

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

For

Sun Cupid Technology (HK) Ltd.

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FCC ID:2ADINN5502L

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

EUT Name:		LTE Mobile Phone
EUT Model:		N5502L
Multiple Models:		A10L
Operation modes:		GSM Voice, GPRS/EDGE Data, WCDMA(R99 (Voice+Data), HSDPA,HSUPA,DC-HSDPA, HSPA+) FDD-LTE
Operation Frequency:		GSM 850: 824-849 MHz(TX); 869-894 MHz(RX) PCS 1900: 1850-1910 MHz(TX); 1930-1990 MHz(RX) WCDMA Band 2: 1850-1910 MHz(TX); 1930-1990 MHz(RX) WCDMA Band 4:1710-1755 MHz(TX), 2110-2155 MHz(RX) WCDMA Band 5: 824-849 MHz(TX); 869-894 MHz(RX) LTE Band 2:1850-1910 MHz(TX), 1930-1990 MHz(RX) LTE Band 4:1710-1755 MHz(TX), 2110-2155 MHz(RX) LTE Band 5: 824-849 MHz(TX); 869-894 MHz(RX) LTE Band 7:2500-2570 MHz(TX), 2620-2690 MHz(RX) LTE Band 12: 699-716 MHz(TX), 729-746 MHz(RX) LTE Band 17: 704-716 MHz(TX), 734-746 MHz(RX) LTE Band 66: 1710-1780 MHz(TX), 2110-2180 MHz(RX)
Modulation Type:		GMSK, 8PSK, BPSK, QPSK, 16QAM
Rated Input Voltage:		DC 3.8V from battery or DC 5V from adapter
Adapter Information	Model:	HJ-0501000E1-US
	Input:	100-240V~50/60Hz 0.2A
	Output:	DC 5V 1A
Serial Number:		RDG200424004-RF-S1
EUT Received Date:		2020.04.24
EUT Status:		Good

Notes: Model N5502L was selected for fully testing, the detailed information about the difference among A10L and model N5502L can be referred to the declaration letter which was stated and guaranteed by the manufacturer.

Objective

This report is prepared on behalf of **Sun Cupid Technology (HK) Ltd.** in accordance with: Part 2-Subpart J, Part 22-Subpart H, Part 24-Subpart E, Part 27 of 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)

FCC Part 15C DSS submissions with FCC ID: 2ADINN5502L
FCC Part 15C DTS submissions with FCC ID: 2ADINN5502L
FCC Part 15E NII submissions with FCC ID: 2ADINN5502L

Test Methodology

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

Part 22 Subpart H - Public Mobile Services
Part 24 Subpart E - Personal Communication Services
Part 27 – Miscellaneous wireless communications services

Applicable Standards: TIA 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 °C
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.

Equipment Modifications

No modification was made to the EUT.

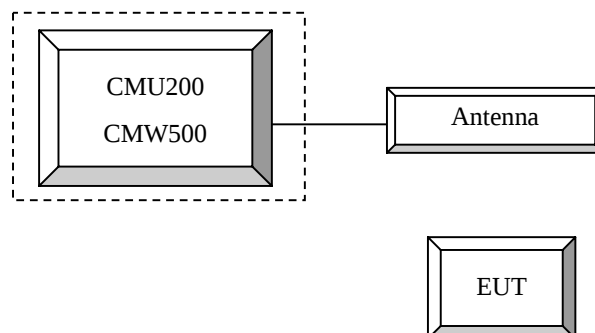
EUT Exercise Software

No software was used in test.

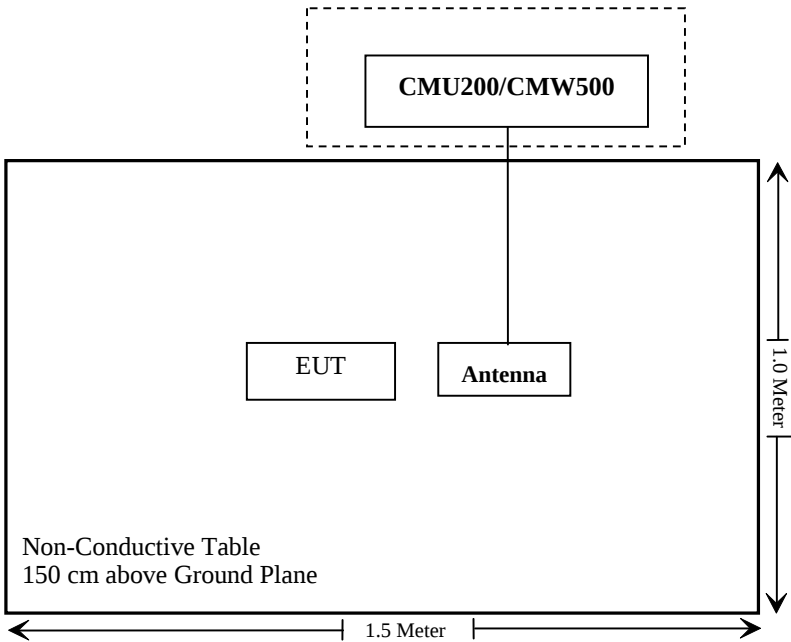
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
R&S	Universal Radio Communication Tester	CMU200	106 891
R&S	Wideband Radio Communication Tester	CMW500	147473
Unknown	ANTENNA	ANT002	ANT002

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

Rules	Description of Test	Result
FCC§1.1310, §2.1093	RF Exposure	Compliance
FCC§2.1046;§ 22.913 (a); § 24.232 (c);§27.50	RF Output Power	Compliance
FCC§ 2.1047	Modulation Characteristics	Not Applicable
FCC§ 2.1049; § 22.905 § 22.917; § 24.238; §27.53	Occupied Bandwidth	Compliance
FCC§ 2.1051, § 22.917 (a); § 24.238 (a); §27.53;	Spurious Emissions at Antenna Terminal	Compliance
FCC§ 2.1053 § 22.917 (a); § 24.238 (a); §27.53	Field Strength of Spurious Radiation	Compliance
FCC§ 22.917 (a); § 24.238 (a); §27.53;	Out of band emission, Band Edge	Compliance
FCC§ 2.1055 § 22.355; § 24.235; §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: RDG200424004-20.

FCC §2.1047 - MODULATION CHARACTERISTIC

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

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

Applicable Standard

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

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

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

According to §27.50

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

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

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

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

Test Procedure

GSM/GPRS/EGPRS

Function: Menu select > GSM Mobile Station > GSM 850/1900

Press Connection control to choose the different menus

Press RESET > choose all the reset all settings

Connection Press Signal Off to turn off the signal and change settings

Network Support > GSM + GPRS or GSM + EGSM

Main Service > Packet Data

Service selection > Test Mode A – Auto Slot Config. off

MS Signal Press Slot Config Bottom on the right twice to select and change the number of time slots and power setting

> Slot configuration > Uplink/Gamma

> 33 dBm for GPRS 850

> 30 dBm for GPRS 1900

> 27 dBm for EGPRS 850

> 26 dBm for EGPRS 1900

BS Signal Enter the same channel number for TCH channel (test channel) and BCCH channel

Frequency Offset > + 0 Hz

Mode > BCCH and TCH

BCCH Level > -85 dBm (May need to adjust if link is not stable)

BCCH Channel > choose desire test channel [Enter the same channel number for TCH channel (test channel) and BCCH channel]

Channel Type > Off

P0 > 4 dB

Slot Config > Unchanged (if already set under MS signal)

TCH > choose desired test channel

Hopping > Off

Main Timeslot > 3

Network Coding Scheme > CS4 (GPRS) and MCS5 (EGPRS)

Bit Stream > 2E9-1 PSR Bit Stream

AF/RF Enter appropriate offsets for Ext. Att. Output and Ext. Att. Input

Connection Press Signal on to turn on the signal and change settings

WCDMA-Release 99

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

WCDMA General Settings	Loopback Mode	Test Mode 1
	Rel99 RMC	12.2kbps RMC
	Power Control Algorithm	Algorithm2
	β_c / β_d	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			
	β_c	2/15	12/15	15/15	15/15
	β_d	15/15	15/15	8/15	4/15
	β_d (SF)	64			
	β_c / β_d	2/15	12/15	15/8	15/4
	β_{hs}	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			
	$A_{hs} = \beta_{hs} / \beta_c$	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				
	β_c	11/15	6/15	15/15	2/15	15/15
	β_d	15/15	15/15	9/15	15/15	0
	β_{ec}	209/225	12/15	30/15	2/15	5/15
	β_c / β_d	11/15	6/15	15/9	2/15	-
	β_{hs}	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				
	$A_{hs} = \beta_{hs} / \beta_c$	30/15				
HSUPA Specific Settings	DE-DPCCH	6	8	8	5	7
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	21
	ETFCI	75	67	92	71	81
	Associated Max UL Data Rate kbps	242.1	174.9	482.8	205.8	308.9
	Reference E_FCI	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-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 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 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 (Note 3)	β_d	β_{HS} (Note 1)	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_{ed1} : 30/15 β_{ed2} : 30/15	β_{ed3} : 24/15 β_{ed4} : 24/15	3.5	2.5	14	105	105

Note 1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$.

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 $\beta_d = 0$ by default.

Note 4: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signalled to use the extrapolation algorithm.

DC-HSDPA

The following tests were conducted according to the test requirements in Table C.8.1.12 of 3GPP TS 34.121-1

Table C.8.1.12: Fixed Reference Channel H-Set 12

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Processes	6
Information Bit Payload (N_{INF})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK
Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table.		
Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.		

LTE (FDD):

The following tests were conducted according to the test requirements in 3GPP TS36.101

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

Modulation	Channel bandwidth / Transmission bandwidth (RB)						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
64 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	13	10	Table 6.2.4-2	Table 6.2.4-2
	6.6.3.3.2				
NS_08	6.6.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
NS_10		20	15, 20	Table 6.2.4-3	Table 6.2.4-3
NS_11	6.6.2.2.1	23 ¹	1.4, 3, 5, 10	Table 6.2.4-5	Table 6.2.4-5
NS_32					

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

Radiated method:

ANSI/TIA-603-E section 2.2.17

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
ERP/EIRP Test					
R&S	EMI Test Receiver	ESR3	102453	2019-09-12	2020-09-12
Sunol Sciences	Antenna	JB3	A060611-1	2017-11-10	2020-11-10
EMCO	Adjustable Dipole Antenna	3121C	9109-753	N/A	N/A
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2019-09-05	2020-09-05
Agilent	Signal Generator	E8247C	MY43321350	2019-12-10	2020-12-10
Agilent	Spectrum Analyzer	E4440A	SG43360054	2019-05-09	2020-05-09
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	2018-12-14	2019-12-14
R&S	Wideband Radio Communication Tester	CMW500	147473	2019-08-03	2020-08-03
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:	25.2 °C	25.2 °C	26.4~27.3°C
Relative Humidity:	53%	53%	61~63 %
ATM Pressure:	100.5 kPa	100.5 kPa	98.8~100.5kPa
Tester:	Bond Qin	Bond Qin	Fay Hu, Lily Xie
Test Date:	2020-05-08	2020-05-08	2020-05-09~2020-05-23

Test Result: Compliance

Conducted Output Power**Cellular Band & PCS Band****GSM&GPRS mode**

Band	Channel No.	Conducted Peak Output Power (dBm)								
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slots	GPRS 3 TX Slots	GPRS 4 TX Slots	EGPRS 1 TX Slot	EGPRS 2 TX Slots	EGPRS 3 TX Slots	EGPRS 4 TX Slots
Cellular	128	31.3	31.49	30.67	28.87	27.86	25.97	24.81	22.97	21.83
	190	31.3	31.54	30.63	28.85	27.83	25.82	24.62	22.71	21.63
	251	31.6	31.58	30.74	28.74	27.58	25.78	24.79	22.69	21.62
PCS	512	28.9	28.98	28.27	26.46	25.51	23.78	22.82	20.22	19.17
	661	28.7	28.75	28.02	26.19	25.21	23.80	22.80	20.16	19.01
	810	28.6	28.57	27.81	25.79	24.91	23.38	22.34	19.55	18.32

WCDMA Band 2

Mode	3GPP Sub Test	Low Channel		Middle Channel		High Channel	
		Ave. Power (dBm)	PAR (dB)	Ave. Power (dBm)	PAR (dB)	Ave. Power (dBm)	PAR (dB)
Rel 99	1	22.41	2.81	22.69	2.38	22.83	2.26
HSDPA	1	21.58	5.01	21.81	4.52	21.96	5.16
	2	21.12	5.45	21.34	5.51	21.52	5.03
	3	20.84	5.24	20.95	5.72	21.08	5.22
	4	20.23	5.09	20.46	5.61	20.49	4.79
HSUPA	1	21.18	6.00	21.49	8.41	21.62	5.86
	2	20.96	3.07	21.12	6.12	21.29	6.41
	3	20.54	5.05	20.59	3.25	20.67	2.93
	4	20.07	5.27	20.08	4.56	20.14	5.54
	5	19.86	5.73	19.89	5.38	19.91	4.94
DC-HSDPA	1	21.05	4.59	21.09	5.23	21.12	6.05
	2	20.86	5.71	20.67	4.55	20.78	4.28
	3	20.45	5.37	20.25	5.66	20.36	5.24
	4	19.56	4.68	19.77	5.14	19.94	5.22
HSPA+ (16QAM)	1	20.89	5.67	20.94	4.65	20.99	4.90

WCDMA Band 4

Mode	3GPP Sub Test	Low Channel		Middle Channel		High Channel	
		Ave. Power (dBm)	PAR (dB)	Ave. Power (dBm)	PAR (dB)	Ave. Power (dBm)	PAR (dB)
Rel 99	1	24.01	2.61	24.05	2.52	23.92	2.78
HSDPA	1	23.01	2.72	22.97	3.97	22.95	2.81
	2	22.98	3.19	22.64	2.79	22.79	2.58
	3	22.87	3.67	22.21	2.81	22.26	2.44
	4	22.45	3.81	22.03	2.59	22.12	2.52
HSUPA	1	23.02	2.78	22.57	4.03	22.55	3.04
	2	21.99	3.72	22.23	3.93	22.22	4.00
	3	22.44	4.17	21.98	3.77	22.12	4.34
	4	22.29	4.57	21.88	3.49	21.98	4.58
	5	22.61	4.79	21.76	3.78	21.85	4.49
DC-HSDPA	1	22.56	3.26	22.45	3.02	22.28	3.52
	2	21.76	4.38	22.15	3.83	22.12	4.28
	3	22.15	4.76	21.85	4.21	21.86	4.47
	4	22.03	4.53	21.56	3.99	21.56	4.55
HSPA+ (16QAM)	1	22.21	2.02	22.09	2.78	22.13	2.56

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	21.87	3.10	21.91	2.90	21.94	2.96
HSDPA	1	20.86	3.57	20.95	5.07	20.90	5.48
	2	20.07	2.76	20.41	2.44	20.38	2.34
	3	19.59	4.74	20.01	4.92	20.02	5.03
	4	19.12	5.89	19.24	5.88	19.45	5.91
HSUPA	1	20.71	6.41	20.75	8.03	20.73	8.03
	2	20.14	6.76	20.31	6.07	20.35	6.82
	3	19.85	3.45	19.94	6.48	19.86	6.96
	4	19.34	3.29	19.53	3.05	19.34	3.02
	5	18.98	3.30	19.01	2.93	18.98	3.26
DC-HSDPA	1	20.68	4.98	20.72	3.68	20.71	3.69
	2	20.15	6.64	20.26	5.11	20.21	5.41
	3	19.86	6.05	19.92	6.47	19.96	6.22
	4	19.15	6.42	19.17	6.19	19.23	5.57
HSPA+ (16QAM)	1	20.32	3.46	20.34	6.77	20.36	6.67

LTE Band 2

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	RB1#0	21.38	21.32	21.37
		RB1#3	21.40	21.39	21.53
		RB1#5	21.24	21.33	21.34
		RB3#0	21.26	21.35	21.31
		RB3#3	21.28	21.35	21.33
		RB6#0	20.38	20.49	20.45
	16QAM	RB1#0	20.29	20.48	20.35
		RB1#3	20.41	20.60	20.54
		RB1#5	20.28	20.47	20.37
		RB3#0	20.52	20.39	20.44
		RB3#3	20.54	20.41	20.40
		RB6#0	19.34	19.44	19.34
3MHz	QPSK	RB1#0	21.28	21.41	21.45
		RB1#8	21.27	21.37	21.43
		RB1#14	21.27	21.40	21.46
		RB6#0	20.34	20.43	20.43
		RB6#9	20.36	20.43	20.43
		RB15#0	20.35	20.43	20.41
	16QAM	RB1#0	20.87	20.56	20.45
		RB1#8	20.85	20.56	20.44
		RB1#14	20.82	20.52	20.42
		RB6#0	19.36	19.40	19.32
		RB6#9	19.34	19.38	19.32
		RB15#0	19.35	19.35	19.43
5MHz	QPSK	RB1#0	21.22	21.34	21.30
		RB1#13	21.30	21.44	21.42
		RB1#24	21.20	21.33	21.33
		RB15#0	20.40	20.44	20.46
		RB15#10	20.37	20.49	20.47
		RB25#0	20.32	20.45	20.43
	16QAM	RB1#0	20.12	20.65	20.45
		RB1#13	20.24	20.73	20.49
		RB1#24	20.14	20.65	20.39
		RB15#0	19.39	19.37	19.42
		RB15#10	19.35	19.42	19.44
		RB25#0	19.33	19.41	19.39

10MHz	QPSK	RB1#0	21.29	21.41	21.40
		RB1#25	21.40	21.62	21.61
		RB1#49	21.30	21.43	21.49
		RB25#0	20.44	20.50	20.51
		RB25#25	20.39	20.56	20.55
		RB50#0	20.42	20.53	20.53
	16QAM	RB1#0	20.87	20.59	20.43
		RB1#25	21.07	20.74	20.61
		RB1#49	20.91	20.57	20.48
		RB25#0	19.47	19.45	19.54
		RB25#25	19.41	19.56	19.57
		RB50#0	19.41	19.52	19.52
15MHz	QPSK	RB1#0	21.18	21.28	21.32
		RB1#38	21.33	21.44	21.44
		RB1#74	21.28	21.31	21.45
		RB36#0	20.47	20.52	20.57
		RB36#39	20.44	20.56	20.63
		RB75#0	20.51	20.55	20.62
	16QAM	RB1#0	20.78	20.48	20.76
		RB1#38	20.96	20.59	20.83
		RB1#74	20.83	20.53	20.70
		RB36#0	19.44	19.48	19.54
		RB36#39	19.43	19.57	19.55
		RB75#0	19.46	19.50	19.55
20MHz	QPSK	RB1#0	21.05	21.15	21.12
		RB1#50	21.52	21.64	21.49
		RB1#99	21.16	21.19	21.15
		RB50#0	20.42	20.39	20.62
		RB50#50	20.42	20.48	20.56
		RB100#0	20.40	20.45	20.56
	16QAM	RB1#0	20.40	20.39	20.68
		RB1#50	20.84	20.85	21.11
		RB1#99	20.49	20.45	20.69
		RB50#0	19.40	19.33	19.59
		RB50#50	19.35	19.45	19.52
		RB100#0	19.43	19.41	19.53

LTE Band 4

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	RB1#0	21.78	21.70	21.59
		RB1#3	21.96	21.86	21.89
		RB1#5	21.80	21.72	21.59
		RB3#0	21.84	21.79	21.69
		RB3#3	21.82	21.81	21.75
		RB6#0	20.95	20.88	20.74
	16QAM	RB1#0	20.80	20.85	20.71
		RB1#3	20.98	21.07	20.82
		RB1#5	20.81	20.87	20.74
		RB3#0	21.03	20.81	20.83
		RB3#3	21.08	20.82	20.80
		RB6#0	19.88	19.87	19.68
3MHz	QPSK	RB1#0	21.88	21.80	21.81
		RB1#8	21.82	21.77	21.68
		RB1#14	21.86	21.79	21.76
		RB6#0	20.88	20.85	20.75
		RB6#9	20.87	20.81	20.73
		RB15#0	20.90	20.87	20.78
	16QAM	RB1#0	21.34	21.01	20.83
		RB1#8	21.32	20.95	20.76
		RB1#14	21.35	20.96	20.77
		RB6#0	19.93	19.82	19.68
		RB6#9	19.89	19.83	19.65
		RB15#0	19.95	19.80	19.82
5MHz	QPSK	RB1#0	21.79	21.75	21.66
		RB1#13	21.84	21.83	21.77
		RB1#24	21.78	21.77	21.64
		RB15#0	20.96	20.93	20.81
		RB15#10	20.96	20.82	20.86
		RB25#0	20.90	20.85	20.78
	16QAM	RB1#0	20.67	21.07	20.79
		RB1#13	20.79	21.18	20.86
		RB1#24	20.69	21.07	20.78
		RB15#0	19.95	19.91	19.83
		RB15#10	19.97	19.80	19.87
		RB25#0	19.91	19.85	19.80

10MHz	QPSK	RB1#0	21.90	21.80	21.85
		RB1#25	22.08	22.02	22.11
		RB1#49	21.89	21.87	21.76
		RB25#0	20.99	21.04	20.89
		RB25#25	21.11	20.91	20.97
		RB50#0	21.06	20.96	20.96
	16QAM	RB1#0	21.36	21.02	20.82
		RB1#25	21.58	21.18	20.98
		RB1#49	21.44	21.05	20.77
		RB25#0	19.97	20.03	19.94
		RB25#25	20.14	19.87	20.05
		RB50#0	20.03	19.91	19.97
15MHz	QPSK	RB1#0	21.83	21.77	21.76
		RB1#38	21.89	21.89	21.92
		RB1#74	21.84	21.82	21.70
		RB36#0	20.97	21.02	21.03
		RB36#39	21.13	20.96	21.04
		RB75#0	21.11	21.04	21.08
	16QAM	RB1#0	21.29	20.94	21.08
		RB1#38	21.48	21.06	21.20
		RB1#74	21.40	21.02	21.09
		RB36#0	19.99	19.99	19.94
		RB36#39	20.10	19.93	20.00
		RB75#0	20.05	19.97	19.98
20MHz	QPSK	RB1#0	21.65	21.62	21.46
		RB1#50	22.03	22.10	22.00
		RB1#99	21.65	21.72	21.50
		RB50#0	20.81	20.96	21.30
		RB50#50	21.09	20.79	21.33
		RB100#0	20.97	20.86	21.44
	16QAM	RB1#0	20.90	20.86	21.59
		RB1#50	21.37	21.24	22.05
		RB1#99	20.97	20.89	21.61
		RB50#0	19.82	19.93	20.55
		RB50#50	20.05	19.74	19.95
		RB100#0	19.96	19.85	19.97

LTE Band 5

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	RB1#0	21.69	21.55	21.42
		RB1#3	21.82	21.72	21.63
		RB1#5	21.71	21.57	21.45
		RB3#0	21.76	21.66	21.50
		RB3#3	21.74	21.62	21.52
		RB6#0	20.81	20.72	20.61
	16QAM	RB1#0	20.76	20.72	20.46
		RB1#3	20.96	20.94	20.68
		RB1#5	20.78	20.76	20.51
		RB3#0	21.02	20.69	20.67
		RB3#3	21.02	20.70	20.64
		RB6#0	19.81	19.66	19.49
3MHz	QPSK	RB1#0	21.76	21.63	21.53
		RB1#8	21.72	21.59	21.48
		RB1#14	21.70	21.60	21.50
		RB6#0	20.78	20.68	20.51
		RB6#9	20.77	20.63	20.55
		RB15#0	20.76	20.66	20.58
	16QAM	RB1#0	21.32	20.82	20.55
		RB1#8	21.32	20.77	20.52
		RB1#14	21.27	20.79	20.53
		RB6#0	19.80	19.62	19.43
		RB6#9	19.79	19.67	19.47
		RB15#0	19.83	19.60	19.54
5MHz	QPSK	RB1#0	21.65	21.58	21.43
		RB1#13	21.73	21.64	21.47
		RB1#24	21.66	21.54	21.43
		RB15#0	20.85	20.67	20.63
		RB15#10	20.80	20.67	20.57
		RB25#0	20.78	20.70	20.56
	16QAM	RB1#0	20.61	20.91	20.55
		RB1#13	20.69	21.00	20.65
		RB1#24	20.63	20.88	20.56
		RB15#0	19.80	19.60	19.59
		RB15#10	19.82	19.62	19.57
		RB25#0	19.80	19.65	19.54
10MHz	QPSK	RB1#0	21.69	21.64	21.58
		RB1#25	21.82	21.78	21.74
		RB1#49	21.65	21.61	21.53
		RB25#0	20.84	20.72	20.68
		RB25#25	20.87	20.71	20.55
		RB50#0	20.83	20.72	20.61
	16QAM	RB1#0	21.30	20.83	20.58
		RB1#25	21.47	21.00	20.73
		RB1#49	21.23	20.77	20.57
		RB25#0	19.84	19.72	19.73
		RB25#25	19.87	19.71	19.57
		RB50#0	19.80	19.70	19.60

LTE Band 7

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	RB1#0	21.05	21.41	21.29
		RB1#13	21.26	21.57	21.40
		RB1#24	21.13	21.44	21.21
		RB15#0	20.14	20.40	20.41
		RB15#10	20.24	20.45	20.34
		RB25#0	20.10	20.37	20.31
	16QAM	RB1#0	19.84	20.52	20.23
		RB1#13	19.99	20.64	20.36
		RB1#24	19.92	20.48	20.23
		RB15#0	19.16	19.35	19.43
		RB15#10	19.20	19.36	19.29
		RB25#0	19.17	19.31	19.31
10MHz	QPSK	RB1#0	21.24	21.57	21.47
		RB1#25	21.56	21.46	21.45
		RB1#49	21.31	21.61	21.09
		RB25#0	20.21	20.43	20.47
		RB25#25	20.30	20.47	20.29
		RB50#0	20.23	20.46	20.36
	16QAM	RB1#0	20.48	20.48	20.31
		RB1#25	20.78	20.67	20.49
		RB1#49	20.65	20.52	20.30
		RB25#0	19.20	19.38	19.48
		RB25#25	19.33	19.45	19.33
		RB50#0	19.24	19.41	19.39
15MHz	QPSK	RB1#0	21.12	21.41	21.36
		RB1#38	21.31	21.35	21.52
		RB1#74	21.28	21.49	21.13
		RB36#0	20.26	20.55	20.49
		RB36#39	20.40	20.64	20.50
		RB75#0	20.38	20.60	20.53
	16QAM	RB1#0	20.41	20.36	20.56
		RB1#38	20.67	20.54	20.60
		RB1#74	20.58	20.44	20.45
		RB36#0	19.20	19.45	19.43
		RB36#39	19.35	19.51	19.33
		RB75#0	19.23	19.50	19.36
20MHz	QPSK	RB1#0	20.90	21.17	21.13
		RB1#50	21.50	21.26	21.63
		RB1#99	21.12	21.32	21.05
		RB50#0	20.10	20.42	20.33
		RB50#50	20.29	20.47	20.22
		RB100#0	20.21	20.42	20.27
	16QAM	RB1#0	20.03	20.17	20.51
		RB1#50	20.61	20.66	20.98
		RB1#99	20.27	20.27	20.46
		RB50#0	19.10	19.35	19.27
		RB50#50	19.22	19.43	19.20
		RB100#0	19.19	19.37	19.28

LTE Band 12

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	RB1#0	21.83	21.84	21.82
		RB1#3	22.04	22.06	22.02
		RB1#5	21.87	21.84	21.82
		RB3#0	21.89	21.87	21.87
		RB3#3	21.87	21.95	21.87
		RB6#0	20.89	20.87	20.90
	16QAM	RB1#0	20.79	20.92	20.74
		RB1#3	20.97	21.10	20.98
		RB1#5	20.78	20.89	20.80
		RB3#0	21.01	20.83	20.88
		RB3#3	21.03	20.86	20.92
		RB6#0	19.94	19.95	19.85
3MHz	QPSK	RB1#0	21.87	21.84	21.83
		RB1#8	21.83	21.85	21.87
		RB1#14	21.78	21.83	21.83
		RB6#0	20.80	20.80	20.80
		RB6#9	20.85	20.78	20.76
		RB15#0	20.81	20.83	20.78
	16QAM	RB1#0	21.33	20.90	20.82
		RB1#8	21.34	20.94	20.81
		RB1#14	21.31	20.88	20.76
		RB6#0	19.92	19.84	19.77
		RB6#9	19.88	19.86	19.71
		RB15#0	19.87	19.76	19.88
5MHz	QPSK	RB1#0	21.77	21.73	21.73
		RB1#13	21.86	21.88	21.86
		RB1#24	21.75	21.81	21.77
		RB15#0	20.59	20.95	20.66
		RB15#10	20.85	20.77	20.72
		RB25#0	20.73	20.85	20.66
	16QAM	RB1#0	20.63	20.96	20.73
		RB1#13	20.73	21.13	20.88
		RB1#24	20.59	21.04	20.75
		RB15#0	19.65	19.95	19.70
		RB15#10	19.92	19.79	19.77
		RB25#0	19.80	19.89	19.75
10MHz	QPSK	RB1#0	21.84	21.72	21.51
		RB1#25	21.94	21.97	21.67
		RB1#49	21.87	21.86	21.56
		RB25#0	20.58	21.04	20.60
		RB25#25	20.65	20.95	20.64
		RB50#0	20.61	20.66	20.61
	16QAM	RB1#0	21.30	20.55	20.42
		RB1#25	21.45	20.76	20.56
		RB1#49	21.35	20.61	20.50
		RB25#0	19.63	19.78	19.69
		RB25#25	19.72	19.68	19.74
		RB50#0	19.68	19.69	19.64

LTE Band 17

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5MHz	QPSK	RB1#0	21.39	21.41	21.38
		RB1#13	21.54	21.58	21.54
		RB1#24	21.48	21.42	21.43
		RB15#0	20.61	20.55	20.36
		RB15#10	20.45	20.63	20.40
		RB25#0	20.49	20.57	20.32
	16QAM	RB1#0	20.25	20.63	20.41
		RB1#13	20.41	20.83	20.54
		RB1#24	20.32	20.69	20.46
		RB15#0	19.64	19.56	19.42
		RB15#10	19.47	19.59	19.47
		RB25#0	19.56	19.58	19.39
10MHz	QPSK	RB1#0	21.42	21.39	21.48
		RB1#25	21.70	21.71	21.67
		RB1#49	21.53	21.50	21.56
		RB25#0	20.74	20.67	20.57
		RB25#25	20.80	20.73	20.58
		RB50#0	20.76	20.67	20.61
	16QAM	RB1#0	20.93	20.47	20.39
		RB1#25	21.20	20.77	20.63
		RB1#49	21.01	20.57	20.49
		RB25#0	19.81	19.70	19.69
		RB25#25	19.87	19.78	19.72
		RB50#0	19.78	19.71	19.64

LTE Band 66

Channel Bandwidth	Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4MHz	QPSK	RB1#0	23.43	22.67	22.42
		RB1#3	23.03	22.89	22.60
		RB1#5	22.84	22.72	22.48
		RB3#0	22.85	22.71	22.39
		RB3#3	22.76	22.73	22.40
		RB6#0	21.94	21.79	21.50
	16QAM	RB1#0	21.77	21.71	21.35
		RB1#3	21.95	21.91	21.58
		RB1#5	21.75	21.71	21.43
		RB3#0	22.02	21.85	21.50
		RB3#3	22.01	21.88	21.49
		RB6#0	20.84	20.72	20.33
3MHz	QPSK	RB1#0	22.90	22.75	22.50
		RB1#8	22.88	22.75	22.50
		RB1#14	22.87	22.73	22.53
		RB6#0	21.85	21.76	21.49
		RB6#9	21.82	21.71	21.43
		RB15#0	21.85	21.77	21.43
	16QAM	RB1#0	21.97	21.90	21.46
		RB1#8	21.98	21.88	21.47
		RB1#14	21.98	21.87	21.40
		RB6#0	20.83	20.72	20.34
		RB6#9	20.83	20.72	20.33
		RB15#0	20.76	20.72	20.46
5MHz	QPSK	RB1#0	22.76	22.66	22.36
		RB1#13	22.86	22.74	22.43
		RB1#24	22.68	22.62	22.34
		RB15#0	21.85	21.80	21.53
		RB15#10	21.84	21.72	21.43
		RB25#0	21.82	21.73	21.43
	16QAM	RB1#0	21.95	21.88	21.41
		RB1#13	22.07	22.00	21.49
		RB1#24	21.96	21.85	21.34
		RB15#0	20.83	20.74	20.47
		RB15#10	20.76	20.65	20.37
		RB25#0	20.80	20.68	20.42

10MHz	QPSK	RB1#0	22.83	22.65	22.45
		RB1#25	23.02	22.86	22.67
		RB1#49	22.76	22.67	22.51
		RB25#0	21.87	21.83	21.66
		RB25#25	21.95	21.81	21.44
		RB50#0	21.92	21.76	21.53
	16QAM	RB1#0	21.92	21.81	21.50
		RB1#25	22.11	22.05	21.58
		RB1#49	21.93	21.85	21.41
		RB25#0	20.84	20.82	20.71
		RB25#25	20.98	20.80	20.45
		RB50#0	20.90	20.75	20.53
15MHz	QPSK	RB1#0	22.69	22.62	22.45
		RB1#38	22.85	22.79	22.57
		RB1#74	22.63	22.59	22.43
		RB36#0	21.91	21.93	21.74
		RB36#39	21.99	21.87	21.54
		RB75#0	21.97	21.97	21.64
	16QAM	RB1#0	21.82	21.77	21.79
		RB1#38	21.99	21.92	21.85
		RB1#74	21.87	21.78	21.57
		RB36#0	20.86	20.87	20.67
		RB36#39	20.96	20.85	20.48
		RB75#0	20.90	20.88	20.55
20MHz	QPSK	RB1#0	22.49	22.37	22.23
		RB1#50	22.91	22.88	22.67
		RB1#99	22.48	22.34	22.10
		RB50#0	21.72	21.90	21.47
		RB50#50	21.89	21.74	21.27
		RB100#0	21.80	21.78	21.36
	16QAM	RB1#0	21.66	21.90	21.76
		RB1#50	22.10	22.26	22.10
		RB1#99	21.67	21.84	21.53
		RB50#0	20.65	20.86	20.40
		RB50#50	20.88	20.71	20.23
		RB100#0	20.81	20.76	20.29

PAR, Band 2

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	20 MHz	4.67	5.13	4.72	13
	100 RB		5.04	5.04	4.78	13
16QAM	1 RB	20 MHz	5.28	6.06	5.68	13
	100 RB		6.00	5.83	5.86	13

PAR, Band 4

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	20 MHz	3.57	4.23	3.77	13
	100 RB		4.78	4.78	4.87	13
16QAM	1 RB	20 MHz	4.67	5.13	4.90	13
	100 RB		5.88	5.83	5.86	13

PAR, Band 5

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	10 MHz	5.16	5.04	4.61	13
	50 RB		5.19	4.99	4.96	13
16QAM	1 RB	10 MHz	6.03	6.06	5.39	13
	50 RB		6.03	6.03	5.94	13

PAR, Band 7

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	20 MHz	3.19	2.993.42	3.39	13
	100 RB		4.38	4.00	4.14	13
16QAM	1 RB	20 MHz	4.17	3.94	4.58	13
	100 RB		5.45	5.10	5.33	13

PAR, Band 12

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	10 MHz	4.99	4.61	4.70	13
	50 RB		4.93	5.16	5.16	13
16QAM	1 RB	10 MHz	6.00	5.54	5.68	13
	50 RB		6.00	6.03	6.03	13

PAR, Band 17

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	10 MHz	4.58	4.67	4.58	13
	50 RB		5.28	5.22	5.07	13
16QAM	1 RB	10 MHz	5.71	5.71	5.42	13
	50 RB		6.03	6.14	6.03	13

PAR, Band 66

Test Modulation		Channel Bandwidth	Low Channel PAR (dB)	Middle Channel PAR (dB)	High Channel PAR (dB)	Limit (dB)
QPSK	1 RB	20 MHz	3.28	3.77	4.32	13
	100 RB		4.67	4.90	4.99	13
16QAM	1 RB	20 MHz	4.00	4.70	5.22	13
	100 RB		5.74	5.88	5.97	13

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

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)			
GSM 850 Middle Channel								
836.60	H	91.30	16.38	0.00	0.97	15.41	38.45	23.04
836.60	V	98.86	27.07	0.00	0.97	26.10	38.45	12.35
EGPRS850 Middle Channel								
836.60	H	88.67	13.75	0.00	0.97	12.78	38.45	25.67
836.60	V	96.31	24.52	0.00	0.97	23.55	38.45	14.90
WCDMA R99 Band 5 middle channel								
836.60	H	79.86	4.94	0.00	0.97	3.97	38.45	34.48
836.60	V	93.64	21.85	0.00	0.97	20.88	38.45	17.57

Part 24E

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)			
PCS 1900 Middle Channel								
1880.00	H	89.10	16.49	11.66	2.66	25.49	33.00	7.51
1880.00	V	89.03	16.56	11.66	2.66	25.56	33.00	7.44
EGPRS1900 Middle Channel								
1880.00	H	84.35	11.74	11.66	2.66	20.74	33.00	12.26
1880.00	V	83.93	11.46	11.66	2.66	20.46	33.00	12.54
WCDMA R99 Band 2 middle channel								
1880.00	H	86.40	13.79	11.66	2.66	22.79	33.00	10.21
1880.00	V	85.00	12.53	11.66	2.66	21.53	33.00	11.47

Part 27

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 4 middle channel								
1732.60	H	83.82	9.77	10.90	2.51	18.16	30.00	11.84
1732.60	V	85.90	11.53	10.90	2.51	19.92	30.00	10.08

Note:

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

LTE Band 2

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)	
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)				
1880.00	1.40	QPSK	H	81.00	8.39	11.66	2.66	17.39	33.00	15.61	
1880.00			V	84.62	12.15	11.66	2.66	21.15	33.00	11.85	
1880.00	3.00		H	80.82	8.21	11.66	2.66	17.21	33.00	15.79	
1880.00			V	84.61	12.14	11.66	2.66	21.14	33.00	11.86	
1880.00	5.00		H	80.70	8.09	11.66	2.66	17.09	33.00	15.91	
1880.00			V	84.43	11.96	11.66	2.66	20.96	33.00	12.04	
1880.00	10.00		H	80.51	7.90	11.66	2.66	16.90	33.00	16.10	
1880.00			V	84.26	11.79	11.66	2.66	20.79	33.00	12.21	
1880.00	15.00		H	80.66	8.05	11.66	2.66	17.05	33.00	15.95	
1880.00			V	84.2	11.73	11.66	2.66	20.73	33.00	12.27	
1880.00	20.00		H	80.35	7.74	11.66	2.66	16.74	33.00	16.26	
1880.00			V	84.48	12.01	11.66	2.66	21.01	33.00	11.99	
1880.00	1.40		16QAM	H	79.92	7.31	11.66	2.66	16.31	33.00	16.69
1880.00				V	83.71	11.24	11.66	2.66	20.24	33.00	12.76
1880.00	3.00			H	79.70	7.09	11.66	2.66	16.09	33.00	16.91
1880.00				V	83.47	11.00	11.66	2.66	20.00	33.00	13.00
1880.00	5.00	H		79.44	6.83	11.66	2.66	15.83	33.00	17.17	
1880.00		V		83.21	10.74	11.66	2.66	19.74	33.00	13.26	
1880.00	10.00	H		79.32	6.71	11.66	2.66	15.71	33.00	17.29	
1880.00		V		83.12	10.65	11.66	2.66	19.65	33.00	13.35	
1880.00	15.00	H		79.48	6.87	11.66	2.66	15.87	33.00	17.13	
1880.00		V		83.44	10.97	11.66	2.66	19.97	33.00	13.03	
1880.00	20.00	H		79.55	6.94	11.66	2.66	15.94	33.00	17.06	
1880.00		V		83.33	10.86	11.66	2.66	19.86	33.00	13.14	

LTE Band 4

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
1732.50	1.40	QPSK	H	84.78	10.73	10.90	2.51	19.12	30.00	10.88
1732.50			V	85.33	10.96	10.90	2.51	19.35	30.00	10.65
1732.50	3.00		H	84.83	10.78	10.90	2.51	19.17	30.00	10.83
1732.50			V	85.10	10.73	10.90	2.51	19.12	30.00	10.88
1732.50	5.00		H	84.65	10.60	10.90	2.51	18.99	30.00	11.01
1732.50			V	85.12	10.75	10.90	2.51	19.14	30.00	10.86
1732.50	10.00		H	84.70	10.65	10.90	2.51	19.04	30.00	10.96
1732.50			V	85.01	10.64	10.90	2.51	19.03	30.00	10.97
1732.50	15.00		H	84.48	10.43	10.90	2.51	18.82	30.00	11.18
1732.50			V	85.17	10.80	10.90	2.51	19.19	30.00	10.81
1732.50	20.00		H	84.23	10.18	10.90	2.51	18.57	30.00	11.43
1732.50			V	84.94	10.57	10.90	2.51	18.96	30.00	11.04
1732.50	1.40	16QAM	H	83.76	9.71	10.90	2.51	18.10	30.00	11.90
1732.50			V	84.11	9.74	10.90	2.51	18.13	30.00	11.87
1732.50	3.00		H	83.44	9.39	10.90	2.51	17.78	30.00	12.22
1732.50			V	83.96	9.59	10.90	2.51	17.98	30.00	12.02
1732.50	5.00		H	83.52	9.47	10.90	2.51	17.86	30.00	12.14
1732.50			V	83.80	9.43	10.90	2.51	17.82	30.00	12.18
1732.50	10.00		H	83.15	9.10	10.90	2.51	17.49	30.00	12.51
1732.50			V	83.73	9.36	10.90	2.51	17.75	30.00	12.25
1732.50	15.00		H	83.23	9.18	10.90	2.51	17.57	30.00	12.43
1732.50			V	83.97	9.60	10.90	2.51	17.99	30.00	12.01
1732.50	20.00		H	83.14	9.09	10.90	2.51	17.48	30.00	12.52
1732.50			V	83.90	9.53	10.90	2.51	17.92	30.00	12.08

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	80.53	5.60	0.00	0.97	4.63	38.45	33.82
836.50			V	91.65	19.86	0.00	0.97	18.89	38.45	19.56
836.50	3.00		H	80.74	5.81	0.00	0.97	4.84	38.45	33.61
836.50			V	91.86	20.07	0.00	0.97	19.10	38.45	19.35
836.50	5.00		H	80.73	5.80	0.00	0.97	4.83	38.45	33.62
836.50			V	91.85	20.06	0.00	0.97	19.09	38.45	19.36
836.50	10.00		H	80.05	5.12	0.00	0.97	4.15	38.45	34.30
836.50			V	91.17	19.38	0.00	0.97	18.41	38.45	20.04
836.50	1.40	16QAM	H	80.69	5.76	0.00	0.97	4.79	38.45	33.66
836.50			V	91.81	20.02	0.00	0.97	19.05	38.45	19.40
836.50	3.00		H	80.90	5.97	0.00	0.97	5.00	38.45	33.45
836.50			V	92.02	20.23	0.00	0.97	19.26	38.45	19.19
836.50	5.00		H	80.82	5.89	0.00	0.97	4.92	38.45	33.53
836.50			V	91.94	20.15	0.00	0.97	19.18	38.45	19.27
836.50	10.00		H	79.94	5.01	0.00	0.97	4.04	38.45	34.41
836.50			V	91.06	19.27	0.00	0.97	18.30	38.45	20.15

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	79.89	7.28	13.14	3.10	17.32	33.00	15.68
2535.00			V	81.13	9.98	13.14	3.10	20.02	33.00	12.98
2535.00	10.00		H	79.62	7.01	13.14	3.10	17.05	33.00	15.95
2535.00			V	80.13	8.98	13.14	3.10	19.02	33.00	13.98
2535.00	15.00		H	79.56	6.95	13.14	3.10	16.99	33.00	16.01
2535.00			V	80.83	9.68	13.14	3.10	19.72	33.00	13.28
2535.00	20.00		H	79.89	7.28	13.14	3.10	17.32	33.00	15.68
2535.00			V	80.42	9.27	13.14	3.10	19.31	33.00	13.69
2535.00	5.00	16QAM	H	79.39	6.78	13.14	3.10	16.82	33.00	16.18
2535.00			V	81.69	10.54	13.14	3.10	20.58	33.00	12.42
2535.00	10.00		H	79.52	6.91	13.14	3.10	16.95	33.00	16.05
2535.00			V	80.23	9.08	13.14	3.10	19.12	33.00	13.88
2535.00	15.00		H	77.67	5.06	13.14	3.10	15.10	33.00	17.90
2535.00			V	79.89	8.74	13.14	3.10	18.78	33.00	14.22
2535.00	20.00		H	79.08	6.47	13.14	3.10	16.51	33.00	16.49
2535.00			V	80.32	9.17	13.14	3.10	19.21	33.00	13.79

LTE Band 12

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
707.50	1.40	QPSK	H	80.80	3.94	0.00	0.94	3.00	34.77	31.77
707.50			V	93.31	18.89	0.00	0.94	17.95	34.77	16.82
707.50	3.00		H	81.12	4.26	0.00	0.94	3.32	34.77	31.45
707.50			V	93.63	19.21	0.00	0.94	18.27	34.77	16.50
707.50	5.00		H	81.11	4.25	0.00	0.94	3.31	34.77	31.46
707.50			V	93.62	19.20	0.00	0.94	18.26	34.77	16.51
707.50	10.00		H	79.90	3.04	0.00	0.94	2.10	34.77	32.67
707.50			V	92.41	17.99	0.00	0.94	17.05	34.77	17.72
707.50	1.40	16QAM	H	80.95	4.09	0.00	0.94	3.15	34.77	31.62
707.50			V	93.46	19.04	0.00	0.94	18.10	34.77	16.67
707.50	3.00		H	81.08	4.22	0.00	0.94	3.28	34.77	31.49
707.50			V	93.59	19.17	0.00	0.94	18.23	34.77	16.54
707.50	5.00		H	80.81	3.95	0.00	0.94	3.01	34.77	31.76
707.50			V	93.32	18.90	0.00	0.94	17.96	34.77	16.81
707.50	10.00		H	79.97	3.11	0.00	0.94	2.17	34.77	32.60
707.50			V	92.48	18.06	0.00	0.94	17.12	34.77	17.65

LTE Band 17

Frequency (MHz)	BW (MHz)	Modulation	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
					Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
710.00	5.00	QPSK	H	81.05	4.24	0.00	0.94	3.30	34.77	31.47
710.00			V	93.70	19.34	0.00	0.94	18.40	34.77	16.37
710.00	10.00		H	79.89	3.08	0.00	0.94	2.14	34.77	32.63
710.00			V	92.54	18.18	0.00	0.94	17.24	34.77	17.53
710.00	5.00	16QAM	H	81.06	4.25	0.00	0.94	3.31	34.77	31.46
710.00			V	93.71	19.35	0.00	0.94	18.41	34.77	16.36
710.00	10.00		H	80.18	3.37	0.00	0.94	2.43	34.77	32.34
710.00			V	92.83	18.47	0.00	0.94	17.53	34.77	17.24

LTE Band 66

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)			
1745.00	1.40	QPSK	H	82.70	8.76	10.94	2.53	17.17	30.00	12.83
1745.00			V	85.79	11.51	10.94	2.53	19.92	30.00	10.08
1745.00	3.00		H	82.58	8.64	10.94	2.53	17.05	30.00	12.95
1745.00			V	85.89	11.61	10.94	2.53	20.02	30.00	9.98
1745.00	5.00		H	82.67	8.73	10.94	2.53	17.14	30.00	12.86
1745.00			V	85.78	11.50	10.94	2.53	19.91	30.00	10.09
1745.00	10.00		H	82.03	8.09	10.94	2.53	16.50	30.00	13.50
1745.00			V	85.21	10.93	10.94	2.53	19.34	30.00	10.66
1745.00	15.00		H	81.83	7.89	10.94	2.53	16.30	30.00	13.70
1745.00			V	84.95	10.67	10.94	2.53	19.08	30.00	10.92
1745.00	20.00		H	81.53	7.59	10.94	2.53	16.00	30.00	14.00
1745.00			V	84.65	10.37	10.94	2.53	18.78	30.00	11.22
1745.00	1.40	16QAM	H	83.12	9.18	10.94	2.53	17.59	30.00	12.41
1745.00			V	86.11	11.83	10.94	2.53	20.24	30.00	9.76
1745.00	3.00		H	82.27	8.33	10.94	2.53	16.74	30.00	13.26
1745.00			V	85.35	11.07	10.94	2.53	19.48	30.00	10.52
1745.00	5.00		H	82.79	8.85	10.94	2.53	17.26	30.00	12.74
1745.00			V	85.89	11.61	10.94	2.53	20.02	30.00	9.98
1745.00	10.00		H	82.25	8.31	10.94	2.53	16.72	30.00	13.28
1745.00			V	85.21	10.93	10.94	2.53	19.34	30.00	10.66
1745.00	15.00		H	82.26	8.32	10.94	2.53	16.73	30.00	13.27
1745.00			V	84.62	10.34	10.94	2.53	18.75	30.00	11.25
1745.00	20.00		H	82.02	8.08	10.94	2.53	16.49	30.00	13.51
1745.00			V	84.11	9.83	10.94	2.53	18.24	30.00	11.76

Note:

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

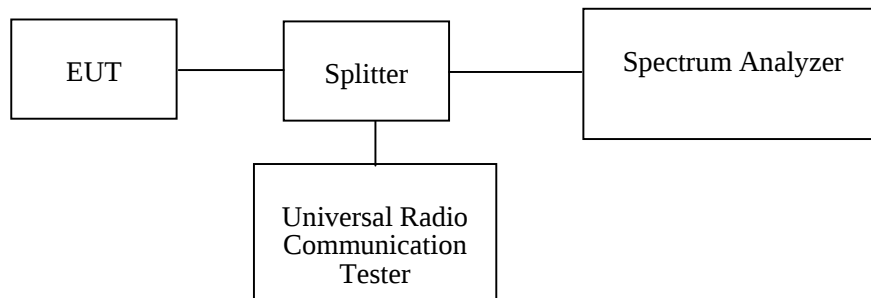
FCC §2.1049, §22.917, §22.905 & §24.238 & §27.53- OCCUPIED BANDWIDTH**Applicable Standard**

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

**Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101474	2020-01-09	2021-01-09
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41010013	Each time	/
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41005011	Each time	/
Unknown	Coaxial Cable	C-SJ00-0010	C0010/03	Each time	/
E-Microwave	Two-way Splitter	ODP-1-6-2S	OE0120142	Each time	/

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

Test Data**Environmental Conditions**

Temperature:	26.4~27.3°C
Relative Humidity:	61~63 %
ATM Pressure:	98.8~100.5kPa
Tester:	Fay Hu, Lily Xie
Test Date:	2020-05-09~2020-05-23

Test Mode: Transmitting

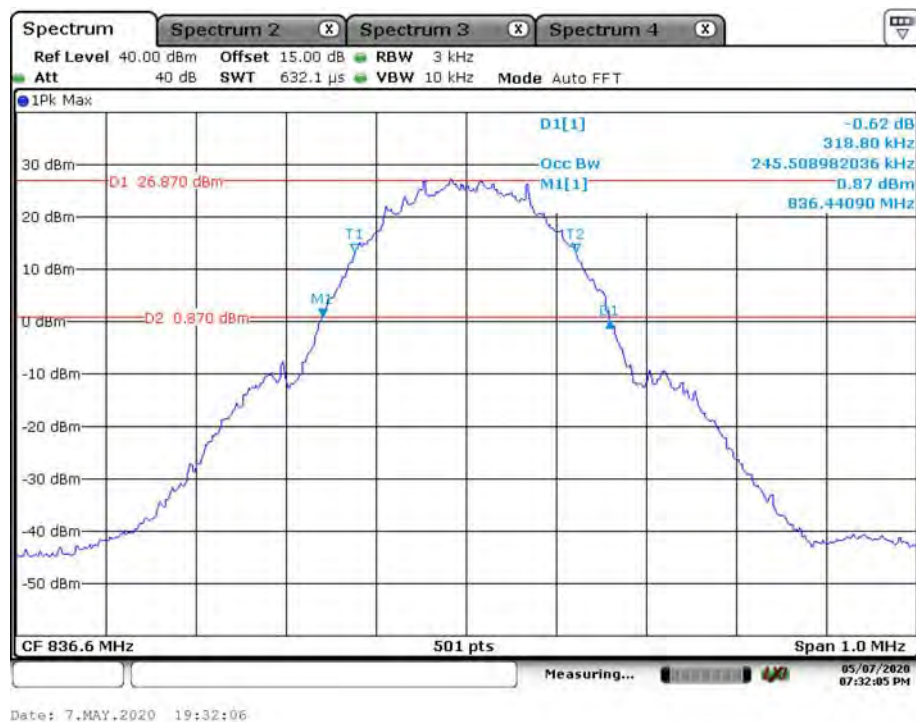
Test Result: Compliance. Please refer to the following table and plots.

Band	Test Channel	Mode	99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)
Cellular	Middle	GSM	0.246	0.319
		EGPRS	0.248	0.320
PCS		GSM	0.246	0.317
		EGPRS	0.250	0.322
WCDMA Band 2		Rel 99	4.172	4.739
		HSDPA	4.192	4.730
		HSUPA	4.232	5.352
WCDMA Band 4		Rel 99	4.212	4.770
		HSDPA	4.168	4.732
		HSUPA	4.168	4.703
WCDMA Band 5		Rel 99	4.152	4.715
		HSDPA	4.192	5.019
		HSUPA	4.212	5.294

Band	Bandwidth	Modulation	99% occupied bandwidth (MHz)	26 dB bandwidth (MHz)
LTE Band 2	1.4 MHz	QPSK	1.102	1.296
		16QAM	1.096	1.290
	3 MHz	QPSK	2.683	2.868
		16QAM	2.683	2.880
	5 MHz	QPSK	4.551	5.200
		16QAM	4.511	5.140
	10 MHz	QPSK	8.942	10.000
		16QAM	8.942	9.800
	15 MHz	QPSK	13.473	14.820
		16QAM	13.473	14.820
LTE Band 4	1.4 MHz	QPSK	17.964	19.760
		16QAM	17.964	19.600
	1.4 MHz	QPSK	1.096	1.290
		16QAM	1.096	1.314
	3 MHz	QPSK	2.683	2.868
		16QAM	2.683	2.880
	5 MHz	QPSK	4.551	5.220
		16QAM	4.531	5.160
	10 MHz	QPSK	8.981	9.920
		16QAM	8.981	9.760
LTE Band 4	15 MHz	QPSK	13.473	14.760
		16QAM	13.473	14.820
	20 MHz	QPSK	17.964	19.600
		16QAM	18.044	19.600

LTE Band 5	1.4 MHz	QPSK	1.096	1.296
		16QAM	1.096	1.320
	3 MHz	QPSK	2.683	2.880
		16QAM	2.683	2.880
	5 MHz	QPSK	4.551	5.240
		16QAM	4.511	5.180
LTE Band 7	10 MHz	QPSK	8.981	9.960
		16QAM	8.942	9.800
	5 MHz	QPSK	4.551	5.320
		16QAM	4.551	5.360
	10 MHz	QPSK	9.022	10.280
		16QAM	8.981	9.880
LTE Band 12	15 MHz	QPSK	13.593	15.180
		16QAM	13.593	14.940
	20 MHz	QPSK	18.044	20.240
		16QAM	18.044	19.680
LTE Band 17	1.4 MHz	QPSK	1.096	1.302
		16QAM	1.096	1.314
	3 MHz	QPSK	2.683	2.880
		16QAM	2.683	2.892
	5 MHz	QPSK	4.551	5.280
		16QAM	4.531	5.140
LTE Band 66	10 MHz	QPSK	8.981	9.960
		16QAM	8.981	9.800
	5 MHz	QPSK	4.551	5.280
		16QAM	4.531	5.200
	10 MHz	QPSK	8.981	9.960
		16QAM	8.942	9.720
LTE Band 66	1.4 MHz	QPSK	1.102	1.314
		16QAM	1.090	1.296
	3 MHz	QPSK	2.683	2.880
		16QAM	2.683	2.952
	5 MHz	QPSK	4.551	5.340
		16QAM	4.511	5.160
	10 MHz	QPSK	9.022	10.120
		16QAM	9.022	9.760
	15 MHz	QPSK	13.593	14.880
		16QAM	13.593	15.480
LTE Band 66	20 MHz	QPSK	18.044	19.680
		16QAM	18.044	19.680

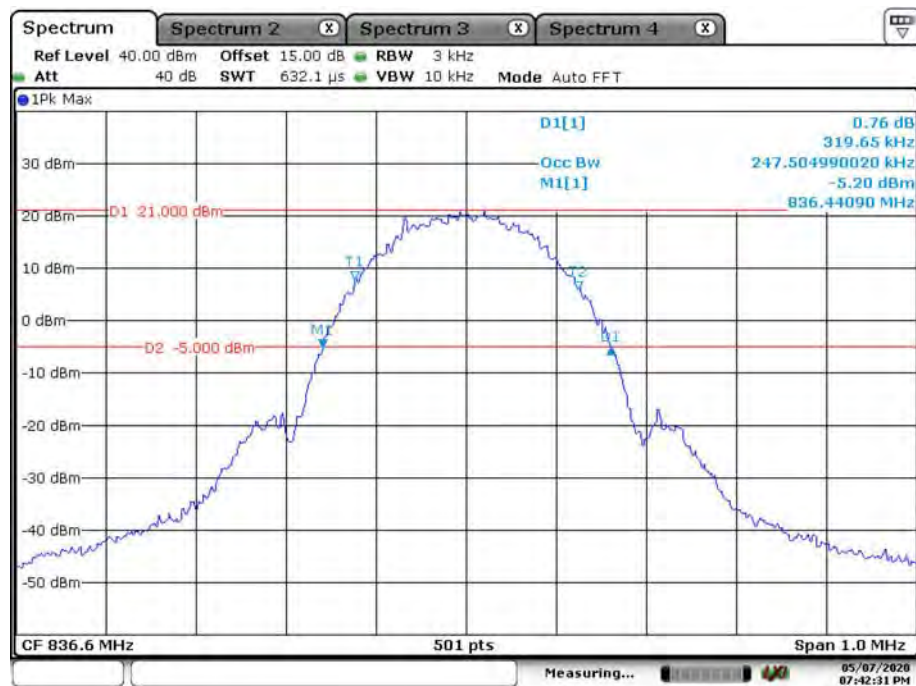
GSM Cellular 850



GSM PCS 1900

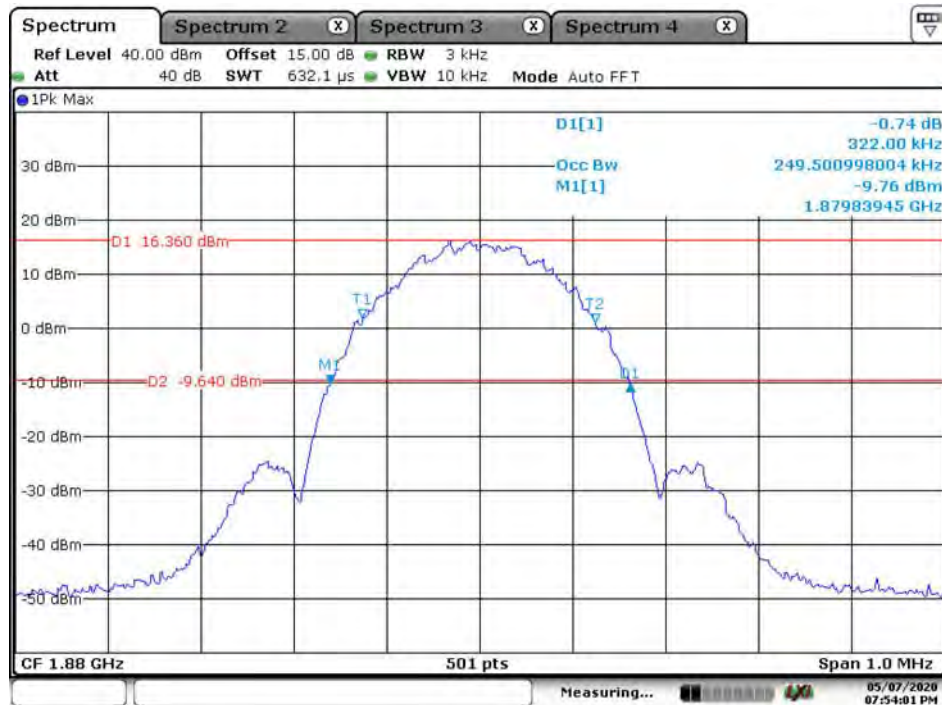


EDGE Cellular 850



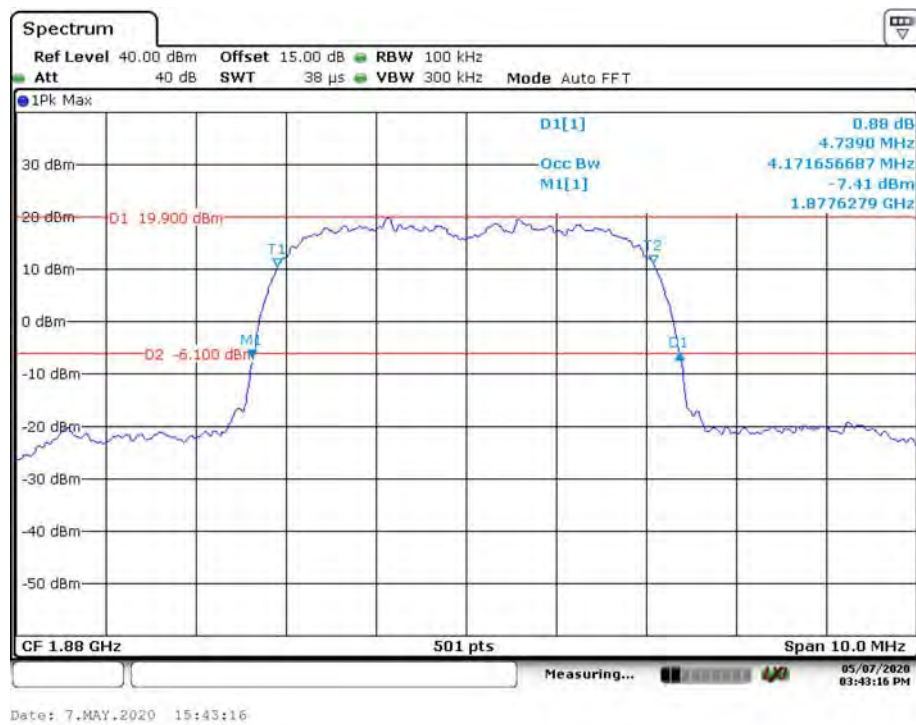
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EDGE PCS 1900



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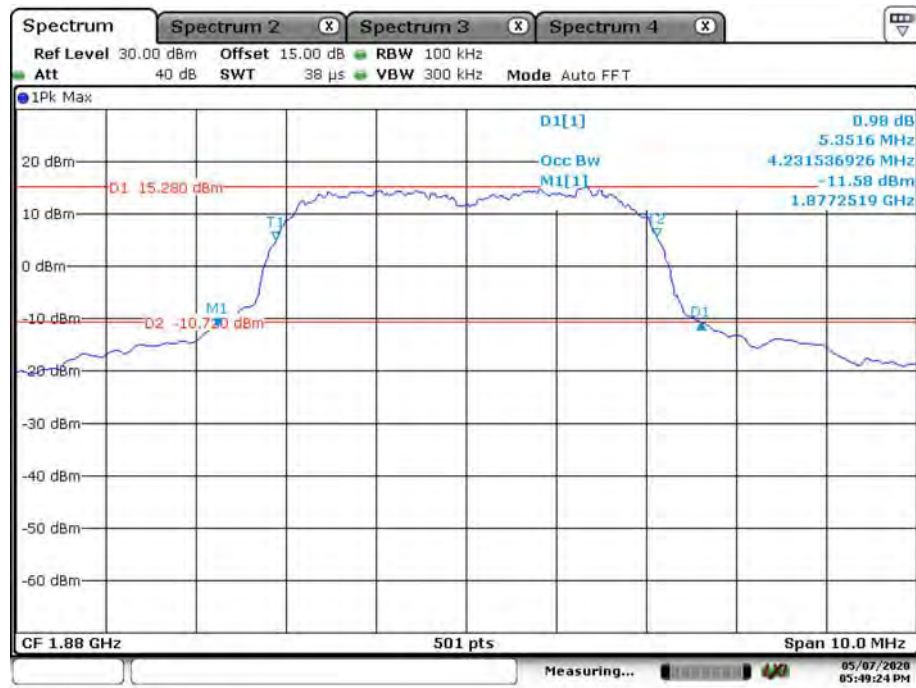
WCDMA Band 2 Rel 99



WCDMA Band 2 HSDPA

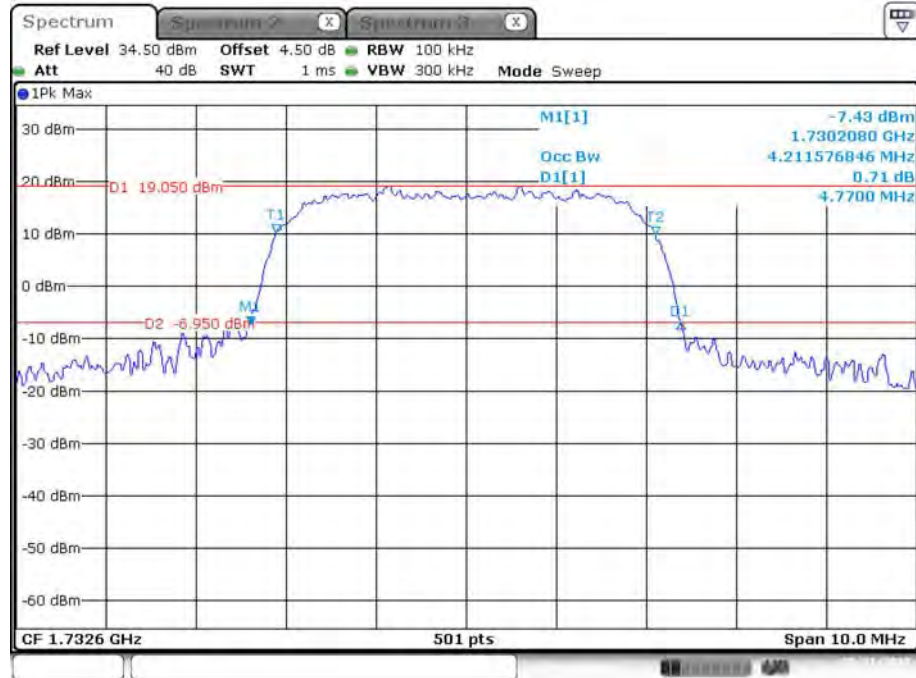


WCDMA Band 2 HSUPA



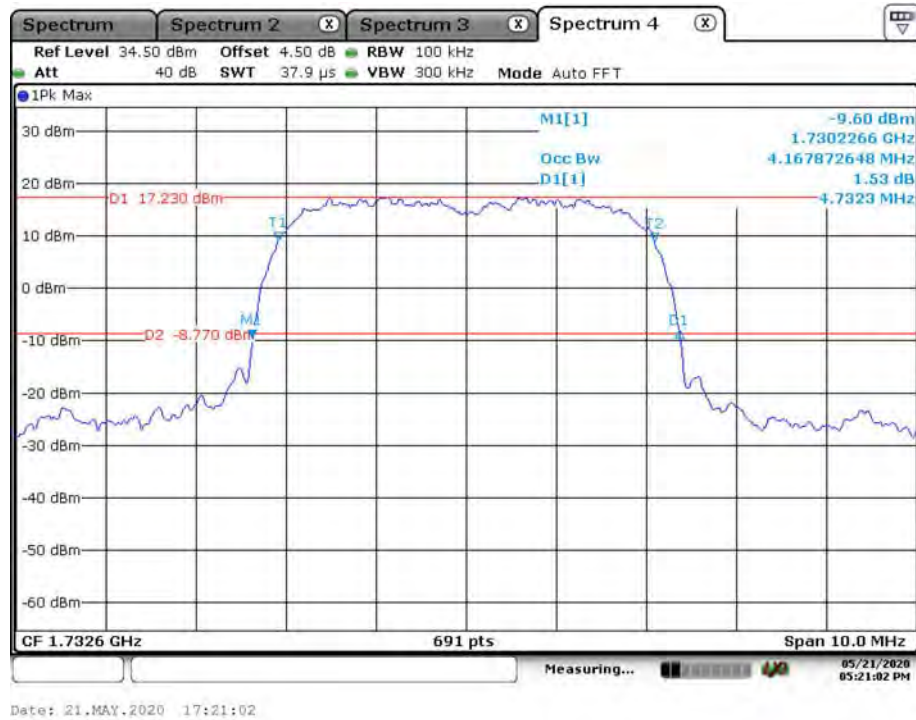
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WCDMA Band 4 Rel 99

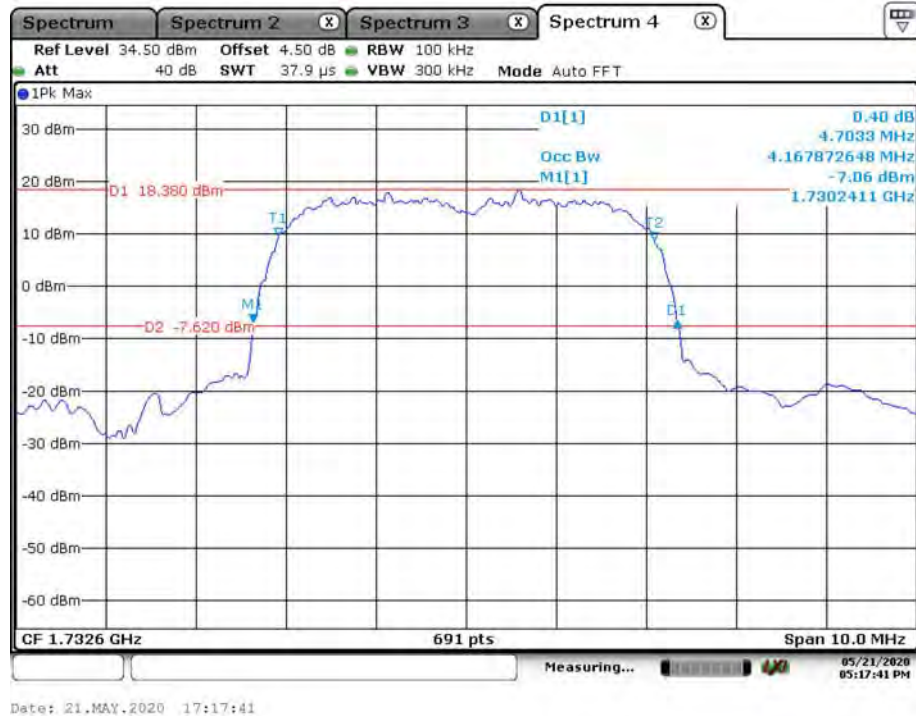


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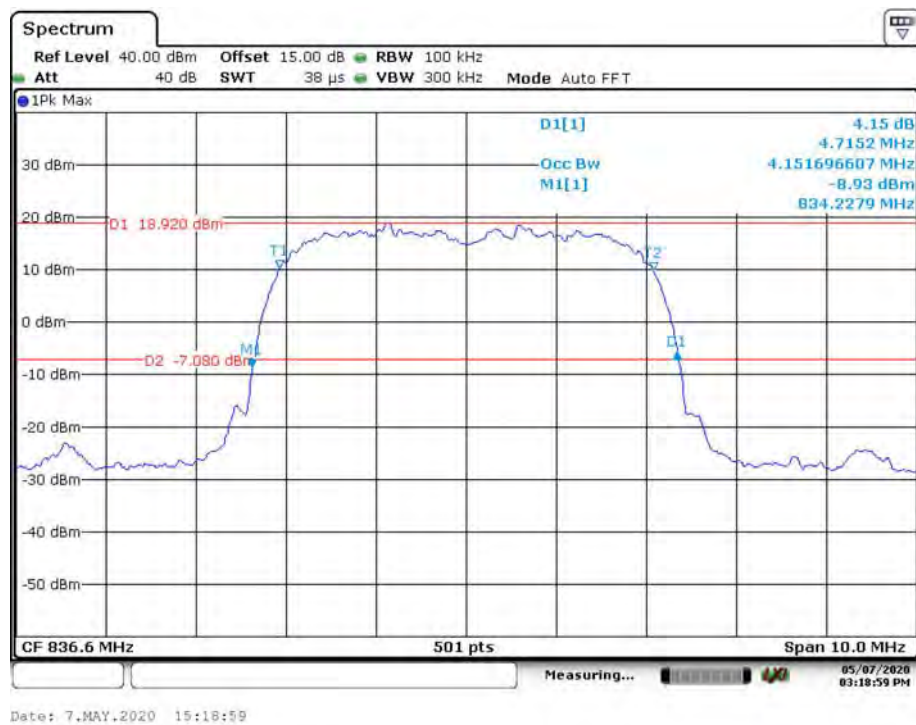
WCDMA Band 4 HSDPA



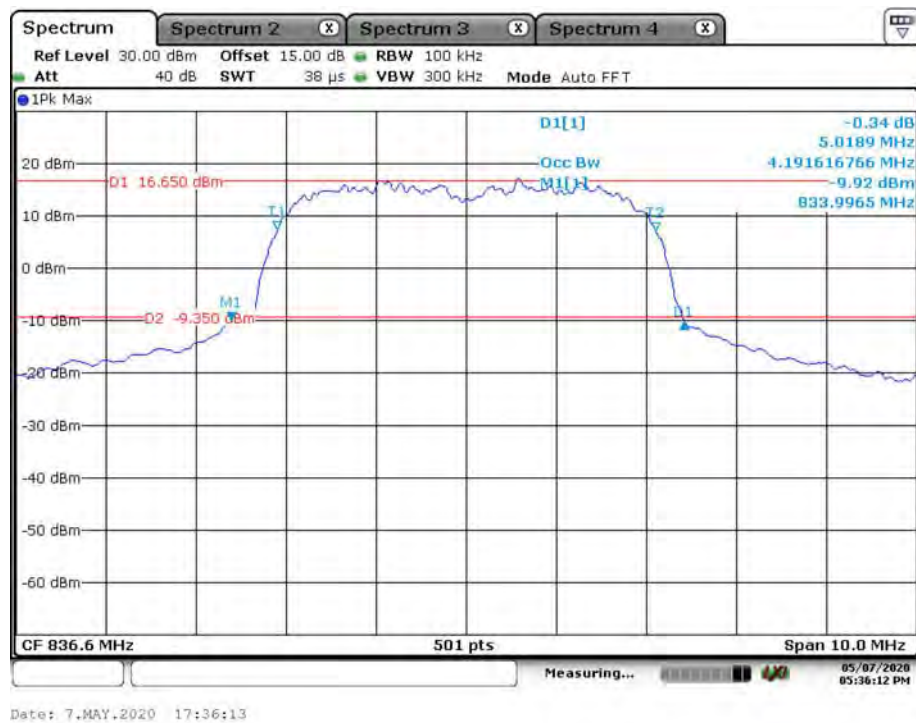
WCDMA Band 4 HSUPA



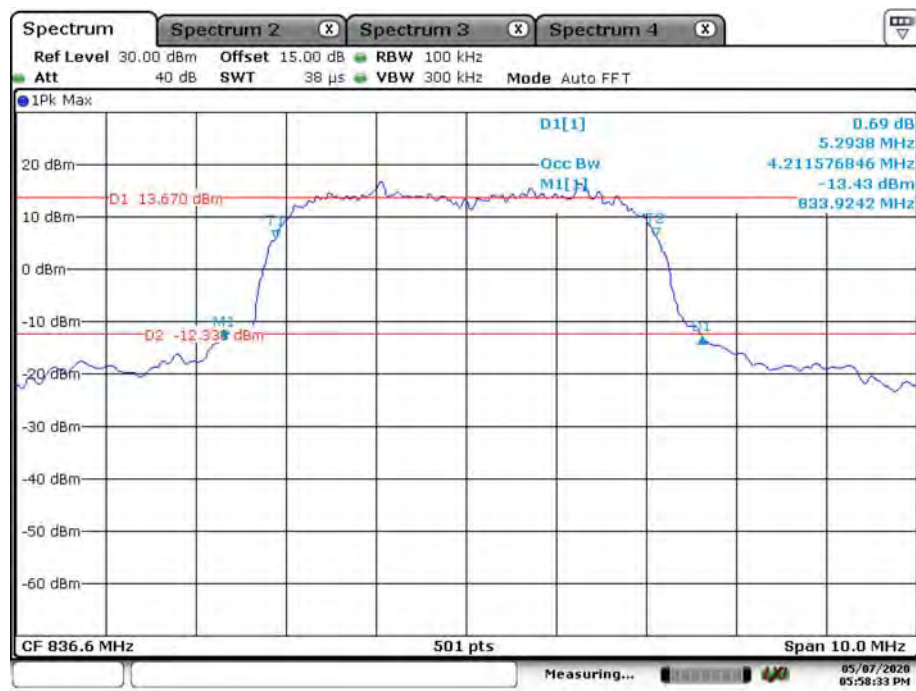
WCDMA Band 5 Rel 99



WCDMA Band 5 HSDPA



WCDMA Band 5 HSUPA



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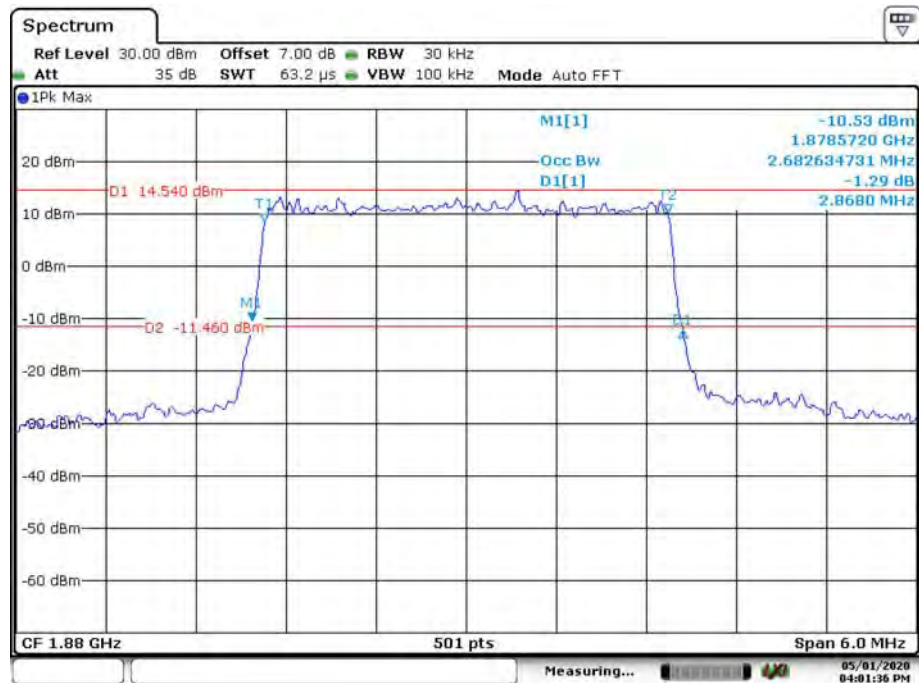
LTE Band 2

QPSK_1.4 MHz



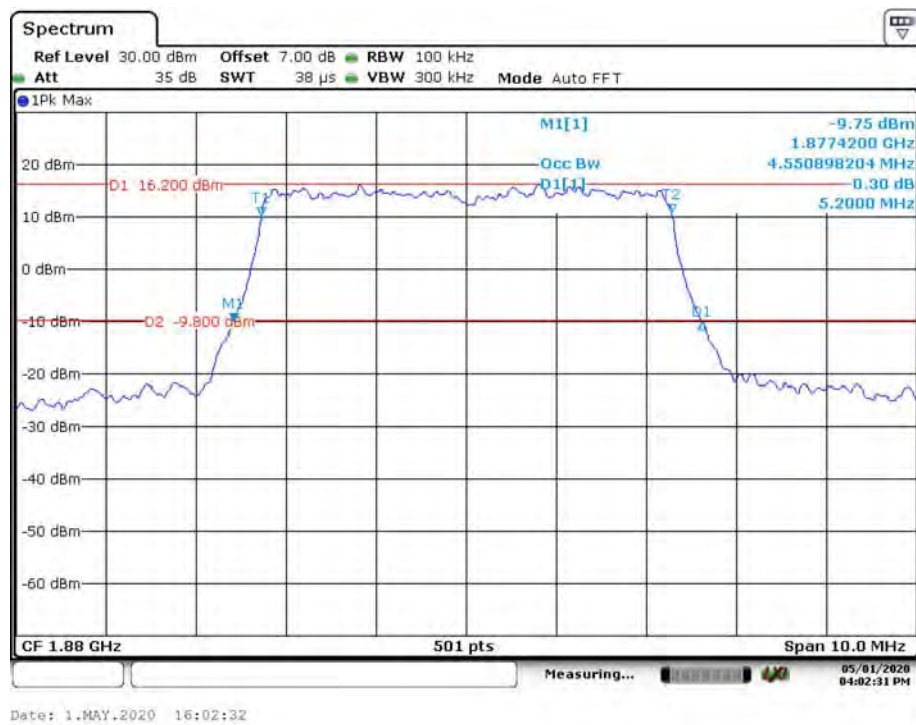
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QPSK_3 MHz

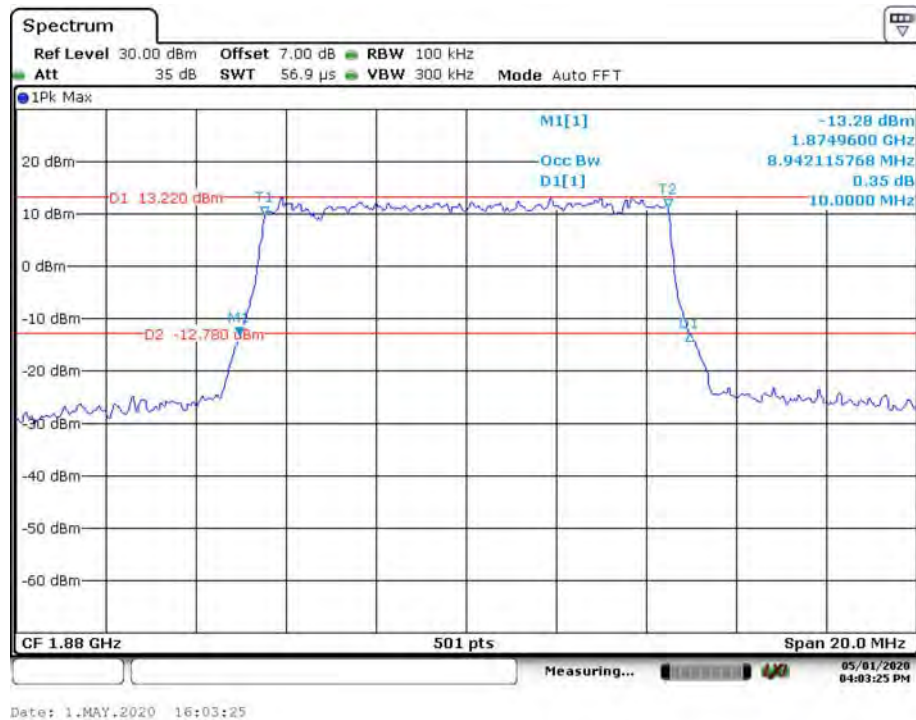


Date: 1.MAY.2020 16:01:37

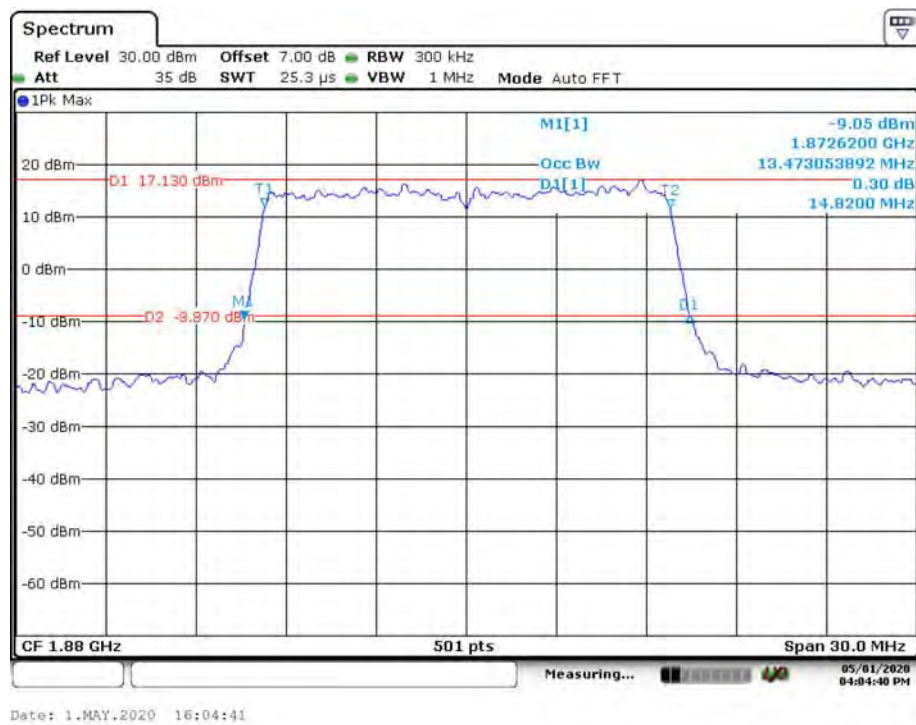
QPSK_5 MHz



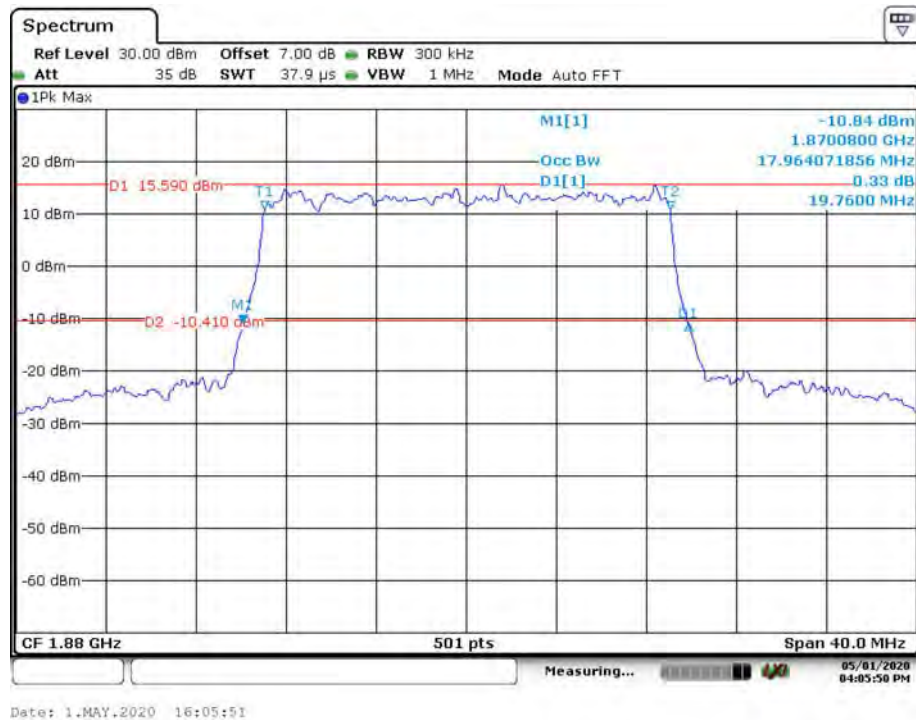
QPSK_10 MHz



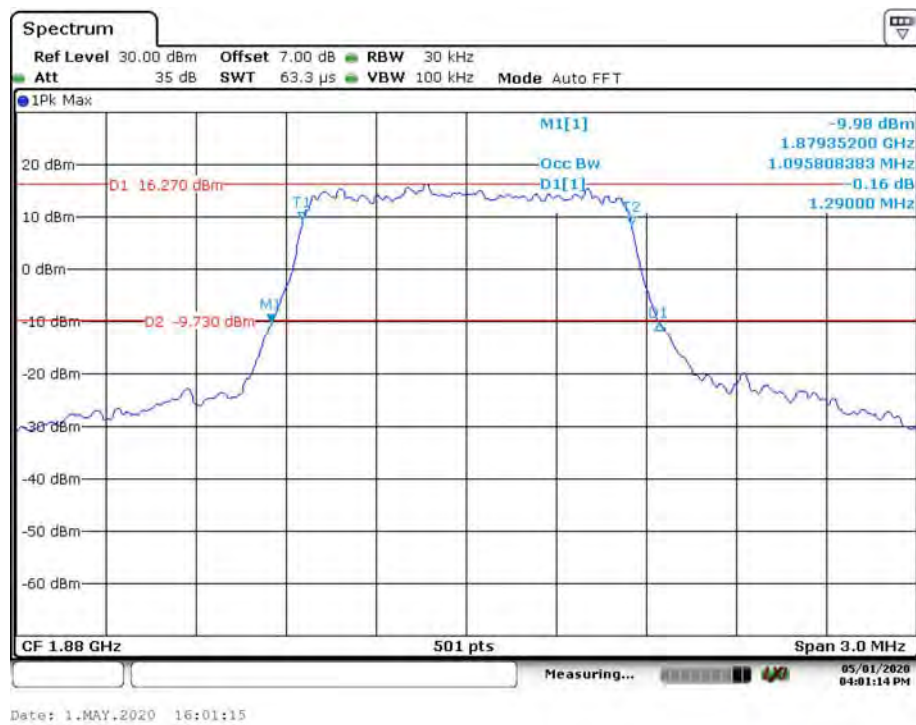
QPSK_15 MHz



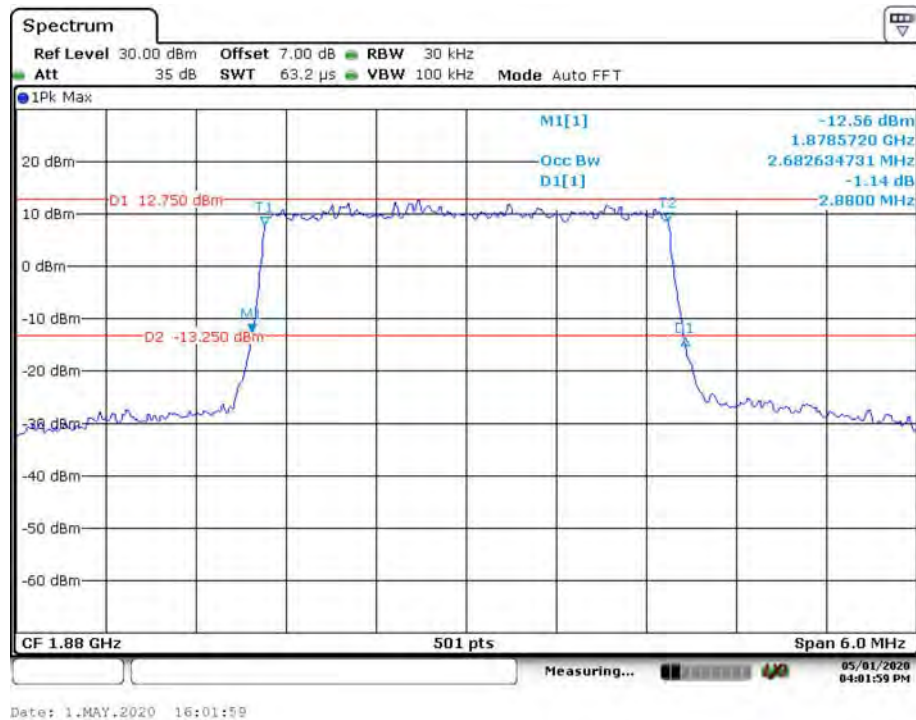
QPSK_20 MHz



16QAM_1.4 MHz



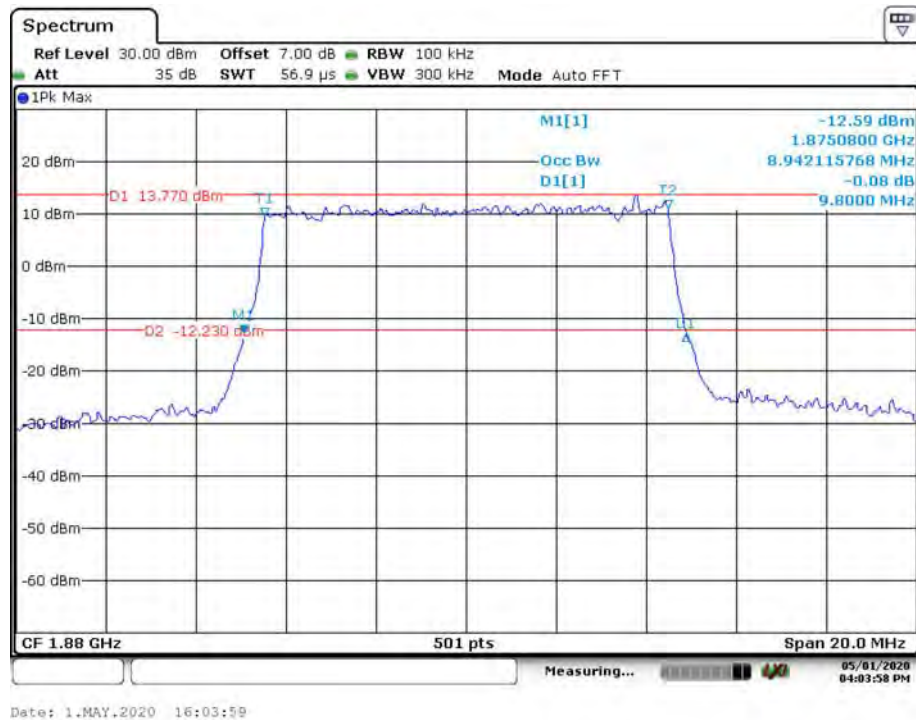
16QAM_3 MHz



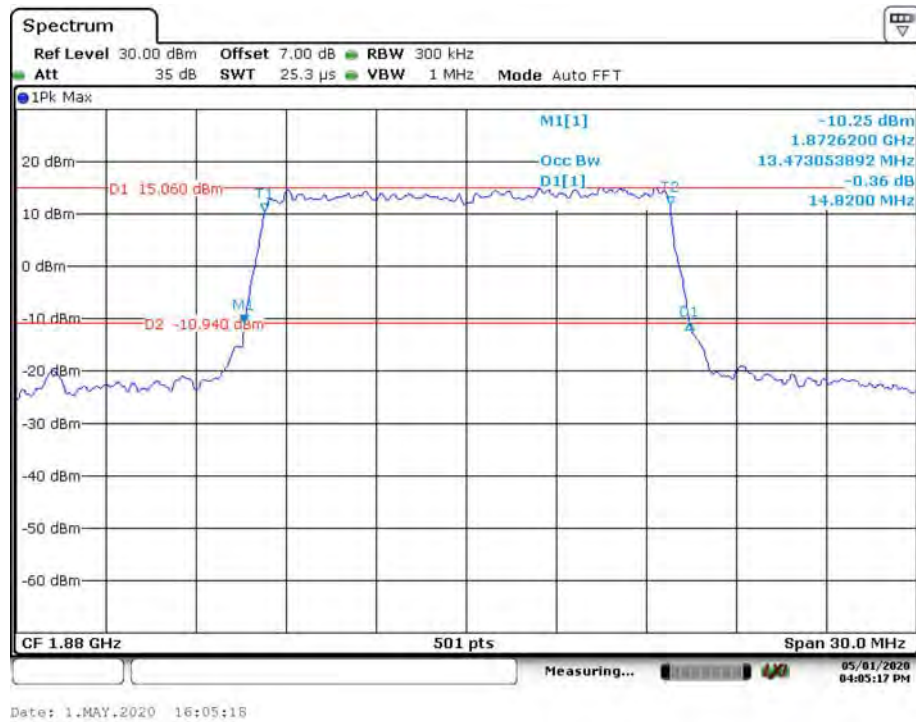
16QAM_5 MHz



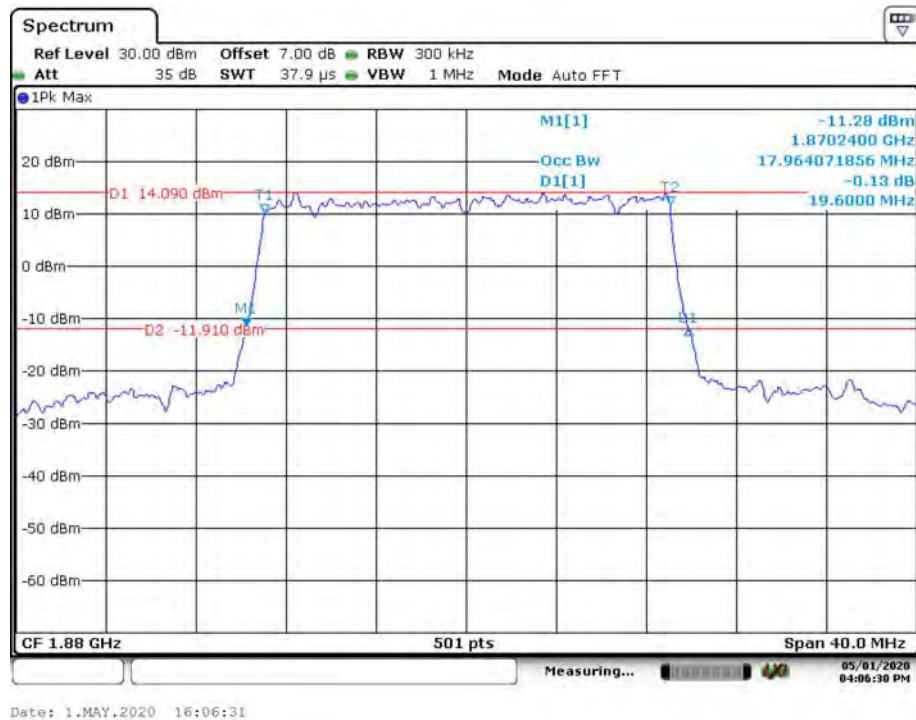
16QAM_10 MHz



16QAM_15 MHz



16QAM_20 MHz



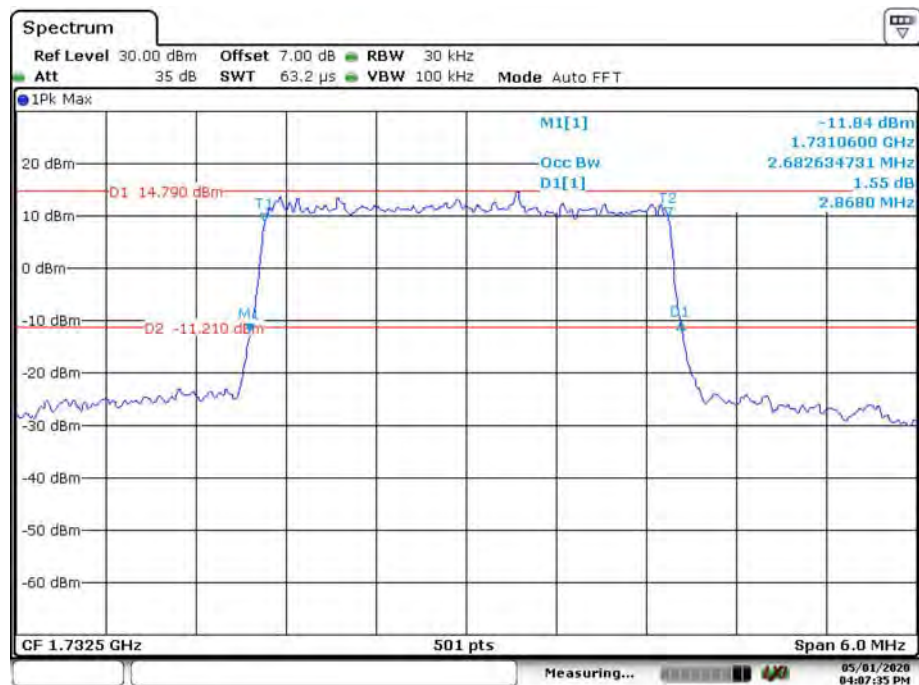
LTE Band 4

QPSK_1.4 MHz



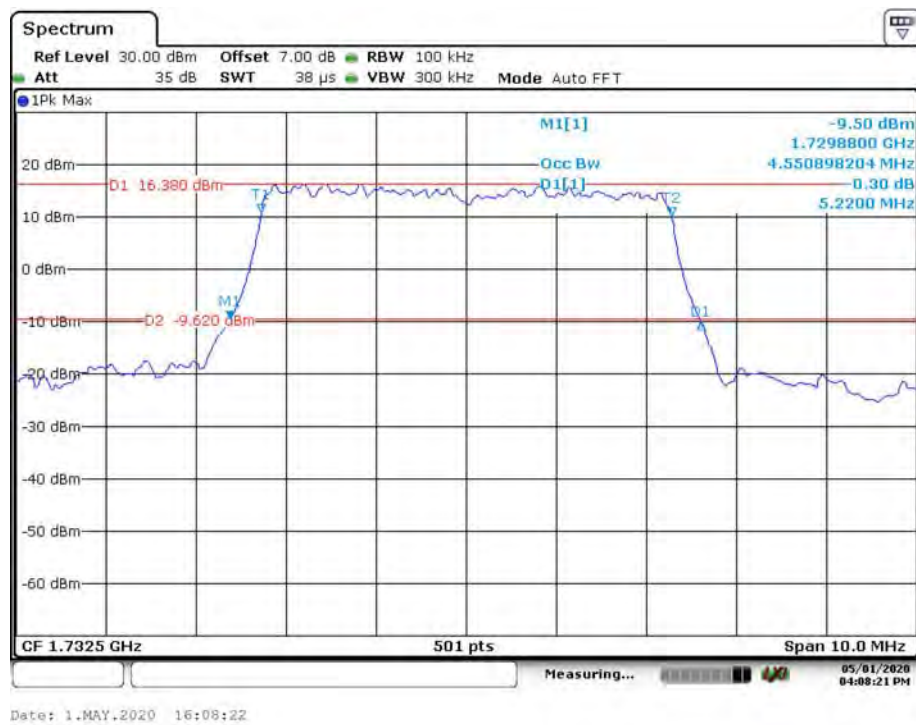
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QPSK_3 MHz

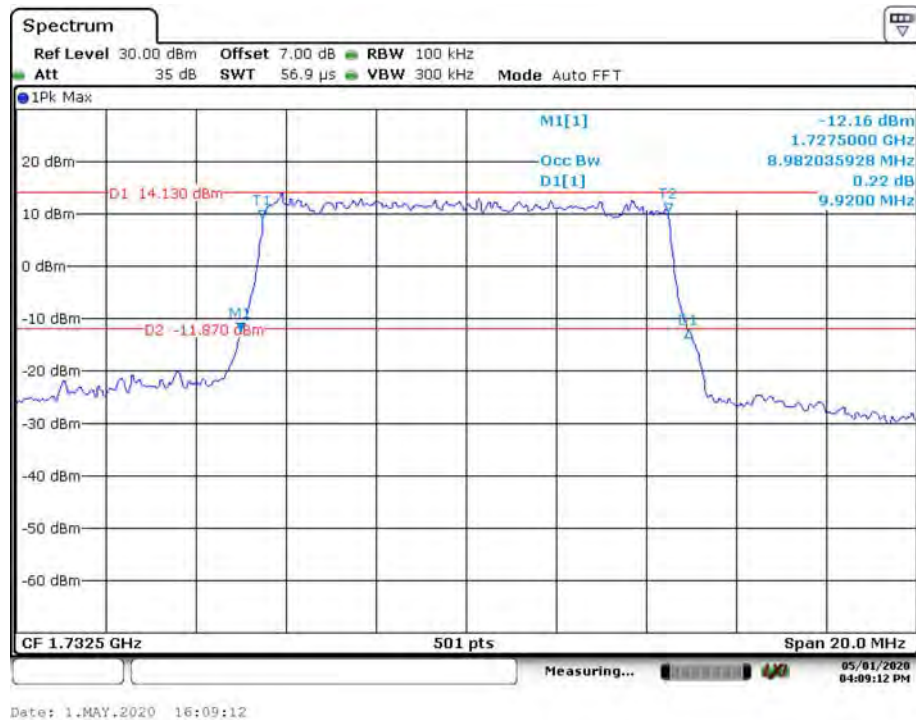


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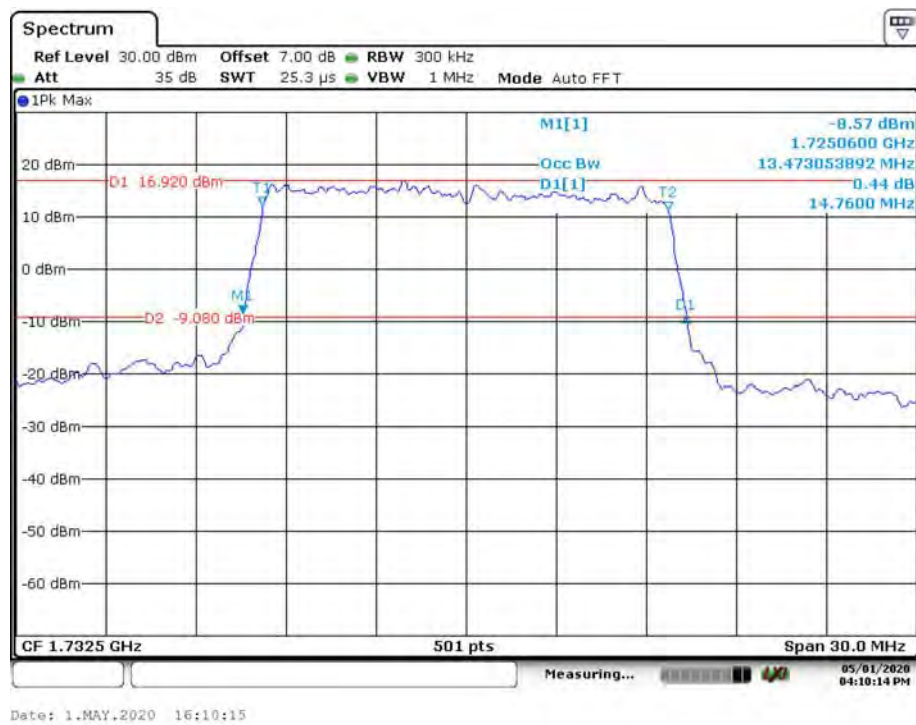
QPSK_5 MHz



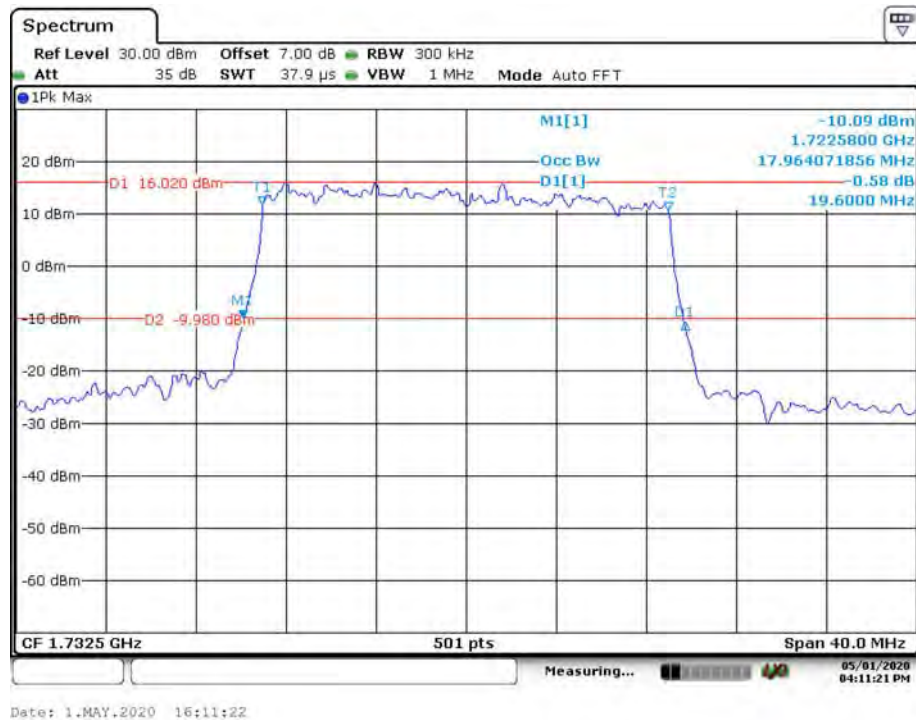
QPSK_10 MHz



QPSK_15 MHz



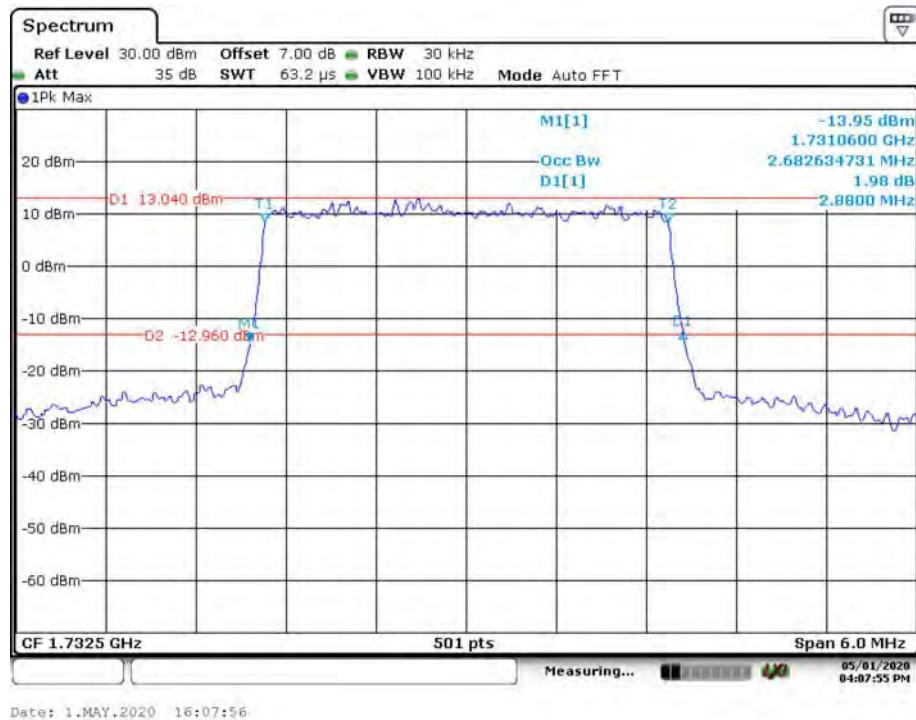
QPSK_20 MHz



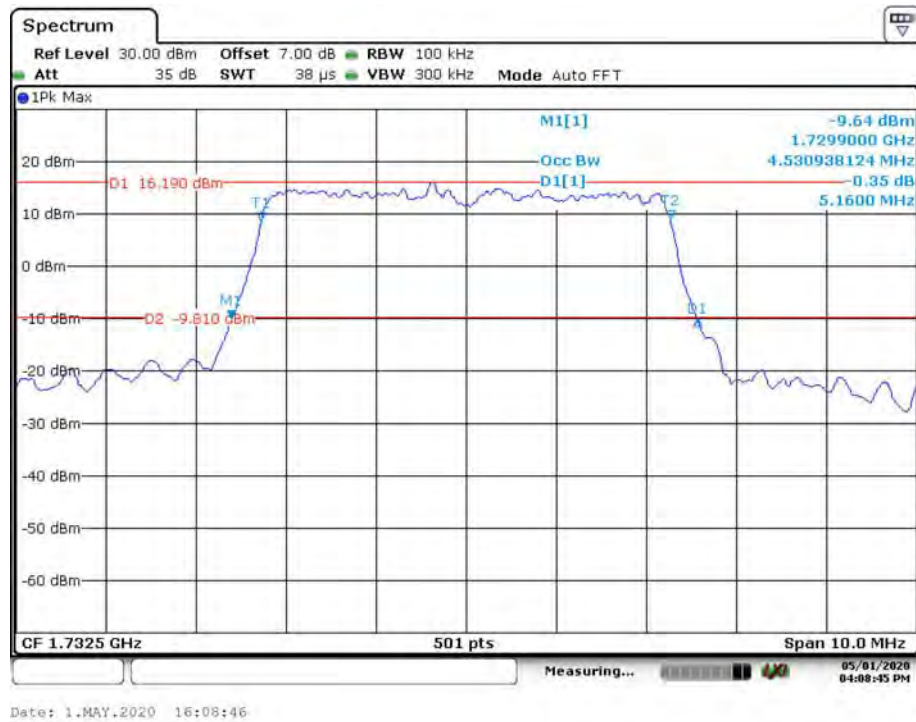
16QAM_1.4 MHz



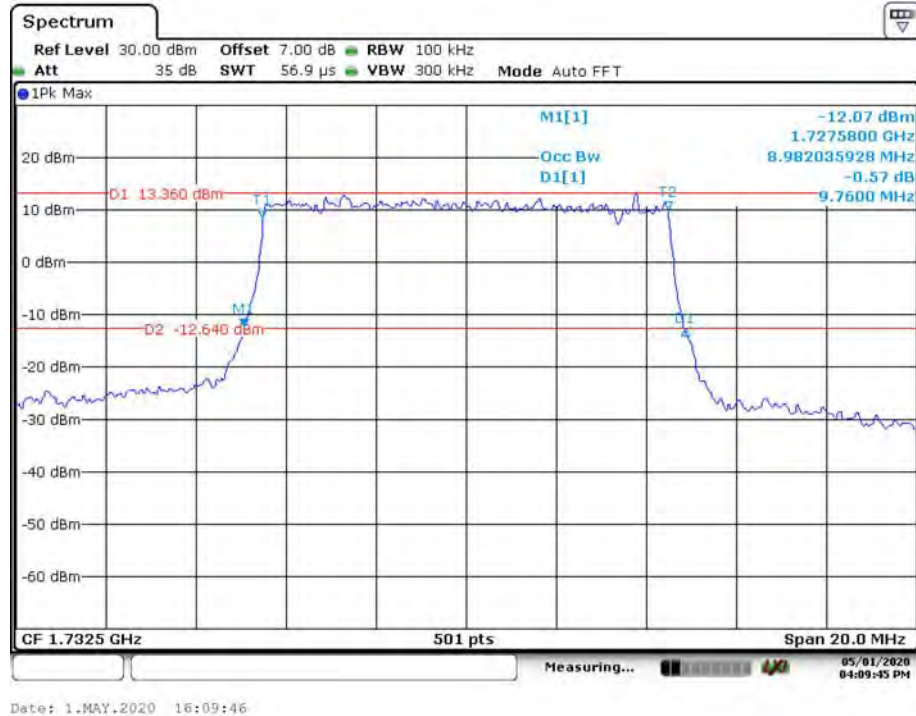
16QAM_3 MHz



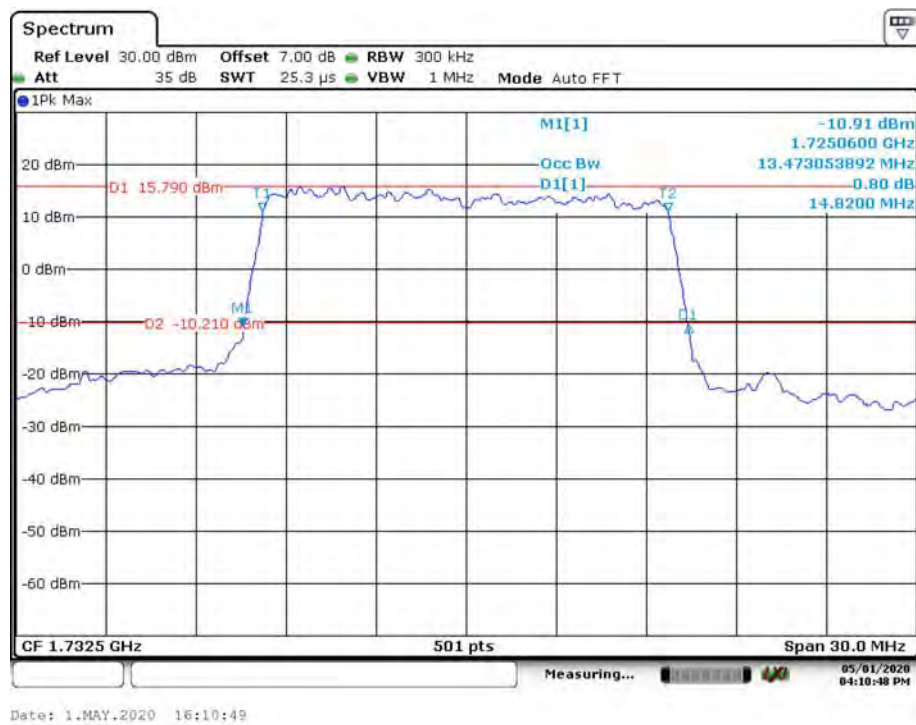
16QAM_5 MHz



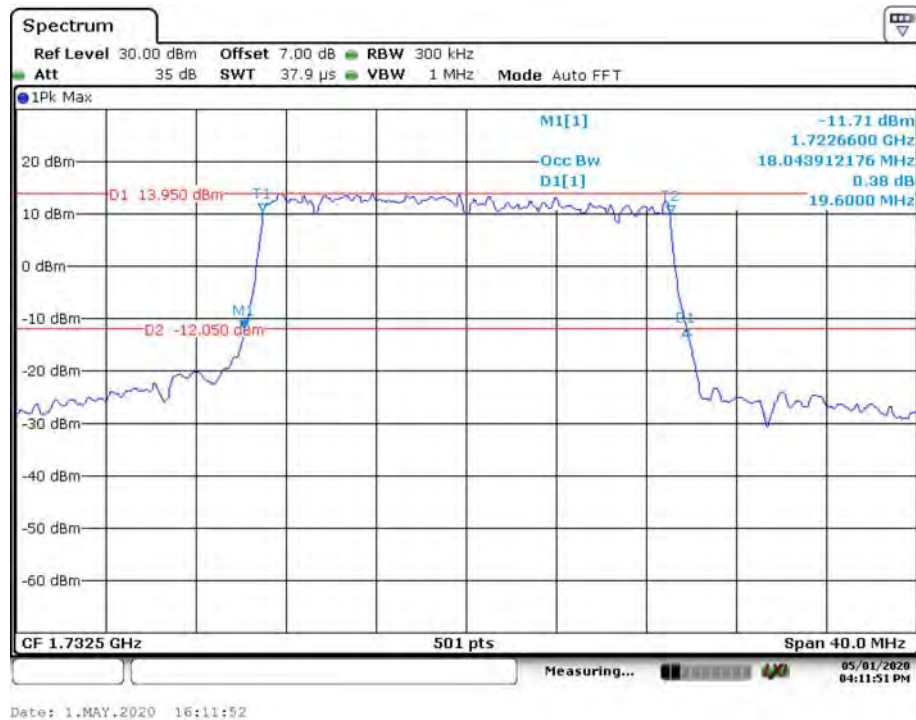
16QAM_10 MHz



16QAM_15 MHz

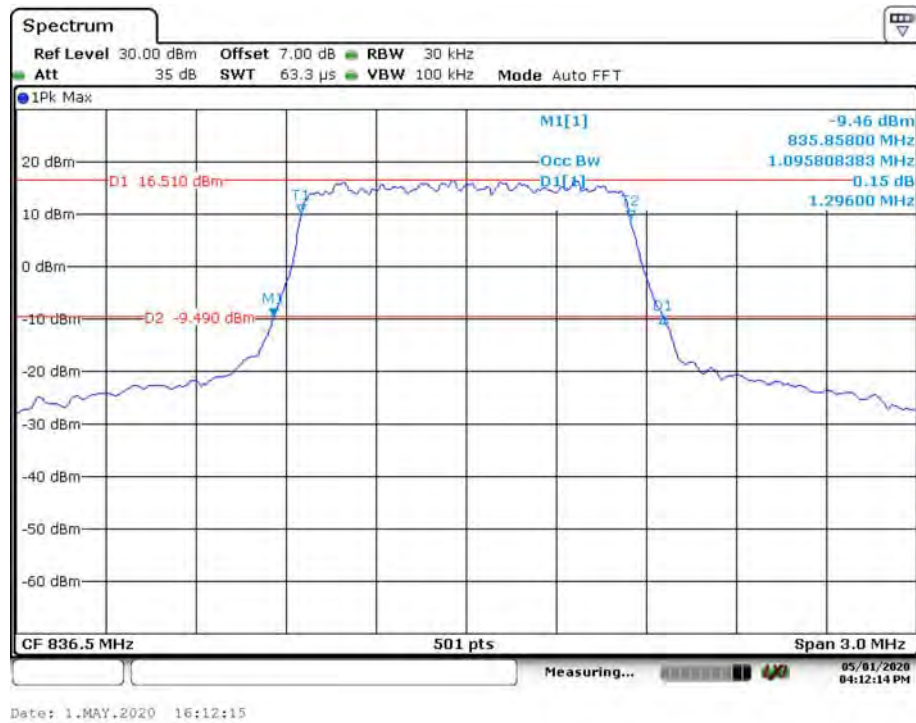


16QAM_20 MHz

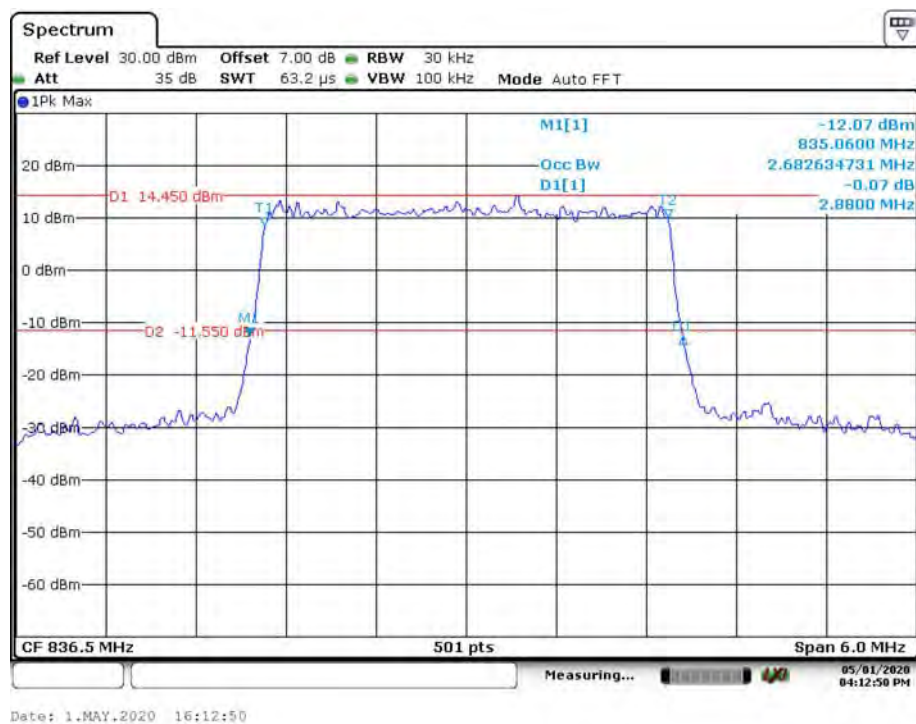


LTE Band 5

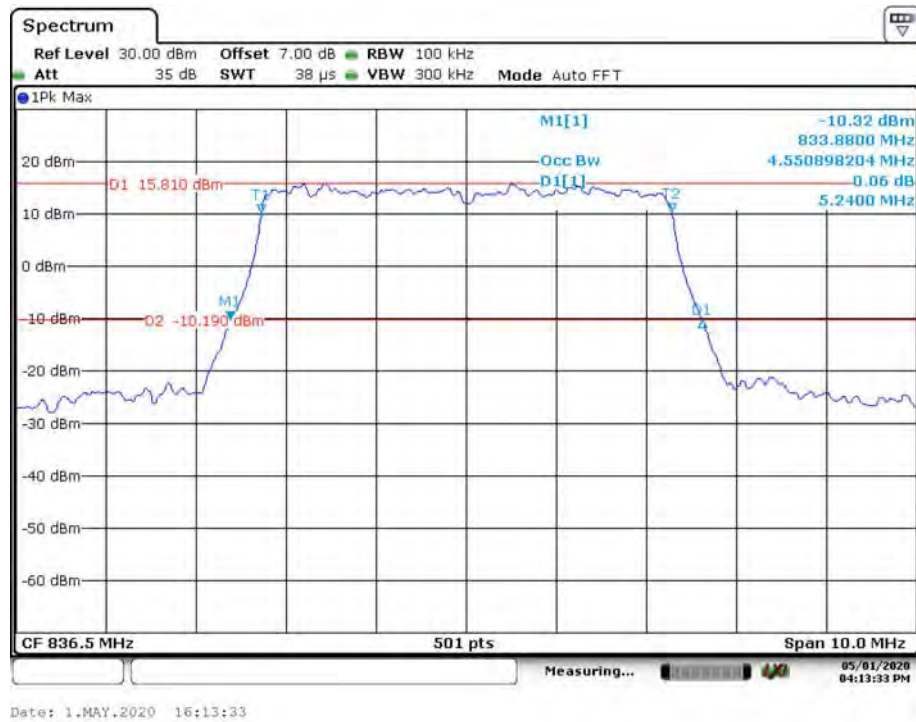
QPSK_1.4 MHz



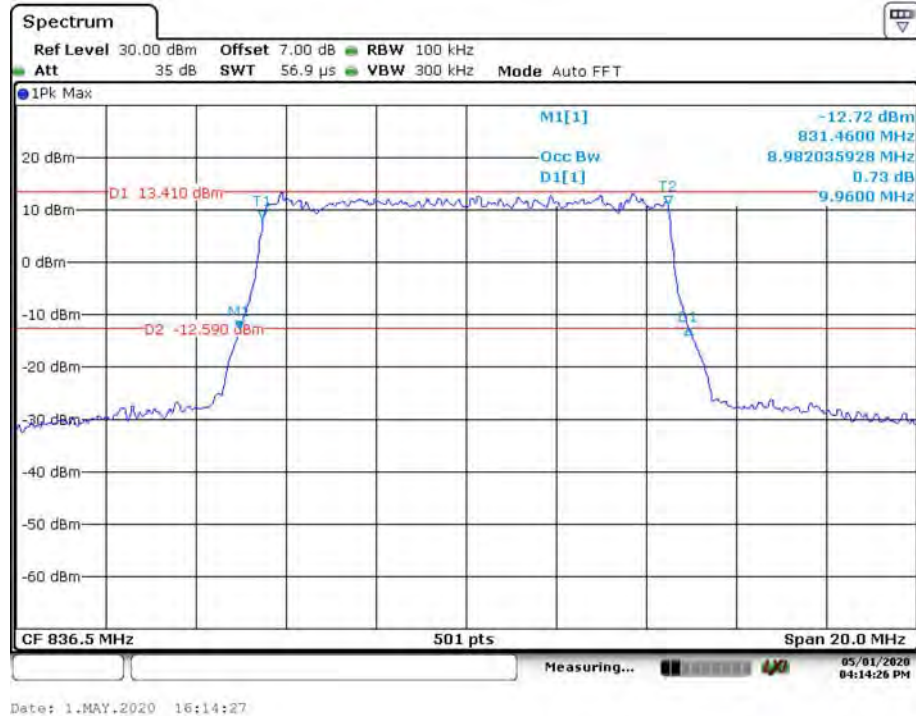
QPSK_3 MHz



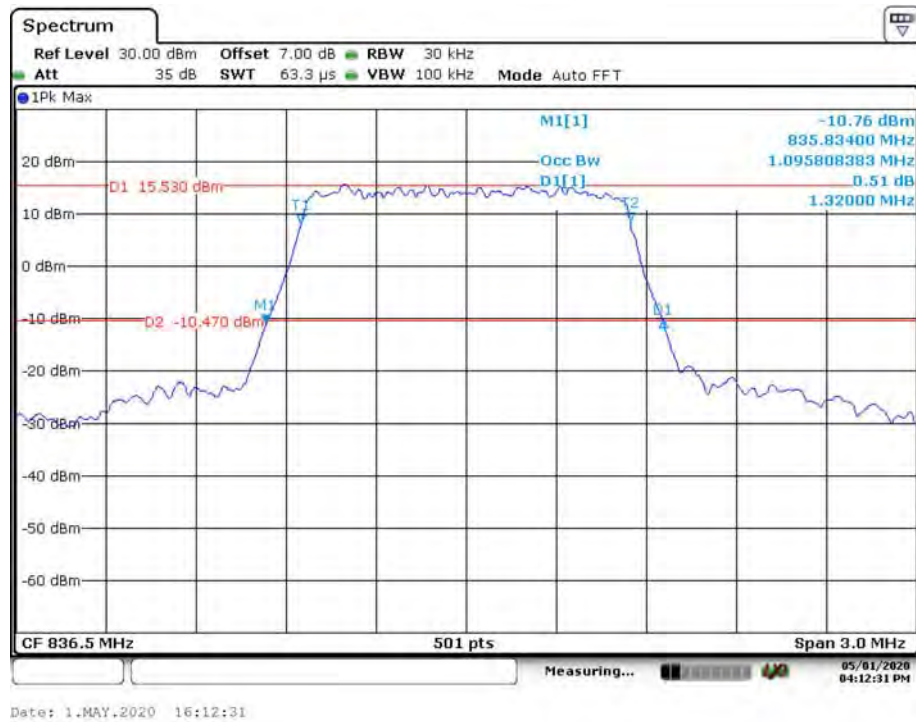
QPSK_5 MHz



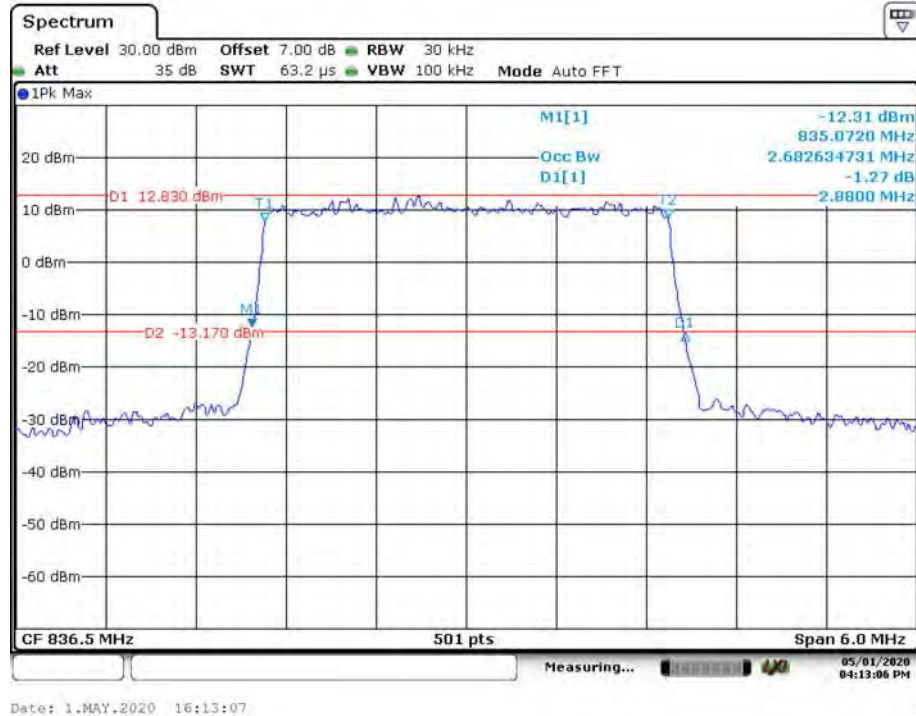
QPSK_10 MHz



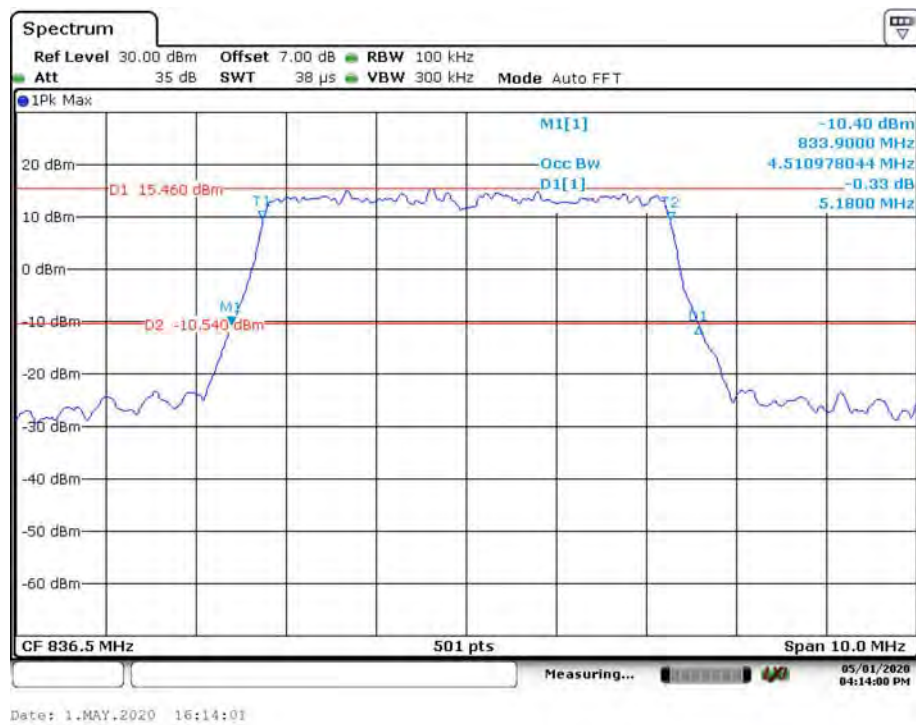
16QAM_1.4 MHz



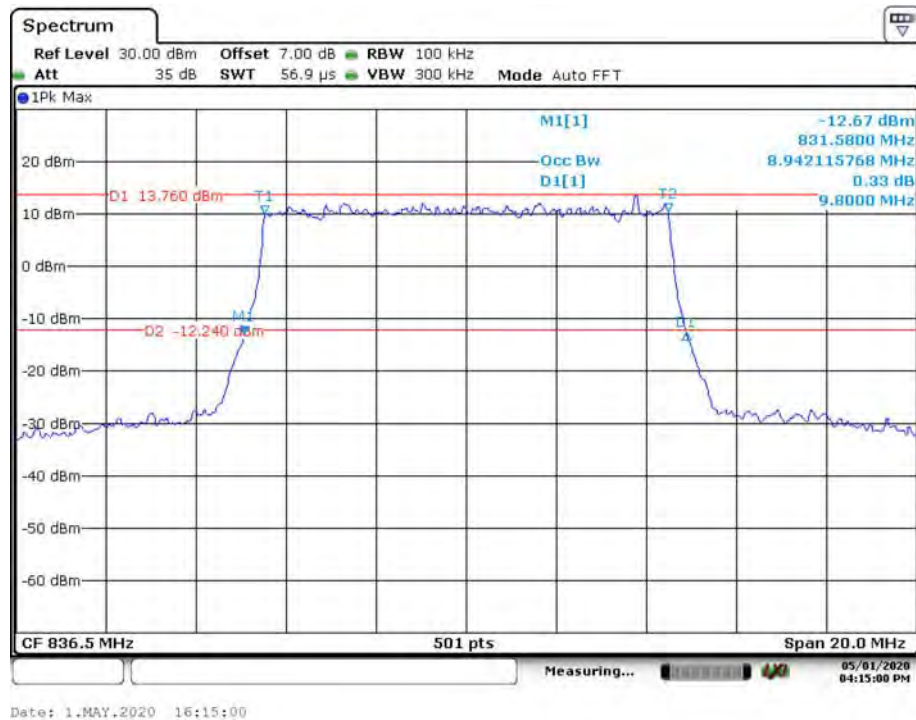
16QAM_3 MHz



16QAM_5 MHz

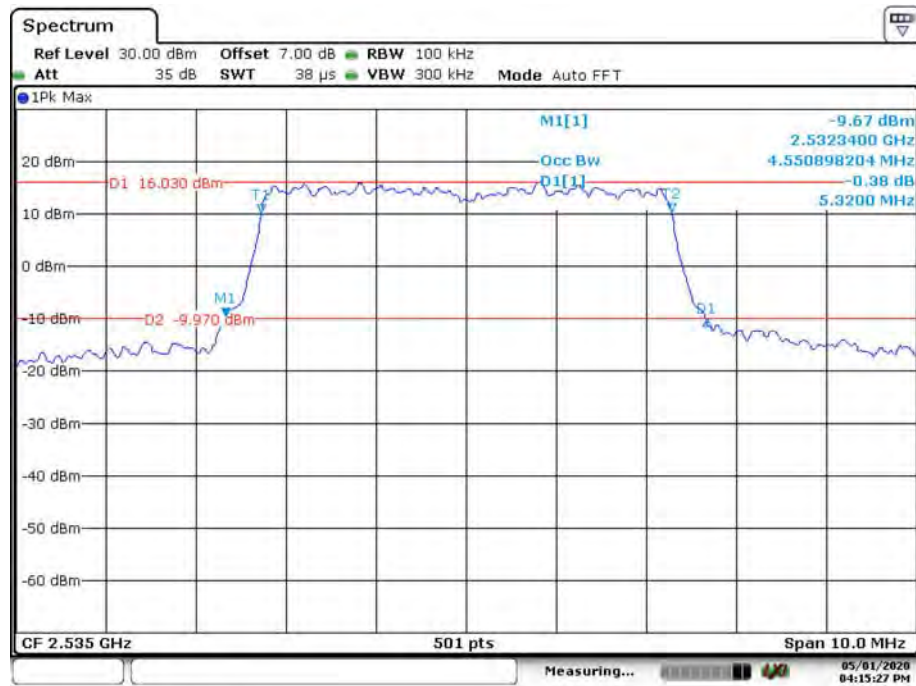


16QAM_10 MHz



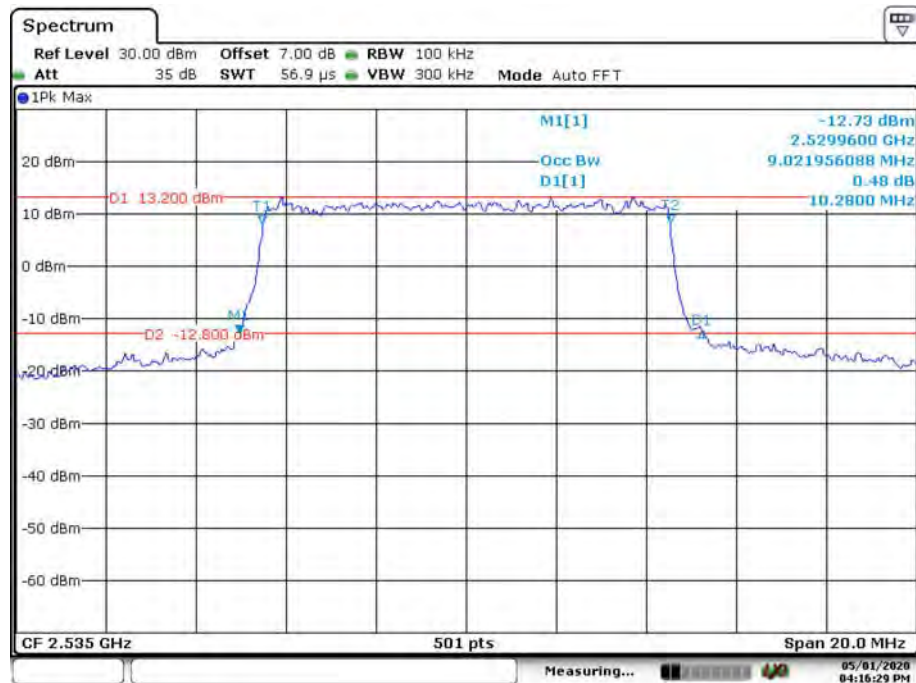
LTE Band 7:

QPSK_5 MHz



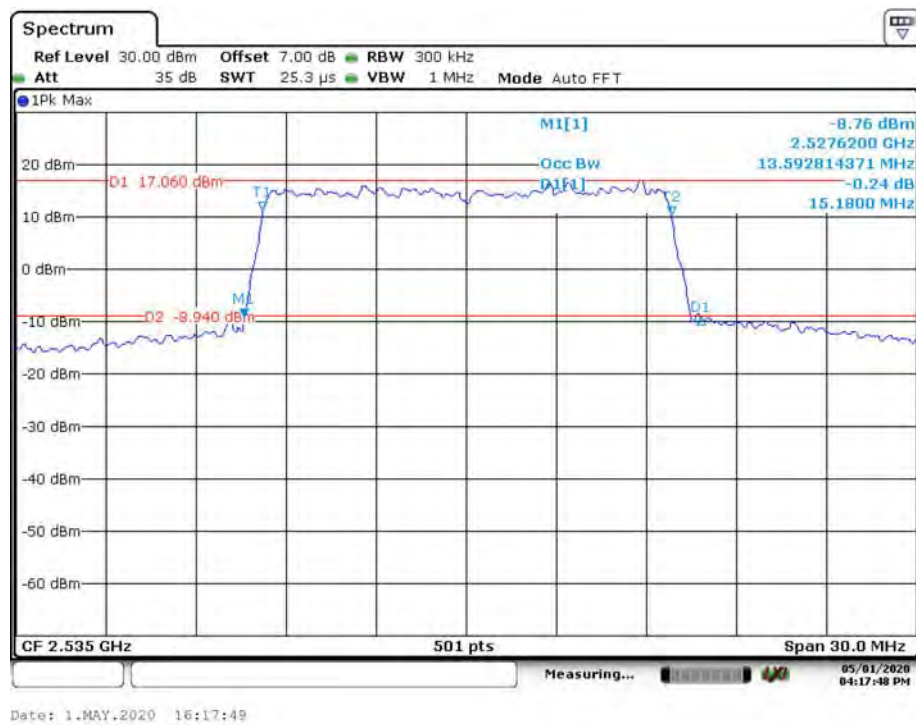
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QPSK_10 MHz

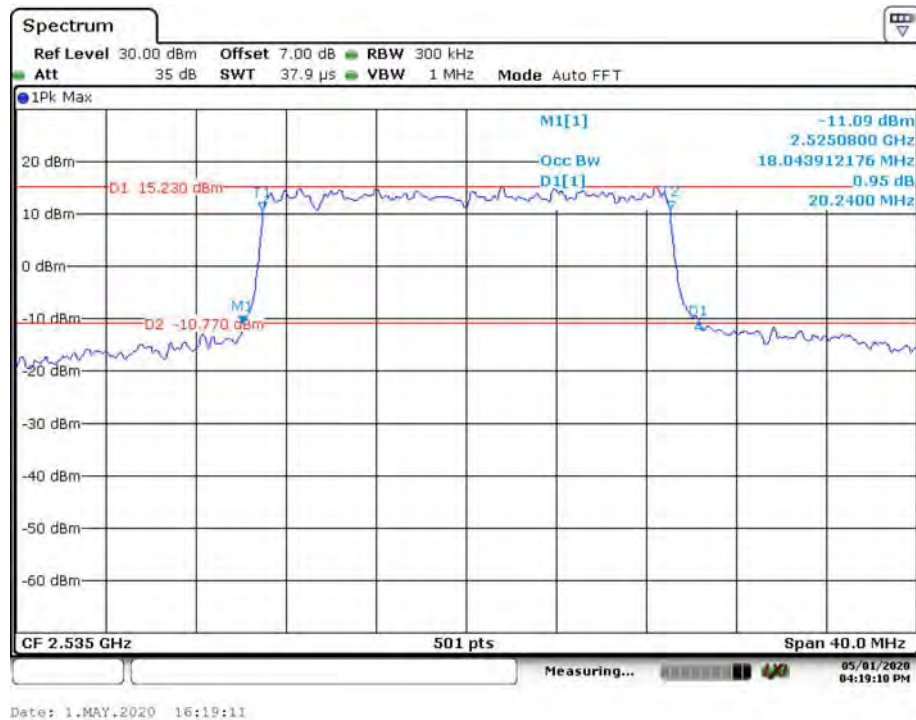


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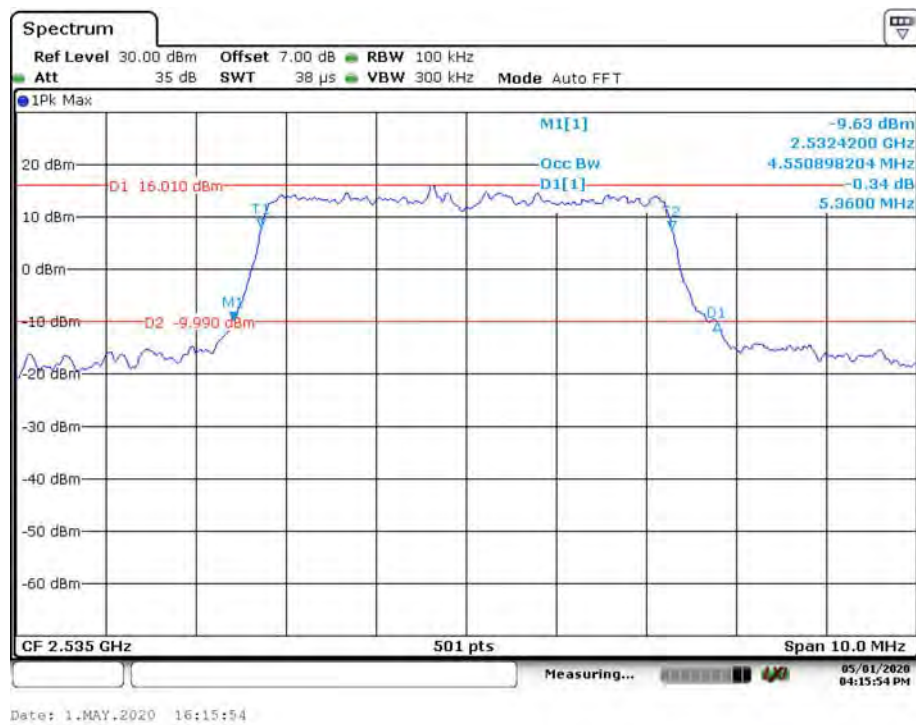
QPSK_15 MHz



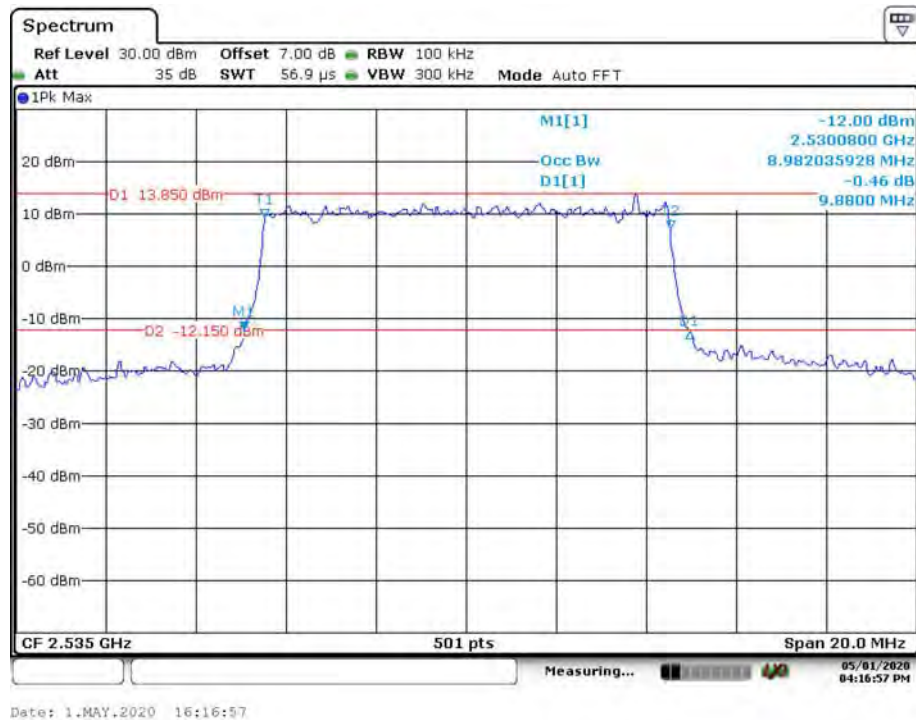
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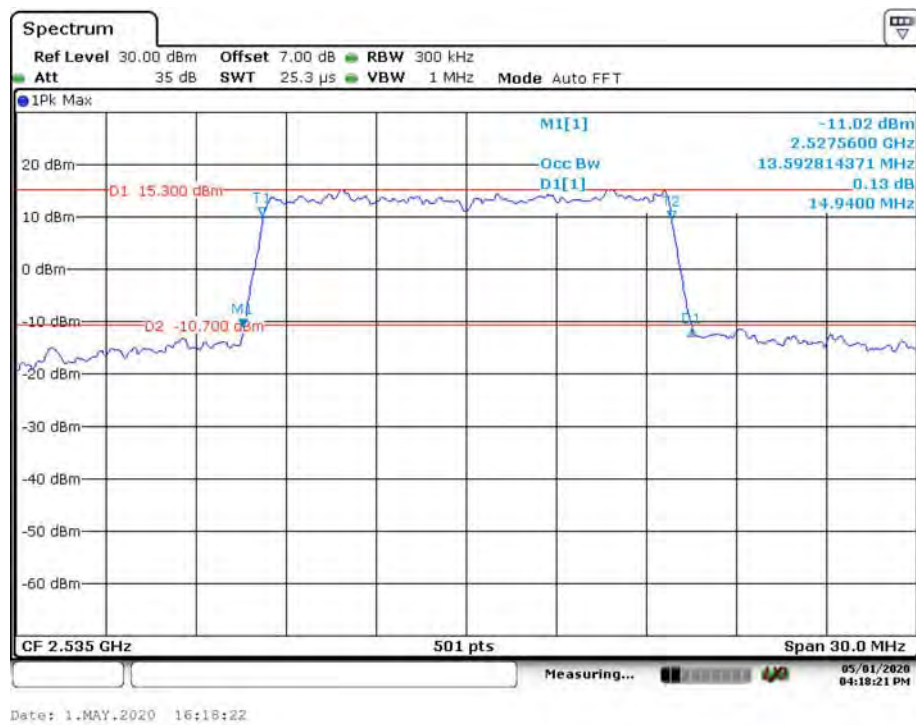
16QAM_5 MHz



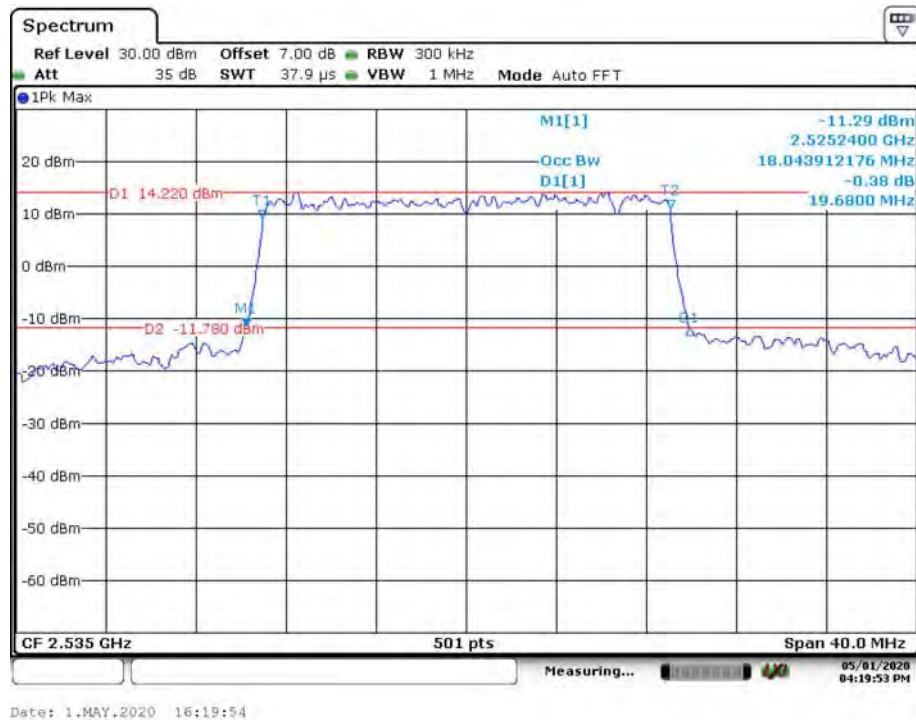
16QAM_10 MHz



16QAM_15 MHz



16QAM_20 MHz



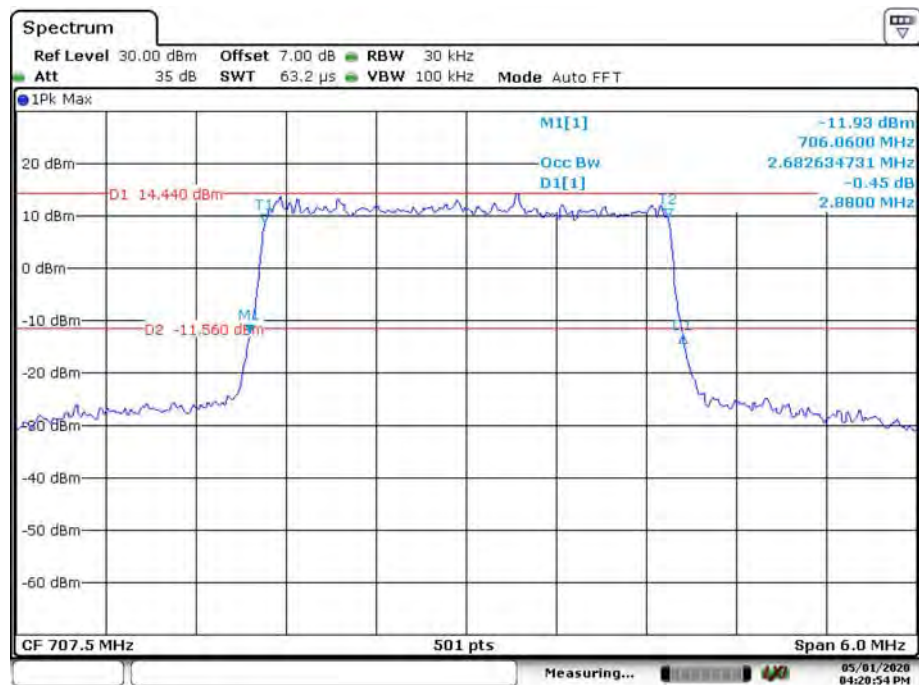
LTE Band 12

QPSK_1.4 MHz



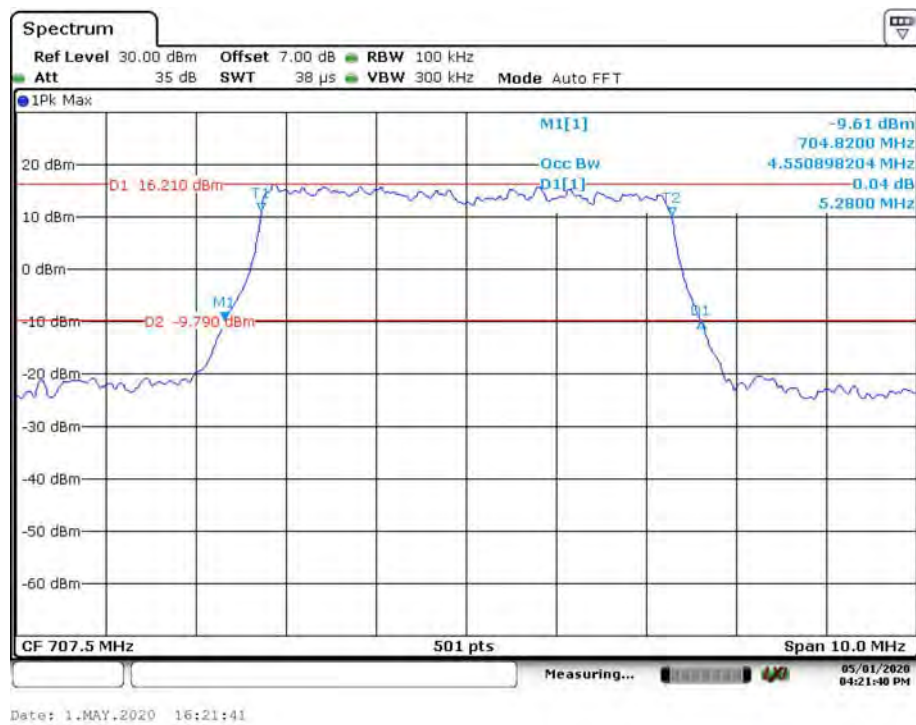
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QPSK_3 MHz

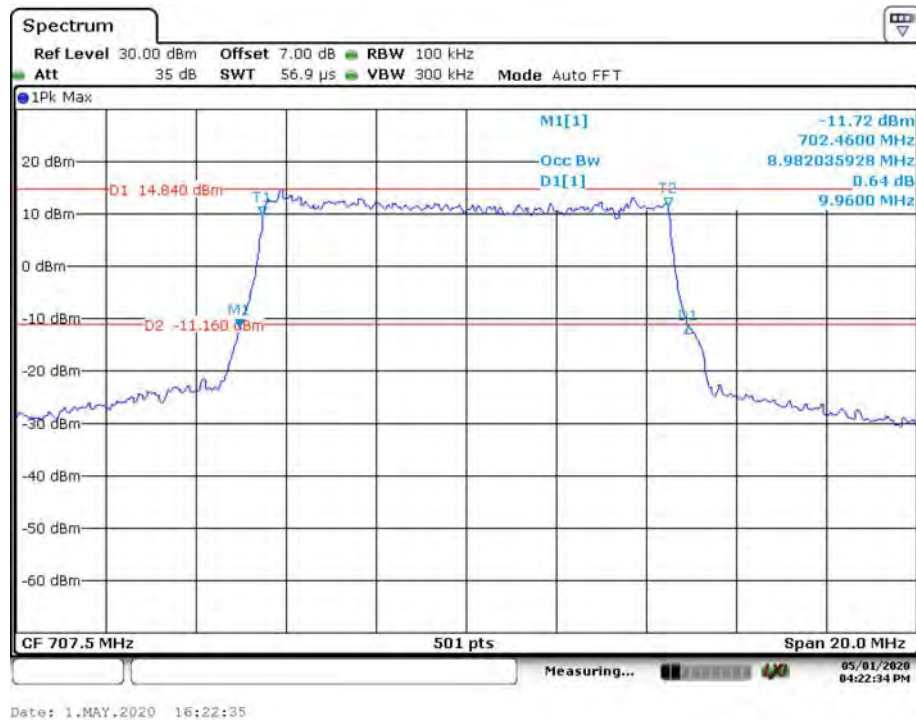


Date: 1.MAY.2020 16:20:55

QPSK_5 MHz



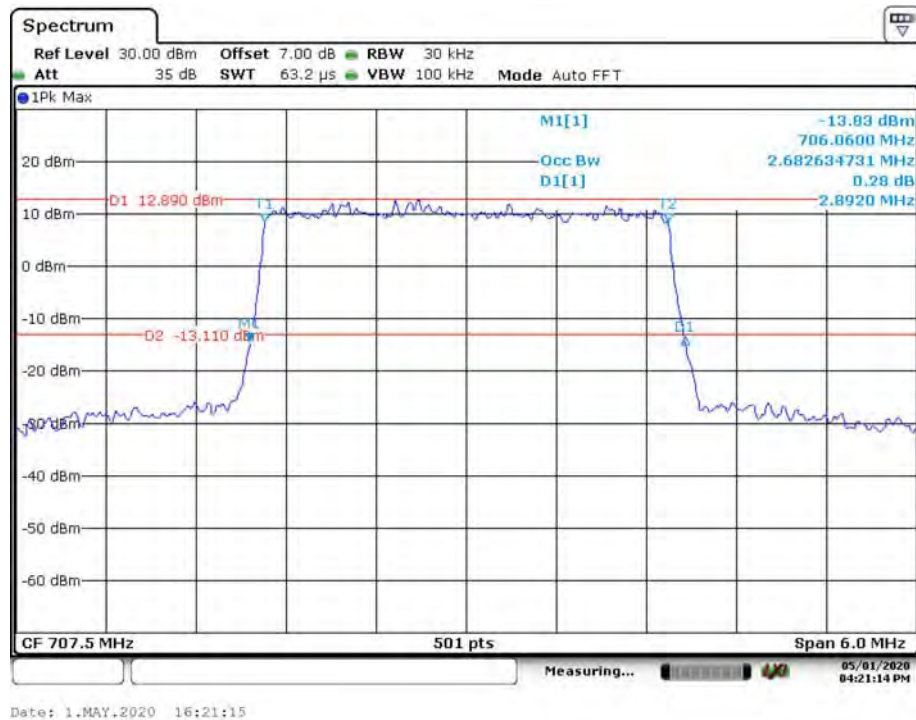
QPSK_10 MHz



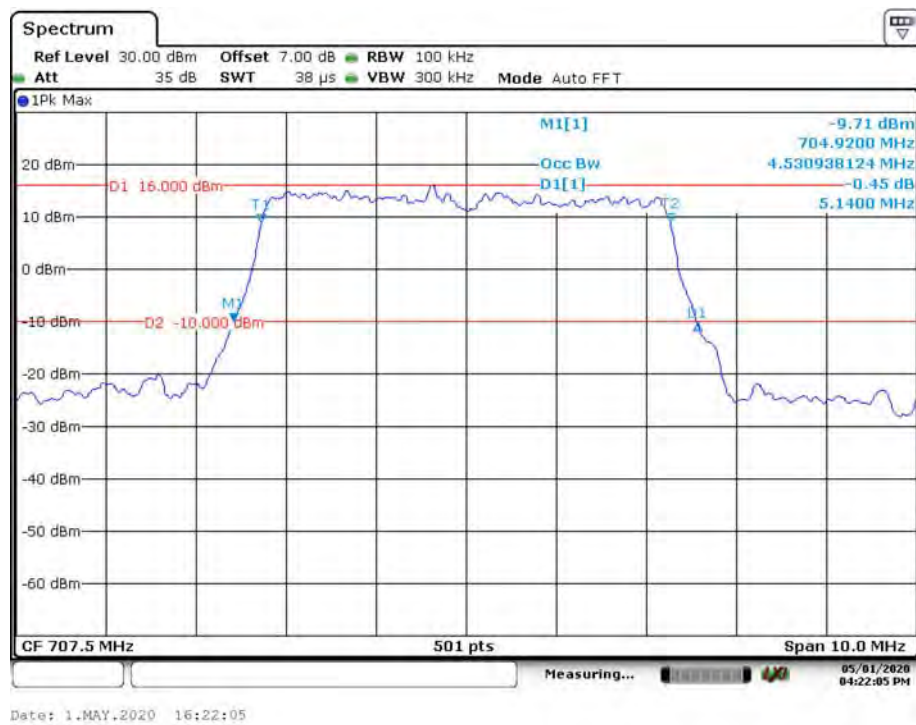
16QAM_1.4 MHz



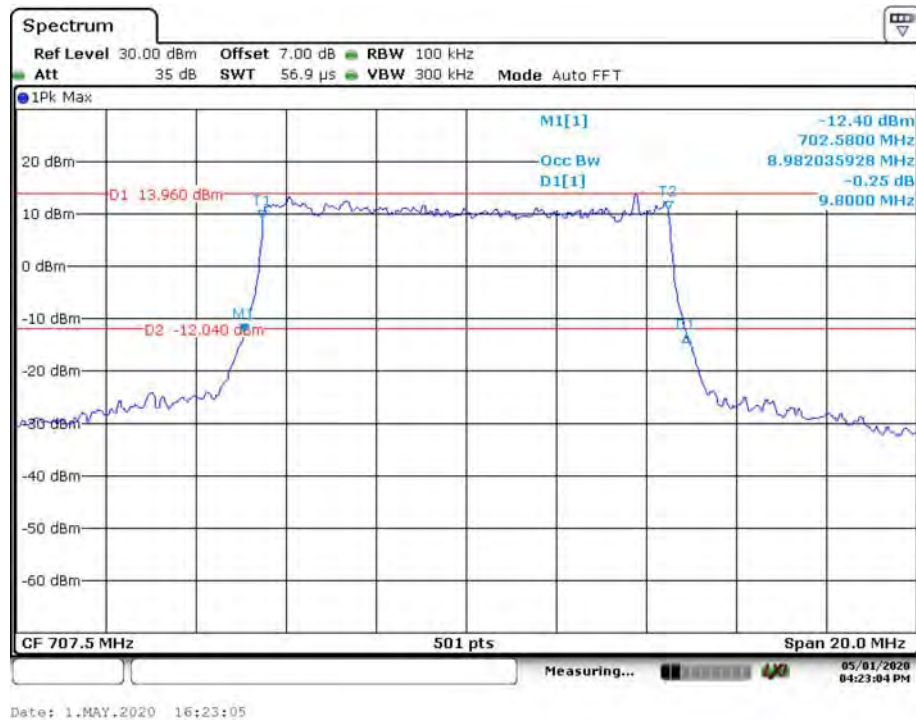
16QAM_3 MHz



16QAM_5 MHz

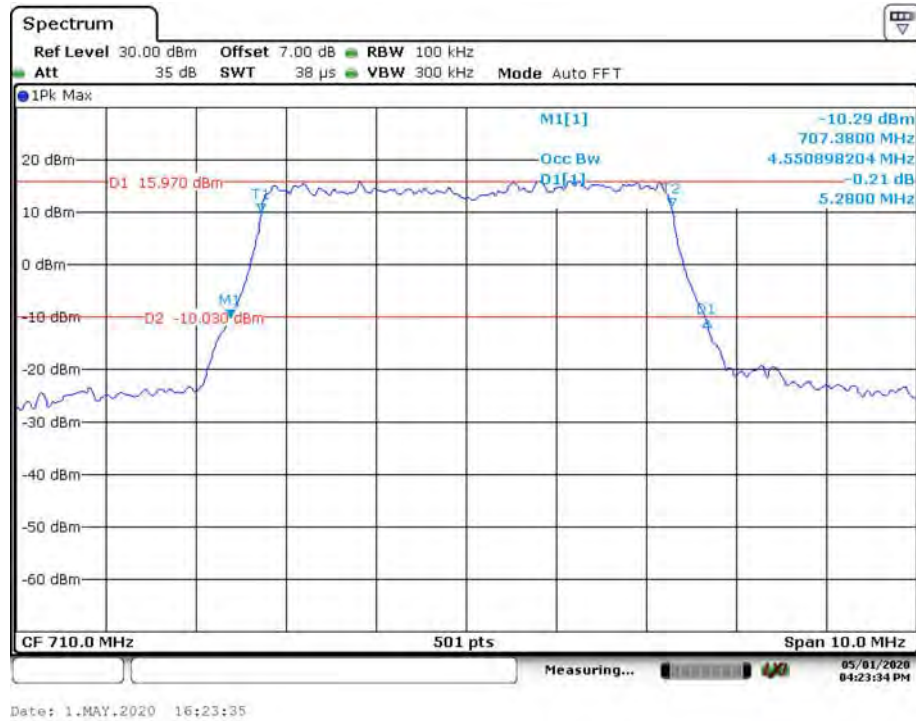


16QAM_10 MHz

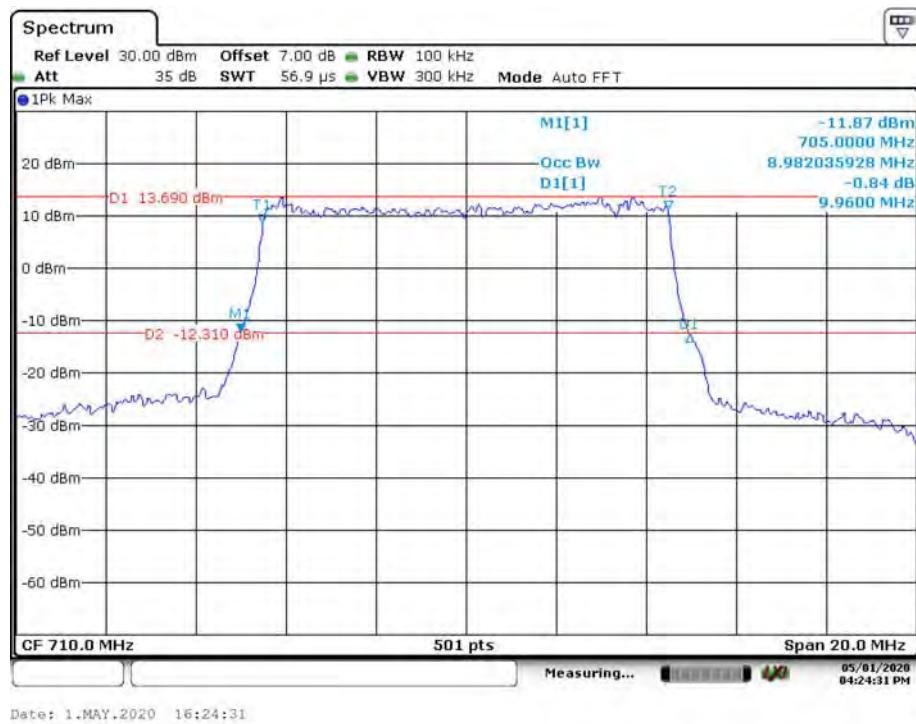


LTE Band 17

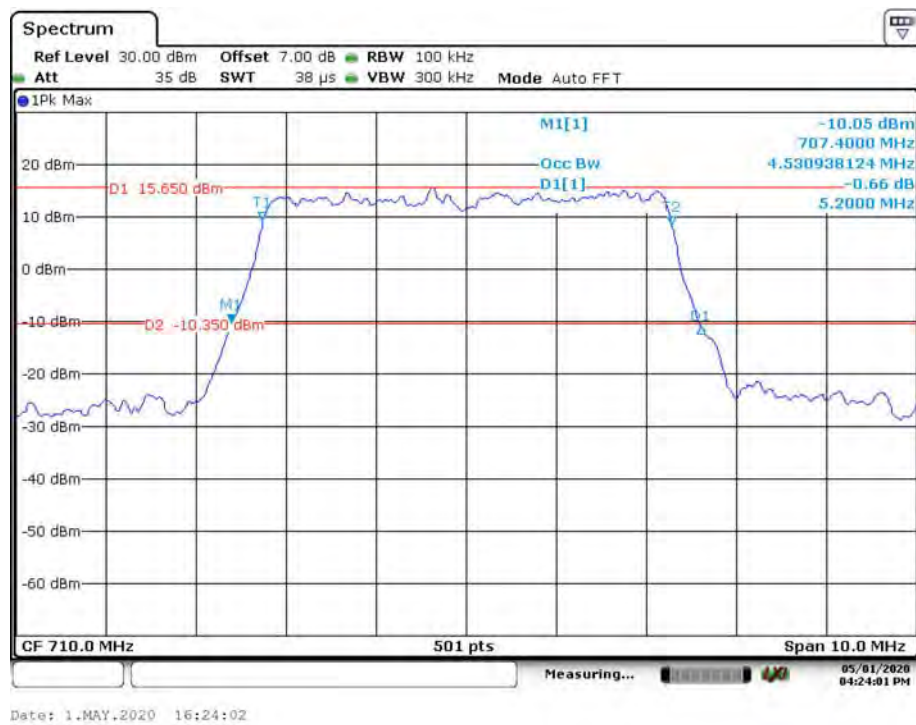
QPSK_5 MHz



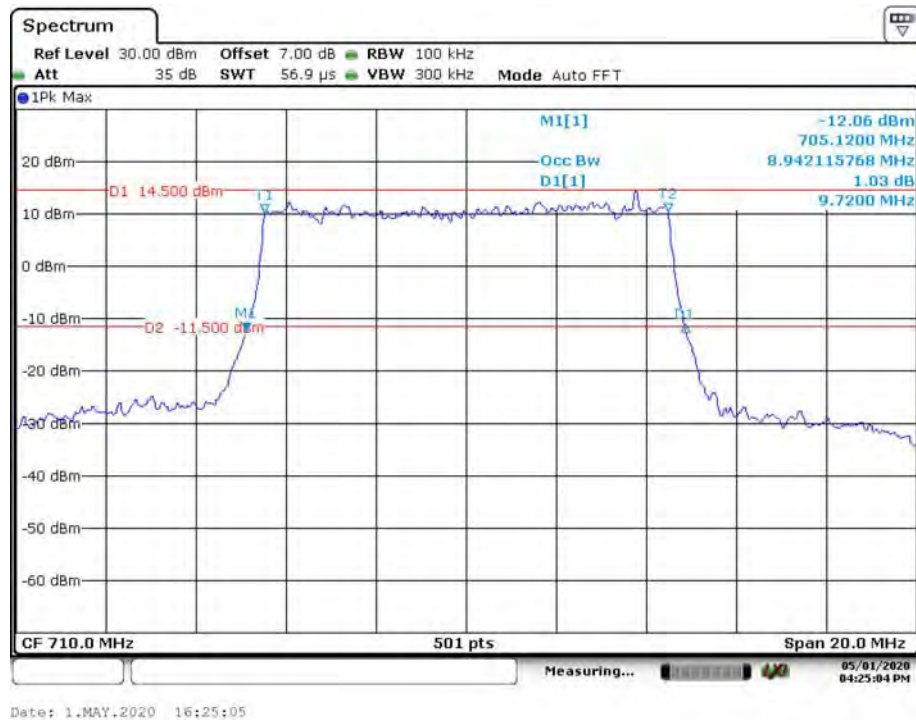
QPSK_10 MHz



16QAM_5 MHz

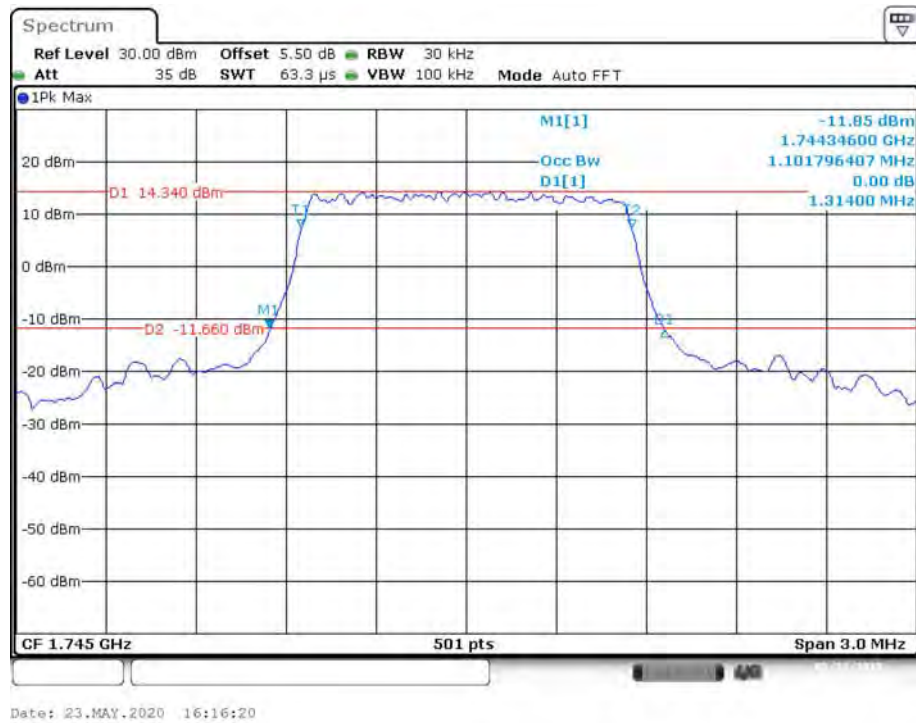


16QAM_10 MHz

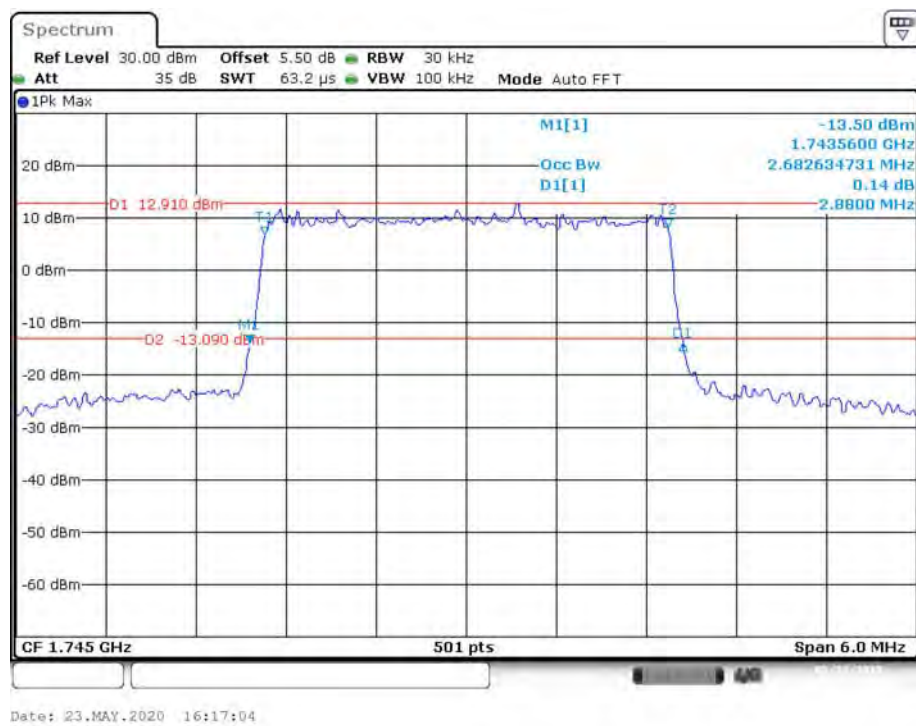


LTE Band 66

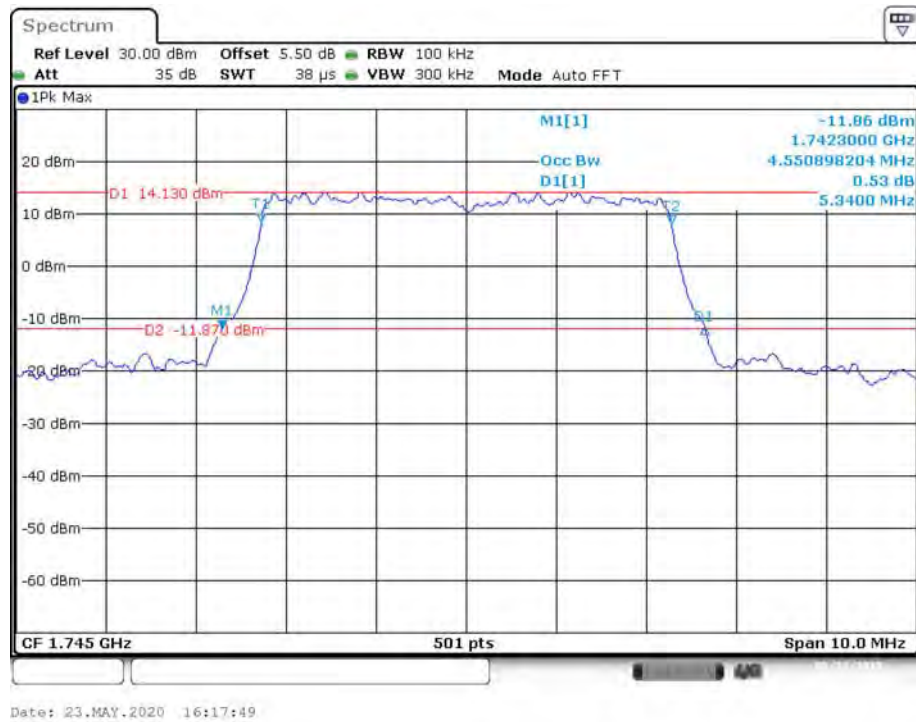
QPSK_1.4 MHz



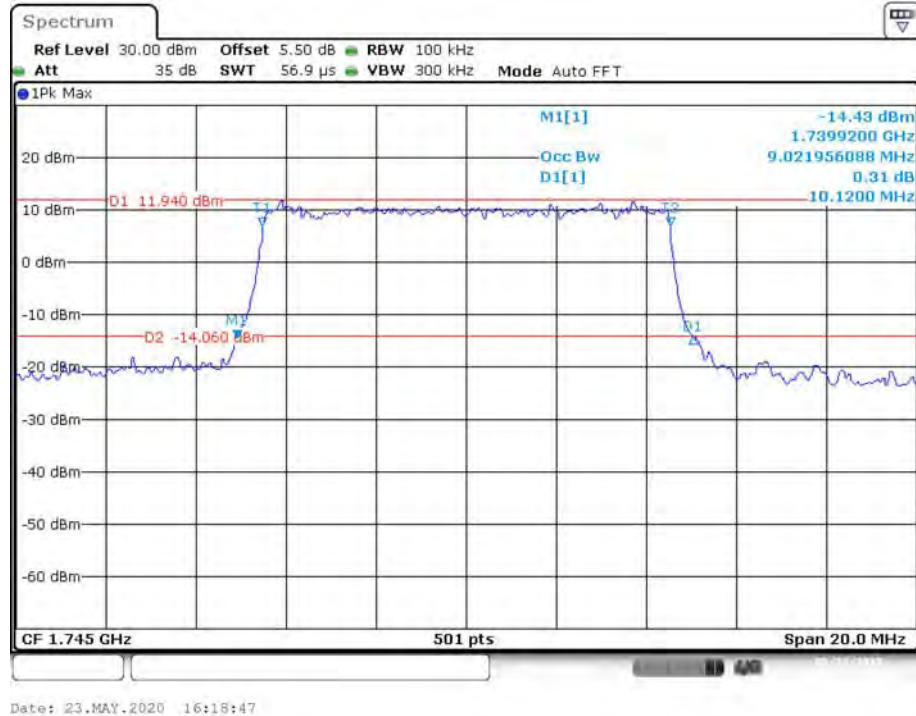
QPSK_3 MHz



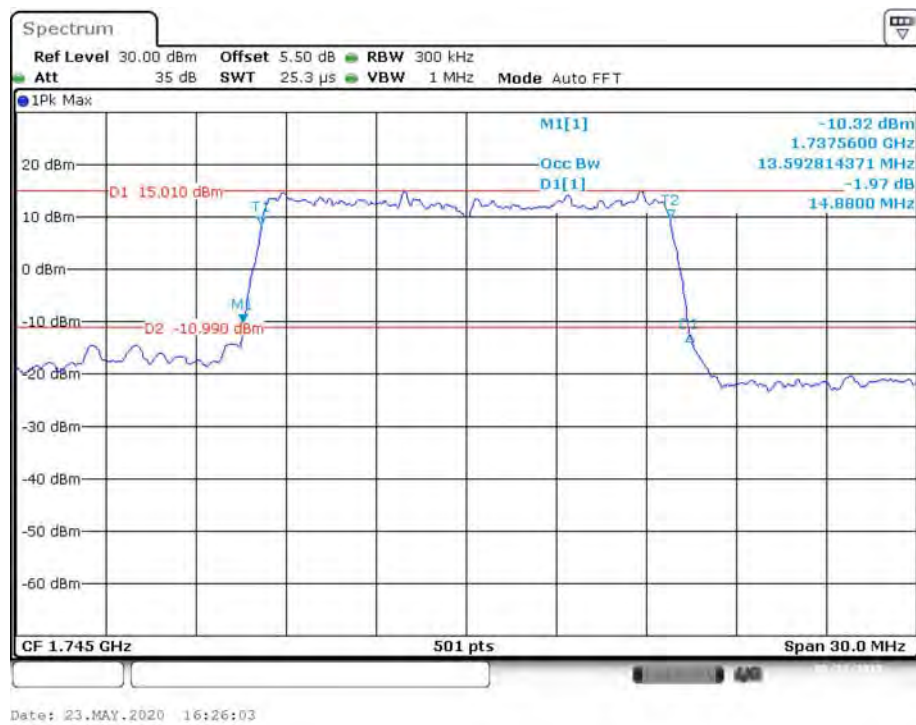
QPSK_5 MHz



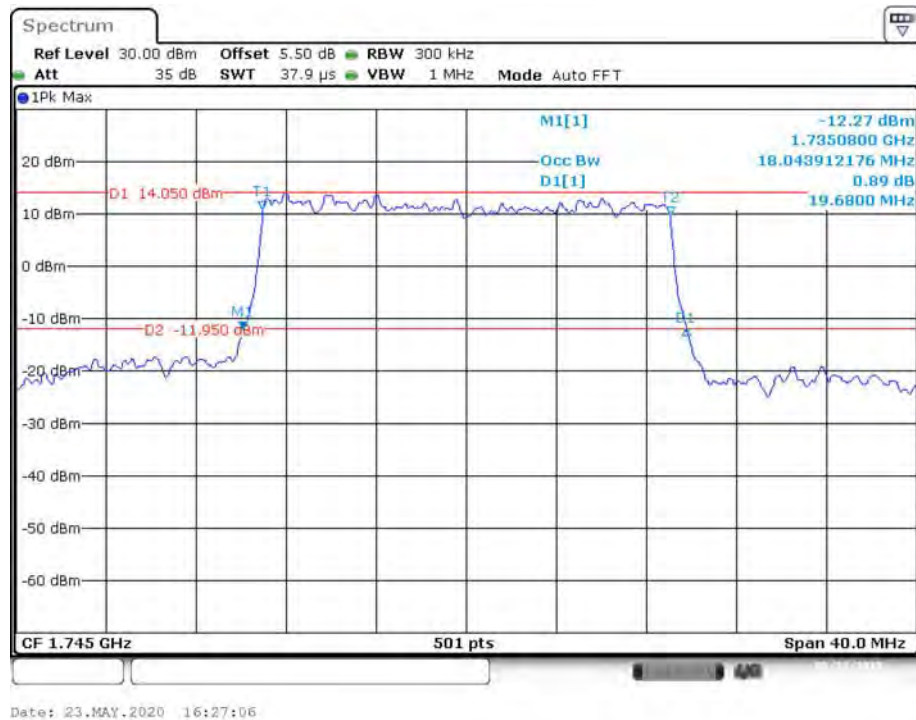
QPSK_10 MHz



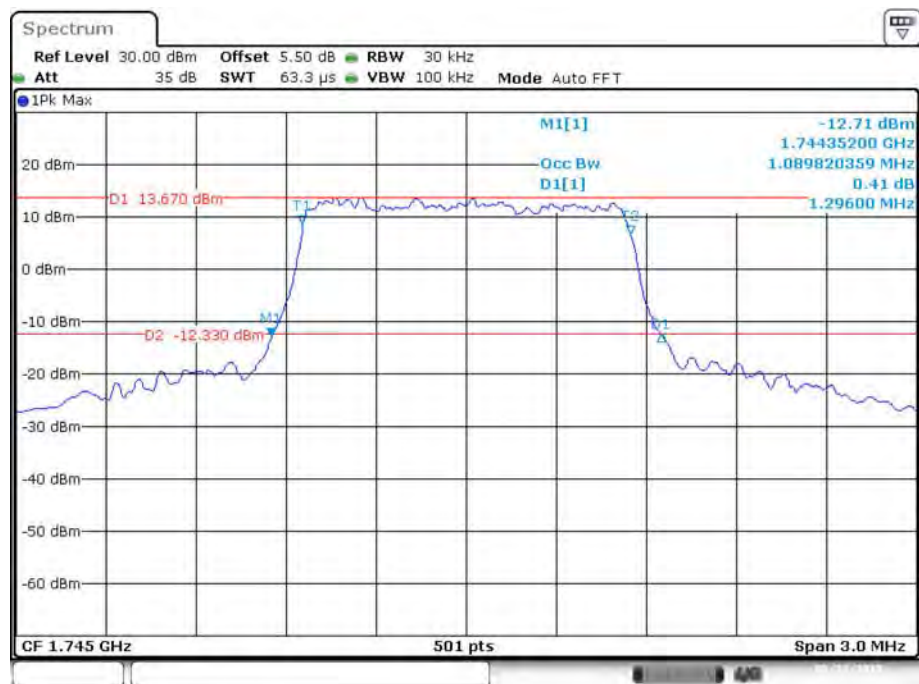
QPSK_15 MHz



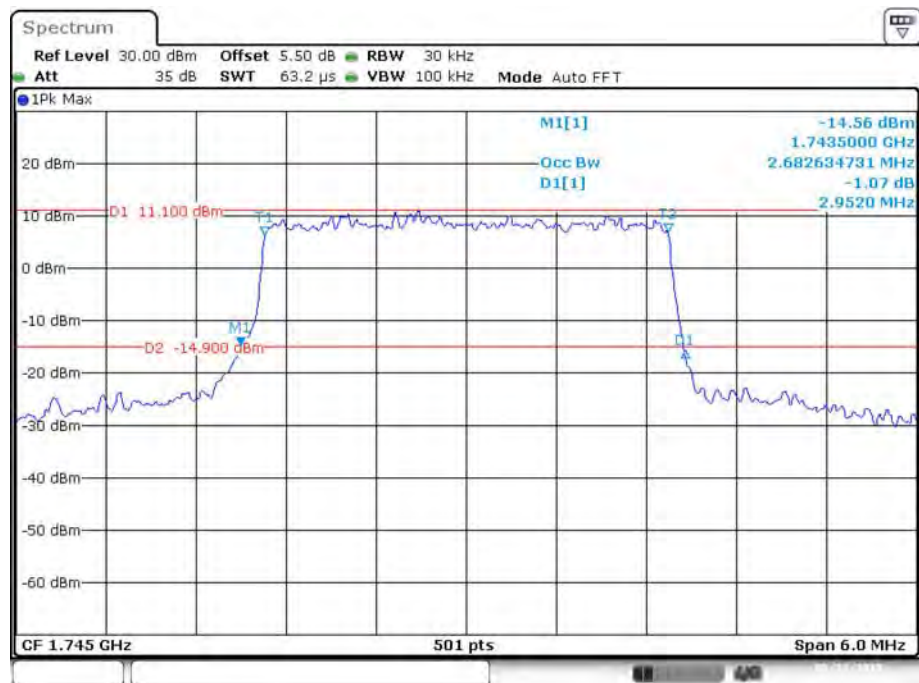
QPSK_20 MHz



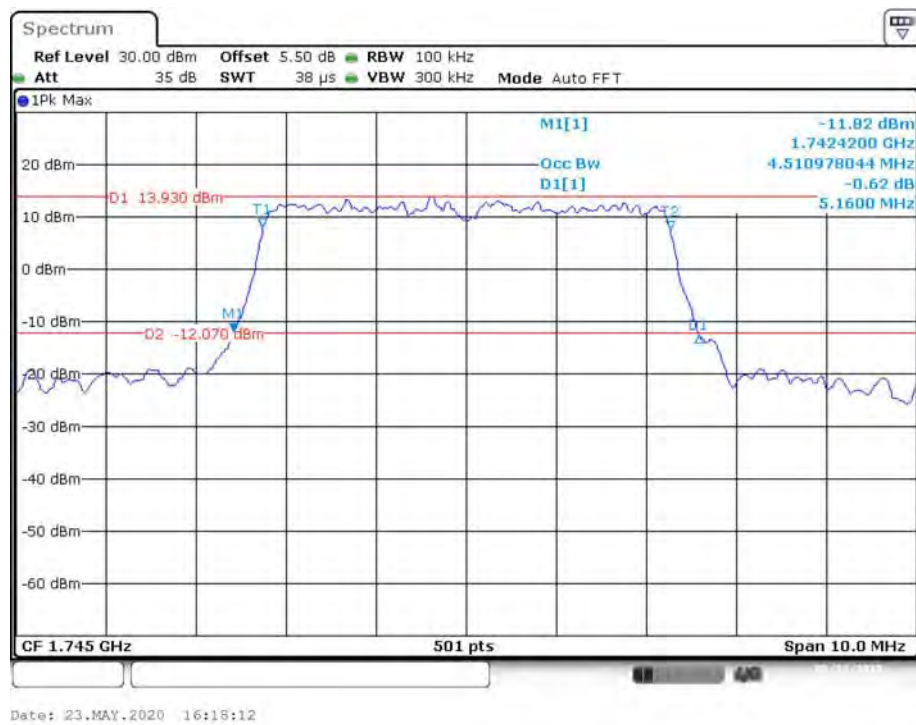
16QAM_1.4 MHz



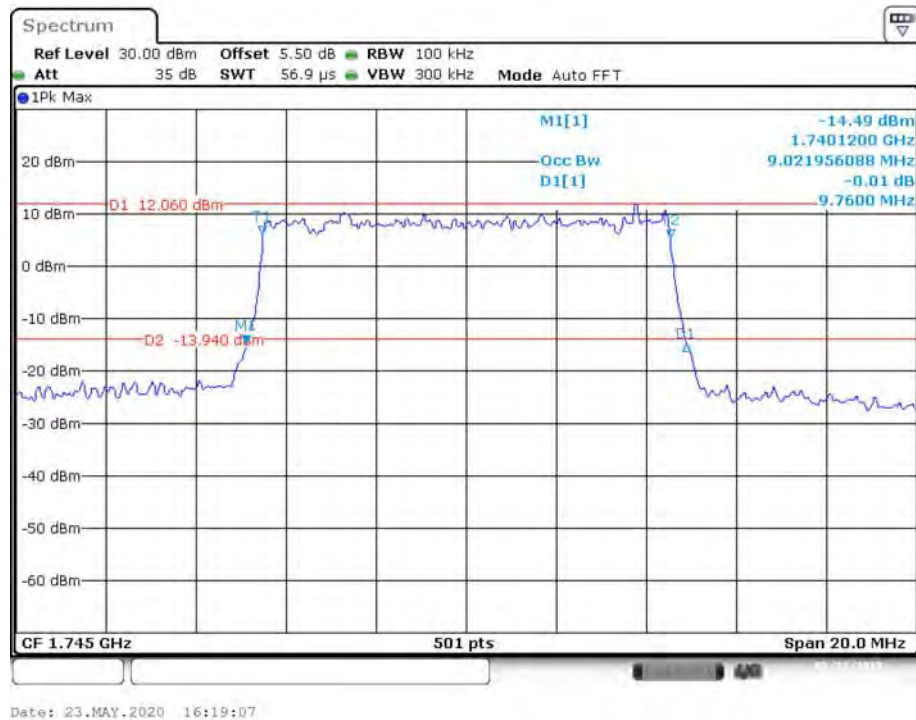
16QAM_3 MHz



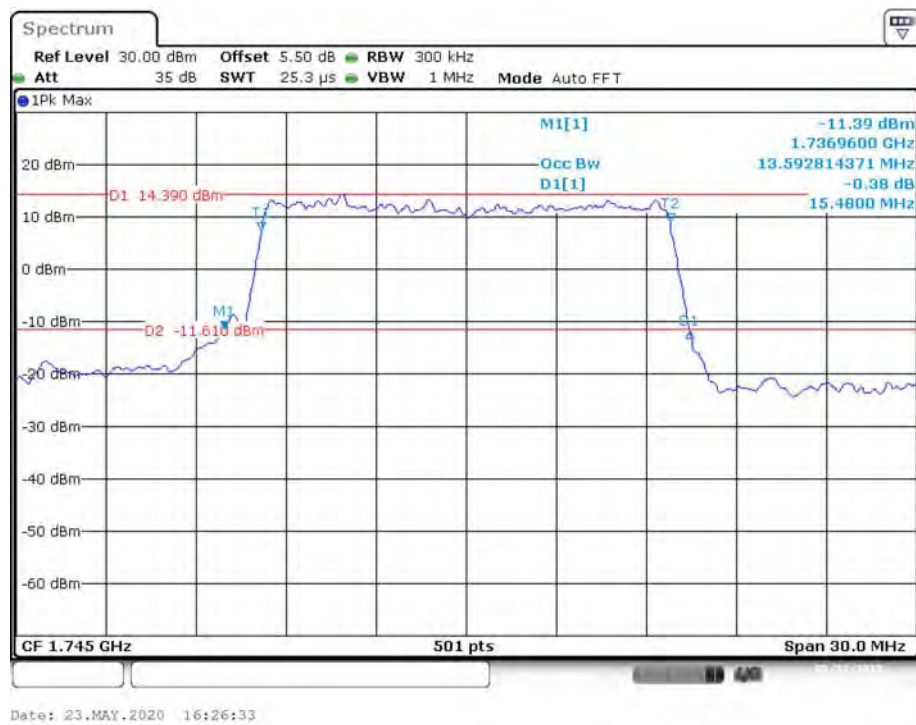
16QAM_5 MHz



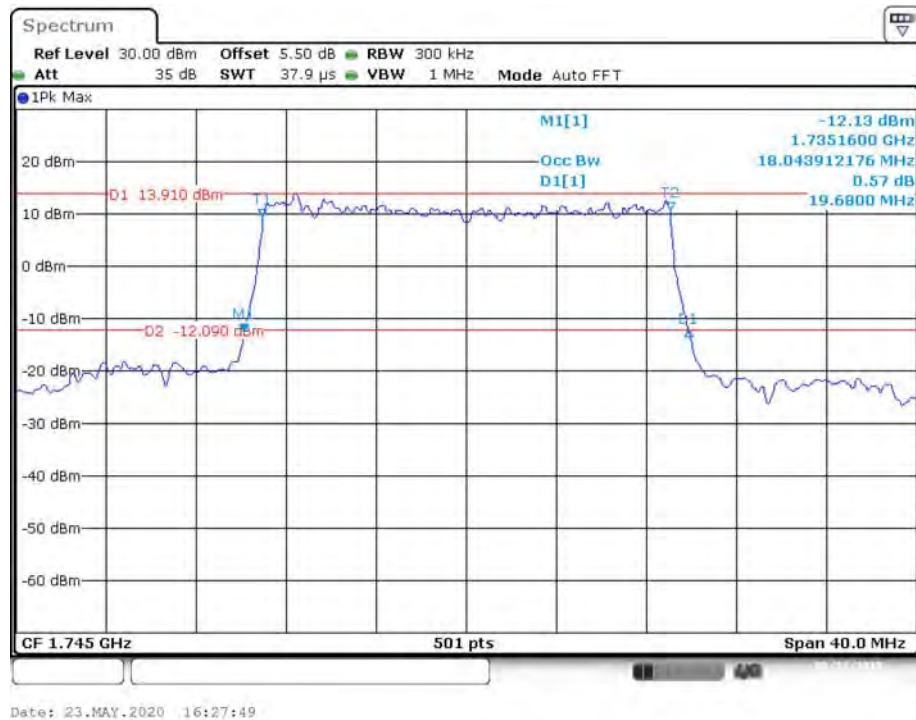
16QAM_10 MHz



16QAM_15 MHz



16QAM_20 MHz



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

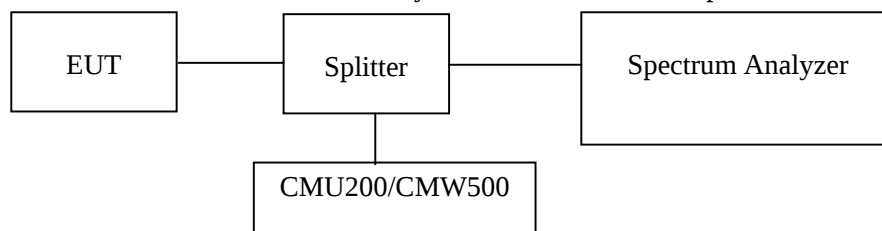
Applicable Standard

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



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101474	2020-01-09	2021-01-09
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41010013	Each time	/
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41005011	Each time	/
Unknown	Coaxial Cable	C-SJ00-0010	C0010/03	Each time	/
E-Microwave	Two-way Splitter	ODP-1-6-2S	OE0120142	Each time	/

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

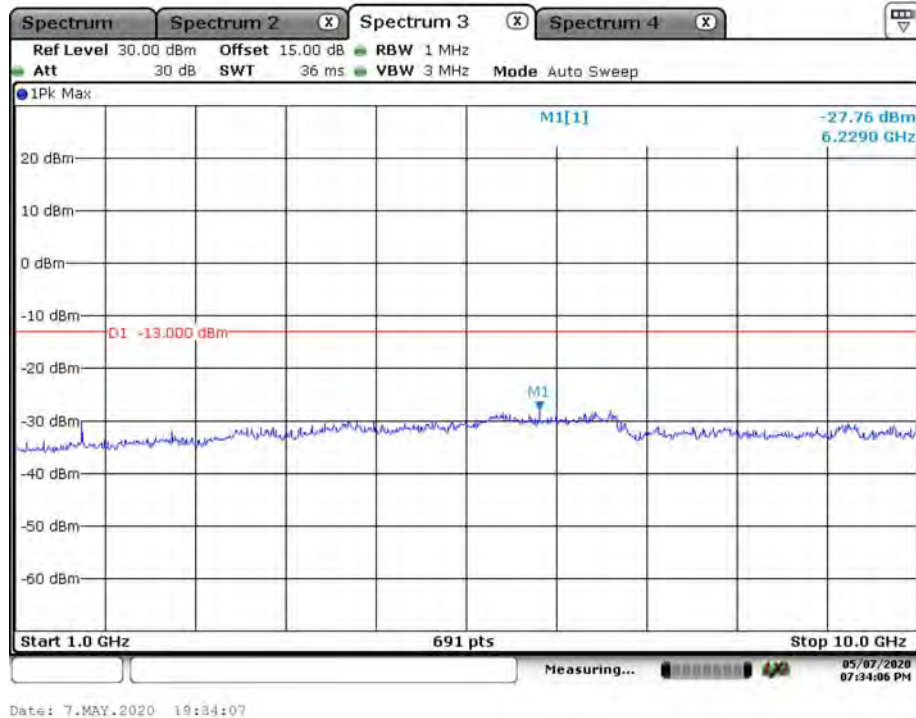
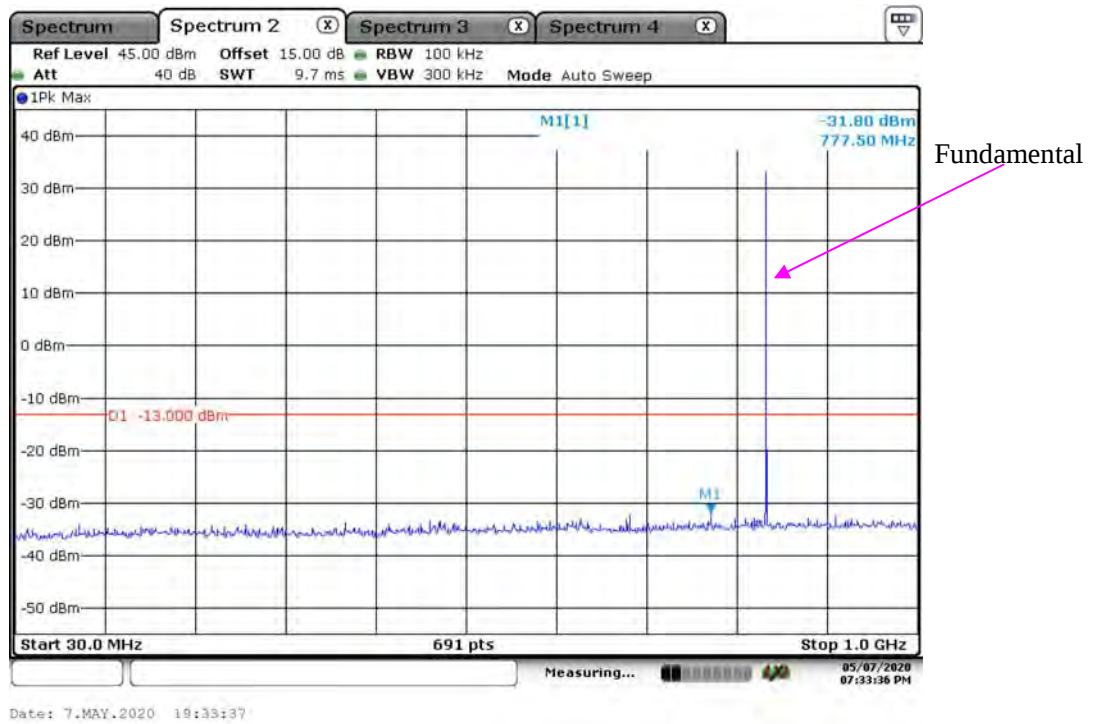
Test Data

Environmental Conditions

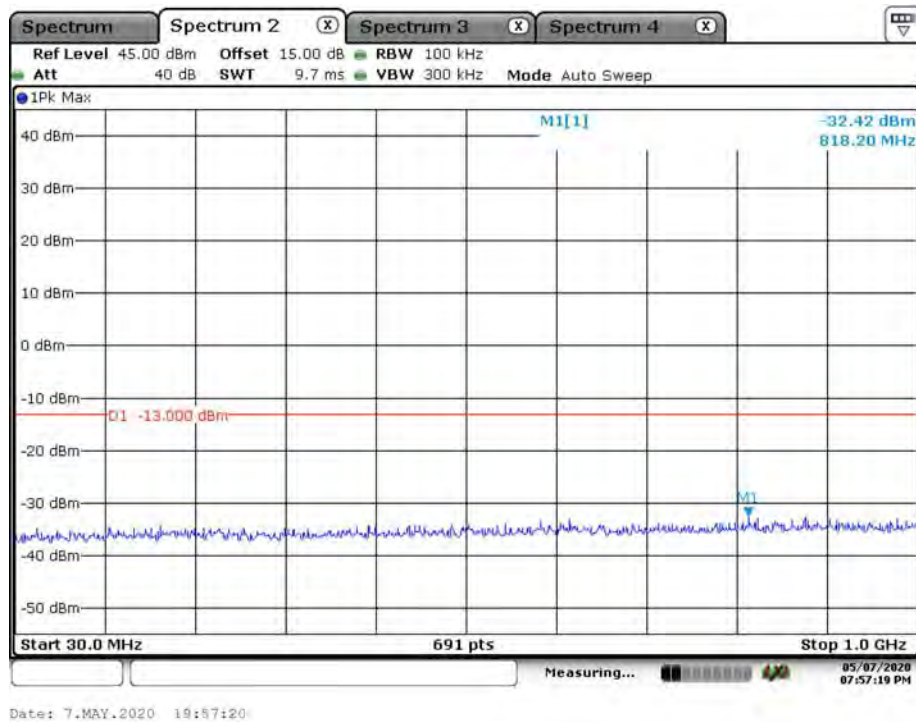
Temperature:	26.4~27.3°C
Relative Humidity:	61~63 %
ATM Pressure:	98.8~100.5kPa
Tester:	Fay Hu, Lily Xie
Test Date:	2020-05-09~2020-05-23

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

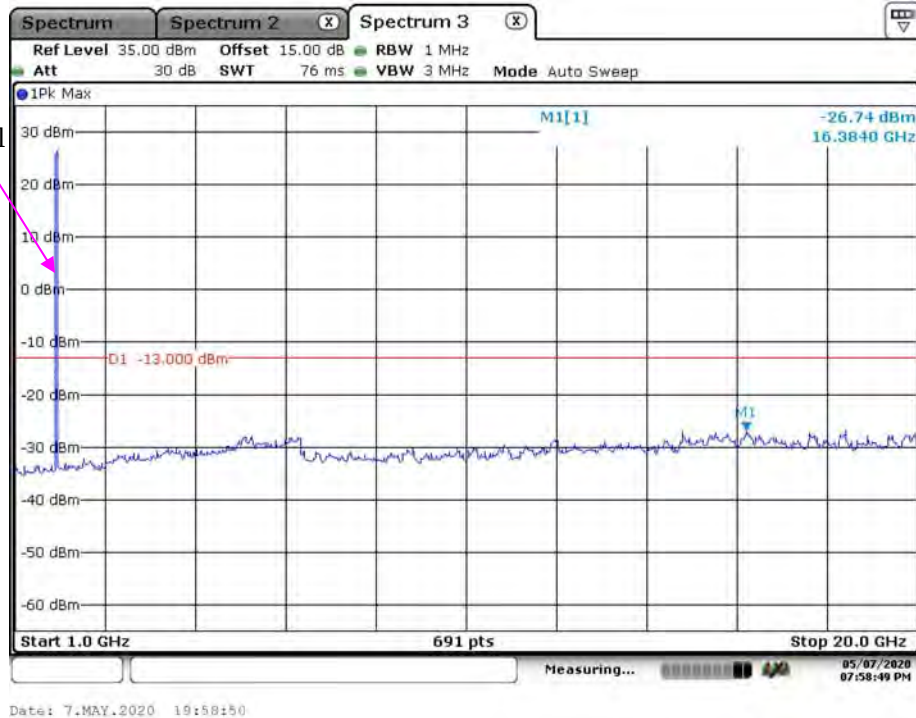
GSM850 Middle Channel



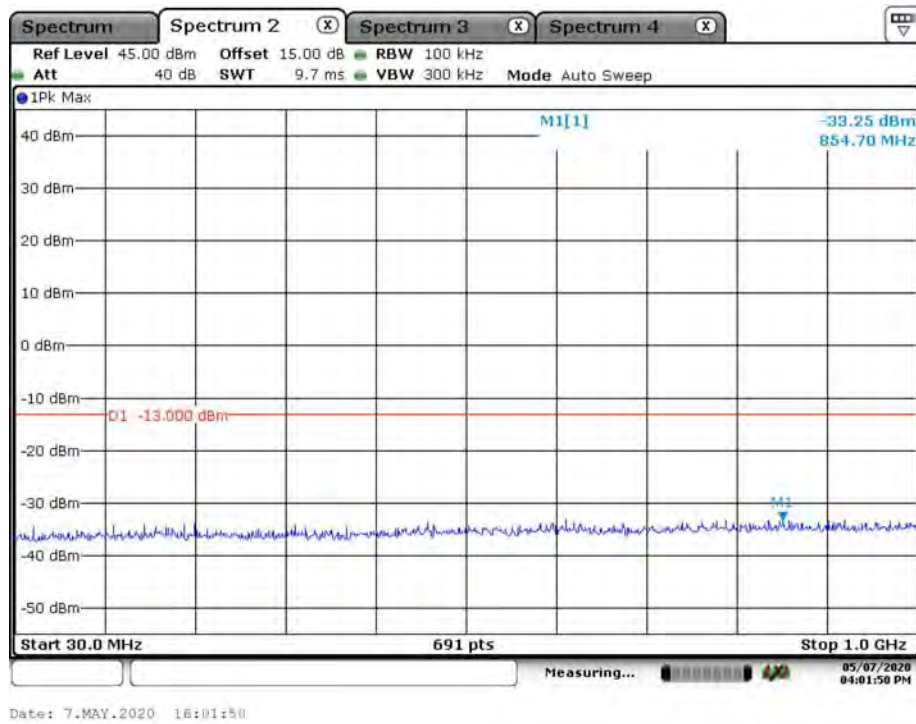
PCS 1900 Middle Channel



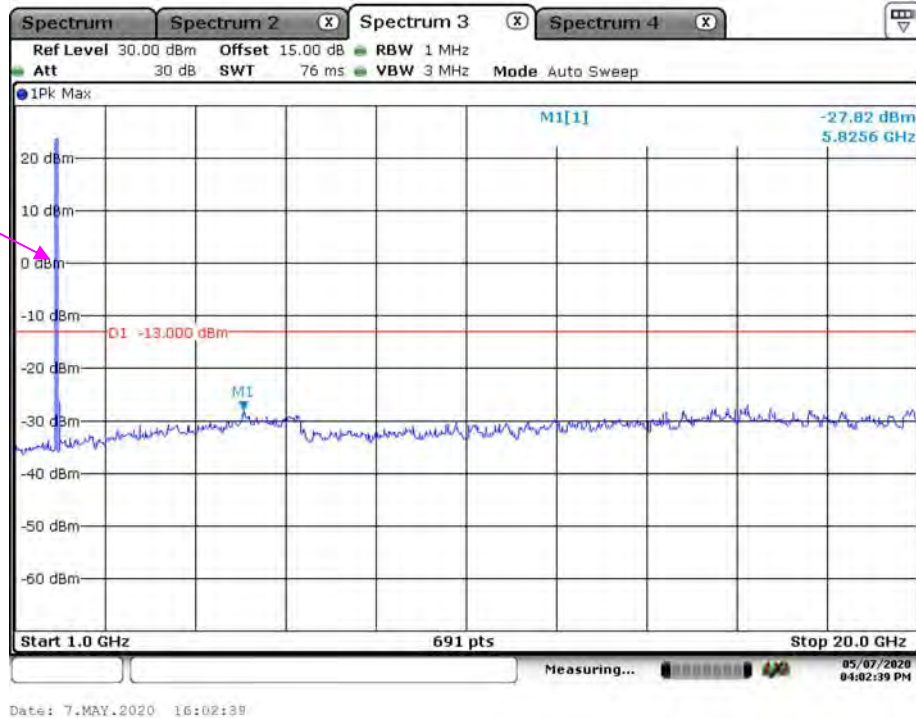
Fundamental



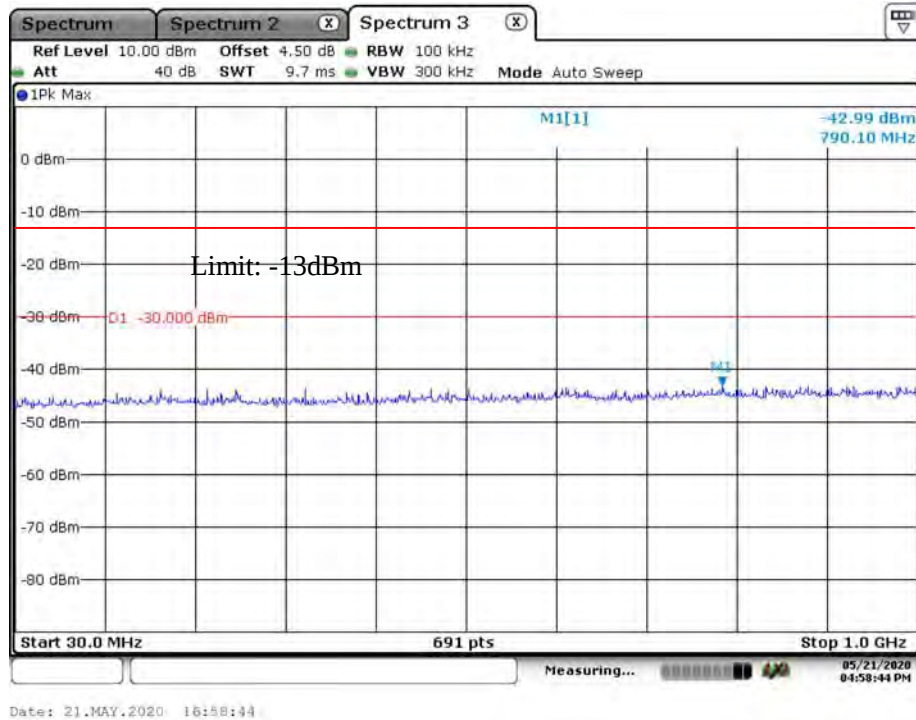
WCDMA Band 2 Rel 99 Middle Channel



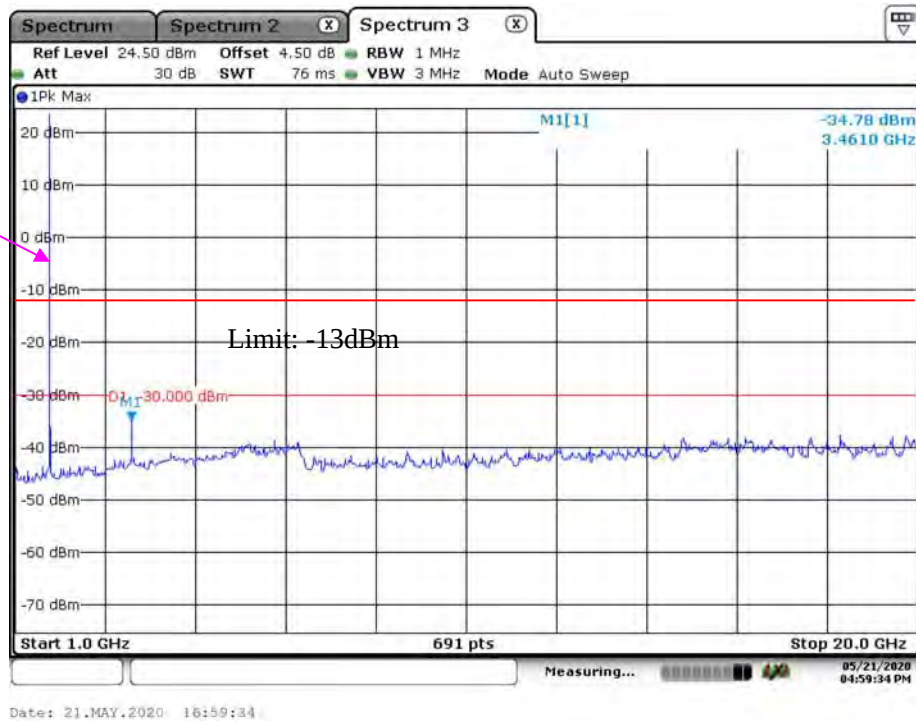
Fundamental



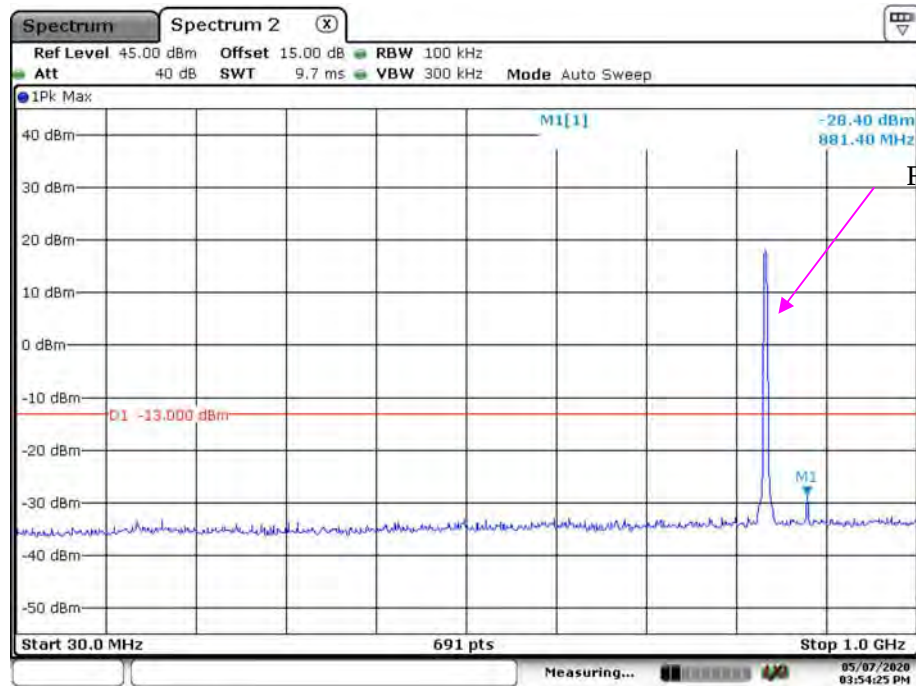
WCDMA Band 4 Rel 99 Middle Channel



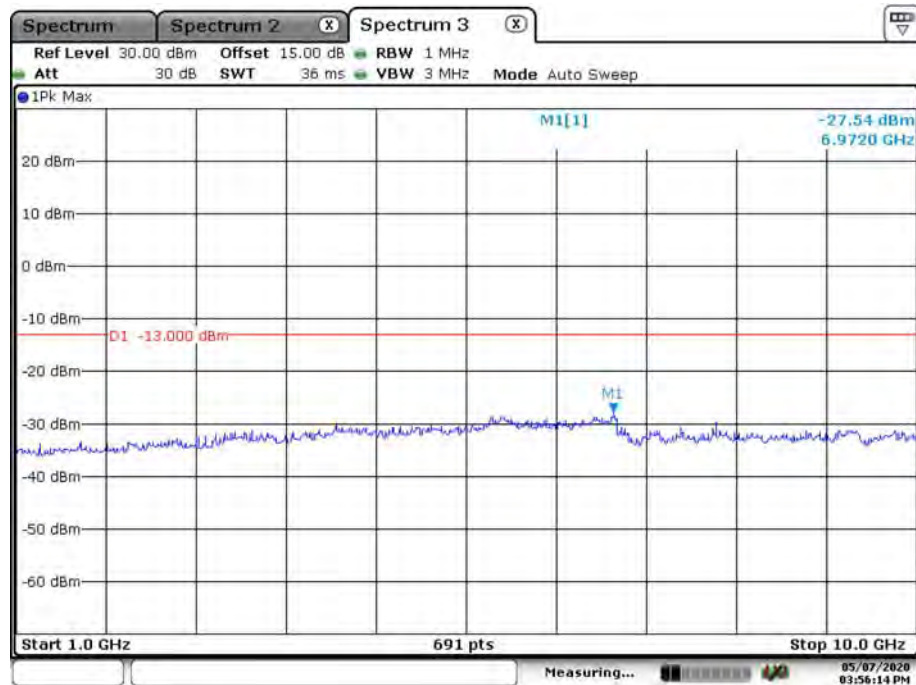
Fundamental



WCDMA Band 5 Rel 99 Middle Channel

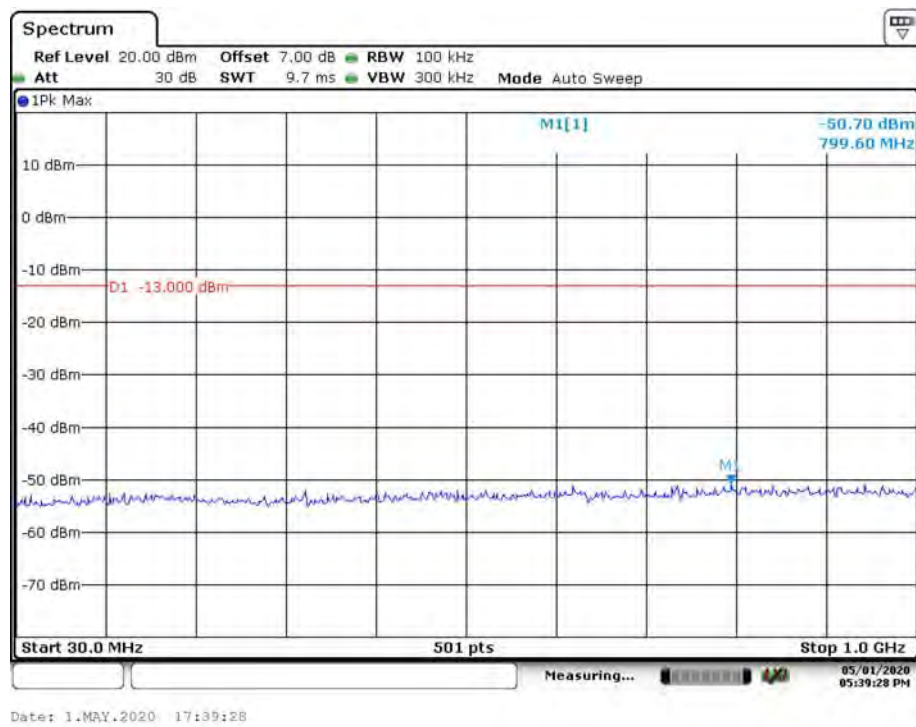


Date: 7.MAY.2020 15:54:25

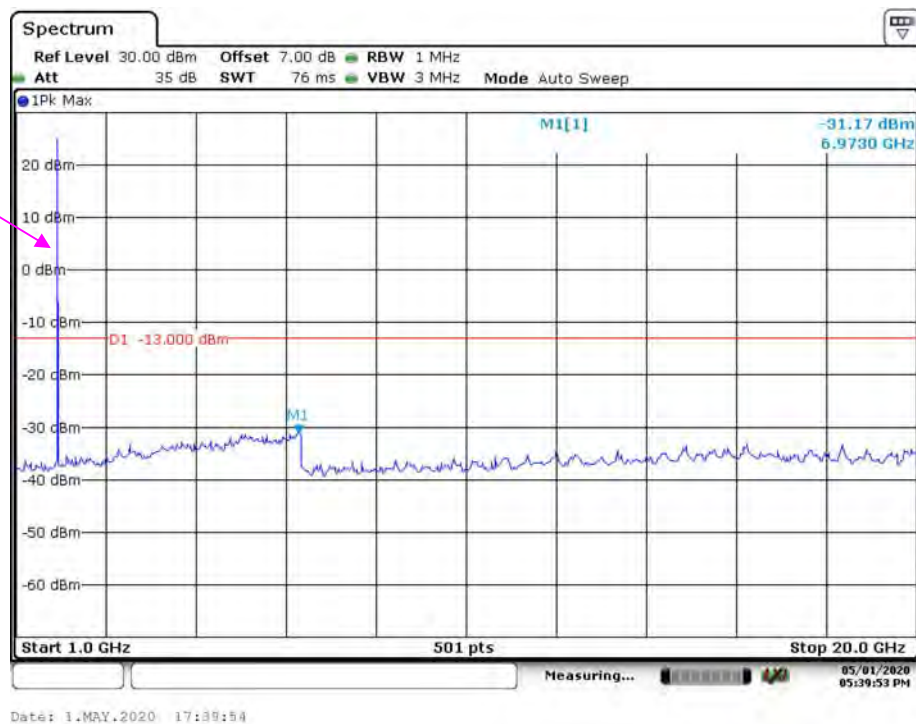


Date: 7.MAY.2020 15:56:14

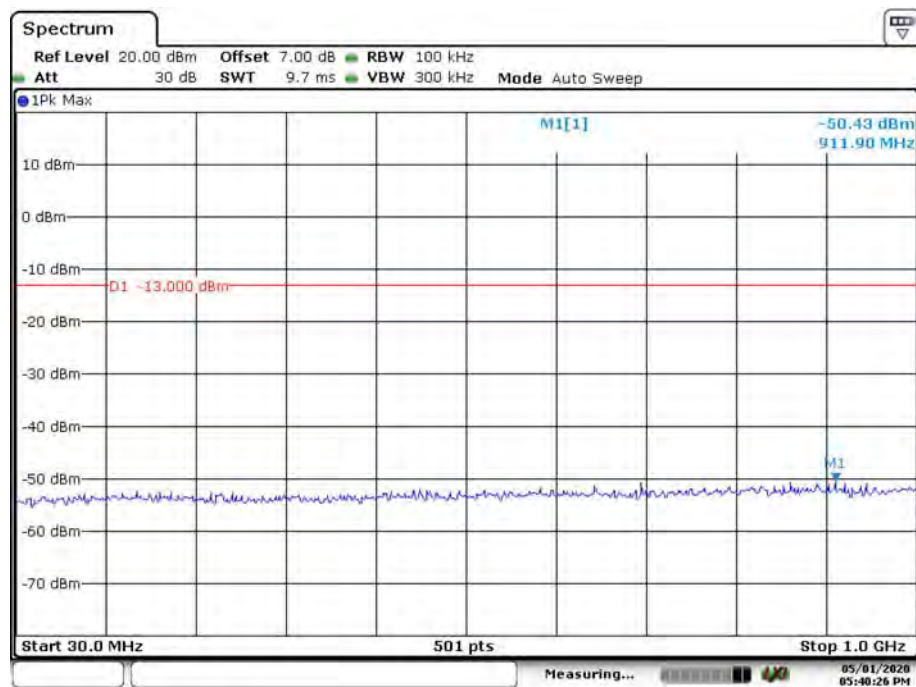
LTE Band 2, 1.4 MHz QPSK Full RB Middle Channel



Fundamental

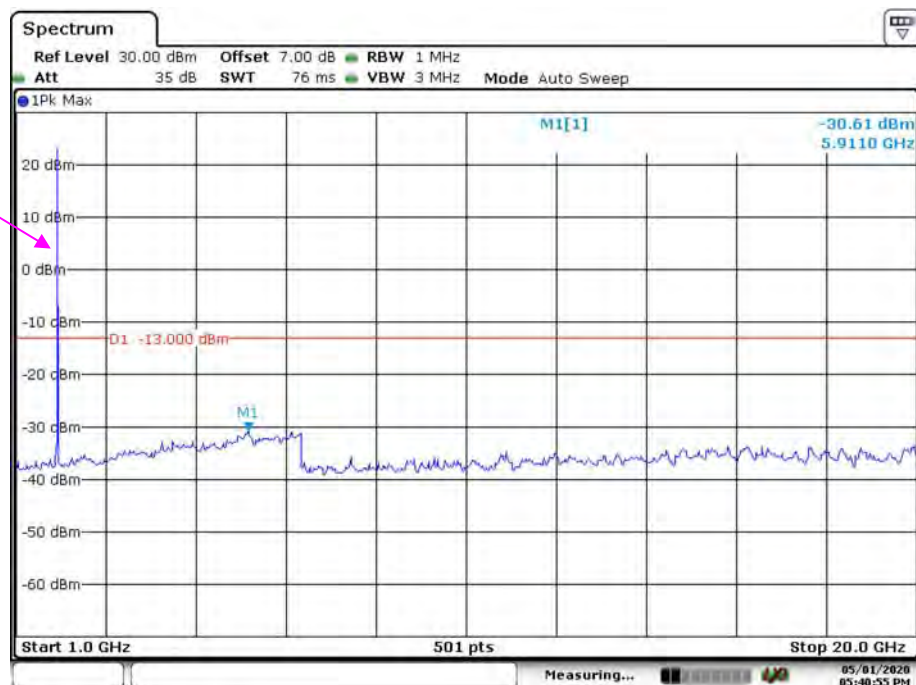


LTE Band 2, 3 MHz QPSK Full RB Middle Channel



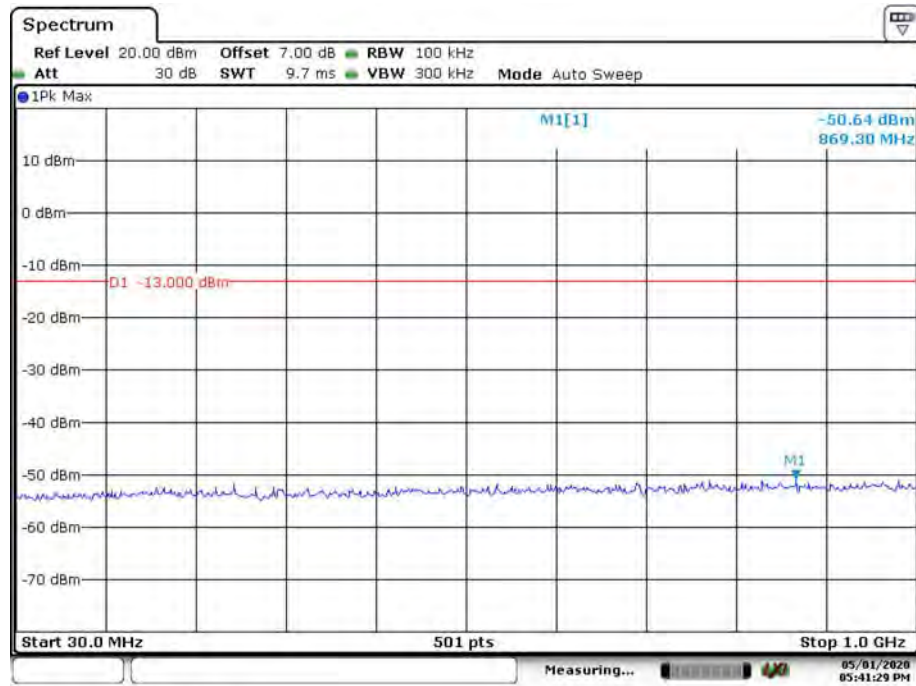
Date: 1.MAY.2020 17:40:26

Fundamental



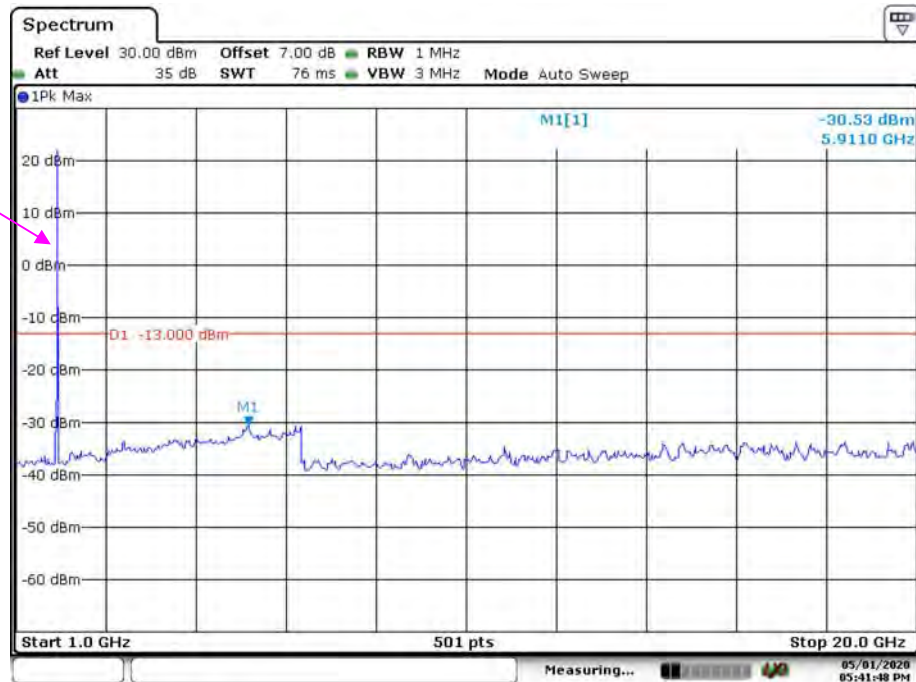
Date: 1.MAY.2020 17:40:55

LTE Band 2, 5 MHz QPSK Full RB Middle Channel



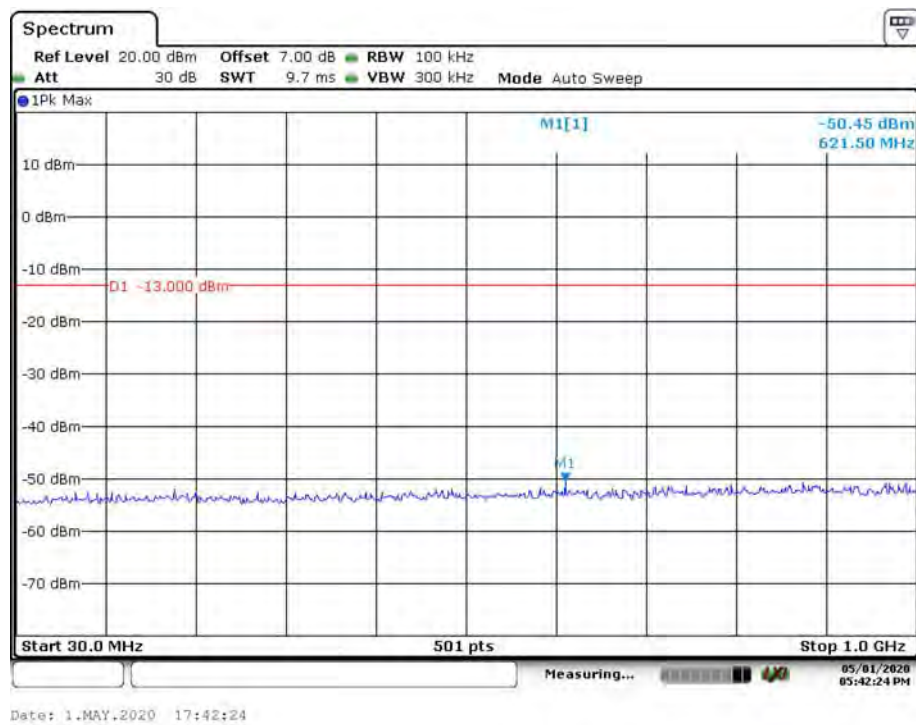
Date: 1.MAY.2020 17:41:29

Fundamental

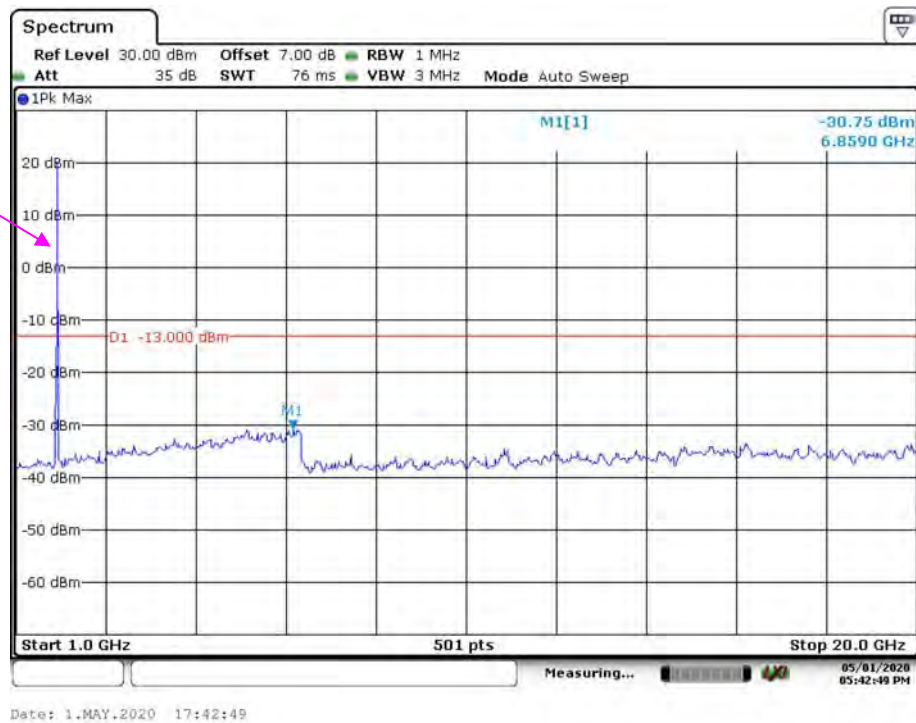


Date: 1.MAY.2020 17:41:49

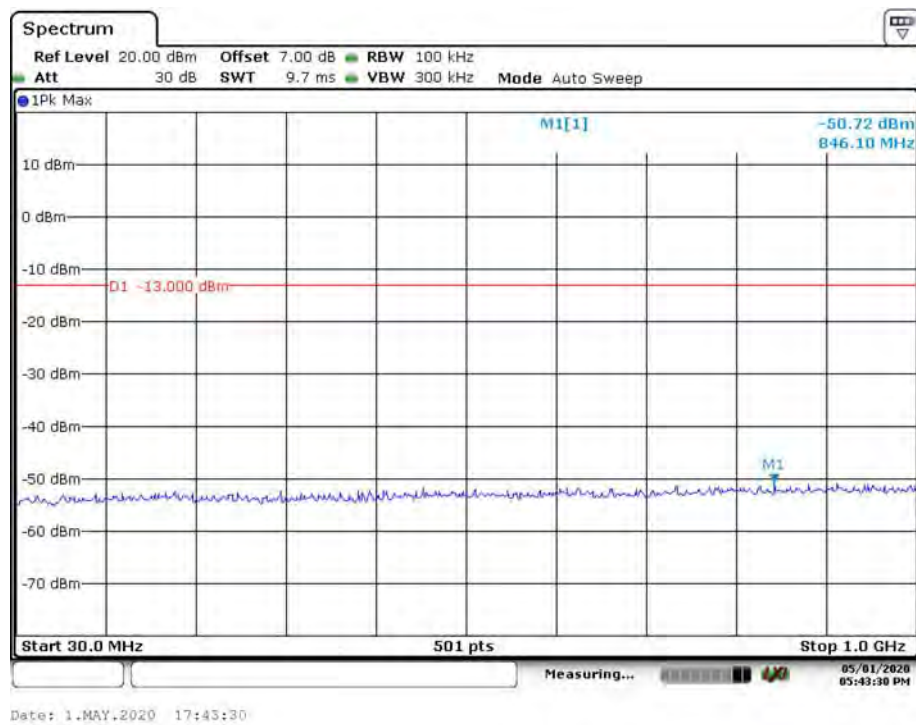
LTE Band 2, 10 MHz QPSK Full RB Middle Channel



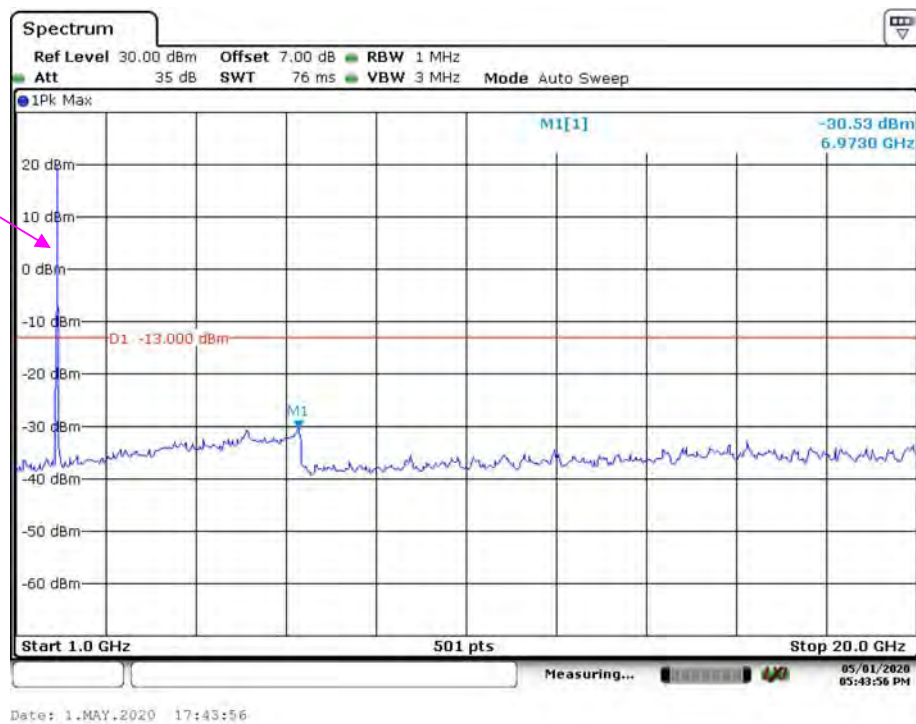
Fundamental



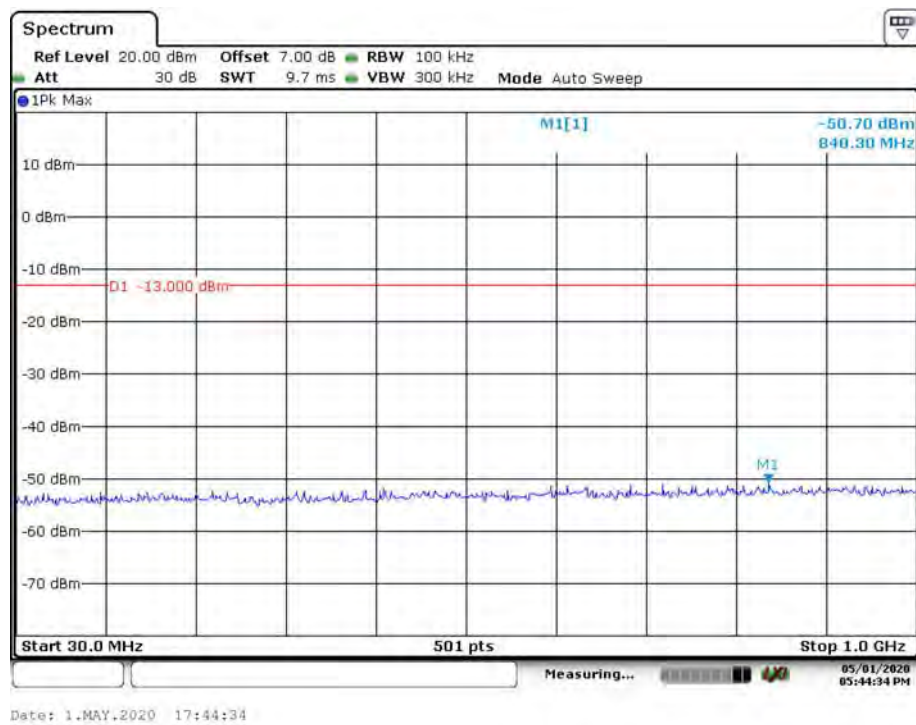
LTE Band 2, 15 MHz QPSK Full RB Middle Channel



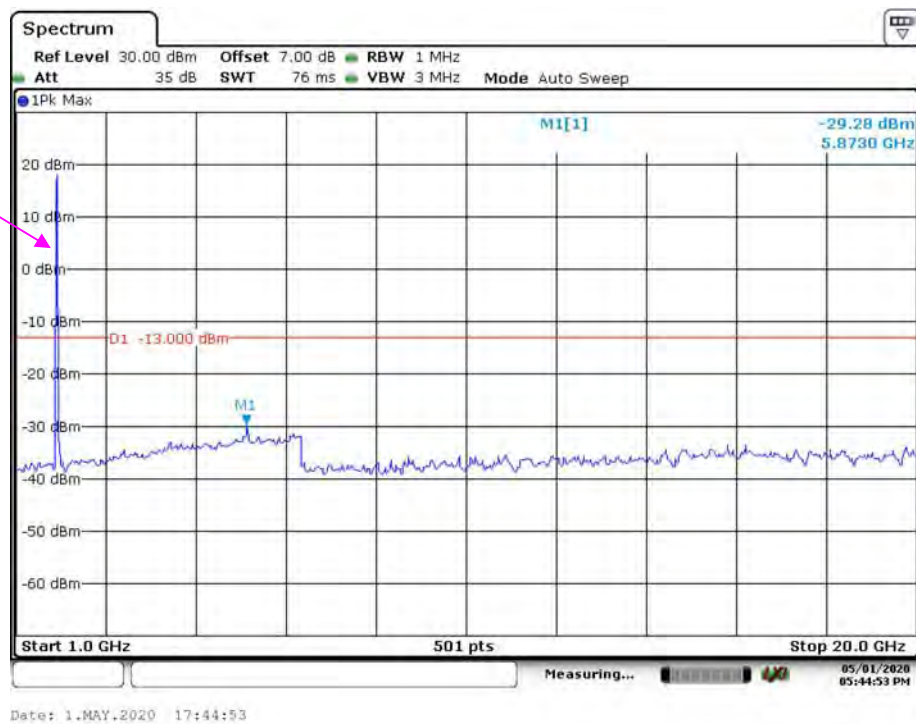
Fundamental



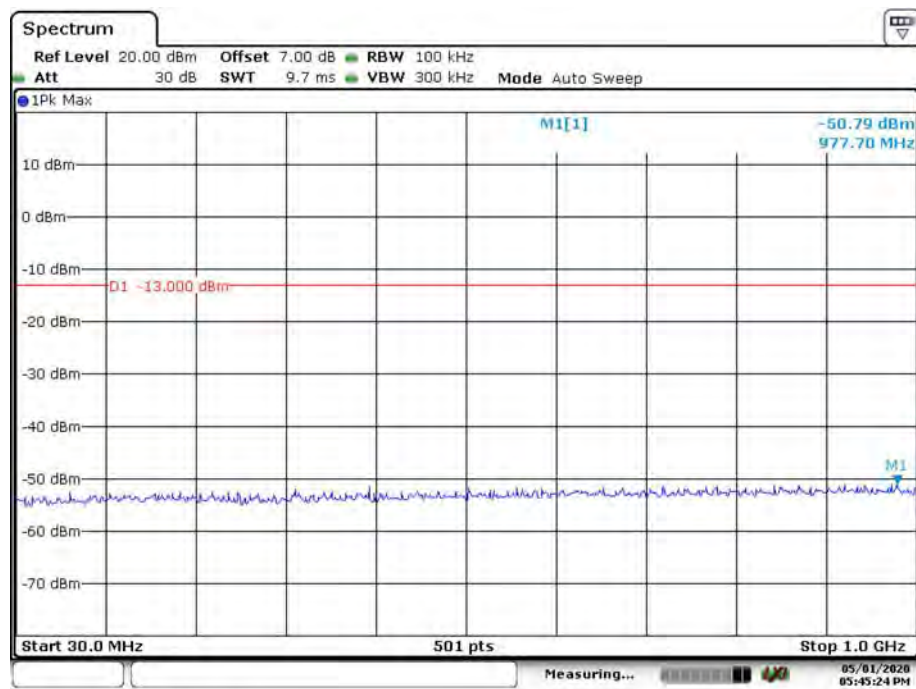
LTE Band 2, 20 MHz QPSK Full RB Middle Channel



Fundamental

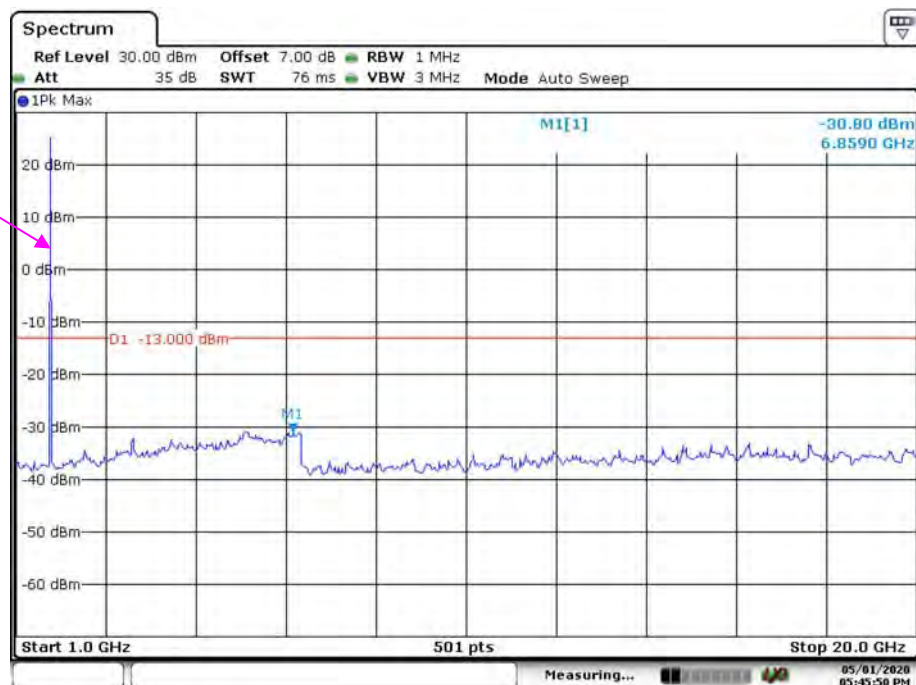


LTE Band 4, 1.4 MHz QPSK Full RB Middle Channel



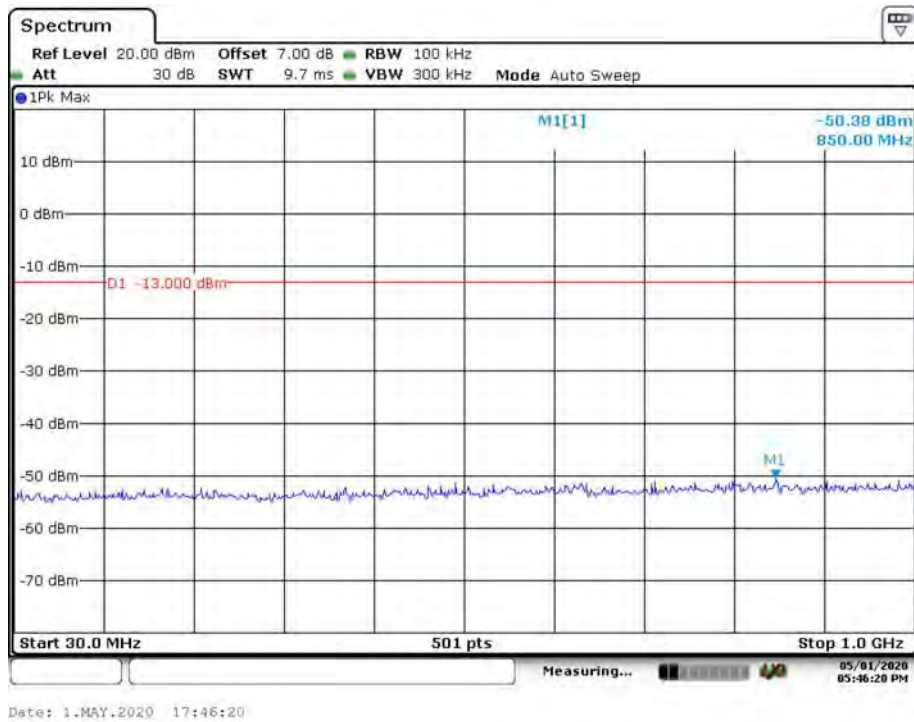
Date: 1.MAY.2020 17:45:24

Fundamental

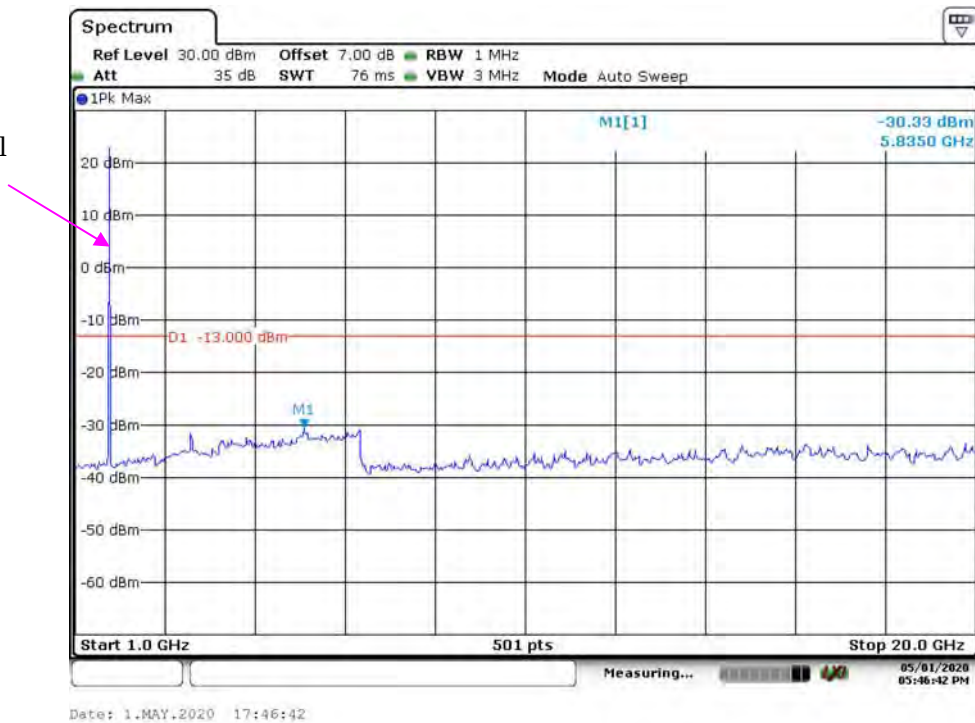


Date: 1.MAY.2020 17:45:50

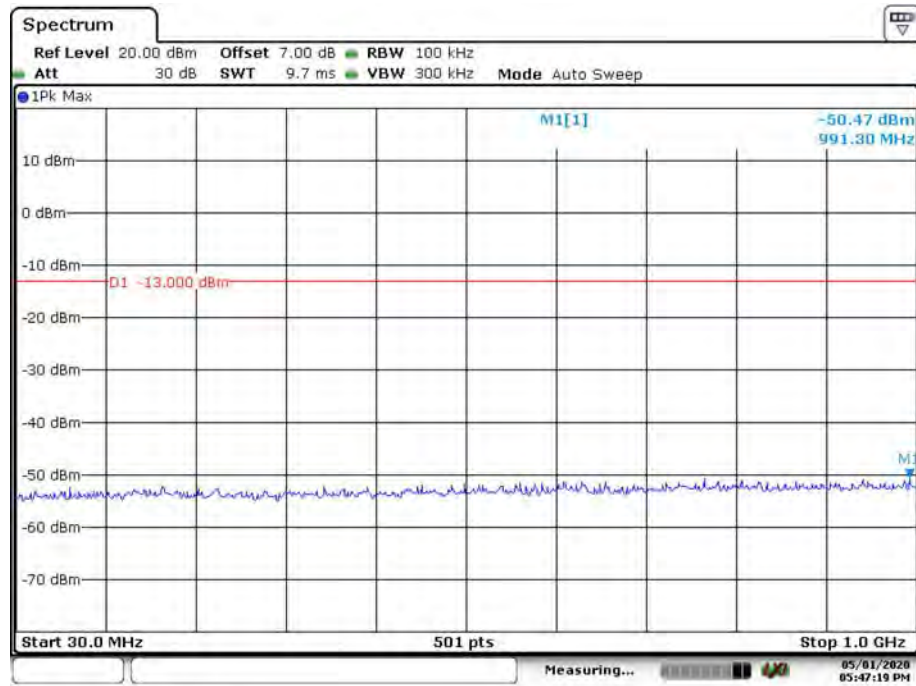
LTE Band 4, 3 MHz QPSK Full RB Middle Channel



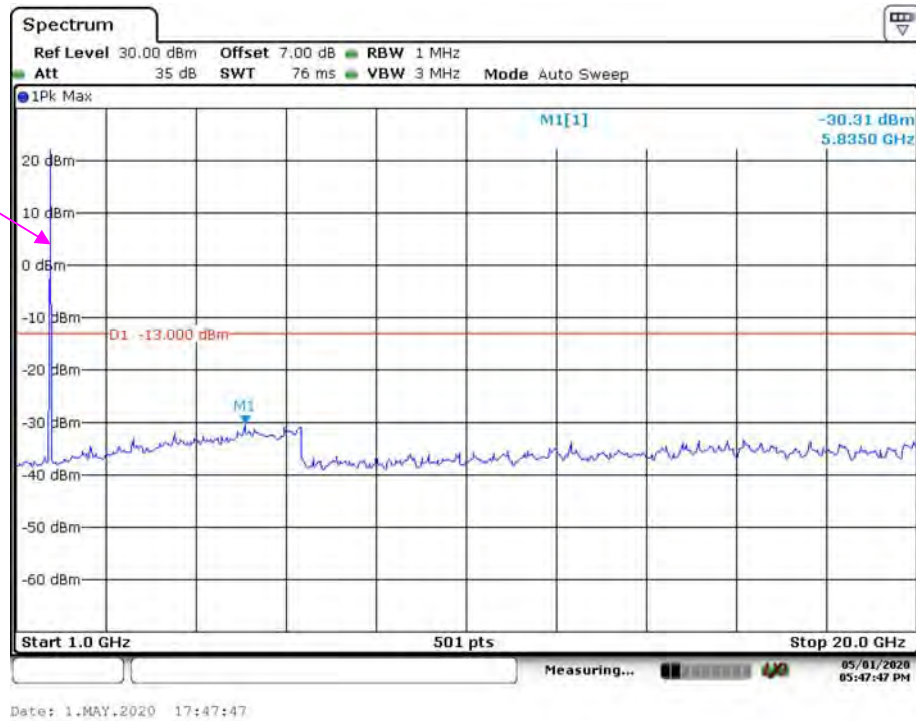
Fundamental



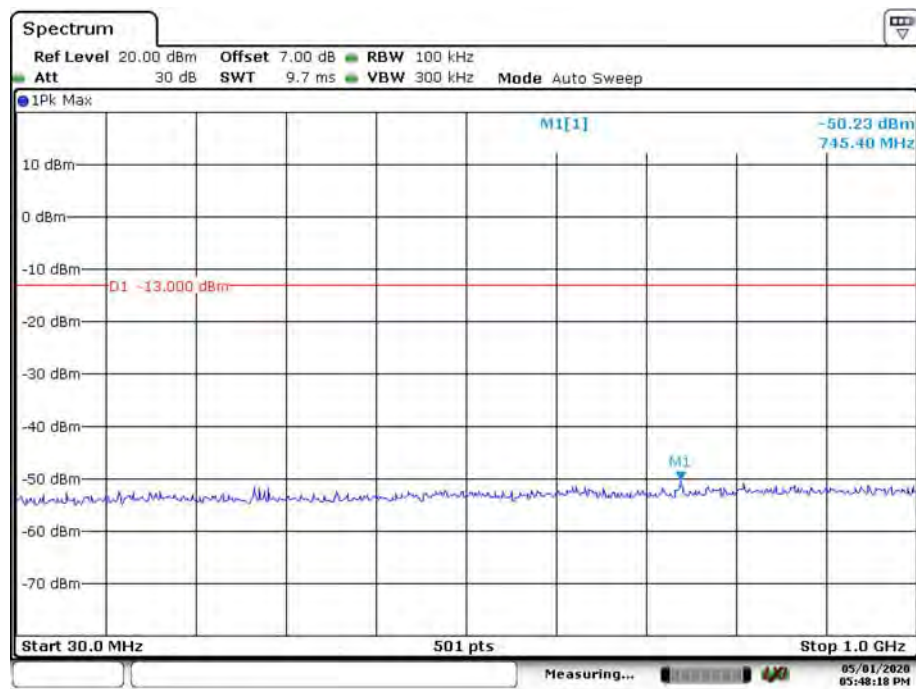
LTE Band 4, 5 MHz QPSK Full RB Middle Channel



Fundamental

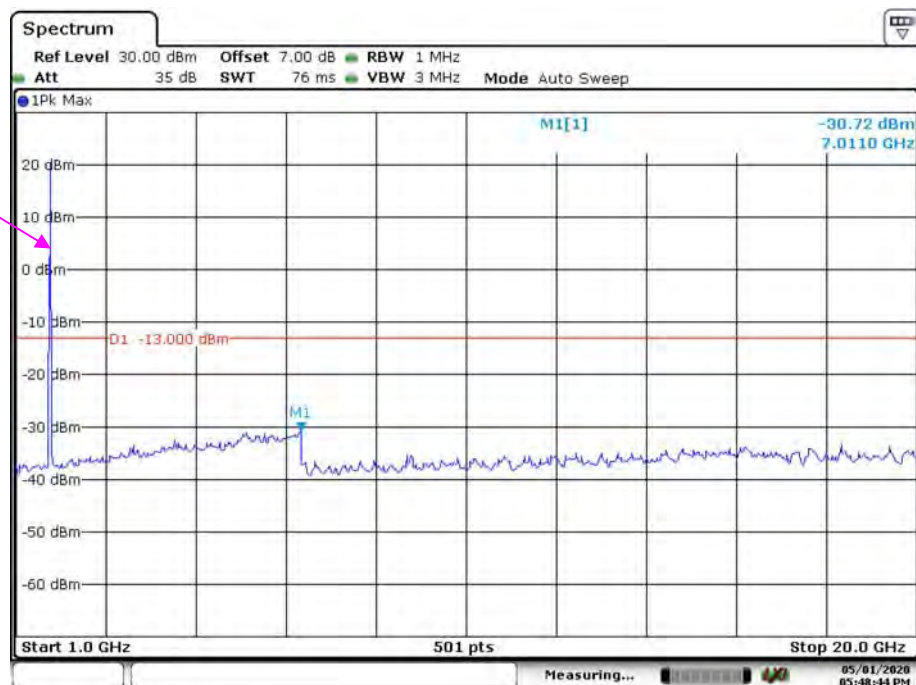


LTE Band 4, 10 MHz QPSK Full RB Middle Channel



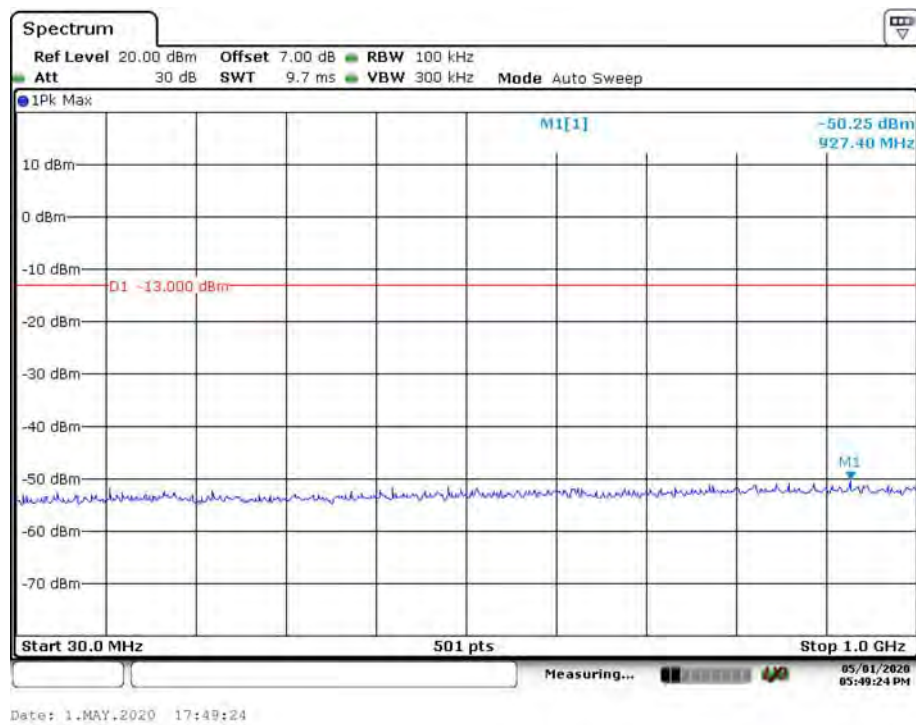
Date: 1.MAY.2020 17:48:16

Fundamental

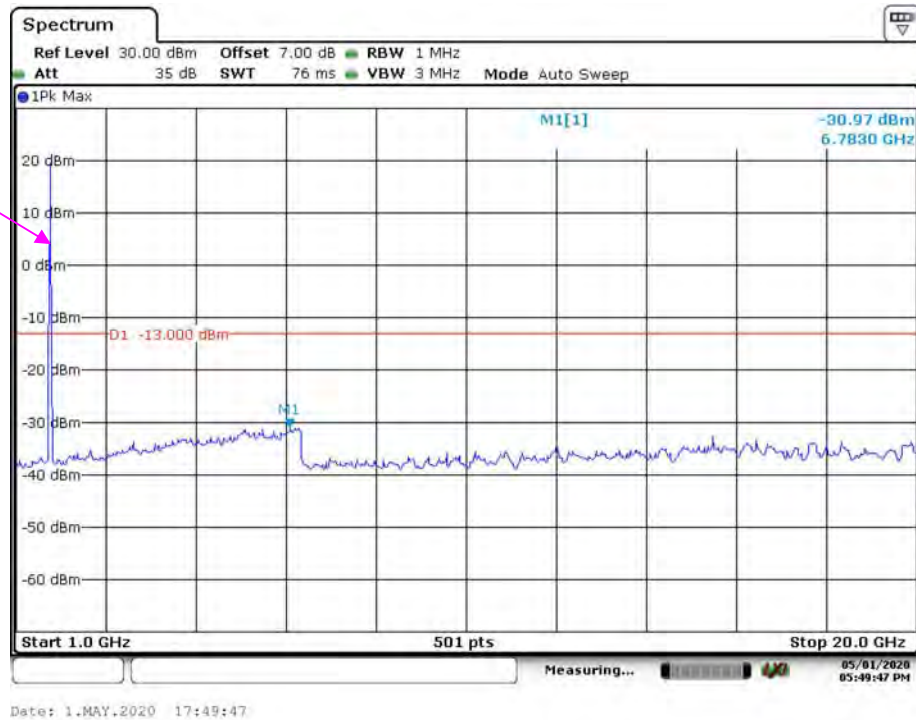


Date: 1.MAY.2020 17:48:44

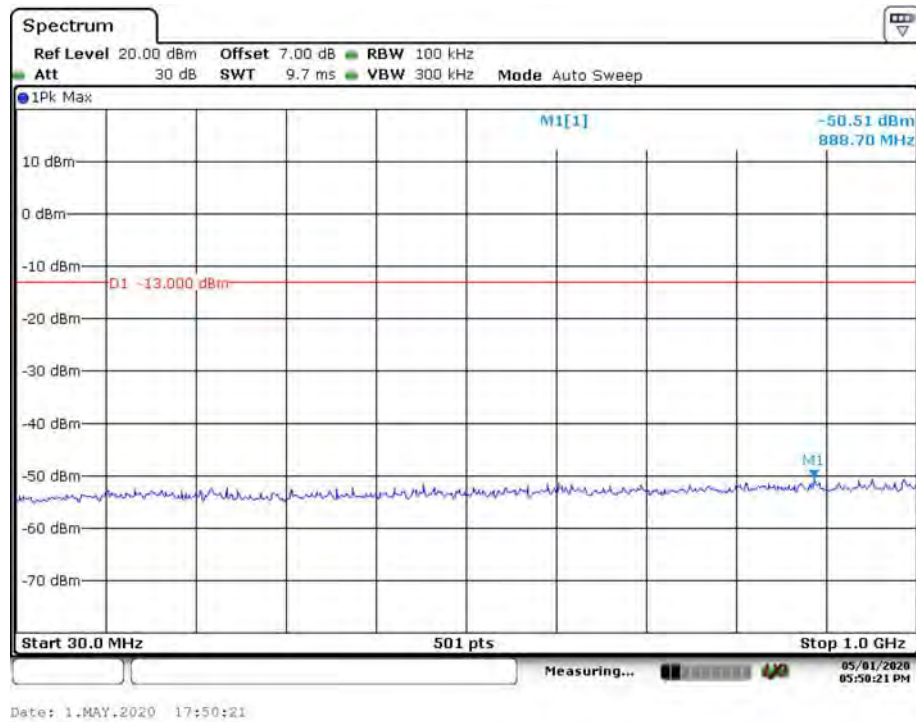
LTE Band 4, 15 MHz QPSK Full RB Middle Channel



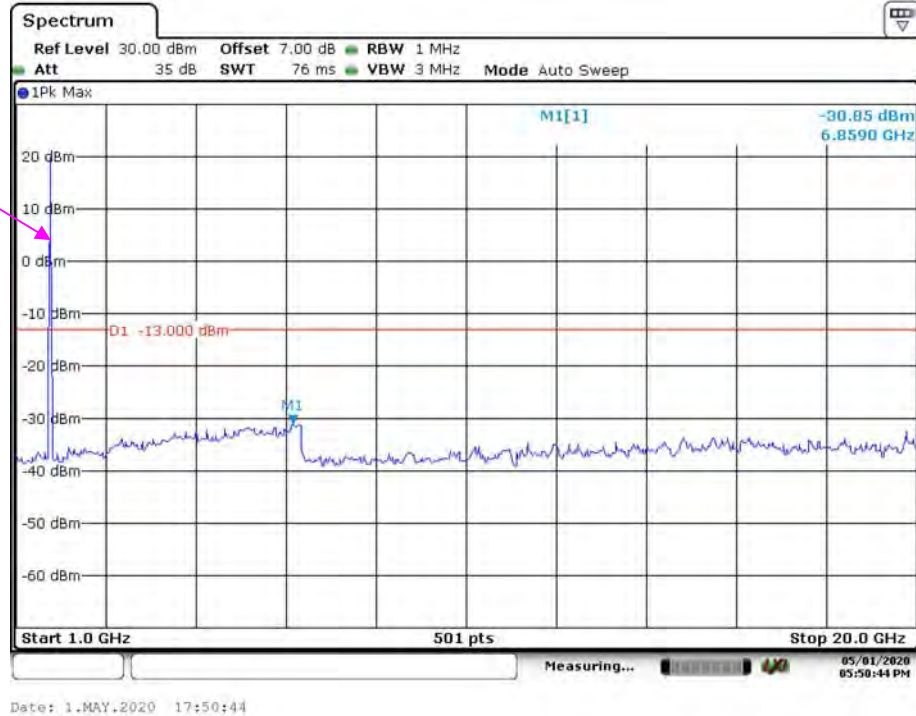
Fundamental



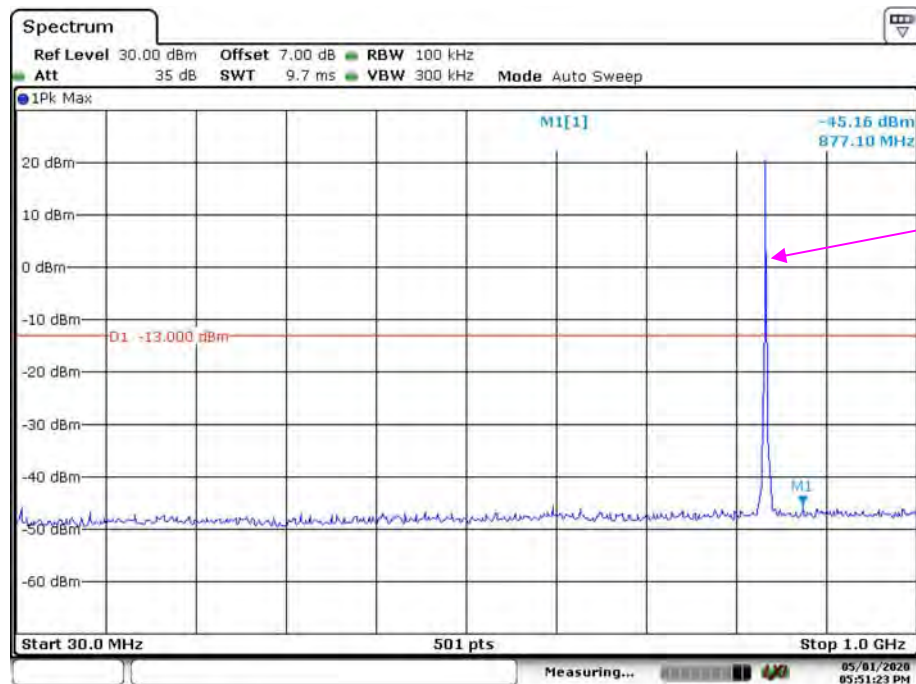
LTE Band 4, 20 MHz QPSK Full RB Middle Channel



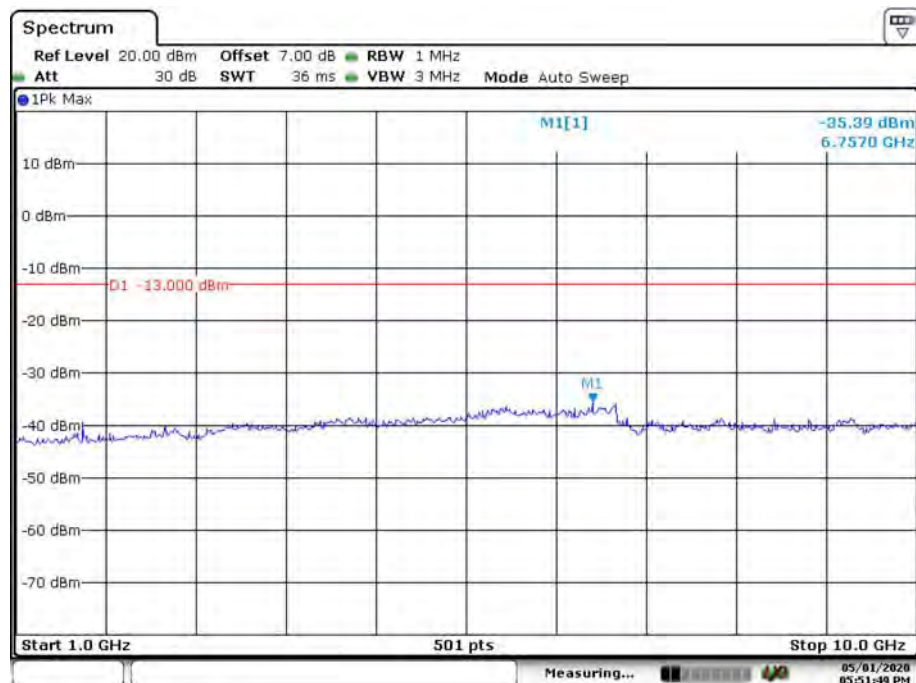
Fundamental



LTE Band 5, 1.4 MHz QPSK Full RB Middle Channel

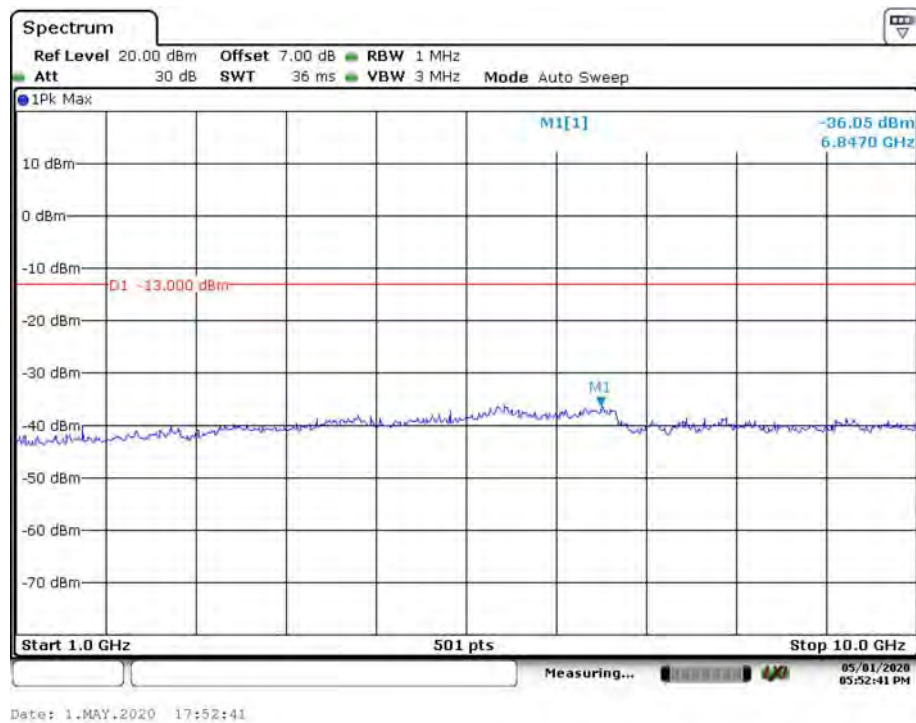
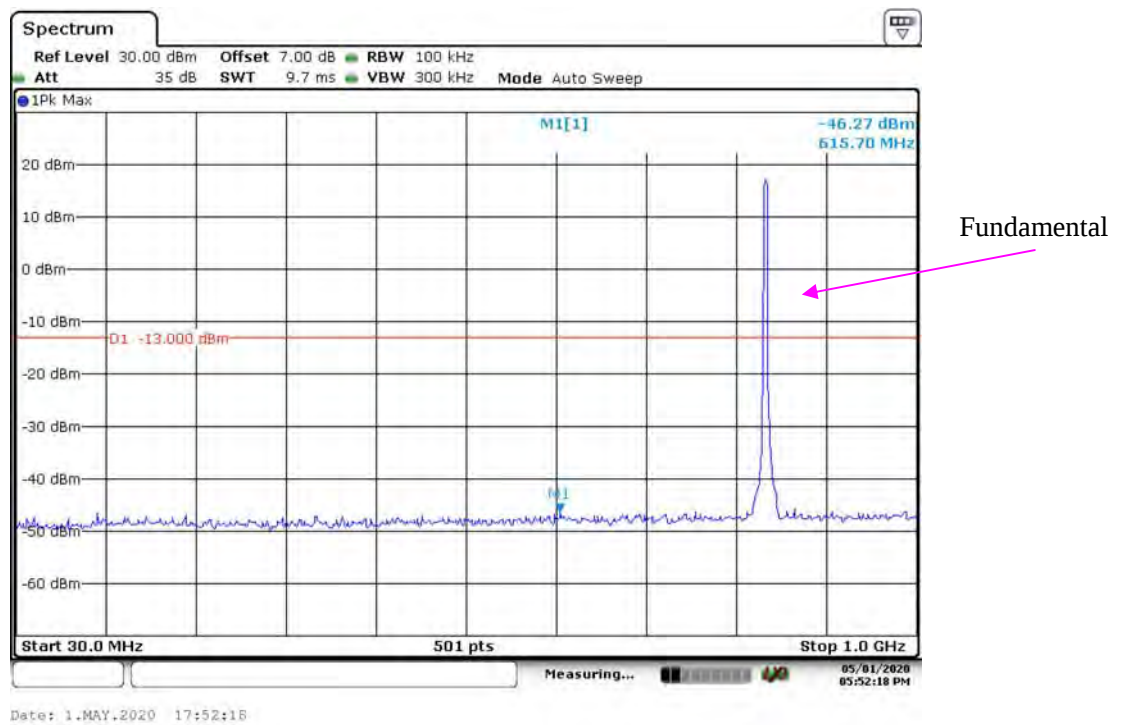


Date: 1.MAY.2020 17:51:23

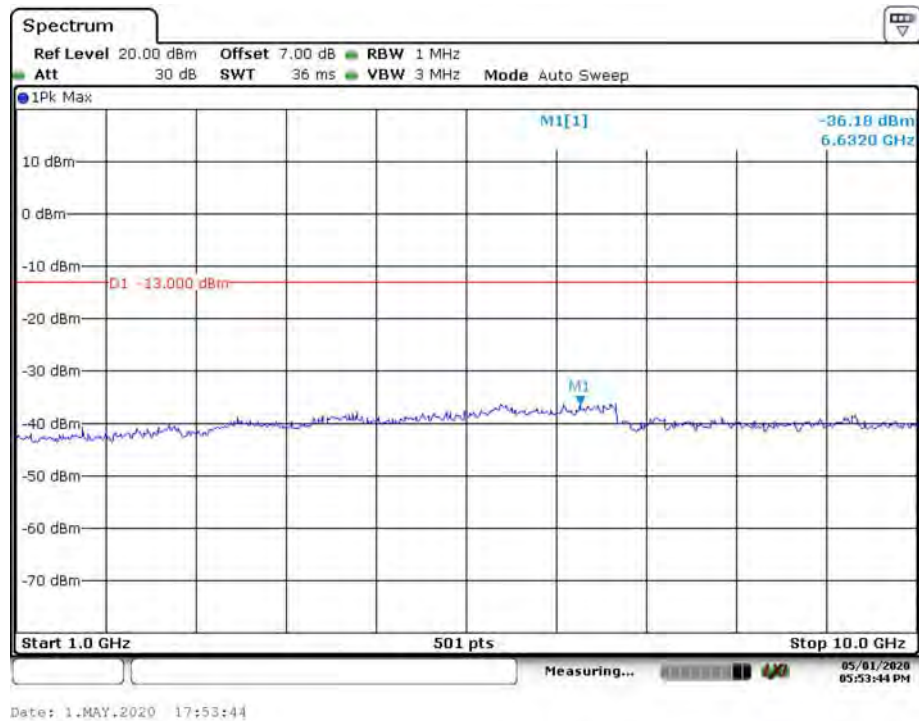
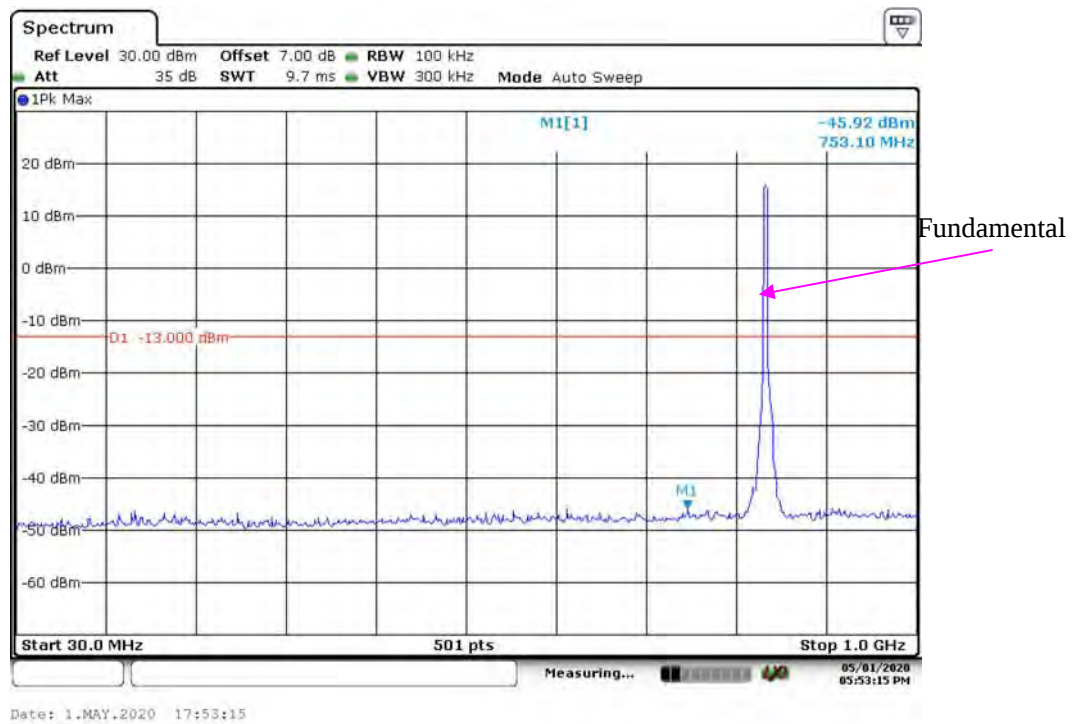


Date: 1.MAY.2020 17:51:49

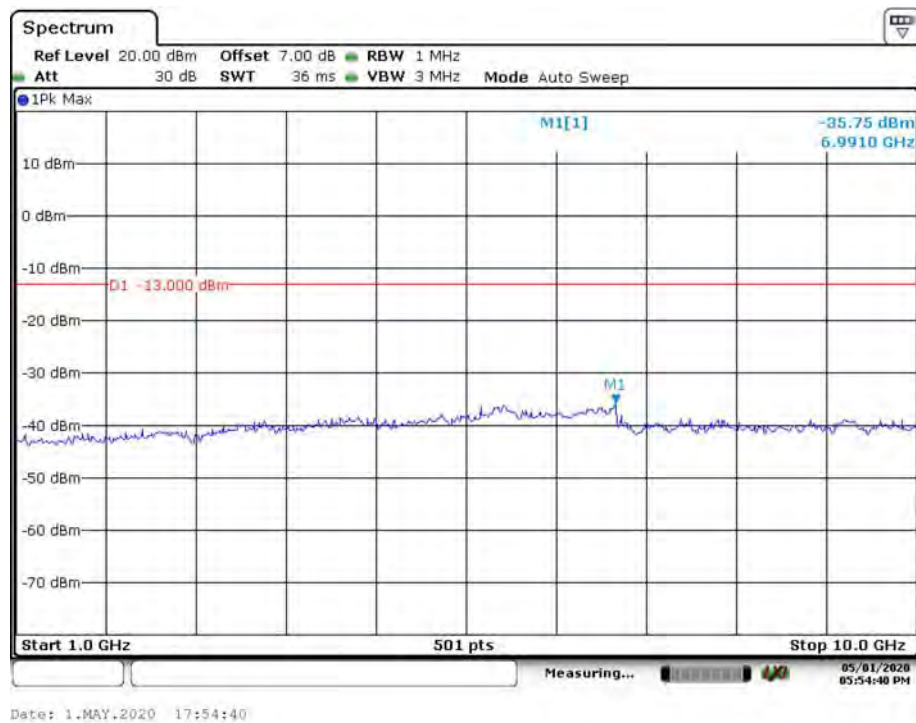
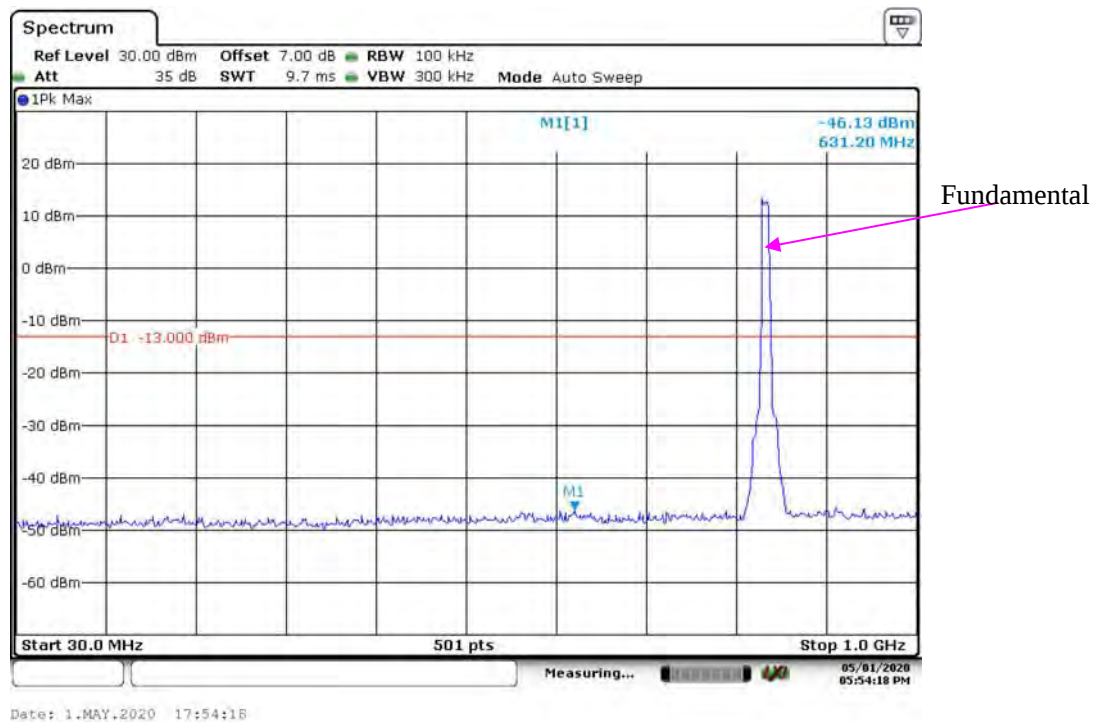
LTE Band 5, 3 MHz QPSK Full RB Middle Channel



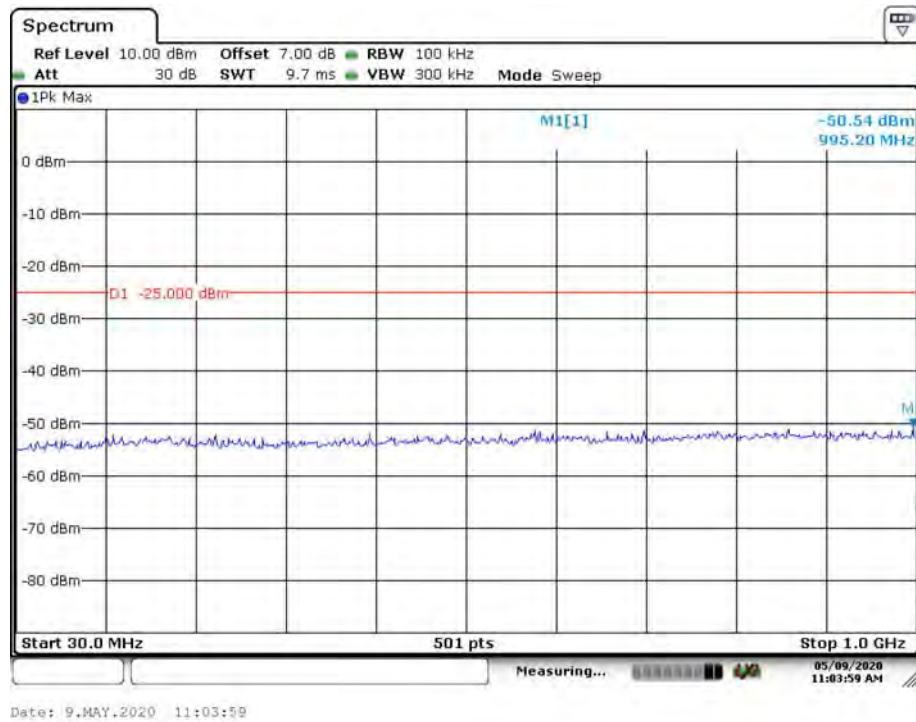
LTE Band 5, 5 MHz QPSK Full RB Middle Channel



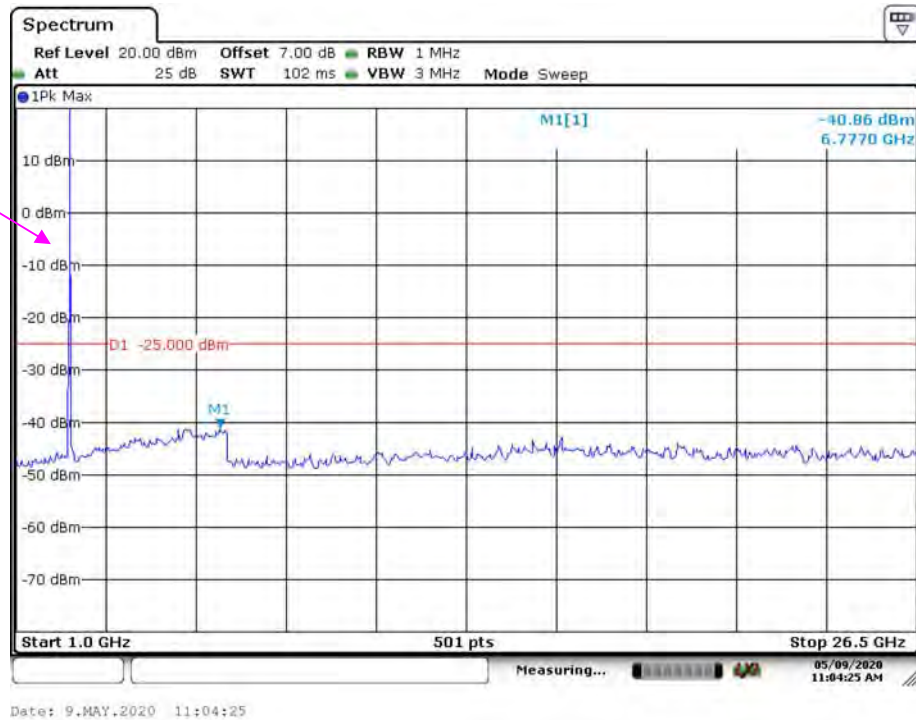
LTE Band 5, 10 MHz QPSK Full RB Middle Channel



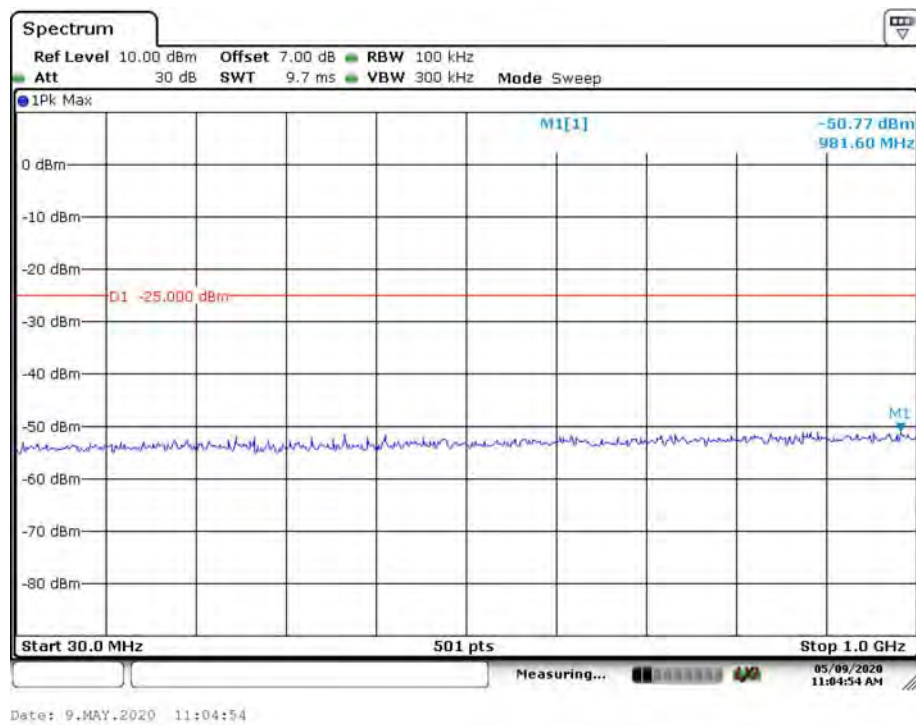
LTE Band 7, 5 MHz QPSK Full RB Middle Channel



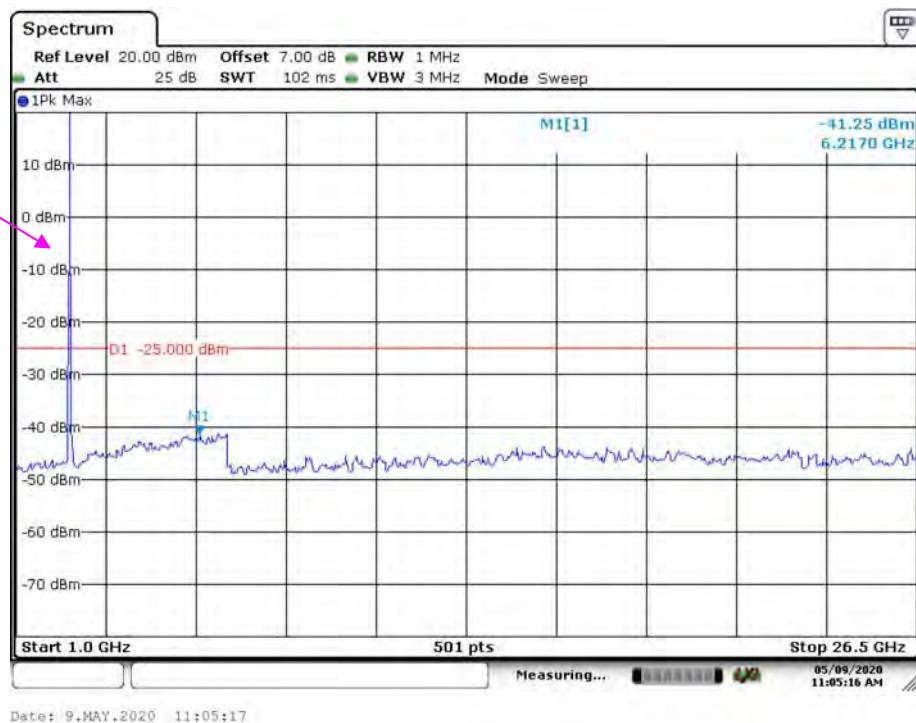
Fundamental



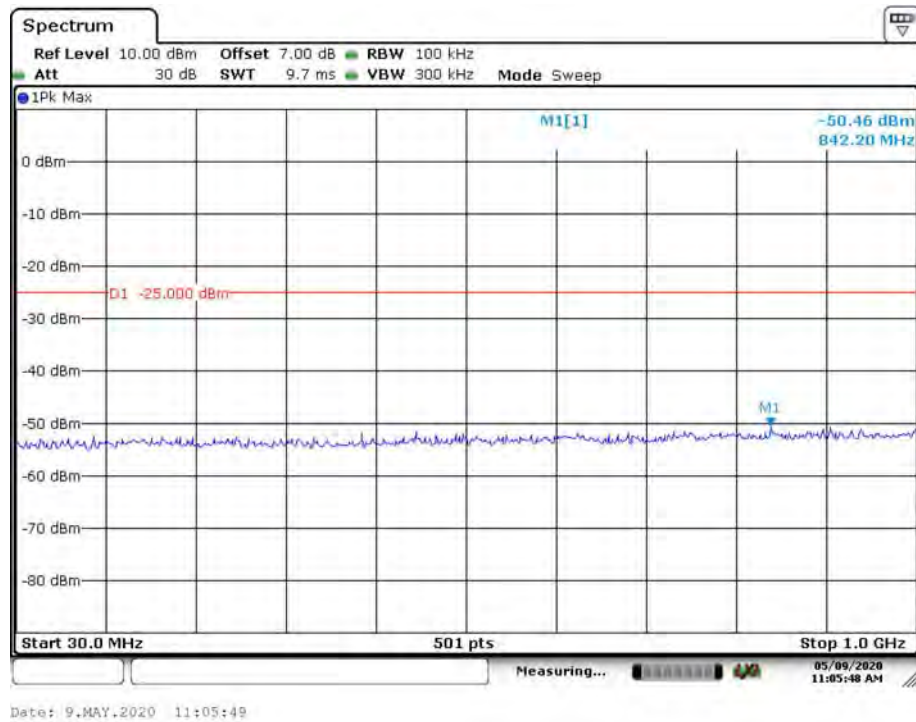
LTE Band 7, 10 MHz QPSK Full RB Middle Channel



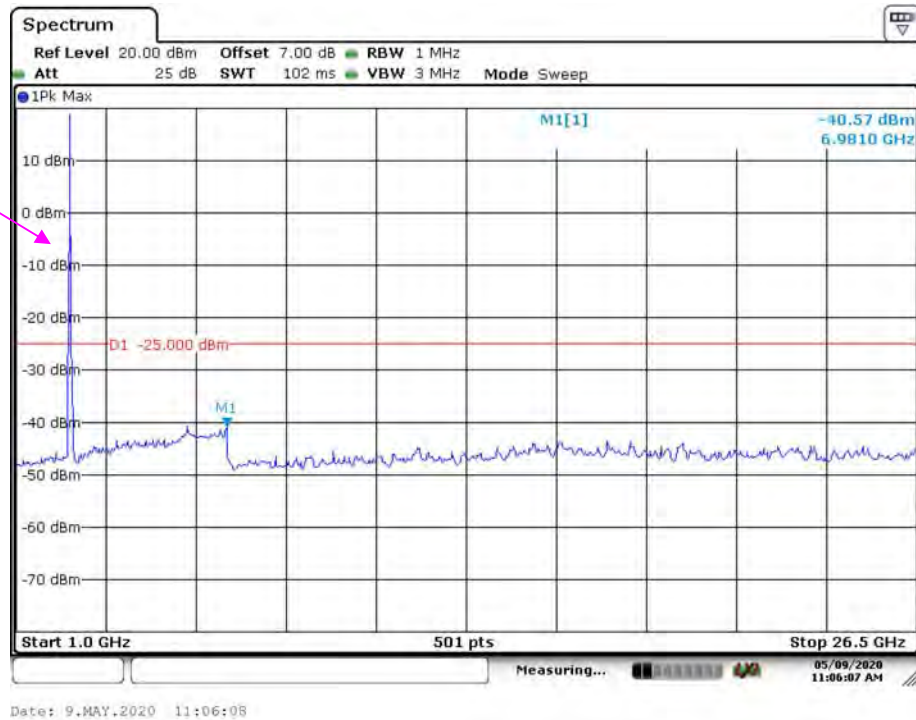
Fundamental



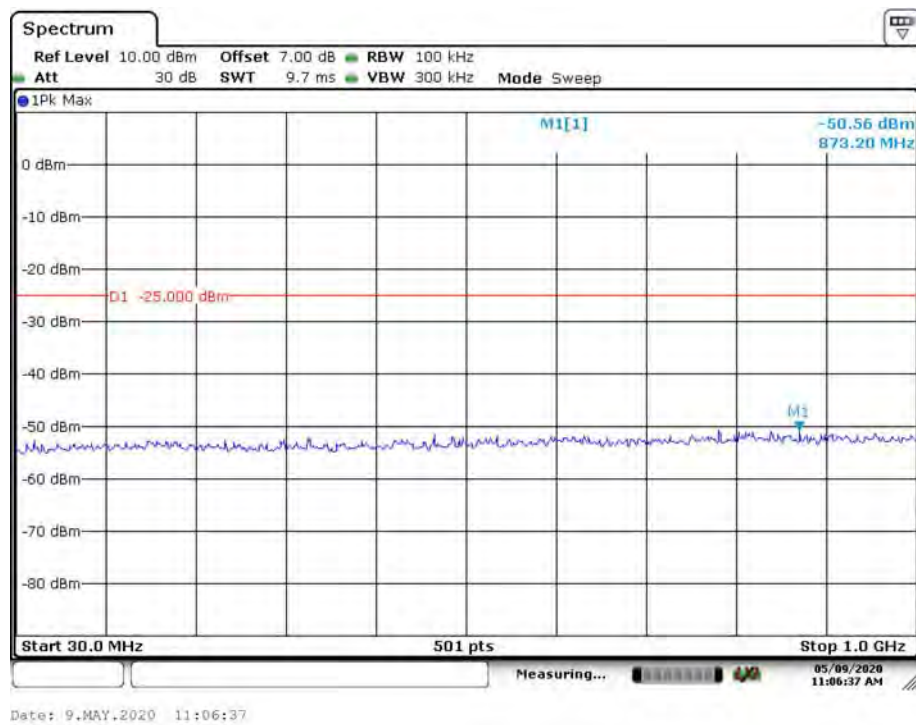
LTE Band 7, 15 MHz QPSK Full RB Middle Channel



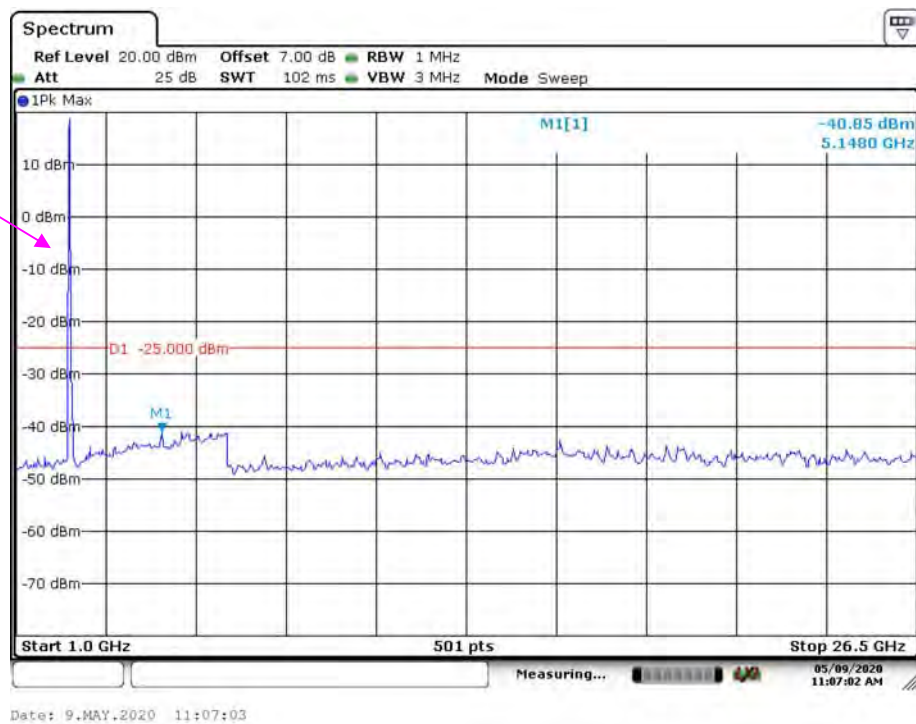
Fundamental



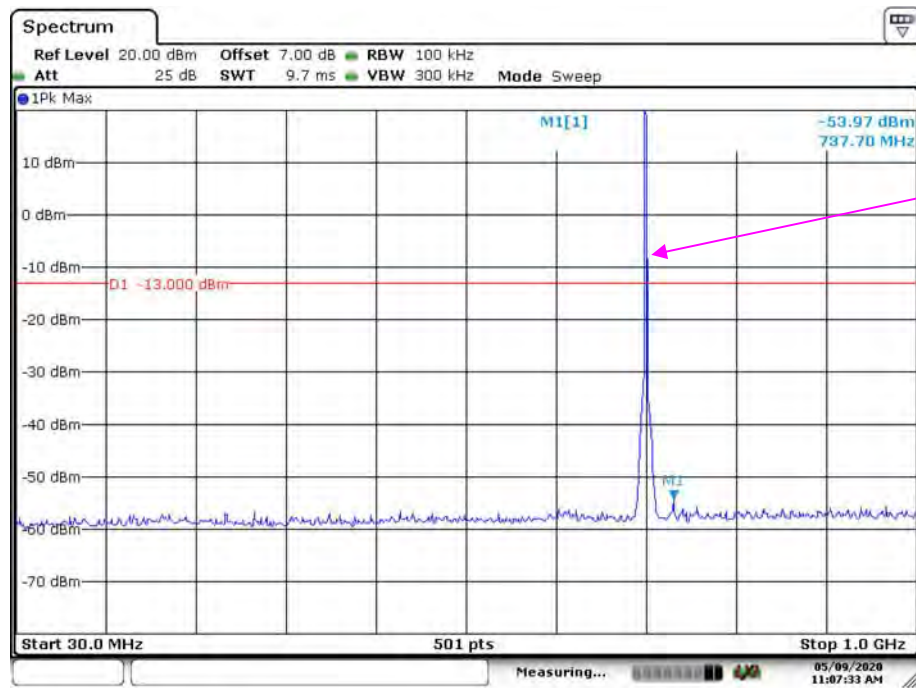
LTE Band 7, 20 MHz QPSK Full RB Middle Channel



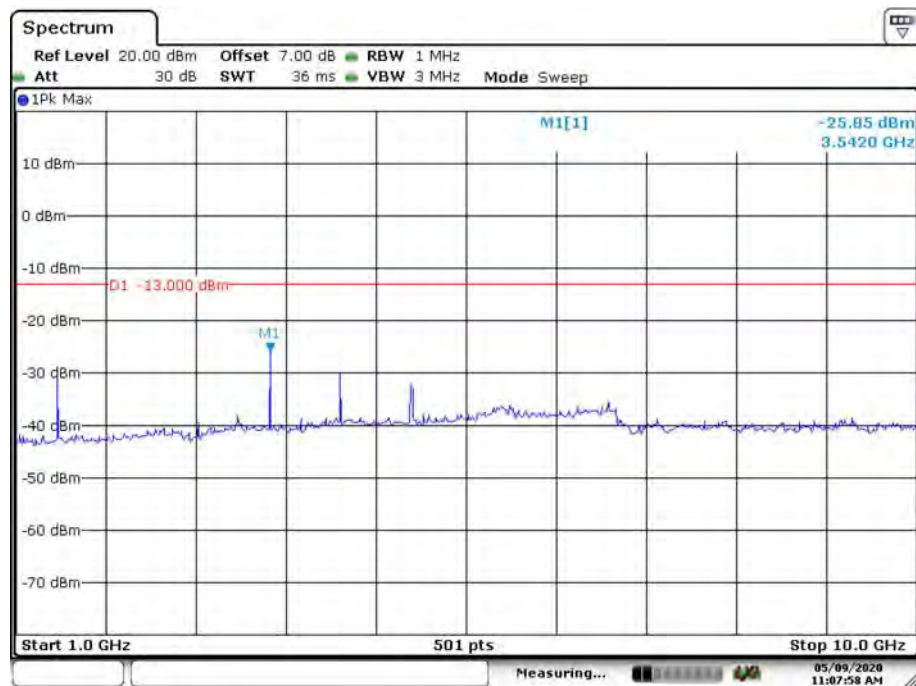
Fundamental



LTE Band 12, 1.4 MHz QPSK Full RB Middle Channel

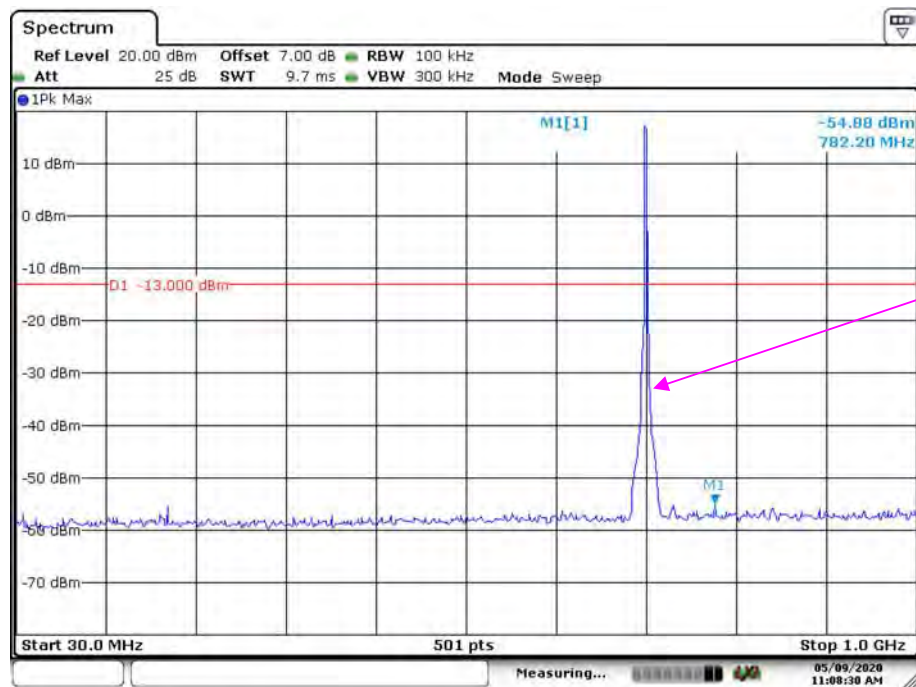


Fundamental

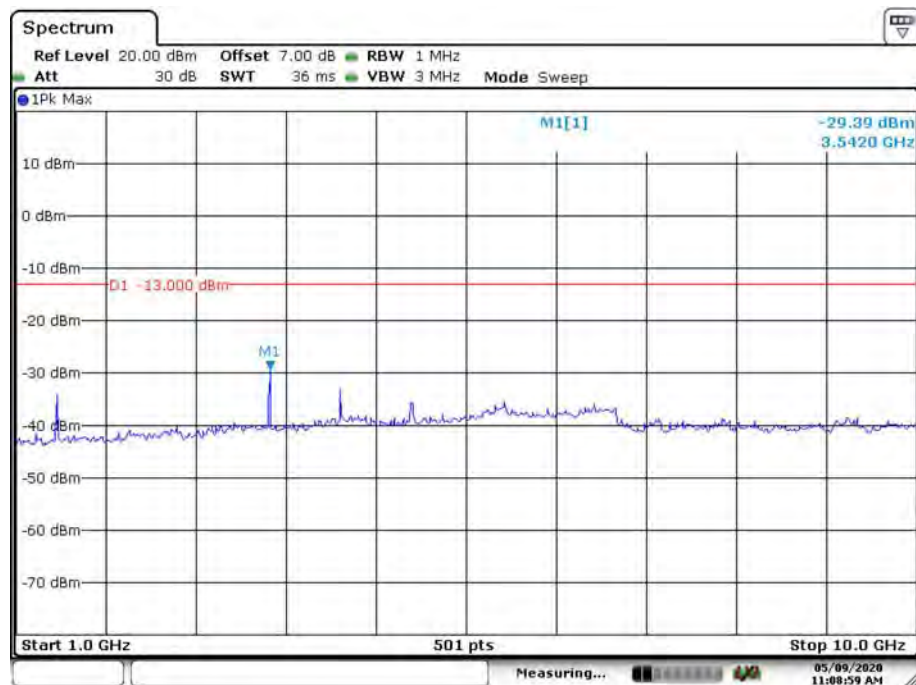


Date: 9.MAY.2020 11:07:58

LTE Band 12, 3 MHz QPSK Full RB Middle Channel

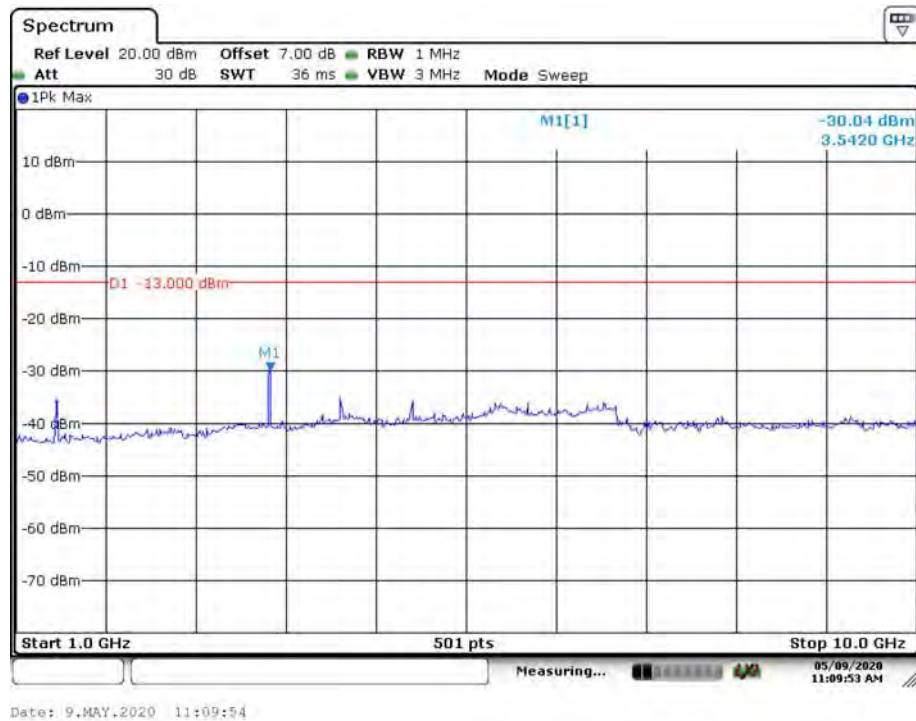
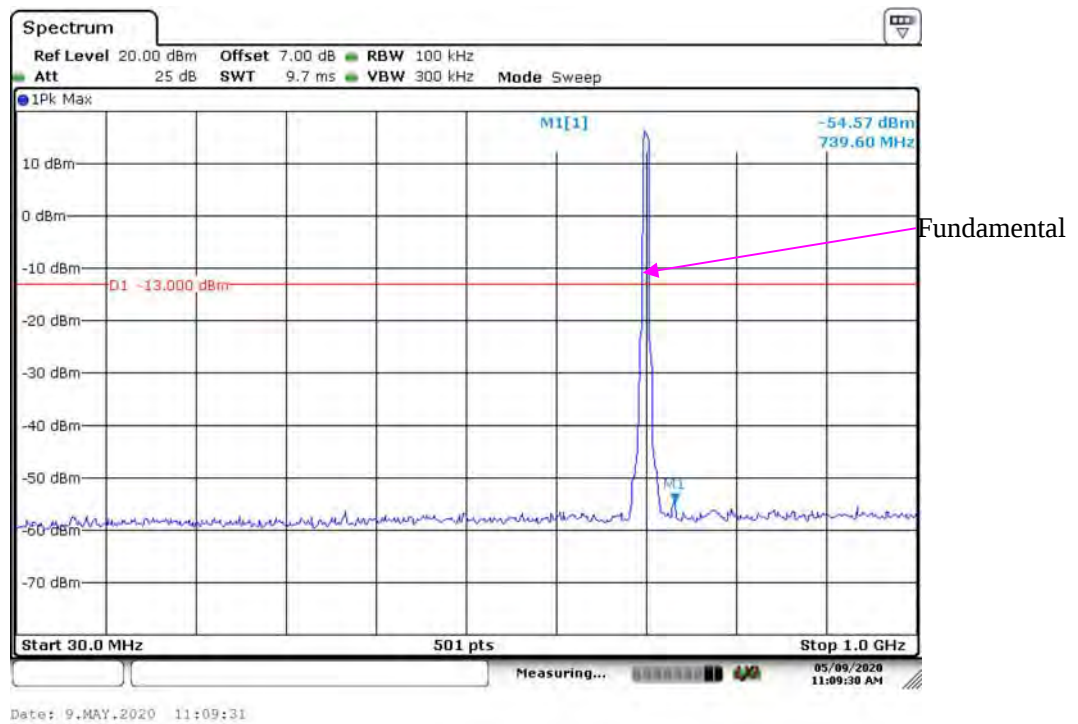


Date: 9.MAY.2020 11:08:31

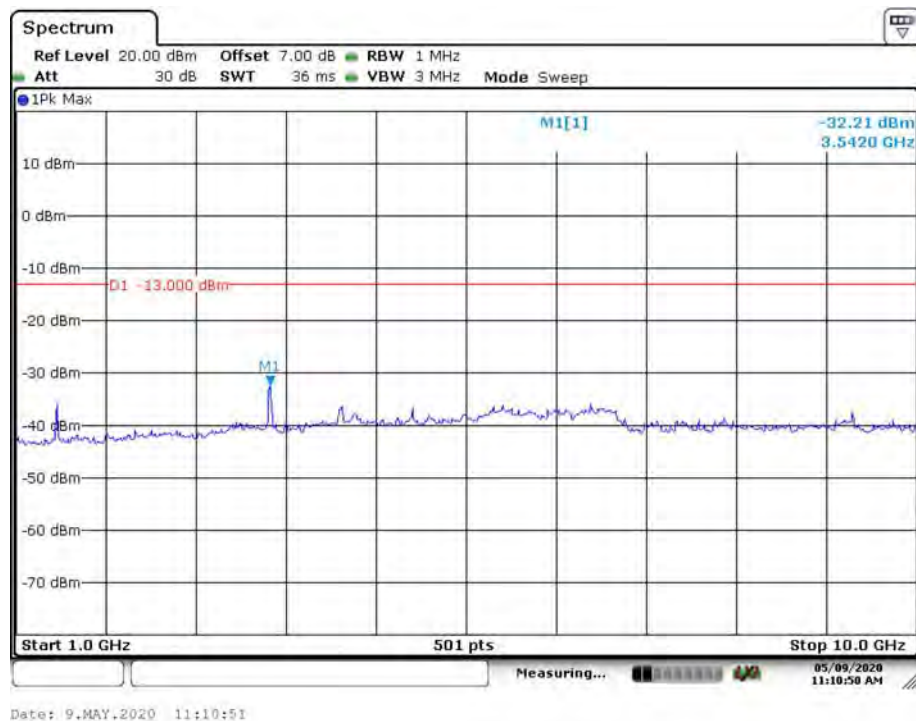
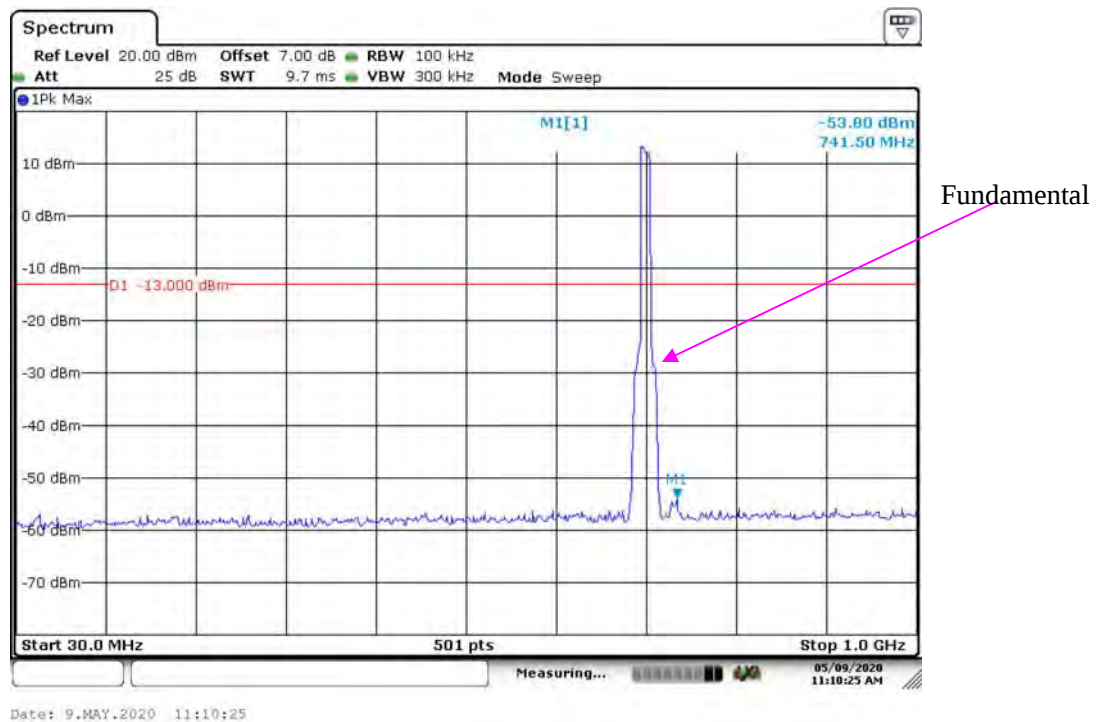


Date: 9.MAY.2020 11:08:59

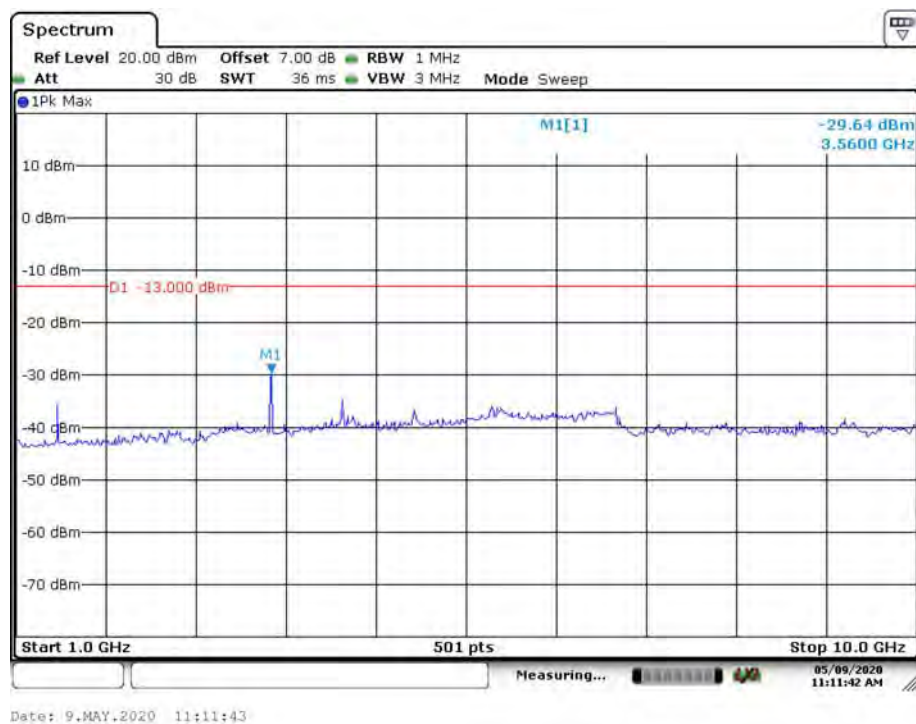
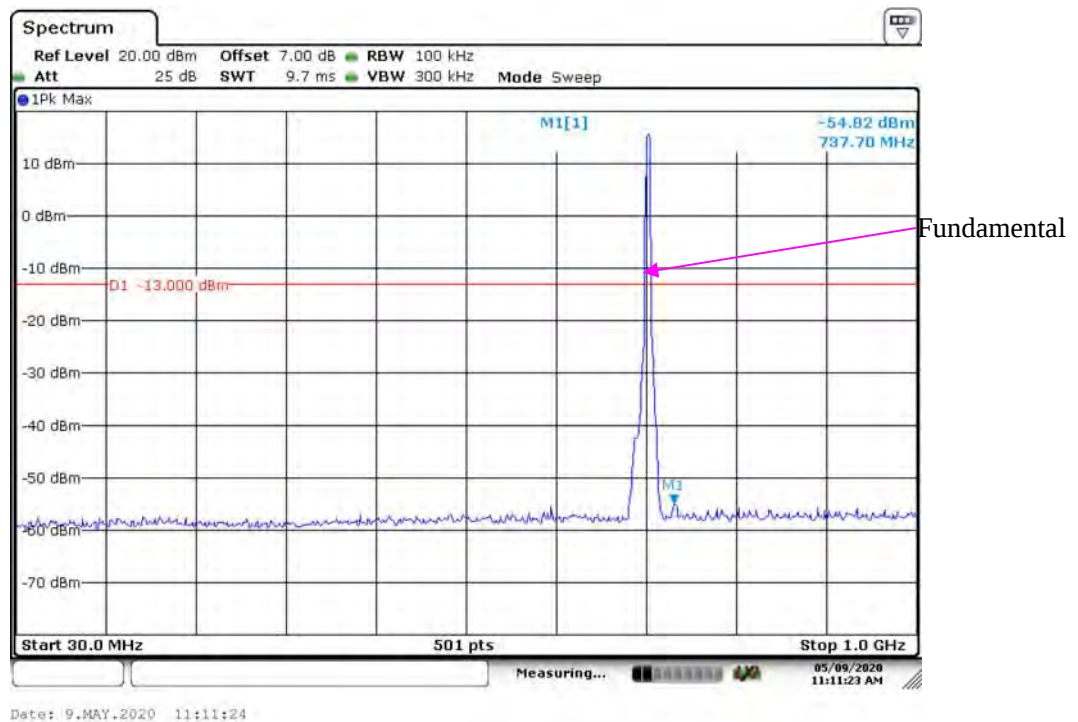
LTE Band 12, 5 MHz QPSK Full RB Middle Channel



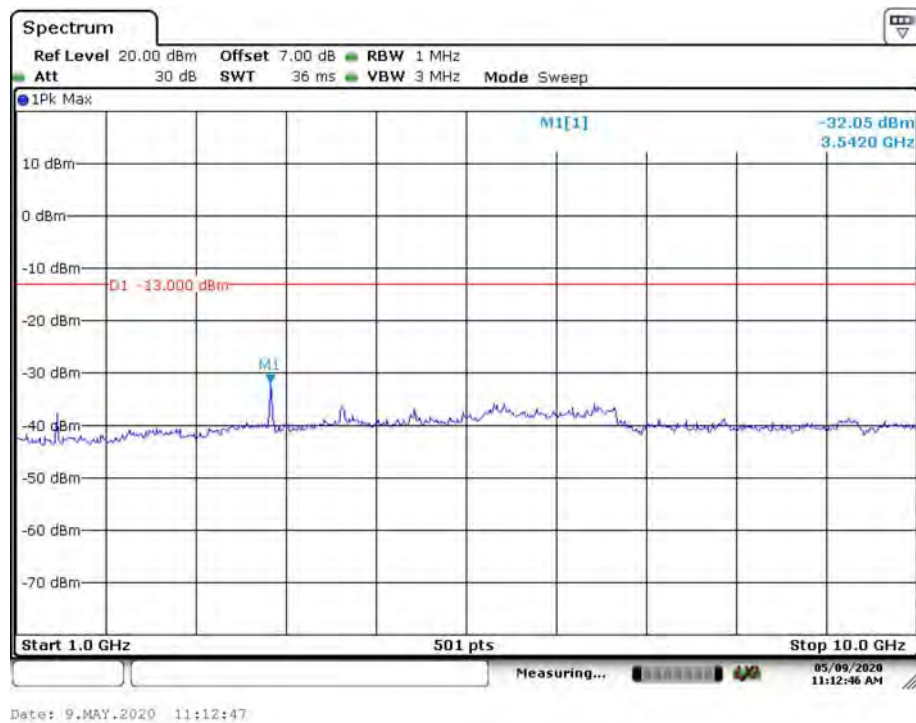
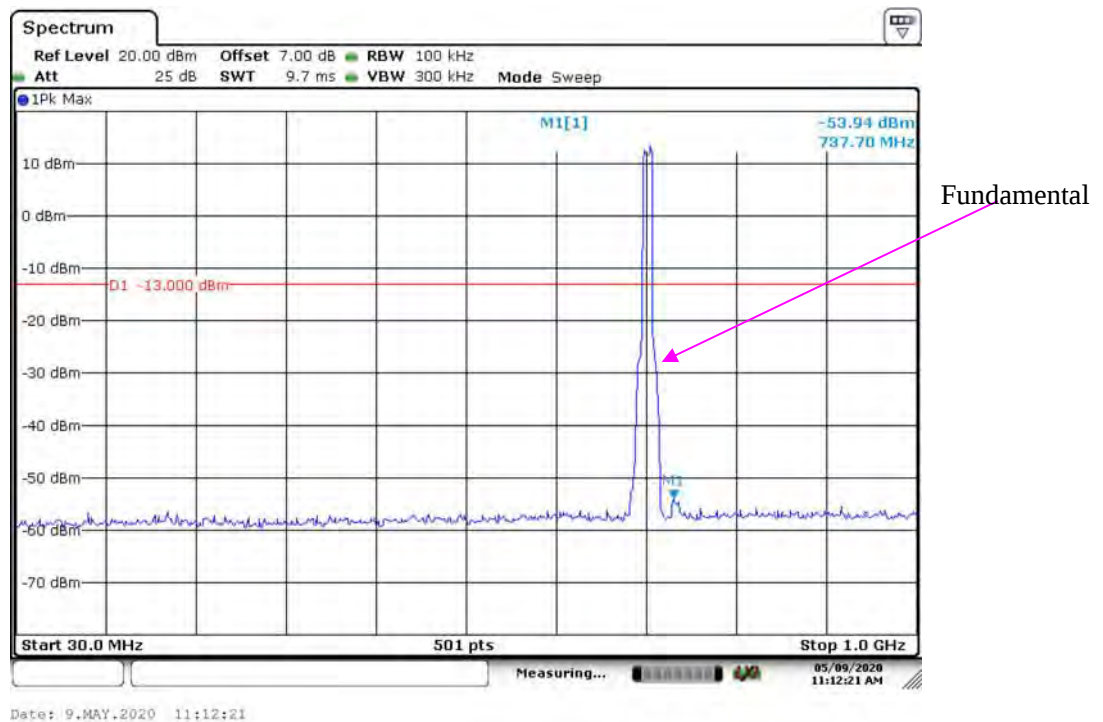
LTE Band 12, 10 MHz QPSK Full RB Middle Channel



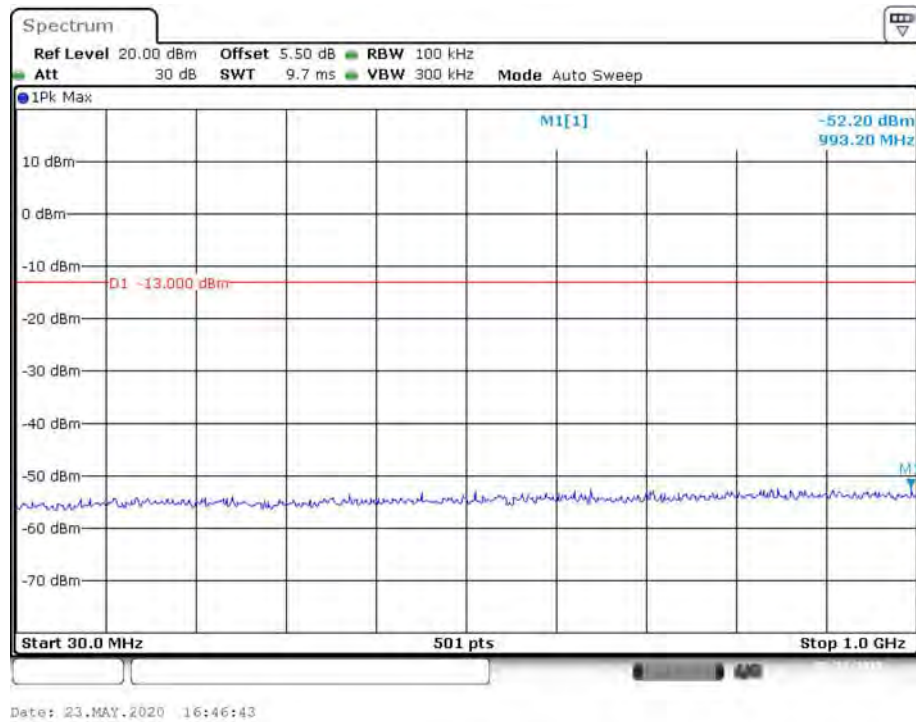
LTE Band 17, 5 MHz QPSK Full RB Middle Channel



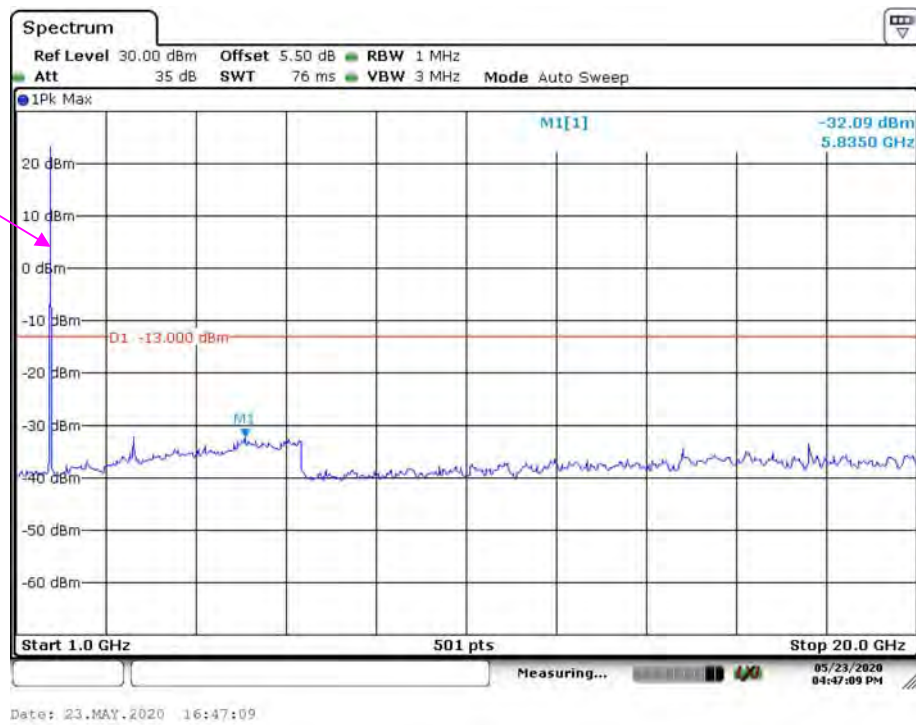
LTE Band 17, 10 MHz QPSK Full RB Middle Channel



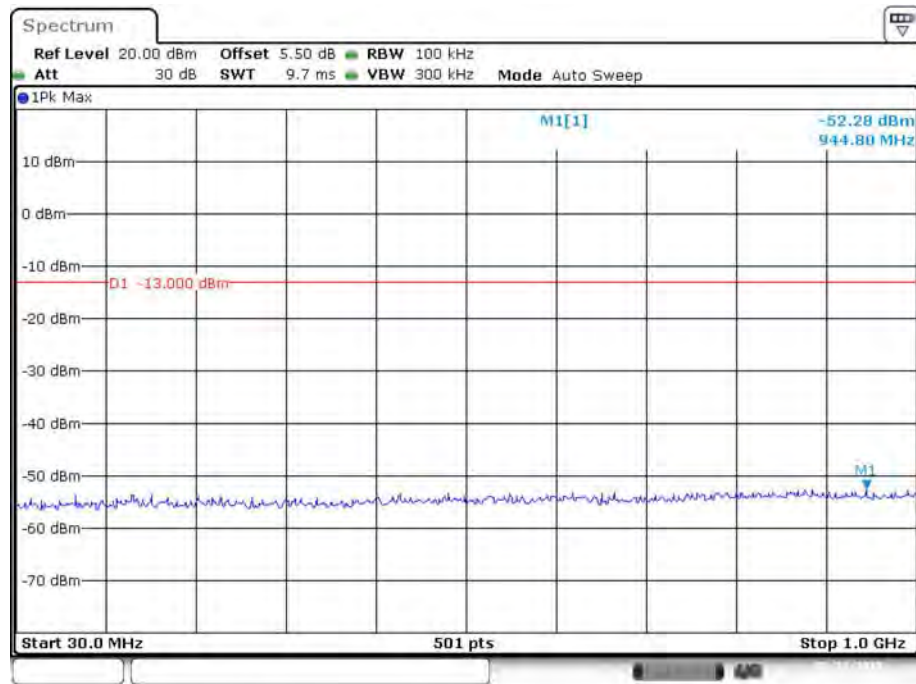
LTE Band 66, 1.4 MHz QPSK Full RB Middle Channel



Fundamental

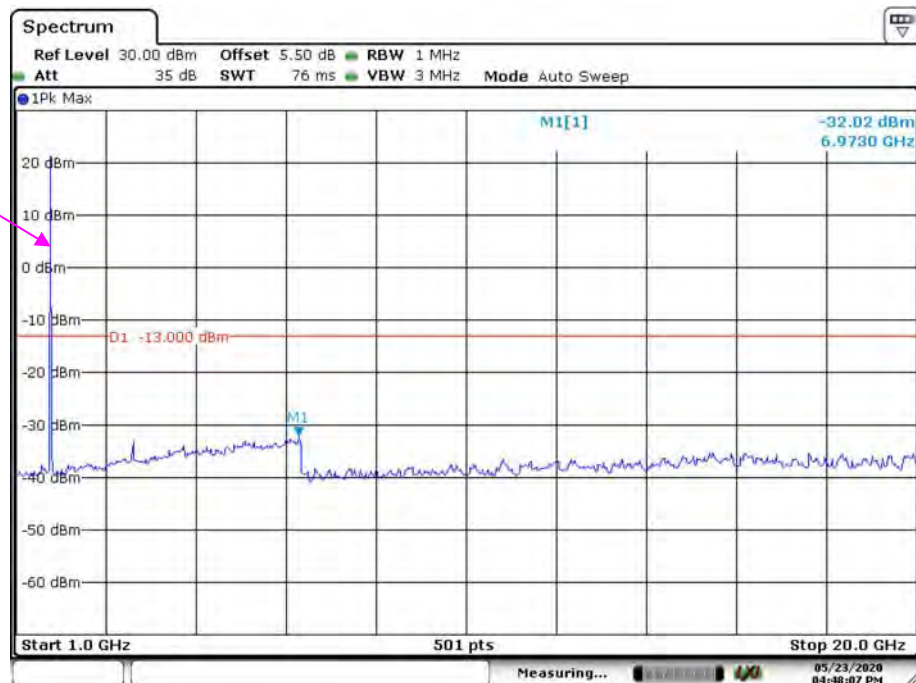


LTE Band 66,3 MHz QPSK Full RB Middle Channel



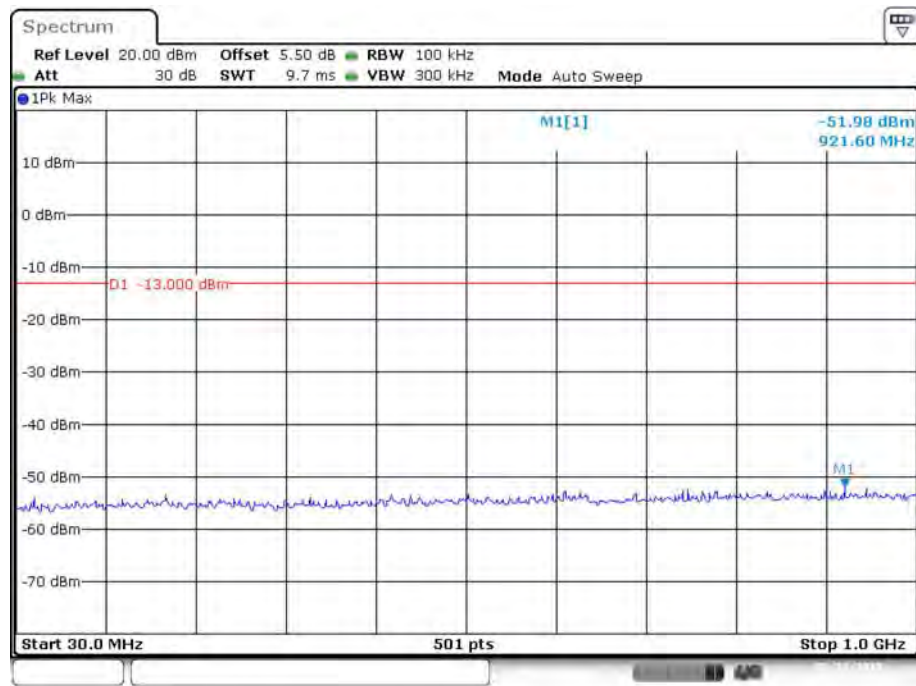
Date: 23.MAY.2020 16:47:42

Fundamental



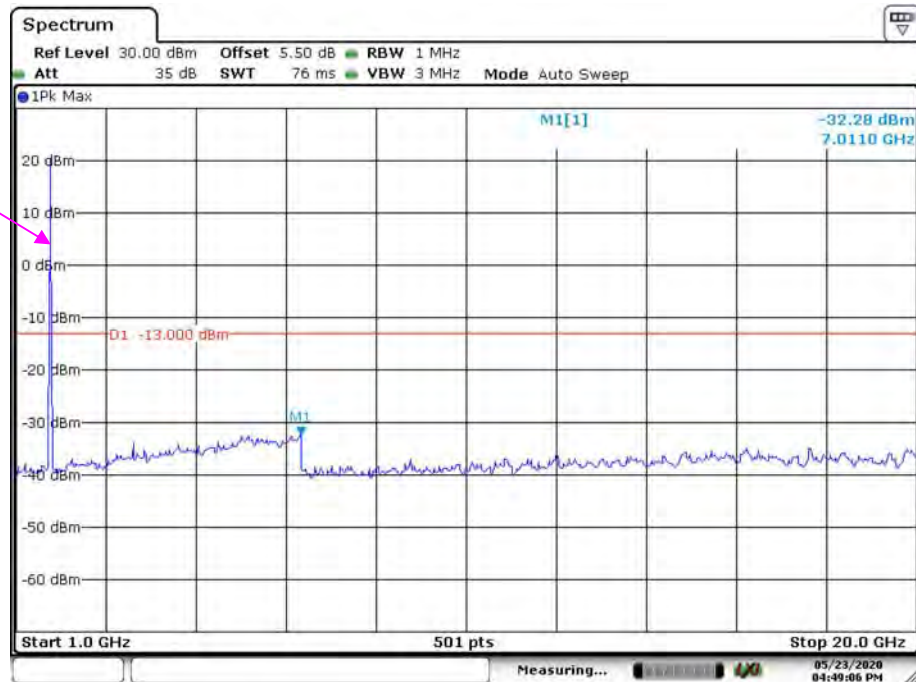
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LTE Band 66, 5 MHz QPSK Full RB Middle Channel



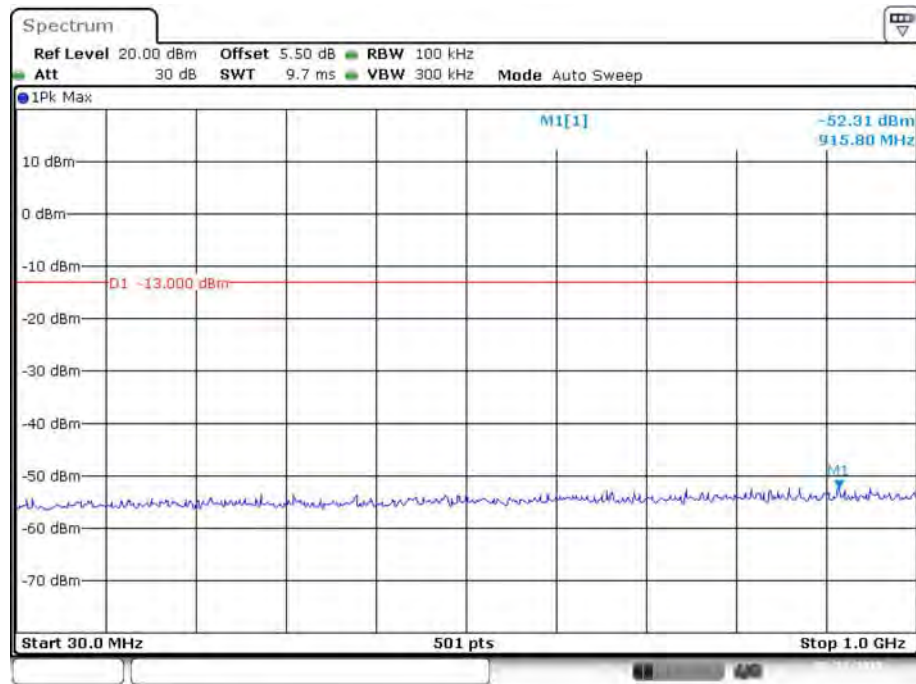
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Fundamental



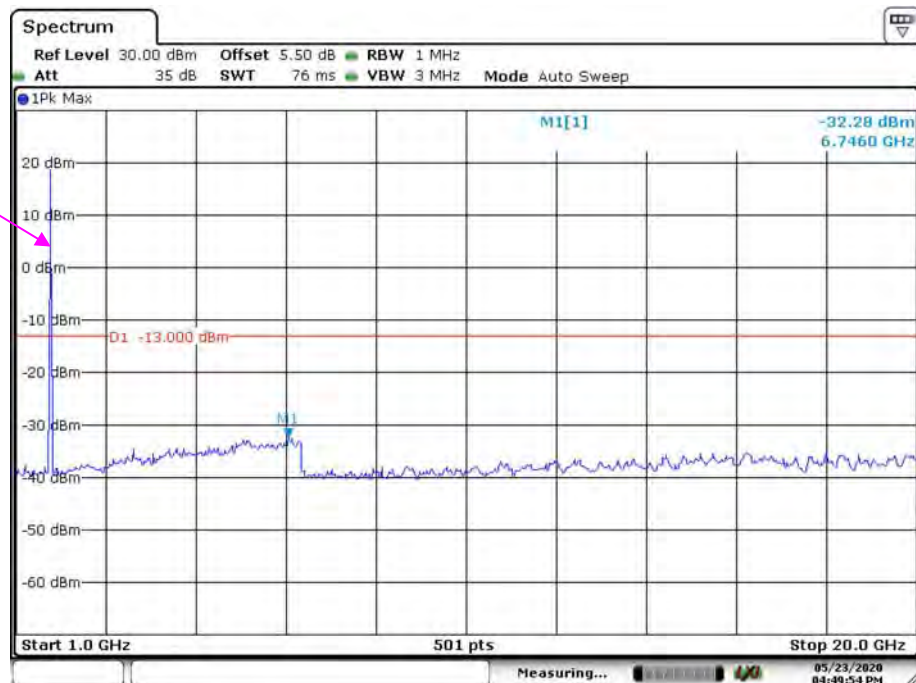
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LTE Band 66, 10 MHz QPSK Full RB Middle Channel



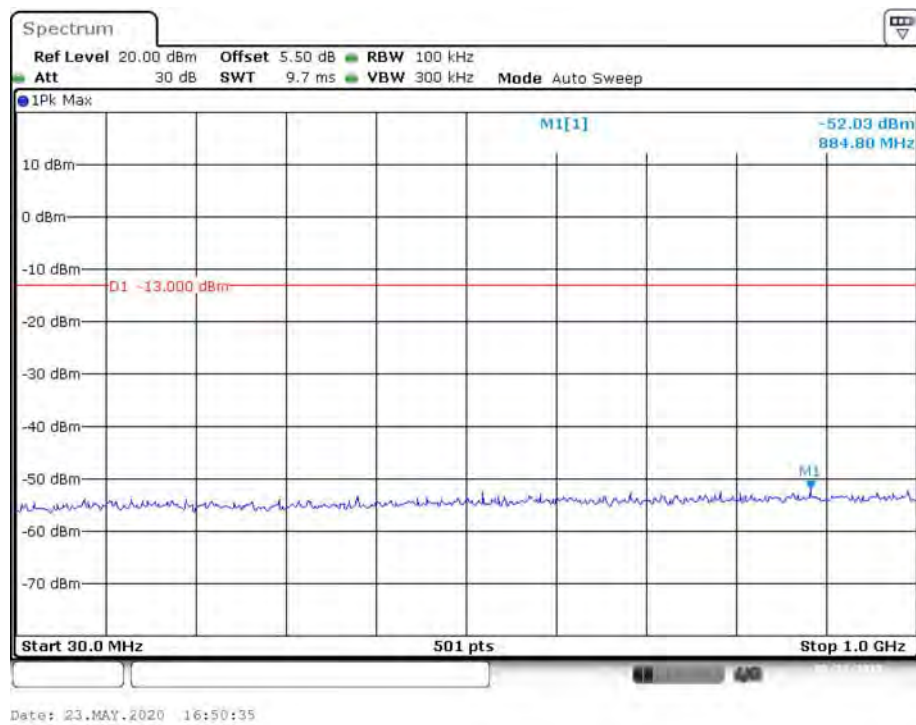
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Fundamental

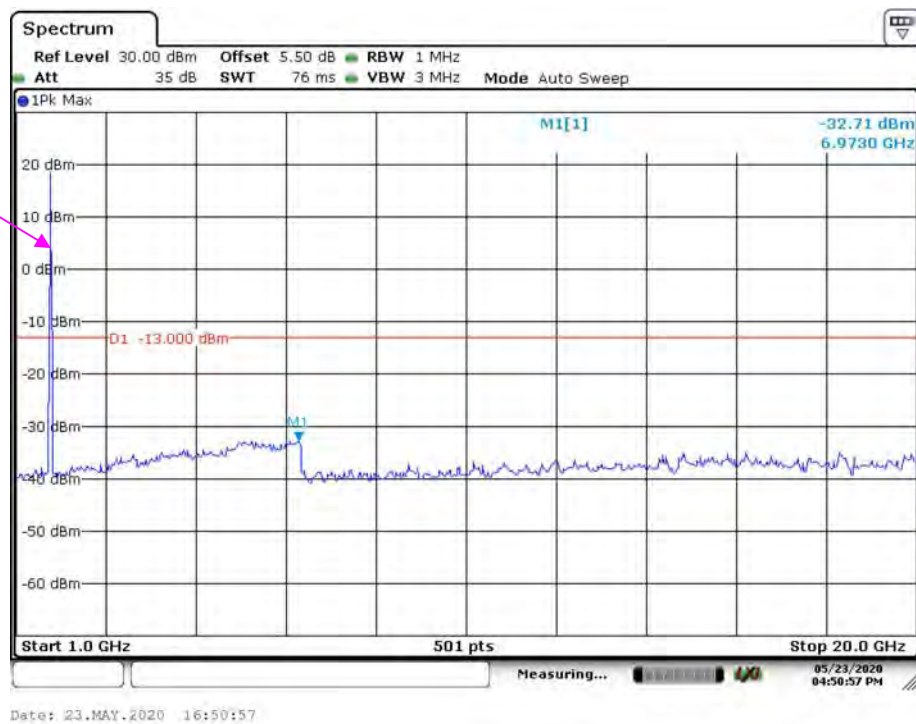


Date: 23.MAY.2020 16:49:54

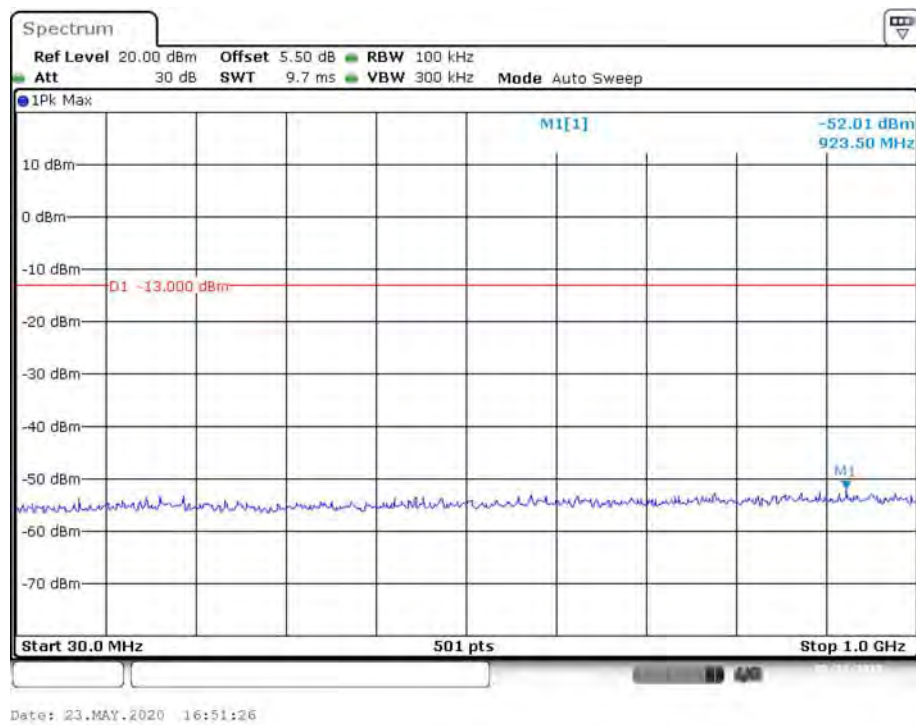
LTE Band 66, 15 MHz QPSK Full RB Middle Channel



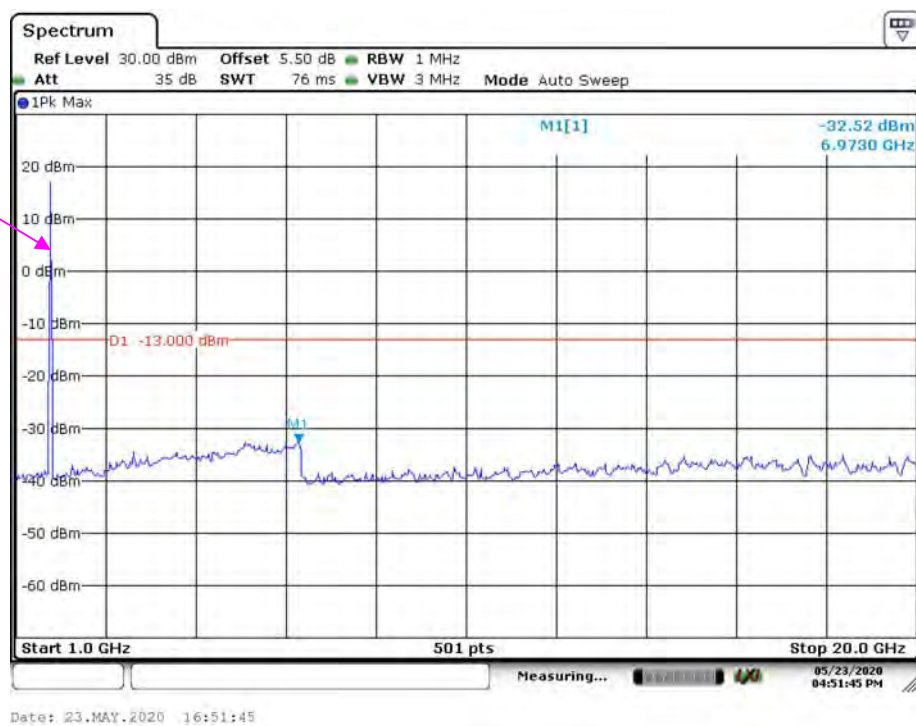
Fundamental



LTE Band 66, 20 MHz QPSK Full RB Middle Channel



Fundamental



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

Applicable Standard

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

Test Procedure

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

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

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

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

Spurious emissions in dB = $10 \lg (\text{TXpwr in Watts}/0.001)$ – the absolute level

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESR3	102453	2019-06-26	2020-06-26
Sunol Sciences	Antenna	JB3	A060611-1	2017-11-10	2020-11-10
EMCO	Adjustable Dipole Antenna	3121C	9109-753	N/A	N/A
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1400-01	2019-05-06	2020-05-06
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2019-09-05	2020-09-05
HP	Amplifier	8447D	2727A05902	2019-09-05	2020-09-05
Sinoscite	Band-stop filter	BSF824-862MS-1438-001	1438001	2019-06-16	2020-06-16
Agilent	Signal Generator	E8247C	MY43321350	2019-12-10	2020-12-10
Agilent	Spectrum Analyzer	E4440A	SG43360054	2019-05-09	2020-05-09
TDK RF	Horn Antenna	HRN-0118	130 084	2018-10-12	2021-10-12
ETS-Lindgren	Horn Antenna	3115	000 527 35	2018-10-12	2021-10-12
Unknown	Coaxial Cable	C-SJSJ-50	C-0800-01	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2019-09-05	2020-09-05
MITEQ	Amplifier	AFS42-00101800-25-S-42	2001271	2019-09-05	2020-09-05
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 Technologies	Horn Antenna	ARH-4223-02	1007726-01 1304	2017-12-06	2020-12-05
Ducommun Technologies	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:	25.2 °C	25.2 °C
Relative Humidity:	53%	53%
ATM Pressure:	100.5 kPa	100.5 kPa
Tester:	Bond Qin	Bond Qin
Test Date:	2020-05-08	2020-05-08

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)			
GSM850, Frequency:836.600 MHz								
1673.200	H	68.29	-35.65	10.6	0.73	-25.8	-13.0	12.8
1673.200	V	69.79	-34.75	10.6	0.73	-24.9	-13.0	11.9
2509.800	H	52.55	-50.36	13.1	1.25	-38.5	-13.0	25.5
2509.800	V	51.53	-51.41	13.1	1.25	-39.6	-13.0	26.6
3346.400	H	59.02	-40.66	13.8	1.61	-28.4	-13.0	15.4
3346.400	V	58.25	-41.47	13.8	1.61	-29.3	-13.0	16.3
597.800	H	46.31	-56.19	0.0	0.36	-56.6	-13.0	43.6
597.800	V	57.21	-42.86	0.0	0.36	-43.2	-13.0	30.2
WCDMA Band V, Frequency:836.600 MHz								
1673.200	H	55.86	-48.08	10.6	0.73	-38.2	-13.0	25.2
1673.200	V	56.33	-48.21	10.6	0.73	-38.3	-13.0	25.3
2509.800	H	54.12	-48.79	13.1	1.25	-36.9	-13.0	23.9
2509.800	V	47.04	-55.9	13.1	1.25	-44.0	-13.0	31.0
3346.400	H	55.35	-44.33	13.8	1.61	-32.1	-13.0	19.1
3346.400	V	53.46	-46.26	13.8	1.61	-34.0	-13.0	21.0
99.500	H	43.28	-68.25	0.0	0.1	-68.4	-13.0	55.4
46.100	V	50.95	-41.98	-18.7	0.19	-60.9	-13.0	47.9

PCS Band (PART 24E)

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)			
GSM1900, Frequency:1880.000 MHz								
3760.000	H	45.55	-52.09	13.8	1.63	-40.0	-13.0	27.0
3760.000	V	45.57	-51.93	13.8	1.63	-39.8	-13.0	26.8
5640.000	H	34.83	-58.76	14.0	1.31	-46.1	-13.0	33.1
5640.000	V	34.46	-59.02	14.0	1.31	-46.3	-13.0	33.3
896.800	H	47.40	-48.29	0.0	0.51	-48.8	-13.0	35.8
597.800	V	55.18	-44.89	0.0	0.36	-45.3	-13.0	32.3
WCDMA Band II, Frequency:1880.000 MHz								
3760.000	H	54.54	-43.1	13.8	1.63	-31.0	-13.0	18.0
3760.000	V	55.83	-41.67	13.8	1.63	-29.5	-13.0	16.5
5640.000	H	43.05	-50.54	14.0	1.31	-37.8	-13.0	24.8
5640.000	V	44.71	-48.77	14.0	1.31	-36.1	-13.0	23.1
710.100	H	37.43	-63.23	0.0	0.39	-63.6	-13.0	50.6
56.000	V	46.70	-54.55	-12.1	0.18	-66.9	-13.0	53.9

AWS Band(Part 27)**30 MHz-20 GHz:**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
GSM1900, Frequency:1732.600 MHz								
3465.200	H	57.60	-43.37	12.2	1.6	-32.8	-13.0	19.8
3465.200	V	59.39	-40.17	12.2	1.6	-29.6	-13.0	16.6
5197.800	H	35.12	-60.96	12.9	1.36	-49.4	-13.0	36.4
5197.800	V	35.96	-60.09	12.9	1.36	-48.5	-13.0	35.5
707.300	H	37.24	-63.99	0.0	0.94	-64.9	-13.0	51.9
56.000	V	45.82	-59.17	-12.1	0.22	-71.5	-13.0	58.5

LTE Band 2 (30MHz-20GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK,Frequency:1880.000 MHz								
3760.00	H	36.46	-61.18	13.76	1.63	-49.05	-13.00	36.05
3760.00	V	37.62	-59.88	13.76	1.63	-47.75	-13.00	34.75
5640.00	H	34.49	-59.10	14.02	1.31	-46.39	-13.00	33.39
5640.00	V	34.84	-58.64	14.02	1.31	-45.93	-13.00	32.93
161.30	H	38.45	-68.82	0.00	0.40	-69.22	-13.00	56.22
41.90	V	39.49	-49.90	-23.89	0.21	-74.00	-13.00	61.00

LTE Band 4 (30MHz-20GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK,Frequency:1732.500 MHz								
3465.00	H	39.48	-59.71	13.91	1.62	-47.42	-13.00	34.42
3465.00	V	37.19	-62.03	13.91	1.62	-49.74	-13.00	36.74
5197.50	H	36.03	-58.66	14.00	1.52	-46.18	-13.00	33.18
5197.50	V	36.29	-58.47	14.00	1.52	-45.99	-13.00	32.99
37.70	H	49.50	-41.57	-25.30	0.22	-67.09	-13.00	54.09
51.80	V	41.29	-61.18	-14.07	0.21	-75.46	-13.00	62.46

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	42.62	-61.32	10.61	0.73	-51.44	-13.00	38.44
1673.00	V	41.18	-63.36	10.61	0.73	-53.48	-13.00	40.48
2509.50	H	51.89	-51.02	13.11	1.25	-39.16	-13.00	26.16
2509.50	V	50.94	-52.00	13.11	1.25	-40.14	-13.00	27.14
3346.00	H	38.44	-61.24	13.83	1.61	-49.02	-13.00	36.02
3346.00	V	37.55	-62.17	13.83	1.61	-49.95	-13.00	36.95
37.70	H	49.47	-41.60	-25.30	0.22	-67.12	-13.00	54.12
46.10	V	48.59	-46.40	-18.72	0.21	-65.33	-13.00	52.33

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	34.71	-60.40	13.93	1.34	-47.81	-25.00	22.81
5070.00	V	35.36	-59.56	13.93	1.34	-46.97	-25.00	21.97
7605.00	H	34.70	-54.18	13.21	1.40	-42.37	-25.00	17.37
7605.00	V	34.87	-54.41	13.21	1.40	-42.60	-25.00	17.60
37.70	H	47.24	-43.83	-25.30	0.22	-69.35	-25.00	44.35
44.70	V	51.95	-40.86	-20.20	0.21	-61.27	-25.00	36.27

LTE Band 12 (30MHz-10 GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK,Frequency: 707.500 MHz								
1415.00	H	37.17	-66.44	9.08	1.22	-58.58	-13.00	45.58
1415.00	V	36.62	-67.51	9.08	1.22	-59.65	-13.00	46.65
2122.50	H	39.00	-63.01	11.27	1.11	-52.85	-13.00	39.85
2122.50	V	36.99	-65.00	11.27	1.11	-54.84	-13.00	41.84
2830.00	H	36.93	-64.49	13.34	1.36	-52.51	-13.00	39.51
2830.00	V	37.29	-64.36	13.34	1.36	-52.38	-13.00	39.38
30.70	H	38.57	-37.09	-25.98	0.27	-63.34	-13.00	50.34
51.80	V	41.31	-61.16	-14.07	0.21	-75.44	-13.00	62.44

LTE Band 17 (30MHz-10GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK,Frequency: 710.000 MHz								
1420.00	H	37.98	-65.70	9.10	1.23	-57.83	-13.00	44.83
1420.00	V	49.79	-54.39	9.10	1.23	-46.52	-13.00	33.52
2130.00	H	44.49	-57.51	11.22	1.11	-47.40	-13.00	34.40
2130.00	V	46.33	-55.64	11.22	1.11	-45.53	-13.00	32.53
2840.00	H	42.38	-58.94	13.42	1.36	-46.88	-13.00	33.88
2840.00	V	44.56	-57.00	13.42	1.36	-44.94	-13.00	31.94
165.50	H	38.08	-69.75	0.00	0.41	-70.16	-13.00	57.16
51.80	V	41.64	-60.83	-14.07	0.21	-75.11	-13.00	62.11

LTE Band 66 (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:1745.000 MHz								
3490.00	H	57.00	-42.06	13.83	1.61	-29.84	-13.00	4.84
3490.00	V	57.33	-41.74	13.83	1.61	-29.52	-13.00	4.52
5235.00	H	35.68	-59.23	14.11	1.40	-46.52	-13.00	21.52
5235.00	V	35.93	-59.06	14.11	1.40	-46.35	-13.00	21.35
37.70	H	49.21	-41.86	-25.30	0.22	-67.38	-13.00	42.38
51.80	V	42.03	-60.44	-14.07	0.21	-74.72	-13.00	49.72

Note:

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

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

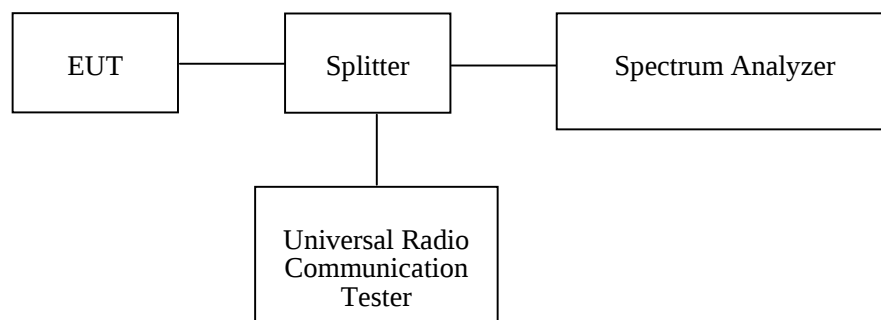
Applicable Standard

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

Test Procedure

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

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



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101474	2020-01-09	2021-01-09
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41010013	Each time	/
yzjingcheng	Coaxial Cable	KTRFBU-141-50	41005011	Each time	/
Unknown	Coaxial Cable	C-SJ00-0010	C0010/03	Each time	/
E-Microwave	Two-way Splitter	ODP-1-6-2S	OE0120142	Each time	/

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

Test Data

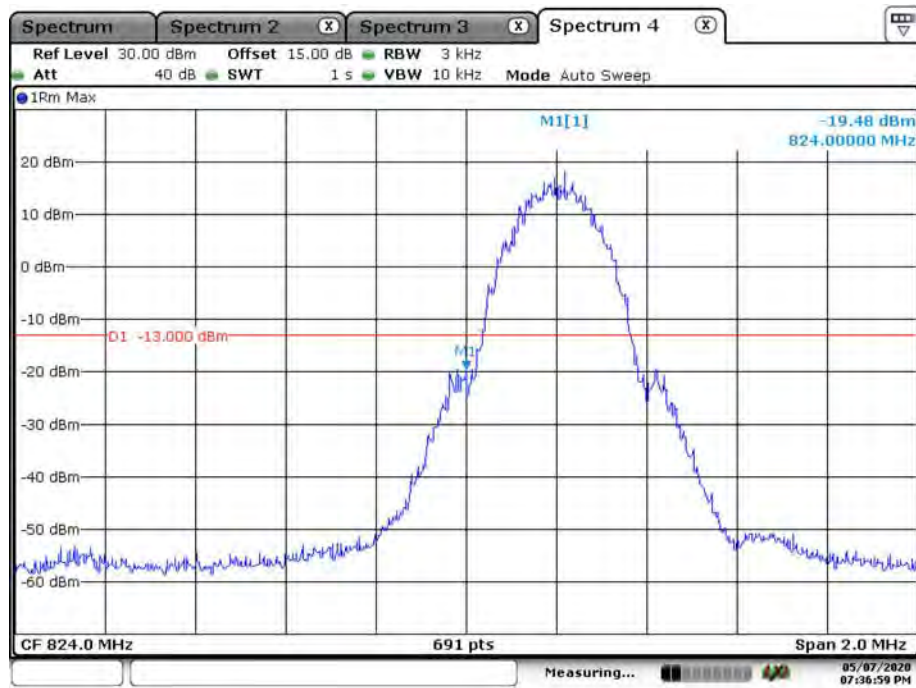
Environmental Conditions

Temperature:	26.4~29.8°C
Relative Humidity:	52~63 %
ATM Pressure:	98.8~100.5kPa
Tester:	Fay Hu, Lily Xie
Test Date:	2020-05-09~2020-06-23

Test Mode: Transmitting

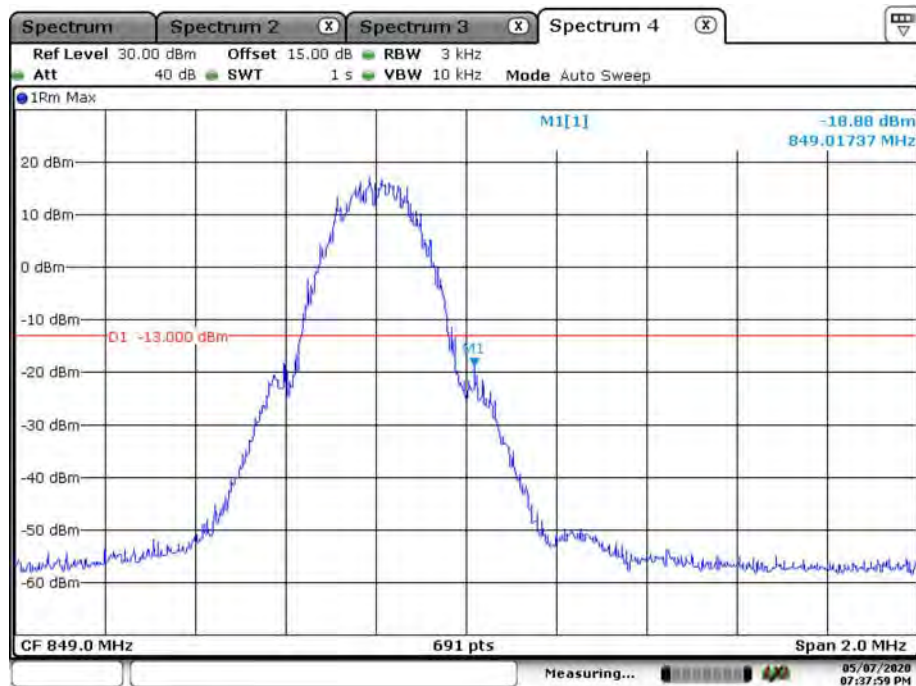
Test Result: Compliance. Please refer to the following plots.

GSM 850, Left Band Edge



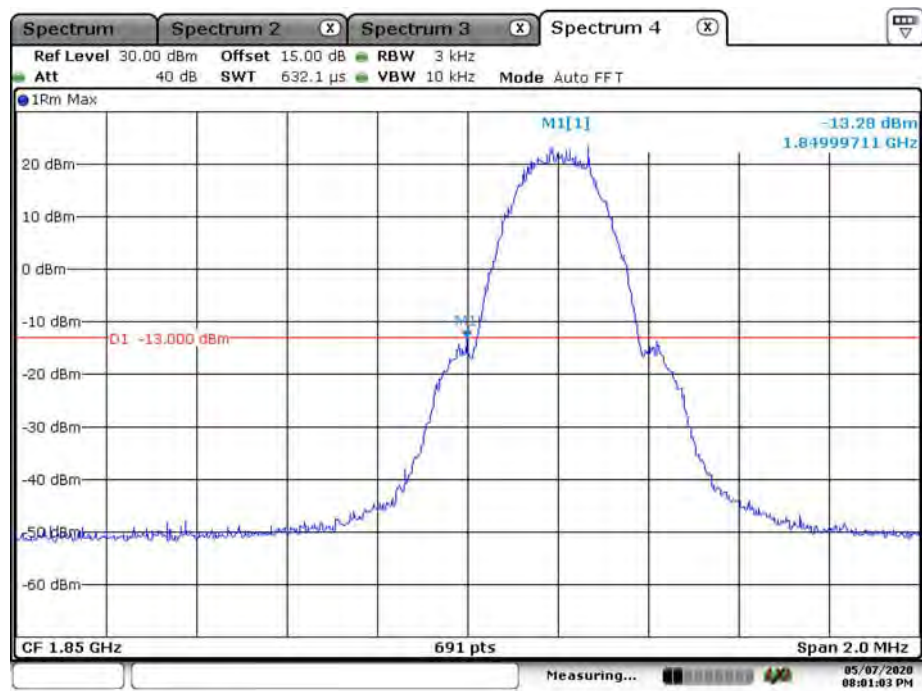
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GSM 850, Right Band Edge



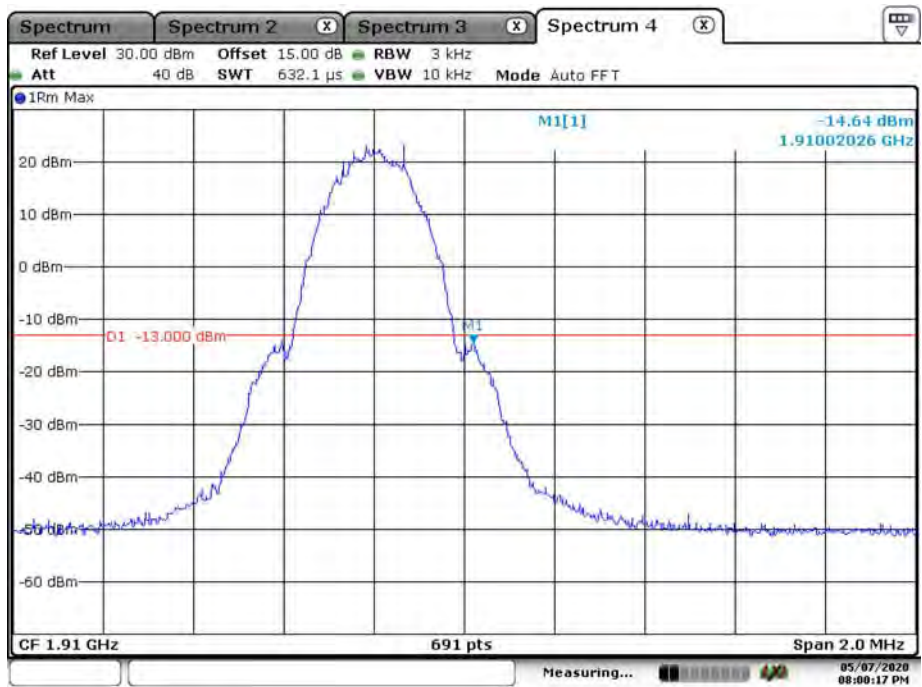
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GSM 1900, Left Band Edge



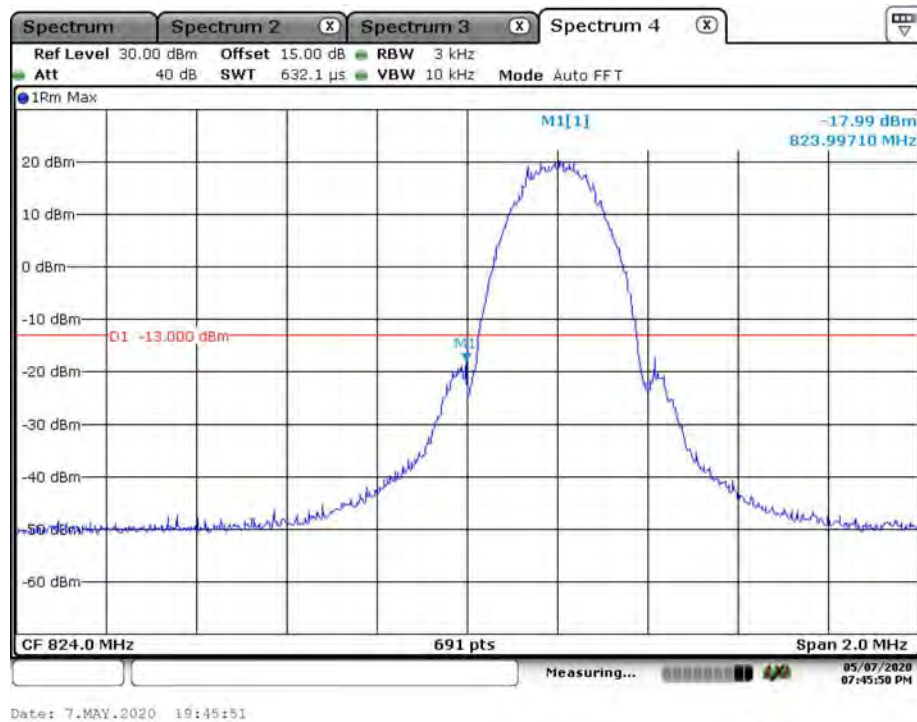
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GSM 1900, Right Band Edge

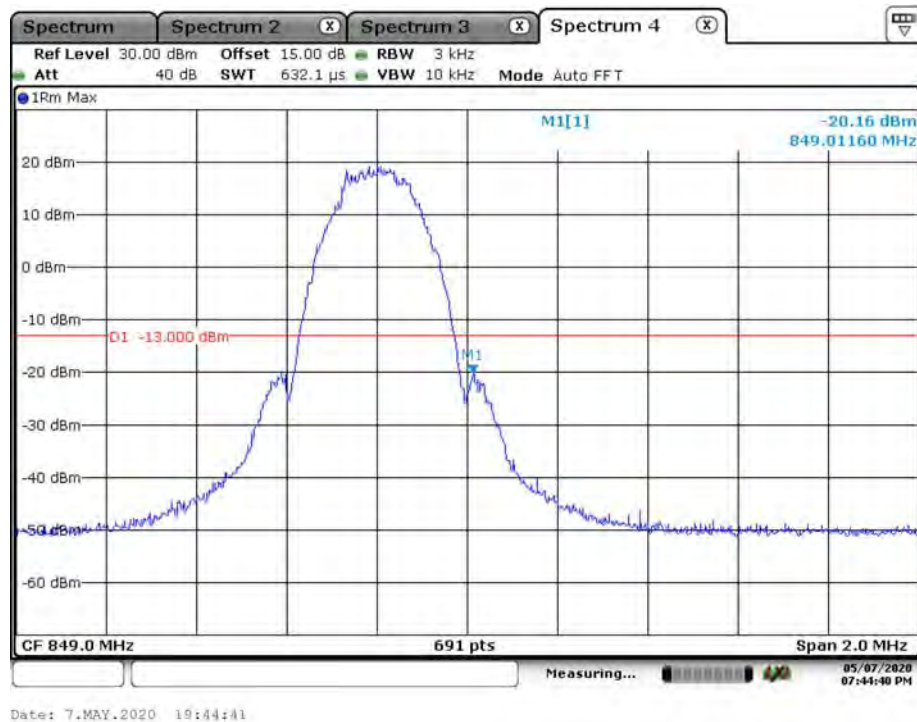


Date: 7.MAY.2020 20:00:18

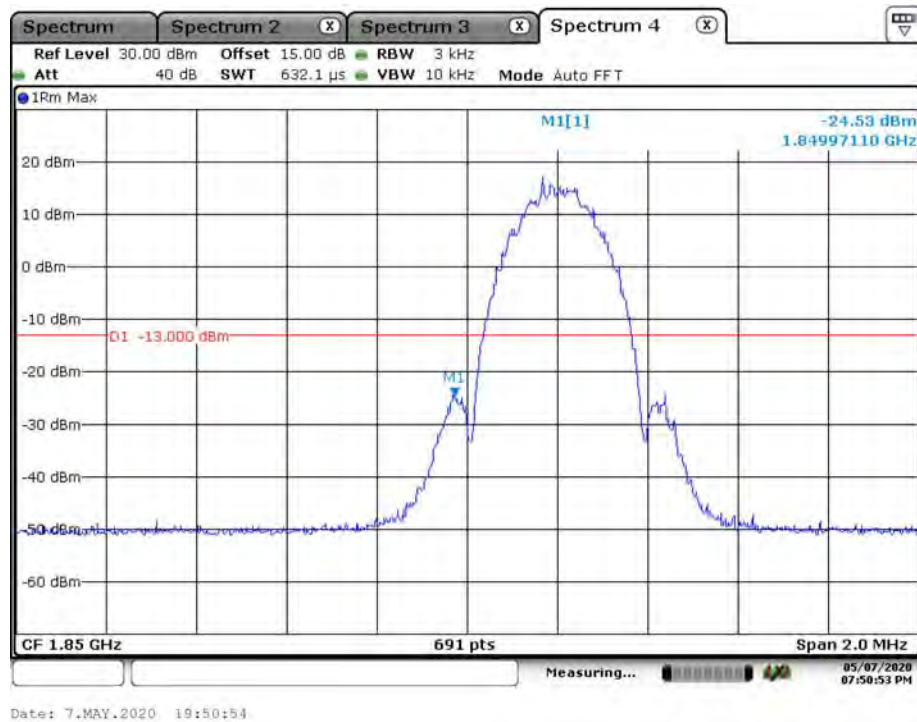
EDGE 850, Left Band Edge



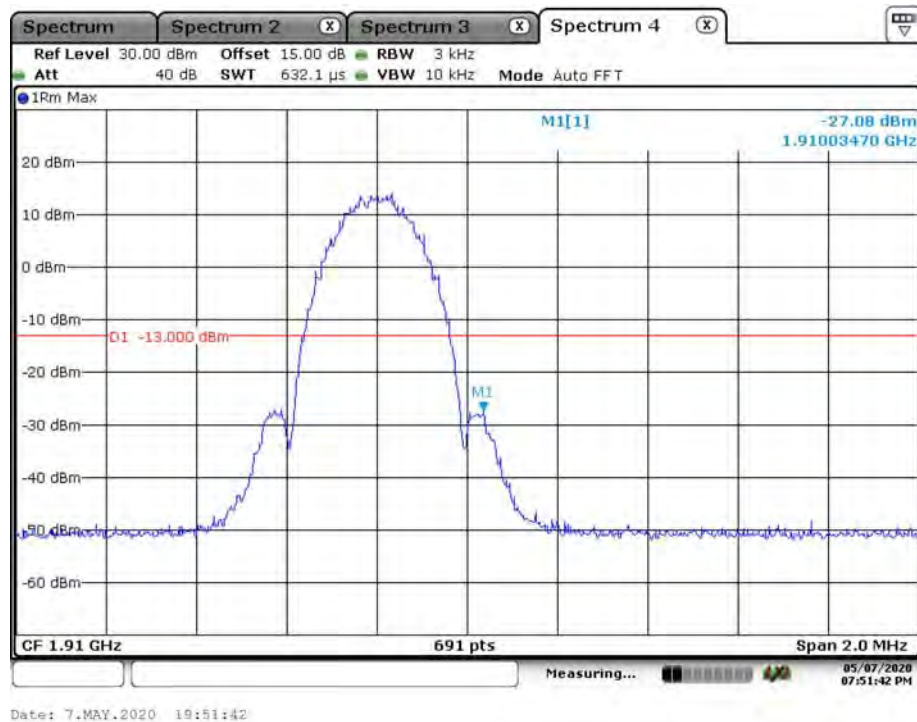
EDGE 850, Right Band Edge



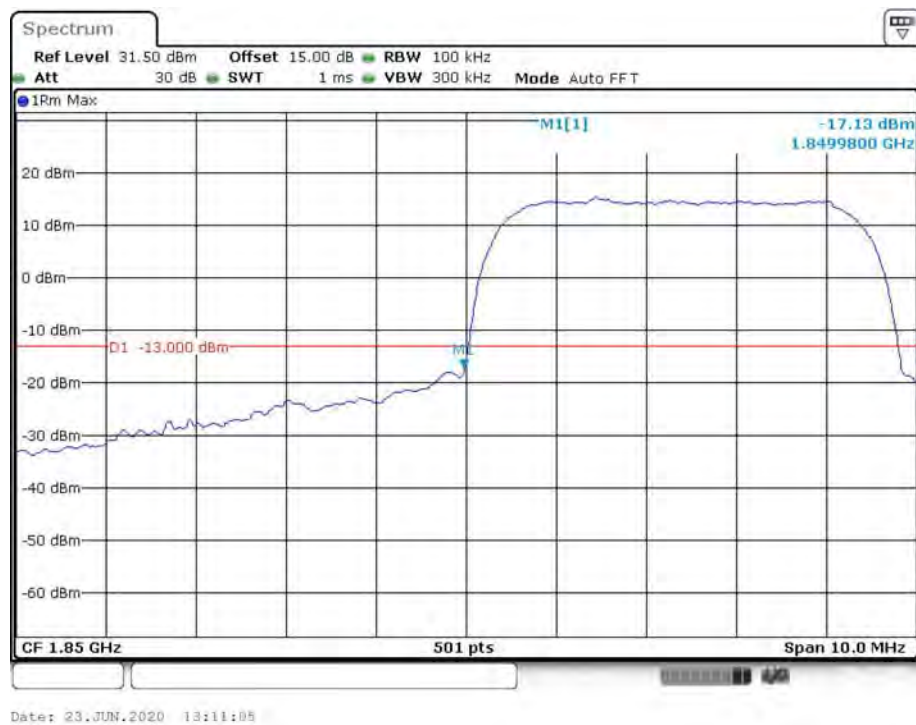
EDGE 1900, Left Band Edge



EDGE 1900, Right Band Edge



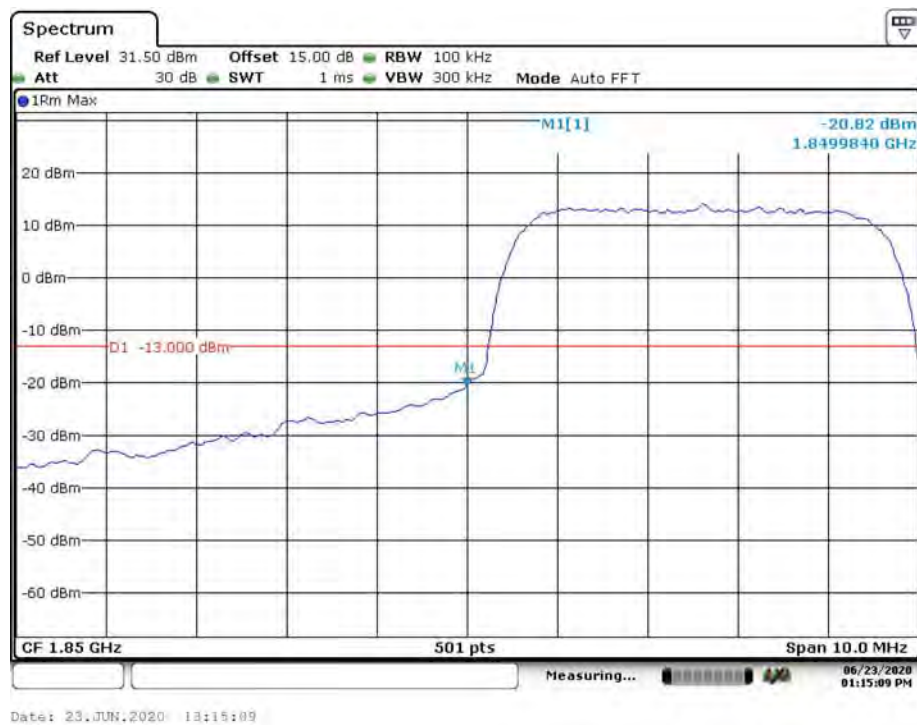
WCDMA Band 2 Rel 99, Left Band Edge



WCDMA Band 2 Rel 99, Right Band Edge



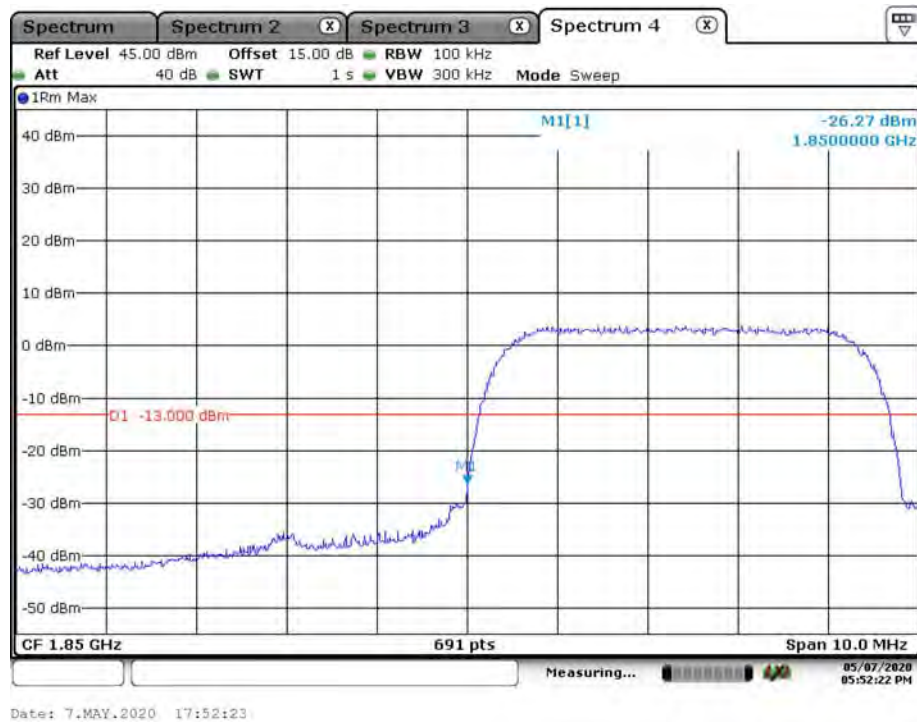
WCDMA Band 2 HSDPA, Left Band Edge



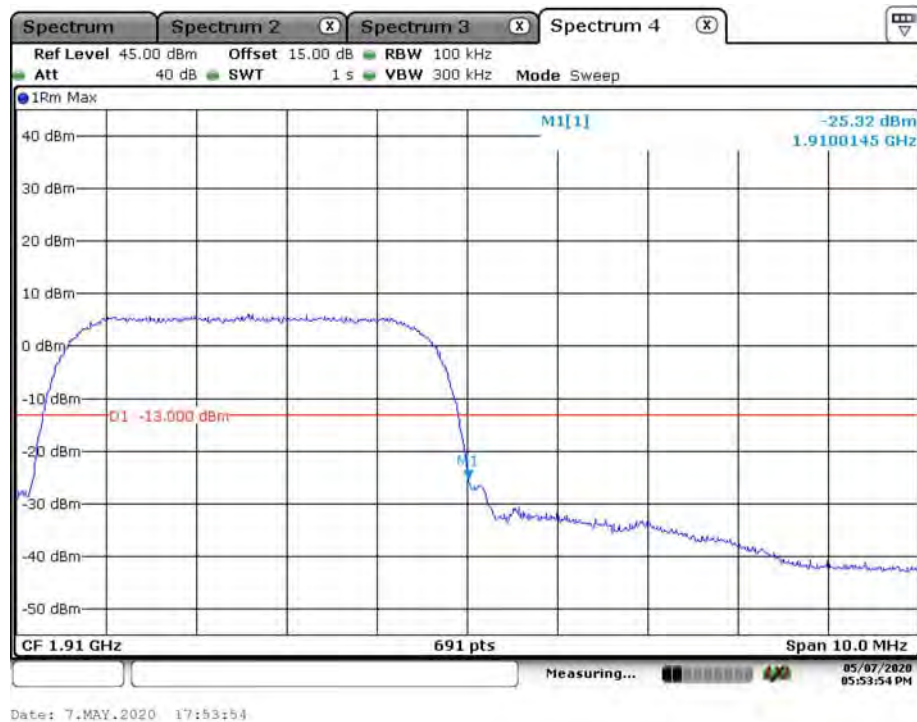
WCDMA Band 2 HSDPA, Right Band Edge



WCDMA Band 2 HSUPA, Left Band Edge



WCDMA Band 2 HSUPA, Right Band Edge



WCDMA Band 4 Rel 99, Left Band Edge



Date: 21.MAY.2020 17:03:32

WCDMA Band 4 Rel 99, Right Band Edge

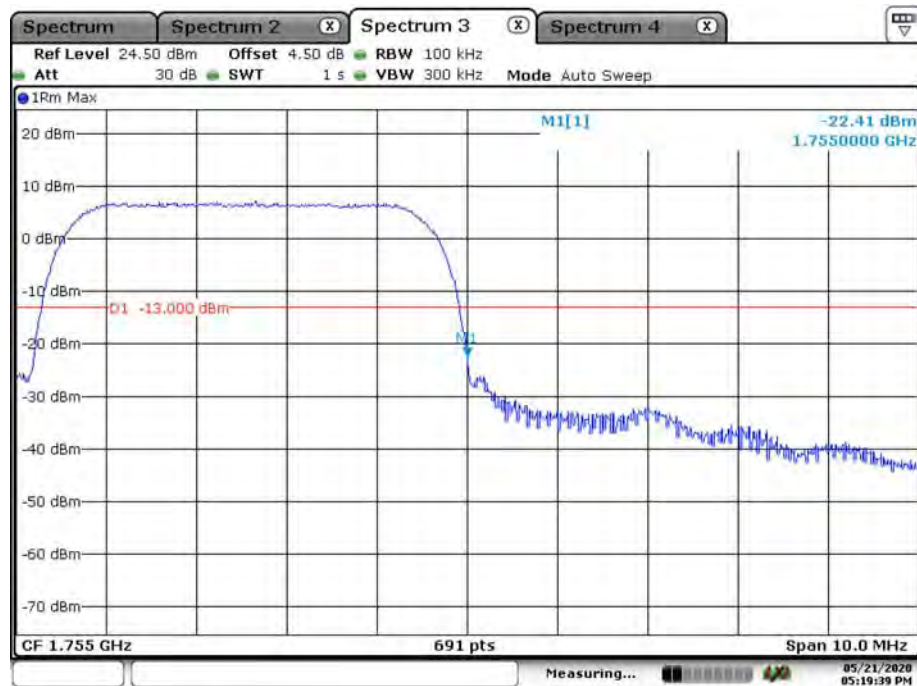


Date: 21.MAY.2020 17:04:11

WCDMA Band 4 HSDPA, Left Band Edge



WCDMA Band 4 HSDPA, Right Band Edge

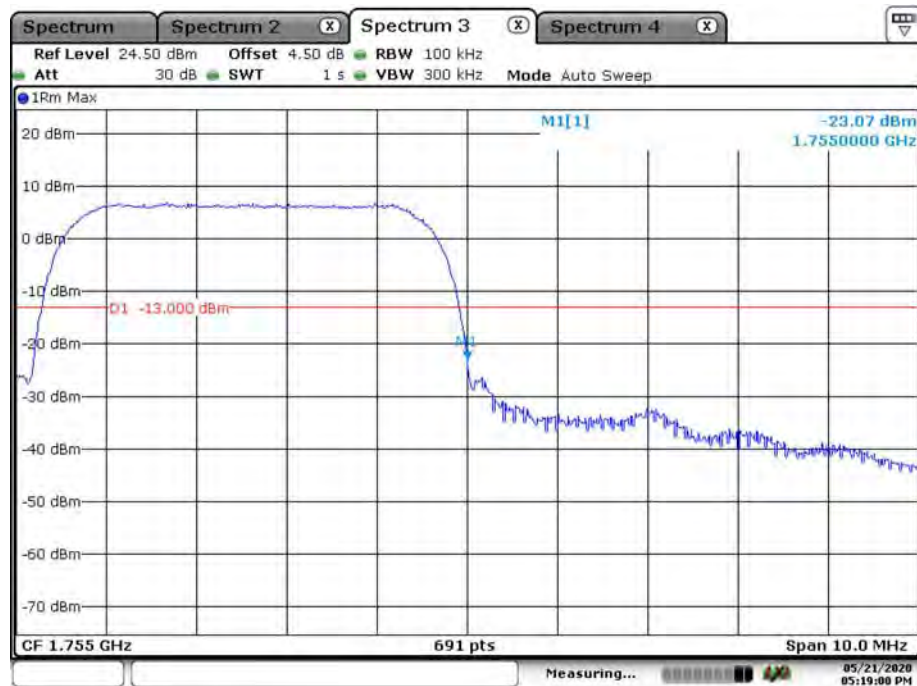


WCDMA Band 4 HSUPA, Left Band Edge



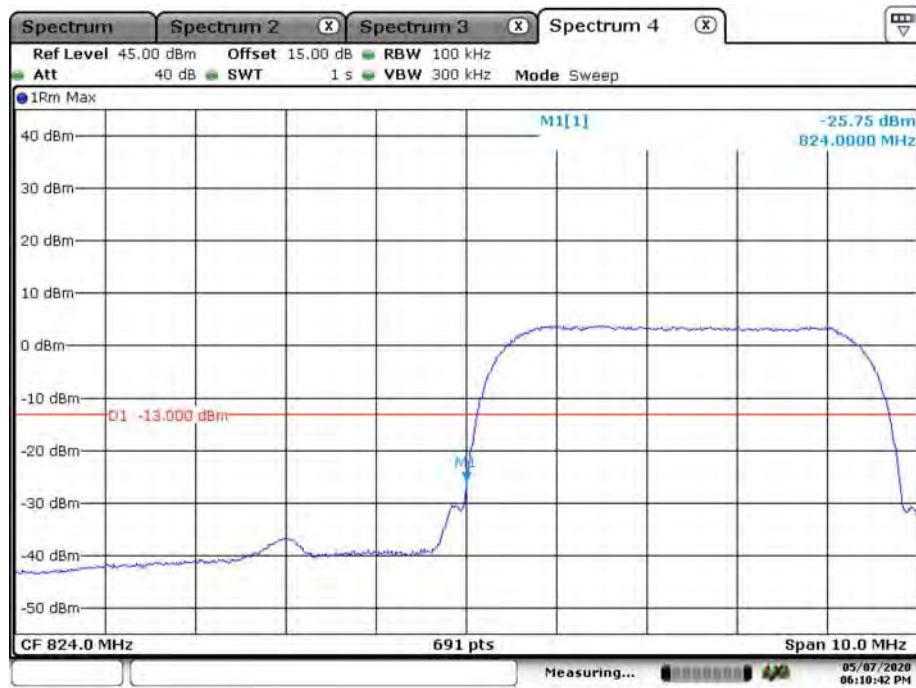
Date: 21.MAY.2020 17:18:38

WCDMA Band 4 HSUPA, Right Band Edge



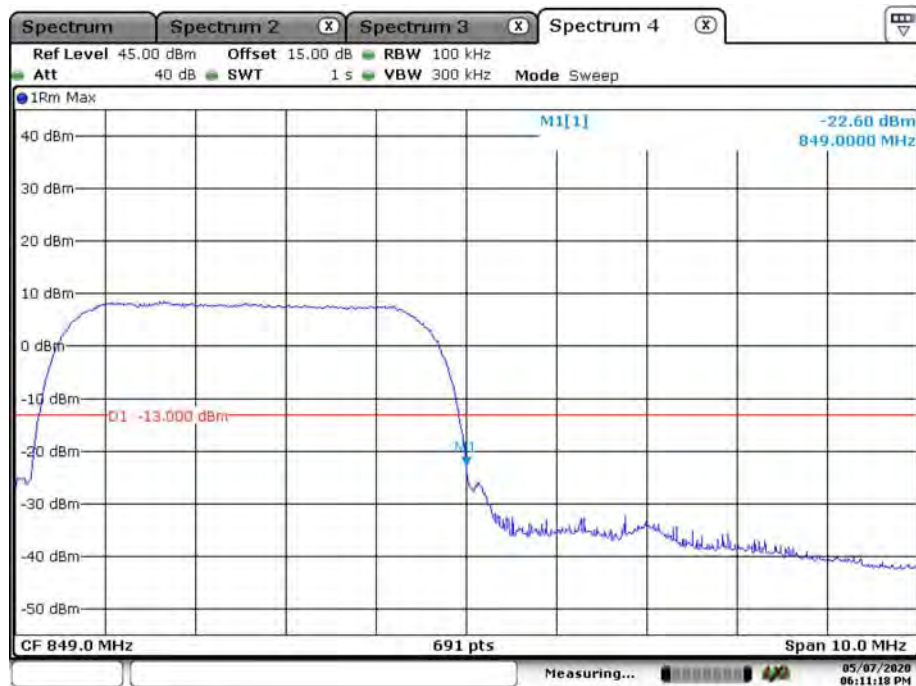
Date: 21.MAY.2020 17:19:08

WCDMA Band 5 Rel 99, Left Band Edge



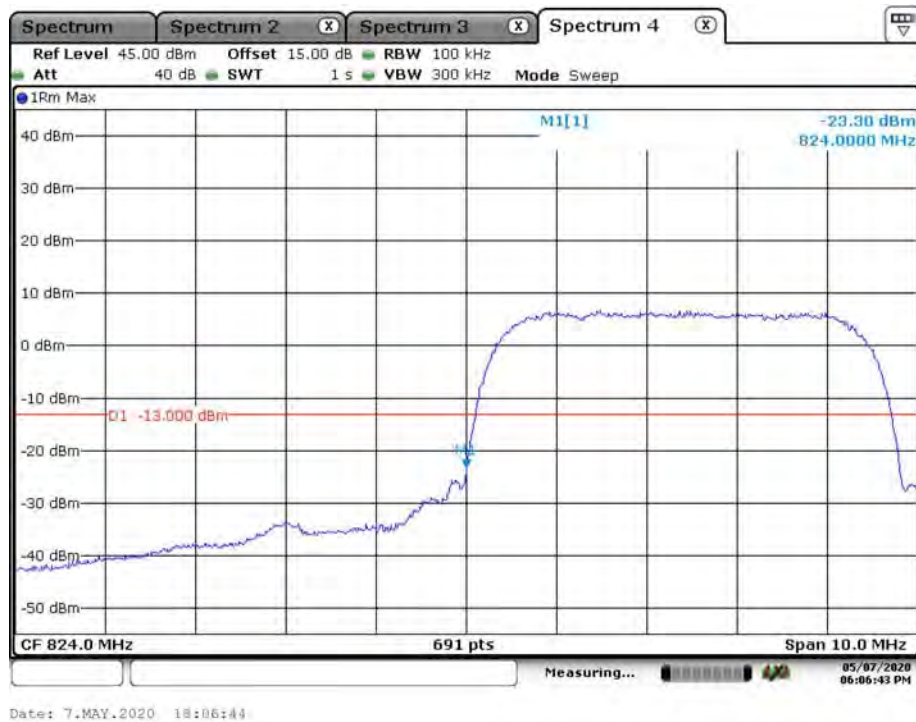
Date: 7.MAY.2020 18:10:42

WCDMA Band 5 Rel 99, Right Band Edge

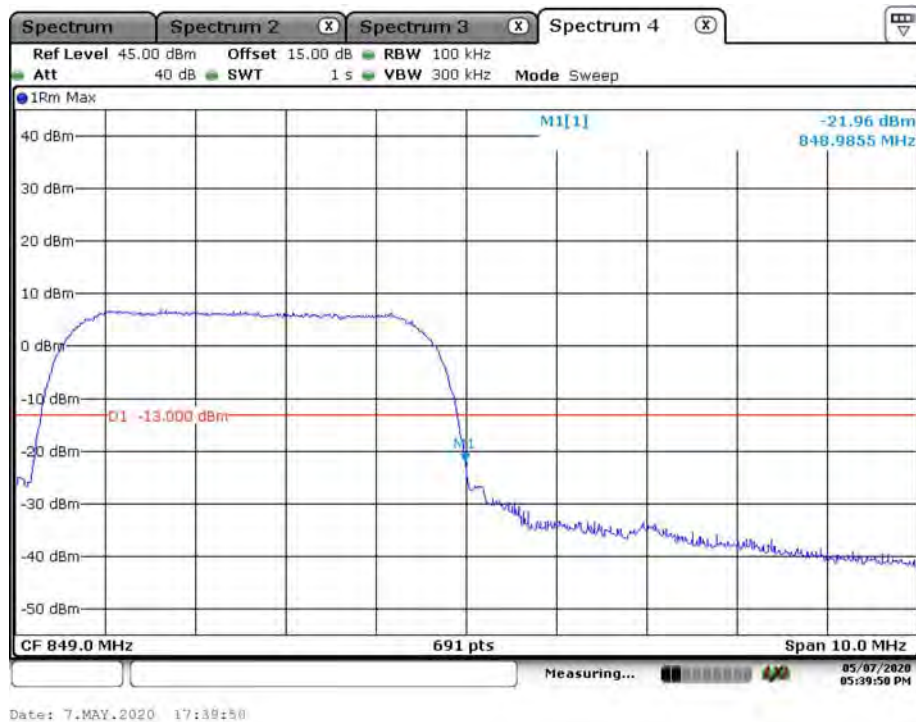


Date: 7.MAY.2020 18:11:19

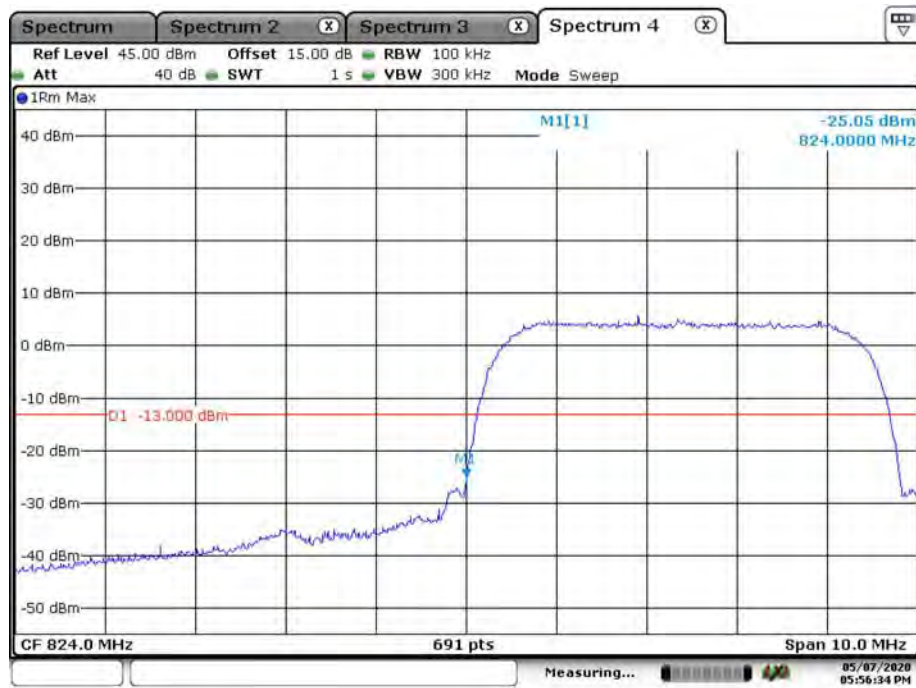
WCDMA Band 5 HSDPA, Left Band Edge



WCDMA Band 5 HSDPA, Right Band Edge

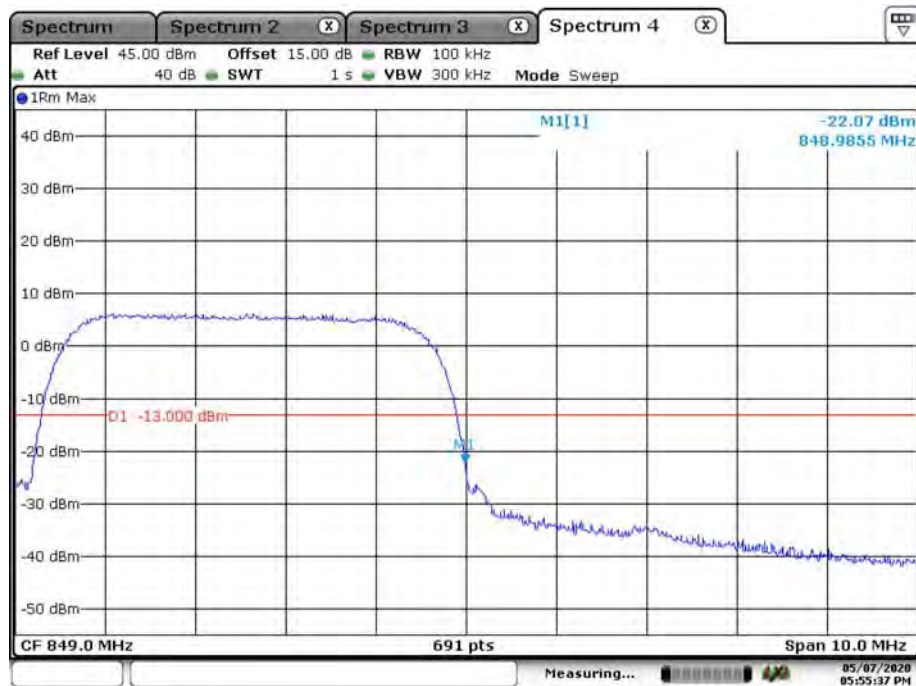


WCDMA Band 5 HSUPA, Left Band Edge



Date: 7.MAY.2020 17:56:34

WCDMA Band 5 HSUPA, Right Band Edge



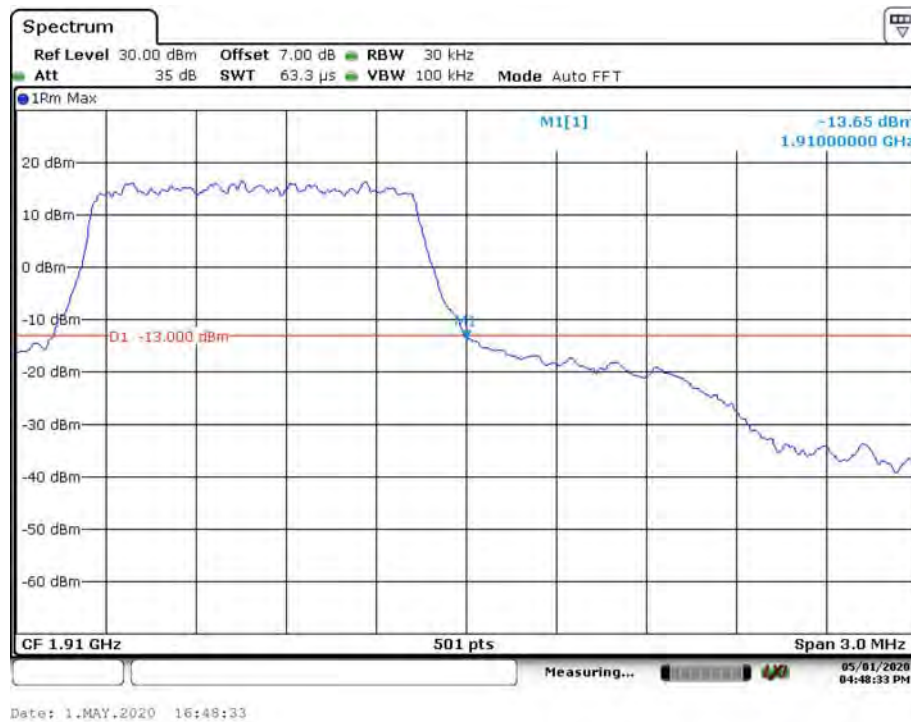
Date: 7.MAY.2020 17:55:38

LTE Band 2

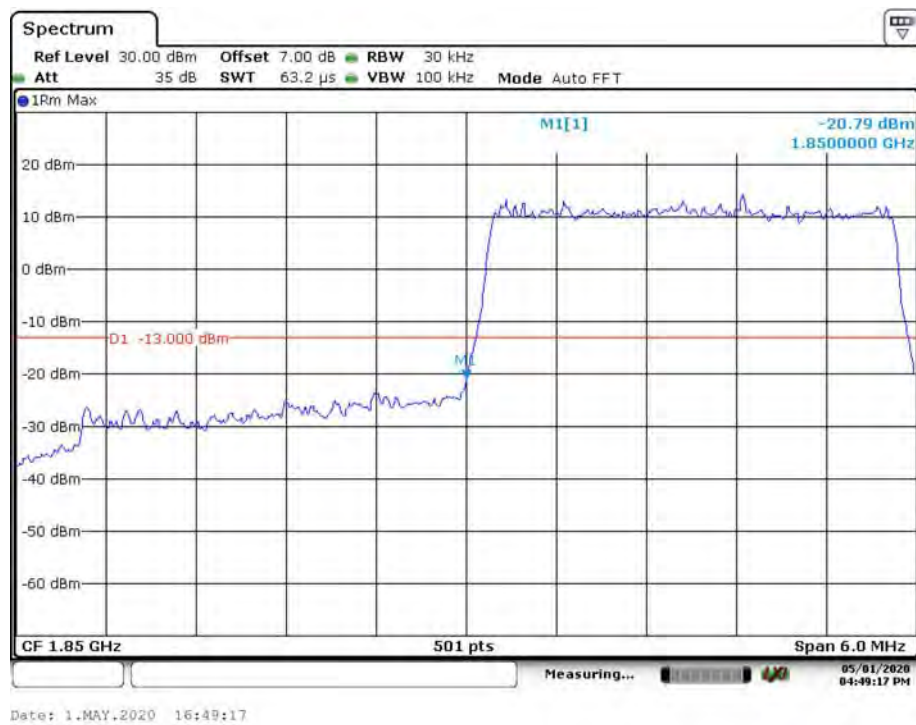
QPSK_1.4MHz_6 RB_ Left



QPSK_1.4MHz_6 RB_ Right



QPSK_3MHz_15 RB_ Left



QPSK_3MHz_15 RB_ Right

