FCC PART 27

FCC PART 22H, PART 24E

TEST REPORT

For

INFINIX MOBILITY LIMITED

FLAT 39 8/F BLOCK D WAH LOK INDUSTRIAL CENTRE 31-35 SHAN MEI STREET
FOTAN NT, Hong Kong

FCC ID: 2AIZN-X689D

Report Type:	**Product Type:**
Original Report	Mobile phone

Report Number: SZ1210204-04123E-00E

Report Date: 2021-03-31

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	Mobile phone
Tested Model	X689D
Frequency Range	EGSM 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 4: 1710-1755MHz(TX); 2110-2155MHz(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 5: 824-849MHz(TX); 869-894MHz(RX) LTE Band 7: 2500-2570MHz(TX); 2620-2690MHz(RX) LTE Band 38: 2570-2620MHz(TX/RX) LTE Band 41: 2535-2655MHz(TX/RX) LTE Band 66: 1710-1780MHz(TX); 2110-2180MHz(RX)
Modulation Technique	2G: GMSK, 8PSK 3G: BPSK, QPSK, 16QAM 4G: QPSK, 16QAM
Antenna Specification*	EGSM850/ WCDMA Band 5/ LTE Band 5: -1.5dBi PCS1900/WCDMA Band 2/ LTE Band 2: -0.5dBi WCDMA Band 4/ LTE Band 4/ LTE Band 66: -0.7dBi LTE Band 7/LTE Band 38/LTE Band 41: -0.4dBi (provided by the applicant)
Voltage Range	DC3.85V from battery or DC 5.0V from adapter
Date of Test	2021-02-05 to 2021-03-24
Sample serial number	SZ1210204-04123E-RF-S1(Assigned by BACL, Shenzhen)
Received date	2021-02-04
Sample/EUT Status	Good condition
Adapter information	Model: U100XSA 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 and Part 24-Subpart E and Subpart 27 of the Federal Communication Commissions 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 Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		±5%
RF output power, conducted		±0.73dB
Unwanted Emission, conducted		±1.6dB
Emissions, Radiated	Below 1GHz	±4.75dB
	Above 1GHz	±4.88dB
Temperature		±1℃
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 Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 5F(B-West) ,6F,7F,the 3rd Phase of Wan Li Industrial Building D,Shihua Rd, FuTian Free Trade Zone, Shenzhen, 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.: 342867, the FCC Designation No.: CN1221.

The test site has been registered with ISED Canada under ISED Canada Registration Number 3062B.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

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

Test was performed as below table:

Frequency band	Bandwidth (MHz)	Test Frequency(MHz)		
		Low	Middle	High
EGSM850	0.25	824.2	836.6	848.8
DCS1900	0.25	1850.2	1880	1909.8
WCDMA B2	4.2	1852.4	1880	1907.6
WCDMA B4	4.2	1712.4	1732.6	1752.6
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 B5	1.4	824.7	836.5	848.3
	3	825.5	836.5	847.5
	5	826.5	836.5	846.5
	10	829	836.5	844
LTE B7	5	2502.5	2535	2567.5
	10	2505	2535	2565
	15	2507.5	2535	2562.5
	20	2510	2535	2560
LTE B38	5	2572.5	2595	2617.5
	10	2575	2595	2615
	15	2577.5	2595	2612.5
	20	2580	2595	2610

Frequency band	Bandwidth (MHz)	Test Frequency(MHz)		
		Low	Middle	High
LTE B41	5	2537.5	2593	2652.5
	10	2540	2593	2650
	15	2542.5	2593	2647.5
	20	2545	2593	2645
LTE B66	1.4	1710.7	1745	1779.3
	3	1711.5	1745	1778.5
	5	1712.5	1745	1777.5
	10	1715	1745	1775
	15	1717.5	1745	1772.5
	20	1720	1745	1770

Equipment Modifications

No modification was made to the EUT.

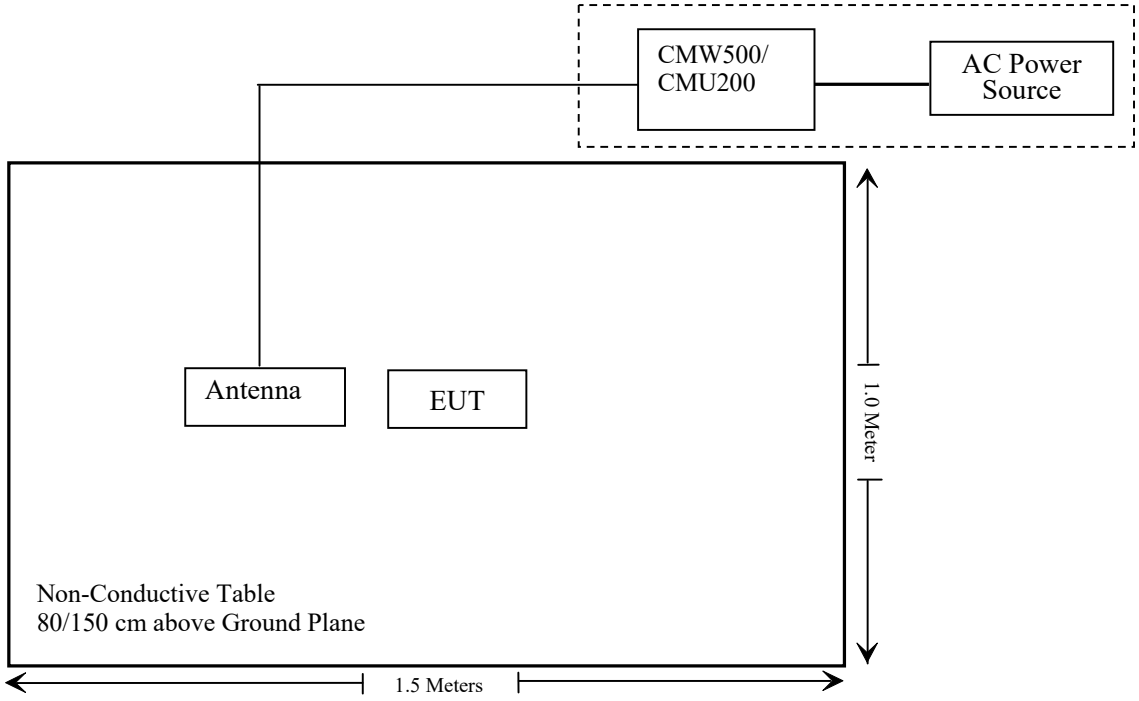
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	1201.002K50-116218-U
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	115500

Support Cable Description

Cable Description	Length (m)	From / Port	To
Unshielded Un-detachable AC cable	1.2	AC Power	CMW500/ CMU200

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§ 1.1307 , §2.1093	RF Exposure (SAR)	Compliance*
§2.1046; § 22.913 (a); § 24.232 (c); §27.50 (a) (d) (h)	RF Output Power	Compliance
§ 2.1047	Modulation Characteristics	Not Applicable
§ 2.1049; § 22.905; § 22.917; § 24.238; §27.53	Occupied Bandwidth	Compliance
§ 2.1051; § 22.917 (a); § 24.238 (a); §27.53	Spurious Emissions at Antenna Terminal	Compliance
§ 2.1053; § 22.917 (a); § 24.238 (a); §27.53	Field Strength of Spurious Radiation	Compliance
§ 22.917 (a); § 24.238 (a); §27.53(a)(h) (m)	Band Edge	Compliance
§ 2.1055; § 22.355; § 24.235; §27.54;	Frequency stability	Compliance

Note: * Please refer to SAR report released by BACL, report number: SZ1210204-04123E-20.

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test					
R&S	EMI Test Receiver	ESR3	102455	2020/08/04	2021/08/03
Sonoma instrument	Pre-amplifier	310 N	186238	2020/08/04	2021/08/03
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2020/12/22	2023/12/21
COM-POWER	Dipole Antenna	AD-100	721027	NCR	NCR
Unknown	Cable 2	RF Cable 2	F-03-EM197	2020/11/29	2021/11/28
Unknown	Cable	Chamber Cable 1	F-03-EM236	2020/11/29	2021/11/28
Rohde & Schwarz	Spectrum Analyzer	FSV40-N	102259	2020/08/04	2021/08/03
COM-POWER	Pre-amplifier	PA-122	181919	2020/11/29	2021/11/28
Quinstar	Amplifier	QLW-18405536-J0	15964001002	2020/11/29	2021/11/28
Sunol Sciences	Horn Antenna	3115	9107-3694	2021/01/15	2024/01/14
A.H.System	Horn Antenna	SAS-200/571	135	2018/09/01	2021/08/31
Insulted Wire Inc.	RF Cable	SPS-2503-3150	02222010	2020/11/29	2021/11/28
Unknown	RF Cable	W1101-EQ1 OUT	F-19-EM005	2020/11/29	2021/11/28
MICRO-TRONICS	Passband filter	HPM50111	F-19-EM006	2020/04/20	2021/04/19
Unknown	High Pass filter	1.3GHz	101120	2020/04/20	2021/04/19
Ducommun Technolagies	Horn antenna	ARH-4223-02	1007726-01 1304	2020/12/06	2023/12/05
Ducommun Technolagies	Horn antenna	ARH-4223-02	1007726-02 1304	2020/12/06	2023/12/05
Agilent	Signal Generator	N5183A	MY51040755	2020/12/29	2021/12/28

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
RF Conducted Test					
Rohde & Schwarz	SPECTRUM ANALYZER	FSU26	200120	2020/04/03	2021/04/02
Yijia	Temperature & Humidity Meter	10316377	T-03-EM397	2020/09/30	2021/09/29
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	1201.002K50-146520-wh	2020/08/04	2021/08/03
Unknown	RF Cable	Unknown	2301 276	2020/11/29	2021/11/28
Unknown	RF Cable	Unknown	DLO J5/W6102	2020/11/29	2021/11/28
Weinschel	Power divider	1515	MY628	2020/11/29	2021/11/28
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	115500	2020/07/31	2021/07/30
instek	DC Power Supply	GPS-3030DD	EM832096	NCR	NCR
ESPEC	Temperature & Humidity Chamber	EL-10KA	9107726	2021/01/05	2022/01/05
Fluke	Digital Multimeter	287	19000011	2020/07/23	2021/07/22

* Statement of Traceability: Bay Area Compliance Laboratories Corp. (Shenzhen) 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

Compliance, please refer to the SAR report: SZ1210204-04123E-SA.

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

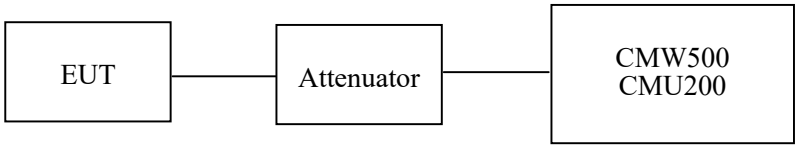
According to §27.50(d), the maximum EIRP must not exceed 1Watts (30dBm) for 1710-1780MHz.

According to §27.50(h), the maximum EIRP must not exceed 2Watts (33dBm) for 2500-2570MHz & 2496-2690MHz.

Test Procedure

Conducted method:

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



Test Data

Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

The testing was performed by Gavin Guo from 2021-02-05 to 2021-03-22.

Conducted Power

Cellular Band (Part 22H)

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	ERP (dBm)	Limit (dBm)
GSM	128	824.2	33.3	29.65	38.45
	190	836.6	33.5	29.85	38.45
	251	848.8	33.5	29.85	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	33.40	32.37	30.24	29.05	29.75	28.72	26.59	25.4	38.45
	190	836.6	33.54	32.48	30.39	29.16	29.89	28.83	26.74	25.51	38.45
	251	848.8	33.61	32.51	30.41	29.22	29.96	28.86	26.76	25.57	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	27.41	25.95	23.54	22.20	23.76	22.3	19.89	18.55	38.45
	190	836.6	27.38	25.93	23.54	22.16	23.73	22.28	19.89	18.51	38.45
	251	848.8	27.42	25.93	23.65	21.87	23.77	22.28	20.00	18.22	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		23.10	23.24	23.23	19.45	19.59	19.58
	HSDPA	1	22.66	22.67	22.69	19.01	19.02	19.04
		2	22.52	22.59	22.53	18.87	18.94	18.88
		3	22.43	22.45	22.41	18.78	18.8	18.76
		4	22.38	22.40	22.32	18.73	18.75	18.67
	HSUPA	1	22.48	22.52	22.46	18.83	18.87	18.81
		2	22.54	22.56	22.57	18.89	18.91	18.92
		3	22.43	22.46	22.41	18.78	18.81	18.76
		4	22.39	22.36	22.38	18.74	18.71	18.73
		5	22.34	22.28	22.32	18.69	18.63	18.67
	HSPA+	1	23.03	23.14	22.95	19.38	19.49	19.30

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd)
For GSM850/WCDMA Band5: Antenna Gain =-1.5dBi =-3.65dBd (0dBd=2.15dBi)
Limit: ERP≤38.45dBm

PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	EIRP(dBm)	Limit (dBm)
GSM	512	1850.2	25.7	25.2	33
	661	1880.0	25.6	25.1	33
	810	1909.8	26.1	25.6	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	26.85	25.83	23.8	22.63	26.35	25.33	23.3	22.13	33
	661	1880.0	26.81	25.8	23.73	22.6	26.31	25.3	23.23	22.1	33
	810	1909.8	26.87	25.86	23.87	22.73	26.37	25.36	23.37	22.23	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	26.42	25.45	23.44	22.43	25.92	24.95	22.94	21.93	33
	661	1880.0	26.33	25.35	23.34	22.31	25.83	24.85	22.84	21.81	33
	810	1909.8	26.00	24.96	23.05	21.94	25.5	24.46	22.55	21.44	33

Mode	Test Mode	3GPP Sub Test	Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
WCDMA (Band 2)	RMC12.2k		15.36	15.81	16.02	14.86	15.31	15.52
	HSDPA	1	14.58	14.71	14.87	14.08	14.21	14.37
		2	14.46	14.62	14.76	13.96	14.12	14.26
		3	14.34	14.46	14.64	13.84	13.96	14.14
		4	14.24	14.35	14.53	13.74	13.85	14.03
	HSUPA	1	14.83	14.96	14.93	14.33	14.46	14.43
		2	14.76	14.76	14.85	14.26	14.26	14.35
		3	14.64	14.62	14.57	14.14	14.12	14.07
		4	14.52	14.53	14.48	14.02	14.03	13.98
		5	14.34	14.41	14.37	13.84	13.91	13.87
	HSPA+	1	15.83	15.71	15.81	15.33	15.21	15.31

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi)
For PCS1900/WCDMA Band2: Antenna Gain = -0.5dBi
Limit: EIRP≤33dBm

AWS Band (Part 27)

Mode	Test Mode	3GPP Sub Test	Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
WCDMA (Band 4)	RMC12.2k		18.26	18.19	18.06	17.56	17.49	17.36
	HSDPA	1	17.56	17.55	17.49	16.86	16.85	16.79
		2	17.47	17.43	17.34	16.77	16.73	16.64
		3	17.34	17.26	17.22	16.64	16.56	16.52
		4	17.26	17.18	17.11	16.56	16.48	16.41
	HSUPA	1	17.59	17.56	17.64	16.89	16.86	16.94
		2	17.46	17.44	17.51	16.76	16.74	16.81
		3	17.32	17.36	17.38	16.62	16.66	16.68
		4	17.21	17.29	17.24	16.51	16.59	16.54
		5	17.13	17.18	17.16	16.43	16.48	16.46
	HSPA+	1	18.55	18.63	18.56	17.85	17.93	17.86

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi)
For Band 4: Antenna Gain =-0.7dBi
Limit: EIRP≤30dBm

Peak-to-average ratio (PAR)

Cellular Band

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	3.35	13
	Middle	3.22	13
	High	3.32	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	3.32	13
	Middle	3.75	13
	High	3.31	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.58	13
	Middle	3.17	13
	High	3.52	13
HSDPA (16QAM)	Low	3.00	13
	Middle	3.36	13
	High	3.55	13
HSUPA (BPSK)	Low	3.27	13
	Middle	3.41	13
	High	3.47	13

PCS Band

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	3.29	13
	Middle	3.22	13
	High	3.77	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	3.15	13
	Middle	3.24	13
	High	3.44	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.66	13
	Middle	3.67	13
	High	3.79	13
HSDPA (16QAM)	Low	3.20	13
	Middle	2.96	13
	High	3.33	13
HSUPA (BPSK)	Low	3.27	13
	Middle	3.54	13
	High	2.95	13

AWS Band

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.27	13
	Middle	3.11	13
	High	3.10	13
HSDPA (16QAM)	Low	3.22	13
	Middle	3.58	13
	High	3.66	13
HSUPA (BPSK)	Low	3.61	13
	Middle	3.76	13
	High	3.65	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	14.44	15.35	15.22	13.94	14.85	14.72
		RB1#2	15.47	15.45	15.40	14.97	14.95	14.9
		RB1#5	15.28	15.31	15.23	14.78	14.81	14.73
		RB3#0	15.44	15.41	15.36	14.94	14.91	14.86
		RB3#1	15.44	15.31	15.32	14.94	14.81	14.82
		RB3#2	14.30	14.38	14.33	13.8	13.88	13.83
		RB6#0	14.32	14.46	14.29	13.82	13.96	13.79
	16QAM	RB1#0	14.46	14.60	14.45	13.96	14.1	13.95
		RB1#2	14.32	14.46	14.31	13.82	13.96	13.81
		RB1#5	14.65	14.36	14.47	14.15	13.86	13.97
		RB3#0	14.61	14.35	14.43	14.11	13.85	13.93
		RB3#1	13.35	13.38	13.29	12.85	12.88	12.79
		RB3#2	14.40	15.38	15.26	13.9	14.88	14.76
		RB6#0	15.44	15.43	15.45	14.94	14.93	14.95
3.0	QPSK	RB1#0	15.34	15.40	15.33	14.84	14.9	14.83
		RB1#7	15.25	15.37	15.24	14.75	14.87	14.74
		RB1#14	15.32	15.33	15.31	14.82	14.83	14.81
		RB8#0	14.29	14.30	14.29	13.79	13.8	13.79
		RB8#4	14.27	14.27	14.30	13.77	13.77	13.8
		RB8#7	14.32	14.30	14.31	13.82	13.8	13.81
		RB15#0	15.06	14.49	14.38	14.56	13.99	13.88
	16QAM	RB1#0	14.91	14.41	14.30	14.41	13.91	13.8
		RB1#7	14.99	14.51	14.37	14.49	14.01	13.87
		RB1#14	13.40	13.32	13.24	12.9	12.82	12.74
		RB8#0	13.38	13.33	13.24	12.88	12.83	12.74
		RB8#4	13.43	13.29	13.38	12.93	12.79	12.88
		RB8#7	15.30	15.43	15.38	14.8	14.93	14.88
		RB15#0	13.78	13.63	13.51	13.28	13.13	13.01

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	15.34	15.38	15.33	14.84	14.88	14.83
		RB1#12	15.35	15.31	15.28	14.85	14.81	14.78
		RB1#24	15.34	15.40	15.26	14.84	14.9	14.76
		RB12#0	14.34	14.37	14.42	13.84	13.87	13.92
		RB12#6	14.34	14.33	14.29	13.84	13.83	13.79
		RB12#11	14.36	14.39	14.35	13.86	13.89	13.85
		RB25#0	14.28	14.68	14.43	13.78	14.18	13.93
	16QAM	RB1#0	14.29	14.63	14.43	13.79	14.13	13.93
		RB1#12	14.29	14.67	14.46	13.79	14.17	13.96
		RB1#24	13.41	13.37	13.44	12.91	12.87	12.94
		RB12#0	13.41	13.36	13.37	12.91	12.86	12.87
		RB12#6	13.41	13.38	13.39	12.91	12.88	12.89
		RB12#11	13.15	13.43	13.36	12.65	12.93	12.86
		RB25#0	13.41	13.31	13.52	12.91	12.81	13.02
10.0	QPSK	RB1#0	15.35	15.38	15.36	14.85	14.88	14.86
		RB1#24	15.36	15.46	15.43	14.86	14.96	14.93
		RB1#49	15.36	15.34	15.32	14.86	14.84	14.82
		RB25#0	14.39	14.42	14.43	13.89	13.92	13.93
		RB25#12	14.37	14.38	14.31	13.87	13.88	13.81
		RB25#24	14.40	14.43	14.37	13.9	13.93	13.87
		RB50#0	14.98	14.55	14.37	14.48	14.05	13.87
	16QAM	RB1#0	15.07	14.64	14.39	14.57	14.14	13.89
		RB1#24	14.99	14.51	14.39	14.49	14.01	13.89
		RB1#49	13.44	13.45	13.53	12.94	12.95	13.03
		RB25#0	13.45	13.42	13.41	12.95	12.92	12.91
		RB25#12	13.41	13.44	13.40	12.91	12.94	12.9
		RB25#24	15.53	15.38	15.27	15.03	14.88	14.77
		RB50#0	15.57	15.72	15.32	15.07	15.22	14.82

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	15.25	15.35	15.35	14.75	14.85	14.85
		RB1#37	15.30	15.33	15.33	14.8	14.83	14.83
		RB1#74	15.25	15.32	15.23	14.75	14.82	14.73
		RB36#0	14.33	14.41	14.39	13.83	13.91	13.89
		RB36#18	14.37	14.39	14.33	13.87	13.89	13.83
		RB36#37	14.33	14.40	14.33	13.83	13.9	13.83
		RB75#0	14.93	14.49	14.78	14.43	13.99	14.28
	16QAM	RB1#0	14.96	14.48	14.71	14.46	13.98	14.21
		RB1#37	14.94	14.49	14.71	14.44	13.99	14.21
		RB1#74	13.32	13.43	13.34	12.82	12.93	12.84
		RB36#0	13.37	13.35	13.31	12.87	12.85	12.81
		RB36#18	13.31	13.41	13.32	12.81	12.91	12.82
		RB36#37	13.34	13.33	13.42	12.84	12.83	12.92
		RB75#0	13.34	13.55	13.61	12.84	13.05	13.11
20.0	QPSK	RB1#0	15.24	15.27	15.23	14.74	14.77	14.73
		RB1#49	15.49	15.48	15.44	14.99	14.98	14.94
		RB1#99	15.27	15.30	15.11	14.77	14.8	14.61
		RB50#0	14.40	14.46	14.45	13.9	13.96	13.95
		RB50#24	14.37	14.42	14.25	13.87	13.92	13.75
		RB50#49	14.38	14.45	14.37	13.88	13.95	13.87
		RB100#0	14.56	14.48	14.83	14.06	13.98	14.33
	16QAM	RB1#0	14.80	14.72	15.02	14.3	14.22	14.52
		RB1#49	14.60	14.49	14.78	14.1	13.99	14.28
		RB1#99	13.40	13.47	13.46	12.9	12.97	12.96
		RB50#0	13.35	13.43	13.30	12.85	12.93	12.8
		RB50#24	13.44	13.47	13.39	12.94	12.97	12.89
		RB50#49	13.57	13.43	13.38	13.07	12.93	12.88
		RB100#0	13.55	13.67	13.35	13.05	13.17	12.85

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi)
For Band2: Antenna Gain = -0.5dBi
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)	3.22	4.36	3.24	13	Pass
QPSK (100RB Size)	5.01	5.43	5.46	13	Pass
16QAM (1RB Size)	3.80	4.63	4.26	13	Pass
16QAM (100RB Size)	6.34	6.31	5.86	13	Pass

LTE Band 4

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	17.99	17.97	17.98	17.29	17.27	17.28
		RB1#2	18.15	18.04	18.13	17.45	17.34	17.43
		RB1#5	17.98	17.99	17.99	17.28	17.29	17.29
		RB3#0	18.14	18.08	18.09	17.44	17.38	17.39
		RB3#1	18.11	18.05	18.10	17.41	17.35	17.4
		RB3#2	17.07	17.06	17.08	16.37	16.36	16.38
		RB6#0	17.02	17.13	17.05	16.32	16.43	16.35
	16QAM	RB1#0	17.13	17.19	17.18	16.43	16.49	16.48
		RB1#2	17.06	17.15	17.02	16.36	16.45	16.32
		RB1#5	17.26	17.06	17.17	16.56	16.36	16.47
		RB3#0	17.22	17.11	17.15	16.52	16.41	16.45
		RB3#1	16.05	16.06	15.97	15.35	15.36	15.27
		RB3#2	17.15	17.26	17.17	16.45	16.56	16.47
		RB6#0	16.06	15.97	16.01	15.36	15.27	15.31
3.0	QPSK	RB1#0	18.04	18.06	18.03	17.34	17.36	17.33
		RB1#7	18.01	18.01	18.01	17.31	17.31	17.31
		RB1#14	18.06	18.08	18.05	17.36	17.38	17.35
		RB8#0	17.03	17.01	17.06	16.33	16.31	16.36
		RB8#4	17.04	17.00	17.00	16.34	16.3	16.3
		RB8#7	17.00	17.04	17.02	16.3	16.34	16.32
		RB15#0	17.71	17.23	17.12	17.01	16.53	16.42
	16QAM	RB1#0	17.68	17.14	17.03	16.98	16.44	16.33
		RB1#7	17.67	17.22	17.05	16.97	16.52	16.35
		RB1#14	16.11	15.96	15.93	15.41	15.26	15.23
		RB8#0	16.10	16.04	15.95	15.4	15.34	15.25
		RB8#4	16.08	15.99	16.05	15.38	15.29	15.35
		RB8#7	16.05	15.78	15.78	15.35	15.08	15.08
		RB15#0	15.91	15.93	16.08	15.21	15.23	15.38

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	18.06	18.08	18.02	17.36	17.38	17.32
		RB1#12	18.13	18.07	17.99	17.43	17.37	17.29
		RB1#24	18.07	18.05	18.06	17.37	17.35	17.36
		RB12#0	17.06	16.97	17.01	16.36	16.27	16.31
		RB12#6	17.04	17.06	17.02	16.34	16.36	16.32
		RB12#11	17.04	16.99	17.02	16.34	16.29	16.32
		RB25#0	16.99	17.39	17.15	16.29	16.69	16.45
	16QAM	RB1#0	16.97	17.38	17.11	16.27	16.68	16.41
		RB1#12	17.00	17.35	17.16	16.3	16.65	16.46
		RB1#24	16.11	15.94	16.05	15.41	15.24	15.35
		RB12#0	16.08	15.98	16.04	15.38	15.28	15.34
		RB12#6	16.10	15.99	16.08	15.4	15.29	15.38
		RB12#11	16.20	15.96	16.06	15.5	15.26	15.36
		RB25#0	16.09	16.13	16.01	15.39	15.43	15.31
10.0	QPSK	RB1#0	17.98	18.02	17.99	17.28	17.32	17.29
		RB1#24	18.14	18.18	18.16	17.44	17.48	17.46
		RB1#49	18.07	18.03	18.09	17.37	17.33	17.39
		RB25#0	17.07	17.06	17.07	16.37	16.36	16.37
		RB25#12	17.08	17.08	17.03	16.38	16.38	16.33
		RB25#24	17.07	17.06	17.04	16.37	16.36	16.34
		RB50#0	17.65	17.21	17.03	16.95	16.51	16.33
	16QAM	RB1#0	17.81	17.36	17.13	17.11	16.66	16.43
		RB1#24	17.69	17.18	17.07	16.99	16.48	16.37
		RB1#49	16.11	16.05	16.15	15.41	15.35	15.45
		RB25#0	16.11	16.09	16.14	15.41	15.39	15.44
		RB25#12	16.02	16.04	16.08	15.32	15.34	15.38
		RB25#24	16.17	16.15	16.06	15.47	15.45	15.36
		RB50#0	15.99	15.95	16.11	15.29	15.25	15.41

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	18.00	18.04	17.96	17.3	17.34	17.26
		RB1#37	18.03	18.03	18.02	17.33	17.33	17.32
		RB1#74	18.01	18.01	18.00	17.31	17.31	17.3
		RB36#0	17.13	17.03	17.14	16.43	16.33	16.44
		RB36#18	17.19	17.10	17.03	16.49	16.4	16.33
		RB36#37	17.07	17.04	17.10	16.37	16.34	16.4
		RB75#0	17.65	17.16	17.40	16.95	16.46	16.7
	16QAM	RB1#0	17.68	17.20	17.46	16.98	16.5	16.76
		RB1#37	17.69	17.21	17.47	16.99	16.51	16.77
		RB1#74	16.04	16.03	16.12	15.34	15.33	15.42
		RB36#0	16.14	16.06	15.95	15.44	15.36	15.25
		RB36#18	16.07	16.03	16.06	15.37	15.33	15.36
		RB36#37	16.09	16.13	16.08	15.39	15.43	15.38
		RB75#0	16.15	16.27	15.86	15.45	15.57	15.16
20.0	QPSK	RB1#0	17.91	17.92	17.79	17.21	17.22	17.09
		RB1#49	18.14	18.20	18.08	17.44	17.5	17.38
		RB1#99	17.90	17.94	17.91	17.2	17.24	17.21
		RB50#0	17.07	16.97	17.21	16.37	16.27	16.51
		RB50#24	17.24	17.07	17.00	16.54	16.37	16.3
		RB50#49	17.17	17.00	17.12	16.47	16.3	16.42
		RB100#0	17.24	17.15	17.44	16.54	16.45	16.74
	16QAM	RB1#0	17.56	17.44	17.75	16.86	16.74	17.05
		RB1#49	17.29	17.14	17.53	16.59	16.44	16.83
		RB1#99	16.07	15.94	16.23	15.37	15.24	15.53
		RB50#0	16.21	16.03	15.97	15.51	15.33	15.27
		RB50#24	16.18	16.03	16.06	15.48	15.33	15.36
		RB50#49	16.29	15.84	15.95	15.59	15.14	15.25
		RB100#0	16.03	16.07	16.14	15.33	15.37	15.44

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi)
For Band4: Antenna Gain = -0.7dBi
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)	4.48	4.64	4.56	13	Pass
QPSK (100RB Size)	5.48	5.46	6.05	13	Pass
16QAM (1RB Size)	5.36	5.48	4.72	13	Pass
16QAM (100RB Size)	5.92	5.90	6.28	13	Pass

LTE Band 5:

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	23.65	23.55	23.50	20.00	19.9	19.85
		RB1#2	23.83	23.68	23.72	20.18	20.03	20.07
		RB1#5	23.64	23.53	23.51	19.99	19.88	19.86
		RB3#0	23.74	23.65	23.61	20.09	20.00	19.96
		RB3#1	23.69	23.60	23.60	20.04	19.95	19.95
		RB3#2	22.72	22.60	22.57	19.07	18.95	18.92
		RB6#0	22.64	22.69	22.46	18.99	19.04	18.81
	16QAM	RB1#0	22.77	22.88	22.71	19.12	19.23	19.06
		RB1#2	22.61	22.67	22.49	18.96	19.02	18.84
		RB1#5	22.85	22.55	22.63	19.2	18.9	18.98
		RB3#0	22.86	22.53	22.57	19.21	18.88	18.92
		RB3#1	21.82	21.70	21.52	18.17	18.05	17.87
		RB3#2	22.97	22.56	22.44	19.32	18.91	18.79
		RB6#0	21.91	21.71	21.57	18.26	18.06	17.92
3.0	QPSK	RB1#0	23.80	23.69	23.63	20.15	20.04	19.98
		RB1#7	23.68	23.57	23.57	20.03	19.92	19.92
		RB1#14	23.72	23.60	23.63	20.07	19.95	19.98
		RB8#0	22.69	22.64	22.52	19.04	18.99	18.87
		RB8#4	22.70	22.55	22.52	19.05	18.9	18.87
		RB8#7	22.74	22.61	22.60	19.09	18.96	18.95
		RB15#0	23.23	22.88	22.61	19.58	19.23	18.96
	16QAM	RB1#0	23.17	22.69	22.52	19.52	19.04	18.87
		RB1#7	23.16	22.69	22.58	19.51	19.04	18.93
		RB1#14	21.78	21.72	21.54	18.13	18.07	17.89
		RB8#0	21.80	21.62	21.56	18.15	17.97	17.91
		RB8#4	21.83	21.65	21.70	18.18	18	18.05
		RB8#7	21.73	21.77	21.43	18.08	18.12	17.78
		RB15#0	21.90	21.66	21.65	18.25	18.01	18.00

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	23.72	23.73	23.52	20.07	20.08	19.87
		RB1#12	23.72	23.61	23.55	20.07	19.96	19.9
		RB1#24	23.68	23.58	23.56	20.03	19.93	19.91
		RB12#0	22.73	22.69	22.68	19.08	19.04	19.03
		RB12#6	22.73	22.59	22.56	19.08	18.94	18.91
		RB12#11	22.71	22.61	22.55	19.06	18.96	18.9
		RB25#0	22.60	23.00	22.57	18.95	19.35	18.92
	16QAM	RB1#0	22.56	22.85	22.60	18.91	19.2	18.95
		RB1#12	22.57	22.83	22.63	18.92	19.18	18.98
		RB1#24	21.83	21.73	21.73	18.18	18.08	18.08
		RB12#0	21.83	21.65	21.66	18.18	18.00	18.01
		RB12#6	21.80	21.73	21.66	18.15	18.08	18.01
		RB12#11	21.98	21.48	21.54	18.33	17.83	17.89
		RB25#0	21.78	21.66	21.78	18.13	18.01	18.13
10.0	QPSK	RB1#0	23.85	23.59	23.63	20.20	19.94	19.98
		RB1#24	23.64	23.70	23.36	19.99	20.05	19.71
		RB1#49	23.66	23.53	23.68	20.01	19.88	20.03
		RB25#0	22.91	22.51	22.41	19.26	18.86	18.76
		RB25#12	22.73	22.52	22.65	19.08	18.87	19.00
		RB25#24	22.75	22.44	22.64	19.10	18.79	18.99
		RB50#0	22.65	22.97	22.58	19.00	19.32	18.93
	16QAM	RB1#0	22.50	23.05	22.56	18.85	19.4	18.91
		RB1#24	22.72	22.95	22.38	19.07	19.3	18.73
		RB1#49	21.56	21.93	21.82	17.91	18.28	18.17
		RB25#0	21.81	21.69	21.43	18.16	18.04	17.78
		RB25#12	21.78	21.58	21.56	18.13	17.93	17.91
		RB25#24	21.99	21.72	21.76	18.34	18.07	18.11
		RB50#0	21.96	21.61	21.60	18.31	17.96	17.95

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd)
For Band5: Antenna Gain = -1.5dBi = -3.65dBd (0dBd=2.15dBi)
Limit: ERP≤38.45dBm

Peak-to-average ratio (PAR)

10MHz bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	3.92	4.04	4.16	13	Pass
QPSK (50RB Size)	5.11	5.50	5.34	13	Pass
16QAM (1RB Size)	5.28	4.53	5.46	13	Pass
16QAM (50RB Size)	6.10	6.64	5.85	13	Pass

LTE Band 7:

Maximum Output Power

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	17.74	17.87	17.45	17.34	17.47	17.05
		RB1#12	17.60	17.61	17.53	17.2	17.21	17.13
		RB1#24	17.57	17.74	17.51	17.17	17.34	17.11
		RB12#0	16.61	16.86	16.53	16.21	16.46	16.13
		RB12#6	16.62	16.65	16.57	16.22	16.25	16.17
		RB12#11	16.77	16.82	16.56	16.37	16.42	16.16
		RB25#0	16.55	16.81	16.66	16.15	16.41	16.26
	16QAM	RB1#0	16.54	16.90	16.83	16.14	16.5	16.43
		RB1#12	16.40	16.68	16.57	16.00	16.28	16.17
		RB1#24	15.63	15.68	15.74	15.23	15.28	15.34
		RB12#0	15.93	15.70	15.62	15.53	15.3	15.22
		RB12#6	15.84	15.82	15.87	15.44	15.42	15.47
		RB12#11	15.86	15.56	15.82	15.46	15.16	15.42
		RB25#0	15.84	15.63	15.84	15.44	15.23	15.44
10.0	QPSK	RB1#0	17.39	17.82	17.11	16.99	17.42	16.71
		RB1#24	17.69	17.83	17.67	17.29	17.43	17.27
		RB1#49	17.52	17.75	17.53	17.12	17.35	17.13
		RB25#0	16.55	17.14	16.55	16.15	16.74	16.15
		RB25#12	16.41	16.59	16.63	16.01	16.19	16.23
		RB25#24	16.75	16.62	16.65	16.35	16.22	16.25
		RB50#0	16.37	17.04	16.32	15.97	16.64	15.92
	16QAM	RB1#0	16.21	16.52	16.87	15.81	16.12	16.47
		RB1#24	16.09	16.52	16.59	15.69	16.12	16.19
		RB1#49	15.27	15.80	15.62	14.87	15.4	15.22
		RB25#0	15.75	15.46	15.70	15.35	15.06	15.3
		RB25#12	15.63	15.76	15.63	15.23	15.36	15.23
		RB25#24	15.73	15.48	15.89	15.33	15.08	15.49
		RB50#0	15.70	15.79	15.65	15.3	15.39	15.25

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	17.76	17.70	17.24	17.36	17.3	16.84
		RB1#37	17.64	17.67	17.69	17.24	17.27	17.29
		RB1#74	17.21	17.88	17.60	16.81	17.48	17.2
		RB36#0	16.56	16.75	16.60	16.16	16.35	16.2
		RB36#18	16.34	16.83	16.78	15.94	16.43	16.38
		RB36#37	16.97	16.58	16.11	16.57	16.18	15.71
		RB75#0	16.74	16.54	16.87	16.34	16.14	16.47
	16QAM	RB1#0	16.62	16.97	16.72	16.22	16.57	16.32
		RB1#37	16.08	16.86	16.61	15.68	16.46	16.21
		RB1#74	15.58	15.41	15.78	15.18	15.01	15.38
		RB36#0	15.54	15.62	15.75	15.14	15.22	15.35
		RB36#18	15.69	15.62	15.97	15.29	15.22	15.57
		RB36#37	15.96	15.68	15.50	15.56	15.28	15.1
		RB75#0	16.02	15.70	15.60	15.62	15.3	15.2
20.0	QPSK	RB1#0	17.58	18.01	17.43	17.18	17.61	17.03
		RB1#49	17.36	17.70	17.59	16.96	17.3	17.19
		RB1#99	17.38	17.29	17.45	16.98	16.89	17.05
		RB50#0	16.26	17.04	16.16	15.86	16.64	15.76
		RB50#24	16.51	16.54	16.35	16.11	16.14	15.95
		RB50#49	16.80	16.48	16.44	16.4	16.08	16.04
		RB100#0	16.40	16.86	16.61	16	16.46	16.21
	16QAM	RB1#0	16.32	16.60	16.62	15.92	16.2	16.22
		RB1#49	16.47	16.68	16.52	16.07	16.28	16.12
		RB1#99	15.33	15.53	15.67	14.93	15.13	15.27
		RB50#0	15.82	15.36	15.40	15.42	14.96	15.00
		RB50#24	15.87	15.89	15.69	15.47	15.49	15.29
		RB50#49	15.81	15.46	15.59	15.41	15.06	15.19
		RB100#0	15.58	15.86	15.95	15.18	15.46	15.55

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi)
For Band 7: Antenna Gain = -0.4dBi
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)	5.07	4.61	3.55	13	Pass
QPSK (100RB Size)	5.36	5.41	5.40	13	Pass
16QAM (1RB Size)	5.77	5.51	4.60	13	Pass
16QAM (100RB Size)	6.34	6.23	6.21	13	Pass

LTE Band 38

Maximum Output Power

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
5	QPSK	RB1#0	22.89	22.95	22.76	22.49	22.55	22.36
		RB1#12	22.76	22.73	22.80	22.36	22.33	22.4
		RB1#24	22.63	22.75	22.64	22.23	22.35	22.24
		RB12#0	22.09	21.81	22.18	21.69	21.41	21.78
		RB12#6	22.05	21.71	21.52	21.65	21.31	21.12
		RB12#11	22.00	21.86	22.01	21.6	21.46	21.61
		RB25#0	22.02	22.12	21.53	21.62	21.72	21.13
	16QAM	RB1#0	21.67	22.14	22.04	21.27	21.74	21.64
		RB1#12	21.63	21.92	21.92	21.23	21.52	21.52
		RB1#24	21.15	20.88	21.13	20.75	20.48	20.73
		RB12#0	20.83	20.79	20.98	20.43	20.39	20.58
		RB12#6	20.96	21.15	20.67	20.56	20.75	20.27
		RB12#11	21.07	20.95	20.96	20.67	20.55	20.56
		RB25#0	21.00	20.78	20.75	20.6	20.38	20.35
10	QPSK	RB1#0	22.78	23.03	22.90	22.38	22.63	22.5
		RB1#24	22.78	22.71	22.48	22.38	22.31	22.08
		RB1#49	22.67	22.90	23.02	22.27	22.5	22.62
		RB25#0	22.02	21.62	22.12	21.62	21.22	21.72
		RB25#12	22.16	21.74	22.05	21.76	21.34	21.65
		RB25#24	22.12	21.65	21.65	21.72	21.25	21.25
		RB50#0	21.88	22.08	21.81	21.48	21.68	21.41
	16QAM	RB1#0	21.84	22.16	22.10	21.44	21.76	21.7
		RB1#24	21.97	22.16	21.60	21.57	21.76	21.2
		RB1#49	20.78	20.84	20.74	20.38	20.44	20.34
		RB25#0	21.01	20.96	20.73	20.61	20.56	20.33
		RB25#12	21.20	20.86	20.70	20.8	20.46	20.3
		RB25#24	21.02	21.03	21.01	20.62	20.63	20.61
		RB50#0	20.96	20.82	20.96	20.56	20.42	20.56

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15	QPSK	RB1#0	23.13	22.89	22.52	22.73	22.49	22.12
		RB1#37	22.72	22.82	23.04	22.32	22.42	22.64
		RB1#74	22.64	22.62	22.98	22.24	22.22	22.58
		RB36#0	22.24	21.99	21.66	21.84	21.59	21.26
		RB36#18	21.67	21.71	21.56	21.27	21.31	21.16
		RB36#37	21.95	21.71	21.78	21.55	21.31	21.38
		RB75#0	21.81	22.10	21.64	21.41	21.7	21.24
	16QAM	RB1#0	21.85	22.11	21.71	21.45	21.71	21.31
		RB1#37	21.86	21.79	21.87	21.46	21.39	21.47
		RB1#74	21.12	20.70	20.81	20.72	20.3	20.41
		RB36#0	20.69	20.75	20.60	20.29	20.35	20.2
		RB36#18	21.01	21.13	20.91	20.61	20.73	20.51
		RB36#37	20.78	20.72	20.91	20.38	20.32	20.51
		RB75#0	21.23	20.83	20.65	20.83	20.43	20.25
20	QPSK	RB1#0	23.24	22.79	22.65	22.84	22.39	22.25
		RB1#49	22.87	22.80	22.69	22.47	22.4	22.29
		RB1#99	22.69	22.67	22.77	22.29	22.27	22.37
		RB50#0	21.93	21.95	21.48	21.53	21.55	21.08
		RB50#24	21.93	21.97	21.86	21.53	21.57	21.46
		RB50#49	22.03	21.59	22.09	21.63	21.19	21.69
		RB100#0	21.99	22.31	21.72	21.59	21.91	21.32
	16QAM	RB1#0	21.80	21.85	21.86	21.4	21.45	21.46
		RB1#49	21.97	22.16	21.90	21.57	21.76	21.5
		RB1#99	21.17	21.23	21.15	20.77	20.83	20.75
		RB50#0	21.20	20.80	20.82	20.8	20.4	20.42
		RB50#24	20.80	20.78	20.78	20.4	20.38	20.38
		RB50#49	20.76	20.73	20.88	20.36	20.33	20.48
		RB100#0	20.96	20.79	20.70	20.56	20.39	20.3

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi)
For Band 38: Antenna Gain = -0.4dBi
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)	4.15	4.45	4.36	13	Pass
QPSK (100RB Size)	5.39	5.32	4.78	13	Pass
16QAM (1RB Size)	5.32	5.04	5.26	13	Pass
16QAM (100RB Size)	5.66	6.06	6.54	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	QPSK	RB1#0	22.88	23.12	22.53	22.48	22.72	22.13
		RB1#12	23.07	22.91	22.79	22.67	22.51	22.39
		RB1#24	22.62	22.74	22.66	22.22	22.34	22.26
		RB12#0	21.90	21.87	21.65	21.5	21.47	21.25
		RB12#6	21.77	21.67	21.97	21.37	21.27	21.57
		RB12#11	21.74	21.59	22.02	21.34	21.19	21.62
		RB25#0	22.05	22.41	21.85	21.65	22.01	21.45
	16QAM	RB1#0	21.46	22.18	21.96	21.06	21.78	21.56
		RB1#12	21.78	22.10	21.70	21.38	21.7	21.3
		RB1#24	21.09	20.89	20.59	20.69	20.49	20.19
		RB12#0	20.69	21.11	21.06	20.29	20.71	20.66
		RB12#6	20.99	20.57	20.97	20.59	20.17	20.57
		RB12#11	21.17	20.64	20.77	20.77	20.24	20.37
		RB25#0	20.70	21.04	20.90	20.3	20.64	20.5
10	QPSK	RB1#0	22.90	22.95	22.95	22.5	22.55	22.55
		RB1#24	23.09	22.52	22.63	22.69	22.12	22.23
		RB1#49	22.81	22.79	22.65	22.41	22.39	22.25
		RB25#0	22.04	21.93	21.72	21.64	21.53	21.32
		RB25#12	22.05	21.86	21.61	21.65	21.46	21.21
		RB25#24	21.69	21.62	21.59	21.29	21.22	21.19
		RB50#0	21.99	22.23	21.93	21.59	21.83	21.53
	16QAM	RB1#0	21.85	22.23	22.04	21.45	21.83	21.64
		RB1#24	21.65	21.71	21.82	21.25	21.31	21.42
		RB1#49	21.37	20.76	20.73	20.97	20.36	20.33
		RB25#0	21.31	21.07	20.78	20.91	20.67	20.38
		RB25#12	20.92	20.71	21.01	20.52	20.31	20.61
		RB25#24	20.91	21.05	20.82	20.51	20.65	20.42
		RB50#0	20.91	21.14	21.00	20.51	20.74	20.6

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15	QPSK	RB1#0	23.04	23.23	22.98	22.64	22.83	22.58
		RB1#37	22.99	23.06	22.90	22.59	22.66	22.5
		RB1#74	22.92	22.82	22.49	22.52	22.42	22.09
		RB36#0	21.76	21.92	21.82	21.36	21.52	21.42
		RB36#18	21.80	21.70	21.98	21.4	21.3	21.58
		RB36#37	21.75	21.83	22.13	21.35	21.43	21.73
		RB75#0	21.77	22.16	21.70	21.37	21.76	21.3
	16QAM	RB1#0	22.04	22.13	21.71	21.64	21.73	21.31
		RB1#37	21.74	22.18	21.71	21.34	21.78	21.31
		RB1#74	20.75	21.13	20.85	20.35	20.73	20.45
		RB36#0	21.15	20.80	20.63	20.75	20.4	20.23
		RB36#18	20.81	20.89	21.19	20.41	20.49	20.79
		RB36#37	21.03	21.08	20.82	20.63	20.68	20.42
		RB75#0	20.75	20.97	20.73	20.35	20.57	20.33
20	QPSK	RB1#0	22.56	23.14	22.46	22.16	22.74	22.06
		RB1#49	22.81	22.94	22.78	22.41	22.54	22.38
		RB1#99	23.09	22.65	22.66	22.69	22.25	22.26
		RB50#0	21.91	21.91	21.98	21.51	21.51	21.58
		RB50#24	21.86	21.92	21.79	21.46	21.52	21.39
		RB50#49	21.95	21.70	21.91	21.55	21.3	21.51
		RB100#0	21.66	21.90	21.71	21.26	21.5	21.31
	16QAM	RB1#0	21.75	21.85	21.89	21.35	21.45	21.49
		RB1#49	21.72	22.23	21.75	21.32	21.83	21.35
		RB1#99	21.03	21.04	21.00	20.63	20.64	20.6
		RB50#0	21.26	20.62	20.71	20.86	20.22	20.31
		RB50#24	20.87	20.74	21.14	20.47	20.34	20.74
		RB50#49	21.28	20.96	20.72	20.88	20.56	20.32
		RB100#0	20.89	20.85	20.72	20.49	20.45	20.32

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi)
For Band 41: Antenna Gain =-0.4dBi
Limit: EIRP≤33dBm

Peak-to-average ratio (PAR)

10MHz bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.65	4.70	4.52	13	Pass
QPSK (100RB Size)	5.64	5.63	5.32	13	Pass
16QAM (1RB Size)	5.20	5.65	5.65	13	Pass
16QAM (100RB Size)	6.52	6.46	6.58	13	Pass

LTE Band 66:

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	15.94	16.08	15.92	15.24	15.38	15.22
		RB1#2	16.08	15.75	16.03	15.38	15.05	15.33
		RB1#5	16.04	15.76	15.96	15.34	15.06	15.26
		RB3#0	15.33	14.93	15.12	14.63	14.23	14.42
		RB3#1	15.02	14.89	14.95	14.32	14.19	14.25
		RB3#2	15.03	15.00	15.03	14.33	14.3	14.33
		RB6#0	15.05	15.75	15.04	14.35	15.05	14.34
	16QAM	RB1#0	14.74	15.16	14.97	14.04	14.46	14.27
		RB1#2	14.94	15.05	15.00	14.24	14.35	14.3
		RB1#5	14.53	14.41	13.96	13.83	13.71	13.26
		RB3#0	14.16	13.71	13.79	13.46	13.01	13.09
		RB3#1	14.09	14.14	14.13	13.39	13.44	13.43
		RB3#2	14.23	13.84	13.72	13.53	13.14	13.02
		RB6#0	14.36	14.05	14.34	13.66	13.35	13.64
3.0	QPSK	RB1#0	16.20	16.14	15.93	15.5	15.44	15.23
		RB1#7	16.27	16.16	15.76	15.57	15.46	15.06
		RB1#14	16.07	16.10	15.84	15.37	15.4	15.14
		RB8#0	15.00	15.11	15.19	14.3	14.41	14.49
		RB8#4	14.82	14.62	14.86	14.12	13.92	14.16
		RB8#7	15.43	15.01	15.11	14.73	14.31	14.41
		RB15#0	15.12	15.54	14.80	14.42	14.84	14.1
	16QAM	RB1#0	14.94	15.06	14.95	14.24	14.36	14.25
		RB1#7	14.92	15.43	15.07	14.22	14.73	14.37
		RB1#14	14.27	13.98	14.31	13.57	13.28	13.61
		RB8#0	14.32	14.03	14.28	13.62	13.33	13.58
		RB8#4	14.14	13.91	13.93	13.44	13.21	13.23
		RB8#7	13.99	13.86	13.93	13.29	13.16	13.23
		RB15#0	13.96	14.09	14.10	13.26	13.39	13.4

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	15.85	15.95	16.08	15.15	15.25	15.38
		RB1#12	16.06	15.90	15.73	15.36	15.2	15.03
		RB1#24	15.93	16.14	15.83	15.23	15.44	15.13
		RB12#0	14.96	15.16	14.94	14.26	14.46	14.24
		RB12#6	15.10	15.10	14.93	14.4	14.4	14.23
		RB12#11	15.36	15.21	14.83	14.66	14.51	14.13
		RB25#0	14.86	15.42	15.05	14.16	14.72	14.35
	16QAM	RB1#0	14.62	15.10	14.66	13.92	14.4	13.96
		RB1#12	15.17	15.17	14.95	14.47	14.47	14.25
		RB1#24	14.42	13.97	14.49	13.72	13.27	13.79
		RB12#0	14.16	14.20	14.15	13.46	13.5	13.45
		RB12#6	14.21	14.18	13.94	13.51	13.48	13.24
		RB12#11	14.33	14.02	14.16	13.63	13.32	13.46
		RB25#0	14.03	14.06	14.03	13.33	13.36	13.33
10.0	QPSK	RB1#0	16.21	16.09	15.78	15.51	15.39	15.08
		RB1#24	16.02	15.79	15.61	15.32	15.09	14.91
		RB1#49	15.70	15.86	16.00	15.00	15.16	15.3
		RB25#0	14.87	14.81	15.11	14.17	14.11	14.41
		RB25#12	14.99	15.19	15.04	14.29	14.49	14.34
		RB25#24	15.22	15.13	14.73	14.52	14.43	14.03
		RB50#0	15.04	15.58	14.82	14.34	14.88	14.12
	16QAM	RB1#0	14.70	15.33	15.18	14.00	14.63	14.48
		RB1#24	14.86	15.11	15.20	14.16	14.41	14.5
		RB1#49	14.23	13.93	14.26	13.53	13.23	13.56
		RB25#0	14.17	14.19	14.01	13.47	13.49	13.31
		RB25#12	14.36	14.17	14.07	13.66	13.47	13.37
		RB25#24	14.47	14.02	14.14	13.77	13.32	13.44
		RB50#0	14.32	13.82	14.21	13.62	13.12	13.51

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	15.90	16.06	15.95	15.20	15.36	15.25
		RB1#37	16.50	15.99	15.90	15.80	15.29	15.20
		RB1#74	16.11	15.71	15.90	15.41	15.01	15.20
		RB36#0	15.20	14.83	15.00	14.50	14.13	14.3
		RB36#18	15.02	14.95	14.74	14.32	14.25	14.04
		RB36#37	14.90	15.32	14.88	14.2	14.62	14.18
		RB75#0	15.12	15.22	15.24	14.42	14.52	14.54
	16QAM	RB1#0	14.86	15.42	15.06	14.16	14.72	14.36
		RB1#37	14.70	15.46	14.91	14.00	14.76	14.21
		RB1#74	14.15	14.33	14.04	13.45	13.63	13.34
		RB36#0	14.02	13.71	13.72	13.32	13.01	13.02
		RB36#18	14.02	13.79	14.18	13.32	13.09	13.48
		RB36#37	14.42	14.02	14.11	13.72	13.32	13.41
		RB75#0	14.37	14.19	13.85	13.67	13.49	13.15
20.0	QPSK	RB1#0	16.14	16.01	15.87	15.44	15.31	15.17
		RB1#49	16.19	16.24	15.81	15.49	15.54	15.11
		RB1#99	16.33	16.17	15.91	15.63	15.47	15.21
		RB50#0	15.17	14.87	15.08	14.47	14.17	14.38
		RB50#24	15.23	15.03	15.09	14.53	14.33	14.39
		RB50#49	15.28	15.08	14.75	14.58	14.38	14.05
		RB100#0	15.03	15.28	14.69	14.33	14.58	13.99
	16QAM	RB1#0	14.69	15.36	15.03	13.99	14.66	14.33
		RB1#49	14.98	15.11	14.98	14.28	14.41	14.28
		RB1#99	14.27	14.14	14.50	13.57	13.44	13.8
		RB50#0	14.33	14.29	14.08	13.63	13.59	13.38
		RB50#24	14.38	13.98	13.77	13.68	13.28	13.07
		RB50#49	14.46	14.06	14.09	13.76	13.36	13.39
		RB100#0	14.10	13.98	14.13	13.40	13.28	13.43

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi)
For Band 66: Antenna Gain = -0.7dBi
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)	4.50	3.97	4.32	13	Pass
QPSK (100RB Size)	4.89	5.56	5.09	13	Pass
16QAM (1RB Size)	5.00	5.23	5.04	13	Pass
16QAM (100RB Size)	5.76	6.35	6.54	13	Pass

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

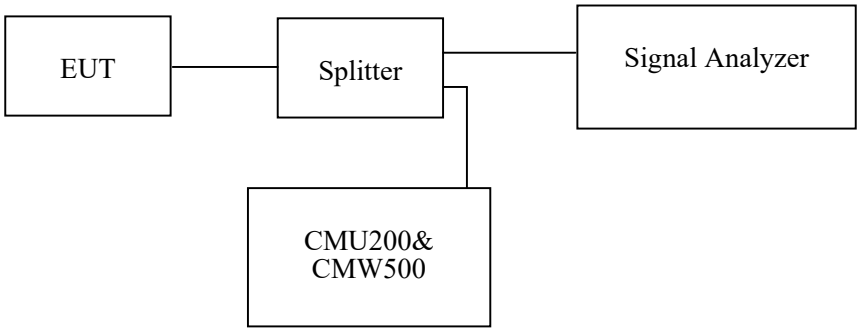
Applicable Standard

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:	25 ℃
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

The testing was performed by Gavin Guo from 2021-02-05 to 2021-03-22.

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	246.795	315.385
	190	836.6	248.397	315.705
	251	848.8	245.192	314.744
EGPRS(8PSK)	128	824.2	246.795	316.026
	190	836.6	248.397	316.026
	251	848.8	246.795	314.103

Frequency (MHz)		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	826.4	4.153	4.703
	836.6	4.168	4.703
	846.6	4.168	4.718
HSDPA	826.4	4.197	4.834
	836.6	4.197	4.891
	846.6	4.168	4.718
HSUPA	826.4	4.197	4.863
	836.6	4.211	5.065
	846.6	4.168	4.703

PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM(GMSK)	512	1850.2	250.000	313.782
	661	1880.0	246.795	315.064
	810	1909.8	243.590	320.192
EGPRS(8PSK)	512	1850.2	248.397	314.423
	661	1880.0	250.000	313.782
	810	1909.8	254.808	316.987

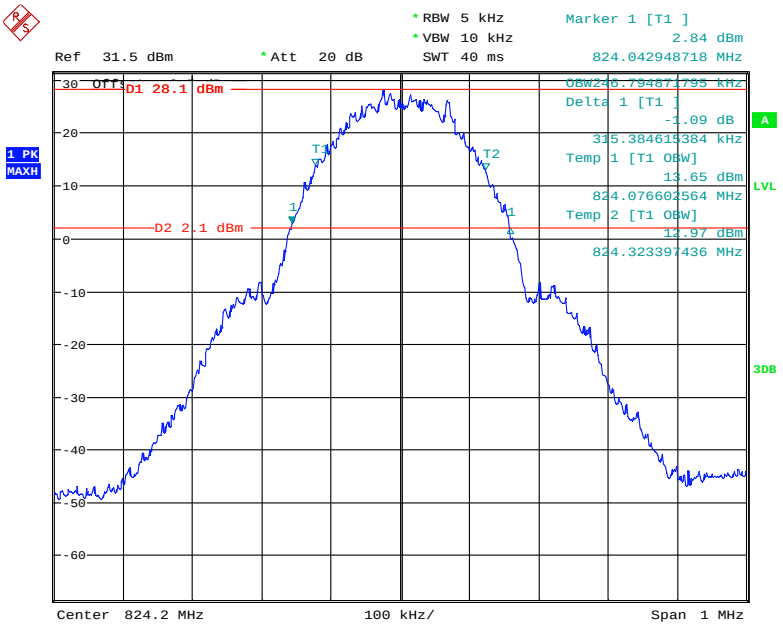
Frequency (MHz)		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	1852.4	4.168	4.747
	1880.0	4.182	4.790
	1907.6	4.168	4.718
HSDPA	1852.4	4.197	4.761
	1880.0	4.182	4.776
	1907.6	4.197	4.920
HSUPA	1852.4	4.197	4.732
	1880.0	4.211	5.094
	1907.6	4.197	4.732

AWS Band (Part 27)

Frequency (MHz)		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	1712.4	4.168	4.703
	1732.6	4.168	4.732
	1752.6	4.182	4.718
HSDPA	1712.4	4.197	4.703
	1732.6	4.182	4.718
	1752.6	4.182	4.718
HSUPA	1712.4	4.197	4.732
	1732.6	4.197	4.805
	1752.6	4.197	4.732

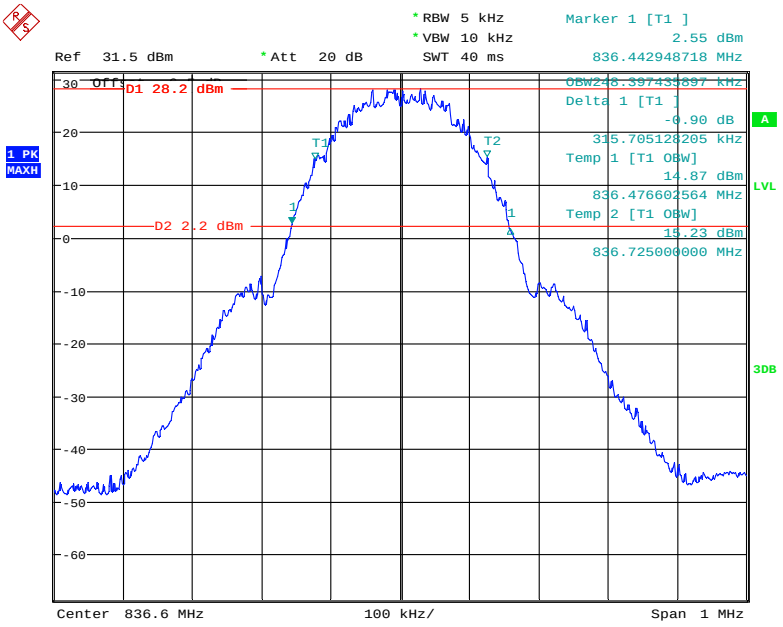
Cellular Band (Part 22H)

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



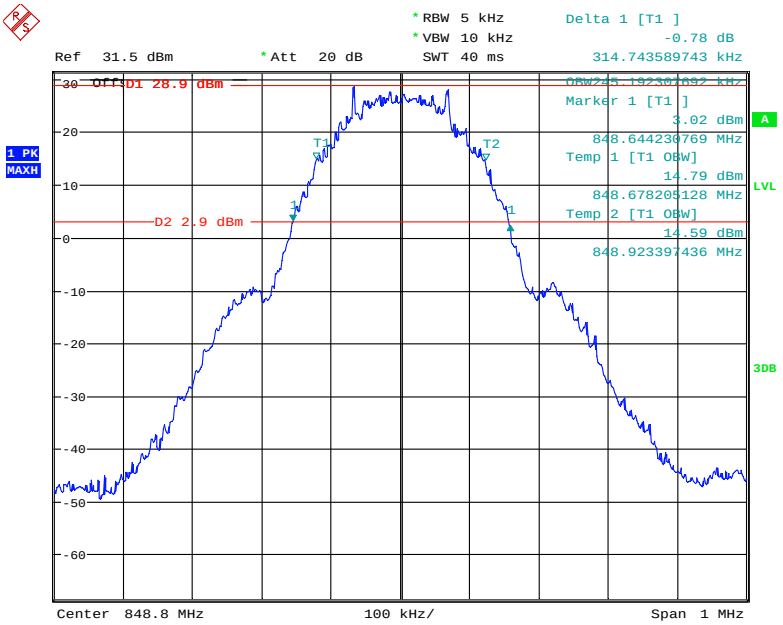
Date: 23.FEB.2021 15:02:09

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



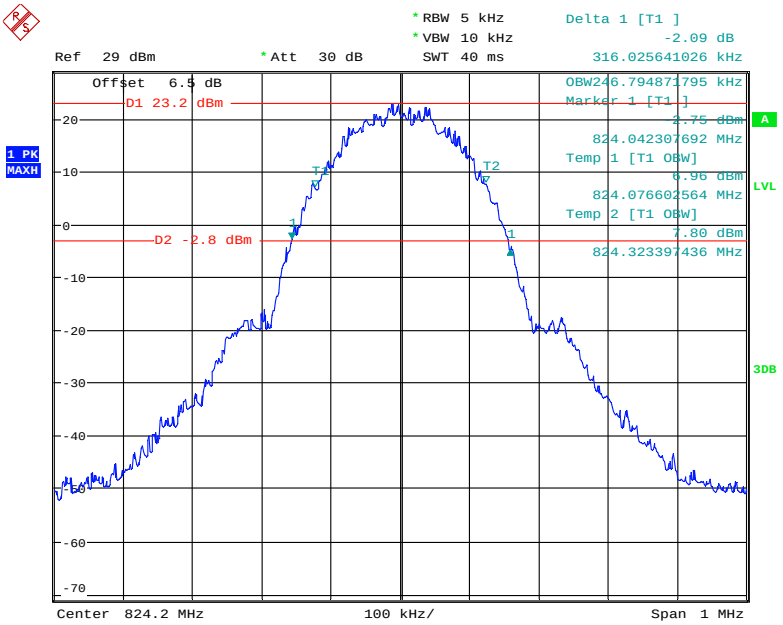
Date: 23.FEB.2021 15:00:48

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



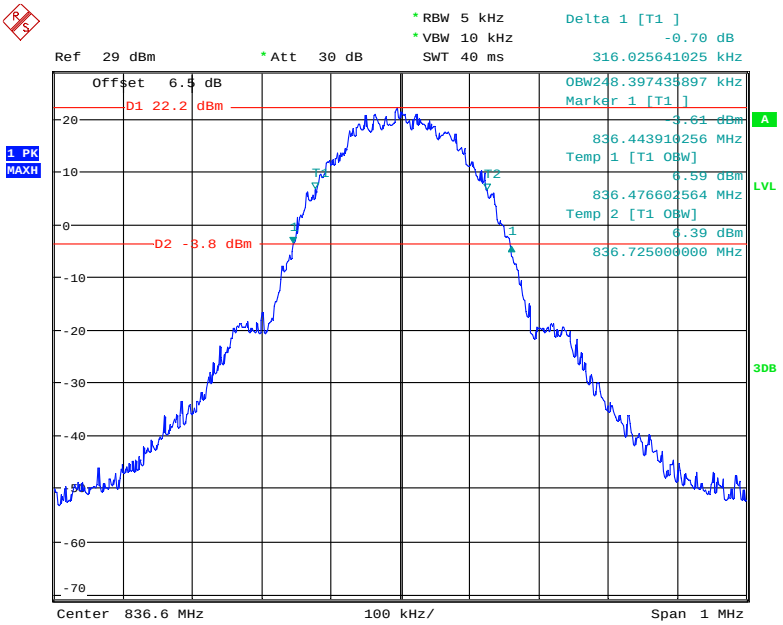
Date: 23.FEB.2021 14:44:06

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



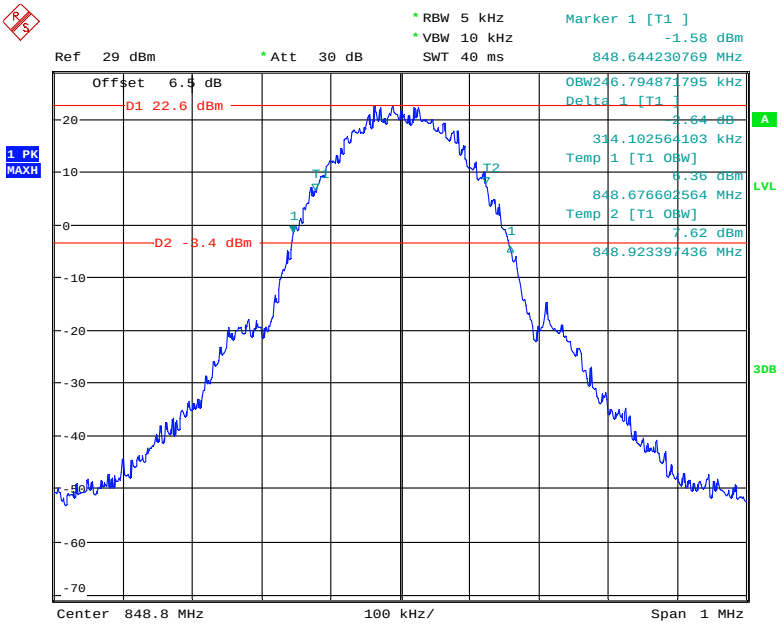
Date: 23.FEB.2021 15:15:14

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



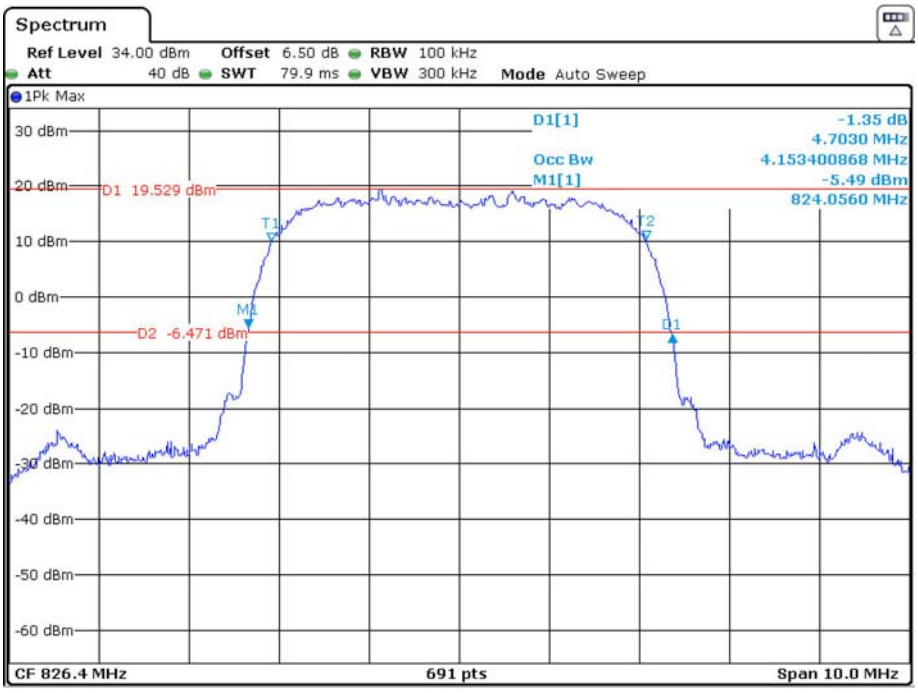
Date: 23.FEB.2021 15:13:32

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



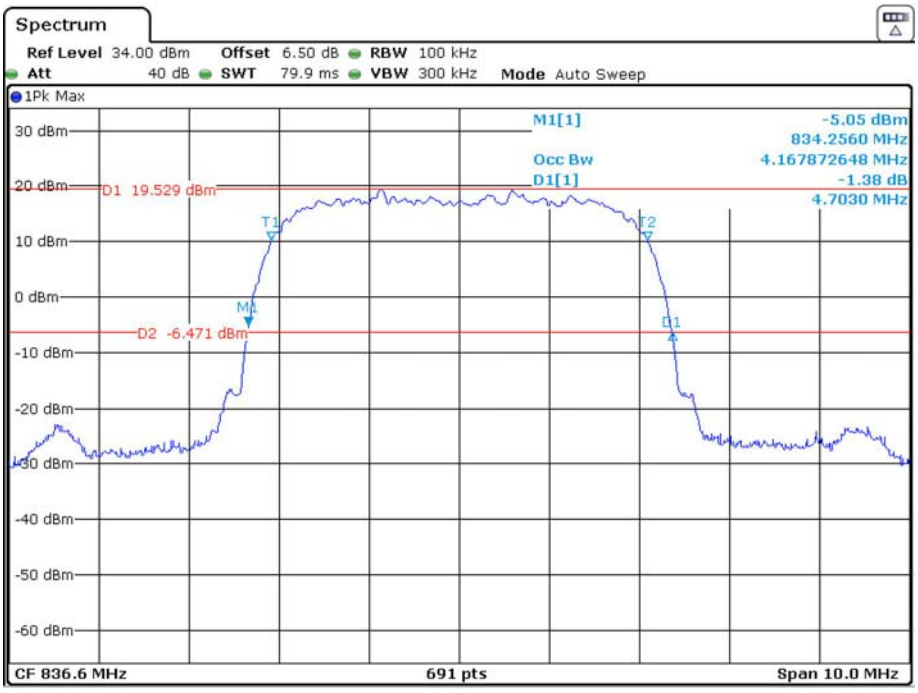
Date: 23.FEB.2021 15:12:18

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



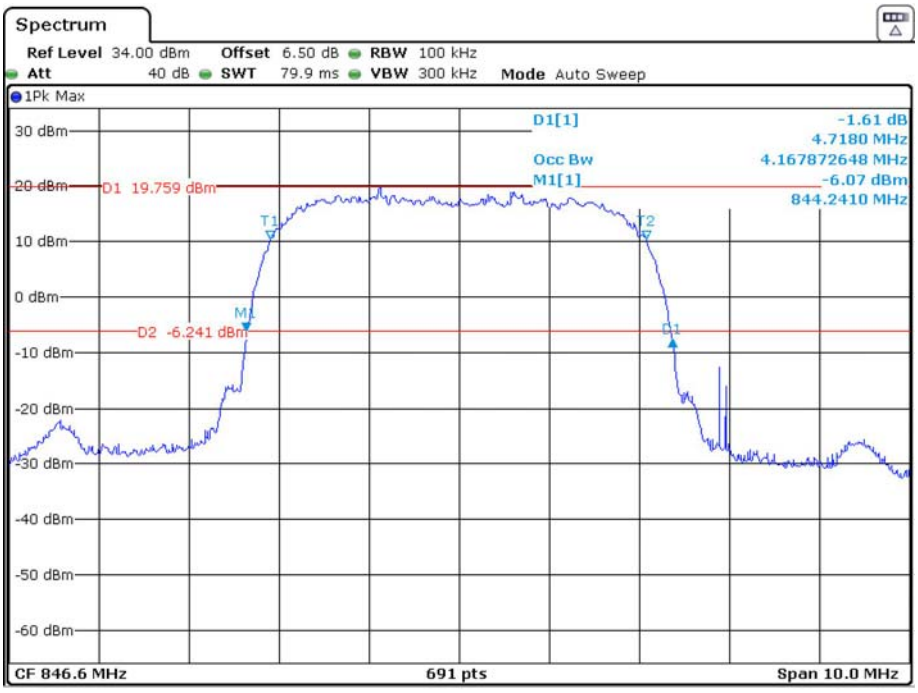
Date: 20.FEB.2021 19:35:15

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



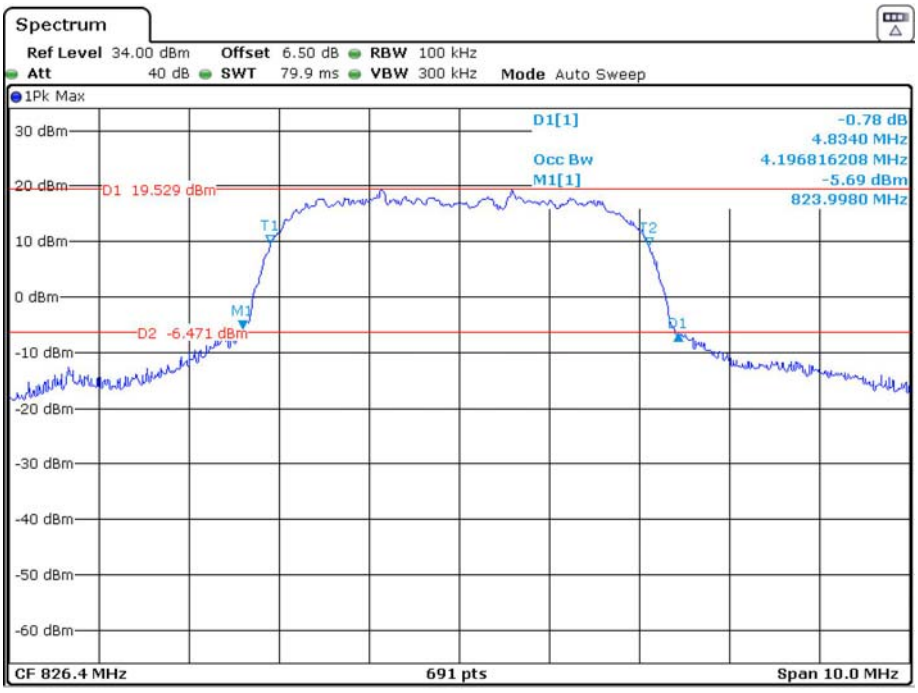
Date: 20.FEB.2021 19:34:24

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



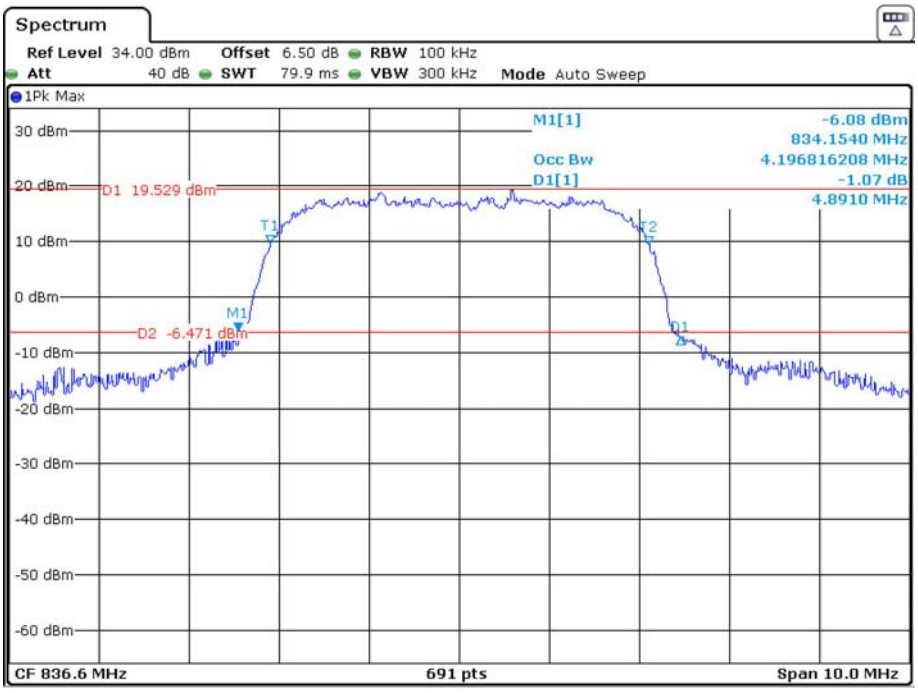
Date: 20.FEB.2021 19:32:19

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



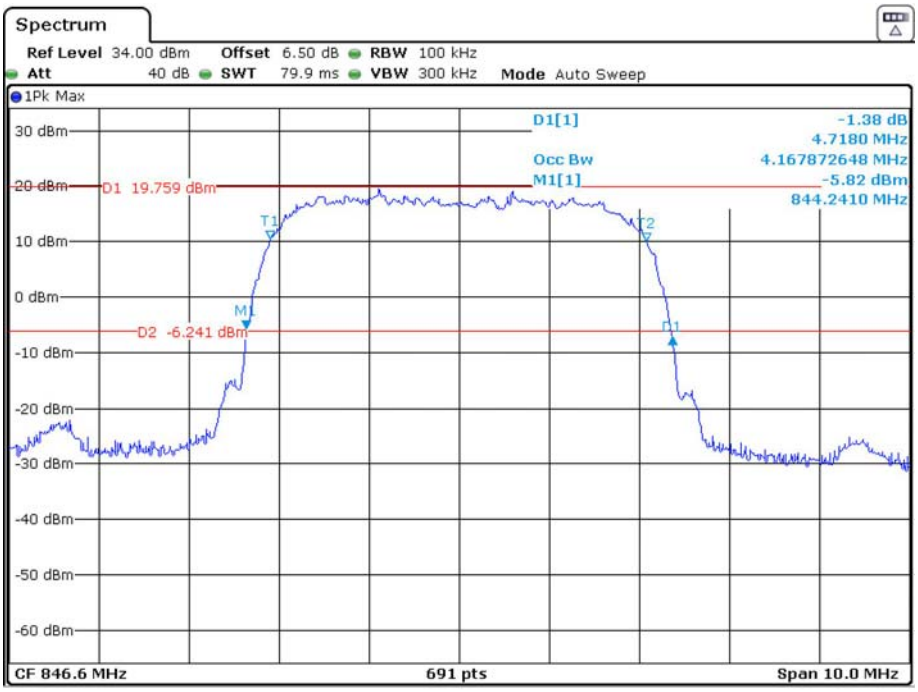
Date: 20.FEB.2021 19:25:27

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



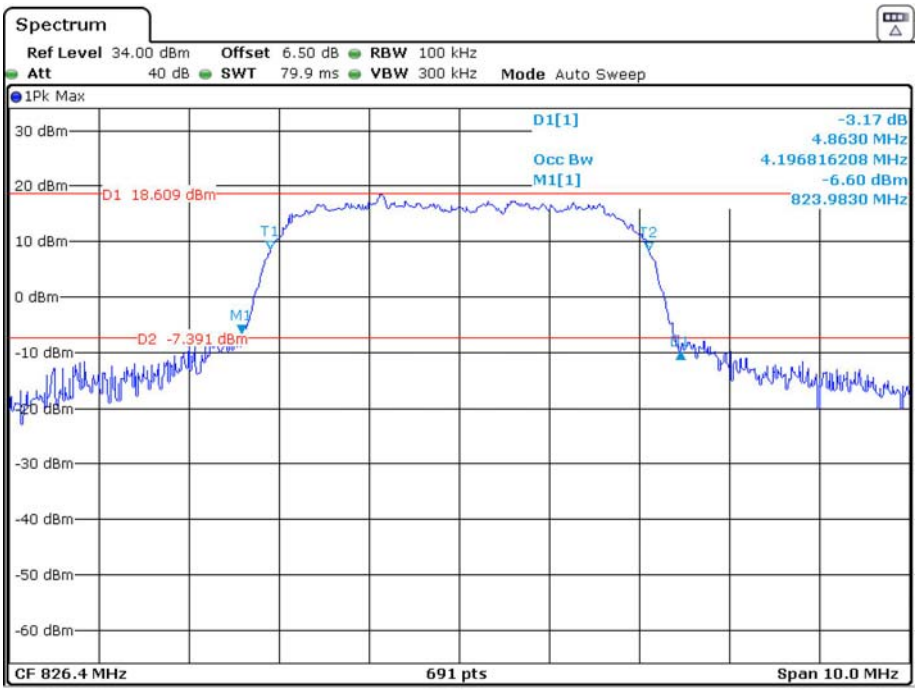
Date: 20.FEB.2021 19:22:39

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



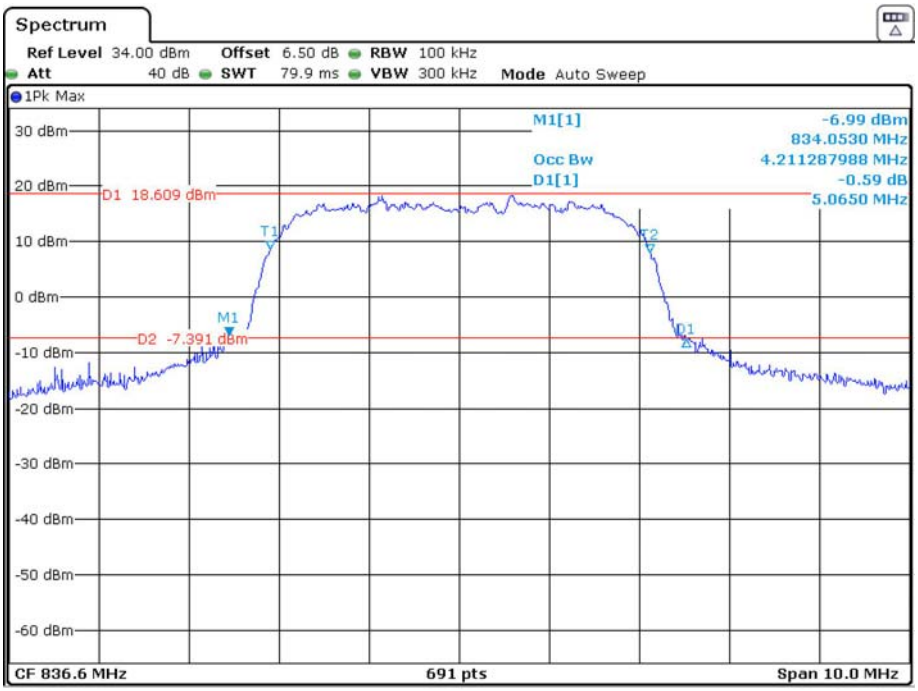
Date: 20.FEB.2021 19:21:10

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



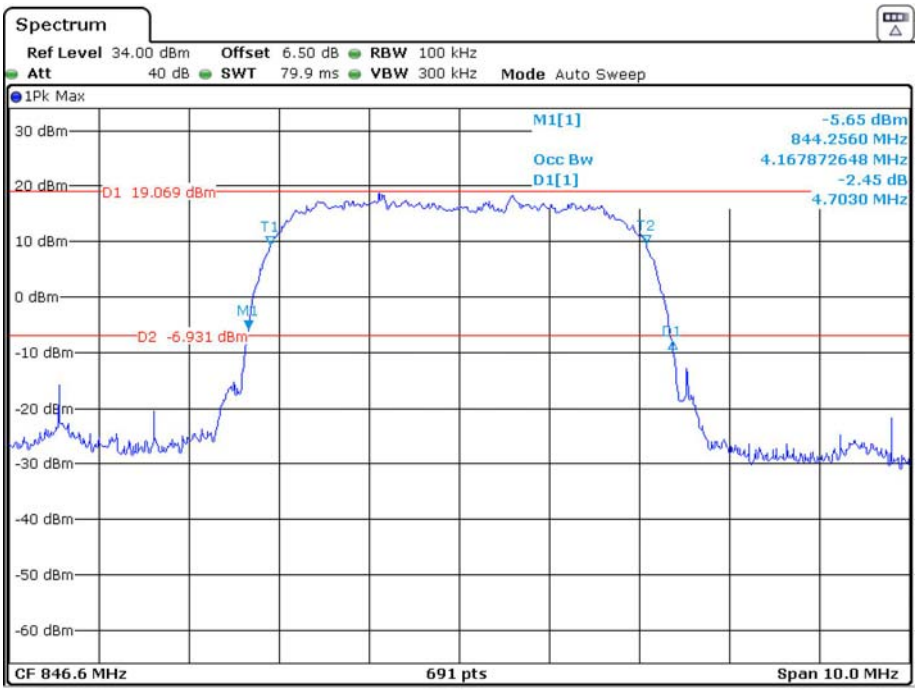
Date: 20.FEB.2021 19:28:04

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



Date: 20.FEB.2021 19:29:29

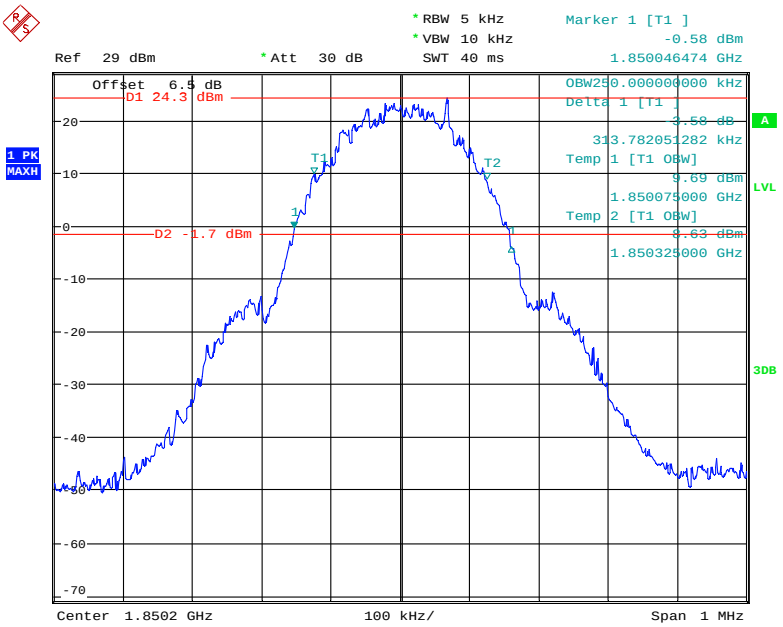
26 dB Emissions &99% Occupied Bandwidth for HSDPA (16QAM) Mode, High channel



Date: 20.FEB.2021 19:31:12

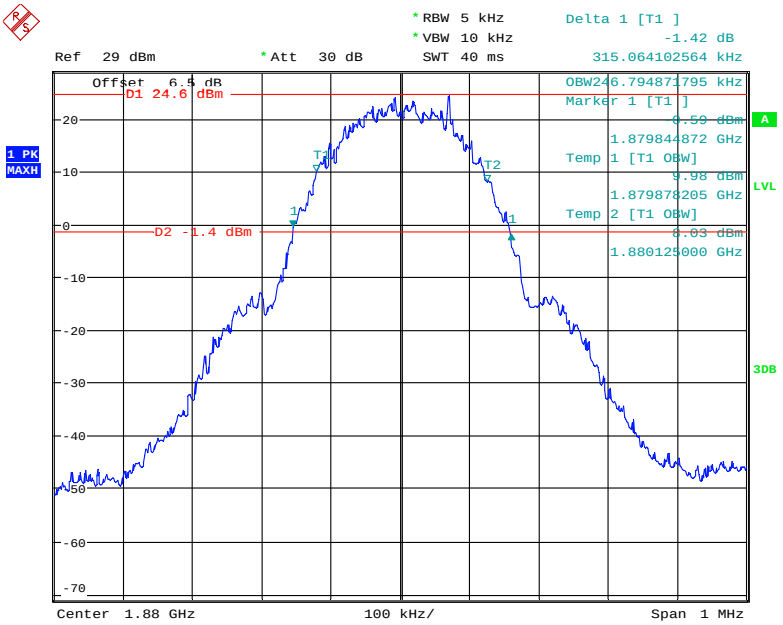
PCS Band (Part 24E)

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



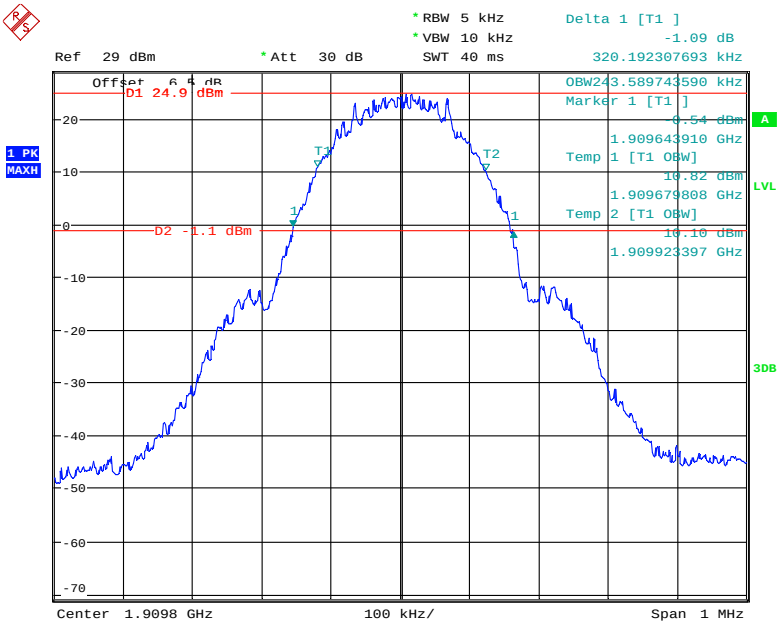
Date: 23.FEB.2021 15:41:33

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



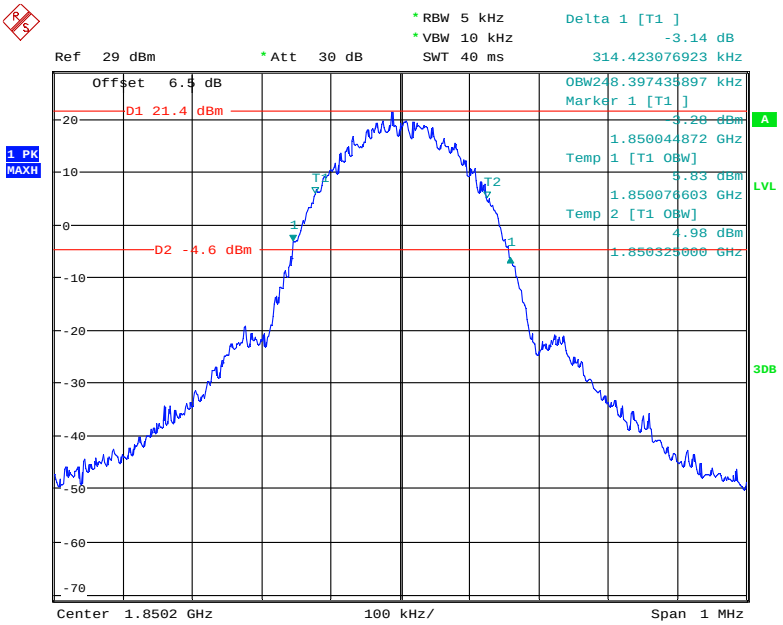
Date: 23.FEB.2021 15:40:20

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



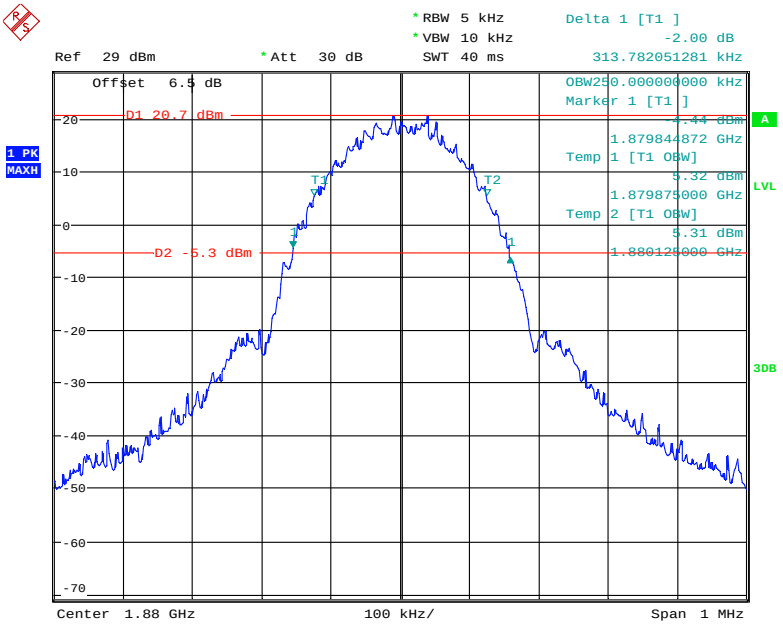
Date: 23.FEB.2021 15:38:56

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



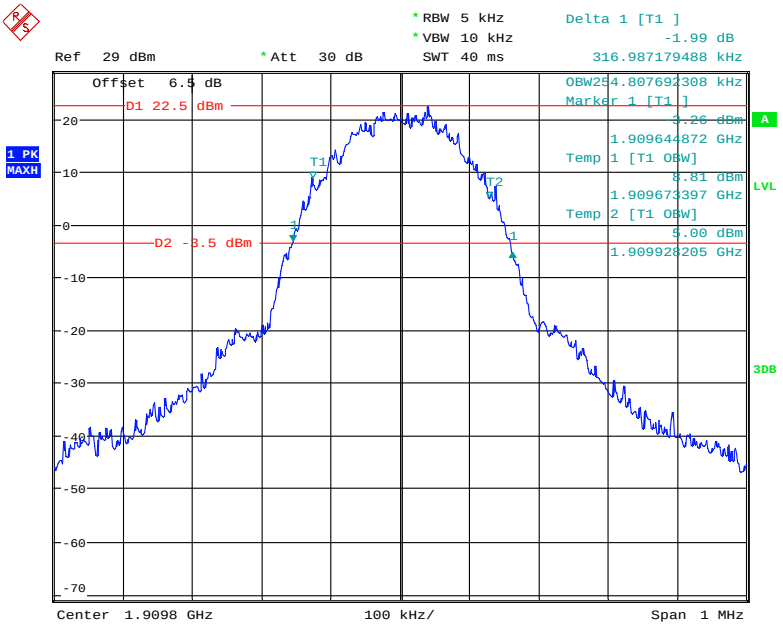
Date: 23.FEB.2021 15:23:07

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



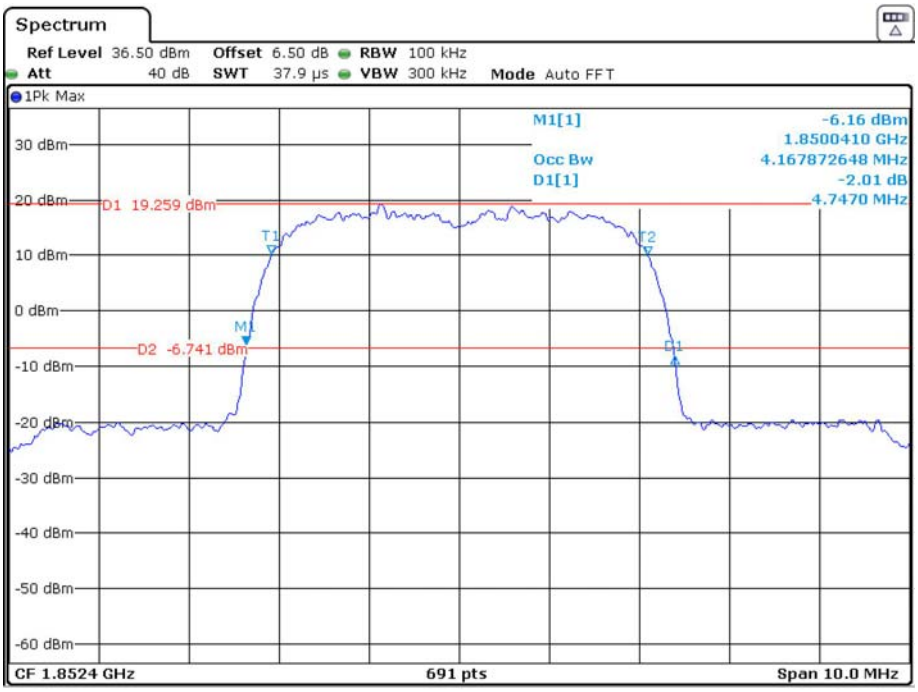
Date: 23.FEB.2021 15:24:16

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



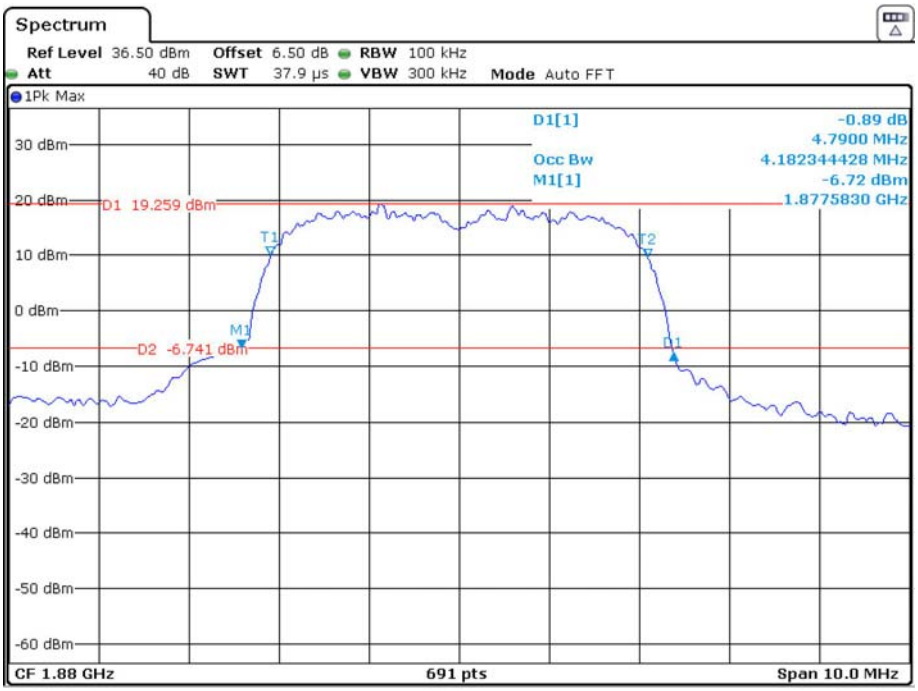
Date: 23.FEB.2021 15:25:51

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



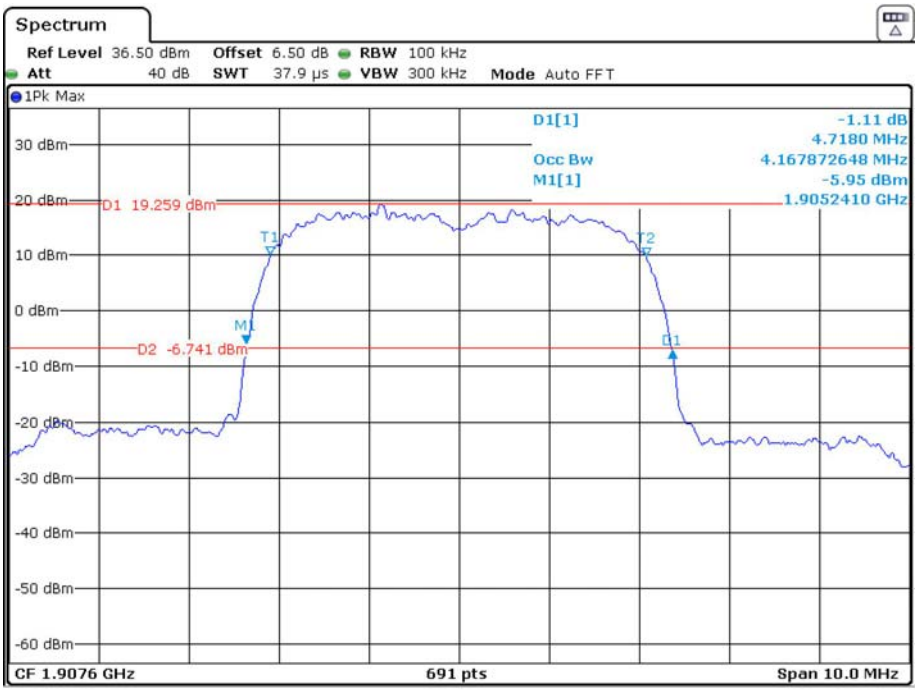
Date: 20.FEB.2021 14:54:00

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



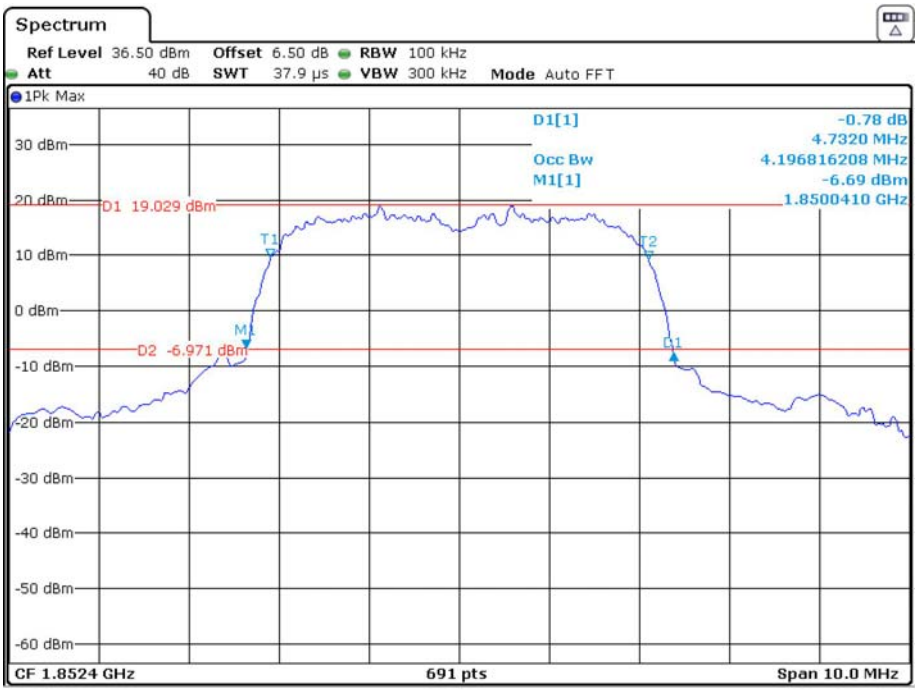
Date: 20.FEB.2021 14:55:41

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



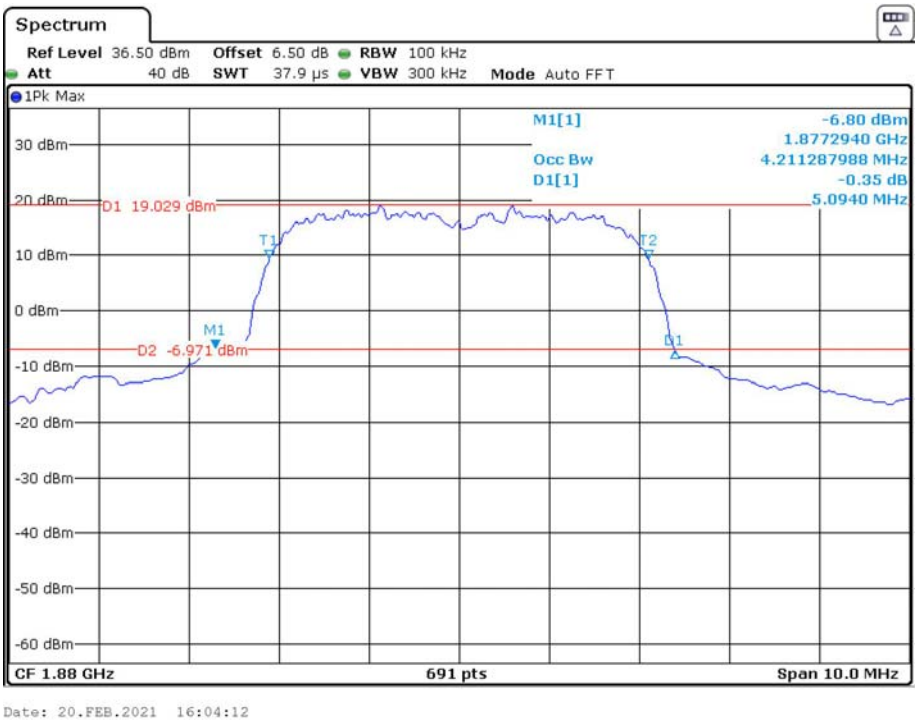
Date: 20.FEB.2021 14:57:33

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

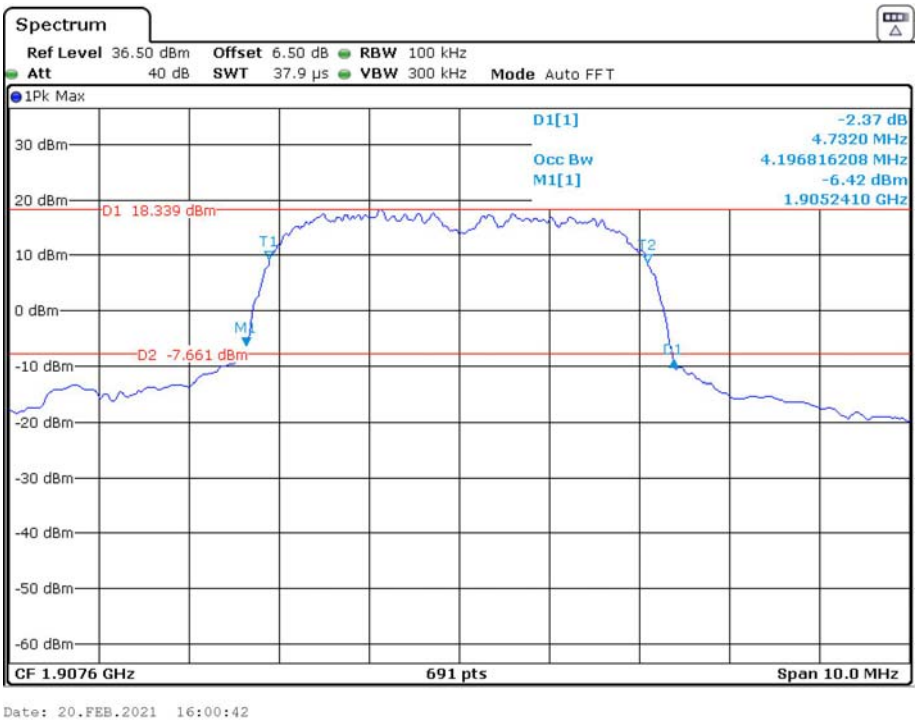


Date: 20.FEB.2021 16:05:31

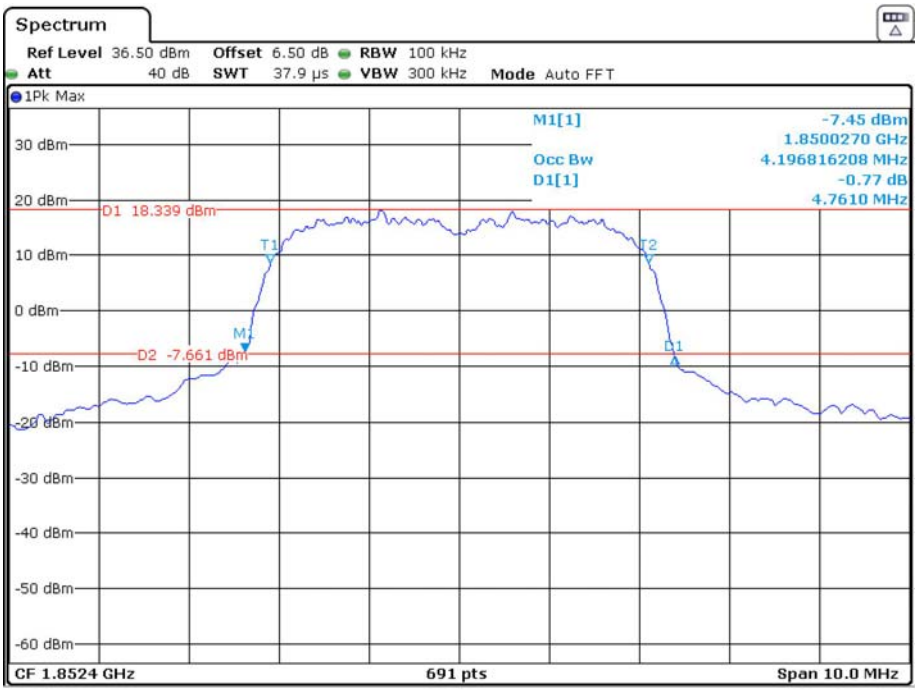
26 dB Emissions &99% Occupied Bandwidth for HSUPA (BPSK) Mode, Middle channel



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

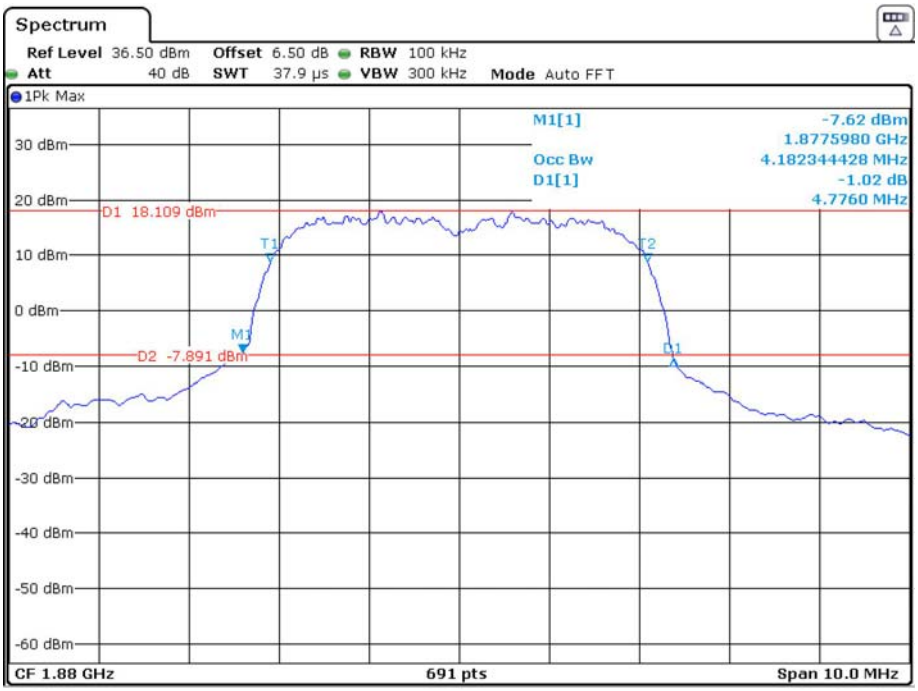


26 dB Emissions &99% Occupied Bandwidth for HSDPA (16QAM) Mode, Low channel



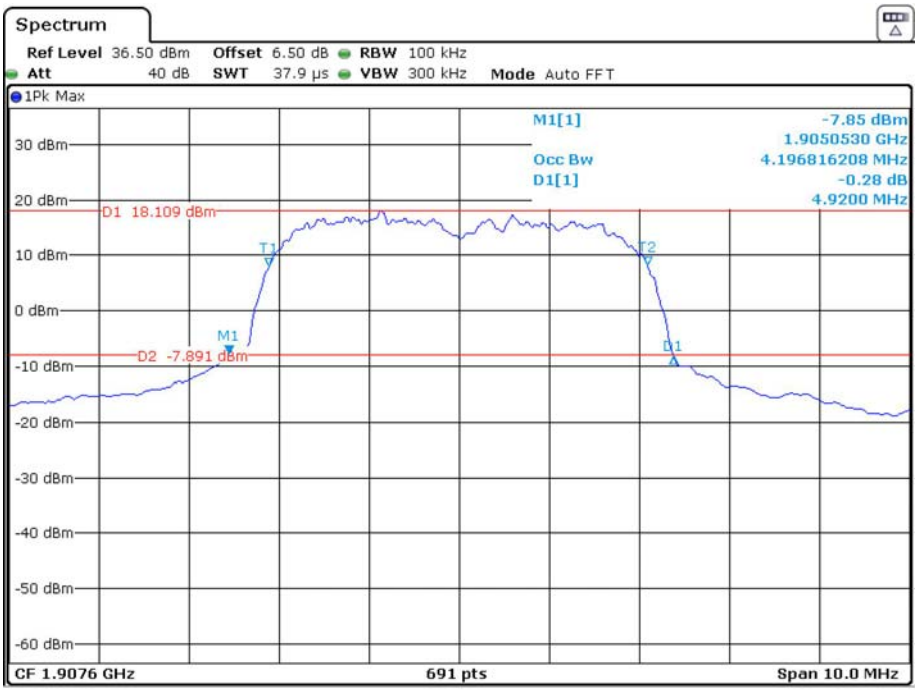
Date: 20.FEB.2021 15:47:08

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



Date: 20.FEB.2021 15:49:13

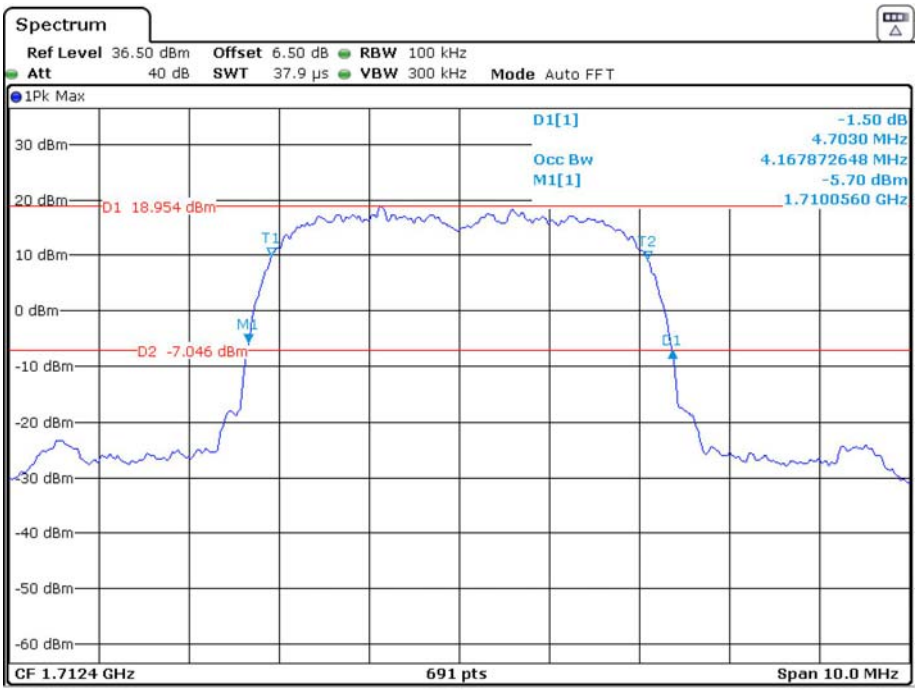
26 dB Emissions &99% Occupied Bandwidth for HSDPA (16QAM) Mode, High channel



Date: 20.FEB.2021 15:51:01

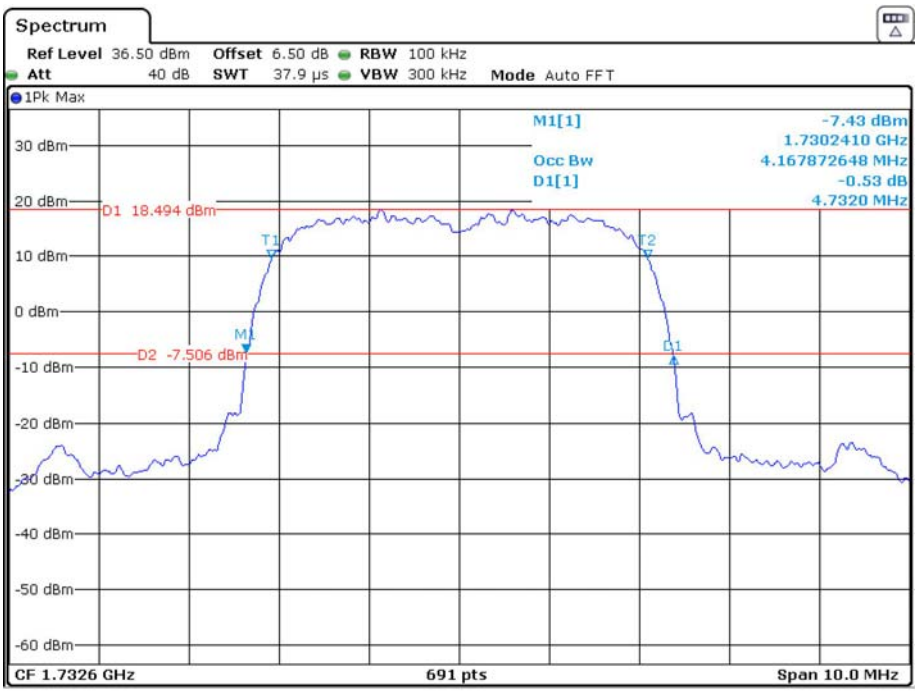
AWS Band (Part 27)

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



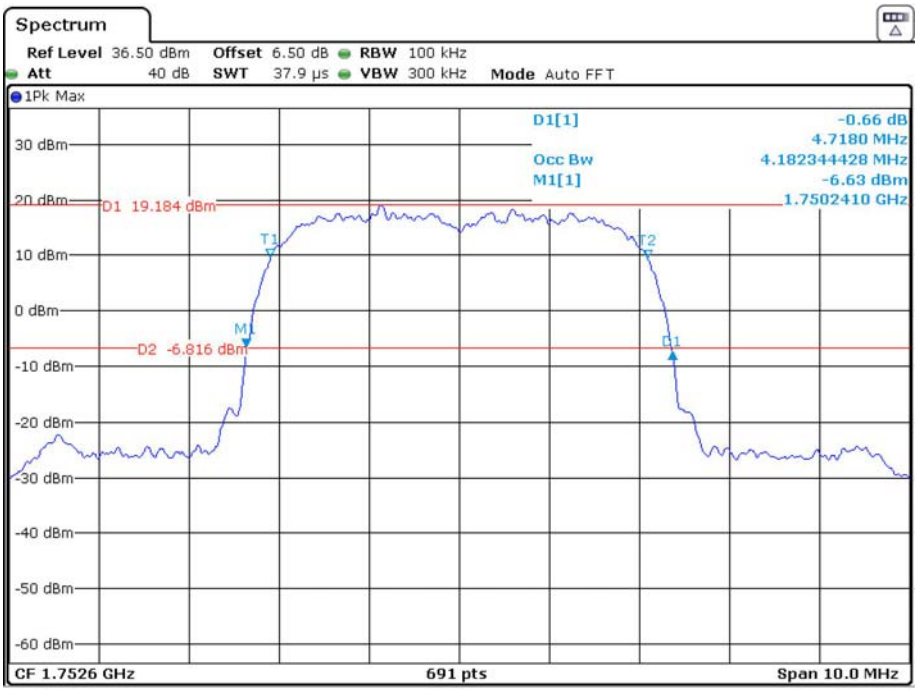
Date: 20.FEB.2021 17:14:19

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



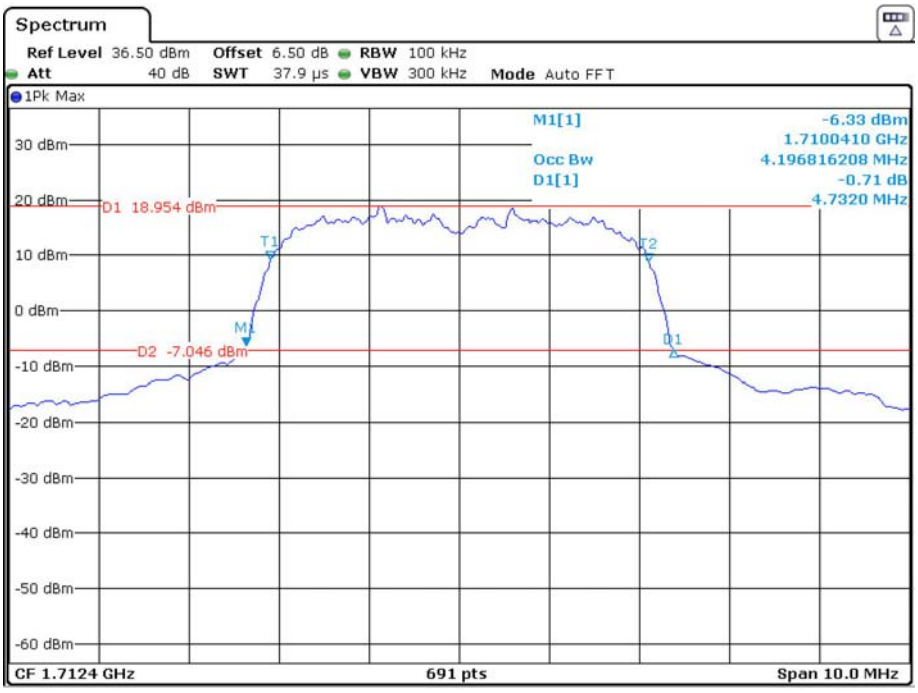
Date: 20.FEB.2021 17:16:00

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



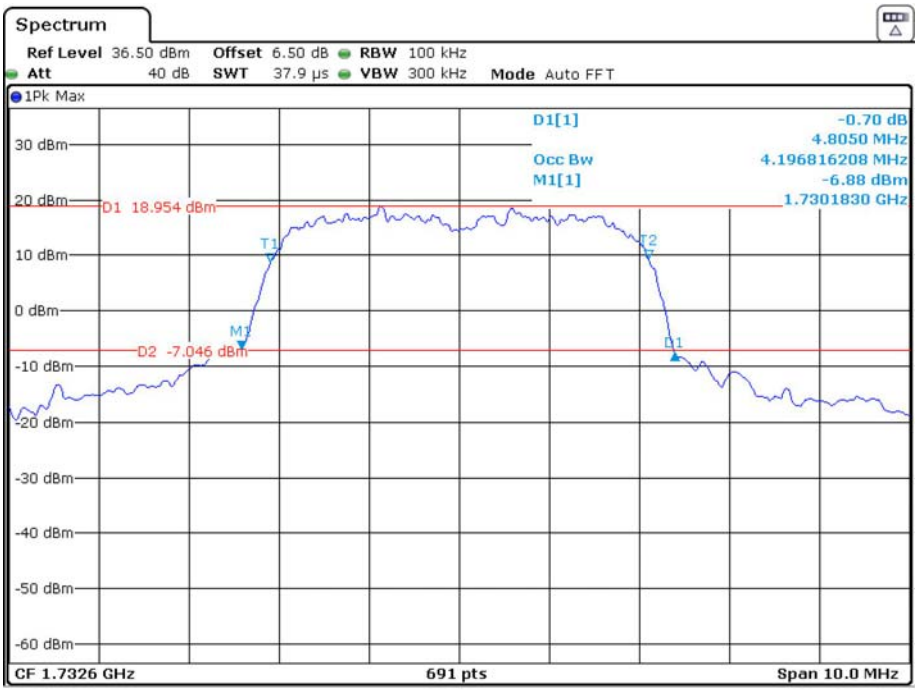
Date: 20.FEB.2021 17:17:30

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

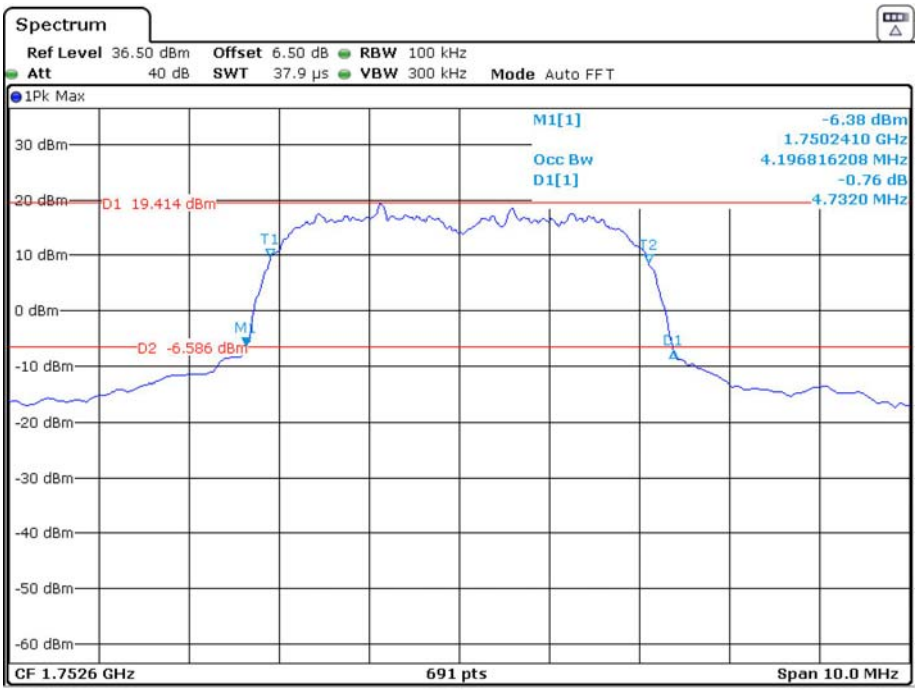


Date: 20.FEB.2021 17:26:29

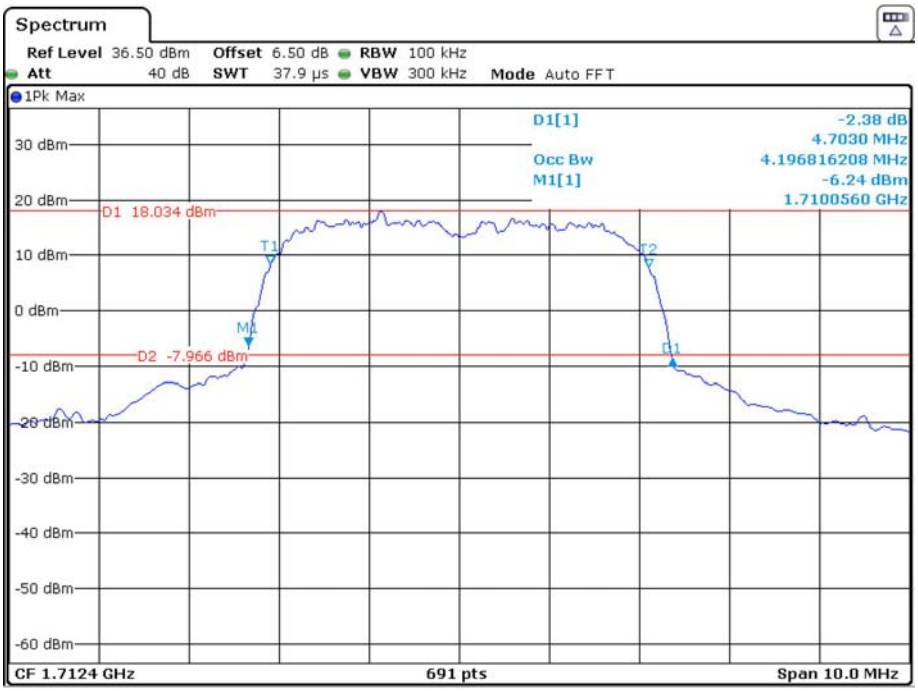
26 dB Emissions &99% Occupied Bandwidth for HSUPA (BPSK) Mode, Middle channel



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

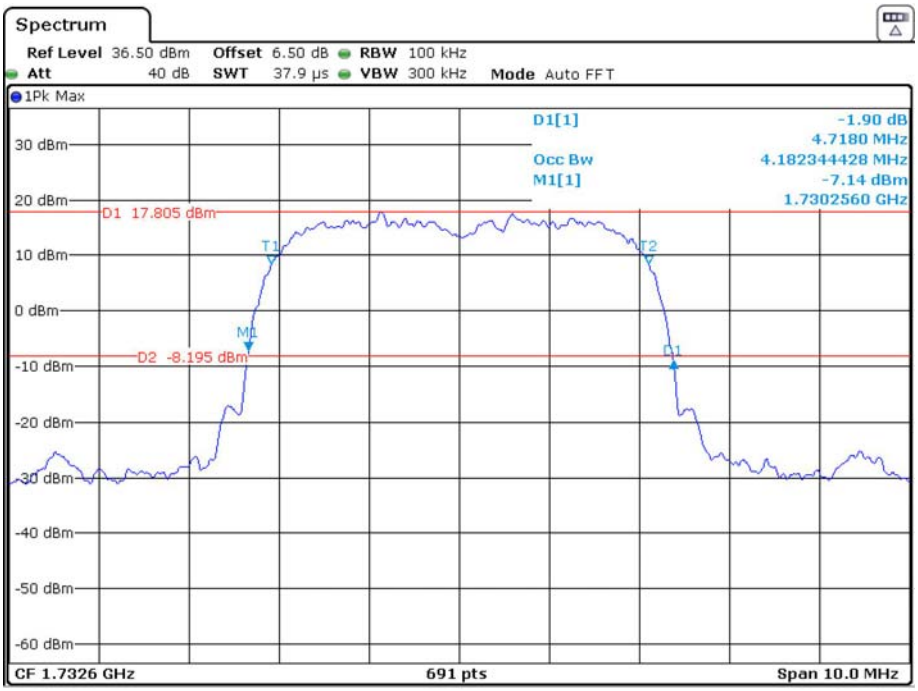


26 dB Emissions &99% Occupied Bandwidth for HSDPA (16QAM) Mode, Low channel



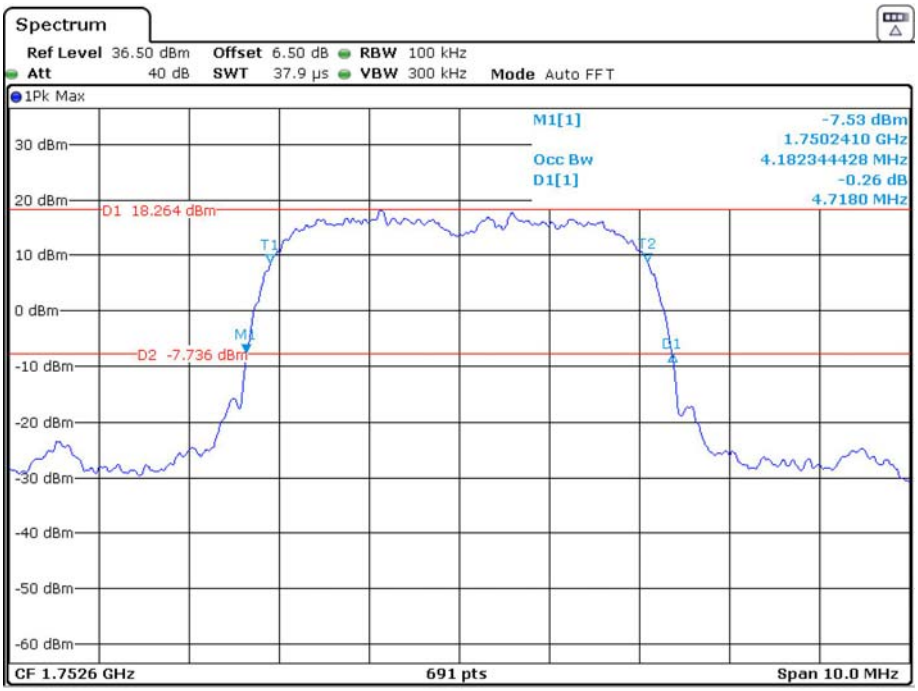
Date: 20.FEB.2021 17:28:29

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



Date: 20.FEB.2021 17:30:38

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



Date: 20.FEB.2021 17:34:00

LTE Band 2:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	Low	1.096	1.287
		Middle	1.096	1.320
		High	1.102	1.290
	16QAM	Low	1.096	1.320
		Middle	1.096	1.296
		High	1.096	1.296
3	QPSK	Low	2.683	2.880
		Middle	2.695	2.880
		High	2.683	2.892
	16QAM	Low	2.683	2.892
		Middle	2.683	2.880
		High	2.683	2.880
5	QPSK	Low	4.511	4.960
		Middle	4.511	4.980
		High	4.511	4.920
	16QAM	Low	4.491	4.920
		Middle	4.511	4.960
		High	4.511	4.980
10	QPSK	Low	8.942	9.680
		Middle	8.942	9.640
		High	8.981	9.640
	16QAM	Low	8.942	9.560
		Middle	8.942	9.560
		High	8.981	9.680
15	QPSK	Low	13.473	14.640
		Middle	13.473	14.580
		High	13.473	14.640
	16QAM	Low	13.473	14.580
		Middle	13.533	14.580
		High	13.473	14.520
20	QPSK	Low	17.884	19.120
		Middle	17.964	19.280
		High	17.964	19.360
	16QAM	Low	17.884	19.200
		Middle	17.964	19.360
		High	17.884	19.200

Band 4:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	Low	1.102	1.356
		Middle	1.096	1.314
		High	1.114	1.362
	16QAM	Low	1.108	1.350
		Middle	1.096	1.290
		High	1.108	1.590
3	QPSK	Low	2.695	2.904
		Middle	2.695	2.880
		High	2.683	2.892
	16QAM	Low	2.695	3.000
		Middle	2.683	2.880
		High	2.683	2.880
5	QPSK	Low	4.511	4.960
		Middle	4.511	4.940
		High	4.491	4.920
	16QAM	Low	4.471	4.900
		Middle	4.511	4.960
		High	4.511	4.960
10	QPSK	Low	8.942	9.720
		Middle	8.942	9.600
		High	8.981	9.640
	16QAM	Low	8.942	9.600
		Middle	8.942	9.680
		High	8.981	9.640
15	QPSK	Low	13.473	14.640
		Middle	13.473	14.580
		High	13.473	14.640
	16QAM	Low	13.473	14.580
		Middle	13.473	14.640
		High	13.473	14.580
20	QPSK	Low	17.964	19.280
		Middle	17.884	19.280
		High	17.964	19.360
	16QAM	Low	17.964	19.280
		Middle	17.884	19.280
		High	17.964	19.200

Band 5:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	Low	1.090	1.302
		Middle	1.096	1.314
		High	1.102	1.284
	16QAM	Low	1.102	1.326
		Middle	1.090	1.290
		High	1.096	1.284
3	QPSK	Low	2.671	2.868
		Middle	2.683	2.880
		High	2.683	2.892
	16QAM	Low	2.671	2.880
		Middle	2.683	2.880
		High	2.671	2.868
5	QPSK	Low	4.511	4.940
		Middle	4.511	5.040
		High	4.491	4.920
	16QAM	Low	4.491	5.040
		Middle	4.511	4.960
		High	4.511	4.980
10	QPSK	Low	8.942	9.680
		Middle	8.942	9.600
		High	8.942	9.640
	16QAM	Low	8.942	9.560
		Middle	8.942	9.640
		High	8.901	9.600

Band 7

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5	QPSK	Low	4.511	4.960
		Middle	4.511	4.960
		High	4.491	4.920
	16QAM	Low	4.491	4.940
		Middle	4.511	4.960
		High	4.511	4.980
10	QPSK	Low	8.942	9.640
		Middle	8.942	9.600
		High	8.942	9.640
	16QAM	Low	8.942	9.520
		Middle	8.942	9.600
		High	8.942	9.640
15	QPSK	Low	13.533	14.580
		Middle	13.413	14.580
		High	13.473	14.580
	16QAM	Low	13.473	14.580
		Middle	13.473	14.640
		High	13.533	14.580
20	QPSK	Low	17.884	19.200
		Middle	17.884	19.200
		High	18.044	19.600
	16QAM	Low	17.964	19.280
		Middle	17.964	19.360
		High	17.964	19.360

LTE Band 38:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5	QPSK	Low	4.511	5.080
		Middle	4.511	5.140
		High	4.511	5.220
	16QAM	Low	4.511	5.060
		Middle	4.511	5.000
		High	4.511	5.180
10	QPSK	Low	8.981	9.760
		Middle	8.942	9.640
		High	8.942	9.520
	16QAM	Low	8.942	9.520
		Middle	8.942	9.480
		High	8.942	9.520
15	QPSK	Low	13.413	14.700
		Middle	13.413	14.580
		High	13.473	15.600
	16QAM	Low	13.533	14.640
		Middle	13.413	14.580
		High	13.473	14.520
20	QPSK	Low	17.964	19.280
		Middle	17.884	19.360
		High	17.884	19.440
	16QAM	Low	17.884	20.320
		Middle	17.884	19.680
		High	17.884	19.520

LTE Band 41:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5	QPSK	Low	4.511	5.040
		Middle	4.511	4.960
		High	4.511	4.940
	16QAM	Low	4.491	4.940
		Middle	4.511	5.220
		High	4.511	4.960
10	QPSK	Low	8.981	9.600
		Middle	8.942	9.800
		High	8.981	9.920
	16QAM	Low	8.942	9.520
		Middle	8.942	9.520
		High	8.942	9.600
15	QPSK	Low	13.473	14.460
		Middle	13.473	14.520
		High	13.473	14.640
	16QAM	Low	13.533	15.840
		Middle	13.533	14.580
		High	13.473	14.700
20	QPSK	Low	17.964	19.280
		Middle	17.964	19.200
		High	17.884	19.280
	16QAM	Low	17.964	19.280
		Middle	17.884	19.760
		High	17.884	19.120

LTE Band 66

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	Low	1.096	1.296
		Middle	1.096	1.320
		High	1.114	1.374
	16QAM	Low	1.096	1.320
		Middle	1.090	1.290
		High	1.108	1.446
3	QPSK	Low	2.683	2.868
		Middle	2.683	2.880
		High	2.683	3.096
	16QAM	Low	2.683	2.892
		Middle	2.683	2.880
		High	2.695	3.672
5	QPSK	Low	4.551	5.200
		Middle	4.531	5.220
		High	4.511	5.140
	16QAM	Low	4.511	5.100
		Middle	4.551	5.200
		High	4.531	5.220
10	QPSK	Low	8.981	9.960
		Middle	8.942	9.840
		High	8.981	9.920
	16QAM	Low	8.942	9.920
		Middle	8.942	9.840
		High	8.981	9.880
15	QPSK	Low	13.593	14.820
		Middle	13.473	14.820
		High	13.473	14.760
	16QAM	Low	13.533	14.820
		Middle	13.473	14.760
		High	13.533	14.760
20	QPSK	Low	18.044	19.680
		Middle	17.964	19.440
		High	17.964	19.920
	16QAM	Low	17.964	19.840
		Middle	17.964	19.680
		High	17.964	19.440

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

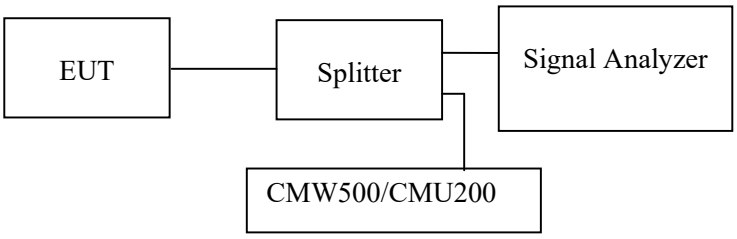
Applicable Standard

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

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

Test Procedure

The RF output of the transceiver was connected to a spectrum analyzer and simulator through appropriate attenuation. 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:	25 ℃
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

The testing was performed by Gavin Guo from 2021-02-20 to 2021-03-23.

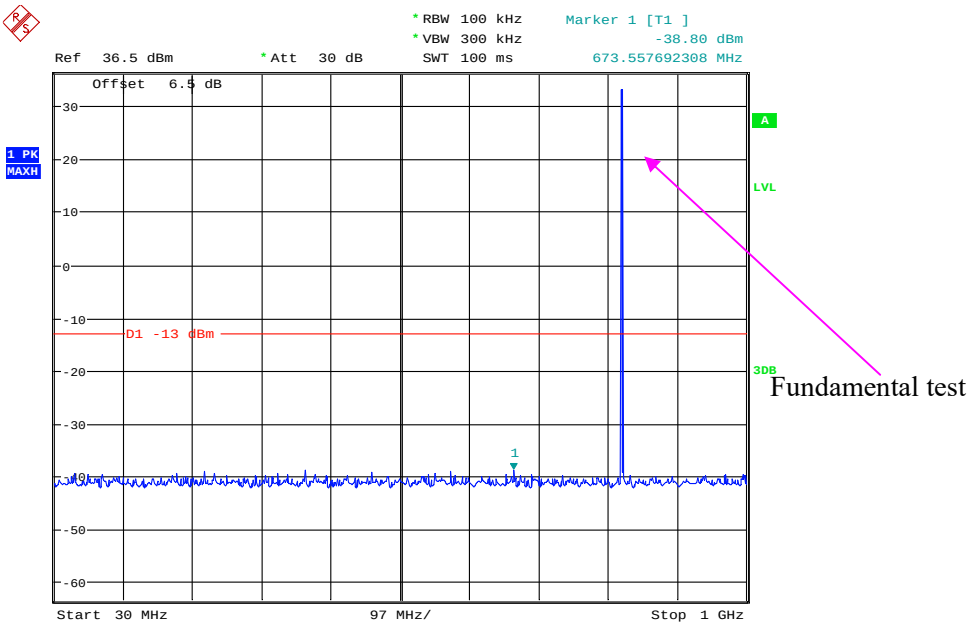
EUT operation mode: Transmitting

Test result: Pass

Please refer to the following plots.

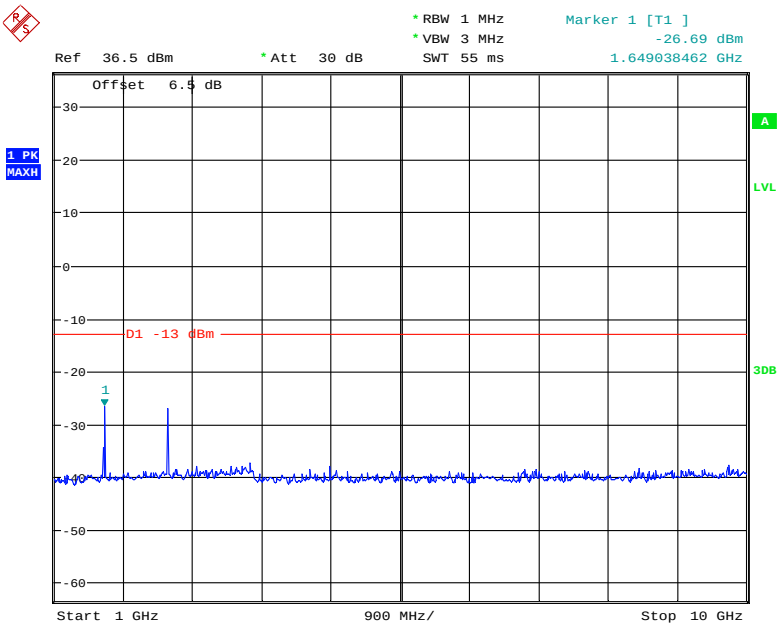
Cellular Band (Part 22H)
Low Channel:

30 MHz – 1 GHz (GSM Mode)



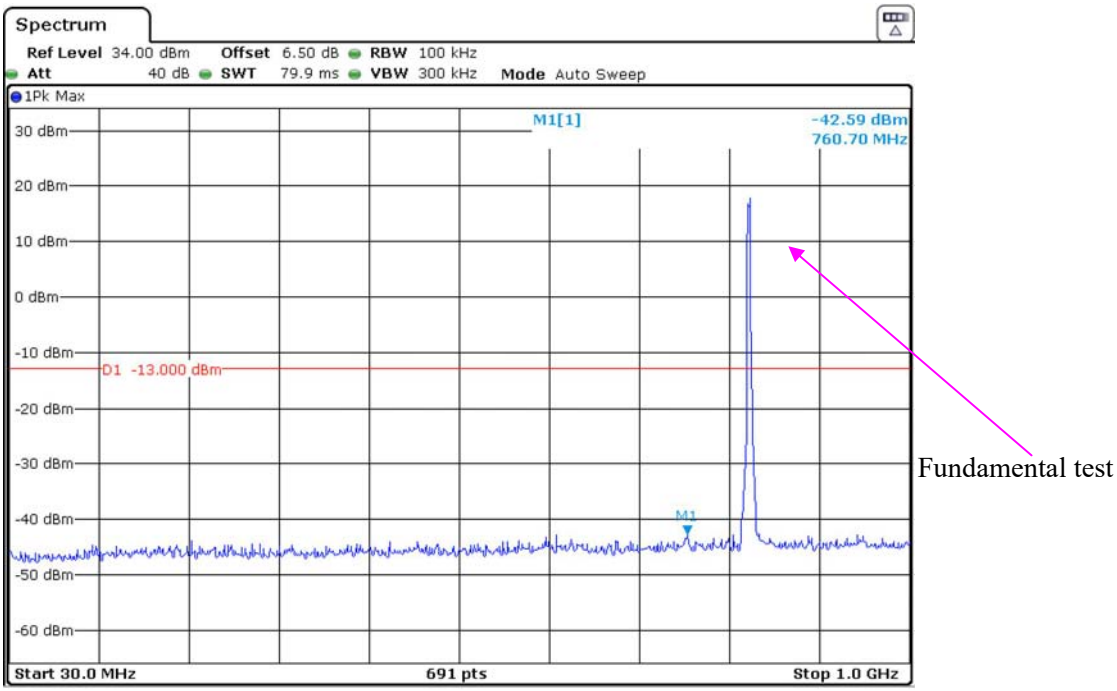
Date: 23.FEB.2021 15:04:02

1 GHz – 10 GHz (GSM Mode)



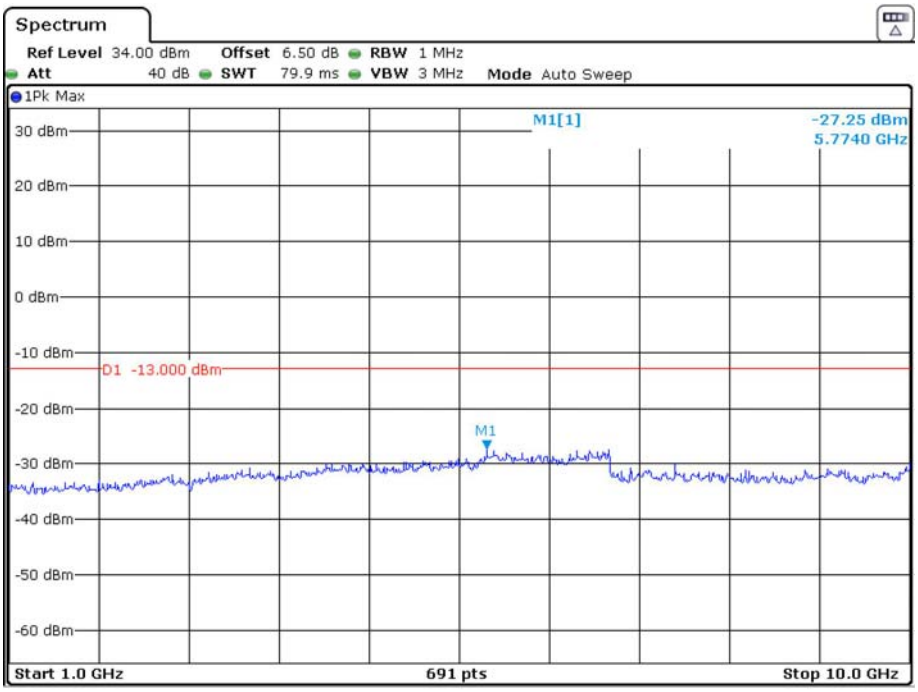
Date: 23.FEB.2021 15:04:50

30 MHz – 1 GHz (WCDMA Mode)



Date: 20.FEB.2021 19:12:53

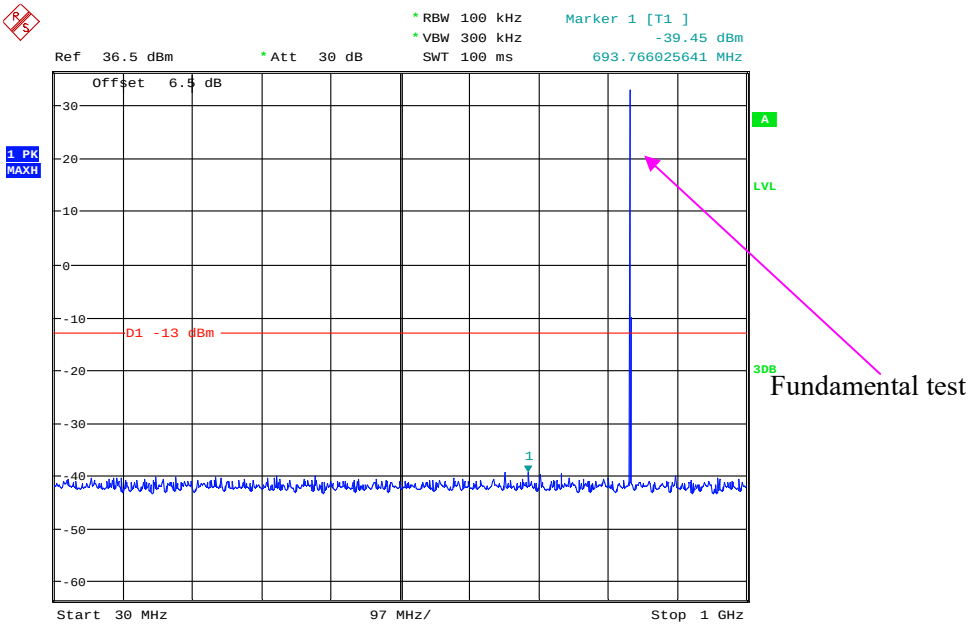
1 GHz – 10 GHz (WCDMA Mode)



Date: 20.FEB.2021 18:59:36

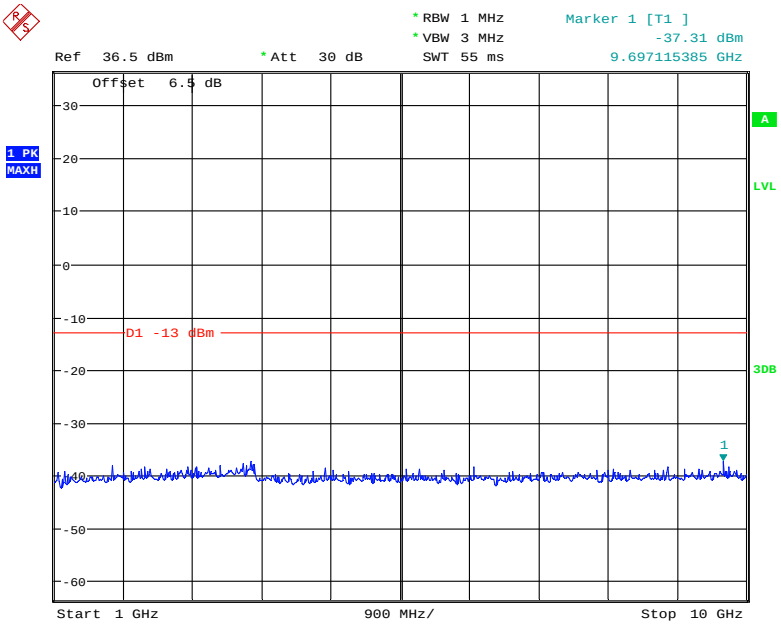
Middle Channel:

30 MHz – 1 GHz (GSM Mode)



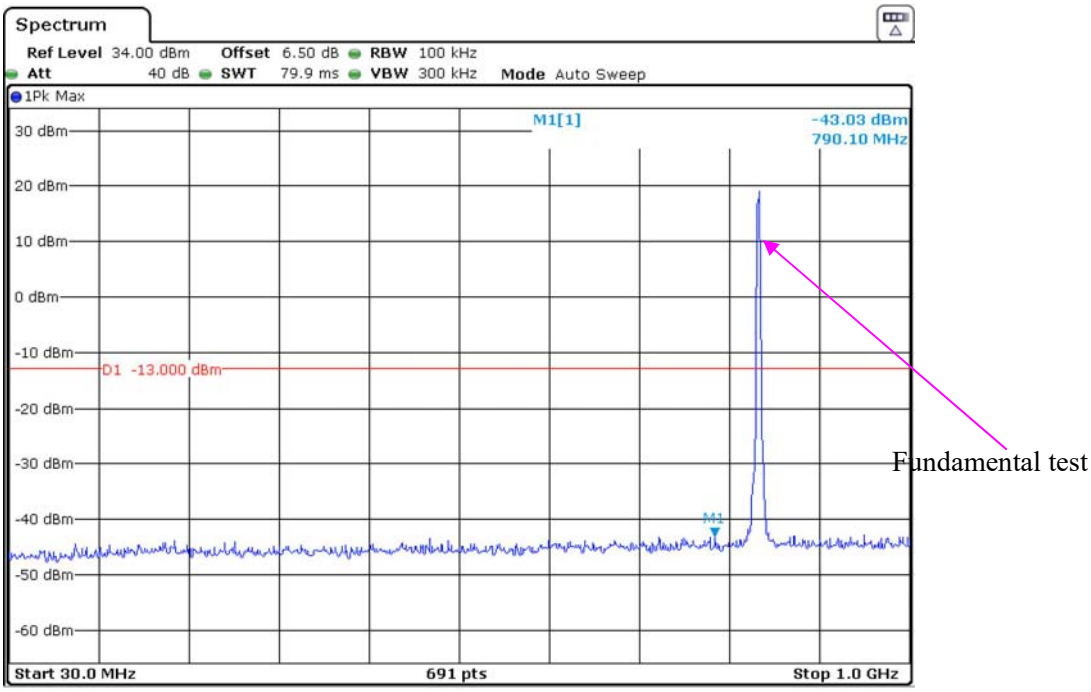
Date: 23.FEB.2021 15:06:33

1 GHz – 10 GHz (GSM Mode)



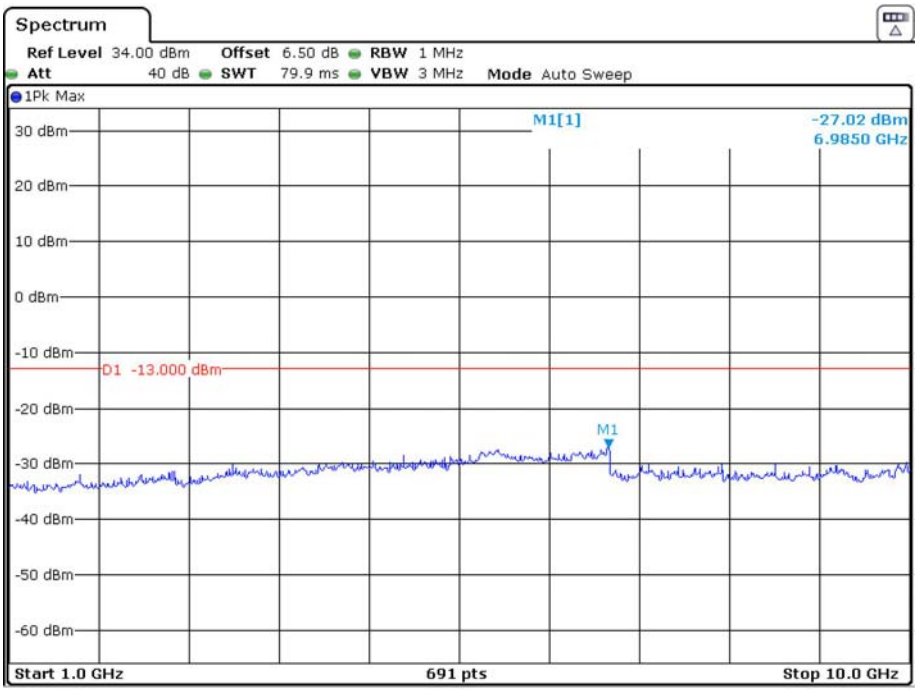
Date: 23.FEB.2021 15:05:25

30 MHz – 1 GHz (WCDMA Mode)



Date: 20.FEB.2021 19:12:26

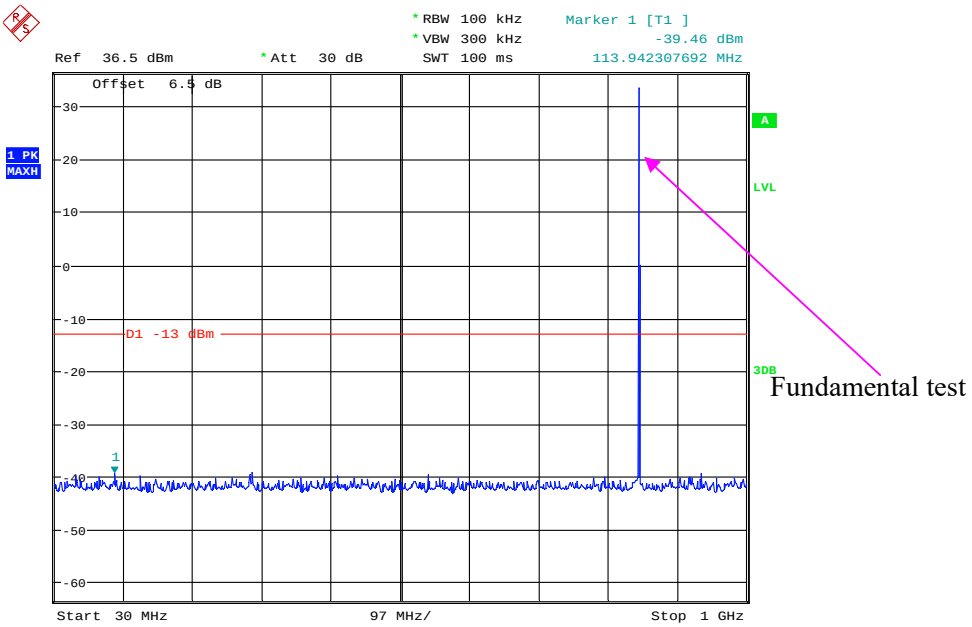
1 GHz – 10 GHz (WCDMA Mode)



Date: 20.FEB.2021 18:59:56

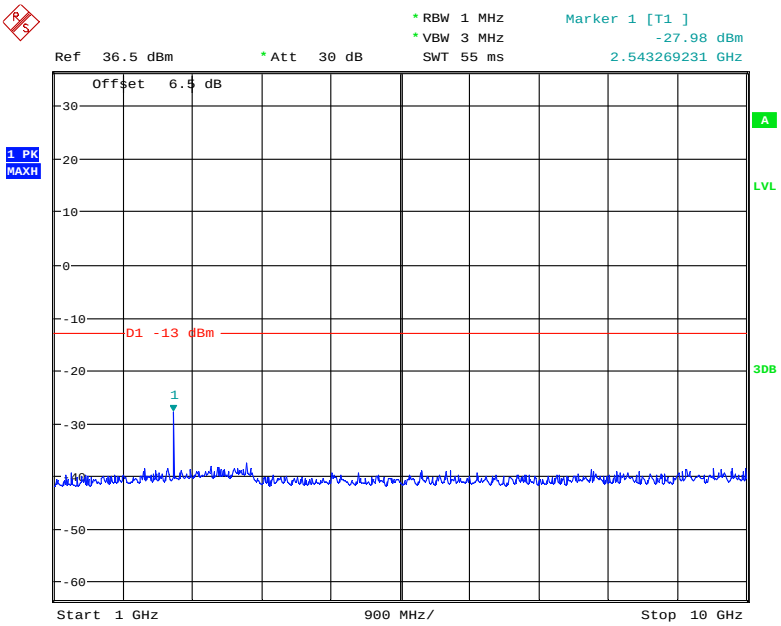
High Channel:

30 MHz – 1 GHz (GSM Mode)



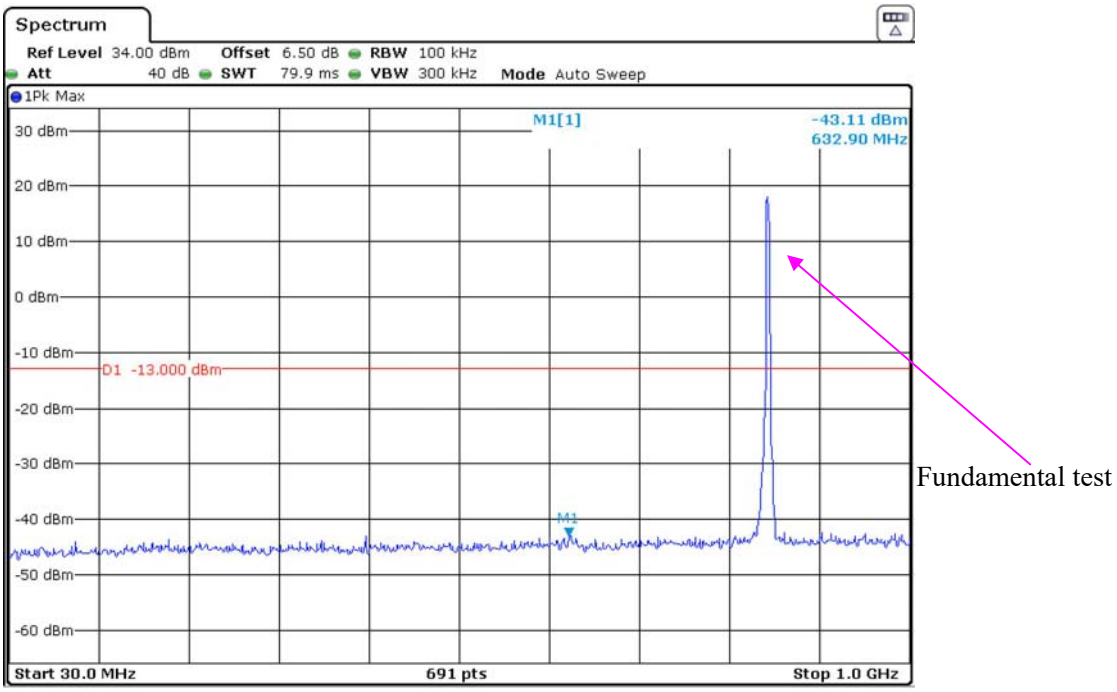
Date: 23.FEB.2021 15:06:02

1 GHz – 10 GHz (GSM Mode)



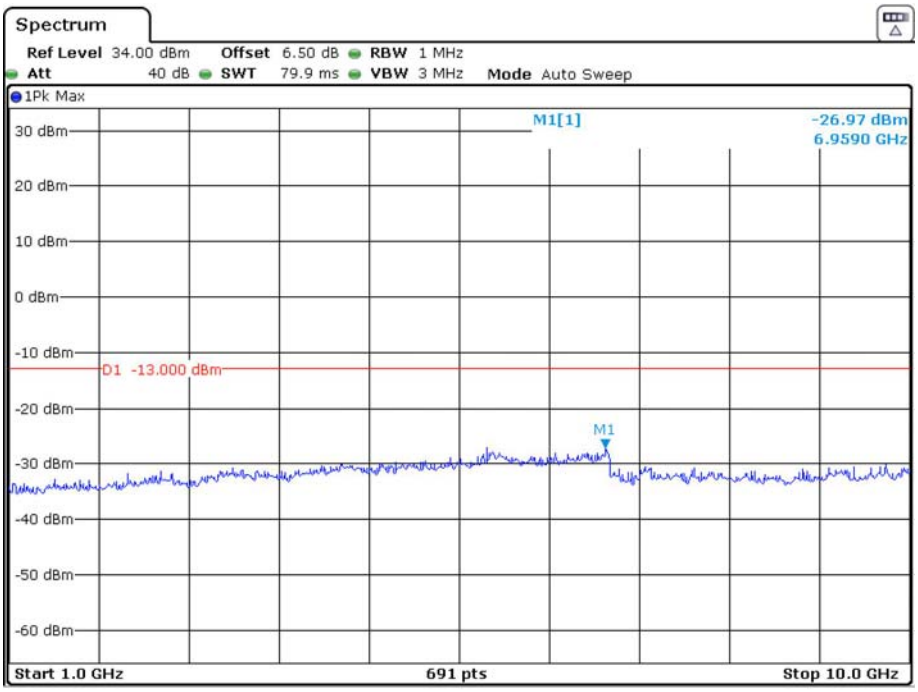
Date: 23.FEB.2021 15:05:40

30 MHz – 1 GHz (WCDMA Mode)



Date: 20.FEB.2021 19:11:56

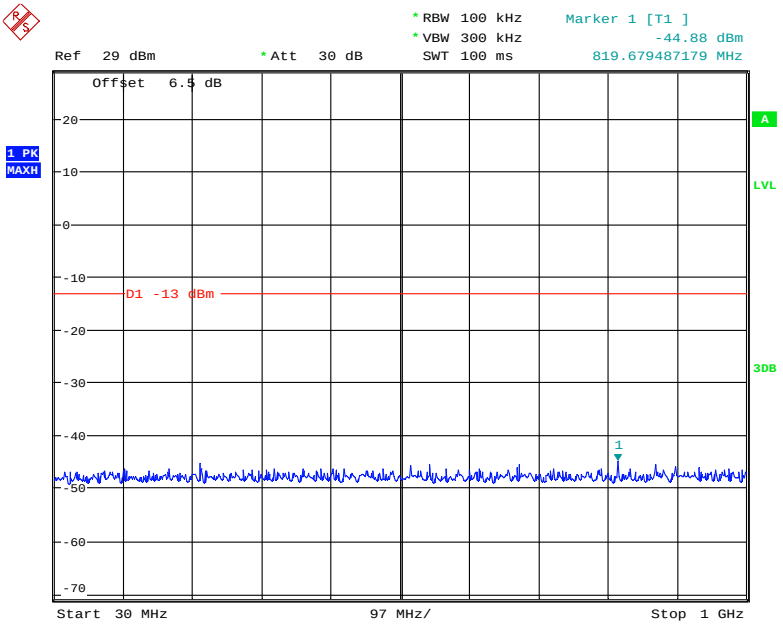
1 GHz – 10 GHz (WCDMA Mode)



Date: 20.FEB.2021 19:00:12

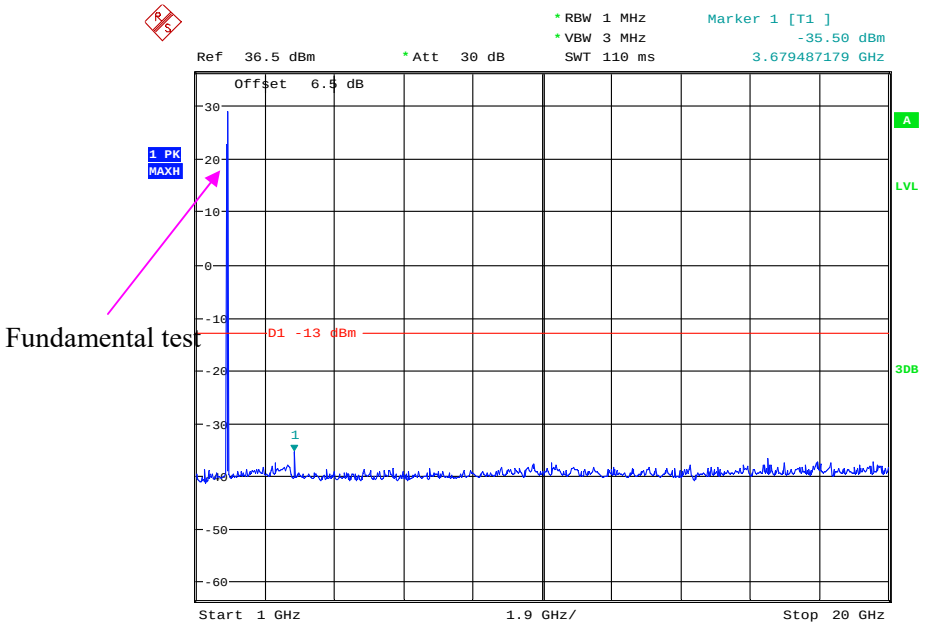
PCS Band (Part 24E) Low Channel:

30 MHz – 1 GHz (GSM Mode)



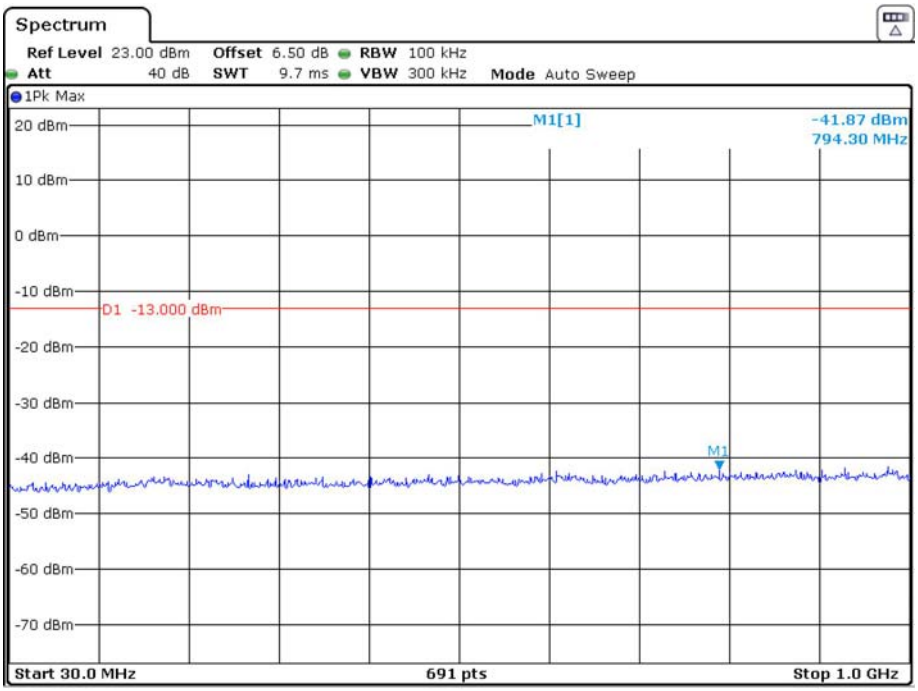
Date: 23.FEB.2021 15:42:55

1 GHz – 20 GHz (GSM Mode)



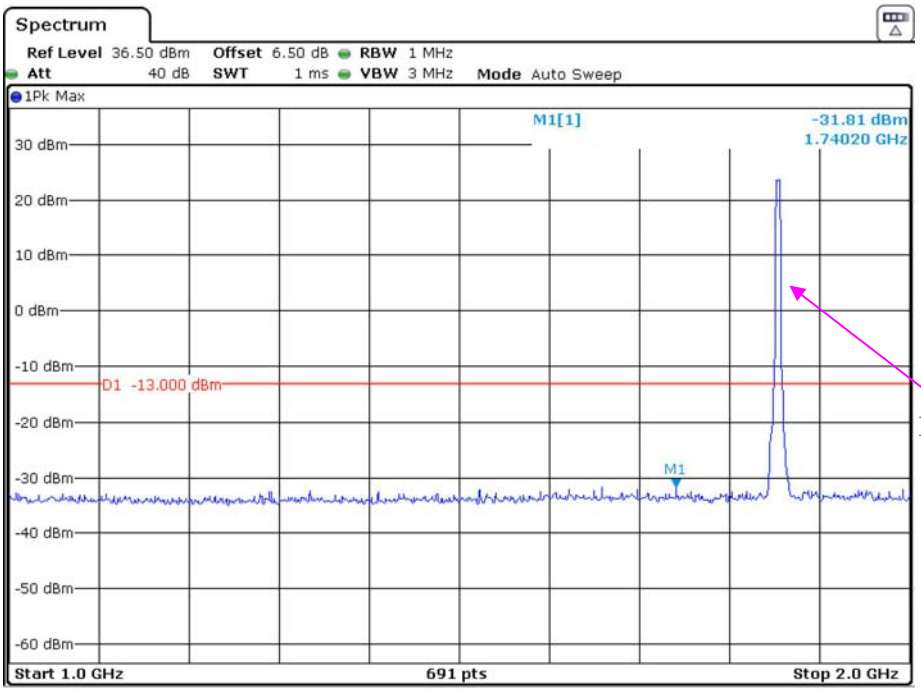
Date: 23.FEB.2021 15:46:05

30 MHz – 1 GHz (WCDMA Mode)



Date: 20.FEB.2021 15:08:21

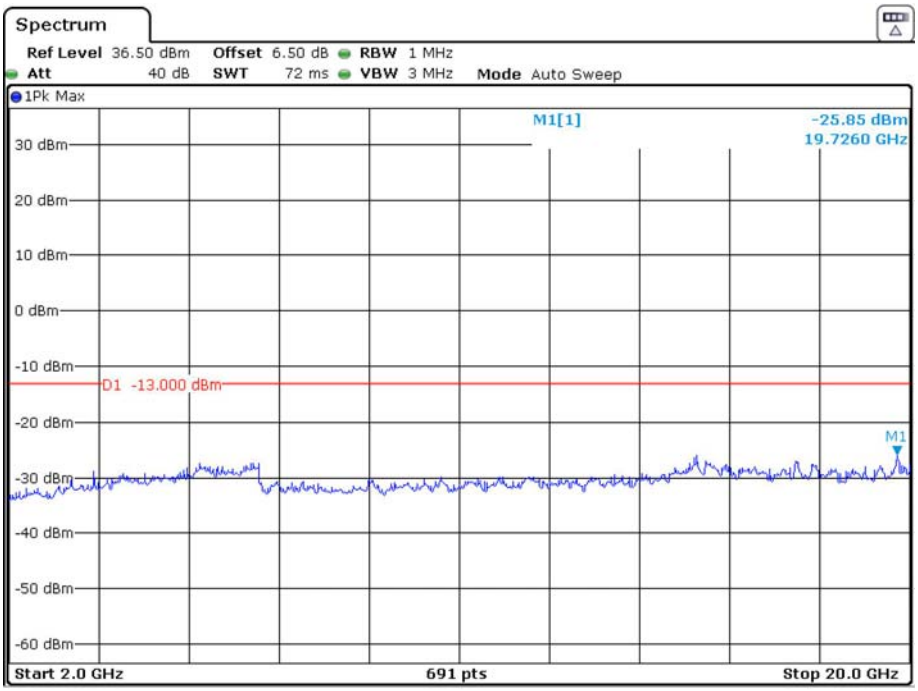
1 GHz – 2 GHz (WCDMA Mode)



Fundamental test

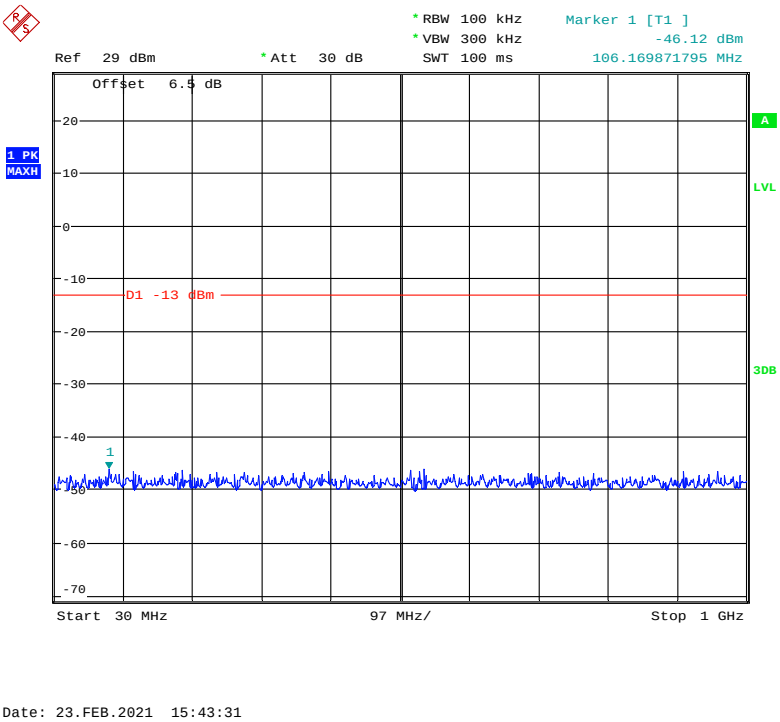
Date: 20.FEB.2021 15:17:21

2 GHz – 20 GHz (WCDMA Mode)

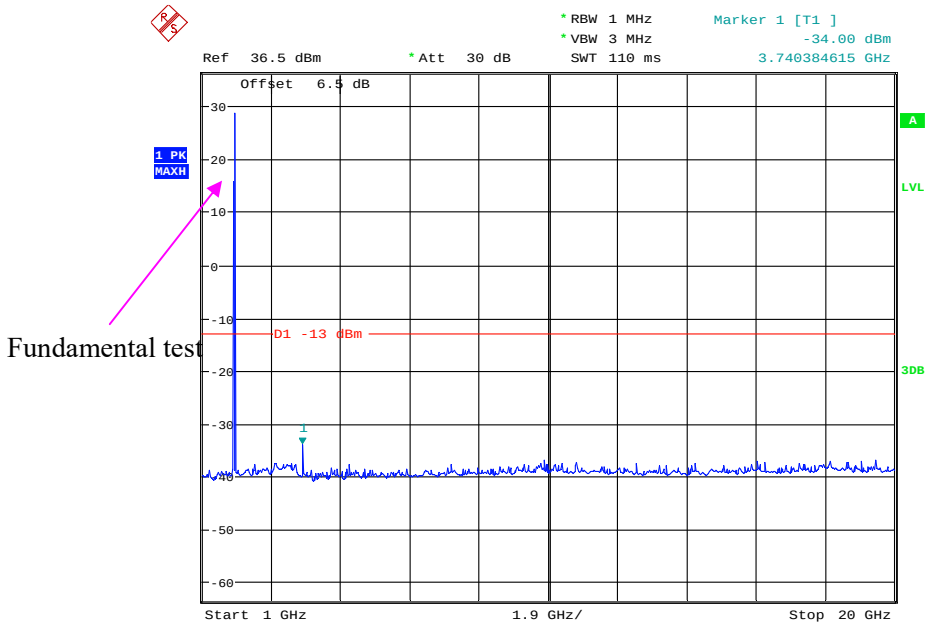


Middle Channel:

30 MHz – 1 GHz (GSM Mode)

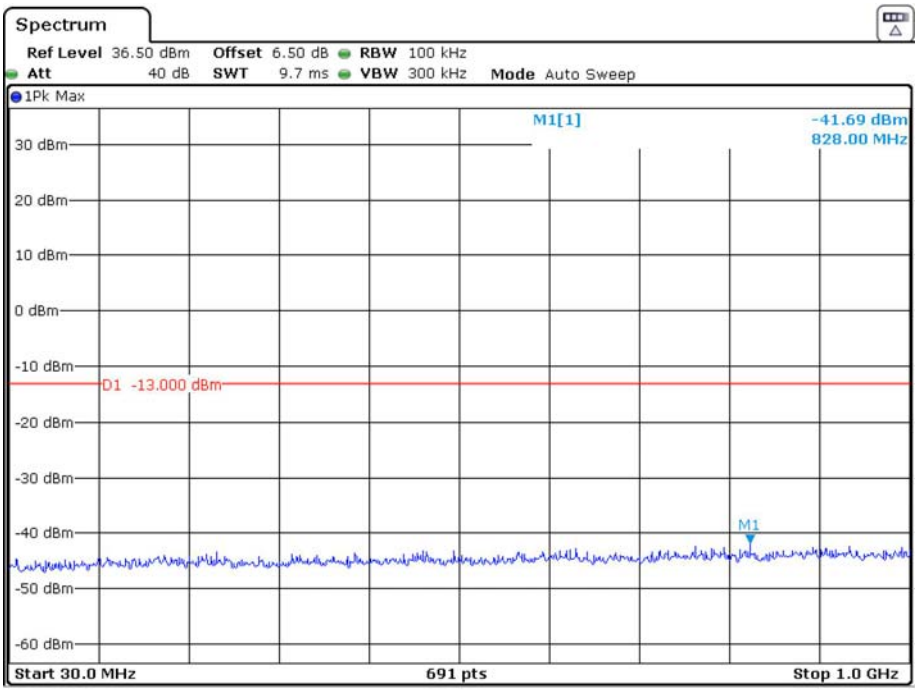


1 GHz – 20 GHz (GSM Mode)



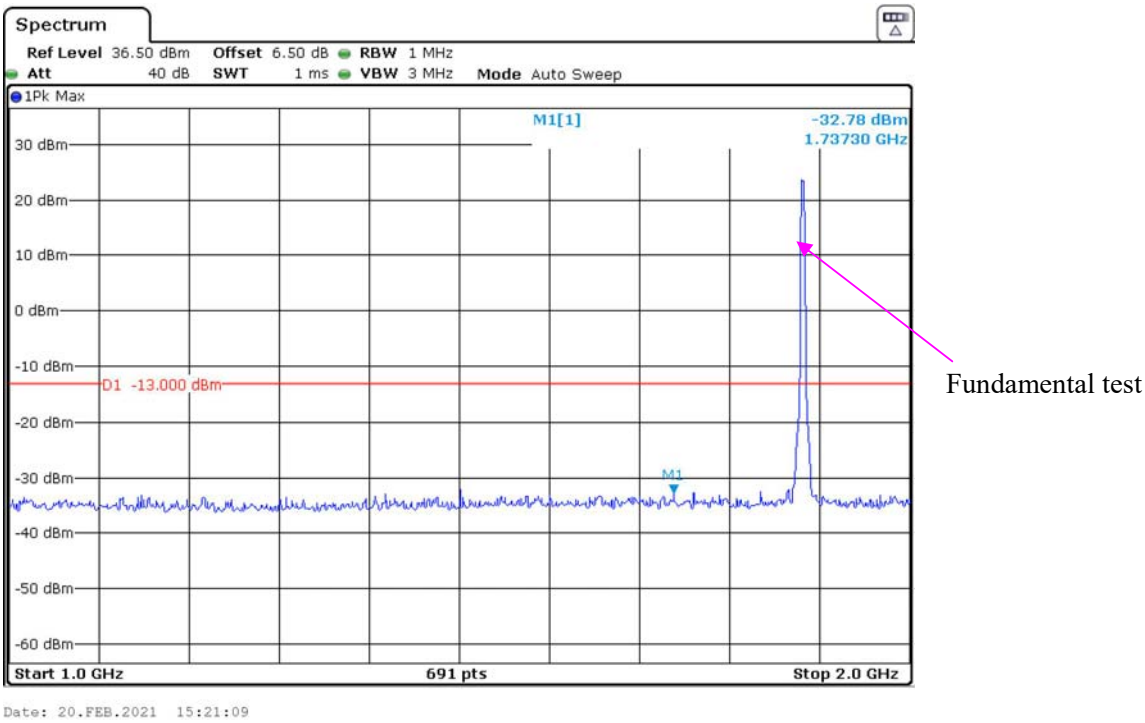
Date: 23.FEB.2021 15:45:03

30 MHz – 1 GHz (WCDMA Mode)



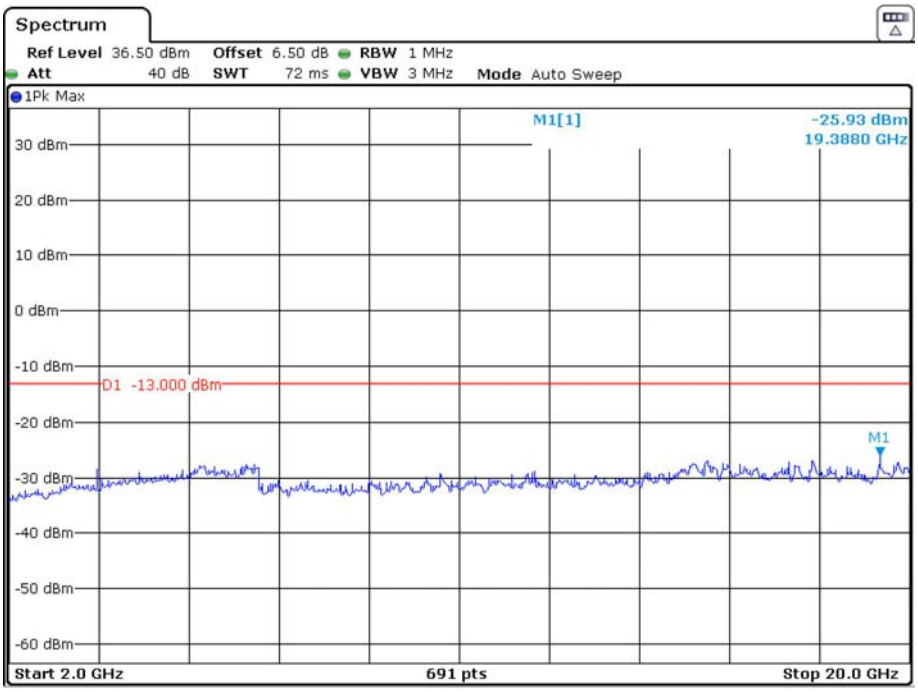
Date: 20.FEB.2021 15:21:46

1 GHz – 2 GHz (WCDMA Mode)



Date: 20.FEB.2021 15:21:09

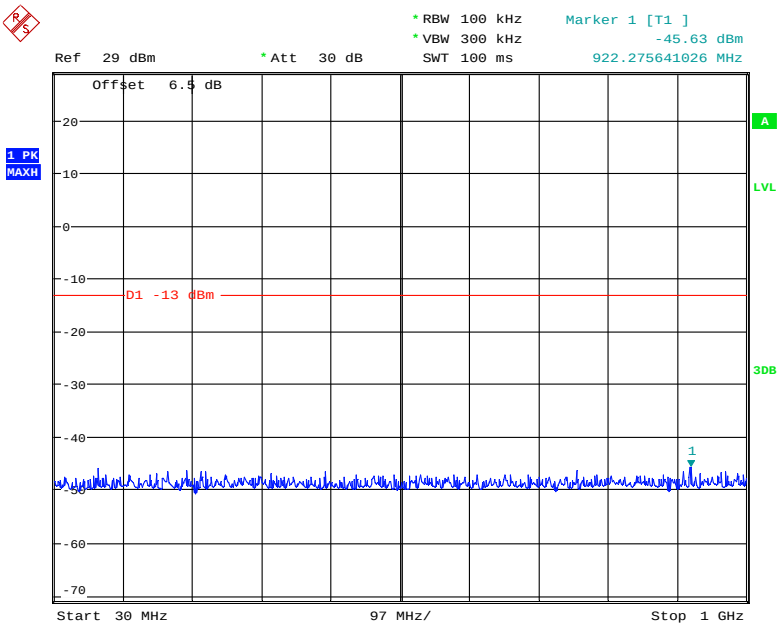
2 GHz – 20 GHz (WCDMA Mode)



Date: 20.FEB.2021 15:18:52

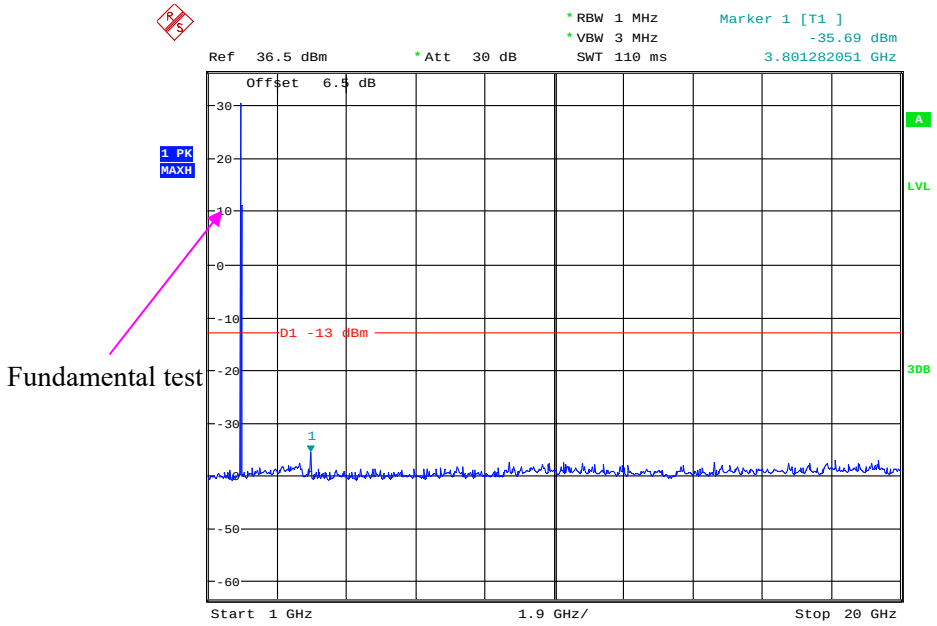
High Channel:

30 MHz – 1 GHz (GSM Mode)



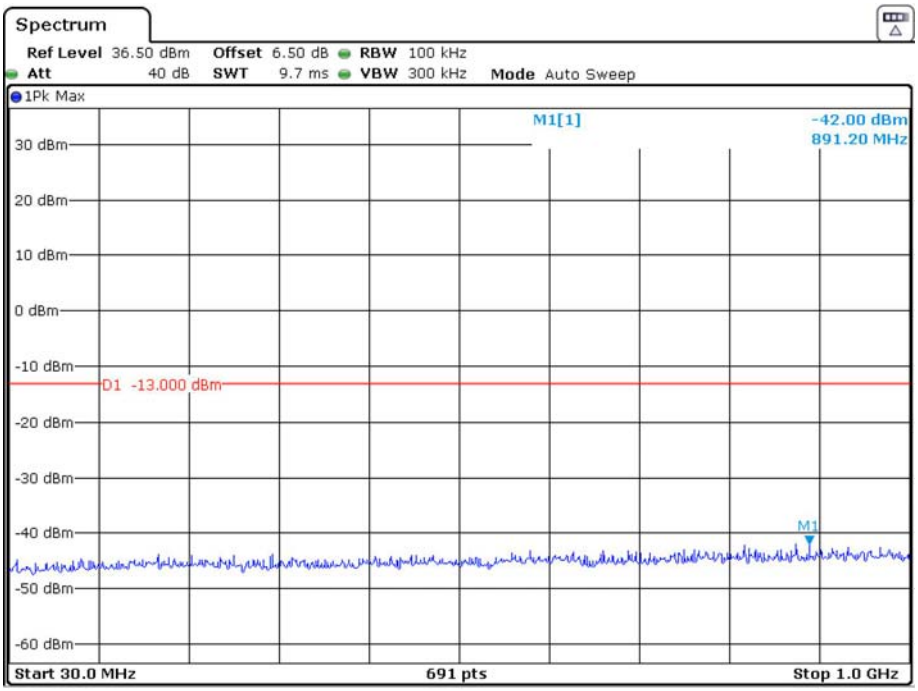
Date: 23.FEB.2021 15:43:47

1 GHz – 20 GHz (GSM Mode)



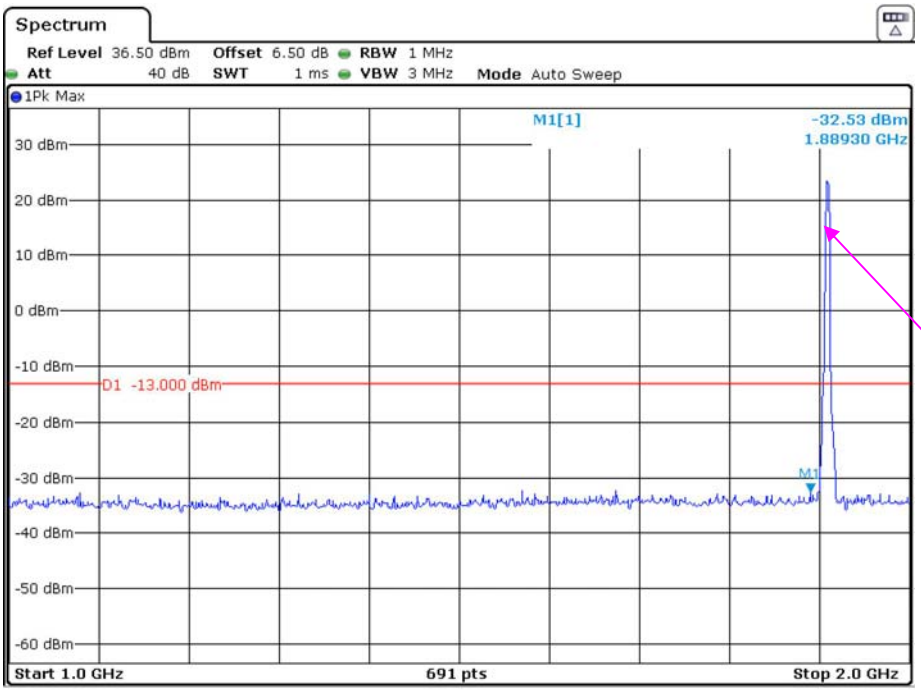
Date: 23.FEB.2021 15:44:15

30 MHz – 1 GHz (WCDMA Mode)



Date: 20.FEB.2021 15:22:12

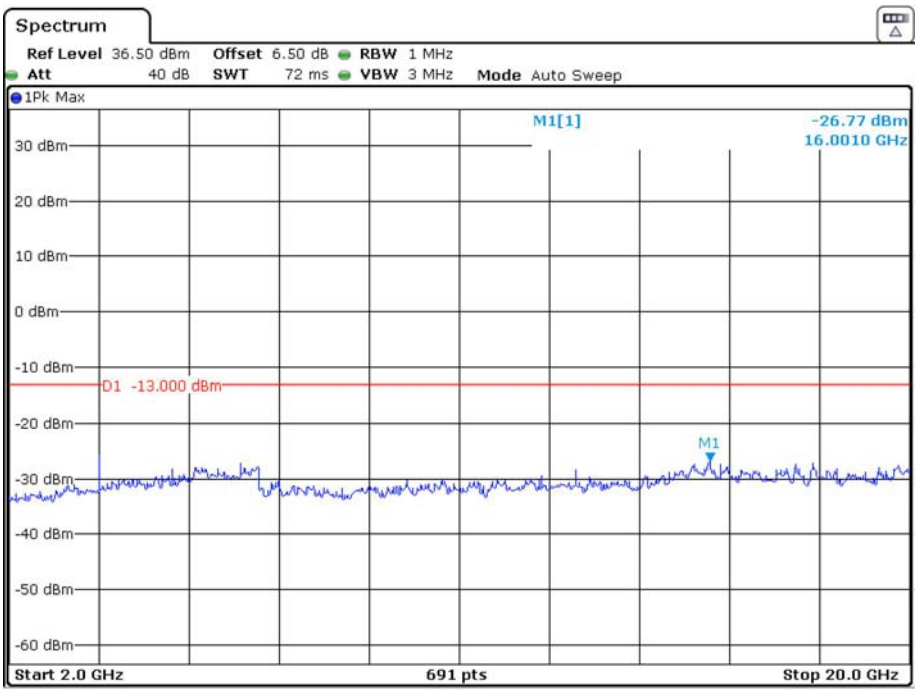
1 GHz – 2 GHz (WCDMA Mode)



Fundamental test

Date: 20.FEB.2021 15:20:16

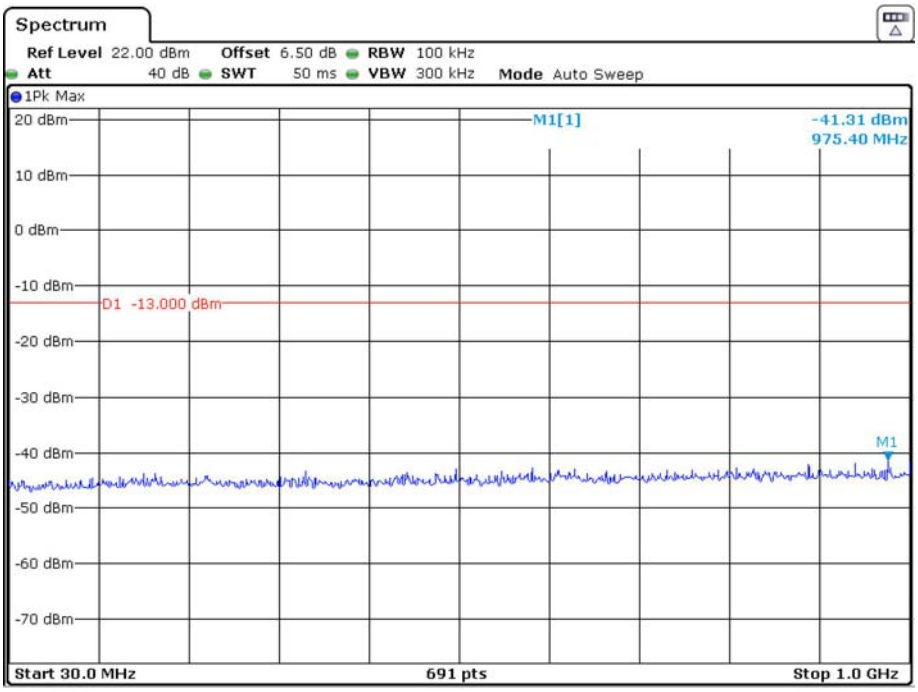
2 GHz – 20 GHz (WCDMA Mode)



Date: 20.FEB.2021 15:19:18

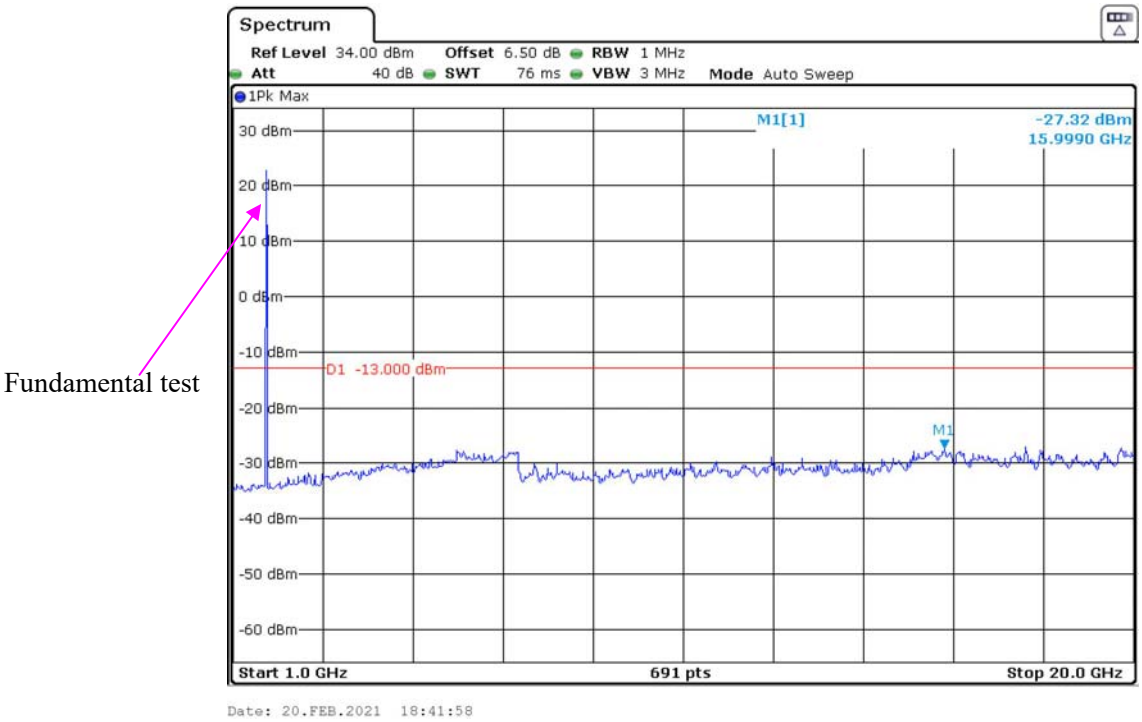
AWS Band (Part 27)
Low Channel:

30 MHz – 1 GHz (WCDMA Mode)



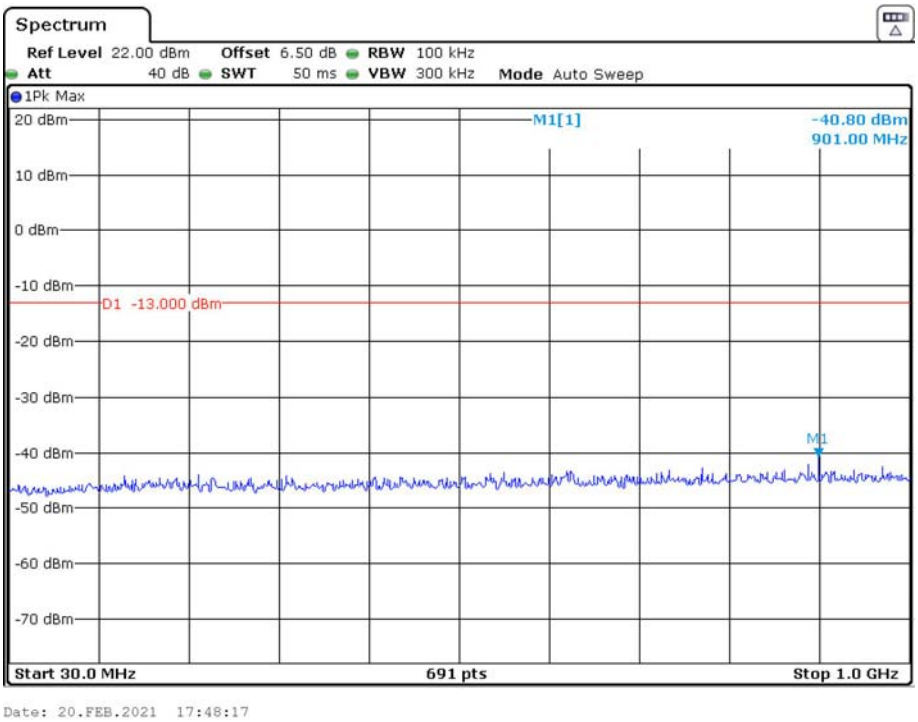
Date: 20.FEB.2021 17:47:14

1 GHz – 20 GHz (WCDMA Mode)



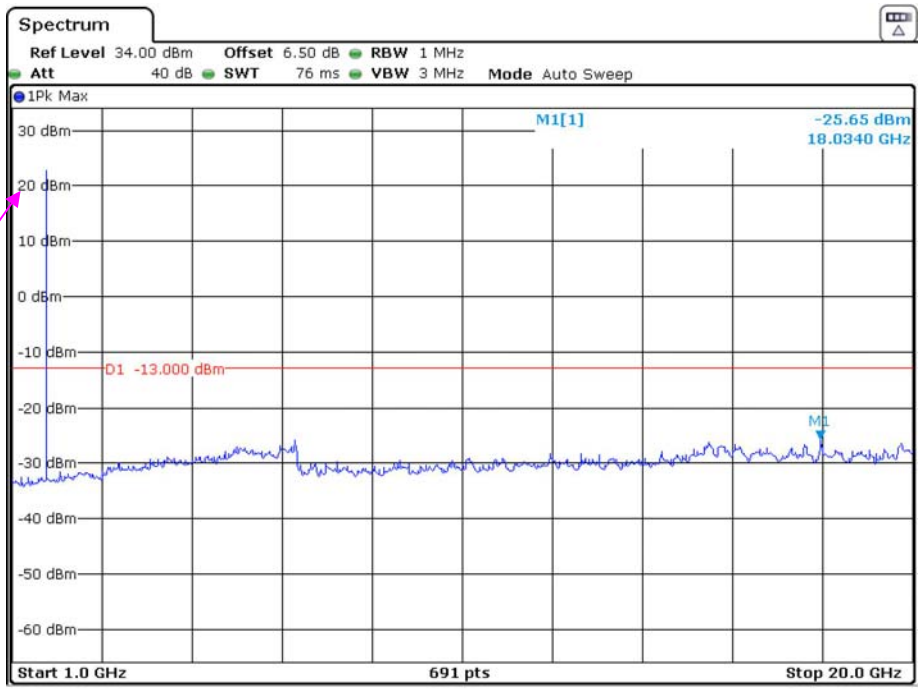
Middle Channel

30 MHz – 1 GHz (WCDMA Mode)



1 GHz – 20 GHz (WCDMA Mode)

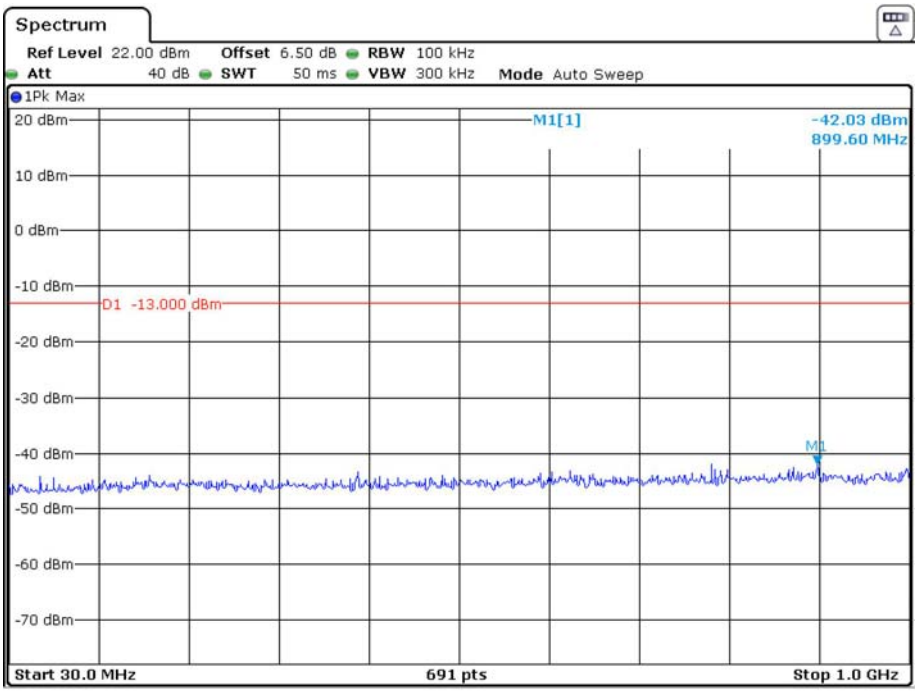
Fundamental test



Date: 20.FEB.2021 18:40:54

High Channel:

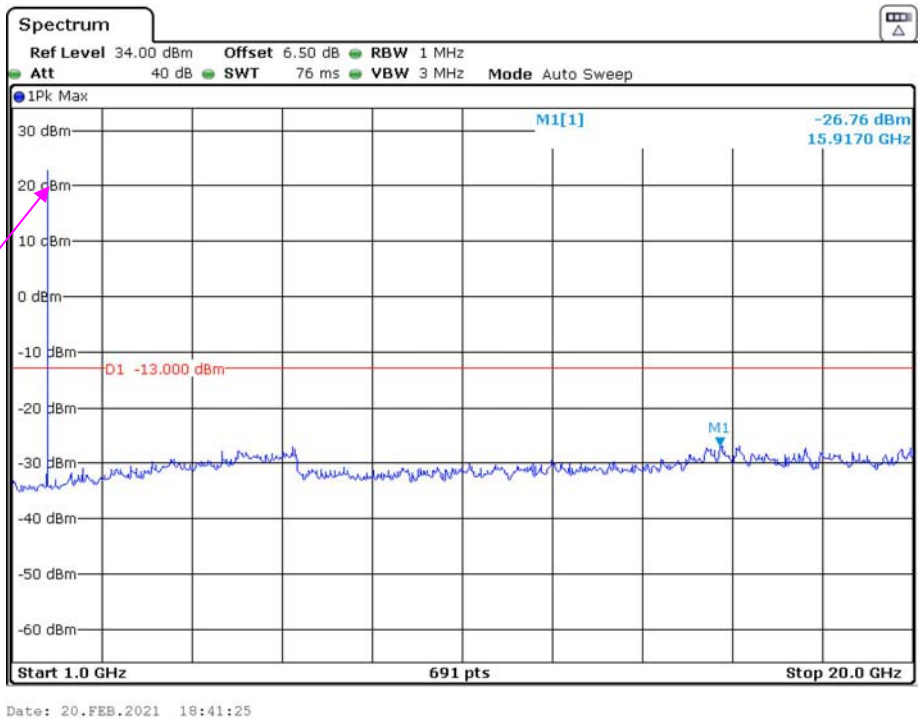
30 MHz – 1 GHz (WCDMA Mode)



Date: 20.FEB.2021 17:48:34

1 GHz – 20 GHz (WCDMA Mode)

Fundamental test



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) and § 24.238(a) and § 27.53

Test Procedure

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

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the 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:	23.5~24.3 ℃
Relative Humidity:	46~58 %
ATM Pressure:	101.0~101.1 kPa

The testing was performed by Kilroy Deng on 2021-03-03 for below 1GHz and Troy Wang on 2021-03-07 for above 1GHz.

EUT operation mode: Transmitting

30 MHz ~ 10 GHz:

Cellular Band (Part 22H)

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 22H	
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)		Limit (dBm)	Margin (dB)
GSM Mode										
Low channel										
951.7	32.12	350	1.1	H	-64.4	1.36	0.0	-65.76	-13	52.76
951.7	33.25	94	1.4	V	-60.8	1.36	0.0	-62.16	-13	49.16
1648.40	55.72	130	1.4	H	-52.4	1.40	8.70	-45.10	-13	32.10
1648.40	51.37	148	1.2	V	-56.5	1.40	8.70	-49.20	-13	36.20
2472.60	55.26	78	2.3	H	-48.1	2.60	10.20	-40.50	-13	27.50
2472.60	50.52	5	2.5	V	-52.2	2.60	10.20	-44.60	-13	31.60
3296.80	47.13	262	1.6	H	-53.8	1.50	11.70	-43.60	-13	30.60
3296.80	45.21	39	2.3	V	-55.7	1.50	11.70	-45.50	-13	32.50
Middle channel										
962.2	32.19	338	1.8	H	-64.3	1.36	0.0	-65.66	-13	52.66
962.2	33.28	196	2.1	V	-60.8	1.36	0.0	-62.16	-13	49.16
1673.20	55.95	213	1.9	H	-50.4	1.30	8.90	-42.80	-13	29.80
1673.20	52.18	191	1.9	V	-53.6	1.30	8.90	-46.00	-13	33.00
2509.80	55.33	171	2.4	H	-48.0	2.60	10.20	-40.40	-13	27.40
2509.80	50.28	68	1.0	V	-52.5	2.60	10.20	-44.90	-13	31.90
3346.40	48.56	296	1.4	H	-52.3	1.50	11.70	-42.10	-13	29.10
3346.40	46.05	91	1.9	V	-54.9	1.50	11.70	-44.70	-13	31.70
High channel										
963.6	32.24	357	1.2	H	-64.3	1.36	0.0	-65.66	-13	52.66
963.6	33.31	210	1.3	V	-60.7	1.36	0.0	-62.06	-13	49.06
1697.60	56.27	295	1.4	H	-50.1	1.30	8.90	-42.50	-13	29.50
1697.60	52.34	80	1.0	V	-53.4	1.30	8.90	-45.80	-13	32.80
2546.40	55.37	330	1.3	H	-48.0	2.60	10.20	-40.40	-13	27.40
2546.40	50.41	307	2.2	V	-52.3	2.60	10.20	-44.70	-13	31.70
3395.20	49.48	53	2.3	H	-51.8	1.40	11.80	-41.40	-13	28.40
3395.20	46.15	212	1.2	V	-54.9	1.40	11.80	-44.50	-13	31.50

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 22H	
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)		Limit (dBm)	Margin (dB)
WCDMA Mode										
Low channel										
955.3	32.34	209	1.5	H	-64.2	1.36	0.0	-65.56	-13	52.56
955.3	33.47	303	1.5	V	-60.6	1.36	0.0	-61.96	-13	48.96
1652.80	70.19	138	2.2	H	-36.1	1.30	8.90	-28.50	-13	15.50
1652.80	69.61	209	1.6	V	-36.1	1.30	8.90	-28.50	-13	15.50
2479.20	58.25	167	1.4	H	-45.1	2.60	10.20	-37.50	-13	24.50
2479.20	55.32	293	2.3	V	-47.4	2.60	10.20	-39.80	-13	26.80
3305.60	44.35	152	1.8	H	-56.5	1.50	11.70	-46.30	-13	33.30
3305.60	43.98	140	1.8	V	-56.9	1.50	11.70	-46.70	-13	33.70
Middle channel										
951.6	32.19	90	1.9	H	-64.3	1.36	0.0	-65.66	-13	52.66
951.6	33.33	281	2.4	V	-60.7	1.36	0.0	-62.06	-13	49.06
1673.20	70.26	39	1.8	H	-36.1	1.30	8.90	-28.50	-13	15.50
1673.20	69.27	321	1.4	V	-36.5	1.30	8.90	-28.90	-13	15.90
2509.80	58.82	159	2.1	H	-44.5	2.60	10.20	-36.90	-13	23.90
2509.80	55.37	152	1.3	V	-47.4	2.60	10.20	-39.80	-13	26.80
3346.40	44.43	327	1.4	H	-56.5	1.50	11.70	-46.30	-13	33.30
3346.40	43.91	321	1.0	V	-57.0	1.50	11.70	-46.80	-13	33.80
High channel										
966.8	32.52	303	1.0	H	-64.0	1.36	0.0	-65.36	-13	52.36
966.8	33.65	173	2.4	V	-60.4	1.36	0.0	-61.76	-13	48.76
1693.20	70.05	334	1.3	H	-36.3	1.30	8.90	-28.70	-13	15.70
1693.20	69.31	105	1.7	V	-36.4	1.30	8.90	-28.80	-13	15.80
2539.80	58.67	108	2.3	H	-44.7	2.60	10.20	-37.10	-13	24.10
2539.80	55.52	194	1.1	V	-47.2	2.60	10.20	-39.60	-13	26.60
3386.40	44.51	49	1.9	H	-56.7	1.40	11.80	-46.30	-13	33.30
3386.40	44.05	301	2.1	V	-57.0	1.40	11.80	-46.60	-13	33.60

30 MHz ~ 20 GHz:

PCS Band (Part 24E)

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 24E	
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)		Limit (dBm)	Margin (dB)
GSM Mode										
Low channel										
958.1	32.35	336	1.8	H	-64.2	1.36	0.0	-65.56	-13	52.56
958.1	33.42	81	1.6	V	-60.6	1.36	0.0	-61.96	-13	48.96
3700.40	44.87	255	2.2	H	-57.2	1.60	11.90	-46.90	-13	33.90
3700.40	43.57	240	2.0	V	-57.9	1.60	11.90	-47.60	-13	34.60
Middle channel										
964.5	32.28	199	2.3	H	-64.2	1.36	0.0	-65.56	-13	52.56
964.5	33.36	218	1.2	V	-60.7	1.36	0.0	-62.06	-13	49.06
3760.00	44.92	64	1.2	H	-57.5	1.50	11.80	-47.20	-13	34.20
3760.00	43.55	237	2.2	V	-58.4	1.50	11.80	-48.10	-13	35.10
High channel										
957.4	32.42	49	1.2	H	-64.1	1.36	0.0	-65.46	-13	52.46
957.4	33.50	342	1.3	V	-60.6	1.36	0.0	-61.96	-13	48.96
3819.60	45.02	142	1.1	H	-57.4	1.50	11.80	-47.10	-13	34.10
3819.60	43.61	155	2.3	V	-58.3	1.50	11.80	-48.00	-13	35.00

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 24E	
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)		Limit (dBm)	Margin (dB)
WCDMA Mode										
Low channel										
968.8	32.52	216	1.8	H	-64.0	1.36	0.0	-65.36	-13	52.36
968.8	33.69	67	1.4	V	-60.4	1.36	0.0	-61.76	-13	48.76
3704.8	61.03	283	2.2	H	-40.8	1.60	11.90	-30.50	-13	17.50
3704.8	62.68	67	2.1	V	-38.5	1.60	11.90	-28.20	-13	15.20
Middle channel										
958.5	32.62	60	1.9	H	-63.9	1.36	0.0	-65.26	-13	52.26
958.5	33.77	26	1.3	V	-60.3	1.36	0.0	-61.66	-13	48.66
3760.00	60.87	60	1.2	H	-41.2	1.50	11.80	-30.90	-13	17.90
3760.00	62.55	31	1.7	V	-39.0	1.50	11.80	-28.70	-13	15.70
High channel										
949.6	32.55	239	1.2	H	-64.0	1.36	0.0	-65.36	-13	52.36
949.6	33.73	84	2.1	V	-60.3	1.36	0.0	-61.66	-13	48.66
3815.2	61.13	355	2.0	H	-40.9	1.50	11.80	-30.60	-13	17.60
3815.2	62.47	304	1.4	V	-39.1	1.50	11.80	-28.80	-13	15.80

30 MHz ~ 20 GHz:

AWS Band

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 27	
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)		Limit (dBm)	Margin (dB)
WCDMA Mode										
Low channel										
956.7	32.43	340	2.3	H	-64.1	1.36	0.0	-65.46	-13	52.46
956.7	33.56	32	2.3	V	-60.5	1.36	0.0	-61.86	-13	48.86
3424.80	58.15	332	1.0	H	-42.6	1.40	11.80	-32.20	-13	19.20
3424.80	55.31	227	1.6	V	-45.3	1.40	11.80	-34.90	-13	21.90
Middle channel										
953.7	32.38	80	2.5	H	-64.1	1.36	0.0	-65.46	-13	52.46
953.7	33.51	246	1.3	V	-60.5	1.36	0.0	-61.86	-13	48.86
3465.20	58.08	4	2.5	H	-42.7	1.50	12.00	-32.20	-13	19.20
3465.20	55.41	149	2.1	V	-46.1	1.50	12.00	-35.60	-13	22.60
High channel										
962.2	32.58	26	1.5	H	-63.9	1.36	0.0	-65.26	-13	52.26
962.2	33.69	319	1.2	V	-60.4	1.36	0.0	-61.76	-13	48.76
3505.20	58.44	254	2.2	H	-43.6	1.50	11.80	-33.30	-13	20.30
3505.20	55.12	93	1.5	V	-46.5	1.50	11.80	-36.20	-13	23.20

LTE Band: *(Pre-scan with all the bandwidth, and worst case as below)*

Frequency	Receiver	Turntable	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
(MHz)	Reading (dBµV)	Angle Degree	Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
Band 2										
Test frequency range: 30 MHz ~ 20 GHz										
1850.7 MHz, Low channel										
958.7	32.23	340	1.5	H	-64.3	1.36	0.0	-65.66	-13	52.66
958.7	33.28	176	1.5	V	-60.8	1.36	0.0	-62.16	-13	49.16
3701.40	68.92	223	1.4	H	-32.9	1.60	11.90	-22.60	-13	9.60
3701.40	67.79	357	1.4	V	-33.4	1.60	11.90	-23.10	-13	10.10
1880 MHz, Middle channel										
962.3	32.15	80	2.0	H	-64.4	1.36	0.0	-65.76	-13	52.76
962.3	33.19	90	1.7	V	-60.9	1.36	0.0	-62.26	-13	49.26
3760.00	68.32	243	1.4	H	-33.7	1.50	11.80	-23.40	-13	10.40
3760.00	67.85	206	1.6	V	-33.7	1.50	11.80	-23.40	-13	10.40
1909.3 MHz, High channel										
959.3	32.30	2	2.1	H	-64.2	1.36	0.0	-65.56	-13	52.56
959.3	33.36	105	2.4	V	-60.7	1.36	0.0	-62.06	-13	49.06
3818.6	68.64	307	1.4	H	-33.4	1.50	11.80	-23.10	-13	10.10
3818.6	67.73	324	1.0	V	-33.9	1.50	11.80	-23.60	-13	10.60

Frequency	Receiver	Turntable	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
(MHz)	Reading (dBµV)	Angle Degree	Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
Band 4										
Test frequency range:30 MHz ~ 20 GHz										
1710.7 MHz, Low channel										
968.9	32.42	87	2.1	H	-64.1	1.36	0.0	-65.46	-13	52.46
968.9	33.47	200	1.7	V	-60.6	1.36	0.0	-61.96	-13	48.96
3421.40	61.95	25	1.3	H	-38.8	1.40	11.80	-28.40	-13	15.40
3421.40	63.58	243	1.5	V	-37.0	1.40	11.80	-26.60	-13	13.60
1732.5 MHz, Middle channel										
957.9	32.47	233	1.6	H	-64.0	1.36	0.0	-65.36	-13	52.36
957.9	33.53	92	1.7	V	-60.5	1.36	0.0	-61.86	-13	48.86
3465.00	62.04	229	2.4	H	-38.7	1.50	12.00	-28.20	-13	15.20
3465.00	63.67	84	1.4	V	-37.8	1.50	12.00	-27.30	-13	14.30
1754.3 MHz, High channel										
959.8	32.25	46	2.4	H	-64.3	1.36	0.0	-65.66	-13	52.66
959.8	33.31	326	2.2	V	-60.7	1.36	0.0	-62.06	-13	49.06
3508.60	62.15	214	1.2	H	-38.6	1.50	12.00	-28.10	-13	15.10
3508.60	63.87	4	2.0	V	-37.6	1.50	12.00	-27.10	-13	14.10

Frequency	Receiver	Turntable	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
(MHz)	Reading (dBµV)	Angle Degree	Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
Band 5										
Test frequency range:30 MHz ~ 10 GHz										
824.7 MHz, Low channel										
949.8	32.54	88	1.5	H	-64.0	1.36	0.0	-65.36	-13	52.36
949.8	33.61	288	2.1	V	-60.4	1.36	0.0	-61.76	-13	48.76
1649.40	68.05	357	1.5	H	-40.0	1.40	8.70	-32.70	-13	19.70
1649.40	70.31	356	2.0	V	-37.5	1.40	8.70	-30.20	-13	17.20
2474.10	48.07	351	2.4	H	-55.3	2.60	10.20	-47.70	-13	34.70
2474.10	50.48	224	1.8	V	-52.3	2.60	10.20	-44.70	-13	31.70
3298.80	49.52	120	1.3	H	-51.4	1.50	11.70	-41.20	-13	28.20
3298.80	50.79	148	1.4	V	-50.1	1.50	11.70	-39.90	-13	26.90
4123.50	54.85	32	1.8	H	-47.3	1.40	12.20	-36.50	-13	23.50
4123.50	57.37	45	2.2	V	-43.7	1.40	12.20	-32.90	-13	19.90
4948.20	53.68	117	2.2	H	-46.5	1.60	12.10	-36.00	-13	23.00
4948.20	56.30	306	1.4	V	-44.1	1.60	12.10	-33.60	-13	20.60
836.5 MHz, Middle channel										
952.7	32.58	8	1.2	H	-63.9	1.36	0.0	-65.26	-13	52.26
952.7	33.65	36	2.4	V	-60.4	1.36	0.0	-61.76	-13	48.76
1673.00	68.12	4	1.7	H	-38.2	1.30	8.90	-30.60	-13	17.60
1673.00	70.15	150	1.7	V	-35.6	1.30	8.90	-28.00	-13	15.00
2509.50	48.14	343	1.5	H	-55.2	2.60	10.20	-47.60	-13	34.60
2509.50	50.32	168	2.3	V	-52.4	2.60	10.20	-44.80	-13	31.80
3346.00	49.61	108	2.2	H	-51.3	1.50	11.70	-41.10	-13	28.10
3346.00	50.75	309	1.2	V	-50.2	1.50	11.70	-40.00	-13	27.00
4182.50	55.35	203	1.3	H	-46.6	1.50	11.80	-36.30	-13	23.30
4182.50	57.29	66	1.7	V	-43.9	1.50	11.80	-33.60	-13	20.60
5019.00	54.87	131	2.4	H	-43.9	1.70	12.00	-33.60	-13	20.60
5019.00	56.15	145	1.5	V	-42.1	1.70	12.00	-31.80	-13	18.80
848.3 MHz, High channel										
950.2	32.48	172	1.3	H	-64.0	1.36	0.0	-65.36	-13	52.36
950.2	33.56	253	1.3	V	-60.5	1.36	0.0	-61.86	-13	48.86
1696.60	68.13	29	2.2	H	-38.2	1.30	8.90	-30.60	-13	17.60
1696.60	70.58	174	1.6	V	-35.2	1.30	8.90	-27.60	-13	14.60
2544.90	48.25	46	1.2	H	-55.1	2.60	10.20	-47.50	-13	34.50
2544.90	50.63	54	1.5	V	-52.1	2.60	10.20	-44.50	-13	31.50
3393.20	48.15	77	1.2	H	-53.1	1.40	11.80	-42.70	-13	29.70
3393.20	50.46	3	1.9	V	-50.6	1.40	11.80	-40.20	-13	27.20
4241.50	54.15	15	1.9	H	-47.8	1.50	11.80	-37.50	-13	24.50
4241.50	57.81	178	2.4	V	-43.3	1.50	11.80	-33.00	-13	20.00
5089.80	53.98	97	1.8	H	-43.6	1.60	12.10	-33.10	-13	20.10
5089.80	56.27	138	1.9	V	-41.4	1.60	12.10	-30.90	-13	17.90

Frequency	Receiver	Turntable	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
(MHz)	Reading (dBµV)	Angle Degree	Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
Band 7										
Test frequency range: 30 MHz ~ 26.5 GHz										
2502.5 MHz, Low channel										
957.5	32.27	266	1.9	H	-64.2	1.36	0.0	-65.56	-25	40.56
957.5	33.35	292	2.4	V	-60.7	1.36	0.0	-62.06	-25	37.06
5005.00	59.15	236	2.0	H	-41.4	1.70	12.00	-31.10	-25	6.10
5005.00	56.73	193	2.2	V	-43.3	1.70	12.00	-33.00	-25	8.00
2535 MHz, Middle channel										
957.0	32.16	313	1.7	H	-64.3	1.36	0.0	-65.66	-25	40.66
957.0	33.23	139	1.3	V	-60.8	1.36	0.0	-62.16	-25	37.16
5070.00	58.45	17	2.2	H	-41.6	1.60	12.10	-31.10	-25	6.10
5070.00	56.80	176	1.5	V	-43.2	1.60	12.10	-32.70	-25	7.70
2567.5 MHz, High channel										
966.5	32.09	238	2.4	H	-64.4	1.36	0.0	-65.76	-25	40.76
966.5	33.16	320	2.3	V	-60.9	1.36	0.0	-62.26	-25	37.26
5135.00	59.57	315	1.3	H	-40.4	1.60	12.10	-29.90	-25	4.90
5135.00	56.92	27	1.2	V	-43.1	1.60	12.10	-32.60	-25	7.60
Band 38										
Test frequency range: 30 MHz ~26.5GHz										
2572.5MHz, Low channel										
962.6	32.66	101	1.2	H	-63.8	1.36	0.0	-65.16	-25	40.16
962.6	33.71	312	1.9	V	-60.3	1.36	0.0	-61.66	-25	36.66
5145.00	58.45	87	1.9	H	-41.6	1.60	12.10	-31.10	-25	6.10
5145.00	59.52	134	1.8	V	-40.5	1.60	12.10	-30.00	-25	5.00
2595MHz, Middle channel										
960.7	32.63	43	1.9	H	-63.9	1.36	0.0	-65.26	-25	40.26
960.7	33.69	99	1.4	V	-60.4	1.36	0.0	-61.76	-25	36.76
5190.00	58.23	228	2.4	H	-41.9	1.60	12.10	-31.40	-25	6.40
5190.00	59.05	304	1.4	V	-40.6	1.60	12.10	-30.10	-25	5.10
2617.5 MHz, High channel										
961.3	32.69	306	1.1	H	-63.8	1.36	0.0	-65.16	-25	40.16
961.3	33.76	216	1.8	V	-60.3	1.36	0.0	-61.66	-25	36.66
5235.00	58.31	303	1.4	H	-41.8	1.60	12.10	-31.30	-25	6.30
5235.00	58.36	51	1.4	V	-41.3	1.60	12.10	-30.80	-25	5.80

Frequency	Receiver	Turntable	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
(MHz)	Reading (dBµV)	Angle Degree	Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
Band 41										
Test frequency range: 30 MHz ~26.5GHz										
2537.5MHz, Low channel										
955.6	32.76	32	2.0	H	-63.7	1.36	0.0	-65.06	-25	40.06
955.6	33.81	322	1.2	V	-60.2	1.36	0.0	-61.56	-25	36.56
5075.00	59.35	98	2.4	H	-40.7	1.60	12.10	-30.20	-25	5.20
5075.00	60.52	157	2.5	V	-39.5	1.60	12.10	-29.00	-25	4.00
2595MHz, Middle channel										
953.6	32.73	217	1.7	H	-63.8	1.36	0.0	-65.16	-25	40.16
953.6	33.88	122	1.2	V	-60.2	1.36	0.0	-61.56	-25	36.56
5190.00	58.47	190	1.1	H	-41.6	1.60	12.10	-31.10	-25	6.10
5190.00	60.05	333	1.8	V	-39.6	1.60	12.10	-29.10	-25	4.10
2652.5 MHz, High channel										
949.5	32.65	71	1.3	H	-63.9	1.36	0.0	-65.26	-25	40.26
949.5	33.70	284	1.8	V	-60.4	1.36	0.0	-61.76	-25	36.76
5305.00	59.64	221	2.3	H	-40.1	1.60	12.20	-29.50	-25	4.50
5305.00	59.38	234	1.8	V	-39.8	1.60	12.20	-29.20	-25	4.20
Band 66										
Test frequency range: 30 MHz ~ 20GHz										
1710.7 MHz, Low channel										
964.8	32.80	231	1.9	H	-63.7	1.36	0.0	-65.06	-13	52.06
964.8	33.87	60	2.0	V	-60.2	1.36	0.0	-61.56	-13	48.56
3421.40	60.68	211	1.6	H	-40.1	1.40	11.80	-29.70	-13	16.70
3421.40	61.34	242	1.7	V	-39.3	1.40	11.80	-28.90	-13	15.90
1755 MHz, Middle channel										
964.3	32.85	307	2.0	H	-63.7	1.36	0.0	-65.06	-13	52.06
964.3	33.92	120	1.3	V	-60.1	1.36	0.0	-61.46	-13	48.46
3510.00	60.26	317	1.9	H	-40.5	1.50	12.00	-30.00	-13	17.00
3510.00	61.32	88	1.5	V	-40.2	1.50	12.00	-29.70	-13	16.70
1779.3 MHz, High channel										
965.2	32.87	99	1.7	H	-63.6	1.36	0.0	-64.96	-13	51.96
965.2	33.95	116	2.2	V	-60.1	1.36	0.0	-61.46	-13	48.46
3558.60	60.83	171	1.3	H	-40.7	1.50	12.10	-30.10	-13	17.10
3558.60	61.65	322	1.1	V	-39.4	1.50	12.10	-28.80	-13	15.80

Note:
Absolute Level = Substituted Level - Cable loss + Antenna Gain
Margin = Limit- Absolute Level
dBd is for the ERP, dBi is for EIRP.

FCC § 22.917 (a);§ 24.238 (a); §27.53(a) (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 (a), for mobile and portable stations operating in the 2305-2315 MHz and 2350-2360 MHz bands:

(i) By a factor of not less than: 43 + 10 log (P) dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than 55 + 10 log (P) dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than 61 + 10 log (P) dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than 67 + 10 log (P) dB on all frequencies between 2328 and 2337 MHz;

(ii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2296 and 2300 MHz, 61 + 10 log (P) dB on all frequencies between 2292 and 2296 MHz, 67 + 10 log (P) dB on all frequencies between 2288 and 2292 MHz, and 70 + 10 log (P) dB below 2288 MHz;

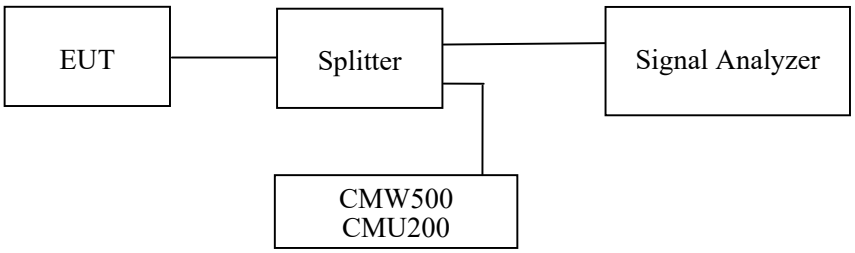
(iii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2365 MHz, and not less than 70 + 10 log (P) dB above 2365 MHz.

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:	25 ℃
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

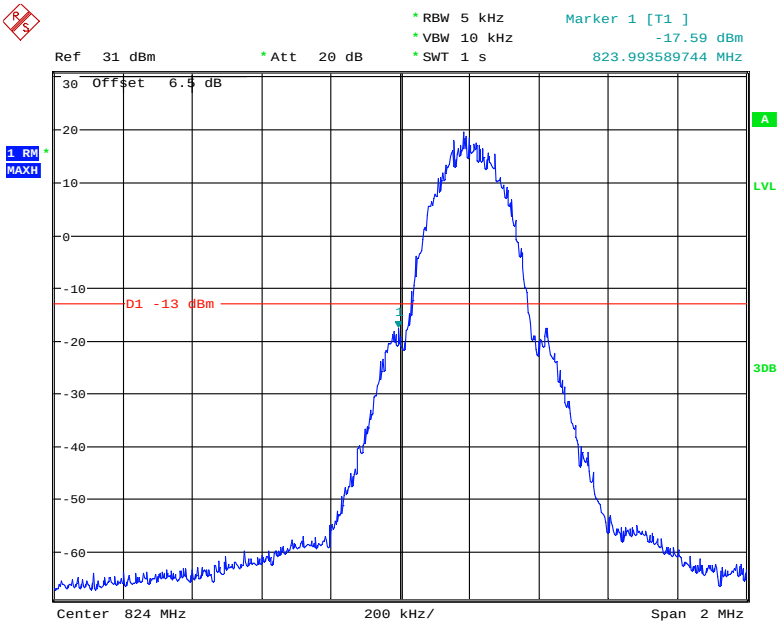
The testing was performed by Gavin Guo from 2021-02-20 to 2021-03-24.

EUT operation mode: Transmitting (Worst case)

Test Result: Pass

Please refer to the following plots.

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



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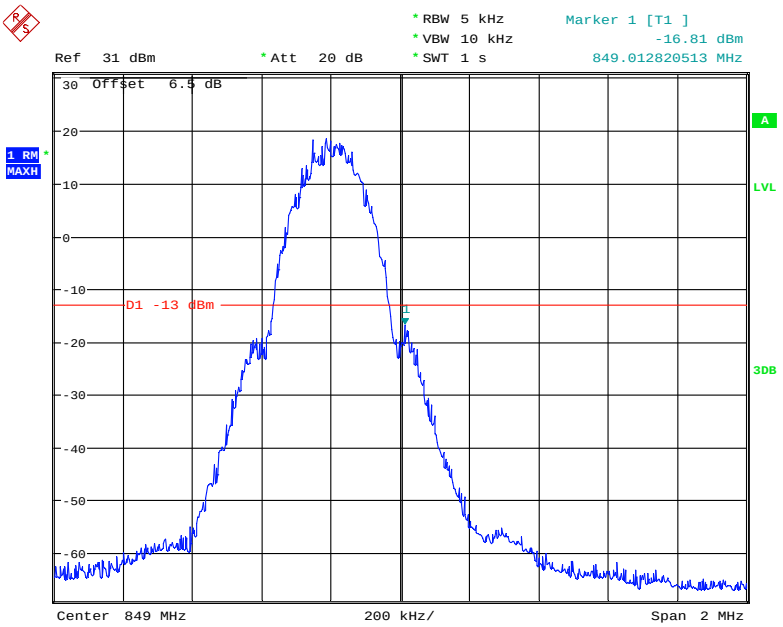
Cellular Band, Right Band Edge for GSM (GMSK) Mode



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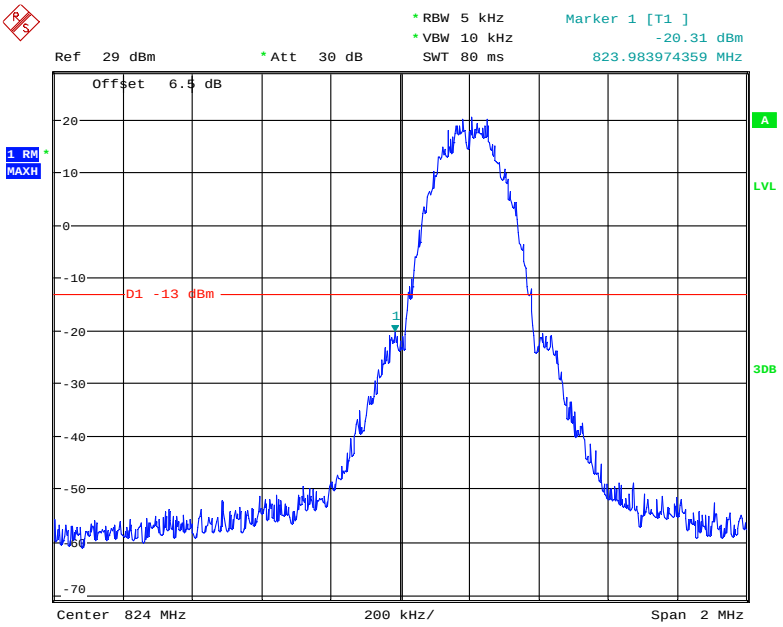
Cellular Band, Left Band Edge for EGPRS (GMSK) Mode



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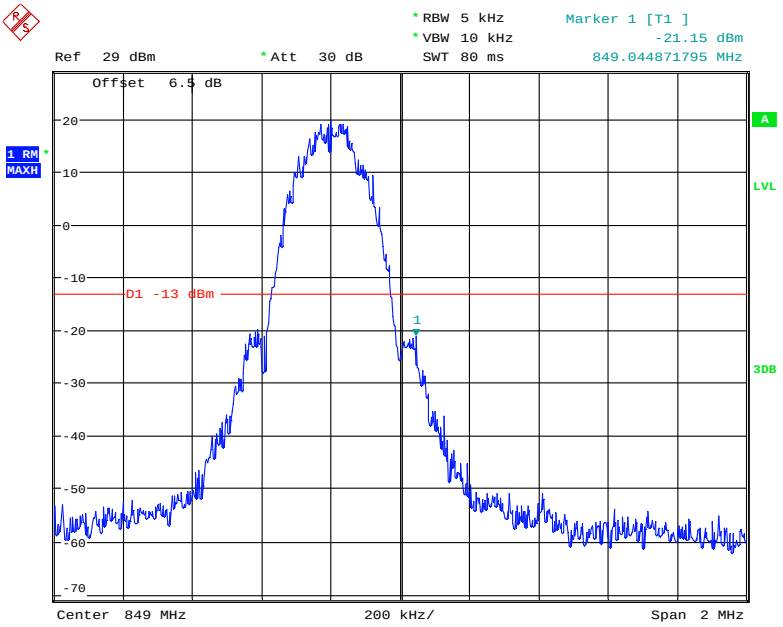
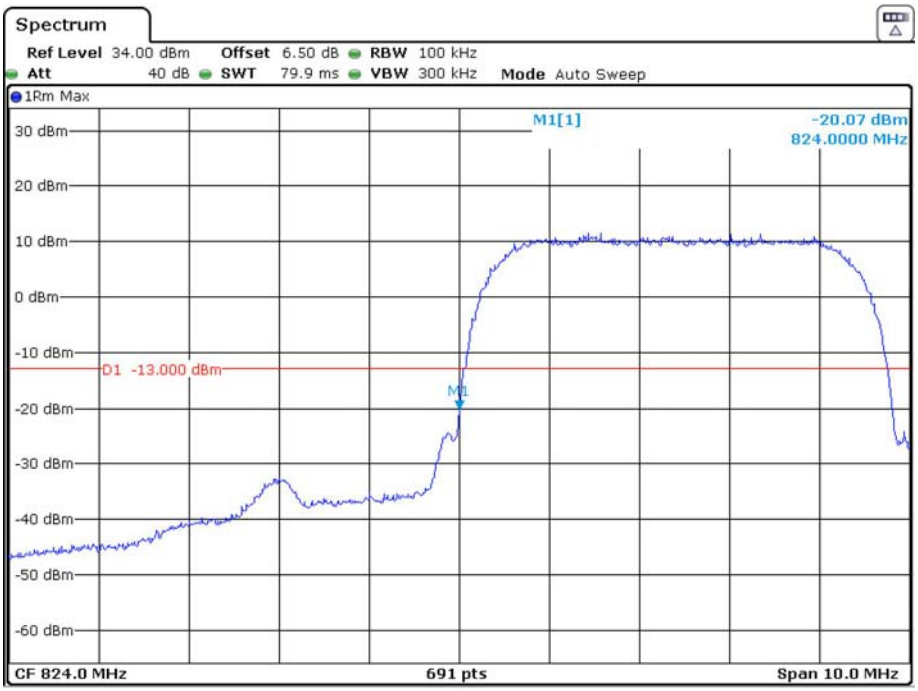
Cellular Band, Right Band Edge for EGPRS (GMSK) Mode



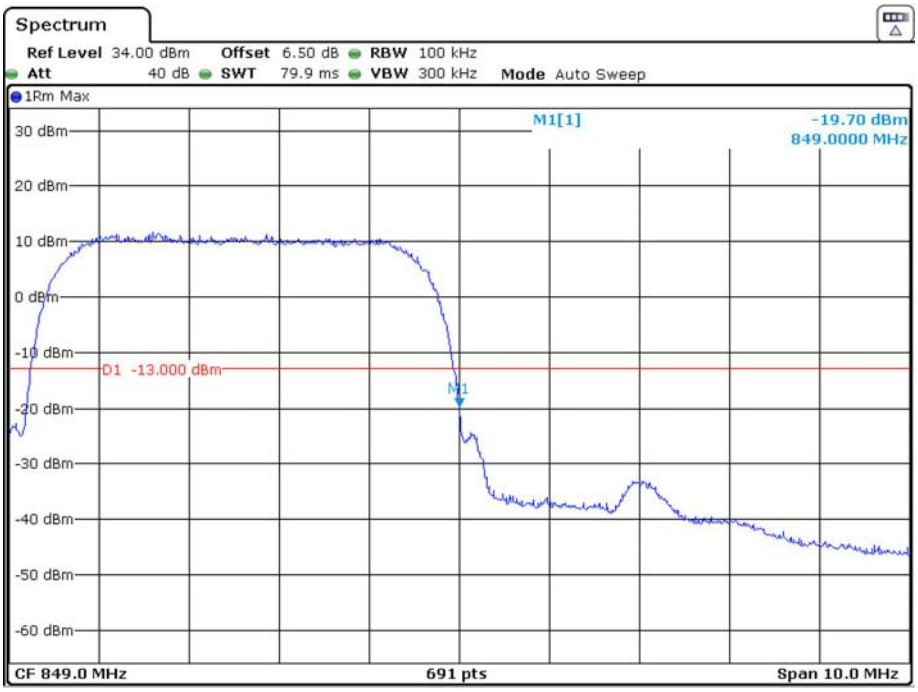
Date: 23.FEB.2021 15:10:51

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



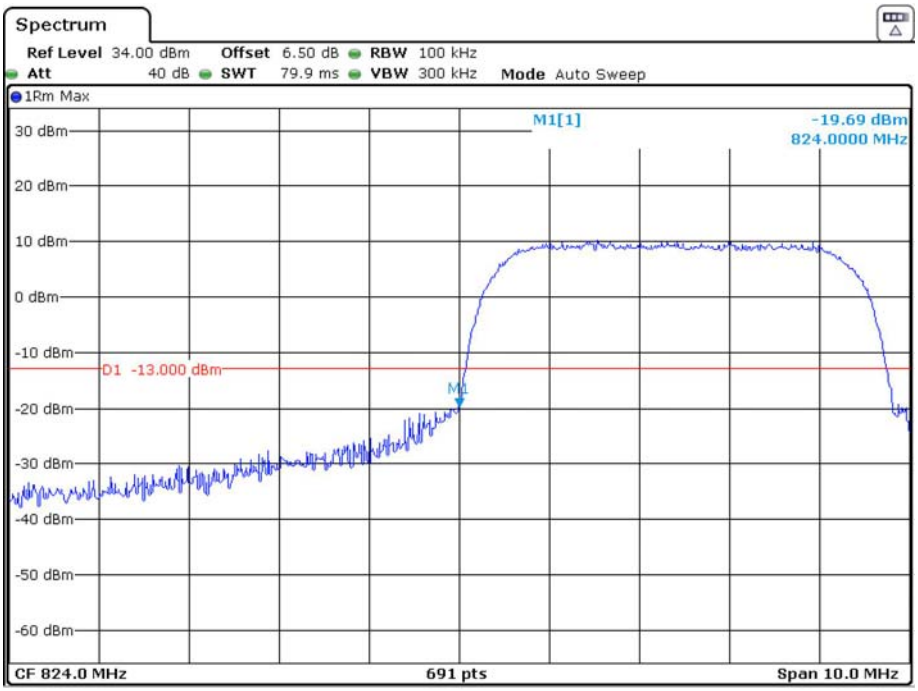
Date: 20.FEB.2021 19:13:57

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



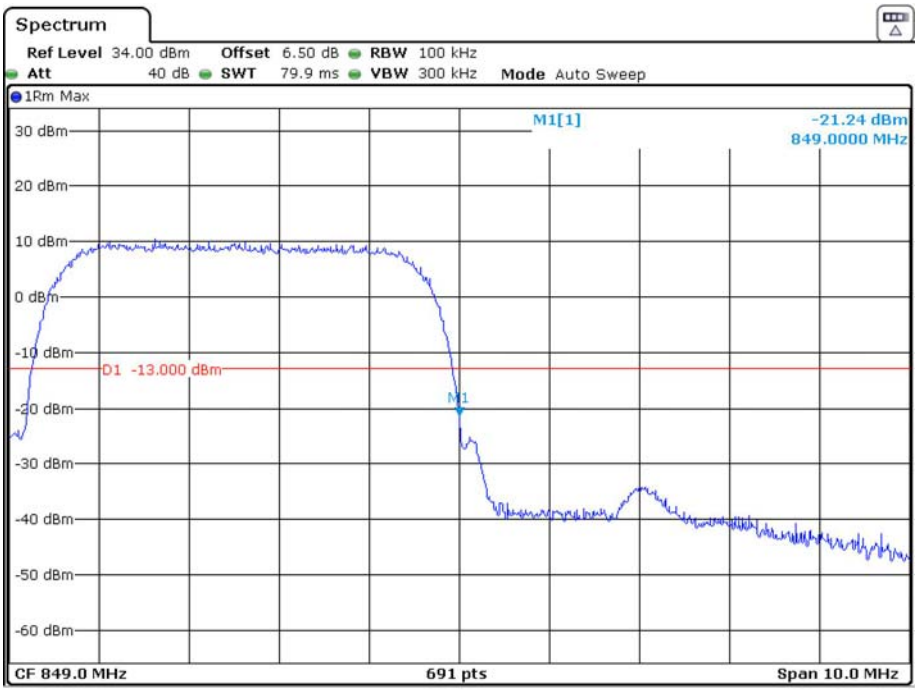
Date: 20.FEB.2021 19:14:39

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



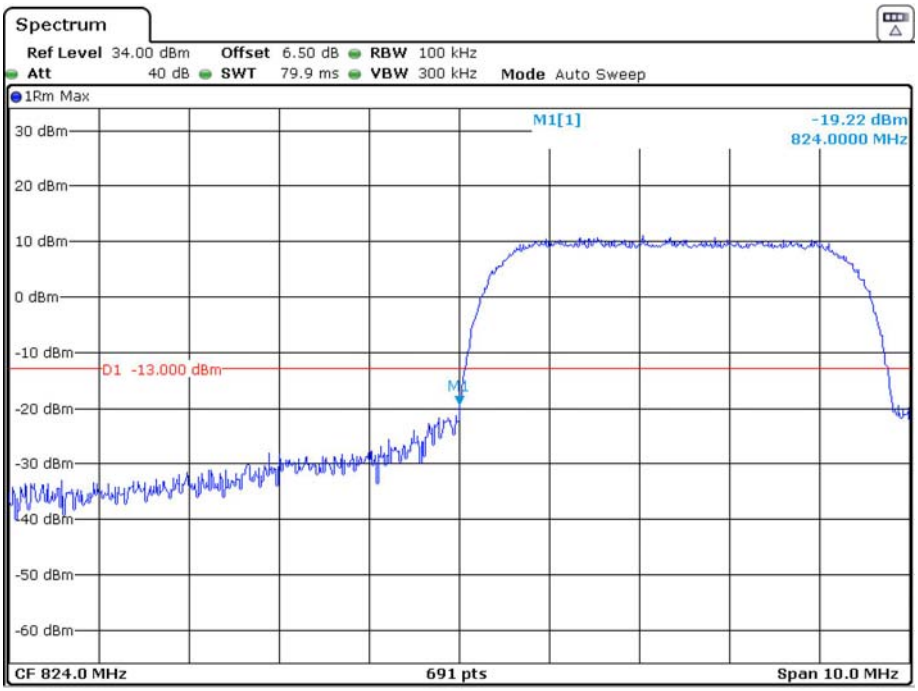
Date: 20.FEB.2021 19:16:40

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



Date: 20.FEB.2021 19:15:52

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



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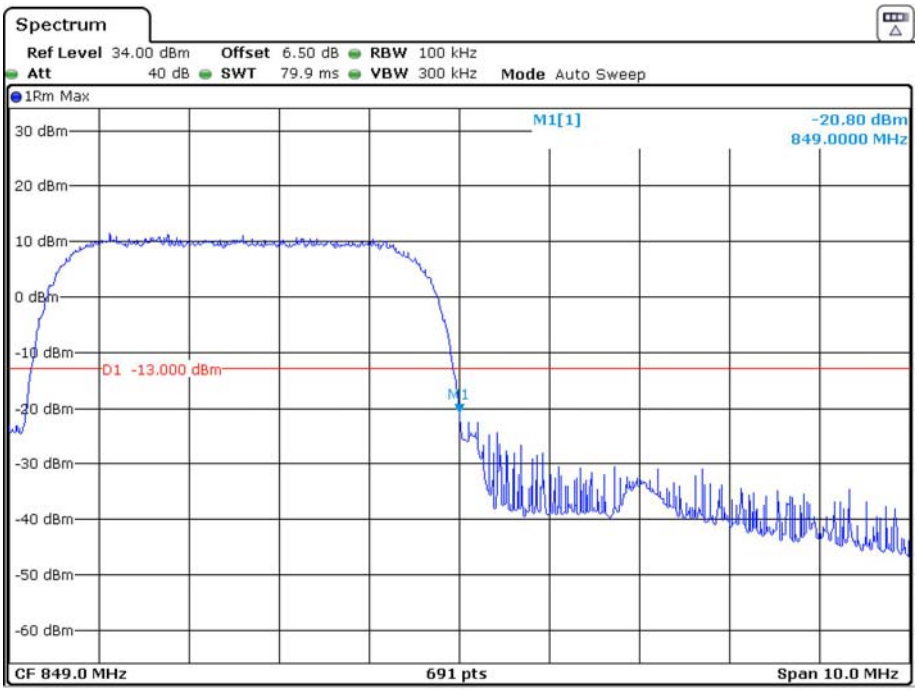
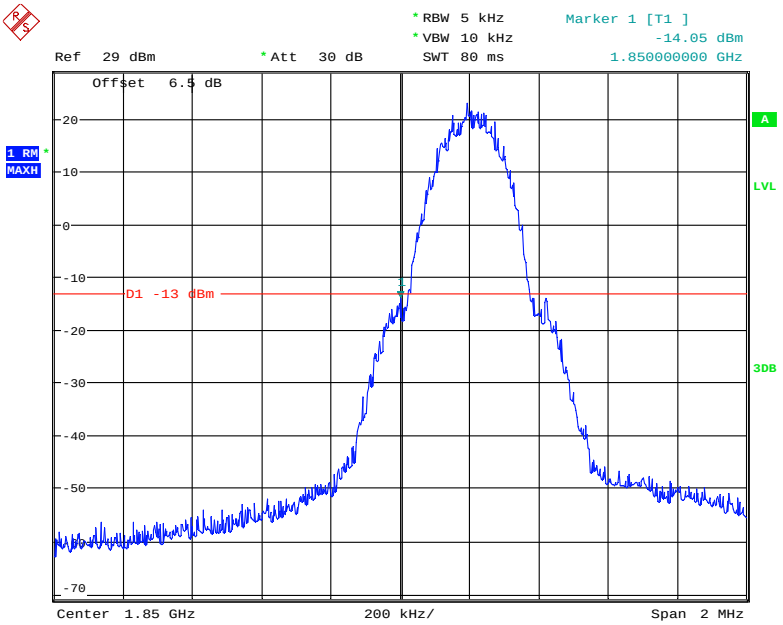
Cellular Band, Right Band Edge for HSUPA (BPSK) Mode



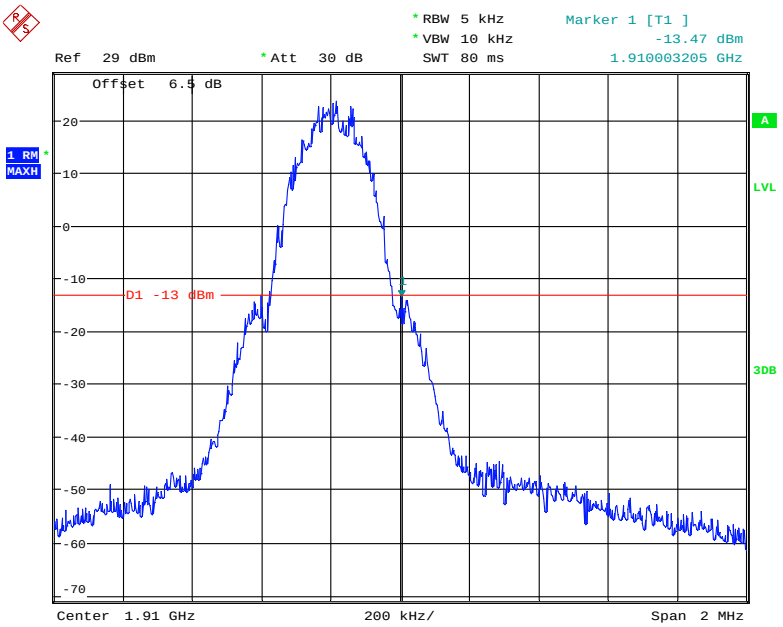
Date: 20.FEB.2021 19:18:15

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



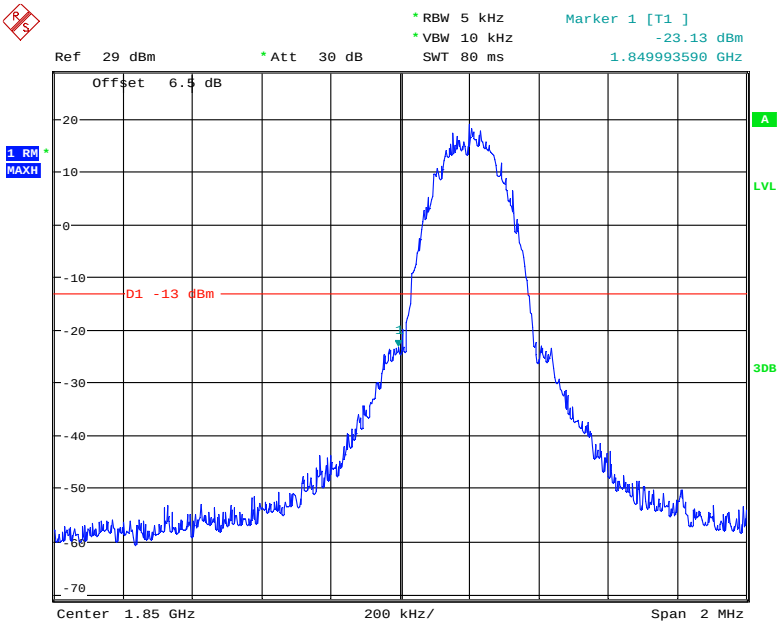
Date: 23.FEB.2021 15:31:22

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



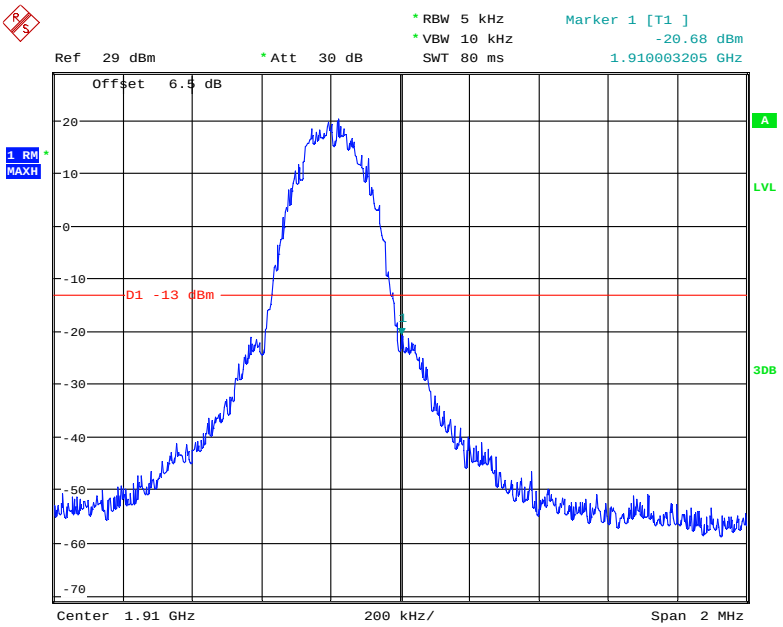
Date: 23.FEB.2021 15:37:19

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



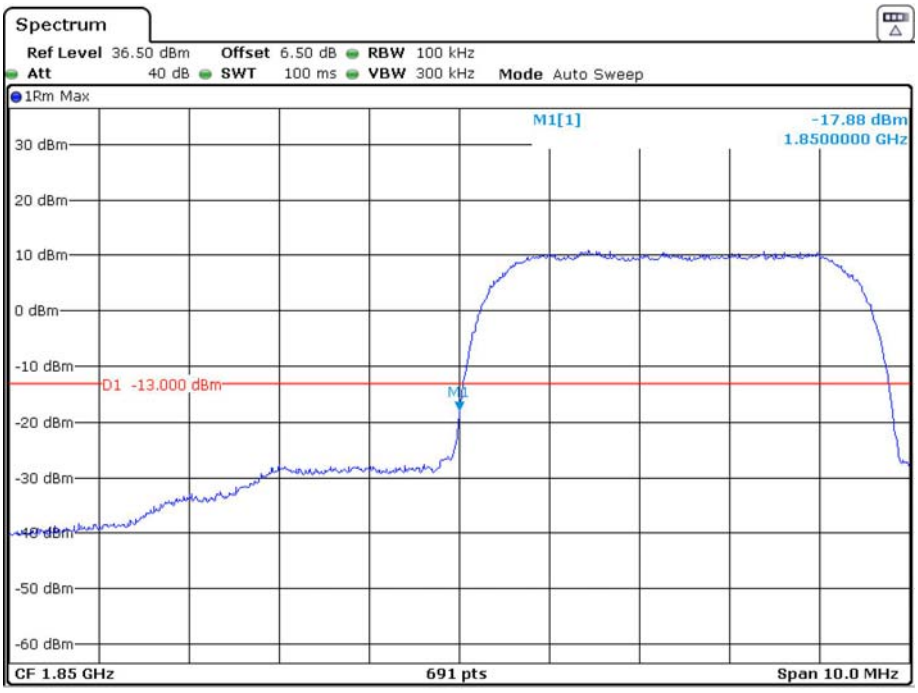
Date: 23.FEB.2021 15:27:50

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



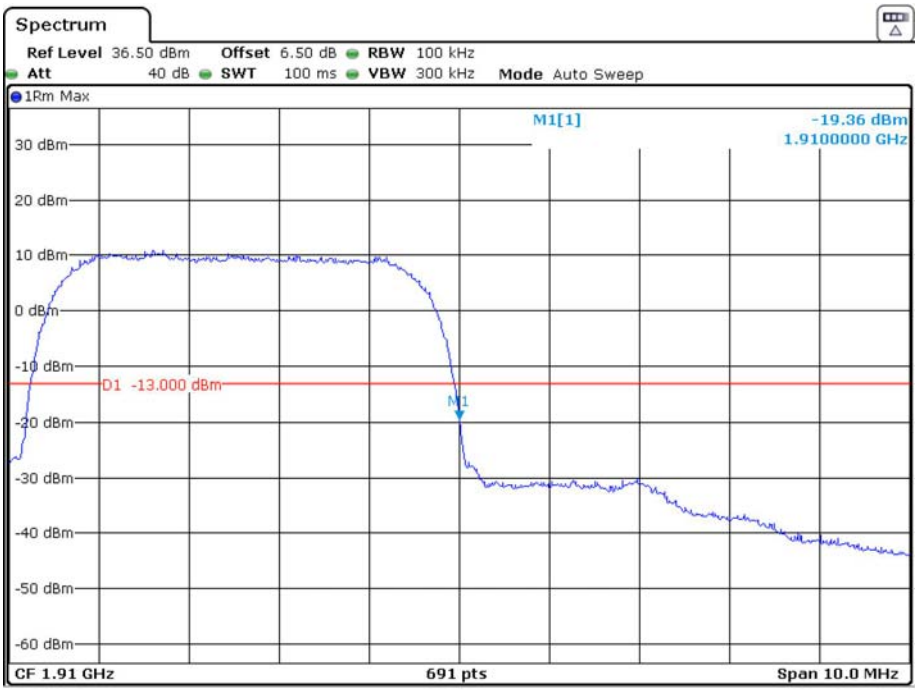
Date: 23.FEB.2021 15:26:53

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



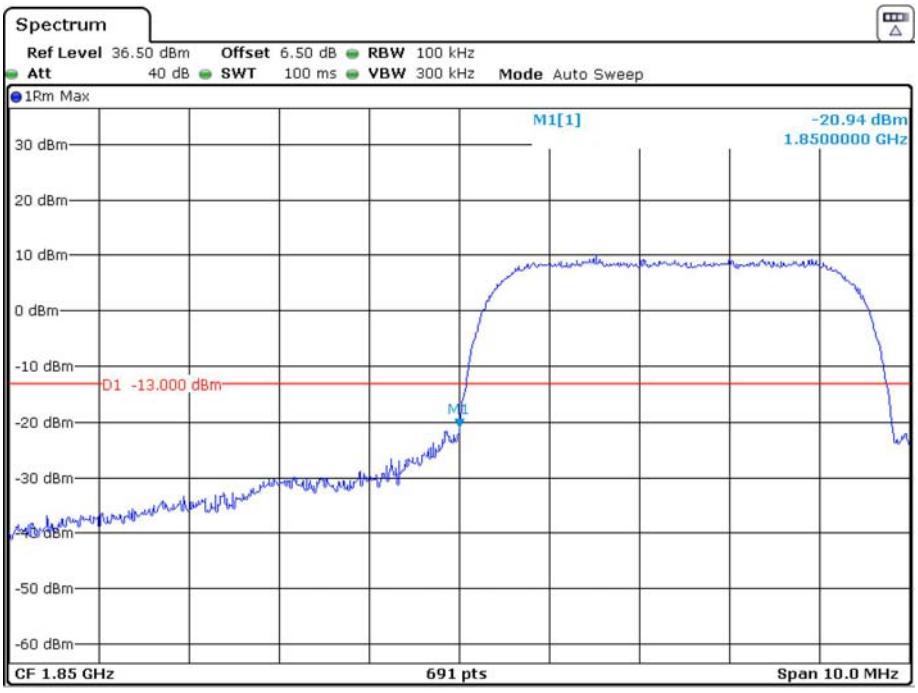
Date: 20.FEB.2021 15:02:25

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



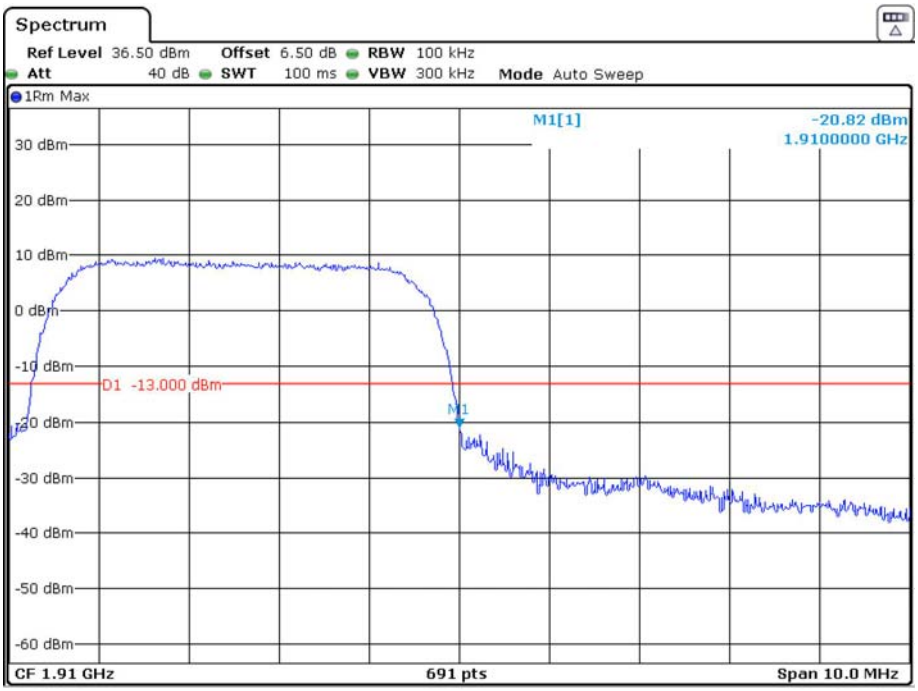
Date: 20.FEB.2021 15:01:05

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



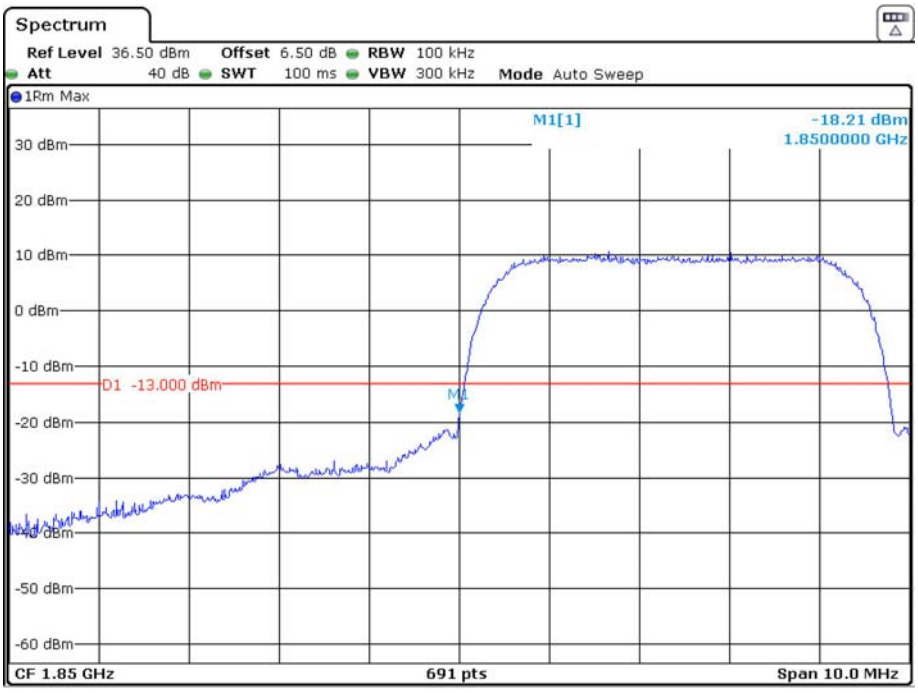
Date: 20.FEB.2021 15:43:27

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



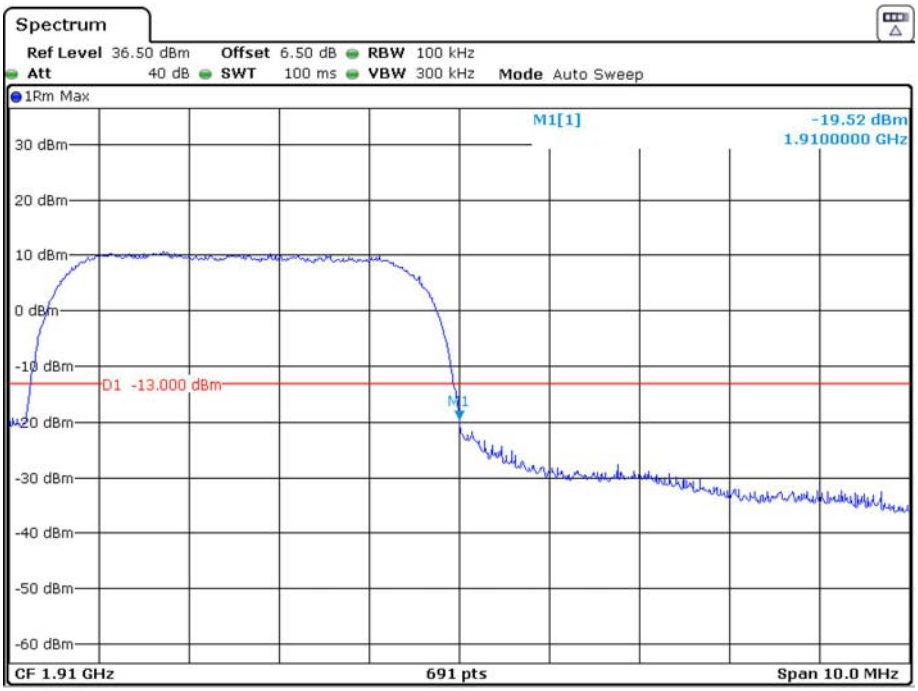
Date: 20.FEB.2021 15:42:41

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



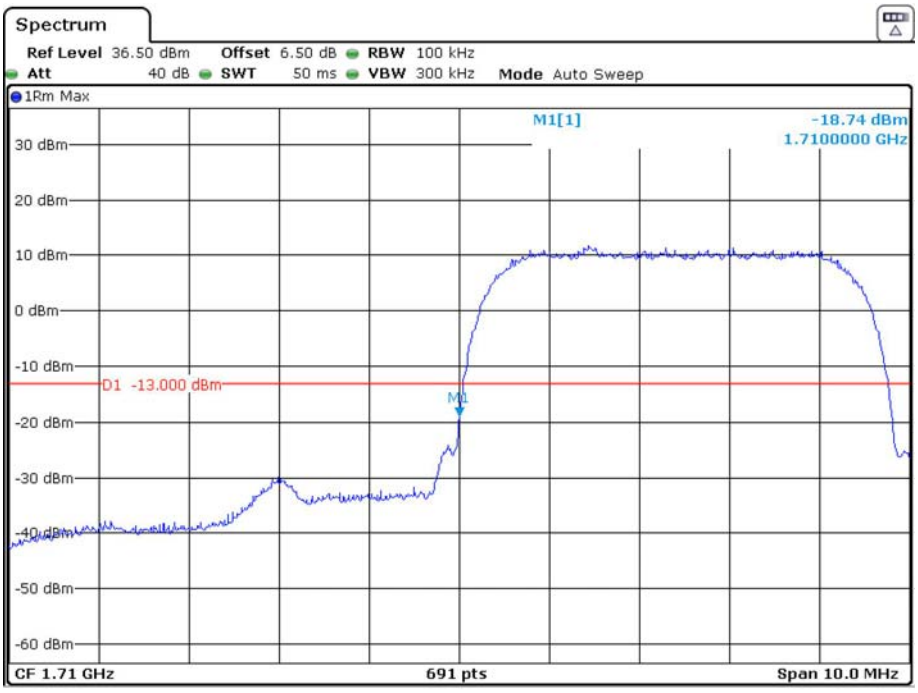
Date: 20.FEB.2021 16:18:38

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



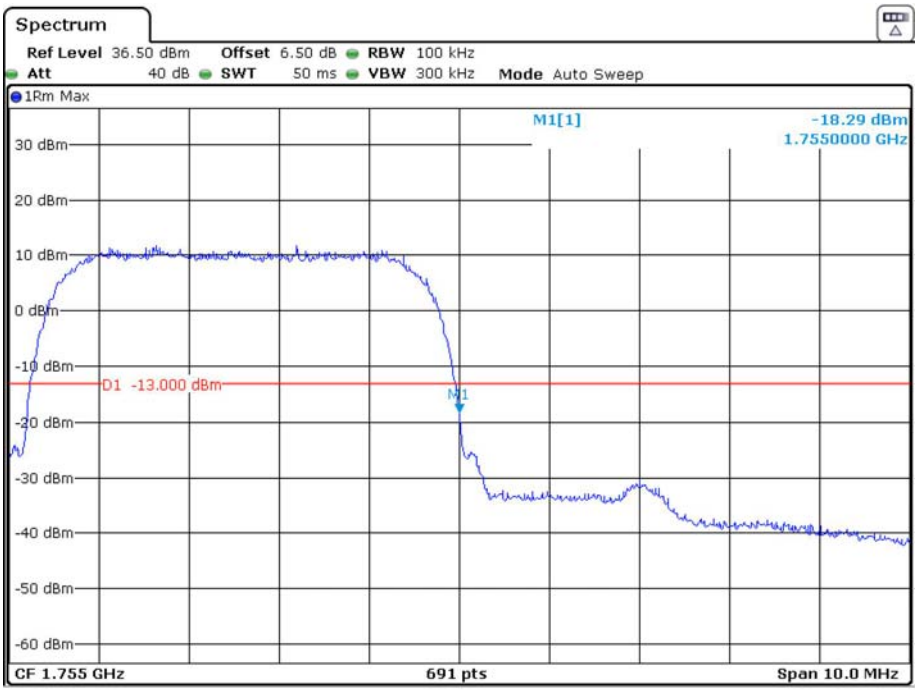
Date: 20.FEB.2021 16:26:09

AWS Band, Left Band Edge for WCDMA (BPSK) Mode



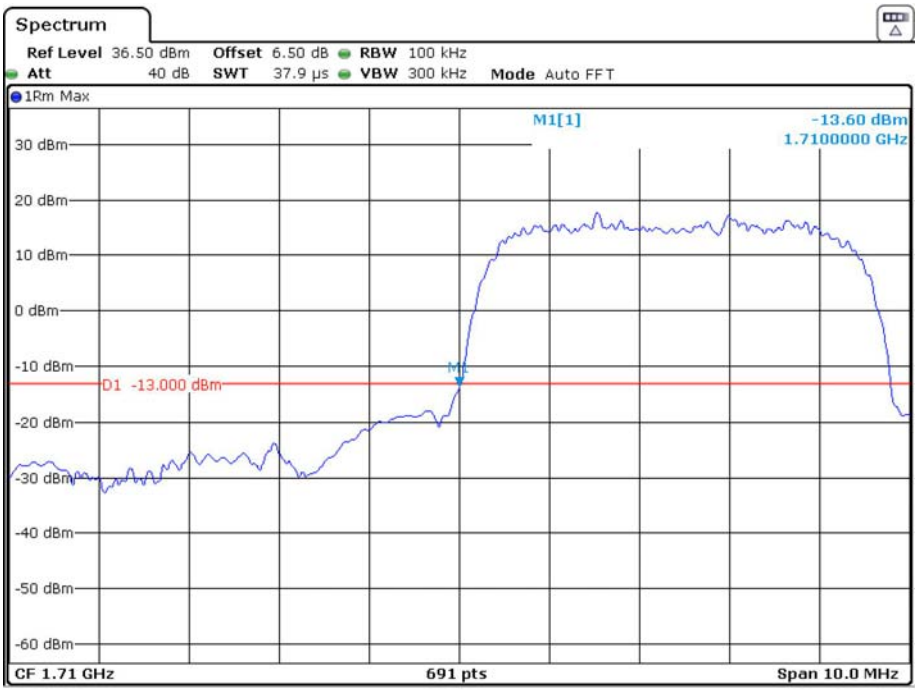
Date: 20.FEB.2021 17:43:40

AWS Band, Right Band Edge for WCDMA (BPSK) Mode



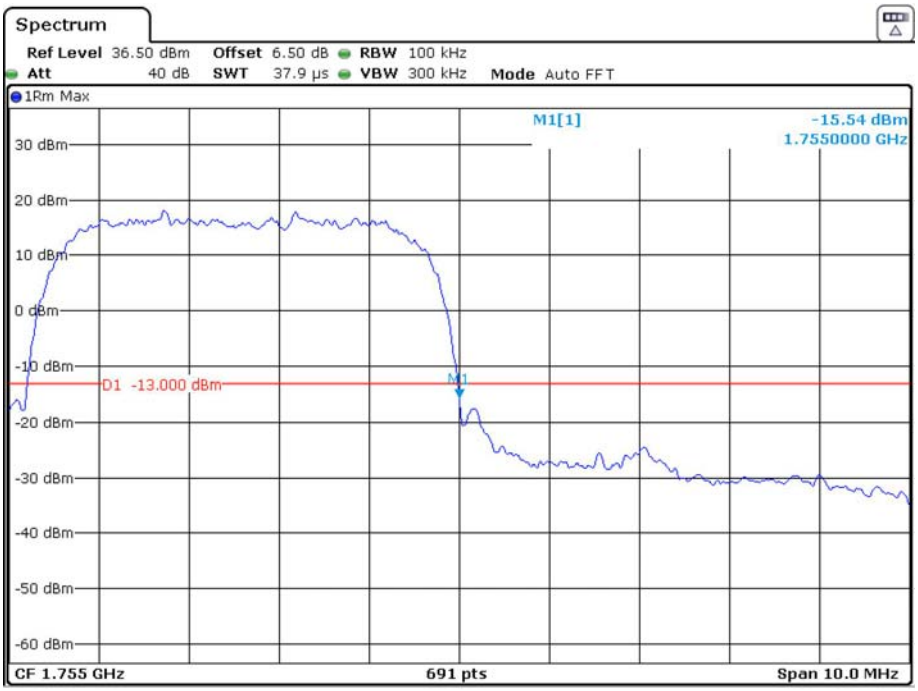
Date: 20.FEB.2021 17:42:57

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



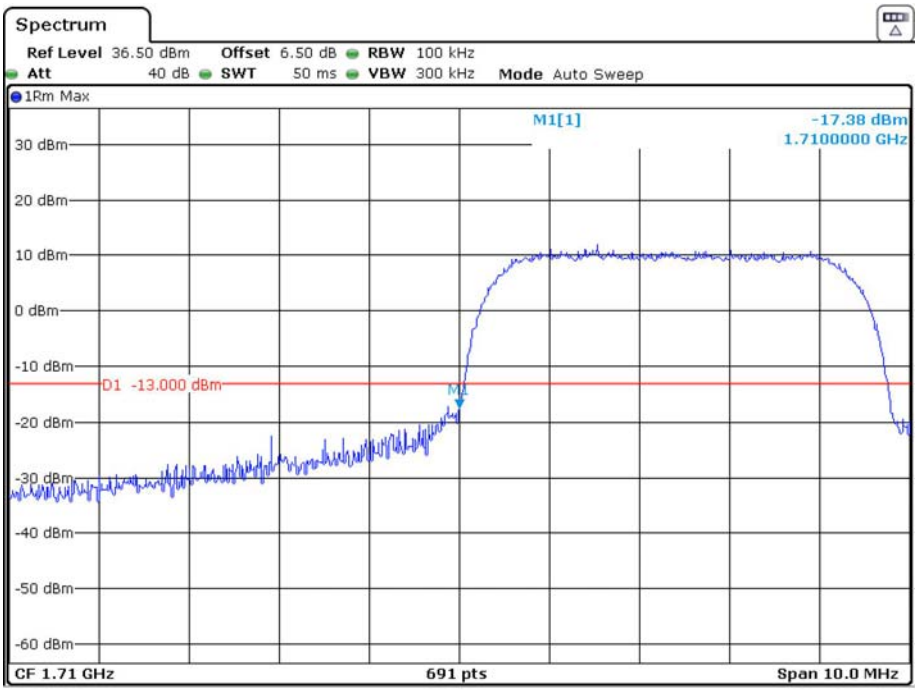
Date: 20.FEB.2021 17:39:14

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



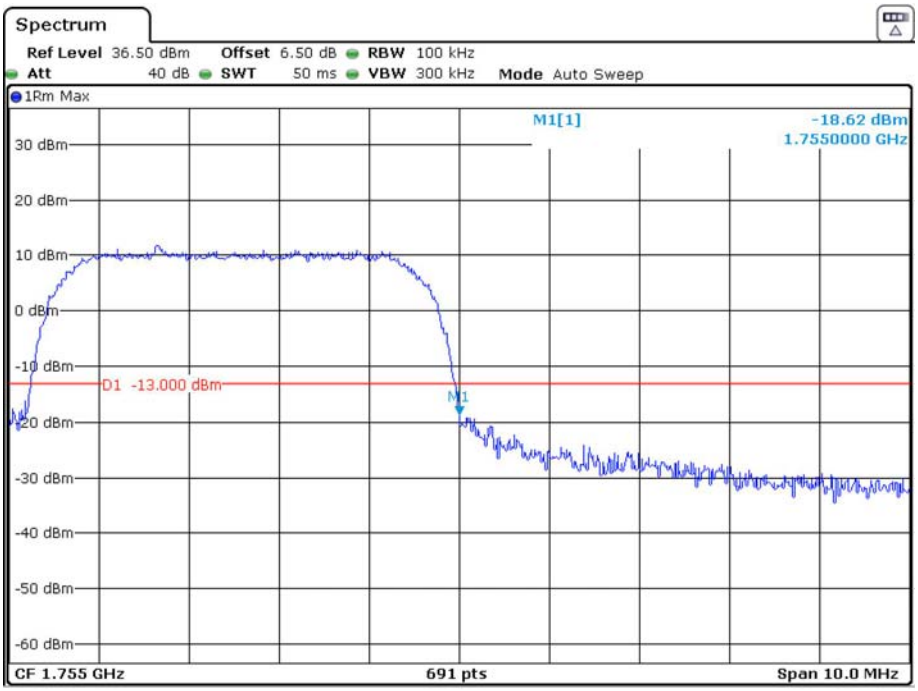
Date: 20.FEB.2021 17:38:22

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



Date: 20.FEB.2021 17:40:48

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



Date: 20.FEB.2021 17:41:33

The test plot of LTE band 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 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

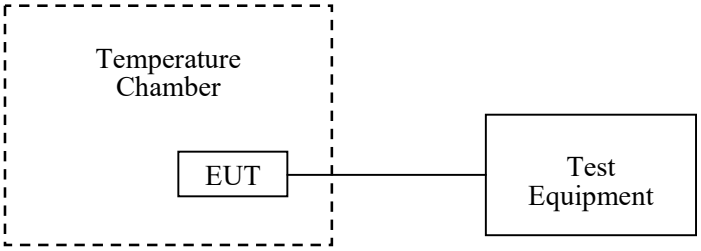
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

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:	25 ℃
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

The testing was performed by Gavin Guo from 2021-02-05 to 2021-03-22.

EUT operation mode: Transmitting

Test Result: Pass

Please refer to the following tables.

Cellular Band (Part 22H)

GSM Mode

Middle Channel, f_o =836.6MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.85	6	0.0072	2.5
-20		4	0.0048	2.5
-10		8	0.0096	2.5
0		5	0.0060	2.5
10		7	0.0084	2.5
20		2	0.0024	2.5
30		6	0.0072	2.5
40		6	0.0072	2.5
50		7	0.0084	2.5
20	V min.= 3.45	6	0.0072	2.5
	V max.= 4.4	5	0.0060	2.5

EDGE Mode

Middle Channel, f_o =836.6MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.85	3	0.0036	2.5
-20		7	0.0084	2.5
-10		5	0.0060	2.5
0		7	0.0084	2.5
10		7	0.0084	2.5
20		6	0.0072	2.5
30		8	0.0096	2.5
40		4	0.0048	2.5
50		7	0.0084	2.5
20	V min.= 3.45	8	0.0096	2.5
	V max.= 4.4	6	0.0072	2.5

WCDMA Mode

Middle Channel, f_o =836.6MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.85	2	0.0024	2.5
-20		2	0.0024	2.5
-10		-1	-0.0012	2.5
0		3	0.0036	2.5
10		8	0.0096	2.5
20		7	0.0084	2.5
30		7	0.0084	2.5
40		3	0.0036	2.5
50		4	0.0048	2.5
20	V min.= 3.45	7	0.0084	2.5
	V max.= 4.4	3	0.0036	2.5

PCS Band (Part 24E)

GSM Mode

Middle Channel, f_o =1880.0 MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	3.85	-5	-0.0027	pass
-20		6	0.0032	pass
-10		-5	-0.0027	pass
0		1	0.0005	pass
10		-1	-0.0005	pass
20		3	0.0016	pass
30		4	0.0021	pass
40		4	0.0021	pass
50		-5	-0.0027	pass
20	V min.= 3.45	8	0.0043	pass
	V max.= 4.4	2	0.0011	pass

EDGE Mode

Middle Channel, f_o =1880.0 MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	3.85	-6	-0.0032	pass
-20		-2	-0.0011	pass
-10		2	0.0011	pass
0		0	0.0000	pass
10		-7	-0.0037	pass
20		-2	-0.0011	pass
30		1	0.0005	pass
40		-5	-0.0027	pass
50		-1	-0.0005	pass
20	V min.= 3.45	1	0.0005	pass
	V max.= 4.4	1	0.0005	pass

WCDMA Mode

Middle Channel, f_o =1880.0 MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	3.85	3	0.0016	pass
-20		2	0.0011	pass
-10		6	0.0032	pass
0		-5	-0.0027	pass
10		7	0.0037	pass
20		3	0.0016	pass
30		8	0.0043	pass
40		7	0.0037	pass
50		3	0.0016	pass
20	V min.= 3.45	2	0.0011	pass
	V max.= 4.4	6	0.0032	pass

AWS Band (Part 27)

Temperature (℃)	Power Supplied (V_{DC})	F_L (MHz)	F_H (MHz)	F_L Limit (MHz)	F_H Limit (MHz)
-30	3.85	1710.0689	1754.9377	1710	1755
-20		1710.0626	1754.9348	1710	1755
-10		1710.0629	1754.9326	1710	1755
0		1710.0599	1754.9375	1710	1755
10		1710.0647	1754.9346	1710	1755
20		1710.0626	1754.9342	1710	1755
30		1710.0597	1754.9335	1710	1755
40		1710.0637	1754.9334	1710	1755
50		1710.0607	1754.9322	1710	1755
20	V min.= 3.45	1710.0641	1754.9357	1710	1755
	V max.= 4.4	1710.0602	1754.9284	1710	1755

LTE:
QPSK:

Band 2:

10.0 MHz Middle Channel, f_o =1880MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	3.85	-7	-0.0037	pass
-20		-9	-0.0048	pass
-10		-7	-0.0037	pass
0		5	0.0027	pass
10		10	0.0053	pass
20		7	0.0037	pass
30		-9	-0.0048	pass
40		5	0.0027	pass
50		-8	-0.0043	pass
20	V min.= 3.45	-10	-0.0053	pass
	V max.= 4.4	-7	-0.0037	pass

Band 4:

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.85	1710.3997	1754.5624	1710	1755
-20		1710.4128	1754.5367	1710	1755
-10		1710.3980	1754.5330	1710	1755
0		1710.3778	1754.5897	1710	1755
10		1710.4669	1754.5591	1710	1755
20		1710.4028	1754.4960	1710	1755
30		1710.3996	1754.4662	1710	1755
40		1710.4417	1754.5116	1710	1755
50		1710.3856	1754.5548	1710	1755
20	V min.= 3.45	1710.4302	1754.5246	1710	1755
	V max.= 4.4	1710.4658	1754.5872	1710	1755

Band 5:

10.0 MHz Middle Channel, f_o=836.5MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.85	-8	-0.0096	2.5
-20		11	0.0132	2.5
-10		7	0.0084	2.5
0		-6	-0.0072	2.5
10		-4	-0.0048	2.5
20		7	0.0084	2.5
30		-3	-0.0036	2.5
40		5	0.0060	2.5
50		7	0.0084	2.5
20	V min.= 3.45	10	0.0120	2.5
	V max.= 4.4	9	0.0108	2.5

Band 7:

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.85	2500.4074	2569.5443	2500	2570
-20		2500.5081	2569.4893	2500	2570
-10		2500.4743	2569.5753	2500	2570
0		2500.4893	2569.5202	2500	2570
10		2500.4681	2569.5312	2500	2570
20		2500.4643	2569.5685	2500	2570
30		2500.5128	2569.4434	2500	2570
40		2500.4236	2569.5393	2500	2570
50		2500.4663	2569.5627	2500	2570
20	V min.= 3.45	2500.4075	2569.5174	2500	2570
	V max.= 4.4	2500.4360	2569.4982	2500	2570

Band 38:

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.85	2570.0315	2619.9112	2570	2620
-20		2570.0569	2619.9196	2570	2620
-10		2570.0758	2619.9145	2570	2620
0		2570.0470	2619.9021	2570	2620
10		2570.0101	2619.9569	2570	2620
20		2570.0979	2619.9030	2570	2620
30		2570.0165	2619.9340	2570	2620
40		2570.0803	2619.9975	2570	2620
50		2570.0112	2619.9453	2570	2620
20	V min.= 3.45	2570.0873	2619.9020	2570	2620
	V max.= 4.4	2570.0966	2619.9829	2570	2620

Band 41:

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.85	2535.0750	2654.9224	2535	2655
-20		2535.0463	2654.9850	2535	2655
-10		2535.0412	2654.9081	2535	2655
0		2535.0303	2654.9046	2535	2655
10		2535.0153	2654.9466	2535	2655
20		2535.0725	2654.9039	2535	2655
30		2535.0451	2654.9652	2535	2655
40		2535.0411	2654.9902	2535	2655
50		2535.0953	2654.9779	2535	2655
20	V min.= 3.45	2535.0321	2654.9521	2535	2655
	V max.= 4.4	2535.0280	2654.9816	2535	2655

Note: The applicant declared the operating frequency range is 2535-2655MHz.

Band 66:

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.85	1710.3769	1779.6247	1710	1780
-20		1710.3507	1779.6893	1710	1780
-10		1710.3390	1779.6061	1710	1780
0		1710.3235	1779.6018	1710	1780
10		1710.3183	1779.6457	1710	1780
20		1710.3726	1779.6047	1710	1780
30		1710.3466	1779.6648	1710	1780
40		1710.3439	1779.6897	1710	1780
50		1710.3933	1779.6786	1710	1780
20	V min.= 3.45	1710.3286	1779.6551	1710	1780
	V max.= 4.4	1710.3296	1779.6774	1710	1780

16QAM:

Band 2:

10.0 MHz Middle Channel, f_o =1880MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	3.85	-6	-0.0032	pass
-20		-2	-0.0011	pass
-10		17	0.0090	pass
0		-4	-0.0021	pass
10		8	0.0043	pass
20		-8	-0.0043	pass
30		-7	-0.0037	pass
40		-2	-0.0011	pass
50		11	0.0059	pass
20	V min.= 3.45	14	0.0074	pass
	V max.= 4.4	12	0.0064	pass

Band 4:

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.85	1710.3555	1754.5247	1710	1755
-20		1710.4055	1754.5068	1710	1755
-10		1710.5033	1754.5596	1710	1755
0		1710.3407	1754.5771	1710	1755
10		1710.4123	1754.5552	1710	1755
20		1710.4116	1754.5134	1710	1755
30		1710.4145	1754.5523	1710	1755
40		1710.4454	1754.4785	1710	1755
50		1710.4580	1754.6373	1710	1755
20	V min.= 3.45	1710.4248	1754.5994	1710	1755
	V max.= 4.4	1710.4493	1754.5473	1710	1755

Band 5:

10.0 MHz Middle Channel, f_o =836.5MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.85	-1	-0.0012	2.5
-20		8	0.0096	2.5
-10		-8	-0.0096	2.5
0		-8	-0.0096	2.5
10		-12	-0.0144	2.5
20		-10	-0.0120	2.5
30		8	0.0096	2.5
40		9	0.0108	2.5
50		-7	-0.0084	2.5
20	V min.= 3.45	6	0.0072	2.5
	V max.= 4.4	-9	-0.0108	2.5

Band 7:

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.85	2500.4806	2569.4731	2500	2570
-20		2500.5109	2569.5651	2500	2570
-10		2500.5079	2569.5406	2500	2570
0		2500.4781	2569.5789	2500	2570
10		2500.5075	2569.5508	2500	2570
20		2500.4453	2569.5307	2500	2570
30		2500.5007	2569.4904	2500	2570
40		2500.4728	2569.5306	2500	2570
50		2500.4417	2569.5673	2500	2570
20	V min.= 3.45	2500.4139	2569.5518	2500	2570
	V max.= 4.4	2500.4520	2569.4972	2500	2570

Band 38:

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.85	2570.0301	2619.9316	2570	2620
-20		2570.0284	2619.9348	2570	2620
-10		2570.0358	2619.9270	2570	2620
0		2570.0307	2619.9408	2570	2620
10		2570.0304	2619.9340	2570	2620
20		2570.0281	2619.9423	2570	2620
30		2570.0281	2619.9301	2570	2620
40		2570.0325	2619.9197	2570	2620
50		2570.0253	2619.9342	2570	2620
20	V min.= 3.45	2570.0428	2619.9394	2570	2620
	V max.= 4.4	2570.0288	2619.9324	2570	2620

Band 41:

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.85	2535.0725	2654.9132	2535	2655
-20		2535.0519	2654.9901	2535	2655
-10		2535.0350	2654.9104	2535	2655
0		2535.0286	2654.9004	2535	2655
10		2535.0095	2654.9521	2535	2655
20		2535.0707	2654.9072	2535	2655
30		2535.0426	2654.9648	2535	2655
40		2535.0466	2654.9902	2535	2655
50		2535.0937	2654.9719	2535	2655
20	V min.= 3.45	2535.0282	2654.9510	2535	2655
	V max.= 4.4	2535.0223	2654.9740	2535	2655

Note: The applicant declared the operating frequency range is 2535-2655MHz.

Band 66:

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.85	1710.3756	1779.6282	1710	1780
-20		1710.3531	1779.6883	1710	1780
-10		1710.3281	1779.6054	1710	1780
0		1710.3260	1779.5986	1710	1780
10		1710.3213	1779.6514	1710	1780
20		1710.3720	1779.6102	1710	1780
30		1710.3382	1779.6642	1710	1780
40		1710.3477	1779.6869	1710	1780
50		1710.3902	1779.6765	1710	1780
20	V min.= 3.45	1710.3306	1779.6582	1710	1780
	V max.= 4.4	1710.3303	1779.6727	1710	1780

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