TEST REPORT

Applicant Name :	Vanstone Electronic (Beijing) Co., Ltd.
Address :	3F No.2 Building, Aisino Corporation Park 18A, Xingshikou Road, Haidian District, Beijing, China 100195
Report Number :	SZNN210609-55441E-RF-00E
FCC ID:	OWLA75

Test Standard (s)

FCC PART 27; FCC PART 90; FCC PART 22H; FCC PART 24

Sample Description

Product Type:	Android POS Terminal
Model No.:	A75
Multiple Model(s) No.:	N/A
Trade Mark:	Aisino
Date Received:	2021/06/09
Date of Test:	2021/10/28~2021/11/12
Report Date:	2021/11/22

Test Result:	Pass*

* In the configuration tested, the EUT complied with the standards above.

Prepared and Checked By:

Black Ding
EMC Engineer

Approved By:

Candy Li
EMC Engineer

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Frequency Range	GSM 850: 824-849MHz(TX); 869-894MHz(RX) PCS 1900: 1850-1910MHz(TX); 1930-1990MHz(RX) WCDMA Band 2: 1850-1910MHz(TX); 1930-1990MHz(RX) WCDMA Band 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 12: 699-716MHz(TX); 729-746MHz(RX) LTE Band 13: 777-787MHz(TX); 746-756MHz(RX) LTE Band 25: 1850-1915MHz(TX); 1930-1995MHz(RX) LTE Band 26(Part 22): 824-849MHz(TX); 869-894MHz(RX) LTE Band 26(Part 90): 814-824MHz(TX); 859-869MHz(RX)
Modulation Technique	2G: GMSK/8PSK 3G: BPSK, QPSK, 16QAM 4G: QPSK, 16QAM
Antenna Specification*	Below 1GHz :0.5dBi Above 1GHz: 0.8dBi (provided by the applicant)
Voltage Range	DC 3.60V from battery or DC 5.0V from adapter
Sample serial number	SZNN210609-55441E-RF-S1 (for radiated test) SZNN210609-55441E-RF-S2 ((RF Conducted Test) Assigned by ATC)
Sample/EUT Status	Good condition
Normal/Extreme Condition	N.V.: Nominal Voltage: 3.6V_{DC} L.V.: Low Voltage 3.3V_{DC}; L.T.: Low Temperature -10℃ N.V.: Normal Voltage 3.6V_{DC}; N.T.: Normal Temperature +25℃ H.V.: High Voltage 4.2V_{DC}; H.T.: High Temperature +50℃
Adapter information	Model: TPA-46050200UU Input: AC 100-240V, 50/60Hz, 0.3A Output: DC 5.0V, 2000mA

Objective

This test report is in accordance with Part 2-Subpart J, Part 22-Subpart H and Part 24-Subpart E and Subpart 27, Part 90 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
Part 90 – Private Land Mobile Radio Service

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

All emissions measurement was performed at Shenzhen Accurate Technology Co., Ltd. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Each test item follows test standards and with no deviation.

Measurement Uncertainty

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

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

Test Facility

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

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 708358, the FCC Designation No.: CN1189.
Accredited by American Association for Laboratory Accreditation (A2LA) The Certificate Number is 429 7.01.
Listed by Innovation, Science and Economic Development Canada (ISEDC), the Registration Number is 5077A.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

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

The test items were performed with the EUT operating at testing mode. Test was performed with channels as below table:

Frequency Band	Bandwidth (MHz)	Test Frequency (MHz)		
		Low	Middle	High
GSM850	0.25	824.2	836.6	848.8
PCS1900	0.25	1850.2	1880	1909.8
WCDMA B2	4.2	1852.4	1880	1907.6
WCDMA 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& LTE B26(Part 22)	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
	15(B26 only)	831.5	836.5	841.5
LTE B7	5	2502.5	2535	2567.5
	10	2505	2535	2565
	15	2507.5	2535	2562.5
	20	2510	2535	2560
LTE B12	1.4	699.7	707.5	715.3
	3	700.5	707.5	714.5
	5	701.5	707.5	713.5
	10	704	707.5	711
LTE B13	5	779.5	782	784.5
	10	/	782	/

Frequency Band	Bandwidth (MHz)	Test Frequency (MHz)		
		Low	Middle	High
LTE B25	1.4	1850.7	1882.5	1914.3
	3	1851.5	1882.5	1913.5
	5	1852.5	1882.5	1912.5
	10	1855	1882.5	1910
	15	1857.5	1882.5	1907.5
	20	1860	1882.5	1905
LTE B26(Part 90S)	1.4	814.7	819	823.3
	3	815.5	819	822.5
	5	816.5	819	821.5
	10	/	819	/

Equipment Modifications

No modification was made to the EUT.

Support Equipment List and Details

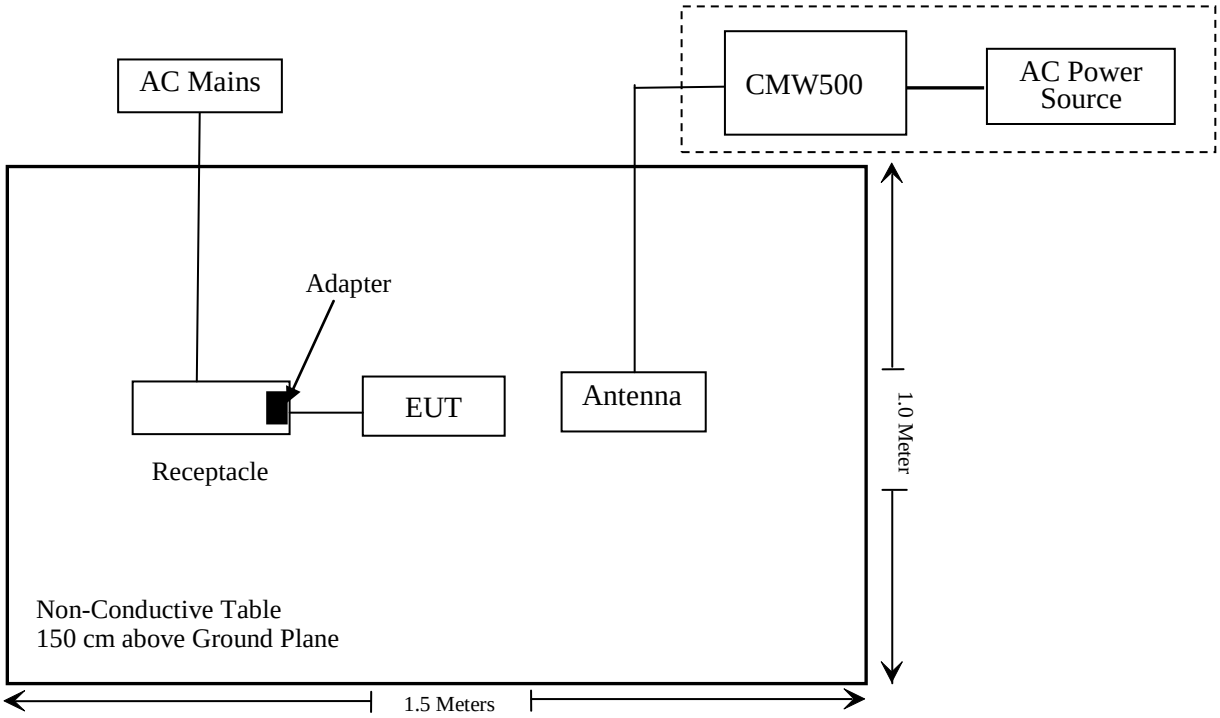
Manufacturer	Description	Model	Serial Number
Rohde & Schwarz	Wideband Radio Communication tester	CMW500	146520

Support Cable Description

Cable Description	Length (m)	From / Port	To
Un-shielded Un-detachable AC cable	1.2	AC Power	CMW500
Un-Shielding Detachable USB Cable	1.0	EUT	Adapter

Block Diagram of Test Setup

Test Set up Connect:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307 , §2.1093	RF Exposure (SAR)	Compliant*
§2.1046; § 22.913 (a); § 24.232 (c); §27.50; §90.635	RF Output Power	Compliant
§ 2.1047	Modulation Characteristics	Not Applicable
§ 2.1049; § 22.905; § 22.917; § 24.238; §27.53; § 90.209	Occupied Bandwidth	Compliant
§ 2.1051; § 22.917 (a); § 24.238 (a); §27.53 §90.691	Spurious Emissions at Antenna Terminal	Compliant
§ 2.1053; § 22.917 (a); § 24.238 (a); §27.53 §90.691	Field Strength of Spurious Radiation	Compliant
§ 22.917 (a); § 24.238 (a); §27.53 § 90.691	Band Edge	Compliant
§ 2.1055; § 22.355; § 24.235; §27.54; § 90.213	Frequency stability	Compliant

Note: * Please refer to SAR report number: CR21110041-20A,CR21110041-20B.

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test					
Rohde& Schwarz	Test Receiver	ESR	101817	2020/12/24	2021/12/23
Rohde&Schwarz	Spectrum Analyzer	FSV40	101495	2020/12/24	2021/12/23
SONOMA INSTRUMENT	Amplifier	310 N	186131	2020/12/25	2021/12/24
A.H. Systems, inc.	Preamplifier	PAM-0118P	531	2020/11/09	2021/11/08
Quinstar	Amplifier	QLW-184055 36-J0	15964001002	2020/11/28	2021/11/27
Anritsu Corp	50 Coaxial Switch	MP59B	6100237248	2020/12/25	2021/12/24
Schwarzbeck	Bilog Antenna	VULB9163	9163-323	2020/01/05	2023/01/04
Schwarzbeck	Bilog Antenna	VULB9163	9163-194	2020/01/05	2023/01/04
Schwarzbeck	Horn Antenna	BBHA9120D	9120D-1067	2020/01/05	2023/01/04
Schwarzbeck	Horn Antenna	BBHA9120D	9120D-655	2020/01/05	2023/01/04
PASTERNACK	Horn Antenn	PE9852/2F-20	1120	2020/01/05	2023/01/04
PASTERNACK	Horn Antenn	PE9852/2F-20	1120	2020/01/05	2023/01/04
OREGON SCIENTIFIC	Temperature & Humidity Meter	JB913R	GZ-WS004	2020/01/02	2023/01/01
Unknown	RF Coaxial Cable	N-5m	No.3	2020/12/25	2021/12/24
Unknown	RF Coaxial Cable	N-5m	No.4	2020/12/25	2021/12/24
Unknown	RF Coaxial Cable	N-1m	No.5	2020/12/25	2021/12/24
Unknown	RF Coaxial Cable	N-1m	No.6	2020/12/25	2021/12/24
Wainwright	High Pass Filter	WHKX3.6/18 G-10SS	5	2020/12/25	2021/12/24
CD	High Pass Filter	HPM-1.2/18G -60	110	2020/12/25	2021/12/24
Anritsu	Signal Generator	68369B	004114	2021/7/31	2022/7/30

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
RF Conducted Test					
Rohde & Schwarz	Spectrum Analyzer	FSV-40	101495	2020/12/24	2021/12/23
SPECTRUM ANALYZER	Rohde & Schwarz	FSU26	200982	2021/07/06	2022/07/05
WEINSCHEL	10dB Attenuator	5324	AU 3842	2020/12/25	2021/12/24
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	154606	2020/12/25	2021/12/24
Fluke	Desktop Multi Meter	45	7664009	2020/12/25	2021/12/24
Mini-Circuits	Power Splitter	DC-18000MHz	SF10944151S	2020/12/25	2021/12/24
UNI-T	DC Power Supply	UTP8305B	10584	NCR	NCR
Gongwen	Temp. & Humid. Chamber	HSD-500	109	2020/12/25	2021/12/24

* Statement of Traceability: Shenzhen Accurate Technology Co., Ltd. attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC §1.1307(b) & §2.1093 - RF EXPOSURE INFORMATION

Applicable Standard

FCC§1.1310 and §2.1093.

Test Result

Compliant, please refer to the SAR report: CR21110041-20A,CR21110041-20B.

FCC §2.1047 - MODULATION CHARACTERISTIC

According to FCC §2.1047(d), Part 22H & 24E & 27 & Part 90 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, §90.635 - RF OUTPUT POWER

Applicable Standard

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

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

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

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

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

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

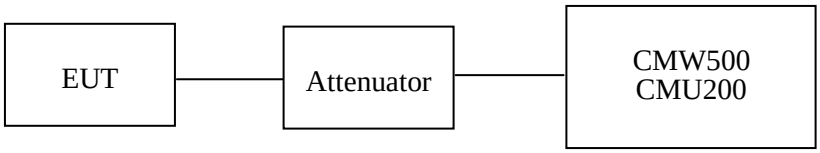
According to §27.50(h), the maximum EIRP must not exceed 2Watts (33dBm) for 2500-2570MHz & 2496-2690MHz.

According to §90.635, the maximum ERP must not exceed 1000 Watts (50dBm) for 814-824 MHz.

Test Procedure

Conducted method:

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



Test Data

Environmental Conditions

Temperature:	28.2~29.0 ℃
Relative Humidity:	44~56 %
ATM Pressure:	101.0 kPa

The testing was performed by Black Ding from 2021-11-03 to 2021-11-12.

Conducted Power

Cellular Band (Part 22H)

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	32.34	31.68	29.02	27.86	30.19	29.53	26.87	25.71	38.45
	190	836.6	32.28	31.62	29.04	27.82	30.13	29.47	26.89	25.67	38.45
	251	848.8	32.26	31.62	28.94	27.73	30.11	29.47	26.79	25.58	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	26.41	22.85	23.97	22.79	24.26	20.70	21.82	20.64	38.45
	190	836.6	26.39	25.88	23.92	22.70	24.24	23.73	21.77	20.55	38.45
	251	848.8	26.32	25.78	23.87	22.66	24.17	23.63	21.72	20.51	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		22.30	22.44	23.22	20.15	20.29	21.07
	HSDPA	1	21.33	21.91	22.49	19.18	19.76	20.34
		2	21.48	21.52	21.93	19.33	19.37	19.78
		3	21.23	21.49	21.75	19.08	19.34	19.60
		4	21.09	21.34	21.86	18.94	19.19	19.71
	HSUPA	1	20.78	21.35	21.97	18.63	19.20	19.82
		2	20.72	21.58	21.93	18.57	19.43	19.78
		3	20.67	21.30	21.87	18.52	19.15	19.72
		4	20.74	21.52	21.76	18.59	19.37	19.61
		5	20.66	21.34	21.87	18.51	19.19	19.72
	HSPA+	1	20.71	21.14	21.47	18.56	18.99	19.32

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd) - Cable Loss(dB)
For GSM850 / WCDMA Band5: Antenna Gain = 0.5dBi = -1.65dBd (0dBd=2.15dBi)
Cable Loss=0.5dB*(provided by the applicant)
Limit: ERP≤38.45dBm

PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				EIRP(dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	1 slot	2 slots	3 slots	4 slots	
GPRS	512	1850.2	21.26	19.74	18.37	17.83	21.26	19.74	18.37	17.83	33
	661	1880.0	20.71	19.67	18.04	17.47	20.71	19.67	18.04	17.47	33
	810	1909.8	20.38	19.16	18.62	17.28	20.38	19.16	18.62	17.28	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	19.91	18.90	17.85	16.56	19.91	18.90	17.85	16.56	33
	661	1880.0	19.84	18.86	17.99	16.65	19.84	18.86	17.99	16.65	33
	810	1909.8	19.93	18.87	17.94	16.74	19.93	18.87	17.94	16.74	33

Mode	Test Mode	3GPP Sub Test	Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
WCDMA (Band 2)	RMC12.2k		17.44	17.39	17.31	17.44	17.39	17.31
	HSDPA	1	16.78	16.64	16.45	16.78	16.64	16.45
		2	16.83	16.66	16.38	16.83	16.66	16.38
		3	16.86	16.76	16.56	16.86	16.76	16.56
		4	16.85	16.71	16.59	16.85	16.71	16.59
	HSUPA	1	16.50	16.20	16.15	16.50	16.20	16.15
		2	16.53	16.29	16.19	16.53	16.29	16.19
		3	16.55	16.30	16.24	16.55	16.30	16.24
		4	16.59	16.41	16.29	16.59	16.41	16.29
		5	16.61	16.44	16.36	16.61	16.44	16.36
	HSPA+	1	16.65	16.46	16.42	16.65	16.46	16.42

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi) - Cable Loss(dB)
For PCS1900 / WCDMA Band2: Antenna Gain = 0.8dBi
Cable Loss=0.8dB*(provided by the applicant)
Limit: EIRP≤33dBm

AWS Band

Mode	Test Mode	3GPP Sub Test	Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
WCDMA (Band 4)	RMC12.2k		18.80	18.73	18.69	18.80	18.73	18.69
	HSDPA	1	18.12	17.99	17.84	18.12	17.99	17.84
		2	18.17	18.02	17.76	18.17	18.02	17.76
		3	18.21	18.12	17.93	18.21	18.12	17.93
		4	18.17	18.09	17.92	18.17	18.09	17.92
	HSUPA	1	17.85	17.56	17.48	17.85	17.56	17.48
		2	17.88	17.65	17.51	17.88	17.65	17.51
		3	17.91	17.67	17.62	17.91	17.67	17.62
		4	17.96	17.74	17.63	17.96	17.74	17.63
		5	17.94	17.78	17.69	17.94	17.78	17.69
	HSPA+	1	17.97	17.83	17.77	17.97	17.83	17.77

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi) - Cable Loss(dB)
For Band4: Antenna Gain = 0.8dBi
Cable Loss=0.8dB*(provided by the applicant)
Limit: EIRP≤30dBm

Peak-to-average ratio (PAR)

Cellular Band

Mode	Channel	PAR (dB)	Limit (dB)
GPRS	Low	3.68	13
	Middle	3.54	13
	High	3.72	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	3.53	13
	Middle	3.84	13
	High	3.76	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.54	13
	Middle	3.25	13
	High	3.47	13
HSDPA (16QAM)	Low	3.43	13
	Middle	3.27	13
	High	3.44	13
HSUPA (BPSK)	Low	3.17	13
	Middle	3.26	13
	High	3.38	13
HSUPA+	Low	3.47	13
	Middle	3.34	13
	High	3.27	13

PCS Band (Part 24E)

Mode	Channel	PAR (dB)	Limit (dB)
GPRS	Low	3.59	13
	Middle	3.51	13
	High	3.74	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	3.35	13
	Middle	3.87	13
	High	3.56	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.56	13
	Middle	3.43	13
	High	3.42	13
HSDPA (16QAM)	Low	3.57	13
	Middle	3.36	13
	High	3.47	13
HSUPA (BPSK)	Low	3.36	13
	Middle	3.62	13
	High	3.53	13
HSUPA+	Low	3.17	13
	Middle	3.35	13
	High	3.28	13

AWS Band

Mode	Channel	PAR (dB)	Limit (dB)
WCDMA (BPSK)	Low	3.14	13
	Middle	3.55	13
	High	3.26	13
HSDPA (16QAM)	Low	3.47	13
	Middle	3.28	13
	High	3.46	13
HSUPA (BPSK)	Low	3.37	13
	Middle	3.47	13
	High	3.26	13
HSUPA+	Low	3.24	13
	Middle	3.45	13
	High	3.37	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	16.50	16.75	16.84	16.50	16.75	16.84
		RB1#3	16.60	16.65	16.81	16.60	16.65	16.81
		RB1#5	16.55	16.84	16.70	16.55	16.84	16.70
		RB3#0	16.64	16.72	16.82	16.64	16.72	16.82
		RB3#3	16.76	16.74	16.76	16.76	16.74	16.76
		RB6#0	15.74	15.63	15.60	15.74	15.63	15.60
	16QAM	RB1#0	15.74	16.24	16.04	15.74	16.24	16.04
		RB1#3	15.65	16.16	16.10	15.65	16.16	16.10
		RB1#5	15.44	15.81	15.99	15.44	15.81	15.99
		RB3#0	15.73	15.44	16.22	15.73	15.44	16.22
		RB3#3	15.48	15.86	15.99	15.48	15.86	15.99
		RB6#0	14.62	14.86	15.05	14.62	14.86	15.05
3.0	QPSK	RB1#0	16.73	16.91	16.76	16.73	16.91	16.76
		RB1#8	16.69	16.62	16.54	16.69	16.62	16.54
		RB1#14	16.82	16.83	16.67	16.82	16.83	16.67
		RB6#0	15.73	15.78	15.71	15.73	15.78	15.71
		RB6#9	15.61	15.73	15.73	15.61	15.73	15.73
		RB15#0	15.63	15.75	15.77	15.63	15.75	15.77
	16QAM	RB1#0	16.05	15.96	15.23	16.05	15.96	15.23
		RB1#8	15.66	15.79	15.17	15.66	15.79	15.17
		RB1#14	16.10	16.24	15.37	16.10	16.24	15.37
		RB6#0	14.63	15.05	14.80	14.63	15.05	14.80
		RB6#9	14.61	14.85	14.92	14.61	14.85	14.92
		RB15#0	14.71	14.78	14.94	14.71	14.78	14.94

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	16.64	16.77	16.67	16.64	16.77	16.67
		RB1#13	16.46	16.74	16.72	16.46	16.74	16.72
		RB1#24	16.49	16.91	16.64	16.49	16.91	16.64
		RB15#0	15.69	15.71	15.69	15.69	15.71	15.69
		RB15#10	15.61	15.65	15.73	15.61	15.65	15.73
		RB25#0	15.71	15.72	15.68	15.71	15.72	15.68
	16QAM	RB1#0	15.56	15.54	15.33	15.56	15.54	15.33
		RB1#13	14.95	15.57	15.10	14.95	15.57	15.10
		RB1#24	14.83	15.73	15.35	14.83	15.73	15.35
		RB15#0	14.75	14.63	14.73	14.75	14.63	14.73
		RB15#10	14.55	14.48	14.60	14.55	14.48	14.60
		RB25#0	14.87	14.74	14.60	14.87	14.74	14.60
10.0	QPSK	RB1#0	16.74	16.86	16.96	16.74	16.86	16.96
		RB1#25	16.49	16.71	16.90	16.49	16.71	16.90
		RB1#49	16.54	16.84	16.67	16.54	16.84	16.67
		RB25#0	15.62	15.70	15.70	15.62	15.70	15.70
		RB25#25	15.65	15.61	15.71	15.65	15.61	15.71
		RB50#0	15.60	15.71	15.72	15.60	15.71	15.72
	16QAM	RB1#0	15.43	15.94	16.11	15.43	15.94	16.11
		RB1#25	15.57	16.04	16.06	15.57	16.04	16.06
		RB1#49	15.70	16.01	16.03	15.70	16.01	16.03
		RB25#0	14.90	14.76	14.90	14.90	14.76	14.90
		RB25#25	14.60	14.59	14.75	14.60	14.59	14.75
		RB50#0	14.62	14.74	14.76	14.62	14.74	14.76

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	16.90	16.91	17.08	16.90	16.91	17.08
		RB1#38	16.43	16.61	16.78	16.43	16.61	16.78
		RB1#74	16.70	16.84	16.75	16.70	16.84	16.75
		RB36#0	15.70	15.77	15.76	15.70	15.77	15.76
		RB36#39	15.69	15.62	15.69	15.69	15.62	15.69
		RB75#0	15.69	15.76	15.75	15.69	15.76	15.75
	16QAM	RB1#0	15.99	16.32	16.21	15.99	16.32	16.21
		RB1#38	15.49	15.90	15.87	15.49	15.90	15.87
		RB1#74	15.87	16.56	15.80	15.87	16.56	15.80
		RB36#0	14.73	15.01	15.00	14.73	15.01	15.00
		RB36#39	14.82	14.60	14.84	14.82	14.60	14.84
		RB75#0	14.81	14.79	14.91	14.81	14.79	14.91
20.0	QPSK	RB1#0	16.51	16.95	16.98	16.51	16.95	16.98
		RB1#50	16.40	17.01	17.13	16.40	17.01	17.13
		RB1#99	16.67	16.95	16.72	16.67	16.95	16.72
		RB50#0	15.68	15.89	15.88	15.68	15.89	15.88
		RB50#50	15.69	15.67	15.75	15.69	15.67	15.75
		RB100#0	15.77	15.74	15.77	15.77	15.74	15.77
	16QAM	RB1#0	15.60	16.14	16.63	15.60	16.14	16.63
		RB1#50	15.92	16.23	16.43	15.92	16.23	16.43
		RB1#99	15.50	16.30	16.02	15.50	16.30	16.02
		RB50#0	14.69	15.02	14.80	14.69	15.02	14.80
		RB50#50	14.85	14.71	14.79	14.85	14.71	14.79
		RB100#0	14.69	14.78	14.76	14.69	14.78	14.76

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi) - Cable loss(dB)
For Band2: Antenna Gain = 0.8dBi
Cable Loss=0.8dB*(provided by the applicant)
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)	4.58	4.49	4.52	13	Pass
QPSK (100RB Size)	5.38	5.35	5.32	13	Pass
16QAM (1RB Size)	5.42	5.42	5.51	13	Pass
16QAM (100RB Size)	6.38	6.19	6.25	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	17.33	17.21	17.08	17.33	17.21	17.08
		RB1#3	17.35	17.31	17.06	17.35	17.31	17.06
		RB1#5	17.36	17.27	17.17	17.36	17.27	17.17
		RB3#0	17.24	17.30	17.08	17.24	17.30	17.08
		RB3#3	17.14	17.26	17.16	17.14	17.26	17.16
		RB6#0	16.23	16.24	16.01	16.23	16.24	16.01
	16QAM	RB1#0	16.19	16.47	16.19	16.19	16.47	16.19
		RB1#3	16.09	16.40	16.09	16.09	16.40	16.09
		RB1#5	15.89	16.25	16.04	15.89	16.25	16.04
		RB3#0	16.10	16.15	15.82	16.10	16.15	15.82
		RB3#3	16.26	16.20	15.86	16.26	16.20	15.86
		RB6#0	15.17	15.32	15.12	15.17	15.32	15.12
3.0	QPSK	RB1#0	17.23	17.33	17.18	17.23	17.33	17.18
		RB1#8	17.24	16.94	16.99	17.24	16.94	16.99
		RB1#14	17.32	16.99	16.98	17.32	16.99	16.98
		RB6#0	16.24	16.27	16.18	16.24	16.27	16.18
		RB6#9	16.23	16.07	16.22	16.23	16.07	16.22
		RB15#0	16.27	16.30	16.25	16.27	16.30	16.25
	16QAM	RB1#0	16.42	16.51	15.90	16.42	16.51	15.90
		RB1#8	16.21	16.11	15.53	16.21	16.11	15.53
		RB1#14	16.33	16.43	15.57	16.33	16.43	15.57
		RB6#0	15.23	15.51	15.17	15.23	15.51	15.17
		RB6#9	15.23	15.34	15.21	15.23	15.34	15.21
		RB15#0	15.26	15.41	15.41	15.26	15.41	15.41

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	16.94	17.20	17.05	16.94	17.20	17.05
		RB1#13	17.18	16.98	17.21	17.18	16.98	17.21
		RB1#24	16.95	17.13	16.93	16.95	17.13	16.93
		RB15#0	16.25	16.27	16.21	16.25	16.27	16.21
		RB15#10	16.27	16.20	16.19	16.27	16.20	16.19
		RB25#0	16.28	16.25	16.21	16.28	16.25	16.21
	16QAM	RB1#0	15.52	16.39	16.14	15.52	16.39	16.14
		RB1#13	15.30	15.74	16.12	15.30	15.74	16.12
		RB1#24	15.50	15.96	15.75	15.50	15.96	15.75
		RB15#0	15.00	15.46	14.93	15.00	15.46	14.93
		RB15#10	15.21	15.18	15.20	15.21	15.18	15.20
		RB25#0	15.35	15.47	15.15	15.35	15.47	15.15
10.0	QPSK	RB1#0	17.37	17.42	17.13	17.37	17.42	17.13
		RB1#25	17.22	17.38	17.05	17.22	17.38	17.05
		RB1#49	17.41	17.07	17.20	17.41	17.07	17.20
		RB25#0	16.23	16.41	16.15	16.23	16.41	16.15
		RB25#25	16.20	16.15	16.31	16.20	16.15	16.31
		RB50#0	16.28	16.28	16.25	16.28	16.28	16.25
	16QAM	RB1#0	16.63	16.43	16.25	16.63	16.43	16.25
		RB1#25	16.60	16.26	16.17	16.60	16.26	16.17
		RB1#49	16.40	16.24	16.13	16.40	16.24	16.13
		RB25#0	15.28	15.57	15.16	15.28	15.57	15.16
		RB25#25	15.16	15.20	15.20	15.16	15.20	15.20
		RB50#0	15.20	15.32	15.19	15.20	15.32	15.19

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	17.35	17.40	17.25	17.35	17.40	17.25
		RB1#38	17.18	17.03	16.97	17.18	17.03	16.97
		RB1#74	17.26	17.02	17.15	17.26	17.02	17.15
		RB36#0	16.40	16.23	16.21	16.40	16.23	16.21
		RB36#39	16.34	16.12	16.13	16.34	16.12	16.13
		RB75#0	16.30	16.30	16.17	16.30	16.30	16.17
	16QAM	RB1#0	16.45	16.85	16.33	16.45	16.85	16.33
		RB1#38	16.28	16.27	15.82	16.28	16.27	15.82
		RB1#74	16.34	16.10	16.42	16.34	16.10	16.42
		RB36#0	15.34	15.77	15.22	15.34	15.77	15.22
		RB36#39	15.25	15.16	15.14	15.25	15.16	15.14
		RB75#0	15.15	15.39	15.10	15.15	15.39	15.10
20.0	QPSK	RB1#0	17.29	17.37	17.31	17.29	17.37	17.31
		RB1#50	17.19	17.45	17.30	17.19	17.45	17.30
		RB1#99	17.41	17.17	17.33	17.41	17.17	17.33
		RB50#0	16.25	16.38	16.28	16.25	16.38	16.28
		RB50#50	16.31	16.10	16.26	16.31	16.10	16.26
		RB100#0	16.29	16.32	16.32	16.29	16.32	16.32
	16QAM	RB1#0	16.59	16.79	16.61	16.59	16.79	16.61
		RB1#50	15.78	16.50	16.60	15.78	16.50	16.60
		RB1#99	16.49	15.68	16.68	16.49	15.68	16.68
		RB50#0	15.30	15.50	15.29	15.30	15.50	15.29
		RB50#50	15.42	15.02	15.08	15.42	15.02	15.08
		RB100#0	15.23	15.23	15.25	15.23	15.23	15.25

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi) - Cable loss(dB)
For Band4: Antenna Gain = 0.8dBi
Cable Loss=0.8dB*(provided by the applicant)
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)	4.62	4.62	4.58	13	Pass
QPSK (100RB Size)	5.29	5.22	5.42	13	Pass
16QAM (1RB Size)	5.61	5.54	5.51	13	Pass
16QAM (100RB Size)	6.19	6.15	6.22	13	Pass

LTE Band 5& LTE Band 26(Part 22H):

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	23.07	23.05	22.89	20.92	20.90	20.74
		RB1#3	23.33	23.19	22.98	21.18	21.04	20.83
		RB1#5	23.20	23.16	22.92	21.05	21.01	20.77
		RB3#0	23.13	23.27	22.97	20.98	21.12	20.82
		RB3#3	23.07	23.11	22.96	20.92	20.96	20.81
		RB6#0	22.11	22.26	22.11	19.96	20.11	19.96
	16QAM	RB1#0	22.30	22.64	22.18	20.15	20.49	20.03
		RB1#3	22.43	22.99	22.10	20.28	20.84	19.95
		RB1#5	22.51	22.83	21.75	20.36	20.68	19.60
		RB3#0	22.37	22.26	21.99	20.22	20.11	19.84
		RB3#3	22.39	22.26	22.07	20.24	20.11	19.92
		RB6#0	21.25	21.54	21.05	19.10	19.39	18.90
3.0	QPSK	RB1#0	22.96	23.29	22.99	20.81	21.14	20.84
		RB1#8	23.09	23.08	23.04	20.94	20.93	20.89
		RB1#14	23.07	23.10	23.00	20.92	20.95	20.85
		RB6#0	22.23	22.37	22.18	20.08	20.22	20.03
		RB6#9	22.00	22.21	22.16	19.85	20.06	20.01
		RB15#0	22.22	22.33	22.18	20.07	20.18	20.03
	16QAM	RB1#0	22.72	22.76	21.79	20.57	20.61	19.64
		RB1#8	22.18	22.81	21.57	20.03	20.66	19.42
		RB1#14	22.12	22.52	21.69	19.97	20.37	19.54
		RB6#0	21.06	21.55	21.21	18.91	19.40	19.06
		RB6#9	21.14	21.33	21.11	18.99	19.18	18.96
		RB15#0	21.37	21.45	21.23	19.22	19.30	19.08

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	22.89	23.27	23.06	20.74	21.12	20.91
		RB1#13	23.06	23.25	22.98	20.91	21.10	20.83
		RB1#24	23.18	23.30	22.99	21.03	21.15	20.84
		RB15#0	22.19	22.38	22.25	20.04	20.23	20.10
		RB15#10	22.11	22.23	22.13	19.96	20.08	19.98
		RB25#0	22.20	22.40	22.17	20.05	20.25	20.02
	16QAM	RB1#0	21.40	21.99	21.69	19.25	19.84	19.54
		RB1#13	21.23	22.03	21.63	19.08	19.88	19.48
		RB1#24	21.28	22.02	21.76	19.13	19.87	19.61
		RB15#0	21.06	21.16	21.13	18.91	19.01	18.98
		RB15#10	21.14	21.01	21.14	18.99	18.86	18.99
		RB25#0	21.17	21.10	21.17	19.02	18.95	19.02
10.0	QPSK	RB1#0	23.16	23.23	23.10	21.01	21.08	20.95
		RB1#25	23.23	23.23	23.45	21.08	21.08	21.30
		RB1#49	23.13	23.08	23.07	20.98	20.93	20.92
		RB25#0	22.21	22.35	22.40	20.06	20.20	20.25
		RB25#25	22.18	22.23	22.30	20.03	20.08	20.15
		RB50#0	22.33	22.32	22.31	20.18	20.17	20.16
	16QAM	RB1#0	22.19	22.45	21.86	20.04	20.30	19.71
		RB1#25	22.66	22.39	22.33	20.51	20.24	20.18
		RB1#49	22.45	22.42	22.19	20.30	20.27	20.04
		RB25#0	21.16	21.36	21.47	19.01	19.21	19.32
		RB25#25	21.20	21.22	21.26	19.05	19.07	19.11
		RB50#0	21.25	21.31	21.42	19.10	19.16	19.27

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
15	QPSK	RB1#0	22.04	22.27	22.21	19.89	20.12	20.06
		RB1#38	21.97	22.13	21.96	19.82	19.98	19.81
		RB1#74	22.19	22.27	21.94	20.04	20.12	19.79
		RB36#0	21.11	21.40	21.37	18.96	19.25	19.22
		RB36#39	21.23	21.38	21.21	19.08	19.23	19.06
		RB75#0	21.26	21.29	21.29	19.11	19.14	19.14
	16QAM	RB1#0	21.21	21.62	21.85	19.06	19.47	19.70
		RB1#38	21.05	21.14	21.36	18.90	18.99	19.21
		RB1#74	21.49	21.61	21.90	19.34	19.46	19.75
		RB36#0	20.18	20.30	20.26	18.03	18.15	18.11
		RB36#39	20.27	20.18	20.21	18.12	18.03	18.06
		RB75#0	20.04	20.22	20.17	17.89	18.07	18.02

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd) - Cable loss(dB)
For Band5: Antenna Gain =-0.5dBi = -1.65dBd (0dBd=2.15dBi)
Cable Loss=0.5dB*(provided by the applicant)
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)	4.65	4.84	4.39	13	Pass
QPSK (50RB Size)	5.58	5.29	5.45	13	Pass
16QAM (1RB Size)	5.61	5.80	5.35	13	Pass
16QAM (50RB Size)	6.35	6.19	6.25	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	17.04	16.40	16.59	17.04	16.40	16.59
		RB1#13	16.44	16.05	16.04	16.44	16.05	16.04
		RB1#24	16.94	16.64	16.56	16.94	16.64	16.56
		RB15#0	16.44	15.89	15.75	16.44	15.89	15.75
		RB15#10	16.32	16.00	15.76	16.32	16.00	15.76
		RB25#0	16.62	16.11	15.88	16.62	16.11	15.88
	16QAM	RB1#0	16.98	16.53	16.16	16.98	16.53	16.16
		RB1#13	16.35	16.18	15.71	16.35	16.18	15.71
		RB1#24	16.85	16.85	16.19	16.85	16.85	16.19
		RB15#0	15.50	14.96	14.81	15.50	14.96	14.81
		RB15#10	15.40	15.07	14.82	15.40	15.07	14.82
		RB25#0	15.69	15.16	14.95	15.69	15.16	14.95
10.0	QPSK	RB1#0	16.79	17.00	17.16	16.79	17.00	17.16
		RB1#25	16.57	17.33	16.78	16.57	17.33	16.78
		RB1#49	16.64	17.42	16.62	16.64	17.42	16.62
		RB25#0	15.72	16.03	15.74	15.72	16.03	15.74
		RB25#25	15.65	16.09	15.73	15.65	16.09	15.73
		RB50#0	15.78	15.99	15.82	15.78	15.99	15.82
	16QAM	RB1#0	15.87	16.24	16.00	15.87	16.24	16.00
		RB1#25	15.80	16.81	15.73	15.80	16.81	15.73
		RB1#49	15.58	17.08	15.70	15.58	17.08	15.70
		RB25#0	14.90	15.11	14.87	14.90	15.11	14.87
		RB25#25	14.87	15.03	14.78	14.87	15.03	14.78
		RB50#0	14.82	15.02	14.62	14.82	15.02	14.62

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	17.01	16.91	17.12	17.01	16.91	17.12
		RB1#38	16.76	17.06	16.53	16.76	17.06	16.53
		RB1#74	16.67	17.43	16.77	16.67	17.43	16.77
		RB36#0	15.72	15.80	15.90	15.72	15.80	15.90
		RB36#39	15.41	15.74	15.83	15.41	15.74	15.83
		RB75#0	15.56	15.77	15.90	15.56	15.77	15.90
	16QAM	RB1#0	15.81	16.05	16.22	15.81	16.05	16.22
		RB1#38	15.56	16.02	15.99	15.56	16.02	15.99
		RB1#74	15.51	16.84	15.70	15.51	16.84	15.70
		RB36#0	15.00	14.78	14.95	15.00	14.78	14.95
		RB36#39	14.73	15.25	14.82	14.73	15.25	14.82
		RB75#0	14.81	14.92	14.87	14.81	14.92	14.87
20.0	QPSK	RB1#0	17.04	16.84	17.67	17.04	16.84	17.67
		RB1#50	16.89	17.22	16.84	16.89	17.22	16.84
		RB1#99	16.50	17.23	16.48	16.50	17.23	16.48
		RB50#0	15.90	15.80	16.09	15.90	15.80	16.09
		RB50#50	15.46	15.78	15.65	15.46	15.78	15.65
		RB100#0	15.73	15.93	15.89	15.73	15.93	15.89
	16QAM	RB1#0	15.73	15.67	16.58	15.73	15.67	16.58
		RB1#50	15.56	16.24	16.37	15.56	16.24	16.37
		RB1#99	15.28	16.50	16.07	15.28	16.50	16.07
		RB50#0	14.97	14.69	15.07	14.97	14.69	15.07
		RB50#50	14.61	15.27	14.83	14.61	15.27	14.83
		RB100#0	14.75	15.07	14.91	14.75	15.07	14.91

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi) - Cable loss(dB)
For Band7: Antenna Gain = 0.8dBi
Cable Loss=0.8dB*(provided by the applicant)
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)	4.65	4.71	4.49	13	Pass
QPSK (100RB Size)	5.35	5.48	5.32	13	Pass
16QAM (1RB Size)	5.54	5.61	5.38	13	Pass
16QAM (100RB Size)	6.28	6.38	6.15	13	Pass

LTE Band 12:

Maximum Output Power

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
1.4	QPSK	RB1#0	22.90	22.86	22.81	20.75	20.71	20.66
		RB1#3	23.03	22.80	22.88	20.88	20.65	20.73
		RB1#5	22.98	22.79	22.82	20.83	20.64	20.67
		RB3#0	22.93	22.84	22.76	20.78	20.69	20.61
		RB3#3	22.83	22.88	22.93	20.68	20.73	20.78
		RB6#0	21.82	21.90	21.92	19.67	19.75	19.77
	16QAM	RB1#0	21.72	22.03	21.37	19.57	19.88	19.22
		RB1#3	21.88	22.73	21.26	19.73	20.58	19.11
		RB1#5	22.07	22.69	21.28	19.92	20.54	19.13
		RB3#0	21.49	21.66	21.58	19.34	19.51	19.43
		RB3#3	21.57	21.71	21.50	19.42	19.56	19.35
		RB6#0	20.91	20.97	20.81	18.76	18.82	18.66
3.0	QPSK	RB1#0	22.72	22.87	22.82	20.57	20.72	20.67
		RB1#8	22.86	22.80	22.71	20.71	20.65	20.56
		RB1#14	22.86	22.89	22.88	20.71	20.74	20.73
		RB6#0	21.90	21.86	21.86	19.75	19.71	19.71
		RB6#9	21.80	21.85	21.97	19.65	19.70	19.82
		RB15#0	21.80	21.90	21.91	19.65	19.75	19.76
	16QAM	RB1#0	21.87	21.97	21.55	19.72	19.82	19.40
		RB1#8	21.71	21.95	21.29	19.56	19.80	19.14
		RB1#14	21.75	21.87	21.56	19.60	19.72	19.41
		RB6#0	20.76	21.12	20.86	18.61	18.97	18.71
		RB6#9	20.60	21.34	20.96	18.45	19.19	18.81
		RB15#0	20.86	21.22	20.78	18.71	19.07	18.63

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	22.82	23.16	22.99	20.67	21.01	20.84
		RB1#13	22.62	22.89	22.72	20.47	20.74	20.57
		RB1#24	22.79	23.07	22.86	20.64	20.92	20.71
		RB15#0	21.79	21.93	21.94	19.64	19.78	19.79
		RB15#10	21.87	21.95	21.84	19.72	19.80	19.69
		RB25#0	21.84	22.02	21.85	19.69	19.87	19.70
	16QAM	RB1#0	21.16	21.82	21.82	19.01	19.67	19.67
		RB1#13	21.09	21.85	21.69	18.94	19.70	19.54
		RB1#24	21.23	22.17	21.88	19.08	20.02	19.73
		RB15#0	20.66	20.94	20.87	18.51	18.79	18.72
		RB15#10	20.75	20.84	20.79	18.60	18.69	18.64
		RB25#0	20.82	20.95	20.89	18.67	18.80	18.74
10.0	QPSK	RB1#0	22.99	22.94	22.96	20.84	20.79	20.81
		RB1#25	23.11	23.22	22.95	20.96	21.07	20.80
		RB1#49	23.02	23.01	22.97	20.87	20.86	20.82
		RB25#0	21.76	22.04	22.15	19.61	19.89	20.00
		RB25#25	21.91	21.81	21.86	19.76	19.66	19.71
		RB50#0	21.90	21.98	21.97	19.75	19.83	19.82
	16QAM	RB1#0	21.84	21.96	21.35	19.69	19.81	19.20
		RB1#25	22.00	22.06	21.82	19.85	19.91	19.67
		RB1#49	22.01	21.87	21.35	19.86	19.72	19.20
		RB25#0	20.73	20.99	21.07	18.58	18.84	18.92
		RB25#25	20.88	20.75	21.10	18.73	18.60	18.95
		RB50#0	20.84	21.05	20.85	18.69	18.90	18.70

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd) - Cable Loss(dB)
For Band12: Antenna Gain =-0.5dBi = -1.65dBd (0dBd=2.15dBi)
Cable Loss=0.5dB* (provided by the applicant)
Limit: ERP≤34.77dBm

Peak-to-average ratio (PAR)

10MHz bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	5.06	5.00	5.06	13	Pass
QPSK (50RB Size)	5.67	5.71	5.64	13	Pass
16QAM (1RB Size)	6.12	6.03	6.06	13	Pass
16QAM (50RB Size)	6.63	6.63	6.60	13	Pass

LTE Band 13:

Maximum Output Power

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
5	QPSK	RB1#0	22.69	22.88	22.63	20.54	20.73	20.48
		RB1#13	22.71	22.91	22.79	20.56	20.76	20.64
		RB1#24	22.62	22.70	22.62	20.47	20.55	20.47
		RB15#0	21.83	21.89	21.91	19.68	19.74	19.76
		RB15#10	21.80	21.74	21.81	19.65	19.59	19.66
		RB25#0	21.80	21.91	21.97	19.65	19.76	19.82
	16QAM	RB1#0	20.88	22.04	21.41	18.73	19.89	19.26
		RB1#13	20.90	21.96	21.86	18.75	19.81	19.71
		RB1#24	21.12	22.02	21.77	18.97	19.87	19.62
		RB15#0	20.92	20.81	20.87	18.77	18.66	18.72
		RB15#10	20.79	20.65	20.66	18.64	18.50	18.51
		RB25#0	20.91	20.75	20.84	18.76	18.60	18.69
10	QPSK	RB1#0	/	22.93	/	/	20.78	/
		RB1#25	/	22.86	/	/	20.71	/
		RB1#49	/	22.77	/	/	20.62	/
		RB25#0	/	21.84	/	/	19.69	/
		RB25#25	/	21.79	/	/	19.64	/
		RB50#0	/	21.82	/	/	19.67	/
	16QAM	RB1#0	/	22.02	/	/	19.87	/
		RB1#25	/	22.04	/	/	19.89	/
		RB1#49	/	21.61	/	/	19.46	/
		RB25#0	/	20.81	/	/	18.66	/
		RB25#25	/	20.73	/	/	18.58	/
		RB50#0	/	20.88	/	/	18.73	/

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd) - Cable Loss(dB)
For Band13: Antenna Gain = 0.5dBi = -1.65dBd (0dBd=2.15dBi)
Cable Loss=0.5dB* (provided by the applicant)
Limit: ERP≤34.77dBm

Peak-to-average ratio (PAR)

10MHz bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	/	4.23	/	13	Pass
QPSK (50RB Size)	/	5.42	/	13	Pass
16QAM (1RB Size)	/	5.51	/	13	Pass
16QAM (50RB Size)	/	6.31	/	13	Pass

LTE Band 25:

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	16.62	16.55	16.60	16.62	16.55	16.60
		RB1#3	16.75	16.71	16.53	16.75	16.71	16.53
		RB1#5	16.33	16.46	16.50	16.33	16.46	16.50
		RB3#0	16.55	16.51	16.54	16.55	16.51	16.54
		RB3#3	16.48	16.53	16.50	16.48	16.53	16.50
		RB6#0	15.48	15.73	15.49	15.48	15.73	15.49
	16QAM	RB1#0	15.38	15.55	14.95	15.38	15.55	14.95
		RB1#3	15.83	16.63	14.98	15.83	16.63	14.98
		RB1#5	15.72	16.71	15.25	15.72	16.71	15.25
		RB3#0	15.18	15.55	15.39	15.18	15.55	15.39
		RB3#3	15.25	15.87	15.41	15.25	15.87	15.41
		RB6#0	14.44	14.65	14.38	14.44	14.65	14.38
3.0	QPSK	RB1#0	16.56	16.46	16.37	16.56	16.46	16.37
		RB1#8	16.18	16.64	16.56	16.18	16.64	16.56
		RB1#14	16.33	16.48	16.50	16.33	16.48	16.50
		RB6#0	15.41	15.45	15.63	15.41	15.45	15.63
		RB6#9	15.56	15.54	15.56	15.56	15.54	15.56
		RB15#0	15.52	15.35	15.57	15.52	15.35	15.57
	16QAM	RB1#0	15.54	16.39	15.15	15.54	16.39	15.15
		RB1#8	15.31	16.35	15.34	15.31	16.35	15.34
		RB1#14	15.19	15.61	15.30	15.19	15.61	15.30
		RB6#0	14.26	14.78	14.71	14.26	14.78	14.71
		RB6#9	14.66	14.66	14.82	14.66	14.66	14.82
		RB15#0	14.46	14.82	14.43	14.46	14.82	14.43

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	16.48	16.74	16.69	16.48	16.74	16.69
		RB1#13	16.30	16.80	16.71	16.30	16.80	16.71
		RB1#24	16.50	17.19	16.59	16.50	17.19	16.59
		RB15#0	15.70	15.71	15.79	15.70	15.71	15.79
		RB15#10	15.85	15.91	15.68	15.85	15.91	15.68
		RB25#0	15.72	15.66	15.77	15.72	15.66	15.77
	16QAM	RB1#0	14.66	15.92	15.59	14.66	15.92	15.59
		RB1#13	14.84	15.54	15.42	14.84	15.54	15.42
		RB1#24	14.76	16.03	15.66	14.76	16.03	15.66
		RB15#0	14.78	14.44	14.67	14.78	14.44	14.67
		RB15#10	14.56	14.76	14.60	14.56	14.76	14.60
		RB25#0	14.69	14.37	14.74	14.69	14.37	14.74
10.0	QPSK	RB1#0	17.05	16.73	16.95	17.05	16.73	16.95
		RB1#25	17.08	16.77	16.61	17.08	16.77	16.61
		RB1#49	16.99	16.65	16.76	16.99	16.65	16.76
		RB25#0	15.84	15.77	15.77	15.84	15.77	15.77
		RB25#25	15.70	15.74	15.64	15.70	15.74	15.64
		RB50#0	15.61	15.80	15.68	15.61	15.80	15.68
	16QAM	RB1#0	16.16	15.92	15.36	16.16	15.92	15.36
		RB1#25	15.78	15.91	15.69	15.78	15.91	15.69
		RB1#49	15.58	16.00	15.52	15.58	16.00	15.52
		RB25#0	14.72	14.65	14.91	14.72	14.65	14.91
		RB25#25	14.60	14.83	14.82	14.60	14.83	14.82
		RB50#0	14.69	15.00	14.60	14.69	15.00	14.60

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	16.41	16.65	16.82	16.41	16.65	16.82
		RB1#38	16.29	16.45	16.42	16.29	16.45	16.42
		RB1#74	16.25	16.46	16.38	16.25	16.46	16.38
		RB36#0	15.46	15.45	15.72	15.46	15.45	15.72
		RB36#39	15.32	15.55	15.37	15.32	15.55	15.37
		RB75#0	15.43	15.36	15.38	15.43	15.36	15.38
	16QAM	RB1#0	15.41	16.35	16.00	15.41	16.35	16.00
		RB1#38	15.39	16.34	15.26	15.39	16.34	15.26
		RB1#74	15.52	16.63	15.30	15.52	16.63	15.30
		RB36#0	14.58	14.73	14.57	14.58	14.73	14.57
		RB36#39	14.44	14.61	14.33	14.44	14.61	14.33
		RB75#0	14.48	14.41	14.42	14.48	14.41	14.42
20.0	QPSK	RB1#0	16.63	16.27	16.52	16.63	16.27	16.52
		RB1#50	16.67	16.55	16.27	16.67	16.55	16.27
		RB1#99	16.46	16.36	16.09	16.46	16.36	16.09
		RB50#0	15.18	15.23	15.36	15.18	15.23	15.36
		RB50#50	15.07	15.21	15.00	15.07	15.21	15.00
		RB100#0	15.30	15.11	15.31	15.30	15.11	15.31
	16QAM	RB1#0	15.24	15.60	15.81	15.24	15.60	15.81
		RB1#50	14.64	15.47	15.57	14.64	15.47	15.57
		RB1#99	15.40	15.26	15.52	15.40	15.26	15.52
		RB50#0	14.24	14.02	14.26	14.24	14.02	14.26
		RB50#50	13.99	14.23	13.96	13.99	14.23	13.96
		RB100#0	14.02	14.05	14.48	14.02	14.05	14.48

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi) - Cable Loss(dB)
For Band25: Antenna Gain = 0.8dBi
Cable Loss=0.8dB*(provided by the applicant)
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)	4.62	4.62	4.62	13	Pass
QPSK (100RB Size)	5.35	5.38	5.38	13	Pass
16QAM (1RB Size)	5.58	5.51	5.61	13	Pass
16QAM (100RB Size)	6.25	6.25	6.22	13	Pass

LTE Band 26(Part 90S)

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	22.28	22.43	22.08	20.13	20.28	19.93
		RB1#3	22.14	22.49	22.19	19.99	20.34	20.04
		RB1#5	22.10	22.40	22.01	19.95	20.25	19.86
		RB3#0	22.05	22.44	22.17	19.90	20.29	20.02
		RB3#3	22.01	22.40	22.11	19.86	20.25	19.96
		RB6#0	21.07	21.35	21.13	18.92	19.20	18.98
	16QAM	RB1#0	21.37	21.35	21.22	19.22	19.20	19.07
		RB1#3	21.69	22.02	21.22	19.54	19.87	19.07
		RB1#5	21.39	22.09	20.65	19.24	19.94	18.50
		RB3#0	21.30	21.39	20.89	19.15	19.24	18.74
		RB3#3	21.31	21.36	20.74	19.16	19.21	18.59
		RB6#0	20.12	20.50	20.23	17.97	18.35	18.08
3.0	QPSK	RB1#0	22.13	22.42	22.04	19.98	20.27	19.89
		RB1#8	21.97	22.31	21.82	19.82	20.16	19.67
		RB1#14	22.08	22.32	21.82	19.93	20.17	19.67
		RB6#0	21.05	21.27	21.17	18.90	19.12	19.02
		RB6#9	21.11	21.28	21.03	18.96	19.13	18.88
		RB15#0	21.04	21.23	21.28	18.89	19.08	19.13
	16QAM	RB1#0	21.41	21.62	20.67	19.26	19.47	18.52
		RB1#8	21.48	21.73	20.71	19.33	19.58	18.56
		RB1#14	21.07	21.94	20.35	18.92	19.79	18.20
		RB6#0	20.02	20.31	20.26	17.87	18.16	18.11
		RB6#9	20.18	20.34	19.98	18.03	18.19	17.83
		RB15#0	19.93	20.14	20.12	17.78	17.99	17.97

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	21.72	22.30	21.86	19.57	20.15	19.71
		RB1#13	21.95	22.17	21.89	19.80	20.02	19.74
		RB1#24	21.97	22.25	21.96	19.82	20.10	19.81
		RB15#0	21.14	21.23	21.11	18.99	19.08	18.96
		RB15#10	21.17	21.31	21.19	19.02	19.16	19.04
		RB25#0	21.04	21.28	21.24	18.89	19.13	19.09
	16QAM	RB1#0	20.61	21.05	21.23	18.46	18.90	19.08
		RB1#13	20.37	20.82	21.07	18.22	18.67	18.92
		RB1#24	20.43	21.30	20.62	18.28	19.15	18.47
		RB15#0	19.91	20.06	20.06	17.76	17.91	17.91
		RB15#10	20.03	20.05	20.08	17.88	17.90	17.93
		RB25#0	20.10	20.10	20.10	17.95	17.95	17.95
10.0	QPSK	RB1#0	/	22.24	/	/	20.09	/
		RB1#25	/	22.34	/	/	20.19	/
		RB1#49	/	22.14	/	/	19.99	/
		RB25#0	/	21.23	/	/	19.08	/
		RB25#25	/	21.32	/	/	19.17	/
		RB50#0	/	21.24	/	/	19.09	/
	16QAM	RB1#0	/	21.28	/	/	19.13	/
		RB1#25	/	21.23	/	/	19.08	/
		RB1#49	/	22.05	/	/	19.90	/
		RB25#0	/	20.12	/	/	17.97	/
		RB25#25	/	20.46	/	/	18.31	/
		RB50#0	/	20.18	/	/	18.03	/

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd) - Cable Loss(dB)
For Band26: Antenna Gain =0.5dBi* = -1.65dBd (0dBd=2.15dBi)(provided by the applicant)
Cable Loss=0.5 dB*(provided by the applicant)
Limit: EIRP≤50dBm

Peak-to-average ratio (PAR)

10MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	/	4.46	/	13	Pass
QPSK (50RB Size)	/	5.06	/	13	Pass
16QAM (1RB Size)	/	5.26	/	13	Pass
16QAM (50RB Size)	/	5.99	/	13	Pass

FCC §2.1049, §22.917, §22.905 & §24.238 & §27.53, §90.209- OCCUPIED BANDWIDTH

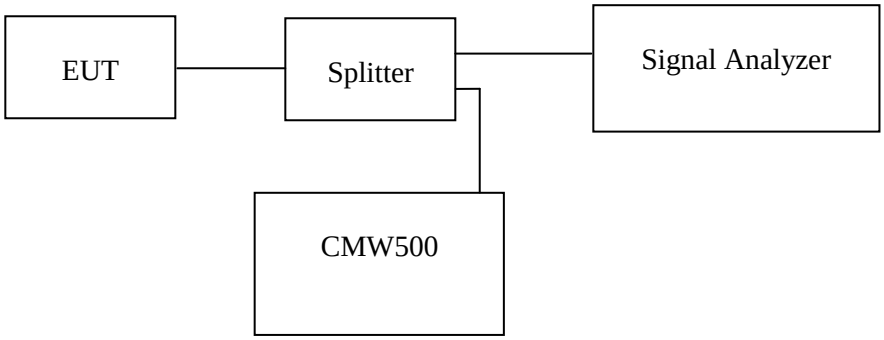
Applicable Standard

FCC 47 §2.1049, §22.917, §22.905, §24.238, §27.53 and §90.209.

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:	28.2~29.0 ℃
Relative Humidity:	44~56 %
ATM Pressure:	101.0 kPa

The testing was performed by Black Ding from 2021-11-03 to 2021-11-12.

EUT operation mode: Transmitting

Test Result: Pass

Cellular Band (Part 22H)

Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GPRS	128	824.2	243.51	317.40
	190	836.6	243.51	319.40
	251	848.8	243.51	319.40
EGPRS	128	824.2	245.51	313.40
	190	836.6	243.51	313.40
	251	848.8	245.51	313.40

Frequency (MHz)		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	826.4	4.16	4.74
	836.6	4.14	4.71
	846.6	4.16	4.73
HSDPA	826.4	4.18	4.82
	836.6	4.14	4.71
	846.6	4.18	4.73
HSUPA	826.4	4.16	4.71
	836.6	4.14	4.73
	846.6	4.16	5.08

PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GPRS	512	1850.2	241.68	316.90
	661	1880.0	241.68	314.00
	810	1909.8	241.68	321.30
EGPRS	512	1850.2	240.23	314.00
	661	1880.0	241.68	314.00
	810	1909.8	241.68	312.60

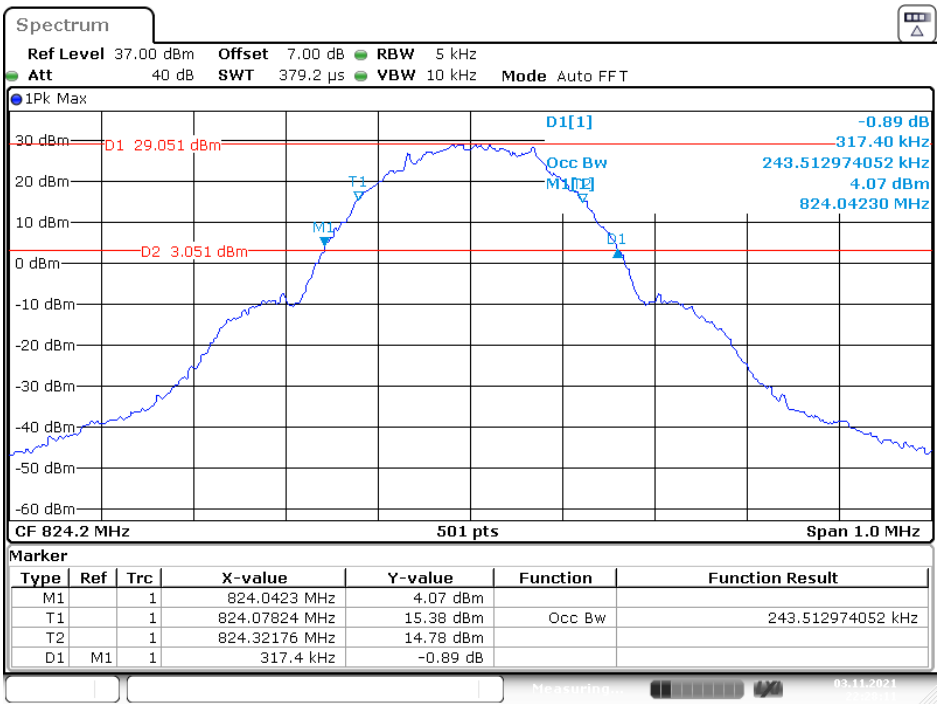
Frequency (MHz)		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	1852.4	4.16	4.74
	1880.0	4.16	4.74
	1907.6	4.16	4.72
HSDPA	1852.4	4.18	4.75
	1880.0	4.18	4.75
	1907.6	4.18	4.72
HSUPA	1852.4	4.16	4.74
	1880.0	4.16	4.76
	1907.6	4.18	4.75

AWS Band (Part 27)

Frequency (MHz)		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	1852.4	4.16	4.71
	1880.0	4.16	4.73
	1907.6	4.16	4.74
HSDPA	1852.4	4.20	4.73
	1880.0	4.18	4.75
	1907.6	4.20	4.75
HSUPA	1852.4	4.16	4.76
	1880.0	4.16	4.73
	1907.6	4.18	4.74

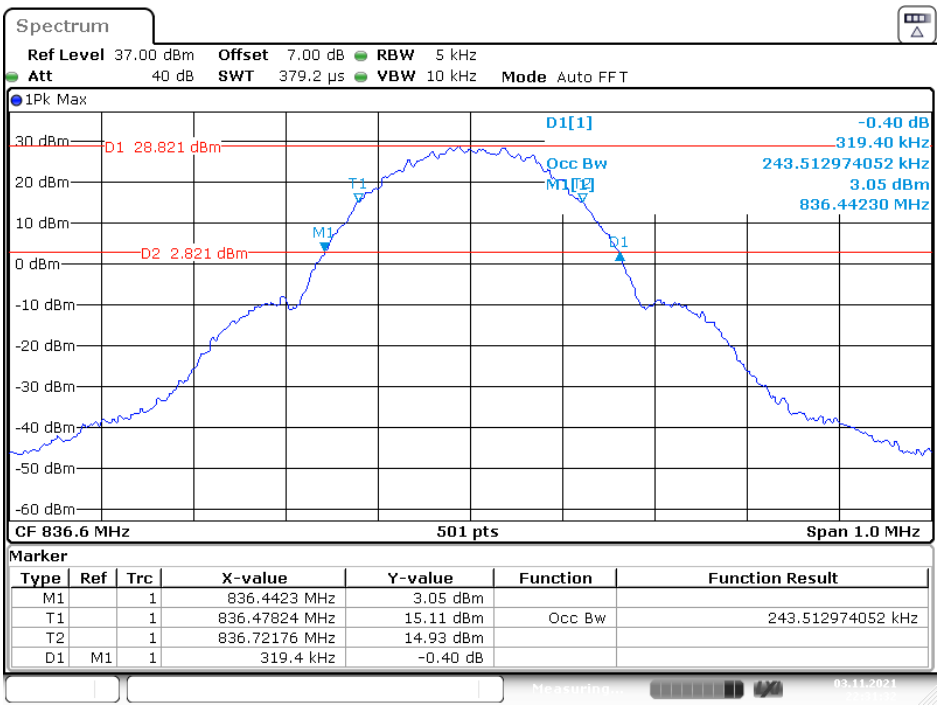
Cellular Band (Part 22H)

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



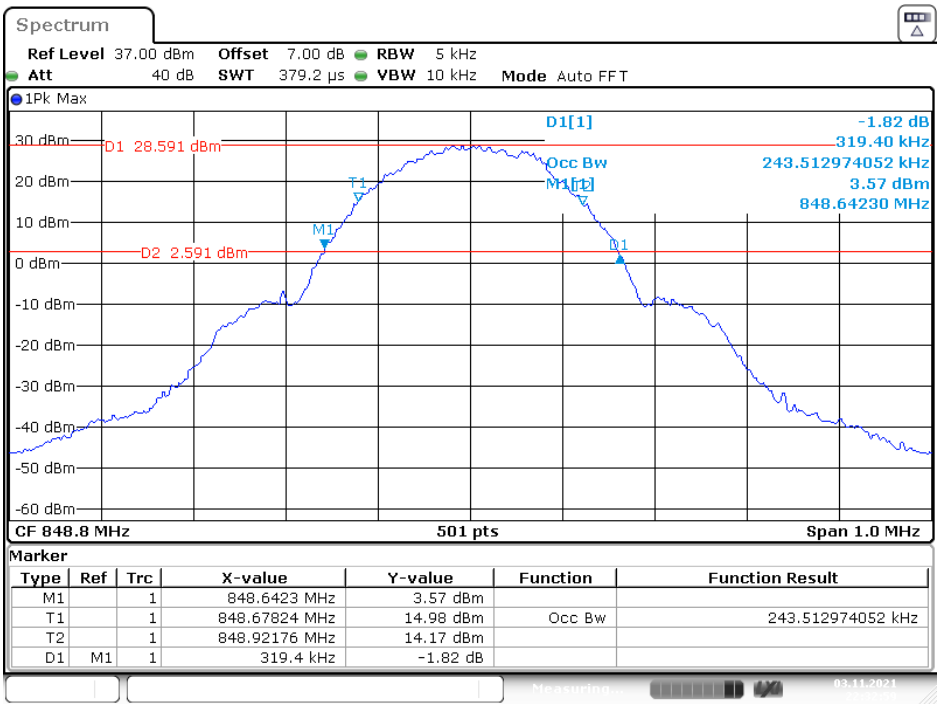
Date: 3.NOV.2021 22:28:12

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



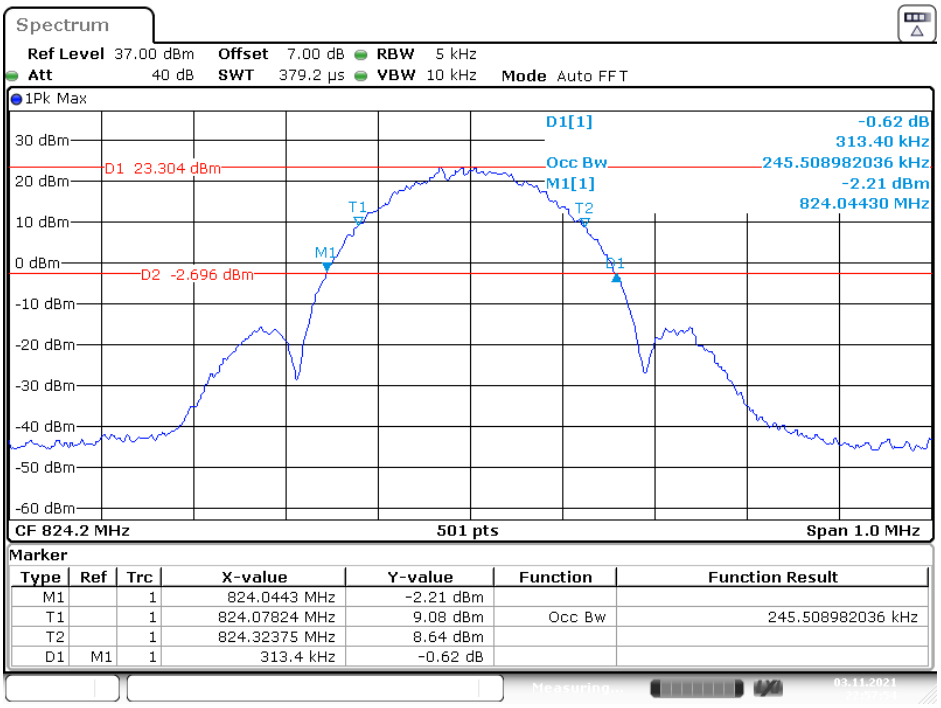
Date: 3.NOV.2021 22:31:32

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



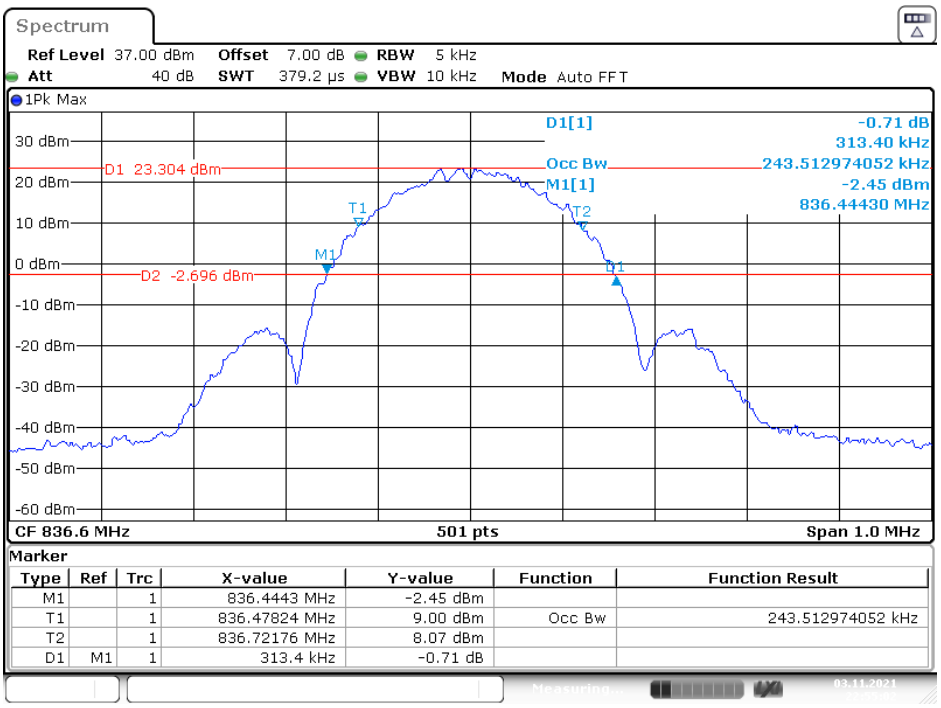
Date: 3.NOV.2021 22:33:00

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



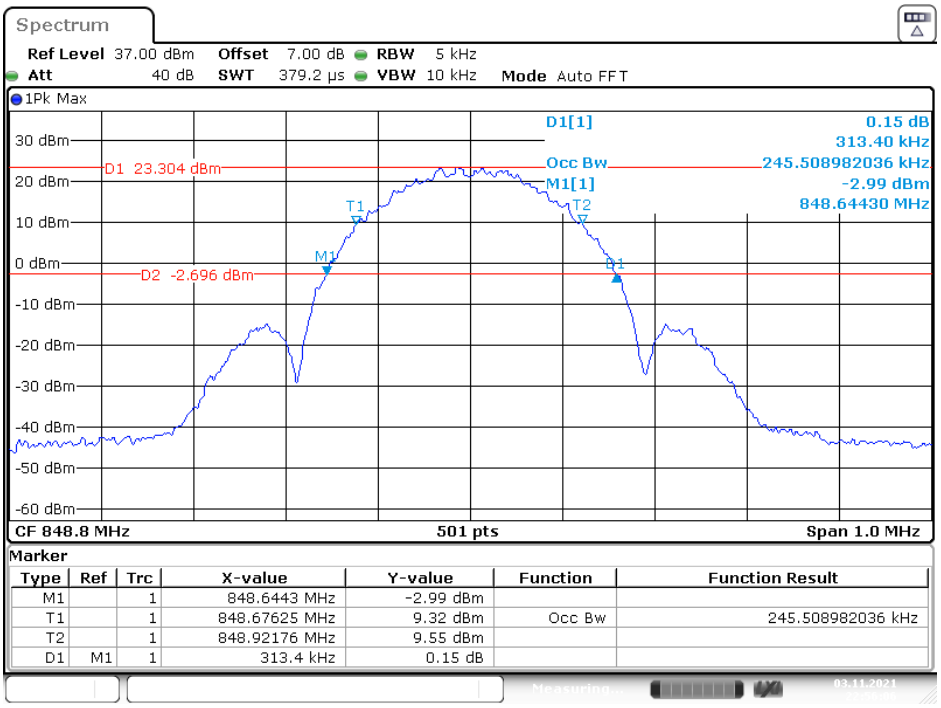
Date: 3.NOV.2021 22:57:54

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



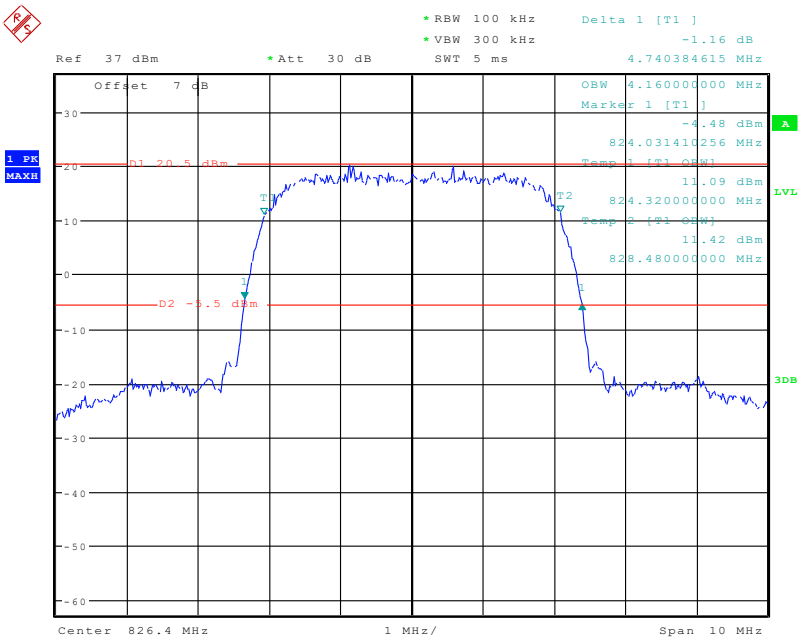
Date: 3.NOV.2021 22:55:02

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



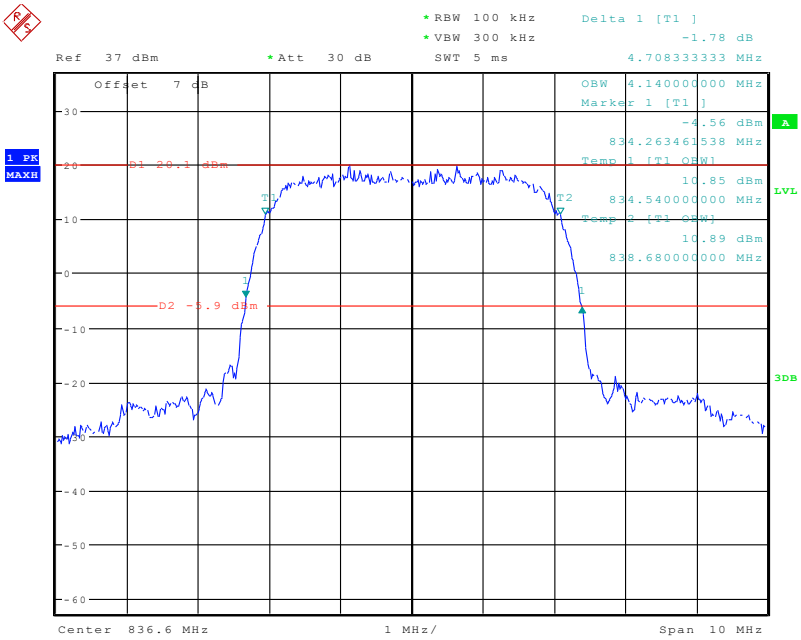
Date: 3.NOV.2021 22:56:07

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



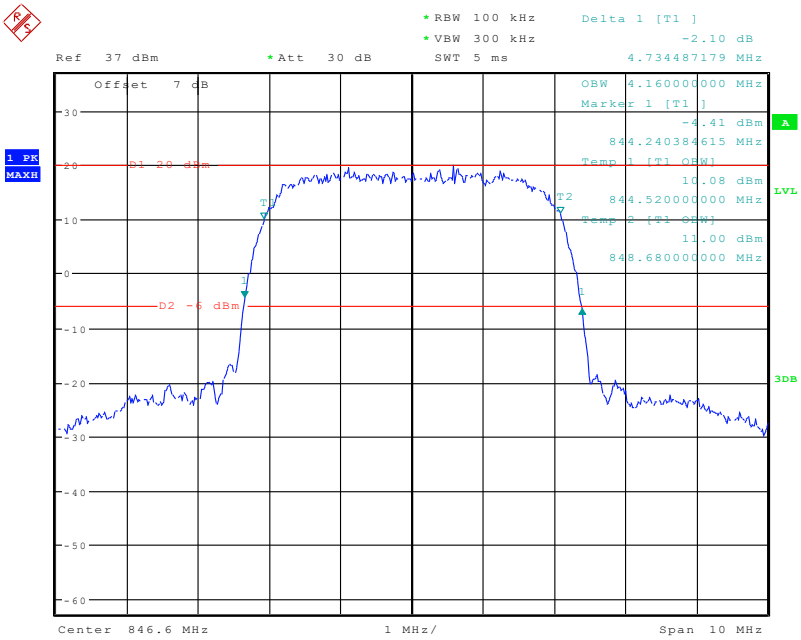
Date: 4.NOV.2021 23:43:00

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



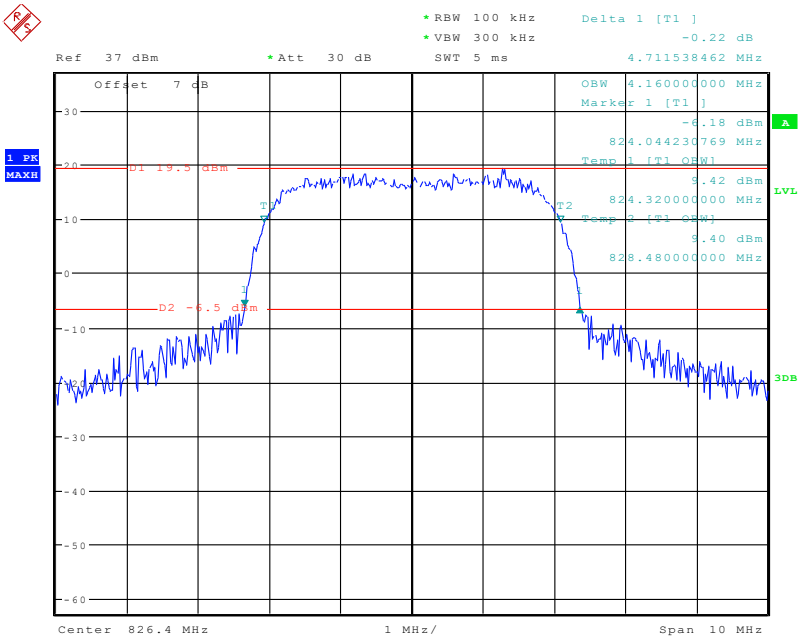
Date: 4.NOV.2021 23:42:12

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



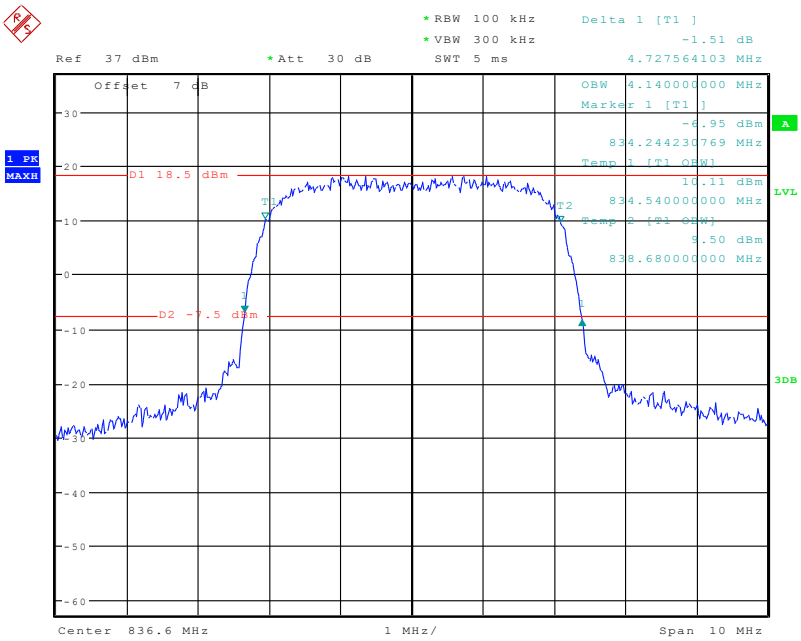
Date: 4.NOV.2021 23:41:14

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



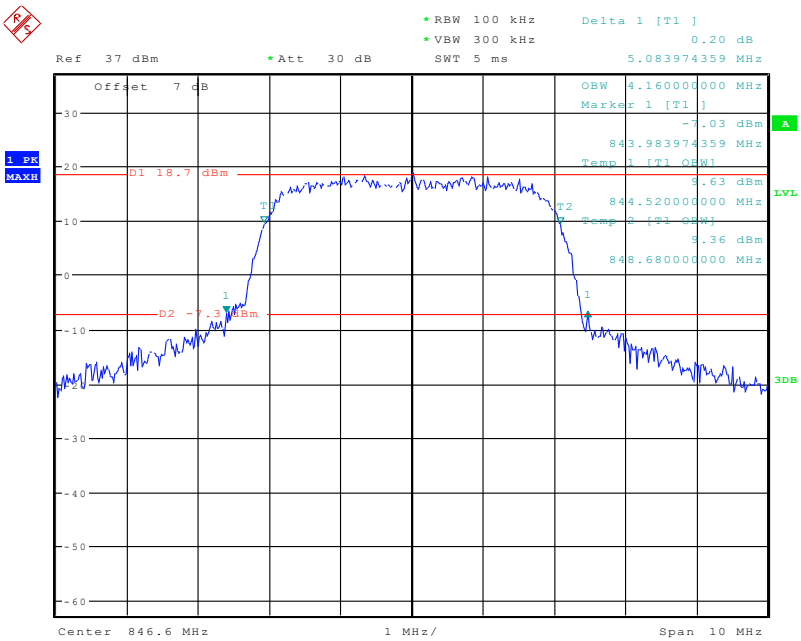
Date: 5.NOV.2021 00:39:38

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



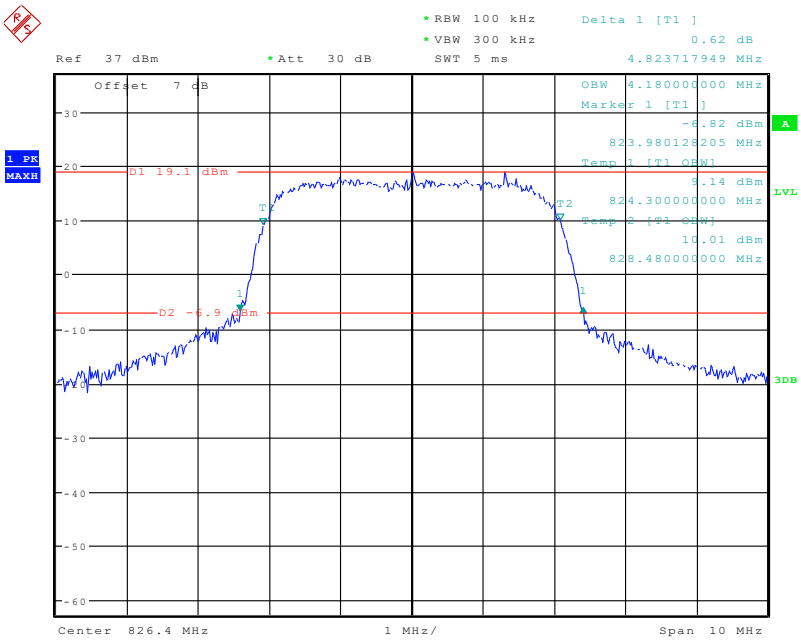
Date: 5.NOV.2021 00:38:50

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



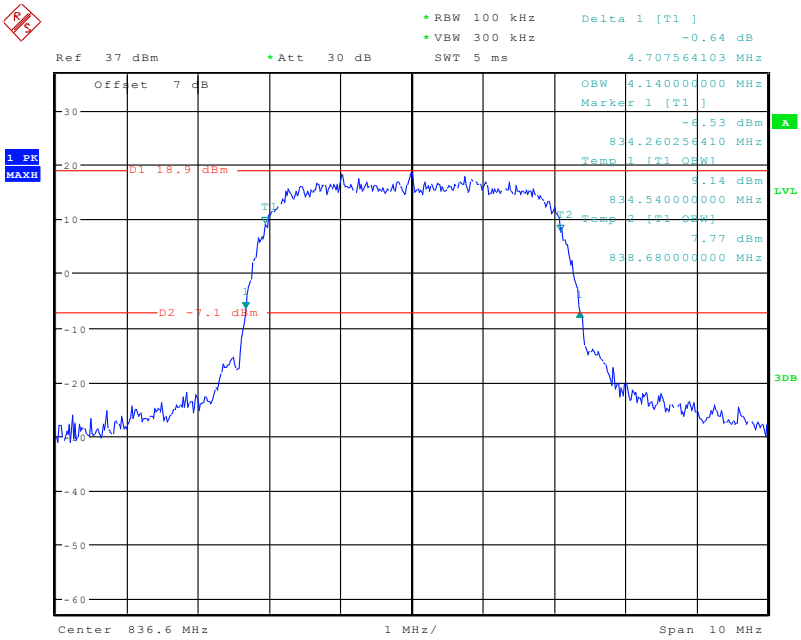
Date: 5.NOV.2021 00:37:36

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



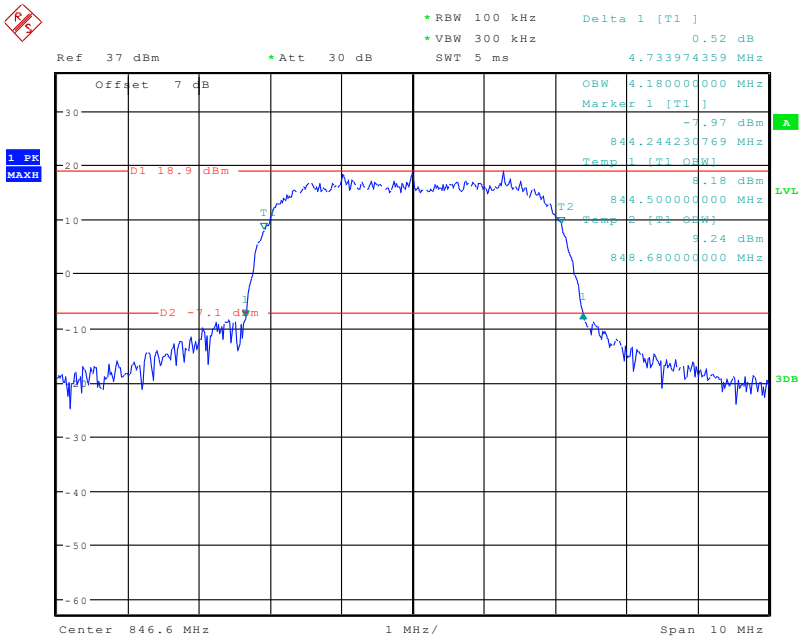
Date: 5.NOV.2021 00:19:40

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



Date: 5.NOV.2021 00:20:56

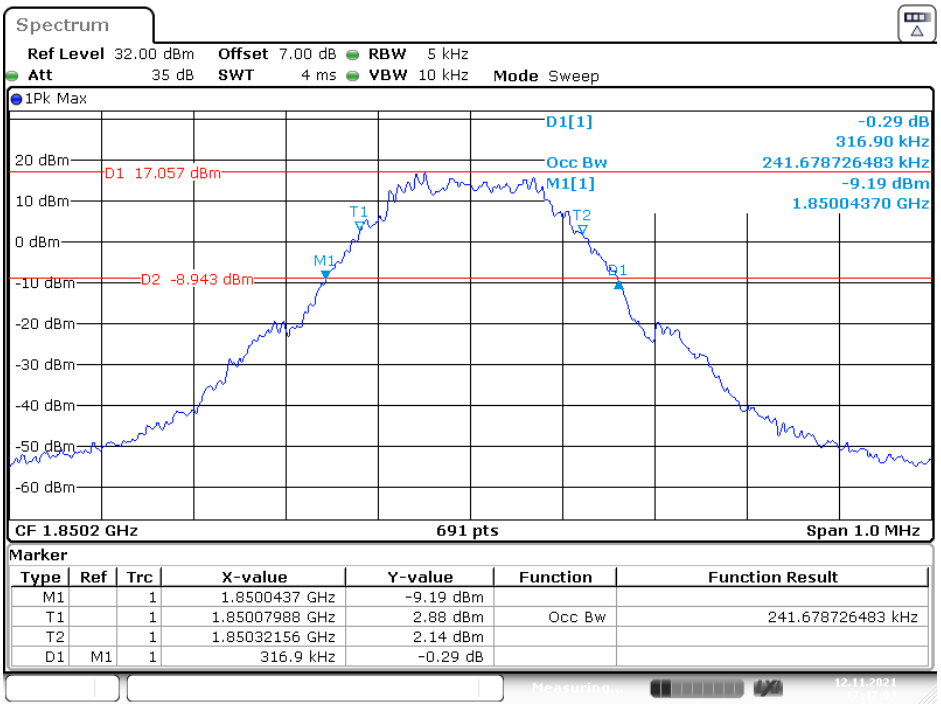
26 dB Emissions &99% Occupied Bandwidth for HSDPA (16QAM) Mode, High channel



Date: 5.NOV.2021 00:21:51

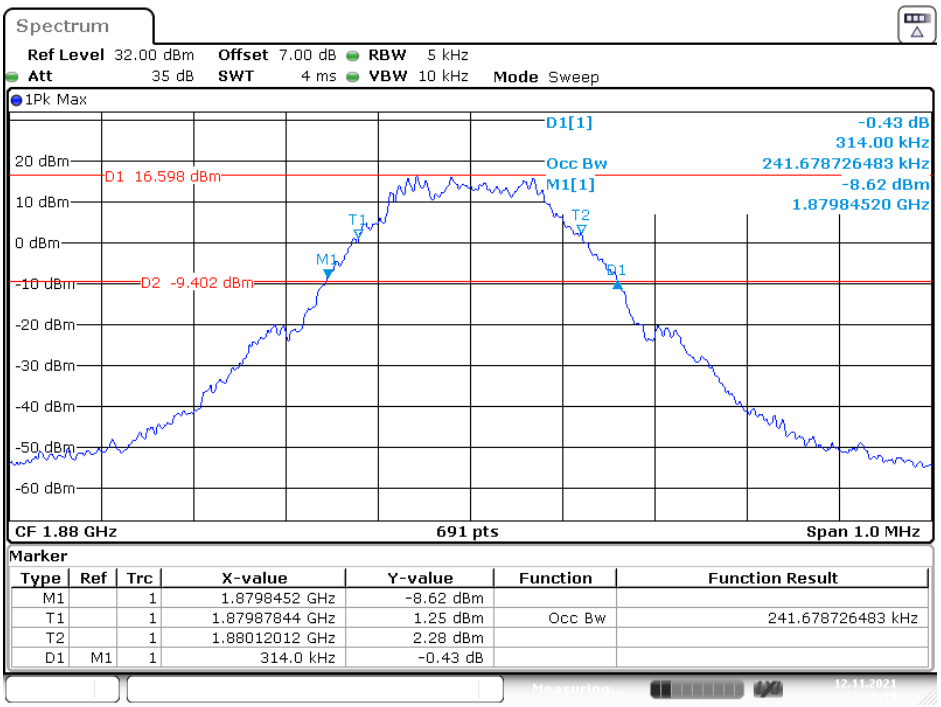
PCS Band (Part 24E)

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



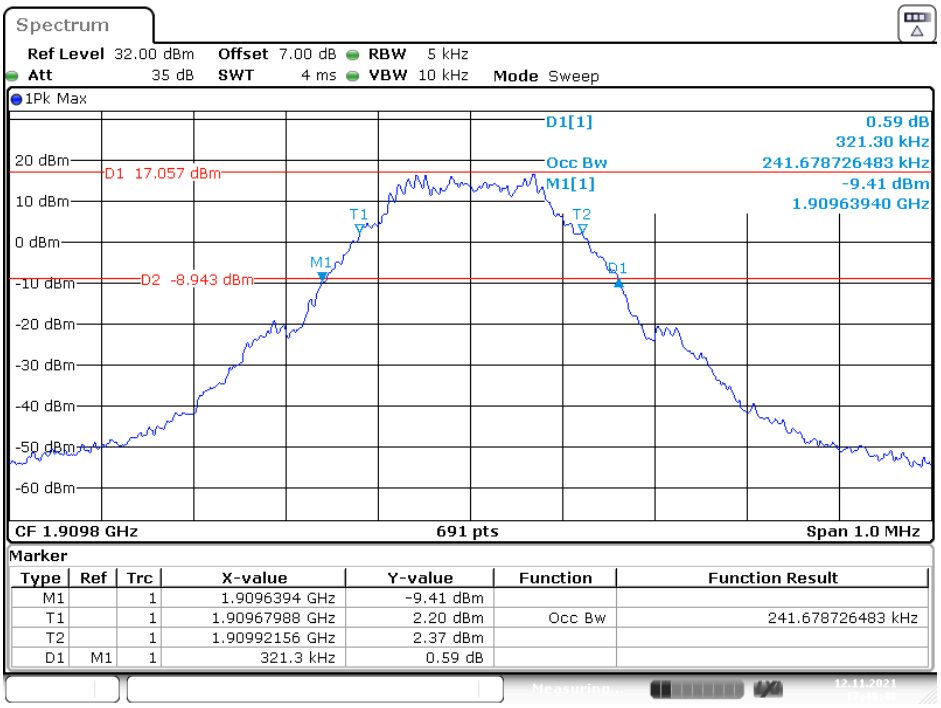
Date: 12.NOV.2021 17:47:03

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



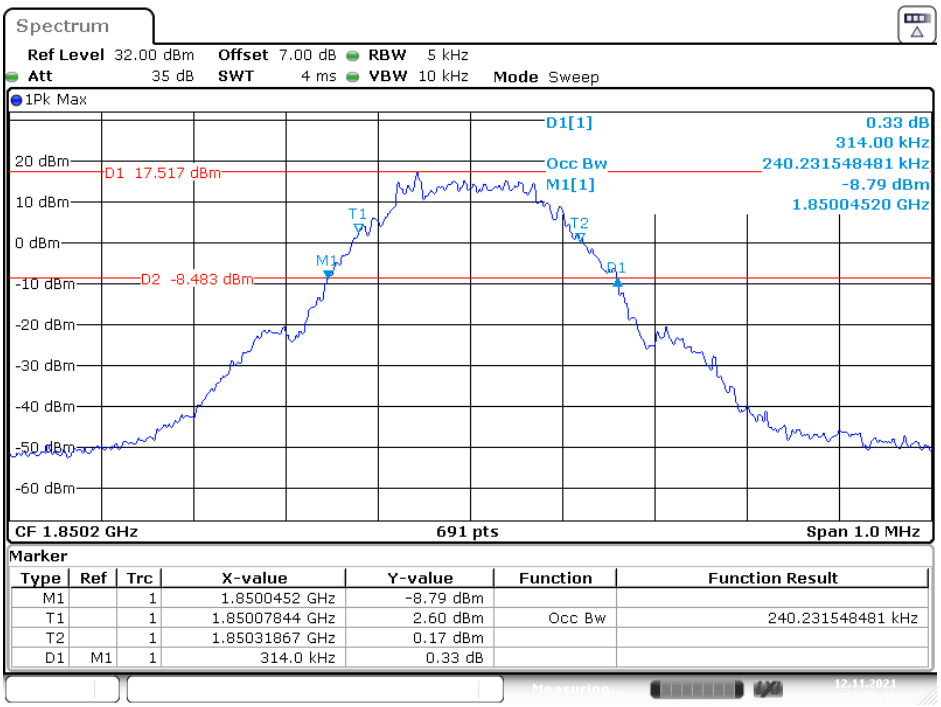
Date: 12.NOV.2021 17:48:19

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



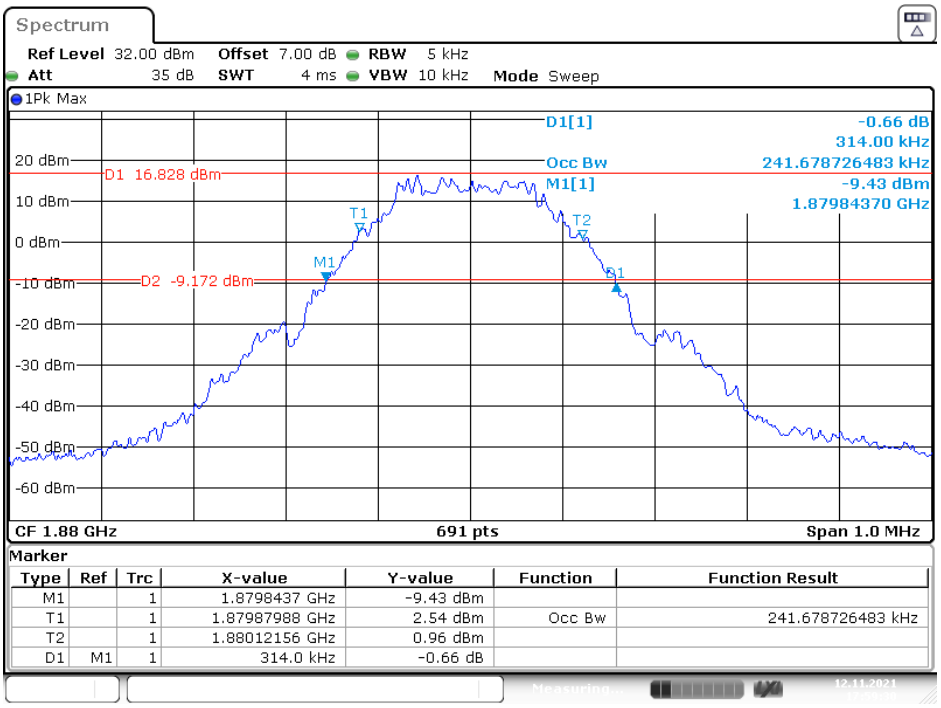
Date: 12.NOV.2021 17:49:48

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



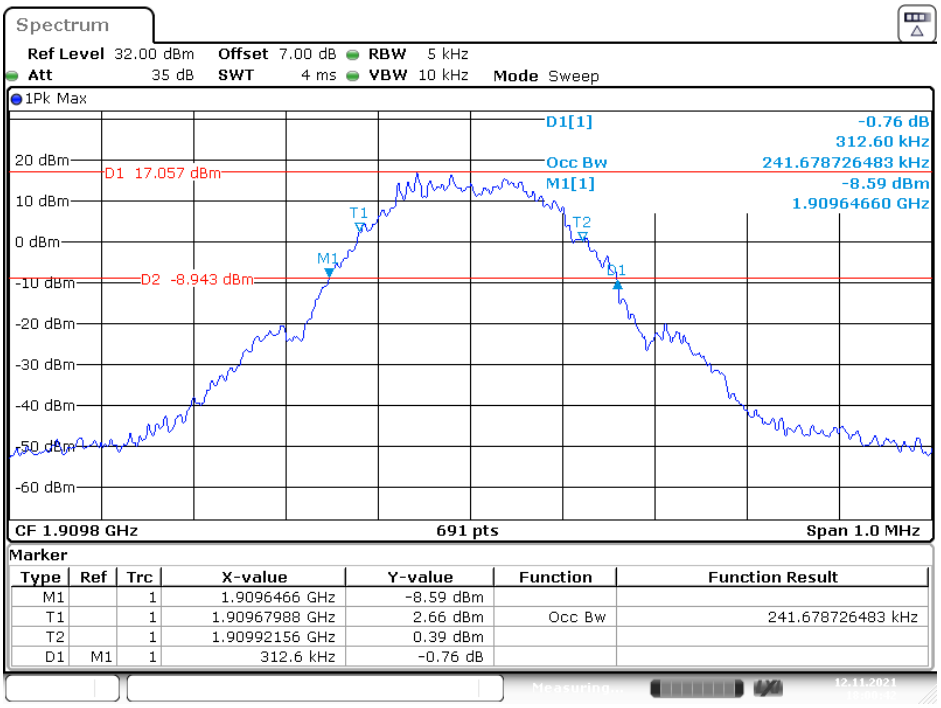
Date: 12.NOV.2021 17:58:16

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



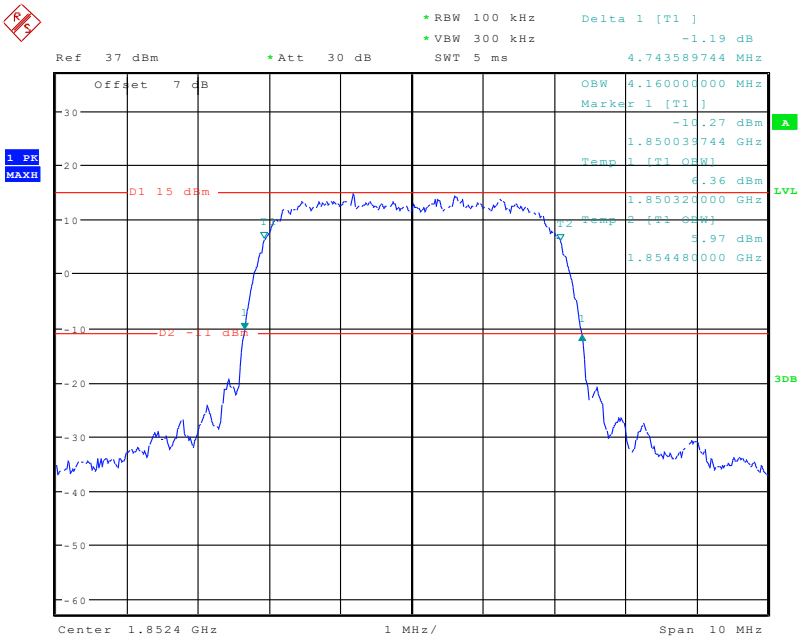
Date: 12.NOV.2021 17:59:31

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



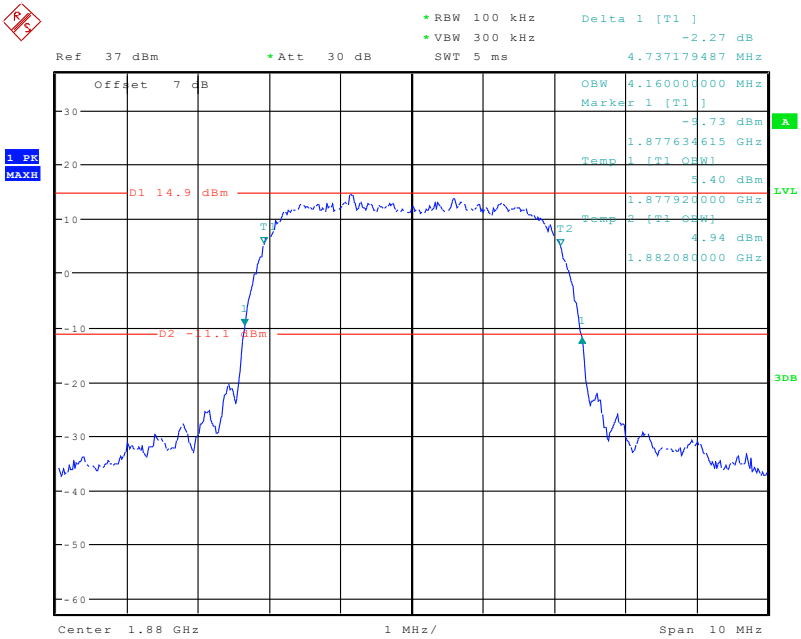
Date: 12.NOV.2021 18:00:42

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



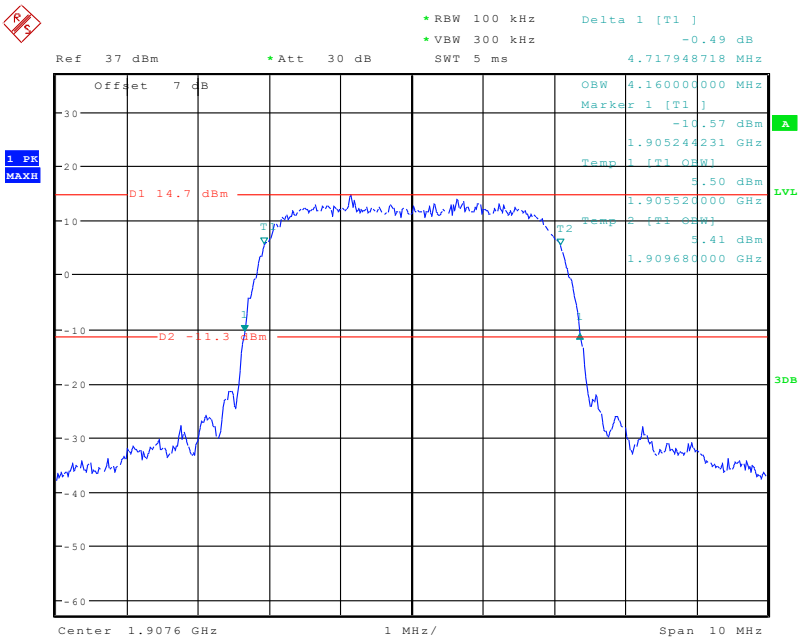
Date: 4.NOV.2021 23:51:46

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



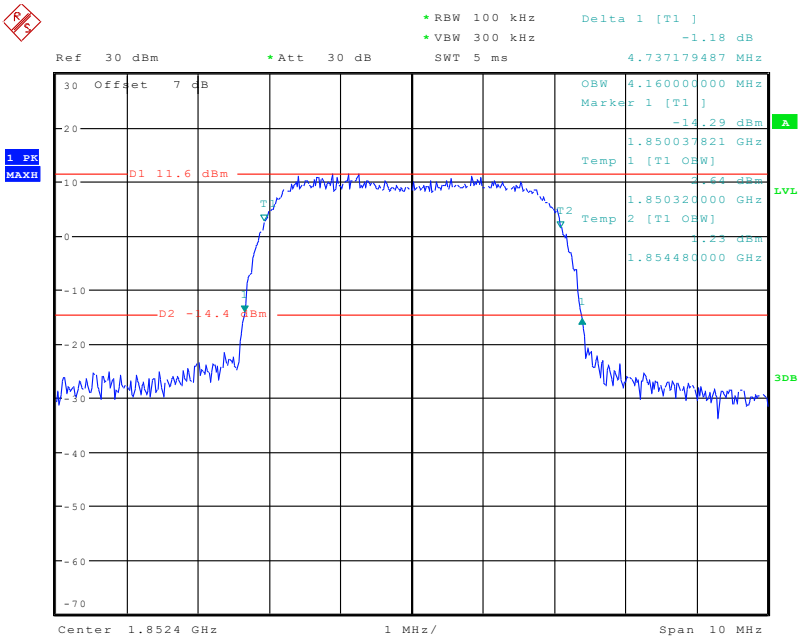
Date: 4.NOV.2021 23:50:09

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



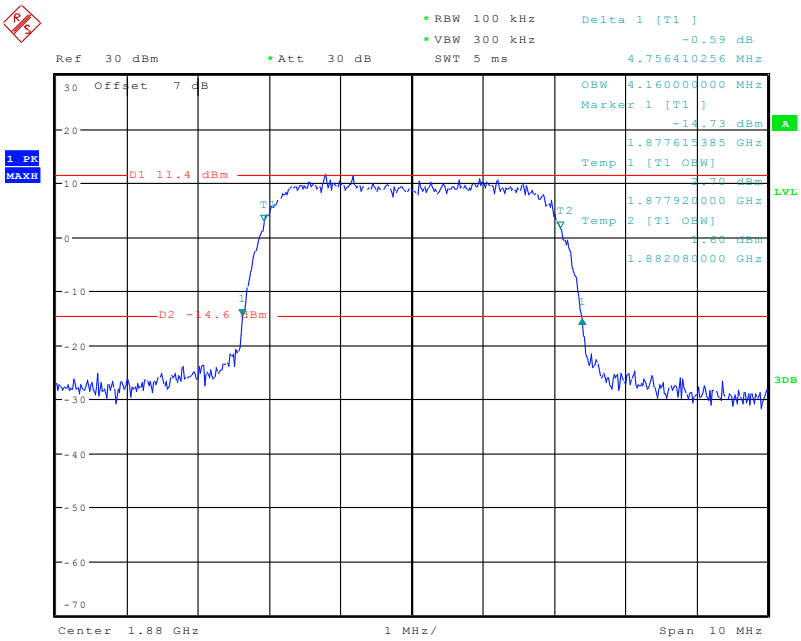
Date: 4.NOV.2021 23:48:31

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



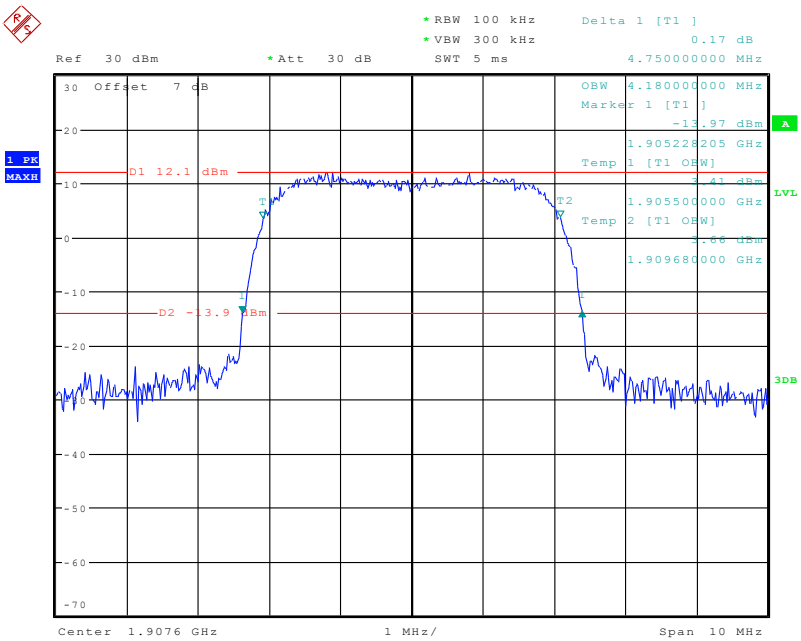
Date: 5.NOV.2021 00:45:42

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



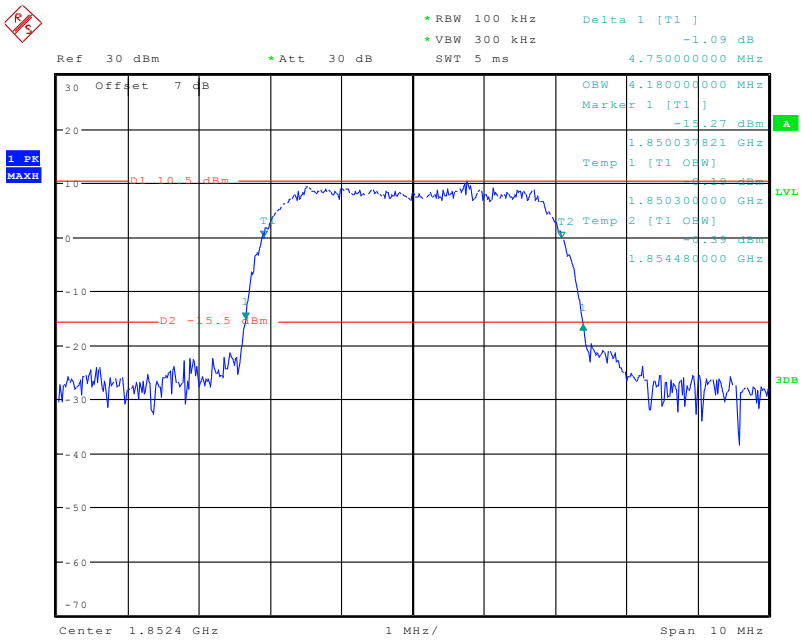
Date: 5.NOV.2021 00:44:56

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

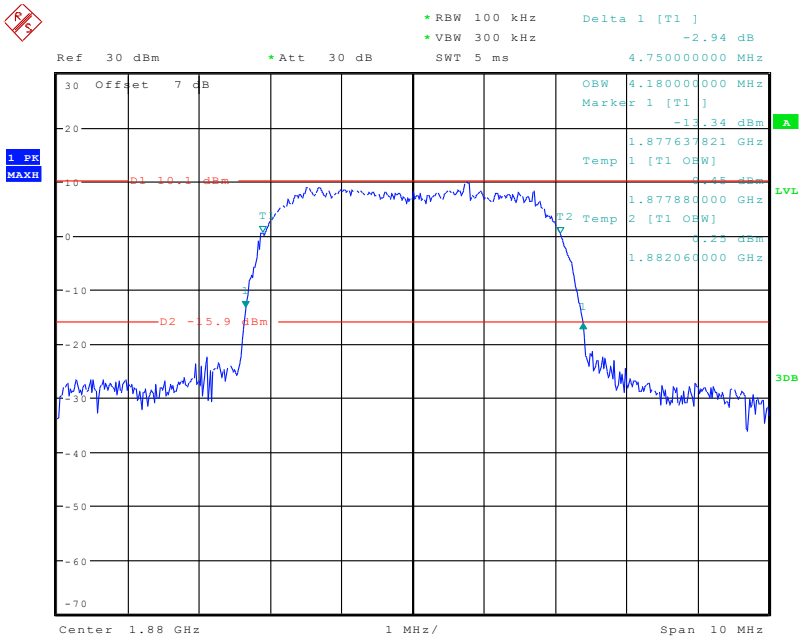


Date: 5.NOV.2021 00:43:52

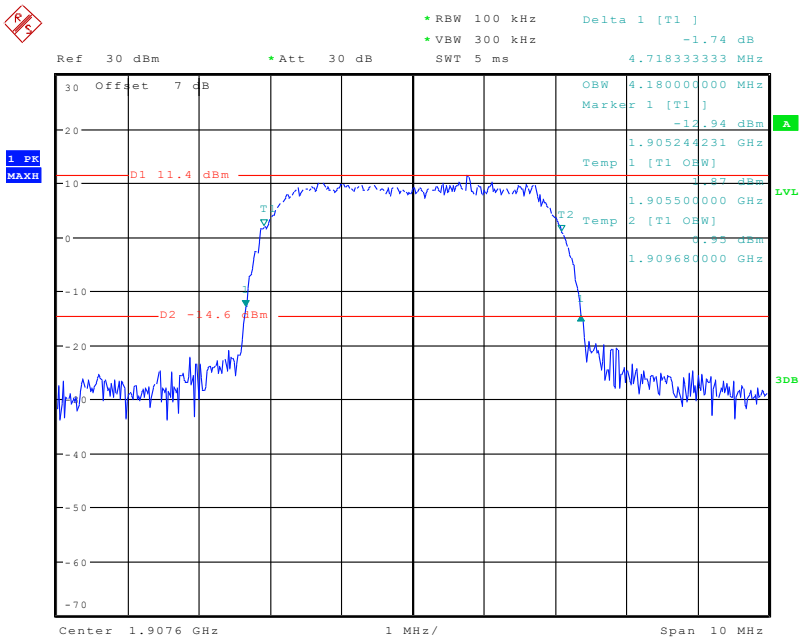
26 dB Emissions &99% Occupied Bandwidth for HSDPA (16QAM) Mode, Low channel



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



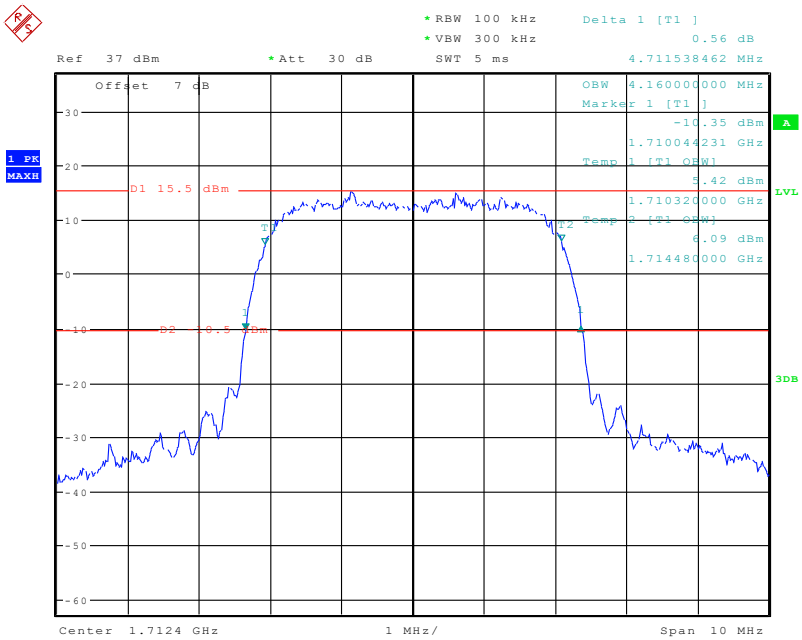
26 dB Emissions &99% Occupied Bandwidth for HSDPA (16QAM) Mode, High channel



Date: 5.NOV.2021 00:10:41

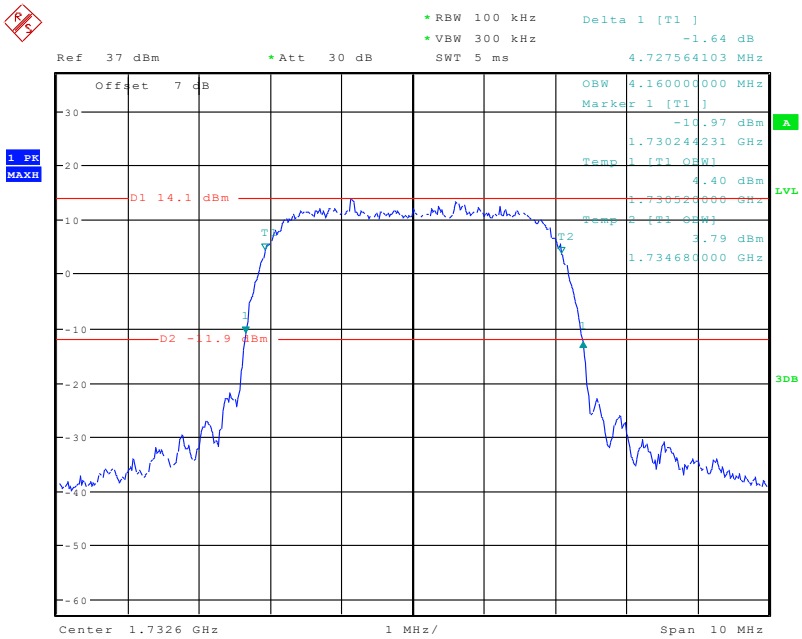
AWS Band (Part 27)

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



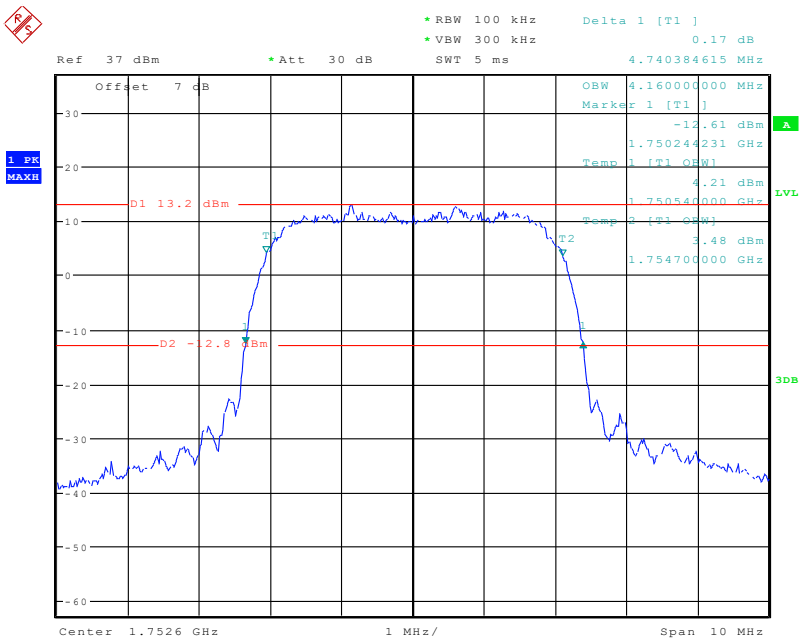
Date: 4.NOV.2021 23:47:05

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



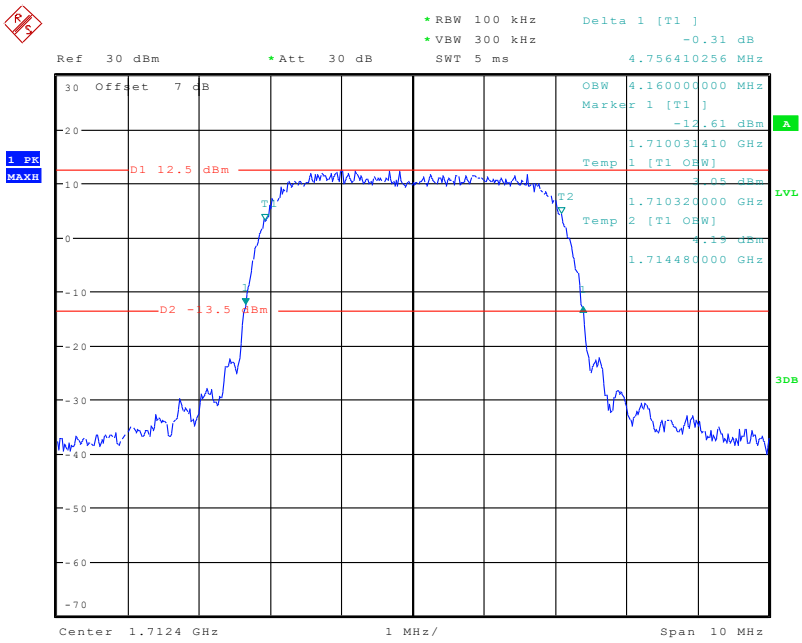
Date: 4.NOV.2021 23:45:44

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



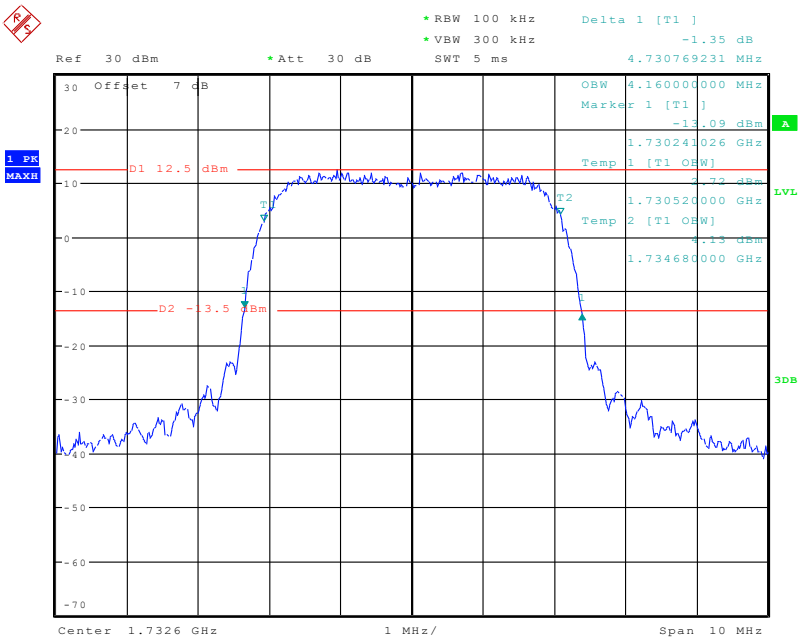
Date: 4.NOV.2021 23:44:30

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



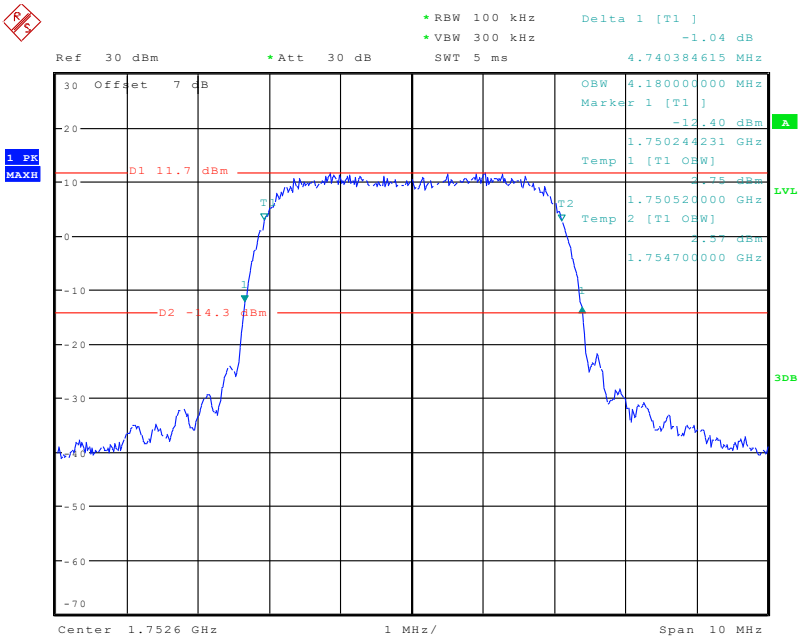
Date: 5.NOV.2021 00:42:50

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



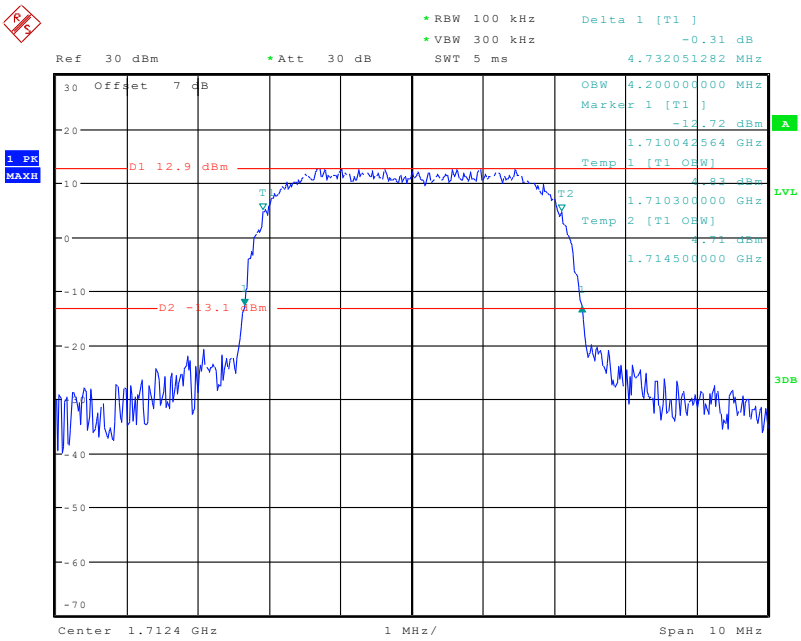
Date: 5.NOV.2021 00:42:11

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



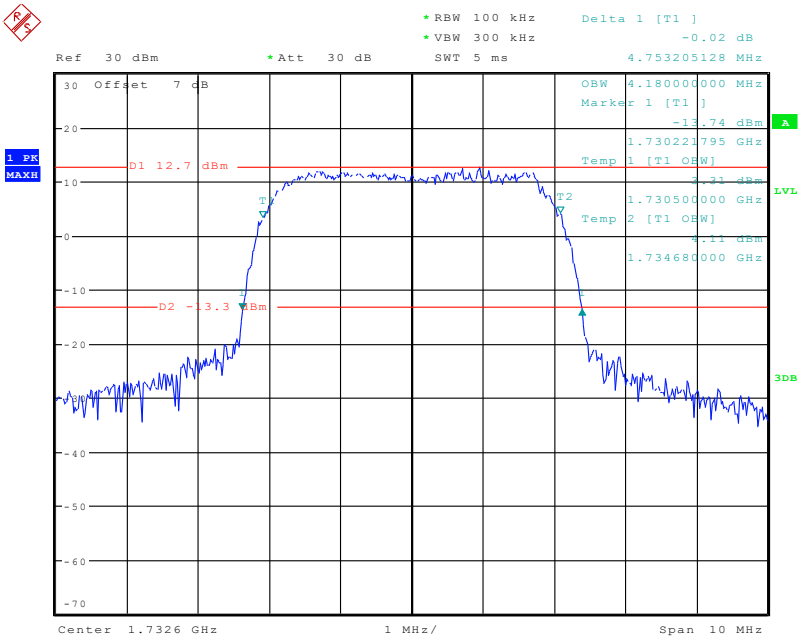
Date: 5.NOV.2021 00:41:12

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



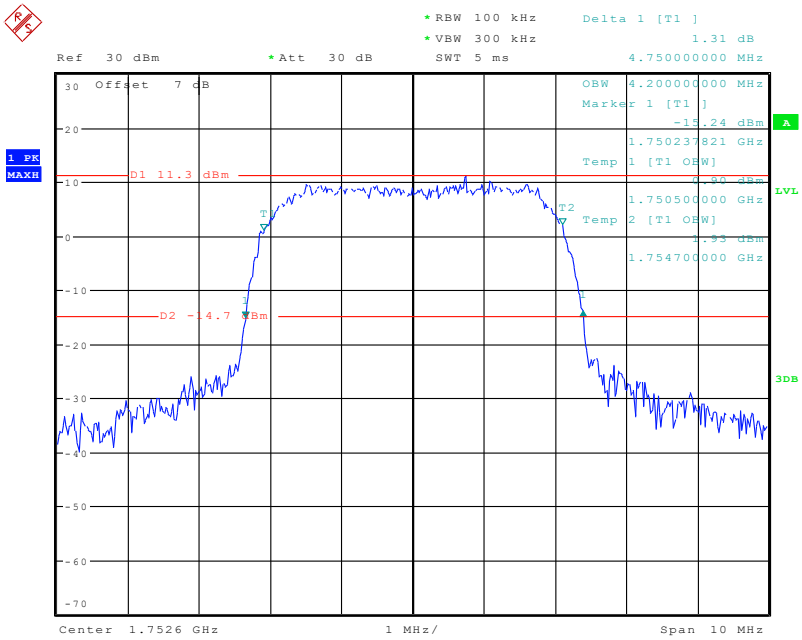
Date: 5.NOV.2021 00:17:03

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



Date: 5.NOV.2021 00:15:54

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



Date: 5.NOV.2021 00:14:27

LTE Mode:

LTE Band 2:

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
1.4 MHz	QPSK	1.104	1.302	1.098	1.314	1.104	1.326
	16QAM	1.104	1.314	1.110	1.320	1.104	1.314
3 MHz	QPSK	2.688	2.940	2.700	2.940	2.688	2.964
	16QAM	2.688	2.964	2.688	2.964	2.688	2.940
5 MHz	QPSK	4.540	5.040	4.520	5.040	4.520	5.060
	16QAM	4.520	5.000	4.540	5.040	4.540	5.100
10 MHz	QPSK	9.000	9.800	8.960	9.720	8.960	9.680
	16QAM	8.960	9.720	8.960	9.680	8.960	9.680
15 MHz	QPSK	13.560	14.820	13.500	14.940	13.500	14.820
	16QAM	13.560	14.820	13.500	14.820	13.500	14.820
20 MHz	QPSK	18.000	19.446	18.000	19.440	18.000	19.280
	16QAM	18.000	19.440	18.000	19.520	17.920	19.360

LTE Band 4:

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
1.4 MHz	QPSK	1.104	1.302	1.098	1.302	1.110	1.278
	16QAM	1.110	1.308	1.092	1.290	1.104	1.320
3 MHz	QPSK	2.700	2.952	2.700	2.942	2.700	2.952
	16QAM	2.688	2.964	2.688	2.940	2.688	2.964
5 MHz	QPSK	4.540	5.020	4.520	5.040	4.520	5.040
	16QAM	4.540	5.032	4.540	5.040	4.540	5.080
10 MHz	QPSK	8.960	9.680	8.960	9.680	8.960	9.680
	16QAM	8.960	9.600	8.960	9.680	8.960	9.800
15 MHz	QPSK	13.560	14.940	13.500	14.880	13.500	15.000
	16QAM	13.560	14.820	13.560	14.820	13.560	14.820
20 MHz	QPSK	18.000	19.440	17.840	19.360	18.000	19.760
	16QAM	17.920	19.600	17.920	19.280	18.000	19.600

LTE Band 5& LTE Band 26(Part 22H):

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
1.4 MHz	QPSK	1.098	1.320	1.104	1.314	1.098	1.302
	16QAM	1.104	1.308	1.098	1.290	1.104	1.320
3 MHz	QPSK	2.700	2.952	2.700	2.940	2.688	2.964
	16QAM	2.688	2.988	2.688	2.952	2.688	2.964
5 MHz	QPSK	4.540	5.060	4.520	4.980	4.520	5.020
	16QAM	4.520	5.020	4.520	4.980	4.520	5.040
10 MHz	QPSK	9.000	9.760	8.960	9.720	8.960	9.720
	16QAM	8.960	9.800	8.920	9.720	8.960	9.720
15 MHz	QPSK	13.560	14.940	13.500	14.880	13.500	14.880
	16QAM	13.500	14.880	13.500	14.880	13.500	14.760

LTE Band 7:

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
5 MHz	QPSK	4.540	5.040	4.520	5.040	4.520	5.000
	16QAM	4.520	5.020	4.540	5.040	4.540	5.060
10 MHz	QPSK	9.000	9.800	8.960	9.760	8.960	9.800
	16QAM	8.960	9.720	8.960	9.680	8.960	9.800
15 MHz	QPSK	13.560	14.880	13.560	14.856	13.560	14.940
	16QAM	13.500	14.820	13.500	14.940	13.560	14.820
20 MHz	QPSK	17.920	19.280	17.920	19.440	17.920	19.440
	16QAM	17.920	19.520	18.000	19.680	18.000	19.360

LTE Band 13:

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
5 MHz	QPSK	4.540	5.020	4.520	5.060	4.520	5.020
	16QAM	4.500	4.980	4.520	5.020	4.540	5.080
10 MHz	QPSK	/	/	8.960	9.760	/	/
	16QAM	/	/	8.960	9.640	/	/

LTE Band 12:

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
1.4 MHz	QPSK	1.110	1.314	1.104	1.314	1.110	1.296
	16QAM	1.110	1.308	1.098	1.302	1.104	1.314
3 MHz	QPSK	2.700	2.940	2.688	2.940	2.688	2.976
	16QAM	2.688	2.964	2.688	2.964	2.712	2.960
5 MHz	QPSK	4.540	5.040	4.520	5.020	4.520	5.040
	16QAM	4.540	5.060	4.540	5.040	4.520	5.040
10 MHz	QPSK	9.000	9.760	9.000	9.720	8.960	9.720
	16QAM	9.000	9.776	8.960	9.680	8.960	9.680

LTE Band 25

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
1.4 MHz	QPSK	1.110	1.314	1.110	1.322	1.104	1.290
	16QAM	1.104	1.313	1.104	1.308	1.104	1.314
3 MHz	QPSK	2.688	2.952	2.700	2.940	2.688	2.964
	16QAM	2.688	2.976	2.688	2.964	2.688	2.940
5 MHz	QPSK	4.540	5.040	4.520	5.000	4.520	5.020
	16QAM	4.520	5.000	4.540	5.020	4.520	5.060
10 MHz	QPSK	9.000	9.680	8.960	9.760	8.960	9.720
	16QAM	8.920	9.600	8.960	9.760	8.960	9.720
15 MHz	QPSK	13.560	15.000	13.500	14.700	13.500	14.880
	16QAM	13.560	14.820	13.500	14.880	13.500	14.820
20 MHz	QPSK	17.920	19.360	17.920	19.440	17.920	19.520
	16QAM	17.920	19.440	17.920	19.600	18.000	19.440

LTE Band 26(Part 90S):

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
1.4 MHz	QPSK	1.110	1.302	1.110	1.314	1.098	1.314
	16QAM	1.104	1.302	1.110	1.314	1.104	1.296
3 MHz	QPSK	2.700	2.940	2.688	2.940	2.700	2.976
	16QAM	2.688	2.976	2.688	2.952	2.688	2.976
5 MHz	QPSK	4.540	5.000	4.520	5.020	4.520	5.020
	16QAM	4.520	5.040	4.520	5.020	4.540	5.040
10 MHz	QPSK	/	/	8.960	9.720	/	/
	16QAM	/	/	8.960	9.680	/	/

Test plots refer to the Appendix A.

FCC §2.1051, §22.917(a), §24.238(a), §27.53, §90.691 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

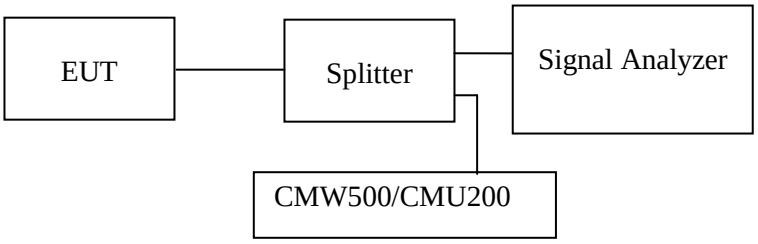
Applicable Standard

FCC §2.1051, §22.917(a) and §24.238(a) and §27.53 and §90.691

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:	28.2~29.0 ℃
Relative Humidity:	44~56 %
ATM Pressure:	101.0 kPa

The testing was performed by Black Ding from 2021-11-03 to 2021-11-12.

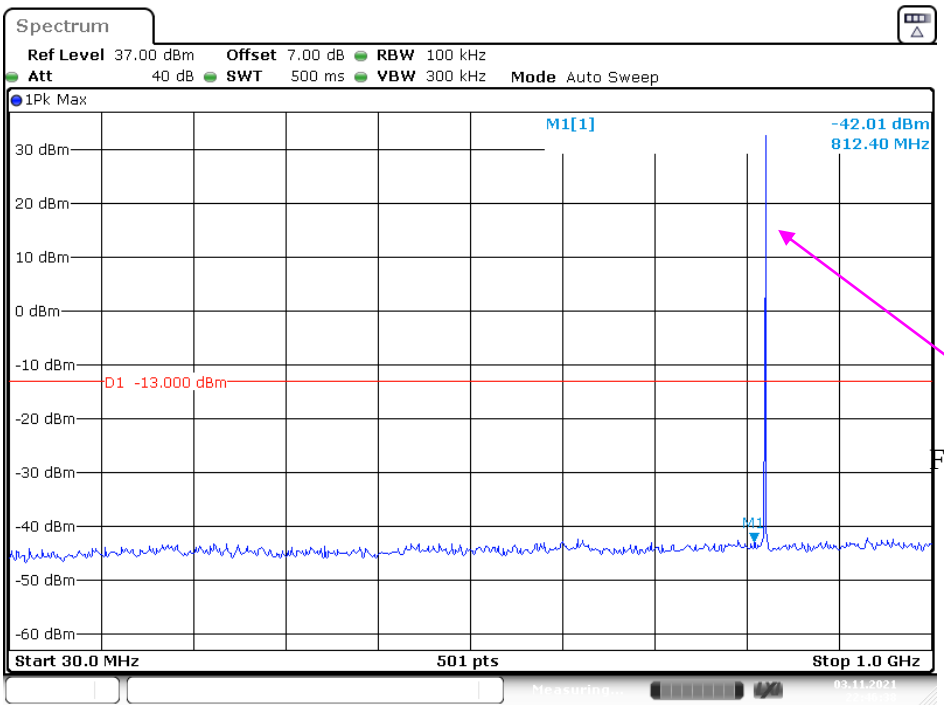
EUT operation mode: Transmitting

Test result: Pass

Please refer to the following plots.

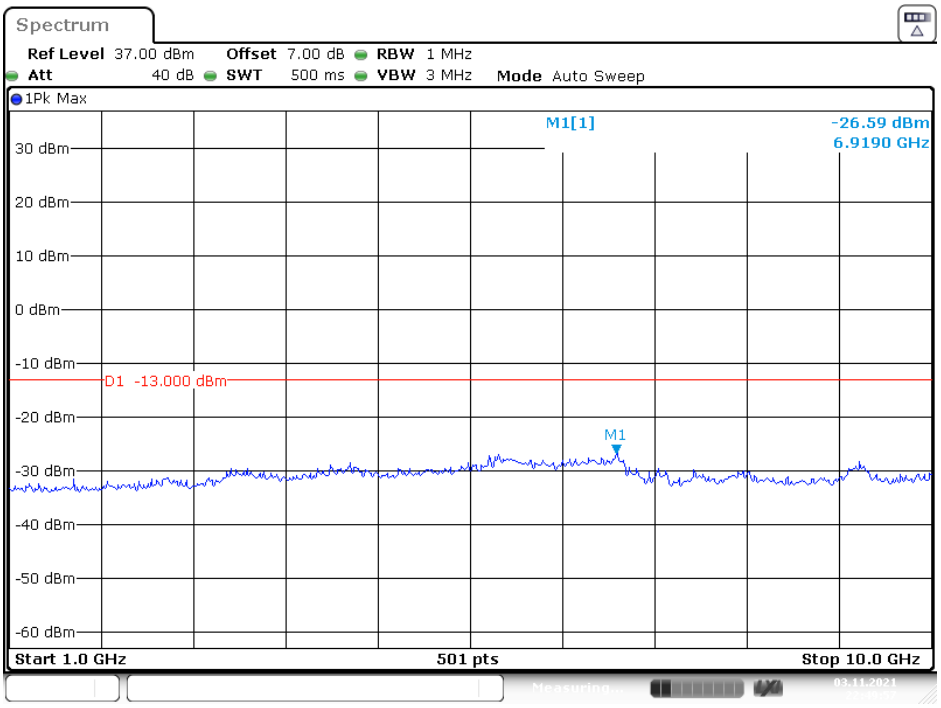
Cellular Band (Part 22H)
Low Channel:

30 MHz – 1 GHz (GSM Mode)



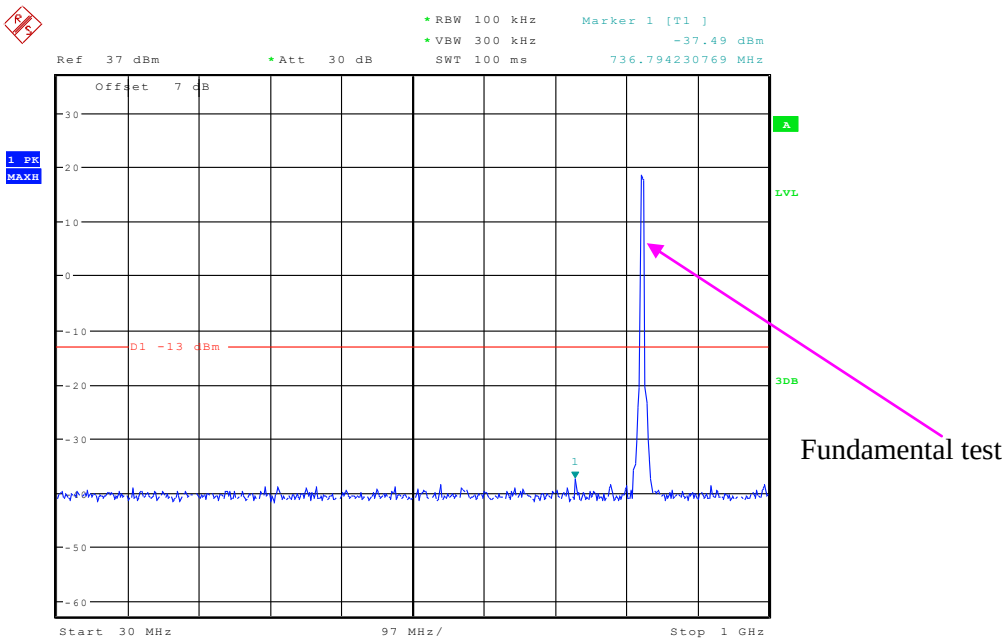
Date: 3.NOV.2021 22:46:39

1 GHz – 10 GHz (GSM Mode)



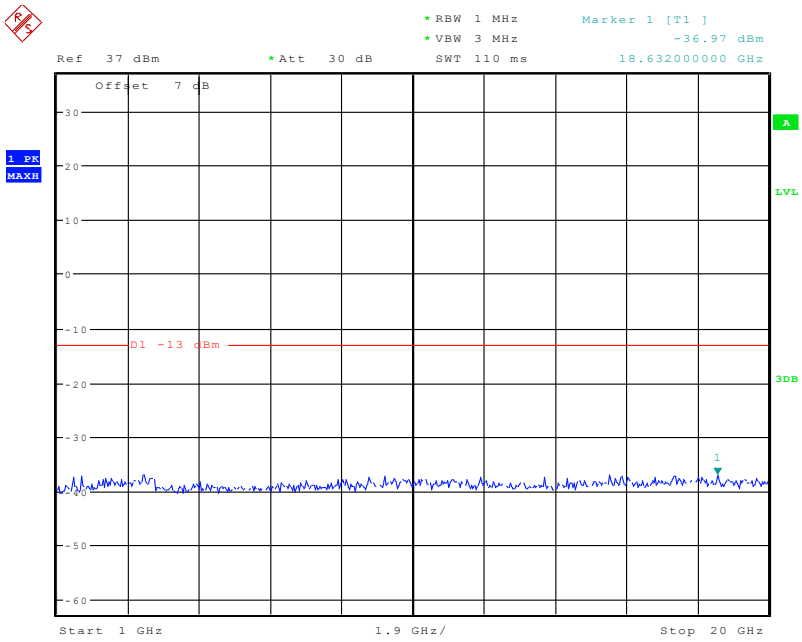
Date: 3.NOV.2021 22:49:58

30 MHz – 1 GHz (WCDMA Mode)



Date: 4.NOV.2021 23:57:08

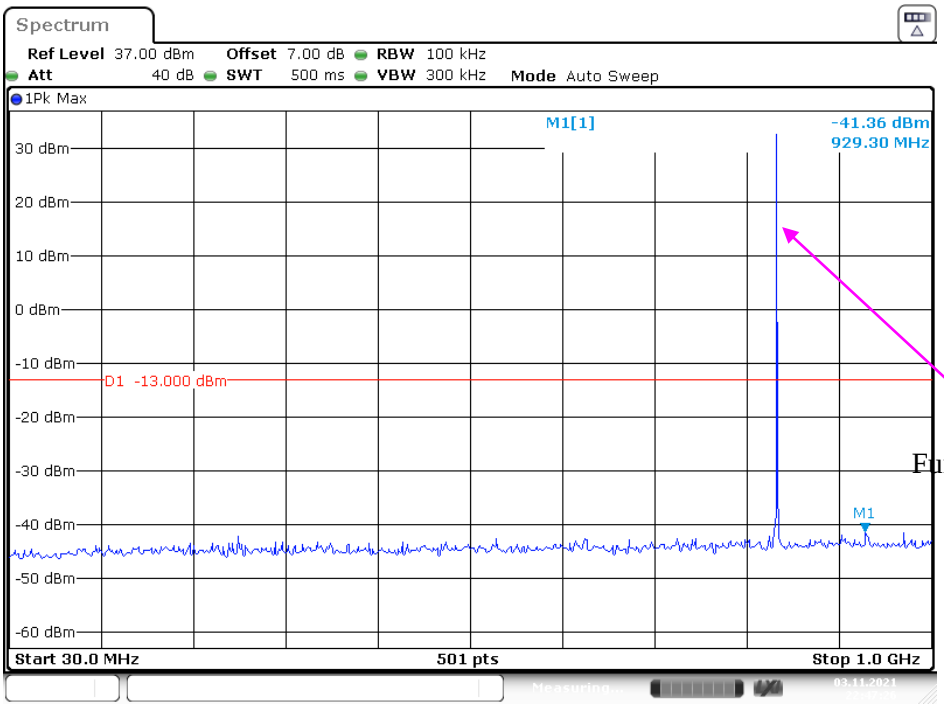
1 GHz – 20 GHz (WCDMA Mode)



Date: 4.NOV.2021 23:57:41

Middle Channel:

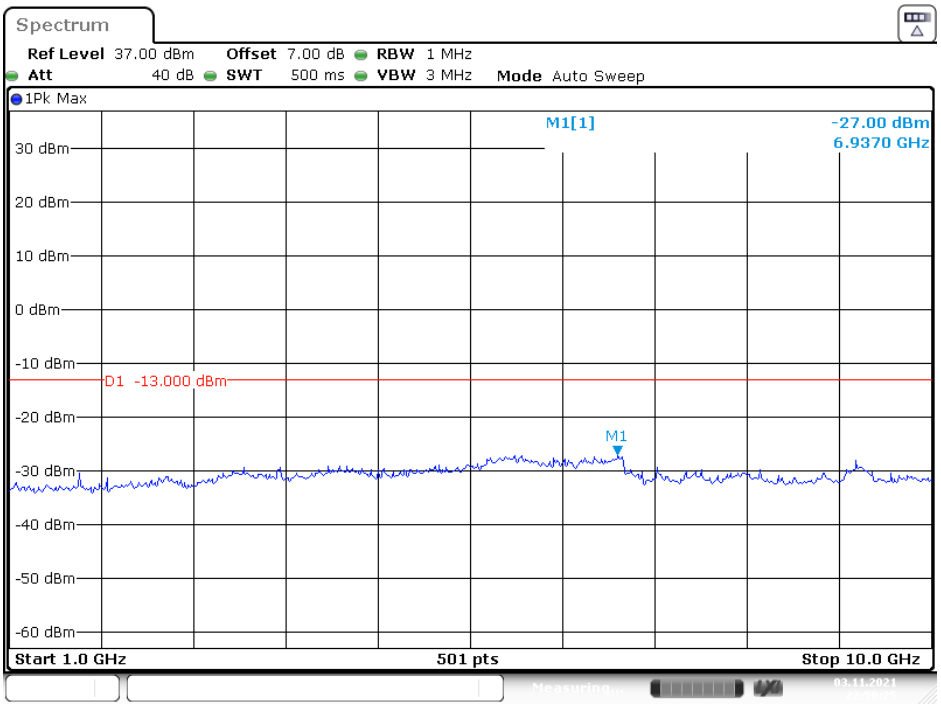
30 MHz – 1 GHz (GSM Mode)



Fundamental test

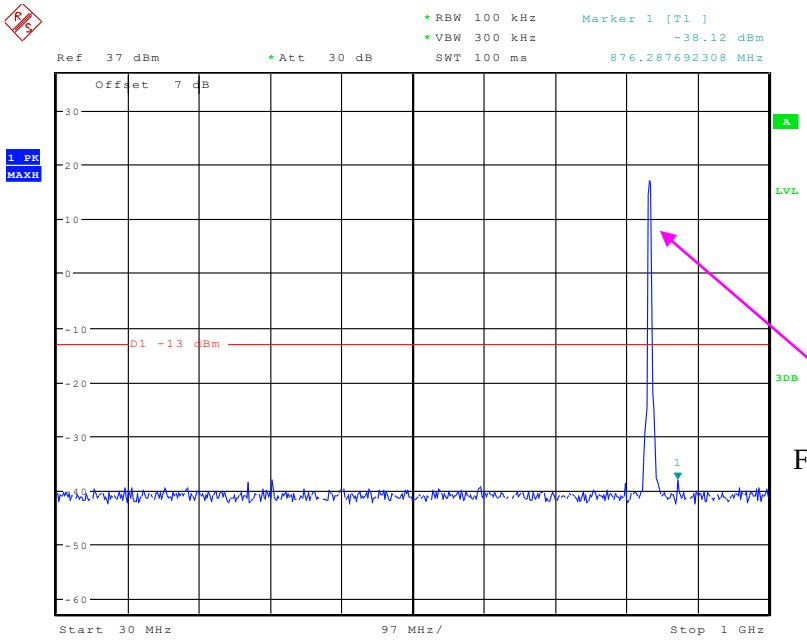
Date: 3.NOV.2021 22:47:26

1 GHz – 10 GHz (GSM Mode)



Date: 3.NOV.2021 22:50:26

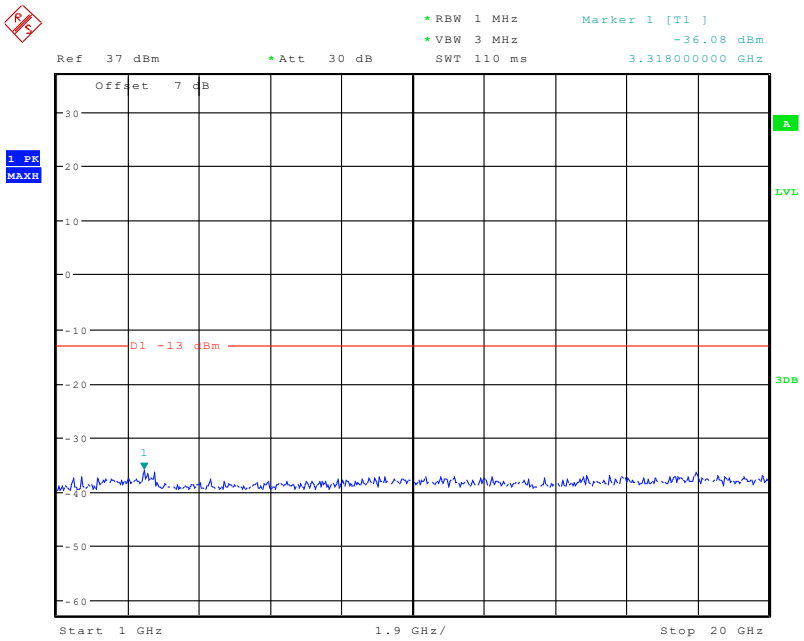
30 MHz – 1 GHz (WCDMA Mode)



Fundamental test

Date: 4.NOV.2021 23:55:54

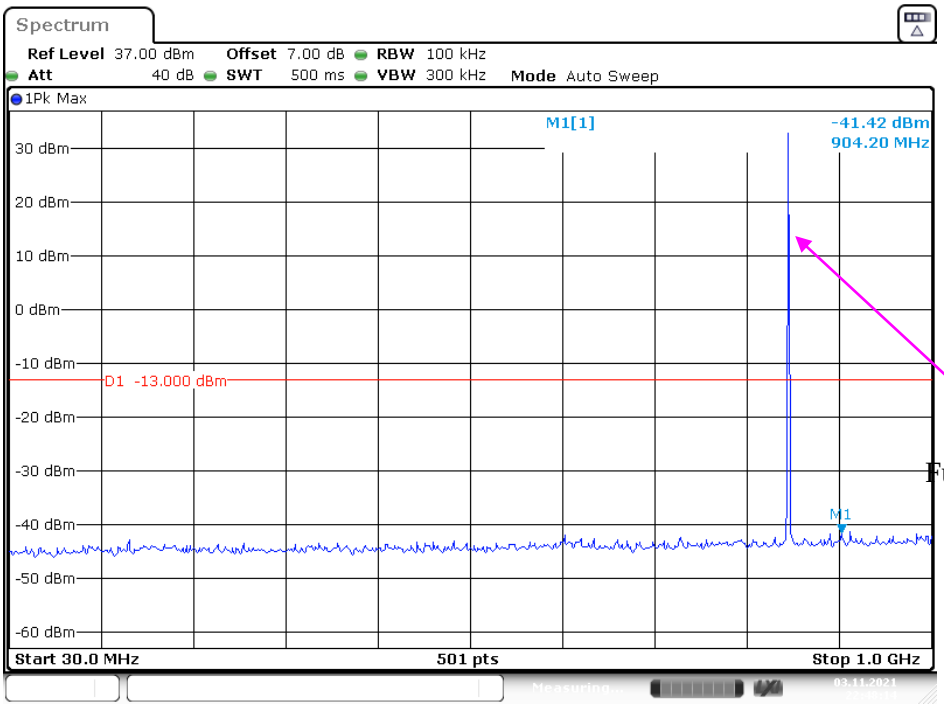
1 GHz – 20 GHz (WCDMA Mode)



Date: 4.NOV.2021 23:57:55

High Channel:

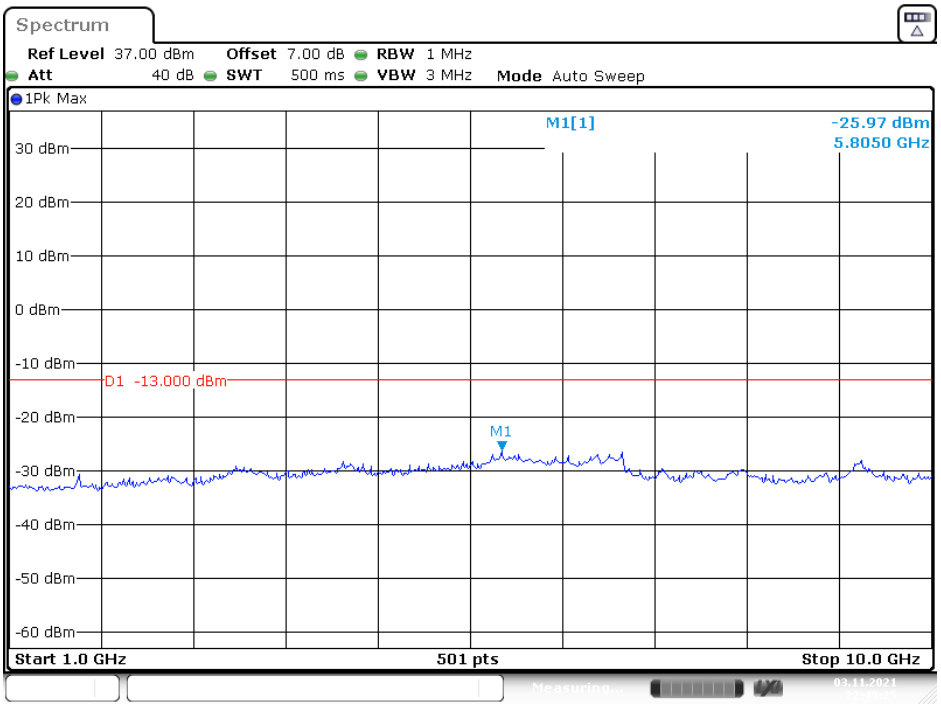
30 MHz – 1 GHz (GSM Mode)



Fundamental test

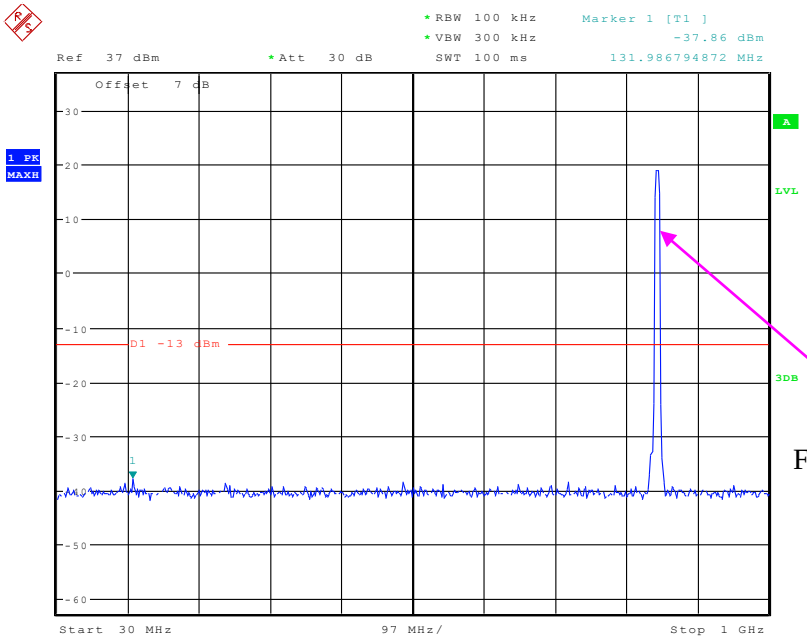
Date: 3.NOV.2021 22:48:15

1 GHz – 10 GHz (GSM Mode)



Date: 3.NOV.2021 22:49:25

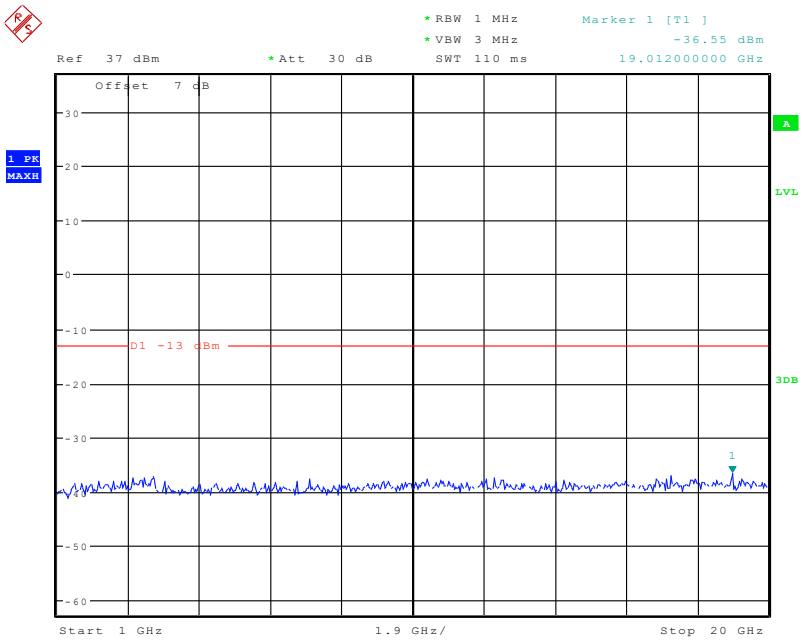
30 MHz – 1 GHz (WCDMA Mode)



Fundamental test

Date: 4.NOV.2021 23:56:26

1 GHz – 20 GHz (WCDMA Mode)

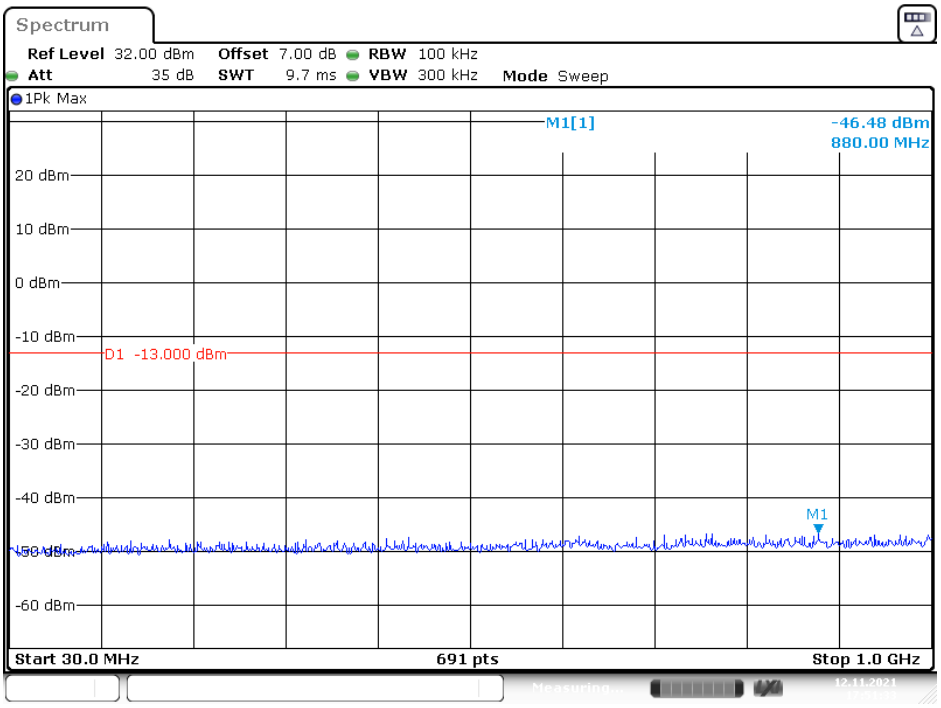


Date: 4.NOV.2021 23:58:07

PCS Band (Part 24E)

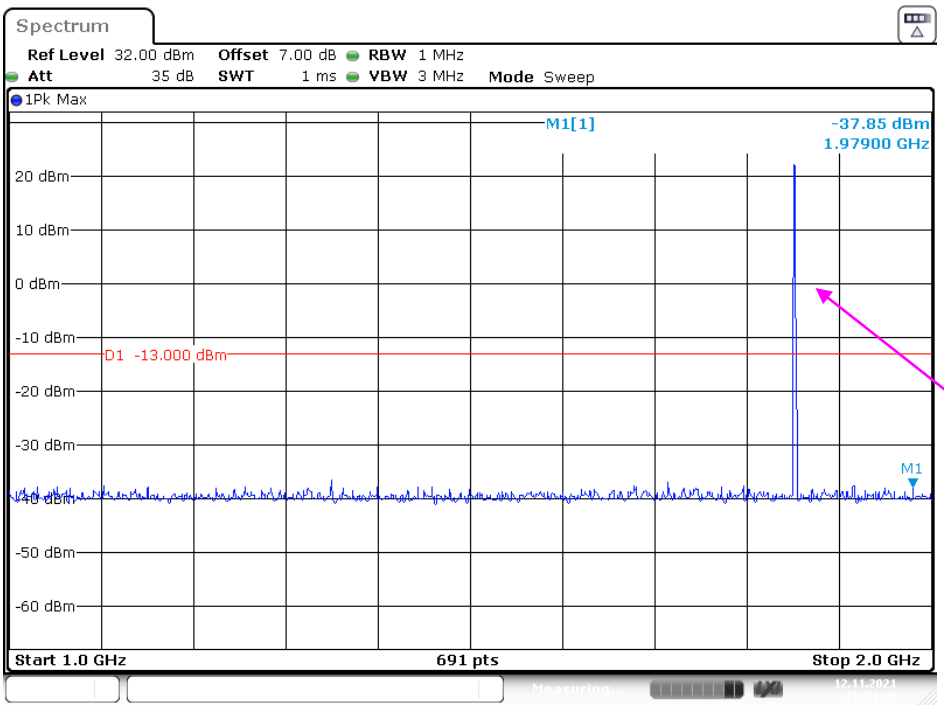
Low Channel:

30 MHz – 1 GHz (GSM Mode)



Date: 12.NOV.2021 17:51:33

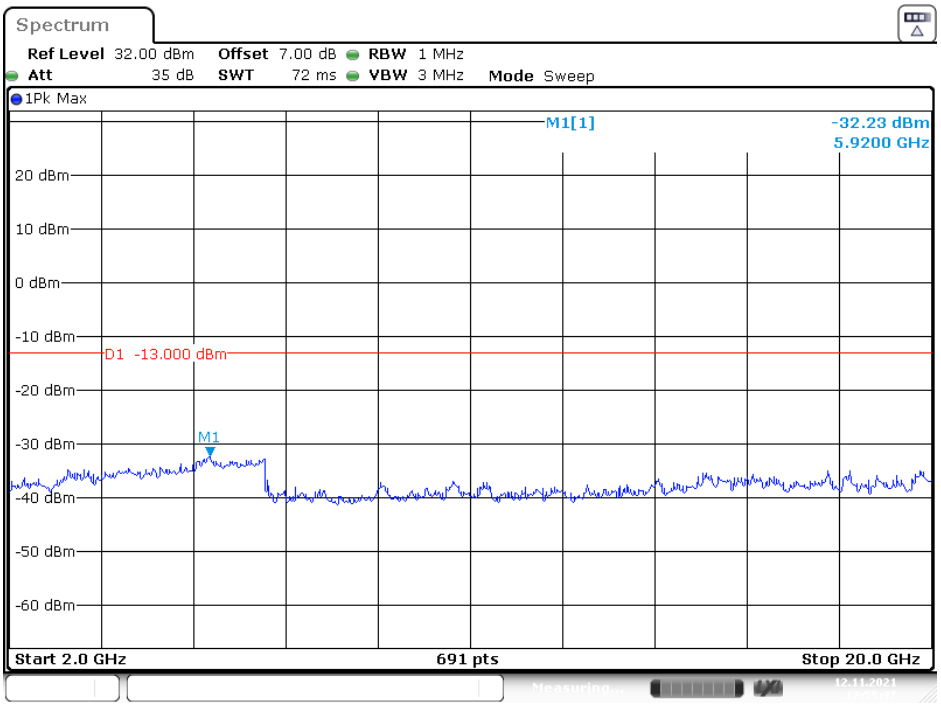
1 GHz – 2 GHz (GSM Mode)



Fundamental test

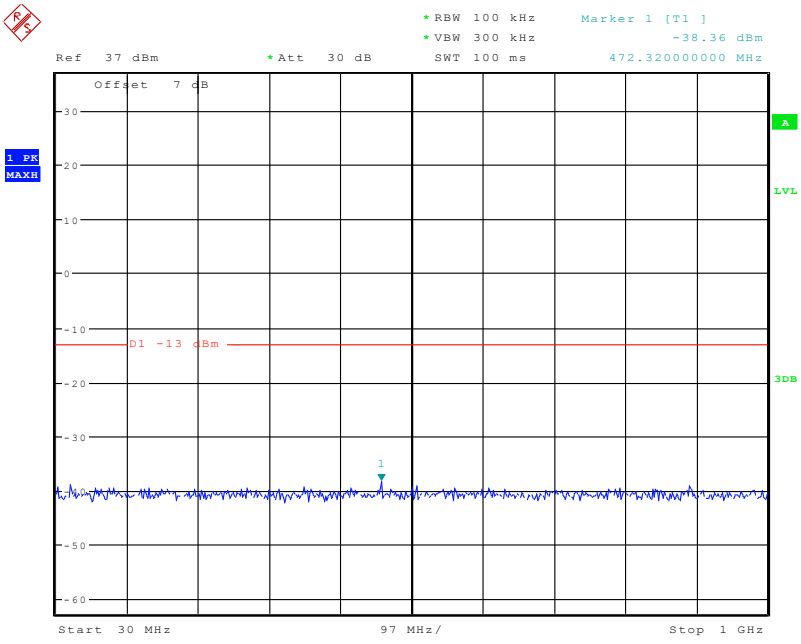
Date: 12.NOV.2021 17:54:26

2 GHz – 20 GHz (GSM Mode)



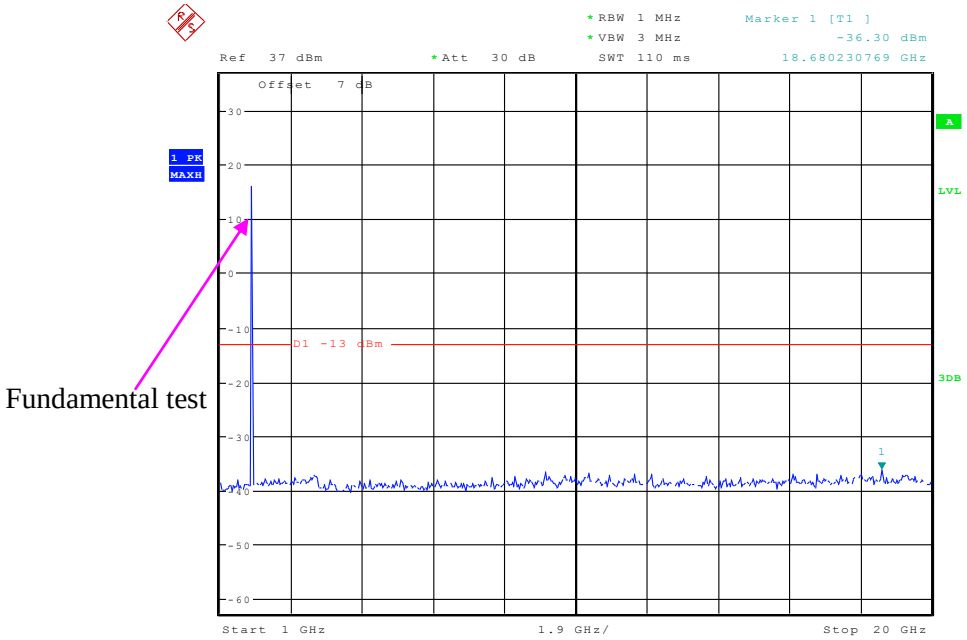
Date: 12.NOV.2021 17:55:37

30 MHz – 1 GHz (WCDMA Mode)



Date: 4.NOV.2021 23:53:31

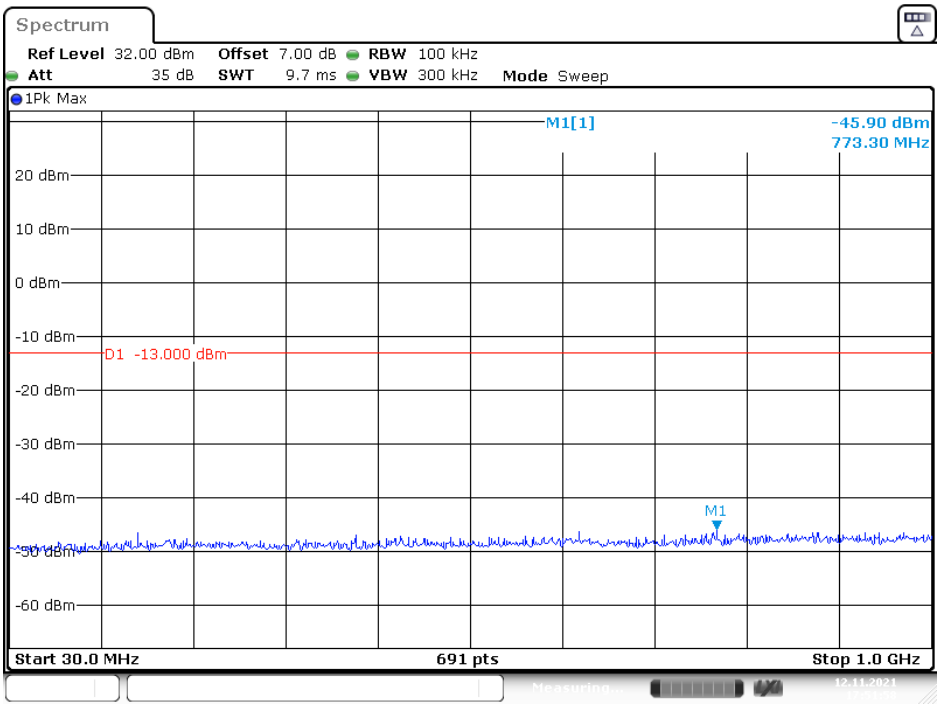
1 GHz – 20 GHz (WCDMA Mode)



Date: 5.NOV.2021 00:00:47

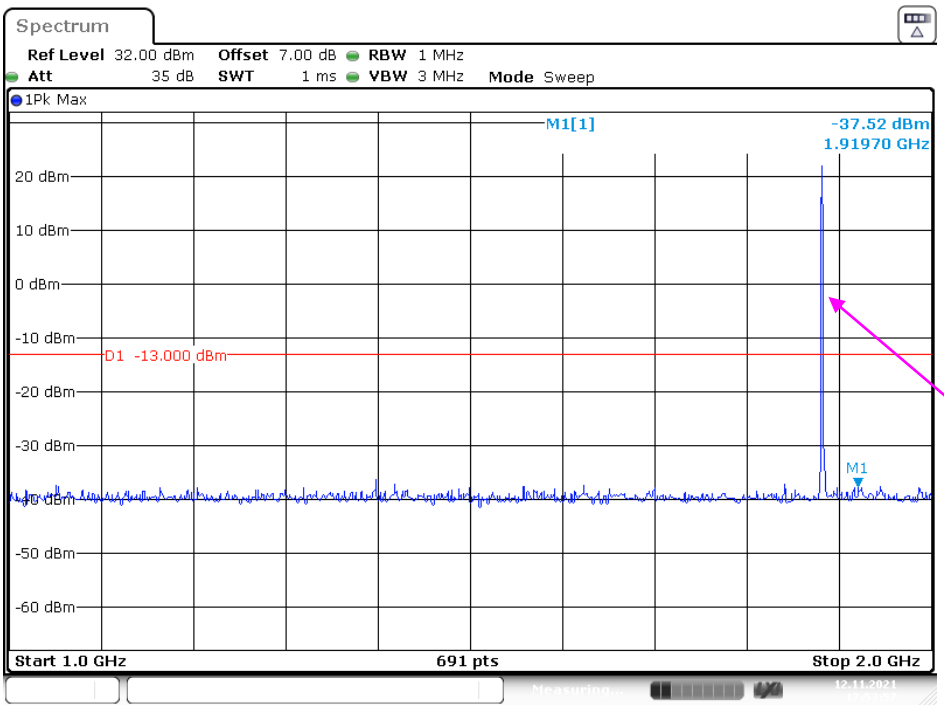
Middle Channel:

30 MHz – 1 GHz (GSM Mode)



Date: 12.NOV.2021 17:51:58

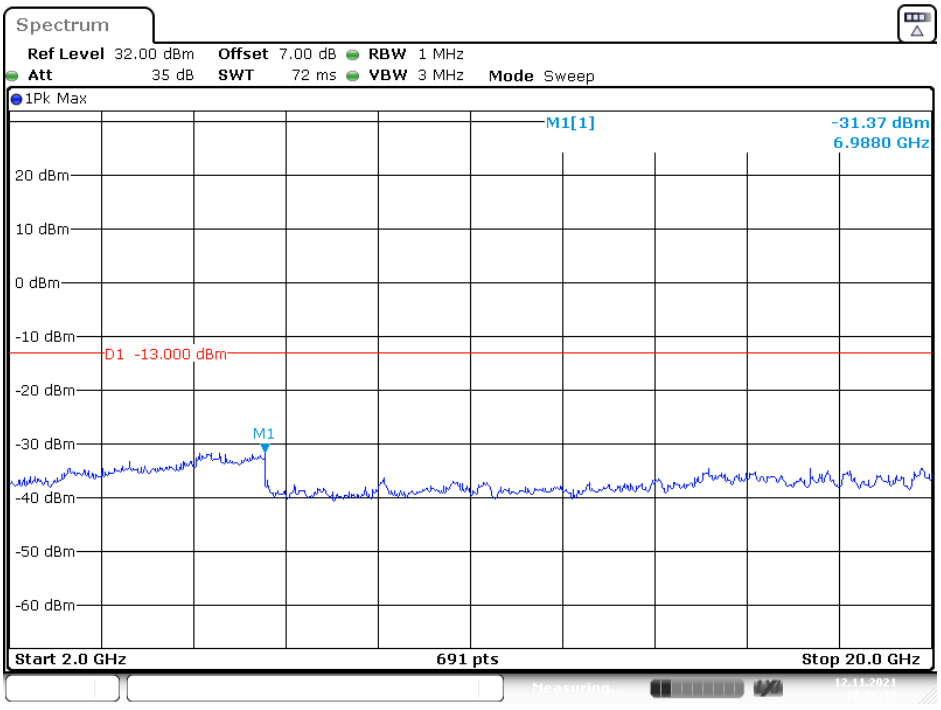
1 GHz – 2 GHz (GSM Mode)



Fundamental test

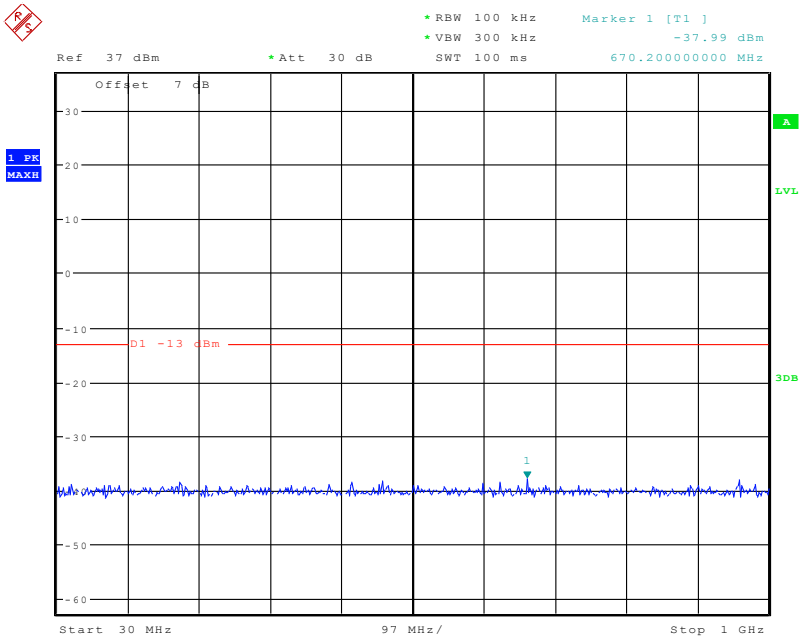
Date: 12.NOV.2021 17:53:58

2 GHz – 20 GHz (GSM Mode)



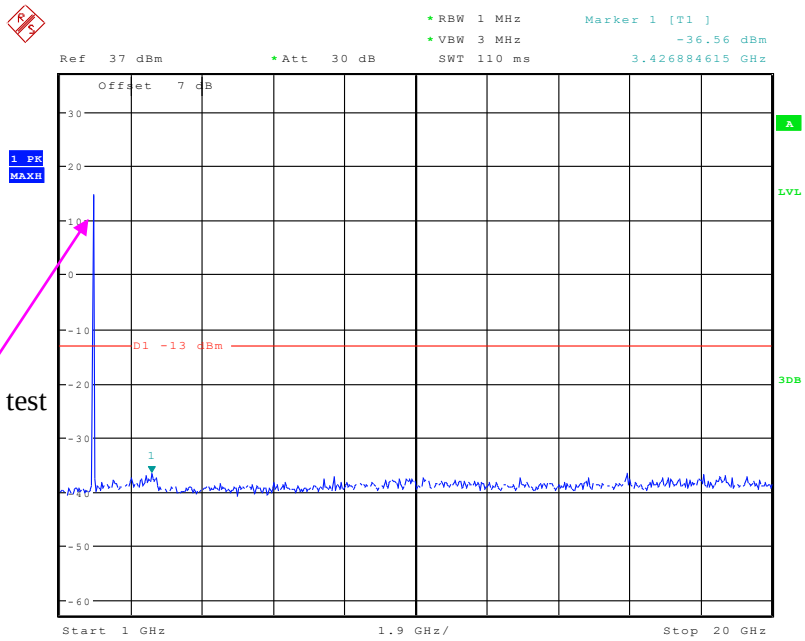
Date: 12.NOV.2021 17:56:12

30 MHz – 1 GHz (WCDMA Mode)



Date: 4.NOV.2021 23:53:52

1 GHz – 20 GHz (WCDMA Mode)

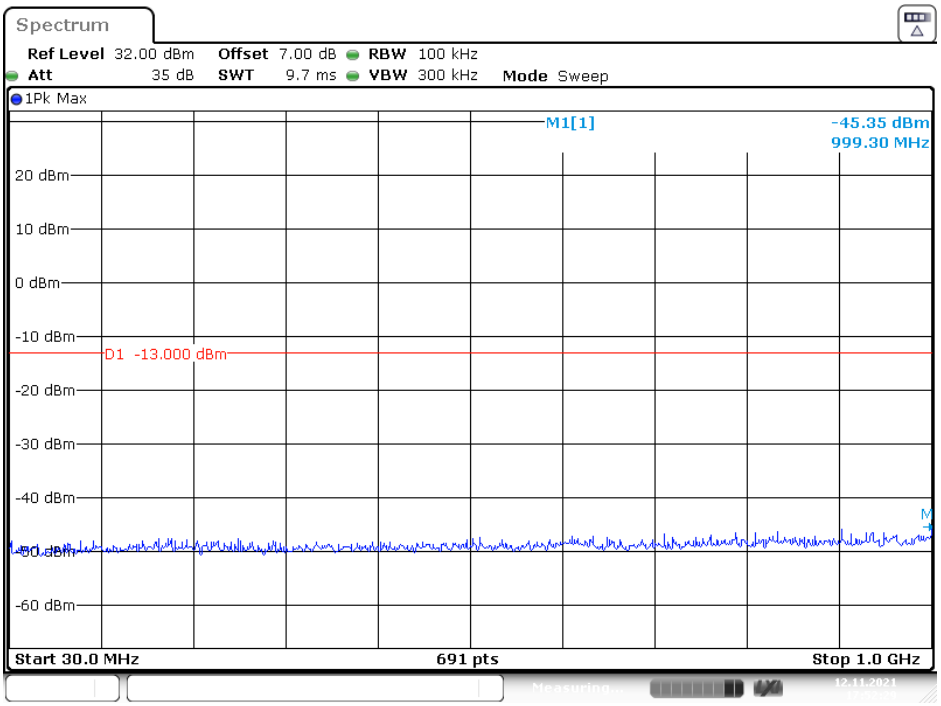


Fundamental test

Date: 5.NOV.2021 00:01:13

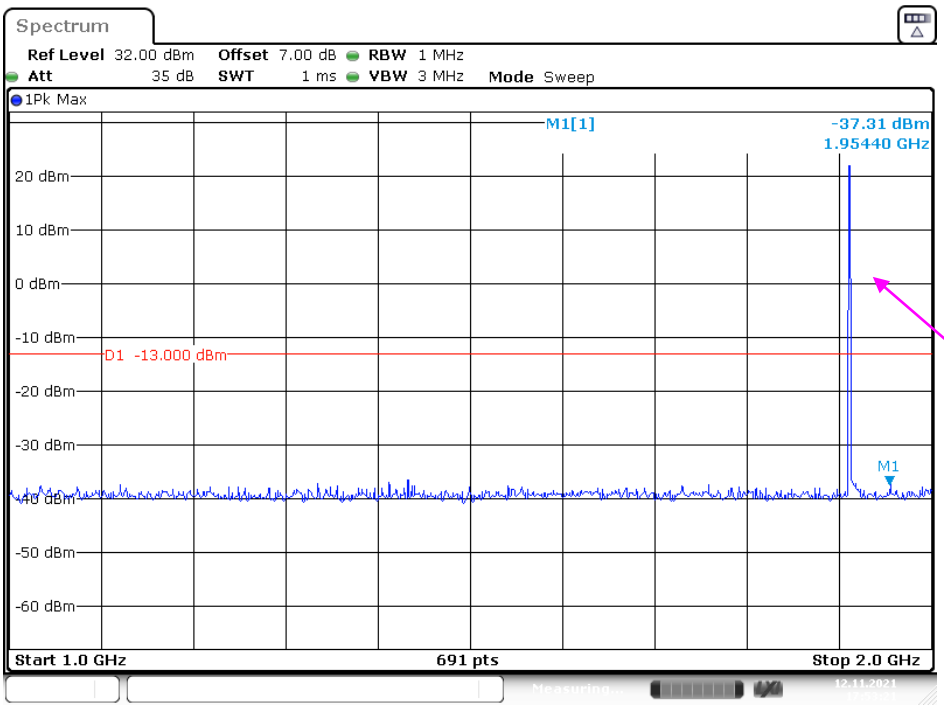
High Channel:

30 MHz – 1 GHz (GSM Mode)



Date: 12.NOV.2021 17:52:29

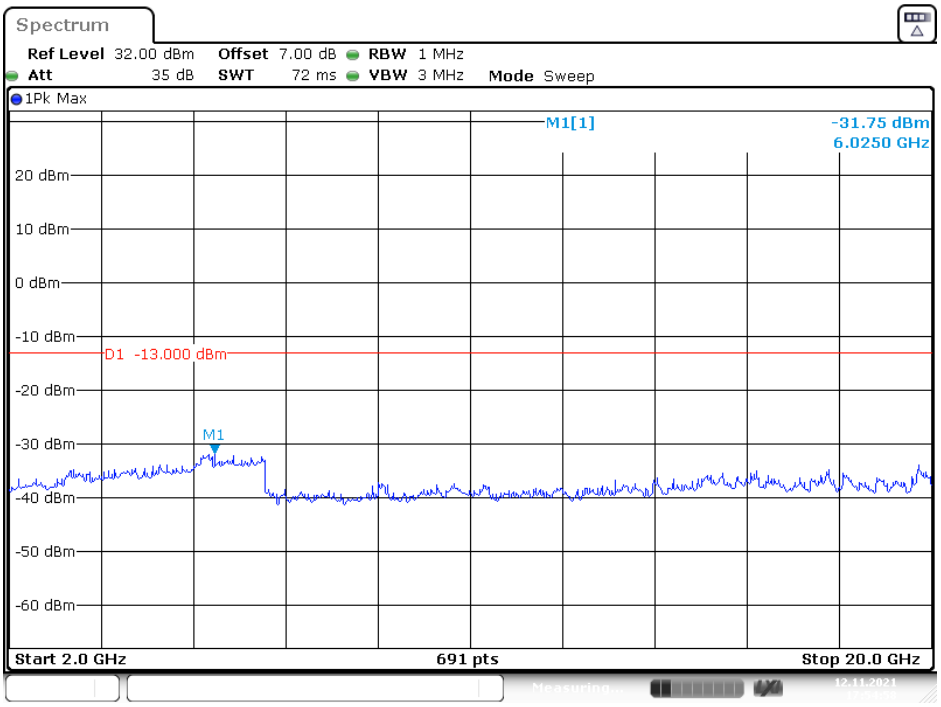
1 GHz – 2 GHz (GSM Mode)



Fundamental test

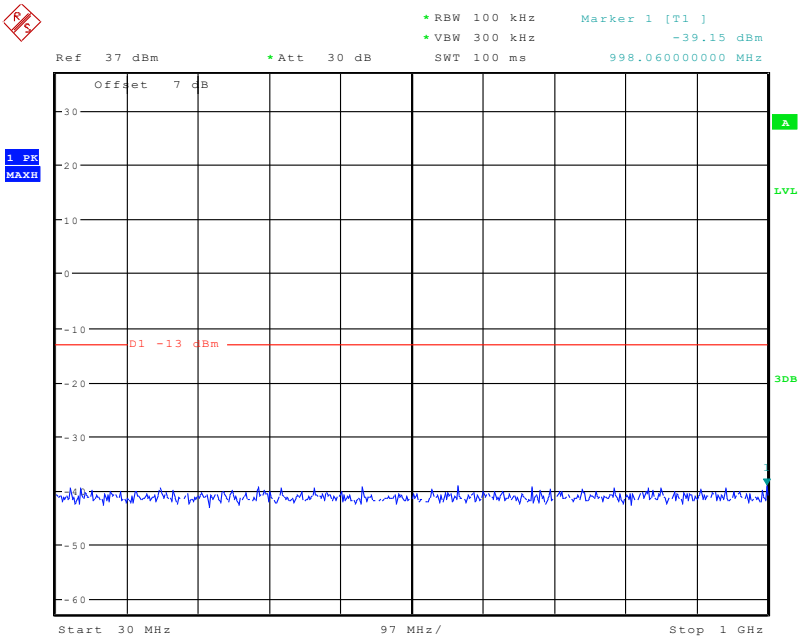
Date: 12.NOV.2021 17:53:22

2 GHz – 20 GHz (GSM Mode)



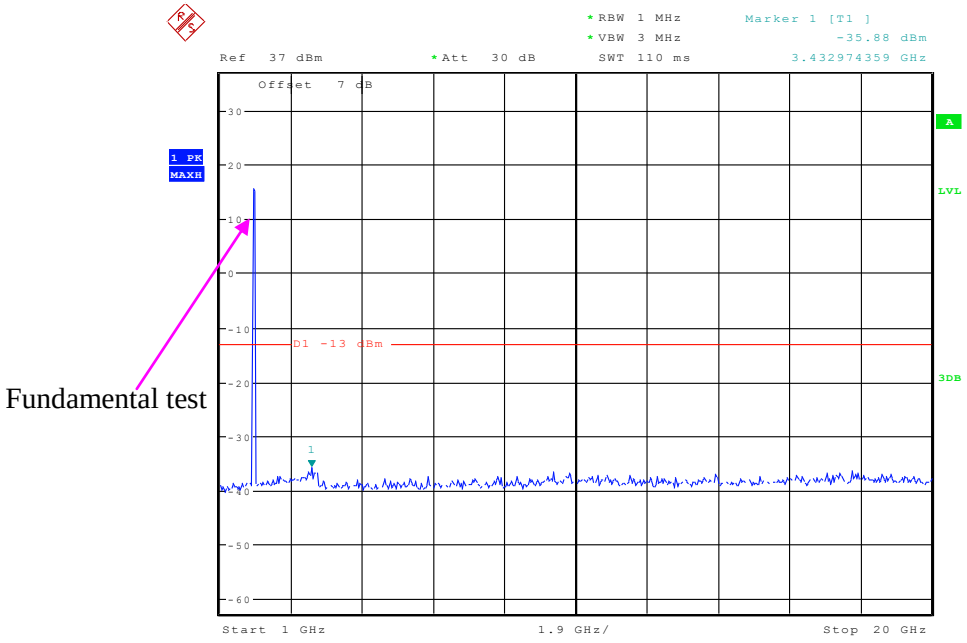
Date: 12.NOV.2021 17:54:58

30 MHz – 1 GHz (WCDMA Mode)



Date: 4.NOV.2021 23:54:04

1 GHz – 20 GHz (WCDMA Mode)

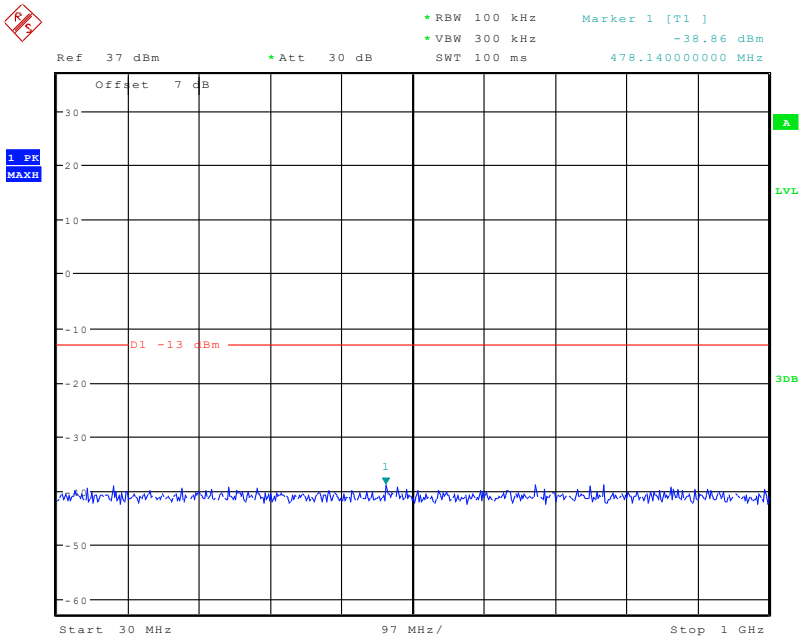


Fundamental test

Date: 5.NOV.2021 00:01:43

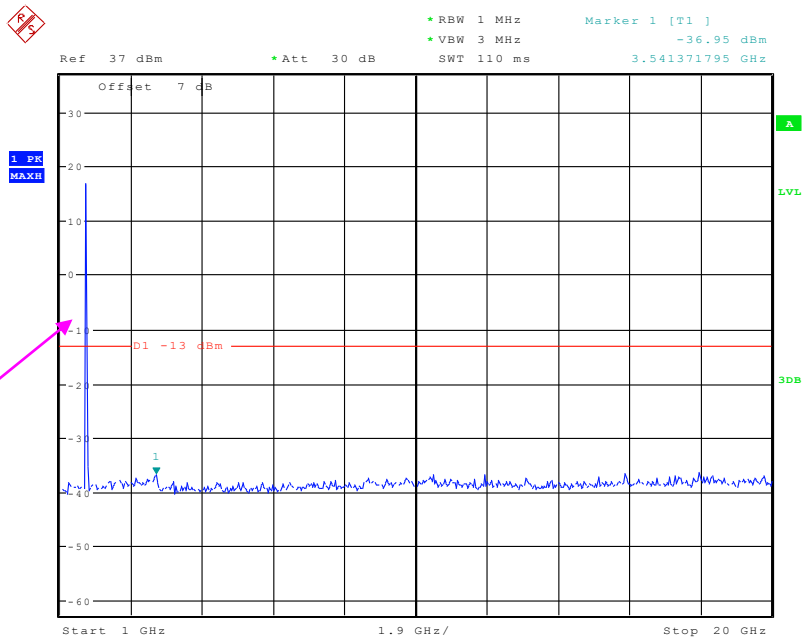
AWS Band (Part 27)
Low Channel:

30 MHz – 1 GHz (WCDMA Mode)



Date: 4.NOV.2021 23:54:37

1 GHz – 20 GHz (WCDMA Mode)

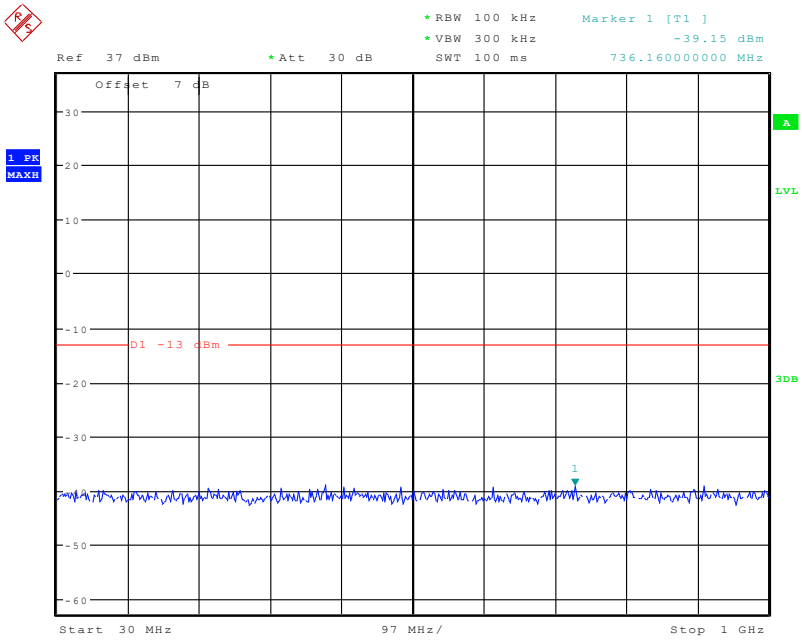


Fundamental test

Date: 4.NOV.2021 23:59:06

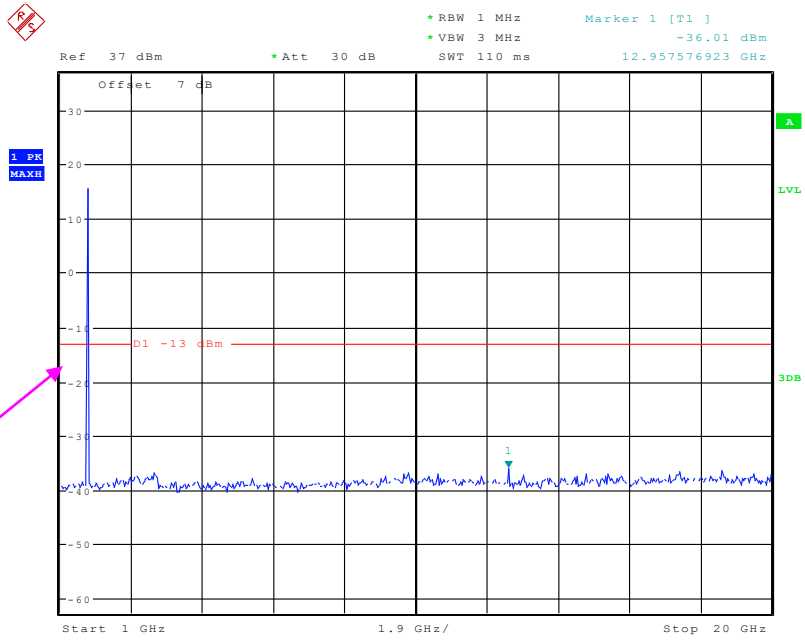
Middle Channel

30 MHz – 1 GHz (WCDMA Mode)



Date: 4.NOV.2021 23:54:49

1 GHz – 20 GHz (WCDMA Mode)

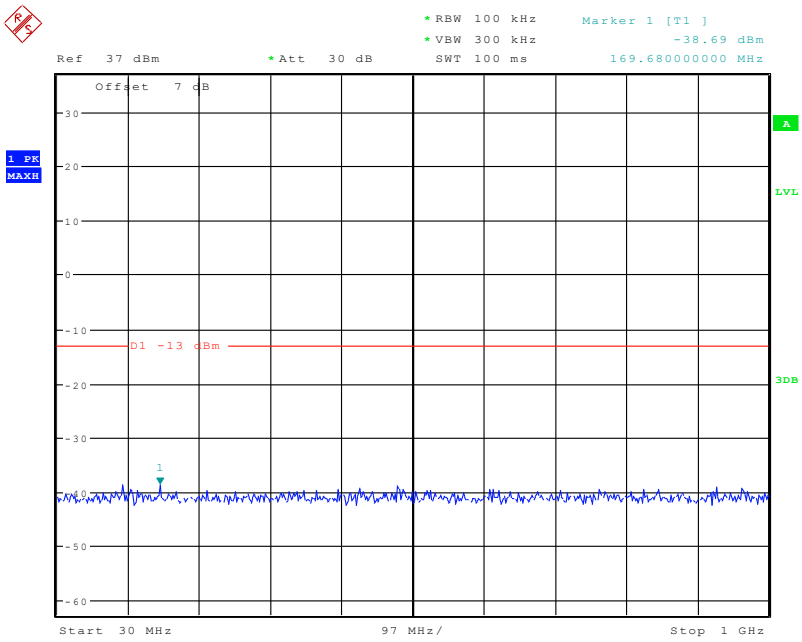


Fundamental test

Date: 4.NOV.2021 23:59:47

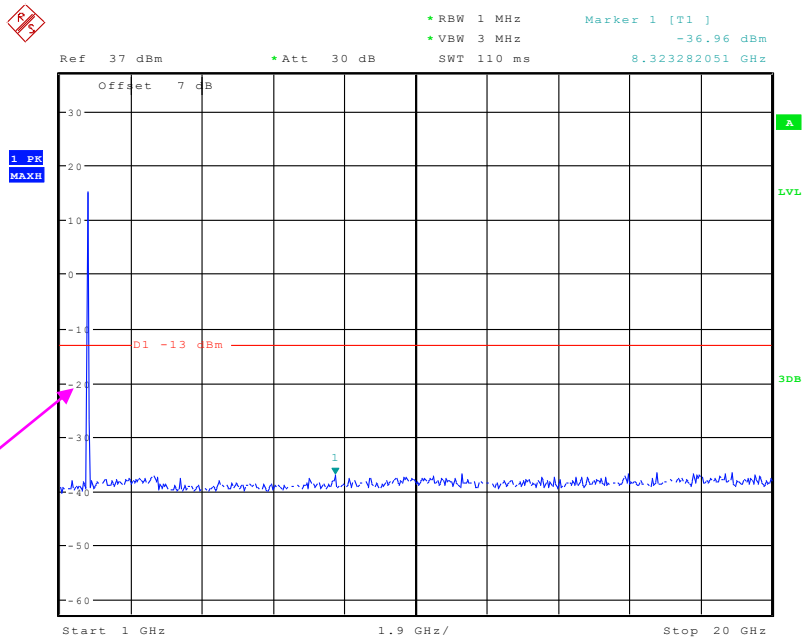
High Channel:

30 MHz – 1 GHz (WCDMA Mode)



Date: 4.NOV.2021 23:54:23

1 GHz – 20 GHz (WCDMA Mode)



Fundamental test

Date: 5.NOV.2021 00:00:18

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

FCC §2.1051, §22.917(a), §24.238(a), §27.53, §90.691 - Field Strength of Spurious Radiation

Applicable Standard

FCC §2.1051, §22.917(a) and §24.238(a) and §27.53 and §90.691

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

Test Procedure

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

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

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

Test Data

Environmental Conditions

Temperature:	26.5~27 ℃
Relative Humidity:	54~56 %
ATM Pressure:	101.0 kPa

The testing was performed by Chao Mo on 2021-10-28 and 2021-10-29.

EUT operation mode: Transmitting (Pre-scan in the X,Y and Z axes of orientation, the worst case X-axis of orientation was recorded)

The worst case is as below:

30 MHz ~ 10 GHz:

Cellular Band

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
GSM Mode								
Low channel								
285.64	-42.81	316	1.7	H	-1.13	-43.94	-13	-30.94
285.64	-45.02	298	1.6	V	1.08	-43.94	-13	-30.94
1648.4	-29.37	174	1.1	H	-2.73	-32.10	-13	-19.10
1648.4	-30.51	51	1.8	V	-2.79	-33.30	-13	-20.30
2472.6	-36.28	14	2.5	H	1.18	-35.10	-13	-22.10
2472.6	-36.71	327	2.3	V	1.21	-35.50	-13	-22.50
3296.8	-41.94	304	1.4	H	3.24	-38.70	-13	-25.70
3296.8	-43.47	51	1	V	3.27	-40.20	-13	-27.20
Middle Channel								
285.64	-43.22	236	2.2	H	-1.13	-44.35	-13	-31.35
285.64	-44.79	301	1.7	V	1.08	-43.71	-13	-30.71
1673.2	-25.13	159	1.3	H	-2.67	-27.80	-13	-14.80
1673.2	-23.46	223	2	V	-2.74	-26.20	-13	-13.20
2509.8	-38.42	320	2.2	H	1.32	-37.10	-13	-24.10
2509.8	-33.66	207	1.1	V	1.36	-32.30	-13	-19.30
3346.4	-42.91	152	1.9	H	3.31	-39.60	-13	-26.60
3346.4	-45.12	177	2.1	V	3.32	-41.80	-13	-28.80
High Channel								
285.64	-43.29	359	2.1	H	-1.13	-44.42	-13	-31.42
285.64	-44.84	155	1.2	V	1.08	-43.76	-13	-30.76
1697.6	-23.26	61	1.0	H	-2.64	-25.90	-13	-12.90
1697.6	-20.51	89	1.3	V	-2.69	-23.20	-13	-10.20
2546.4	-38.17	5	2.2	H	1.47	-36.70	-13	-23.70
2546.4	-36.22	23	1.7	V	1.52	-34.70	-13	-21.70
3395.2	-42.48	119	2.3	H	3.38	-39.10	-13	-26.10
3395.2	-41.17	172	1.9	V	3.37	-37.80	-13	-24.80

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
WCDMA Mode								
Low channel								
284.25	-42.86	213	2.3	H	-1.13	-43.99	-13	-30.99
284.25	-44.88	175	1.8	V	1.08	-43.8	-13	-30.8
1652.80	-43.77	217	2.3	H	-2.73	-46.50	-13	-33.50
1652.80	-45.11	213	1.8	V	-2.79	-47.90	-13	-34.90
2479.20	-51.08	279	1.3	H	1.18	-49.90	-13	-36.90
2479.20	-50.11	26	2.2	V	1.21	-48.90	-13	-35.90
3305.60	-49.04	229	1.8	H	3.24	-45.80	-13	-32.80
3305.60	-49.67	170	1.4	V	3.27	-46.40	-13	-33.40
Middle Channel								
284.25	-42.94	78	1.2	H	-1.13	-44.07	-13	-31.07
284.25	-44.54	251	1.6	V	1.08	-43.46	-13	-30.46
1673.20	-40.33	168	1.5	H	-2.67	-43.00	-13	-30.00
1673.20	-39.36	287	1.8	V	-2.74	-42.10	-13	-29.10
2509.80	-47.42	74	2.5	H	1.32	-46.10	-13	-33.10
2509.80	-47.36	330	1.7	V	1.36	-46.00	-13	-33.00
3346.40	-50.41	313	1.4	H	3.31	-47.10	-13	-34.10
3346.40	-49.22	115	1.6	V	3.32	-45.90	-13	-32.90
High Channel								
284.25	-43.17	147	2.3	H	-1.13	-44.3	-13	-31.3
284.25	-45.15	214	2	V	1.08	-44.07	-13	-31.07
1693.20	-50.76	153	2.0	H	-2.64	-53.40	-13	-40.40
1693.20	-49.21	266	2.5	V	-2.69	-51.90	-13	-38.90
2539.80	-53.07	121	1.2	H	1.47	-51.60	-13	-38.60
2539.80	-52.92	306	1.8	V	1.52	-51.40	-13	-38.40
3386.40	-50.18	123	1.6	H	3.38	-46.80	-13	-33.80
3386.40	-49.77	180	2.4	V	3.37	-46.40	-13	-33.40

30 MHz ~ 20 GHz:

PCS Band

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
GSM Mode								
Low channel								
285.64	-42.86	117	2.3	H	-1.13	-43.99	-13	-30.99
285.64	-44.68	22	1.5	V	1.08	-43.6	-13	-30.6
3700.4	-43.36	67	2.2	H	4.96	-38.40	-13	-25.40
3700.4	-40.99	45	2.3	V	4.59	-36.40	-13	-23.40
Middle Channel								
285.64	-43.01	250	1.3	H	-1.13	-44.14	-13	-31.14
285.64	-45.12	214	1.1	V	1.08	-44.04	-13	-31.04
3760	-53.01	46	1.8	H	5.31	-47.70	-13	-34.70
3760	-48.93	54	1.9	V	4.93	-44.00	-13	-31.00
High Channel								
285.64	-42.99	223	1.6	H	-1.13	-44.12	-13	-31.12
285.64	-45.19	182	1.5	V	1.08	-44.11	-13	-31.11
3819.6	-53.04	276	1.4	H	5.64	-47.40	-13	-34.40
3819.6	-52.37	164	2.5	V	5.27	-47.10	-13	-34.10
WCDMA Mode								
Low channel								
284.25	-42.57	190	2	H	-1.13	-43.7	-13	-30.7
284.25	-44.61	276	1.9	V	1.08	-43.53	-13	-30.53
3704.80	-50.96	173	1.3	H	4.96	-46.00	-13	-33.00
3704.80	-50.79	309	2.4	V	4.59	-46.20	-13	-33.20
Middle channel								
284.25	-43.37	27	1.5	H	-1.13	-44.5	-13	-31.5
284.25	-44.63	193	1.2	V	1.08	-43.55	-13	-30.55
3760.00	-52.51	185	2.2	H	5.31	-47.20	-13	-34.20
3760.00	-51.83	188	1.2	V	4.93	-46.90	-13	-33.90
High channel								
284.25	-42.53	295	2.5	H	-1.13	-43.66	-13	-30.66
284.25	-45.16	161	1.9	V	1.08	-44.08	-13	-31.08
3815.20	-52.64	138	1.6	H	5.64	-47.00	-13	-34.00
3815.20	-52.07	136	1.8	V	5.27	-46.80	-13	-33.80

30 MHz ~ 20 GHz:

AWS Band

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
WCDMA Mode								
Low channel								
284.25	-42.96	341	1.6	H	-1.13	-44.09	-13	-31.09
284.25	-45.06	153	2.3	V	1.08	-43.98	-13	-30.98
3424.80	-49.13	241	2.2	H	3.43	-45.70	-13	-32.70
3424.80	-49.30	117	2.4	V	3.4	-45.90	-13	-32.90
Middle channel								
284.25	-42.87	4	1.7	H	-1.13	-44	-13	-31
284.25	-44.69	347	2.3	V	1.08	-43.61	-13	-30.61
3465.20	-49.09	184	2.5	H	3.49	-45.60	-13	-32.60
3465.20	-50.45	218	1.5	V	3.45	-47.00	-13	-34.00
High channel								
284.25	-43.13	17	1.5	H	-1.13	-44.26	-13	-31.26
284.25	-44.86	183	1.6	V	1.08	-43.78	-13	-30.78
3505.20	-49.65	283	2.1	H	3.55	-46.10	-13	-33.10
3505.20	-49.90	102	1.1	V	3.5	-46.40	-13	-33.40

LTE Band:

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
Band 2								
Test frequency range: 30MHz-20GHz								
1.4MHz, low channel								
285.24	-43.34	19	1.4	H	-1.13	-44.47	-13	-31.47
285.24	-45.44	11	1.9	V	1.08	-44.36	-13	-31.36
3701.40	-47.16	103	1.8	H	4.96	-42.20	-13	-29.20
3701.40	-43.19	179	1.8	V	4.59	-38.60	-13	-25.60
5552.10	-54.73	64	2.4	H	10.63	-44.10	-13	-31.10
5552.10	-50.58	265	2.3	V	8.98	-41.60	-13	-28.60
1.4MHz, middle channel								
285.24	-42.82	122	1	H	-1.13	-43.95	-13	-30.95
285.24	-45.12	147	1.6	V	1.08	-44.04	-13	-31.04
3760.00	-50.81	146	1.3	H	5.31	-45.50	-13	-32.50
3760.00	-51.13	65	1.6	V	4.93	-46.20	-13	-33.20
5640.00	-54.48	277	1.6	H	10.68	-43.80	-13	-30.80
5640.00	-50.84	348	1.5	V	9.24	-41.60	-13	-28.60
1.4MHz, high channel								
285.24	-43.05	233	1	H	-1.13	-44.18	-13	-31.18
285.24	-44.71	207	2.1	V	1.08	-43.63	-13	-30.63
3818.60	-51.14	313	2.1	H	5.64	-45.50	-13	-32.50
3818.60	-51.47	40	1.3	V	5.27	-46.20	-13	-33.20
5727.90	-55.63	103	1.4	H	10.73	-44.90	-13	-31.90
5727.90	-52.31	158	2.4	V	9.51	-42.80	-13	-29.80

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
Band 4								
Test frequency range: 30MHz-20GHz								
1.4MHz, low channel								
285.24	-42.89	318	1.6	H	-1.13	-44.02	-13	-31.02
285.24	-45.25	49	1.6	V	1.08	-44.17	-13	-31.17
3421.40	-42.63	64	1.1	H	3.43	-39.20	-13	-26.20
3421.40	-42.80	124	1.3	V	3.4	-39.40	-13	-26.40
5132.10	-52.52	192	1.6	H	9.72	-42.80	-13	-29.80
5132.10	-48.88	256	1.4	V	8.38	-40.50	-13	-27.50
1.4MHz, middle channel								
285.24	-43.36	202	1.4	H	-1.13	-44.49	-13	-31.49
285.24	-45.41	347	1.8	V	1.08	-44.33	-13	-31.33
3465.00	-41.39	5	1.3	H	3.49	-37.90	-13	-24.90
3465.00	-39.65	125	2.1	V	3.45	-36.20	-13	-23.20
5197.50	-49.84	226	1.3	H	9.84	-40.00	-13	-27.00
5197.50	-46.31	319	1.9	V	8.41	-37.90	-13	-24.90
1.4MHz, high channel								
285.24	-43.49	346	1.6	H	-1.13	-44.62	-13	-31.62
285.24	-45.13	315	1	V	1.08	-44.05	-13	-31.05
3508.60	-41.65	18	1.2	H	3.55	-38.10	-13	-25.10
3508.60	-40.10	331	2	V	3.5	-36.60	-13	-23.60
5262.90	-51.56	240	1.9	H	9.96	-41.60	-13	-28.60
5262.90	-49.14	207	1.4	V	8.44	-40.70	-13	-27.70

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
Band 5& Band 26(Part 22H)								
Test frequency range: 30MHz-10GHz								
1.4MHz, low channel								
285.24	-43.48	26	2.4	H	-1.13	-44.61	-13	-31.61
285.24	-45.48	168	2.1	V	1.08	-44.4	-13	-31.4
1649.40	-34.67	234	1.1	H	-2.73	-37.40	-13	-24.40
1649.40	-36.71	91	1.3	V	-2.79	-39.50	-13	-26.50
2474.10	-40.48	125	1.8	H	1.18	-39.30	-13	-26.30
2474.10	-43.51	278	1.1	V	1.21	-42.30	-13	-29.30
3298.80	-48.64	154	1.6	H	3.24	-45.40	-13	-32.40
3298.80	-49.77	185	2.4	V	3.27	-46.50	-13	-33.50
1.4MHz, middle channel								
285.24	-42.59	352	1.9	H	-1.13	-43.72	-13	-30.72
285.24	-44.55	76	1.8	V	1.08	-43.47	-13	-30.47
1673.00	-32.13	106	1.4	H	-2.67	-34.80	-13	-21.80
1673.00	-33.76	323	1.6	V	-2.74	-36.50	-13	-23.50
2509.50	-46.82	250	1.7	H	1.32	-45.50	-13	-32.50
2509.50	-43.66	271	1.9	V	1.36	-42.30	-13	-29.30
3346.00	-49.11	121	2.4	H	3.31	-45.80	-13	-32.80
3346.00	-49.42	267	1.9	V	3.32	-46.10	-13	-33.10
1.4MHz, high channel								
285.24	-43.16	39	2	H	-1.13	-44.29	-13	-31.29
285.24	-44.86	38	2.3	V	1.08	-43.78	-13	-30.78
1696.60	-34.36	287	1.0	H	-2.64	-37.00	-13	-24.00
1696.60	-34.51	8	1.8	V	-2.69	-37.20	-13	-24.20
2544.90	-45.67	272	1.4	H	1.47	-44.20	-13	-31.20
2544.90	-46.52	159	2.3	V	1.52	-45.00	-13	-32.00
3393.20	-49.98	39	1.7	H	3.38	-46.60	-13	-33.60
3393.20	-49.67	205	1.3	V	3.37	-46.30	-13	-33.30

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
Band 7								
Test frequency range: 30MHz-26.5GHz								
5MHz, low channel								
285.24	-42.66	101	1.2	H	-1.13	-43.79	-25	-18.79
285.24	-44.59	333	1.4	V	1.08	-43.51	-25	-18.51
5005.00	-52.30	310	1.3	H	9.5	-42.80	-25	-17.80
5005.00	-51.02	334	2.3	V	8.32	-42.70	-25	-17.70
7507.50	-53.18	7	1.8	H	14.38	-38.80	-25	-13.80
7507.50	-50.76	323	2	V	15.16	-35.60	-25	-10.60
5MHz, middle channel								
285.24	-43.34	44	2.5	H	-1.13	-44.47	-25	-19.47
285.24	-45.34	277	2.2	V	1.08	-44.26	-25	-19.26
5070.00	-49.46	220	2.3	H	9.56	-39.90	-25	-14.90
5070.00	-50.74	4	1.2	V	8.34	-42.40	-25	-17.40
7605.00	-56.41	286	2.4	H	14.71	-41.70	-25	-16.70
7605.00	-53.64	358	1.1	V	15.34	-38.30	-25	-13.30
5MHz, high channel								
285.24	-43.41	89	1.5	H	-1.13	-44.54	-25	-19.54
285.24	-44.59	19	1.7	V	1.08	-43.51	-25	-18.51
5135.00	-52.72	321	1.2	H	9.72	-43.00	-25	-18.00
5135.00	-51.18	105	1	V	8.38	-42.80	-25	-17.80
7702.50	-55.23	265	2.5	H	15.03	-40.20	-25	-15.20
7702.50	-54.91	277	2.4	V	15.51	-39.40	-25	-14.40

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
Band 12								
Test frequency range: 30MHz-10GHz								
1.4MHz, low channel								
285.24	-43	38	1.9	H	-1.13	-44.13	-13	-31.13
285.24	-45.35	44	1.1	V	1.08	-44.27	-13	-31.27
1399.40	-37.47	40	1.4	H	-0.53	-38.00	-13	-25.00
1399.40	-38.86	204	2.2	V	-0.74	-39.60	-13	-26.60
2099.10	-42.61	43	1.9	H	-0.89	-43.50	-13	-30.50
2099.10	-44.28	294	2.4	V	-1.12	-45.40	-13	-32.40
2798.80	-49.24	56	1.6	H	2.24	-47.00	-13	-34.00
2798.80	-48.53	183	2.4	V	2.33	-46.20	-13	-33.20
1.4MHz, middle channel								
285.24	-42.75	126	1.1	H	-1.13	-43.88	-13	-30.88
285.24	-44.69	329	1.9	V	1.08	-43.61	-13	-30.61
1415.00	-36.97	293	1.2	H	-0.53	-37.50	-13	-24.50
1415.00	-38.66	134	1.2	V	-0.74	-39.40	-13	-26.40
2122.50	-42.81	196	1.5	H	-0.89	-43.70	-13	-30.70
2122.50	-43.78	63	1.7	V	-1.12	-44.90	-13	-31.90
2830.00	-49.44	39	1.3	H	2.24	-47.20	-13	-34.20
2830.00	-49.53	156	2.3	V	2.33	-47.20	-13	-34.20
1.4MHz, high channel								
285.24	-43.46	125	2.3	H	-1.13	-44.59	-13	-31.59
285.24	-45.13	268	1.6	V	1.08	-44.05	-13	-31.05
1430.60	-35.17	149	1.2	H	-0.53	-35.70	-13	-22.70
1430.60	-37.96	290	1.7	V	-0.74	-38.70	-13	-25.70
2145.90	-42.21	203	1.2	H	-0.89	-43.10	-13	-30.10
2145.90	-43.18	63	2	V	-1.12	-44.30	-13	-31.30
2861.20	-46.54	127	1.4	H	2.24	-44.30	-13	-31.30
2861.20	-47.83	69	2	V	2.33	-45.50	-13	-32.50

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
Band 13								
Test frequency range: 30MHz-10GHz								
5MHz, low channel								
285.24	-42.63	54	2.3	H	-1.13	-43.76	-13	-30.76
285.24	-45.36	154	2.4	V	1.08	-44.28	-13	-31.28
1559.00	-41.99	51	1.6	H	-2.81	-44.80	-40	-4.80
1559.00	-39.21	189	2.2	V	-2.89	-42.10	-40	-2.10
2338.50	-51.82	155	1.6	H	1.22	-50.60	-13	-37.60
2338.50	-50.78	213	1.5	V	1.18	-49.60	-13	-36.60
3118.00	-50.74	254	1.3	H	2.84	-47.90	-13	-34.90
3118.00	-50.57	159	1.4	V	2.97	-47.60	-13	-34.60
5MHz, middle channel								
285.24	-42.68	66	1.9	H	-1.13	-43.81	-13	-30.81
285.24	-45.36	325	1.3	V	1.08	-44.28	-13	-31.28
1564.00	-40.99	199	1.3	H	-2.81	-43.80	-40	-3.80
1564.00	-38.41	311	1.3	V	-2.89	-41.30	-40	-1.30
2346.00	-51.62	255	2.2	H	1.22	-50.40	-13	-37.40
2346.00	-51.28	178	2.2	V	1.18	-50.10	-13	-37.10
3128.00	-51.24	200	2.1	H	2.84	-48.40	-13	-35.40
3128.00	-50.57	129	2.5	V	2.97	-47.60	-13	-34.60
5MHz, high channel								
285.24	-43.24	243	2.1	H	-1.13	-44.37	-13	-31.37
285.24	-45.37	39	2.3	V	1.08	-44.29	-13	-31.29
1569.00	-41.79	272	2.4	H	-2.81	-44.60	-40	-4.60
1569.00	-39.71	112	1.8	V	-2.89	-42.60	-40	-2.60
2353.50	-52.92	227	1.5	H	1.22	-51.70	-13	-38.70
2353.50	-51.48	78	1.6	V	1.18	-50.30	-13	-37.30
3138.00	-50.54	288	2.3	H	2.84	-47.70	-13	-34.70
3138.00	-51.27	21	1.7	V	2.97	-48.30	-13	-35.30

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
Band 25								
Test frequency range: 30MHz-20GHz								
1.4MHz, low channel								
285.24	-43.42	0	1.3	H	-1.13	-44.55	-13	-31.55
285.24	-45.19	268	1.8	V	1.08	-44.11	-13	-31.11
3701.40	-47.86	59	2.2	H	4.96	-42.90	-13	-29.90
3701.40	-46.09	302	2.0	V	4.59	-41.50	-13	-28.50
1.4MHz,middle channel								
285.24	-42.99	270	2.4	H	-1.13	-44.12	-13	-31.12
285.24	-45.32	206	1.4	V	1.08	-44.24	-13	-31.24
3765.00	-52.51	211	1.3	H	5.31	-47.20	-13	-34.20
3765.00	-51.43	86	1.5	V	4.93	-46.50	-13	-33.50
1.4MHz,high channel								
285.24	-42.64	115	2	H	-1.13	-43.77	-13	-30.77
285.24	-45.36	304	1.6	V	1.08	-44.28	-13	-31.28
3828.60	-52.14	84	2.2	H	5.64	-46.50	-13	-33.50
3828.60	-51.57	276	1.4	V	5.27	-46.30	-13	-33.30

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
Band 26(Part 90S)								
1.4MHz, low channel								
285.24	-42.81	230	2.1	H	-1.13	-43.94	-13	-30.94
285.24	-44.79	155	1.2	V	1.08	-43.71	-13	-30.71
1629.40	-36.37	111	1.6	H	-2.73	-39.10	-13	-26.10
1629.40	-33.91	236	1.9	V	-2.79	-36.70	-13	-23.70
2444.10	-47.48	28	1.2	H	1.18	-46.30	-13	-33.30
2444.10	-45.41	219	2	V	1.21	-44.20	-13	-31.20
3258.80	-50.04	221	2.4	H	3.24	-46.80	-13	-33.80
3258.80	-42.37	301	2.3	V	3.27	-39.10	-13	-26.10
1.4MHz,middle channel								
285.24	-43.03	204	2.5	H	-1.13	-44.16	-13	-31.16
285.24	-45.02	48	1.5	V	1.08	-43.94	-13	-30.94
1638.00	-33.67	255	1.6	H	-2.73	-36.40	-13	-23.40
1638.00	-33.21	55	1.6	V	-2.79	-36.00	-13	-23.00
2457.00	-46.08	337	1.5	H	1.18	-44.90	-13	-31.90
2457.00	-44.71	166	2.1	V	1.21	-43.50	-13	-30.50
3276.00	-49.94	98	1.9	H	3.24	-46.70	-13	-33.70
3276.00	-49.67	157	1.8	V	3.27	-46.40	-13	-33.40
1.4MHz,high channel								
285.24	-42.65	5	1.3	H	-1.13	-43.78	-13	-30.78
285.24	-45.04	315	1.8	V	1.08	-43.96	-13	-30.96
1646.60	-33.77	65	1.1	H	-2.73	-36.50	-13	-23.50
1646.60	-35.01	49	1.7	V	-2.79	-37.80	-13	-24.80
2469.90	-48.38	175	1.7	H	1.18	-47.20	-13	-34.20
2469.90	-46.51	160	2	V	1.21	-45.30	-13	-32.30
3293.20	-48.84	108	2.2	H	3.24	-45.60	-13	-32.60
3293.20	-39.77	138	1.6	V	3.27	-36.50	-13	-23.50

Note:
Absolute Level = Reading Level + Substituted Factor
Substituted Factor contains: SG Level - Cable loss+ Antenna Gain
Margin = Limit - Absolute Level

FCC §22.917 (a), §24.238 (a), §27.53, §90.691 - BAND EDGES

Applicable Standard

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

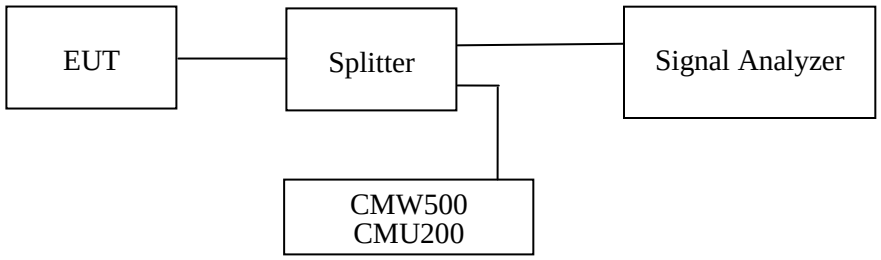
According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

According to FCC §27.53 (c)(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:	28.2~29.0 ℃
Relative Humidity:	44~56 %
ATM Pressure:	101.0 kPa

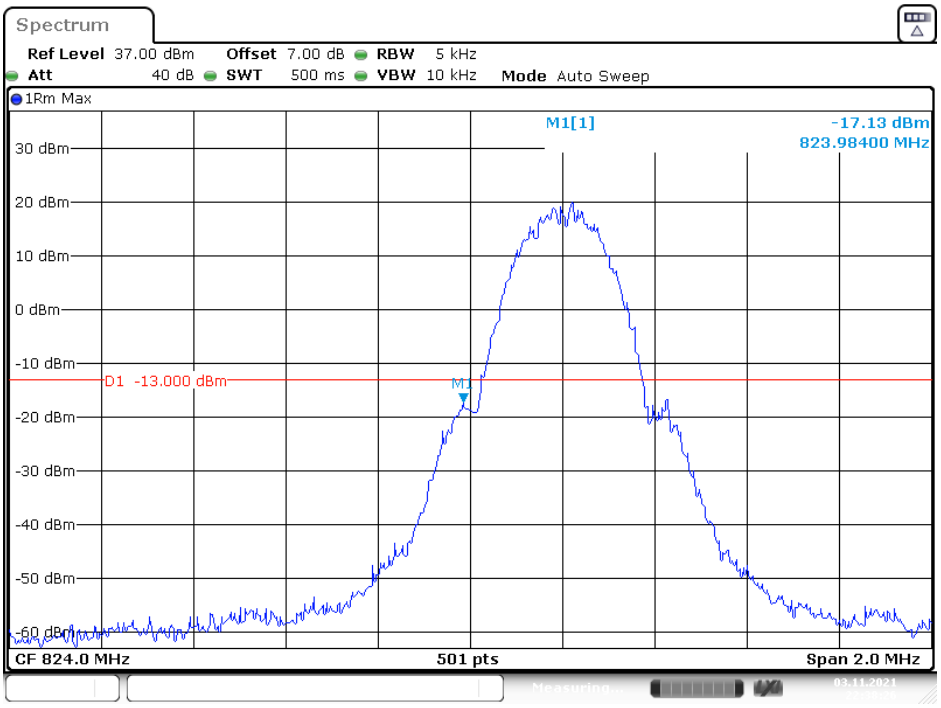
The testing was performed by Black Ding from 2021-11-03 to 2021-11-12.

EUT operation mode: Transmitting (Worst case)

Test Result: Pass

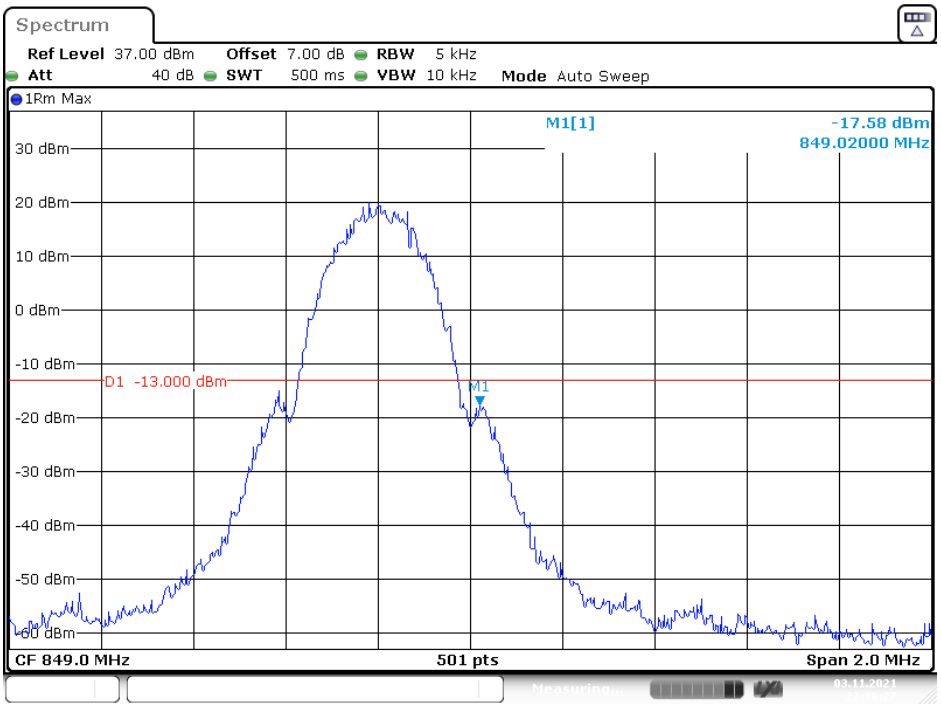
Please refer to the following plots.

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



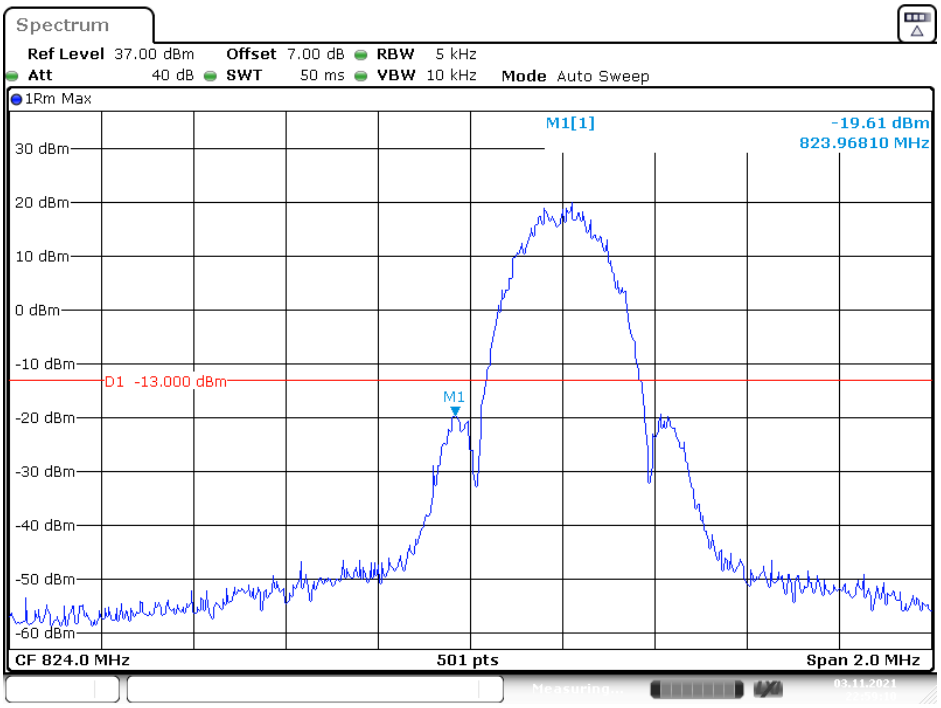
Date: 3.NOV.2021 22:38:26

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



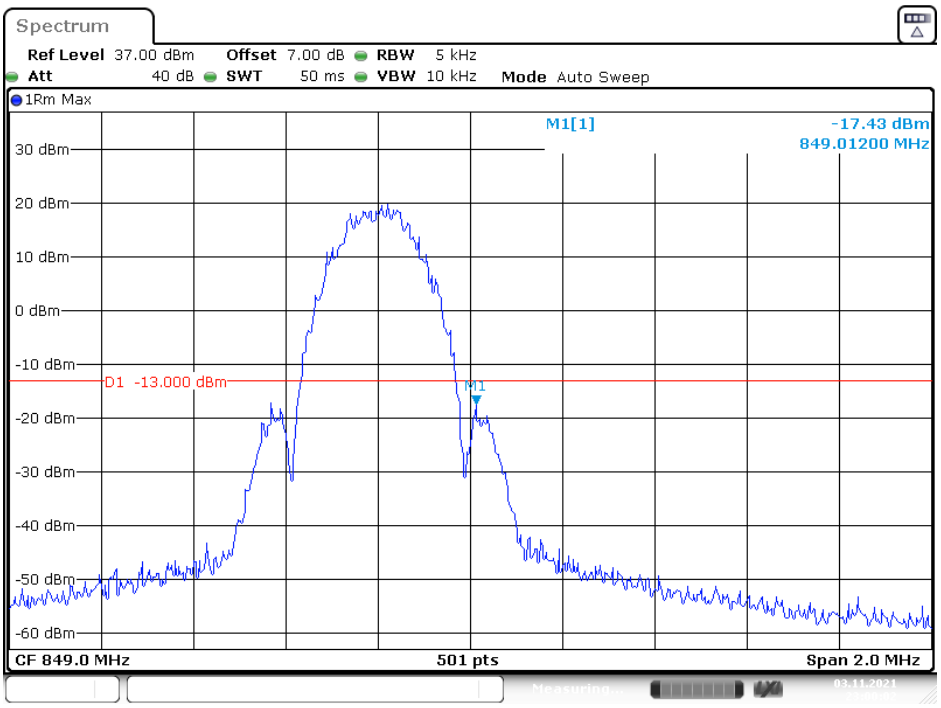
Date: 3.NOV.2021 22:36:27

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



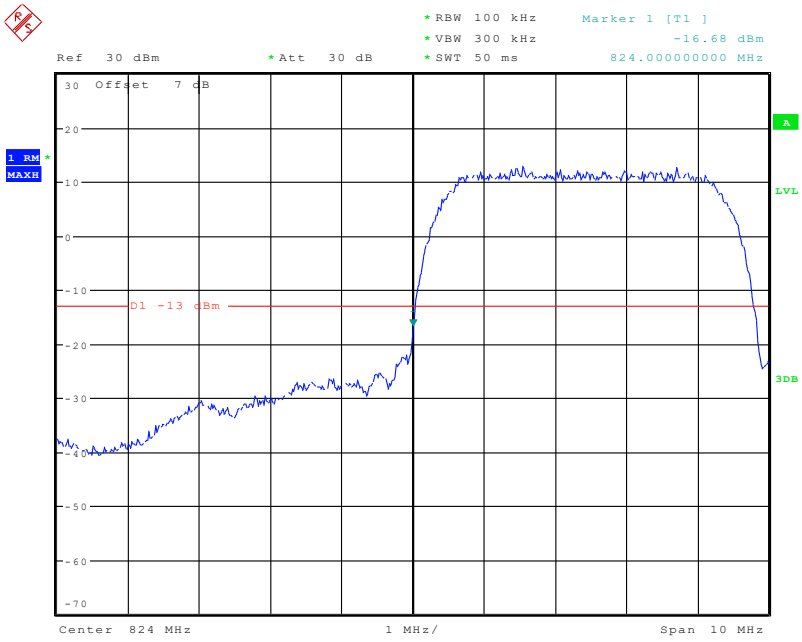
Date: 3.NOV.2021 22:59:11

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



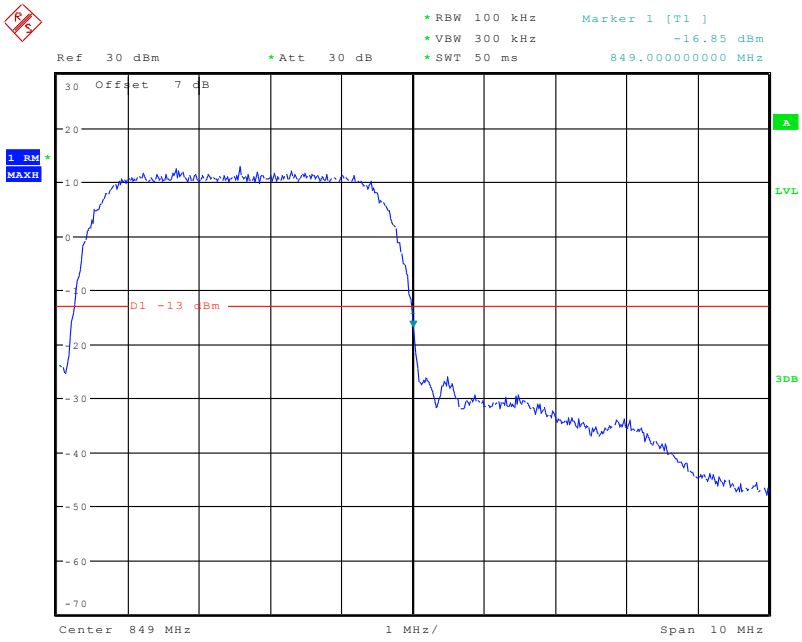
Date: 3.NOV.2021 23:00:03

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



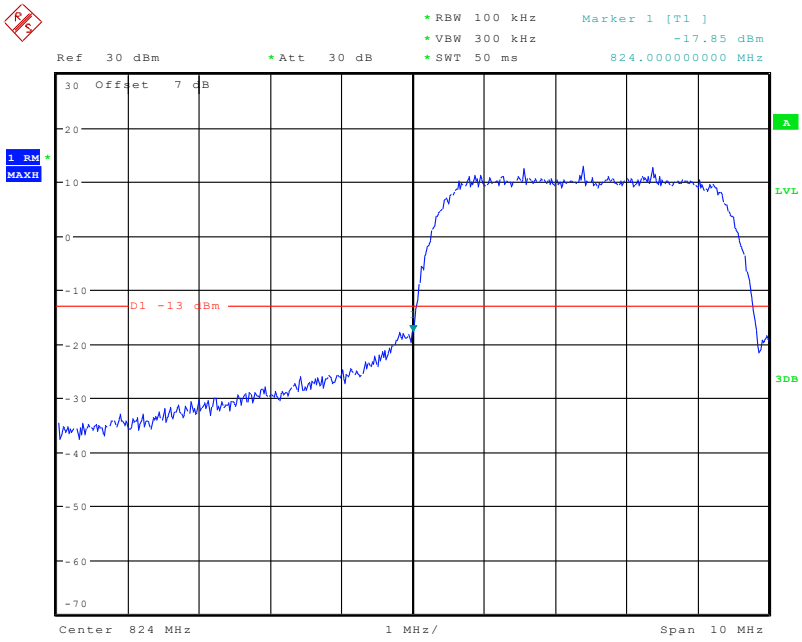
Date: 4.NOV.2021 23:39:32

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



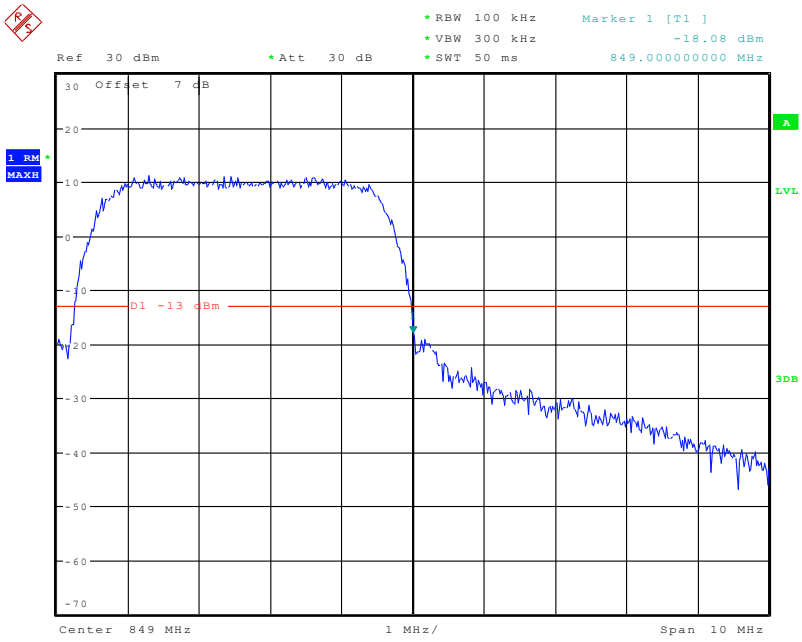
Date: 4.NOV.2021 23:39:55

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



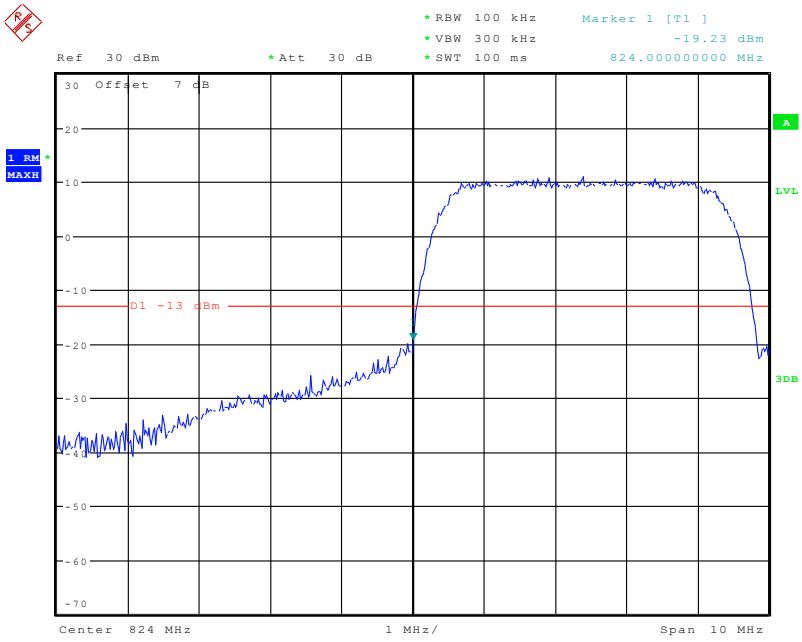
Date: 5.NOV.2021 00:24:08

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



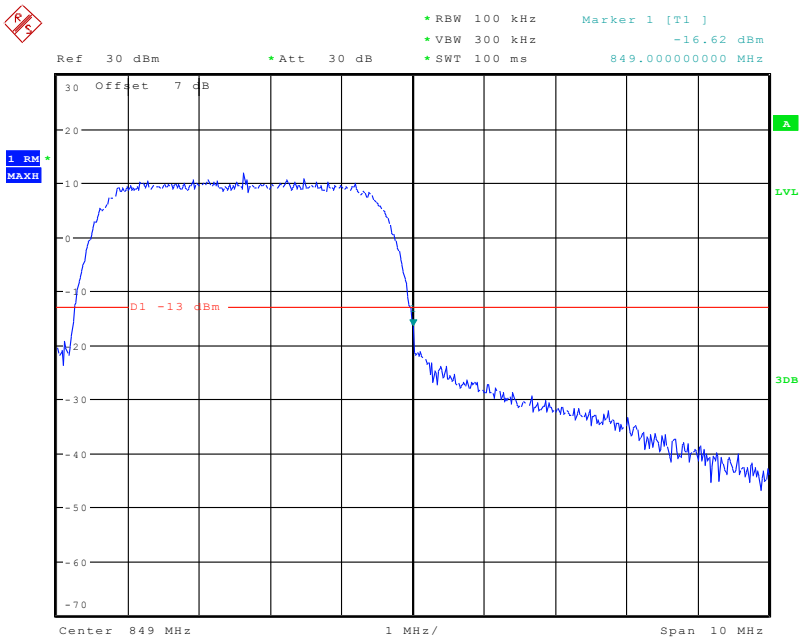
Date: 5.NOV.2021 00:23:35

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



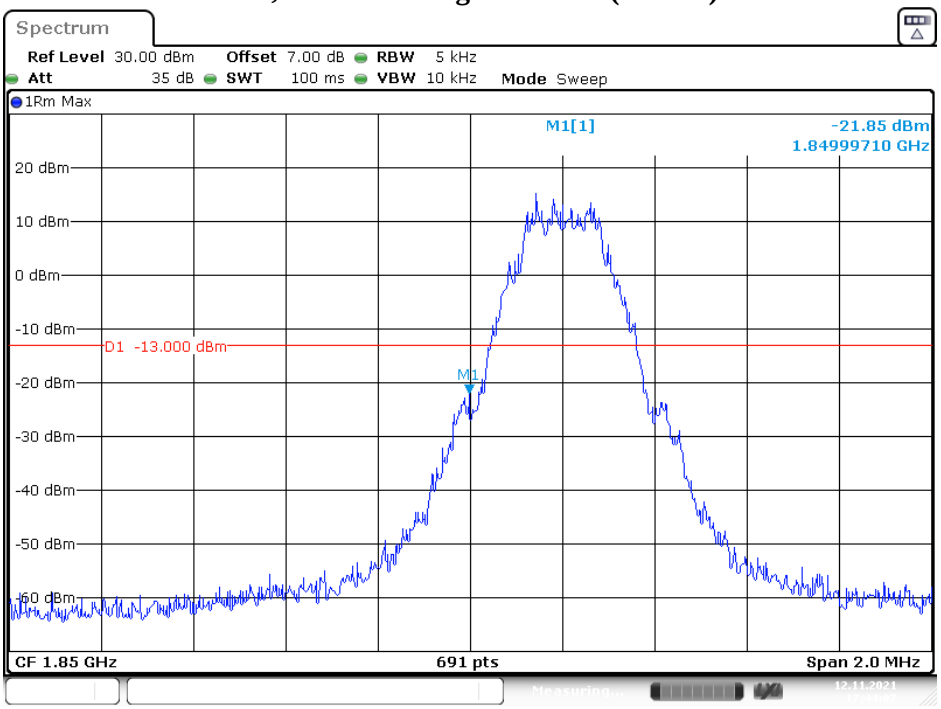
Date: 5.NOV.2021 00:35:19

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



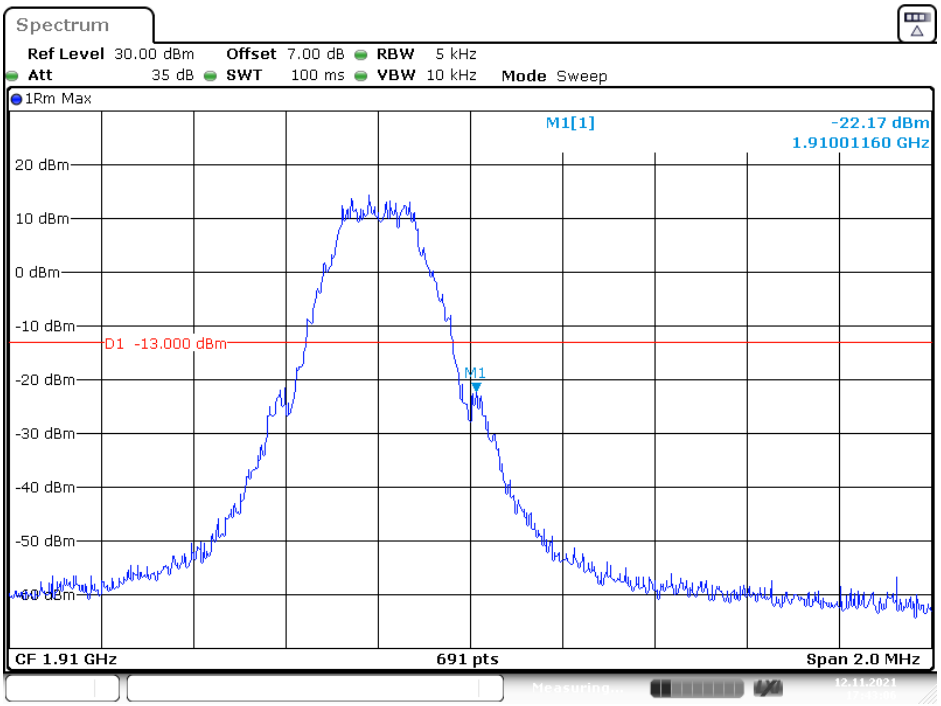
Date: 5.NOV.2021 00:35:49

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



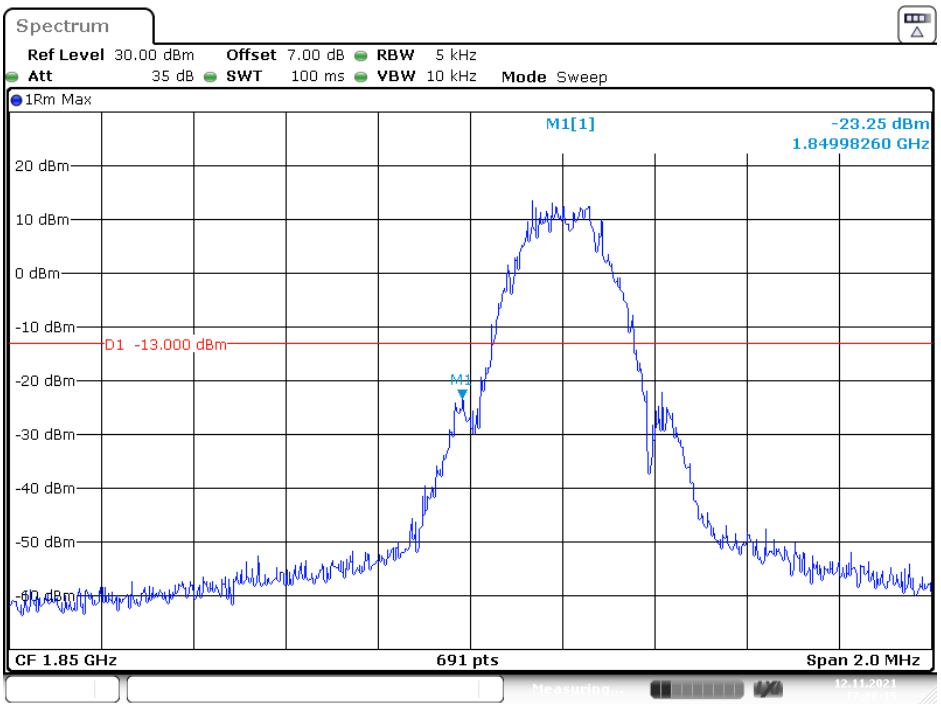
Date: 12.NOV.2021 17:44:07

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



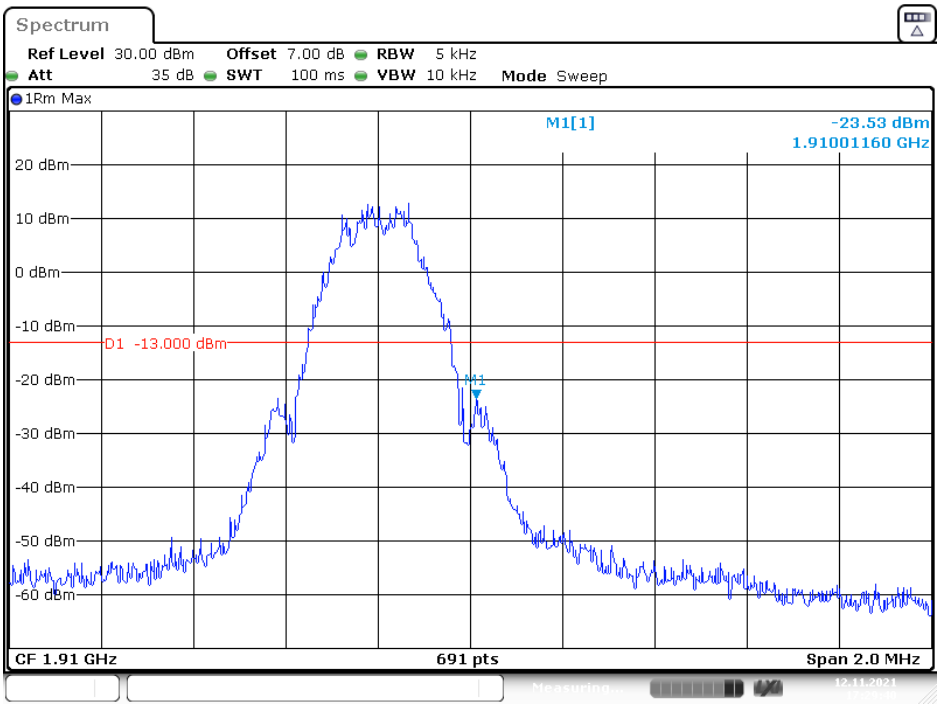
Date: 12.NOV.2021 17:43:06

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



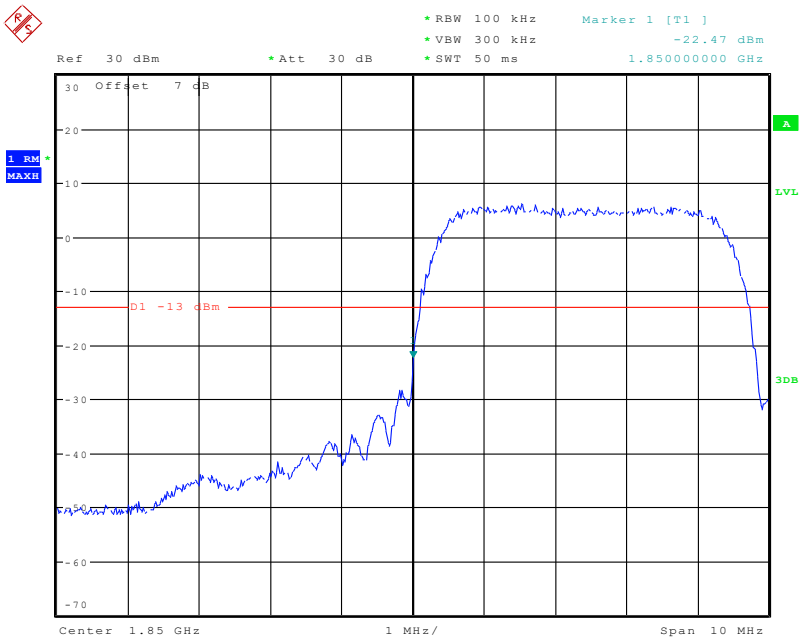
Date: 12.NOV.2021 17:28:15

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



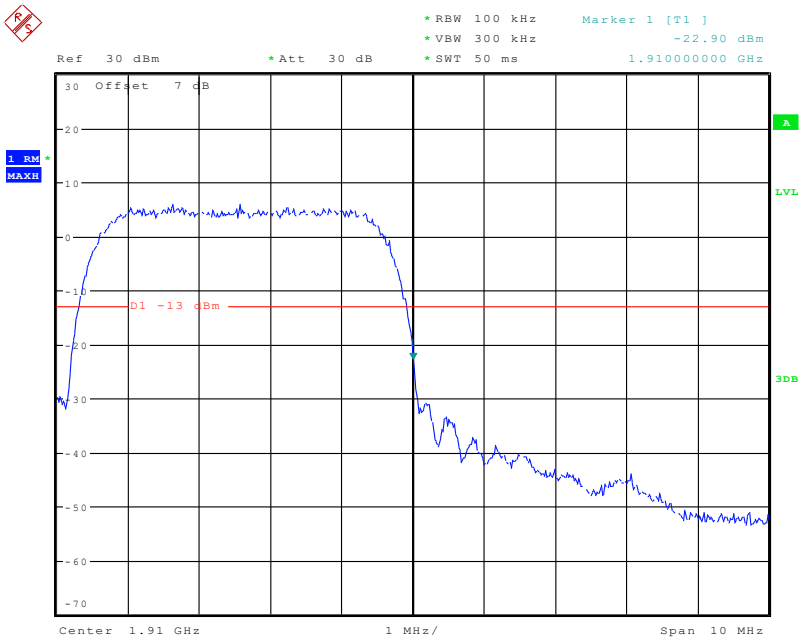
Date: 12.NOV.2021 17:29:40

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



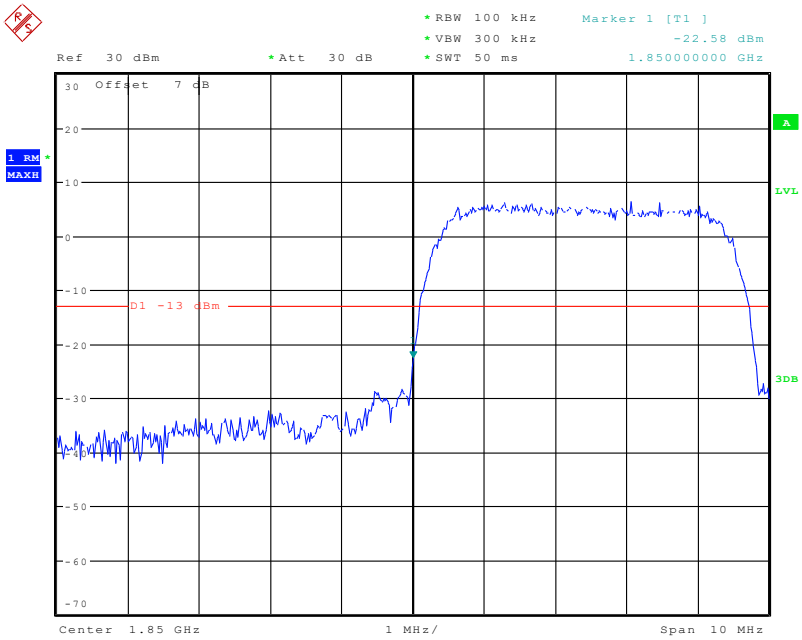
Date: 4.NOV.2021 23:37:06

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



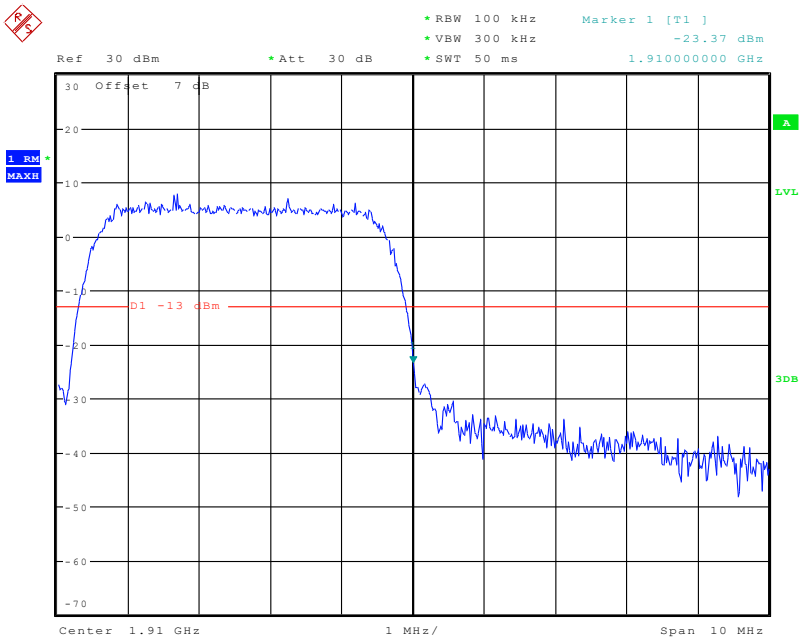
Date: 4.NOV.2021 23:37:41

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



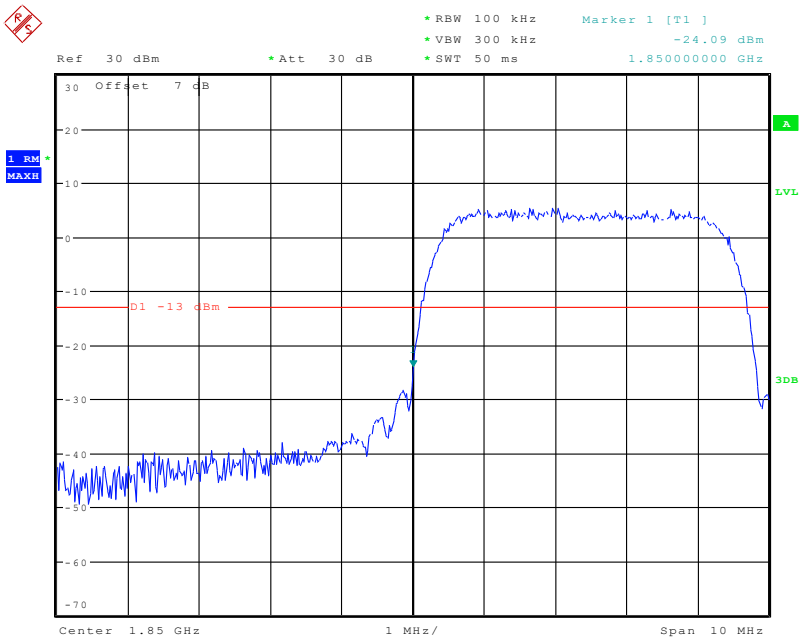
Date: 5.NOV.2021 00:26:00

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



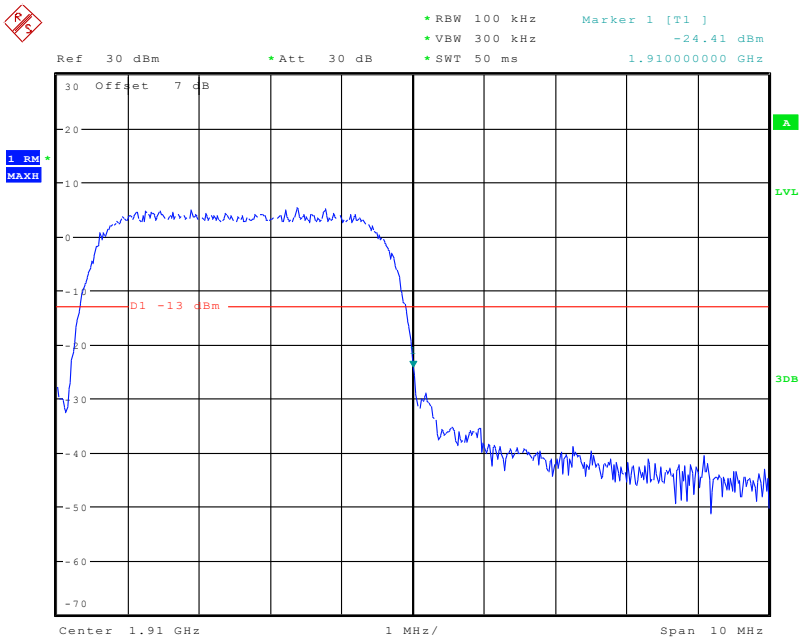
Date: 5.NOV.2021 00:26:26

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



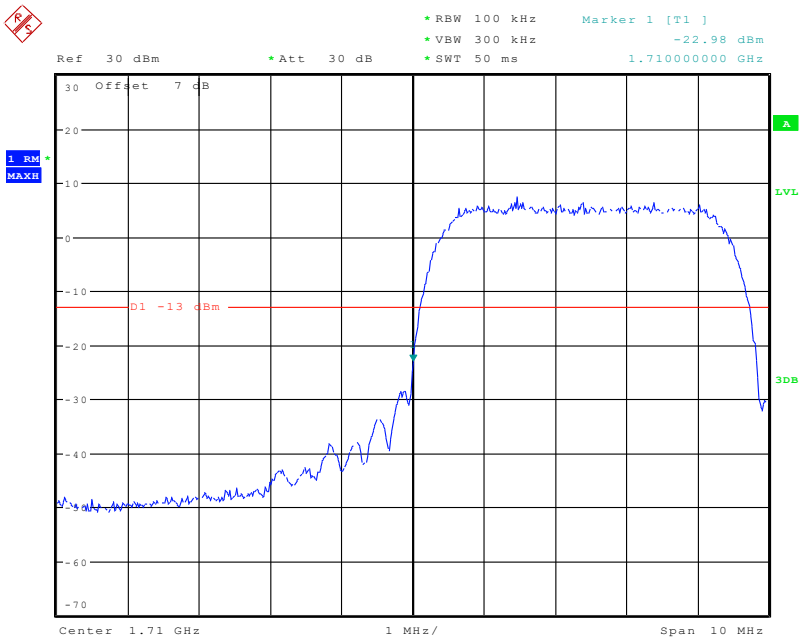
Date: 5.NOV.2021 00:33:37

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



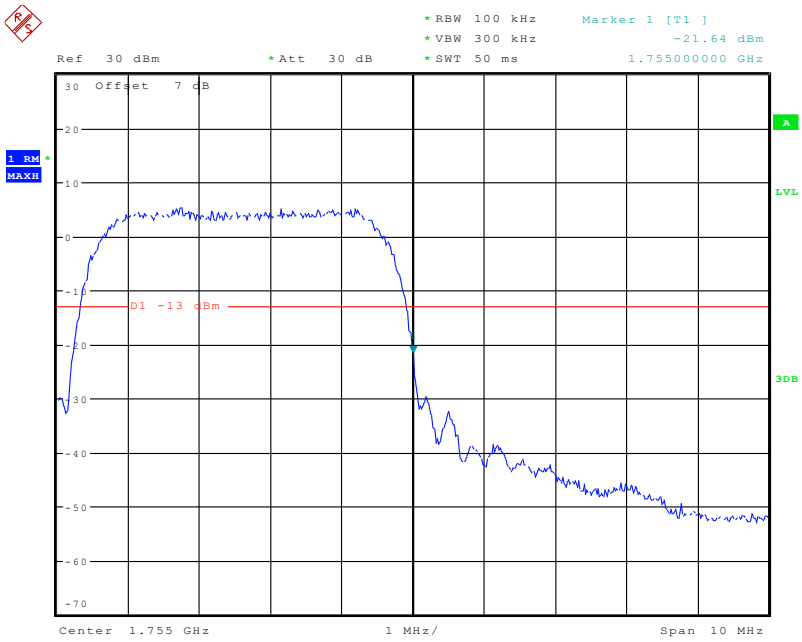
Date: 5.NOV.2021 00:34:01

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



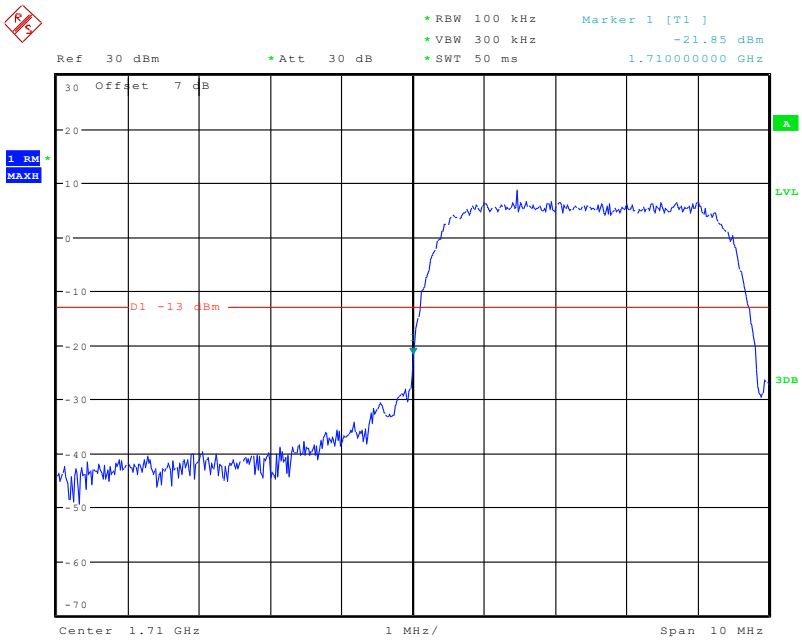
Date: 4.NOV.2021 23:38:05

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



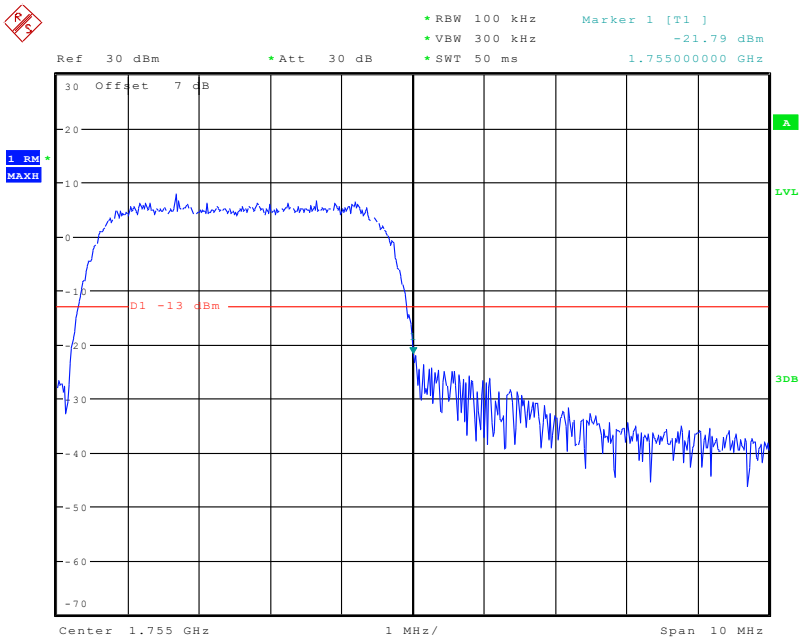
Date: 4.NOV.2021 23:38:32

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



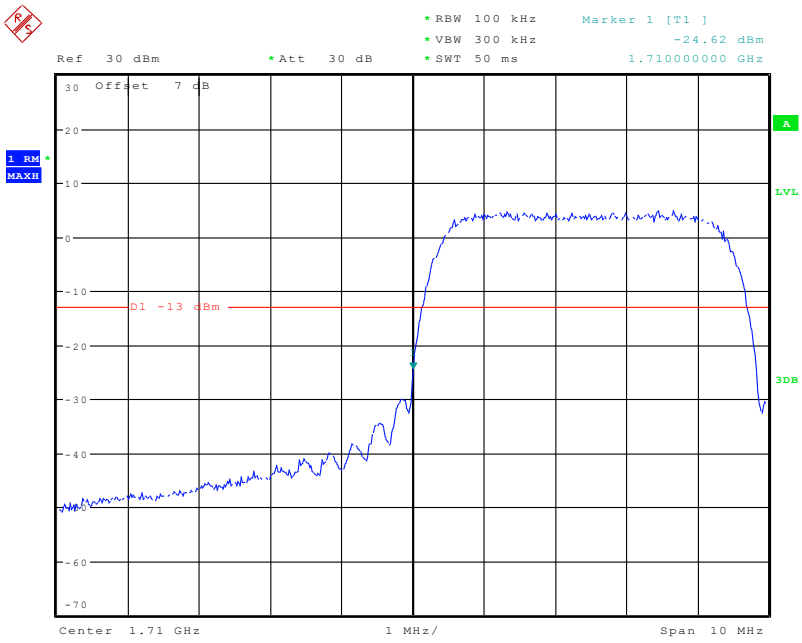
Date: 5.NOV.2021 00:24:57

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



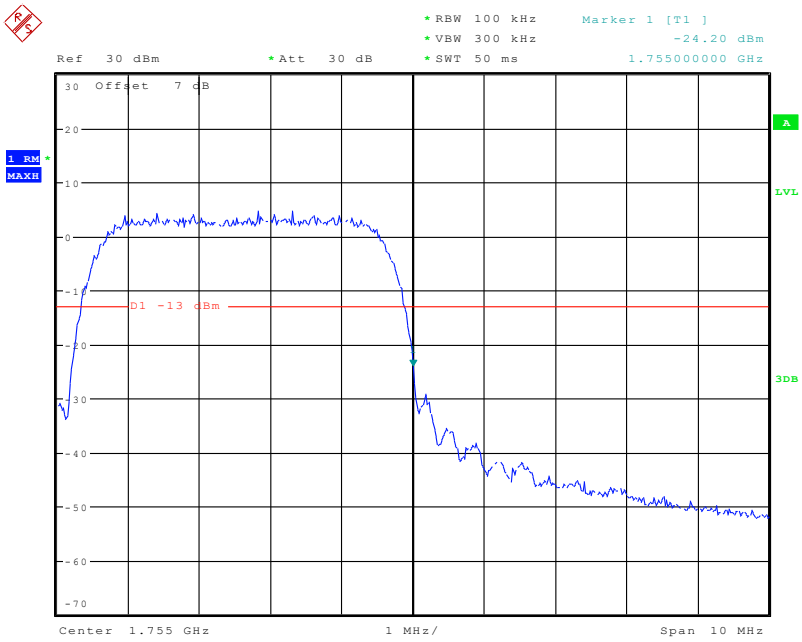
Date: 5.NOV.2021 00:25:30

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



Date: 5.NOV.2021 00:32:31

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



Date: 5.NOV.2021 00:33:07

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

FCC §2.1055, §22.355, §24.235, §27.54, §90.213- FREQUENCY STABILITY

Applicable Standard

FCC §2.1055, §22.355, §24.235, §27.54 and §90.213.

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

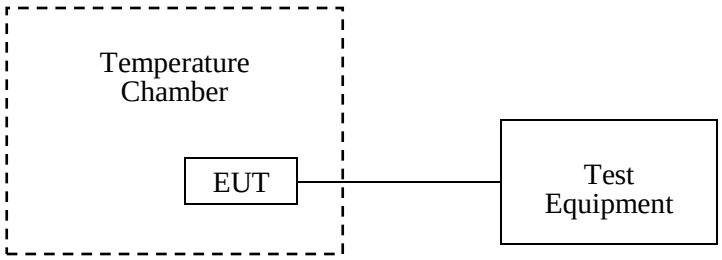
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

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:	28.2~29.0 ℃
Relative Humidity:	44~56 %
ATM Pressure:	101.0 kPa

The testing was performed by Black Ding from 2021-11-03 to 2021-11-12.

EUT operation mode: Transmitting

Test Result: Pass

Please refer to the following tables.

Please refer to the following tables.

Cellular Band (Part 22H)

GPRS Mode

Middle Channel, f_o =836.6MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	N.V.	19.65	0.0235	2.5
-20		16.38	0.0196	2.5
-10		18.57	0.0222	2.5
0		20.98	0.0251	2.5
10		21.57	0.0258	2.5
20		22.37	0.0267	2.5
30		19.65	0.0235	2.5
40		20.15	0.0241	2.5
50		18.63	0.0223	2.5
20	L.V.	19.32	0.0231	2.5
	H.V.	17.69	0.0211	2.5

EDGE Mode

Middle Channel, f_o =836.6MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	N.V.	15.20	0.0182	2.5
-20		14.36	0.0172	2.5
-10		13.52	0.0162	2.5
0		16.53	0.0198	2.5
10		15.87	0.0190	2.5
20		14.79	0.0177	2.5
30		15.34	0.0183	2.5
40		14.62	0.0175	2.5
50		17.25	0.0206	2.5
20	L.V.	16.34	0.0195	2.5
	H.V.	14.96	0.0179	2.5

WCDMA Mode

Middle Channel, f_o =836.6MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	N.V.	-0.21	-0.0003	2.5
-20		0.78	0.0009	2.5
-10		-0.81	-0.0010	2.5
0		1.89	0.0023	2.5
10		2.51	0.0030	2.5
20		1.23	0.0015	2.5
30		1.12	0.0013	2.5
40		2.69	0.0032	2.5
50		0.79	0.0009	2.5
20	L.V.	-0.69	-0.0008	2.5
	H.V.	1.31	0.0016	2.5

PCS Band (Part 24E)

GPRS Mode

Middle Channel, f_o =1880.0 MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	N.V.	14.74	0.0078	Pass
-20		11.62	0.0062	Pass
-10		14.73	0.0078	Pass
0		17.52	0.0093	Pass
10		18.53	0.0099	Pass
20		14.01	0.0075	Pass
30		15.44	0.0082	Pass
40		15.81	0.0084	Pass
50		14.91	0.0079	Pass
20	L.V.	13.83	0.0074	Pass
	H.V.	14.69	0.0078	Pass

EDGE Mode

Middle Channel, f_o =1880.0 MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	N.V.	10.68	0.0057	Pass
-20		10.52	0.0056	Pass
-10		13.24	0.0070	Pass
0		12.65	0.0067	Pass
10		11.35	0.0060	Pass
20		10.17	0.0054	Pass
30		11.85	0.0063	Pass
40		13.67	0.0073	Pass
50		14.72	0.0078	Pass
20	L.V.	15.33	0.0082	Pass
	H.V.	12.53	0.0067	Pass

PCS Band (Part 24E)

WCDMA Mode

Middle Channel, f_o =1880.0 MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	N.V.	0.54	0.0003	Pass
-20		-1.24	-0.0007	Pass
-10		-0.59	-0.0003	Pass
0		0.89	0.0005	Pass
10		1.11	0.0006	Pass
20		-0.12	-0.0001	Pass
30		1.53	0.0008	Pass
40		2.14	0.0011	Pass
50		-1.24	-0.0007	Pass
20	L.V.	-1.53	-0.0008	Pass
	H.V.	0.78	0.0004	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	N.V.	1710.0521	1754.9752	1710	1755
-20		1710.0535	1754.9625	1710	1755
-10		1710.0687	1754.9362	1710	1755
0		1710.0247	1754.9984	1710	1755
10		1710.0625	1754.9565	1710	1755
20		1710.0357	1754.9625	1710	1755
30		1710.0667	1754.9325	1710	1755
40		1710.0548	1754.9547	1710	1755
50		1710.0427	1754.9421	1710	1755
20	L.V.	1710.0965	1754.9987	1710	1755
	H.V.	1710.0835	1754.9351	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	N.V.	-3.65	-0.0019	Pass
-20		-9.97	-0.0053	Pass
-10		-6.13	-0.0033	Pass
0		6.17	0.0033	Pass
10		7.92	0.0042	Pass
20		6.46	0.0034	Pass
30		-6.52	-0.0035	Pass
40		7.18	0.0038	Pass
50		-9.69	-0.0052	Pass
20	L.V.	-8.17	-0.0043	Pass
	H.V.	-7.05	-0.0038	Pass

Band 4:

10 MHz Bandwidth, f_o =1732.5MHz					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	N.V.	1710.0406	1754.9014	1710	1755
-20		1710.0556	1754.9315	1710	1755
-10		1710.0975	1754.9281	1710	1755
0		1710.0811	1754.8876	1710	1755
10		1710.0642	1754.9222	1710	1755
20		1710.0307	1754.9590	1710	1755
30		1710.0902	1754.9080	1710	1755
40		1710.0674	1754.9487	1710	1755
50		1710.0525	1754.9400	1710	1755
20	L.V.	1710.0632	1754.9511	1710	1755
	H.V.	1710.0116	1754.8725	1710	1755

Band 5& Band 26(Part 22H):

10.0 MHz Middle Channel, f_o =836.5MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	N.V.	-0.80	-0.001	2.5
-20		9.11	0.0109	2.5
-10		8.51	0.0102	2.5
0		-7.15	-0.0085	2.5
10		-5.29	-0.0063	2.5
20		7.24	0.0087	2.5
30		-5.81	-0.0069	2.5
40		5.59	0.0067	2.5
50		6.87	0.0082	2.5
20	L.V.	9.94	0.0119	2.5
	H.V.	9.99	0.0119	2.5

Band 7:

10 MHz Bandwidth, f_o =2535MHz					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	N.V.	2500.0761	2569.9103	2500	2570
-20		2500.0362	2569.9499	2500	2570
-10		2500.0729	2569.8763	2500	2570
0		2500.0795	2569.8834	2500	2570
10		2500.0599	2569.9165	2500	2570
20		2500.0616	2569.9161	2500	2570
30		2500.0417	2569.9211	2500	2570
40		2500.0421	2569.9186	2500	2570
50		2500.0497	2569.8782	2500	2570
20	L.V.	2500.0330	2569.9578	2500	2570
	H.V.	2500.0384	2569.8646	2500	2570

Band 12:

10 MHz Bandwidth, f_o =707.5MHz					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	N.V.	699.0567	715.9012	699	716
-20		699.0429	715.8879	699	716
-10		699.0721	715.8749	699	716
0		699.0760	715.8658	699	716
10		699.0177	715.9146	699	716
20		699.0507	715.8665	699	716
30		699.0421	715.9425	699	716
40		699.0591	715.8740	699	716
50		699.0692	715.8784	699	716
20	L.V.	699.0713	715.9502	699	716
	H.V.	699.0810	715.9398	699	716

Band 13

10 MHz Bandwidth, f_o =782MHz					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	N.V.	777.0306	786.7888	777	787
-20		777.0310	786.8135	777	787
-10		777.0385	786.9096	777	787
0		777.0584	786.9436	777	787
10		777.0381	786.9073	777	787
20		777.0772	786.9208	777	787
30		777.0911	786.9590	777	787
40		777.0842	786.9541	777	787
50		777.0870	786.9579	777	787
20	L.V.	777.0865	786.8739	777	787
	H.V.	777.0511	786.9137	777	787

Band 25

10.0 MHz Middle Channel, f_o =1882.5MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	N.V.	4.21	0.0022	Pass
-20		-3.59	-0.0019	Pass
-10		-7.29	-0.0039	Pass
0		1.65	0.0009	Pass
10		5.32	0.0028	Pass
20		3.71	0.0020	Pass
30		-4.26	-0.0023	Pass
40		-8.29	-0.0044	Pass
50		-2.88	-0.0015	Pass
20	L.V.	4.73	0.0025	Pass
	H.V.	-2.59	-0.0014	Pass

LTE Band 26(Part 90S)

10.0 MHz Middle Channel, f_o =831.5MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result (ppm)**
-30	N.V.	-0.88	-0.0011	2.5
-20		-9.91	-0.0121	2.5
-10		-6.13	-0.0075	2.5
0		6.18	0.0075	2.5
10		7.87	0.0096	2.5
20		6.52	0.0080	2.5
30		-6.53	-0.0080	2.5
40		7.22	0.0088	2.5
50		-9.75	-0.0119	2.5
20	L.V.	-8.18	-0.0100	2.5
	H.V.	-7.06	-0.0086	2.5

16QAM:

Band 2:

10.0 MHz Middle Channel, f_o =1880MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	N.V.	-4.02	-0.0021	pass
-20		-6.68	-0.0036	pass
-10		9.77	0.0052	pass
0		-7.62	-0.0041	pass
10		-9.91	-0.0053	pass
20		-9.82	-0.0052	pass
30		-6.68	-0.0036	pass
40		-8.85	-0.0047	pass
50		5.67	0.003	pass
20	L.V.	6.05	0.0032	pass
	H.V.	7.52	0.004	pass

Band 4:

10 MHz Bandwidth, f_o =1732.5MHz					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	N.V.	1710.0984	1754.9493	1710	1755
-20		1710.0375	1754.8976	1710	1755
-10		1710.0372	1754.9642	1710	1755
0		1710.0775	1754.8998	1710	1755
10		1710.0117	1754.9651	1710	1755
20		1710.0674	1754.9627	1710	1755
30		1710.0653	1754.9557	1710	1755
40		1710.0715	1754.9324	1710	1755
50		1710.0234	1754.9457	1710	1755
20	L.V.	1710.0438	1754.9423	1710	1755
	H.V.	1710.0719	1754.9365	1710	1755

Band 5& Band 26(Part 22H):

10.0 MHz Middle Channel, f_o =836.5MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	N.V.	-0.70	-0.0008	2.5
-20		6.80	0.0081	2.5
-10		-9.52	-0.0114	2.5
0		-8.15	-0.0097	2.5
10		-8.88	-0.0106	2.5
20		-9.82	-0.0117	2.5
30		8.38	0.01	2.5
40		6.75	0.0081	2.5
50		-5.89	-0.007	2.5
20	L.V.	8.98	0.0107	2.5
	H.V.	-7.83	-0.0094	2.5

Band 7:

10 MHz Bandwidth, f_o =2535MHz					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	N.V.	2500.0964	2569.8913	2500	2570
-20		2500.0989	2569.9687	2500	2570
-10		2500.0102	2569.9386	2500	2570
0		2500.0760	2569.8944	2500	2570
10		2500.0533	2569.9594	2500	2570
20		2500.0832	2569.8811	2500	2570
30		2500.0280	2569.9555	2500	2570
40		2500.0561	2569.9155	2500	2570
50		2500.0923	2569.9564	2500	2570
20	L.V.	2500.0933	2569.8926	2500	2570
	H.V.	2500.0697	2569.9339	2500	2570

Band 12:

10 MHz Bandwidth, f_o =707.5MHz					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	N.V.	699.0450	715.8712	699	716
-20		699.0889	715.8797	699	716
-10		699.0721	715.9749	699	716
0		699.0119	715.8927	699	716
10		699.0522	715.9386	699	716
20		699.0100	715.9695	699	716
30		699.0289	715.9098	699	716
40		699.0066	715.9338	699	716
50		699.0076	715.9601	699	716
20	L.V.	699.0160	715.8955	699	716
	H.V.	699.0446	715.9678	699	716

Band 13

10 MHz Bandwidth, f_o =782MHz					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	N.V.	777.0604	786.9219	777	787
-20		777.0911	786.9594	777	787
-10		777.0385	786.9096	777	787
0		777.0632	786.9837	777	787
10		777.0905	786.9374	777	787
20		777.0207	786.9060	777	787
30		777.0424	786.9923	777	787
40		777.0296	786.9353	777	787
50		777.0443	786.9468	777	787
20	L.V.	777.0761	786.9943	777	787
	H.V.	777.0326	786.9621	777	787

Band 25

10.0 MHz Middle Channel, f_o =1882.5MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	N.V.	-5.21	-0.0028	pass
-20		-7.33	-0.0039	pass
-10		-4.35	-0.0023	pass
0		-2.16	-0.0011	pass
10		-3.89	-0.0021	pass
20		0.97	0.0005	pass
30		-1.59	-0.0008	pass
40		2.25	0.0012	pass
50		4.65	0.0025	pass
20	L.V.	-8.29	-0.0044	pass
	H.V.	6.89	0.0037	pass

LTE Band 26(Part 90S):

10.0 MHz Middle Channel, f_o =831.5MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result (ppm)**
-30	N.V.	-2.79	-0.0034	2.5
-20		-6.71	-0.0082	2.5
-10		9.73	0.0119	2.5
0		-7.65	-0.0093	2.5
10		-9.83	-0.0120	2.5
20		-9.83	-0.0120	2.5
30		-6.72	-0.0082	2.5
40		-8.79	-0.0107	2.5
50		5.64	0.0069	2.5
20	L.V.	6.09	0.0074	2.5
	H.V.	7.55	0.0092	2.5

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