TESTING LABORATORY
CERTIFICATE#4323.01

FCC PART 27

FCC PART 22H, PART 24E

MEASUREMENT AND TEST REPORT

For

Mason America, Inc.

506 2nd Ave, Suite 1400, Seattle, Washington, United States 98104

FCC ID: 2AJZP-G430

Report Type:	**Product Type:**
Original Report	Mason G430

Test Engineer:	Max Min
Report Number:	RKSA180629003-00E
Report Date:	2018-10-21
Reviewed By:	Oscar Ye RF Leader
Prepared By:	Bay Area Compliance Laboratories Corp. (Kunshan) No.248 Chenghu Road, Kunshan, Jiangsu province, China Tel: +86-0512-86175000 Fax: +86-0512-88934268 www.baclcorp.com.cn

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant	Mason America, Inc.
Tested Model	Mason G430
Product Type	Mason G430
Dimension	244mm(W)*174mm(L)*8.2mm(H)
Power Supply	DC 3.8V from Li-ion battery and DC 5.0V charging by adapter

Adapter Information:
Input: AC 100-240V, 50/60Hz, 0.5A
Output: DC 5.0V, 2A

**All measurement and test data in this report was gathered from production sample serial number: 20180629003. (Assigned by the BACL. The EUT supplied by the applicant was received on 2018-06-29)*

Objective

This type approval report is prepared on behalf of Mason America, Inc. in accordance with Part 2, Part 22-Subpart H and Part 24-Subpart E and 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, Part 15.247 DTS and Part 15.407 NII submittals with FCC ID: 2AJZP-G430.

Test Methodology

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

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

Applicable Standards: TIA/EIA 603-D.

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 TIA/EIA-603-D.

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

Channel List

Mode		Channel		Frequency (MHz)
GSM/GPRS/EGPRS 850		Low	128	824.2
		Middle	190	836.6
		High	251	848.8
PCS/GPRS/EGPRS 1900		Low	512	1850.2
		Middle	661	1880.0
		High	810	1909.8
WCDMA Band II		Low	9262	1852.4
		Middle	9400	1880.0
		High	9538	1907.6
WCDMA Band V		Low	4132	826.4
		Middle	4183	836.6
		High	4233	846.6
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

Equipment Modifications

No modifications were made to the EUT.

Support Equipment List and Details

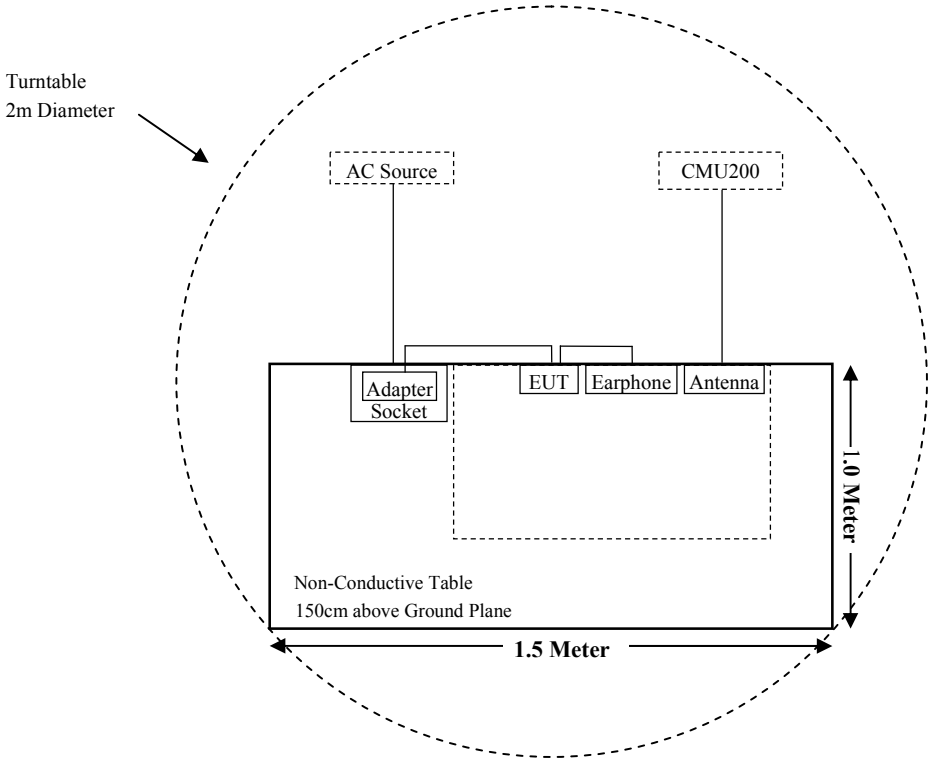
Manufacturer	Description	Model	Serial Number
Waylens Inc.	Antenna	/	/
Rohde & Schwarz	UNIVERSAL RADIO COMMUNICATION TESTER	CMU200	110605
R & S	Wideband Radio Communication Tester	CMW500	104478

External I/O Cable

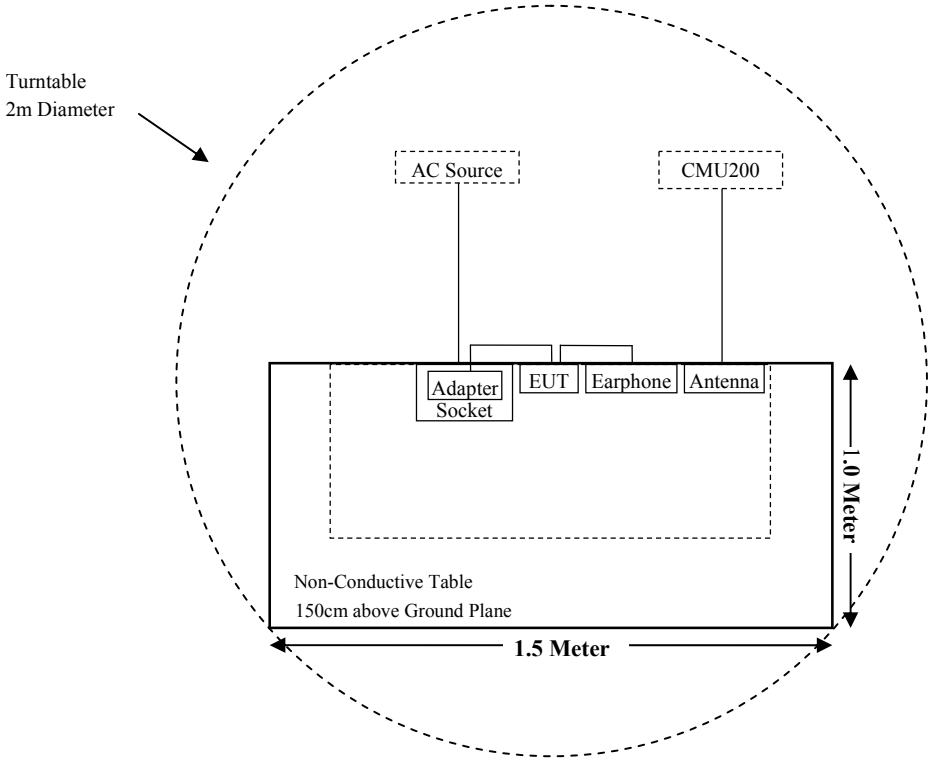
Cable Description	Length (m)	From Port	To
USB Cable	0.8	EUT	Adapter

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
§1.1307(b)(1)& §2.1093	RF Exposure Information	Compliant
§2.1046; § 22.913 (a);§ 24.232 (c); § 27.50 (c)(d)	RF Output Power	Compliant
§ 2.1047	Modulation Characteristics	Not Applicable
§ 2.1049; § 22.905; § 22.917; § 24.238	Occupied Bandwidth	Compliant
§ 2.1051; § 22.917 (a); § 24.238 (a); §27.53	Spurious Emissions at Antenna Terminal	Compliant
§ 2.1053; § 22.917 (a); § 24.238 (a); §27.53 (h) (m)	Spurious Radiated Emissions	Compliant
§ 22.917 (a); § 24.238 (a); §27.53 (h) (m)	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	2017-11-12	2018-11-11
HP	Signal Generator	HP 8341B	2624A00116	2017-08-29	2018-08-28
Sunol Sciences	Broadband Antenna	JB3	A090413-1	2016-12-26	2019-12-25
Sunol Sciences	Broadband Antenna	JB3	A090314-2	2016-01-09	2019-01-08
Sonoma Instrunent	Pre-amplifier	310N	171205	2017-08-15	2018-08-14
Rohde & Schwarz	Auto test Software	EMC32	100361	/	/
MICRO-COAX	Coaxial Cable	Cable-6	006	2017-08-15	2018-08-14
MICRO-COAX	Coaxial Cable	Cable-8	008	2017-08-15	2018-08-14
MICRO-COAX	Coaxial Cable	Cable-9	009	2017-08-15	2018-08-14
MICRO-COAX	Coaxial Cable	Cable-10	010	2017-08-15	2018-08-14
Rohde & Schwarz	UNIVERSAL RADIO COMMUNICATION TESTER	CMU200	110605	2017-11-12	2018-11-11
R & S	Wideband Radio Communication Tester	CMW500	104478	2018-07-21	2019-07-20
Radiated Emission Test（Chamber 2#）					
HP	Signal Generator	HP 8341B	2624A00116	2017-08-29	2018-08-28
Rohde & Schwarz	EMI Test Receiver	ESU40	100207	2017-08-27	2018-08-26
ETS-LINDGREN	Horn Antenna	3115	9311-4159	2016-01-11	2019-01-10
ETS-LINDGREN	Horn Antenna	3115	6229	2016-01-11	2019-01-10
ETS-LINDGREN	Horn Antenna	3116	00084159	2016-10-18	2019-10-17
ETS-LINDGREN	Horn Antenna	3116	2516	2016-12-12	2019-12-12
Mini-Circuits	Amplifier	ZVA-183W-S+	220701818	2018-05-20	2019-05-19
EM Electronics Corporation	Amplifier	EM18G40G	060726	2018-03-22	2019-03-21
Rohde & Schwarz	Auto test Software	EMC32	100361	/	/
MICRO-COAX	Coaxial Cable	Cable-6	006	2017-08-15	2018-08-14
MICRO-COAX	Coaxial Cable	Cable-11	011	2017-08-15	2018-08-14
MICRO-COAX	Coaxial Cable	Cable-12	012	2017-08-15	2018-08-14
MICRO-COAX	Coaxial Cable	Cable-13	013	2017-08-15	2018-08-14
MICRO-COAX	Coaxial Cable	Cable-16	016	2017-08-15	2018-08-14
Rohde & Schwarz	UNIVERSAL RADIO COMMUNICATION TESTER	CMU200	110605	2017-11-12	2018-11-11
R & S	Wideband Radio Communication Tester	CMW500	104478	2018-07-21	2019-07-20

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
RF Conducted Test					
Rohde & Schwarz	Signal Analyzer	FSIQ26	836131/009	2017-09-21	2018-09-20
Narda	Attenuator/6dB	10690812-2	26850-6	2018-01-10	2019-01-09
Rohde & Schwarz	UNIVERSAL RADIO COMMUNICATION TESTER	CMU200	110605	2017-11-12	2018-11-11
R & S	Wideband Radio Communication Tester	CMW500	104478	2018-07-21	2019-07-20
Mini-Ciruits	Power splitter	ZFRSC-14-S+	SF019411452	2017-11-10	2018-11-09
BACL	Temperature & Humidity Chamber	BTH-150	30023	2017-10-10	2018-10-09
EAST	Regulated DC Power Supply	MCH-303D-II	14070562	2017-10-10	2018-10-09
Mason	RF Cable	MasonC01	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 §1.1307(b) & §2.1093 - RF EXPOSURE INFORMATION

Applicable Standard

FCC§1.1307,§2.1093.

Test Result

Compliance, please refer to the SAR report: RKS180621002-20.

FCC §2.1047 - MODULATION CHARACTERISTIC

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

FCC §2.1046; § 22.913 (a); § 24.232 (c); §27.50 (c) (d) - RF OUTPUT POWER

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(d), the maximum EIRP must not exceed 1Watts (30dBm) for 1710-1755MHz.

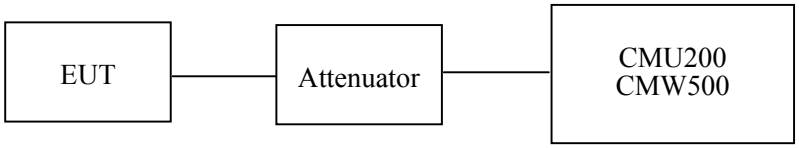
According to §27.50(c), the maximum EIRP must not exceed 3Watts (34.77dBm) for 699-716MHz.

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 CMU200 through sufficient attenuation.



Radiated Output Power:

The measurements procedures specified in ANSI/TIA-603-D 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. LOSS = Generator Output Power (dBm) – 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:
ERP (dBm) = LVL (dBm) + 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:
EIRP (dBm) = ERP (dBm) + 2.15 (dB)

Test Data

Environmental Conditions

Temperature:	23.2℃
Relative Humidity:	51 %
ATM Pressure:	101.3kPa

The testing was performed by Max Min on 2018-07-14.

Conducted Power:

GSM 850 Band

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	Limit (dBm)
GSM	128	824.2	32.25	38.45
	190	836.6	32.56	38.45
	251	848.8	32.62	38.45

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
GPRS	128	824.2	32.21	31.27	30.11	28.76	38.45
	190	836.6	32.43	31.39	30.25	28.93	38.45
	251	848.8	32.61	31.54	30.44	28.99	38.45

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
EGPRS	128	824.2	25.96	24.63	23.19	21.76	38.45
	190	836.6	25.78	24.47	22.96	21.59	38.45
	251	848.8	25.86	24.48	22.94	21.53	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	23.11	23.31	22.99
		HSDPA	1	22.86	22.94	22.73
			2	22.53	22.61	22.41
			3	22.31	22.46	22.16
			4	22.12	22.31	22.04
		HSUPA	1	21.89	22.11	21.76
			2	21.76	21.99	21.43
			3	21.37	21.61	21.21
			4	21.15	21.29	21.07
			5	20.97	21.16	20.83
		HSPA+	1	22.97	23.15	22.91

PCS 1900 Band

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	Limit (dBm)
GSM	512	1850.2	29.83	33
	661	1880.0	30.31	33
	810	1909.8	30.14	33

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
GPRS	512	1850.2	30.04	28.93	27.54	27.28	33
	661	1880.0	30.39	29.32	28.11	27.84	33
	810	1909.8	30.19	29.16	28.16	27.93	33

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
EGPRS	512	1850.2	26.56	24.97	23.49	22.07	33
	661	1880.0	26.96	25.09	23.87	22.42	33
	810	1909.8	26.87	25.14	23.81	22.31	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	22.55	22.71	22.59
		HSDPA	1	22.36	22.51	22.39
			2	22.21	22.36	22.25
			3	22.05	22.13	22.06
			4	21.91	21.99	21.96
		HSUPA	1	21.73	21.83	21.76
			2	21.51	21.62	21.56
			3	22.33	22.42	22.36
			4	21.15	21.22	21.17
			5	20.83	20.91	20.88
		HSPA+	1	22.61	22.73	22.64

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	21.32	21.41	21.41
		1#3	21.28	21.39	21.26
		1#5	21.35	21.42	21.17
		3#0	21.25	21.37	21.21
		3#1	21.12	21.27	21.18
		3#3	21.15	21.10	21.01
		6#0	20.91	20.96	20.98
	16-QAM	1#0	21.09	21.17	21.18
		1#3	20.96	21.04	21.02
		1#5	21.05	21.06	20.92
		3#0	20.89	21.07	20.80
		3#1	20.86	20.92	20.78
		3#3	20.66	20.79	20.82
		6#0	20.57	20.85	20.71
3M	QPSK	1#0	21.51	21.64	21.49
		1#7	21.57	21.59	21.56
		1#14	21.43	21.55	21.43
		8#0	21.40	21.38	21.42
		8#4	21.24	21.46	21.31
		8#7	21.19	21.40	21.27
		15#0	21.11	21.04	21.00
	16-QAM	1#0	21.19	21.28	21.28
		1#7	21.15	21.19	21.17
		1#14	21.08	21.27	21.20
		8#0	21.16	21.18	21.10
		8#4	21.03	21.08	21.15
		8#7	21.06	21.13	21.00
		15#0	21.09	21.08	21.02

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	1#0	21.43	21.37	21.38
		1#12	21.32	21.46	21.46
		1#24	21.24	21.42	21.33
		12#0	21.23	21.38	21.27
		12#6	21.20	21.33	21.29
		12#11	21.12	21.14	21.21
		25#0	21.07	21.25	21.11
	16-QAM	1#0	21.18	21.32	21.26
		1#12	21.22	21.15	21.27
		1#24	21.12	21.15	21.27
		12#0	21.21	21.21	21.13
		12#6	20.98	21.18	21.08
		12#11	20.94	21.10	21.10
		25#0	21.03	21.04	20.93
10M	QPSK	1#0	21.31	21.52	21.42
		1#24	21.41	21.47	21.39
		1#49	21.34	21.43	21.30
		25#0	21.17	21.31	21.32
		25#12	21.22	21.30	21.24
		25#24	21.25	21.36	21.17
		50#0	21.23	21.21	21.06
	16-QAM	1#0	21.28	21.39	21.47
		1#24	21.32	21.48	21.41
		1#49	21.30	21.34	21.39
		25#0	21.13	21.36	21.26
		25#12	21.26	21.18	21.15
		25#24	21.04	21.11	21.08
		50#0	21.01	21.06	21.07

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
15M	QPSK	1#0	20.35	20.47	20.32
		1#37	20.28	20.39	20.41
		1#74	20.43	20.43	20.46
		36#0	20.27	20.27	20.44
		36#17	20.32	20.23	20.35
		36#35	20.20	20.29	20.20
		75#0	20.34	20.31	20.27
	16-QAM	1#0	20.45	20.45	20.54
		1#37	20.36	20.40	20.40
		1#74	20.17	20.42	20.43
		36#0	20.22	20.26	20.33
		36#17	20.07	20.28	20.17
		36#35	20.10	20.13	20.15
		75#0	20.04	20.01	20.13
20M	QPSK	1#0	21.37	21.52	21.49
		1#49	21.32	21.40	21.37
		1#99	21.41	21.37	21.35
		50#0	21.26	21.41	21.31
		50#24	21.40	21.44	21.26
		50#49	21.19	21.37	21.31
		100#0	21.16	21.26	21.15
	16-QAM	1#0	21.24	21.44	21.36
		1#49	21.30	21.43	21.37
		1#99	21.38	21.35	21.36
		50#0	21.31	21.22	21.26
		50#24	21.36	21.19	21.35
		50#49	21.22	21.21	21.31
		100#0	21.17	21.19	21.23

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	22.73	22.57	22.62
		1#3	22.44	22.48	22.46
		1#5	22.28	22.53	22.35
		3#0	22.34	22.40	22.29
		3#1	21.79	21.82	22.32
		3#3	21.78	21.76	21.90
		6#0	21.54	21.87	21.53
	16-QAM	1#0	22.20	22.15	22.29
		1#3	22.07	22.30	22.07
		1#5	22.17	22.09	22.25
		3#0	22.02	21.95	21.88
		3#1	22.07	22.07	22.01
		3#3	21.71	21.79	21.94
		6#0	21.34	21.74	21.84
3M	QPSK	1#0	22.67	22.77	22.71
		1#7	22.38	22.41	22.65
		1#14	22.12	22.58	22.41
		8#0	22.07	22.38	22.28
		8#4	22.06	22.48	22.14
		8#7	21.81	22.27	21.99
		15#0	21.96	21.88	21.99
	16-QAM	1#0	21.95	22.14	22.17
		1#7	21.88	22.21	21.81
		1#14	21.77	22.13	21.59
		8#0	21.83	21.94	21.44
		8#4	21.46	21.69	21.51
		8#7	21.31	21.70	21.39
		15#0	21.46	21.53	21.30

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
5M	QPSK	1#0	22.63	22.76	22.60
		1#12	22.46	22.52	22.48
		1#24	22.33	22.46	22.26
		12#0	22.21	22.27	22.39
		12#6	22.11	22.41	22.14
		12#11	22.20	22.16	22.29
		25#0	21.86	22.21	22.07
	16-QAM	1#0	21.82	21.90	21.88
		1#12	21.66	21.77	21.89
		1#24	21.60	21.81	21.92
		12#0	21.39	21.66	21.67
		12#6	21.29	21.82	21.59
		12#11	21.27	21.41	21.43
		25#0	20.93	21.47	21.15
10M	QPSK	1#0	22.50	22.59	22.49
		1#24	22.30	22.60	22.34
		1#49	22.45	22.49	22.08
		25#0	22.31	22.13	22.26
		25#12	22.26	22.23	22.06
		25#24	22.07	22.09	22.00
		50#0	22.10	21.91	21.98
	16-QAM	1#0	22.49	22.62	22.43
		1#24	22.34	22.35	22.16
		1#49	22.22	22.38	22.17
		25#0	22.03	22.42	22.01
		25#12	22.10	22.07	22.00
		25#24	21.69	22.15	21.90
		50#0	21.71	21.80	22.01

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
15M	QPSK	1#0	21.87	21.61	21.50
		1#37	21.70	21.75	21.29
		1#74	21.57	21.47	21.05
		36#0	21.55	21.48	21.01
		36#17	21.35	21.37	20.95
		36#35	21.36	21.38	20.77
		75#0	21.24	21.32	20.96
	16-QAM	1#0	21.81	21.76	21.69
		1#37	21.57	21.62	21.58
		1#74	21.24	21.52	21.65
		36#0	21.00	21.51	21.42
		36#17	20.94	21.26	21.42
		36#35	20.99	20.88	21.35
		75#0	20.95	20.89	21.08
20M	QPSK	1#0	22.54	22.67	22.50
		1#49	22.59	22.44	22.36
		1#99	22.45	22.41	22.27
		50#0	22.54	22.54	22.03
		50#24	22.25	22.26	22.18
		50#49	22.00	22.25	22.22
		100#0	21.87	22.12	21.95
	16-QAM	1#0	22.56	22.40	22.47
		1#49	22.50	22.26	22.43
		1#99	22.29	22.35	22.39
		50#0	22.02	22.32	22.32
		50#24	21.91	22.27	22.19
		50#49	21.87	22.11	22.07
		100#0	21.87	21.84	21.92

Peak-to-average ratio (PAR):

PCS 1900 Band

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	2.29	13
	Middle	2.39	13
	High	2.28	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	2.36	13
	Middle	2.41	13
	High	2.43	13

WCDMA Band II

Mode	Channel	PAR (dB)	Limit (dB)
WCDMA (Rel99)	Low	2.68	≤ 13
	Middle	2.62	≤ 13
	High	2.68	≤ 13
WCDMA (HSDPA)	Low	2.28	≤ 13
	Middle	2.34	≤ 13
	High	2.25	≤ 13
WCDMA (HSUPA)	Low	2.33	≤ 13
	Middle	2.43	≤ 13
	High	2.40	≤ 13
WCDMA (HSPA+)	Low	2.26	≤ 13
	Middle	2.28	≤ 13
	High	2.24	≤ 13

LTE Band 2

Test Modulation		Test Bandwidth	Low Channel (dB)	Middle Channel (dB)	High Channel (dB)	Limit (dB)
QPSK	1 RB	20M	3.45	3.62	3.63	13
	100 RB		5.73	5.73	5.84	13
16-QAM	1 RB	20M	4.77	4.71	7.76	13
	100 RB		6.69	6.92	6.90	13

LTE Band 4

Test Modulation		Test Bandwidth	Low Channel (dB)	Middle Channel (dB)	High Channel (dB)	Limit(dB)
QPSK	1 RB	20M	3.59	3.62	3.60	13
	100 RB		6.21	6.31	6.31	13
16-QAM	1 RB	20M	5.27	5.32	5.47	13
	100 RB		7.14	7.14	7.30	13

Radiated Power:

GSM 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)			
GSM850, Middle Channel (ERP)										
836.60	95.34	57	183	H	31.65	0.63	-1.14	29.88	38.45	8.57
836.60	97.56	245	172	V	30.41	0.63	-1.14	28.64	38.45	9.81
EGPRS 850, Middle Channel (ERP)										
836.6	89.46	45	137	H	25.77	0.63	-1.14	24.00	38.45	14.45
836.6	94.03	12	175	V	26.88	0.63	-1.14	25.11	38.45	13.34
PCS 1900, Middle Channel (EIRP)										
1880.00	85.85	228	210	H	19.97	0.85	8.81	27.93	33.00	5.07
1880.00	85.82	134	192	V	19.51	0.85	8.81	27.47	33.00	5.53
EGPRS 1900, Middle Channel (EIRP)										
1880.0	86.13	25	123	H	15.09	0.85	8.81	23.05	33	9.95
1880.0	87.54	64	241	V	16.19	0.85	8.81	24.15	33	8.85

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	87.14	292	178	H	23.45	0.63	-1.14	21.68	38.45	16.77
836.60	89.18	2	163	V	22.03	0.63	-1.14	20.26	38.45	18.19
WCDMA Band II, Middle Channel(EIRP)										
1880.00	78.27	92	200	H	12.39	0.85	8.81	20.35	33.00	12.65
1880.00	78.18	295	198	V	11.87	0.85	8.81	19.83	33.00	13.17

EIRP:

LTE Band 2

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 1.4M BW Middle Channel								
1880.00	H	81.23	15.35	0.85	8.81	23.31	33.00	9.69
1880.00	V	81.09	15.21	0.85	8.81	23.17	33.00	9.83
16-QAM 1.4M BW Middle Channel								
1880.00	H	81.05	15.17	0.85	8.81	23.13	33.00	9.87
1880.00	V	80.98	15.10	0.85	8.81	23.06	33.00	9.94
QPSK 3M BW Middle Channel								
1880.00	H	79.36	13.48	0.85	8.81	21.44	33.00	11.56
1880.00	V	79.15	13.27	0.85	8.81	21.23	33.00	11.77
16-QAM 3M BW Middle Channel								
1880.00	H	79.17	13.29	0.85	8.81	21.25	33.00	11.75
1880.00	V	79.09	13.21	0.85	8.81	21.17	33.00	11.83
QPSK 5M BW Middle Channel								
1880.00	H	78.41	12.53	0.85	8.81	20.49	33.00	12.51
1880.00	V	78.21	12.33	0.85	8.81	20.29	33.00	12.71
16-QAM 5M BW Middle Channel								
1880.00	H	78.27	12.39	0.85	8.81	20.35	33.00	12.65
1880.00	V	78.15	12.27	0.85	8.81	20.23	33.00	12.77
QPSK 10M BW Middle Channel								
1880.00	H	77.63	11.75	0.85	8.81	19.71	33.00	13.29
1880.00	V	77.51	11.63	0.85	8.81	19.59	33.00	13.41
16-QAM 10M BW Middle Channel								
1880.00	H	77.46	11.58	0.85	8.81	19.54	33.00	13.46
1880.00	V	77.29	11.41	0.85	8.81	19.37	33.00	13.63
QPSK 15M BW Middle Channel								
1880.00	H	76.89	11.01	0.85	8.81	18.97	33.00	14.03
1880.00	V	76.75	10.87	0.85	8.81	18.83	33.00	14.17
16-QAM 15M BW Middle Channel								
1880.00	H	76.71	10.83	0.85	8.81	18.79	33.00	14.21
1880.00	V	76.53	10.65	0.85	8.81	18.61	33.00	14.39
QPSK 20M BW Middle Channel								
1880.00	H	76.54	10.66	0.85	8.81	18.62	33.00	14.38
1880.00	V	76.37	10.49	0.85	8.81	18.45	33.00	14.55
16-QAM 20M BW Middle Channel								
1880.00	H	76.38	10.50	0.85	8.81	18.46	33.00	14.54
1880.00	V	76.19	10.31	0.85	8.81	18.27	33.00	14.73

LTE Band 4

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 1.4M BW Middle Channel								
1732.50	H	83.56	16.78	0.84	8.57	24.51	30.00	5.49
1732.50	V	83.17	15.91	0.84	8.57	23.64	30.00	6.36
16-QAM 1.4M BW Middle Channel								
1732.50	H	83.42	16.64	0.84	8.57	24.37	30.00	5.63
1732.50	V	83.09	15.83	0.84	8.57	23.56	30.00	6.44
QPSK 3M BW Middle Channel								
1732.50	H	81.57	14.79	0.84	8.57	22.52	30.00	7.48
1732.50	V	81.37	14.11	0.84	8.57	21.84	30.00	8.16
16-QAM 3M BW Middle Channel								
1732.50	H	81.31	14.53	0.84	8.57	22.26	30.00	7.74
1732.50	V	81.14	13.88	0.84	8.57	21.61	30.00	8.39
QPSK 5M BW Middle Channel								
1732.50	H	79.97	13.19	0.84	8.57	20.92	30.00	9.08
1732.50	V	79.86	12.60	0.84	8.57	20.33	30.00	9.67
16-QAM 5M BW Middle Channel								
1732.50	H	79.87	13.09	0.84	8.57	20.82	30.00	9.18
1732.50	V	79.63	12.37	0.84	8.57	20.10	30.00	9.90
QPSK 10M BW Middle Channel								
1732.50	H	79.15	12.37	0.84	8.57	20.10	30.00	9.90
1732.50	V	79.06	11.80	0.84	8.57	19.53	30.00	10.47
16-QAM 10M BW Middle Channel								
1732.50	H	79.06	12.28	0.84	8.57	20.01	30.00	9.99
1732.50	V	78.93	11.67	0.84	8.57	19.40	30.00	10.60
QPSK 15M BW Middle Channel								
1732.50	H	77.81	11.03	0.84	8.57	18.76	30.00	11.24
1732.50	V	77.56	10.30	0.84	8.57	18.03	30.00	11.97
16-QAM 15M BW Middle Channel								
1732.50	H	77.63	10.85	0.84	8.57	18.58	30.00	11.42
1732.50	V	77.41	10.15	0.84	8.57	17.88	30.00	12.12
QPSK 20M BW Middle Channel								
1732.50	H	77.31	10.53	0.84	8.57	18.26	30.00	11.74
1732.50	V	77.11	9.85	0.84	8.57	17.58	30.00	12.42
16-QAM 20M BW Middle Channel								
1732.50	H	77.19	10.41	0.84	8.57	18.14	30.00	11.86
1732.50	V	77.05	9.79	0.84	8.57	17.52	30.00	12.48

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

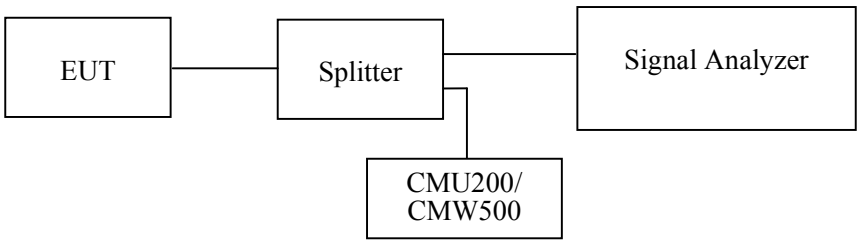
Applicable Standards

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), and the 26 dB & 99% bandwidth was recorded.



Test Data

Environmental Conditions

Temperature:	23.2℃-23.5℃
Relative Humidity:	51 %-23%
ATM Pressure:	101.1kPa-103.3kPa

The testing was performed by Max Min from 2018-08-07 to 2018-08-10.

EUT operation mode: Transmitting

Test Result: Compliance.

GSM 850 Band

Mode	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
GSM (GMSK)	836.6	0.317	0.242
EGPRS (GMSK)	836.6	0.315	0.242

WCDMA Band V

Mode	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
WCDMA (Rel 99)	836.6	4.729	4.148
WCDMA (HSDPA)	836.6	4.709	4.148
WCDMA (HSUPA)	836.6	4.749	4.168
WCDMA (HSPA+)	836.6	4.749	4.168

PCS 1900 Band

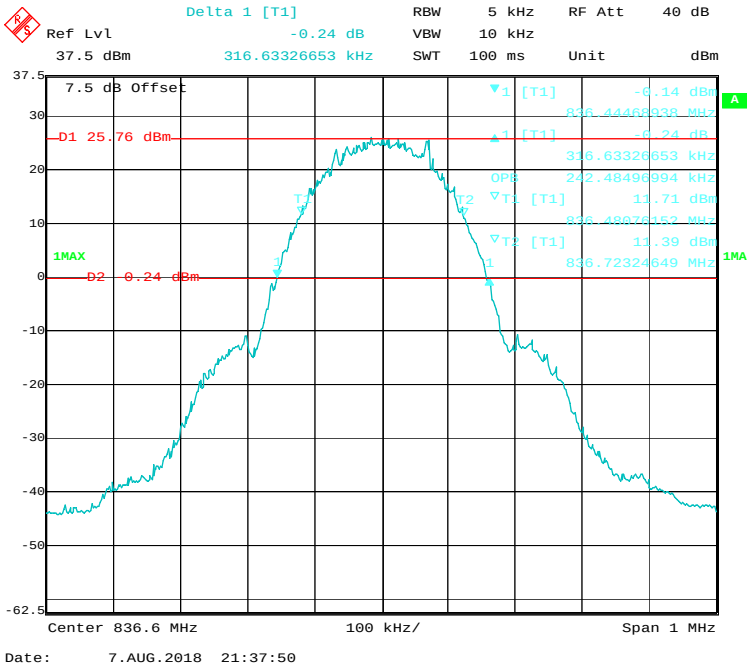
Mode	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
GSM (GMSK)	1880.0	0.313	0.240
EGPRS (GMSK)	1880.0	0.314	0.246

WCDMA Band II

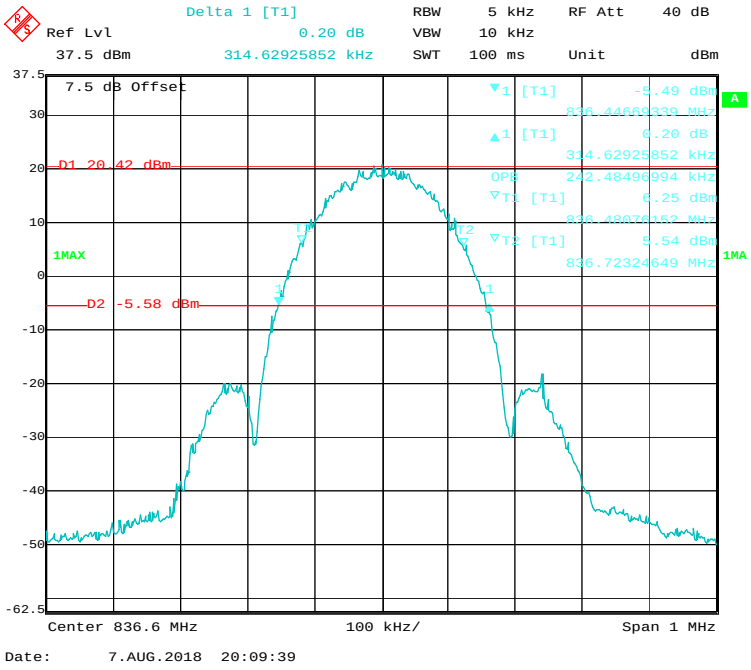
Mode	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
WCDMA (Rel 99)	1880.0	4.770	4.148
WCDMA (HSDPA)	1880.0	4.729	4.148
WCDMA (HSUPA)	1880.0	4.729	4.148
WCDMA (HSUPA)	1880.0	4.729	4.148

GSM 850 Band

99% Occupied & 26 dB Emissions Bandwidth for GSM (GMSK) Mode

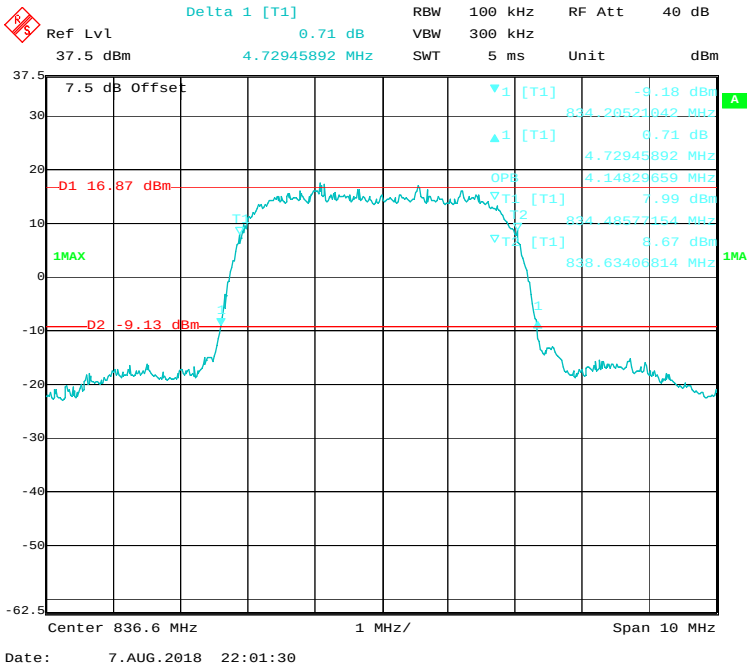


99% Occupied & 26 dB Emissions Bandwidth for EGPRS (GMSK) Mode

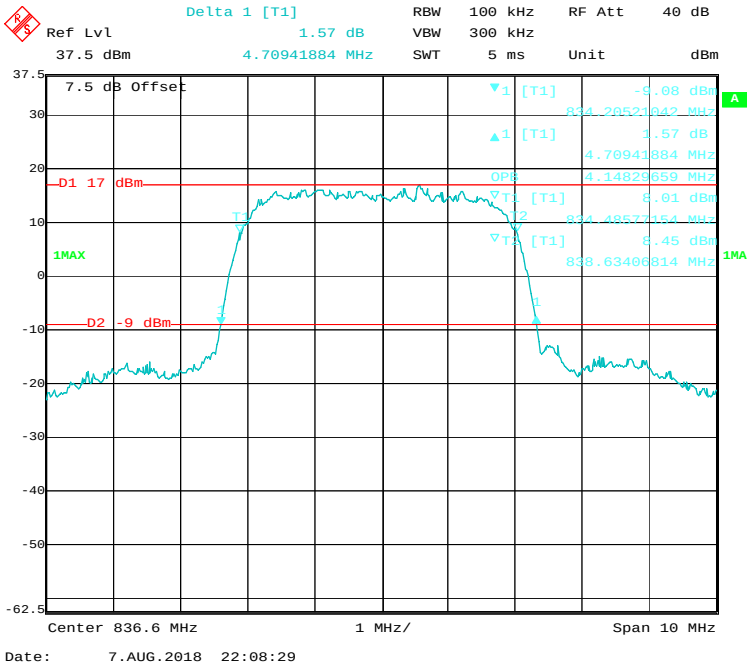


WCDMA Band V

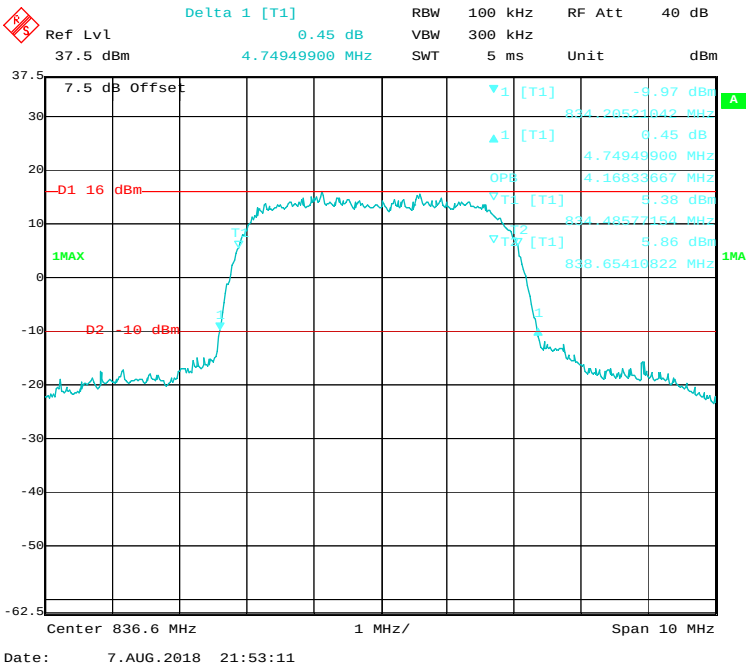
99% Occupied & 26 dB Emissions Bandwidth for WCDMA (Rel 99) Mode



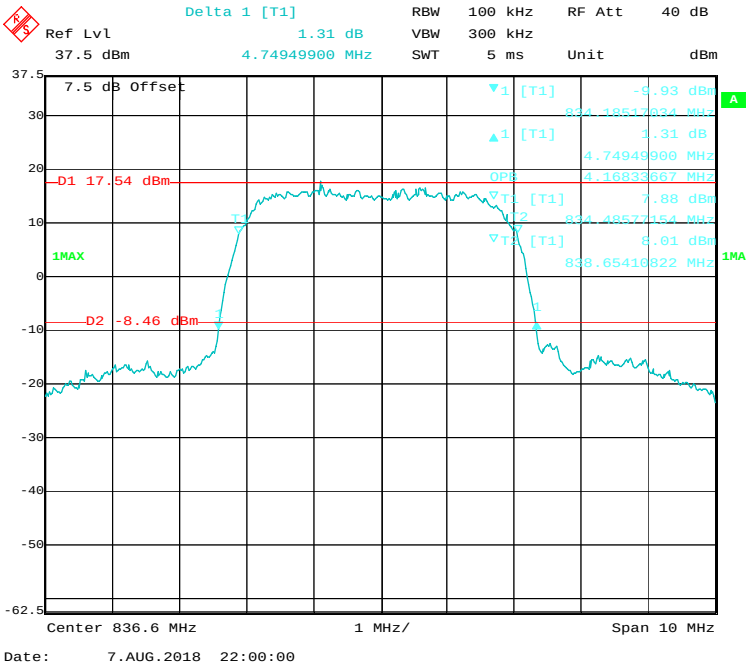
99% Occupied & 26 dB Emissions Bandwidth for WCDMA (HSDPA) Mode



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

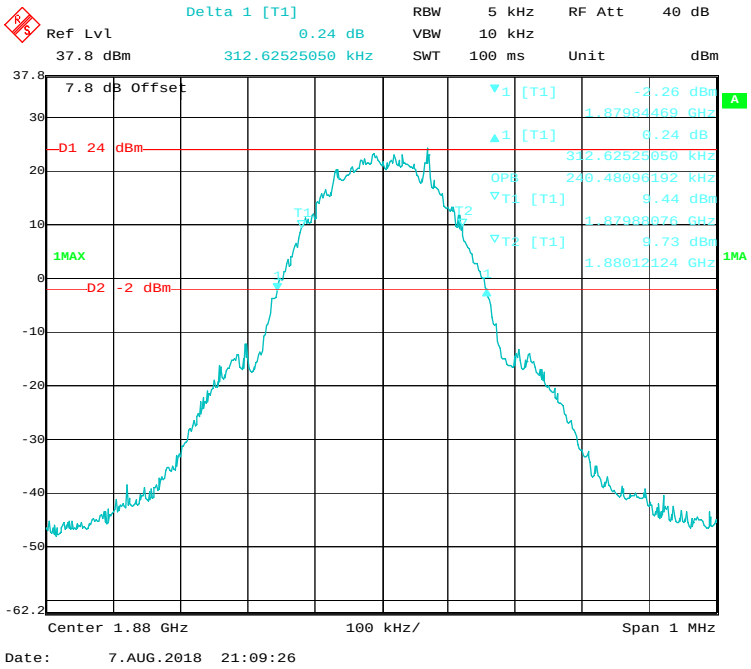


99% Occupied & 26 dB Emissions Bandwidth for WCDMA (HSPA+) Mode

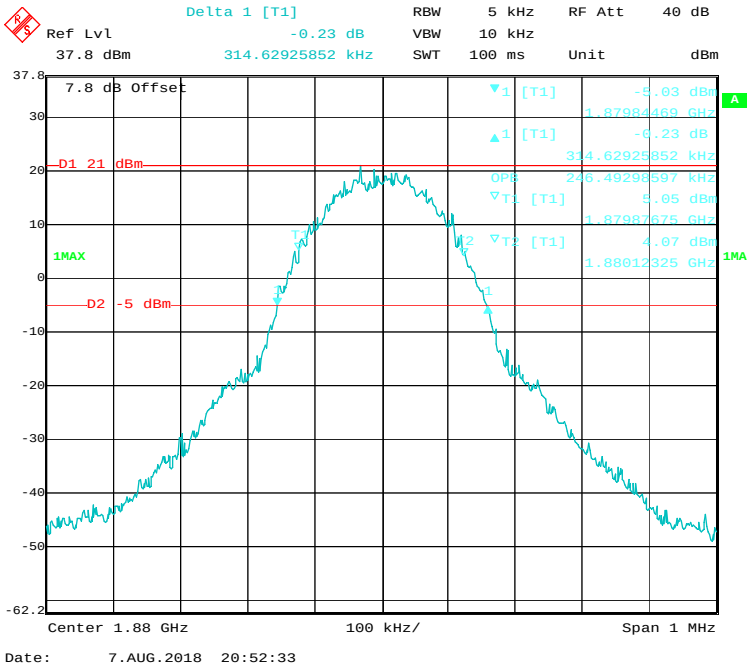


PCS 1900Band

99% Occupied & 26 dB Emissions Bandwidth for GSM (GMSK) Mode

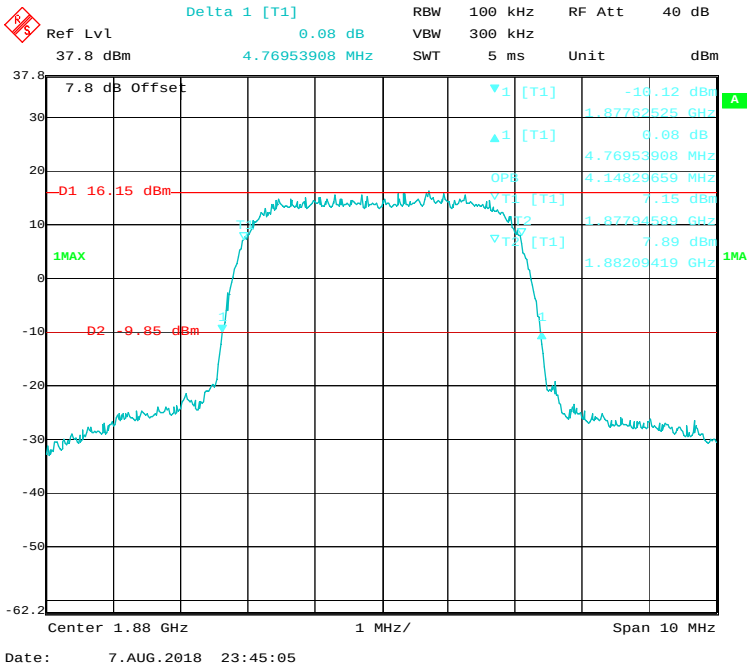


99% Occupied & 26 dB Emissions Bandwidth for EGPRS (GMSK) Mode

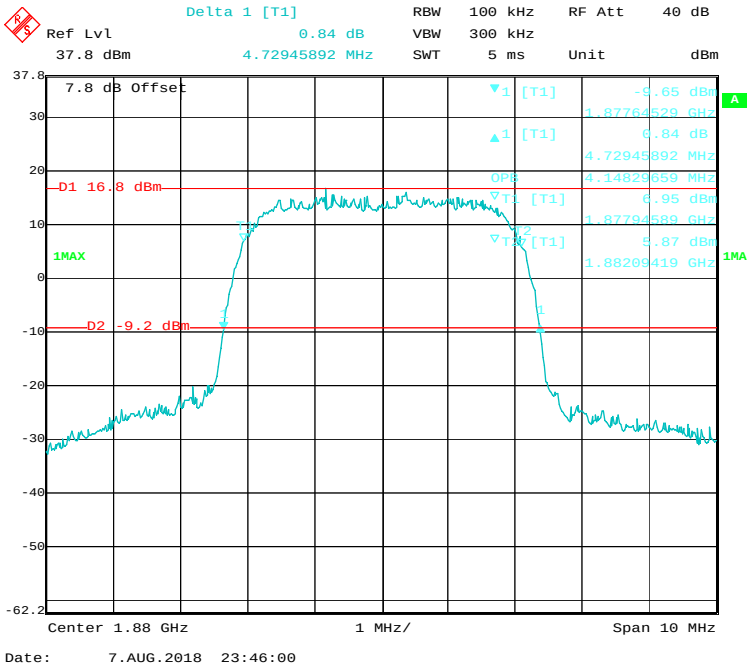


WCDMA Band II

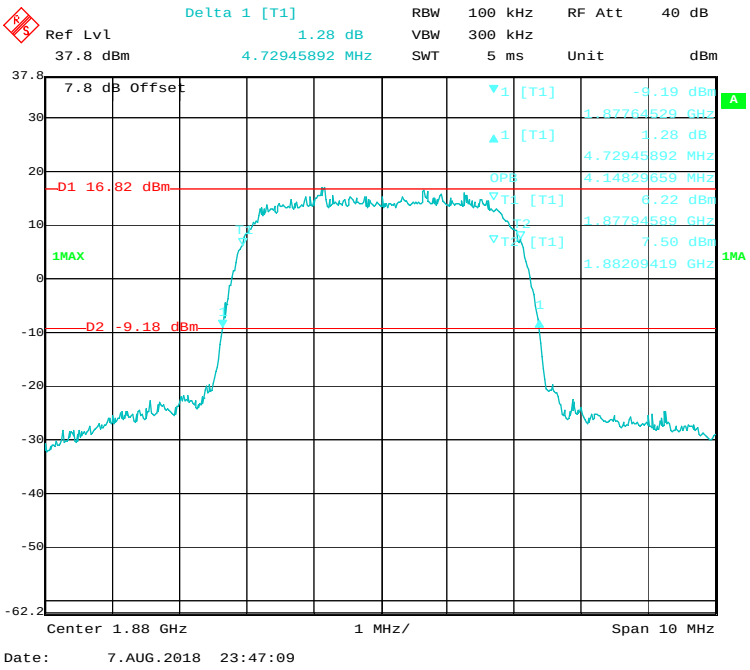
99% Occupied & 26 dB Emissions Bandwidth for WCDMA (Rel 99) Mode



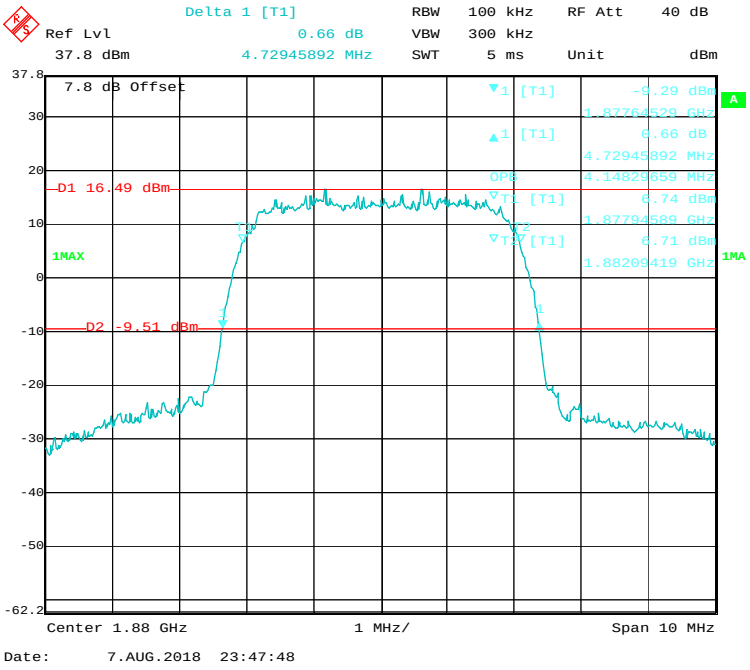
99% Occupied & 26 dB Emissions Bandwidth for WCDMA (HSDPA) Mode



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



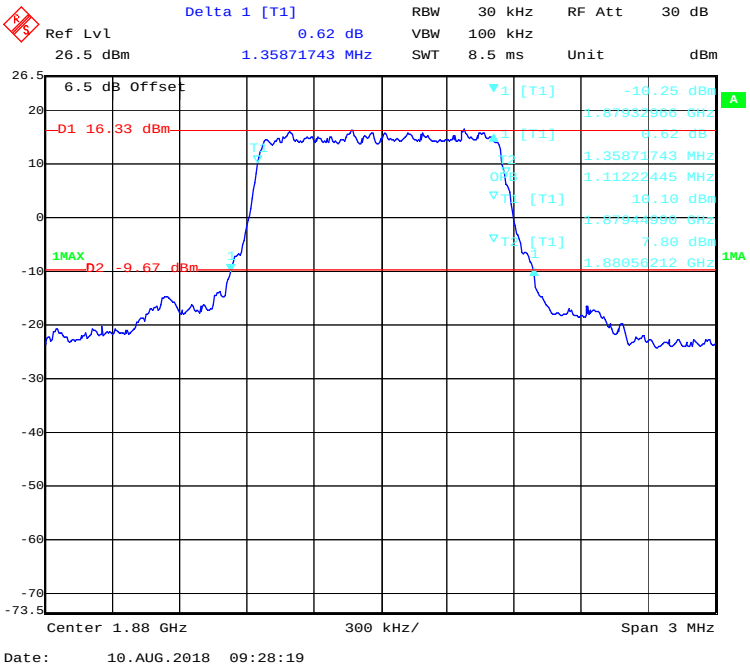
99% Occupied & 26 dB Emissions Bandwidth for WCDMA (HSPA+) Mode



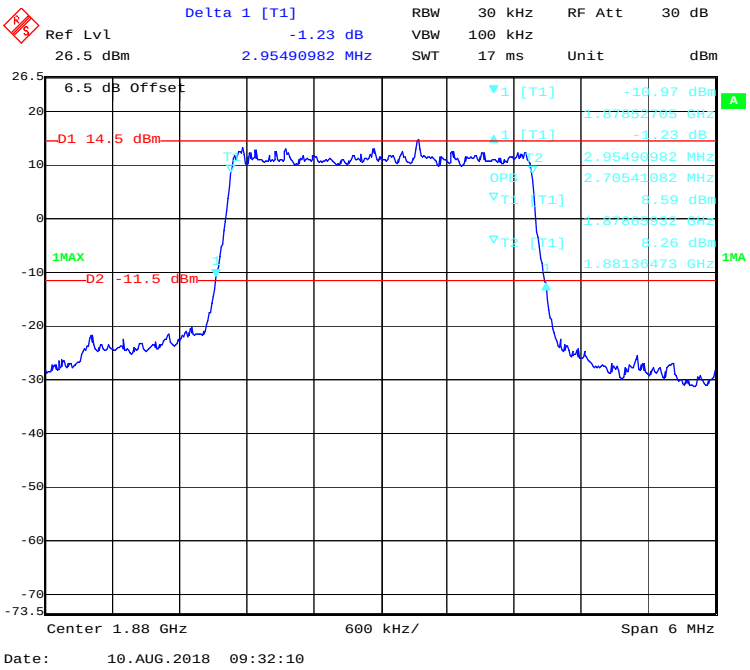
LTE Band 2:

Test Modulation	Test Bandwidth	Test Channel	26 dB Bandwidth	99% Occupied Bandwidth
			MHz	MHz
QPSK	1.4M	Middle	1.359	1.112
	3M		2.955	2.705
	5M		5.059	4.529
	10M		9.859	8.978
	15M		15.099	13.527
	20M		19.538	17.956
16-QAM	1.4M	Middle	1.335	1.112
	3M		2.987	2.705
	5M		5.039	4.529
	10M		9.819	8.938
	15M		14.939	13.527
	20M		19.538	17.956

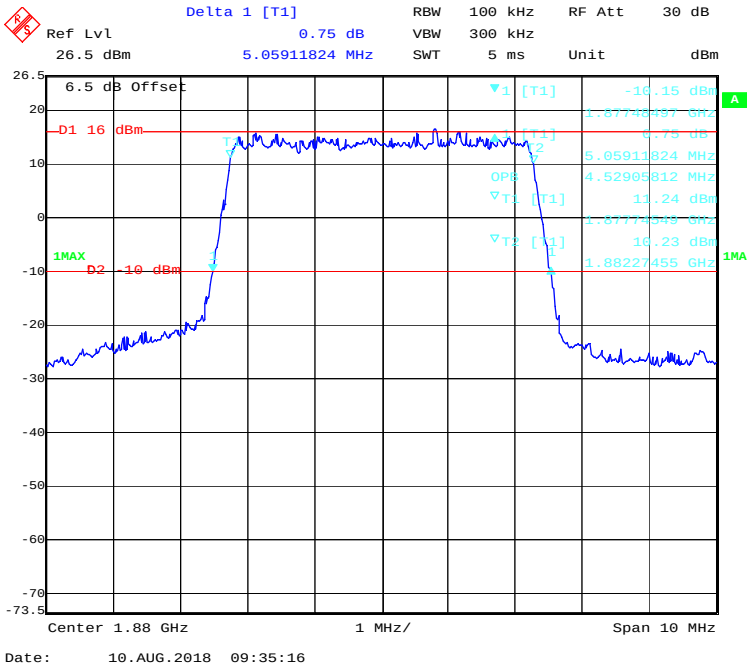
QPSK (1.4 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel



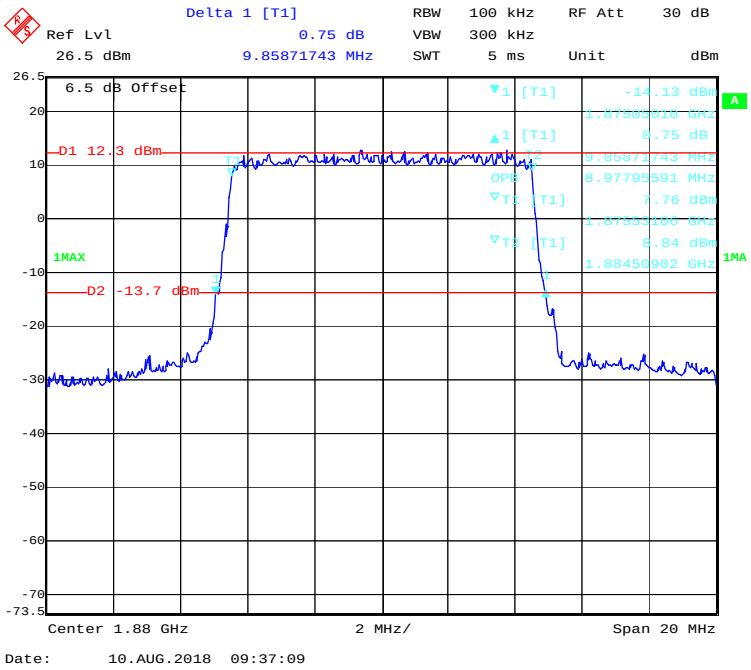
QPSK (3.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel



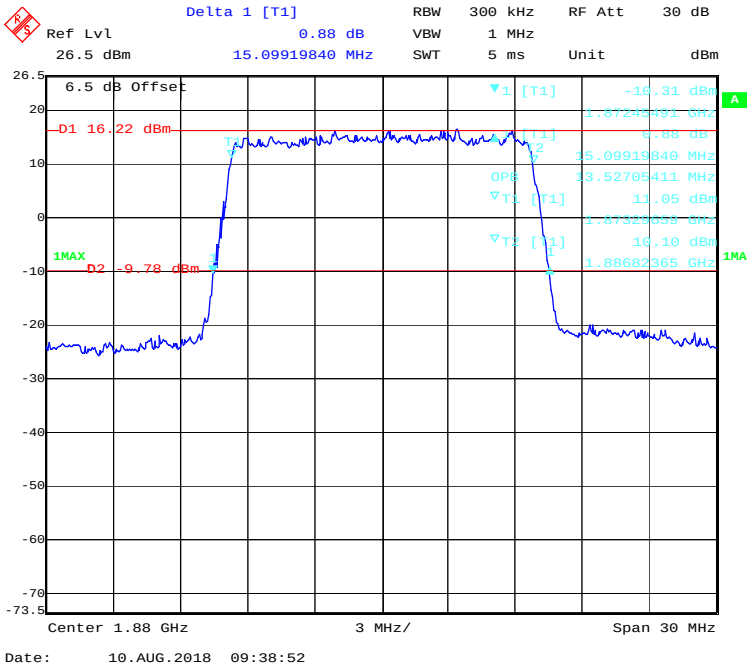
QPSK (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel



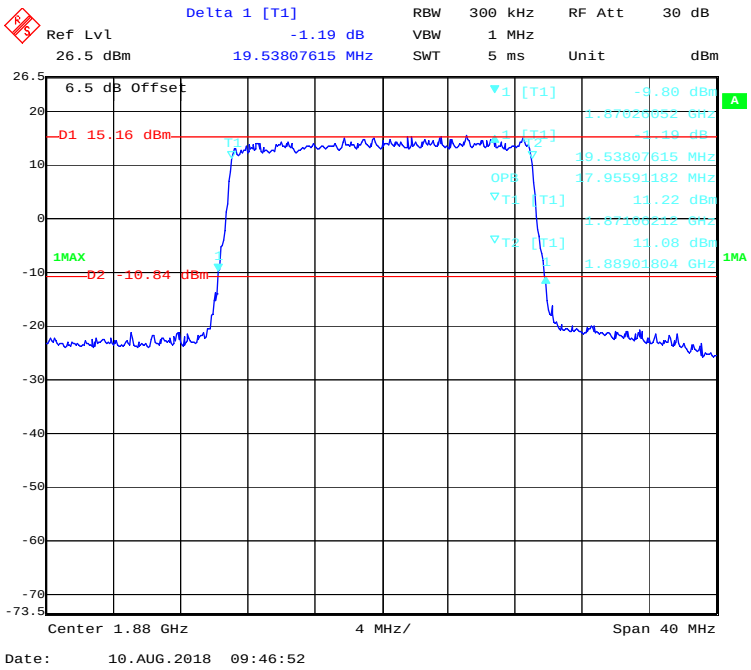
QPSK (10.0MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel



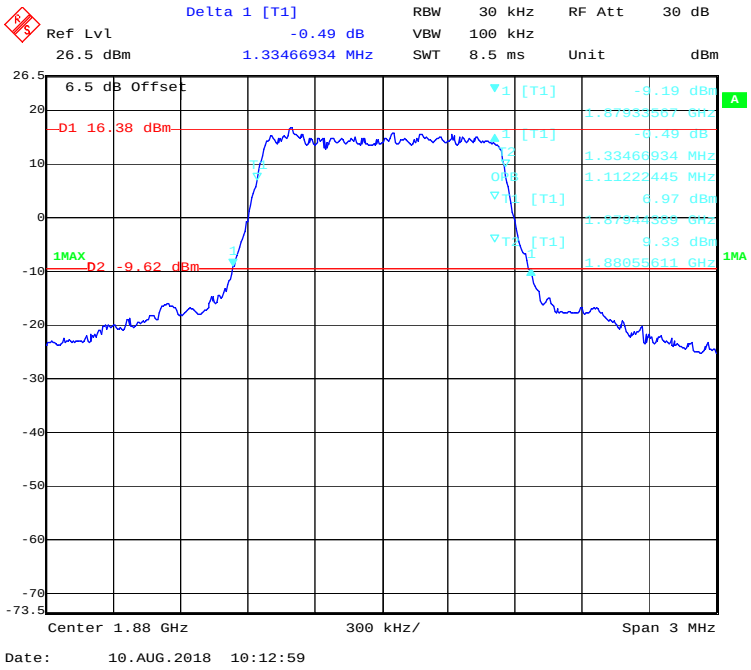
QPSK (15.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel



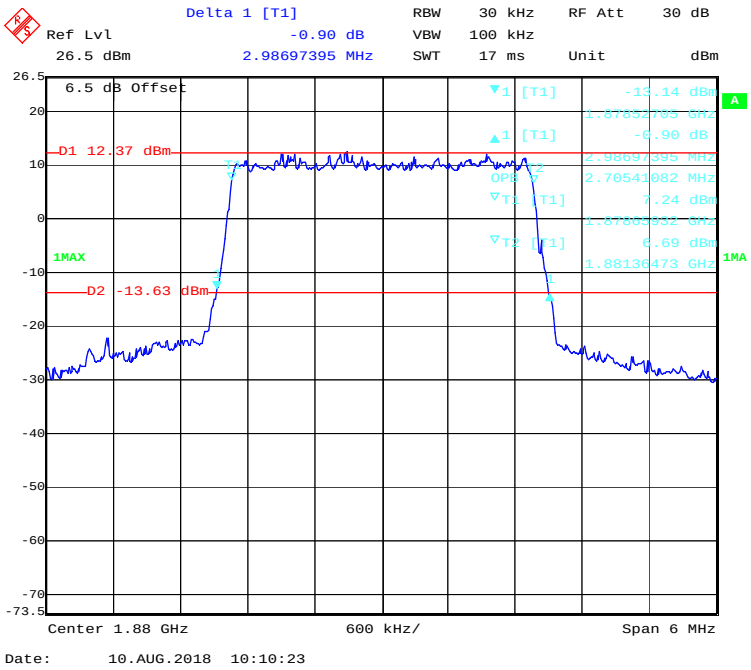
QPSK (20.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel



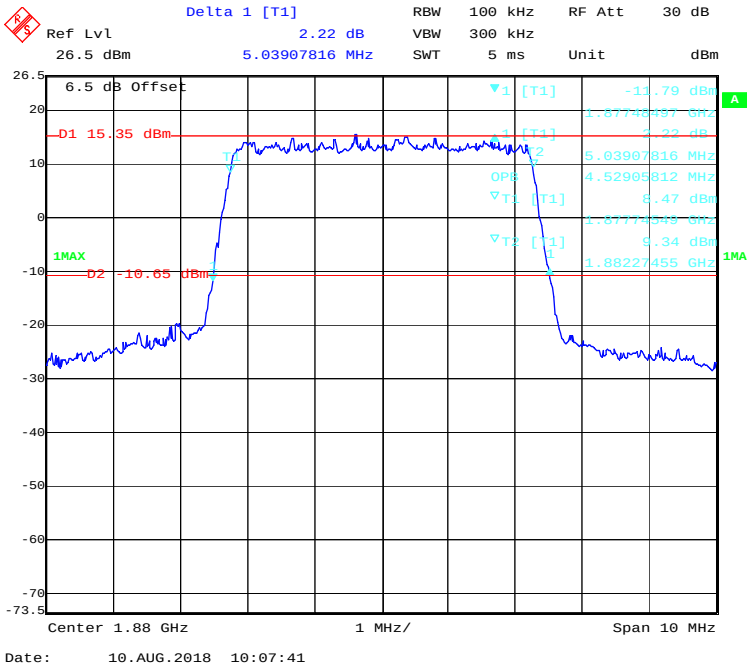
16-QAM (1.4 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel



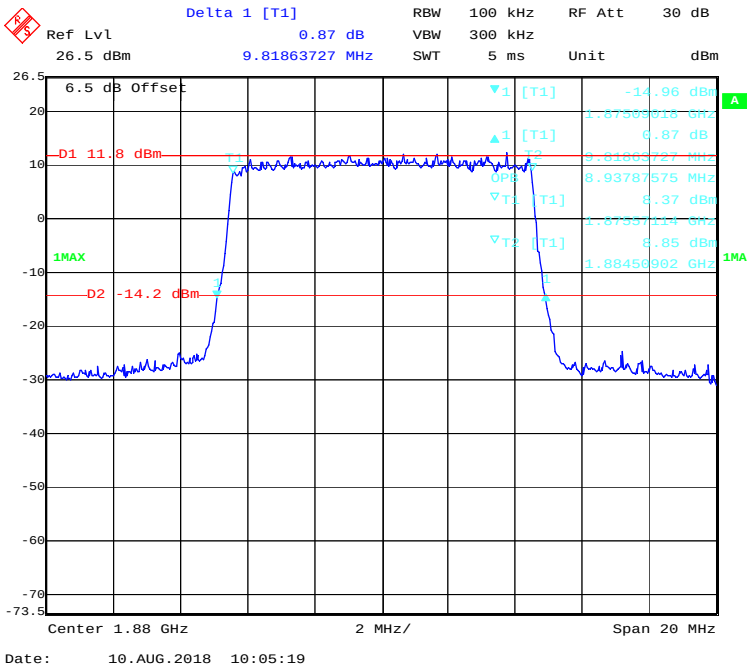
16-QAM (3.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel



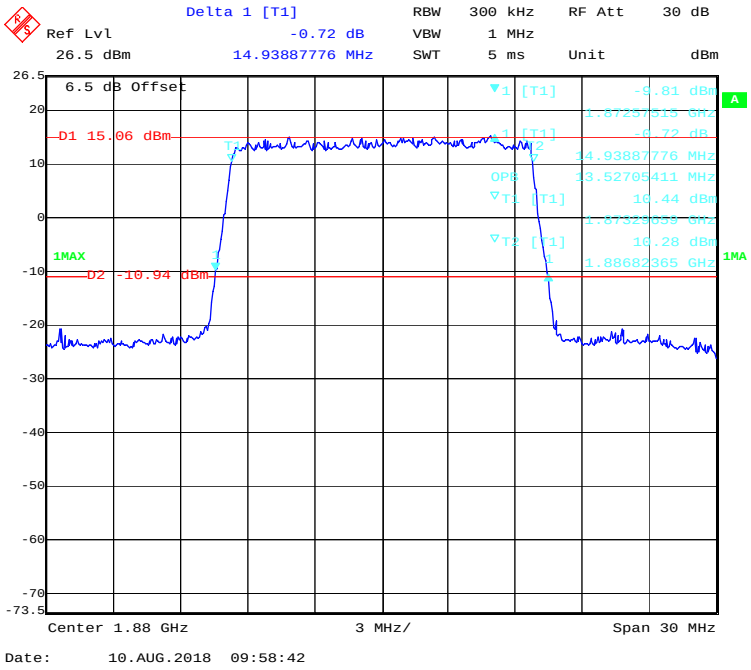
16-QAM (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel



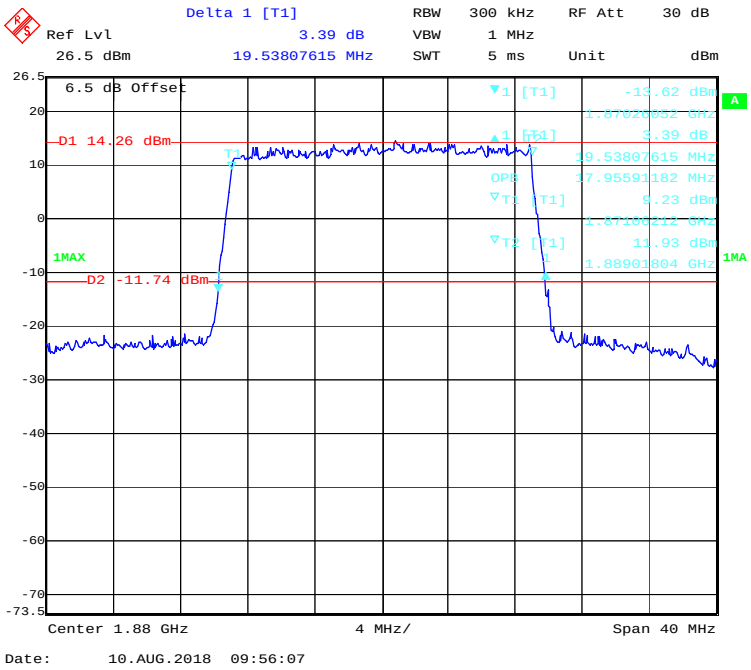
16-QAM (10.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel



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



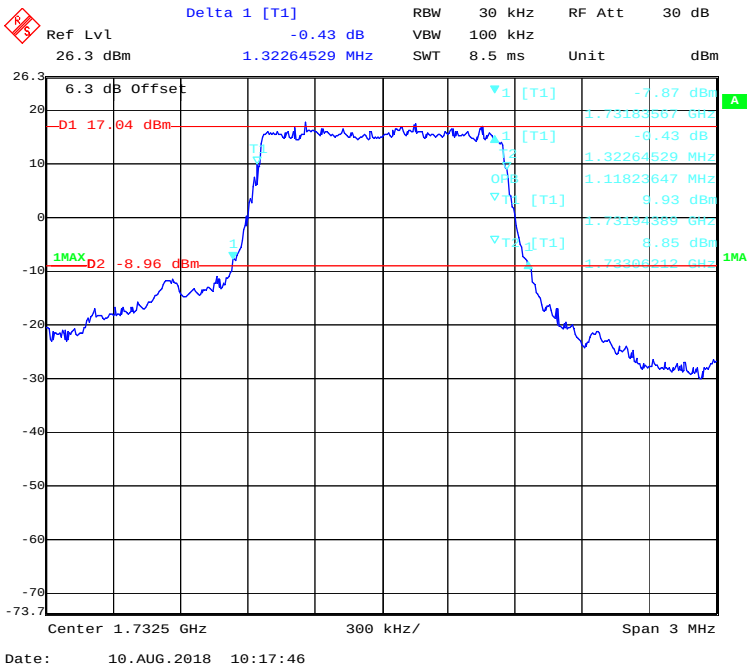
16-QAM (20.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel



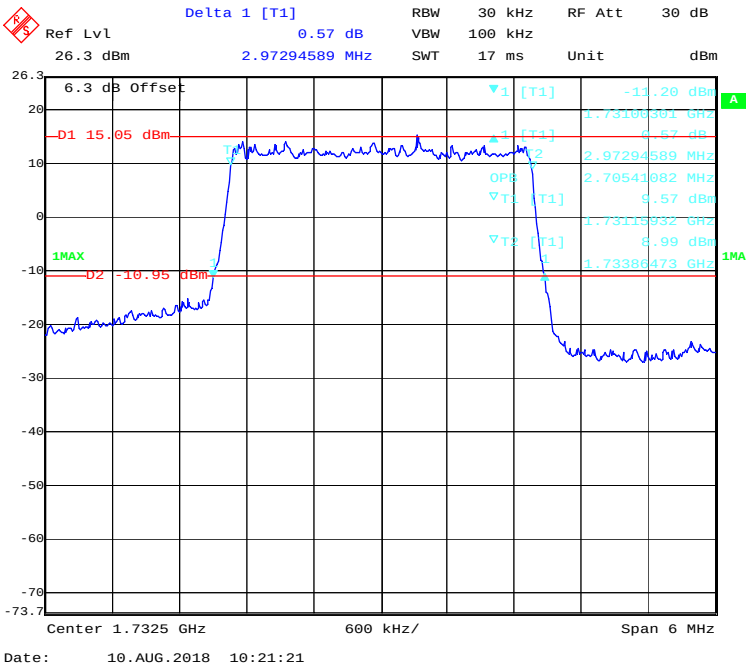
LTE Band 4:

Test Modulation	Test Bandwidth	Test Channel	26 dB Bandwidth	99% Occupied Bandwidth
			MHz	MHz
QPSK	1.4M	Middle	1.323	1.118
	3M		2.973	2.705
	5M		5.073	4.549
	10M		9.813	8.978
	15M		15.033	13.527
	20M		19.372	17.956
16-QAM	1.4M	Middle	1.323	1.112
	3M		2.994	2.705
	5M		5.033	4.529
	10M		9.753	8.978
	15M		14.873	13.467
	20M		19.532	17.956

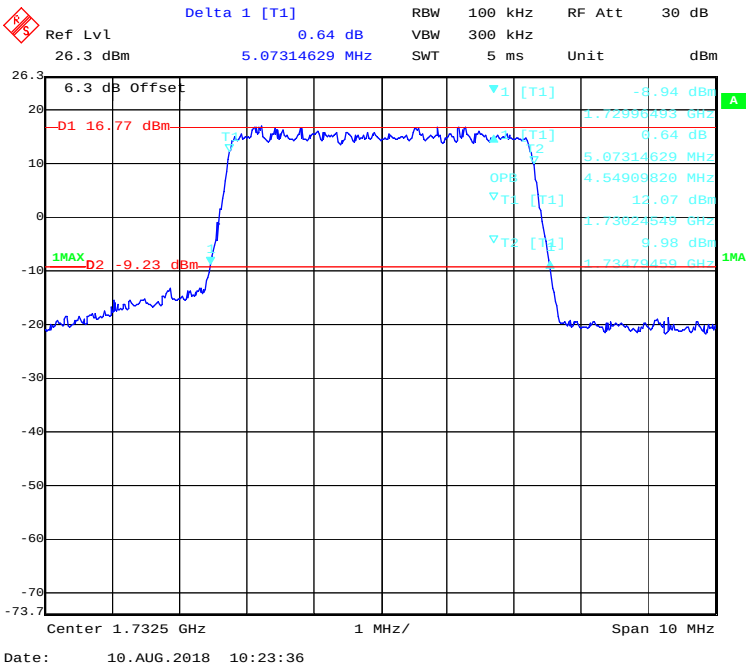
QPSK (1.4 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel



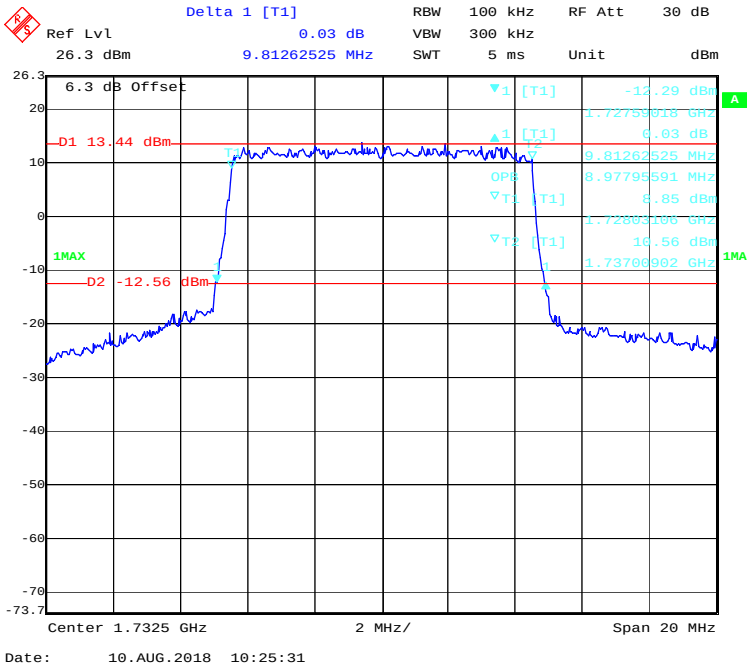
QPSK (3.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel



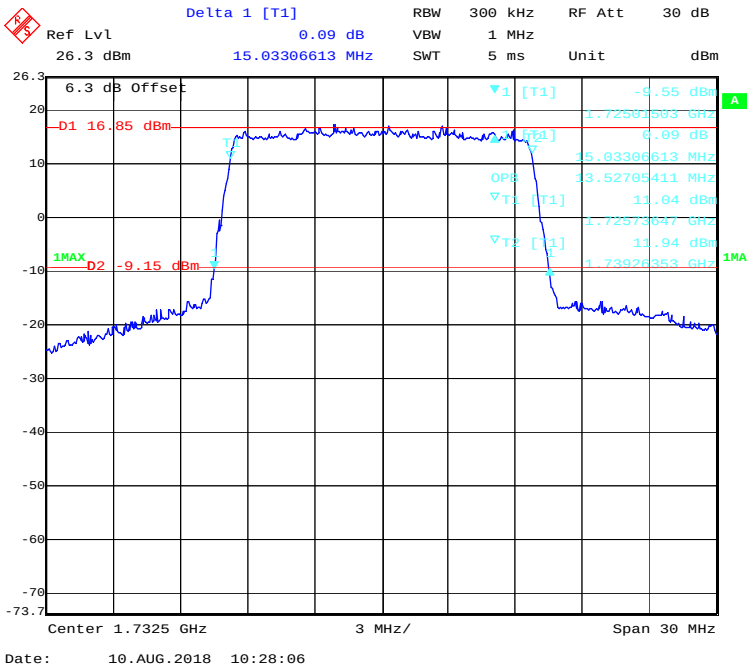
QPSK (5.0MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel



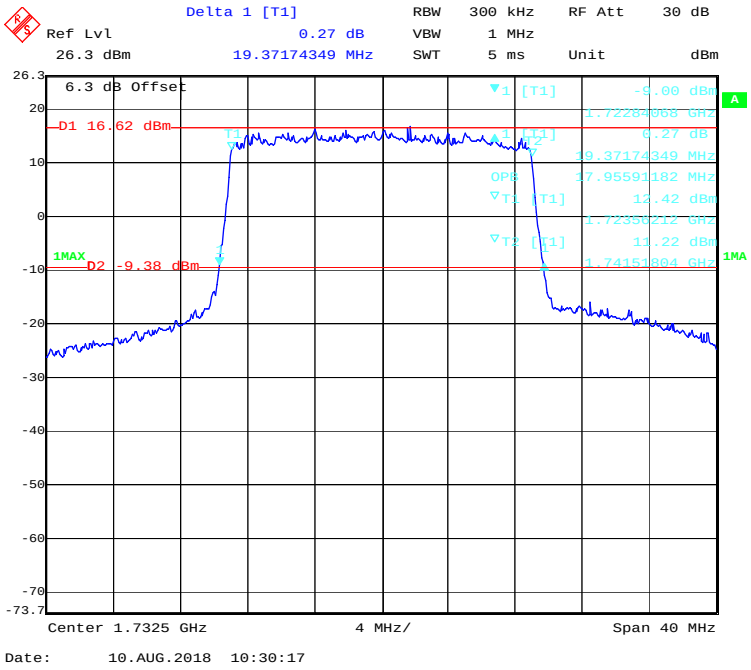
QPSK (10.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel



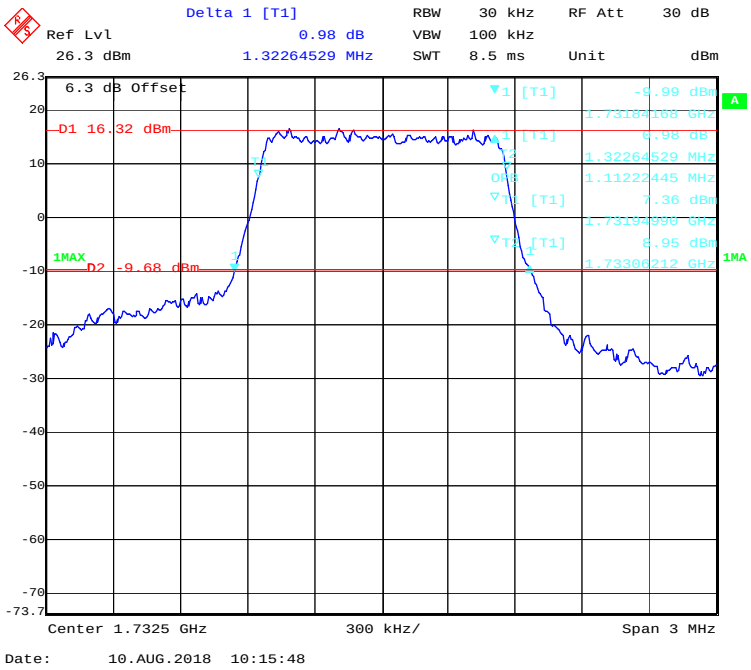
QPSK (15.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel



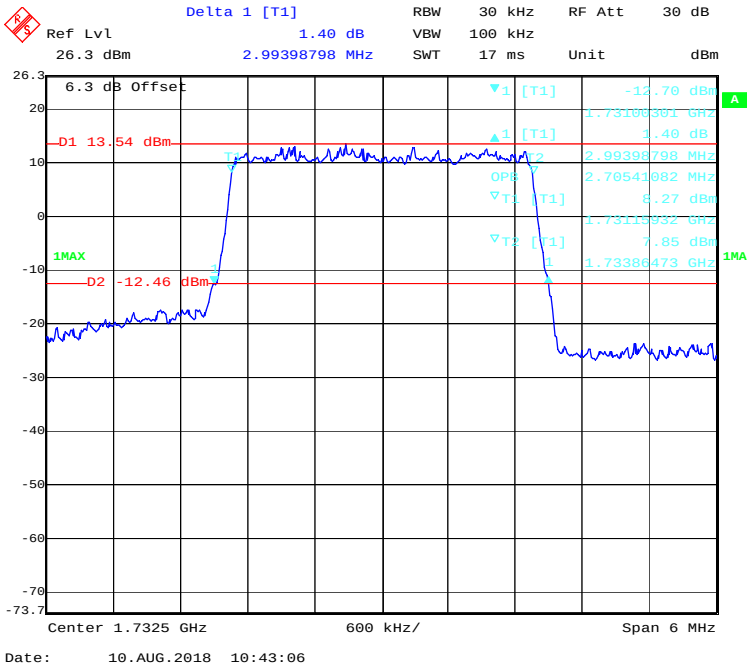
QPSK (20.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel



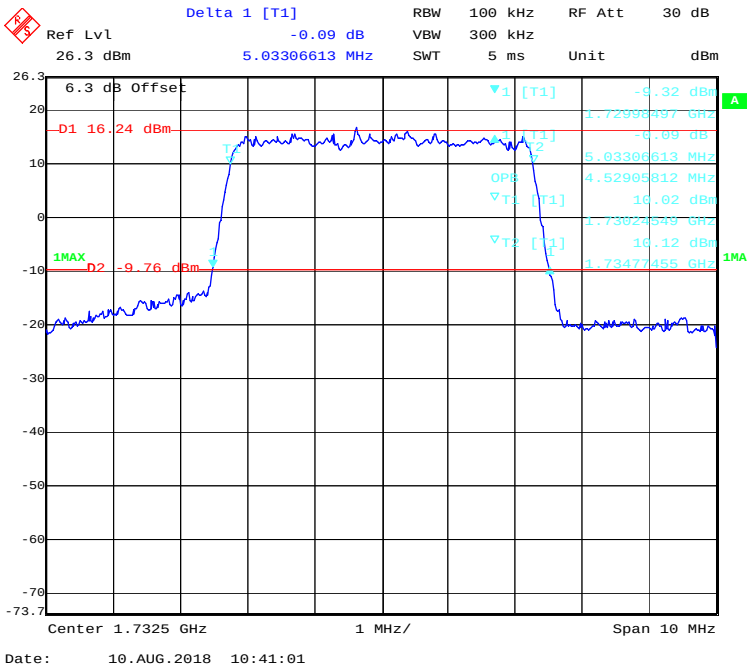
16-QAM (1.4 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel



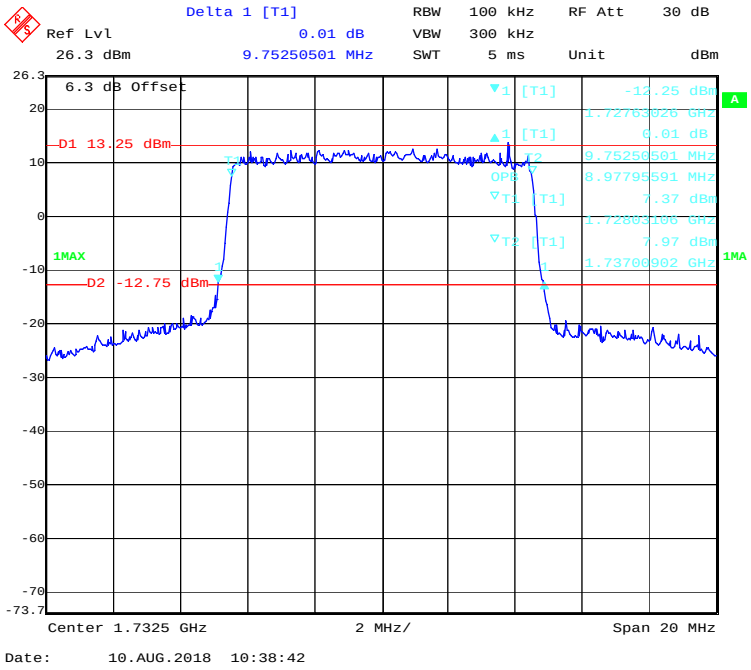
16-QAM (3.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel



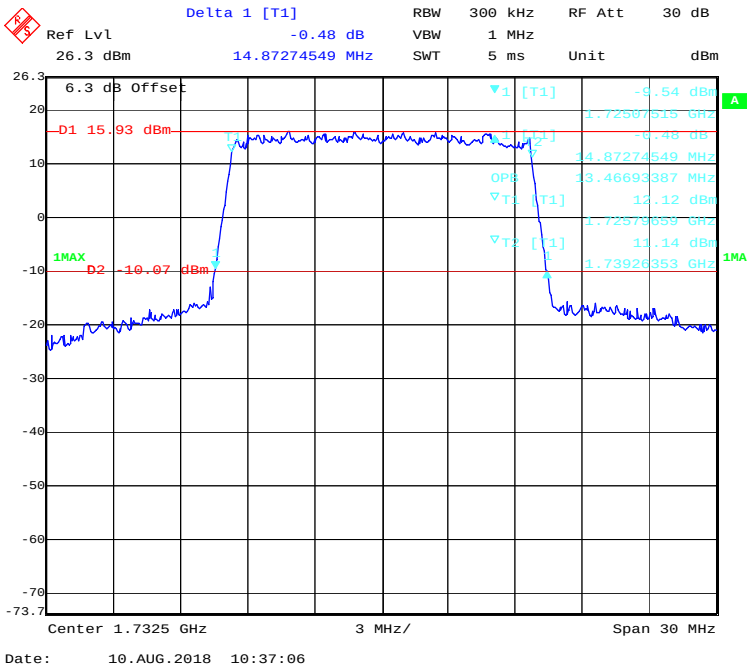
16-QAM (5.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel



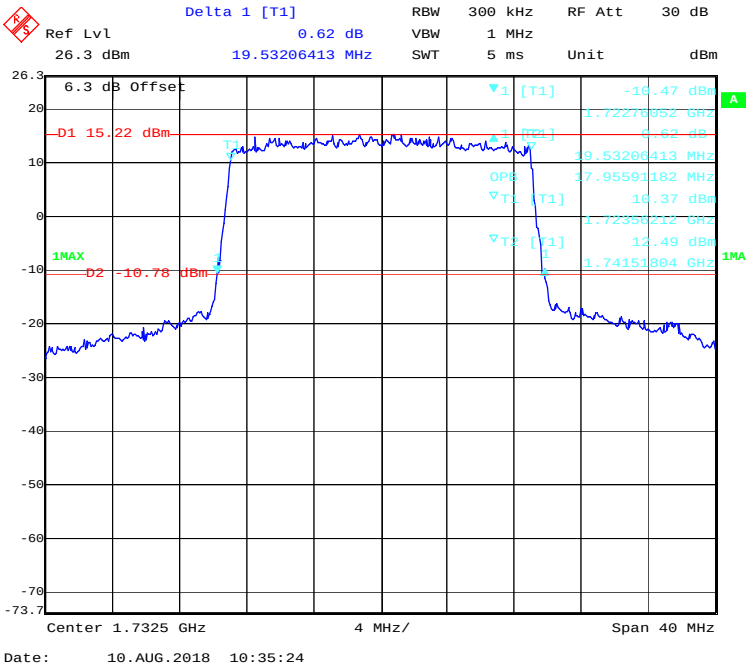
16-QAM (10.0 MHz) - 99% Occupied & 26 dB Emissions Bandwidth, Middle channel



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



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

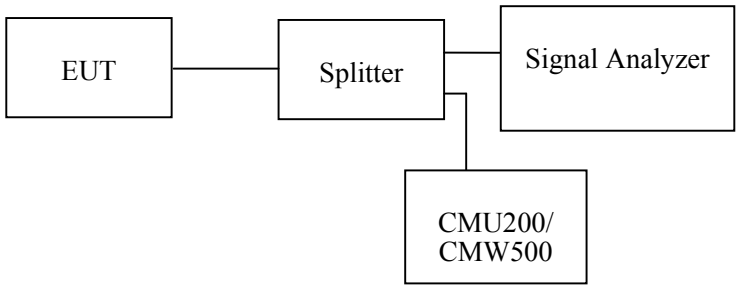
Applicable Standards

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

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

Test Procedure

The RF output of the transceiver was connected to a spectrum analyzer and simulator through appropriate attenuation. 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:	23.2℃-23.5℃
Relative Humidity:	51 %-23%
ATM Pressure:	101.1kPa-103.3kPa

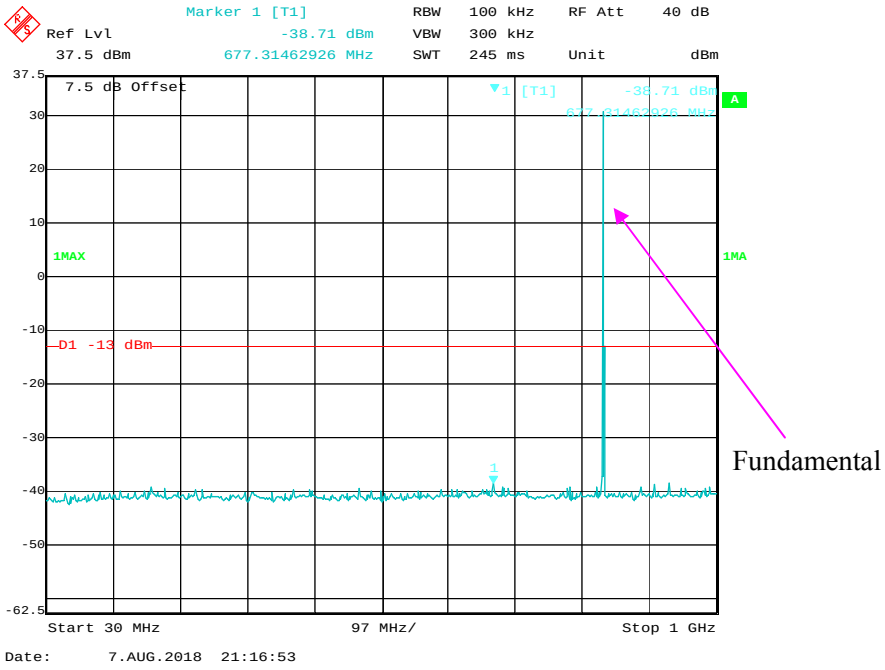
The testing was performed by Max Min from 2018-08-07to 2018-08-10.

EUT operation mode: Transmitting

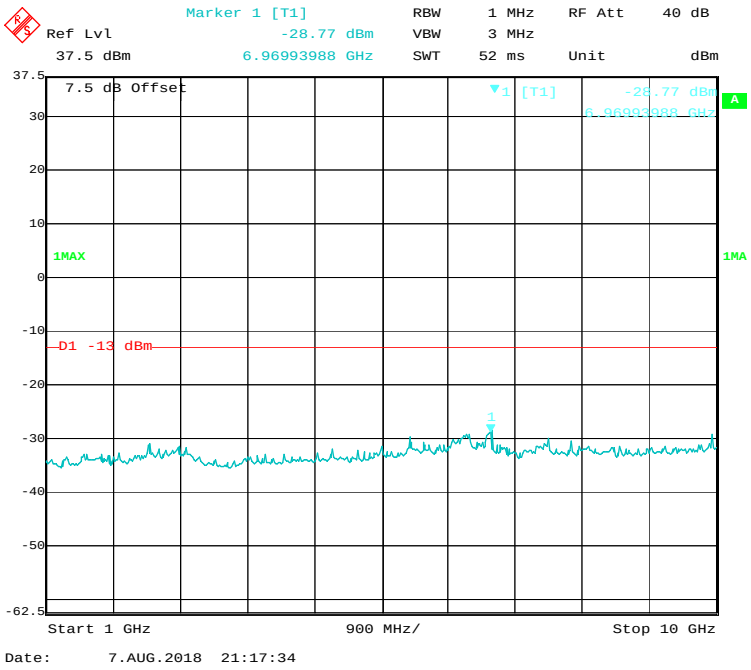
Test Result: Compliance.

GSM 850 Band:

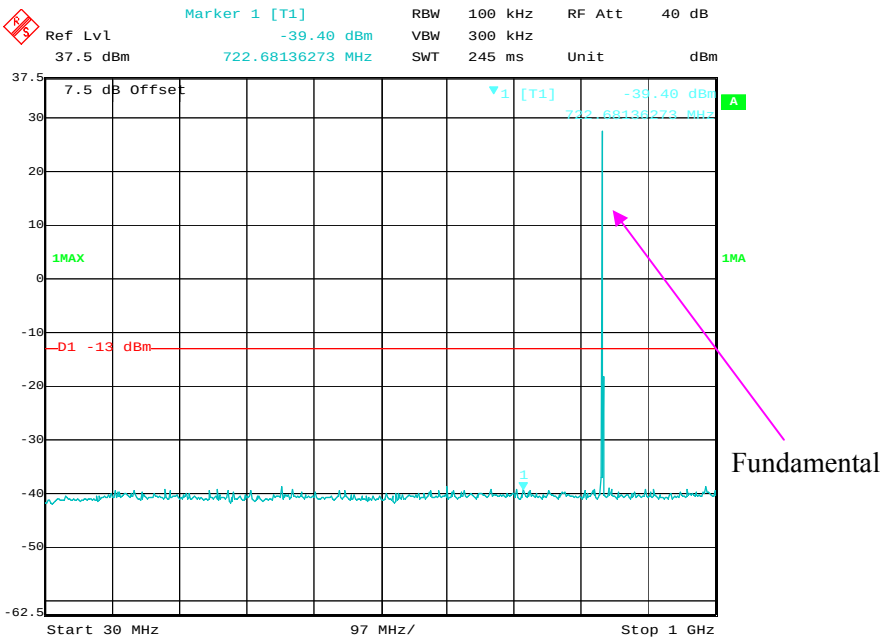
30 MHz – 1GHz(GSM Mode)



1 GHz – 10 GHz (GSM Mode)

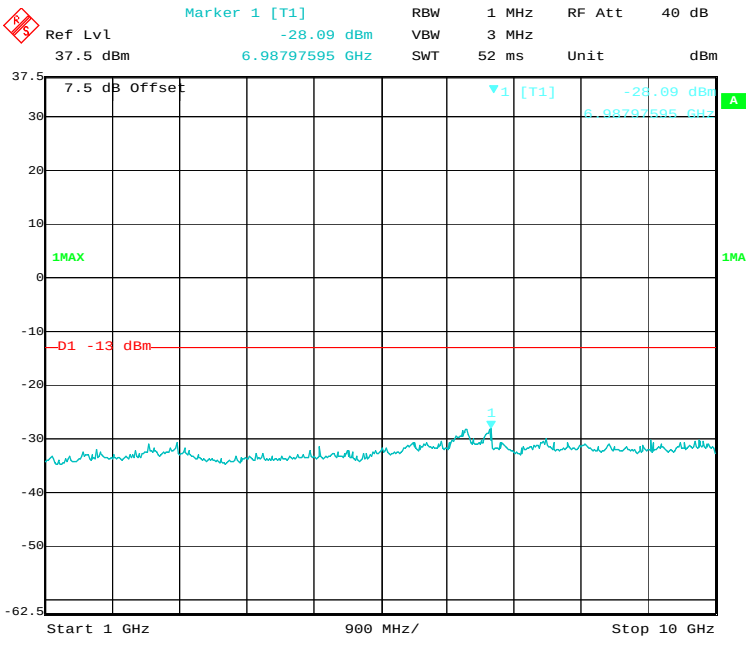


30 MHz – 1GHz(EGPRS Mode)



Date: 7.AUG.2018 20:18:09

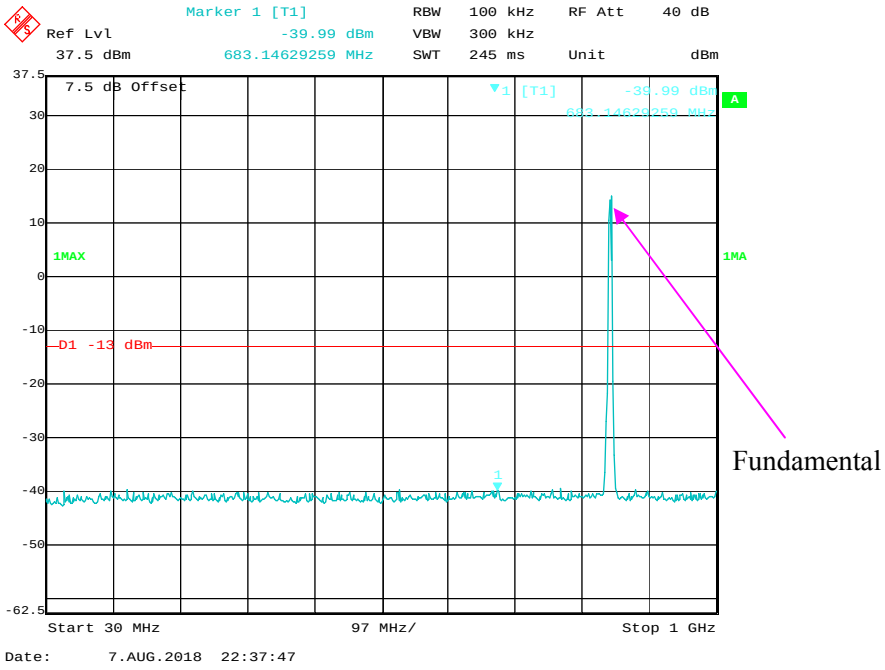
1 GHz – 10 GHz (EGPRS Mode)



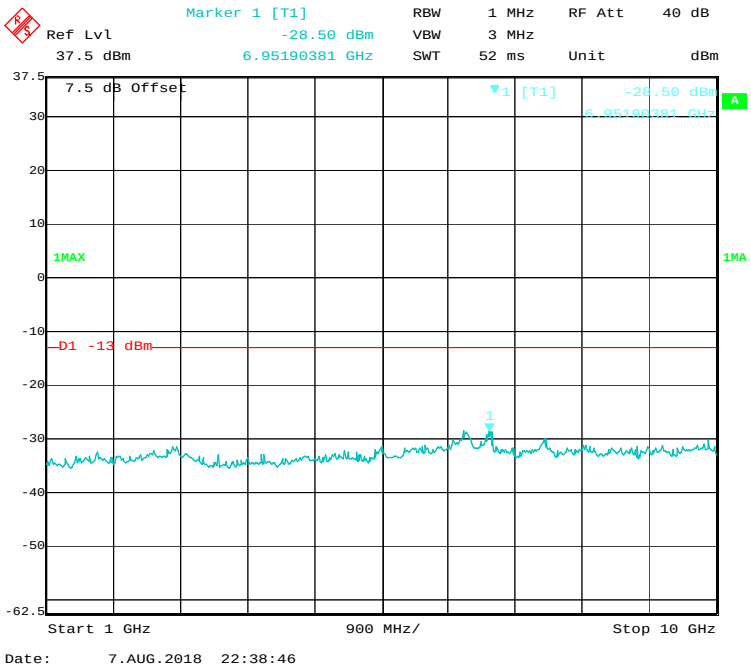
Date: 7.AUG.2018 20:20:45

WCDMA Band V:

30 MHz – 1GHz(WCDMA Mode)

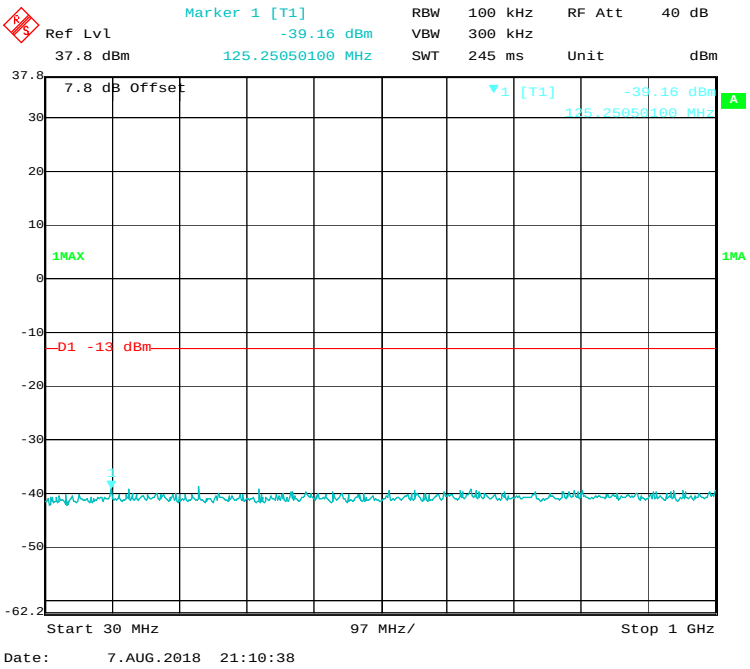


1 GHz – 10 GHz (WCDMA Mode)

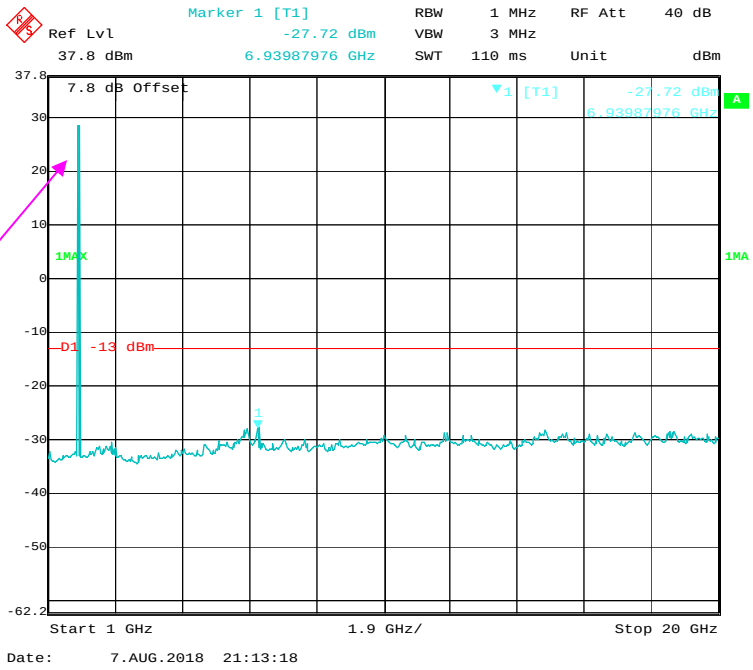


PCS 1900 Band:

30 MHz – 1GHz(GSM Mode)

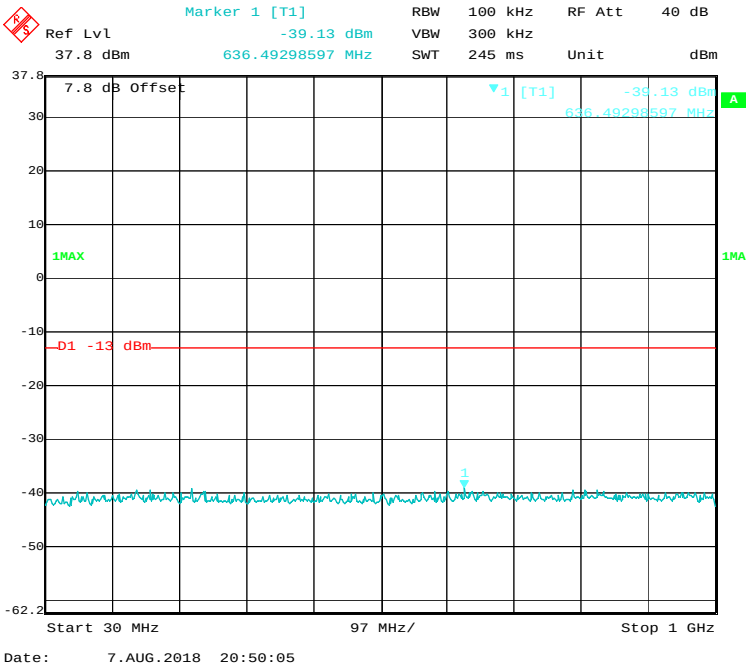


1 GHz – 20 GHz (GSM Mode)

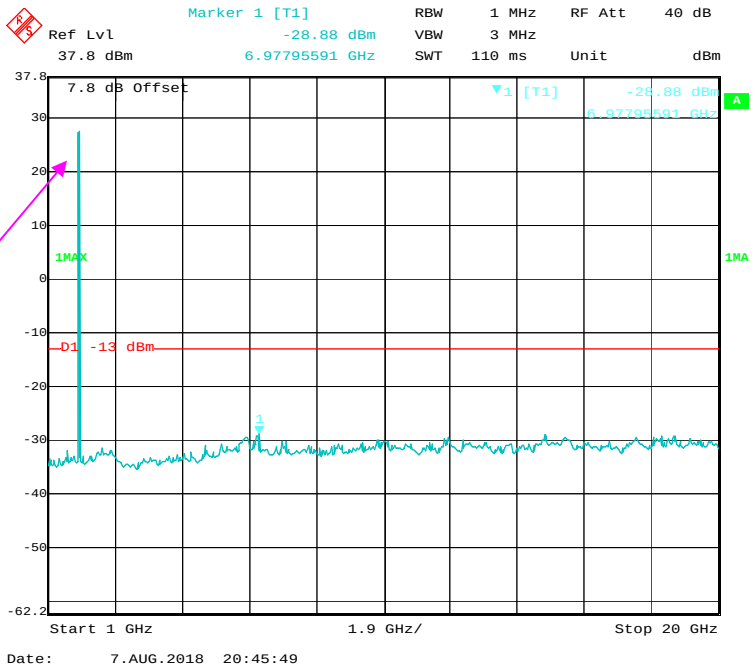


Fundamental

30 MHz – 1GHz(EGPRS Mode)



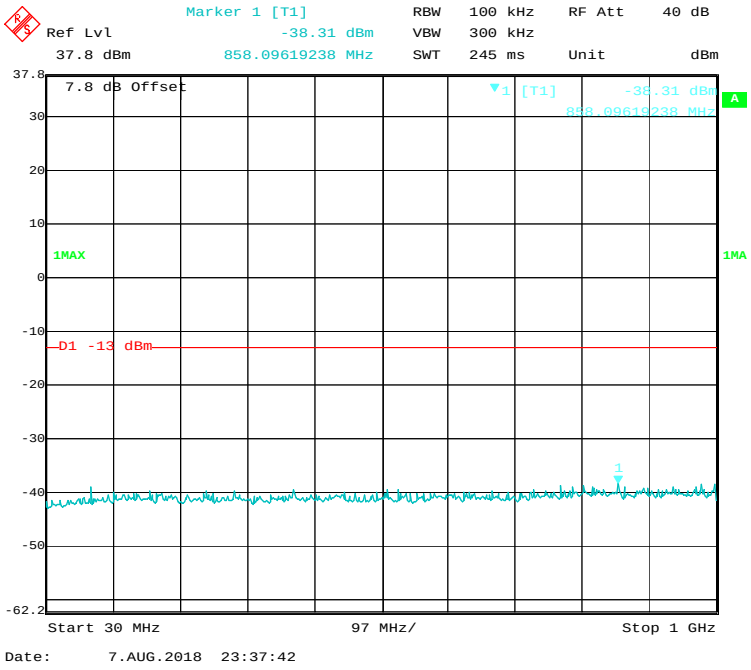
1 GHz – 20 GHz (EGPRS Mode)



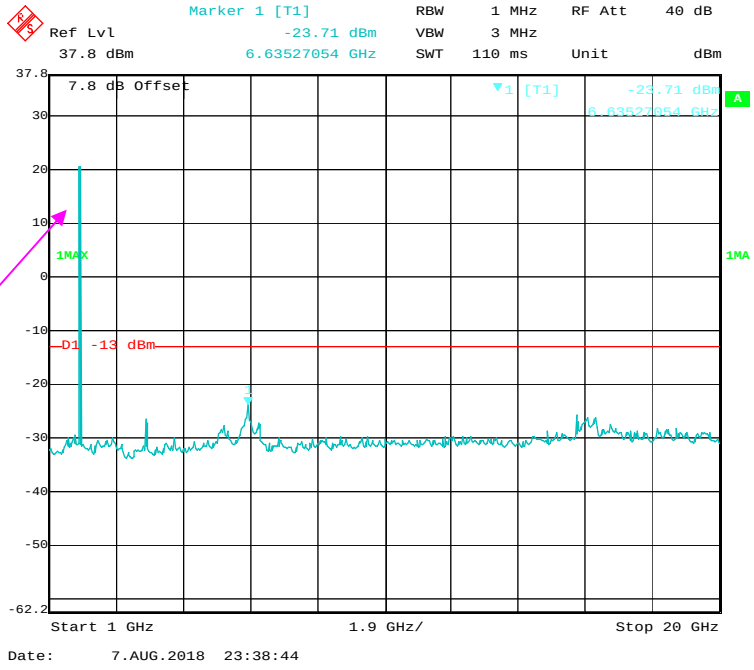
Fundamental

WCDMA Band II:

30 MHz – 1GHz(WCDMA Mode)



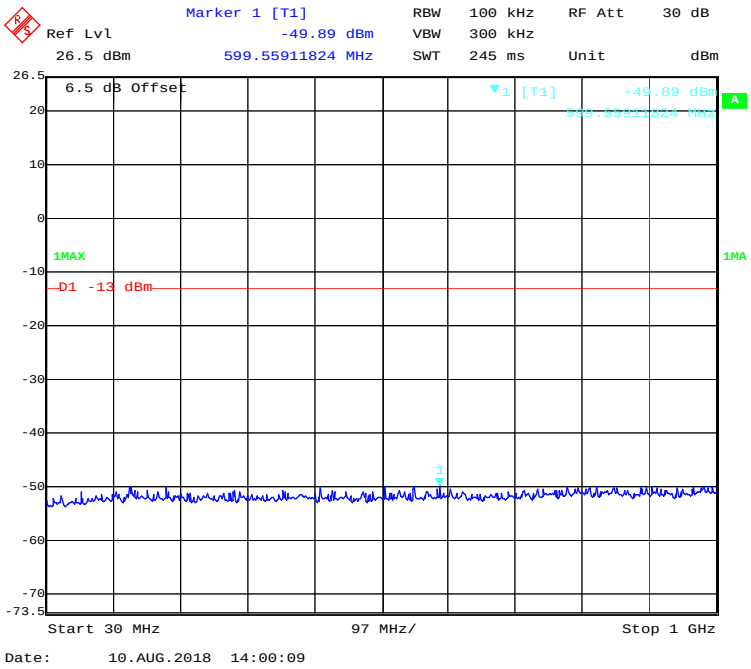
1 GHz – 20 GHz (WCDMA Mode)



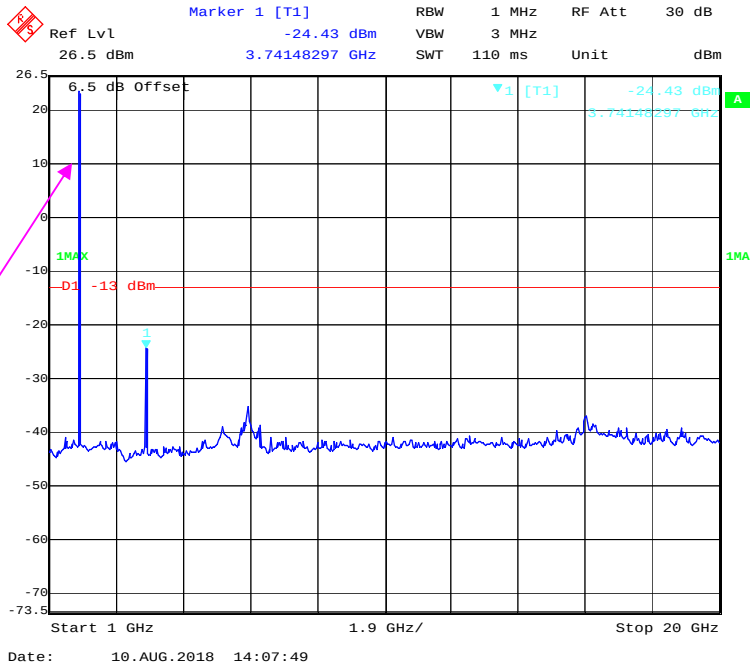
Fundamental

LTE Band 2:

30 MHz - 1 GHz (1.4 MHz, Middle Channel)

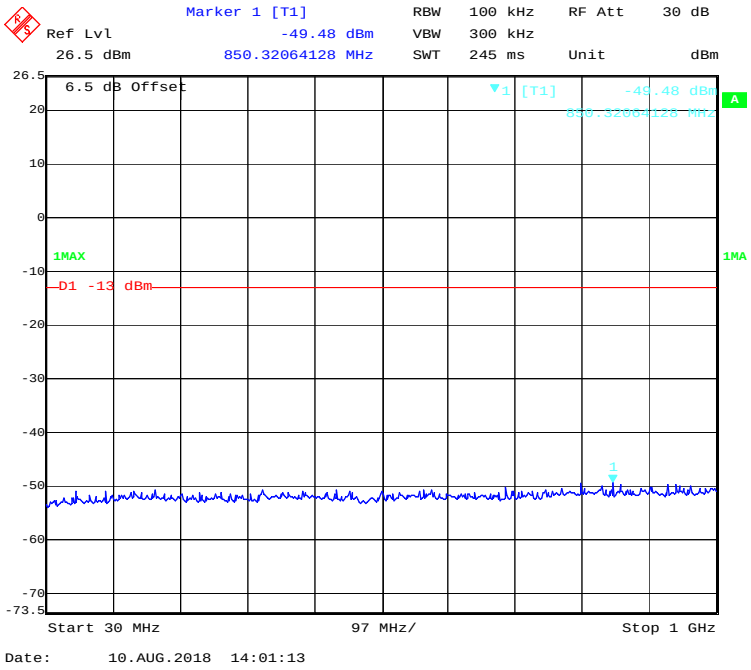


1 GHz – 20 GHz (1.4 MHz, Middle Channel)

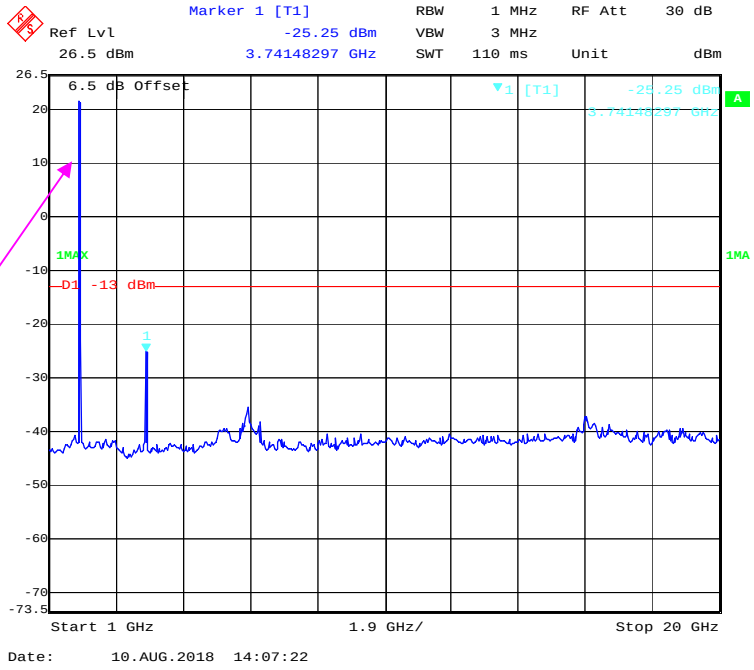


Fundamental

30 MHz - 1 GHz (3.0 MHz, Middle Channel)

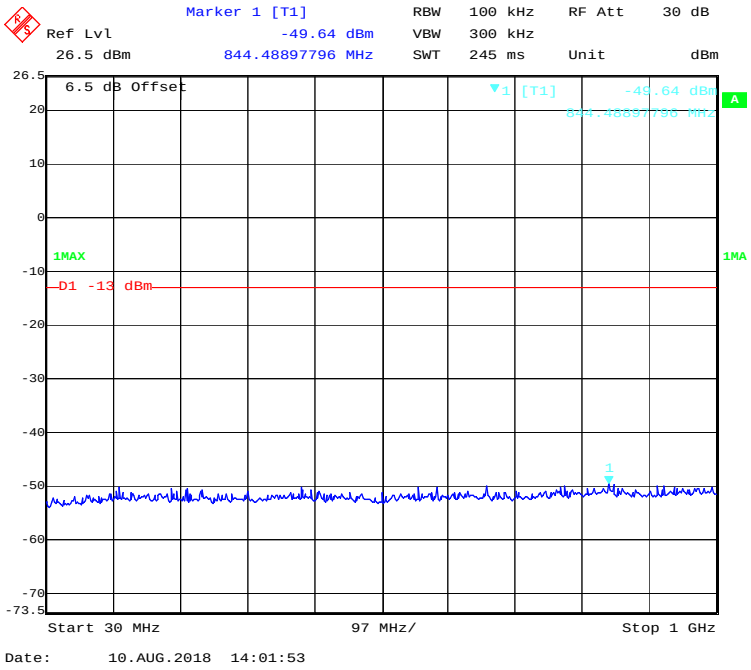


1 GHz – 20 GHz (3.0 MHz, Middle Channel)

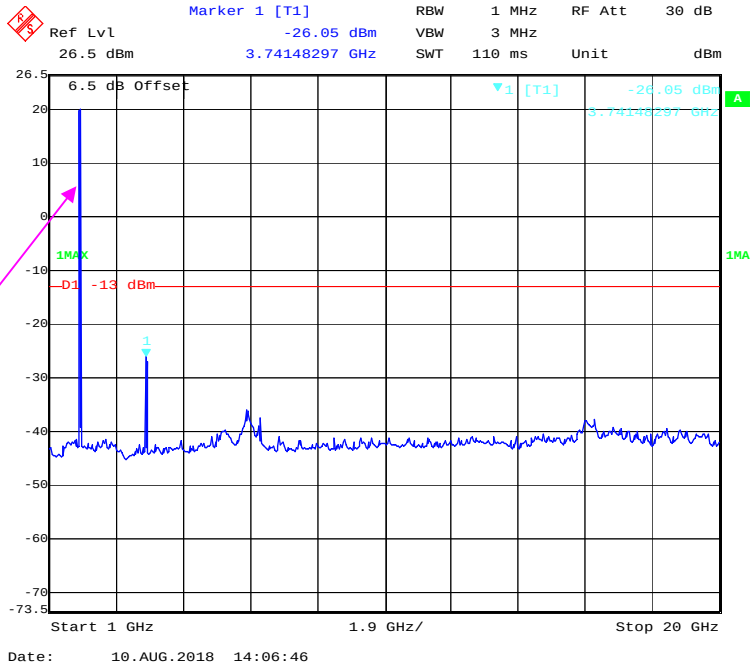


Fundamental

30 MHz - 1 GHz (5.0 MHz, Middle Channel)

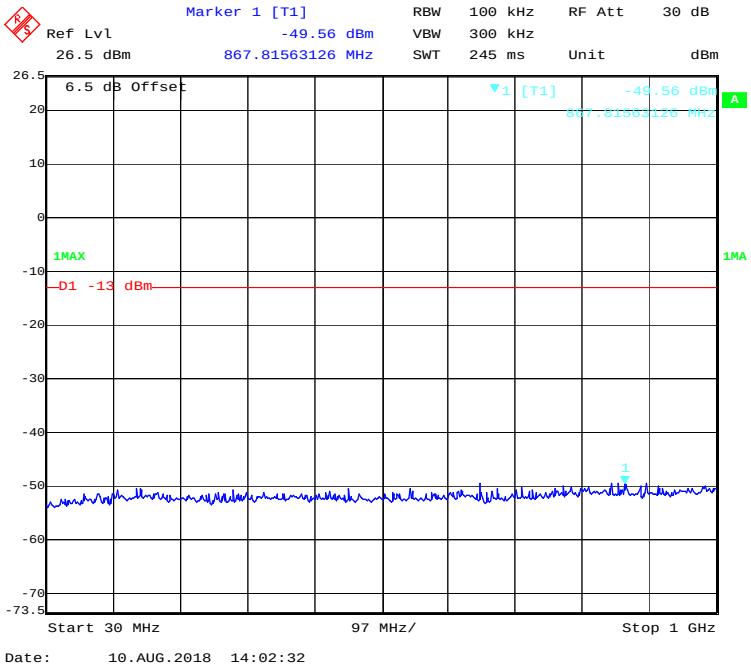


1 GHz – 20 GHz (5.0MHz, Middle Channel)

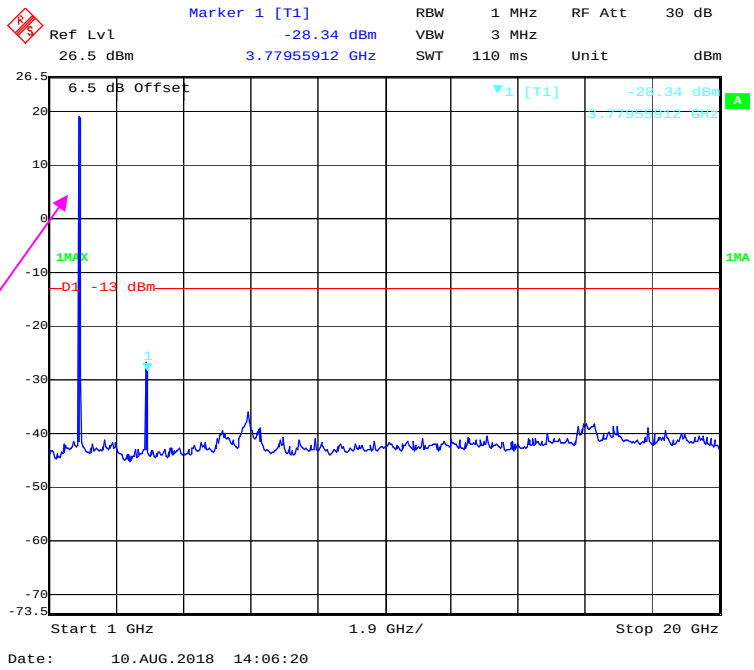


Fundamental

30 MHz - 1 GHz (10.0 MHz, Middle Channel)

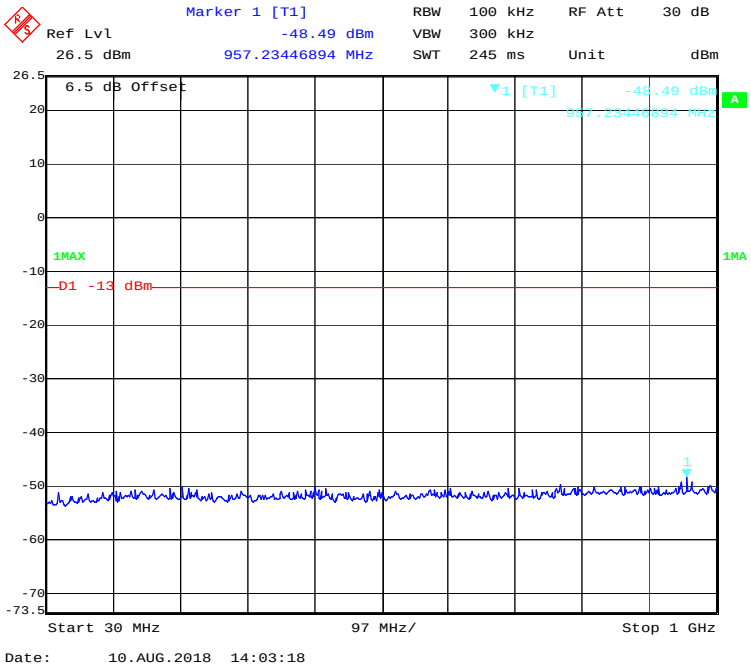


1 GHz – 20 GHz (10.0 MHz, Middle Channel)

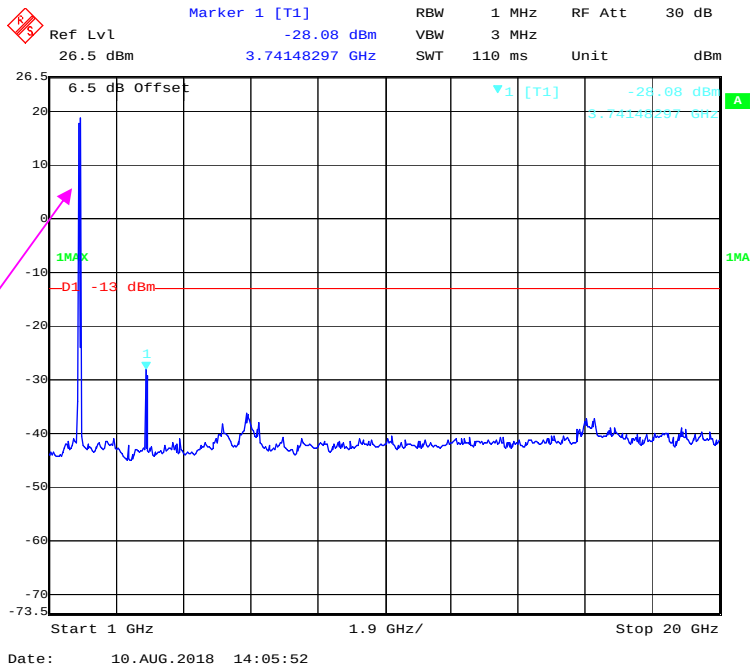


Fundamental

30 MHz - 1 GHz (15.0 MHz, Middle Channel)

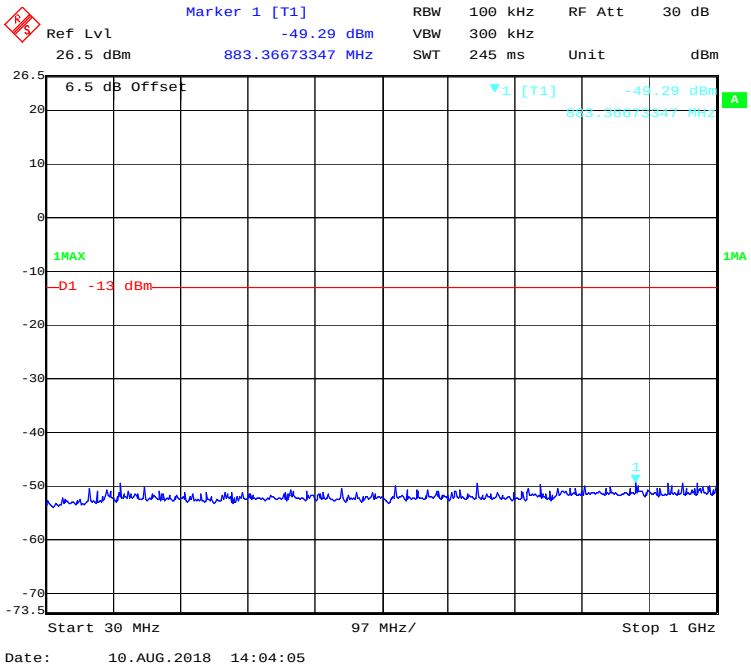


1 GHz – 20 GHz (15.0 MHz, Middle Channel)

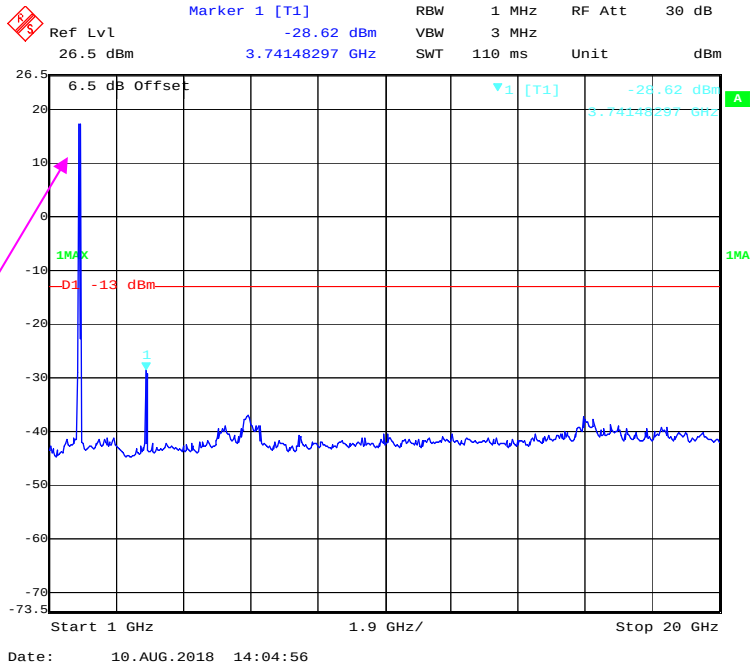


Fundamental

30 MHz - 1 GHz (20.0 MHz, Middle Channel)



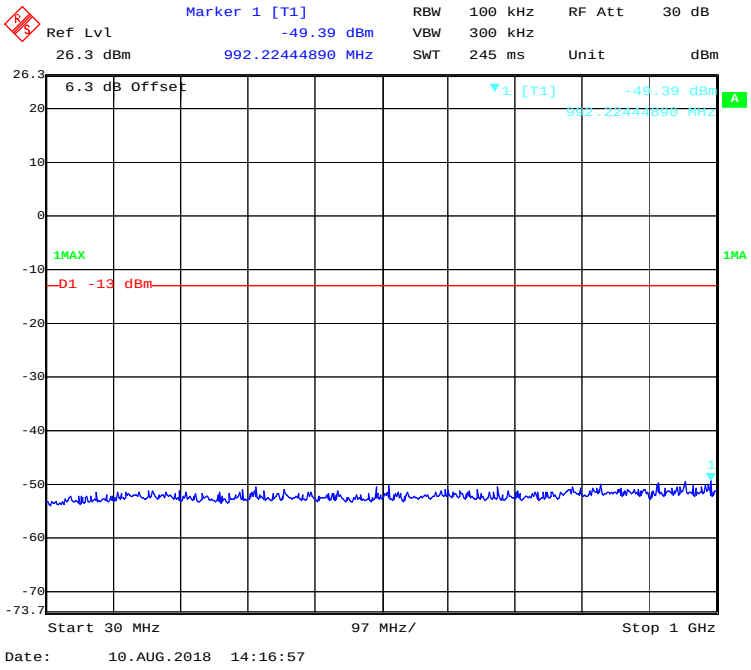
1 GHz – 20 GHz (20.0 MHz, Middle Channel)



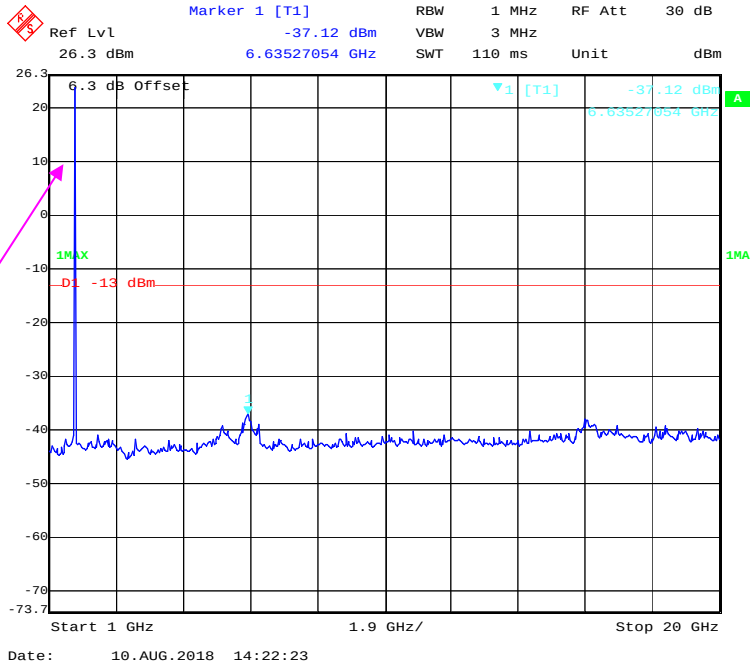
Fundamental

LTE Band 4:

30 MHz - 1 GHz (1.4 MHz, Middle Channel)

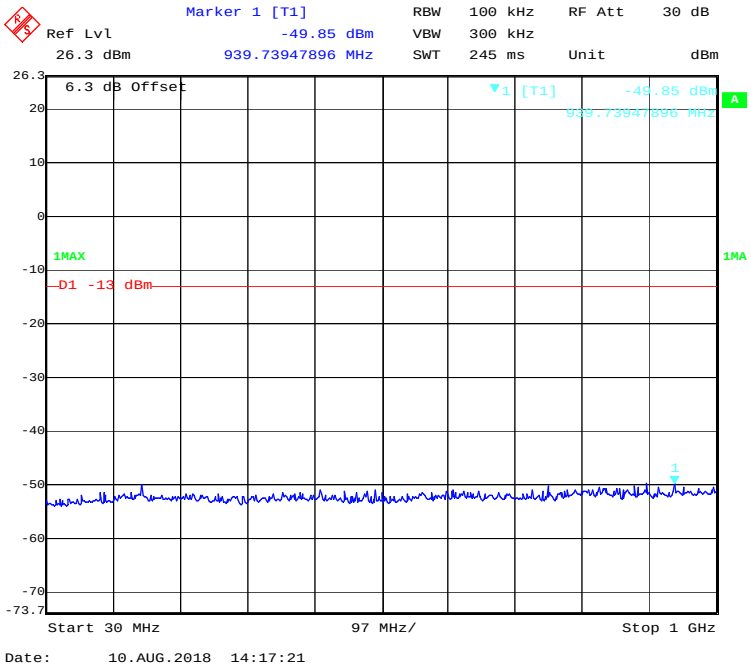


1 GHz – 20 GHz (1.4 MHz, Middle Channel)

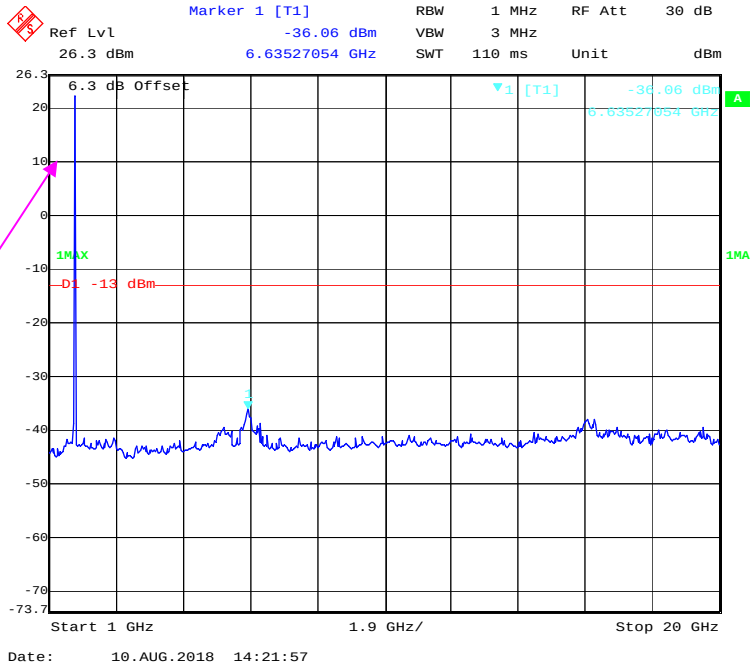


Fundamental

30 MHz - 1 GHz (3.0 MHz, Middle Channel)

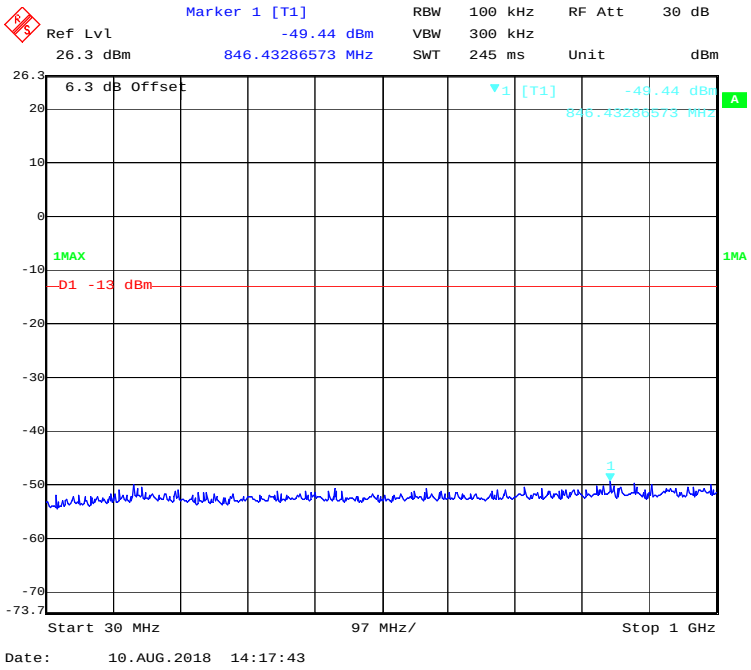


1 GHz – 20 GHz (3.0 MHz, Middle Channel)

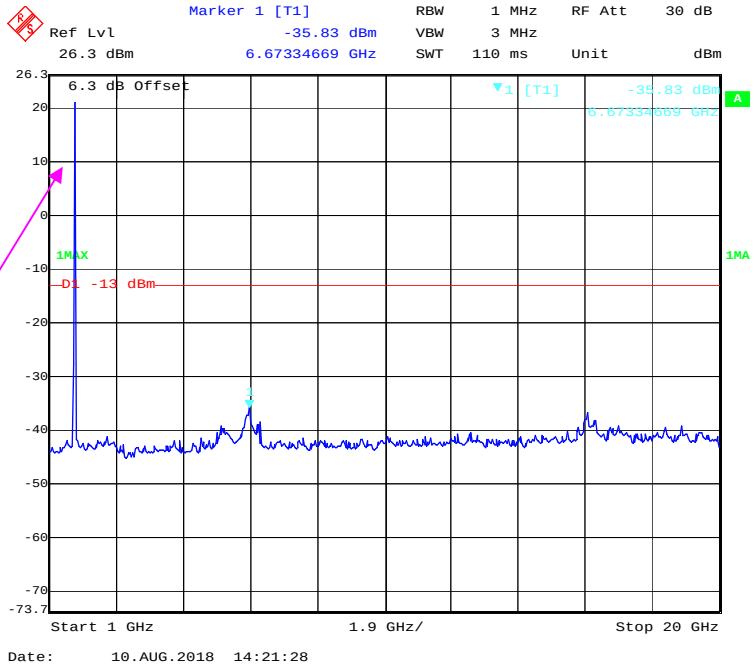


Fundamental

30 MHz - 1 GHz (5.0 MHz, Middle Channel)

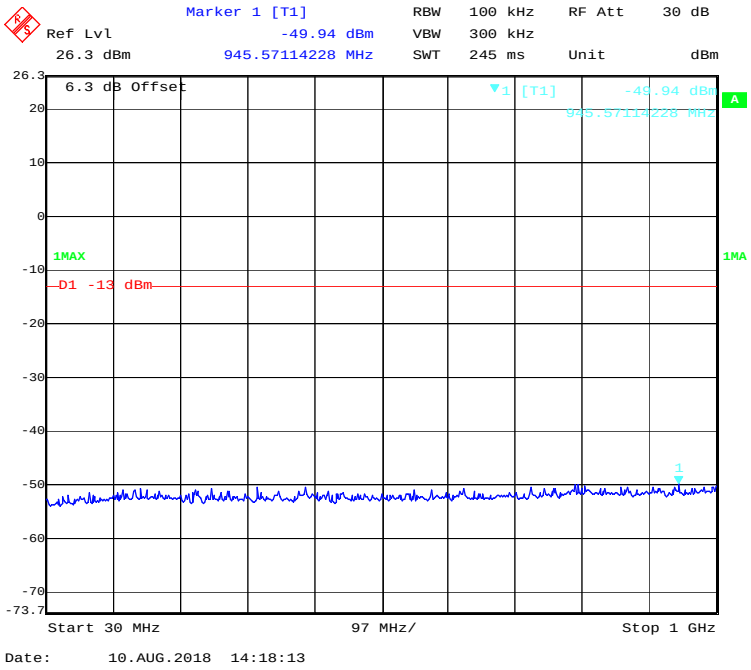


1 GHz – 20 GHz (5.0MHz, Middle Channel)

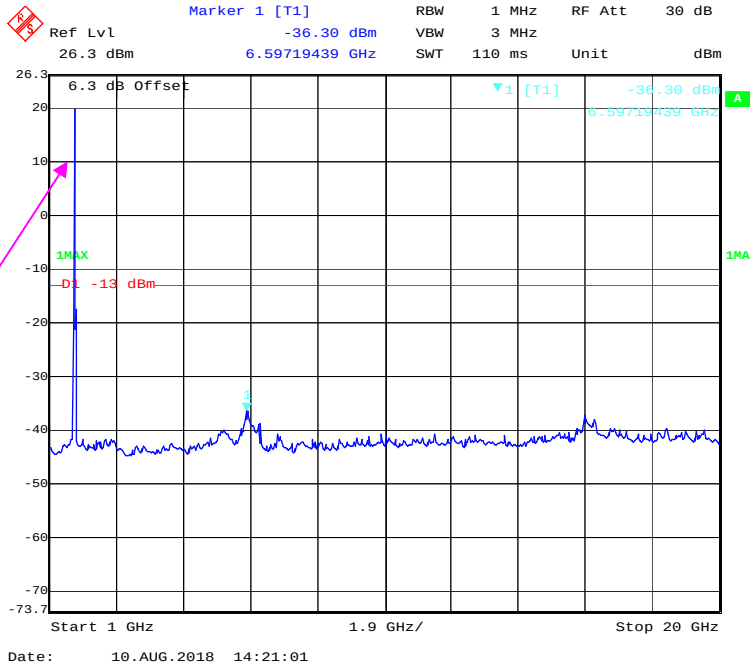


Fundamental

30 MHz - 1 GHz (10.0 MHz, Middle Channel)

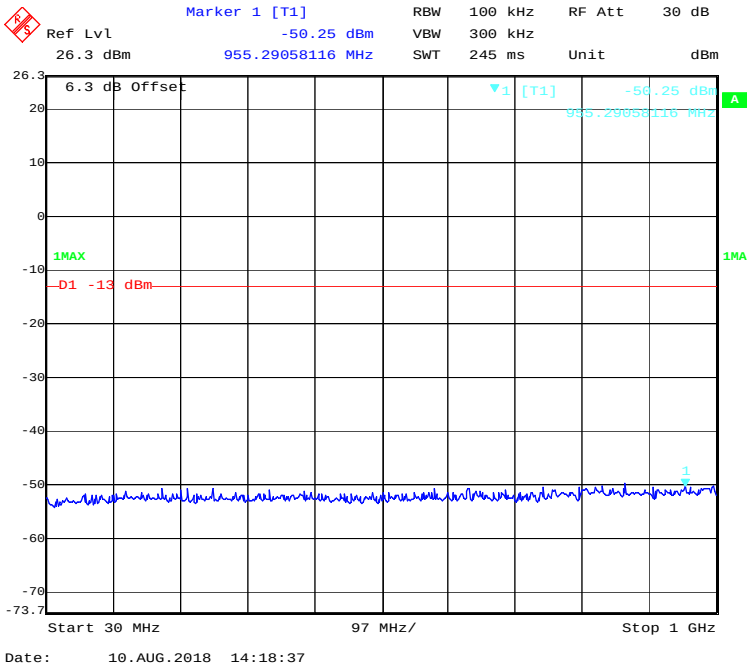


1 GHz – 20 GHz (10.0 MHz, Middle Channel)

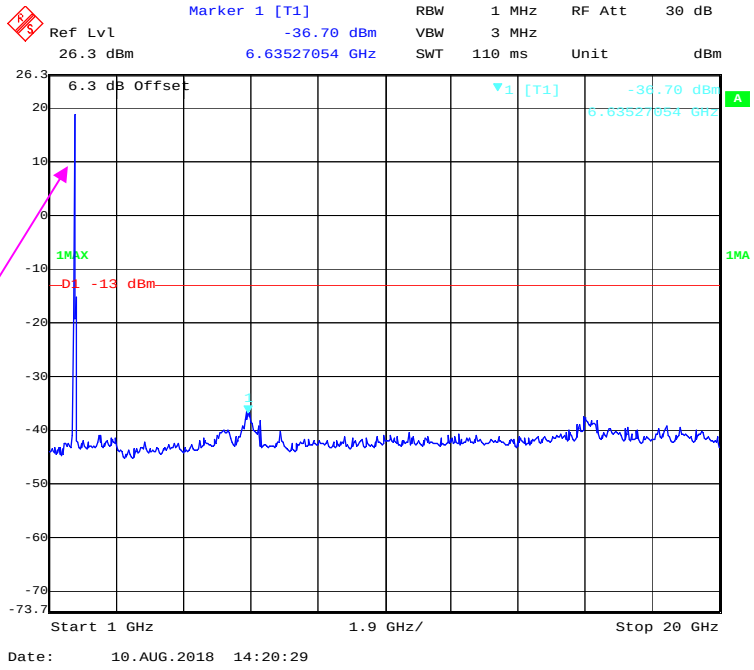


Fundamental

30 MHz - 1 GHz (15.0 MHz, Middle Channel)

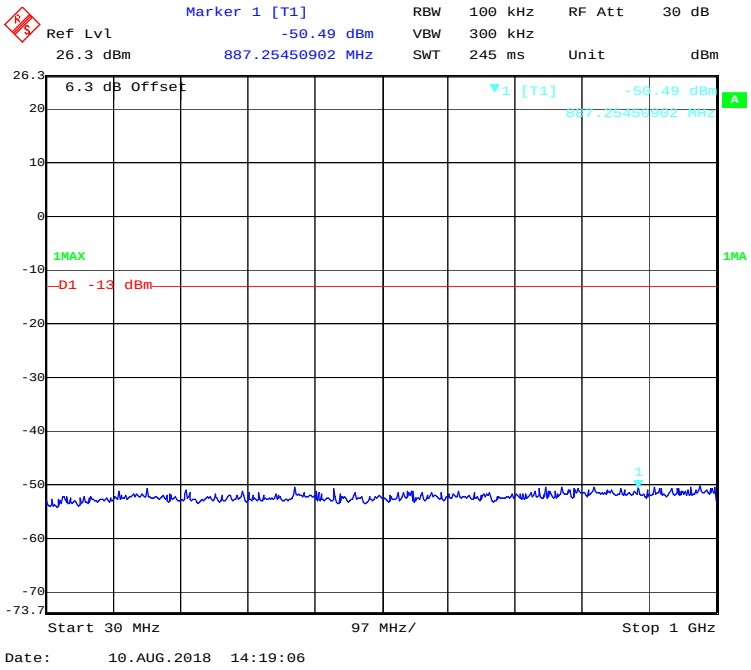


1 GHz – 20 GHz (15.0 MHz, Middle Channel)

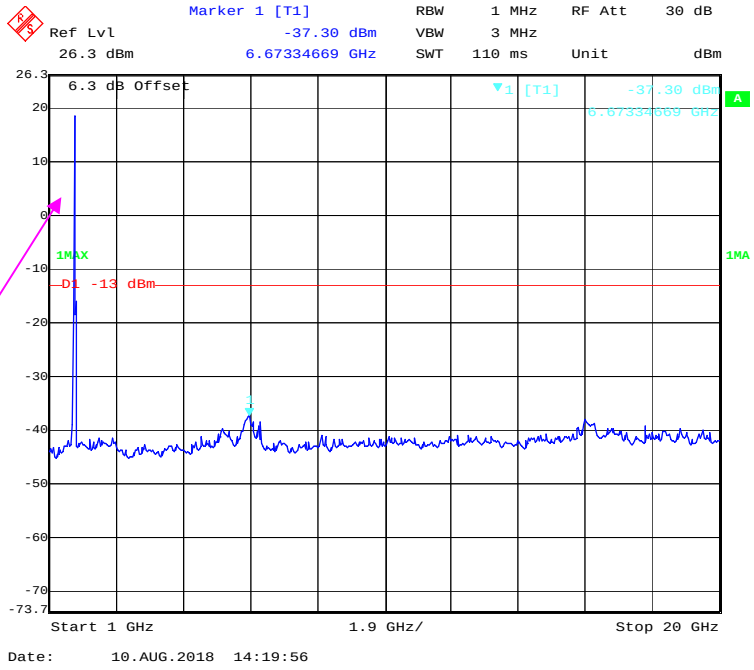


Fundamental

30 MHz - 1 GHz (20.0 MHz, Middle Channel)



1 GHz – 20 GHz (20.0 MHz, Middle Channel)



Fundamental

FCC § 2.1053; § 22.917 (a); § 24.238 (a); §27.53 (h) (m) - SPURIOUS RADIATED EMISSIONS

Applicable Standards

FCC § 2.1053, §22.917(a) and § 24.238(a) and § 27.53(h) (m)

22.917 (a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

24.238 (a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

27.53(h) (m), for mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

Test Procedure

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

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

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

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

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

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

Test Data

Environmental Conditions

Temperature:	23.2℃
Relative Humidity:	51 %
ATM Pressure:	101.3kPa

The testing was performed by Max Min from 2018-08-13.

Test mode: Transmitting (Pre-scan with low, middle and high channels, and the worse case data as below)

30 MHz ~ 10 GHz:

GSM 850 Band

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)			
GSM Mode, Middle channel										
126.89	54.38	195	183	H	-51.68	0.35	-6.10	-58.13	-13	45.13
126.89	48.36	349	213	V	-51.24	0.35	-6.10	-57.69	-13	44.69
1673.20	42.16	2	192	H	-61.23	0.84	8.48	-53.59	-13	40.59
1673.20	43.08	235	161	V	-60.81	0.84	8.48	-53.17	-13	40.17
2509.80	52.16	280	192	H	-48.78	0.89	10.09	-39.58	-13	26.58
2509.80	52.94	282	169	V	-48.01	0.89	10.09	-38.81	-13	25.81

WCDMA Band V

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 Mode, Middle channel										
127.85	54.25	273	173	H	-51.81	0.35	-6.10	-58.26	-13	45.26
127.85	48.14	27	174	V	-51.46	0.35	-6.10	-57.91	-13	44.91
1673.20	56.91	147	181	H	-46.48	0.84	8.48	-38.84	-13	25.84
1673.20	57.98	52	180	V	-45.91	0.84	8.48	-38.27	-13	25.27
2509.80	47.76	247	190	H	-53.18	0.89	10.09	-43.98	-13	30.98
2509.80	48.30	35	186	V	-52.65	0.89	10.09	-43.45	-13	30.45

30 MHz ~ 20 GHz:

PCS 1900 Band

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)			
GSM Mode, Middle channel										
126.37	54.62	256	193	H	-51.44	0.35	-6.10	-57.89	-13	44.89
126.37	48.59	55	164	V	-51.01	0.35	-6.10	-57.46	-13	44.46
3760.00	47.59	272	215	H	-49.12	0.95	9.74	-40.33	-13	27.33
3760.00	48.38	357	197	V	-48.92	0.95	9.74	-40.13	-13	27.13
5640.00	56.55	127	215	H	-37.38	1.15	10.47	-28.06	-13	15.06
5640.00	56.97	356	220	V	-36.99	1.15	10.47	-27.67	-13	14.67

WCDMA Band II

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 Mode, Middle channel										
127.39	54.47	254	189	H	-51.59	0.35	-6.10	-58.04	-13	45.04
127.39	48.16	98	220	V	-51.44	0.35	-6.10	-57.89	-13	44.89
3760.00	46.13	87	182	H	-50.58	0.95	9.74	-41.79	-13	28.79
3760.00	47.14	101	219	V	-50.16	0.95	9.74	-41.37	-13	28.37
5640.00	54.05	339	171	H	-39.88	1.15	10.47	-30.56	-13	17.56
5640.00	54.43	40	209	V	-39.53	1.15	10.47	-30.21	-13	17.21

Note:
1) Absolute Level (dBm) = Submitted Level (dBm) - Cable loss (dB) + Antenna Gain (dBd/dBi)
2) Margin (dB) = Limit (dBm) - Absolute Level (dBm)

Test mode: Transmitting (Pre-scan with all the bandwidth, and worse case as below)

30 MHz ~ 20 GHz:

LTE Band 2:

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)			
QPSK 20MHz Bandwidth Middle Channel										
126.87	54.15	93	184	H	-51.91	0.35	-6.10	-58.36	-13	45.36
126.87	47.94	258	190	V	-51.66	0.35	-6.10	-58.11	-13	45.11
3760.00	44.43	134	218	H	-52.28	0.95	9.74	-43.49	-13	30.49
3760.00	45.40	349	174	V	-51.90	0.95	9.74	-43.11	-13	30.11
5640.00	36.83	28	200	H	-57.10	1.15	10.47	-47.78	-13	34.78
5640.00	37.38	73	186	V	-56.58	1.15	10.47	-47.26	-13	34.26
16-QAM 20MHz Bandwidth Middle Channel										
127.17	53.90	42	171	H	-52.16	0.35	-6.10	-58.61	-13	45.61
127.17	47.77	127	217	V	-51.83	0.35	-6.10	-58.28	-13	45.28
3760.00	43.36	352	184	H	-53.35	0.95	9.74	-44.56	-13	31.56
3760.00	44.30	105	187	V	-53.00	0.95	9.74	-44.21	-13	31.21
5640.00	36.08	358	216	H	-57.85	1.15	10.47	-48.53	-13	35.53
5640.00	36.26	48	193	V	-57.70	1.15	10.47	-48.38	-13	35.38

LTE Band 4:

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)			
QPSK 20MHz Bandwidth Middle Channel										
125.58	53.82	188	168	H	-52.24	0.35	-6.10	-58.69	-13	45.69
125.58	47.62	109	190	V	-51.98	0.35	-6.10	-58.43	-13	45.43
3465.00	45.96	204	172	H	-51.65	0.93	9.87	-42.71	-13	29.71
3465.00	46.84	65	169	V	-51.31	0.93	9.87	-42.37	-13	29.37
5197.50	39.11	286	182	H	-55.76	1.10	10.30	-46.56	-13	33.56
5197.50	39.81	137	169	V	-55.35	1.10	10.30	-46.15	-13	33.15
16-QAM 20MHz Bandwidth Middle Channel										
127.11	53.97	184	182	H	-52.09	0.35	-6.10	-58.54	-13	45.54
127.11	47.86	349	187	V	-51.74	0.35	-6.10	-58.19	-13	45.19
3465.00	45.16	259	182	H	-52.45	0.93	9.87	-43.51	-13	30.51
3465.00	46.00	12	185	V	-52.15	0.93	9.87	-43.21	-13	30.21
5197.50	38.34	230	171	H	-56.53	1.10	10.30	-47.33	-13	34.33
5197.50	38.80	257	197	V	-56.36	1.10	10.30	-47.16	-13	34.16

Note:
1) Absolute Level (dBm) = Submitted Level (dBm) - Cable loss (dB) + Antenna Gain (dBd/dBi)
2) Margin (dB) = Limit (dBm) - Absolute Level (dBm)

FCC § 22.917 (a); § 24.238 (a); §27.53 (h) (m) - BAND EDGES

Applicable Standards

According to § 22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

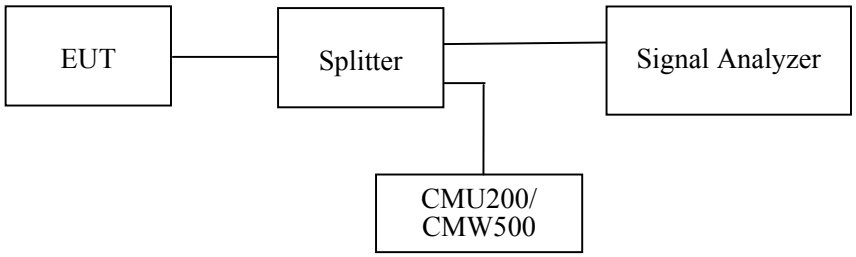
According to FCC §27.53 (h) (m), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

Test Procedure

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

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



Test Data

Environmental Conditions

Temperature:	23.2℃-23.5℃
Relative Humidity:	51 %-23%
ATM Pressure:	101.1kPa-103.3kPa

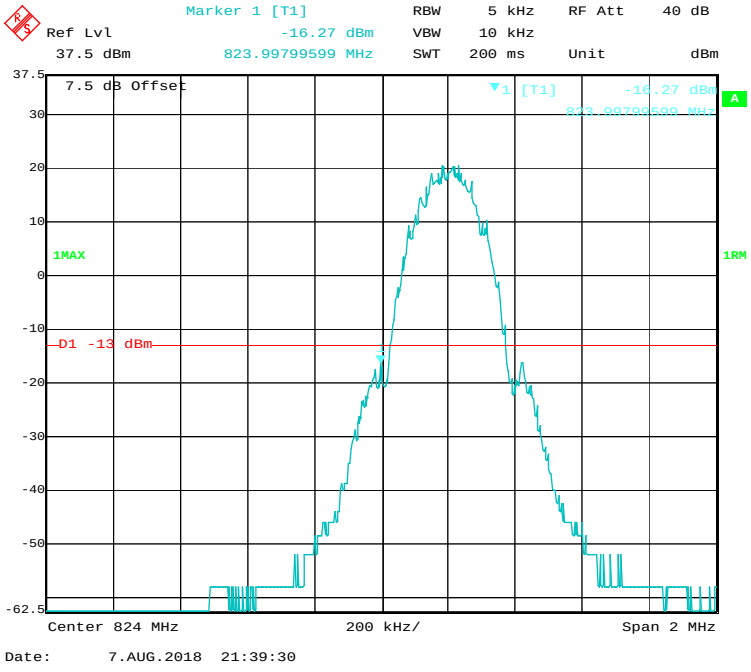
The testing was performed by Max Min from 2018-08-07to 2018-08-10.

EUT operation mode: Transmitting

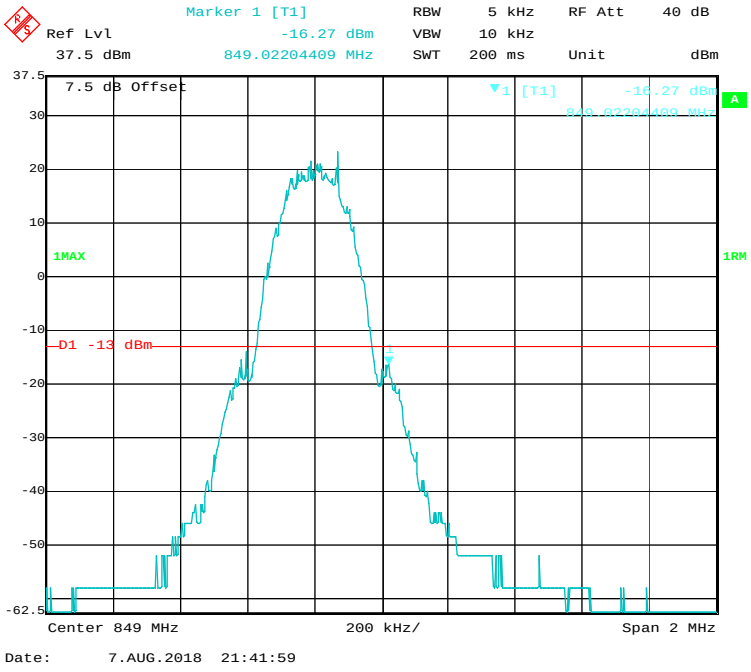
Test Result: Compliance.

GSM 850 Band:

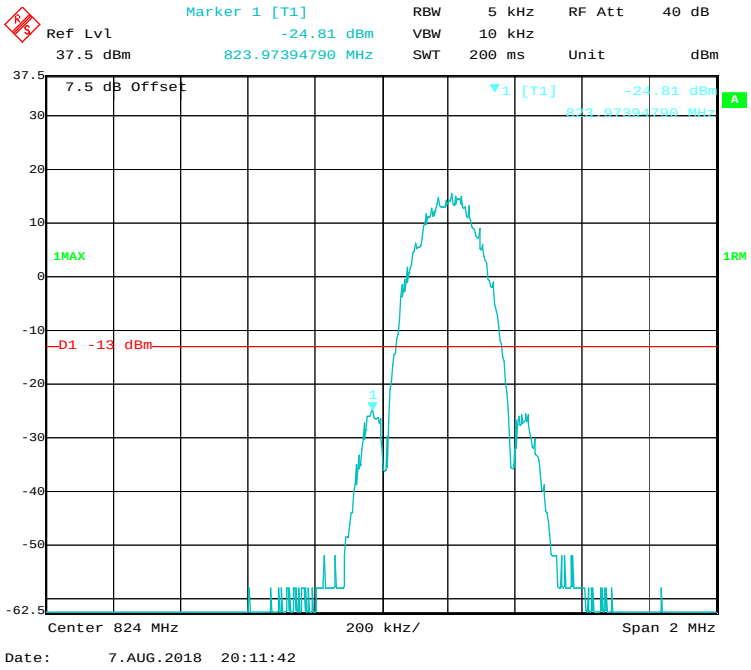
GSM Mode, Left Band Edge



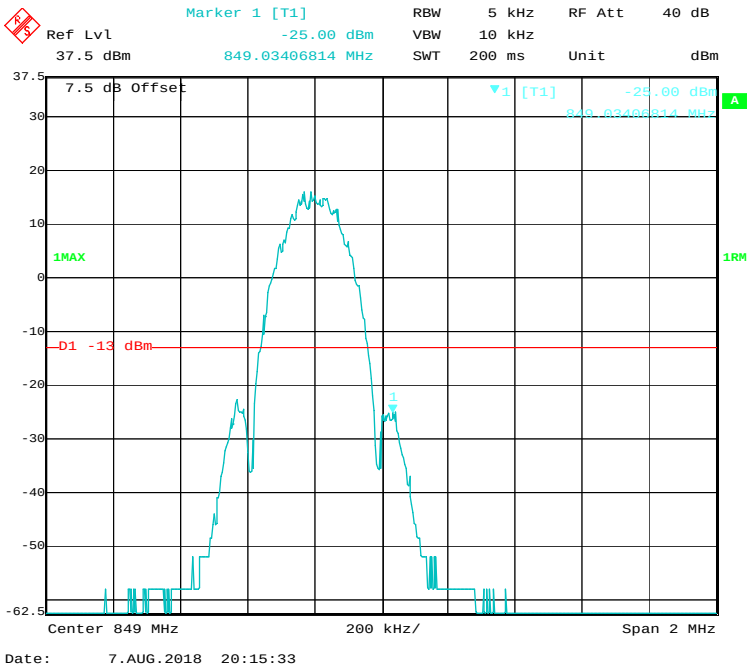
GSM Mode, Right Band Edge



EGPRS Mode, Left Band Edge

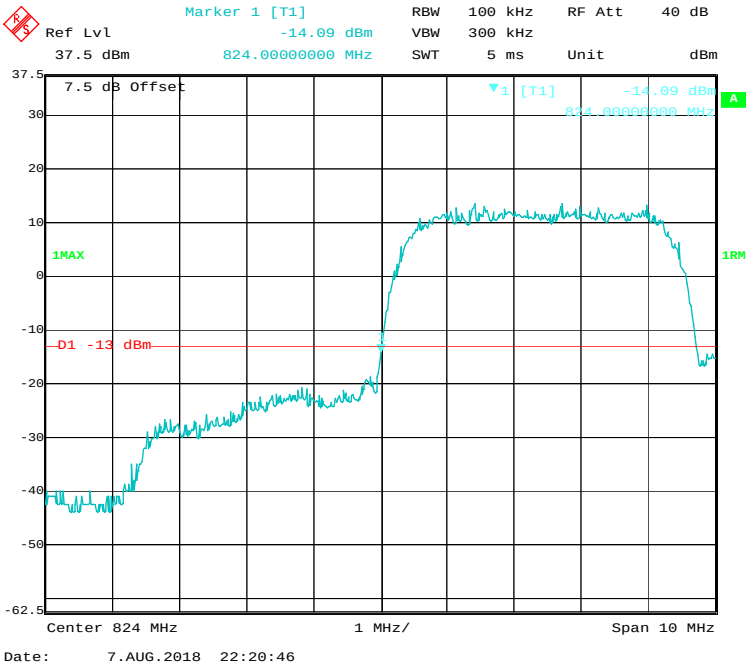


EGPRS Mode, Right Band Edge

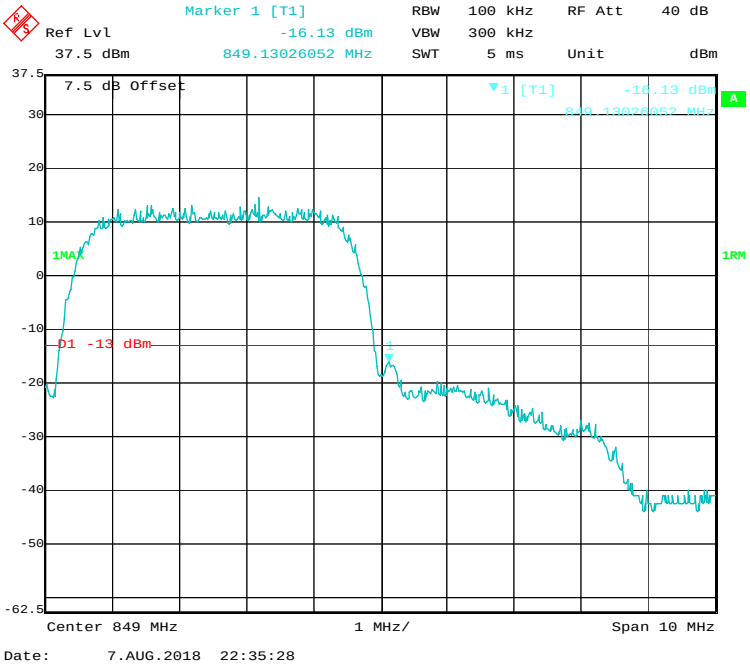


WCDMA Band V

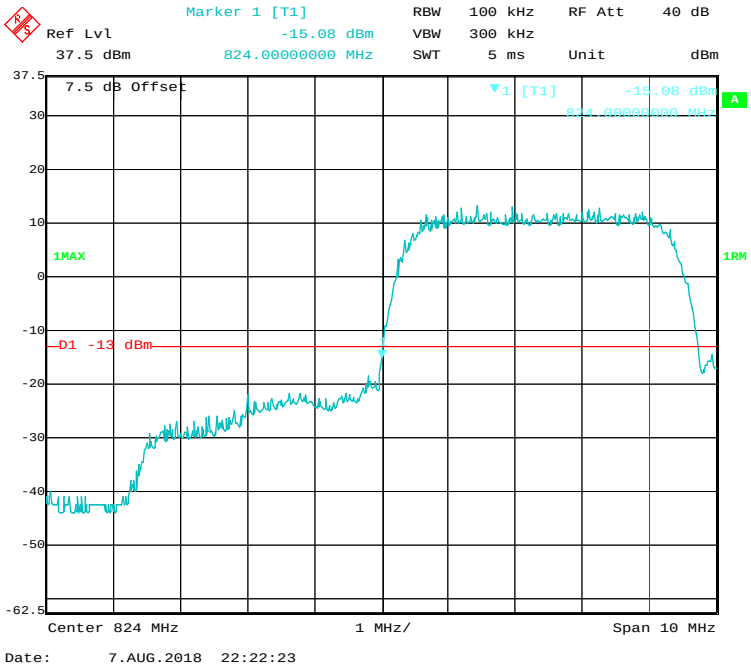
WCDMA (Rel 99) Mode, Left Band Edge



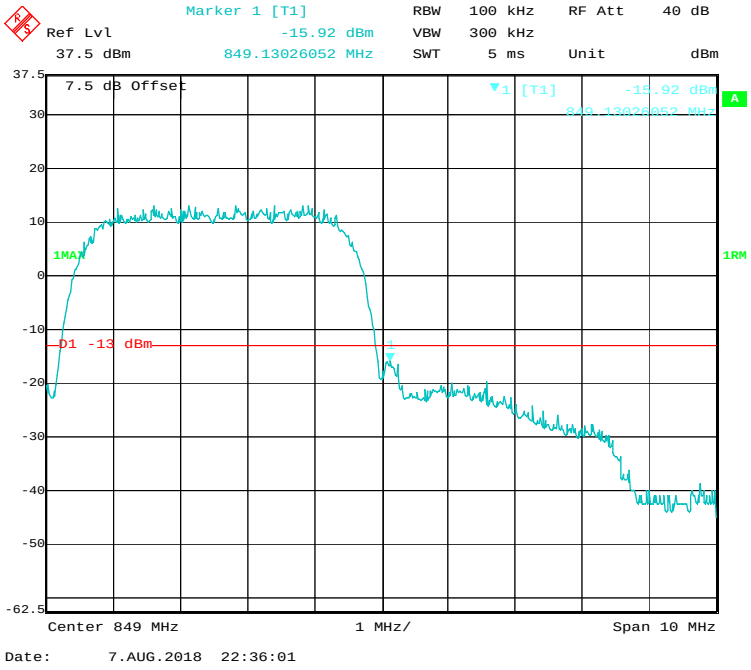
WCDMA (Rel 99) Mode, Right Band Edge



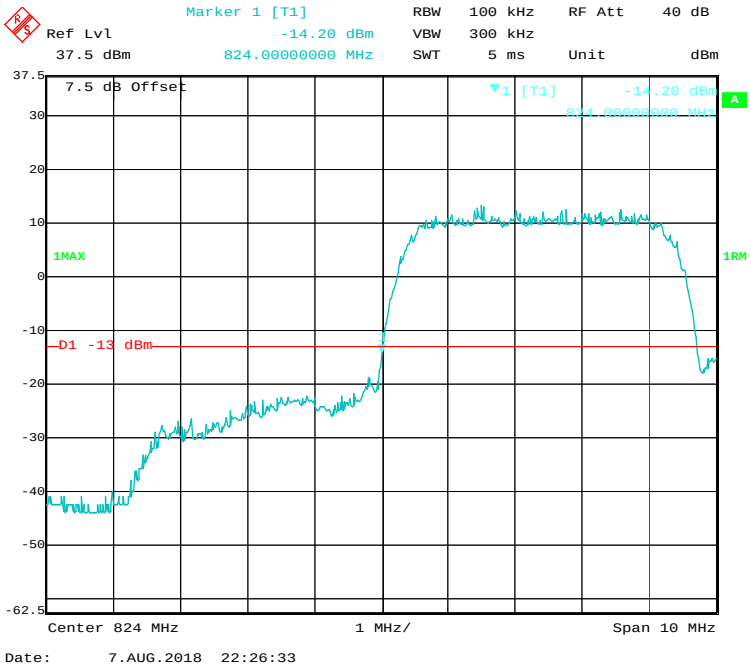
WCDMA (HSDPA) Mode, Left Band Edge



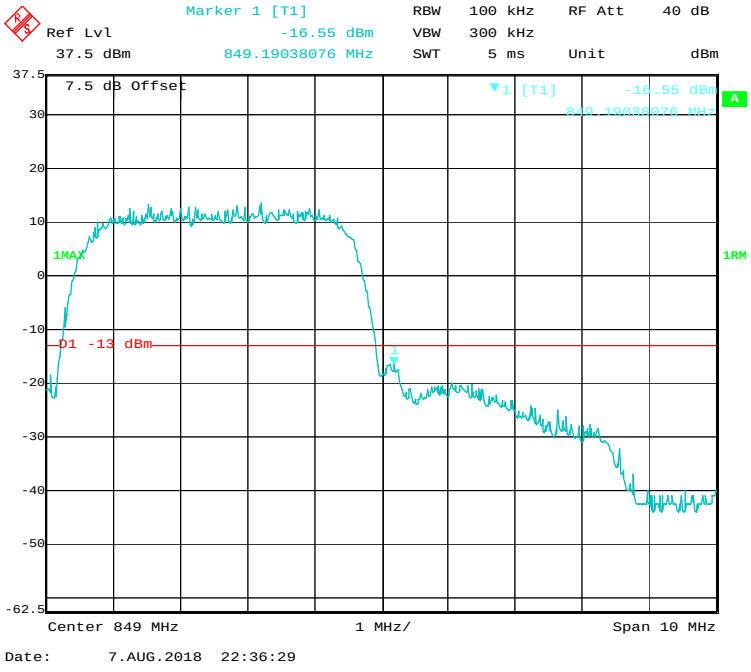
WCDMA (HSDPA) Mode, Right Band Edge



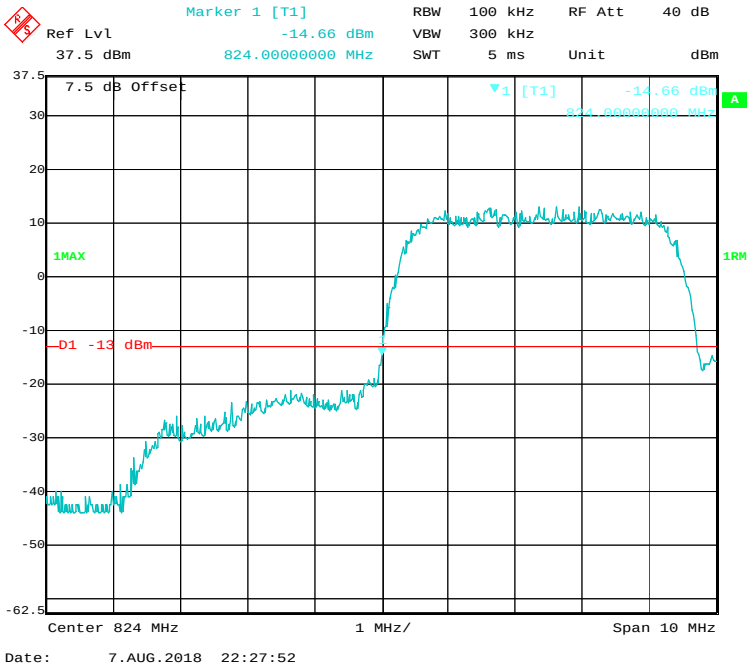
WCDMA (HSUPA) Mode, Left Band Edge



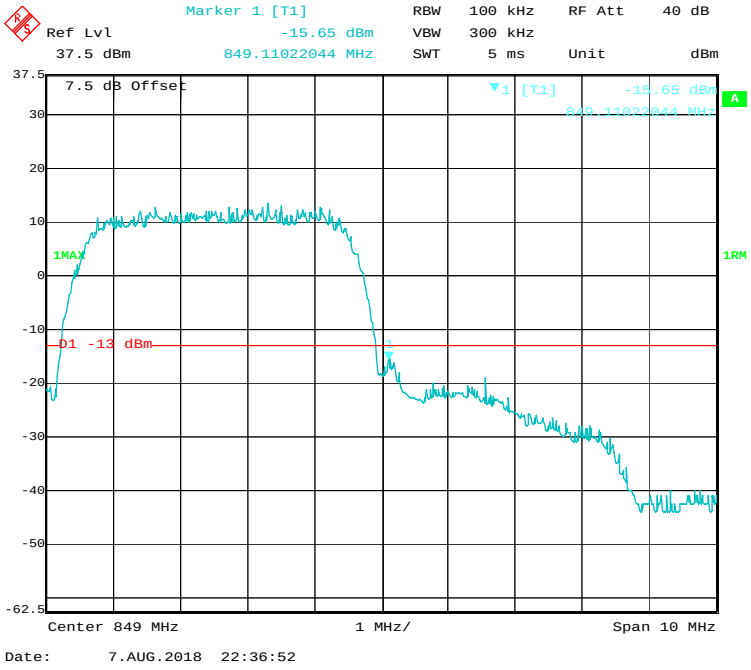
WCDMA (HSUPA) Mode, Right Band Edge



WCDMA (HSPA+) Mode, Left Band Edge

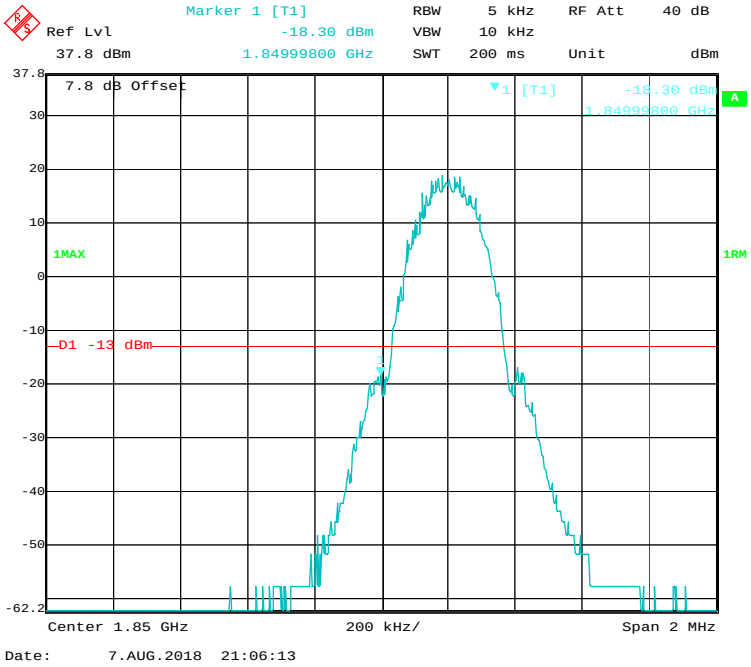


WCDMA (HSPA+) Mode, Right Band Edge

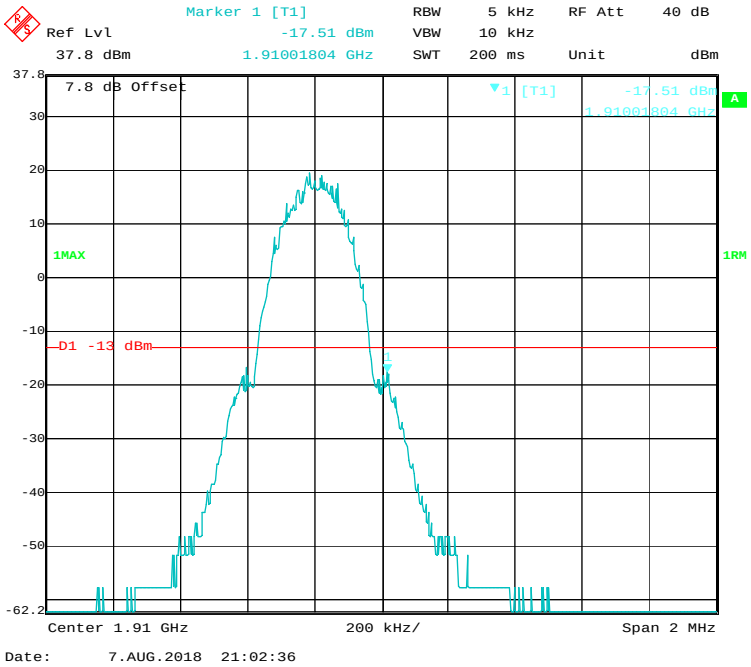


PCS 1900 Band:

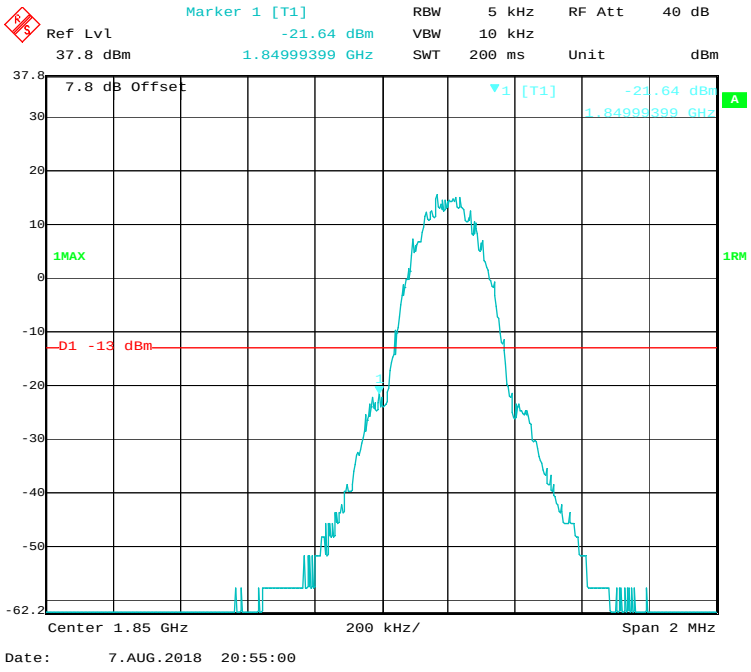
GSM Mode, Left Band Edge



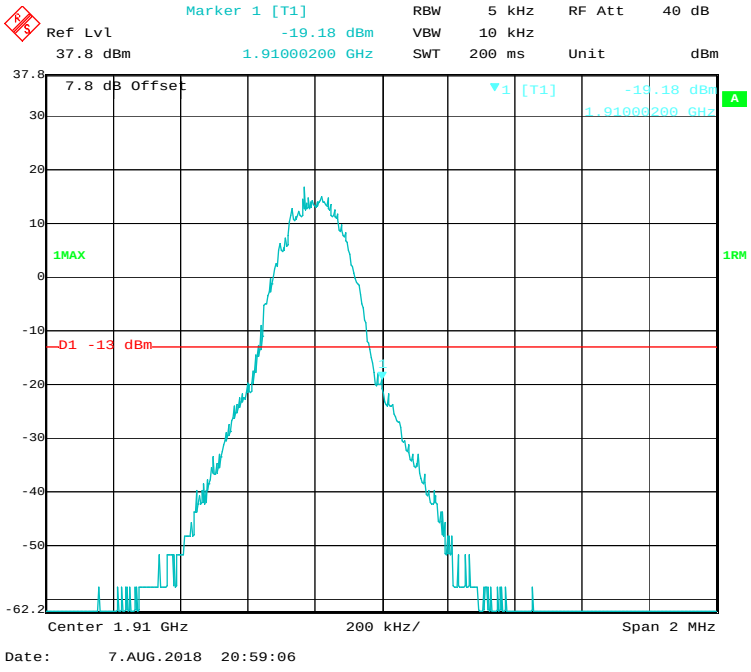
GSM Mode, Right Band Edge



EGPRS Mode, Left Band Edge

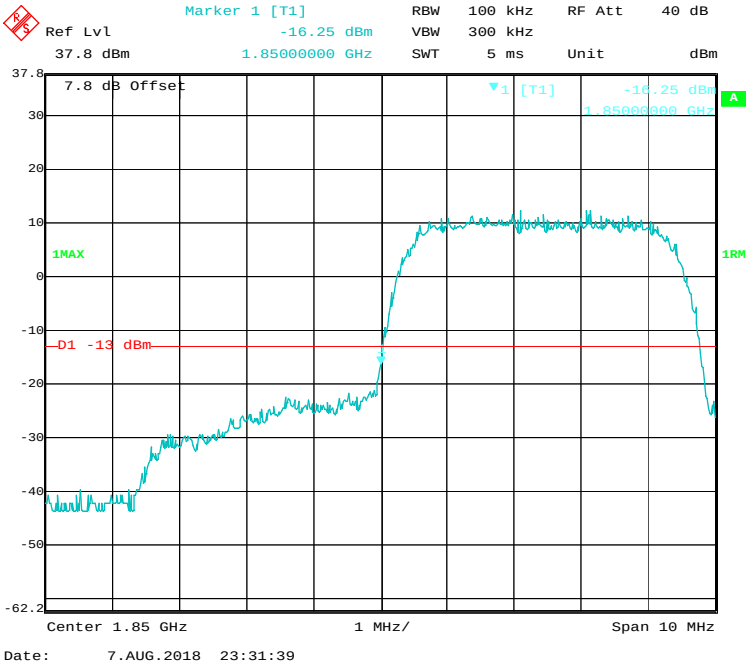


EGPRS Mode, Right Band Edge

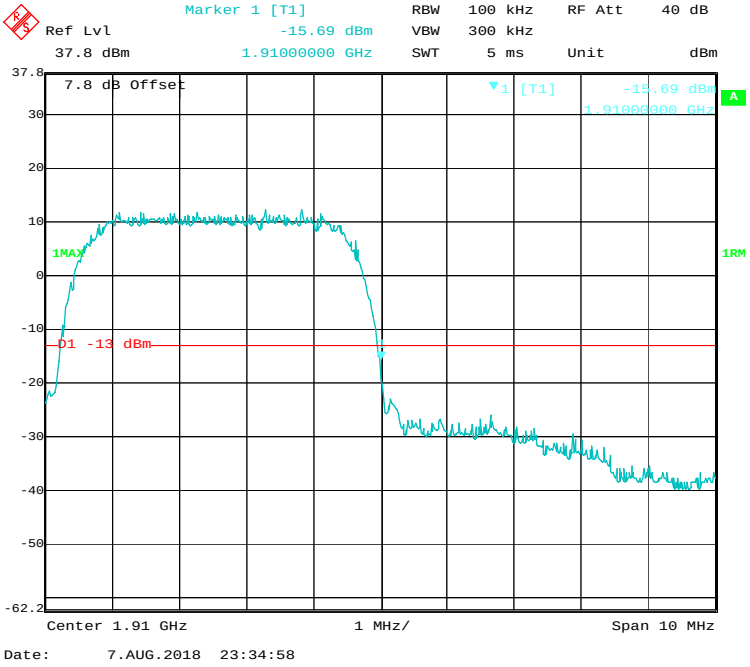


WCDMA Band II

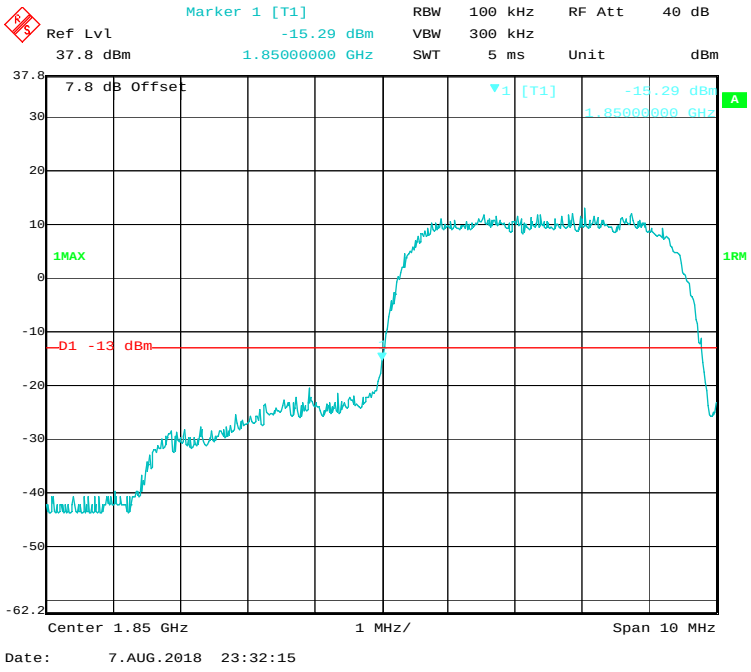
WCDMA (Rel99) Mode, Left Band Edge



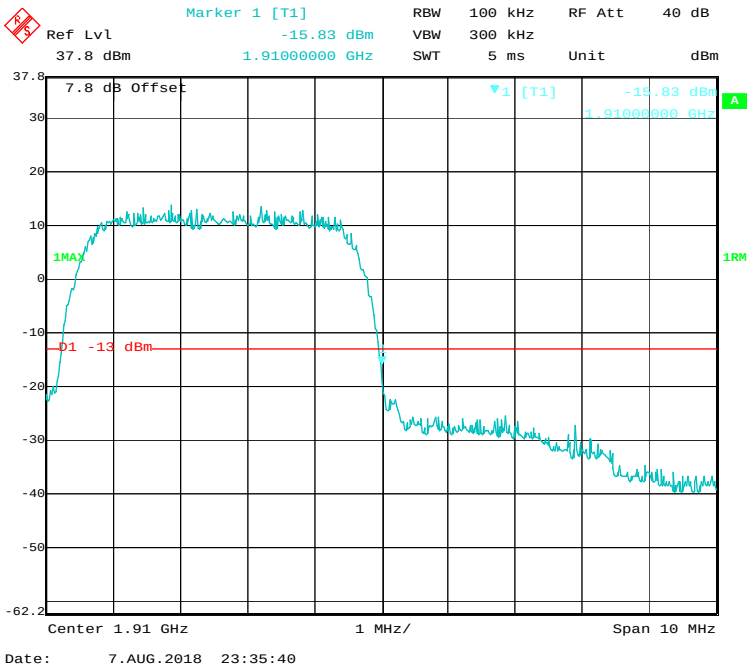
WCDMA (Rel99) Mode, Right Band Edge



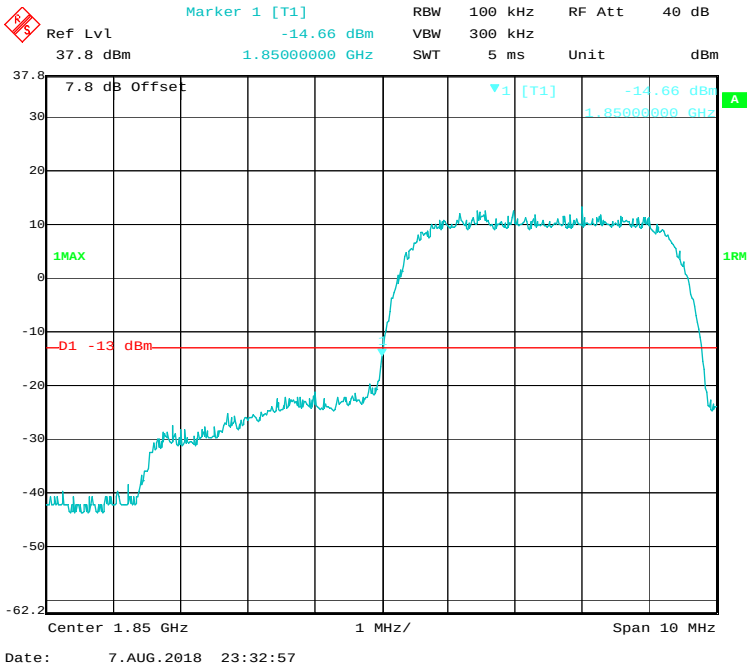
WCDMA (HSDPA) Mode, Left Band Edge



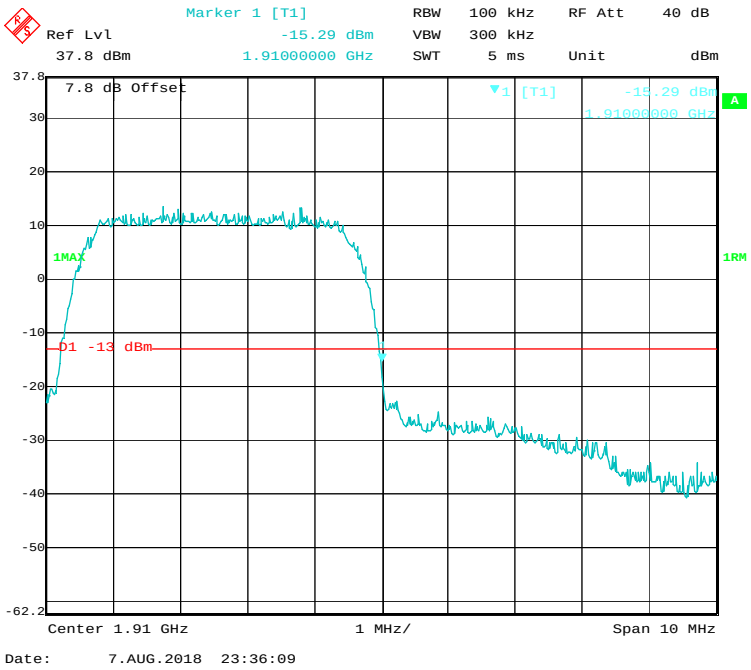
WCDMA (HSDPA) Mode, Right Band Edge



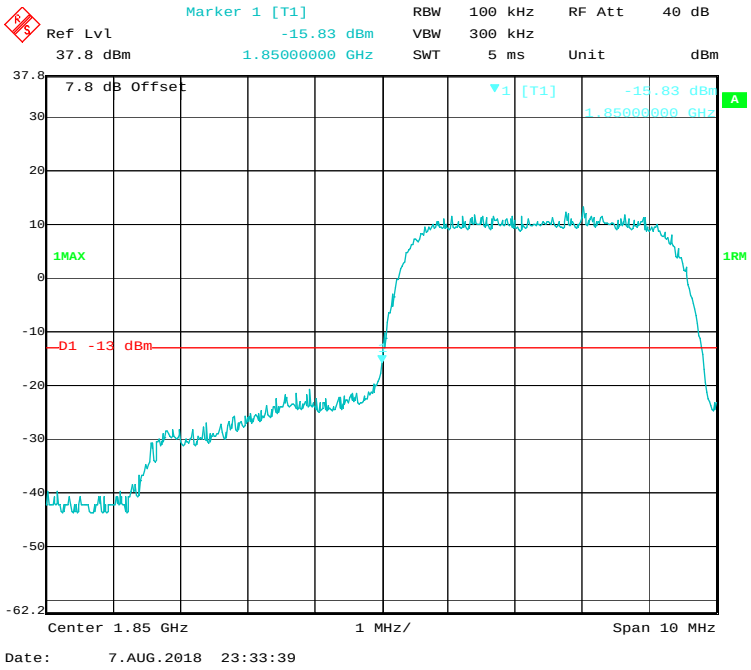
WCDMA (HSUPA) Mode, Left Band Edge



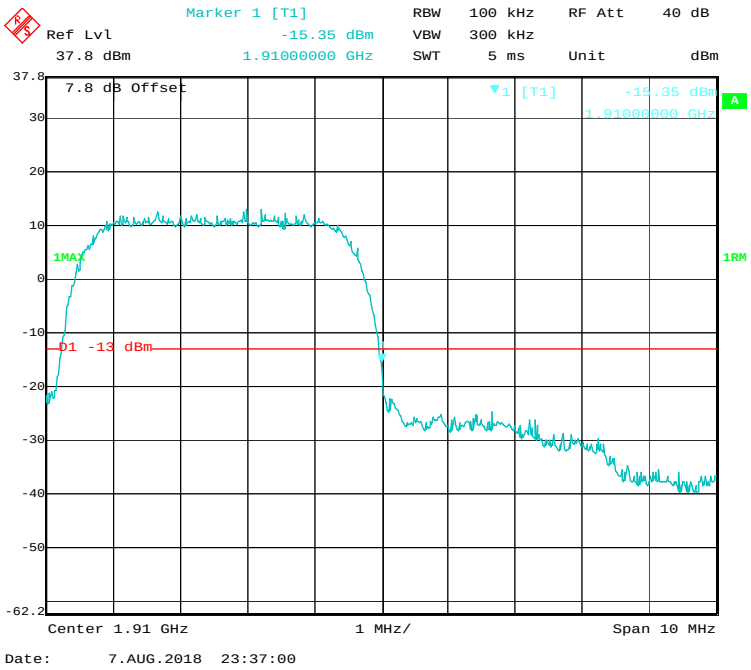
WCDMA (HSUPA) Mode, Right Band Edge



WCDMA (HSPA+) Mode, Left Band Edge

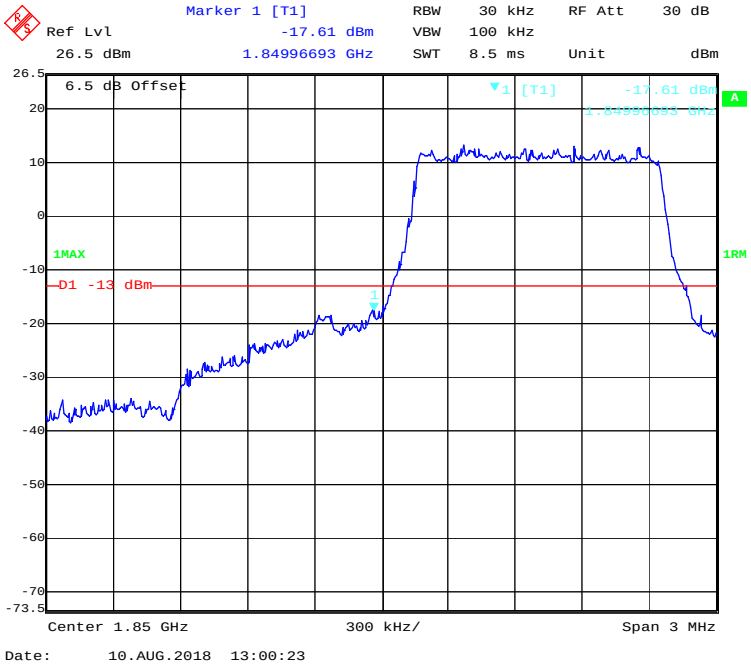


WCDMA (HSPA+) Mode, Right Band Edge

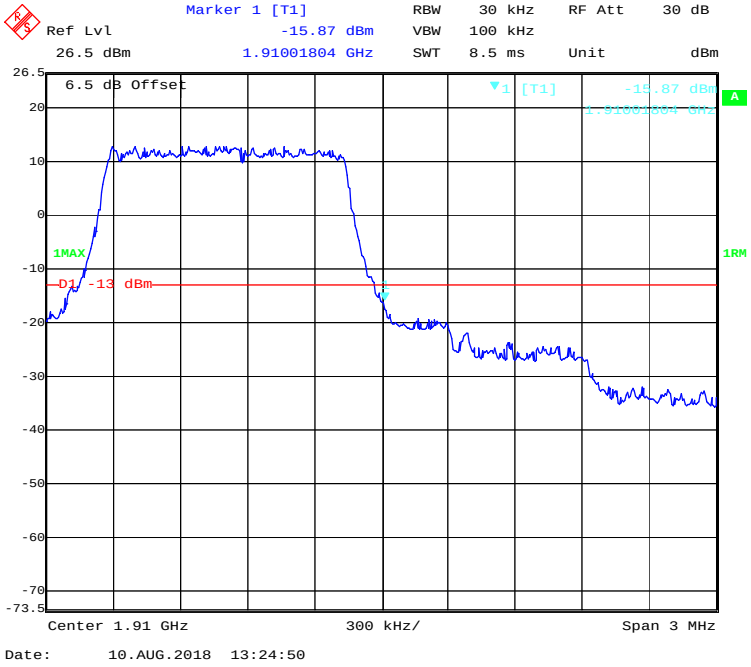


LTE Band 2:

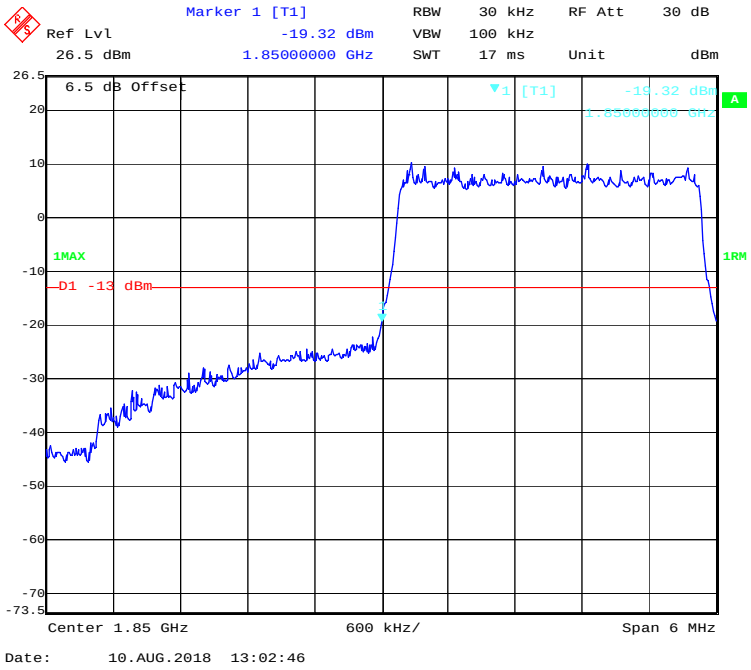
QPSK (1.4 MHz, FULL RB) - Left Band Edge



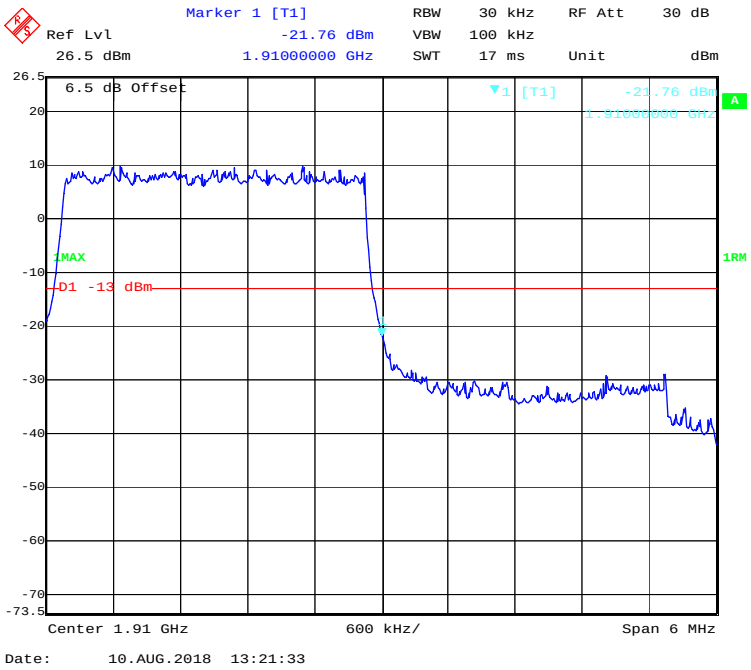
QPSK (1.4 MHz, FULL RB) - Right Band Edge



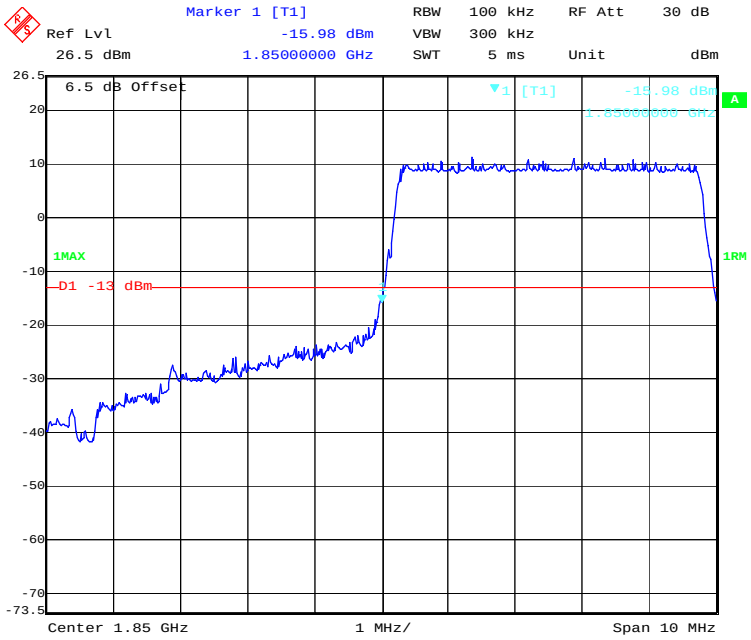
QPSK (3.0 MHz, FULL RB) - Left Band Edge



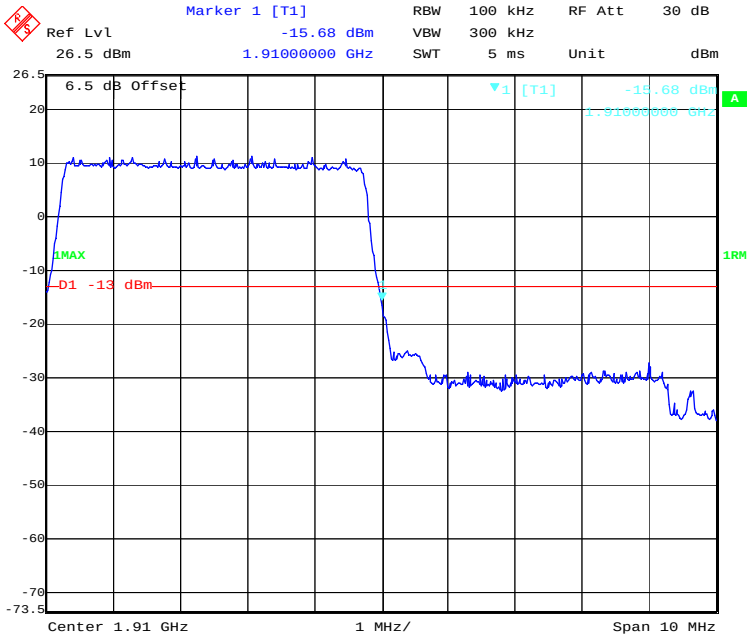
QPSK (3.0 MHz, FULL RB) - Right Band Edge



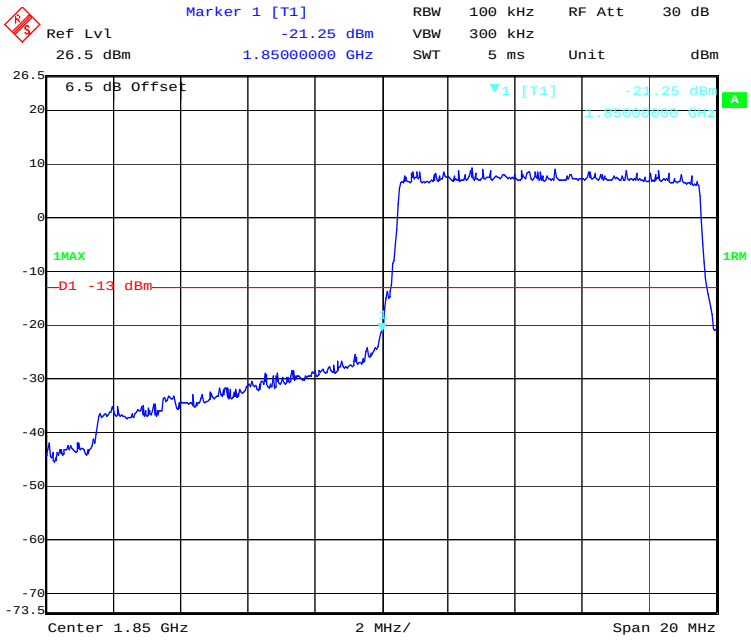
QPSK (5.0 MHz, FULL RB) - Left Band Edge



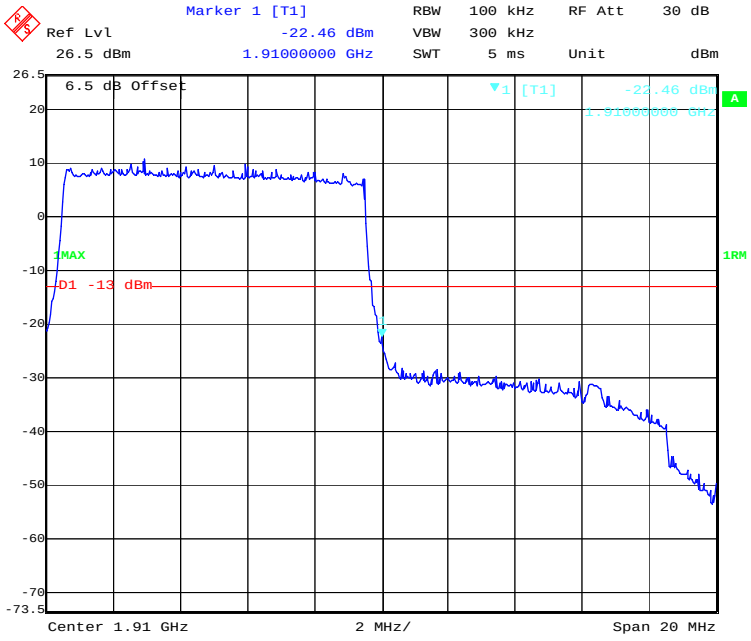
QPSK (5.0 MHz, FULL RB) - Right Band Edge



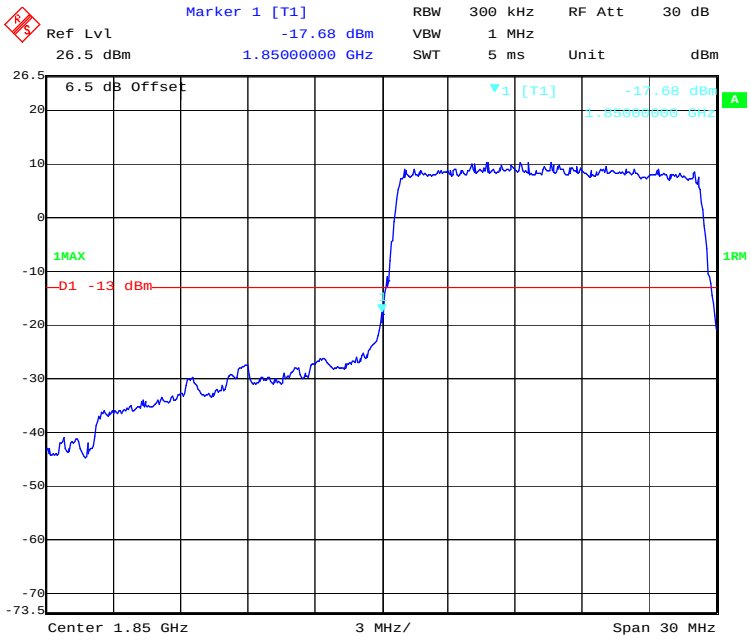
QPSK (10.0 MHz, FULL RB) - Left Band Edge



QPSK (10.0 MHz, FULL RB) - Right Band Edge

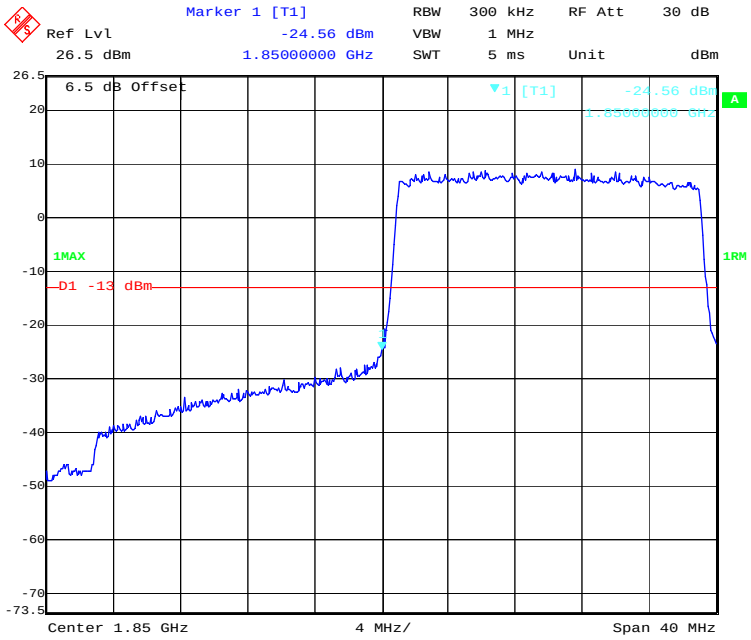


QPSK (15.0 MHz, FULL RB) - Left Band Edge

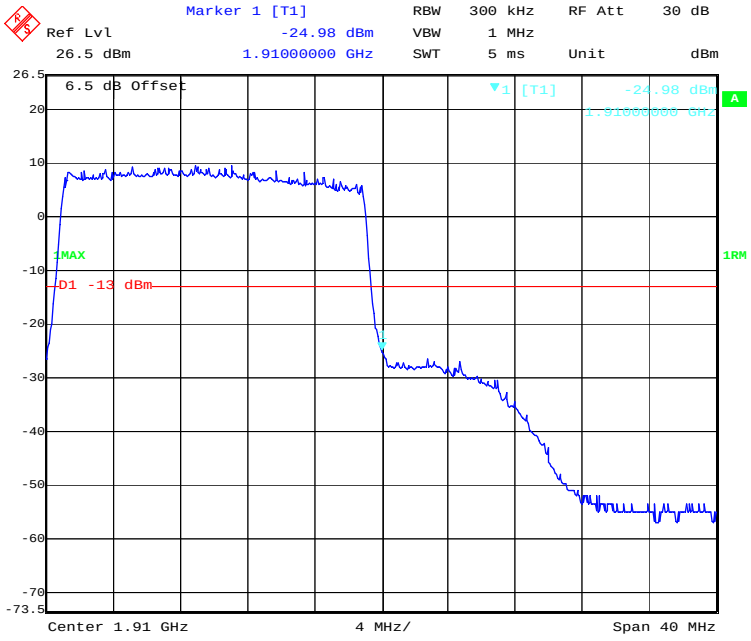


QPSK (15.0 MHz, FULL RB) - Right Band Edge

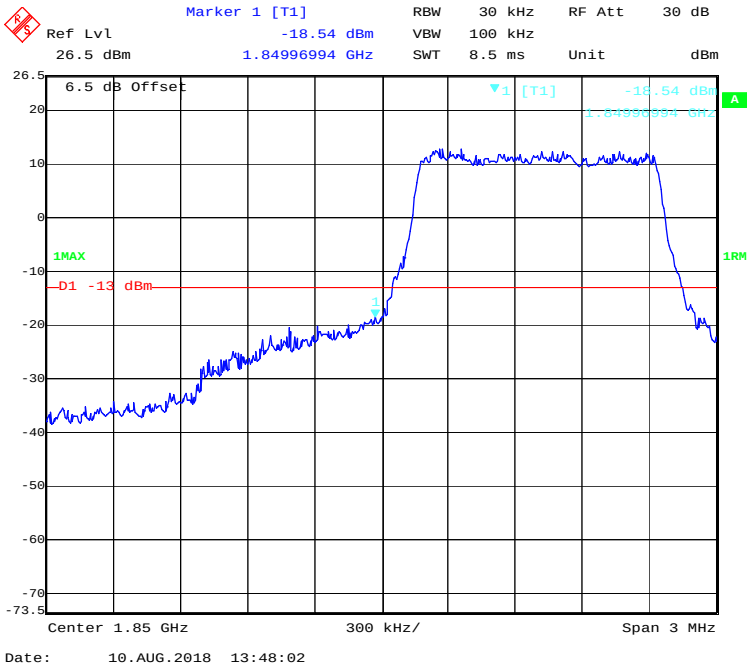
QPSK (20.0 MHz, FULL RB) - Left Band Edge



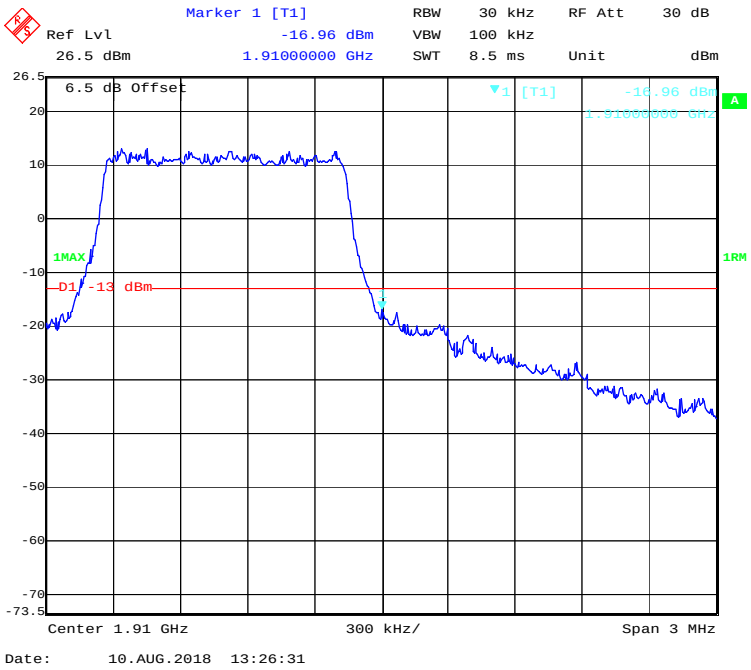
QPSK (20.0 MHz, FULL RB) - Right Band Edge



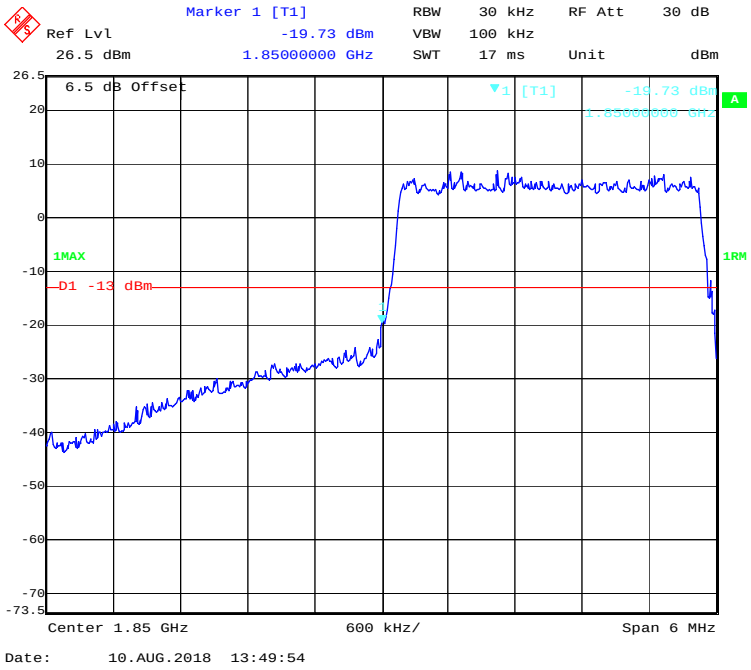
16-QAM (1.4 MHz, FULL RB) - Left Band Edge



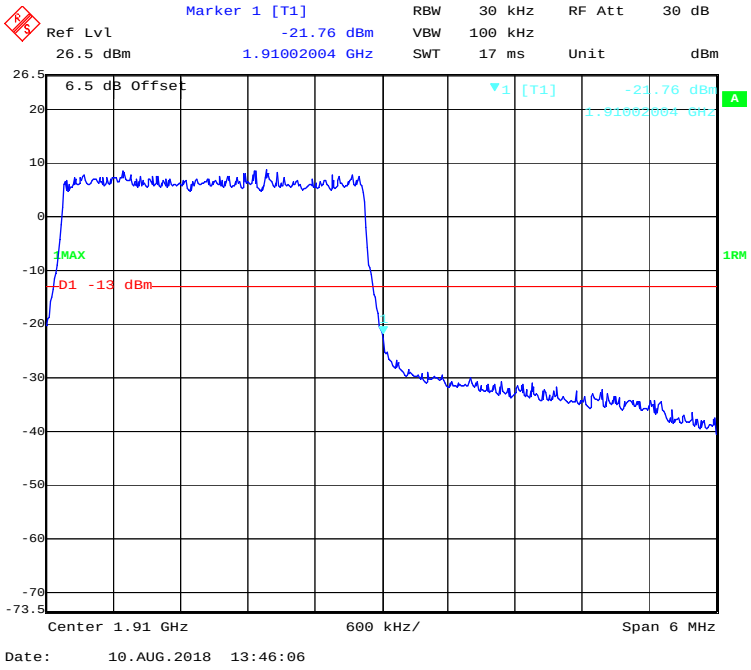
16-QAM (1.4 MHz, FULL RB) - Right Band Edge



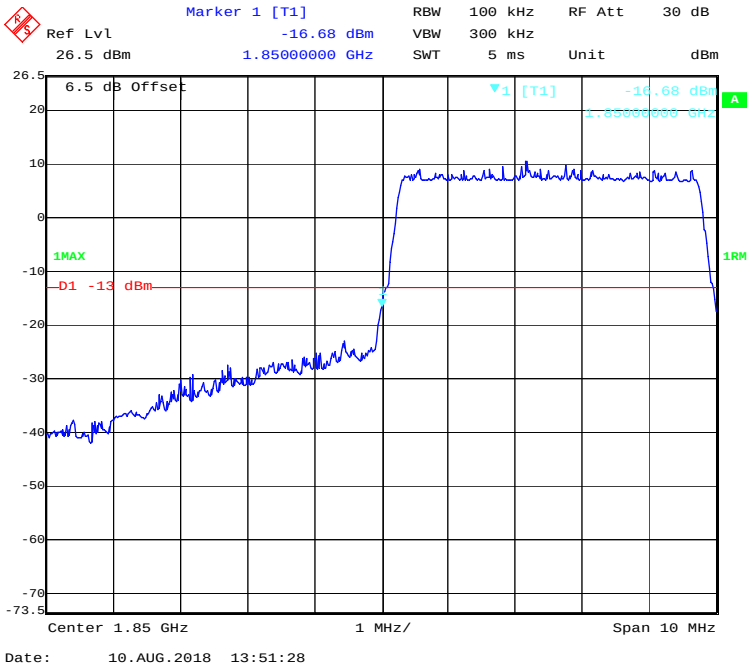
16-QAM (3.0 MHz, FULL RB) - Left Band Edge



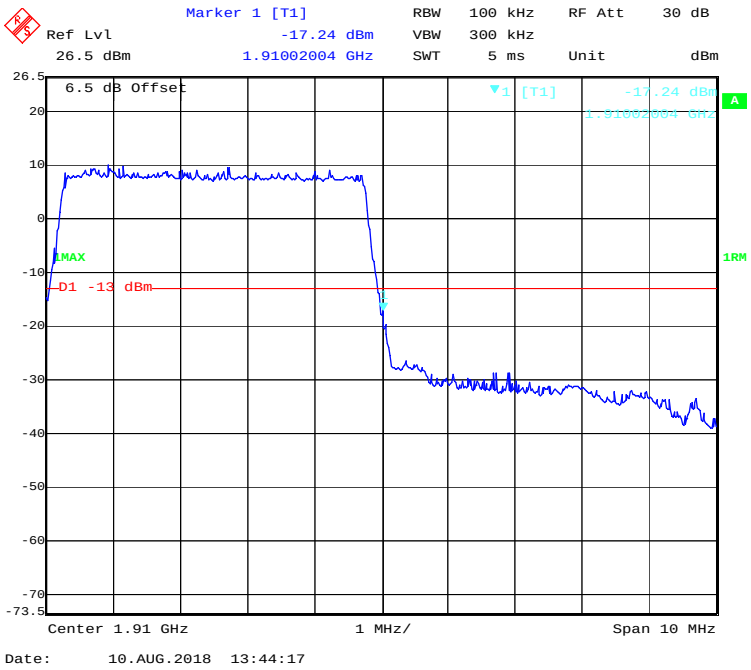
16-QAM (3.0 MHz, FULL RB) - Right Band Edge



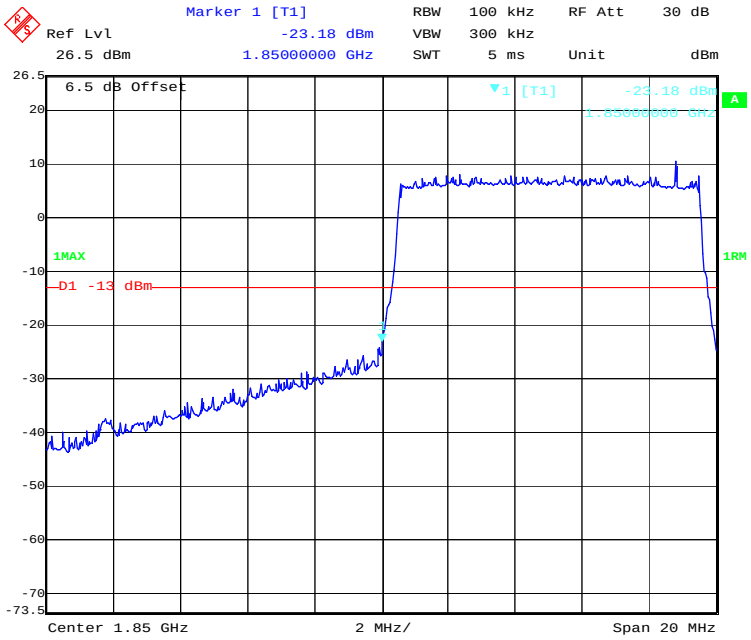
16-QAM (5.0 MHz, FULL RB) - Left Band Edge



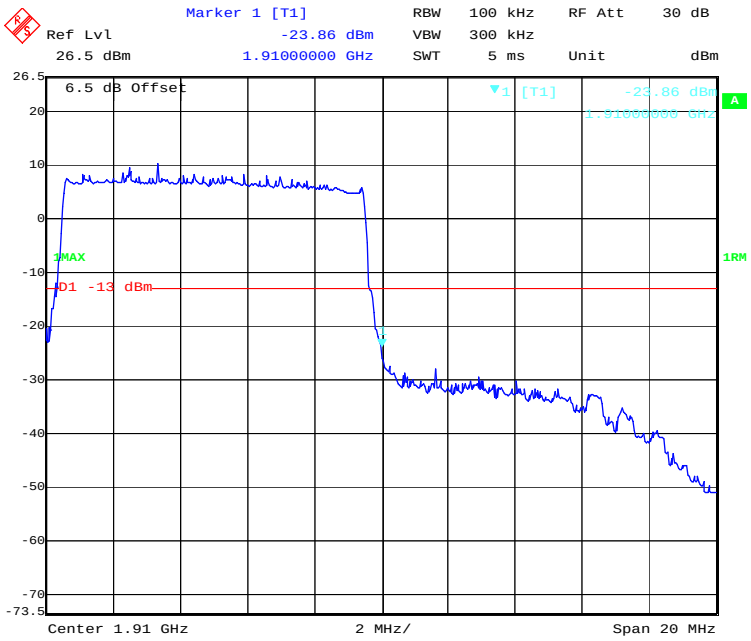
16-QAM (5.0 MHz, FULL RB) - Right Band Edge



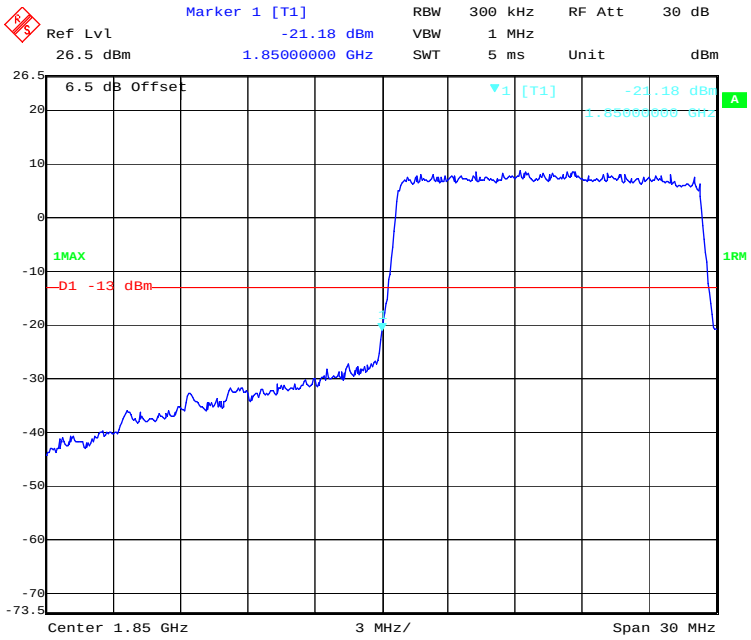
16-QAM (10.0 MHz, FULL RB) - Left Band Edge



16-QAM (10.0 MHz, FULL RB) - Right Band Edge

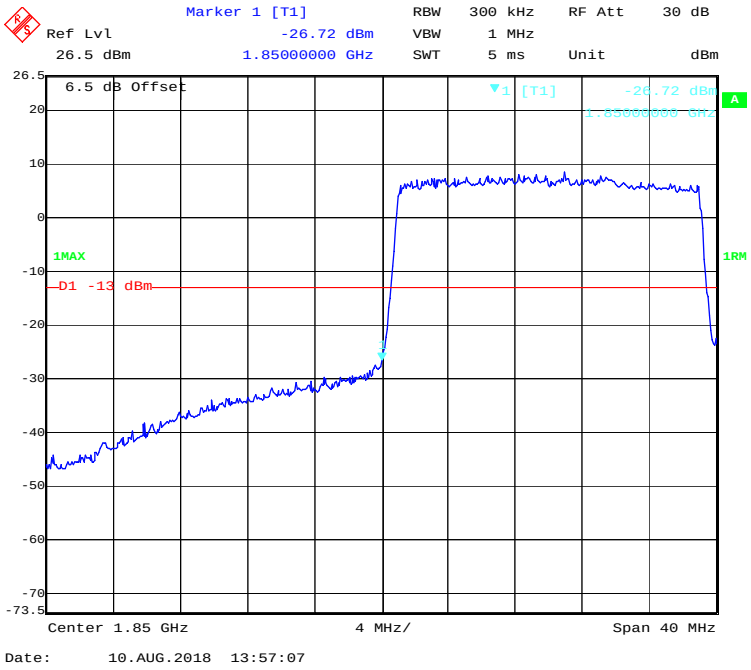


16-QAM (15.0 MHz, FULL RB) - Left Band Edge

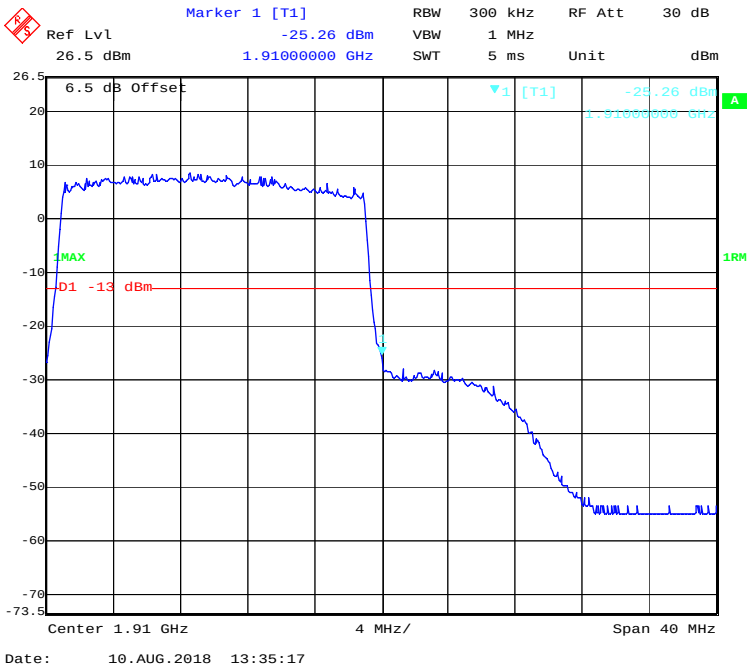


16-QAM (15.0 MHz, FULL RB) - Right Band Edge

16-QAM (20.0 MHz, FULL RB) - Left Band Edge

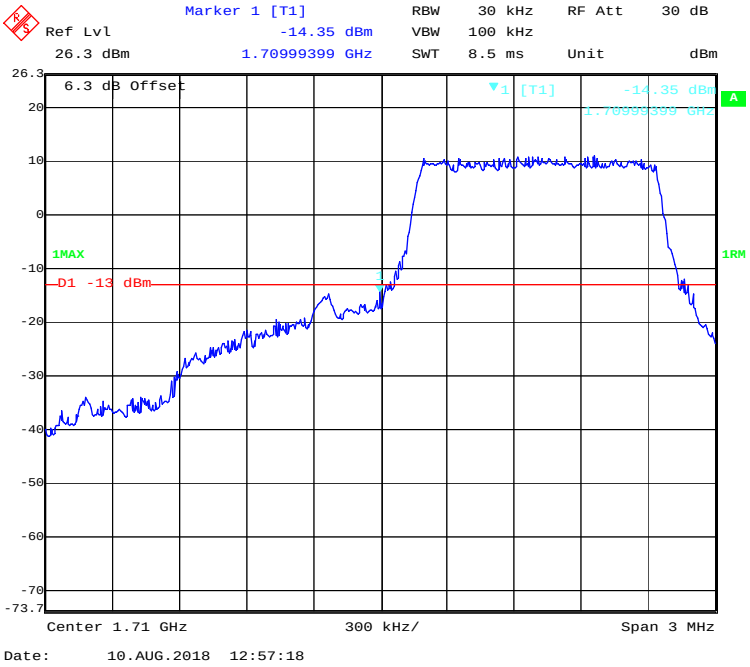


16-QAM (20.0 MHz, FULL RB) - Right Band Edge

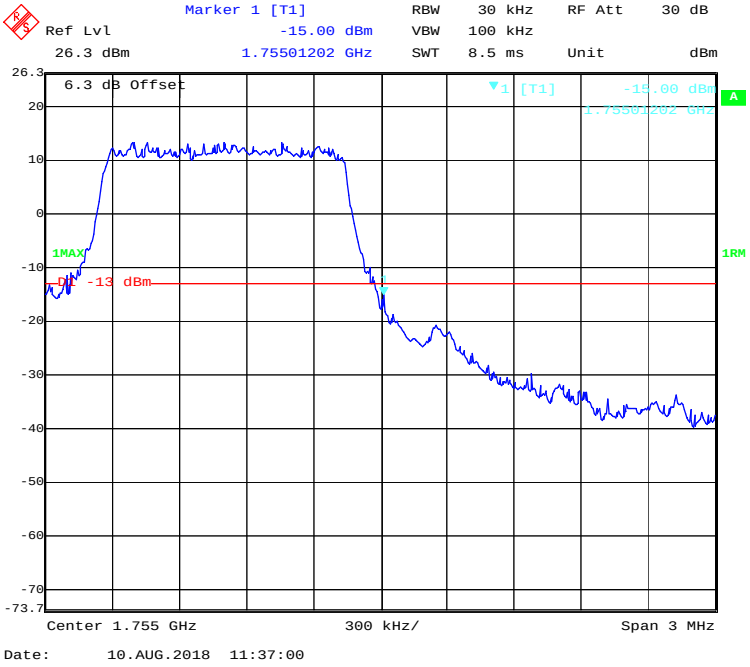


LTE Band 4:

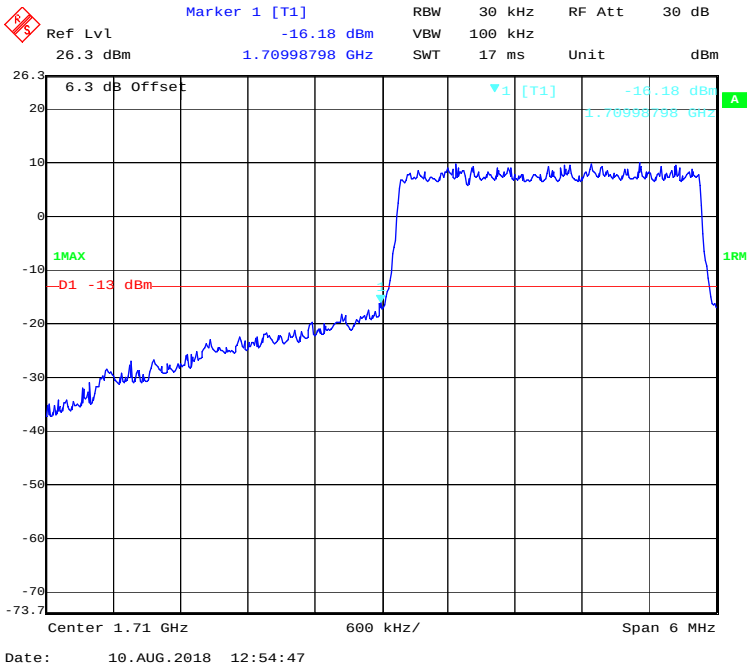
QPSK (1.4 MHz, FULL RB) - Left Band Edge



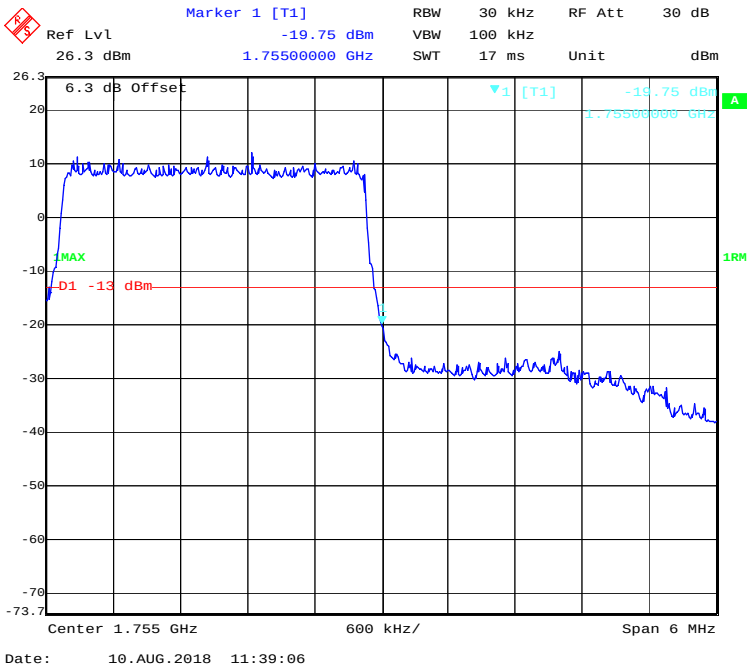
QPSK (1.4 MHz, FULL RB) - Right Band Edge



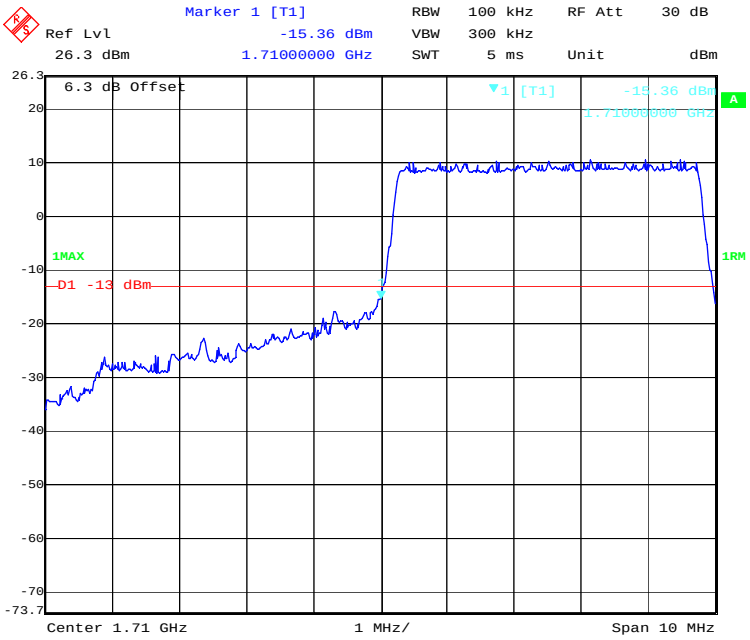
QPSK (3.0 MHz, FULL RB) - Left Band Edge



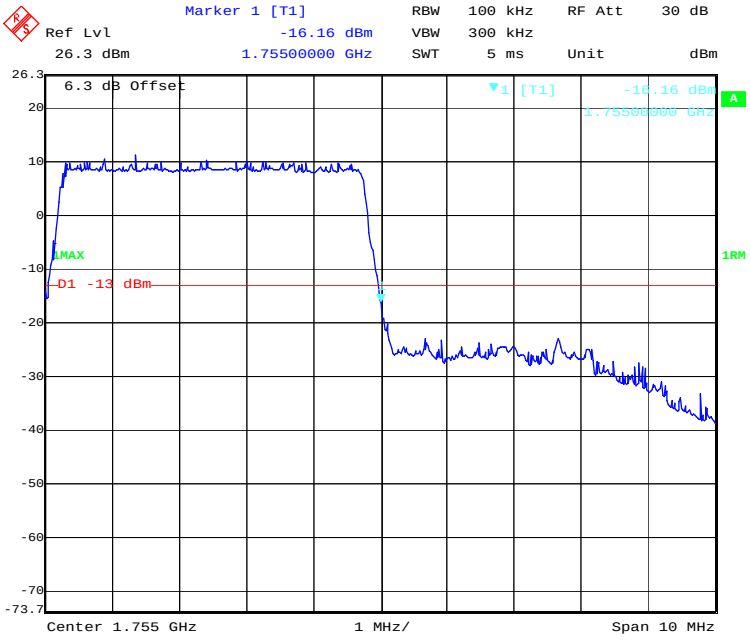
QPSK (3.0 MHz, FULL RB) - Right Band Edge



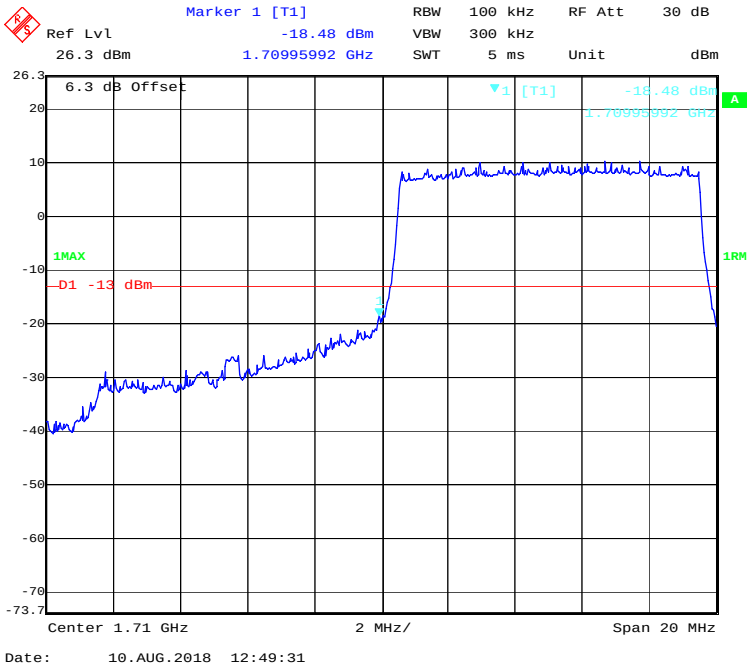
QPSK (5.0 MHz, FULL RB) - Left Band Edge



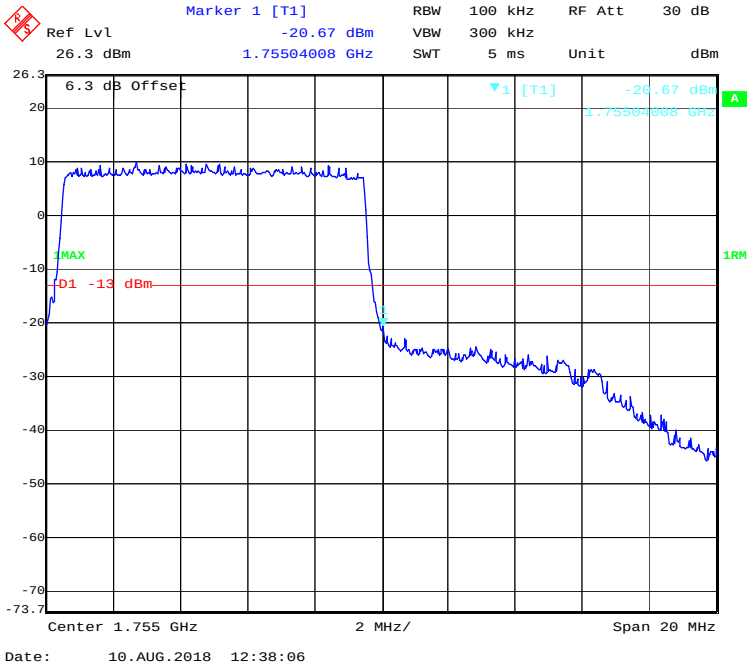
QPSK (5.0 MHz, FULL RB) - Right Band Edge



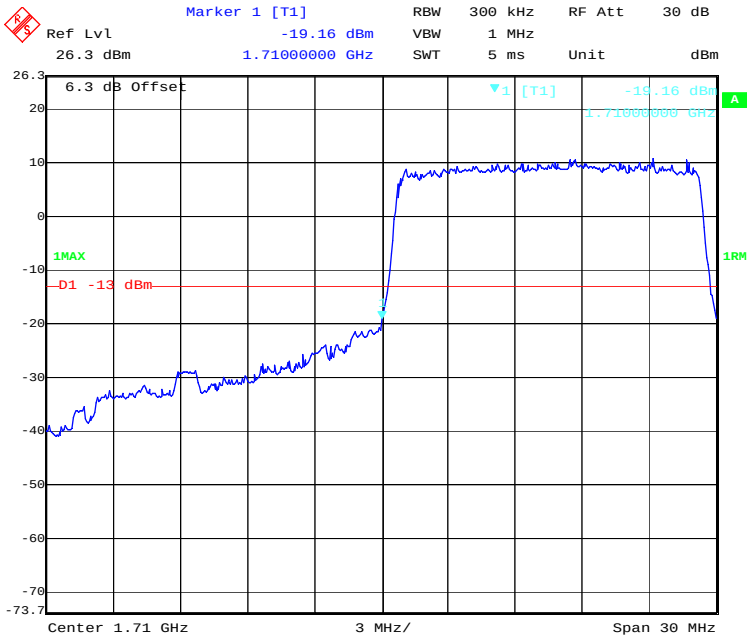
QPSK (10.0 MHz, FULL RB) - Left Band Edge



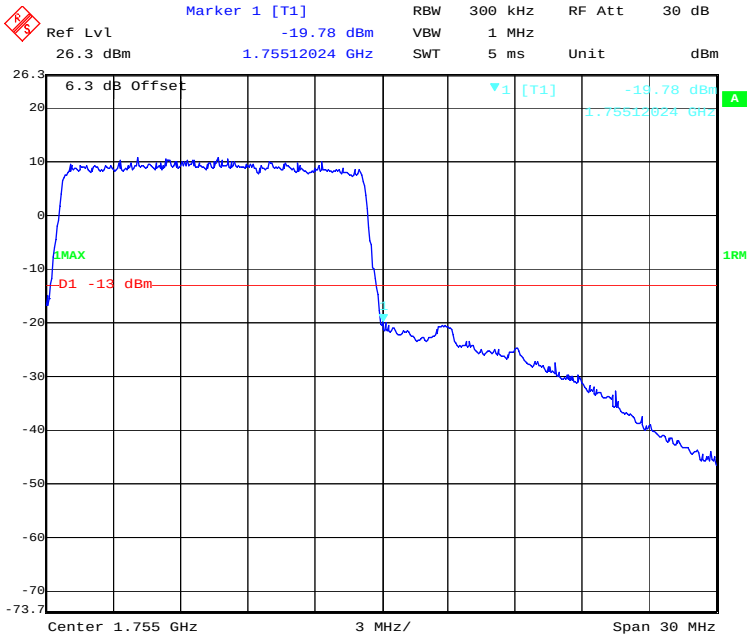
QPSK (10.0 MHz, FULL RB) - Right Band Edge



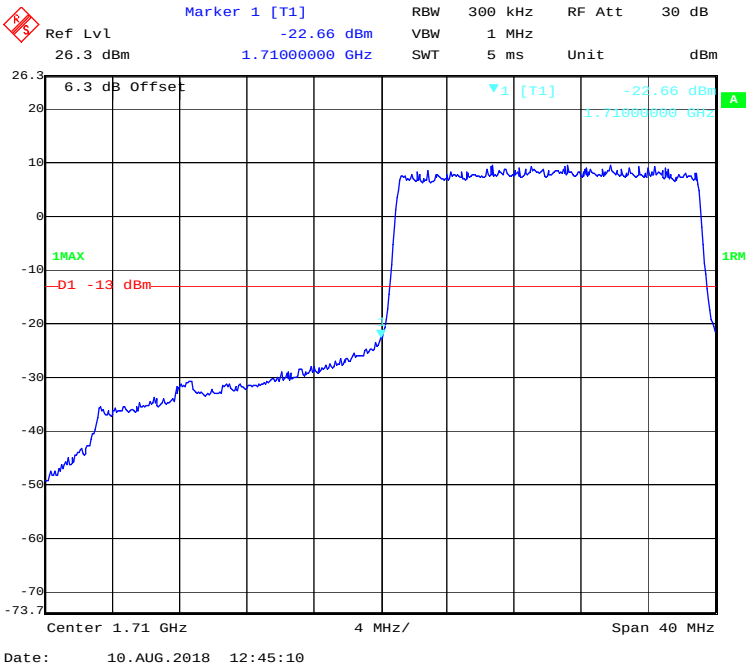
QPSK (15.0 MHz, FULL RB) - Left Band Edge



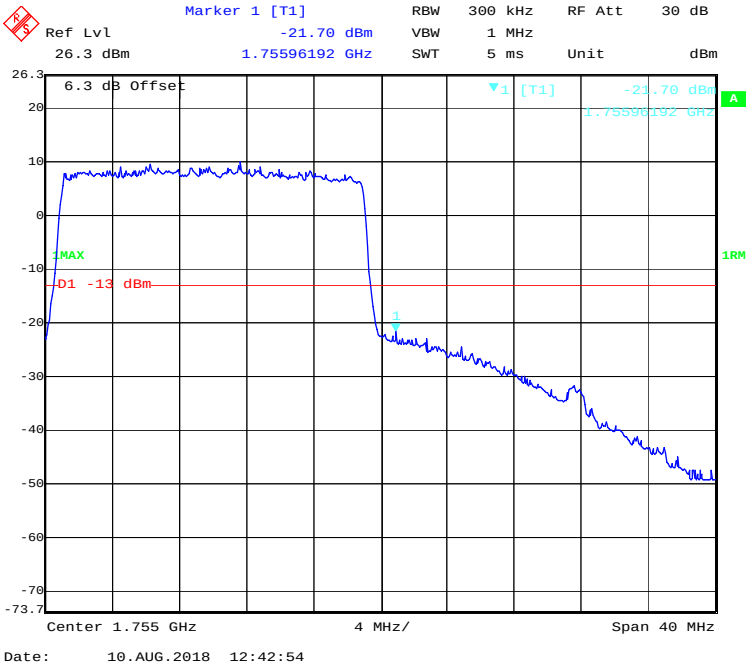
QPSK (15.0 MHz, FULL RB) - Right Band Edge



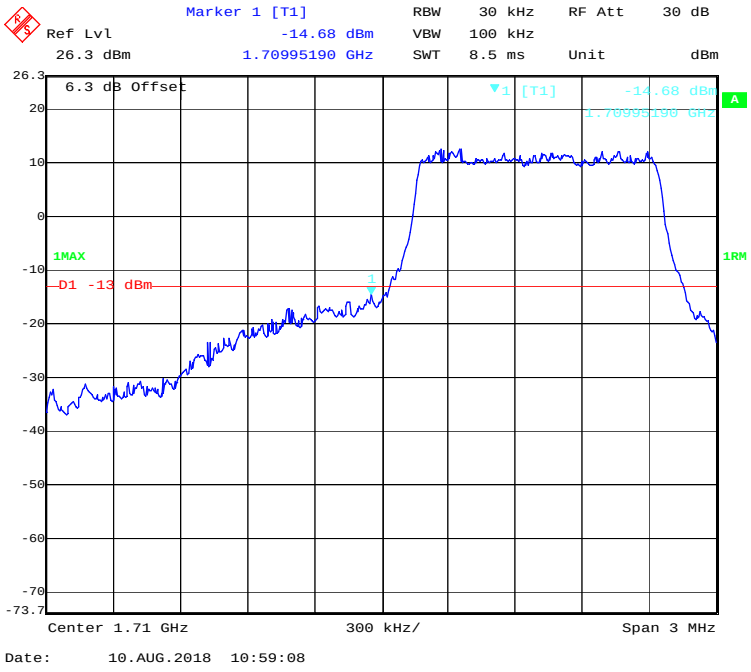
QPSK (20.0 MHz, FULL RB) - Left Band Edge



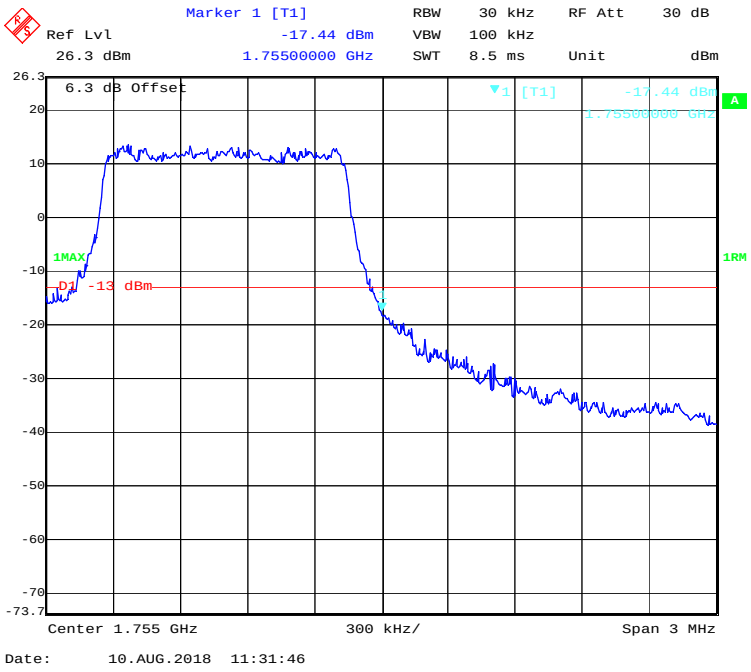
QPSK (20.0 MHz, FULL RB) - Right Band Edge



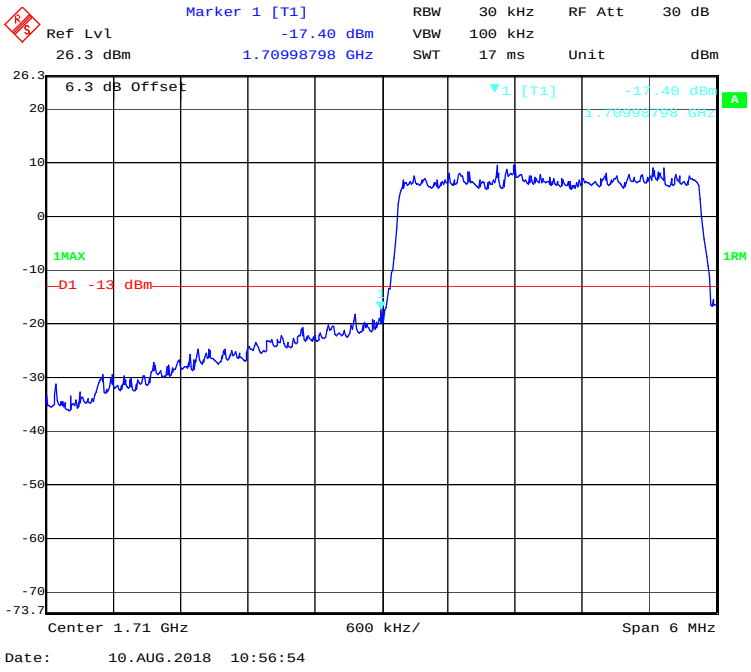
16-QAM (1.4 MHz, FULL RB) - Left Band Edge



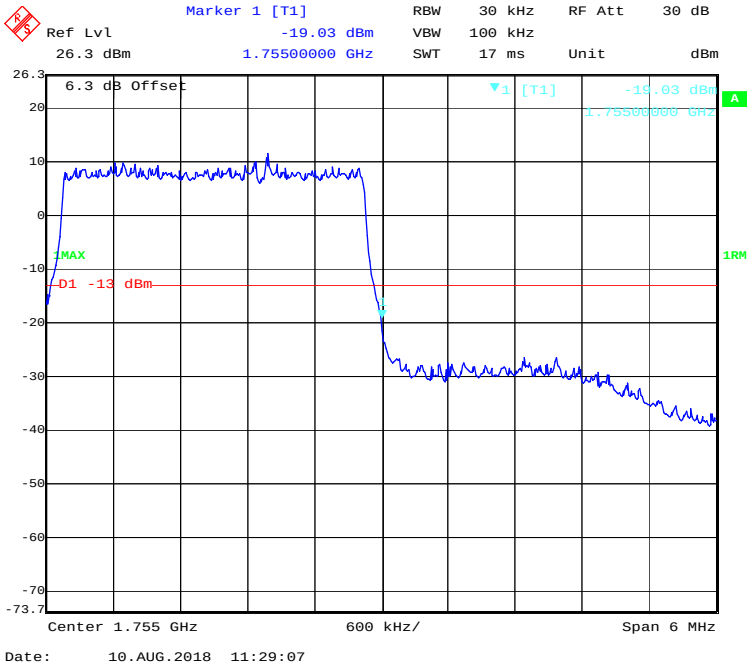
16-QAM (1.4 MHz, FULL RB) - Right Band Edge



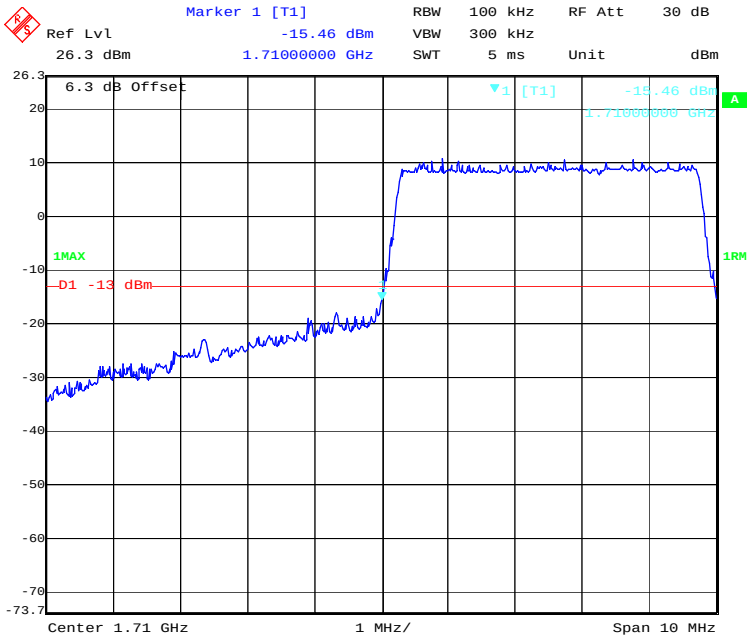
16-QAM (3.0 MHz, FULL RB) - Left Band Edge



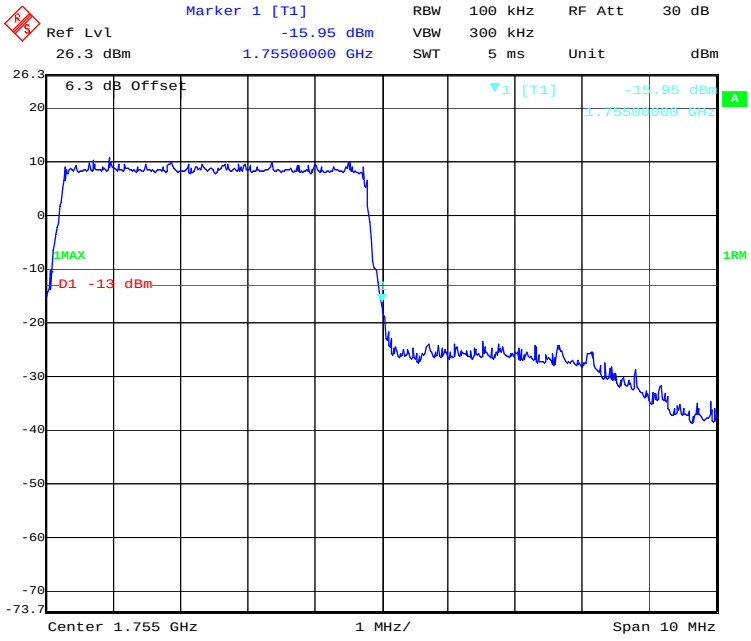
16-QAM (3.0 MHz, FULL RB) - Right Band Edge



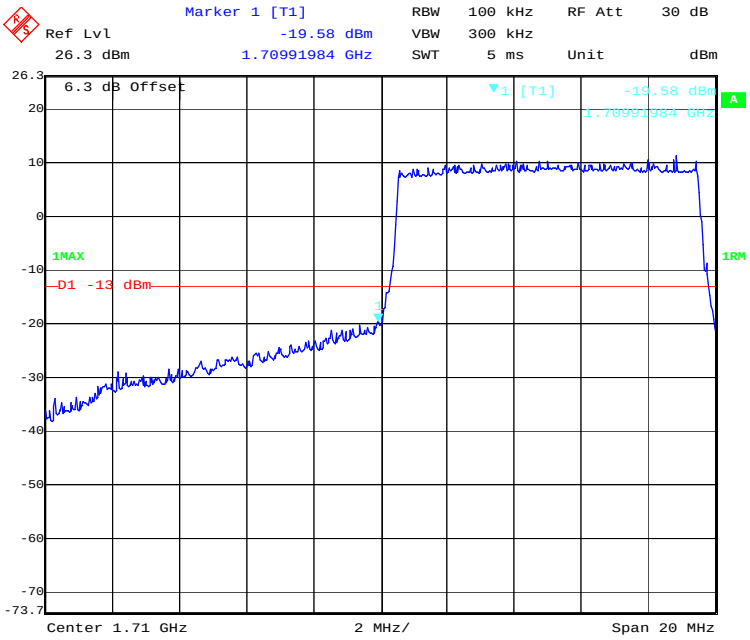
16-QAM (5.0 MHz, FULL RB) - Left Band Edge



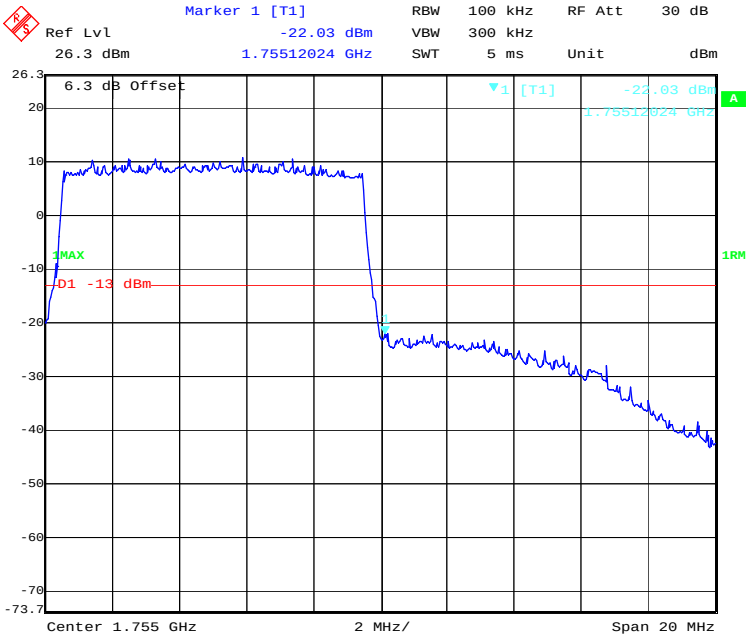
16-QAM (5.0 MHz, FULL RB) - Right Band Edge



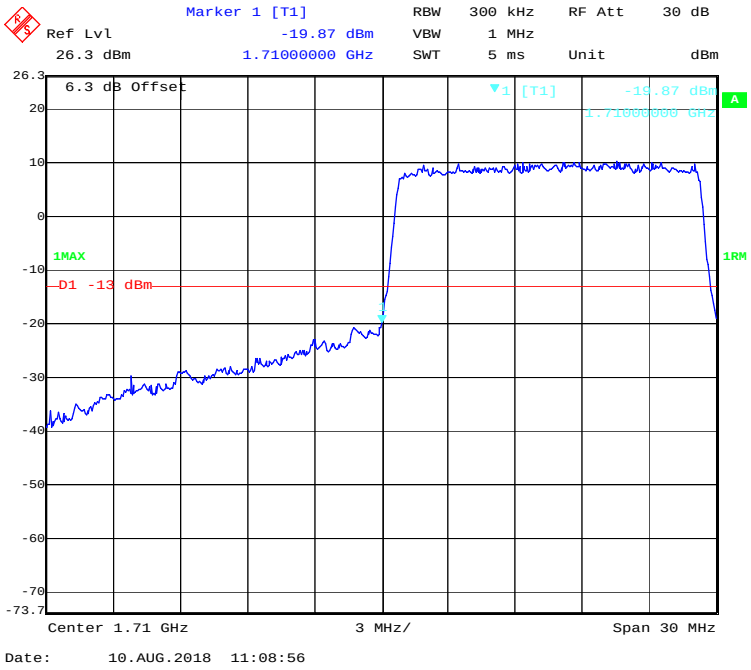
16-QAM (10.0 MHz, FULL RB) - Left Band Edge



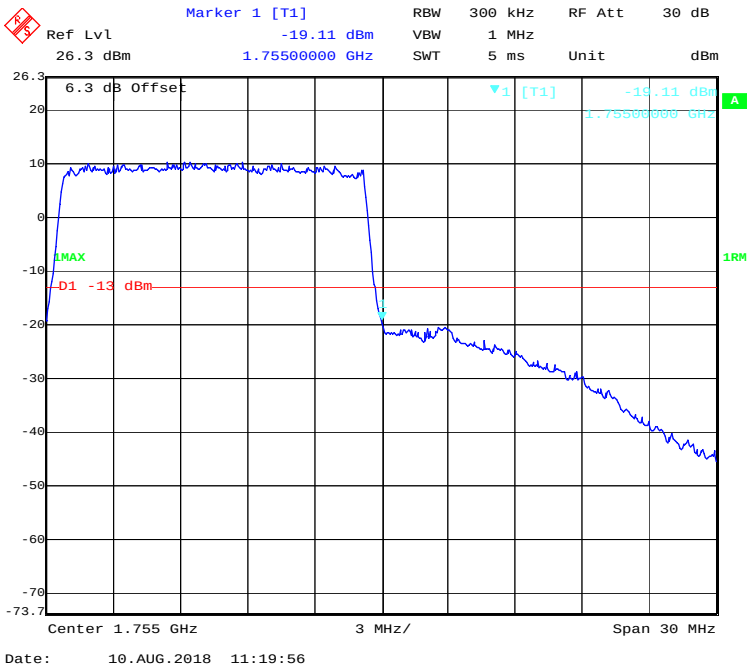
16-QAM (10.0 MHz, FULL RB) - Right Band Edge



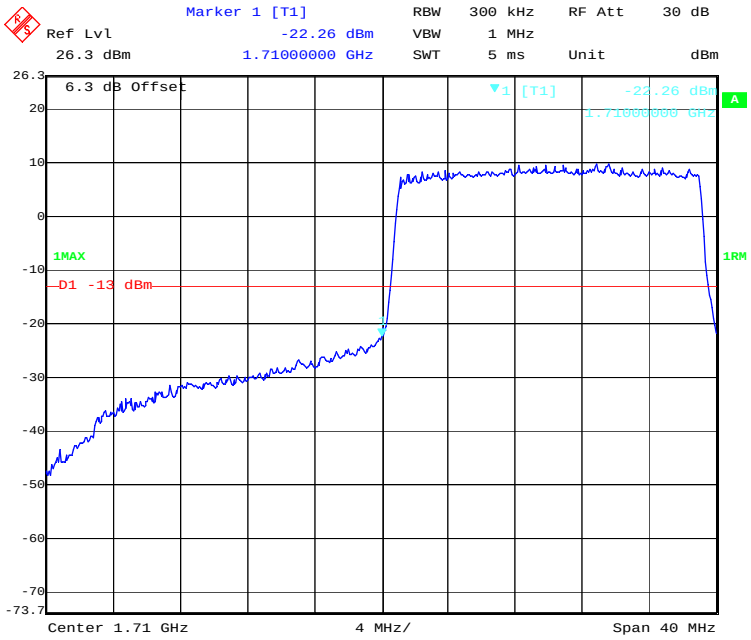
16-QAM (15.0 MHz, FULL RB) - Left Band Edge



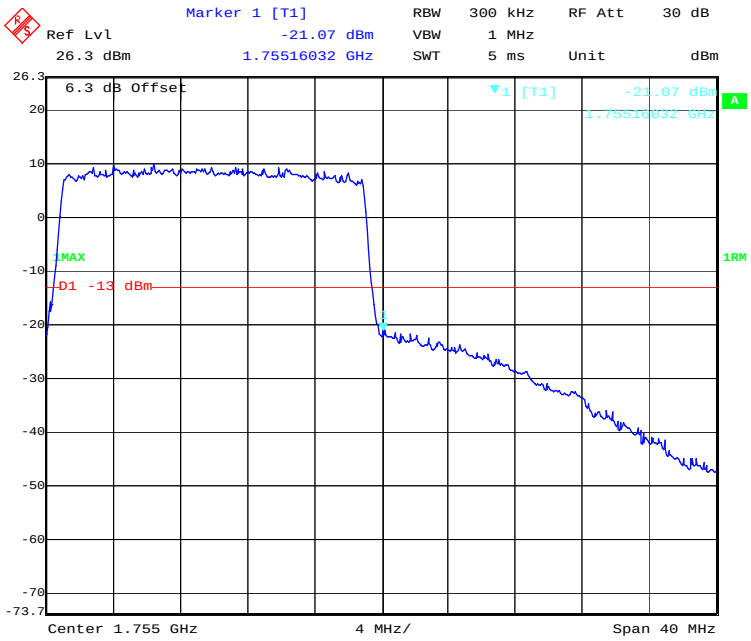
16-QAM (15.0 MHz, FULL RB) - Right Band Edge



16-QAM (20.0 MHz, FULL RB) - Left Band Edge



16-QAM (20.0 MHz, FULL RB) - Right Band Edge



FCC § 2.1055; § 22.355; § 24.235; §27.54- FREQUENCY STABILITY

Applicable Standards

FCC § 2.1055, §22.355, §24.235 and §27.54.

According to FCC §2.1055, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

According to §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table below:

Frequency Tolerance for Transmitters in the Public Mobile Services

Frequency Range (MHz)	Base, fixed (ppm)	Mobile > 3 watts (ppm)	Mobile ≤ 3 watts (ppm)
25 to 50	20.0	20.0	50.0
50 to 450	5.0	5.0	50.0
450 to 512	2.5	5.0	5.0
821 to 896	1.5	2.5	2.5
928 to 929.	5.0	N/A	N/A
929 to 960.	1.5	N/A	N/A
2110 to 2220	10.0	N/A	N/A

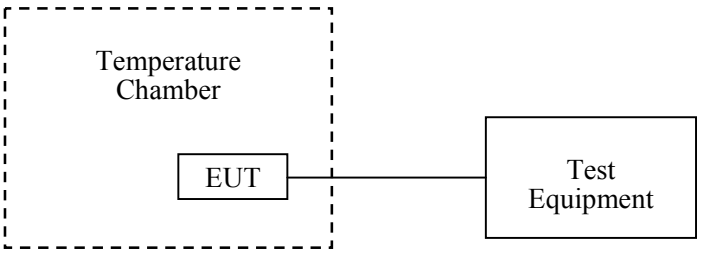
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

Test Procedure

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

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

Frequency Stability vs. Voltage: For hand carried, battery powered equipment; reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.



Test Data

Environmental Conditions

Temperature:	23.2℃
Relative Humidity:	51 %
ATM Pressure:	101.3kPa

The testing was performed by Max Min on 2018-08-12.

EUT operation mode: Transmitting

Test Result: Compliance.

GSM 850 Band:

GSM Mode, Middle Channel, f_o =836.6 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.8	-2	-0.0024	2.5
-20		5	0.0060	2.5
-10		3	0.0036	2.5
0		-1	-0.0012	2.5
10		8	0.0096	2.5
20		-2	-0.0024	2.5
30		9	0.0108	2.5
40		6	0.0072	2.5
50		8	0.0096	2.5
25	V min.= 3.2	1	0.0012	2.5
25	V max.= 4.35	3	0.0036	2.5

EGPRS Mode, Middle Channel, f_o=836.6 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.8	10	0.0120	2.5
-20		-1	-0.0012	2.5
-10		1	0.0012	2.5
0		9	0.0108	2.5
10		10	0.0120	2.5
20		6	0.0072	2.5
30		1	0.0012	2.5
40		0	0.0000	2.5
50		2	0.0024	2.5
25	V min.= 3.2	0	0.0000	2.5
25	V max.= 4.35	8	0.0096	2.5

WCDMA Band V:

Middle Channel, f_o = 836.6 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.8	2	0.0024	2.5
-20		0	0.0000	2.5
-10		9	0.0108	2.5
0		-2	-0.0024	2.5
10		5	0.0060	2.5
20		6	0.0072	2.5
30		10	0.0120	2.5
40		13	0.0155	2.5
50		6	0.0072	2.5
25	V min.= 3.2	12	0.0143	2.5
25	V max.= 4.35	13	0.0155	2.5

PCS 1900 Band:

GSM Mode, Middle Channel, f_o =1880.0 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	3.8	5	0.0027	pass
-20		7	0.0037	pass
-10		7	0.0037	pass
0		1	0.0005	pass
10		11	0.0059	pass
20		2	0.0011	pass
30		-1	-0.0005	pass
40		4	0.0021	pass
50		7	0.0037	pass
25	V min.= 3.2	5	0.0027	pass
25	V max.= 4.35	1	0.0005	pass

EGPRS Mode, Middle Channel, f_o =1880.0 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	3.8	5	0.0027	pass
-20		2	0.0011	pass
-10		5	0.0027	pass
0		10	0.0053	pass
10		0	0.0000	pass
20		4	0.0021	pass
30		11	0.0059	pass
40		9	0.0048	pass
50		8	0.0043	pass
25	V min.= 3.2	9	0.0048	pass
25	V max.= 4.35	1	0.0005	pass

WCDMA Band II:

WCDMA Mode, Middle Channel, f_o=1880.0 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.8	9	0.0048	pass
-20		11	0.0059	pass
-10		-1	-0.0005	pass
0		1	0.0005	pass
10		11	0.0059	pass
20		1	0.0005	pass
30		4	0.0021	pass
40		0	0.0000	pass
50		-1	-0.0005	pass
25	V min.= 3.2	11	0.0059	pass
25	V max.= 4.35	10	0.0053	pass

LTE Band 2:

20.0 MHz Middle Channel, f_o=1880.0 MHz (QPSK)				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.8	4	0.0021	pass
-20		6	0.0032	pass
-10		4	0.0021	pass
0		12	0.0064	pass
10		4	0.0021	pass
20		5	0.0027	pass
30		11	0.0059	pass
40		4	0.0021	pass
50		-1	-0.0005	pass
25	V min.= 3.2	0	0.0000	pass
25	V max.= 4.35	4	0.0021	pass

20.0 MHz Middle Channel, f_0 =1880.0 MHz (16QAM)				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.8	12	0.0064	pass
-20		10	0.0053	pass
-10		4	0.0021	pass
0		1	0.0005	pass
10		6	0.0032	pass
20		1	0.0005	pass
30		9	0.0048	pass
40		11	0.0059	pass
50		-1	-0.0005	pass
25	V min.= 3.2	12	0.0064	pass
25	V max.= 4.35	7	0.0037	pass

LTE Band 4:

LTE Band 4 (QPSK)					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.8	1711.0222	1753.9779	1710	1755
-20		1711.0228	1753.9779	1710	1755
-10		1711.0226	1753.9779	1710	1755
0		1711.0227	1753.9779	1710	1755
10		1711.0225	1753.9777	1710	1755
20		1711.0225	1753.9777	1710	1755
30		1711.0229	1753.9784	1710	1755
40		1711.0227	1753.9784	1710	1755
50		1711.0222	1753.9781	1710	1755
25	V min.= 3.2	1711.0228	1753.9783	1710	1755
25	V max.= 4.35	1711.0225	1753.9783	1710	1755

LTE Band 4 (16QAM)					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.8	1711.0225	1753.9781	1710	1755
-20		1711.0226	1753.9781	1710	1755
-10		1711.0228	1753.9782	1710	1755
0		1711.0226	1753.9783	1710	1755
10		1711.0222	1753.9783	1710	1755
20		1711.0226	1753.9784	1710	1755
30		1711.0230	1753.9782	1710	1755
40		1711.0226	1753.9780	1710	1755
50		1711.0225	1753.9782	1710	1755
25	V min.= 3.2	1711.0225	1753.9780	1710	1755
25	V max.= 4.35	1711.0228	1753.9784	1710	1755

******* END OF REPORT *******