BACL
Bay Area Compliance Labs Corp.

FCC PART 22H, PART 27
MEASUREMENT AND TEST REPORT

For

Shenzhen Xinguodu Technology Co., Ltd.

17B JinSong Mansion, Terra Industrial & Trade Park, Chegongmiao, Futian District, Shenzhen, China

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FCC ID: XDQ-G2

Report Type:	**Product Type:**
Original Report	POS TERMINAL

Report Number:	RDG200604007-00C
Report Date:	2020-07-14
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:	POS TERMINAL	
EUT Model:	G2	
Operation modes:	WCDMA(R99 (Voice+Data), HSDPA,HSUPA,DC-HSDPA, HSPA+) FDD-LTE, TDD-LTE	
Modulation Type:	BPSK, QPSK, 16QAM	
Rated Input Voltage:	DC 3.6V from battery or DC 5V from adapter	
Adapter Information	**Model:**	ADS-6MA-06 05050EPCU
	Input:	100-240V~50/60Hz Max 0.3A
	Output:	DC5V 1.0A
Serial Number:	RDG200604007-RF-S1	
EUT Received Date:	2020.06.06	
EUT Received Status:	Good	

Objective

This report is prepared on behalf of *Shenzhen Xinguodu Technology Co., Ltd.* in accordance with: Part 2-Subpart J, Part 22-Subpart H, Part 27of the Federal Communications Commission's rules.

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

Related Submittal(s)/Grant(s)

No related submittal.

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 27 – Miscellaneous wireless communications services

Applicable Standards: TIA-603-E-2016.

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-603-E-2016.

The test items were performed with the EUT operating at testing mode. The device operates on WCDMA Band 5 and LTE band 5/7/38/40/41, test was performed with channels as below table:

Frequency Bands	Bandwidth (MHz)	Test Frequency(MHz)		
		Low	Middle	High
WCDMA Band 5	4.2	826.4	836.6	846.6
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 38	5	2572.5	2595	2617.5
	10	2575	2595	2615
	15	2577.5	2595	2612.5
	20	2580	2595	2610
LTE Band 40 Lower 2305-2315MHz	5	2307.5	2310	2312.5
	10	/	2310	/
LTE Band 40 Upper 2350-2360MHz	5	2352.5	2355	2357.5
	10	/	2355	/
LTE Band 41	5	2572.5	2600	2627.5
	10	2575	2600	2625
	15	2577.5	2600	2622.5
	20	2580	2600	2620

Equipment Modifications

No modification was made to the EUT.

Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Un-known	ANTENNA	Un-known	Un-known

Configuration of Test Setup

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┌ ─ ─ ─ ─ ─ ─ ─ ─ ┐
│  ┌──────────┐  │         ┌──────────────┐
│  │  CMU200  │  │─────────│   Antenna    │
│  │  CMW500  │  │         └──────────────┘
│  └──────────┘  │
└ ─ ─ ─ ─ ─ ─ ─ ─ ┘
                        ┌──────────┐
                        │   EUT    │
                        └──────────┘
```
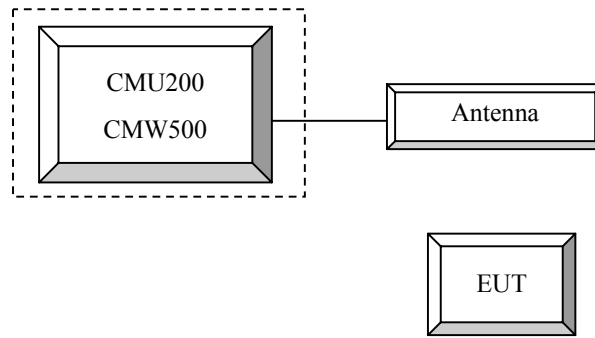
Block Diagram of Test Setup

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┌────────────────────────────────────────────────┐  ↑
│                                                │  │
│        ┌───────────────────────────┐           │  │
│        │                           │           │  │
│        │        ┌────────┐         │           │ 1.0 Meter
│        │        │  EUT   │         │           │  │
│        │        └────────┘         │           │  │
│        │                           │           │  │
│        └───────────────────────────┘           │  │
│   Non-Conductive Table                         │  │
│   150cm above Ground Plane                     │  ↓
└────────────────────────────────────────────────┘
   ←──────────── 1.5 Meter ────────────→
```
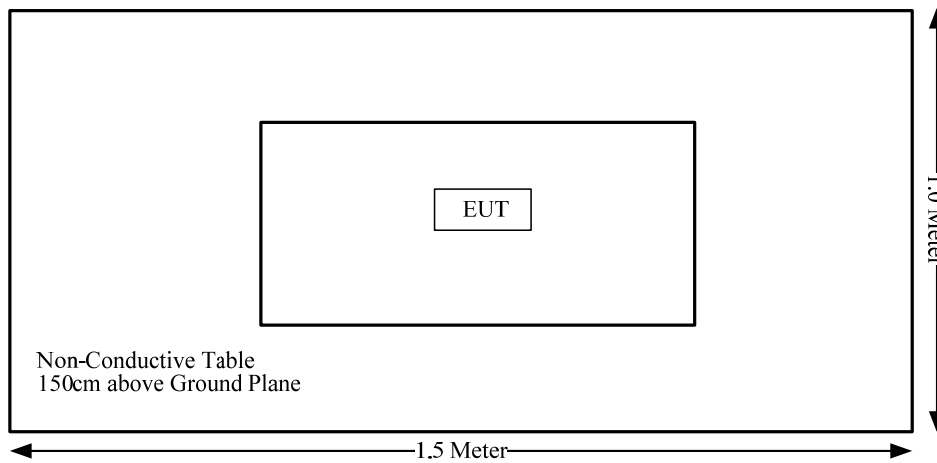
SUMMARY OF TEST RESULTS

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

FCC §1.1310 & §2.1093- RF EXPOSURE

Applicable Standard

FCC§1.1310 and §2.1093.

Test Result

Compliance, please refer to the SAR report: RDG200604007-20.

FCC §2.1047 - MODULATION CHARACTERISTIC

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

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

Applicable Standard

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

According to §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.

Test Procedure

WCDMA-Release 99

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

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

WCDMA HSDPA

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

	Mode	HSDPA	HSDPA	HSDPA	HSDPA
	Subset	1	2	3	4
WCDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set1			
	Power Control Algorithm	Algorithm2			
	βc	2/15	12/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	βd (SF)	64			
	βc/ βd	2/15	12/15	15/8	15/4
	βhs	4/15	24/15	30/15	30/15
	MPR(dB)	0	0	0.5	0.5
HSDPA Specific Settings	DACK	8			
	DNAK	8			
	DCQI	8			
	Ack-Nack repetition factor	3			
	CQI Feedback	4ms			
	CQI Repetition Factor	2			
	Ahs=βhs/ βc	30/15			

WCDMA HSUPA

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

	Mode	HSUPA	HSUPA	HSUPA	HSUPA	HSUPA
	Subset	1	2	3	4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2kbps RMC				
	HSDPA FRC	H-Set1				
	HSUPA Test	HSUPA Loopback				
	Power Control Algorithm	Algorithm2				
	βc	11/15	6/15	15/15	2/15	15/15
	βd	15/15	15/15	9/15	15/15	0
	βec	209/225	12/15	30/15	2/15	5/15
	βc/ βd	11/15	6/15	15/9	2/15	-
	βhs	22/15	12/15	30/15	4/15	5/15
	CM(dB)	1.0	3.0	2.0	3.0	1.0
	MPR(dB)	0	2	1	2	0
HSDPA Specific Settings	DACK	8				
	DNAK	8				
	DCQI	8				
	Ack-Nack repetition factor	3				
	CQI Feedback	4ms				
	CQI Repetition Factor	2				
	Ahs=βhs/ βc	30/15				
HSUPA Specific Settings	DE-DPCCH	6	8	8	5	7
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	21
	ETFCI	75	67	92	71	81
	Associated Max UL Data Rate kbps	242.1	174.9	482.8	205.8	308.9
	Reference E_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	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of "NS_01".

Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)

Network Signalling value	Requirements (sub-clause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	NA
NS_03	6.6.2.2.1	2, 4,10, 23, 25, 35, 36	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2	41	5	>6	≤ 1
			10, 15, 20	See Table 6.2.4-4	
NS_05	6.6.3.3.1	1	10,15,20	≥ 50	≤ 1
NS_06	6.6.2.2.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.6-1	n/a
NS_07	6.6.2.2.3 6.6.3.3.2	13	10	Table 6.2.4-2	Table 6.2.4-2
NS_08	6.6.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
NS_10		20	15, 20	Table 6.2.4-3	Table 6.2.4-3
NS_11	6.6.2.2.1	23¹	1.4, 3, 5, 10	Table 6.2.4-5	Table 6.2.4-5
..					
NS_32	.	.	.	.	.

Note 1:   Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region.

LTE(TDD):

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

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

Table 4.2-2: Uplink-downlink configurations.

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

Calculated Duty Cycle

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

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

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

Radiated method:

TIA-603-E-2016 section 2.2.17

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
ERP/EIRP Test					
Sunol Sciences	Antenna	JB3	A060611-1	2017-11-10	2020-11-10
R&S	EMI Test Receiver	ESR3	102453	2019-09-12	2020-09-12
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1400-01	2020-05-06	2021-05-06
EMCO	Adjustable Dipole Antenna	3121C	9109-753	N/A	N/A
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2019-09-05	2020-09-05
Agilent	Signal Generator	E8247C	MY43321350	2019-12-10	2020-12-10
Agilent	Spectrum Analyzer	E4440A	SG43360054	2020-05-09	2021-05-09
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
Conducted Output Power Test					
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
E-Microwave	Coaxial Attenuators	EMCA10-5RN-6	OE01203239	Each time	/
Unknown	Coaxial Cable	C-SJ00-0010	C0010/03	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

Test Items:	Radiation Below 1GHz	Radiation Above 1GHz	Conducted Output Power
Temperature:	21.1 °C	23.8°C	27.6 °C
Relative Humidity:	56%	56 %	59 %
ATM Pressure:	100.7 kPa	100.8kPa	99.8kPa
Tester:	Leo Long	Jalon Liu	Chris Mo
Test Date:	2020-06-16	2020-06-11	2020-07-03

Test Result: Compliance

Conducted Output Power

WCDMA Band 5

Mode	3GPP Sub Test	Low Channel		Middle Channel		High Channel	
		Ave. Power (dBm)	PAR (dB)	Ave. Power (dBm)	PAR (dB)	Ave. Power (dBm)	PAR (dB)
Rel 99	1	23.31	2.76	23.47	2.84	23.44	2.80
HSDPA	1	21.05	3.60	20.60	3.80	20.76	5.16
	2	21.03	3.70	20.58	4.10	20.74	5.10
	3	21.01	3.20	20.57	4.60	20.72	4.82
	4	20.98	4.00	20.54	4.30	20.71	4.11
HSUPA	1	21.10	4.88	21.24	4.92	21.15	4.80
	2	21.08	4.78	21.23	4.22	21.13	3.42
	3	21.05	5.08	21.22	3.22	21.12	3.10
	4	21.02	5.48	21.21	3.02	21.11	4.14
	5	21.00	4.98	21.19	3.82	21.08	3.63
DC-HSDPA	1	20.96	5.68	21.16	3.32	21.06	2.68
	2	20.95	5.58	21.15	4.32	21.05	2.80
	3	20.93	5.78	21.14	2.92	21.03	3.25
	4	20.91	6.58	21.13	1.92	21.01	4.13
HSPA+ (16QAM)	1	20.88	5.78	21.11	2.22	21.00	3.70

LTE Band 5

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	RB1#0	23.64	23.77	23.63
		RB1#3	23.74	24.04	23.62
		RB1#5	23.74	23.90	23.62
		RB3#0	23.62	23.63	23.93
		RB3#3	23.71	23.83	23.76
		RB6#0	22.74	22.75	22.75
	16QAM	RB1#0	22.81	22.84	23.13
		RB1#3	22.69	22.97	23.20
		RB1#5	22.85	23.09	23.29
		RB3#0	22.94	22.77	22.97
		RB3#3	23.10	22.83	22.75
		RB6#0	21.95	21.83	21.86
3MHz	QPSK	RB1#0	23.62	23.62	23.62
		RB1#8	23.63	23.65	23.62
		RB1#14	23.65	23.75	23.56
		RB6#0	22.71	22.67	22.87
		RB6#9	22.73	22.72	22.78
		RB15#0	22.77	22.63	22.84
	16QAM	RB1#0	23.04	22.89	22.94
		RB1#8	22.74	22.95	22.84
		RB1#14	22.78	23.19	22.80
		RB6#0	21.76	22.04	21.82
		RB6#9	21.73	22.10	21.83
		RB15#0	21.83	21.96	21.99
5MHz	QPSK	RB1#0	23.77	23.56	23.57
		RB1#13	23.90	23.63	23.59
		RB1#24	23.57	23.74	23.56
		RB15#0	22.81	22.73	22.93
		RB15#10	22.76	22.74	22.77
		RB25#0	22.65	22.65	22.82
	16QAM	RB1#0	22.80	22.67	23.33
		RB1#13	22.15	22.29	23.34
		RB1#24	21.62	22.20	22.94
		RB15#0	21.68	21.60	21.82
		RB15#10	21.65	21.69	21.69
		RB25#0	21.75	21.80	21.72
10MHz	QPSK	RB1#0	23.94	23.88	23.65
		RB1#25	23.81	23.92	24.02
		RB1#49	23.67	23.74	23.61
		RB25#0	22.89	22.65	22.70
		RB25#25	22.73	22.73	22.76
		RB50#0	22.88	22.76	22.66
	16QAM	RB1#0	23.18	22.97	22.62
		RB1#25	23.56	23.77	23.35
		RB1#49	22.54	23.33	22.32
		RB25#0	21.93	21.77	21.96
		RB25#25	21.88	21.74	22.05
		RB50#0	21.91	21.85	21.79

LTE Band 7

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	RB1#0	21.85	21.22	20.69
		RB1#13	21.86	21.16	20.91
		RB1#24	21.78	21.09	20.85
		RB15#0	20.67	20.16	19.73
		RB15#10	20.74	20.28	19.79
		RB25#0	20.70	20.16	19.77
	16QAM	RB1#0	20.51	19.61	19.97
		RB1#13	20.34	19.68	20.37
		RB1#24	19.51	19.68	20.19
		RB15#0	19.74	19.06	18.51
		RB15#10	19.62	19.35	18.85
		RB25#0	19.87	19.25	18.86
10MHz	QPSK	RB1#0	21.30	21.11	20.74
		RB1#25	21.69	21.17	21.38
		RB1#49	21.48	21.22	21.35
		RB25#0	20.50	20.09	20.35
		RB25#25	20.45	20.09	20.28
		RB50#0	20.59	20.04	20.21
	16QAM	RB1#0	20.66	20.70	20.11
		RB1#25	20.57	21.12	21.18
		RB1#49	20.37	20.61	21.12
		RB25#0	19.66	18.90	19.20
		RB25#25	19.54	19.20	19.17
		RB50#0	19.71	19.33	19.05
15MHz	QPSK	RB1#0	21.65	21.34	21.17
		RB1#38	21.56	21.28	21.16
		RB1#74	21.53	21.34	21.18
		RB36#0	20.66	20.17	20.08
		RB36#39	20.53	20.10	20.05
		RB75#0	20.67	20.18	19.88
	16QAM	RB1#0	20.90	20.82	20.22
		RB1#38	20.91	20.59	20.28
		RB1#74	20.20	20.86	20.22
		RB36#0	19.63	18.84	18.86
		RB36#39	19.47	19.08	18.76
		RB75#0	19.67	19.35	18.70
20MHz	QPSK	RB1#0	21.48	21.27	20.73
		RB1#50	21.32	21.30	20.50
		RB1#99	20.97	20.80	20.56
		RB50#0	20.47	20.02	19.54
		RB50#50	20.46	20.07	19.59
		RB100#0	20.45	20.00	19.55
	16QAM	RB1#0	20.81	20.18	20.34
		RB1#50	21.01	20.01	20.46
		RB1#99	20.62	19.66	20.45
		RB50#0	19.54	18.98	18.52
		RB50#50	19.30	19.07	18.65
		RB100#0	19.54	19.02	18.57

LTE Band 38

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	RB1#0	25.35	24.54	25.02
		RB1#13	25.10	24.70	25.09
		RB1#24	25.06	24.74	25.34
		RB15#0	24.37	23.66	24.26
		RB15#10	24.15	23.64	24.31
		RB25#0	24.23	23.69	24.24
	16QAM	RB1#0	24.32	23.02	24.34
		RB1#13	24.19	23.11	24.40
		RB1#24	24.20	23.38	24.72
		RB15#0	23.22	22.40	23.32
		RB15#10	23.08	22.49	23.36
		RB25#0	23.19	22.56	23.32
10MHz	QPSK	RB1#0	25.35	24.61	25.15
		RB1#25	25.14	24.82	25.24
		RB1#49	24.95	24.90	25.28
		RB25#0	24.27	23.74	24.25
		RB25#25	24.09	23.75	24.33
		RB50#0	24.27	23.71	24.22
	16QAM	RB1#0	24.12	23.64	24.46
		RB1#25	24.17	24.40	24.86
		RB1#49	23.80	24.06	24.53
		RB25#0	23.07	22.73	23.29
		RB25#25	22.97	22.82	23.46
		RB50#0	23.17	22.59	23.26
15MHz	QPSK	RB1#0	25.42	24.56	24.97
		RB1#38	24.93	24.60	25.08
		RB1#74	24.65	25.02	25.13
		RB36#0	24.24	23.70	24.13
		RB36#39	23.79	23.81	24.31
		RB75#0	24.10	23.76	24.15
	16QAM	RB1#0	24.48	23.99	24.26
		RB1#38	23.86	24.17	24.29
		RB1#74	23.61	24.18	24.34
		RB36#0	23.15	22.63	22.96
		RB36#39	22.67	22.68	23.39
		RB75#0	23.05	22.66	23.12
20MHz	QPSK	RB1#0	24.99	24.52	24.66
		RB1#50	24.96	24.87	25.19
		RB1#99	24.32	24.97	25.02
		RB50#0	24.24	23.66	23.95
		RB50#50	23.74	23.88	24.19
		RB100#0	24.01	23.82	23.99
	16QAM	RB1#0	24.66	23.35	23.98
		RB1#50	24.55	24.26	24.32
		RB1#99	23.83	24.50	24.54
		RB50#0	23.34	22.32	22.96
		RB50#50	22.71	22.71	23.29
		RB100#0	22.97	22.56	23.08

LTE Band 40 Lower Band

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	RB1#0	21.50	21.45	21.56
		RB1#13	21.68	21.61	21.52
		RB1#24	21.51	21.66	21.75
		RB15#0	20.55	20.62	20.93
		RB15#10	20.62	20.83	20.92
		RB25#0	20.64	20.78	20.80
	16QAM	RB1#0	20.70	20.16	21.17
		RB1#13	20.96	20.06	21.35
		RB1#24	20.72	20.42	21.35
		RB15#0	19.46	19.48	19.75
		RB15#10	19.55	19.73	19.88
		RB25#0	19.43	19.76	19.90
10MHz	QPSK	RB1#0	\	21.55	\
		RB1#25	\	21.70	\
		RB1#49	\	21.87	\
		RB25#0	\	20.68	\
		RB25#25	\	20.91	\
		RB50#0	\	20.81	\
	16QAM	RB1#0	\	20.98	\
		RB1#25	\	21.41	\
		RB1#49	\	21.18	\
		RB25#0	\	19.83	\
		RB25#25	\	20.09	\
		RB50#0	\	19.89	\

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

Channel Bandwidth	Modulation	Resource Block & RB offset	Middle Channel (dBm/5MHz)
10MHz	QPSK	RB1#0	17.95
		RB1#25	17.85
		RB1#49	17.69
		RB25#0	17.05
		RB25#25	17.22
		RB50#0	17.43
	16QAM	RB1#0	17.58
		RB1#25	17.88
		RB1#49	17.97
		RB25#0	16.49
		RB25#25	17.03
		RB50#0	16.49

LTE Band 40 Upper Band

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	RB1#0	21.74	21.81	21.89
		RB1#13	21.79	21.87	22.00
		RB1#24	21.83	21.81	21.89
		RB15#0	20.94	21.02	20.89
		RB15#10	21.02	21.06	20.98
		RB25#0	21.02	21.04	21.00
	16QAM	RB1#0	20.46	21.14	21.06
		RB1#13	20.35	21.26	21.07
		RB1#24	20.38	21.39	20.86
		RB15#0	19.89	20.01	19.91
		RB15#10	19.97	20.14	19.97
		RB25#0	19.96	20.15	20.03
10MHz	QPSK	RB1#0	\	21.86	\
		RB1#25	\	21.91	\
		RB1#49	\	21.96	\
		RB25#0	\	20.95	\
		RB25#25	\	20.94	\
		RB50#0	\	20.94	\
	16QAM	RB1#0	\	20.70	\
		RB1#25	\	20.86	\
		RB1#49	\	20.77	\
		RB25#0	\	19.79	\
		RB25#25	\	19.90	\
		RB50#0	\	19.91	\

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

Channel Bandwidth	Modulation	Resource Block & RB offset	Middle Channel (dBm/5MHz)
10MHz	QPSK	RB1#0	18.24
		RB1#25	18.36
		RB1#49	18.15
		RB25#0	17.58
		RB25#25	17.36
		RB50#0	17.68
	16QAM	RB1#0	17.32
		RB1#25	17.51
		RB1#49	17.23
		RB25#0	16.88
		RB25#25	16.97
		RB50#0	16.87

LTE Band 41

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	RB1#0	21.24	20.96	21.46
		RB1#13	21.21	21.07	21.53
		RB1#24	21.25	21.04	21.44
		RB15#0	20.34	20.16	20.64
		RB15#10	20.20	20.22	20.73
		RB25#0	20.24	20.30	20.67
	16QAM	RB1#0	20.30	19.67	20.96
		RB1#13	20.53	19.61	20.95
		RB1#24	20.27	19.80	21.03
		RB15#0	19.20	19.06	19.67
		RB15#10	19.06	19.04	19.77
		RB25#0	19.21	19.39	19.72
10MHz	QPSK	RB1#0	21.33	21.29	21.51
		RB1#25	21.27	21.52	21.49
		RB1#49	21.21	21.51	21.57
		RB25#0	20.30	20.17	20.73
		RB25#25	20.37	20.30	20.75
		RB50#0	20.36	20.33	20.66
	16QAM	RB1#0	20.18	20.56	20.98
		RB1#25	20.29	21.06	21.25
		RB1#49	20.11	20.85	20.92
		RB25#0	19.20	19.37	19.78
		RB25#25	19.26	19.38	19.98
		RB50#0	19.24	19.38	19.59
15MHz	QPSK	RB1#0	21.28	21.35	21.51
		RB1#38	21.22	21.31	21.72
		RB1#74	21.25	21.49	21.70
		RB36#0	20.22	20.21	20.62
		RB36#39	20.23	20.32	20.83
		RB75#0	20.29	20.36	20.60
	16QAM	RB1#0	20.10	20.34	20.52
		RB1#38	19.94	20.82	20.69
		RB1#74	19.94	20.98	20.74
		RB36#0	19.19	19.29	19.61
		RB36#39	19.12	19.42	19.79
		RB75#0	19.35	19.41	19.73
20MHz	QPSK	RB1#0	21.06	21.21	21.53
		RB1#50	21.08	21.59	21.84
		RB1#99	21.00	21.42	21.98
		RB50#0	20.30	20.24	20.53
		RB50#50	20.23	20.39	20.83
		RB100#0	20.30	20.34	20.62
	16QAM	RB1#0	20.63	20.01	21.07
		RB1#50	20.72	20.09	21.44
		RB1#99	20.42	20.08	21.50
		RB50#0	19.48	19.36	19.49
		RB50#50	19.24	19.48	19.74
		RB100#0	19.38	19.31	19.64

PAR, Band 5

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	10 MHz	4.76	4.56	4.72	13
	50 RB		5.08	5.44	5.00	13
16QAM	1 RB	10 MHz	5.68	5.48	5.72	13
	50 RB		6.12	6.48	6.12	13

PAR, Band 7

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	20 MHz	4.24	5.20	4.84	4.24
	100 RB		4.96	5.40	5.56	4.96
16QAM	1 RB	20 MHz	4.96	6.16	5.80	4.96
	100 RB		5.88	6.44	6.52	5.88

PAR, Band 38

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	20 MHz	5.23	5.14	5.89	13
	100 RB		5.22	5.03	5.71	13
16QAM	1 RB	20 MHz	5.72	5.88	5.24	13
	100 RB		5.54	5.57	5.54	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	5.33	5.63	5.52	13
	100 RB		5.34	5.41	6.53	13
16QAM	1 RB	20 MHz	6.32	6.32	6.31	13
	100 RB		5.56	5.83	5.58	13

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

Band 40 Duty cycle:
2305-2315MHz

Test Modulation	Test Bandwidth	Ton (ms)	Total (ms)	Duty Cycle (%)	Limit (%)
QPSK	5M	3.103	9.962	31.15	
	10M	3.103	9.962	31.15	
16-QAM	5M	3.167	9.987	31.71	38
	10M	3.103	9.962	31.15	

2350-2360MHz

Test Modulation	Test Bandwidth	Ton (ms)	Total (ms)	Duty Cycle (%)	Limit (%)
QPSK	5M	3.103	10.026	30.95	
	10M	3.103	9.962	31.15	
16-QAM	5M	3.038	9.962	30.50	38
	10M	3.103	9.962	31.15	

Note: EUT setup is as following:

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

Band 40(2305-2315MHz)

QPSK, 5MHz
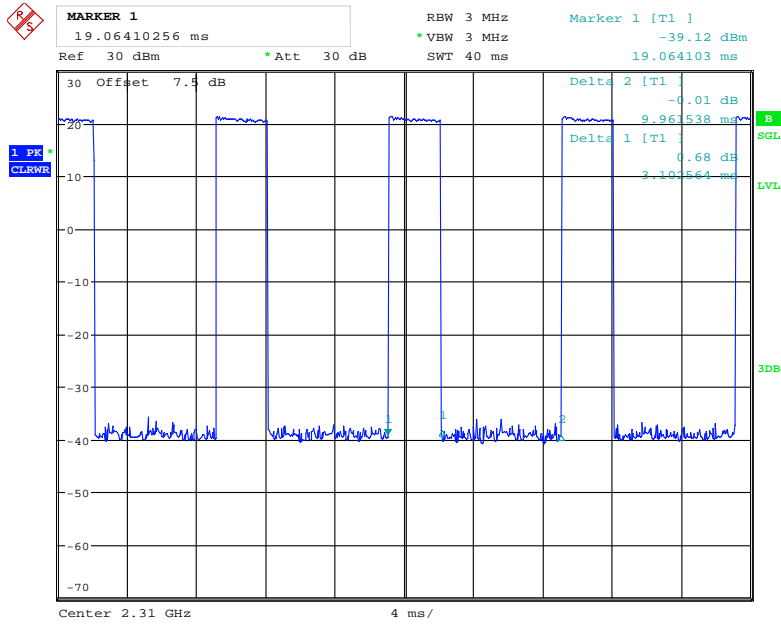
Date: 6.JUL.2020 09:33:30

QPSK, 10MHz
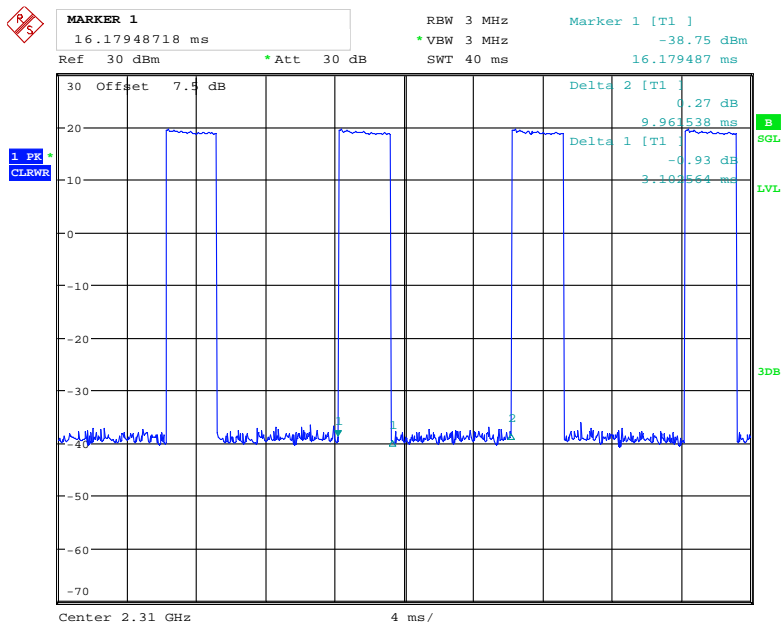
Date: 6.JUL.2020 09:36:22

16-QAM, 5MHz

DELTA MARKER 2	RBW 3 MHz	Delta 2 [T1]
9.987179487 ms	*VBW 3 MHz	0.28 dB
Ref 30 dBm *Att 30 dB	SWT 40 ms	9.987179 ms

30 Offset 7.5 dB

Marker 1 [T1]
-39.28 dBm
14.⬛ ms

Delta 1 [T1]
-0.74 dB
3.166667 ms

B
SGL
LVL
3DB

Center 2.31 GHz   4 ms/
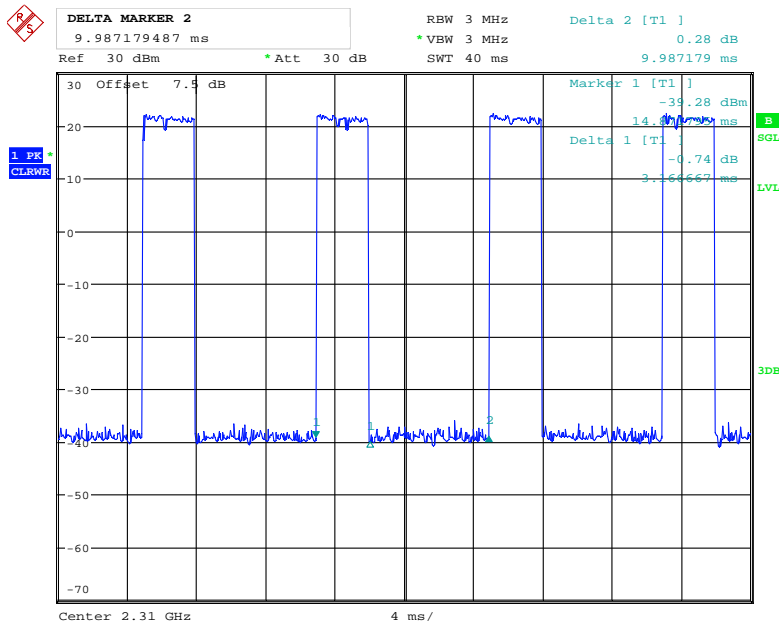
Date: 6.JUL.2020 09:31:44

16-QAM, 10MHz

DELTA MARKER 2	RBW 3 MHz	Delta 2 [T1]
9.961538462 ms	*VBW 3 MHz	-0.35 dB
Ref 30 dBm *Att 30 dB	SWT 40 ms	9.961538 ms

30 Offset 7.5 dB

Marker 1 [T1]
-38.91 dBm
13.61⬛385 ms

Delta 1 [T1]
0.47 dB
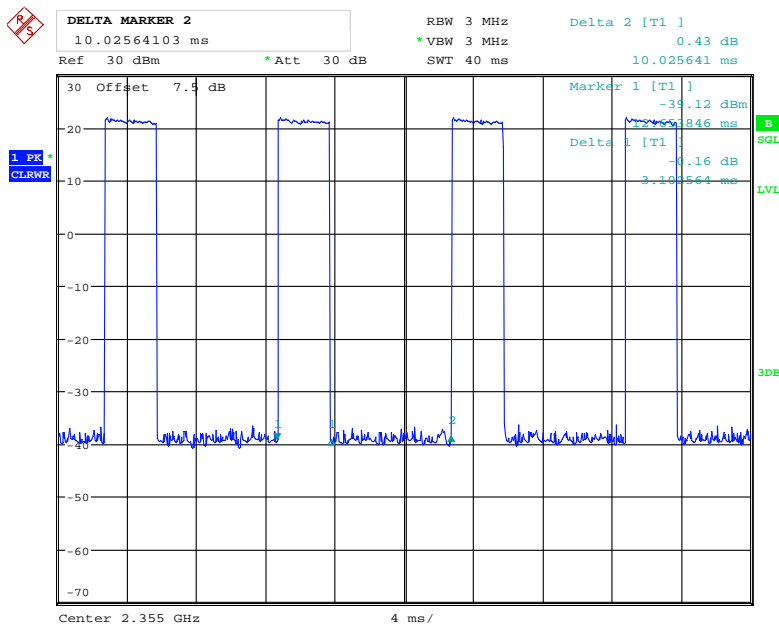9.10⬛564 ms

B
SGL
LVL
3DB

Center 2.31 GHz   4 ms/
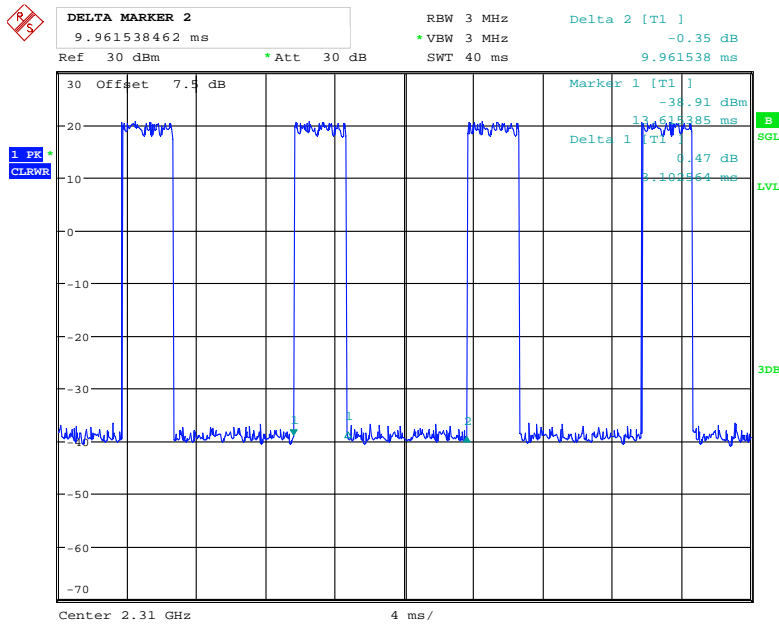
Date: 6.JUL.2020 09:34:52

Band 40(2350-2360MHz)

QPSK, 5MHz

Date: 6.JUL.2020 09:38:53

QPSK, 10MHz
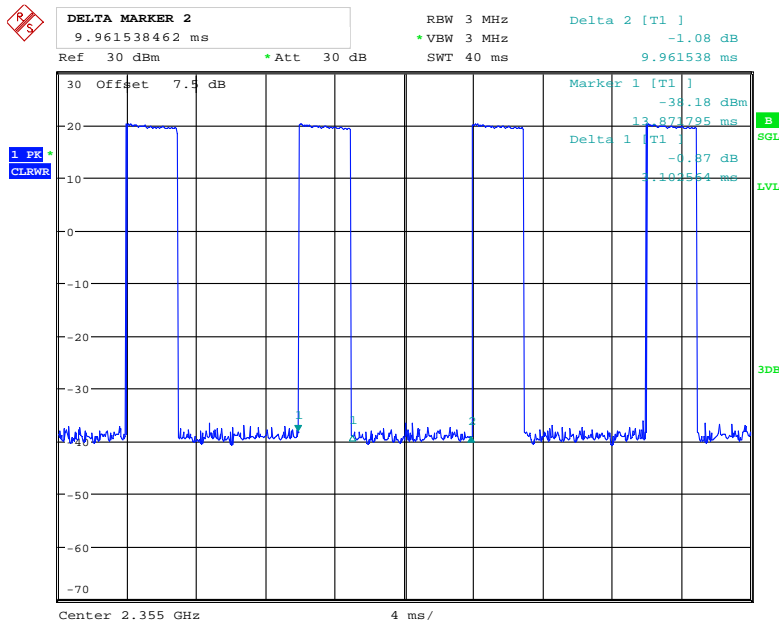
Date: 6.JUL.2020 09:37:16

16-QAM, 5MHz

MARKER 1		RBW 3 MHz	Marker 1 [T1]
15.79487179 ms		*VBW 3 MHz	-38.84 dBm
Ref 30 dBm	*Att 30 dB	SWT 40 ms	15.794872 ms

30 Offset 7.5 dB

Delta 2 [T1]
-0.82 dB
9.96... ms
Delta 1 [T1]
-0.15 dB
3.038462 ms

B SGL
LVL
3DB

Center 2.355 GHz　　　　　　　4 ms/
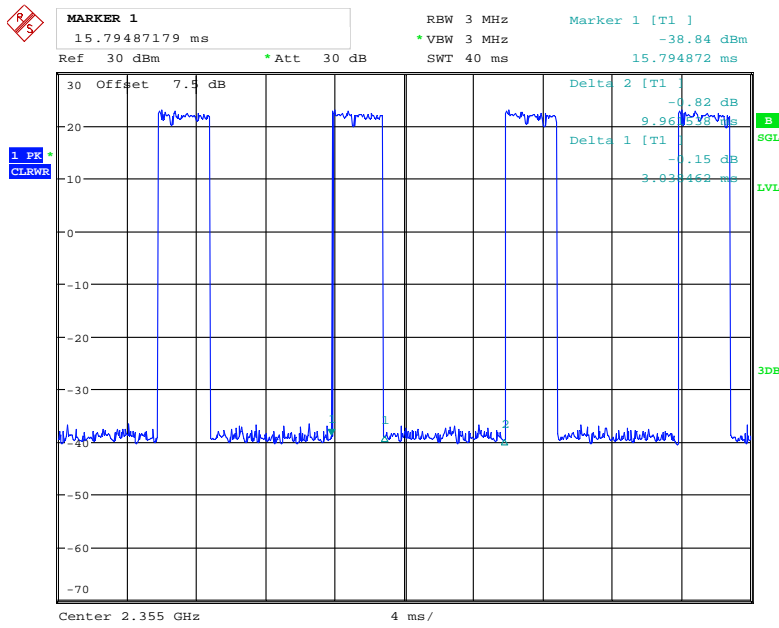
Date: 6.JUL.2020 09:39:45

16-QAM, 10MHz

MARKER 1		RBW 3 MHz	Marker 1 [T1]
17.3974359 ms		*VBW 3 MHz	-40.05 dBm
Ref 30 dBm	*Att 30 dB	SWT 40 ms	17.397436 ms

30 Offset 7.5 dB

Delta 2 [T1]
1.78 dB
9.961538 ms
Delta 1 [T1]
1.09 dB
3.102564 ms

B SGL
LVL
3DB

Center 2.355 GHz　　　　　　　4 ms/
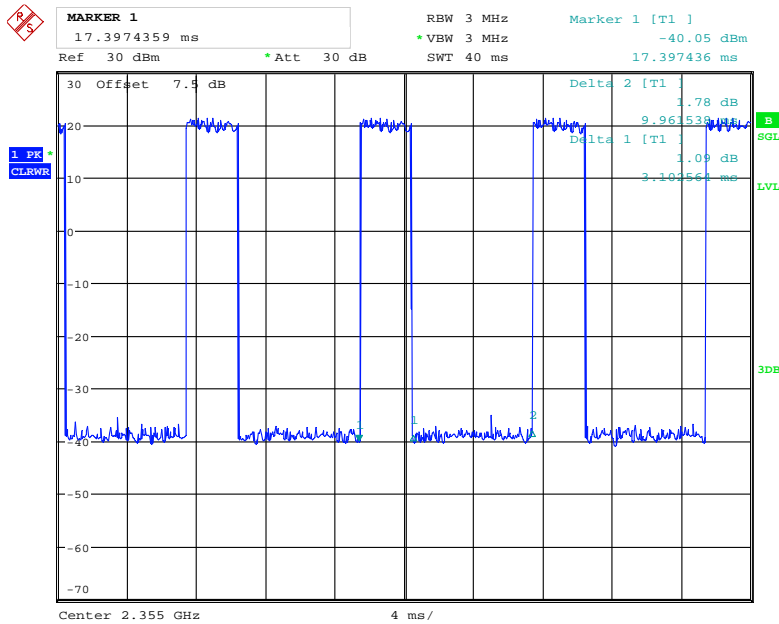
Date: 6.JUL.2020 09:37:52

ERP & EIRP

Part 22H

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
WCDMA R99 Band 5 middle channel								
836.60	H	93.65	18.73	0.00	0.97	17.76	38.45	20.69
836.60	V	89.43	17.64	0.00	0.97	16.67	38.45	21.78

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	89.38	14.45	0.00	0.97	13.48	38.45	24.97
836.50			V	85.97	14.18	0.00	0.97	13.21	38.45	25.24
836.50	3.00		H	88.41	13.48	0.00	0.97	12.51	38.45	25.94
836.50			V	85.80	14.01	0.00	0.97	13.04	38.45	25.41
836.50	5.00		H	88.38	13.45	0.00	0.97	12.48	38.45	25.97
836.50			V	85.58	13.79	0.00	0.97	12.82	38.45	25.63
836.50	10.00		H	87.57	12.64	0.00	0.97	11.67	38.45	26.78
836.50			V	84.26	12.47	0.00	0.97	11.50	38.45	26.95
836.50	1.40	16QAM	H	86.73	11.80	0.00	0.97	10.83	38.45	27.62
836.50			V	85.47	13.68	0.00	0.97	12.71	38.45	25.74
836.50	3.00		H	86.65	11.72	0.00	0.97	10.75	38.45	27.70
836.50			V	85.08	13.29	0.00	0.97	12.32	38.45	26.13
836.50	5.00		H	86.42	11.49	0.00	0.97	10.52	38.45	27.93
836.50			V	84.91	13.12	0.00	0.97	12.15	38.45	26.30
836.50	10.00		H	86.03	11.10	0.00	0.97	10.13	38.45	28.32
836.50			V	84.33	12.54	0.00	0.97	11.57	38.45	26.88

Part 27:
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	85.83	13.22	13.14	3.10	23.26	33.00	9.74
2535.00			V	83.24	12.09	13.14	3.10	22.13	33.00	10.87
2535.00	10.00		H	84.93	12.32	13.14	3.10	22.36	33.00	10.64
2535.00			V	82.07	10.92	13.14	3.10	20.96	33.00	12.04
2535.00	15.00		H	83.84	11.23	13.14	3.10	21.27	33.00	11.73
2535.00			V	81.75	10.60	13.14	3.10	20.64	33.00	12.36
2535.00	20.00		H	82.77	10.16	13.14	3.10	20.20	33.00	12.80
2535.00			V	80.67	9.52	13.14	3.10	19.56	33.00	13.44
2535.00	5.00	16QAM	H	85.33	12.72	13.14	3.10	22.76	33.00	10.24
2535.00			V	83.02	11.87	13.14	3.10	21.91	33.00	11.09
2535.00	10.00		H	85.07	12.46	13.14	3.10	22.50	33.00	10.50
2535.00			V	83.10	11.95	13.14	3.10	21.99	33.00	11.01
2535.00	15.00		H	82.81	10.20	13.14	3.10	20.24	33.00	12.76
2535.00			V	80.12	8.97	13.14	3.10	19.01	33.00	13.99
2535.00	20.00		H	81.72	9.11	13.14	3.10	19.15	33.00	13.85
2535.00			V	79.34	8.19	13.14	3.10	18.23	33.00	14.77

LTE Band 38

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2595.00	5.00	QPSK	H	84.56	12.33	13.20	3.10	22.43	33.00	10.57
2595.00			V	81.79	11.42	13.20	3.10	21.52	33.00	11.48
2595.00	10.00		H	86.39	14.16	13.20	3.10	24.26	33.00	8.74
2595.00			V	84.13	13.76	13.20	3.10	23.86	33.00	9.14
2595.00	15.00		H	82.67	10.44	13.20	3.10	20.54	33.00	12.46
2595.00			V	80.21	9.84	13.20	3.10	19.94	33.00	13.06
2595.00	20.00		H	81.25	9.02	13.20	3.10	19.12	33.00	13.88
2595.00			V	78.78	8.41	13.20	3.10	18.51	33.00	14.49
2595.00	5.00	16QAM	H	84.03	11.80	13.20	3.10	21.90	33.00	11.10
2595.00			V	81.58	11.21	13.20	3.10	21.31	33.00	11.69
2595.00	10.00		H	85.21	12.98	13.20	3.10	23.08	33.00	9.92
2595.00			V	82.67	12.30	13.20	3.10	22.40	33.00	10.60
2595.00	15.00		H	81.53	9.30	13.20	3.10	19.40	33.00	13.60
2595.00			V	78.69	8.32	13.20	3.10	18.42	33.00	14.58
2595.00	20.00		H	80.53	8.30	13.20	3.10	18.40	33.00	14.60
2595.00			V	78.13	7.76	13.20	3.10	17.86	33.00	15.14

LTE Band 40
Lower:

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm/5MHz)	Limit (dBm/5MHz)	Margin (dB)
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2310.00	5.00	QPSK	H	82.79	12.41	11.31	2.98	20.74	24.00	3.26
2310.00			V	79.60	9.90	11.31	2.98	18.23	24.00	5.77
2310.00	10.00		H	82.64	12.26	11.31	2.98	20.59	24.00	3.41
2310.00			V	79.59	9.89	11.31	2.98	18.22	24.00	5.78
2310.00	5.00	16QAM	H	83.88	13.50	11.31	2.98	21.83	24.00	2.17
2310.00			V	80.62	10.92	11.31	2.98	19.25	24.00	4.75
2310.00	10.00		H	84.01	13.63	11.31	2.98	21.96	24.00	2.04
2310.00			V	81.24	11.54	11.31	2.98	19.87	24.00	4.13

Upper:

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm/5MHz)	Limit (dBm/5MHz)	Margin (dB)
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2355.00	5.00	QPSK	H	82.53	11.74	11.81	3.05	20.50	24.00	3.50
2355.00			V	79.12	9.09	11.81	3.05	17.85	24.00	6.15
2355.00	10.00		H	83.03	12.24	11.81	3.05	21.00	24.00	3.00
2355.00			V	79.84	9.81	11.81	3.05	18.57	24.00	5.43
2355.00	5.00	16QAM	H	82.24	11.45	11.81	3.05	20.21	24.00	3.79
2355.00			V	80.17	10.14	11.81	3.05	18.90	24.00	5.10
2355.00	10.00		H	82.79	12.00	11.81	3.05	20.76	24.00	3.24
2355.00			V	81.08	11.05	11.81	3.05	19.81	24.00	4.19

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)			
2600.00	5.00	QPSK	H	82.29	10.09	13.20	3.10	20.19	33.00	12.81
2600.00			V	80.18	9.88	13.20	3.10	19.98	33.00	13.02
2600.00	10.00		H	82.68	10.48	13.20	3.10	20.58	33.00	12.42
2600.00			V	80.51	10.21	13.20	3.10	20.31	33.00	12.69
2600.00	15.00		H	82.29	10.09	13.20	3.10	20.19	33.00	12.81
2600.00			V	80.18	9.88	13.20	3.10	19.98	33.00	13.02
2600.00	20.00		H	82.68	10.48	13.20	3.10	20.58	33.00	12.42
2600.00			V	80.51	10.21	13.20	3.10	20.31	33.00	12.69
2600.00	5.00	16QAM	H	81.86	9.66	13.20	3.10	19.76	33.00	13.24
2600.00			V	79.57	9.27	13.20	3.10	19.37	33.00	13.63
2600.00	10.00		H	82.27	10.07	13.20	3.10	20.17	33.00	12.83
2600.00			V	80.10	9.80	13.20	3.10	19.90	33.00	13.10
2600.00	15.00		H	81.86	9.66	13.20	3.10	19.76	33.00	13.24
2600.00			V	79.57	9.27	13.20	3.10	19.37	33.00	13.63
2600.00	20.00		H	82.27	10.07	13.20	3.10	20.17	33.00	12.83
2600.00			V	80.10	9.80	13.20	3.10	19.90	33.00	13.10

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 & §27.53- OCCUPIED BANDWIDTH
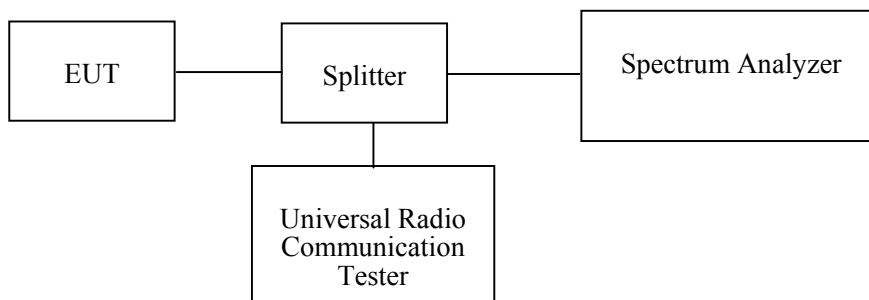
Applicable Standard

FCC §2.1049, §22.917, §22.905, and §27.53.

Test Procedure

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

The 26 dB & 99% bandwidth was recorded.

```
┌─────────┐      ┌─────────┐       ┌──────────────────────┐
│   EUT   │──────│ Splitter│───────│  Spectrum Analyzer   │
└─────────┘      └────┬────┘       └──────────────────────┘
                      │
              ┌───────────────┐
              │ Universal Radio│
              │ Communication │
              │    Tester     │
              └───────────────┘
```

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU 26	200256	2020-05-09	2021-05-09
E-Microwave	Two-way Spliter	ODP-1-6-2S	OE0120142	Each Time	N/A
Unknown	Coaxial Cable	C-SJ00-0010	C0010/04	Each time	N/A
E-Microwave	Blocking Control	EMDCB-00036	0E01201048	Each time	N/A
E-Microwave	Coaxial Attenuators	EMCA10-5RN-6	OE01203239	Each time	N/A

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

Test Data

  Environmental Conditions

|	
Temperature:	26.9°C~ 29 °C
Relative Humidity:	55%~68 %
ATM Pressure:	99.8kPa ~100.9kPa
Tester:	Chris Mo
Test Date:	2020-06-11~2020-07-04

  Test Mode: Transmitting

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

Band	Test Channel	Mode	99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)
WCDMA Band V	M	Rel 99	4.140	4.760
		HSDPA	4.380	6.680
		HSUPA	4.460	7.400

| Band	Bandwidth	Modulation	99% occupied bandwidth (MHz)	26 dB bandwidth (MHz)
LTE Band 5	1.4 MHz	QPSK	1.104	1.314
		16QAM	1.098	1.308
	3 MHz	QPSK	2.700	2.928
		16QAM	2.700	2.964
	5 MHz	QPSK	4.520	5.000
		16QAM	4.500	5.000
	10 MHz	QPSK	8.960	9.680
		16QAM	8.960	9.680
LTE Band 7	5 MHz	QPSK	4.520	5.020
		16QAM	4.540	5.080
	10 MHz	QPSK	8.920	9.680
		16QAM	8.920	9.640
	15 MHz	QPSK	13.500	14.700
		16QAM	13.500	14.820
	20 MHz	QPSK	17.920	19.280
		16QAM	17.920	19.440
LTE Band 38	5 MHz	QPSK	4.500	4.960
		16QAM	4.500	5.020
	10 MHz	QPSK	8.960	10.000
		16QAM	8.960	9.600
	15 MHz	QPSK	13.560	16.380
		16QAM	13.560	16.980
	20 MHz	QPSK	18.000	19.680
		16QAM	18.000	19.680
LTE Band 40 Lower	5 MHz	QPSK	4.500	5.026
		16QAM	4.520	5.242
	10 MHz	QPSK	8.960	9.837
		16QAM	8.920	9.647
LTE Band 40 Upper	5 MHz	QPSK	4.540	6.000
		16QAM	4.540	6.380
	10 MHz	QPSK	9.000	11.720
		16QAM	9.000	9.800
LTE Band 41	5 MHz	QPSK	4.540	4.960
		16QAM	4.520	5.020
	10 MHz	QPSK	8.960	9.920
		16QAM	8.960	9.600
	15 MHz	QPSK	13.560	16.020
		16QAM	13.560	16.320
	20 MHz	QPSK	17.920	19.280
		16QAM	17.920	19.440

WCDMA Band 5 Rel 99
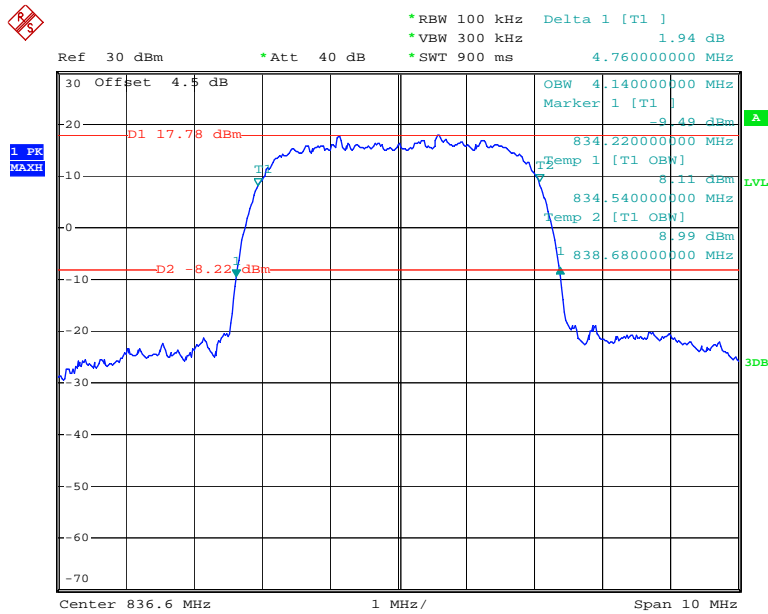
Date: 3.JUL.2020 19:03:24

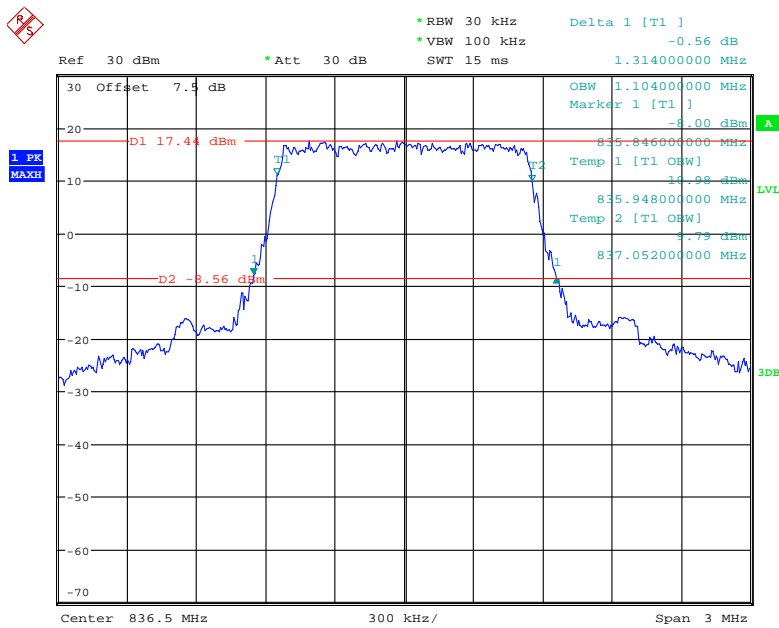## WCDMA Band 5 HSDPA
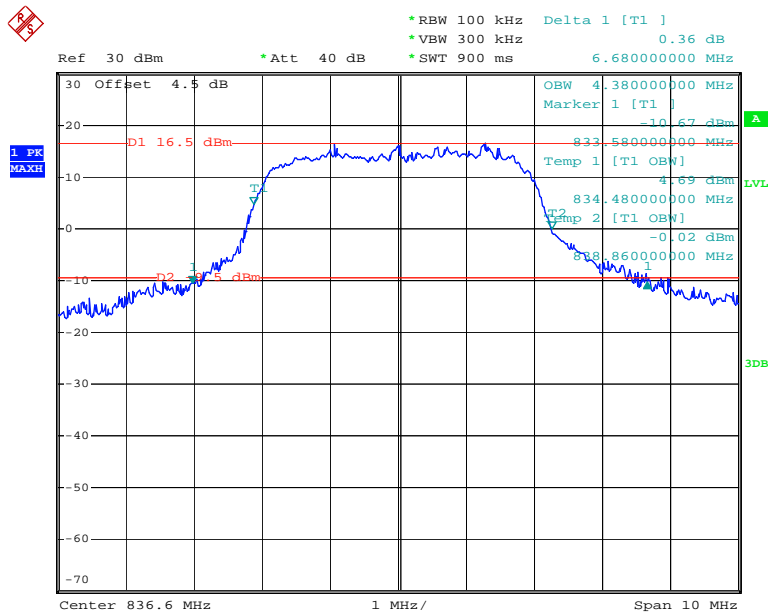
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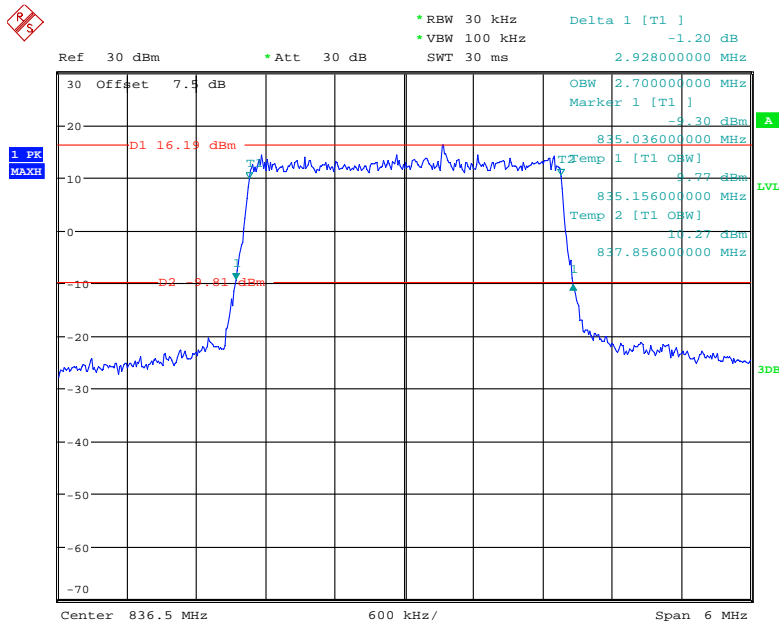
WCDMA Band 5 HSUPA
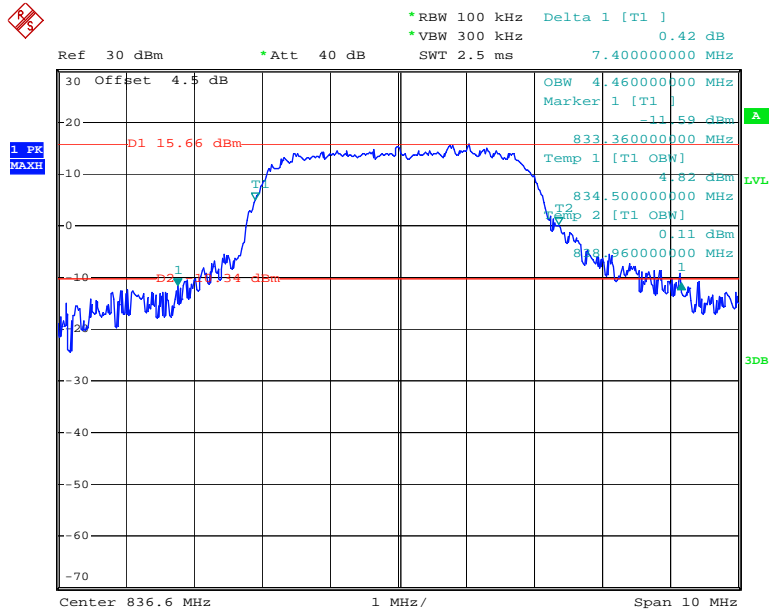
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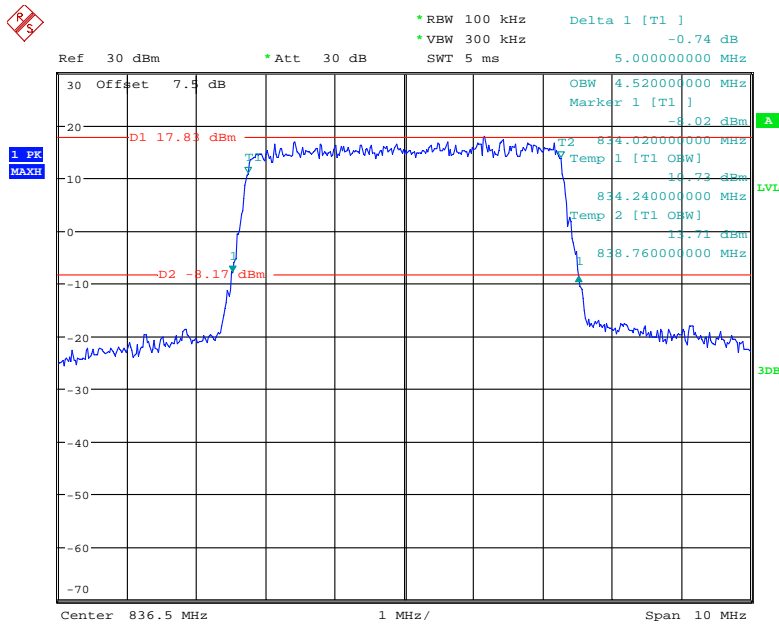
LTE Band 5:

QPSK_1.4 MHz

Date: 11.JUN.2020 12:07:34

QPSK_3 MHz

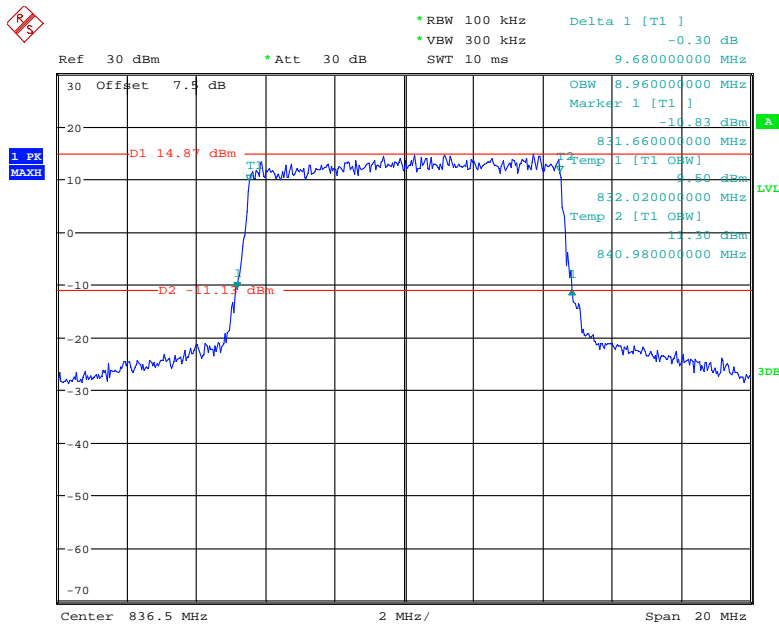Date: 11.JUN.2020 12:08:19
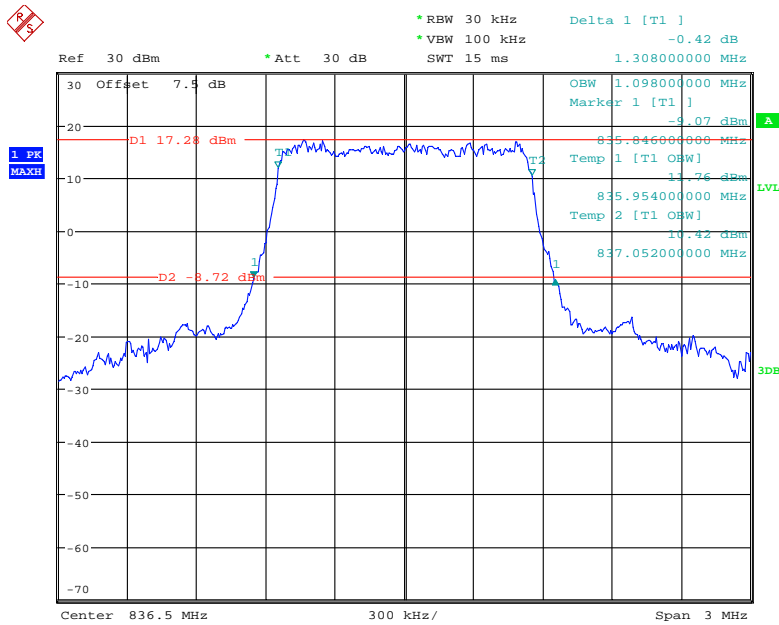
QPSK_5 MHz

Date: 11.JUN.2020 12:09:03

QPSK_10 MHz

Date: 11.JUN.2020 12:09:48
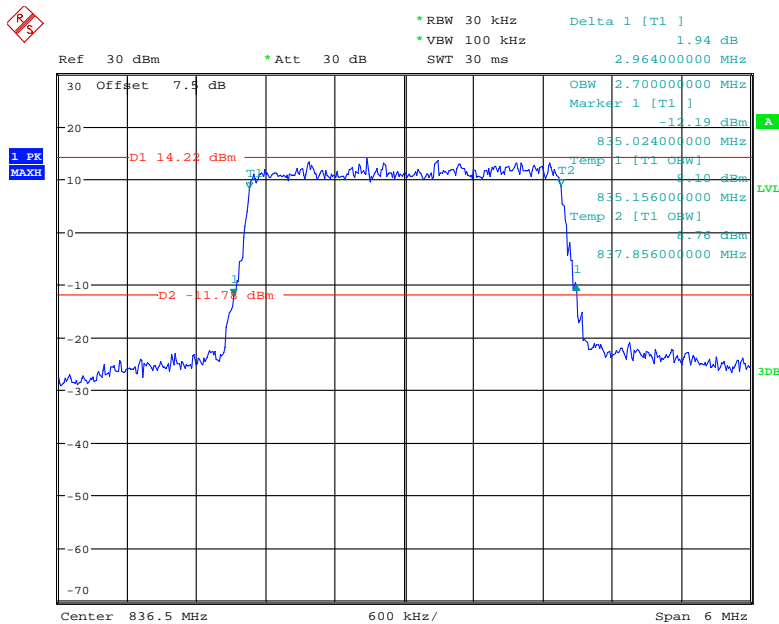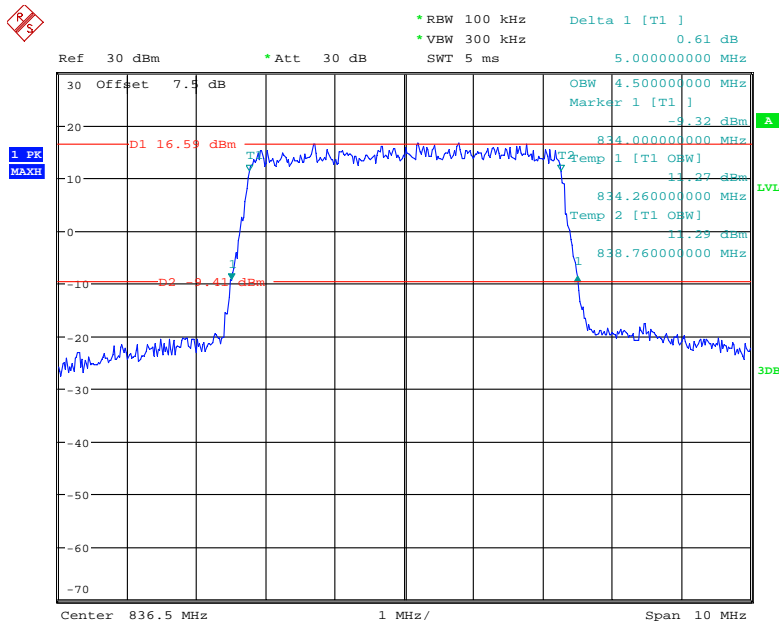
16QAM_1.4 MHz
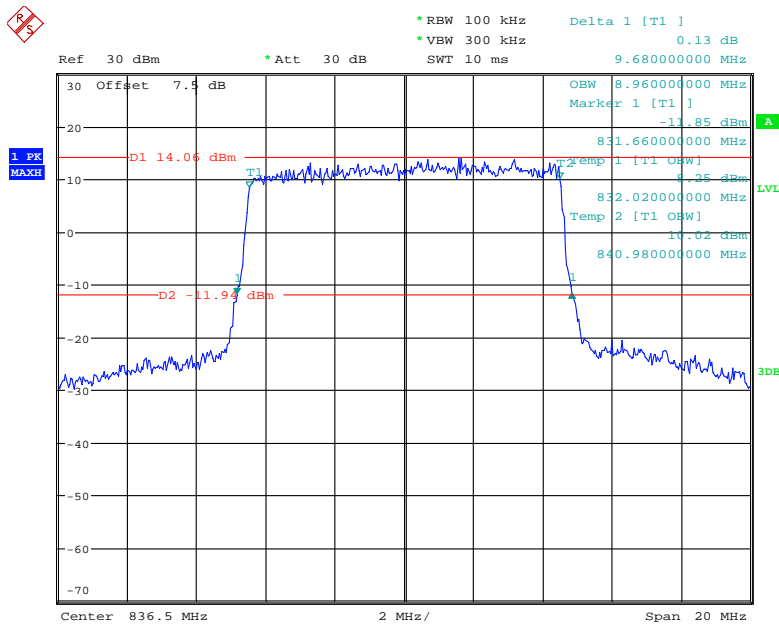

Date: 11.JUN.2020 12:07:55

16QAM_3 MHz

Date: 11.JUN.2020 12:08:36

16QAM_5 MHz

Date: 11.JUN.2020 12:09:24

16QAM_10 MHz

Date: 11.JUN.2020 12:10:10

LTE Band 7:

QPSK_5 MHz
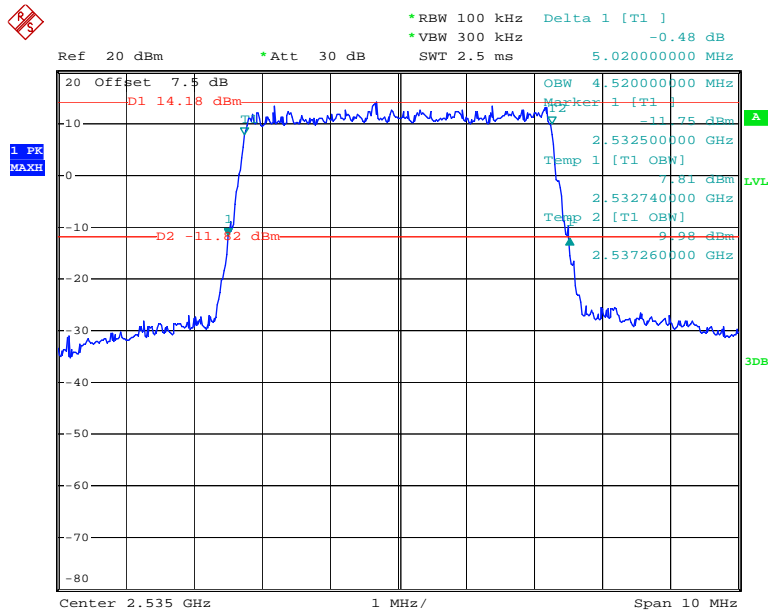
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QPSK_10 MHz

Date: 4.JUL.2020 14:32:36

QPSK_15 MHz
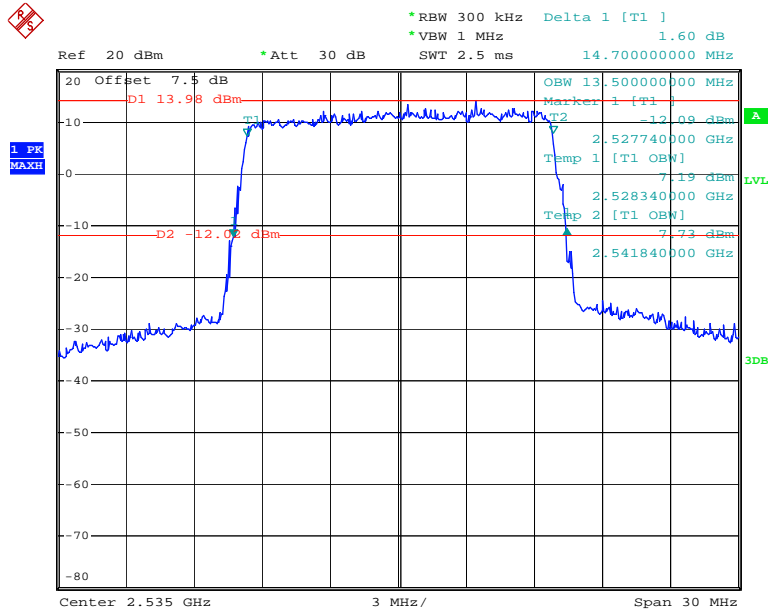
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QPSK_20 MHz

Date: 4.JUL.2020 14:34:16

16QAM_5 MHz

Date: 4.JUL.2020 14:32:10

16QAM_10 MHz

Date: 4.JUL.2020 14:33:00

16QAM_15 MHz

Date: 4.JUL.2020 14:33:49

16QAM_20 MHz

Date: 4.JUL.2020 14:34:44

LTE Band 38:

QPSK_5 MHz

Date: 11.JUN.2020 12:15:10

QPSK_10 MHz
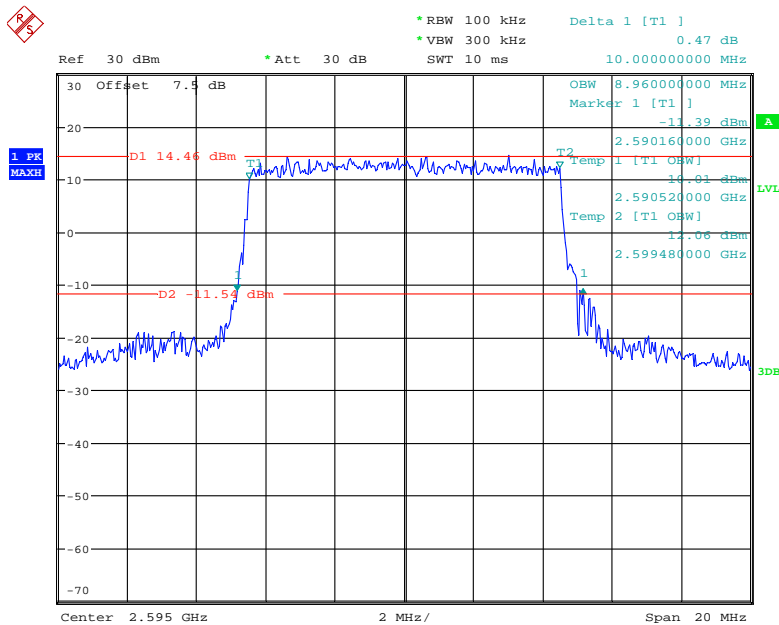
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QPSK_15 MHz

```
                                    * RBW  300 kHz      Delta 1 [T1 ]
                                    * VBW  1 MHz                    0.09 dB
     Ref   30 dBm        * Att  30 dB    SWT 2.5 ms       16.380000000 MHz
 30  Offset   7.5  dB                        OBW 13.560000000 MHz
                                             Marker 1 [T1 ]
                                                          -7.29 dBm   A
-20   D1 18.53 dBm                           2.587260000 GHz
                                             Temp 1 [T1 OBW]
 10                                                       13.18 dBm   LVL
                                             2.588280000 GHz
  0                                          Temp 2 [T1 OBW]
                                                          11.34 dBm
-10   D2 -7.47 dBm                           2.601840000 GHz

-20                                                                   3DB

-30

-40

-50

-60

-70
     Center  2.595 GHz          3 MHz/              Span  30 MHz
```
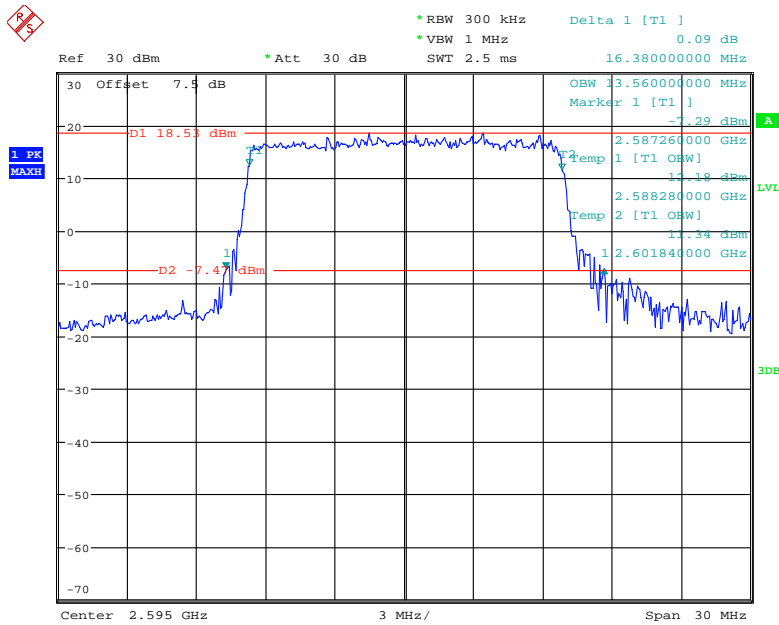
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QPSK_20 MHz

```
                                    * RBW  300 kHz      Delta 1 [T1 ]
                                    * VBW  1 MHz                   -0.61 dB
     Ref   30 dBm        * Att  30 dB    SWT 2.5 ms       19.680000000 MHz
 30  Offset   7.5  dB                        OBW 18.000000000 MHz
                                             Marker 1 [T1 ]
                                                          -9.09 dBm   A
 20   D1 16.89 dBm                           2.585000000 GHz
                                             Temp 1 [T1 OBW]
 10                                                       11.91 dBm   LVL
                                             2.586040000 GHz
  0                                          Temp 2 [T1 OBW]
                                                          12.05 dBm
-10   D2 -9.11 dBm                           2.604040000 GHz

                                                                      3DB
-30

-40

-50

-60

-70
     Center  2.595 GHz          4 MHz/              Span  40 MHz
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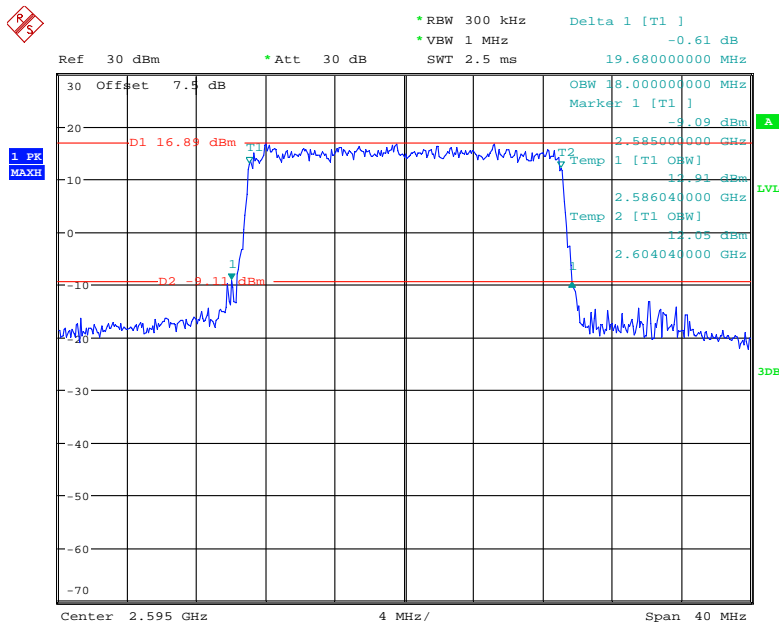
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16QAM_5 MHz

Date: 11.JUN.2020 12:15:37

16QAM_10 MHz
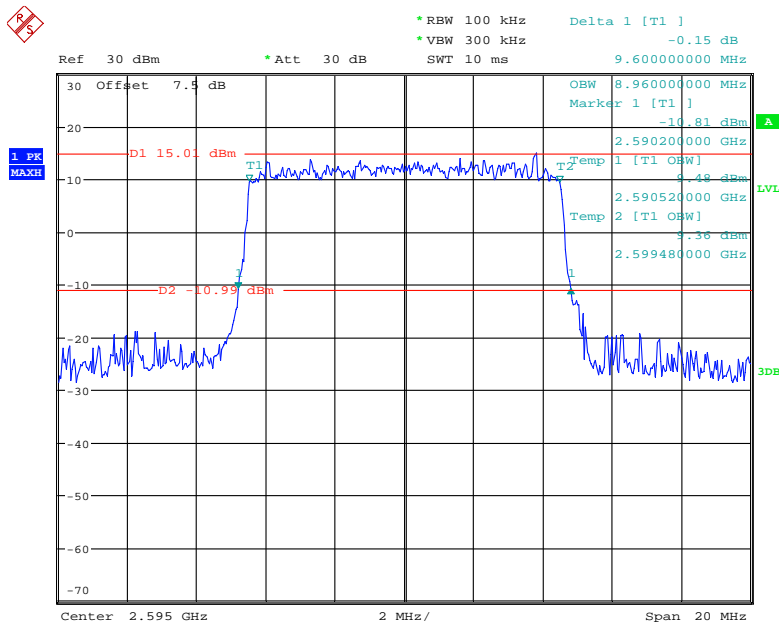
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16QAM_15 MHz

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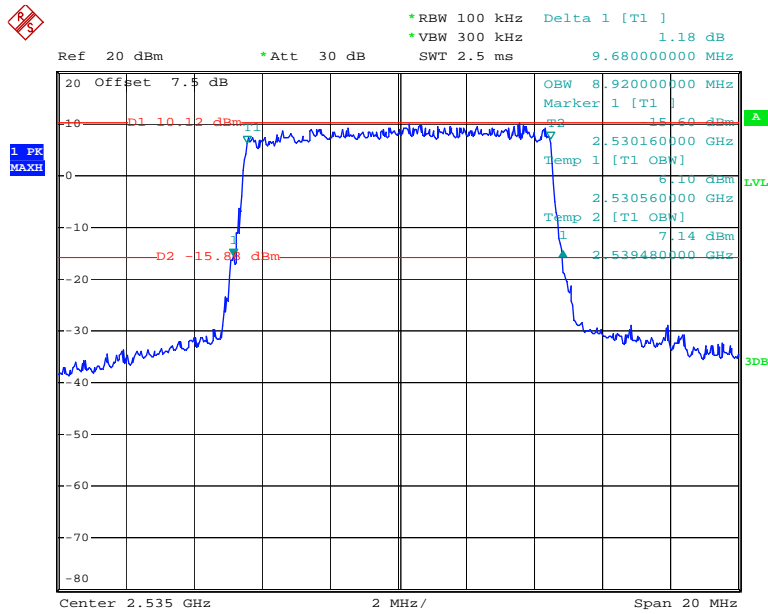
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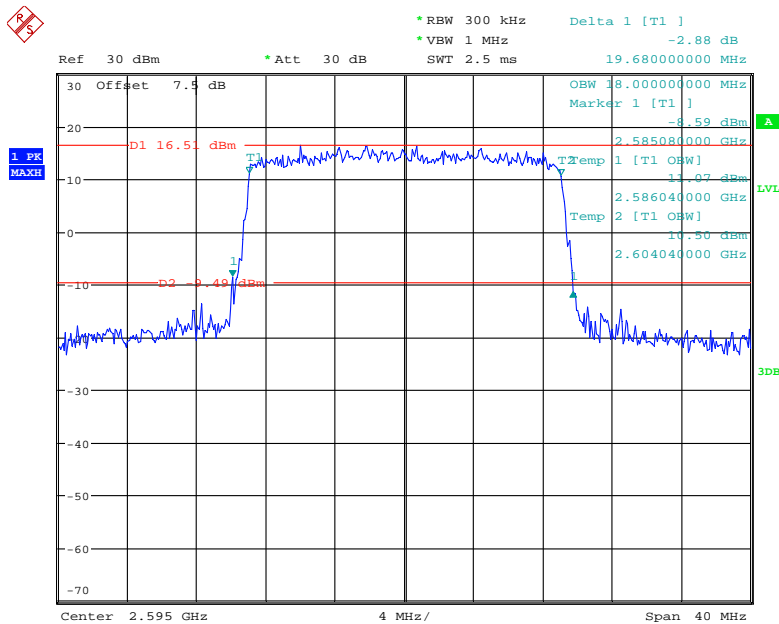
Date: 11.JUN.2020 12:18:32

LTE Band 40
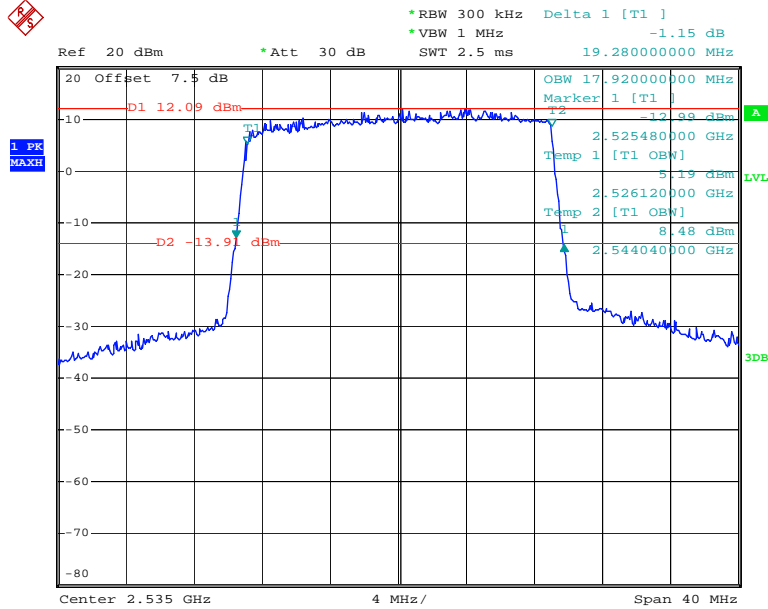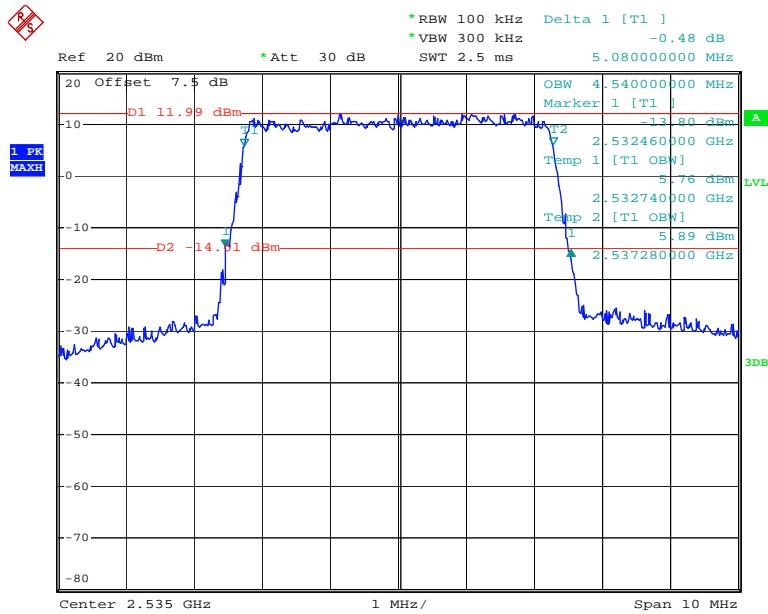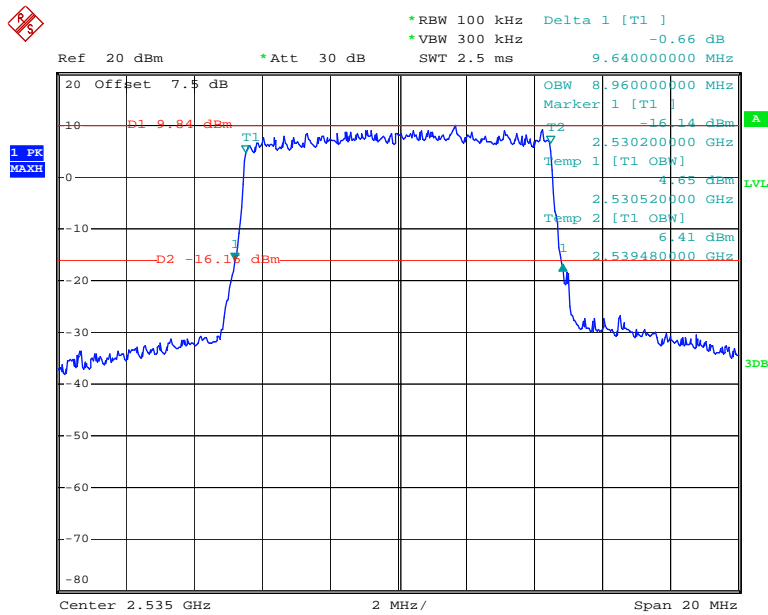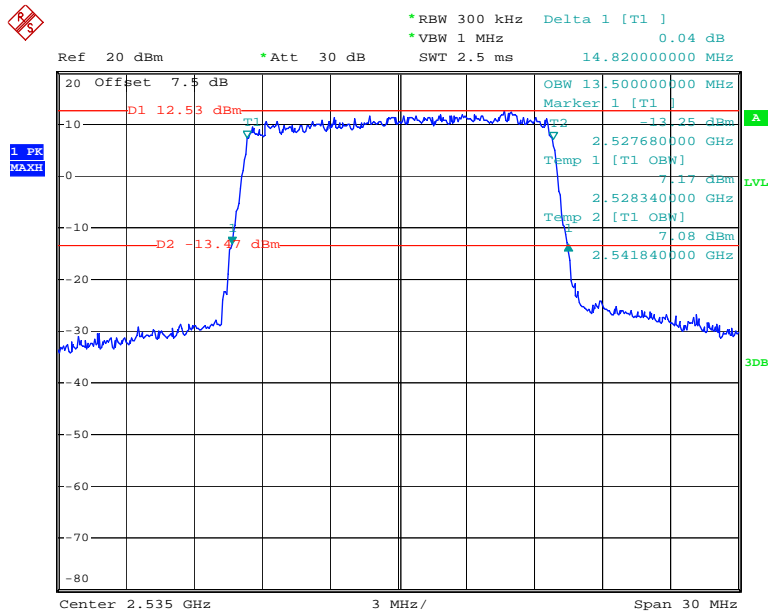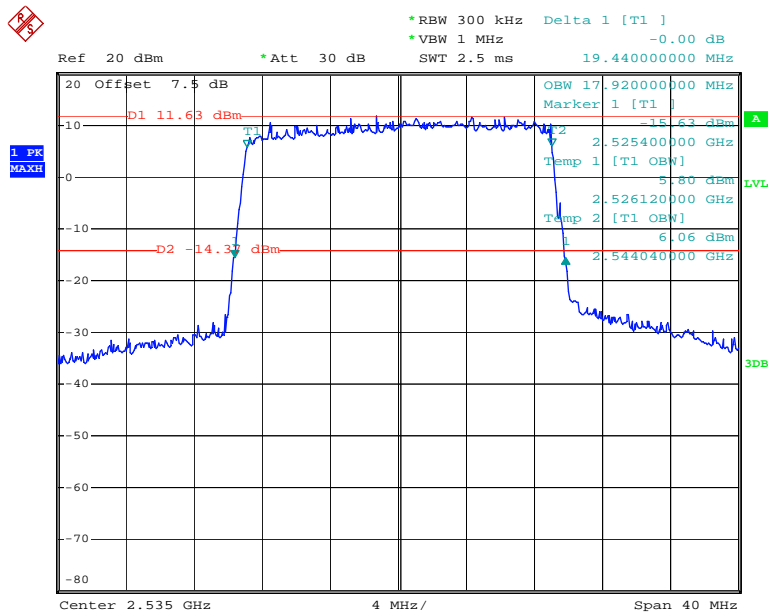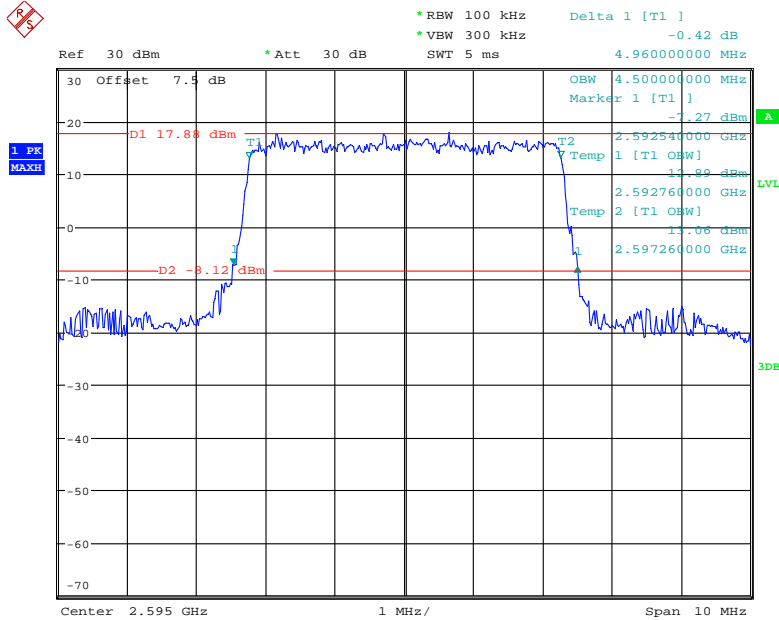**Lower:**

QPSK_5 MHz

Date: 11.JUN.2020 16:09:46

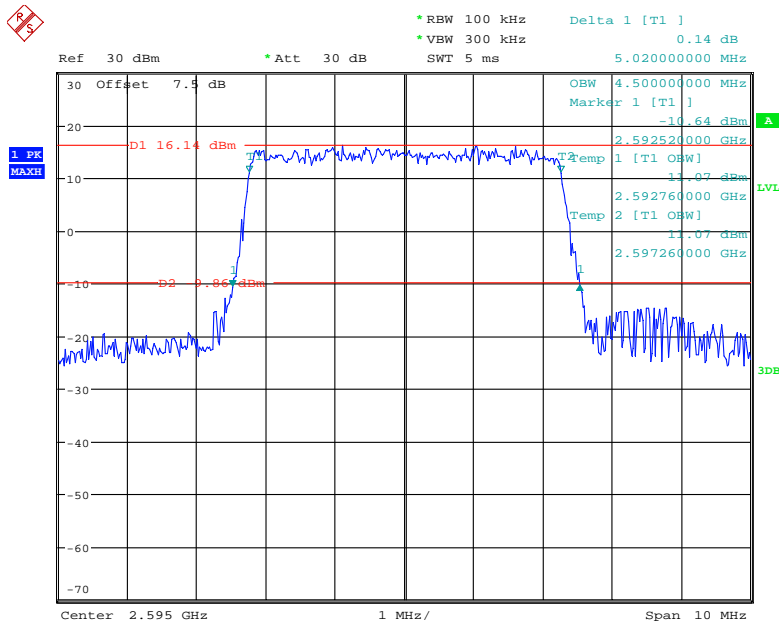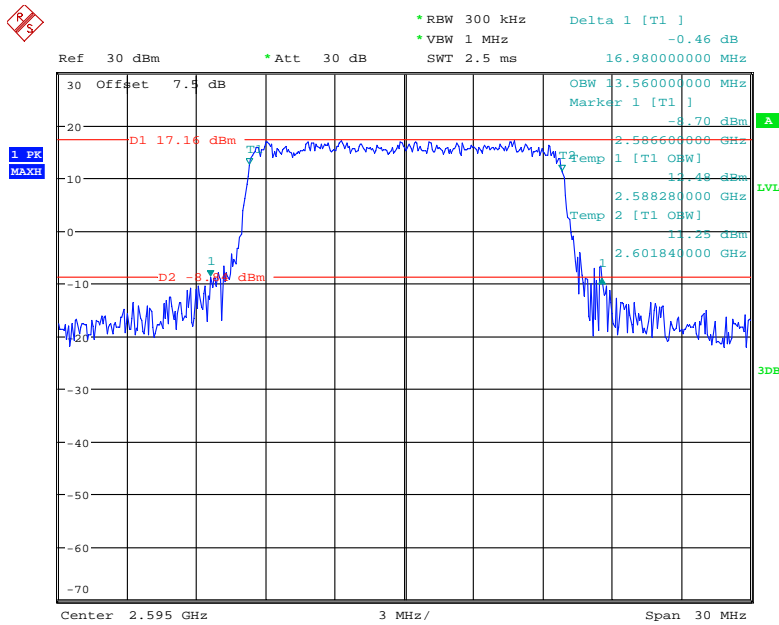### QPSK_10 MHz

Date: 11.JUN.2020 16:05:10

16QAM_5 MHz
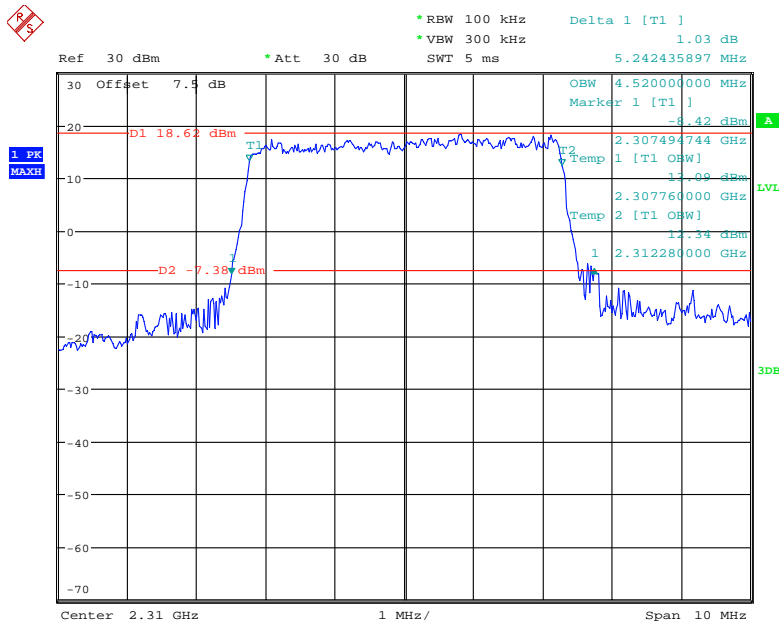
Date: 11.JUN.2020 16:08:13

16QAM_10 MHz
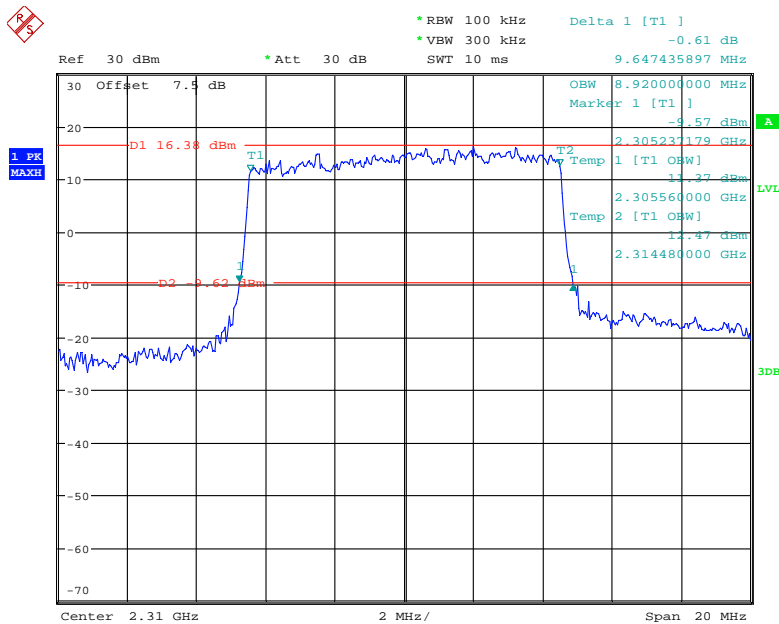
Date: 11.JUN.2020 16:03:09

Upper:

QPSK_5 MHz
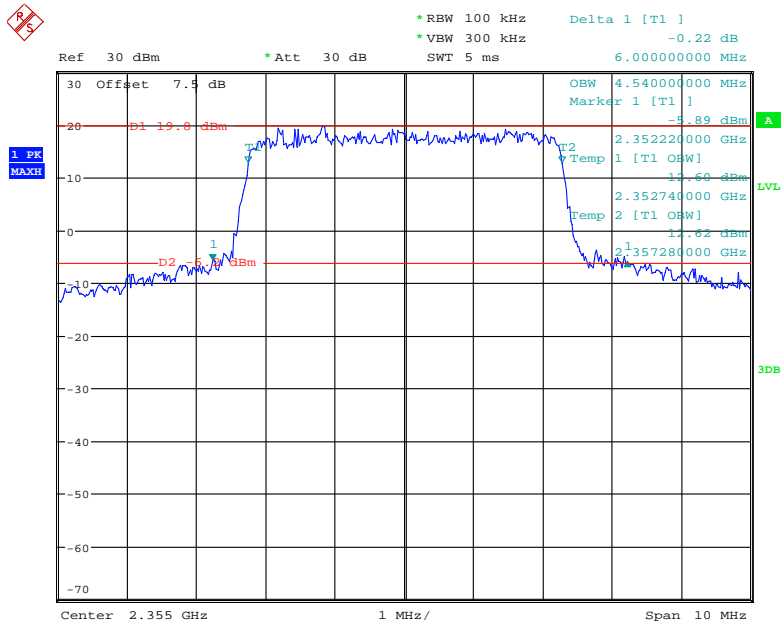
Date: 11.JUN.2020 15:16:45

QPSK_10 MHz
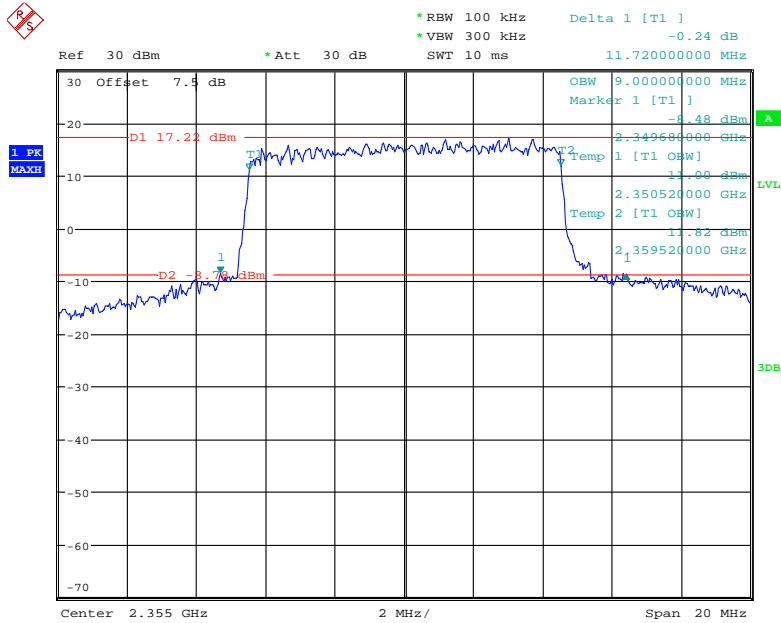
Date: 11.JUN.2020 15:18:13

16QAM_5 MHz

		*RBW 100 kHz	Delta 1 [T1]
		*VBW 300 kHz	0.30 dB
Ref 30 dBm	*Att 30 dB	SWT 5 ms	6.380000000 MHz

```
30 Offset  7.5 dB                          OBW  4.540000000 MHz
                                           Marker 1 [T1 ]
-20 ─────────────────────────────────────────────-6.87 dBm      A
    D1 19.2 dBm                                   2.352120000 GHz
        T1                               T2  Temp 1 [T1 OBW]
 10                                                      12.25 dBm
                                             2.352740000 GHz     LVL
                                             Temp 2 [T1 OBW]
  0                                                      12.91 dBm
                                             2.357280000 GHz
            1
-10 D2 -8.8 dBm
-20
                                                                 3DB
-30
-40
-50
-60
-70
Center  2.355 GHz          1 MHz/              Span  10 MHz
```
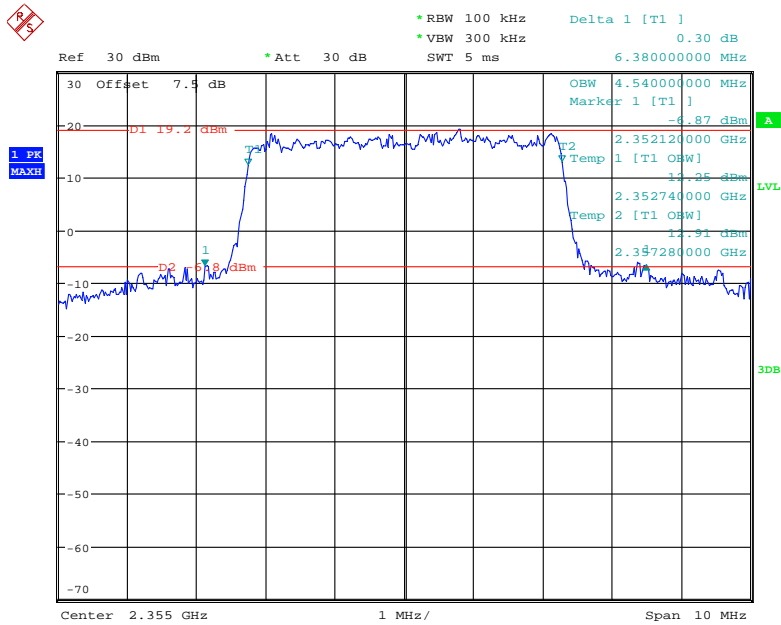
Date: 11.JUN.2020 15:17:24

16QAM_10 MHz

		*RBW 100 kHz	Delta 1 [T1]
		*VBW 300 kHz	-0.20 dB
Ref 30 dBm	*Att 30 dB	SWT 10 ms	9.800000000 MHz

```
30 Offset  7.5 dB                          OBW  9.000000000 MHz
                                           Marker 1 [T1 ]
-20 ─────────────────────────────────────────────-7.91 dBm      A
    D1 17.94 dBm                                  2.350200000 GHz
        T1                               T2  Temp 1 [T1 OBW]
 10                                                      10.47 dBm
                                             2.350520000 GHz     LVL
                                             Temp 2 [T1 OBW]
  0                                                      11.31 dBm
            1                        1       2.359520000 GHz
-10 D2 -8.06 dBm
-20
                                                                 3DB
-30
-40
-50
-60
-70
Center  2.355 GHz          2 MHz/              Span  20 MHz
```
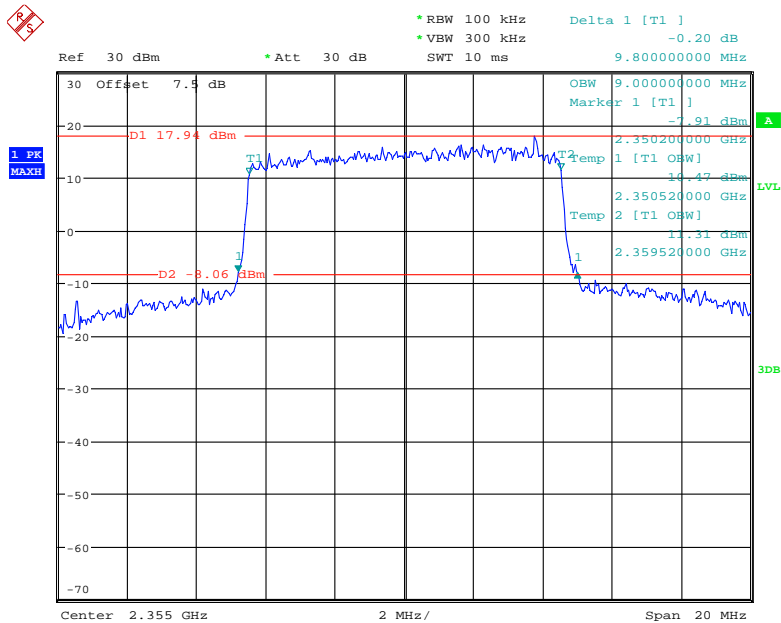
Date: 11.JUN.2020 15:18:57

LTE Band 41:

QPSK_5 MHz
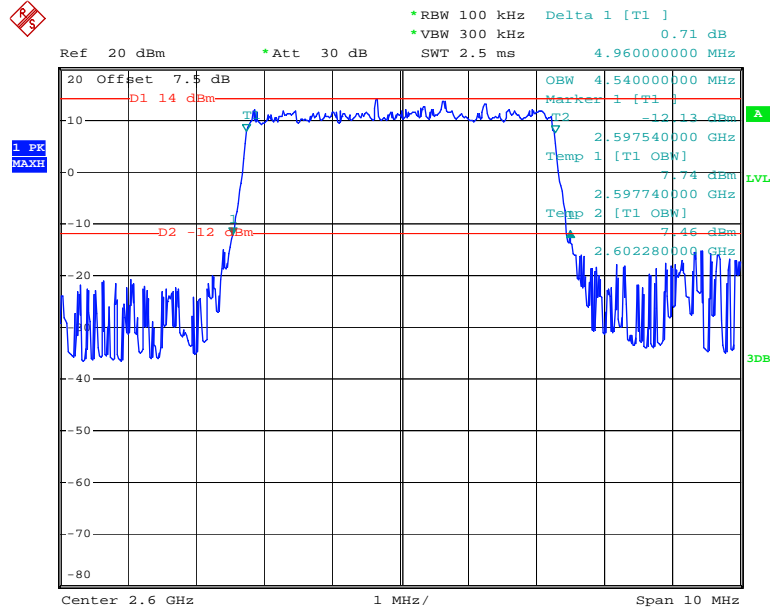
Date: 4.JUL.2020 11:04:44

QPSK_10 MHz

Date: 4.JUL.2020 11:05:52

QPSK_15 MHz
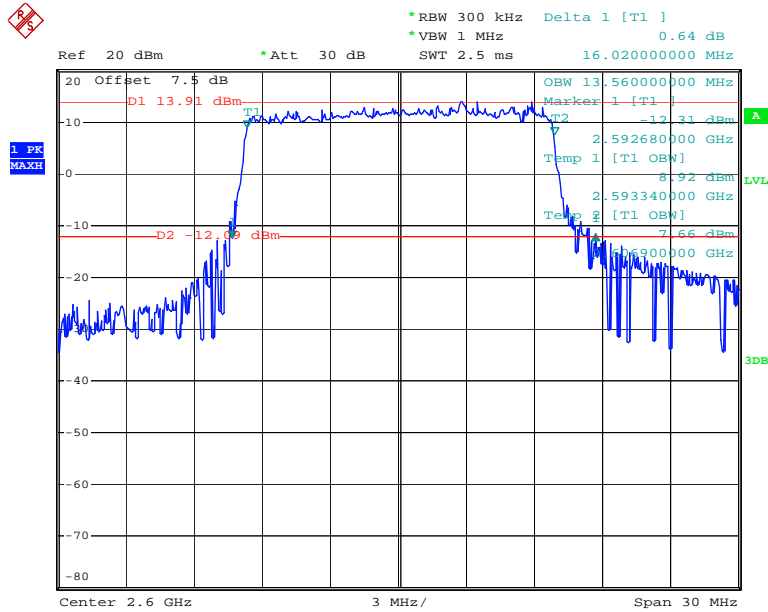
Date: 4.JUL.2020 11:07:06

QPSK_20 MHz
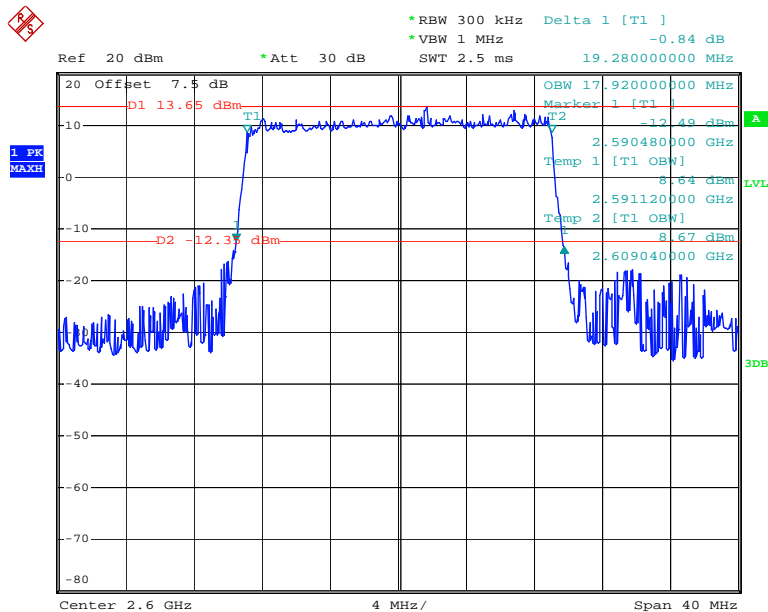
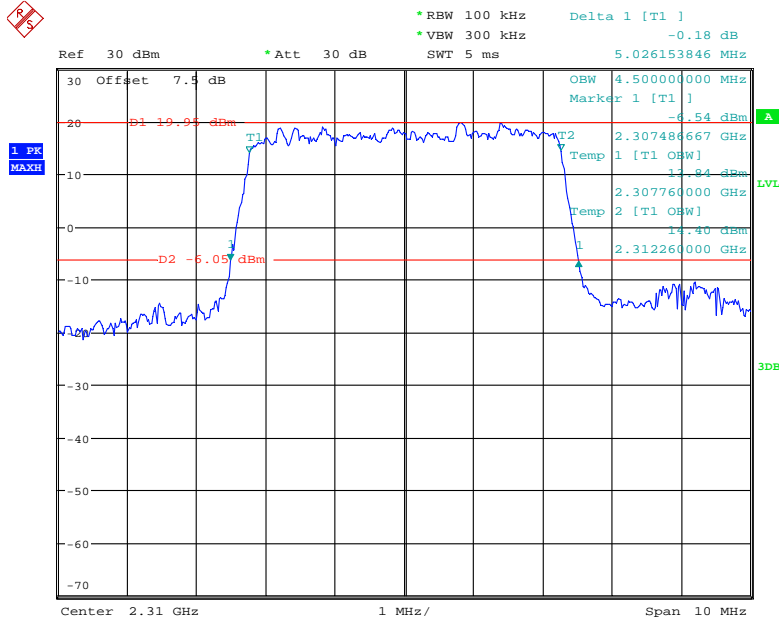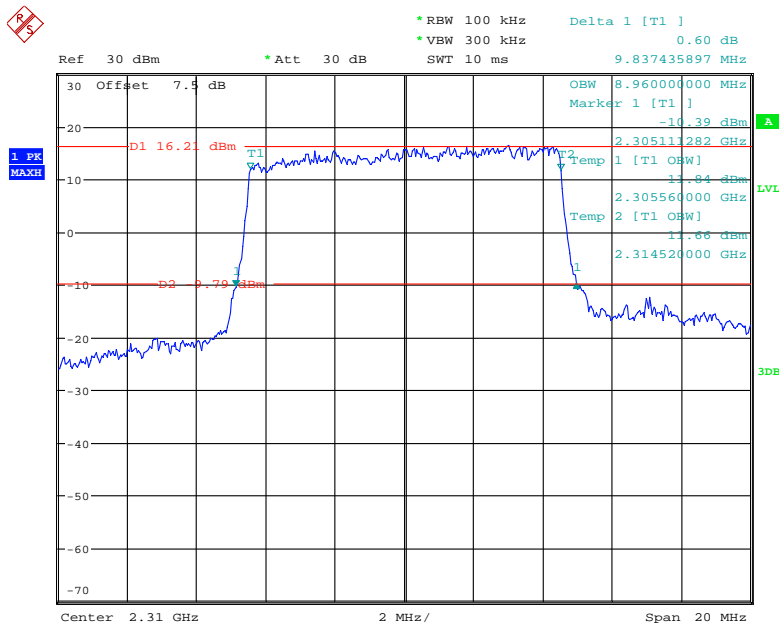Date: 4.JUL.2020 11:08:23

16QAM_5 MHz
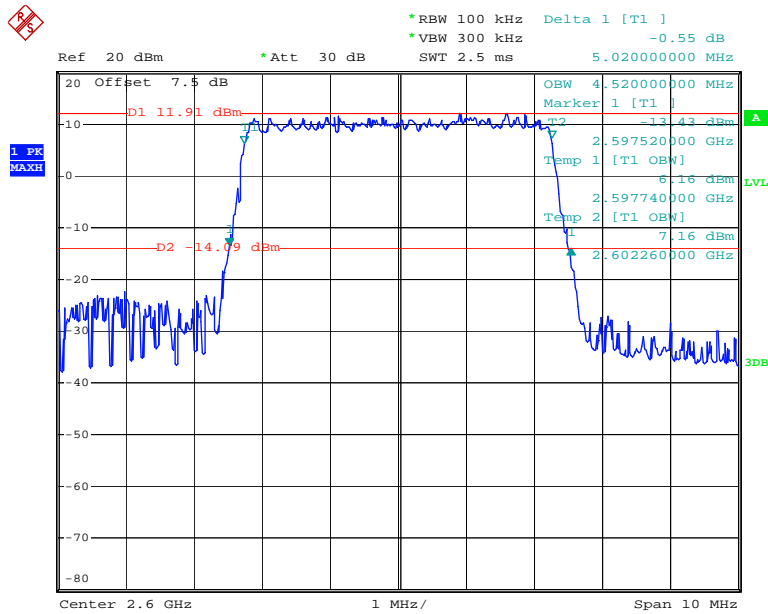
Date: 4.JUL.2020 11:05:15

16QAM_10 MHz
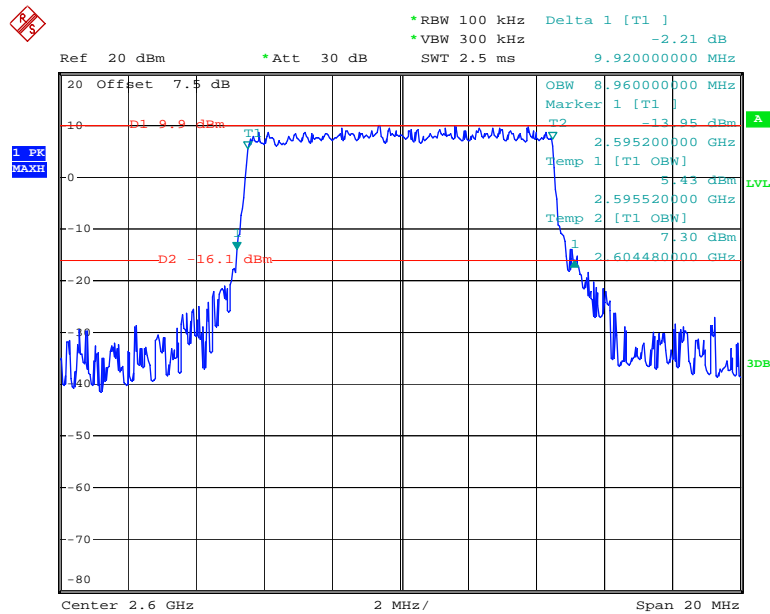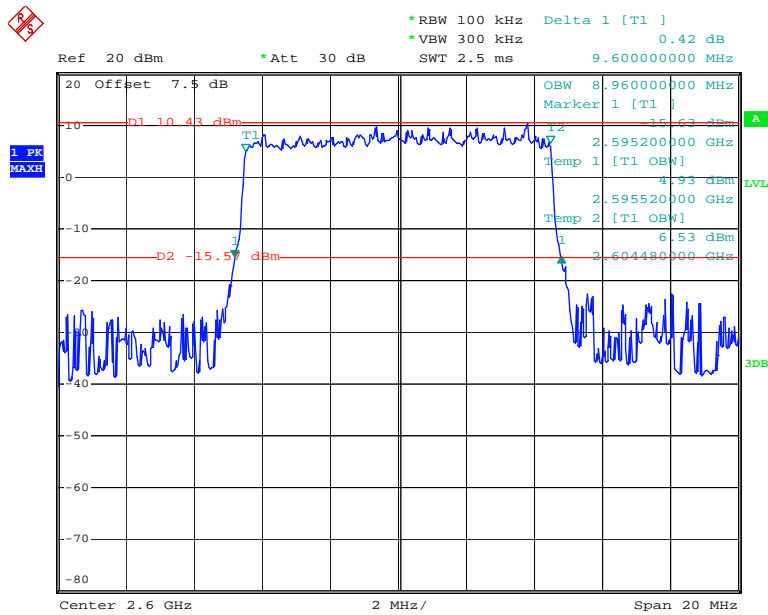

Date: 4.JUL.2020 11:06:24

16QAM_15 MHz
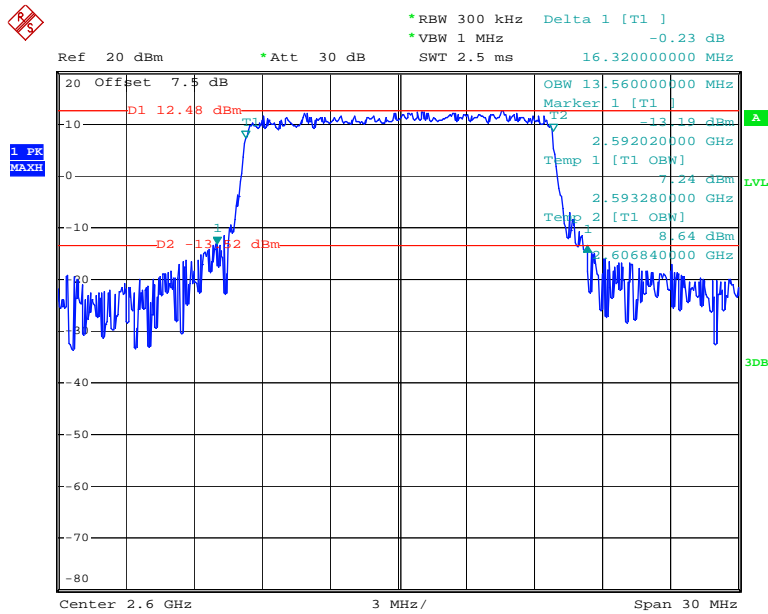
Date: 4.JUL.2020 11:07:49

16QAM_20 MHz
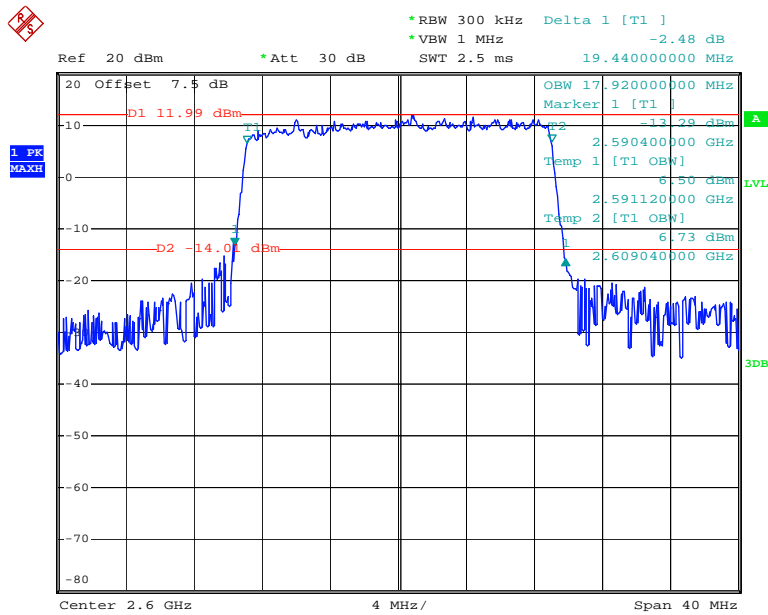
Date: 4.JUL.2020 11:09:00

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

Applicable Standard

FCC §2.1051, §22.917(a), and §27.53.

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

Test Procedure

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

```
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	FSU 26	200256	2020-05-09	2021-05-09
E-Microwave	Two-way Spliter	ODP-1-6-2S	OE0120142	Each Time	N/A
Unknown	Coaxial Cable	C-SJ00-0010	C0010/04	Each time	N/A
E-Microwave	Blocking Control	EMDCB-00036	0E01201048	Each time	N/A
E-Microwave	Coaxial Attenuators	EMCA10-5RN-6	OE01203239	Each time	N/A

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

Test Data

Environmental Conditions

Temperature:	26.9~29 °C
Relative Humidity:	55~68%
ATM Pressure:	99.8~100.9kPa
Tester:	Chris Mo
Test Date:	2020-06-11~2020-07-04

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

WCDMA Band 5 Rel 99 Middle Channel
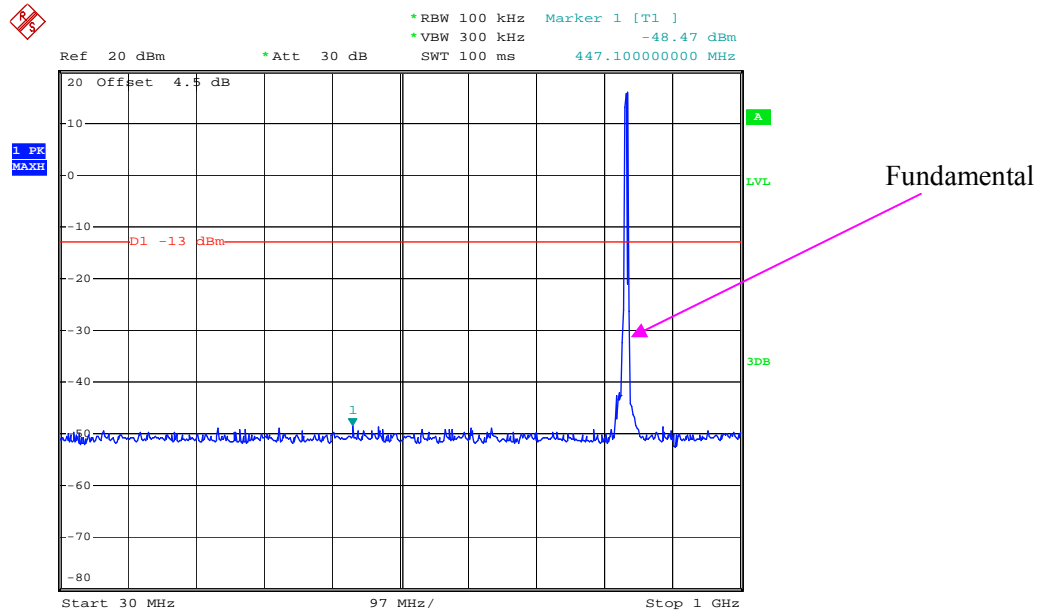
Fundamental

Date: 3.JUL.2020 19:00:46
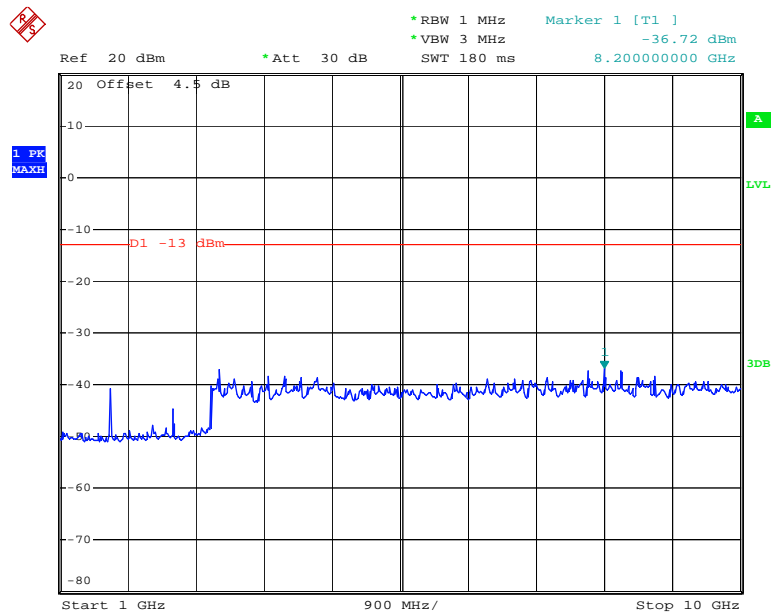
Date: 3.JUL.2020 19:01:17

LTE Band 5 (Middle Channel)

QPSK_1.4 MHz

```
                                    *RBW  100 kHz    Marker 1 [T1 ]
                                    *VBW  300 kHz              -44.78 dBm
         Ref   30 dBm       *Att  30 dB   SWT 100 ms     350.100000000 MHz
```

Fundamental

Start 30 MHz   97 MHz/   Stop 1 GHz

Date: 11.JUN.2020 12:55:18

```
                                    *RBW  1 MHz     Marker 1 [T1 ]
                                    *VBW  3 MHz               -32.61 dBm
         Ref   20 dBm       *Att  30 dB   SWT 55 ms     3.160000000 GHz
```

Start 1 GHz   900 MHz/   Stop 10 GHz
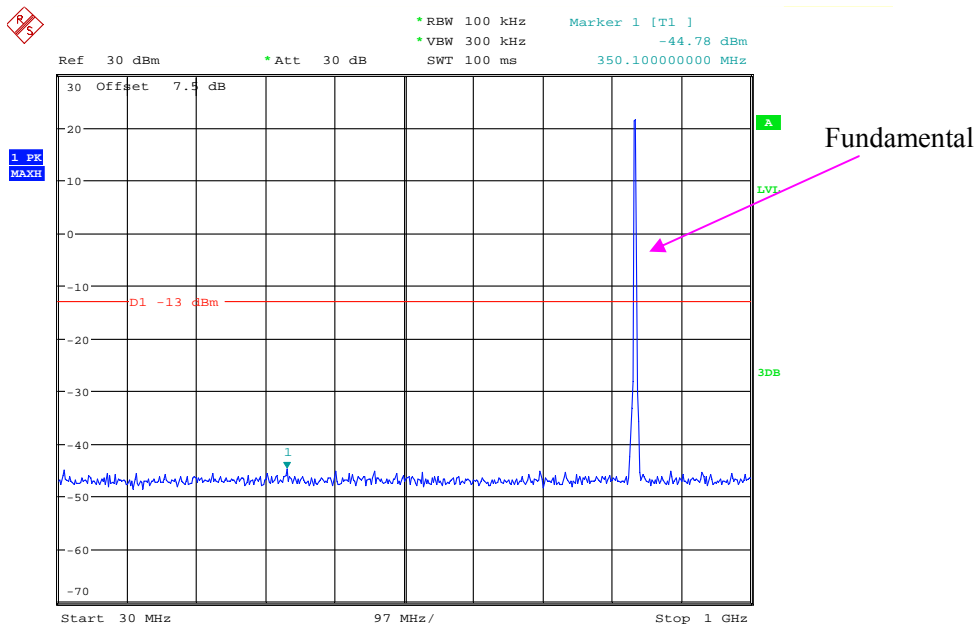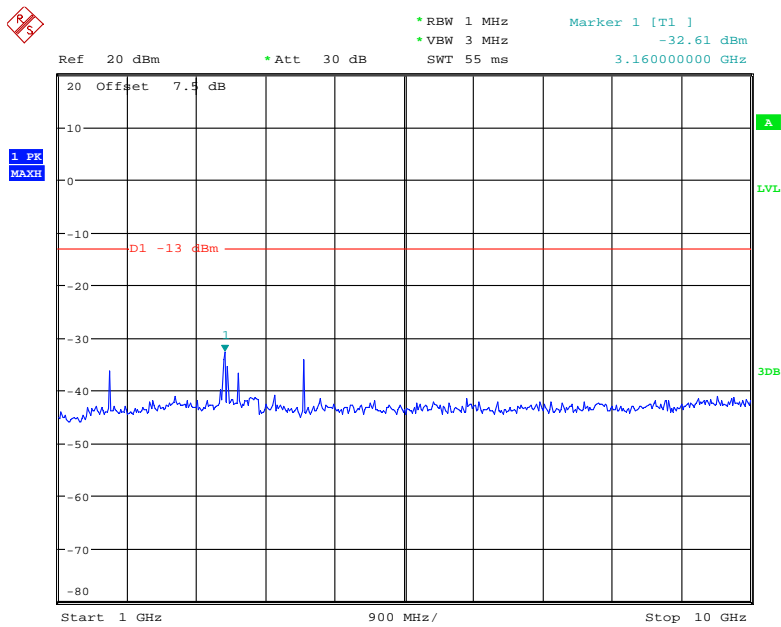
Date: 11.JUN.2020 12:55:30

QPSK_3 MHz

```
                                    *RBW 100 kHz      Marker 1 [T1 ]
                                    *VBW 300 kHz                -39.56 dBm
        Ref  30 dBm        *Att  30 dB    SWT 100 ms        825.400000000 MHz
```


Fundamental

Date: 11.JUN.2020 12:55:52

```
                                    *RBW  1 MHz       Marker 1 [T1 ]
                                    *VBW  3 MHz                -32.75 dBm
        Ref  20 dBm        *Att  30 dB    SWT 55 ms         3.142000000 GHz
```
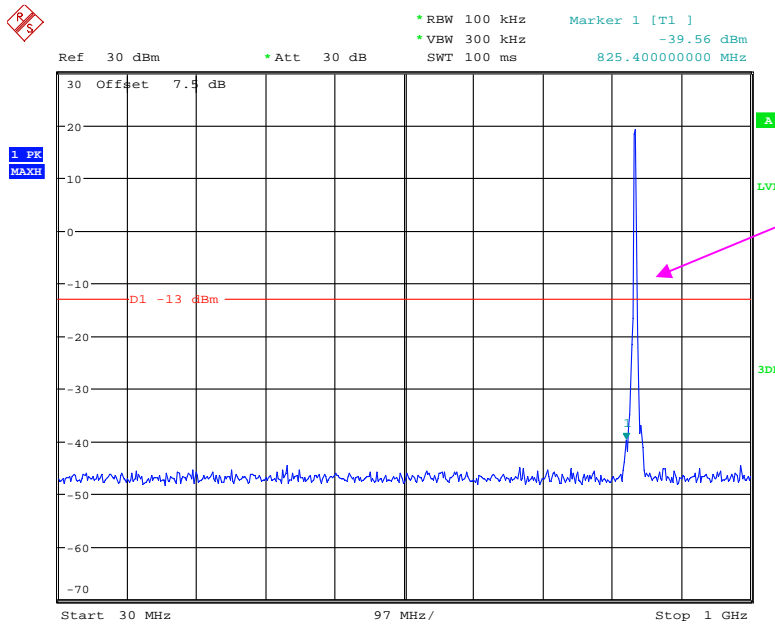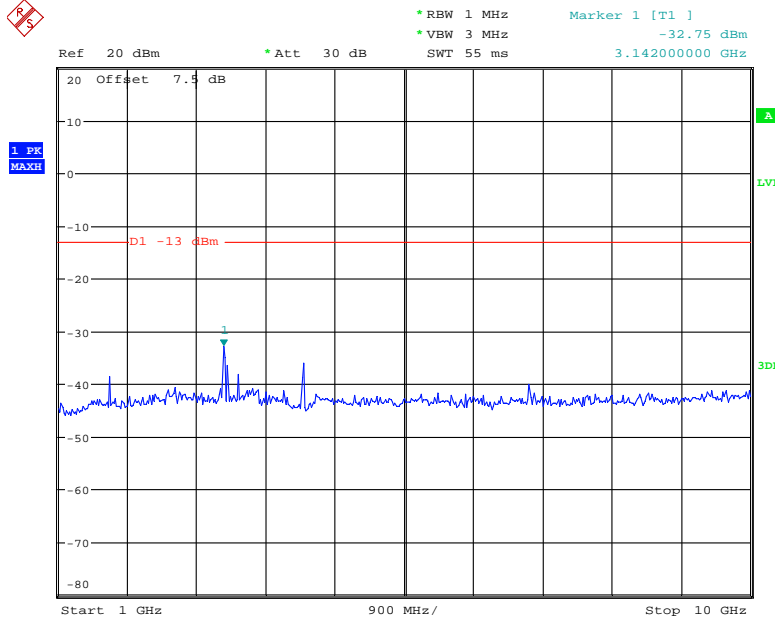

Date: 11.JUN.2020 12:56:03

QPSK_5 MHz
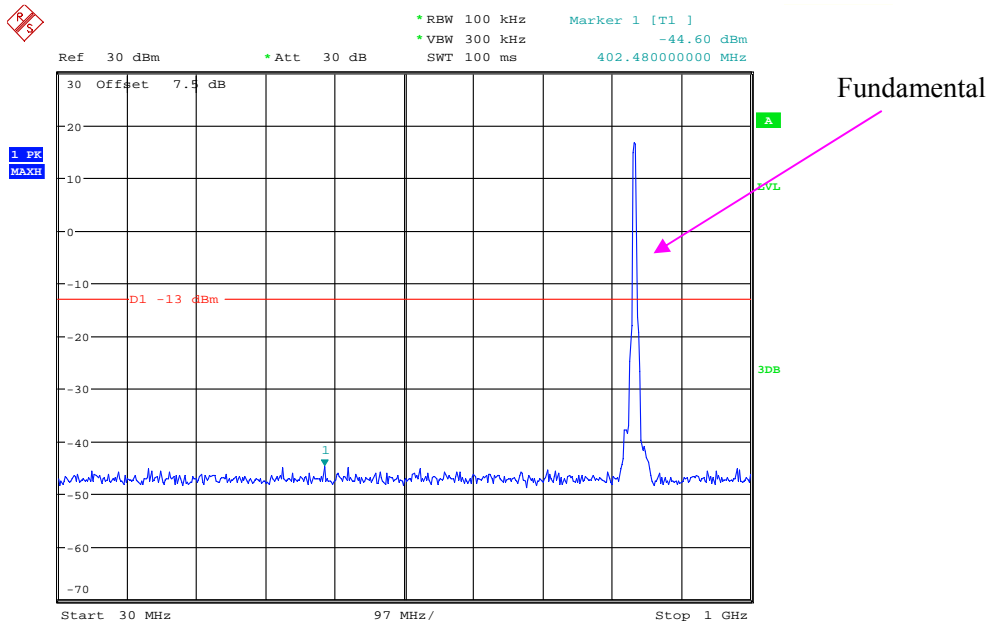
Fundamental

Date: 11.JUN.2020 12:56:22
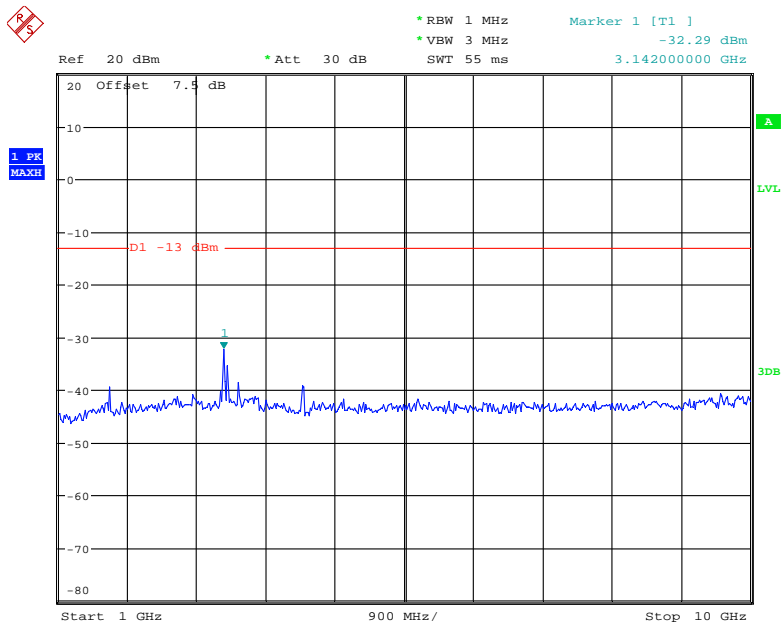
Date: 11.JUN.2020 12:56:34

QPSK_10 MHz


```
                                    *RBW 100 kHz    Marker 1 [T1 ]
                                    *VBW 300 kHz              -44.83 dBm
        Ref   30 dBm        *Att   30 dB    SWT 100 ms    889.420000000 MHz
```

Fundamental

```
Date: 11.JUN.2020  12:56:53
```



```
                                    *RBW  1 MHz     Marker 1 [T1 ]
                                    *VBW  3 MHz              -32.27 dBm
        Ref   20 dBm        *Att   30 dB    SWT 55 ms     3.142000000 GHz
```
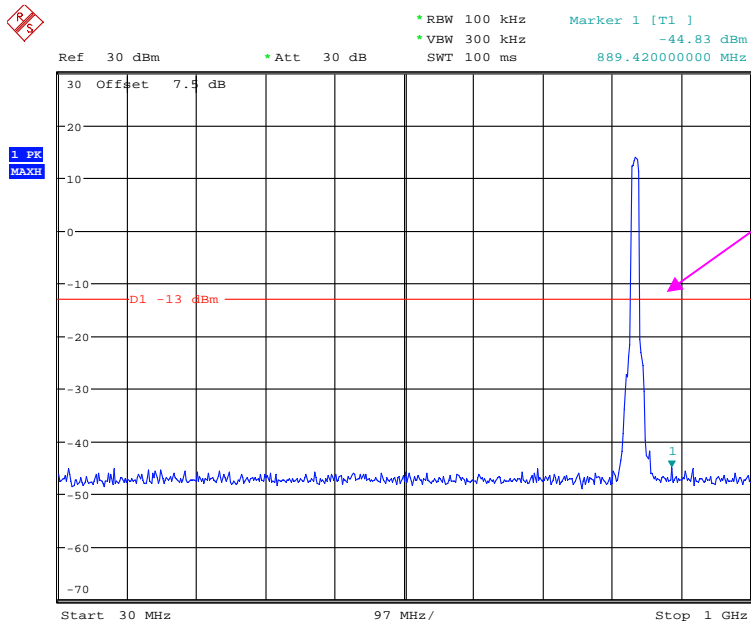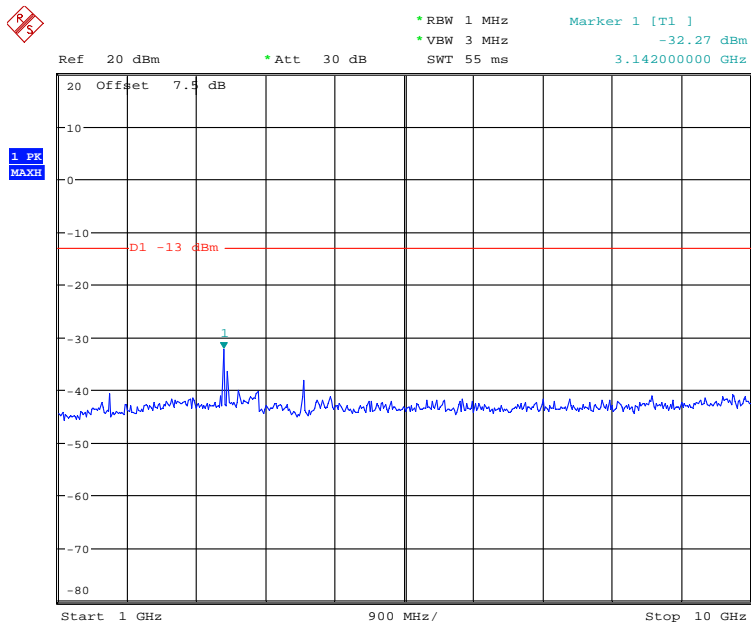
```
Date: 11.JUN.2020  12:57:05
```

LTE Band 7:

5M QPSK Middle Channel
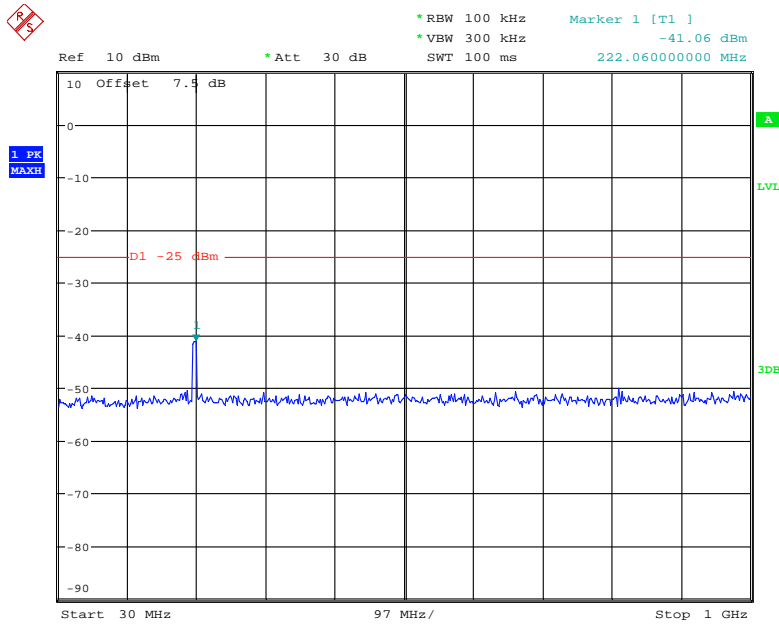
Date: 11.JUN.2020 12:57:33
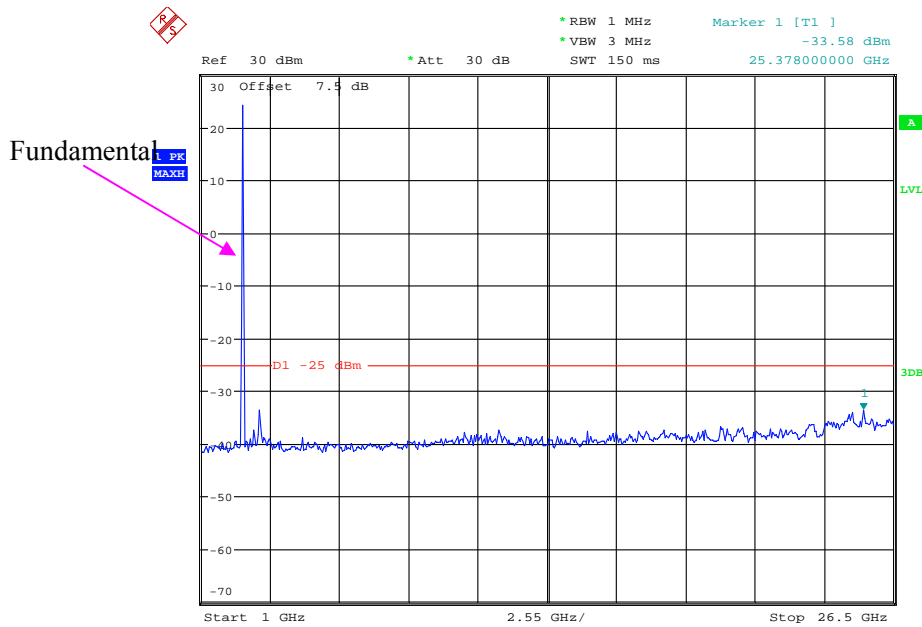
Date: 11.JUN.2020 12:57:45

10M QPSK Middle Channel

```
                                    *RBW 100 kHz    Marker 1 [T1 ]
                                    *VBW 300 kHz              -42.40 dBm
        Ref  10 dBm        *Att  30 dB   SWT 100 ms      220.120000000 MHz
   10  Offset  7.5 dB
                                                                      A
    0
 1 PK
 MAXH  -10                                                            LVL
   -20
       D1 -25 dBm
  -30
  -40
                                                                      3DB
  -50
  -60
  -70
  -80
  -90
   Start 30 MHz           97 MHz/              Stop  1 GHz
```

Date: 11.JUN.2020 12:58:08

```
                                    *RBW 1 MHz      Marker 1 [T1 ]
                                    *VBW 3 MHz               -33.57 dBm
        Ref  30 dBm        *Att  30 dB   SWT 150 ms       3.142000000 GHz
   30  Offset  7.5 dB
                                                                      A
   20
Fundamental  1 PK
        MAXH  10                                                      LVL
    0
  -10
  -20
       D1 -25 dBm                                                     3DB
  -30
  -40
  -50
  -60
  -70
   Start 1 GHz            2.55 GHz/            Stop 26.5 GHz
```
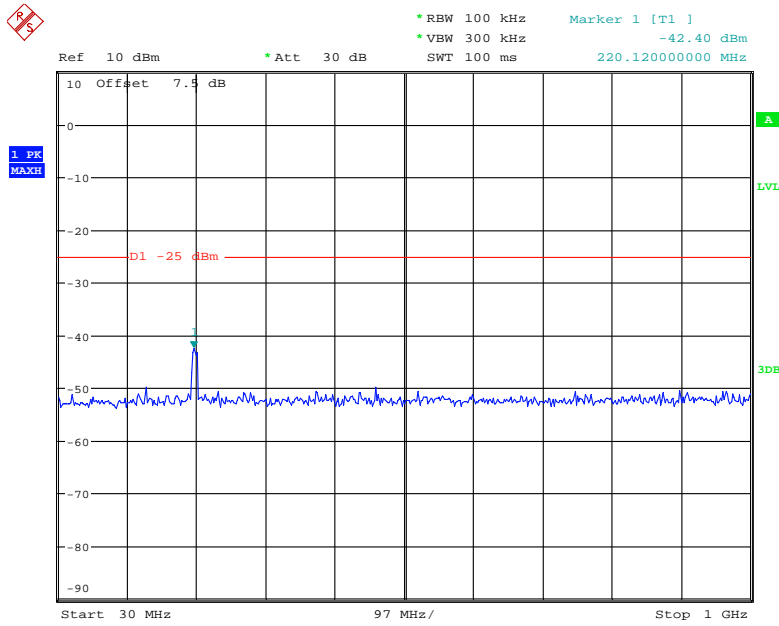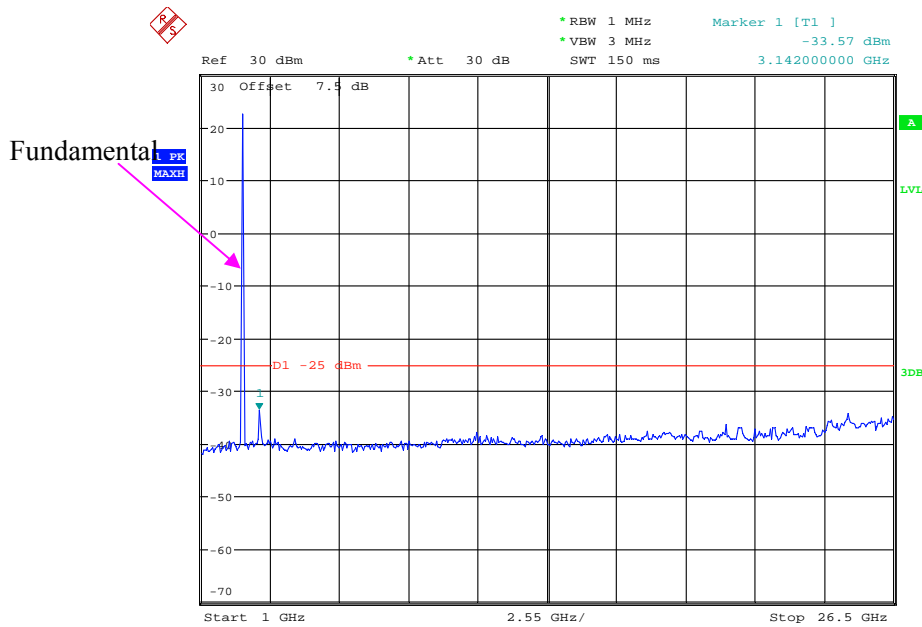
Date: 11.JUN.2020 12:58:20

15M QPSK Middle Channel

```
                                        * RBW  100 kHz      Marker 1 [T1 ]
                                        * VBW  300 kHz              -44.05 dBm
        Ref   10 dBm        * Att  30 dB    SWT  100 ms      220.120000000 MHz
```

Fundamental

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

Date: 11.JUN.2020 12:58:43

```
                                        * RBW  1 MHz        Marker 1 [T1 ]
                                        * VBW  3 MHz                -33.16 dBm
        Ref   30 dBm        * Att  30 dB    SWT  150 ms      3.142000000 GHz
```

Fundamental

```
Start  1 GHz            2.55 GHz/            Stop  26.5 GHz
```
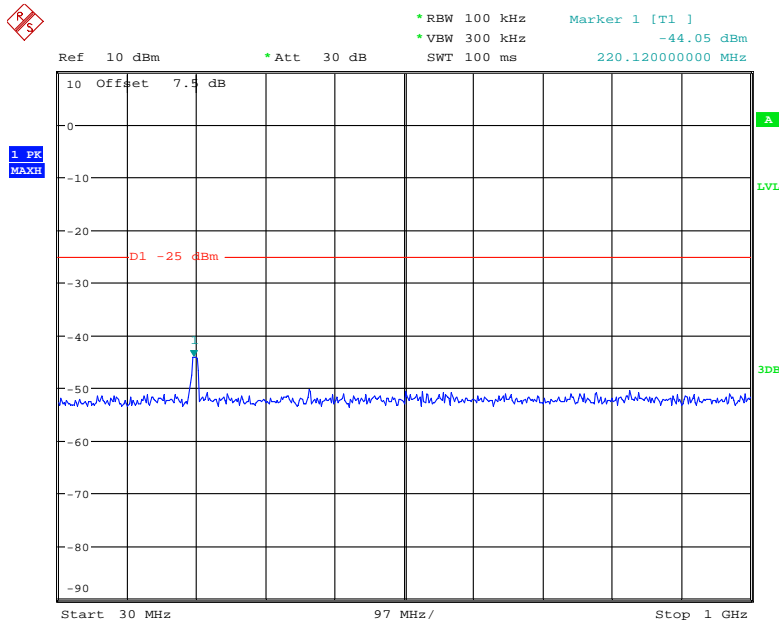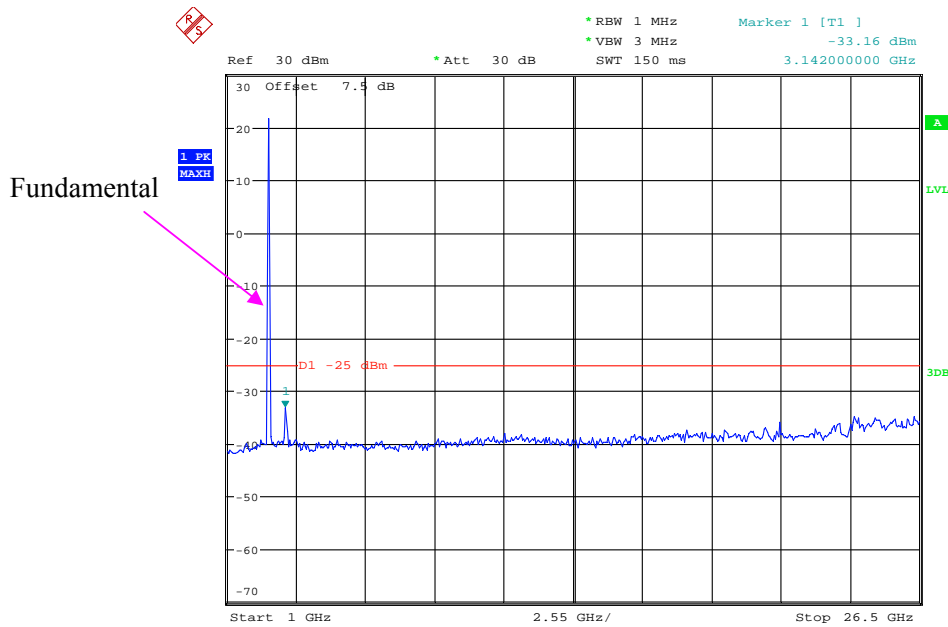
Date: 11.JUN.2020 12:58:54

20M QPSK Middle Channel

```
                                          *RBW  100 kHz    Marker 1 [T1 ]
                                          *VBW  300 kHz              -45.04 dBm
            Ref   10 dBm      *Att  30 dB  SWT  100 ms       220.120000000 MHz
```

Fundamental

```
Date: 11.JUN.2020  12:59:18
```

```
                                          *RBW  1 MHz     Marker 1 [T1 ]
                                          *VBW  3 MHz               -34.25 dBm
            Ref   30 dBm      *Att  30 dB  SWT  150 ms        26.296000000 GHz
```
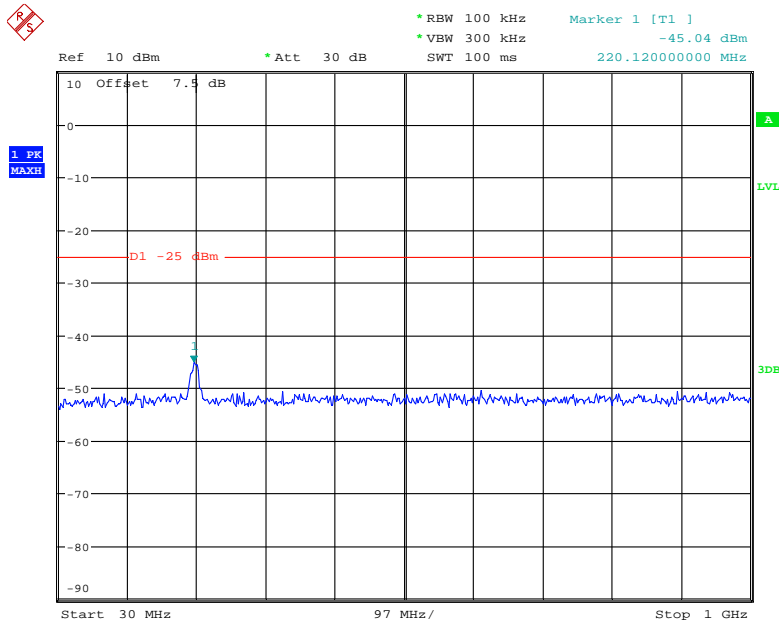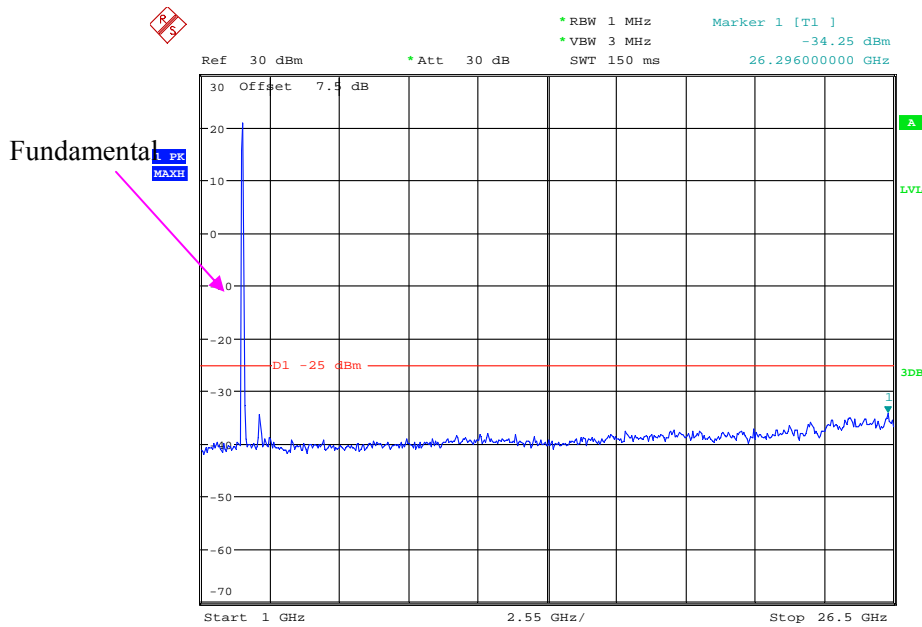
Fundamental

```
Date: 11.JUN.2020  12:59:30
```

LTE Band 38:

5M QPSK Middle Channel
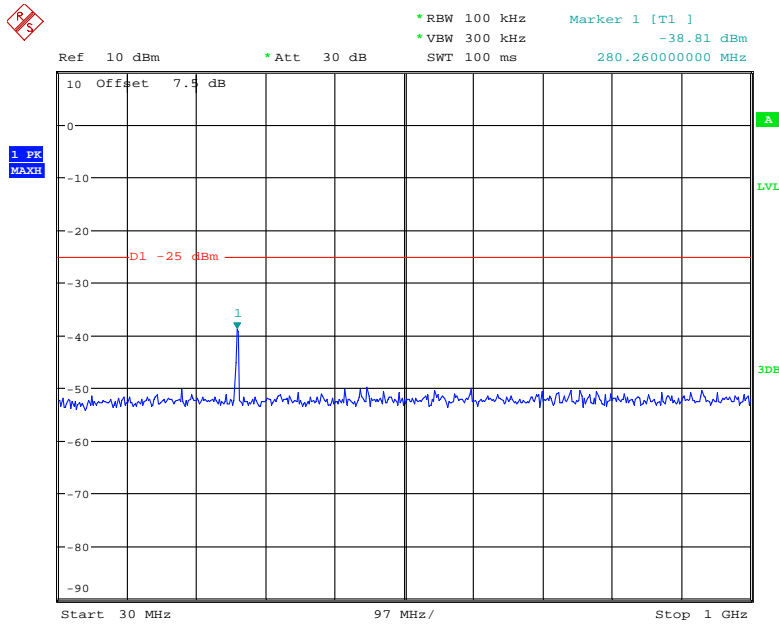
Date: 11.JUN.2020 13:00:09

Fundamental
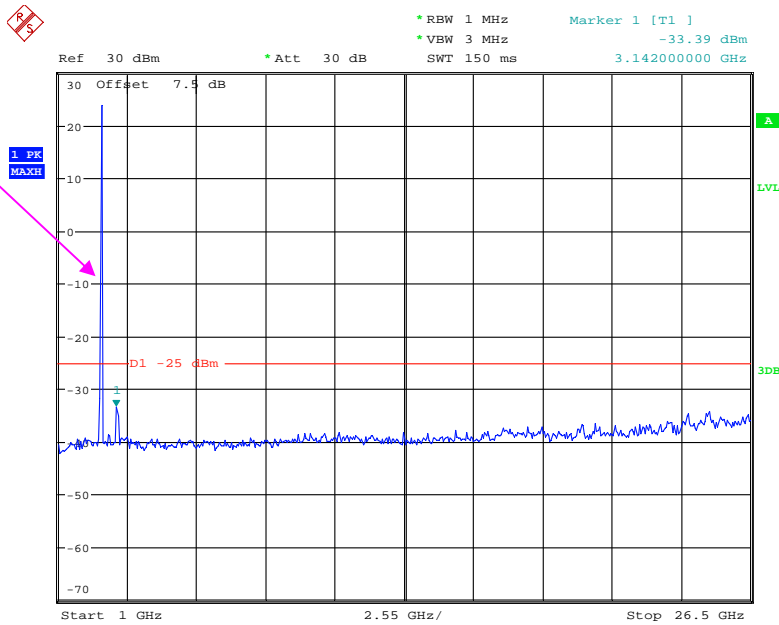
Date: 11.JUN.2020 13:00:21

10M QPSK Middle Channel
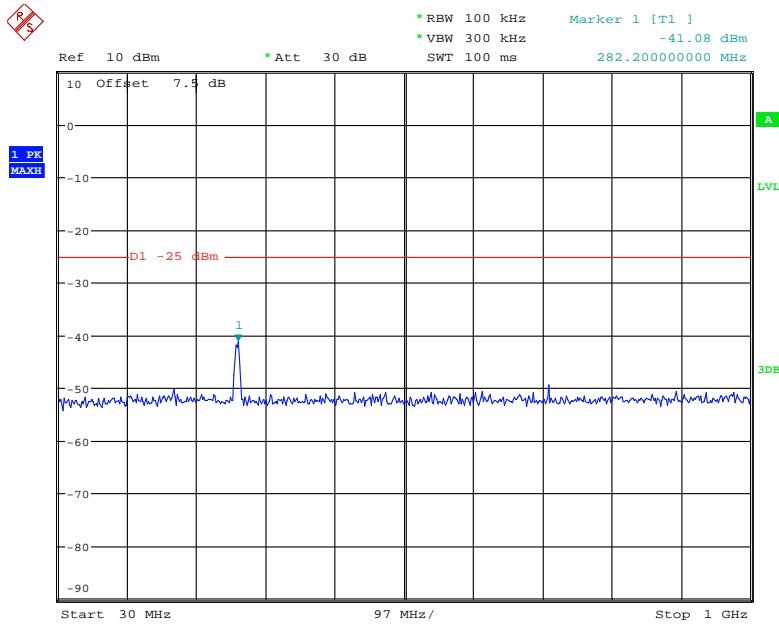
Date: 11.JUN.2020 13:00:43
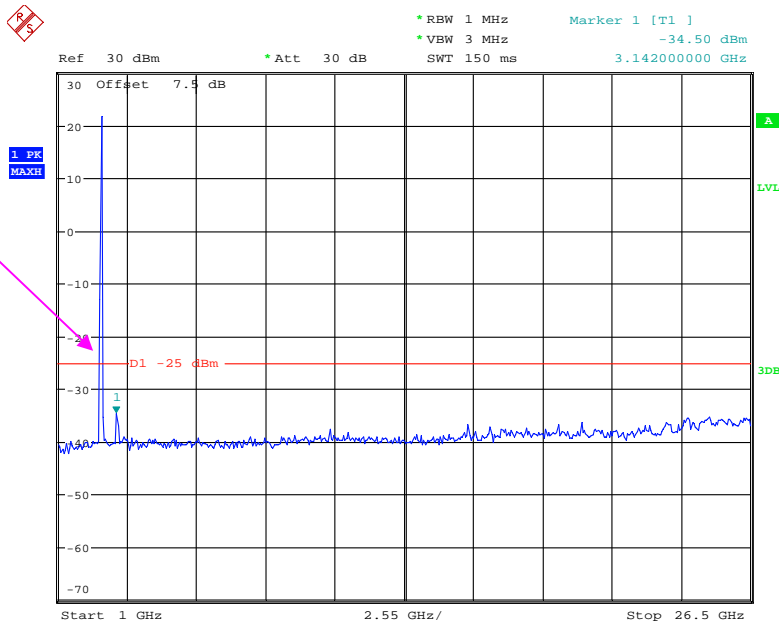
Date: 11.JUN.2020 13:00:55

15M QPSK Middle Channel


```
                                    *RBW 100 kHz    Marker 1 [T1 ]
                                    *VBW 300 kHz              -42.75 dBm
      Ref  10 dBm        *Att  30 dB  SWT 100 ms       282.200000000 MHz
  10 Offset   7.5 dB
    0
  -10
  -20
D1 -25 dBm
  -30
  -40
                 1
  -50
  -60
  -70
  -80
  -90
  Start  30 MHz            97 MHz/            Stop  1 GHz
```
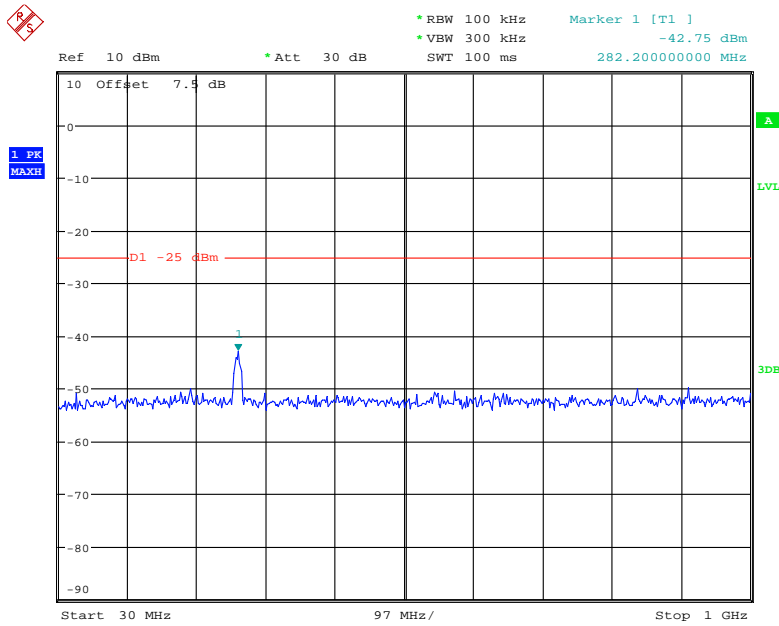
Date: 11.JUN.2020 13:01:15

Fundamental


```
                                    *RBW 1 MHz     Marker 1 [T1 ]
                                    *VBW 3 MHz               -31.28 dBm
      Ref  30 dBm        *Att  30 dB  SWT 150 ms       1.867000000 GHz
  30 Offset   7.5 dB
   20
   10
    0
  -10
  -20
D1 -25 dBm
  -30
   1
  -40
  -50
  -60
  -70
  Start  1 GHz            2.55 GHz/           Stop  26.5 GHz
```
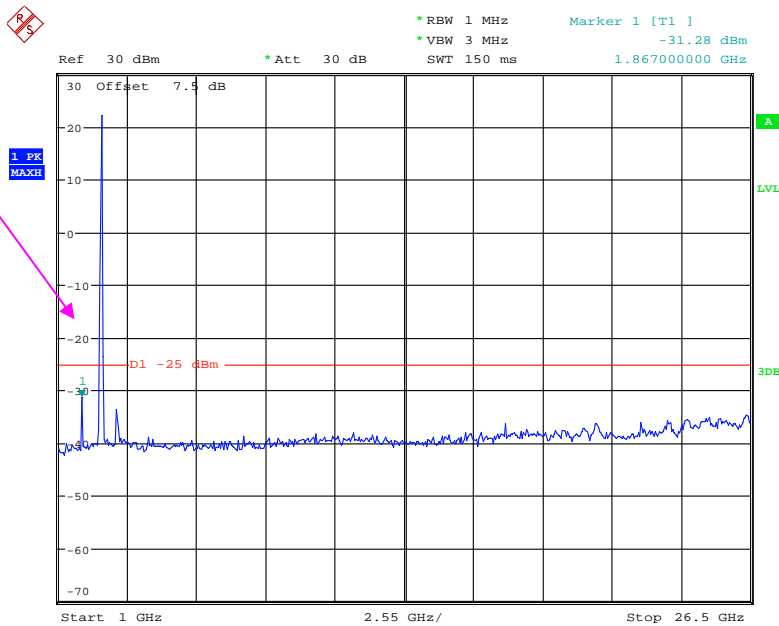
Date: 11.JUN.2020 13:01:27

20M QPSK Middle Channel

```
                                    * RBW  100 kHz      Marker 1 [T1 ]
                                    * VBW  300 kHz              -44.75 dBm
        Ref  10 dBm      * Att  30 dB    SWT  100 ms      280.260000000 MHz

  10  Offset  7.5 dB
                                                                            A
   0

 -10                                                                       LVL

 -20
      D1 -25 dBm
 -30

 -40                                                                       3DB
                      1
 -50

 -60

 -70

 -80

 -90
 Start  30 MHz              97 MHz/              Stop  1 GHz
```
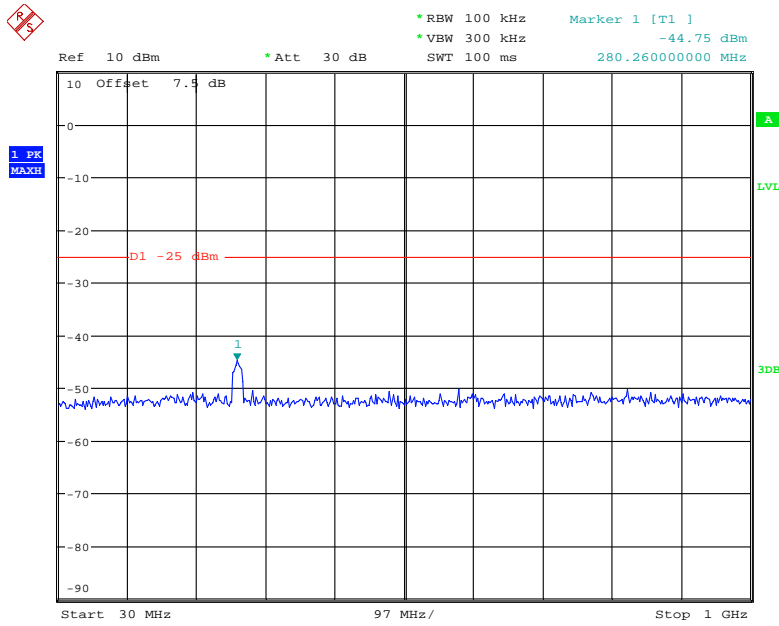
Date: 11.JUN.2020 13:01:47

Fundamental

```
                                    * RBW  1 MHz       Marker 1 [T1 ]
                                    * VBW  3 MHz               -33.37 dBm
        Ref  30 dBm      * Att  30 dB    SWT  150 ms      3.142000000 GHz

  30  Offset  7.5 dB
                                                                            A
  20

  10                                                                       LVL

   0

 -10

 -20
      D1 -25 dBm                                                           3DB
 -30      1

 -40

 -50

 -60

 -70
 Start  1 GHz              2.55 GHz/             Stop  26.5 GHz
```
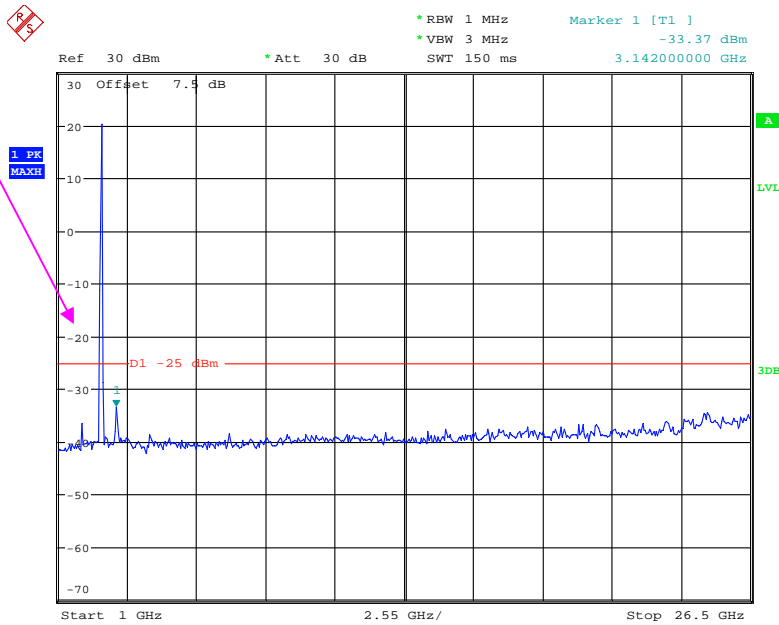
Date: 11.JUN.2020 13:01:59

LTE Band 40 Lower:

QPSK_5 MHz


```
                                        *RBW  100 kHz      Marker 1 [T1 ]
                                        *VBW  300 kHz                  -53.69 dBm
      Ref   10 dBm          *Att  20 dB  SWT 100 ms          443.493589744 MHz
```
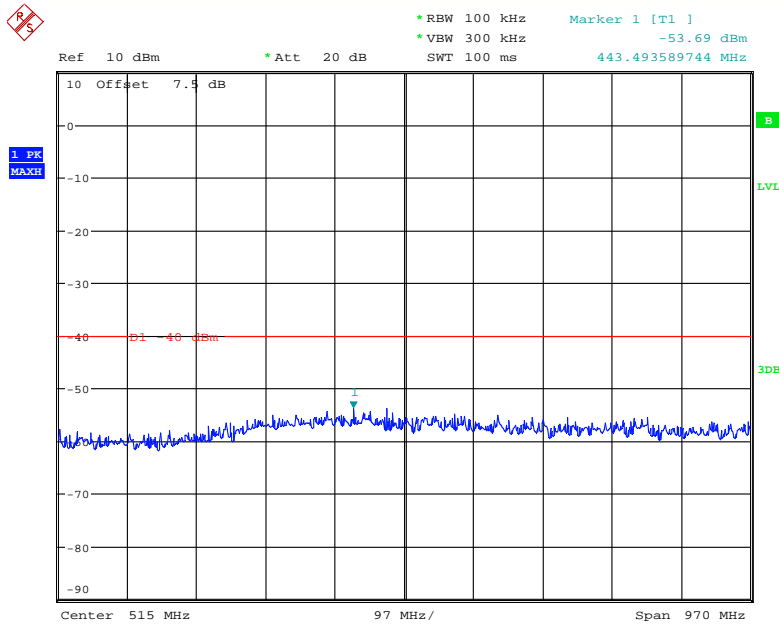
Date: 11.JUN.2020 17:01:53

Fundamental


```
                                        *RBW   1 MHz      Marker 1 [T1 ]
                                        *VBW   3 MHz                  -43.19 dBm
      Ref  17.5 dBm         *Att  20 dB  SWT 180 ms           3.106000000 GHz
```

Date: 4.JUL.2020 14:19:47

```
 MARKER 1                          * RBW  1 MHz       Marker 1 [T1 ]
   24.97 GHz                       * VBW  3 MHz                   -55.15 dBm
  Ref   0 dBm        * Att  10 dB  * SWT 100 ms       24.970000000 GHz
```
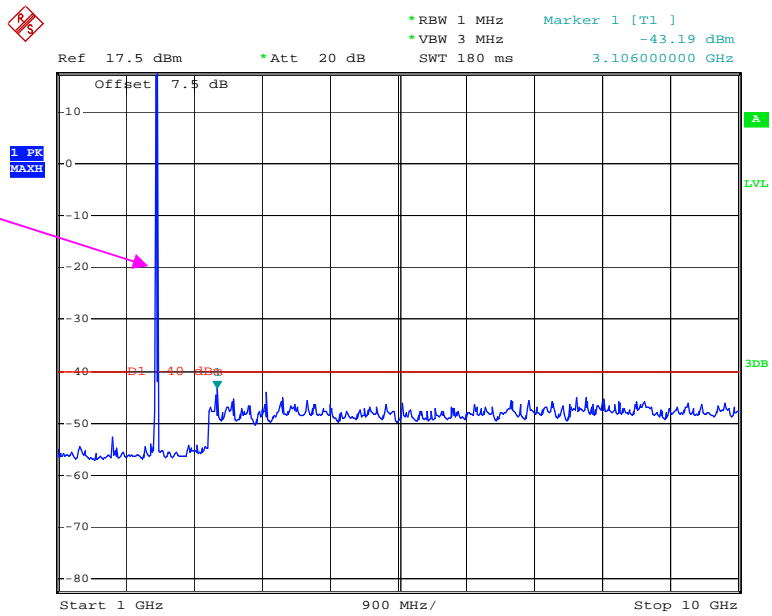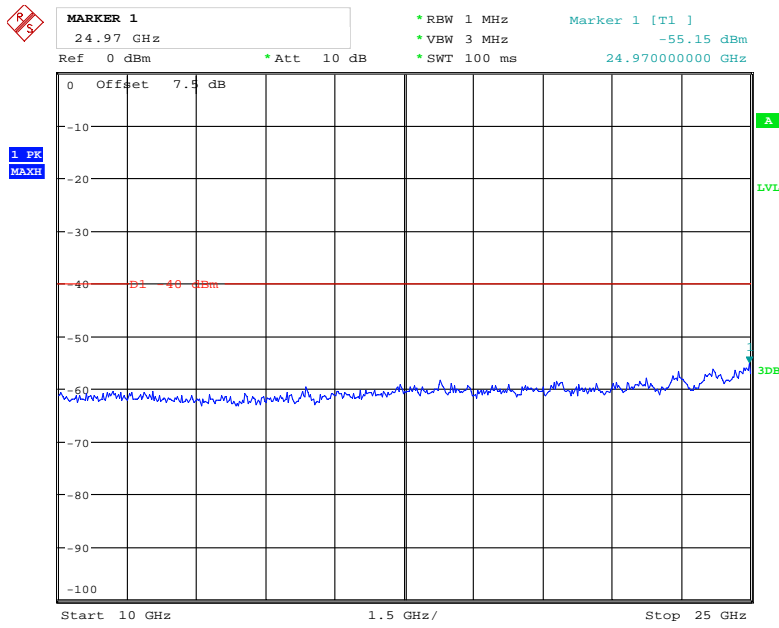

Date: 11.JUN.2020 17:20:07

QPSK_10 MHz

```
                                   * RBW  100 kHz     Marker 1 [T1 ]
                                   * VBW  300 kHz                -40.98 dBm
  Ref  -10 dBm       * Att  30 dB    SWT 100 ms       445.048076923 MHz
```


Date: 11.JUN.2020 17:23:40

```
                                              *RBW 1 MHz      Marker 1 [T1 ]
                                              *VBW 3 MHz                -43.67 dBm
        Ref  17.5 dBm        *Att  20 dB      SWT 180 ms      3.106000000 GHz
```

Fundamental

Date: 4.JUL.2020 14:22:11


```
              MARKER 1                        *RBW 1 MHz      Marker 1 [T1 ]
              24.85 GHz                       *VBW 3 MHz                -55.45 dBm
        Ref   0 dBm          *Att  10 dB      *SWT 100 ms     24.850000000 GHz
```
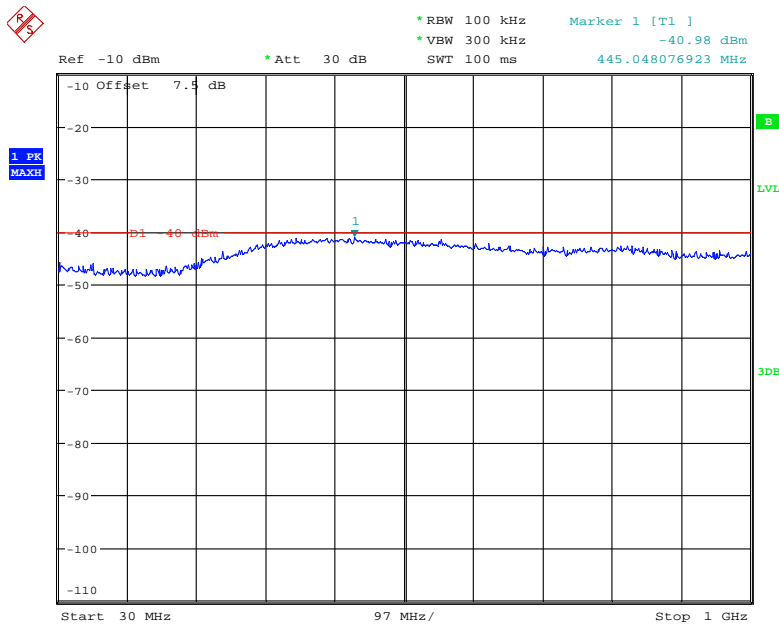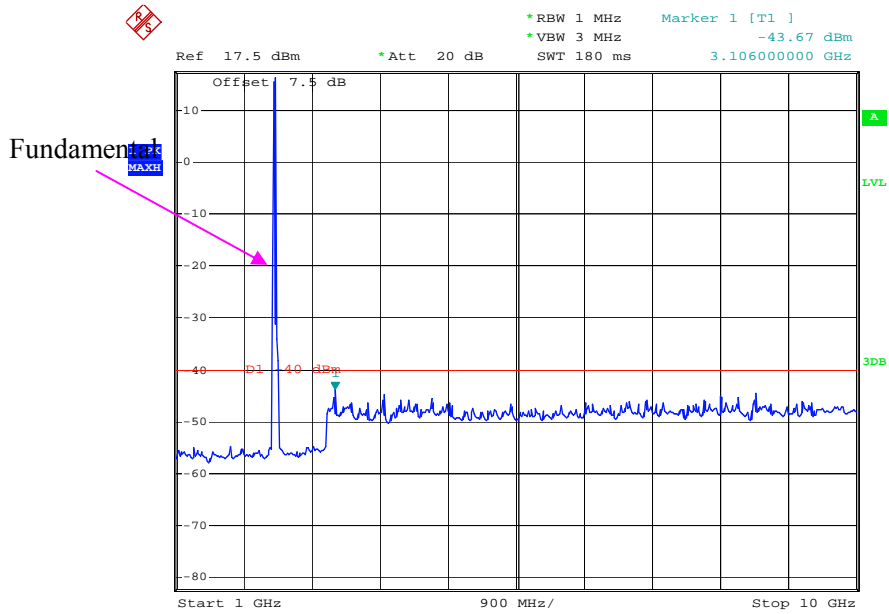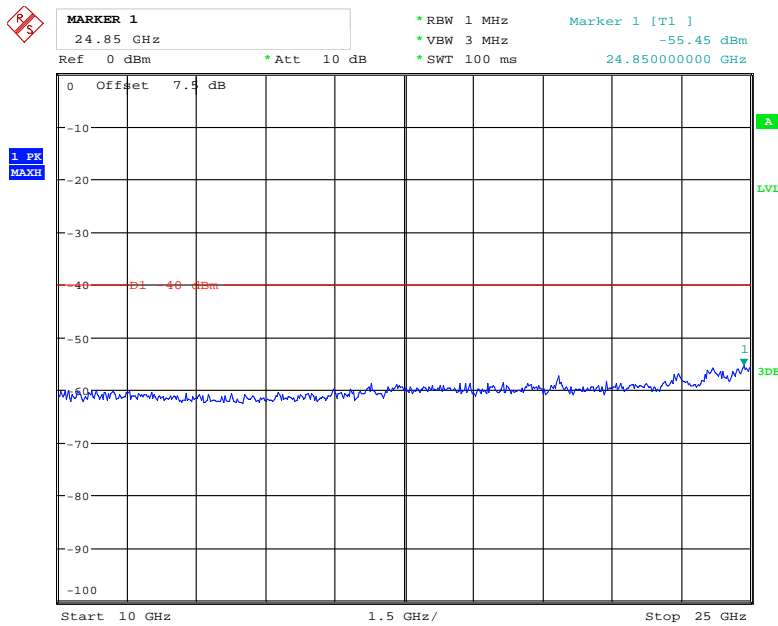
Date: 11.JUN.2020 17:23:23

LTE Band 40 Upper:

QPSK_5 MHz

Date: 11.JUN.2020 17:27:27

Fundamental

Date: 4.JUL.2020 14:20:33

```
R&S    MARKER 1                          *RBW  1 MHz      Marker 1 [T1 ]
       24.91 GHz                         *VBW  3 MHz                -55.90 dBm
       Ref   0 dBm        *Att  10 dB    *SWT 100 ms       24.910000000 GHz

    0  Offset  7.5 dB                                                    A

  -10

1 PK
MAXH
  -20                                                                   LVL

  -30

  -40    D1  40 dBm

  -50                                                                   3DB
                                                                    1

  -60

  -70

  -80

  -90

 -100
    Start  10 GHz            1.5 GHz/              Stop  25 GHz
```
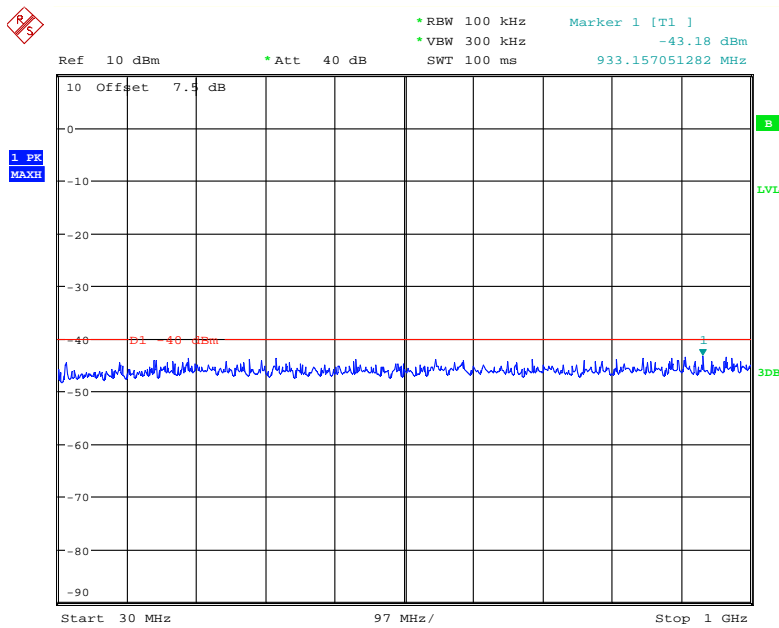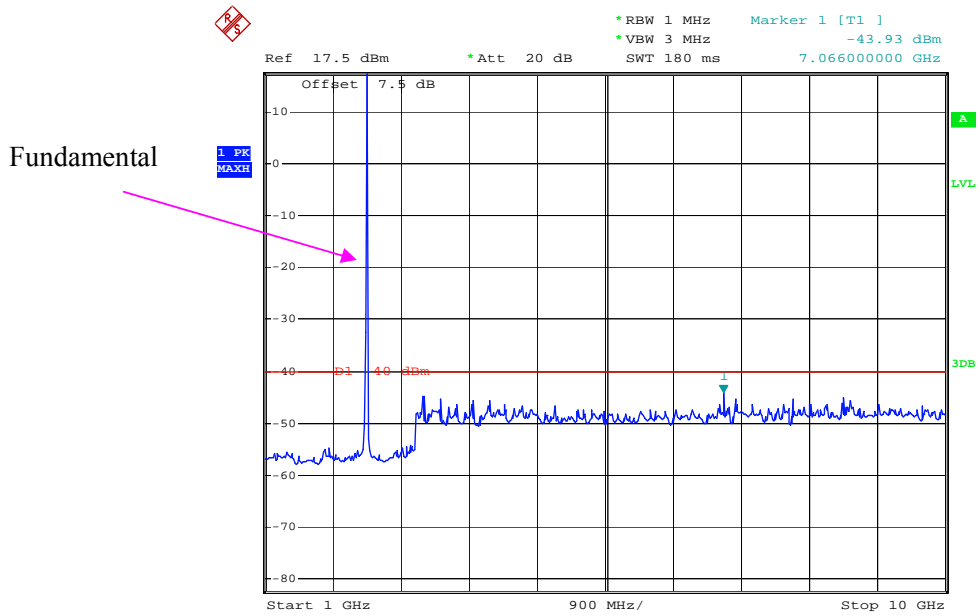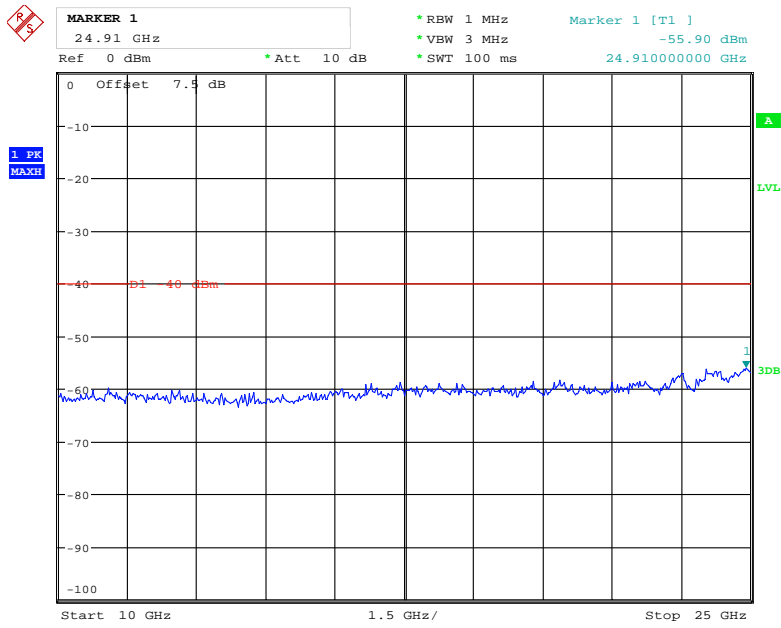
Date: 11.JUN.2020 17:27:17

QPSK_10 MHz

```
R&S                                      *RBW 100 kHz      Marker 1 [T1 ]
                                         *VBW 300 kHz                -42.47 dBm
       Ref  10 dBm         *Att  40 dB    SWT 100 ms       968.910256410 MHz

   10  Offset  7.5 dB                                                    B

    0

1 PK
MAXH
  -10                                                                   LVL

  -20

  -30

  -40    D1  40 dBm                                                   1

  -50                                                                   3DB

  -60

  -70

  -80

  -90
    Start  30 MHz            97 MHz/               Stop  1 GHz
```
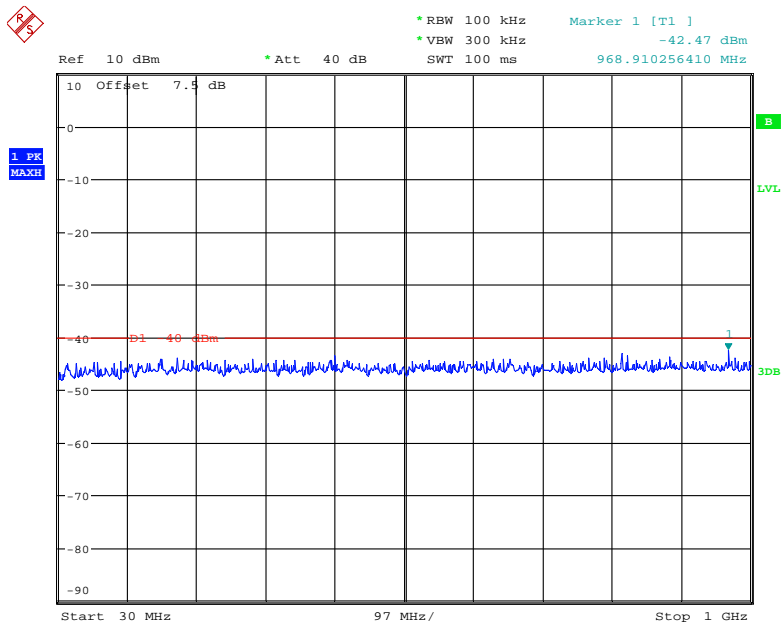
Date: 11.JUN.2020 17:24:47
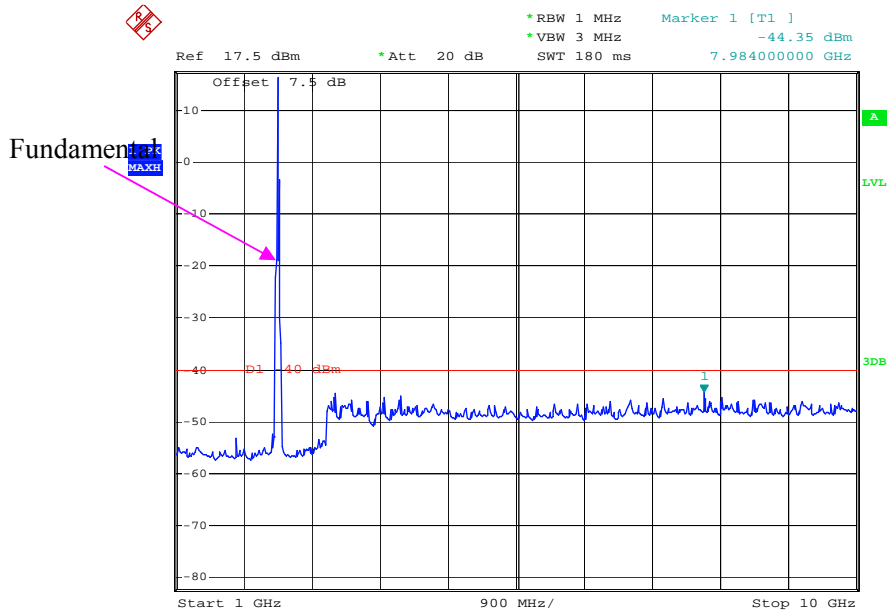
Date: 4.JUL.2020 14:21:36
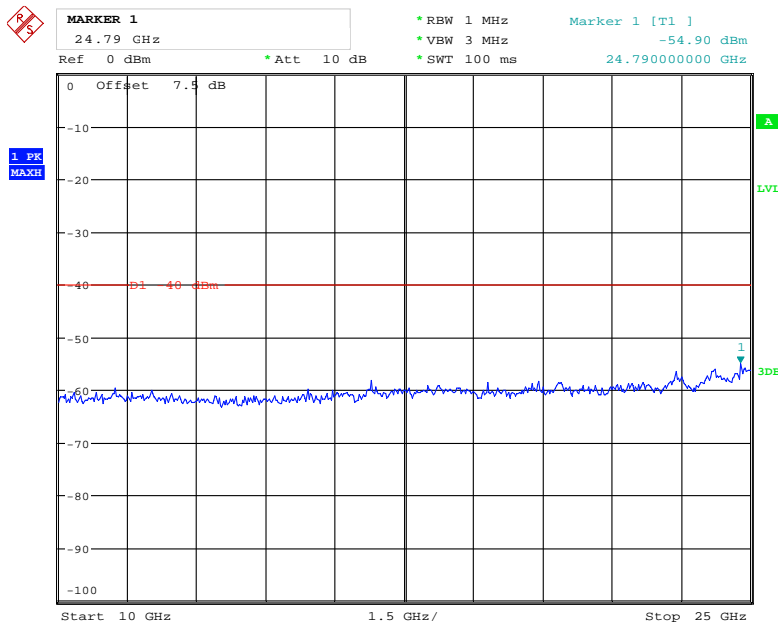
Date: 11.JUN.2020 17:25:00

LTE Band 41:

5M QPSK Middle Channel
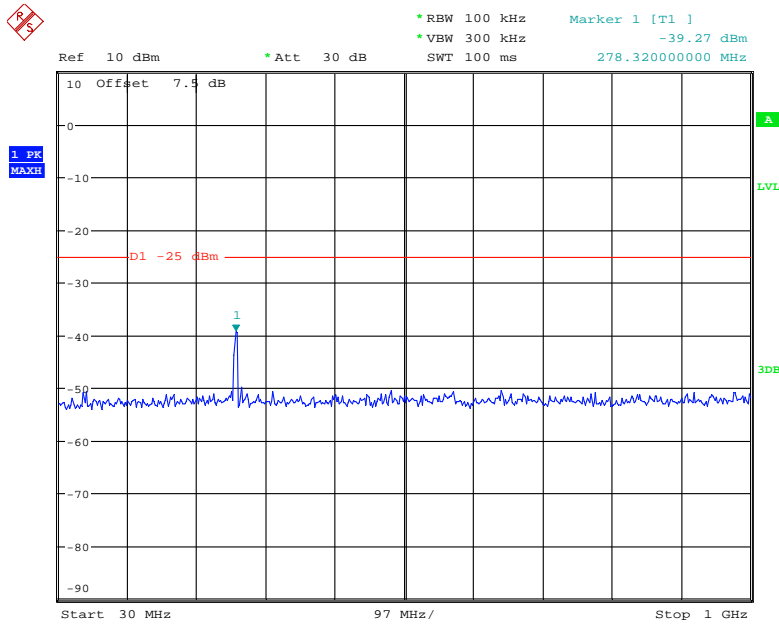
Date: 11.JUN.2020 13:05:04
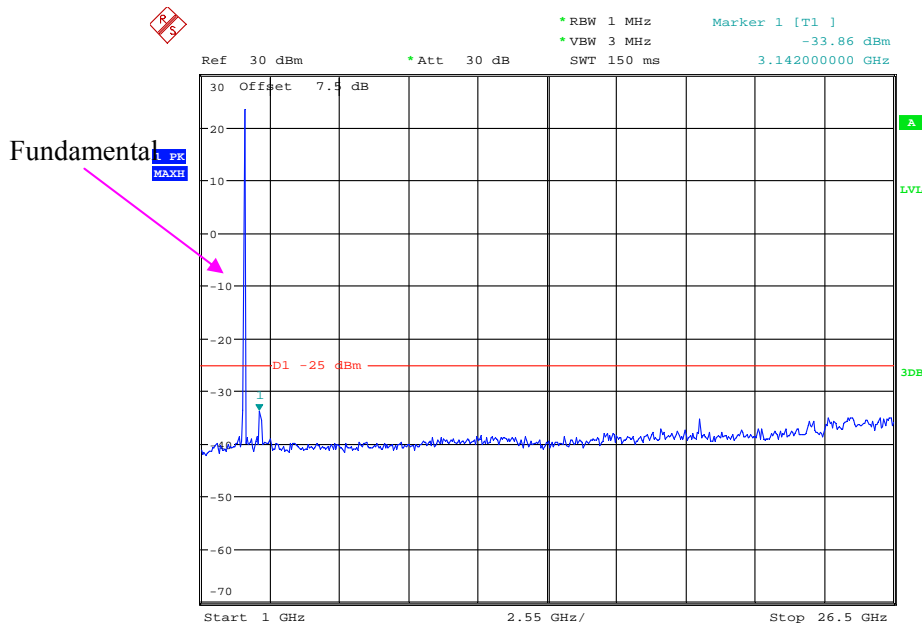
Date: 11.JUN.2020 13:05:16

10M QPSK Middle Channel

```
                                        * RBW  100 kHz    Marker 1 [T1 ]
                                        * VBW  300 kHz               -42.46 dBm
     Ref   10 dBm           * Att  30 dB   SWT  100 ms       280.260000000 MHz
     10  Offset   7.5  dB
                                                                           A
   0
  -10                                                                     LVL
  -20
       D1 -25 dBm
  -30
  -40                                                                     3DB
  -50
  -60
  -70
  -80
  -90
   Start  30 MHz                  97 MHz/               Stop  1 GHz
```

Date: 11.JUN.2020 13:05:35

```
                                        * RBW  1 MHz      Marker 1 [T1 ]
                                        * VBW  3 MHz                -33.65 dBm
     Ref   30 dBm           * Att  30 dB   SWT  150 ms        3.142000000 GHz
     30  Offset   7.5  dB
                                                                           A
  20
Fundamental                                                              LVL
  10
   0
  -10
  -20
       D1 -25 dBm                                                        3DB
  -30
  -40
  -50
  -60
  -70
   Start  1 GHz                   2.55 GHz/             Stop  26.5 GHz
```
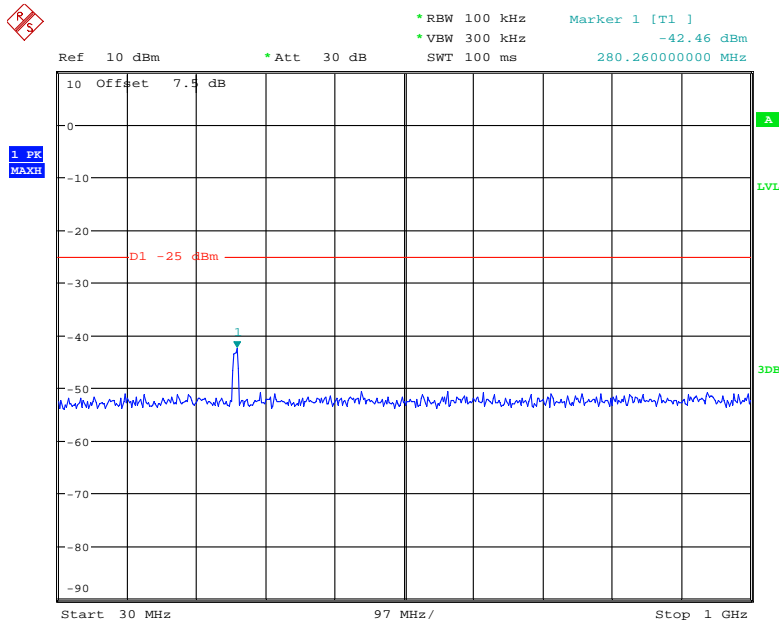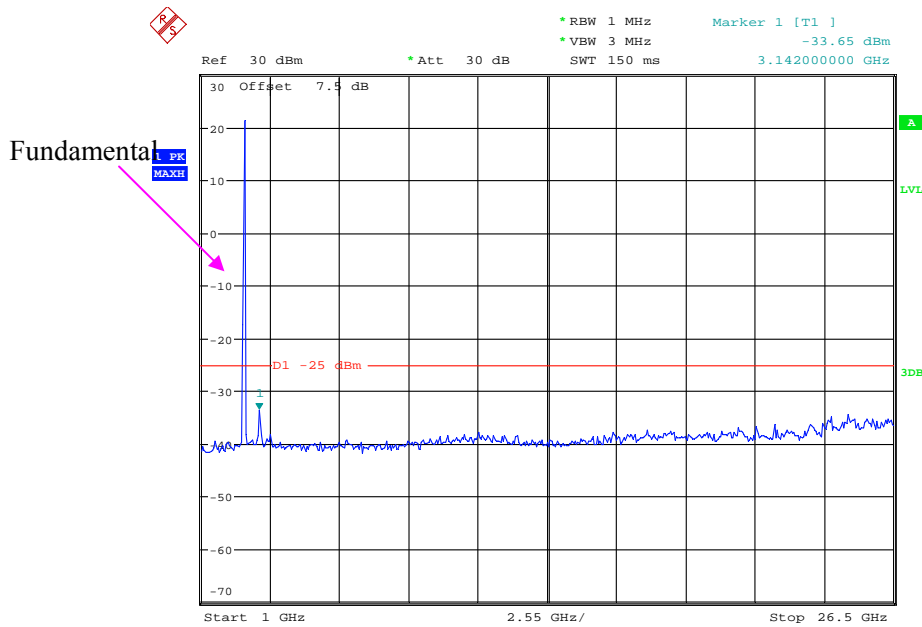
Date: 11.JUN.2020 13:05:47

15M QPSK Middle Channel

```
                                    *RBW 100 kHz      Marker 1 [T1 ]
                                    *VBW 300 kHz              -42.34 dBm
    Ref  10 dBm        *Att  30 dB   SWT 100 ms        280.260000000 MHz
    10  Offset   7.5  dB
```

Date: 11.JUN.2020 13:06:07

Fundamental

```
                                    *RBW 1 MHz        Marker 1 [T1 ]
                                    *VBW 3 MHz                -33.90 dBm
    Ref  30 dBm        *Att  30 dB   SWT 150 ms         3.142000000 GHz
    30  Offset   7.5  dB
```
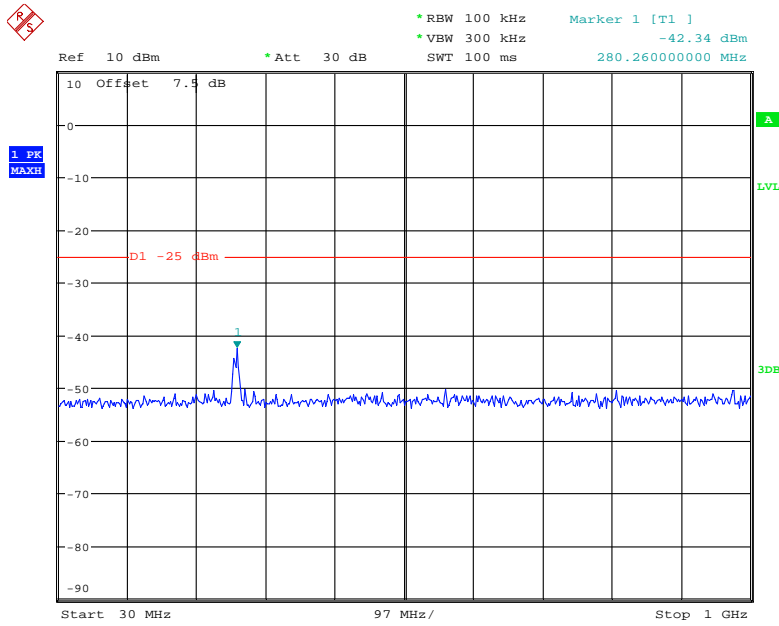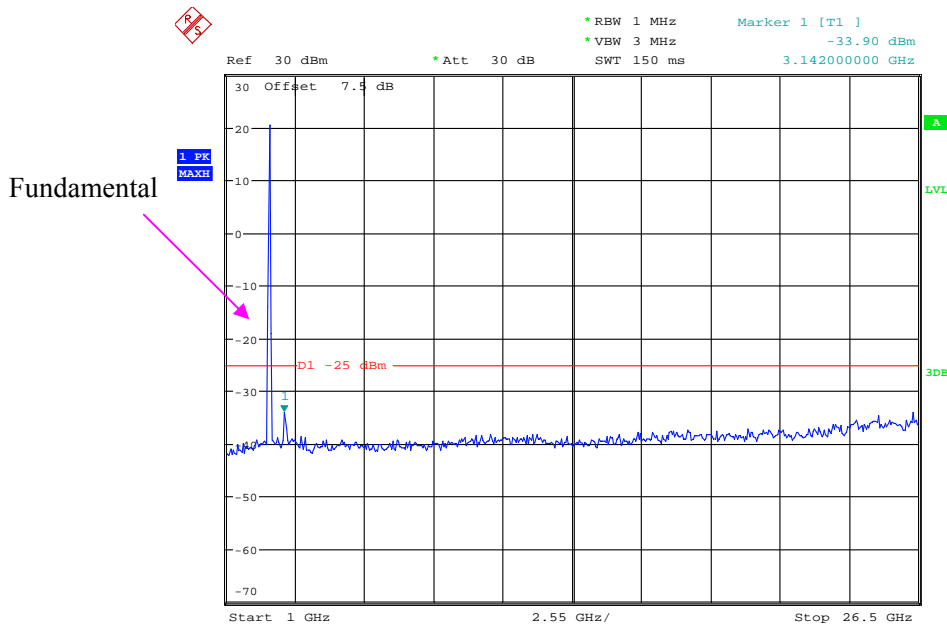
Date: 11.JUN.2020 13:06:19

20M QPSK Middle Channel

```
                                    *RBW 100 kHz      Marker 1 [T1 ]
                                    *VBW 300 kHz              -44.38 dBm
     Ref  10 dBm        *Att  30 dB  SWT 100 ms       280.260000000 MHz
     10 Offset  7.5 dB
                                                                    A
    -0
   -10                                                              LVL
   -20
         D1 -25 dBm
   -30
   -40
                          1                                         3DB
   -50
   -60
   -70
   -80
   -90
     Start 30 MHz          97 MHz/              Stop  1 GHz
```

Date: 11.JUN.2020 13:06:42

```
                                    *RBW 1 MHz        Marker 1 [T1 ]
                                    *VBW 3 MHz                -33.73 dBm
     Ref  30 dBm        *Att  30 dB  SWT 150 ms        3.142000000 GHz
     30 Offset  7.5 dB
    -20                                                             A
            1 PK
            MAXH
Fundamental -10                                                     LVL
    -0
   -20
         D1 -25 dBm                                                 3DB
   -30    1
   -40
   -50
   -60
   -70
     Start 1 GHz          2.55 GHz/             Stop 26.5 GHz
```
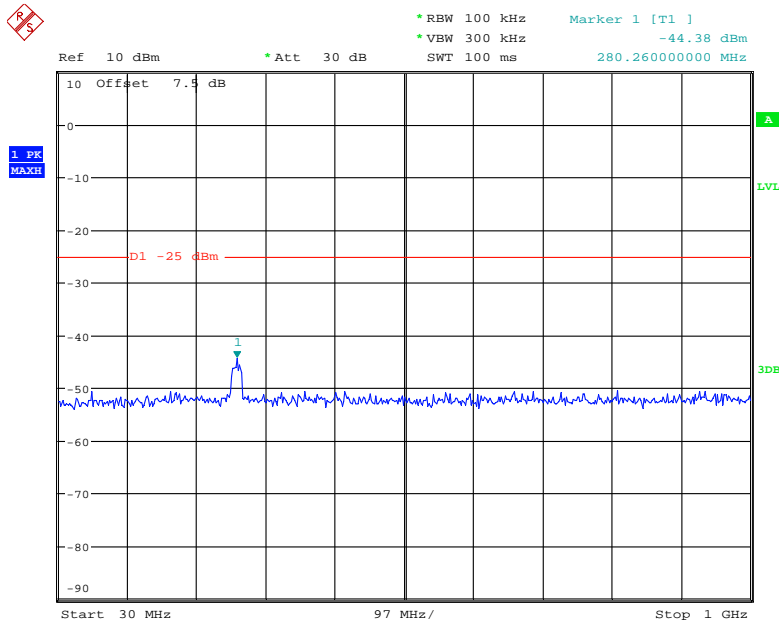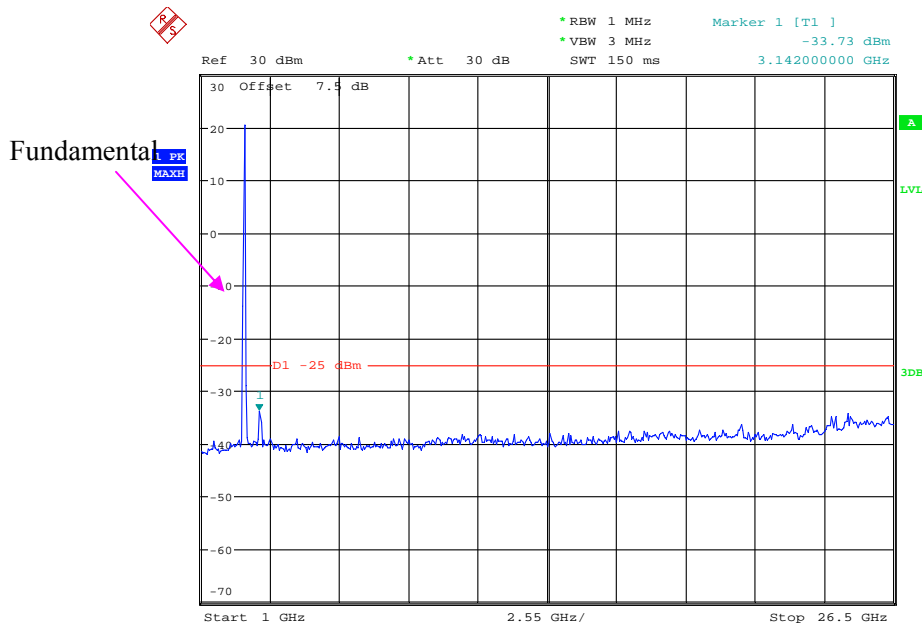
Date: 11.JUN.2020 13:06:54

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

Applicable Standard

FCC § 2.1053, §22.917, and § 27.53;

Test Procedure

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

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

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

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

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

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiation Below 1G Test					
Sunol Sciences	Antenna	JB3	A060611-1	2017-11-10	2020-11-10
R&S	EMI Test Receiver	ESR3	102453	2019-09-12	2020-09-12
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1400-01	2020-05-06	2021-05-06
HP	Amplifier	8447D	2727A05902	2019-09-05	2020-09-05
EMCO	Adjustable Dipole Antenna	3121C	9109-753	N/A	N/A
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2019-09-05	2020-09-05
Agilent	Signal Generator	E8247C	MY43321350	2019-12-10	2020-12-10
Radiation Above 1G Test					
Agilent	Spectrum Analyzer	E4440A	SG43360054	2020-05-09	2021-05-09
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
Micro-tronics	High Pass Filter	HPM50111	S/N-G217	2019-06-16	2020-06-16
Agilent	Signal Generator	E8247C	MY43321350	2019-12-10	2020-12-10
Sinoscite	Band-stop filter	BSF1710-1785MN-0383-003	0383003	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
Ducommun Technolagies	Horn Antenna	ARH-4223-02	1007726-01 1304	2017-12-06	2020-12-05
Ducommun Technolagies	Horn Antenna	ARH-4223-02	1007726-02 1304	2017-12-06	2020-12-05
Quinstar	Amplifier	QLW-18405536-JO	15964001001	2019-06-27	2020-06-27

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

Test Data

Environmental Conditions

Test Items	Radiation Below 1GHz	Radiation Above 1GHz
Temperature:	21.1 °C	23.8°C
Relative Humidity:	56%	56 %
ATM Pressure:	100.7 kPa	100.8kPa
Tester:	Leo Long	Jalon Liu
Test Date:	2020-06-16	2020-06-11

Test Result: Compliance.

EUT Operation Mode: Transmitting

Cellular Band (PART 22H)

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)			
WCDMA Band V, Frequency:836.600 MHz								
1673.200	H	43.83	-60.11	10.6	0.73	-50.2	-13.0	37.2
1673.200	V	39.53	-65.01	10.6	0.73	-55.1	-13.0	42.1
2509.800	H	41.94	-60.97	13.1	1.25	-49.1	-13.0	36.1
2509.800	V	43.76	-59.18	13.1	1.25	-47.3	-13.0	34.3
3346.400	H	47.39	-52.29	13.8	1.61	-40.1	-13.0	27.1
3346.400	V	49.33	-50.39	13.8	1.61	-38.2	-13.0	25.2
129.000	H	43.64	-60.9	0.0	0.33	-61.2	-13.0	48.2
39.100	V	38.83	-47.07	-26.0	0.22	-73.3	-13.0	60.3

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	38.40	-65.54	10.61	0.73	-55.66	-13.00	42.66
1673.00	V	38.05	-66.49	10.61	0.73	-56.61	-13.00	43.61
2509.50	H	34.84	-68.07	13.11	1.25	-56.21	-13.00	43.21
2509.50	V	35.61	-67.33	13.11	1.25	-55.47	-13.00	42.47
3346.00	H	47.38	-52.30	13.83	1.61	-40.08	-13.00	27.08
3346.00	V	47.99	-51.73	13.83	1.61	-39.51	-13.00	26.51
4182.50	H	51.71	-47.31	12.70	1.48	-36.09	-13.00	23.09
4182.50	V	49.70	-49.97	12.70	1.48	-38.75	-13.00	25.75
499.66	H	41.14	-63.09	0.00	0.71	-63.80	-13.00	50.80
326.90	H	39.37	-68.24	0.00	0.54	-68.78	-13.00	55.78

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	35.67	-60.64	12.97	1.41	-49.08	-25.00	24.08
5070.00	V	35.42	-60.66	12.97	1.41	-49.10	-25.00	24.10
7605.00	H	35.57	-55.81	12.84	1.40	-44.37	-25.00	19.37
7605.00	V	35.22	-56.83	12.84	1.40	-45.39	-25.00	20.39
499.60	H	39.16	-65.07	0.00	0.71	-65.78	-25.00	40.78
728.40	V	35.66	-67.82	0.00	0.94	-68.76	-25.00	43.76

LTE Band 38 (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:2595.000 MHz								
5190.00	H	36.24	-59.86	12.92	1.36	-48.30	-25.00	23.30
5190.00	V	35.67	-60.39	12.92	1.36	-48.83	-25.00	23.83
7785.00	H	35.52	-55.58	12.91	1.53	-44.20	-25.00	19.20
7785.00	V	35.55	-56.17	12.91	1.53	-44.79	-25.00	19.79
374.60	H	39.43	-66.35	0.00	0.59	-66.94	-25.00	41.94
40.50	V	37.36	-50.31	-25.74	0.21	-76.26	-25.00	51.26

LTE Band 40 Lower(30MHz-25GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK,Frequency:2310.000 MHz								
4620.00	H	38.46	-59.22	13.30	1.52	-47.44	-40.00	7.44
4620.00	V	38.50	-59.37	13.30	1.52	-47.59	-40.00	7.59
6930.00	H	35.71	-56.26	13.50	1.81	-44.57	-40.00	4.57
6930.00	V	36.87	-55.27	13.50	1.81	-43.58	-40.00	3.58
366.20	H	41.22	-64.88	0.00	0.58	-65.46	-40.00	25.46
40.50	V	37.77	-49.90	-25.74	0.21	-75.85	-40.00	35.85

LTE Band 40 Upper(30MHz-25GHz):

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:2355.000 MHz								
4710.00	H	35.73	-61.65	13.23	1.50	-49.92	-40.00	9.92
4710.00	V	35.58	-61.87	13.23	1.50	-50.14	-40.00	10.14
7065.00	H	34.11	-57.63	13.32	1.76	-46.07	-40.00	6.07
7065.00	V	35.65	-56.36	13.32	1.76	-44.80	-40.00	4.80
374.60	H	41.50	-64.28	0.00	0.59	-64.87	-40.00	24.87
40.50	V	37.68	-49.99	-25.74	0.21	-75.94	-40.00	35.94

LTE Band 41 (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:2593.000 MHz								
5186.00	H	36.82	-59.28	12.93	1.37	-47.72	-25.00	22.72
5186.00	V	36.84	-59.22	12.93	1.37	-47.66	-25.00	22.66
7779.00	H	35.94	-55.17	12.91	1.53	-43.79	-25.00	18.79
7779.00	V	35.45	-56.28	12.91	1.53	-44.90	-25.00	19.90
366.20	H	39.98	-66.12	0.00	0.58	-66.70	-25.00	41.70
40.50	V	38.05	-49.62	-25.74	0.21	-75.57	-25.00	50.57

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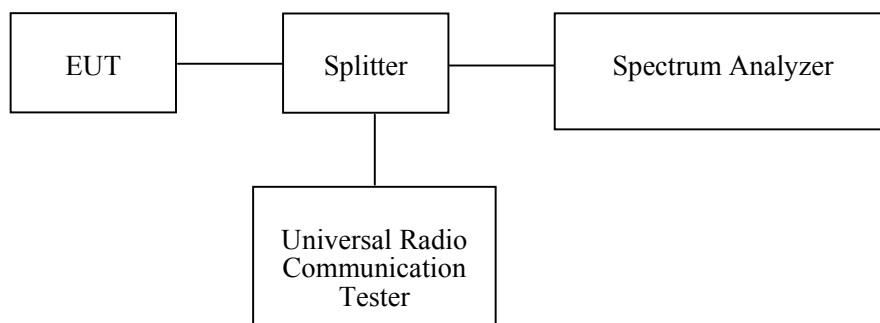
FCC §22.917(a) & §27.53 - BAND EDGES

Applicable Standard

FCC § 2.1053, §22.917, and § 27.53

Test Procedure

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

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

```
┌─────────┐      ┌──────────┐      ┌────────────────────┐
│   EUT   │──────│ Splitter │──────│ Spectrum Analyzer  │
└─────────┘      └──────────┘      └────────────────────┘
                      │
                 ┌──────────────┐
                 │ Universal    │
                 │ Radio        │
                 │ Communication│
                 │ Tester       │
                 └──────────────┘
```

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU 26	200256	2020-05-09	2021-05-09
E-Microwave	Two-way Spliter	ODP-1-6-2S	OE0120142	Each Time	N/A
Unknown	Coaxial Cable	C-SJ00-0010	C0010/04	Each time	N/A
E-Microwave	Blocking Control	EMDCB-00036	0E01201048	Each time	N/A
E-Microwave	Coaxial Attenuators	EMCA10-5RN-6	OE01203239	Each time	N/A

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

Test Data

Environmental Conditions

Temperature:	26.9°C~ 29 °C
Relative Humidity:	55%~68 %
ATM Pressure:	99.8kPa ~100.9kPa
Tester:	Chris Mo
Test Date:	2020-06-11~2020-07-03

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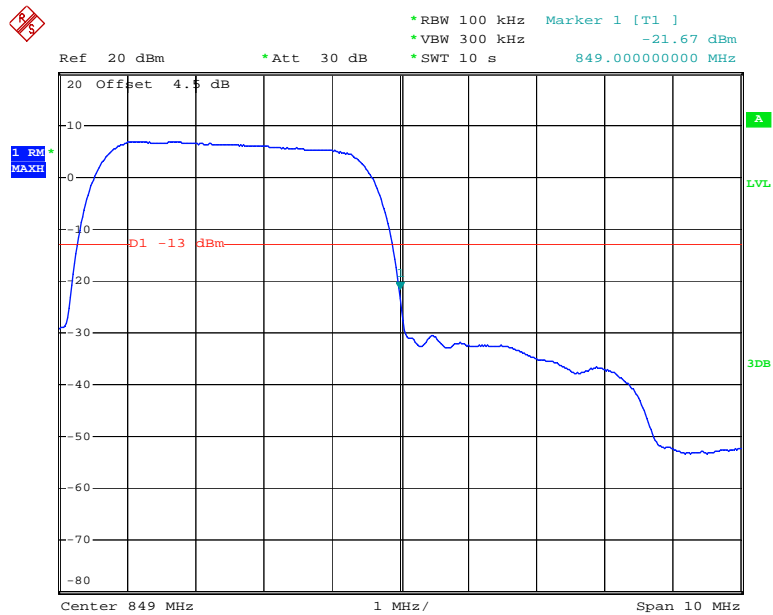*Test Result: Compliance. Please refer to the following plots.*

WCDMA Band 5 Rel 99, Left Band Edge

```
                                    *RBW 100 kHz   Marker 1 [T1 ]
                                    *VBW 300 kHz           -21.09 dBm
Ref  20 dBm          *Att  30 dB    *SWT 10 s      824.000000000 MHz
```

```
 20  Offset  4.5 dB
                                                                    A
 10

  0                                                                 LVL

 D1 -13 dBm
-20

-30                                                                 3DB

-40

-50

-60

-70

-80
Center 824 MHz              1 MHz/              Span 10 MHz
```
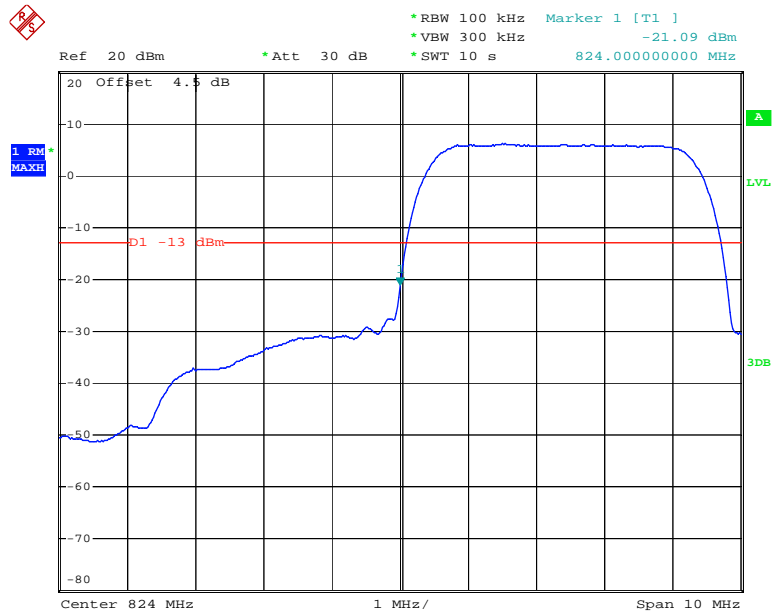
```
Date: 3.JUL.2020  18:58:38
```

WCDMA Band 5 Rel 99, Right Band Edge

```
                                    *RBW 100 kHz   Marker 1 [T1 ]
                                    *VBW 300 kHz           -21.67 dBm
Ref  20 dBm          *Att  30 dB    *SWT 10 s      849.000000000 MHz
```

```
 20  Offset  4.5 dB
                                                                    A
 10

  0                                                                 LVL

-10
 D1 -13 dBm
-20

-30                                                                 3DB

-40

-50

-60

-70

-80
Center 849 MHz              1 MHz/              Span 10 MHz
```

```
Date: 3.JUL.2020  18:59:20
```

WCDMA Band 5 HSDPA, Left Band Edge
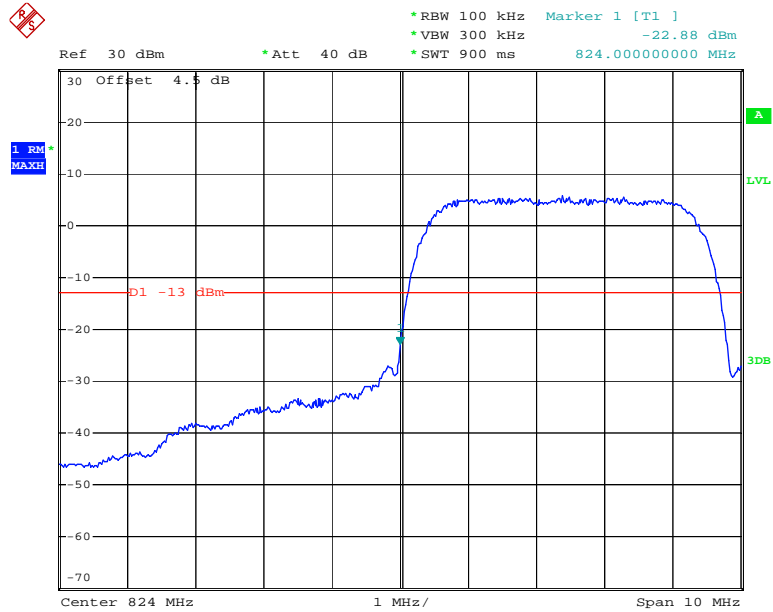
Date: 3.JUL.2020 19:11:27

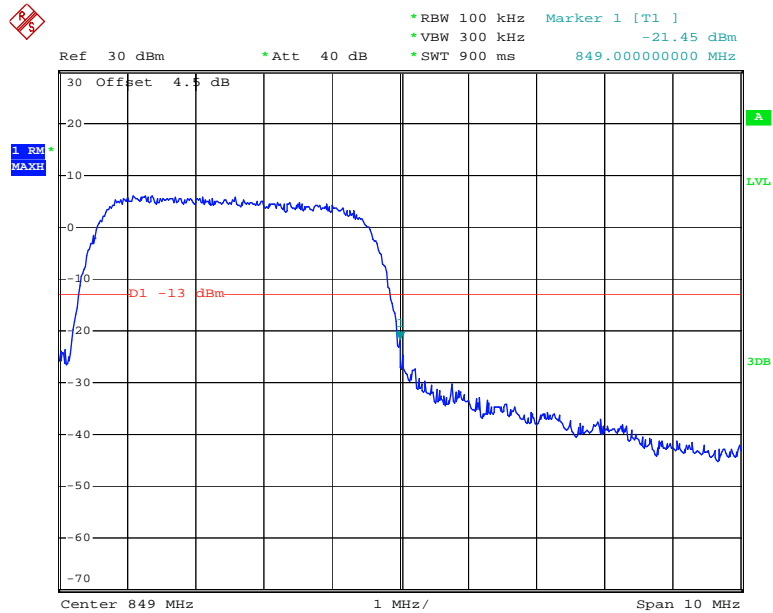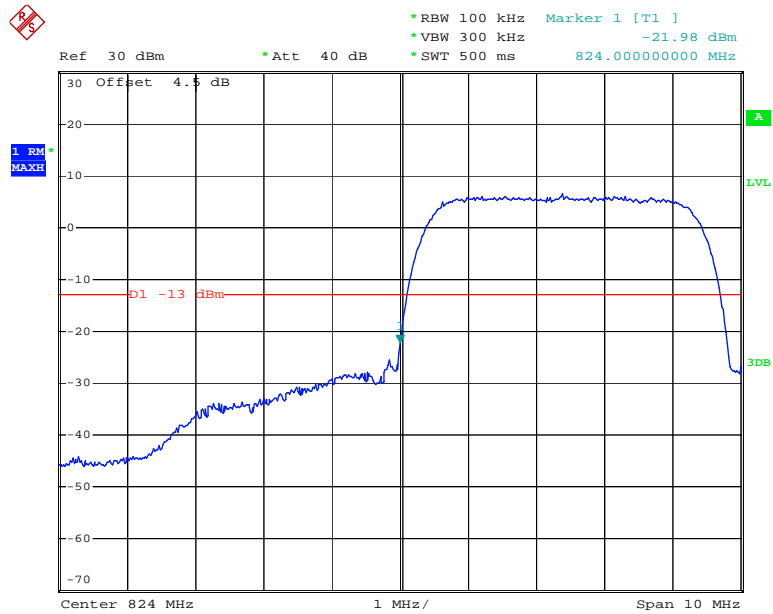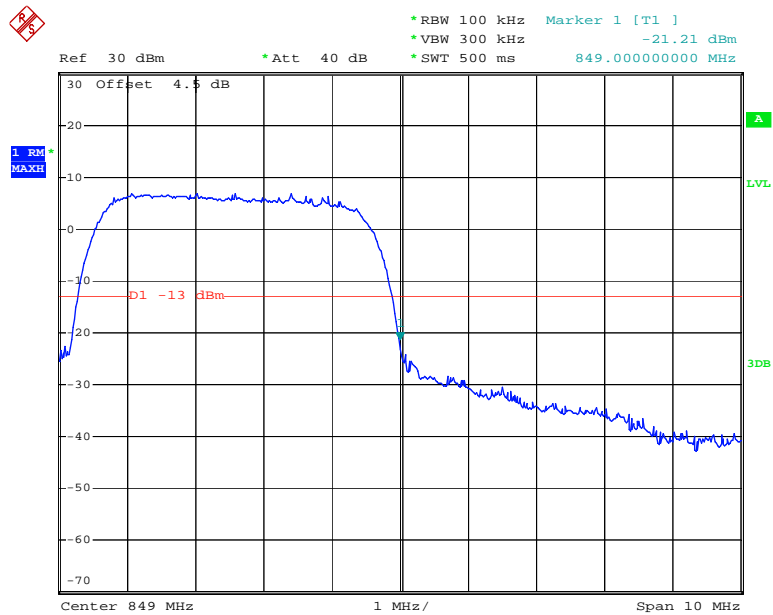**WCDMA Band 5 HSDPA, Right Band Edge**

Date: 3.JUL.2020 19:12:05

WCDMA Band 5 HSUPA, Left Band Edge
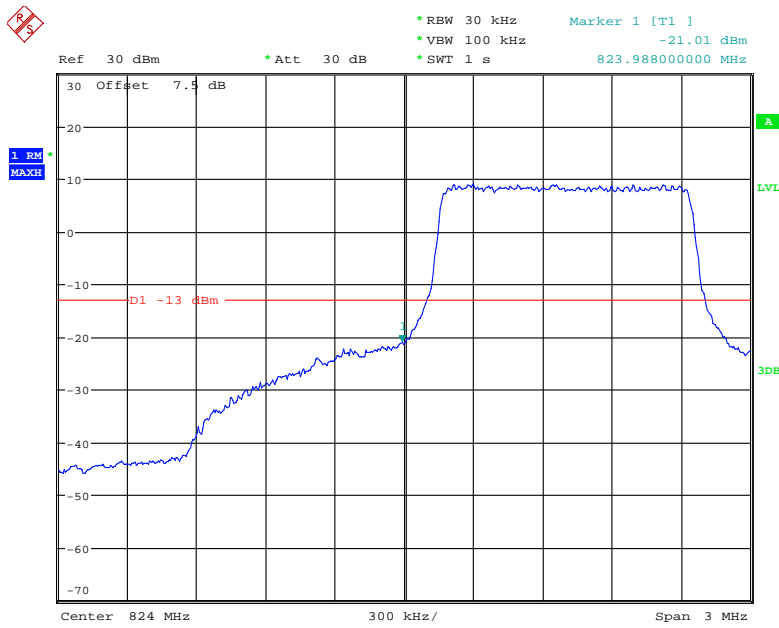

Date: 3.JUL.2020 19:14:32

WCDMA Band 5 HSUPA, Right Band Edge

Date: 3.JUL.2020 19:15:03

LTE Band 5

QPSK_1.4MHz_ 6 RB_ Left

Date: 11.JUN.2020 14:23:38

QPSK_1.4MHz_ 6 RB_ Right
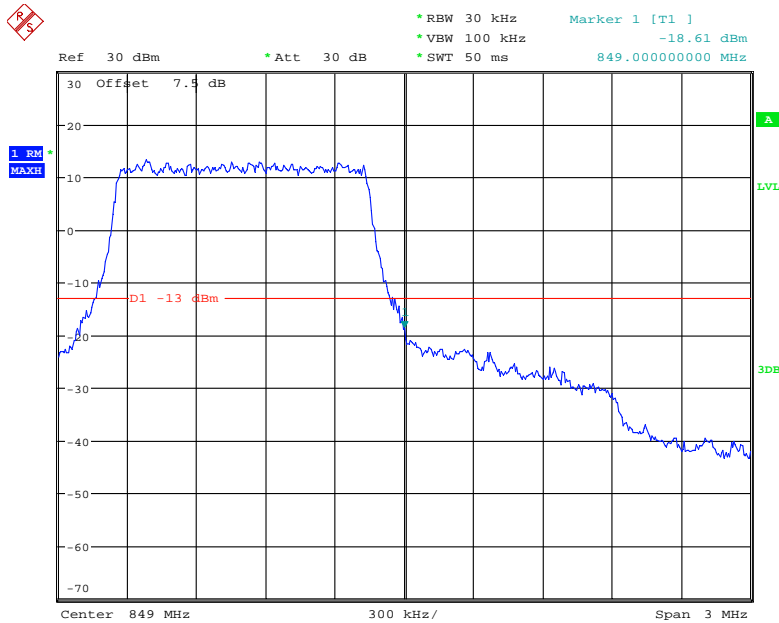
Date: 11.JUN.2020 14:24:51

QPSK_3MHz_ 15 RB_ Left

*RBW 30 kHz	Marker 1 [T1]
*VBW 100 kHz	-21.67 dBm
Ref 30 dBm *Att 30 dB *SWT 1 s	824.000000000 MHz

30 Offset 7.5 dB

```
 30
 20                                                              A
 10
                                                                LVL
  0
-10    D1 -13 dBm
-20
-30                                                             3DB
-40
-50
-60
-70
Center 824 MHz              600 kHz/              Span 6 MHz
```
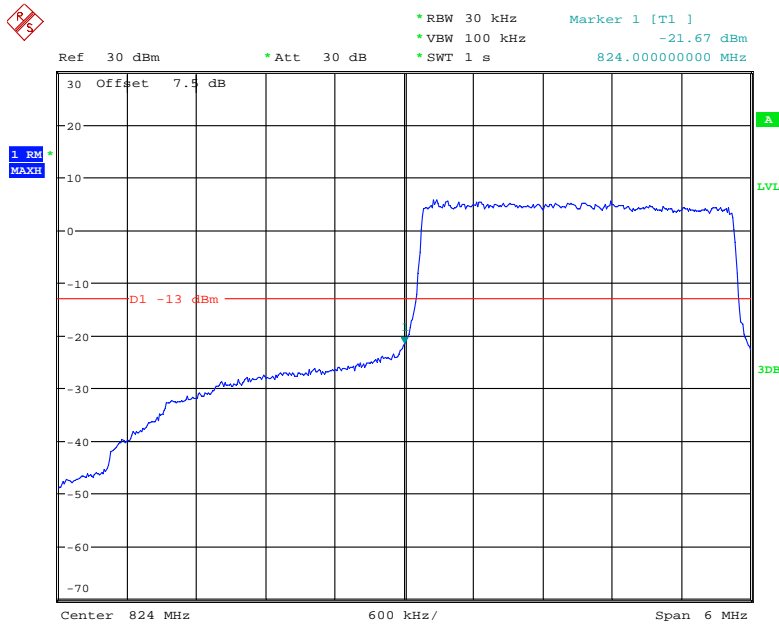
Date: 11.JUN.2020 14:25:42

QPSK_3MHz_ 15 RB_ Right

*RBW 30 kHz	Marker 1 [T1]
*VBW 100 kHz	-19.46 dBm
Ref 30 dBm *Att 30 dB SWT 30 ms	849.000000000 MHz

30 Offset 7.5 dB

```
 30
 20                                                              A
 10
                                                                LVL
  0
-10    D1 -13 dBm
-20
-30                                                             3DB
-40
-50
-60
-70
Center 849 MHz              600 kHz/              Span 6 MHz
```
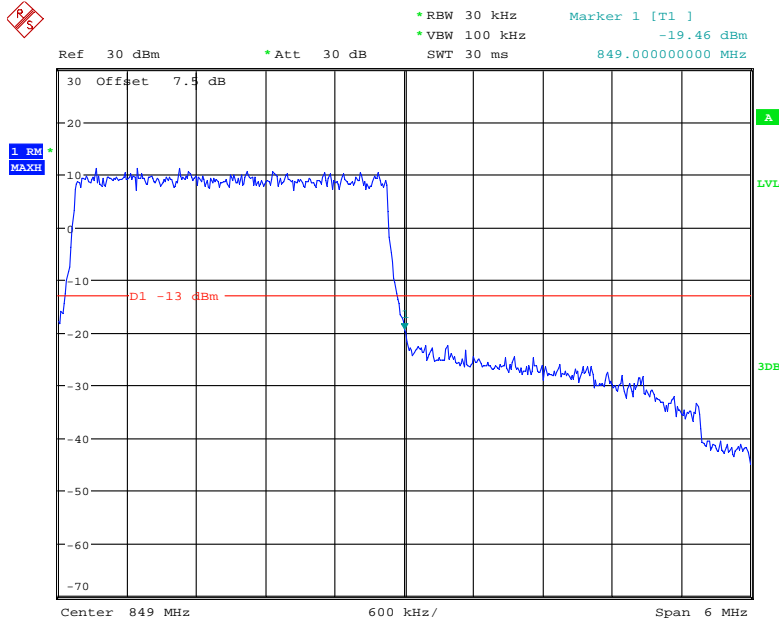
Date: 11.JUN.2020 14:26:16

QPSK_5MHz_ 25 RB_ Left

*RBW 100 kHz	Marker 1 [T1]
*VBW 300 kHz	-19.49 dBm
Ref 30 dBm *Att 30 dB *SWT 1 s	823.980000000 MHz

30 Offset 7.5 dB

Center 824 MHz   1 MHz/   Span 10 MHz
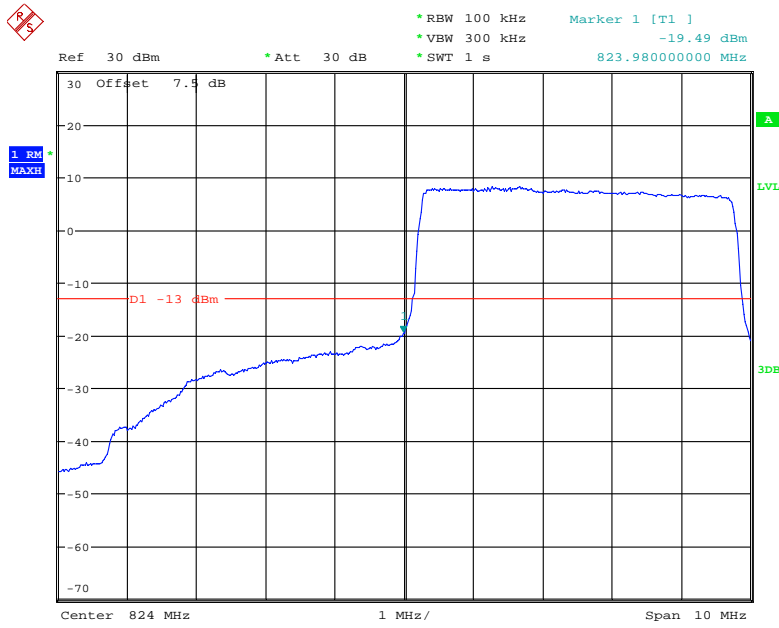
Date: 11.JUN.2020 14:30:16

QPSK_5MHz_ 25 RB_ Right

*RBW 100 kHz	Marker 1 [T1]
*VBW 300 kHz	-22.77 dBm
Ref 30 dBm *Att 30 dB *SWT 1 s	849.000000000 MHz

30 Offset 7.5 dB

Center 849 MHz   1 MHz/   Span 10 MHz
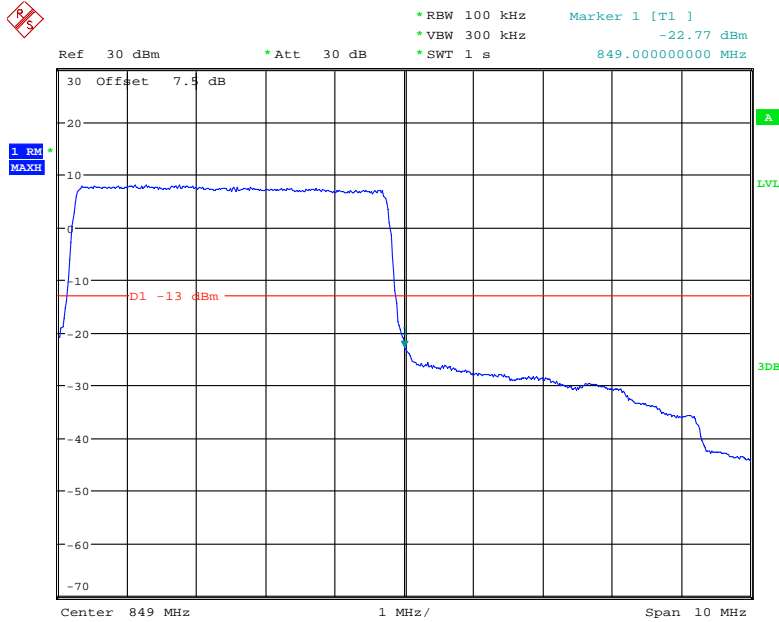
Date: 11.JUN.2020 14:31:01

QPSK_10MHz_ 50 RB_ Left
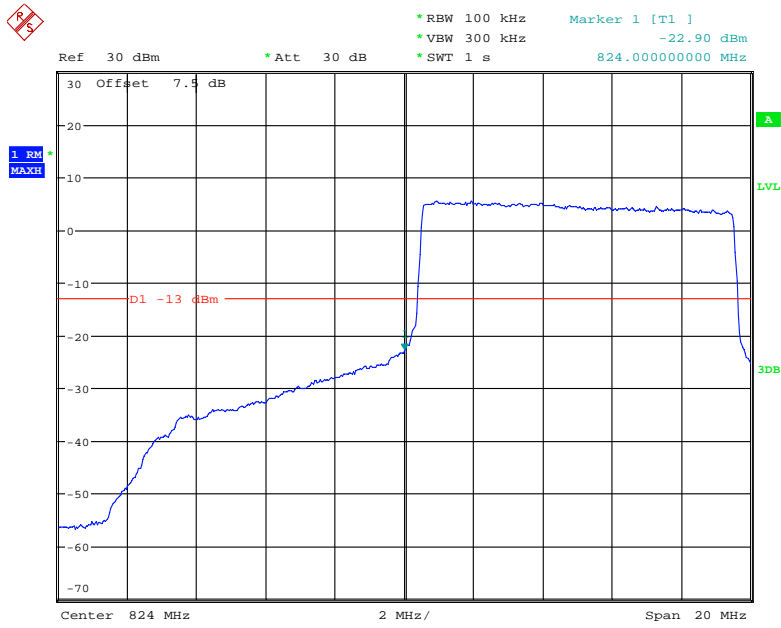
Date: 11.JUN.2020 14:31:55

QPSK_10MHz_ 50 RB_ Right
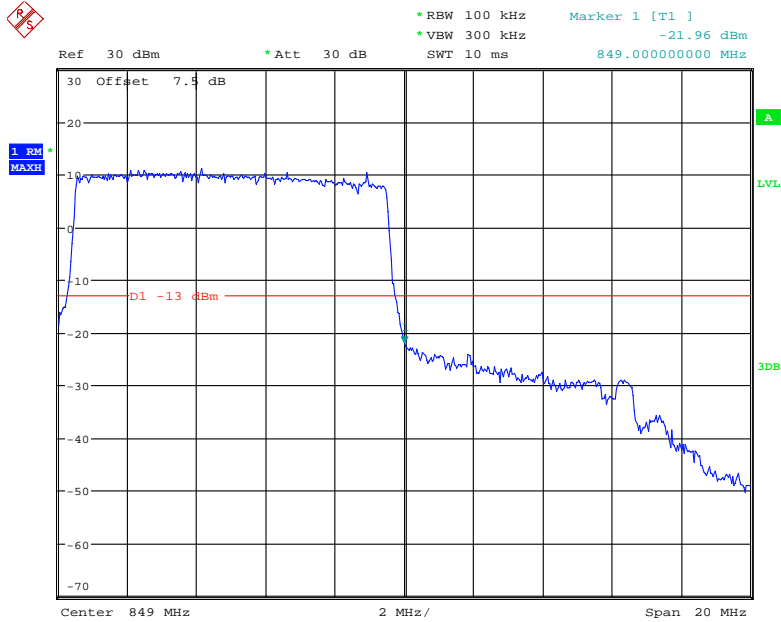
Date: 11.JUN.2020 14:32:38

16QAM_1.4MHz_ 6 RB_ Left

	*RBW 30 kHz	Marker 1 [T1]
	*VBW 100 kHz	-23.40 dBm
Ref 30 dBm	*Att 30 dB	*SWT 1 s	824.000000000 MHz

```
30 Offset  7.5 dB                                          A
 20
                                                          LVL
 10
  0
-10
D1 -13 dBm
-20                                                       3DB
-30
-40
-50
-60
-70
Center 824 MHz        300 kHz/              Span  3 MHz
```
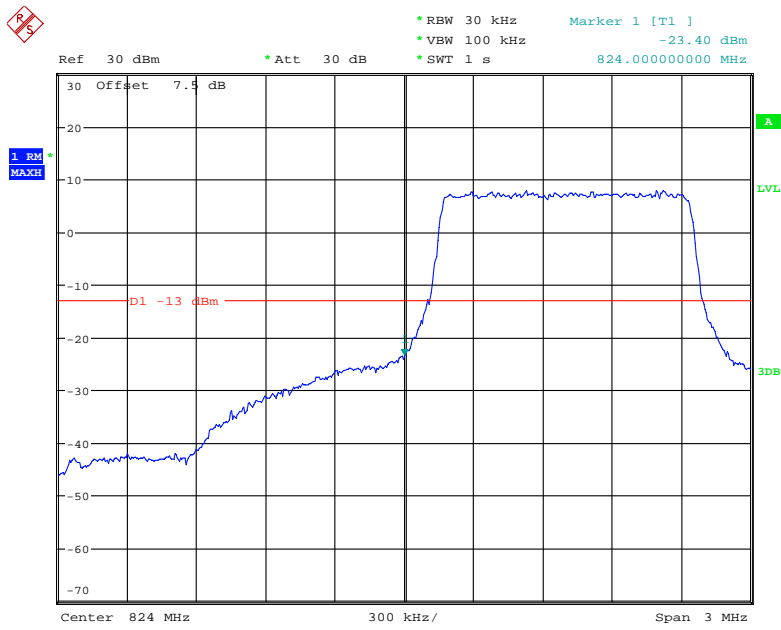
Date: 11.JUN.2020 14:24:02

16QAM_1.4MHz_ 6 RB_ Right

	*RBW 30 kHz	Marker 1 [T1]
	*VBW 100 kHz	-18.05 dBm
Ref 30 dBm	*Att 30 dB	SWT 15 ms	849.000000000 MHz

```
30 Offset  7.5 dB                                          A
 20
                                                          LVL
 10
  0
-10
D1 -13 dBm
-20                                                       3DB
-30
-40
-50
-60
-70
Center 849 MHz        300 kHz/              Span  3 MHz
```
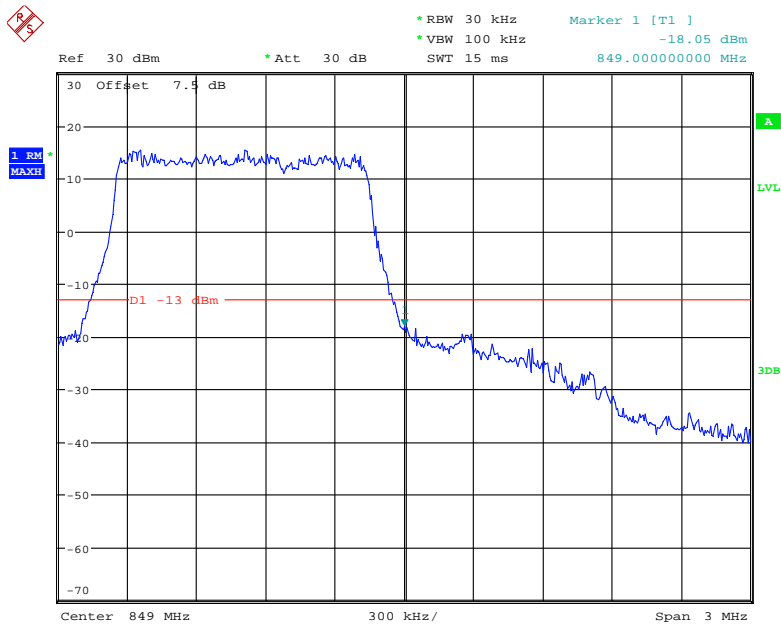
Date: 11.JUN.2020 14:25:09

16QAM_3MHz_ 15 RB_ Left

```
                                    *RBW  30 kHz      Marker 1 [T1 ]
                                    *VBW  100 kHz              -17.81 dBm
        Ref   30 dBm      *Att  30 dB   SWT 30 ms       824.000000000 MHz
```
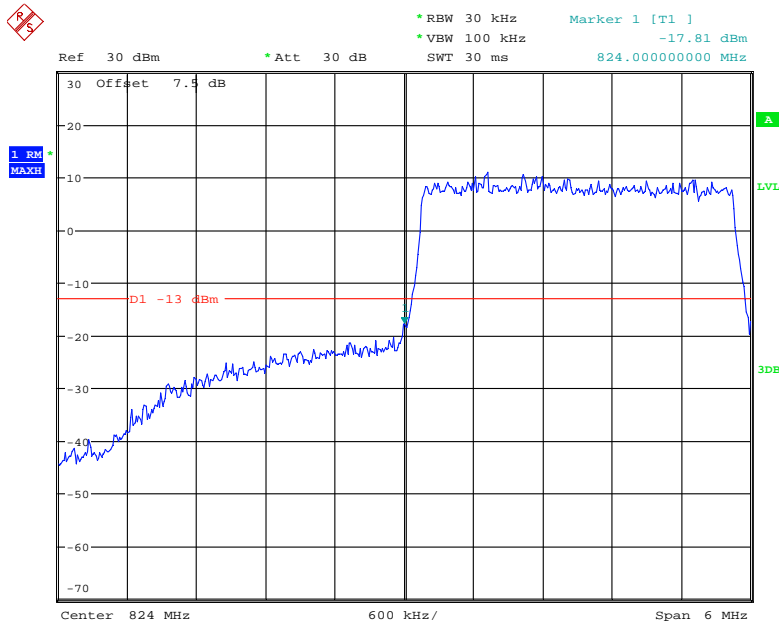
Date: 11.JUN.2020 14:25:59

16QAM_3MHz_ 15 RB_ Right

```
                                    *RBW  30 kHz      Marker 1 [T1 ]
                                    *VBW  100 kHz              -20.61 dBm
        Ref   30 dBm      *Att  30 dB   SWT 30 ms       849.000000000 MHz
```
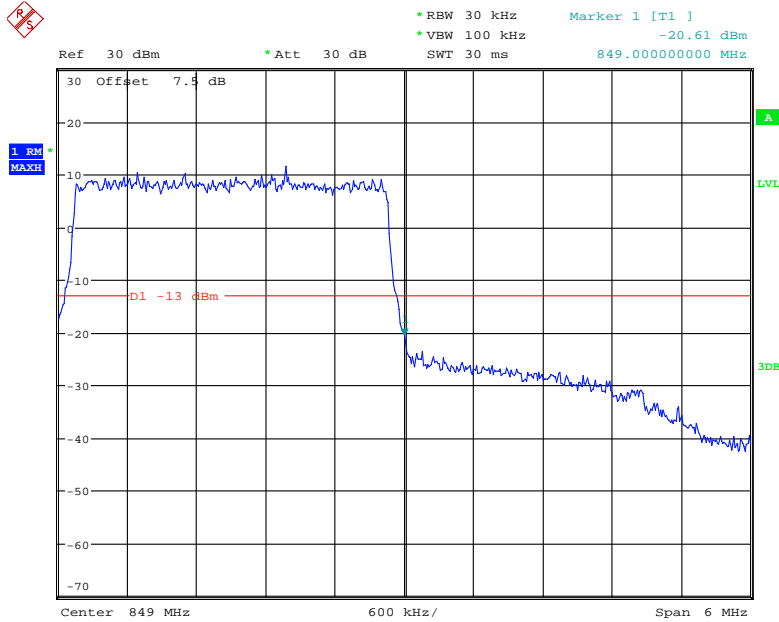
Date: 11.JUN.2020 14:26:33

16QAM_5MHz_ 25 RB_ Left

		*RBW 100 kHz	Marker 1 [T1]
		*VBW 300 kHz	-20.86 dBm
Ref 30 dBm	*Att 30 dB	*SWT 1 s	824.000000000 MHz

30 Offset 7.5 dB

A

1 RM *
MAXH

LVL

D1 −13 dBm

3DB

Center 824 MHz   1 MHz/   Span 10 MHz
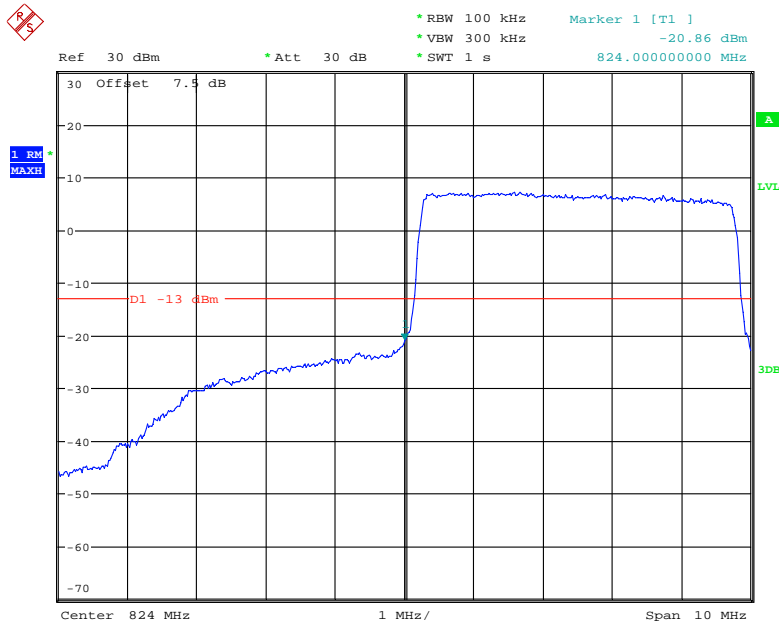
Date: 11.JUN.2020 14:30:36

16QAM_5MHz_ 25 RB_ Right

		*RBW 100 kHz	Marker 1 [T1]
		*VBW 300 kHz	-23.54 dBm
Ref 30 dBm	*Att 30 dB	*SWT 1 s	849.000000000 MHz

30 Offset 7.5 dB

A

1 RM *
MAXH

LVL

D1 −13 dBm

3DB

Center 849 MHz   1 MHz/   Span 10 MHz
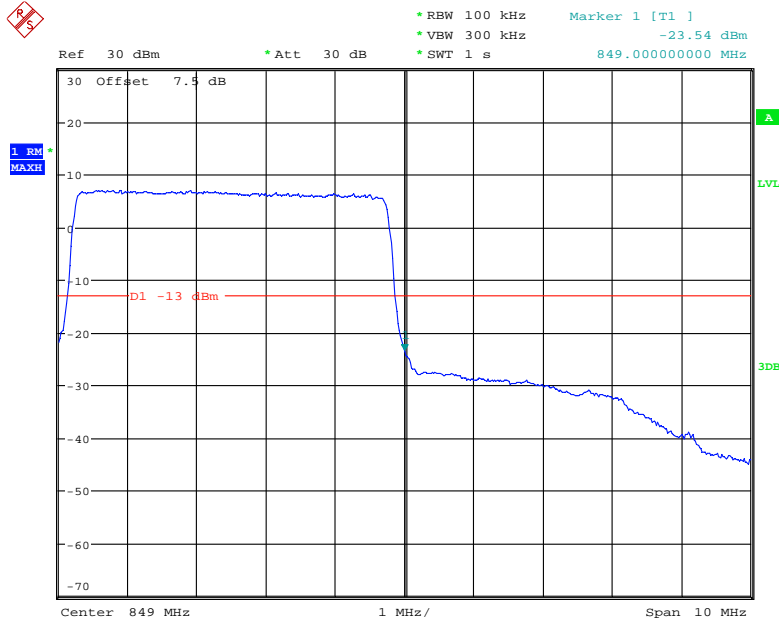
Date: 11.JUN.2020 14:31:23

16QAM_10MHz_ 50 RB_ Left
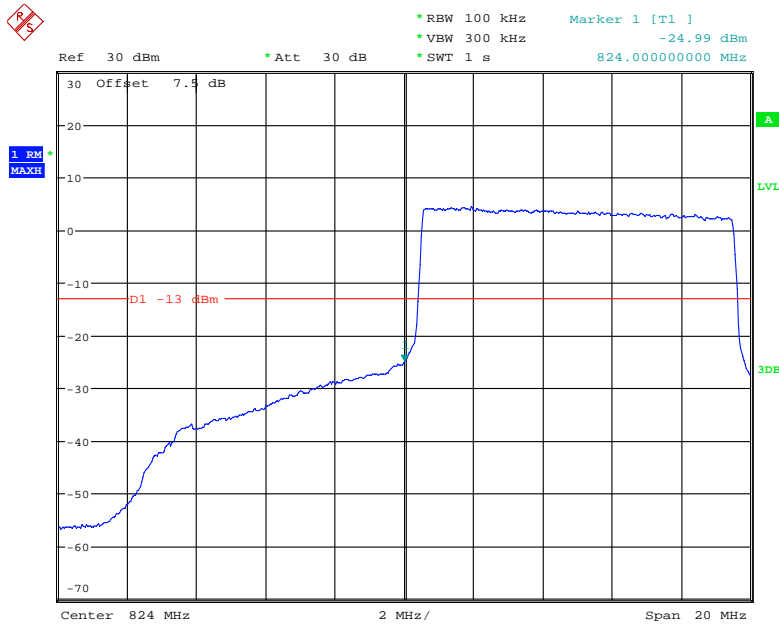
Date: 11.JUN.2020 14:32:18

16QAM_10MHz_ 50 RB_ Right

Date: 11.JUN.2020 14:32:56
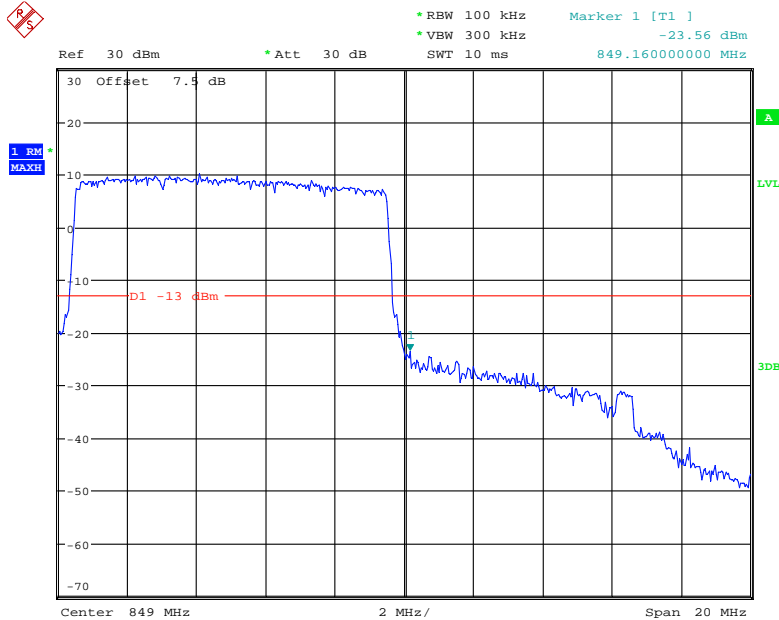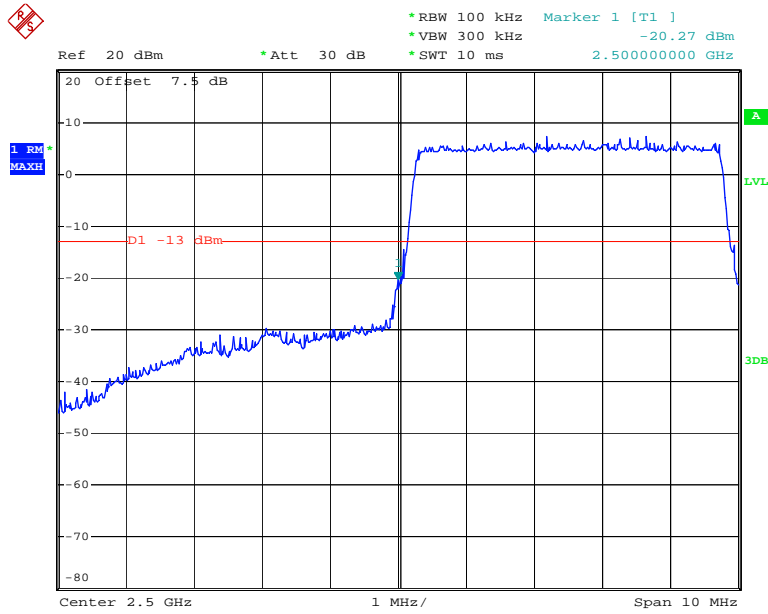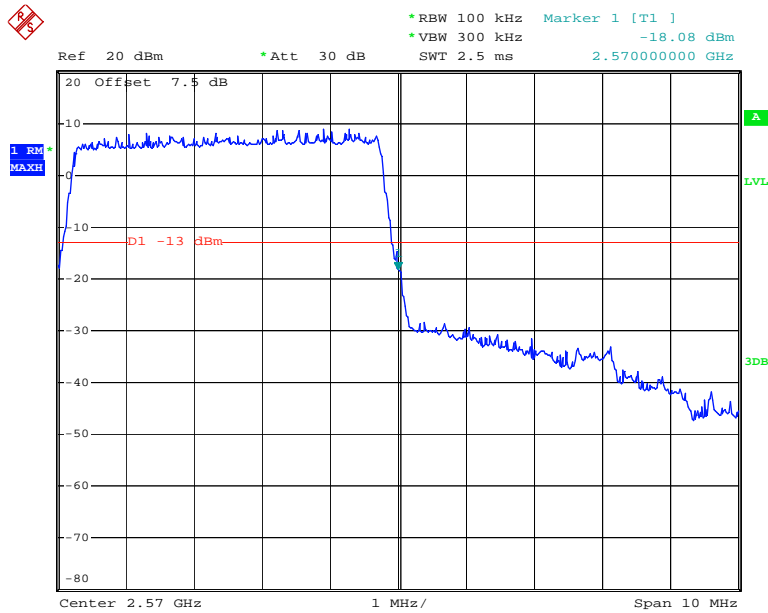
LTE Band 7

5M QPSK Left Band Edge

Date: 3.JUL.2020 17:48:33

5M QPSK Right Band Edge

Date: 3.JUL.2020 17:49:08

10M QPSK Left Band Edge
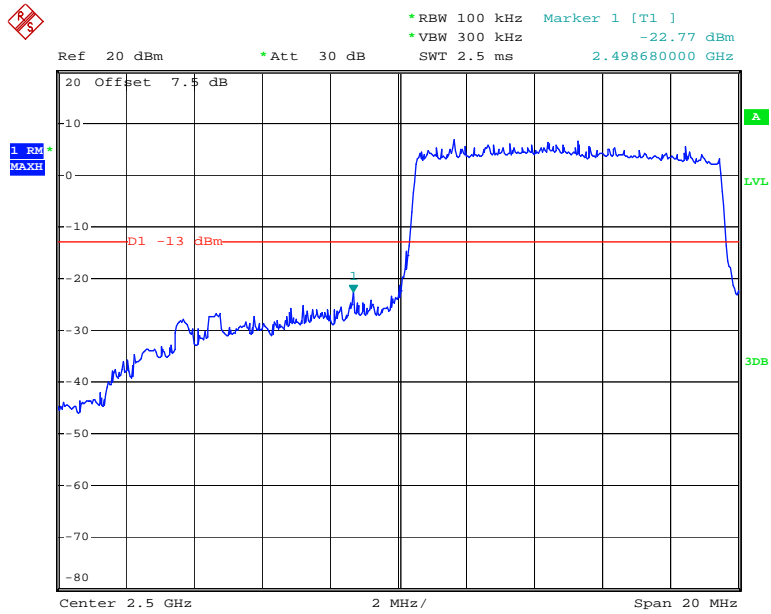
Date: 3.JUL.2020 17:49:53

10M QPSK Right Band Edge
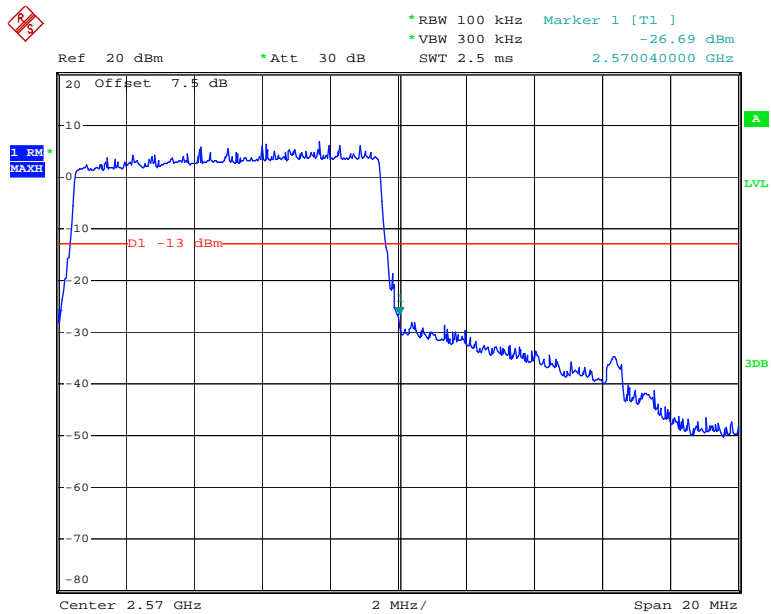
Date: 3.JUL.2020 17:50:30

15M QPSK Left Band Edge

```
                                          *RBW 300 kHz   Marker 1 [T1 ]
                                          *VBW 1 MHz                -19.62 dBm
         Ref  20 dBm        *Att  30 dB    SWT 2.5 ms        2.499940000 GHz

          20 Offset  7.5 dB                                                    A

          -10

   1 RM
   MAXH                                                                       LVL
          -0

          -10          D1 -13 dBm

          -20

          -30
                                                                             3DB
          -40

          -50

          -60

          -70

          -80
         Center 2.5 GHz              3 MHz/              Span 30 MHz
```
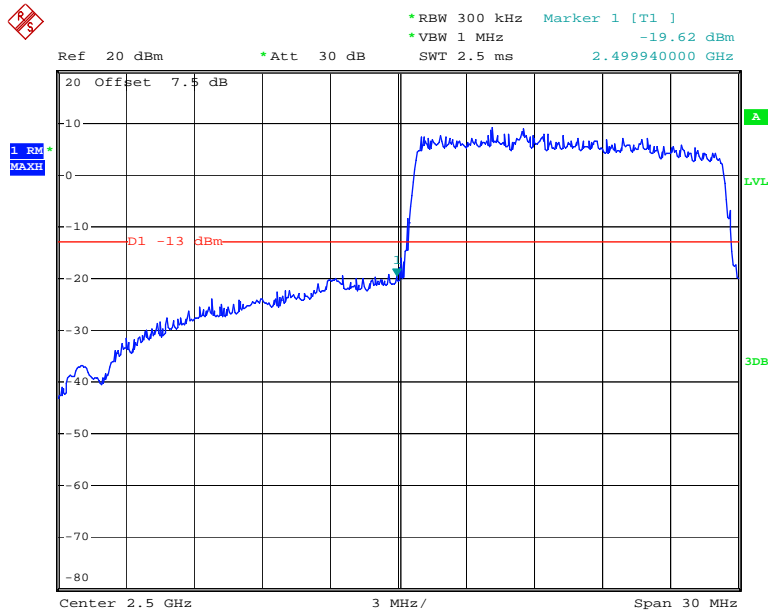
Date: 3.JUL.2020 17:51:18

15M QPSK Right Band Edge

```
                                          *RBW 300 kHz   Marker 1 [T1 ]
                                          *VBW 1 MHz                -20.41 dBm
         Ref  20 dBm        *Att  30 dB    SWT 2.5 ms        2.570000000 GHz

          20 Offset  7.5 dB                                                    A

          -10

   1 RM
   MAXH                                                                       LVL
          -0

          -10          D1 -13 dBm

          -20

          -30
                                                                             3DB
          -40

          -50

          -60

          -70

          -80
         Center 2.57 GHz             3 MHz/              Span 30 MHz
```

Date: 3.JUL.2020 17:51:59

20M QPSK Left Band Edge

```
*RBW 300 kHz   Marker 1 [T1 ]
*VBW 1 MHz              -24.10 dBm
Ref  20 dBm        *Att  30 dB    SWT 2.5 ms      2.499600000 GHz
```

```
20 Offset  7.5 dB
                                                              A
-10
1 RM *
MAXH                                                          LVL
-0

-10     D1 -13 dBm

-20

-30
                                                              3DB
-40

-50

-60

-70

-80
Center 2.5 GHz              4 MHz/                 Span 40 MHz
```
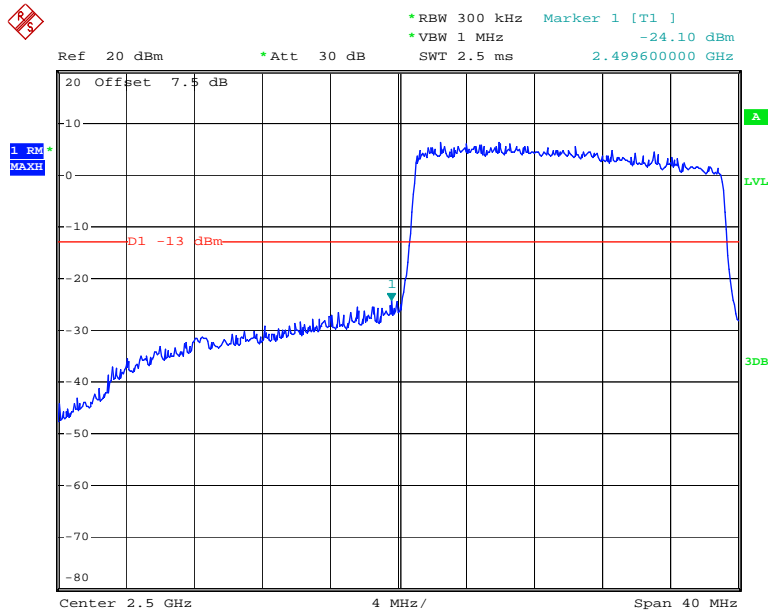
Date: 3.JUL.2020 17:52:48

20M QPSK Right Band Edge

```
*RBW 300 kHz   Marker 1 [T1 ]
*VBW 1 MHz              -27.93 dBm
Ref  20 dBm        *Att  30 dB    SWT 2.5 ms      2.570000000 GHz
```

```
20 Offset  7.5 dB
                                                              A
-10
1 RM *
MAXH                                                          LVL
-0

-10     D1 -13 dBm

-20

-30
                                                              3DB
-40

-50

-60

-70

-80
Center 2.57 GHz             4 MHz/                 Span 40 MHz
```
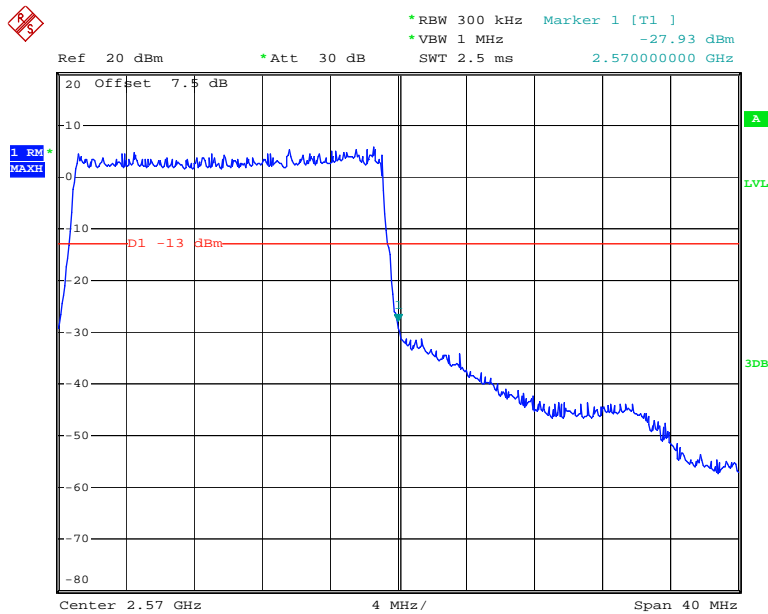
Date: 3.JUL.2020 17:53:30

5M 16QAM Left Band Edge

Date: 3.JUL.2020 17:48:50

5M 16QAM Right Band Edge
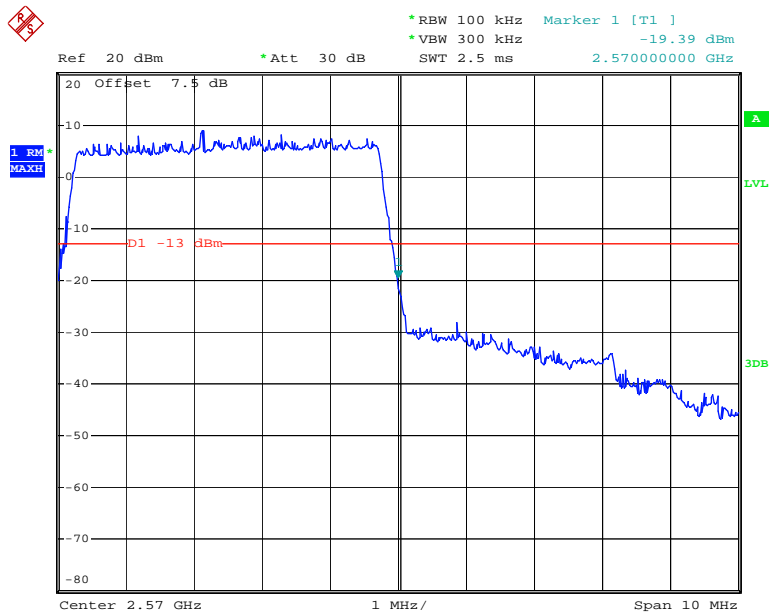
Date: 3.JUL.2020 17:49:25

10M 16QAM Left Band Edge

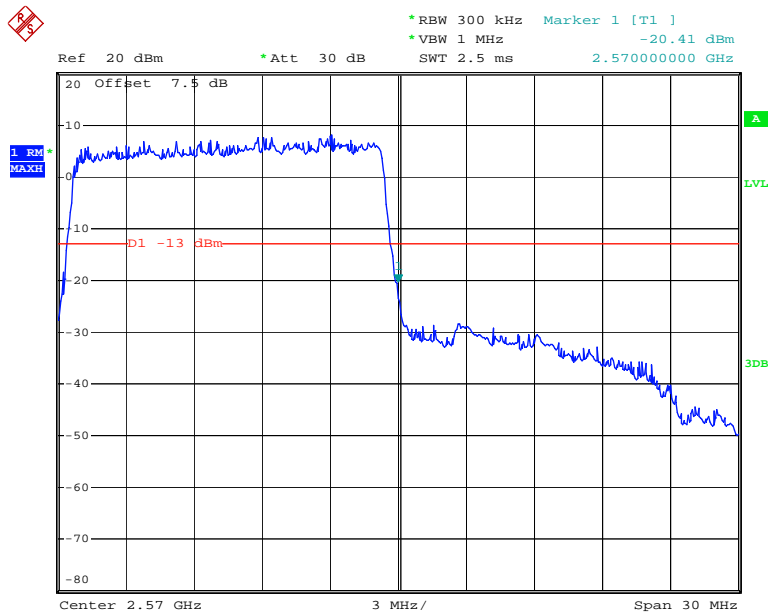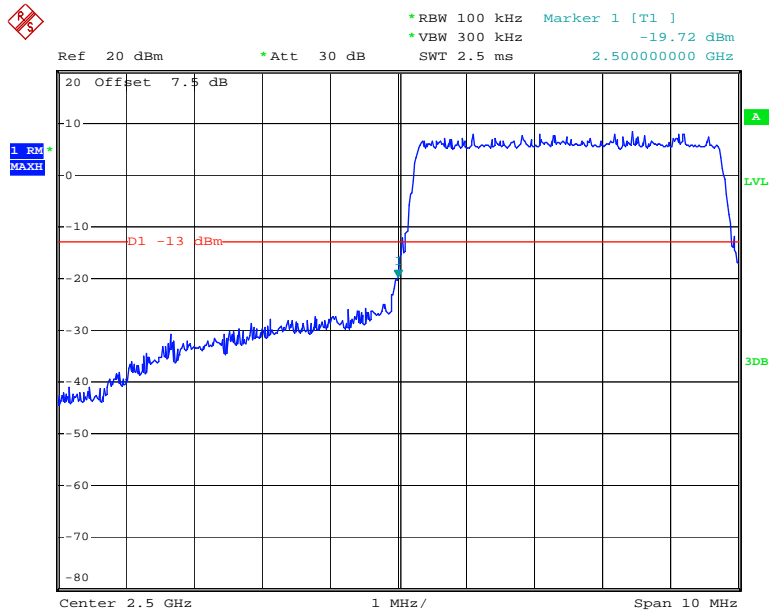|	
*RBW 100 kHz	Marker 1 [T1]
*VBW 300 kHz	-23.69 dBm
Ref 20 dBm　　　*Att 30 dB　　SWT 2.5 ms	2.498920000 GHz

```
20 Offset 7.5 dB
```

Center 2.5 GHz　　　　　　　　　2 MHz/　　　　　　　　　Span 20 MHz
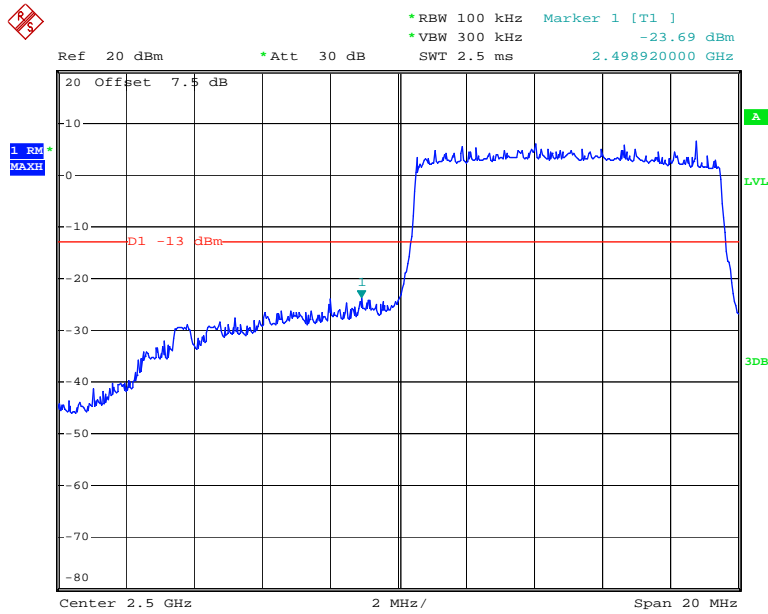
Date: 3.JUL.2020　17:50:11

10M 16QAM Right Band Edge

*RBW 100 kHz	Marker 1 [T1]
*VBW 300 kHz	-27.93 dBm
Ref 20 dBm　　　*Att 30 dB　　SWT 2.5 ms	2.570000000 GHz

```
20 Offset 7.5 dB
```

Center 2.57 GHz　　　　　　　　　2 MHz/　　　　　　　　　Span 20 MHz
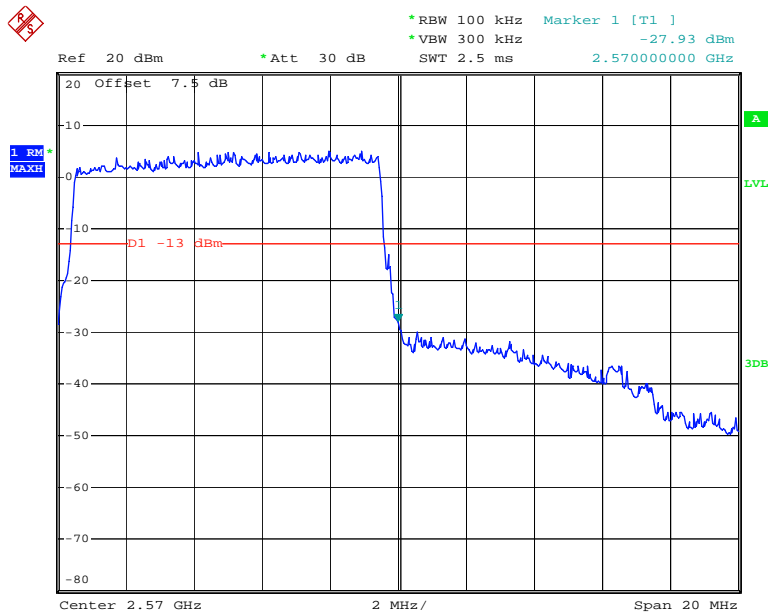
Date: 3.JUL.2020　17:50:51

15M 16QAM Left Band Edge

```
                                          *RBW 300 kHz   Marker 1 [T1 ]
                                          *VBW 1 MHz                -19.95 dBm
   Ref   20 dBm          *Att   30 dB     SWT 2.5 ms        2.499940000 GHz
   20 Offset  7.5 dB                                                      A

   -10

                                                                         LVL
     0

   -10
         D1 -13 dBm
   -20

   -30
                                                                         3DB
   -40

   -50

   -60

   -70

   -80
   Center 2.5 GHz            3 MHz/              Span 30 MHz
```
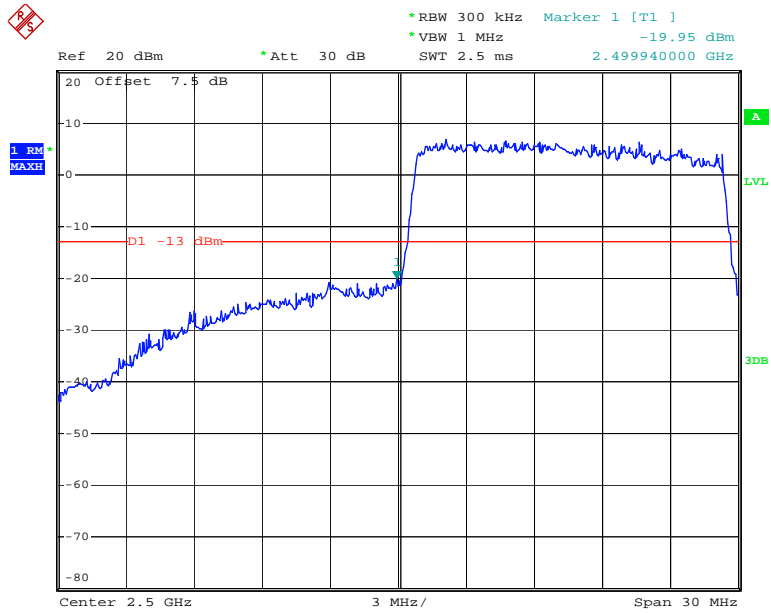
Date: 3.JUL.2020 17:51:38

15M 16QAM Right Band Edge

```
                                          *RBW 300 kHz   Marker 1 [T1 ]
                                          *VBW 1 MHz                -19.82 dBm
   Ref   20 dBm          *Att   30 dB     SWT 2.5 ms        2.570000000 GHz
   20 Offset  7.5 dB                                                      A

   -10

     0                                                                    LVL

   10
         D1 -13 dBm
   -20

   -30
                                                                         3DB
   -40

   -50

   -60

   -70

   -80
   Center 2.57 GHz           3 MHz/              Span 30 MHz
```
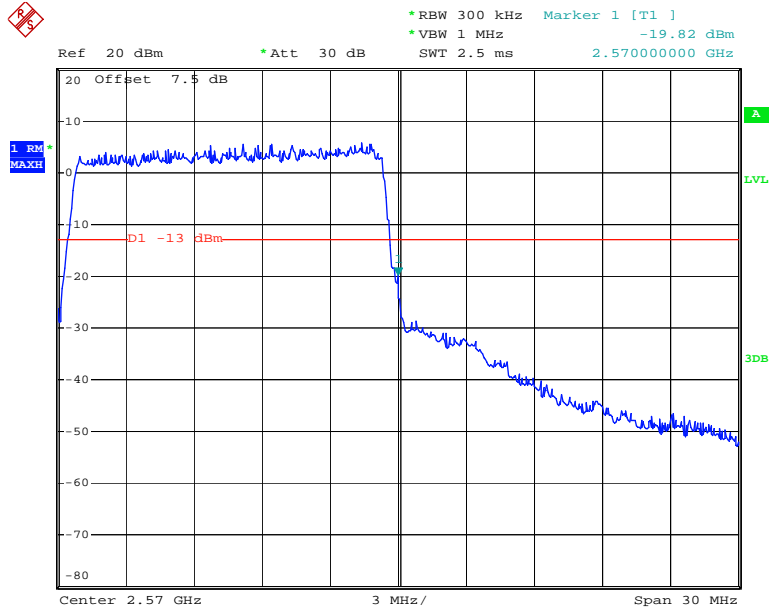
Date: 3.JUL.2020 17:52:20

20M 16QAM Left Band Edge

```
                                                    *RBW 300 kHz   Marker 1 [T1 ]
                                                    *VBW 1 MHz              -24.42 dBm
        Ref  20 dBm            *Att  30 dB    SWT 2.5 ms        2.499600000 GHz
        20 Offset  7.5 dB
```
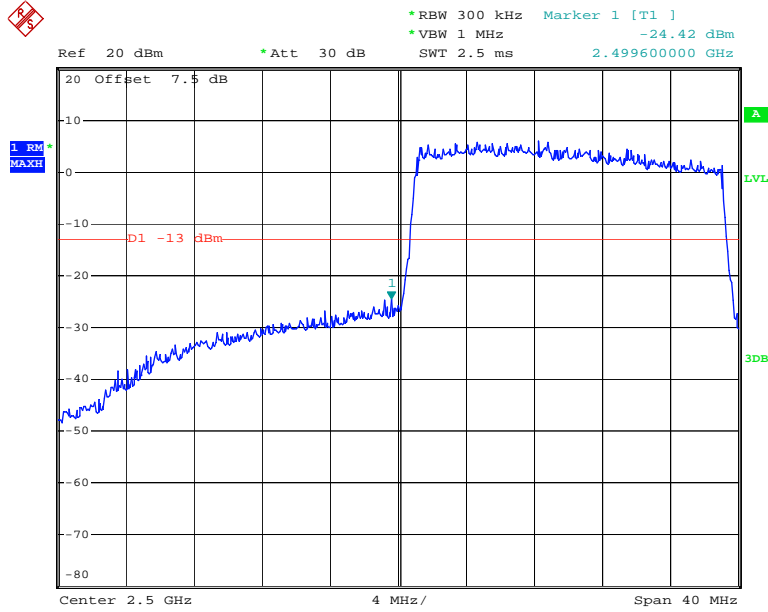
Date: 3.JUL.2020 17:53:08

20M 16QAM Right Band Edge

```
                                                    *RBW 300 kHz   Marker 1 [T1 ]
                                                    *VBW 1 MHz              -29.55 dBm
        Ref  20 dBm            *Att  30 dB    SWT 2.5 ms        2.570160000 GHz
        20 Offset  7.5 dB
```
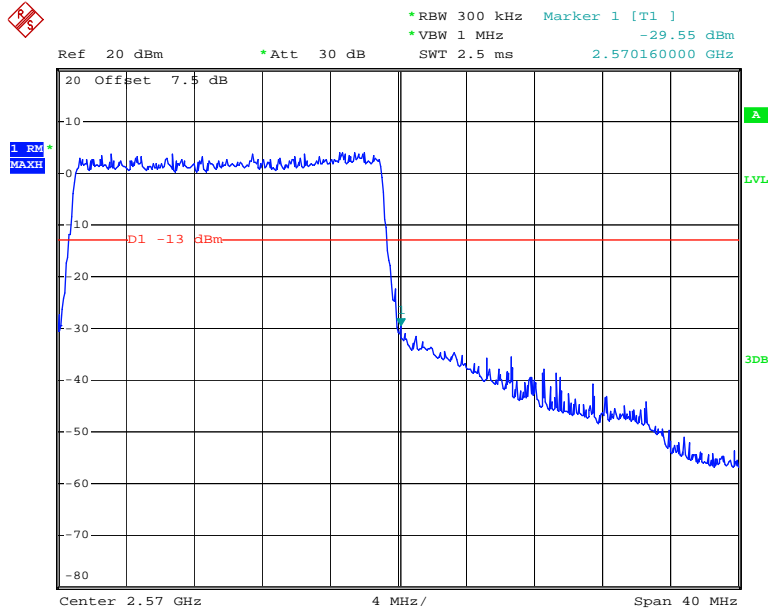
Date: 3.JUL.2020 17:53:50

LTE Band 38

5M QPSK Left Band Edge

```
                                        *RBW  100 kHz    Marker 1 [T1 ]
                                        *VBW  300 kHz          -19.07 dBm
    Ref   30 dBm          *Att   30 dB  *SWT  1 s        2.569980000 GHz
    30  Offset   7.5 dB                                              A

     20

  1 RM *
  MAXH                                                             LVL
     10

      0

    -10
        D1 -13 dBm
    -20                                                            3DB

    -30

    -40

    -50

    -60

    -70
    Center   2.57 GHz            1 MHz/           Span  10 MHz
```
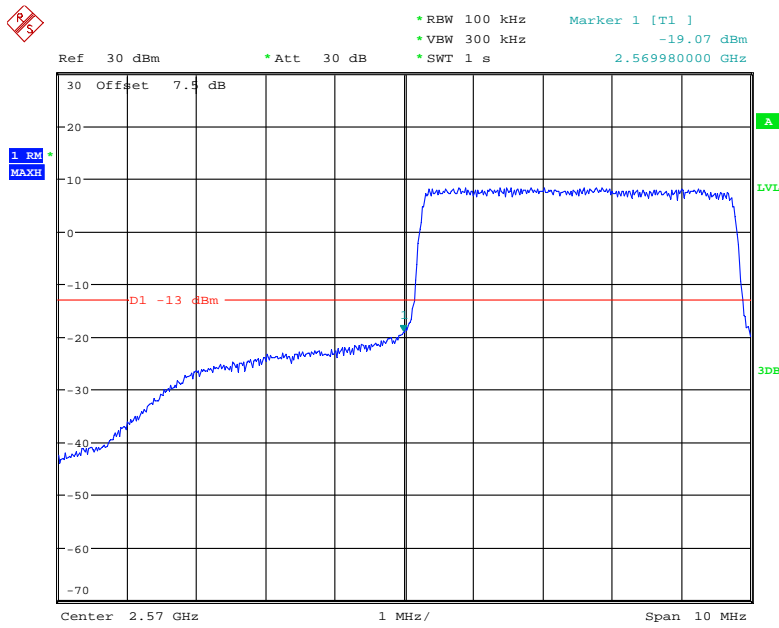
Date: 11.JUN.2020 14:44:48

5M QPSK Right Band Edge

```
                                        *RBW  100 kHz    Marker 1 [T1 ]
                                        *VBW  300 kHz          -20.57 dBm
    Ref   30 dBm          *Att   30 dB  *SWT  1 s        2.620000000 GHz
    30  Offset   7.5 dB                                              A

     20

  1 RM *
  MAXH                                                             LVL
     10

      0

    -10
        D1 -13 dBm
    -20                                                            3DB

    -30

    -40

    -50

    -60

    -70
    Center   2.62 GHz            1 MHz/           Span  10 MHz
```
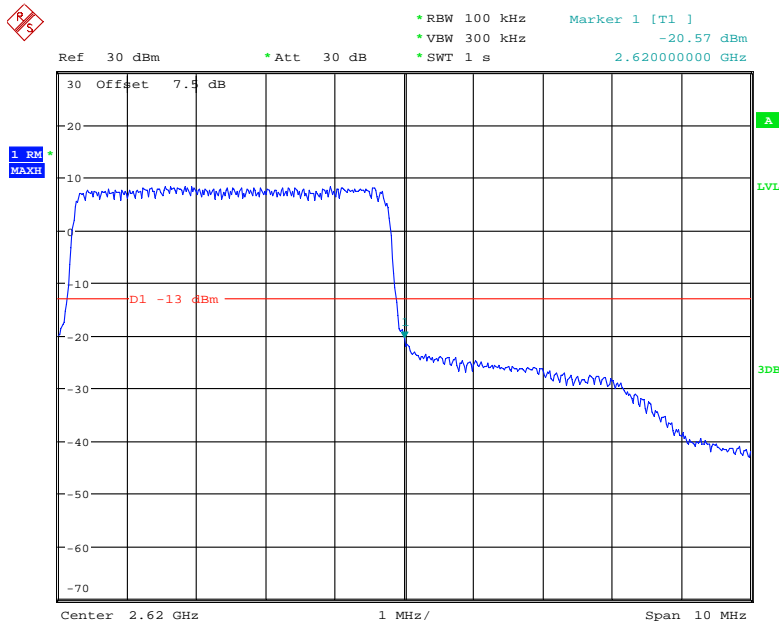
Date: 11.JUN.2020 14:45:49

10M QPSK Left Band Edge

		*RBW 100 kHz	Marker 1 [T1]	
		*VBW 300 kHz		-16.17 dBm
Ref 30 dBm	*Att 30 dB	SWT 10 ms		2.570000000 GHz

```
30  Offset  7.5 dB
 20                                                                      A
 1 RM *
 MAXH                                                                     LVL
 10
  0
-10
D1 -13 dBm                                                               3DB
-20
-30
-40
-50
-60
-70
Center 2.57 GHz            2 MHz/            Span 20 MHz
```
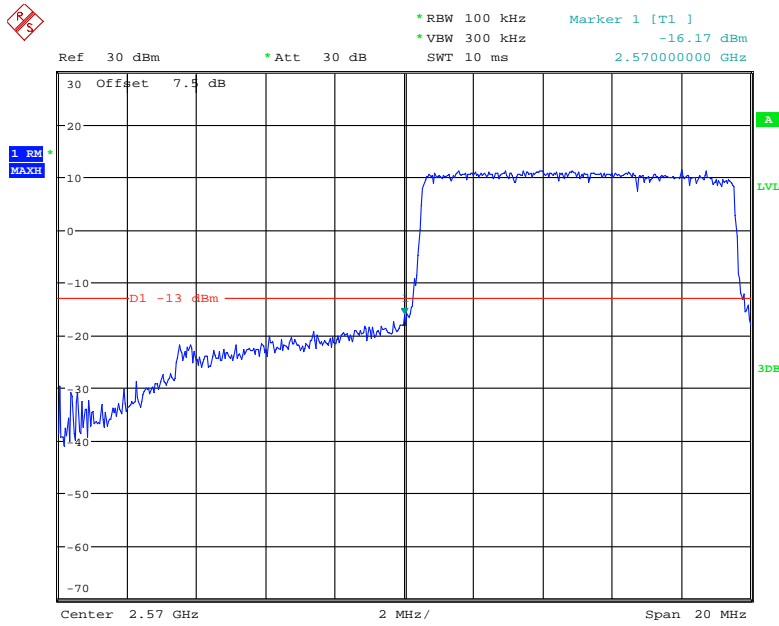
Date: 11.JUN.2020 14:47:00

10M QPSK Right Band Edge

		*RBW 100 kHz	Marker 1 [T1]	
		*VBW 300 kHz		-17.20 dBm
Ref 30 dBm	*Att 30 dB	SWT 10 ms		2.620000000 GHz

```
30  Offset  7.5 dB
 20                                                                      A
 1 RM *
 MAXH                                                                     LVL
 10
  0
-10
D1 -13 dBm                                                               3DB
-20
-30
-40
-50
-60
-70
Center 2.62 GHz            2 MHz/            Span 20 MHz
```
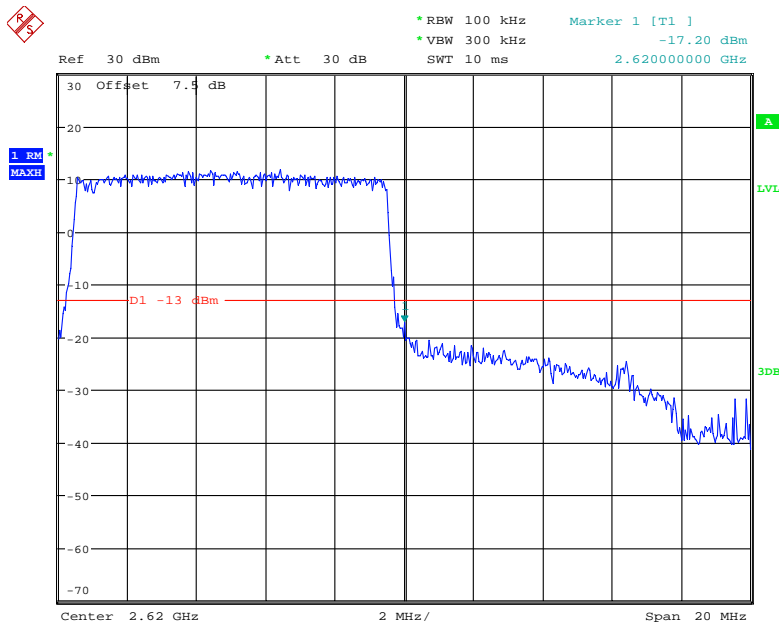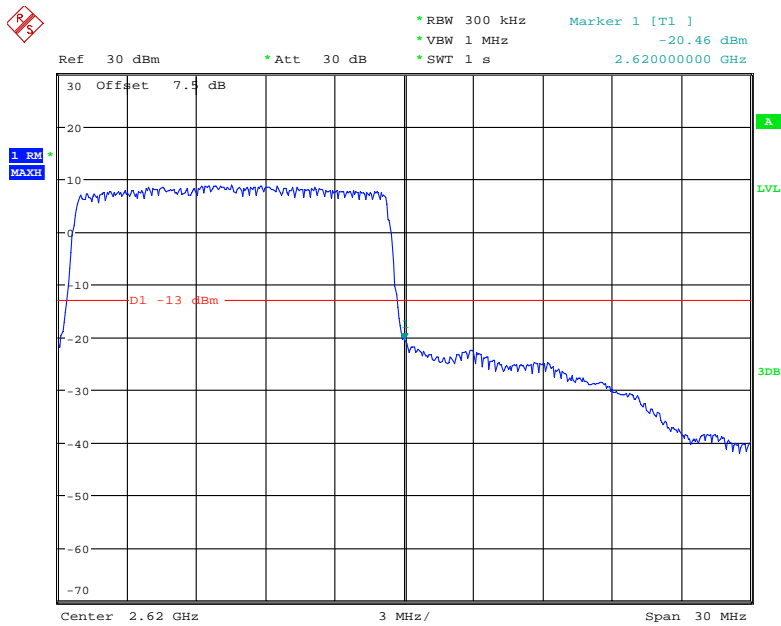
Date: 11.JUN.2020 14:47:39

15M QPSK Left Band Edge
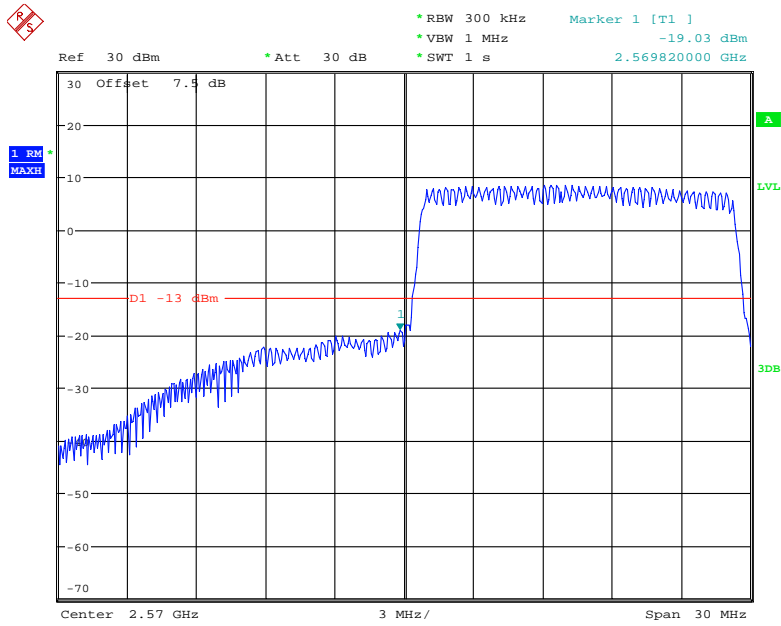
Date: 11.JUN.2020 14:48:43

15M QPSK Right Band Edge

Date: 11.JUN.2020 14:49:42

20M QPSK Left Band Edge
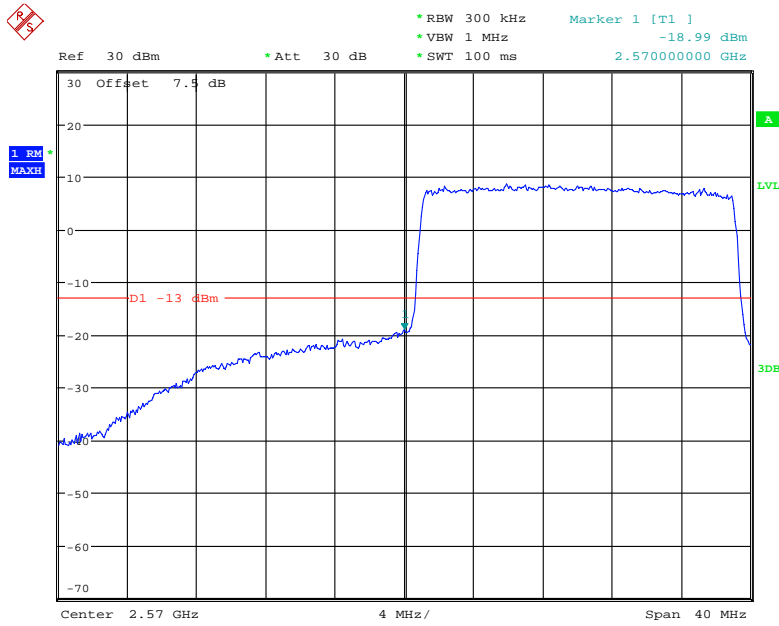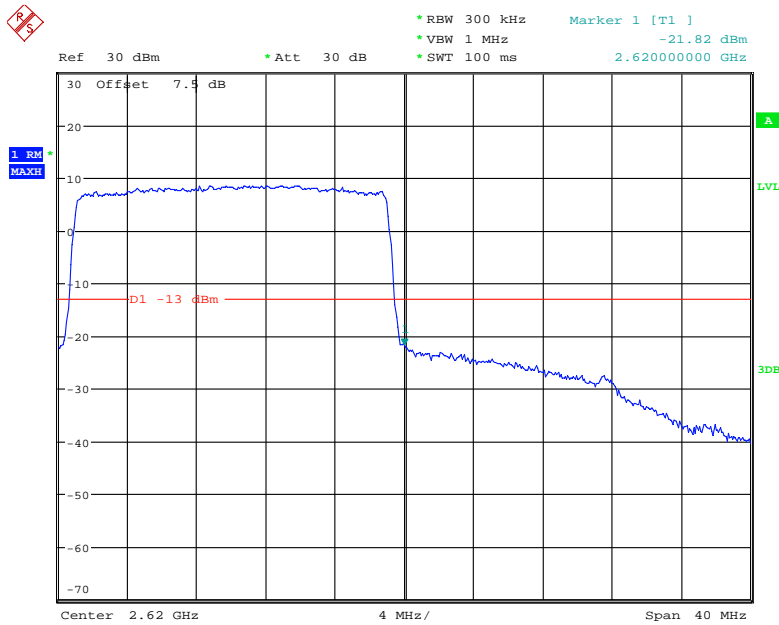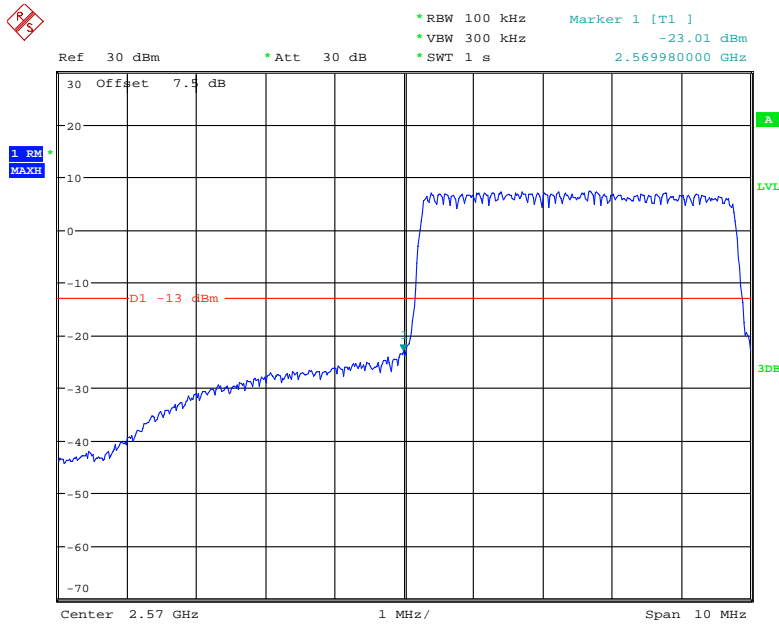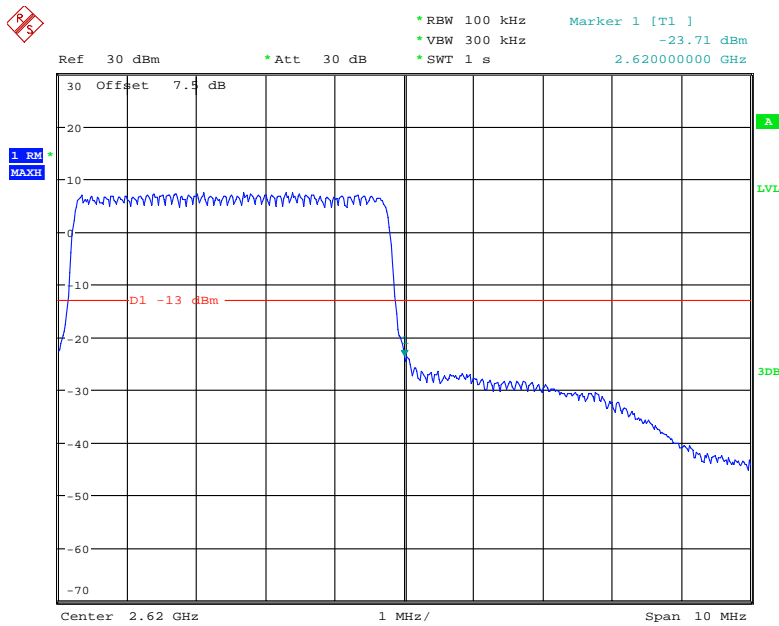
	*RBW 300 kHz	Marker 1 [T1]
	*VBW 1 MHz	-18.99 dBm
Ref 30 dBm	*Att 30 dB	*SWT 100 ms	2.570000000 GHz

30 Offset 7.5 dB

Center 2.57 GHz   4 MHz/   Span 40 MHz

Date: 11.JUN.2020 14:50:46

20M QPSK Right Band Edge

	*RBW 300 kHz	Marker 1 [T1]
	*VBW 1 MHz	-21.82 dBm
Ref 30 dBm	*Att 30 dB	*SWT 100 ms	2.620000000 GHz

30 Offset 7.5 dB

Center 2.62 GHz   4 MHz/   Span 40 MHz

Date: 11.JUN.2020 14:51:50

5M 16QAM Left Band Edge

```
                                           * RBW  100 kHz     Marker 1 [T1 ]
                                           * VBW  300 kHz              -23.01 dBm
        Ref  30 dBm          * Att  30 dB  * SWT  1 s           2.569980000 GHz
     30 Offset   7.5 dB
```

Date: 11.JUN.2020 14:45:17

5M 16QAM Right Band Edge

```
                                           * RBW  100 kHz     Marker 1 [T1 ]
                                           * VBW  300 kHz              -23.71 dBm
        Ref  30 dBm          * Att  30 dB  * SWT  1 s           2.620000000 GHz
     30 Offset   7.5 dB
```

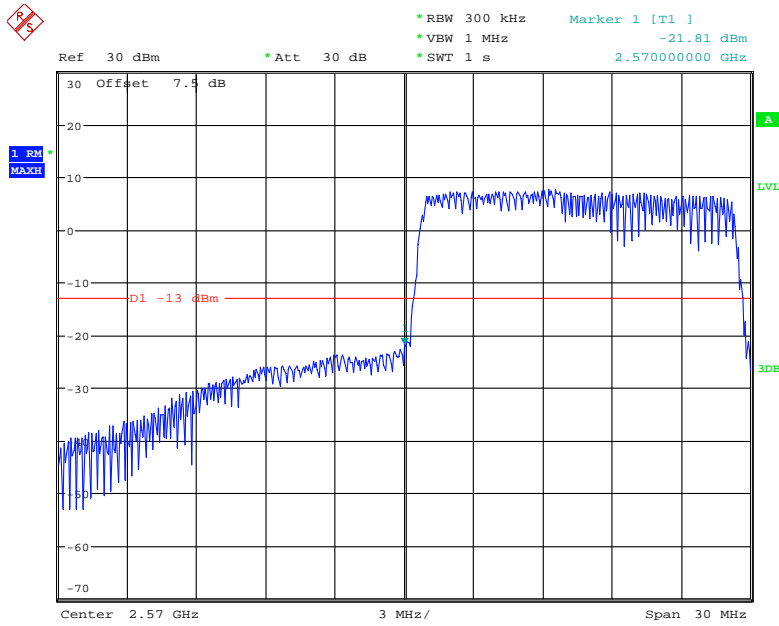Date: 11.JUN.2020 14:46:29

10M 16QAM Left Band Edge
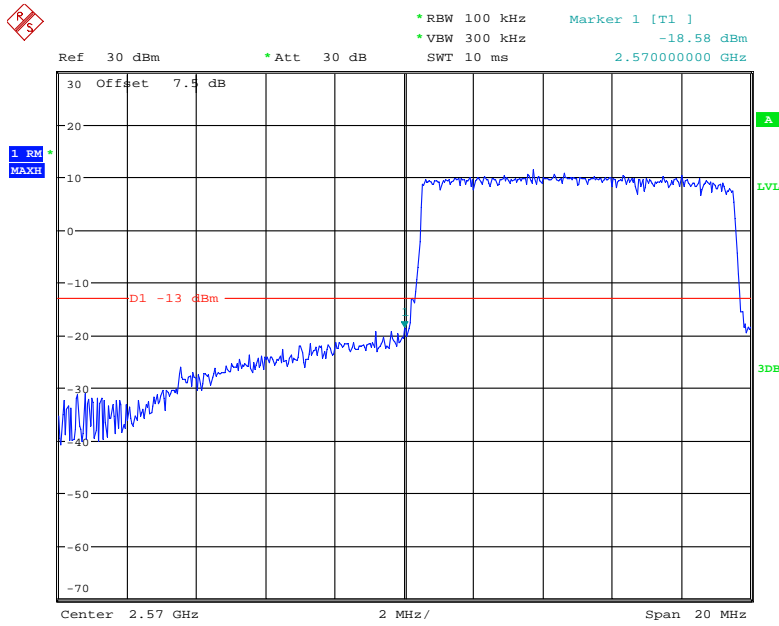
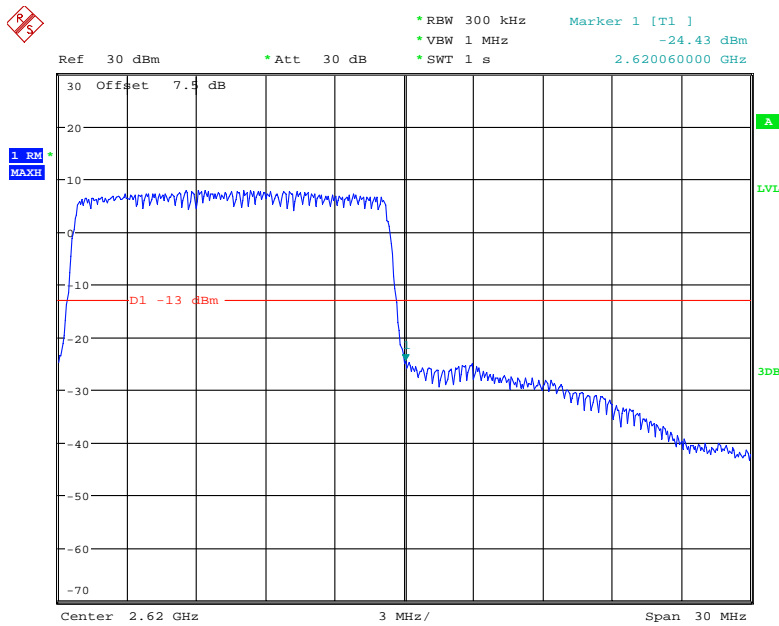Date: 11.JUN.2020 14:47:20

10M 16QAM Right Band Edge
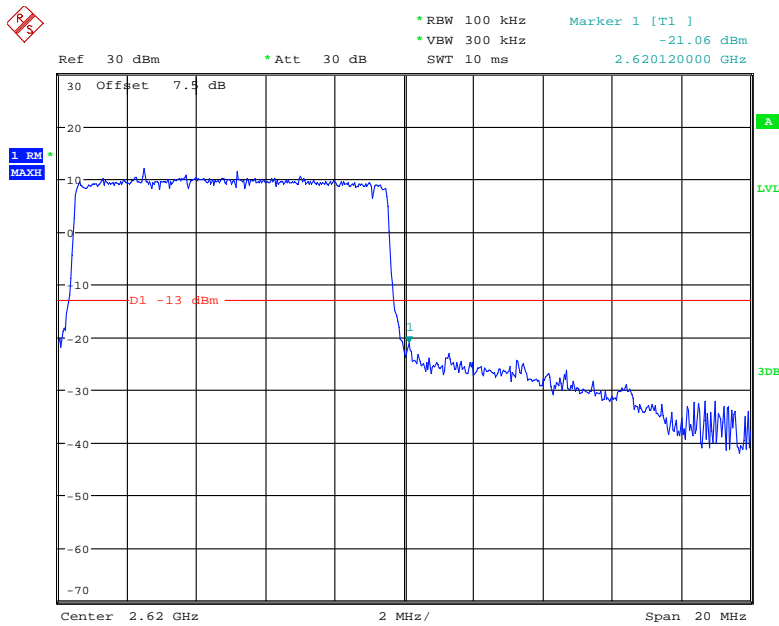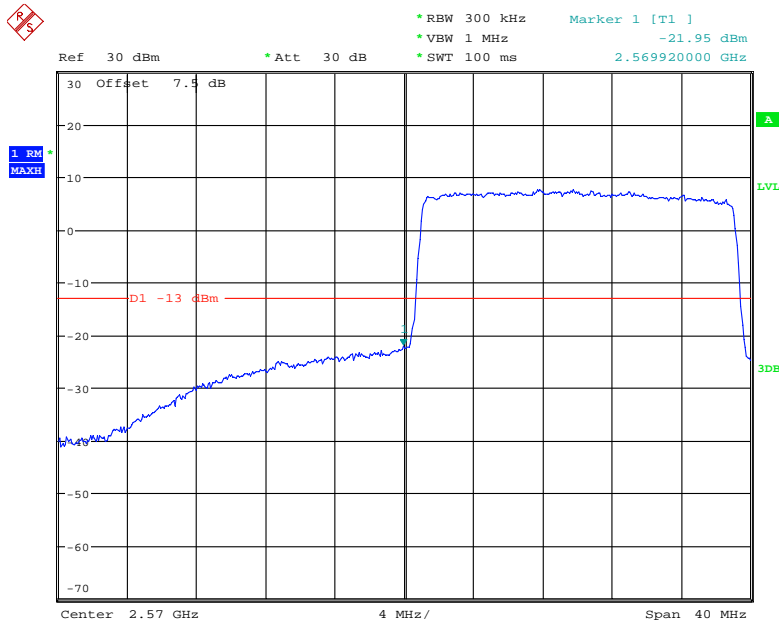

Date: 11.JUN.2020 14:48:06

15M 16QAM Left Band Edge

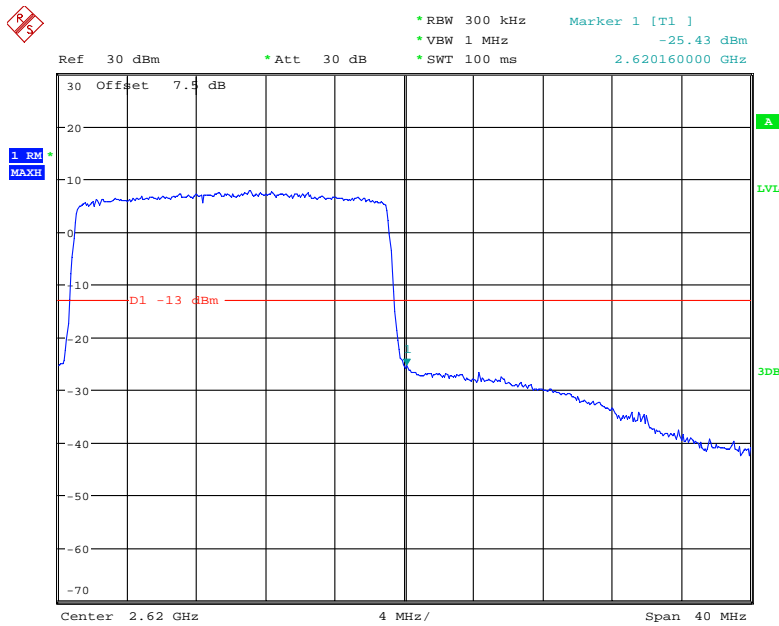

Date: 11.JUN.2020 14:49:10

15M 16QAM Right Band Edge

Date: 11.JUN.2020 14:50:10

20M 16QAM Left Band Edge


```
                                    *RBW  300 kHz     Marker 1 [T1 ]
                                    *VBW  1 MHz                   -21.95 dBm
        Ref  30 dBm        *Att  30 dB   *SWT  100 ms      2.569920000 GHz
     30  Offset   7.5  dB
                                                                          A
       20

  1 RM                                                                   LVL
  MAXH   10

        0

      -10        D1 -13 dBm

      -20

      -30                                                                3DB

      -40

      -50

      -60

      -70
        Center  2.57 GHz          4 MHz/          Span  40 MHz
```

Date: 11.JUN.2020 14:51:16

20M 16QAM Right Band Edge


```
                                    *RBW  300 kHz     Marker 1 [T1 ]
                                    *VBW  1 MHz                   -25.43 dBm
        Ref  30 dBm        *Att  30 dB   *SWT  100 ms      2.620160000 GHz
     30  Offset   7.5  dB
                                                                          A
       20

  1 RM                                                                   LVL
  MAXH   10

        0

      -10        D1 -13 dBm

      -20

      -30                                                                3DB

      -40

      -50

      -60

      -70
        Center  2.62 GHz          4 MHz/          Span  40 MHz
```

Date: 11.JUN.2020 14:52:18

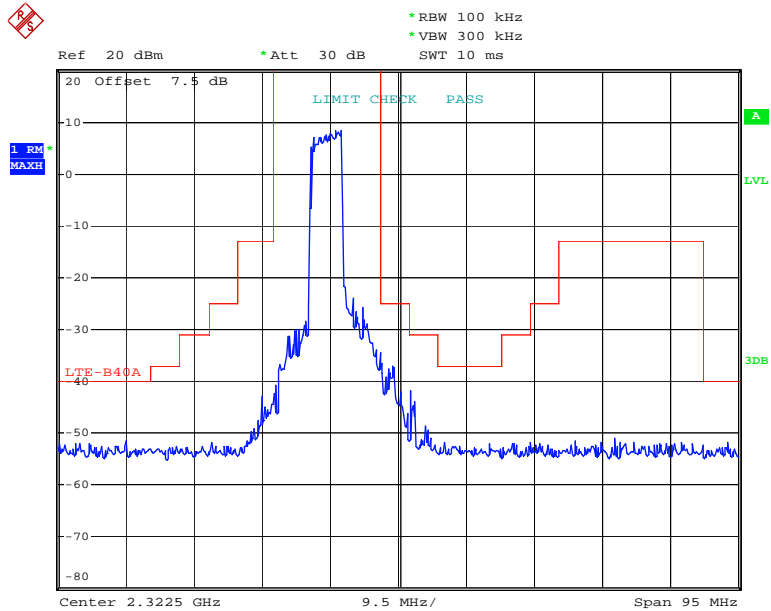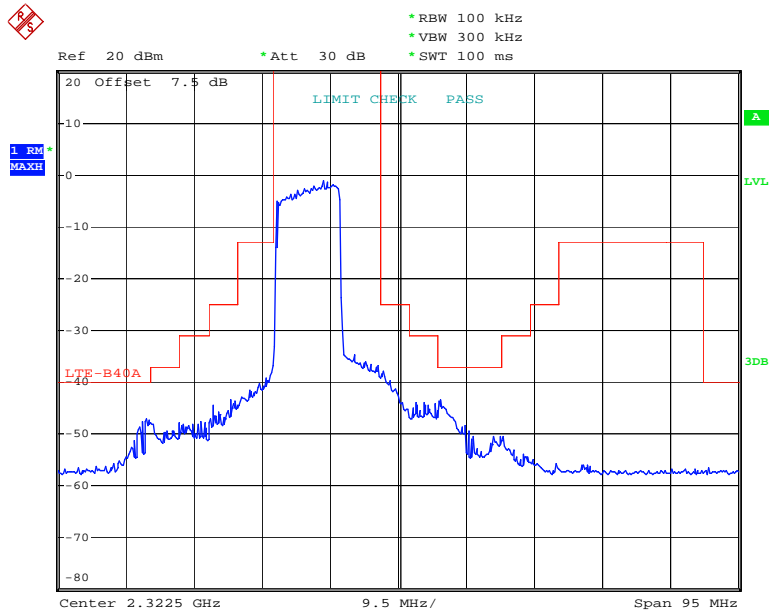**LTE Band 40,Lower:**

QPSK_5MHz_ 25 RB_ Left
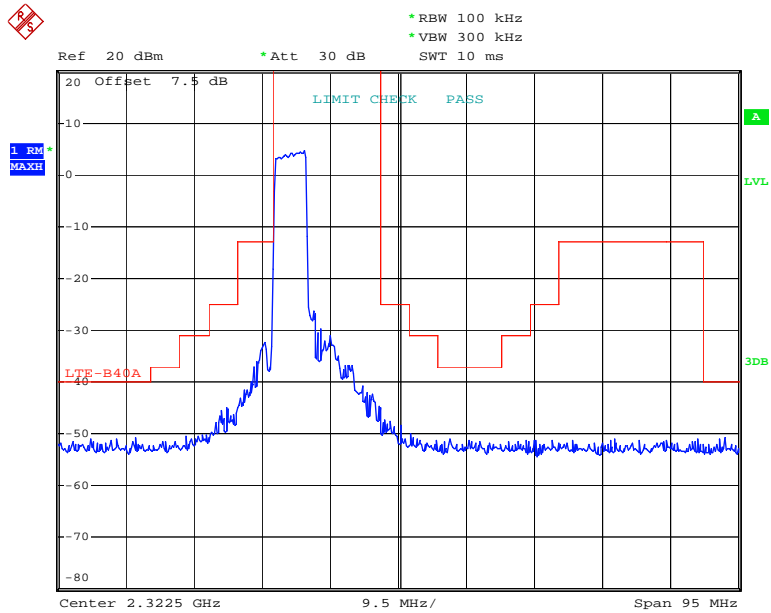
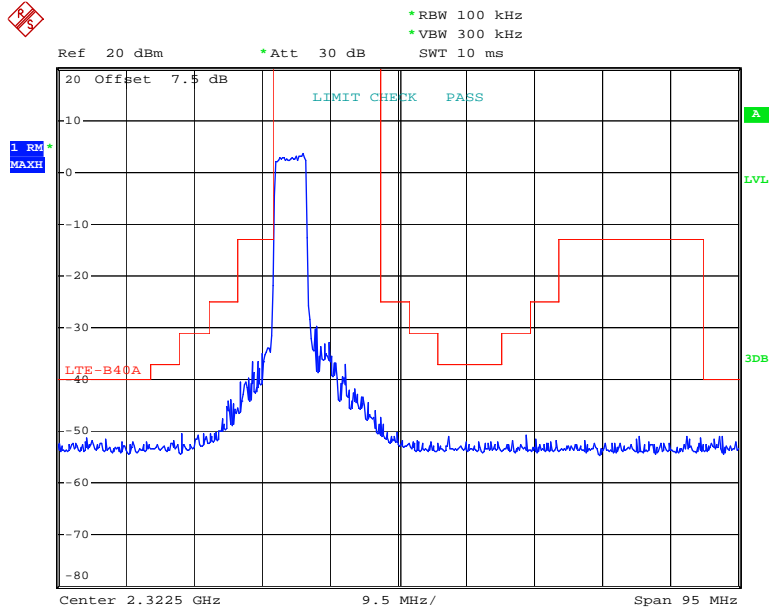Date: 3.JUL.2020 18:08:07

QPSK_5MHz_ 25 RB_ Right

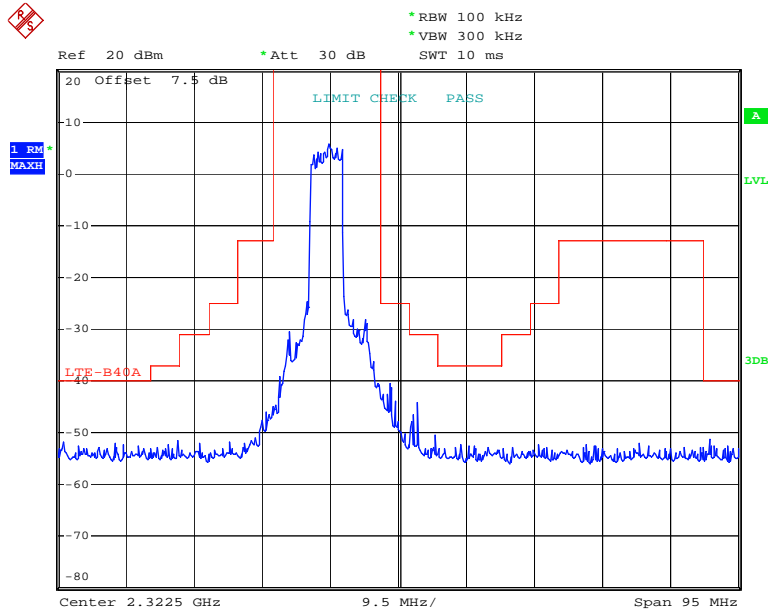Date: 3.JUL.2020 18:10:57

QPSK_10MHz_ 50 RB

Date: 3.JUL.2020 18:11:59

16QAM_5MHz_ 25 RB_ Left
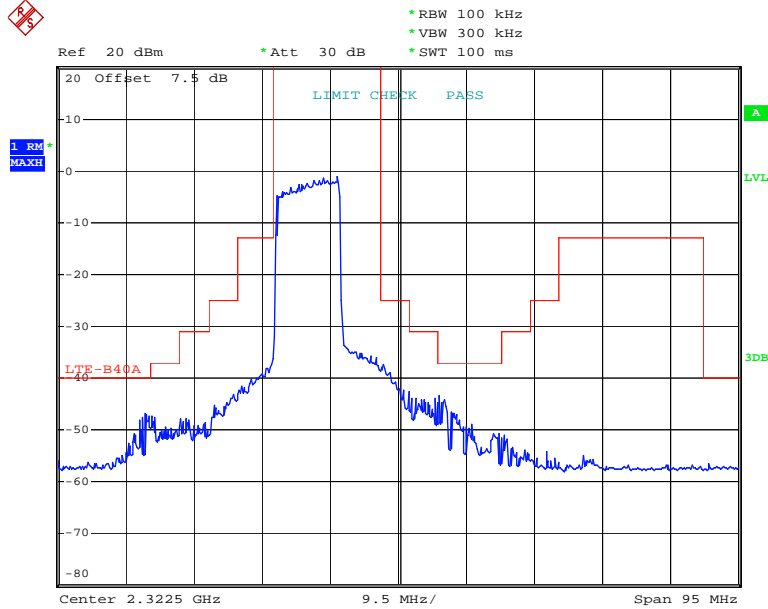

Date: 3.JUL.2020 18:09:22

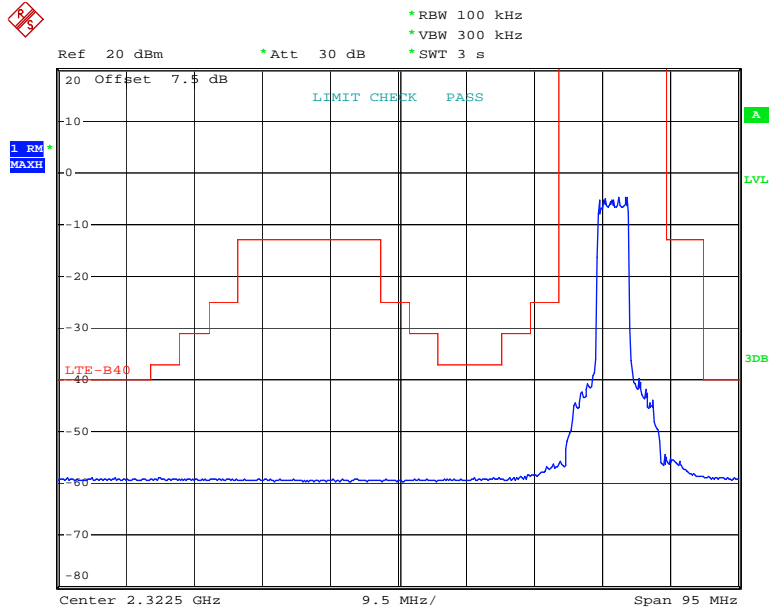## 16QAM_5MHz_ 25 RB_ Right

Date: 3.JUL.2020 18:10:27

16QAM_10MHz_ 50 RB

Date: 3.JUL.2020 18:14:30

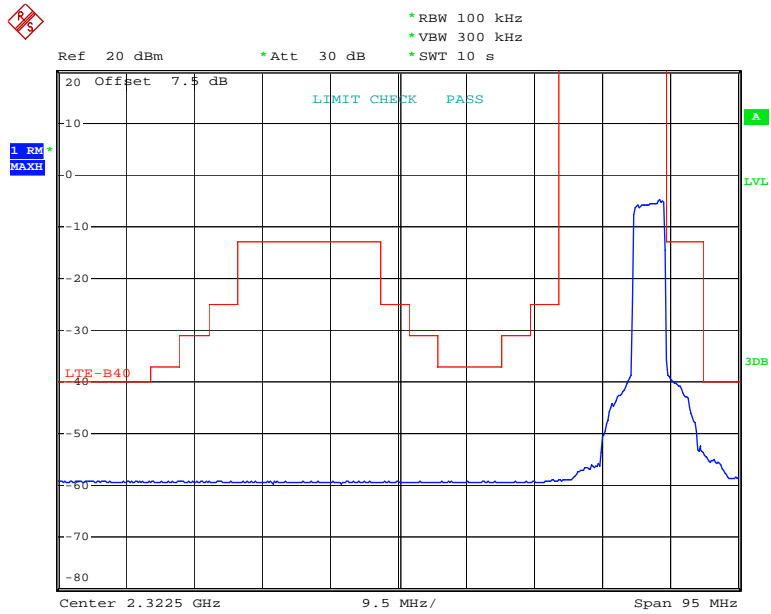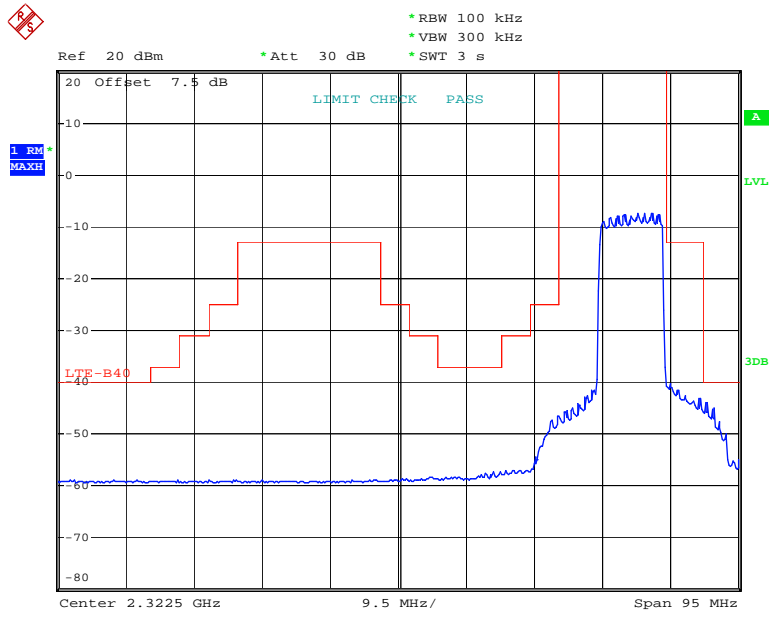**LTE Band 40-Upper**

QPSK_5MHz_ 25 RB_ Left

Date: 3.JUL.2020 18:18:21

QPSK_5MHz_ 25 RB_ Right

Date: 3.JUL.2020 18:21:02

QPSK_10MHz_ 50 RB

Date: 3.JUL.2020 18:17:25

16QAM_5MHz_ 25 RB_ Left
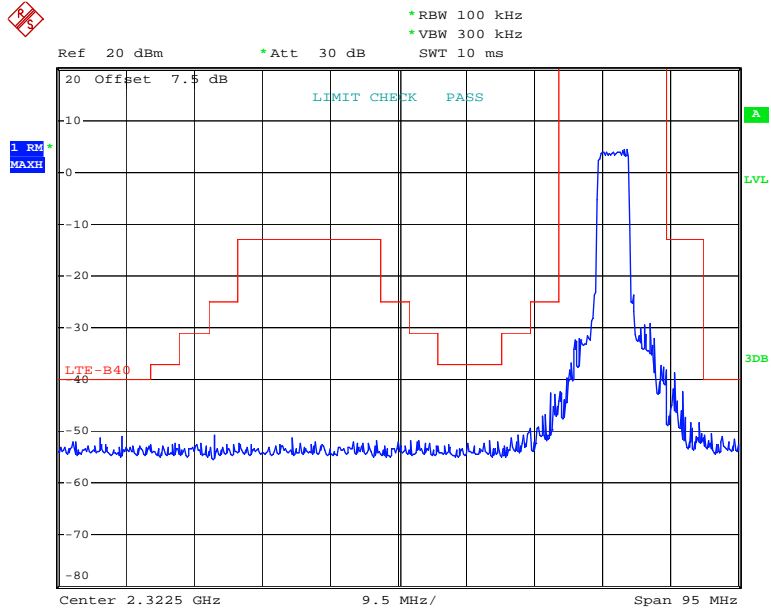
Date: 3.JUL.2020 18:19:22

16QAM_5MHz_ 25 RB_ Right


```
                                              *RBW 100 kHz
                                              *VBW 300 kHz
  Ref  20 dBm            *Att  30 dB          *SWT 10 s
  20 Offset  7.5 dB
                              LIMIT CHECK   PASS
1 RM*
MAXH
```
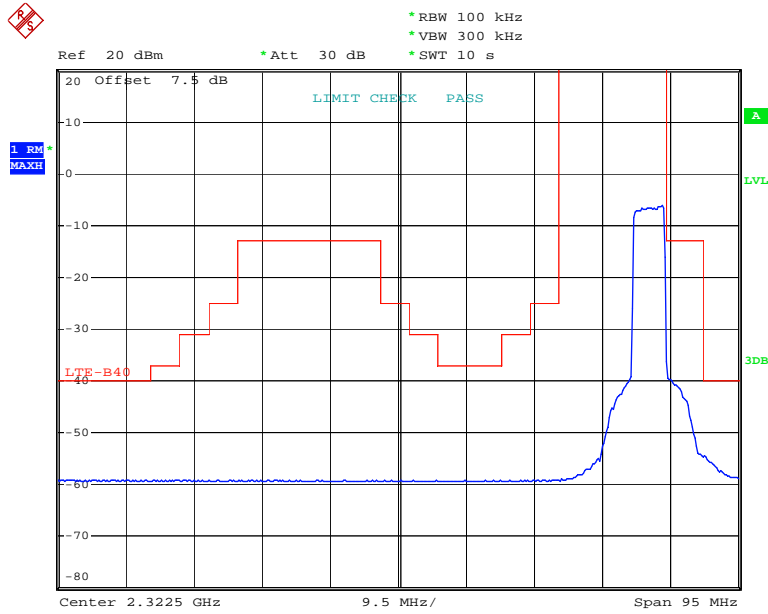
Date: 3.JUL.2020 18:21:37

16QAM_10MHz_ 50 RB


```
                                              *RBW 100 kHz
                                              *VBW 300 kHz
  Ref  20 dBm            *Att  30 dB          *SWT 3 s
  20 Offset  7.5 dB
                              LIMIT CHECK   PASS
1 RM*
MAXH
```
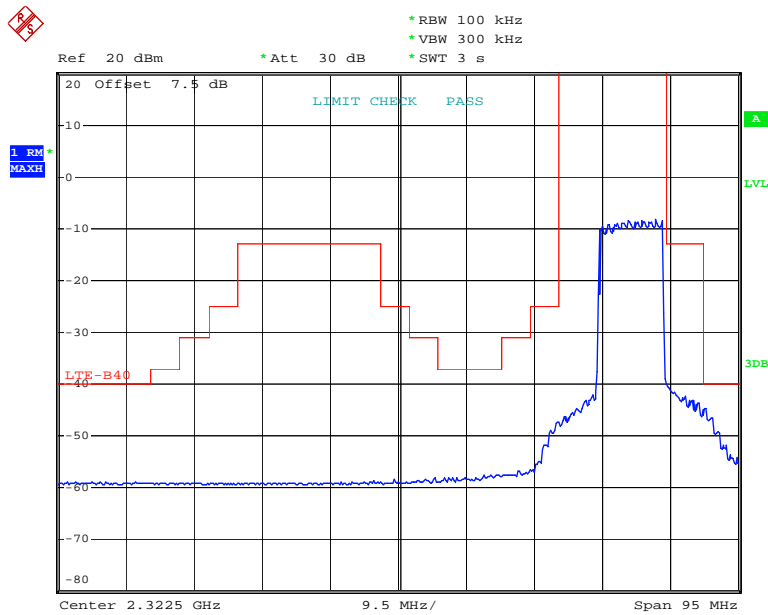
Date: 3.JUL.2020 18:16:17

LTE Band 41

5M QPSK Left Band Edge

```
                                    *RBW 100 kHz   Marker 1 [T1 ]
                                    *VBW 300 kHz            -28.00 dBm
     Ref  20 dBm        *Att  30 dB *SWT 100 ms       2.570000000 GHz
```



```
Center 2.57 GHz              1 MHz/                    Span 10 MHz
```
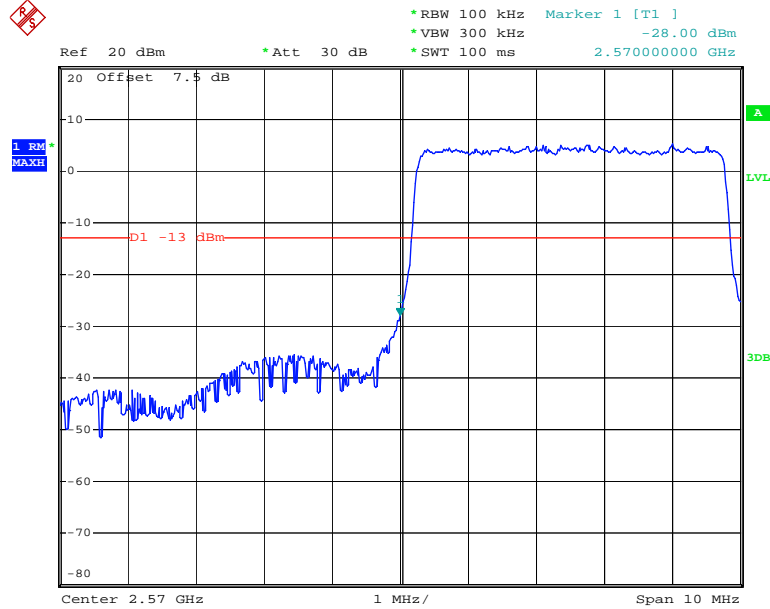
Date: 3.JUL.2020 20:37:43

5M QPSK Right Band Edge

```
                                    *RBW 100 kHz   Marker 1 [T1 ]
                                    *VBW 300 kHz            -15.62 dBm
     Ref  20 dBm        *Att  30 dB  SWT 2.5 ms       2.630020000 GHz
```



```
Center 2.63 GHz              1 MHz/                    Span 10 MHz
```

Date: 3.JUL.2020 20:38:50

10M QPSK Left Band Edge

Date: 3.JUL.2020 20:39:56

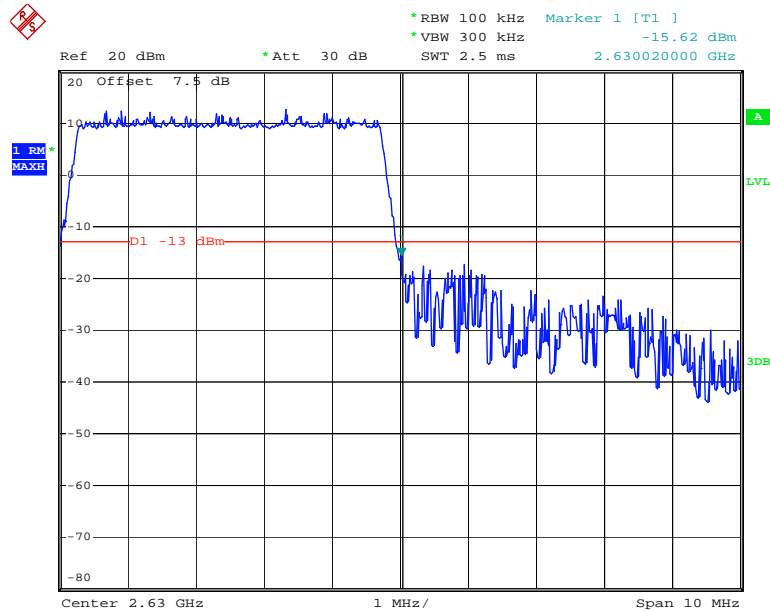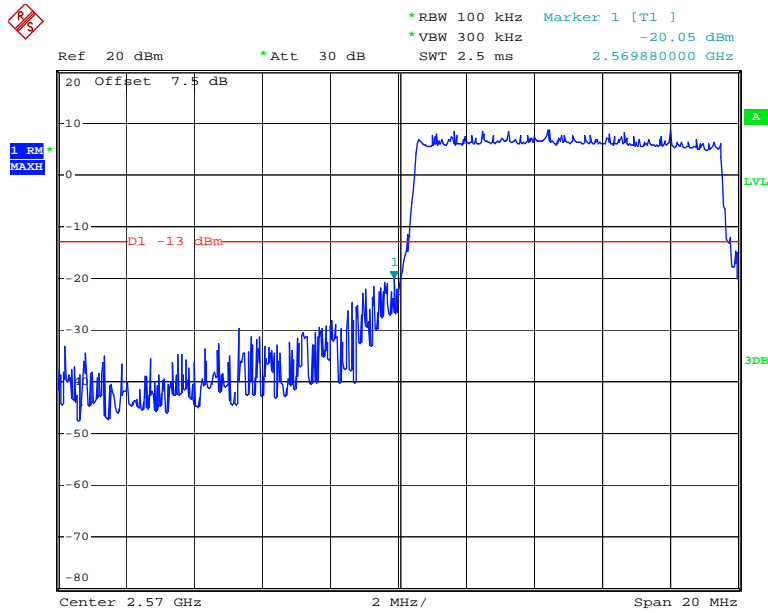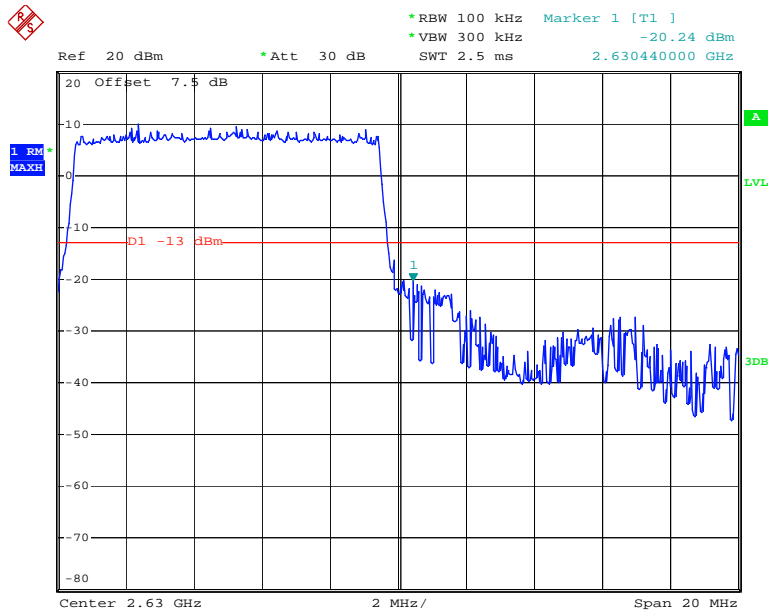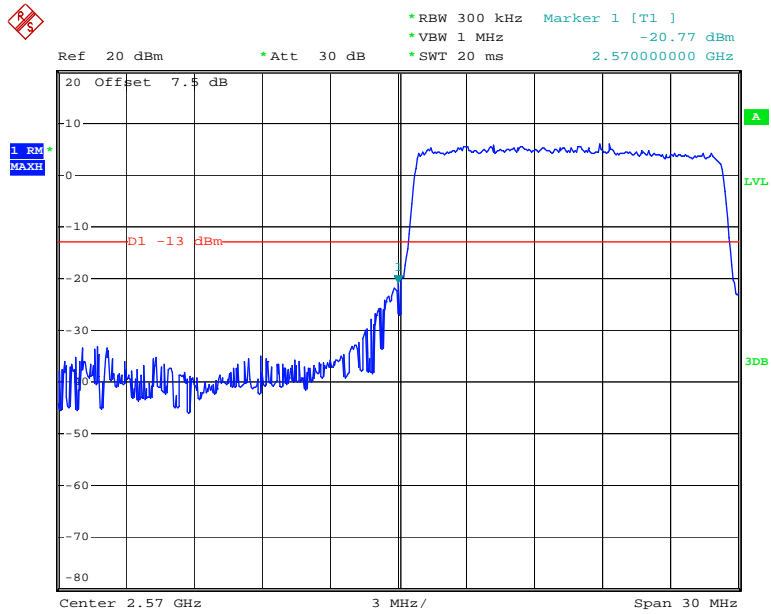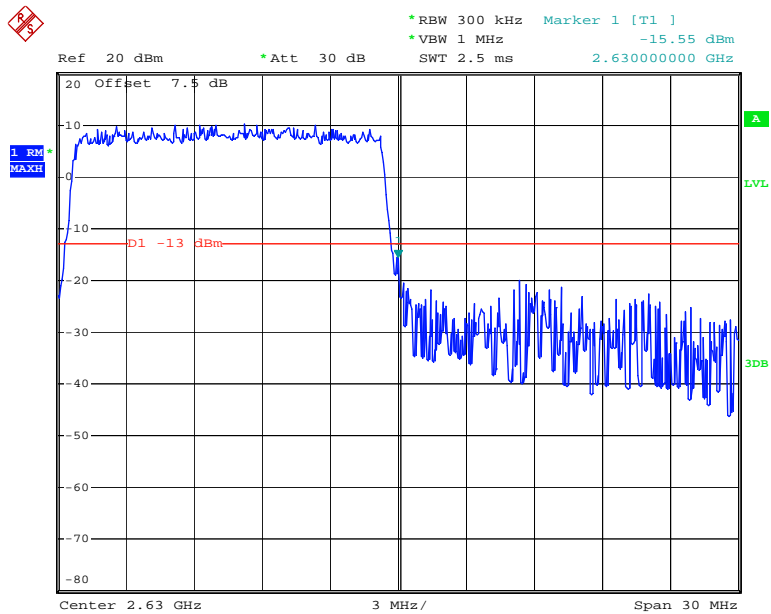## 10M QPSK Right Band Edge

Date: 3.JUL.2020 20:40:55

15M QPSK Left Band Edge

Date: 3.JUL.2020 20:42:21

15M QPSK Right Band Edge

Date: 3.JUL.2020 20:43:28

20M QPSK Left Band Edge

```
                                    *RBW 300 kHz   Marker 1 [T1 ]
                                    *VBW 1 MHz              -26.26 dBm
         Ref  20 dBm      *Att  30 dB   SWT 2.5 ms      2.569280000 GHz
         20 Offset  7.5 dB                                              A
         -10
                                                                       LVL
          0
         -10
              D1 -13 dBm
         -20
                                              1                        3DB
         -30
         -40
         -50
         -60
         -70
         -80
         Center 2.57 GHz           4 MHz/              Span 40 MHz
```
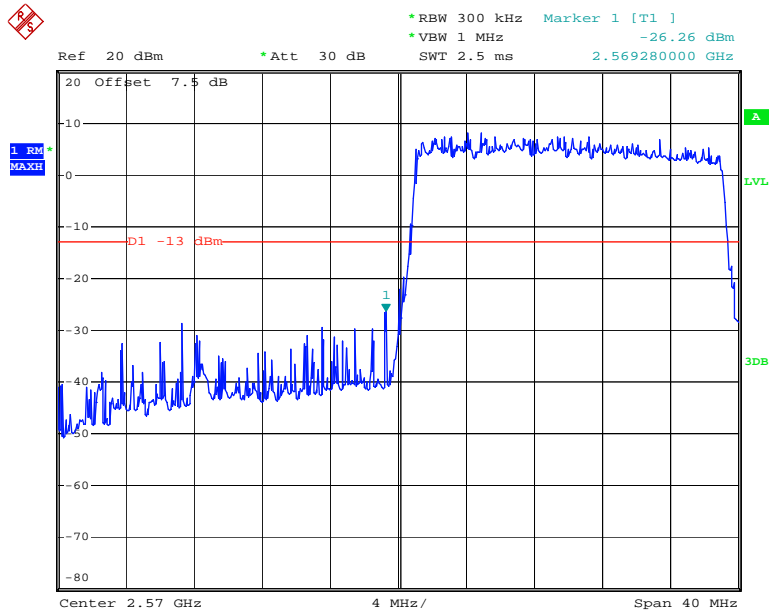
Date: 3.JUL.2020 20:44:34

20M QPSK Right Band Edge

```
                                    *RBW 300 kHz   Marker 1 [T1 ]
                                    *VBW 1 MHz              -20.03 dBm
         Ref  20 dBm      *Att  30 dB   SWT 2.5 ms      2.630000000 GHz
         20 Offset  7.5 dB                                              A
         -10
          0                                                            LVL
         -10
              D1 -13 dBm
         -20
         -30                                                           3DB
         -40
         -50
         -60
         -70
         -80
         Center 2.63 GHz           4 MHz/              Span 40 MHz
```
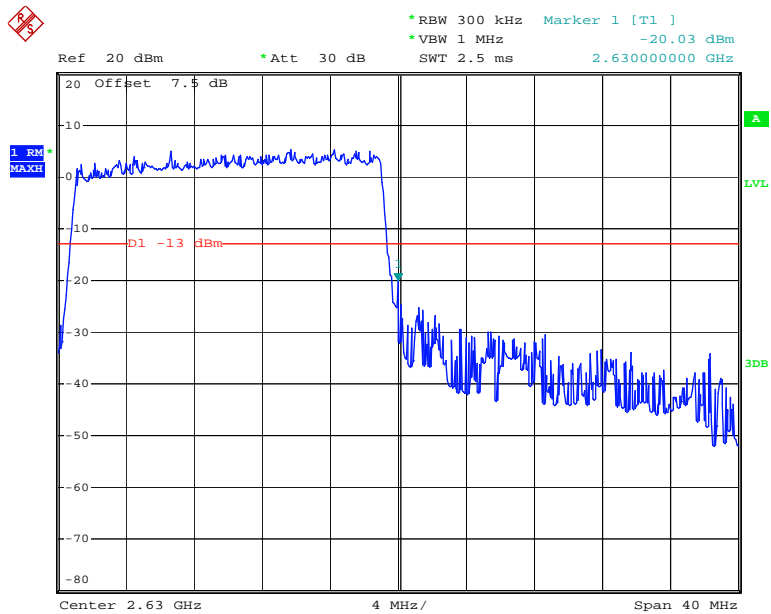
Date: 3.JUL.2020 20:45:38

5M 16QAM Left Band Edge

```
                                        *RBW 100 kHz  Marker 1 [T1 ]
                                        *VBW 300 kHz           -16.29 dBm
        Ref  20 dBm        *Att  30 dB   SWT 2.5 ms      2.570000000 GHz
```
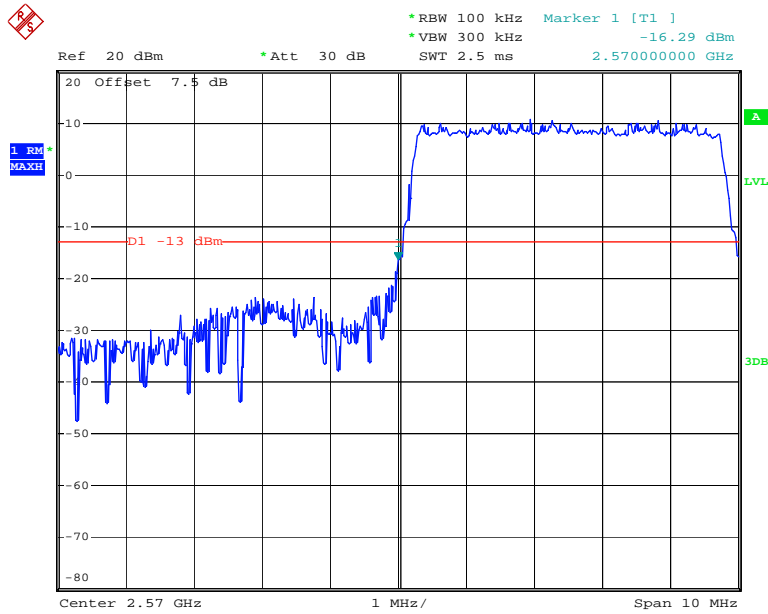
Date: 3.JUL.2020 20:38:16

5M 16QAM Right Band Edge

```
                                        *RBW 100 kHz  Marker 1 [T1 ]
                                        *VBW 300 kHz           -17.05 dBm
        Ref  20 dBm        *Att  30 dB   SWT 2.5 ms      2.630020000 GHz
```
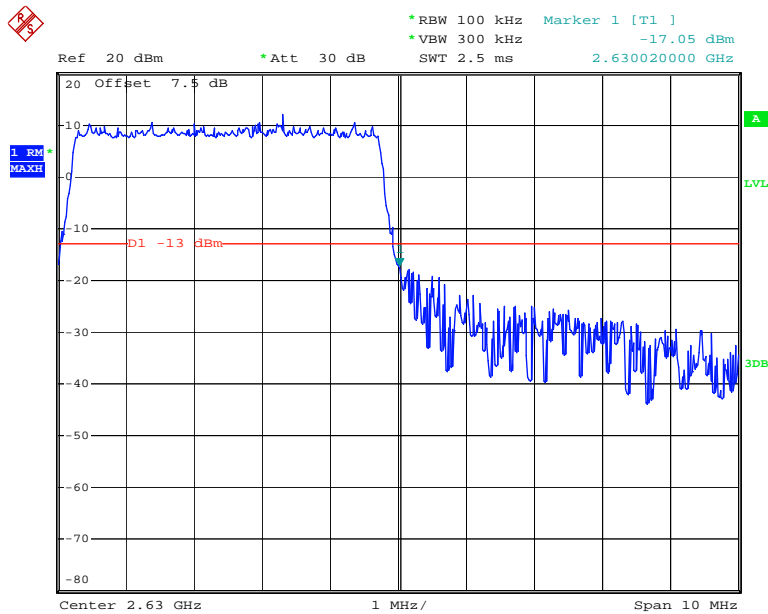
Date: 3.JUL.2020 20:39:22

10M 16QAM Left Band Edge

```
                                          *RBW 100 kHz   Marker 1 [T1 ]
                                          *VBW 300 kHz           -23.23 dBm
          Ref  20 dBm        *Att  30 dB   SWT 2.5 ms      2.569640000 GHz
          20 Offset  7.5 dB
```
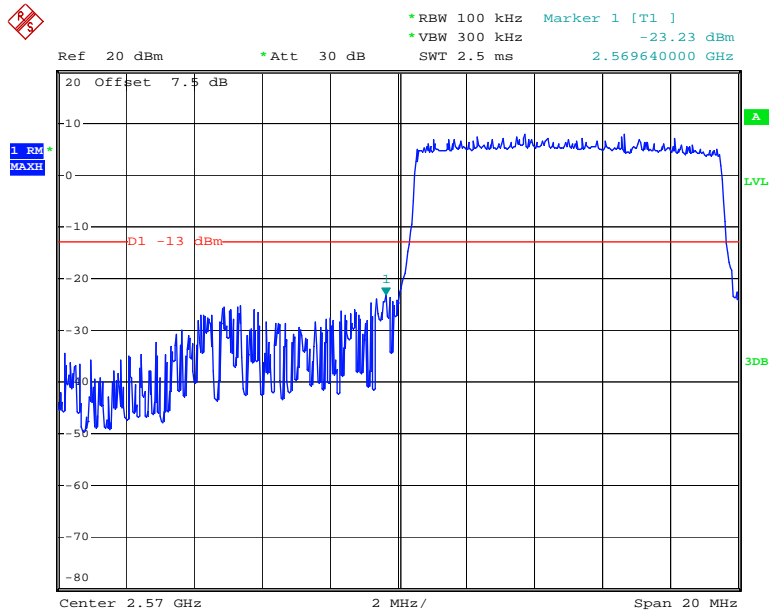
Date: 3.JUL.2020 20:40:23

10M 16QAM Right Band Edge

```
                                          *RBW 100 kHz   Marker 1 [T1 ]
                                          *VBW 300 kHz           -23.27 dBm
          Ref  20 dBm        *Att  30 dB   SWT 2.5 ms      2.630240000 GHz
          20 Offset  7.5 dB
```
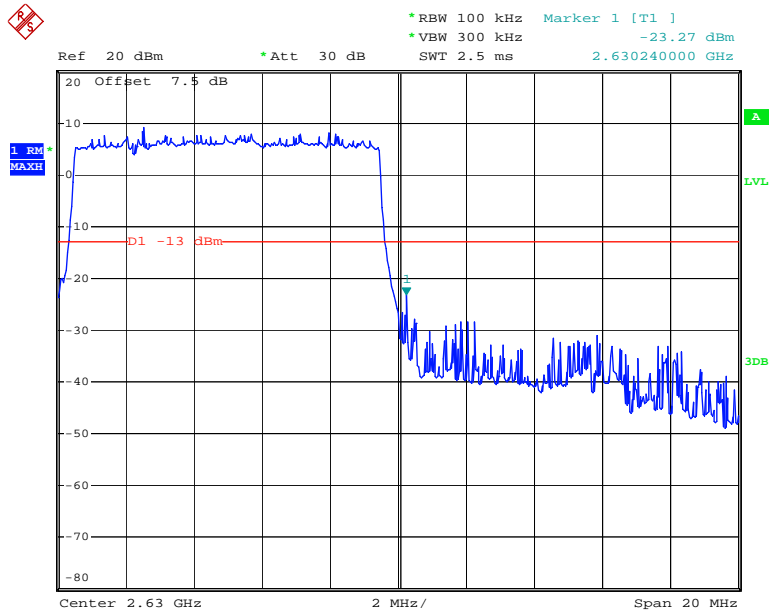
Date: 3.JUL.2020 20:41:16

15M 16QAM Left Band Edge

```
                                    *RBW 300 kHz   Marker 1 [T1 ]
                                    *VBW 1 MHz                -15.74 dBm
Ref  20 dBm          *Att  30 dB    SWT 2.5 ms        2.569940000 GHz
 20 Offset  7.5 dB                                                   A

-10

 0                                                                   LVL

-10      D1 -13 dBm

-20                                                                  3DB

-50

-60

-70

-80
Center 2.57 GHz              3 MHz/              Span 30 MHz
```
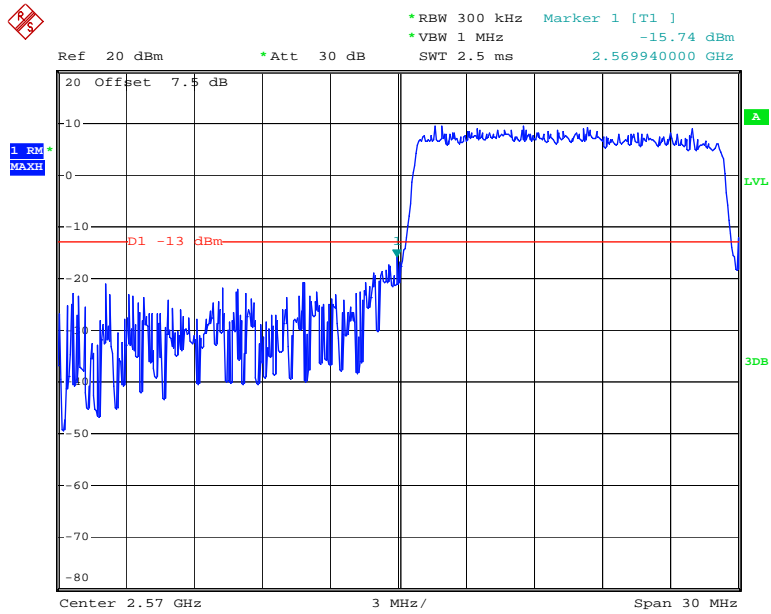
Date: 3.JUL.2020 20:42:57

15M 16QAM Right Band Edge

```
                                    *RBW 300 kHz   Marker 1 [T1 ]
                                    *VBW 1 MHz                -31.01 dBm
Ref  20 dBm          *Att  30 dB   *SWT 200 ms        2.630000000 GHz
 20 Offset  7.5 dB                                                   A

-10

 0                                                                   LVL

 10      D1 -13 dBm

-20

-30                                                                  3DB

-40

-50

-60

-70

-80
Center 2.63 GHz              3 MHz/              Span 30 MHz
```
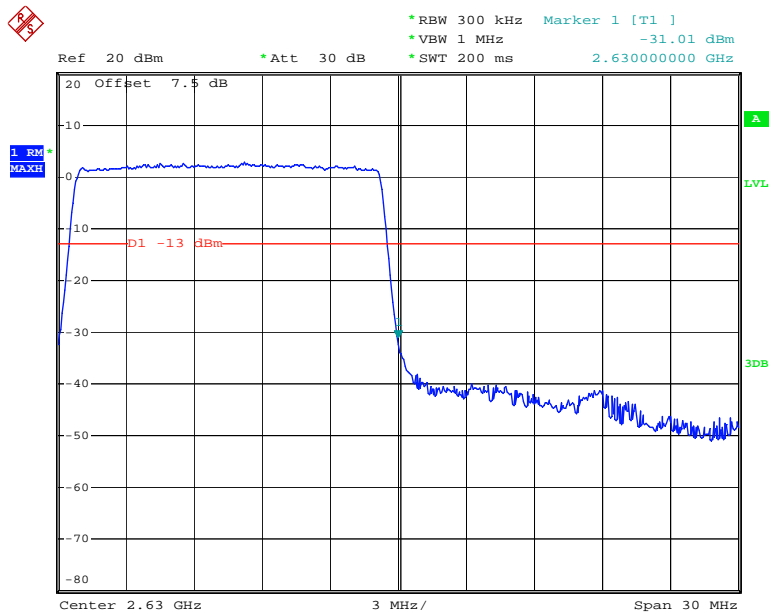
Date: 3.JUL.2020 20:44:07

20M 16QAM Left Band Edge

```
                                    *RBW 300 kHz   Marker 1 [T1 ]
                                    *VBW 1 MHz                 -24.18 dBm
    Ref  20 dBm          *Att  30 dB    SWT 2.5 ms        2.570000000 GHz
```
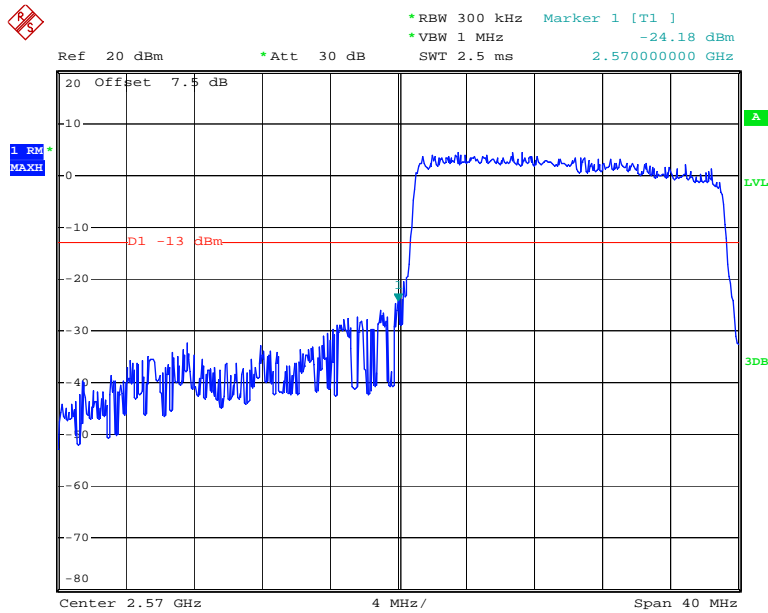
Date: 3.JUL.2020 20:45:10

20M 16QAM Right Band Edge

```
                                    *RBW 300 kHz   Marker 1 [T1 ]
                                    *VBW 1 MHz                 -22.16 dBm
    Ref  20 dBm          *Att  30 dB    SWT 2.5 ms        2.630000000 GHz
```
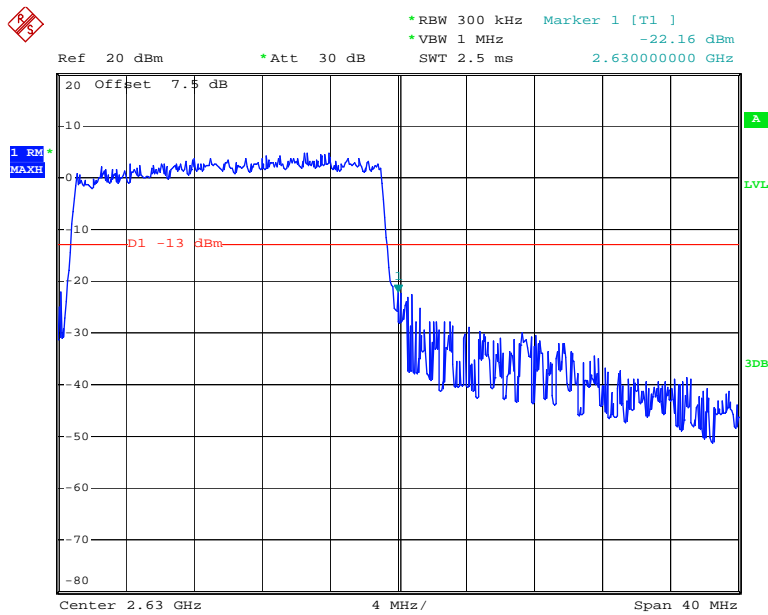
Date: 3.JUL.2020 20:46:07

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

Applicable Standard

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

Test Procedure

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

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

Frequency Stability vs. Voltage: An external variable DC power supply was connected to the battery terminals of the equipment under test. The voltage was set from 85% to 115% of the nominal value and was then decreased until the transmitter light no longer illuminated; i.e., the battery end point. The output frequency was recorded for each battery voltage.
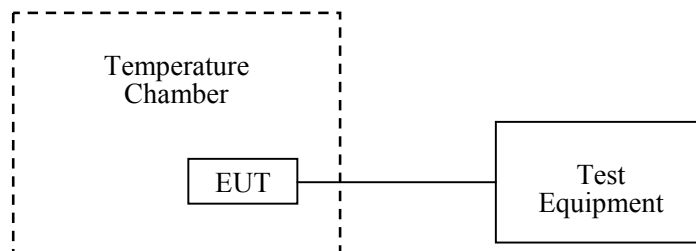
Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU 26	200256	2020-05-09	2021-05-09
Unknown	Coaxial Cable	C-SJ00-0010	C0010/04	Each time	N/A
E-Microwave	Blocking Control	EMDCB-00036	0E01201048	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	149216	2019-09-12	2020-09-12
ESPEC	Constant temperature and humidity Tester	ESX-4CA	018 463	2020-03-10	2021-03-09
UNI-T	Multimeter	UT39A	M130199938	2019-07-24	2020-07-24
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:	26.9~29 °C
Relative Humidity:	55~68%
ATM Pressure:	99.8~100.9kPa
Tester:	Chris Mo
Test Date:	2020-06-11~2020-07-03

Test Result: Compliance.

WCDMA Band Ⅴ: R99

Middle Channel, f_c = 836.6 MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Limit
℃	V_{DC}	Hz	ppm	ppm
-30		-1	-0.00120	
-20		-3	-0.00359	
-10		-2	-0.00239	
0		2	0.00239	
10	3.6	4	0.00478	
20		1	0.00120	2.5
30		9	0.01076	
40		4	0.00478	
50		5	0.00598	
20	3.4	2	0.00239	
20	4.2	8	0.00956	

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		-1.02	-0.0012	
-20		-3.05	-0.0036	
-10		2.07	0.0025	
0		-1.91	-0.0023	
10	3.6	-8.00	-0.0096	
20		-0.97	-0.0012	2.5
30		7.94	0.0095	
40		4.10	0.0049	
50		-2.06	-0.0025	
20	3.4	9.07	0.0108	
20	4.2	6.02	0.0072	

Middle Channel, f_c = 836.5 MHz, Channel Bandwidth:10MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Limit**
℃	V_{DC}	Hz	ppm	ppm
-30		-1.07	-0.0013	
-20		-3.05	-0.0036	
-10		2.07	0.0025	
0		-1.91	-0.0023	
10	3.6	-8.00	-0.0096	
20		-0.97	-0.0012	2.5
30		7.94	0.0095	
40		4.10	0.0049	
50		-2.06	-0.0025	
20	3.4	9.07	0.0108	
20	4.2	6.02	0.0072	

LTE Band 7

QPSK, Channel Bandwidth:10MHz					
Power Supplied	Temperature	F_L	Limit	F_H	Limit
Vdc	℃	MHz	MHz	MHz	MHz
3.6	-30	2500.525106	2500	2569.515005	2570
	-20	2500.523996		2569.513673	
	-10	2500.522220		2569.513007	
	0	2500.526327		2569.514117	
	10	2500.525883		2569.516670	
	20	2500.520000		2569.520000	
	30	2500.523996		2569.524551	
	40	2500.521776		2569.520666	
	50	2500.526993		2569.520222	
3.4	20	2500.525106		2569.520666	
4.2	20	2500.522664		2569.522331	

16QAM, Channel Bandwidth:10MHz					
Power Supplied	Temperature	F_L	Limit	F_H	Limit
Vdc	℃	MHz	MHz	MHz	MHz
3.6	-30	2500.515116	2500	2569.518224	2570
	-20	2500.514561		2569.521887	
	-10	2500.510232		2569.522331	
	0	2500.510676		2569.516892	
	10	2500.514672		2569.515338	
	20	2500.520000		2569.520000	
	30	2500.518890		2569.519778	
	40	2500.524329		2569.524107	
	50	2500.526660		2569.520888	
3.4	20	2500.528880		2569.524107	
4.2	20	2500.532765		2569.522775	

LTE Band 38

QPSK, Channel Bandwidth:10MHz					
Power Supplied	Temperature	F_L	Limit	F_H	Limit
Vdc	℃	MHz	MHz	MHz	MHz
3.6	-30	2570.523108	2570	2619.479001	2620
	-20	2570.517114		2619.478113	
	-10	2570.521776		2619.483441	
	0	2570.522553		2619.486216	
	10	2570.518224		2619.483219	
	20	2570.520000		2619.480000	
	30	2570.519778		2619.483885	
	40	2570.520555		2619.479778	
	50	2570.515116		2619.477669	
3.4	20	2570.516226		2619.478224	
4.2	20	2570.511675		2619.478113	

16QAM, Channel Bandwidth:10MHz					
Power Supplied	Temperature	F_L	Limit	F_H	Limit
Vdc	℃	MHz	MHz	MHz	MHz
3.6	-30	2570.521665	2570	2619.484440	2620
	-20	2570.523219		2619.487881	
	-10	2570.526327		2619.485772	
	0	2570.518335		2619.488880	
	10	2570.518557		2619.488103	
	20	2570.520000		2619.480000	
	30	2570.517003		2619.482997	
	40	2570.519112		2619.478668	
	50	2570.524551		2619.480222	
3.4	20	2570.521110		2619.484995	
4.2	20	2570.517558		2619.487992	

LTE Band 40:

Lower:

QPSK, Channel Bandwidth:10MHz					
Temperature	**Voltage**	**Test Result (MHz)**		**Limit (MHz)**	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30		2305.559556	2314.522775	2305	2315
-20		2305.561332	2314.525994	2305	2315
-10		2305.564995	2314.527104	2305	2315
0		2305.566105	2314.527437	2305	2315
10	3.6	2305.568547	2314.523219	2305	2315
20		2305.560000	2314.520000	2305	2315
30		2305.560999	2314.518224	2305	2315
40		2305.560111	2314.515116	2305	2315
50		2305.562664	2314.515338	2305	2315
20	3.4	2305.564551	2314.518113	2305	2315
20	4.2	2305.564773	2314.513784	2305	2315

16QAM, Channel Bandwidth:10MHz					
Temperature	**Voltage**	**Test Result (MHz)**		**Limit (MHz)**	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30		2305.556004	2314.476337	2305	2315
-20		2305.557891	2314.475116	2305	2315
-10		2305.557114	2314.476448	2305	2315
0		2305.555449	2314.476337	2305	2315
10	3.6	2305.550898	2314.478446	2305	2315
20		2305.560000	2314.480000	2305	2315
30		2305.561887	2314.474561	2305	2315
40		2305.557003	2314.473118	2305	2315
50		2305.557780	2314.476337	2305	2315
20	3.4	2305.553451	2314.480999	2305	2315
20	4.2	2305.554672	2314.476892	2305	2315

Upper:

QPSK, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30		2350.522886	2359.518557	2350	2360
-20		2350.525328	2359.521998	2350	2360
-10		2350.523108	2359.522109	2350	2360
0		2350.525217	2359.522664	2350	2360
10	3.6	2350.523108	2359.520444	2350	2360
20		2350.520000	2359.520000	2350	2360
30		2350.525106	2359.524551	2350	2360
40		2350.524551	2359.527437	2350	2360
50		2350.520222	2359.531433	2350	2360
20	3.4	2350.521776	2359.528547	2350	2360
20	4.2	2350.525661	2359.529879	2350	2360

16QAM, Channel Bandwidth:10MHz					
Temperature	Voltage	Test Result (MHz)		Limit (MHz)	
℃	V_{DC}	F_L	F_H	F_L	F_H
-30		2350.524440	2359.519112	2350	2360
-20		2350.521665	2359.522997	2350	2360
-10		2350.520111	2359.517669	2350	2360
0		2350.517114	2359.520333	2350	2360
10	3.6	2350.514672	2359.525550	2350	2360
20		2350.520000	2359.520000	2350	2360
30		2350.523996	2359.516004	2350	2360
40		2350.515116	2359.510676	2350	2360
50		2350.513562	2359.510787	2350	2360
20	3.4	2350.513007	2359.507013	2350	2360
20	4.2	2350.512230	2359.506125	2350	2360

LTE Band 41

QPSK, Channel Bandwidth:10MHz					
Power Supplied	**Temperature**	**F_L**	**Limit**	**F_H**	**Limit**
Vdc	**℃**	**MHz**	**MHz**	**MHz**	**MHz**
3.6	-30	2570.515782	2570	2629.515116	2630
	-20	2570.516115		2629.513673	
	-10	2570.520777		2629.517114	
	0	2570.511564		2629.518557	
	10	2570.506125		2629.520666	
	20	2570.520000		2629.520000	
	30	2570.520111		2629.520666	
	40	2570.517003		2629.522886	
	50	2570.518113		2629.519001	
3.4	20	2570.522553		2629.521332	
4.2	20	2570.520555		2629.524773	

16QAM, Channel Bandwidth:10MHz					
Power Supplied	**Temperature**	**F_L**	**Limit**	**F_H**	**Limit**
Vdc	**℃**	**MHz**	**MHz**	**MHz**	**MHz**
3.6	-30	2570.523663	2570	2629.482220	2630
	-20	2570.516115		2629.478446	
	-10	2570.514117		2629.476115	
	0	2570.518224		2629.472896	
	10	2570.513451		2629.473451	
	20	2670.520000		2629.480000	
	30	2570.521110		2629.483219	
	40	2570.523885		2629.478002	
	50	2570.522109		2629.483441	
3.4	20	2570.528991		2629.488769	
4.2	20	2570.527104		2629.490767	

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 *****