

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

For

Shanghai Sunmi Technology Co.,Ltd.

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FCC ID: 2AH25T2SL

Report Type: Original Report	Product Type: POS System
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GENERAL INFORMATION**Product Description for Equipment under Test (EUT)**

Applicant:	Shanghai Sunmi Technology Co.,Ltd.	
Tested Model:	L1563, L1573	
Series Model:	L1562,L1561,L1572,L1571	
Model Difference	See Declaration letter	
Product Type:	POS System	
Power Supply:	DC 24V from adapter	
RF Function:	GPRS/EGPRS, WCDMA, LTE	
Operating Band/Frequency:	GSM850: 824-849 MHz(TX), 869-894 MHz(RX) GSM1900: 1850-1910MHz(TX), 1930-1990MHz(RX) WCDMA Band II: 1850-1910 MHz MHz(TX), 1930-1990 MHz(RX) WCDMA Band V: 824-849 MHz(TX), 869-894 MHz(RX) LTE Band 2: 1850-1910 MHz(TX), 1930-1990MHz(RX) LTE Band 4: 1710-1755 MHz(TX), 2110-2155MHz(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 38: 2570-2620 MHz(TX), 2570-2620 MHz(RX) LTE Band 40 Lower: 2305-2315 MHz(TX), 2305-2315 MHz(RX) LTE Band 40 Upper: 2350-2360 MHz(TX), 2350-2360 MHz(RX) LTE Band 41: 2555-2655 MHz(TX), 2555-2655MHz(RX)	
Modulation Type:	GPRS/EGPRS: GMSK/8PSK; WCDMA: BPSK,QPSK,16QAM LTE: QPSK,16QAM	
Antenna Type:	PCB Antenna	
*Maximum Antenna Gain:	L1563: GSM850: 1.46 dBi GSM1900: 2.23 dBi WCDMA Band II: 2.23 dBi WCDMA Band V: 1.46 dBi LTE Band 2: 2.23 dBi LTE Band 4: 2.23 dBi LTE Band 5: 1.46 dBi LTE Band 7: 2.03 dBi LTE Band 38: 2.03 dBi LTE Band 40 Lower: 2.03 dBi LTE Band 40 Upper: 2.03 dBi LTE Band 41: 2.03 dBi	L1573: GSM850: 1.24 dBi GSM1900: 1.22 dBi WCDMA Band II: 1.22 dBi WCDMA Band V: 1.24 dBi LTE Band 2: 1.22 dBi LTE Band 4: 2.19 dBi LTE Band 5: 1.24 dBi LTE Band 7: 2.17 dBi LTE Band 38: 1.47 dBi LTE Band 40 Lower: 2.06 dBi LTE Band 40 Upper: 2.49 dBi LTE Band 41: 1.47 dBi

Adapter1 Information (L1563/L1562/L1561) :

Model: CYSE65-240250

Input: AC 100-240V 50/60Hz 1.7A

Output: DC 24.0V, 2.5A 60.0W

Adapter2 information (L1573/L1572/L1571) :

Model: CYZS36-240150

Input: AC 100V-240V, 50/60Hz, 1.5A

Output: DC 24.0V, 1.5A

Note1: The Maximum Antenna Gain was declared by the manufacturer.

Note2: According to product differences, choose model L1563 for full test and L1573 for Spurious Emissions & FREQUENCY STABILITY test.

**All measurement and test data in this report was gathered from production sample serial number: 20200804001(L1563)/20200804002(L1573) (Assigned by the BACL. The EUT supplied by the applicant was received on 2020-08-04)*

Objective

This type approval report is prepared on behalf of *Shanghai Sunmi Technology Co.,Ltd.* in accordance with Part 2, Part 22-Subpart H and Part 24-Subpart E , Part 27 of the Federal Communication Commission's rules.

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

Related Submittal(s)/Grant(s)

FCC Part 15.247 DSS submissions with FCC ID: 2AH25T2SL
FCC Part 15.247 DTS submissions with FCC ID: 2AH25T2SL
FCC Part 15.407 NII submissions with FCC ID: 2AH25T2SL
FCC Part 15B JAB submissions with FCC ID: 2AH25T2SL

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: ANSI C63.26-2015.

All radiated and conducted emissions measurements were performed at Bay Area Compliance Laboratories Corp. (Kunshan). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement Uncertainty

Item		Uncertainty
AC Power Lines Conducted Emissions		3.19dB
RF conducted test with spectrum		0.9dB
RF Output Power with Power meter		0.5dB
Radiated emission	30MHz~1GHz	5.91dB
	1GHz~6GHz	4.68dB
	6GHz~18GHz	4.92dB
	18GHz~40GHz	5.21dB
Occupied Bandwidth		0.5kHz
Temperature		1.0℃
Humidity		6%

Test Facility

The test site used by Bay Area Compliance Laboratories Corp. (Kunshan) to collect test data is located on the No.248 Chenghu Road, Kunshan, Jiangsu province, China.

Bay Area Compliance Laboratories Corp. (Kunshan) Lab is accredited to ISO/IEC 17025 by A2LA (Lab code: 4323.01) and the FCC designation No. CN1185 under the FCC KDB 974614 D01. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2014.

SYSTEM TEST CONFIGURATION

Justification

The EUT was configured for testing according to ANSI C63.26-2015.

The final qualification test was performed with the EUT operating at normal mode.

Channel List

Mode		Channel		Frequency (MHz)
GPRS/EGPRS 850		Low	128	824.2
		Middle	190	836.6
		High	251	848.8
GPRS/EGPRS 1900		Low	512	1850.2
		Middle	661	1880.0
		High	810	1909.8
WCDMA Band V		Low	4132	826.4
		Middle	4183	836.6
		High	4233	846.6
WCDMA Band II		Low	9262	1852.4
		Middle	9400	1880.0
		High	9538	1907.6
LTE Band 2	1.4M	Low	18607	1850.7
		Middle	18900	1880.0
		High	19193	1909.3
	3M	Low	18615	1851.5
		Middle	18900	1880.0
		High	19185	1908.5
	5M	Low	18625	1852.5
		Middle	18900	1880.0
		High	19175	1907.5
	10M	Low	18650	1855.0
		Middle	18900	1880.0
		High	19150	1905.0
	15M	Low	18675	1857.5
		Middle	18900	1880.0
		High	19125	1902.5
	20M	Low	18700	1860.0
		Middle	18900	1880.0
		High	19100	1900.0

Mode		Channel		Frequency (MHz)
LTE Band 4	1.4M	Low	19957	1710.7
		Middle	20175	1732.5
		High	20393	1754.3
	3M	Low	19965	1711.5
		Middle	20175	1732.5
		High	20385	1753.5
	5M	Low	19975	1712.5
		Middle	20175	1732.5
		High	20375	1752.5
	10M	Low	20000	1715.0
		Middle	20175	1732.5
		High	20350	1750.0
	15M	Low	20025	1717.5
		Middle	20175	1732.5
		High	20325	1747.5
	20M	Low	20050	1720.0
		Middle	20175	1732.5
		High	20300	1745.0
LTE Band 5	1.4M	Low	20407	824.7
		Middle	20525	836.5
		High	20643	848.3
	3M	Low	20415	825.5
		Middle	20525	836.5
		High	20635	847.5
	5M	Low	20425	826.5
		Middle	20525	836.5
		High	20625	846.5
	10M	Low	20450	829.0
		Middle	20525	836.5
		High	20600	844.0
LTE Band 7	5M	Low	20775	2502.5
		Middle	21100	2535.0
		High	21425	2567.5
	10M	Low	20800	2505.0
		Middle	21100	2535.0
		High	21400	2565.0
	15M	Low	20825	2507.5
		Middle	21100	2535.0
		High	21375	2562.5
	20M	Low	20850	2510.0
		Middle	21100	2535.0
		High	21350	2560.0

Mode		Channel		Frequency (MHz)
LTE Band 38	5M	Low	37775	2572.5
		Middle	38000	2595.0
		High	38225	2617.5
	10M	Low	37800	2575.0
		Middle	38000	2595.0
		High	38200	2615.0
	15M	Low	37825	2577.5
		Middle	38000	2595.0
		High	38175	2612.5
	20M	Low	37850	2580.0
		Middle	38000	2595.0
		High	38150	2610.0
LTE Band 40 Lower 2305-2315MHz	5M	Low	38725	2307.5
		Middle	38750	2310.0
		High	38775	2312.5
	10M	/	38750	2310.0
LTE Band 40 Upper 2350-2360MHz	5M	Low	39175	2352.5
		Middle	39200	2355.0
		High	39225	2357.5
	10M	/	39200	2355.0
LTE Band 41	5M	Low	40265	2557.5
		Middle	40740	2605.0
		High	41215	2652.5
	10M	Low	40290	2560.0
		Middle	40740	2605.0
		High	41190	2650.0
	15M	Low	40315	2562.5
		Middle	40740	2605.0
		High	41165	2647.5
	20M	Low	40340	2565.0
		Middle	40740	2605.0
		High	41140	2645.0

Equipment Modifications

No modifications were made to the EUT.

Support Equipment List and Details

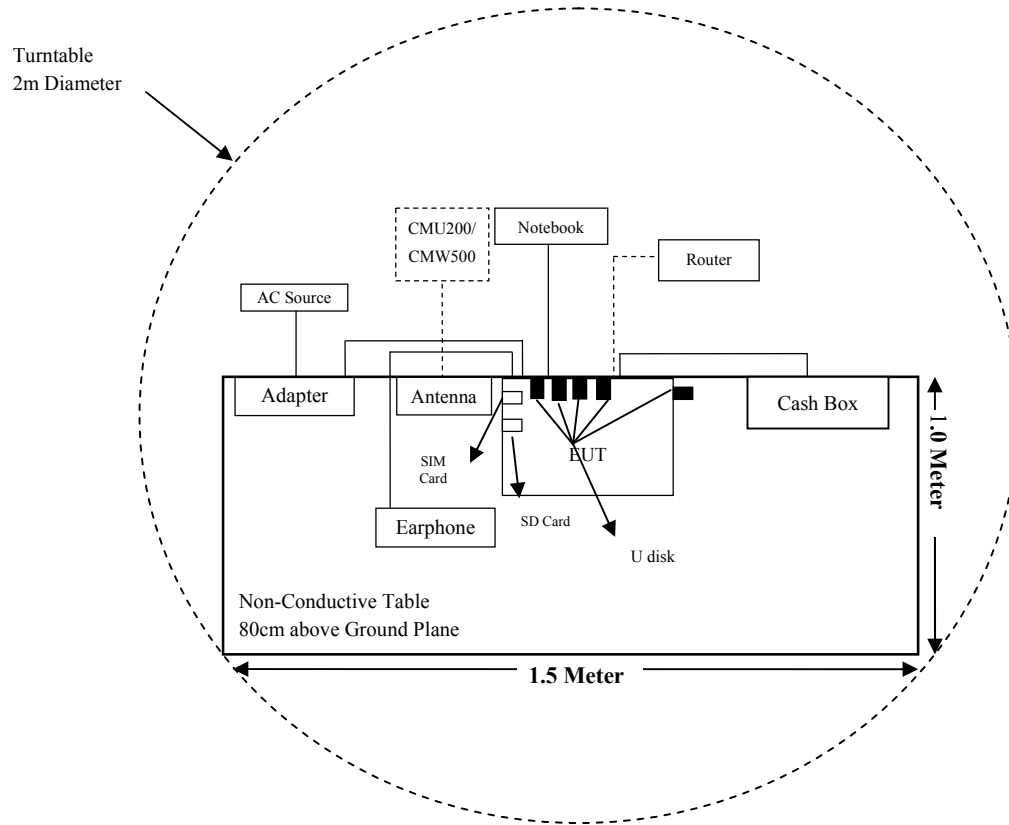
Manufacturer	Description	Model	Serial Number
Aihuaxin technology	Antenna	/	/
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	110605
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	104478
BOLD	Earphone	/	/
Lenovo	U disk	T180	0A1266865200521
Shanghai Sunmi	Cash Box	/	/
TP-LINK	Router	TL-WDR5620	1188431022424
DELL	Notebook	015K3N	00190-098-766-241
Shanghai Sunmi	Serial Printer	/	/
/	SIM Card	/	/
Sandisk	SD Card	16G	/

External I/O Cable

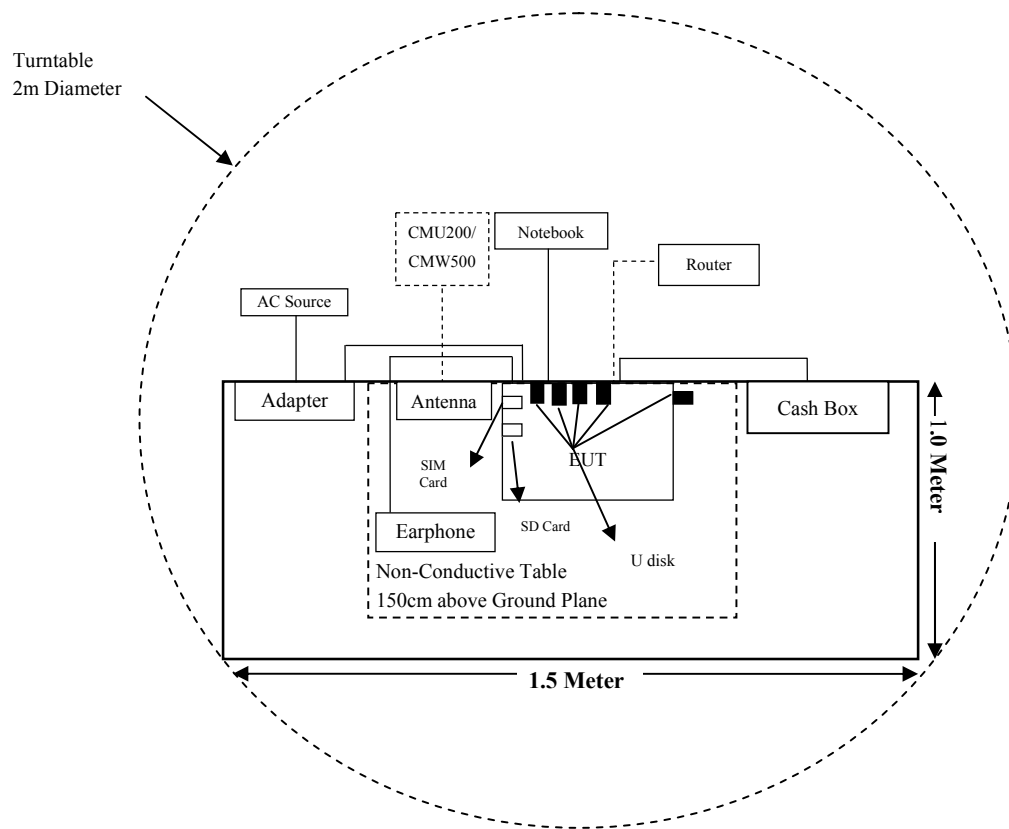
Cable Description	Length (m)	From Port	To
RJ45 Cable	10.0	EUT	Notebook
Audio cable	1.0	EUT	Earphone
RJ11 cable	1.0	EUT	Cash Box
Power cable1	1.2	EUT	Adapter
Power cable2	1.2	Adapter	AC Source

Block Diagram of Test Setup

For Radiated Emissions(Below 1GHz)



For Radiated Emissions(Above 1GHz)



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1310 & §2.1091	Maximum Permissible Exposure (MPE)	Compliant
§2.1046; § 22.913 (a); §24.232 (c); §27.50 (a)(3) (d)(4) (h)(2)	RF Output Power and Duty cycle	Compliant
§2.1047	Modulation Characteristics	Not Applicable
§2.1049; §22.905;§22.917; §24.238; §27.53	Occupied Bandwidth	Compliant
§2.1051; §22.917 (a); §24.238 (a); §27.53(m)	Spurious Emissions at Antenna Terminal	Compliant
§2.1053; §22.917 (a) §24.238 (a); §27.53 (m);	Spurious Radiated Emissions	Compliant
§22.917 (a); §24.238 (a);	Band Edge	Compliant
§2.1055; §22.355; §24.235;§27.54	Frequency stability	Compliant

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test (Chamber 1#)					
Rohde & Schwarz	EMI Test Receiver	ESCI	100195	2019-12-14	2020-12-13
HP	Signal Generator	HP 8341B	2624A00116	2019-11-30	2020-11-29
Sunol Sciences	Broadband Antenna	JB3	A090413-1	2017-12-26	2020-12-25
Sunol Sciences	Bilog antenna	JB3	A060217	2020-08-04	2023-08-03
Sonoma Instrunent	Pre-amplifier	310N	171205	2020-08-14	2021-08-13
Rohde & Schwarz	Auto test Software	EMC32	100361	/	/
MICRO-COAX	Coaxial Cable	Cable-6	006	2020-08-15	2021-08-14
MICRO-COAX	Coaxial Cable	Cable-8	008	2020-08-15	2021-08-14
MICRO-COAX	Coaxial Cable	Cable-9	009	2020-08-15	2021-08-14
MICRO-COAX	Coaxial Cable	Cable-10	010	2020-08-15	2021-08-14
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	110605	2020-04-01	2021-03-31
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	104478	2020-08-05	2021-08-04
Radiated Emission Test (Chamber 2#)					
HP	Signal Generator	HP 8341B	2624A00116	2019-11-30	2020-11-29
Rohde & Schwarz	EMI Test Receiver	ESU40	100207	2020-04-01	2021-03-31
ETS-LINDGREN	Horn Antenna	3115	9207-3900	2020-07-15	2023-07-14
ETS-LINDGREN	Horn Antenna	3115	6229	2020-01-10	2023-01-09
ETS-LINDGREN	Horn Antenna	3116	00084159	2019-12-12	2022-12-11
ETS-LINDGREN	Horn Antenna	3116	2516	2020-01-17	2023-01-16
A.H.Systems,inc	Amplifier	PAM-0118P	512	2020-02-20	2021-02-19
EM Electronics Corporation	Amplifier	EM18G40G	060726	2020-03-22	2021-03-21
Rohde & Schwarz	Auto test Software	EMC32	100361	/	/
MICRO-COAX	Coaxial Cable	Cable-6	006	2020-08-15	2021-08-14
MICRO-COAX	Coaxial Cable	Cable-11	011	2020-08-15	2021-08-14
MICRO-COAX	Coaxial Cable	Cable-12	012	2020-08-15	2021-08-14
MICRO-COAX	Coaxial Cable	Cable-13	013	2020-08-15	2021-08-14
MICRO-COAX	Coaxial Cable	Cable-16	016	2020-08-15	2021-08-14
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	110605	2020-04-01	2021-03-31
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	104478	2020-08-05	2021-08-04

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
RF Conducted Test					
Rohde & Schwarz	Signal Analyzer	FSIQ26	836131/009	2019-12-14	2020-12-13
Rohde & Schwarz	EMI Test Receiver	ESIB26	100146	2019-12-14	2020-12-13
Narda	Attenuator	10dB	010	2020-08-15	2021-08-14
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	110605	2020-04-01	2021-03-31
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	104478	2020-08-05	2021-08-04
Mini-Circuits	Power splitter	ZFRSC-14-S+	SF019411452	2019-11-10	2020-11-09
BACL	Temperature & Humidity Chamber	BTH-150	30023	2019-12-20	2020-12-19
EAST	Regulated DC Power Supply	MCH-303D-II	14070562	2019-10-10	2020-10-09
EAST	Regulated DC Power Supply	MCH-303D-II	14070562	2020-10-10	2021-10-09
Sunmi	RF Cable	Sunmi C01	C01	Each Time	/

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

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

Applicable Standard

According to subpart subpart 1.1310 and 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm²)	Averaging Time (minutes)
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500	/		f/1500	30
1500-100,000	/		1.0	30

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

Calculated Formulary:

Predication of MPE limit at a given distance

$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm²);

P = power input to the antenna (in appropriate units, e.g., mW);

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

For simultaneously transmit system, the calculated power density should comply with:

$$\sum_i \frac{S_i}{S_{Limit,i}} \leq 1$$

Calculated Data:**Model: L1563****2.4G Wi-Fi&BLE&BT:**

Mode	Frequency Range (MHz)	Maximum Antenna Gain		Tune-up Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
		(dBi)	(numeric)	(dBm)	(mW)			
802.11b	2412-2462	2.19	1.66	25.00	251.19	20	0.0829	1.0
802.11g		2.19	1.66	24.00	100.00	20	0.0330	1.0
802.11n-HT20		2.19	1.66	20.00	79.43	20	0.0262	1.0
802.11n-HT40	2422-2452	2.19	1.66	19.00	316.23	20	0.1044	1.0
BLE(1Mbps)	2402-2480	2.19	1.66	-0.50	0.89	20	0.0003	1.0
BLE(2Mbps)	2402-2480	2.19	1.66	-0.50	0.89	20	0.0003	1.0
BT	2402-2480	2.19	1.66	10.00	10.00	20	0.0033	1.0

GSM:

Mode	Frequency Range (MHz)	Maximum Antenna Gain		Tune-up Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
		(dBi)	(numeric)	(dBm)	(mW)			
GPRS 850	824-849	1.46	1.40	27.50	562.34	20	0.1566	0.55
EGPRS 850	824-849	1.46	1.40	19.74	94.19	20	0.0262	0.55
GPRS 1900	1850-1910	2.23	1.67	23.50	223.87	20	0.0744	1.00
EGPRS 1900	1850-1910	2.23	1.67	20.24	105.68	20	0.0351	1.00

Note 1:

GPRS 850: Tune-up maximum output power with 1 slot is 33.50 dBm, 2 slots is 33.00 dBm, 3 slots is 31.50 dBm, 4 slots is 30.50 dBm, so the tune-up time based Ave. power compared to slotted Ave. power is 27.50dBm.

EGPRS 850: Tune-up maximum output power with 1 slot is 27.00 dBm, 2 slots is 25.50 dBm, 3 slots is 24.00 dBm, 4 slots is 22.50 dBm, so the tune-up time based Ave. power compared to slotted Ave. power is 19.74dBm.

GPRS 1900: Tune-up maximum output power with 1 slot is 29.50 dBm, 2 slots is 28.50 dBm, 3 slots is 27.50 dBm, 4 slots is 26.50 dBm, so the tune-up time based Ave. power compared to slotted Ave. power is 23.50 dBm.

EGPRS 1900: Tune-up maximum output power with 1 slot is 26.50 dBm, 2 slots is 25.50 dBm, 3 slots is 24.50 dBm, 4 slots is 22.50 dBm, so the tune-up time based Ave. power compared to slotted Ave. power is 20.24 dBm.

Number of Time slot	1	2	3	4
Duty Cycle	1:8	1:4	1:2.66	1:2
Time based Ave. power compared to slotted Ave. power	-9 dB	-6 dB	-4.26 dB	-3 dB

5G Wi-Fi/WCDMA/LTE:

Mode	Frequency Range (MHz)	Antenna Gain		Tune-up Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
		(dBi)	(numeric)	(dBm)	(mW)			
802.11a	5150~5250	0.05	1.01	18.50	70.79	20	0.0142	1.0
	5725~5850	0.05	1.01	19.00	79.43	20	0.0160	1.0
802.11ac20	5150~5250	0.05	1.01	21.00	125.89	20	0.0253	1.0
	5725~5850	0.05	1.01	22.00	158.49	20	0.0318	1.0
802.11n20	5150~5250	0.05	1.01	21.50	141.25	20	0.0284	1.0
	5725~5850	0.05	1.01	22.00	158.49	20	0.0318	1.0
802.11ac40	5150~5250	0.05	1.01	15.50	35.48	20	0.0071	1.0
	5725~5850	0.05	1.01	21.00	125.89	20	0.0253	1.0
802.11n40	5150~5250	0.05	1.01	15.50	35.48	20	0.0071	1.0
	5725~5850	0.05	1.01	22.00	158.49	20	0.0318	1.0
802.11ac80	5150~5250	0.05	1.01	11.00	12.59	20	0.0025	1.0
	5725~5850	0.05	1.01	21.50	141.25	20	0.0284	1.0
WCDMA Band II	1850-1910	2.23	1.67	22.50	177.83	20	0.0591	1.0
WCDMA Band V	824-849	1.46	1.40	22.50	177.83	20	0.0495	0.55
LTE Band 2	1850-1910	2.23	1.67	23.50	223.87	20	0.0744	1.0
LTE Band 4	1710-1755	2.23	1.67	23.00	199.53	20	0.0663	1.0
LTE Band 5	824-849	1.46	1.40	23.00	199.53	20	0.0556	0.55
LTE Band 7	2500-2570	2.03	1.60	22.50	177.83	20	0.0566	1.0
LTE Band 38	2570-2620	2.03	1.60	22.50	177.83	20	0.0566	1.0
LTE Band 40 Lower	2305-2315	2.03	1.60	22.50	177.83	20	0.0566	1.0
LTE Band 40 Upperr	2350-2360	2.03	1.60	22.50	177.83	20	0.0566	1.0
LTE Band 41	2555-2655	2.03	1.60	22.50	177.83	20	0.0566	1.0

Note:

1. For the above tune up power were declared by the manufacturer.
2. Wi-Fi and BT/BLE cannot transmit simultaneously.
3. For 802.11b, 802.11g, 802.11a, the tune-up power is base on SISO mode
For 802.11ac20/n20/n40/ac40/ac80, the tune-up power is base on MIMO mode
4. Wi-Fi & GPRS/WCDMA/LTE or BT/BLE & GPRS/WCDMA/LTE can transmit simultaneously; the worst condition is 2.4G Wi-Fi & GPRS 850 as below:

$$\sum_i \frac{S_i}{S_{Limit,i}} = 0.0829/1.00 + 0.1566/0.55 = 0.3676 < 1.0$$

Conclusion: The device meets MPE at distance 20cm.

Model: L1573**2.4G Wi-Fi&BLE&BT:**

Mode	Frequency Range (MHz)	Maximum Antenna Gain		Tune-up Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
		(dBi)	(numeric)	(dBm)	(mW)			
802.11b	2412-2462	0.66	1.16	25.00	316.23	20	0.0730	1.0
802.11g		0.66	1.16	24.00	251.19	20	0.0580	1.0
802.11n-HT20		0.66	1.16	20.00	100.00	20	0.0231	1.0
802.11n-HT40	2422-2452	0.66	1.16	19.00	79.43	20	0.0183	1.0
BLE(1Mbps)	2402-2480	0.19	1.04	-0.50	0.89	20	0.0002	1.0
BLE(2Mbps)	2402-2480	0.19	1.04	-0.50	0.89	20	0.0002	1.0
BT	2402-2480	0.19	1.04	10.00	10.00	20	0.0021	1.0

GSM:

Mode	Frequency Range (MHz)	Maximum Antenna Gain		Tune-up Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
		(dBi)	(numeric)	(dBm)	(mW)			
GPRS 850	824-849	1.24	1.33	27.50	562.34	20	0.1488	0.55
EGPRS 850	824-849	1.24	1.33	19.74	94.19	20	0.0249	0.55
GPRS 1900	1850-1910	1.22	1.32	23.50	223.87	20	0.0588	1.00
EGPRS 1900	1850-1910	1.22	1.32	20.24	105.68	20	0.0277	1.00

Note 1:

GPRS 850: Tune-up maximum output power with 1 slot is 33.50 dBm, 2 slots is 33.00 dBm, 3 slots is 31.50 dBm, 4 slots is 30.50 dBm, so the tune-up time based Ave. power compared to slotted Ave. power is 27.50dBm.

EGPRS 850: Tune-up maximum output power with 1 slot is 27.00 dBm, 2 slots is 25.50 dBm, 3 slots is 24.00 dBm, 4 slots is 22.50 dBm, so the tune-up time based Ave. power compared to slotted Ave. power is 19.74dBm.

GPRS 1900: Tune-up maximum output power with 1 slot is 29.50 dBm, 2 slots is 28.50 dBm, 3 slots is 27.50 dBm, 4 slots is 26.50 dBm, so the tune-up time based Ave. power compared to slotted Ave. power is 23.50 dBm.

EGPRS 1900: Tune-up maximum output power with 1 slot is 26.50 dBm, 2 slots is 25.50 dBm, 3 slots is 24.50 dBm, 4 slots is 22.50 dBm, so the tune-up time based Ave. power compared to slotted Ave. power is 20.24 dBm.

Number of Time slot	1	2	3	4
Duty Cycle	1:8	1:4	1:2.66	1:2
Time based Ave. power compared to slotted Ave. power	-9 dB	-6 dB	-4.26 dB	-3 dB

5G Wi-Fi/WCDMA/LTE:

Mode	Frequency Range (MHz)	Antenna Gain		Tune-up Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
		(dBi)	(numeric)	(dBm)	(mW)			
802.11a	5150~5250	1.57	1.44	18.50	70.79	20	0.0203	1.0
	5725~5850	-0.79	0.83	19.00	79.43	20	0.0131	1.0
802.11ac20	5150~5250	1.57	1.44	21.00	125.89	20	0.0361	1.0
	5725~5850	-0.79	0.83	22.00	158.49	20	0.0262	1.0
802.11n20	5150~5250	1.57	1.44	21.50	141.25	20	0.0405	1.0
	5725~5850	-0.79	0.83	22.00	158.49	20	0.0262	1.0
802.11ac40	5150~5250	1.57	1.44	15.50	35.48	20	0.0102	1.0
	5725~5850	-0.79	0.83	21.00	125.89	20	0.0208	1.0
802.11n40	5150~5250	1.57	1.44	15.50	35.48	20	0.0102	1.0
	5725~5850	-0.79	0.83	22.00	158.49	20	0.0262	1.0
802.11ac80	5150~5250	1.57	1.44	11.00	12.59	20	0.0036	1.0
	5725~5850	-0.79	0.83	21.50	141.25	20	0.0233	1.0
WCDMA Band II	1850-1910	1.22	1.32	22.50	177.83	20	0.0467	1.0
WCDMA Band V	824-849	1.24	1.33	22.50	177.83	20	0.0470	0.55
LTE Band 2	1850-1910	1.22	1.32	23.50	223.87	20	0.0588	1.0
LTE Band 4	1710-1755	2.19	1.66	23.00	199.53	20	0.0659	1.0
LTE Band 5	824-849	1.24	1.33	23.00	199.53	20	0.0528	0.55
LTE Band 7	2500-2570	2.17	1.65	22.50	177.83	20	0.0584	1.0
LTE Band 38	2570-2620	1.47	1.40	22.50	177.83	20	0.0495	1.0
LTE Band 40 Lower	2305-2315	2.06	1.61	22.50	177.83	20	0.0570	1.0
LTE Band 40 Upperr	2350-2360	2.49	1.77	22.50	177.83	20	0.0626	1.0
LTE Band 41	2555-2655	1.47	1.40	22.50	177.83	20	0.0495	1.0

Note:

1. For the above tune up power were declared by the manufacturer.
2. Wi-Fi and BT/BLE cannot transmit simultaneously.
3. For 802.11b, 802.11g, 802.11a, the tune-up power is base on SISO mode
For 802.11ac20/n20/n40/ac40/ac80, the tune-up power is base on MIMO mode
4. Wi-Fi & GPRS/WCDMA/LTE or BT/BLE & GPRS/WCDMA/LTE can transmit simultaneously; the worst condition is 2.4G Wi-Fi & GPRS 850 as below:

$$\sum_i \frac{S_i}{S_{Limit,i}} = 0.0730/1.00 + 0.1488/0.55 = 0.3436 < 1.0$$

Conclusion: The device meets MPE at distance 20cm.

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 (a)(3) (d)(4) (h)(2) - RF OUTPUT POWER AND DUTY CYCLE

Applicable Standards

According to FCC §2.1046 and §22.913 (a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts (38.45dBm).

According to FCC §2.1046 and §24.232 (c), mobile and portable stations are limited to 2 watts (33dBm) EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

According to §27.50(a) (3), Mobile and portable stations.(i) For mobile and portable stations transmitting in the 2305-2315 MHz band or the 2350-2360 MHz band, the average EIRP must not exceed 50 milliwatts within any 1 megahertz of authorized bandwidth, except that for mobile and portable stations compliant with 3GPP LTE standards or another advanced mobile broadband protocol that avoids concentrating energy at the edge of the operating band the average EIRP must not exceed 250 milliwatts within any 5 megahertz of authorized bandwidth but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth. For mobile and portable stations using time division duplexing (TDD) technology, the duty cycle must not exceed 38 percent in the 2305-2315 MHz and 2350-2360 MHz bands. Mobile and portable stations using FDD technology are restricted to transmitting in the 2305-2315 MHz band. Power averaging shall not include intervals in which the transmitter is off.

According to §27.50(d) (4), Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band is limited to 1 watt EIRP.

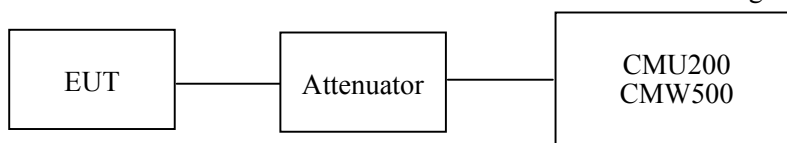
According to §27.50(h) (2), Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

The peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB.

Test Procedure

Conducted method:

The RF output of the transmitter was connected to the CMW500/CMU200 through sufficient attenuation.



Radiated Output Power:

The measurements procedures specified in TIA-603-E were applied.

- a) Connect the equipment as illustrated. Mount the equipment with the manufacturer specified antenna in a vertical orientation on a manufacturer specified mounting surface located on a non-conducting rotating platform of a RF anechoic chamber (preferred) or a standard radiation site.
- b) Key the transmitter, then rotate the EUT 360o azimuthally and record spectrum analyzer power level (LVL) measurements at angular increments that are sufficiently small to permit resolution of all peaks. If a standard radiation test site is used, raise and lower the test antenna to obtain a maximum reading at each angular increment. (Note: several batteries may be needed to offset the effect of battery voltage droop, which should not exceed 5% of the manufactured specified battery voltage during transmission).
- c) Replace the transmitter under test with a vertically polarized half-wave dipole (or an antenna whose gain is known relative to an ideal half-wave dipole). The center of the antenna should be at the same location as the center of the antenna under test.
- d) Connect the antenna to a signal generator with a known output power and record the path loss (in dB) as LOSS. If a standard radiation test site is used,raise and lower the test antenna to obtain a maximum reading.
 $\text{LOSS} = \text{Generator Output Power (dBm)} - \text{Analyzer reading (dBm)}$
- e) Determine the effective radiated output power at each angular position from the readings in steps b) and d) using the following equation:

$$\text{ERP (dBm)} = \text{LVL (dBm)} + \text{LOSS (dB)}$$

- f) The maximum ERP is the maximum value determined in the preceding step.
(Note: Effective Isotropic Radiated Power (EIRP) can be computed using the following:
 $\text{EIRP (dBm)} = \text{ERP (dBm)} + 2.15 \text{ (dB)}$

Test Data**Environmental Conditions**

Temperature:	24.9-25.2 °C
Relative Humidity:	49-53 %
ATM Pressure:	101.3-101.9 kPa

The testing was performed by CK Huang from 2020-08-05 to 2020-10-30.

Conducted Power:**GPRS/EGPRS 850 Band**

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
GPRS	128	824.2	33.26	32.43	31.29	29.97	38.45
	190	836.6	33.28	32.92	31.12	30.34	38.45
	251	848.8	33.19	32.37	31.09	30.19	38.45

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
EGPRS	128	824.2	26.82	25.42	23.68	22.16	38.45
	190	836.6	26.74	25.39	23.59	22.36	38.45
	251	848.8	26.39	25.49	23.66	22.46	38.45

WCDMA Band V

Mode	Test Condition	Test Mode	3GPP Sub Test	Average Output Power (dBm)		
				Low Frequency	Middle Frequency	High Frequency
WCDMA (Band V)	Normal	Rel 99	1	22.46	22.35	22.16
		HSDPA	1	22.01	22.17	22.29
			2	21.97	22.09	22.10
			3	22.08	22.13	22.22
			4	22.02	22.01	22.27
		HSUPA	1	21.94	22.06	22.20
			2	22.09	22.05	22.21
			3	22.06	21.91	22.13
			4	22.18	22.16	22.10
			5	21.99	22.08	22.09
		HSPA+	1	22.06	22.05	22.20

PCS 1900 Band

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
GPRS	512	1850.2	29.39	28.49	27.39	26.46	33
	661	1880	29.41	28.39	27.41	26.39	33
	810	1909.8	29.33	28.45	27.37	26.41	33

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
EGPRS	512	1850.2	26.49	25.21	24.08	22.24	33
	661	1880	26.41	25.19	24.11	22.16	33
	810	1909.8	26.09	24.93	23.49	22.09	33

WCDMA Band II

Mode	Test Condition	Test Mode	3GPP Sub Test	Average Output Power (dBm)		
				Low Frequency	Middle Frequency	High Frequency
WCDMA (Band II)	Normal	Rel 99	1	22.46	22.15	22.32
		HSDPA	1	22.17	21.91	22.17
			2	22.32	22.02	22.18
			3	22.30	21.94	22.18
			4	22.27	21.96	22.10
		HSUPA	1	22.23	22.01	22.20
			2	22.26	21.99	22.04
			3	22.30	22.16	22.02
			4	22.17	22.05	22.10
			5	22.28	22.09	22.16
		HSPA+	1	22.17	22.03	22.09

Maximum Output Power:**LTE Band 2**

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4M	QPSK	1#0	21.68	21.98	21.85
		1#3	21.77	21.93	21.89
		1#5	21.90	21.90	21.91
		3#0	21.91	21.84	21.98
		3#1	21.86	21.98	22.05
		3#3	21.82	22.02	22.04
		6#0	21.82	21.89	21.96
	16-QAM	1#0	21.83	21.95	21.93
		1#3	21.83	21.92	21.92
		1#5	21.71	21.81	21.95
		3#0	21.74	21.82	21.97
		3#1	21.79	21.84	22.03
		3#3	21.80	21.80	22.06
		6#0	21.75	21.92	22.07
3M	QPSK	1#0	21.63	22.04	21.51
		1#7	21.63	22.00	21.57
		1#14	21.64	21.94	21.62
		8#0	21.53	21.87	21.59
		8#4	21.41	21.86	21.66
		8#7	21.30	21.84	21.60
		15#0	21.24	21.92	21.67
	16-QAM	1#0	21.37	21.84	21.70
		1#7	21.38	21.94	21.80
		1#14	21.43	21.94	21.87
		8#0	21.57	21.93	21.94
		8#4	21.62	21.91	21.99
		8#7	21.70	21.90	21.94
		15#0	21.65	21.85	21.85

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	1#0	21.64	21.87	22.05
		1#12	21.72	21.93	22.16
		1#24	21.80	21.88	22.14
		12#0	21.83	21.96	22.05
		12#6	21.87	21.96	22.09
		12#11	21.93	21.94	22.12
		25#0	21.96	21.99	22.12
	16-QAM	1#0	21.89	21.88	22.14
		1#12	21.88	21.82	22.09
		1#24	21.81	21.85	22.10
		12#0	21.81	21.78	22.12
		12#6	21.71	21.75	22.10
		12#11	21.73	21.64	22.08
		25#0	21.67	21.61	22.00
10M	QPSK	1#0	22.01	21.27	21.23
		1#24	22.02	21.30	21.24
		1#49	22.10	21.36	21.20
		25#0	22.09	21.33	21.14
		25#12	22.19	21.37	21.23
		25#24	22.12	21.40	21.16
		50#0	22.13	21.37	21.13
	16-QAM	1#0	22.19	21.42	21.04
		1#24	22.15	21.45	21.11
		1#49	22.13	21.53	21.09
		25#0	22.23	21.53	21.06
		25#12	22.30	21.42	21.09
		25#24	22.36	21.44	21.10
		50#0	22.30	21.58	21.17

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
15M	QPSK	1#0	21.54	21.45	23.16
		1#37	21.48	21.47	23.11
		1#74	21.38	21.55	23.05
		36#0	21.47	21.56	22.97
		36#17	21.45	21.57	22.87
		36#35	21.43	21.63	22.91
		75#0	21.50	21.71	22.90
	16-QAM	1#0	21.52	21.73	22.95
		1#37	21.54	21.73	23.05
		1#74	21.66	21.78	22.97
		36#0	21.59	21.82	22.95
		36#17	21.64	21.90	22.93
		36#35	21.65	21.81	22.92
		75#0	21.65	21.82	22.85
20M	QPSK	1#0	22.57	21.86	22.63
		1#49	22.57	21.81	22.57
		1#99	22.49	21.74	22.61
		50#0	22.39	21.77	22.52
		50#24	22.44	21.65	22.50
		50#49	22.39	21.68	22.45
		100#0	22.40	21.63	22.47
	16-QAM	1#0	22.39	21.58	22.35
		1#49	22.38	21.53	22.24
		1#99	22.39	21.63	22.26
		50#0	22.39	21.62	22.24
		50#24	22.34	21.73	22.23
		50#49	22.23	21.76	22.15
		100#0	22.21	21.74	22.13

LTE Band 4

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4M	QPSK	1#0	21.68	21.98	21.85
		1#3	21.66	21.95	21.89
		1#5	21.61	21.99	21.78
		3#0	21.63	22.01	21.66
		3#1	21.64	22.02	21.52
		3#3	21.62	22.02	21.55
		6#0	21.61	22.00	21.49
	16-QAM	1#0	21.73	21.94	21.56
		1#3	21.69	21.90	21.50
		1#5	21.72	21.94	21.45
		3#0	21.64	21.96	21.37
		3#1	21.51	22.03	21.37
		3#3	21.57	22.00	21.27
		6#0	21.56	21.98	21.33
3M	QPSK	1#0	21.92	21.76	22.15
		1#7	21.93	21.78	22.14
		1#14	21.94	21.84	22.20
		8#0	22.05	21.97	22.30
		8#4	22.12	21.93	22.35
		8#7	22.15	21.81	22.35
		15#0	22.17	21.82	22.36
	16-QAM	1#0	22.22	21.82	22.25
		1#7	22.20	21.81	22.28
		1#14	22.12	21.75	22.30
		8#0	22.21	21.74	22.20
		8#4	22.29	21.64	22.14
		8#7	22.24	21.67	22.09
		15#0	22.19	21.69	22.14

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	1#0	21.47	22.39	21.85
		1#12	21.48	22.29	21.92
		1#24	21.38	22.29	21.92
		12#0	21.32	22.37	21.99
		12#6	21.32	22.48	21.91
		12#11	21.24	22.48	21.91
		25#0	21.24	22.51	21.80
	16-QAM	1#0	21.26	22.61	21.75
		1#12	21.20	22.61	21.78
		1#24	21.07	22.54	21.78
		12#0	21.01	22.46	21.77
		12#6	20.98	22.54	21.81
		12#11	20.94	22.57	21.85
		25#0	20.88	22.51	21.82
10M	QPSK	1#0	21.76	22.33	21.44
		1#24	21.68	22.28	21.35
		1#49	21.63	22.26	21.33
		25#0	21.61	22.16	21.33
		25#12	21.66	22.17	21.41
		25#24	21.71	22.19	21.38
		50#0	21.84	22.24	21.40
	16-QAM	1#0	21.71	22.28	21.36
		1#24	21.81	22.22	21.49
		1#49	21.78	22.14	21.45
		25#0	21.85	22.10	21.46
		25#12	21.85	22.01	21.39
		25#24	21.87	22.02	21.41
		50#0	21.82	22.07	21.34

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
15M	QPSK	1#0	21.83	21.83	21.69
		1#37	21.74	21.80	21.73
		1#74	21.69	21.83	21.82
		36#0	21.70	21.94	21.78
		36#17	21.65	21.88	21.77
		36#35	21.58	21.86	21.72
		75#0	21.57	22.00	21.78
	16-QAM	1#0	21.52	22.02	21.74
		1#37	21.56	22.04	21.71
		1#74	21.50	21.93	21.66
		36#0	21.55	22.00	21.69
		36#17	21.59	22.09	21.74
		36#35	21.67	22.03	21.68
		75#0	21.78	21.92	21.58
20M	QPSK	1#0	21.30	21.79	21.12
		1#49	21.22	21.70	21.11
		1#99	21.26	21.66	21.04
		50#0	21.31	21.69	21.00
		50#24	21.24	21.73	20.93
		50#49	21.32	21.83	20.96
		100#0	21.42	21.88	20.95
	16-QAM	1#0	21.45	21.86	20.97
		1#49	21.44	21.84	20.87
		1#99	21.44	21.90	20.86
		50#0	21.46	21.85	20.81
		50#24	21.43	21.93	20.80
		50#49	21.42	21.97	20.89
		100#0	21.34	21.97	20.81

LTE Band 5

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4M	QPSK	1#0	21.68	21.98	21.85
		1#3	21.75	22.06	21.87
		1#5	21.83	22.04	21.86
		3#0	21.94	22.06	21.75
		3#1	22.01	22.07	21.87
		3#3	21.94	22.04	21.99
		6#0	22.05	22.10	21.94
	16-QAM	1#0	22.03	22.05	21.92
		1#3	22.08	22.01	21.85
		1#5	22.03	21.90	21.93
		3#0	22.02	21.87	22.01
		3#1	21.98	21.74	21.97
		3#3	21.96	21.64	21.91
		6#0	22.05	21.64	21.84
3M	QPSK	1#0	21.60	21.83	21.69
		1#7	21.63	21.89	21.66
		1#14	21.73	21.93	21.55
		8#0	21.68	21.95	21.57
		8#4	21.60	21.89	21.67
		8#7	21.64	21.99	21.71
		15#0	21.61	22.08	21.61
	16-QAM	1#0	21.66	22.10	21.61
		1#7	21.67	22.01	21.70
		1#14	21.78	22.05	21.73
		8#0	21.71	22.01	21.74
		8#4	21.58	22.02	21.73
		8#7	21.51	22.13	21.76
		15#0	21.51	22.04	21.69

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	1#0	21.03	22.00	21.22
		1#12	21.06	22.01	21.25
		1#24	21.08	21.92	21.20
		12#0	21.12	21.81	21.22
		12#6	21.13	21.86	21.16
		12#11	21.09	21.88	21.22
		25#0	21.11	21.92	21.16
	16-QAM	1#0	21.03	21.95	21.06
		1#12	20.97	21.94	21.10
		1#24	20.95	22.05	21.15
		12#0	20.99	22.04	21.08
		12#6	21.02	22.13	21.00
		12#11	20.93	22.15	21.01
		25#0	20.92	22.23	21.03
10M	QPSK	1#0	21.13	22.43	22.51
		1#24	21.15	22.36	22.63
		1#49	21.18	22.38	22.64
		25#0	21.17	22.37	22.59
		25#12	21.15	22.26	22.59
		25#24	21.23	22.27	22.52
		50#0	21.17	22.21	22.42
	16-QAM	1#0	21.28	22.25	22.33
		1#24	21.40	22.29	22.28
		1#49	21.30	22.37	22.35
		25#0	21.43	22.24	22.36
		25#12	21.42	22.27	22.33
		25#24	21.46	22.39	22.27
		50#0	21.39	22.31	22.24

LTE Band 7

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	1#0	21.68	21.44	21.86
		1#12	21.54	21.78	21.12
		1#24	21.64	21.59	21.63
		12#0	21.26	22.10	21.46
		12#6	21.80	21.65	21.90
		12#11	21.68	21.68	21.03
		25#0	22.05	21.31	21.38
	16-QAM	1#0	21.57	21.62	21.86
		1#12	21.44	21.85	21.03
		1#24	21.32	22.06	21.73
		12#0	21.40	21.96	21.56
		12#6	22.17	21.43	21.28
		12#11	21.49	21.15	21.41
		25#0	21.44	21.66	21.77
10M	QPSK	1#0	21.67	21.36	21.81
		1#24	22.01	21.52	21.80
		1#49	21.10	21.38	22.16
		25#0	21.11	21.94	22.04
		25#12	22.00	22.11	21.82
		25#24	21.40	21.88	21.67
		50#0	21.38	22.03	21.80
	16-QAM	1#0	21.26	21.47	21.72
		1#24	21.59	21.70	21.68
		1#49	21.81	21.40	22.28
		25#0	21.87	22.09	22.23
		25#12	21.41	21.80	22.03
		25#24	21.89	21.69	22.32
		50#0	21.49	21.38	22.17

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
15M	QPSK	1#0	21.10	21.30	21.94
		1#37	20.81	21.62	21.87
		1#74	21.51	21.13	21.18
		36#0	21.06	21.85	21.78
		36#17	21.62	21.16	22.01
		36#35	21.17	21.27	21.48
		75#0	21.42	21.82	21.67
	16-QAM	1#0	21.26	21.49	21.23
		1#37	20.77	21.14	21.39
		1#74	21.30	21.08	21.17
		36#0	21.14	21.16	21.77
		36#17	21.56	21.39	21.34
		36#35	20.94	22.03	21.43
		75#0	20.87	21.22	21.23
20M	QPSK	1#0	21.56	21.07	21.75
		1#49	21.06	21.84	21.63
		1#99	21.71	21.16	21.21
		50#0	21.27	21.82	21.00
		50#24	20.98	21.33	21.04
		50#49	21.47	21.29	21.01
		100#0	21.41	21.23	21.71
	16-QAM	1#0	21.38	21.06	21.14
		1#49	20.99	21.04	21.54
		1#99	21.06	21.17	20.92
		50#0	21.03	21.63	21.27
		50#24	21.68	21.12	21.81
		50#49	21.67	21.45	20.90
		100#0	21.01	21.05	20.87

LTE Band 38

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	1#0	21.96	21.90	21.29
		1#12	21.30	22.03	21.15
		1#24	22.03	21.30	21.08
		12#0	21.41	21.61	21.11
		12#6	21.73	21.51	21.63
		12#11	21.96	21.67	21.81
		25#0	21.60	21.24	21.32
	16-QAM	1#0	22.09	21.15	21.31
		1#12	21.98	21.45	21.41
		1#24	21.86	21.25	21.97
		12#0	21.72	22.06	21.31
		12#6	21.68	21.53	21.90
		12#11	21.51	21.85	21.29
		25#0	21.60	22.11	21.19
10M	QPSK	1#0	21.09	21.58	21.57
		1#24	21.51	21.99	21.96
		1#49	21.42	22.14	22.27
		25#0	21.04	21.87	22.01
		25#12	21.23	21.47	21.84
		25#24	21.78	21.88	22.16
		50#0	21.71	21.20	21.85
	16-QAM	1#0	21.21	21.17	21.60
		1#24	21.77	21.70	21.73
		1#49	21.45	21.82	22.15
		25#0	22.01	21.99	22.08
		25#12	21.35	21.22	21.59
		25#24	21.17	22.03	21.60
		50#0	21.78	22.06	21.36

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
15M	QPSK	1#0	21.05	21.67	21.61
		1#37	21.70	21.40	21.92
		1#74	20.83	21.27	22.10
		36#0	20.90	22.02	21.13
		36#17	21.53	22.04	22.03
		36#35	21.05	22.03	21.67
		75#0	21.30	21.83	21.47
	16-QAM	1#0	21.18	21.64	22.07
		1#37	20.96	21.47	22.05
		1#74	21.38	22.05	21.35
		36#0	20.93	21.13	22.01
		36#17	21.64	21.84	21.40
		36#35	21.24	21.38	21.91
		75#0	21.37	21.08	21.13
20M	QPSK	1#0	21.47	21.90	21.65
		1#49	20.88	21.62	21.62
		1#99	21.76	21.11	21.22
		50#0	21.48	21.32	21.28
		50#24	21.82	21.65	21.20
		50#49	21.75	21.62	21.04
		100#0	21.07	20.97	21.13
	16-QAM	1#0	21.73	21.44	21.55
		1#49	21.40	21.66	21.65
		1#99	21.69	21.82	21.23
		50#0	21.01	21.84	21.21
		50#24	21.86	21.04	21.42
		50#49	21.39	21.78	20.86
		100#0	21.72	21.22	21.11

LTE Band 40 Lower

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	1#0	22.18	21.41	21.30
		1#12	21.32	21.16	21.22
		1#24	21.73	21.62	21.67
		12#0	21.45	21.15	21.77
		12#6	21.44	21.84	21.19
		12#11	22.04	21.45	21.51
		25#0	21.86	21.51	21.41
	16-QAM	1#0	21.84	21.73	21.79
		1#12	21.64	21.68	21.43
		1#24	21.91	21.28	21.10
		12#0	22.15	21.95	21.04
		12#6	21.94	21.36	21.03
		12#11	21.79	21.27	21.15
		25#0	21.27	21.45	21.63
10M	QPSK	1#0	/	22.10	/
		1#24	/	21.42	/
		1#49	/	21.93	/
		25#0	/	21.84	/
		25#12	/	21.23	/
		25#24	/	21.79	/
		50#0	/	21.82	/
	16-QAM	1#0	/	21.24	/
		1#24	/	21.45	/
		1#49	/	21.79	/
		25#0	/	21.96	/
		25#12	/	21.84	/
		25#24	/	22.02	/
		50#0	/	21.50	/

LTE Band 40 Upper

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	1#0	21.94	21.69	21.34
		1#12	22.22	21.12	22.00
		1#24	22.24	21.92	21.97
		12#0	22.07	21.37	21.61
		12#6	22.12	21.69	21.23
		12#11	22.26	21.22	21.51
		25#0	21.56	21.16	21.96
	16-QAM	1#0	21.49	21.99	21.83
		1#12	21.27	21.94	21.18
		1#24	21.72	21.58	21.81
		12#0	22.08	21.41	21.13
		12#6	22.13	21.28	21.14
		12#11	21.36	22.08	21.18
		25#0	22.09	21.96	21.45
10M	QPSK	1#0	/	21.97	/
		1#24	/	21.22	/
		1#49	/	21.26	/
		25#0	/	21.64	/
		25#12	/	21.96	/
		25#24	/	21.87	/
		50#0	/	21.98	/
	16-QAM	1#0	/	22.02	/
		1#24	/	21.94	/
		1#49	/	21.69	/
		25#0	/	21.19	/
		25#12	/	21.49	/
		25#24	/	21.74	/
		50#0	/	21.19	/

LTE Band 41

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	1#0	21.64	21.40	21.56
		1#12	22.24	21.79	21.47
		1#24	22.14	21.54	21.07
		12#0	21.78	21.68	21.87
		12#6	21.60	21.45	21.99
		12#11	21.36	21.98	21.27
		25#0	21.84	21.13	21.58
	16-QAM	1#0	21.59	21.76	21.96
		1#12	21.46	21.91	21.62
		1#24	22.14	21.81	21.74
		12#0	21.33	21.79	21.91
		12#6	21.82	21.83	21.24
		12#11	21.41	21.64	21.74
		25#0	22.21	21.59	21.50
10M	QPSK	1#0	21.35	21.30	21.98
		1#24	21.70	21.57	21.46
		1#49	21.49	21.39	22.02
		25#0	21.81	21.41	21.58
		25#12	21.73	21.76	22.04
		25#24	21.14	21.56	22.07
		50#0	21.62	21.97	22.24
	16-QAM	1#0	21.17	21.39	22.15
		1#24	21.94	21.76	21.74
		1#49	21.71	21.60	21.66
		25#0	21.30	21.91	22.33
		25#12	21.92	21.88	22.29
		25#24	21.34	21.77	22.27
		50#0	21.17	21.34	21.64

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
15M	QPSK	1#0	21.71	21.41	21.79
		1#37	21.00	21.90	21.29
		1#74	21.04	22.00	21.92
		36#0	21.63	21.77	21.89
		36#17	20.76	21.23	21.81
		36#35	21.42	22.04	21.31
		75#0	21.52	21.65	21.78
	16-QAM	1#0	21.26	21.77	21.54
		1#37	21.69	21.60	21.82
		1#74	21.69	21.11	21.18
		36#0	21.74	21.27	21.38
		36#17	20.77	21.51	21.65
		36#35	21.31	22.05	21.82
		75#0	21.30	21.18	21.19
20M	QPSK	1#0	21.69	21.22	20.90
		1#49	21.16	21.56	21.01
		1#99	21.13	21.45	21.76
		50#0	20.94	21.45	21.22
		50#24	21.17	21.63	21.34
		50#49	21.13	21.69	21.73
		100#0	21.48	21.69	21.41
	16-QAM	1#0	21.07	21.02	21.54
		1#49	21.65	21.86	21.66
		1#99	21.26	21.20	21.66
		50#0	21.04	21.57	21.37
		50#24	20.95	21.33	21.31
		50#49	21.26	21.86	21.22
		100#0	21.56	21.83	21.78

Peak-to-average ratio (PAR):**GPRS/ EGPRS 850 Band**

Mode	Channel	PAR (dB)	Limit (dB)
GPRS	Low	2.19	≤ 13
	Middle	2.10	≤ 13
	High	2.12	≤ 13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	2.07	≤ 13
	Middle	1.95	≤ 13
	High	2.14	≤ 13

WCDMA Band V

Mode	Channel	PAR (dB)	Limit (dB)
WCDMA (Rel99)	Low	2.05	≤ 13
	Middle	2.15	≤ 13
	High	2.11	≤ 13
WCDMA (HSDPA)	Low	2.00	≤ 13
	Middle	2.13	≤ 13
	High	2.09	≤ 13
WCDMA (HSUPA)	Low	2.20	≤ 13
	Middle	2.00	≤ 13
	High	2.10	≤ 13
WCDMA (HSPA+)	Low	2.20	≤ 13
	Middle	2.18	≤ 13
	High	2.12	≤ 13

PCS 1900

Mode	Channel	PAR (dB)	Limit (dB)
GPRS	Low	2.07	13
	Middle	2.01	13
	High	2.05	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	2.25	13
	Middle	2.25	13
	High	2.10	13

WCDMA Band II

Mode	Channel	PAR (dB)	Limit (dB)
WCDMA (Rel99)	Low	2.02	≤ 13
	Middle	2.12	≤ 13
	High	2.23	≤ 13
WCDMA (HSDPA)	Low	2.24	≤ 13
	Middle	2.16	≤ 13
	High	2.15	≤ 13
WCDMA (HSUPA)	Low	2.01	≤ 13
	Middle	2.27	≤ 13
	High	1.98	≤ 13
WCDMA (HSPA+)	Low	2.02	≤ 13
	Middle	2.23	≤ 13
	High	2.16	≤ 13

LTE Band 2

Test Modulation		Test Bandwidth	Low Channel (dB)	Middle Channel (dB)	High Channel (dB)	Limit (dB)
QPSK	1 RB	20M	3.07	3.04	3.17	13
	100 RB		5.13	5.05	5.16	13
16-QAM	1 RB	20M	4.05	4.19	4.09	13
	100 RB		6.03	6.07	6.19	13

LTE Band 4

Test Modulation		Test Bandwidth	Low Channel (dB)	Middle Channel (dB)	High Channel (dB)	Limit(dB)
QPSK	1 RB	20M	3.08	3.06	3.04	13
	100 RB		5.18	5.15	5.16	13
16-QAM	1 RB	20M	4.17	4.03	4.18	13
	100 RB		6.15	6.11	6.01	13

LTE Band 5

Test Modulation		Test Bandwidth	Low Channel (dB)	Middle Channel (dB)	High Channel (dB)	Limit(dB)
QPSK	1 RB	10M	3.01	3.14	3.00	≤ 13
	50 RB		5.10	5.12	5.06	≤ 13
16-QAM	1 RB	10M	4.17	4.07	4.05	≤ 13
	50 RB		6.18	6.05	6.08	≤ 13

LTE Band 7

Test Modulation		Test Bandwidth	Low Channel (dB)	Middle Channel (dB)	High Channel (dB)	Limit(dB)
QPSK	1 RB	20M	3.05	3.10	3.04	≤ 13
	100 RB		5.06	5.15	5.16	≤ 13
16-QAM	1 RB	20M	4.01	4.04	4.11	≤ 13
	100 RB		6.18	6.07	6.13	≤ 13

LTE Band 38

Test Modulation		Test Bandwidth	Low Channel (dB)	Middle Channel (dB)	High Channel (dB)	Limit(dB)
QPSK	1 RB	20M	3.19	3.07	3.11	≤ 13
	100 RB		5.11	5.04	5.19	≤ 13
16-QAM	1 RB	20M	4.17	4.12	4.11	≤ 13
	100 RB		6.11	6.10	6.04	≤ 13

LTE Band 40 Lower

Test Modulation		Test Bandwidth	Low Channel (dB)	Middle Channel (dB)	High Channel (dB)	Limit(dB)
QPSK	1 RB	5M	3.03	3.06	3.10	≤ 13
	25 RB		5.11	5.02	5.06	≤ 13
16-QAM	1 RB	5M	4.03	4.18	4.12	≤ 13
	25 RB		6.12	6.09	6.00	≤ 13

Test Modulation		Test Bandwidth	Low Channel (dB)	Middle Channel (dB)	High Channel (dB)	Limit(dB)
QPSK	1 RB	10M	/	3.07	/	≤ 13
	50 RB		/	5.04	/	≤ 13
16-QAM	1 RB	10M	/	4.02	/	≤ 13
	50 RB		/	6.17	/	≤ 13

LTE Band 40 Upper

Test Modulation		Test Bandwidth	Low Channel (dB)	Middle Channel (dB)	High Channel (dB)	Limit(dB)
QPSK	1 RB	5M	3.18	3.19	3.14	≤ 13
	25 RB		5.06	5.00	5.15	≤ 13
16-QAM	1 RB	5M	4.10	4.16	4.09	≤ 13
	25 RB		6.14	6.01	6.19	≤ 13

Test Modulation		Test Bandwidth	Low Channel (dB)	Middle Channel (dB)	High Channel (dB)	Limit(dB)
QPSK	1 RB	10M	/	3.15	/	≤ 13
	50 RB		/	5.17	/	≤ 13
16-QAM	1 RB	10M	/	4.06	/	≤ 13
	50 RB		/	6.15	/	≤ 13

LTE Band 41

Test Modulation		Test Bandwidth	Low Channel (dB)	Middle Channel (dB)	High Channel (dB)	Limit(dB)
QPSK	1 RB	20M	3.13	3.18	3.10	≤ 13
	100 RB		5.16	5.09	5.03	≤ 13
16-QAM	1 RB	20M	4.00	4.11	4.16	≤ 13
	100 RB		6.16	6.10	6.04	≤ 13

LTE Band 40 Duty cycle:**2305-2315MHz**

Test Modulation	Test Bandwidth	Ton (ms)	Total (ms)	Duty Cycle (%)	Limit (%)
QPSK	5M	3.230	10.043	32.16	≤ 38
	10M	3.350	10.164	32.96	≤ 38
16-QAM	5M	3.270	10.084	32.43	≤ 38
	10M	3.190	10.084	31.63	≤ 38

2350-2360MHz

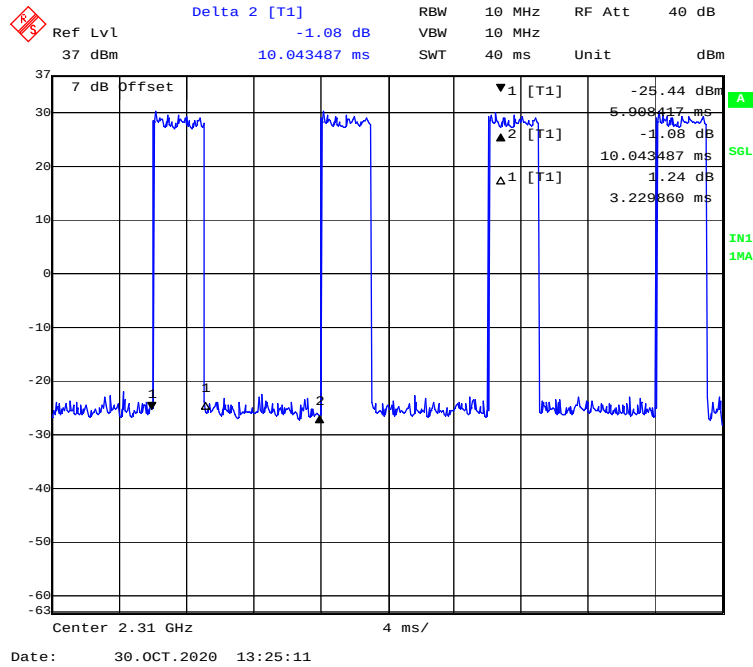
Test Modulation	Test Bandwidth	Ton (ms)	Total (ms)	Duty Cycle (%)	Limit (%)
QPSK	5M	3.166	10.060	31.47	≤ 38
	10M	3.280	10.084	32.53	≤ 38
16-QAM	5M	3.246	10.060	32.27	≤ 38
	10M	3.200	10.013	31.96	≤ 38

Note: EUT setup is as following:

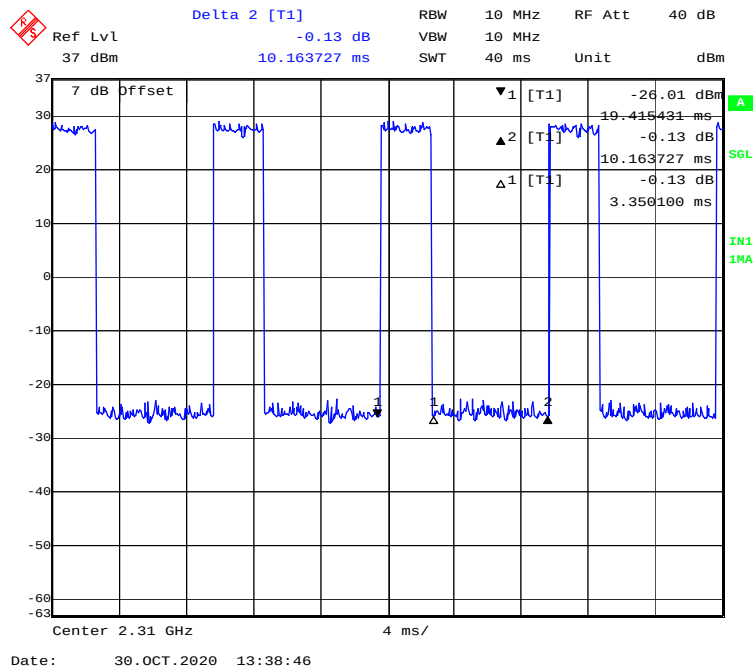
Uplink downlink configuration	Subframe number									
	0	1	2	3	4	5	6	7	8	9
3	D	S	U	U	U	D	D	D	D	D

2305-2315 MHz:

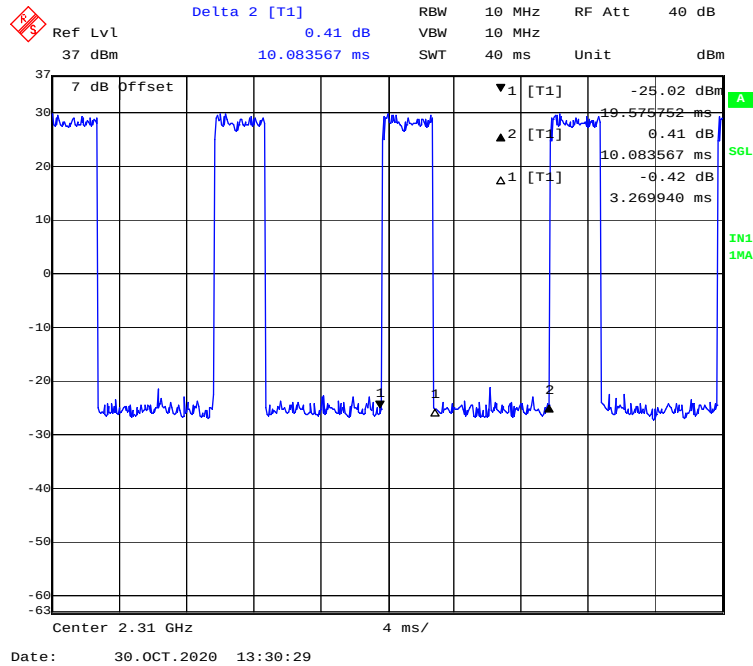
QPSK, 5MHz



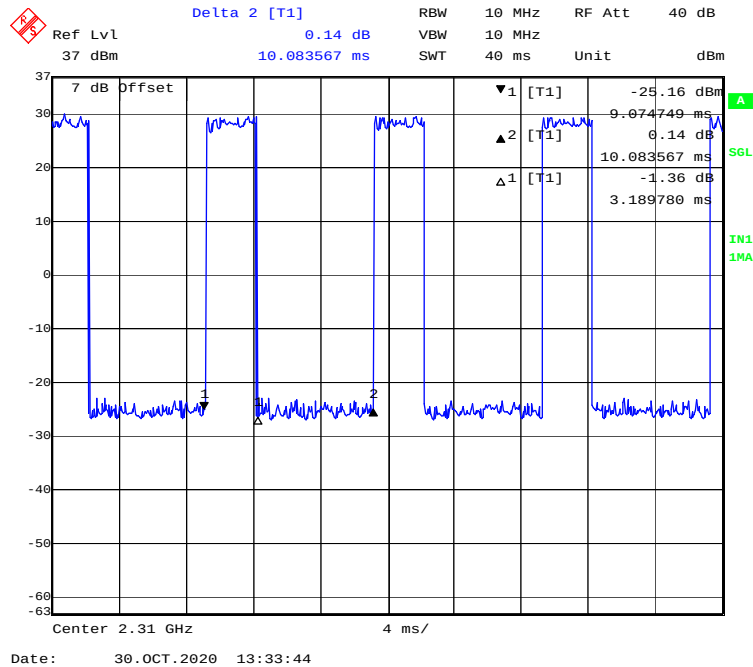
QPSK, 10MHz



16-QAM, 5MHz

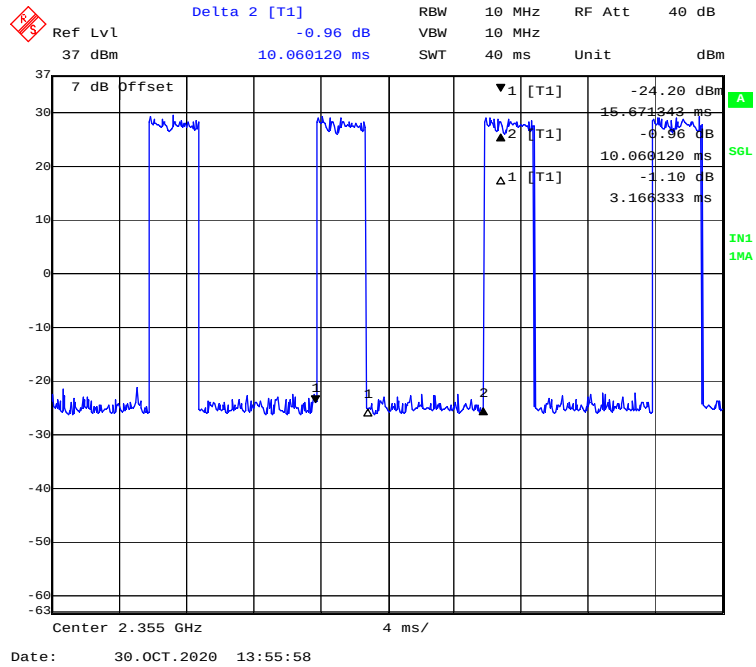


16-QAM, 10MHz

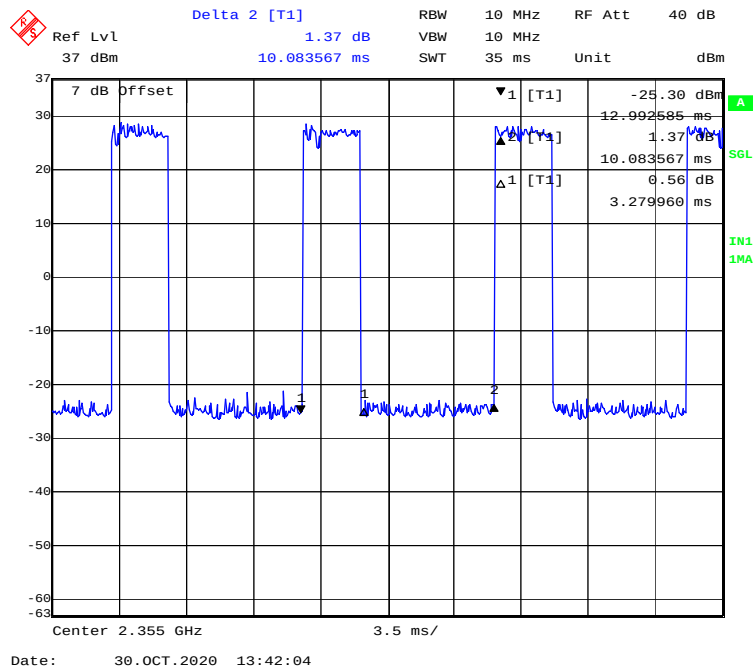


2350-2360 MHz:

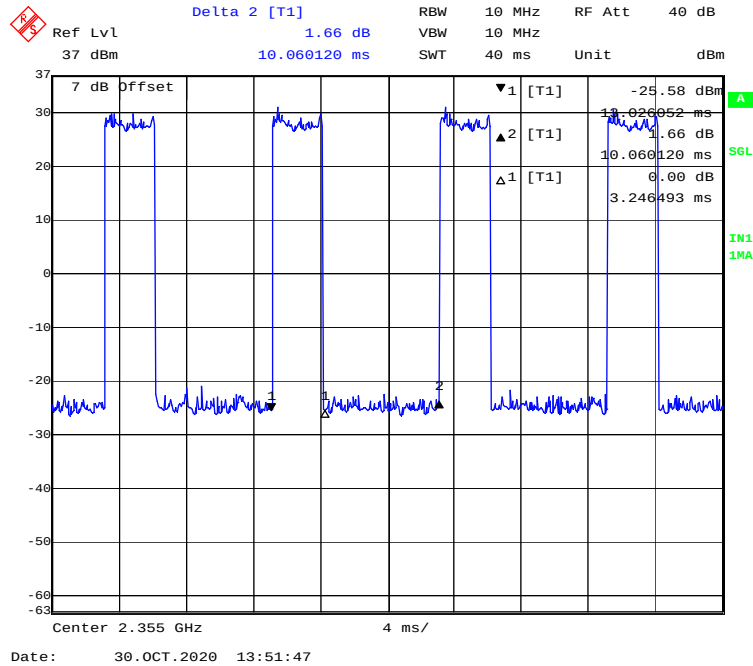
QPSK, 5MHz



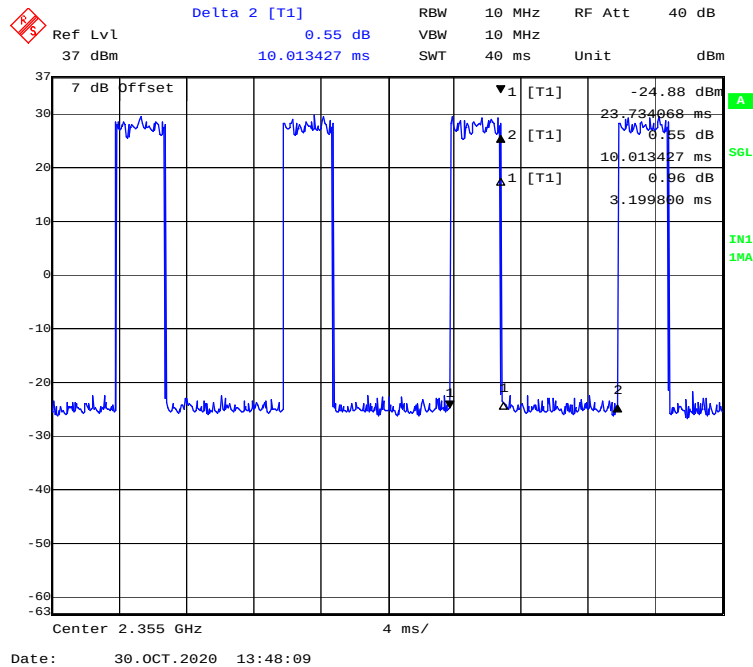
QPSK, 10MHz



16-QAM, 5MHz



16-QAM, 10MHz



Radiated Power(Both L1563 and L1573 have been tested, only the worst case is recorded):

GPRS/EGPRS Mode

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
GPRS 850, Low Channel (ERP)										
824.20	98.49	77	200	H	33.69	0.62	-1.18	31.89	38.45	6.56
824.20	97.69	310	157	V	32.89	0.62	-1.18	31.09	38.45	7.36
EGPRS 850, Low Channel (ERP)										
824.20	93.61	56	152	H	28.81	0.62	-1.18	27.01	38.45	11.44
824.20	94.13	254	175	V	29.33	0.62	-1.18	27.53	38.45	10.92
GPRS 1900, Low Channel (EIRP)										
1850.20	93.49	225	198	H	20.36	0.84	8.76	28.28	33.00	4.72
1850.20	94.82	350	174	V	21.69	0.84	8.76	29.61	33.00	3.39
EGPRS 1900, Low Channel (EIRP)										
1850.20	89.46	275	163	H	16.33	0.84	8.76	24.25	33.00	8.75
1850.20	90.12	300	112	V	16.99	0.84	8.76	24.91	33.00	8.09

GPRS/EGPRS Mode

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
GPRS 850, Middle Channel (ERP)										
836.60	99.16	77	200	H	35.5	0.63	-1.1	33.77	38.45	4.68
836.60	98.23	310	157	V	34.57	0.63	-1.1	32.84	38.45	5.61
EGPRS 850, Middle Channel (ERP)										
836.60	94.12	56	152	H	30.46	0.63	-1.1	28.73	38.45	9.72
836.60	92.89	254	175	V	29.23	0.63	-1.1	27.5	38.45	10.95
PCS 1900, Middle Channel (EIRP)										
1880.00	93.49	225	198	H	20.36	0.85	8.81	28.32	33.00	4.68
1880.00	94.22	350	174	V	21.09	0.85	8.81	29.05	33.00	3.95
EGPRS 1900, Middle Channel (EIRP)										
1880.00	90.39	275	163	H	17.26	0.85	8.81	25.22	33.00	7.78
1880.00	89.46	300	112	V	16.33	0.85	8.81	24.29	33.00	8.71

GPRS/EGPRS Mode

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
GPRS 850, High Channel (ERP)										
848.80	98.16	77	200	H	35.62	0.63	-1.10	33.89	38.45	4.56
848.80	97.68	310	157	V	35.14	0.63	-1.10	33.41	38.45	5.04
EGPRS 850, High Channel (ERP)										
848.80	91.64	56	152	H	27.98	0.63	-1.10	26.25	38.45	12.20
848.80	90.58	254	175	V	26.92	0.63	-1.10	25.19	38.45	13.26
PCS 1900, High Channel (EIRP)										
1909.80	94.13	225	198	H	21.00	0.85	8.85	29.00	33.00	4.00
1909.80	94.23	350	174	V	21.10	0.85	8.85	29.10	33.00	3.90
EGPRS 1900, High Channel (EIRP)										
1909.80	89.76	275	163	H	16.63	0.85	8.85	24.63	33.00	8.37
1909.80	90.01	300	112	V	16.88	0.85	8.85	24.88	33.00	8.12

WCDMA Mode

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
WCDMA Band V, Low Channel(ERP)										
826.40	87.06	297	187	H	23.55	0.63	-1.17	21.75	38.45	16.70
826.40	86.49	311	130	V	22.98	0.63	-1.17	21.18	38.45	17.27
WCDMA Band II, Low Channel(EIRP)										
1852.40	86.49	168	214	H	14.2	0.84	8.76	22.12	33.00	10.88
1852.40	87.19	246	206	V	14.9	0.84	8.76	22.82	33.00	10.18

WCDMA Mode

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
WCDMA Band V, Middle Channel(ERP)										
836.60	87.46	40	187	H	23.95	0.63	-1.14	22.18	38.45	16.27
836.60	86.96	201	130	V	23.45	0.63	-1.14	21.68	38.45	16.77
WCDMA Band II, Middle Channel(EIRP)										
1880.00	86.49	211	214	H	14.2	0.85	9.00	22.35	33.00	10.65
1880.00	87.09	210	206	V	14.8	0.85	9.00	22.95	33.00	10.05

WCDMA Mode

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
WCDMA Band V, High Channel(ERP)										
846.60	86.78	156	187	H	23.27	0.63	-1.11	21.53	38.45	16.92
846.60	87.09	216	130	V	23.58	0.63	-1.11	21.84	38.45	16.61
WCDMA Band II, High Channel(EIRP)										
1907.60	86.96	168	214	H	14.67	0.85	8.85	22.67	33.00	10.33
1907.60	87.19	176	206	V	14.90	0.85	8.85	22.90	33.00	10.10

ERP&EIRP:**LTE Band 2**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4M BW Low Channel								
1850.70	H	89.98	15.25	0.84	8.76	23.17	33	9.83
1850.70	V	88.37	13.64	0.84	8.76	21.56	33	11.44
16-QAM 1.4M BW Low Channel								
1850.70	H	89.59	14.86	0.84	8.76	22.78	33	10.22
1850.70	V	88.13	13.4	0.84	8.76	21.32	33	11.68
QPSK 3M BW Low Channel								
1851.50	H	89.32	14.59	0.84	8.76	22.51	33	10.49
1851.50	V	88.26	13.53	0.84	8.76	21.45	33	11.55
16-QAM 3M BW Low Channel								
1851.50	H	89.56	14.83	0.84	8.76	22.75	33	10.25
1851.50	V	88.52	13.79	0.84	8.76	21.71	33	11.29
QPSK 5M BW Low Channel								
1852.50	H	89.89	15.16	0.84	8.76	23.08	33	9.92
1852.50	V	88.82	14.09	0.84	8.76	22.01	33	10.99
16-QAM 5M BW Low Channel								
1852.50	H	89.34	14.61	0.84	8.76	22.53	33	10.47
1852.50	V	88.39	13.66	0.84	8.76	21.58	33	11.42

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 10M BW Low Channel								
1855.00	H	89.28	14.55	0.84	8.77	22.48	33	10.52
1855.00	V	88.04	13.31	0.84	8.77	21.24	33	11.76
16-QAM 10M BW Low Channel								
1855.00	H	89.83	15.1	0.84	8.77	23.03	33	9.97
1855.00	V	88.59	13.86	0.84	8.77	21.79	33	11.21
QPSK 15M BW Low Channel								
1857.50	H	89.87	15.14	0.84	8.77	23.07	33	9.93
1857.50	V	88.01	13.28	0.84	8.77	21.21	33	11.79
16-QAM 15M BW Low Channel								
1857.50	H	89.17	14.44	0.84	8.77	22.37	33	10.63
1857.50	V	88.01	13.28	0.84	8.77	21.21	33	11.79
QPSK 20M BW Low Channel								
1860.00	H	89.08	14.35	0.84	8.78	22.29	33	10.71
1860.00	V	88.73	14	0.84	8.78	21.94	33	11.06
16-QAM 20M BW Low Channel								
1860.00	H	89.77	15.04	0.84	8.78	22.98	33	10.02
1860.00	V	88.22	13.49	0.84	8.78	21.43	33	11.57

LTE Band 2

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4M BW Middle Channel								
1880.00	H	89.2	14.47	0.85	8.81	22.43	33	10.57
1880.00	V	88.59	13.86	0.85	8.81	21.82	33	11.18
16-QAM 1.4M BW Middle Channel								
1880.00	H	89.92	15.19	0.85	8.81	23.15	33	9.85
1880.00	V	88.56	13.83	0.85	8.81	21.79	33	11.21
QPSK 3M BW Middle Channel								
1880.00	H	89.69	14.96	0.85	8.81	22.92	33	10.08
1880.00	V	88.78	14.05	0.85	8.81	22.01	33	10.99
16-QAM 3M BW Middle Channel								
1880.00	H	89.49	14.76	0.85	8.81	22.72	33	10.28
1880.00	V	88.04	13.31	0.85	8.81	21.27	33	11.73
QPSK 5M BW Middle Channel								
1880.00	H	89.15	14.42	0.85	8.81	22.38	33	10.62
1880.00	V	88.54	13.81	0.85	8.81	21.77	33	11.23
16-QAM 5M BW Middle Channel								
1880.00	H	89.84	15.11	0.85	8.81	23.07	33	9.93
1880.00	V	88.71	13.98	0.85	8.81	21.94	33	11.06

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 10M BW Middle Channel								
1880.00	H	89.31	14.58	0.85	8.81	22.54	33	10.46
1880.00	V	88.23	13.5	0.85	8.81	21.46	33	11.54
16-QAM 10M BW Middle Channel								
1880.00	H	89.75	15.02	0.85	8.81	22.98	33	10.02
1880.00	V	88.58	13.85	0.85	8.81	21.81	33	11.19
QPSK 15M BW Middle Channel								
1880.00	H	89.04	14.31	0.85	8.81	22.27	33	10.73
1880.00	V	88.14	13.41	0.85	8.81	21.37	33	11.63
16-QAM 15M BW Middle Channel								
1880.00	H	89.17	14.44	0.85	8.81	22.4	33	10.6
1880.00	V	88.82	14.09	0.85	8.81	22.05	33	10.95
QPSK 20M BW Middle Channel								
1880.00	H	89.2	14.47	0.85	8.81	22.43	33	10.57
1880.00	V	88.38	13.65	0.85	8.81	21.61	33	11.39
16-QAM 20M BW Middle Channel								
1880.00	H	89.21	14.48	0.85	8.81	22.44	33	10.56
1880.00	V	88.25	13.52	0.85	8.81	21.48	33	11.52

LTE Band 2

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4M BW High Channel								
1909.30	H	90	15.27	0.85	8.85	23.27	33	9.73
1909.30	V	88.45	13.72	0.85	8.85	21.72	33	11.28
16-QAM 1.4M BW High Channel								
1909.30	H	89.46	14.73	0.85	8.85	22.73	33	10.27
1909.30	V	88.76	14.03	0.85	8.85	22.03	33	10.97
QPSK 3M BW High Channel								
1908.50	H	89.02	14.29	0.85	8.85	22.29	33	10.71
1908.50	V	88.34	13.61	0.85	8.85	21.61	33	11.39
16-QAM 3M BW High Channel								
1908.50	H	89.73	15	0.85	8.85	23	33	10
1908.50	V	88.98	14.25	0.85	8.85	22.25	33	10.75
QPSK 5M BW High Channel								
1907.50	H	89.73	15	0.85	8.85	23	33	10
1907.50	V	88.8	14.07	0.85	8.85	22.07	33	10.93
16-QAM 5M BW High Channel								
1907.50	H	89.71	14.98	0.85	8.85	22.98	33	10.02
1907.50	V	88.48	13.75	0.85	8.85	21.75	33	11.25

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 10M BW High Channel								
1905.00	H	89.92	15.19	0.85	8.85	23.19	33	9.81
1905.00	V	88.65	13.92	0.85	8.85	21.92	33	11.08
16-QAM 10M BW High Channel								
1905.00	H	89.78	15.05	0.85	8.85	23.05	33	9.95
1905.00	V	88.09	13.36	0.85	8.85	21.36	33	11.64
QPSK 15M BW High Channel								
1902.50	H	89.94	15.21	0.85	8.84	23.2	33	9.8
1902.50	V	88.43	13.7	0.85	8.84	21.69	33	11.31
16-QAM 15M BW High Channel								
1902.50	H	89.64	14.91	0.85	8.84	22.9	33	10.1
1902.50	V	88.51	13.78	0.85	8.84	21.77	33	11.23
QPSK 20M BW High Channel								
1900.00	H	89.19	14.46	0.85	8.84	22.45	33	10.55
1900.00	V	88.64	13.91	0.85	8.84	21.9	33	11.1
16-QAM 20M BW High Channel								
1900.00	H	89.18	14.45	0.85	8.84	22.44	33	10.56
1900.00	V	88.61	13.88	0.85	8.84	21.87	33	11.13

LTE Band 4

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4M BW Low Channel								
1710.70	H	89.13	13.38	0.84	8.54	21.08	30	8.92
1710.70	V	88.75	13.00	0.84	8.54	20.70	30	9.30
16-QAM 1.4M BW Low Channel								
1710.70	H	89.69	13.94	0.84	8.54	21.64	30	8.36
1710.70	V	88.58	12.83	0.84	8.54	20.53	30	9.47
QPSK 3M BW Low Channel								
1711.50	H	89.34	13.59	0.84	8.54	21.29	30	8.71
1711.50	V	88.65	12.90	0.84	8.54	20.60	30	9.40
16-QAM 3M BW Low Channel								
1711.50	H	89.59	13.84	0.84	8.54	21.54	30	8.46
1711.50	V	88.32	12.57	0.84	8.54	20.27	30	9.73
QPSK 5M BW Low Channel								
1712.50	H	89.48	13.73	0.84	8.54	21.43	30	8.57
1712.50	V	88.52	12.77	0.84	8.54	20.47	30	9.53
16-QAM 5M BW Low Channel								
1712.50	H	89.93	14.18	0.84	8.54	21.88	30	8.12
1712.50	V	88.47	12.72	0.84	8.54	20.42	30	9.58

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 10M BW Low Channel								
1715.00	H	89.13	13.38	0.84	8.54	21.08	30	8.92
1715.00	V	88.54	12.79	0.84	8.54	20.49	30	9.51
16-QAM 10M BW Low Channel								
1715.00	H	89.08	13.33	0.84	8.54	21.03	30	8.97
1715.00	V	88.21	12.46	0.84	8.54	20.16	30	9.84
QPSK 15M BW Low Channel								
1717.50	H	89.47	13.72	0.84	8.55	21.43	30	8.57
1717.50	V	88.81	13.06	0.84	8.55	20.77	30	9.23
16-QAM 15M BW Low Channel								
1717.50	H	89.82	14.07	0.84	8.55	21.78	30	8.22
1717.50	V	88.30	12.55	0.84	8.55	20.26	30	9.74
QPSK 20M BW Low Channel								
1720.00	H	89.45	13.70	0.84	8.55	21.41	30	8.59
1720.00	V	88.34	12.59	0.84	8.55	20.30	30	9.70
16-QAM 20M BW Low Channel								
1720.00	H	89.44	13.69	0.84	8.55	21.40	30	8.60
1720.00	V	88.26	12.51	0.84	8.55	20.22	30	9.78

LTE Band 4

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4M BW Middle Channel								
1732.50	H	89.87	14.12	0.84	8.57	21.85	30	8.15
1732.50	V	88.57	12.82	0.84	8.57	20.55	30	9.45
16-QAM 1.4M BW Middle Channel								
1732.50	H	89.08	13.33	0.84	8.57	21.06	30	8.94
1732.50	V	88.38	12.63	0.84	8.57	20.36	30	9.64
QPSK 3M BW Middle Channel								
1732.50	H	89.33	13.58	0.84	8.57	21.31	30	8.69
1732.50	V	88.11	12.36	0.84	8.57	20.09	30	9.91
16-QAM 3M BW Middle Channel								
1732.50	H	89.43	13.68	0.84	8.57	21.41	30	8.59
1732.50	V	88.79	13.04	0.84	8.57	20.77	30	9.23
QPSK 5M BW Middle Channel								
1732.50	H	89.07	13.32	0.84	8.57	21.05	30	8.95
1732.50	V	88.06	12.31	0.84	8.57	20.04	30	9.96
16-QAM 5M BW Middle Channel								
1732.50	H	89.59	13.84	0.84	8.57	21.57	30	8.43
1732.50	V	88.25	12.50	0.84	8.57	20.23	30	9.77

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 10M BW Middle Channel								
1732.50	H	89.36	13.61	0.84	8.57	21.34	30	8.66
1732.50	V	88.93	13.18	0.84	8.57	20.91	30	9.09
16-QAM 10M BW Middle Channel								
1732.50	H	89.59	13.84	0.84	8.57	21.57	30	8.43
1732.50	V	88.36	12.61	0.84	8.57	20.34	30	9.66
QPSK 15M BW Middle Channel								
1732.50	H	89.60	13.85	0.84	8.57	21.58	30	8.42
1732.50	V	88.90	13.15	0.84	8.57	20.88	30	9.12
16-QAM 15M BW Middle Channel								
1732.50	H	89.80	14.05	0.84	8.57	21.78	30	8.22
1732.50	V	88.19	12.44	0.84	8.57	20.17	30	9.83
QPSK 20M BW Middle Channel								
1732.50	H	89.79	14.04	0.84	8.57	21.77	30	8.23
1732.50	V	88.60	12.85	0.84	8.57	20.58	30	9.42
16-QAM 20M BW Middle Channel								
1732.50	H	89.87	14.12	0.84	8.57	21.85	30	8.15
1732.50	V	88.18	12.43	0.84	8.57	20.16	30	9.84

LTE Band 4

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4M BW High Channel								
1754.30	H	89.59	13.84	0.84	8.61	21.61	30	8.39
1754.30	V	88.34	12.59	0.84	8.61	20.36	30	9.64
16-QAM 1.4M BW High Channel								
1754.30	H	89.92	14.17	0.84	8.61	21.94	30	8.06
1754.30	V	88.66	12.91	0.84	8.61	20.68	30	9.32
QPSK 3M BW High Channel								
1753.50	H	89.96	14.21	0.84	8.60	21.97	30	8.03
1753.50	V	88.30	12.55	0.84	8.60	20.31	30	9.69
16-QAM 3M BW High Channel								
1753.50	H	89.72	13.97	0.84	8.60	21.73	30	8.27
1753.50	V	88.45	12.70	0.84	8.60	20.46	30	9.54
QPSK 5M BW High Channel								
1752.50	H	89.94	14.19	0.84	8.60	21.95	30	8.05
1752.50	V	88.54	12.79	0.84	8.60	20.55	30	9.45
16-QAM 5M BW High Channel								
1752.50	H	89.42	13.67	0.84	8.60	21.43	30	8.57
1752.50	V	88.27	12.52	0.84	8.60	20.28	30	9.72

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 10M BW High Channel								
1750.00	H	89.12	13.37	0.84	8.60	21.13	30	8.87
1750.00	V	88.63	12.88	0.84	8.60	20.64	30	9.36
16-QAM 10M BW High Channel								
1750.00	H	89.37	13.62	0.84	8.60	21.38	30	8.62
1750.00	V	88.87	13.12	0.84	8.60	20.88	30	9.12
QPSK 15M BW High Channel								
1747.50	H	89.35	13.60	0.84	8.60	21.36	30	8.64
1747.50	V	88.85	13.10	0.84	8.60	20.86	30	9.14
16-QAM 15M BW High Channel								
1747.50	H	89.71	13.96	0.84	8.60	21.72	30	8.28
1747.50	V	88.34	12.59	0.84	8.60	20.35	30	9.65
QPSK 20M BW High Channel								
1745.00	H	89.57	13.82	0.84	8.59	21.57	30	8.43
1745.00	V	88.87	13.12	0.84	8.59	20.87	30	9.13
16-QAM 20M BW High Channel								
1745.00	H	89.42	13.67	0.84	8.59	21.42	30	8.58
1745.00	V	88.97	13.22	0.84	8.59	20.97	30	9.03

LTE Band 5

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4M BW Low Channel								
824.70	H	90.53	26.66	0.62	-1.18	24.86	38.45	13.59
824.70	V	88.81	24.94	0.62	-1.18	23.14	38.45	15.31
16-QAM 1.4M BW Low Channel								
824.70	H	90.41	26.54	0.62	-1.18	24.74	38.45	13.71
824.70	V	88.29	24.42	0.62	-1.18	22.62	38.45	15.83
QPSK 3M BW Low Channel								
825.50	H	90.90	27.03	0.63	-1.17	25.23	38.45	13.22
825.50	V	88.34	24.47	0.63	-1.17	22.67	38.45	15.78
16-QAM 3M BW Low Channel								
825.50	H	90.73	26.86	0.63	-1.17	25.06	38.45	13.39
825.50	V	88.19	24.32	0.63	-1.17	22.52	38.45	15.93
QPSK 5M BW Low Channel								
826.50	H	90.76	26.89	0.63	-1.17	25.09	38.45	13.36
826.50	V	88.56	24.69	0.63	-1.17	22.89	38.45	15.56
16-QAM 5M BW Low Channel								
826.50	H	90.18	26.31	0.63	-1.17	24.51	38.45	13.94
826.50	V	88.67	24.80	0.63	-1.17	23.00	38.45	15.45
QPSK 10M BW Low Channel								
829.00	H	90.22	26.35	0.63	-1.16	24.56	38.45	13.89
829.00	V	88.34	24.47	0.63	-1.16	22.68	38.45	15.77
16-QAM 10M BW Low Channel								
829.00	H	90.02	26.15	0.63	-1.16	24.36	38.45	14.09
829.00	V	88.49	24.62	0.63	-1.16	22.83	38.45	15.62

LTE Band 5

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4M BW Middle Channel								
836.50	H	90.44	26.57	0.63	-1.14	24.80	38.45	13.65
836.50	V	88.35	24.48	0.63	-1.14	22.71	38.45	15.74
16-QAM 1.4M BW Middle Channel								
836.50	H	90.81	26.94	0.63	-1.14	25.17	38.45	13.28
836.50	V	88.66	24.79	0.63	-1.14	23.02	38.45	15.43
QPSK 3M BW Middle Channel								
836.50	H	90.54	26.67	0.63	-1.14	24.90	38.45	13.55
836.50	V	88.09	24.22	0.63	-1.14	22.45	38.45	16.00
16-QAM 3M BW Middle Channel								
836.50	H	90.60	26.73	0.63	-1.14	24.96	38.45	13.49
836.50	V	88.18	24.31	0.63	-1.14	22.54	38.45	15.91
QPSK 5M BW Middle Channel								
836.50	H	90.99	27.12	0.63	-1.14	25.35	38.45	13.10
836.50	V	88.70	24.83	0.63	-1.14	23.06	38.45	15.39
16-QAM 5M BW Middle Channel								
836.50	H	90.62	26.75	0.63	-1.14	24.98	38.45	13.47
836.50	V	88.97	25.10	0.63	-1.14	23.33	38.45	15.12
QPSK 10M BW Middle Channel								
836.50	H	90.97	27.10	0.63	-1.14	25.33	38.45	13.12
836.50	V	88.73	24.86	0.63	-1.14	23.09	38.45	15.36
16-QAM 10M BW Middle Channel								
836.50	H	90.65	26.78	0.63	-1.14	25.01	38.45	13.44
836.50	V	88.56	24.69	0.63	-1.14	22.92	38.45	15.53

LTE Band 5

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4M BW High Channel								
848.30	H	90.99	27.12	0.63	-1.11	25.38	38.45	13.07
848.30	V	88.64	24.77	0.63	-1.11	23.03	38.45	15.42
16-QAM 1.4M BW High Channel								
848.30	H	90.84	26.97	0.63	-1.11	25.23	38.45	13.22
848.30	V	88.58	24.71	0.63	-1.11	22.97	38.45	15.48
QPSK 3M BW High Channel								
847.50	H	90.69	26.82	0.63	-1.11	25.08	38.45	13.37
847.50	V	88.57	24.70	0.63	-1.11	22.96	38.45	15.49
16-QAM 3M BW High Channel								
847.50	H	90.86	26.99	0.63	-1.11	25.25	38.45	13.20
847.50	V	88.39	24.52	0.63	-1.11	22.78	38.45	15.67
QPSK 5M BW High Channel								
846.50	H	90.29	26.42	0.63	-1.11	24.68	38.45	13.77
846.50	V	88.12	24.25	0.63	-1.11	22.51	38.45	15.94
16-QAM 5M BW High Channel								
846.50	H	90.57	26.70	0.63	-1.11	24.96	38.45	13.49
846.50	V	88.26	24.39	0.63	-1.11	22.65	38.45	15.80
QPSK 10M BW High Channel								
844.00	H	90.68	26.81	0.63	-1.12	25.06	38.45	13.39
844.00	V	88.27	24.40	0.63	-1.12	22.65	38.45	15.80
16-QAM 10M BW High Channel								
844.00	H	90.38	26.51	0.63	-1.12	24.76	38.45	13.69
844.00	V	88.61	24.74	0.63	-1.12	22.99	38.45	15.46

LTE band 7

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Submitted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK 5M BW Low Channel								
2502.50	H	86.09	10.20	0.89	10.1	19.41	33	13.59
2502.50	V	86.63	10.74	0.89	10.1	19.95	33	13.05
16-QAM 5M BW Low Channel								
2502.50	H	86.23	10.34	0.89	10.1	19.55	33	13.45
2502.50	V	86.61	10.72	0.89	10.1	19.93	33	13.07
QPSK 10M BW Low Channel								
2505.00	H	86.24	10.35	0.89	10.09	19.55	33	13.45
2505.00	V	86.71	10.82	0.89	10.09	20.02	33	12.98
16-QAM 10M BW Low Channel								
2505.00	H	86.87	10.98	0.89	10.09	20.18	33	12.82
2505.00	V	86.04	10.15	0.89	10.09	19.35	33	13.65
QPSK 15M BW Low Channel								
2507.50	H	86.67	10.78	0.89	10.09	19.98	33	13.02
2507.50	V	86.76	10.87	0.89	10.09	20.07	33	12.93
16-QAM 15M BW Low Channel								
2507.50	H	86.11	10.22	0.89	10.09	19.42	33	13.58
2507.50	V	86.12	10.23	0.89	10.09	19.43	33	13.57
QPSK 20M BW Low Channel								
2510.00	H	86.11	10.22	0.89	10.09	19.42	33	13.58
2510.00	V	86.5	10.61	0.89	10.09	19.81	33	13.19
16-QAM 20M BW Low Channel								
2510.00	H	86.5	10.61	0.89	10.09	19.81	33	13.19
2510.00	V	86.94	11.05	0.89	10.09	20.25	33	12.75

LTE band 7

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Submitted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK 5M BW Middle Channel								
2535.00	H	86.89	11.00	0.89	10.05	20.16	33	12.84
2535.00	V	86.94	11.05	0.89	10.05	20.21	33	12.79
16-QAM 5M BW Middle Channel								
2535.00	H	86.92	11.03	0.89	10.05	20.19	33	12.81
2535.00	V	86.58	10.69	0.89	10.05	19.85	33	13.15
QPSK 10M BW Middle Channel								
2535.00	H	86.12	10.23	0.89	10.05	19.39	33	13.61
2535.00	V	86.05	10.16	0.89	10.05	19.32	33	13.68
16-QAM 10M BW Middle Channel								
2535.00	H	86.76	10.87	0.89	10.05	20.03	33	12.97
2535.00	V	86.04	10.15	0.89	10.05	19.31	33	13.69
QPSK 15M BW Middle Channel								
2535.00	H	86.87	10.98	0.89	10.05	20.14	33	12.86
2535.00	V	86.04	10.15	0.89	10.05	19.31	33	13.69
16-QAM 15M BW Middle Channel								
2535.00	H	86.52	10.63	0.89	10.05	19.79	33	13.21
2535.00	V	86.36	10.47	0.89	10.05	19.63	33	13.37
QPSK 20M BW Middle Channel								
2535.00	H	86.42	10.53	0.89	10.05	19.69	33	13.31
2535.00	V	86.3	10.41	0.89	10.05	19.57	33	13.43
16-QAM 20M BW Middle Channel								
2535.00	H	86.29	10.40	0.89	10.05	19.56	33	13.44
2535.00	V	86.27	10.38	0.89	10.05	19.54	33	13.46

LTE band 7

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Submitted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK 5M BW High Channel								
2567.50	H	86.82	10.93	0.89	10.01	20.05	33	12.95
2567.50	V	86.22	10.33	0.89	10.01	19.45	33	13.55
16-QAM 5M BW High Channel								
2567.50	H	86.31	10.42	0.89	10.01	19.54	33	13.46
2567.50	V	86.69	10.80	0.89	10.01	19.92	33	13.08
QPSK 10M BW High Channel								
2565.00	H	86.11	10.22	0.89	10.01	19.34	33	13.66
2565.00	V	86.76	10.87	0.89	10.01	19.99	33	13.01
16-QAM 10M BW High Channel								
2565.00	H	86.68	10.79	0.89	10.01	19.91	33	13.09
2565.00	V	86.7	10.81	0.89	10.01	19.93	33	13.07
QPSK 15M BW High Channel								
2562.50	H	86.63	10.74	0.89	10.01	19.86	33	13.14
2562.50	V	86.79	10.90	0.89	10.01	20.02	33	12.98
16-QAM 15M BW High Channel								
2562.50	H	86.51	10.62	0.89	10.01	19.74	33	13.26
2562.50	V	86.76	10.87	0.89	10.01	19.99	33	13.01
QPSK 20M BW High Channel								
2560.00	H	86.09	10.20	0.89	10.02	19.33	33	13.67
2560.00	V	86.7	10.81	0.89	10.02	19.94	33	13.06
16-QAM 20M BW High Channel								
2560.00	H	86.48	10.59	0.89	10.02	19.72	33	13.28
2560.00	V	86.22	10.33	0.89	10.02	19.46	33	13.54

LTE band 38

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5M BW Low Channel								
2572.50	H	84.36	10.47	0.89	10	19.58	33	13.42
2572.50	V	85.22	11.33	0.89	10	20.44	33	12.56
16-QAM 5M BW Low Channel								
2572.50	H	84.98	11.09	0.89	10	20.20	33	12.80
2572.50	V	85.38	11.49	0.89	10	20.60	33	12.40
QPSK 10M BW Low Channel								
2575.00	H	84.26	10.37	0.89	10	19.48	33	13.52
2575.00	V	85.42	11.53	0.89	10	20.64	33	12.36
16-QAM 10M BW Low Channel								
2575.00	H	84.94	11.05	0.89	10	20.16	33	12.84
2575.00	V	85.3	11.41	0.89	10	20.52	33	12.48
QPSK 15M BW Low Channel								
2577.50	H	84.21	10.32	0.89	9.99	19.42	33	13.58
2577.50	V	85.41	11.52	0.89	9.99	20.62	33	12.38
16-QAM 15M BW Low Channel								
2577.50	H	84.16	10.27	0.89	9.99	19.37	33	13.63
2577.50	V	85.4	11.51	0.89	9.99	20.61	33	12.39
QPSK 20M BW Low Channel								
2580.00	H	84.76	10.87	0.89	9.99	19.97	33	13.03
2580.00	V	85.47	11.58	0.89	9.99	20.68	33	12.32
16-QAM 20M BW Low Channel								
2580.00	H	84.98	11.09	0.89	9.99	20.19	33	12.81
2580.00	V	85.61	11.72	0.89	9.99	20.82	33	12.18

LTE band 38

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5M BW Middle Channel								
2595.00	H	84.94	11.05	0.9	9.97	20.12	33	12.88
2595.00	V	85.6	11.71	0.9	9.97	20.78	33	12.22
16-QAM 5M BW Middle Channel								
2595.00	H	84.96	11.07	0.9	9.97	20.14	33	12.86
2595.00	V	85.6	11.71	0.9	9.97	20.78	33	12.22
QPSK 10M BW Middle Channel								
2595.00	H	84.02	10.13	0.9	9.97	19.20	33	13.80
2595.00	V	85.55	11.66	0.9	9.97	20.73	33	12.27
16-QAM 10M BW Middle Channel								
2595.00	H	84.31	10.42	0.9	9.97	19.49	33	13.51
2595.00	V	85.74	11.85	0.9	9.97	20.92	33	12.08
QPSK 15M BW Middle Channel								
2595.00	H	84.05	10.16	0.9	9.97	19.23	33	13.77
2595.00	V	85.45	11.56	0.9	9.97	20.63	33	12.37
16-QAM 15M BW Middle Channel								
2595.00	H	84.56	10.67	0.9	9.97	19.74	33	13.26
2595.00	V	85.44	11.55	0.9	9.97	20.62	33	12.38
QPSK 20M BW Middle Channel								
2595.00	H	84.86	10.97	0.9	9.97	20.04	33	12.96
2595.00	V	85.4	11.51	0.9	9.97	20.58	33	12.42
16-QAM 20M BW Middle Channel								
2595.00	H	84.37	10.48	0.9	9.97	19.55	33	13.45
2595.00	V	85.78	11.89	0.9	9.97	20.96	33	12.04

LTE band 38

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5M BW High Channel								
2617.50	H	84.26	10.37	0.9	9.94	19.41	33	13.59
2617.50	V	85.55	11.66	0.9	9.94	20.70	33	12.30
16-QAM 5M BW High Channel								
2617.50	H	84.64	10.75	0.9	9.94	19.79	33	13.21
2617.50	V	85.17	11.28	0.9	9.94	20.32	33	12.68
QPSK 10M BW High Channel								
2615.00	H	84.52	10.63	0.9	9.94	19.67	33	13.33
2615.00	V	85.19	11.30	0.9	9.94	20.34	33	12.66
16-QAM 10M BW High Channel								
2615.00	H	84.66	10.77	0.9	9.94	19.81	33	13.19
2615.00	V	85.91	12.02	0.9	9.94	21.06	33	11.94
QPSK 15M BW High Channel								
2612.50	H	84.58	10.69	0.9	9.94	19.73	33	13.27
2612.50	V	85.82	11.93	0.9	9.94	20.97	33	12.03
16-QAM 15M BW High Channel								
2612.50	H	84.05	10.16	0.9	9.94	19.20	33	13.80
2612.50	V	85.12	11.23	0.9	9.94	20.27	33	12.73
QPSK 20M BW High Channel								
2610.00	H	84.49	10.60	0.9	9.95	19.65	33	13.35
2610.00	V	85.96	12.07	0.9	9.95	21.12	33	11.88
16-QAM 20M BW High Channel								
2610.00	H	85	11.11	0.9	9.95	20.16	33	12.84
2610.00	V	85.89	12.00	0.9	9.95	21.05	33	11.95

LTE Band 40 Lower

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5M BW Low Channel								
2307.50	H	84.87	10.79	0.87	9.68	19.60	24	4.40
2307.50	V	84.67	10.59	0.87	9.68	19.40	24	4.60
16-QAM 5M BW Low Channel								
2307.50	H	85.71	11.63	0.87	9.68	20.44	24	3.56
2307.50	V	84.96	10.88	0.87	9.68	19.69	24	4.31

LTE Band 40 Lower

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5M BW Middle Channel								
2310.00	H	84.33	10.27	0.87	9.68	19.08	24	4.92
2310.00	V	84.07	9.99	0.87	9.68	18.80	24	5.20
16-QAM 5M BW Middle Channel								
2310.00	H	85.04	10.96	0.87	9.68	19.77	24	4.23
2310.00	V	84.42	10.34	0.87	9.68	19.15	24	4.85
QPSK 10M BW Middle Channel								
2310.00	H	85.89	11.81	0.87	9.68	20.62	24	3.38
2310.00	V	84.17	10.09	0.87	9.68	18.90	24	5.10
16-QAM 10M BW Middle Channel								
2310.00	H	85.42	11.34	0.87	9.68	20.15	24	3.85
2310.00	V	84.97	10.89	0.87	9.68	19.70	24	4.30

LTE Band 40 Lower

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5M BW High Channel								
2312.50	H	84.22	10.14	0.87	9.69	18.96	24	5.04
2312.50	V	84.46	10.38	0.87	9.69	19.20	24	4.80
16-QAM 5M BW High Channel								
2312.50	H	85.53	11.45	0.87	9.69	20.27	24	3.73
2312.50	V	84.85	10.77	0.87	9.69	19.59	24	4.41

LTE Band 40 Upper

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5M BW Low Channel								
2352.50	H	84.18	10.10	0.88	9.77	18.99	24	5.01
2352.50	V	84.11	10.03	0.88	9.77	18.92	24	5.08
16-QAM 5M BW Low Channel								
2352.50	H	85.23	11.15	0.88	9.77	20.04	24	3.96
2352.50	V	84.58	10.50	0.88	9.77	19.39	24	4.61

LTE Band 40 Upper

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5M BW Middle Channel								
2355.00	H	84.31	10.23	0.88	9.78	19.13	24	4.87
2355.00	V	84.68	10.60	0.88	9.78	19.50	24	4.50
16-QAM 5M BW Middle Channel								
2355.00	H	85.78	11.70	0.88	9.78	20.60	24	3.40
2355.00	V	84.27	10.19	0.88	9.78	19.09	24	4.91
QPSK 10M BW Middle Channel								
2355.00	H	85.87	11.79	0.88	9.78	20.69	24	3.31
2355.00	V	84.45	10.37	0.88	9.78	19.27	24	4.73
16-QAM 10M BW Middle Channel								
2355.00	H	85.02	10.94	0.88	9.78	19.84	24	4.16
2355.00	V	84.51	10.43	0.88	9.78	19.33	24	4.67

LTE Band 40 Upper

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5M BW High Channel								
2357.50	H	84.24	10.16	0.88	9.79	19.07	24	4.93
2357.50	V	84.22	10.14	0.88	9.79	19.05	24	4.95
16-QAM 5M BW High Channel								
2357.50	H	85.58	11.50	0.88	9.79	20.41	24	3.59
2357.50	V	84.09	10.01	0.88	9.79	18.92	24	5.08

LTE Band 41

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5M BW Low Channel								
2557.50	H	85.48	12.49	0.89	10.02	21.62	33	11.38
2557.50	V	84.3	11.31	0.89	10.02	20.44	33	12.56
16-QAM 5M BW Low Channel								
2557.50	H	85.57	12.58	0.89	10.02	21.71	33	11.29
2557.50	V	84.73	11.74	0.89	10.02	20.87	33	12.13
QPSK 10M BW Low Channel								
2560.00	H	85.15	12.16	0.89	10.02	21.29	33	11.71
2560.00	V	84.94	11.95	0.89	10.02	21.08	33	11.92
16-QAM 10M BW Low Channel								
2560.00	H	85.88	12.89	0.89	10.02	22.02	33	10.98
2560.00	V	84.53	11.54	0.89	10.02	20.67	33	12.33
QPSK 15M BW Low Channel								
2562.50	H	85.99	13.00	0.89	10.01	22.12	33	10.88
2562.50	V	84.77	11.78	0.89	10.01	20.90	33	12.10
16-QAM 15M BW Low Channel								
2562.50	H	85.13	12.14	0.89	10.01	21.26	33	11.74
2562.50	V	84.25	11.26	0.89	10.01	20.38	33	12.62
QPSK 20M BW Low Channel								
2565.00	H	85.13	12.14	0.89	10.01	21.26	33	11.74
2565.00	V	85	12.01	0.89	10.01	21.13	33	11.87
16-QAM 20M BW Low Channel								
2565.00	H	85.21	12.22	0.89	10.01	21.34	33	11.66
2565.00	V	84.9	11.91	0.89	10.01	21.03	33	11.97

LTE Band 41

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5M BW Middle Channel								
2605.00	H	85.21	12.22	0.9	9.95	21.27	33	11.73
2605.00	V	84.18	11.19	0.9	9.95	20.24	33	12.76
16-QAM 5M BW Middle Channel								
2605.00	H	85.96	12.97	0.9	9.95	22.02	33	10.98
2605.00	V	84.24	11.25	0.9	9.95	20.30	33	12.70
QPSK 10M BW Middle Channel								
2605.00	H	85.25	12.26	0.9	9.95	21.31	33	11.69
2605.00	V	84.7	11.71	0.9	9.95	20.76	33	12.24
16-QAM 10M BW Middle Channel								
2605.00	H	85.82	12.83	0.9	9.95	21.88	33	11.12
2605.00	V	84.42	11.43	0.9	9.95	20.48	33	12.52
QPSK 15M BW Middle Channel								
2605.00	H	85.96	12.97	0.9	9.95	22.02	33	10.98
2605.00	V	84.04	11.05	0.9	9.95	20.10	33	12.90
16-QAM 15M BW Middle Channel								
2605.00	H	85.65	12.66	0.9	9.95	21.71	33	11.29
2605.00	V	84.24	11.25	0.9	9.95	20.30	33	12.70
QPSK 20M BW Middle Channel								
2605.00	H	85.34	12.35	0.9	9.95	21.40	33	11.60
2605.00	V	84.55	11.56	0.9	9.95	20.61	33	12.39
16-QAM 20M BW Middle Channel								
2605.00	H	85.58	12.59	0.9	9.95	21.64	33	11.36
2605.00	V	84.28	11.29	0.9	9.95	20.34	33	12.66

LTE Band 41

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Submitted Level (dBm)	Cable loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5M BW High Channel								
2652.50	H	85.13	12.14	0.9	9.89	21.13	33	11.87
2652.50	V	84.89	11.90	0.9	9.89	20.89	33	12.11
16-QAM 5M BW High Channel								
2652.50	H	85.56	12.57	0.9	9.89	21.56	33	11.44
2652.50	V	84.89	11.90	0.9	9.89	20.89	33	12.11
QPSK 10M BW High Channel								
2650.00	H	85.76	12.77	0.9	9.89	21.76	33	11.24
2650.00	V	84.58	11.59	0.9	9.89	20.58	33	12.42
16-QAM 10M BW High Channel								
2650.00	H	85.71	12.72	0.9	9.89	21.71	33	11.29
2650.00	V	84.26	11.27	0.9	9.89	20.26	33	12.74
QPSK 15M BW High Channel								
2647.50	H	85.72	12.73	0.9	9.89	21.72	33	11.28
2647.50	V	84.64	11.65	0.9	9.89	20.64	33	12.36
16-QAM 15M BW High Channel								
2647.50	H	85.66	12.67	0.9	9.89	21.66	33	11.34
2647.50	V	84.17	11.18	0.9	9.89	20.17	33	12.83
QPSK 20M BW High Channel								
2645.00	H	85.56	12.57	0.9	9.9	21.57	33	11.43
2645.00	V	84.41	11.42	0.9	9.9	20.42	33	12.58
16-QAM 20M BW High Channel								
2645.00	H	85.31	12.32	0.9	9.9	21.32	33	11.68
2645.00	V	84.65	11.66	0.9	9.9	20.66	33	12.34

Note:

All above data were tested without amplifier.

Absolute Level (dBm) = Submitted Level (dBm) - Cable loss (dB) + Antenna Gain (dBd/dBi)

Margin (dB) = Limit (dBm) - Absolute Level (dBm)

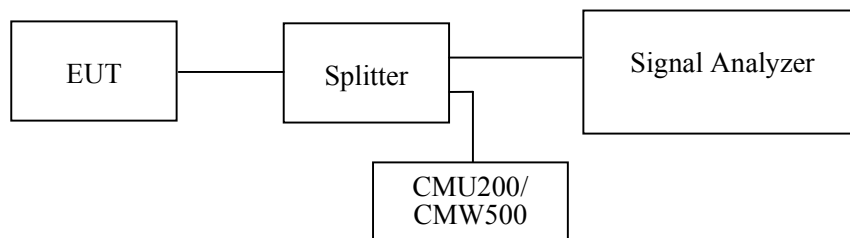
FCC §2.1049, §22.917, §22.905 & §24.238, §27.53- OCCUPIED BANDWIDTH**Applicable Standards**

FCC 47 §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 resolution bandwidth of the spectrum analyzer was set at 5 kHz (Cellular /PCS) & 100 kHz (WCDMA) & 20 kHz/30 kHz/50 kHz/100 kHz/200 kHz (LTE), and the 26 dB & 99% bandwidth was recorded.

**Test Data****Environmental Conditions**

Temperature:	24.9~25.3 °C
Relative Humidity:	49~50 %
ATM Pressure:	100.7~102.9 kPa

The testing was performed by CK Huang from 2020-08-08 to 2020-10-30.

EUT operation mode: Transmitting

Test Result: Compliant.

GSM 850 Band

Mode	Channel	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
GSM (GMSK)	Low	824.2	0.319	0.244
	Middle	836.6	0.319	0.244
	High	848.8	0.317	0.246
EGPRS (8PSK)	Low	824.2	0.311	0.242
	Middle	836.6	0.319	0.246
	High	848.8	0.313	0.244

WCDMA Band V

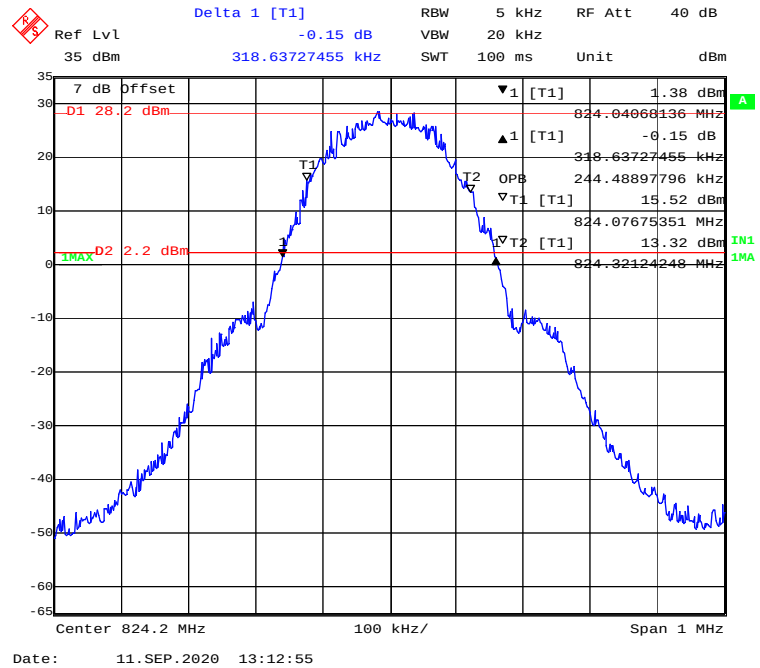
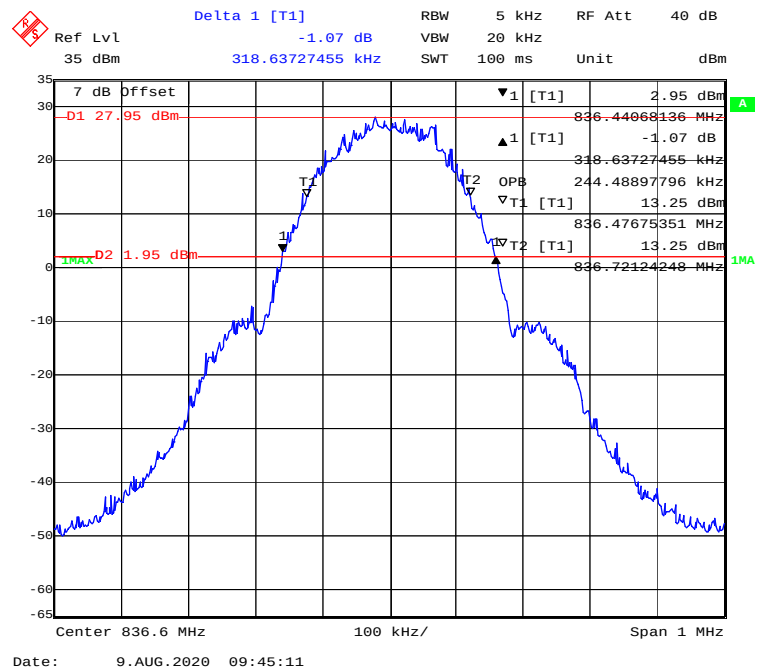
Mode	Channel	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
WCDMA (Rel 99)	Low	826.4	4.709	4.148
	Middle	836.6	4.689	4.128
	High	846.6	4.709	4.148
WCDMA (HSDPA)	Low	826.4	4.689	4.128
	Middle	836.6	4.709	4.128
	High	846.6	4.689	4.148
WCDMA (HSUPA)	Low	826.4	4.689	4.148
	Middle	836.6	4.709	4.128
	High	846.6	4.709	4.148
WCDMA (HSPA+)	Low	826.4	4.709	4.128
	Middle	836.6	4.689	4.128
	High	846.6	4.669	4.148

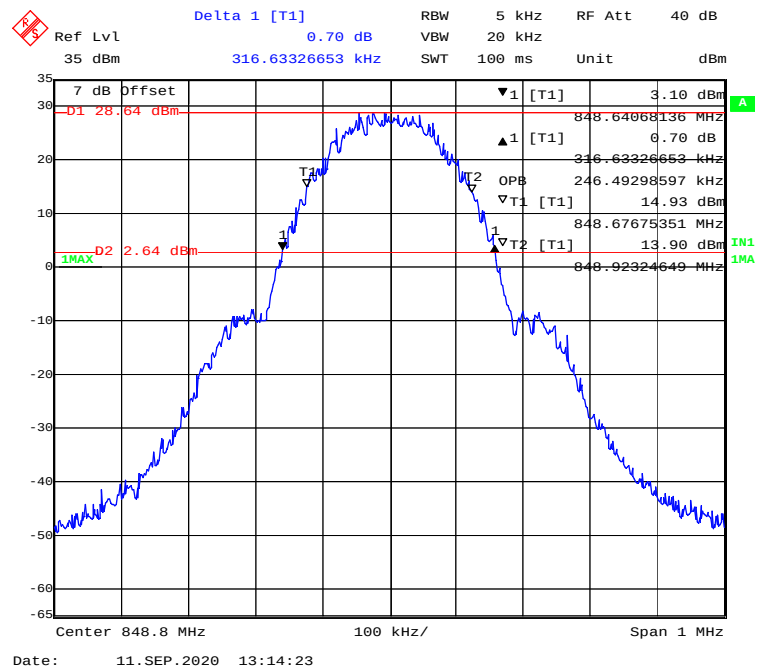
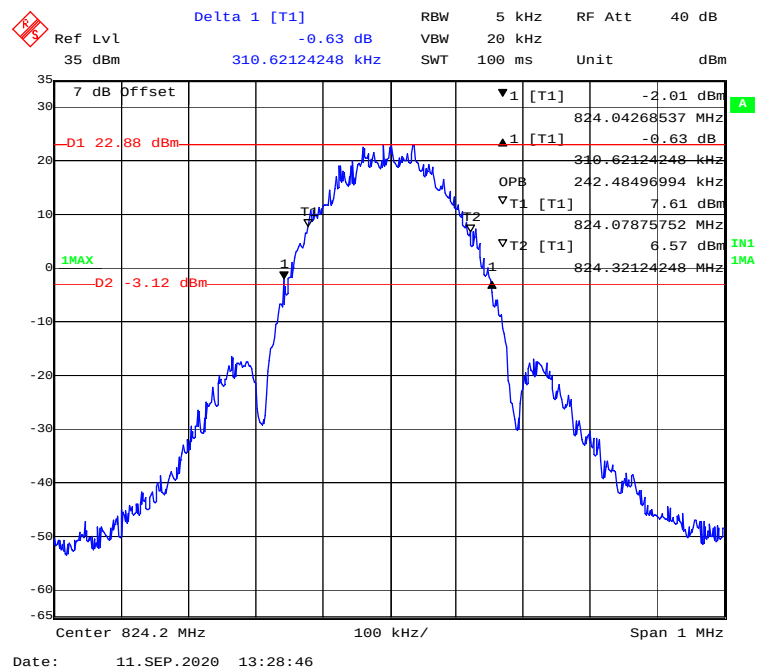
PCS 1900

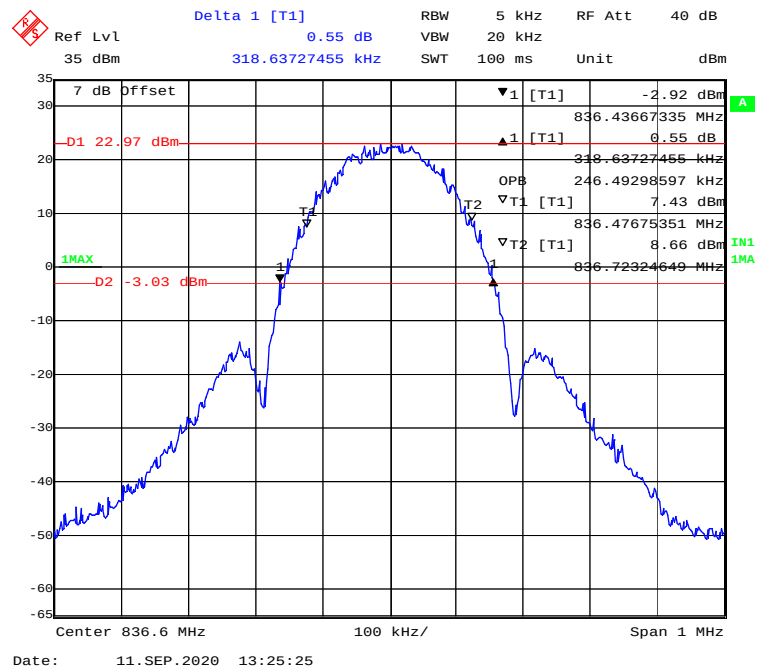
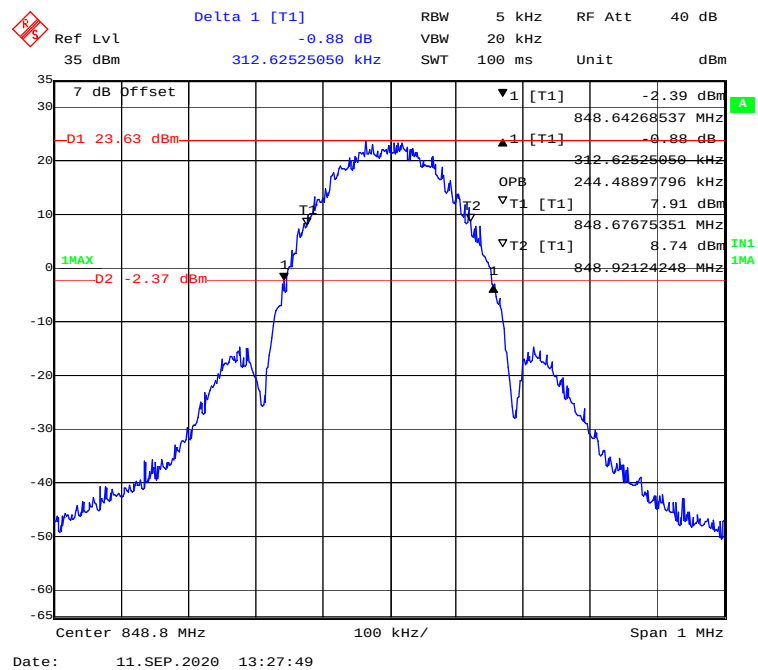
Mode	Channel	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
GPRS (GMSK)	Low	1850.2	0.315	0.242
	Middle	1880	0.317	0.244
	High	1909.8	0.309	0.244
EGPRS (8PSK)	Low	1850.2	0.315	0.242
	Middle	1880	0.313	0.244
	High	1909.8	0.317	0.244

WCDMA Band II

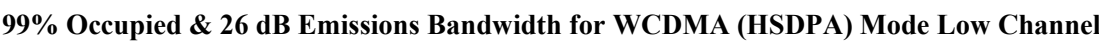
Mode	Channel	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
WCDMA (Rel 99)	Low	1852.4	4.689	4.128
	Middle	1880	4.709	4.148
	High	1907.6	4.709	4.128
WCDMA (HSDPA)	Low	1852.4	4.729	4.128
	Middle	1880	4.709	4.148
	High	1907.6	4.709	4.128
WCDMA (HSUPA)	Low	1852.4	4.709	4.148
	Middle	1880	4.709	4.148
	High	1907.6	4.709	4.128
WCDMA (HSPA+)	Low	1852.4	4.709	4.128
	Middle	1880	4.709	4.148
	High	1907.6	4.709	4.148

GSM 850 Band**99% Occupied & 26 dB Emissions Bandwidth for GPRS (GMSK) Mode Low Channel****99% Occupied & 26 dB Emissions Bandwidth for GPRS (GMSK) Mode Middle Channel**

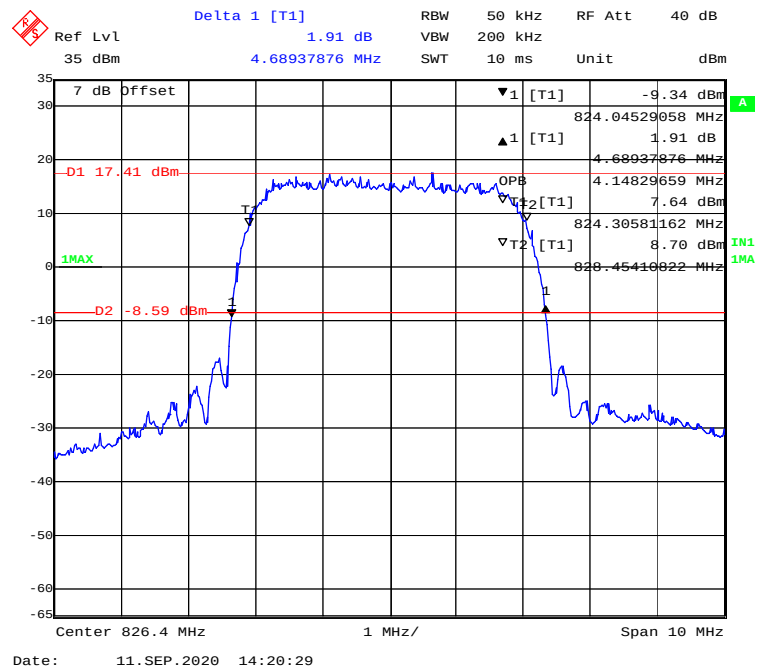
99% Occupied & 26 dB Emissions Bandwidth for GPRS (GMSK) Mode High Channel**99% Occupied & 26 dB Emissions Bandwidth for EGPRS (GMSK) Mode Low Channel**

99% Occupied & 26 dB Emissions Bandwidth for EGPRS (GMSK) Mode Middle Channel**99% Occupied & 26 dB Emissions Bandwidth for EGPRS (GMSK) Mode High Channel**

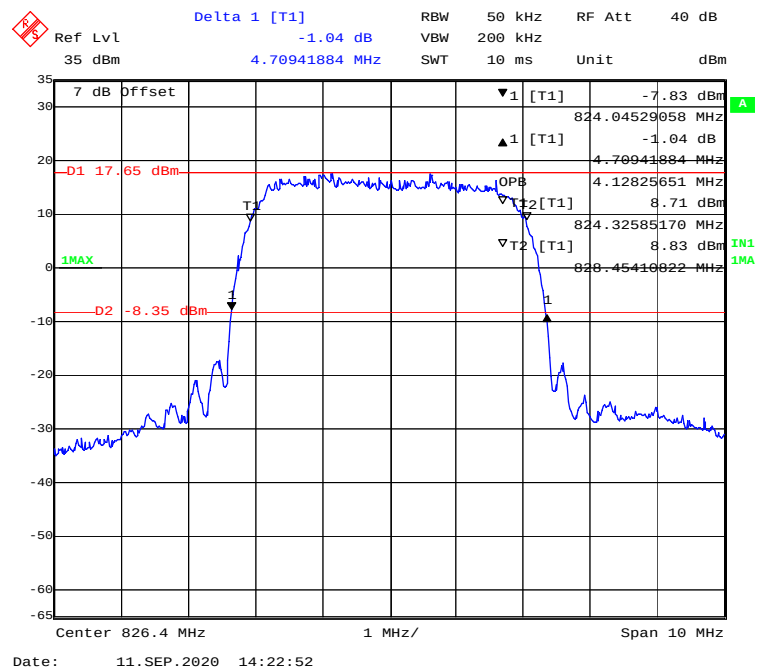
99% Occupied & 26 dB Emissions Bandwidth for WCDMA (Rel 99) Mode Low Channel

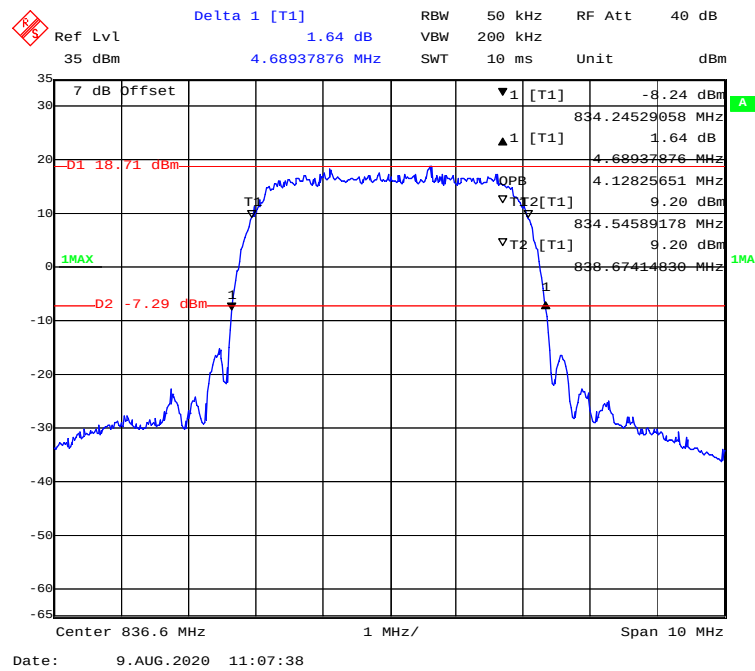
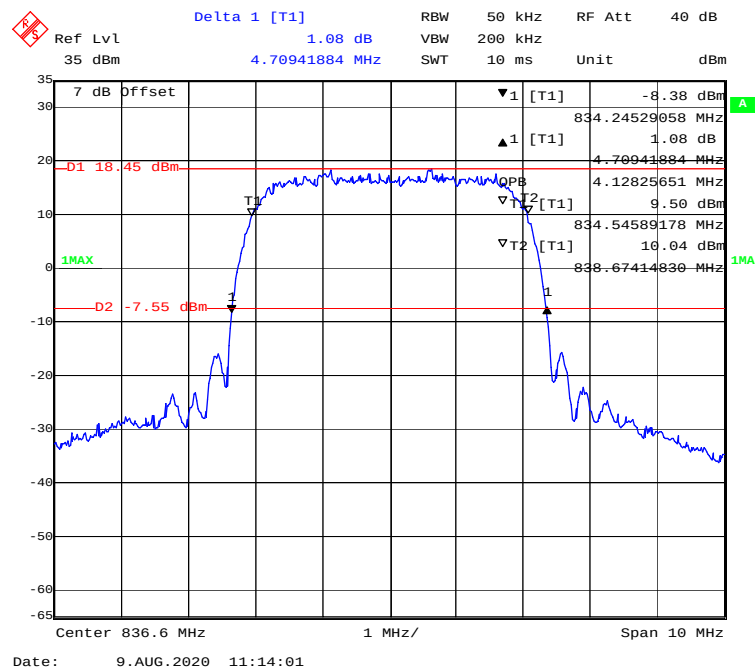


99% Occupied & 26 dB Emissions Bandwidth for WCDMA (HSUPA) Mode Low Channel

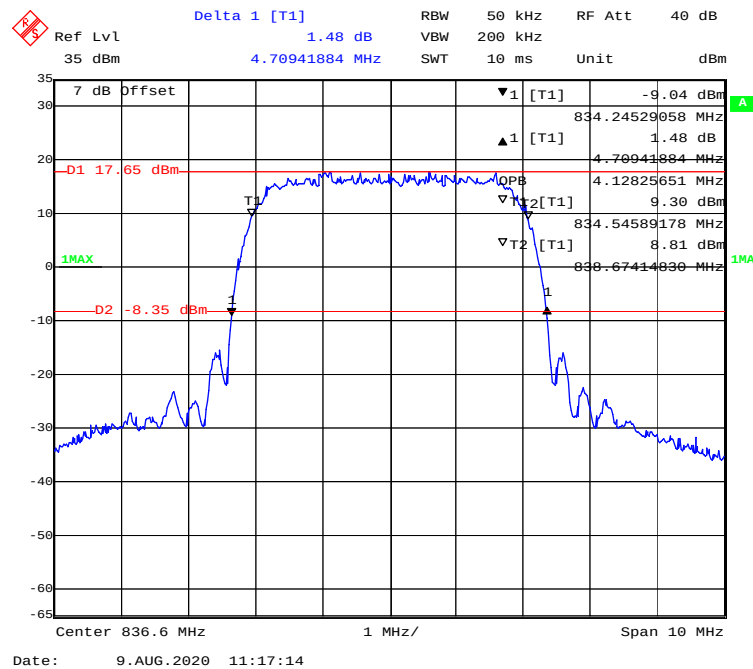


99% Occupied & 26 dB Emissions Bandwidth for WCDMA (HSPA+) Mode Low Channel

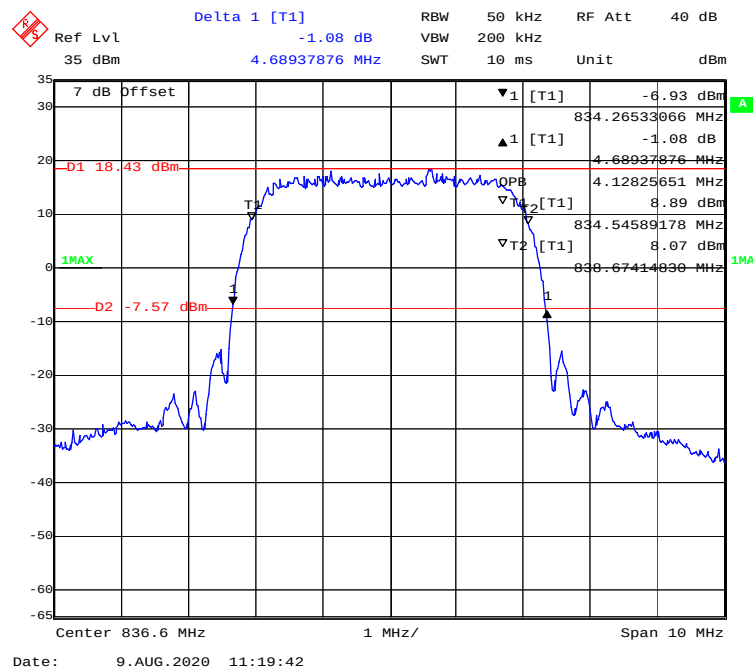


99% Occupied & 26 dB Emissions Bandwidth for WCDMA (Rel 99) Mode Middle Channel**99% Occupied & 26 dB Emissions Bandwidth for WCDMA (HSDPA) Mode Middle Channel**

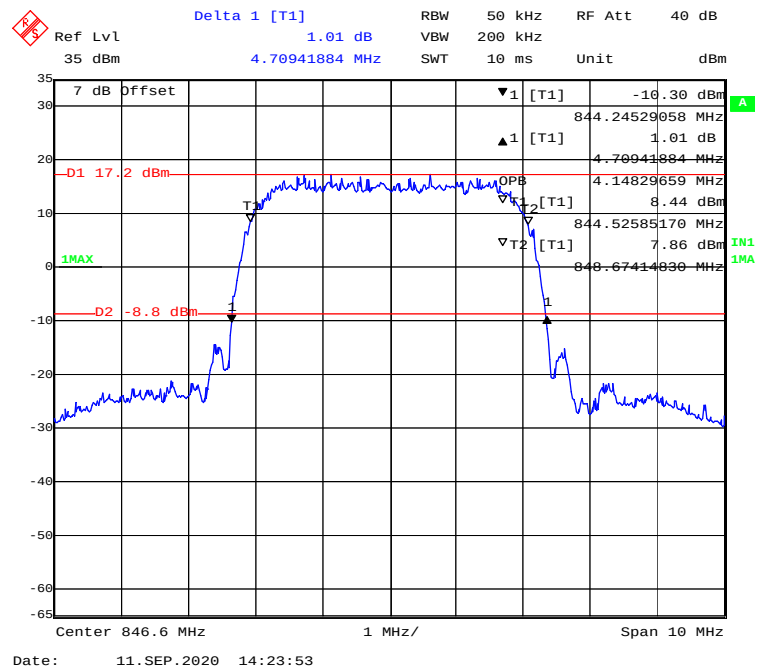
99% Occupied & 26 dB Emissions Bandwidth for WCDMA (HSUPA) Mode Middle Channel



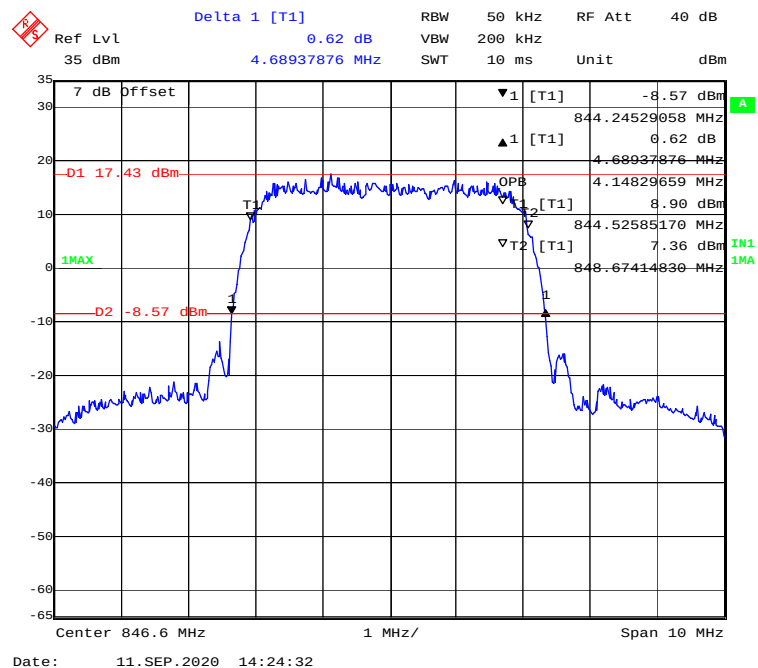
99% Occupied & 26 dB Emissions Bandwidth for WCDMA (HSPA+) Mode Middle Channel

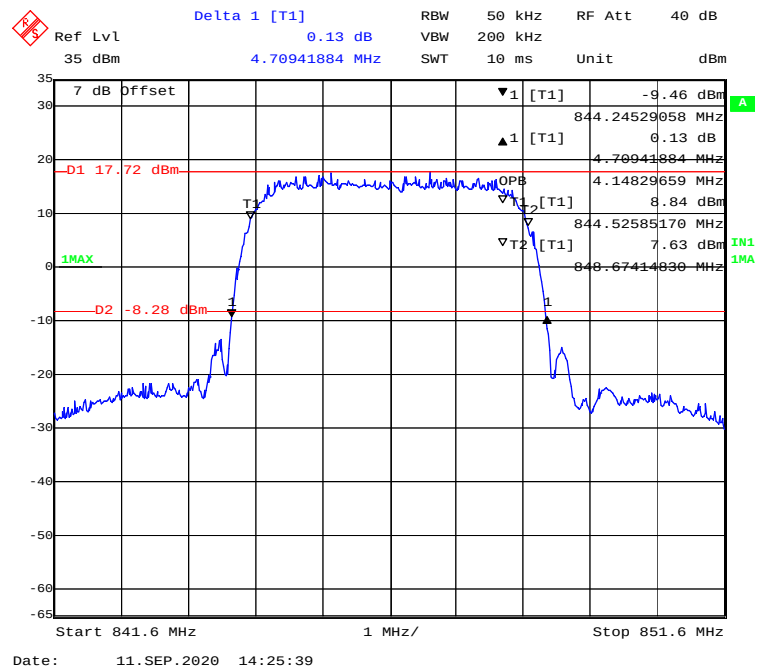
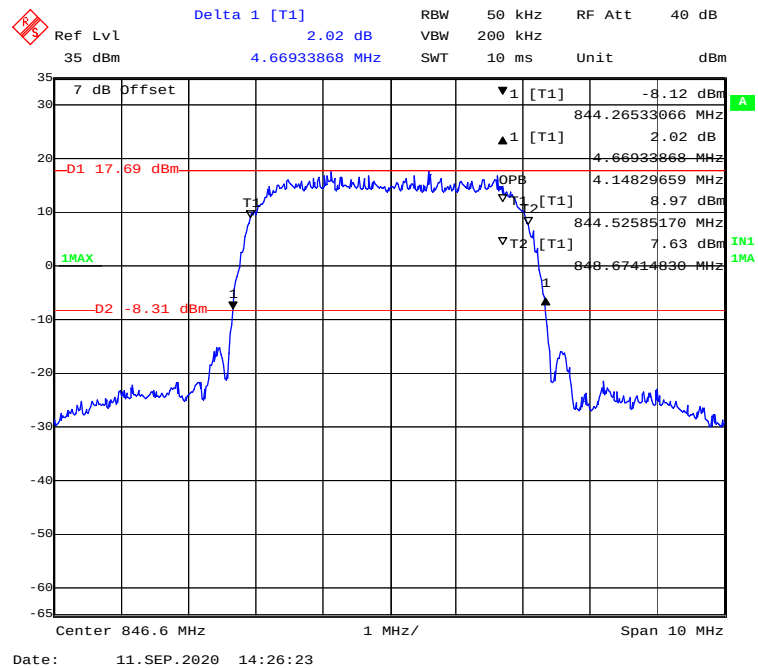


99% Occupied & 26 dB Emissions Bandwidth for WCDMA (Rel 99) Mode High Channel



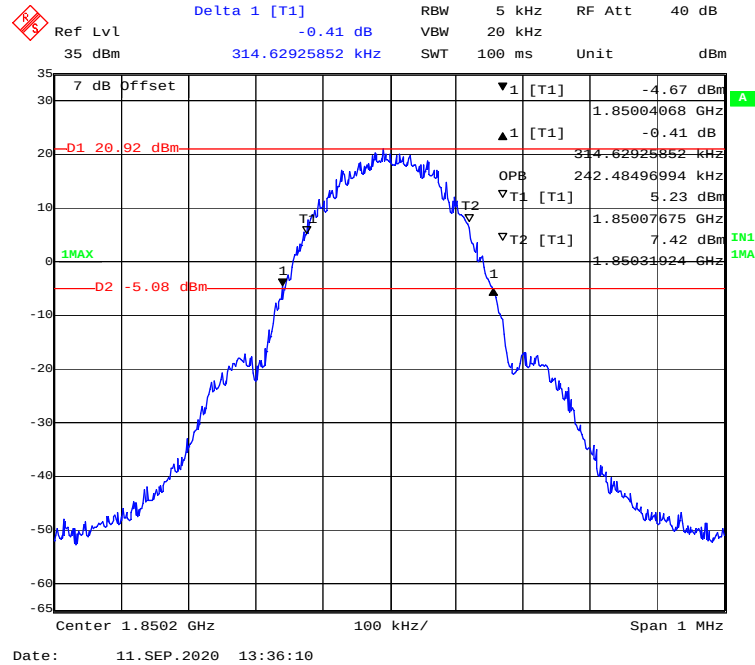
99% Occupied & 26 dB Emissions Bandwidth for WCDMA (HSDPA) Mode High Channel



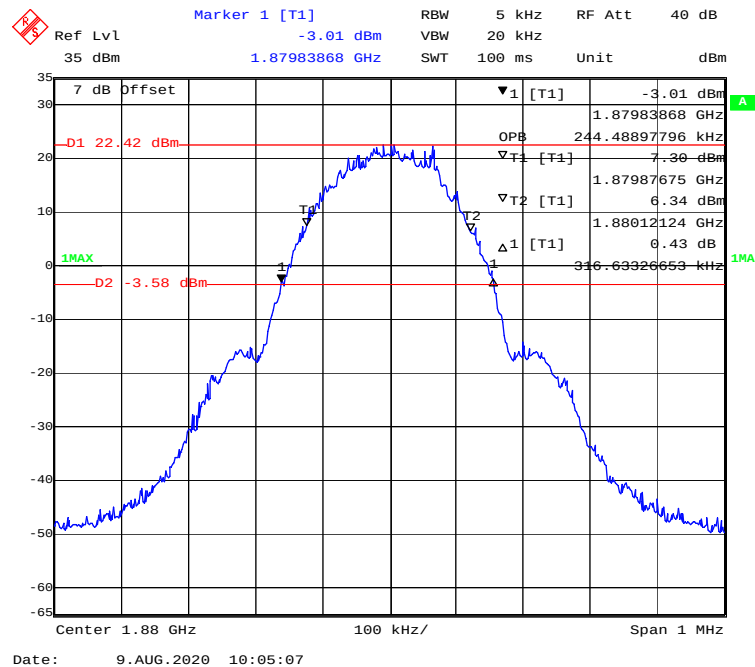
99% Occupied & 26 dB Emissions Bandwidth for WCDMA (HSUPA) Mode High Channel**99% Occupied & 26 dB Emissions Bandwidth for WCDMA (HSPA+) Mode High Channel**

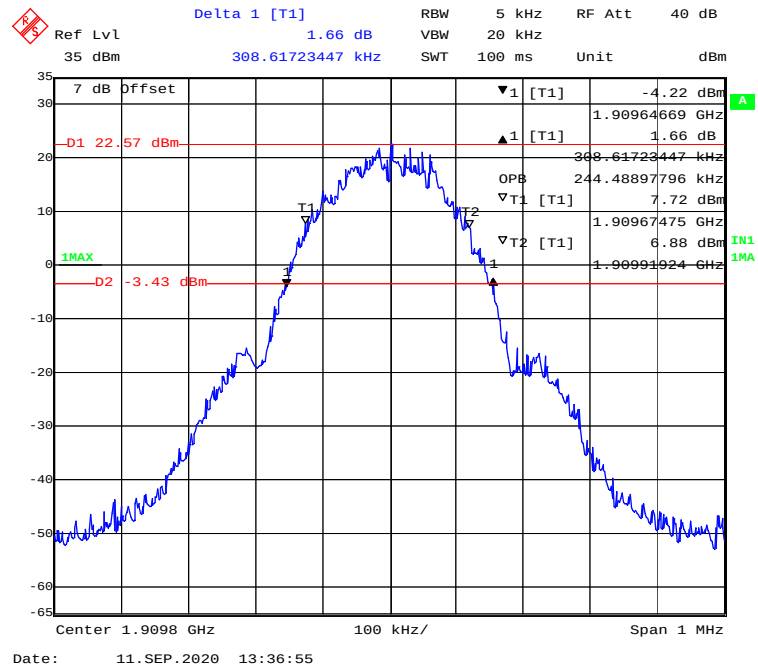
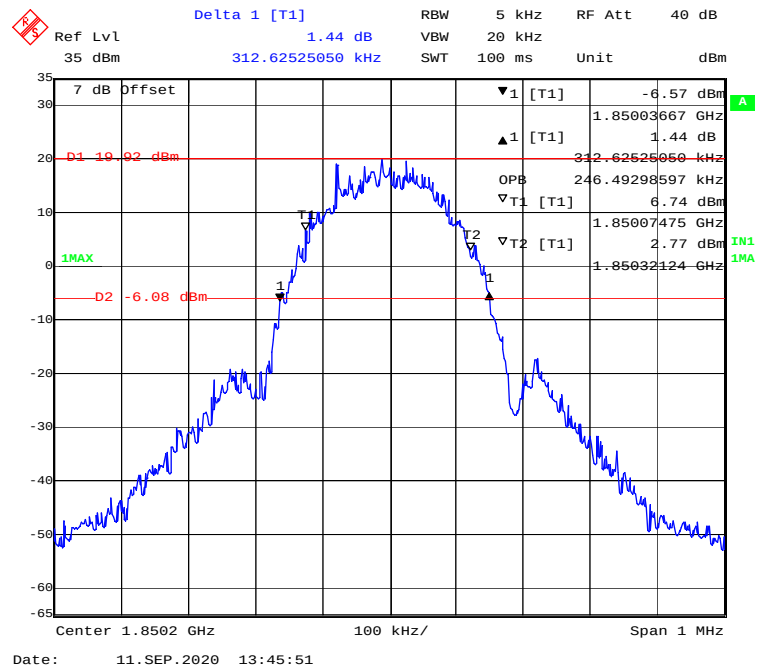
PCS 1900 Band

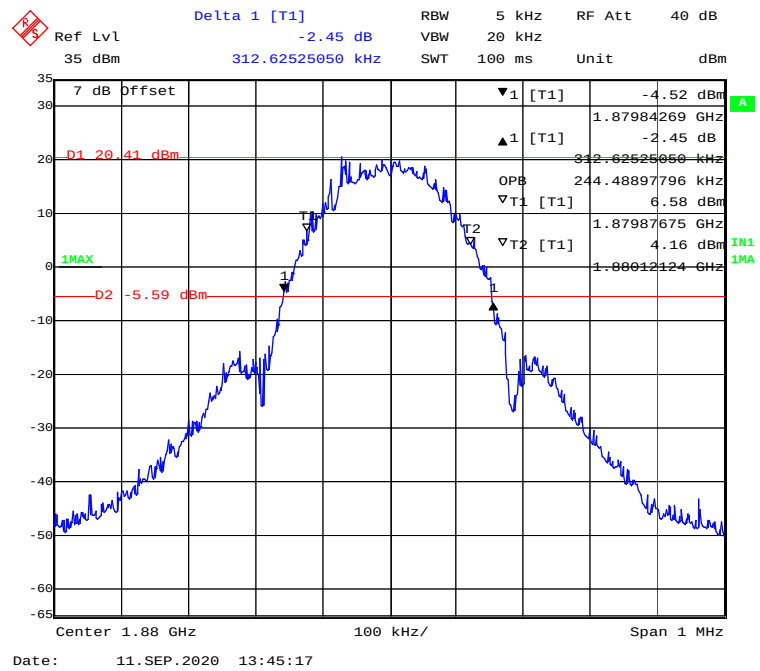
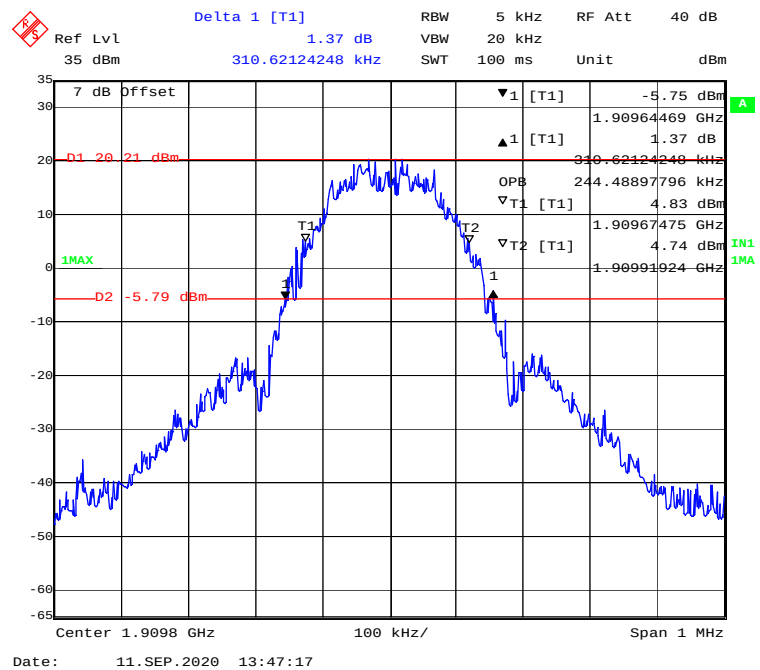
99% Occupied & 26 dB Emissions Bandwidth for GPRS (GMSK) Mode Low Channel



99% Occupied & 26 dB Emissions Bandwidth for GPRS (GMSK) Mode Middle Channel

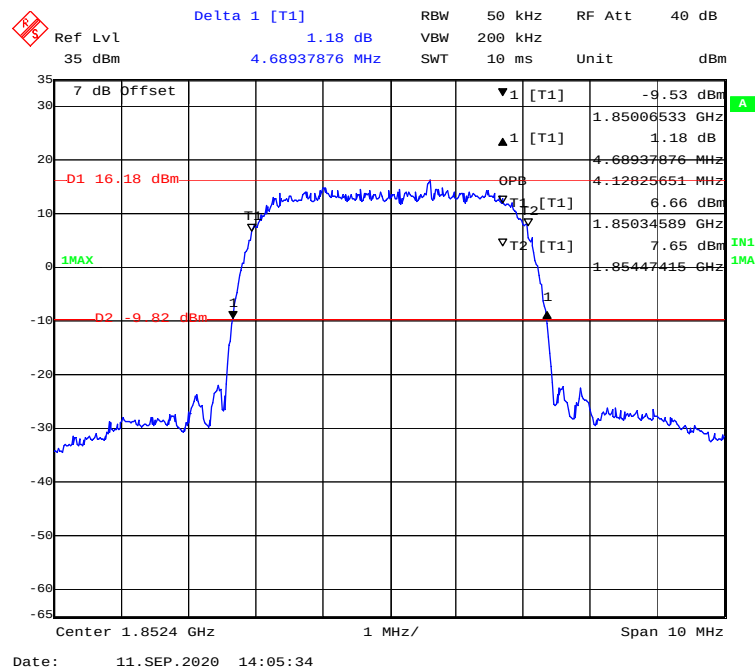


99% Occupied & 26 dB Emissions Bandwidth for GPRS (GMSK) Mode High Channel**99% Occupied & 26 dB Emissions Bandwidth for EGPRS (8PSK) Mode Low Channel**

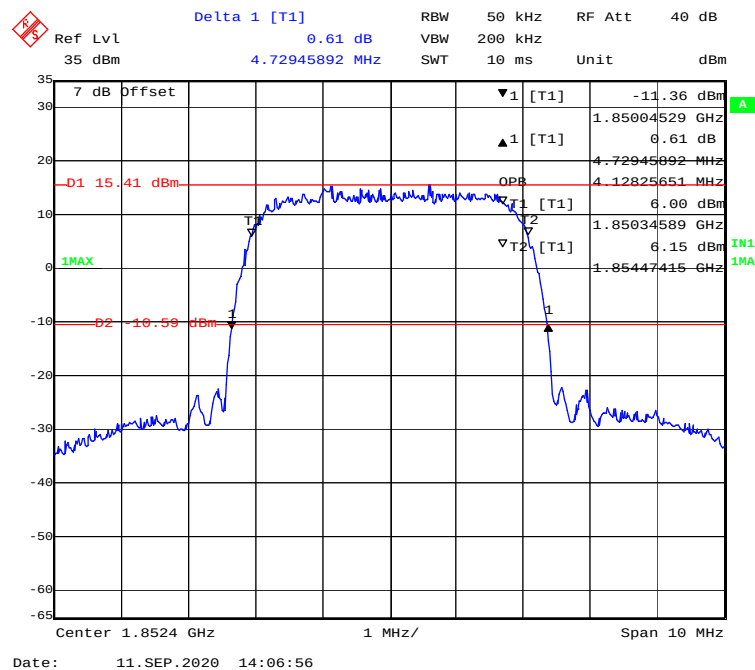
99% Occupied & 26 dB Emissions Bandwidth for EGPRS (8PSK) Mode Middle Channel**99% Occupied & 26 dB Emissions Bandwidth for EGPRS (8PSK) Mode High Channel**

WCDMA Band II

99% Occupied & 26 dB Emissions Bandwidth for WCDMA (Rel 99) Mode Low Channel



99% Occupied & 26 dB Emissions Bandwidth for WCDMA (HSDPA) Mode Low Channel



[illegible]

Ref Lvl 35 dBm Delta 1 [T1] 0.15 dB RBW 50 kHz RF Att 40 dB
 35 dBm 4.70941884 MHz SWT 10 ms Unit dBm

7 dB Offset

D1 15.45 dBm

1MAX

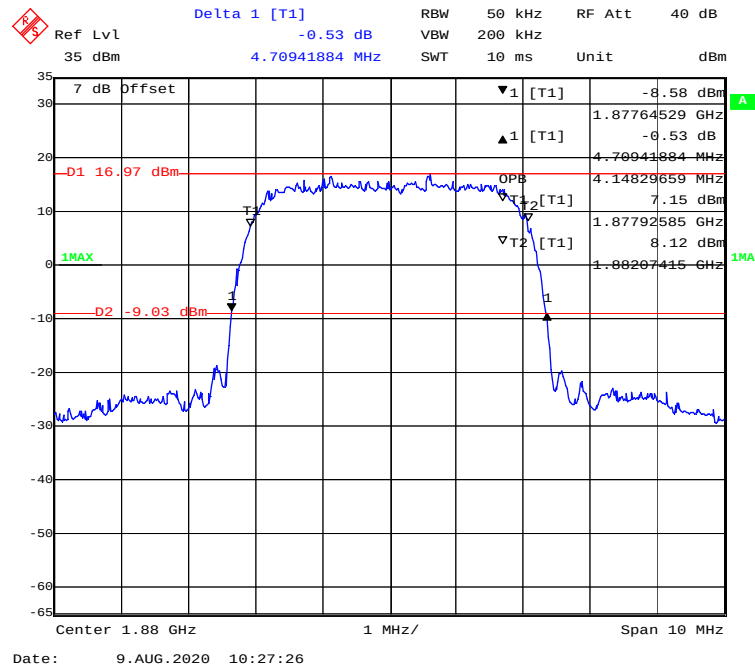
D2 -10.55 dBm

▼1 [T1] -10.19 dBm
 ▲1 [T1] 0.15 dB
 4.70941884 MHz
 4.12825651 MHz
 ▼T1 [T1] 4.89 dBm
 ▼T2 [T1] 1.85034589 GHz
 5.61 dBm
 1.85447415 GHz

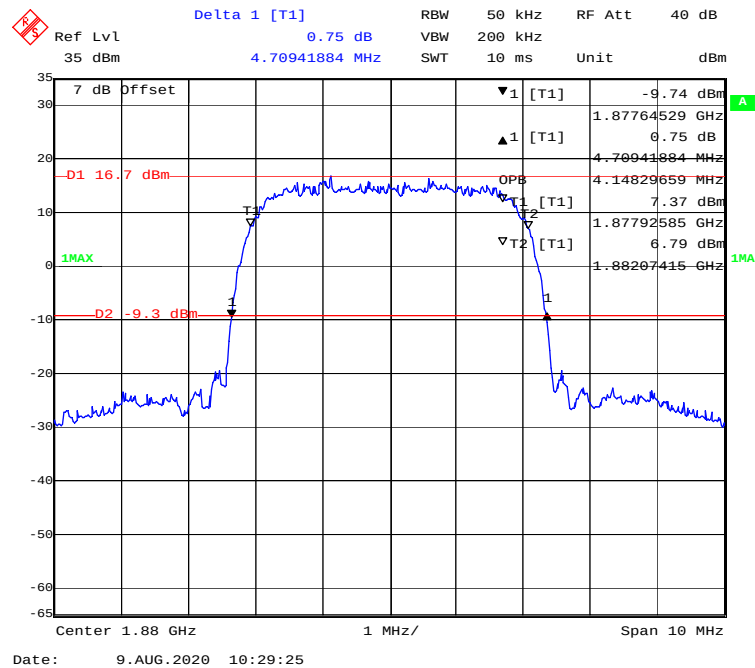
Center 1.8524 GHz 1 MHz/ Span 10 MHz

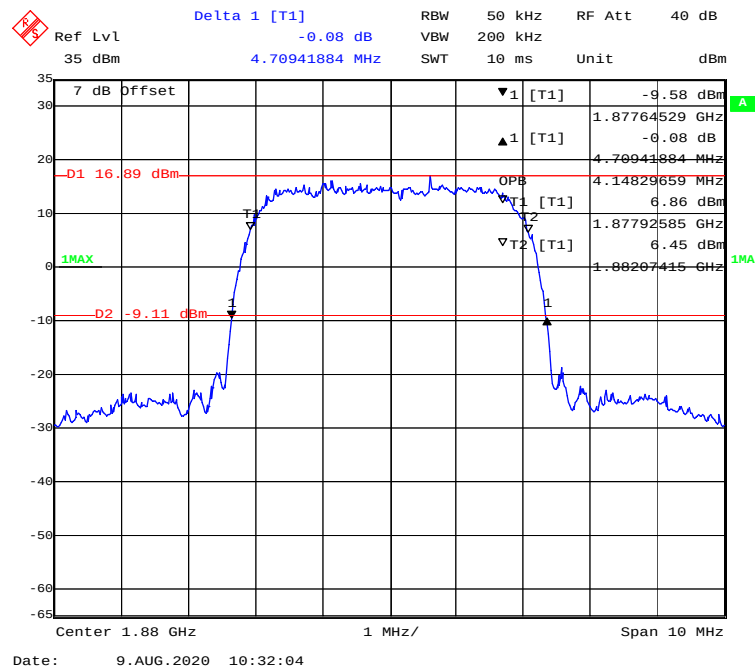
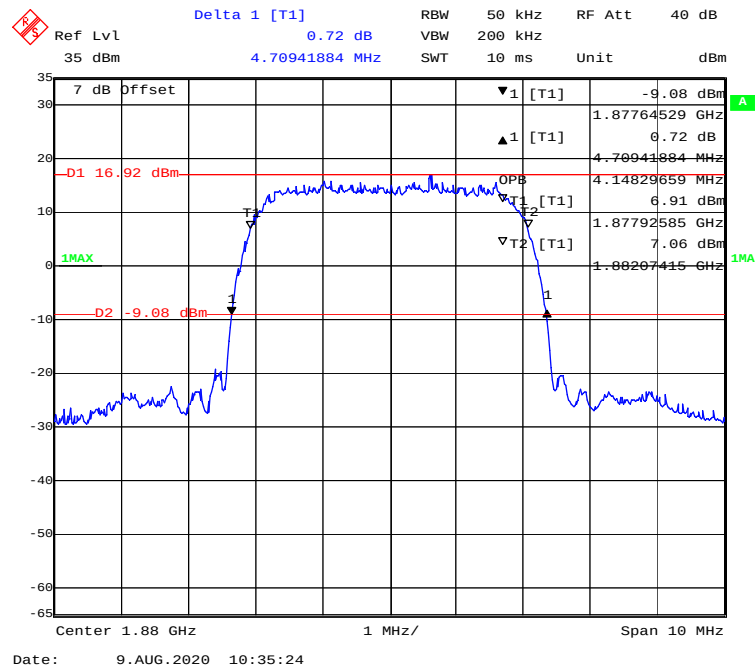
Date: 11. SEP. 2020 14:08:56

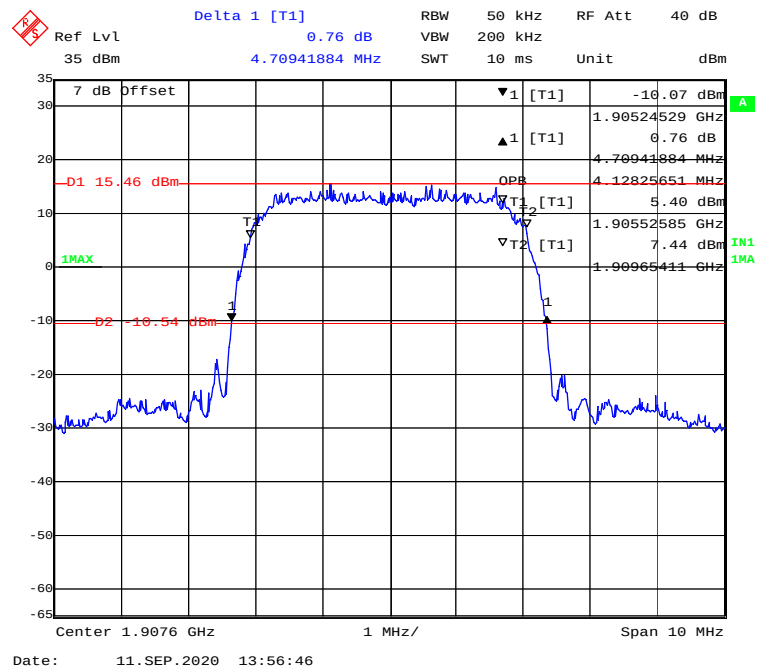
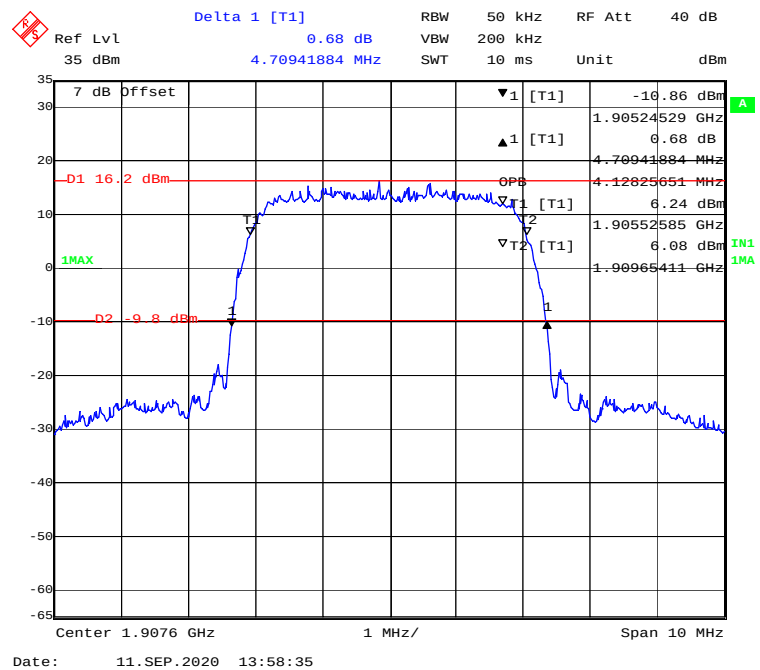
99% Occupied & 26 dB Emissions Bandwidth for WCDMA (Rel 99) Mode Middle Channel



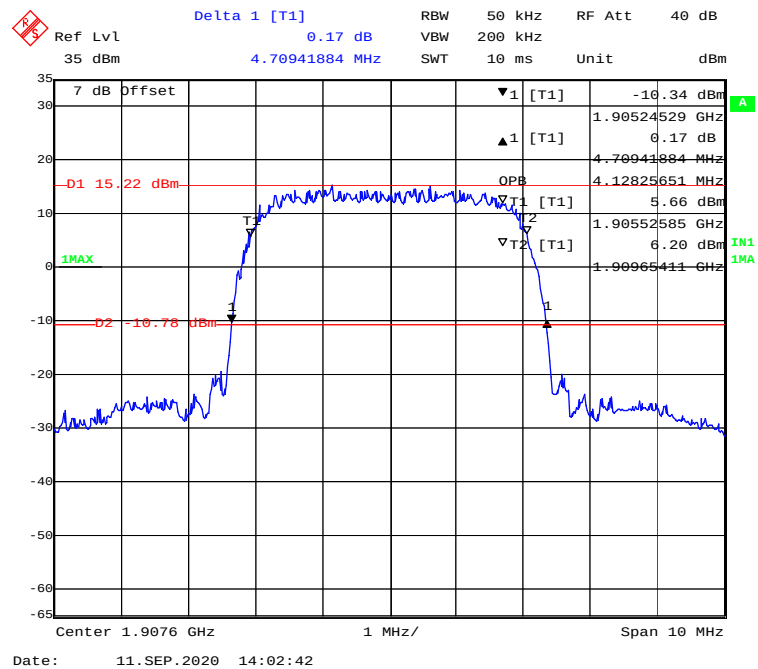
99% Occupied & 26 dB Emissions Bandwidth for WCDMA (HSDPA) Mode Middle Channel



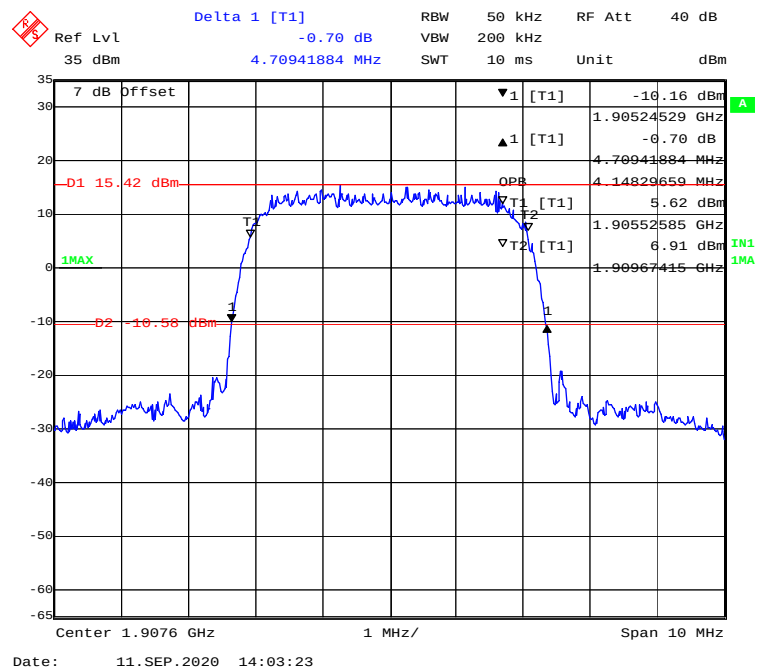
99% Occupied & 26 dB Emissions Bandwidth for WCDMA (HSUPA) Mode Middle Channel**99% Occupied & 26 dB Emissions Bandwidth for WCDMA (HSPA+) Mode Middle Channel**

99% Occupied & 26 dB Emissions Bandwidth for WCDMA (Rel 99) Mode High Channel**99% Occupied & 26 dB Emissions Bandwidth for WCDMA (HSDPA) Mode High Channel**

99% Occupied & 26 dB Emissions Bandwidth for WCDMA (HSUPA) Mode High Channel



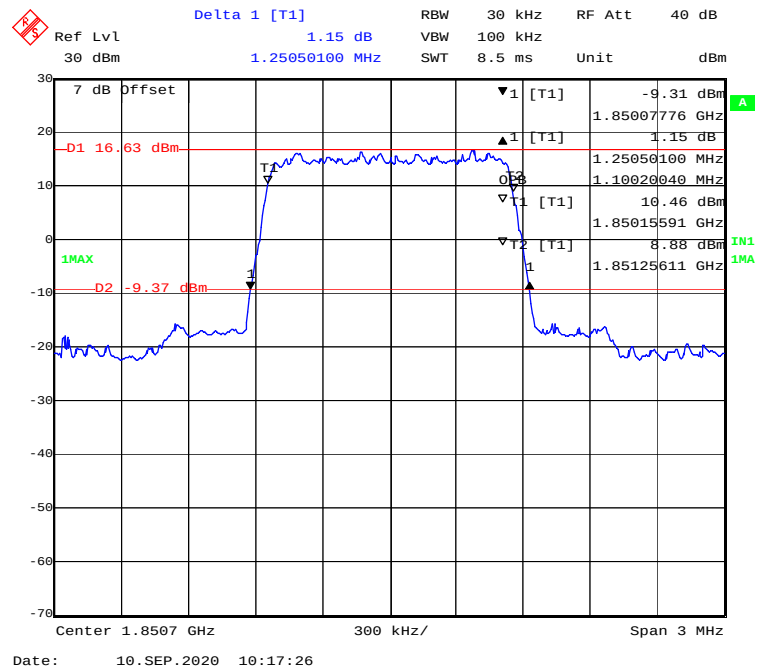
99% Occupied & 26 dB Emissions Bandwidth for WCDMA (HSPA+) Mode High Channel



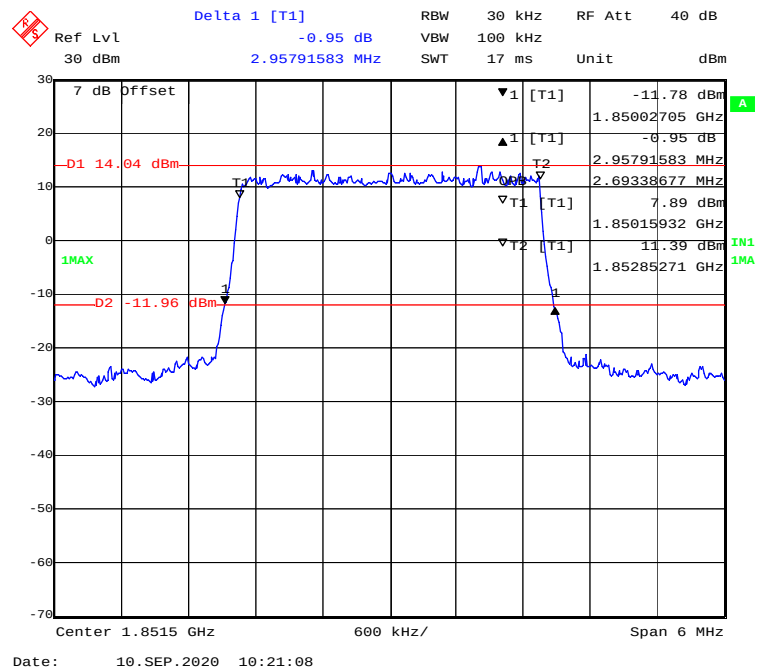
LTE Band 2:

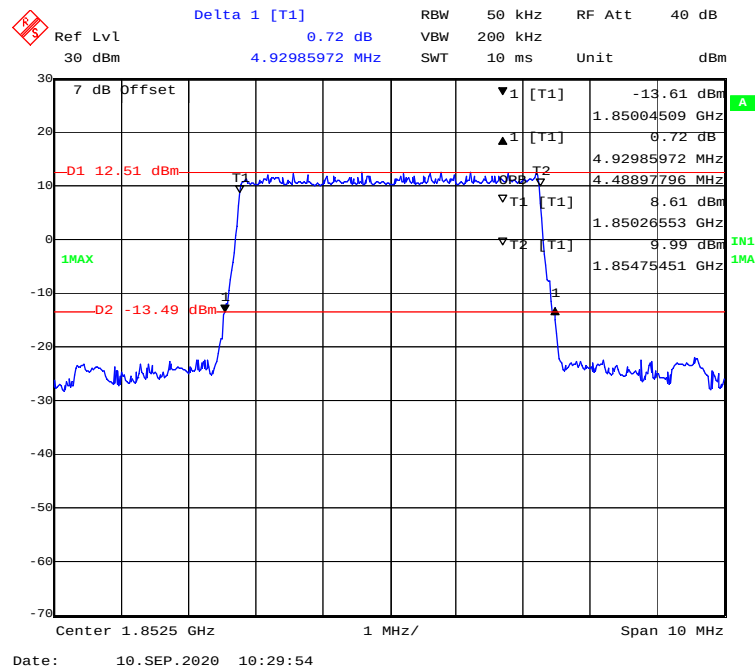
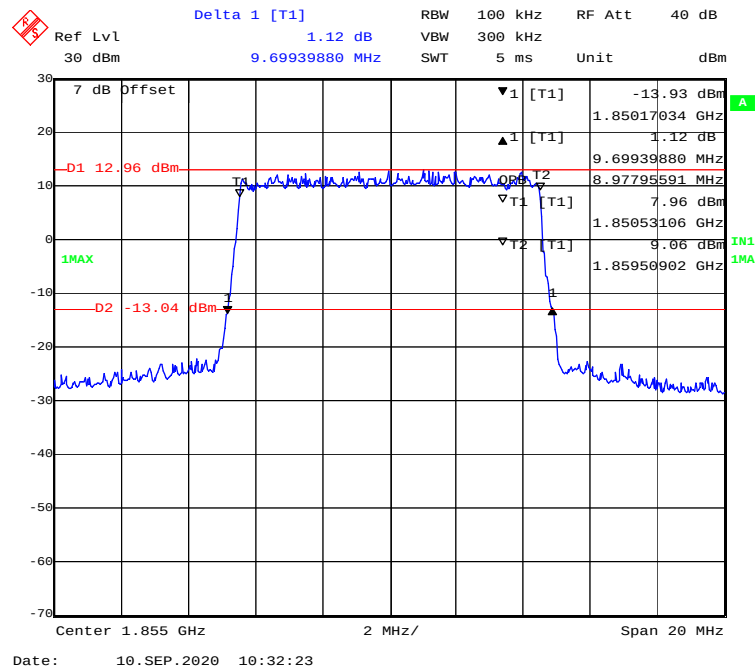
Test Modulation	Test Bandwidth	Test Channel	26 dB Bandwidth	99% Occupied Bandwidth
			MHz	MHz
QPSK	1.4M	Low	1.251	1.100
	3M		2.958	2.693
	5M		4.930	4.489
	10M		9.699	8.978
	15M		14.609	13.467
	20M		19.158	17.876
	1.4M	Middle	1.251	1.106
	3M		2.958	2.705
	5M		4.930	4.509
	10M		9.780	8.978
	15M		14.669	13.587
	20M		19.238	17.956
	1.4M	High	1.251	1.106
	3M		2.958	2.693
	5M		4.890	4.489
	10M		9.739	9.018
	15M		14.609	13.407
	20M		19.078	17.876
16-QAM	1.4M	Low	1.251	1.100
	3M		2.958	2.693
	5M		4.930	4.489
	10M		9.699	8.978
	15M		14.609	13.467
	20M		19.158	17.876
	1.4M	Middle	1.251	1.100
	3M		2.958	2.705
	5M		4.930	4.509
	10M		9.780	8.978
	15M		14.729	13.527
	20M		19.399	17.956
	1.4M	High	1.244	1.112
	3M		2.945	2.693
	5M		4.870	4.489
	10M		9.739	9.018
	15M		14.429	13.467
	20M		19.399	17.876

QPSK (1.4 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel

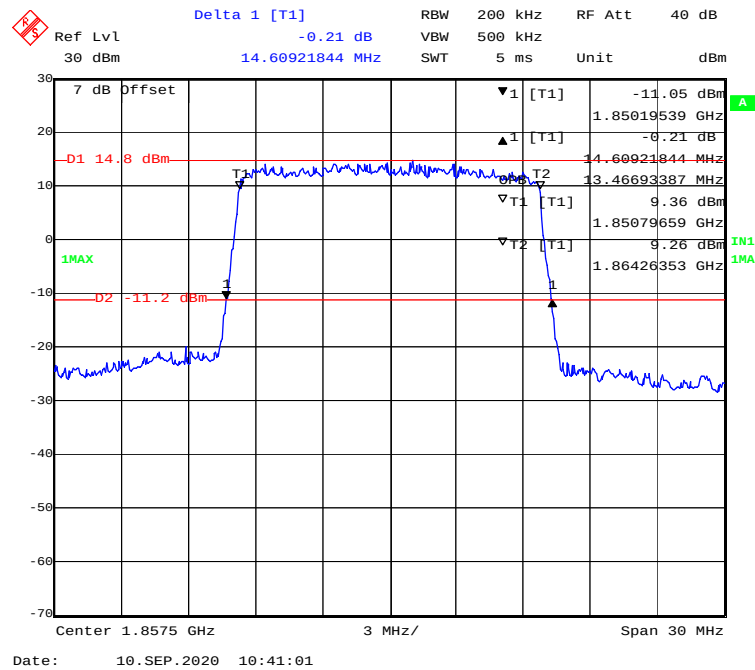


QPSK (3 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel

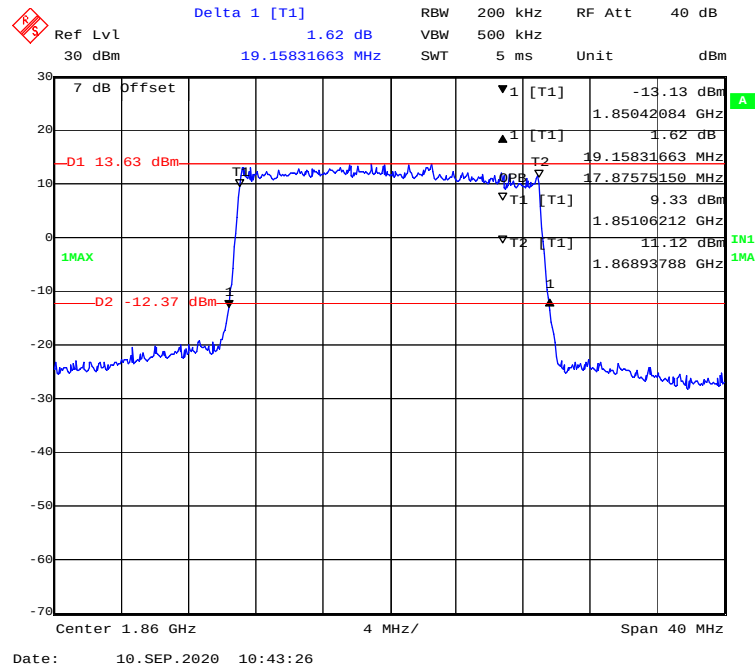


QPSK (5 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel**QPSK (10MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel**

QPSK (15 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel



QPSK (20 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel



Delta 1 [T1]

Ref Lvl 30 dBm

0.13 dB

RBW 30 kHz

RF Att 40 dB

1.25050100 MHz

SWT 8.5 ms

Unit dBm

7 dB Offset

-D1 16.34 dBm

1MAX

-D2 -9.66 dBm

▼1 [T1]

▲1 [T1]

▽1 [T1]

▽12 [T1]

1

-9.92 dBm

1.85007776 GHz

0.13 dB

1.25050100 MHz

1.10020040 MHz

10.03 dBm

1.85015591 GHz

9.45 dBm

1.85125611 GHz

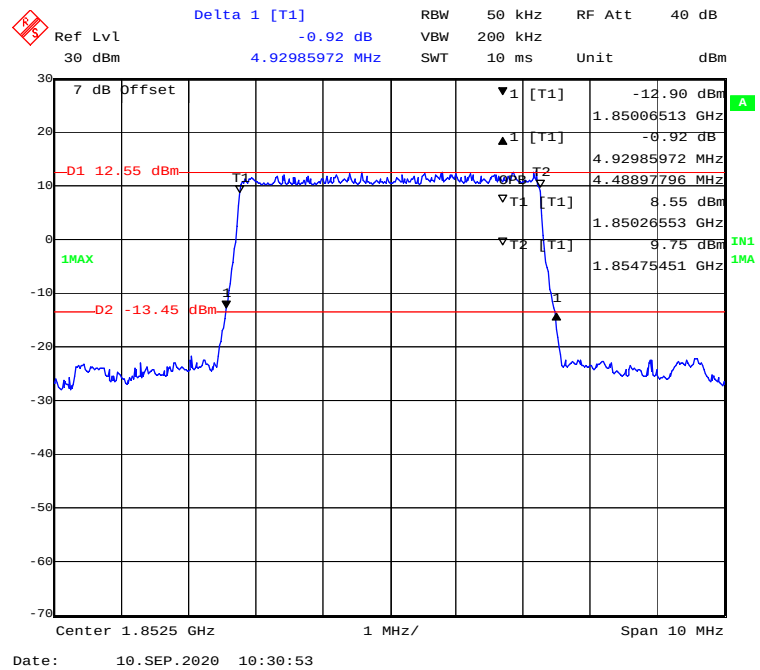
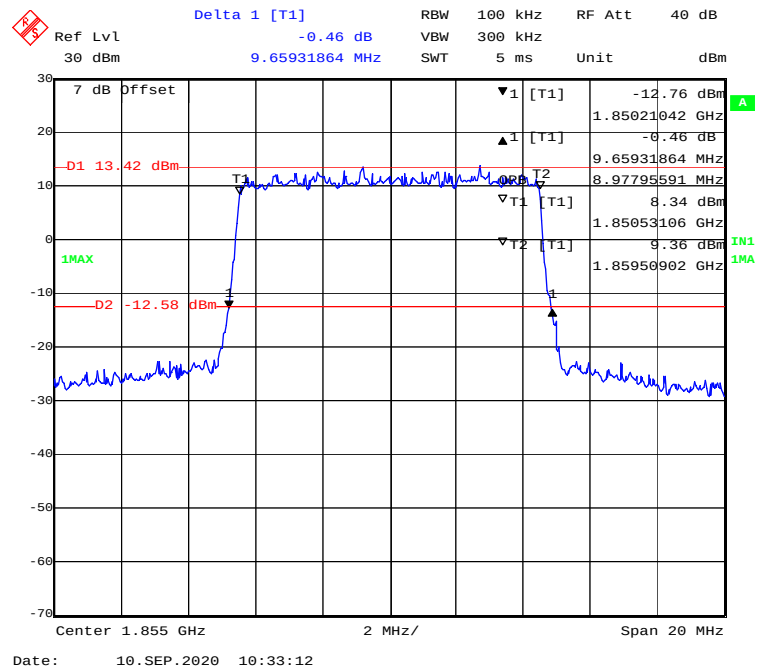
Center 1.8507 GHz

300 kHz/

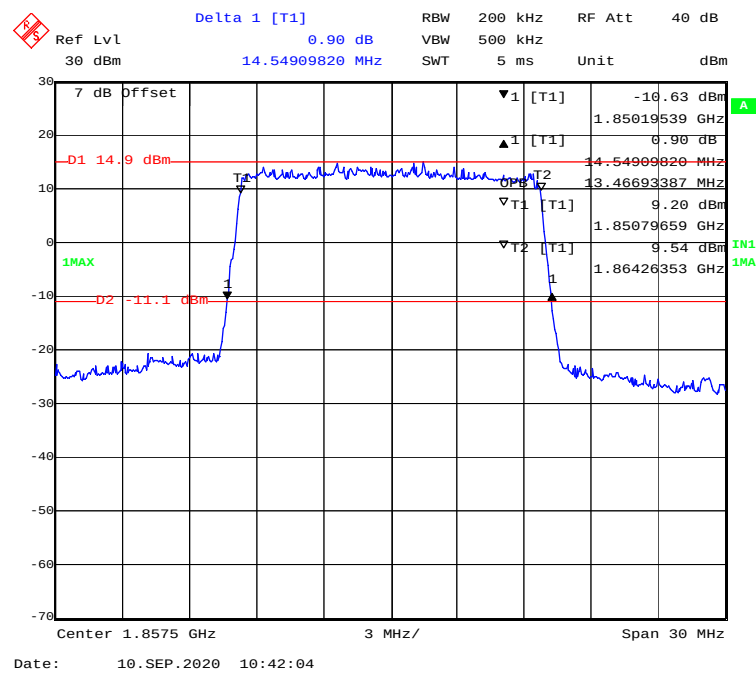
Span 3 MHz

Date: 10. SEP. 2020 10:18:23

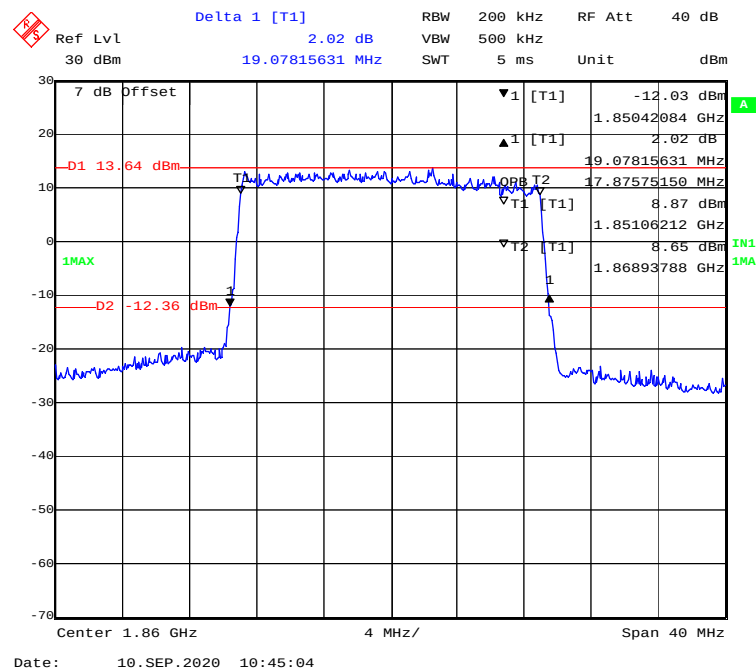
[illegible]

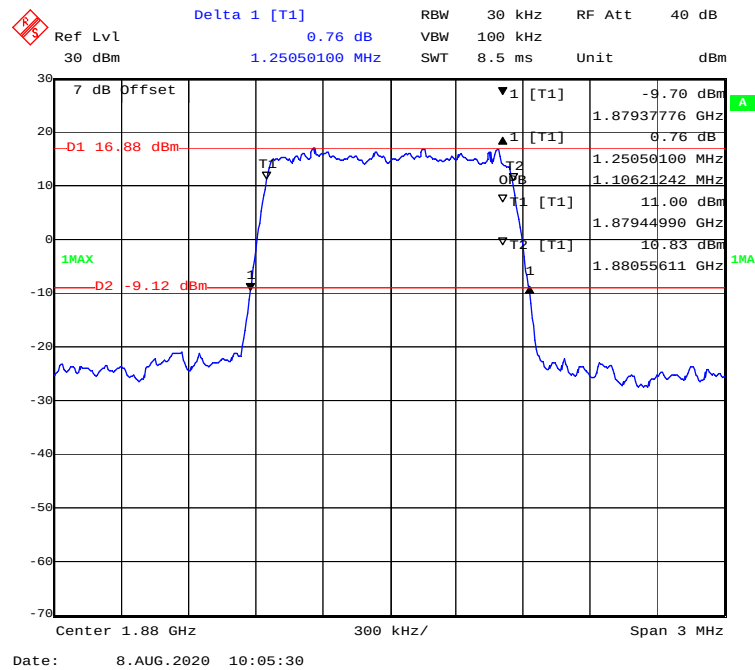
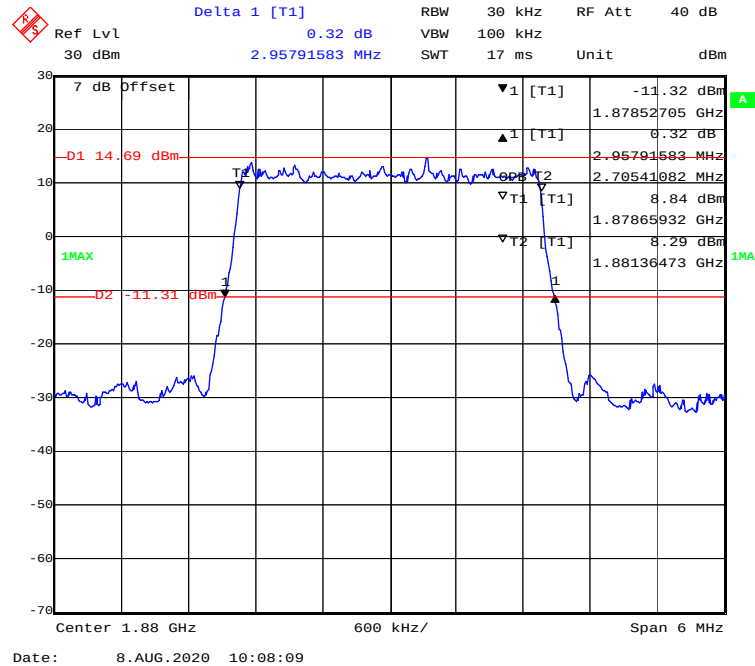
16-QAM (5 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel**16-QAM (10 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel**

16-QAM (15 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel

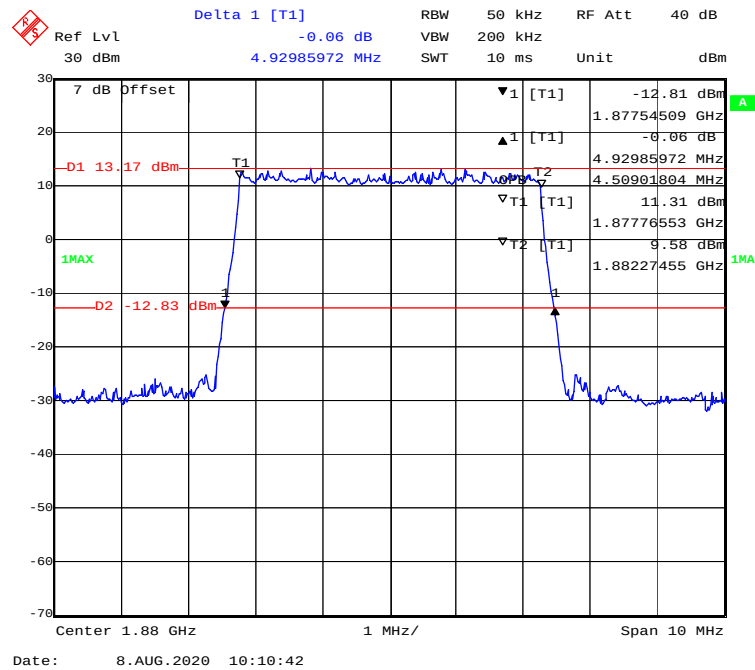


16-QAM (20 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel

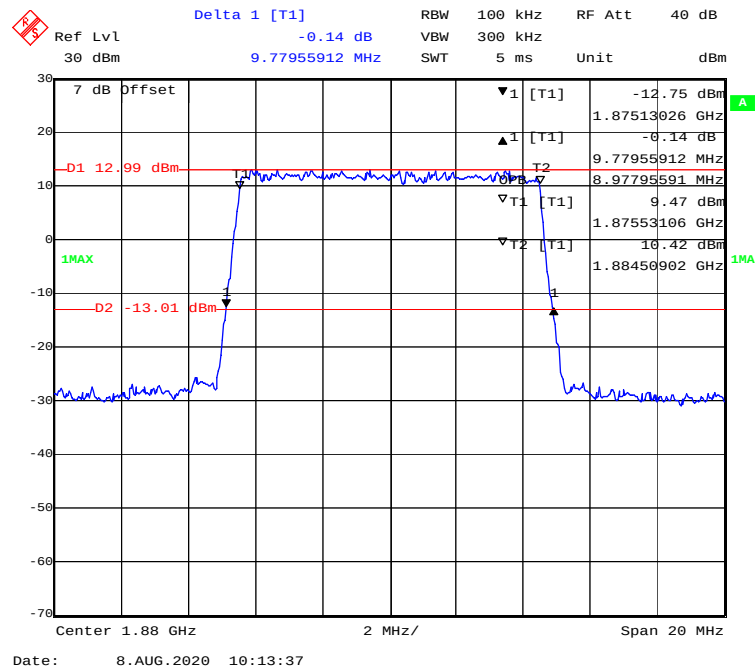


QPSK (1.4 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**QPSK (3 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**

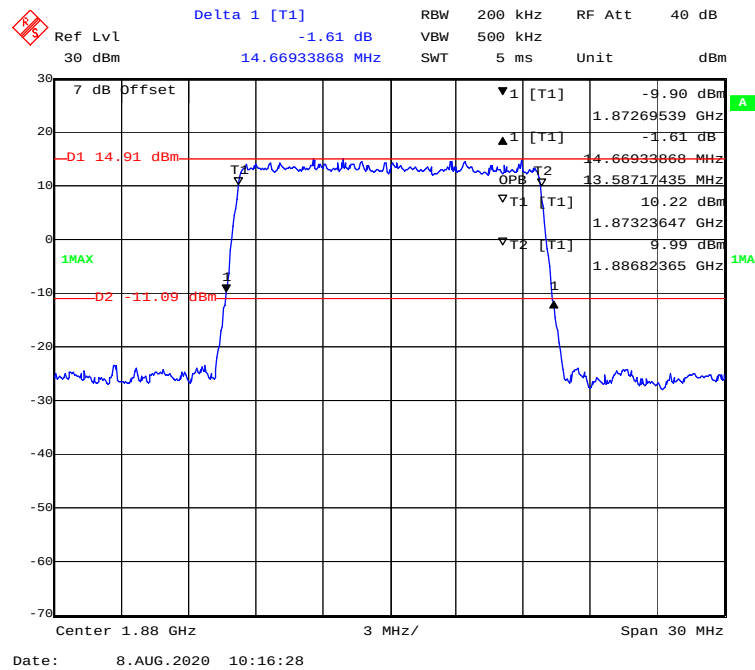
QPSK (5 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel



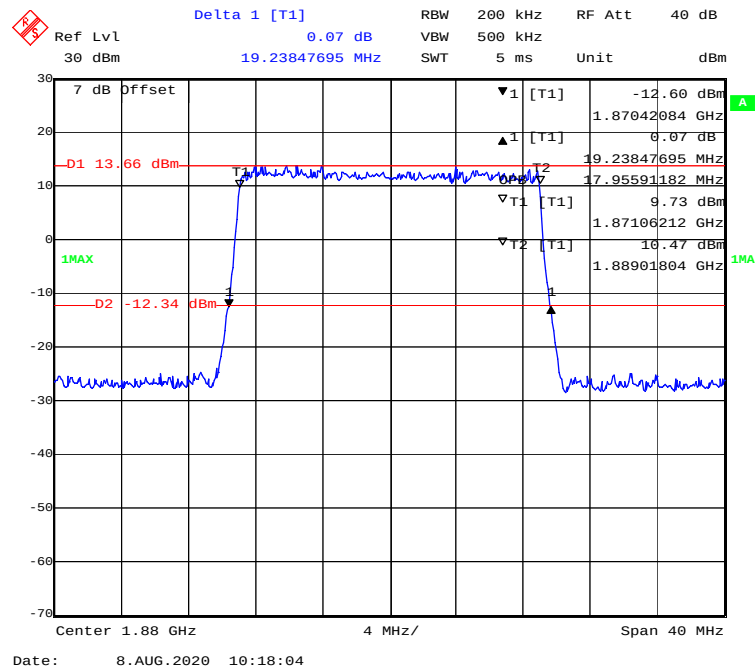
QPSK (10MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel

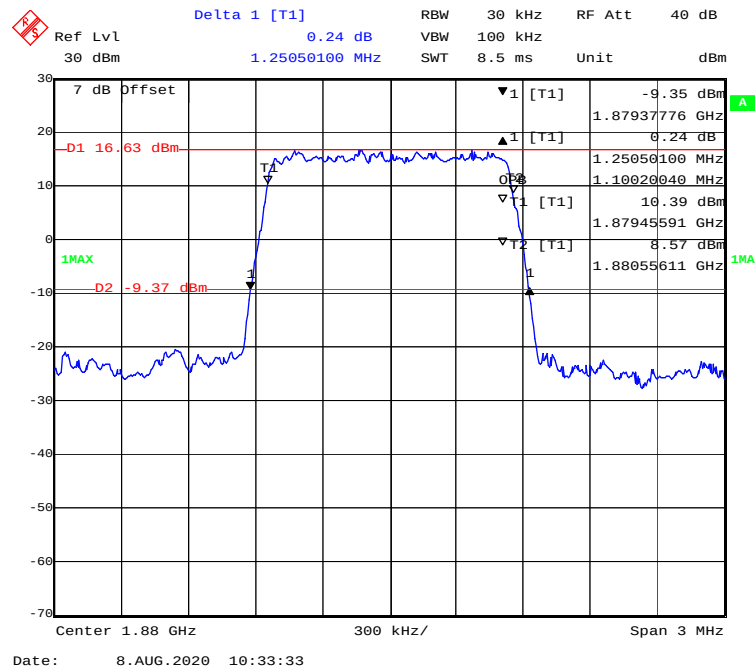
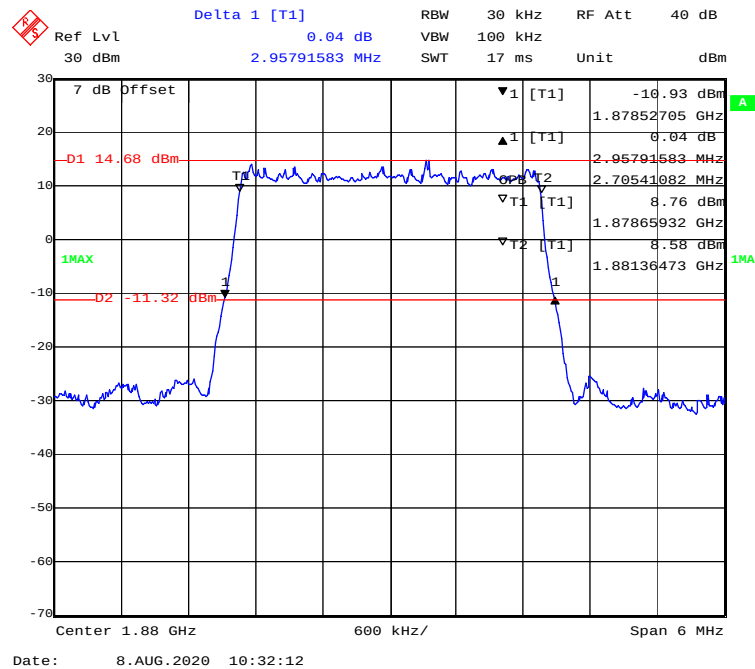


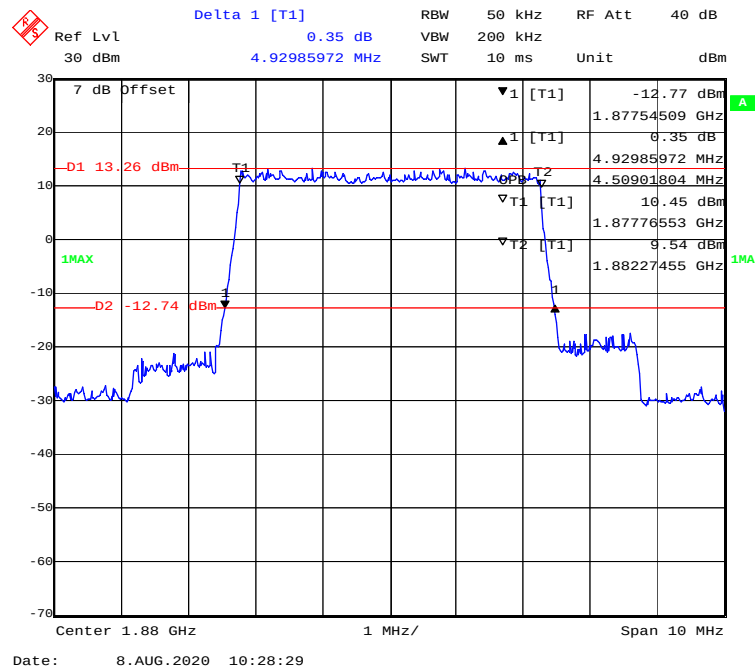
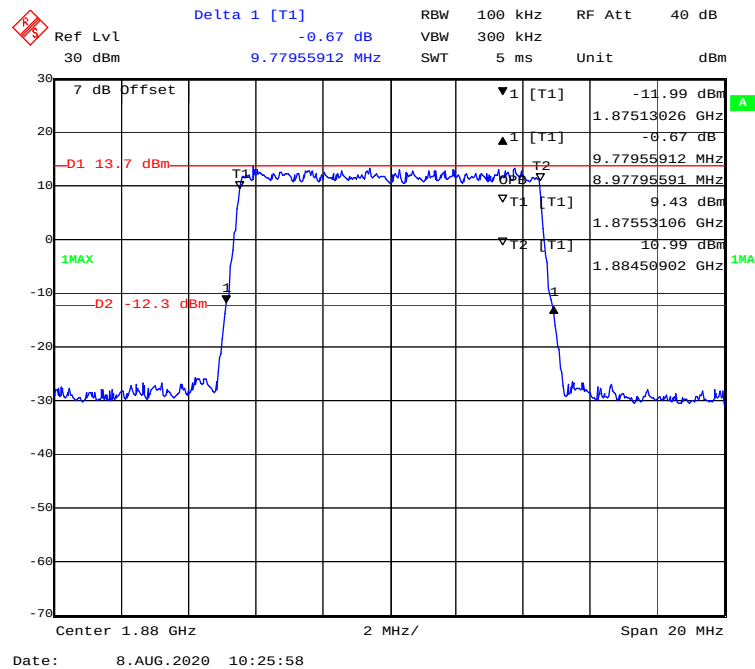
QPSK (15 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel



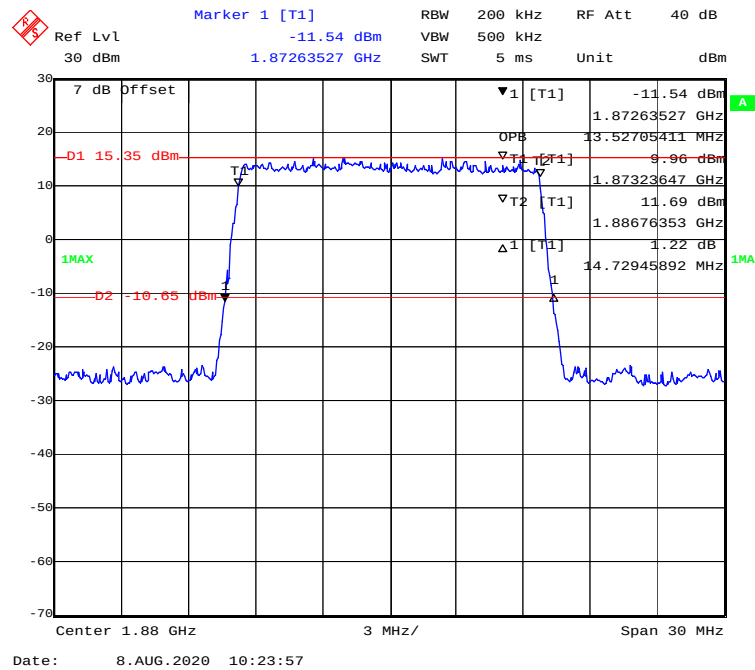
QPSK (20 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel



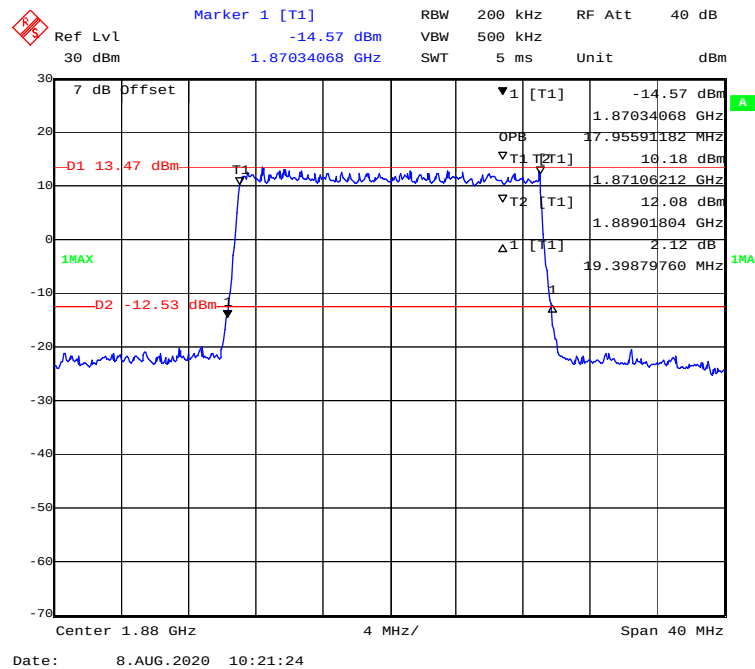
16-QAM (1.4 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**16-QAM (3 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**

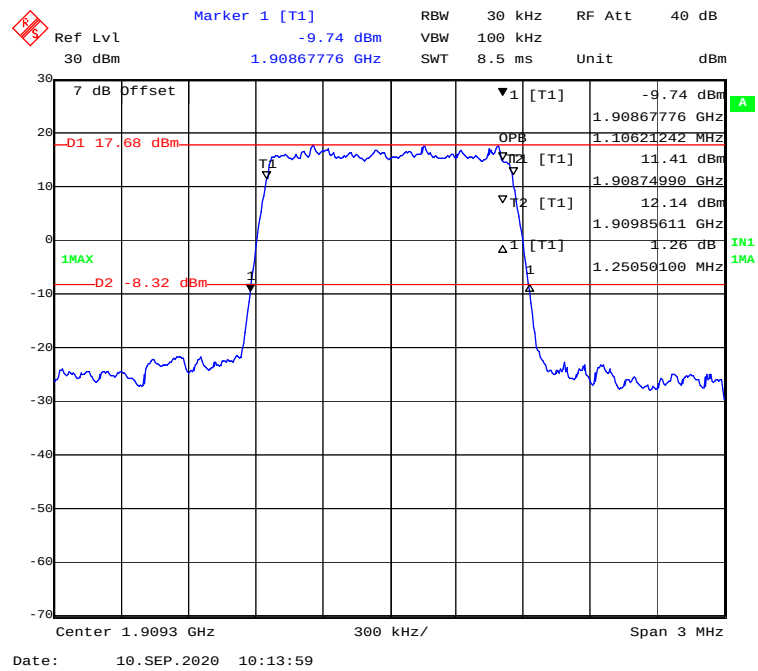
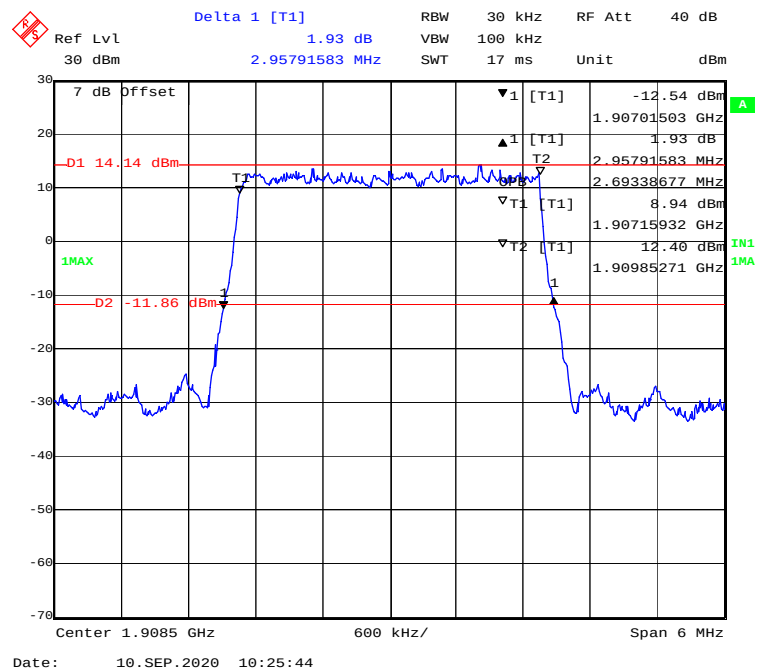
16-QAM (5 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**16-QAM (10 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**

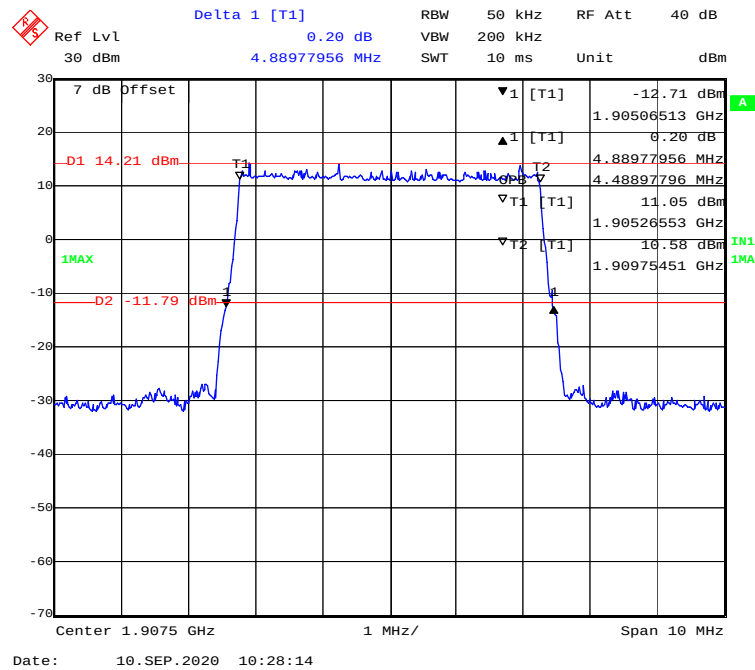
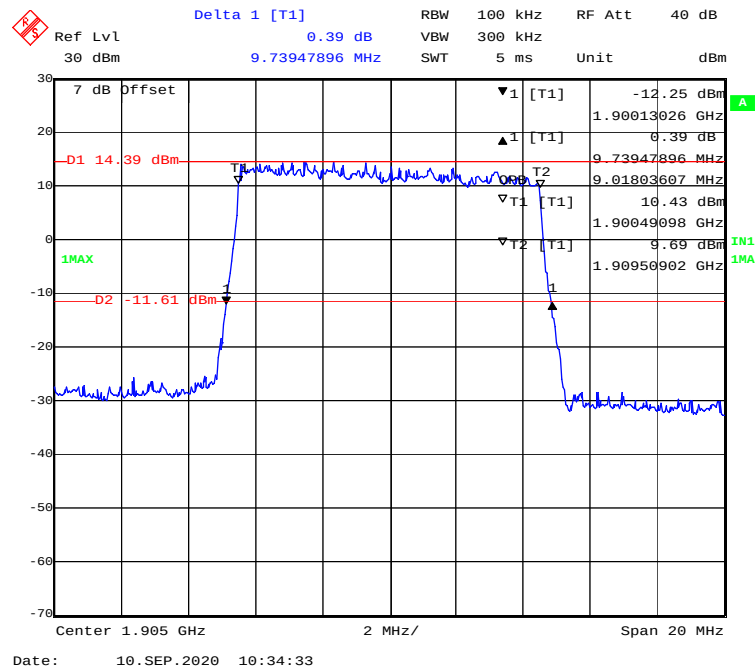
16-QAM (15 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel

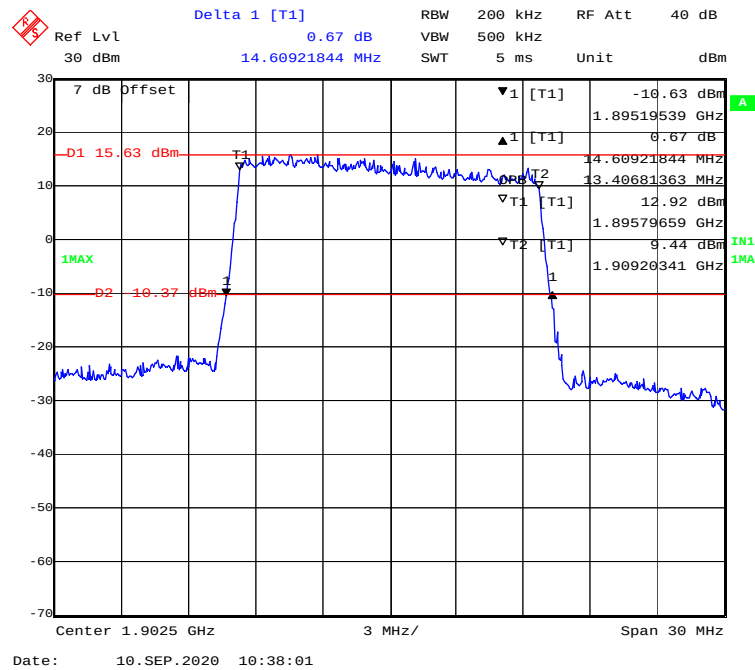
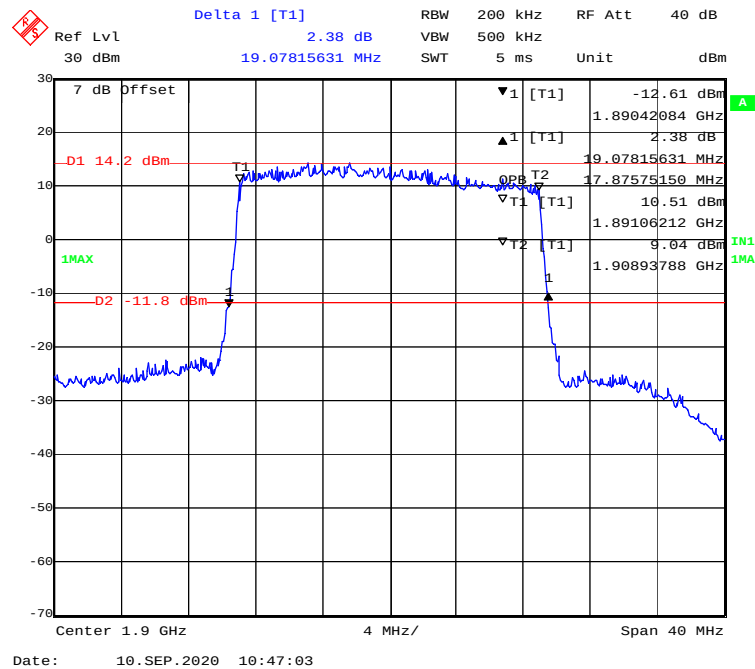


16-QAM (20 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel

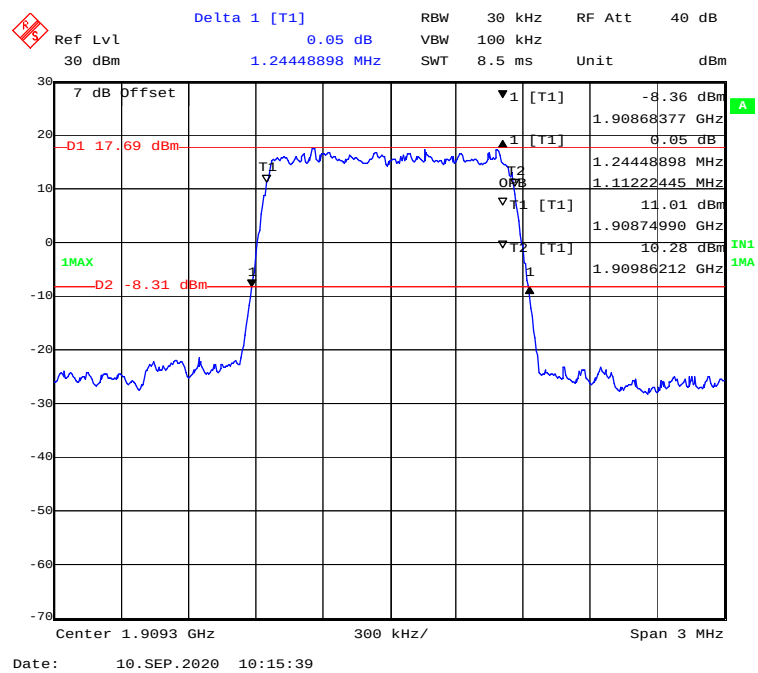


QPSK (1.4 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**QPSK (3 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**

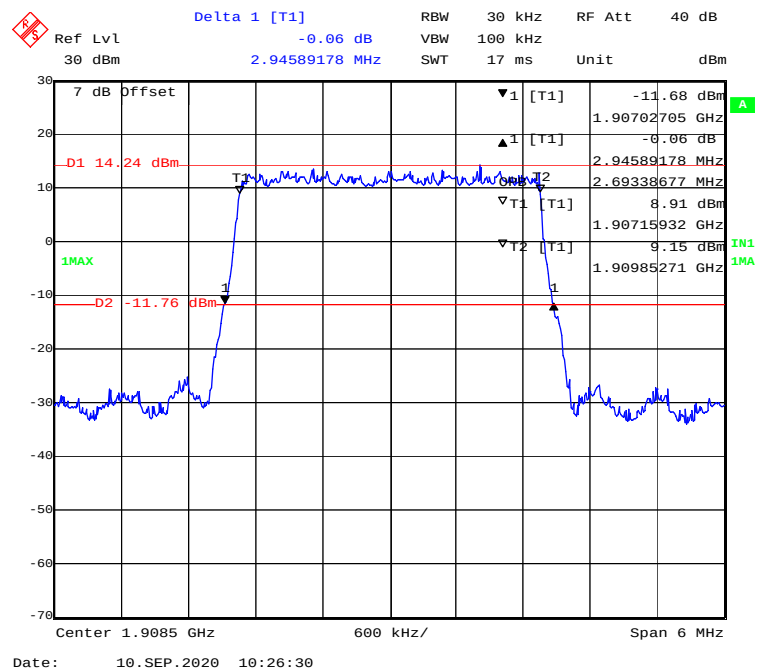
QPSK (5 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**QPSK (10MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**

QPSK (15 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**QPSK (20 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**

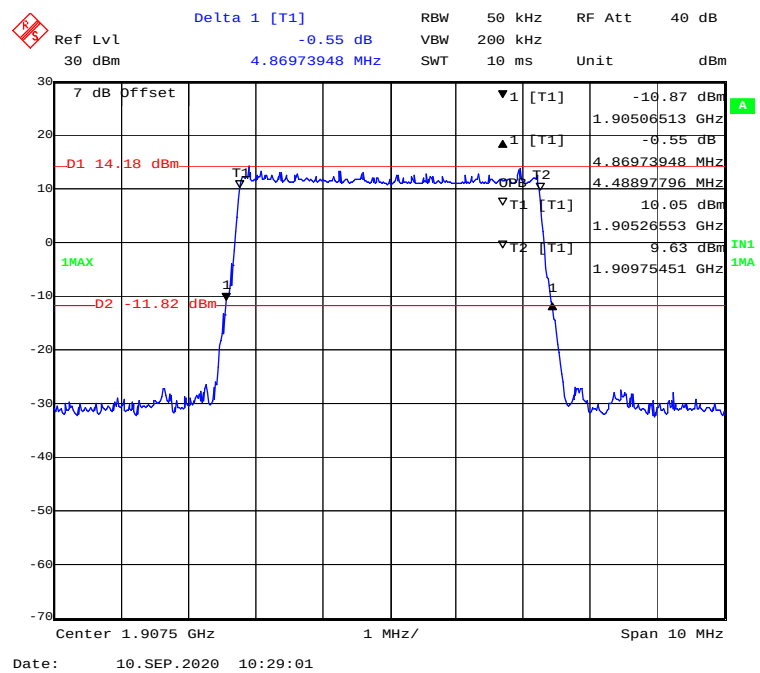
16-QAM (1.4 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel



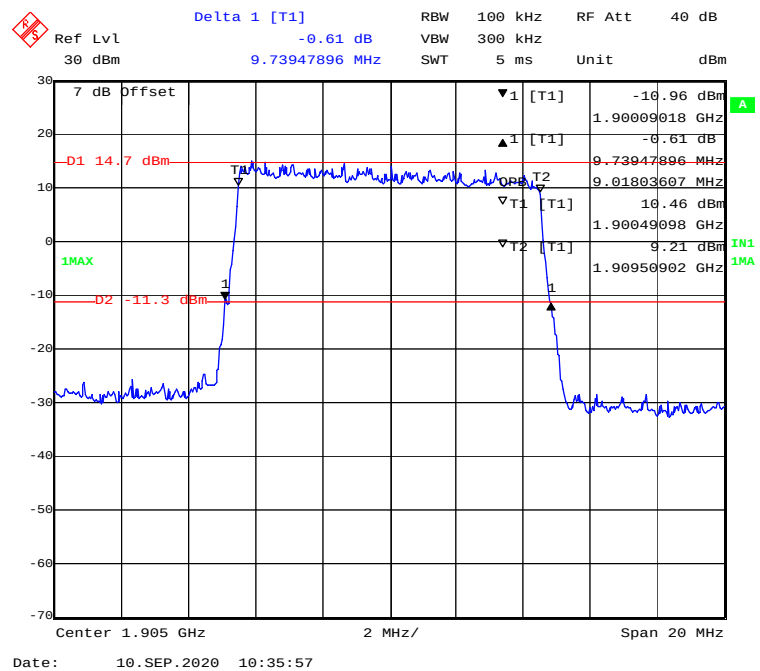
16-QAM (3 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel



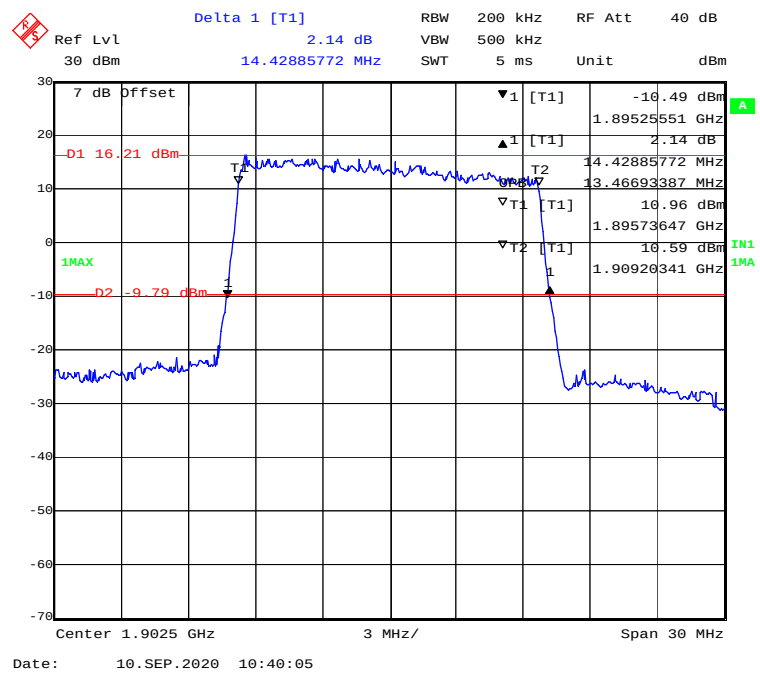
16-QAM (5 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel



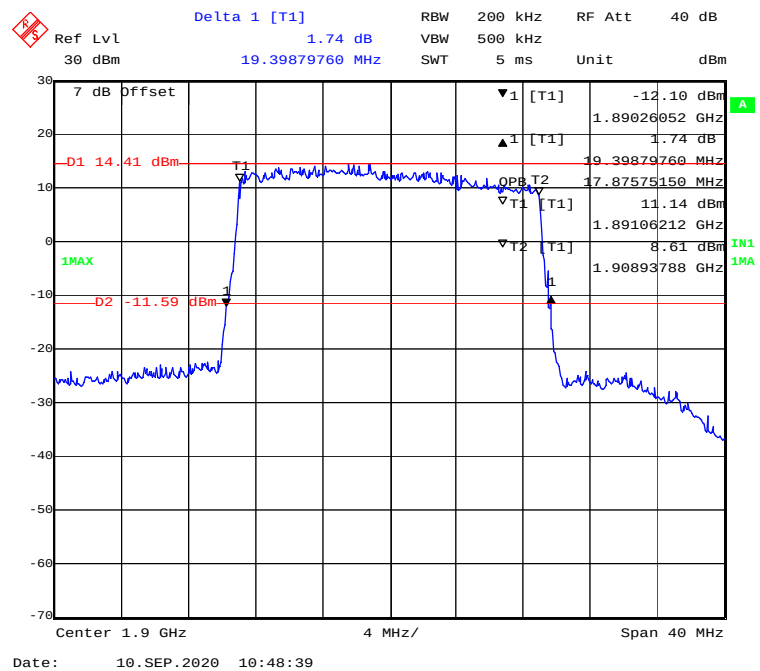
16-QAM (10 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel



16-QAM (15 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel



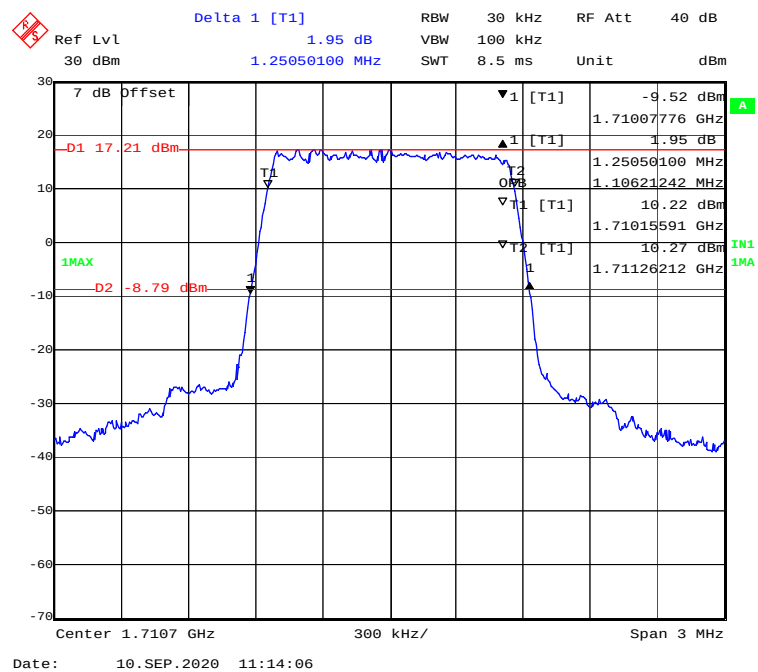
16-QAM (20 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel



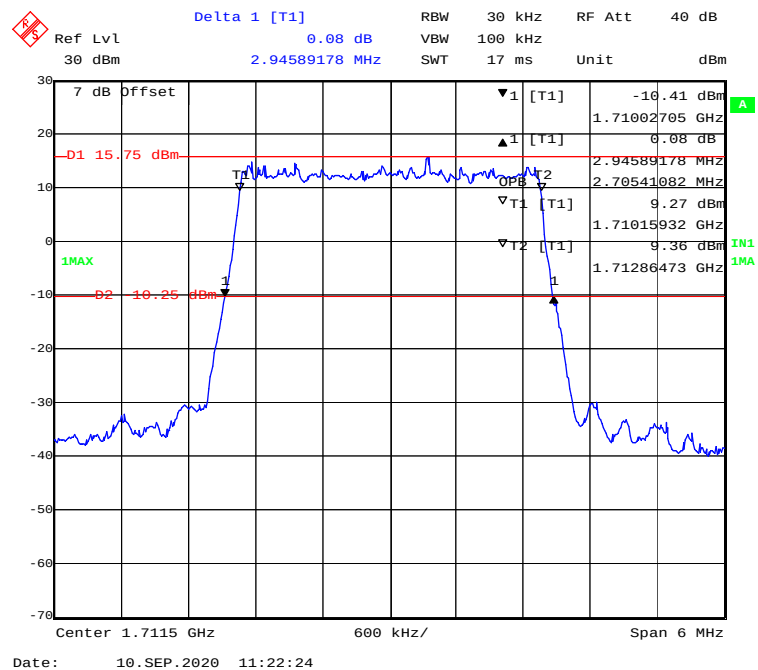
LTE Band 4:

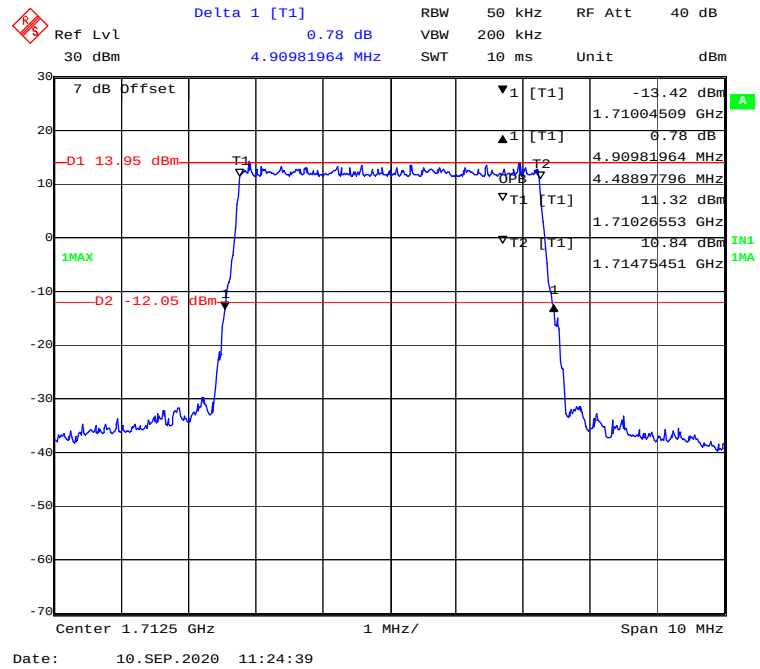
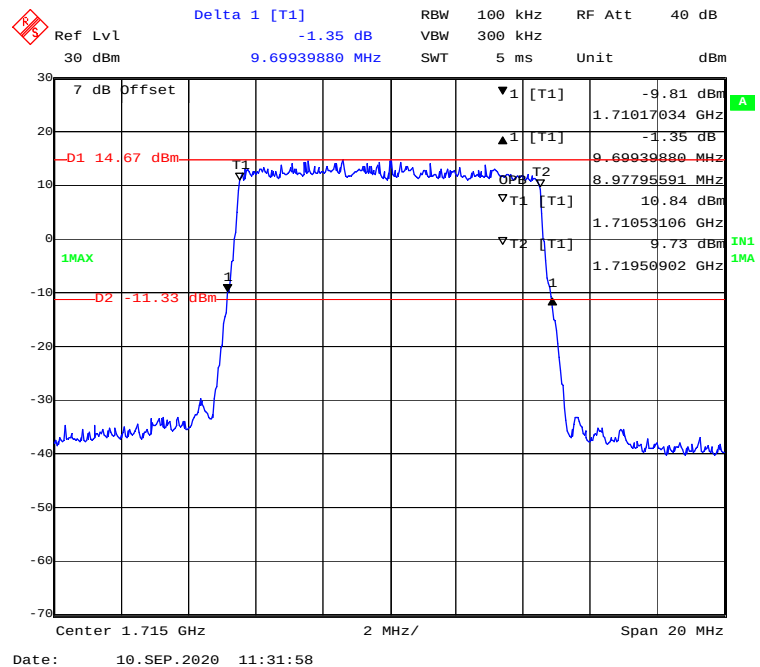
Test Modulation	Test Bandwidth	Test Channel	26 dB Bandwidth	99% Occupied Bandwidth
			MHz	MHz
QPSK	1.4M	Low	1.251	1.106
	3M		2.946	2.705
	5M		4.910	4.489
	10M		9.699	8.978
	15M		14.549	13.407
	20M		19.319	17.876
	1.4M	Middle	1.244	1.002
	3M		2.982	2.693
	5M		4.850	4.489
	10M		9.780	8.938
	15M		14.609	13.527
	20M		19.238	17.956
	1.4M	High	1.244	1.106
	3M		2.982	2.693
	5M		4.930	4.489
	10M		9.619	8.938
	15M		14.669	13.407
	20M		19.078	17.876
16-QAM	1.4M	Low	1.244	1.100
	3M		2.970	2.693
	5M		4.930	4.489
	10M		9.739	8.978
	15M		14.609	13.467
	20M		19.399	17.876
	1.4M	Middle	1.251	1.106
	3M		2.982	2.705
	5M		4.870	4.489
	10M		9.780	9.018
	15M		14.729	13.527
	20M		19.319	18.036
	1.4M	High	1.244	1.100
	3M		2.970	2.693
	5M		4.910	4.509
	10M		9.659	8.938
	15M		14.609	13.407
	20M		19.158	17.876

QPSK (1.4 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel

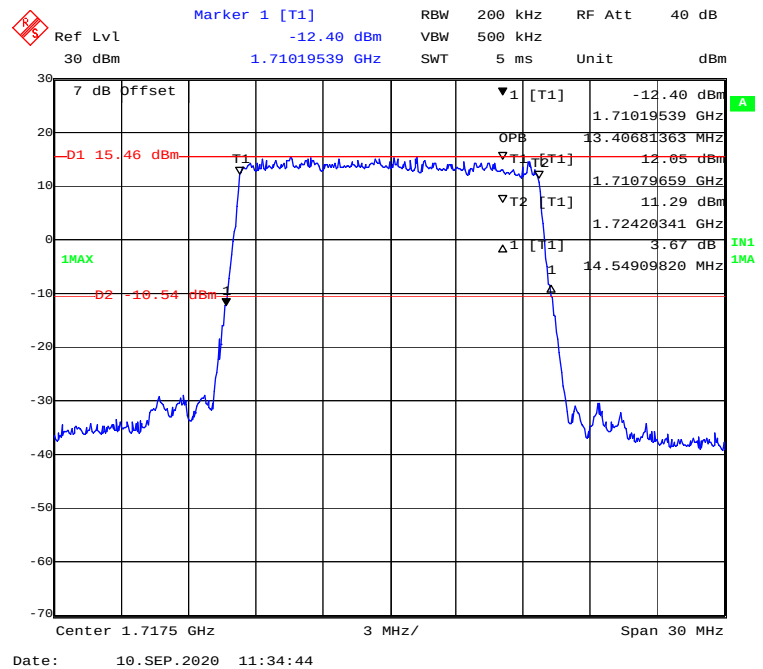


QPSK (3 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel

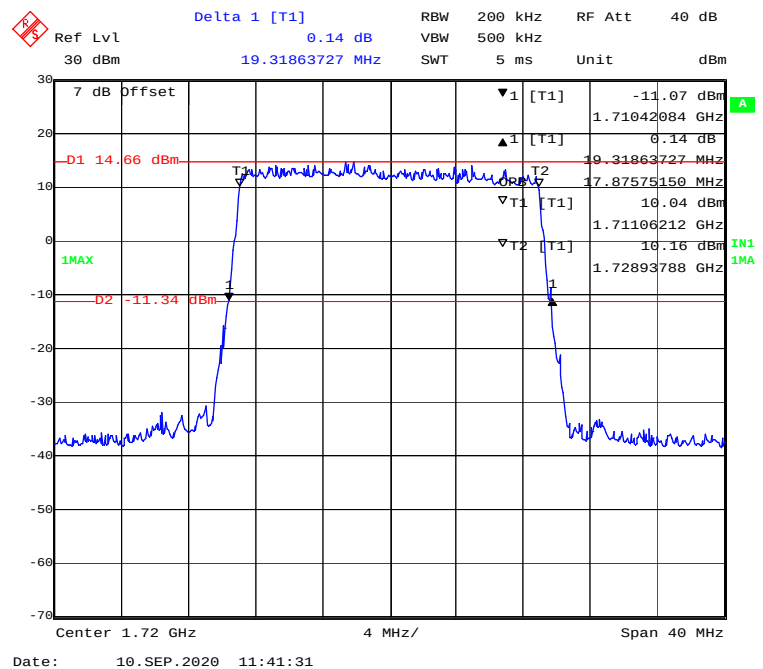


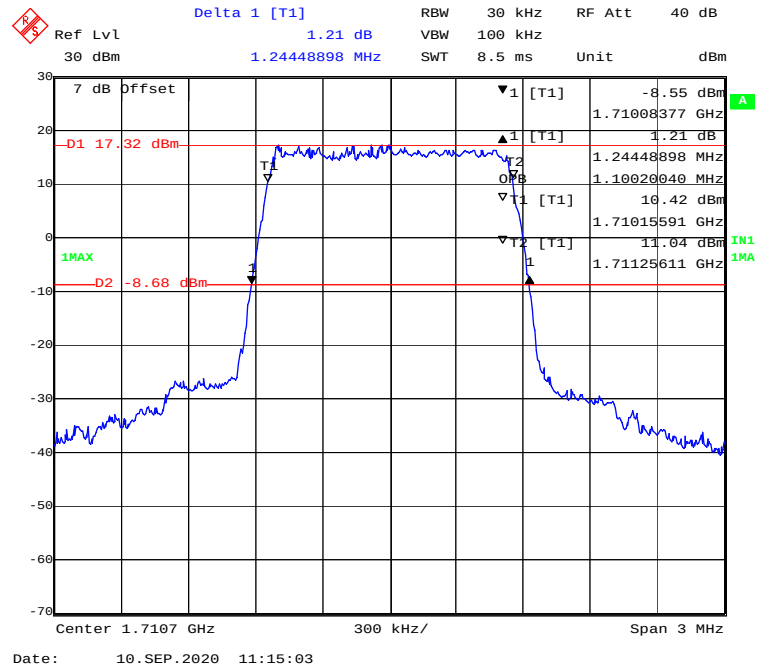
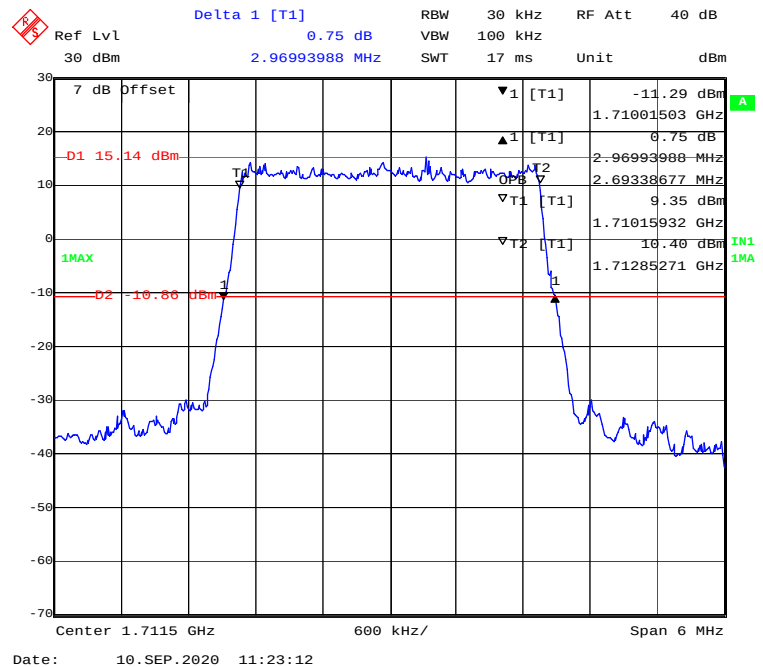
QPSK (5MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel**QPSK (10 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel**

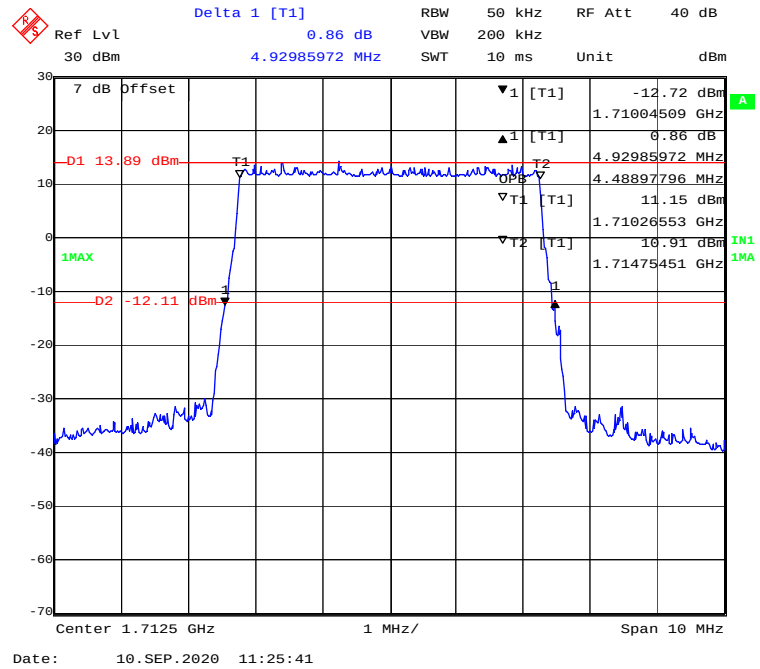
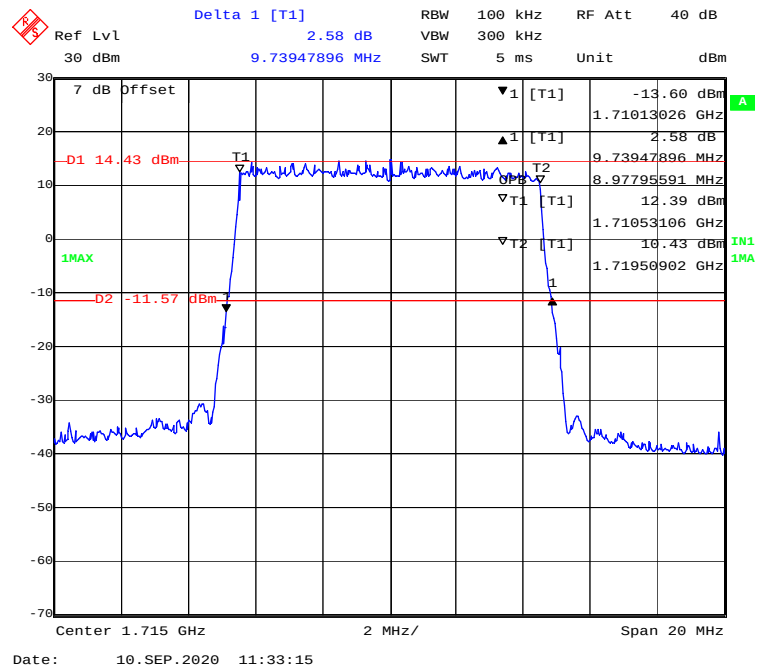
QPSK (15 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel

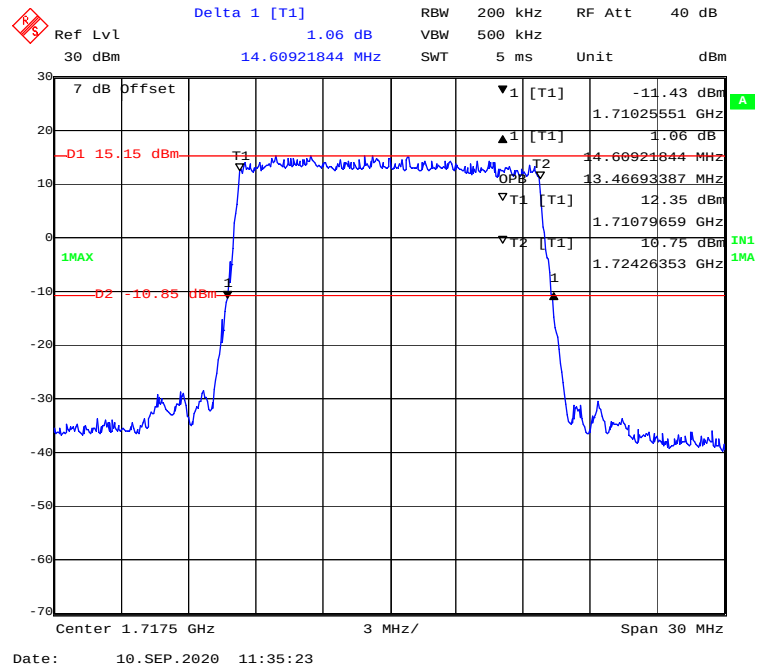
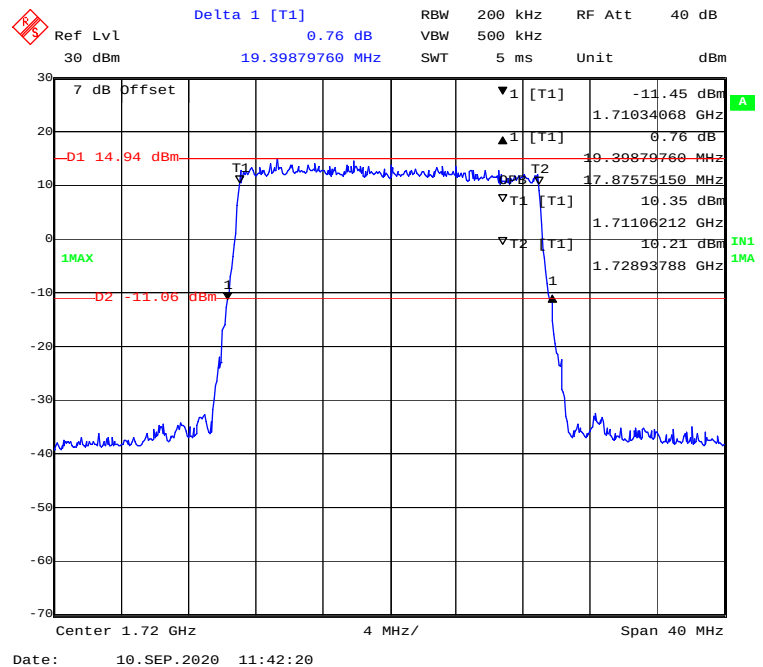


QPSK (20 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel

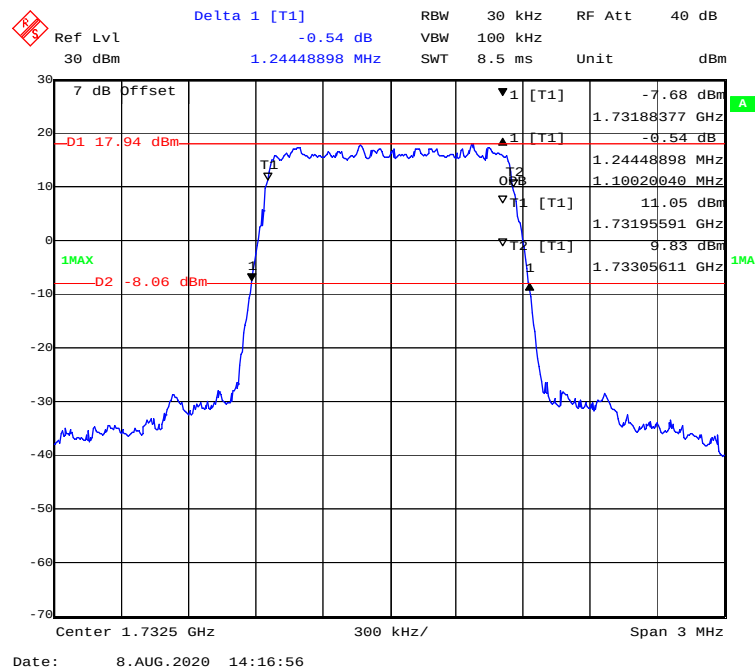


16-QAM (1.4 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel**16-QAM (3 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel**

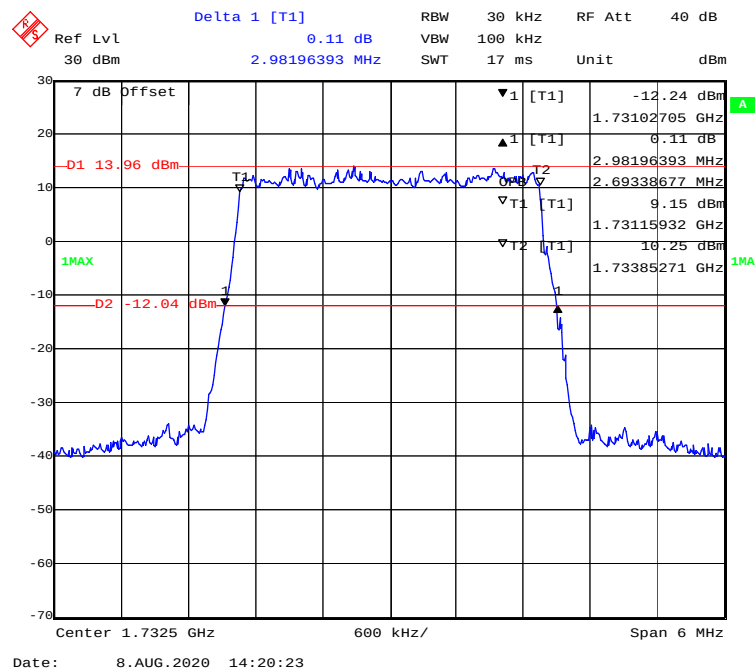
16-QAM (5 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel**16-QAM (10 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel**

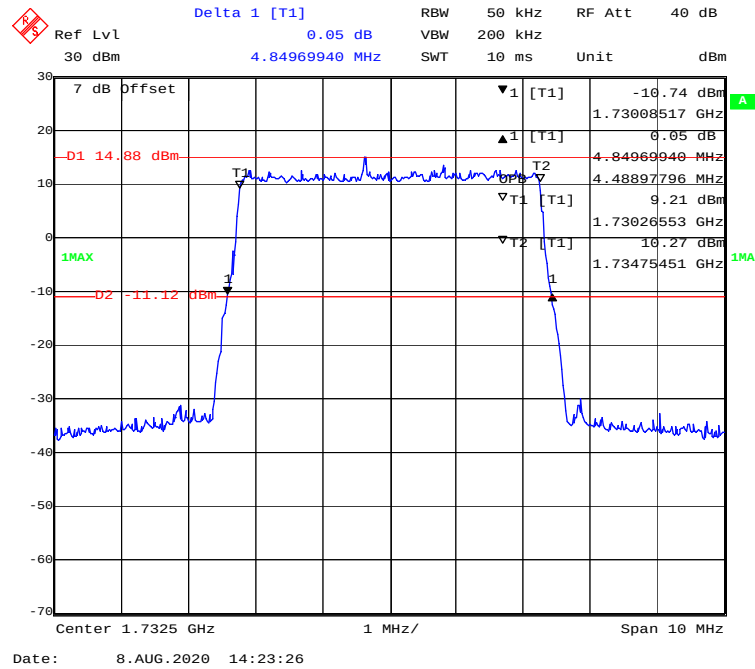
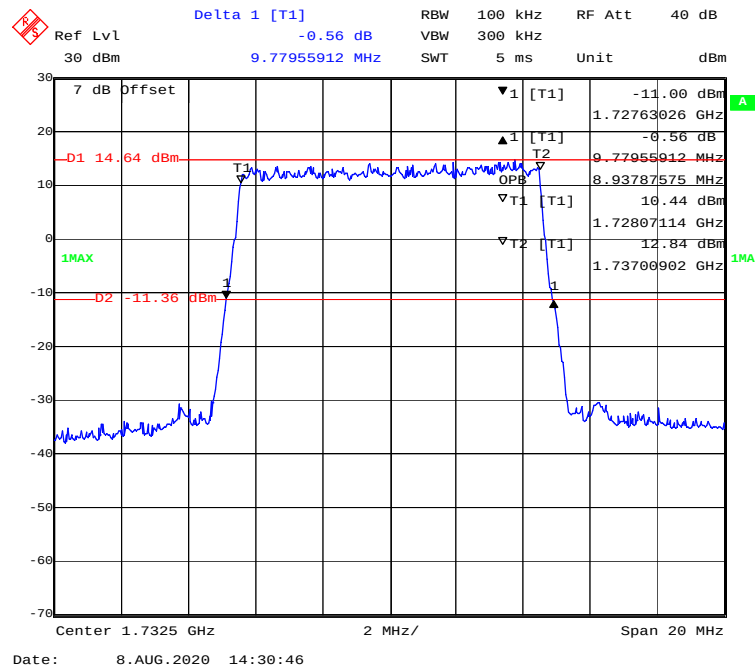
16-QAM (15 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel**16-QAM (20 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel**

QPSK (1.4 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel



QPSK (3 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel



QPSK (5MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**QPSK (10 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**

Delta 1 [T1] 0.92 dB

Ref Lvl 30 dBm RBW 200 kHz RF Att 40 dB

30 dBm 500 kHz SWT 5 ms Unit dBm

7 dB Offset

D1 15.88 dBm

1MAX

D2 10.12 dBm

▼1 [T1] -9.45 dBm

▲1 [T1] 0.92 dB

▼2 14.60921844 MHz

OPB ▼ 13.52705411 MHz

▼T1 [T1] 10.18 dBm

▼I2 [T1] 1.72579659 GHz

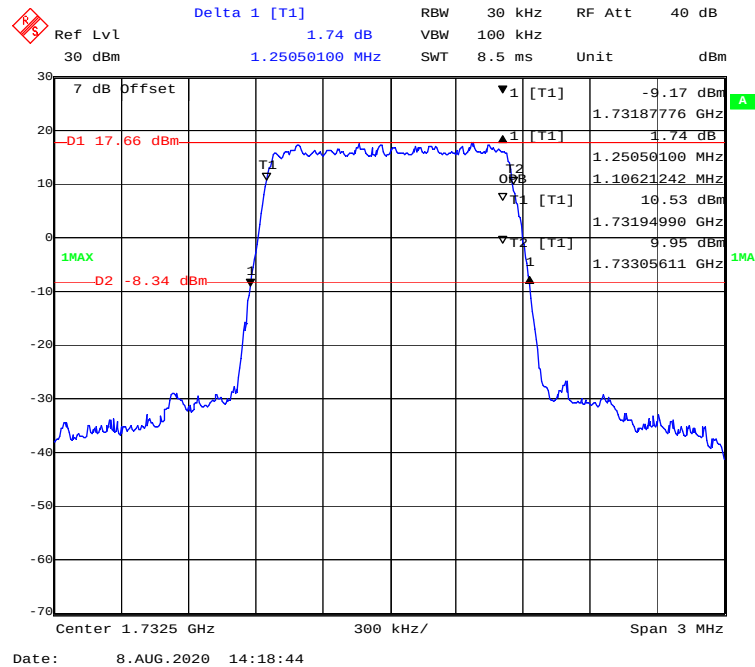
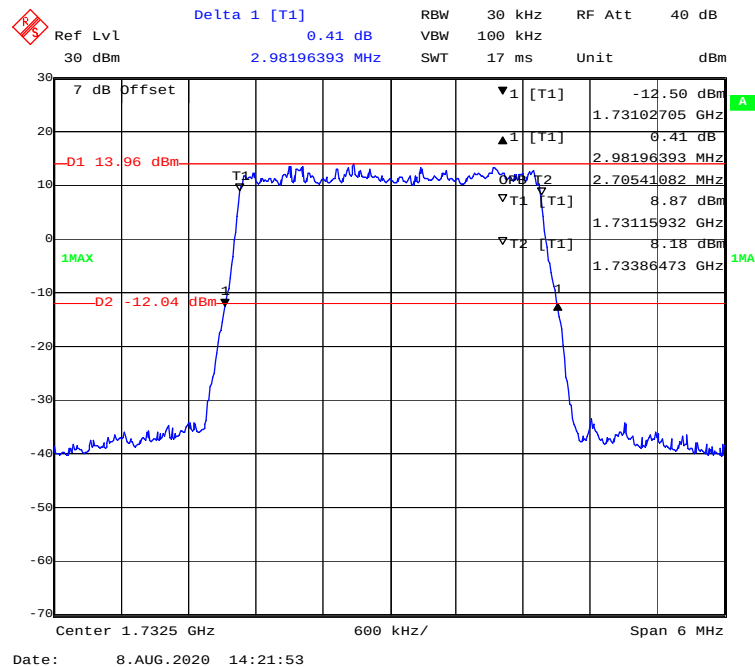
1 10.77 dBm

1 1.73932365 GHz 1MAX

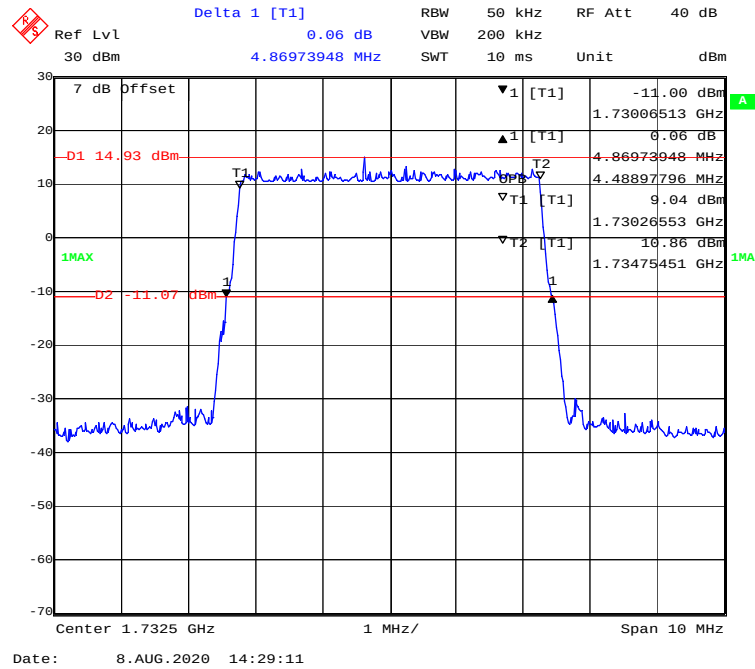
Center 1.7325 GHz 3 MHz/ Span 30 MHz

Date: 8.AUG.2020 14:33:09

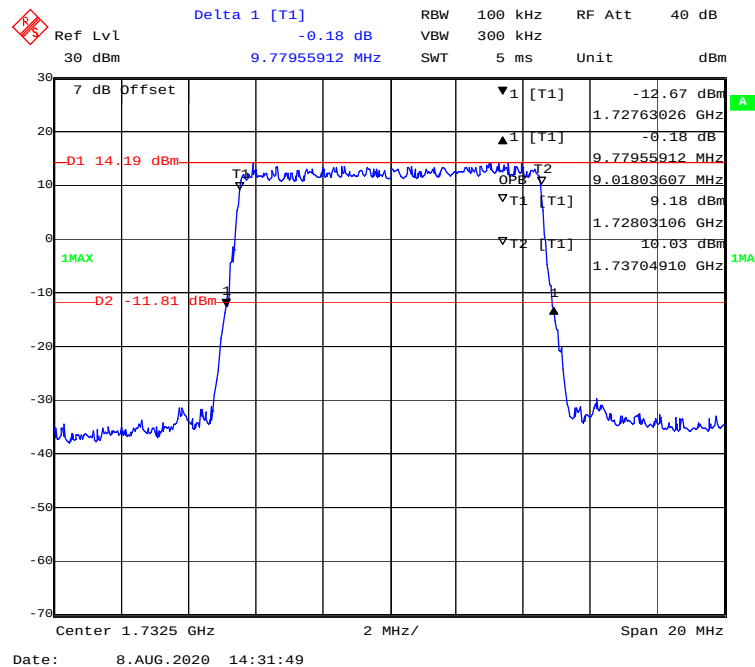
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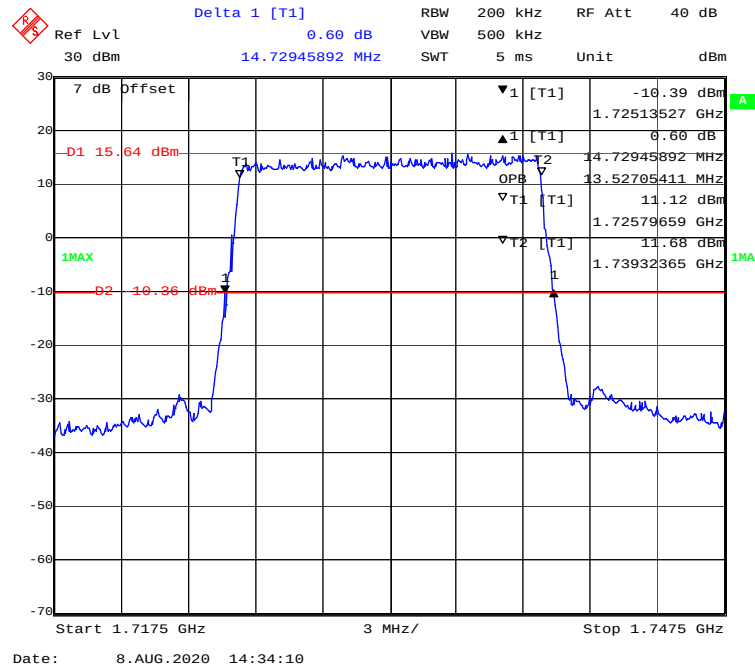
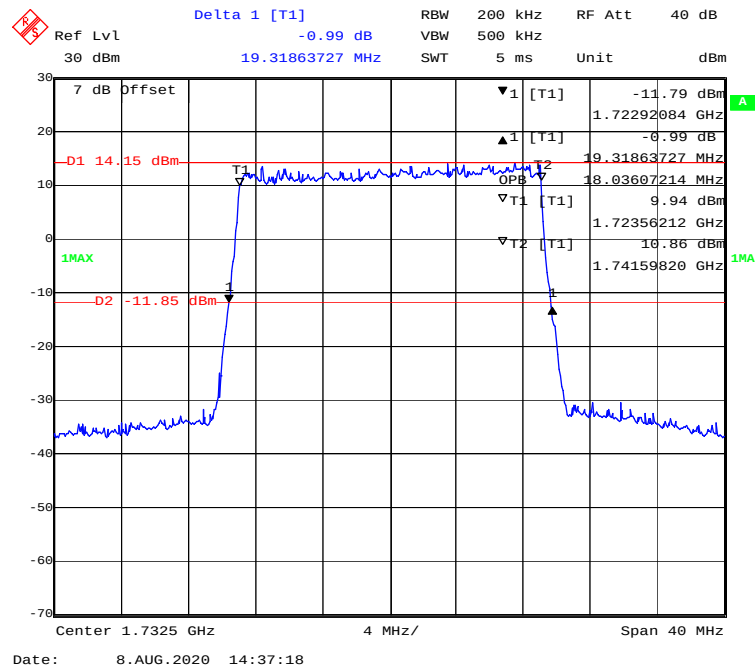
16-QAM (1.4 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**16-QAM (3 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**

16-QAM (5 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel

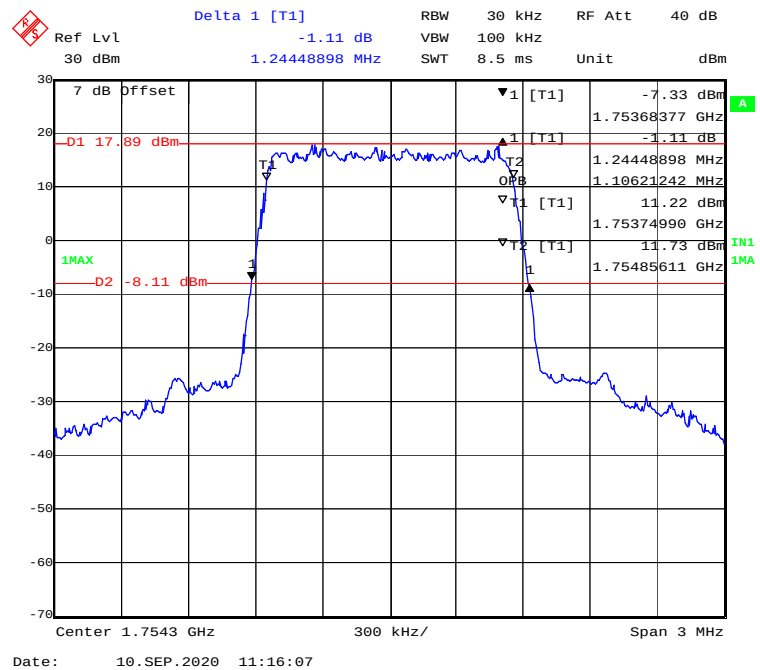


16-QAM (10 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel

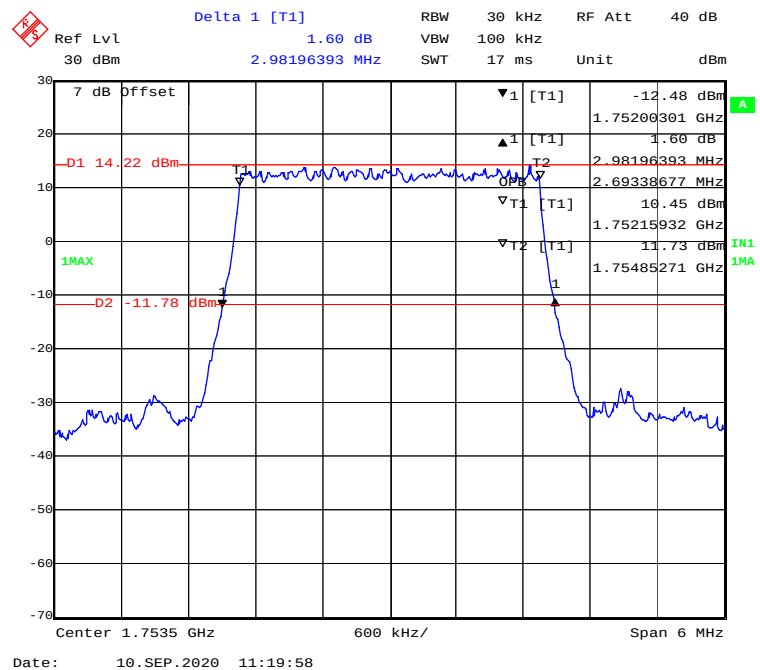


16-QAM (15 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**16-QAM (20 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**

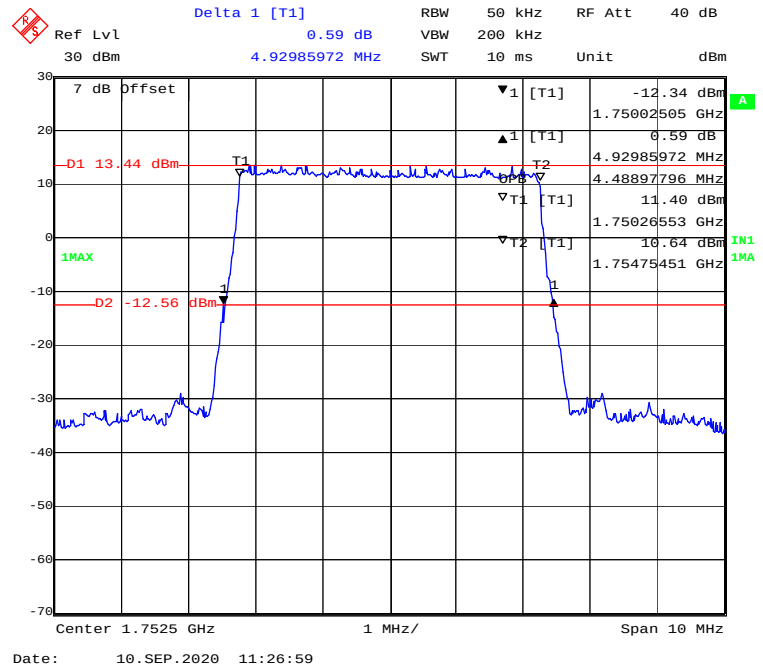
QPSK (1.4 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel



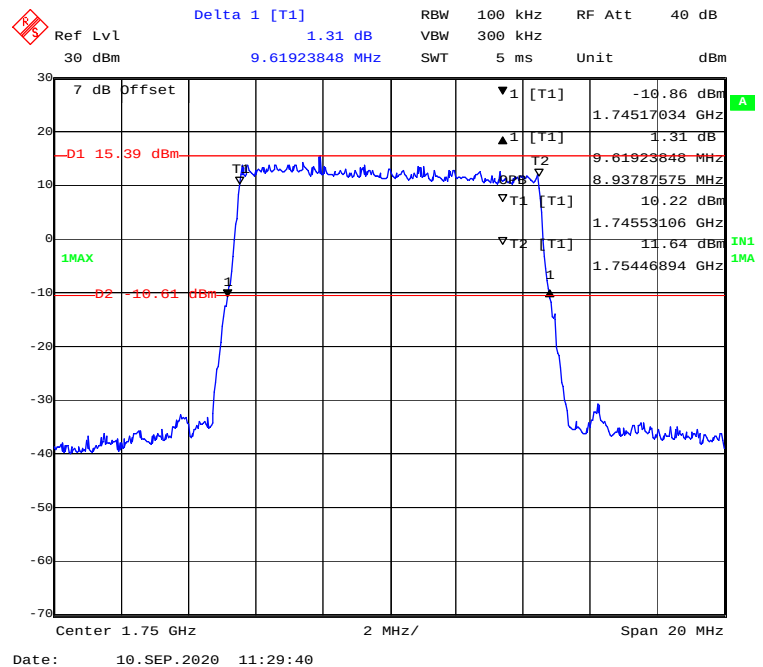
QPSK (3 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel

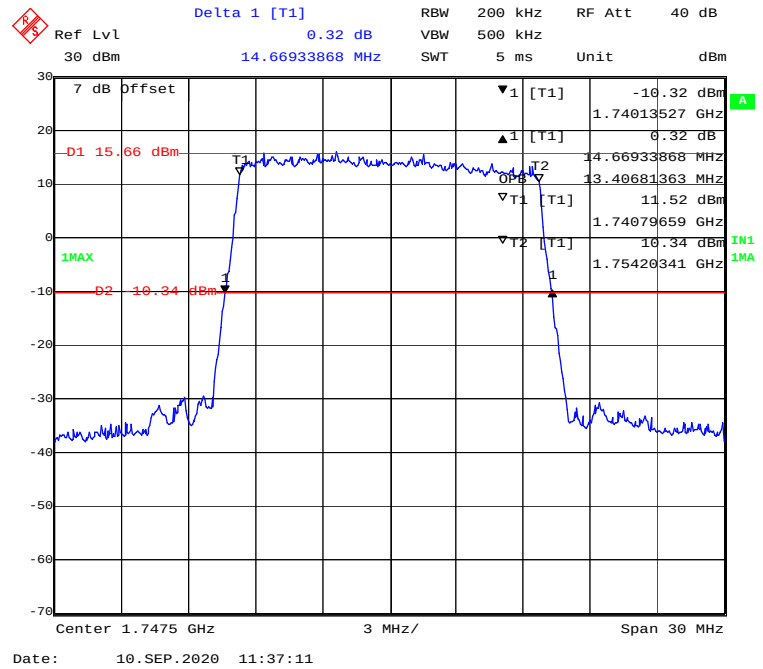
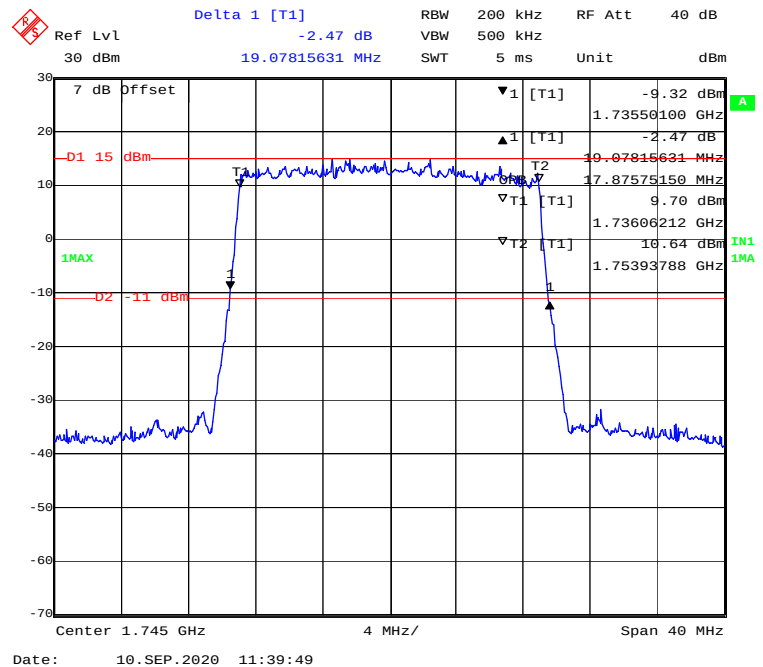


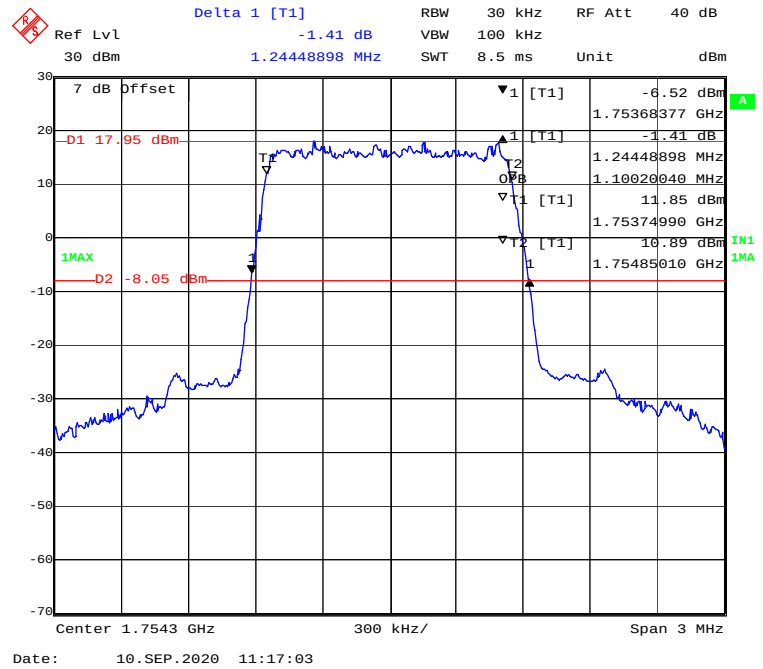
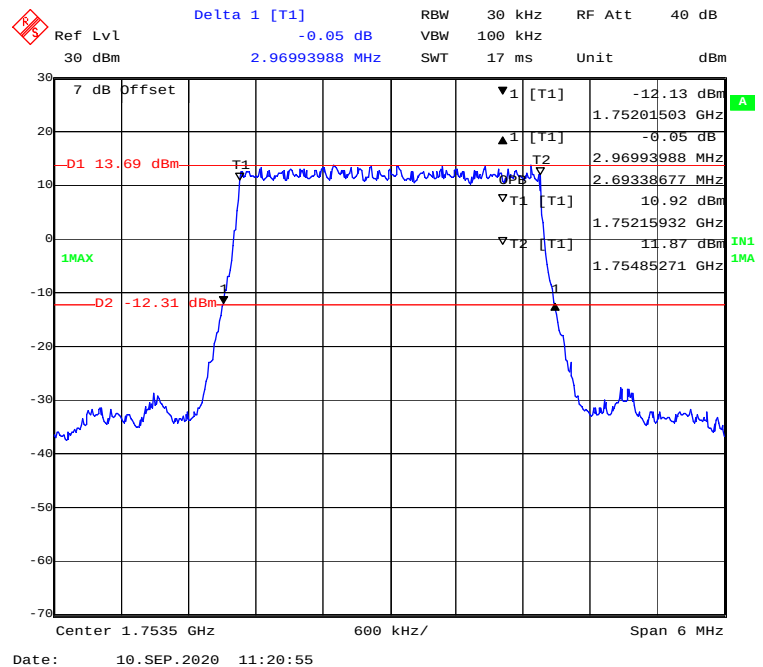
QPSK (5MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel



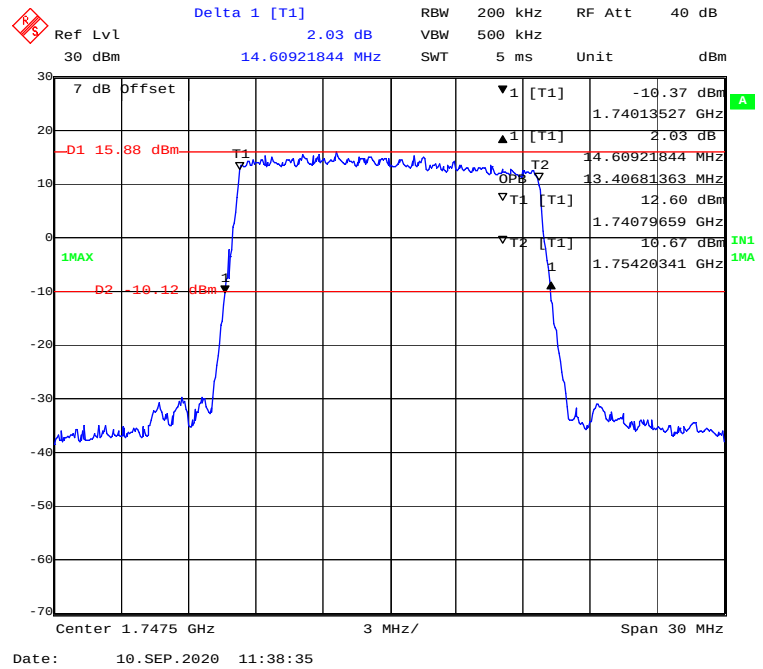
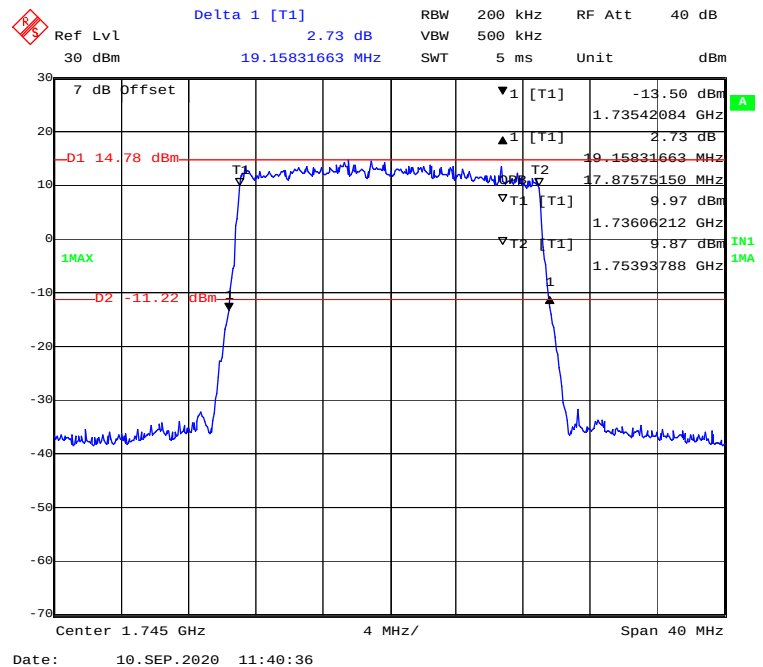
QPSK (10 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel



QPSK (15 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**QPSK (20 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**

16-QAM (1.4 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**16-QAM (3 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**

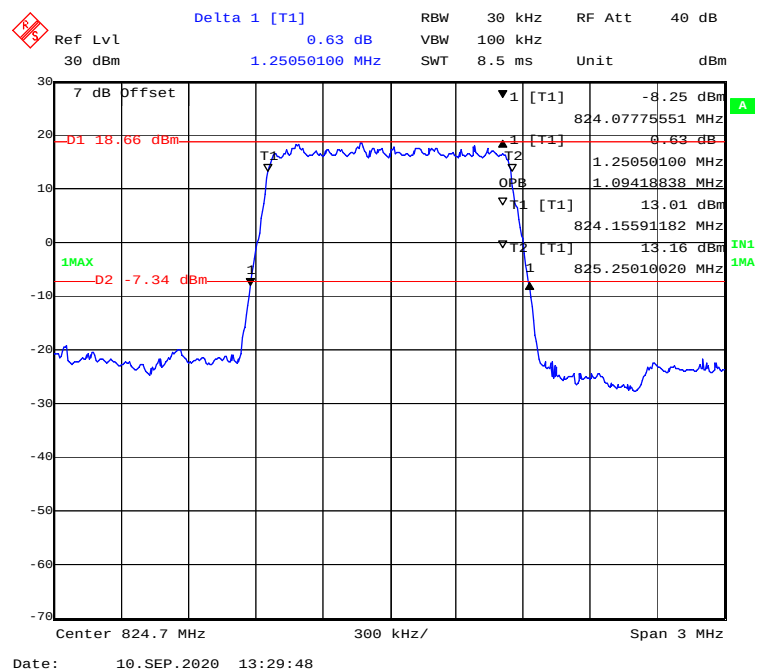
[illegible][illegible]

16-QAM (15 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**16-QAM (20 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**

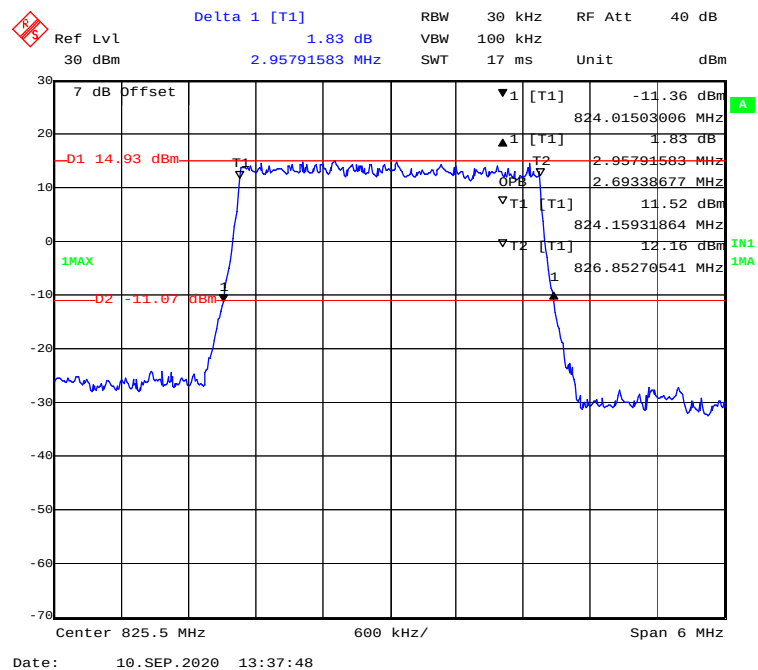
LTE Band 5:

Test Modulation	Test Bandwidth	Test Channel	26 dB Bandwidth	99% Occupied Bandwidth
			MHz	MHz
QPSK	1.4M	Low	1.251	1.094
	3M		2.958	2.693
	5M		4.870	4.489
	10M		9.659	9.018
	1.4M	Middle	1.251	1.100
	3M		2.994	2.705
	5M		4.890	4.509
	10M		9.739	8.938
	1.4M	High	1.244	1.100
	3M		2.958	2.705
	5M		4.930	4.469
	10M		9.619	8.978
16-QAM	1.4M	Low	1.251	1.100
	3M		2.970	2.693
	5M		4.890	4.489
	10M		9.659	9.018
	1.4M	Middle	1.251	1.100
	3M		2.994	2.693
	5M		4.870	4.489
	10M		9.739	8.938
	1.4M	High	1.257	1.094
	3M		2.958	2.705
	5M		4.910	4.489
	10M		9.659	8.938

QPSK (1.4 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel



QPSK (3.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel



Ref Lvl 30 dBm

Delta 1 [T1] -0.02 dB

RBW 50 kHz

RF Att 40 dB

SWT 10 ms

Unit dBm

7 dB Offset

D1 15.68 dBm

D2 10.22 dBm

IN1 1MA

IN2 1MA

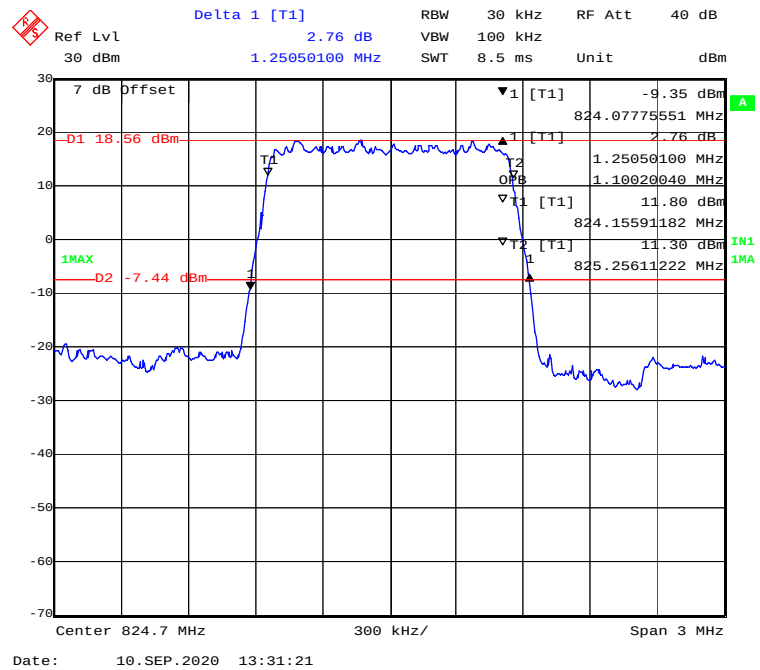
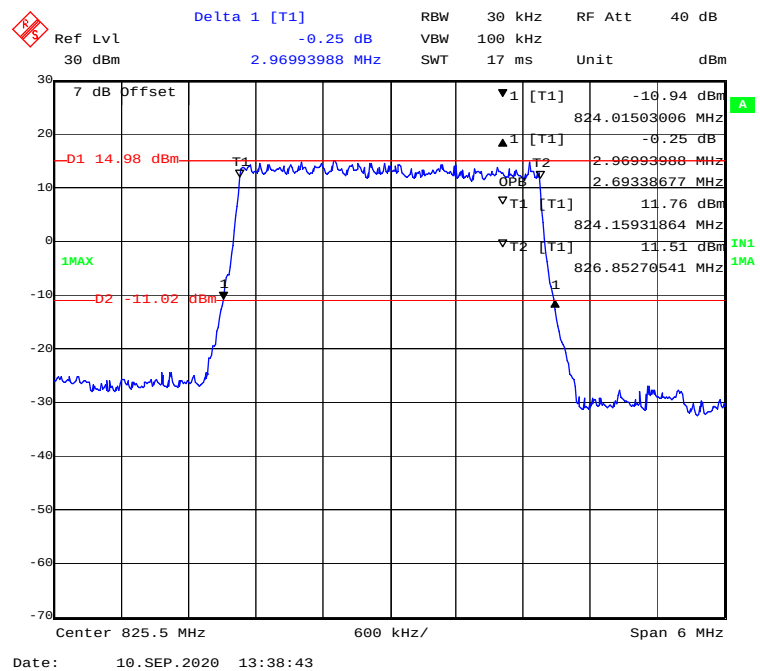
Center 826.5 MHz

1 MHz/

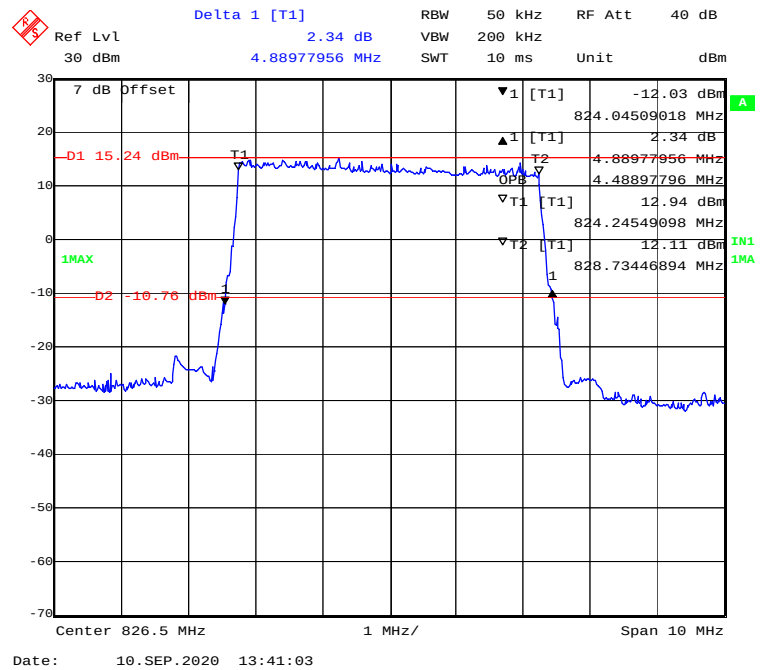
Span 10 MHz

Date: 10. SEP. 2020 13:40:03

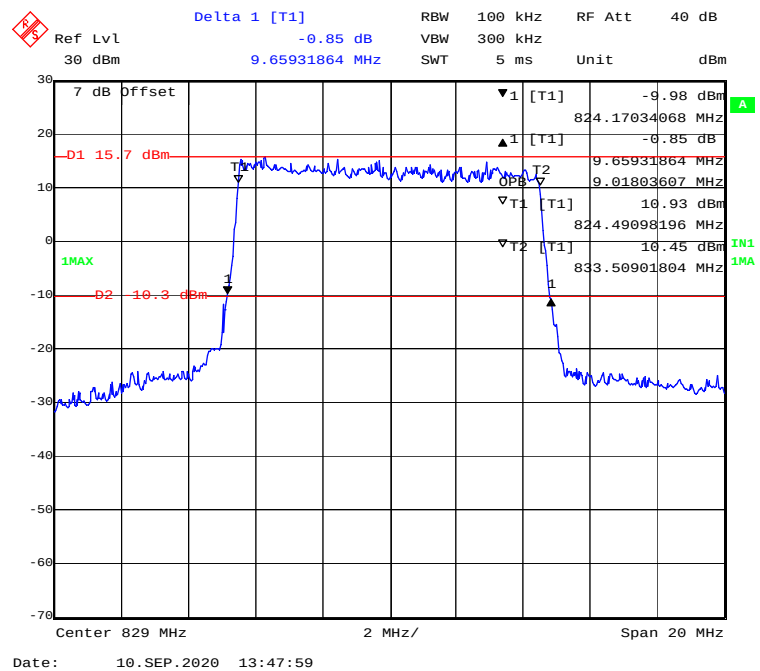
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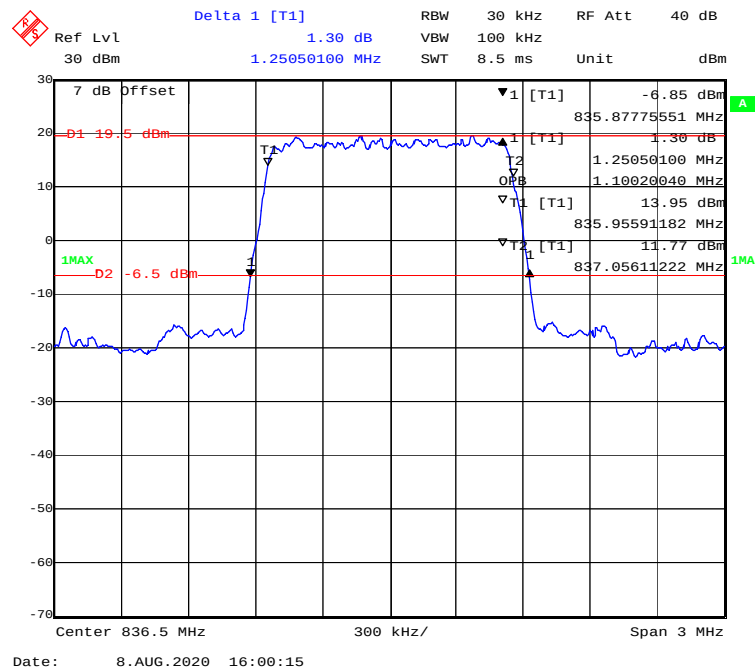
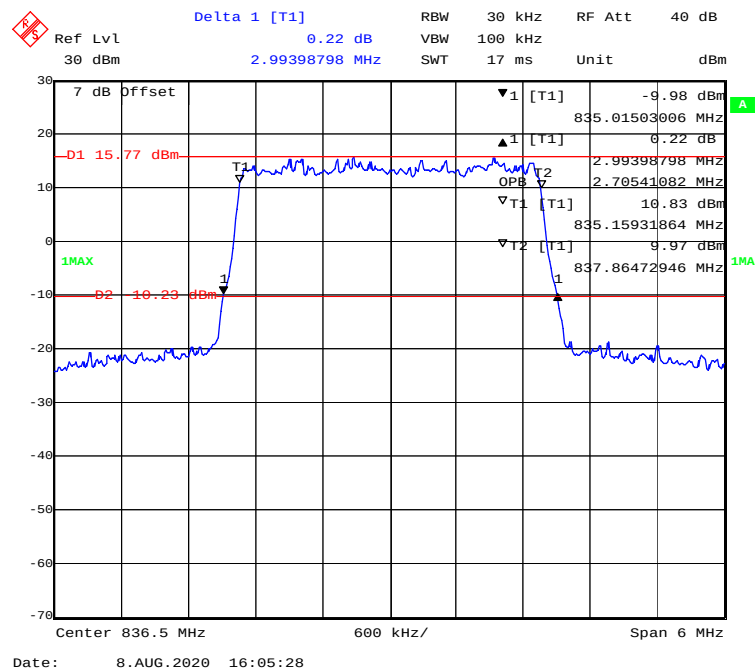
16-QAM (1.4 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel**16-QAM (3.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel**

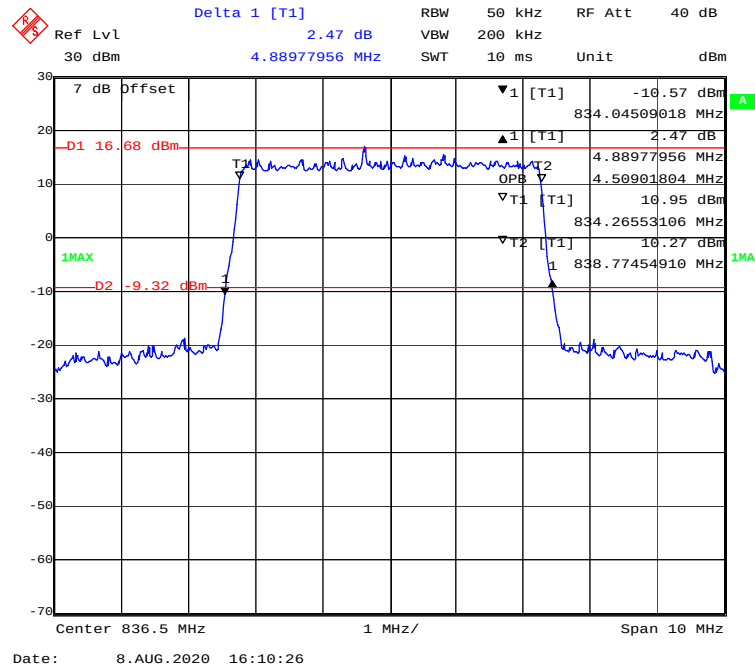
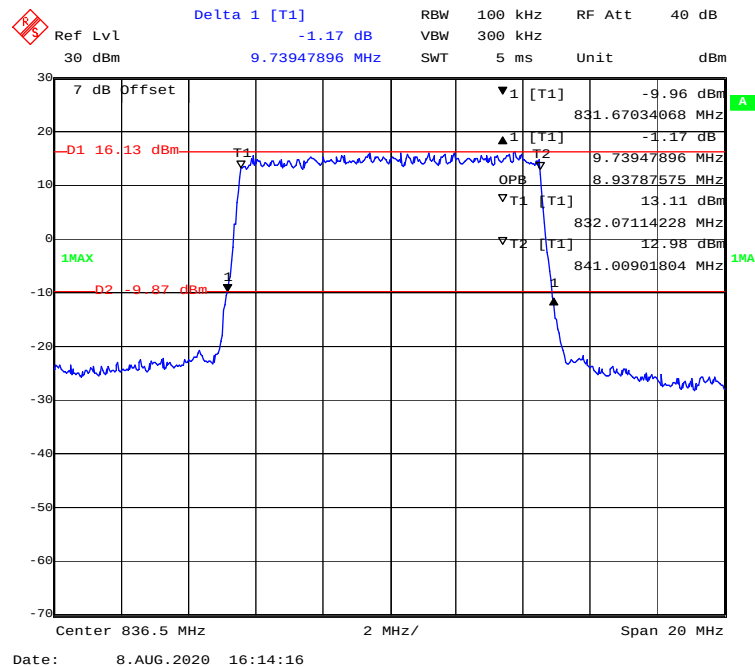
16-QAM (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel



16-QAM (10.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel



QPSK (1.4 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**QPSK (3.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**

QPSK (5.0MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**QPSK (10.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**

Delta 1 [T1]

Ref Lvl 0.59 dB

30 dBm 1.25050100 MHz

RBW 30 kHz RF Att 40 dB

SWT 8.5 ms Unit dBm

7 dB Offset

D1 19.56 dBm

1MAX D2 -6.44 dBm

▼1 [T1] -6.54 dBm

835.87775551 MHz

1 [T1] 0.59 dB

1.25050100 MHz

1.10020040 MHz

▼T1 [T1] 13.97 dBm

835.95591182 MHz

▼T2 [T1] 11.11 dBm

837.05611222 MHz

Center 836.5 MHz

300 kHz/

Span 3 MHz

Date: 8.AUG.2020 16:02:10

Delta 1 [T1] -0.15 dB

Ref Lvl 30 dBm

30 dBm

30 kHz

17 ms

Unit dBm

7 dB Offset

D1 15.46 dBm

1MAX

D2 -10.54 dBm

▼1 [T1] -10.22 dBm

835.01503006 MHz

▲1 [T1] -0.15 dB

2.99398798 MHz

OPB ▼

2.69338677 MHz

▽T1 [T1] 10.92 dBm

835.15931864 MHz

▽T2 [T1] 11.00 dBm

837.85270541 MHz

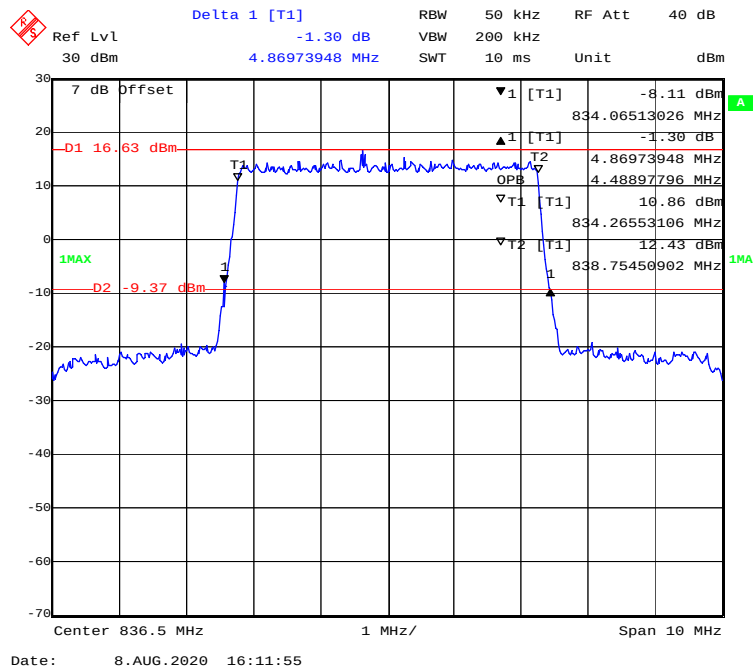
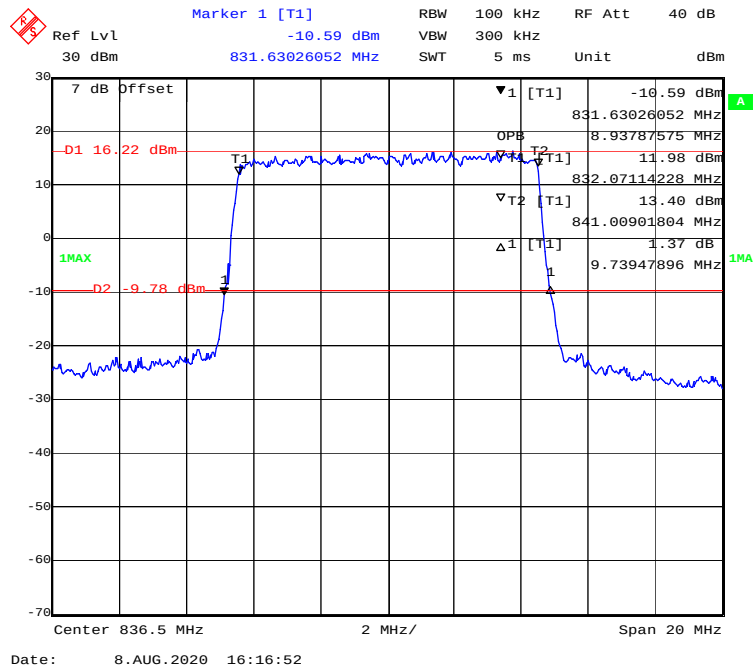
1MA

Center 836.5 MHz

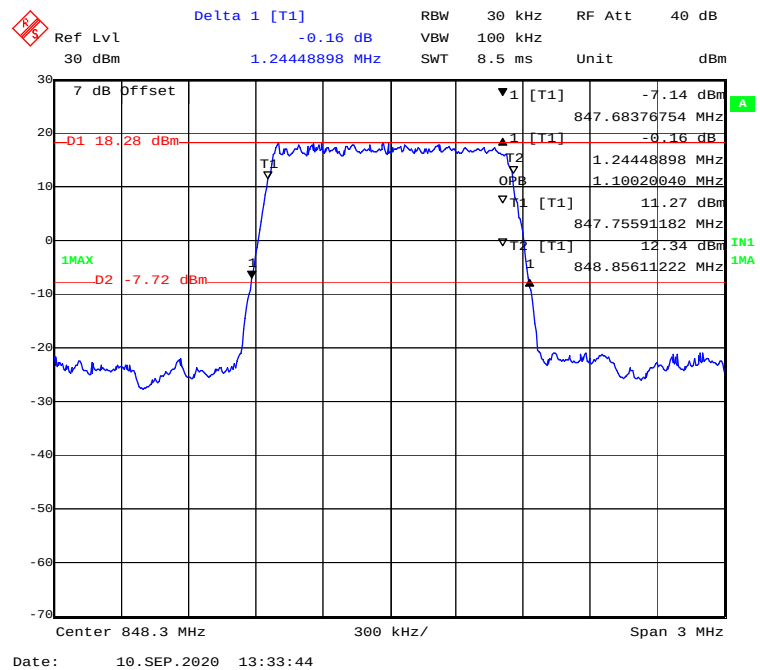
600 kHz/

Span 6 MHz

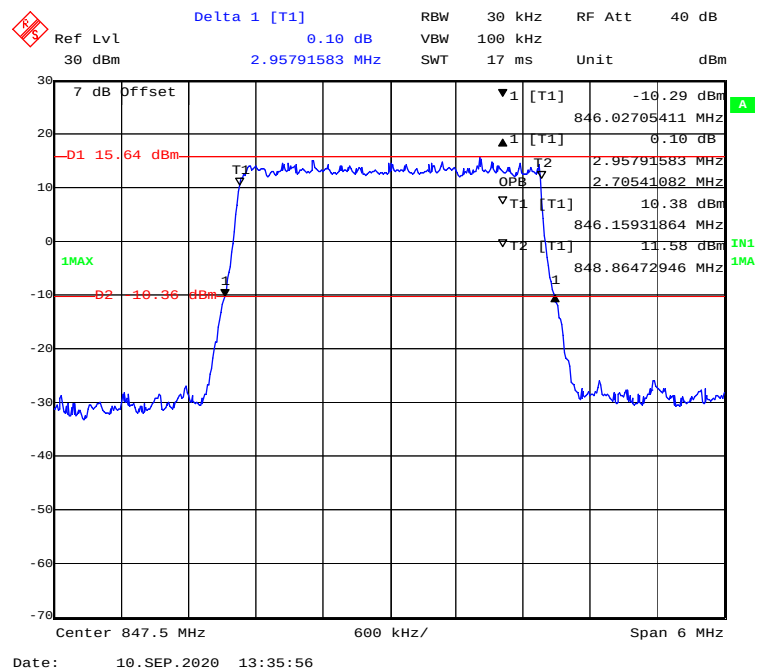
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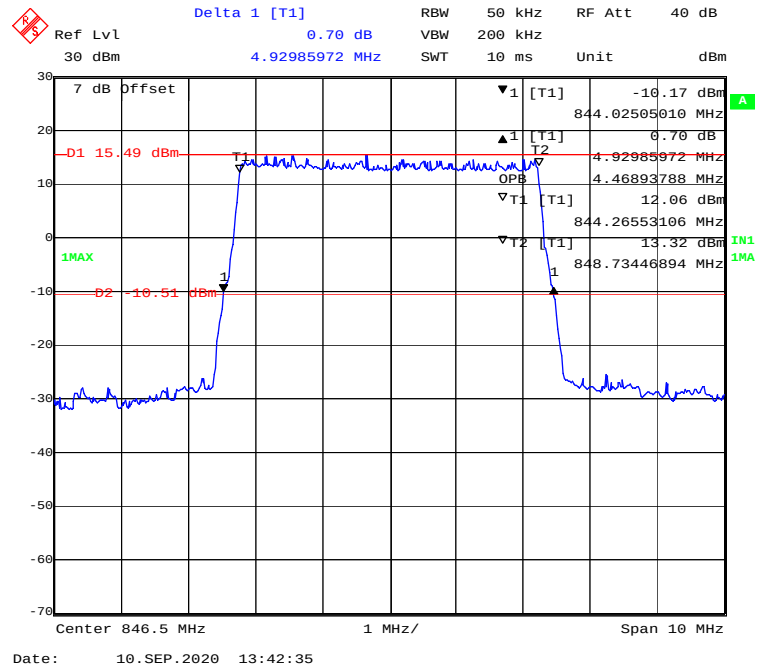
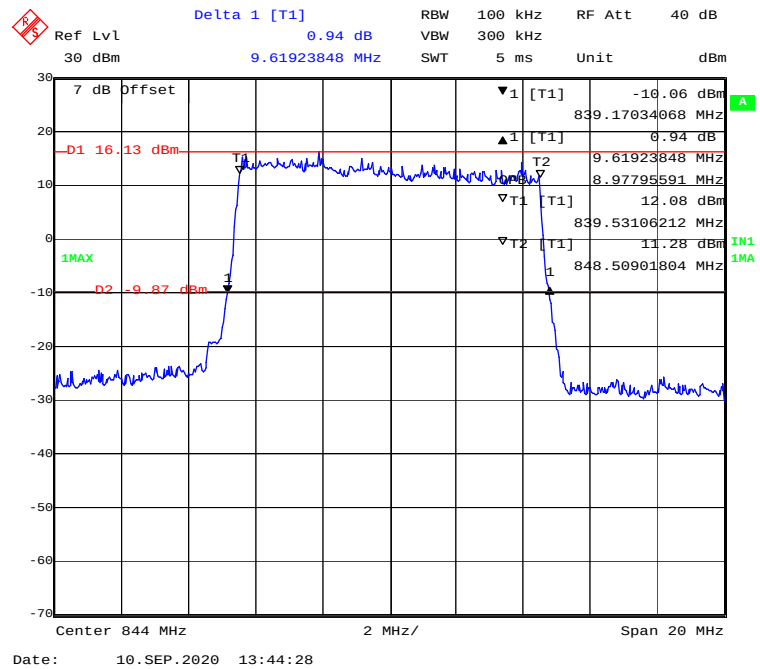
16-QAM (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**16-QAM (10.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**

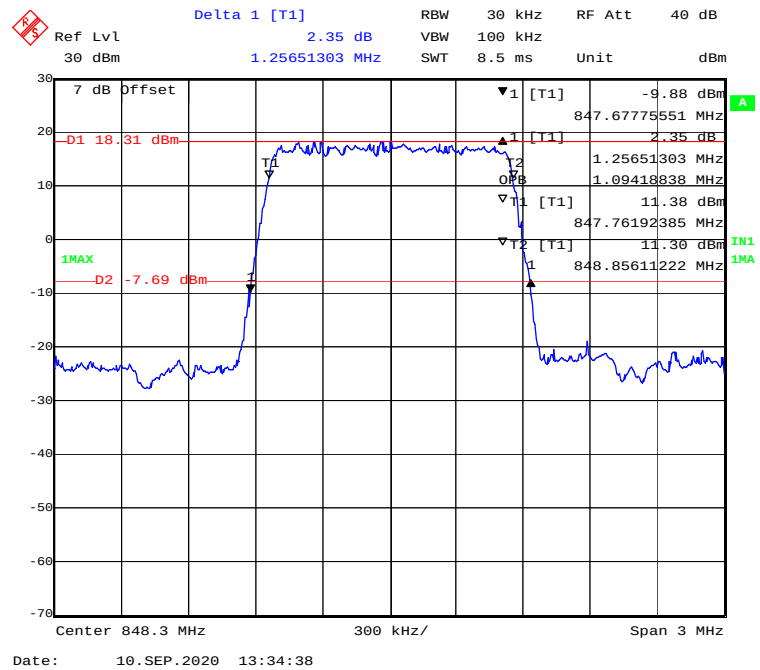
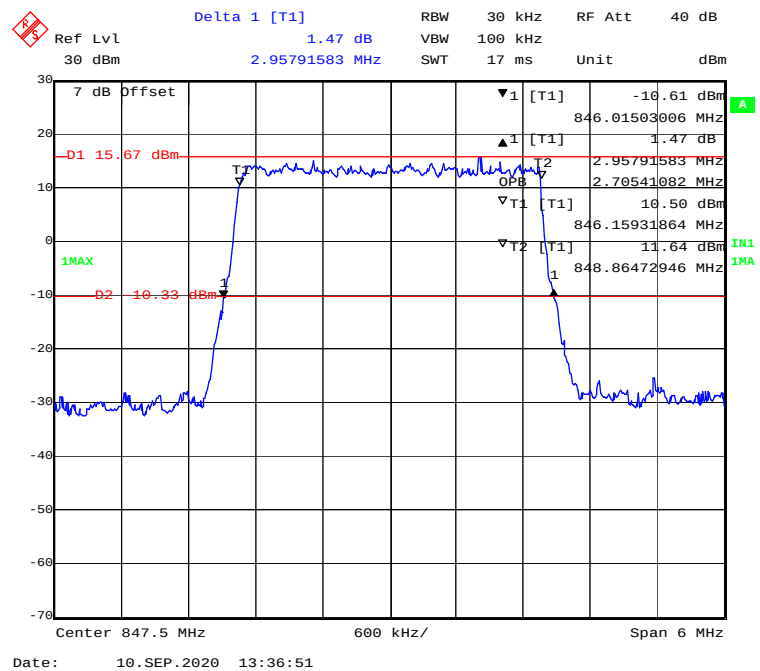
QPSK (1.4 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel

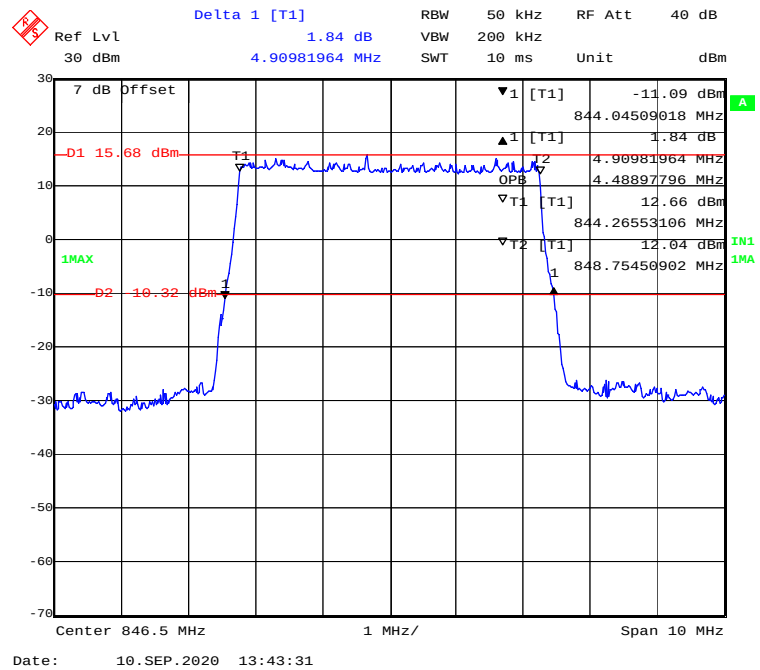
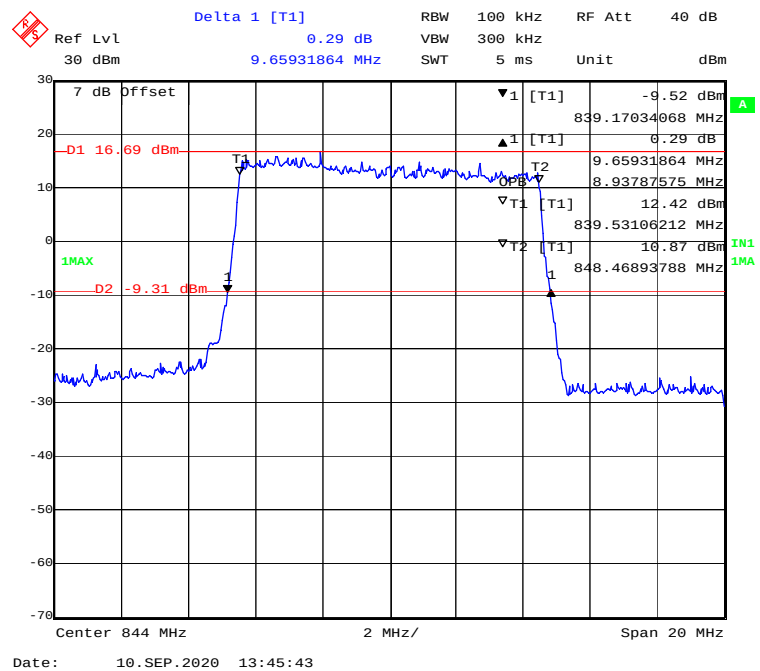


QPSK (3.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel



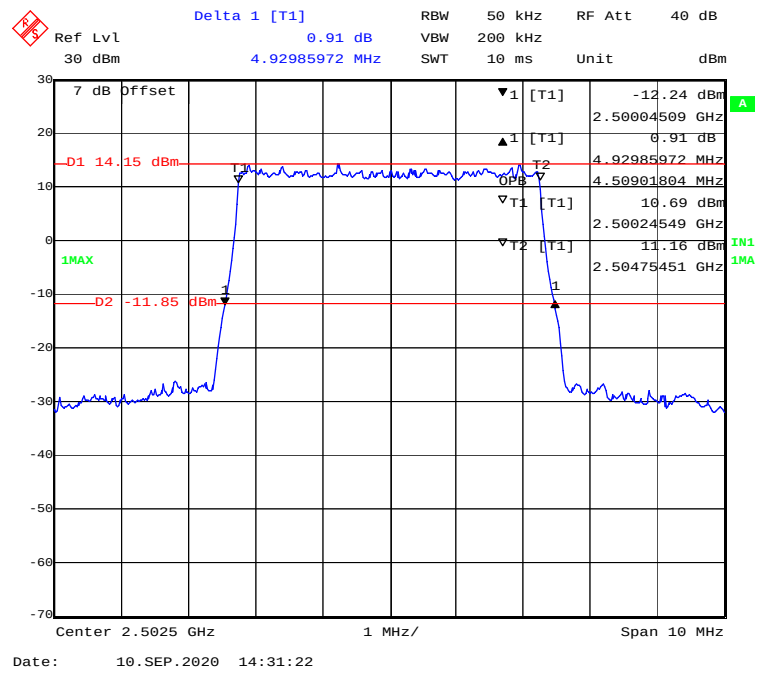
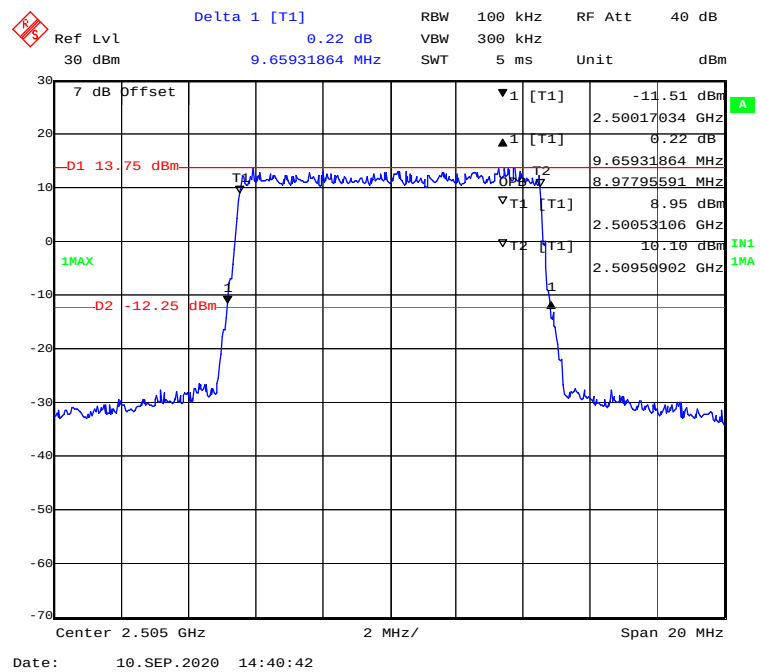
QPSK (5.0MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**QPSK (10.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**

16-QAM (1.4 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**16-QAM (3.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**

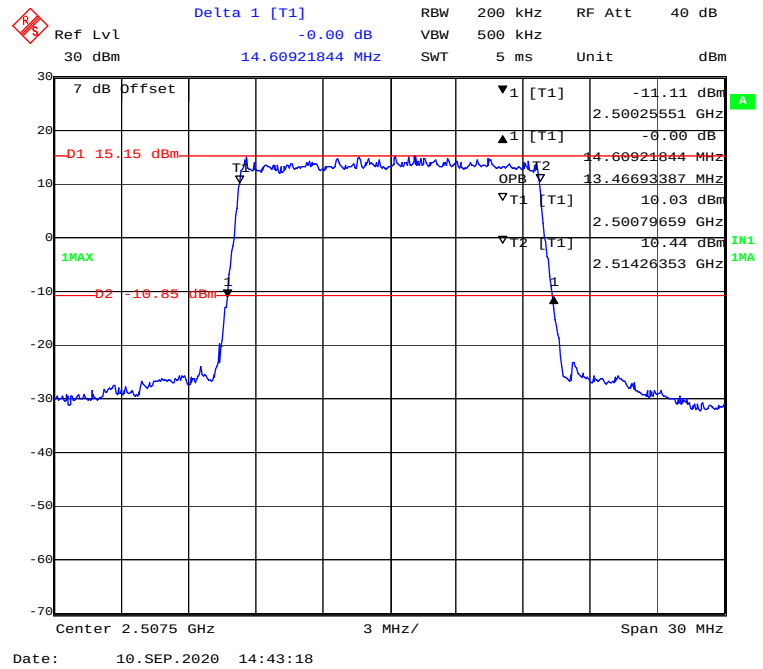
16-QAM (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**16-QAM (10.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**

LTE Band 7:

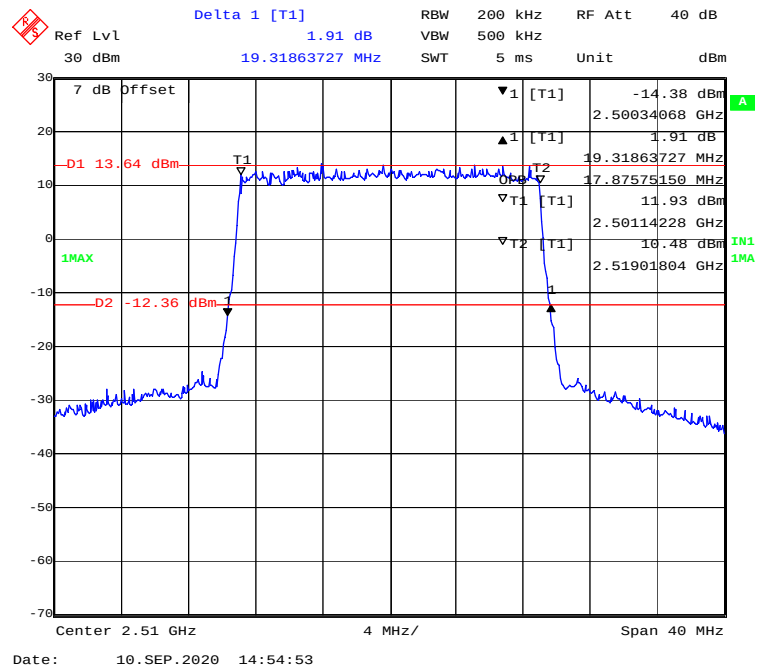
Test Modulation	Test Bandwidth	Test Channel	26 dB Bandwidth	99% Occupied Bandwidth
			MHz	MHz
QPSK	5M	Low	4.930	4.509
	10M		9.659	8.978
	15M		14.609	13.467
	20M		19.319	17.876
	5M	Middle	4.910	4.489
	10M		9.699	8.978
	15M		14.669	13.467
	20M		19.319	17.956
	5M	High	4.870	4.489
	10M		9.699	8.938
	15M		14.609	13.467
	20M		19.078	17.876
16-QAM	5M	Low	4.910	4.489
	10M		9.699	8.978
	15M		14.489	13.467
	20M		19.238	17.956
	5M	Middle	4.950	4.489
	10M		9.659	8.978
	15M		14.729	13.407
	20M		19.399	17.956
	5M	High	4.910	4.489
	10M		9.659	8.938
	15M		14.609	13.467
	20M		18.998	17.876

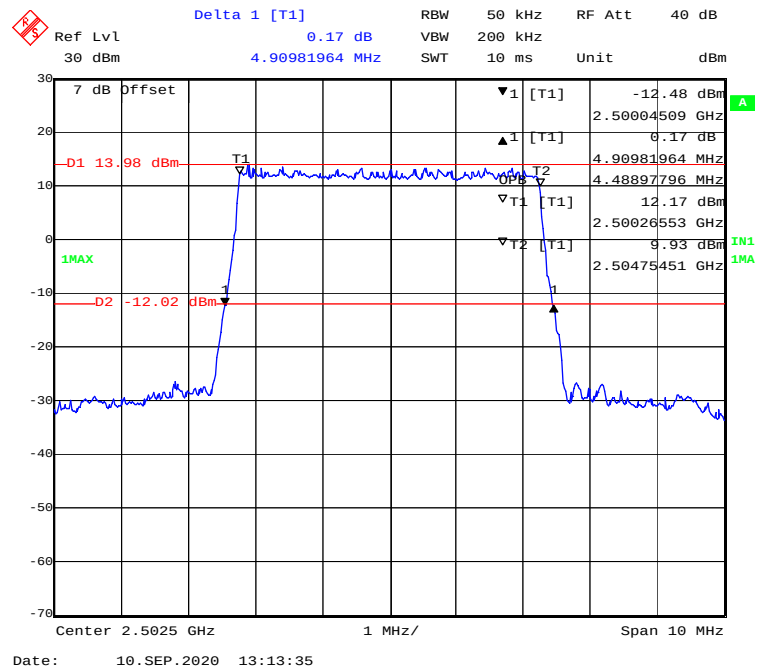
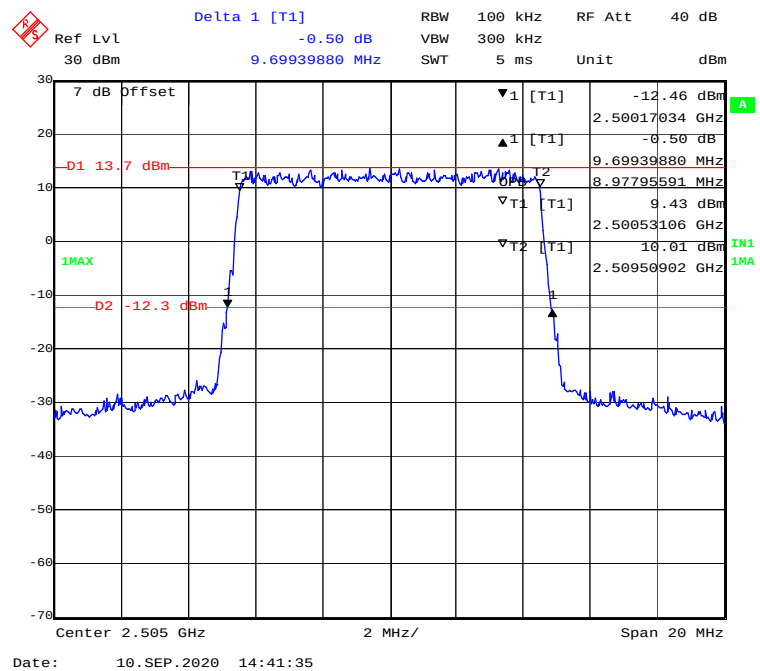
QPSK (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel**QPSK (10.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel**

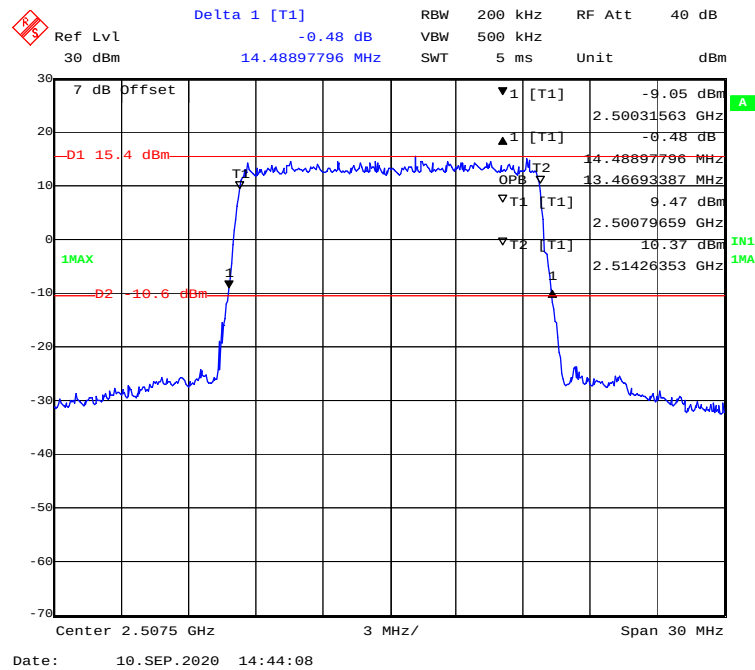
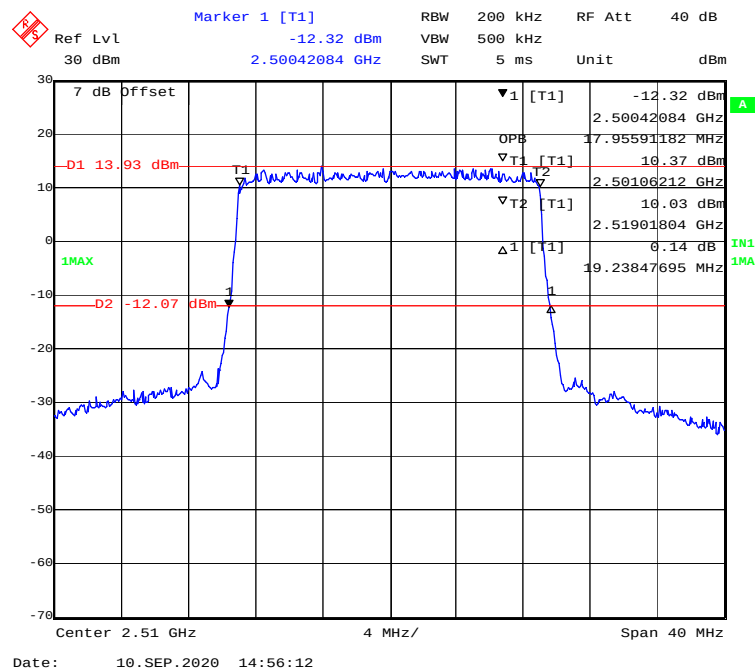
QPSK (15.0MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel



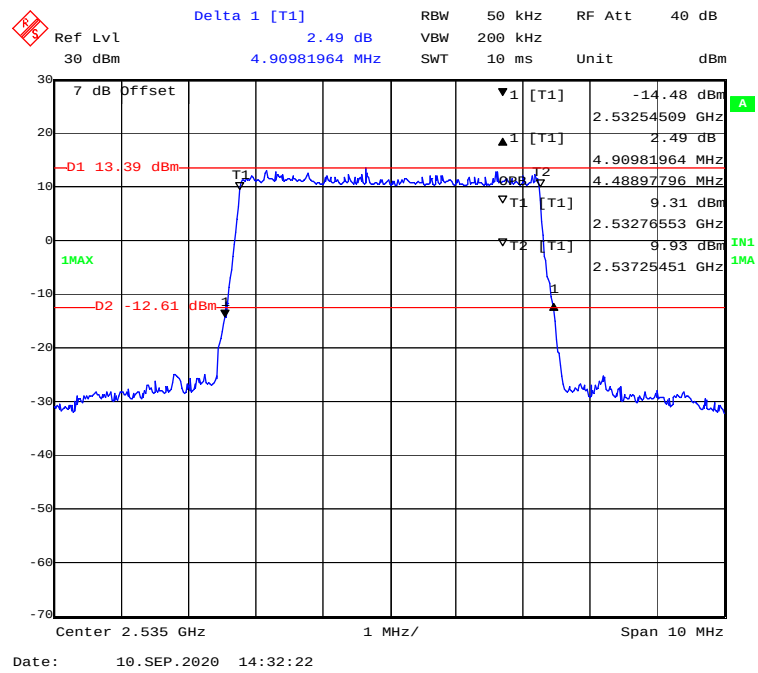
QPSK (20.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel



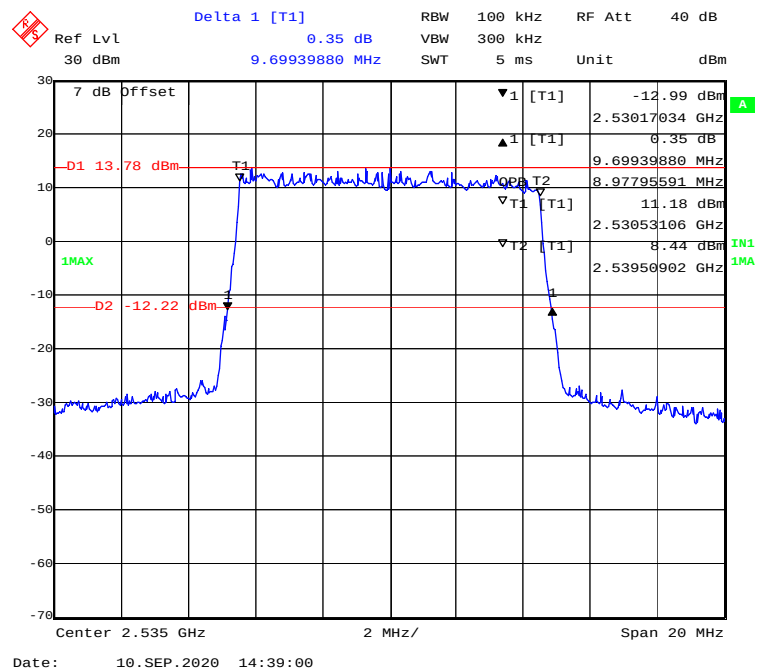
16-QAM (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel**16-QAM (10.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel**

16-QAM (15.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel**16-QAM (20.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel**

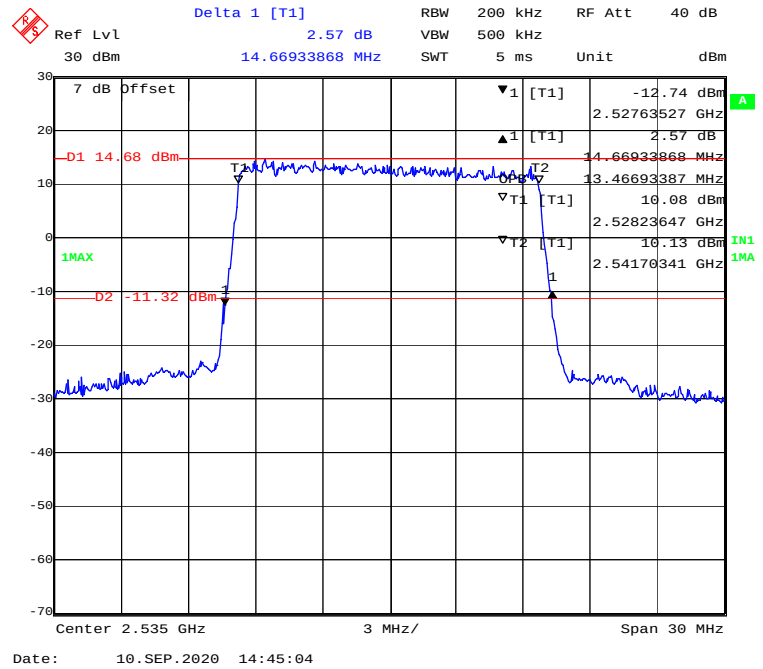
QPSK (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel



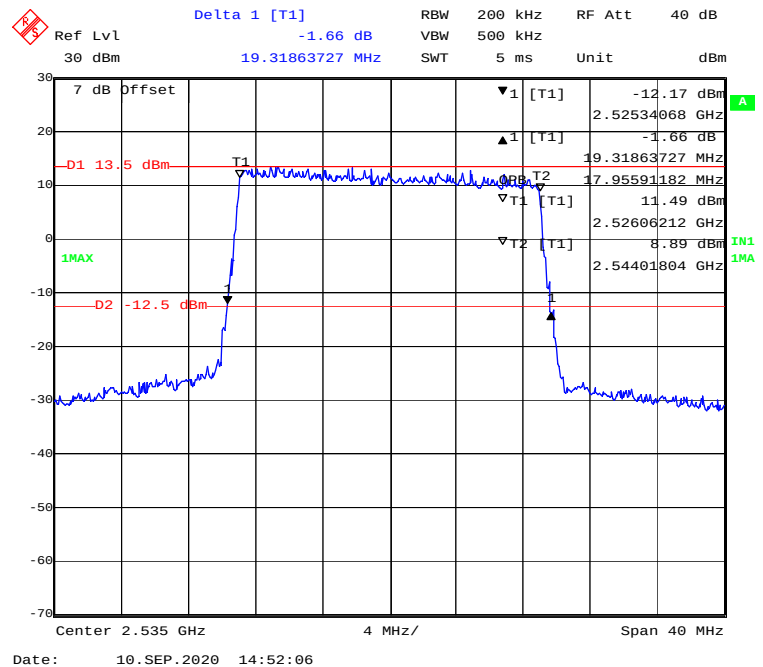
QPSK (10.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel

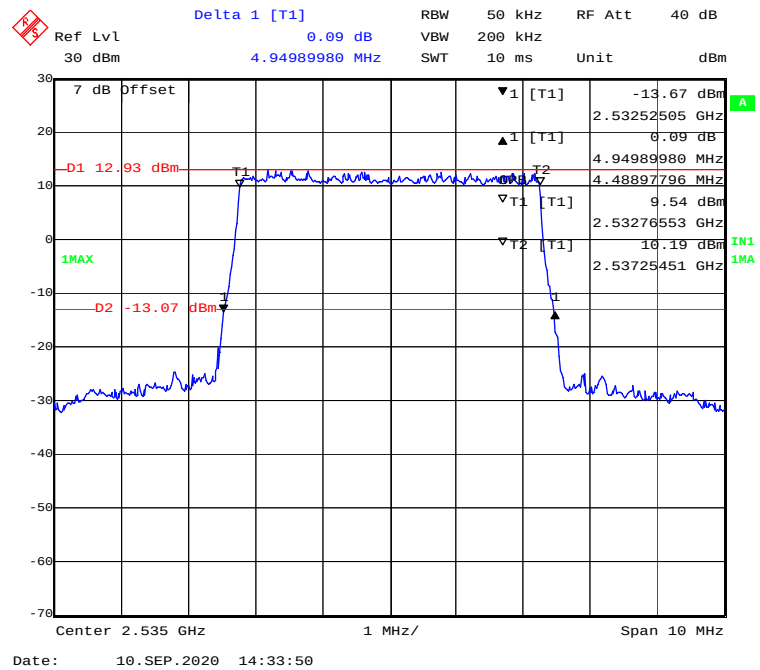
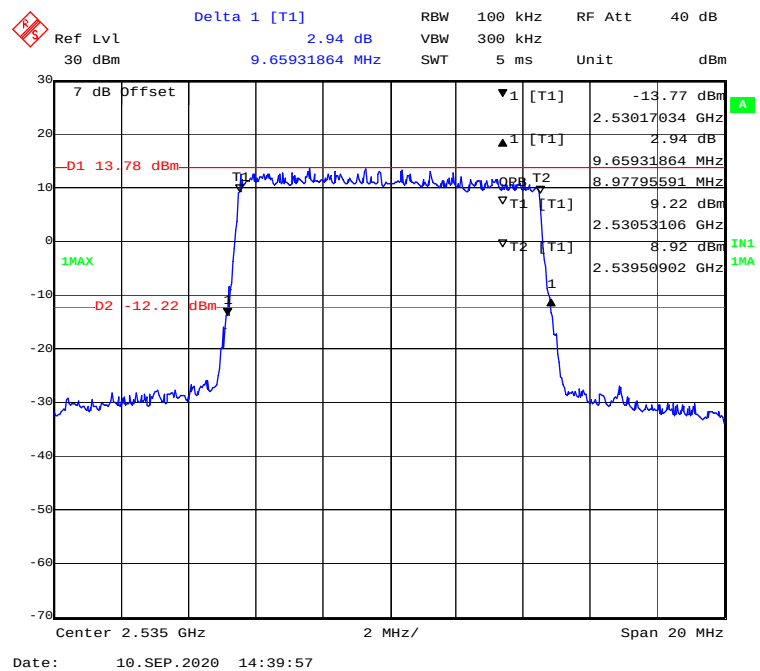


QPSK (15.0MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel

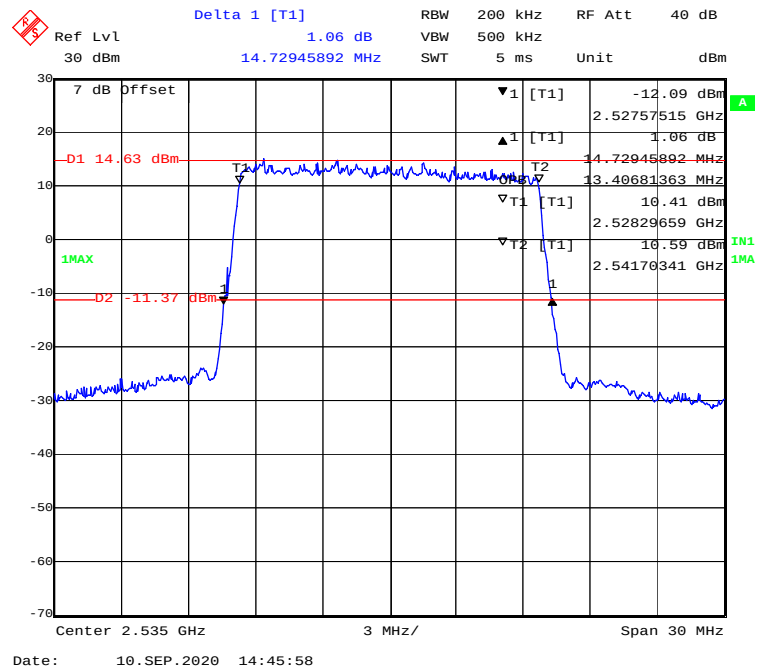


QPSK (20.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel

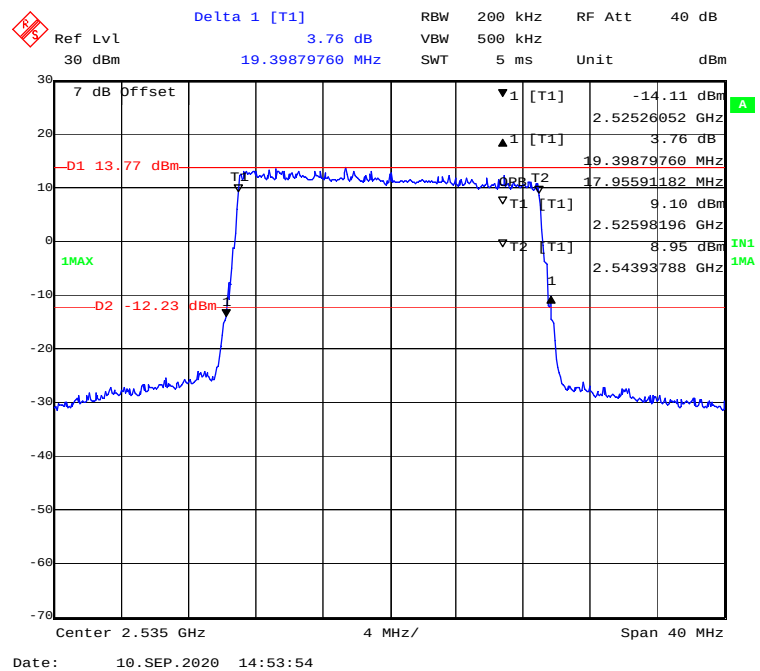


16-QAM (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**16-QAM (10.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**

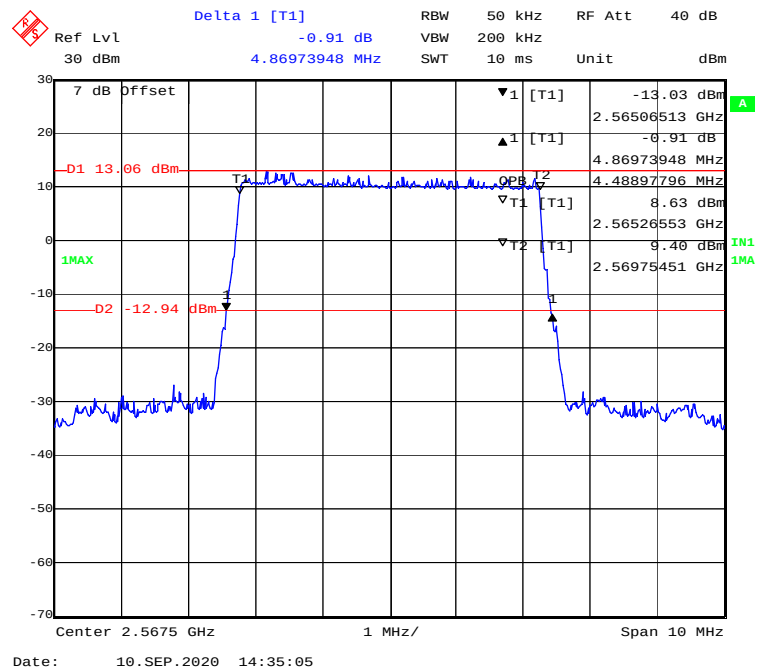
16-QAM (15.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel



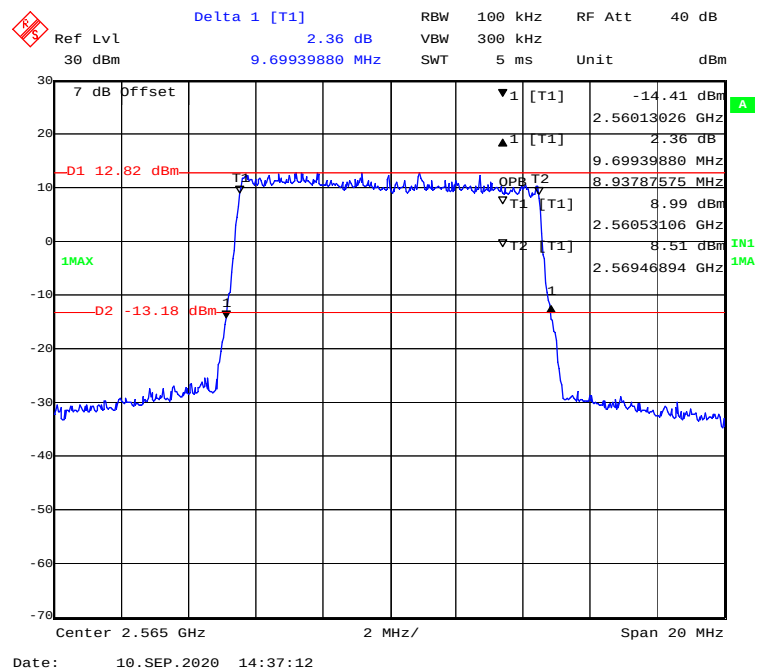
16-QAM (20.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel

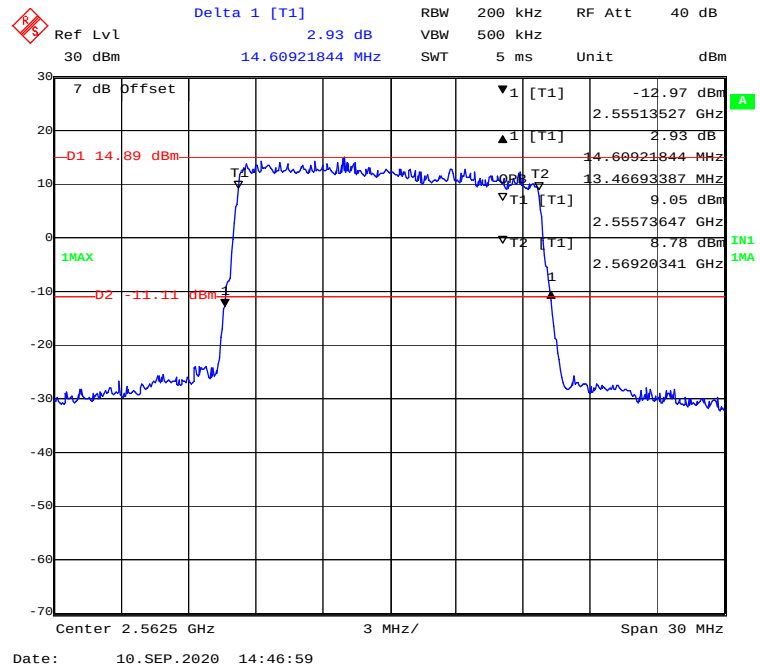
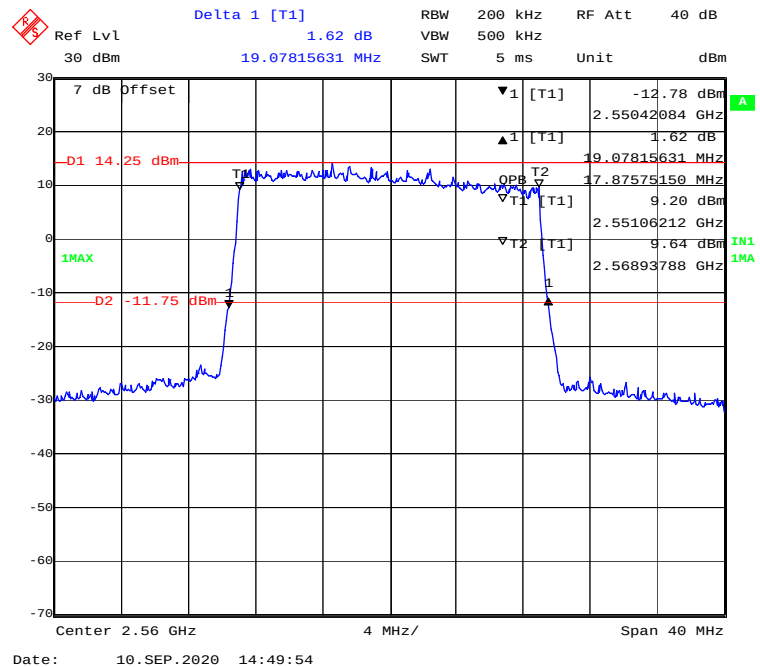


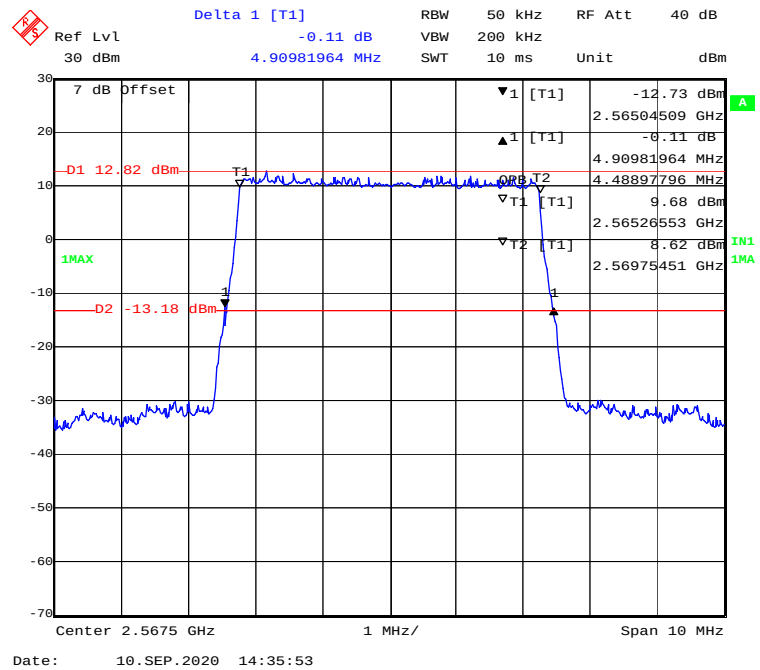
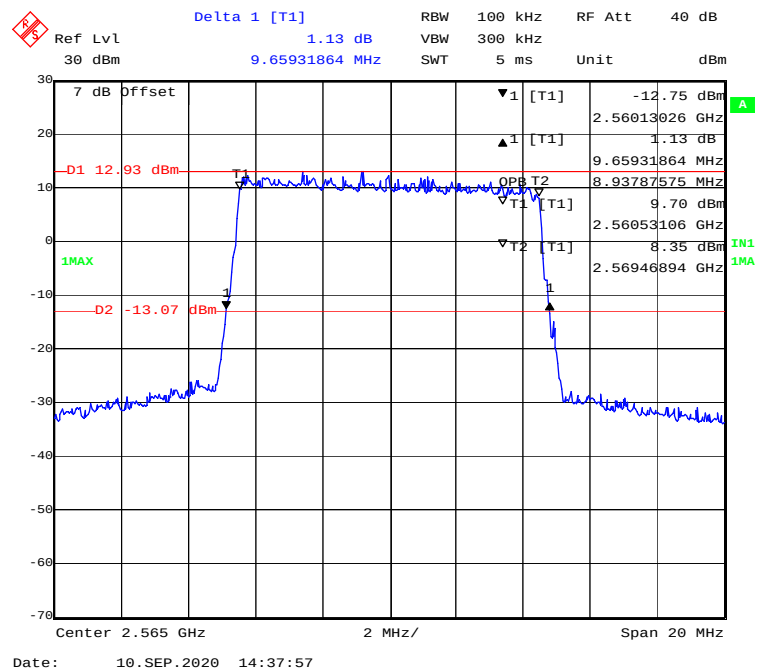
QPSK (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel

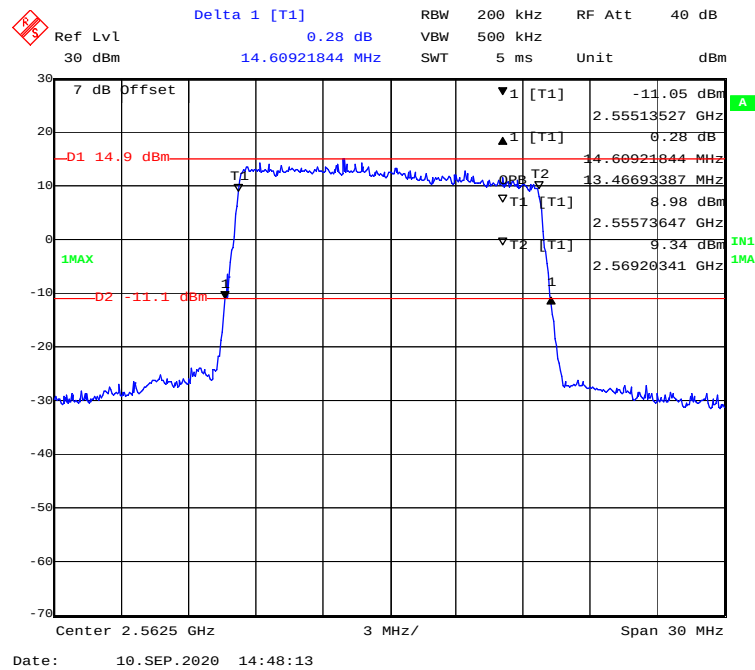
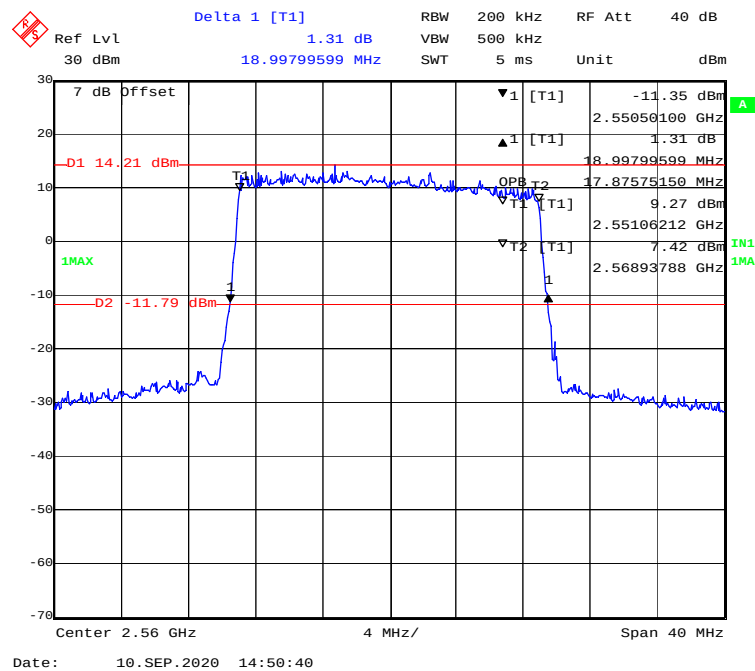


QPSK (10.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel



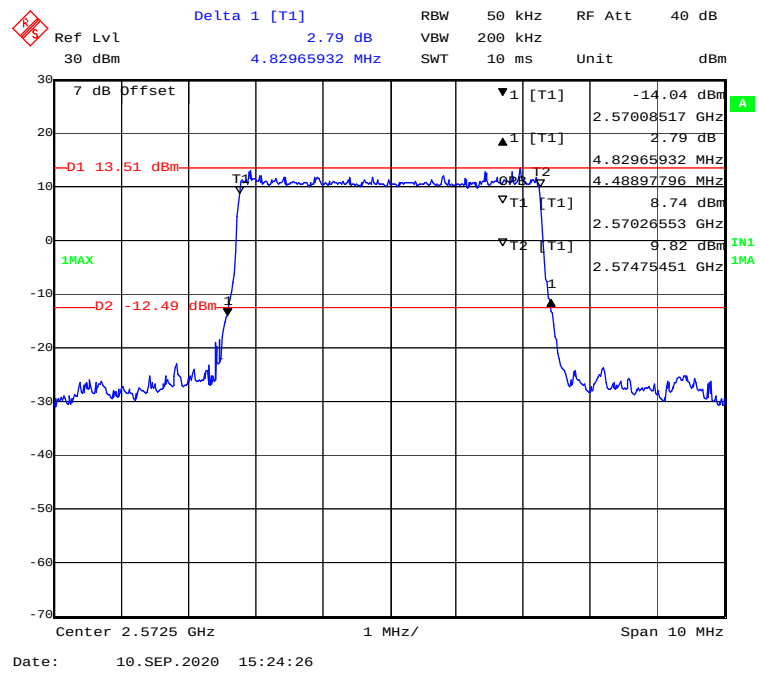
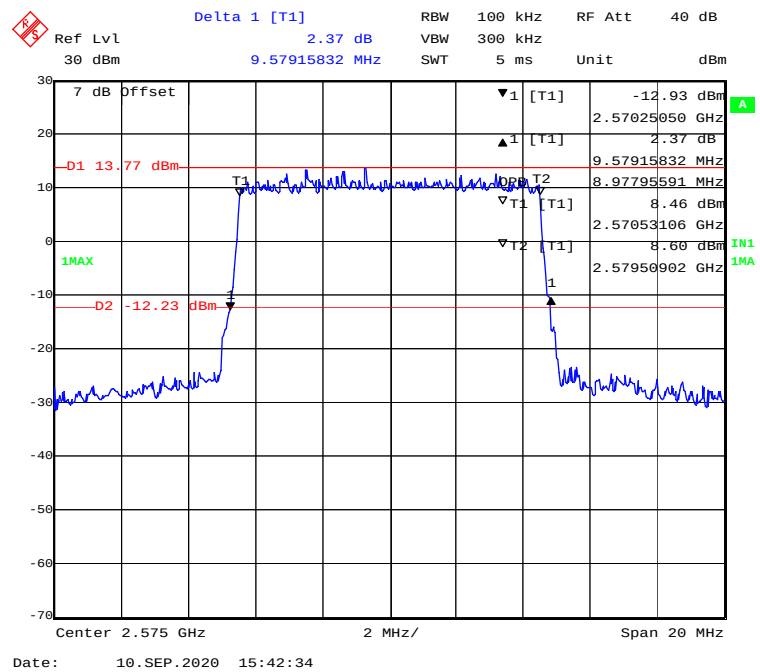
QPSK (15.0MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**QPSK (20.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**

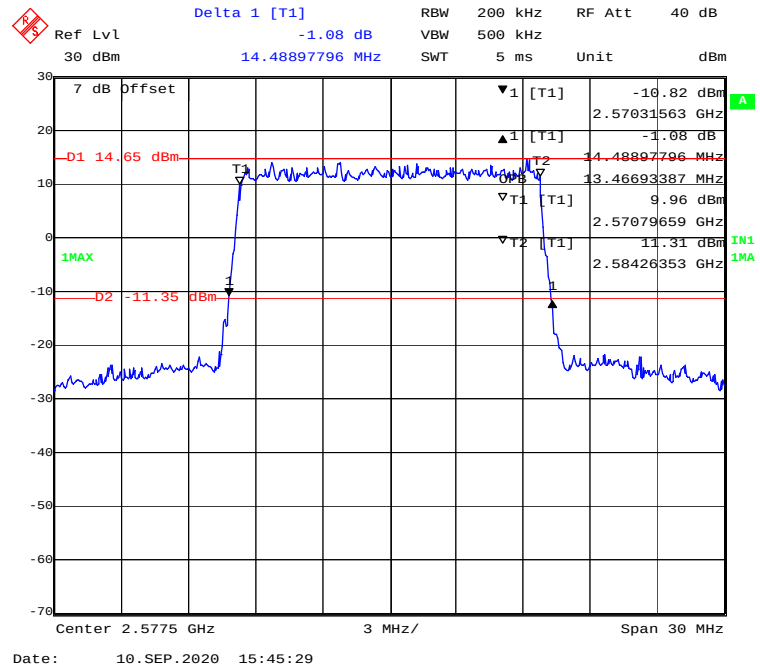
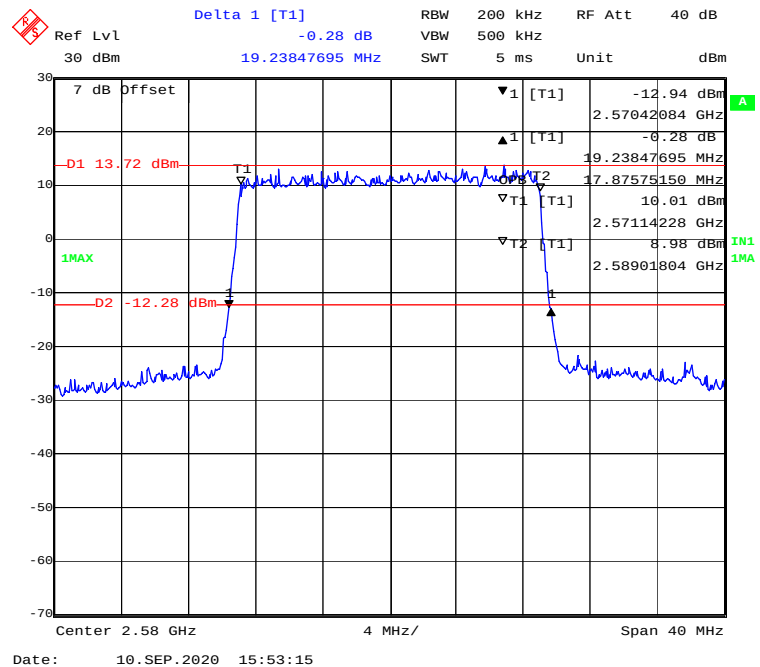
16-QAM (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**16-QAM (10.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**

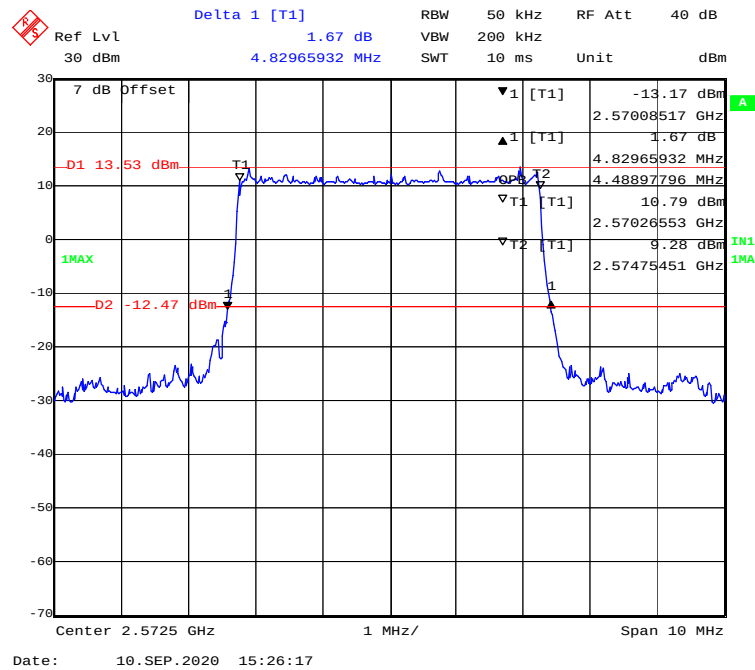
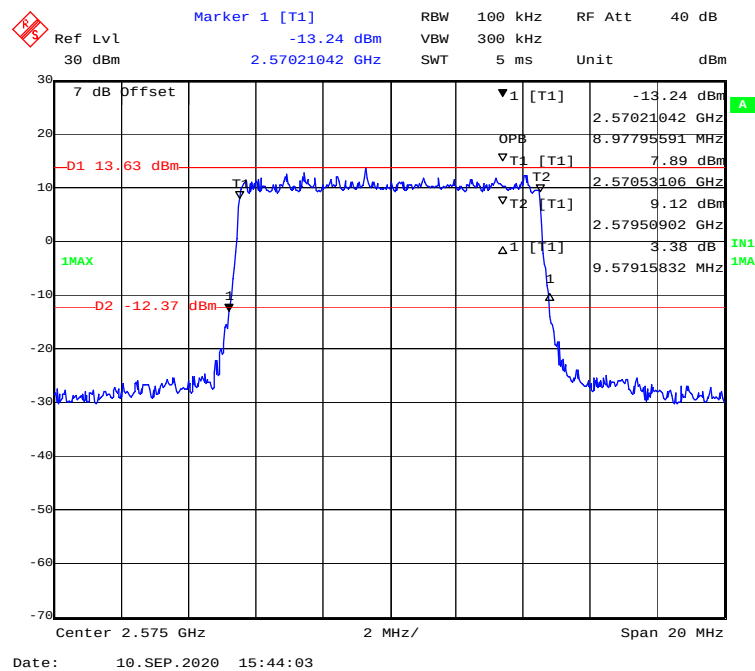
16-QAM (15.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**16-QAM (20.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**

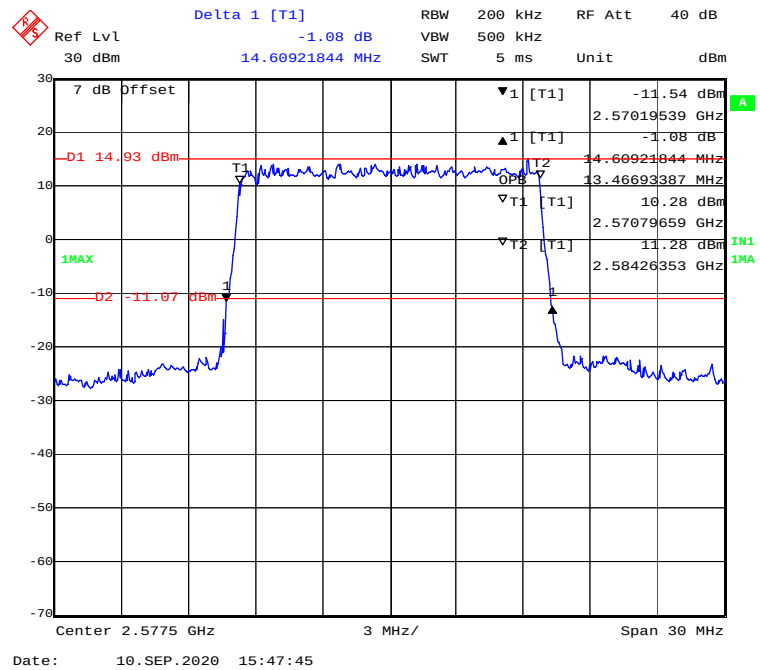
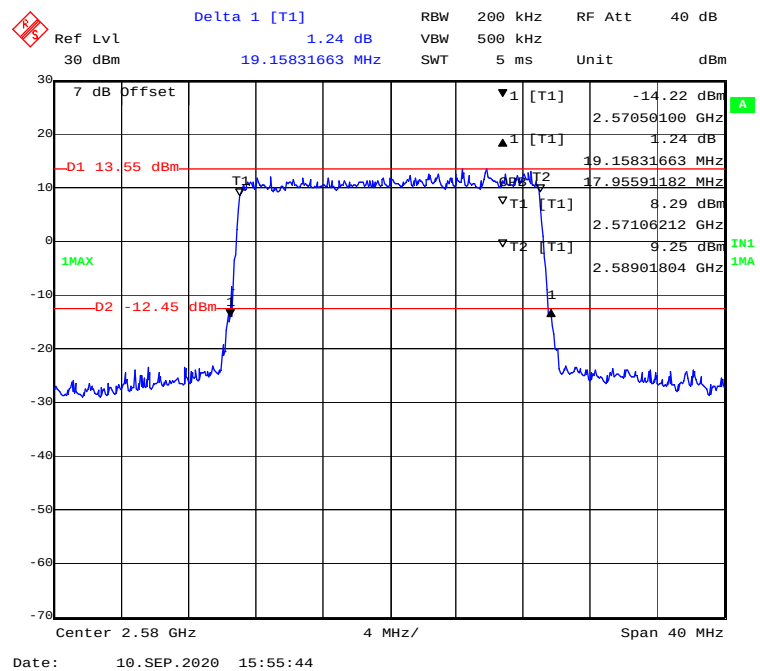
LTE Band 38:

Test Modulation	Test Bandwidth	Test Channel	26 dB Bandwidth	99% Occupied Bandwidth
			MHz	MHz
QPSK	5M	Low	4.830	4.489
	10M		9.579	8.978
	15M		14.489	13.467
	20M		19.238	17.876
	5M	Middle	4.870	4.489
	10M		9.739	8.938
	15M		14.669	13.467
	20M		19.319	17.956
	5M	High	4.890	4.489
	10M		9.739	8.978
	15M		14.609	13.407
	20M		19.078	17.876
16-QAM	5M	Low	4.830	4.489
	10M		9.579	8.978
	15M		14.609	13.467
	20M		19.158	17.956
	5M	Middle	4.870	4.489
	10M		9.739	8.978
	15M		14.609	13.527
	20M		19.158	17.956
	5M	High	4.850	4.489
	10M		9.659	8.978
	15M		14.429	13.467
	20M		19.078	17.956

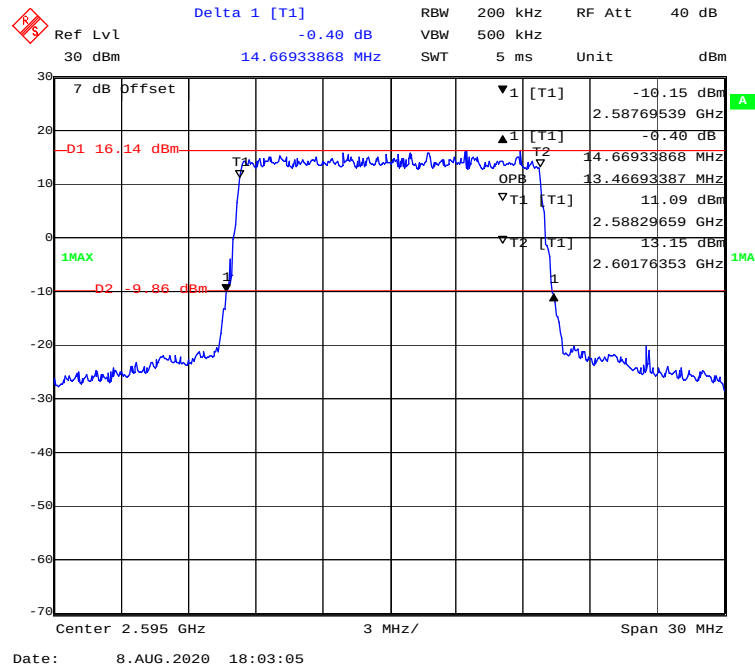
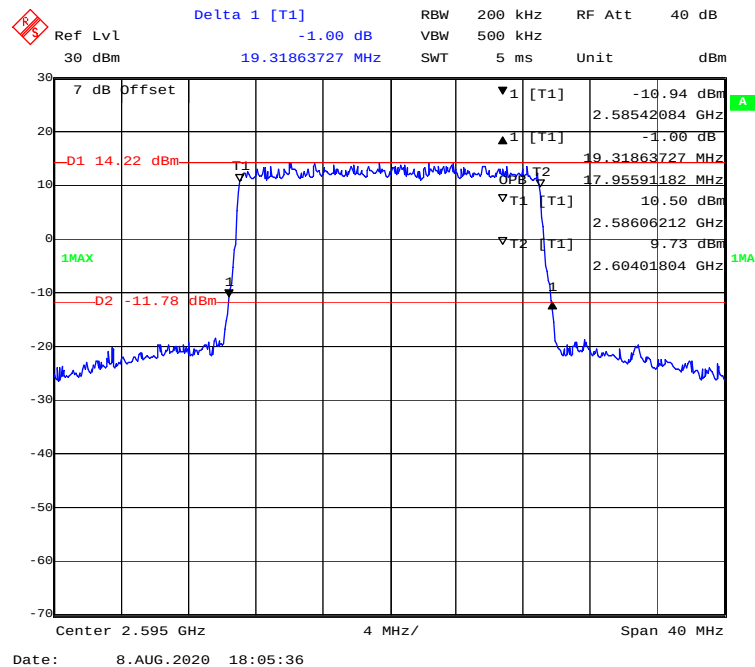
QPSK (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel**QPSK (10.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel**

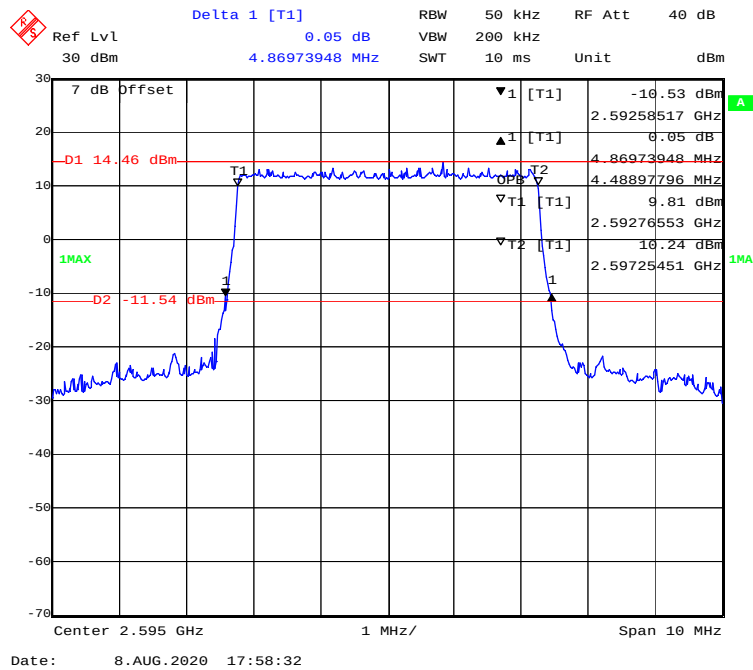
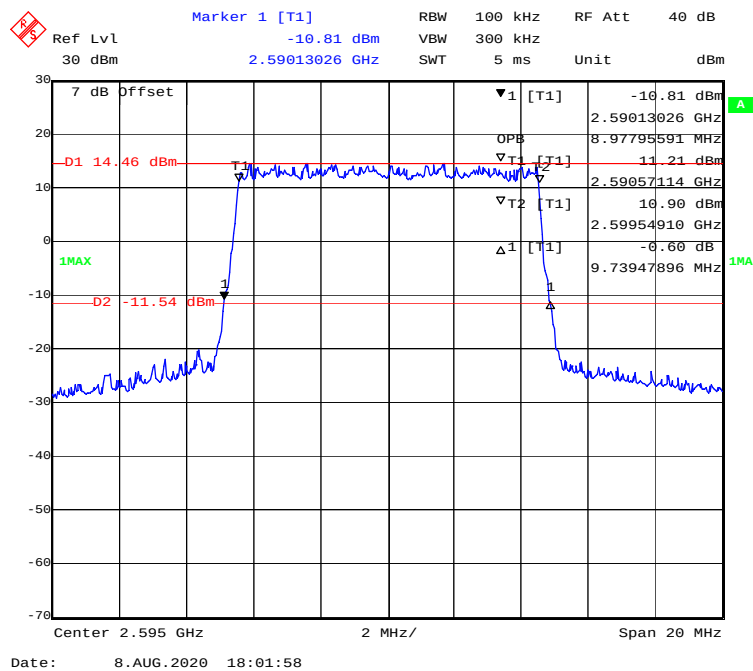
QPSK (15.0MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel**QPSK (20.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel**

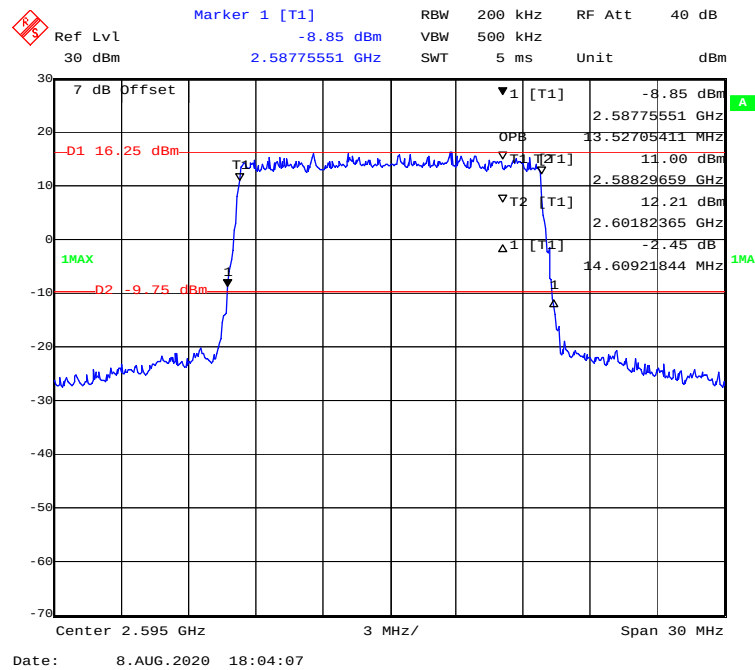
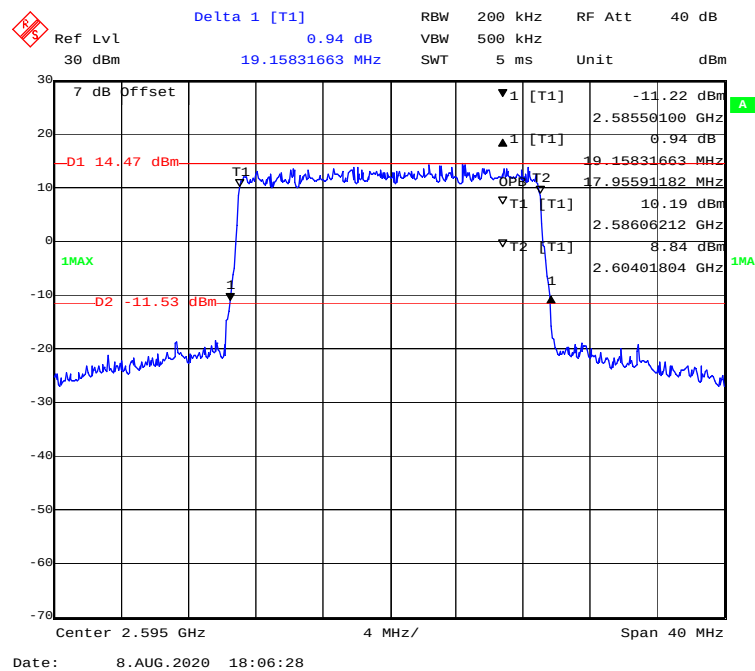
16-QAM (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel**16-QAM (10.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel**

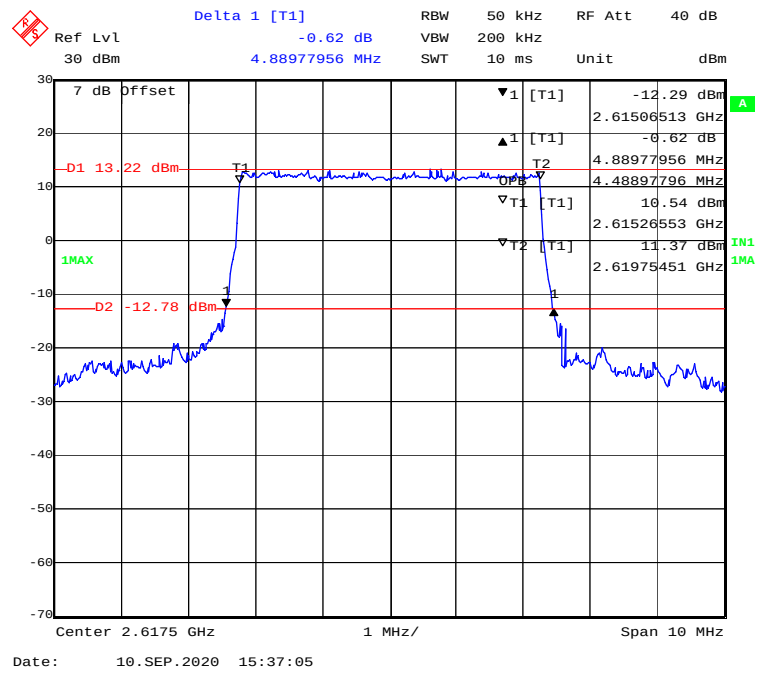
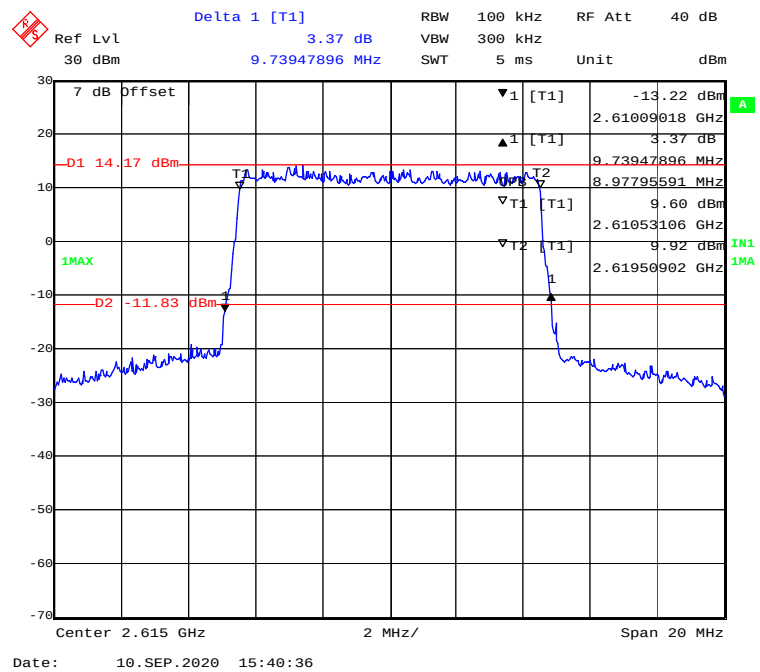
16-QAM (15.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel**16-QAM (20.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel**

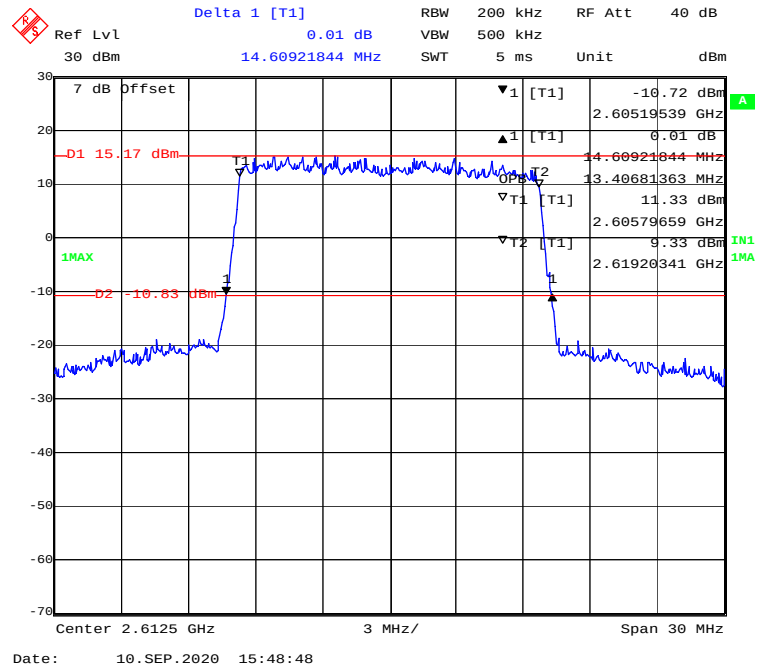
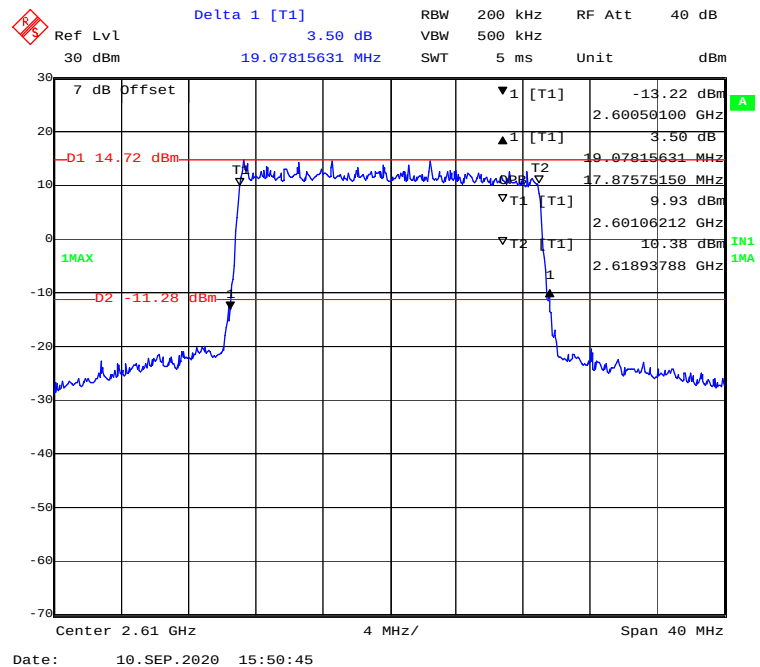
[illegible][illegible]

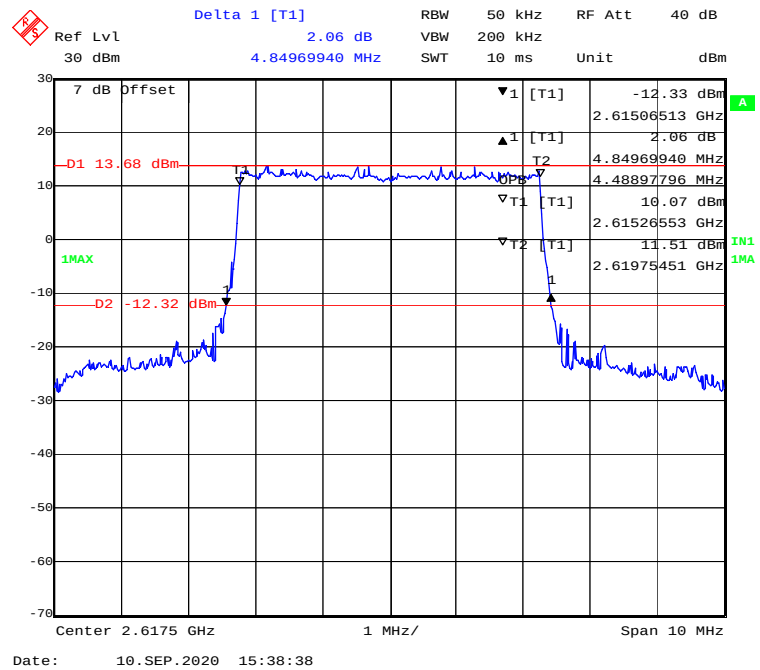
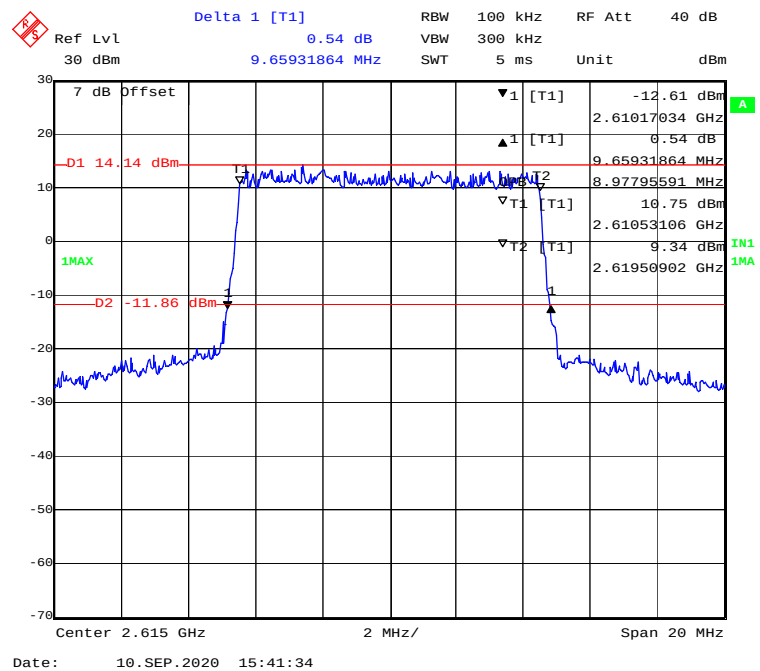
QPSK (15.0MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**QPSK (20.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**

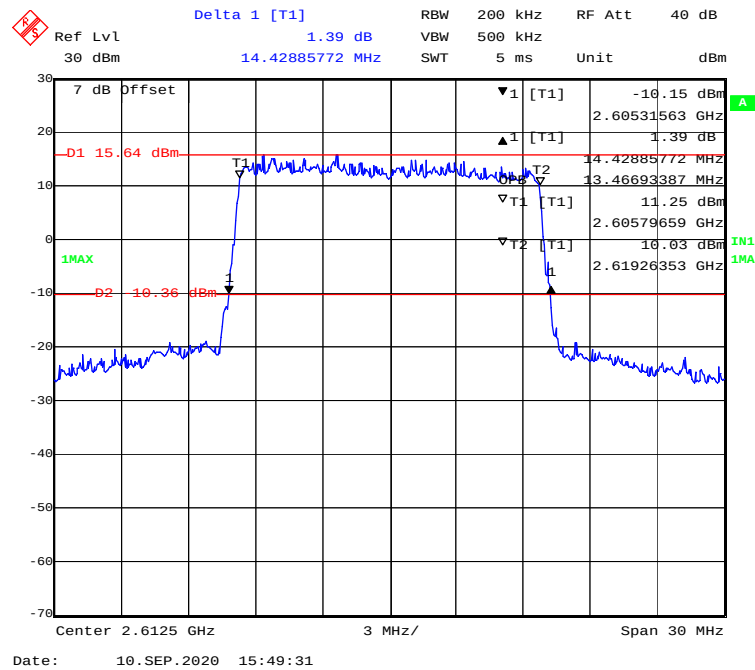
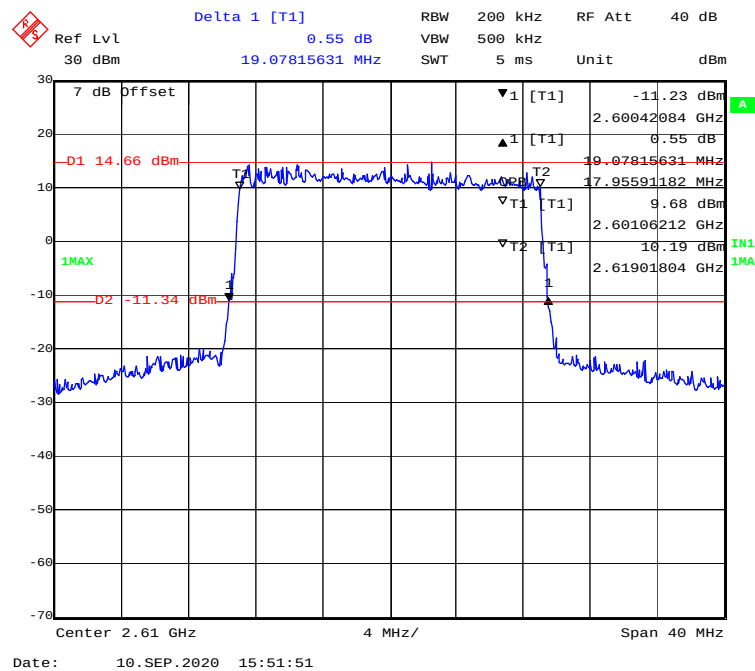
16-QAM (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**16-QAM (10.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**

16-QAM (15.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**16-QAM (20.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**

QPSK (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**QPSK (10.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**

QPSK (15.0MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**QPSK (20.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**

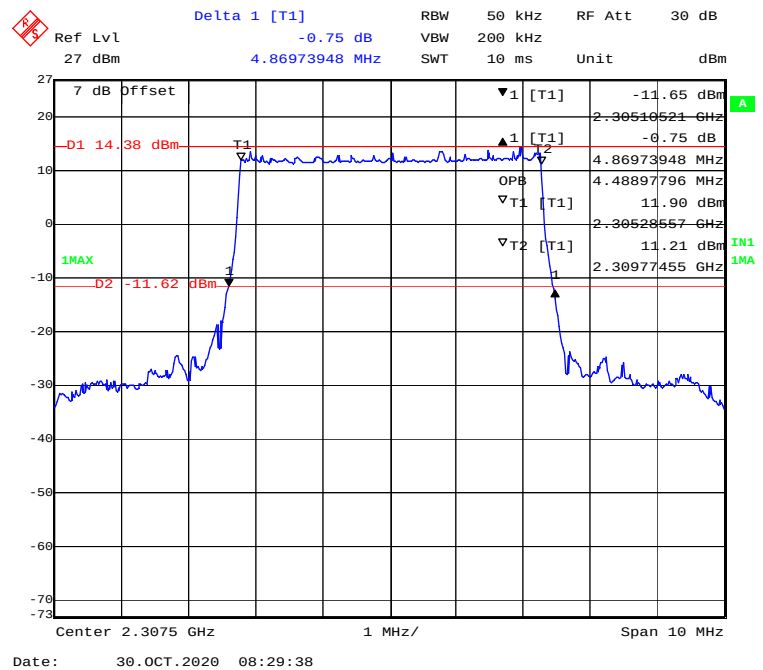
16-QAM (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**16-QAM (10.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**

16-QAM (15.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**16-QAM (20.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**

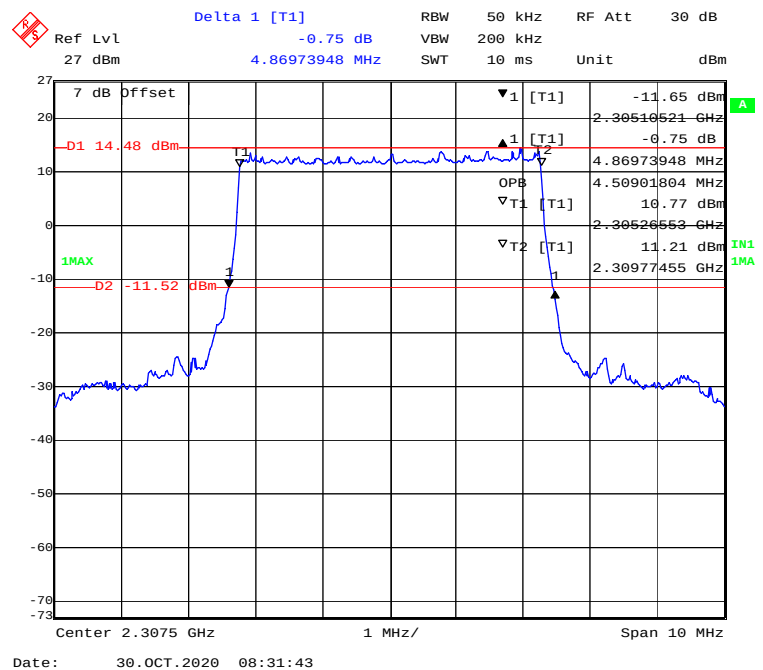
LTE Band 40:**2305-2315MHz**

Test Modulation	Test Bandwidth	Test Channel	26 dB Bandwidth	99% Occupied Bandwidth
			MHz	MHz
QPSK	5M	Low	4.870	4.489
	5M	Middle	4.950	4.469
	10M		9.699	8.978
	5M	High	4.850	4.489
16-QAM	5M	Low	4.870	4.509
	5M	Middle	4.950	4.469
	10M		9.699	8.978
	5M	High	4.850	4.509

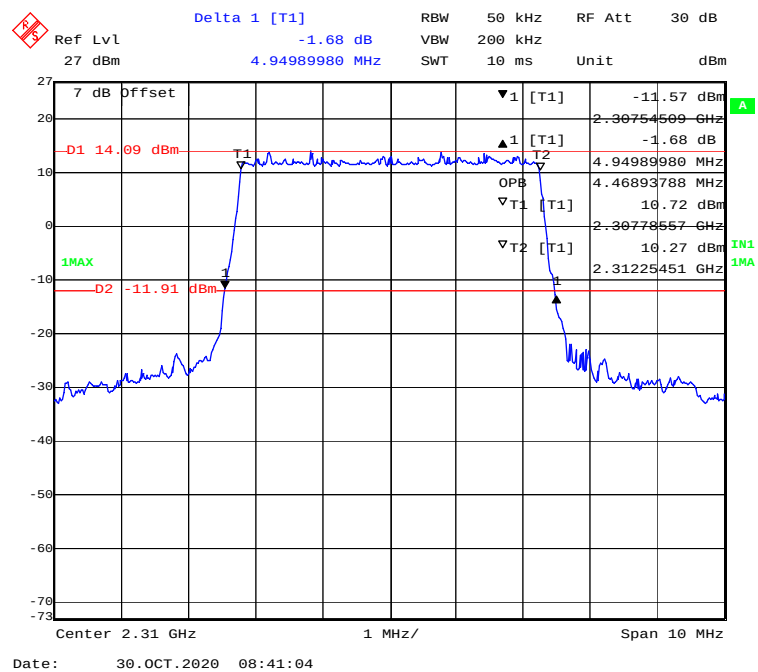
QPSK (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel



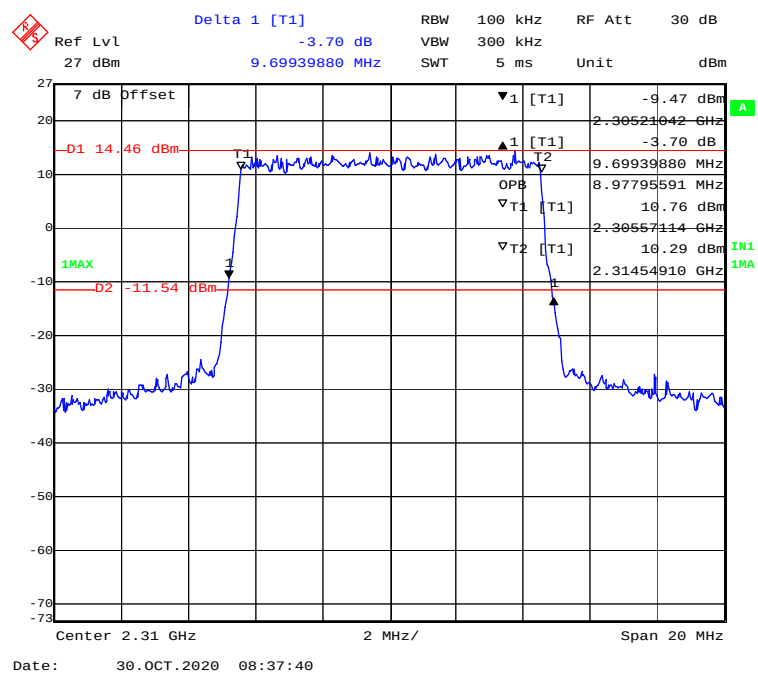
16-QAM (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel

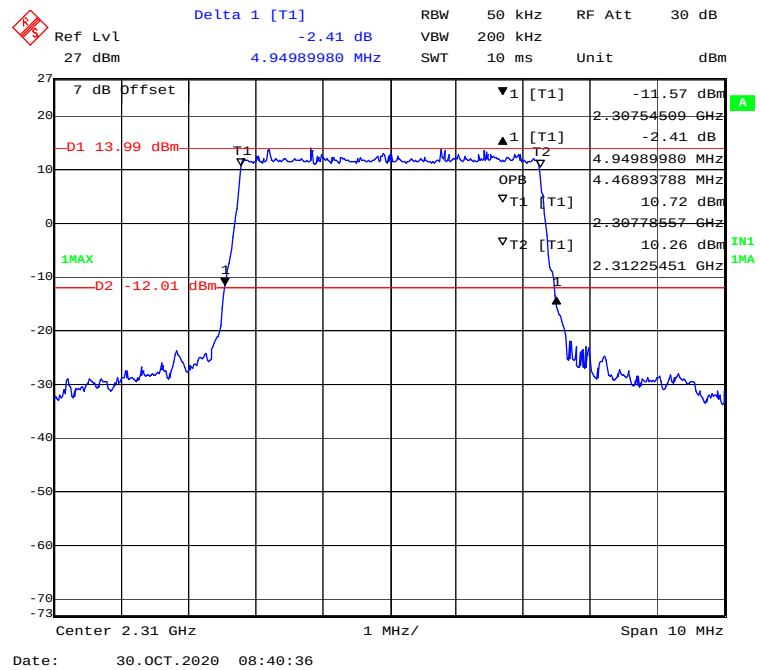
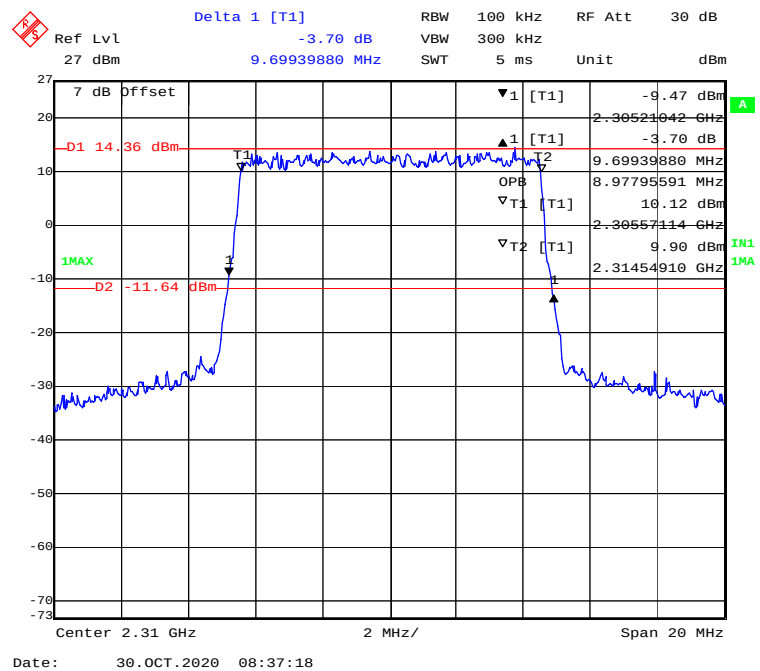


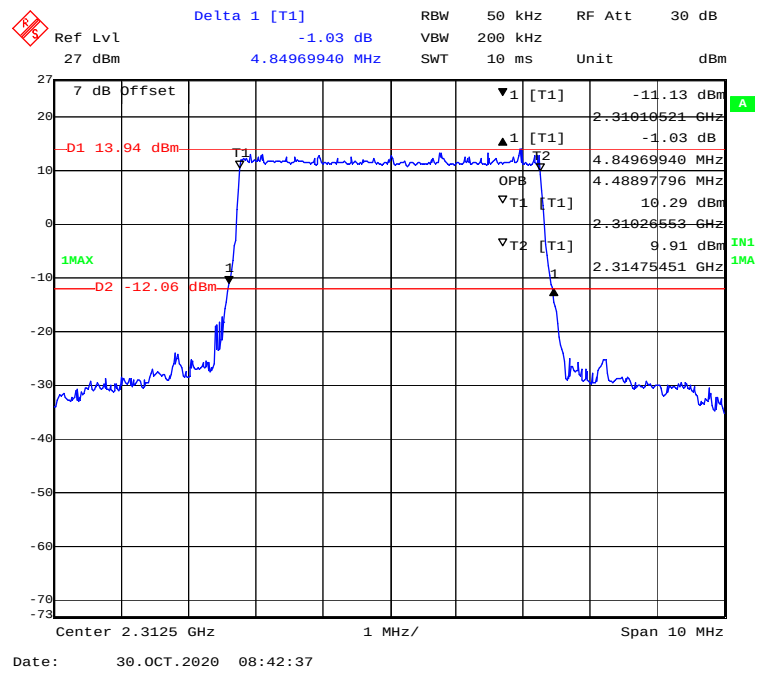
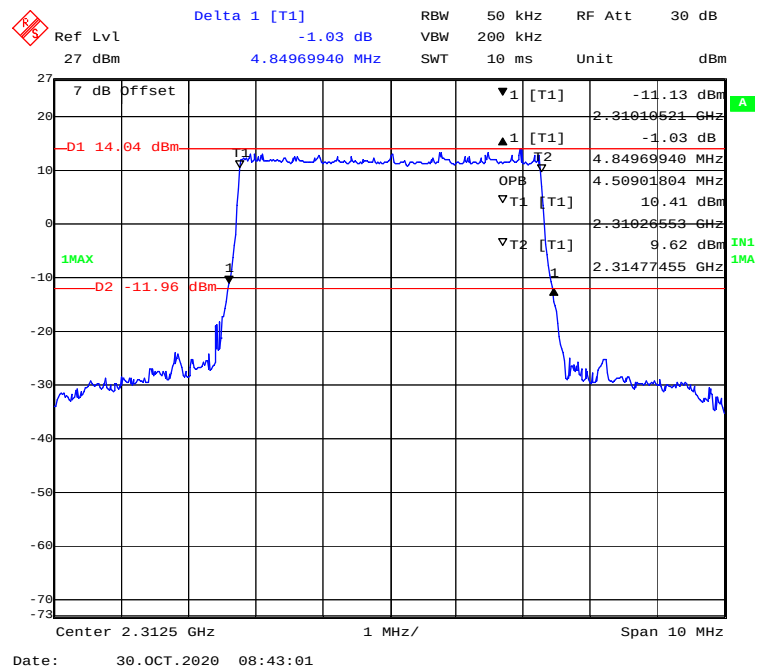
QPSK (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel



QPSK (10.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel



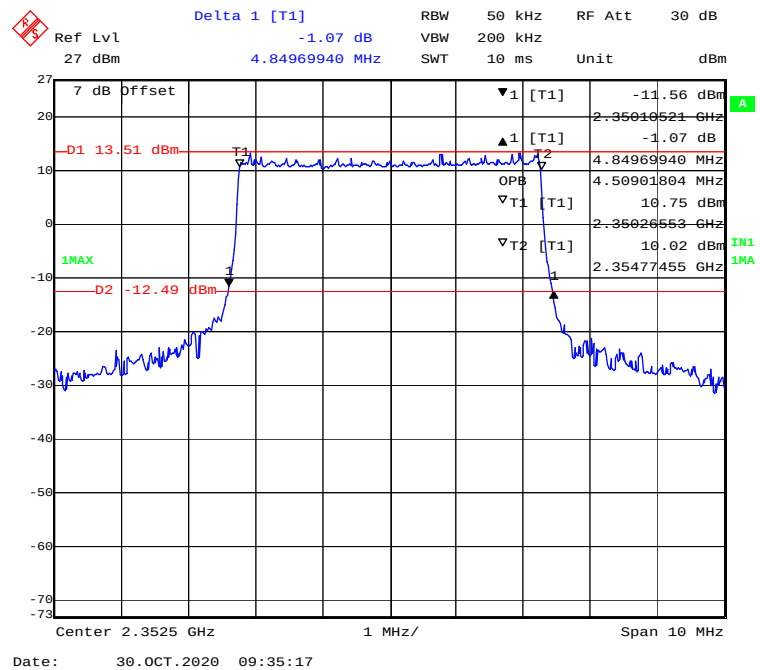
16-QAM (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**16-QAM (10.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**

QPSK (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**16-QAM (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**

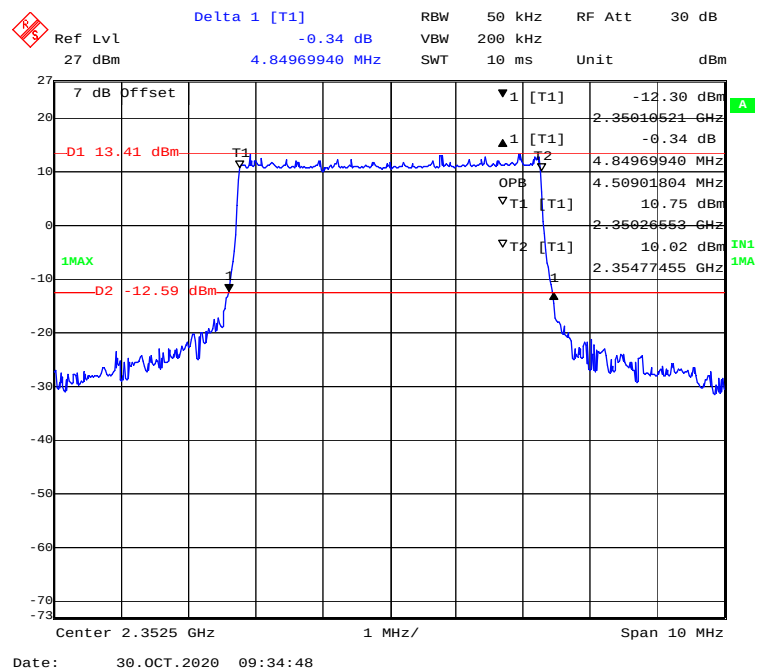
2350-2360MHz

Test Modulation	Test Bandwidth	Test Channel	26 dB Bandwidth	99% Occupied Bandwidth
			MHz	MHz
QPSK	5M	Low	4.850	4.509
	5M	Middle	4.950	4.489
	10M		9.699	8.978
	5M	High	4.910	4.489
16-QAM	5M	Low	4.850	4.509
	5M	Middle	4.950	4.489
	10M		9.699	8.978
	5M	High	4.910	4.489

QPSK (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel

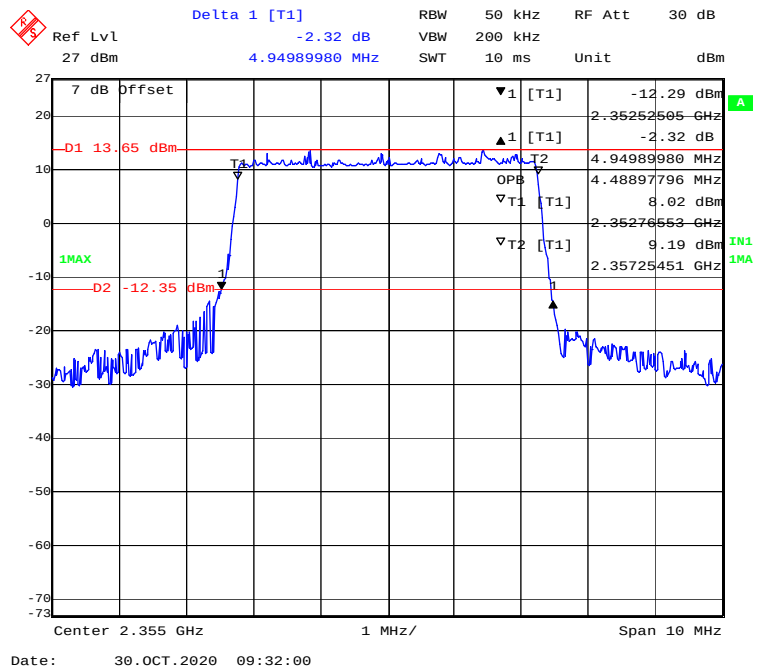
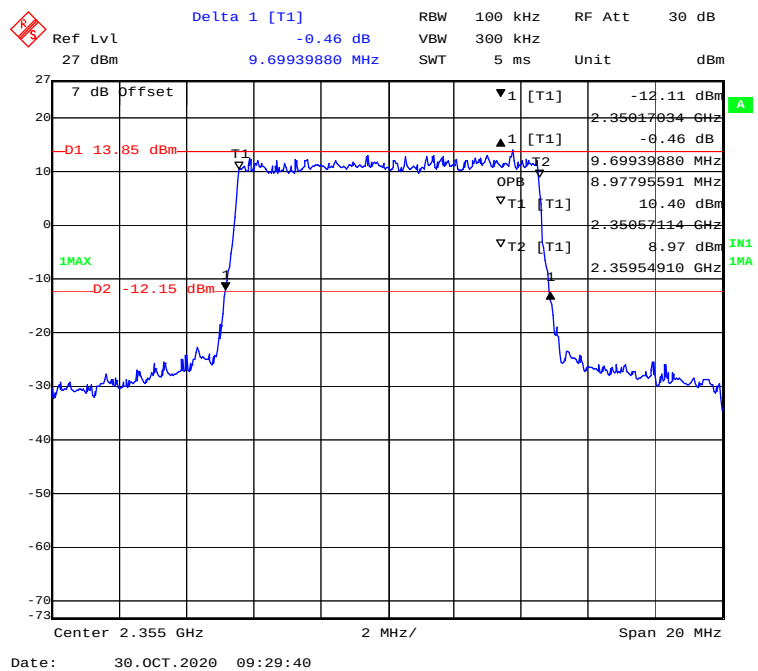


16-QAM (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Low channel



Delta 1 [T1] -1.67 dB
 RBW 50 kHz RF Att 30 dB
 Ref Lvl 27 dBm
 SWT 10 ms Unit dBm
 7 dB Offset
 D1 13.75 dBm
 1MAX
 D2 -12.25 dBm
 Center 2.355 GHz 1 MHz/ Span 10 MHz
 Date: 30.OCT.2020 09:32:19
 IN1 1MA

Delta 1 [T1] -0.46 dB
 RBW 100 kHz RF Att 30 dB
 Ref Lvl 27 dBm Unit dBm
 9.69939880 MHz
 5 ms
 7 dB Offset
 D1 13.75 dBm
 D2 -12.25 dBm
 1MAX
 IN1 1MA
 Center 2.355 GHz 2 MHz/
 Span 20 MHz
 Date: 30.OCT.2020 09:29:07

16-QAM (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**16-QAM (10.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**

Delta 1 [T1] 1.50 dB RBW 50 kHz RF Att 30 dB
Ref Lvl 27 dBm VBW 200 kHz SWT 10 ms Unit dBm

7 dB Offset

D1 13.74 dBm

1MAX

D2 -12.26 dBm

1 [T1]

2 [T1]

OPB

4.90981964 MHz

4.48897796 MHz

2.35504509 GHz

2.35526553 GHz

2.35975451 GHz

Center 2.3575 GHz 1 MHz/ Span 10 MHz

Date: 30.OCT.2020 09:42:29

Delta 1 [T1] -1.76 dB

RBW 50 kHz RF Att 30 dB

Ref Lvl 27 dBm

4.90981964 MHz

SWT 10 ms Unit dBm

7 dB Offset

▼1 [T1] -12.17 dBm

▲1 [T1] -1.76 dB

OPB 4.48897796 MHz

▽T1 [T1] 8.07 dBm

▽T2 [T1] 9.26 dBm

2.35504500 GHz

2.35526553 GHz

2.35975451 GHz

1MAX

D1 13.64 dBm

D2 -12.36 dBm

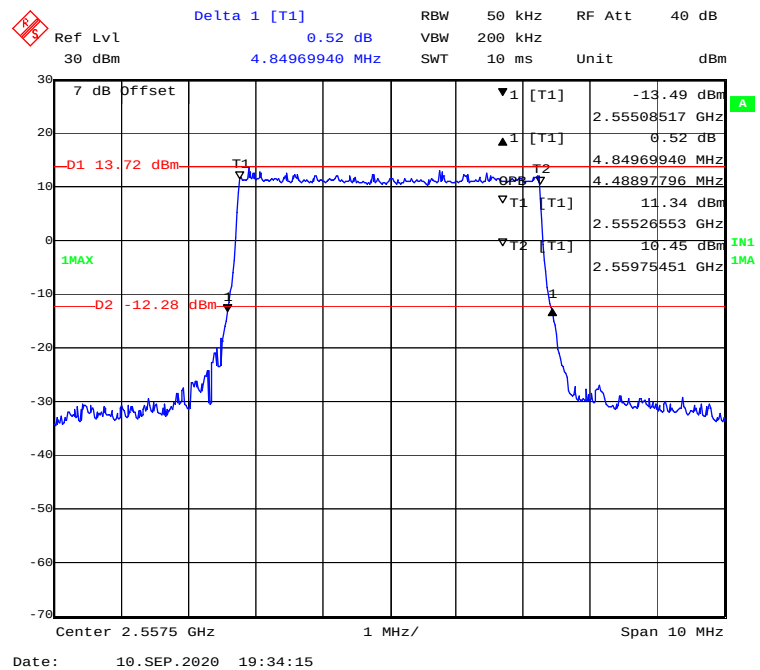
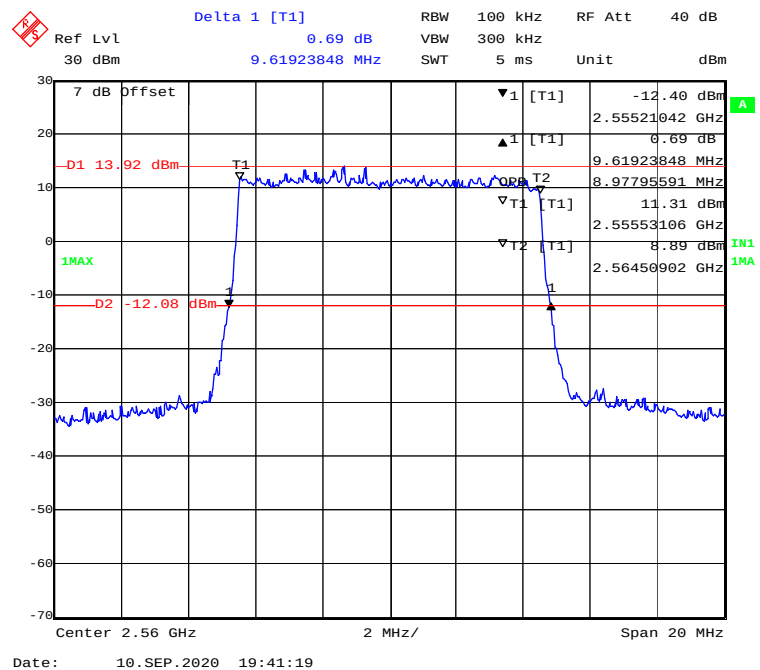
IN1 1MA

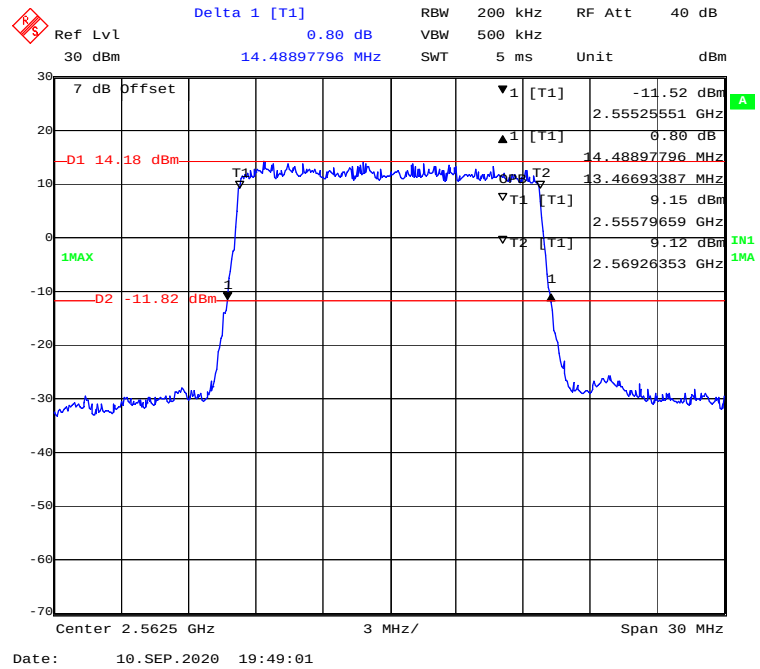
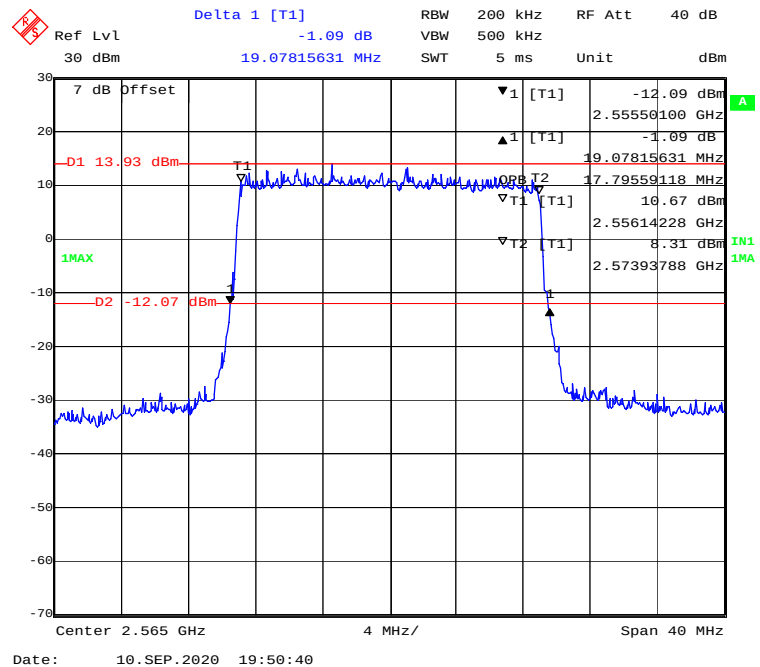
Center 2.3575 GHz 1 MHz/ Span 10 MHz

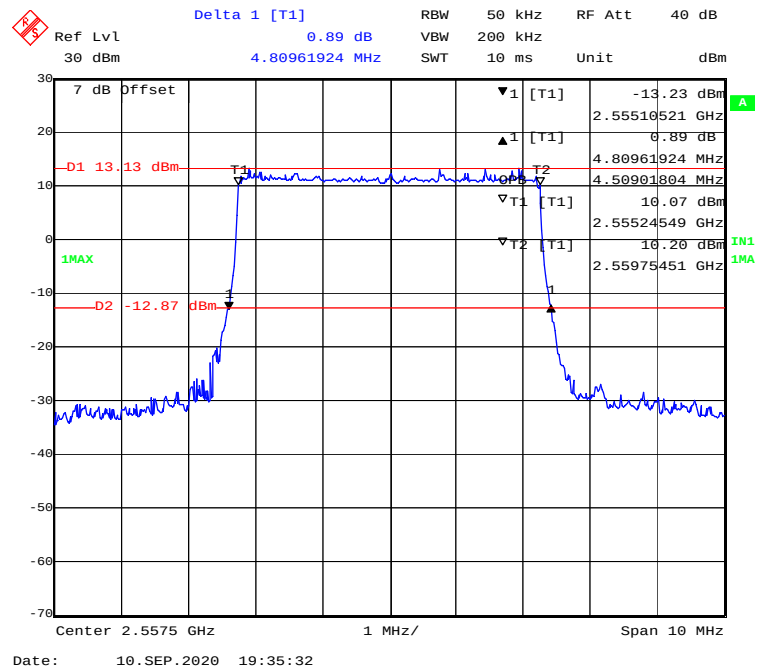
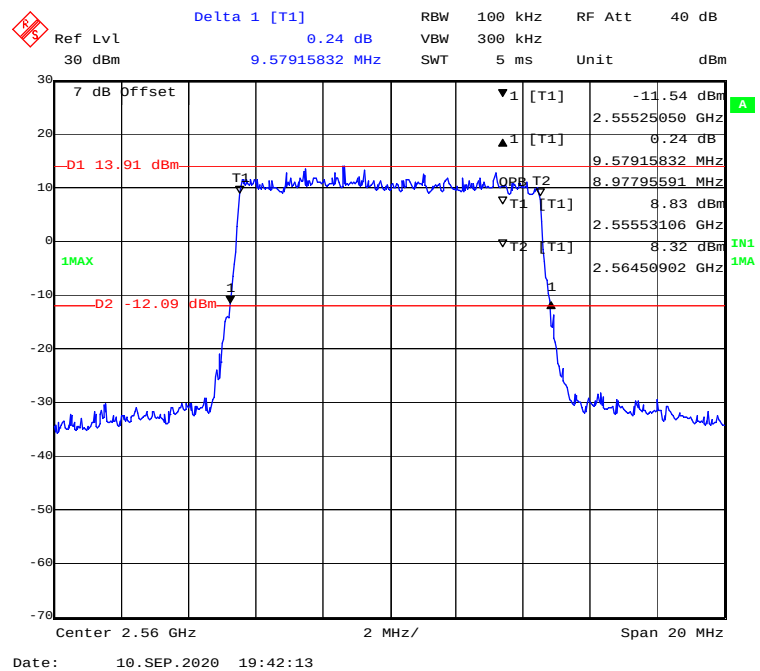
Date: 30.OCT.2020 09:42:05

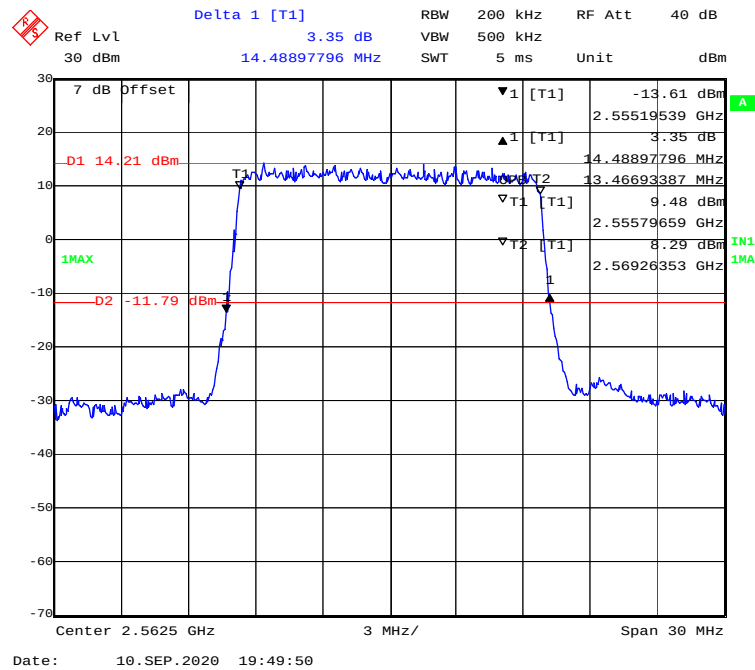
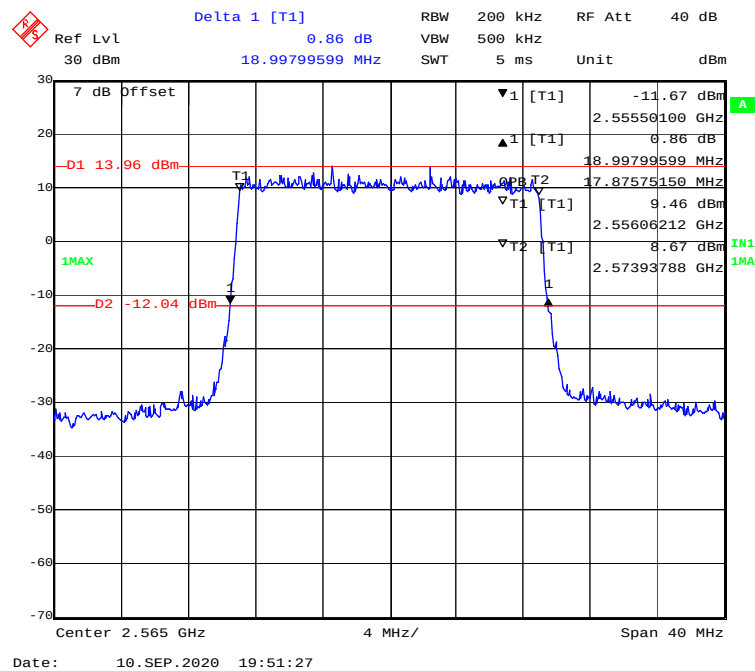
LTE Band 41:

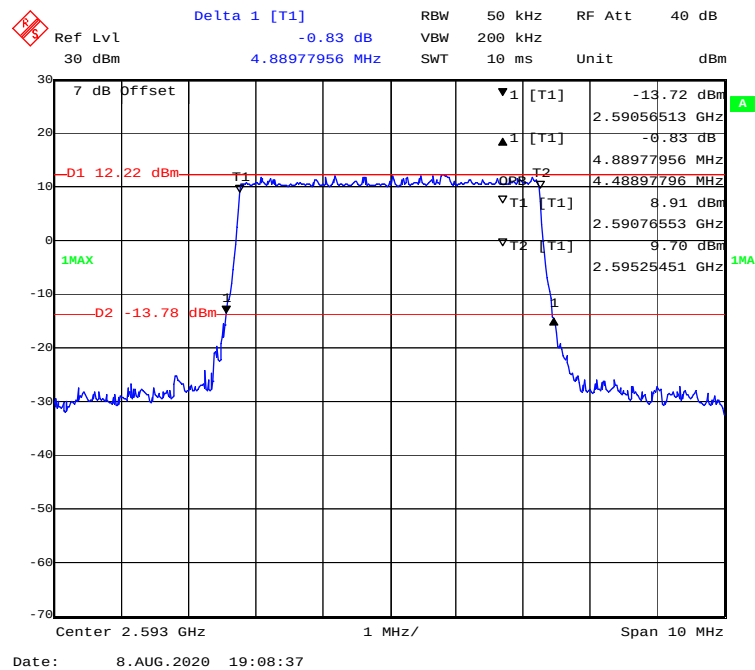
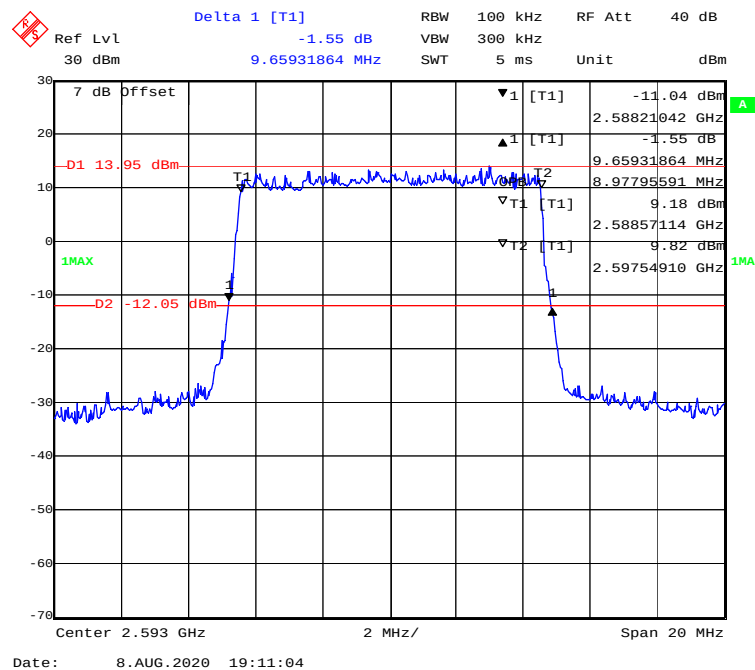
Test Modulation	Test Bandwidth	Test Channel	26 dB Bandwidth	99% Occupied Bandwidth
			MHz	MHz
QPSK	5M	Low	4.850	4.489
	10M		9.619	8.978
	15M		14.489	13.467
	20M		19.078	17.796
	5M	Middle	4.890	4.489
	10M		9.659	8.978
	15M		14.489	13.467
	20M		19.238	17.956
	5M	High	4.850	4.489
	10M		9.699	8.978
	15M		14.489	13.467
	20M		19.158	17.876
16-QAM	5M	Low	4.810	4.509
	10M		9.579	8.978
	15M		14.489	13.467
	20M		18.998	17.876
	5M	Middle	4.850	4.489
	10M		9.699	8.938
	15M		14.549	13.467
	20M		19.078	17.956
	5M	High	4.830	4.489
	10M		9.659	8.978
	15M		14.609	13.467
	20M		19.158	17.876

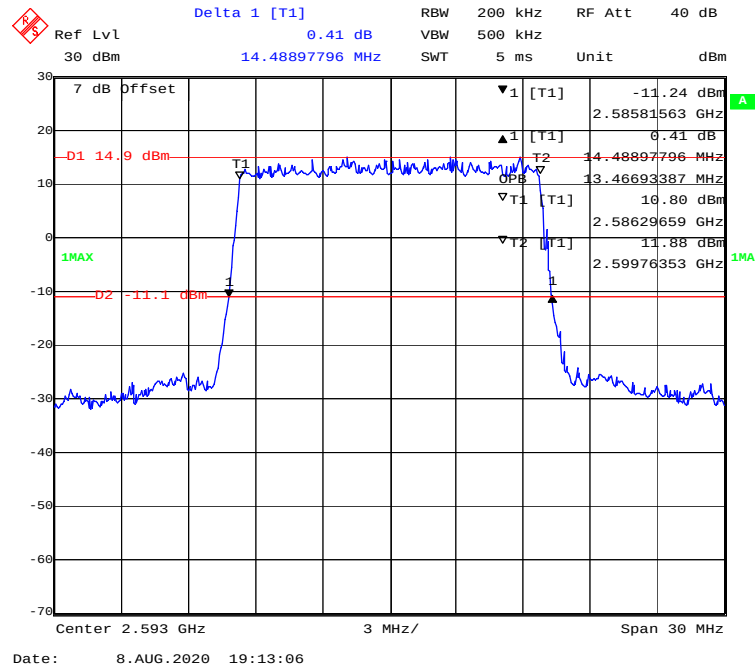
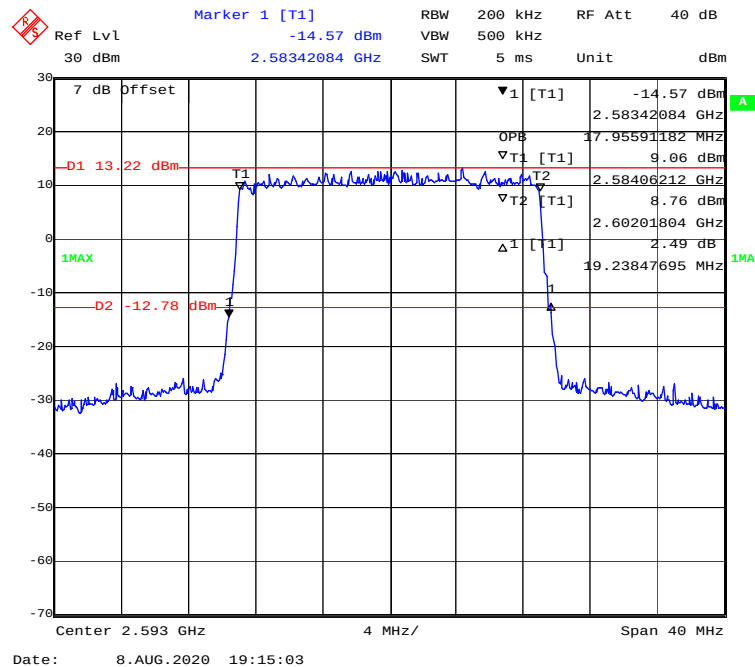
QPSK (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**QPSK (10.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**

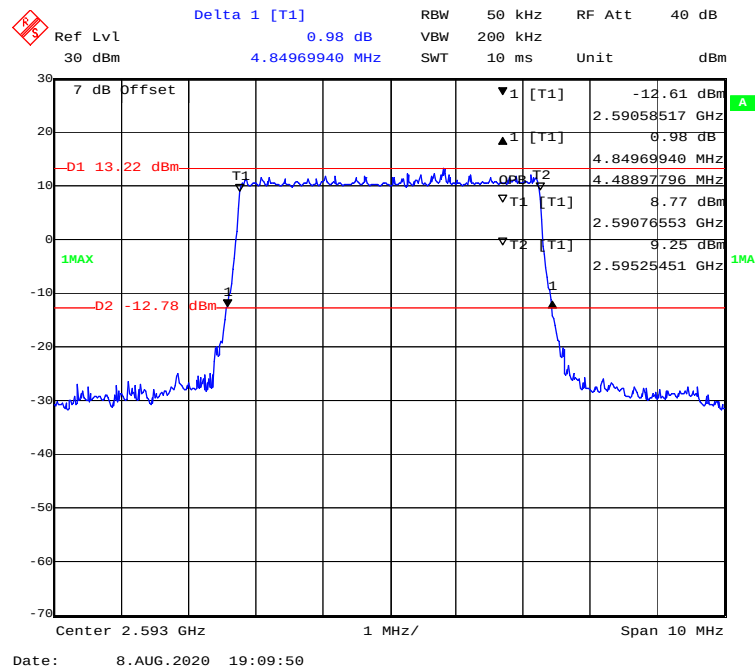
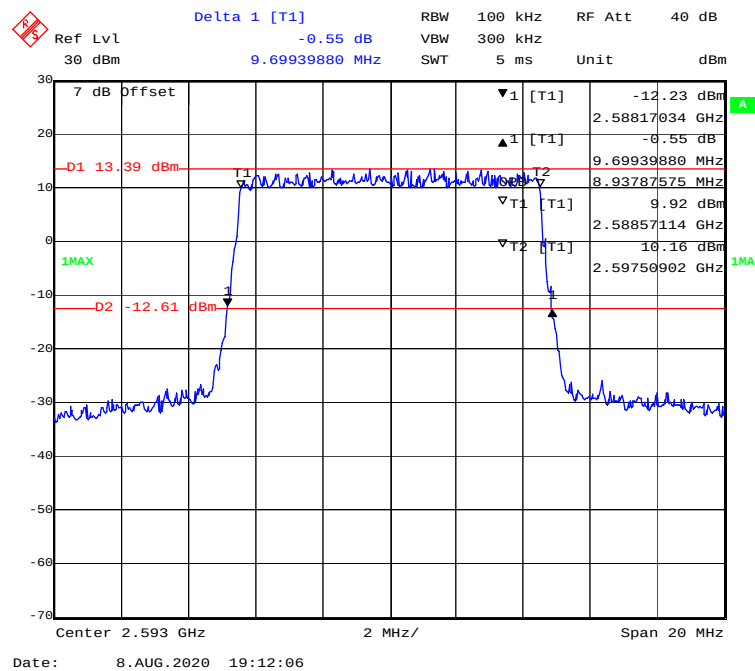
QPSK (15.0MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**QPSK (20.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**

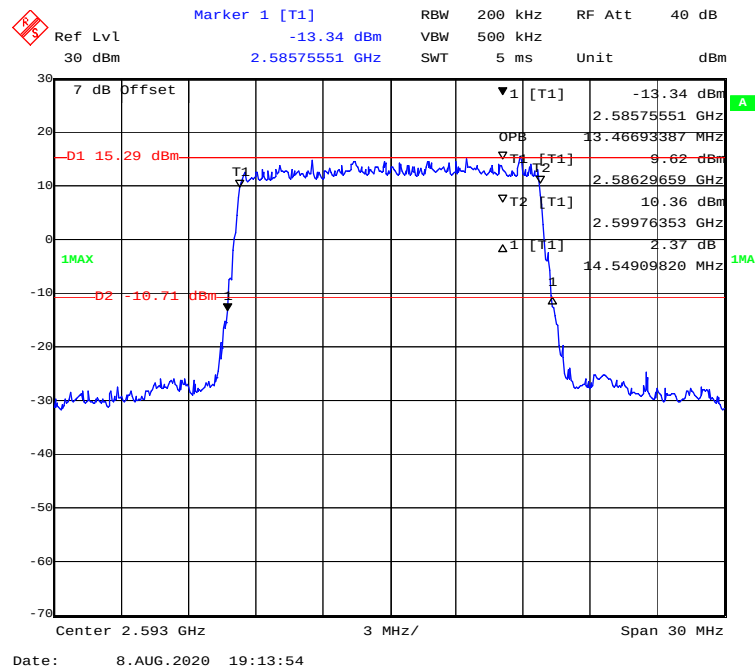
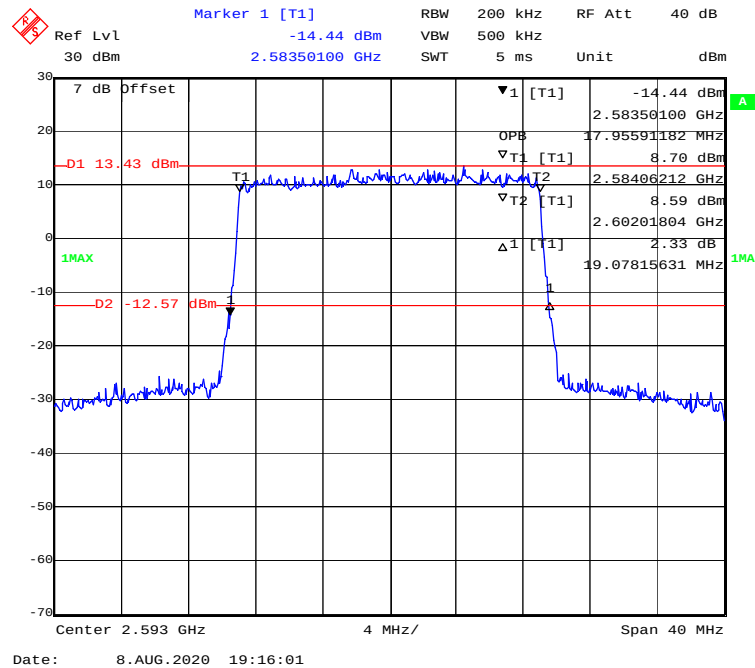
16-QAM (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**16-QAM (10.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**

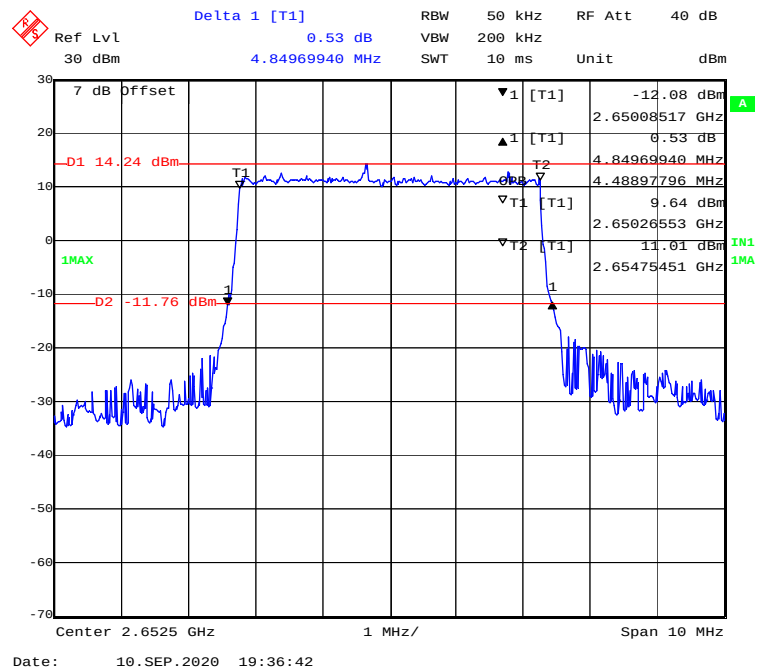
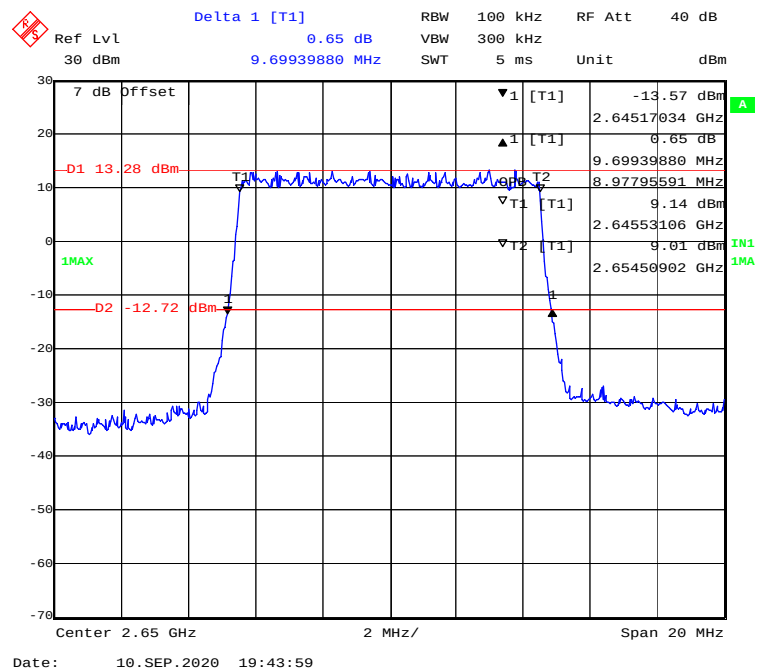
16-QAM (15.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**16-QAM (20.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**

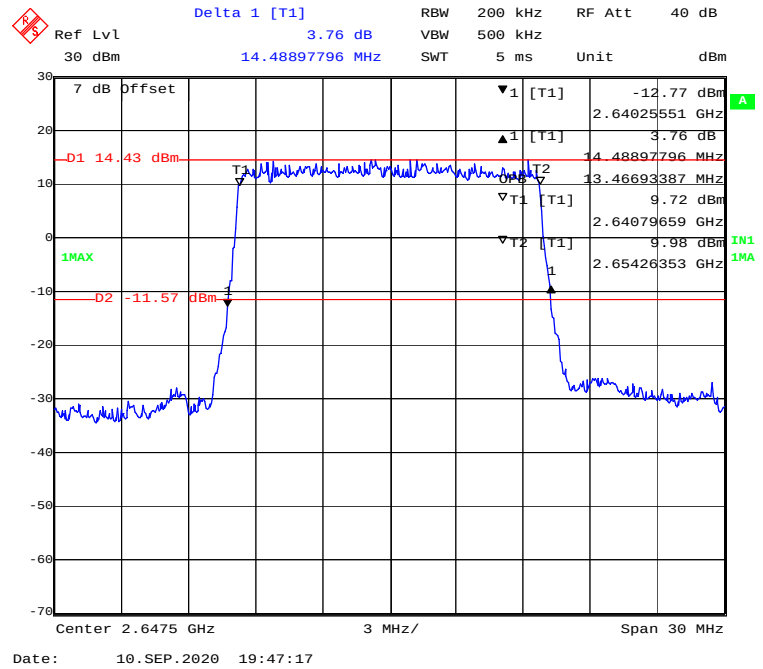
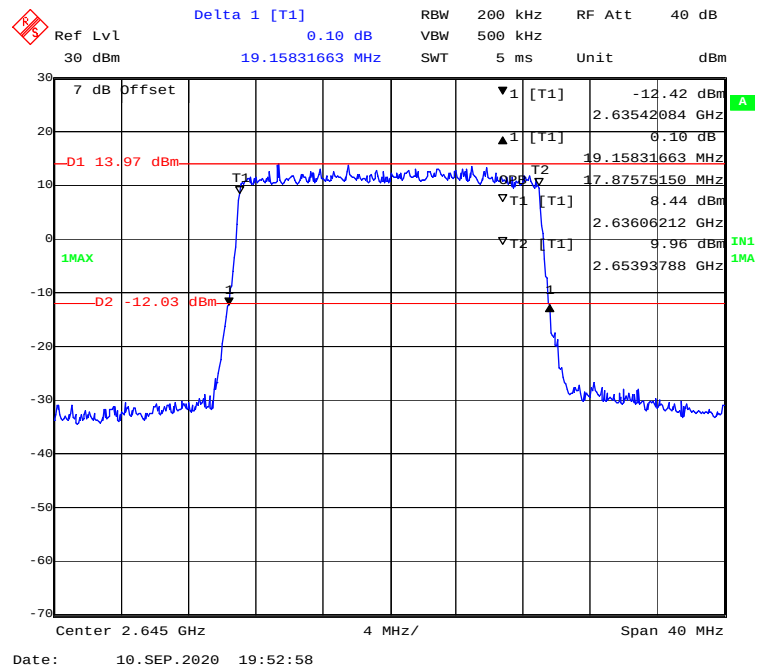
QPSK (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**QPSK (10.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**

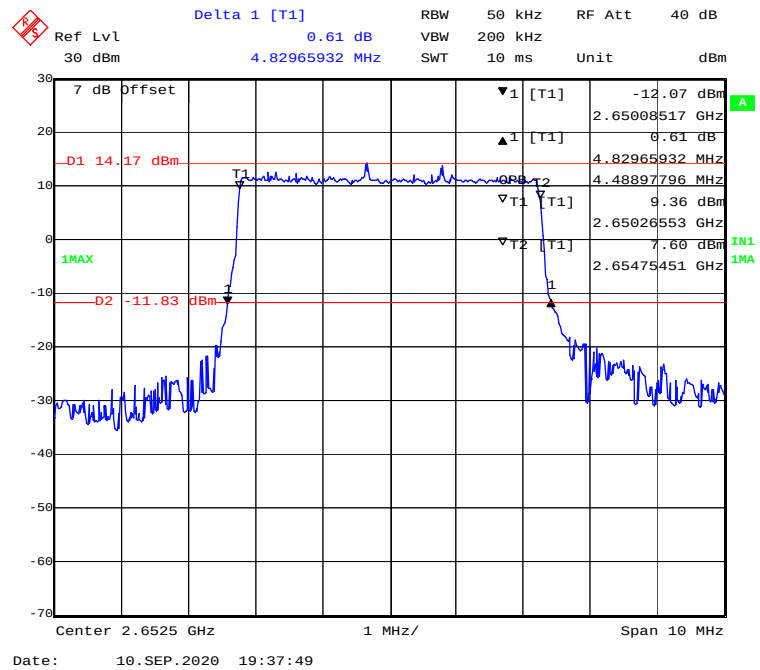
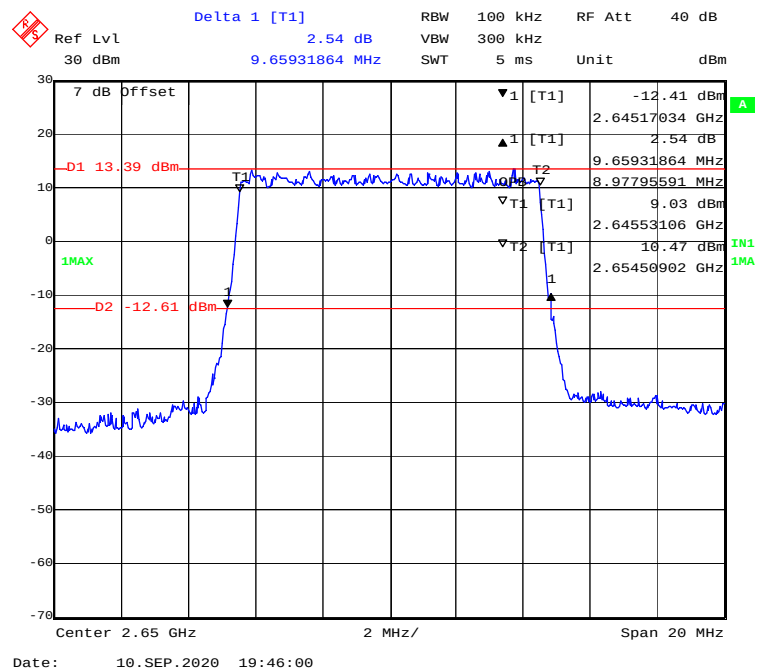
QPSK (15.0MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**QPSK (20.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**

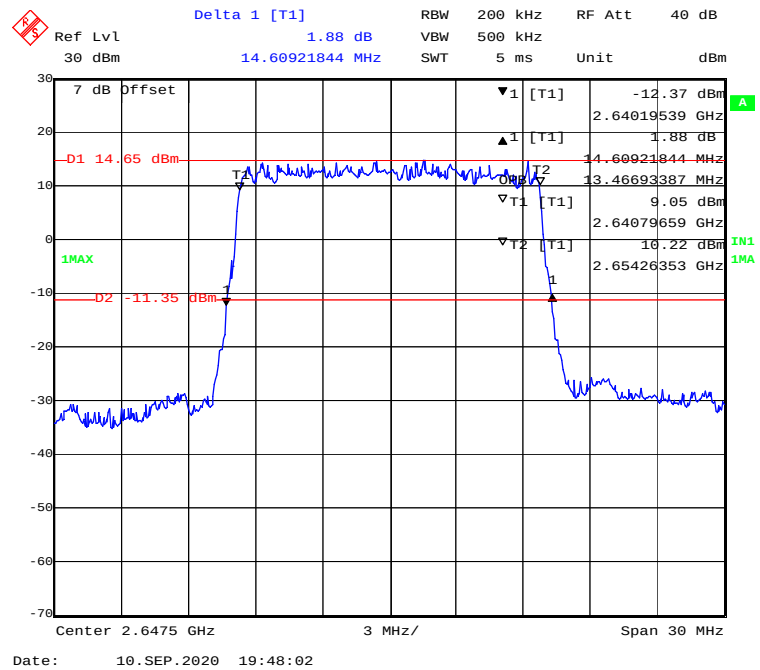
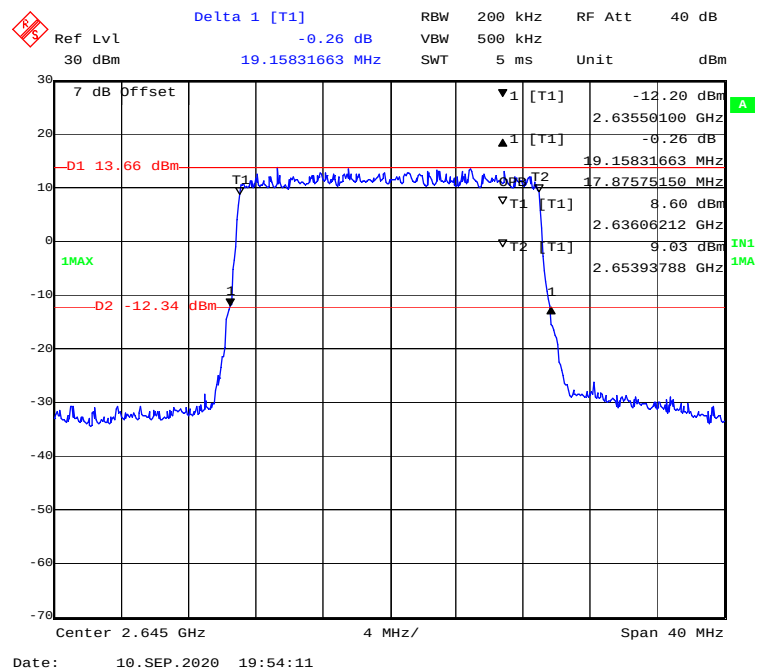
16-QAM (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**16-QAM (10.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**

16-QAM (15.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**16-QAM (20.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel**

QPSK (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**QPSK (10.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**

QPSK (15.0MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**QPSK (20.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**

16-QAM (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**16-QAM (10.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**

16-QAM (15.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**16-QAM (20.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, High channel**

FCC § 2.1051; § 22.917 (a); § 24.238 (a); §27.53 (a) (h) (m) - SPURIOUS EMISSIONS AT ANTENNA TERMINALS**Applicable Standards**

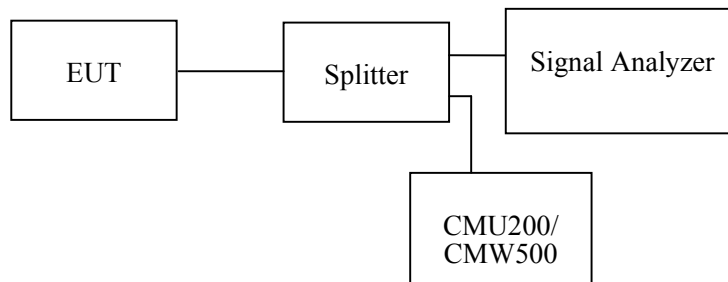
FCC §2.1051, §22.917(a), §24.238(a) and §27.53 (m).

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

According to §27.53(a) (h) (m),for mobile digital stations, any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $55 + 10 \log(P)$ dB.

Test Procedure

The RF output of the transceiver was connected to a spectrum analyzer and simulator through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 100 kHz for below 1GHz & 1MHz for above 1GHz. sufficient scans were taken to show any out of band emissions up to 10th harmonic.

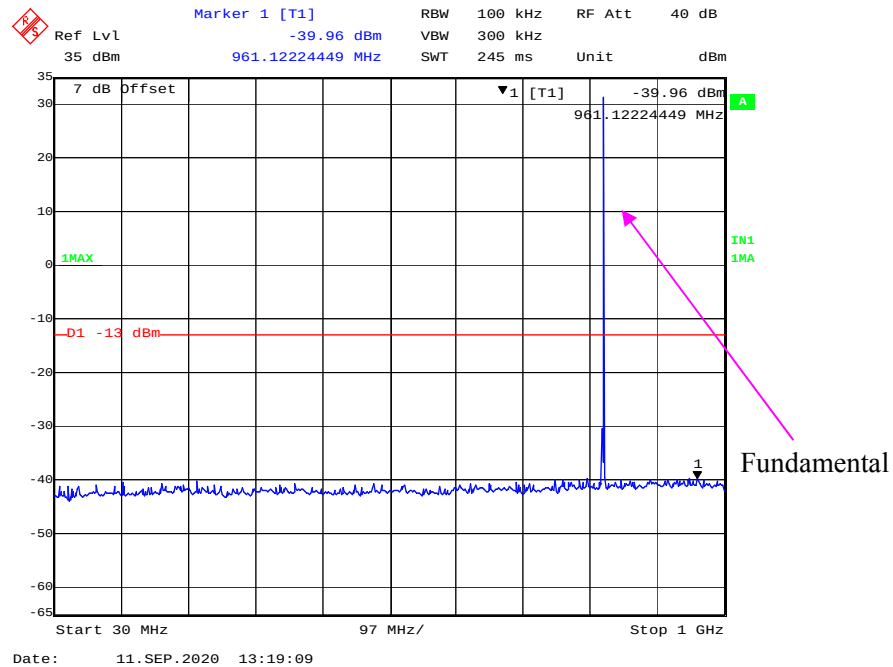
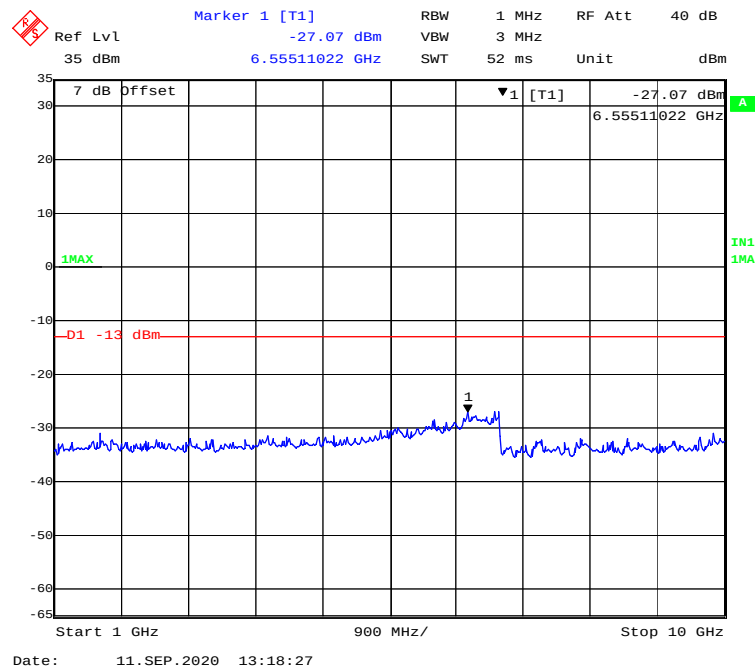
**Test Data****Environmental Conditions**

Temperature:	23.5~24.9 °C
Relative Humidity:	50~52 %
ATM Pressure:	100.7~101.9 kPa

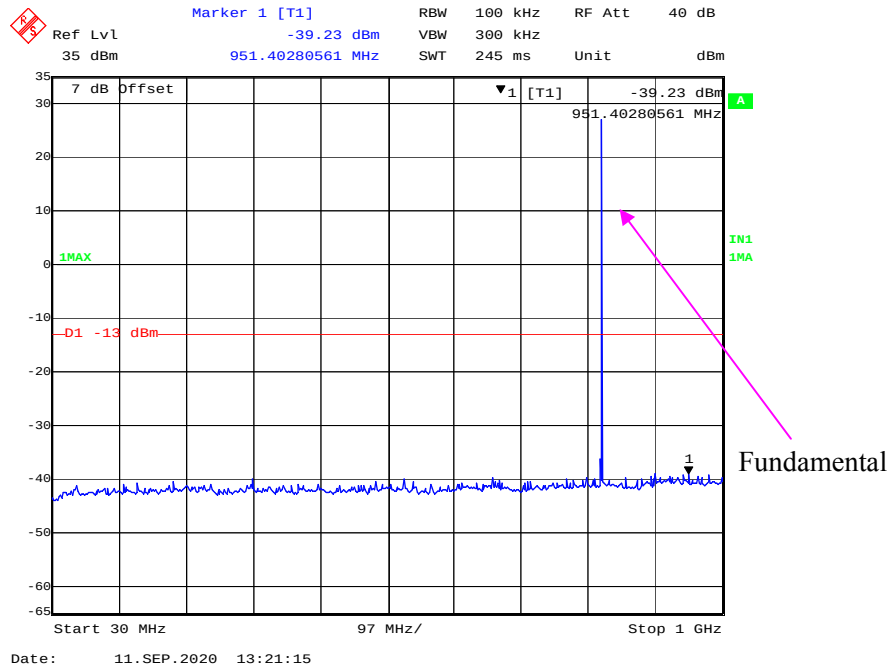
The testing was performed by CK Huang from 2020-08-08 to 2020-11-05.

EUT operation mode: Transmitting

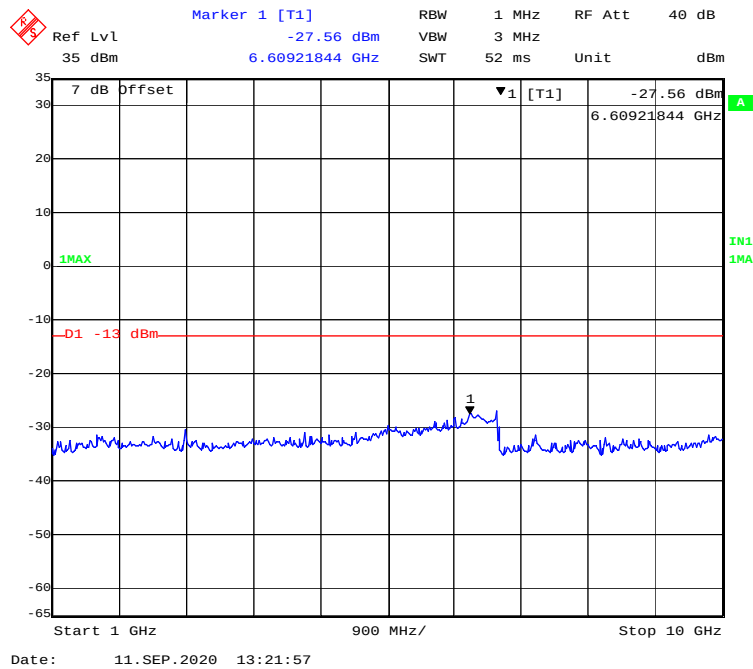
Test Result: Compliance.

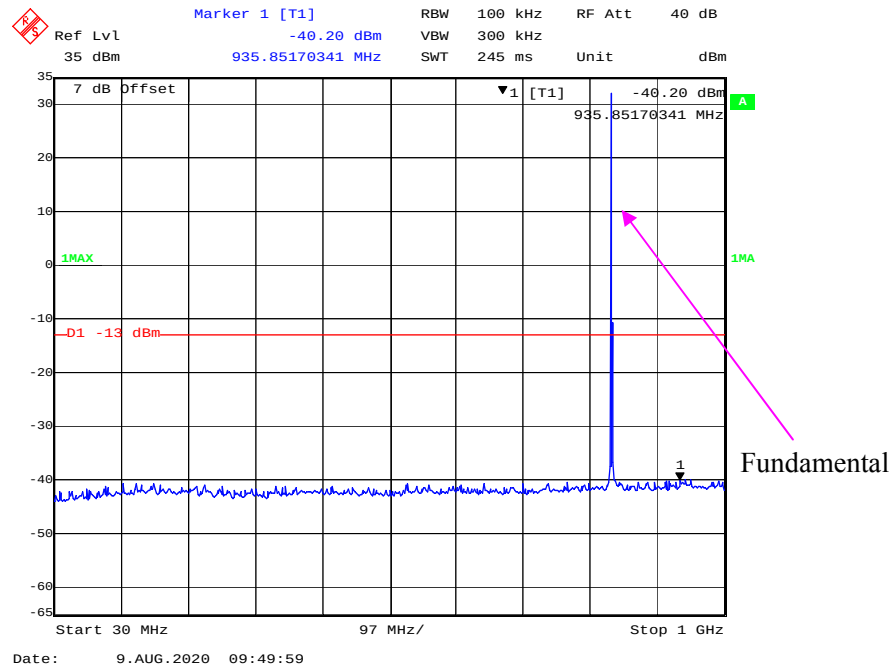
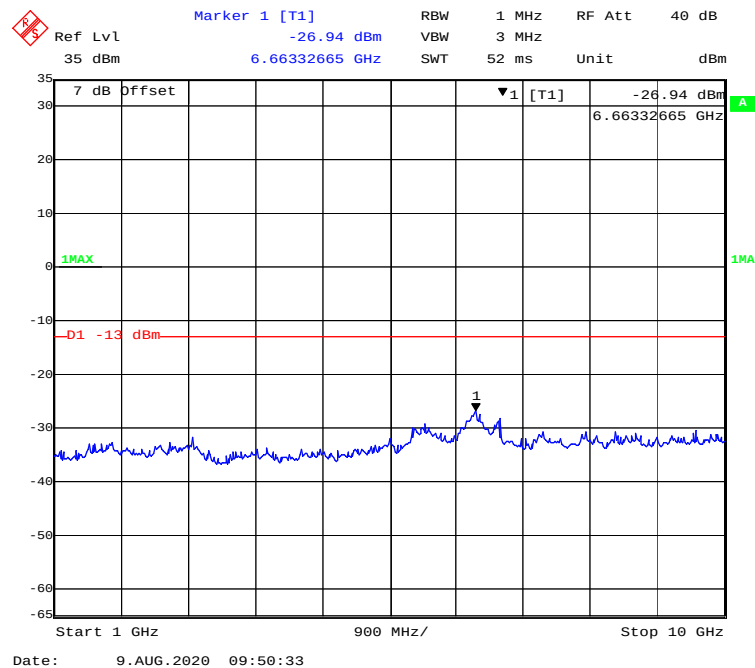
GSM 850 Band:**30 MHz – 1GHz(GPRS Mode) Low Channel****1 GHz – 10 GHz (GPRS Mode) Low Channel**

30 MHz – 1GHz(EGPRS Mode) Low Channel

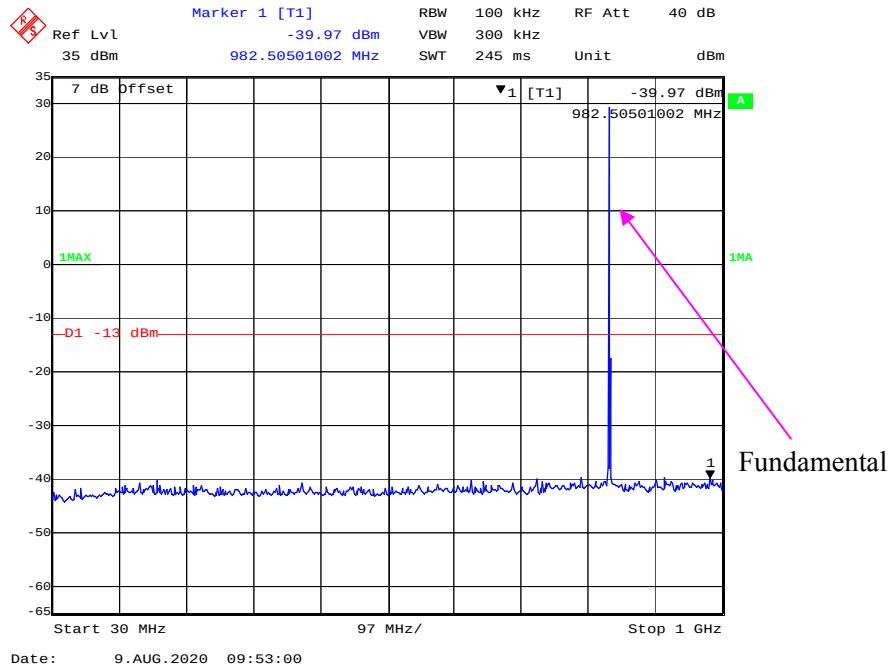


1 GHz – 10 GHz (EGPRS Mode) Low Channel

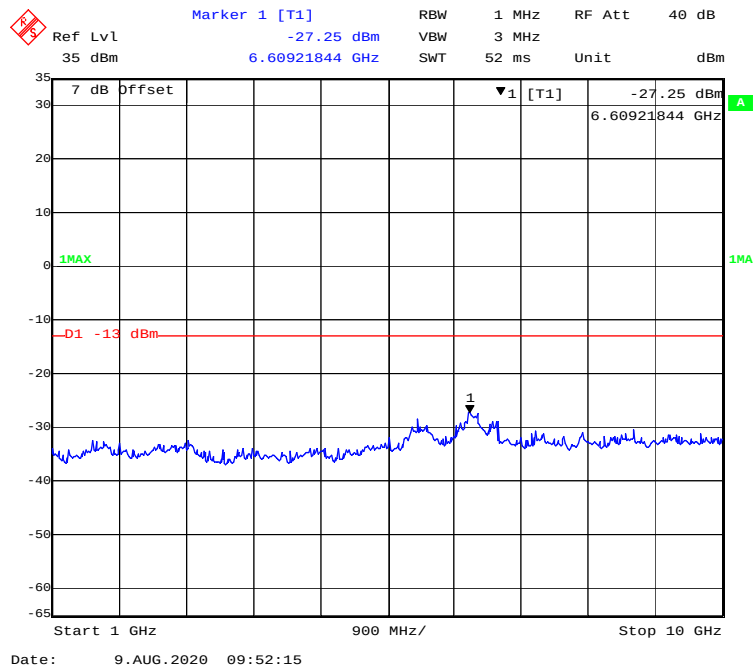


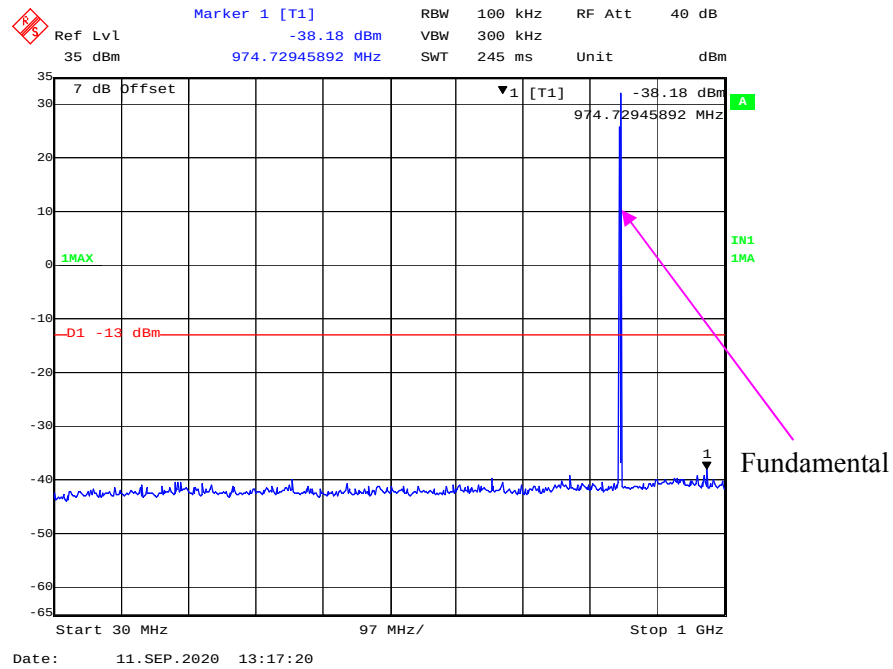
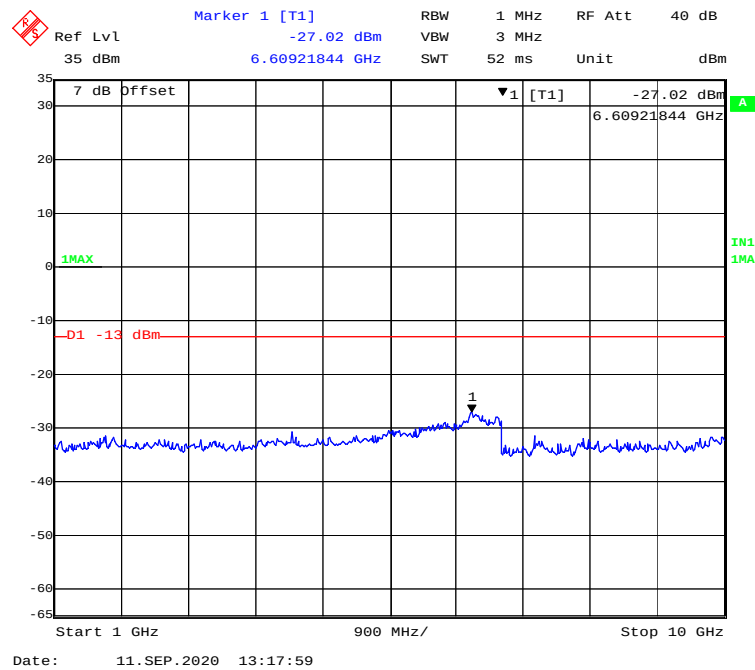
30 MHz – 1GHz(GPRS Mode) Middle Channel**1 GHz – 10 GHz (GPRS Mode) Middle Channel**

30 MHz – 1GHz(EGPRS Mode) Middle Channel

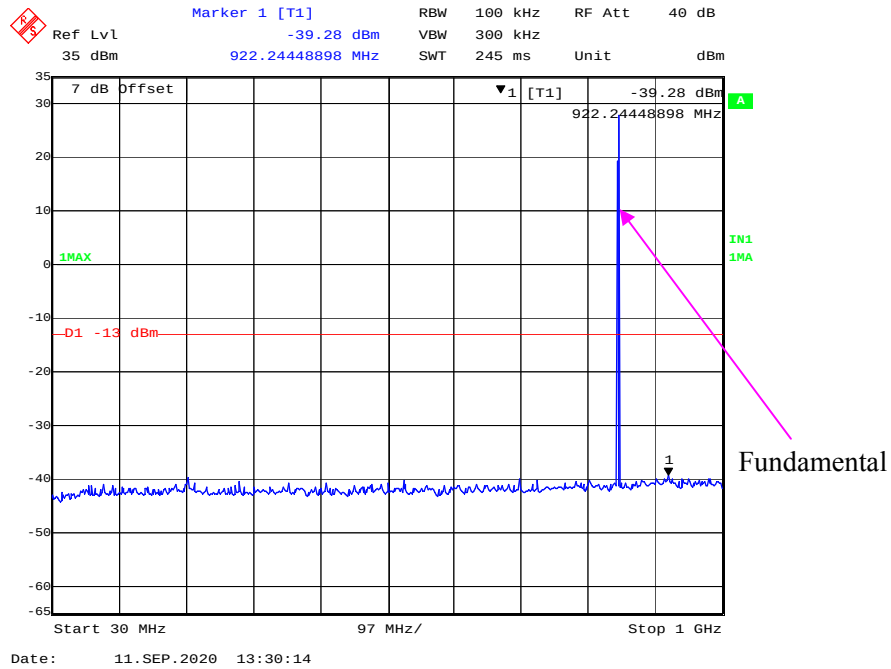


1 GHz – 10 GHz (EGPRS Mode) Middle Channel

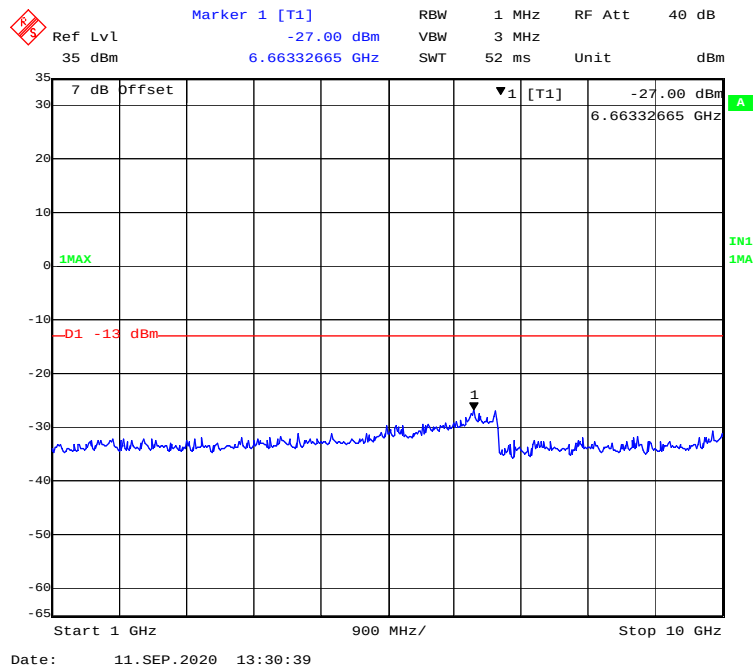


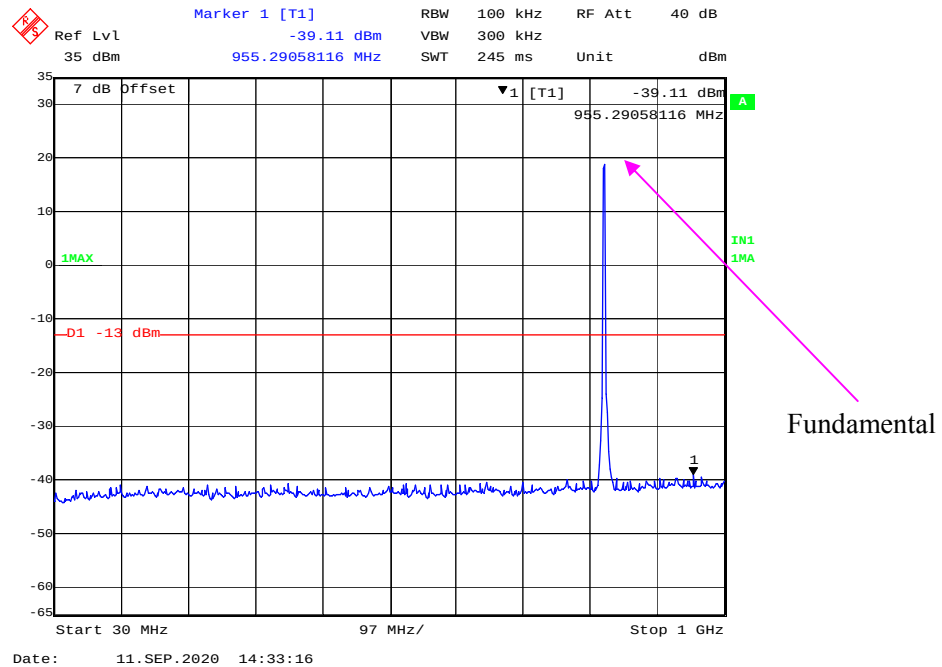
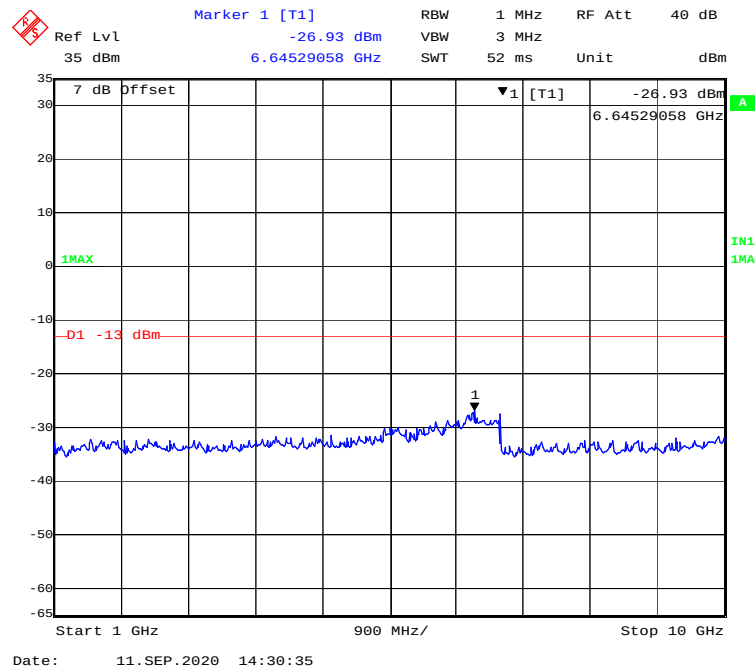
30 MHz – 1GHz(GPRS Mode) High Channel**1 GHz – 10 GHz (GPRS Mode) High Channel**

30 MHz – 1GHz(EGPRS Mode) High Channel

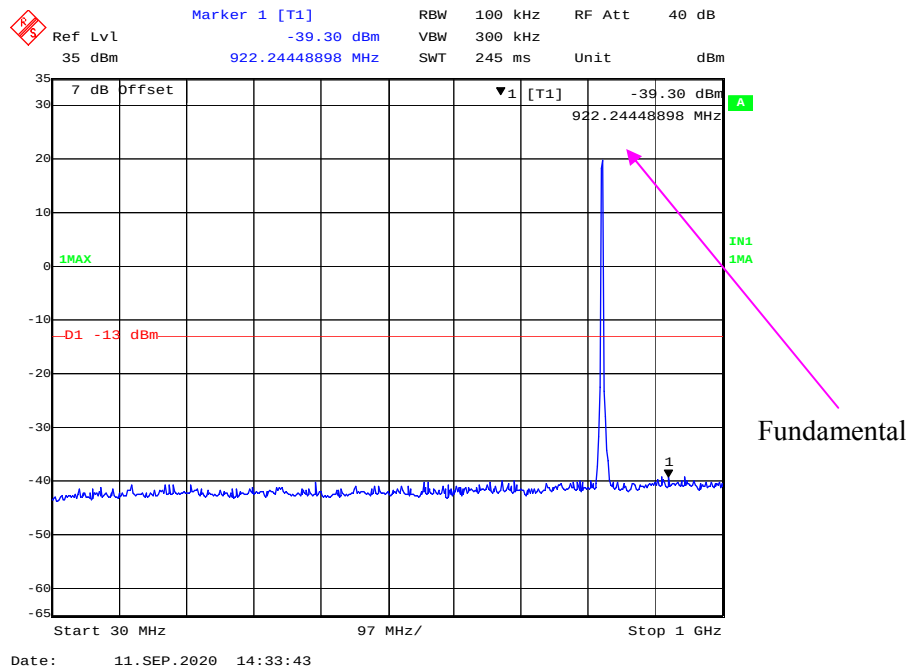


1 GHz – 10 GHz (EGPRS Mode) High Channel

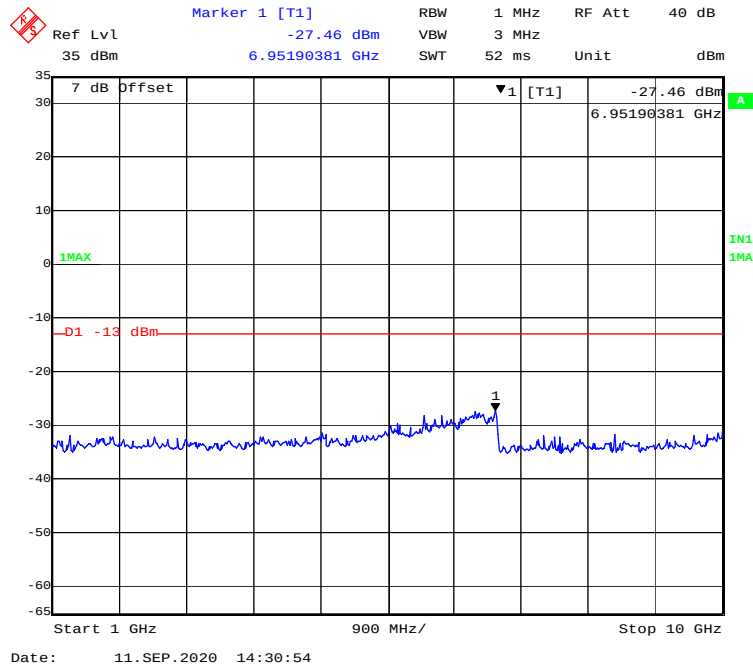


WCDMA Band V:**30 MHz – 1GHz WCDMA (Rel 99) Mode Low Channel****1 GHz – 10 GHz WCDMA (Rel 99) Mode Low Channel**

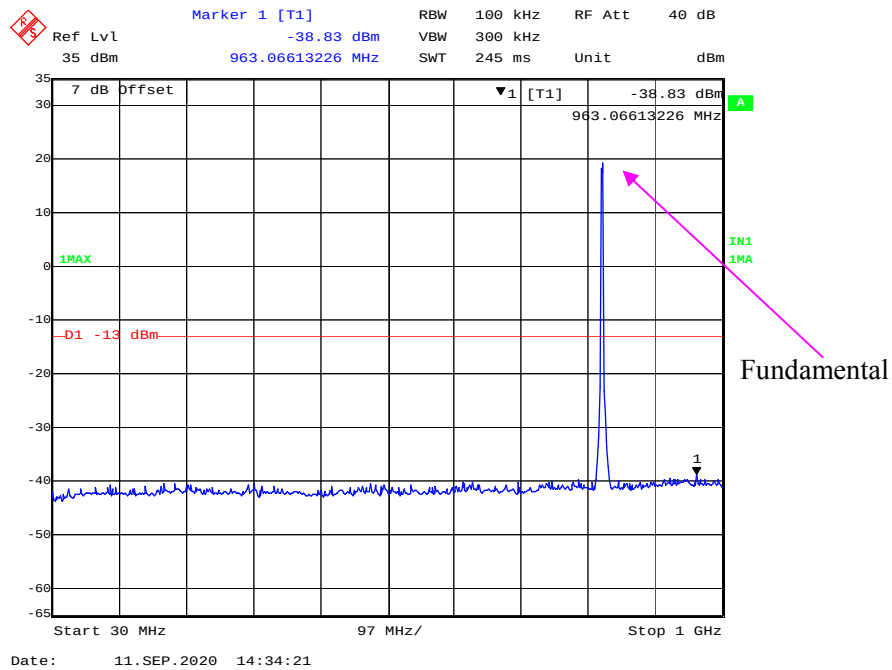
30 MHz – 1GHz WCDMA (HSDPA) Mode Low Channel



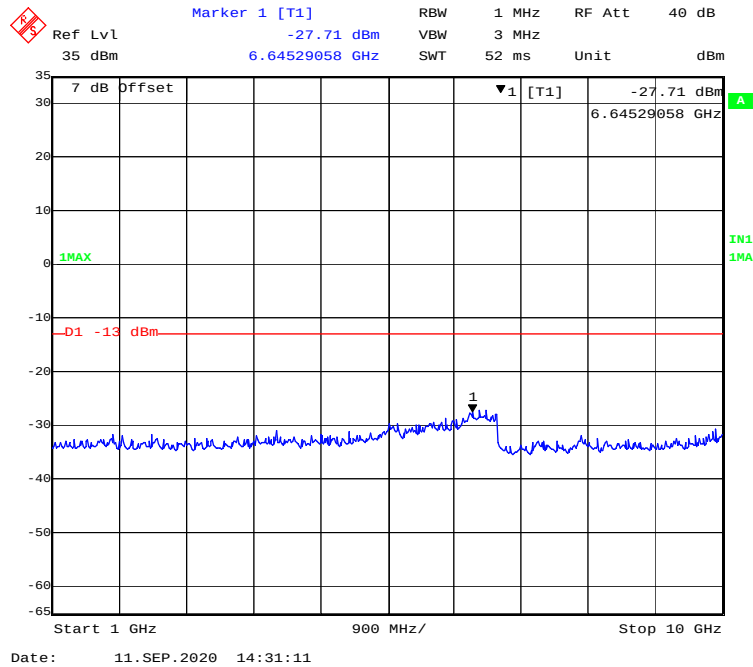
1 GHz – 10 GHz WCDMA (HSDPA) Mode Low Channel



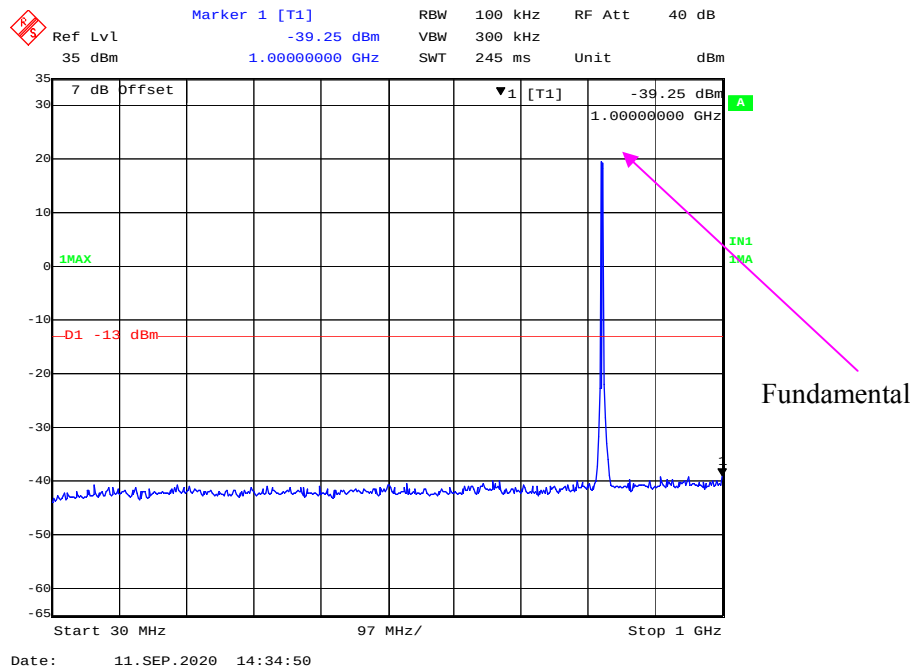
30 MHz – 1GHz WCDMA (HSUPA) Mode Low Channel



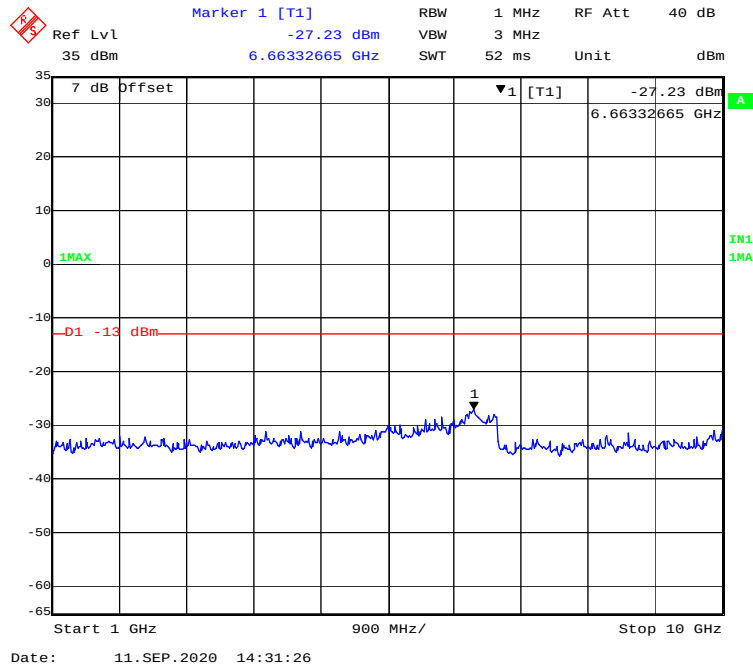
1 GHz – 10 GHz WCDMA (HSUPA) Mode Low Channel



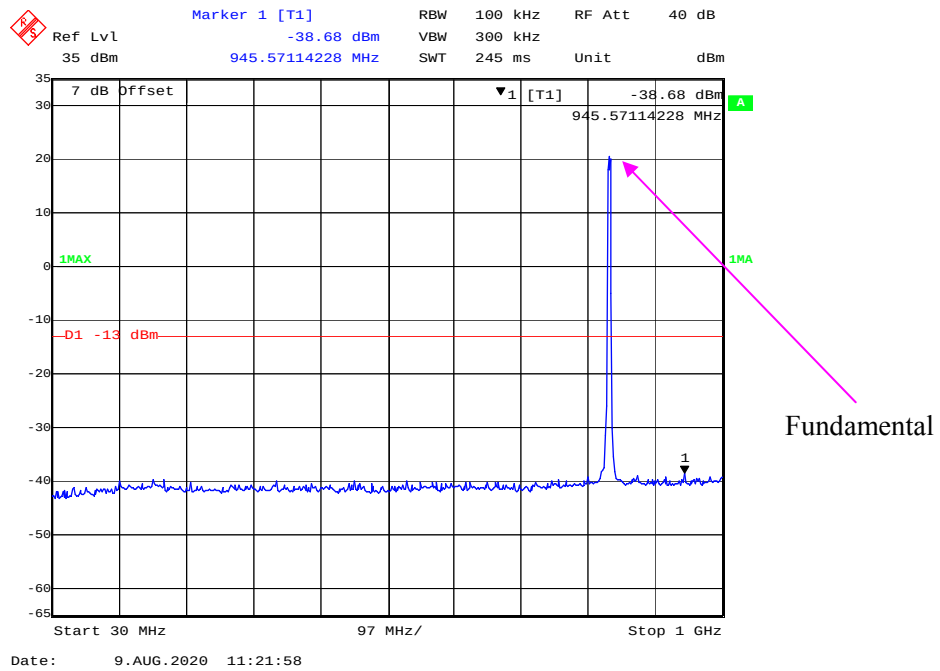
30 MHz – 1GHz WCDMA (HSPA+) Mode Low Channel



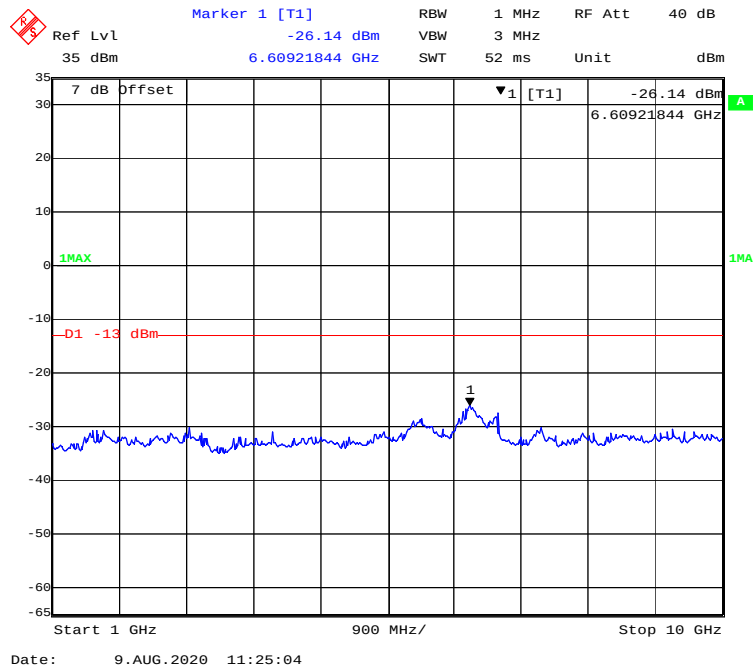
1 GHz – 10 GHz WCDMA (HSPA+) Mode Low Channel



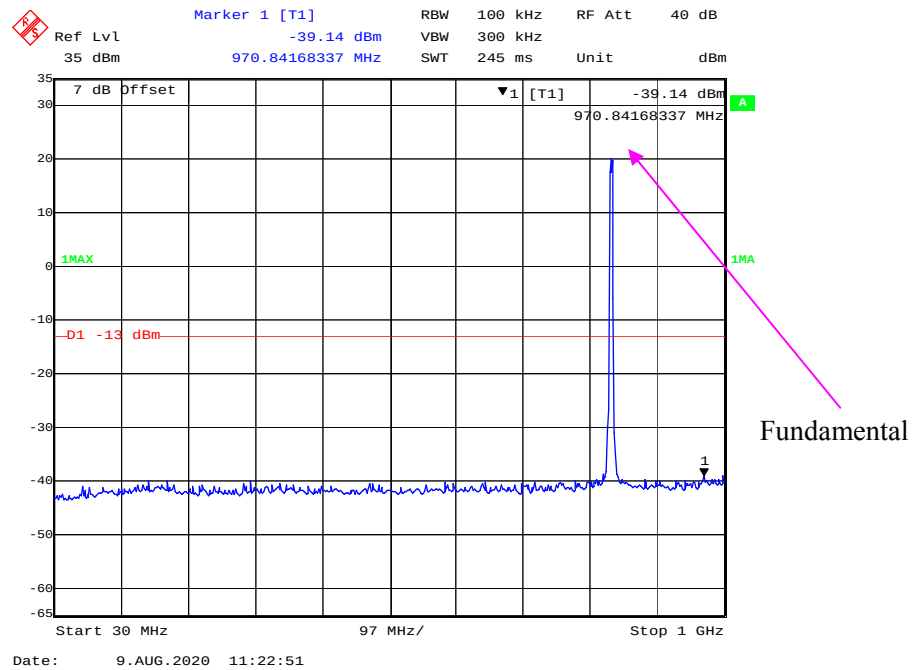
30 MHz – 1GHz WCDMA (Rel 99) Mode Middle Channel



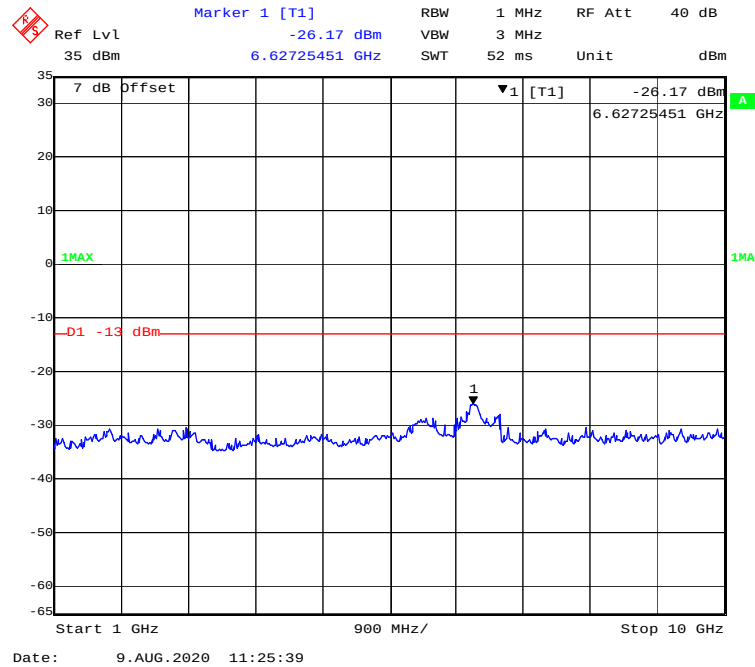
1 GHz – 10 GHz WCDMA (Rel 99) Mode Middle Channel



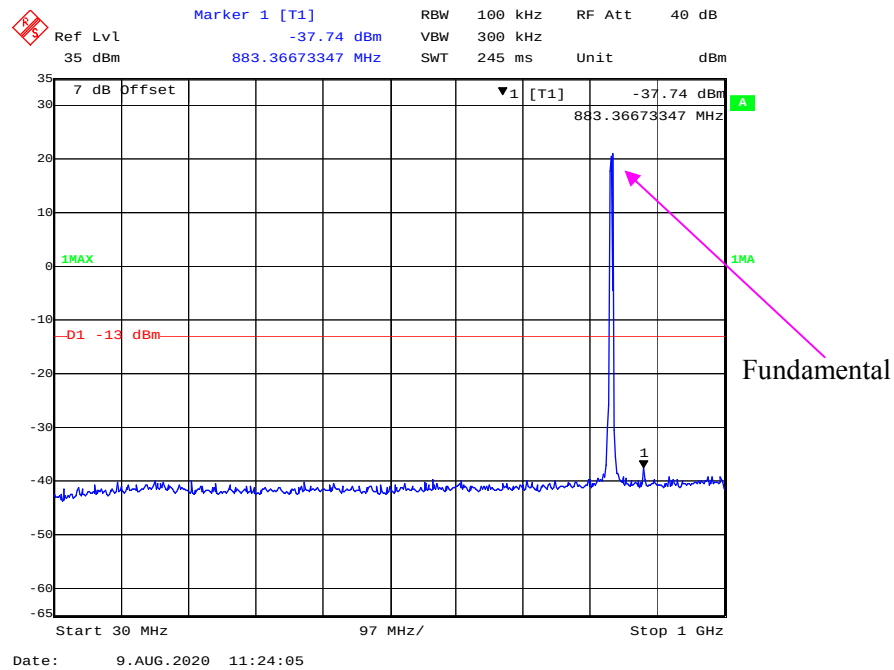
30 MHz – 1GHz WCDMA (HSDPA) Mode Middle Channel



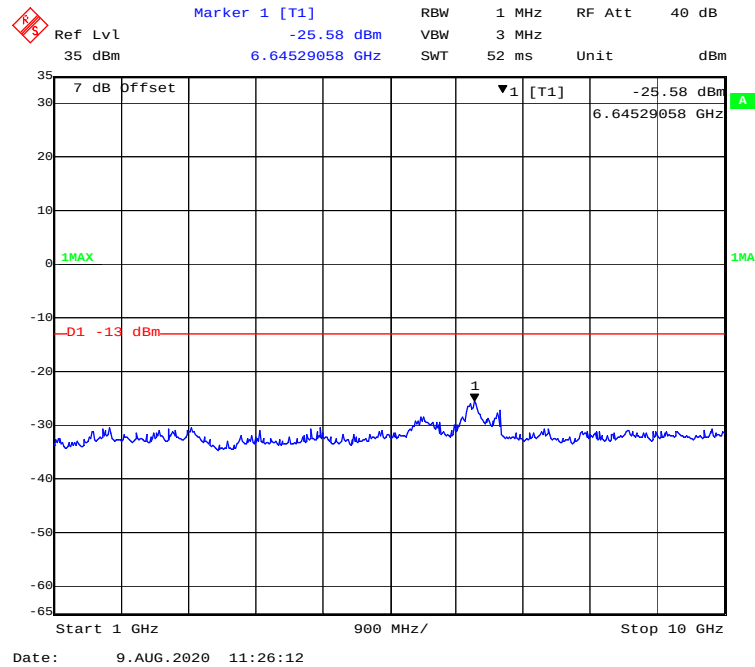
1 GHz – 10 GHz WCDMA (HSDPA) Mode Middle Channel



30 MHz – 1GHz WCDMA (HSUPA) Mode Middle Channel



1 GHz – 10 GHz WCDMA (HSUPA) Mode Middle Channel



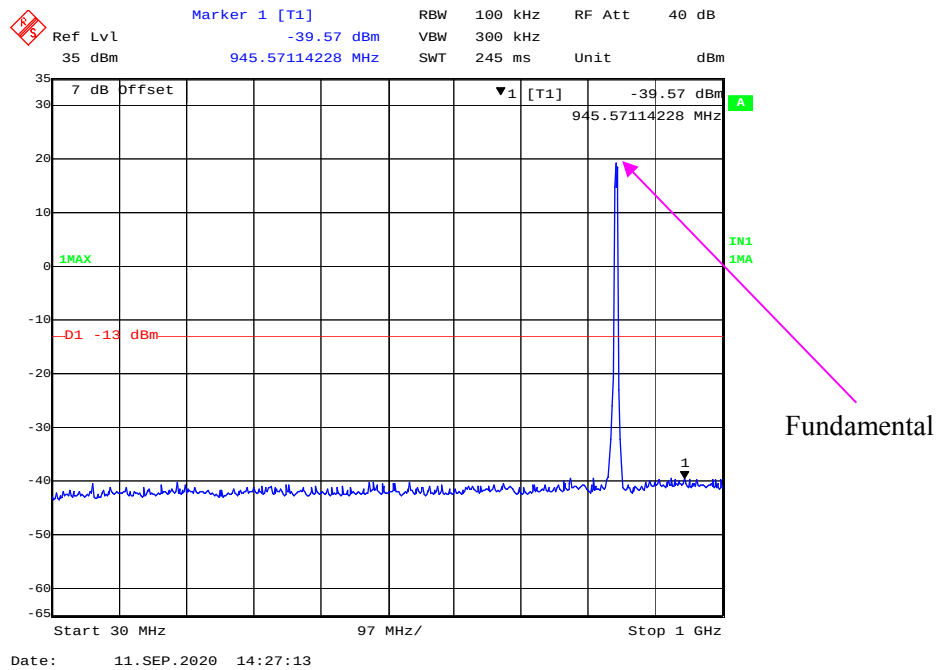
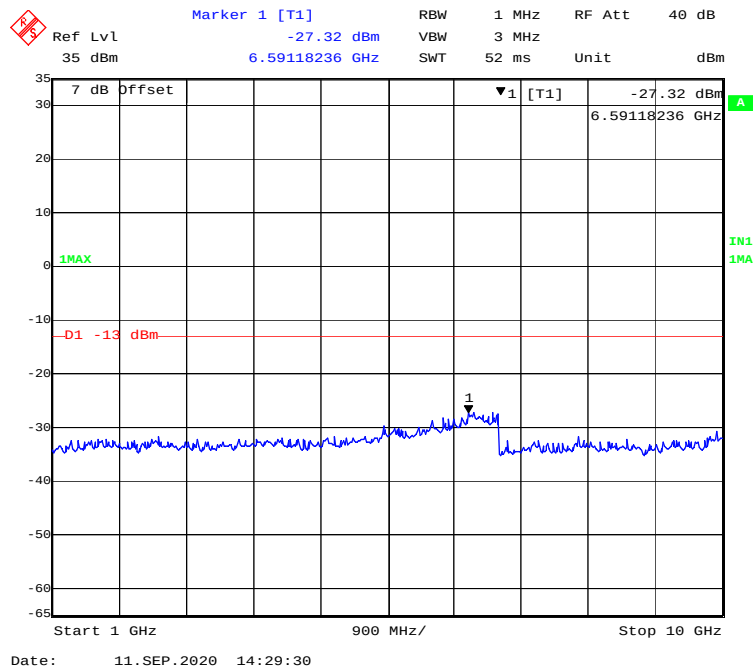
	Marker 1 [T1]		RBW	100 kHz	RF Att	40 dB
	Ref Lvl	-39.42 dBm	VBW	300 kHz		
	35 dBm	961.12224449 MHz	SWT	245 ms	Unit	dBm



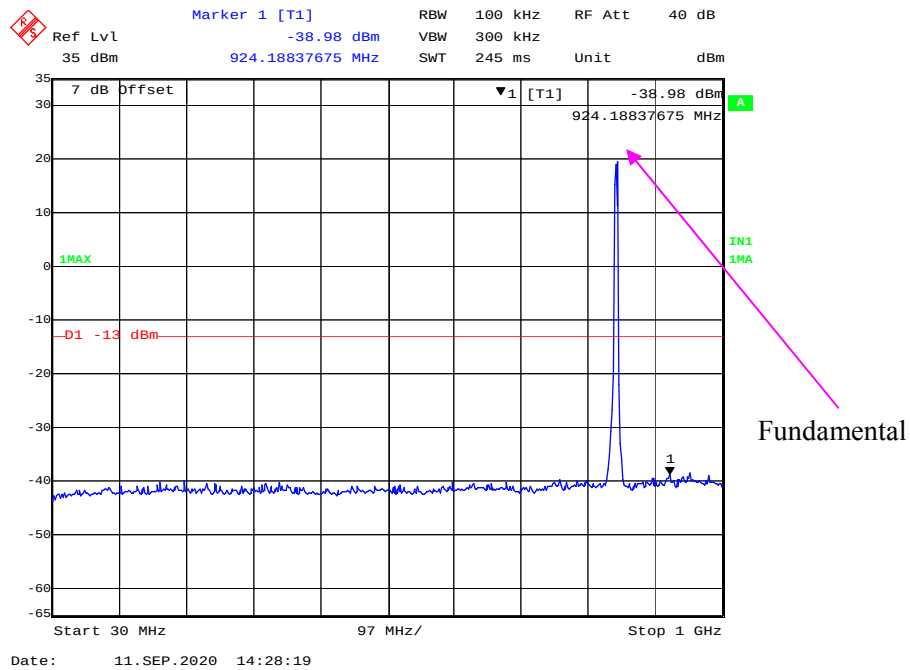
Fundamental

	Marker 1 [T1]		RBW	1 MHz	RF Att	40 dB
	Ref Lvl	-25.74 dBm	VBW	3 MHz		
	35 dBm	6.66332665 GHz	SWT	52 ms	Unit	dBm

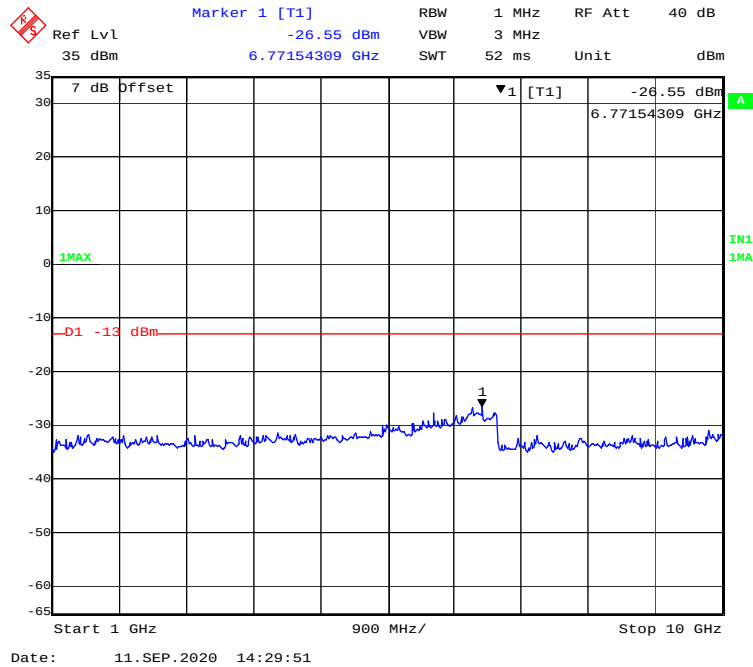


30 MHz – 1GHz WCDMA (Rel 99) Mode High Channel**1 GHz – 10 GHz WCDMA (Rel 99) Mode High Channel**

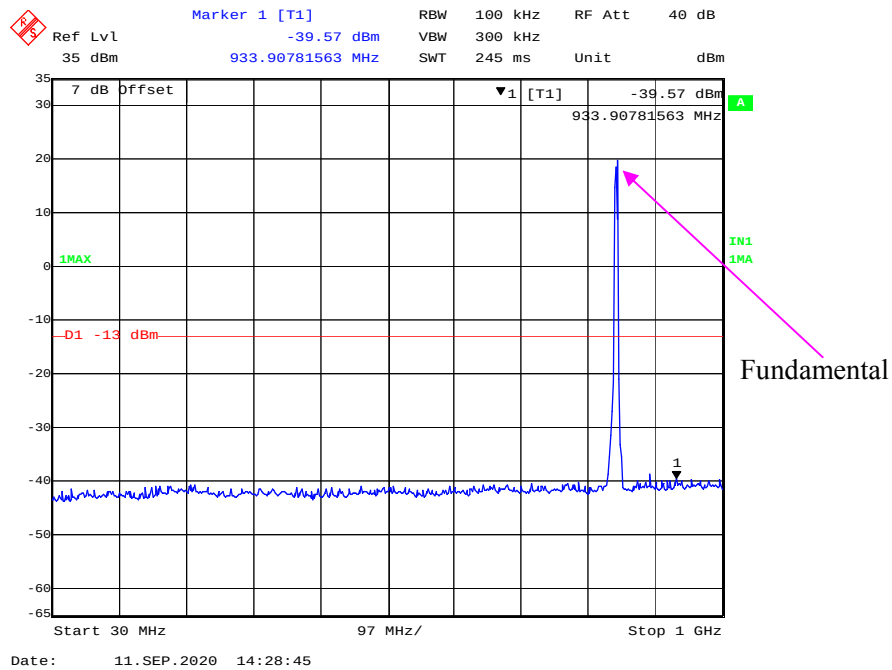
30 MHz – 1GHz WCDMA (HSDPA) Mode High Channel



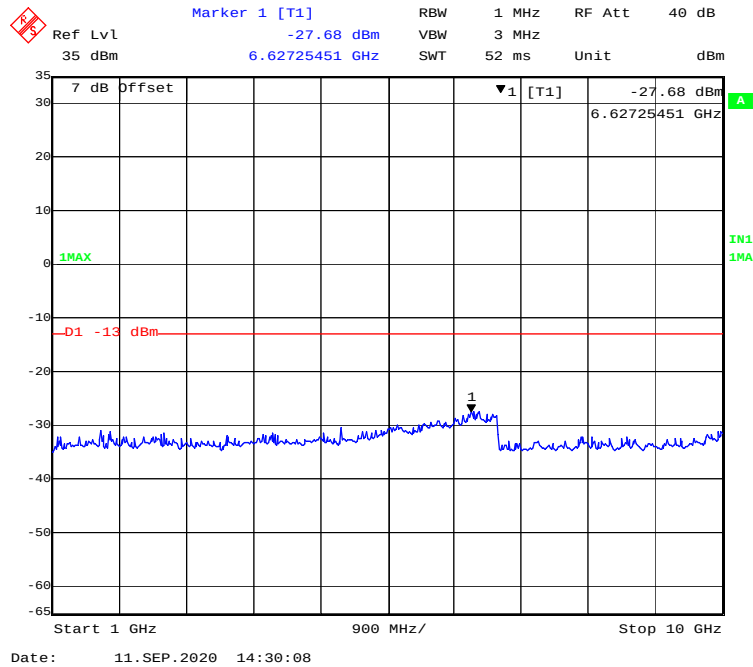
1 GHz – 10 GHz WCDMA (HSDPA) Mode High Channel



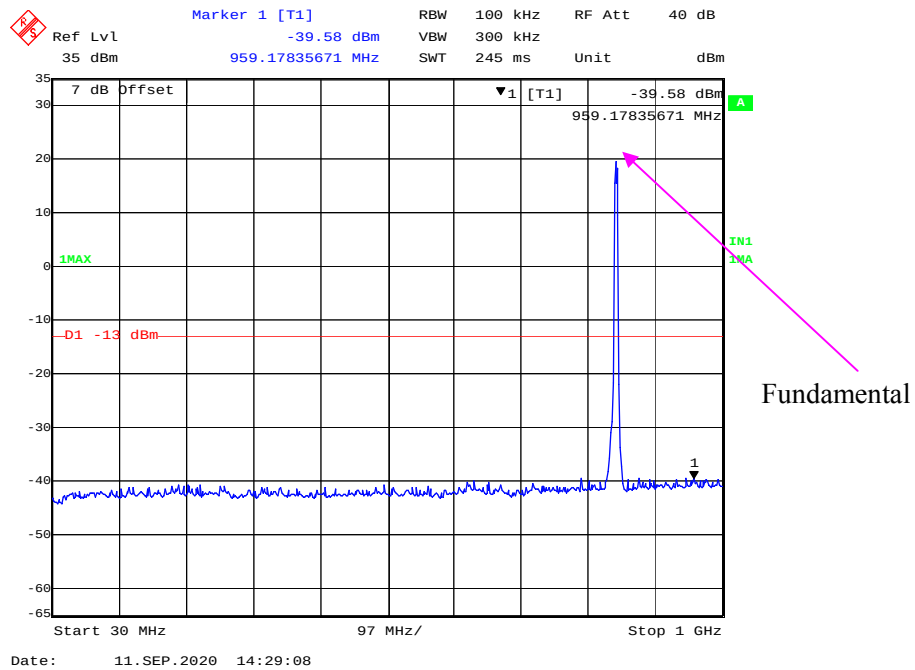
30 MHz – 1GHz WCDMA (HSUPA) Mode High Channel



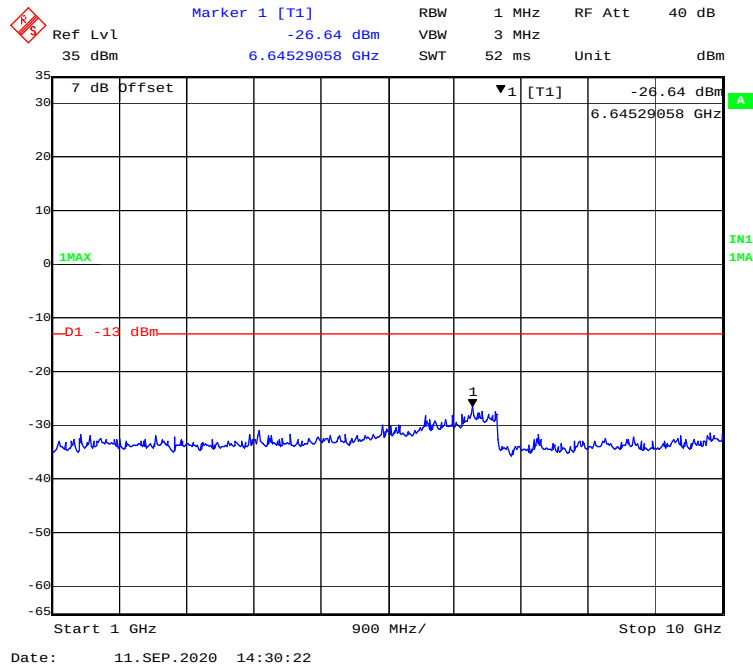
1 GHz – 10 GHz WCDMA (HSUPA) Mode High Channel



30 MHz – 1GHz WCDMA (HSPA+) Mode High Channel

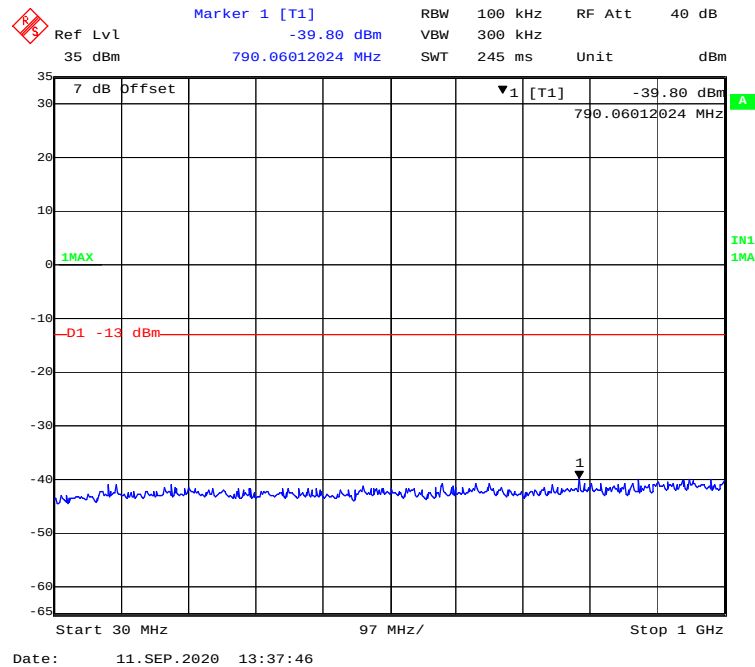


1 GHz – 10 GHz WCDMA (HSPA+) Mode High Channel

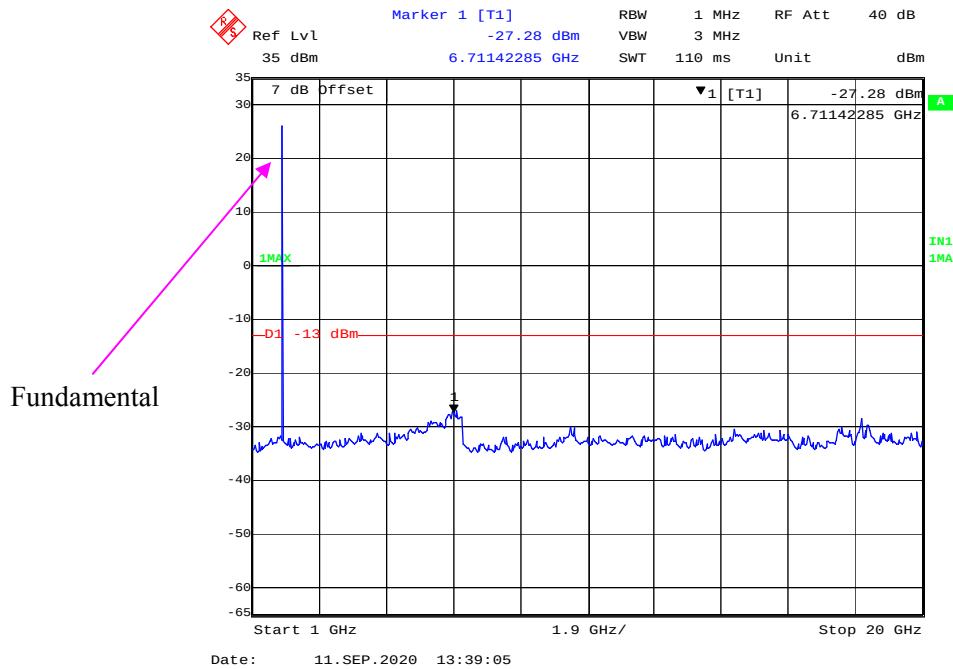


PCS 1900 Band:

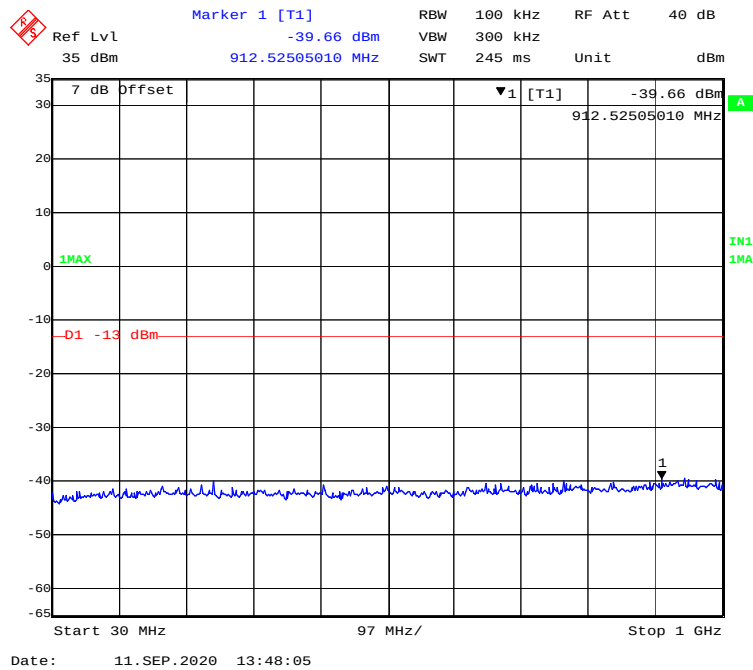
30 MHz – 1GHz(GPRS Mode) Low Channel



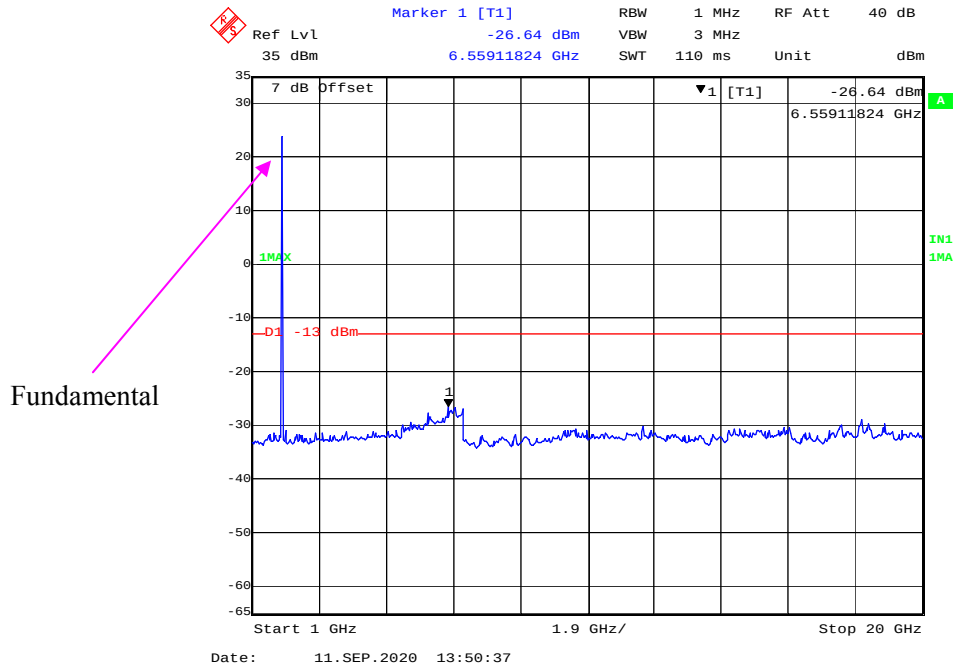
1 GHz – 20 GHz (GPRS Mode) Low Channel



30 MHz – 1GHz(EGPRS Mode) Low Channel



1 GHz – 20 GHz (EGPRS Mode) Low Channel



[illegible]

Ref Lvl 35 dBm
 RBW 1 MHz
 RF Att 40 dB
 VBW 3 MHz
 SWT 110 ms
 Unit dBm

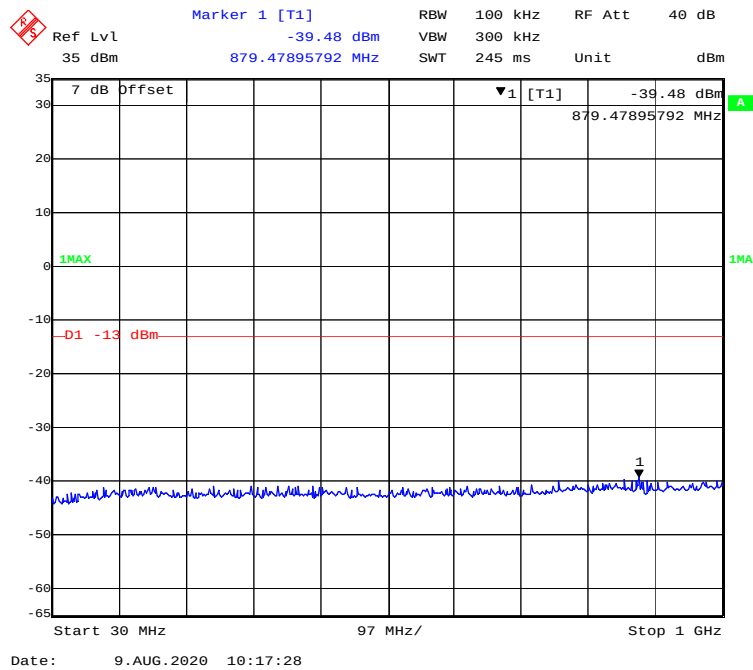
Marker 1 [T1]
 -27.40 dBm
 6.55911824 GHz

Start 1 GHz
 1.9 GHz/
 Stop 20 GHz

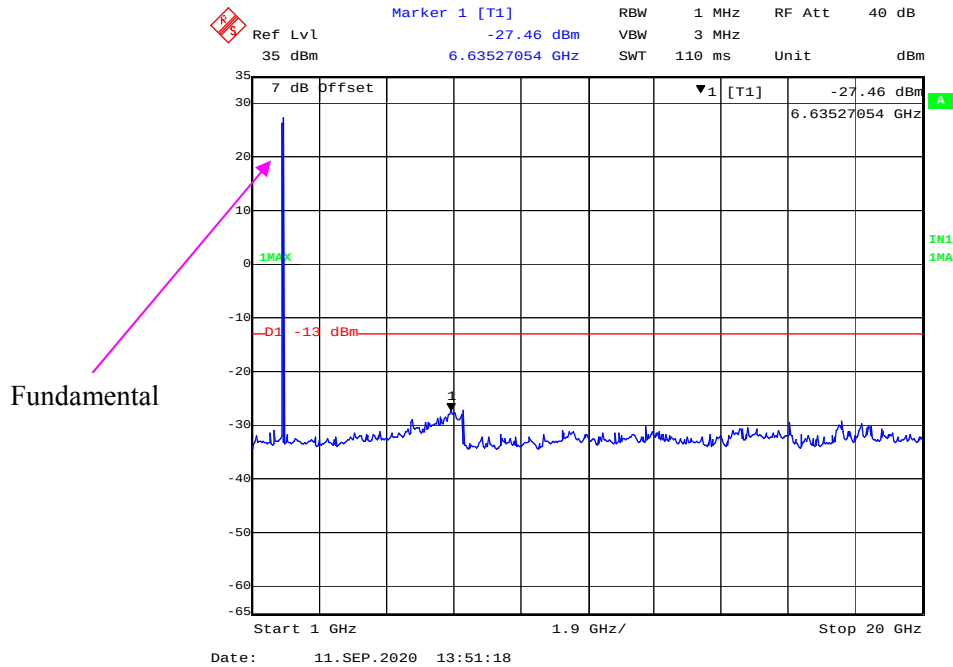
Date: 11.SEP.2020 13:39:58

Fundamental

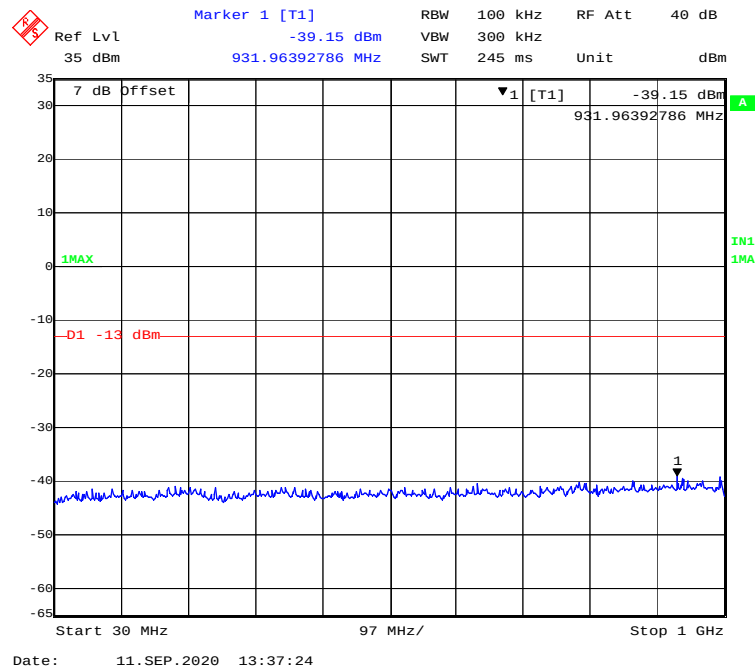
30 MHz – 1GHz(EGPRS Mode) Middle Channel



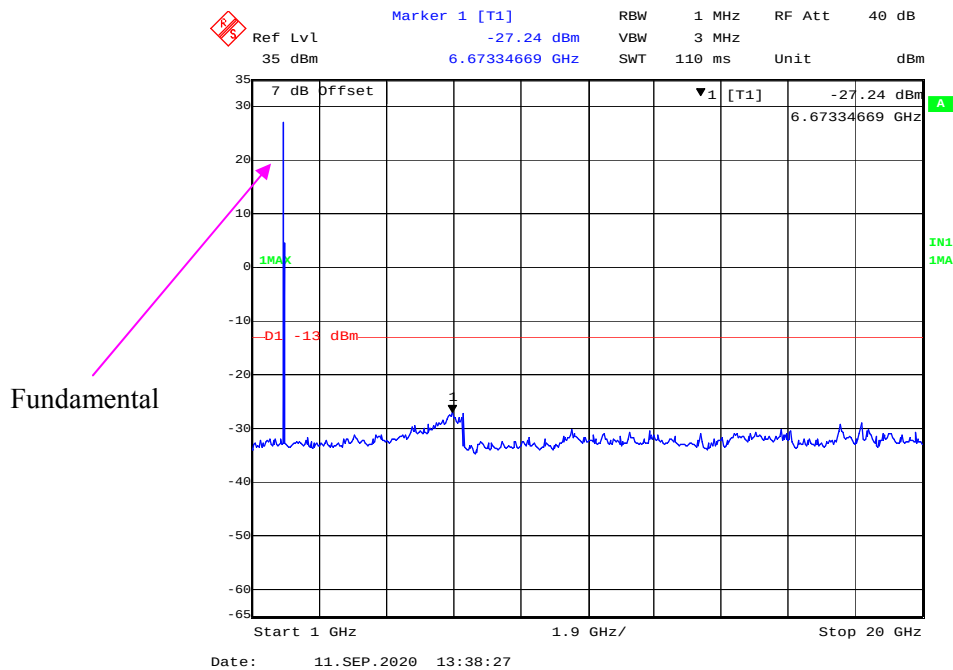
1 GHz – 20 GHz (EGPRS Mode) Middle Channel



30 MHz – 1GHz(GPRS Mode) High Channel



1 GHz – 20 GHz (GPRS Mode) High Channel



The screenshot displays a spectrum analyzer interface. At the top, a red 'A' icon is in the upper left corner. The main display area shows a blue trace representing the noise floor, which is relatively flat at approximately -46 dBm. A horizontal red line is drawn across the screen at -13 dBm, labeled '-D1 -13 dBm'. A vertical purple line is positioned at 988.33667335 MHz, labeled 'Marker 1 [T1]'. The top status bar shows various settings: 'Ref Lvl 35 dBm', 'RBW 100 kHz', 'RF Att 40 dB', 'VBW 300 kHz', 'SWT 245 ms', 'Unit dBm', and '988.33667335 MHz'. The bottom status bar shows 'Start 30 MHz', '97 MHz/', and 'Stop 1 GHz'. The date and time 'Date: 11.SEP.2020 13:48:28' are displayed at the very bottom.

Ref Lvl 35 dBm RBW 1 MHz RF Att 40 dB
 VBW 3 MHz SWT 110 ms Unit dBm

Marker 1 [T1]
 -26.27 dBm
 6.63527054 GHz

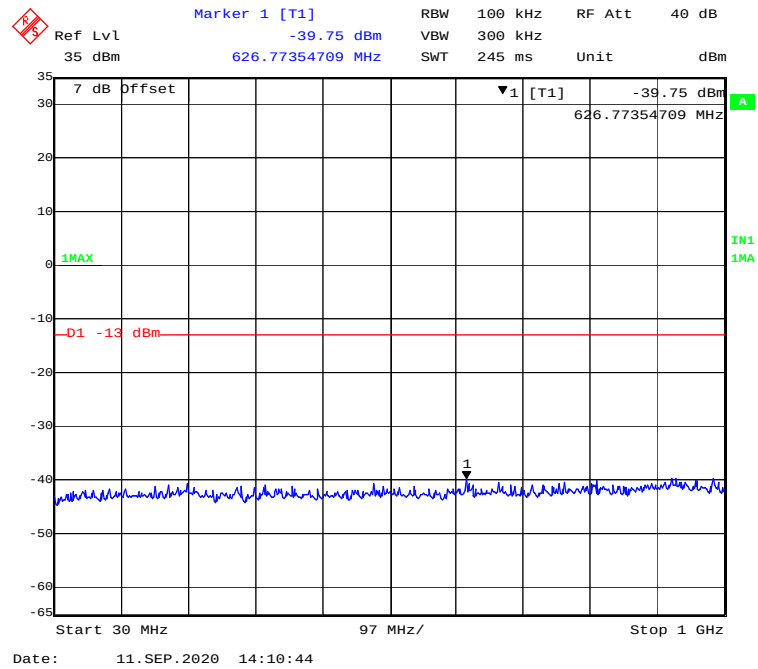
Start 1 GHz 1.9 GHz/ Stop 20 GHz

Date: 11.SEP.2020 13:49:40

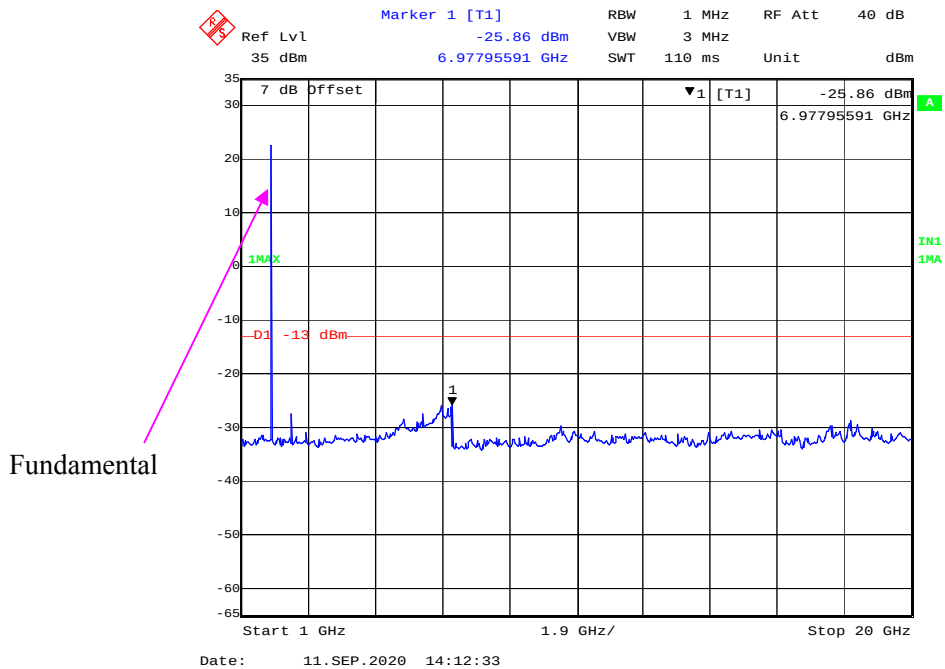
Fundamental

WCDMA Band II:

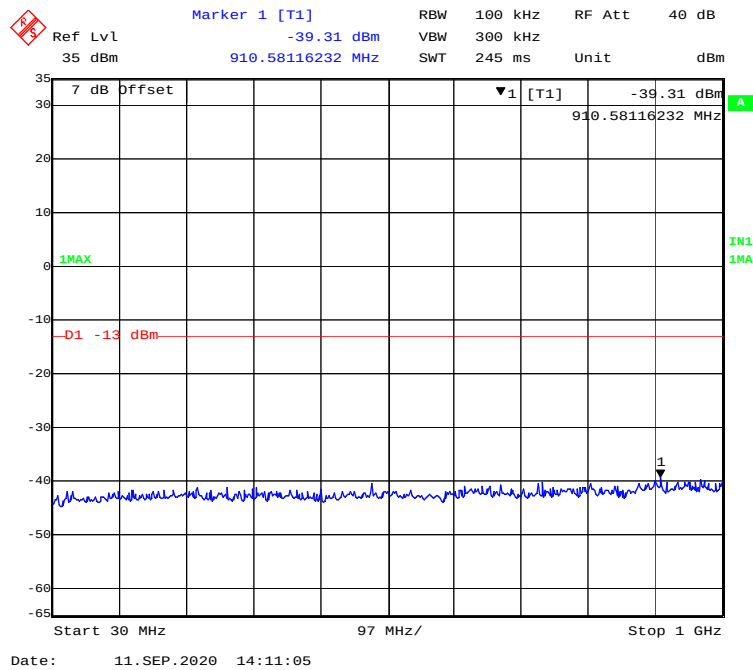
30 MHz – 1GHz WCDMA (Rel 99) Mode Low Channel



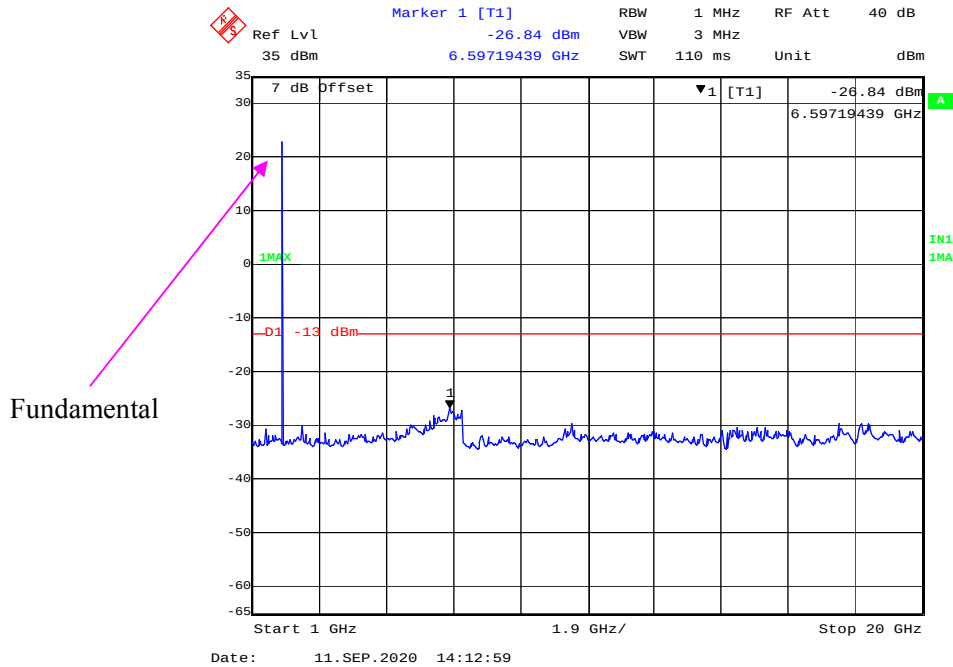
1 GHz – 20 GHz WCDMA (Rel 99) Mode Low Channel



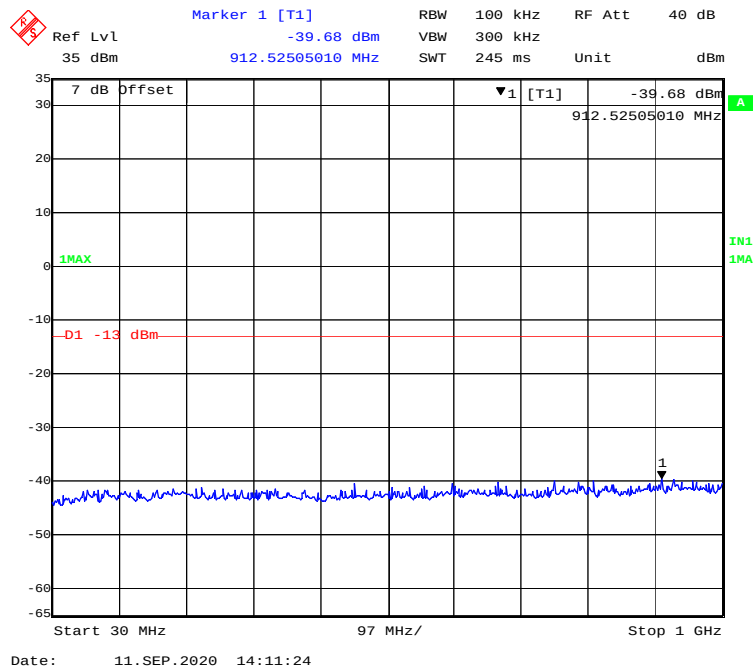
30 MHz – 1GHz WCDMA (HSDPA) Mode Low Channel



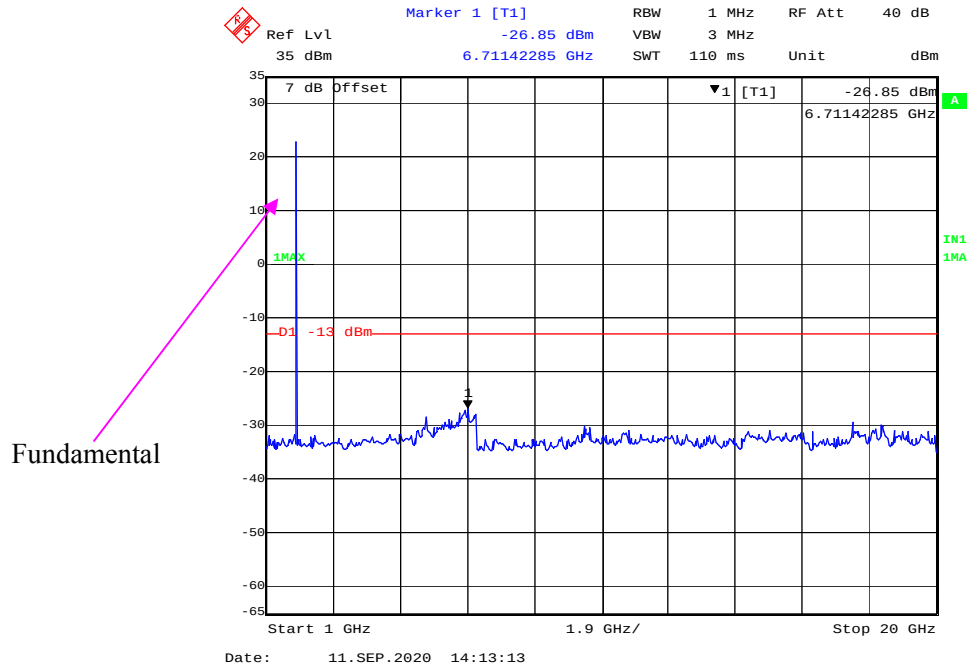
1 GHz – 20 GHz WCDMA (HSDPA) Mode Low Channel



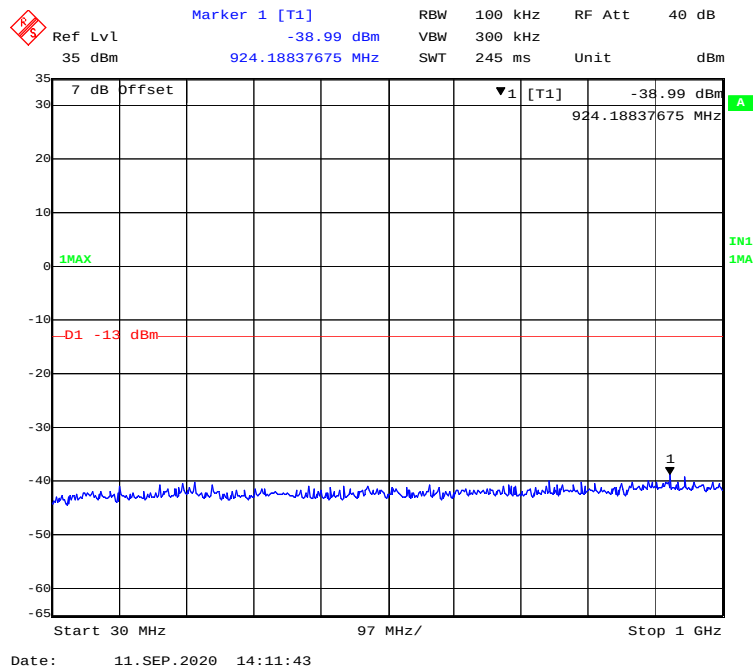
30 MHz – 1GHz WCDMA (HSUPA) Mode Low Channel



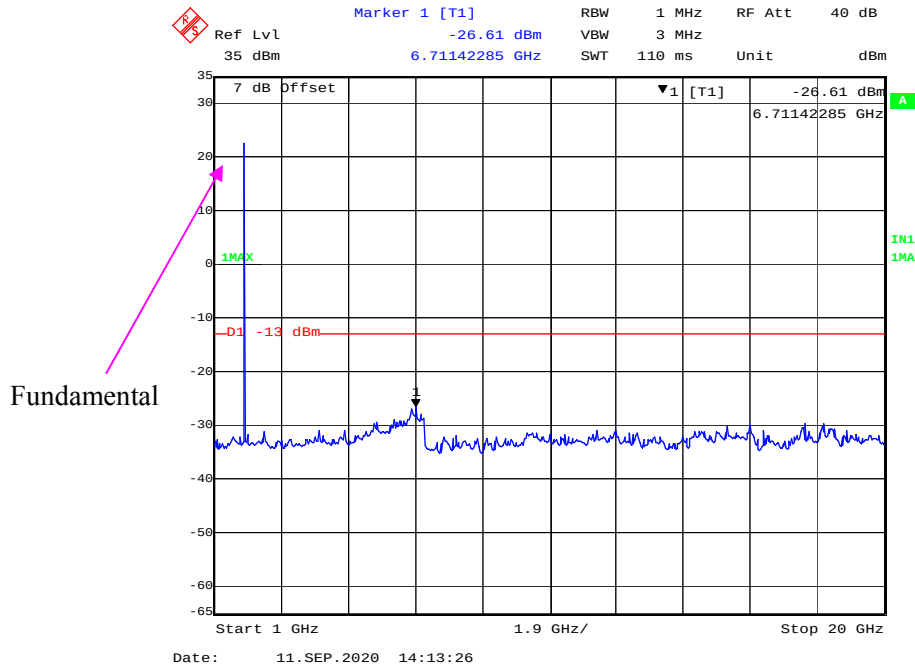
1 GHz – 20 GHz WCDMA (HSUPA) Mode Low Channel



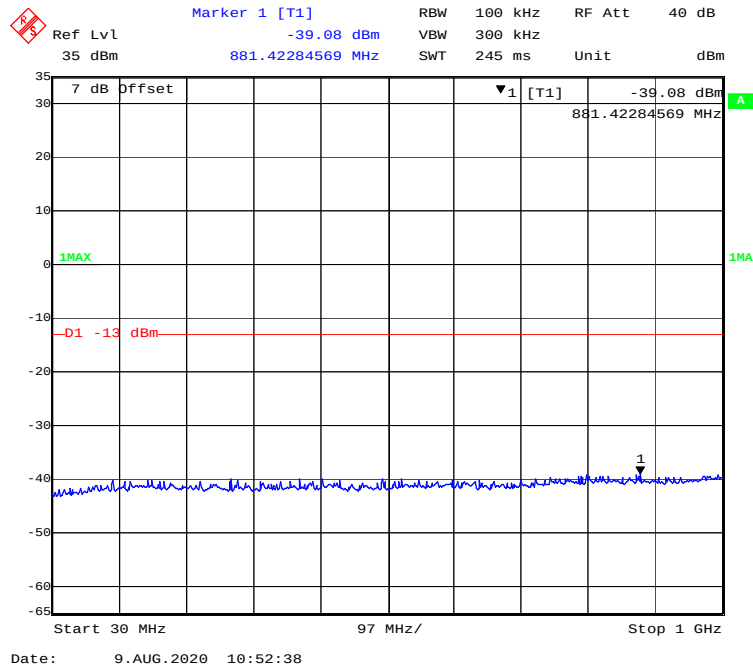
30 MHz – 1GHz WCDMA (HSPA+) Mode Low Channel



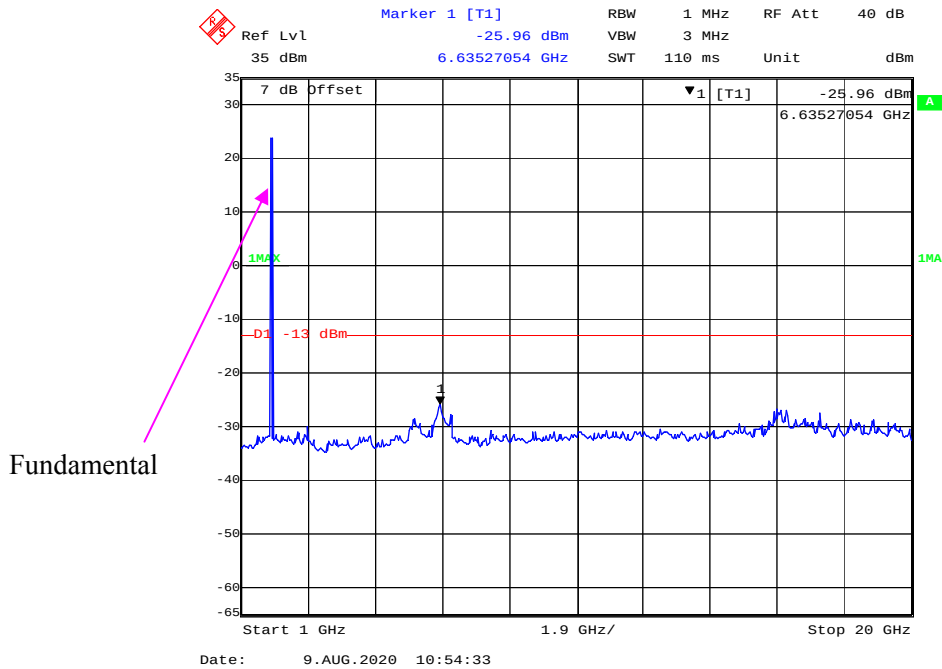
1 GHz – 20 GHz WCDMA (HSPA+) Mode Low Channel



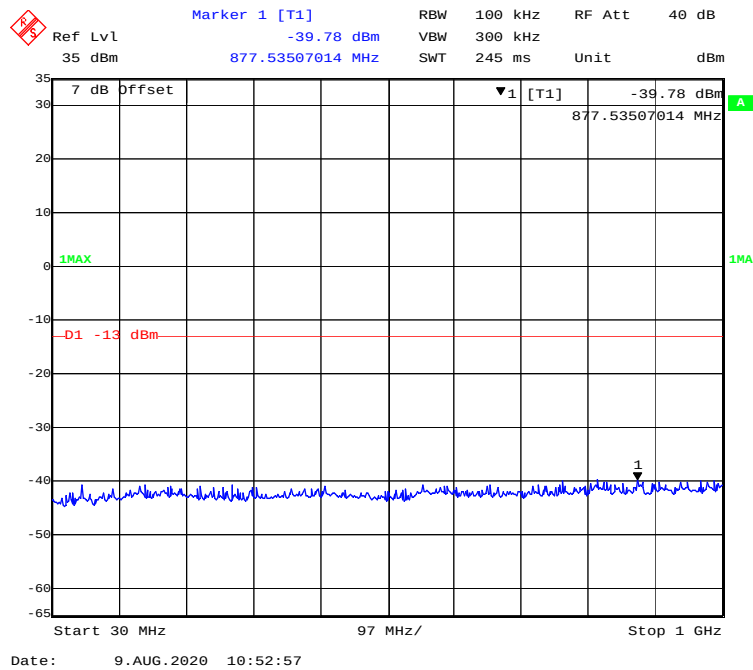
30 MHz – 1GHz WCDMA (Rel 99) Mode Middle Channel



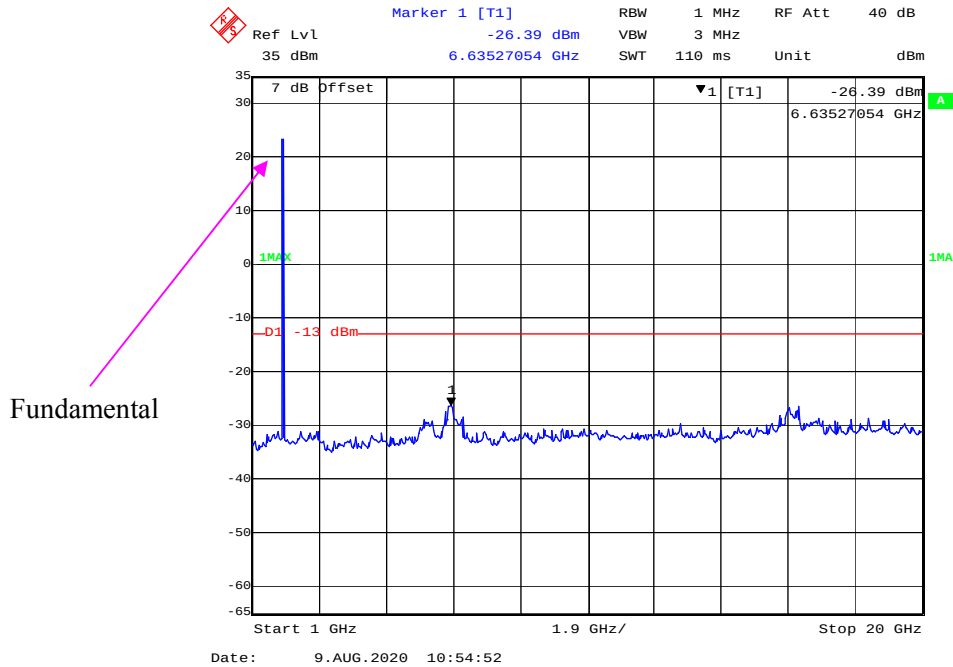
1 GHz – 20 GHz WCDMA (Rel 99) Mode Middle Channel



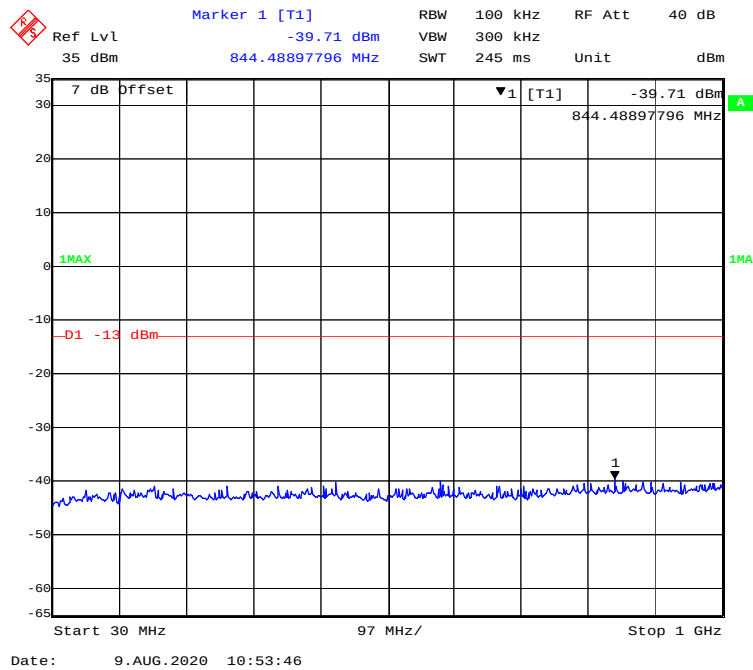
30 MHz – 1GHz WCDMA (HSDPA) Mode Middle Channel



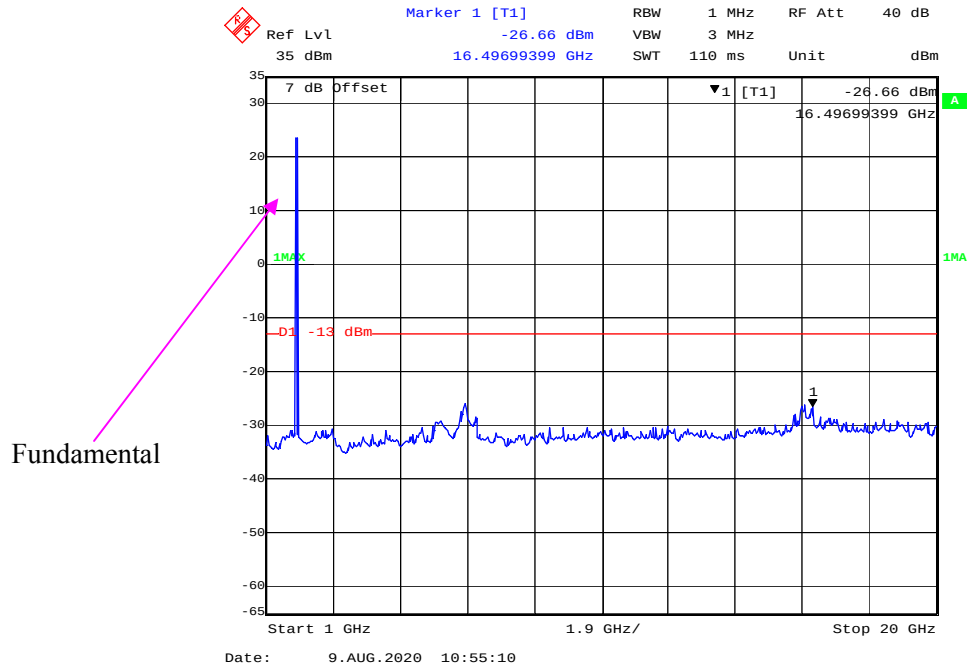
1 GHz – 20 GHz WCDMA (HSDPA) Mode Middle Channel



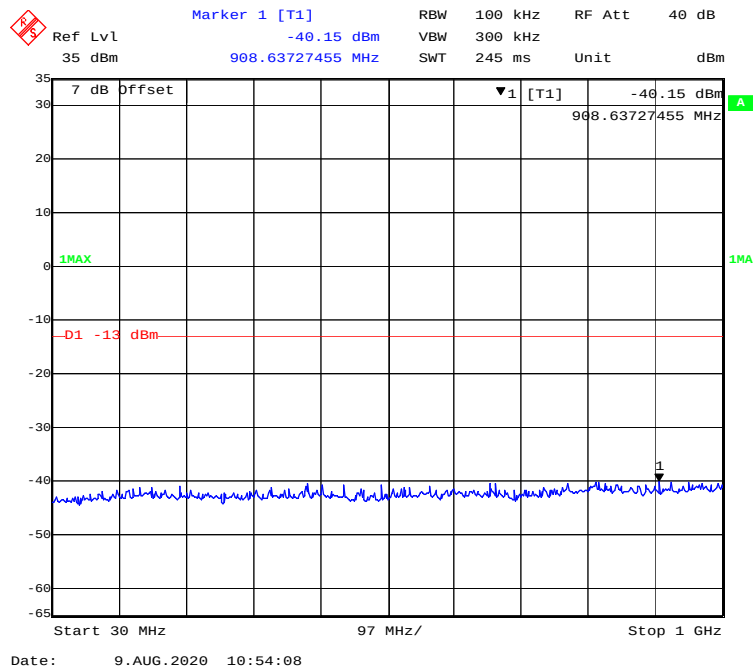
30 MHz – 1GHz WCDMA (HSUPA) Mode Middle Channel



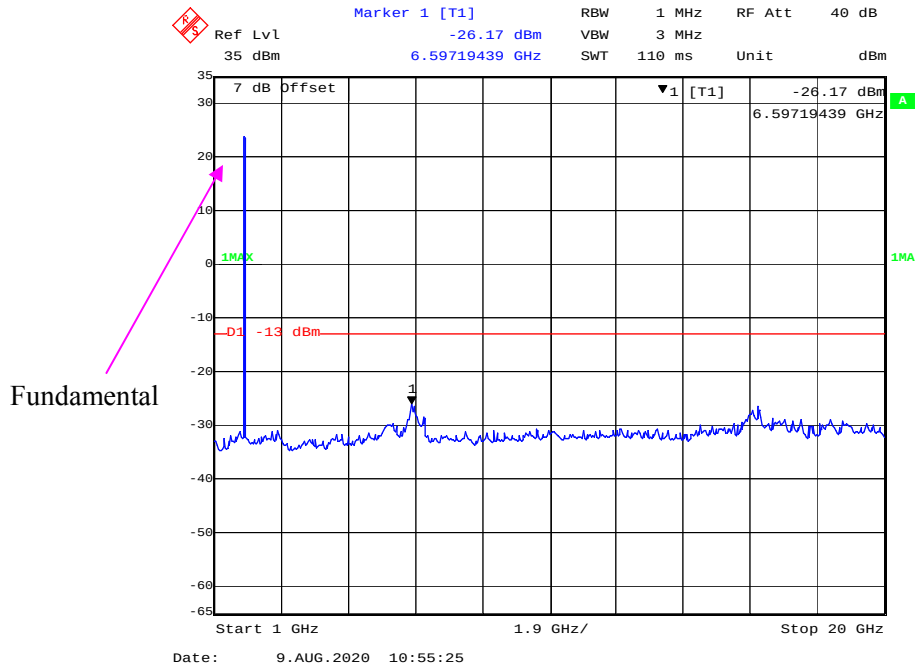
1 GHz – 20 GHz WCDMA (HSUPA) Mode Middle Channel



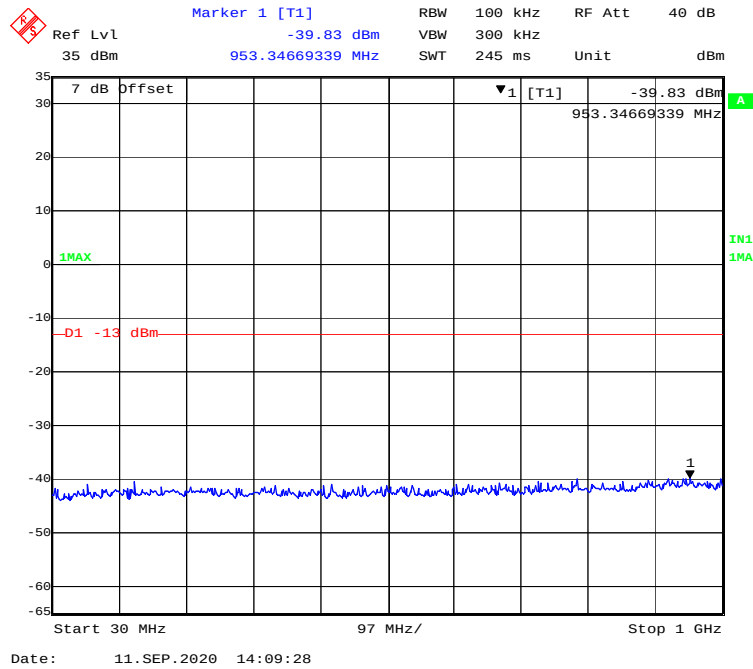
30 MHz – 1GHz WCDMA (HSPA+) Mode Middle Channel



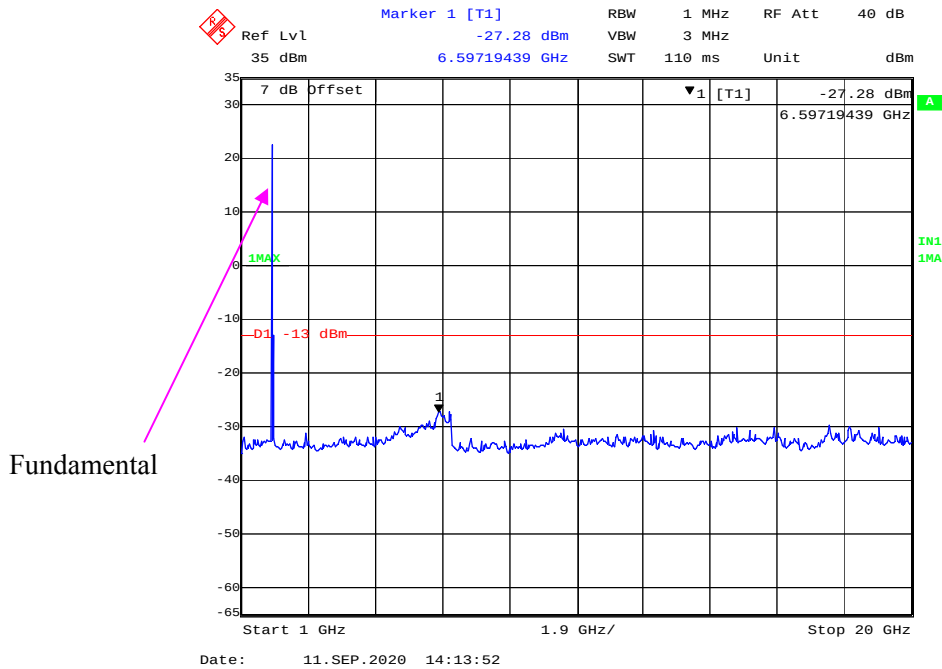
1 GHz – 20 GHz WCDMA (HSPA+) Mode Middle Channel



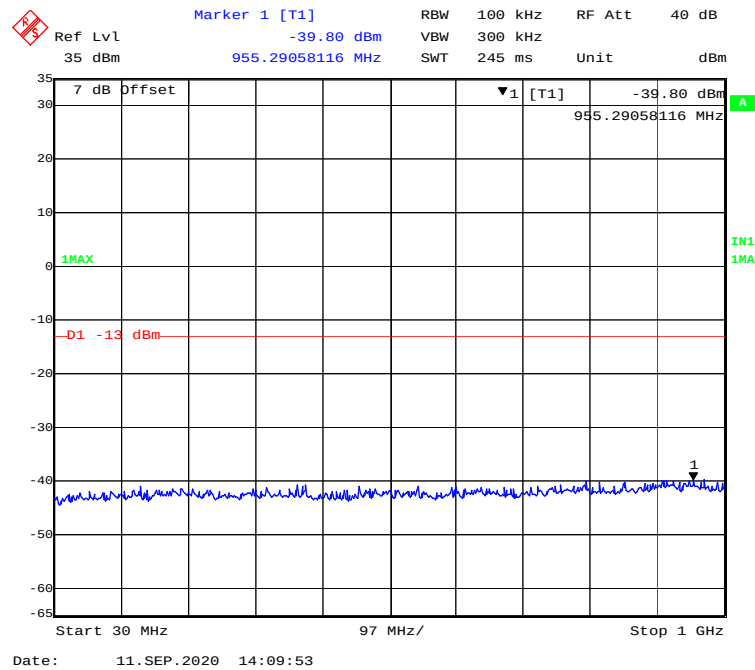
30 MHz – 1GHz WCDMA (Rel 99) Mode High Channel



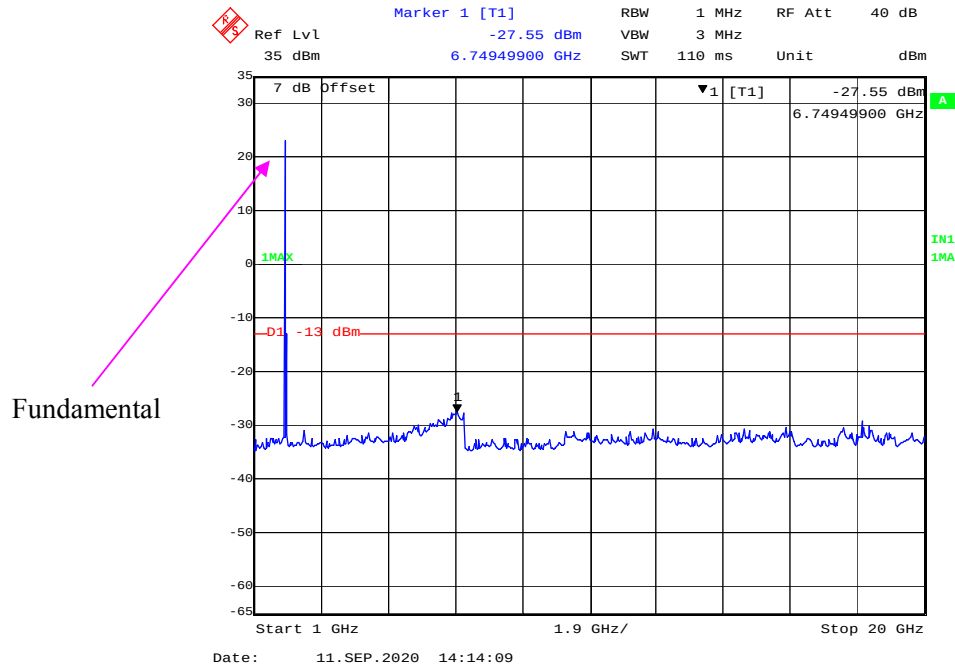
1 GHz – 20 GHz WCDMA (Rel 99) Mode High Channel

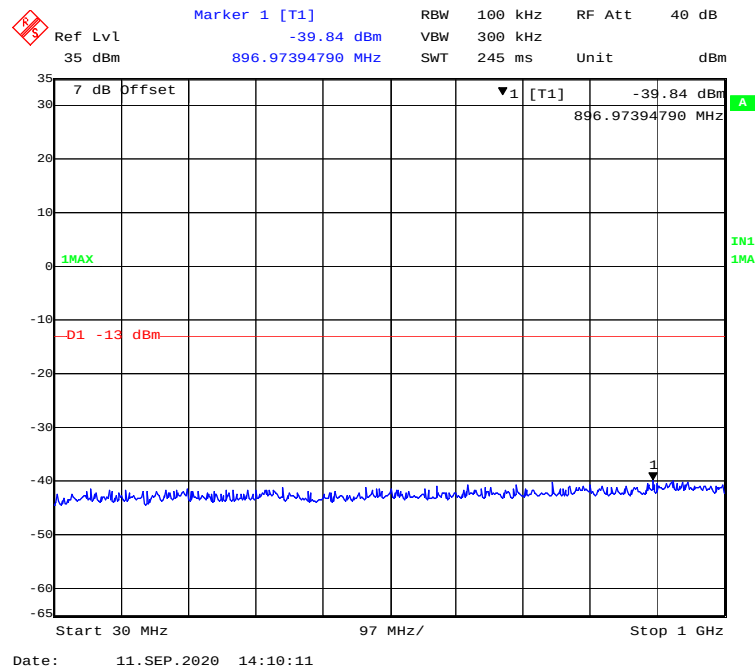
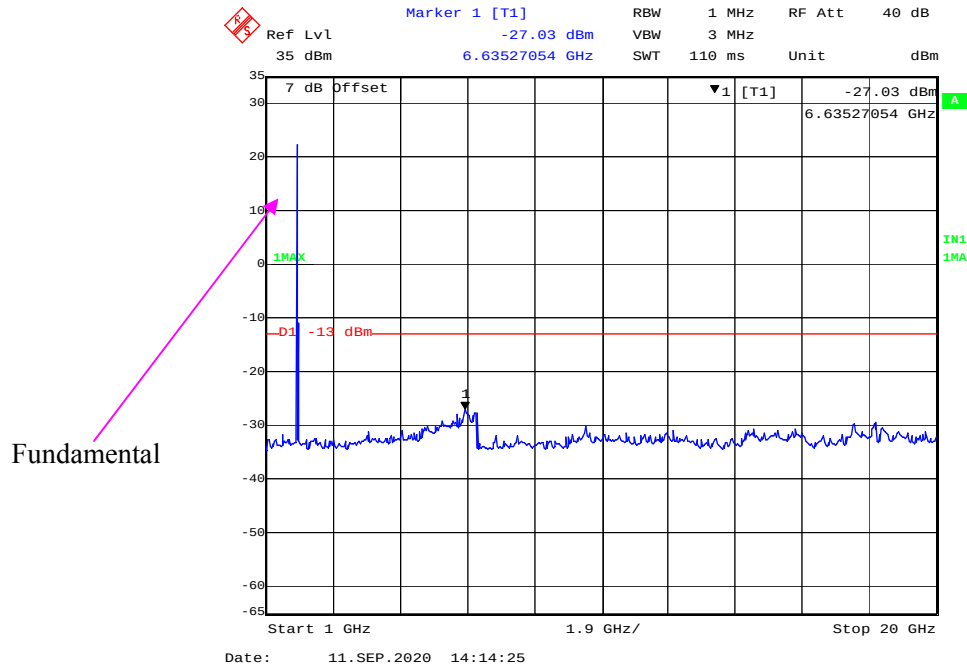


30 MHz – 1GHz WCDMA (HSDPA) Mode High Channel

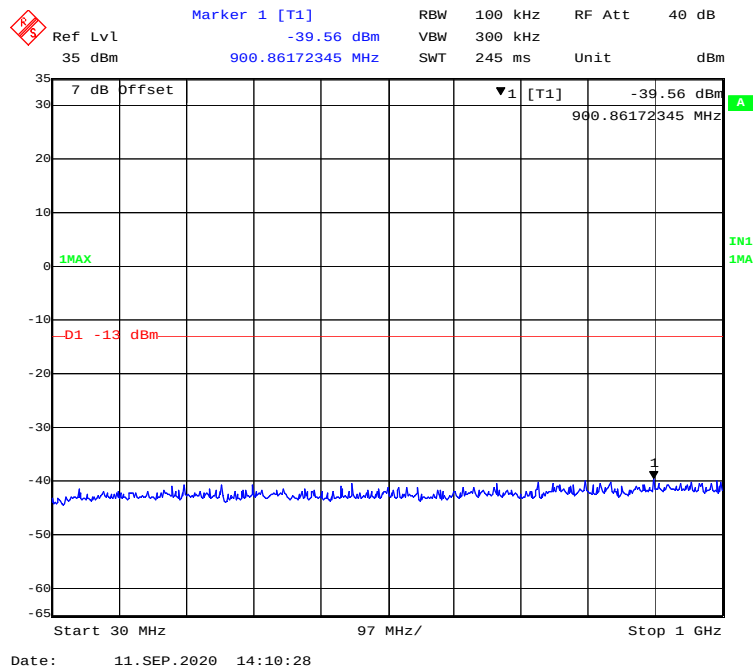


1 GHz – 20 GHz WCDMA (HSDPA) Mode High Channel

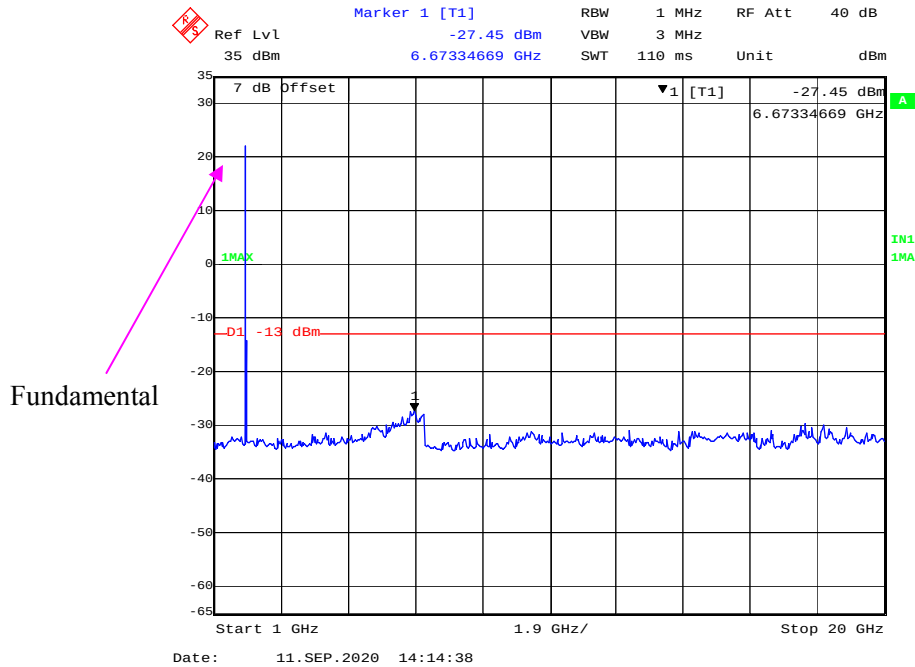


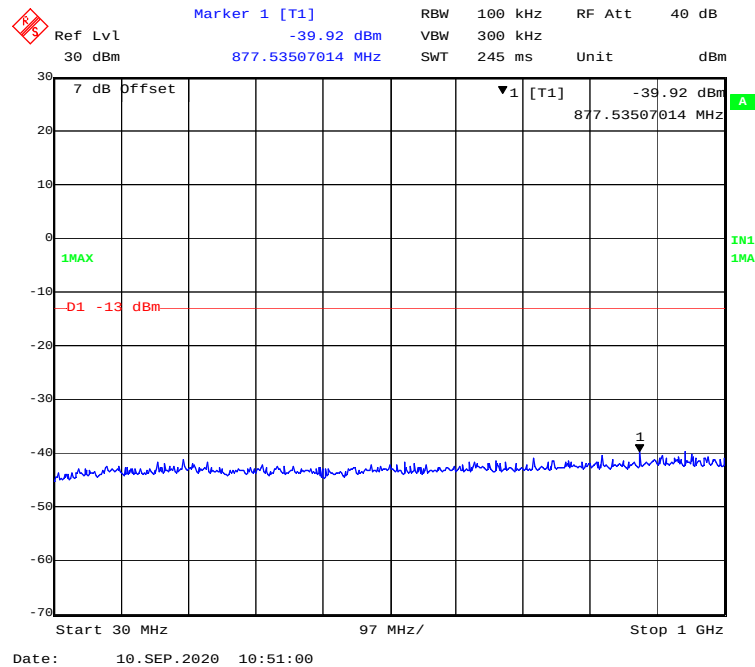
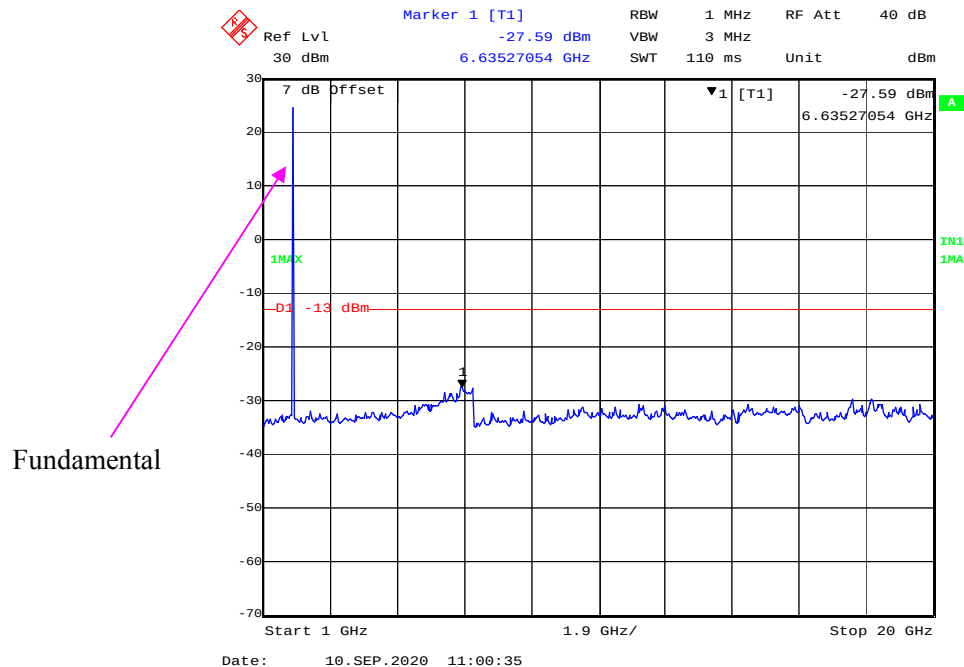
30 MHz – 1GHz WCDMA (HSUPA) Mode High Channel**1 GHz – 20 GHz WCDMA (HSUPA) Mode High Channel**

30 MHz – 1GHz WCDMA (HSPA+) Mode High Channel

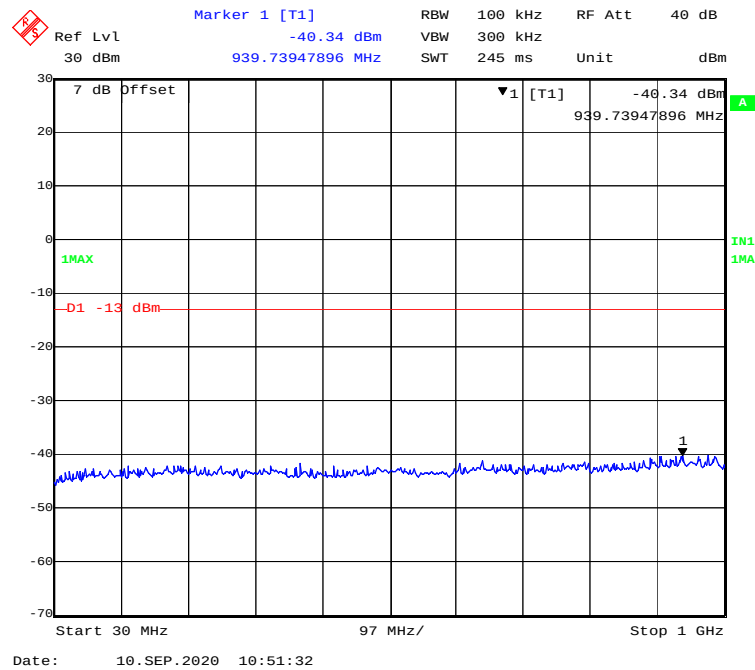


1 GHz – 20 GHz WCDMA (HSPA+) Mode High Channel

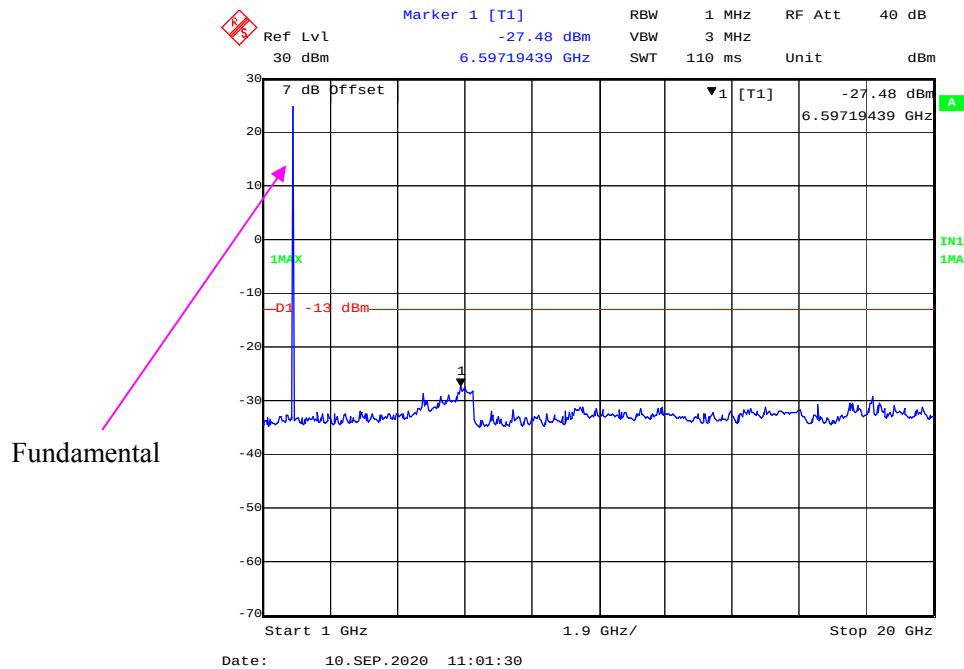


LTE Band 2:**30 MHz – 1 GHz (1.4 MHz, QPSK, Low Channel)****1 GHz – 20 GHz (1.4 MHz, QPSK, Low Channel)**

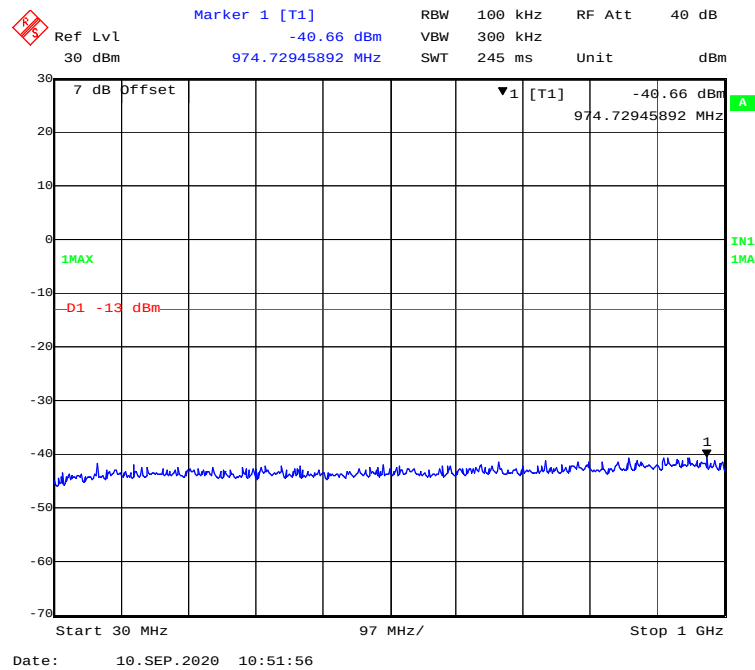
30 MHz – 1 GHz (1.4 MHz, 16-QAM, Low Channel)



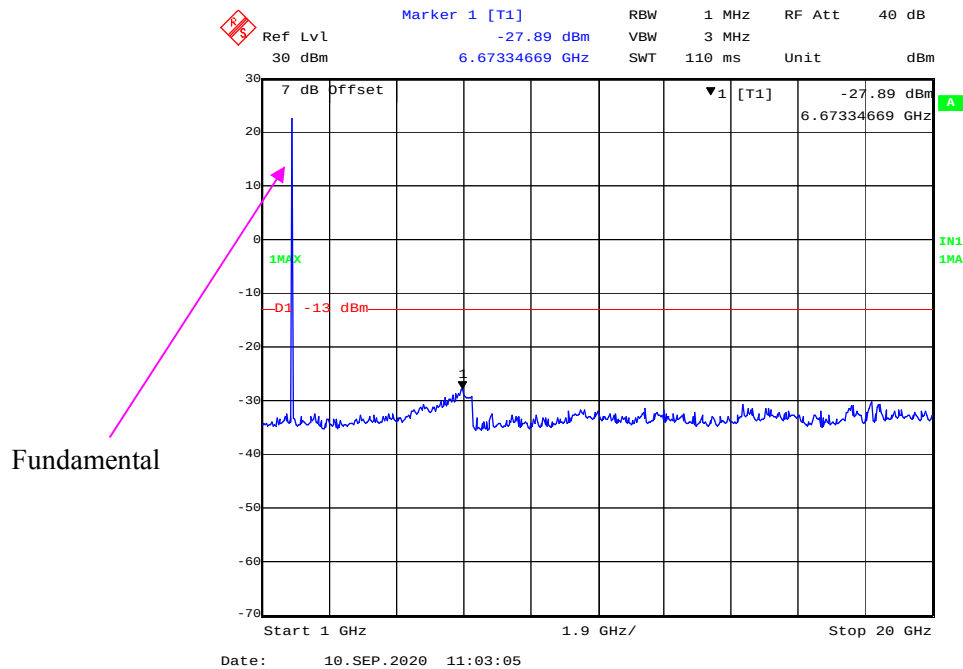
1 GHz – 20 GHz (1.4 MHz, 16-QAM, Low Channel)



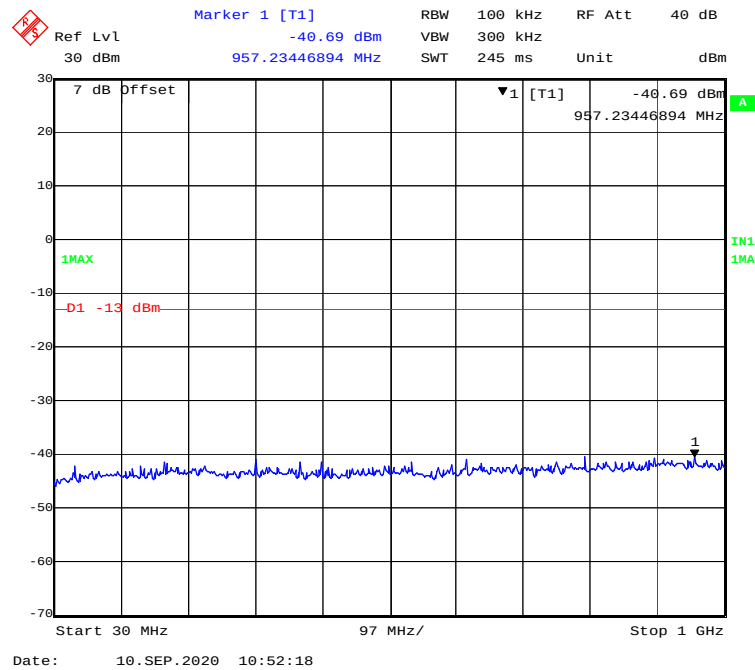
30 MHz – 1 GHz (3 MHz, QPSK, Low Channel)



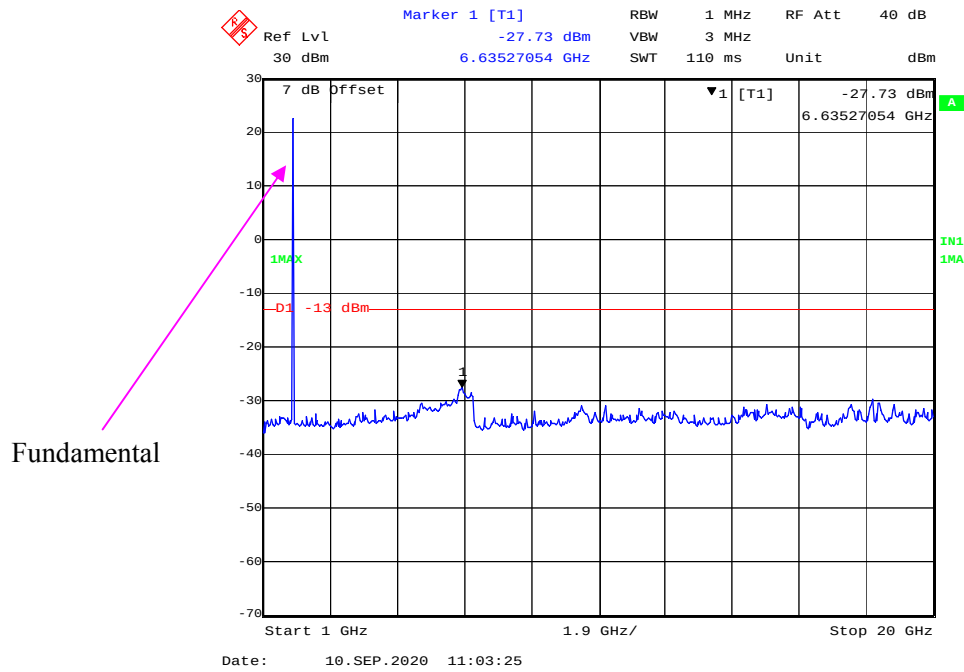
1 GHz – 20 GHz (3 MHz, QPSK, Low Channel)



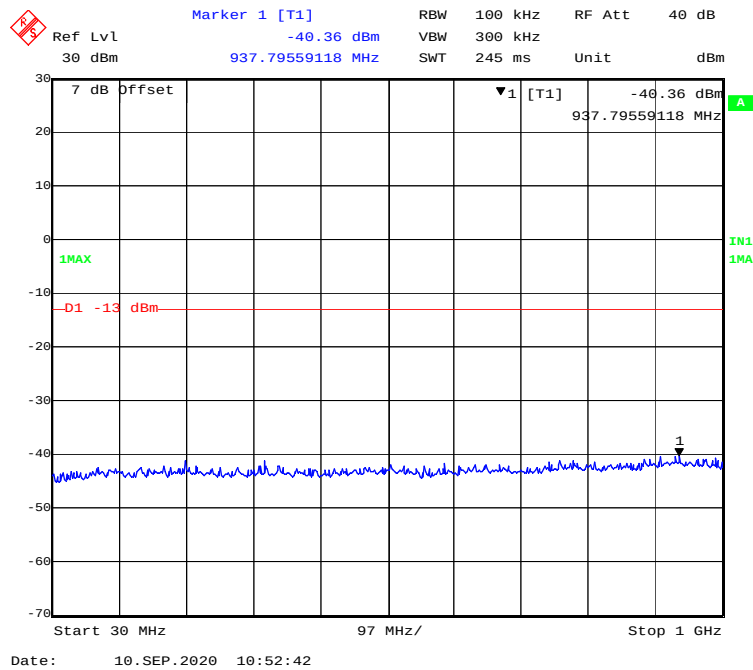
30 MHz – 1 GHz (3 MHz, 16-QAM, Low Channel)



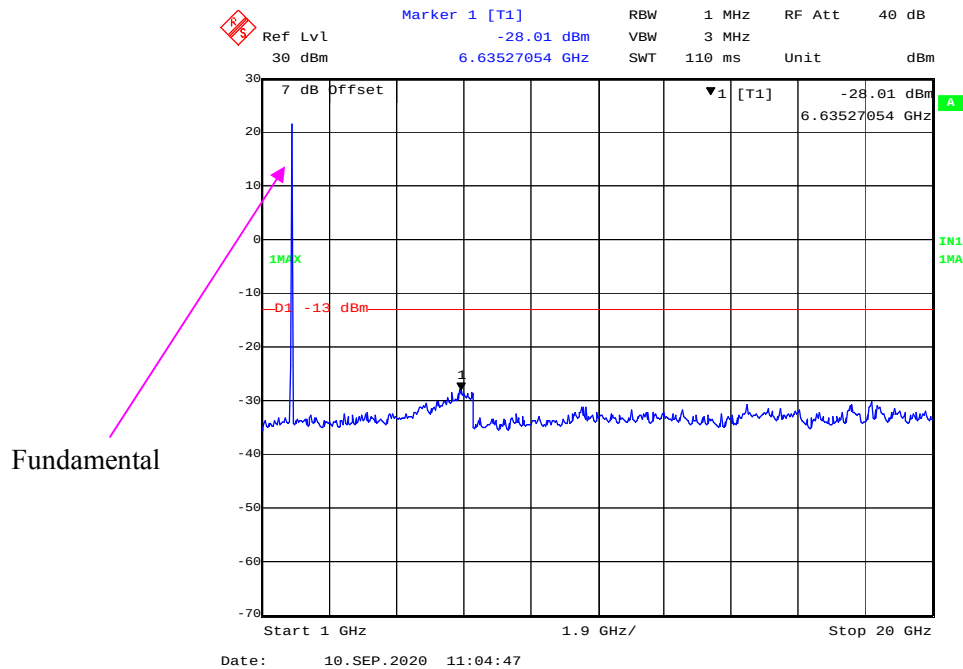
1 GHz – 20 GHz (3 MHz, 16-QAM, Low Channel)



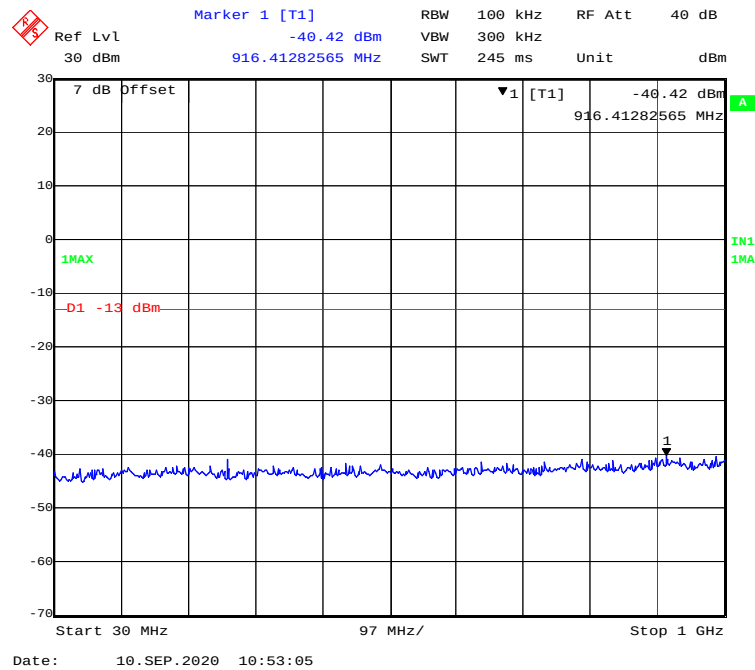
30 MHz – 1 GHz (5 MHz, QPSK, Low Channel)



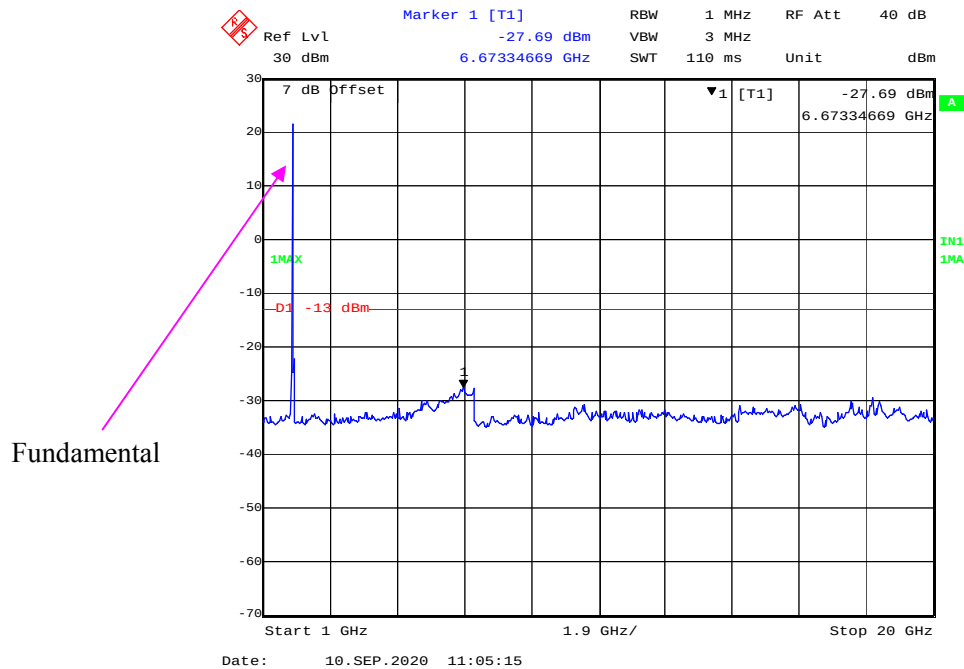
1 GHz – 20 GHz (5 MHz, QPSK, Low Channel)



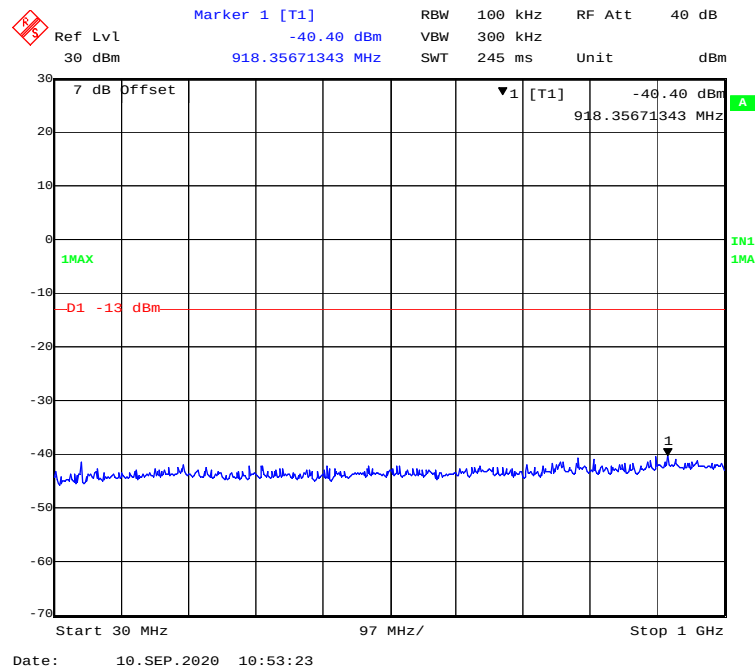
30 MHz – 1 GHz (5 MHz, 16-QAM, Low Channel)



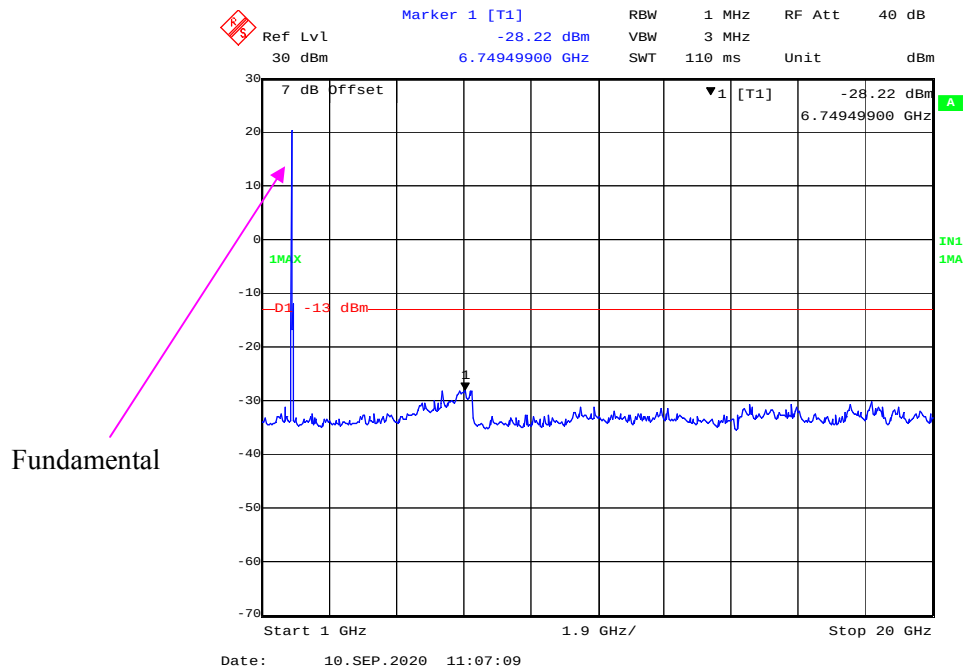
1 GHz – 20 GHz (5 MHz, 16-QAM, Low Channel)



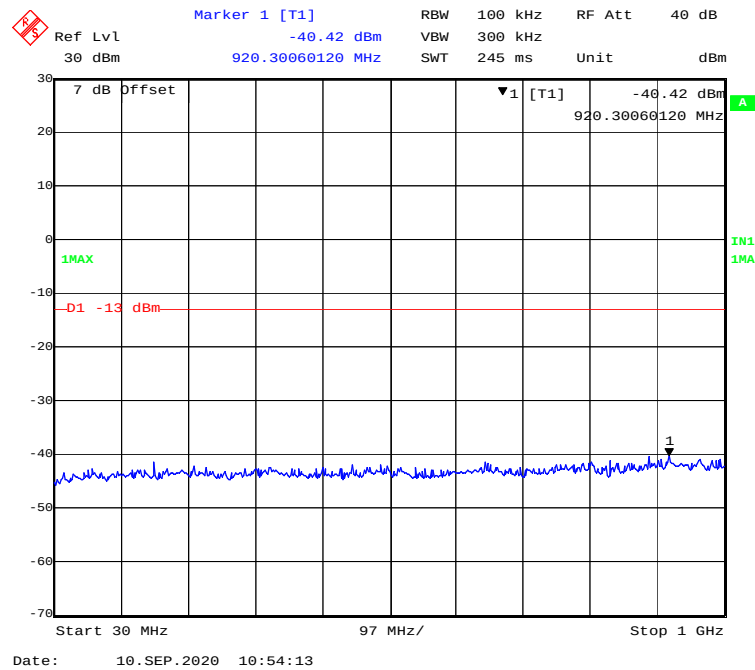
30 MHz – 1 GHz (10 MHz, QPSK, Low Channel)



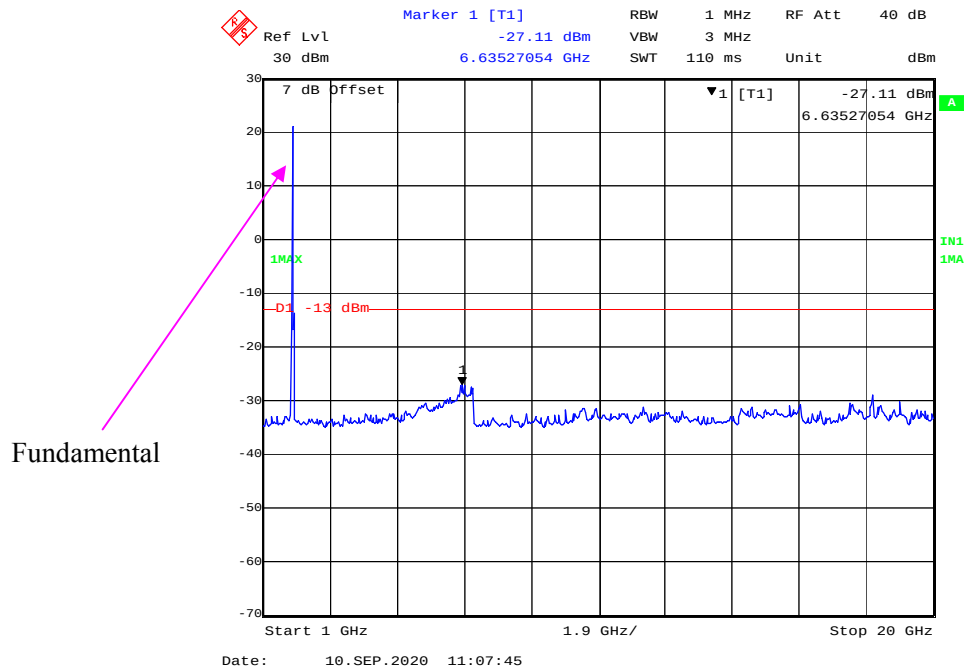
1 GHz – 20 GHz (10 MHz, QPSK, Low Channel)



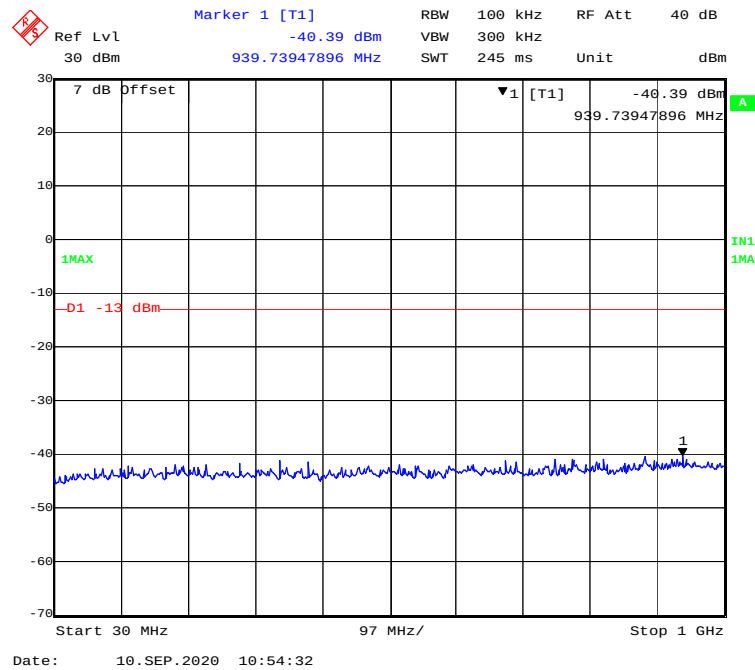
30 MHz – 1 GHz (10 MHz, 16-QAM, Low Channel)



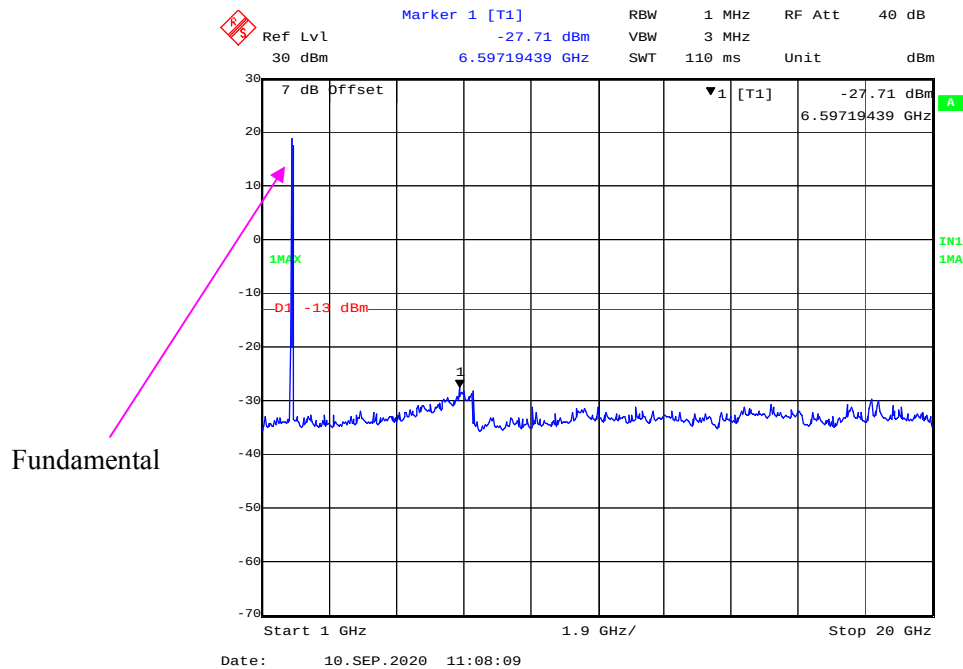
1 GHz – 20 GHz (10 MHz, 16-QAM, Low Channel)



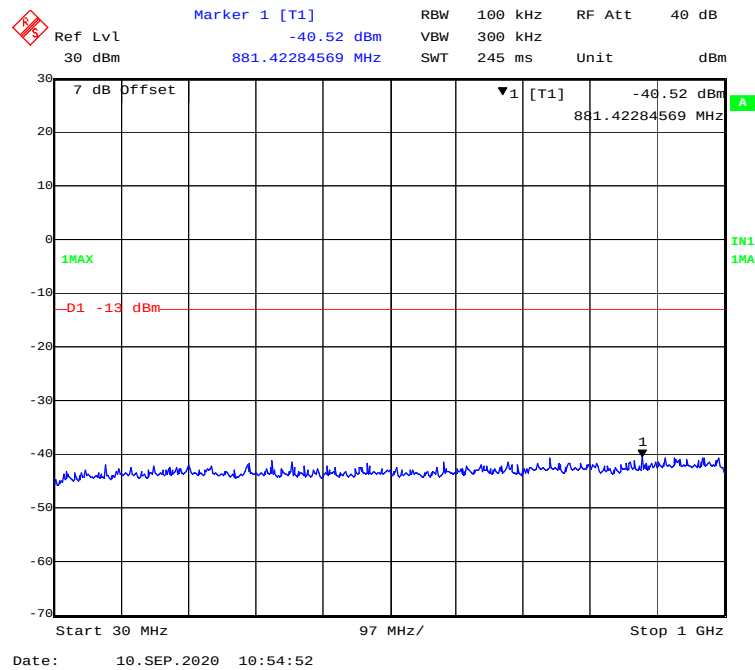
30 MHz – 1 GHz (15 MHz, QPSK, Low Channel)



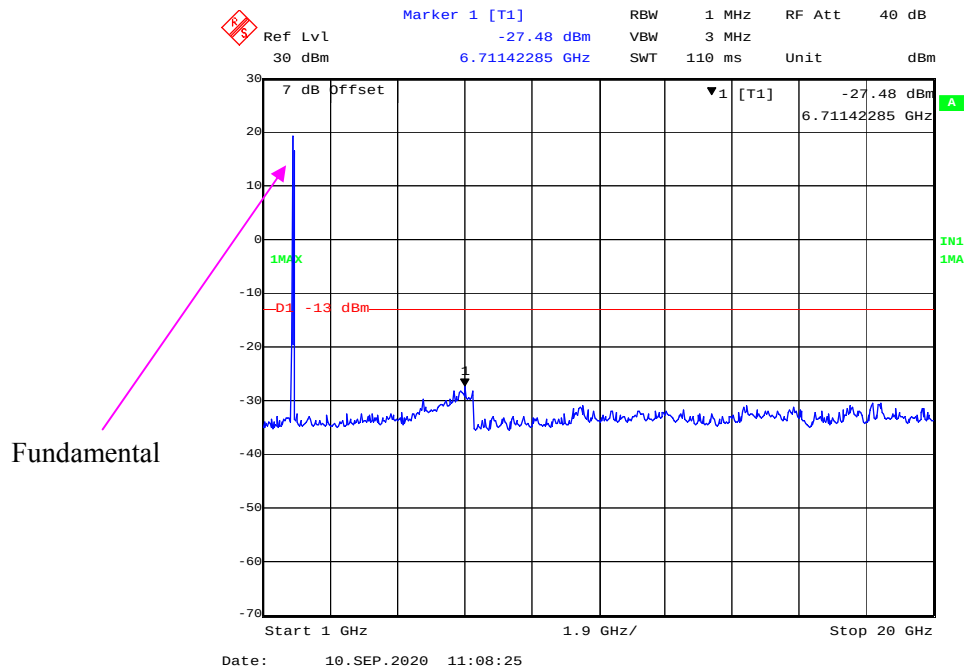
1 GHz – 20 GHz (15 MHz, QPSK, Low Channel)



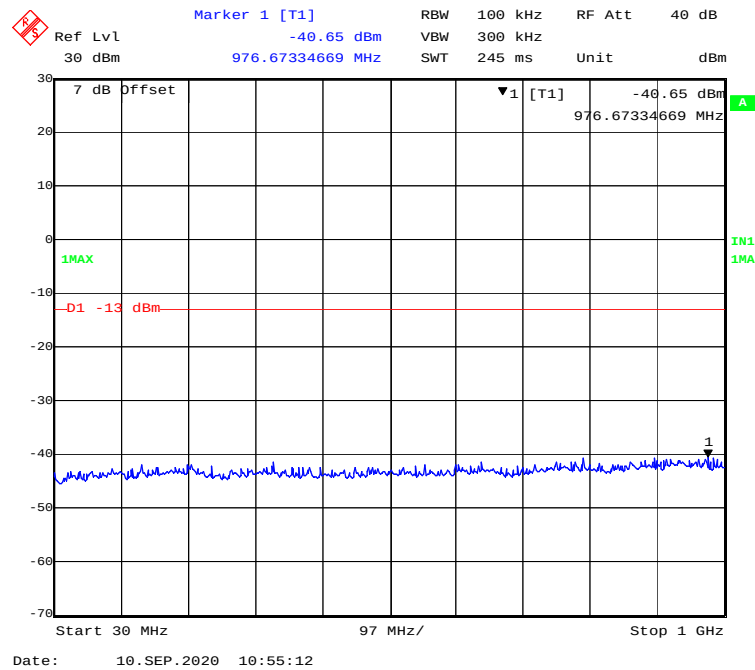
30 MHz – 1 GHz (15 MHz, 16-QAM, Low Channel)



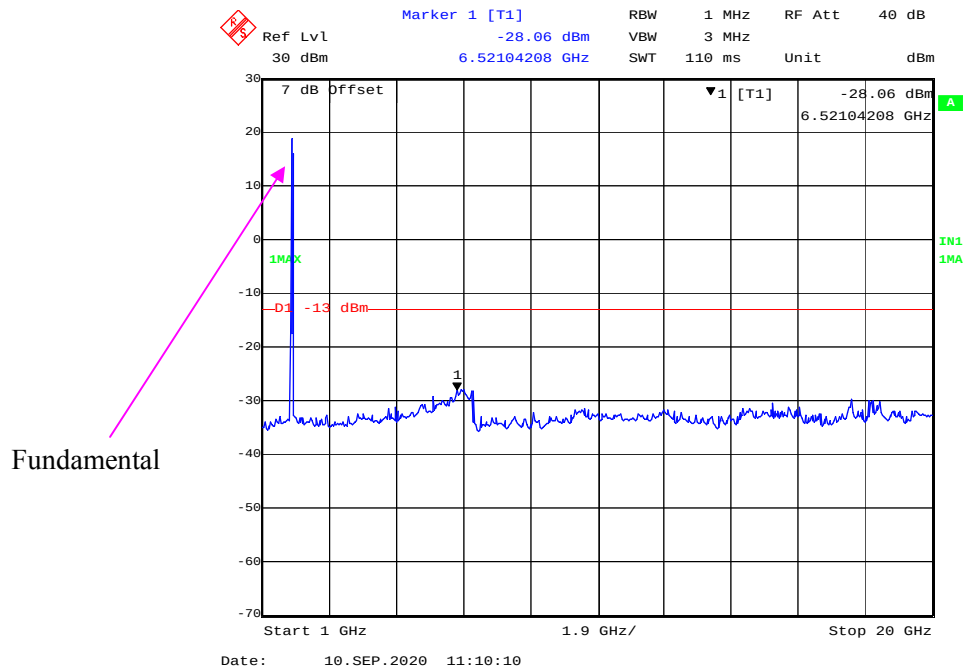
1 GHz – 20 GHz (15 MHz, 16-QAM, Low Channel)



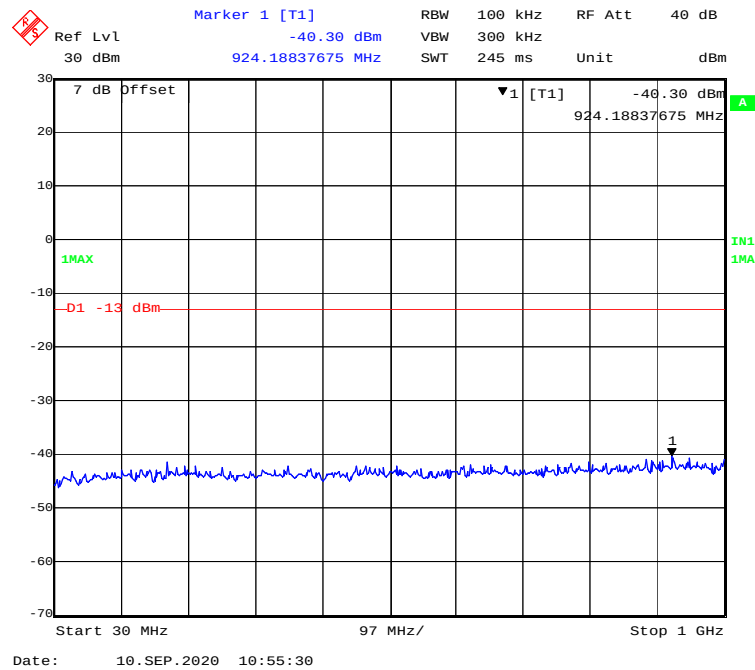
30 MHz – 1 GHz (20 MHz, QPSK, Low Channel)



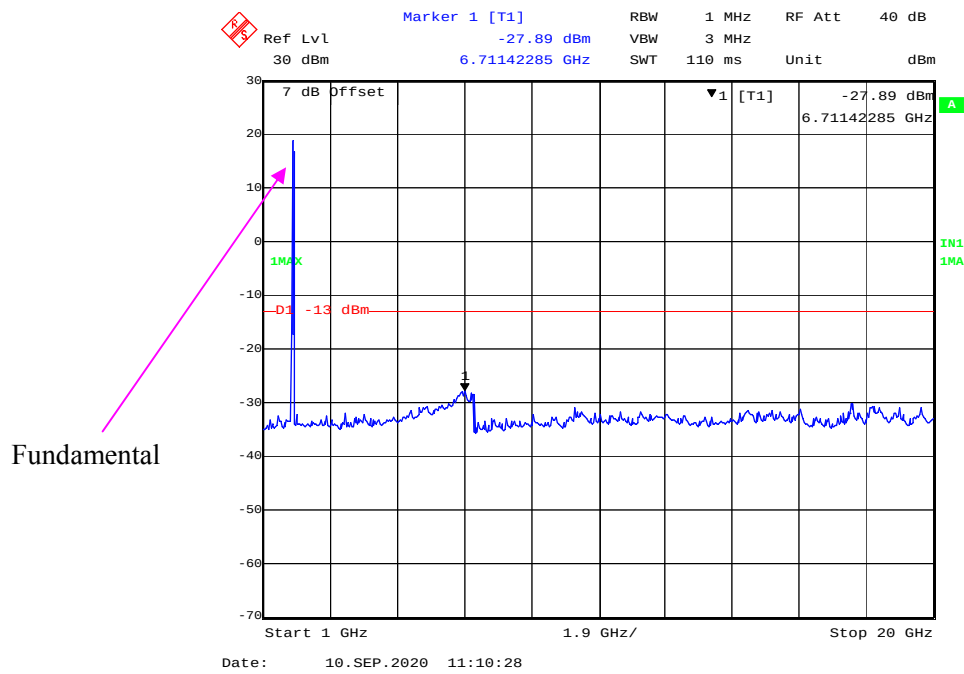
1 GHz – 20 GHz (20 MHz, QPSK, Low Channel)



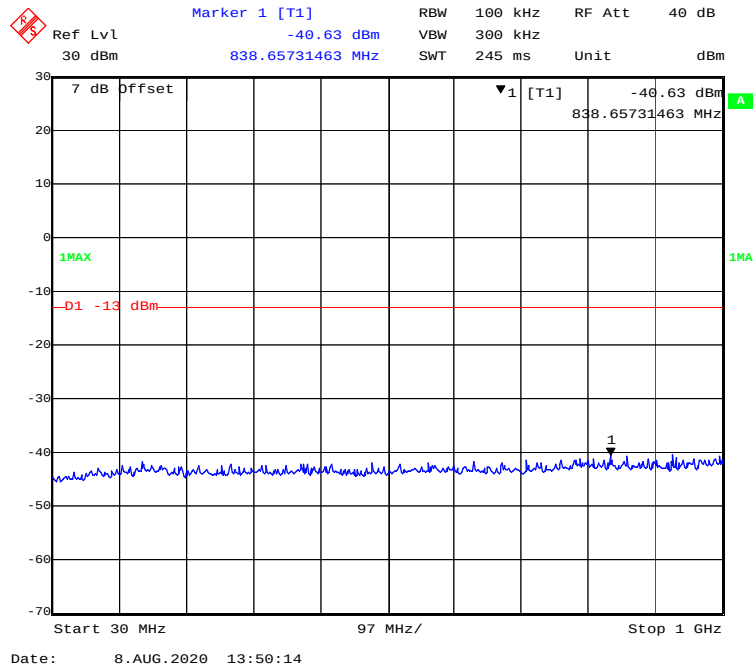
30 MHz – 1 GHz (20 MHz, 16-QAM, Low Channel)



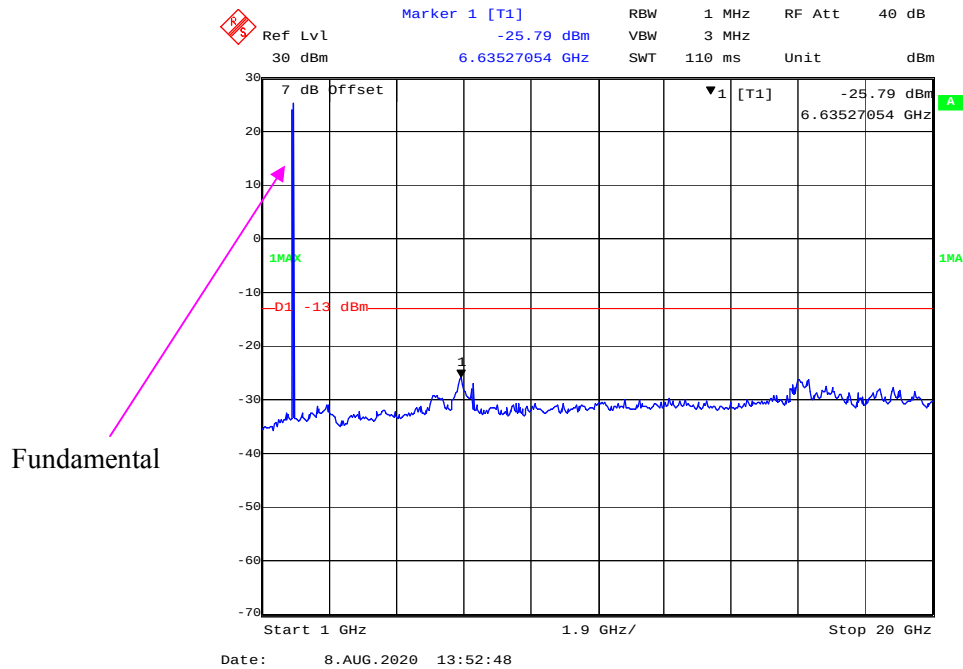
1 GHz – 20 GHz (20 MHz, 16-QAM, Low Channel)



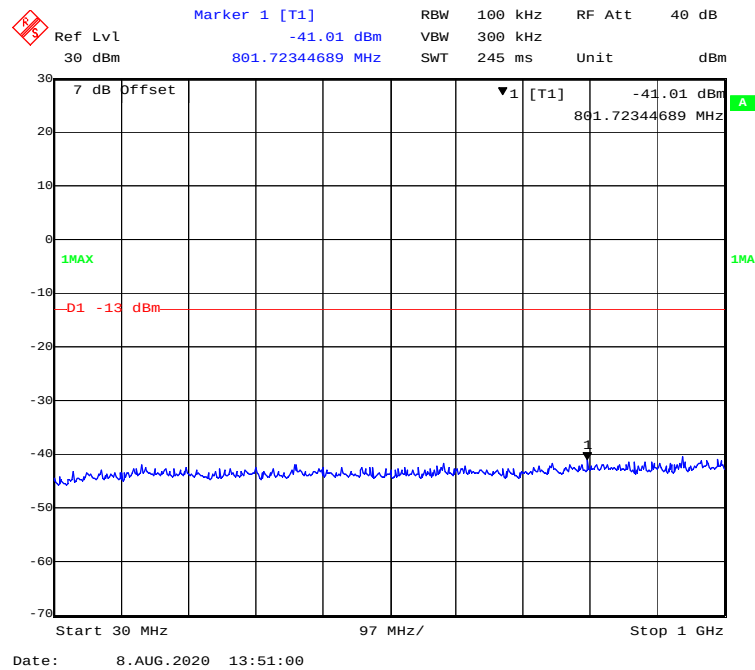
30 MHz – 1 GHz (1.4 MHz, QPSK, Middle Channel)



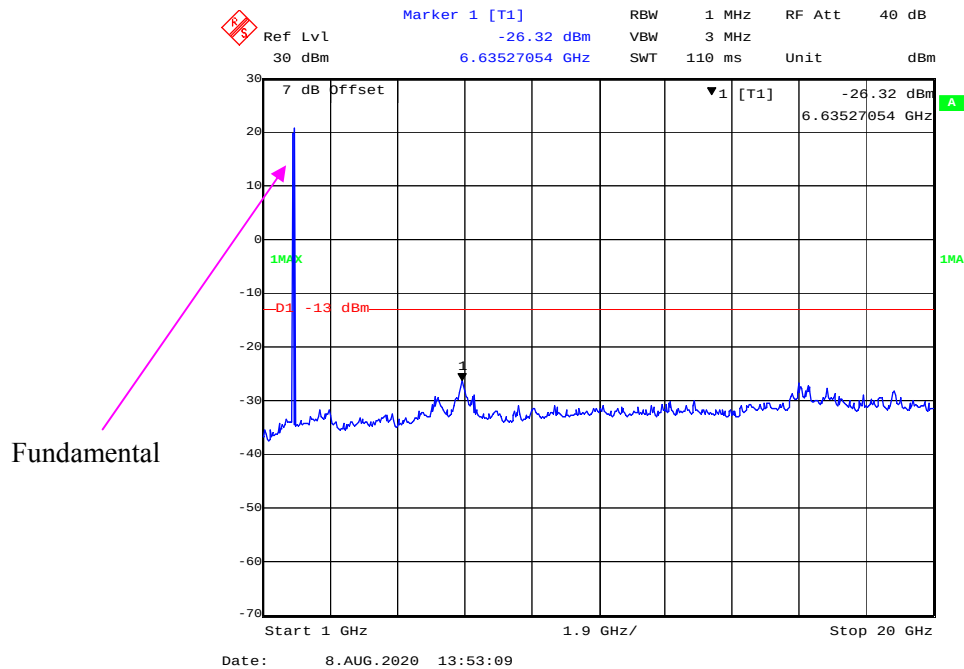
1 GHz – 20 GHz (1.4 MHz, QPSK, Middle Channel)



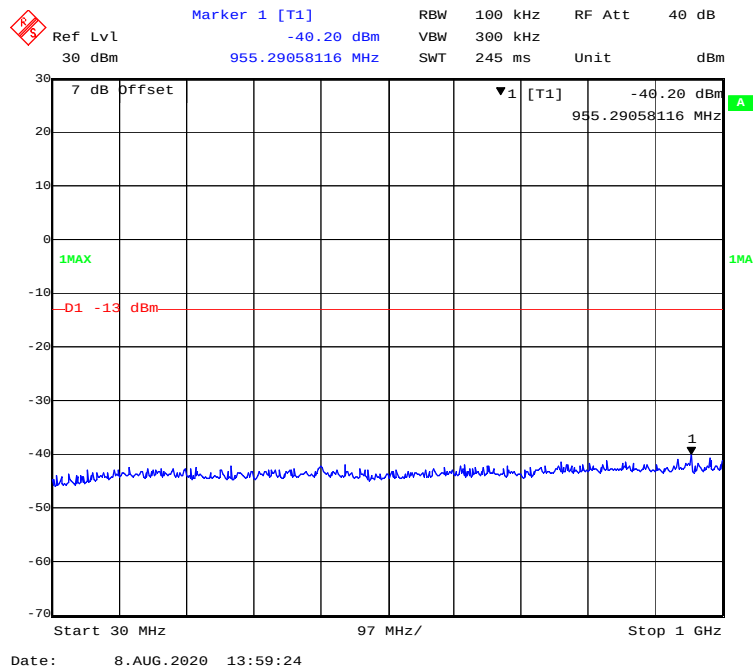
30 MHz – 1 GHz (1.4 MHz, 16-QAM, Middle Channel)



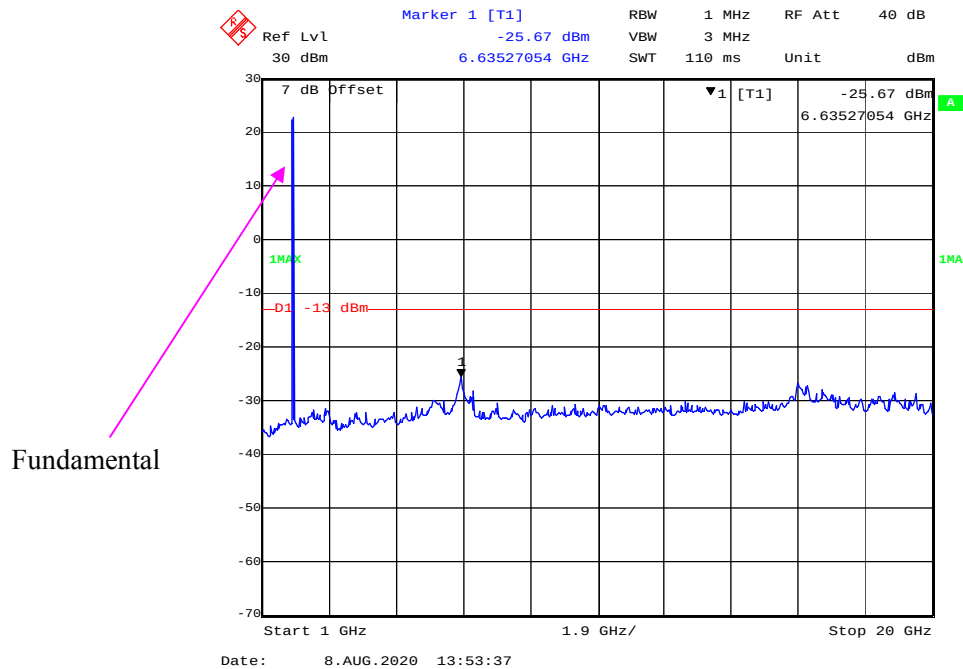
1 GHz – 20 GHz (1.4 MHz, 16-QAM, Middle Channel)



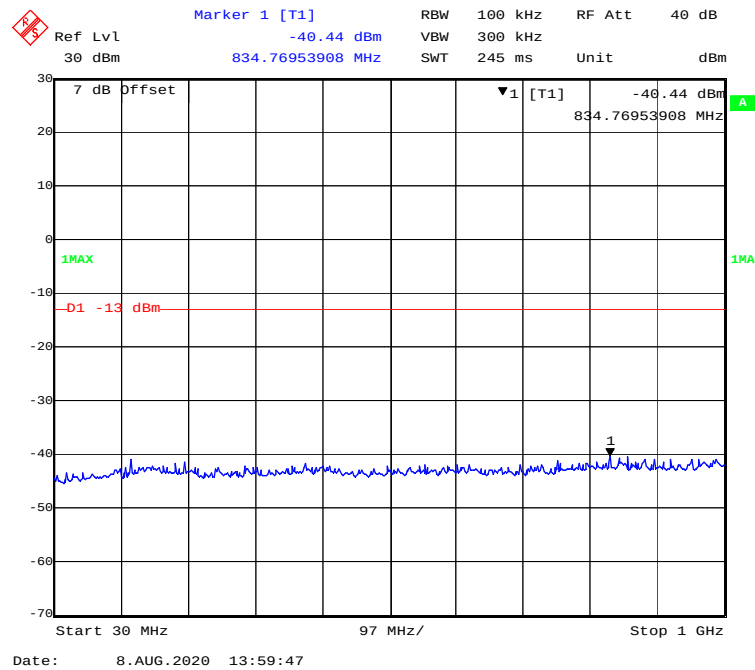
30 MHz – 1 GHz (3 MHz, QPSK, Middle Channel)



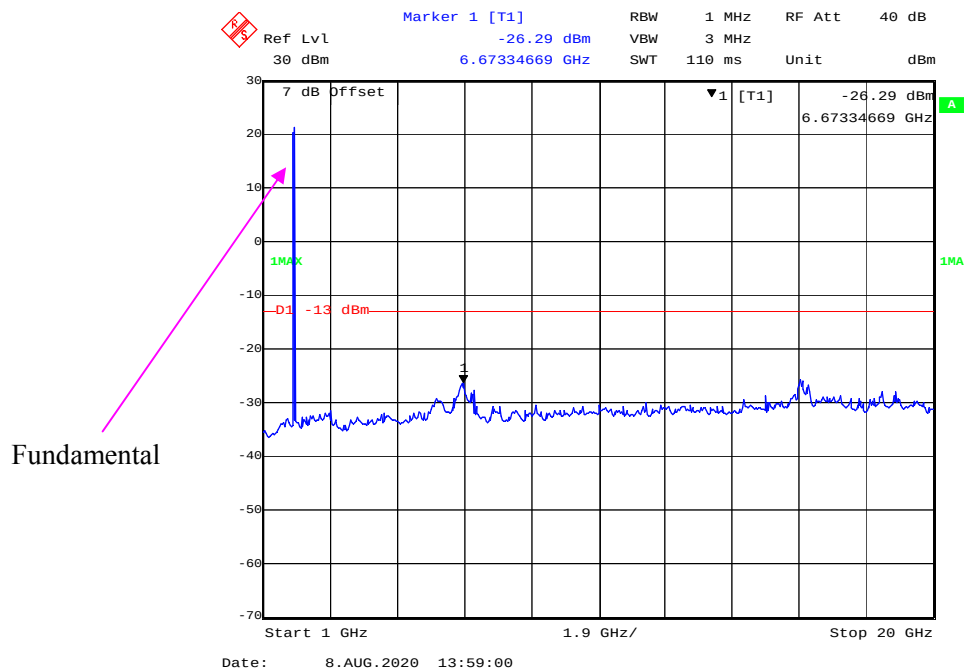
1 GHz – 20 GHz (3 MHz, QPSK, Middle Channel)



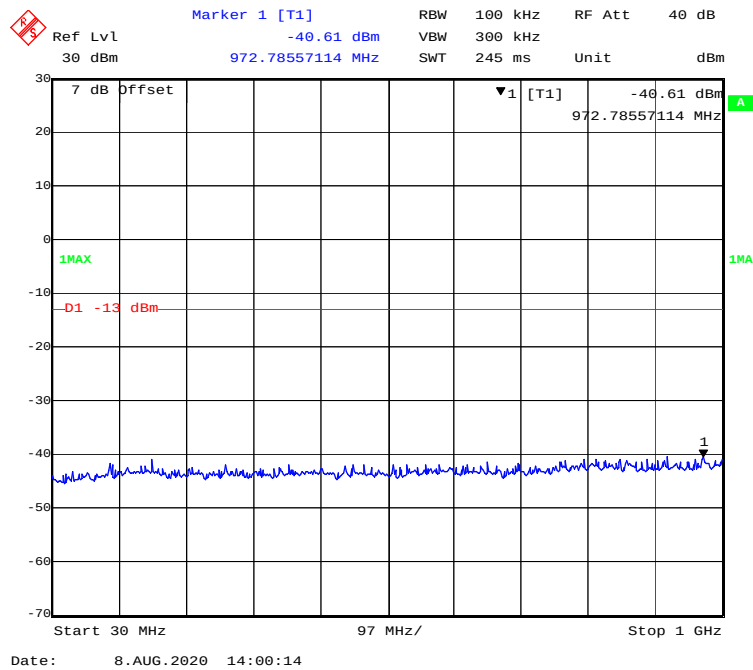
30 MHz – 1 GHz (3 MHz, 16-QAM, Middle Channel)



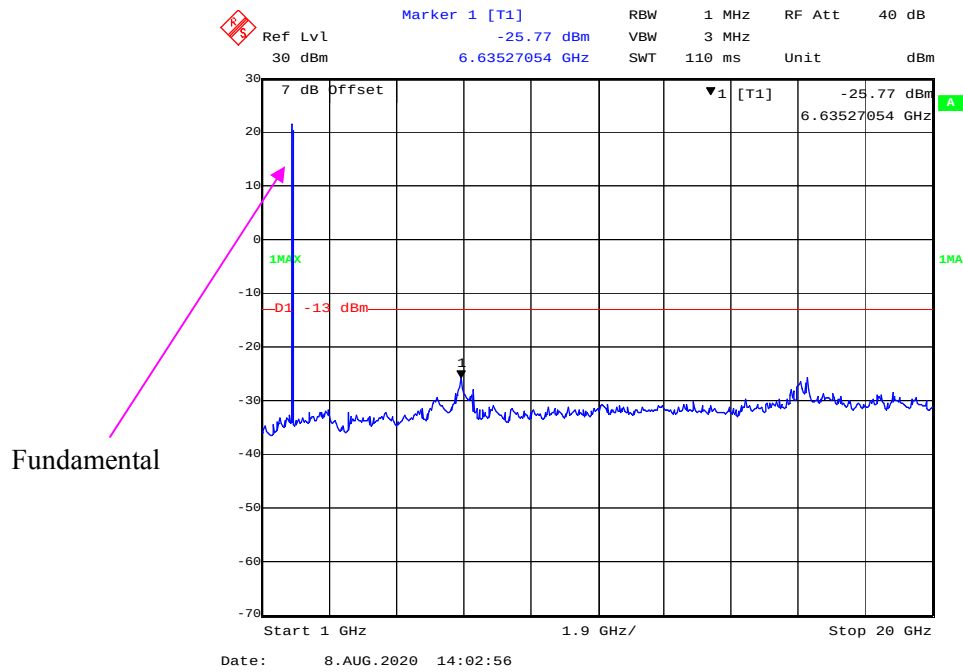
1 GHz – 20 GHz (3 MHz, 16-QAM, Middle Channel)



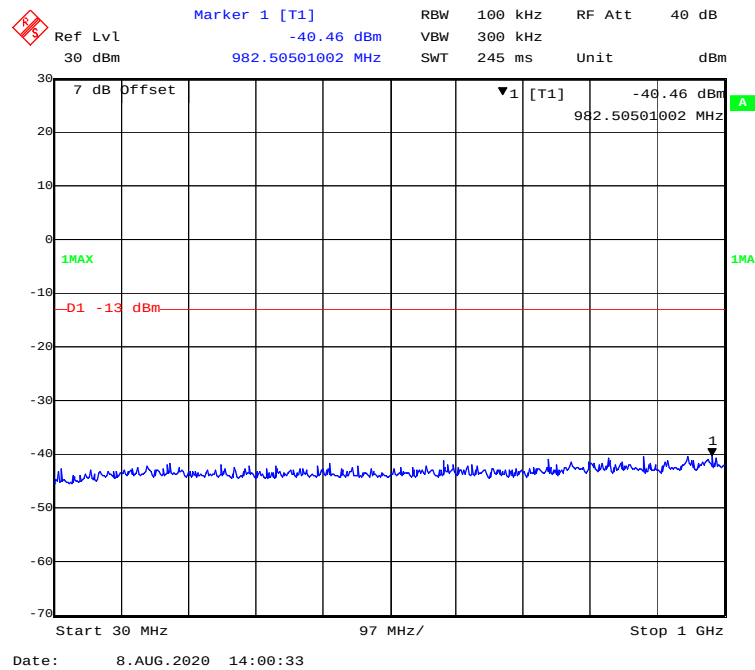
30 MHz – 1 GHz (5 MHz, QPSK, Middle Channel)



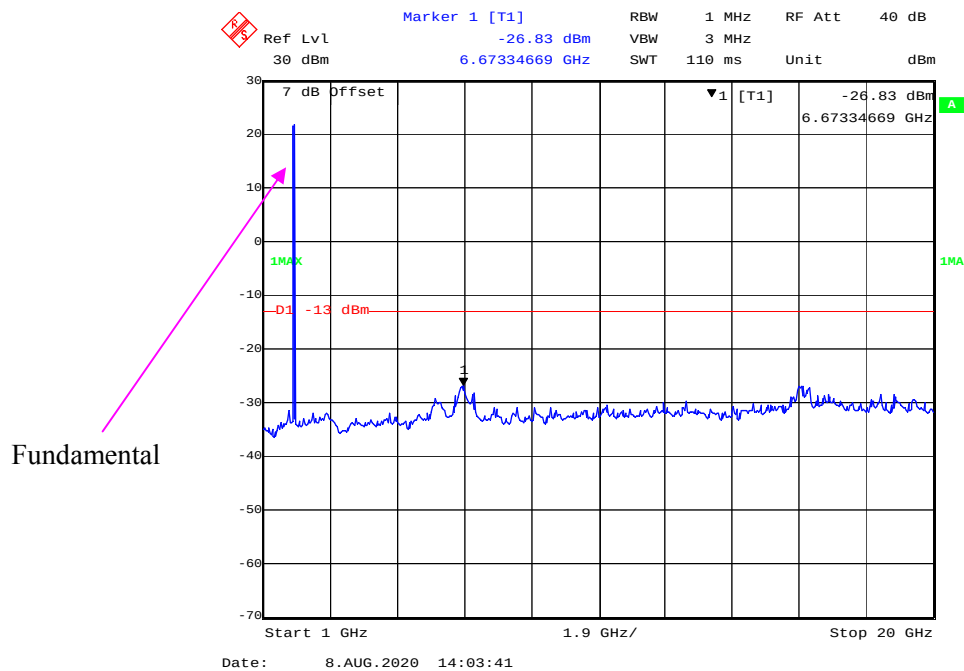
1 GHz – 20 GHz (5 MHz, QPSK, Middle Channel)



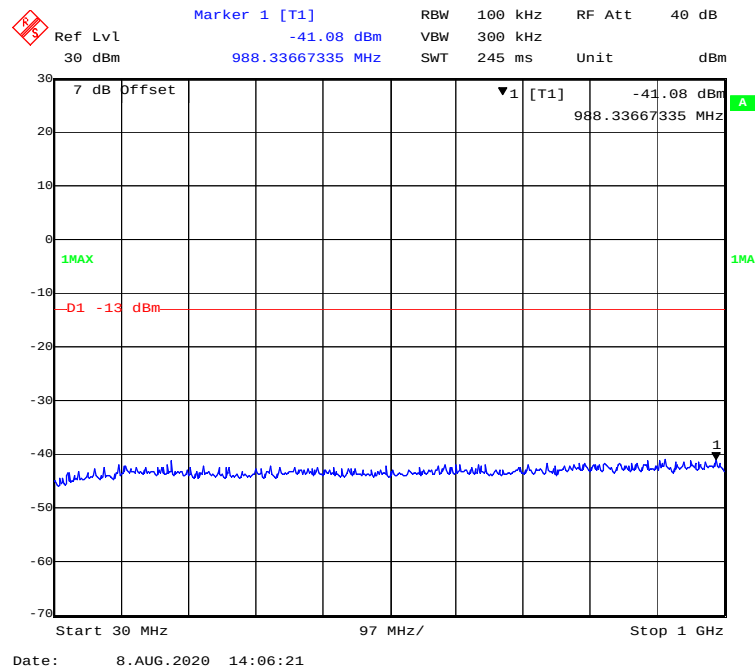
30 MHz – 1 GHz (5 MHz, 16-QAM, Middle Channel)



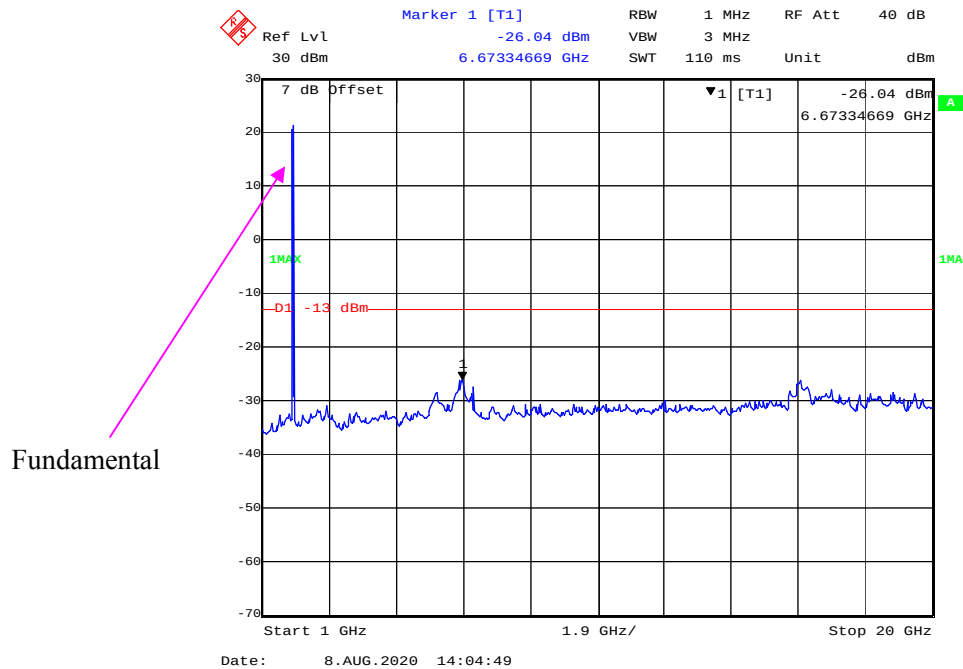
1 GHz – 20 GHz (5 MHz, 16-QAM, Middle Channel)



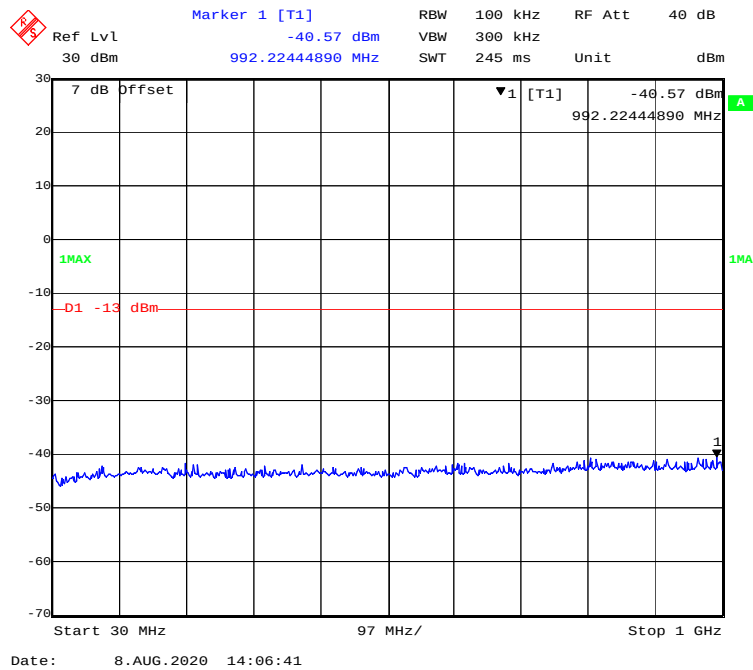
30 MHz – 1 GHz (10 MHz, QPSK, Middle Channel)



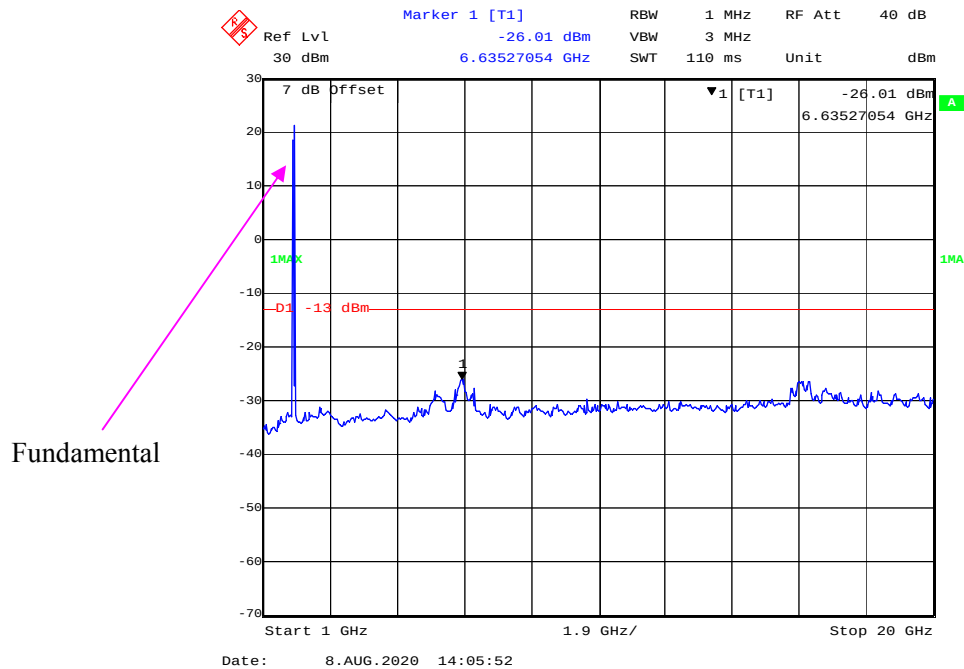
1 GHz – 20 GHz (10 MHz, QPSK, Middle Channel)



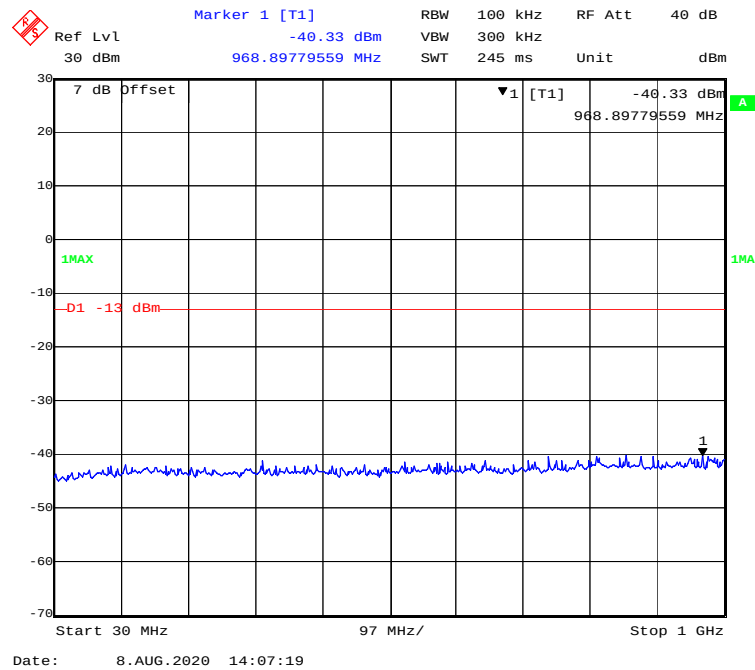
30 MHz – 1 GHz (10 MHz, 16-QAM, Middle Channel)



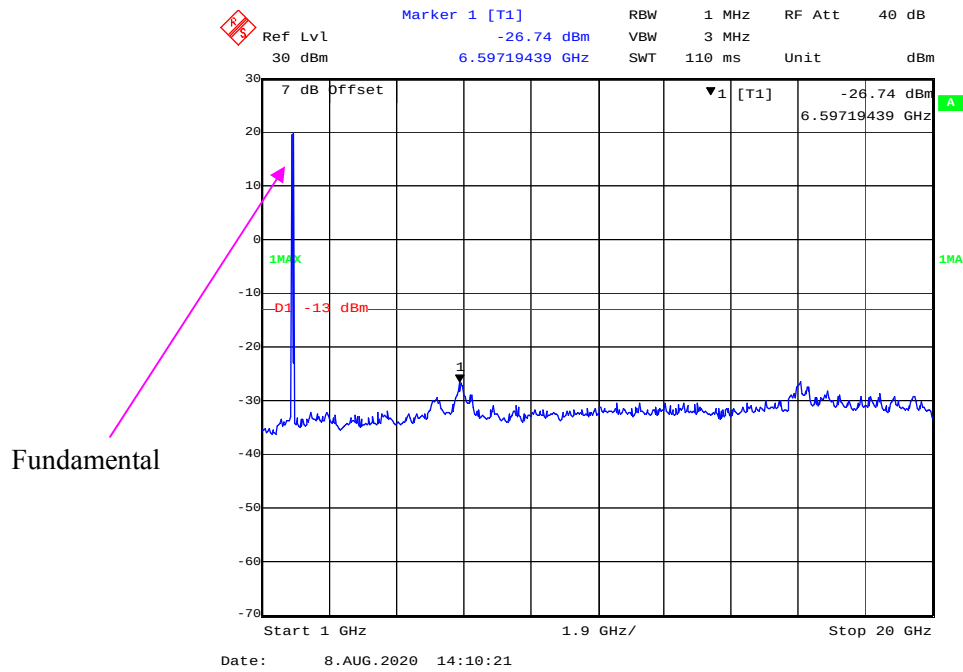
1 GHz – 20 GHz (10 MHz, 16-QAM, Middle Channel)



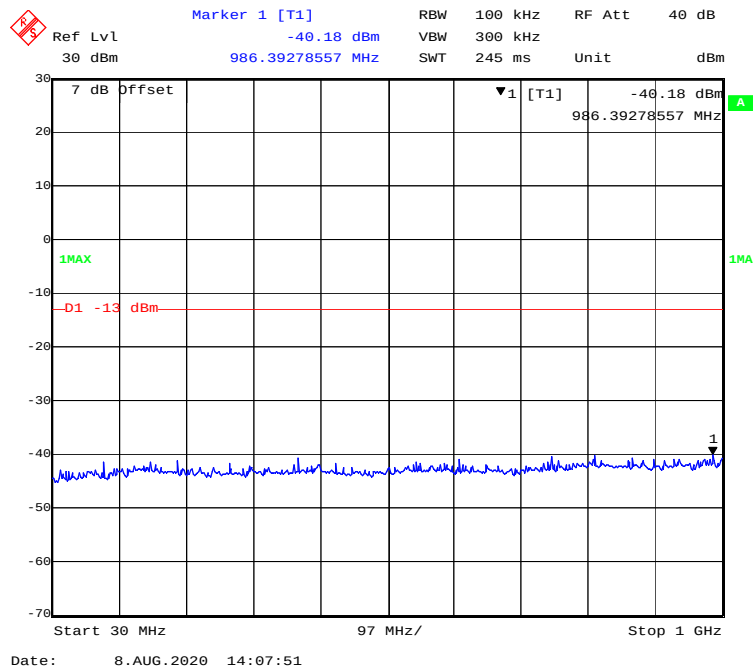
30 MHz – 1 GHz (15 MHz, QPSK, Middle Channel)



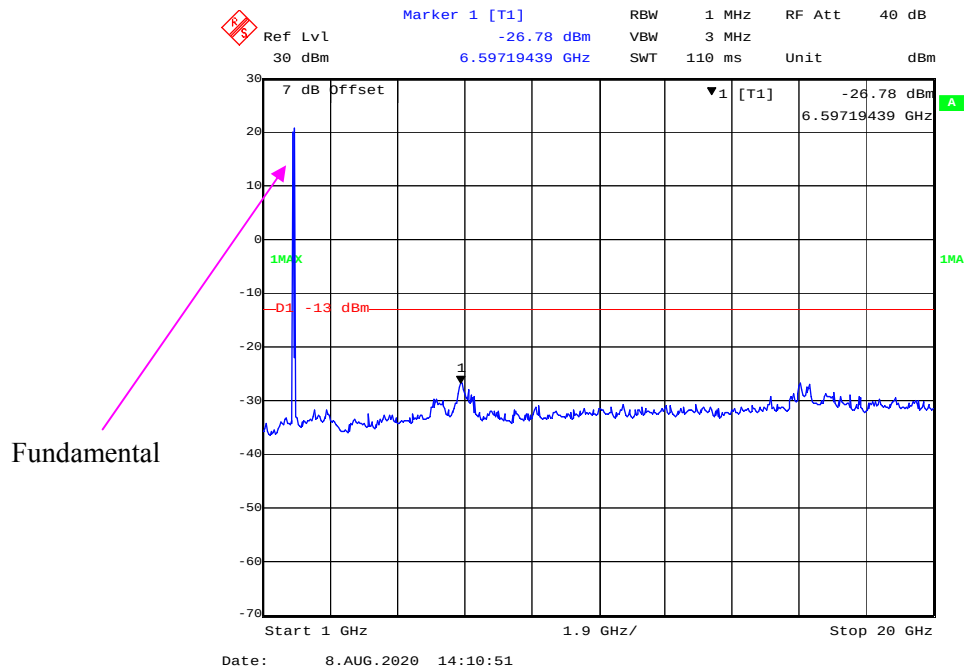
1 GHz – 20 GHz (15 MHz, QPSK, Middle Channel)



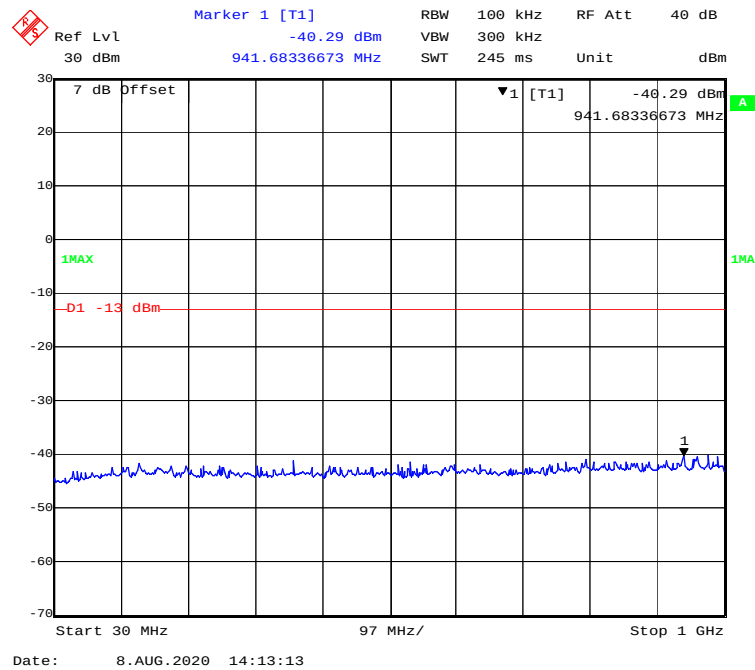
30 MHz – 1 GHz (15 MHz, 16-QAM, Middle Channel)



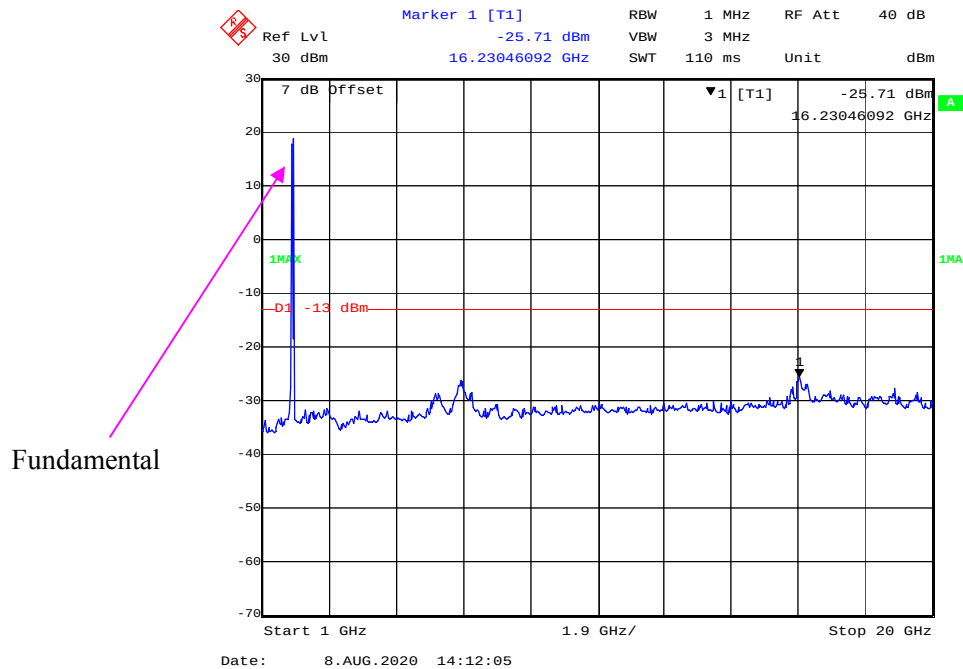
1 GHz – 20 GHz (15 MHz, 16-QAM, Middle Channel)



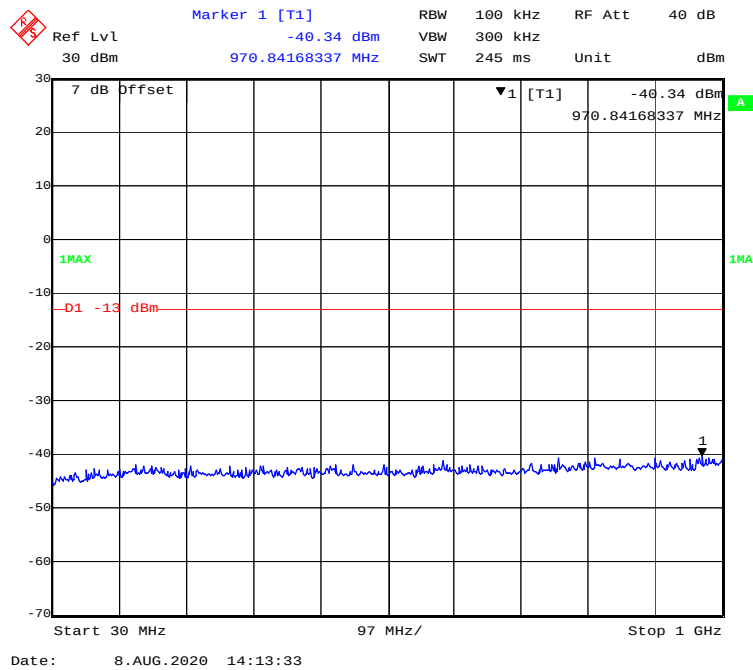
30 MHz – 1 GHz (20 MHz, QPSK, Middle Channel)



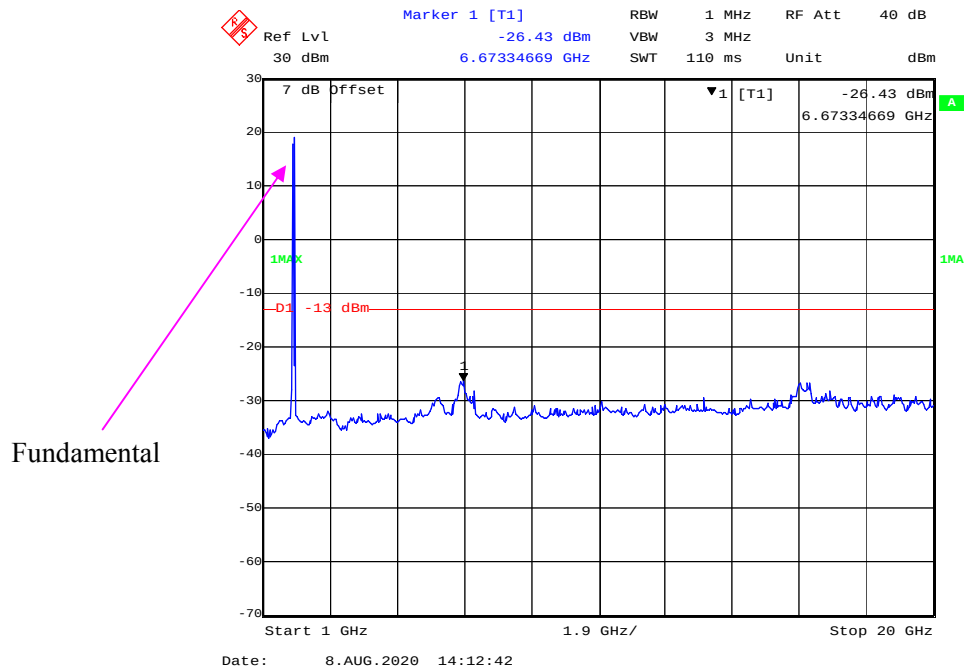
1 GHz – 20 GHz (20 MHz, QPSK, Middle Channel)



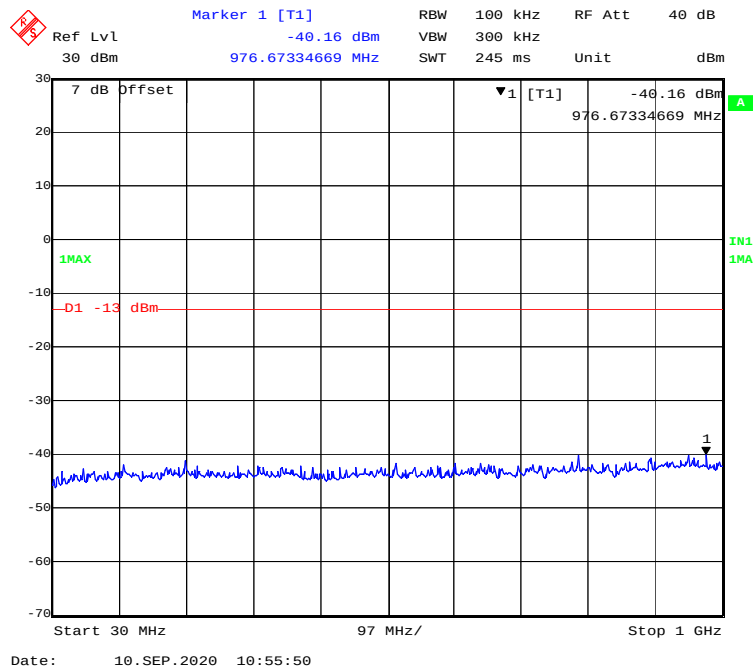
30 MHz – 1 GHz (20 MHz, 16-QAM, Middle Channel)



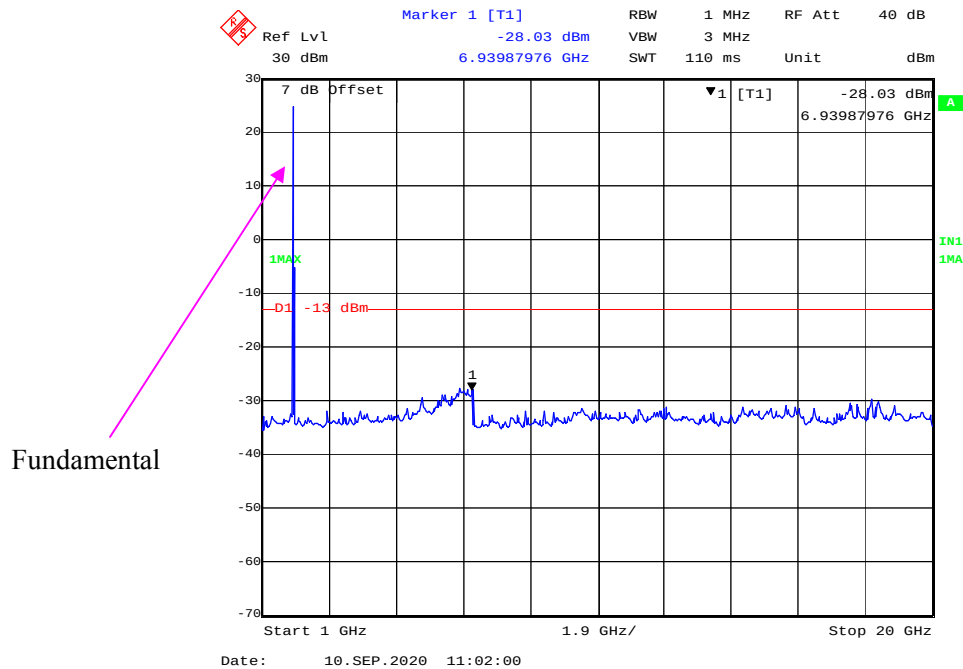
1 GHz – 20 GHz (20 MHz, 16-QAM, Middle Channel)



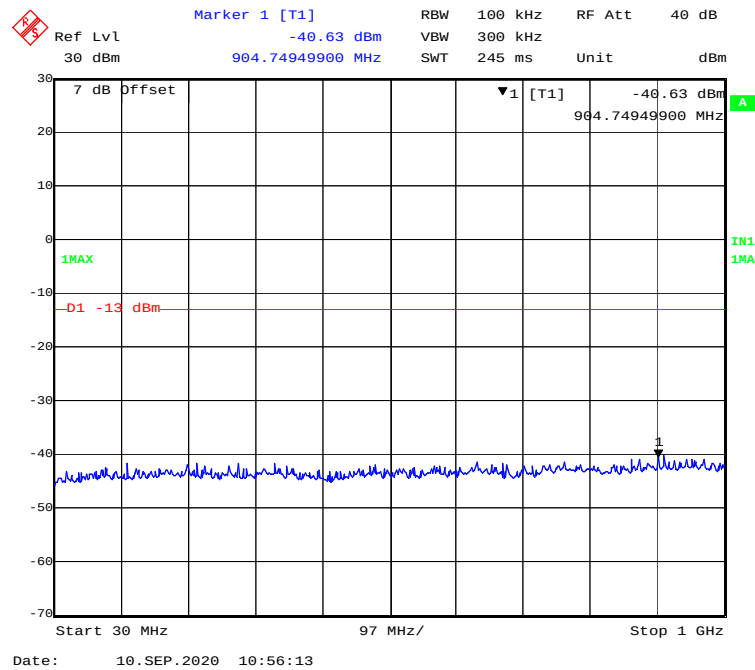
30 MHz – 1 GHz (1.4 MHz, QPSK, High Channel)



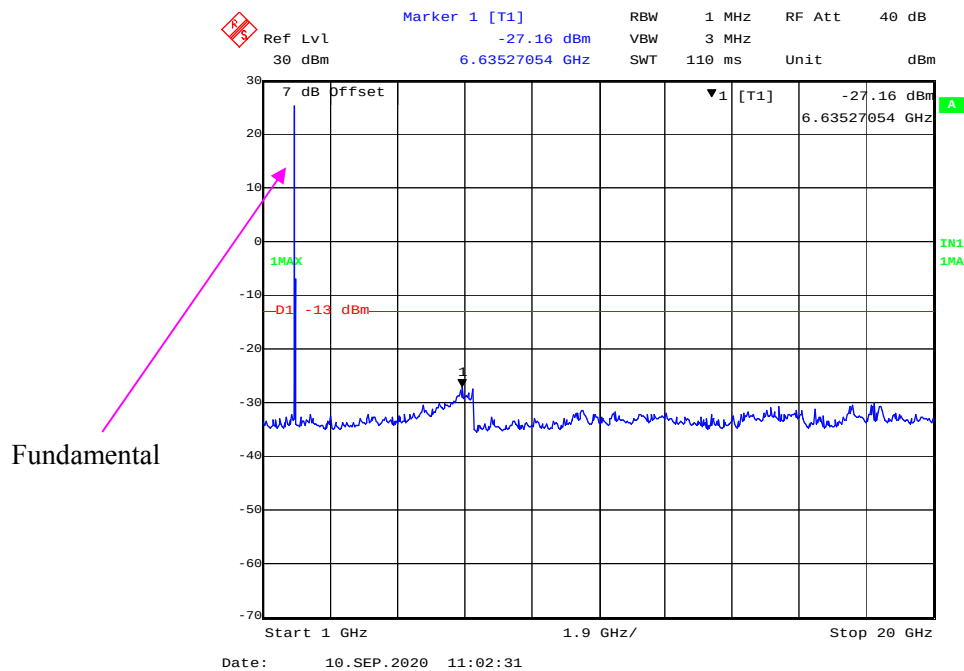
1 GHz – 20 GHz (1.4 MHz, QPSK, High Channel)



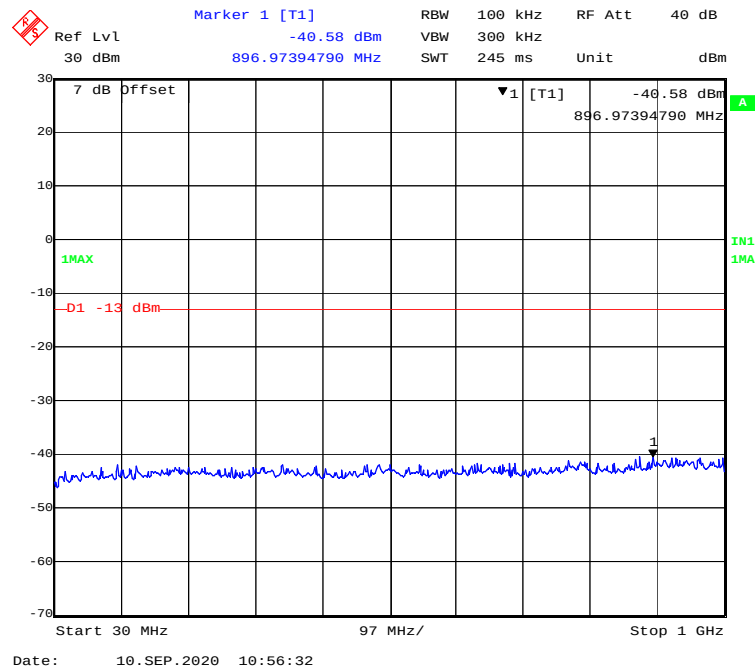
30 MHz – 1 GHz (1.4 MHz, 16-QAM, High Channel)



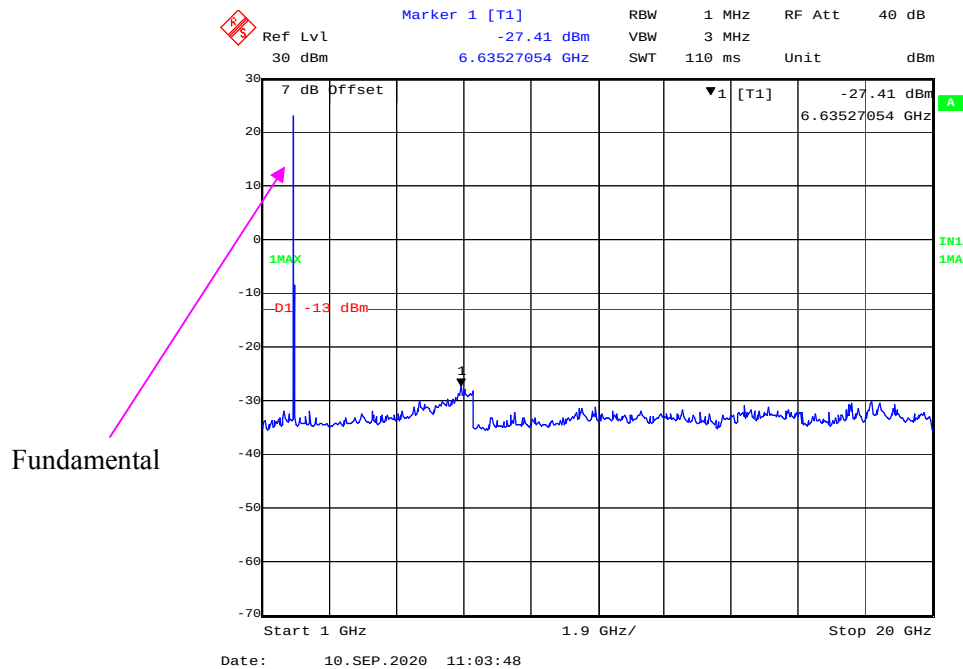
1 GHz – 20 GHz (1.4 MHz, 16-QAM, High Channel)



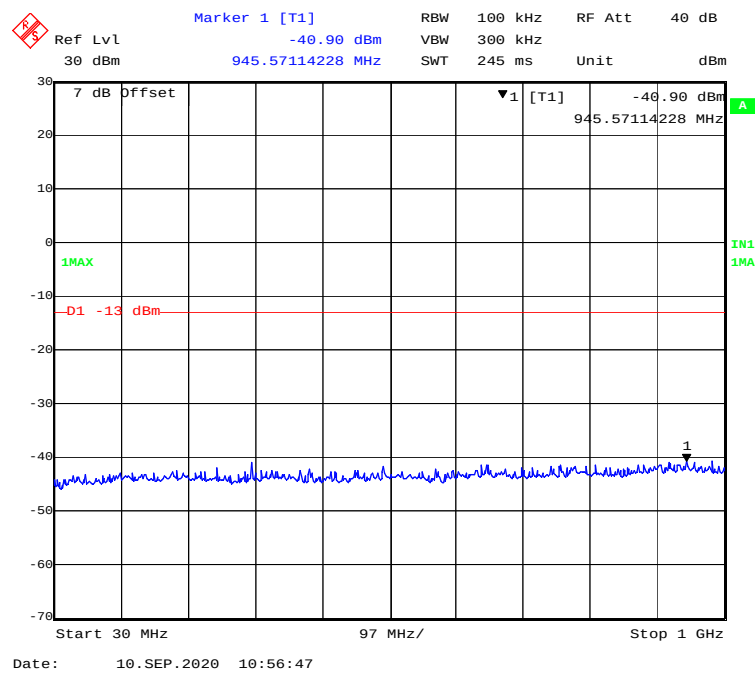
30 MHz – 1 GHz (3 MHz, QPSK, High Channel)



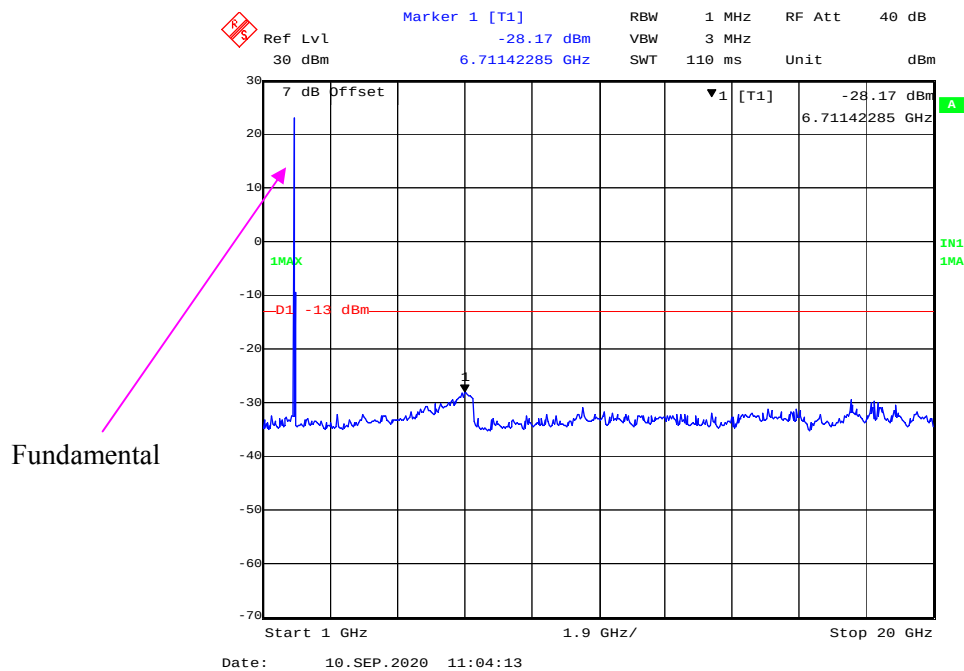
1 GHz – 20 GHz (3 MHz, QPSK, High Channel)



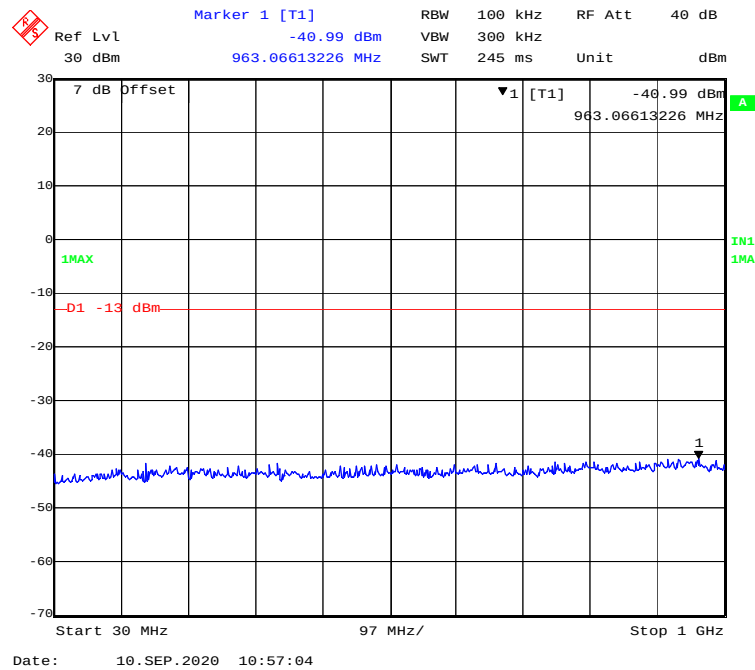
30 MHz – 1 GHz (3 MHz, 16-QAM, High Channel)



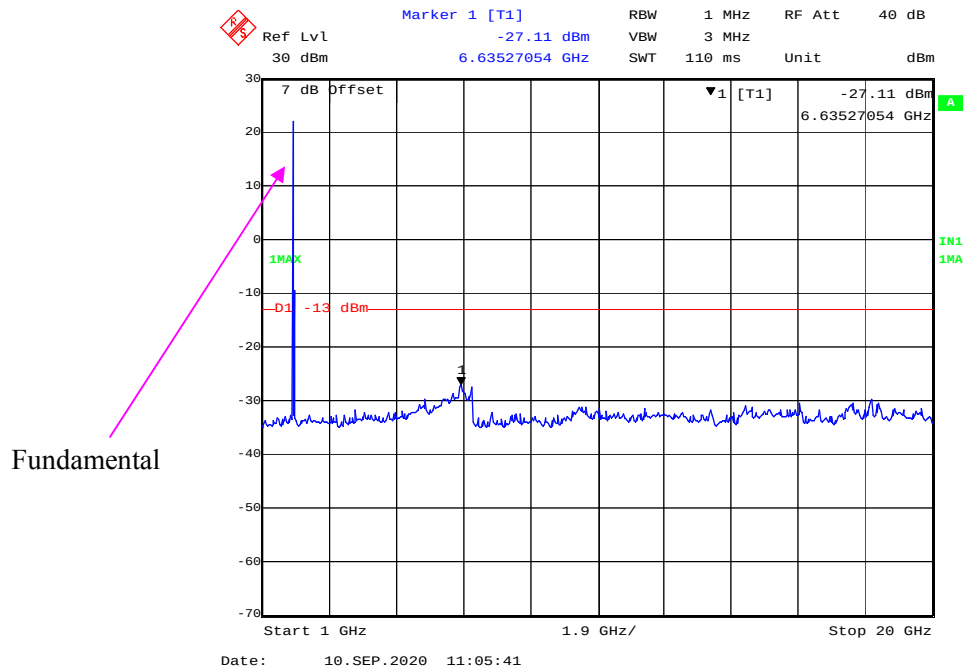
1 GHz – 20 GHz (3 MHz, 16-QAM, High Channel)



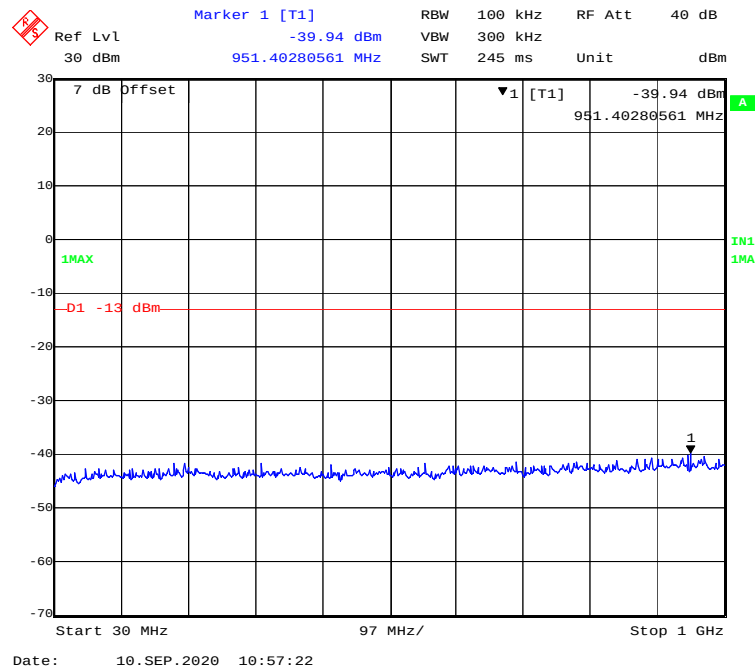
30 MHz – 1 GHz (5 MHz, QPSK, High Channel)



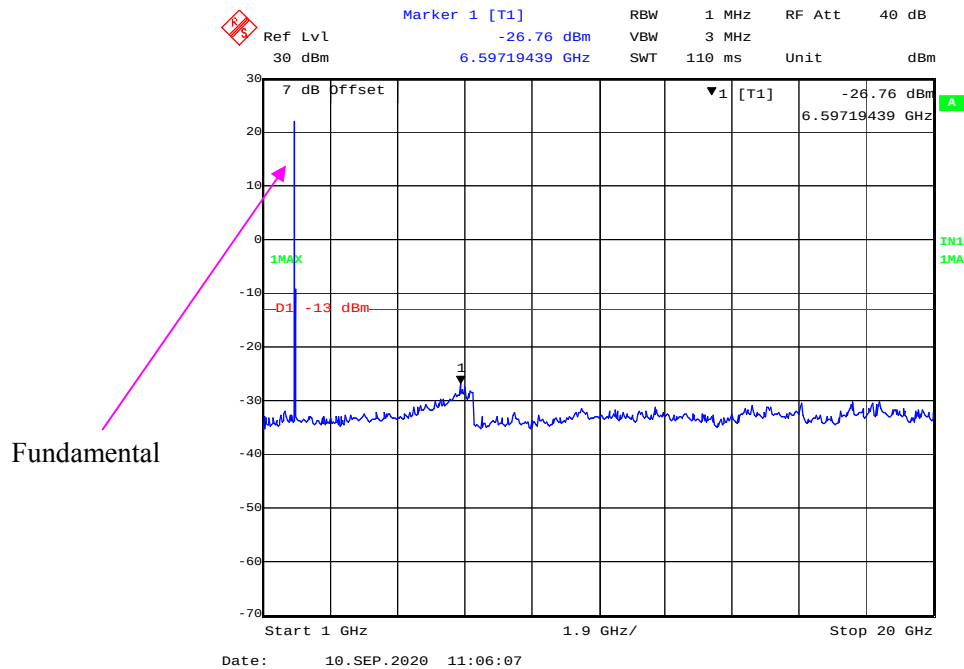
1 GHz – 20 GHz (5 MHz, QPSK, High Channel)



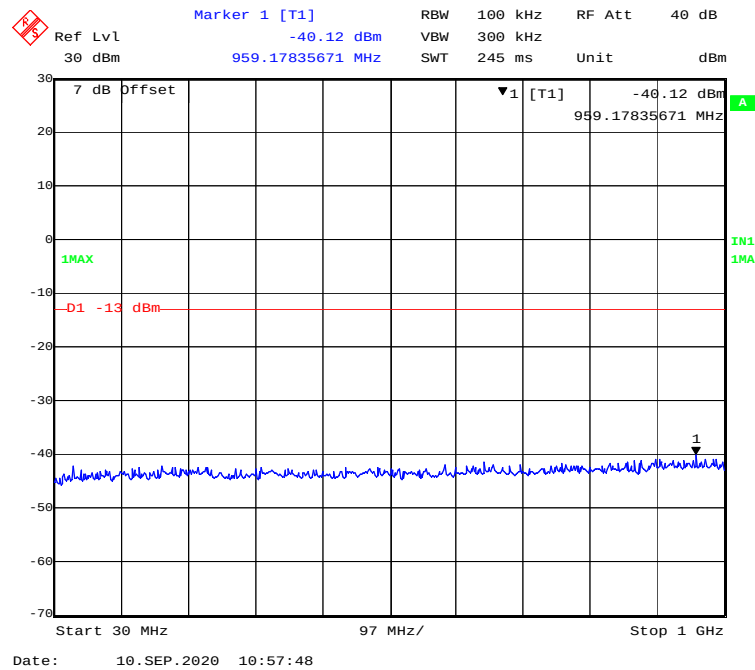
30 MHz – 1 GHz (5 MHz, 16-QAM, High Channel)



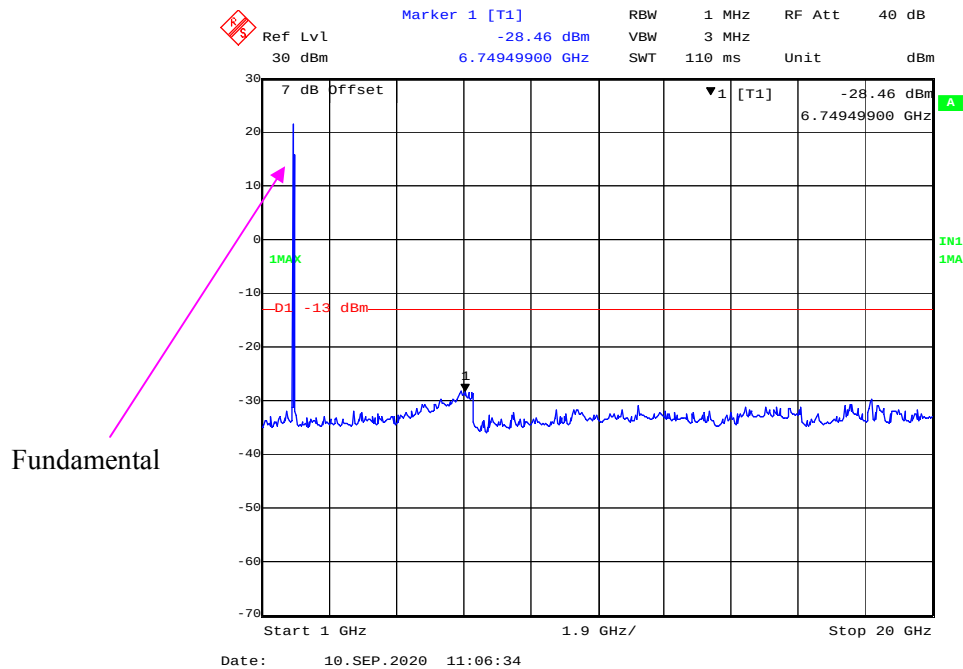
1 GHz – 20 GHz (5 MHz, 16-QAM, High Channel)



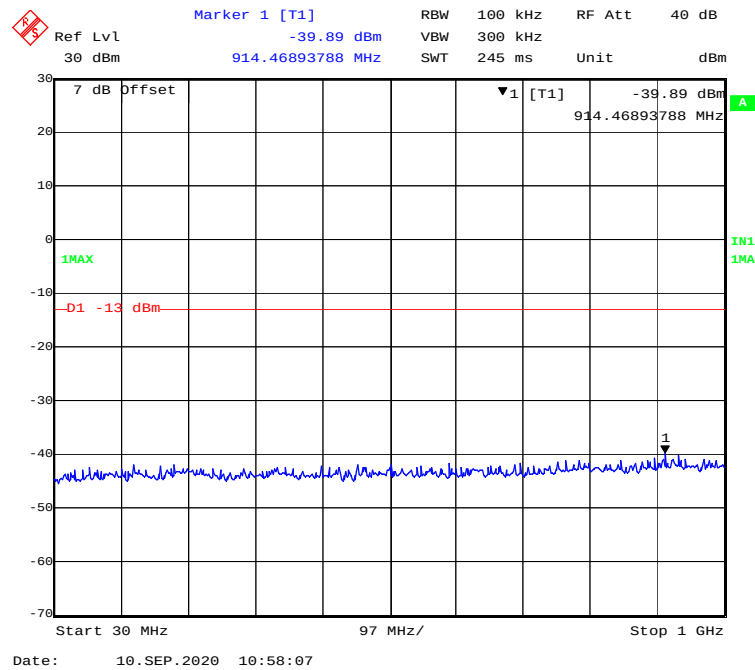
30 MHz – 1 GHz (10 MHz, QPSK, High Channel)



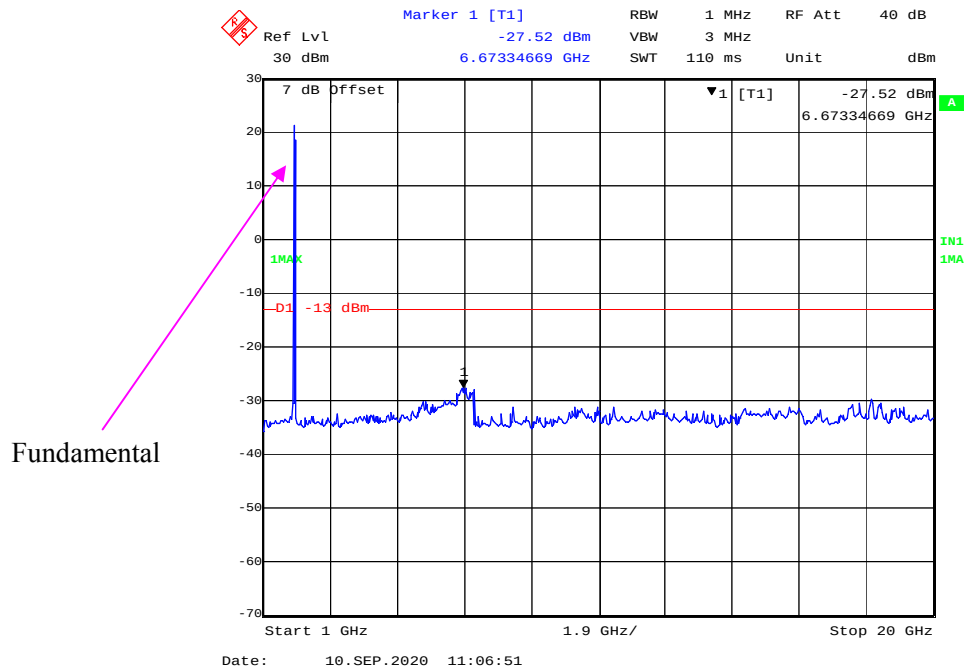
1 GHz – 20 GHz (10 MHz, QPSK, High Channel)



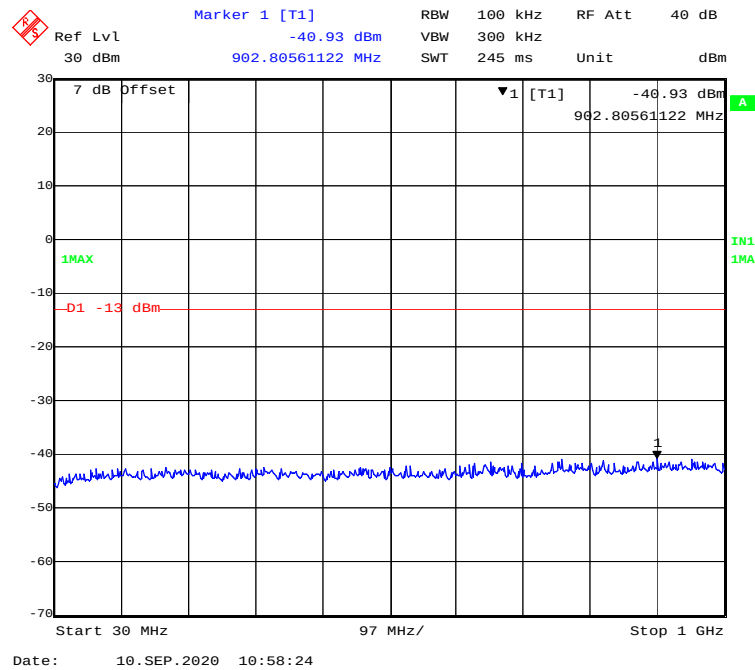
30 MHz – 1 GHz (10 MHz, 16-QAM, High Channel)



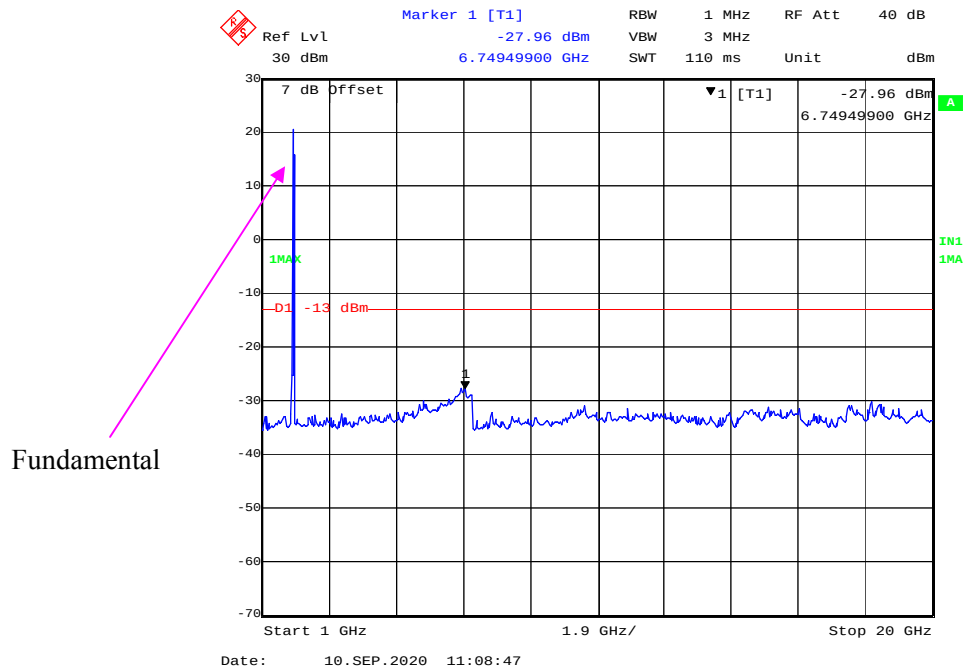
1 GHz – 20 GHz (10 MHz, 16-QAM, High Channel)



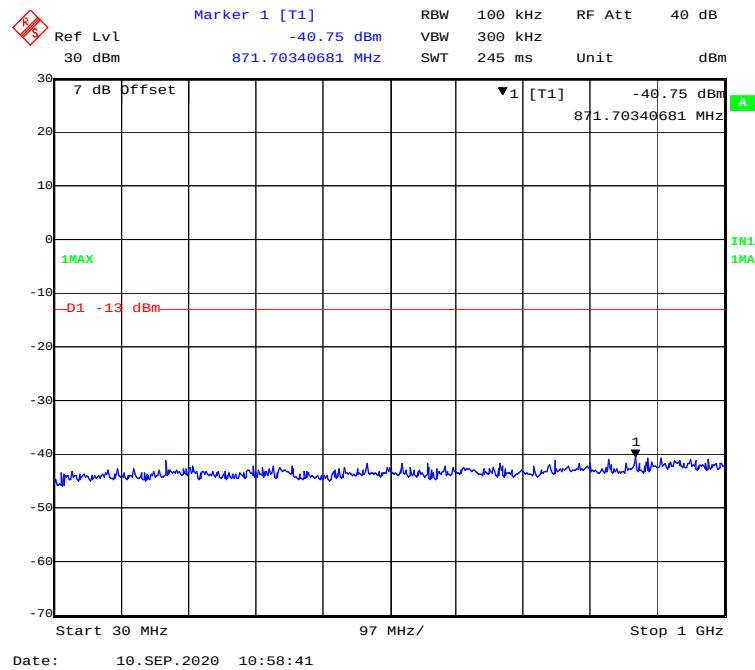
30 MHz – 1 GHz (15 MHz, QPSK, High Channel)



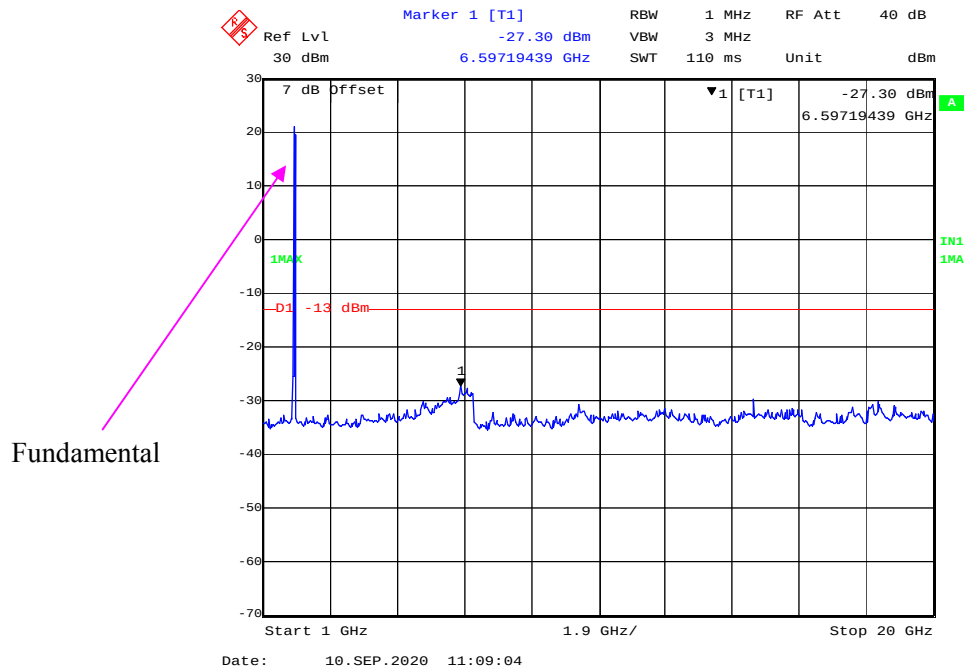
1 GHz – 20 GHz (15 MHz, QPSK, High Channel)



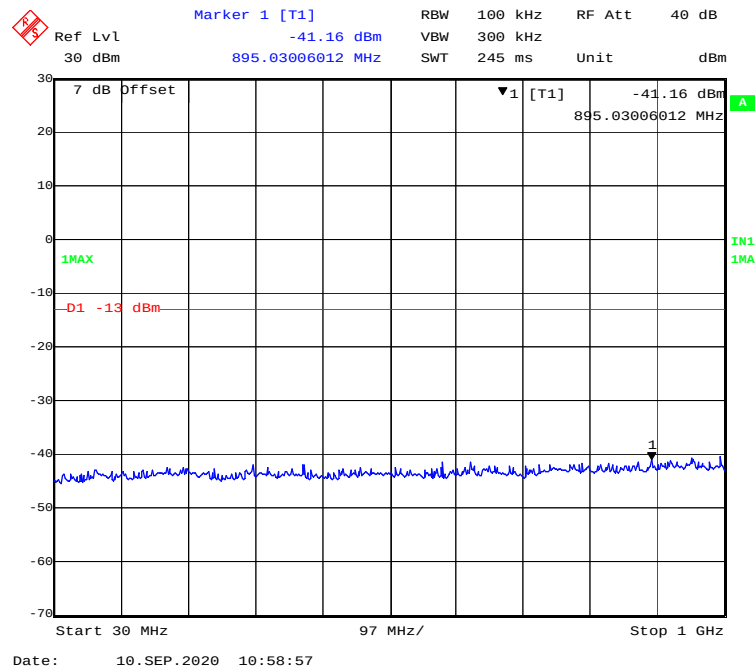
30 MHz – 1 GHz (15 MHz, 16-QAM, High Channel)



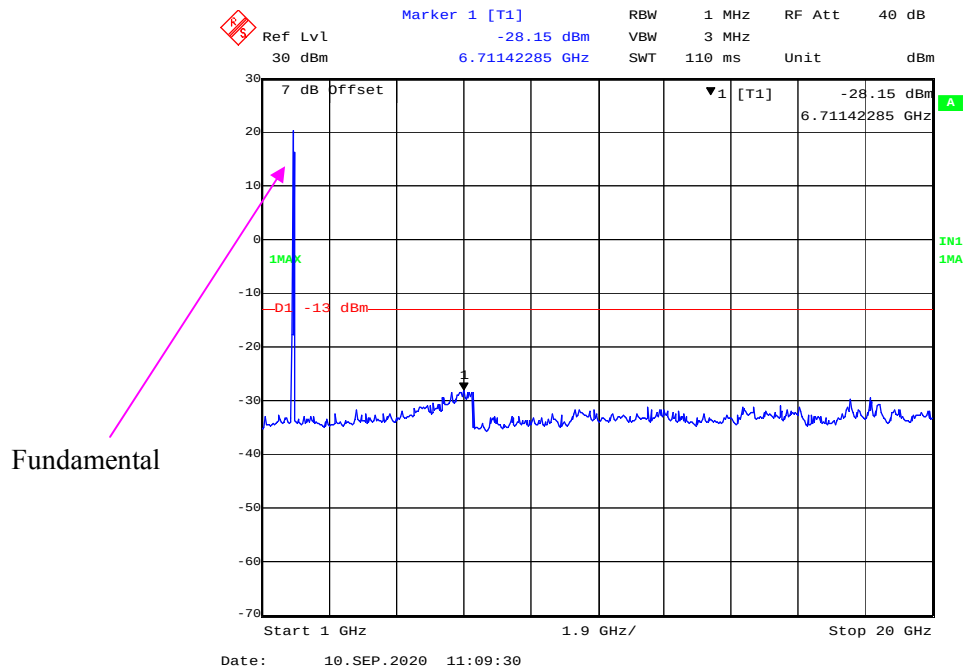
1 GHz – 20 GHz (15 MHz, 16-QAM, High Channel)



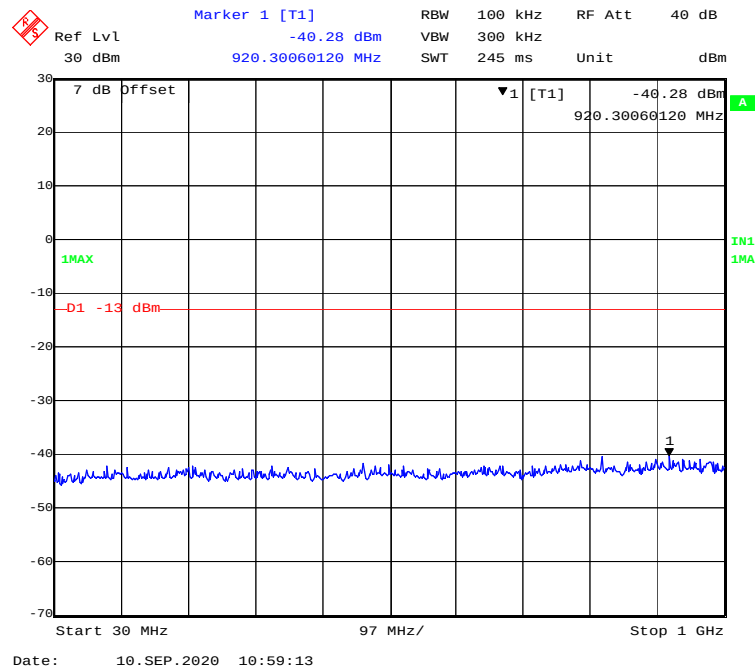
30 MHz – 1 GHz (20 MHz, QPSK, High Channel)



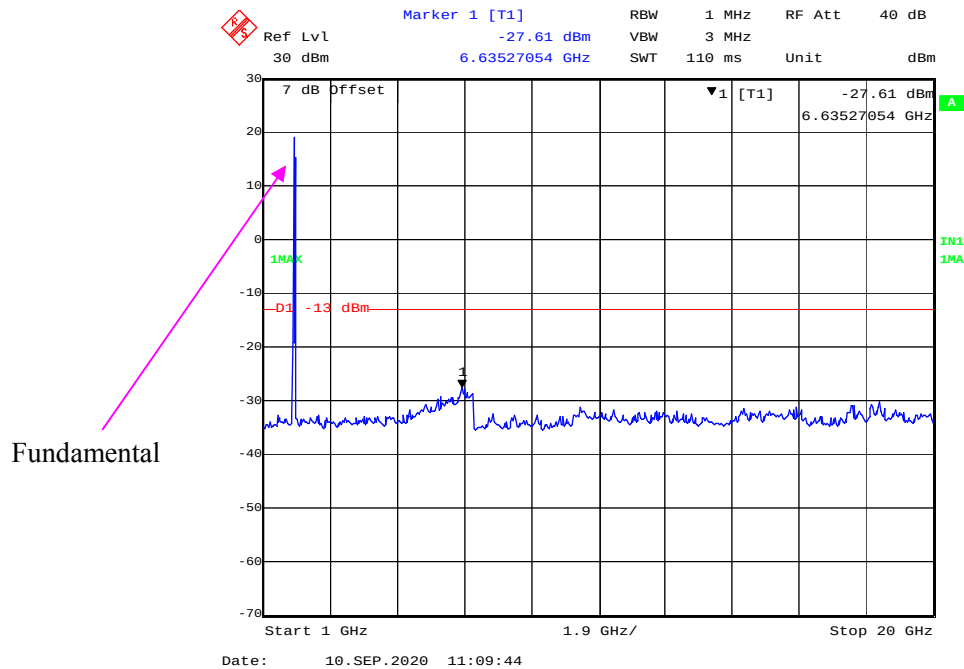
1 GHz – 20 GHz (20 MHz, QPSK, High Channel)



30 MHz – 1 GHz (20 MHz, 16-QAM, High Channel)

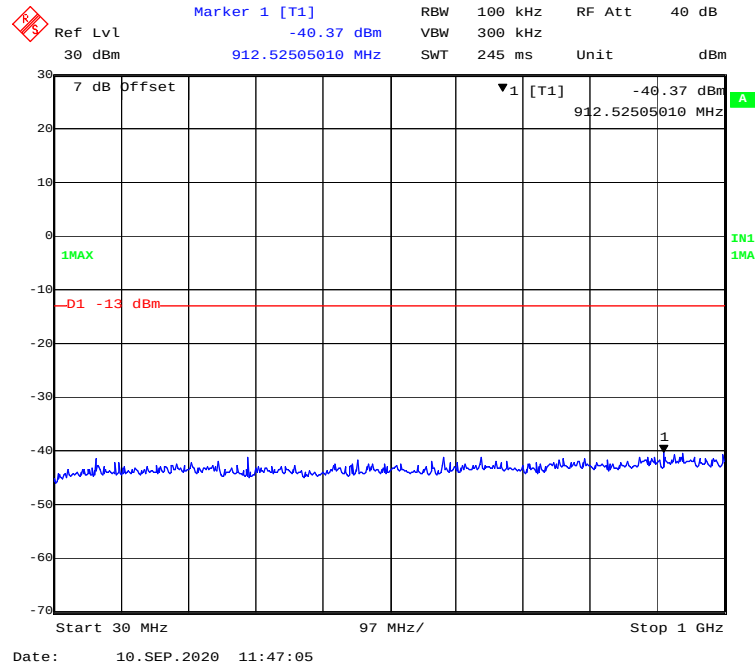


1 GHz – 20 GHz (20 MHz, 16-QAM, High Channel)

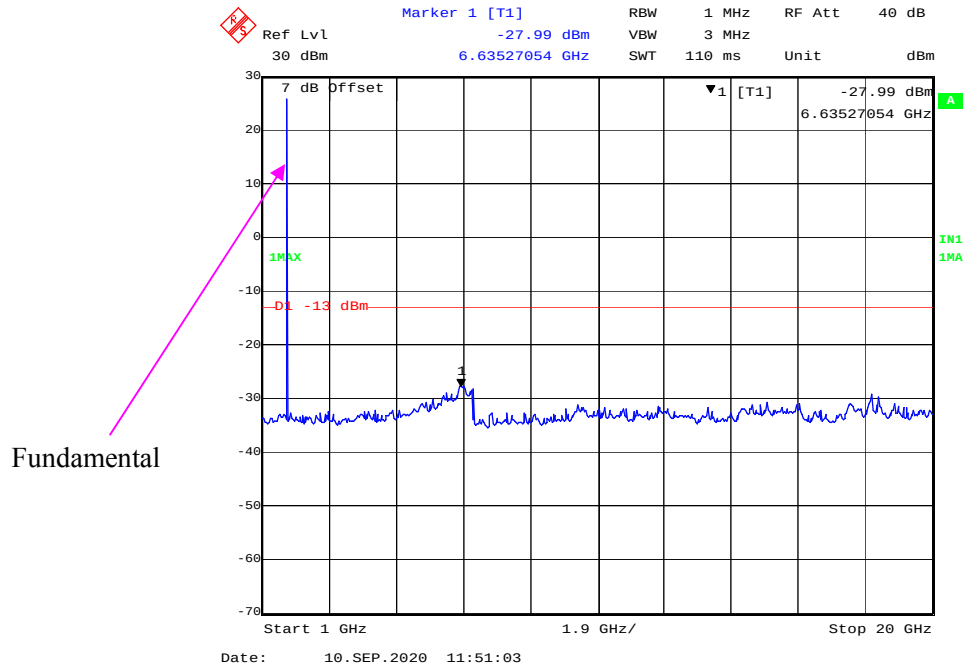


LTE Band 4:

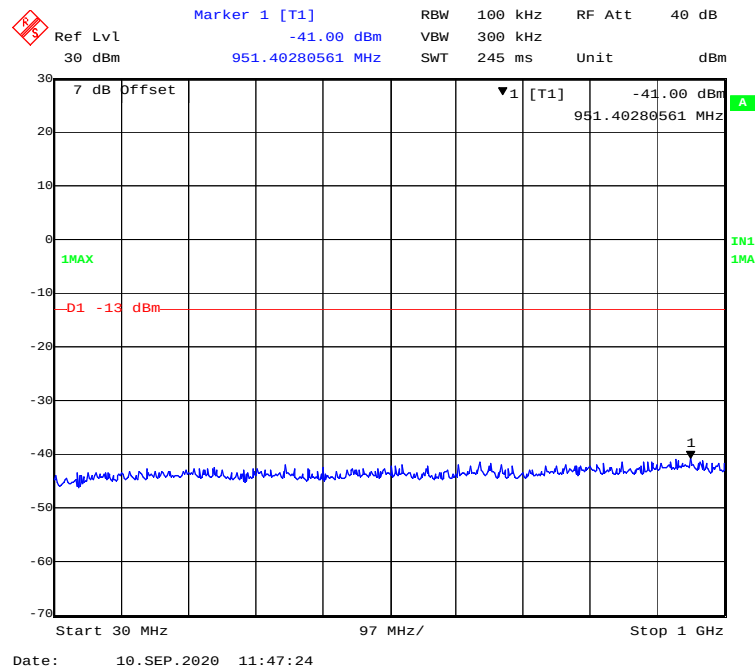
30 MHz – 1 GHz (1.4 MHz, QPSK, Low Channel)



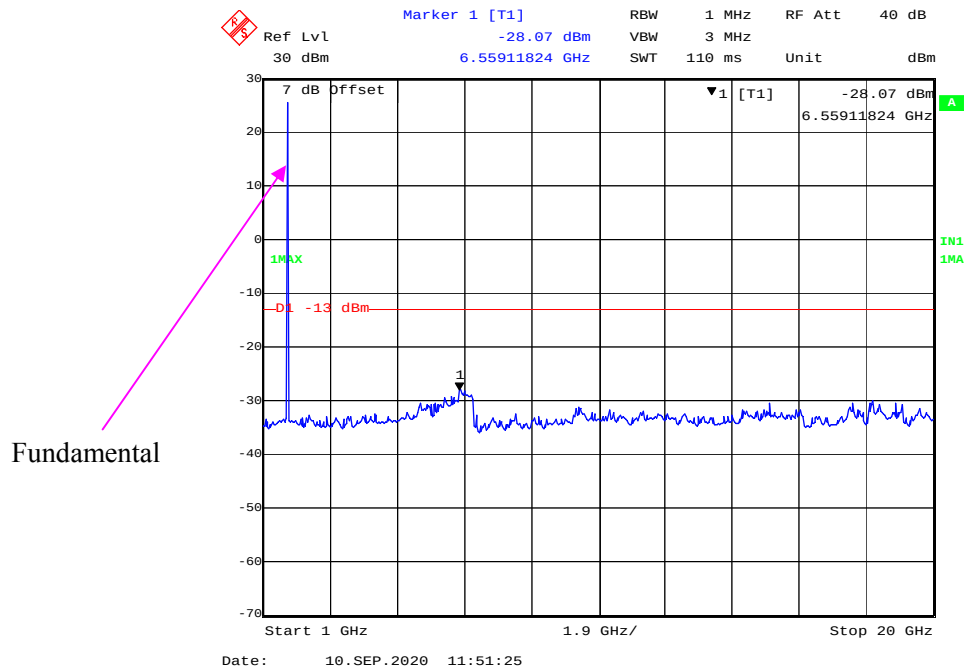
1 GHz – 20 GHz (1.4 MHz, QPSK, Low Channel)



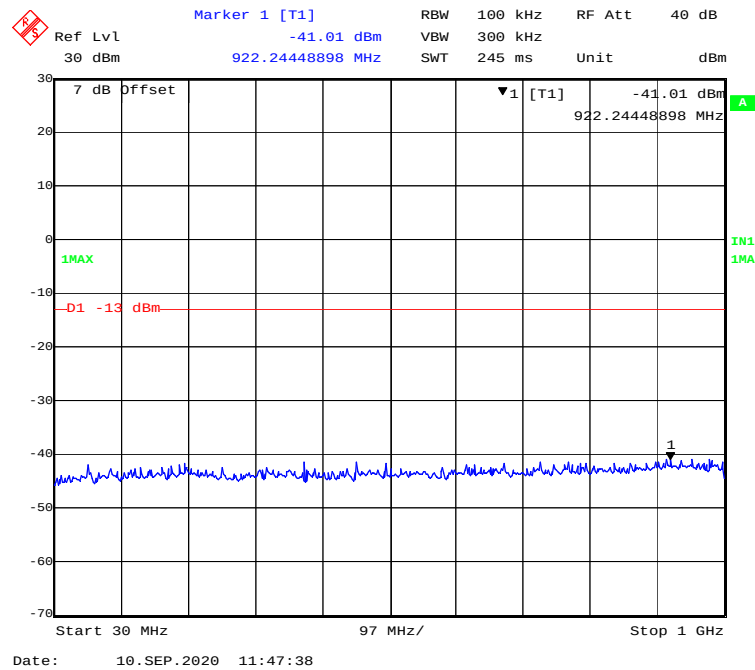
30 MHz – 1 GHz (1.4 MHz, 16-QAM, Low Channel)



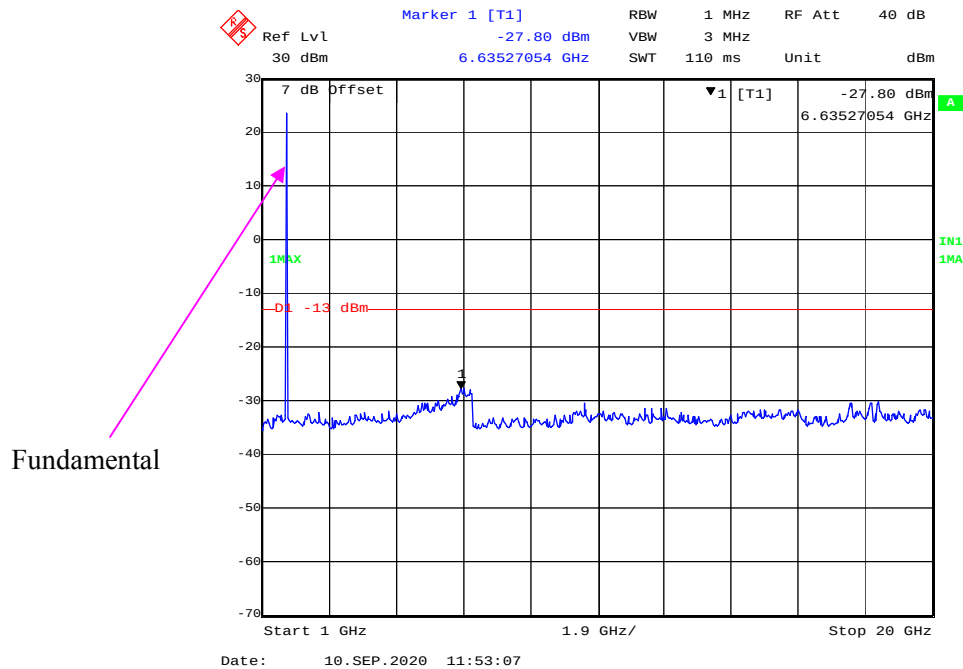
1 GHz – 20 GHz (1.4 MHz, 16-QAM, Low Channel)



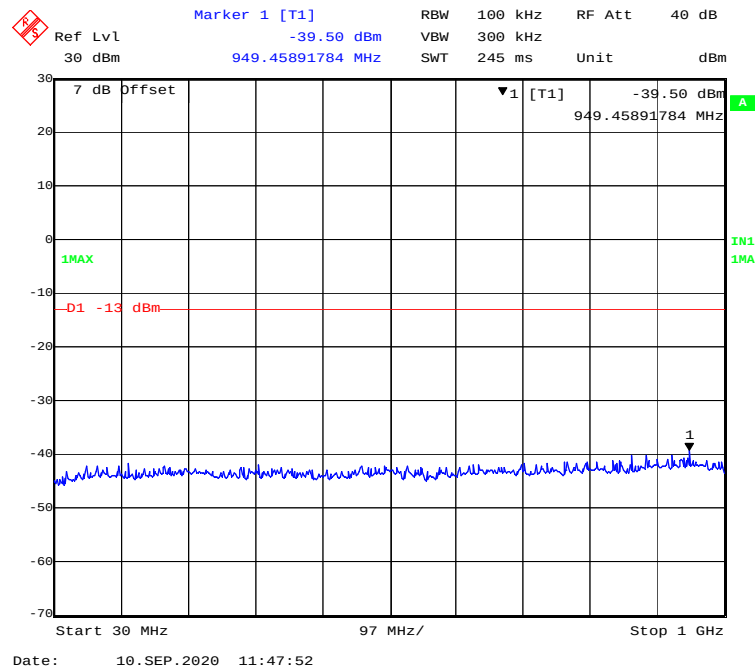
30 MHz – 1 GHz (3 MHz, QPSK, Low Channel)



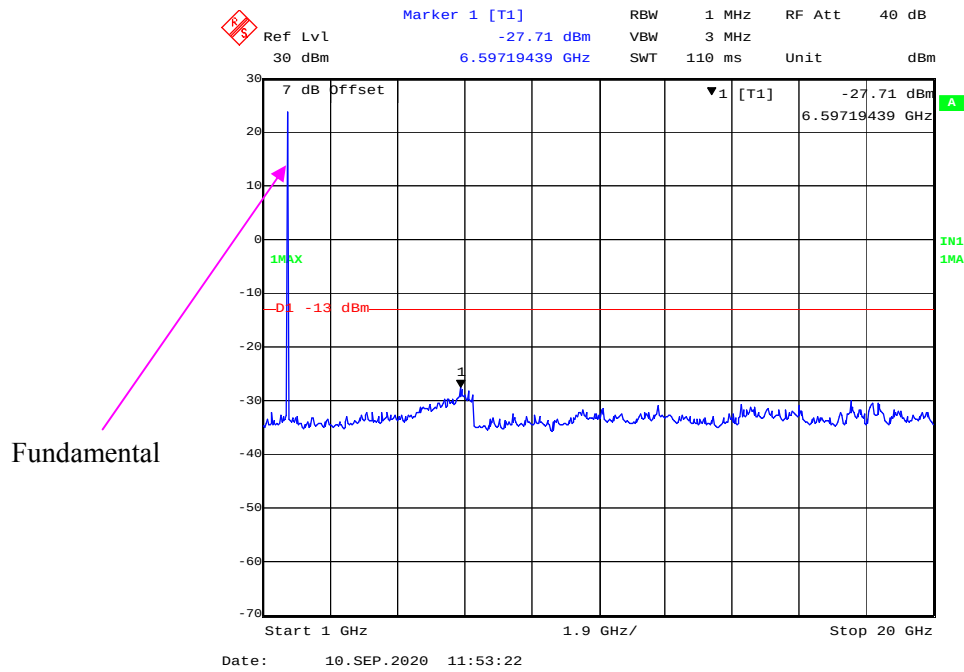
1 GHz – 20 GHz (3 MHz, QPSK, Low Channel)



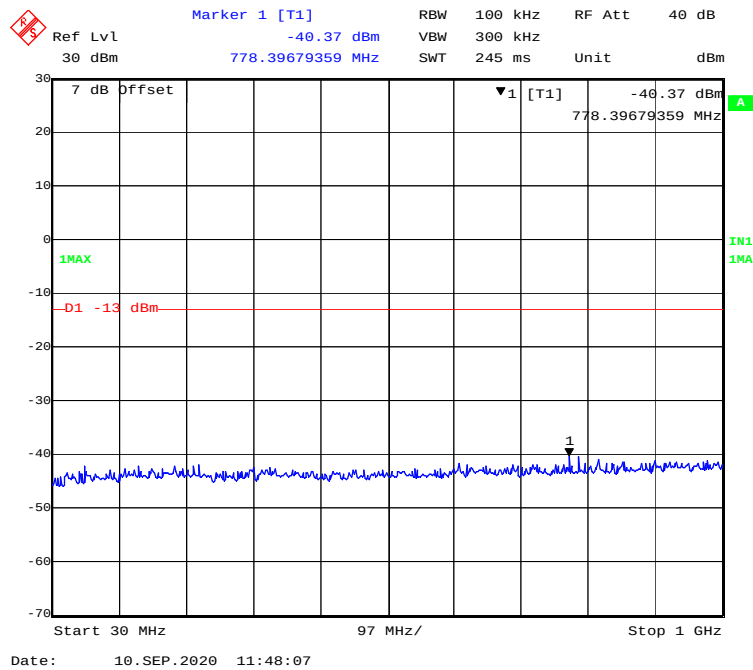
30 MHz – 1 GHz (3 MHz, 16-QAM, Low Channel)



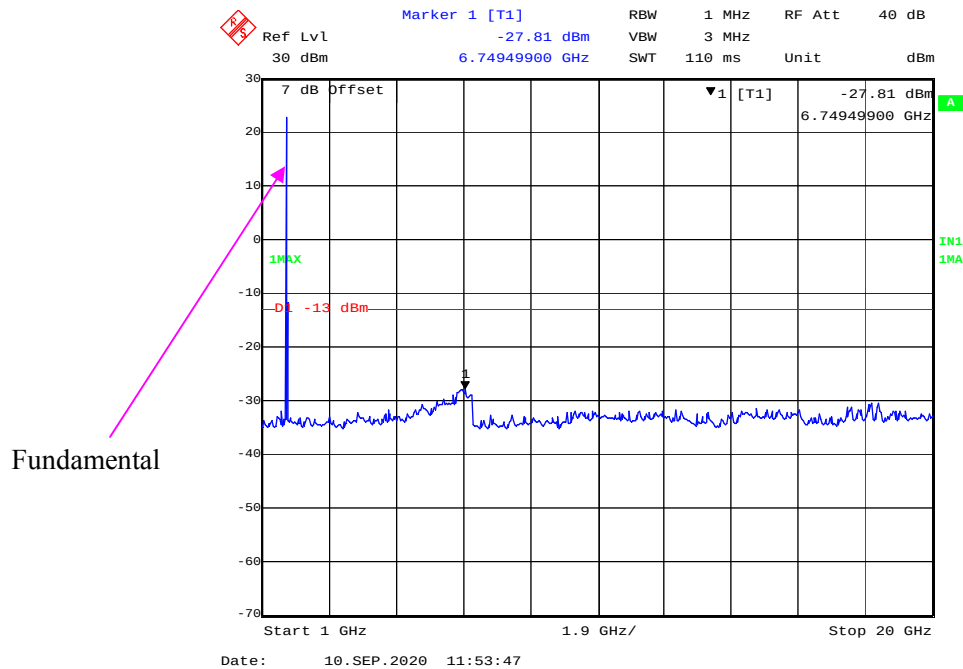
1 GHz – 20 GHz (3 MHz, 16-QAM, Low Channel)



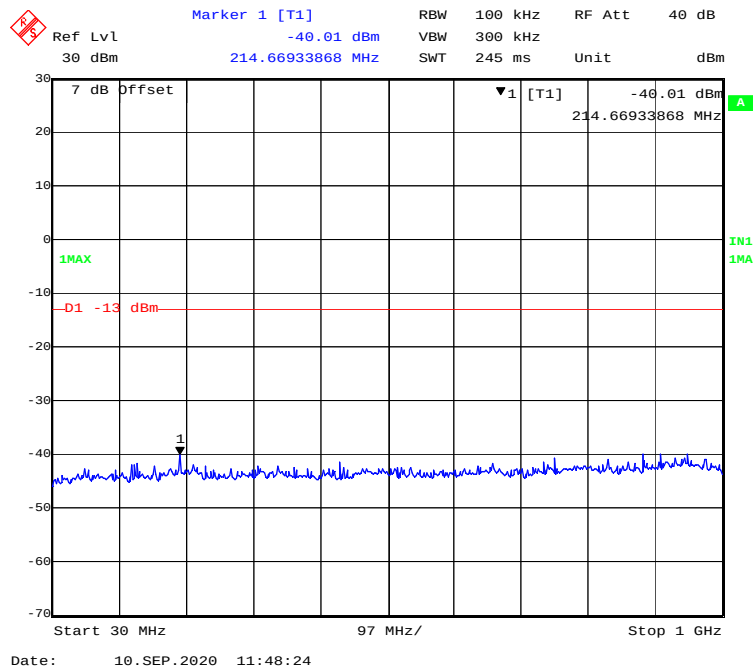
30 MHz – 1 GHz (5 MHz, QPSK, Low Channel)



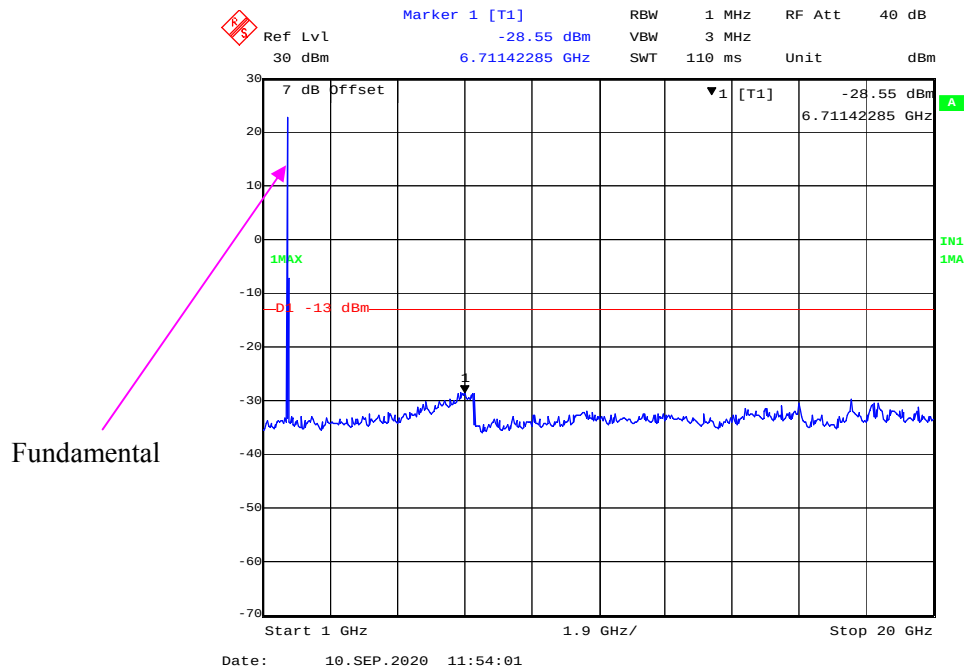
1 GHz – 20 GHz (5 MHz, QPSK, Low Channel)



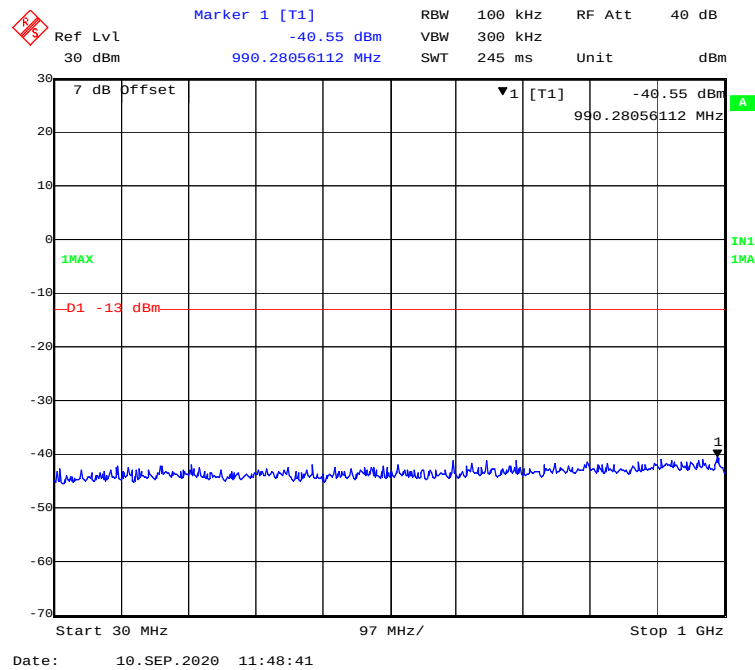
30 MHz – 1 GHz (5 MHz, 16-QAM, Low Channel)



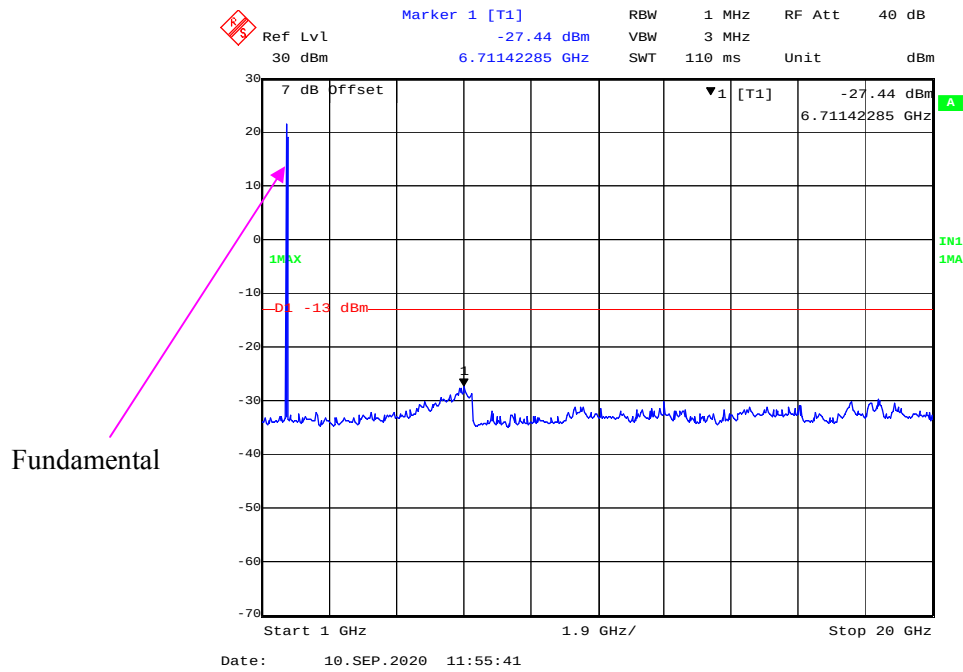
1 GHz – 20 GHz (5 MHz, 16-QAM, Low Channel)



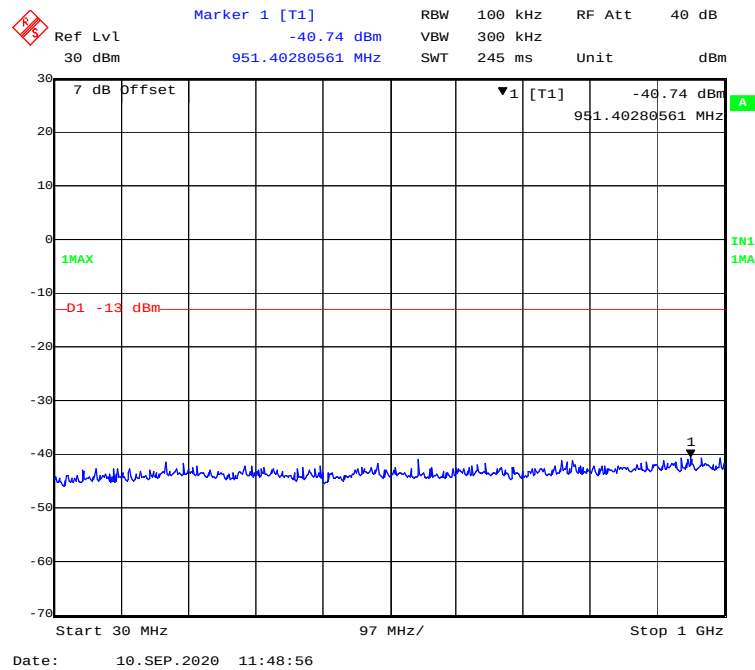
30 MHz – 1 GHz (10 MHz, QPSK, Low Channel)



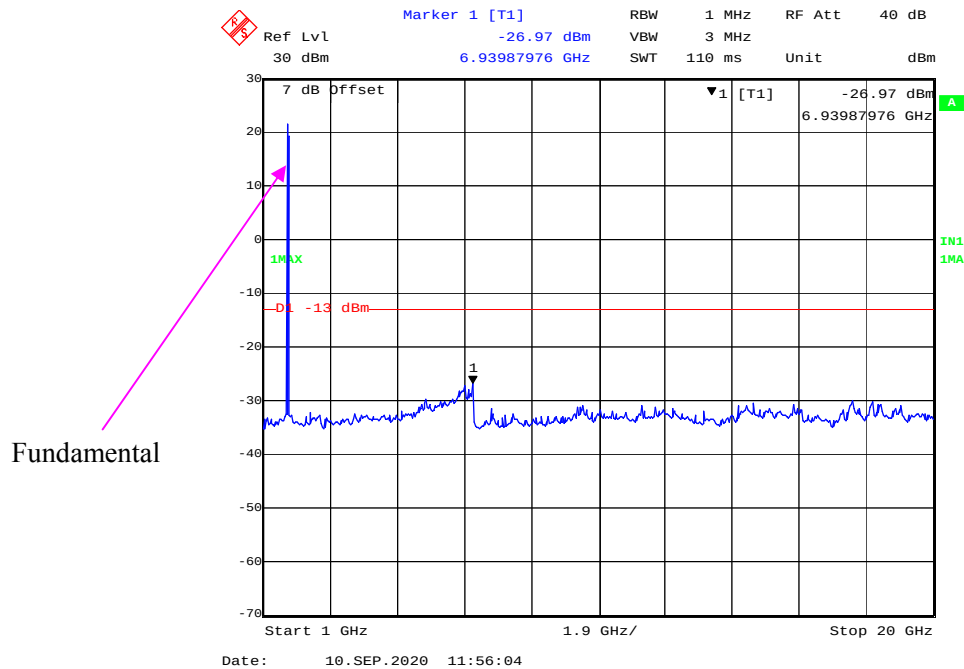
1 GHz – 20 GHz (10 MHz, QPSK, Low Channel)



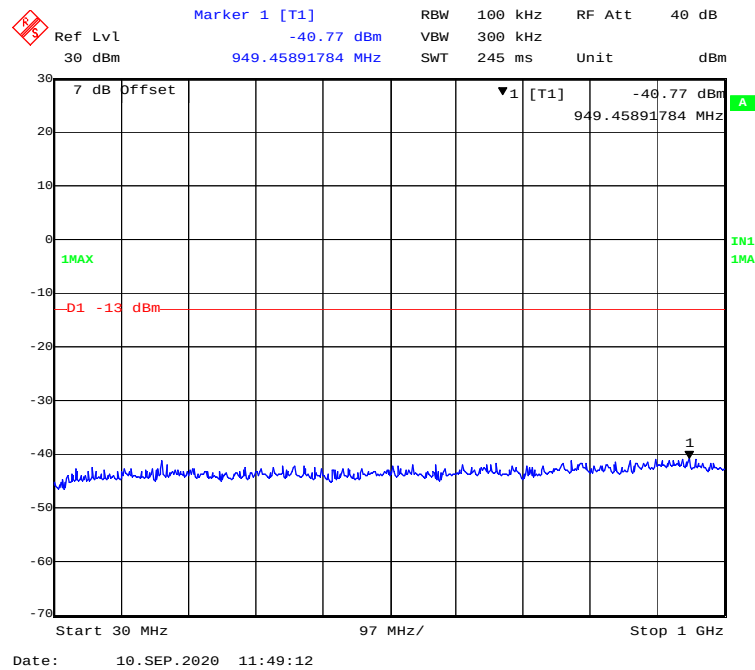
30 MHz – 1 GHz (10 MHz, 16-QAM, Low Channel)



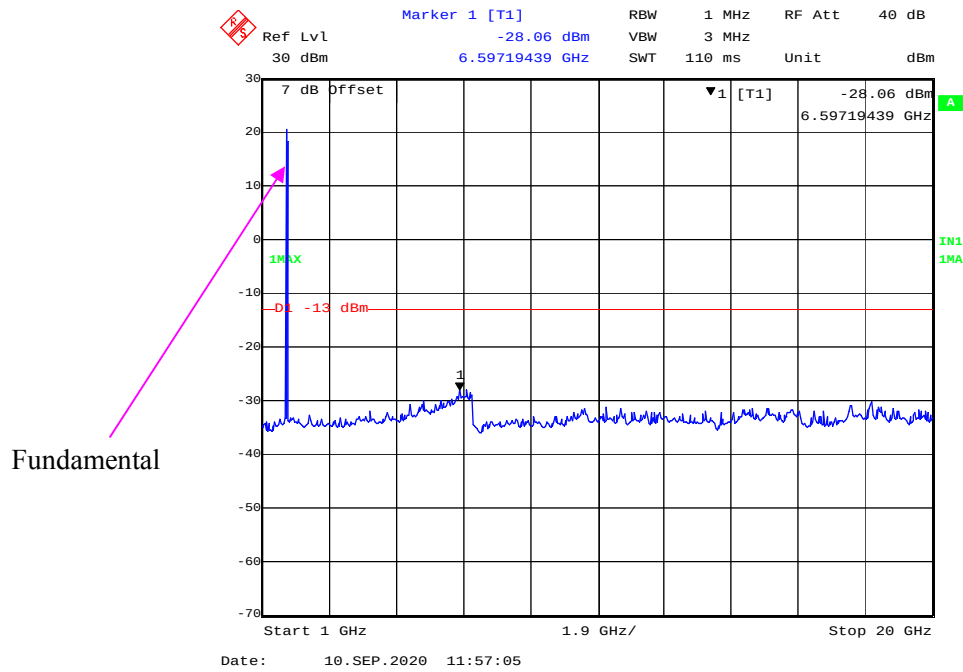
1 GHz – 20 GHz (10 MHz, 16-QAM, Low Channel)



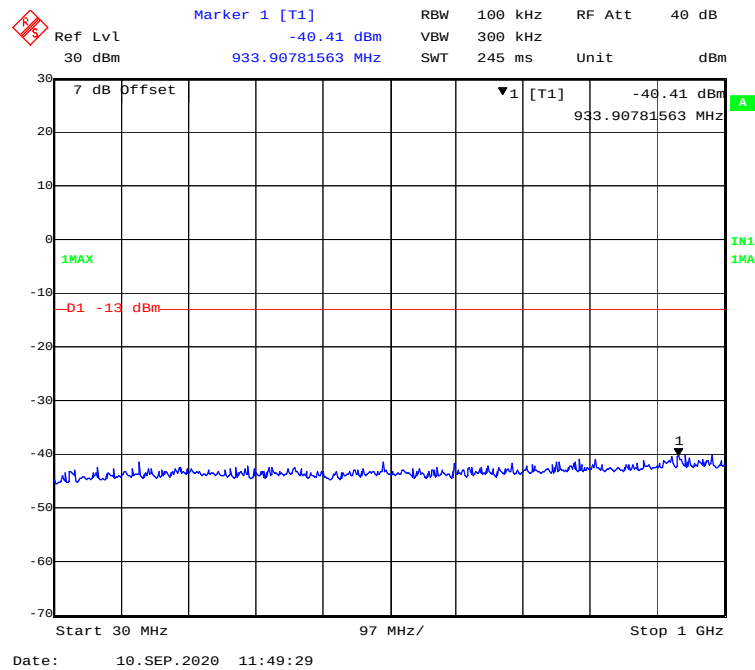
30 MHz – 1 GHz (15 MHz, QPSK, Low Channel)



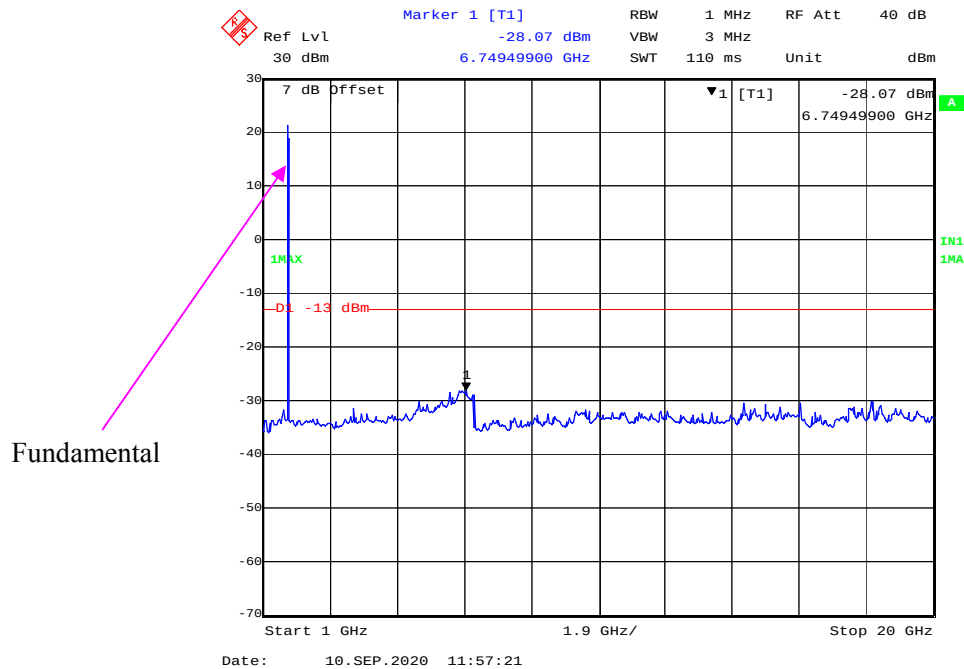
1 GHz – 20 GHz (15 MHz, QPSK, Low Channel)



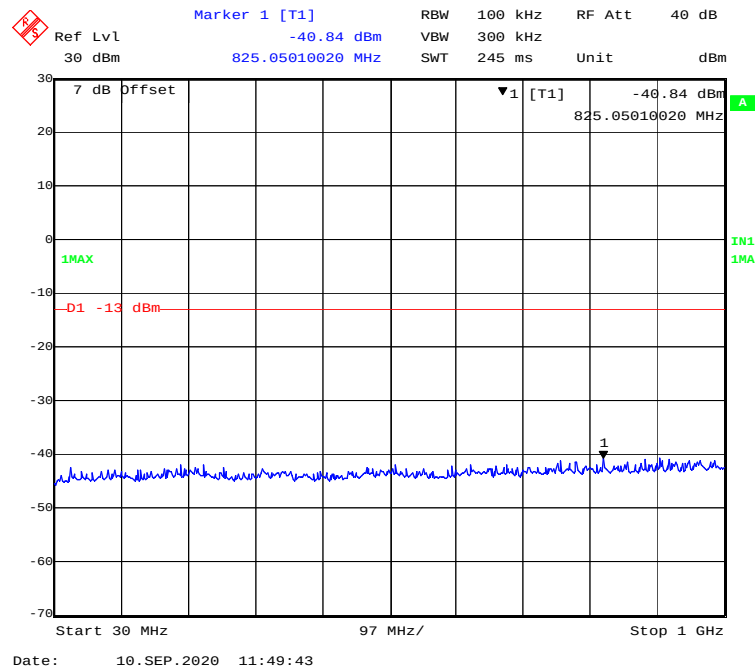
30 MHz – 1 GHz (15 MHz, 16-QAM, Low Channel)



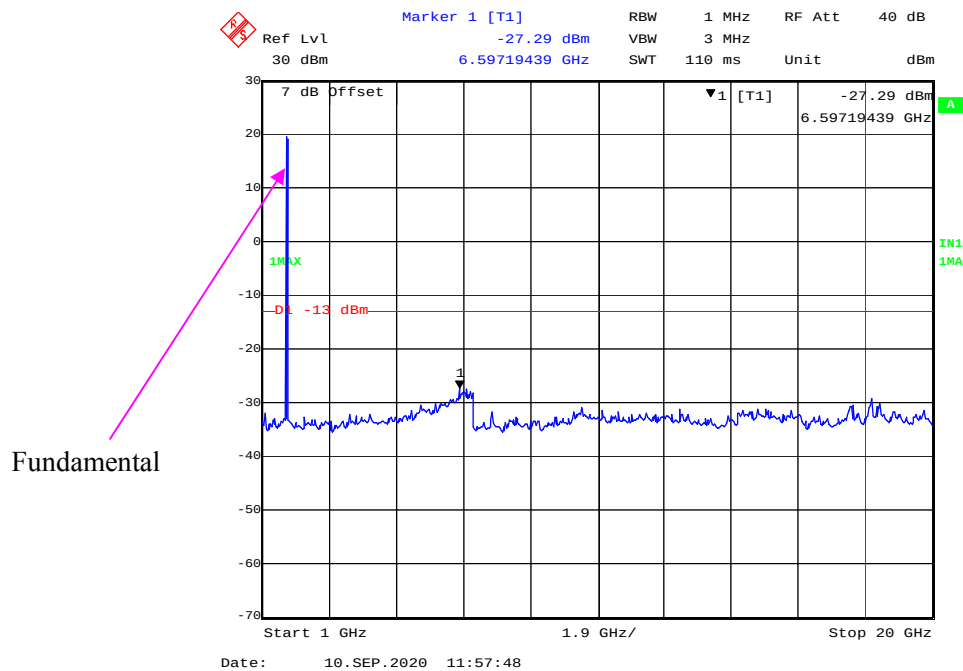
1 GHz – 20 GHz (15 MHz, 16-QAM, Low Channel)



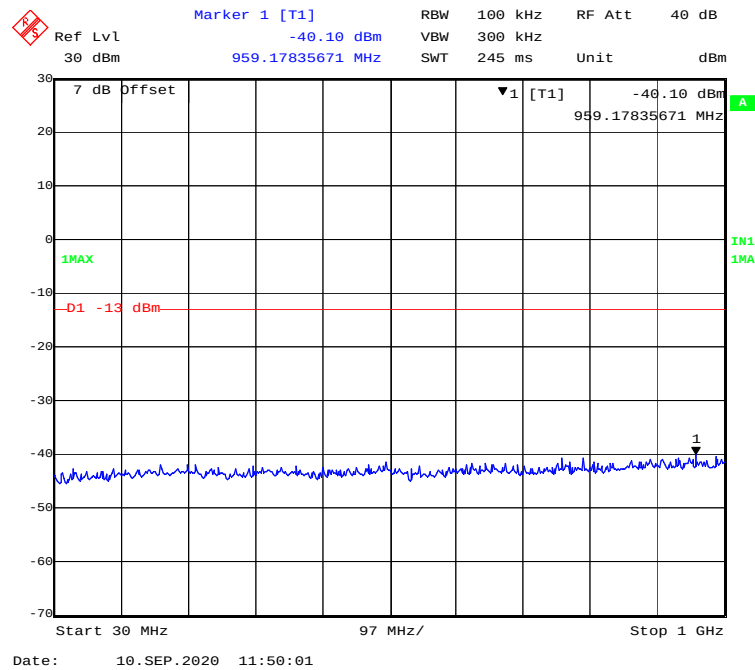
30 MHz – 1 GHz (20 MHz, QPSK, Low Channel)



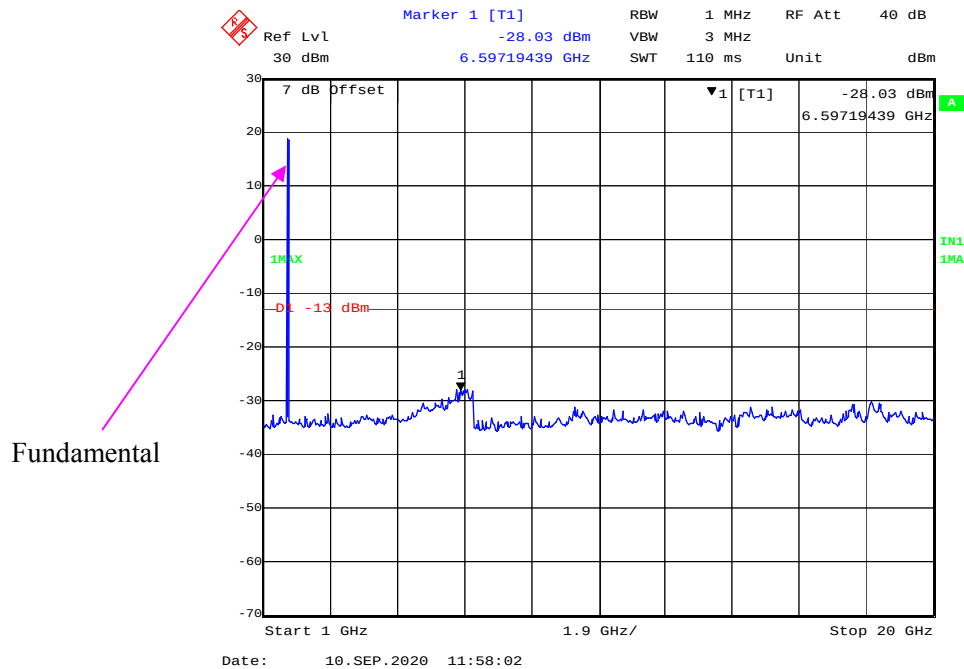
1 GHz – 20 GHz (20 MHz, QPSK, Low Channel)



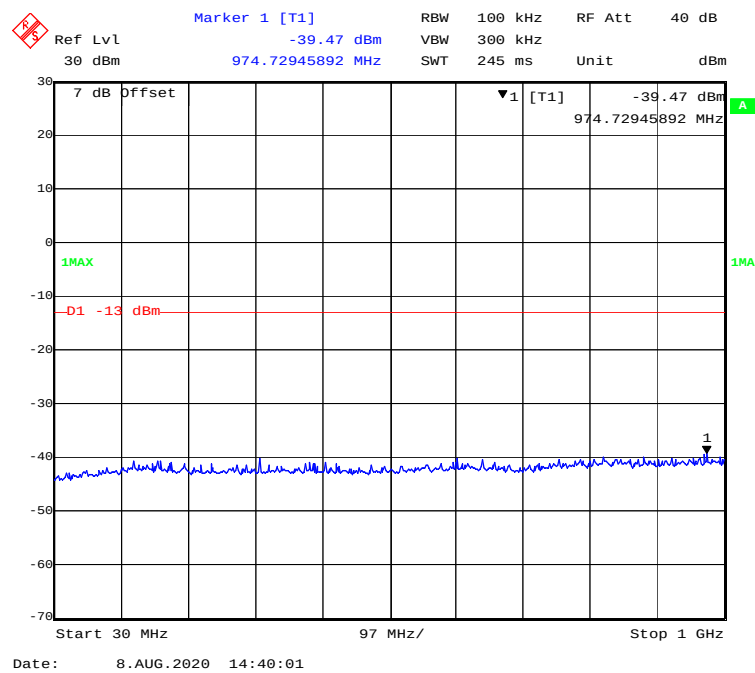
30 MHz – 1 GHz (20 MHz, 16-QAM, Low Channel)



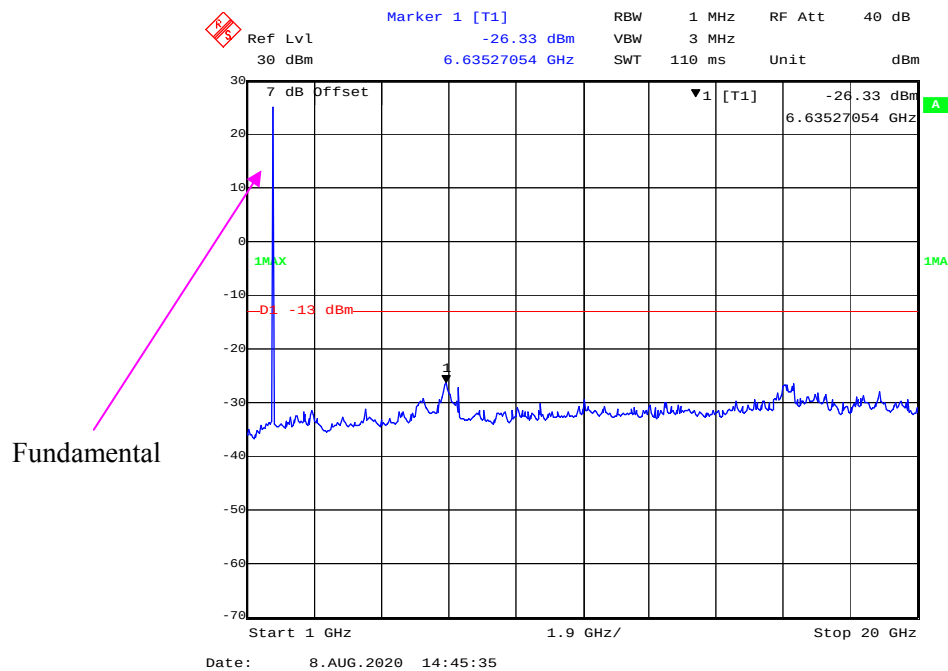
1 GHz – 20 GHz (20 MHz, 16-QAM, Low Channel)



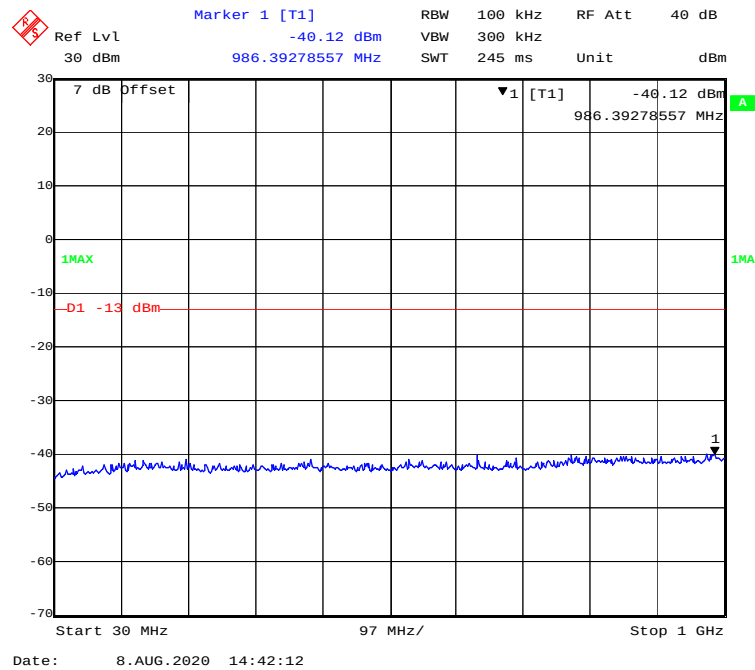
30 MHz – 1 GHz (1.4 MHz, QPSK, Middle Channel)



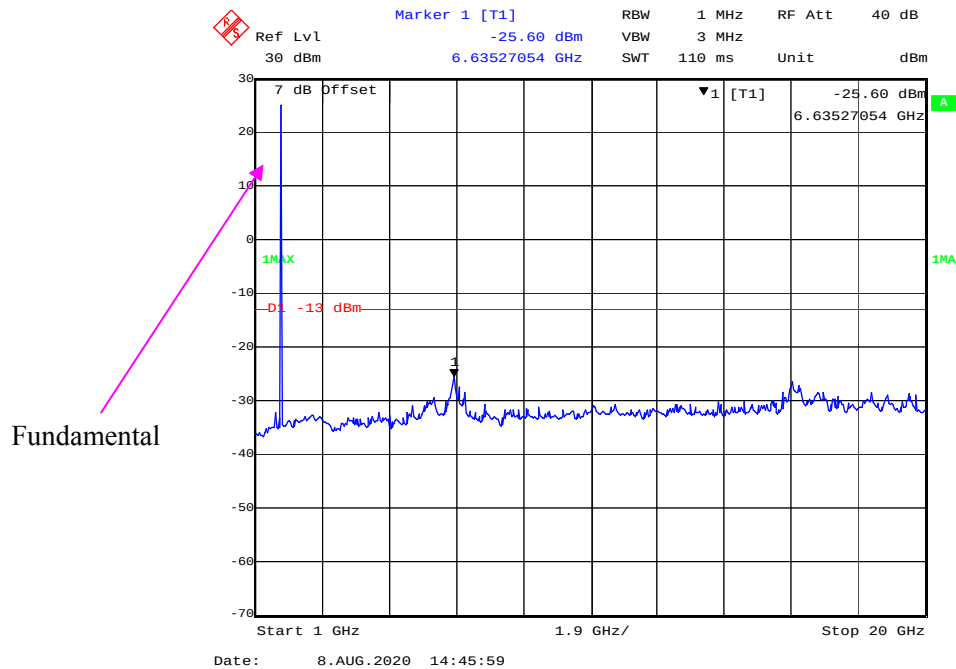
1 GHz – 20 GHz (1.4 MHz, QPSK, Middle Channel)



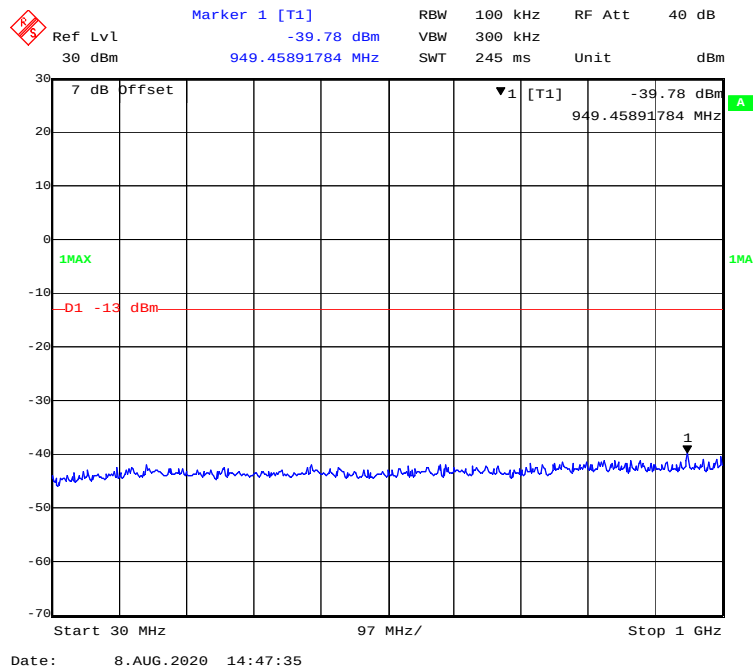
30 MHz – 1 GHz (1.4 MHz, 16-QAM, Middle Channel)



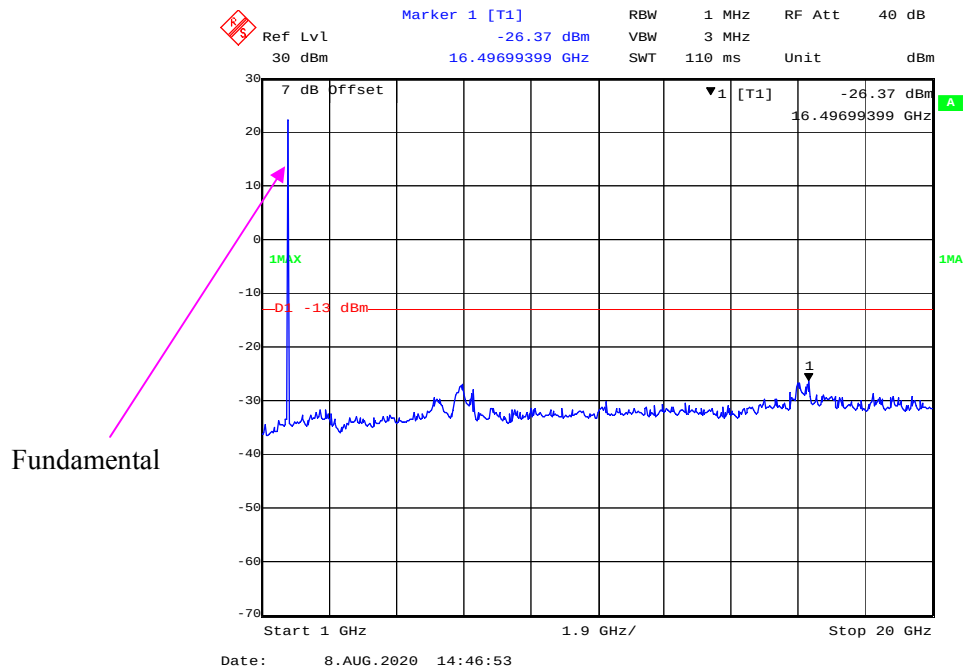
1 GHz – 20 GHz (1.4 MHz, 16-QAM, Middle Channel)



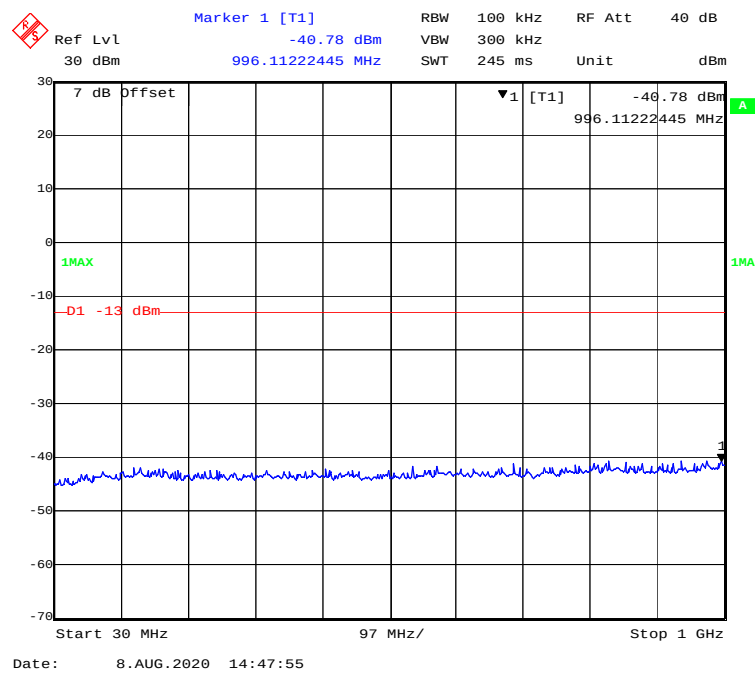
30 MHz – 1 GHz (3 MHz, QPSK, Middle Channel)



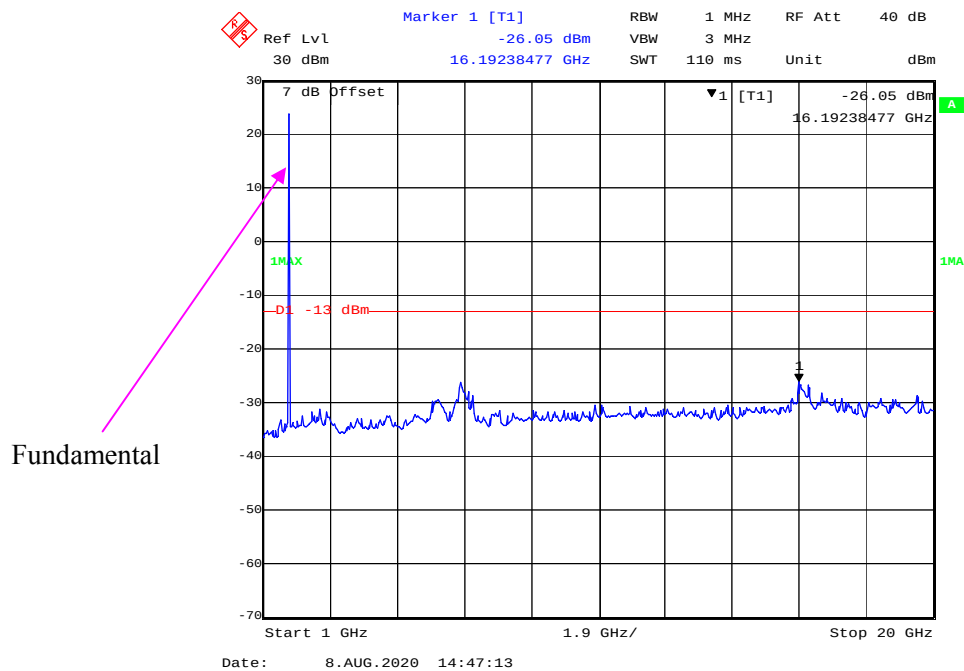
1 GHz – 20 GHz (3 MHz, QPSK, Middle Channel)



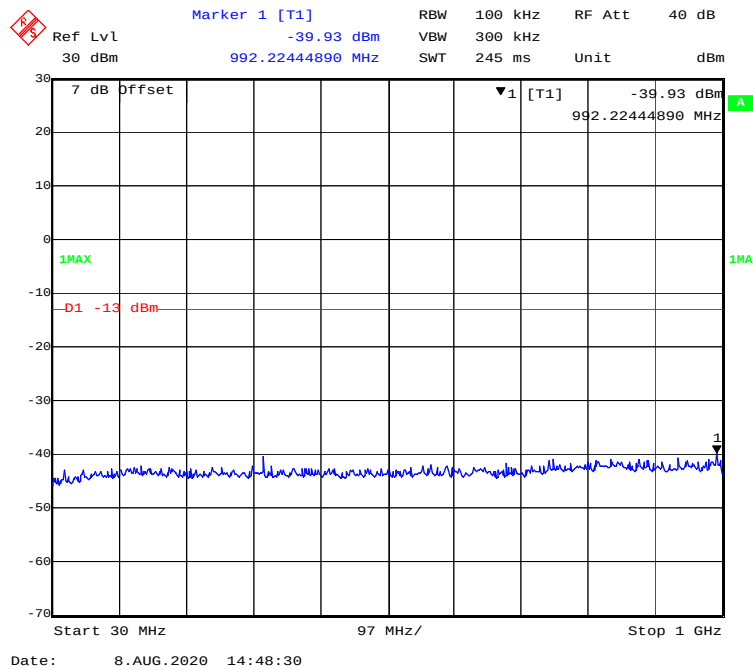
30 MHz – 1 GHz (3 MHz, 16-QAM, Middle Channel)



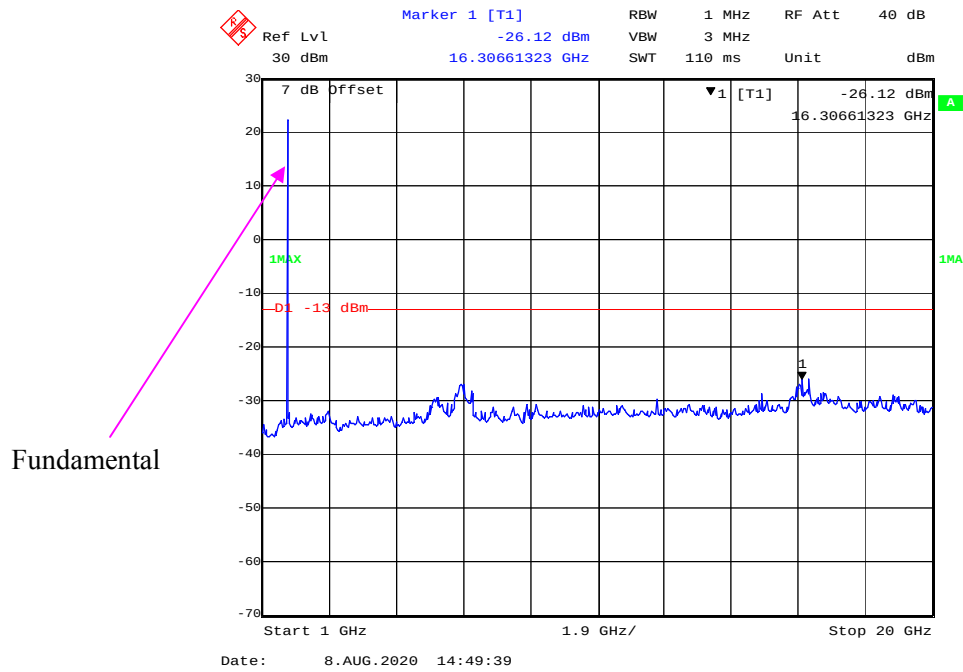
1 GHz – 20 GHz (3 MHz, 16-QAM, Middle Channel)



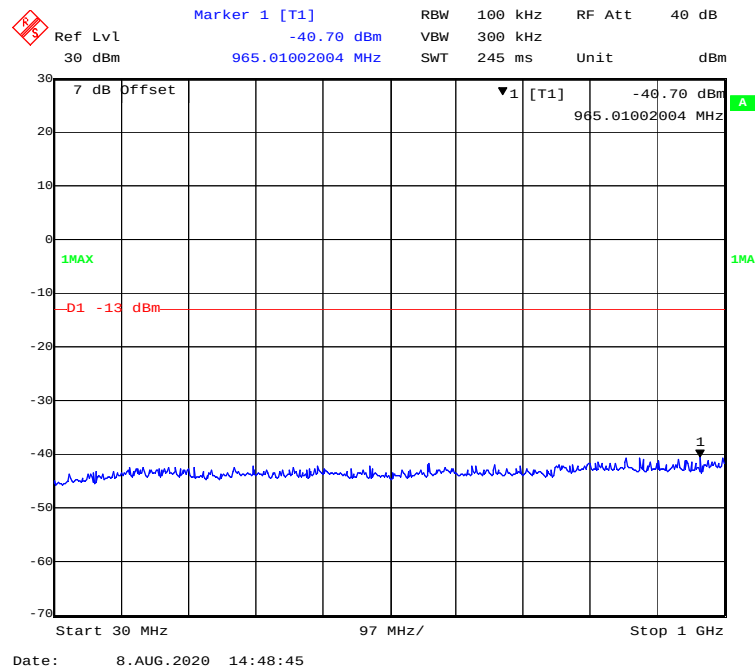
30 MHz – 1 GHz (5 MHz, QPSK, Middle Channel)



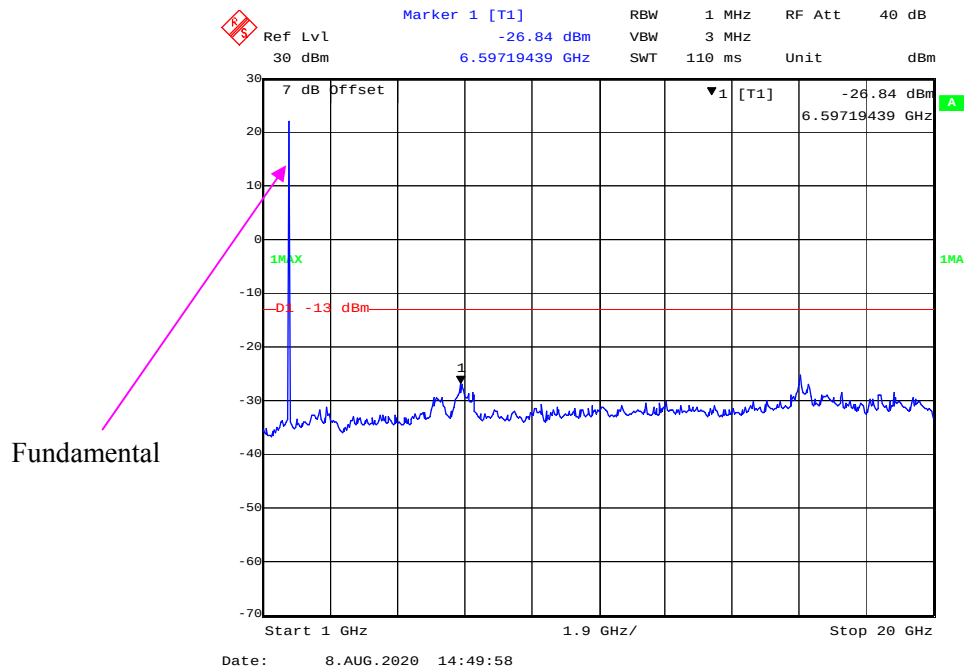
1 GHz – 20 GHz (5 MHz, QPSK, Middle Channel)



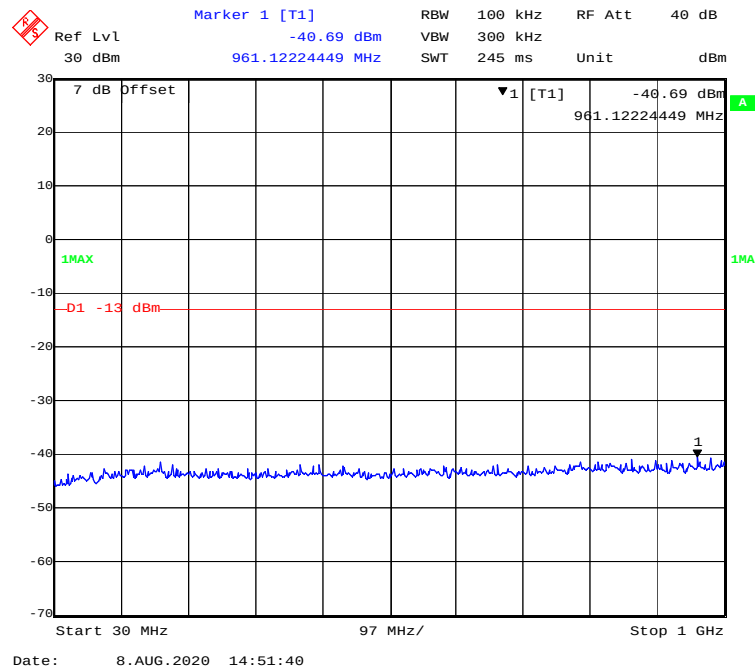
30 MHz – 1 GHz (5 MHz, 16-QAM, Middle Channel)



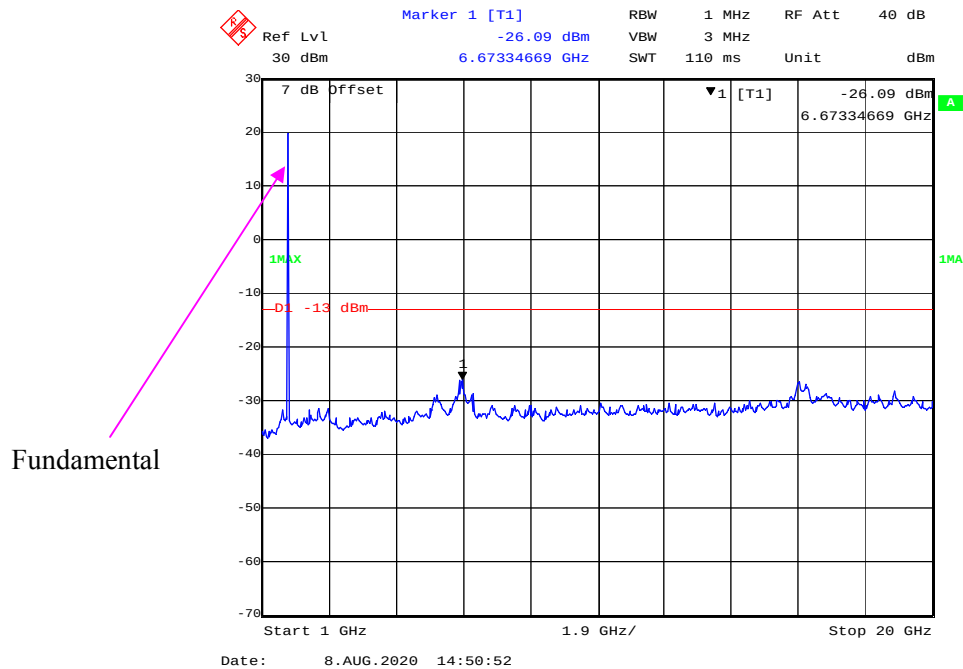
1 GHz – 20 GHz (5 MHz, 16-QAM, Middle Channel)



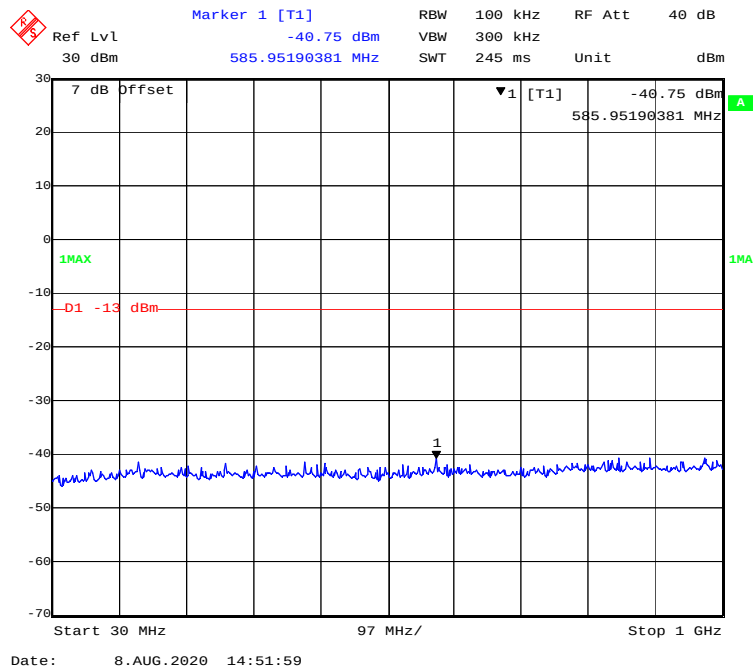
30 MHz – 1 GHz (10 MHz, QPSK, Middle Channel)



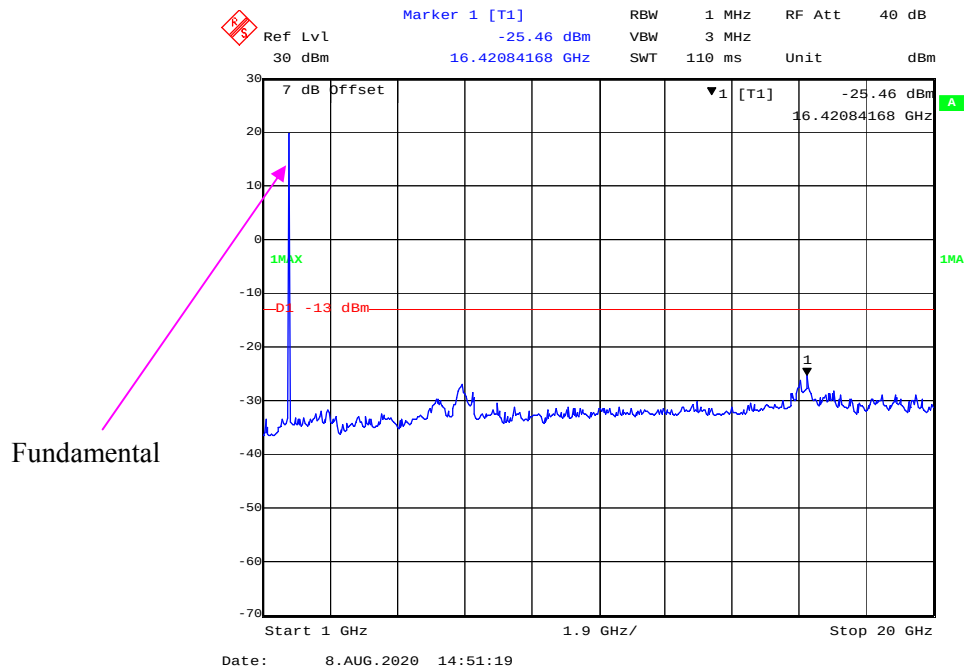
1 GHz – 20 GHz (10 MHz, QPSK, Middle Channel)



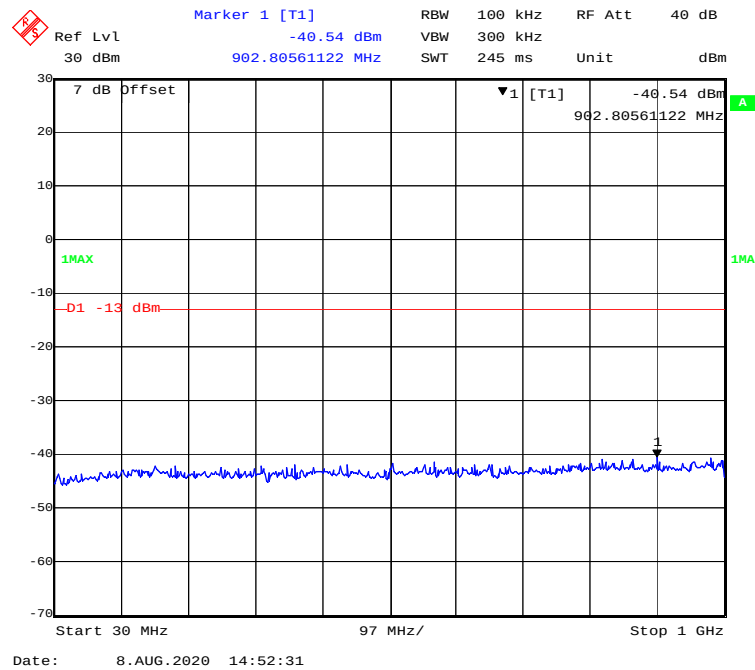
30 MHz – 1 GHz (10 MHz, 16-QAM, Middle Channel)



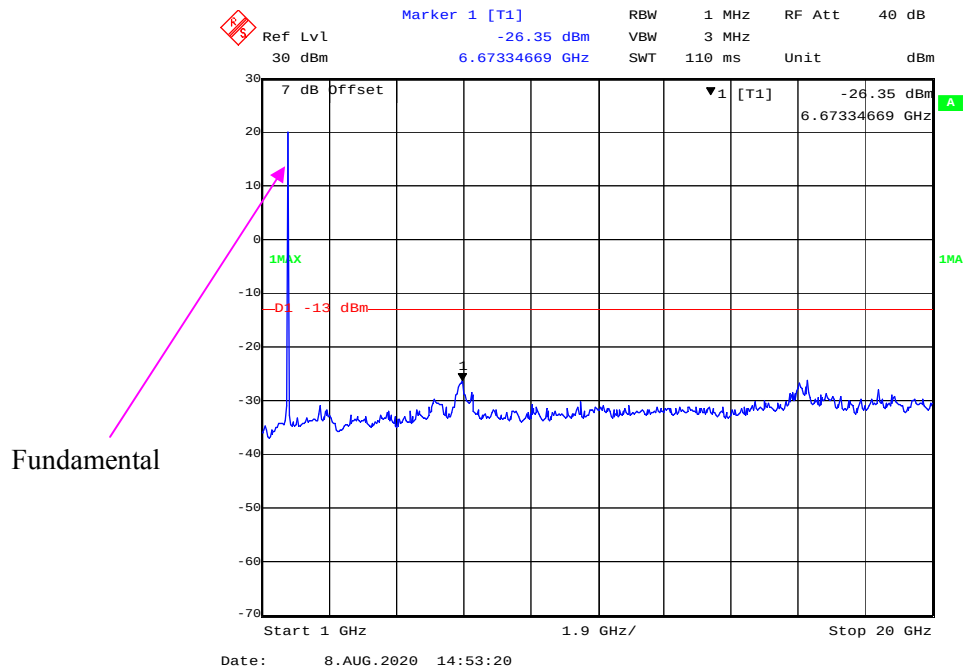
1 GHz – 20 GHz (10 MHz, 16-QAM, Middle Channel)



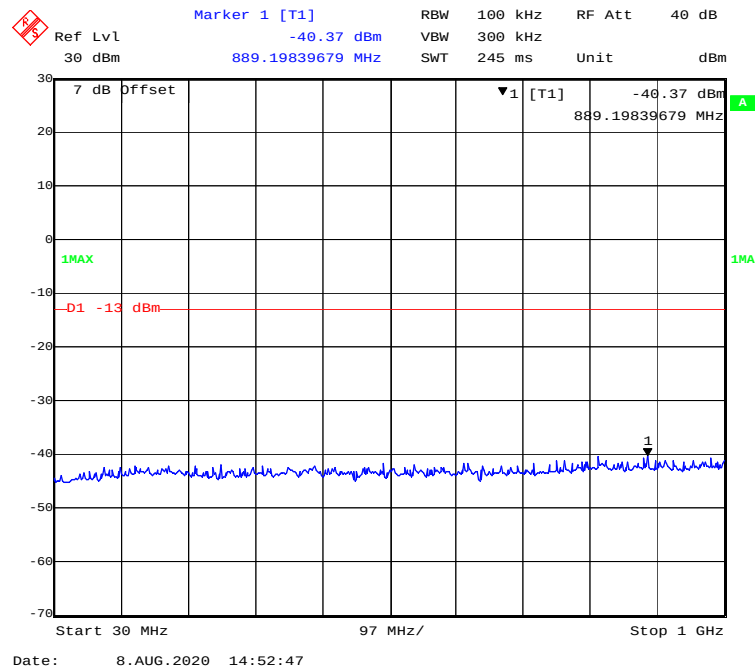
30 MHz – 1 GHz (15 MHz, QPSK, Middle Channel)



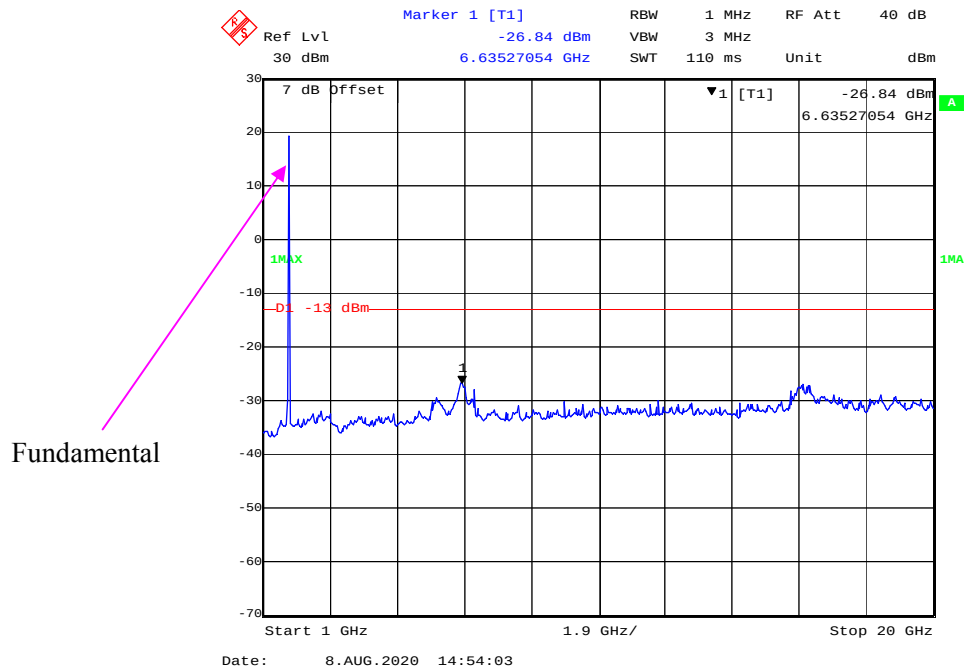
1 GHz – 20 GHz (15 MHz, QPSK, Middle Channel)



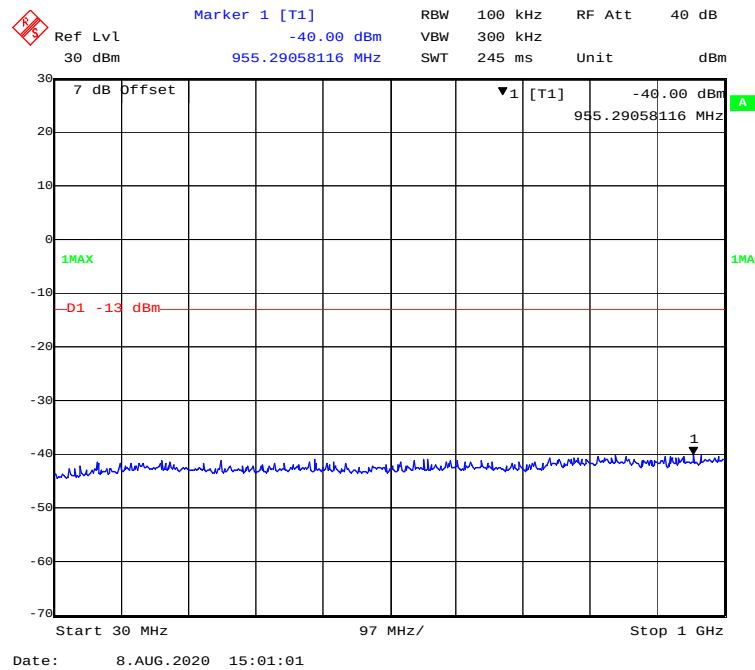
30 MHz – 1 GHz (15 MHz, 16-QAM, Middle Channel)



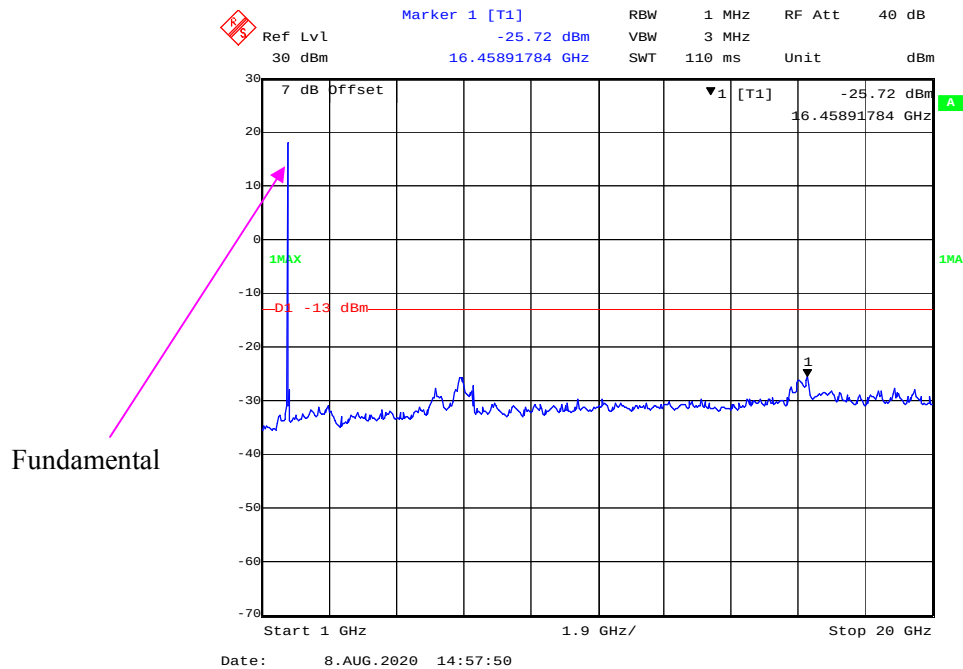
1 GHz – 20 GHz (15 MHz, 16-QAM, Middle Channel)



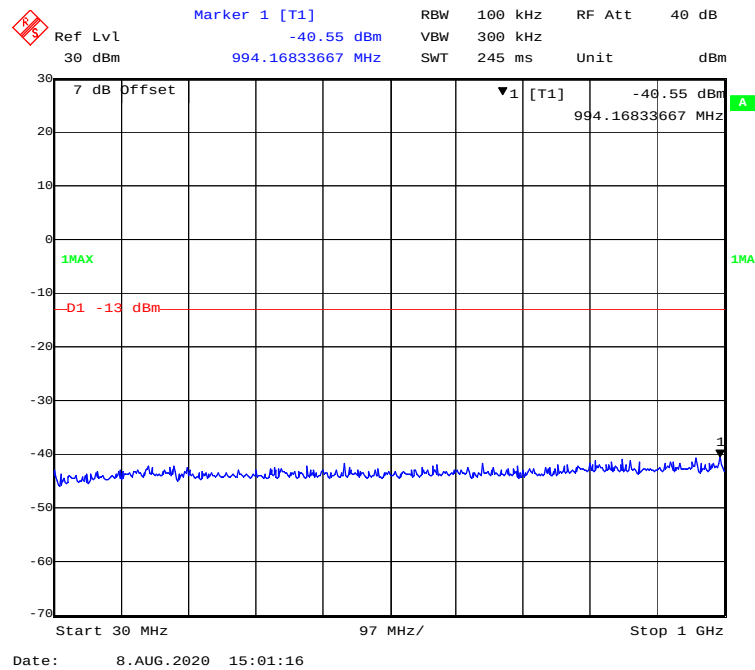
30 MHz – 1 GHz (20 MHz, QPSK, Middle Channel)



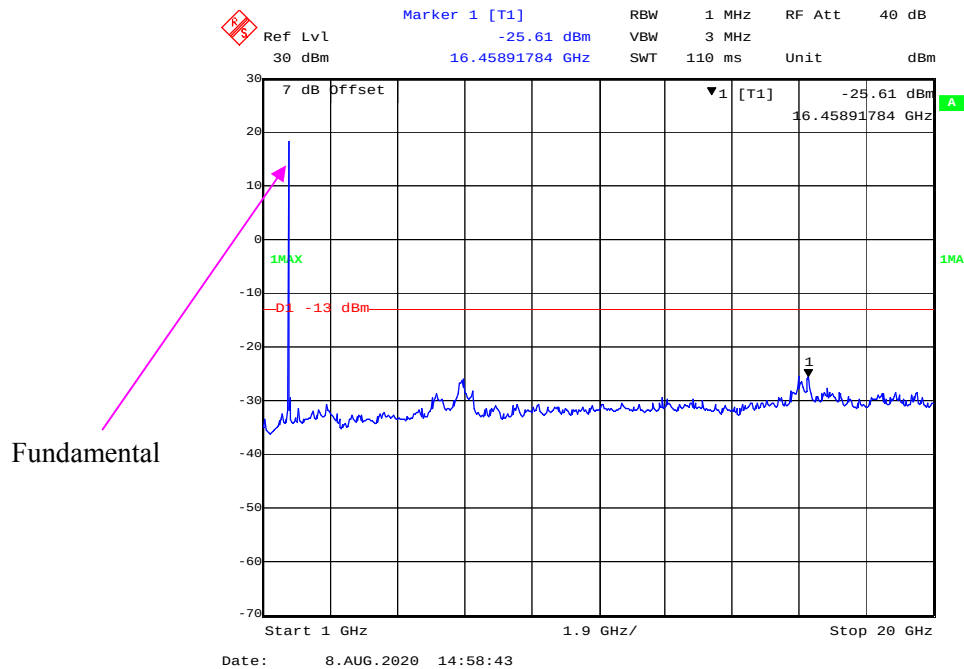
1 GHz – 20 GHz (20 MHz, QPSK, Middle Channel)



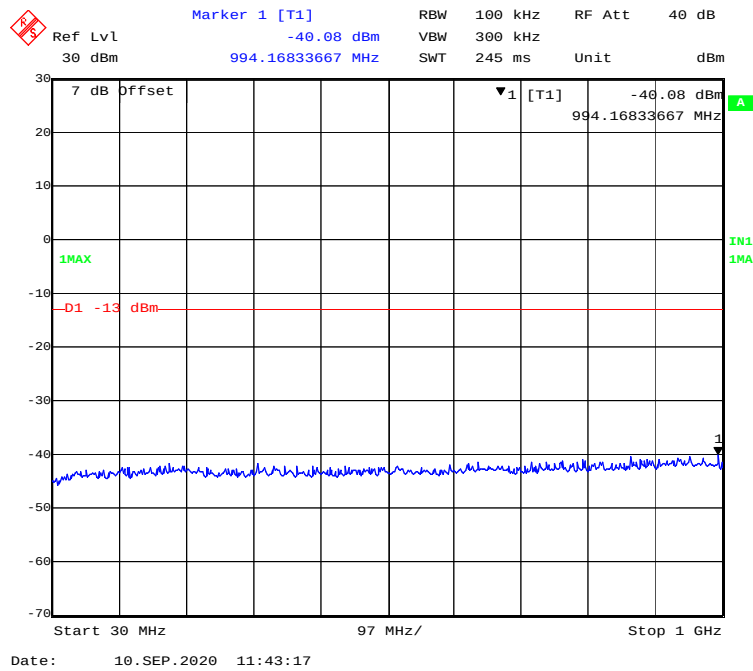
30 MHz – 1 GHz (20 MHz, 16-QAM, Middle Channel)



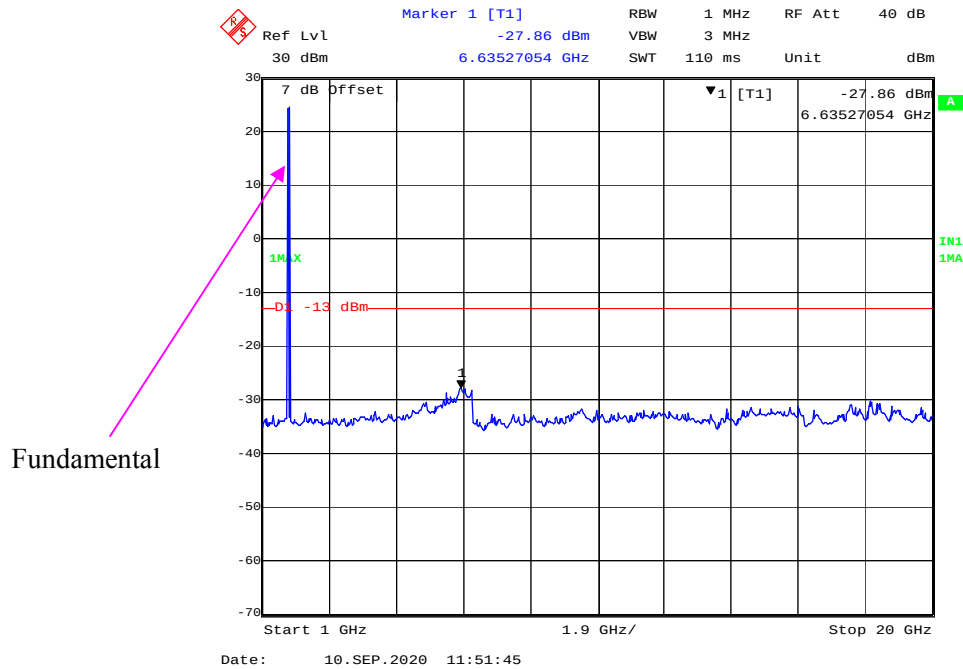
1 GHz – 20 GHz (20 MHz, 16-QAM, Middle Channel)



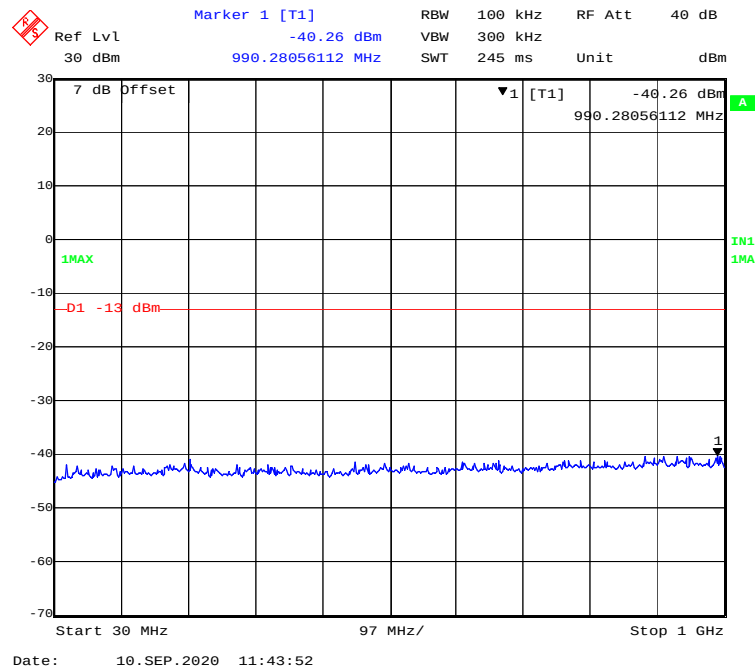
30 MHz – 1 GHz (1.4 MHz, QPSK, High Channel)



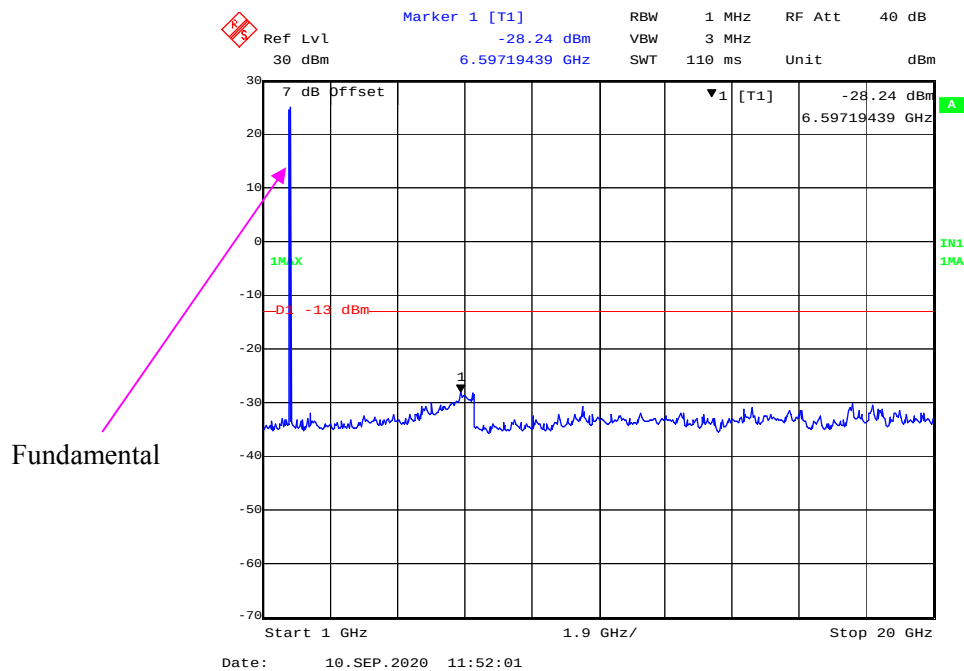
1 GHz – 20 GHz (1.4 MHz, QPSK, High Channel)



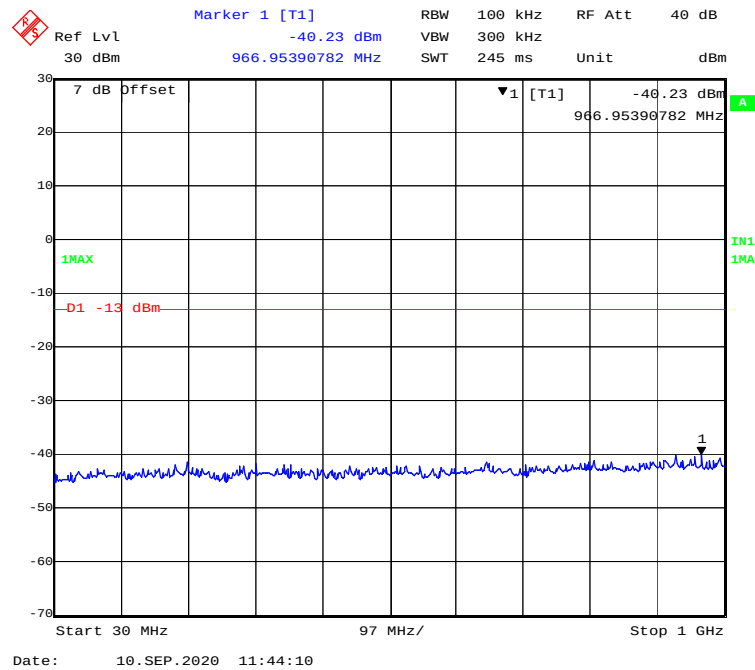
30 MHz – 1 GHz (1.4 MHz, 16-QAM, High Channel)



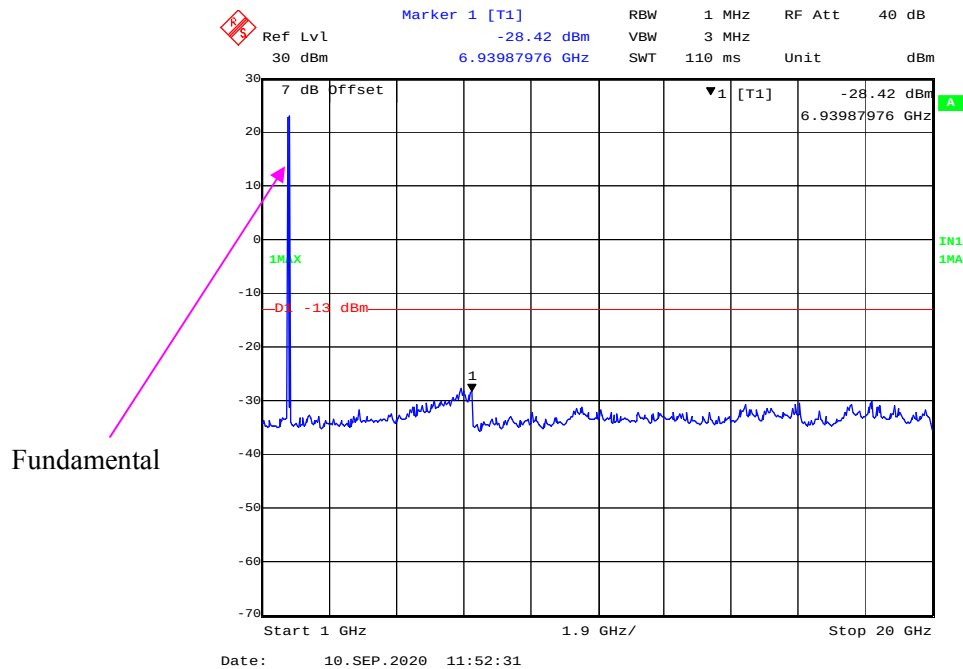
1 GHz – 20 GHz (1.4 MHz, 16-QAM, High Channel)



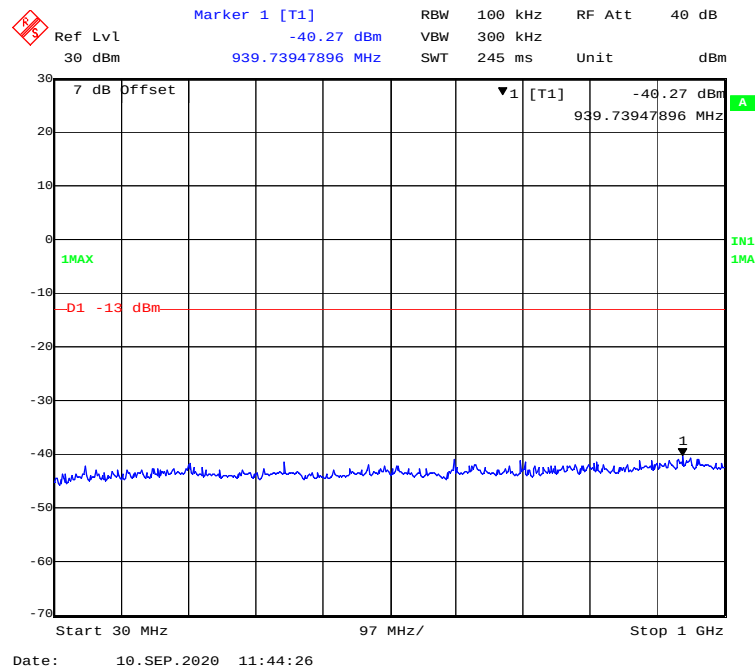
30 MHz – 1 GHz (3 MHz, QPSK, High Channel)



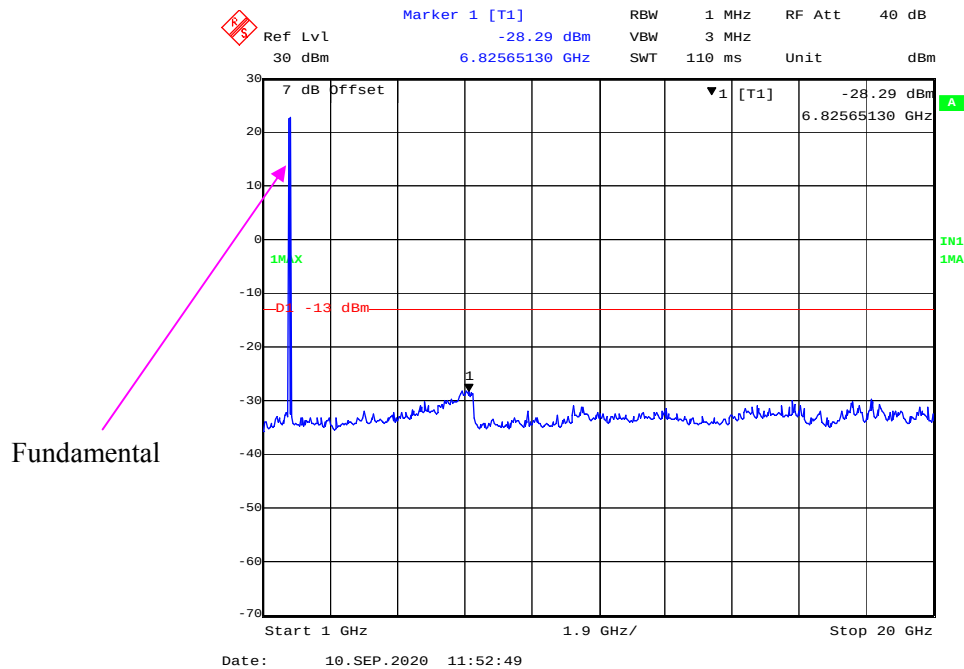
1 GHz – 20 GHz (3 MHz, QPSK, High Channel)



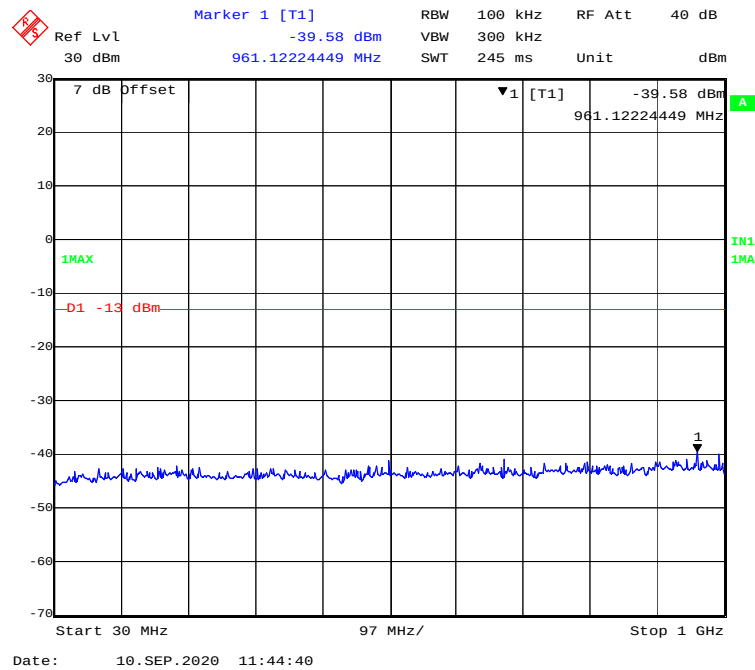
30 MHz – 1 GHz (3 MHz, 16-QAM, High Channel)



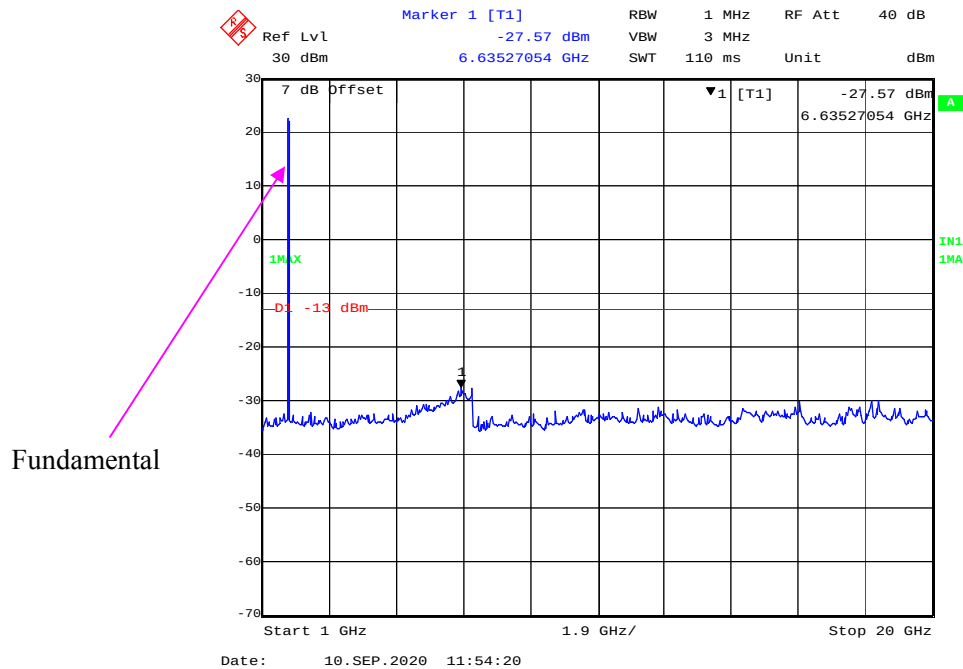
1 GHz – 20 GHz (3 MHz, 16-QAM, High Channel)



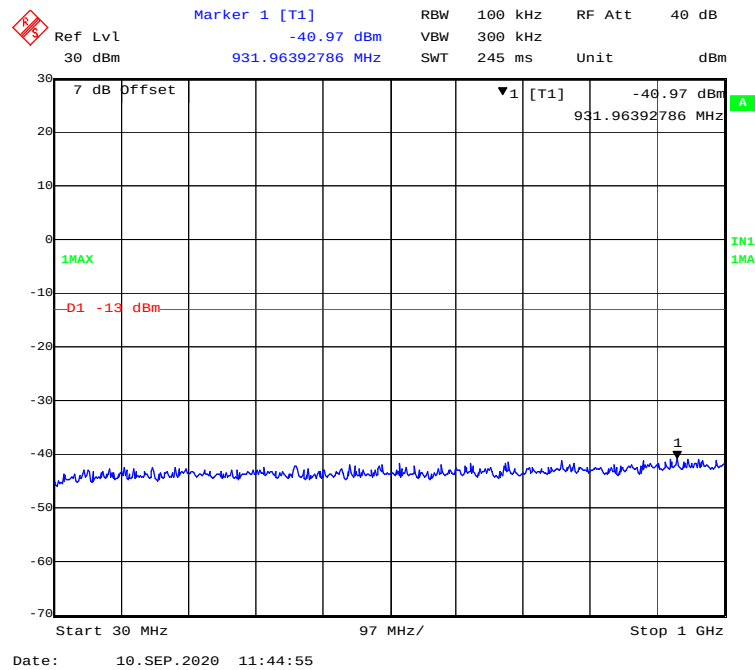
30 MHz – 1 GHz (5 MHz, QPSK, High Channel)



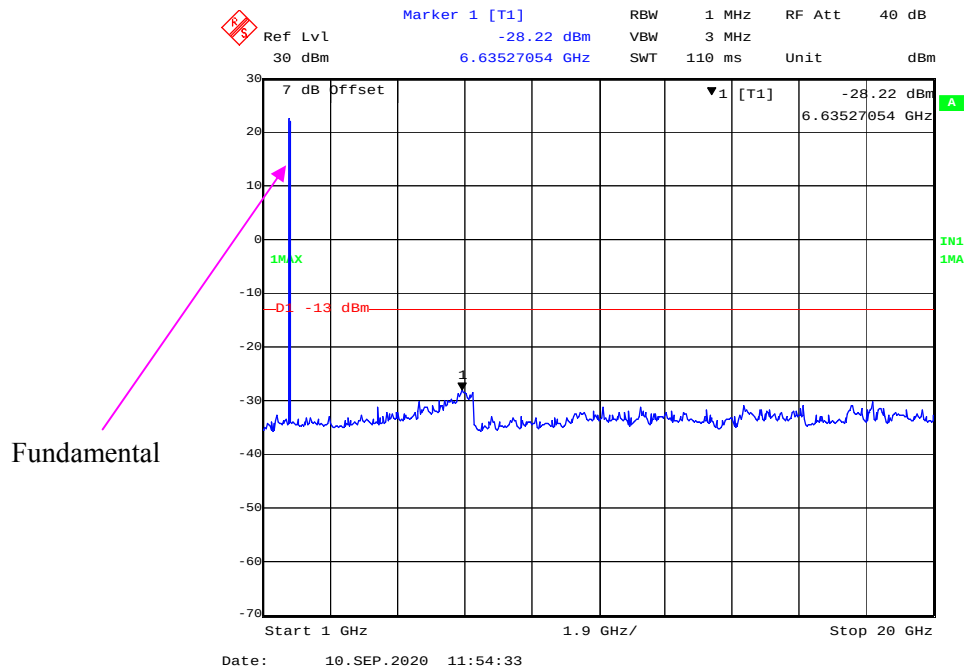
1 GHz – 20 GHz (5 MHz, QPSK, High Channel)



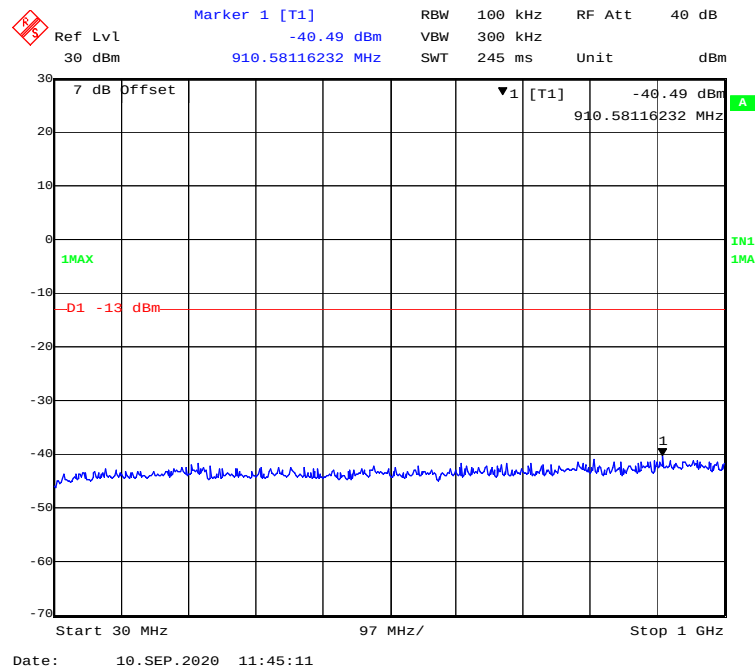
30 MHz – 1 GHz (5 MHz, 16-QAM, High Channel)



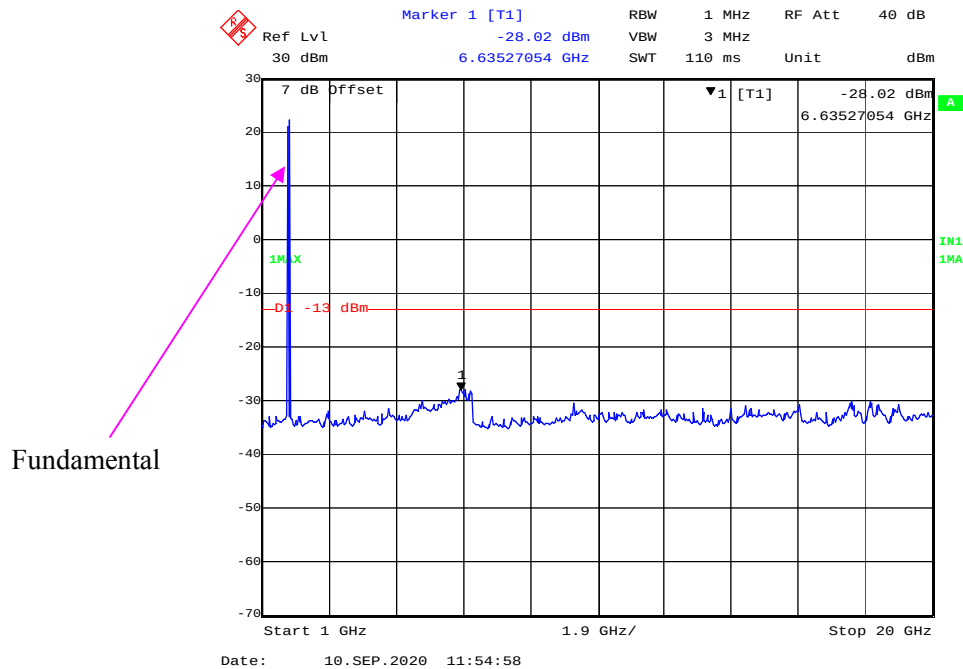
1 GHz – 20 GHz (5 MHz, 16-QAM, High Channel)



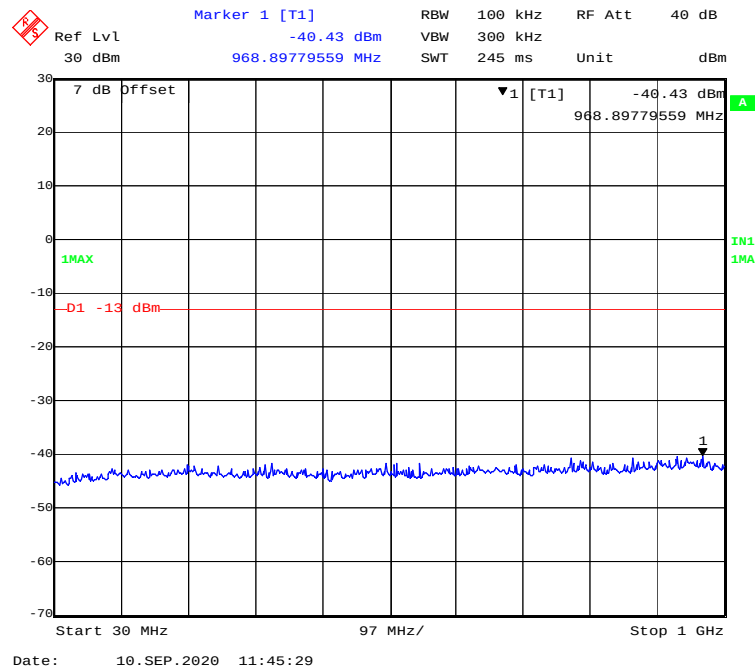
30 MHz – 1 GHz (10 MHz, QPSK, High Channel)



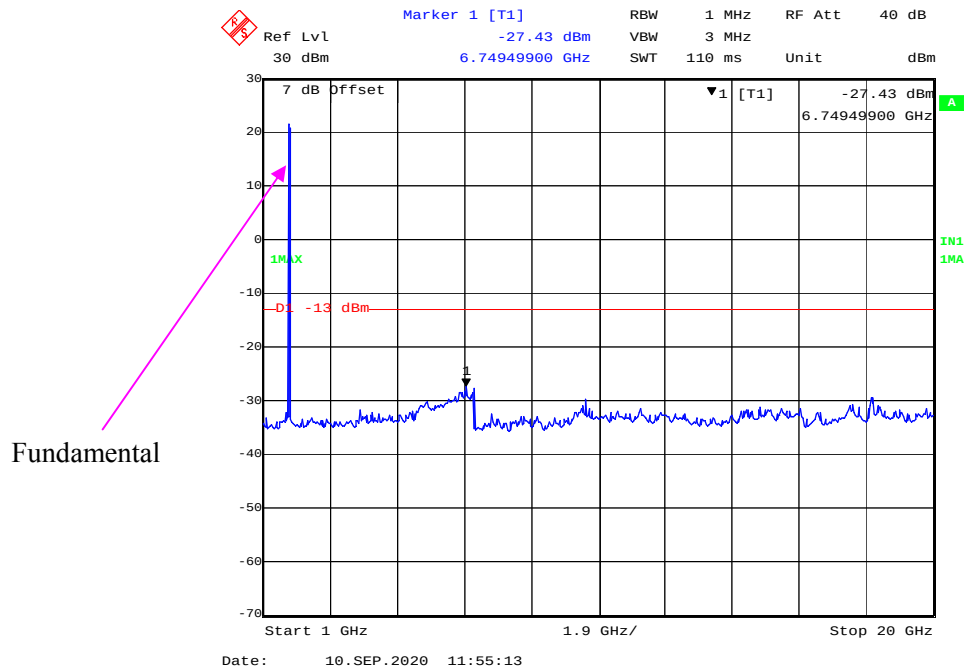
1 GHz – 20 GHz (10 MHz, QPSK, High Channel)



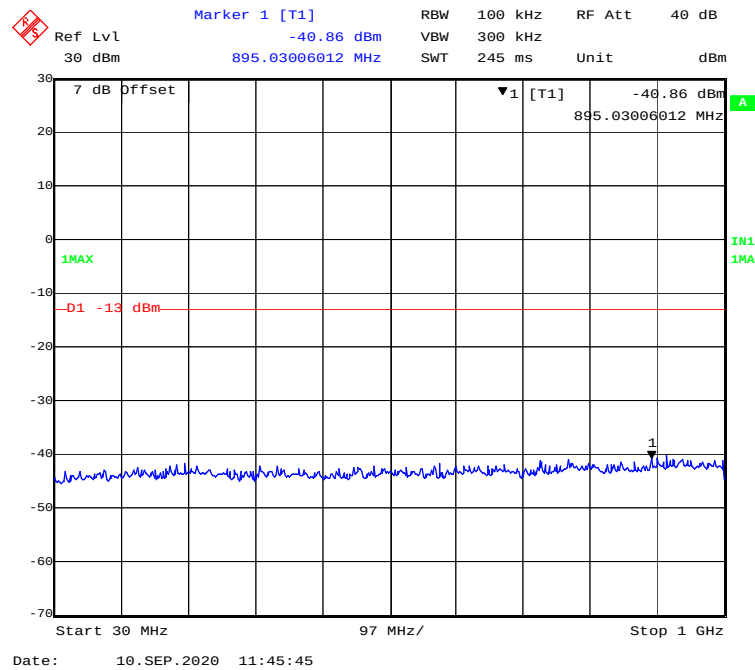
30 MHz – 1 GHz (10 MHz, 16-QAM, High Channel)



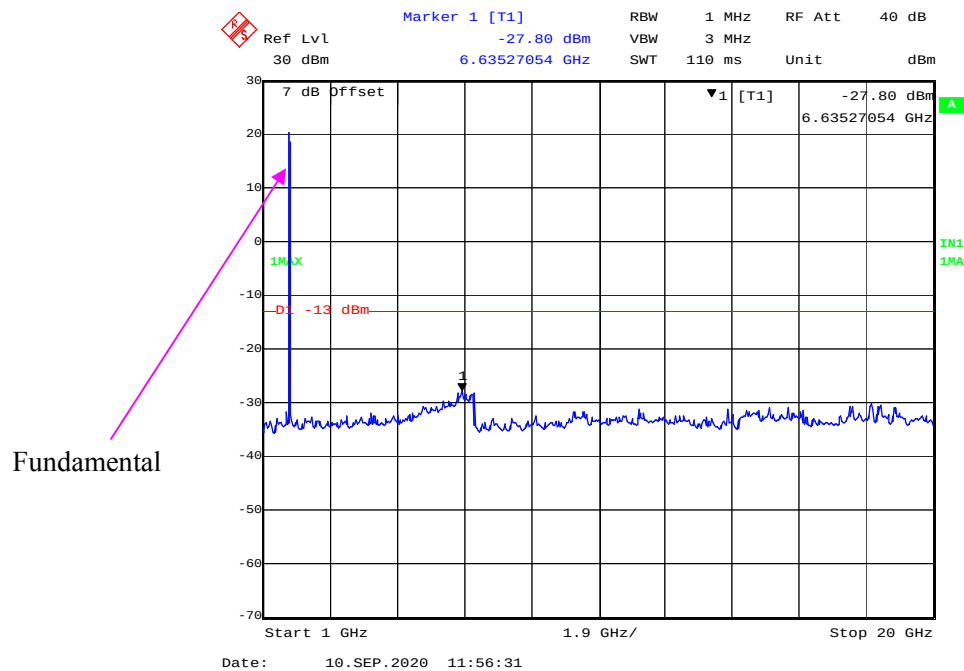
1 GHz – 20 GHz (10 MHz, 16-QAM, High Channel)



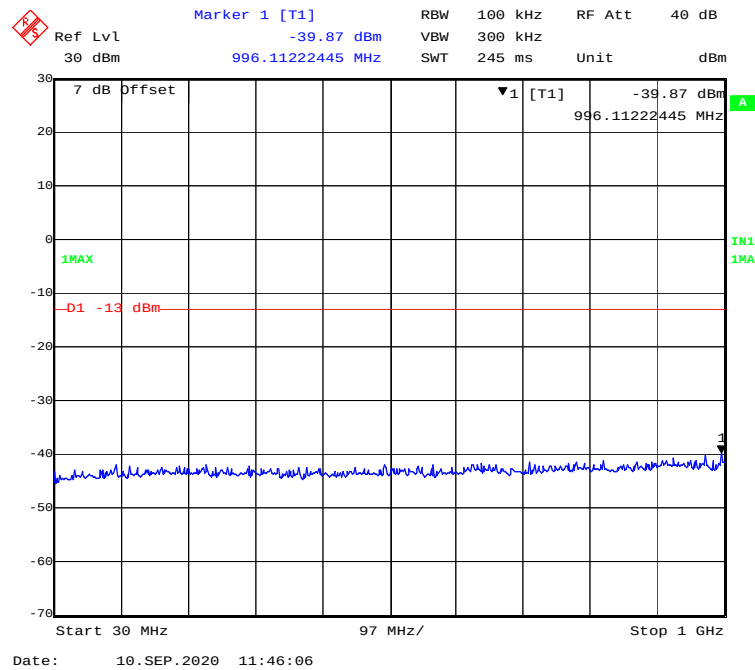
30 MHz – 1 GHz (15 MHz, QPSK, High Channel)



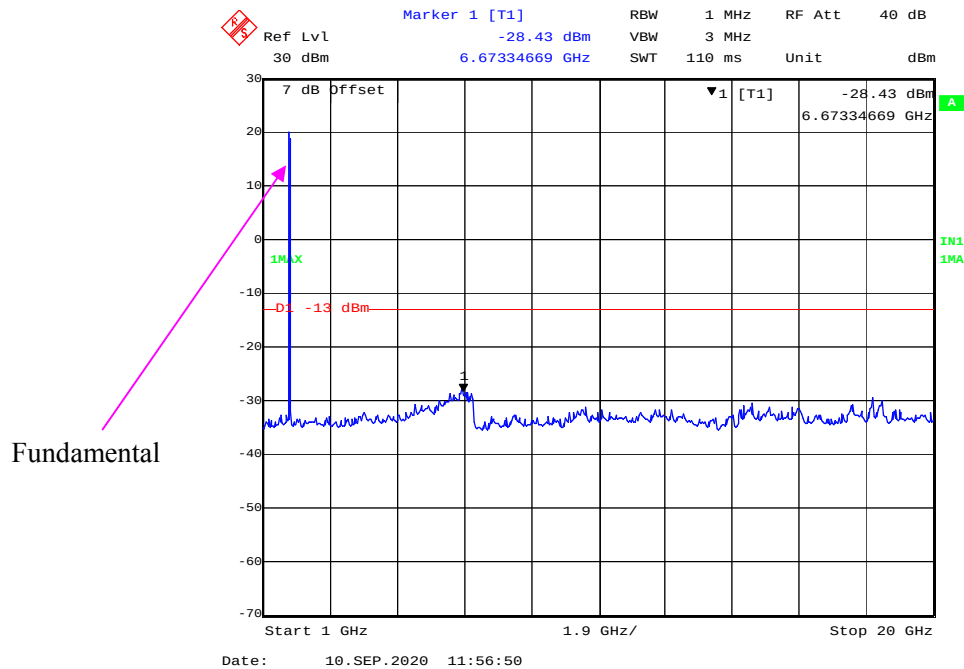
1 GHz – 20 GHz (15 MHz, QPSK, High Channel)



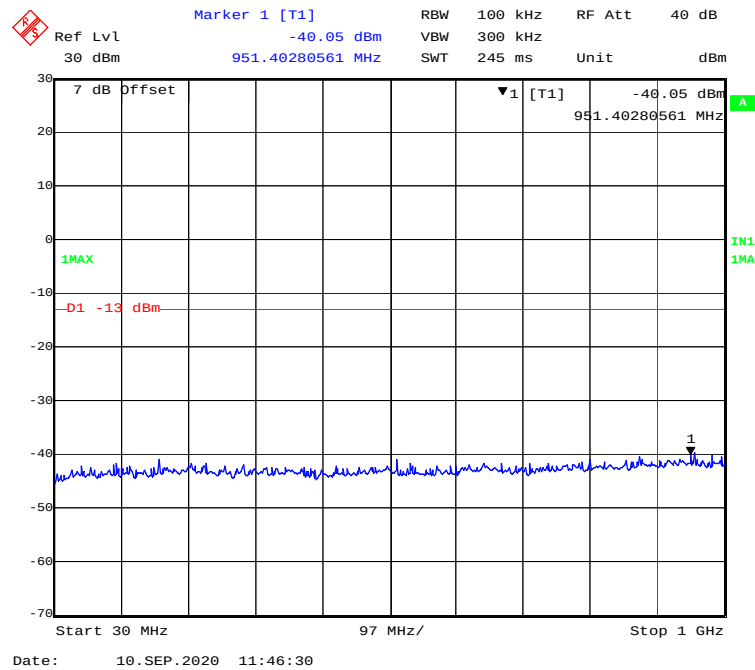
30 MHz – 1 GHz (15 MHz, 16-QAM, High Channel)



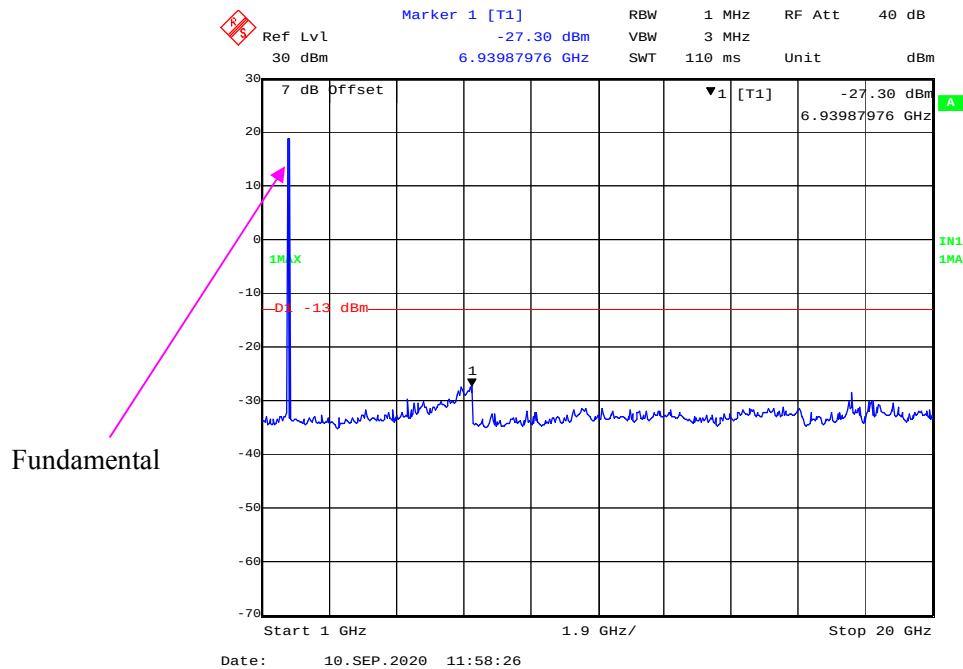
1 GHz – 20 GHz (15 MHz, 16-QAM, High Channel)



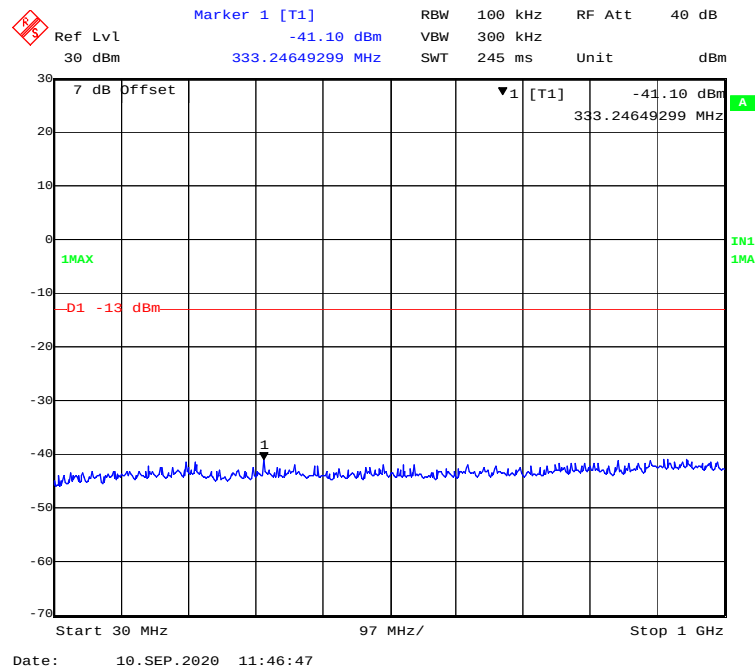
30 MHz – 1 GHz (20 MHz, QPSK, High Channel)



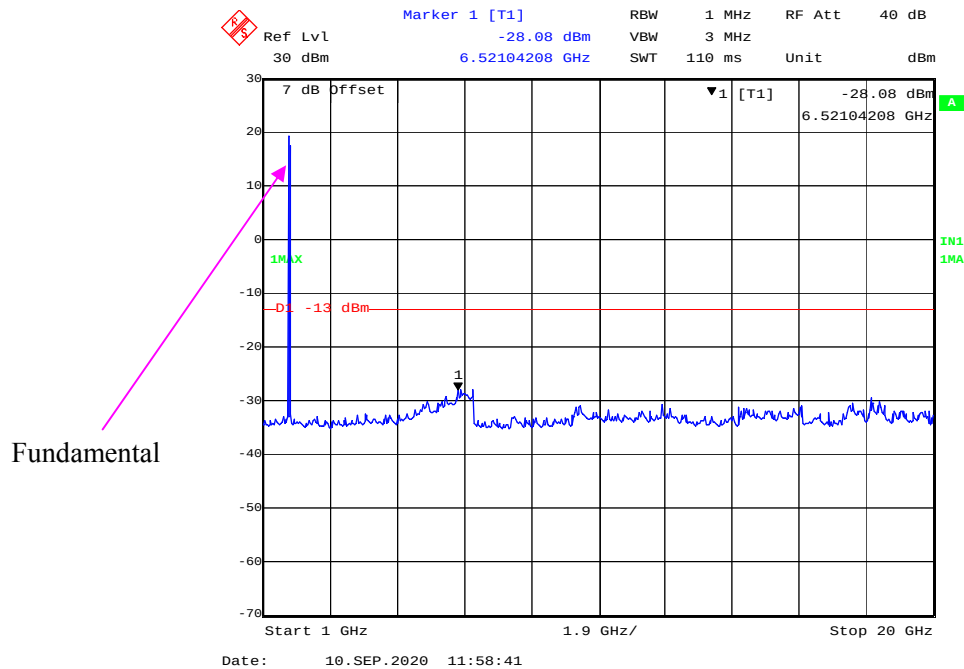
1 GHz – 20 GHz (20 MHz, QPSK, High Channel)

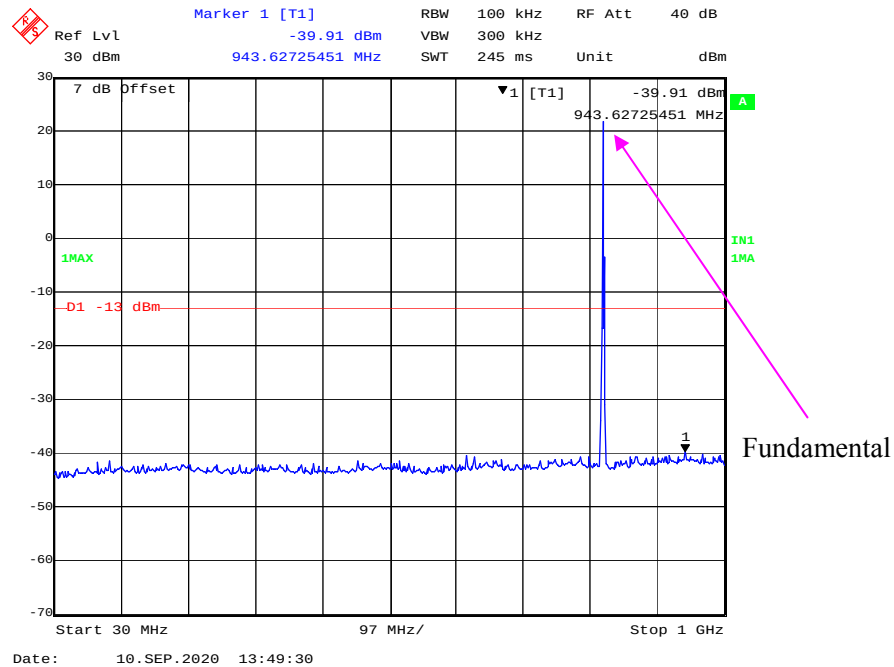
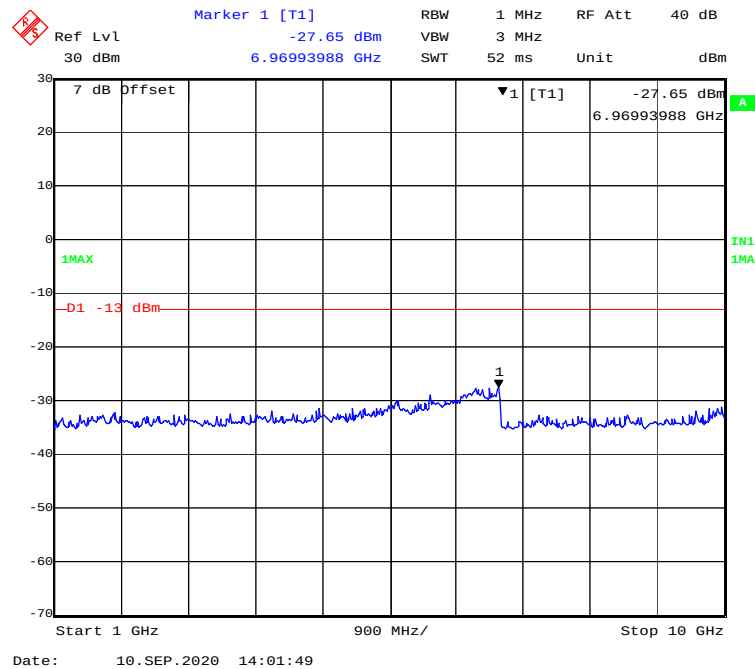


30 MHz – 1 GHz (20 MHz, 16-QAM, High Channel)

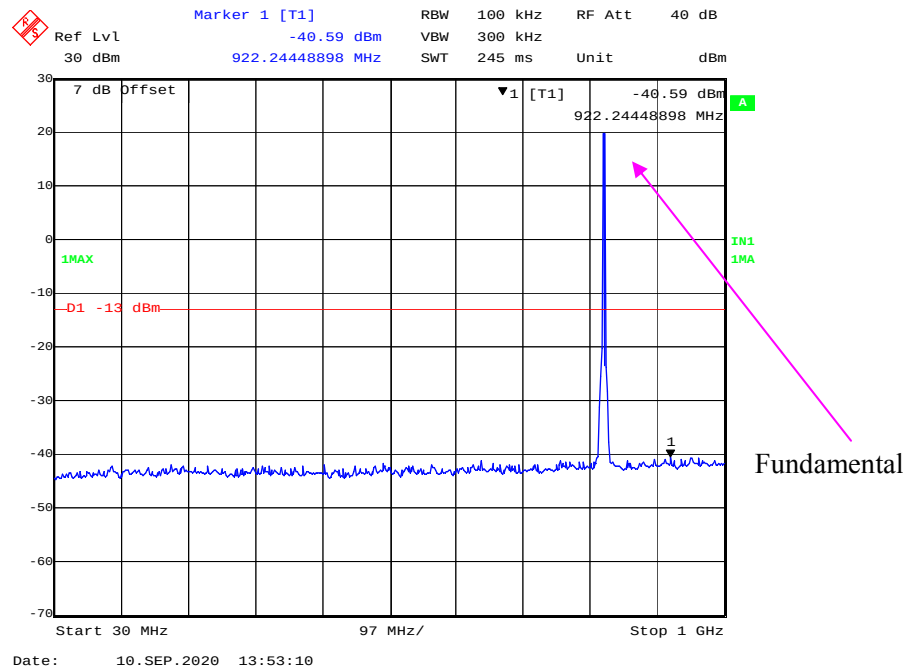


1 GHz – 20 GHz (20 MHz, 16-QAM, High Channel)

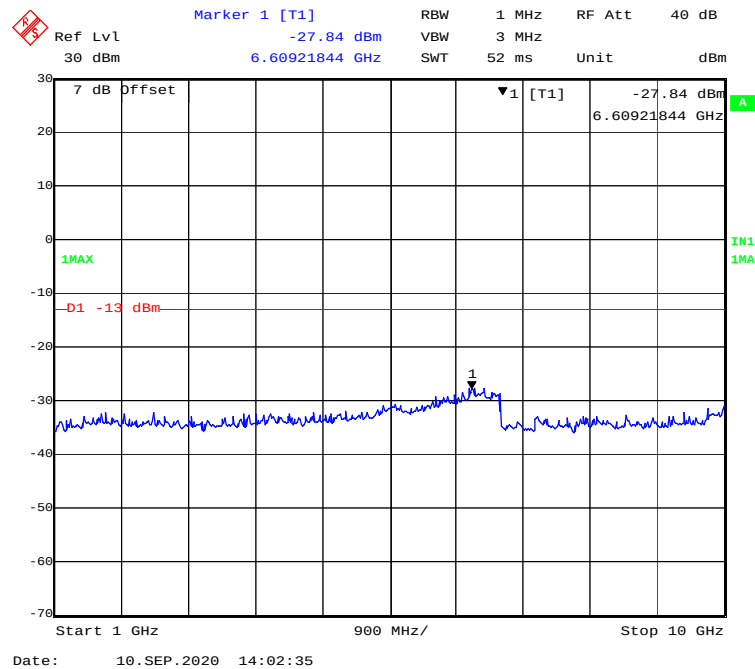


LTE Band 5:**30 MHz – 1 GHz (QPSK, 1.4 MHz, Low Channel)****1 GHz – 10 GHz (QPSK, 1.4 MHz, Low Channel)**

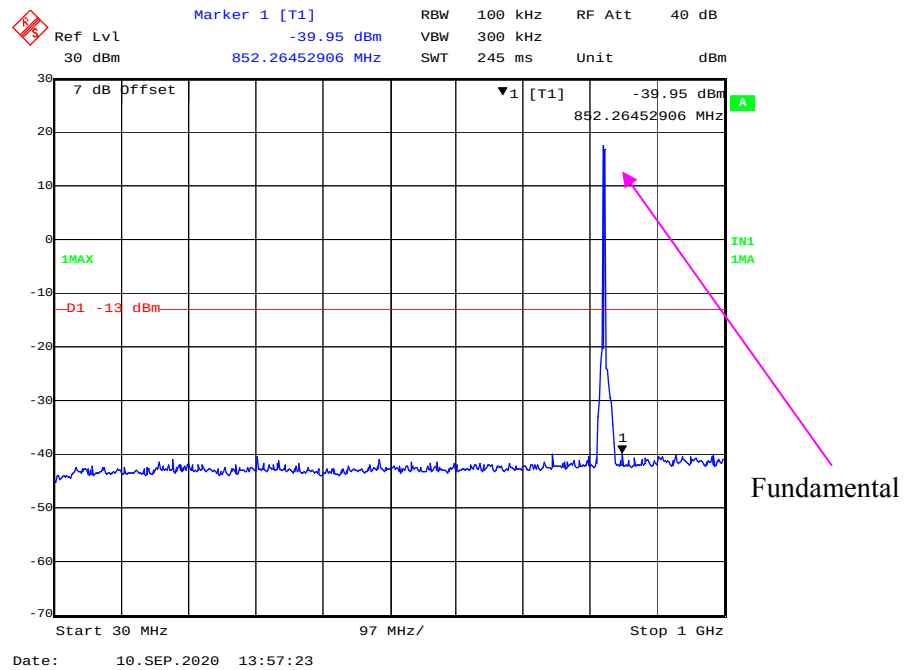
30 MHz – 1 GHz (QPSK, 3.0 MHz, Low Channel)



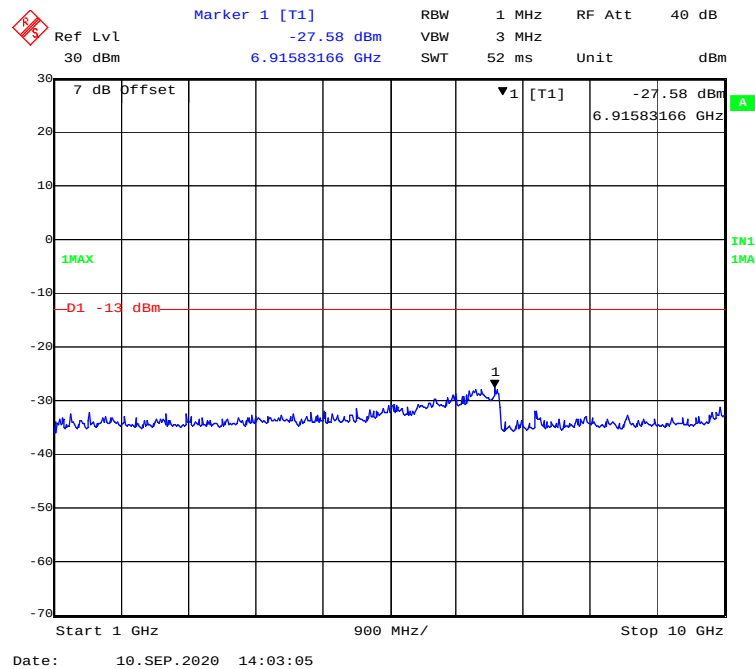
1 GHz – 10 GHz (QPSK, 3.0 MHz, Low Channel)



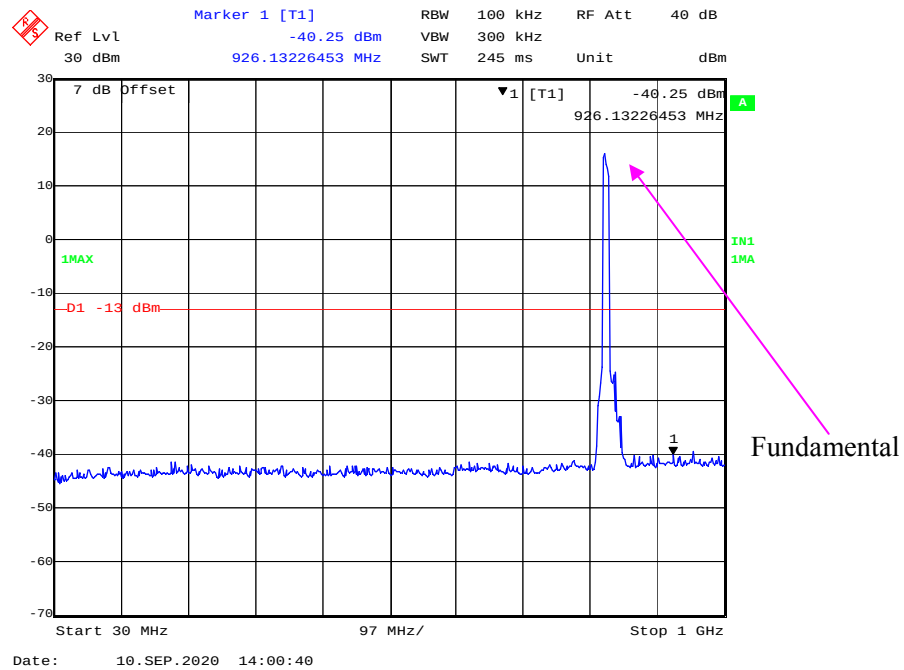
30 MHz – 1 GHz (QPSK, 5.0 MHz, Low Channel)



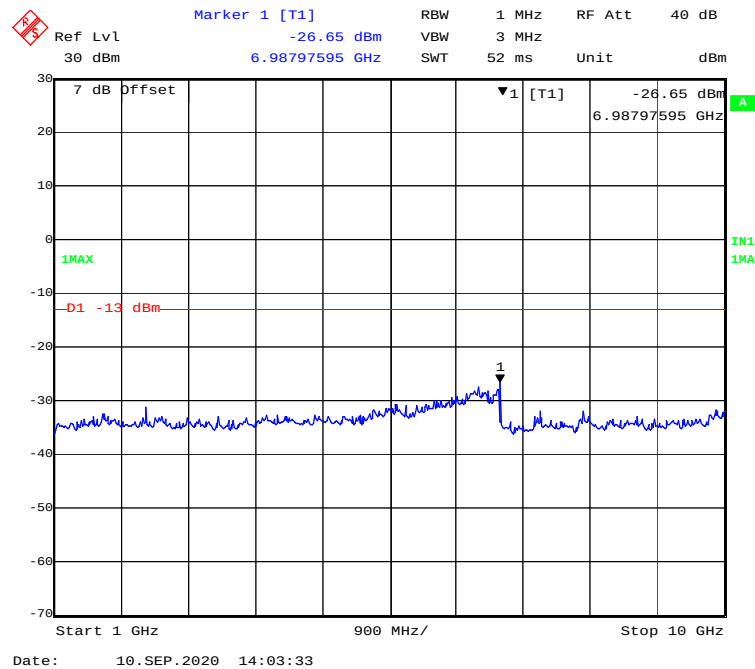
1 GHz – 10 GHz (QPSK, 5.0MHz, Low Channel)

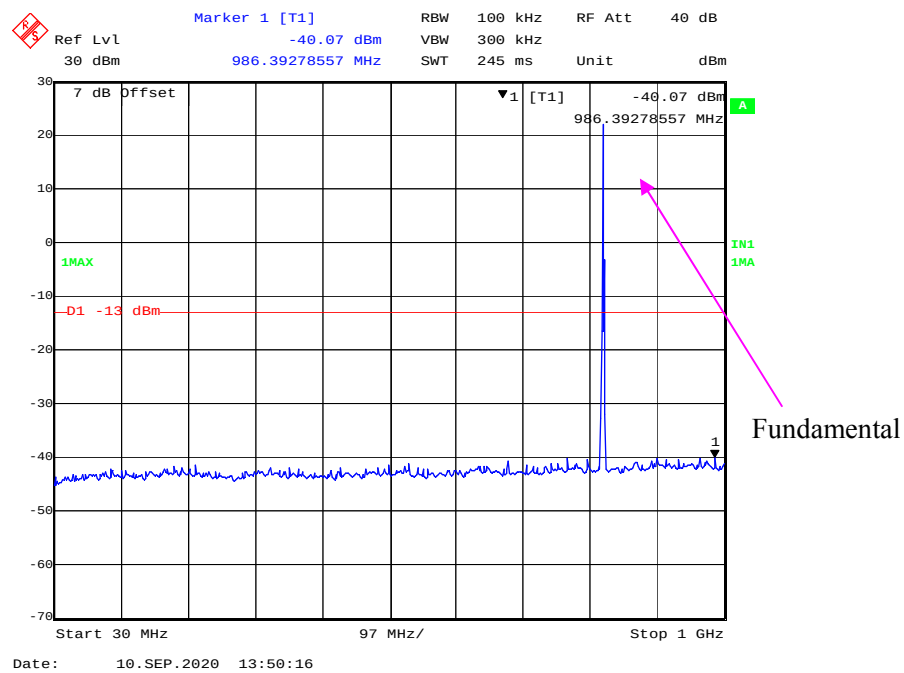
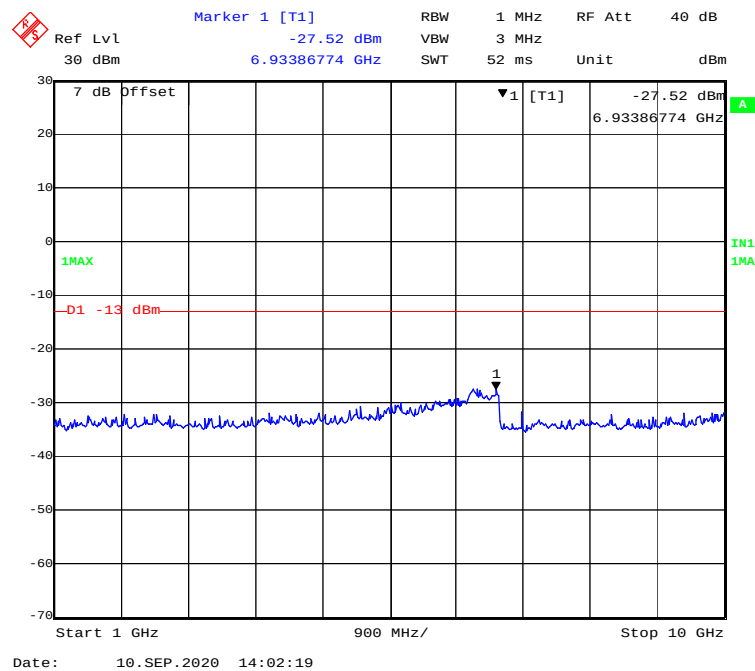


30 MHz – 1 GHz (QPSK, 10.0 MHz, Low Channel)

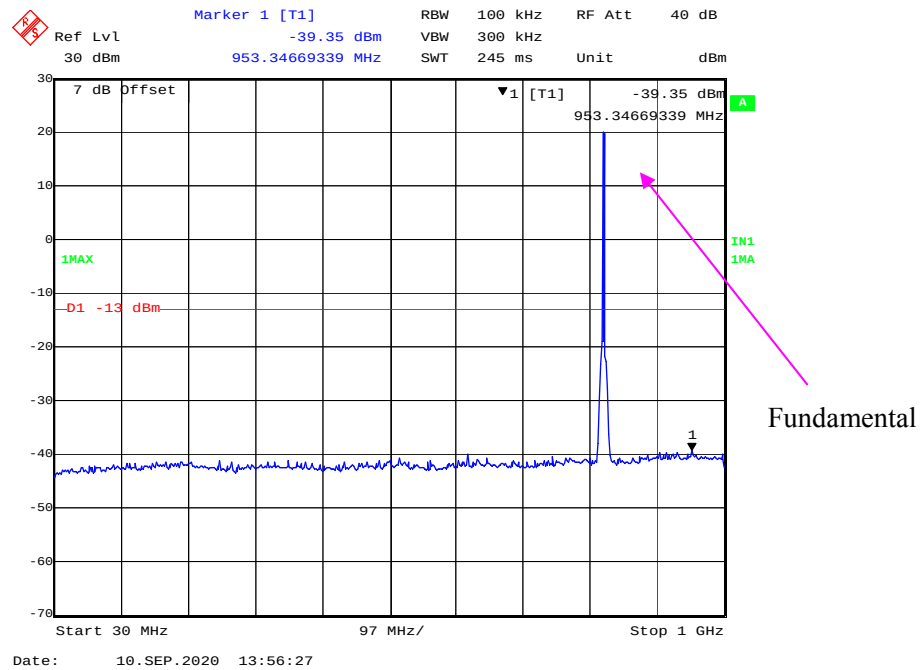


1 GHz – 10 GHz (QPSK, 10.0 MHz, Low Channel)

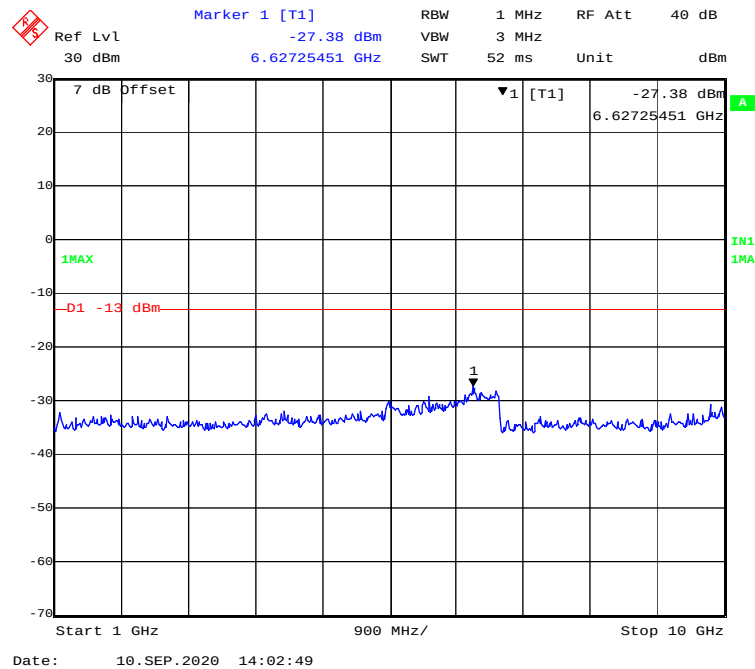


30 MHz – 1 GHz (16QAM, 1.4 MHz, Low Channel)**1 GHz – 10 GHz (16QAM, 1.4 MHz, Low Channel)**

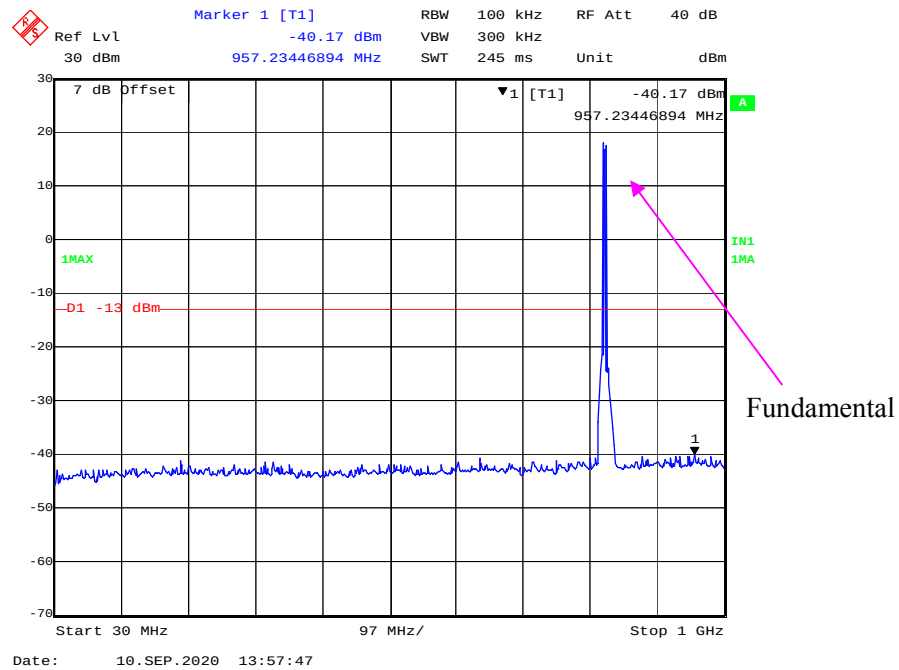
30 MHz – 1 GHz (16QAM, 3.0 MHz, Low Channel)



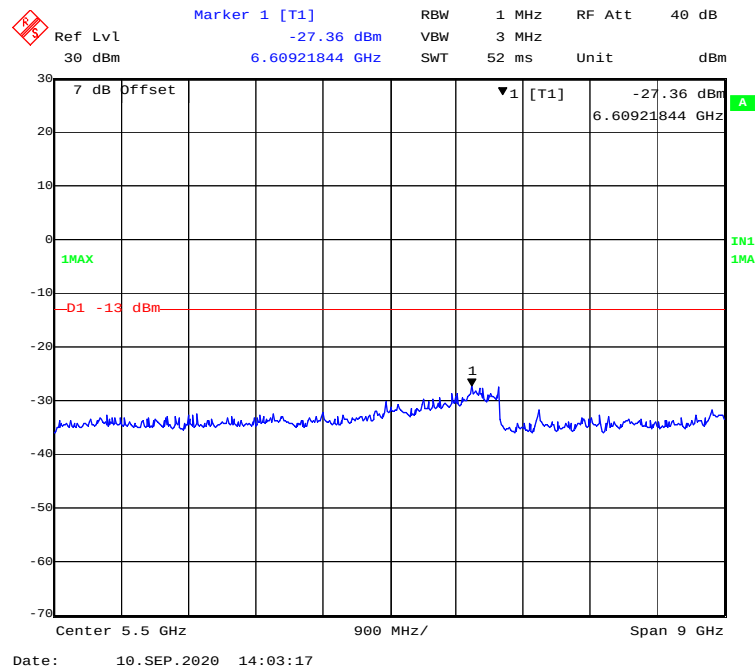
1 GHz – 10 GHz (16QAM, 3.0 MHz, Low Channel)

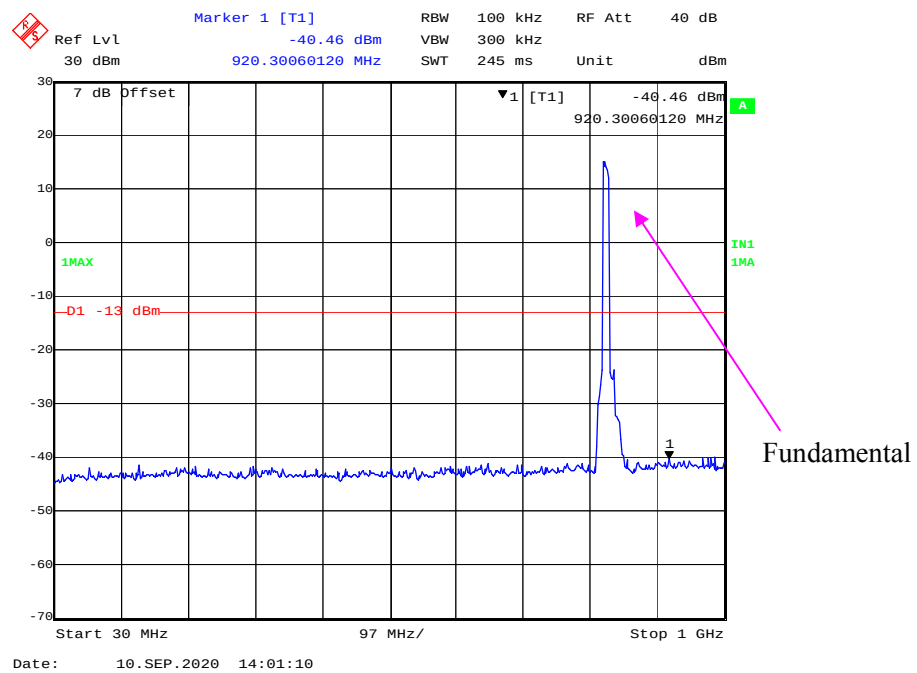
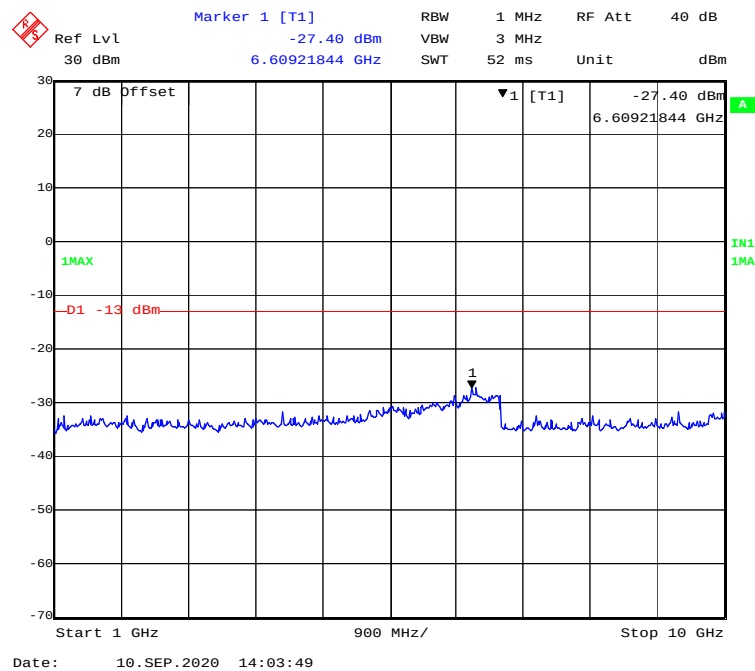


30 MHz – 1 GHz (16QAM, 5.0 MHz, Low Channel)

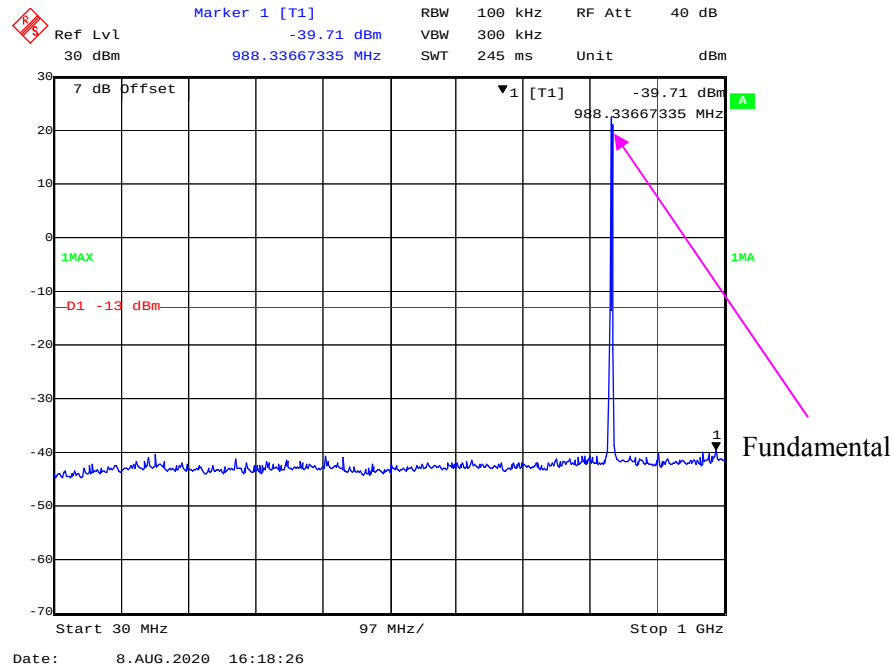


1 GHz – 10 GHz (16QAM, 5.0MHz, Low Channel)

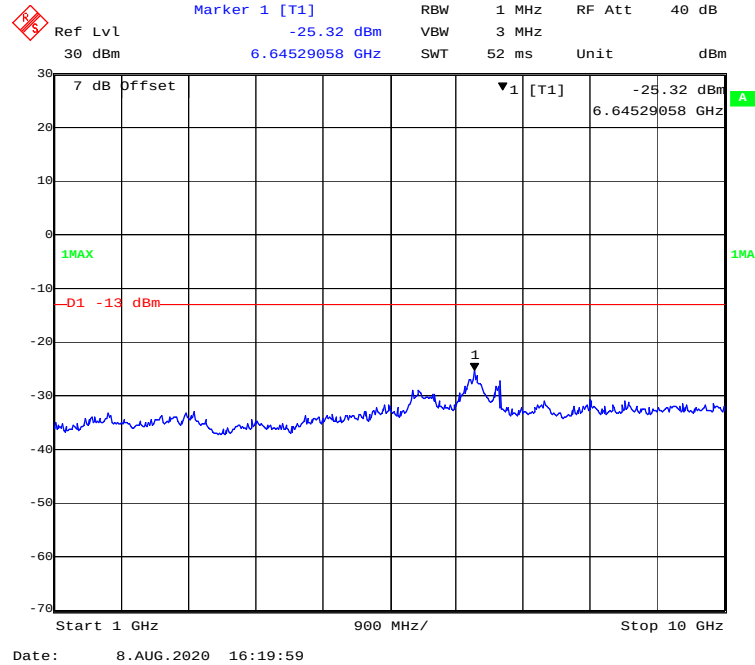


30 MHz – 1 GHz (16QAM, 10.0 MHz, Low Channel)**1 GHz – 10 GHz (16QAM, 10.0 MHz, Low Channel)**

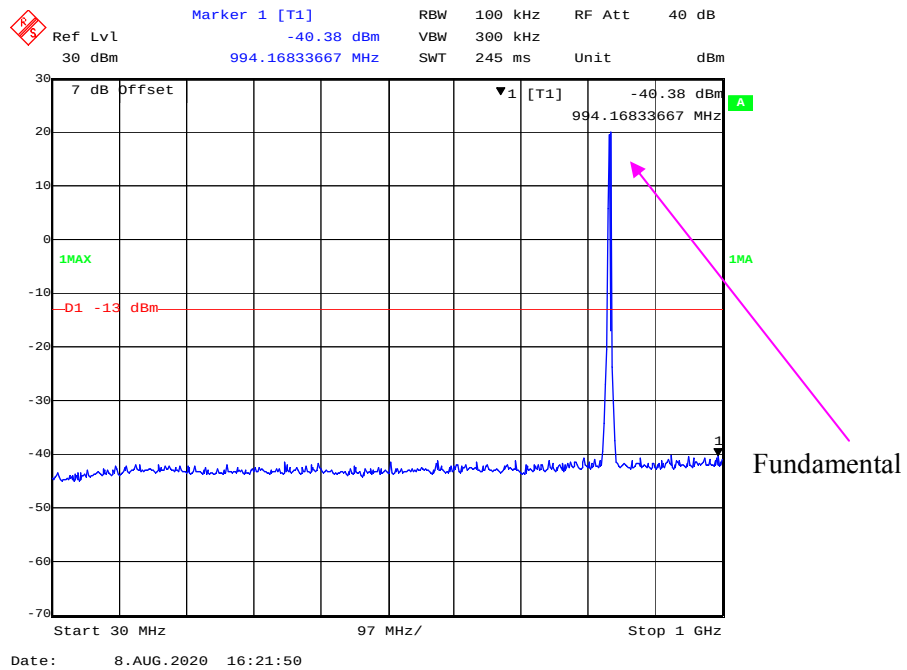
30 MHz – 1 GHz (QPSK, 1.4 MHz, Middle Channel)



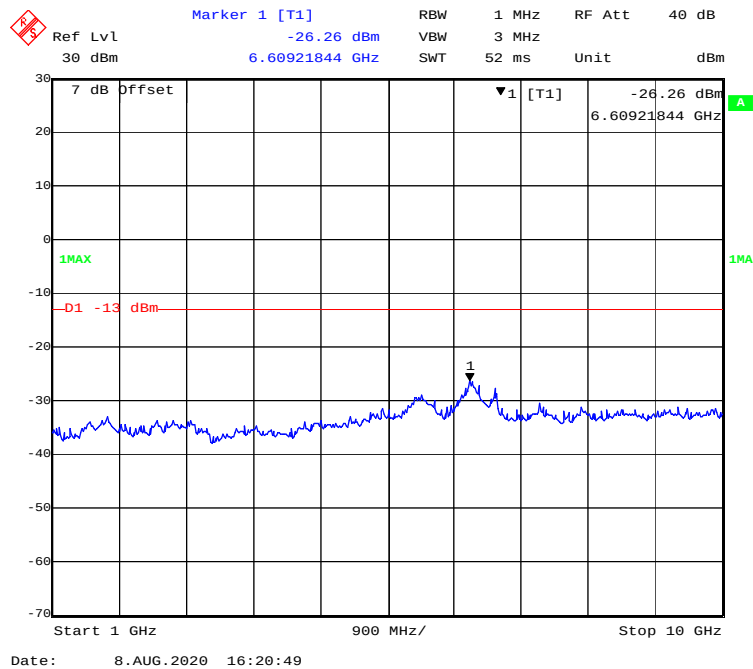
1 GHz – 10 GHz (QPSK, 1.4 MHz, Middle Channel)



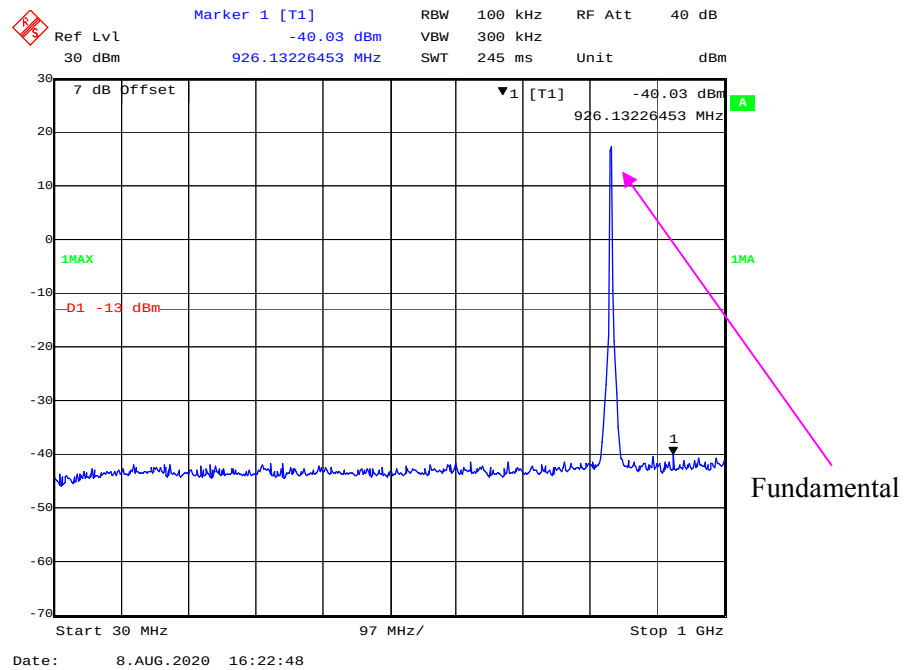
30 MHz – 1 GHz (QPSK, 3.0 MHz, Middle Channel)



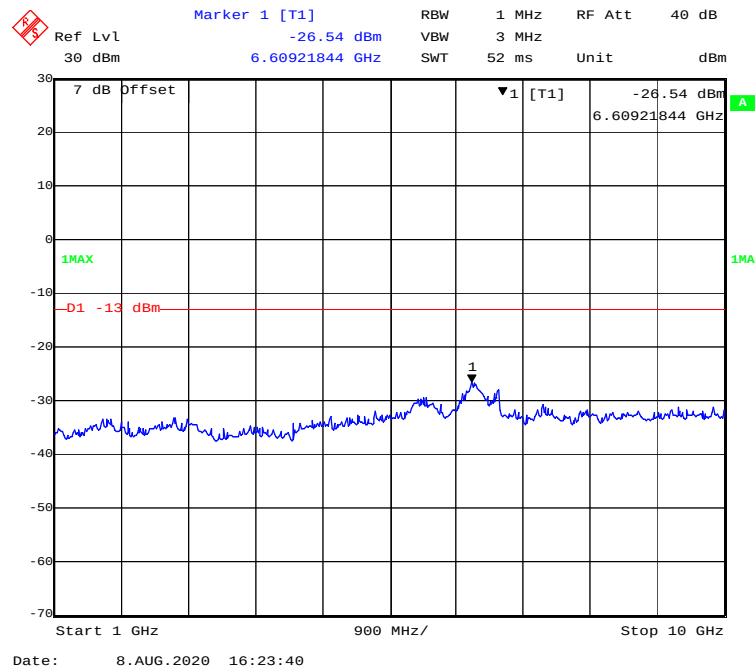
1 GHz – 10 GHz (QPSK, 3.0 MHz, Middle Channel)



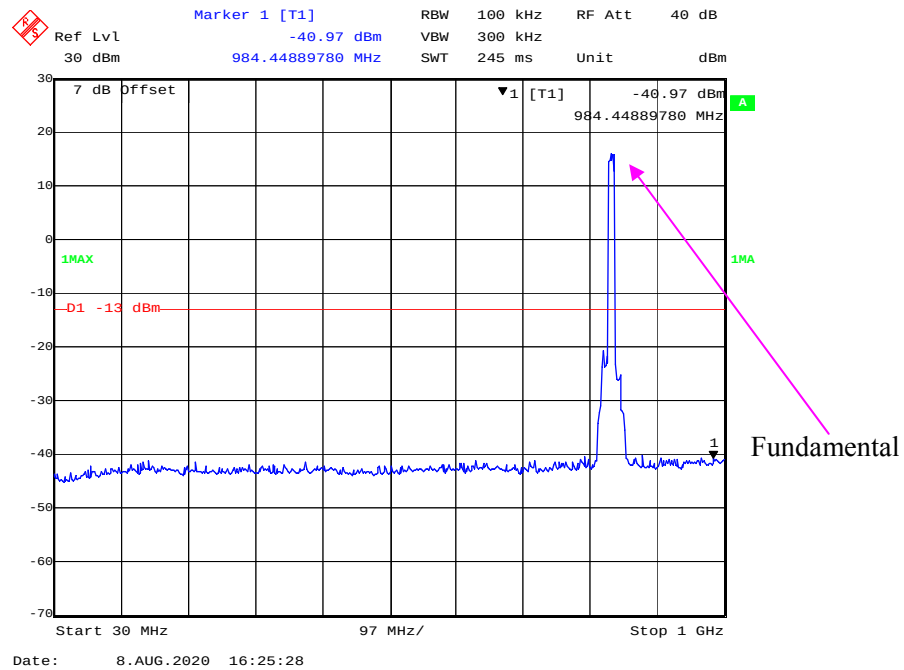
30 MHz – 1 GHz (QPSK, 5.0 MHz, Middle Channel)



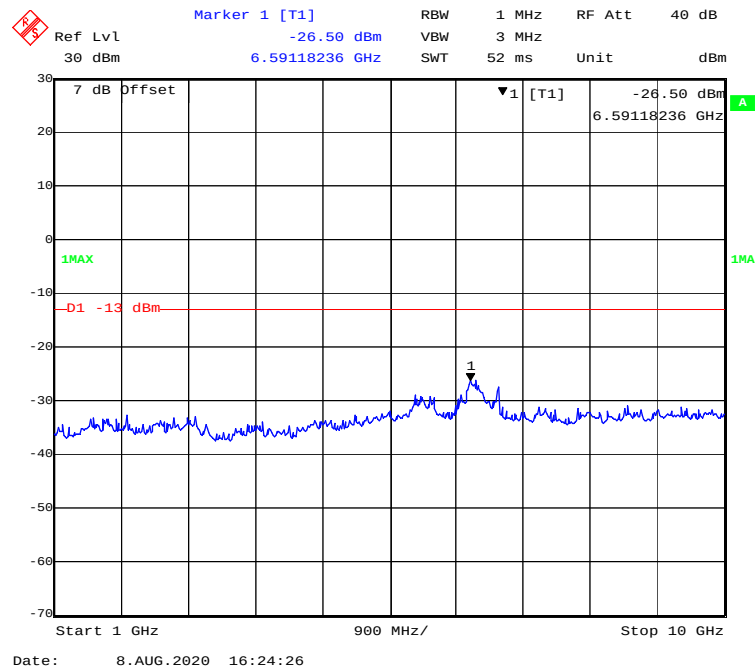
1 GHz – 10 GHz (QPSK, 5.0MHz, Middle Channel)



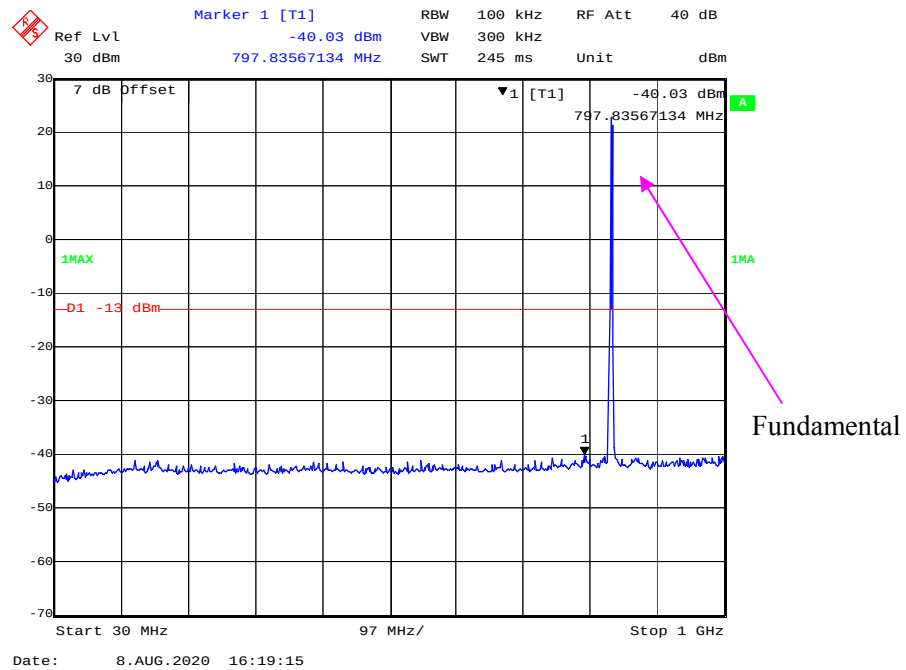
30 MHz – 1 GHz (QPSK, 10.0 MHz, Middle Channel)



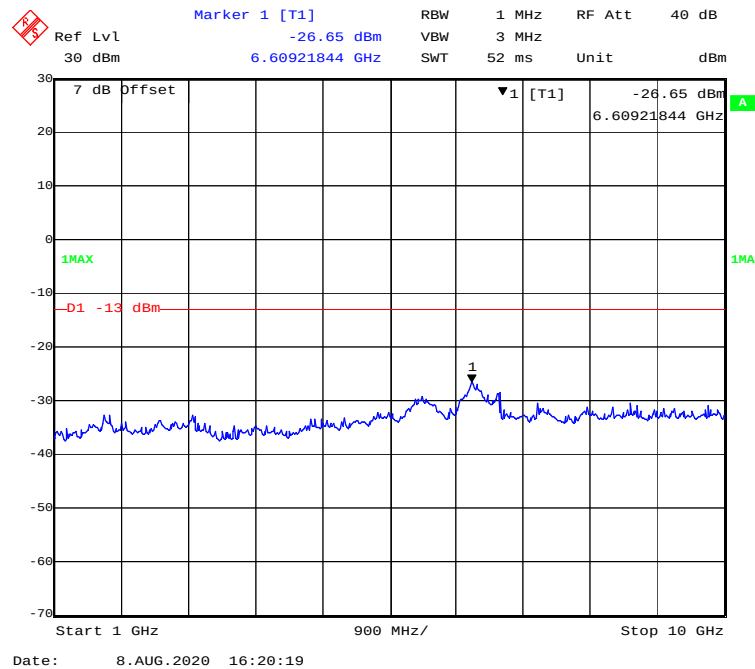
1 GHz – 10 GHz (QPSK, 10.0 MHz, Middle Channel)



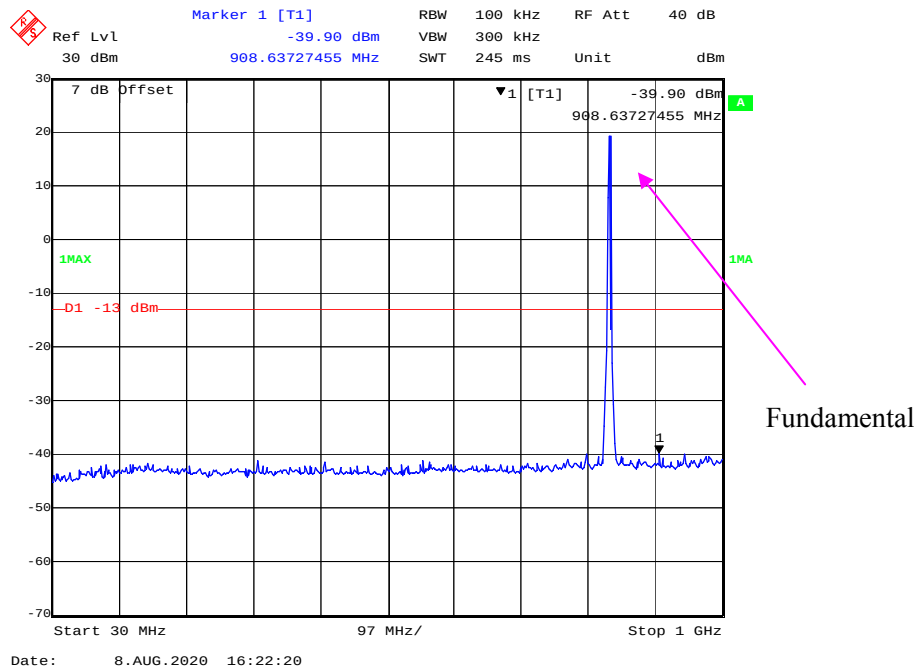
30 MHz – 1 GHz (16QAM, 1.4 MHz, Middle Channel)



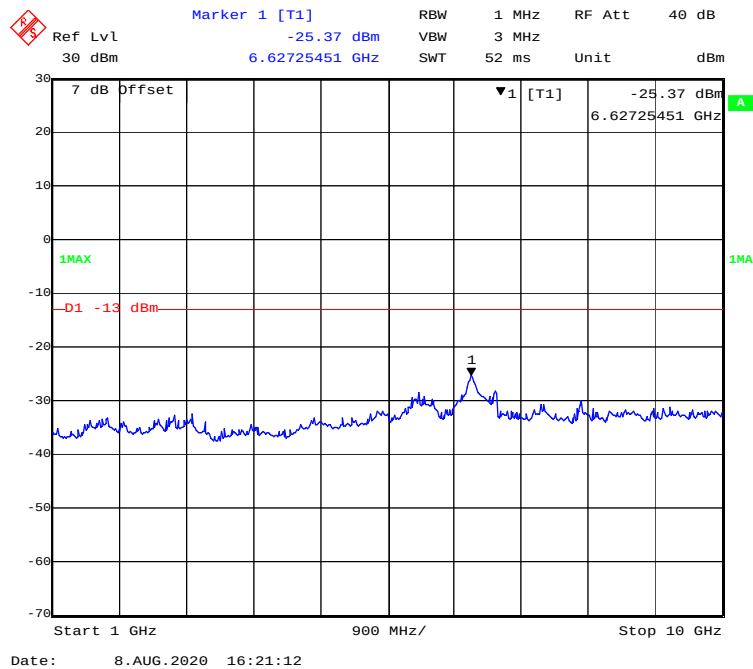
1 GHz – 10 GHz (16QAM, 1.4 MHz, Middle Channel)



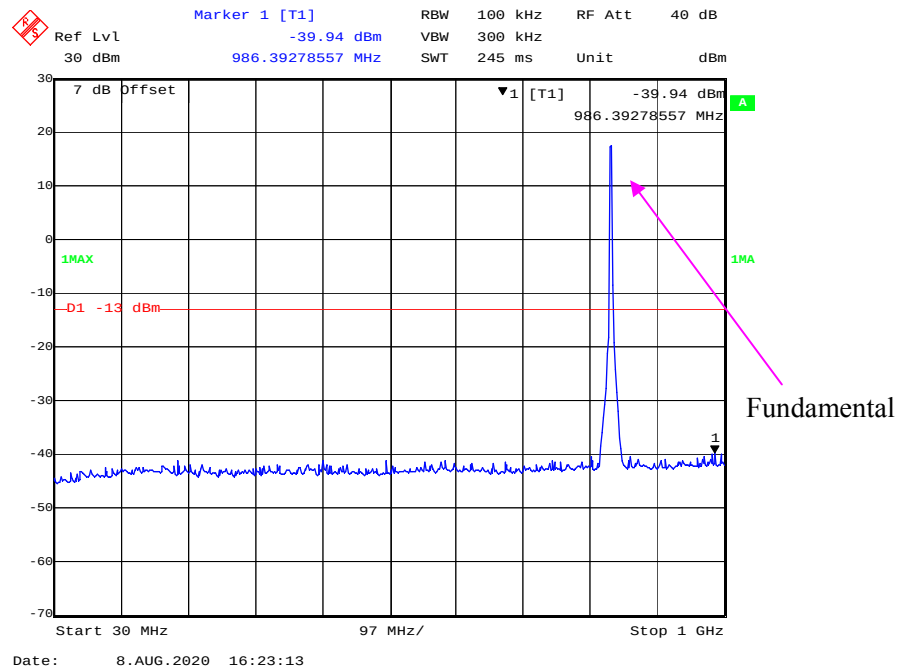
30 MHz – 1 GHz (16QAM, 3.0 MHz, Middle Channel)



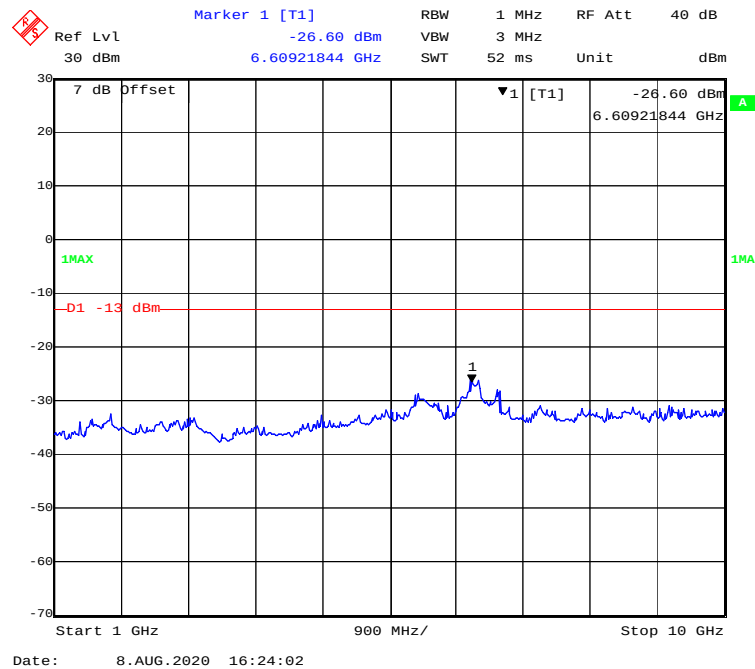
1 GHz – 10 GHz (16QAM, 3.0 MHz, Middle Channel)



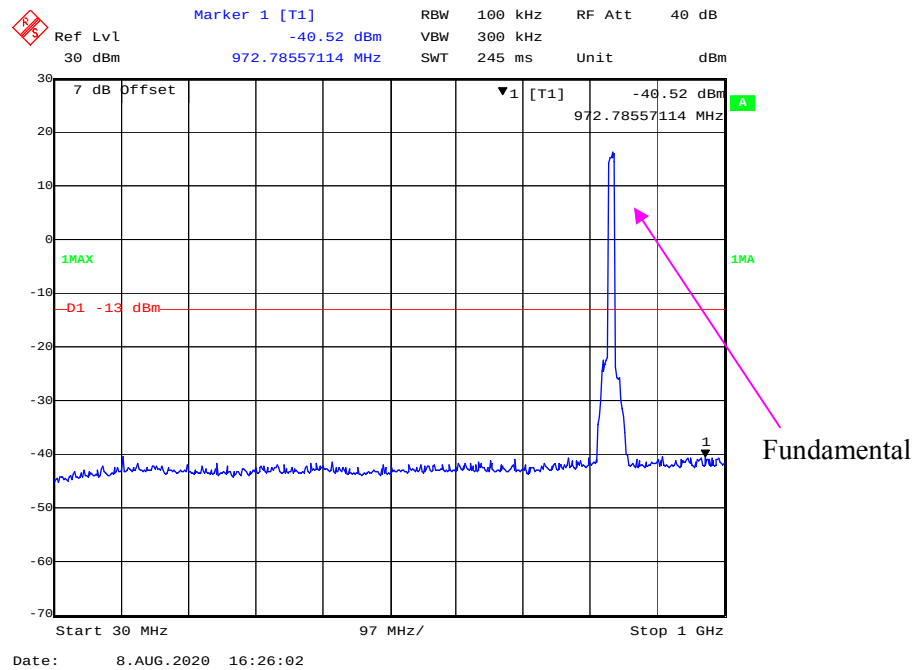
30 MHz – 1 GHz (16QAM, 5.0 MHz, Middle Channel)



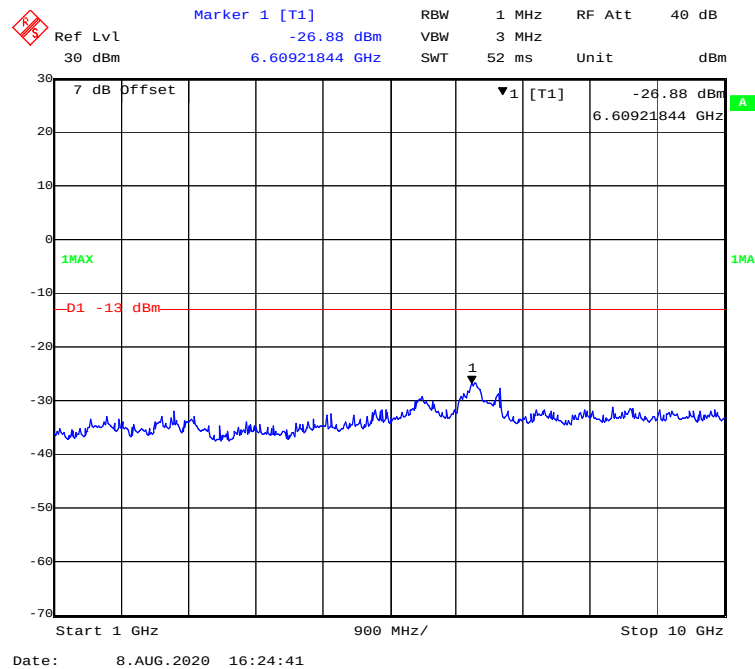
1 GHz – 10 GHz (16QAM, 5.0MHz, Middle Channel)



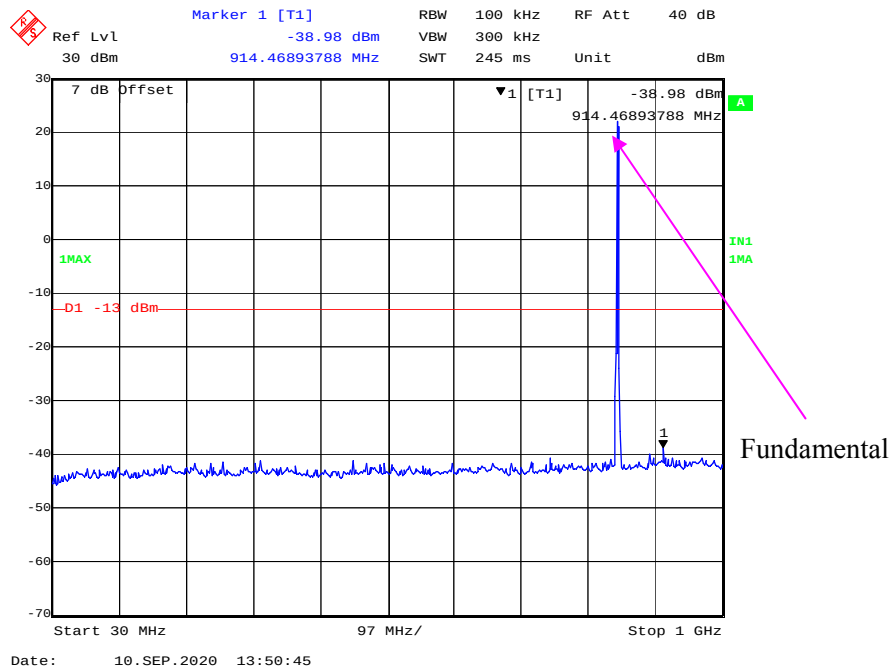
30 MHz – 1 GHz (16QAM, 10.0 MHz, Middle Channel)



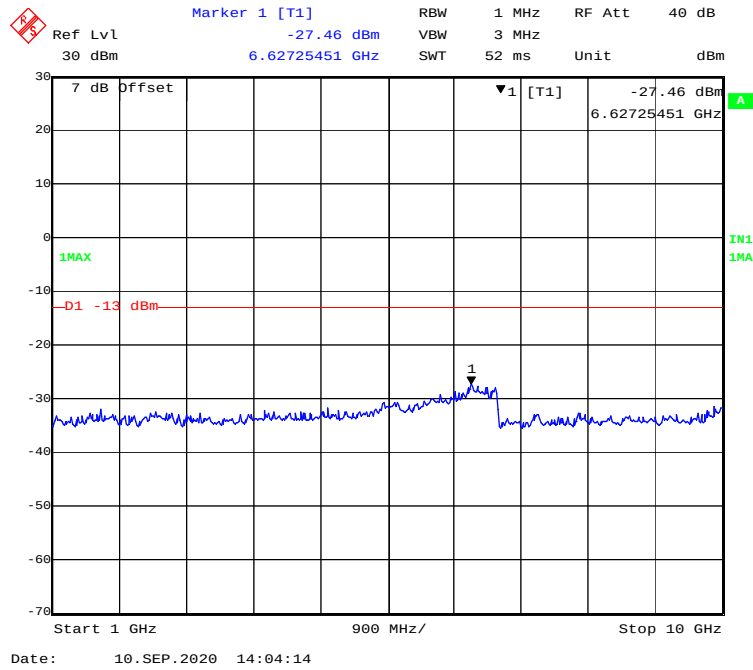
1 GHz – 10 GHz (16QAM, 10.0 MHz, Middle Channel)



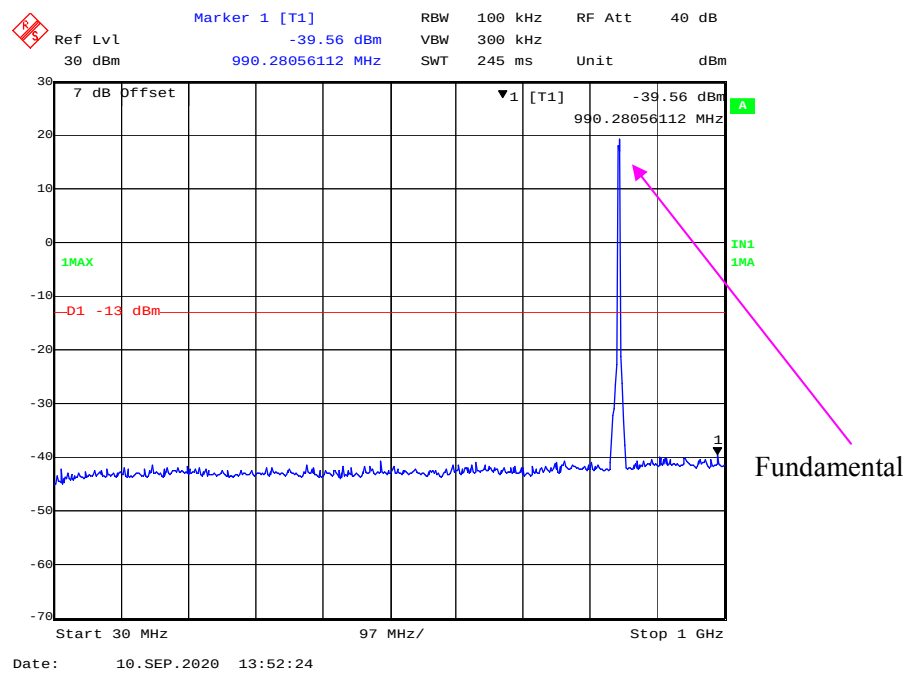
30 MHz – 1 GHz (QPSK, 1.4 MHz, High Channel)



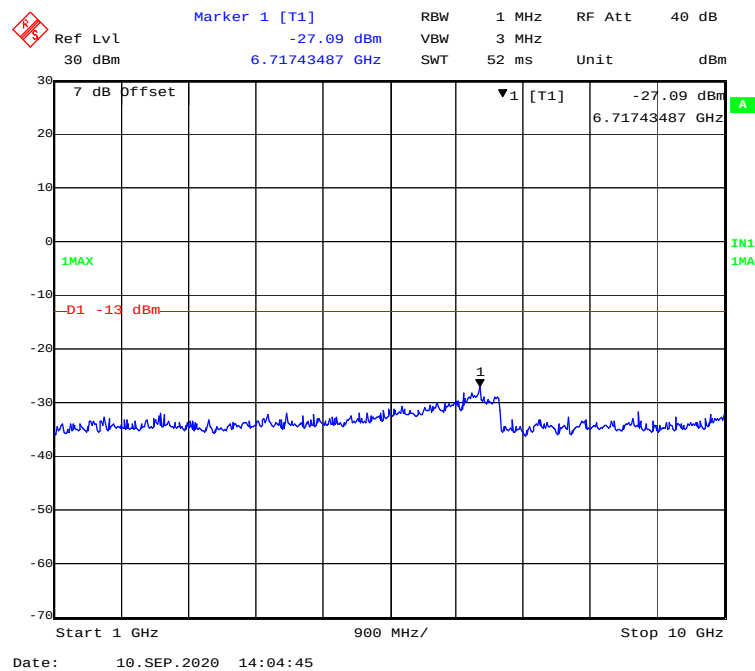
1 GHz – 10 GHz (QPSK, 1.4 MHz, High Channel)

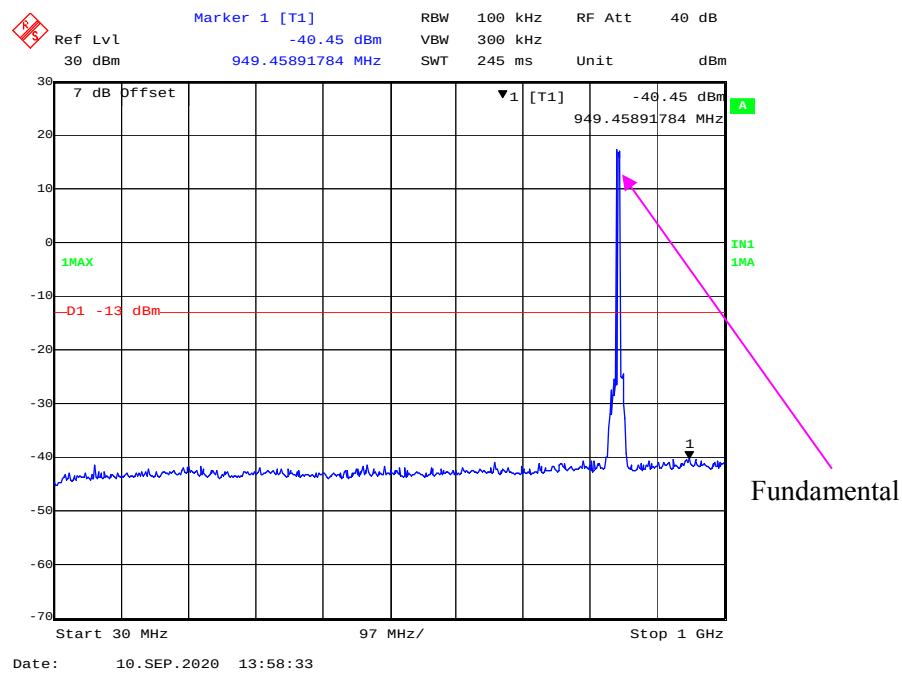
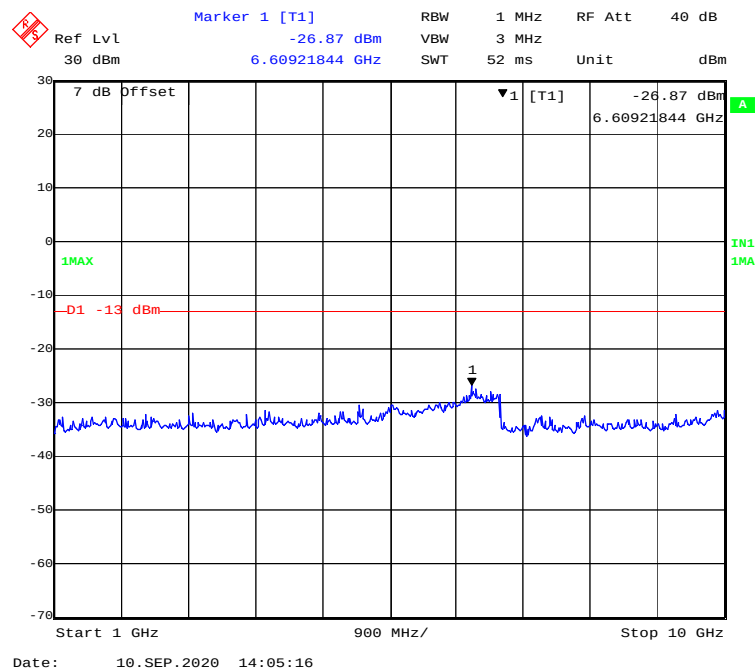


30 MHz – 1 GHz (QPSK, 3.0 MHz, High Channel)

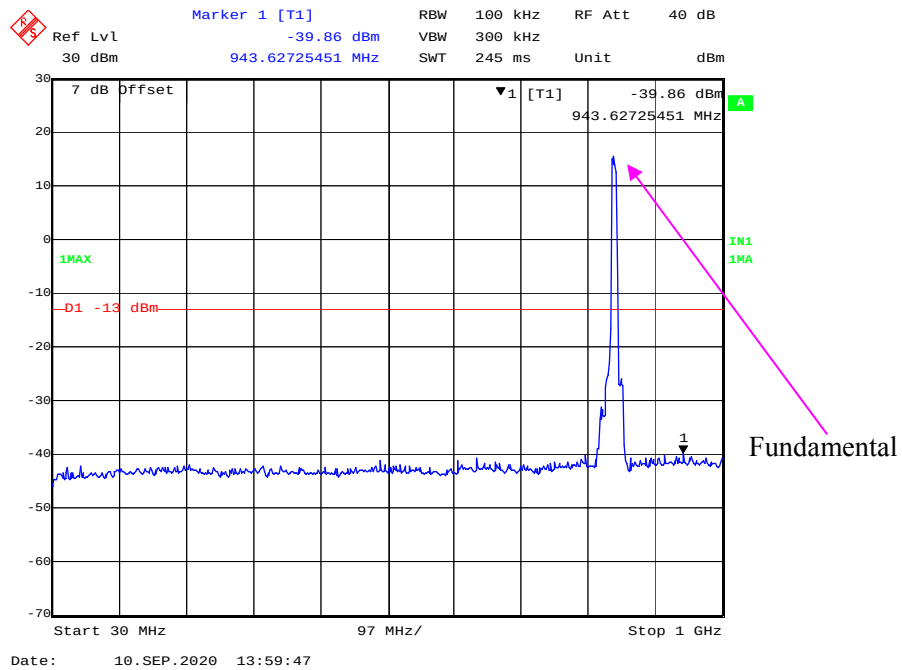


1 GHz – 10 GHz (QPSK, 3.0 MHz, High Channel)

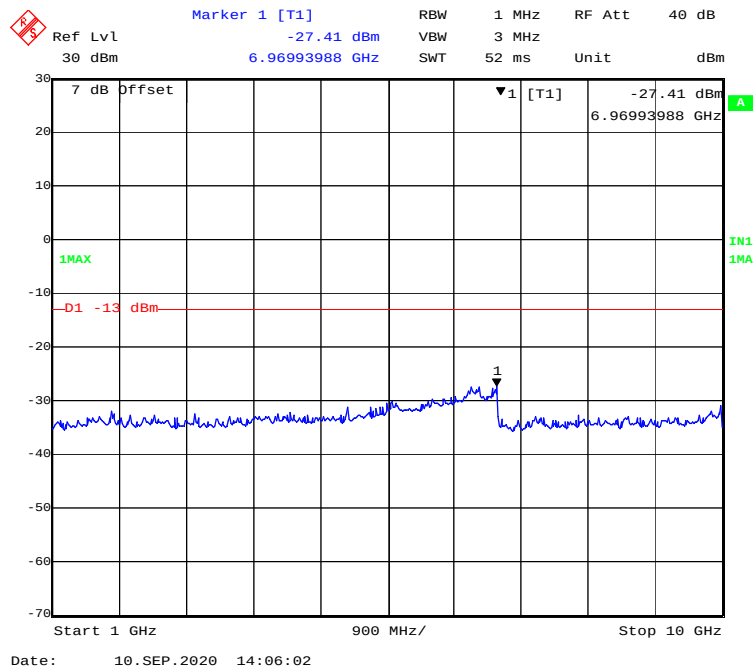


30 MHz – 1 GHz (QPSK, 5.0 MHz, High Channel)**1 GHz – 10 GHz (QPSK, 5.0MHz, High Channel)**

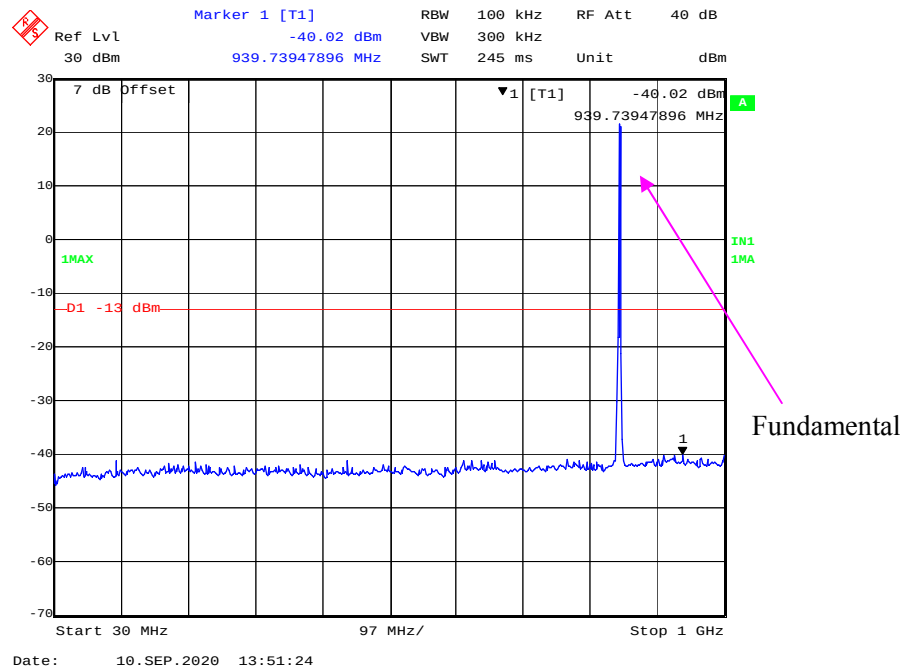
30 MHz – 1 GHz (QPSK, 10.0 MHz, High Channel)



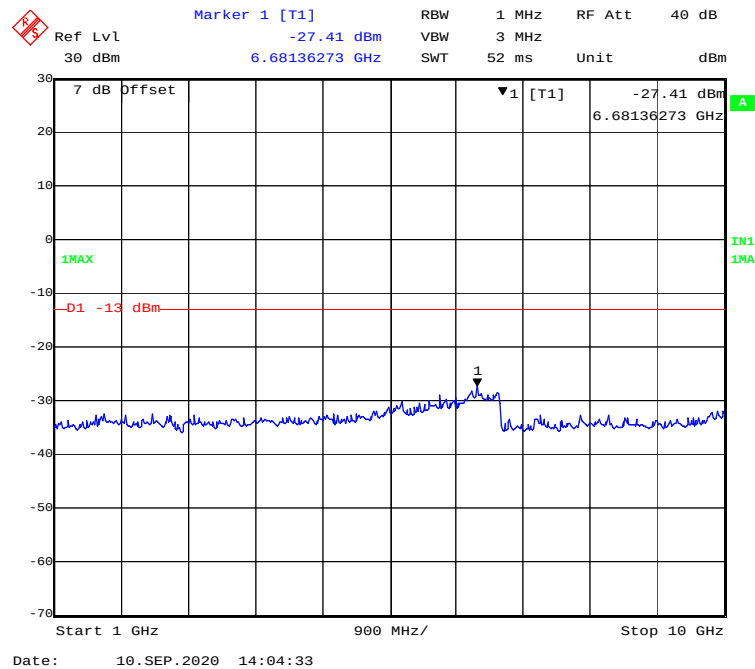
1 GHz – 10 GHz (QPSK, 10.0 MHz, High Channel)

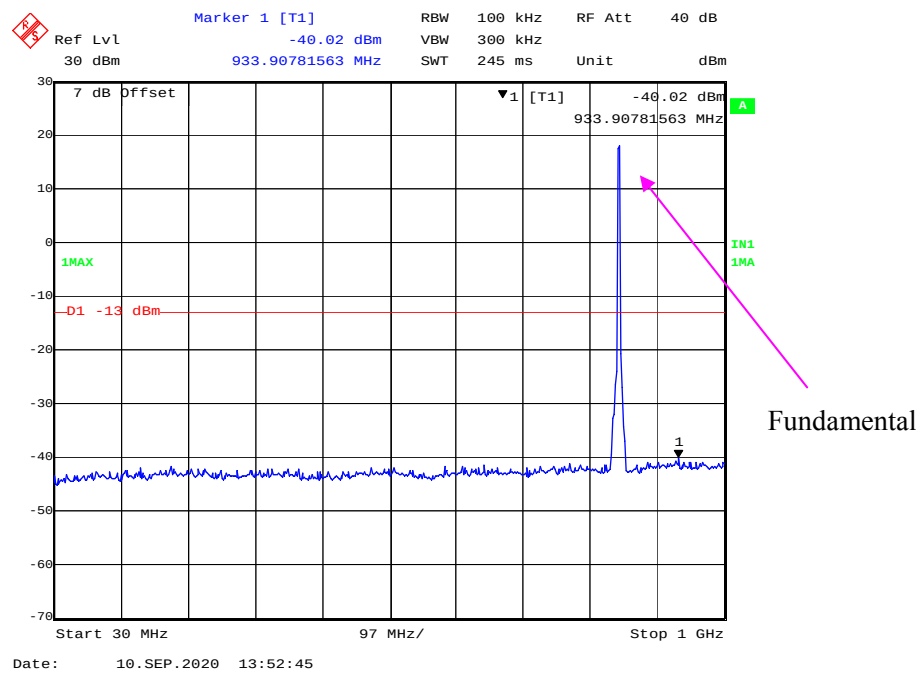
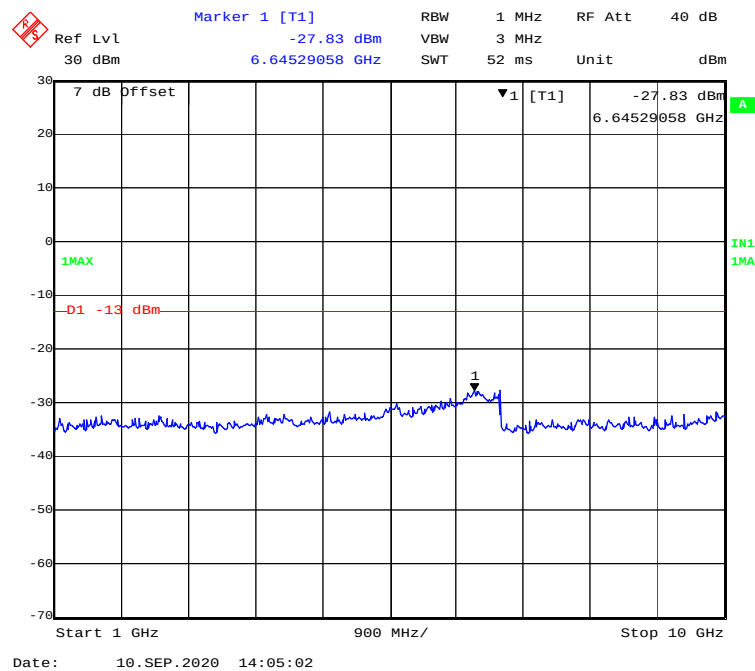


30 MHz – 1 GHz (16QAM, 1.4 MHz, High Channel)

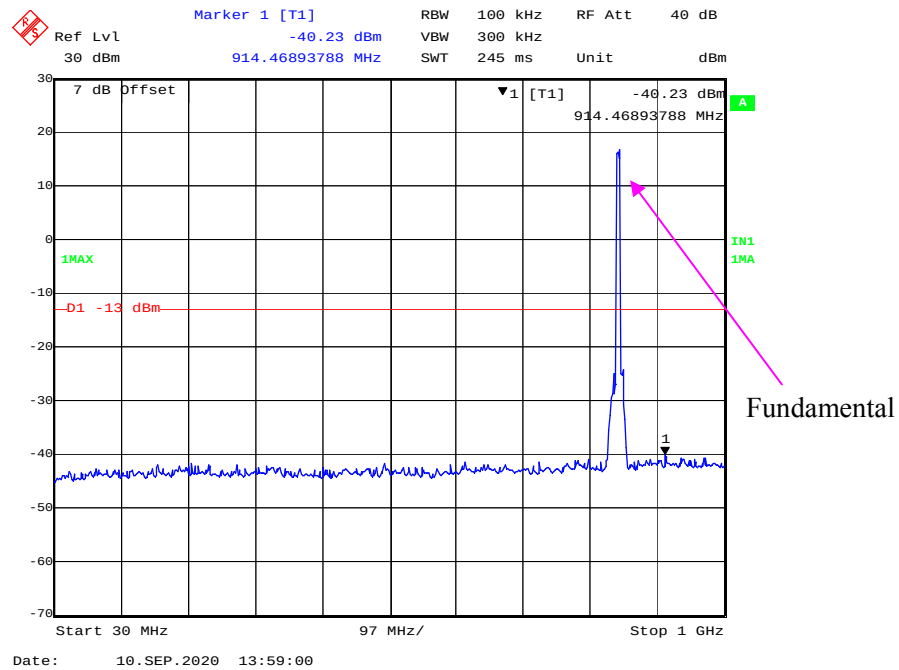


1 GHz – 10 GHz (16QAM, 1.4 MHz, High Channel)



30 MHz – 1 GHz (16QAM, 3.0 MHz, High Channel)**1 GHz – 10 GHz (16QAM, 3.0 MHz, High Channel)**

30 MHz – 1 GHz (16QAM, 5.0 MHz, High Channel)



1 GHz – 10 GHz (16QAM, 5.0MHz, High Channel)

