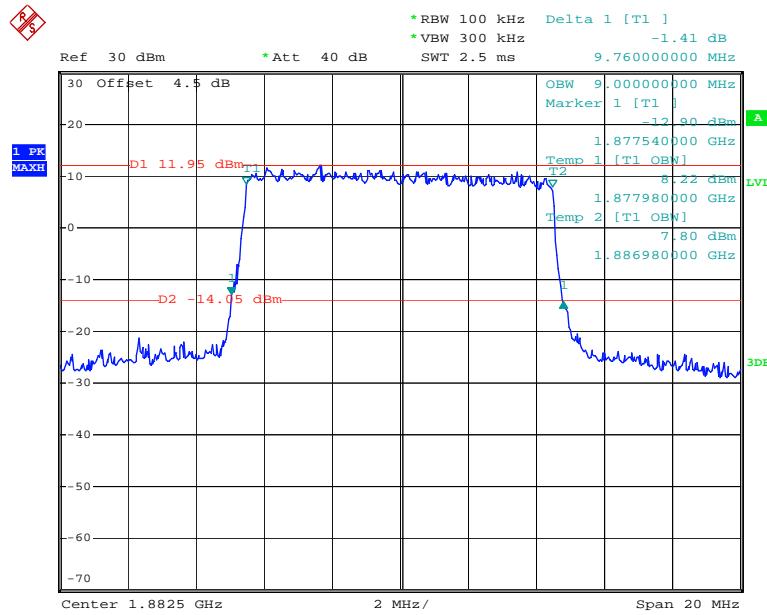
Date: 7.JAN.2020 08:11:06

QPSK_15 MHz
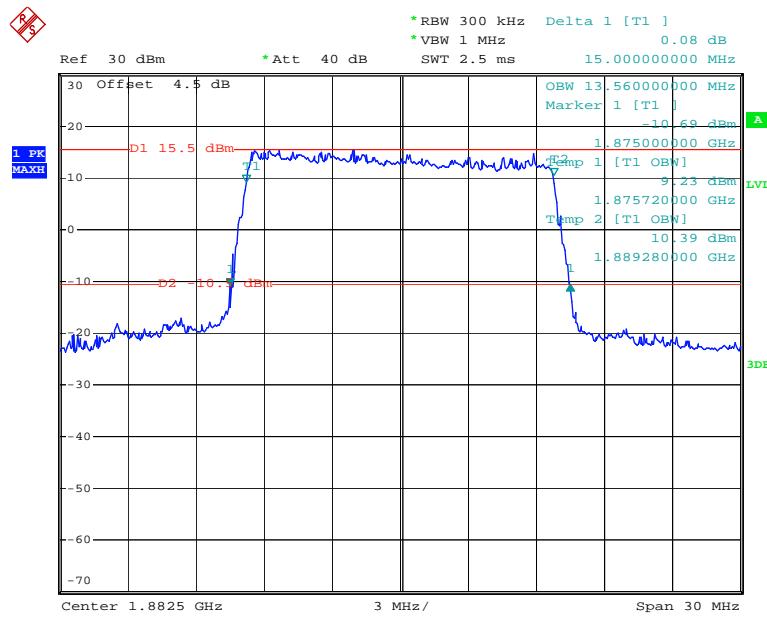
Date: 7.JAN.2020 08:11:58

QPSK_20MHz
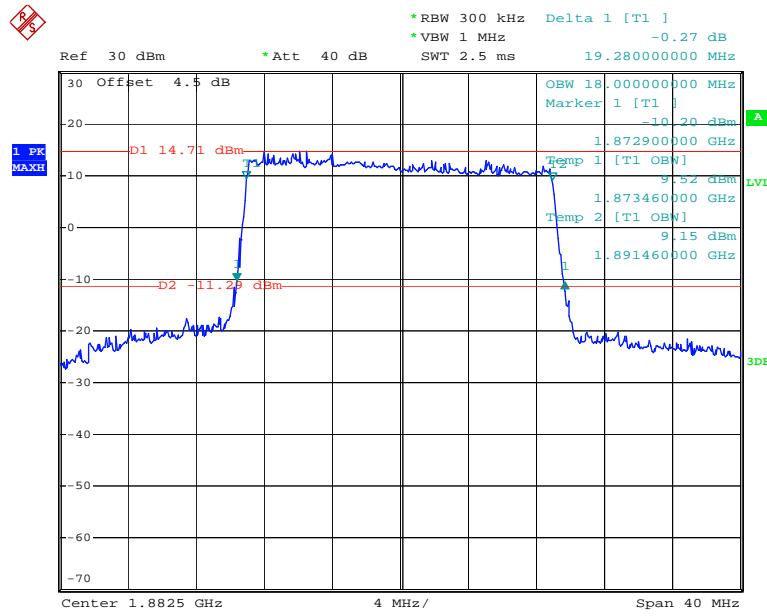
Date: 7.JAN.2020 08:12:46

16QAM_1.4 MHz

```
                                          *RBW 30 kHz    Delta 1 [T1 ]
                                          *VBW 100 kHz              0.01 dB
          Ref  30 dBm          *Att  40 dB  SWT 5 ms       1.308000000 MHz
          30 Offset  4.5 dB                OBW  1.110000000 MHz
                                           Marker 1 [T1 ]
          -20                                          -11.23 dBm        A
                                                      1.881840000 GHz
    1 PK   D1 15.16 dBm                     Temp 1 [T1 OBW]
    MAXH  -10                                          6.87 dBm         LVL
                                                      1.881942000 GHz
          -0                                 Temp 2 [T1 OBW]
                                                      6.14 dBm
          -10   D2 -10.84 dBm                         1.883052000 GHz

          -20
          -30                                                          3DB

          -40

          -50

          -60

          -70
          Center 1.8825 GHz       300 kHz/          Span 3 MHz
```
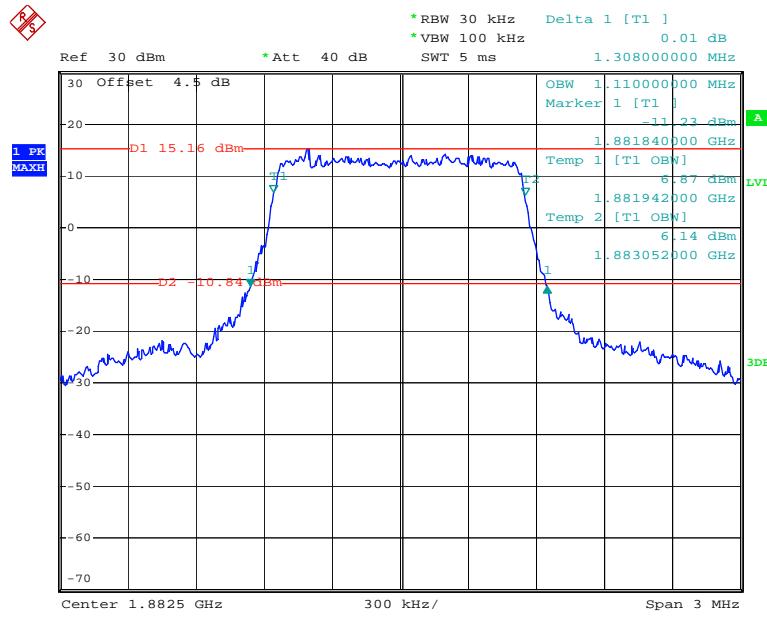
Date: 7.JAN.2020 08:09:15

16QAM_3 MHz

```
                                          *RBW 30 kHz    Delta 1 [T1 ]
                                          *VBW 100 kHz              0.78 dB
          Ref  30 dBm          *Att  40 dB  SWT 10 ms      2.964000000 MHz
          30 Offset  4.5 dB                OBW  2.688000000 MHz
                                           Marker 1 [T1 ]
          -20                                          -14.44 dBm        A
                                                      1.881024000 GHz
    1 PK   D1 10.8 dBm                      Temp 1 [T1 OBW]
    MAXH  -10                                          7.63 dBm         LVL
                                                      1.881156000 GHz
          -0                                 Temp 2 [T1 OBW]
                                                      6.19 dBm
          -10                                         1.883844000 GHz
          -20   D2 -15.2 dBm
          -30                                                          3DB

          -40

          -50

          -60

          -70
          Center 1.8825 GHz       600 kHz/          Span 6 MHz
```
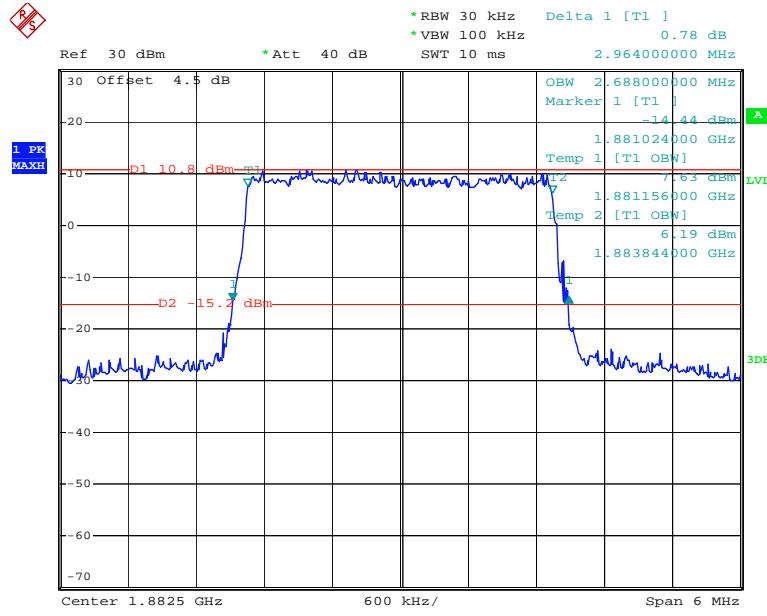
Date: 7.JAN.2020 08:09:57

16QAM_5 MHz
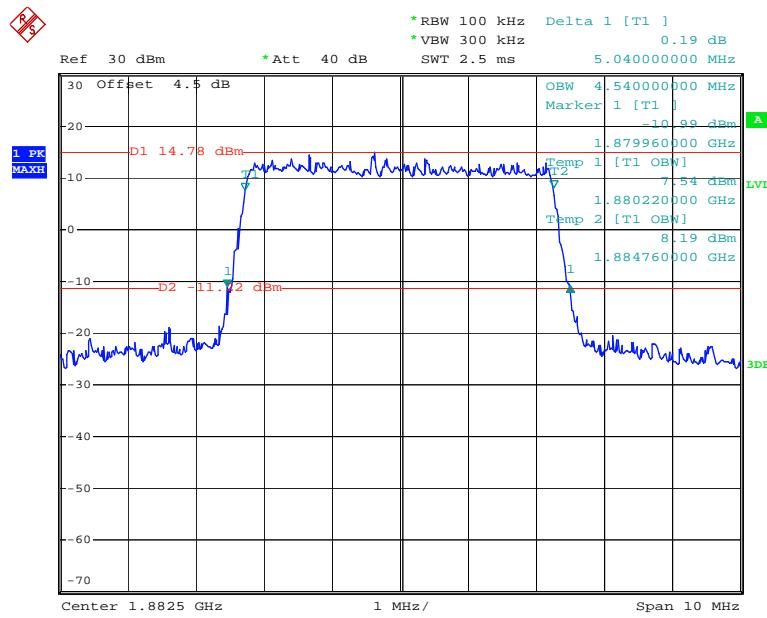
Date: 7.JAN.2020 08:10:41

16QAM_10 MHz
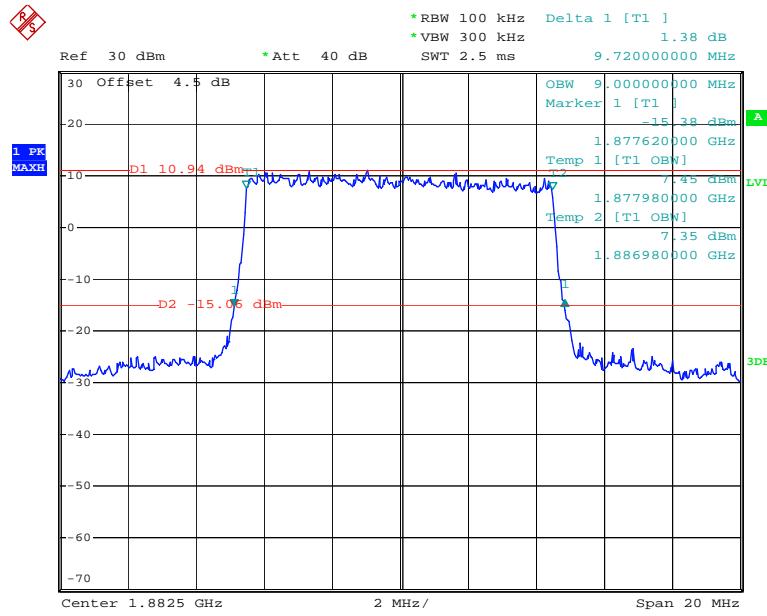
Date: 7.JAN.2020 08:11:29

16QAM_15 MHz
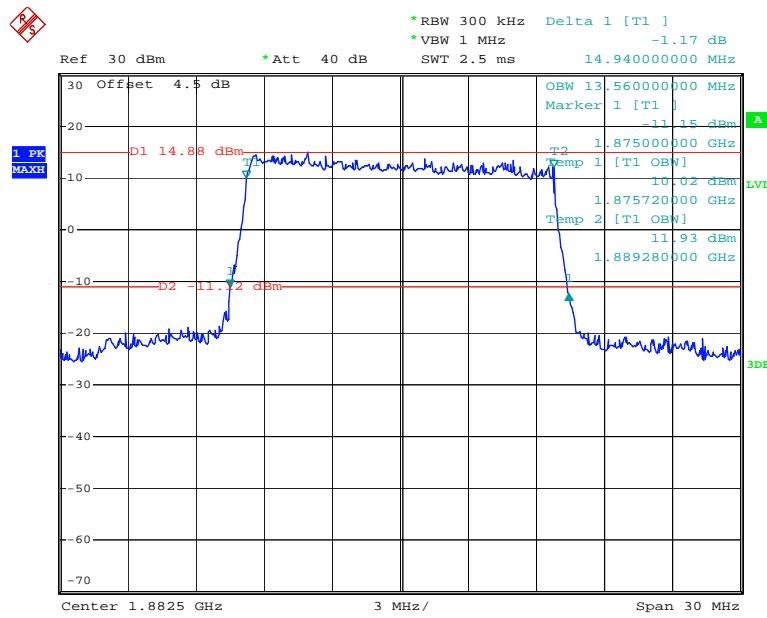
Date: 7.JAN.2020 08:12:20

16QAM_20 MHz
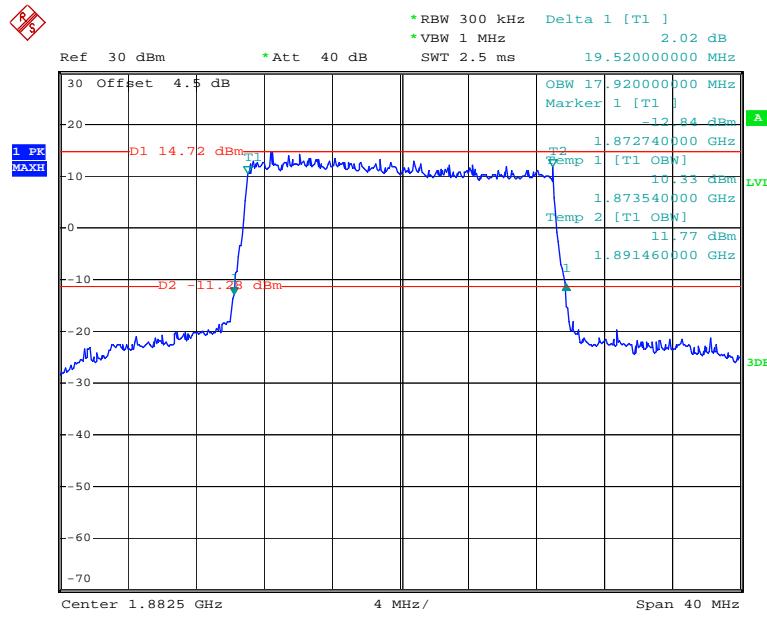
Date: 7.JAN.2020 08:13:11

LTE Band 26:

QPSK_1.4 MHz
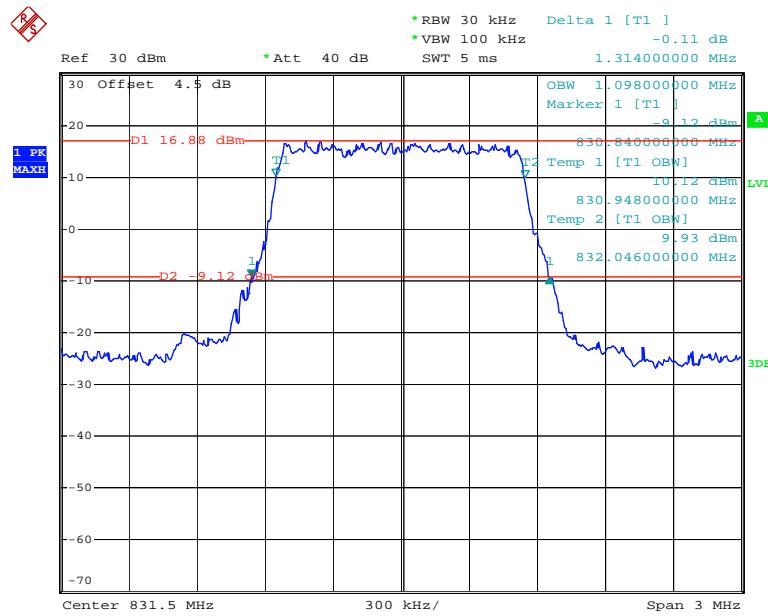
Date: 7.JAN.2020 08:18:27

QPSK_3 MHz
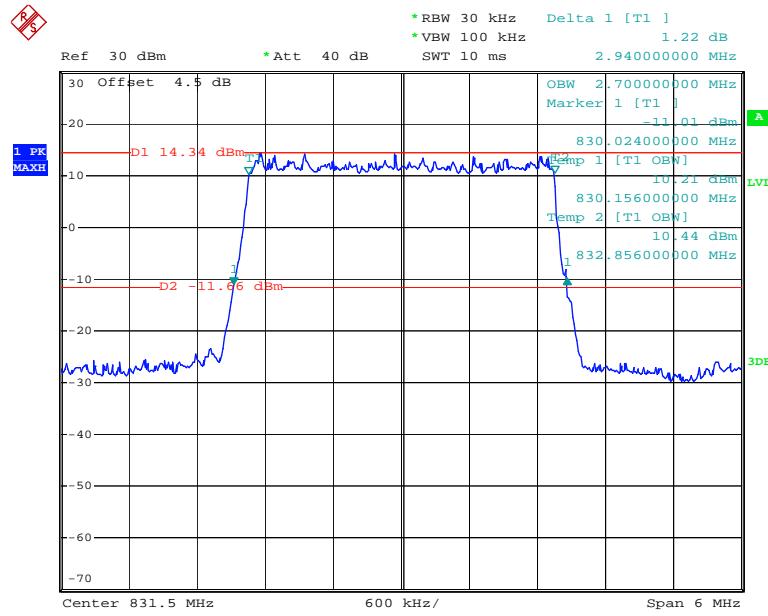
Date: 7.JAN.2020 08:19:12

QPSK_5 MHz

Date: 7.JAN.2020 08:19:57

QPSK_10 MHz
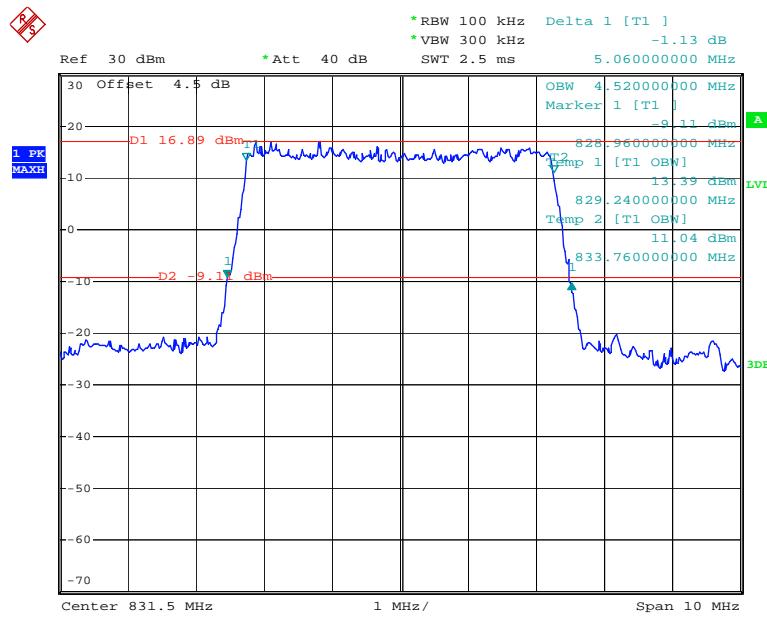
Date: 7.JAN.2020 08:20:40
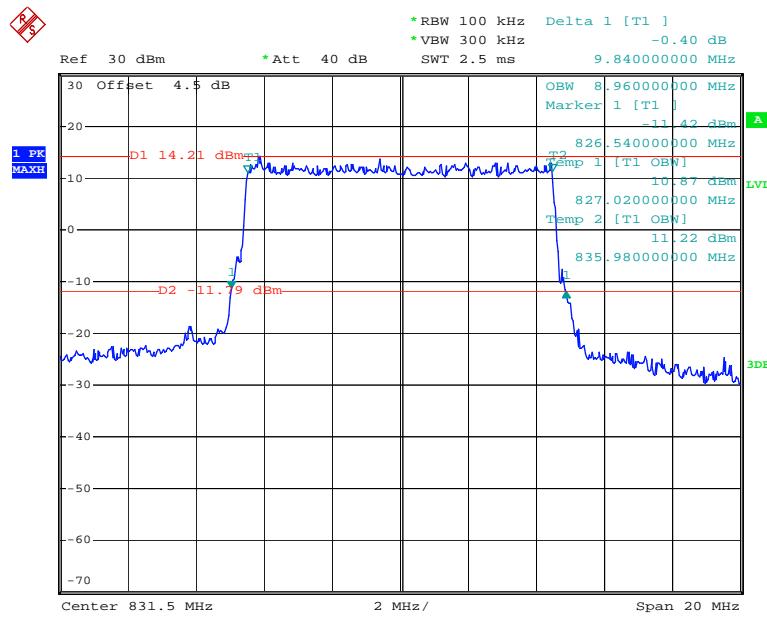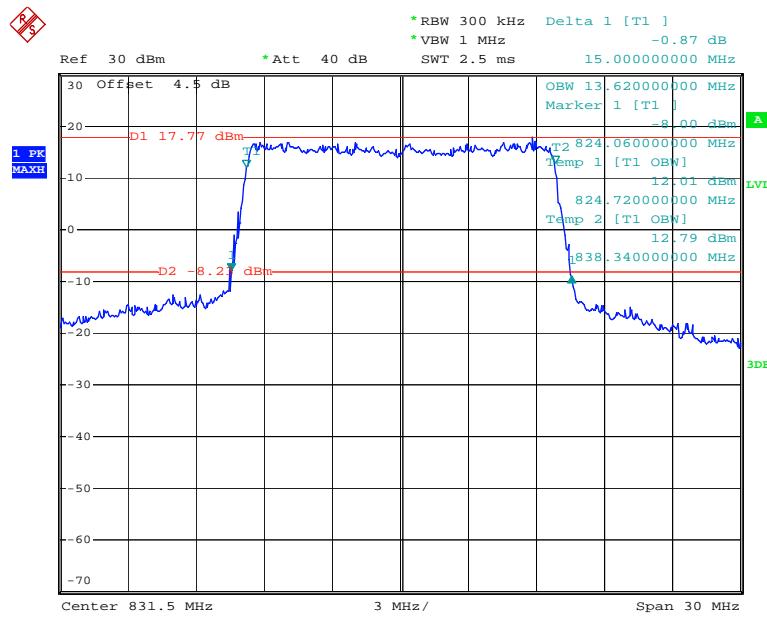
QPSK_15 MHz

Date: 7.JAN.2020 08:21:38

16QAM_1.4 MHz
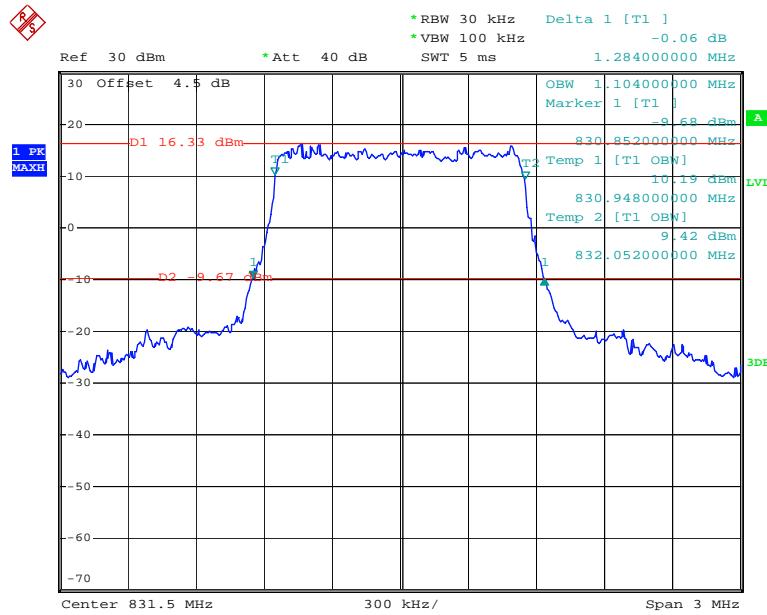
Date: 7.JAN.2020 08:18:49

16QAM_3 MHz
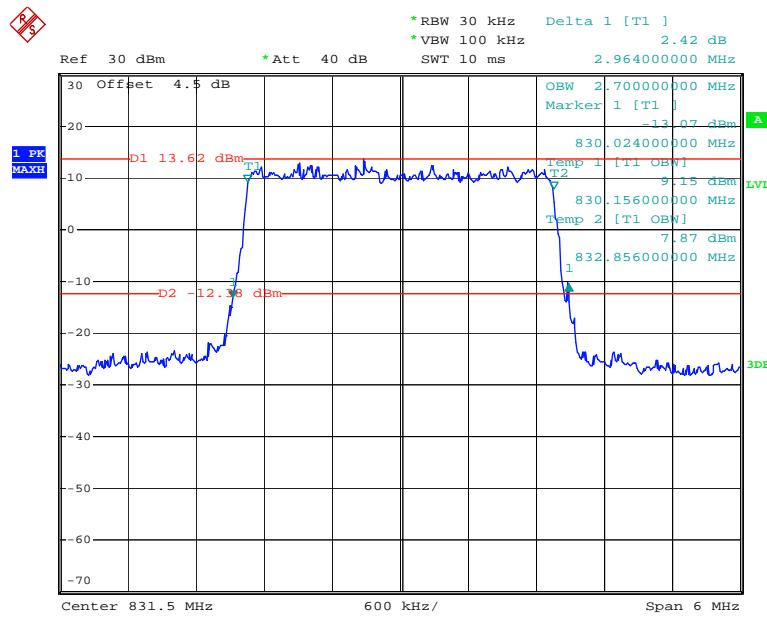
Date: 7.JAN.2020 08:19:33

16QAM_5 MHz
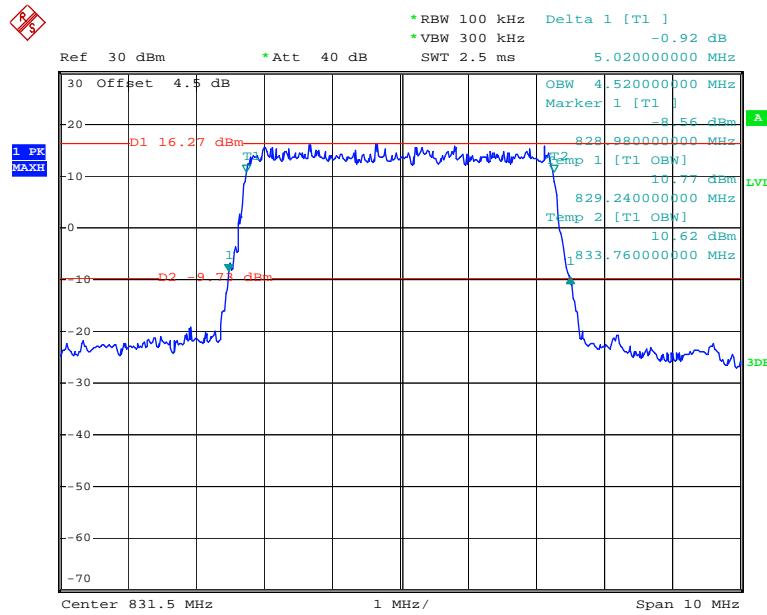
Date: 7.JAN.2020 08:20:19

16QAM_10 MHz
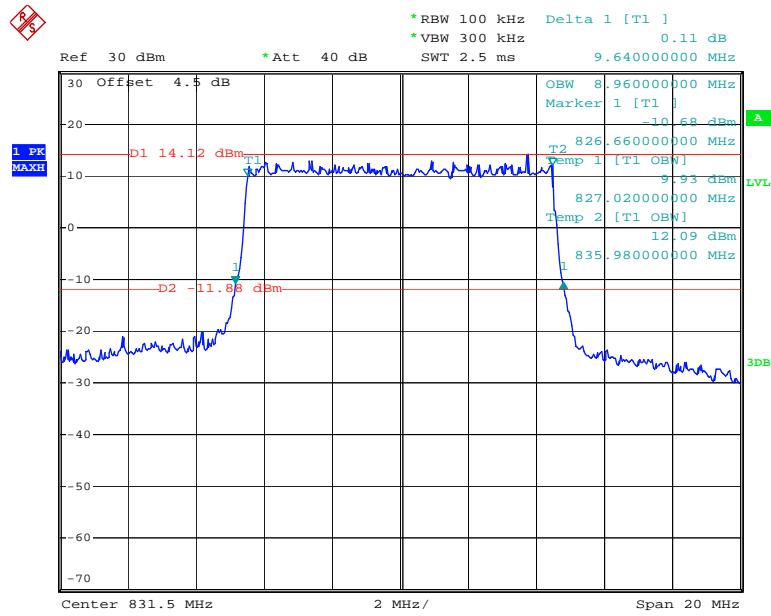
Date: 7.JAN.2020 08:21:03

16QAM_15 MHz
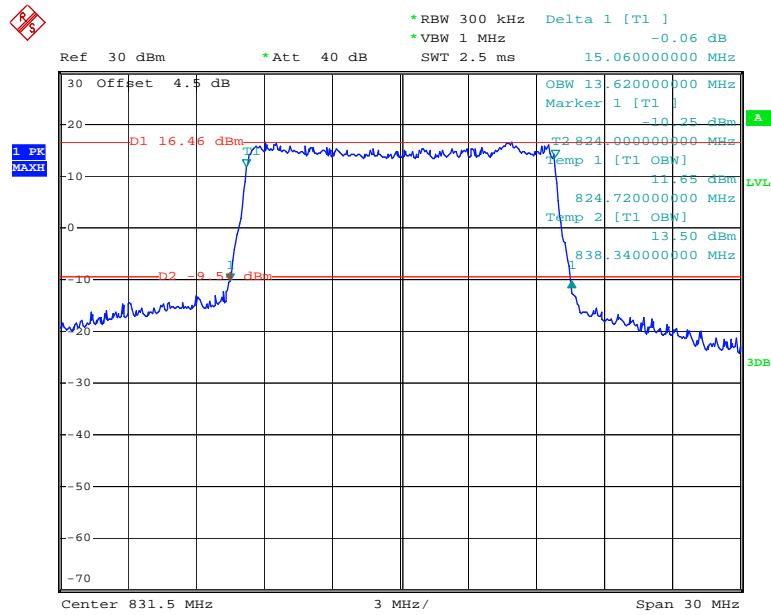
Date: 7.JAN.2020 08:22:05

LTE Band 41:

QPSK_5 MHz
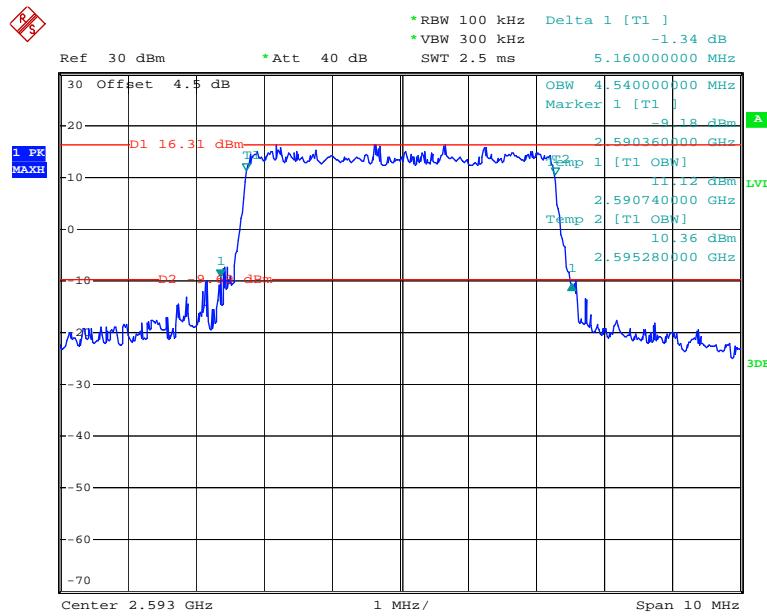
Date: 7.JAN.2020 08:22:53

QPSK_10 MHz
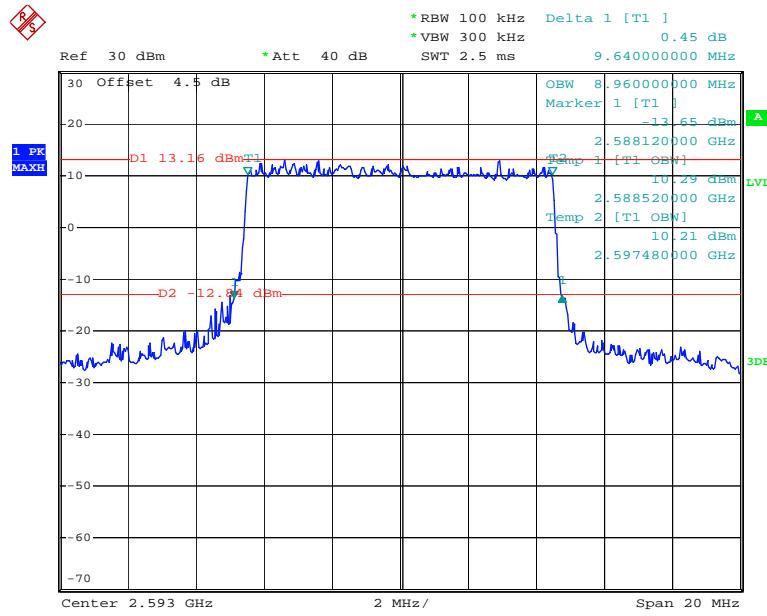
Date: 7.JAN.2020 08:23:40

QPSK_15 MHz
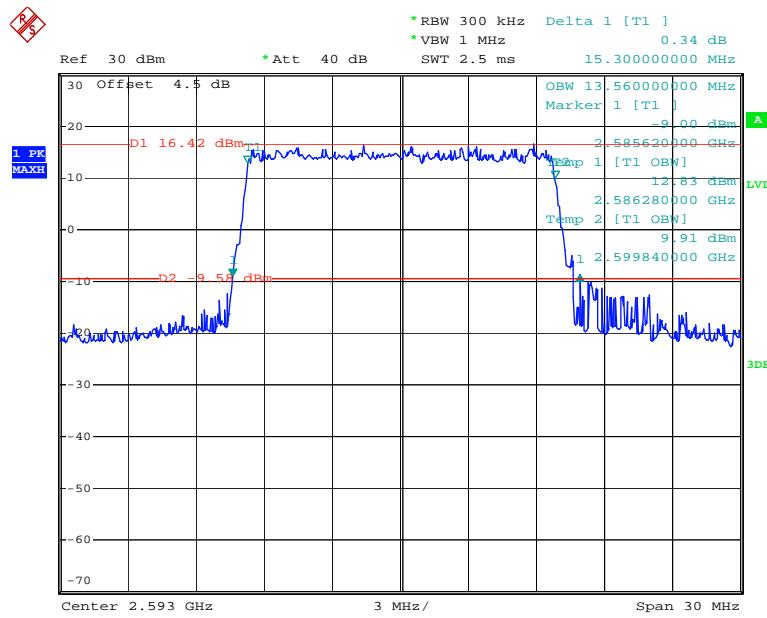
Date: 7.JAN.2020 08:24:39

QPSK_20 MHz
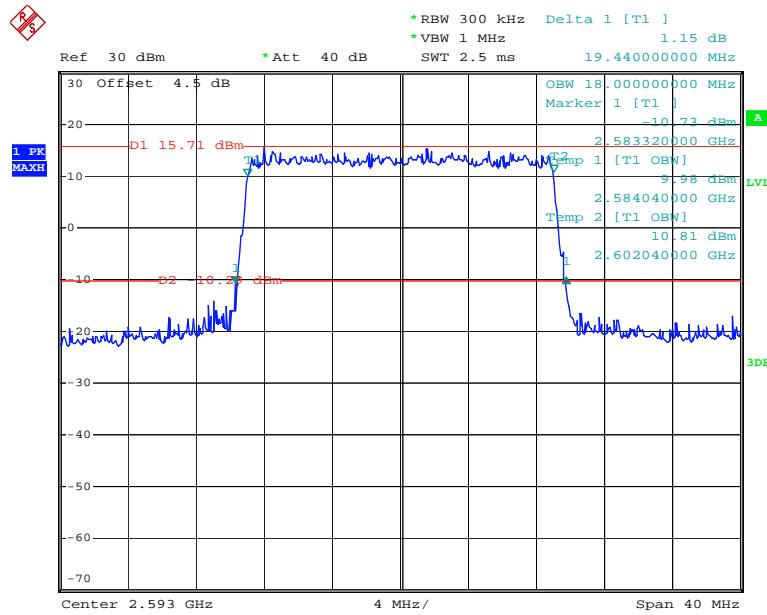
Date: 7.JAN.2020 08:25:34

16QAM_5 MHz
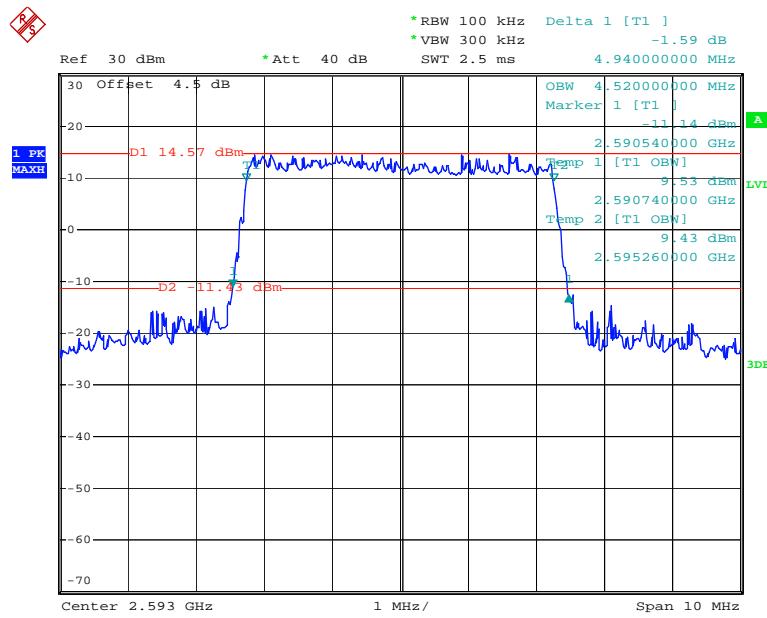
Date: 7.JAN.2020 08:23:15

16QAM_10 MHz
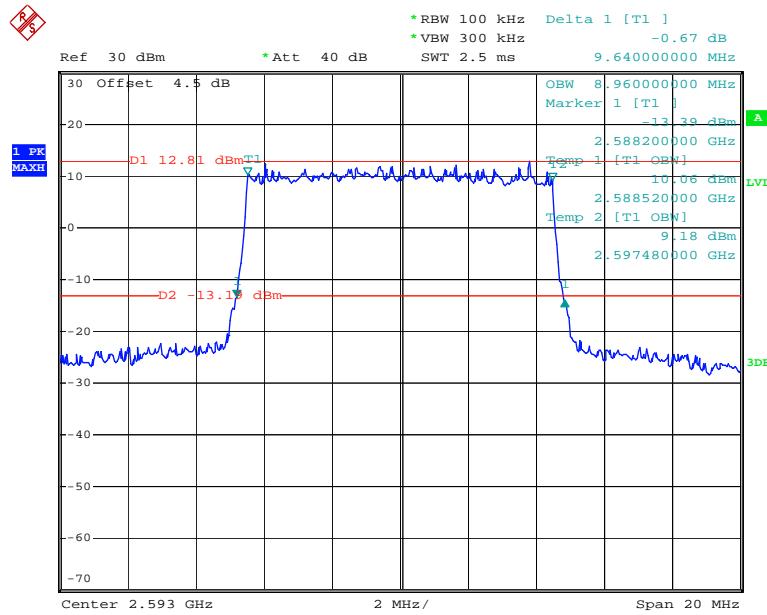
Date: 7.JAN.2020 08:24:05

16QAM_15 MHz
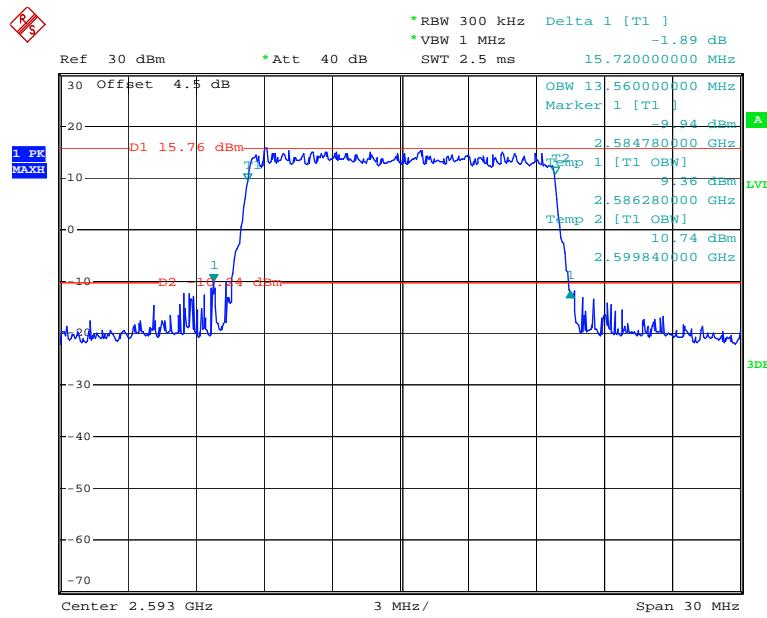
Date: 7.JAN.2020 08:25:07

16QAM_20 MHz
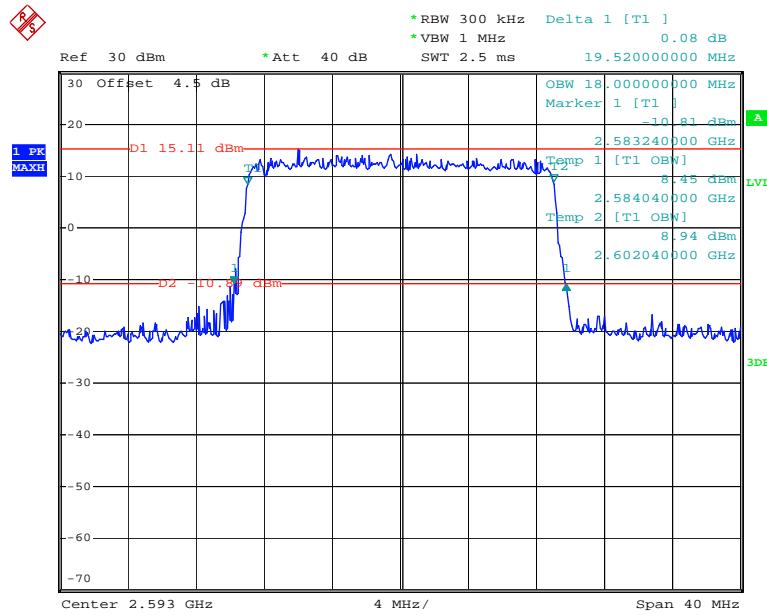
Date: 7.JAN.2020 08:25:58

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

Applicable Standard

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

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.
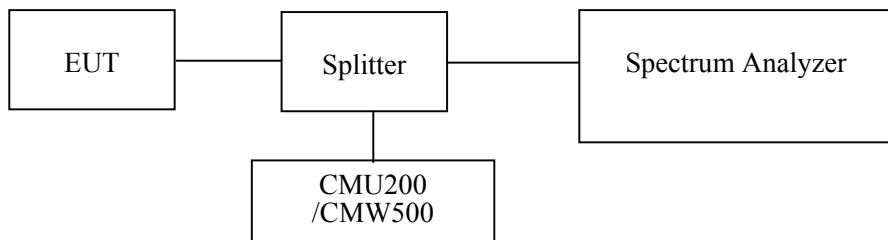
```
┌─────────┐      ┌──────────┐      ┌────────────────────┐
│   EUT   │──────│ Splitter │──────│ Spectrum Analyzer  │
└─────────┘      └──────────┘      └────────────────────┘
                      │
                 ┌──────────┐
                 │  CMU200  │
                 │ /CMW500  │
                 └──────────┘
```

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSP 38	100478	2019-05-09	2020-05-09
R&S	Spectrum Analyzer	FSU 26	200256	2020-01-04	2021-01-04
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41005011	Each Time	/
E-Microwave	Two-way Spliter	ODP-1-6-2S	OE0120142	Each Time	/
Unknown	Coaxial Cable	C-SJ00-0010	C0010/04	Each Time	/
E-Microwave	Coaxial Attenuators	EMCA10-5RN-6	OE01203239	Each Time	/

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

Test Data

Environmental Conditions

Temperature:	23.6~26°C
Relative Humidity:	43~62 %
ATM Pressure:	101.2~102.2 kPa
Tester:	Lily Xie
Test Date:	2020-01-03~2020-04-13

Please refer to the following plots.

GPRS850_Middle Channel
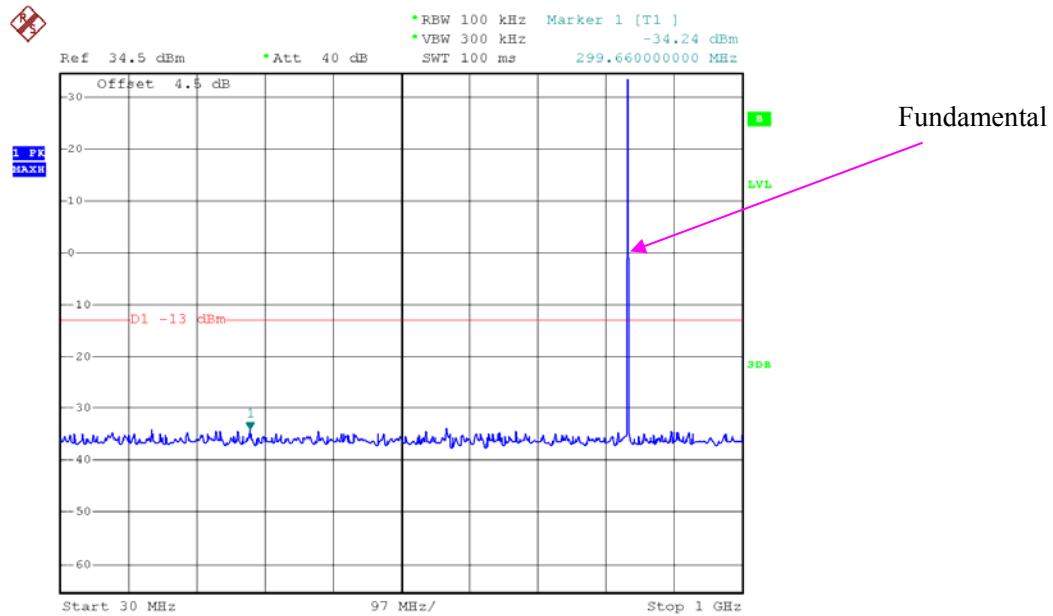
Date: 13.JAN.2020 11:37:37
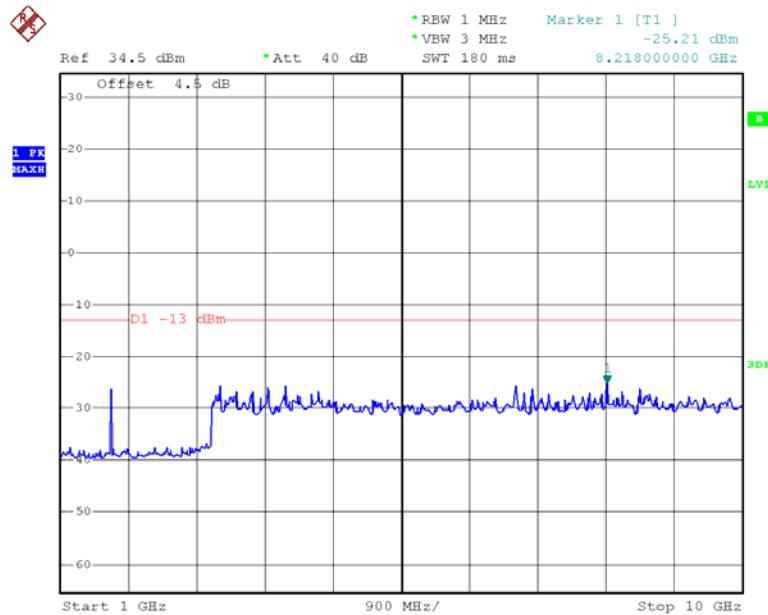
Date: 13.JAN.2020 11:38:11

PCS 1900_ Middle Channel
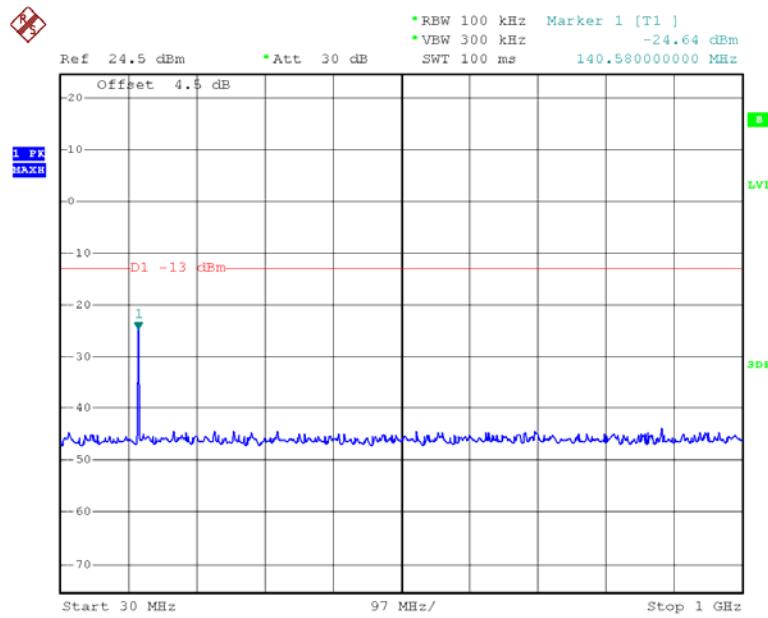
Date: 13.JAN.2020 11:28:50
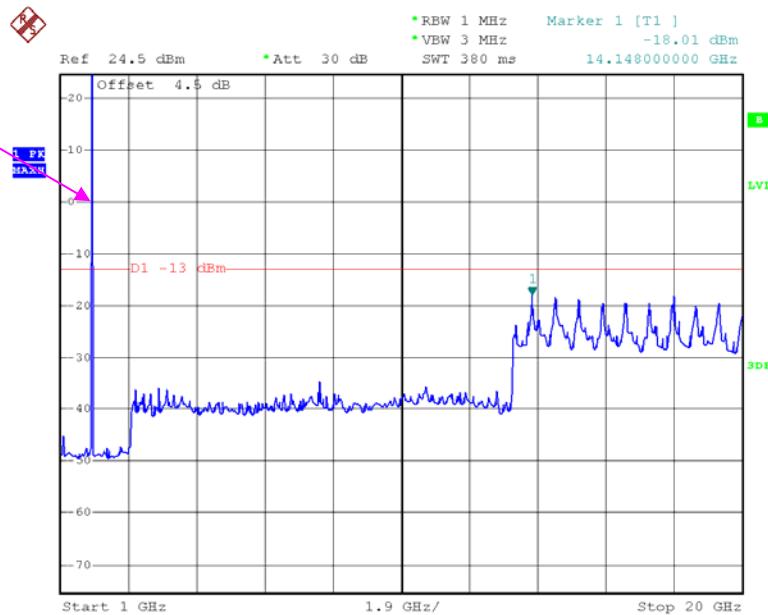
Date: 13.JAN.2020 11:28:13

WCDMA Band II,Rel99

```
                                    *RBW 100 kHz   Marker 1 [T1 ]
                                    *VBW 300 kHz              -34.03 dBm
       Ref  34.5 dBm      *Att  40 dB    *SWT 100 ms     103.720000000 MHz
          Offset  4.5 dB
```
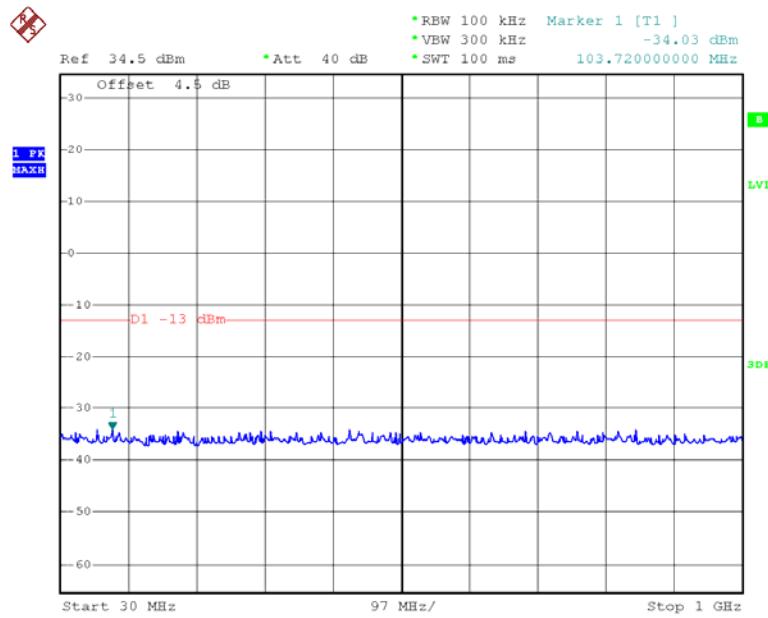
Date: 6.JAN.2020 09:56:39

Fundamental

```
                                    *RBW 1 MHz     Marker 1 [T1 ]
                                    *VBW 3 MHz               -17.54 dBm
       Ref  34.5 dBm      *Att  40 dB     SWT 380 ms     17.416000000 GHz
          Offset  4.5 dB
```
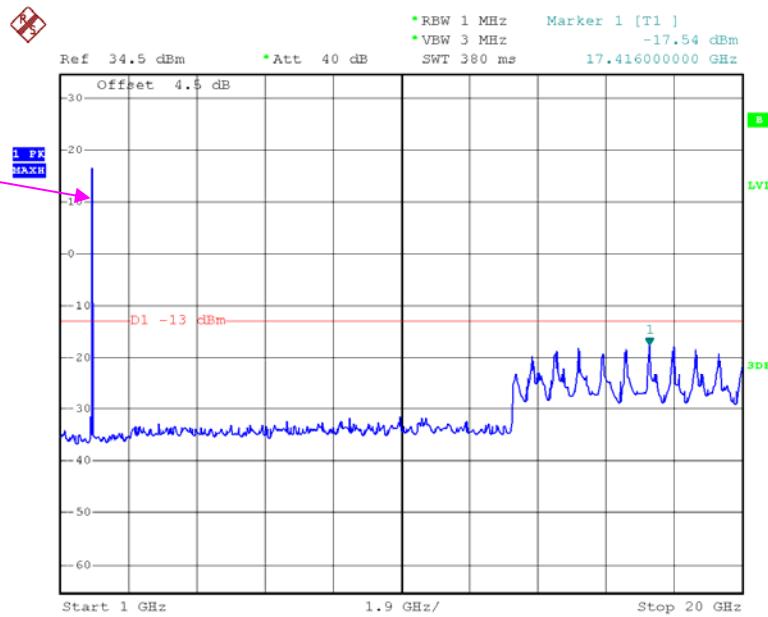
Date: 6.JAN.2020 09:57:19

WCDMA Band IV,Rel99
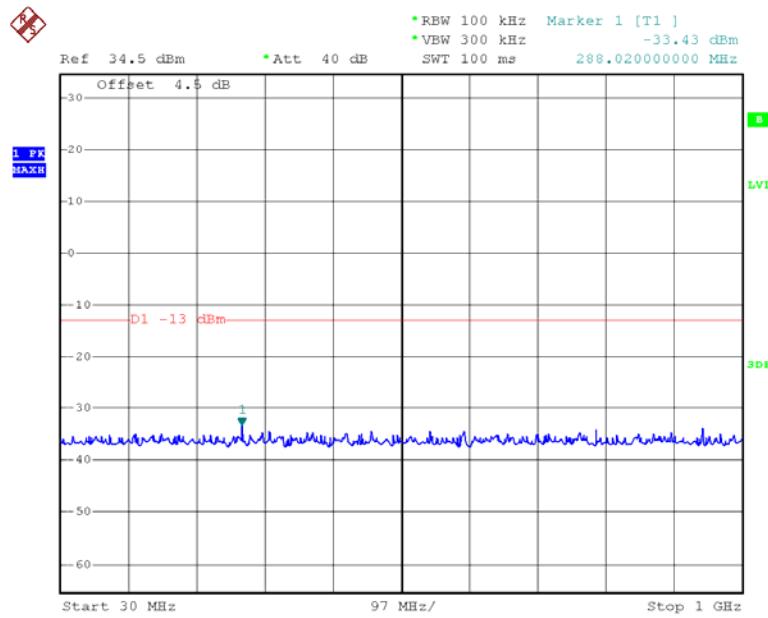
Date: 6.JAN.2020 09:59:17
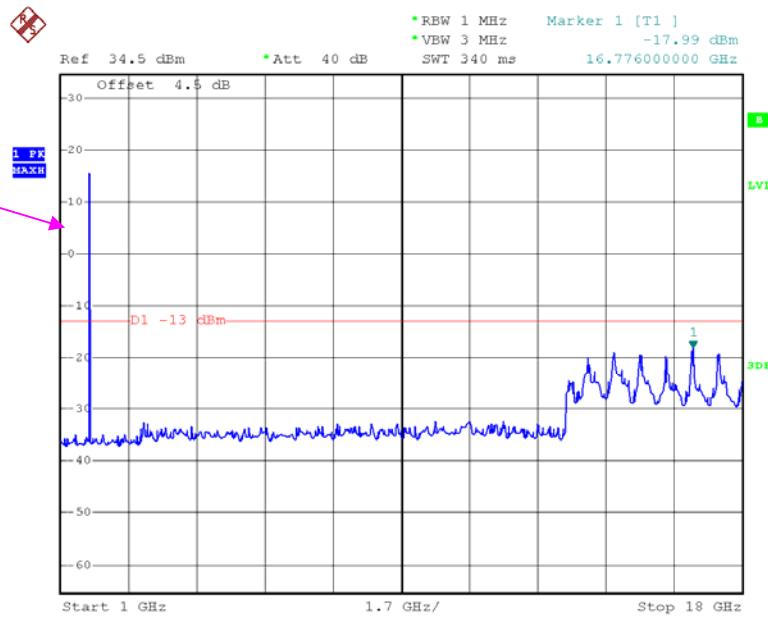
Fundamental

Date: 6.JAN.2020 09:58:29

WCDMA Band V,Rel99
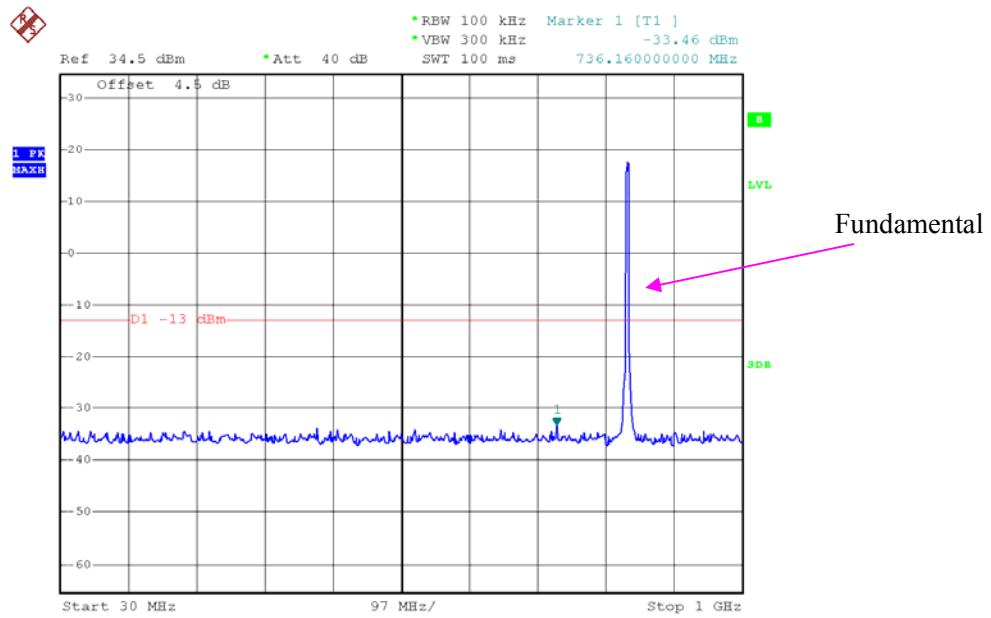
Fundamental

Date: 6.JAN.2020 10:00:01
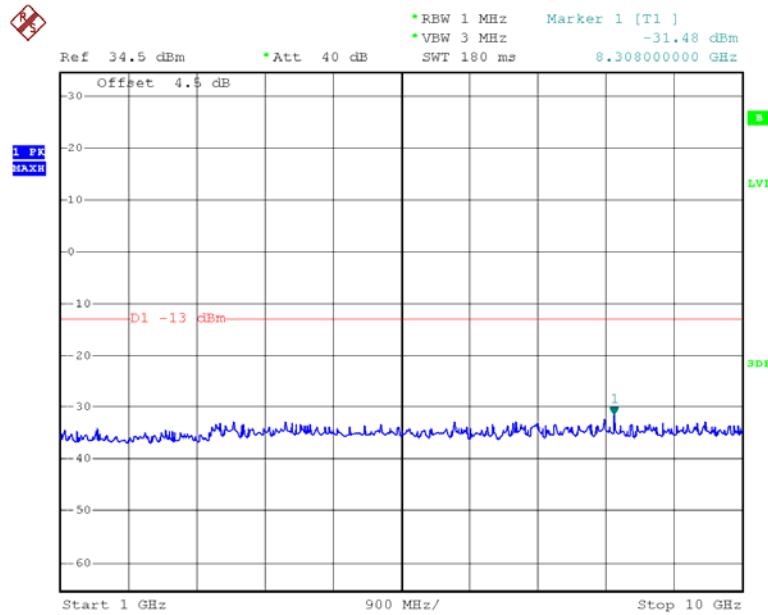
Date: 6.JAN.2020 10:00:24

LTE Band 2 (Middle Channel)

QPSK_1.4 MHz

Date: 7.JAN.2020 12:41:41

Fundamental

Date: 7.JAN.2020 12:41:54

```
                                    *RBW 1 MHz    Marker 1 [T1 ]
                                    *VBW 3 MHz              -19.35 dBm
     Ref  20 dBm        *Att  30 dB  SWT 130 ms      15.437000000 GHz
```

```
     20 Offset  4.5 dB
  -10                                                              A
   -0                                                              LVL
  -10
 ----D1 -13 dBm----
  -20
  -3                                                               3DB
  -40
  -50
  -60
  -70
  -80
     Start 13.5 GHz          650 MHz/            Stop 20 GHz
```
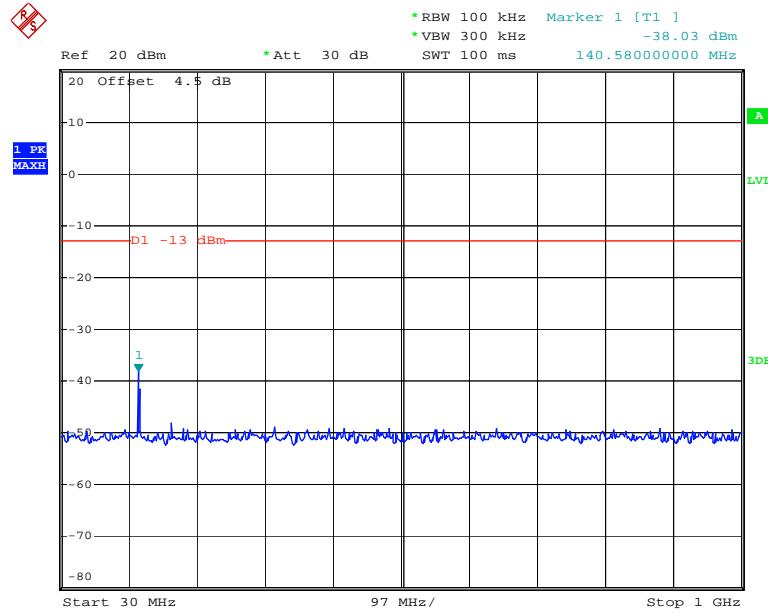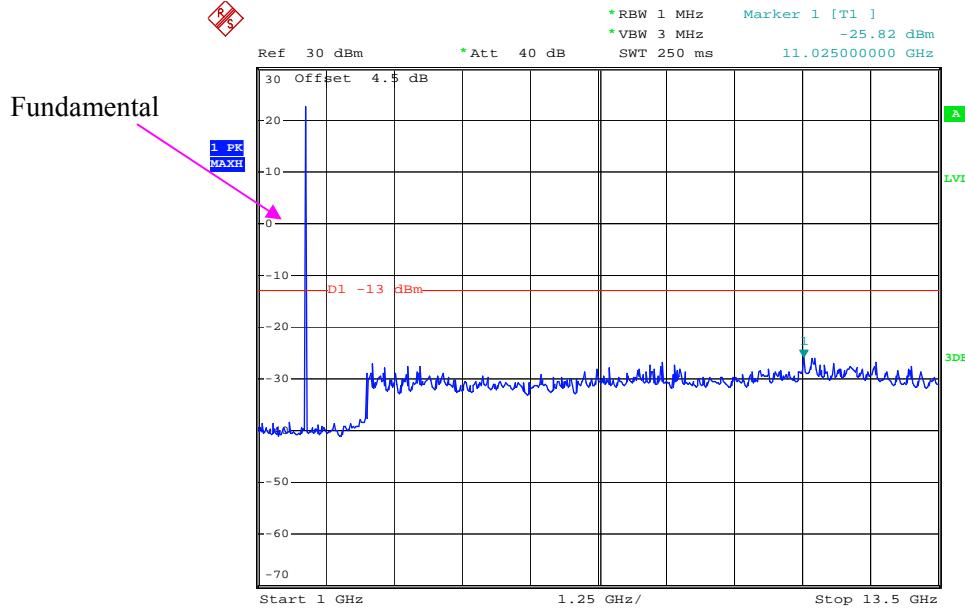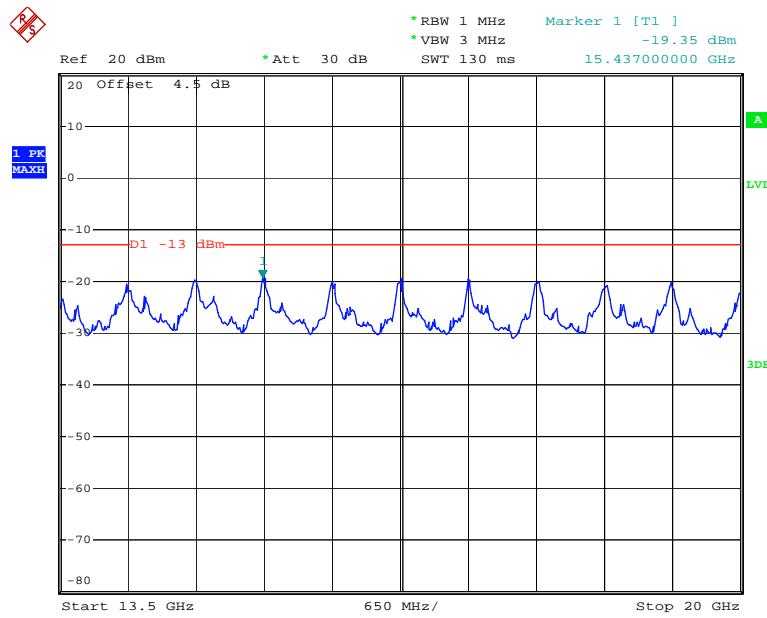
Date: 7.JAN.2020 12:42:07

QPSK_3 MHz

```
                                    *RBW 100 kHz  Marker 1 [T1 ]
                                    *VBW 300 kHz            -41.82 dBm
     Ref  20 dBm        *Att  30 dB  SWT 100 ms      140.580000000 MHz
```

```
     20 Offset  4.5 dB
  -10                                                              A
   -0                                                              LVL
  -10
 ----D1 -13 dBm----
  -20
  -30
  -40                                                             3DB
  -60
  -70
  -80
     Start 30 MHz            97 MHz/             Stop 1 GHz
```
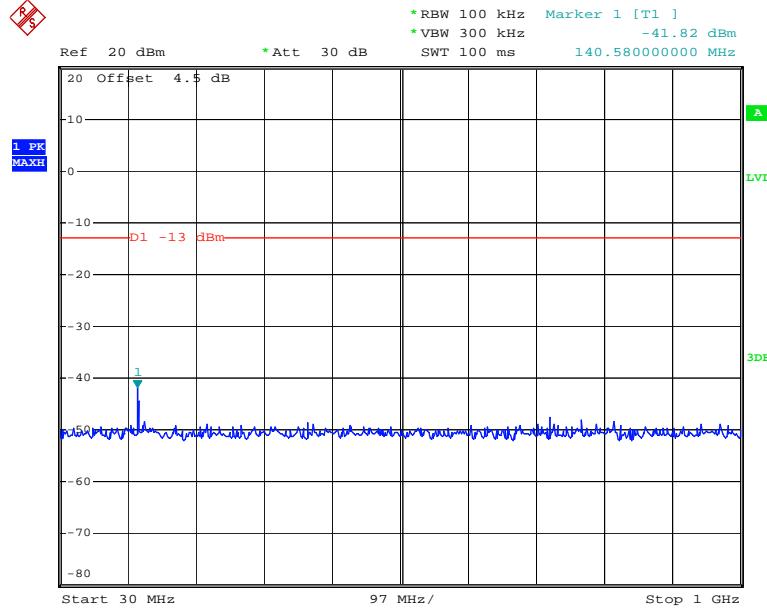
Date: 7.JAN.2020 12:42:29

Fundamental

```
                                          *RBW 1 MHz    Marker 1 [T1 ]
                                          *VBW 3 MHz          -26.69 dBm
          Ref  30 dBm          *Att  40 dB   SWT 250 ms    11.225000000 GHz
          30 Offset  4.5 dB                                          A

          -20

1 PK      -10
MAXH
           0

          -10
               D1 -13 dBm                                          LVL

          -20
                                                              1
          -30                                                    3DB

          -50

          -60

          -70
          Start 1 GHz          1.25 GHz/          Stop 13.5 GHz
```

Date: 7.JAN.2020 12:42:42

```
                                          *RBW 1 MHz    Marker 1 [T1 ]
                                          *VBW 3 MHz          -18.79 dBm
          Ref  20 dBm          *Att  30 dB   SWT 130 ms    18.089000000 GHz
          20 Offset  4.5 dB                                          A

          -10

1 PK
MAXH       0

          -10
               D1 -13 dBm                                          LVL

          -20                                        1
          -30                                                    3DB

          -40

          -50

          -60

          -70

          -80
          Start 13.5 GHz        650 MHz/          Stop 20 GHz
```
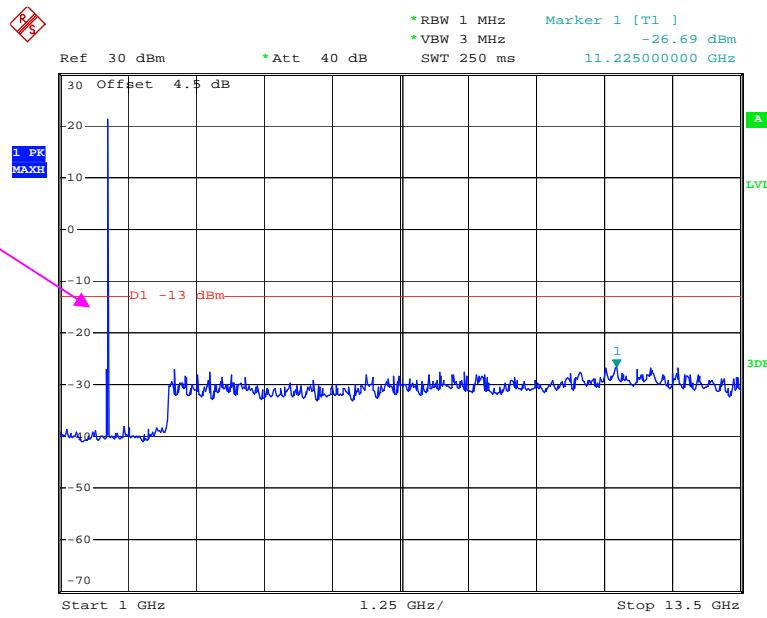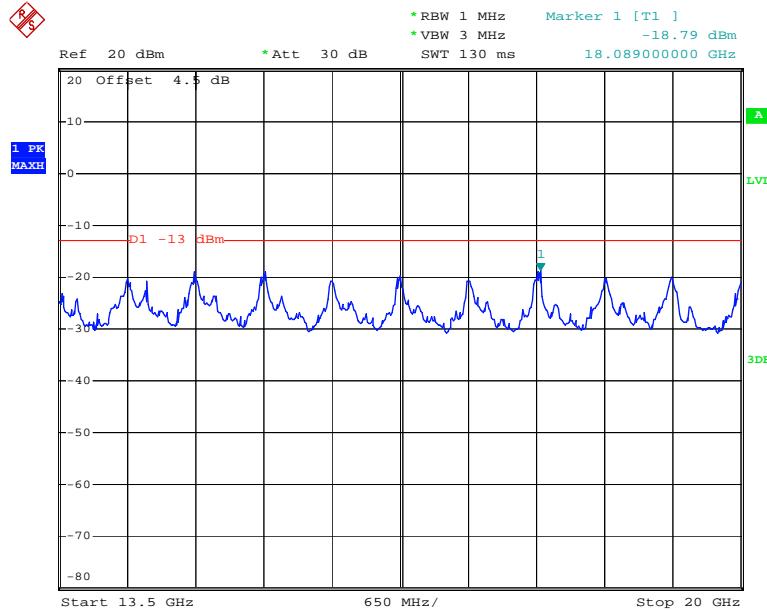
Date: 7.JAN.2020 12:42:55

QPSK_5 MHz


```
                                        *RBW 100 kHz   Marker 1 [T1 ]
                                        *VBW 300 kHz              -45.17 dBm
         Ref  20 dBm        *Att  30 dB   SWT 100 ms      140.580000000 MHz
         20 Offset  4.5 dB
```
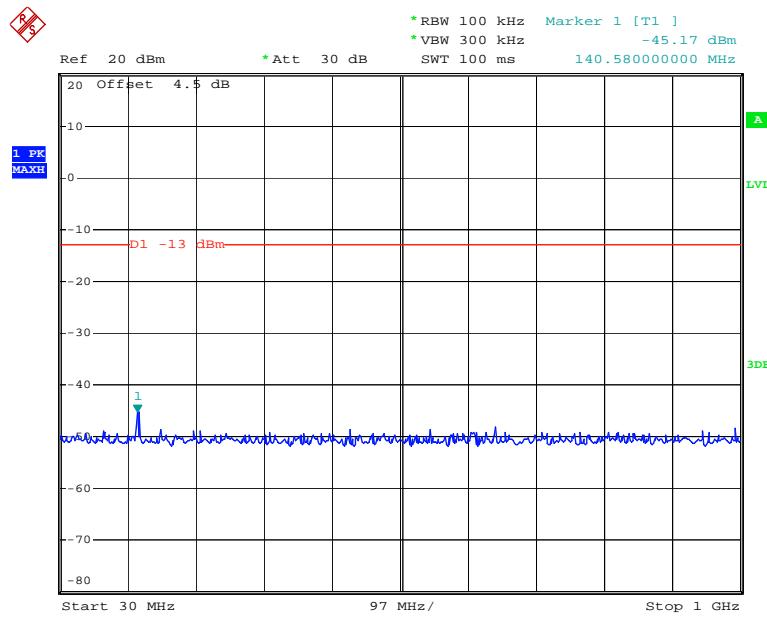
Date: 7.JAN.2020 12:43:19

Fundamental


```
                                        *RBW 1 MHz     Marker 1 [T1 ]
                                        *VBW 3 MHz               -26.22 dBm
         Ref  30 dBm        *Att  40 dB   SWT 250 ms       3.100000000 GHz
         30 Offset  4.5 dB
```
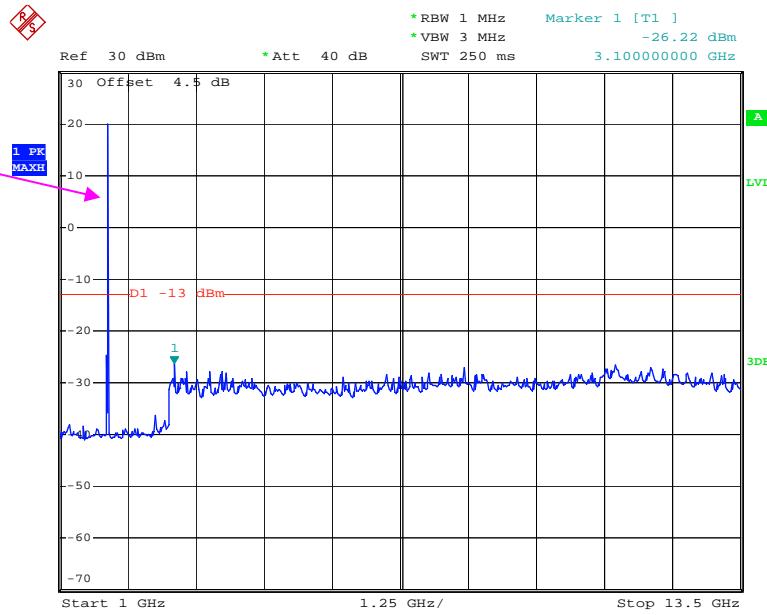
Date: 7.JAN.2020 12:43:32
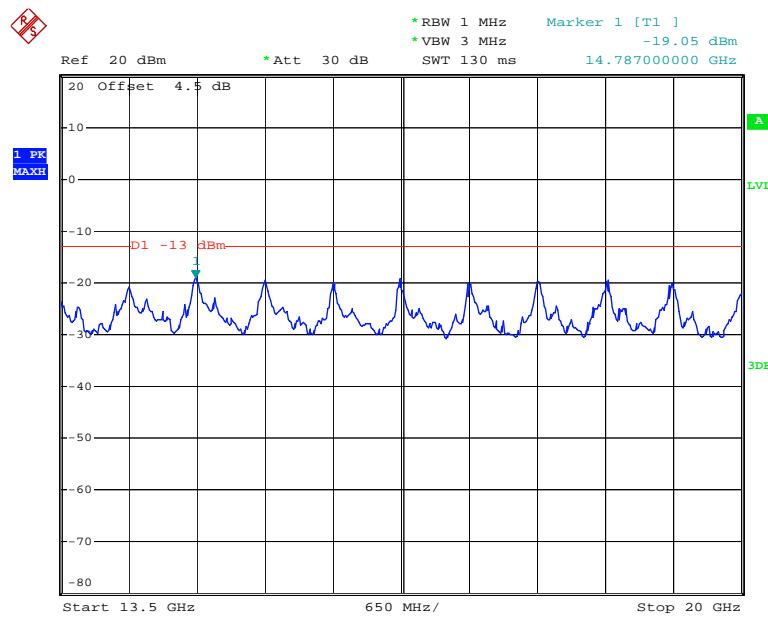
Date: 7.JAN.2020 12:43:48

QPSK_10 MHz

Date: 7.JAN.2020 12:44:09

```
                                        *RBW 1 MHz    Marker 1 [T1 ]
                                        *VBW 3 MHz             -25.90 dBm
              Ref  30 dBm    *Att  40 dB   SWT 250 ms    3.100000000 GHz
```

Fundamental

Date: 7.JAN.2020 12:44:22

```
                                        *RBW 1 MHz    Marker 1 [T1 ]
                                        *VBW 3 MHz             -18.79 dBm
              Ref  20 dBm    *Att  30 dB   SWT 130 ms   18.076000000 GHz
```
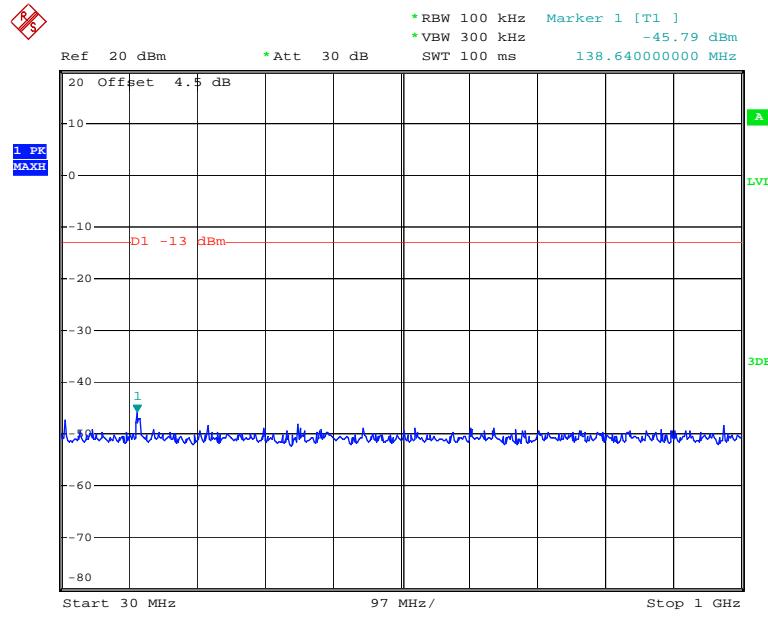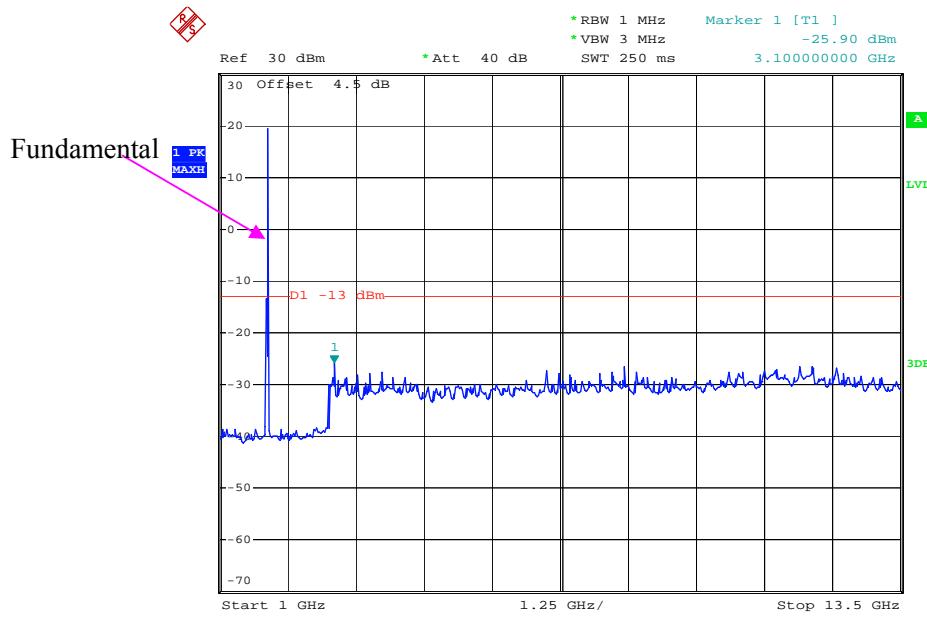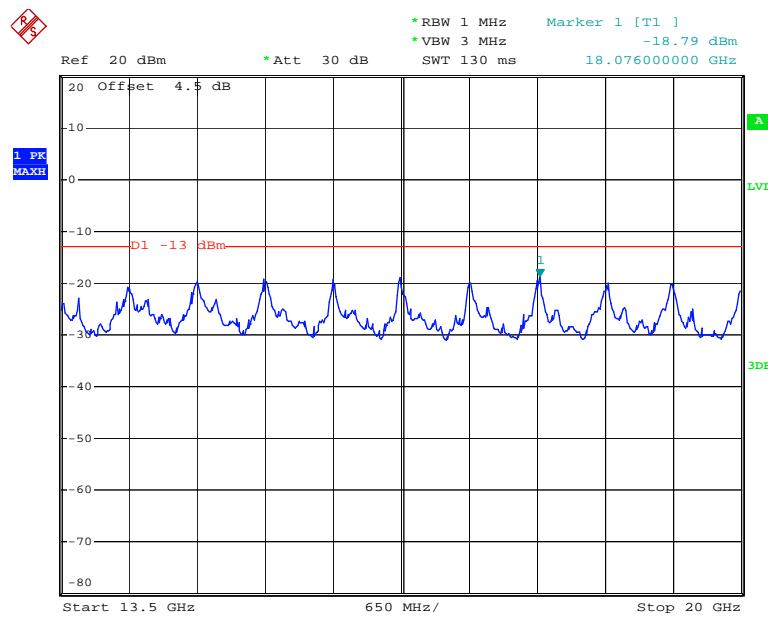
Date: 7.JAN.2020 12:44:34

QPSK_15 MHz

```
                                    *RBW 100 kHz   Marker 1 [T1 ]
                                    *VBW 300 kHz              -45.50 dBm
         Ref  20 dBm      *Att  30 dB    SWT 100 ms     142.520000000 MHz
```

Date: 7.JAN.2020 12:45:02

```
                                    *RBW 1 MHz     Marker 1 [T1 ]
                                    *VBW 3 MHz               -26.91 dBm
         Ref  30 dBm      *Att  40 dB    SWT 250 ms     10.575000000 GHz
```

Fundamental

Date: 7.JAN.2020 12:45:15

```
                              *RBW 1 MHz    Marker 1 [T1 ]
                              *VBW 3 MHz              -18.54 dBm
Ref  20 dBm      *Att  30 dB   SWT 130 ms     18.076000000 GHz
 20 Offset  4.5 dB                                           A
-10
1 PK
MAXH  -0                                                     LVL
    -10
      D1 -13 dBm
    -20                                    1
    -30                                                      3DB
    -40
    -50
    -60
    -70
    -80
Start 13.5 GHz         650 MHz/              Stop 20 GHz
```
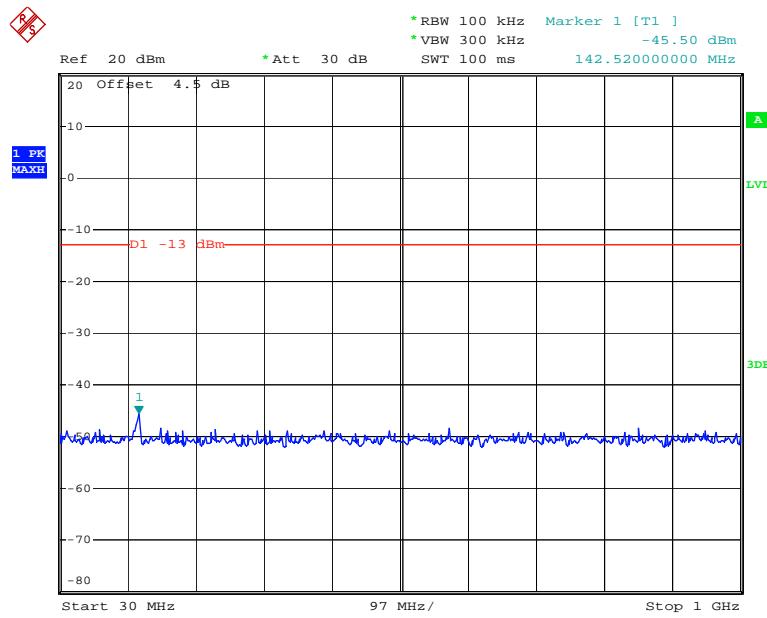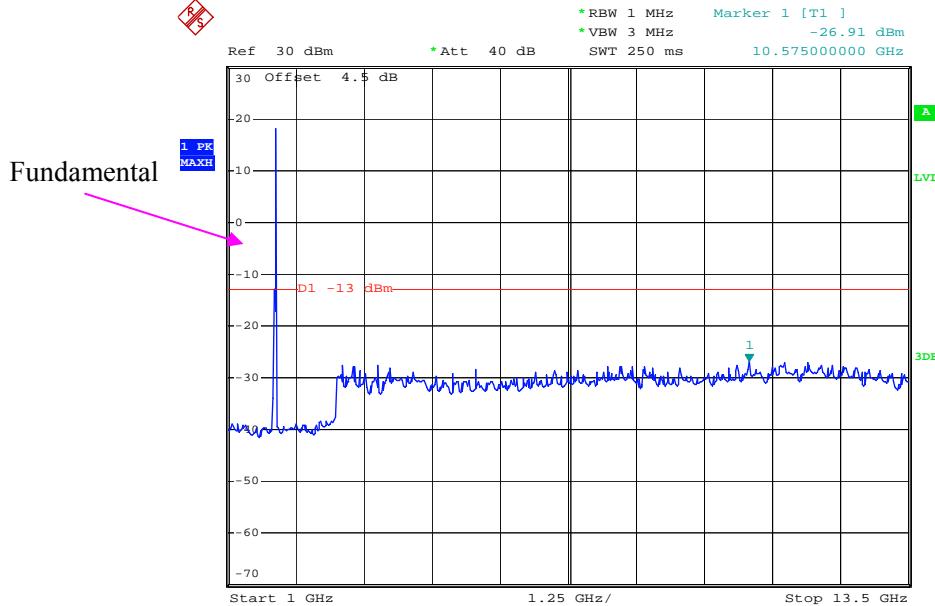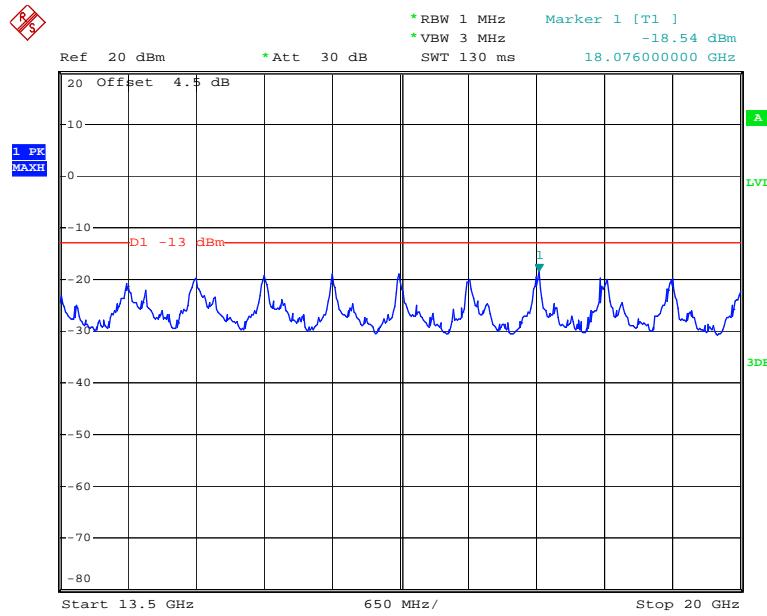
Date: 7.JAN.2020 12:45:28

QPSK_20 MHz


```
                              *RBW 100 kHz  Marker 1 [T1 ]
                              *VBW 300 kHz            -46.04 dBm
Ref  20 dBm      *Att  30 dB   SWT 100 ms     140.580000000 MHz
 20 Offset  4.5 dB                                           A
-10
1 PK
MAXH  -0                                                     LVL
    -10
      D1 -13 dBm
    -20
    -30
    -40                                                      3DB
         1
    -60
    -70
    -80
Start 30 MHz           97 MHz/               Stop 1 GHz
```

Date: 7.JAN.2020 12:45:52

Fundamental

```
                                    *RBW 1 MHz     Marker 1 [T1 ]
                                    *VBW 3 MHz              -25.61 dBm
        Ref  30 dBm      *Att  40 dB    SWT 250 ms   3.100000000 GHz
```


Date: 7.JAN.2020 12:46:05

```
                                    *RBW 1 MHz     Marker 1 [T1 ]
                                    *VBW 3 MHz              -18.66 dBm
        Ref  20 dBm      *Att  30 dB    SWT 130 ms   18.076000000 GHz
```
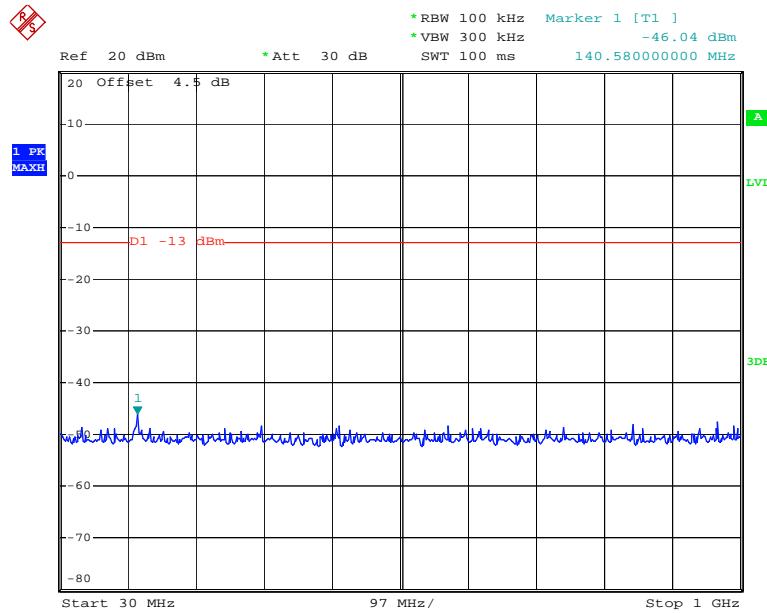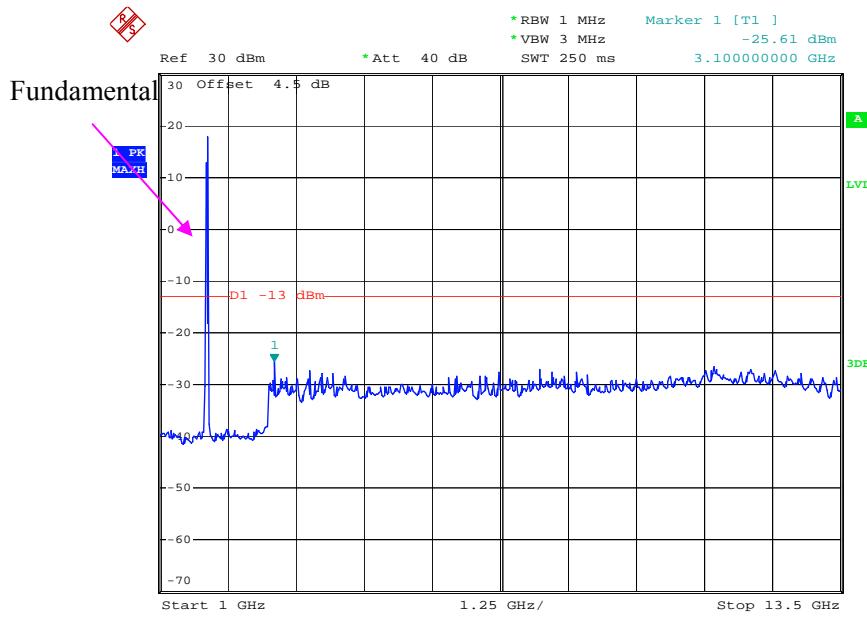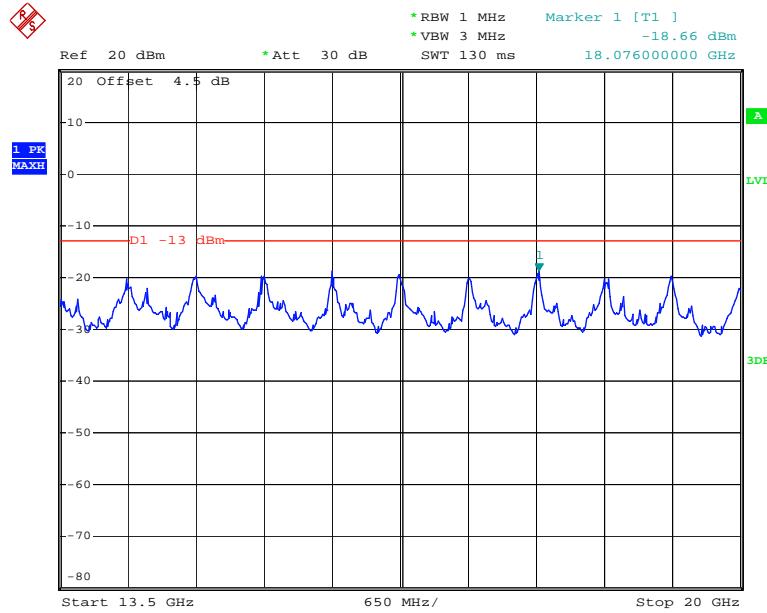

Date: 7.JAN.2020 12:46:18

LTE Band 4 (Middle Channel)

QPSK_1.4 MHz

Date: 7.JAN.2020 12:46:42

Date: 7.JAN.2020 12:46:54

*RBW 1 MHz   Marker 1 [T1]
*VBW 3 MHz   -18.55 dBm
Ref 20 dBm   *Att 30 dB   SWT 130 ms   18.076000000 GHz

Date: 7.JAN.2020 12:47:07

QPSK_3 MHz

*RBW 100 kHz   Marker 1 [T1]
*VBW 300 kHz   -47.56 dBm
Ref 20 dBm   *Att 30 dB   SWT 100 ms   968.960000000 MHz

Date: 7.JAN.2020 12:47:30

Fundamental

```
                                              *RBW 1 MHz    Marker 1 [T1 ]
                                              *VBW 3 MHz              -26.68 dBm
          Ref  30 dBm          *Att  40 dB     SWT 250 ms     11.225000000 GHz
          30  Offset  4.5 dB                                                    A
       -20
1 PK
MAXH   -10                                                                     LVL
        0
       -10    D1 -13 dBm
       -20
                                                                          1    3DB
       -30
       -40
       -50
       -60
       -70
          Start 1 GHz              1.25 GHz/            Stop 13.5 GHz
```

Date: 7.JAN.2020 12:47:42

```
                                              *RBW 1 MHz    Marker 1 [T1 ]
                                              *VBW 3 MHz              -18.92 dBm
          Ref  20 dBm          *Att  30 dB     SWT 130 ms     14.813000000 GHz
          20  Offset  4.5 dB                                                    A
       -10
1 PK
MAXH    0                                                                      LVL
       -10    D1 -13 dBm
       -20
       -30                                                                     3DB
       -40
       -50
       -60
       -70
       -80
          Start 13.5 GHz             650 MHz/            Stop 20 GHz
```

Date: 7.JAN.2020 12:47:55

QPSK_5 MHz

```
                                    *RBW 100 kHz    Marker 1 [T1 ]
                                    *VBW 300 kHz             -48.42 dBm
         Ref  20 dBm      *Att  30 dB    SWT 100 ms      192.960000000 MHz
```

Start 30 MHz　　　　　　　　　97 MHz/　　　　　　　　　Stop 1 GHz

Date: 7.JAN.2020 12:48:19

```
                                    *RBW 1 MHz     Marker 1 [T1 ]
                                    *VBW 3 MHz              -26.73 dBm
         Ref  30 dBm      *Att  40 dB    SWT 250 ms      10.475000000 GHz
```

Fundamental

Start 1 GHz　　　　　　　　　1.25 GHz/　　　　　　　　Stop 13.5 GHz

Date: 7.JAN.2020 12:48:31

```
* RBW 1 MHz      Marker 1 [T1 ]
* VBW 3 MHz            -17.52 dBm
Ref  20 dBm        * Att  30 dB     SWT 130 ms     18.063000000 GHz
20 Offset  4.5 dB
```
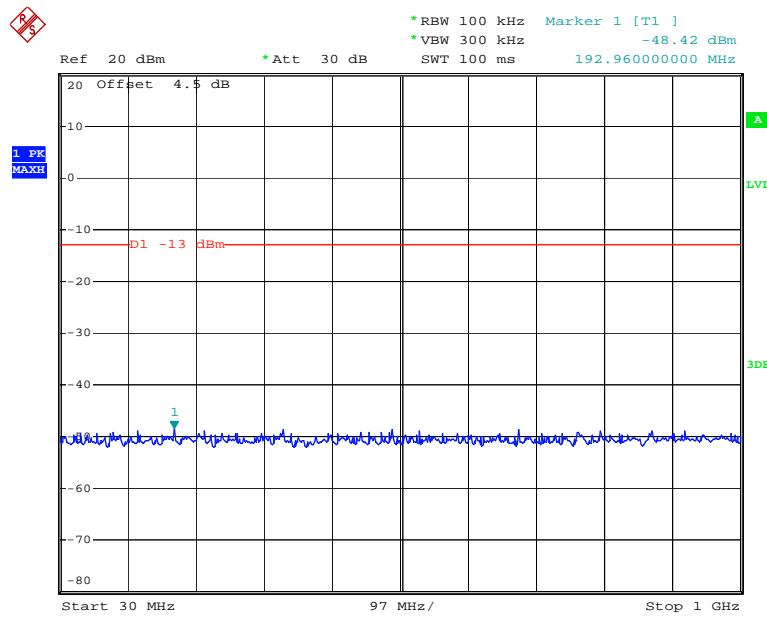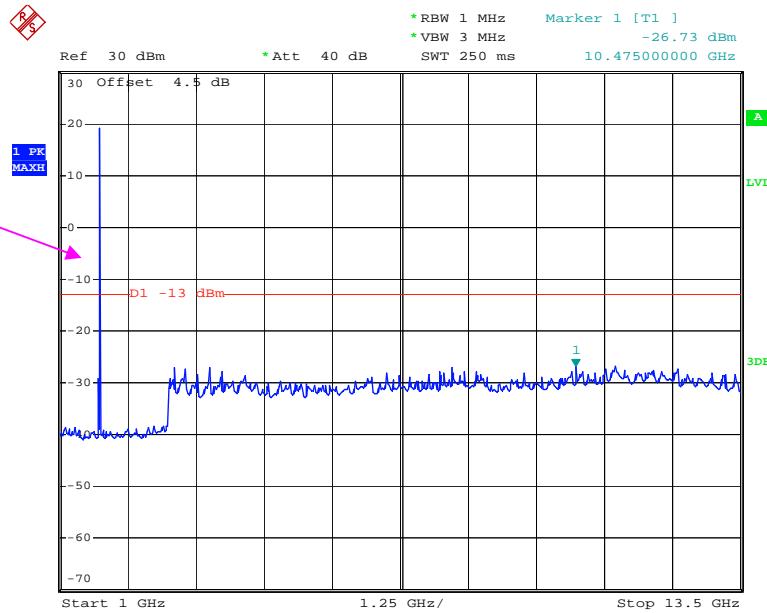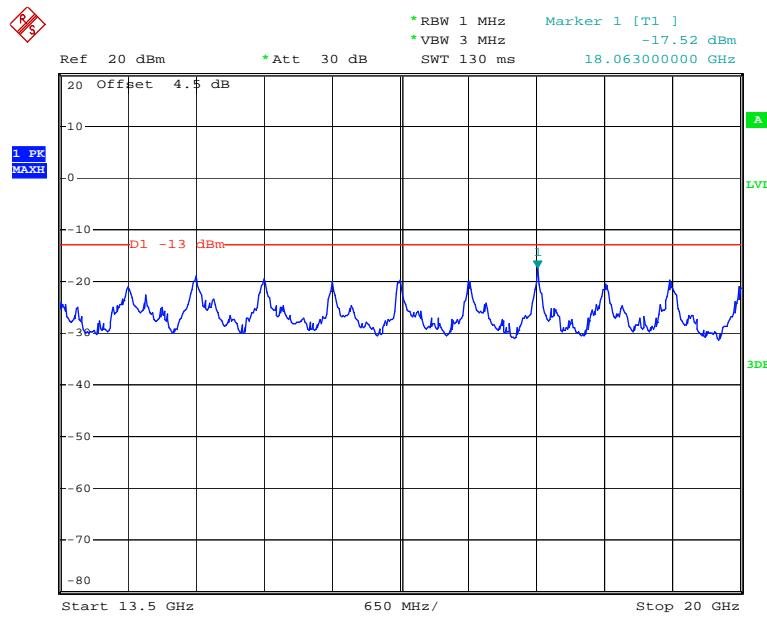
Date: 7.JAN.2020 12:48:44

QPSK_10 MHz


```
* RBW 100 kHz   Marker 1 [T1 ]
* VBW 300 kHz         -47.52 dBm
Ref  20 dBm        * Att  30 dB     SWT 100 ms     823.460000000 MHz
20 Offset  4.5 dB
```
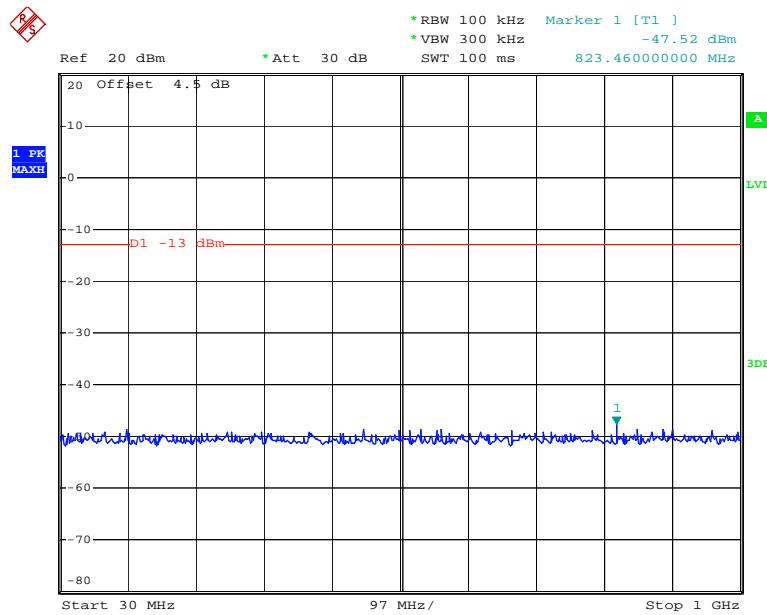
Date: 7.JAN.2020 12:49:08

Fundamental

```
                                    *RBW 1 MHz    Marker 1 [T1 ]
                                    *VBW 3 MHz           -26.71 dBm
        Ref  30 dBm      *Att  40 dB   SWT 250 ms   12.300000000 GHz
        30 Offset  4.5 dB
```

Date: 7.JAN.2020 12:49:21

```
                                    *RBW 1 MHz    Marker 1 [T1 ]
                                    *VBW 3 MHz           -18.89 dBm
        Ref  20 dBm      *Att  30 dB   SWT 130 ms   18.037000000 GHz
        20 Offset  4.5 dB
```
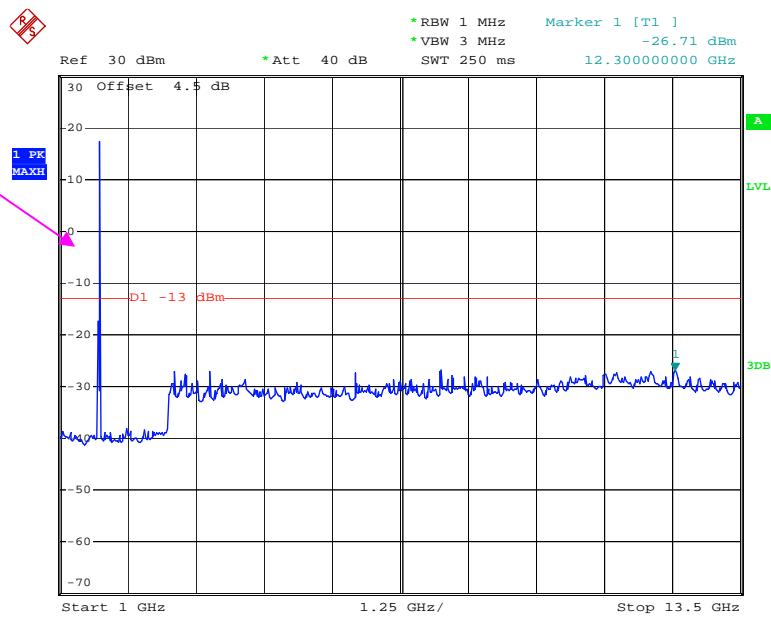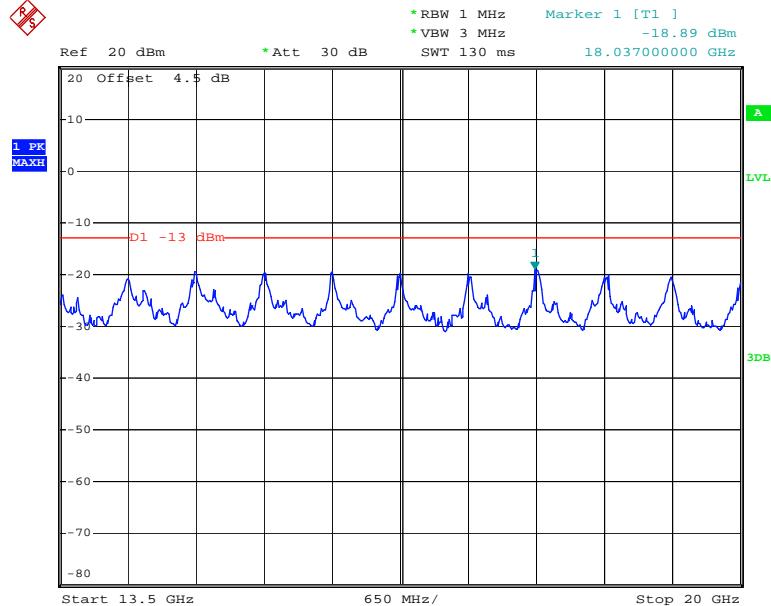
Date: 7.JAN.2020 12:49:34

QPSK_15 MHz

```
                                    *RBW 100 kHz   Marker 1 [T1 ]
                                    *VBW 300 kHz              -46.72 dBm
            Ref  20 dBm    *Att  30 dB   SWT 100 ms    212.360000000 MHz
        20 Offset  4.5 dB
```

Date: 7.JAN.2020 12:49:57

Fundamental

```
                                    *RBW 1 MHz     Marker 1 [T1 ]
                                    *VBW 3 MHz               -26.39 dBm
            Ref  30 dBm    *Att  40 dB   SWT 250 ms    8.200000000 GHz
        30 Offset  4.5 dB
```

Date: 7.JAN.2020 12:50:13

*RBW 1 MHz   Marker 1 [T1]
*VBW 3 MHz   -17.29 dBm
Ref 20 dBm   *Att 30 dB   SWT 130 ms   14.800000000 GHz

20 Offset 4.5 dB

D1 -13 dBm

Start 13.5 GHz   650 MHz/   Stop 20 GHz
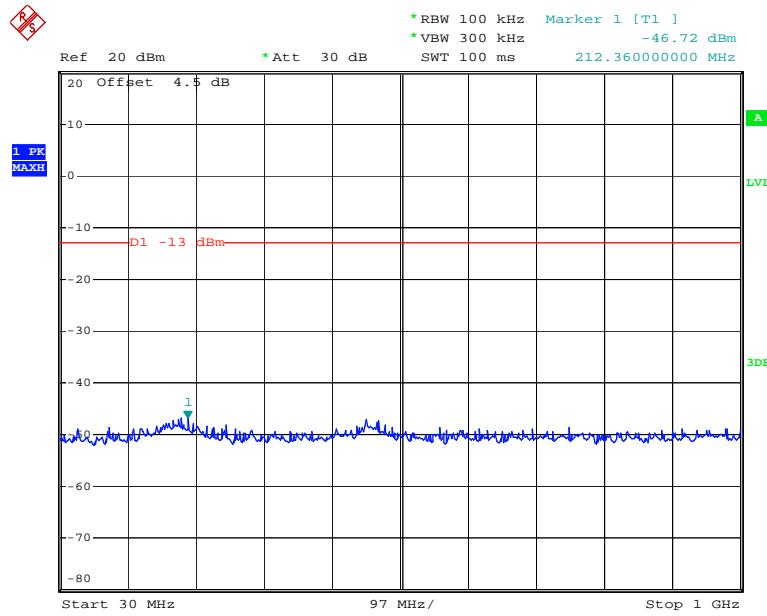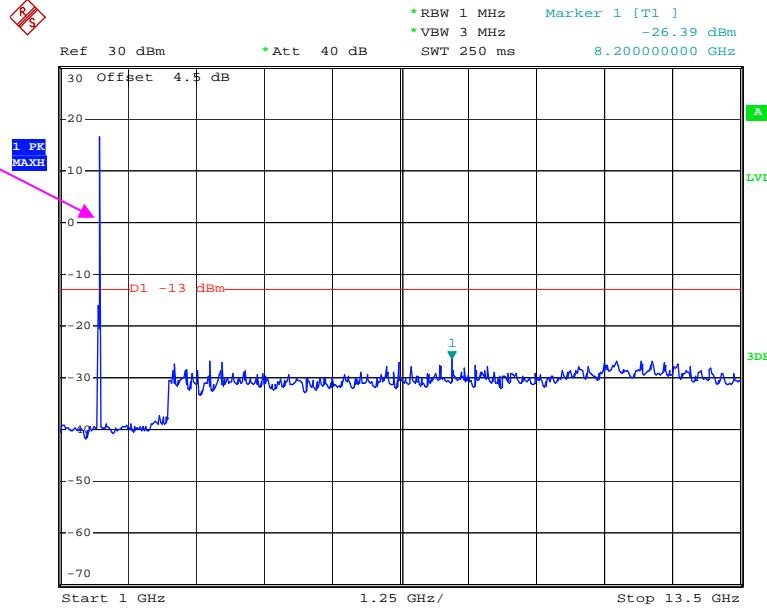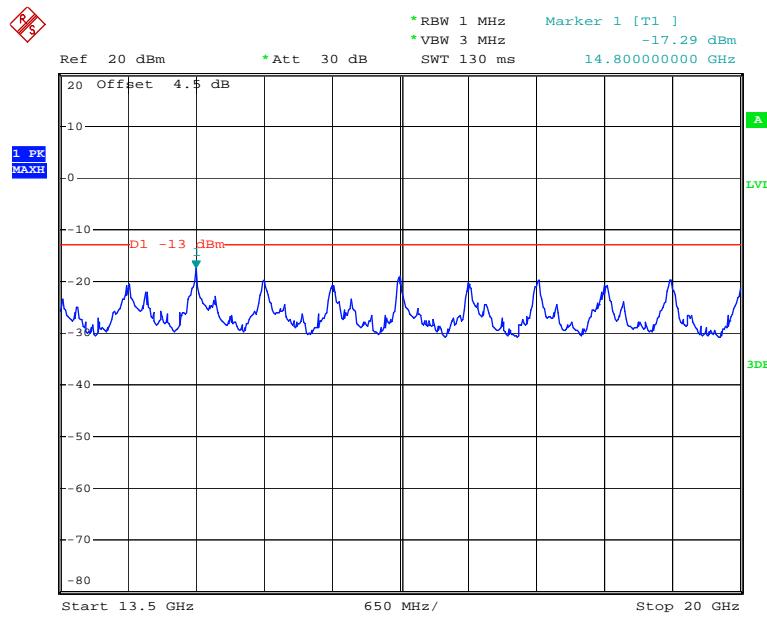
Date: 7.JAN.2020 12:50:26

QPSK_20 MHz

*RBW 100 kHz Marker 1 [T1]
*VBW 300 kHz   -46.12 dBm
Ref 20 dBm   *Att 30 dB   SWT 100 ms   992.240000000 MHz

20 Offset 4.5 dB

D1 -13 dBm

Start 30 MHz   97 MHz/   Stop 1 GHz

Date: 7.JAN.2020 12:50:53

```
                                    *RBW 1 MHz    Marker 1 [T1 ]
                                    *VBW 3 MHz            -26.35 dBm
         Ref  30 dBm      *Att  40 dB   SWT 250 ms    11.875000000 GHz
```

Fundamental

```
30 Offset  4.5 dB
20                                                              A
1 PK
MAXH  10                                                        LVL
     D1 -13 dBm
-10
-20                                                            3DB
-30
-50
-60
-70
Start 1 GHz            1.25 GHz/            Stop 13.5 GHz
```

Date: 7.JAN.2020 12:51:06

```
                                    *RBW 1 MHz    Marker 1 [T1 ]
                                    *VBW 3 MHz            -19.27 dBm
         Ref  20 dBm      *Att  30 dB   SWT 130 ms    18.076000000 GHz
```

```
20 Offset  4.5 dB
10                                                              A
0
1 PK
MAXH
     -10                                                        LVL
     D1 -13 dBm
-20                                                            3DB
-30
-40
-50
-60
-70
-80
Start 13.5 GHz           650 MHz/            Stop 20 GHz
```

Date: 7.JAN.2020 12:51:19

LTE Band 5 (Middle Channel)

QPSK_1.4 MHz
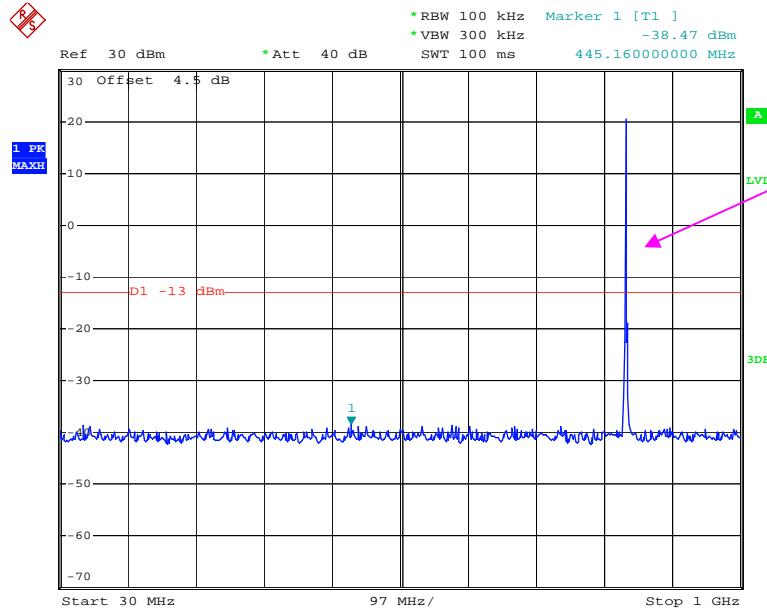
Fundamental

Date: 7.JAN.2020 12:51:45
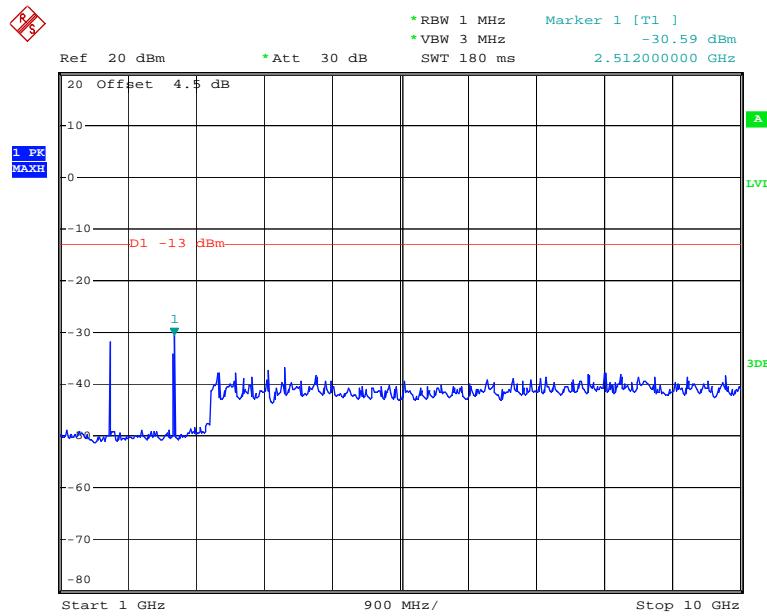
Date: 7.JAN.2020 12:51:58

QPSK_3 MHz
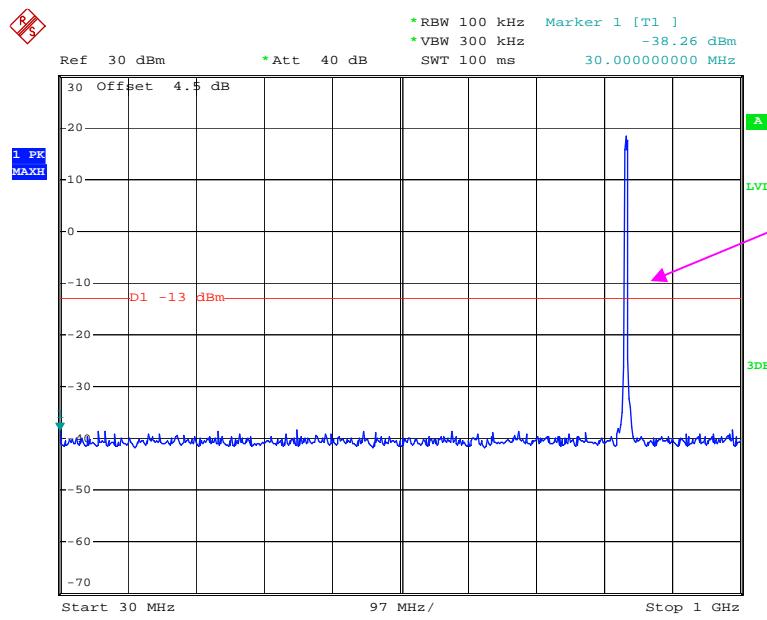
Date: 7.JAN.2020 12:52:20
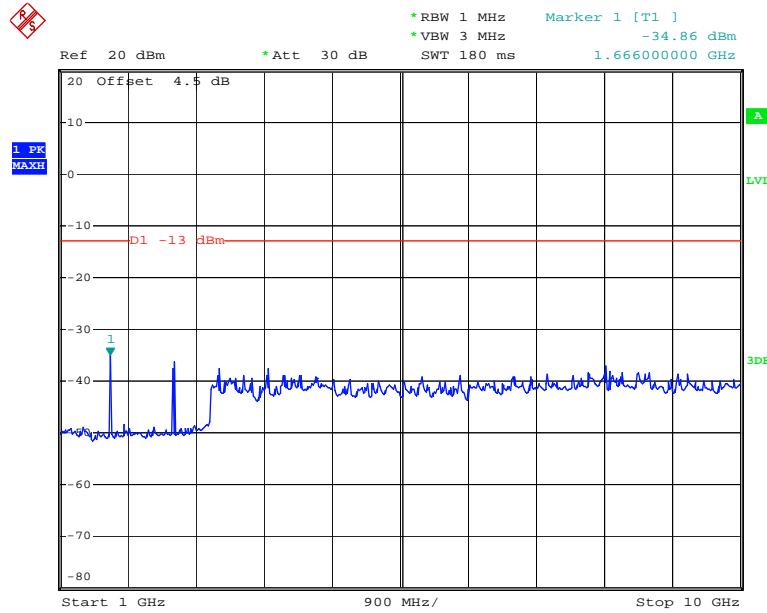
Date: 7.JAN.2020 12:52:33

QPSK_5 MHz


```
                                    *RBW 100 kHz   Marker 1 [T1 ]
                                    *VBW 300 kHz          -37.84 dBm
     Ref  30 dBm          *Att  40 dB    SWT 100 ms      313.240000000 MHz
```

Fundamental

Date: 7.JAN.2020 12:52:54


```
                                    *RBW 1 MHz    Marker 1 [T1 ]
                                    *VBW 3 MHz           -35.74 dBm
     Ref  20 dBm          *Att  30 dB    SWT 180 ms      3.754000000 GHz
```
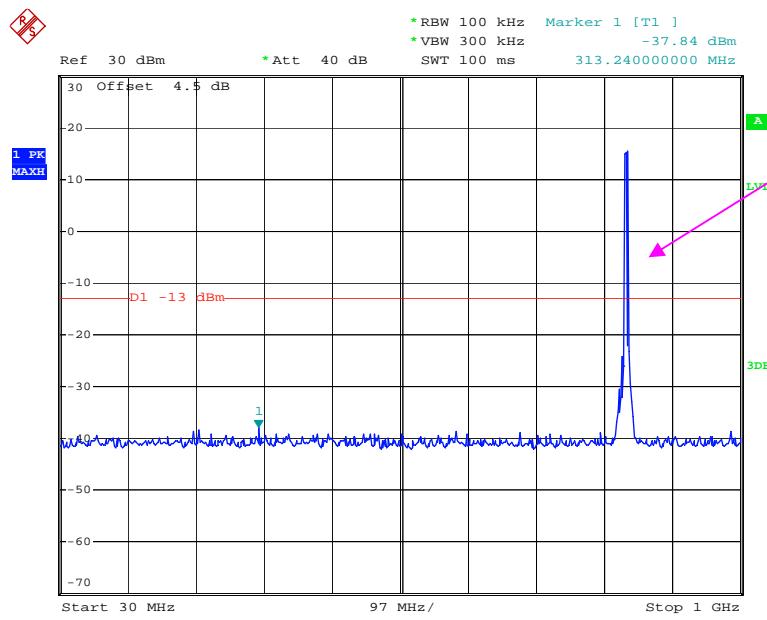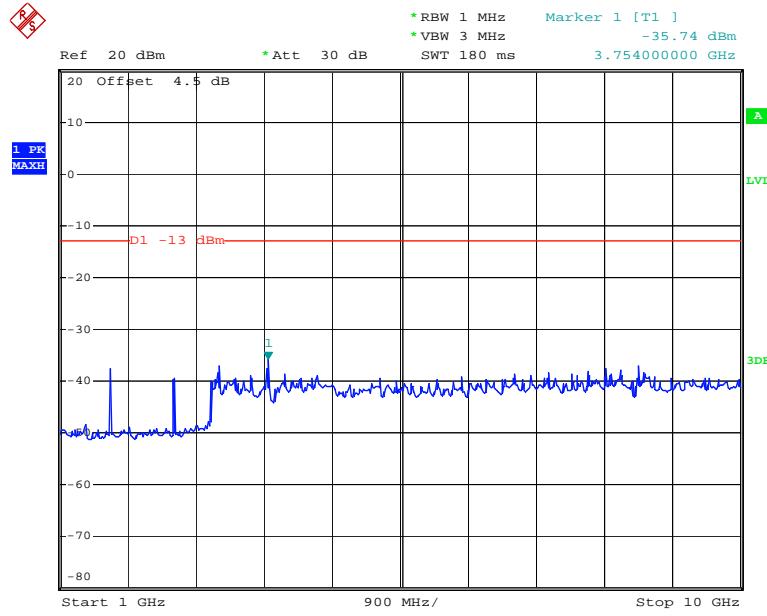
Date: 7.JAN.2020 12:53:06

QPSK_10 MHz


```
                                        *RBW 100 kHz    Marker 1 [T1 ]
                                        *VBW 300 kHz              -34.61 dBm
              Ref  30 dBm    *Att  40 dB   SWT 100 ms      817.640000000 MHz
```
```
   30 Offset  4.5 dB                                                      A
  -20
                                                                         LVL
  -10
   0
  -10  D1 -13 dBm                                                        3DB
  -20
  -30
  -40
  -50
  -60
  -70
   Start 30 MHz              97 MHz/                    Stop 1 GHz
```

Date: 7.JAN.2020 12:53:27


```
                                        *RBW 1 MHz      Marker 1 [T1 ]
                                        *VBW 3 MHz                -36.70 dBm
              Ref  20 dBm    *Att  30 dB   SWT 180 ms      3.106000000 GHz
```
```
   20 Offset  4.5 dB                                                      A
  -10
   0
  -10  D1 -13 dBm                                                        LVL
  -20
  -30
  -40                                                                    3DB
  -60
  -70
  -80
   Start 1 GHz               900 MHz/                   Stop 10 GHz
```
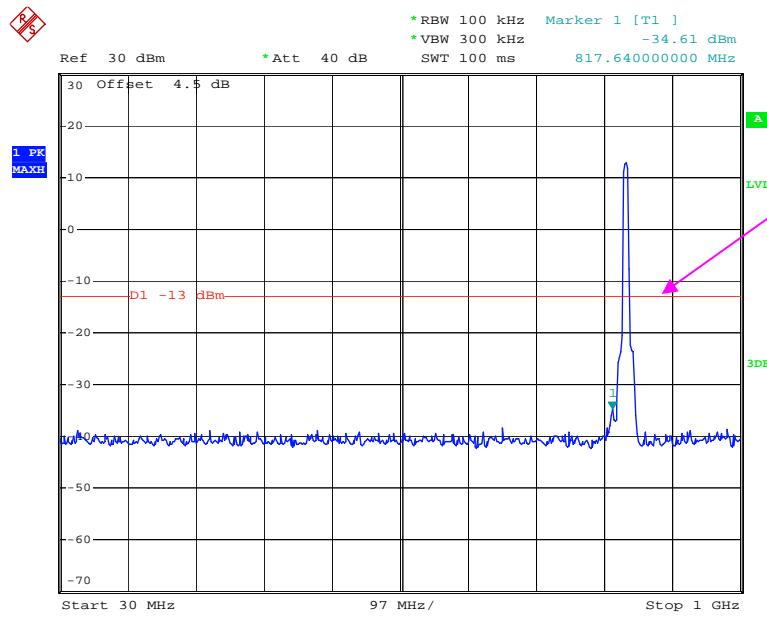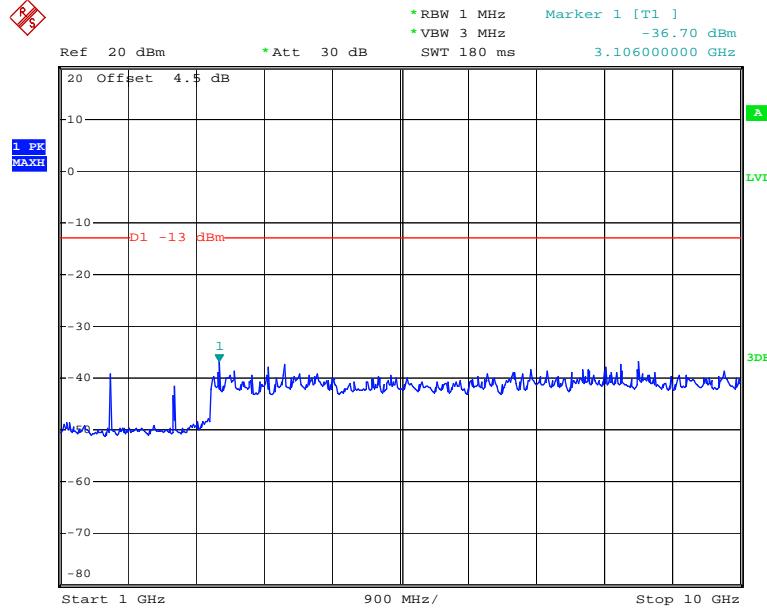
Date: 7.JAN.2020 12:53:40

LTE Band 7 (Middle Channel)

QPSK_5 MHz

Date: 7.JAN.2020 12:54:09

Fundamental

Date: 7.JAN.2020 12:54:22

*RBW 1 MHz   Marker 1 [T1]
*VBW 3 MHz   -27.68 dBm
Ref 14.5 dBm   *Att 20 dB   SWT 260 ms   16.750000000 GHz

Offset 4.5 dB

D1 -25 dBm

Center 20 GHz   1.3 GHz/   Span 13 GHz
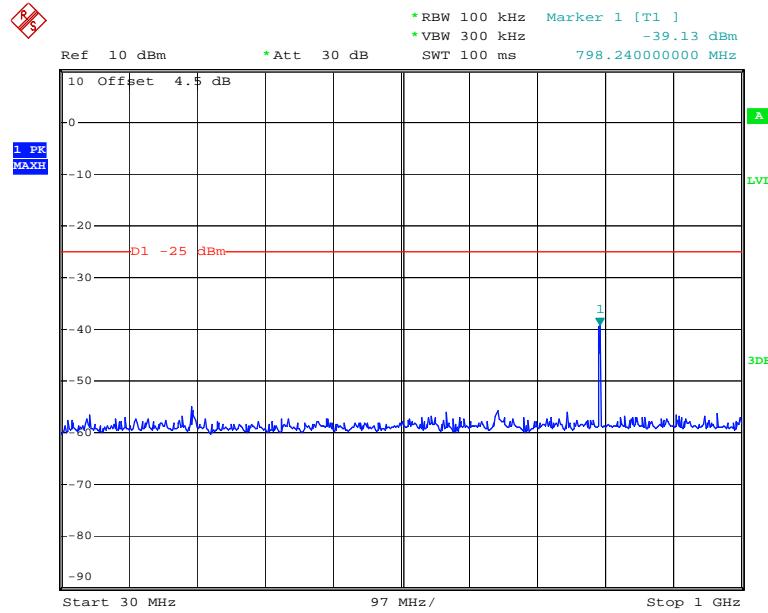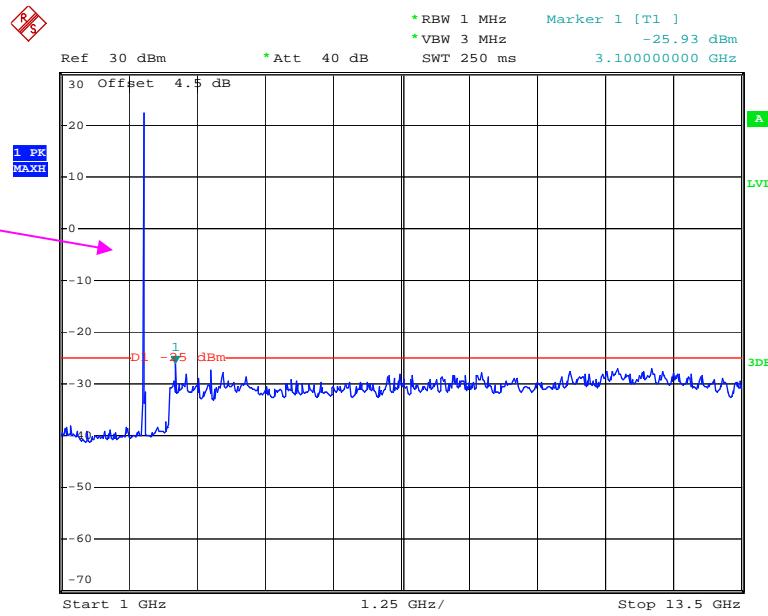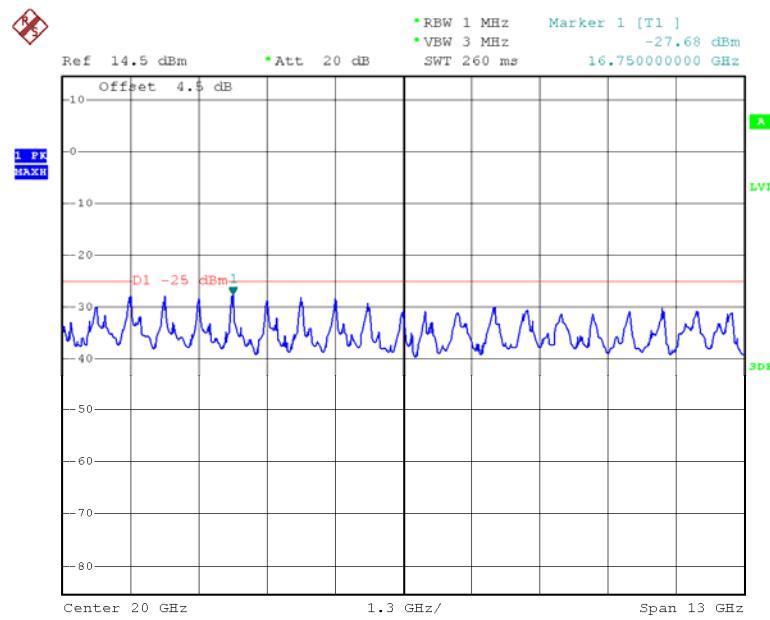
Date: 7.JAN.2020 13:45:42

QPSK_10 MHz

*RBW 100 kHz   Marker 1 [T1]
*VBW 300 kHz   -42.40 dBm
Ref 10 dBm   *Att 30 dB   SWT 100 ms   800.180000000 MHz

Offset 4.5 dB

D1 -25 dBm

Start 30 MHz   97 MHz/   Stop 1 GHz
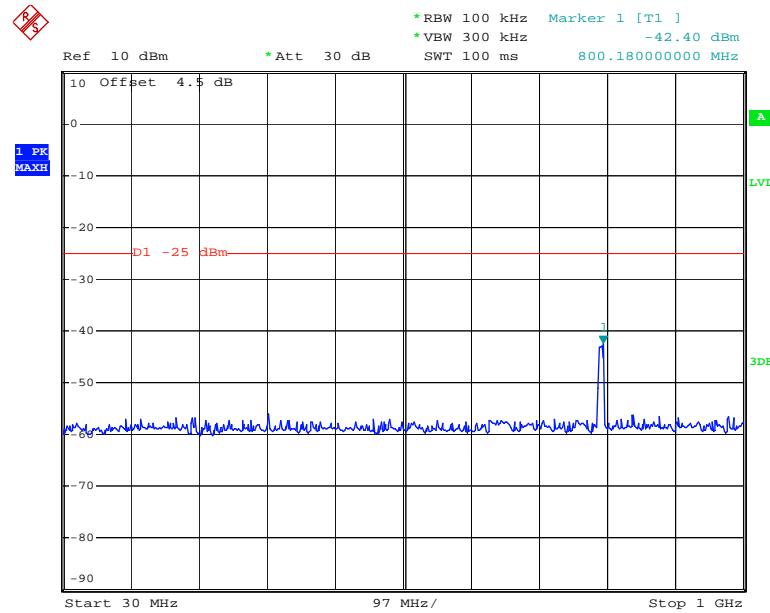
Date: 7.JAN.2020 12:54:55

Fundamental

```
                                    *RBW 1 MHz    Marker 1 [T1 ]
                                    *VBW 3 MHz           -26.56 dBm
     Ref  30 dBm        *Att  40 dB    SWT 250 ms    11.850000000 GHz
     30 Offset  4.5 dB                                          A
    -20
    -10                                                        LVL
     0
    -10
    -20
                  D1 -25 dBm                              1    3DB
    -30
    -50
    -60
    -70
     Start 1 GHz              1.25 GHz/          Stop 13.5 GHz
```

Date: 7.JAN.2020 12:55:08


```
                                    *RBW 1 MHz    Marker 1 [T1 ]
                                    *VBW 3 MHz           -27.99 dBm
     Ref  14.5 dBm       *Att  20 dB    SWT 260 ms    18.076000000 GHz
        Offset  4.5 dB                                          A
    -10
     0                                                         LVL
    -10
    -20
                  D1 -25 dBm        1
    -30
    -40                                                        3DB
    -50
    -60
    -70
    -80
     Center 20 GHz             1.3 GHz/          Span 13 GHz
```
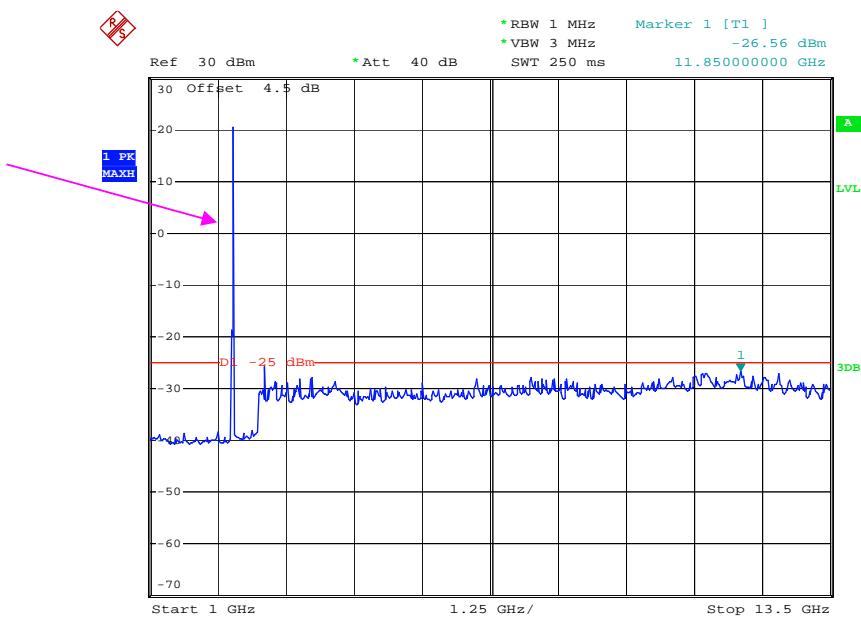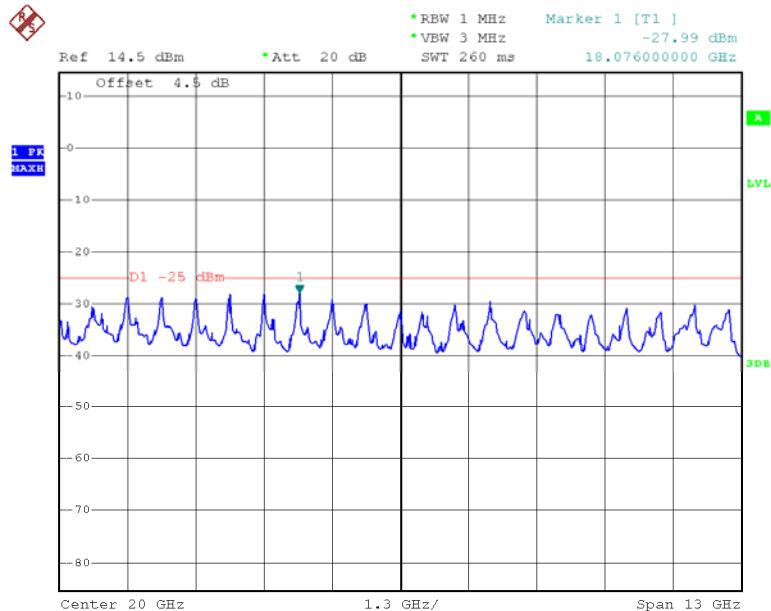
Date: 7.JAN.2020 13:46:26

QPSK_15 MHz

```
                                    *RBW 100 kHz   Marker 1 [T1 ]
                                    *VBW 300 kHz           -42.66 dBm
        Ref  10 dBm        *Att  30 dB   SWT 100 ms   798.240000000 MHz
```
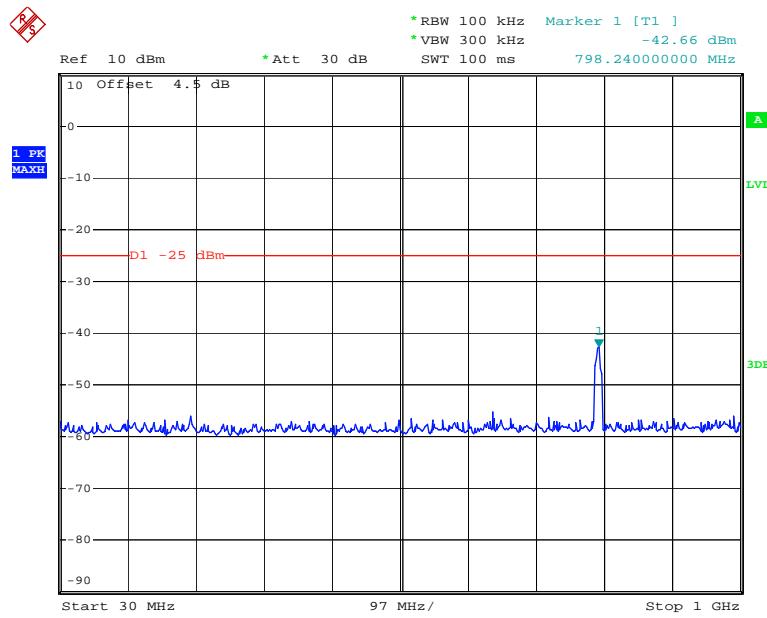
```
Date: 7.JAN.2020  12:55:48
```

Fundamental

```
                                    *RBW 1 MHz     Marker 1 [T1 ]
                                    *VBW 3 MHz             -26.44 dBm
        Ref  30 dBm        *Att  40 dB   SWT 250 ms   11.225000000 GHz
```
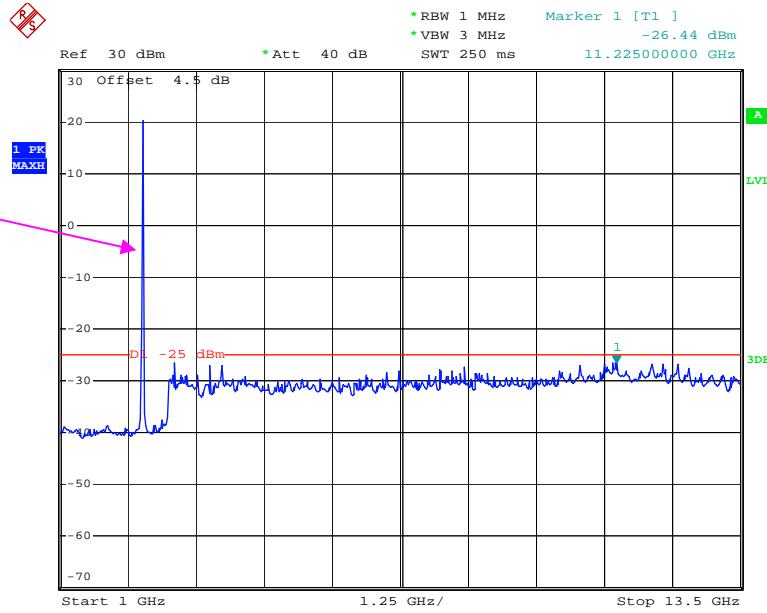
```
Date: 7.JAN.2020  12:56:01
```
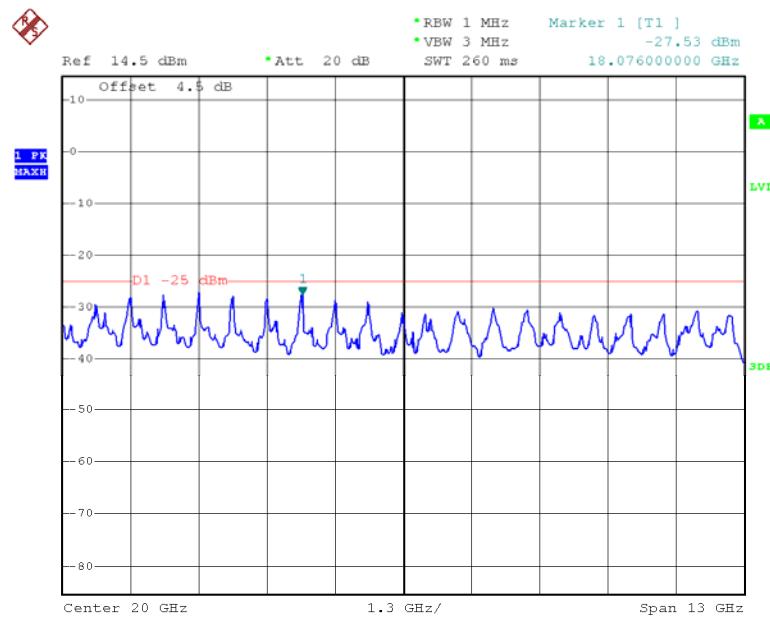
Date: 7.JAN.2020　13:47:11

QPSK_20 MHz

Date: 7.JAN.2020　12:56:40

QPSK_20 MHz


```
                                          *RBW 1 MHz    Marker 1 [T1 ]
                                          *VBW 3 MHz              -26.47 dBm
            Ref  30 dBm       *Att  40 dB  SWT 250 ms     11.200000000 GHz
            30 Offset  4.5 dB
```

Fundamental

Date: 7.JAN.2020 12:56:53


```
                                          *RBW 1 MHz    Marker 1 [T1 ]
                                          *VBW 3 MHz              -26.71 dBm
            Ref  14.5 dBm     *Att  20 dB  SWT 260 ms     18.050000000 GHz
               Offset  4.5 dB
```
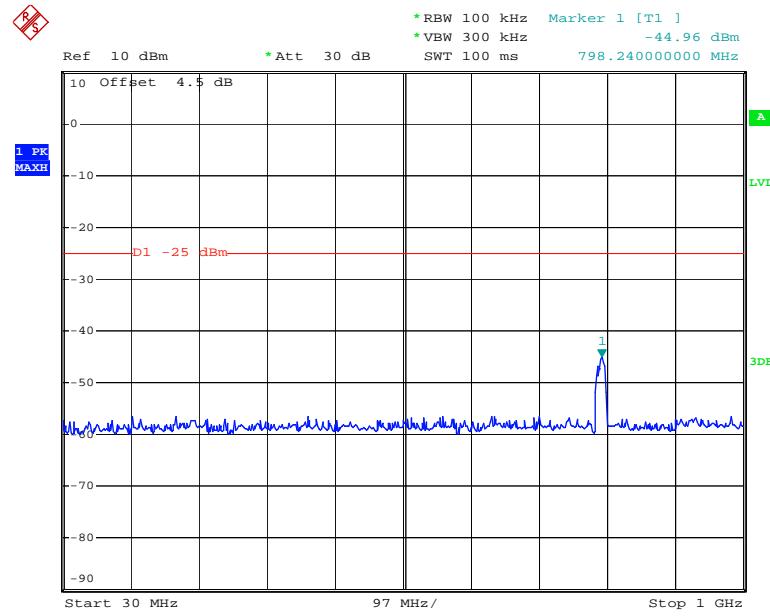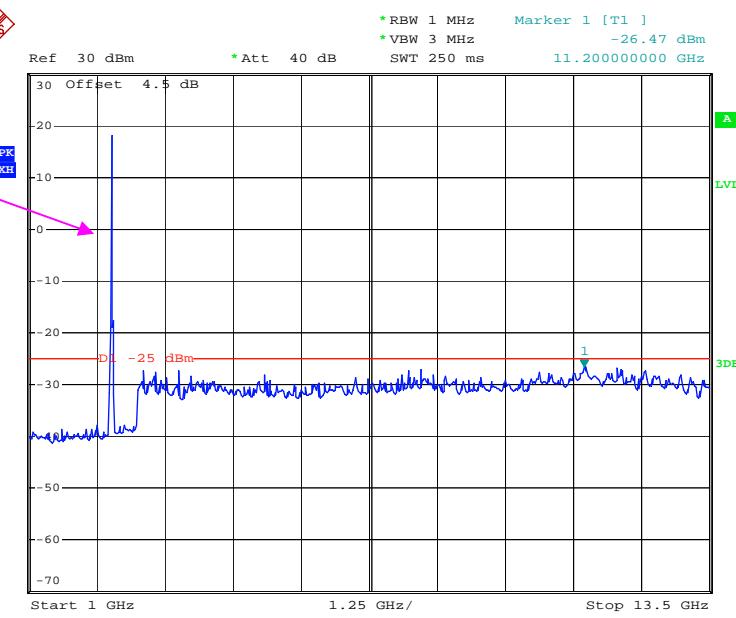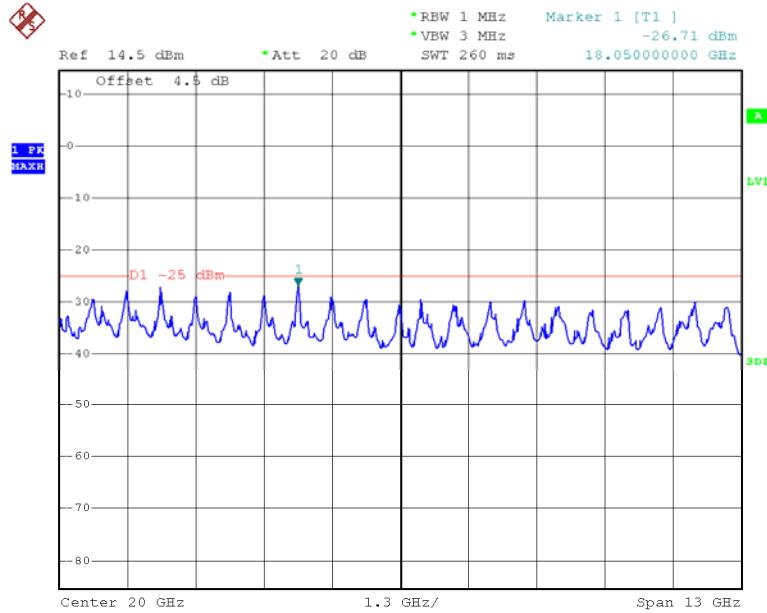
Date: 7.JAN.2020 13:48:01

LTE Band 12 (Middle Channel)

QPSK_1.4 MHz
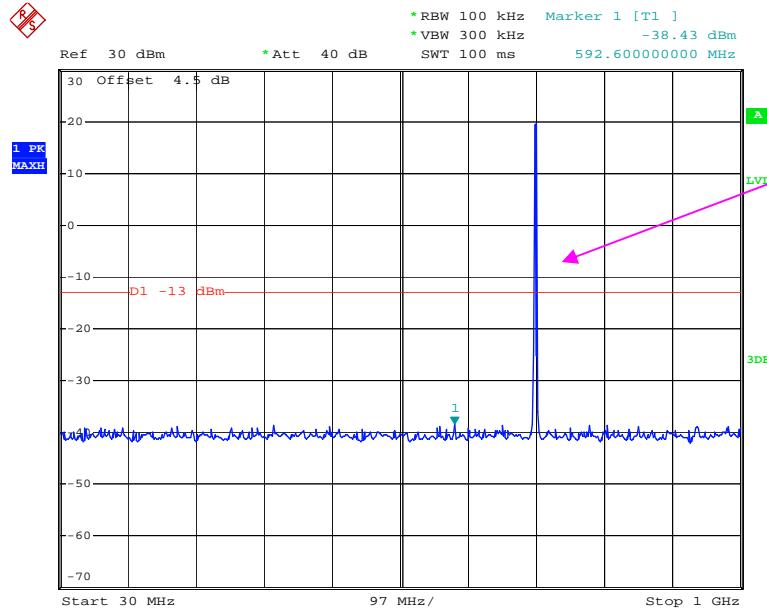
Fundamental

Date: 7.JAN.2020 12:57:39
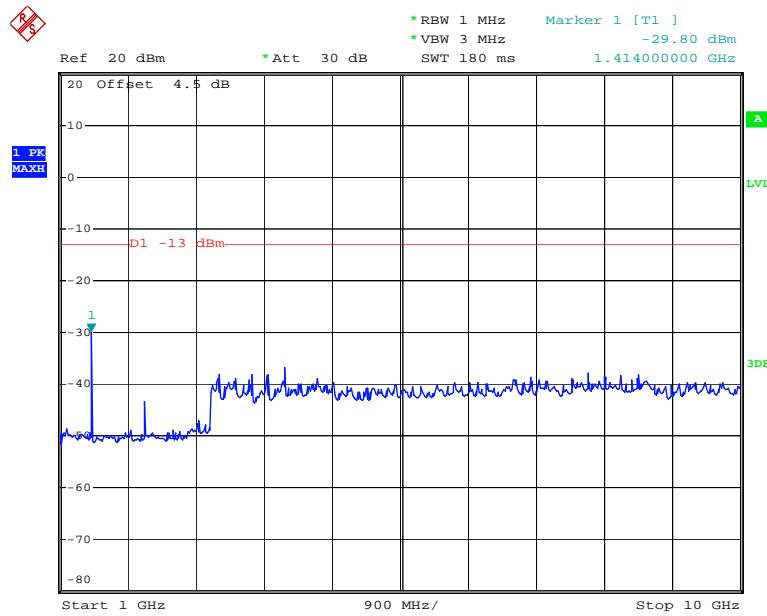
Date: 7.JAN.2020 12:57:52

QPSK_3 MHz

```
                                    *RBW 100 kHz   Marker 1 [T1 ]
                                    *VBW 300 kHz              -38.73 dBm
        Ref  30 dBm      *Att  40 dB   SWT 100 ms      513.060000000 MHz
```

Fundamental

Date: 7.JAN.2020 12:58:12

```
                                    *RBW 1 MHz     Marker 1 [T1 ]
                                    *VBW 3 MHz                -33.92 dBm
        Ref  20 dBm      *Att  30 dB   SWT 180 ms      1.414000000 GHz
```
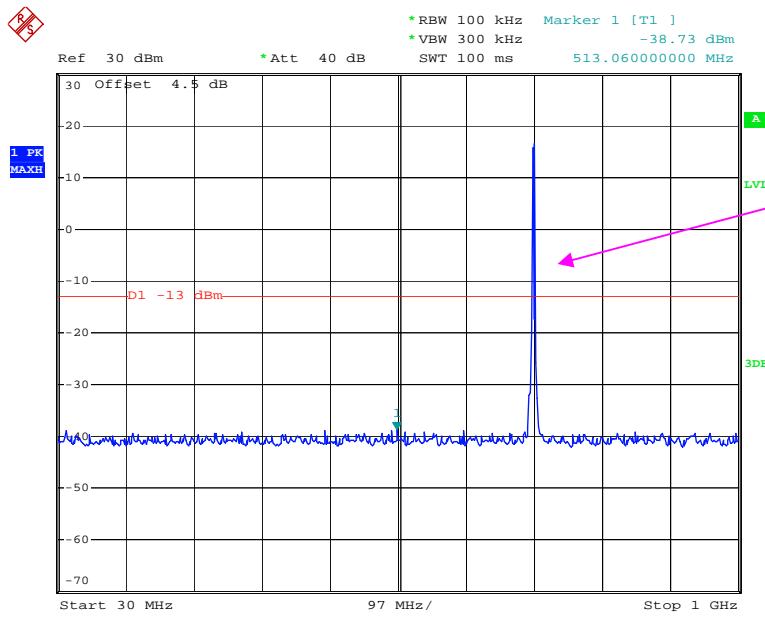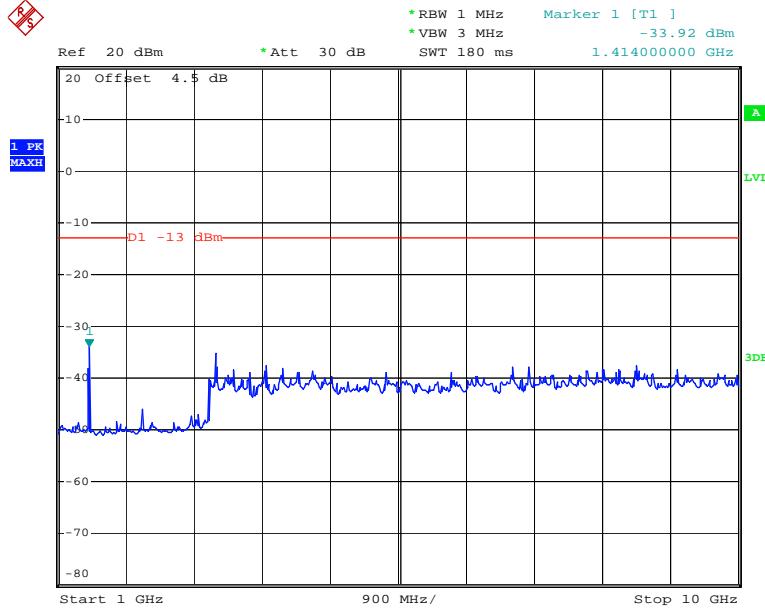
Date: 7.JAN.2020 12:58:25

QPSK_5 MHz

```
                              *RBW 100 kHz   Marker 1 [T1 ]
                              *VBW 300 kHz           -38.74 dBm
        Ref  30 dBm      *Att  40 dB    SWT 100 ms    503.360000000 MHz
```

Fundamental

Date: 7.JAN.2020 12:58:45

```
                              *RBW 1 MHz     Marker 1 [T1 ]
                              *VBW 3 MHz            -36.06 dBm
        Ref  20 dBm      *Att  30 dB    SWT 180 ms    1.414000000 GHz
```
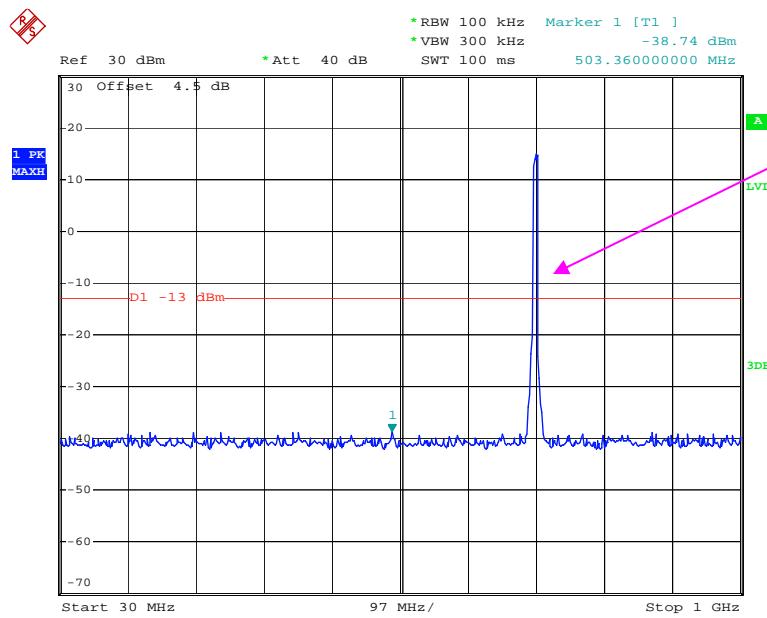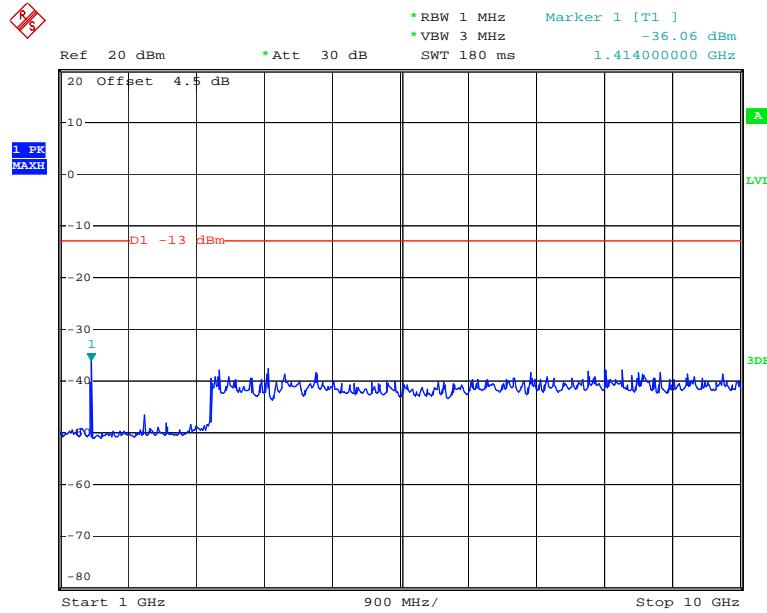
Date: 7.JAN.2020 12:58:58

QPSK_10 MHz
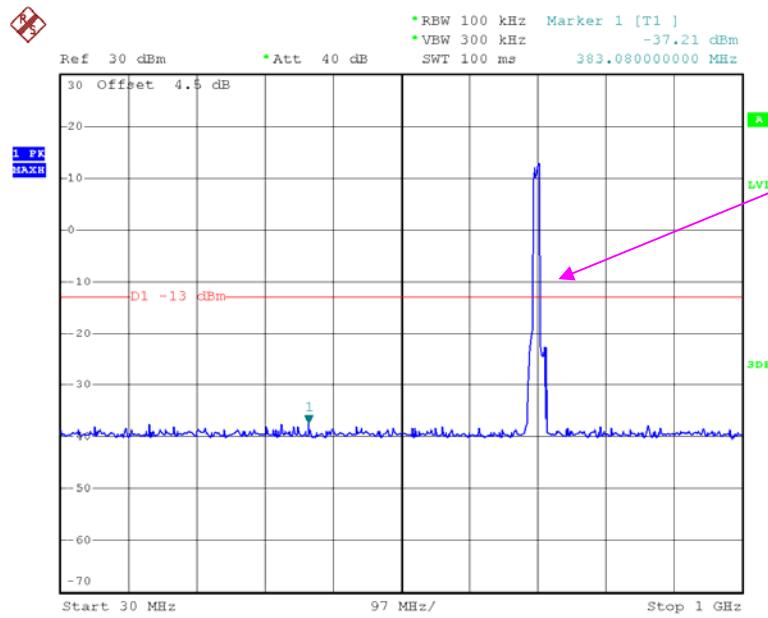
Fundamental

Date: 7.JAN.2020　14:00:11
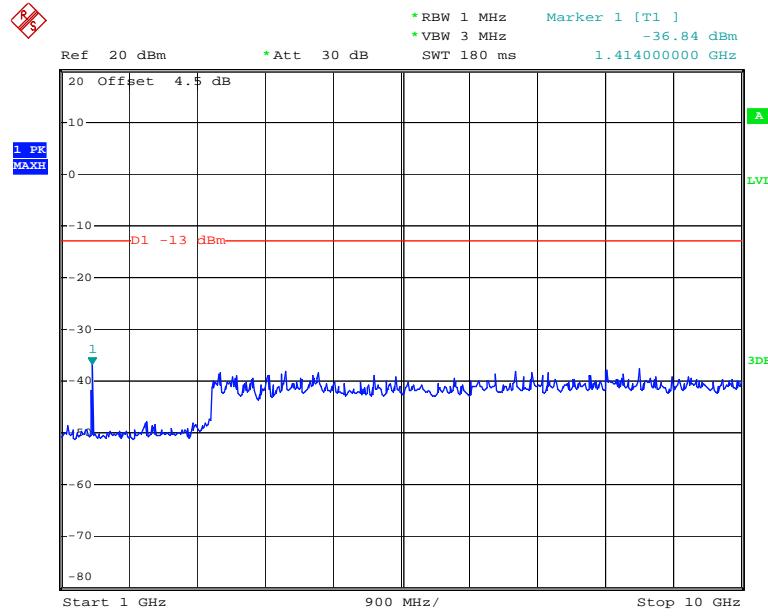
Date: 7.JAN.2020　12:59:35

LTE Band 13 (Middle Channel)

QPSK_5 MHz

Fundamental
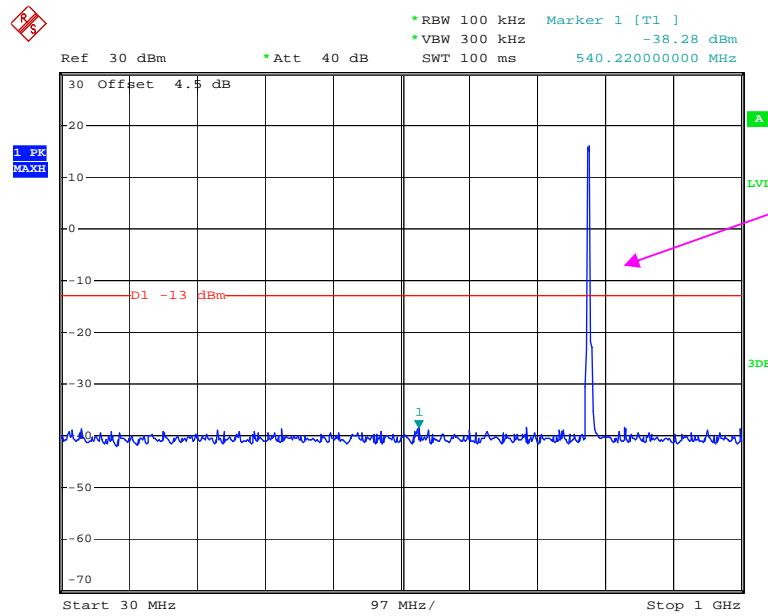
Date: 7.JAN.2020 13:00:11
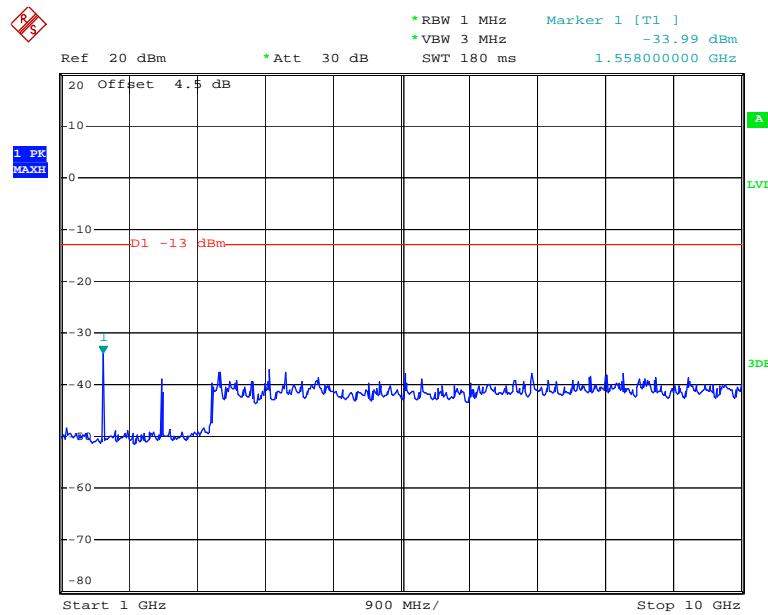
Date: 7.JAN.2020 13:00:24
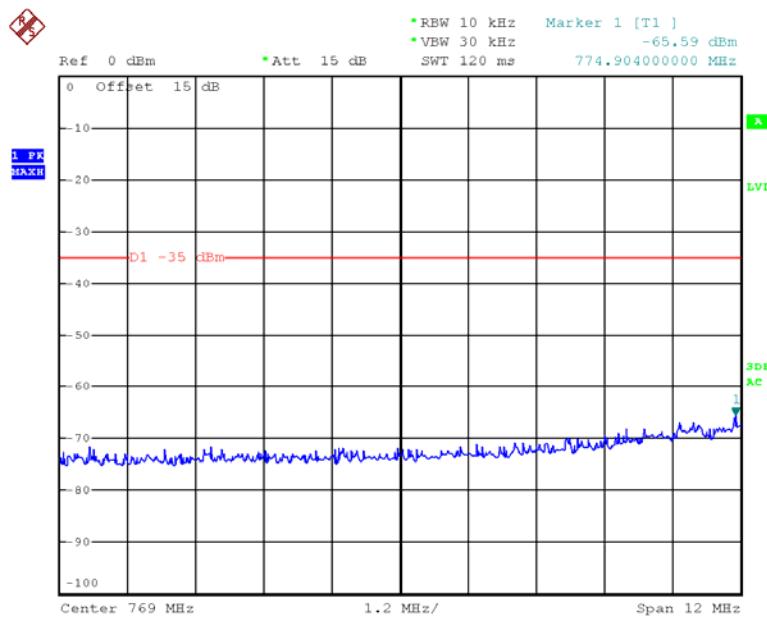
Date: 13.APR.2020 18:45:45

Date: 13.APR.2020 18:46:35

```
                                      *RBW 1 MHz    Marker 1 [T1 ]
                                      *VBW 3 MHz              -42.07 dBm
      Ref   0 dBm        *Att  25 dB  *SWT 20 ms       1.575422000 GHz
      0  Offset  15 dB
                                                                        A
     -10
1 PK
MAXH -20                                                                LVL

     -30

     -40  D1 -40 dBm      1
     -50                                                                3DB
                                                                        AC
     -60

     -70

     -80

     -90

    -100
      Start 1.559 GHz       5.1 MHz/            Stop 1.61 GHz
```
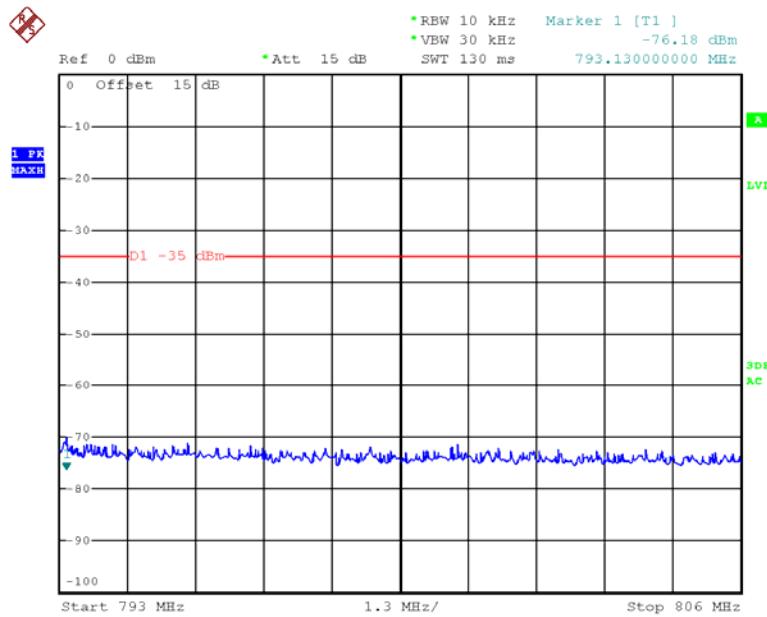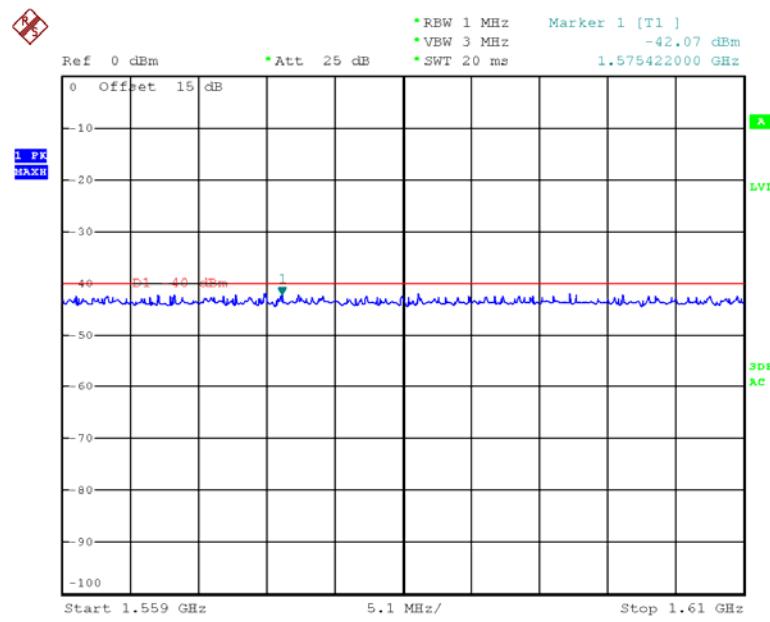
Date: 13.APR.2020 19:02:55

QPSK_10 MHz

```
                                      *RBW 100 kHz  Marker 1 [T1 ]
                                      *VBW 300 kHz            -38.02 dBm
      Ref  30 dBm         *Att  40 dB  SWT 100 ms     181.320000000 MHz
      30  Offset  4.5 dB
                                                                        A
     -20
1 PK
MAXH  10                                                                LVL

      0

     -10  D1 -13 dBm                                      Fundamental

     -20

     -30
           1
     -50

     -60

     -70
      Start 30 MHz         97 MHz/              Stop 1 GHz
```

Date: 7.JAN.2020 13:00:47

```
                                      *RBW  1 MHz     Marker 1 [T1 ]
                                      *VBW  3 MHz                -36.15 dBm
            Ref   20 dBm    *Att   30 dB    SWT 180 ms      1.558000000 GHz
```

Date: 7.JAN.2020 13:01:00


```
                                       *RBW 10 kHz     Marker 1 [T1 ]
                                       *VBW 30 kHz                -57.41 dBm
            Ref   0 dBm     *Att   30 dB    SWT 120 ms      775.000000000 MHz
```
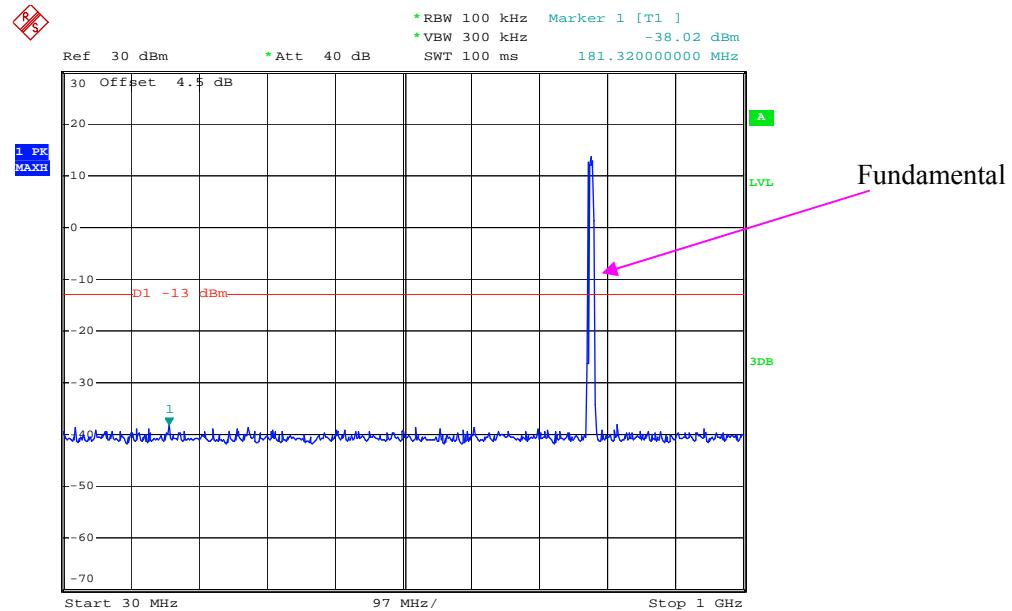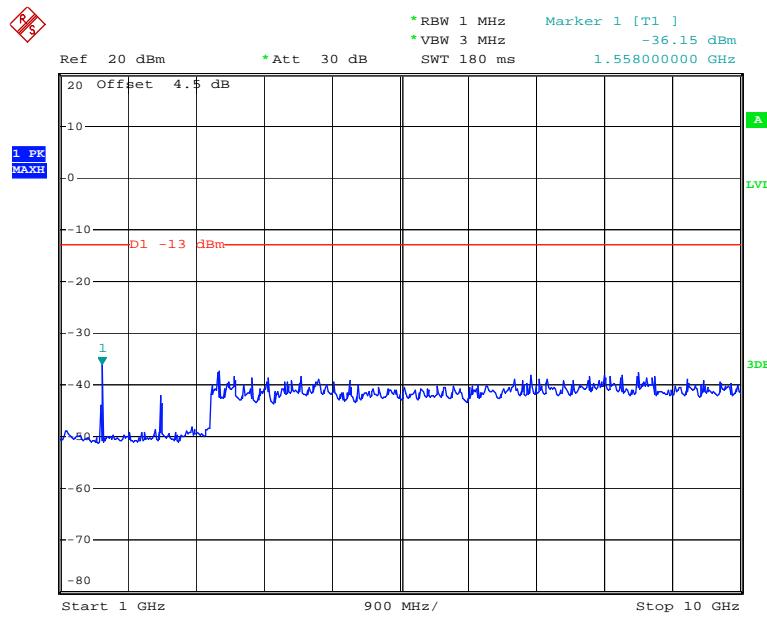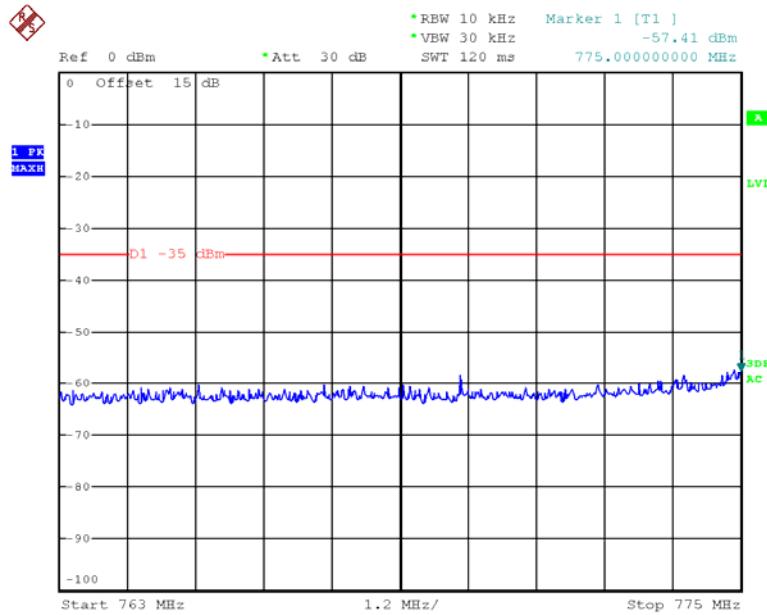
Date: 13.APR.2020 19:08:43
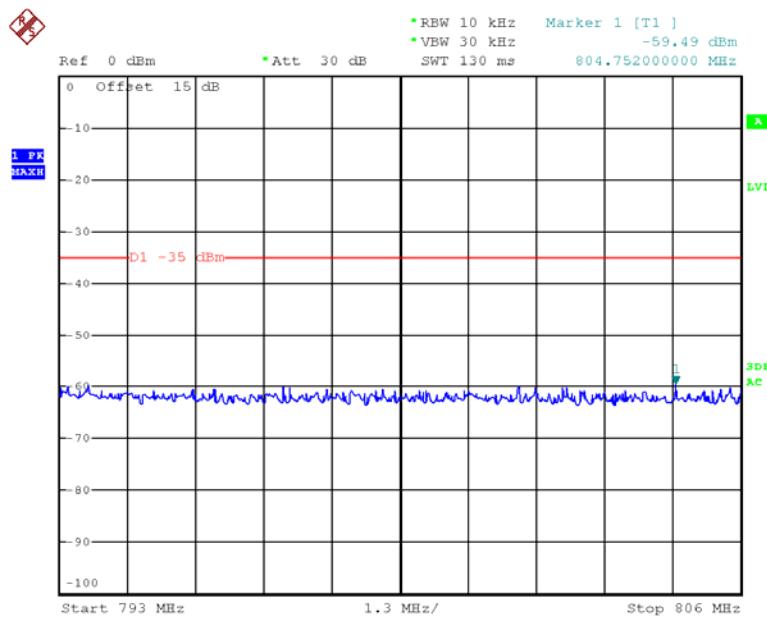
Date: 13.APR.2020　19:07:52
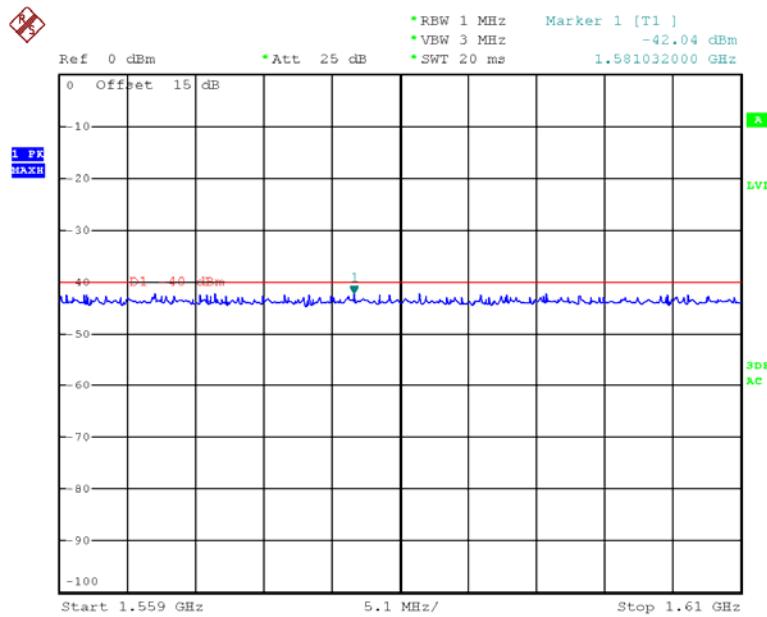
Date: 13.APR.2020　19:04:22

LTE Band 17 (Middle Channel)

QPSK_5 MHz
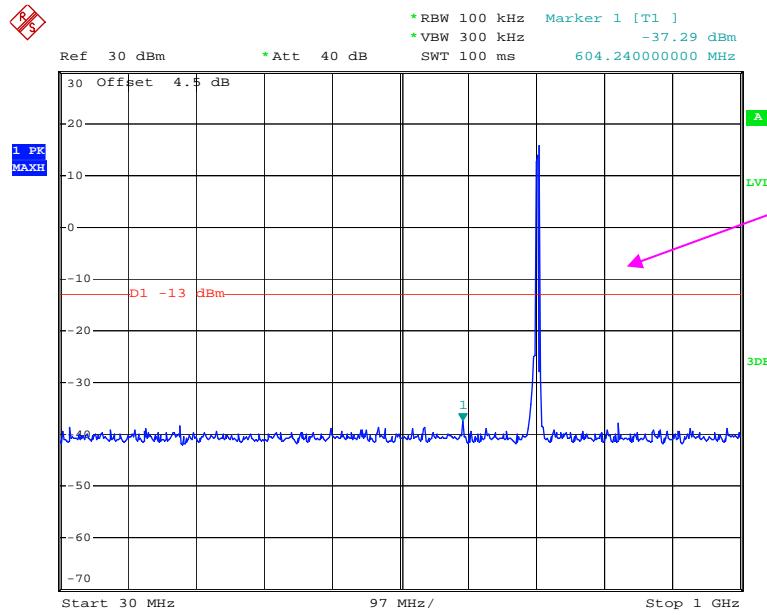
Fundamental

Date: 7.JAN.2020 13:01:34
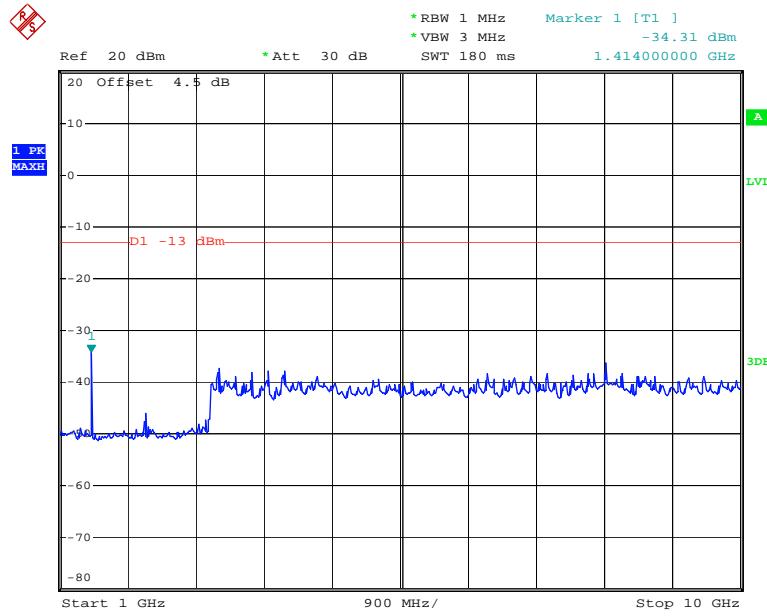
Date: 7.JAN.2020 13:01:47

QPSK_10 MHz

```
                                        *RBW 100 kHz    Marker 1 [T1 ]
                                        *VBW 300 kHz              -38.54 dBm
              Ref  30 dBm    *Att  40 dB   SWT 100 ms      117.300000000 MHz
```

Fundamental

Date: 7.JAN.2020 13:02:11

```
                                        *RBW 1 MHz     Marker 1 [T1 ]
                                        *VBW 3 MHz                -35.09 dBm
              Ref  20 dBm    *Att  30 dB   SWT 180 ms      1.414000000 GHz
```
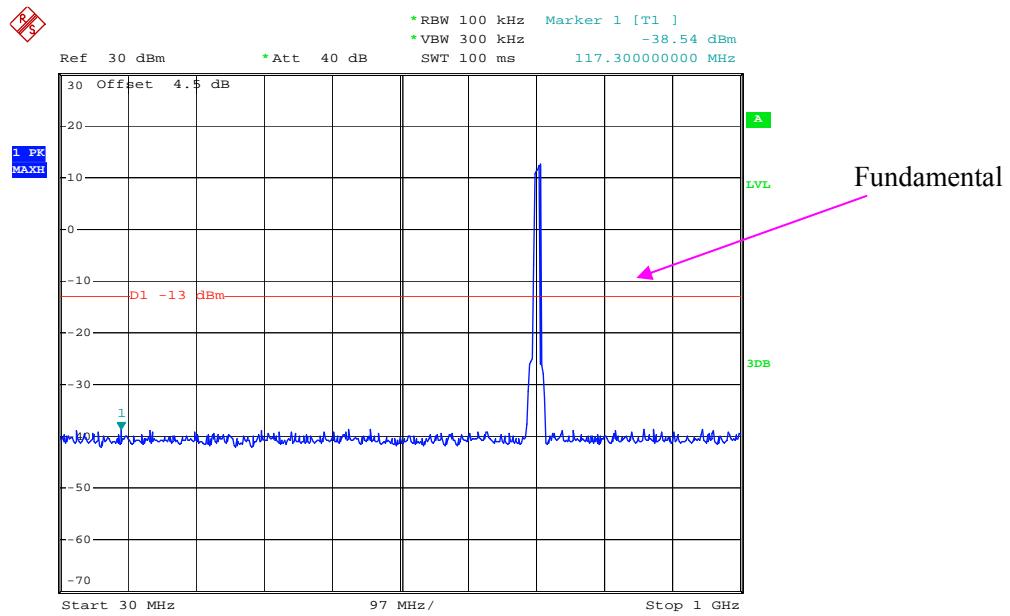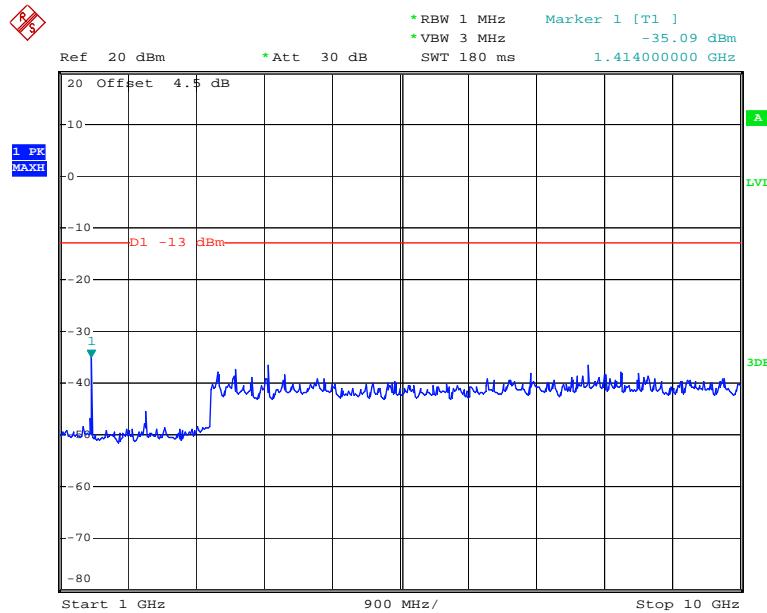
Date: 7.JAN.2020 13:02:24

LTE Band 25 (Middle Channel)

QPSK_1.4 MHz
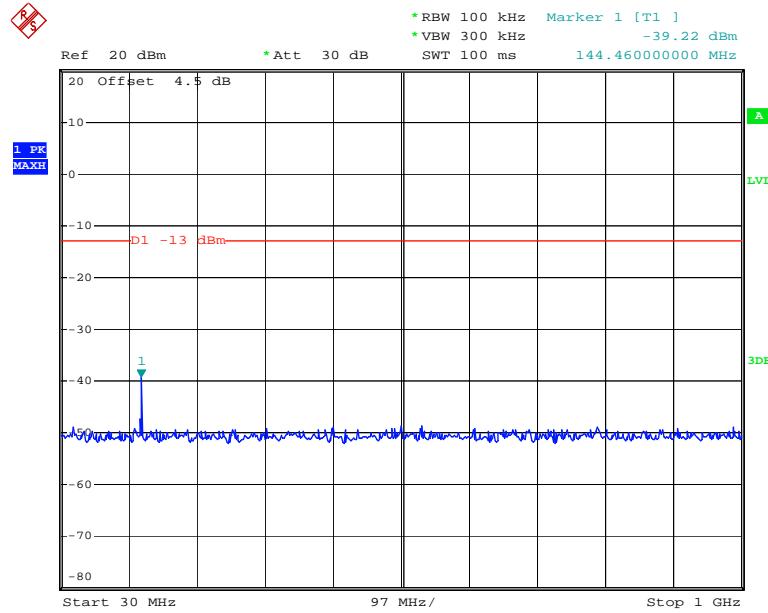
Date: 7.JAN.2020 13:02:49

Fundamental

Date: 7.JAN.2020 13:03:01

```
                                        *RBW 1 MHz    Marker 1 [T1 ]
                                        *VBW 3 MHz              -18.79 dBm
         Ref   20 dBm        *Att  30 dB    SWT 130 ms        15.424000000 GHz
         20 Offset  4.5 dB                                              A

        -10

1 PK    -0                                                             LVL
MAXH
        -10
               D1 -13 dBm
        -20                    1
                                                                      3DB
        -30

        -40

        -50

        -60

        -70

        -80
         Start 13.5 GHz           650 MHz/            Stop 20 GHz
```
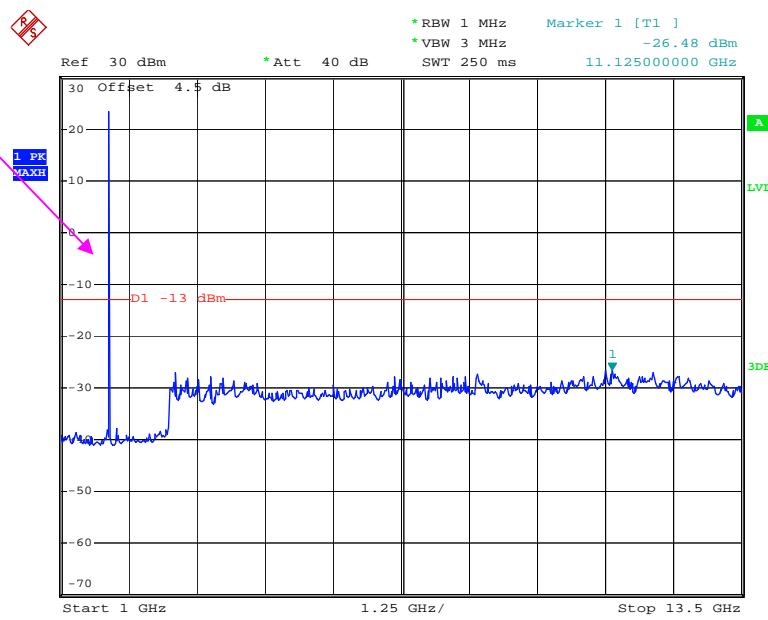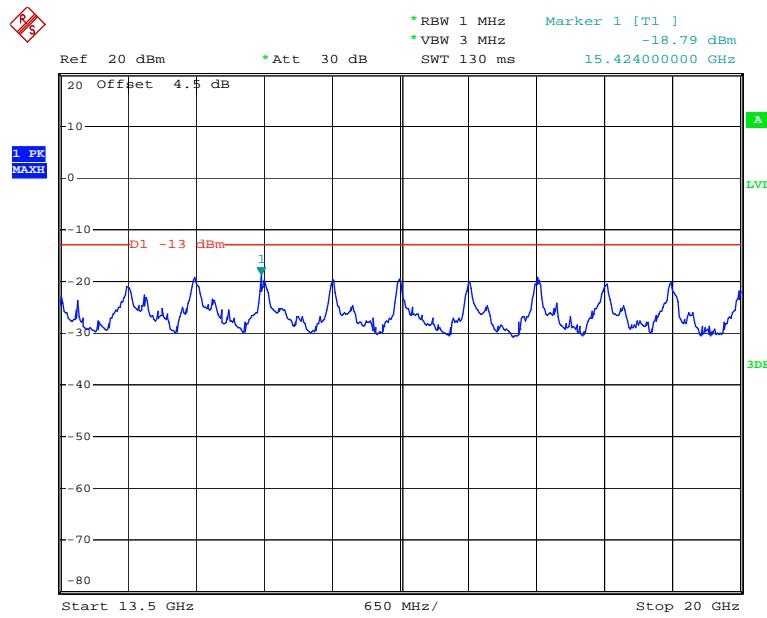
Date: 7.JAN.2020 13:03:22

QPSK_3 MHz

```
                                        *RBW 100 kHz   Marker 1 [T1 ]
                                        *VBW 300 kHz            -41.10 dBm
         Ref   20 dBm        *Att  30 dB    SWT 100 ms        144.460000000 MHz
         20 Offset  4.5 dB                                              A

        -10

1 PK    -0                                                             LVL
MAXH
        -10
               D1 -13 dBm
        -20

        -30
                                                                      3DB
        -40     1

        -50

        -60

        -70

        -80
         Start 30 MHz            97 MHz/             Stop 1 GHz
```
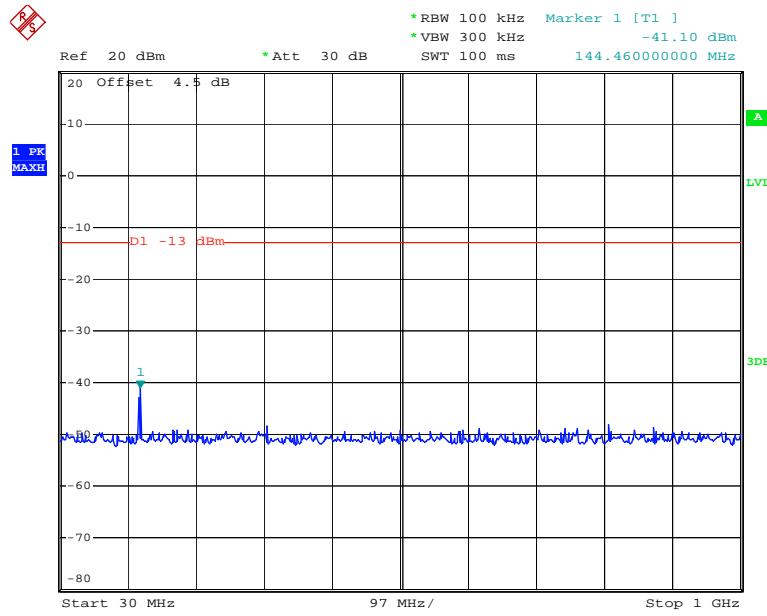
Date: 7.JAN.2020 13:03:41

QPSK_3 MHz

Fundamental

```
                                         *RBW 1 MHz     Marker 1 [T1 ]
                                         *VBW 3 MHz              -26.72 dBm
             Ref  30 dBm      *Att  40 dB   SWT 250 ms      11.225000000 GHz
             30  Offset  4.5 dB                                          A
         -20
1 PK
MAXH     -10                                                           LVL

           0

         -10    D1 -13 dBm

         -20                                                           3DB
         -30                                              1
         -40
         -50

         -60

         -70
             Start 1 GHz            1.25 GHz/           Stop 13.5 GHz
```

Date: 7.JAN.2020 13:03:54

```
                                         *RBW 1 MHz     Marker 1 [T1 ]
                                         *VBW 3 MHz              -18.94 dBm
             Ref  20 dBm      *Att  30 dB   SWT 130 ms      14.137000000 GHz
             20  Offset  4.5 dB                                          A
         -10
1 PK
MAXH       0                                                          LVL

         -10    D1 -13 dBm
         -20
1
         -30                                                          3DB
         -40

         -50

         -60

         -70

         -80
             Start 13.5 GHz          650 MHz/           Stop 20 GHz
```
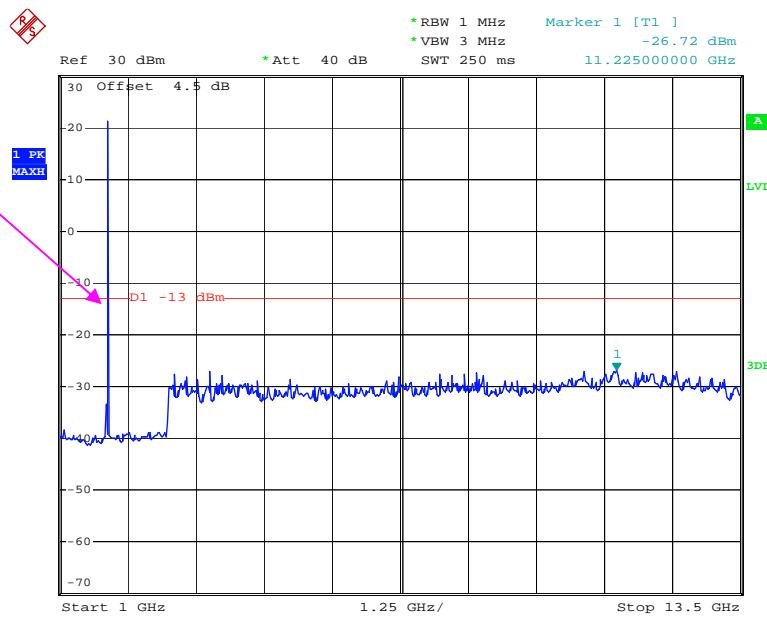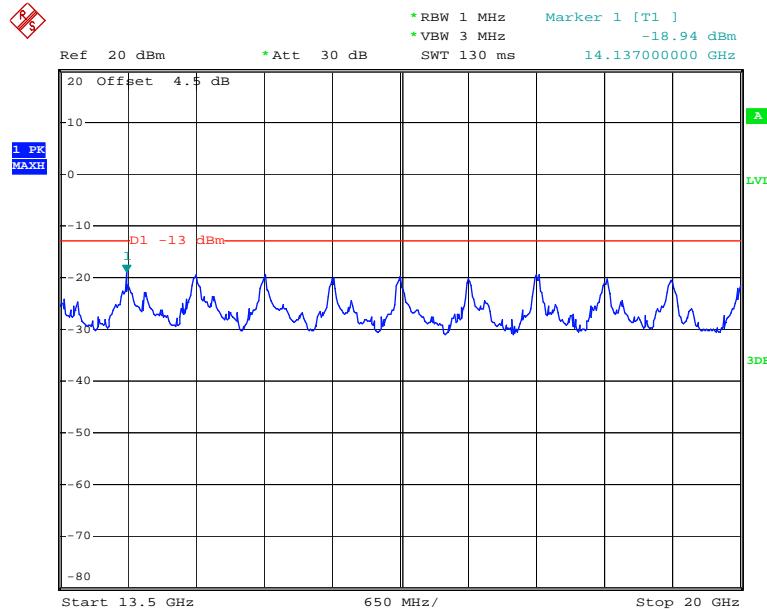
Date: 7.JAN.2020 13:04:07

QPSK_5 MHz
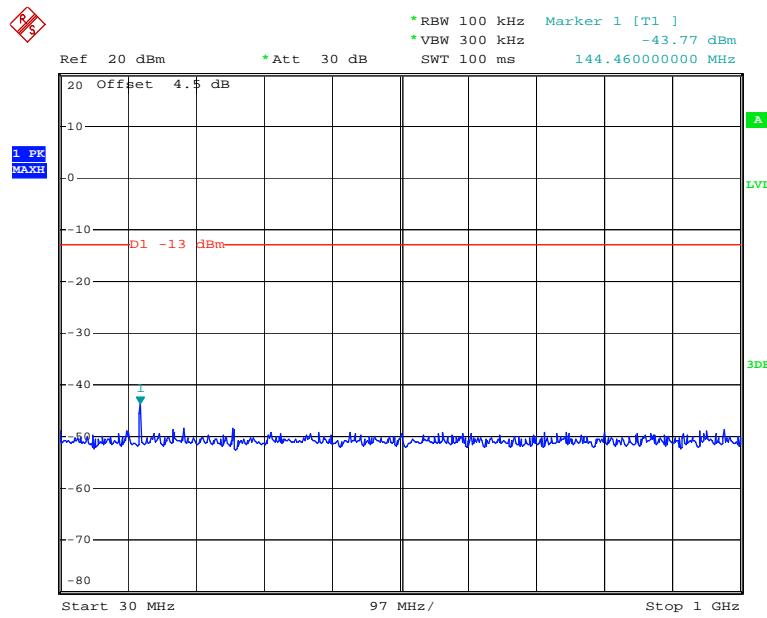
Date: 7.JAN.2020 13:04:27

Fundamental

Date: 7.JAN.2020 13:04:40

*RBW 1 MHz   Marker 1 [T1]
*VBW 3 MHz   -18.48 dBm
Ref 20 dBm   *Att 30 dB   SWT 130 ms   16.737000000 GHz
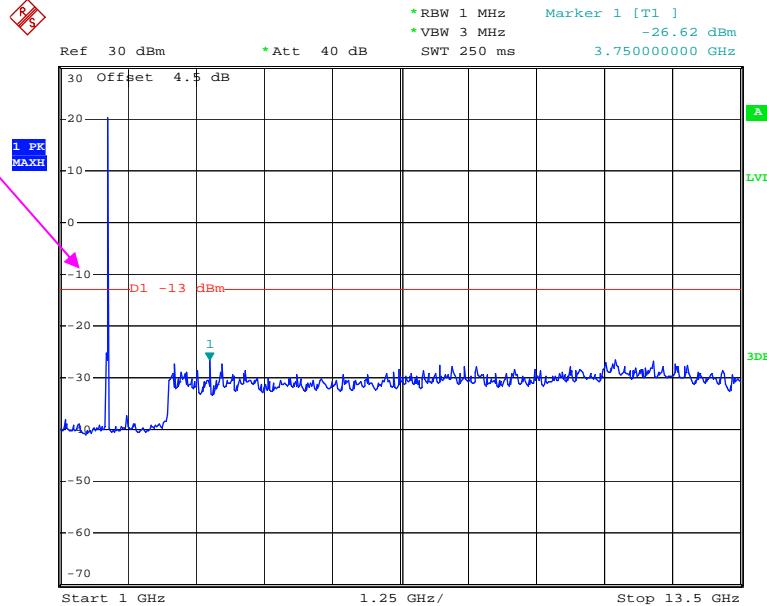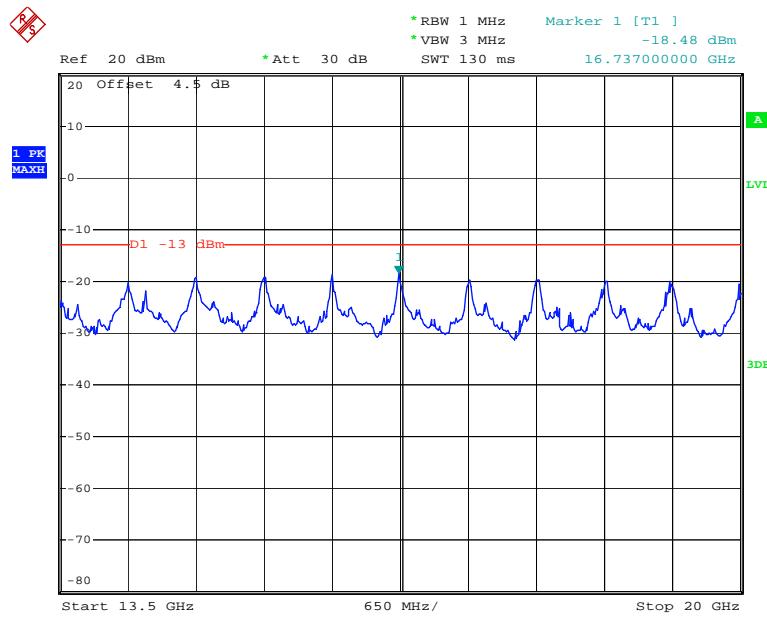
Date: 7.JAN.2020 13:04:53

QPSK_10 MHz

*RBW 100 kHz   Marker 1 [T1]
*VBW 300 kHz   -46.28 dBm
Ref 20 dBm   *Att 30 dB   SWT 100 ms   140.580000000 MHz
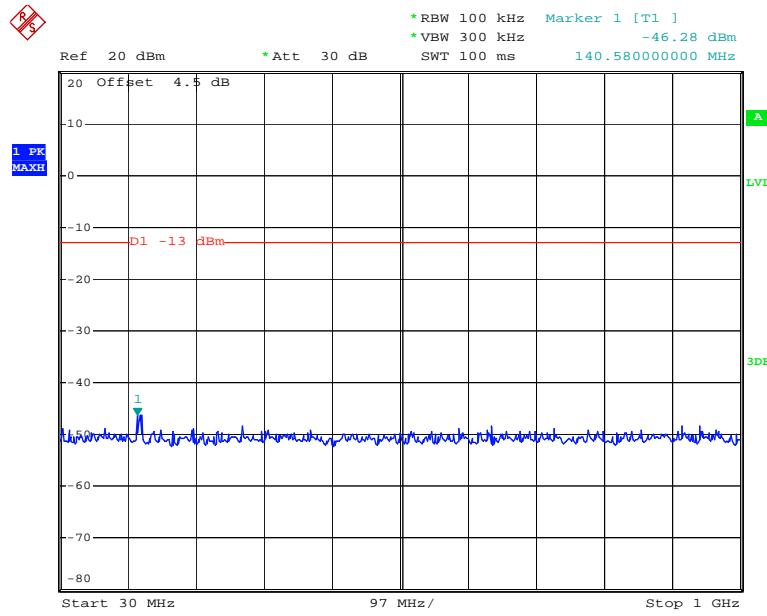
Date: 7.JAN.2020 13:05:14

Fundamental

```
                                    *RBW 1 MHz    Marker 1 [T1 ]
                                    *VBW 3 MHz            -26.51 dBm
      Ref  30 dBm       *Att  40 dB    SWT 250 ms    11.200000000 GHz
      30 Offset  4.5 dB
                                                              A
   -20
  1 PK
  MAXH -10
   -0
   -10
       D1 -13 dBm
   -20
                                                              3DB
   -30
   -50
   -60
   -70
      Start 1 GHz            1.25 GHz/          Stop 13.5 GHz
```

Date: 7.JAN.2020 13:05:27


```
                                    *RBW 1 MHz    Marker 1 [T1 ]
                                    *VBW 3 MHz            -19.05 dBm
      Ref  20 dBm       *Att  30 dB    SWT 130 ms    14.800000000 GHz
      20 Offset  4.5 dB
   -10
  1 PK
  MAXH -0
   -10
       D1 -13 dBm
   -20
   -3
                                                              3DB
   -40
   -50
   -60
   -70
   -80
      Start 13.5 GHz           650 MHz/          Stop 20 GHz
```
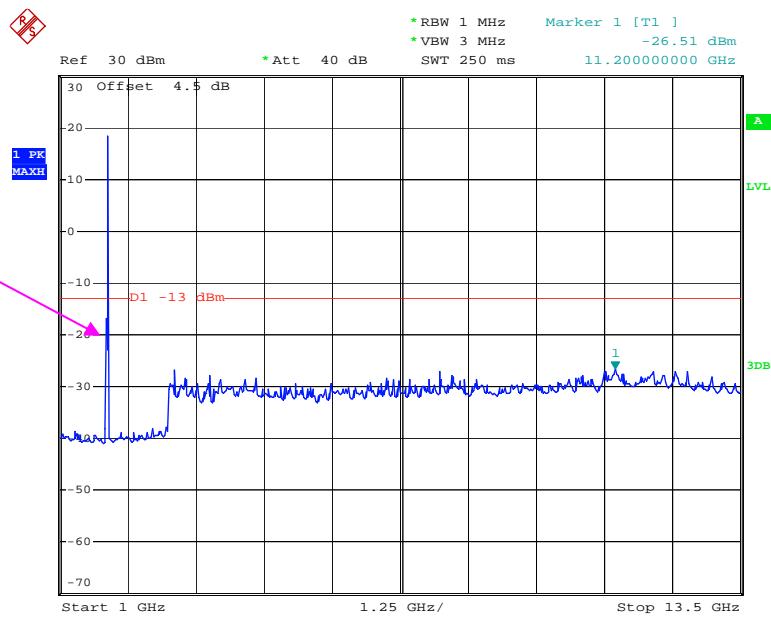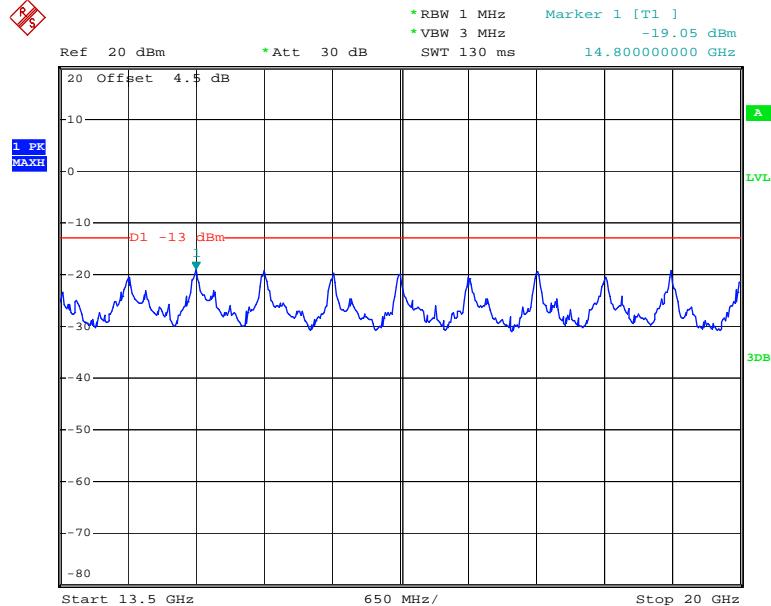
Date: 7.JAN.2020 13:05:39

QPSK_15 MHz

```
                                    *RBW 100 kHz   Marker 1 [T1 ]
                                    *VBW 300 kHz              -46.26 dBm
        Ref   20 dBm      *Att  30 dB    SWT 100 ms    142.520000000 MHz
```

```
 20  Offset  4.5 dB                                            A
-10
-0                                                            LVL
-10
        D1 -13 dBm
-20
-30
-40                                                          3DB
       1
-50
-60
-70
-80
Start 30 MHz            97 MHz/              Stop 1 GHz
```

Date: 7.JAN.2020 13:06:03

```
                                    *RBW 1 MHz    Marker 1 [T1 ]
                                    *VBW 3 MHz               -26.55 dBm
        Ref   30 dBm      *Att  40 dB    SWT 250 ms    3.100000000 GHz
```

Fundamental

```
 30  Offset  4.5 dB                                            A
-20
-10                                                           LVL
-0
-10
        D1 -13 dBm
-20
-30                                                          3DB
       1
-50
-60
-70
Start 1 GHz            1.25 GHz/             Stop 13.5 GHz
```
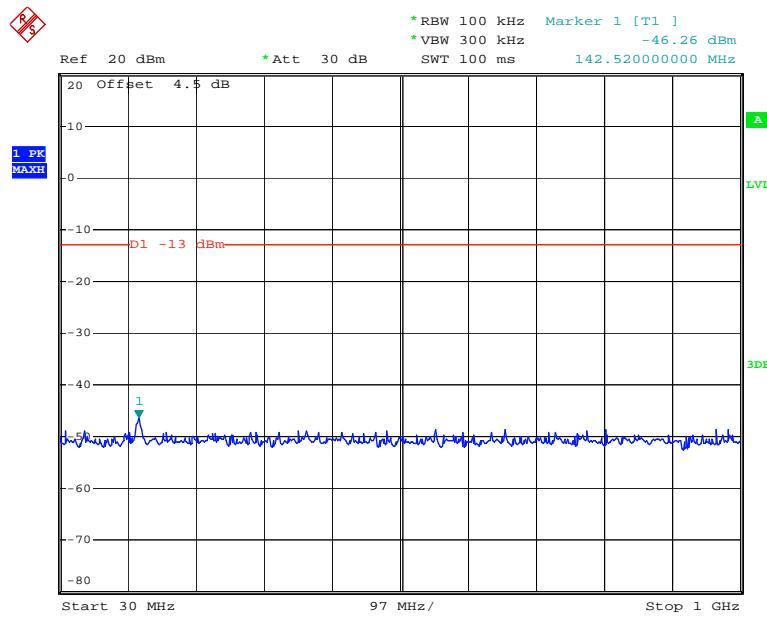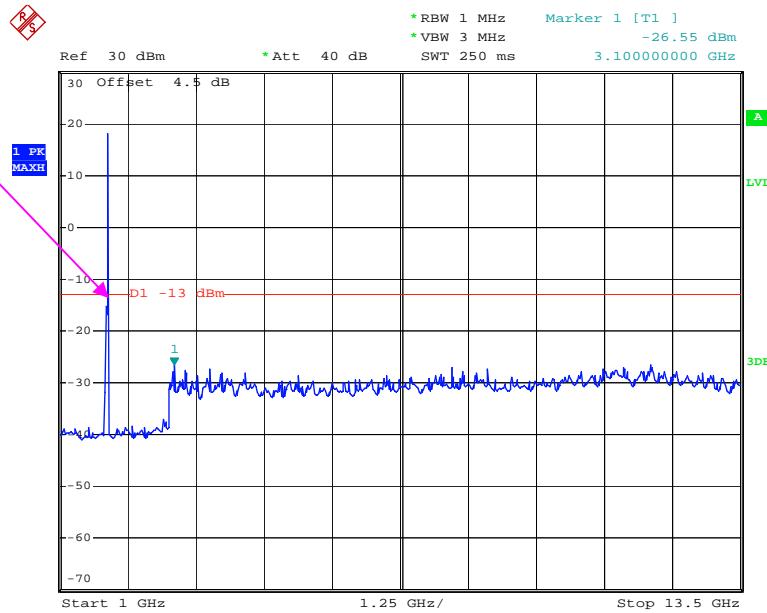
Date: 7.JAN.2020 13:06:16
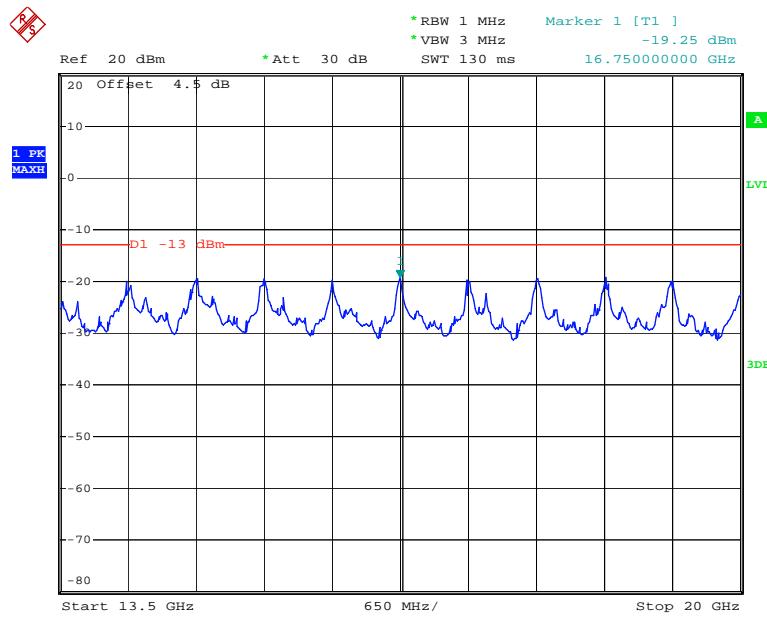
Date: 7.JAN.2020 13:06:29

QPSK_20 MHz
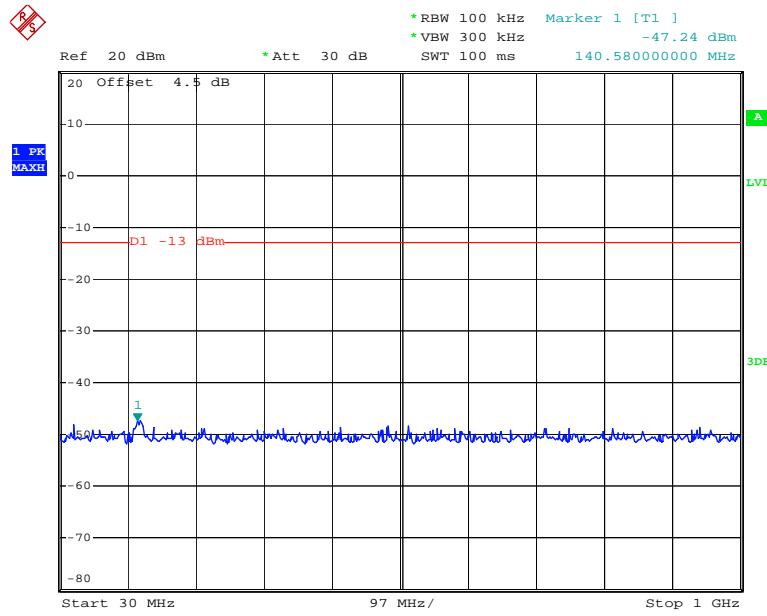
Date: 7.JAN.2020 13:06:56
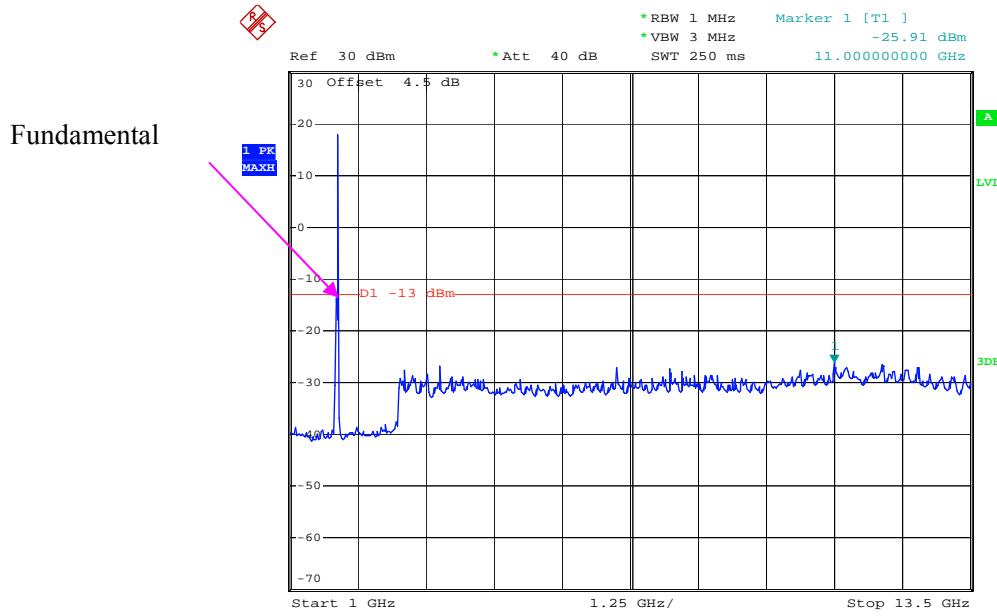
Fundamental

Date: 7.JAN.2020 13:07:09
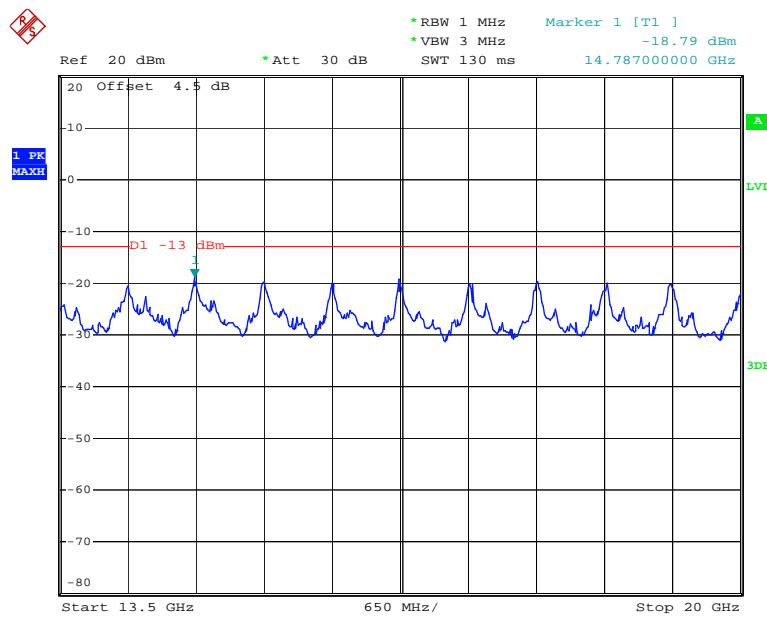
Date: 7.JAN.2020 13:07:22

LTE Band 26 (Middle Channel)

QPSK_1.4 MHz
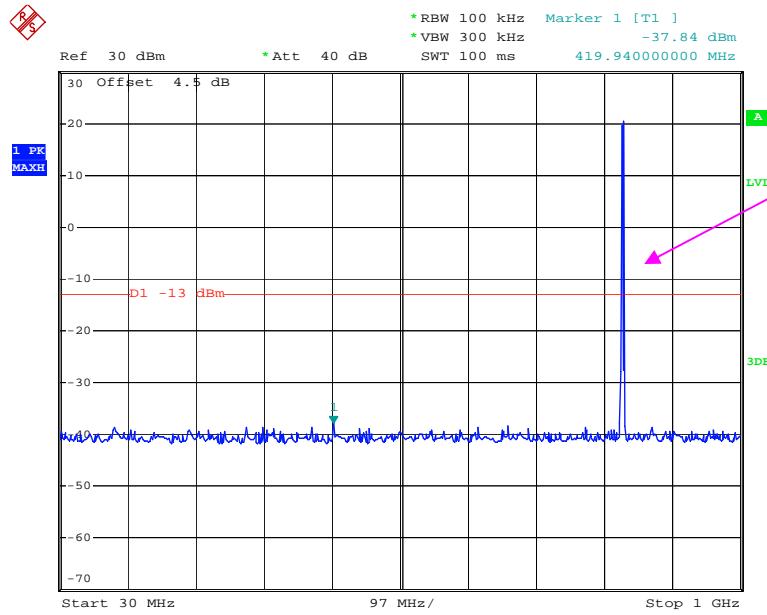
Date: 7.JAN.2020 13:19:03
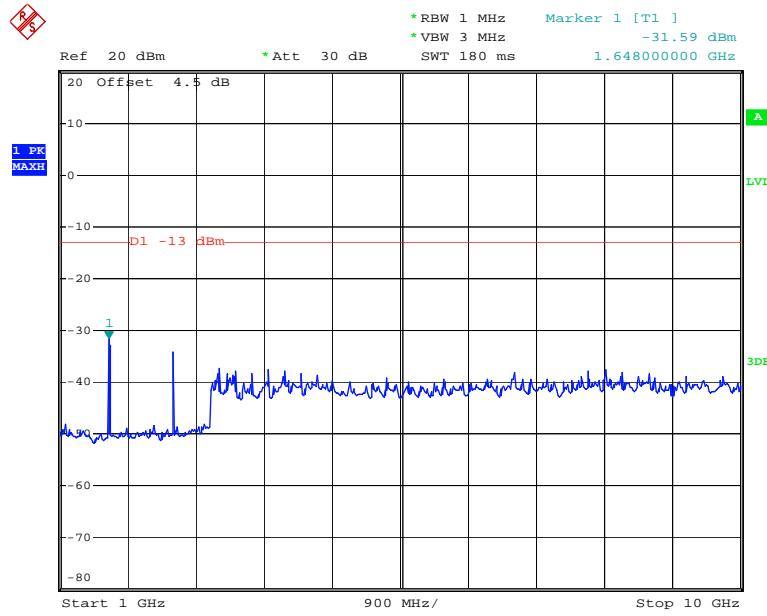
Date: 7.JAN.2020 13:19:16

QPSK_3 MHz

```
                                    *RBW 100 kHz   Marker 1 [T1 ]
                                    *VBW 300 kHz           -37.79 dBm
         Ref  30 dBm      *Att  40 dB    SWT 100 ms    598.420000000 MHz
```

Fundamental

Date: 7.JAN.2020 13:19:39

```
                                    *RBW 1 MHz     Marker 1 [T1 ]
                                    *VBW 3 MHz            -35.67 dBm
         Ref  20 dBm      *Att  30 dB    SWT 180 ms    1.648000000 GHz
```
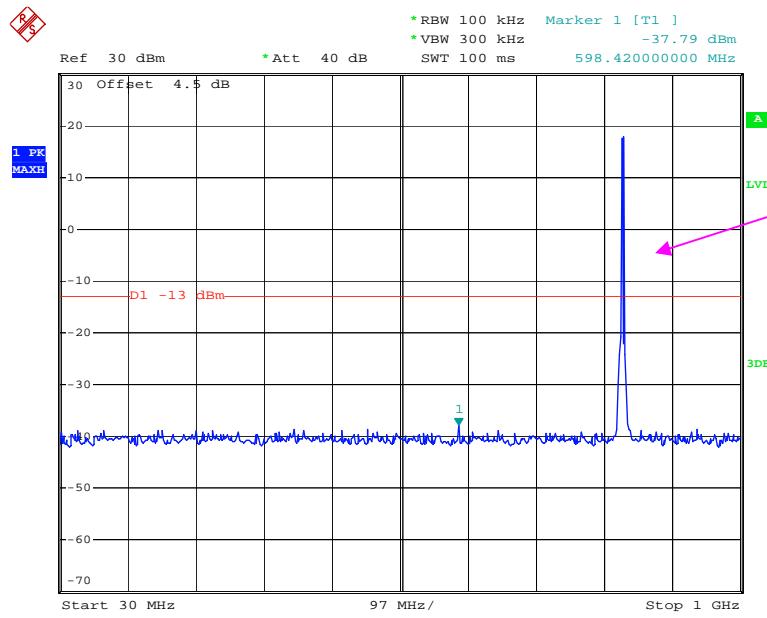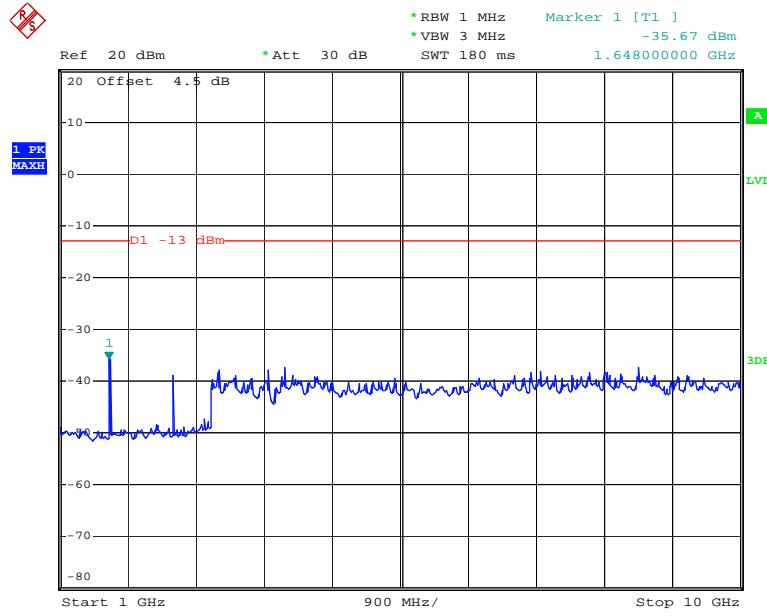
Date: 7.JAN.2020 13:19:52

QPSK_5 MHz

```
                                    *RBW 100 kHz   Marker 1 [T1 ]
                                    *VBW 300 kHz           -38.33 dBm
        Ref  30 dBm      *Att  40 dB    SWT 100 ms     685.720000000 MHz
```

Fundamental

```
        Date: 7.JAN.2020  13:20:12
```

```
                                    *RBW 1 MHz     Marker 1 [T1 ]
                                    *VBW 3 MHz            -36.54 dBm
        Ref  20 dBm      *Att  30 dB    SWT 180 ms     3.088000000 GHz
```
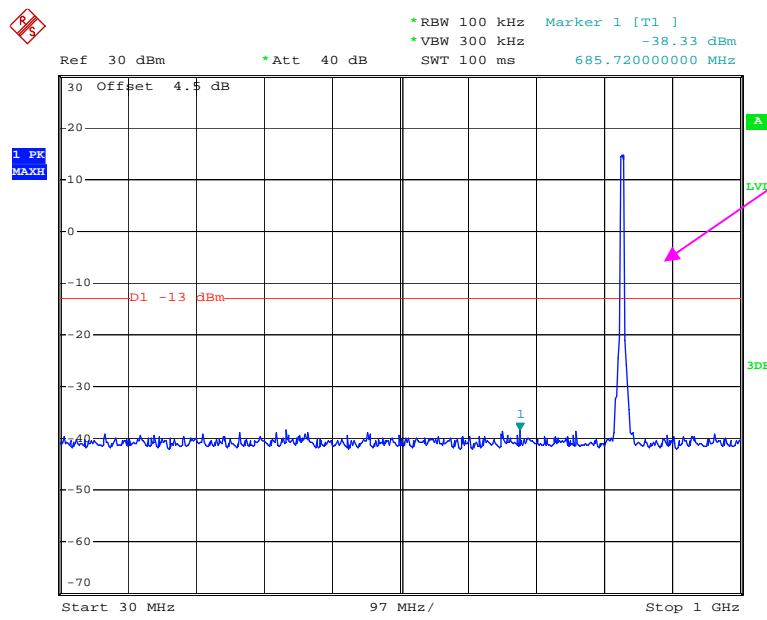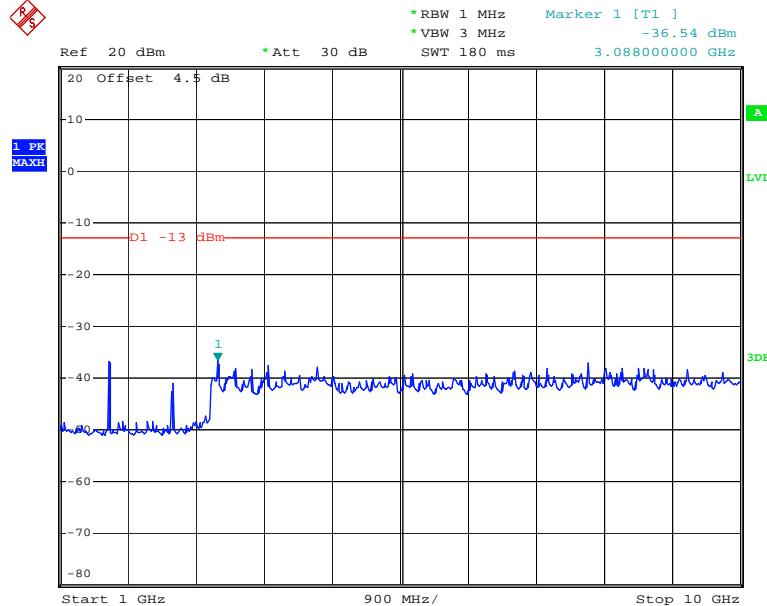
```
        Date: 7.JAN.2020  13:20:25
```

QPSK_10 MHz
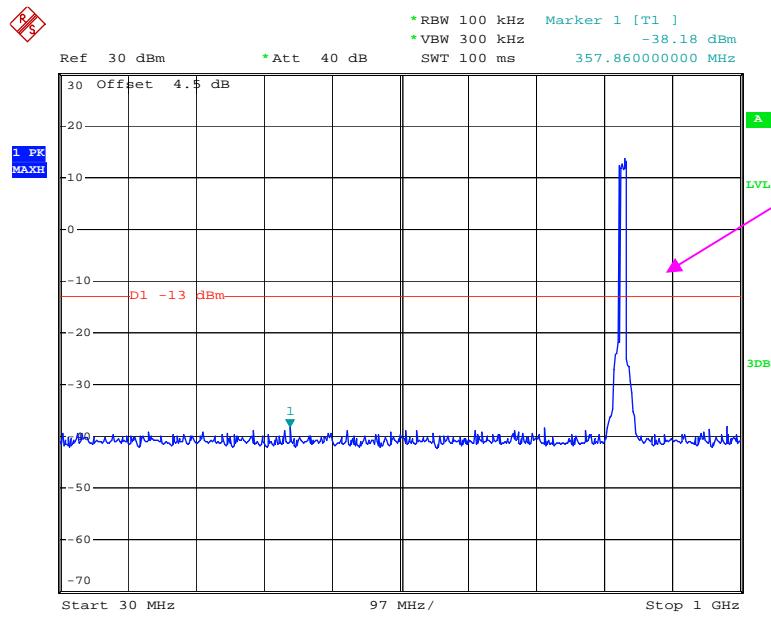
Fundamental

Date: 7.JAN.2020 13:20:46
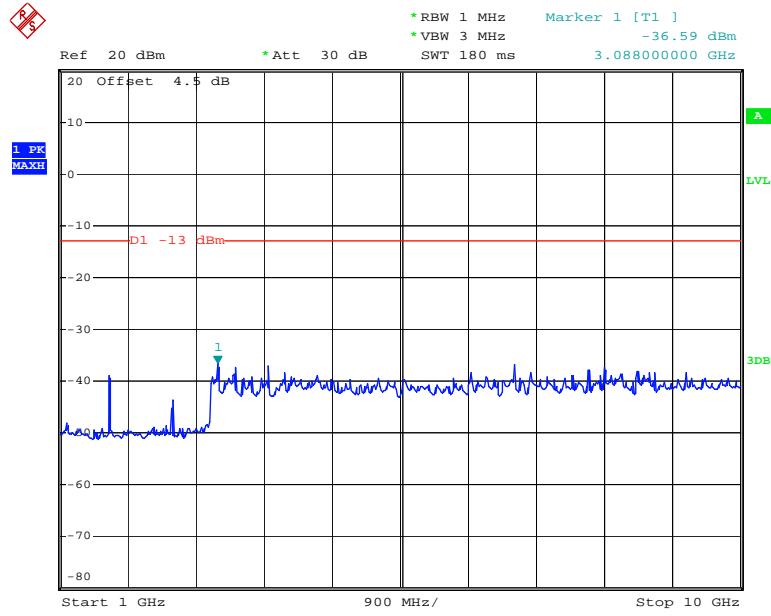
Date: 7.JAN.2020 13:20:59

QPSK_15 MHz
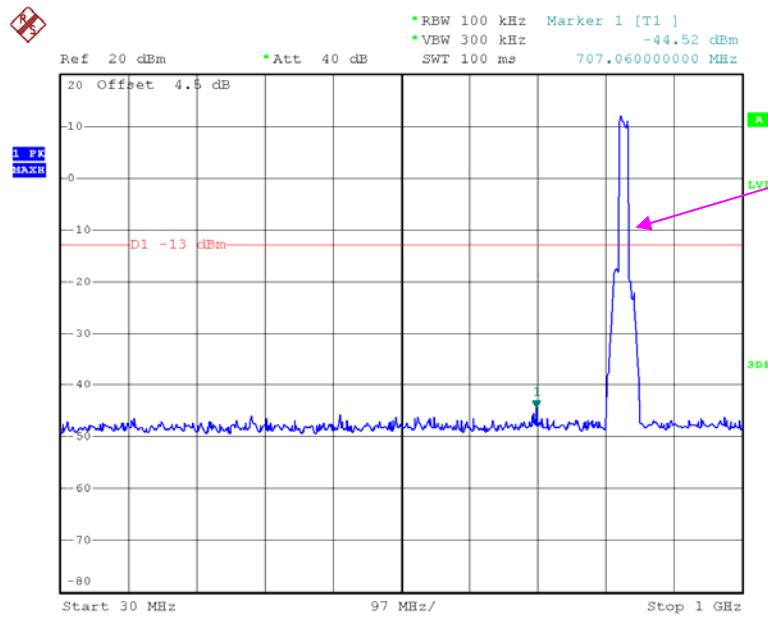
Fundamental

Date: 7.JAN.2020 13:56:14
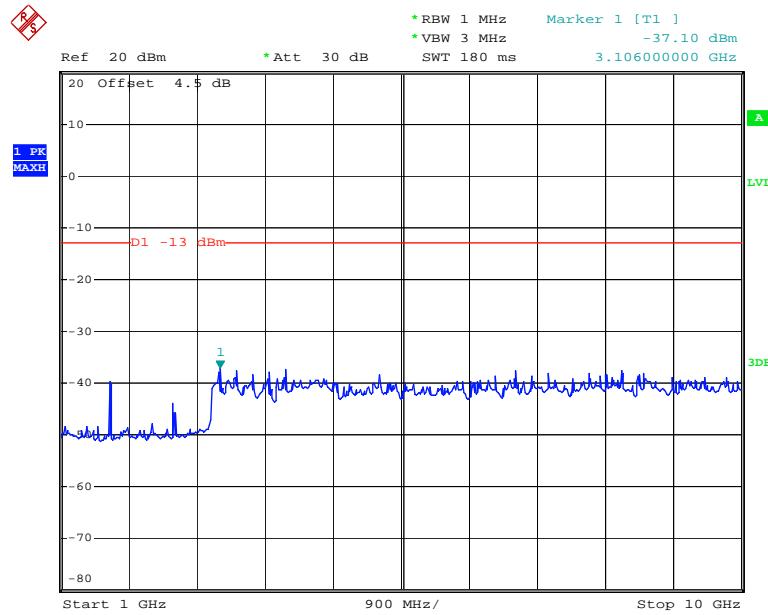
Date: 7.JAN.2020 13:21:36

LTE Band 41 (Middle Channel)

QPSK_5 MHz
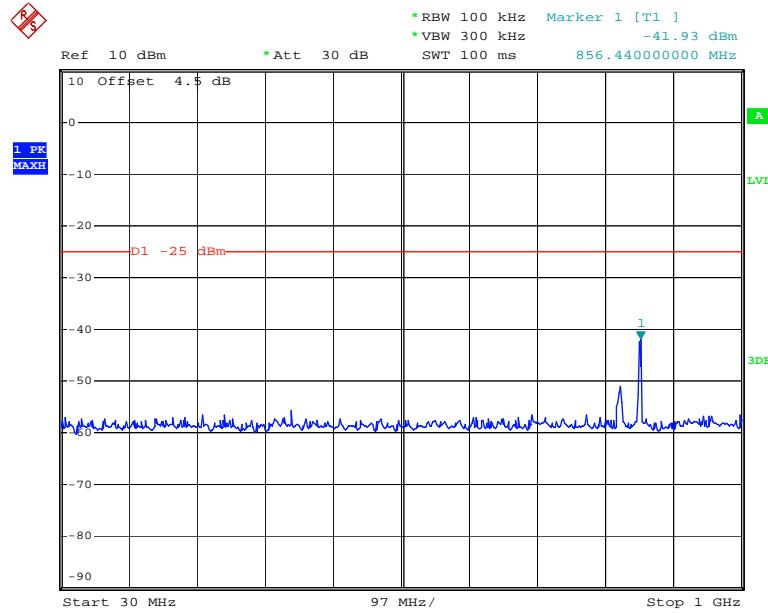
Date: 7.JAN.2020 13:22:50

Fundamental

Date: 7.JAN.2020 13:23:06

```
                                    *RBW 1 MHz    Marker 1 [T1 ]
                                    *VBW 3 MHz              -28.04 dBm
        Ref  14.5 dBm     *Att  20 dB   SWT 260 ms     14.800000000 GHz
           Offset  4.5 dB
```
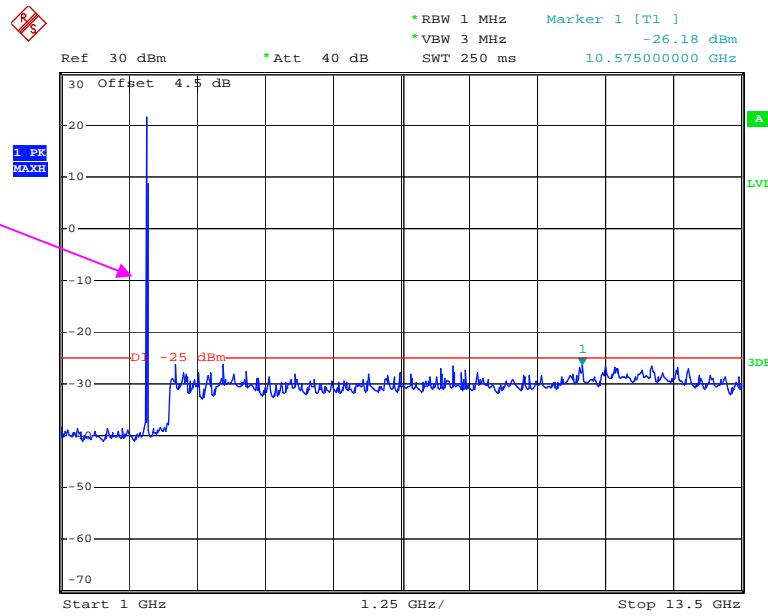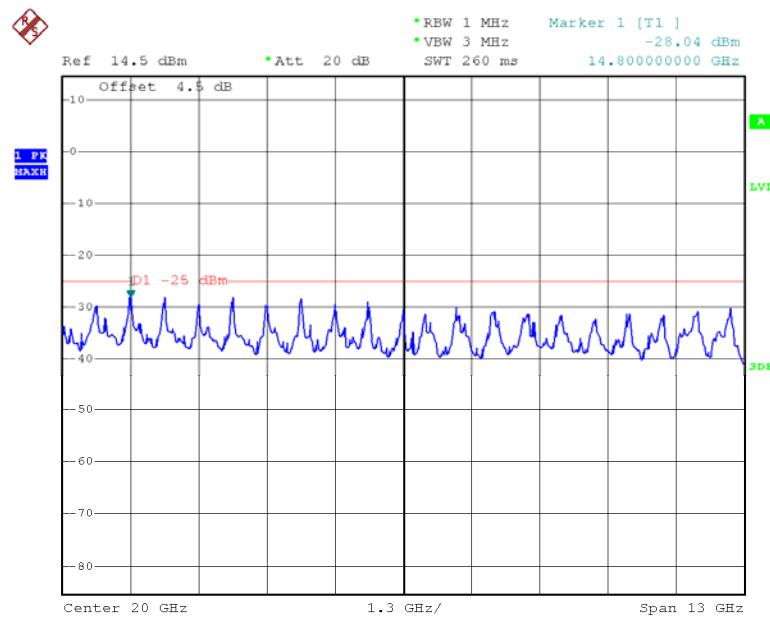
Date: 7.JAN.2020 13:49:11

QPSK_10 MHz

```
                                    *RBW 100 kHz   Marker 1 [T1 ]
                                    *VBW 300 kHz            -44.31 dBm
        Ref  10 dBm      *Att  30 dB   SWT 100 ms     854.500000000 MHz
        10 Offset  4.5 dB
```
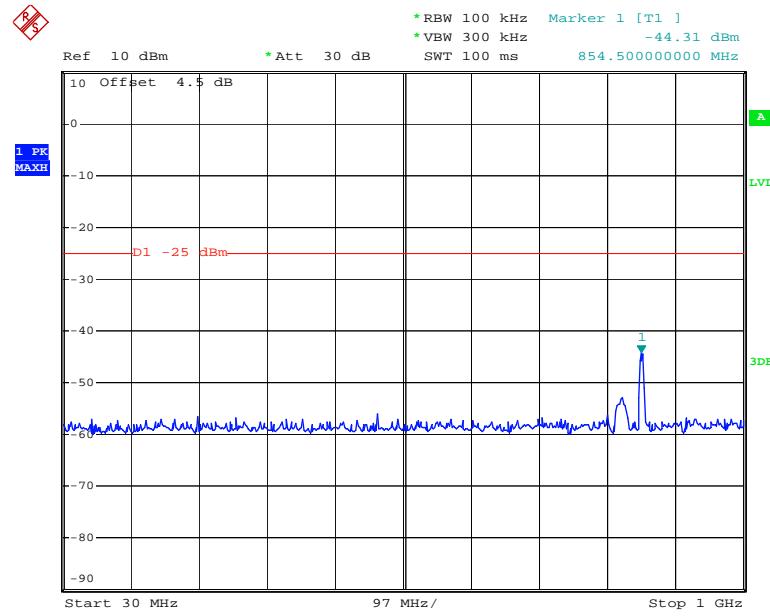
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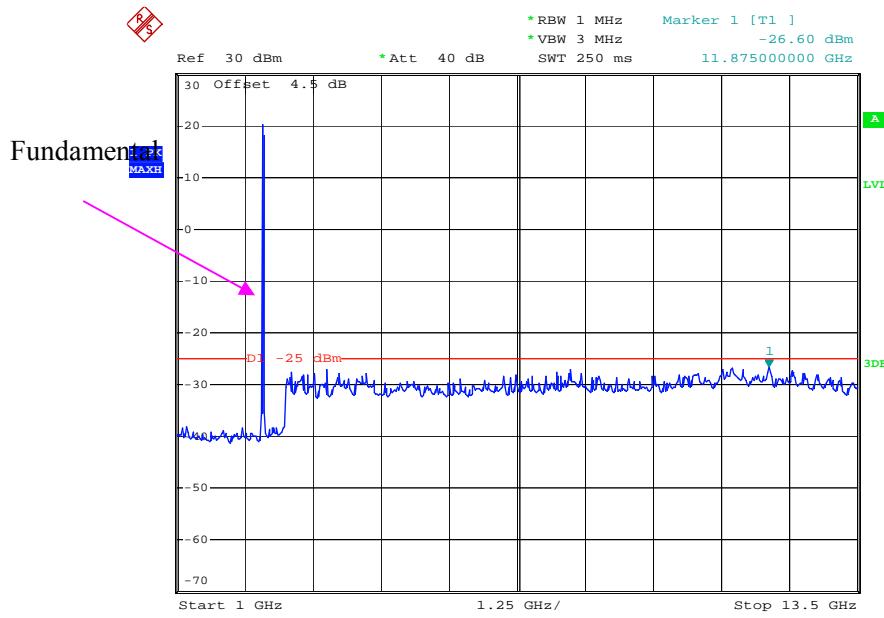
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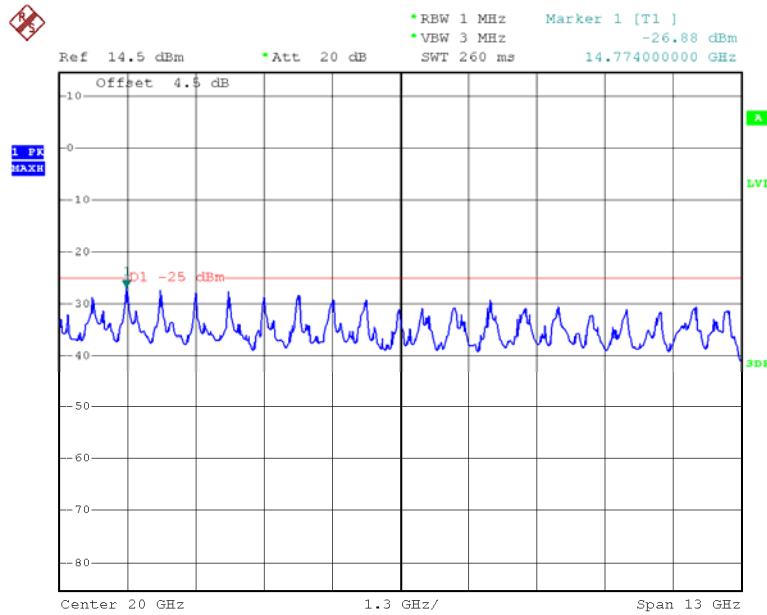
Date: 7.JAN.2020 13:49:57

QPSK_15 MHz

```
                              *RBW 100 kHz   Marker 1 [T1 ]
                              *VBW 300 kHz            -45.98 dBm
Ref  10 dBm        *Att  30 dB    SWT 100 ms     854.500000000 MHz
10 Offset   4.5 dB
                                                          A
0
1 PK
MAXH                                                      LVL
-10

-20
        D1 -25 dBm
-30

-40                                                      3DB
                                            1
-50

-60

-70

-80

-90
Start 30 MHz              97 MHz/              Stop 1 GHz
```

Date: 7.JAN.2020 13:24:31

```
                              *RBW 1 MHz     Marker 1 [T1 ]
                              *VBW 3 MHz             -26.98 dBm
Ref  30 dBm        *Att  40 dB    SWT 250 ms     3.100000000 GHz
30 Offset   4.5 dB
                                                          A
-20
1 PK
MAXH                                                      LVL
-10
Fundamental
0

-10

-20                                                      3DB
        D1 -25 dBm
-30

-40

-50

-60

-70
Start 1 GHz               1.25 GHz/            Stop 13.5 GHz
```
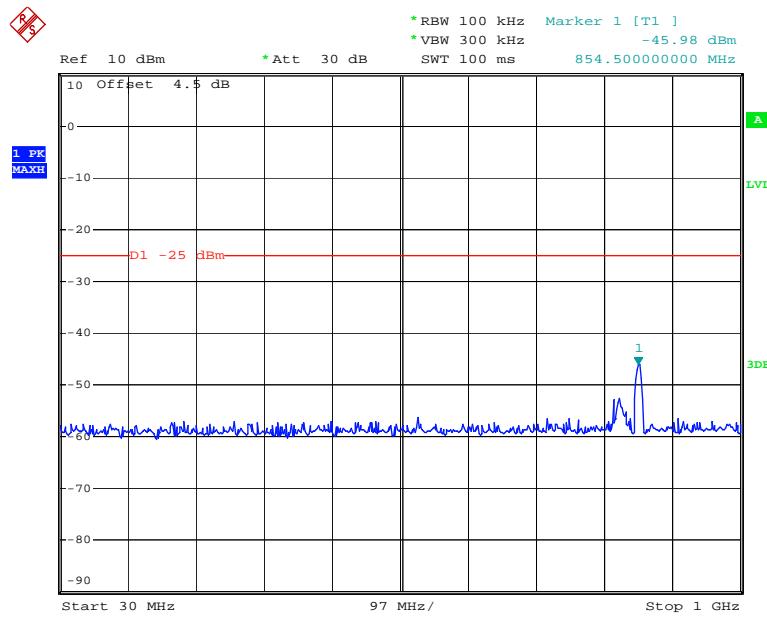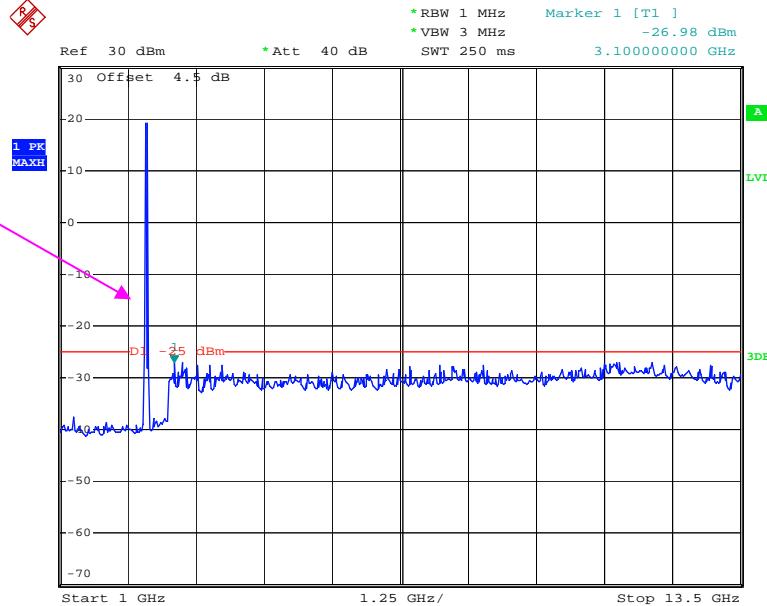
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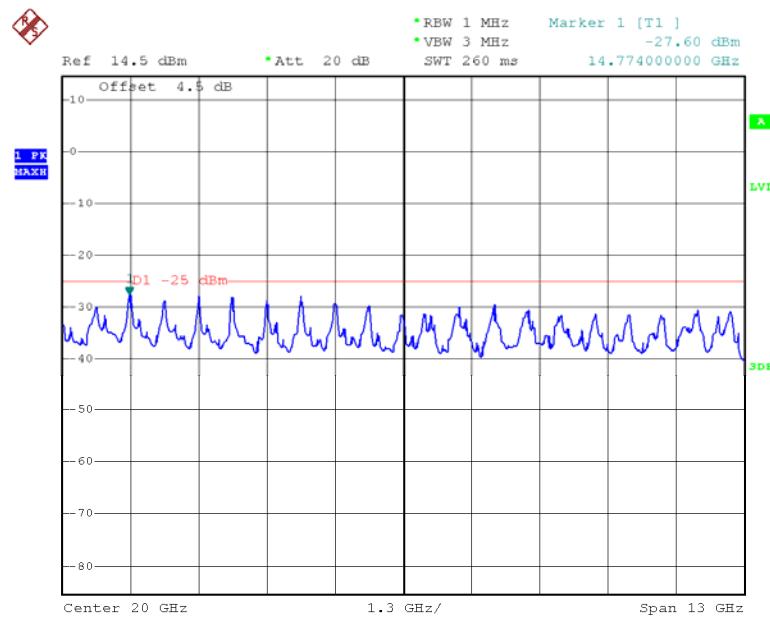
Date: 7.JAN.2020 13:50:55

QPSK_20 MHz
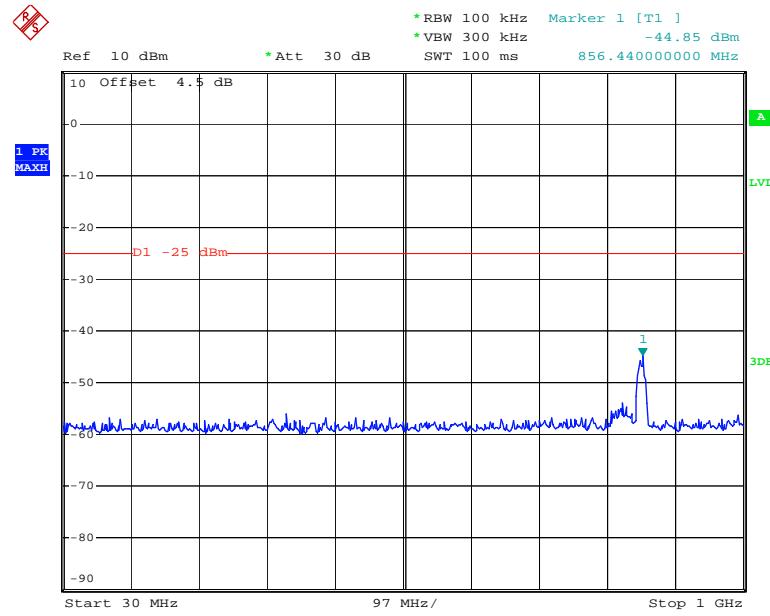
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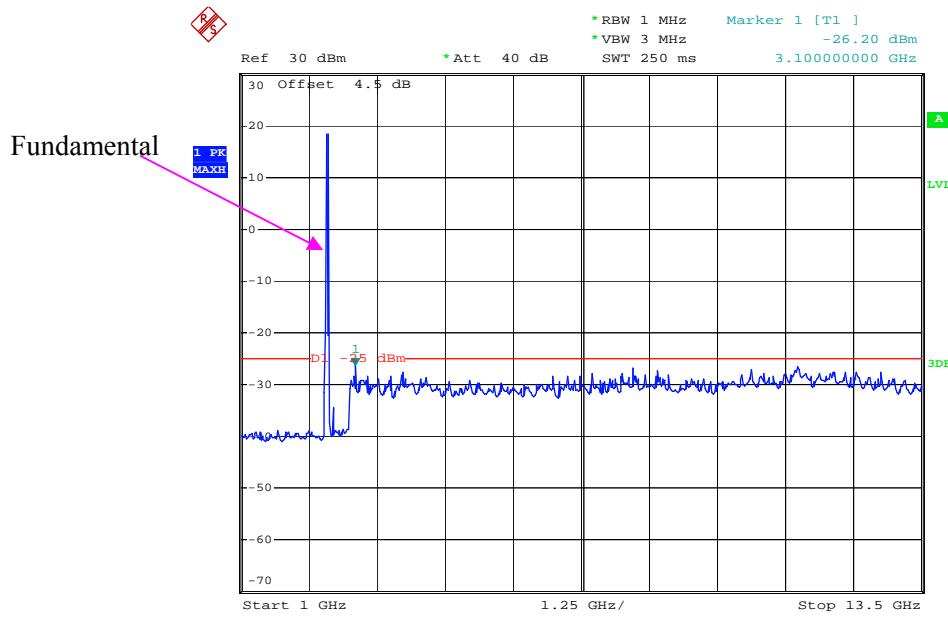
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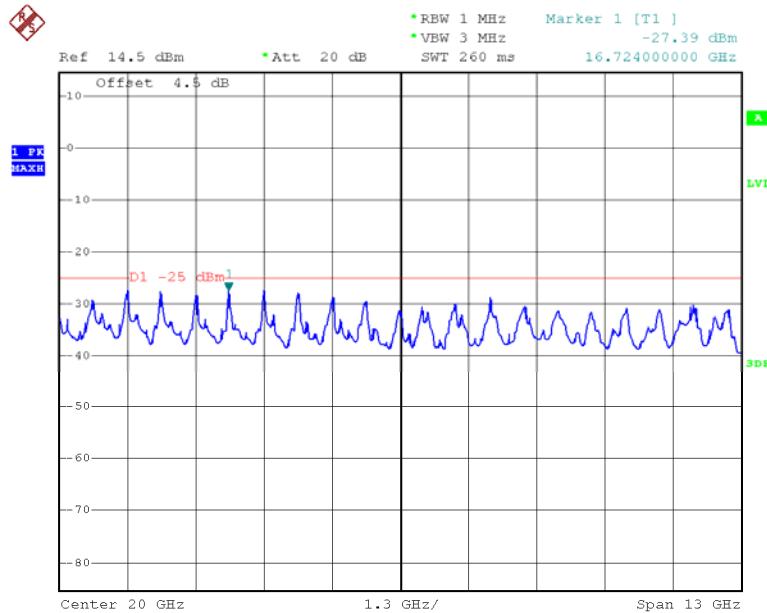
Date: 7.JAN.2020 13:51:44

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

Applicable Standard

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

Test Procedure

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

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

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

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

Spurious emissions in dB = 10 lg (TXpwr in Watts/0.001) – the absolute level

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESR3	102453	2019-06-26	2020-06-26
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	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1400-01	2019-05-06	2020-05-06
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2019-09-05	2020-09-05
HP	Amplifier	8447D	2727A05902	2019-09-05	2020-09-05
Agilent	Spectrum Analyzer	E4440A	SG43360054	2019-05-09	2020-05-09
TDK RF	Horn Antenna	HRN-0118	130 084	2018-10-12	2021-10-12
ETS-Lindgren	Horn Antenna	3115	000 527 35	2018-10-12	2021-10-12
Unknown	Coaxial Cable	C-SJSJ-50	C-0800-01	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2019-09-05	2020-09-05
MITEQ	Amplifier	AFS42-00101800-25-S-42	2001271	2019-09-05	2020-09-05
Quinstar	Amplifier	QLW-18405536-JO	15964001001	2019-06-27	2020-06-27
Agilent	Signal Generator	E8247C	MY43321350	2019-12-10	2020-12-10
Ducommun Technolagies	Horn Antenna	ARH-4223-02	1007726-01 1304	2019-11-18	2022-11-18
Ducommun Technolagies	Horn Antenna	ARH-4223-02	1007726-02 1304	2019-11-18	2022-11-18
Sinoscite	Band-stop filter	BSF1710-1785MN-0383-003	0383003	2019-06-16	2020-06-16
Sinoscite	Band-stop filter	BSF824-862MS-1438-001	1438001	2019-06-16	2020-06-16
Sinoscite	Band-stop filter	BSF2300-2400MS-0777-003	0777003	2019-06-16	2020-06-16
Sinoscite	Band-stop filter	BSF1850-1910MS-0935V2	0935V2	2019-06-16	2020-06-16
Sinoscite	Band-stop filter	BSF2500-2750MS-1439-001	1437001	2019-06-16	2020-06-16

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

Test Data
Environmental Conditions

Temperature:	23.1~25°C
Relative Humidity:	41~47 %
ATM Pressure:	101.9 kPa
Tester:	Vern Shen, Felix Wang
Test Date:	2020-01-16

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	53.50	-50.44	10.6	0.73	-40.6	-13.0	27.6
1673.200	V	53.16	-51.38	10.6	0.73	-41.5	-13.0	28.5
2509.800	H	49.17	-53.74	13.1	1.25	-41.9	-13.0	28.9
2509.800	V	47.57	-55.37	13.1	1.25	-43.5	-13.0	30.5
3346.400	H	41.56	-58.12	13.8	1.61	-45.9	-13.0	32.9
3346.400	V	41.00	-58.72	13.8	1.61	-46.5	-13.0	33.5
211.600	H	38.42	-70.36	0.0	0.49	-70.9	-13.0	57.9
309.600	V	39.06	-70.75	0.0	0.53	-71.3	-13.0	58.3
WCDMA Band V R99,Frequency:836.600 MHz								
1673.200	H	40.25	-63.69	10.6	0.73	-53.8	-13.0	40.8
1673.200	V	41.56	-62.98	10.6	0.73	-53.1	-13.0	40.1
2509.800	H	42.20	-60.71	13.1	1.25	-48.9	-13.0	35.9
2509.800	V	42.89	-60.05	13.1	1.25	-48.2	-13.0	35.2
3346.400	H	36.83	-62.85	13.8	1.61	-50.6	-13.0	37.6
3346.400	V	37.14	-62.58	13.8	1.61	-50.4	-13.0	37.4
259.600	H	37.85	-71.27	0.0	0.51	-71.8	-13.0	58.8
216.000	V	38.99	-72.18	0.0	0.49	-72.7	-13.0	59.7

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	38.41	-59.23	13.8	1.63	-47.1	-13.0	34.1
3760.000	V	39.19	-58.31	13.8	1.63	-46.2	-13.0	33.2
5640.000	H	35.26	-58.33	14.0	1.31	-45.6	-13.0	32.6
5640.000	V	34.87	-58.61	14.0	1.31	-45.9	-13.0	32.9
145.500	H	37.06	-69.16	0.0	0.36	-69.5	-13.0	56.5
72.600	V	38.66	-76.14	-3.7	0.28	-80.1	-13.0	67.1
WCDMA Band II R99,Frequency: 1880.000 MHz								
3760.000	H	41.86	-55.78	13.8	1.63	-43.7	-13.0	30.7
3760.000	V	41.58	-55.92	13.8	1.63	-43.8	-13.0	30.8
5640.000	H	39.97	-53.62	14.0	1.31	-40.9	-13.0	27.9
5640.000	V	40.72	-52.76	14.0	1.31	-40.1	-13.0	27.1
403.600	H	37.65	-67.14	0.0	0.61	-67.8	-13.0	54.8
201.900	V	37.44	-73.11	0.0	0.49	-73.6	-13.0	60.6
WCDMA Band IV R99,Frequency: 1732.600 MHz								
3465.200	H	41.57	-57.61	13.9	1.62	-45.3	-13.0	32.3
3465.200	V	41.12	-58.1	13.9	1.62	-45.8	-13.0	32.8
5197.800	H	41.08	-53.61	14.0	1.52	-41.1	-13.0	28.1
5197.800	V	41.04	-53.72	14.0	1.52	-41.2	-13.0	28.2
485.800	H	38.22	-66.09	0.0	0.7	-66.8	-13.0	53.8
247.000	V	37.90	-74.63	0.0	0.5	-75.1	-13.0	62.1

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	37.61	-60.03	13.76	1.63	-47.90	-13.00	34.90
3760.00	V	37.91	-59.59	13.76	1.63	-47.46	-13.00	34.46
5640.00	H	37.57	-56.02	14.02	1.31	-43.31	-13.00	30.31
5640.00	V	39.41	-54.07	14.02	1.31	-41.36	-13.00	28.36
152.80	H	36.61	-70.05	0.00	0.38	-70.43	-13.00	57.43
282.00	V	36.54	-74.40	0.00	0.51	-74.91	-13.00	61.91

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	37.26	-61.93	13.91	1.62	-49.64	-13.00	36.64
3465.00	V	37.16	-62.06	13.91	1.62	-49.77	-13.00	36.77
5197.50	H	38.29	-56.40	14.00	1.52	-43.92	-13.00	30.92
5197.50	V	38.26	-56.50	14.00	1.52	-44.02	-13.00	31.02
233.00	H	36.77	-72.27	0.00	0.50	-72.77	-13.00	59.77
409.00	V	37.02	-71.07	0.00	0.62	-71.69	-13.00	58.69

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	44.31	-59.63	10.61	0.73	-49.75	-13.00	36.75
1673.00	V	42.32	-62.22	10.61	0.73	-52.34	-13.00	39.34
2509.50	H	41.94	-60.97	13.11	1.25	-49.11	-13.00	36.11
2509.50	V	43.05	-59.89	13.11	1.25	-48.03	-13.00	35.03
3346.00	H	36.69	-62.99	13.83	1.61	-50.77	-13.00	37.77
3346.00	V	37.09	-62.63	13.83	1.61	-50.41	-13.00	37.41
103.00	H	37.14	-68.78	0.00	0.27	-69.05	-13.00	56.05
216.00	V	36.89	-74.28	0.00	0.49	-74.77	-13.00	61.77

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	39.05	-56.06	13.93	1.34	-43.47	-25.00	18.47
5070.00	V	39.55	-55.37	13.93	1.34	-42.78	-25.00	17.78
7605.00	H	39.51	-49.37	13.21	1.40	-37.56	-25.00	12.56
7605.00	V	42.79	-46.49	13.21	1.40	-34.68	-25.00	9.68
590.80	H	36.70	-65.62	0.00	0.76	-66.38	-25.00	41.38
880.00	V	37.56	-62.24	0.00	1.03	-63.27	-25.00	38.27

LTE Band 12 (30MHz-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)			
QPSK, Frequency: 707.500 MHz								
1415.00	H	46.05	-57.56	9.08	1.22	-49.70	-13.00	36.70
1415.00	V	46.79	-57.34	9.08	1.22	-49.48	-13.00	36.48
2122.50	H	47.54	-54.47	11.27	1.11	-44.31	-13.00	31.31
2122.50	V	52.27	-49.72	11.27	1.11	-39.56	-13.00	26.56
2830.00	H	41.53	-59.89	13.34	1.36	-47.91	-13.00	34.91
2830.00	V	42.02	-59.63	13.34	1.36	-47.65	-13.00	34.65
113.50	H	37.10	-67.29	0.00	0.29	-67.58	-13.00	54.58
208.60	V	36.89	-73.96	0.00	0.49	-74.45	-13.00	61.45

LTE Band 13 (30MHz-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)			
QPSK, Frequency: 782.000 MHz								
1564.00	H	37.67	-67.05	9.88	0.92	-58.09	-40.00	18.09
1564.00	V	38.28	-66.86	9.88	0.92	-57.90	-40.00	17.9
2346.00	H	38.27	-64.02	11.71	1.26	-53.57	-13.00	40.57
2346.00	V	39.03	-63.30	11.71	1.26	-52.85	-13.00	39.85
3128.00	H	37.23	-62.35	13.31	1.76	-50.80	-13.00	37.80
3128.00	V	37.59	-62.00	13.31	1.76	-50.45	-13.00	37.45
449.80	H	39.32	-65.20	0.00	0.66	-65.86	-13.00	52.86
582.10	V	41.92	-63.80	0.00	0.75	-64.55	-13.00	51.55

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	47.54	-56.14	9.10	1.23	-48.27	-13.00	35.27
1420.00	V	49.04	-55.14	9.10	1.23	-47.27	-13.00	34.27
2130.00	H	42.82	-59.18	11.22	1.11	-49.07	-13.00	36.07
2130.00	V	43.07	-58.90	11.22	1.11	-48.79	-13.00	35.79
2840.00	H	37.53	-63.79	13.42	1.36	-51.73	-13.00	38.73
2840.00	V	38.35	-63.21	13.42	1.36	-51.15	-13.00	38.15
201.50	H	37.06	-71.60	0.00	0.49	-72.09	-13.00	59.09
188.90	V	37.13	-74.29	0.00	0.46	-74.75	-13.00	61.75

LTE Band 25 (30MHz-20GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK,Frequency:1882.500 MHz								
3765.00	H	37.61	-60.00	13.74	1.62	-47.88	-13.00	34.88
3765.00	V	37.47	-59.99	13.74	1.62	-47.87	-13.00	34.87
5647.50	H	39.04	-54.60	14.01	1.31	-41.90	-13.00	28.90
5647.50	V	38.04	-55.48	14.01	1.31	-42.78	-13.00	29.78
331.40	H	36.89	-70.55	0.00	0.55	-71.10	-13.00	58.10
254.80	V	37.16	-75.24	0.00	0.51	-75.75	-13.00	62.75

LTE Band 26 (30MHz-10GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK,Frequency:831.500 MHz								
1663.00	H	39.90	-64.14	10.54	0.72	-54.32	-13.00	41.32
1663.00	V	41.74	-62.90	10.54	0.72	-53.08	-13.00	40.08
2494.50	H	42.14	-60.74	13.06	1.24	-48.92	-13.00	35.92
2494.50	V	43.04	-59.85	13.06	1.24	-48.03	-13.00	35.03
3326.00	H	36.77	-62.97	13.73	1.60	-50.84	-13.00	37.84
3326.00	V	36.89	-62.88	13.73	1.60	-50.75	-13.00	37.75
113.70	H	37.08	-67.28	0.00	0.29	-67.57	-13.00	54.57
612.30	V	40.79	-64.42	0.00	0.78	-65.20	-13.00	52.20

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	39.52	-55.17	13.99	1.50	-42.68	-25.00	17.68
5186.00	V	42.38	-52.35	13.99	1.50	-39.86	-25.00	14.86
7779.00	H	38.81	-50.50	13.32	1.53	-38.71	-25.00	13.71
7779.00	V	40.00	-49.56	13.32	1.53	-37.77	-25.00	12.77
214.50	H	37.45	-71.36	0.00	0.49	-71.85	-25.00	46.85
321.60	V	36.91	-72.68	0.00	0.54	-73.22	-25.00	48.22

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

FCC §22.917(a) & §24.238(a) & §27.53& §90.691- BAND EDGES

Applicable Standard

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

Test Procedure

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

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSP 38	100478	2019-05-09	2020-05-09
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41005011	Each Time	/
E-Microwave	Two-way Spliter	ODP-1-6-2S	OE0120142	Each Time	/
Unknown	Coaxial Cable	C-SJ00-0010	C0010/04	Each Time	/
E-Microwave	Coaxial Attenuators	EMCA10-5RN-6	OE01203239	Each Time	/

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

Test Data

Environmental Conditions

Temperature:	23.6~26°C
Relative Humidity:	43~62 %
ATM Pressure:	101.2~102.1 kPa
Tester:	Lily Xie
Test Date:	2020-01-06~2020-01-14

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

GPRS 850, Left Band Edge
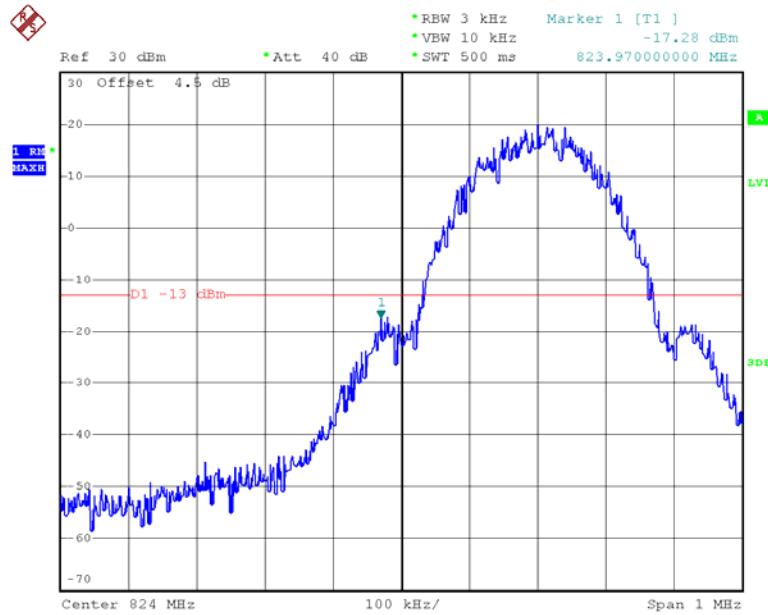
Date: 13.JAN.2020 11:34:10

GPRS 850, Right Band Edge
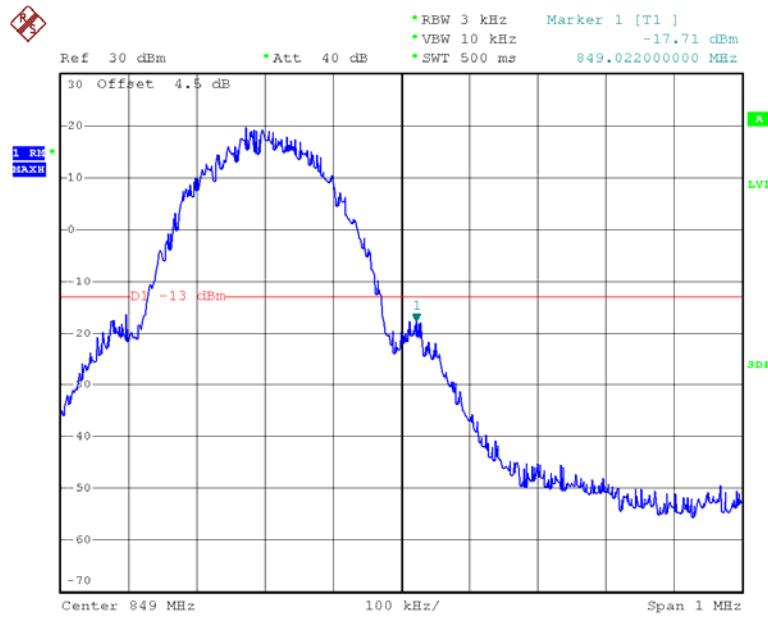
Date: 13.JAN.2020 11:35:02

GPRS 1900, Left Band Edge
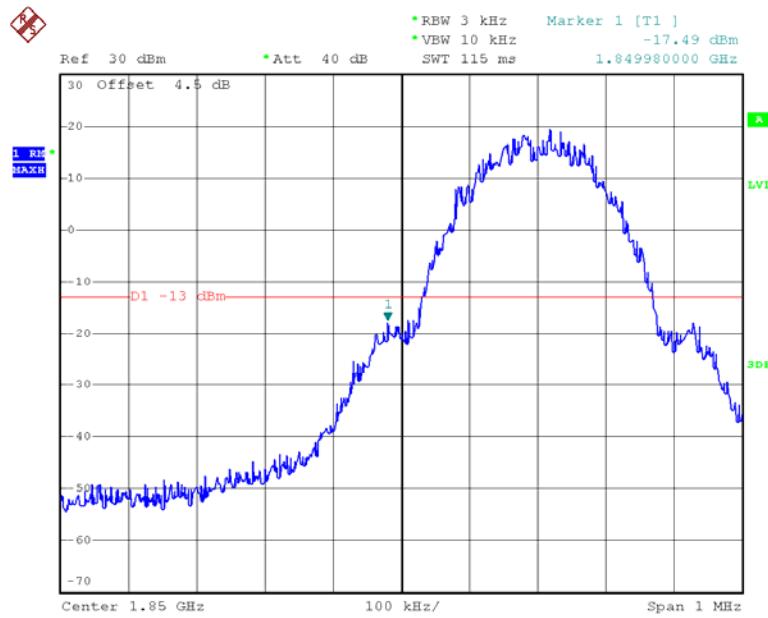
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GPRS 1900, Right Band Edge
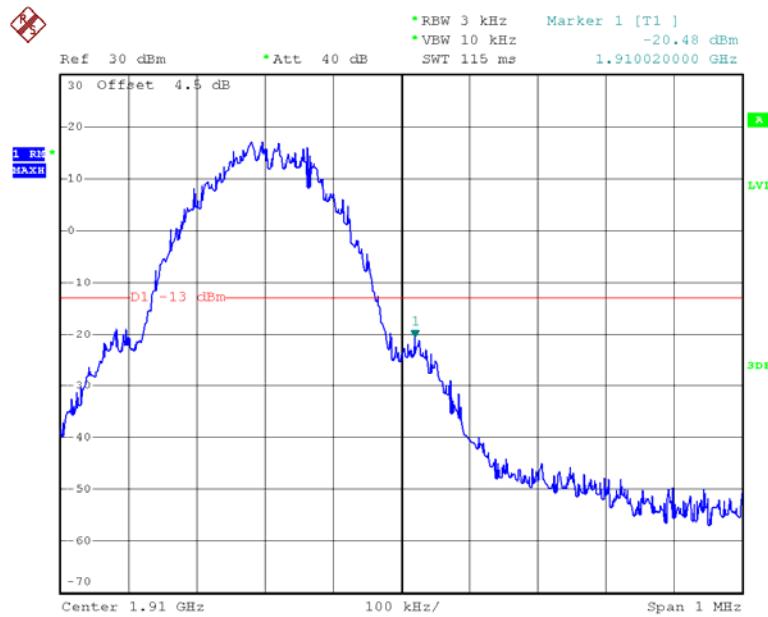
Date: 13.JAN.2020 11:31:04

EDGE 850, Left Band Edge
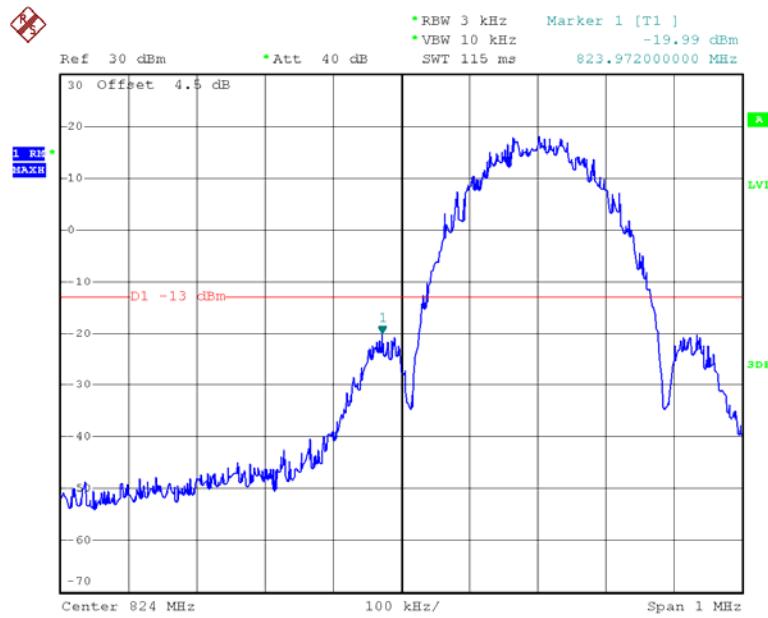
Date: 13.JAN.2020 11:44:07

EDGE 850, Right Band Edge
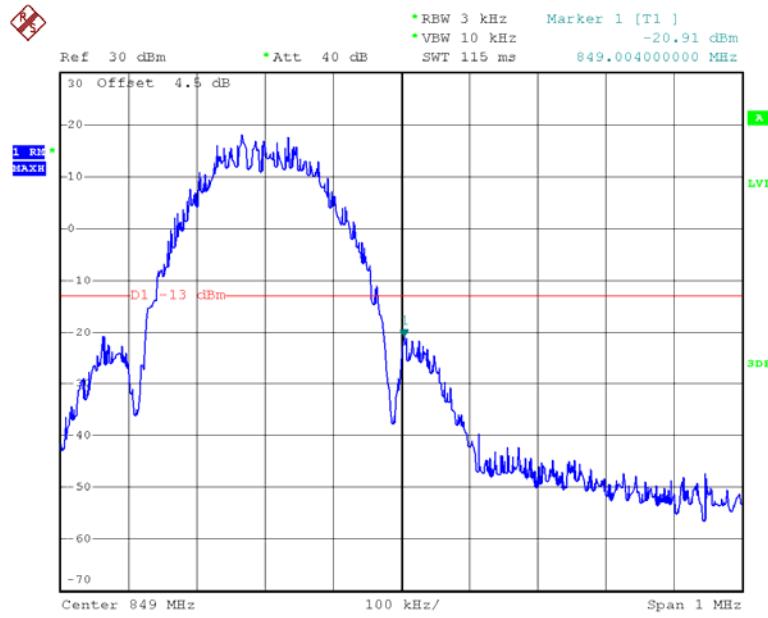
Date: 13.JAN.2020 11:44:31

EDGE 1900, Left Band Edge
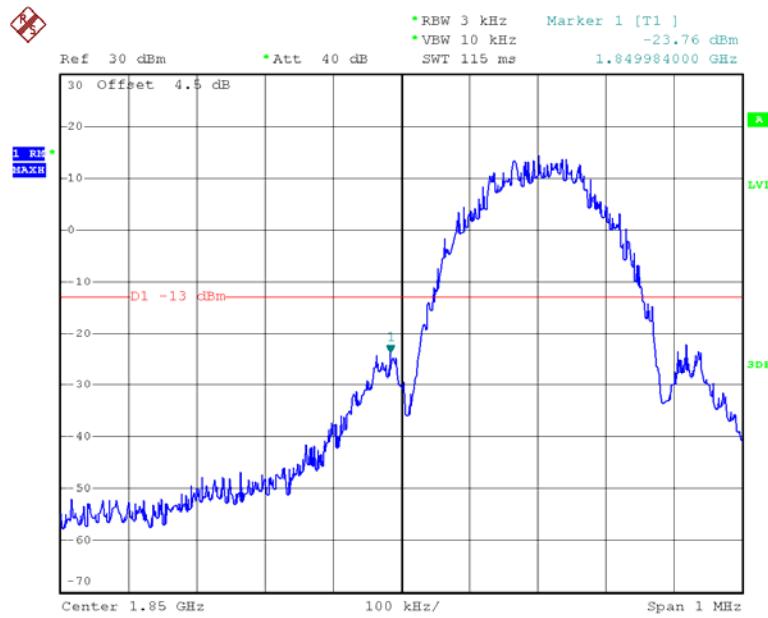
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EDGE 1900, Right Band Edge
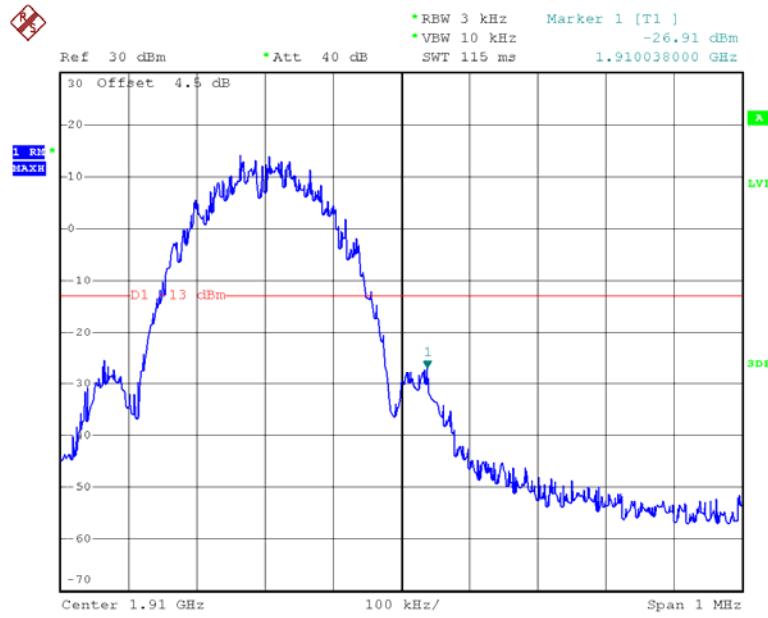
Date: 13.JAN.2020 11:46:06

WCDMA Band II Rel 99, Left Band Edge
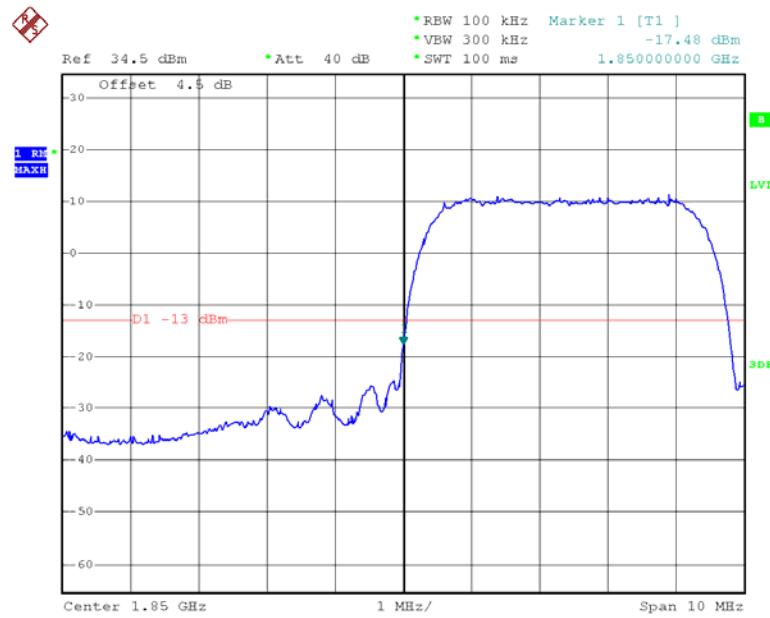
Date: 6.JAN.2020 09:54:36

WCDMA Band II Rel 99, Right Band Edge
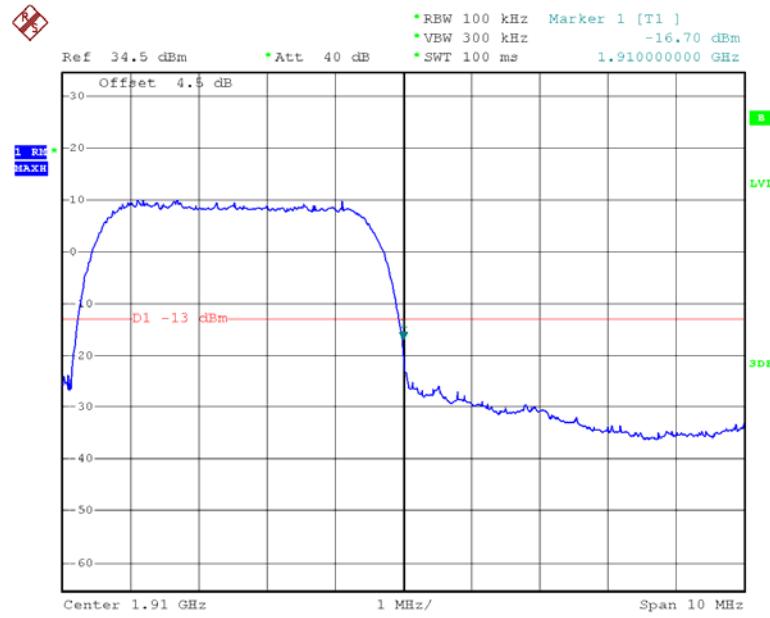
Date: 6.JAN.2020 09:55:02

WCDMA Band II HSDPA, Left Band Edge
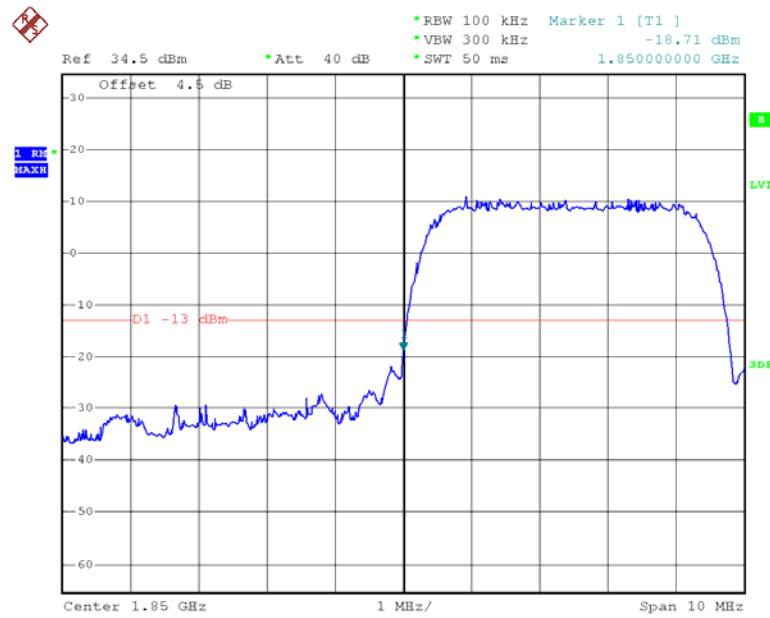
Date: 6.JAN.2020   09:47:29

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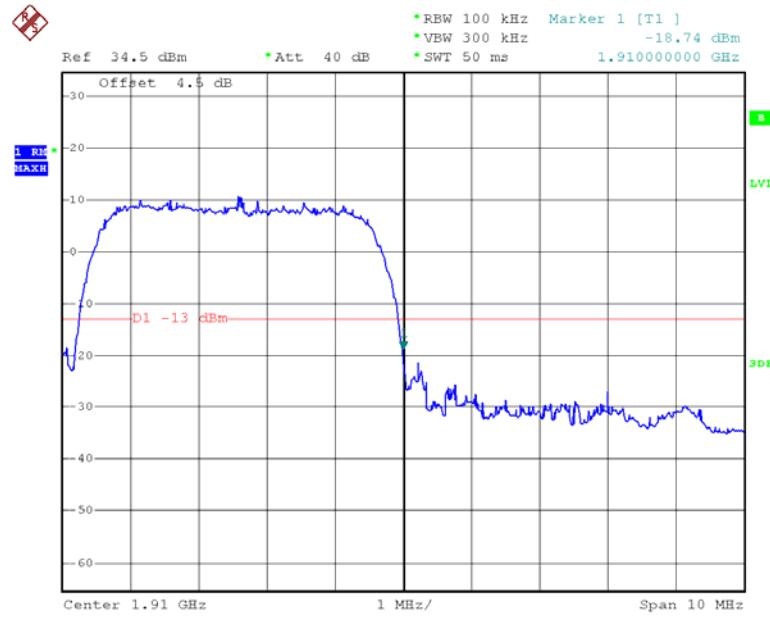
Date: 6.JAN.2020   09:47:59

WCDMA Band II HSUPA, Left Band Edge
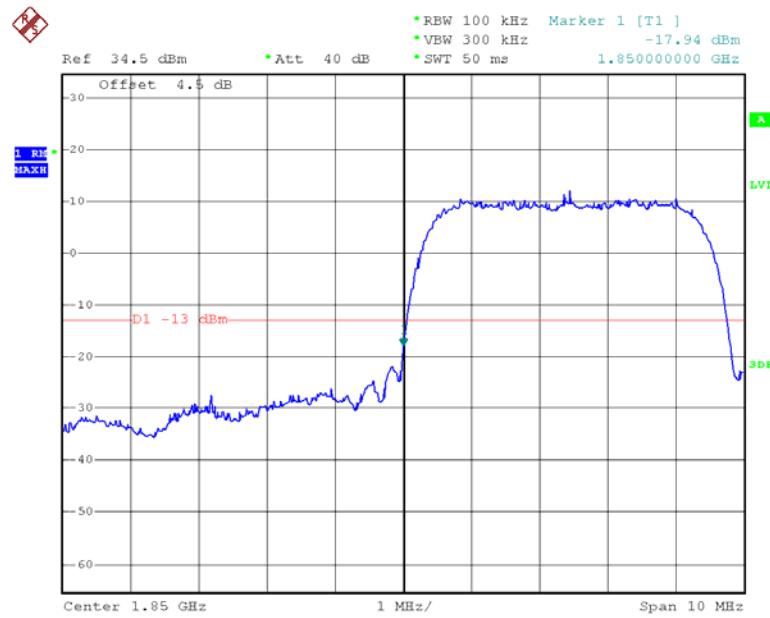
Date: 6.JAN.2020 09:20:54

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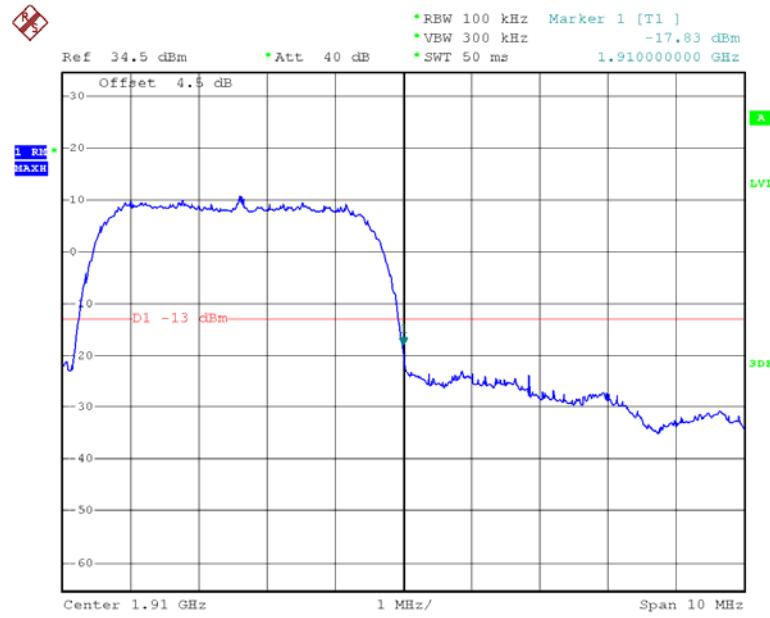
Date: 6.JAN.2020 09:23:34

WCDMA Band IV Rel 99, Left Band Edge
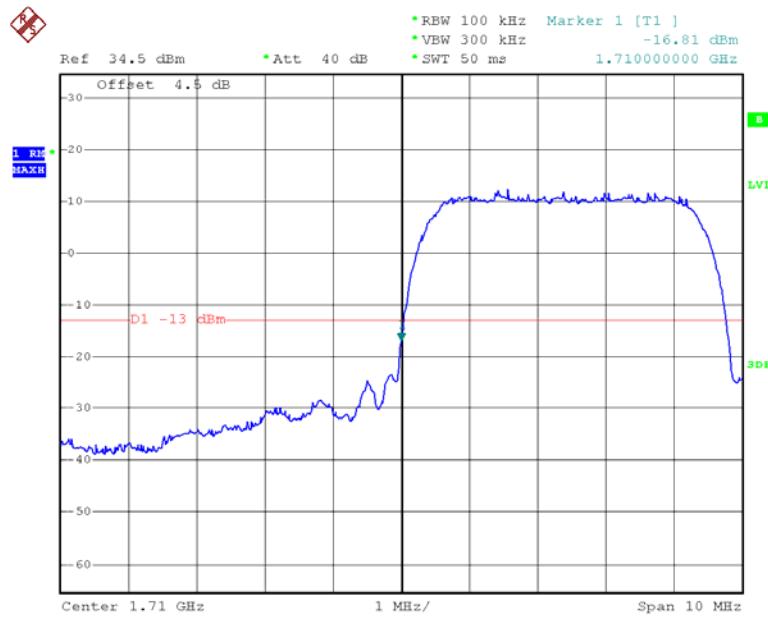
Date: 6.JAN.2020 09:53:05

WCDMA Band IV Rel 99, Right Band Edge
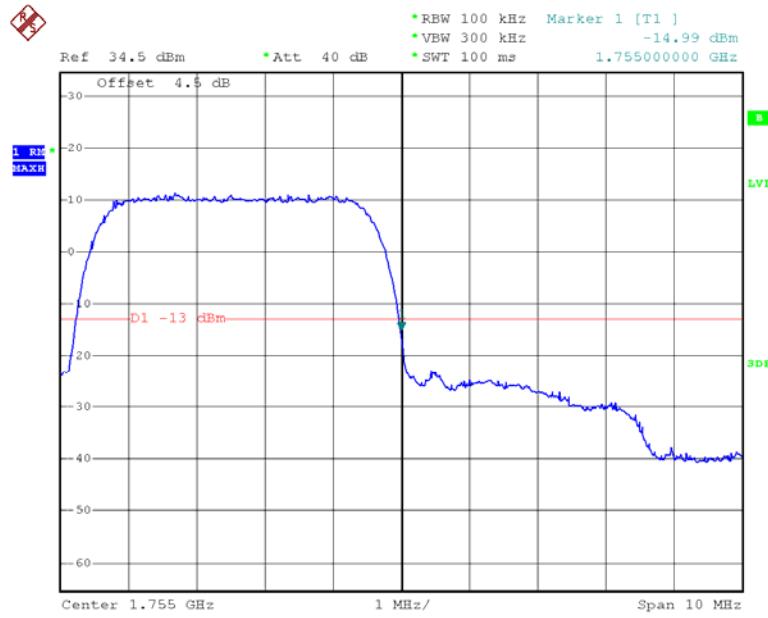
Date: 6.JAN.2020 09:53:47

WCDMA Band IV HSDPA, Left Band Edge
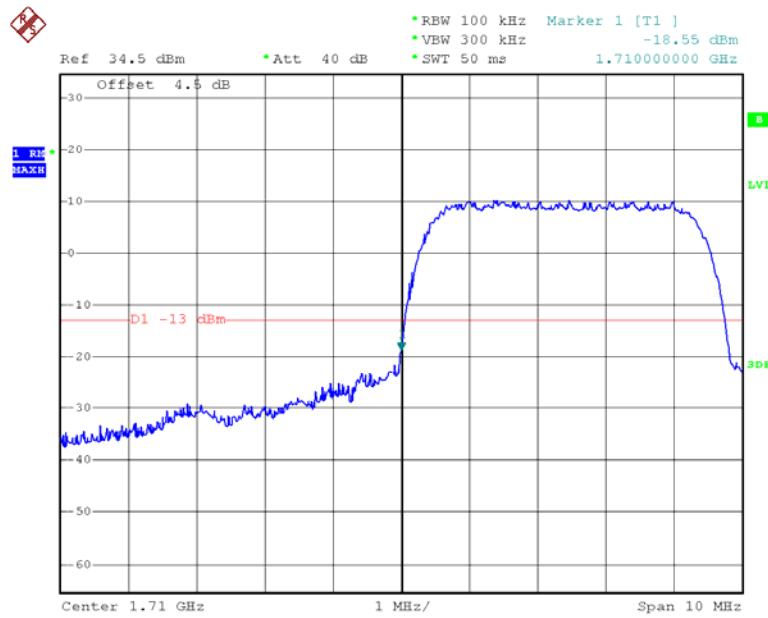
Date: 6.JAN.2020 09:48:45

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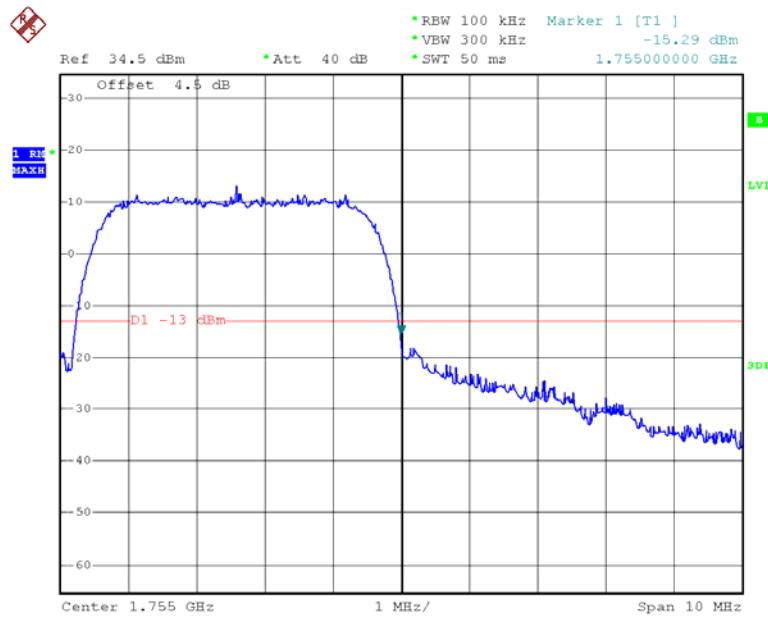
Date: 6.JAN.2020 09:49:26

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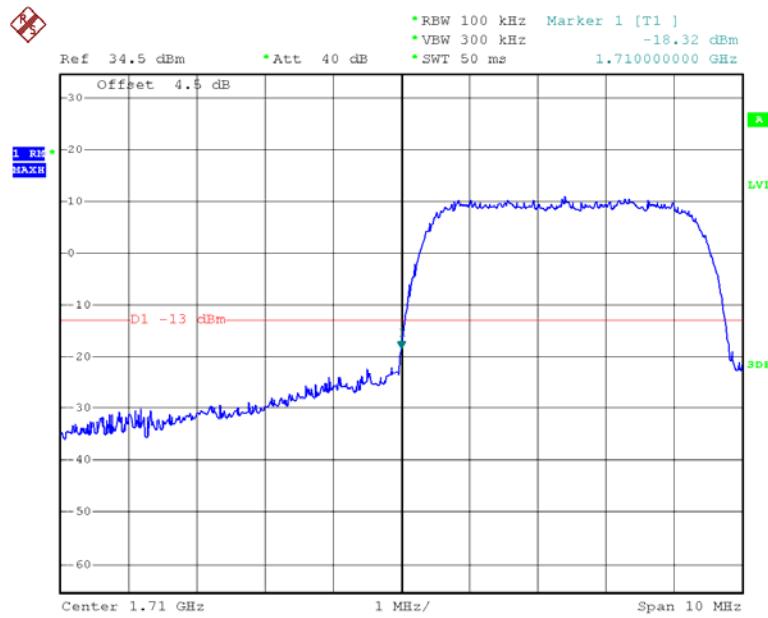
Date: 6.JAN.2020   09:25:23

WCDMA Band IV HSUPA, Right Band Edge
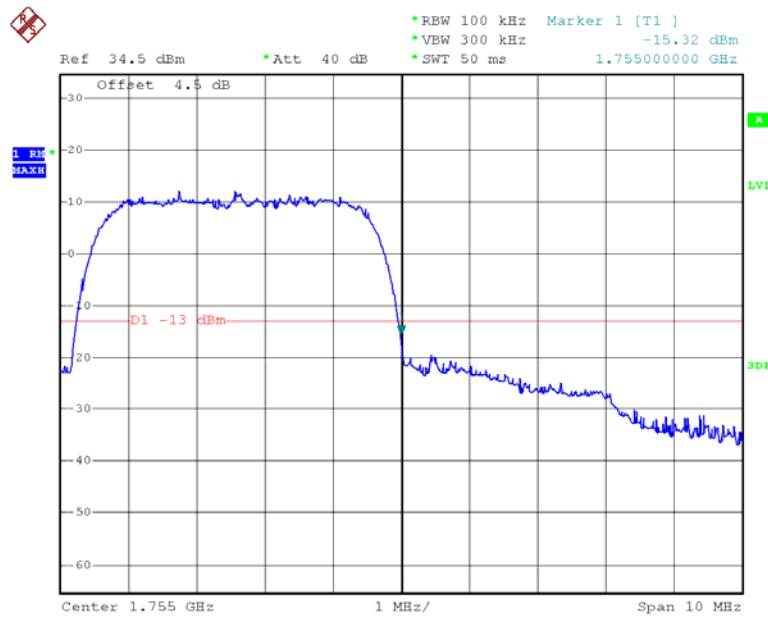
Date: 6.JAN.2020   09:25:55

WCDMA Band V Rel 99, Left Band Edge
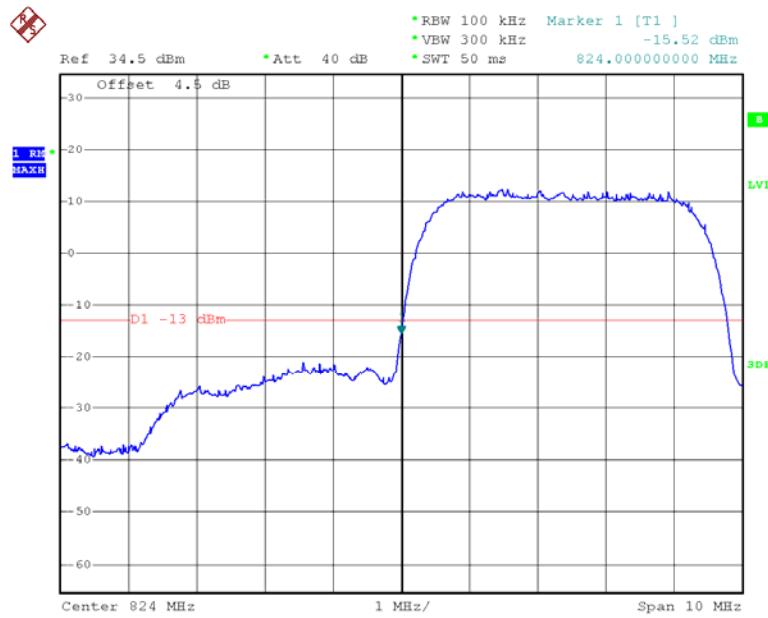
Date: 6.JAN.2020 09:51:51

WCDMA Band V Rel 99, Right Band Edge
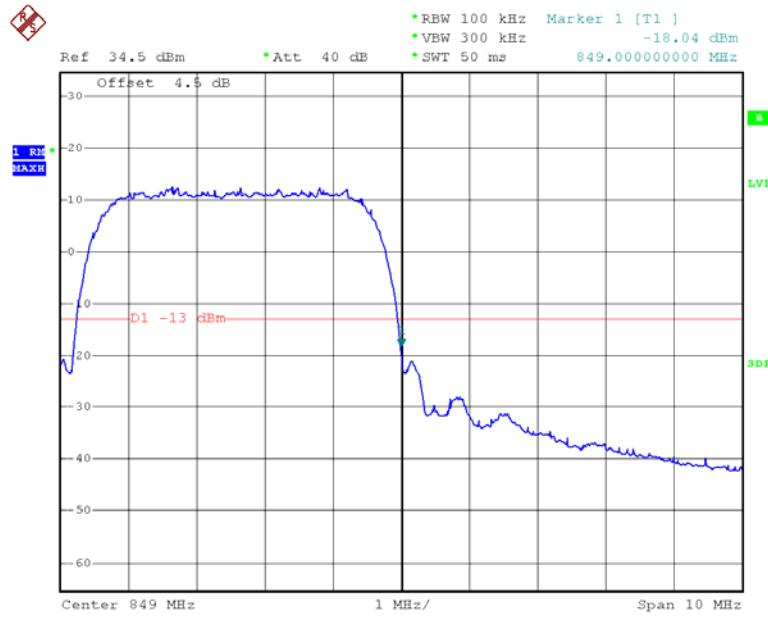
Date: 6.JAN.2020 09:52:16

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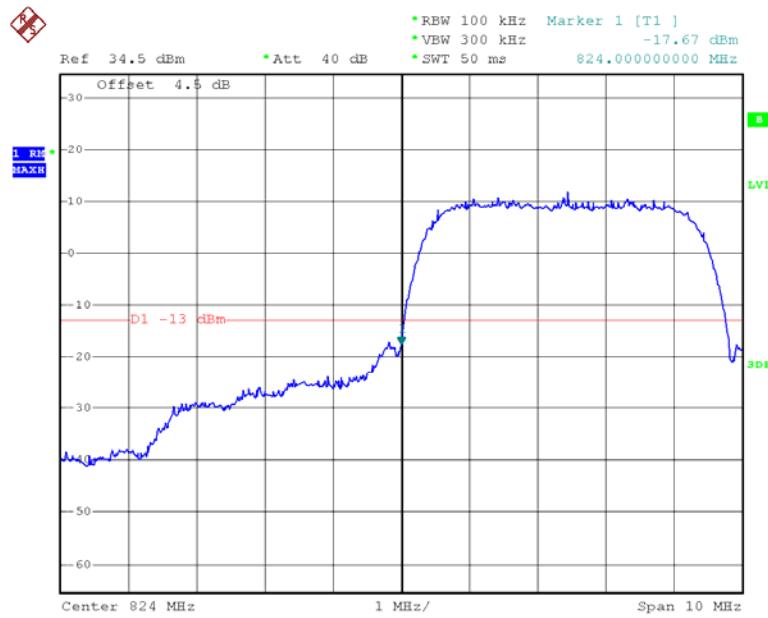
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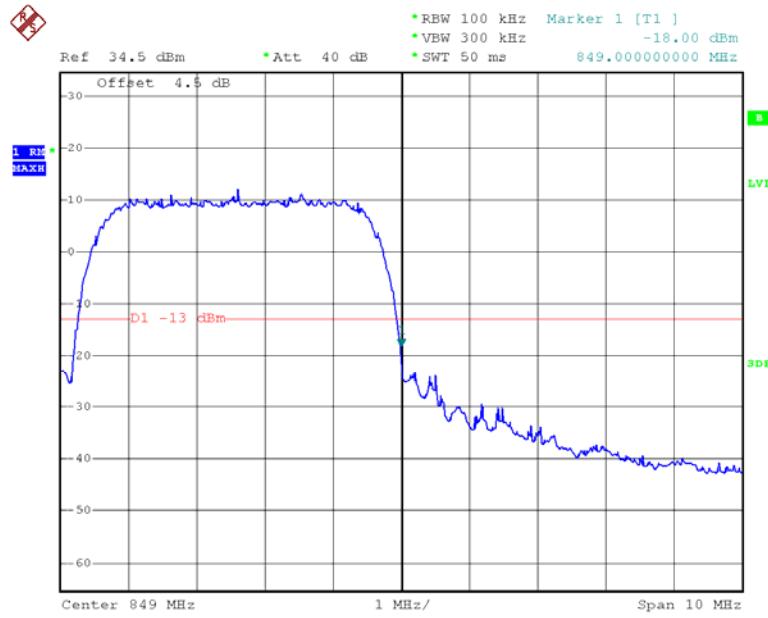
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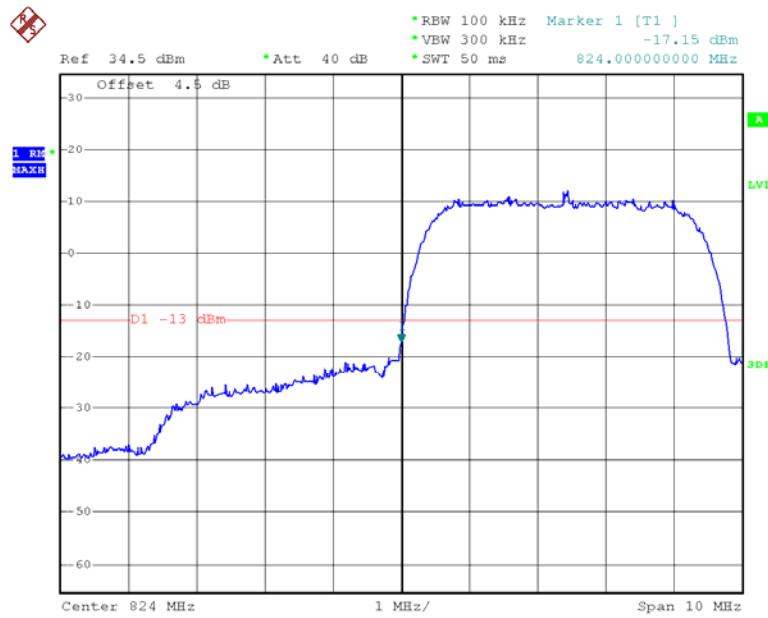
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WCDMA Band V HSUPA, Right Band Edge
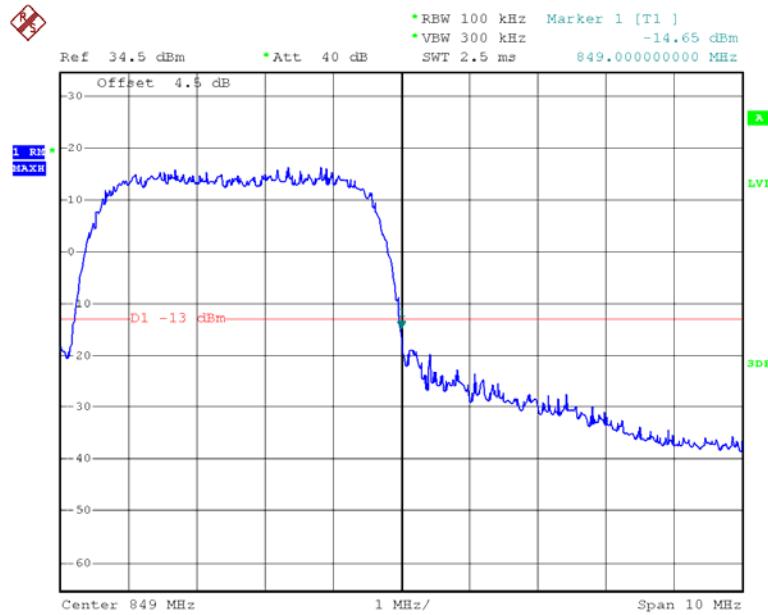
Date: 6.JAN.2020 09:11:16

LTE Band 2

QPSK_1.4MHz_ 6 RB_ Left
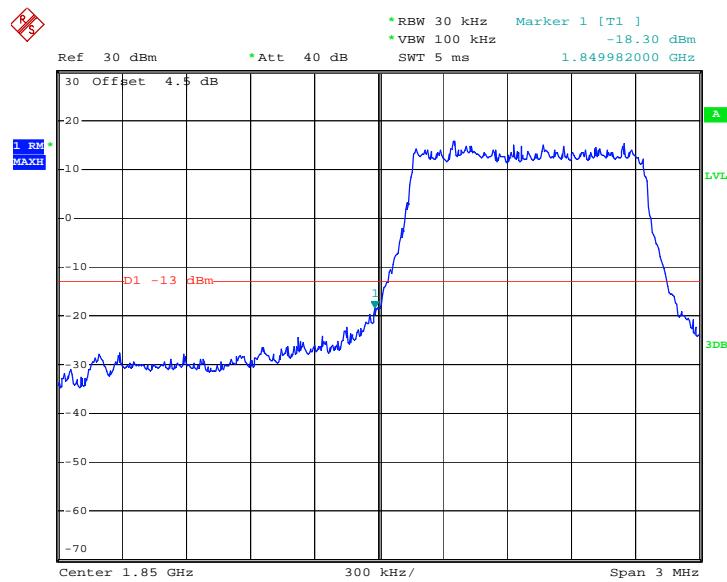
Date: 7.JAN.2020 09:55:17

QPSK_1.4MHz_ 6 RB_ Right
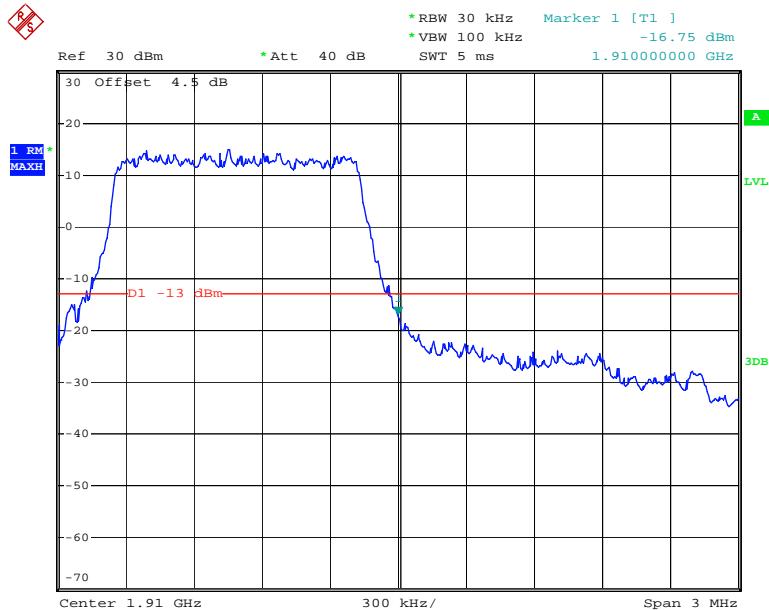
Date: 7.JAN.2020 09:55:58

QPSK_3MHz_ 15 RB_ Left
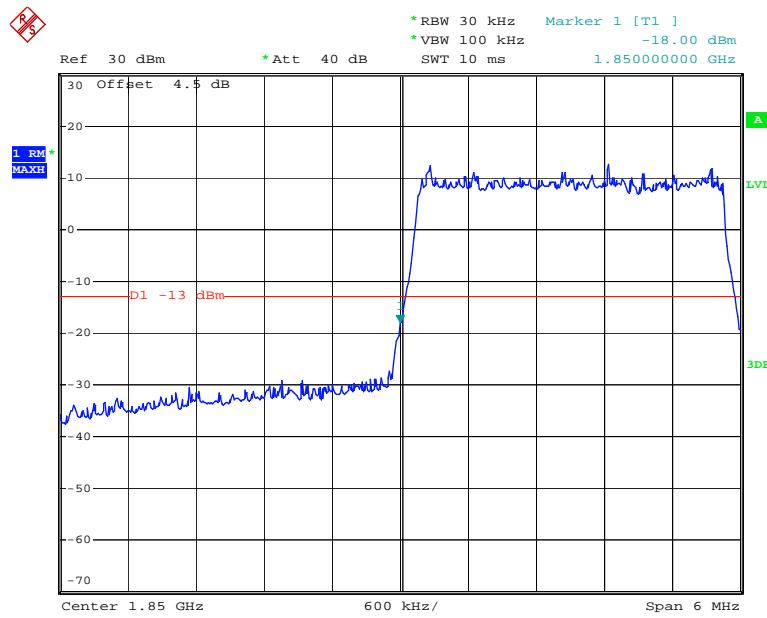
Date: 7.JAN.2020 09:56:41

QPSK_3MHz_ 15 RB_ Right
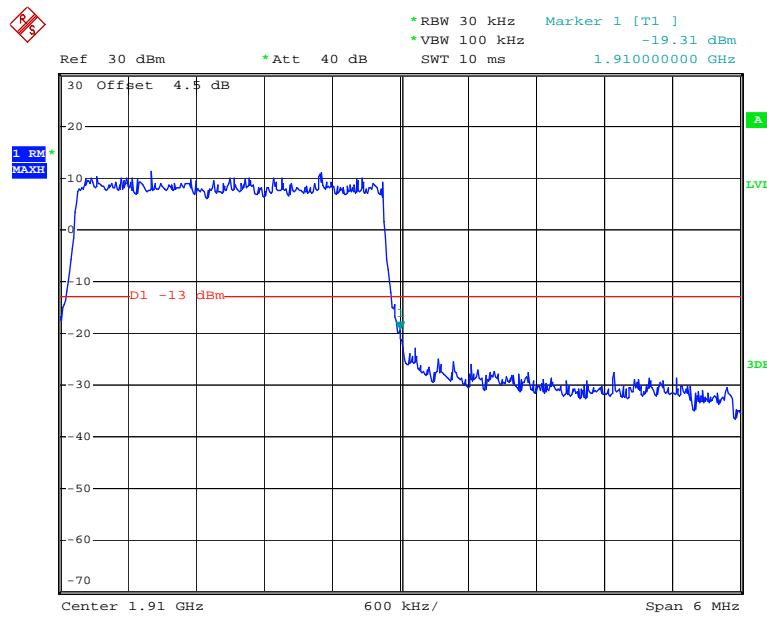
Date: 7.JAN.2020 09:57:20

QPSK_5MHz_ 25 RB_ Left

```
                              *RBW 100 kHz   Marker 1 [T1 ]
                              *VBW 300 kHz            -20.15 dBm
Ref  30 dBm        *Att  40 dB   *SWT 50 ms      1.850000000 GHz
30 Offset  4.5 dB                                              A

20

1 RM*
MAXH                                                          LVL
10

0

-10
        D1 -13 dBm
-20                                                          3DB

-30

-40

-50

-60

-70
Center 1.85 GHz              1 MHz/              Span 10 MHz
```
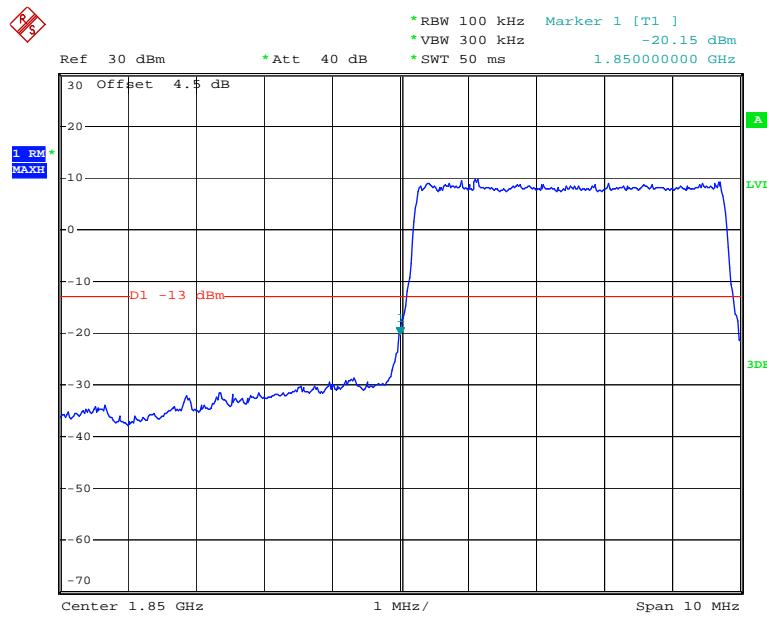
Date: 14.JAN.2020 17:07:05

QPSK_5MHz_ 25 RB_ Right

```
                              *RBW 100 kHz   Marker 1 [T1 ]
                              *VBW 300 kHz            -14.38 dBm
Ref  30 dBm        *Att  40 dB    SWT 2.5 ms     1.910020000 GHz
30 Offset  4.5 dB                                              A

20

1 RM*
MAXH                                                          LVL
10

0

-10
        D1 -13 dBm
-20                                                          3DB

-30

-40

-50

-60

-70
Center 1.91 GHz              1 MHz/              Span 10 MHz
```
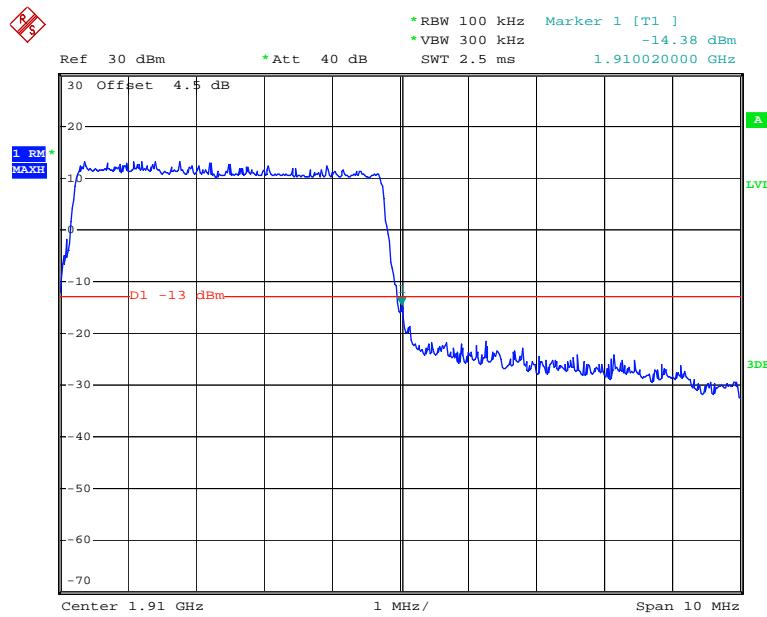
Date: 7.JAN.2020 09:58:35

QPSK_10MHz_ 50 RB_ Left
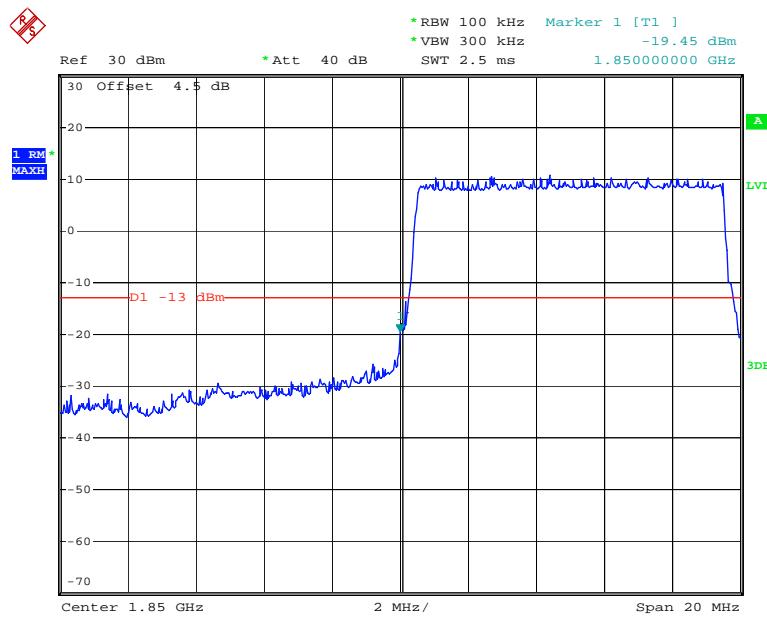
Date: 7.JAN.2020 09:59:16

QPSK_10MHz_ 50 RB_ Right
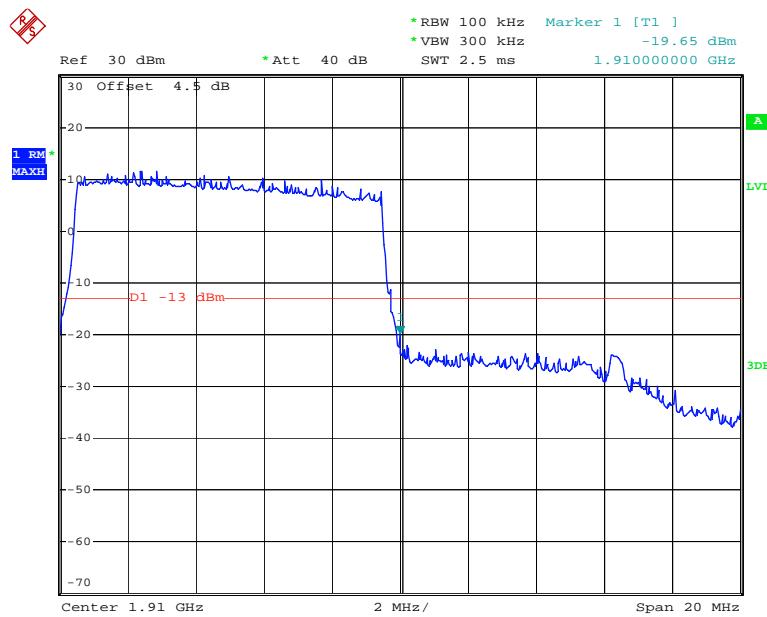
Date: 7.JAN.2020 09:59:56

QPSK_15MHz_ 75 RB_ Left
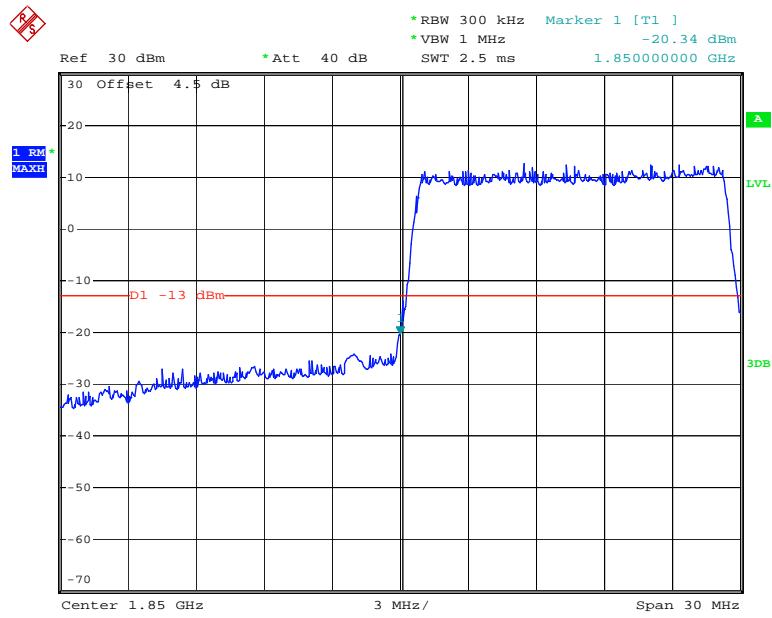
Date: 7.JAN.2020 10:00:39

QPSK_15MHz_ 75 RB_ Right
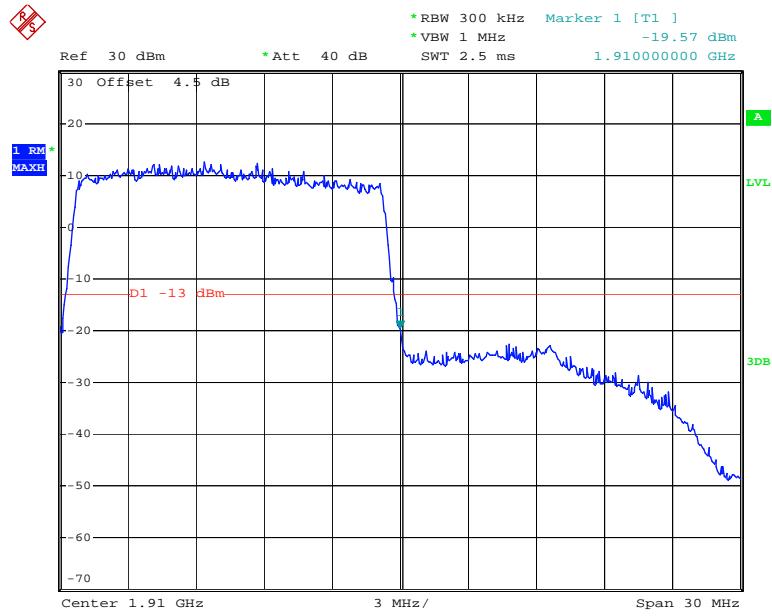
Date: 7.JAN.2020 10:01:21

QPSK_20MHz_ FULL RB_ Left
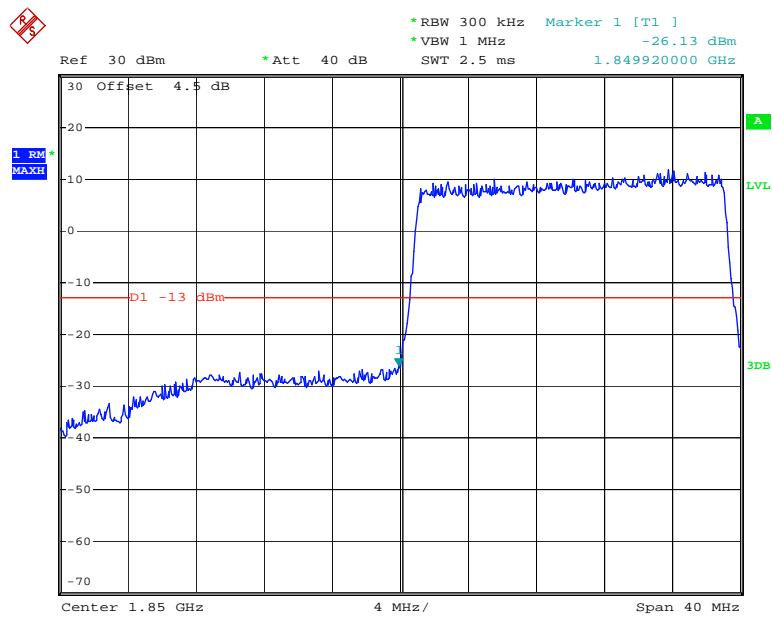
Date: 7.JAN.2020 10:02:06

QPSK_20MHz_ FULL RB_ Right
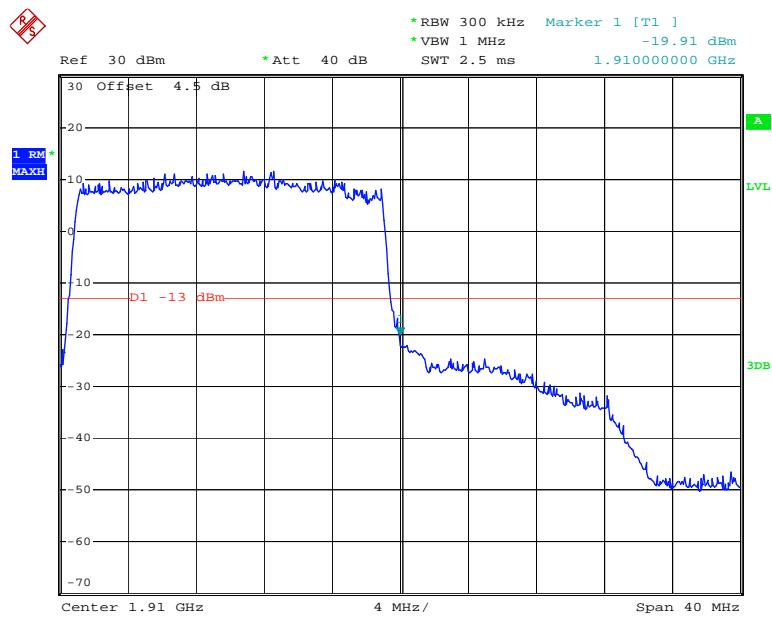
Date: 7.JAN.2020 10:02:48

16QAM_1.4MHz_ 6 RB_ Left
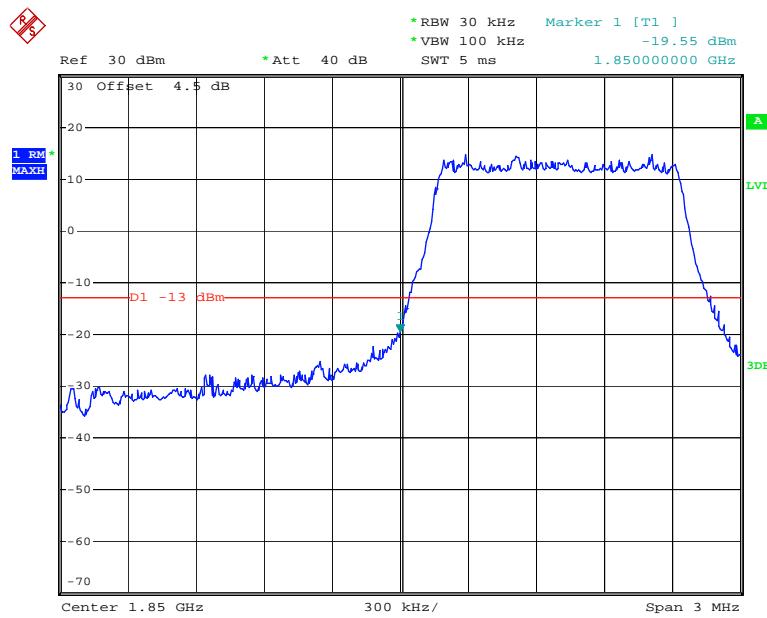
Date: 7.JAN.2020 09:55:37

16QAM_1.4MHz_ 6 RB_ Right
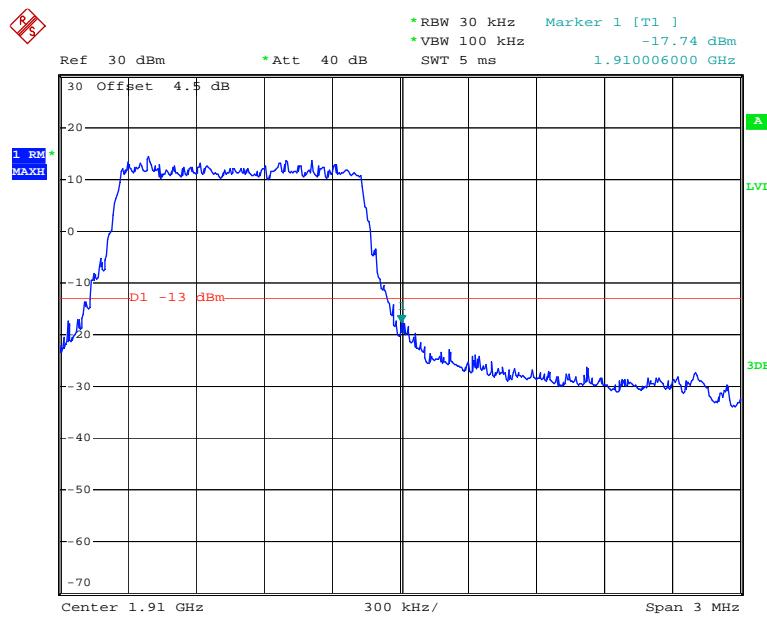
Date: 7.JAN.2020 09:56:15

16QAM_3MHz_ 15 RB_ Left
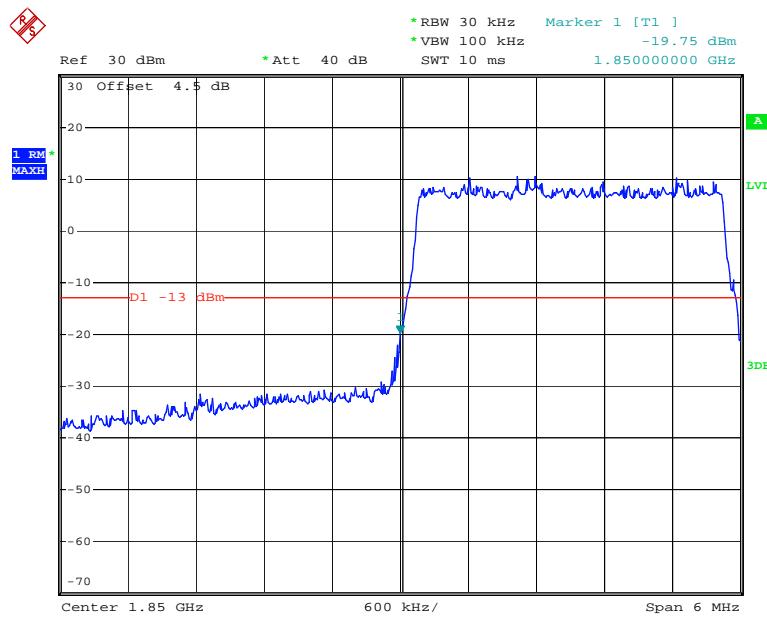
Date: 7.JAN.2020 09:57:02

16QAM_3MHz_ 15 RB_ Right
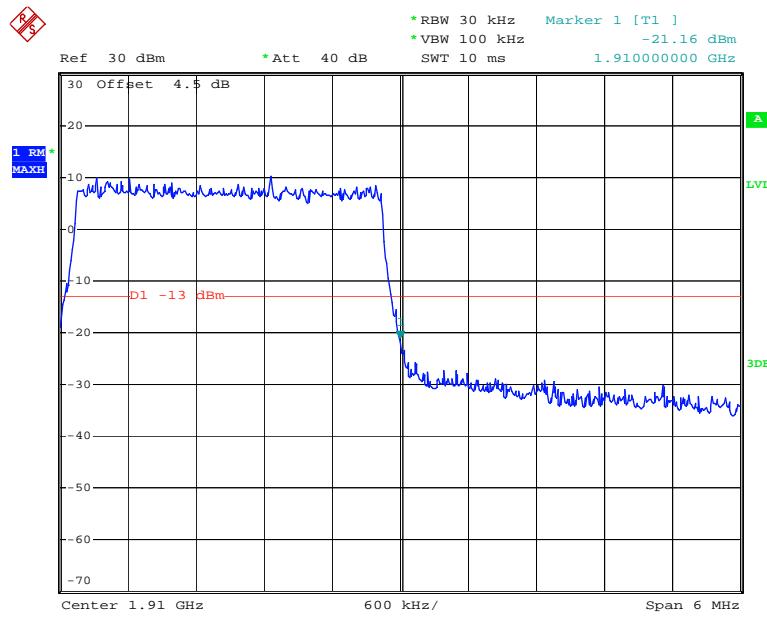
Date: 7.JAN.2020 09:57:37

16QAM_5MHz_ 25 RB_ Left

		*RBW 100 kHz	Marker 1 [T1]
		*VBW 300 kHz	-21.28 dBm
Ref 30 dBm	*Att 40 dB	*SWT 50 ms	1.850000000 GHz

30 Offset 4.5 dB

A

LVL

D1 -13 dBm

3DB

Center 1.85 GHz   1 MHz/   Span 10 MHz
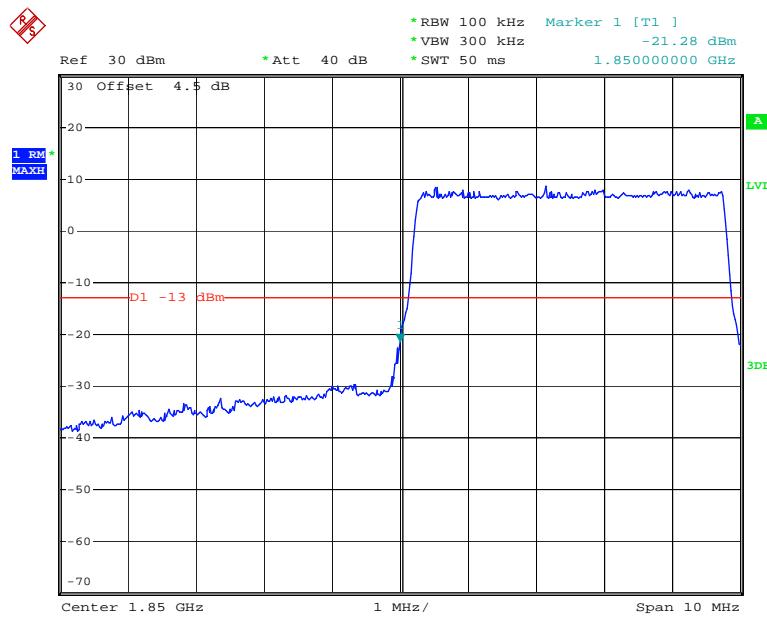
Date: 14.JAN.2020 17:09:00

16QAM_5MHz_ 25 RB_ Right

		*RBW 100 kHz	Marker 1 [T1]
		*VBW 300 kHz	-20.24 dBm
Ref 30 dBm	*Att 40 dB	*SWT 50 ms	1.910000000 GHz

30 Offset 4.5 dB

A

LVL

D1 -13 dBm

3DB

Center 1.91 GHz   1 MHz/   Span 10 MHz
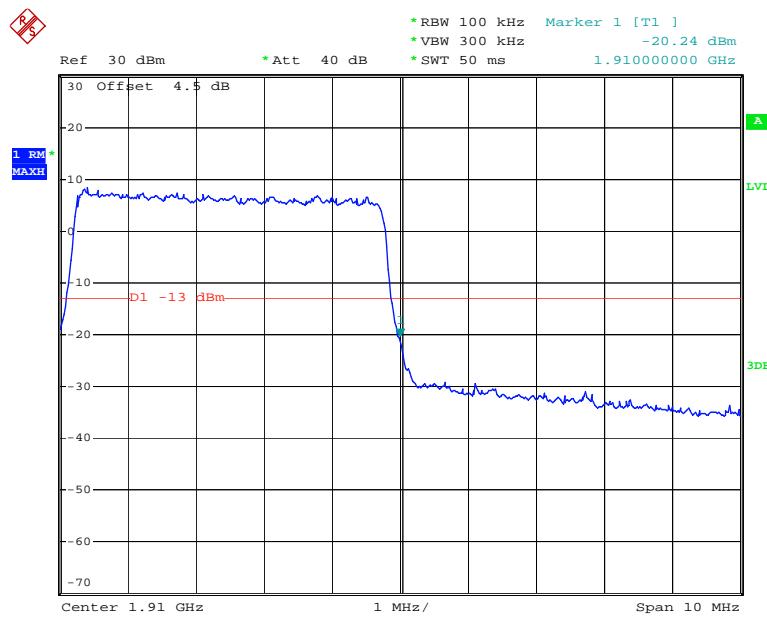
Date: 14.JAN.2020 17:08:13

16QAM_10MHz_ 50 RB_ Left
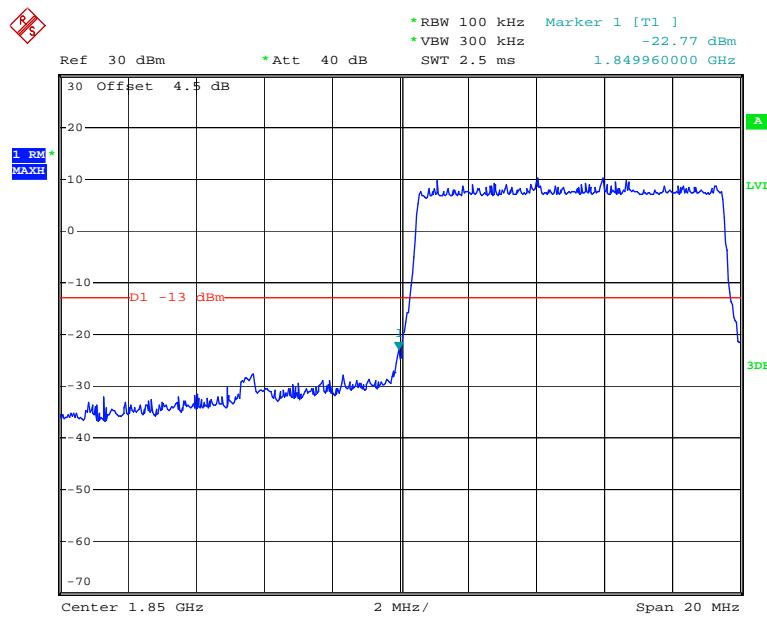
Date: 7.JAN.2020 09:59:34

16QAM_10MHz_ 50 RB_ Right
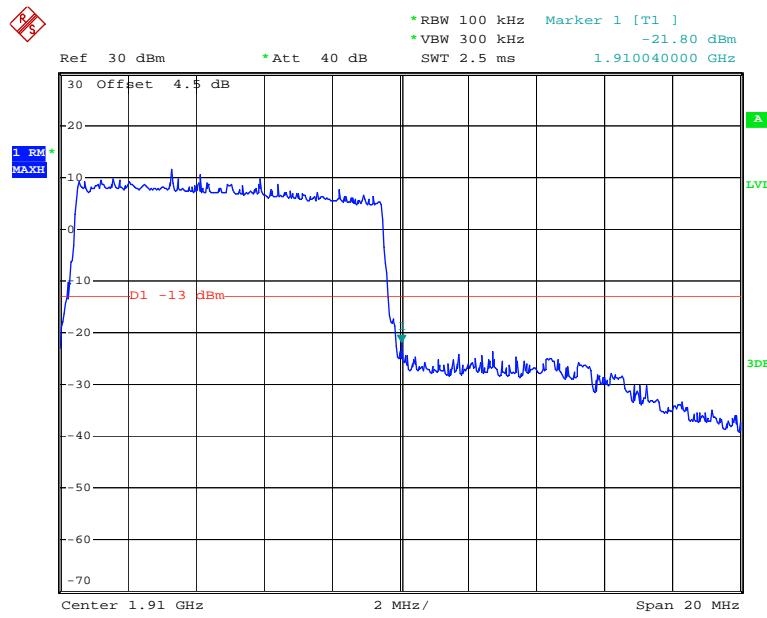
Date: 7.JAN.2020 10:00:14

16QAM_15MHz_ 75 RB_ Left
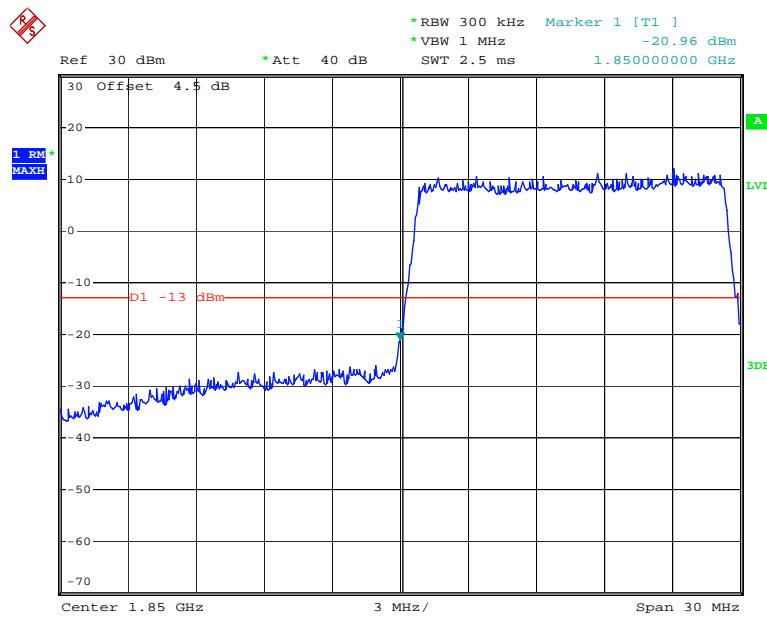

Date: 7.JAN.2020 10:00:59

16QAM_15MHz_ 75 RB_ Right
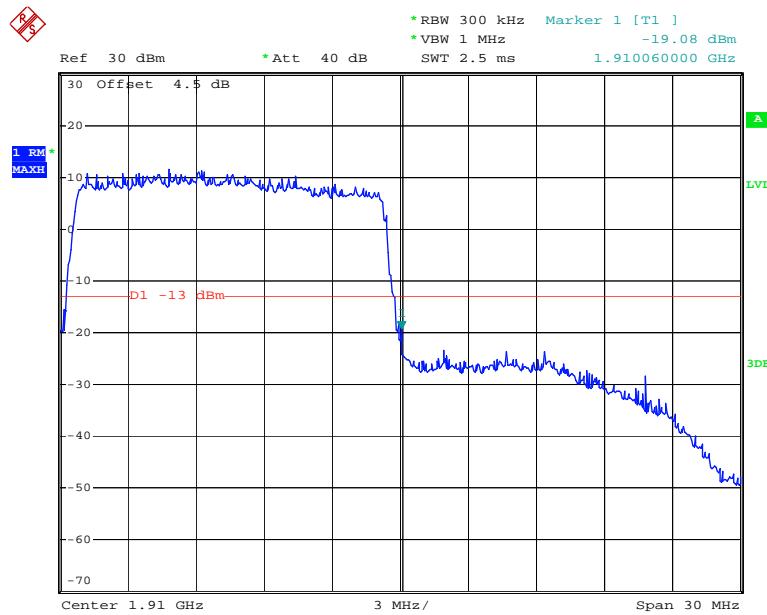
Date: 7.JAN.2020 10:01:41

16QAM_20MHz_ FULL RB_ Left

```
                                        *RBW 300 kHz   Marker 1 [T1 ]
                                        *VBW 1 MHz                 -26.58 dBm
          Ref  30 dBm        *Att  40 dB    SWT 2.5 ms        1.850000000 GHz
      30 Offset  4.5 dB
                                                                            A

   1 RM*
   MAXH                                                                    LVL

                                    D1 -13 dBm

                                                                          3DB

      Center 1.85 GHz              4 MHz/                    Span 40 MHz
```
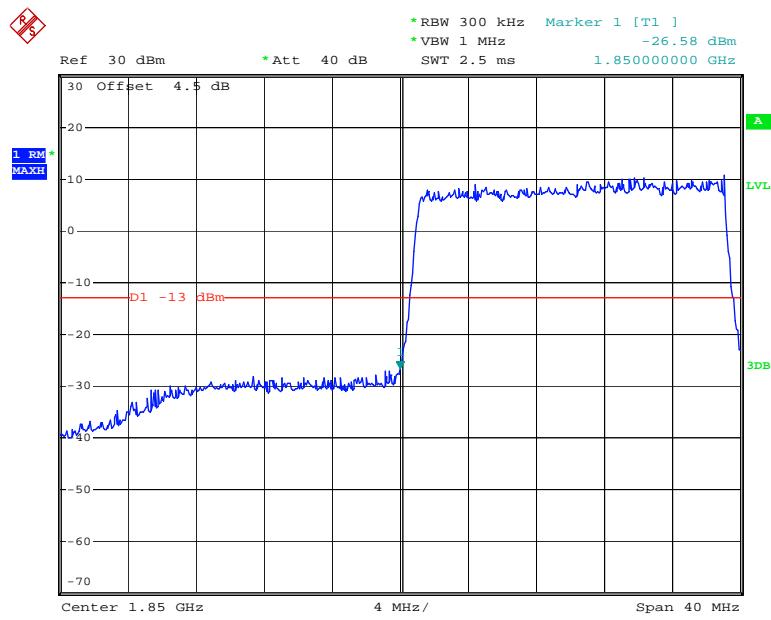
Date: 7.JAN.2020 10:02:27

16QAM_20MHz_ FULL RB_ Right

```
                                        *RBW 300 kHz   Marker 1 [T1 ]
                                        *VBW 1 MHz                 -22.88 dBm
          Ref  30 dBm        *Att  40 dB    SWT 2.5 ms        1.910000000 GHz
      30 Offset  4.5 dB
                                                                            A

   1 RM*
   MAXH                                                                    LVL

                                    D1 -13 dBm

                                                                          3DB

      Center 1.91 GHz              4 MHz/                    Span 40 MHz
```
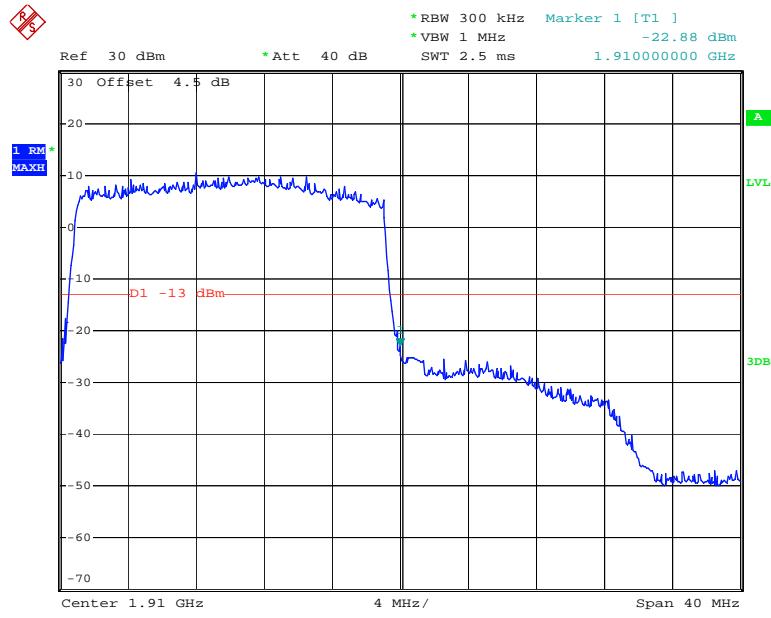
Date: 7.JAN.2020 10:03:08

LTE Band 4

QPSK_1.4MHz_ 6 RB_ Left
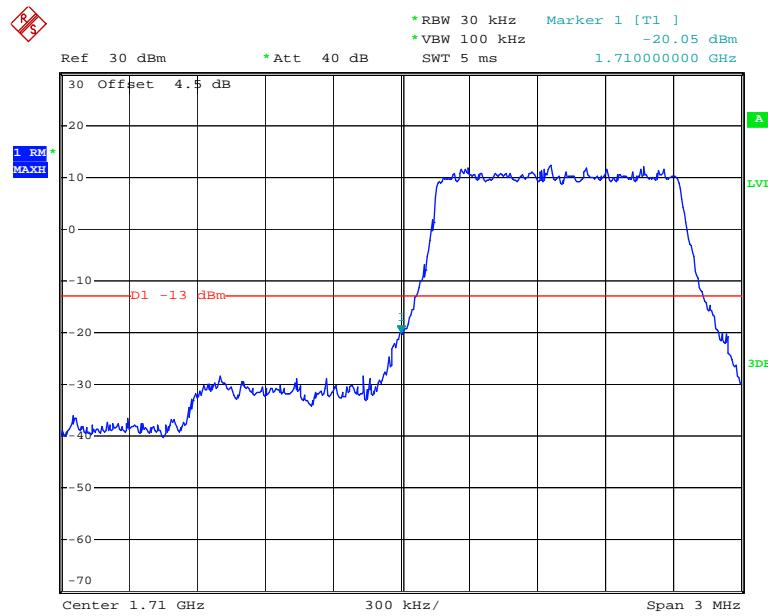
Date: 7.JAN.2020 10:03:36

QPSK_1.4MHz_ 6 RB_ Right
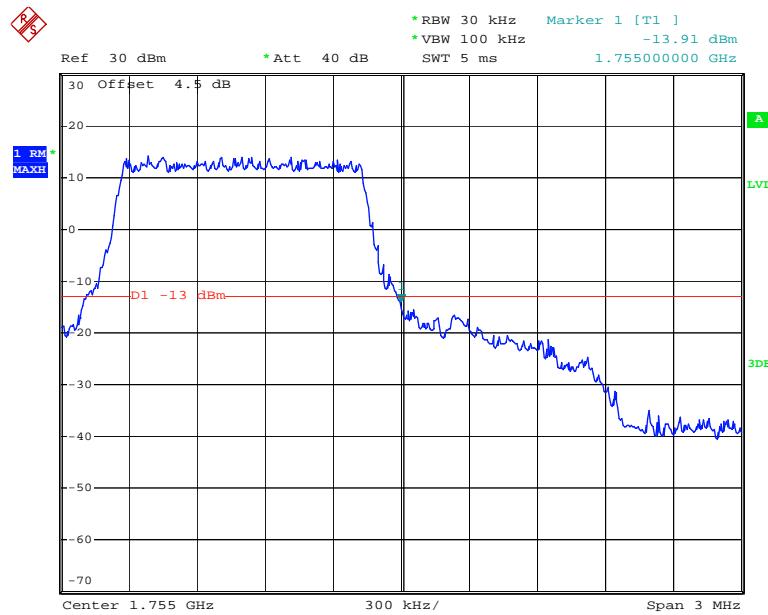
Date: 7.JAN.2020 10:04:11

QPSK_3MHz_ 15 RB_ Left
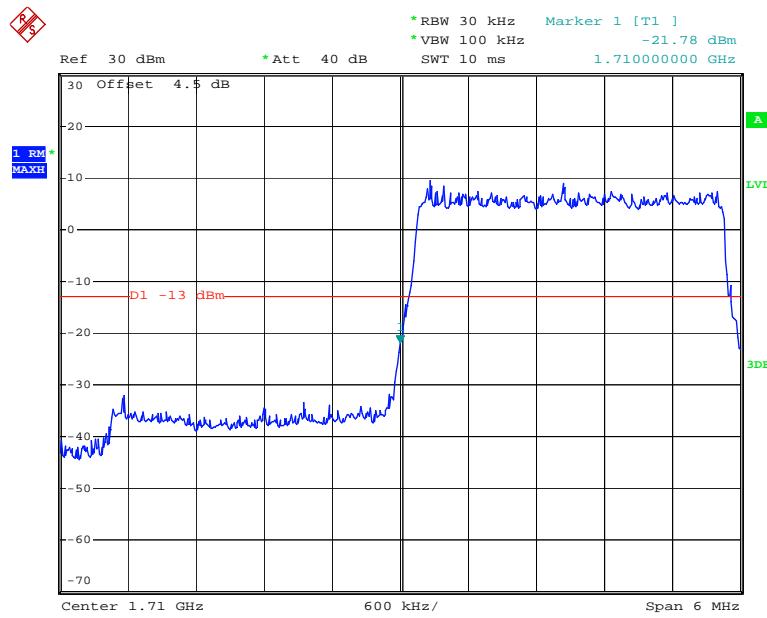
Date: 7.JAN.2020 10:04:53

QPSK_3MHz_ 15 RB_ Right
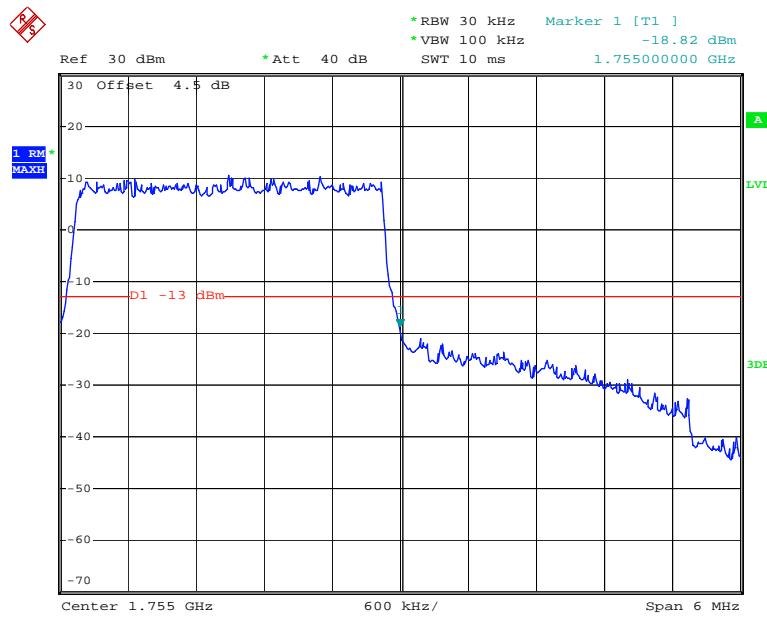
Date: 7.JAN.2020 10:05:31

QPSK_5MHz_ 25 RB_ Left


```
                                    *RBW  100 kHz   Marker 1 [T1 ]
                                    *VBW  300 kHz              -14.18 dBm
         Ref  30 dBm     *Att  40 dB  SWT 2.5 ms       1.709980000 GHz
```
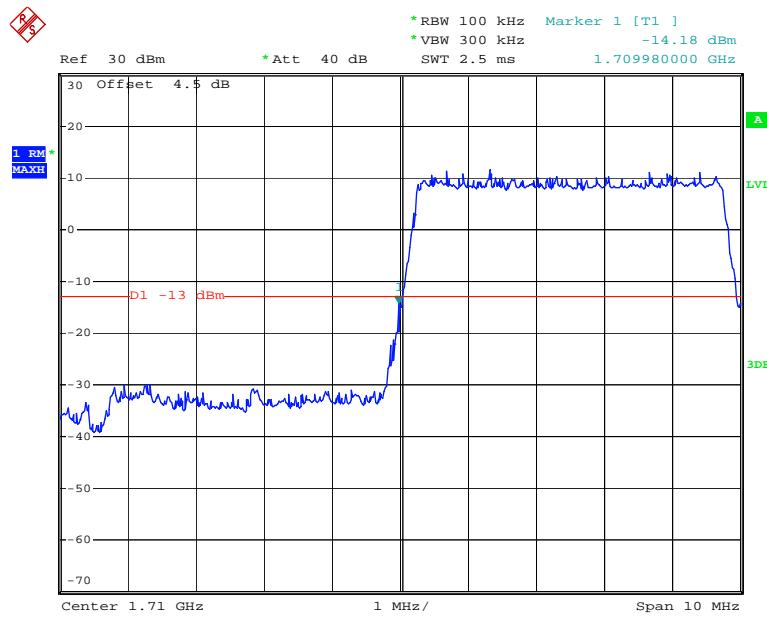
Date: 7.JAN.2020 10:06:17

QPSK_5MHz_ 25 RB_ Right


```
                                    *RBW  100 kHz   Marker 1 [T1 ]
                                    *VBW  300 kHz              -13.67 dBm
         Ref  30 dBm     *Att  40 dB  SWT 2.5 ms       1.755020000 GHz
```
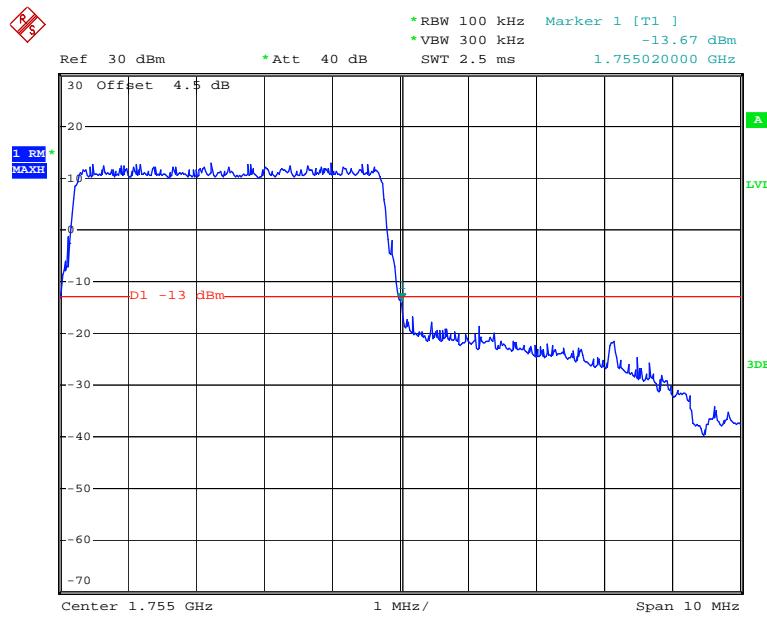
Date: 7.JAN.2020 10:06:55

QPSK_10MHz_ 50 RB_ Left

```
                                    *RBW 100 kHz   Marker 1 [T1 ]
                                    *VBW 300 kHz              -23.50 dBm
      Ref  30 dBm        *Att  40 dB   SWT 2.5 ms       1.710000000 GHz
```
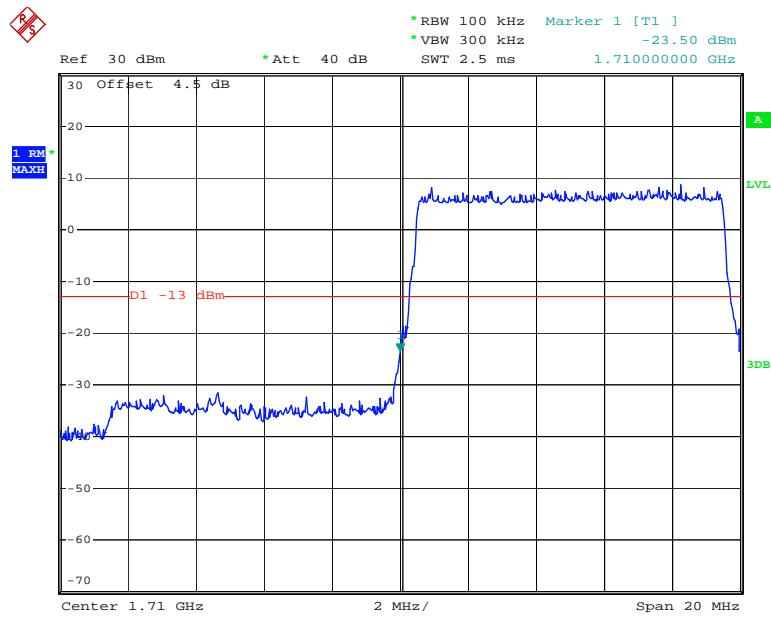


```
Date: 7.JAN.2020  10:07:38
```

QPSK_10MHz_ 50 RB_ Right

```
                                    *RBW 100 kHz   Marker 1 [T1 ]
                                    *VBW 300 kHz              -20.53 dBm
      Ref  30 dBm        *Att  40 dB   SWT 2.5 ms       1.755000000 GHz
```
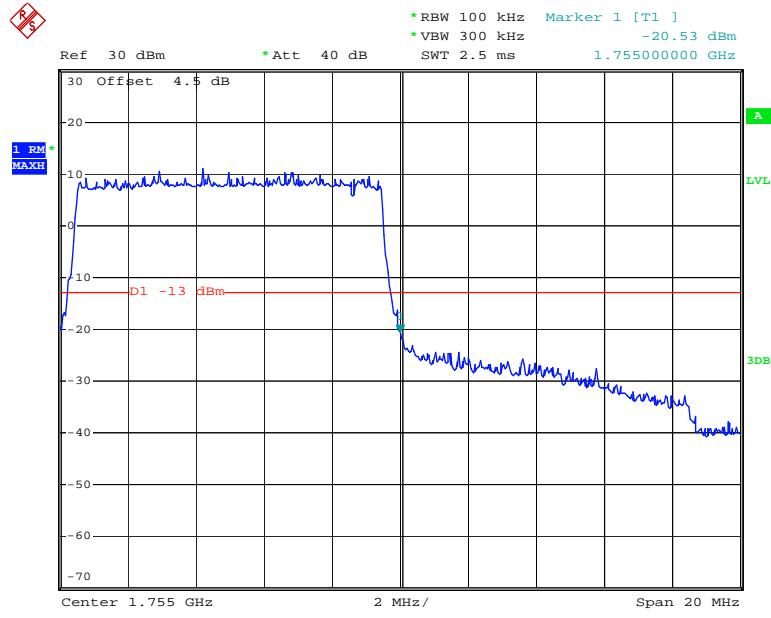


```
Date: 7.JAN.2020  10:08:19
```

QPSK_15MHz_ 75 RB_ Left
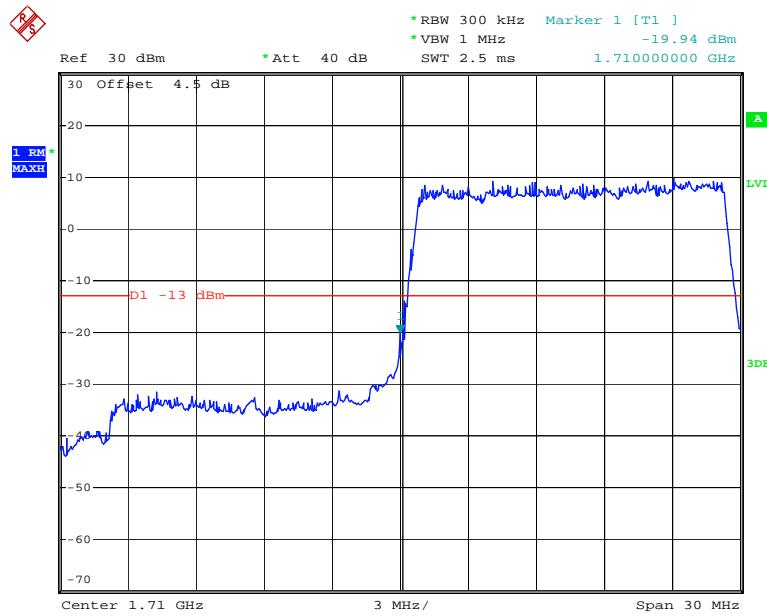
Date: 7.JAN.2020 10:09:02

QPSK_15MHz_ 75 RB_ Right
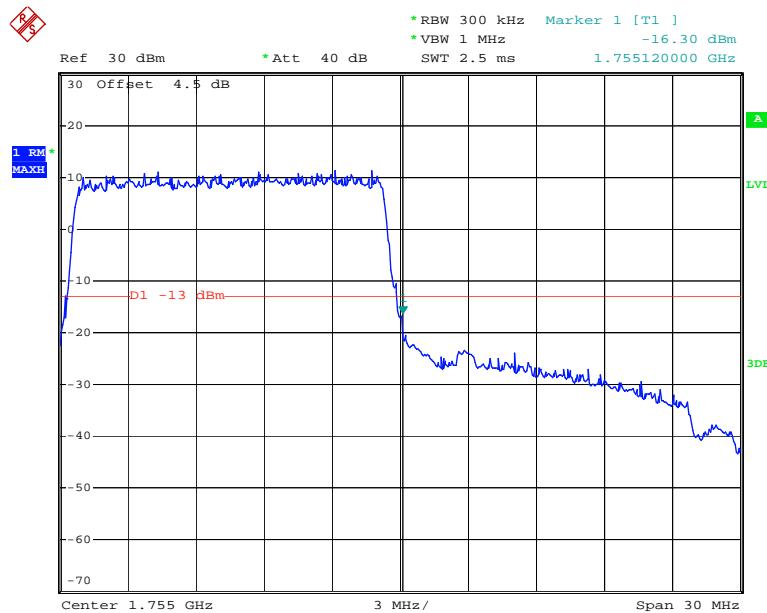
Date: 7.JAN.2020 10:09:44

QPSK_20MHz_ FULL RB_ Left
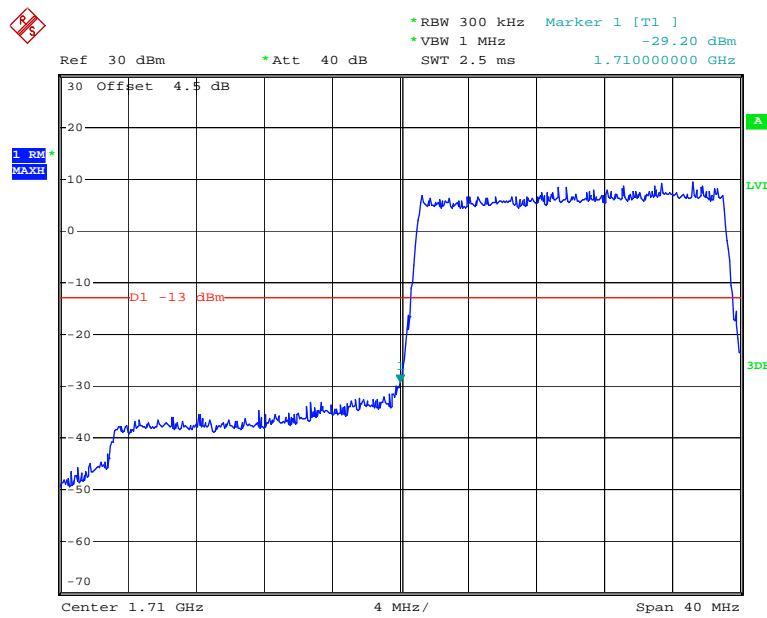
Date: 7.JAN.2020 10:18:24

QPSK_20MHz_ FULL RB_ Right
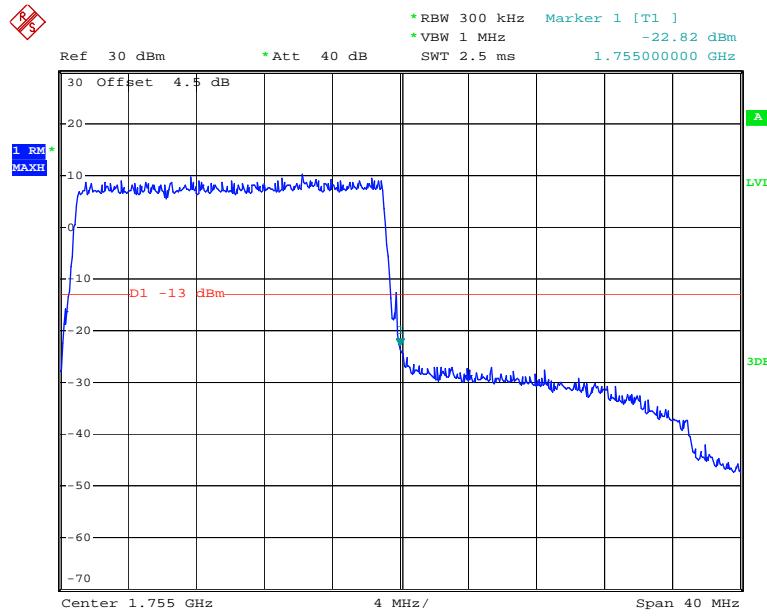
Date: 7.JAN.2020 10:19:08

16QAM_1.4MHz_ 6 RB_ Left
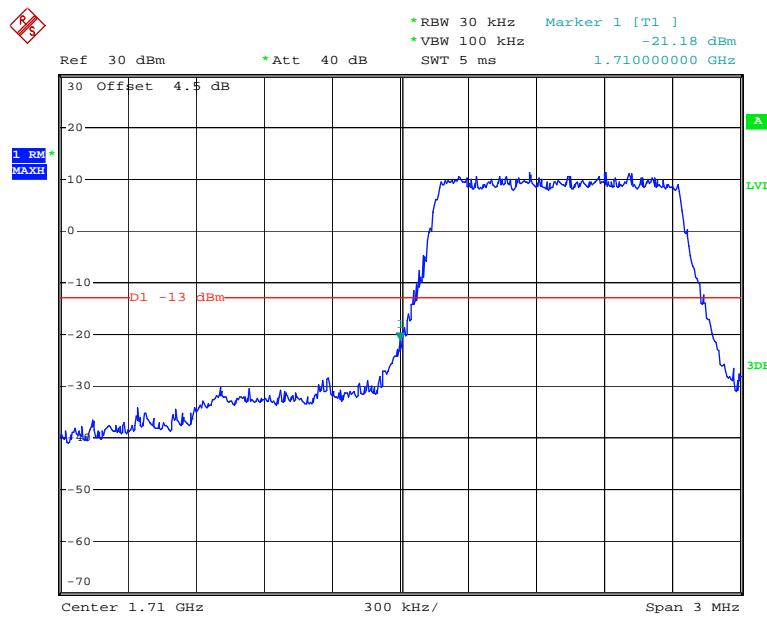
Date: 7.JAN.2020 10:03:53

16QAM_1.4MHz_ 6 RB_ Right
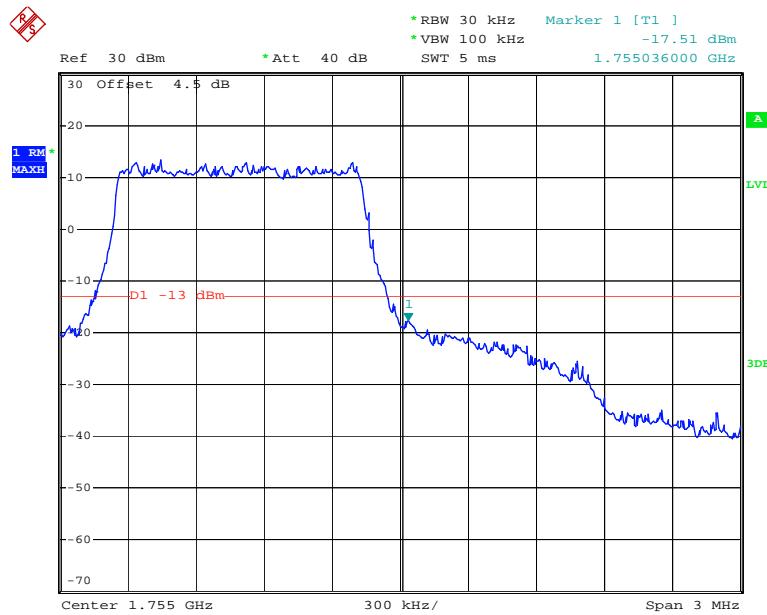
Date: 7.JAN.2020 10:04:31

16QAM_3MHz_ 15 RB_ Left

```
*RBW 30 kHz    Marker 1 [T1 ]
*VBW 100 kHz              -23.52 dBm
Ref  30 dBm        *Att  40 dB    SWT 10 ms         1.710000000 GHz
```

30 Offset 4.5 dB

D1 -13 dBm

A

LVL

3DB

Center 1.71 GHz   600 kHz/   Span 6 MHz
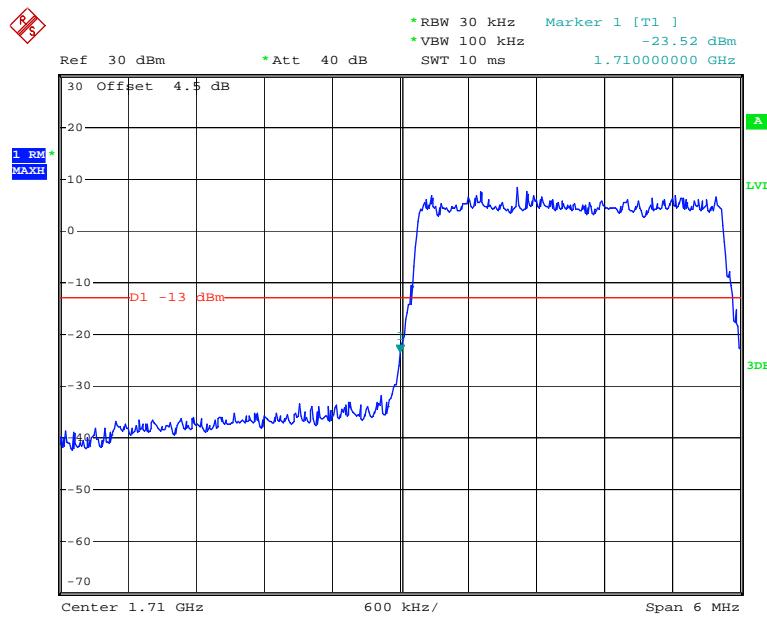
Date: 7.JAN.2020 10:05:13

16QAM_3MHz_ 15 RB_ Right

```
*RBW 30 kHz    Marker 1 [T1 ]
*VBW 100 kHz              -18.83 dBm
Ref  30 dBm        *Att  40 dB    SWT 10 ms         1.755000000 GHz
```

30 Offset 4.5 dB

D1 -13 dBm

A

LVL

3DB

Center 1.755 GHz   600 kHz/   Span 6 MHz
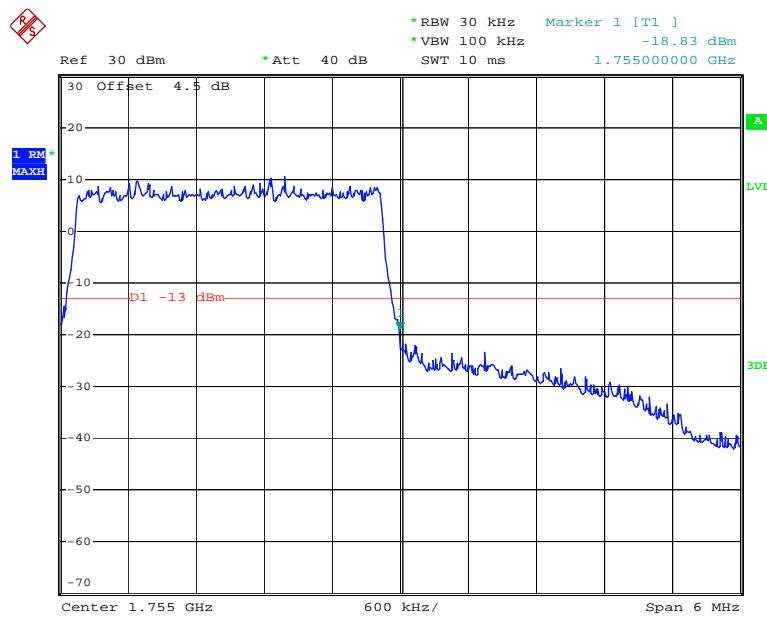
Date: 7.JAN.2020 10:05:51

16QAM_5MHz_ 25 RB_ Left
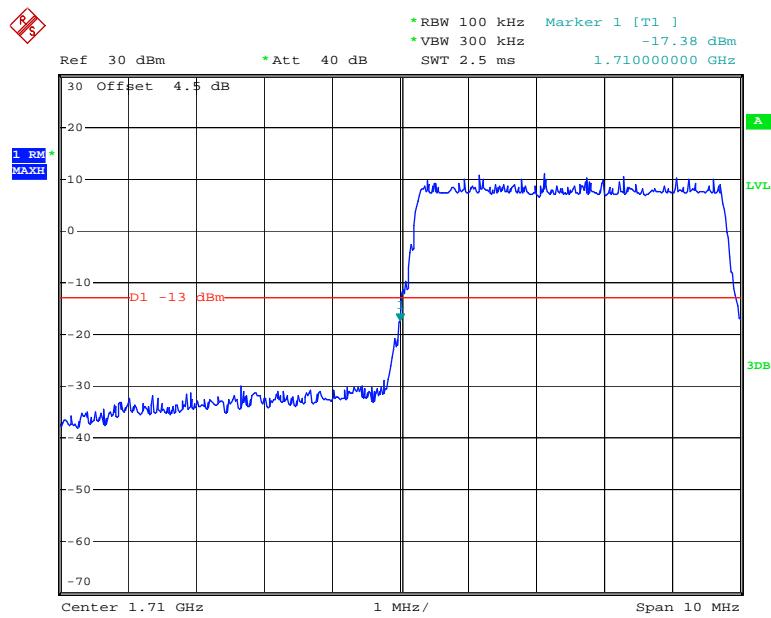
Date: 7.JAN.2020 10:06:34

16QAM_5MHz_ 25 RB_ Right
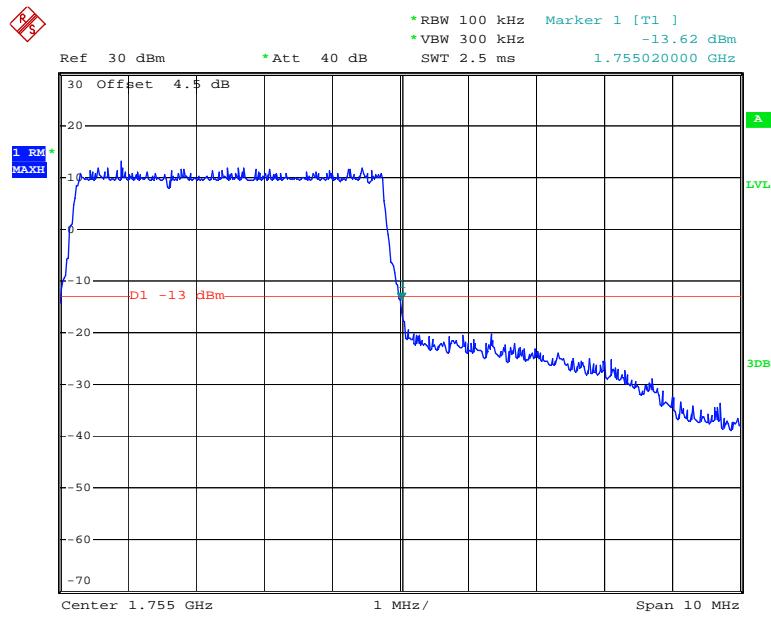
Date: 7.JAN.2020 10:07:12

16QAM_10MHz_ 50 RB_ Left
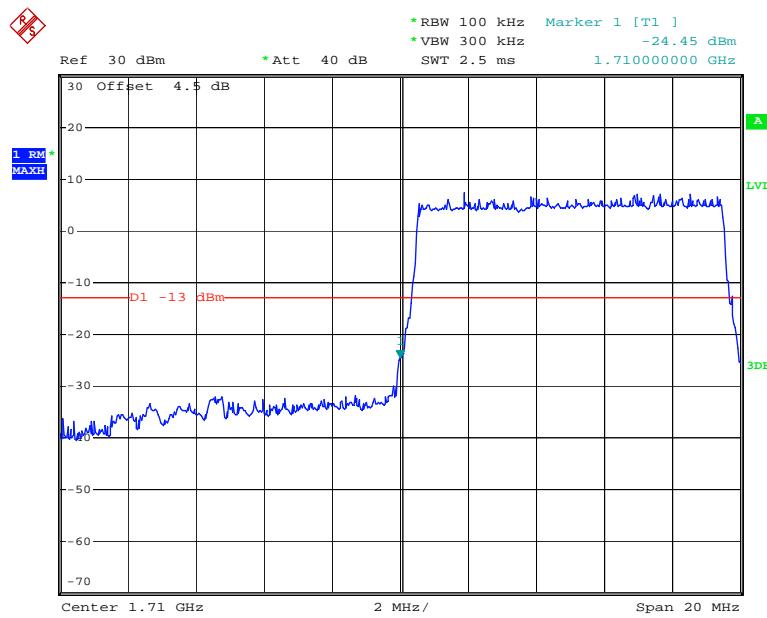
Date: 7.JAN.2020 10:07:56

16QAM_10MHz_ 50 RB_ Right
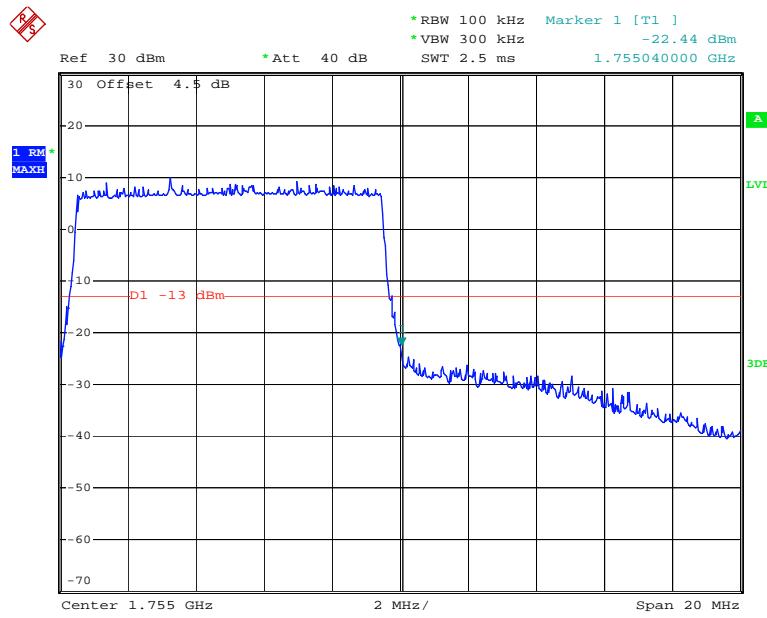
Date: 7.JAN.2020 10:08:37

16QAM_15MHz_ 75 RB_ Left
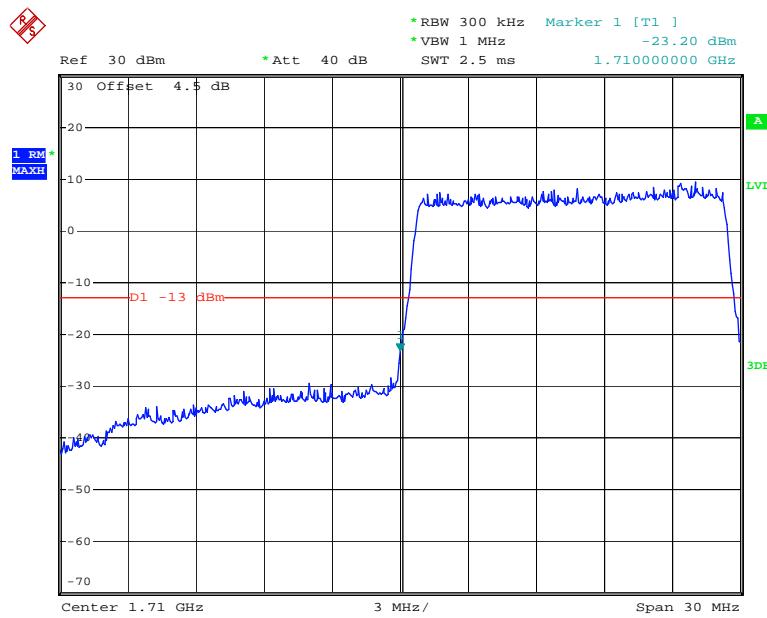
Date: 7.JAN.2020 10:09:23

16QAM_15MHz_ 75 RB_ Right
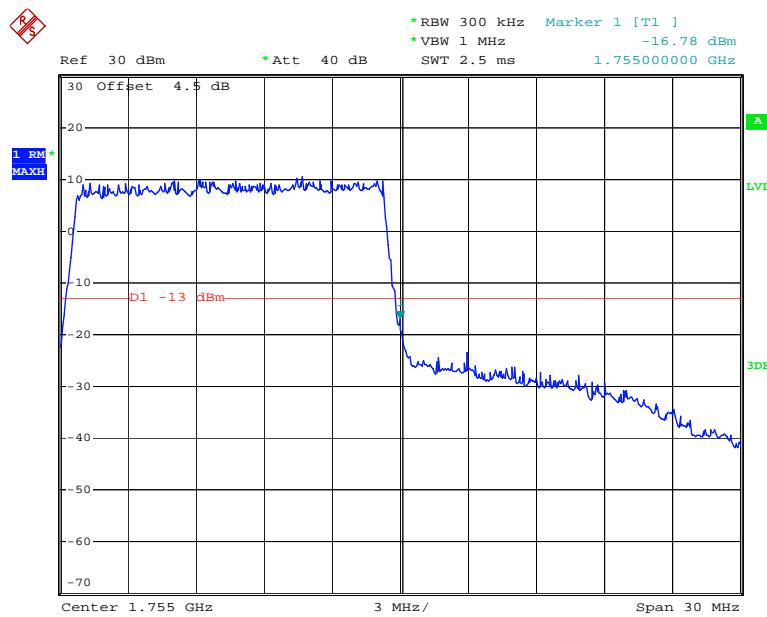
Date: 7.JAN.2020 10:10:07

16QAM_20MHz_ FULL RB_ Left
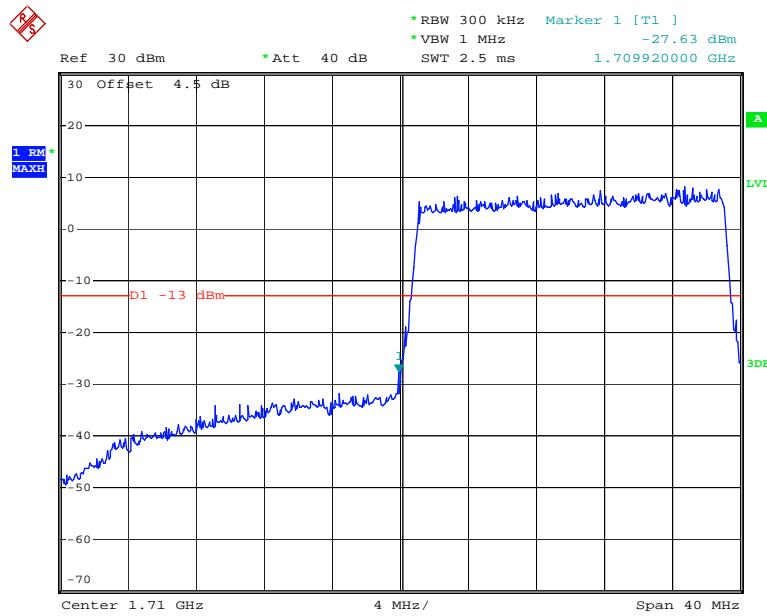
Date: 7.JAN.2020 10:18:46

16QAM_20MHz_ FULL RB_ Right
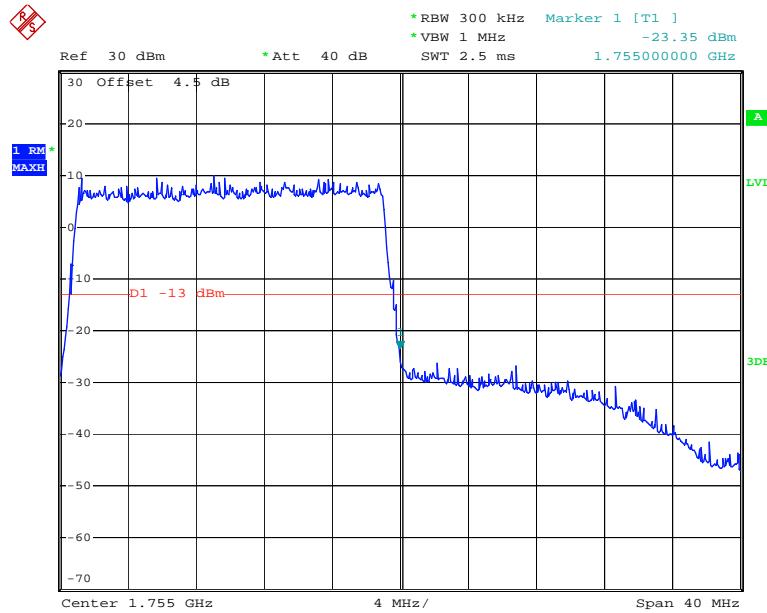
Date: 7.JAN.2020 10:19:30

LTE Band 5

QPSK_1.4MHz_ 6 RB_ Left
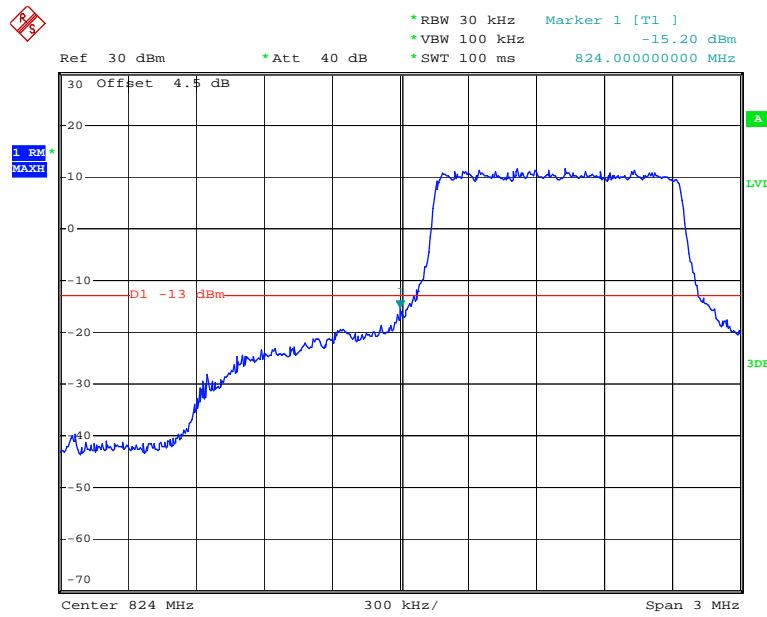
Date: 14.JAN.2020 17:10:44

QPSK_1.4MHz_ 6 RB_ Right
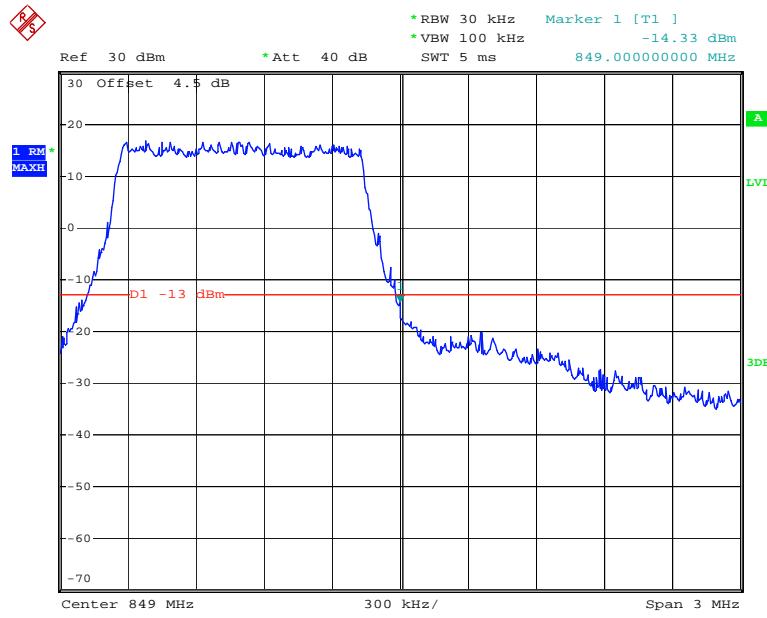
Date: 7.JAN.2020 10:20:31

QPSK_3MHz_ 15 RB_ Left
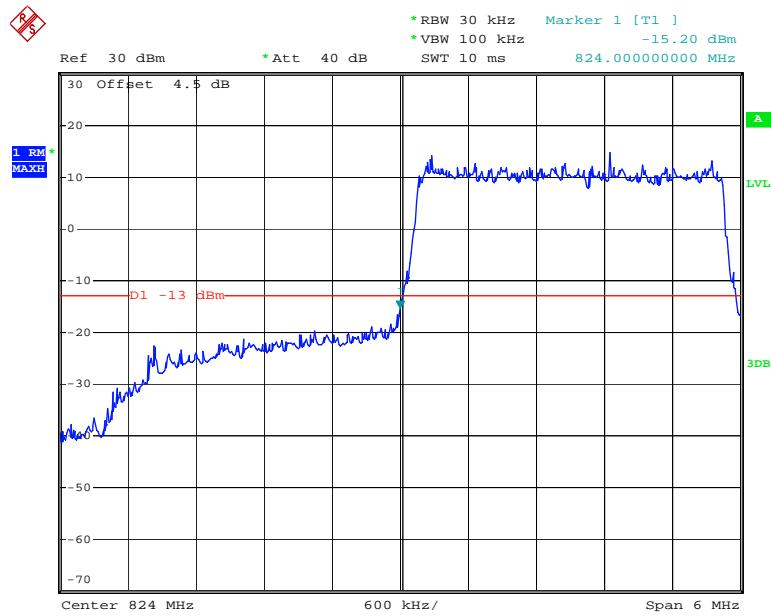
Date: 7.JAN.2020 10:44:05

QPSK_3MHz_ 15 RB_ Right
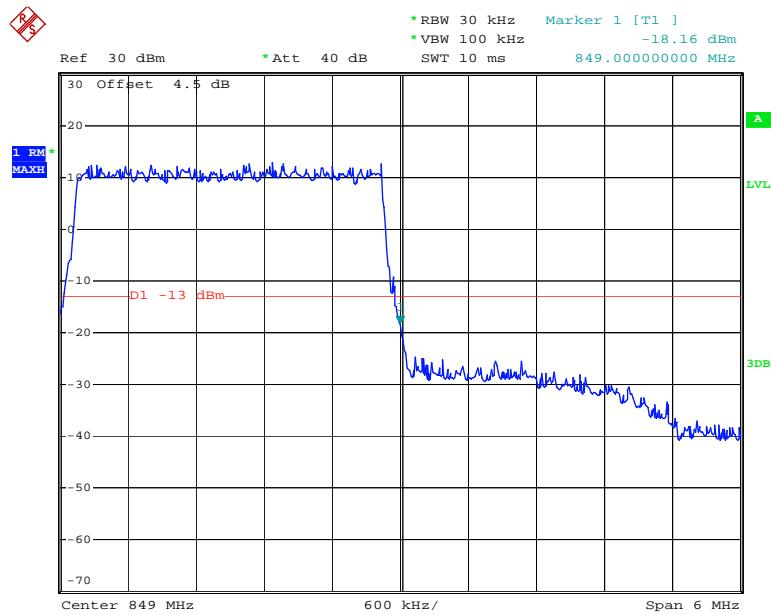
Date: 7.JAN.2020 10:44:43

QPSK_5MHz_ 25 RB_ Left
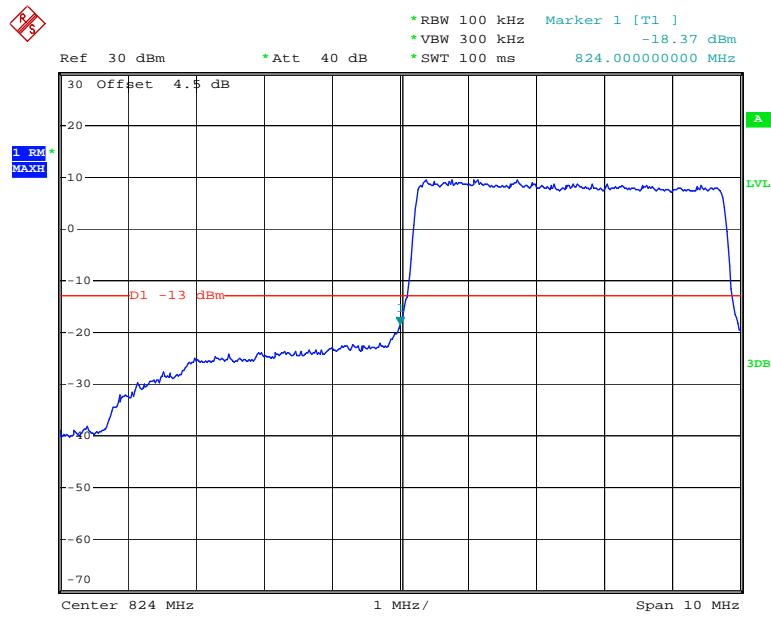
Date: 14.JAN.2020 17:15:03

QPSK_5MHz_ 25 RB_ Right
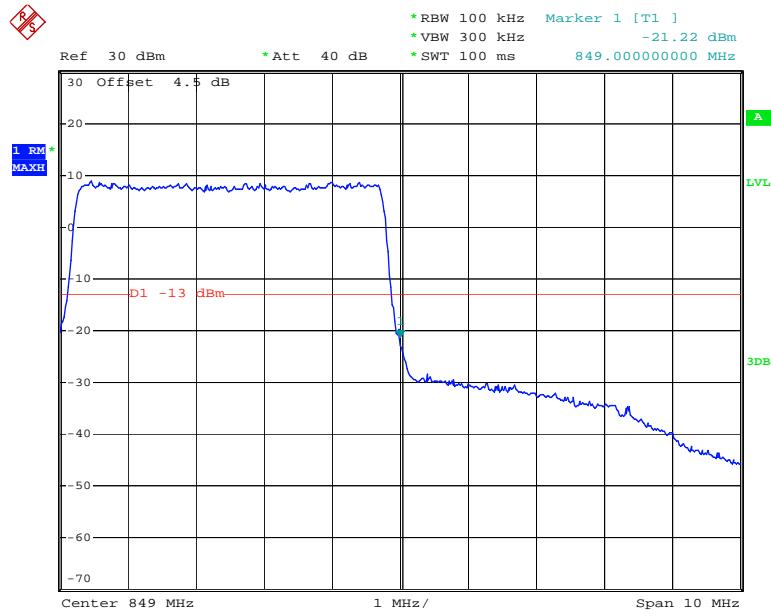
Date: 14.JAN.2020 17:17:03

QPSK_10MHz_ 50 RB_ Left
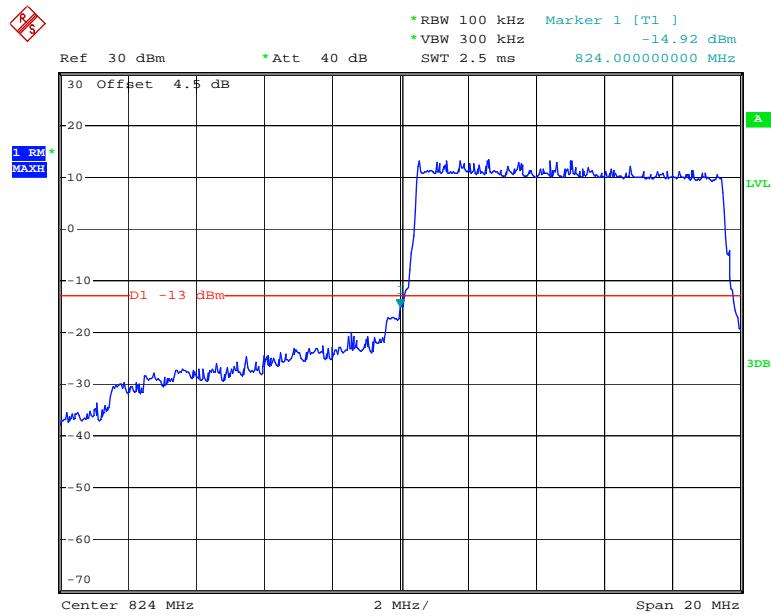
Date: 7.JAN.2020 10:47:57

QPSK_10MHz_ 50 RB_ Right
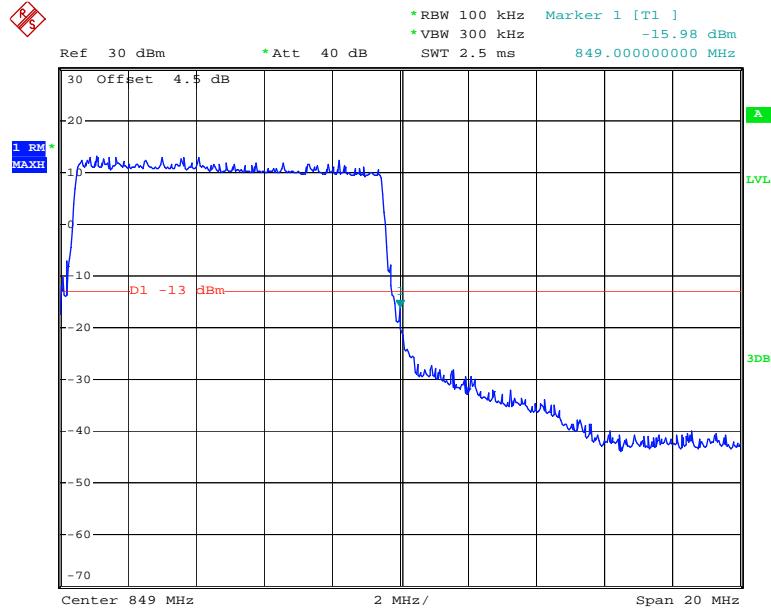
Date: 7.JAN.2020 10:48:34

16QAM_1.4MHz_ 6 RB_ Left
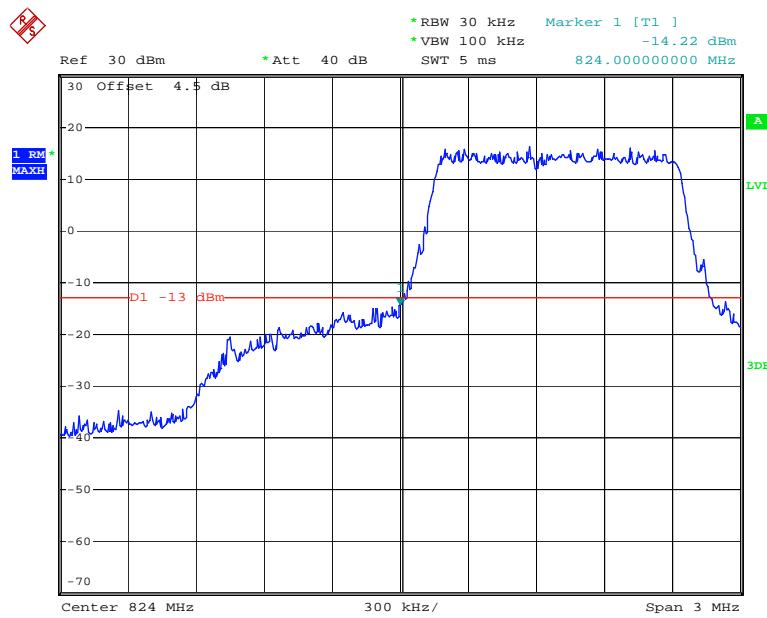
Date: 7.JAN.2020 10:20:13

16QAM_1.4MHz_ 6 RB_ Right
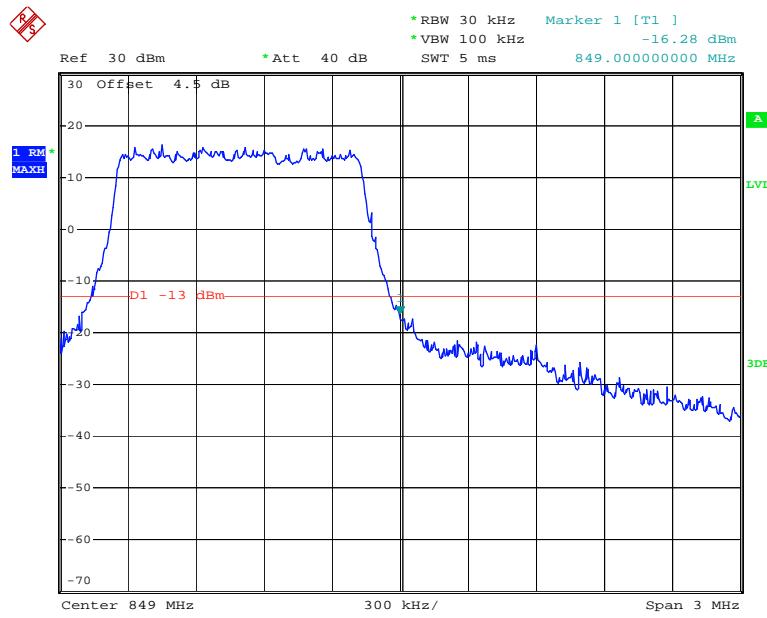
Date: 7.JAN.2020 10:20:48

16QAM_3MHz_ 15 RB_ Left
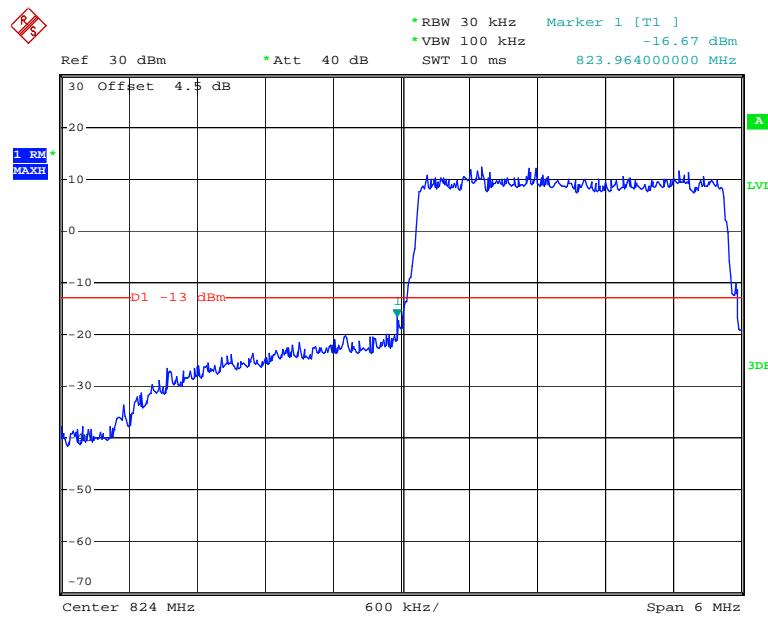

Date: 7.JAN.2020 10:44:22

16QAM_3MHz_ 15 RB_ Right
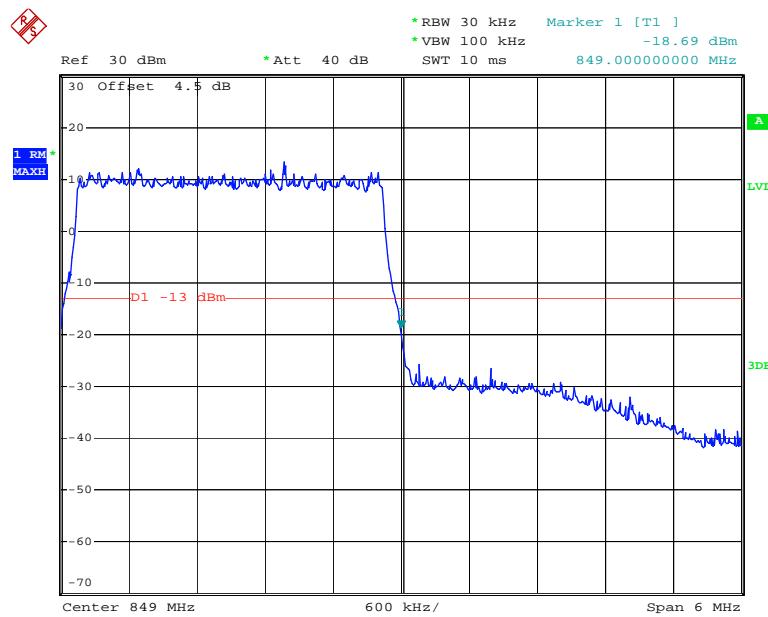

Date: 7.JAN.2020 10:45:04

16QAM_5MHz_ 25 RB_ Left
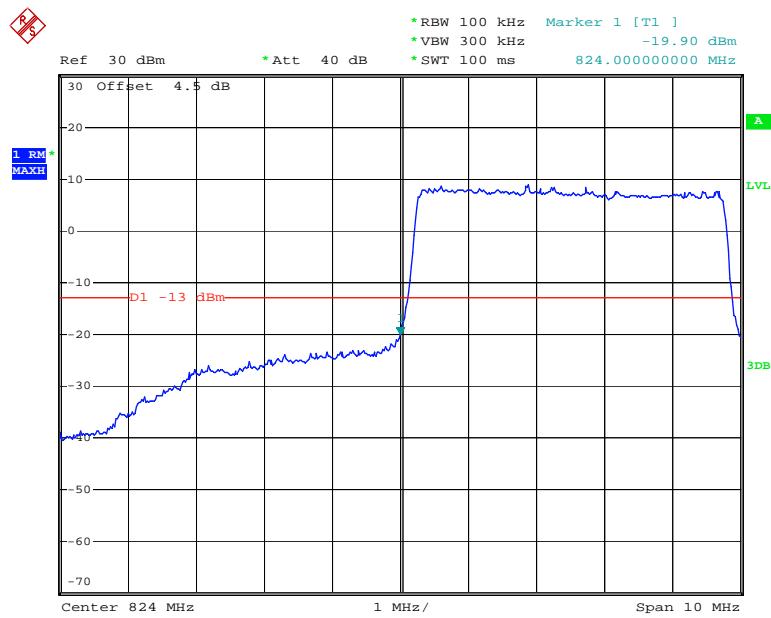
Date: 14.JAN.2020 17:15:39

16QAM_5MHz_ 25 RB_ Right
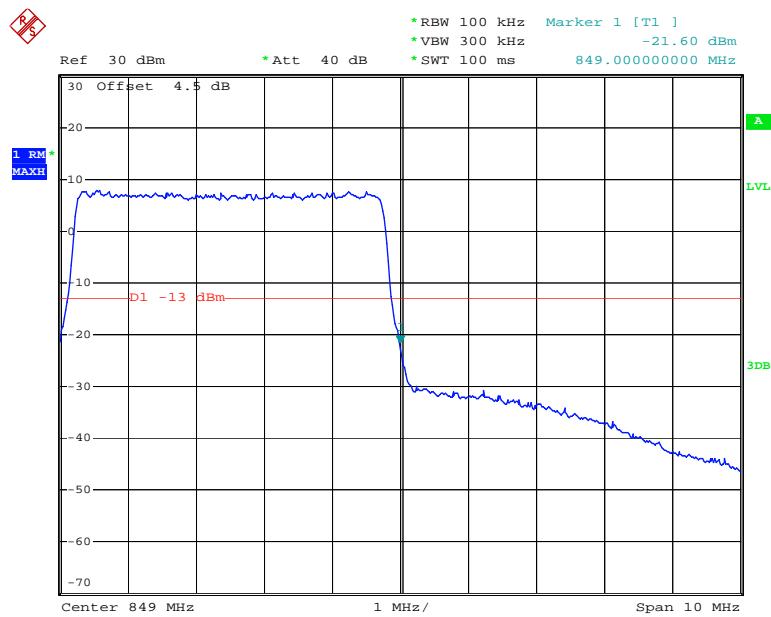

Date: 14.JAN.2020 17:16:37

16QAM_10MHz_ 50 RB_ Left
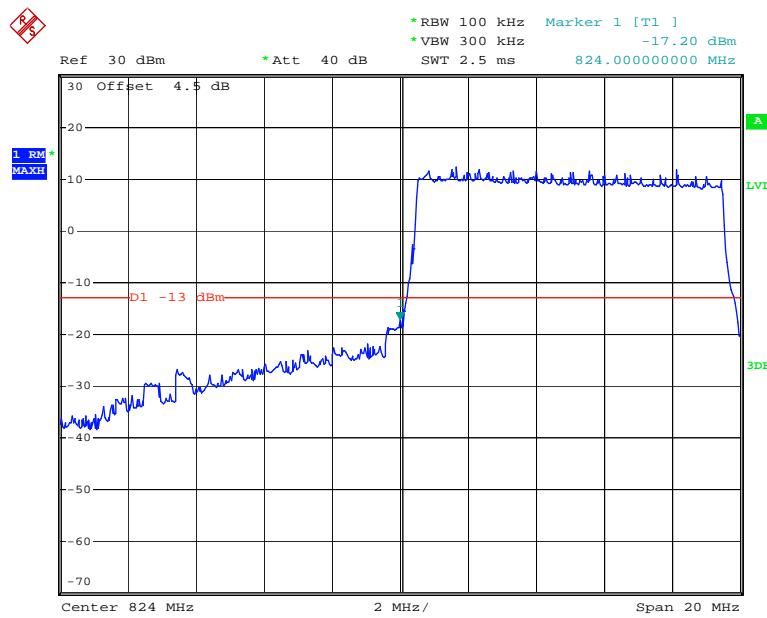
Date: 7.JAN.2020 10:48:15

16QAM_10MHz_ 50 RB_ Right
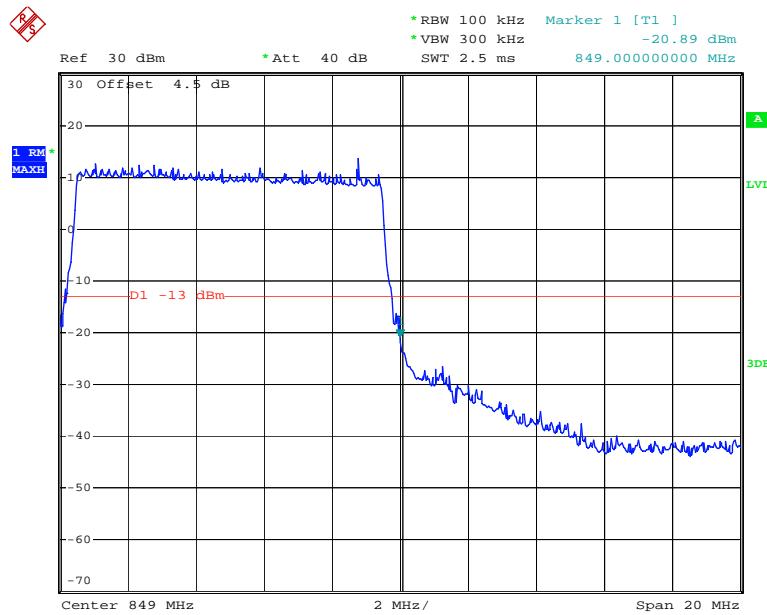
Date: 7.JAN.2020 10:48:52

LTE Band 7

QPSK_5MHz_ 25 RB_ Left
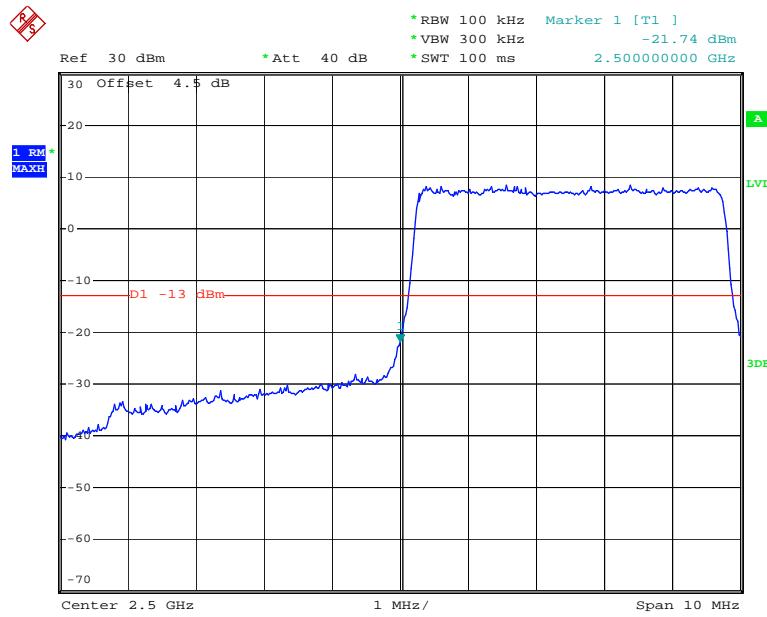
Date: 14.JAN.2020 17:17:58

QPSK_5MHz_ 25 RB_ Right
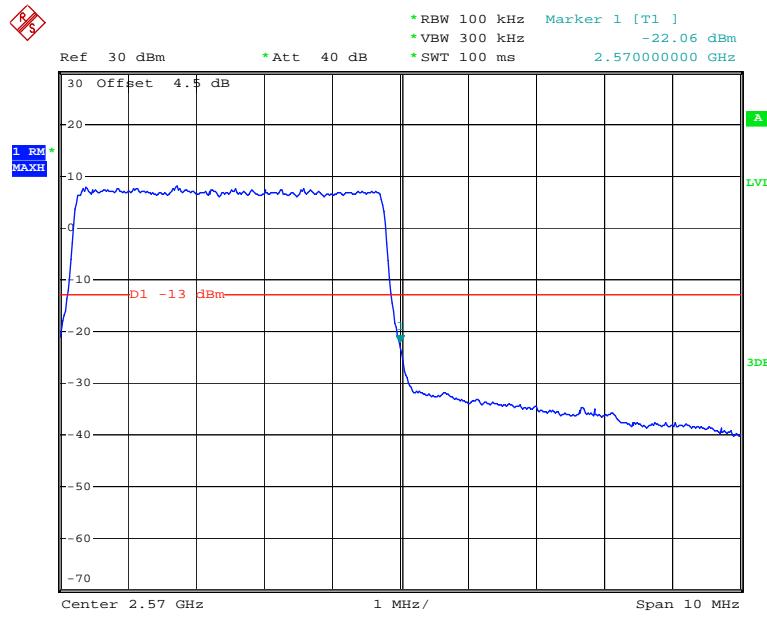
Date: 14.JAN.2020 17:20:49

QPSK_10MHz_ 50 RB_ Left
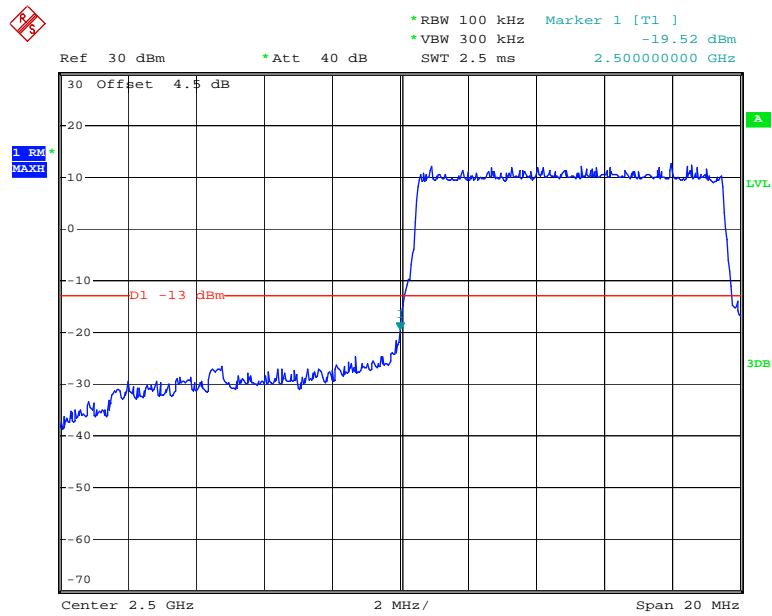
Date: 7.JAN.2020 10:50:38

QPSK_10MHz_ 50 RB_ Right
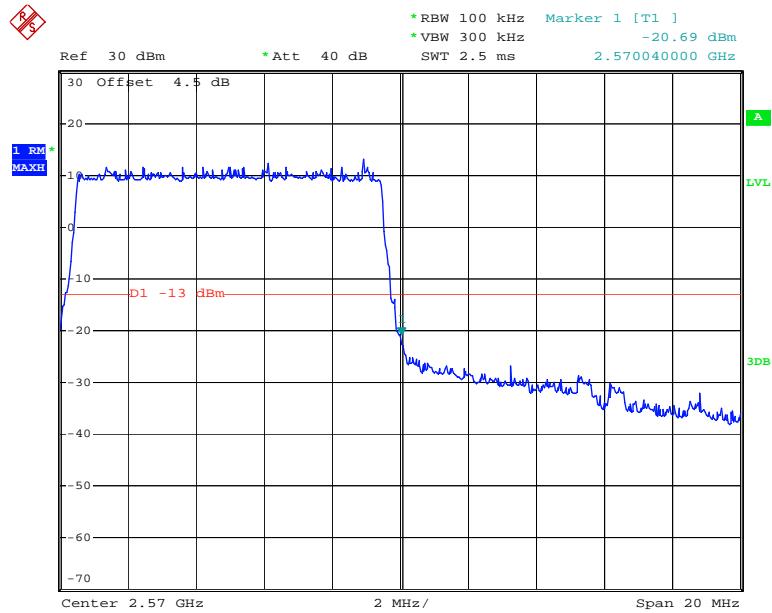
Date: 7.JAN.2020 10:51:15

QPSK_15MHz_ 75 RB_ Left
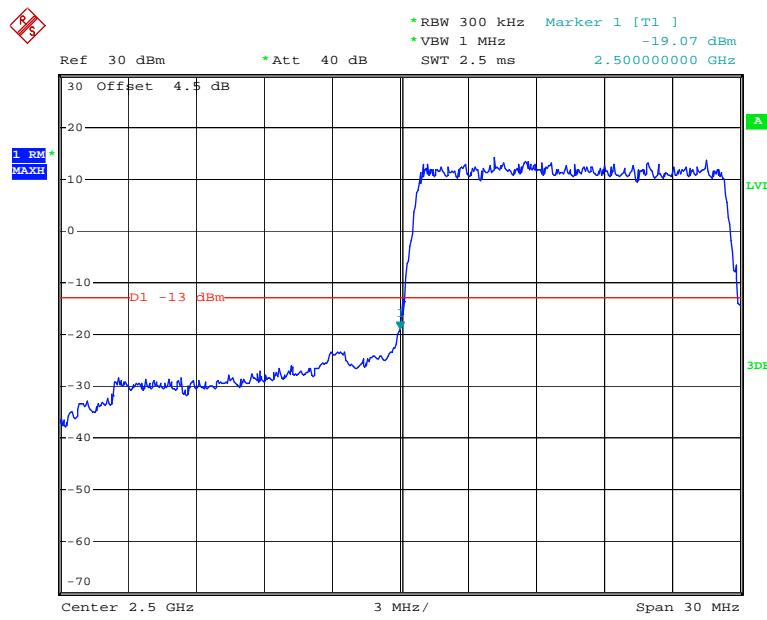
Date: 7.JAN.2020 10:52:02

QPSK_15MHz_ 75 RB_ Right
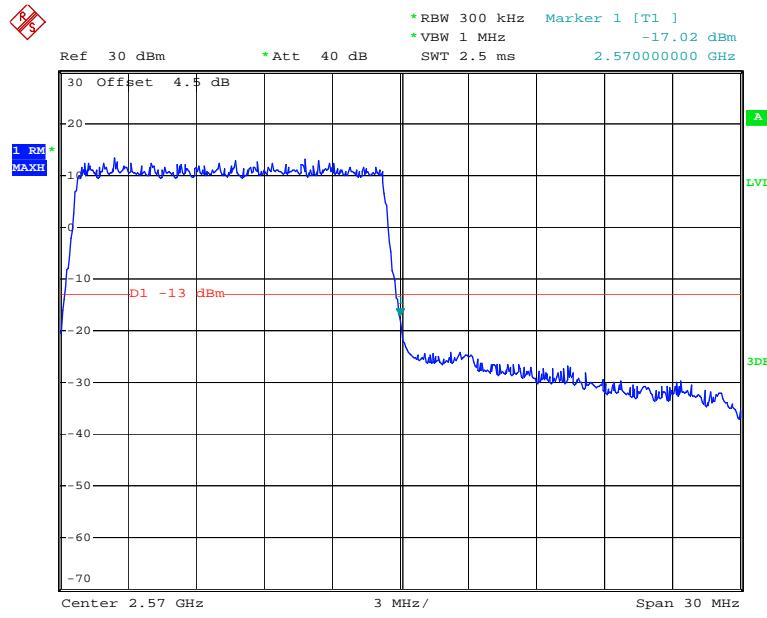
Date: 7.JAN.2020 10:52:44

QPSK_20MHz_ FULL RB_ Left
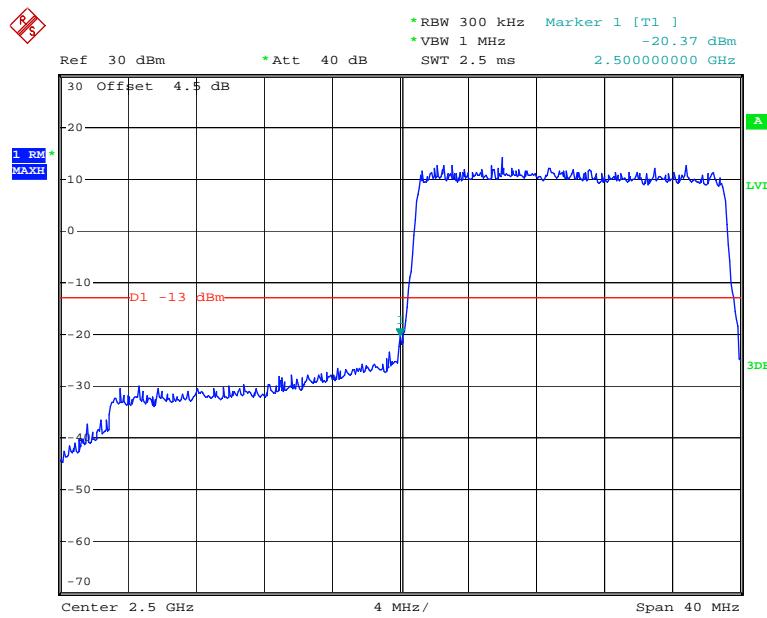
Date: 7.JAN.2020 10:53:34

QPSK_20MHz_ FULL RB_ Right
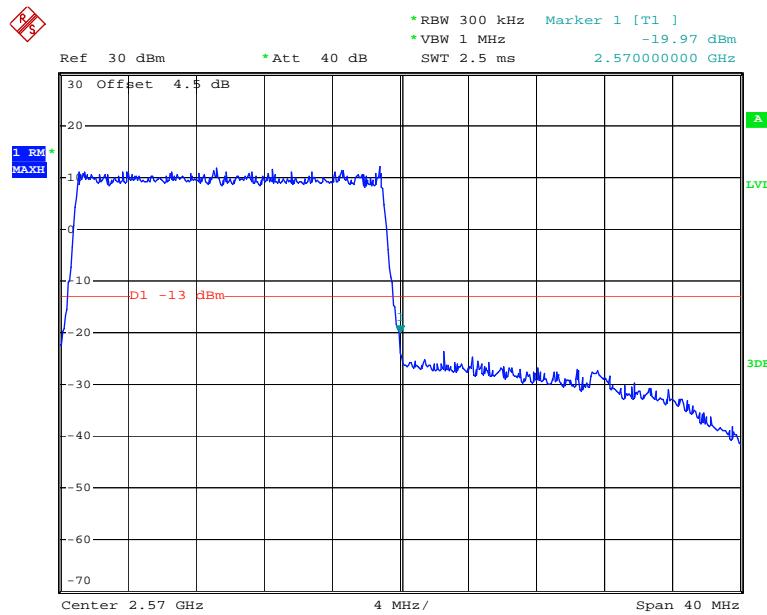
Date: 7.JAN.2020 10:54:18

16QAM_5MHz_ 25 RB_ Left

*RBW 100 kHz	Marker 1 [T1]
*VBW 300 kHz	-23.56 dBm
Ref 30 dBm *Att 40 dB *SWT 100 ms	2.500000000 GHz

30 Offset 4.5 dB

A

LVL

D1 -13 dBm

3DB

Center 2.5 GHz   1 MHz/   Span 10 MHz
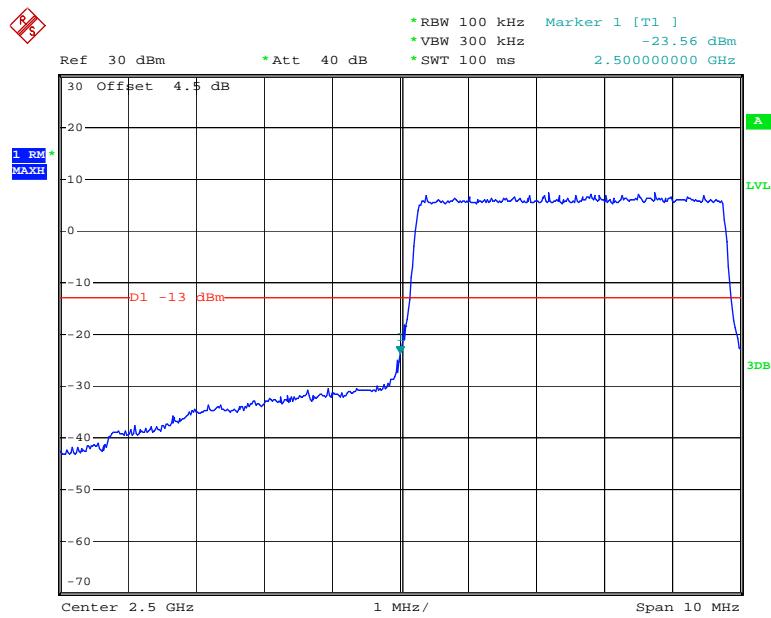
Date: 14.JAN.2020 17:18:26

16QAM_5MHz_ 25 RB_ Right

*RBW 100 kHz	Marker 1 [T1]
*VBW 300 kHz	-22.27 dBm
Ref 30 dBm *Att 40 dB *SWT 100 ms	2.570000000 GHz

30 Offset 4.5 dB

A

LVL

D1 -13 dBm

3DB

Center 2.57 GHz   1 MHz/   Span 10 MHz
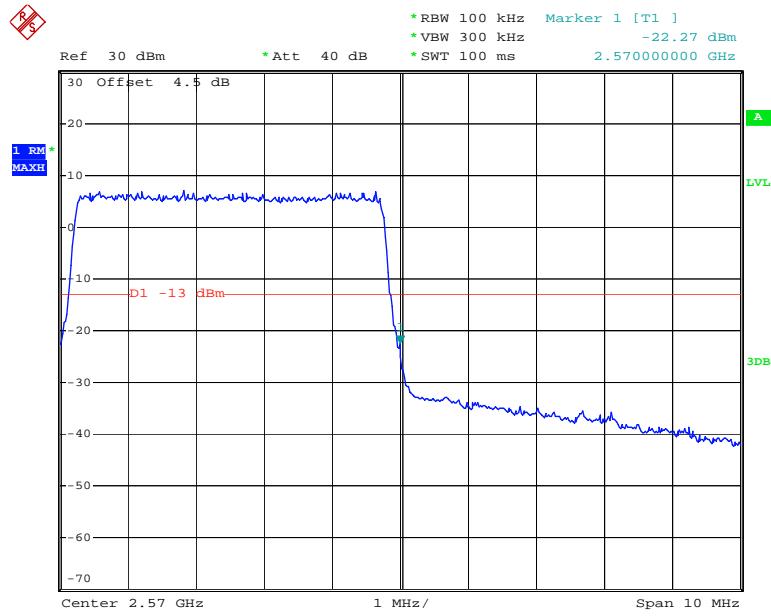
Date: 14.JAN.2020 17:21:16

16QAM_10MHz_ 50 RB_ Left
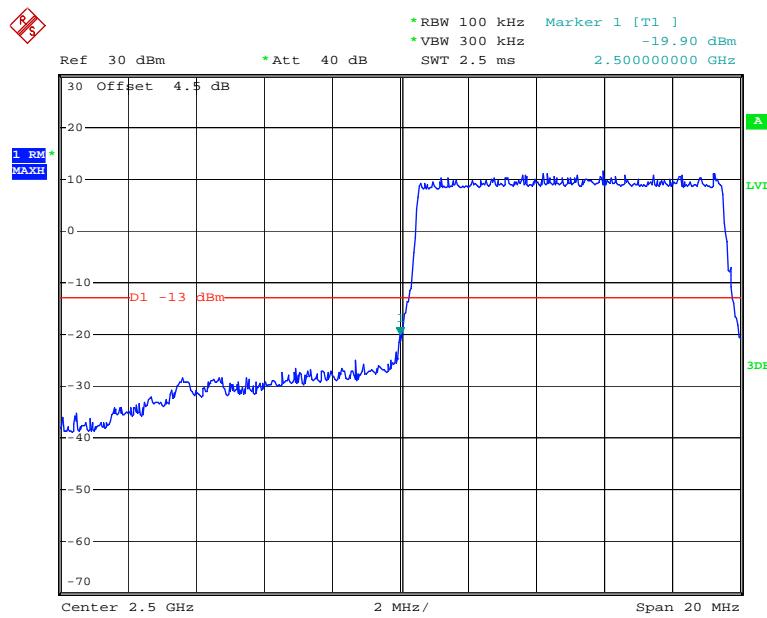
Date: 7.JAN.2020 10:50:56

16QAM_10MHz_ 50 RB_ Right
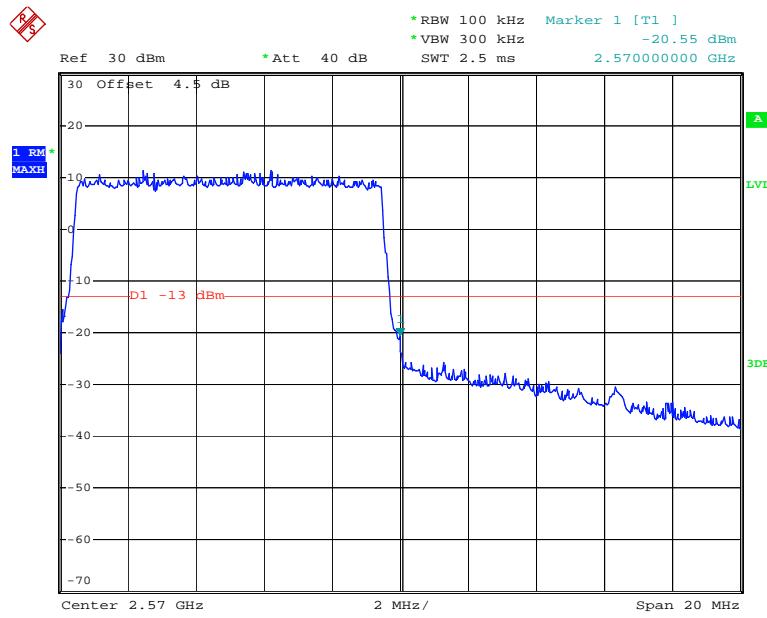
Date: 7.JAN.2020 10:51:33

16QAM_15MHz_ 75 RB_ Left

```
                                    *RBW 300 kHz   Marker 1 [T1 ]
                                    *VBW 1 MHz                -19.75 dBm
          Ref   30 dBm    *Att   40 dB    SWT 2.5 ms        2.500000000 GHz
```



```
Center 2.5 GHz          3 MHz/              Span 30 MHz
```
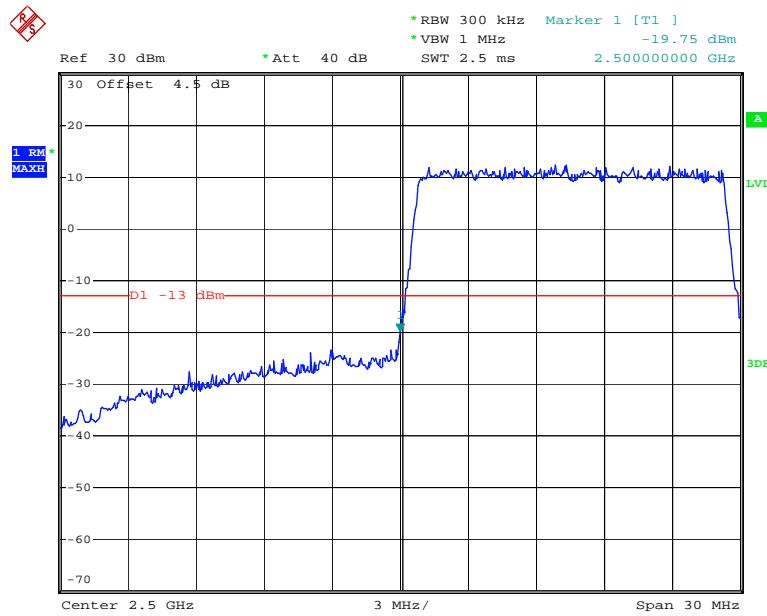
Date: 7.JAN.2020 10:52:23

16QAM_15MHz_ 75 RB_ Right

```
                                    *RBW 300 kHz   Marker 1 [T1 ]
                                    *VBW 1 MHz                -18.61 dBm
          Ref   30 dBm    *Att   40 dB    SWT 2.5 ms        2.570000000 GHz
```



```
Center 2.57 GHz         3 MHz/              Span 30 MHz
```
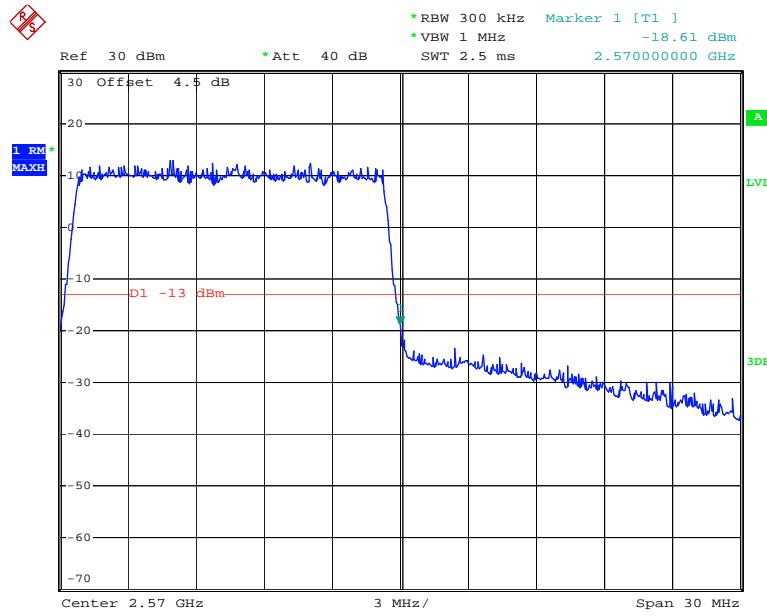
Date: 7.JAN.2020 10:53:04

16QAM_20MHz_ FULL RB_ Left
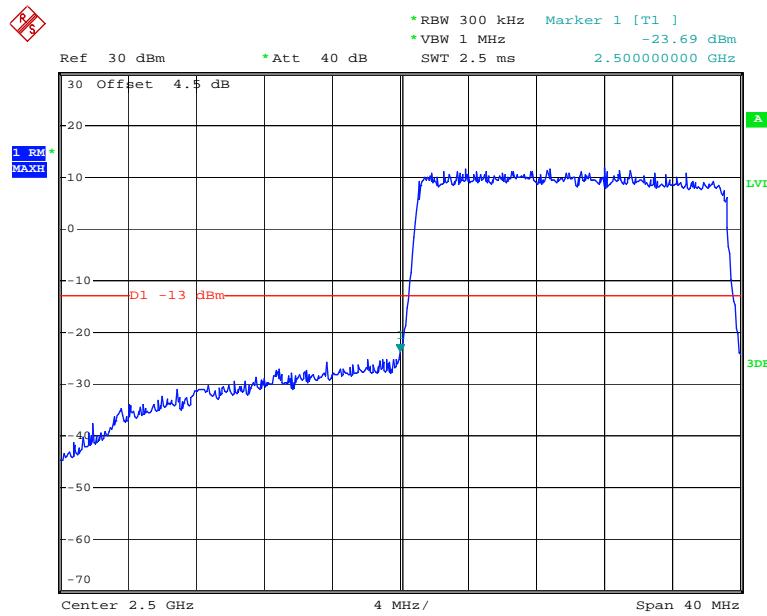
Date: 7.JAN.2020 10:53:54

16QAM_20MHz_ FULL RB_ Right
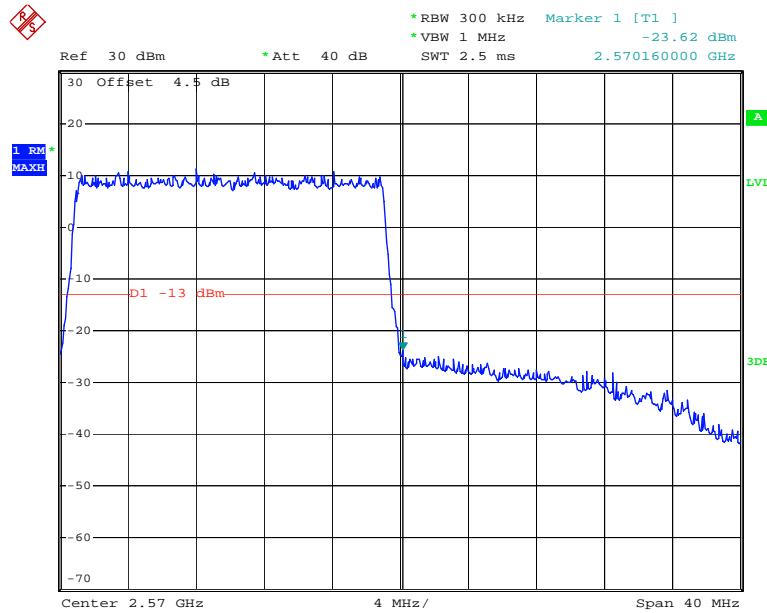
Date: 7.JAN.2020 10:54:39

LTE Band 12

QPSK_1.4MHz_ 6 RB_ Left
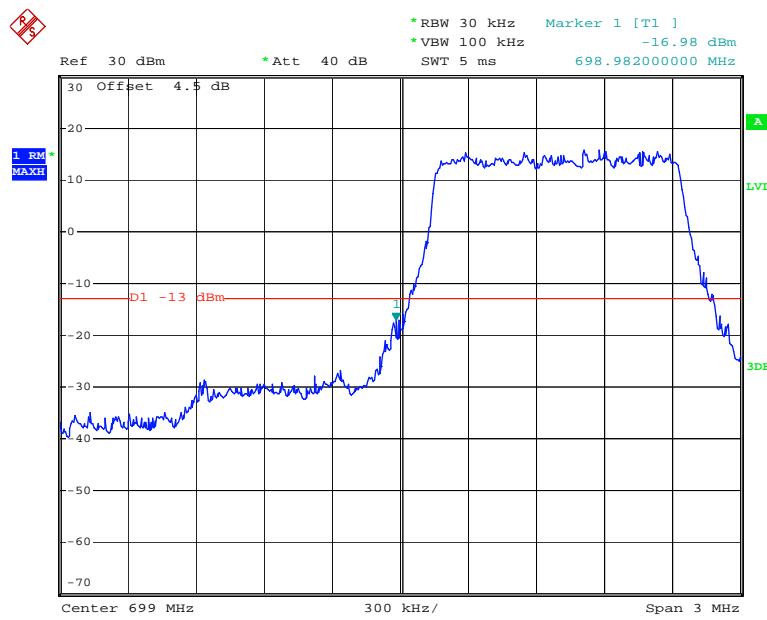
Date: 7.JAN.2020 10:55:08

QPSK_1.4MHz_ 6 RB_ Right
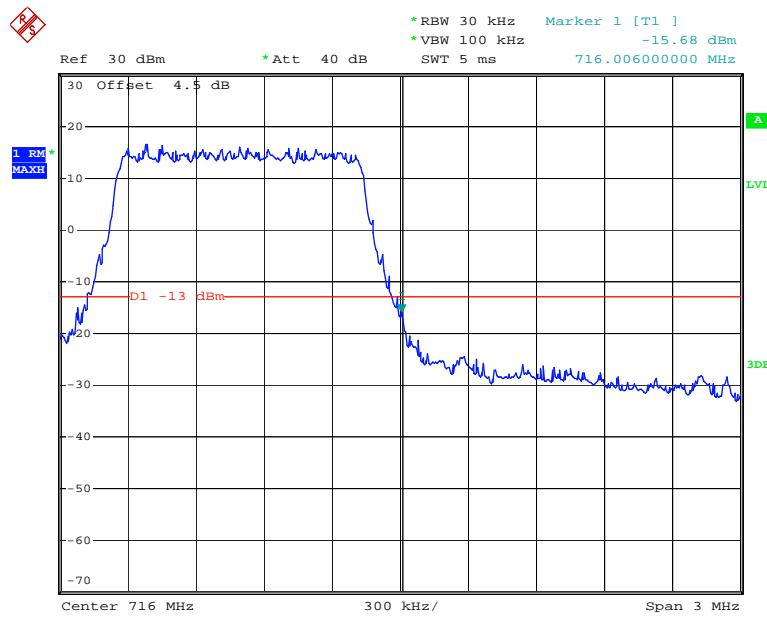
Date: 7.JAN.2020 10:55:44

QPSK_3MHz_ 15 RB_ Left
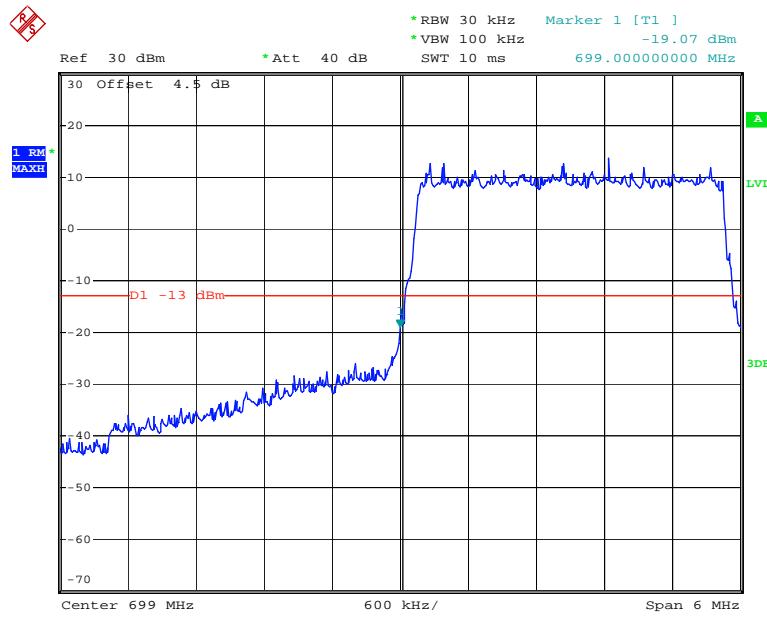
Date: 7.JAN.2020 10:56:29

QPSK_3MHz_ 15 RB_ Right
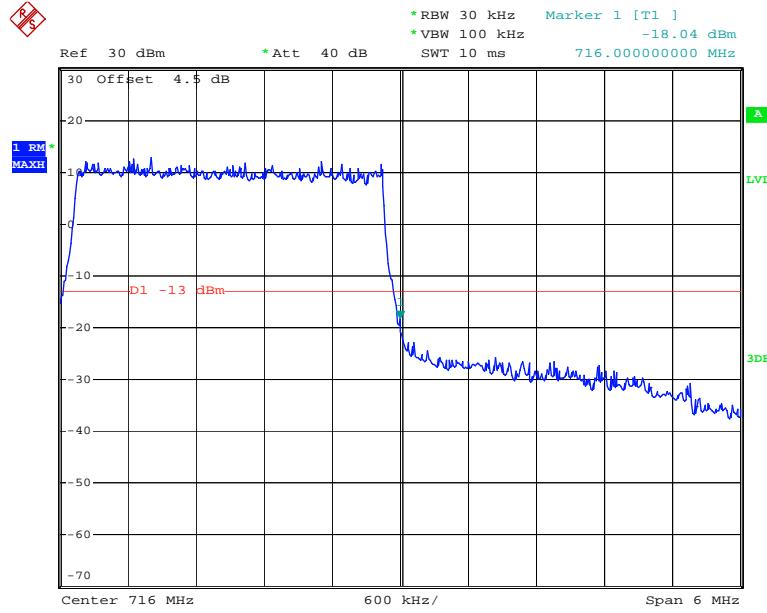
Date: 7.JAN.2020 10:57:07

## QPSK_5MHz_ 25 RB_ Left
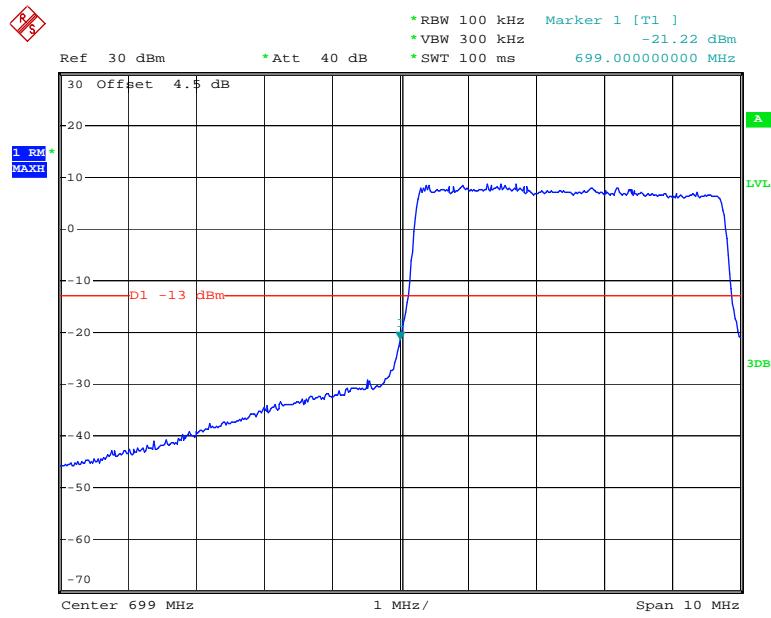
Date: 14.JAN.2020 17:23:40

QPSK_5MHz_ 25 RB_ Right
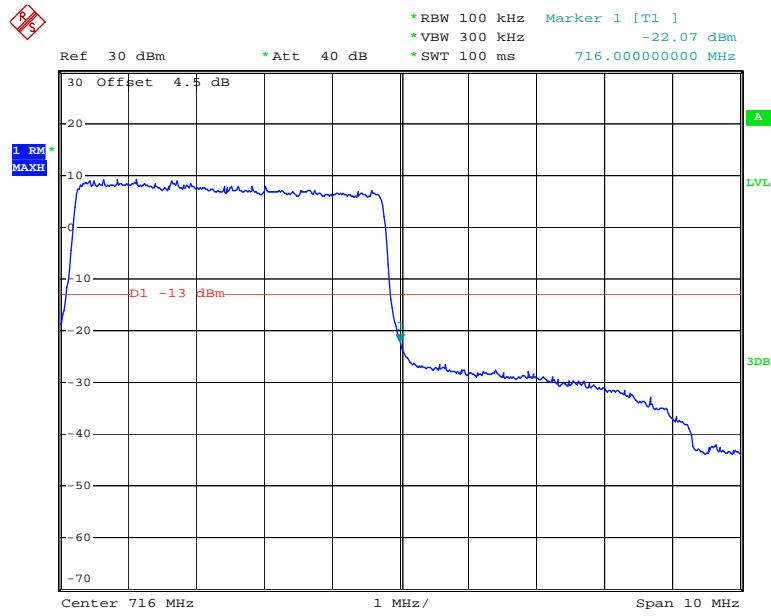
Date: 14.JAN.2020 17:24:35

QPSK_10MHz_ 50 RB_ Left
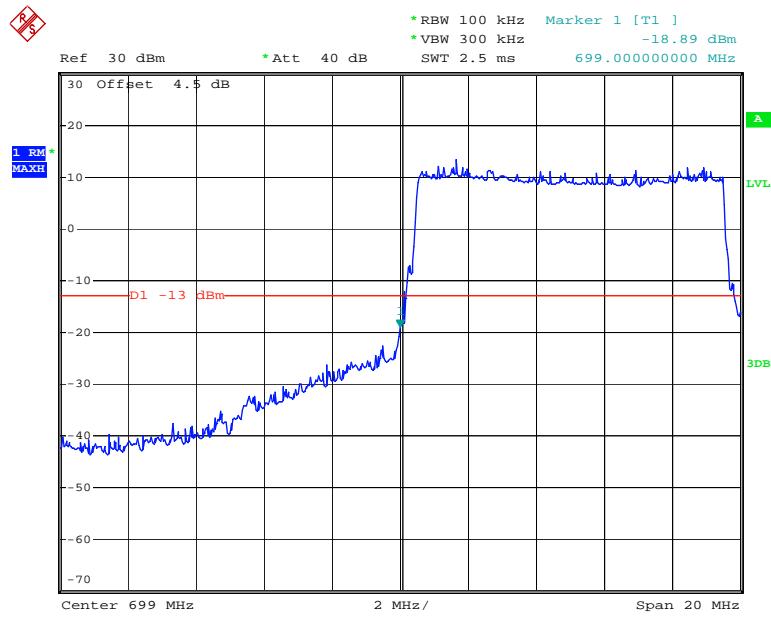
Date: 7.JAN.2020 10:59:11

QPSK_10MHz_ 50 RB_ Right
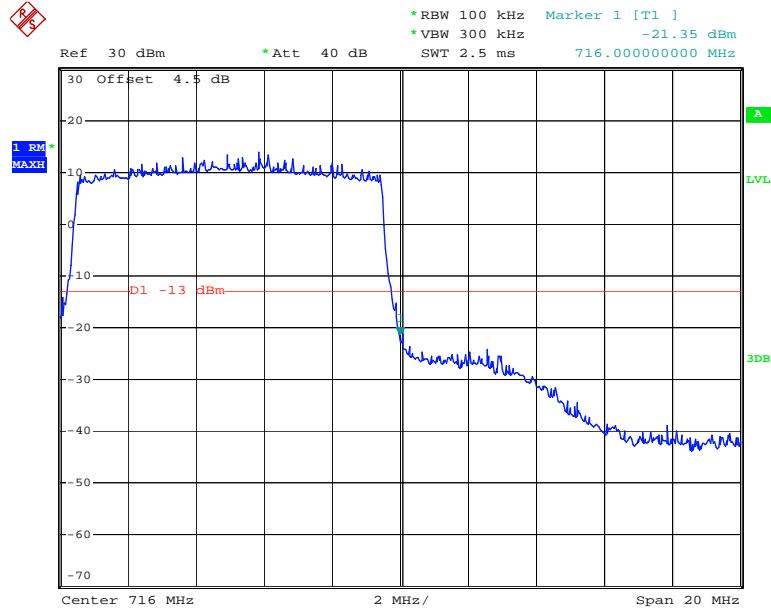
Date: 7.JAN.2020 10:59:51

16QAM_1.4MHz_ 6 RB_ Left
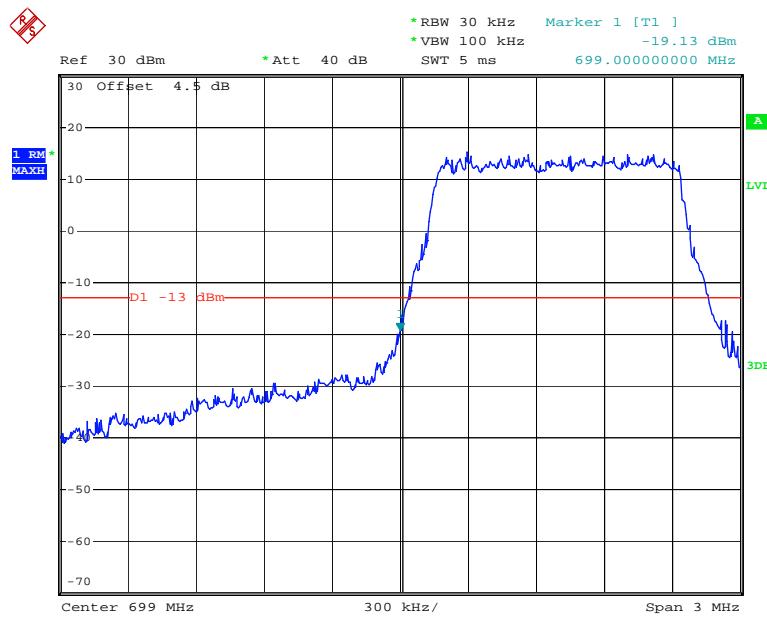
Date: 7.JAN.2020 10:55:25

16QAM_1.4MHz_ 6 RB_ Right
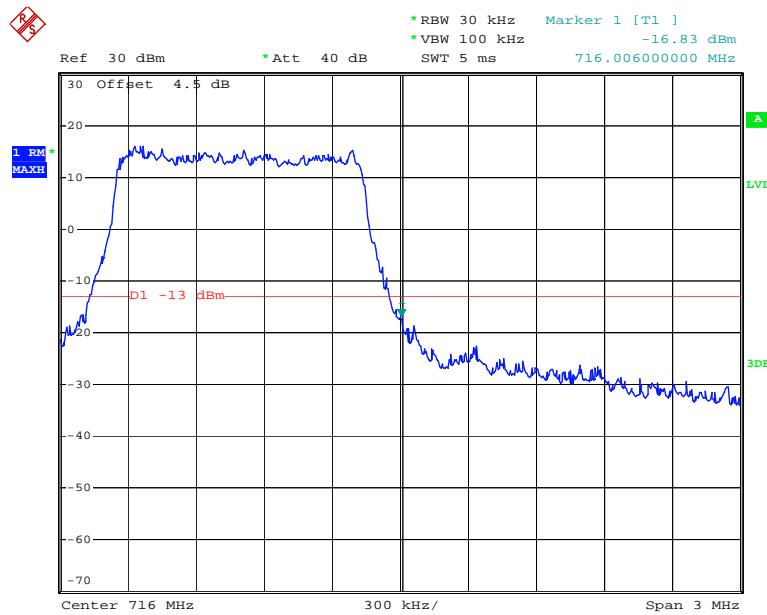
Date: 7.JAN.2020 10:56:04

16QAM_3MHz_ 15 RB_ Left
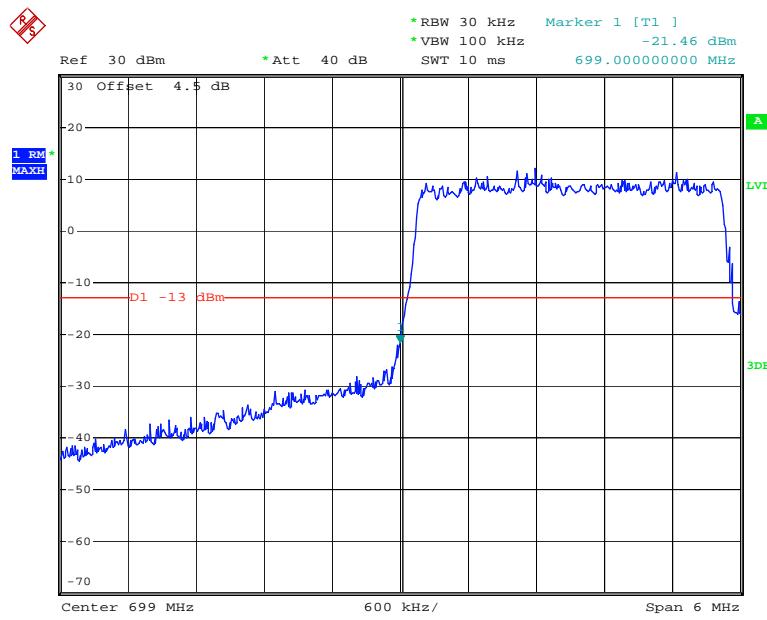
Date: 7.JAN.2020 10:56:49

16QAM_3MHz_ 15 RB_ Right
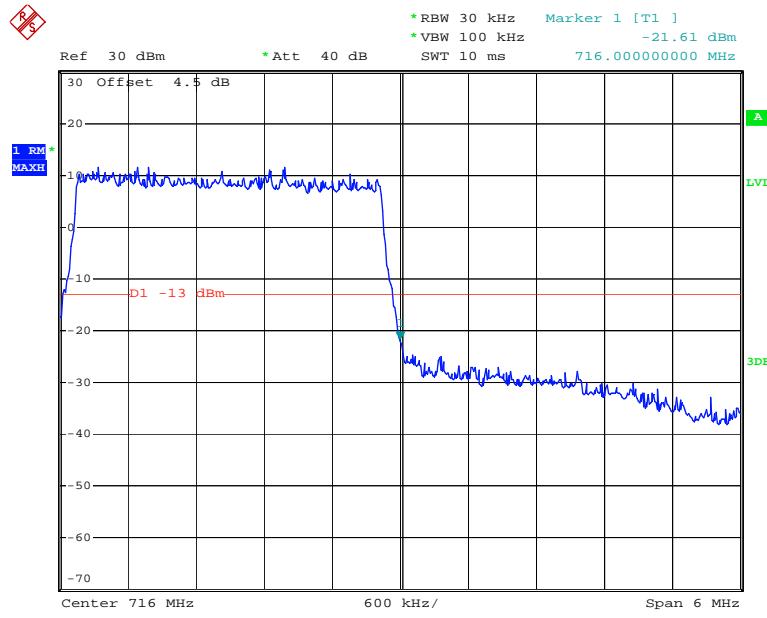

Date: 7.JAN.2020 10:57:24

16QAM_5MHz_ 25 RB_ Left
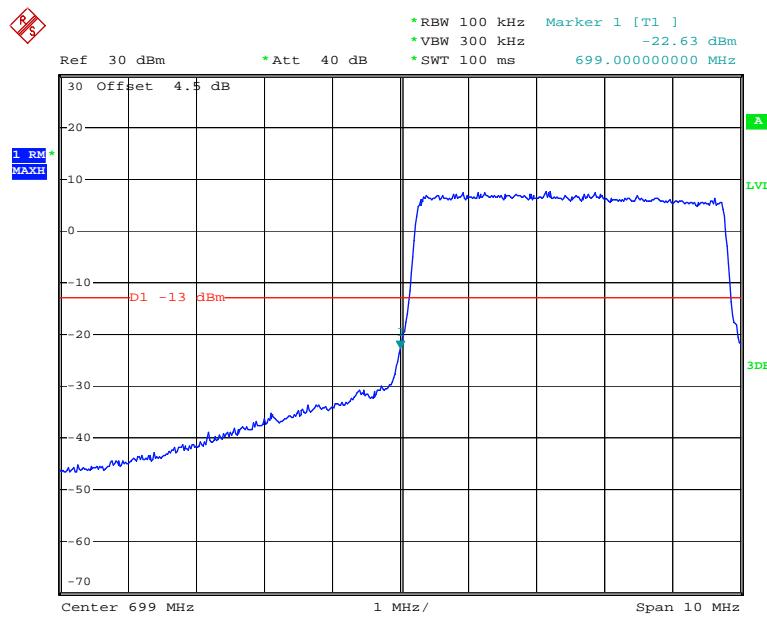
Date: 14.JAN.2020 17:23:18

16QAM_5MHz_ 25 RB_ Right
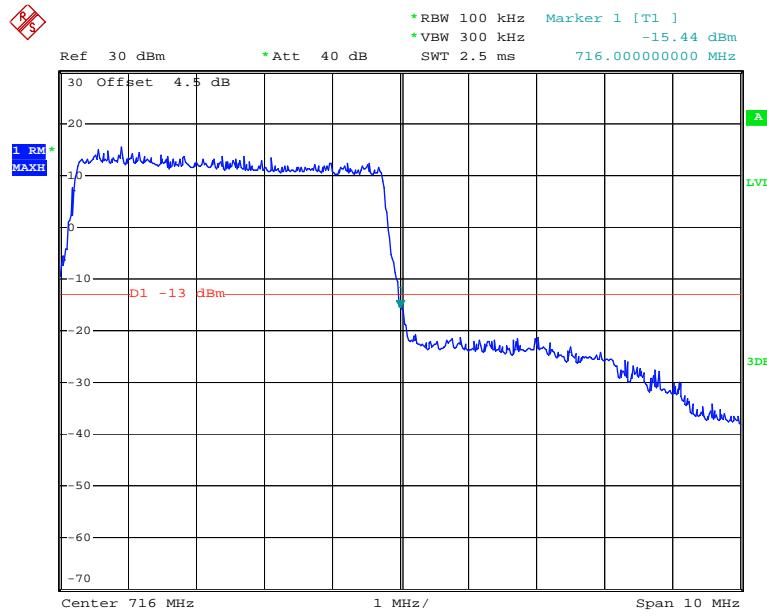
Date: 7.JAN.2020 10:58:48

16QAM_10MHz_ 50 RB_ Left
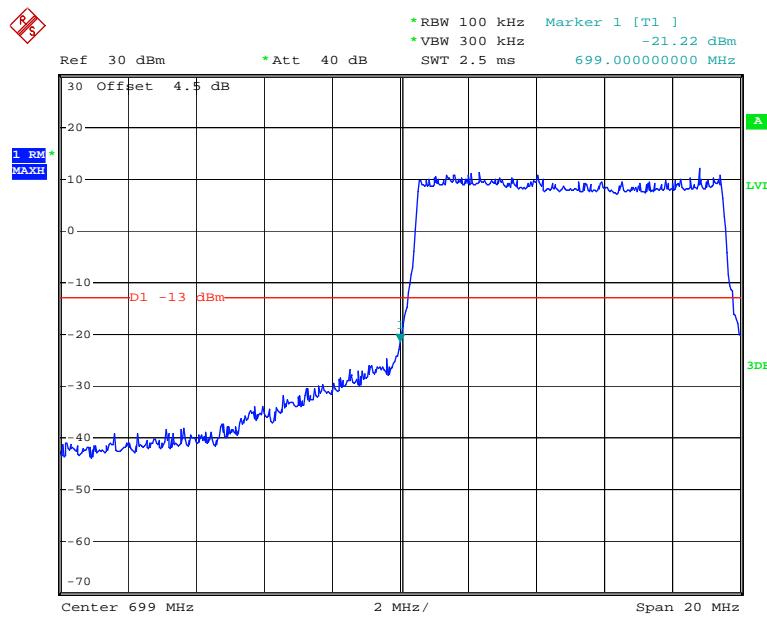
Date: 7.JAN.2020 10:59:29

16QAM_10MHz_ 50 RB_ Right
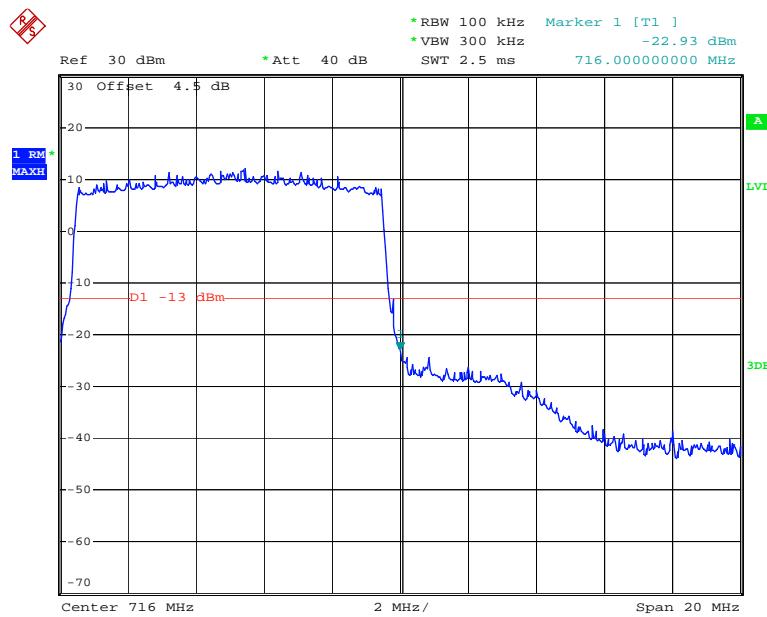
Date: 7.JAN.2020 11:00:13

LTE Band 13

QPSK_5MHz_ 25 RB_ Left
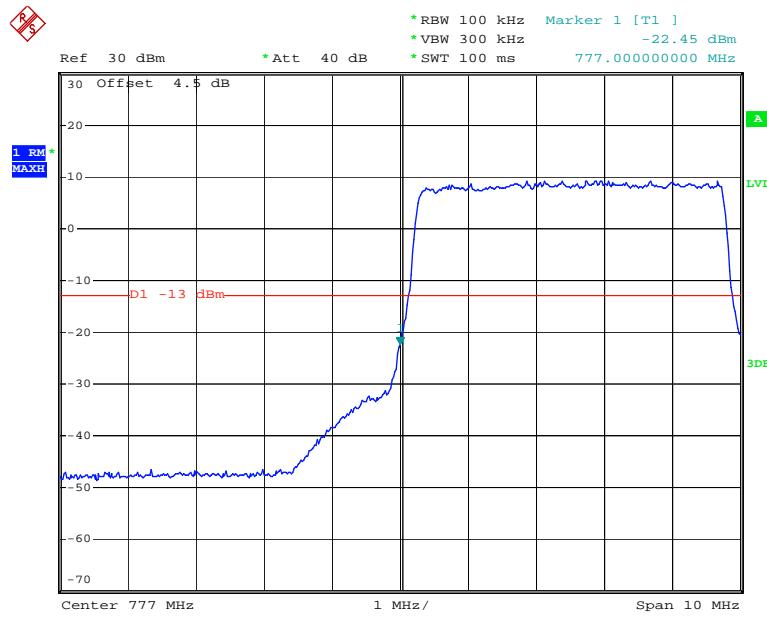
Date: 14.JAN.2020 17:25:50

QPSK_5MHz_ 25 RB_ Right
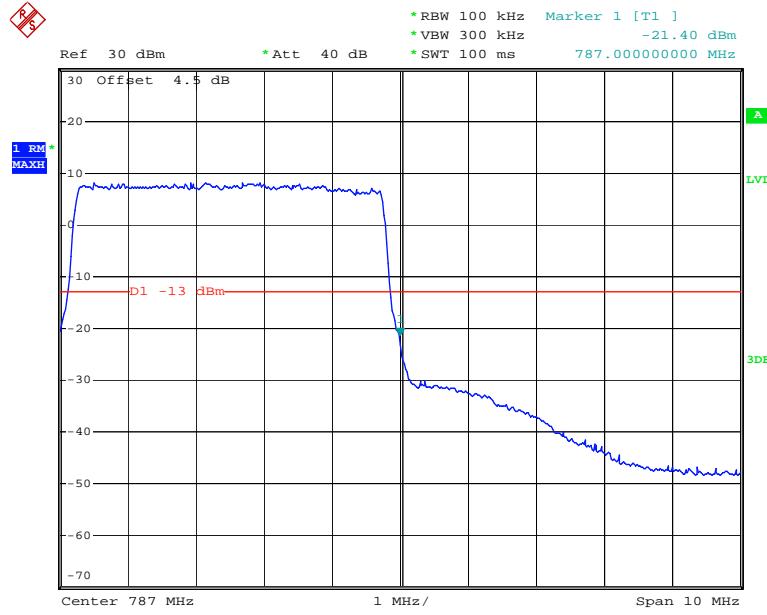
Date: 14.JAN.2020 17:26:57

QPSK_10MHz_ 50 RB_ Left
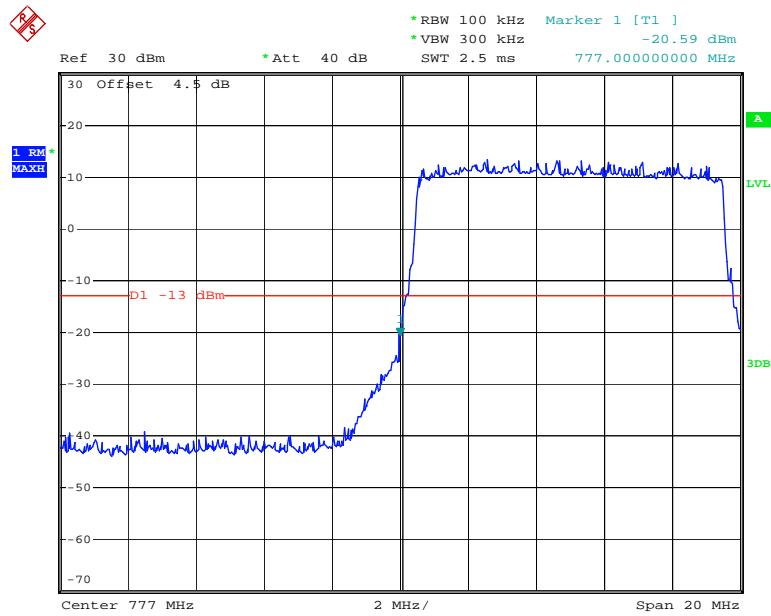
Date: 14.JAN.2020 17:31:21

QPSK_10MHz_ 50 RB_ Right
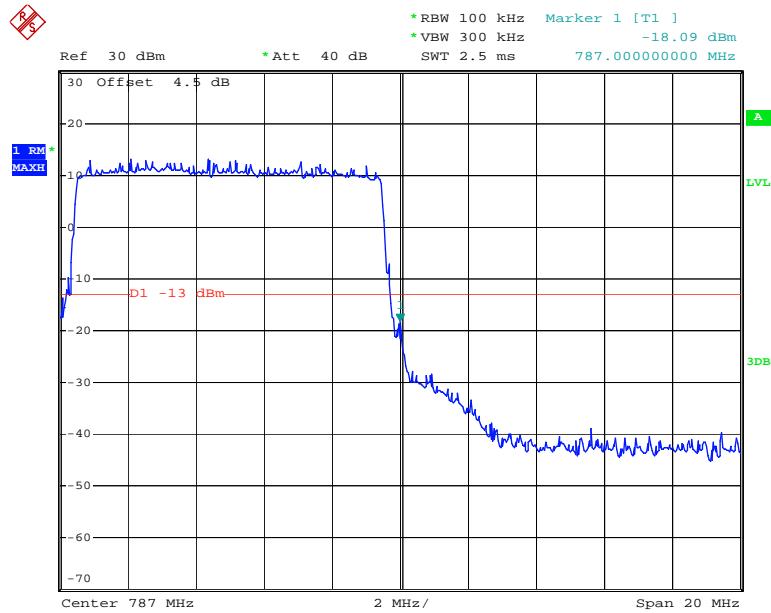
Date: 14.JAN.2020 17:33:13

16QAM_5MHz_ 25 RB_ Left


```
                                    *RBW 100 kHz   Marker 1 [T1 ]
                                    *VBW 300 kHz           -24.46 dBm
        Ref  30 dBm      *Att  40 dB  *SWT 100 ms    777.000000000 MHz
```
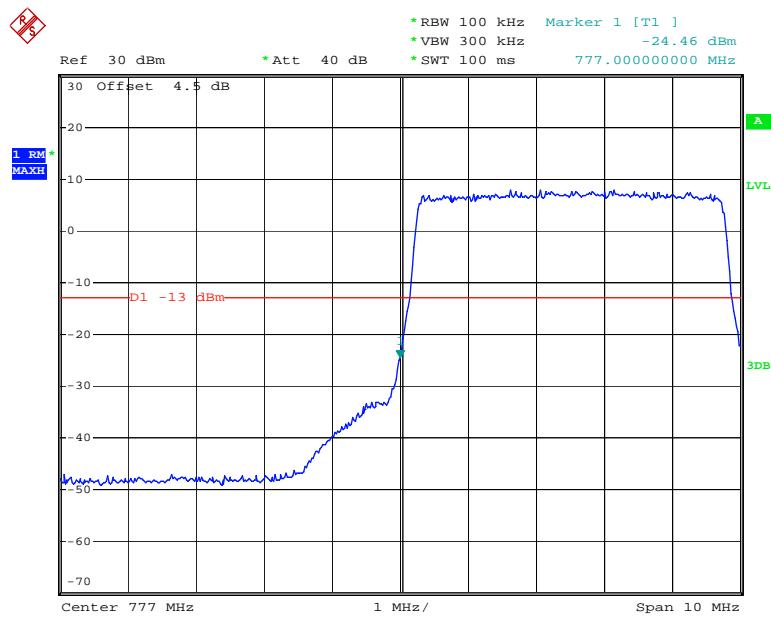
Date: 14.JAN.2020 17:26:18

16QAM_5MHz_ 25 RB_ Right


```
                                    *RBW 100 kHz   Marker 1 [T1 ]
                                    *VBW 300 kHz           -21.26 dBm
        Ref  30 dBm      *Att  40 dB  *SWT 100 ms    787.000000000 MHz
```
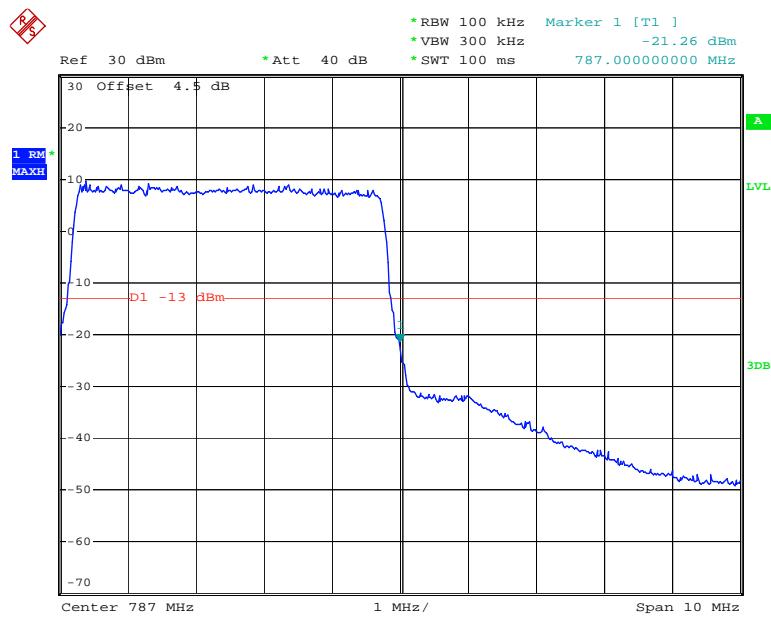
Date: 14.JAN.2020 17:27:21

16QAM_10MHz_ 50 RB_ Left
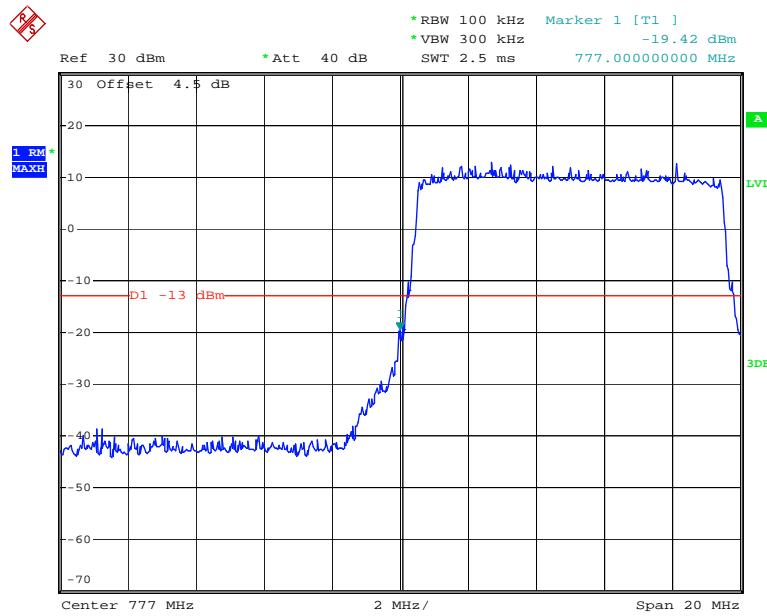
Date: 14.JAN.2020 17:32:03

16QAM_10MHz_ 50 RB_ Right
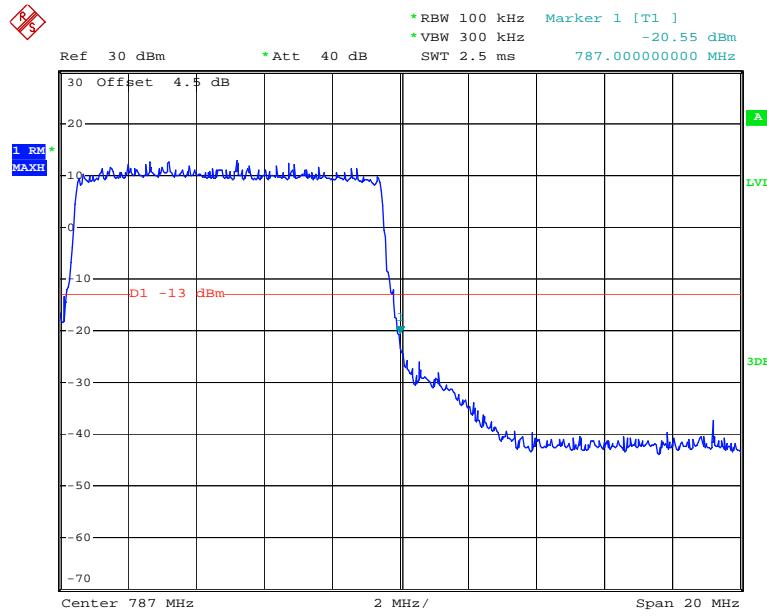
Date: 14.JAN.2020 17:32:35

LTE Band 17

QPSK_5MHz_ 25 RB_ Left
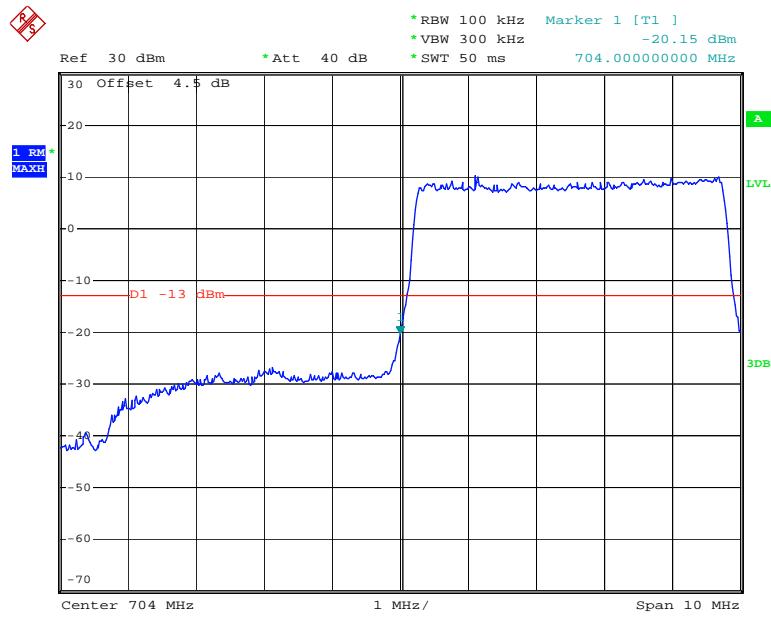
Date: 14.JAN.2020 17:35:11

QPSK_5MHz_ 25 RB_ Right
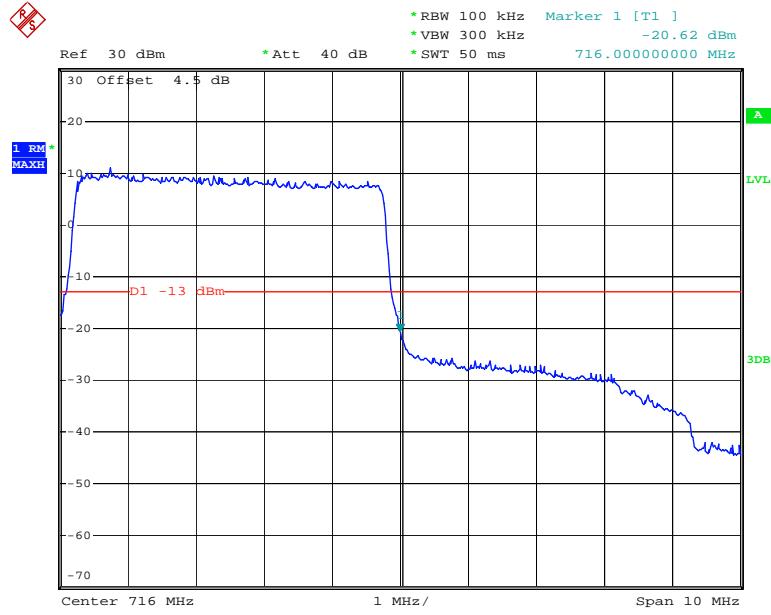
Date: 14.JAN.2020 17:36:37

QPSK_10MHz_ 50 RB_ Left
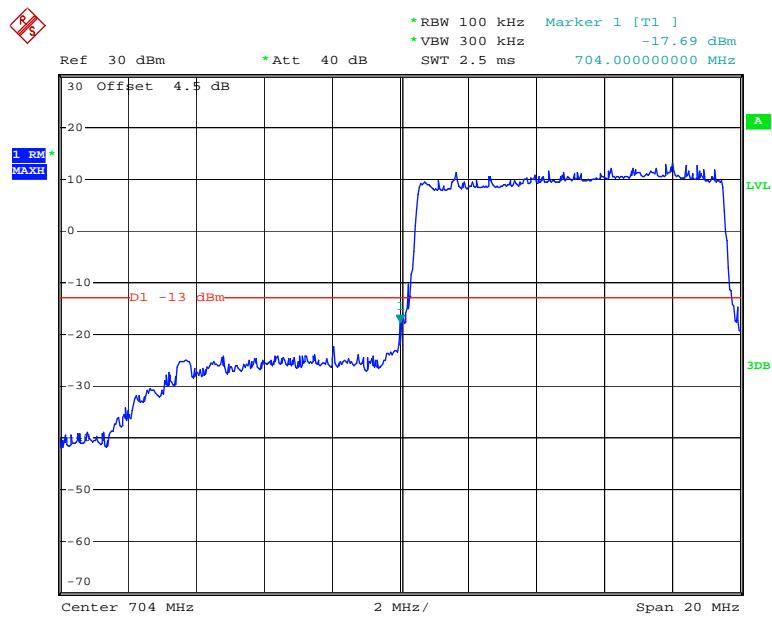
Date: 7.JAN.2020 12:12:03

QPSK_10MHz_ 50 RB_ Right
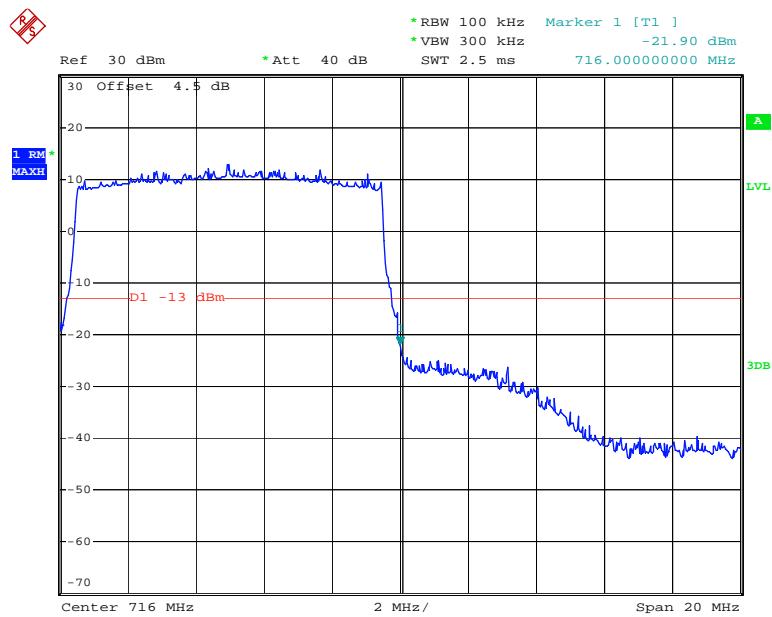
Date: 7.JAN.2020 12:12:40

16QAM_5MHz_ 25 RB_ Left
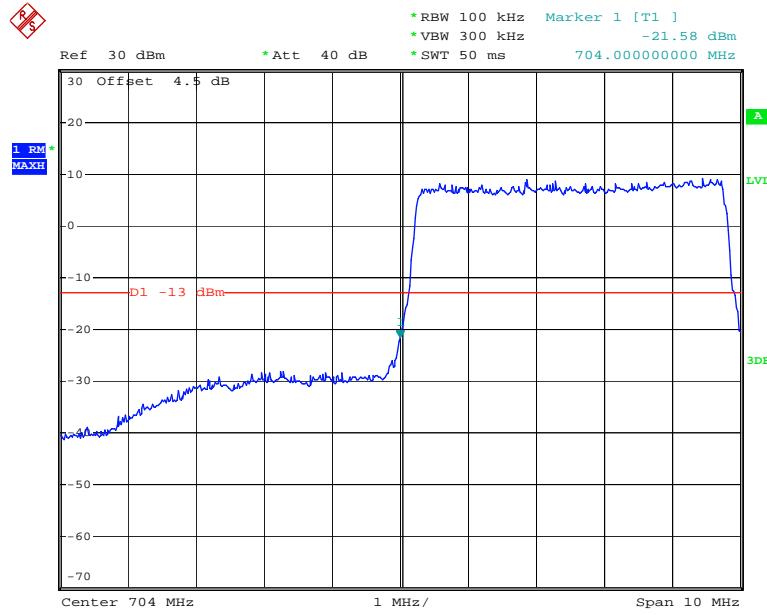
Date: 14.JAN.2020 17:35:47

16QAM_5MHz_ 25 RB_ Right
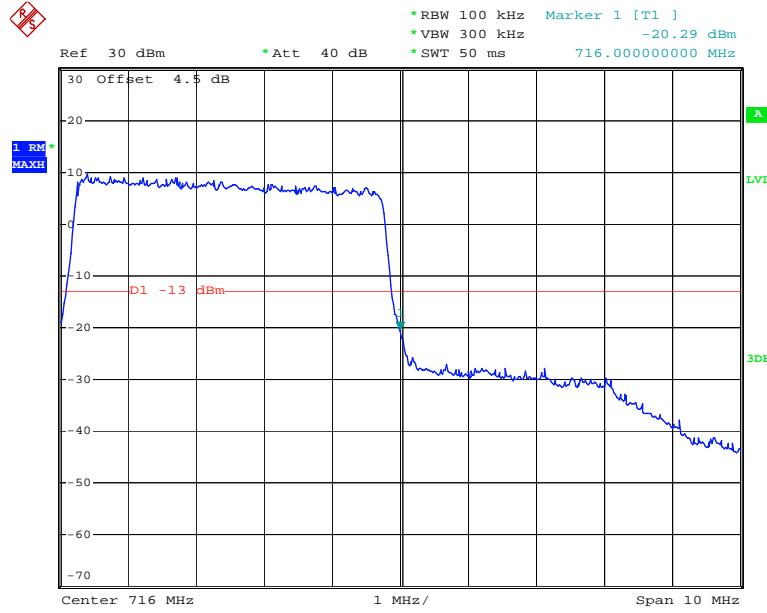
Date: 14.JAN.2020 17:37:02

16QAM_10MHz_ 50 RB_ Left
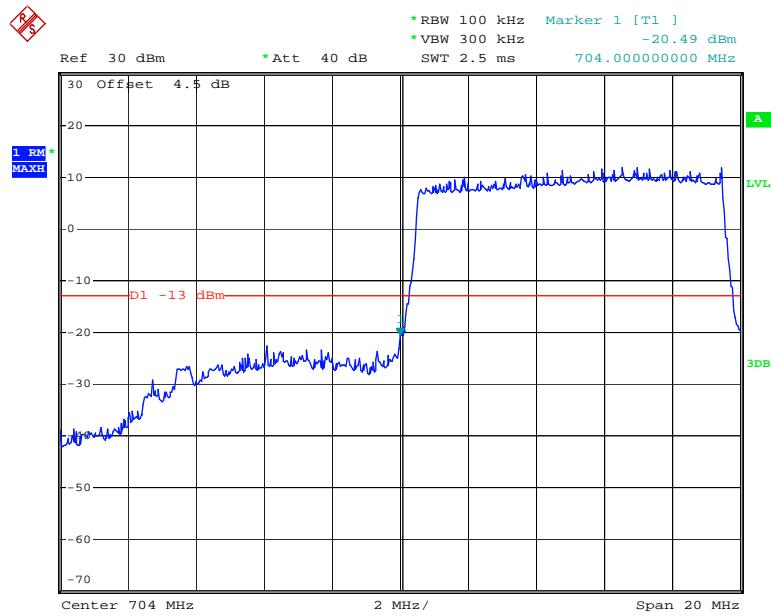
Date: 7.JAN.2020 12:12:21

16QAM_10MHz_ 50 RB_ Right
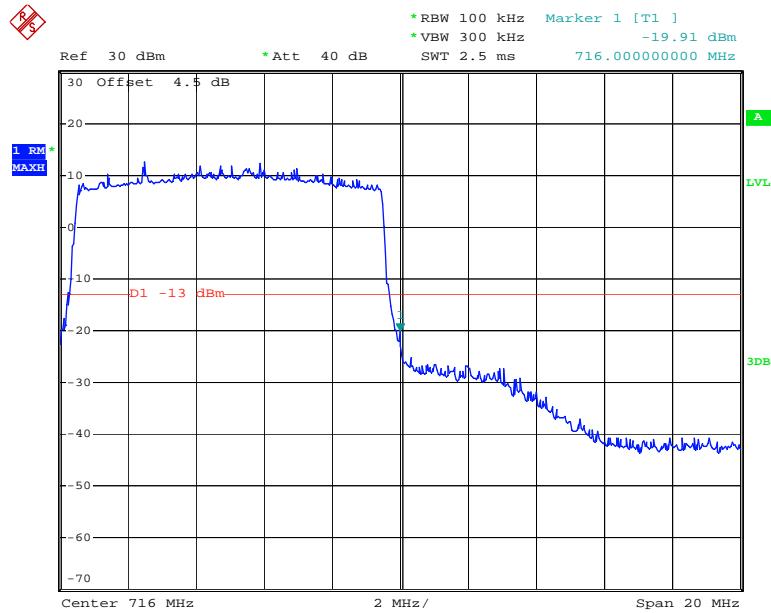
Date: 7.JAN.2020 12:12:58

LTE Band 25

QPSK_1.4MHz_ 6 RB_ Left
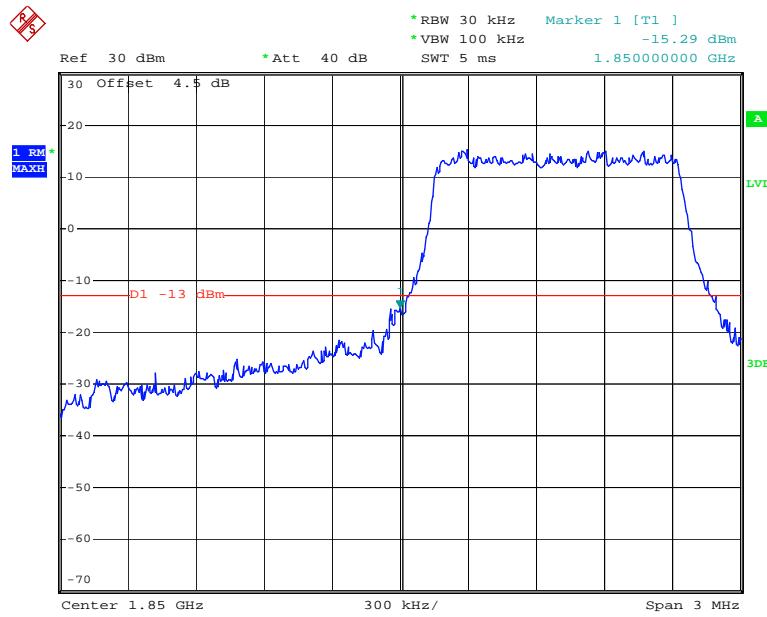

Date: 7.JAN.2020 12:13:21

QPSK_1.4MHz_ 6 RB_ Right
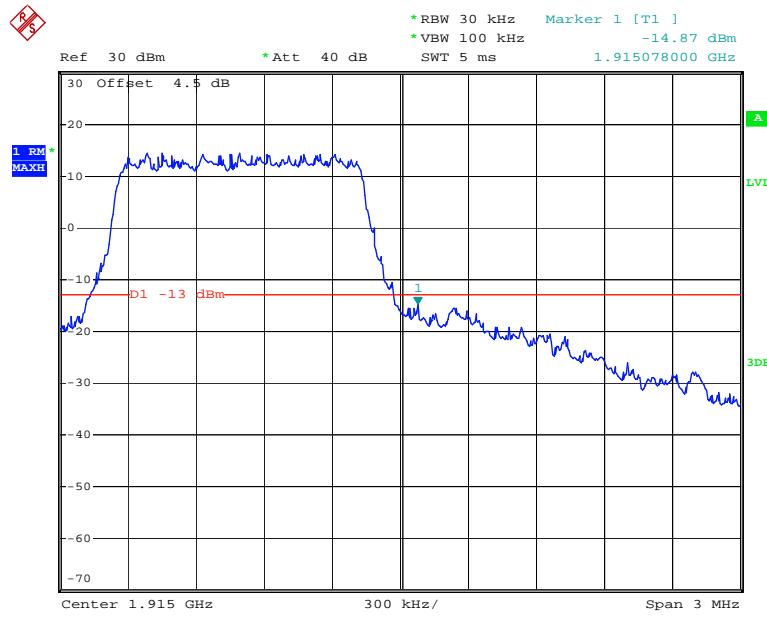

Date: 7.JAN.2020 12:14:00

QPSK_3MHz_ 15 RB_ Left

	*RBW 30 kHz	Marker 1 [T1]
	*VBW 100 kHz	-18.83 dBm
Ref 30 dBm	*Att 40 dB	SWT 10 ms	1.850000000 GHz

30 Offset 4.5 dB

D1 -13 dBm

Center 1.85 GHz   600 kHz/   Span 6 MHz
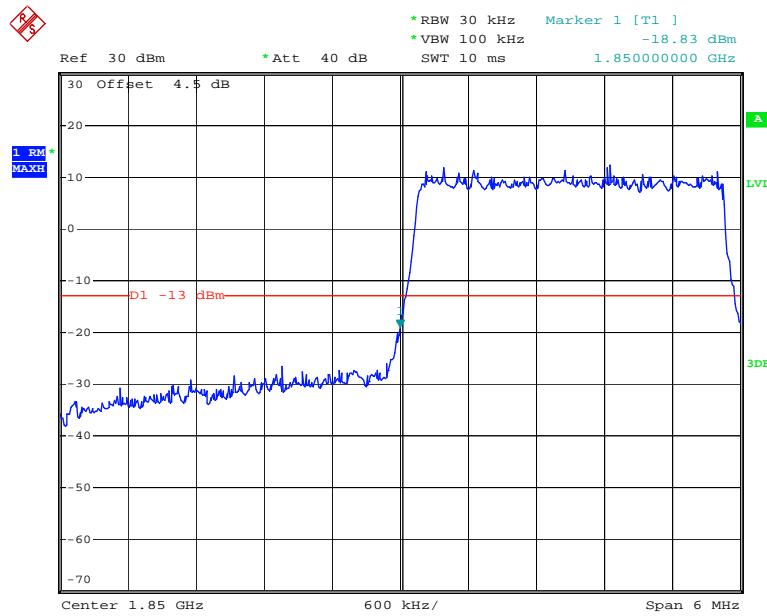
Date: 7.JAN.2020 12:14:42

QPSK_3MHz_ 15 RB_ Right

	*RBW 30 kHz	Marker 1 [T1]
	*VBW 100 kHz	-18.51 dBm
Ref 30 dBm	*Att 40 dB	SWT 10 ms	1.915000000 GHz

30 Offset 4.5 dB

D1 -13 dBm

Center 1.915 GHz   600 kHz/   Span 6 MHz
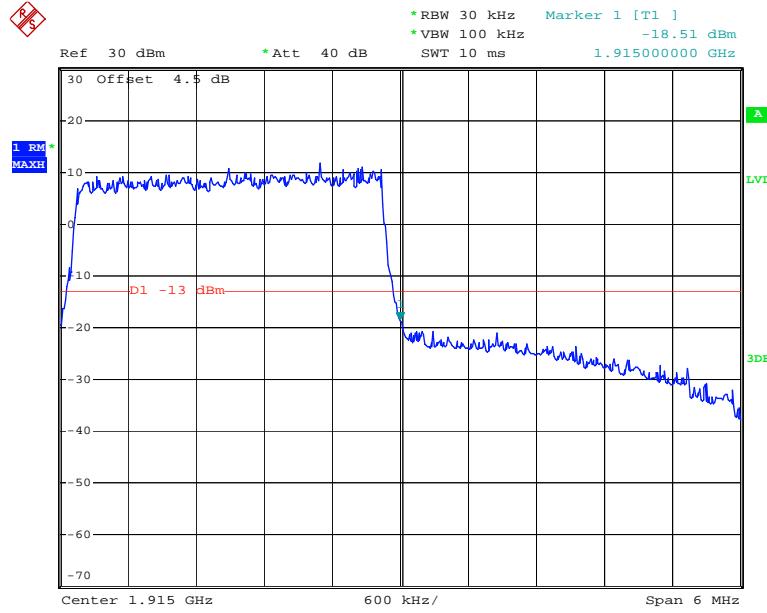
Date: 7.JAN.2020 12:15:17

QPSK_5MHz_ 25 RB_ Left
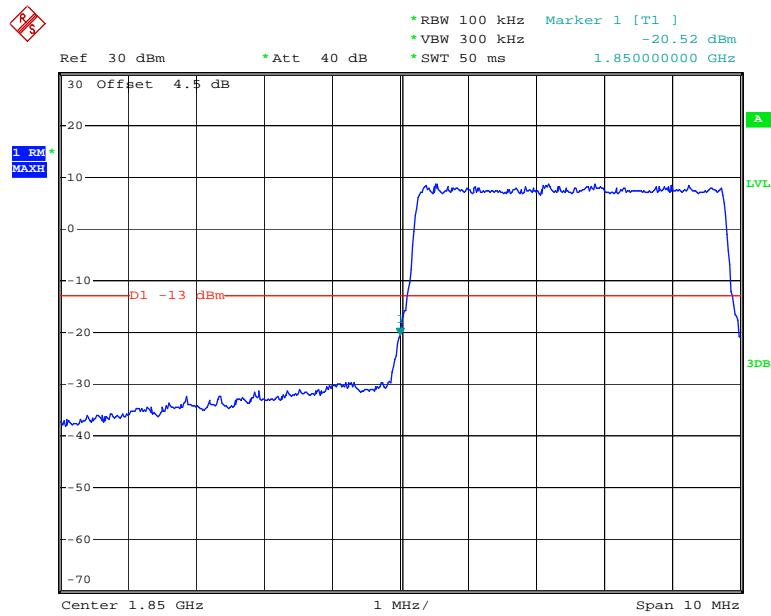
Date: 14.JAN.2020 17:38:03

QPSK_5MHz_ 25 RB_ Right
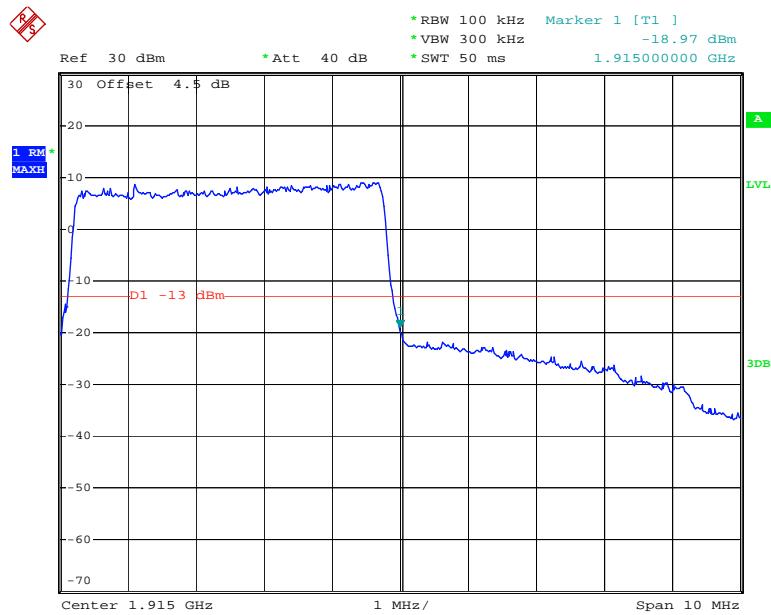
Date: 14.JAN.2020 17:39:11

QPSK_10MHz_ 50 RB_ Left

```
                                    *RBW 100 kHz   Marker 1 [T1 ]
                                    *VBW 300 kHz              -22.40 dBm
        Ref  30 dBm      *Att  40 dB  SWT 2.5 ms        1.850000000 GHz
        30 Offset  4.5 dB
```
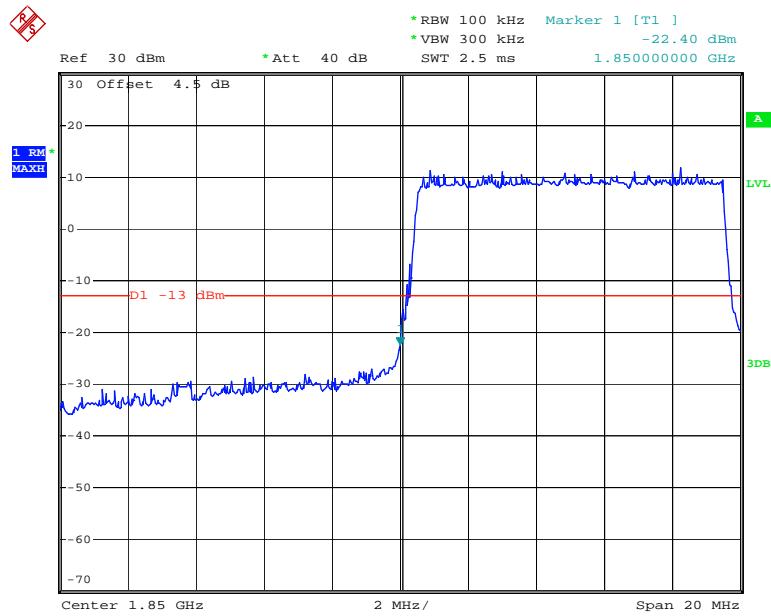
Date: 7.JAN.2020 12:17:19

QPSK_10MHz_ 50 RB_ Right

```
                                    *RBW 100 kHz   Marker 1 [T1 ]
                                    *VBW 300 kHz              -16.14 dBm
        Ref  30 dBm      *Att  40 dB  SWT 2.5 ms        1.915040000 GHz
        30 Offset  4.5 dB
```
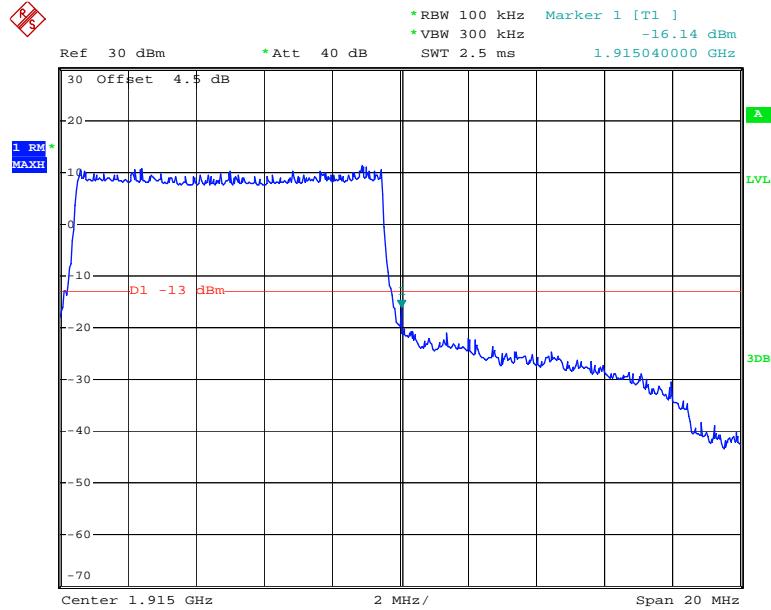
Date: 7.JAN.2020 12:17:59

QPSK_15MHz_ 75 RB_ Left

```
                                    *RBW 300 kHz   Marker 1 [T1 ]
                                    *VBW 1 MHz                -20.33 dBm
         Ref  30 dBm      *Att  40 dB   SWT 2.5 ms       1.849940000 GHz
```
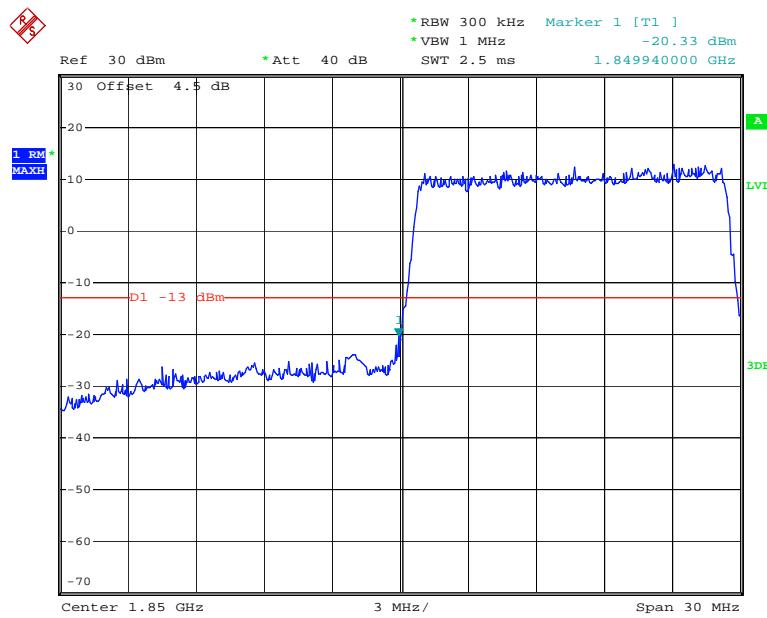
Date: 7.JAN.2020 12:18:43

QPSK_15MHz_ 75 RB_ Right

```
                                    *RBW 300 kHz   Marker 1 [T1 ]
                                    *VBW 1 MHz                -16.13 dBm
         Ref  30 dBm      *Att  40 dB   SWT 2.5 ms       1.915060000 GHz
```
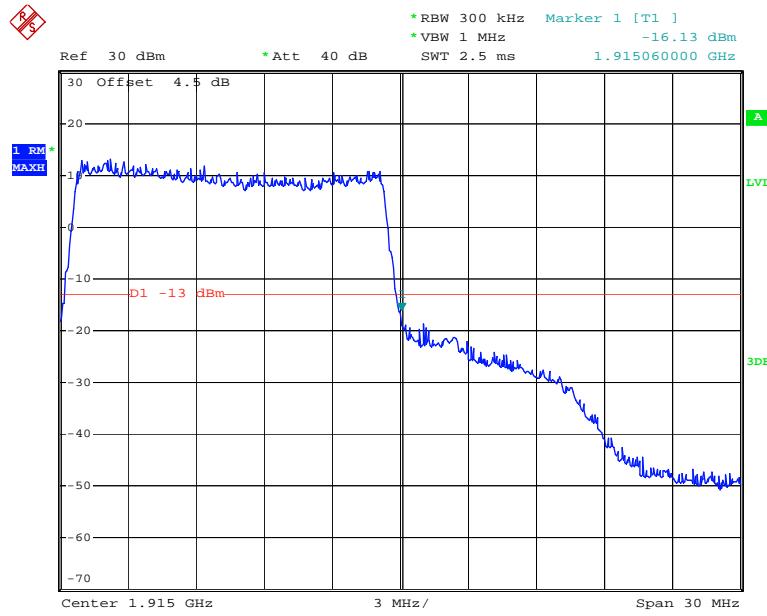
Date: 7.JAN.2020 12:19:25

QPSK_20MHz_ 100 RB_ Left
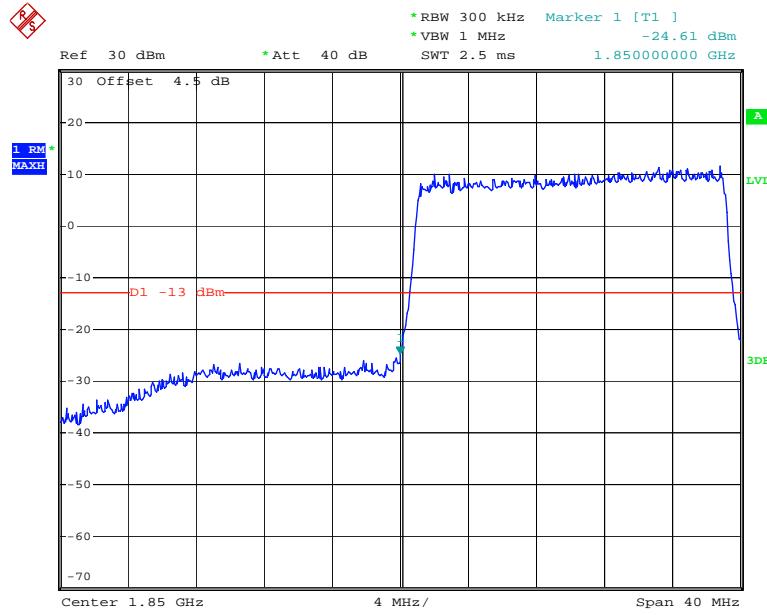
Date: 7.JAN.2020 12:20:11

QPSK_20MHz_100 RB_ Right
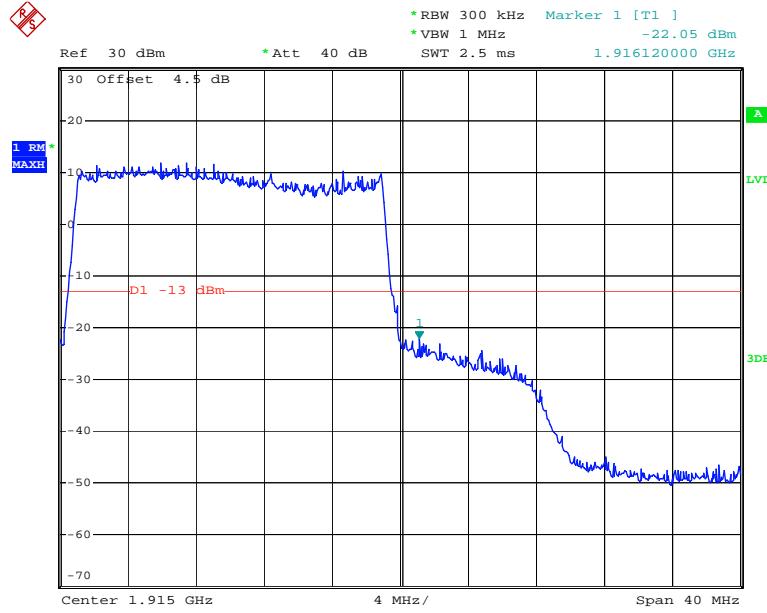
Date: 7.JAN.2020 12:20:53

16QAM_1.4MHz_ 6 RB_ Left
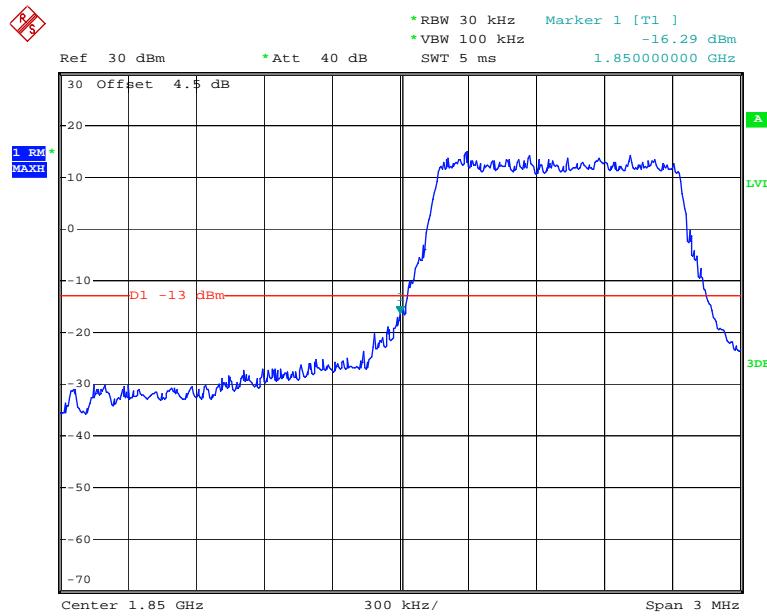

Date: 7.JAN.2020 12:13:42

16QAM_1.4MHz_ 6 RB_ Right
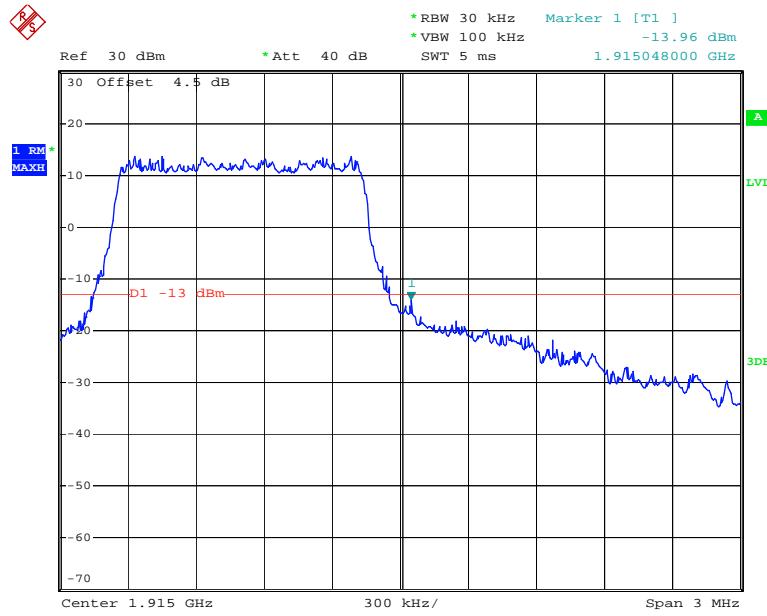
Date: 7.JAN.2020 12:14:17

16QAM_3MHz_ 15 RB_ Left
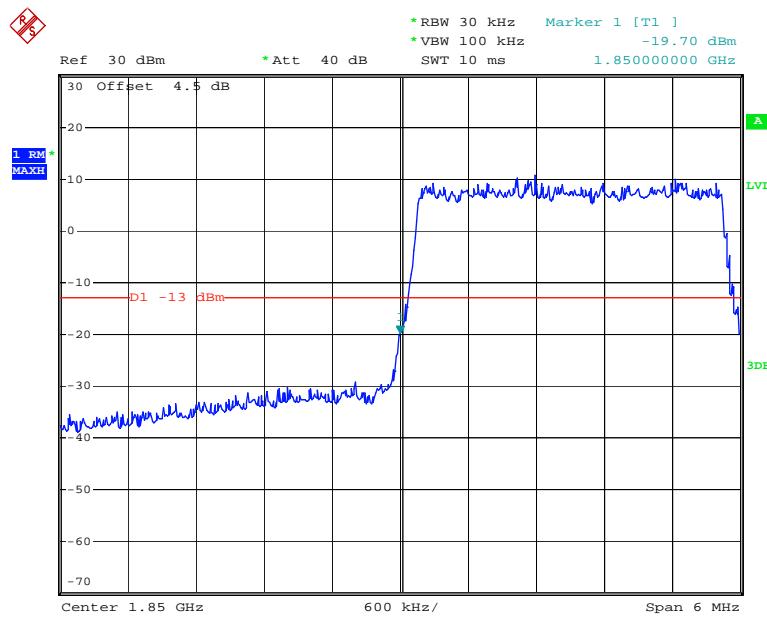
Date: 7.JAN.2020 12:14:59

16QAM_3MHz_ 15 RB_ Right
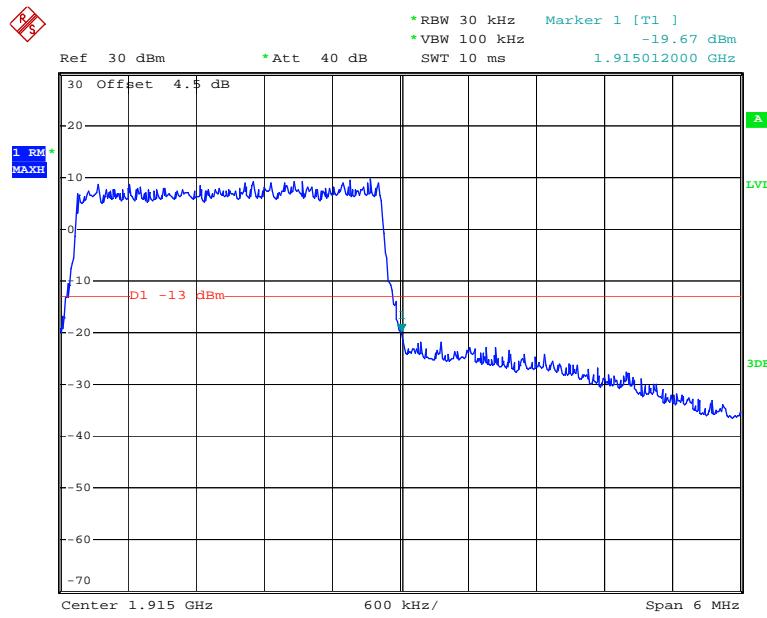
Date: 7.JAN.2020 12:15:35

16QAM_5MHz_ 25 RB_ Left
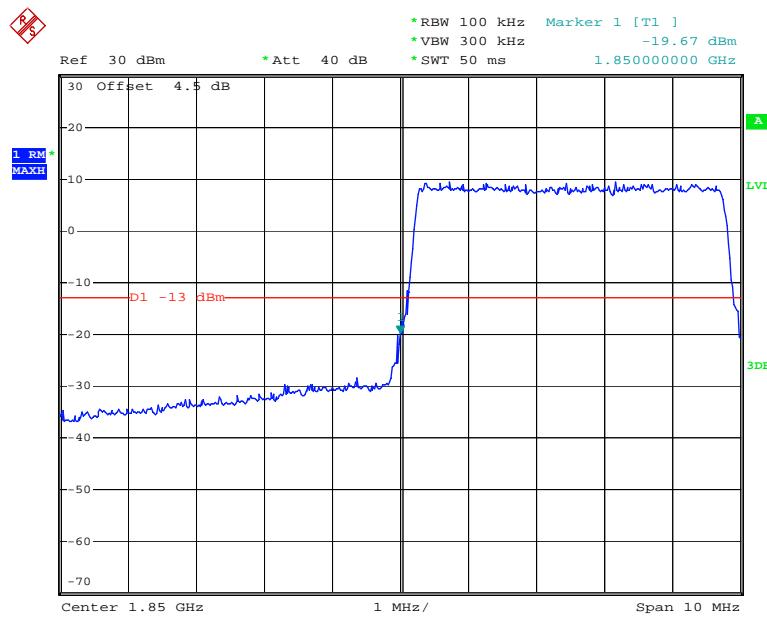
Date: 14.JAN.2020 17:38:24

16QAM_5MHz_ 25 RB_ Right
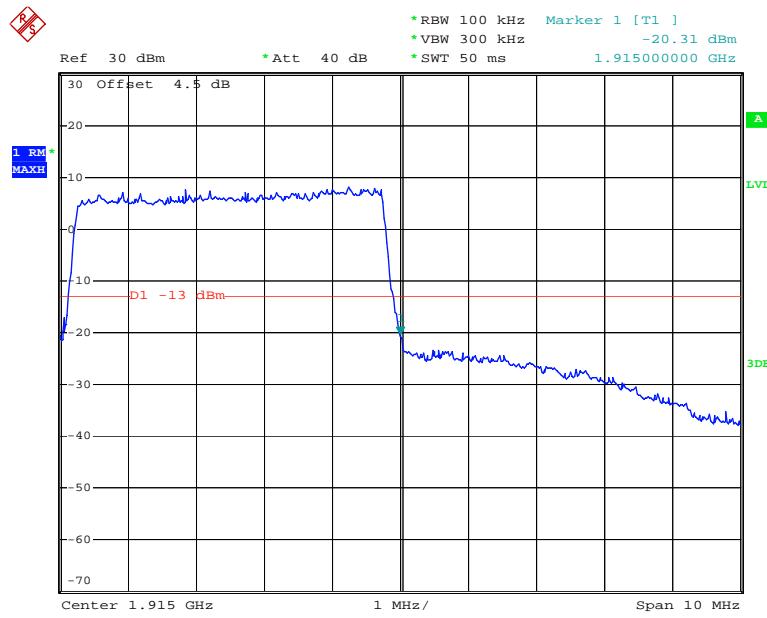
Date: 14.JAN.2020 17:39:38

16QAM_10MHz_ 50 RB_ Left
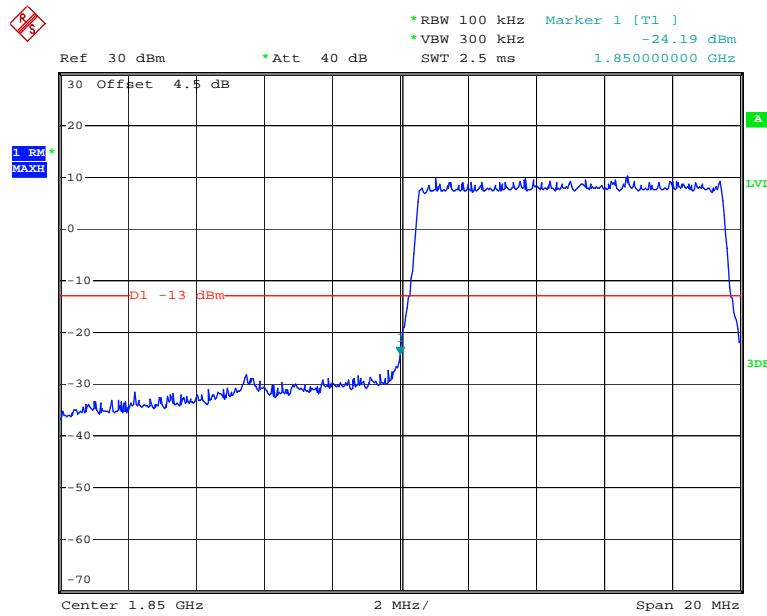
Date: 7.JAN.2020 12:17:37

16QAM_10MHz_ 50 RB_ Right
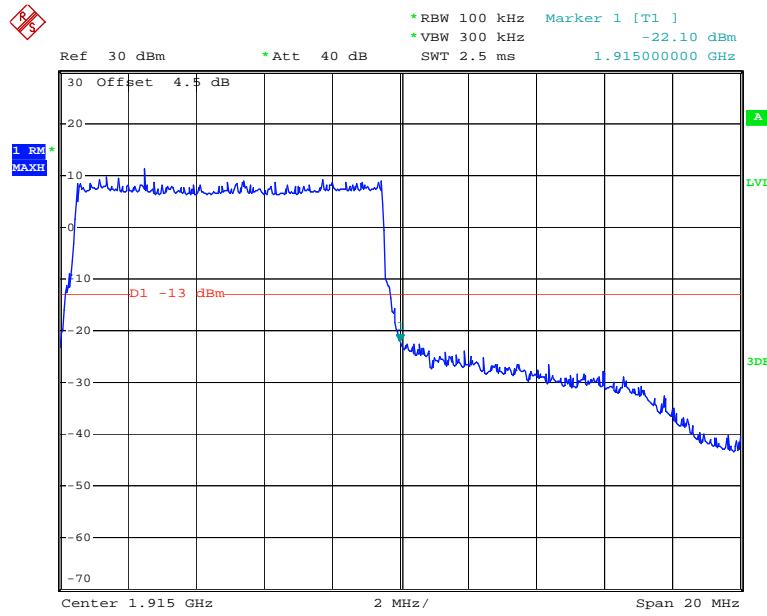
Date: 7.JAN.2020 12:18:18

16QAM_15MHz_ 75 RB_ Left
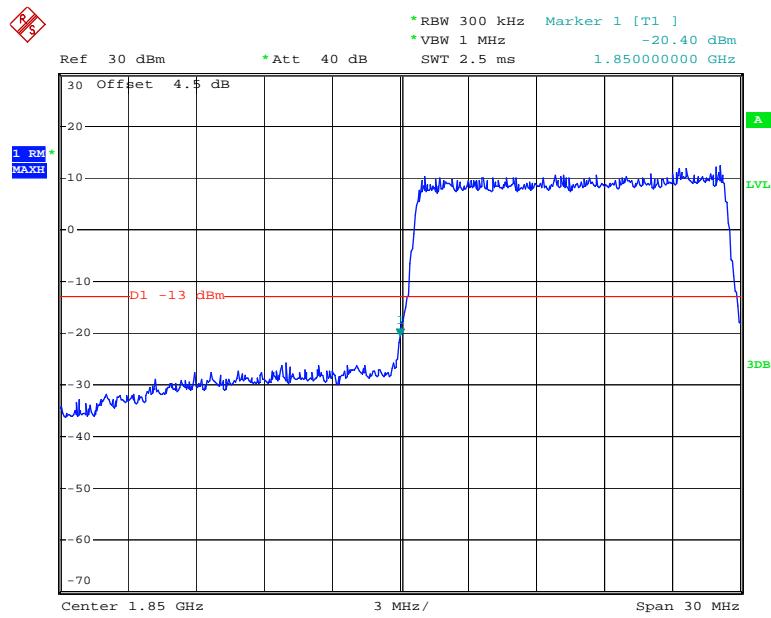
Date: 7.JAN.2020 12:19:03

16QAM_15MHz_ 75 RB_ Right
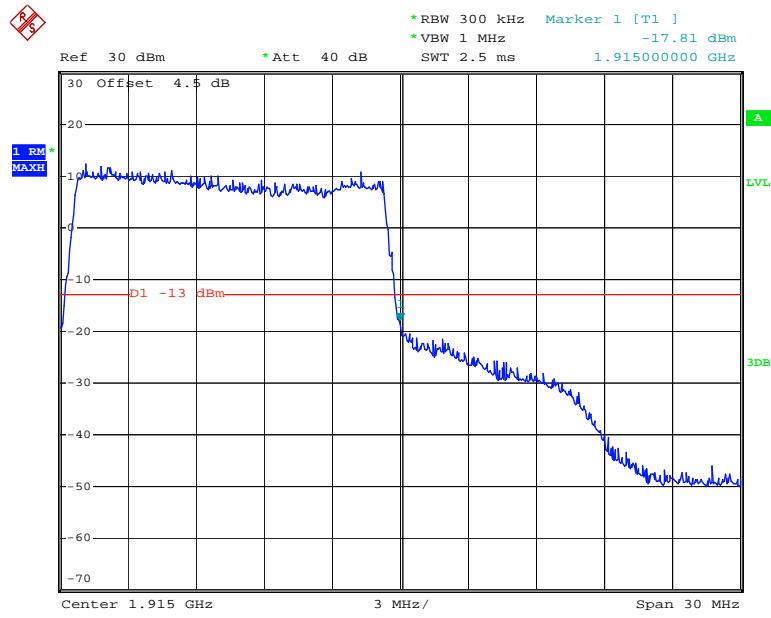
Date: 7.JAN.2020 12:19:45

16QAM_20MHz_ 100 RB_ Left
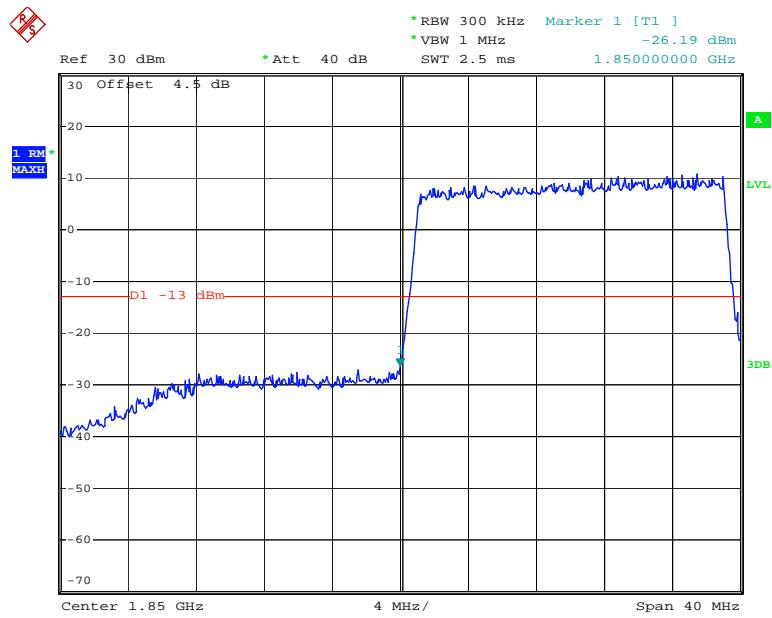
Date: 7.JAN.2020 12:20:31

16QAM_20MHz_100 RB_ Right
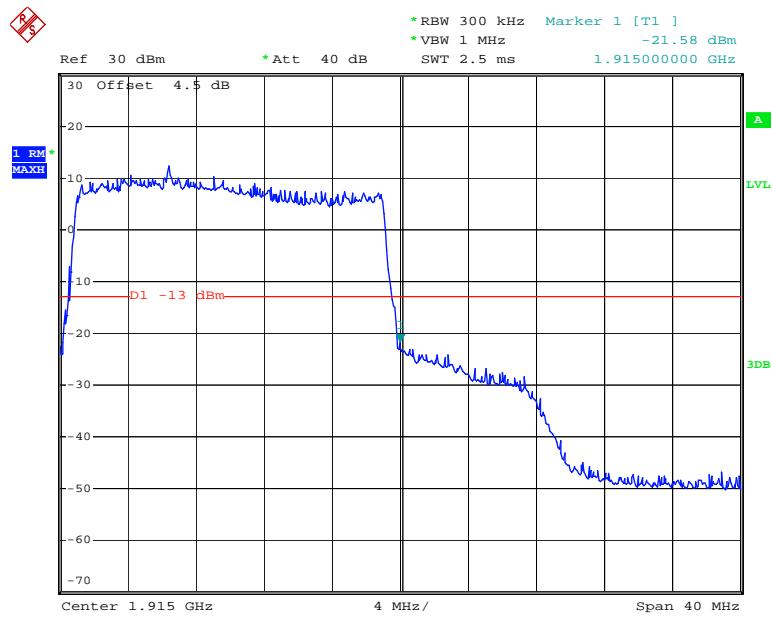
Date: 7.JAN.2020 12:21:14

LTE Band 26

QPSK_1.4MHz_ 6 RB_ Left
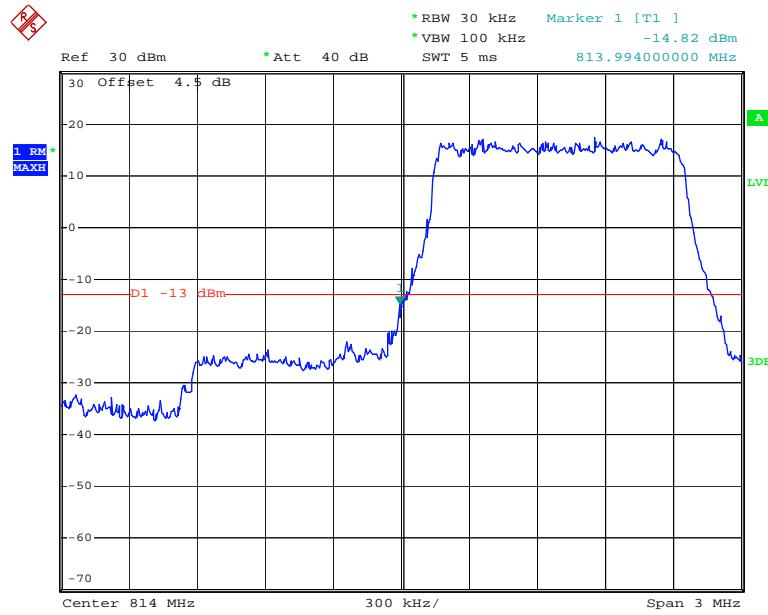
Date: 7.JAN.2020 12:21:53

QPSK_1.4MHz_ 6 RB_ Right
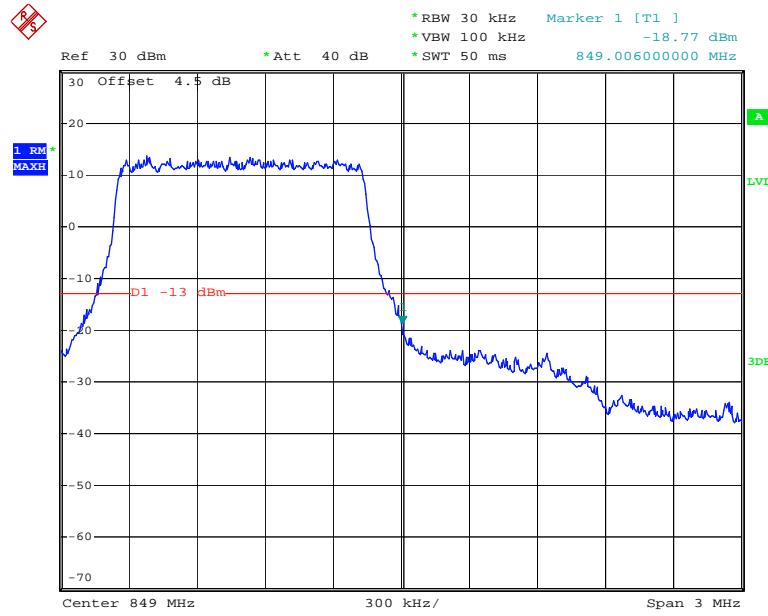
Date: 14.JAN.2020 17:41:37

QPSK_3MHz_ 15 RB_ Left
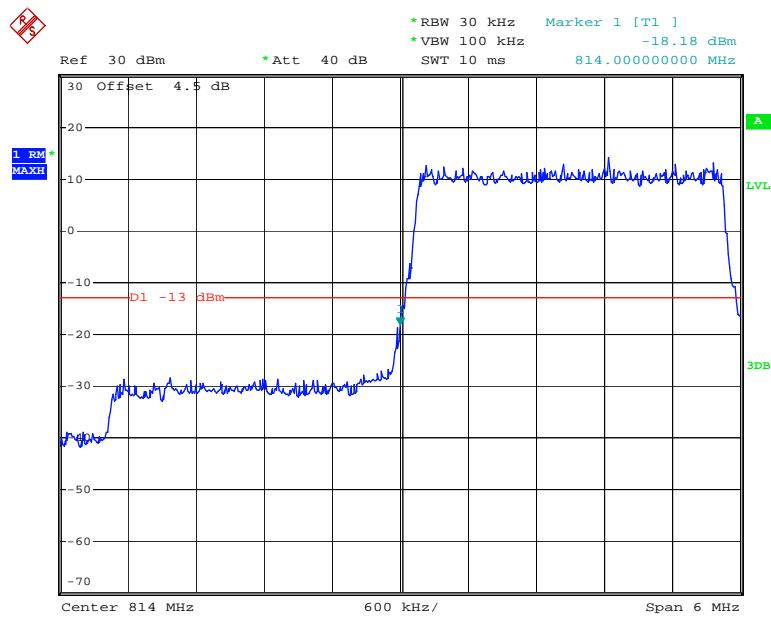
Date: 7.JAN.2020 12:23:11

QPSK_3MHz_ 15 RB_ Right
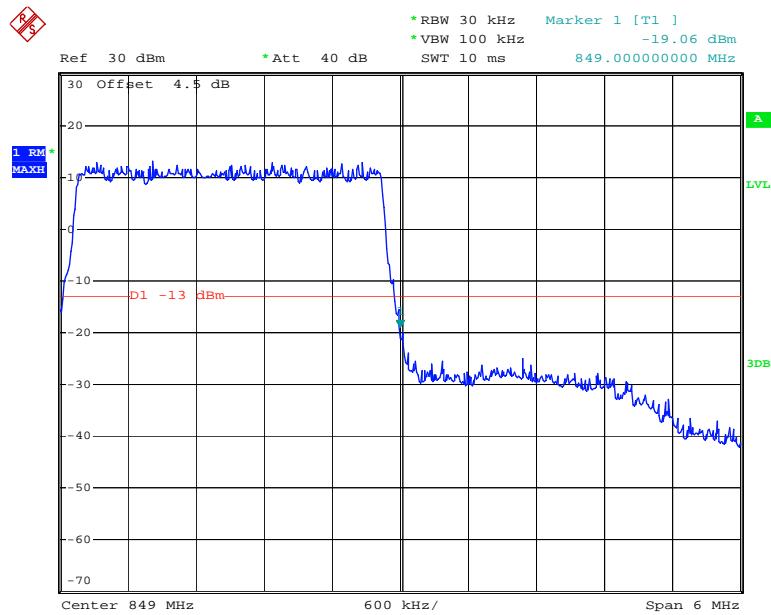
Date: 7.JAN.2020 12:23:46

QPSK_5MHz_ 25 RB_ Left
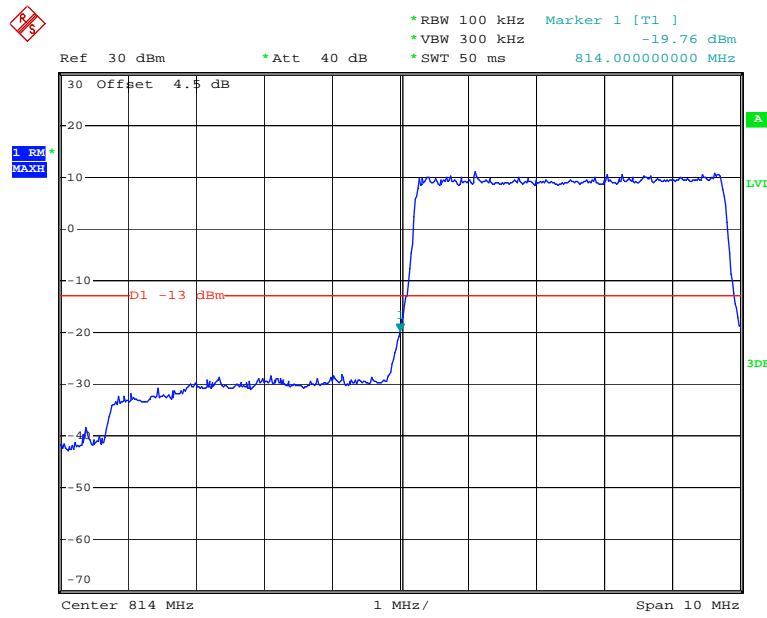
Date: 14.JAN.2020 17:45:21

QPSK_5MHz_ 25 RB_ Right
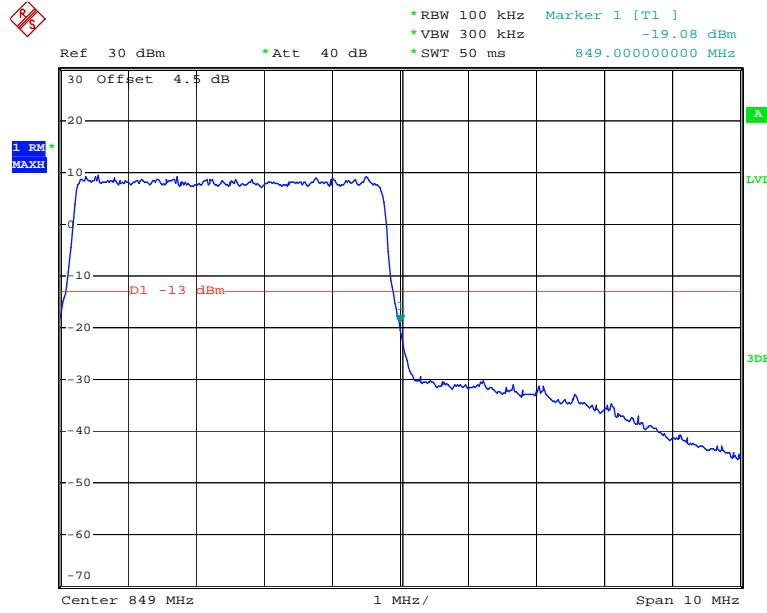
Date: 14.JAN.2020 17:46:27

QPSK_10MHz_ 50 RB_ Left
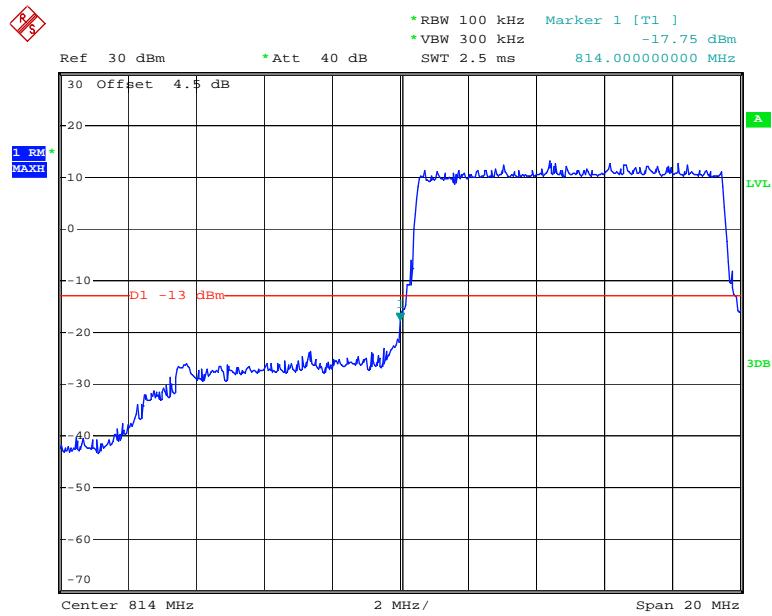
Date: 7.JAN.2020 12:25:54

QPSK_10MHz_ 50 RB_ Right
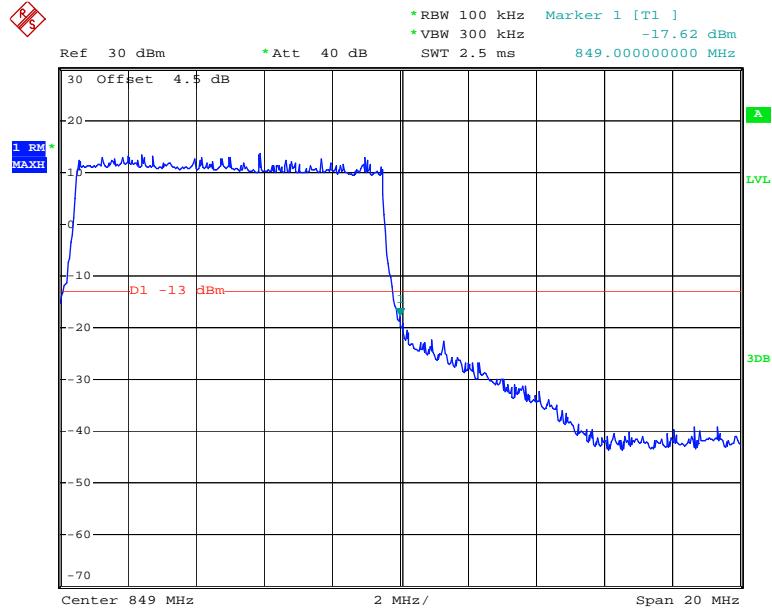
Date: 7.JAN.2020 12:26:38

QPSK_15MHz_ 75 RB_ Left
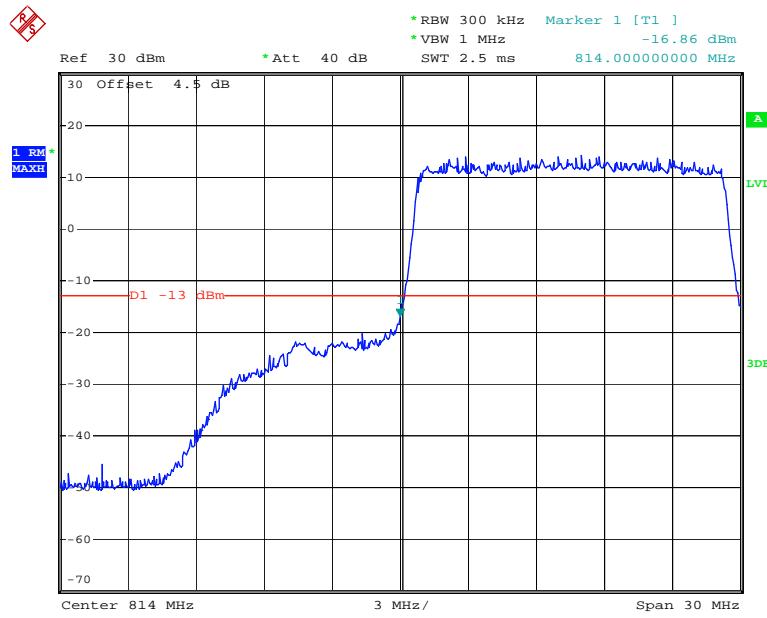
Date: 7.JAN.2020 12:30:44

QPSK_15MHz_ 75 RB_ Right
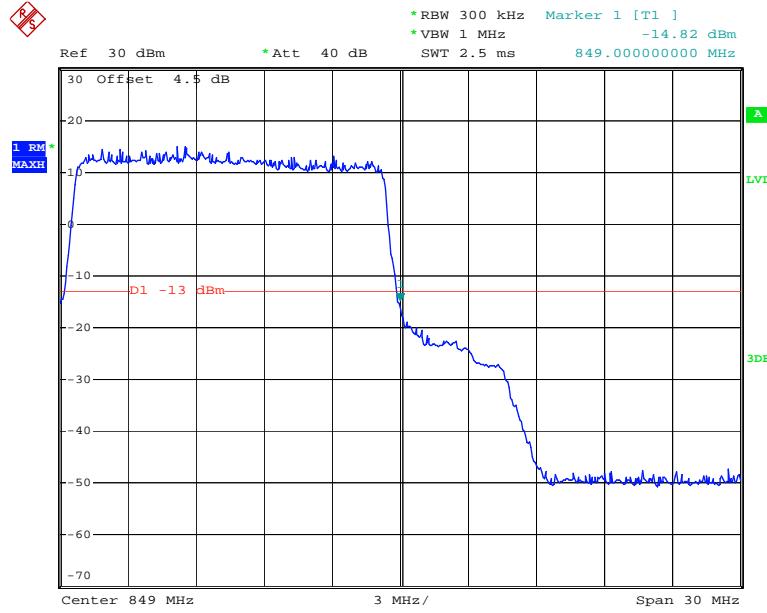
Date: 7.JAN.2020 12:31:29

16QAM_1.4MHz_ 6 RB_ Left
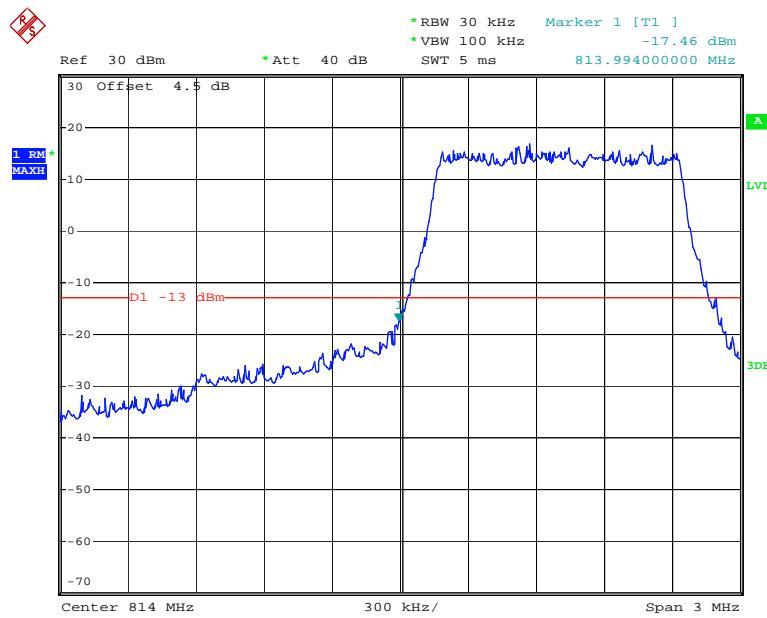
Date: 7.JAN.2020 12:22:10

16QAM_1.4MHz_ 6 RB_ Right
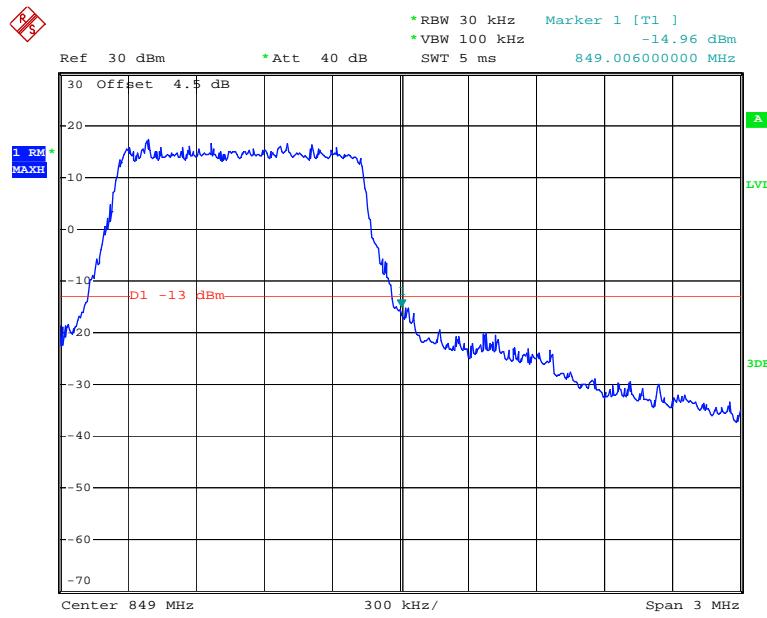
Date: 7.JAN.2020 12:22:48

16QAM_3MHz_ 15 RB_ Left

```
                                    *RBW 30 kHz    Marker 1 [T1 ]
                                    *VBW 100 kHz              -18.78 dBm
      Ref  30 dBm        *Att  40 dB  SWT 10 ms      813.988000000 MHz
```
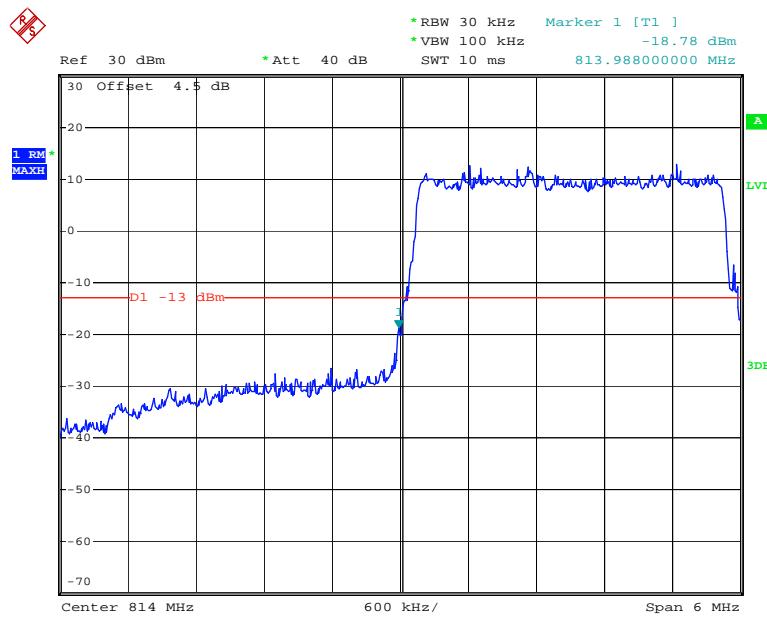
Date: 7.JAN.2020 12:23:28

16QAM_3MHz_ 15 RB_ Right

```
                                    *RBW 30 kHz    Marker 1 [T1 ]
                                    *VBW 100 kHz              -18.16 dBm
      Ref  30 dBm        *Att  40 dB  SWT 10 ms      849.000000000 MHz
```
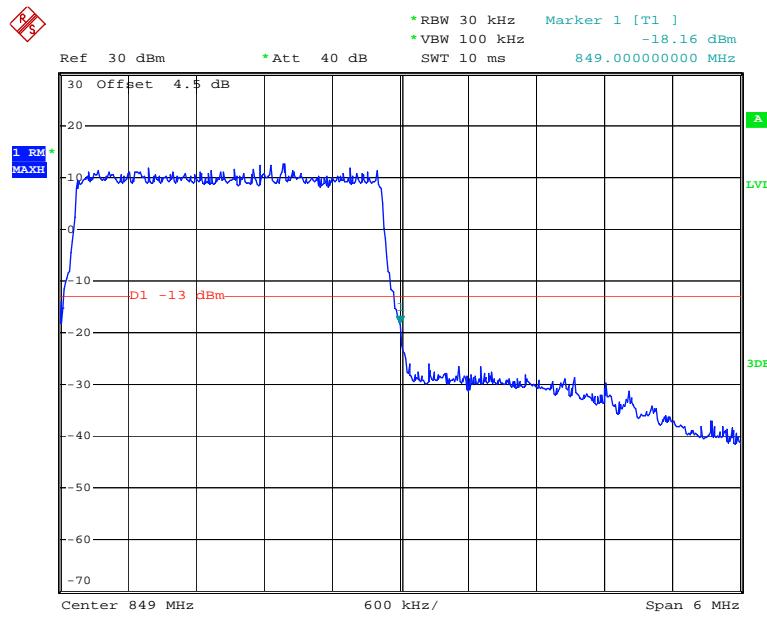
Date: 7.JAN.2020 12:24:06

16QAM_5MHz_ 25 RB_ Left
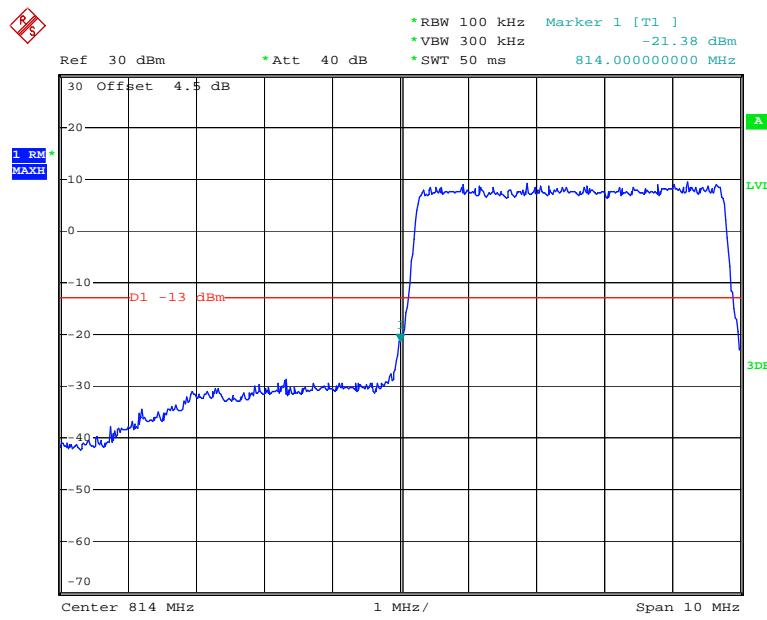
Date: 14.JAN.2020 17:45:44

16QAM_5MHz_ 25 RB_ Right
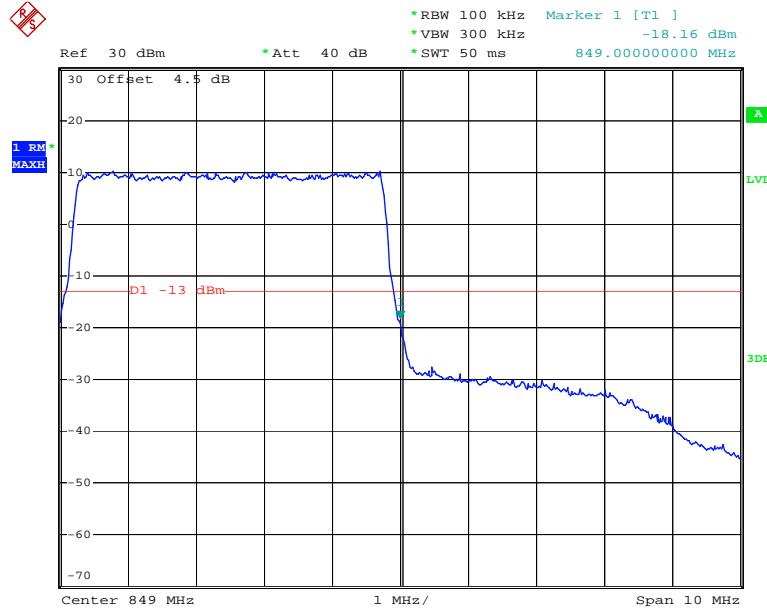
Date: 14.JAN.2020 17:46:46

16QAM_10MHz_ 50 RB_ Left
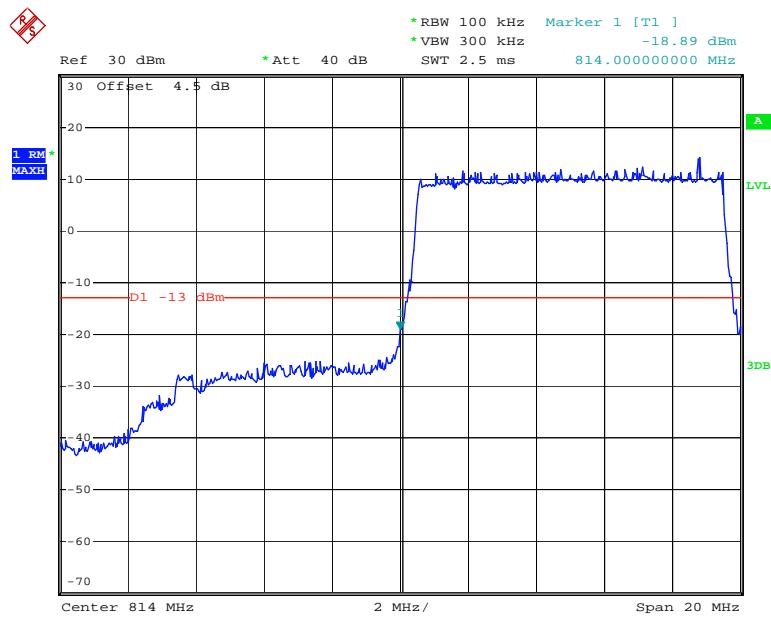
Date: 7.JAN.2020 12:26:16

16QAM_10MHz_ 50 RB_ Right
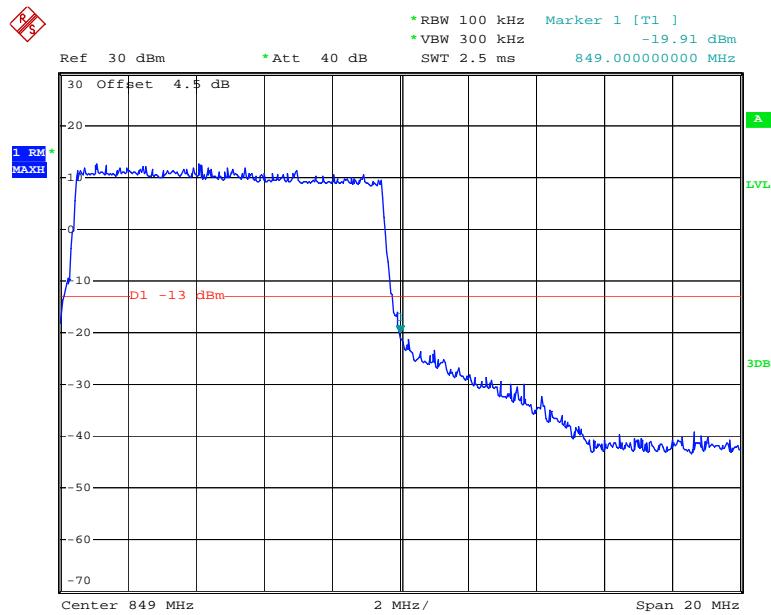
Date: 7.JAN.2020 12:27:03

16QAM_15MHz_ 75 RB_ Left
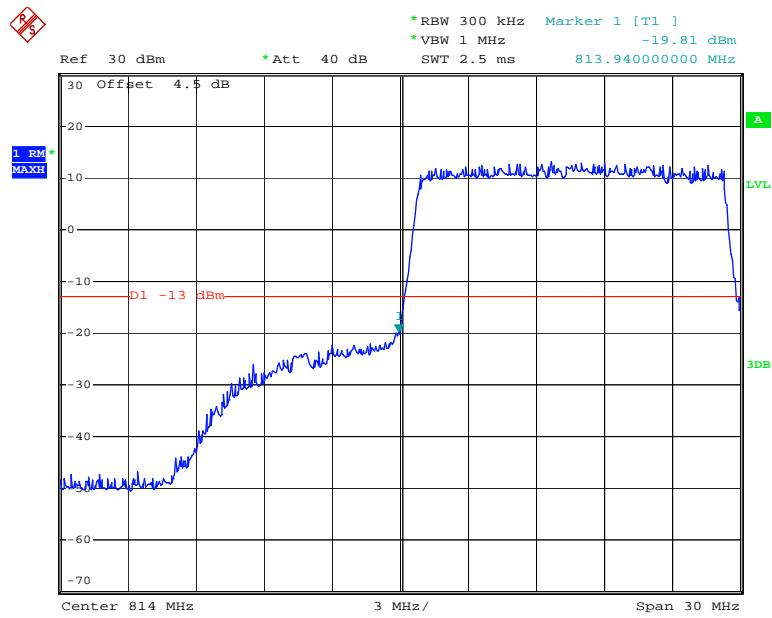

Date: 7.JAN.2020 12:31:06

16QAM_15MHz_ 75 RB_ Right
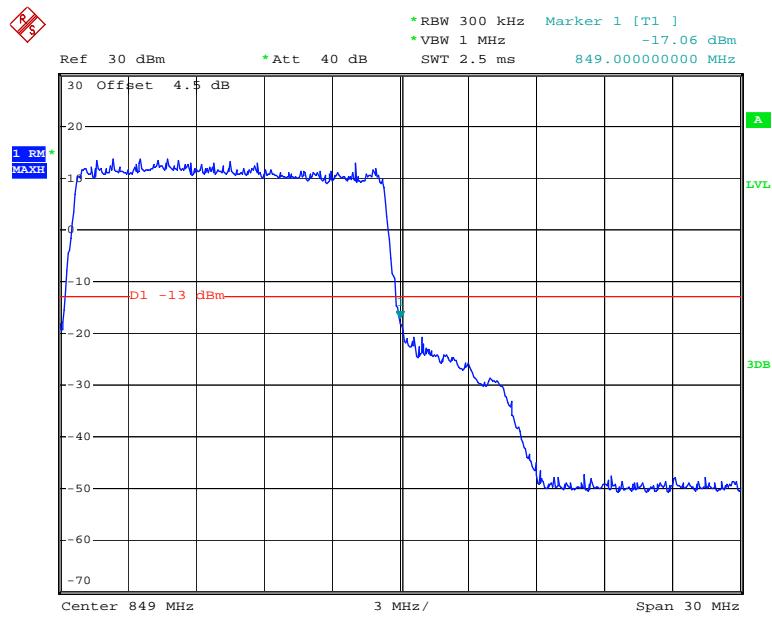
Date: 7.JAN.2020 12:31:50

LTE Band 41

QPSK_5MHz_ 25 RB_ Left

```
                                    *RBW 100 kHz    Marker 1 [T1 ]
                                    *VBW 300 kHz              -21.16 dBm
Ref  30 dBm          *Att  40 dB    *SWT 50 ms        2.496000000 GHz
30  Offset  4.5 dB
```



```
Center 2.496 GHz              1 MHz/              Span 10 MHz
```
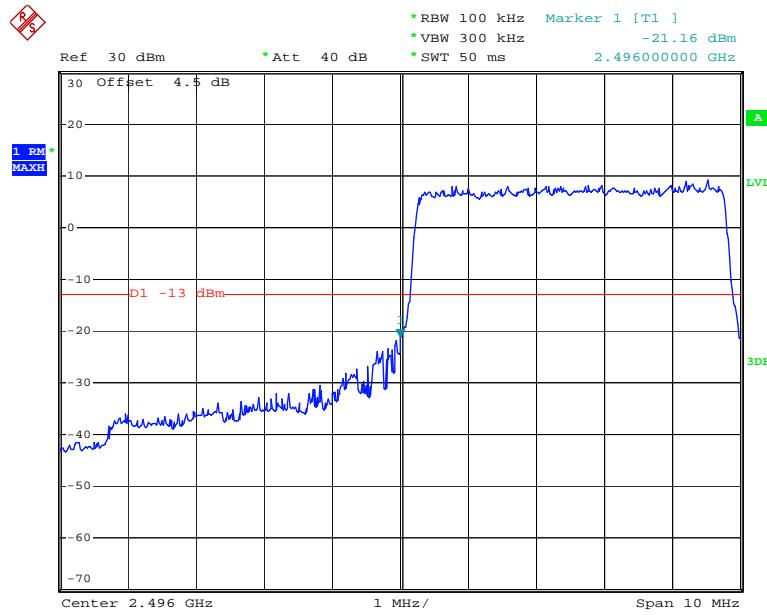
Date: 14.JAN.2020 16:56:57

QPSK_5MHz_ 25 RB_ Right

```
                                    *RBW 100 kHz    Marker 1 [T1 ]
                                    *VBW 300 kHz              -15.92 dBm
Ref  30 dBm          *Att  40 dB     SWT 2.5 ms       2.690020000 GHz
30  Offset  4.5 dB
```



```
Center 2.69 GHz               1 MHz/              Span 10 MHz
```
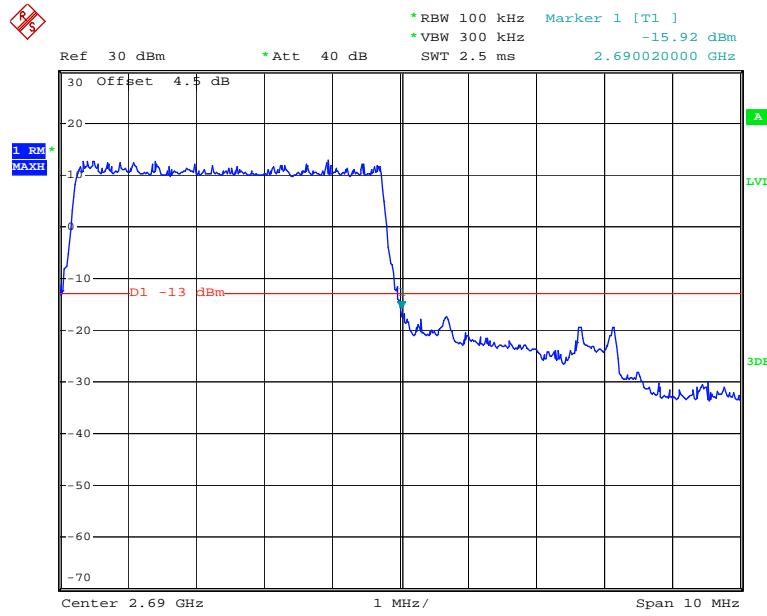
Date: 14.JAN.2020 16:55:34

## QPSK_10MHz_ 50 RB_ Left
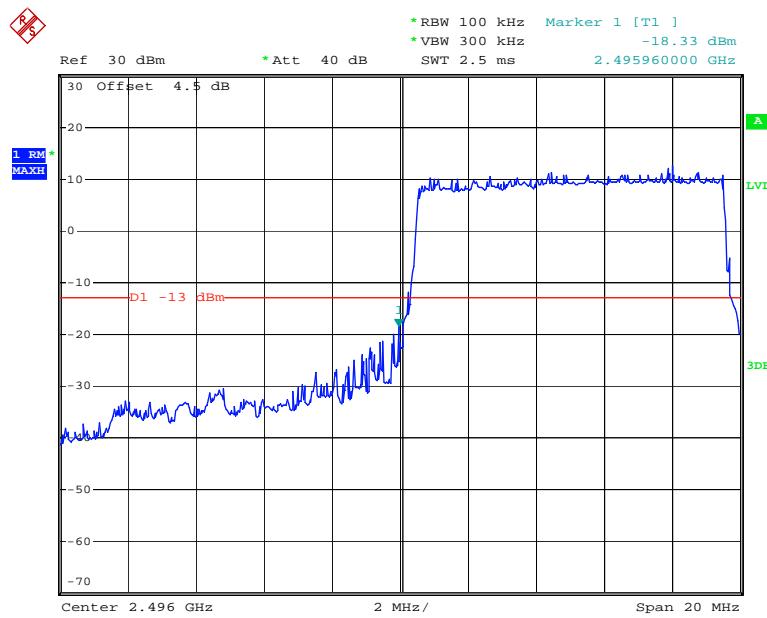
Date: 7.JAN.2020 12:34:05

QPSK_10MHz_ 50 RB_ Right
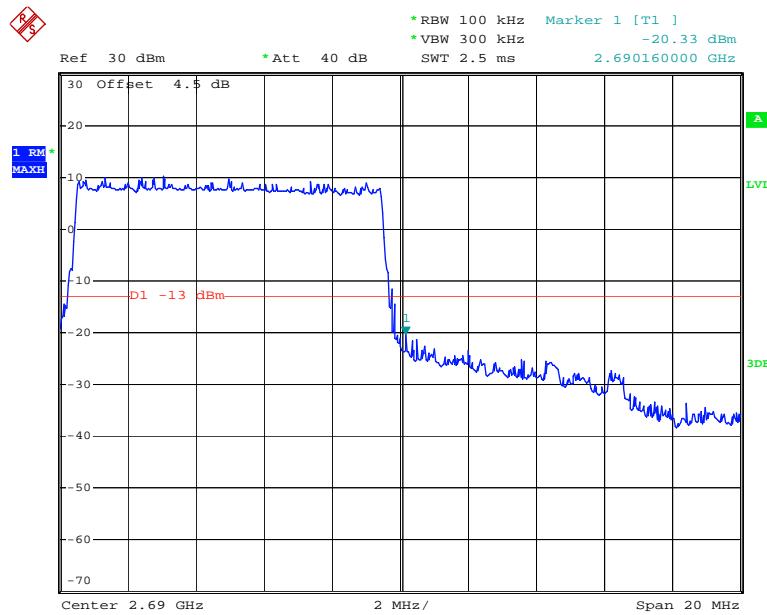
Date: 7.JAN.2020 12:34:48

QPSK_15MHz_ 75 RB_ Left
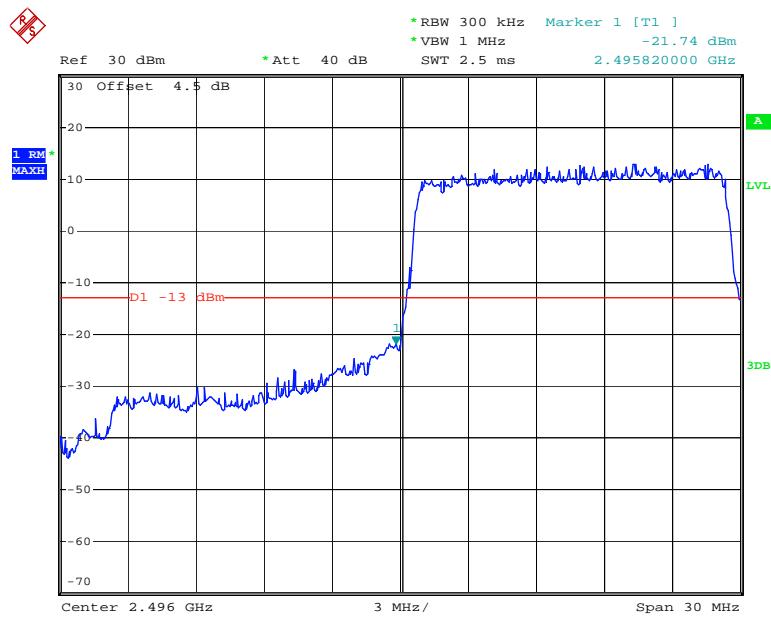
Date: 7.JAN.2020 12:35:37

QPSK_15MHz_ 75 RB_ Right
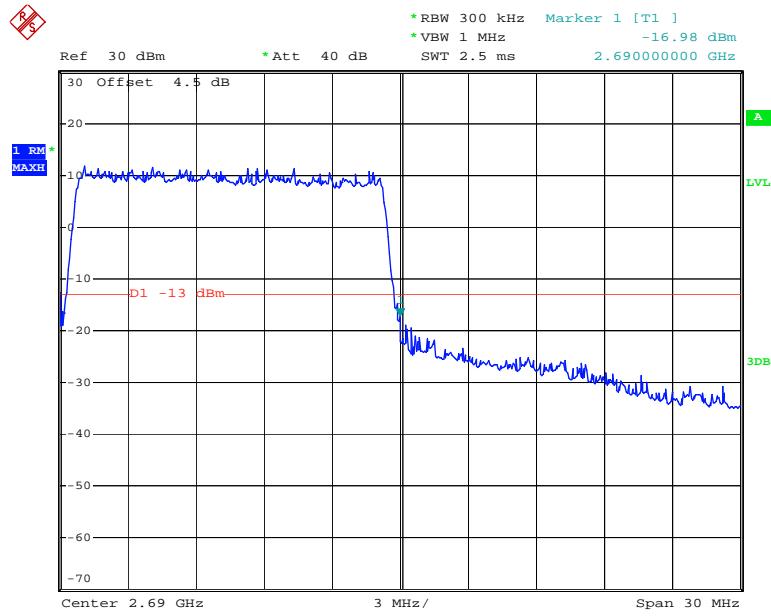
Date: 7.JAN.2020 12:36:31

QPSK_20MHz_ FULL RB_ Left
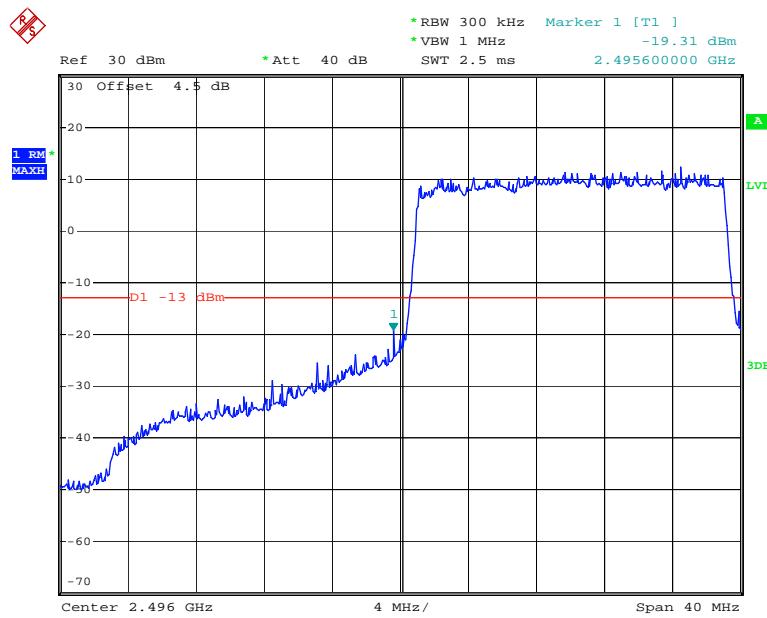
Date: 7.JAN.2020 12:37:23

QPSK_20MHz_ FULL RB_ Right
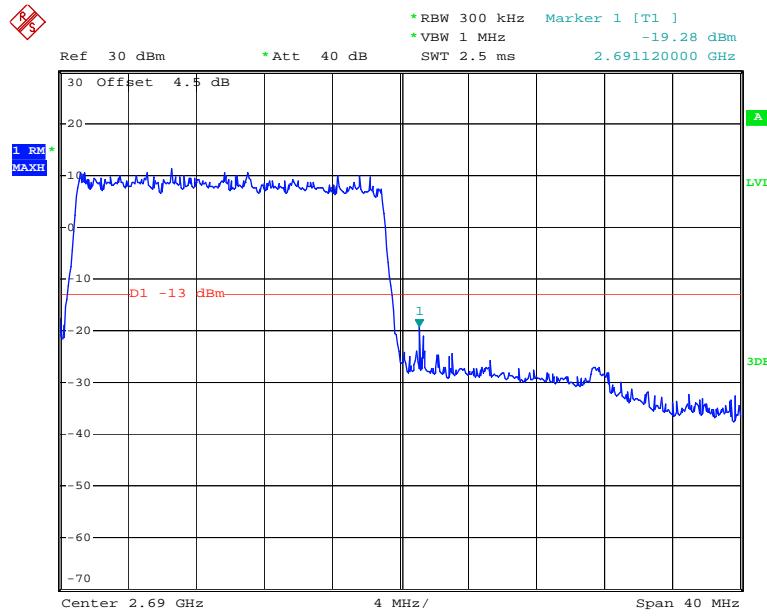
Date: 7.JAN.2020 12:38:10

16QAM_5MHz_ 25 RB_ Left

```
                                    *RBW 100 kHz   Marker 1 [T1 ]
                                    *VBW 300 kHz              -16.69 dBm
Ref  30 dBm          *Att  40 dB    SWT 2.5 ms        2.495980000 GHz
```
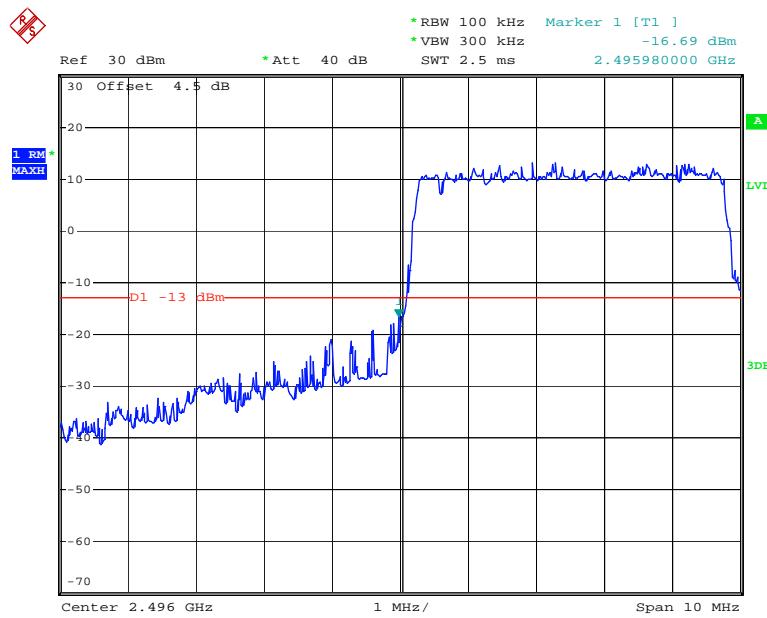
Date: 7.JAN.2020 12:32:57

16QAM_5MHz_ 25 RB_ Right

```
                                    *RBW 100 kHz   Marker 1 [T1 ]
                                    *VBW 300 kHz              -15.83 dBm
Ref  30 dBm          *Att  40 dB    SWT 2.5 ms        2.690020000 GHz
```
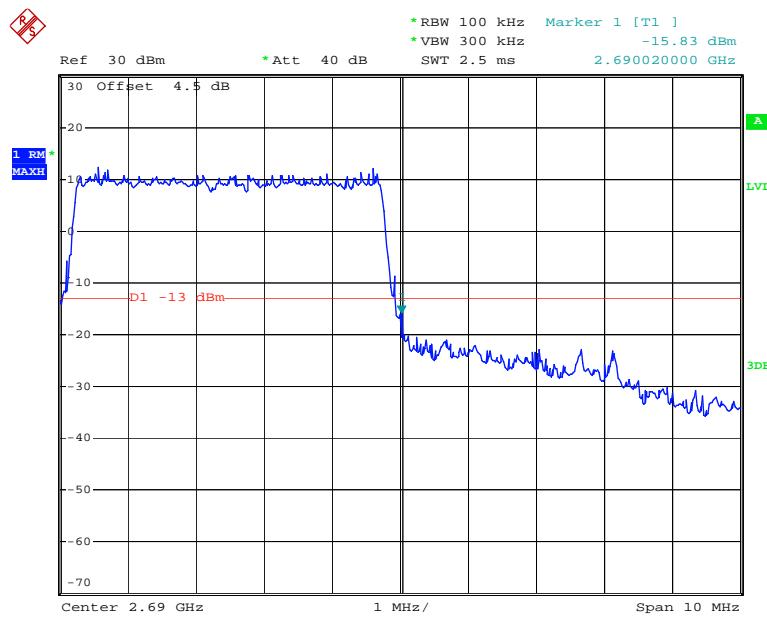
Date: 7.JAN.2020 12:33:38

16QAM_10MHz_ 50 RB_ Left
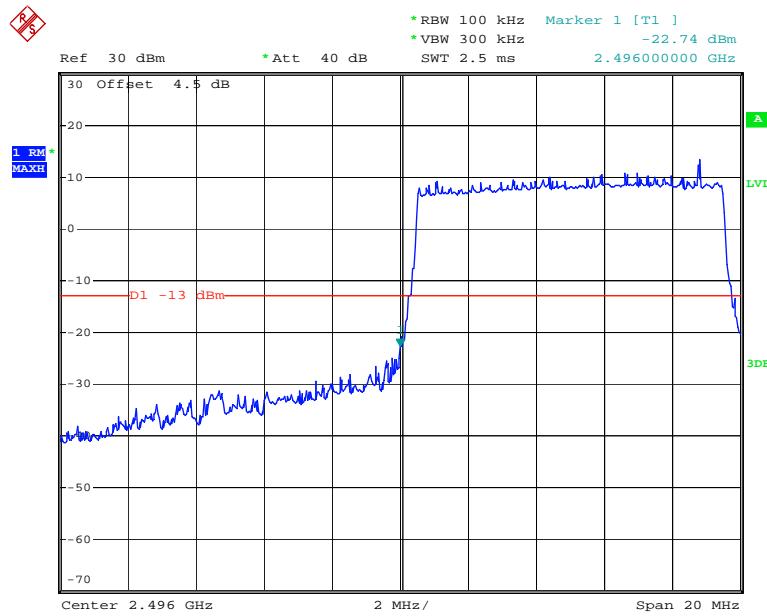
Date: 7.JAN.2020 12:34:26

16QAM_10MHz_ 50 RB_ Right
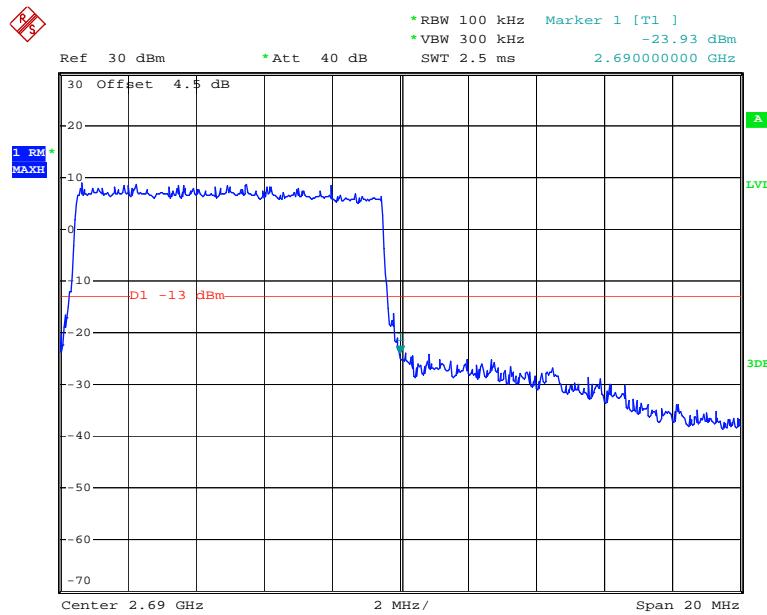
Date: 7.JAN.2020 12:35:07

16QAM_15MHz_ 75 RB_ Left
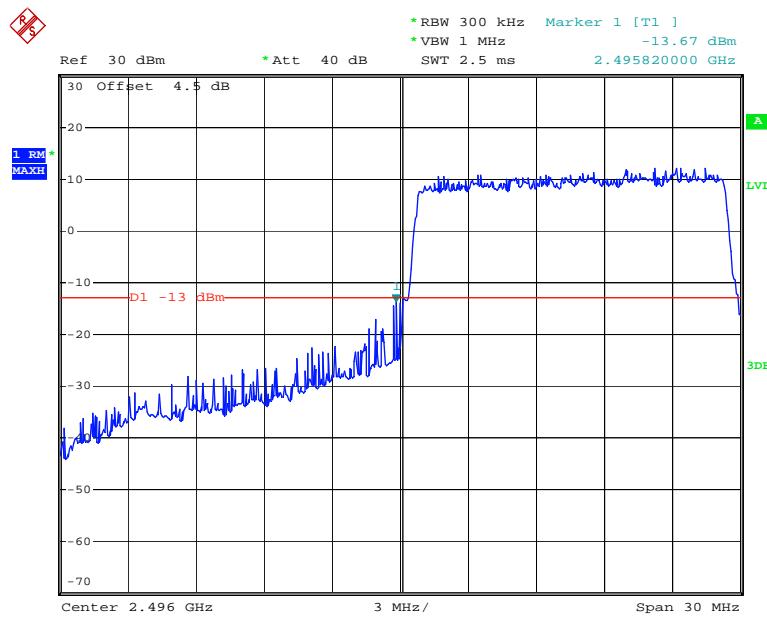
Date: 7.JAN.2020 12:36:05

16QAM_15MHz_ 75 RB_ Right
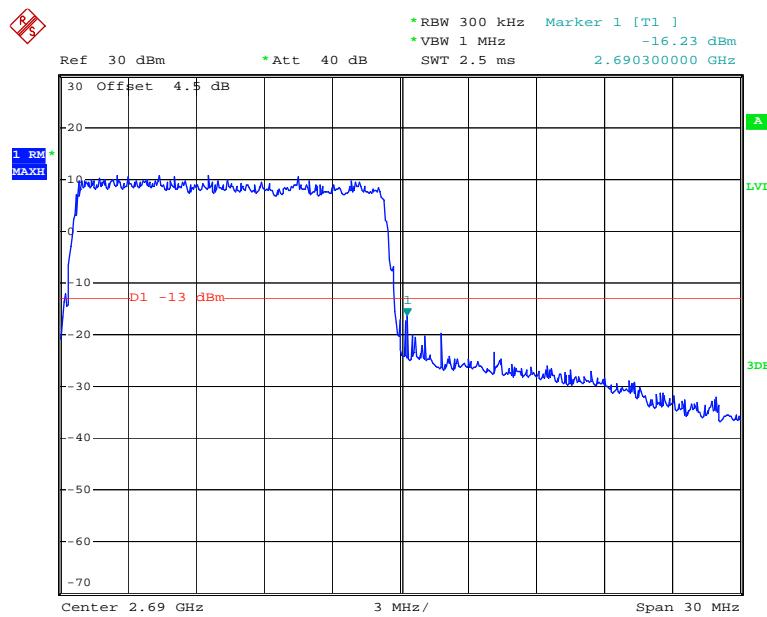
Date: 7.JAN.2020 12:36:55

16QAM_20MHz_ FULL RB_ Left
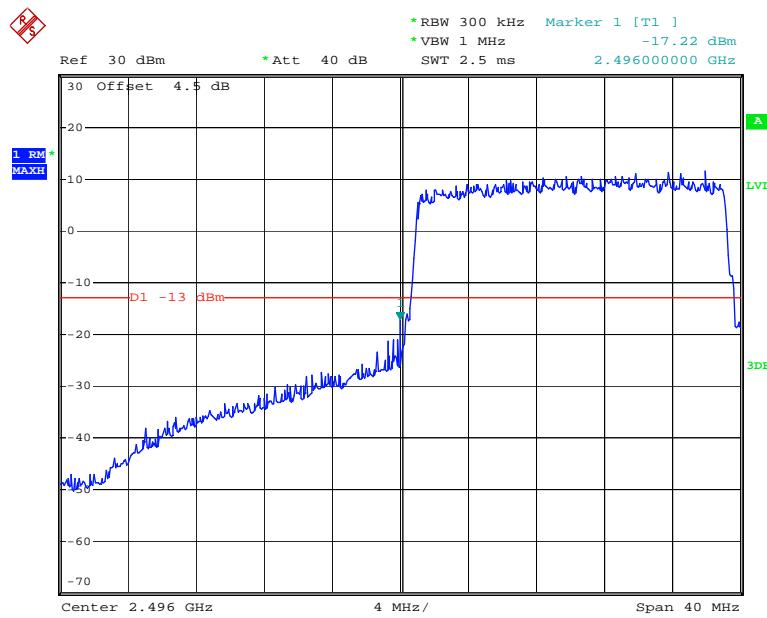
Date: 7.JAN.2020 12:37:45

16QAM_20MHz_ FULL RB_ Right
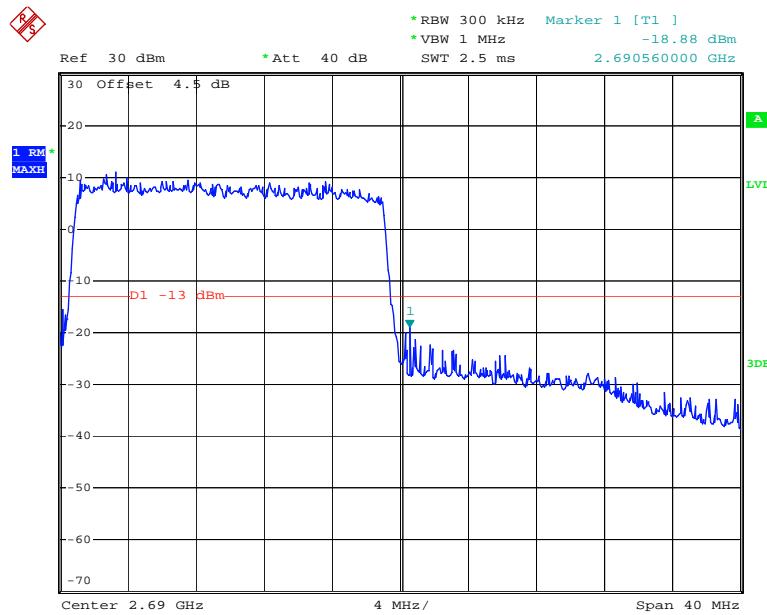
Date: 7.JAN.2020 12:38:38

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

Applicable Standard

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

Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external AC power supply and the RF output was connected to communication test set via feed-through attenuators. The EUT was placed inside the temperature chamber. The AC leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the communication test set.

Frequency Stability vs. Voltage: An external variable AC power supply was connected to the battery terminals of the equipment under test. The voltage was set from 85% to 115% of the nominal value and was then decreased until the transmitter light no longer illuminated; i.e., the battery end point. The output frequency was recorded for each battery voltage.
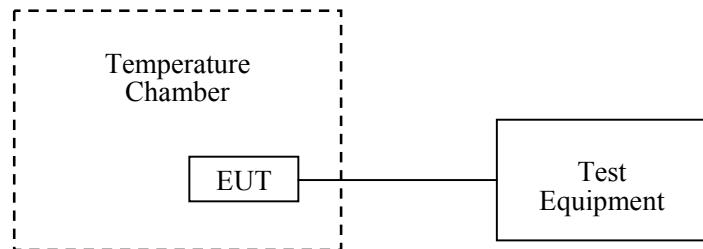
```
  ┌ ─ ─ ─ ─ ─ ─ ─ ┐
  │  Temperature   │
  │   Chamber      │              ┌──────────────┐
  │                │              │     Test     │
  │  ┌──────┐      │              │  Equipment   │
  │  │ EUT  │──────┼──────────────│              │
  │  └──────┘      │              └──────────────┘
  └ ─ ─ ─ ─ ─ ─ ─ ┘
```

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSP 38	100478	2019-05-09	2020-05-09
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41005011	Each time	N/A
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A
E-Microwave	Blocking Control	EMDCB-00036	0E01201047	Each time	N/A
E-Microwave	Coaxial Attenuators	EMCA10-5RN-6	OE01203239	Each time	N/A
R&S	Universal Radio Communication Tester	CMU200	106 891	2019-09-12	2020-09-12
R&S	Wideband Radio Communication Tester	CMW500	147473	2019-08-03	2020-08-03
ESPEC	Constant temperature and humidity Tester	ESX-4CA	018 463	2019-03-26	2020-03-26
UNI-T	Multimeter	UT39A	M130199938	2019-07-23	2020-07-23
Pro instrument	DC Power Supply	pps3300	3300012	N/A	N/A

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

Test Data

Environmental Conditions

Temperature:	19.1~22.9°C
Relative Humidity:	35~75 %
ATM Pressure:	101.6~102.6 kPa
Tester:	Lily Xie
Test Date:	2020-02-13~2020-02-20

GPRS, Middle Channel, f_c = 836.6 MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Limit
℃	V_{DC}	Hz	ppm	ppm
-30		6	0.00717	
-20		11	0.01315	
-10		8	0.00956	
0		7	0.00837	
10	7.2	5	0.00598	
20		8	0.00956	2.5
30		9	0.01076	
40		10	0.01195	
50		7	0.00837	
20	6.4	5	0.00598	
20	8.4	9	0.01076	

EGPRS, Middle Channel, f_c = 836.6 MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Limit
℃	V_{DC}	Hz	ppm	ppm
-30		5	0.00598	
-20		6	0.00717	
-10		7	0.00837	
0		9	0.01076	
10	7.2	5	0.00598	
20		11	0.01315	2.5
30		6	0.00717	
40		9	0.01076	
50		7	0.00837	
20	6.4	5	0.00598	
20	8.4	8	0.00956	

GPRS1900, Middle Channel, f$_c$ = 1880.0 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Result**
℃	V$_{DC}$	Hz	ppm	
-30		10	0.00532	
-20		9	0.00479	
-10		6	0.00319	
0		7	0.00372	
10	7.2	5	0.00266	
20		8	0.00426	Pass
30		10	0.00532	
40		5	0.00266	
50		9	0.00479	
20	6.4	8	0.00426	
20	8.4	5	0.00266	

EGPRS1900, Middle Channel, f$_c$ = 1880.0 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Result**
℃	V$_{DC}$	Hz	ppm	
-30		6	0.00319	
-20		10	0.00532	
-10		9	0.00479	
0		5	0.00266	
10	7.2	7	0.00372	
20		6	0.00319	Pass
30		7	0.00372	
40		8	0.00426	
50		10	0.00532	
20	6.4	8	0.00426	
20	8.4	9	0.00479	

WCDMA Band II: R99

Middle Channel, f_c = 1880.0 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Result**
℃	V_{DC}	**Hz**	**ppm**	
-30		8	0.00426	
-20		6	0.00319	
-10		5	0.00266	
0		7	0.00372	
10	7.2	9	0.00479	
20		11	0.00585	Pass
30		8	0.00426	
40		7	0.00372	
50		6	0.00319	
20	6.4	8	0.00426	
20	8.4	5	0.00266	

WCDMA Band Ⅳ: R99

Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30		1710.24	1754.68	1710	1755
-20		1710.21	1754.83	1710	1755
-10		1710.18	1754.80	1710	1755
0		1710.21	1754.89	1710	1755
10	7.2	1710.23	1754.78	1710	1755
20		1710.66	1754.32	1710	1755
30		1710.16	1754.52	1710	1755
40		1710.34	1754.71	1710	1755
50		1710.28	1754.93	1710	1755
20	6.4	1710.55	1754.93	1710	1755
20	8.4	1710.13	1754.59	1710	1755

WCDMA Band Ⅴ: R99

Middle Channel, f_c =836.6 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Limit**
℃	**V_DC**	**Hz**	**ppm**	**ppm**
-30		-2	0.01195	
-20		-1	0.00598	
-10		0	0.00837	
0		0	0.00717	
10	7.2	-1	0.00956	
20		0	0.00717	2.5
30		-2	0.00837	
40		-2	0.01076	
50		-1	0.01195	
20	6.4	-1	0.00956	
20	8.4	-2	0.00717	

LTE Band 2:

QPSK, Channel Bandwidth:10MHz Middle Channel, f_c = 1880 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Result**
℃	**V_DC**	**Hz**	**ppm**	
-30		-3.59	-0.0019	
-20		-8.09	-0.0043	
-10		8.68	0.0046	
0		7.76	0.0041	
10	7.2	5.13	0.0027	
20		-8.05	-0.0043	Pass
30		-7.31	-0.0039	
40		-6.61	-0.0035	
50		5.73	0.003	
20	6.4	-7.83	-0.0042	
20	8.4	-9.81	-0.0052	

16QAM, Channel Bandwidth:10MHz Middle Channel, f_c =1880 MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Result
℃	V_{DC}	Hz	ppm	
-30		-4.18	-0.0022	
-20		5.17	0.0028	
-10		-7.64	-0.0041	
0		6.18	0.0033	
10	7.2	-7.69	-0.0041	
20		9.26	0.0049	Pass
30		9.73	0.0052	
40		-9.01	-0.0048	
50		-8.64	-0.0046	
20	6.4	-9.69	-0.0052	
20	8.4	6.99	0.0037	

LTE Band 4:

QPSK, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30		1710.522000	1754.481000	1710	1755
-20		1710.518000	1754.481000	1710	1755
-10		1710.517000	1754.482000	1710	1755
0		1710.524000	1754.477000	1710	1755
10	7.2	1710.521000	1754.482000	1710	1755
20		1710.520000	1754.480000	1710	1755
30		1710.523000	1754.477000	1710	1755
40		1710.524000	1754.485000	1710	1755
50		1710.521000	1754.485000	1710	1755
20	6.4	1710.525000	1754.483000	1710	1755
20	8.4	1710.521000	1754.480000	1710	1755

16QAM, Channel Bandwidth:10MHz					
Temperature	**Voltage**	**Test Result (MHz)**		**Limit (MHz)**	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30		1710.524000	1754.482000	1710	1755
-20		1710.525000	1754.481000	1710	1755
-10		1710.523000	1754.482000	1710	1755
0		1710.517000	1754.478000	1710	1755
10	7.2	1710.523000	1754.480000	1710	1755
20		1710.520000	1754.480000	1710	1755
30		1710.523000	1754.478000	1710	1755
40		1710.521000	1754.482000	1710	1755
50		1710.521000	1754.482000	1710	1755
20	6.4	1710.517000	1754.483000	1710	1755
20	8.4	1710.523000	1754.485000	1710	1755

LTE Band 5:

Middle Channel, f_c = 836.5 MHz, Channel Bandwidth:10MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Limit**
℃	V_{DC}	Hz	ppm	ppm
-30		0.59	0.0007	
-20		5.92	0.0071	
-10		9.68	0.0116	
0		6.73	0.008	
10	7.2	7.43	0.0089	
20		5.23	0.0063	2.5
30		-8.69	-0.0104	
40		8.01	0.0096	
50		8.76	0.0105	
20	6.4	-6.04	-0.0072	
20	8.4	-9.14	-0.0109	

Middle Channel, f_c = 836.5 MHz, Channel Bandwidth:10MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Limit
℃	V_{DC}	Hz	ppm	ppm
-30		-0.14	-0.0002	
-20		-7.58	-0.0091	
-10		-9.55	-0.0114	
0		8.52	0.0102	
10	7.2	-7.89	-0.0094	
20		8.84	0.0106	2.5
30		-5.18	-0.0062	
40		-5.67	-0.0068	
50		8.40	0.01	
20	6.4	5.01	0.006	
20	8.4	9.36	0.0112	

LTE Band 7:

QPSK, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30		2500.519000	2569.480000	2500	2570
-20		2500.519000	2569.483000	2500	2570
-10		2500.522000	2569.481000	2500	2570
0		2500.524000	2569.481000	2500	2570
10	7.2	2500.521000	2569.485000	2500	2570
20		2500.520000	2569.480000	2500	2570
30		2500.520000	2569.479000	2500	2570
40		2500.523000	2569.482000	2500	2570
50		2500.524000	2569.483000	2500	2570
20	6.4	2500.517000	2569.480000	2500	2570
20	8.4	2500.519000	2569.478000	2500	2570

16QAM, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_DC	F_L	F_H	F_L	F_H
-30		2500.524000	2569.479000	2500	2570
-20		2500.521000	2569.478000	2500	2570
-10		2500.519000	2569.484000	2500	2570
0		2500.521000	2569.482000	2500	2570
10	7.2	2500.518000	2569.482000	2500	2570
20		2500.520000	2569.480000	2500	2570
30		2500.525000	2569.478000	2500	2570
40		2500.518000	2569.479000	2500	2570
50		2500.523000	2569.481000	2500	2570
20	6.4	2500.524000	2569.485000	2500	2570
20	8.4	2500.523000	2569.478000	2500	2570

LTE Band 12:

QPSK, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_DC	F_L	F_H	F_L	F_H
-30		669.481000	715.482000	699	716
-20		669.481000	715.482000	699	716
-10		669.485000	715.482000	699	716
0		669.478000	715.482000	699	716
10	7.2	669.481000	715.480000	699	716
20		669.480000	715.480000	699	716
30		669.480000	715.485000	699	716
40		669.483000	715.483000	699	716
50		669.480000	715.480000	699	716
20	6.4	669.485000	715.485000	699	716
20	8.4	669.485000	715.480000	699	716

16QAM, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_DC	F_L	F_H	F_L	F_H
-30		669.479000	715.485000	699	716
-20		669.477000	715.482000	699	716
-10		669.480000	715.478000	699	716
0		669.479000	715.478000	699	716
10	7.2	669.478000	715.481000	699	716
20		669.520000	715.480000	699	716
30		669.485000	715.477000	699	716
40		669.485000	715.480000	699	716
50		669.482000	715.477000	699	716
20	6.4	669.478000	715.485000	699	716
20	8.4	669.485000	715.481000	699	716

LTE Band 13:

QPSK, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30		777.525000	786.480000	777	787
-20		777.519000	786.485000	777	787
-10		777.525000	786.482000	777	787
0		777.518000	786.479000	777	787
10	7.2	777.523000	786.478000	777	787
20		777.520000	786.480000	777	787
30		777.525000	786.480000	777	787
40		777.525000	786.482000	777	787
50		777.520000	786.485000	777	787
20	6.4	777.518000	786.477000	777	787
20	8.4	777.521000	786.479000	777	787

16QAM, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30		777.522000	786.481000	777	787
-20		777.525000	786.485000	777	787
-10		777.523000	786.481000	777	787
0		777.518000	786.480000	777	787
10	7.2	777.524000	786.485000	777	787
20		777.520000	786.480000	777	787
30		777.525000	786.479000	777	787
40		777.517000	786.478000	777	787
50		777.523000	786.484000	777	787
20	6.4	777.519000	786.483000	777	787
20	8.4	777.523000	786.485000	777	787

LTE Band 17:

QPSK, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30		704.521000	715.484000	704	716
-20		704.517000	715.485000	704	716
-10		704.521000	715.482000	704	716
0		704.522000	715.485000	704	716
10	7.2	704.521000	715.480000	704	716
20		704.520000	715.480000	704	716
30		704.523000	715.478000	704	716
40		704.518000	715.483000	704	716
50		704.519000	715.481000	704	716
20	6.4	704.524000	715.481000	704	716
20	8.4	704.520000	715.481000	704	716

16QAM, Channel Bandwidth:10MHz					
Temperature	**Voltage**	**Test Result (MHz)**		**Limit (MHz)**	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30		704.521000	715.477000	704	716
-20		704.524000	715.483000	704	716
-10		704.519000	715.477000	704	716
0		704.525000	715.481000	704	716
10	7.2	704.525000	715.479000	704	716
20		704.520000	715.480000	704	716
30		704.521000	715.479000	704	716
40		704.522000	715.484000	704	716
50		704.518000	715.479000	704	716
20	6.4	704.518000	715.480000	704	716
20	8.4	704.524000	715.484000	704	716

LTE Band 25:

Middle Channel, f_c = 1882.5 MHz, Channel Bandwidth:10MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Result**
℃	V_{DC}	Hz	ppm	
-30		-2.12	-0.0011	
-20		-2.35	-0.0012	
-10		-3.18	-0.0017	
0		-2.66	-0.0014	
10	7.2	-3.25	-0.0017	
20		-5.10	-0.0027	Pass
30		1.46	0.0008	
40		-0.64	-0.0003	
50		0.75	0.0004	
20	6.4	0.63	0.0003	
20	8.4	-4.08	-0.0022	

Middle Channel, f_c = 1882.5 MHz, Channel Bandwidth:10MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Result
℃	V_{DC}	Hz	ppm	
-30		-0.33	-0.0002	
-20		1.27	0.0007	
-10		1.90	0.0010	
0		0.97	0.0005	
10	7.2	-1.85	-0.0010	
20		2.07	0.0011	Pass
30		-0.31	-0.0002	
40		1.06	0.0006	
50		1.97	0.0010	
20	6.4	1.22	0.0006	
20	8.4	2.65	0.0014	

LTE Band 26:

Middle Channel, f_c = 831.5 MHz, Channel Bandwidth:10MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Limit
℃	V_{DC}	Hz	ppm	ppm
-30		-8.17	-0.0098	
-20		-8.02	-0.0096	
-10		-9.03	-0.0109	
0		-8.93	-0.0107	
10	7.2	6.72	0.0081	
20		-9.36	-0.0113	2.5
30		-7.81	-0.0094	
40		5.79	0.007	
50		-0.66	-0.0008	
20	6.4	-7.27	-0.0087	
20	8.4	9.69	0.0117	

Middle Channel, f_c = 831.5 MHz, Channel Bandwidth:10MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Limit
℃	V_{DC}	Hz	ppm	ppm
-30		7.62	0.0092	
-20		6.80	0.0082	
-10		-7.99	-0.0096	
0		9.66	0.0116	
10	7.2	-9.44	-0.0114	
20		5.24	0.0063	2.5
30		-6.54	-0.0079	
40		-0.93	-0.0011	
50		-6.81	-0.0082	
20	6.4	-8.32	-0.01	
20	8.4	5.40	0.0065	

LTE Band 41:

QPSK, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30		2496.4992	2689.453	2496	2690
-20		2496.4912	2689.496	2496	2690
-10		2496.5582	2689.426	2496	2690
0		2496.5072	2689.437	2496	2690
10	7.2	2496.5812	2689.479	2496	2690
20		2496.5402	2689.462	2496	2690
30		2496.5012	2689.453	2496	2690
40		2496.5312	2689.431	2496	2690
50		2496.5162	2689.46	2496	2690
20	6.4	2496.5272	2689.506	2496	2690
20	8.4	2496.5692	2689.468	2496	2690

16QAM, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30		2496.5762	2689.414	2496	2690
-20		2496.5772	2689.457	2496	2690
-10		2496.4992	2689.464	2496	2690
0		2496.5522	2689.472	2496	2690
10	7.2	2496.5052	2689.42	2496	2690
20		2496.5402	2689.462	2496	2690
30		2496.5342	2689.468	2496	2690
40		2496.5502	2689.416	2496	2690
50		2496.5202	2689.506	2496	2690
20	6.4	2496.5762	2689.481	2496	2690
20	8.4	2496.5092	2689.412	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 *****