



TEST REPORT

Applicant Name : Shenzhen Youmi Intelligent Technology Co., Ltd.
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Report Number : SZ1210909-53551E-RF-00D
FCC ID: 2ATZ4-RP01X

Test Standard (s)

FCC PART 27; FCC PART 22H; FCC PART 24E

Sample Description

Product Type: RP01
Model No.: RP01
Multiple Model(s) No.: RP03, RP04
Trade Mark: UMIDIGI
Date Received: 2021/09/09
Date of Test: 2021/09/26~2021/11/16
Report Date: 2021/11/17

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards above.

Prepared and Checked By:

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EMC Engineer

Approved By:

Candy Li
EMC Engineer

Note: This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk "★".

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	RP01
Tested Model	RP01
Multiple Models	RP03, RP04
Model Differences	Refer to the DoS letter
Frequency Range	GSM 850: 824-849MHz(TX); 869-894MHz(RX) PCS 1900: 1850-1910MHz(TX); 1930-1990MHz(RX) WCDMA Band 2: 1850-1910MHz(TX); 1930-1990MHz(RX) WCDMA Band 5: 824-849MHz(TX); 869-894MHz(RX) LTE Band 2: 1850-1910MHz(TX); 1930-1990MHz(RX) LTE Band 4: 1710-1755MHz(TX); 2110-2155MHz(RX) LTE Band 12: 699-716MHz(TX); 729-746MHz(RX) LTE Band 13: 777-787MHz(TX); 746-756MHz(RX) LTE Band 41: 2555-2655MHz(TX/RX)
Modulation Technique	2G: GMSK, 8PSK 3G: BPSK, QPSK, 16QAM 4G: QPSK, 16QAM
Antenna Specification*	GSM850/WCDMA Band 5: -1.53dBi PCS1900/WCDMA Band 2/ LTE Band 2: 0.87dBi LTE Band 4: -0.56dBi LTE Band 12: -1.9dBi LTE Band 13: -1.76dBi LTE Band 41: -1.59dBi (provided by the applicant)
Voltage Range	DC 3.87V from battery or DC 5V from adapter
Sample serial number	SZ1210909-53551E-RF-S1(Assigned by ATC)
Sample/EUT Status	Good condition
Extreme condition*	LV: Low Voltage 3.5V NV: Normal Voltage 3.87V HV: High Voltage 4.45V(provided by the applicant)
Adapter information	Model: HJ-0502000W2-US Input: AC 100-240V~50/60Hz, 0.3A Output: DC 5.0V, 2.0A

Objective

This test report is in accordance with Part 2-Subpart J, Part 22-Subpart H, Part 24-Subpart E, and Subpart 27 of the Federal Communication Commission's rules.

The objective is to determine the compliance of the 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.

Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2-Subpart 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

ANSI C63.26-2015: American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services

All emissions measurement was performed at Shenzhen Accurate Technology Co., Ltd. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.
 Each test item follows test standards and with no deviation.

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		5%
RF Frequency		0.082×10^{-7}
RF output power, conducted		0.73dB
Unwanted Emission, conducted		1.6dB
AC Power Lines Conducted Emissions		2.72dB
Emissions, Radiated	9kHz - 30MHz	2.66dB
	30MHz - 1GHz	4.28dB
	1GHz - 18GHz	4.98dB
	18GHz - 26.5GHz	5.06dB
	26.5GHz - 40GHz	4.72dB
Temperature		1°C
Humidity		6%
Supply voltages		0.4%

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

Test Facility

The Test site used by Shenzhen Accurate Technology Co., Ltd. to collect test data is located on the 1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 708358, the FCC Designation No.: CN1189. Accredited by American Association for Laboratory Accreditation (A2LA) The Certificate Number is 429 7.01.

Listed by Innovation, Science and Economic Development Canada (ISED), the Registration Number is 5077A.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

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

Frequency band	Bandwidth (MHz)	Test Frequency(MHz)		
		Low	Middle	High
GSM850	0.25	824.2	836.6	848.8
PCS1900	0.25	1850.2	1880	1909.8
WCDMA B2	4.2	1852.4	1880	1907.6
WCDMA B5	4.2	826.4	836.6	846.6
LTE B2	1.4	1850.7	1880	1909.3
	3	1851.5	1880	1908.5
	5	1852.5	1880	1907.5
	10	1855	1880	1905
	15	1857.5	1880	1902.5
	20	1860	1880	1900
LTE B4	1.4	1710.7	1732.5	1754.3
	3	1711.5	1732.5	1753.5
	5	1712.5	1732.5	1752.5
	10	1715	1732.5	1750
	15	1717.5	1732.5	1747.5
	20	1720	1732.5	1745
LTE B12	1.4	699.7	707.5	715.3
	3	700.5	707.5	714.5
	5	701.5	707.5	713.5
	10	704.0	707.5	711
LTE B13	5	779.5	782	784.5
	10	/	782	/
LTE B41	5	2557.5	2605	2652.5
	10	2560	2605	2650
	15	2562.5	2605	2647.5
	20	2565	2605	2645

EUT have main antennas and DIV antennas, the HB/MB(PCS1900/WCDMA B2/B4/B41) use DIV antennas for transmit and main antennas for receive, and the LB(GSM850/WCDMA B5/LTE B12/B13) use main antennas for transmit and DIV antennas for receive, detail refer to the EUT photo.

Equipment Modifications

No modification was made to the EUT.

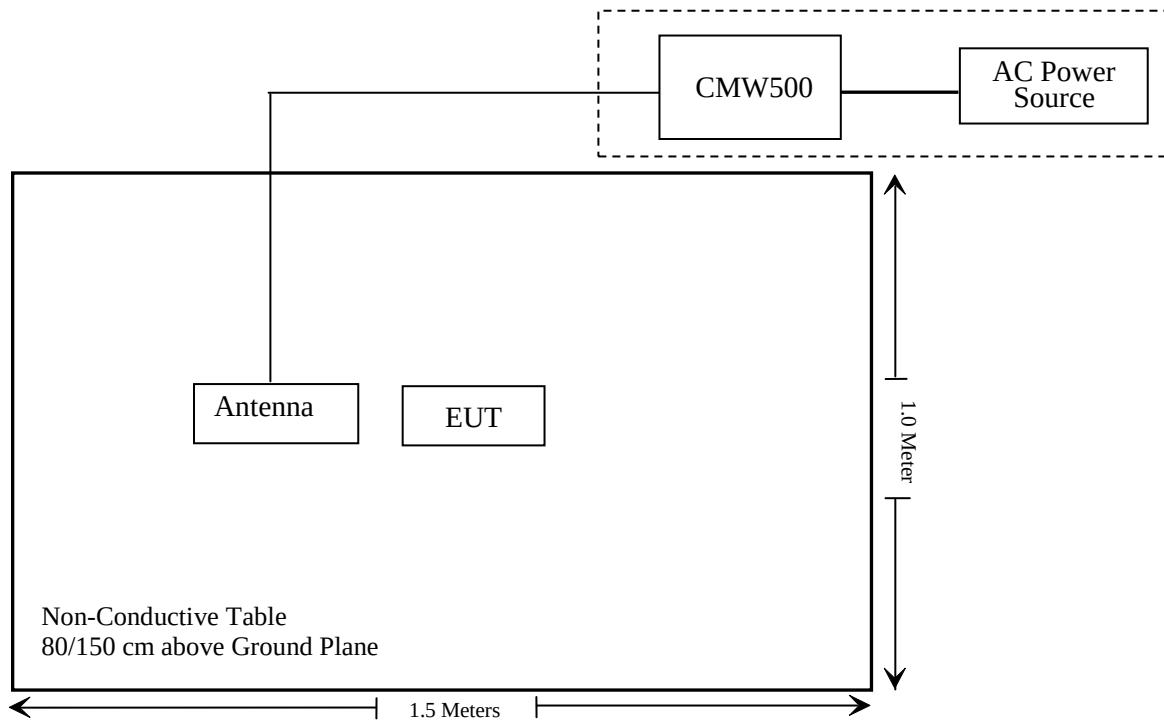
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	154606

Support Cable Description

Cable Description	Length (m)	From / Port	To
Un-Shielded Un-Detachable AC Cable	1.2	AC Power	CMW500

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§ 1.1307 , §2.1093	RF Exposure (SAR)	Compliant
§2.1046; § 22.913 (a); § 24.232 (c); §27.50 (b) (c) (d) (h);	RF Output Power	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;	Spurious Emissions at Antenna Terminal	Compliant
§ 2.1053; § 22.917 (a); § 24.238 (a); §27.53	Field Strength of Spurious Radiation	Compliant
§ 22.917 (a); § 24.238 (a); §27.53 (c) (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					
Rohde& Schwarz	Test Receiver	ESR	101817	2020/12/24	2021/12/23
Rohde&Schwarz	Spectrum Analyzer	FSV40	101495	2020/12/24	2021/12/23
SONOMA INSTRUMENT	Amplifier	310 N	186131	2020/12/25	2021/12/24
A.H. Systems, inc.	Preamplifier	PAM-0118P	531	2020/07/08	2021/07/07
Quinstar	Amplifier	QLW-18405536-J0	15964001002	2020/11/28	2021/11/27
Anritsu Corp	50 Coaxial Switch	MP59B	6100237248	2020/12/25	2021/12/24
Schwarzbeck	Bilog Antenna	VULB9163	9163-323	2020/01/05	2023/01/04
Schwarzbeck	Bilog Antenna	VULB9163	9163-194	2020/01/05	2023/01/04
Schwarzbeck	Horn Antenna	BBHA9120D	9120D-655	2020/01/05	2023/01/04
PASTERNAK	Horn Antenna	BBHA9120D	9120D-1067	2020/01/05	2023/01/04
PASTERNAK	Horn Antenn	PE9852/2F-20	1120	2020/01/05	2023/01/04
PASTERNAK	Horn Antenn	PE9852/2F-20	1120	2020/01/05	2023/01/04
Unknown	RF Coaxial Cable	N-5m	No.3	2020/12/25	2021/12/24
Unknown	RF Coaxial Cable	N-5m	No.4	2020/12/25	2021/12/24
Unknown	RF Coaxial Cable	N-1m	No.5	2020/12/25	2021/12/24
Unknown	RF Coaxial Cable	N-1m	No.6	2020/12/25	2021/12/24
Wainwright	High Pass Filter	WHKX3.6/18G-10SS	5	2020/12/25	2021/12/24
CD	High Pass Filter	HPM-1.2/18G-60	110	2020/12/25	2021/12/24
Anritsu	Signal Generator	68369B	004114	2021/07/31	2022/07/30
RF Conducted Test					
Rohde&Schwarz	Spectrum Analyzer	FSV-40	101495	2020/12/24	2021/12/23
Mini-Circuits	Power Splitter	DC-18000MHz	SF10944151S	2020/12/25	2021/12/24
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	154606	2020/12/25	2021/12/24
Gongwen	Temp. & Humid. Chamber	JB913R	GZ-WS004	2020/12/25	2021/12/24

* Statement of Traceability: Shenzhen Accurate Technology Co., Ltd. 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§1.1310 and §2.1093.

Test Result

Compliant, please refer to the SAR report: SZ1210909-53551E-20A.

FCC §2.1047 - MODULATION CHARACTERISTIC

According to FCC §2.1047(d), Part 22H,24E&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 (b) (c) (d) (h) - RF OUTPUT POWER

Applicable Standard

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

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

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

According to §27.50(b), Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

According to §27.50(c), Control and mobile stations in the 698-746 MHz band are limited to 30 watts ERP. And Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

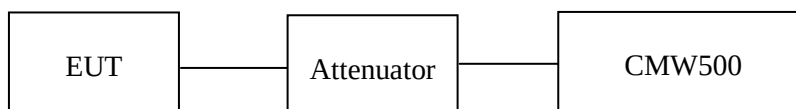
According to §27.50(d), Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

According to §27.50(h), the maximum EIRP must not exceed 2Watts (33dBm) for 2500-2570MHz.

Test Procedure

Conducted method:

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



Radiated method:

ANSI C63.26-2015 Section 5.5.

Test Data

Environmental Conditions

Temperature:	27 °C
Relative Humidity:	58 %
ATM Pressure:	101.0 kPa

The testing was performed by Black Ding from 2021-09-26 to 2021-09-30.

Conducted Power**Cellular Band (Part 22H)**

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	ERP(dBm)	Limit (dBm)
GSM	128	824.2	33.6	29.42	38.45
	190	836.6	33.5	29.32	38.45
	251	848.8	33.5	29.32	38.45

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				ERP(dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	1 slot	2 slots	3 slots	4 slots	
GPRS	128	824.2	33.67	32.59	30.46	29.22	29.49	28.41	26.28	25.04	38.45
	190	836.6	33.61	32.54	30.38	29.24	29.43	28.36	26.20	25.06	38.45
	251	848.8	33.50	32.43	30.33	29.11	29.32	28.25	26.15	24.93	38.45

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				ERP(dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	1 slot	2 slots	3 slots	4 slots	
EGPRS	128	824.2	27.24	25.96	23.78	22.60	23.06	21.78	19.60	18.42	38.45
	190	836.6	27.35	25.98	23.74	22.38	23.17	21.80	19.56	18.20	38.45
	251	848.8	27.25	25.98	23.74	22.22	23.07	21.80	19.56	18.04	38.45

Mode	Test Mode	3GPP Sub Test	Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
WCDMA (Band 5)	RMC12.2k		23.80	23.76	23.76	19.62	19.58	19.58
	HSDPA	1	22.79	22.72	22.73	18.61	18.54	18.55
		2	22.58	22.65	22.48	18.40	18.47	18.30
		3	22.36	22.37	22.51	18.18	18.19	18.33
		4	22.28	22.48	22.53	18.10	18.30	18.35
	HSUPA	1	22.35	22.28	22.36	18.17	18.10	18.18
		2	22.32	22.27	22.24	18.14	18.09	18.06
		3	22.27	22.29	22.13	18.09	18.11	17.95
		4	22.24	22.18	22.16	18.06	18.00	17.98
		5	22.31	22.18	22.19	18.13	18.00	18.01
	HSPA+	1	22.12	22.18	22.17	17.94	18.00	17.99

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd) - Cable loss(dB)

For GSM850 / WCDMA Band5: Antenna Gain = -1.53dBi = -3.68dBd (0dBd=2.15dBi)

For 600-1000MHz, Cable Loss=0.5dB* (provided by the applicant)

Limit: ERP ≤ 38.45dBm

PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	EIRP(dBm)	Limit (dBm)
GSM	512	1850.2	29.8	30.67	33
	661	1880.0	30.0	30.87	33
	810	1909.8	30.1	30.97	33

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				EIRP(dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	1 slot	2 slots	3 slots	4 slots	
GPRS	512	1850.2	29.79	28.69	26.55	25.39	30.66	29.56	27.42	26.26	33
	661	1880.0	29.91	28.83	26.70	25.54	30.78	29.7	27.57	26.41	33
	810	1909.8	29.96	28.90	26.78	25.60	30.83	29.77	27.65	26.47	33

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				EIRP(dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	1 slot	2 slots	3 slots	4 slots	
EGPRS	512	1850.2	26.73	25.53	23.37	22.05	27.60	26.40	24.24	22.92	33
	661	1880.0	26.15	24.84	22.68	21.45	27.02	25.71	23.55	22.32	33
	810	1909.8	25.96	24.69	22.50	21.16	26.83	25.56	23.37	22.03	33

Mode	Test Mode	3GPP Sub Test	Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
WCDMA (Band 2)	RMC12.2k		23.44	23.39	23.41	24.31	24.26	24.28
	HSDPA	1	22.30	22.27	22.34	23.17	23.14	23.21
		2	22.31	22.24	22.28	23.18	23.11	23.15
		3	22.35	22.17	22.19	23.22	23.04	23.06
		4	22.37	22.21	22.19	23.24	23.08	23.06
	HSUPA	1	21.85	21.96	21.88	22.72	22.83	22.75
		2	21.77	21.92	21.77	22.64	22.79	22.64
		3	21.69	21.84	21.72	22.56	22.71	22.59
		4	21.68	21.86	21.76	22.55	22.73	22.63
		5	21.58	21.79	21.75	22.45	22.66	22.62
	HSPA+	1	21.72	21.78	21.77	22.59	22.65	22.64

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi) - Cable loss(dB)
 For PCS1900 / WCDMA Band2: Antenna Gain =0.87dBi; Cable loss =0 dB
 Limit: EIRP ≤ 33dBm

Peak-to-average ratio (PAR)**Cellular Band**

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	3.29	13
	Middle	3.17	13
	High	3.42	13

Mode	Channel	PAR (dB)	Limit (dB)
EDGE	Low	3.28	13
	Middle	3.15	13
	High	3.41	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	4.18	13
	Middle	4.17	13
	High	4.25	13
HSDPA (16QAM)	Low	4.21	13
	Middle	4.97	13
	High	4.85	13
HSUPA (BPSK)	Low	4.58	13
	Middle	4.67	13
	High	4.77	13
HSPA+	Low	4.67	13
	Middle	4.65	13
	High	4.68	13

PCS Band (Part 24E)

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	3.34	13
	Middle	3.36	13
	High	3.18	13

Mode	Channel	PAR (dB)	Limit (dB)
EDGE	Low	3.33	13
	Middle	3.38	13
	High	3.39	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	4.26	13
	Middle	4.28	13
	High	4.11	13
HSDPA (16QAM)	Low	4.55	13
	Middle	4.11	13
	High	4.35	13
HSUPA (BPSK)	Low	4.68	13
	Middle	4.67	13
	High	4.72	13
HSPA+	Low	4.78	13
	Middle	4.68	13
	High	4.71	13

LTE Band 2:**Maximum Output Power**

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
1.4	QPSK	RB1#0	24.58	24.48	24.31	25.45	25.35	25.18
		RB1#3	24.80	24.61	24.50	25.67	25.48	25.37
		RB1#5	24.57	24.51	24.29	25.44	25.38	25.16
		RB3#0	24.74	24.66	24.41	25.61	25.53	25.28
		RB3#3	24.75	24.65	24.42	25.62	25.52	25.29
		RB6#0	23.71	23.58	23.39	24.58	24.45	24.26
	16QAM	RB1#0	23.82	23.58	23.36	24.69	24.45	24.23
		RB1#3	23.98	23.71	23.56	24.85	24.58	24.43
		RB1#5	23.82	23.58	23.39	24.69	24.45	24.26
		RB3#0	23.78	23.80	23.65	24.65	24.67	24.52
		RB3#3	23.80	23.80	23.60	24.67	24.67	24.47
		RB6#0	22.77	22.57	22.44	23.64	23.44	23.31
3.0	QPSK	RB1#0	24.64	24.56	24.40	25.51	25.43	25.27
		RB1#8	24.63	24.58	24.40	25.5	25.45	25.27
		RB1#14	24.59	24.55	24.37	25.46	25.42	25.24
		RB6#0	23.69	23.55	23.37	24.56	24.42	24.24
		RB6#9	23.68	23.55	23.35	24.55	24.42	24.22
		RB15#0	23.73	23.68	23.43	24.6	24.55	24.3
	16QAM	RB1#0	24.29	23.79	23.51	25.16	24.66	24.38
		RB1#8	24.28	23.78	23.45	25.15	24.65	24.32
		RB1#14	24.23	23.77	23.42	25.1	24.64	24.29
		RB6#0	22.77	22.61	22.35	23.64	23.48	23.22
		RB6#9	22.74	22.64	22.31	23.61	23.51	23.18
		RB15#0	22.81	22.64	22.52	23.68	23.51	23.39

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
5.0	QPSK	RB1#0	24.59	24.48	24.27	25.46	25.35	25.14
		RB1#13	24.67	24.59	24.40	25.54	25.46	25.27
		RB1#24	24.62	24.50	24.27	25.49	25.37	25.14
		RB15#0	23.78	23.64	23.53	24.65	24.51	24.4
		RB15#10	23.69	23.68	23.46	24.56	24.55	24.33
		RB25#0	23.73	23.64	23.47	24.6	24.51	24.34
	16QAM	RB1#0	23.55	23.90	23.43	24.42	24.77	24.3
		RB1#13	23.67	23.97	23.52	24.54	24.84	24.39
		RB1#24	23.59	23.88	23.42	24.46	24.75	24.29
		RB15#0	22.82	22.67	22.55	23.69	23.54	23.42
		RB15#10	22.79	22.67	22.50	23.66	23.54	23.37
		RB25#0	22.79	22.69	22.50	23.66	23.56	23.37
10.0	QPSK	RB1#0	24.64	24.54	24.44	25.51	25.41	25.31
		RB1#25	24.78	24.72	24.56	25.65	25.59	25.43
		RB1#49	24.59	24.51	24.39	25.46	25.38	25.26
		RB25#0	23.89	23.70	23.63	24.76	24.57	24.5
		RB25#25	23.77	23.74	23.51	24.64	24.61	24.38
		RB50#0	23.82	23.76	23.58	24.69	24.63	24.45
	16QAM	RB1#0	24.33	23.83	23.53	25.2	24.7	24.4
		RB1#25	24.46	23.97	23.65	25.33	24.84	24.52
		RB1#49	24.28	23.77	23.46	25.15	24.64	24.33
		RB25#0	22.95	22.76	22.75	23.82	23.63	23.62
		RB25#25	22.86	22.79	22.62	23.73	23.66	23.49
		RB50#0	22.90	22.80	22.65	23.77	23.67	23.52

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15.0	QPSK	RB1#0	24.59	24.55	24.37	25.46	25.42	25.24
		RB1#38	24.68	24.65	24.48	25.55	25.52	25.35
		RB1#74	24.51	24.47	24.31	25.38	25.34	25.18
		RB36#0	23.88	23.70	23.68	24.75	24.57	24.55
		RB36#39	23.81	23.72	23.56	24.68	24.59	24.43
		RB75#0	23.81	23.73	23.61	24.68	24.6	24.48
	16QAM	RB1#0	24.23	23.81	23.90	25.1	24.68	24.77
		RB1#38	24.34	23.87	23.98	25.21	24.74	24.85
		RB1#74	24.20	23.69	23.76	25.07	24.56	24.63
		RB36#0	22.84	22.73	22.63	23.71	23.6	23.5
		RB36#39	22.78	22.71	22.51	23.65	23.58	23.38
		RB75#0	22.82	22.73	22.55	23.69	23.6	23.42
20.0	QPSK	RB1#0	24.57	24.54	24.28	25.44	25.41	25.15
		RB1#50	24.86	24.83	24.61	25.73	25.7	25.48
		RB1#99	24.53	24.49	24.24	25.4	25.36	25.11
		RB50#0	23.87	23.66	23.63	24.74	24.53	24.5
		RB50#50	23.67	23.72	23.41	24.54	24.59	24.28
		RB100#0	23.78	23.70	23.56	24.65	24.57	24.43
	16QAM	RB1#0	23.95	23.80	23.92	24.82	24.67	24.79
		RB1#50	24.25	24.06	24.27	25.12	24.93	25.14
		RB1#99	23.96	23.74	23.83	24.83	24.61	24.7
		RB50#0	22.87	22.69	22.71	23.74	23.56	23.58
		RB50#50	22.73	22.71	22.45	23.6	23.58	23.32
		RB100#0	22.84	22.73	22.59	23.71	23.6	23.46

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi) - Cable loss(dB)

For LTE Band2: Antenna Gain =0.87dBi; Cable loss =0 dB

Limit: EIRP≤33dBm

Peak-to-average ratio (PAR)**20MHz Bandwidth**

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	5.19	4.90	4.87	13	Pass
QPSK (100RB Size)	5.33	5.39	5.25	13	Pass
16QAM (1RB Size)	6.20	5.57	5.71	13	Pass
16QAM (100RB Size)	6.38	6.38	6.20	13	Pass

LTE Band 4**Maximum Output Power**

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
1.4	QPSK	RB1#0	24.49	24.50	24.68	23.93	23.94	24.12
		RB1#3	24.67	24.67	24.91	24.11	24.11	24.35
		RB1#5	24.51	24.54	24.69	23.95	23.98	24.13
		RB3#0	24.57	24.63	24.62	24.01	24.07	24.06
		RB3#3	24.57	24.65	24.63	24.01	24.09	24.07
		RB6#0	23.66	23.71	23.82	23.1	23.15	23.26
	16QAM	RB1#0	23.53	23.69	23.61	22.97	23.13	23.05
		RB1#3	23.67	23.88	23.77	23.11	23.32	23.21
		RB1#5	23.52	23.70	23.62	22.96	23.14	23.06
		RB3#0	23.80	23.66	23.67	23.24	23.1	23.11
		RB3#3	23.81	23.69	23.65	23.25	23.13	23.09
		RB6#0	22.62	22.71	22.62	22.06	22.15	22.06
3.0	QPSK	RB1#0	24.53	24.59	24.74	23.97	24.03	24.18
		RB1#8	24.51	24.58	24.77	23.95	24.02	24.21
		RB1#14	24.49	24.56	24.72	23.93	24	24.16
		RB6#0	23.54	23.59	23.74	22.98	23.03	23.18
		RB6#9	23.61	23.57	23.75	23.05	23.01	23.19
		RB15#0	23.62	23.67	23.68	23.06	23.11	23.12
	16QAM	RB1#0	24.09	23.77	23.65	23.53	23.21	23.09
		RB1#8	24.11	23.78	23.65	23.55	23.22	23.09
		RB1#14	24.06	23.73	23.63	23.5	23.17	23.07
		RB6#0	22.59	22.64	22.57	22.03	22.08	22.01
		RB6#9	22.61	22.66	22.57	22.05	22.1	22.01
		RB15#0	22.68	22.62	22.69	22.12	22.06	22.13

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
5.0	QPSK	RB1#0	24.43	24.49	24.59	23.87	23.93	24.03
		RB1#13	24.56	24.61	24.74	24.00	24.05	24.18
		RB1#24	24.45	24.49	24.59	23.89	23.93	24.03
		RB15#0	23.61	23.69	23.69	23.05	23.13	23.13
		RB15#10	23.68	23.61	23.77	23.12	23.05	23.21
		RB25#0	23.57	23.62	23.64	23.01	23.06	23.08
	16QAM	RB1#0	23.34	23.89	23.61	22.78	23.33	23.05
		RB1#13	23.49	24.01	23.72	22.93	23.45	23.16
		RB1#24	23.42	23.86	23.63	22.86	23.30	23.07
		RB15#0	22.62	22.70	22.65	22.06	22.14	22.09
		RB15#10	22.70	22.63	22.71	22.14	22.07	22.15
		RB25#0	22.64	22.66	22.64	22.08	22.10	22.08
10.0	QPSK	RB1#0	24.50	24.57	24.66	23.94	24.01	24.10
		RB1#25	24.66	24.77	24.89	24.10	24.21	24.33
		RB1#49	24.53	24.54	24.71	23.97	23.98	24.15
		RB25#0	23.59	23.79	23.68	23.03	23.23	23.12
		RB25#25	23.69	23.63	23.77	23.13	23.07	23.21
		RB50#0	23.63	23.72	23.71	23.07	23.16	23.15
	16QAM	RB1#0	24.06	23.76	23.66	23.50	23.20	23.10
		RB1#25	24.21	23.90	23.80	23.65	23.34	23.24
		RB1#49	24.07	23.72	23.60	23.51	23.16	23.04
		RB25#0	22.65	22.81	22.71	22.09	22.25	22.15
		RB25#25	22.75	22.66	22.81	22.19	22.10	22.25
		RB50#0	22.66	22.72	22.71	22.10	22.16	22.15

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15.0	QPSK	RB1#0	24.47	24.50	24.56	23.91	23.94	24.00
		RB1#38	24.55	24.57	24.68	23.99	24.01	24.12
		RB1#74	24.46	24.49	24.62	23.90	23.93	24.06
		RB36#0	23.64	23.80	23.79	23.08	23.24	23.23
		RB36#39	23.73	23.74	23.91	23.17	23.18	23.35
		RB75#0	23.69	23.76	23.83	23.13	23.20	23.27
	16QAM	RB1#0	23.99	23.75	23.94	23.43	23.19	23.38
		RB1#38	24.12	23.78	23.95	23.56	23.22	23.39
		RB1#74	24.08	23.67	23.82	23.52	23.11	23.26
		RB36#0	22.56	22.76	22.68	22.00	22.20	22.12
		RB36#39	22.66	22.67	22.79	22.10	22.11	22.23
		RB75#0	22.60	22.74	22.73	22.04	22.18	22.17
20.0	QPSK	RB1#0	24.41	24.44	24.41	23.85	23.88	23.85
		RB1#50	24.69	24.76	24.78	24.13	24.20	24.22
		RB1#99	24.47	24.51	24.52	23.91	23.95	23.96
		RB50#0	23.43	23.79	23.63	22.87	23.23	23.07
		RB50#50	23.53	23.57	23.79	22.97	23.01	23.23
		RB100#0	23.50	23.68	23.77	22.94	23.12	23.21
	16QAM	RB1#0	23.73	23.74	24.03	23.17	23.18	23.47
		RB1#50	24.02	24.10	24.32	23.46	23.54	23.76
		RB1#99	23.88	23.73	23.98	23.32	23.17	23.42
		RB50#0	22.44	22.84	22.65	21.88	22.28	22.09
		RB50#50	22.52	22.60	22.76	21.96	22.04	22.20
		RB100#0	22.54	22.73	22.75	21.98	22.17	22.19

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi) – Cable Loss(dB)

For Band4: Antenna Gain = -0.56dBi; Cable Loss=0 dB

Limit: EIRP ≤ 30dBm

Peak-to-average ratio (PAR)**20MHz Bandwidth**

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	3.97	4.90	4.09	13	Pass
QPSK (100RB Size)	4.87	5.19	4.61	13	Pass
16QAM (1RB Size)	4.99	6.03	4.78	13	Pass
16QAM (100RB Size)	5.86	6.23	5.51	13	Pass

LTE Band 12:**Maximum Output Power**

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
1.4	QPSK	RB1#0	24.94	24.92	24.94	20.39	20.37	20.39
		RB1#3	25.07	25.11	25.19	20.52	20.56	20.64
		RB1#5	24.94	25.00	24.98	20.39	20.45	20.43
		RB3#0	25.01	25.04	25.03	20.46	20.49	20.48
		RB3#3	25.01	25.05	25.04	20.46	20.5	20.49
		RB6#0	24.05	24.08	24.09	19.5	19.53	19.54
	16QAM	RB1#0	23.98	24.11	23.93	19.43	19.56	19.38
		RB1#3	24.16	24.31	24.15	19.61	19.76	19.6
		RB1#5	23.98	24.12	23.97	19.43	19.57	19.42
		RB3#0	24.20	24.03	24.11	19.65	19.48	19.56
		RB3#3	24.22	24.09	24.06	19.67	19.54	19.51
		RB6#0	23.09	23.13	22.99	18.54	18.58	18.44
3.0	QPSK	RB1#0	24.99	24.99	25.02	20.44	20.44	20.47
		RB1#8	24.93	24.98	24.99	20.38	20.43	20.44
		RB1#14	24.94	24.97	25.02	20.39	20.42	20.47
		RB6#0	23.98	23.94	24.00	19.43	19.39	19.45
		RB6#9	23.97	23.99	24.04	19.42	19.44	19.49
		RB15#0	24.01	24.05	24.01	19.46	19.5	19.46
	16QAM	RB1#0	24.56	24.17	24.07	20.01	19.62	19.52
		RB1#8	24.51	24.16	23.99	19.96	19.61	19.44
		RB1#14	24.53	24.18	23.98	19.98	19.63	19.43
		RB6#0	23.04	22.99	22.93	18.49	18.44	18.38
		RB6#9	23.04	23.06	22.95	18.49	18.51	18.4
		RB15#0	23.06	22.98	23.04	18.51	18.43	18.49

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
5.0	QPSK	RB1#0	24.87	24.88	24.85	20.32	20.33	20.30
		RB1#13	24.98	24.99	24.97	20.43	20.44	20.42
		RB1#24	24.89	24.89	24.90	20.34	20.34	20.35
		RB15#0	23.95	24.07	24.02	19.40	19.52	19.47
		RB15#10	24.09	24.01	23.98	19.54	19.46	19.43
		RB25#0	23.97	24.03	23.94	19.42	19.48	19.39
	16QAM	RB1#0	23.83	24.21	24.00	19.28	19.66	19.45
		RB1#13	23.91	24.32	24.02	19.36	19.77	19.47
		RB1#24	23.83	24.20	23.96	19.28	19.65	19.41
		RB15#0	22.99	23.04	23.05	18.44	18.49	18.50
		RB15#10	23.11	22.98	23.00	18.56	18.43	18.45
		RB25#0	23.07	23.05	23.01	18.52	18.50	18.46
10.0	QPSK	RB1#0	24.92	24.97	24.93	20.37	20.42	20.38
		RB1#25	25.08	25.09	25.17	20.53	20.54	20.62
		RB1#49	24.91	24.94	25.03	20.36	20.39	20.48
		RB25#0	23.96	24.11	24.08	19.41	19.56	19.53
		RB25#25	23.99	24.08	24.03	19.44	19.53	19.48
		RB50#0	23.98	24.11	24.10	19.43	19.56	19.55
	16QAM	RB1#0	24.51	24.13	23.99	19.96	19.58	19.44
		RB1#25	24.69	24.30	24.16	20.14	19.75	19.61
		RB1#49	24.56	24.11	23.97	20.01	19.56	19.42
		RB25#0	23.03	23.16	23.20	18.48	18.61	18.65
		RB25#25	23.07	23.14	23.14	18.52	18.59	18.59
		RB50#0	22.98	23.13	23.12	18.43	18.58	18.57

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd) - Cable loss(dB)

For Band 12: Antenna Gain = -1.9dBi = -4.05dBd (0dBd=2.15dBi)

For 600-1000MHz, Cable Loss=0.5dB*(provided by the applicant)

Limit: ERP ≤ 34.77dBm

Peak-to-average ratio (PAR)**10MHz bandwidth**

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.26	4.49	4.72	13	Pass
QPSK (50RB Size)	5.10	5.22	5.13	13	Pass
16QAM (1RB Size)	5.16	5.30	5.97	13	Pass
16QAM (50RB Size)	6.12	6.12	6.17	13	Pass

LTE Band 13:**Maximum Output Power**

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
5	QPSK	RB1#0	24.93	24.93	24.90	20.52	20.52	20.49
		RB1#13	25.03	25.08	25.07	20.62	20.67	20.66
		RB1#24	24.91	24.95	24.93	20.50	20.54	20.52
		RB15#0	24.06	24.03	23.98	19.65	19.62	19.57
		RB15#10	24.00	24.05	24.05	19.59	19.64	19.64
		RB25#0	24.01	23.98	23.95	19.60	19.57	19.54
	16QAM	RB1#0	23.78	24.19	23.92	19.37	19.78	19.51
		RB1#13	23.88	24.26	24.03	19.47	19.85	19.62
		RB1#24	23.78	24.08	23.90	19.37	19.67	19.49
		RB15#0	23.12	23.07	22.99	18.71	18.66	18.58
		RB15#10	23.09	23.08	23.08	18.68	18.67	18.67
		RB25#0	23.12	23.05	23.03	18.71	18.64	18.62
10	QPSK	RB1#0	/	24.97	/	/	20.56	/
		RB1#25	/	25.09	/	/	20.68	/
		RB1#49	/	24.94	/	/	20.53	/
		RB25#0	/	24.11	/	/	19.70	/
		RB25#25	/	24.08	/	/	19.67	/
		RB50#0	/	24.11	/	/	19.70	/
	16QAM	RB1#0	/	24.13	/	/	19.72	/
		RB1#25	/	24.30	/	/	19.89	/
		RB1#49	/	24.11	/	/	19.70	/
		RB25#0	/	23.16	/	/	18.75	/
		RB25#25	/	23.14	/	/	18.73	/
		RB50#0	/	23.13	/	/	18.72	/

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd) - Cable loss(dB)

For Band13: Antenna Gain = -1.76dBi = -3.91dBd (0dBd=2.15dBi)

For 600-1000MHz, Cable Loss=0.5dB*(provided by the applicant)

Limit: ERP ≤ 34.77dBm

Peak-to-average ratio (PAR)**10MHz bandwidth**

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	/	3.97	/	13	Pass
QPSK (50RB Size)	/	4.61	/	13	Pass
16QAM (1RB Size)	/	4.72	/	13	Pass
16QAM (50RB Size)	/	5.51	/	13	Pass

LTE Band 41:**Maximum Output Power**

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
5	QP SK	RB1#0	23.27	24.13	24.32	21.68	22.54	22.73
		RB1#13	24.14	24.28	24.49	22.55	22.69	22.90
		RB1#24	24.05	24.23	24.45	22.46	22.64	22.86
		RB15#0	22.92	23.26	23.35	21.33	21.67	21.76
		RB15#10	23.06	23.19	23.30	21.47	21.60	21.71
		RB25#0	22.94	23.19	23.27	21.35	21.60	21.68
	16QAM	RB1#0	22.90	23.13	23.22	21.31	21.54	21.63
		RB1#13	22.95	23.23	23.32	21.36	21.64	21.73
		RB1#24	22.92	23.14	23.25	21.33	21.55	21.66
		RB15#0	21.61	22.19	22.30	20.02	20.60	20.71
		RB15#10	21.84	22.16	22.21	20.25	20.57	20.62
		RB25#0	21.74	22.21	22.26	20.15	20.62	20.67
10	QPSK	RB1#0	24.10	24.21	24.35	22.51	22.62	22.76
		RB1#25	24.35	24.56	24.75	22.76	22.97	23.16
		RB1#49	24.12	24.34	23.30	22.53	22.75	21.71
		RB25#0	23.04	23.39	23.48	21.45	21.80	21.89
		RB25#25	23.09	23.23	23.32	21.50	21.64	21.73
		RB50#0	23.01	23.28	23.36	21.42	21.69	21.77
	16QAM	RB1#0	22.99	23.09	23.40	21.40	21.50	21.81
		RB1#25	23.42	23.37	23.66	21.83	21.78	22.07
		RB1#49	23.22	23.11	23.37	21.63	21.52	21.78
		RB25#0	21.83	22.36	22.41	20.24	20.77	20.82
		RB25#25	22.01	22.21	22.19	20.42	20.62	20.60
		RB50#0	21.90	22.24	22.28	20.31	20.65	20.69

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15	QP SK	RB1#0	24.09	24.04	24.15	22.50	22.45	22.56
		RB1#38	24.03	24.33	24.26	22.44	22.74	22.67
		RB1#74	23.98	24.30	23.30	22.39	22.71	21.71
		RB36#0	23.25	23.27	23.56	21.66	21.68	21.97
		RB36#39	23.13	23.26	23.50	21.54	21.67	21.91
		RB75#0	23.18	23.26	23.54	21.59	21.67	21.95
	16QAM	RB1#0	22.96	23.03	23.27	21.37	21.44	21.68
		RB1#38	22.98	23.11	23.47	21.39	21.52	21.88
		RB1#74	22.90	22.97	23.27	21.31	21.38	21.68
		RB36#0	22.04	22.19	22.41	20.45	20.60	20.82
		RB36#39	21.98	22.08	22.31	20.39	20.49	20.72
		RB75#0	22.02	22.18	22.38	20.43	20.59	20.79
20	QPSK	RB1#0	24.05	24.00	24.32	22.46	22.41	22.73
		RB1#50	24.46	24.51	24.49	22.87	22.92	22.90
		RB1#99	24.15	23.43	24.26	22.56	21.84	22.67
		RB50#0	23.10	23.44	23.42	21.51	21.85	21.83
		RB50#50	23.11	23.42	23.46	21.52	21.83	21.87
		RB100#0	23.11	23.46	23.45	21.52	21.87	21.86
	16QAM	RB1#0	22.86	23.56	23.56	21.27	21.97	21.97
		RB1#50	23.37	23.66	23.72	21.78	22.07	22.13
		RB1#99	23.01	23.49	23.52	21.42	21.90	21.93
		RB50#0	22.01	22.51	22.51	20.42	20.92	20.92
		RB50#50	22.03	22.46	22.50	20.44	20.87	20.91
		RB100#0	22.00	22.47	22.48	20.41	20.88	20.89

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi) – Cable Loss(dB)

For Band 41: Antenna Gain = -1.59dBi; Cable Loss = 0 dB

Limit: EIRP ≤ 33dBm

Peak-to-average ratio (PAR)**20MHz bandwidth**

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.51	5.40	4.55	13	Pass
QPSK (100RB Size)	4.51	5.16	4.53	13	Pass
16QAM (1RB Size)	4.99	5.41	5.41	13	Pass
16QAM (100RB Size)	3.88	3.22	4.14	13	Pass

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

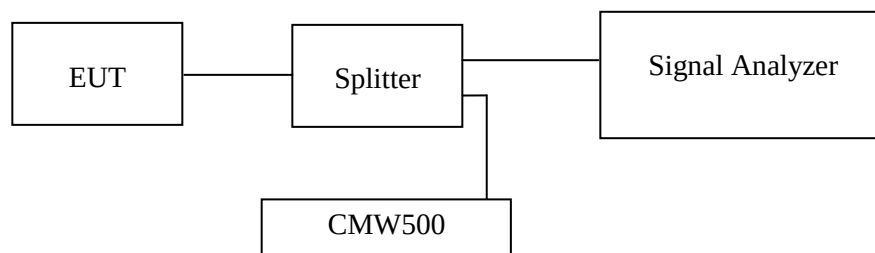
Applicable Standard

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 1% to 5% of the anticipated emission bandwidth and the 26 dB & 99% bandwidth was recorded.



Test Data

Environmental Conditions

Temperature:	27 °C
Relative Humidity:	58 %
ATM Pressure:	101.0 kPa

The testing was performed by Black Ding from 2021-09-26 to 2021-11-16.

EUT operation mode: Transmitting

Test Result: Pass

Please refer to the following tables and plots.

Cellular Band (Part 22H)

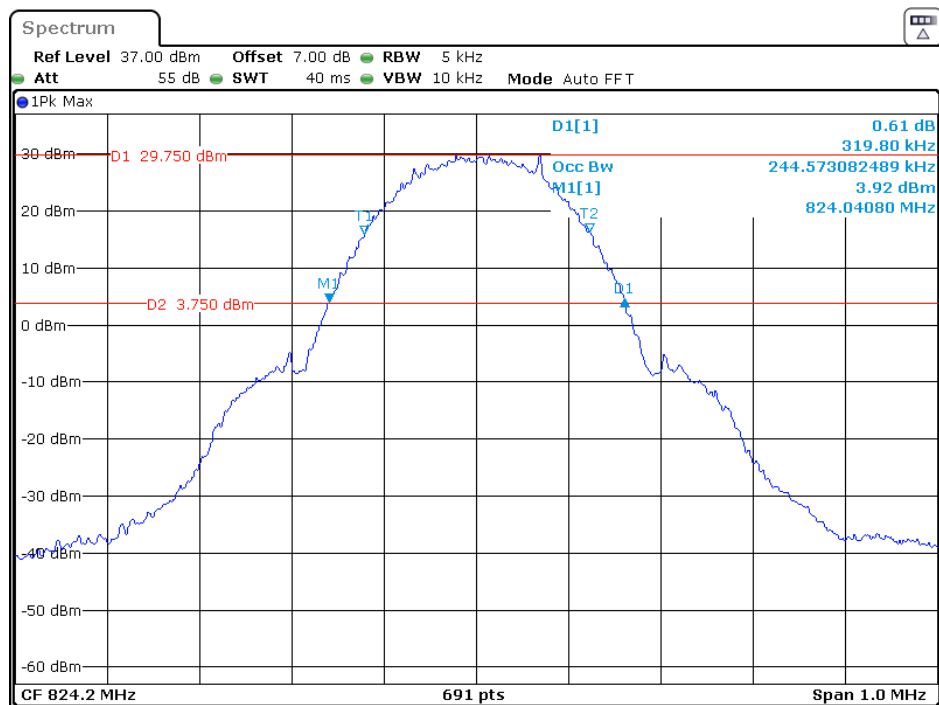
Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM(GMSK)	128	824.2	244.57	319.80
	190	836.6	244.57	321.30
	251	848.8	244.57	318.40
EGPRS(8PSK)	128	824.2	250.36	321.30
	190	836.6	250.36	318.40
	251	848.8	248.91	318.40

	Frequency (MHz)	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	826.4	4.17	4.72
	836.6	4.17	4.72
	846.6	4.18	4.72
HSDPA	826.4	4.17	4.70
	836.6	4.17	4.72
	846.6	4.20	4.72
HSUPA	826.4	4.17	4.72
	836.6	4.18	4.73
	846.6	4.18	4.70

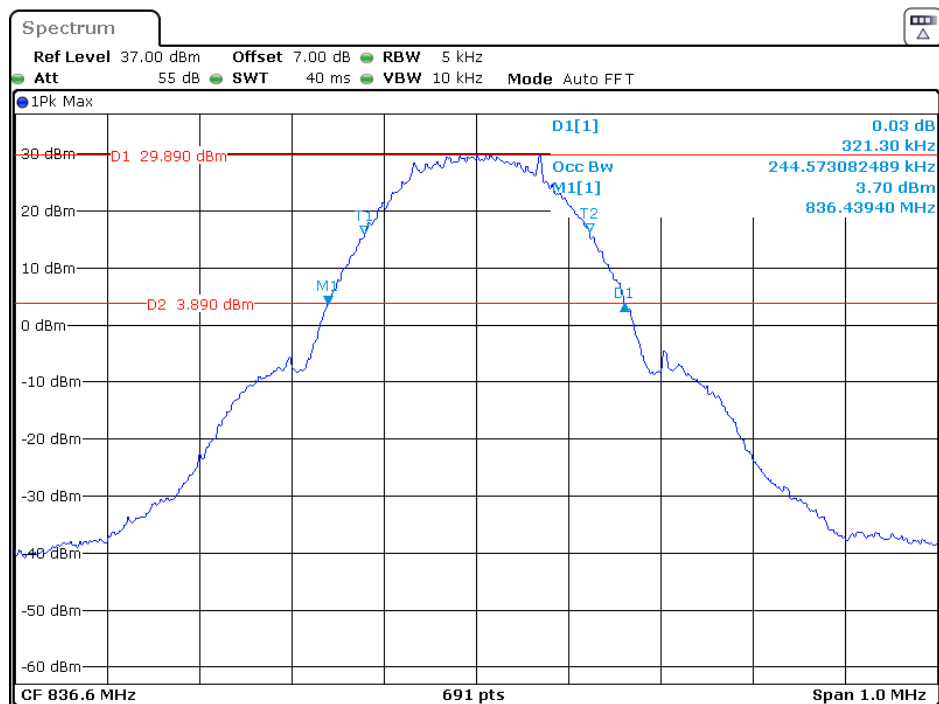
PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM(GMSK)	512	1850.2	244.57	316.90
	661	1880.0	244.57	321.30
	810	1909.8	244.57	321.30
EGPRS(8PSK)	512	1850.2	250.36	331.40
	661	1880.0	251.81	331.40
	810	1909.8	250.36	324.20

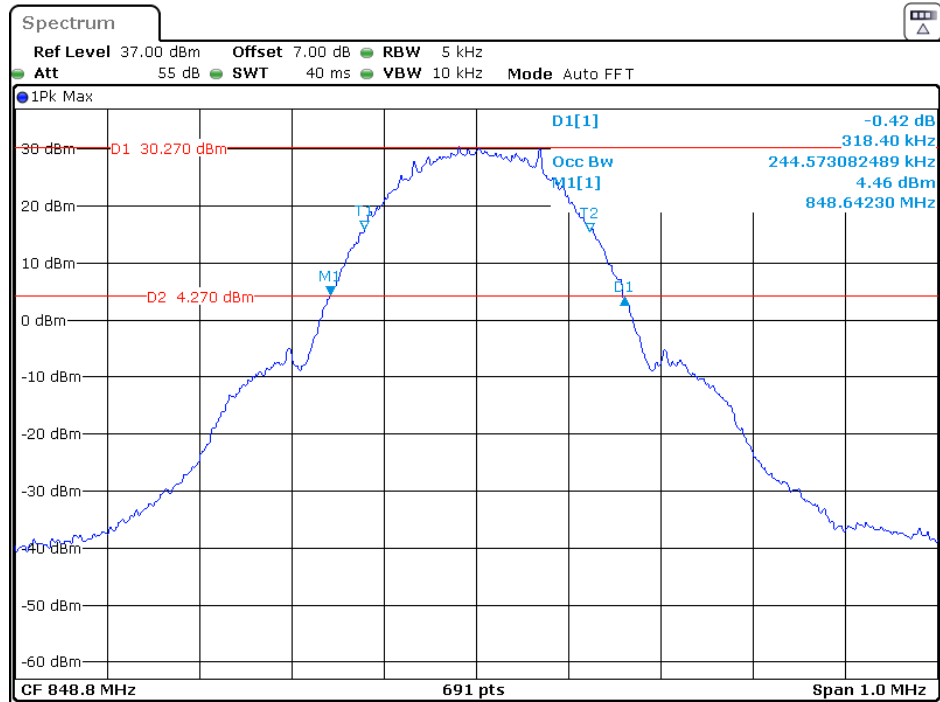
Frequency (MHz)		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	1852.4	4.15	4.70
	1880.0	4.15	4.72
	1907.6	4.15	4.72
HSDPA	1852.4	4.18	4.70
	1880.0	4.17	4.72
	1907.6	4.17	4.70
HSUPA	1852.4	4.18	4.71
	1880.0	4.17	4.72
	1907.6	4.18	4.70

Cellular Band (Part 22H)**26 dB Emissions & 99% Occupied Bandwidth for GPRS (GMSK) Mode, Low channel**

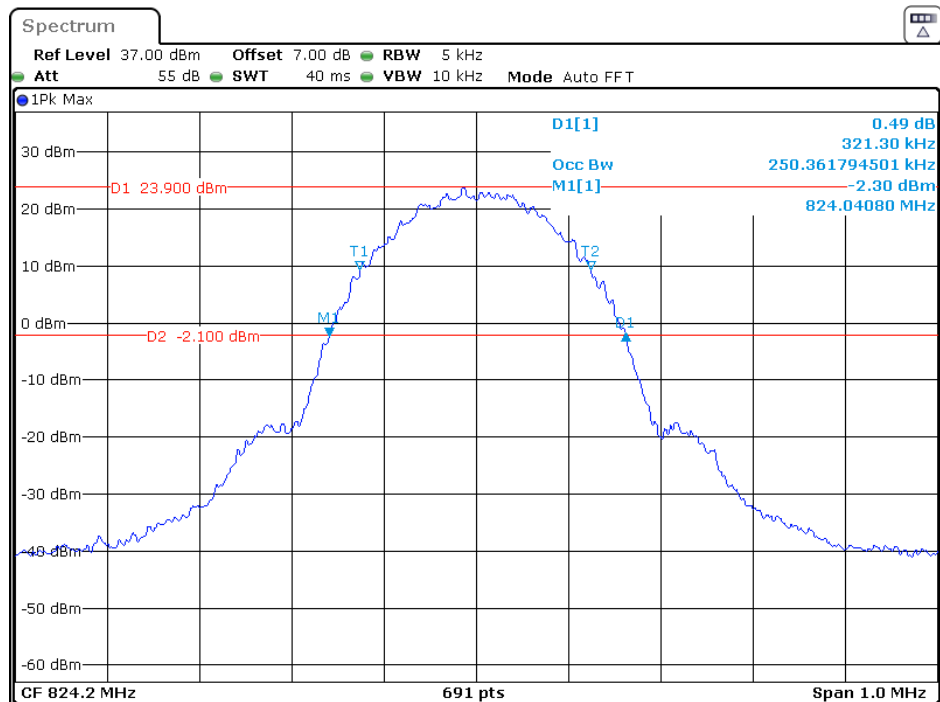
Date: 27.SEP.2021 13:30:36

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

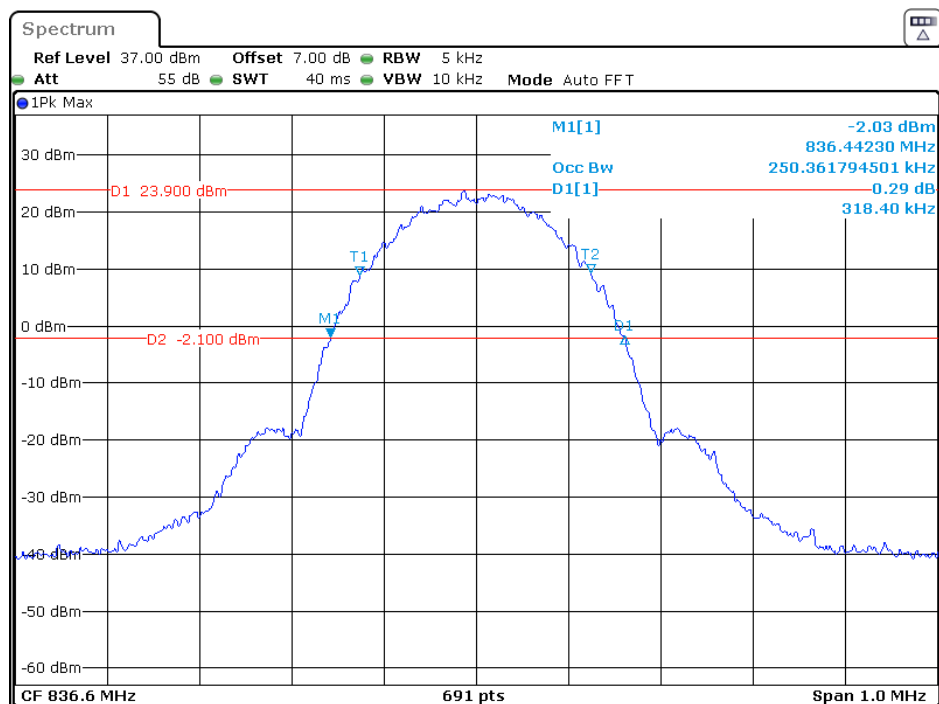
Date: 27.SEP.2021 13:32:19

26 dB Emissions & 99% Occupied Bandwidth for GPRS (GMSK) Mode, High channel

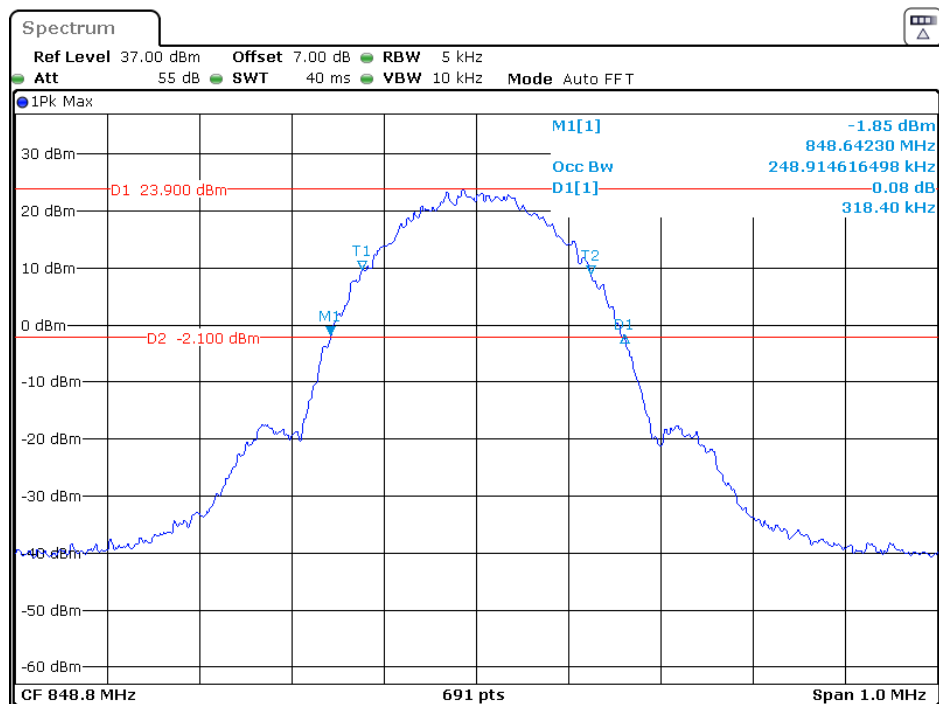
Date: 27.SEP.2021 13:33:38

26 dB Emissions & 99% Occupied Bandwidth for EGPRS (8PSK) Mode, Low channel

Date: 27.SEP.2021 13:26:38

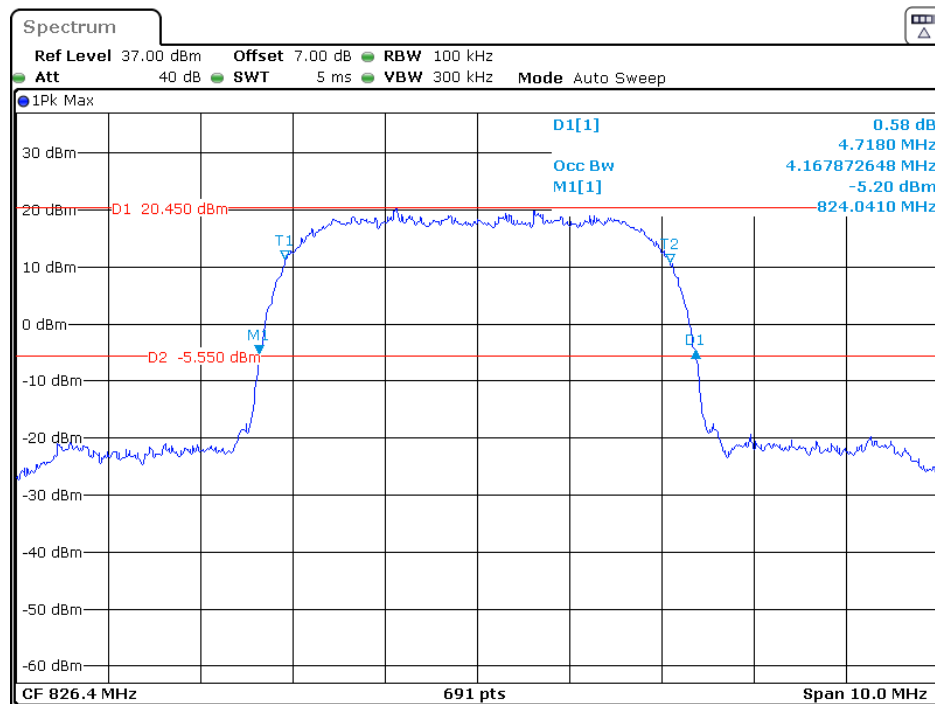
26 dB Emissions & 99% Occupied Bandwidth for EGPRS (8PSK) Mode, Middle channel

Date: 27.SEP.2021 13:25:11

26 dB Emissions & 99% Occupied Bandwidth for EGPRS (8PSK) Mode, High channel

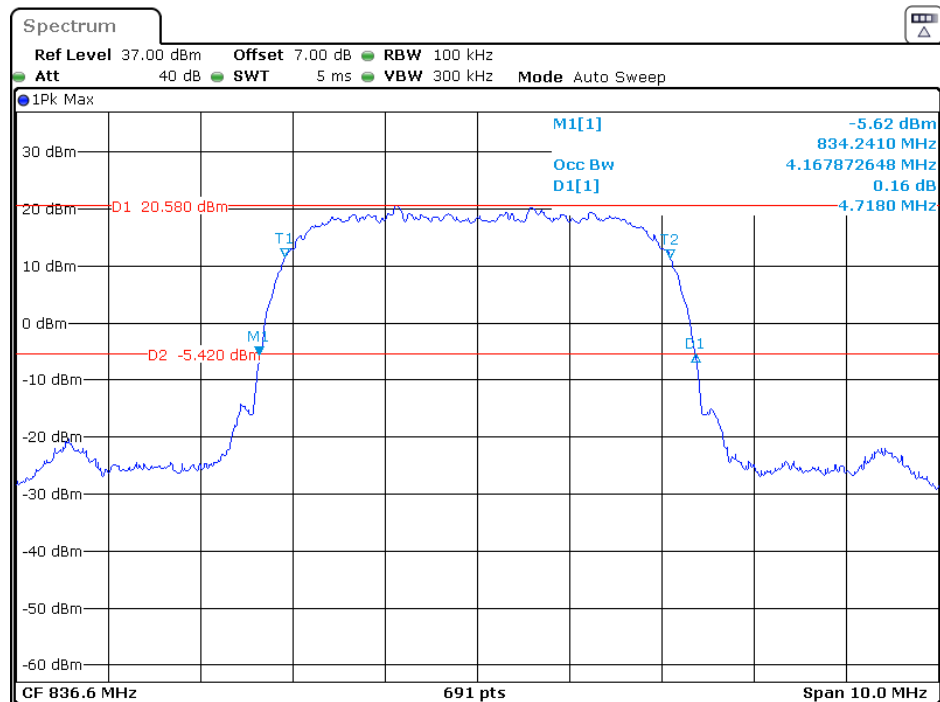
Date: 27.SEP.2021 13:28:03

26 dB Emissions & 99% Occupied Bandwidth for RMC (BPSK) Mode, Low channel

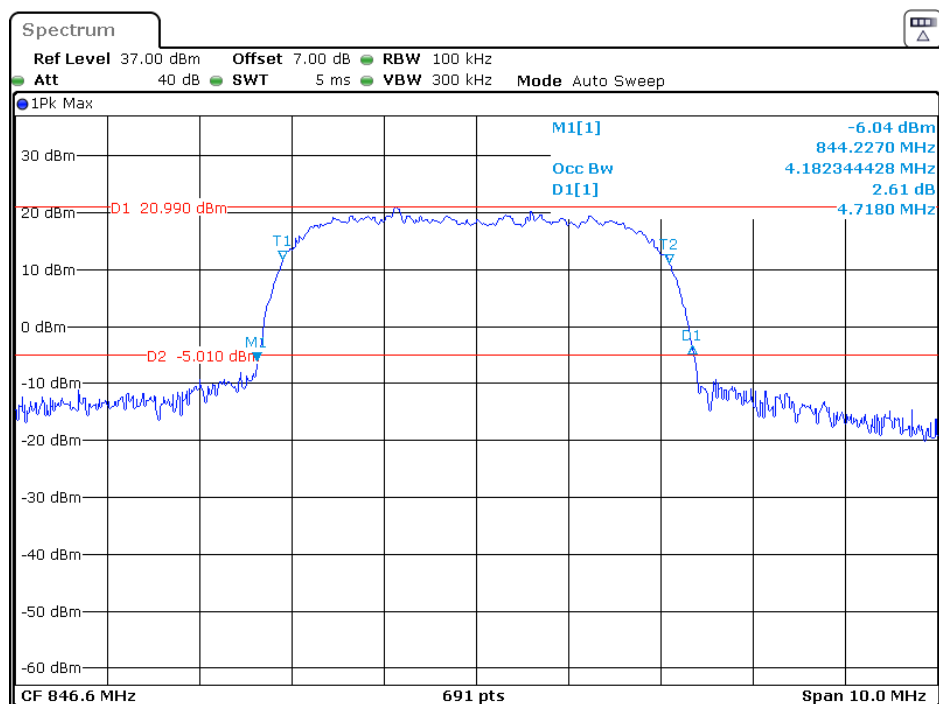


Date: 27.SEP.2021 14:45:42

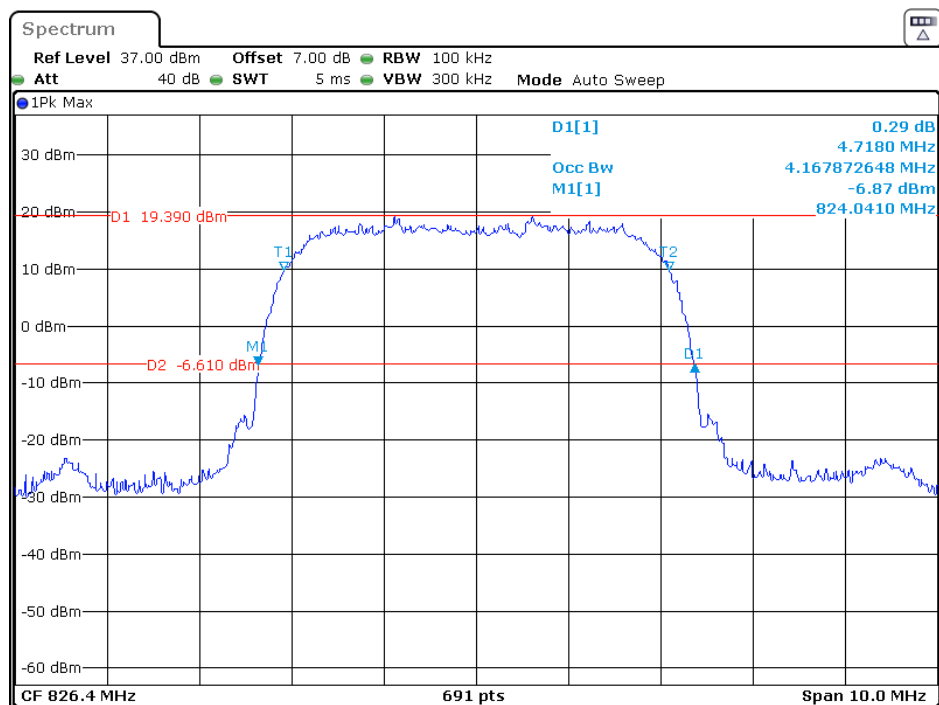
26 dB Emissions & 99% Occupied Bandwidth for RMC (BPSK) Mode, Middle channel



Date: 27.SEP.2021 14:49:39

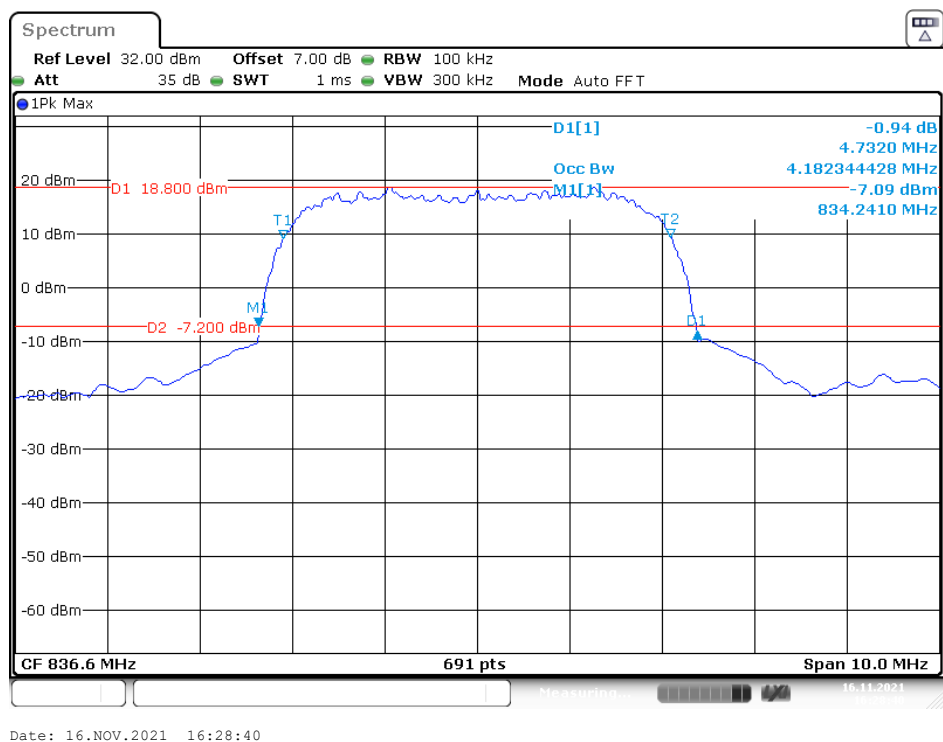
26 dB Emissions & 99% Occupied Bandwidth for RMC (BPSK) Mode, High channel

Date: 27.SEP.2021 14:51:30

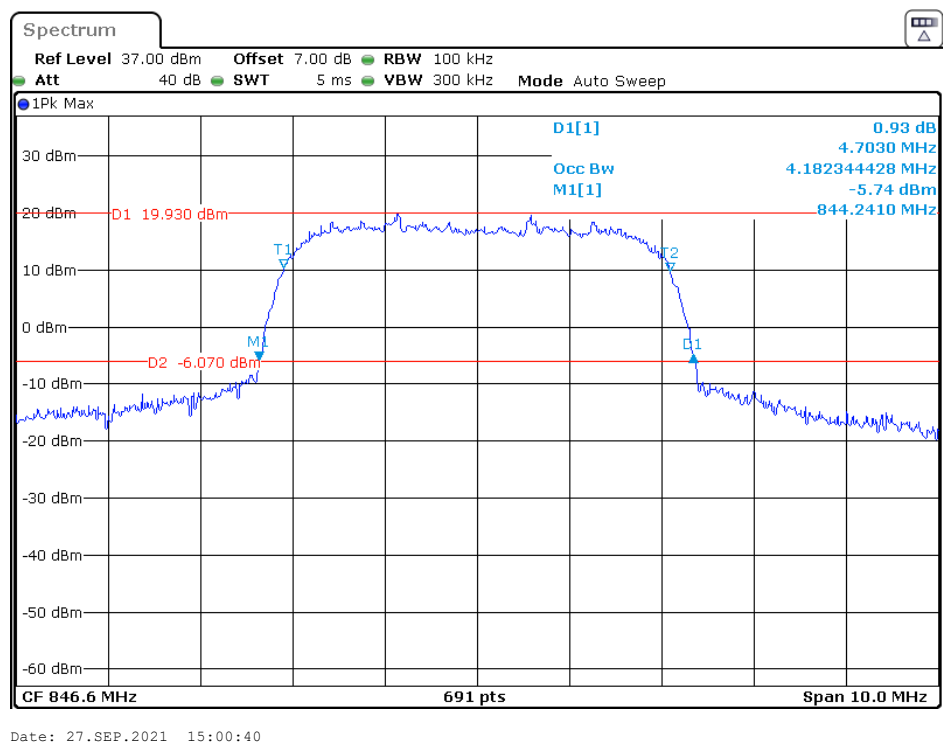
26 dB Emissions & 99% Occupied Bandwidth for HSUPA (BPSK) Mode, Low channel

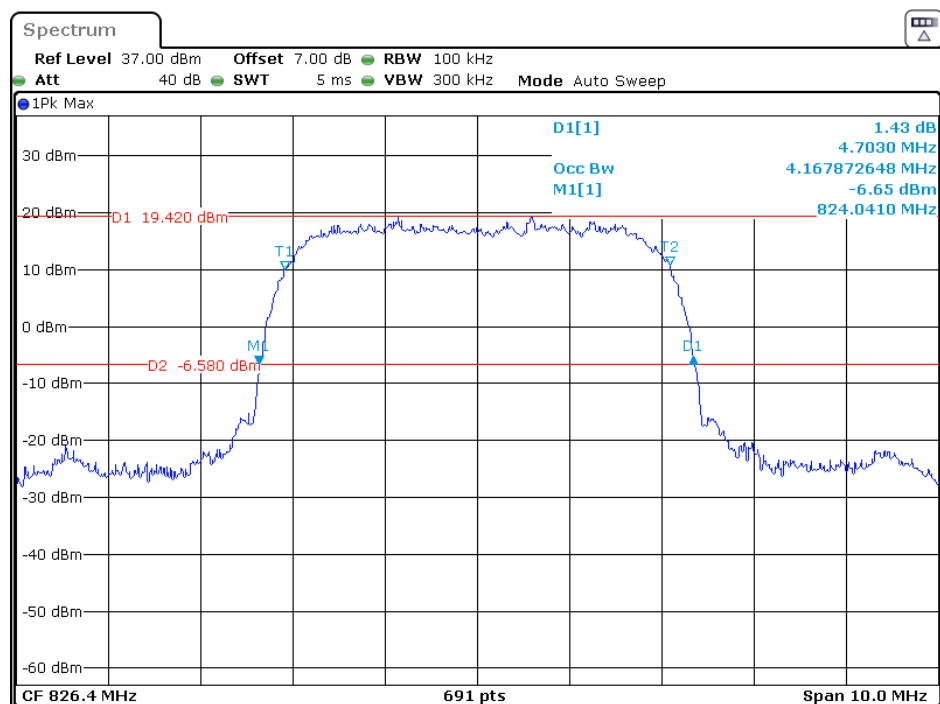
Date: 27.SEP.2021 14:58:35

26 dB Emissions & 99% Occupied Bandwidth for HSUPA (BPSK) Mode, Middle channel

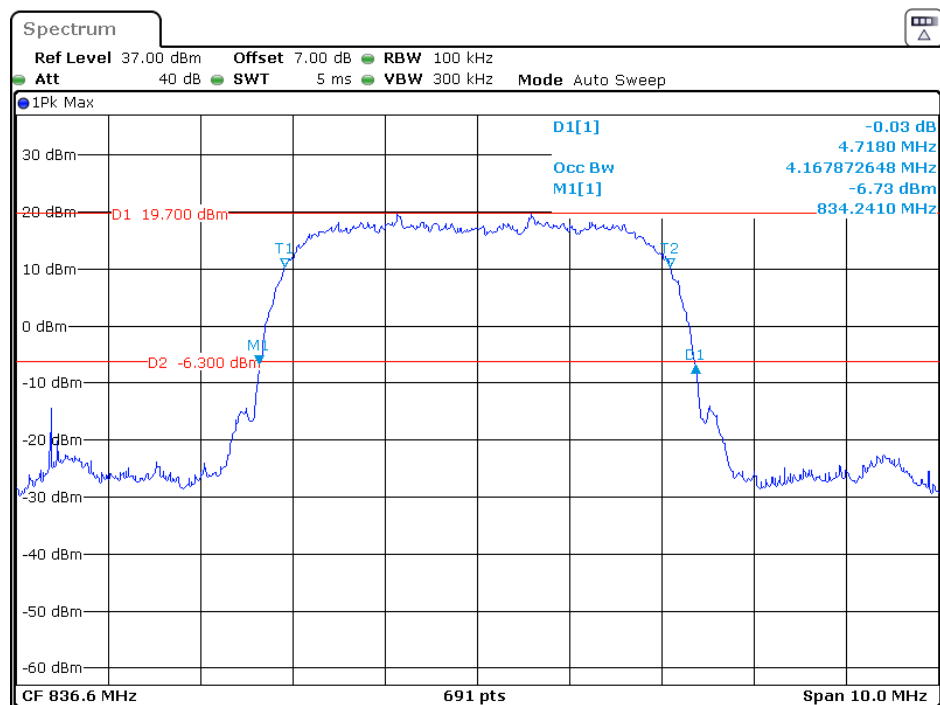


26 dB Emissions & 99% Occupied Bandwidth for HSUPA (BPSK) Mode, High channel



26 dB Emissions & 99% Occupied Bandwidth for HSDPA (16QAM) Mode, Low channel

Date: 27.SEP.2021 14:56:25

26 dB Emissions & 99% Occupied Bandwidth for HSDPA (16QAM) Mode, Middle channel

Date: 27.SEP.2021 14:55:03

Spectrum

Ref Level 37.00 dBm Offset 7.00 dB RBW 100 kHz
 Att 40 dB SWT 5 ms VBW 300 kHz Mode Auto Sweep

1Pk Max

D1[1] -0.73 dB
 4.7180 MHz
 Occ Bw 4.196816208 MHz
 M1[1] -5.99 dBm
 844.2410 MHz

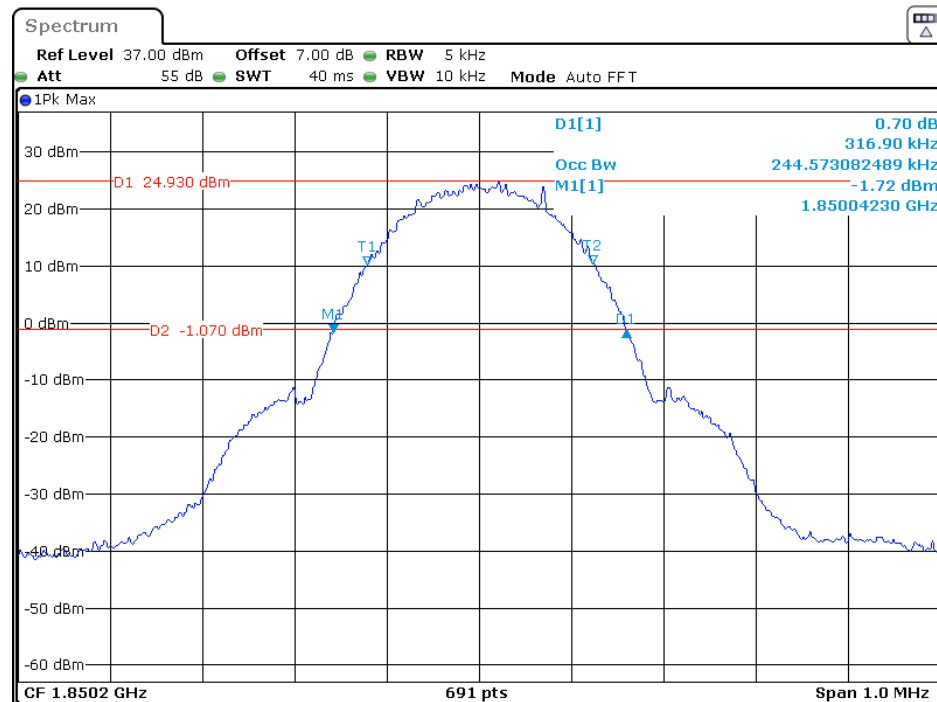
D1 19.760 dBm
 D2 -6.240 dBm

CF 846.6 MHz 691 pts Span 10.0 MHz

Date: 27.SEP.2021 14:53:55

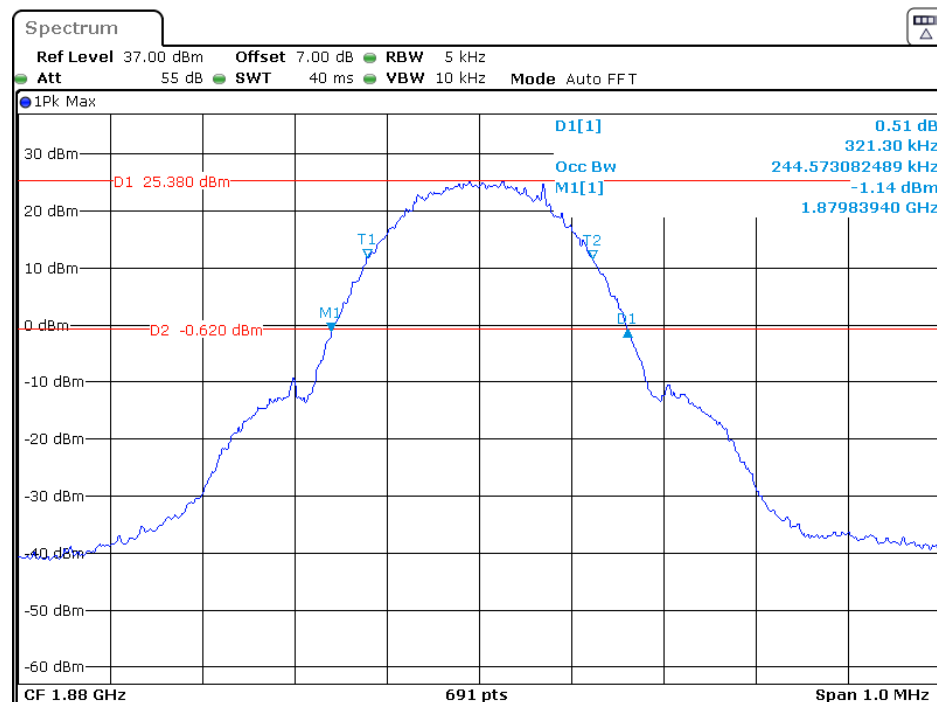
PCS Band (Part 24E)

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

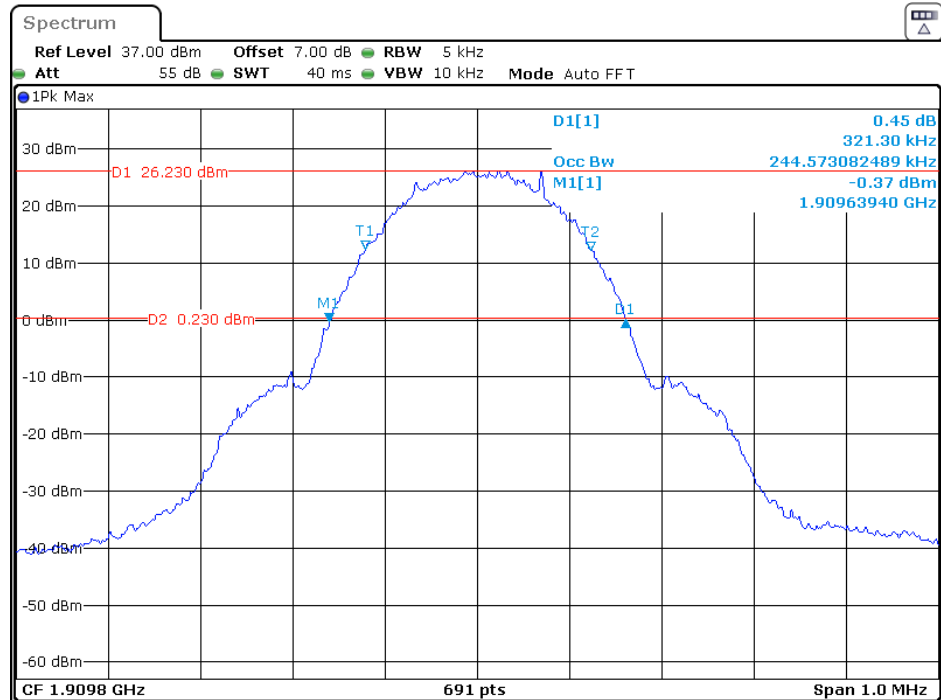


Date: 27.SEP.2021 13:37:44

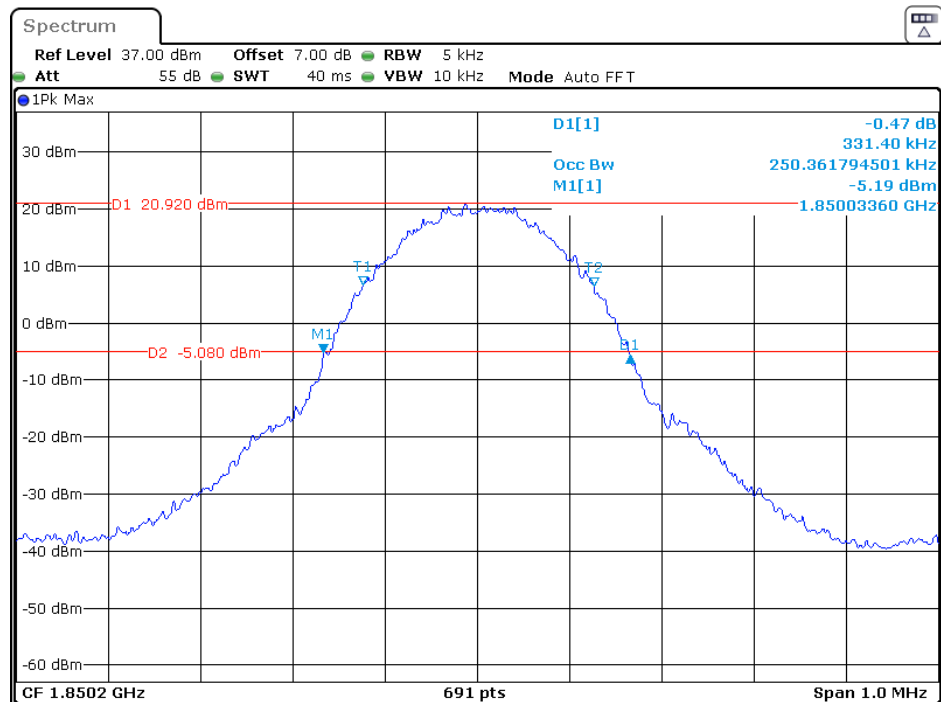
26 dB Emissions & 99% Occupied Bandwidth for GPRS (GMSK) Mode, Middle channel



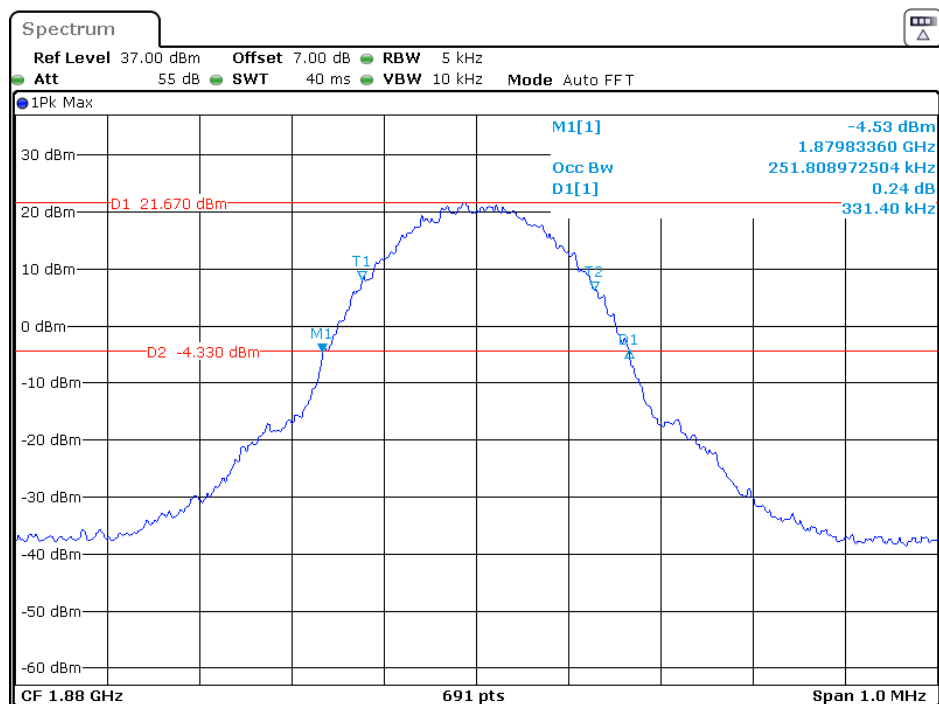
Date: 27.SEP.2021 13:39:49

26 dB Emissions & 99% Occupied Bandwidth for GPRS (GMSK) Mode, High channel

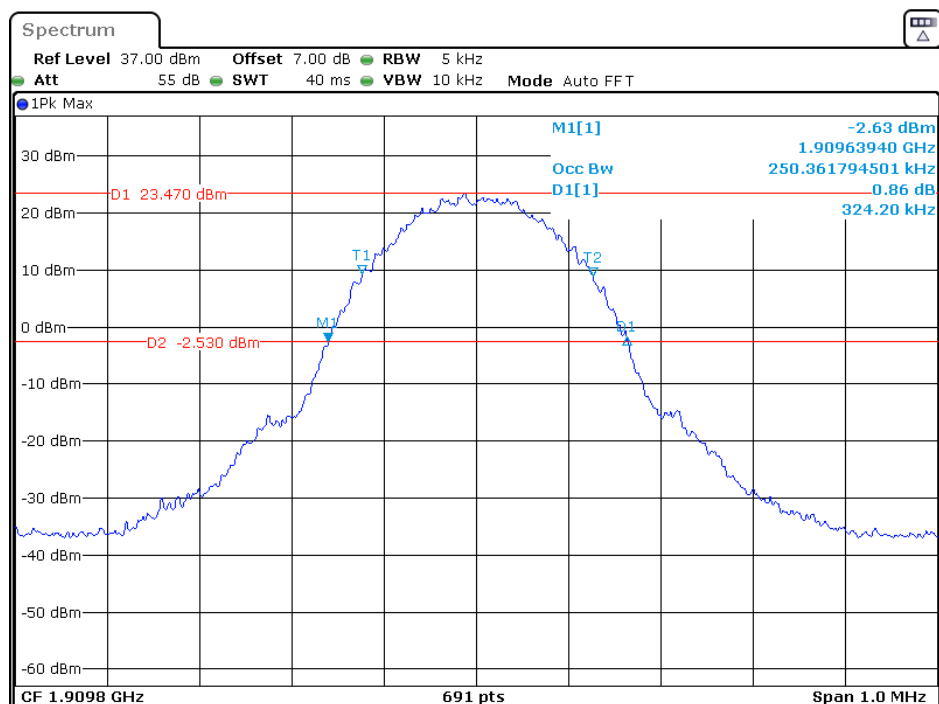
Date: 27.SEP.2021 13:41:30

26 dB Emissions & 99% Occupied Bandwidth for EGPRS (8PSK) Mode, Low channel

Date: 27.SEP.2021 13:44:38

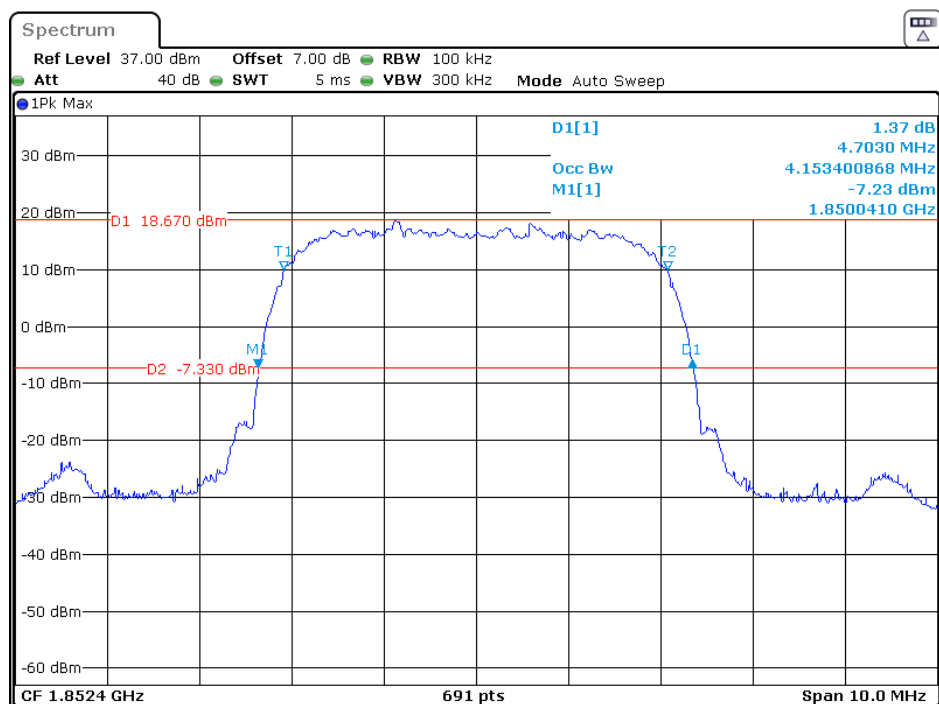
26 dB Emissions & 99% Occupied Bandwidth for EGPRS (8PSK) Mode, Middle channel

Date: 27.SEP.2021 13:46:49

26 dB Emissions & 99% Occupied Bandwidth for EGPRS (8PSK) Mode, High channel

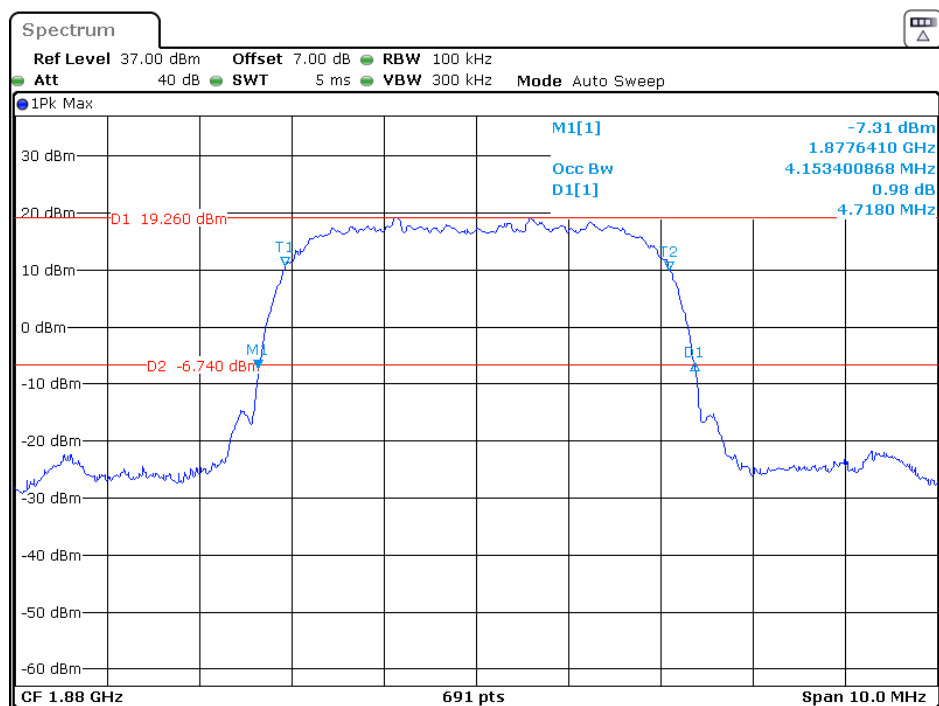
Date: 27.SEP.2021 13:48:46

26 dB Emissions & 99% Occupied Bandwidth for RMC (BPSK) Mode, Low channel

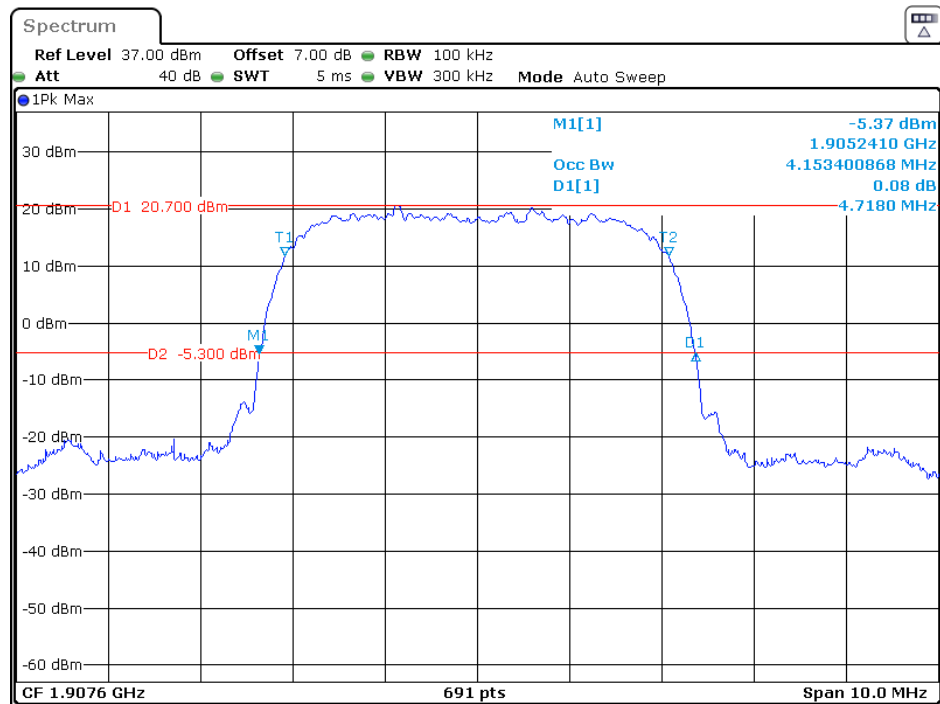


Date: 27.SEP.2021 14:25:28

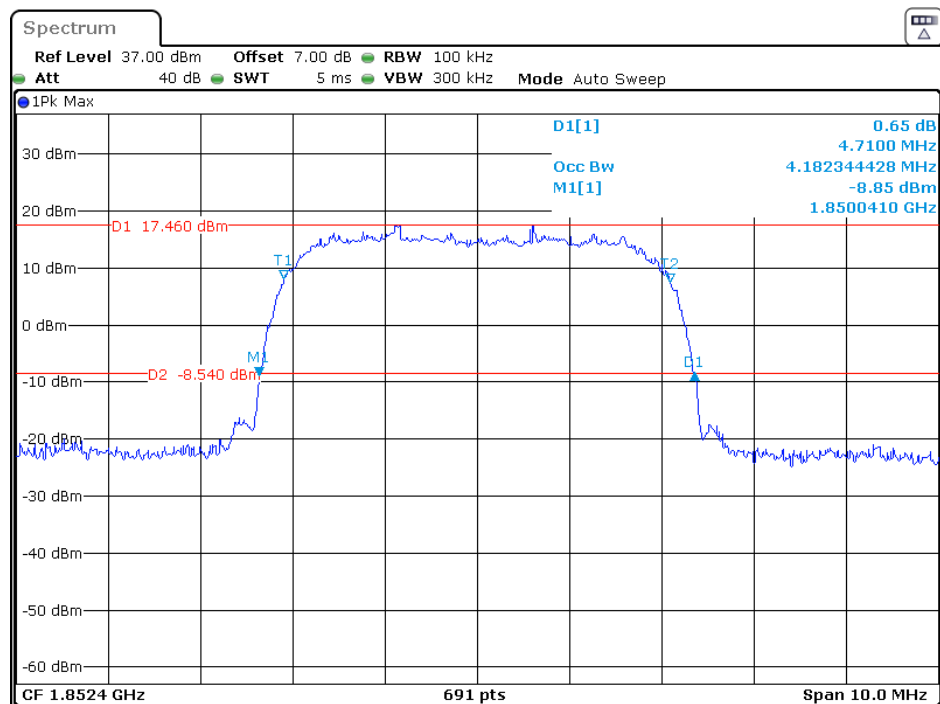
26 dB Emissions & 99% Occupied Bandwidth for RMC (BPSK) Mode, Middle channel



Date: 27.SEP.2021 14:27:21

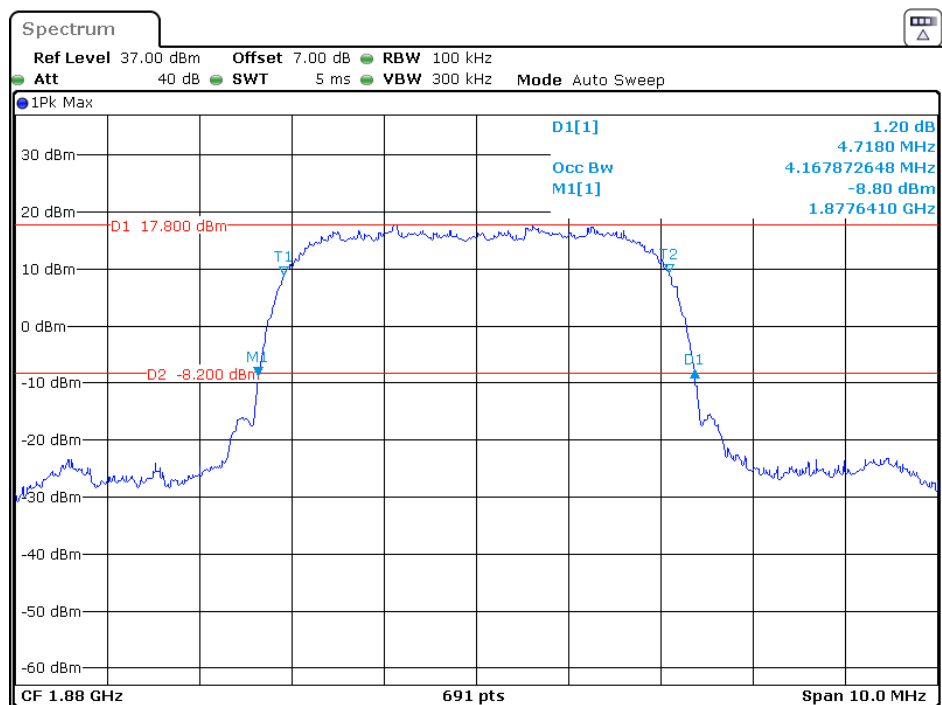
26 dB Emissions & 99% Occupied Bandwidth for RMC (BPSK) Mode, High channel

Date: 27.SEP.2021 14:35:32

26 dB Emissions & 99% Occupied Bandwidth for HSUPA (BPSK) Mode, Low channel

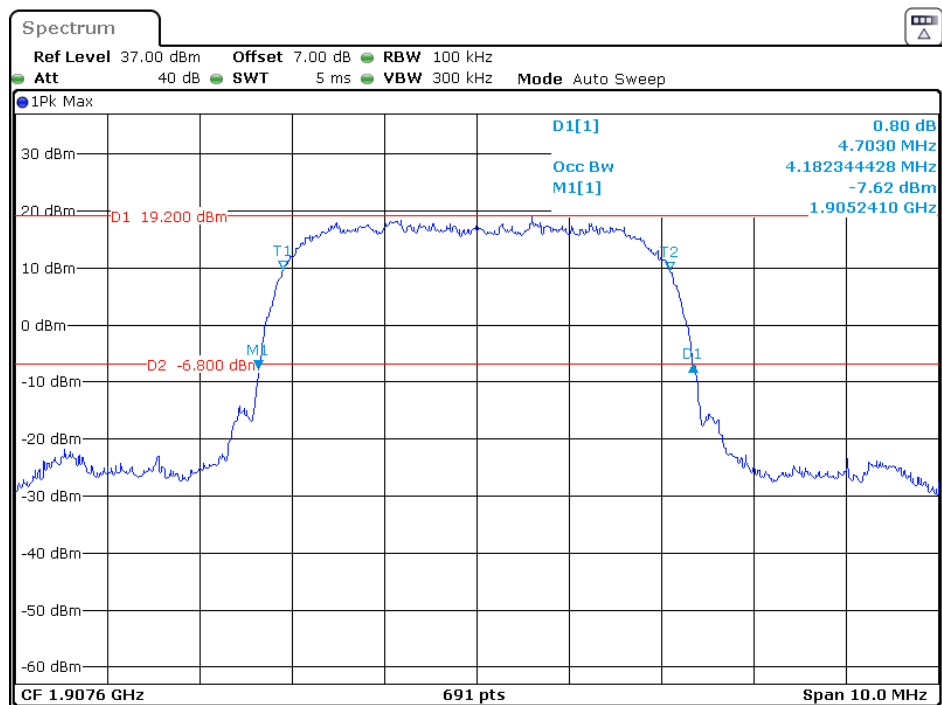
Date: 27.SEP.2021 14:39:09

26 dB Emissions & 99% Occupied Bandwidth for HSUPA (BPSK) Mode, Middle channel

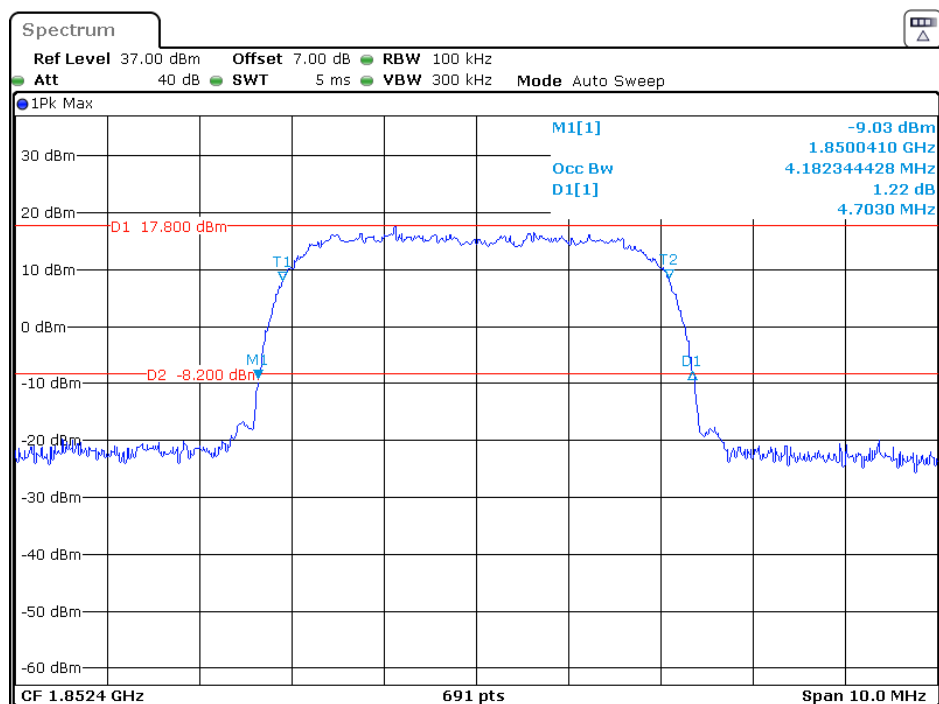


Date: 27.SEP.2021 14:37:40

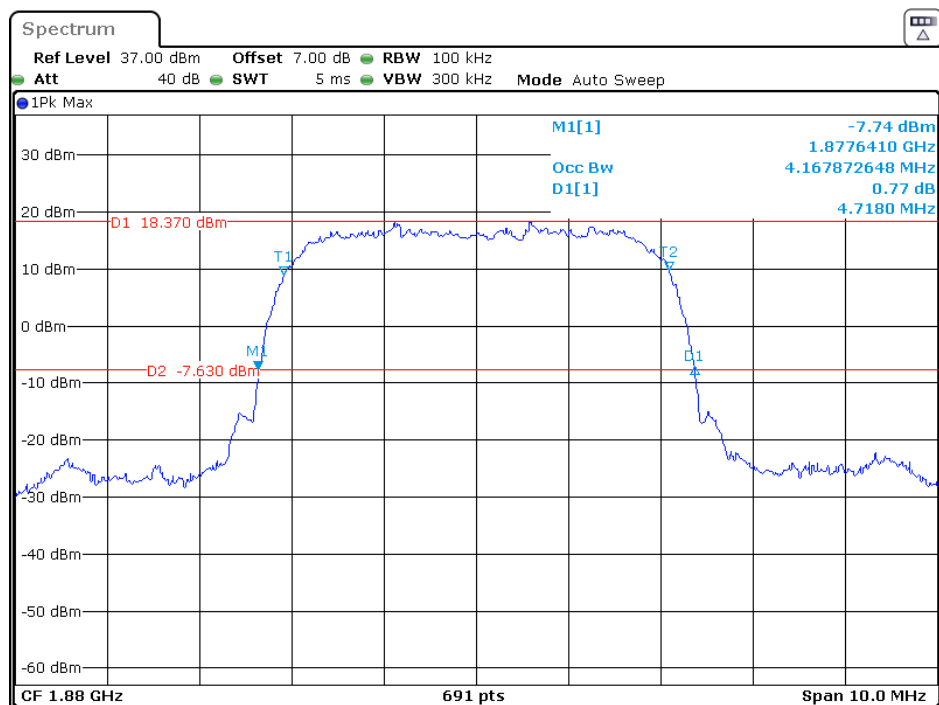
26 dB Emissions & 99% Occupied Bandwidth for HSUPA (BPSK) Mode, High channel



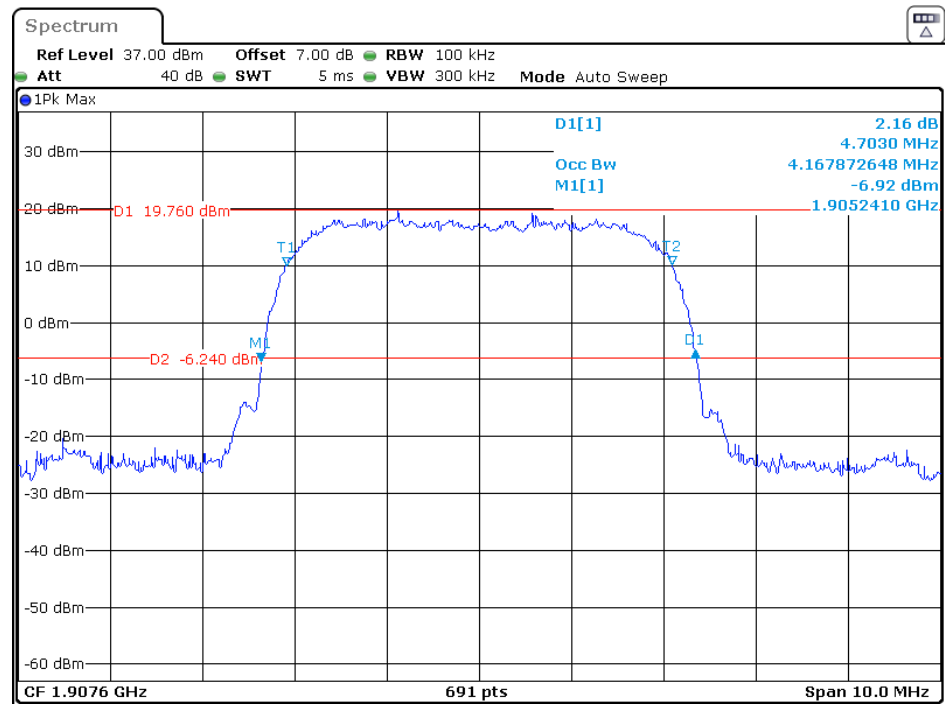
Date: 27.SEP.2021 14:30:20

26 dB Emissions & 99% Occupied Bandwidth for HSDPA (16QAM) Mode, Low channel

Date: 27.SEP.2021 14:41:24

26 dB Emissions & 99% Occupied Bandwidth for HSDPA (16QAM) Mode, Middle channel

Date: 27.SEP.2021 14:42:39

26 dB Emissions & 99% Occupied Bandwidth for HSDPA (16QAM) Mode, High channel

Date: 27.SEP.2021 14:43:42

LTE Band 2:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	Low	1.102	1.290
		Middle	1.090	1.296
		High	1.096	1.314
	16QAM	Low	1.096	1.290
		Middle	1.096	1.320
		High	1.096	1.284
3	QPSK	Low	2.683	2.868
		Middle	2.695	2.880
		High	2.683	2.880
	16QAM	Low	2.683	2.880
		Middle	2.683	2.880
		High	2.683	2.880
5	QPSK	Low	4.551	5.240
		Middle	4.511	5.180
		High	4.511	5.200
	16QAM	Low	4.511	5.140
		Middle	4.551	5.240
		High	4.551	5.260
10	QPSK	Low	8.942	9.880
		Middle	8.942	9.840
		High	8.982	9.920
	16QAM	Low	8.942	9.800
		Middle	8.942	9.840
		High	8.982	9.880
15	QPSK	Low	13.533	14.820
		Middle	13.473	14.880
		High	13.473	14.820
	16QAM	Low	13.533	15.360
		Middle	13.473	14.760
		High	13.533	14.760
20	QPSK	Low	17.964	19.440
		Middle	17.964	19.600
		High	17.964	19.840
	16QAM	Low	18.044	19.520
		Middle	17.964	19.600
		High	17.884	19.600

LTE Band 4:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	Low	1.096	1.302
		Middle	1.096	1.308
		High	1.102	1.308
	16QAM	Low	1.102	1.320
		Middle	1.090	1.284
		High	1.096	1.296
3	QPSK	Low	2.683	2.868
		Middle	2.683	2.868
		High	2.683	2.880
	16QAM	Low	2.683	2.880
		Middle	2.683	2.880
		High	2.683	2.880
5	QPSK	Low	4.531	5.240
		Middle	4.531	5.220
		High	4.531	5.220
	16QAM	Low	4.531	5.180
		Middle	4.551	5.200
		High	4.531	5.180
10	QPSK	Low	8.982	10.000
		Middle	8.942	9.840
		High	8.942	9.880
	16QAM	Low	8.942	9.760
		Middle	8.982	8.940
		High	8.982	9.880
15	QPSK	Low	13.473	14.760
		Middle	13.473	14.820
		High	13.533	14.820
	16QAM	Low	13.473	14.760
		Middle	13.533	14.820
		High	13.593	14.820
20	QPSK	Low	17.884	19.520
		Middle	17.964	19.520
		High	18.044	19.920
	16QAM	Low	17.964	19.520
		Middle	17.964	19.760
		High	18.044	19.680

LTE Band 12

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	Low	1.096	1.290
		Middle	1.102	1.320
		High	1.102	1.290
	16QAM	Low	1.102	1.320
		Middle	1.090	1.290
		High	1.096	1.284
3	QPSK	Low	2.671	2.868
		Middle	2.683	2.868
		High	2.683	2.880
	16QAM	Low	2.671	2.880
		Middle	2.683	2.880
		High	2.683	2.880
5	QPSK	Low	4.531	5.220
		Middle	4.531	5.240
		High	4.511	5.140
	16QAM	Low	4.511	5.160
		Middle	4.531	5.180
		High	4.551	5.240
10	QPSK	Low	8.942	9.960
		Middle	8.942	9.840
		High	8.982	9.960
	16QAM	Low	8.942	9.720
		Middle	8.942	9.880
		High	8.982	9.920

LTE Band 13

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5	QPSK	Low	4.551	5.240
		Middle	4.511	5.200
		High	4.511	5.200
	16QAM	Low	4.511	5.160
		Middle	4.511	5.200
		High	4.551	5.260
10	QPSK	Middle	8.982	10.040
	16QAM	Middle	8.942	9.800

LTE Band 41

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5	QPSK	Low	4.511	5.200
		Middle	4.511	5.480
		High	4.491	5.060
	16QAM	Low	4.491	5.020
		Middle	4.511	5.120
		High	4.511	5.260
10	QPSK	Low	8.942	9.680
		Middle	8.942	9.680
		High	8.982	9.720
	16QAM	Low	8.942	9.480
		Middle	8.942	9.600
		High	8.942	9.600
15	QPSK	Low	13.473	15.060
		Middle	13.533	14.760
		High	13.473	15.300
	16QAM	Low	13.533	16.020
		Middle	13.473	14.880
		High	13.533	15.240
20	QPSK	Low	17.964	19.120
		Middle	17.964	20.000
		High	17.964	19.520
	16QAM	Low	17.884	19.280
		Middle	17.964	19.440
		High	17.884	19.120

The test plots of LTE band please refer to the Appendix A.

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

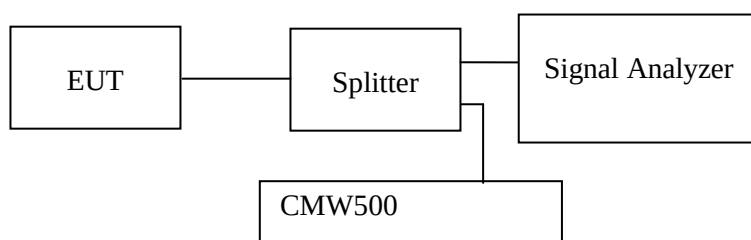
Applicable Standard

FCC §2.1051, §22.917(a) & §24.238(a) & §27.53.

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

Test Procedure

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



Test Data

Environmental Conditions

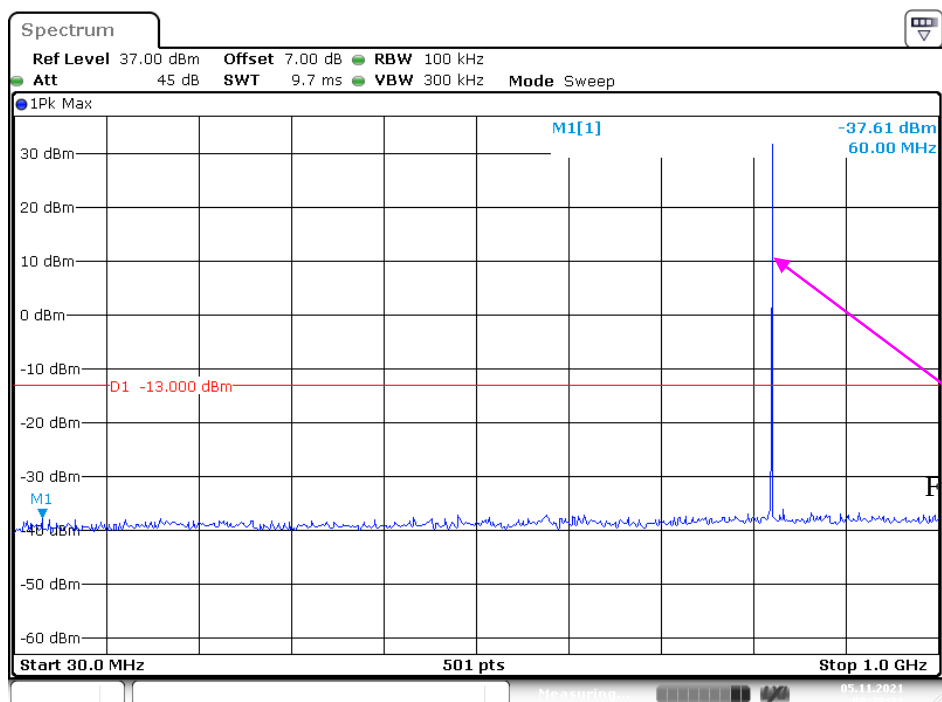
Temperature:	27 °C
Relative Humidity:	58 %
ATM Pressure:	101.0 kPa

The testing was performed by Black Ding from 2021-09-26 to 2021-09-30.

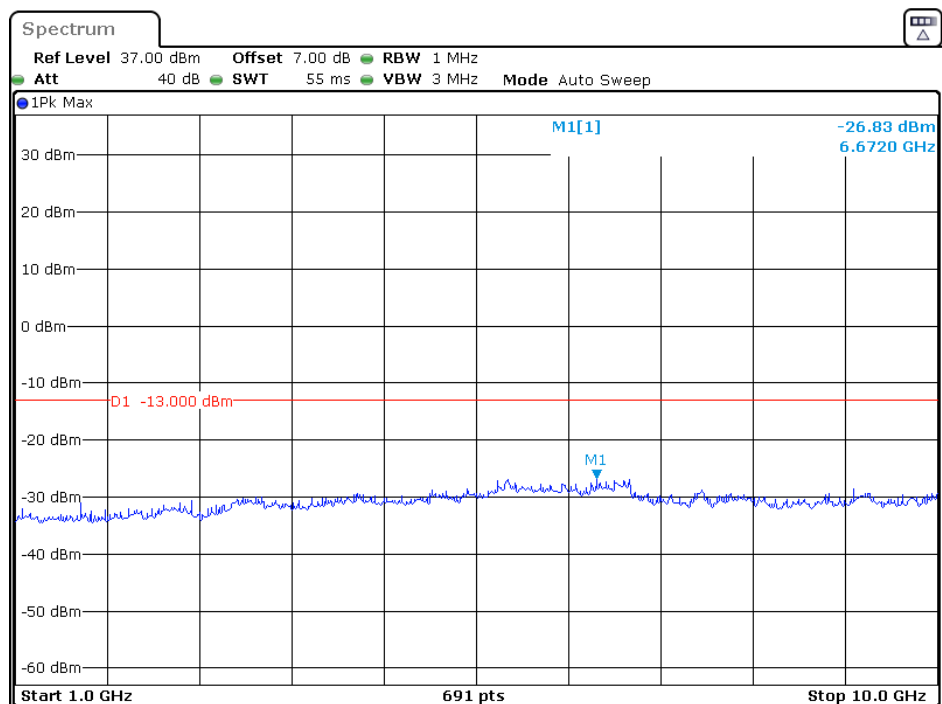
EUT operation mode: Transmitting

Test result: Pass

Please refer to the following plots.

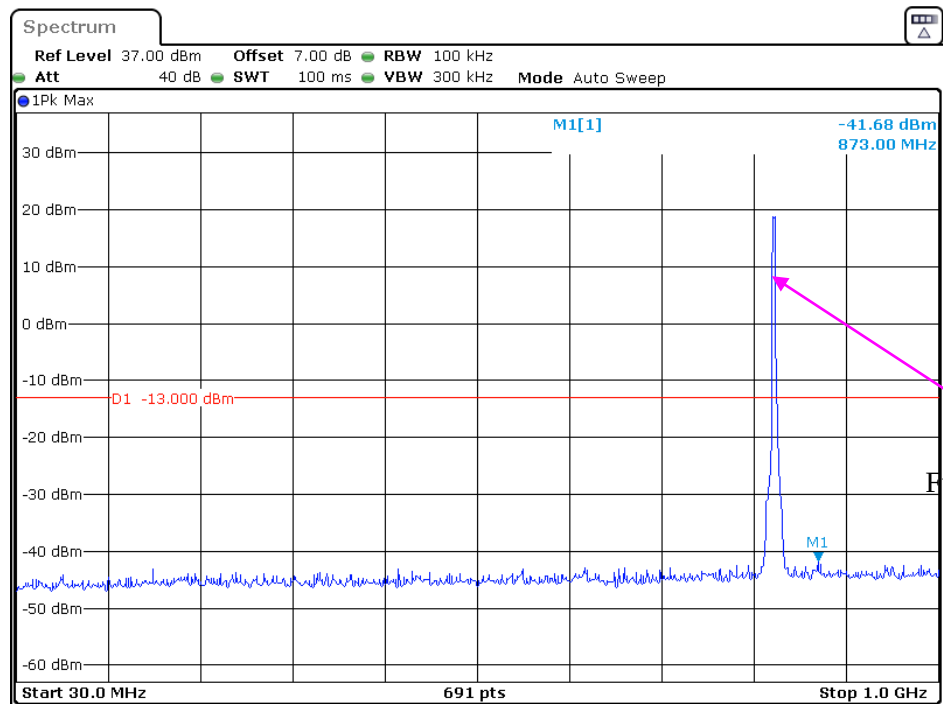
Cellular Band (Part 22H)**Low Channel:****30 MHz – 1 GHz (GPRS Mode)**

Date: 5.NOV.2021 00:28:31

1 GHz – 10 GHz (GPRS Mode)

Date: 27.SEP.2021 14:16:58

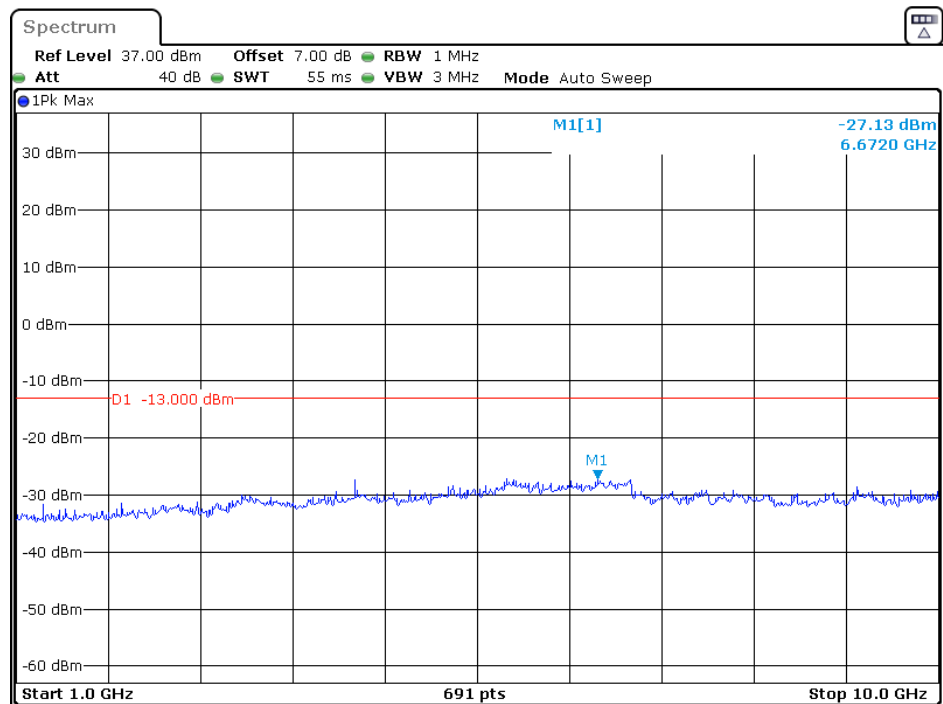
30 MHz – 1 GHz (WCDMA Mode)



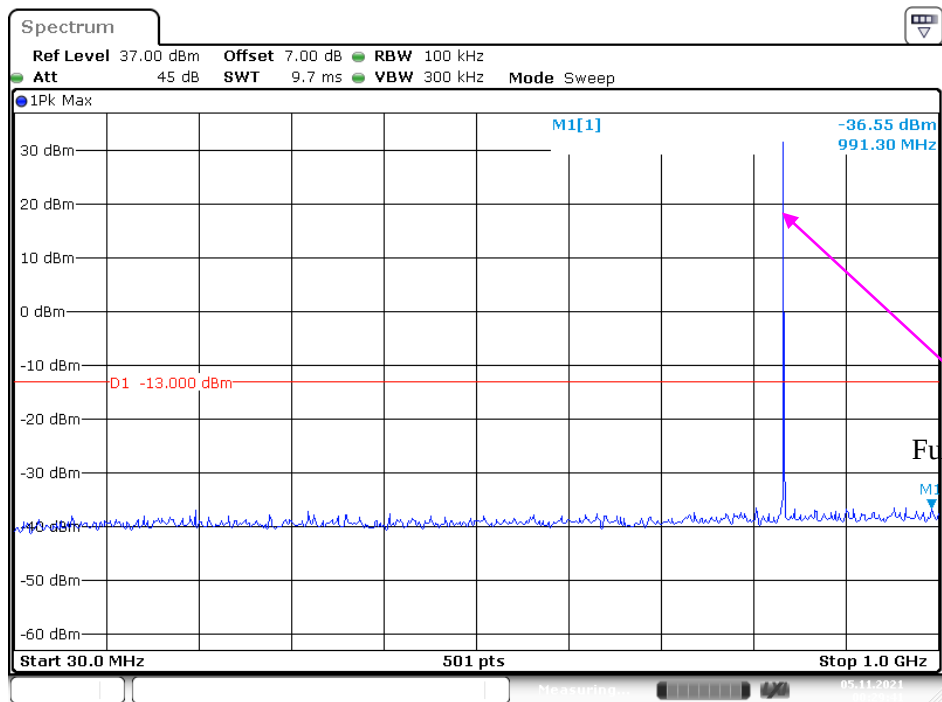
Date: 27.SEP.2021 15:54:02

Fundamental test

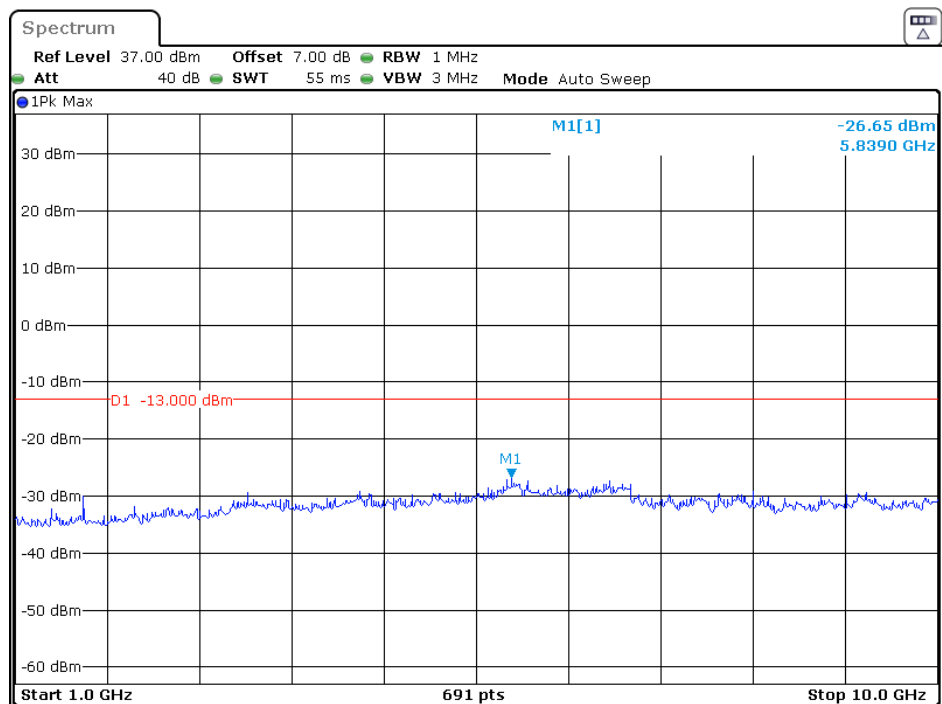
1 GHz – 10 GHz (WCDMA Mode)



Date: 27.SEP.2021 15:46:03

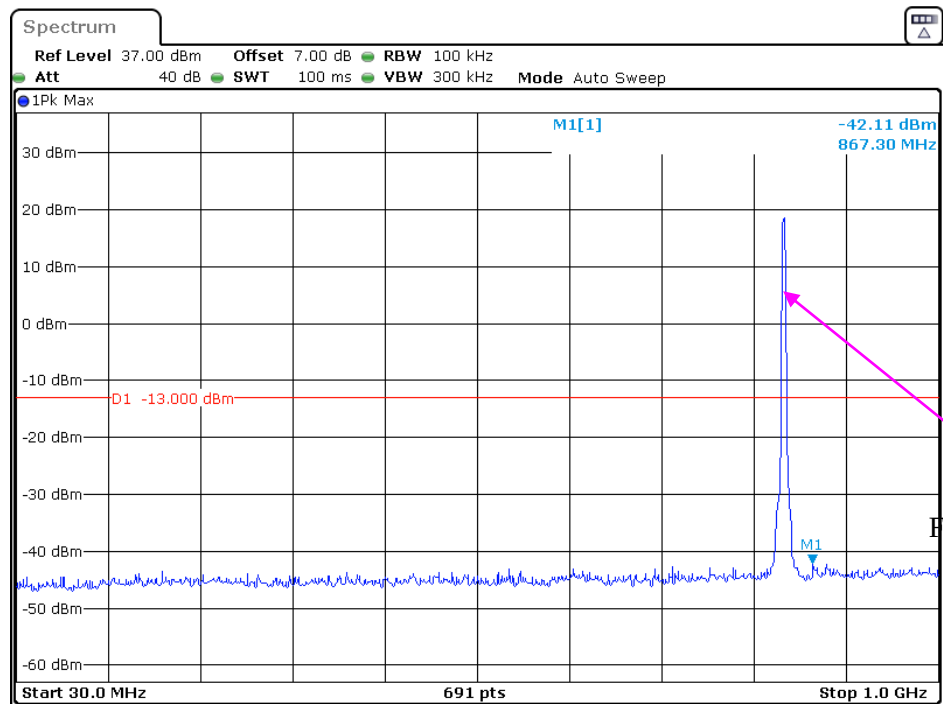
Middle Channel:**30 MHz – 1 GHz (GPRS Mode)**

Date: 5.NOV.2021 00:29:41

1 GHz – 10 GHz (GPRS Mode)

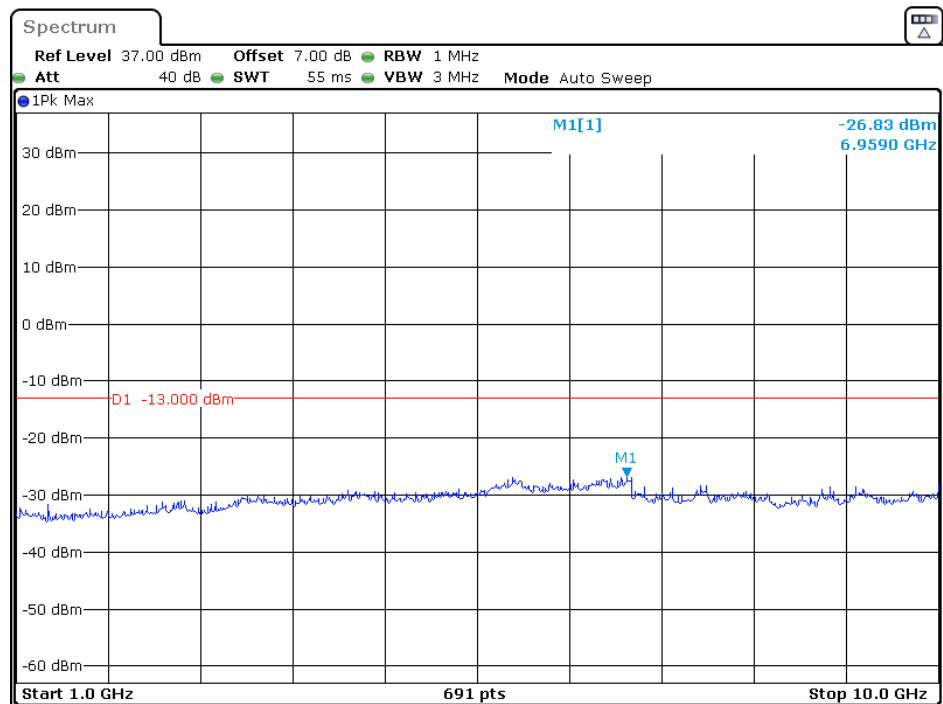
Date: 27.SEP.2021 14:16:25

30 MHz – 1 GHz (WCDMA Mode)

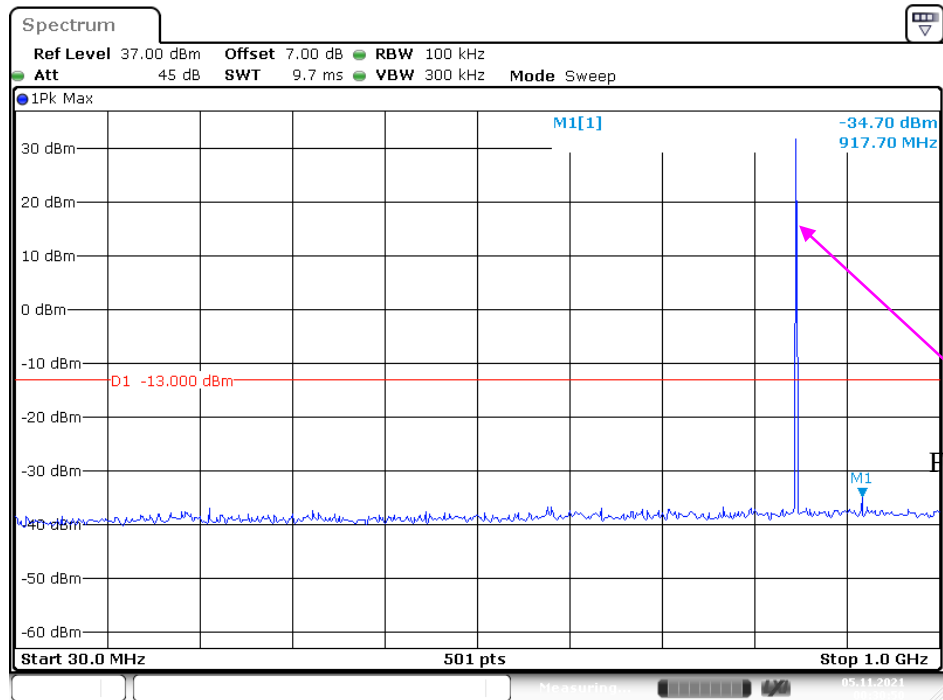


Date: 27.SEP.2021 15:53:19

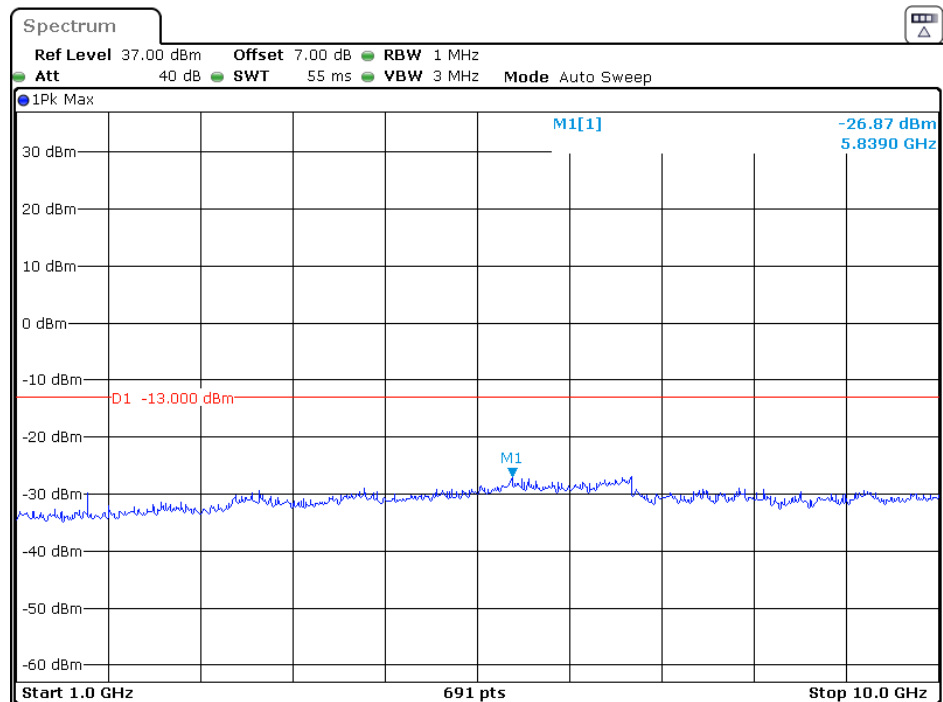
1 GHz – 10 GHz (WCDMA Mode)



Date: 27.SEP.2021 15:46:44

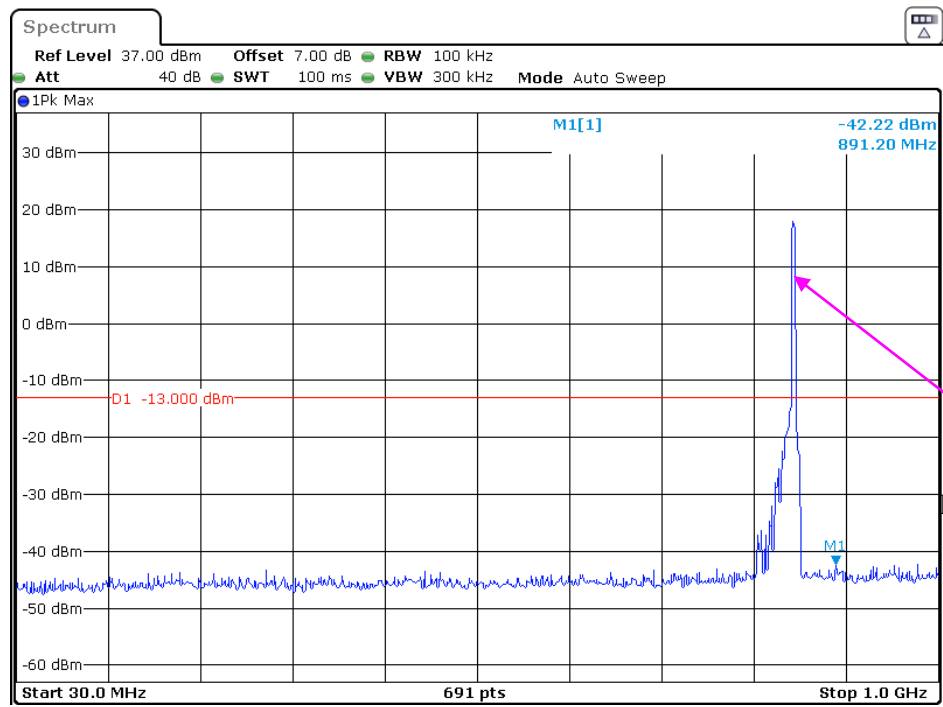
High Channel:**30 MHz – 1 GHz (GPRS Mode)**

Date: 5.NOV.2021 00:30:51

1 GHz – 10 GHz (GPRS Mode)

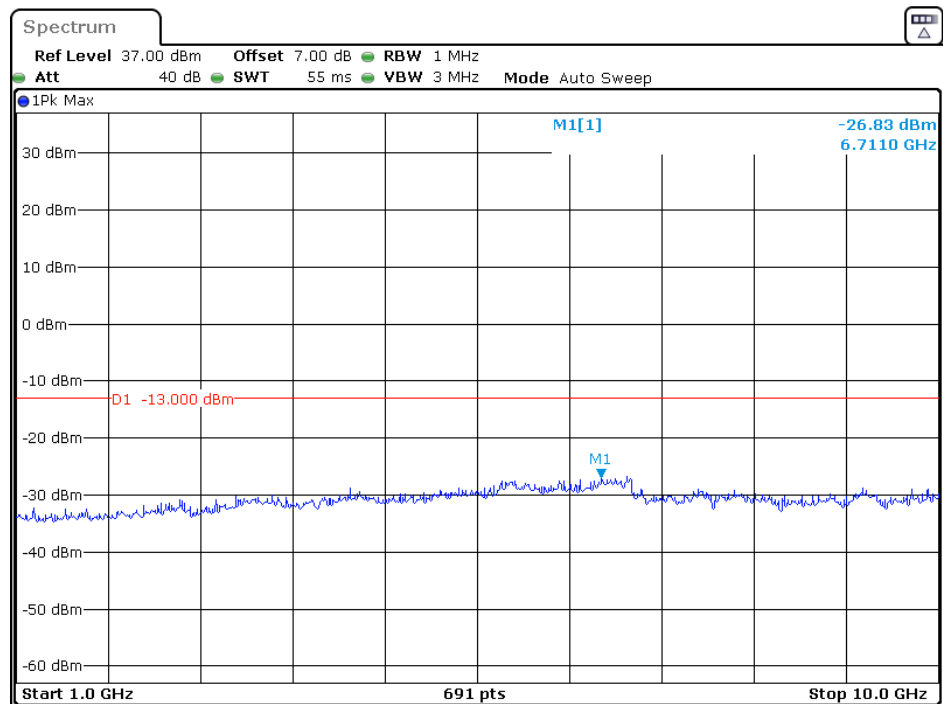
Date: 27.SEP.2021 14:17:35

30 MHz – 1 GHz (WCDMA Mode)

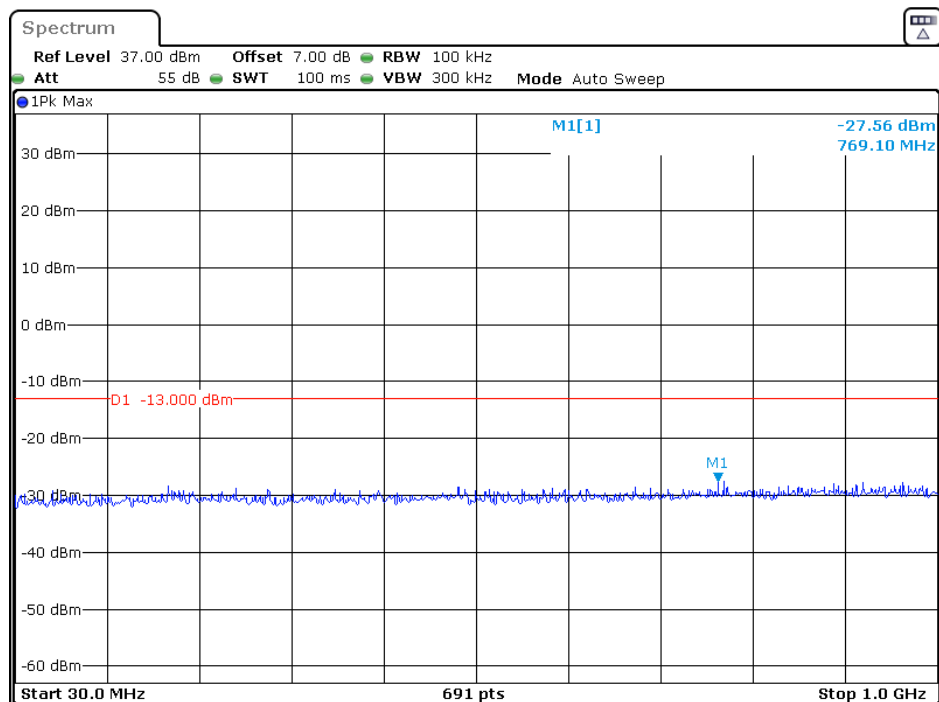


Date: 27.SEP.2021 15:43:14

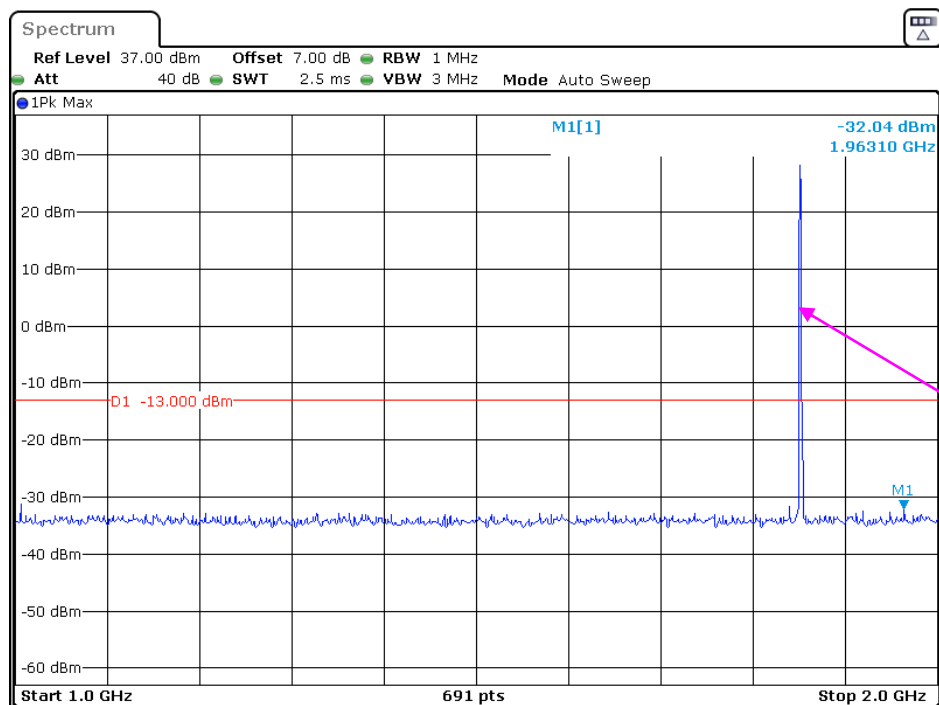
1 GHz – 10 GHz (WCDMA Mode)



Date: 27.SEP.2021 15:45:26

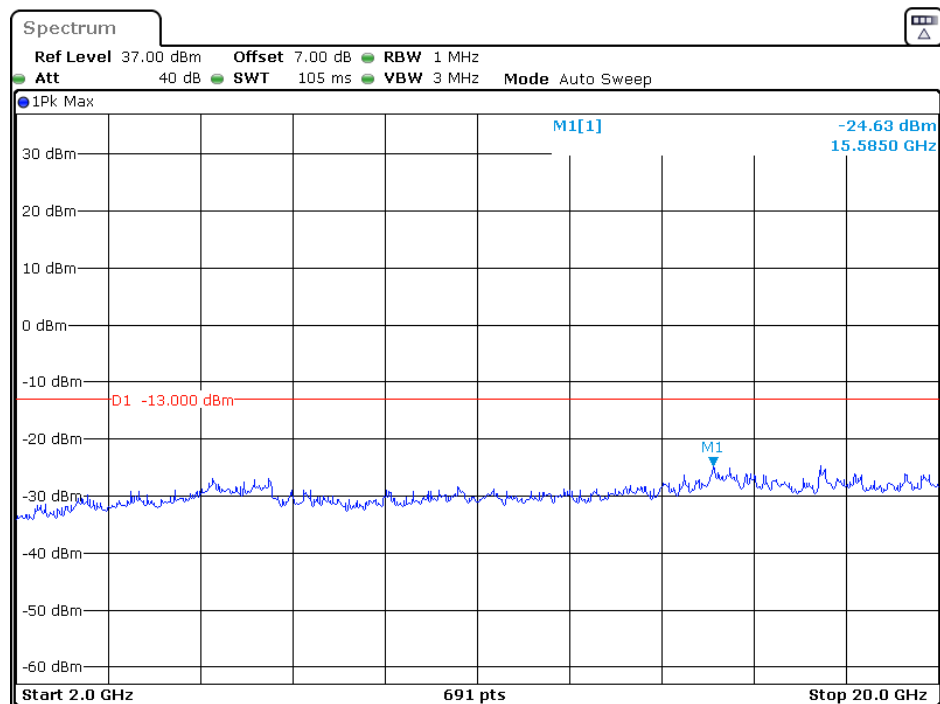
PCS Band (Part 24E) Low Channel:**30 MHz – 1 GHz (GPRS Mode)**

Date: 27.SEP.2021 13:53:45

1 GHz – 2 GHz (GPRS Mode)

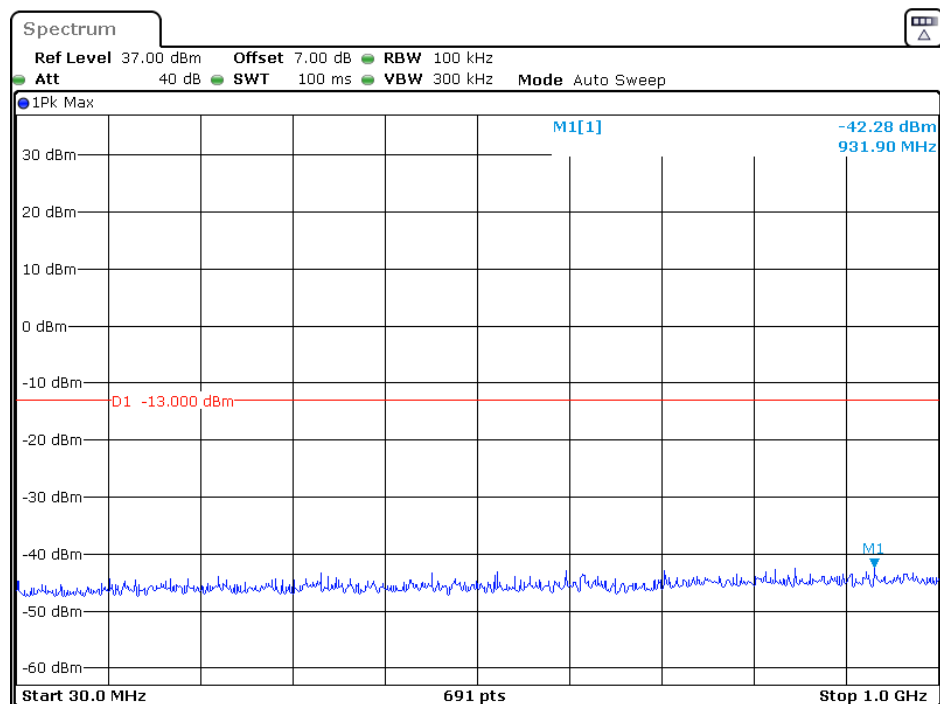
Date: 27.SEP.2021 14:10:35

2 GHz – 20 GHz (GPRS Mode)



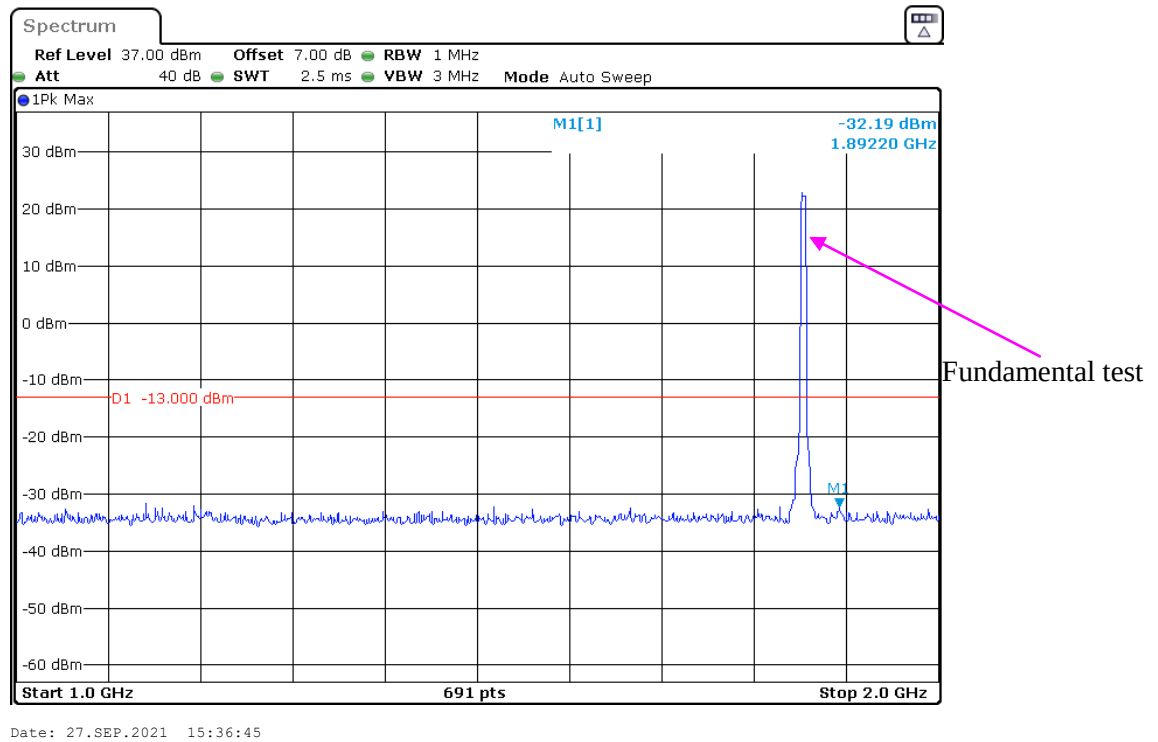
Date: 27.SEP.2021 14:11:46

30 MHz – 1 GHz (WCDMA Mode)

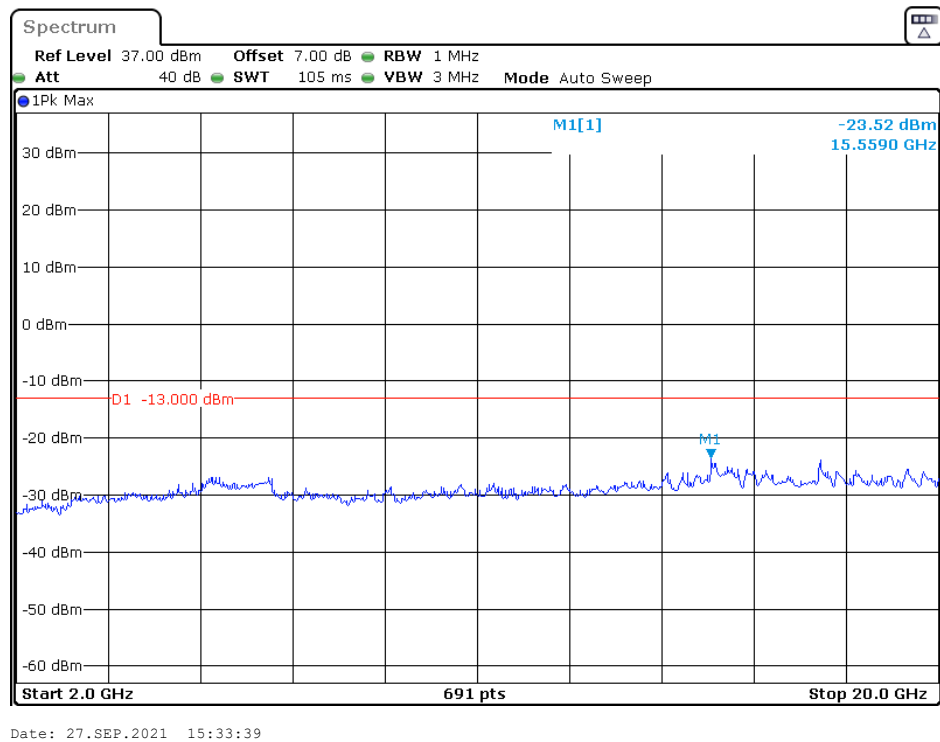


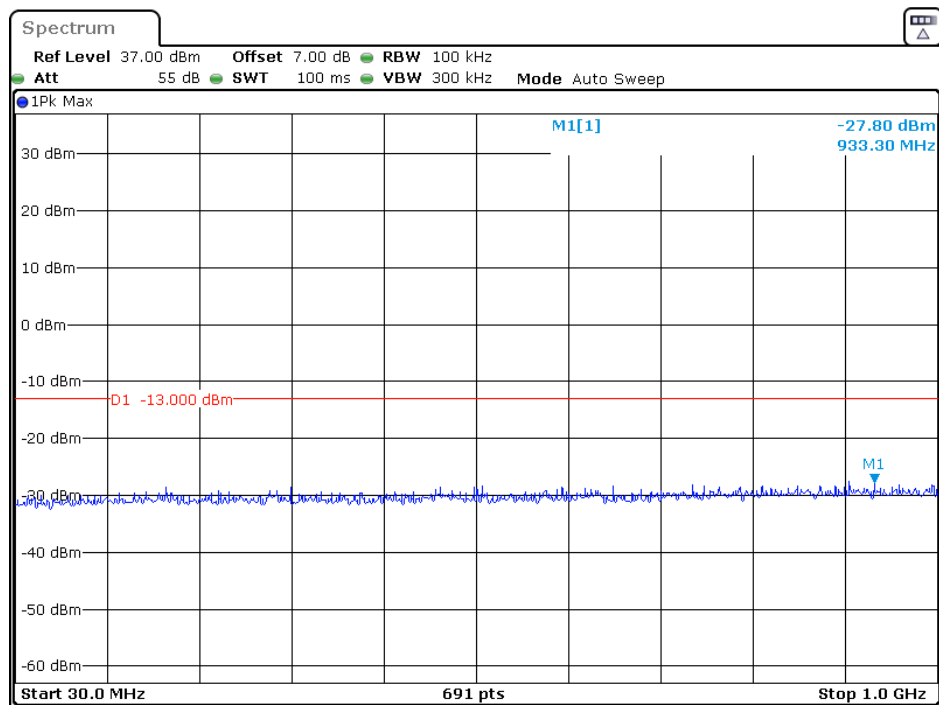
Date: 27.SEP.2021 15:37:32

1 GHz – 2 GHz (WCDMA Mode)

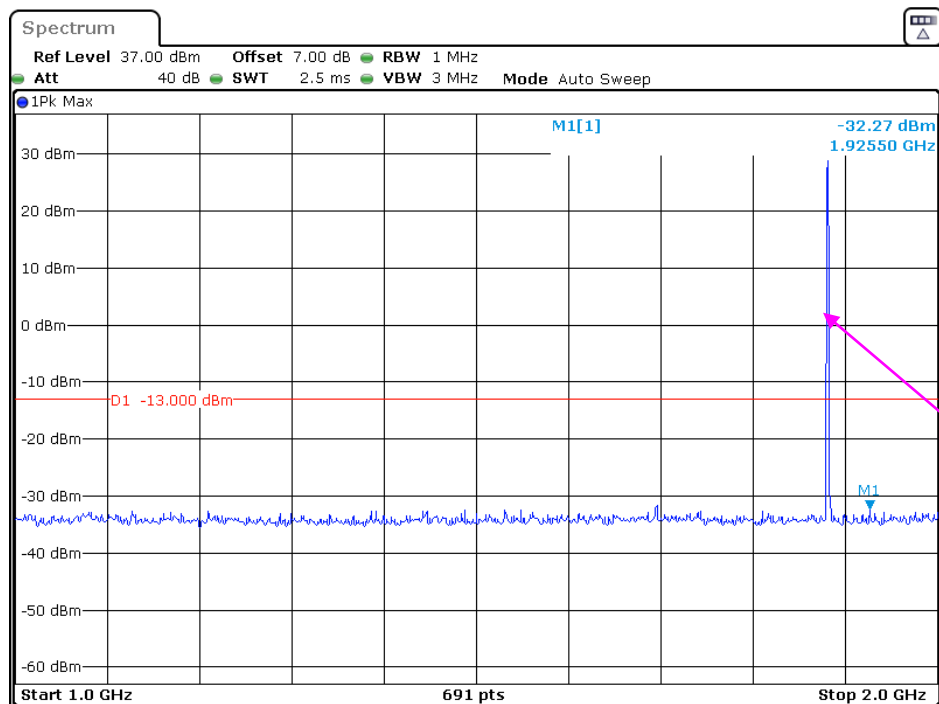


2 GHz – 20 GHz (WCDMA Mode)



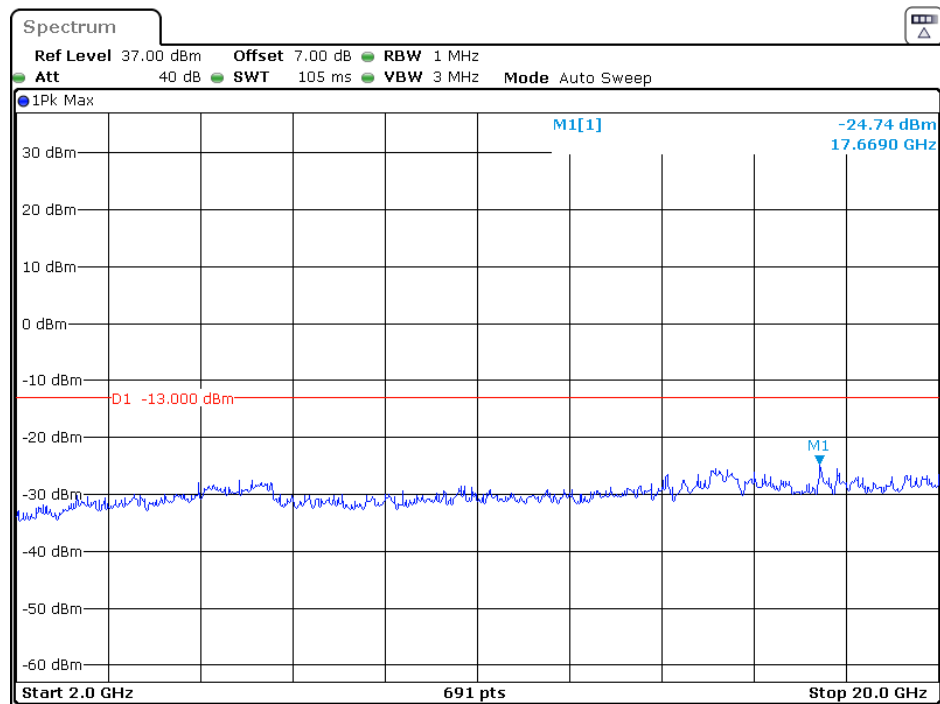
Middle Channel:**30 MHz – 1 GHz (GPRS Mode)**

Date: 27.SEP.2021 13:54:24

1 GHz – 2 GHz (GPRS Mode)

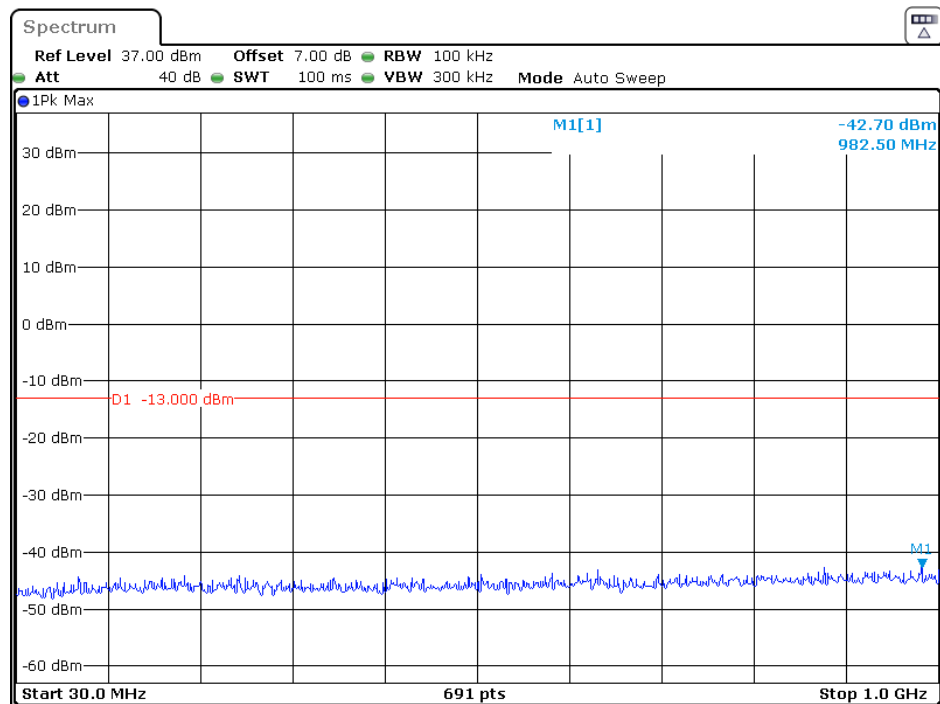
Date: 27.SEP.2021 14:09:58

2 GHz – 20 GHz (GPRS Mode)



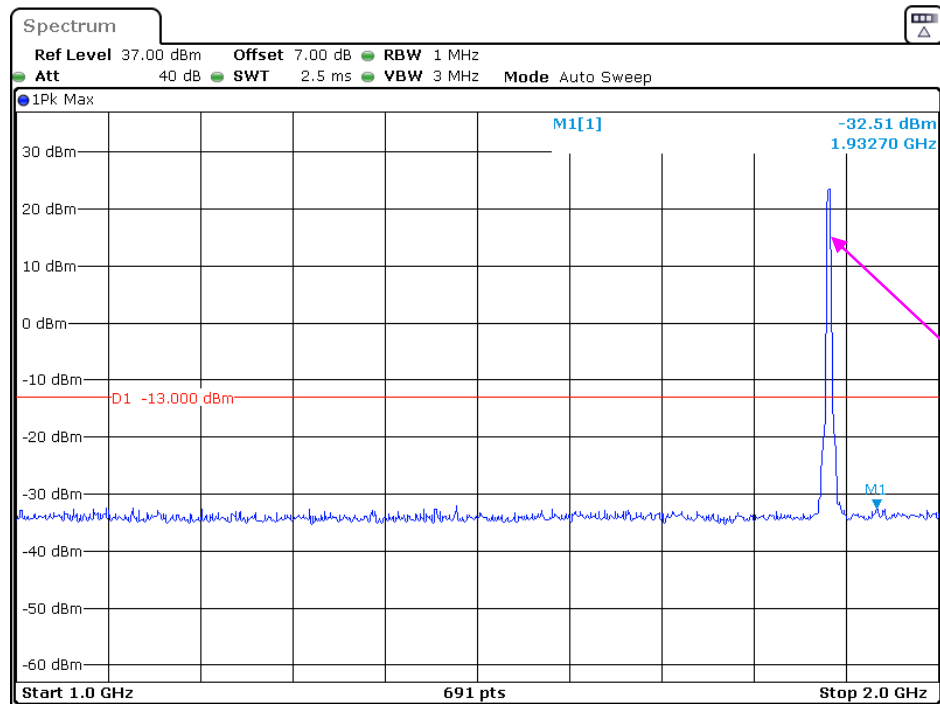
Date: 27.SEP.2021 14:12:06

30 MHz – 1 GHz (WCDMA Mode)



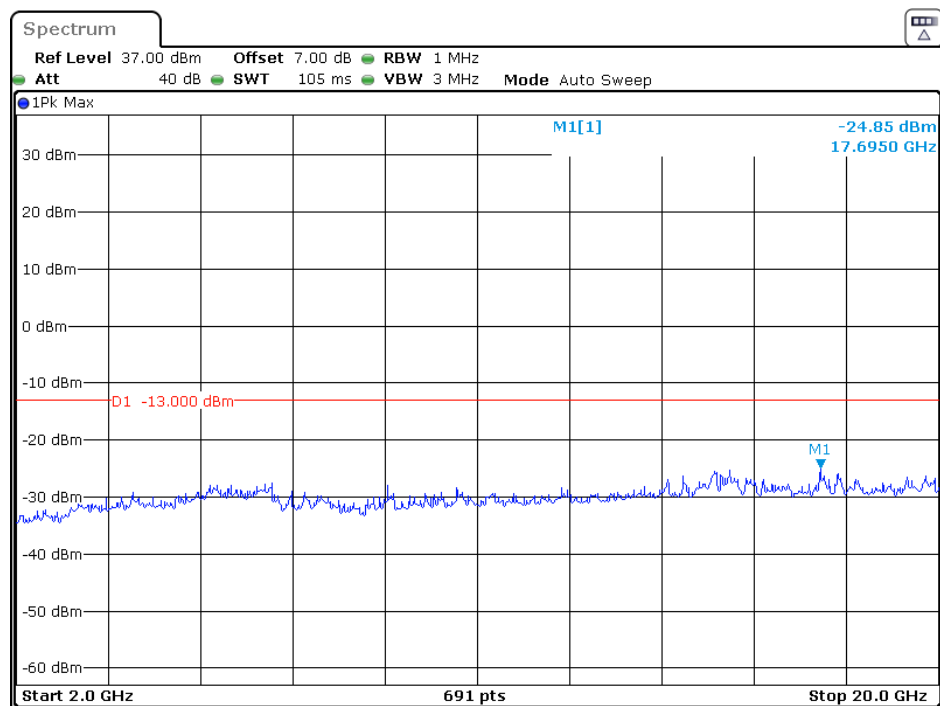
Date: 27.SEP.2021 15:37:56

1 GHz – 2 GHz (WCDMA Mode)

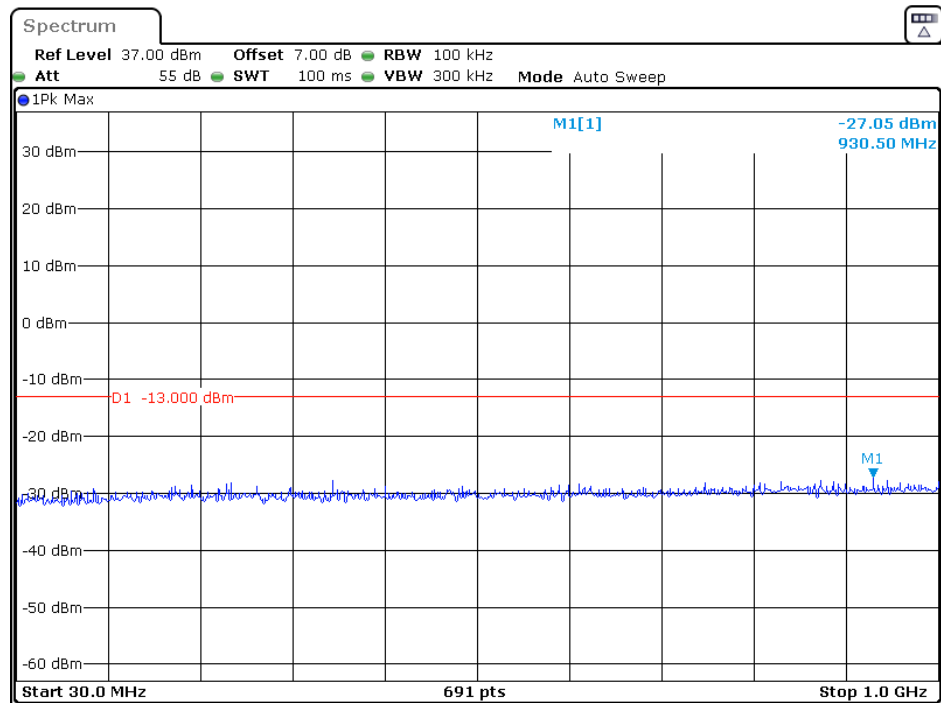


Date: 27.SEP.2021 15:36:11

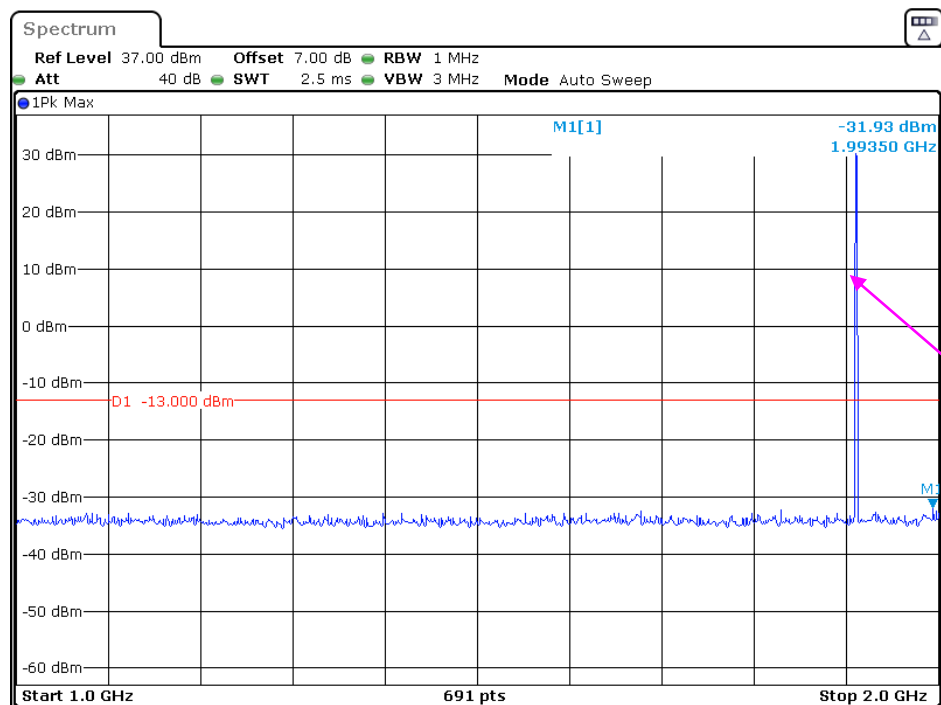
2 GHz – 20 GHz (WCDMA Mode)



Date: 27.SEP.2021 15:34:03

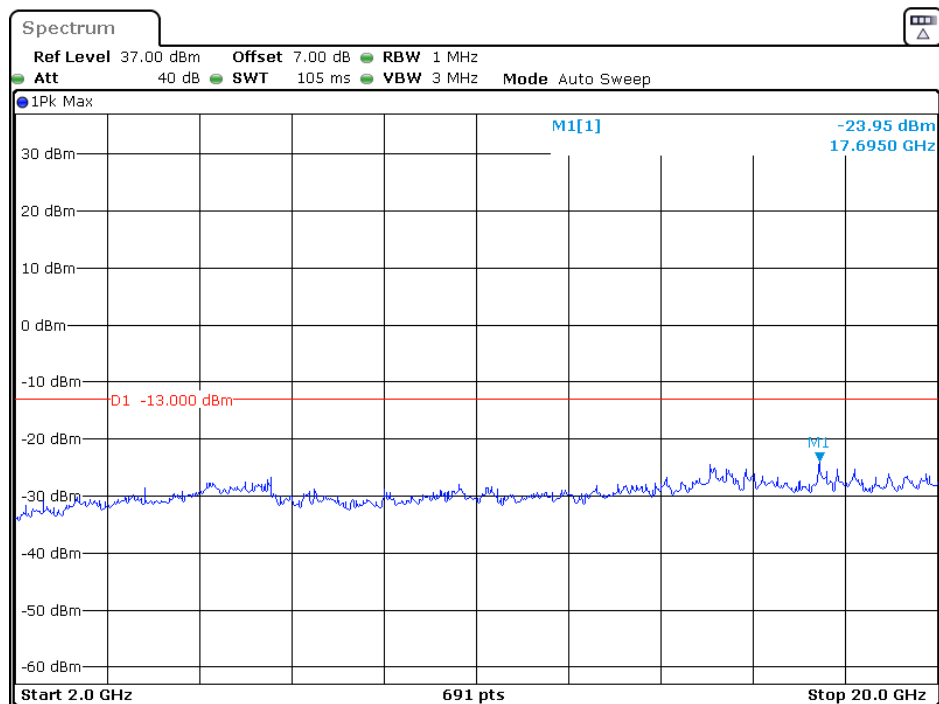
High Channel:**30 MHz – 1 GHz (GPRS Mode)**

Date: 27.SEP.2021 13:54:51

1 GHz – 2 GHz (GPRS Mode)

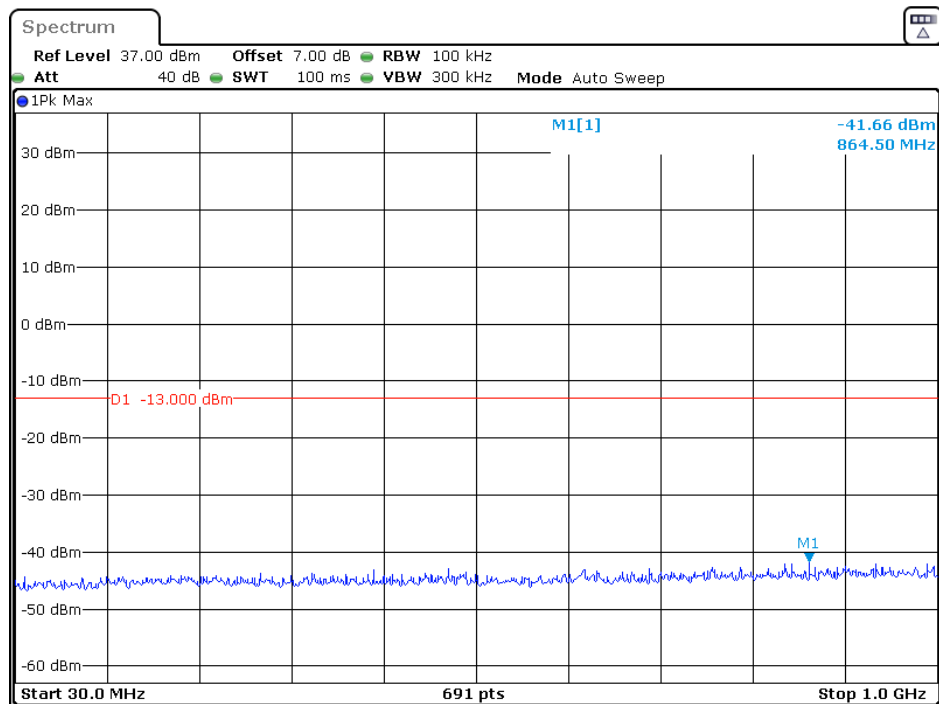
Date: 27.SEP.2021 14:09:04

2 GHz – 20 GHz (GPRS Mode)

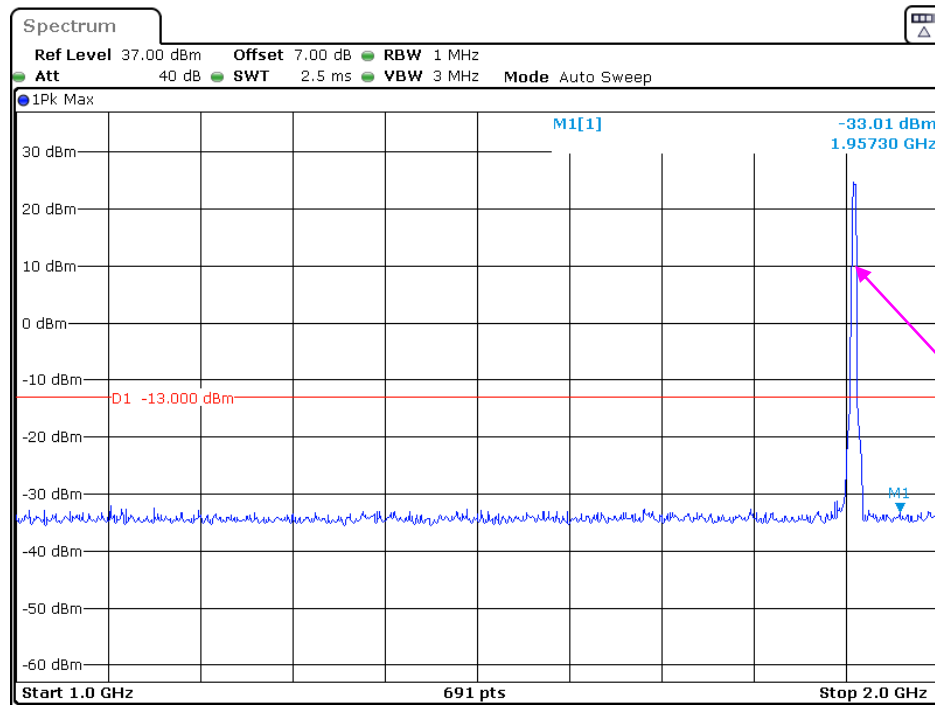


Date: 27.SEP.2021 14:12:50

30 MHz – 1 GHz (WCDMA Mode)

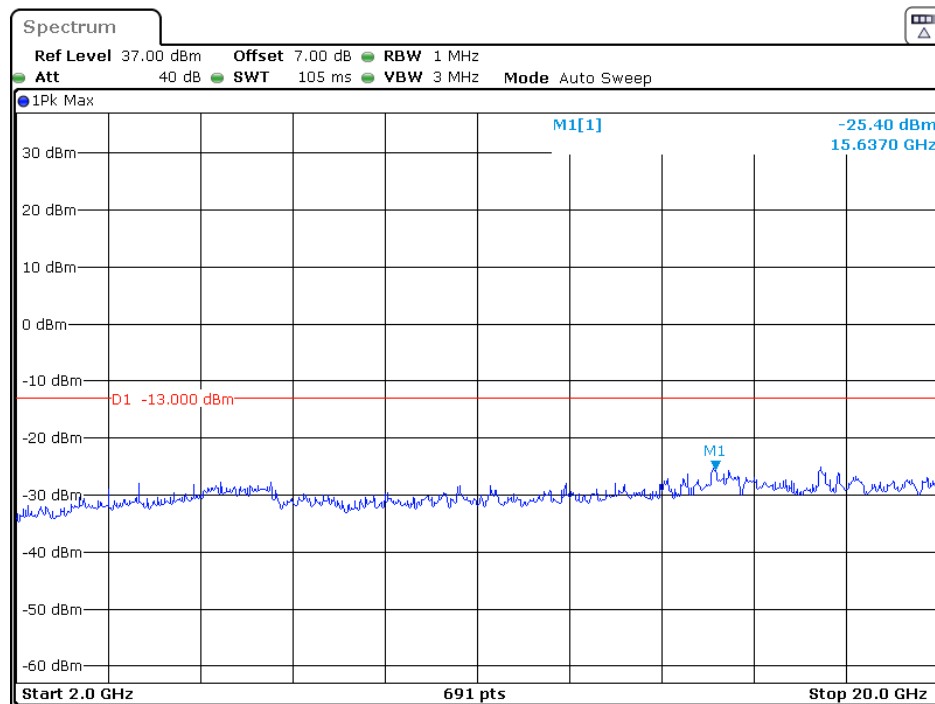


Date: 27.SEP.2021 15:38:47

1 GHz – 2 GHz (WCDMA Mode)

Date: 27.SEP.2021 15:35:27

Fundamental test

2GHz – 20 GHz (WCDMA Mode)

Date: 27.SEP.2021 15:34:22

The test plots of LTE band please refer to the Appendix B.

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

Applicable Standard

FCC § 2.1053, §22.917(a) & § 24.238(a) & § 27.53.

Test Procedure

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

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the receiving 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.

Test Data

Environmental Conditions

Temperature:	26 °C
Relative Humidity:	51 %
ATM Pressure:	101.0 kPa

The testing was performed by Chao Mo on 2021-10-18.

EUT operation mode: Transmitting (Scan with X-AXIS, Y-AXIS, Z-AXIS, the worst case was recorded)

The worst case is as below:

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
GSM850								
Test frequency range: 30MHz-10GHz								
Low channel								
213.02	-76.26	228	2.2	H	-3.69	-79.95	-13	-66.95
213.02	-78.64	321	1.2	V	-1.61	-80.25	-13	-67.25
1648.4	-48.27	221	1.6	H	-2.73	-51.00	-13	-38.00
1648.4	-41.41	231	1.8	V	-2.79	-44.20	-13	-31.20
2472.6	-37.32	166	1.2	H	1.32	-36.00	-13	-23.00
2472.6	-39.86	16	1.8	V	1.36	-38.50	-13	-25.50
3296.8	-47.47	280	1.9	H	3.17	-44.30	-13	-31.30
3296.8	-48.21	57	1.6	V	3.21	-45.00	-13	-32.00
Middle channel								
213.02	-76.59	199	1.5	H	-3.69	-80.28	-13	-67.28
213.02	-79.31	220	2.1	V	-1.61	-80.92	-13	-67.92
1673.2	-45.77	77	1.9	H	-2.73	-48.50	-13	-35.50
1673.2	-37.51	149	2.1	V	-2.79	-40.30	-13	-27.30
2509.8	-39.12	71	1.1	H	1.32	-37.80	-13	-24.80
2509.8	-36.06	214	1.2	V	1.36	-34.70	-13	-21.70
3346.4	-47.67	245	1.4	H	3.17	-44.50	-13	-31.50
3346.4	-48.01	319	1.1	V	3.21	-44.80	-13	-31.80
High channel								
213.02	-75.63	53	1.3	H	-3.69	-79.32	-13	-66.32
213.02	-78.9	296	1.4	V	-1.61	-80.51	-13	-67.51
1697.6	-46.76	291	1.7	H	-2.64	-49.40	-13	-36.40
1697.6	-38.61	330	1.6	V	-2.69	-41.30	-13	-28.30
2546.4	-37.91	89	1.3	H	2.01	-35.90	-13	-22.90
2546.4	-36.95	314	1.7	V	2.15	-34.80	-13	-21.80
3395.2	-48.07	262	1.3	H	3.17	-44.90	-13	-31.90
3395.2	-49.31	321	2	V	3.21	-46.10	-13	-33.10

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
GSM1900								
Test frequency range: 30MHz-20GHz								
Low channel								
213.02	-74.6	195	1.3	H	-3.69	-78.29	-13	-65.29
213.02	-77.7	173	1.4	V	-1.61	-79.31	-13	-66.31
3700.4	-45.37	171	1	H	4.97	-40.40	-13	-27.40
3700.4	-47.88	330	1.8	V	4.88	-43.00	-13	-30.00
Middle channel								
213.02	-75.49	151	1.6	H	-3.69	-79.18	-13	-66.18
213.02	-77.91	272	1.7	V	-1.61	-79.52	-13	-66.52
3760.0	-46.02	137	1.8	H	5.02	-41.00	-13	-28.00
3760.0	-47.81	174	1.2	V	4.91	-42.90	-13	-29.90
High channel								
213.02	-75.18	321	1.7	H	-3.69	-78.87	-13	-65.87
213.02	-77.88	211	1.3	V	-1.61	-79.49	-13	-66.49
3819.6	-36.64	89	2	H	-5.26	-41.90	-13	-28.90
3819.6	-37.17	348	1.4	V	-5.03	-42.20	-13	-29.20
WCDMA Band2								
Test frequency range: 30MHz-20GHz								
Low channel								
213.02	-74.53	42	1.9	H	-3.69	-78.22	-13	-65.22
213.02	-76.76	174	1.5	V	-1.61	-78.37	-13	-65.37
3704.8	-50.47	189	1.6	H	4.97	-45.50	-13	-32.50
3704.8	-49.48	83	1.2	V	4.88	-44.60	-13	-31.60
5557.2	-48.02	158	1.6	H	10.62	-37.40	-13	-24.40
5557.2	-46.55	318	2.2	V	8.65	-37.90	-13	-24.90
Middle channel								
213.02	-74.6	322	1.9	H	-3.69	-78.29	-13	-65.29
213.02	-77.3	209	1.4	V	-1.61	-78.91	-13	-65.91
3760.0	-49.32	126	1.4	H	5.02	-44.30	-13	-31.30
3760.0	-49.91	196	1.3	V	4.91	-45.00	-13	-32.00
5640.0	-47.58	149	1.5	H	10.68	-36.90	-13	-23.90
5640.0	-49.42	117	1.8	V	10.12	-39.30	-13	-26.30
High channel								
213.02	-74.44	29	2.1	H	-3.69	-78.13	-13	-65.13
213.02	-77.67	57	1.6	V	-1.61	-79.28	-13	-66.28
3815.2	-38.24	299	1.1	H	-5.26	-43.50	-13	-30.50
3815.2	-38.87	95	2	V	-5.03	-43.90	-13	-30.90
5722.8	-54.47	3	1.7	H	10.77	-43.70	-13	-30.70
5722.8	-55.92	104	1.2	V	12.32	-43.60	-13	-30.60

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
WCDMA Band5								
Test frequency range: 30MHz-10GHz								
Low channel								
213.02	-74.63	82	1.3	H	-3.69	-78.32	-13	-65.32
213.02	-77.54	153	1.9	V	-1.61	-79.15	-13	-66.15
1652.8	-48.97	55	2	H	-2.73	-51.70	-13	-38.70
1652.8	-50.31	166	1	V	-2.79	-53.10	-13	-40.10
2479.2	-52.92	161	1.1	H	1.32	-51.60	-13	-38.60
2479.2	-51.86	226	1.9	V	1.36	-50.50	-13	-37.50
3305.6	-50.17	41	1.1	H	3.17	-47.00	-13	-34.00
3305.6	-50.31	109	1.5	V	3.21	-47.10	-13	-34.10
Middle channel								
213.02	-74.42	62	1.8	H	-3.69	-78.11	-13	-65.11
213.02	-78.22	264	2.1	V	-1.61	-79.83	-13	-66.83
1673.2	-43.87	247	1.9	H	-2.73	-46.60	-13	-33.60
1673.2	-50.71	150	1.8	V	-2.79	-53.50	-13	-40.50
2509.8	-49.52	253	1.1	H	1.32	-48.20	-13	-35.20
2509.8	-50.26	194	1.5	V	1.36	-48.90	-13	-35.90
3346.4	-50.37	69	1.6	H	3.17	-47.20	-13	-34.20
3346.4	-50.41	129	1	V	3.21	-47.20	-13	-34.20
High channel								
213.02	-75.56	62	2	H	-3.69	-79.25	-13	-66.25
213.02	-78.32	342	2.2	V	-1.61	-79.93	-13	-66.93
1693.2	-48.86	110	1.5	H	-2.64	-51.50	-13	-38.50
1693.2	-52.11	273	2.1	V	-2.69	-54.80	-13	-41.80
2539.8	-54.31	205	1.6	H	2.01	-52.30	-13	-39.30
2539.8	-53.55	189	1.4	V	2.15	-51.40	-13	-38.40
3386.4	-49.77	128	1.8	H	3.17	-46.60	-13	-33.60
3386.4	-50.41	309	2	V	3.21	-47.20	-13	-34.20

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
LTE Band2								
Test frequency range: 30MHz-20GHz								
1.4MHz, Low channel								
213.02	-75.20	3	1	H	-3.69	-78.89	-13	-65.89
213.02	-77.64	36	1.8	V	-1.61	-79.25	-13	-66.25
3701.4	-47.07	248	1.1	H	4.97	-42.10	-13	-29.10
3701.4	-46.18	186	1.2	V	4.88	-41.30	-13	-28.30
5552.1	-44.32	23	2	H	10.62	-33.70	-13	-20.70
5552.1	-42.15	138	1.5	V	8.65	-33.50	-13	-20.50
1.4MHz, Middle channel								
213.02	-74.88	136	1.9	H	-3.69	-78.57	-13	-65.57
213.02	-77.41	283	1.4	V	-1.61	-79.02	-13	-66.02
3760.0	-47.12	181	1.3	H	5.02	-42.10	-13	-29.10
3760.0	-45.51	77	1.1	V	4.91	-40.60	-13	-27.60
5640.0	-45.78	355	1.9	H	10.68	-35.10	-13	-22.10
5640.0	-45.62	325	1.3	V	10.12	-35.50	-13	-22.50
1.4MHz, High channel								
213.02	-76.08	303	1.1	H	-3.69	-79.77	-13	-66.77
213.02	-77.59	106	1.6	V	-1.61	-79.20	-13	-66.20
3818.6	-36.04	212	1.4	H	-5.26	-41.30	-13	-28.30
3818.6	-36.97	115	1.4	V	-5.03	-42.00	-13	-29.00
5727.9	-51.87	283	2	H	10.77	-41.10	-13	-28.10
5727.9	-53.32	299	1.1	V	12.32	-41.00	-13	-28.00

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
LTE Band4								
Test frequency range: 30MHz-20GHz								
1.4MHz, Low channel								
213.02	-75.99	351	1.9	H	-3.69	-79.68	-13	-66.68
213.02	-76.73	95	1.3	V	-1.61	-78.34	-13	-65.34
3421.4	-31.35	24	1.7	H	3.35	-28.00	-13	-15.00
3421.4	-29.44	251	1.6	V	3.34	-26.10	-13	-13.10
5132.1	-38.8	45	1.2	H	9.50	-29.30	-13	-16.30
5132.1	-38.52	262	1.3	V	8.32	-30.20	-13	-17.20
1.4MHz, Middle channel								
213.02	-75.88	350	1.2	H	-3.69	-79.57	-13	-66.57
213.02	-77.92	107	1.5	V	-1.61	-79.53	-13	-66.53
3465.0	-29.41	250	1.6	H	3.41	-26.00	-13	-13.00
3465.0	-28.19	111	1.6	V	3.39	-24.80	-13	-11.80
5197.5	-38.78	43	1.3	H	9.78	-29.00	-13	-16.00
5197.5	-37.79	263	1.5	V	8.39	-29.40	-13	-16.40
1.4MHz, High channel								
213.02	-75.35	154	1.7	H	-3.69	-79.04	-13	-66.04
213.02	-76.90	338	2.1	V	-1.61	-78.51	-13	-65.51
3508.6	-33.24	306	1.2	H	3.54	-29.70	-13	-16.70
3508.6	-30.27	285	2.1	V	3.47	-26.80	-13	-13.80
5262.9	-36.26	246	1.5	H	10.06	-26.20	-13	-13.20
5262.9	-37.58	100	1.9	V	8.48	-29.10	-13	-16.10

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
LTE Band12								
Test frequency range: 30MHz-10GHz								
1.4MHz, Low channel								
213.0	-76.08	353	1.9	H	-3.69	-79.77	-13	-66.77
213.0	-76.48	52	1.2	V	-1.61	-78.09	-13	-65.09
1399.4	-50.87	322	1.1	H	-0.53	-51.40	-13	-38.40
1399.4	-53.66	243	1.3	V	-0.74	-54.40	-13	-41.40
2099.1	-47.25	41	1.2	H	-1.25	-48.50	-13	-35.50
2099.1	-47.14	152	1.9	V	-1.56	-48.70	-13	-35.70
2798.8	-53.12	253	1	H	2.42	-50.70	-13	-37.70
2798.8	-52.34	52	1.5	V	2.54	-49.80	-13	-36.80
3498.5	-39.54	108	1.3	H	3.54	-36.00	-13	-23.00
3498.5	-39.27	16	1.5	V	3.47	-35.80	-13	-22.80
4198.2	-53.27	146	1.6	H	6.97	-46.30	-13	-33.30
4198.2	-53.28	94	1.3	V	6.78	-46.50	-13	-33.50
1.4MHz, Middle channel								
213.02	-74.83	7	1.3	H	-3.69	-78.52	-13	-65.52
213.02	-78.26	242	1.4	V	-1.61	-79.87	-13	-66.87
1415.0	-56.78	252	1.1	H	-0.62	-57.40	-13	-44.40
1415.0	-57.19	313	1.6	V	-0.81	-58.00	-13	-45.00
2122.5	-47.37	117	1.6	H	-1.33	-48.70	-13	-35.70
2122.5	-47.62	21	1.4	V	-1.68	-49.30	-13	-36.30
2830.0	-47.41	323	1.7	H	2.51	-44.90	-13	-31.90
2830.0	-47.66	340	2.2	V	2.66	-45.00	-13	-32.00
3537.5	-33.58	286	1.9	H	3.58	-30.00	-13	-17.00
3537.5	-34.79	308	1.1	V	3.49	-31.30	-13	-18.30
4245.0	-50.54	224	1.9	H	7.54	-43.00	-13	-30.00
4245.0	-52.08	279	1.5	V	7.28	-44.80	-13	-31.80
1.4MHz, High channel								
213.02	-74.78	121	1.2	H	-3.69	-78.47	-13	-65.47
213.02	-76.46	301	1.3	V	-1.61	-78.07	-13	-65.07
1430.6	-55.64	210	1.5	H	-0.66	-56.30	-13	-43.30
1430.6	-57.28	8	1.4	V	-0.92	-58.20	-13	-45.20
2145.9	-47.74	206	1.6	H	-1.36	-49.10	-13	-36.10
2145.9	-47.58	209	1.3	V	-1.72	-49.30	-13	-36.30
2861.2	-45.76	72	1.4	H	2.66	-43.10	-13	-30.10
2861.2	-45.02	314	2	V	2.82	-42.20	-13	-29.20
3576.5	-30.51	277	1.9	H	3.61	-26.90	-13	-13.90
3576.5	-29.63	156	2.1	V	3.53	-26.10	-13	-13.10
4291.8	-49.22	193	1.1	H	7.72	-41.50	-13	-28.50
4291.8	-51.65	273	1.5	V	7.35	-44.30	-13	-31.30

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
LTE Band13								
Test frequency range: 30MHz-10GHz								
5MHz, Low channel								
213.0	-75.25	203	1.2	H	-3.69	-78.94	-13	-65.94
213.0	-77.00	248	1.8	V	-1.61	-78.61	-13	-65.61
1559.0	-51.06	211	1.7	H	-2.24	-53.30	-40	-13.30
1559.0	-52.84	115	1.3	V	-2.36	-55.20	-40	-15.20
2338.5	-52.58	339	2.2	H	0.68	-51.90	-13	-38.90
2338.5	-51.53	33	1.4	V	0.63	-50.90	-13	-37.90
3118.0	-50.79	359	1.4	H	2.79	-48.00	-13	-35.00
3118.0	-50.73	233	1.1	V	2.93	-47.80	-13	-34.80
5MHz, Middle channel								
213.02	-75.63	144	1.3	H	-3.69	-79.32	-13	-66.32
213.02	-77.27	268	1.5	V	-1.61	-78.88	-13	-65.88
1564.0	-54.82	13	2.1	H	-2.28	-57.10	-40	-17.10
1564.0	-54.99	325	1.3	V	-2.41	-57.40	-40	-17.40
2346.0	-53.83	73	1.6	H	0.73	-53.10	-13	-40.10
2346.0	-53.06	189	1.5	V	0.66	-52.40	-13	-39.40
3128.0	-50.82	296	1.2	H	2.82	-48.00	-13	-35.00
3128.0	-50.45	281	1.5	V	2.95	-47.50	-13	-34.50
5MHz, High channel								
213.02	-75.89	153	2.2	H	-3.69	-79.58	-13	-66.58
213.02	-78.33	252	1.6	V	-1.61	-79.94	-13	-66.94
1569.0	-54.56	334	2	H	-2.44	-57.00	-40	-17.00
1569.0	-53.98	130	1.5	V	-2.52	-56.50	-40	-16.50
2353.5	-53.36	140	2	H	0.76	-52.60	-13	-39.60
2353.5	-50.69	246	1.7	V	-0.71	-51.40	-13	-38.40
3138.0	-51.07	10	2.1	H	2.87	-48.20	-13	-35.20
3138.0	-50.55	10	1	V	2.95	-47.60	-13	-34.60

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
LTE Band41								
Test frequency range: 30MHz-26.5GHz								
5MHz, Low channel								
213.02	-86.88	335	1.1	H	-3.69	-90.57	-25	-65.57
213.02	-88.67	146	2.1	V	-1.61	-90.28	-25	-65.28
5115.0	-52.58	215	1.9	H	9.78	-42.80	-25	-17.80
5115.0	-51.9	312	1.3	V	8.40	-43.50	-25	-18.50
7672.5	-48.16	161	1.9	H	14.36	-33.80	-25	-8.80
7672.5	-49.83	228	1.2	V	15.13	-34.70	-25	-9.70
5MHz, Middle channel								
213.02	-87.43	236	1.4	H	-3.69	-91.12	-25	-66.12
213.02	-88.87	114	1.4	V	-1.61	-90.48	-25	-65.48
5210.0	-51.03	337	1.5	H	9.82	-41.21	-25	-16.21
5210.0	-50.9	298	1.1	V	8.46	-42.44	-25	-17.44
7815.0	-48.68	45	1.8	H	15.18	-33.50	-25	-8.50
7815.0	-50.23	351	1.4	V	15.73	-34.50	-25	-9.50
5MHz, High channel								
213.02	-86.39	327	1.9	H	-3.69	-90.08	-25	-65.08
213.02	-89.23	144	1	V	-1.61	-90.84	-25	-65.84
5305.0	-51.73	75	2.2	H	10.21	-41.52	-25	-16.52
5305.0	-50.7	278	1.3	V	8.62	-42.08	-25	-17.08
7957.5	-49.2	40	1.7	H	16.00	-33.20	-25	-8.20
7957.5	-51.03	118	1.1	V	16.33	-34.70	-25	-9.70

Note:

Absolute Level = Reading Level + Substituted Factor

Substituted Factor contains: SG Level - Cable loss+ Antenna Gain

Margin = Absolute Level - Limit

FCC § 22.917 (a); § 24.238 (a); §27.53 (c)(h)(m) - BAND EDGES**Applicable Standard**

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 (c), For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

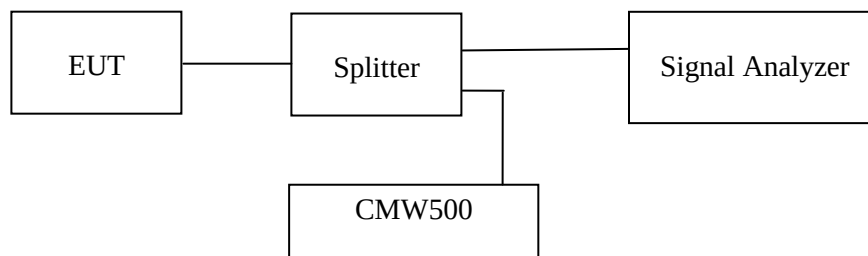
- (1) On any frequency outside the 746-758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log(P)$ dB;
- (2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log(P)$ dB;
- (3) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than $76 + 10 \log(P)$ dB in a 6.25 kHz band segment, for base and fixed stations;
- (4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than $65 + 10 \log(P)$ dB in a 6.25 kHz band segment, for mobile and portable stations;

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.

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**

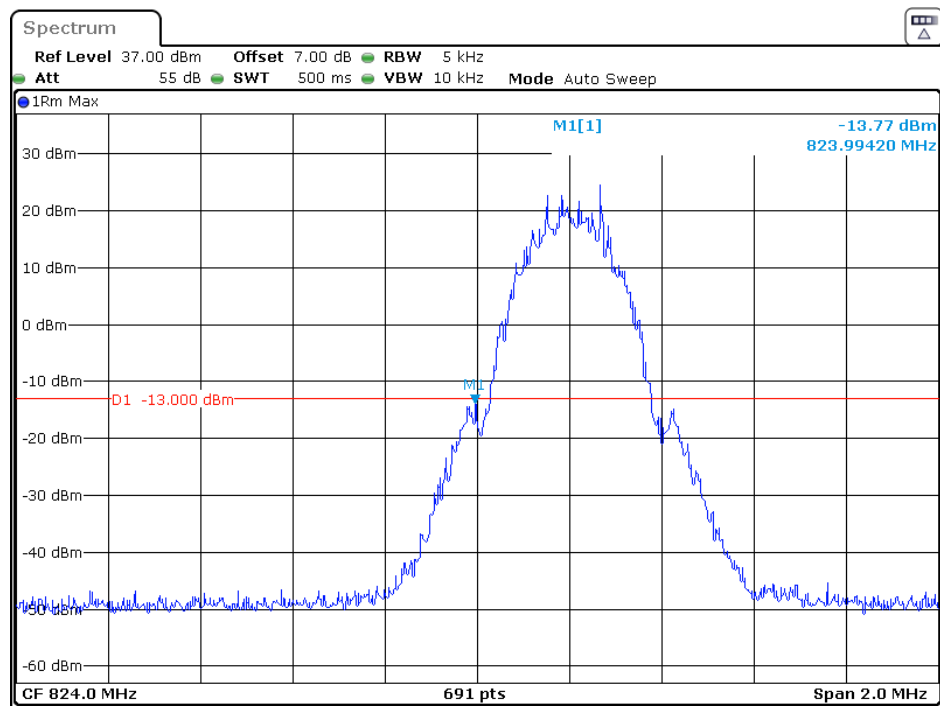
Temperature:	27 °C
Relative Humidity:	58 %
ATM Pressure:	101.0 kPa

The testing was performed by Black Ding from 2021-09-26 to 2021-11-04.

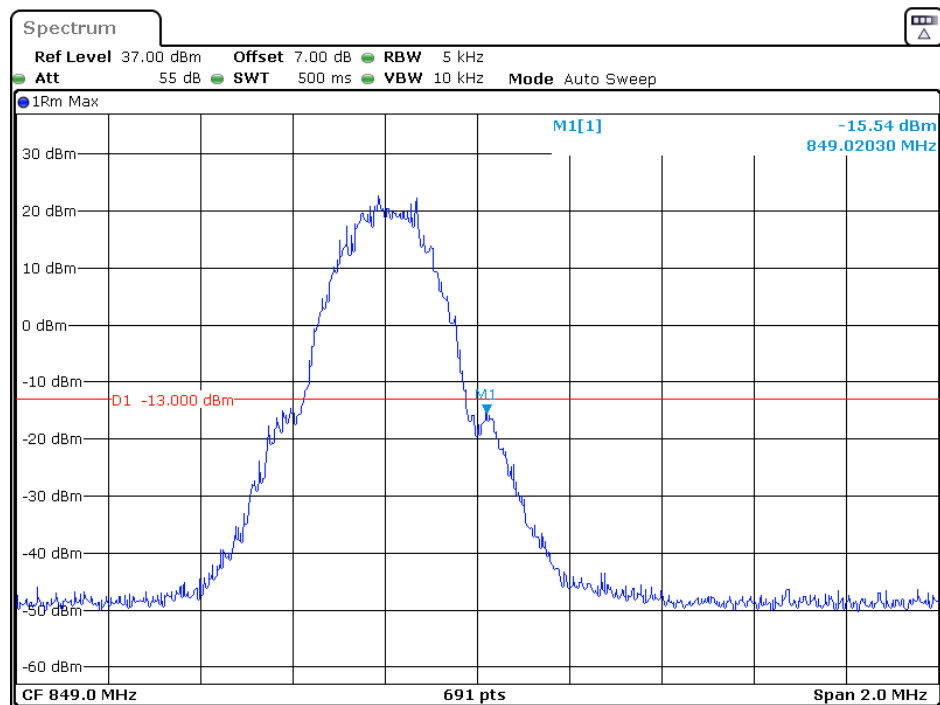
EUT operation mode: Transmitting (Worst case)

Test Result: Pass

Please refer to the following plots.

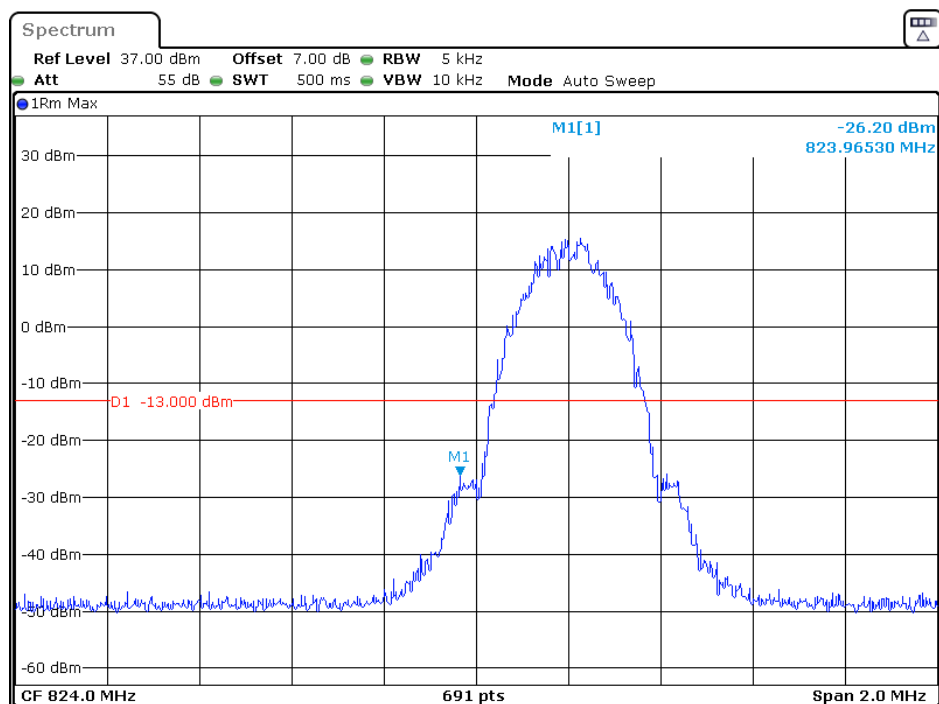
Cellular Band, Left Band Edge for GPRS (GMSK) Mode

Date: 27.SEP.2021 11:38:01

Cellular Band, Right Band Edge for GPRS (GMSK) Mode

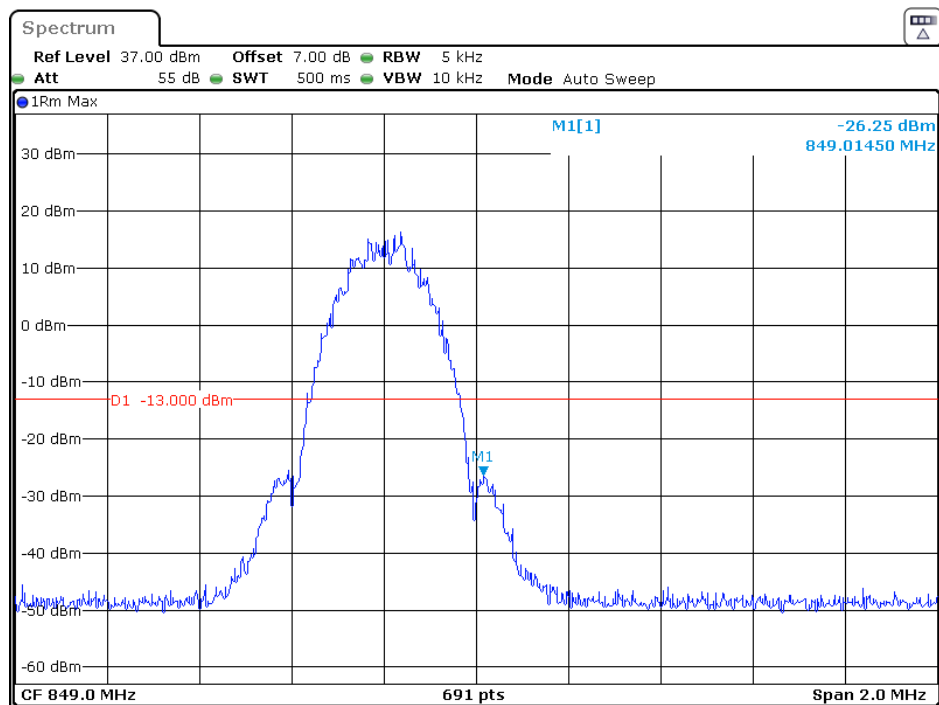
Date: 27.SEP.2021 11:40:14

Cellular Band, Left Band Edge for EGPRS (8PSK) Mode

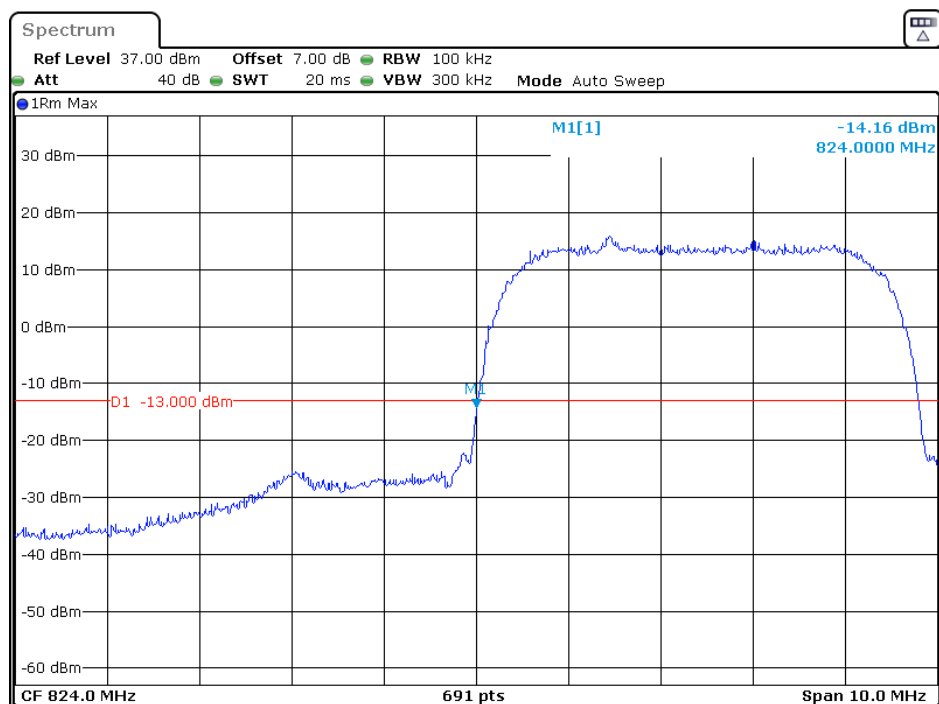


Date: 27.SEP.2021 13:15:06

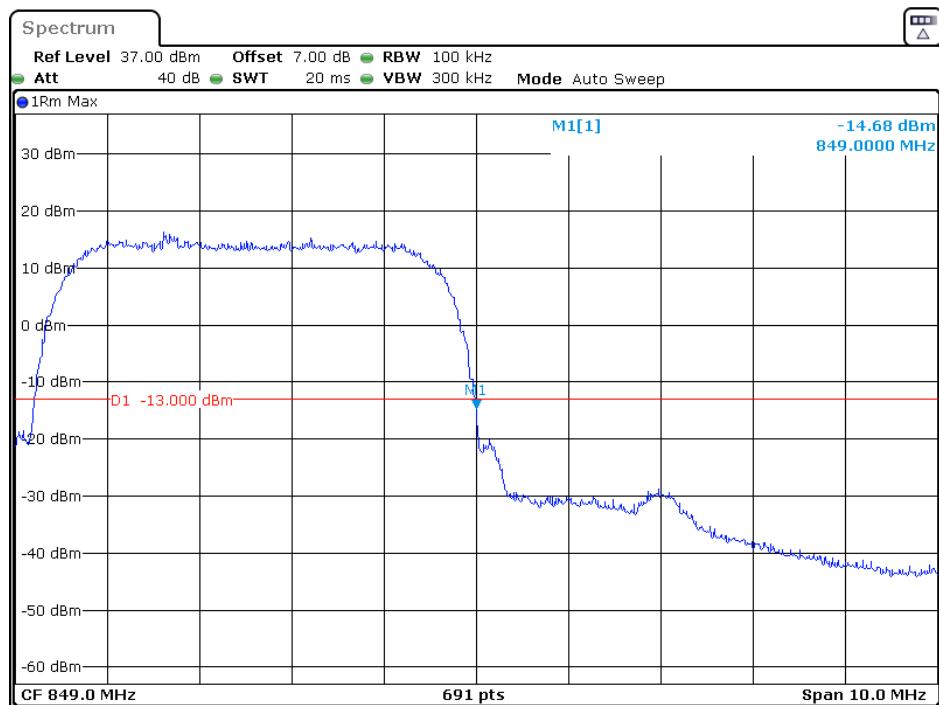
Cellular Band, Right Band Edge for EGPRS (8PSK) Mode



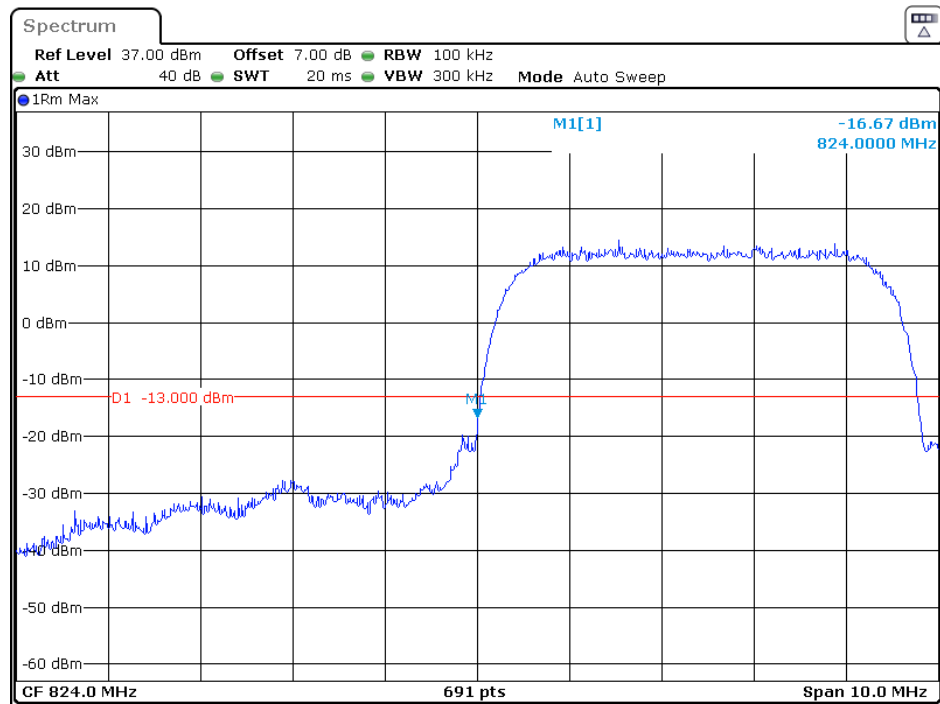
Date: 27.SEP.2021 13:16:36

Cellular Band, Left Band Edge for RMC (BPSK) Mode

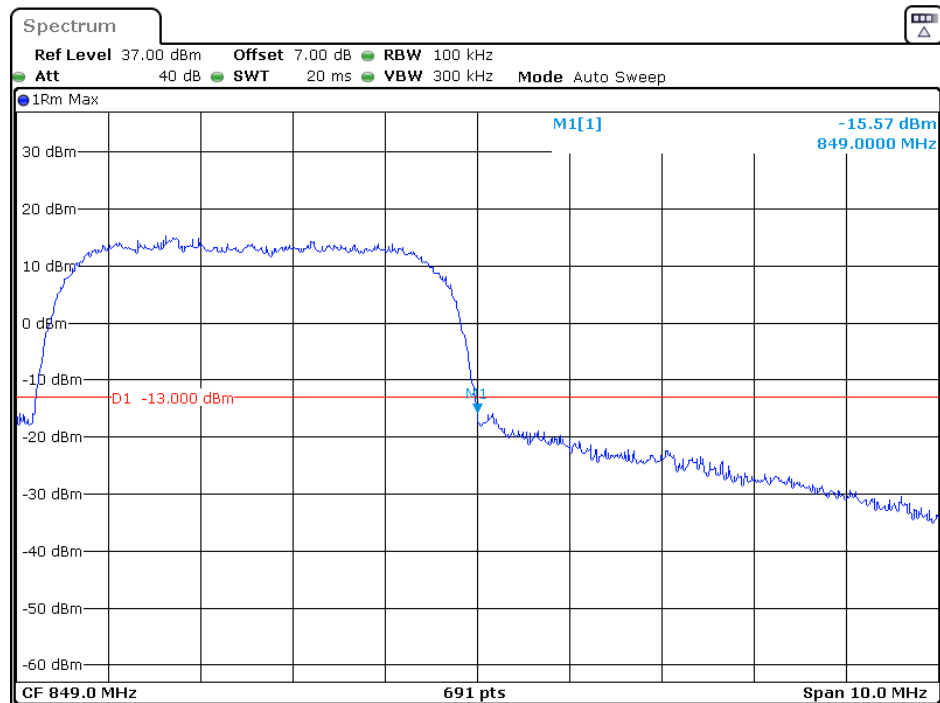
Date: 27.SEP.2021 15:09:44

Cellular Band, Right Band Edge for RMC (BPSK) Mode

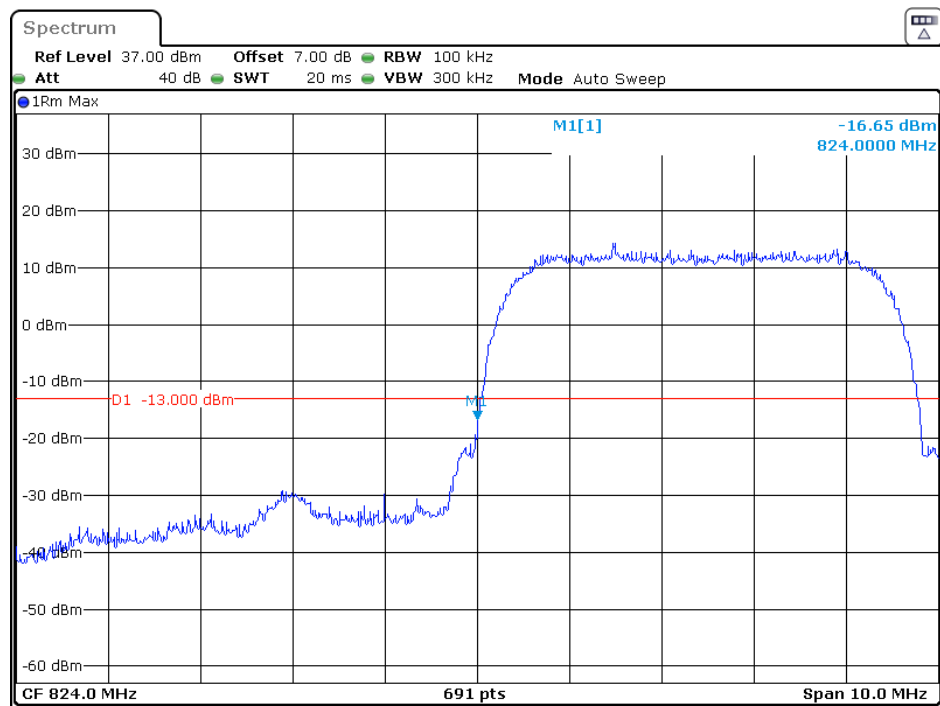
Date: 27.SEP.2021 15:09:02

Cellular Band, Left Band Edge for HSDPA (16QAM) Mode

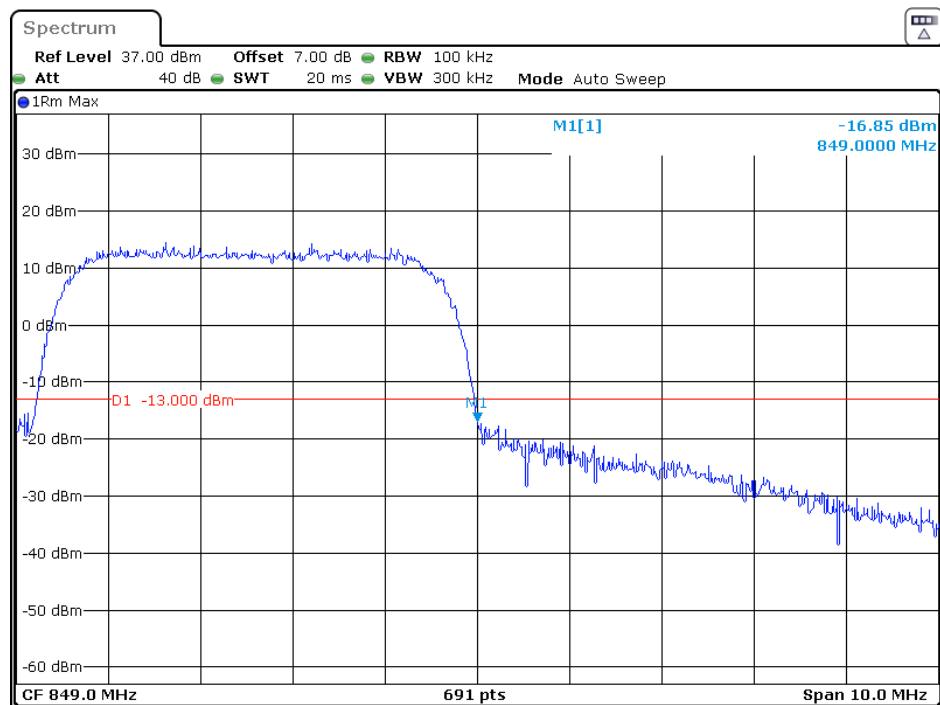
Date: 27.SEP.2021 15:06:04

Cellular Band, Right Band Edge for HSDPA (16QAM) Mode

Date: 27.SEP.2021 15:07:41

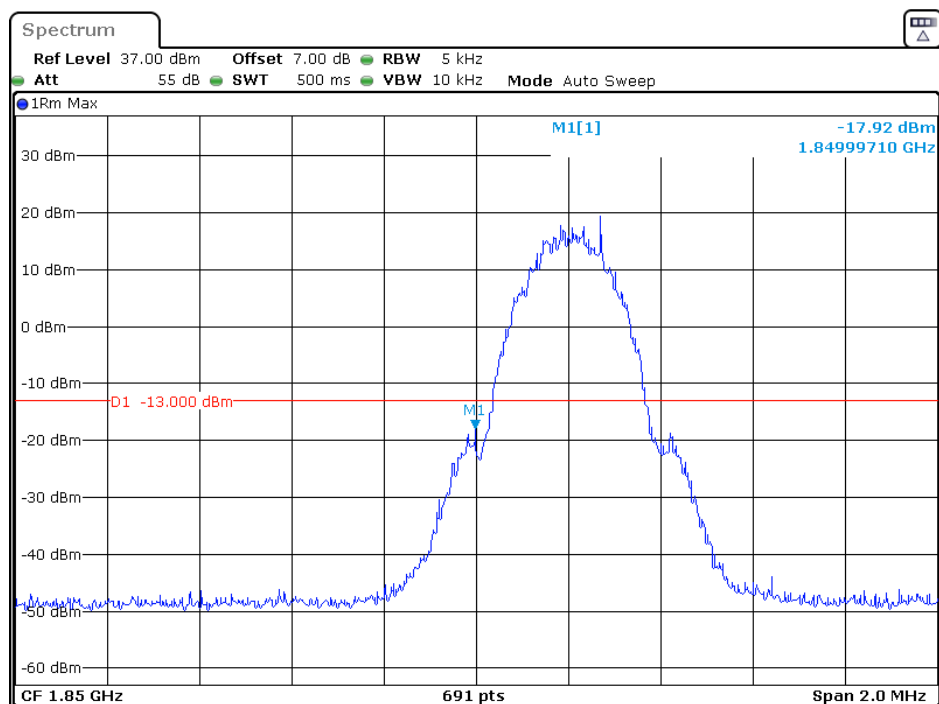
Cellular Band, Left Band Edge for HSUPA (BPSK) Mode

Date: 27.SEP.2021 15:04:49

Cellular Band, Right Band Edge for HSUPA (BPSK) Mode

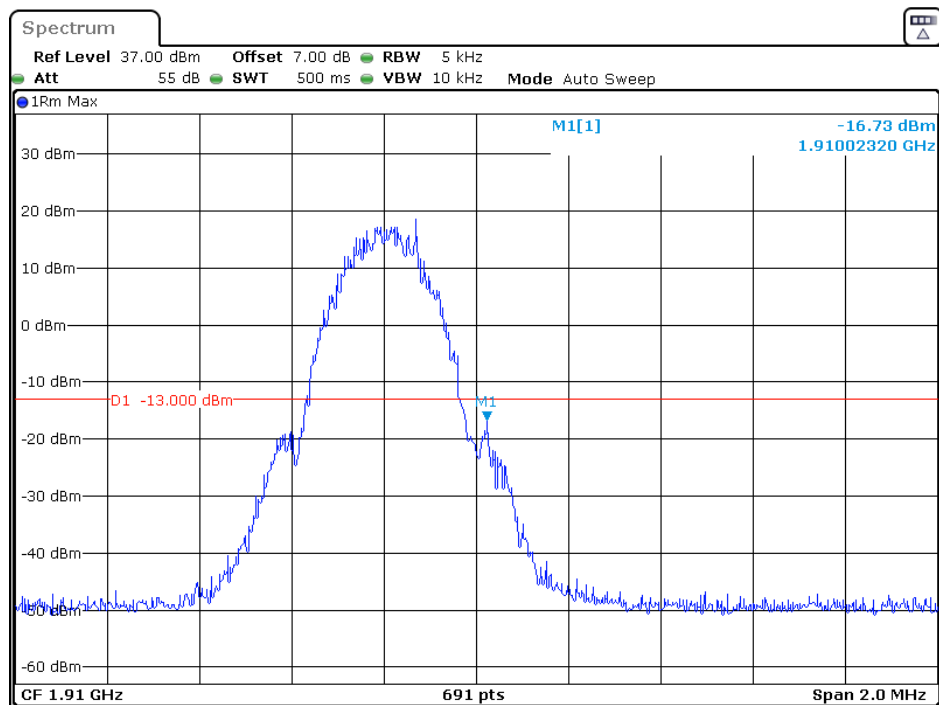
Date: 27.SEP.2021 15:03:45

PCS Band, Left Band Edge for GPRS (GMSK) Mode

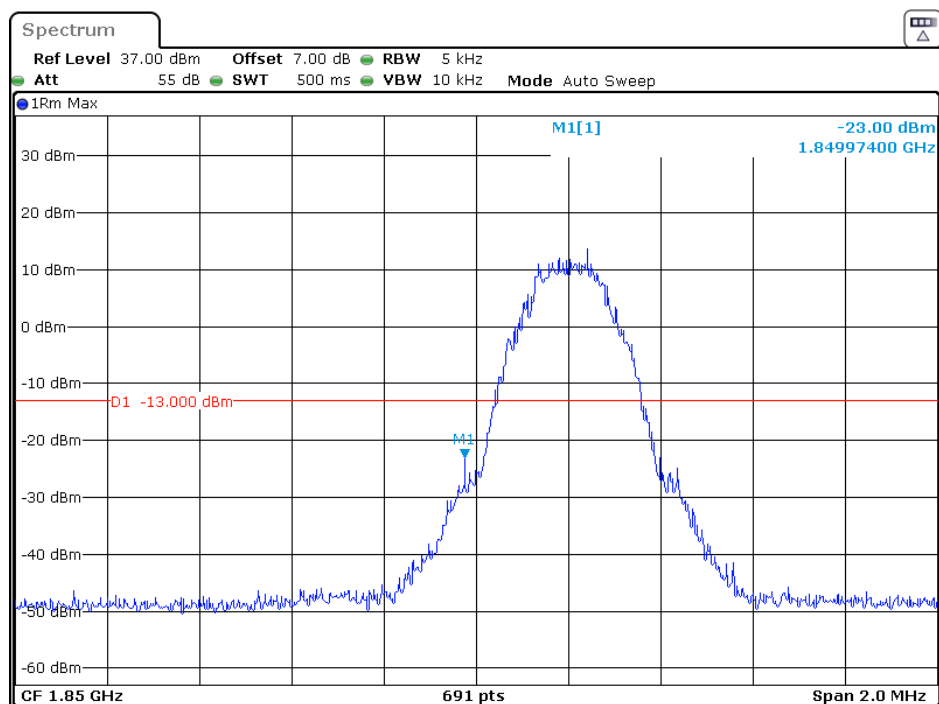


Date: 27.SEP.2021 13:07:14

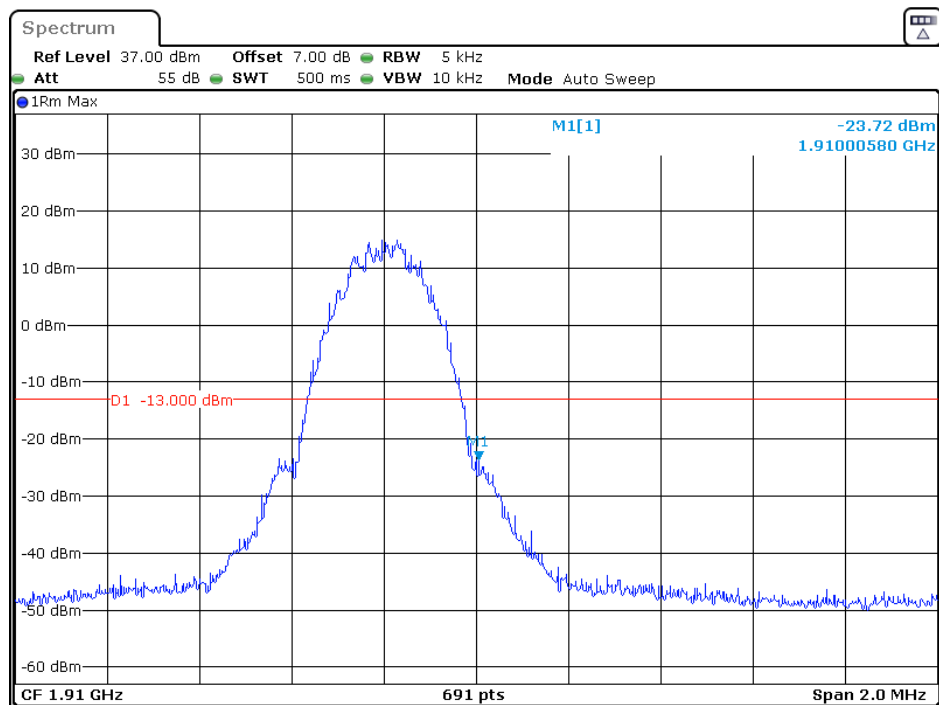
PCS Band, Right Band Edge for GPRS (GMSK) Mode



Date: 27.SEP.2021 11:46:02

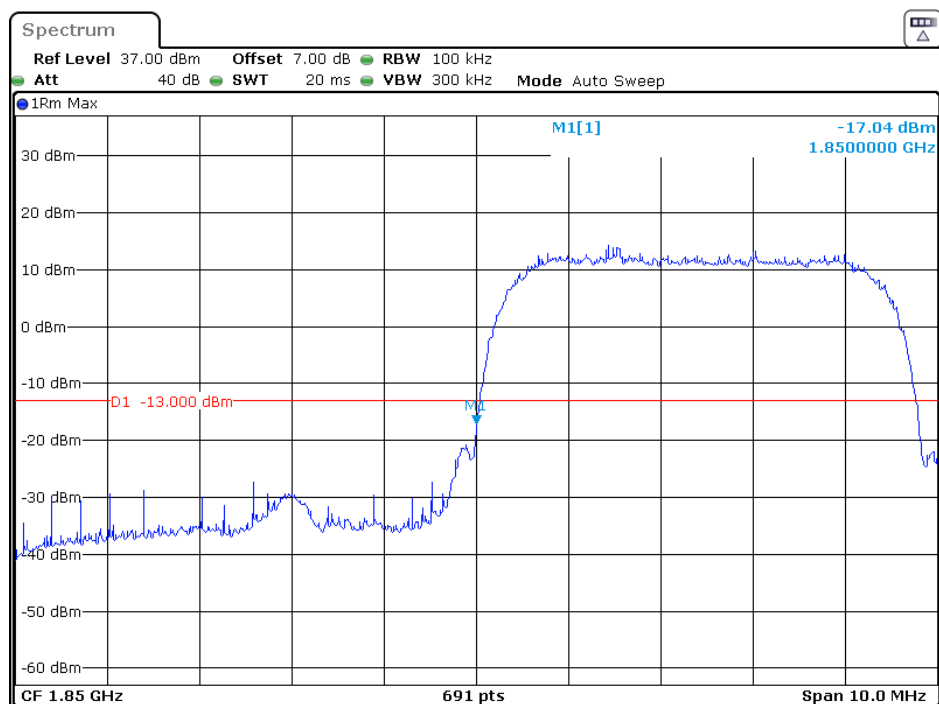
PCS Band, Left Band Edge for EGPRS (8PSK) Mode

Date: 27.SEP.2021 13:10:47

PCS Band, Right Band Edge for EGPRS (8PSK) Mode

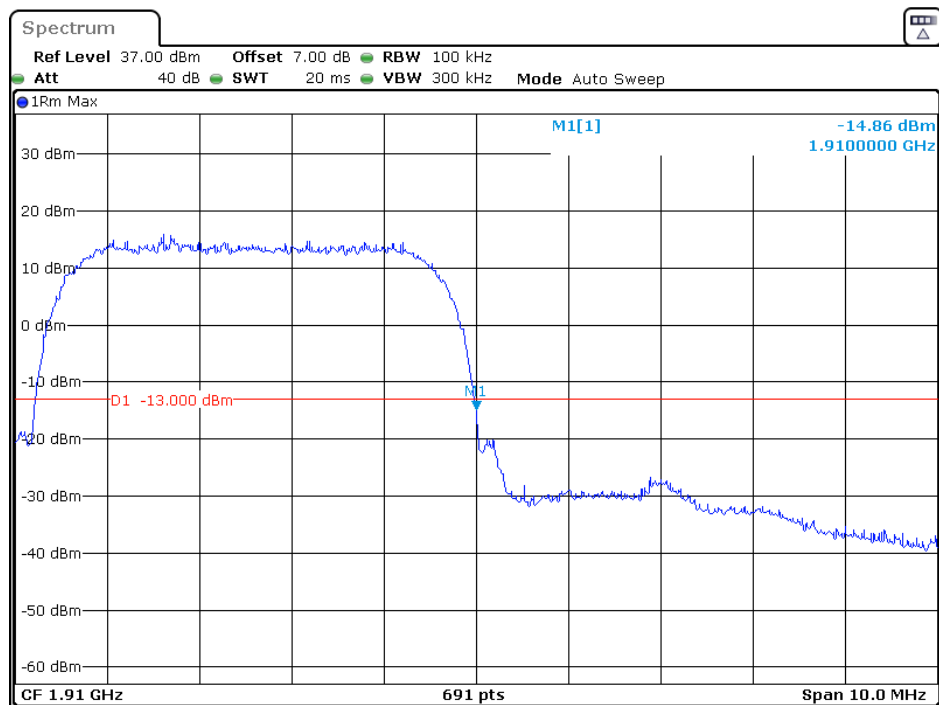
Date: 27.SEP.2021 13:12:21

PCS Band, Left Band Edge for RMC (BPSK) Mode

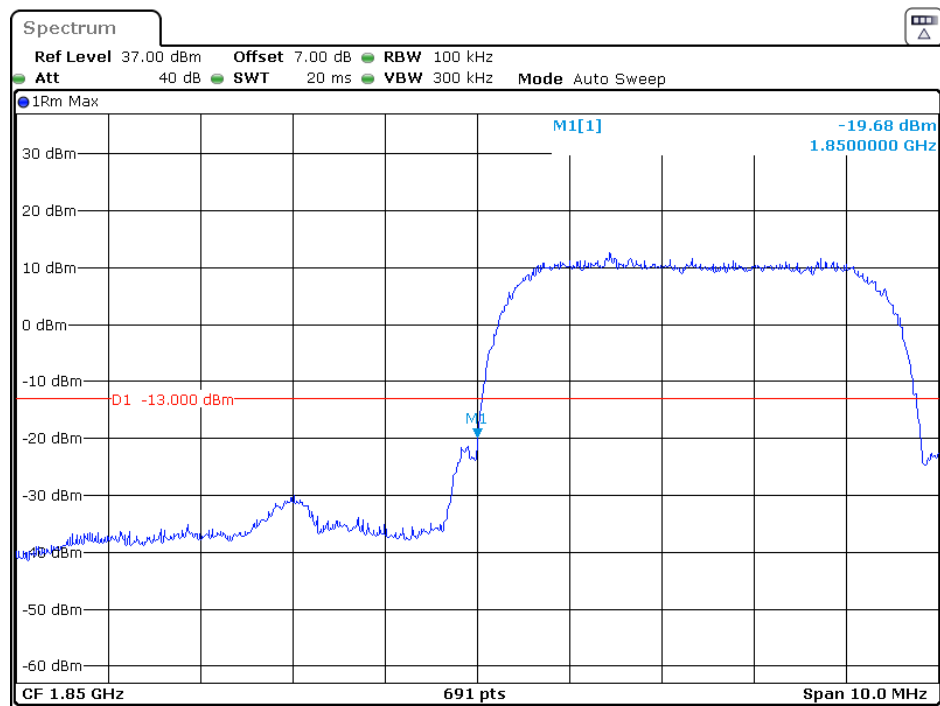


Date: 27.SEP.2021 15:11:30

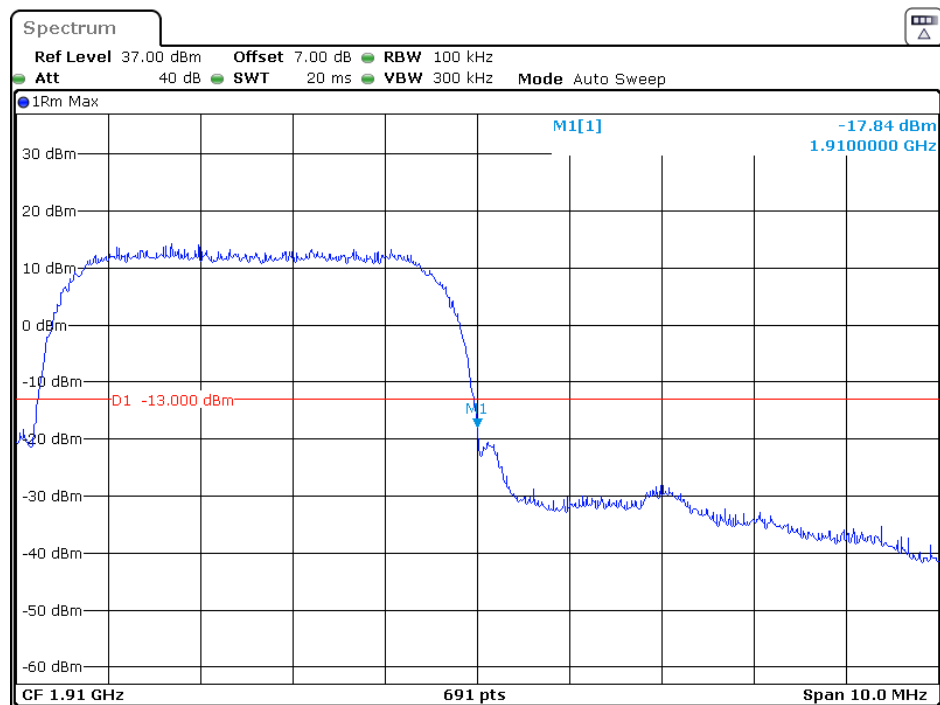
PCS Band, Right Band Edge for RMC (BPSK) Mode



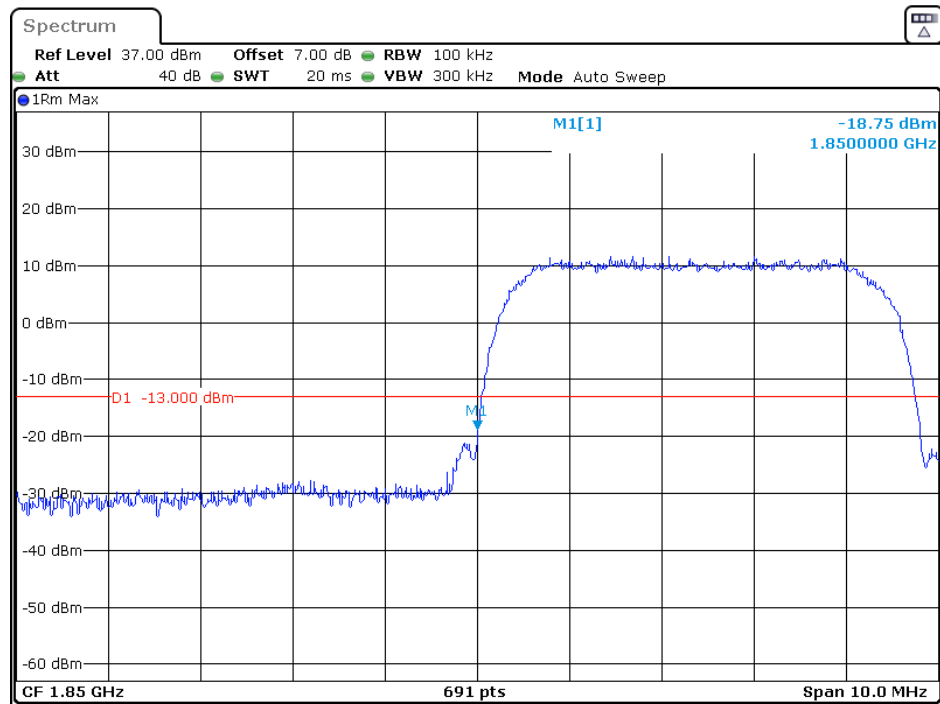
Date: 27.SEP.2021 15:12:15

PCS Band, Left Band Edge for HSDPA (16QAM) Mode

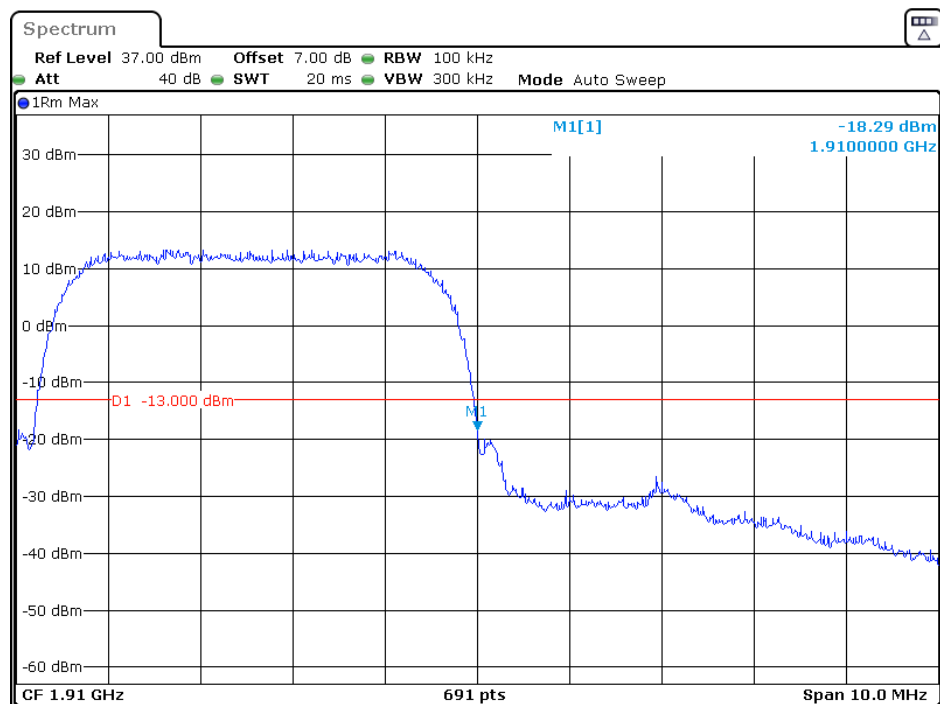
Date: 27.SEP.2021 15:14:06

PCS Band, Right Band Edge for HSDPA (16QAM) Mode

Date: 27.SEP.2021 15:13:22

PCS Band, Left Band Edge for HSUPA (BPSK) Mode

Date: 27.SEP.2021 15:15:06

PCS Band, Right Band Edge for HSUPA (BPSK) Mode

Date: 27.SEP.2021 15:15:50

The test plots of LTE bands please refer to the Appendix C.

FCC § 2.1055; § 22.355; § 24.235; §27.54 - FREQUENCY STABILITY**Applicable Standard**

FCC § 2.1055, §22.355, §24.235 & §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

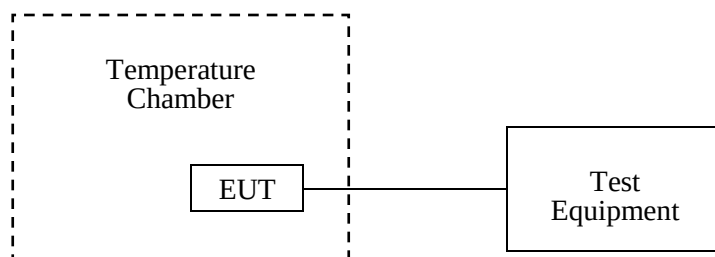
According to §24.235 & §27.54, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

Test Procedure

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

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

Frequency Stability vs. Voltage: 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:	27 °C
Relative Humidity:	58 %
ATM Pressure:	101.0 kPa

The testing was performed by Black Ding from 2021-09-26 to 2021-09-30.

EUT operation mode: Transmitting

Test Result: Pass

Please refer to the following tables.

Cellular Band (Part 22H)**GSM Mode**

Middle Channel, $f_0 = 836.6\text{MHz}$				
Temperature (°C)	Voltage Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	N.V.	4	0.0048	2.5
-20		2	0.0024	2.5
-10		3	0.0036	2.5
0		2	0.0024	2.5
10		1	0.0012	2.5
20		4	0.0048	2.5
30		6	0.0072	2.5
40		4	0.0048	2.5
50		1	0.0012	2.5
20	L.V.	2	0.0024	2.5
	H.V.	10	0.0120	2.5

EGPRS Mode

Middle Channel, $f_0 = 836.6\text{MHz}$				
Temperature (°C)	Voltage Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	N.V.	-12	-0.0143	2.5
-20		-10	-0.0120	2.5
-10		-9	-0.0108	2.5
0		-7	-0.0084	2.5
10		-6	-0.0072	2.5
20		-11	-0.0131	2.5
30		-13	-0.0155	2.5
40		-8	-0.0096	2.5
50		-7	-0.0084	2.5
20	L.V.	-2	-0.0024	2.5
	H.V.	-9	-0.0108	2.5

WCDMA Mode

Middle Channel, $f_0 = 836.6\text{MHz}$				
Temperature (°C)	Voltage Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	N.V.	-2	-0.0024	2.5
-20		8	0.0096	2.5
-10		3	0.0036	2.5
0		-4	-0.0048	2.5
10		3	0.0036	2.5
20		-6	0.0072	2.5
30		10	0.0120	2.5
40		-7	-0.0084	2.5
50		-6	-0.0072	2.5
20	L.V.	2	0.0024	2.5
	H.V.	1	0.0012	2.5

PCS Band (Part 24E)**GSM Mode**

Middle Channel, $f_0 = 1880.0$ MHz				
Temperature (°C)	Voltage Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	N.V.	6	-0.0032	Pass
-20		10	0.0053	Pass
-10		5	0.0027	Pass
0		3	0.0016	Pass
10		1	0.0005	Pass
20		-4	0.0021	Pass
30		-3	-0.0016	Pass
40		-6	-0.0032	Pass
50		-5	-0.0027	Pass
20	L.V.	1	0.0005	Pass
	H.V.	-3	-0.0016	Pass

EGPRS Mode

Middle Channel, $f_0 = 1880.0$ MHz				
Temperature (°C)	Voltage Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	N.V.	-5	-0.0027	Pass
-20		-7	-0.0037	Pass
-10		-6	-0.0032	Pass
0		4	0.0021	Pass
10		-3	-0.0016	Pass
20		2	0.0011	Pass
30		1	0.0005	Pass
40		6	0.0032	Pass
50		3	0.0016	Pass
20	L.V.	5	0.0027	Pass
	H.V.	4	0.0021	Pass

WCDMA Mode

Middle Channel, f_0 =1880.0 MHz				
Temperature (°C)	Voltage Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	N.V.	-12	-0.0064	Pass
-20		15	0.0080	Pass
-10		17	0.0090	Pass
0		-18	-0.0096	Pass
10		-12	-0.0064	Pass
20		-3	0.0016	Pass
30		12	0.0064	Pass
40		-18	-0.0096	Pass
50		-13	-0.0069	Pass
20	L.V.	14	0.0074	Pass
	H.V.	-15	-0.0080	Pass

LTE:
QPSK:
Band 2:

10.0 MHz Middle Channel, $f_0=1880\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	NV	-5.15	-0.0027	Pass
-20		-9.97	-0.0053	Pass
-10		-6.13	-0.0033	Pass
0		6.17	0.0033	Pass
10		7.92	0.0042	Pass
20		6.46	0.0034	Pass
30		-6.52	-0.0035	Pass
40		7.18	0.0038	Pass
50		-9.69	-0.0052	Pass
20	LV	-8.17	-0.0043	Pass
	HV	-7.05	-0.0038	Pass

Band 4:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	NV	1710.4828	1754.7314	1710	1755
-20		1710.4907	1754.7255	1710	1755
-10		1710.4920	1754.6728	1710	1755
0		1710.4932	1754.6673	1710	1755
10		1710.4980	1754.6053	1710	1755
20		1710.4983	1754.5699	1710	1755
30		1710.1740	1754.7823	1710	1755
40		1710.2182	1754.7759	1710	1755
50		1710.4670	1754.6484	1710	1755
20	LV	1710.4940	1754.5415	1710	1755
	HV	1710.4982	1754.5100	1710	1755

Band 12:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	NV	699.4592	715.7356	699	716
-20		699.4971	715.8141	699	716
-10		699.8401	715.6181	699	716
0		699.5509	715.6471	699	716
10		699.8694	715.7855	699	716
20		699.6034	715.7062	699	716
30		699.8541	715.5671	699	716
40		699.8789	715.8647	699	716
50		699.6247	715.6513	699	716
20	LV	699.7356	715.7593	699	716
	HV	699.6746	715.7088	699	716

Band 13

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	NV	777.3306	786.7888	777	787
-20		777.1310	786.7135	777	787
-10		777.3385	786.6096	777	787
0		777.4584	786.5436	777	787
10		777.1081	786.8073	777	787
20		777.3772	786.6208	777	787
30		777.5911	786.5590	777	787
40		777.1842	786.7541	777	787
50		777.3870	786.4579	777	787
20	LV	777.0865	786.4739	777	787
	HV	777.3511	786.7137	777	787

Band 41

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	NV	2555.5086	2654.4951	2555	2655
-20		2555.5053	2654.4901	2555	2655
-10		2555.5070	2654.4906	2555	2655
0		2555.5107	2654.4899	2555	2655
10		2555.5078	2654.4911	2555	2655
20		2555.5060	2654.4930	2555	2655
30		2555.5075	2654.4948	2555	2655
40		2555.5075	2654.4955	2555	2655
50		2555.5117	2654.4894	2555	2655
20	LV	2555.5113	2654.4919	2555	2655
	HV	2555.5081	2654.4899	2555	2655

Note: The applicant declared the operating range is 2555-2655MHz

16QAM:**Band 2:**

10.0 MHz Middle Channel, $f_0 = 1880\text{MHz}$				
Temperature (°C)	Voltage Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	NV	-3.96	-0.0021	Pass
-20		-6.68	-0.0036	Pass
-10		9.77	0.0052	Pass
0		-7.62	-0.0041	Pass
10		-9.91	-0.0053	Pass
20		-9.82	-0.0052	Pass
30		-6.68	-0.0036	Pass
40		-8.85	-0.0047	Pass
50		5.67	0.003	Pass
20	LV	6.05	0.0032	Pass
	HV	7.52	0.004	Pass

Band 4:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V_{DC})	F_L (MHz)	F_H (MHz)	F_L Limit (MHz)	F_H Limit (MHz)
-30	NV	1710.0120	1754.4730	1710	1755
-20		1710.4486	1754.4962	1710	1755
-10		1710.5072	1754.5242	1710	1755
0		1710.3823	1754.3314	1710	1755
10		1710.4157	1754.8054	1710	1755
20		1710.3041	1754.6619	1710	1755
30		1710.4767	1754.7709	1710	1755
40		1710.5258	1754.6850	1710	1755
50		1710.5134	1754.7225	1710	1755
20	LV	1710.4410	1754.6227	1710	1755
	HV	1710.3141	1754.7941	1710	1755

Band 12:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	NV	699.4138	715.5684	699	716
-20		699.5828	715.7605	699	716
-10		699.8400	715.8930	699	716
0		699.5392	715.7127	699	716
10		699.6015	715.5987	699	716
20		699.4125	715.8764	699	716
30		699.8819	715.7142	699	716
40		699.6039	715.4874	699	716
50		699.5543	715.5873	699	716
20	LV	699.5646	715.6202	699	716
	HV	699.4662	715.4331	699	716

Band 13

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	NV	777.7387	786.7647	777	787
-20		777.3897	786.5883	777	787
-10		777.4385	786.6296	777	787
0		777.1232	786.4835	777	787
10		777.2521	786.5545	777	787
20		777.3342	786.7462	777	787
30		777.1594	786.6547	777	787
40		777.1840	786.6575	777	787
50		777.2798	786.6659	777	787
20	LV	777.5646	786.7350	777	787
	HV	777.3878	786.8793	777	787

Band 41

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	NV	2555.5131	2654.4903	2555	2655
-20		2555.5161	2654.4938	2555	2655
-10		2555.5092	2654.4939	2555	2655
0		2555.5152	2654.4964	2555	2655
10		2555.5122	2654.4918	2555	2655
20		2555.5136	2654.4953	2555	2655
30		2555.5144	2654.4950	2555	2655
40		2555.5165	2654.4939	2555	2655
50		2555.5155	2654.4925	2555	2655
20	LV	2555.5160	2654.4939	2555	2655
	HV	2555.5170	2654.4949	2555	2655

Note: The applicant declared the operating range is 2555-2655MHz

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