



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

For

TECNO MOBILE LIMITED

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

FCC ID: 2ADYY-CH7N

Report Type: Original Report	Product Type: Mobile phone
Report Number: <u>SZ1210720-30052E-RF-00D</u>	
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TABLE OF CONTENTS

GENERAL INFORMATION.....	3
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT).....	3
OBJECTIVE.....	3
TEST METHODOLOGY.....	4
MEASUREMENT UNCERTAINTY.....	4
TEST FACILITY.....	4
SYSTEM TEST CONFIGURATION.....	5
DESCRIPTION OF TEST CONFIGURATION.....	5
EQUIPMENT MODIFICATIONS.....	6
SUPPORT EQUIPMENT LIST AND DETAILS.....	6
SUPPORT CABLE DESCRIPTION.....	6
BLOCK DIAGRAM OF TEST SETUP.....	7
SUMMARY OF TEST RESULTS.....	8
TEST EQUIPMENT LIST.....	9
FCC §1.1307(B) & §2.1093 - RF EXPOSURE INFORMATION.....	11
APPLICABLE STANDARD.....	11
TEST RESULT.....	11
FCC §2.1047 - MODULATION CHARACTERISTIC.....	12
FCC § 2.1046, § 22.913 (A) & § 24.232 (C); §27.50 (C) (D) (H) - RF OUTPUT POWER.....	13
APPLICABLE STANDARD.....	13
TEST PROCEDURE.....	13
TEST DATA.....	13
FCC §2.1049, §22.917, §22.905 & §24.238 & §27.53 - OCCUPIED BANDWIDTH.....	45
APPLICABLE STANDARD.....	45
TEST PROCEDURE.....	45
TEST DATA.....	45
FCC §2.1051, §22.917(A) & §24.238(A); §27.53 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS.....	72
APPLICABLE STANDARD.....	72
TEST PROCEDURE.....	72
TEST DATA.....	72
FCC § 2.1053; § 22.917 (A);§ 24.238 (A); §27.53 SPURIOUS RADIATED EMISSIONS.....	90
APPLICABLE STANDARD.....	90
TEST PROCEDURE.....	90
TEST DATA.....	90
FCC § 22.917 (A);§ 24.238 (A); §27.53(C) (H)(M) - BAND EDGES.....	100
APPLICABLE STANDARD.....	100
TEST PROCEDURE.....	100
TEST DATA.....	100
FCC § 2.1055; § 22.355; § 24.235; §27.54 - FREQUENCY STABILITY.....	114
APPLICABLE STANDARD.....	114
TEST PROCEDURE.....	114
TEST DATA.....	115

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	Mobile Phone
Tested Model	CH7n
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 17: 704-716MHz(TX); 734-746MHz(RX) LTE Band 38: 2570-2620MHz(TX/RX) LTE Band 41: 2535-2655MHz(TX/RX) LTE Band 66: 1710-1780MHz(TX); 2110-2180MHz(RX)
Modulation Technique	2G: GMSK, 8PSK 3G: BPSK, QPSK, 16QAM 4G: QPSK, 16QAM
Antenna Specification*	GSM850/WCDMA Band 5/LTE Band 5: -3.38dBi PCS1900/WCDMA Band 2/ LTE Band 2: -0.76dBi WCDMA Band 4/ LTE Band 4/LTE Band 66: 0.32dBi LTE Band 7/LTE Band 38//LTE Band 41: 0.46dBi LTE Band 17: -4.91dBi (provided by the applicant)
Voltage Range	DC 3.87V from battery or DC 5V/10V from adapter
Date of Test	2021-07-23 to 2021-08-17
Sample number	RF conducted: SZ1210720-30052E-RF-S1; RE&CE: SZ1210720-30052E-RF-S4 (Assigned by BAACL, Shenzhen)
Received date	2021-07-20
Sample/EUT Status	Good condition
Normal/Extreme Condition	L.V.: Low Voltage 3.45V _{DC} N.V.: Normal Voltage 3.87V _{DC} H.V.: High Voltage 4.45V _{DC} Note: The extreme condition was declared by the applicant
Adapter information	Model: U330TSA Input: AC 100-240V ~ 50/60Hz, 1.5A Output: DC 5.0V, 3.0A 15.0W or 10.0V, 3.3A 33.0W MAX

Objective

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

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

Test Methodology

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

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

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

All emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters. Each test item follows test standards and with no deviation.

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		±5%
RF output power, conducted		±0.73dB
Unwanted Emission, conducted		±1.6dB
Emissions, Radiated	Below 1GHz	±4.75dB
	Above 1GHz	±4.88dB
Temperature		±1°C
Humidity		±6%
Supply voltages		±0.4%

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

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 5F(B-West) ,6F,7F,the 3rd Phase of Wan Li Industrial Building D,Shihua Rd, FuTian Free Trade Zone, Shenzhen, China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 342867, the FCC Designation No.: CN1221.

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

SYSTEM TEST CONFIGURATION

Description of Test Configuration

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

Test was performed as below table:

Frequency band	Bandwidth (MHz)	Test Frequency(MHz)		
		Low	Middle	High
GSM850	0.25	824.2	836.6	848.8
DCS1900	0.25	1850.2	1880	1909.8
WCDMA B2	4.2	1852.4	1880	1907.6
WCDMA B4	4.2	1712.4	1732.6	1752.6
WCDMA B5	4.2	826.4	836.6	846.6
LTE B2	1.4	1850.7	1880	1909.3
	3	1851.5	1880	1908.5
	5	1852.5	1880	1907.5
	10	1855	1880	1905
	15	1857.5	1880	1902.5
	20	1860	1880	1900
LTE B4	1.4	1710.7	1732.5	1754.3
	3	1711.5	1732.5	1753.5
	5	1712.5	1732.5	1752.5
	10	1715	1732.5	1750
	15	1717.5	1732.5	1747.5
	20	1720	1732.5	1745
LTE B5	1.4	824.7	836.5	848.3
	3	825.5	836.5	847.5
	5	826.5	836.5	846.5
	10	829	836.5	844
LTE B7	5	2502.5	2535	2567.5
	10	2505	2535	2565
	15	2507.5	2535	2562.5
	20	2510	2535	2560
LTE B17	5	706.5	710	713.5
	10	709	710	711

Frequency band	Bandwidth (MHz)	Test Frequency(MHz)		
		Low	Middle	High
LTE B38	5	2572.5	2595	2617.5
	10	2575	2595	2615
	15	2577.5	2595	2612.5
	20	2580	2595	2610
LTE B41	5	2537.5	2595	2652.5
	10	2540	2595	2650
	15	2542.5	2595	2647.5
	20	2545	2595	2645
LTE B66	1.4	1710.7	1745	1779.3
	3	1711.5	1745	1778.5
	5	1712.5	1745	1777.5
	10	1715	1745	1775
	15	1717.5	1745	1772.5
	20	1720	1745	1770

Equipment Modifications

No modification was made to the EUT.

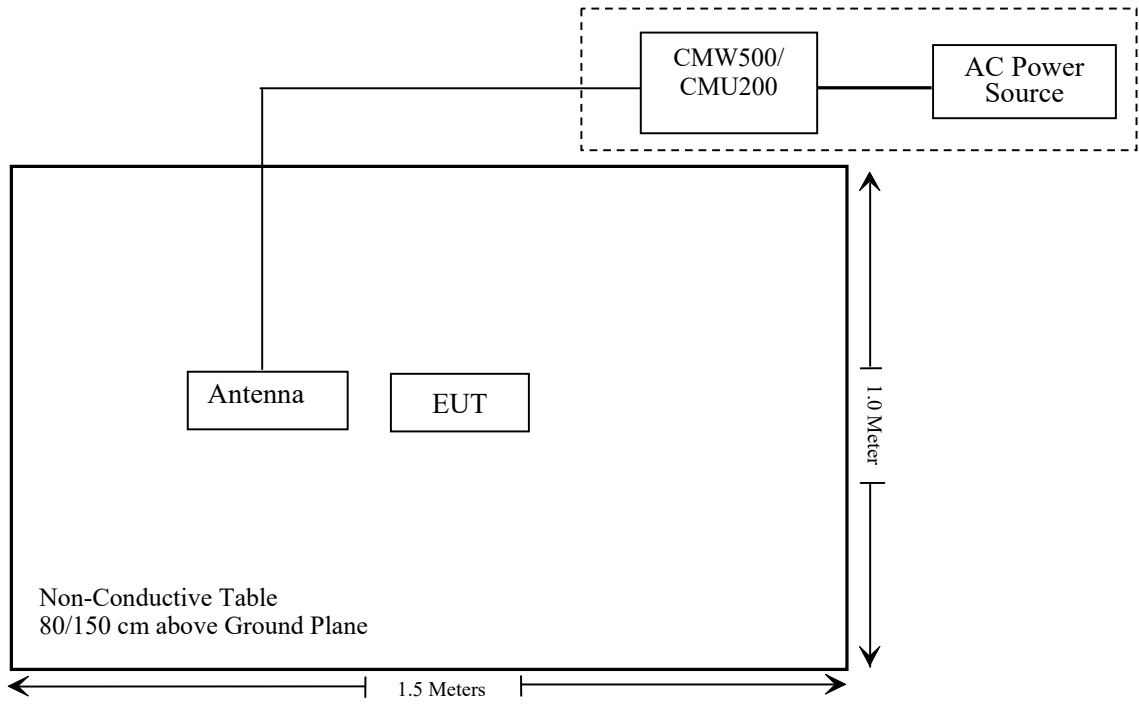
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	1201.002K50-116218-UY
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	110605

Support Cable Description

Cable Description	Length (m)	From / Port	To
Un-Shielded Un-Detachable AC Cable	1.2	AC Power	CMW500/ CMU200

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

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

Note: * Please refer to SAR report released by BACL, report number: SZ1210720-30052E-SA.

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test					
R&S	EMI Test Receiver	ESR3	102455	2020/08/04	2021/08/03
Sonoma instrument	Pre-amplifier	310 N	186238	2020/08/04	2021/08/03
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2020/12/22	2023/12/21
COM-POWER	Dipole Antenna	AD-100	721027	NCR	NCR
Unknown	Cable 2	RF Cable 2	F-03-EM197	2020/11/29	2021/11/28
Unknown	Cable	Chamber Cable 1	F-03-EM236	2020/11/29	2021/11/28
Rohde & Schwarz	Spectrum Analyzer	FSV40-N	102259	2020/08/04	2021/08/03
COM-POWER	Pre-amplifier	PA-122	181919	2020/11/29	2021/11/28
Quinstar	Amplifier	QLW-18405536-J0	15964001002	2020/11/29	2021/11/28
Sunol Sciences	Horn Antenna	3115	9107-3694	2021/01/15	2024/01/14
A.H.System	Horn Antenna	SAS-200/571	135	2018/09/01	2021/08/31
Insulted Wire Inc.	RF Cable	SPS-2503-3150	02222010	2020/11/29	2021/11/28
Unknown	RF Cable	W1101-EQ1 OUT	F-19-EM005	2020/11/29	2021/11/28
MICRO-TRONICS	Passband filter	HPM50111	F-19-EM006	2021/04/20	2022/04/19
Unknown	High Pass filter	1.3GHz	101120	2021/04/20	2022/04/19
Ducommun Technologies	Horn antenna	ARH-4223-02	1007726-01 1304	2020/12/06	2023/12/05
Ducommun Technologies	Horn antenna	ARH-4223-02	1007726-02 1304	2020/12/06	2023/12/05
Agilent	Signal Generator	N5183A	MY51040755	2020/12/29	2021/12/28
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	1201.002K50-146520-wh	2020/08/04	2021/08/03
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	115500	2020/07/31	2021/07/30

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
RF Conducted Test					
Rohde & Schwarz	Signal and Spectrum Analyzer	FSV40	101473	2020/08/04	2021/08/03
Rohde & Schwarz	Signal and Spectrum Analyzer	FSV40	101473	2021/08/04	2022/08/03
Rohde & Schwarz	SPECTRUM ANALYZER	FSU26	200120	2021/04/02	2022/04/01
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	1201.002K50-146520-wh	2020/08/04	2021/08/03
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	1201.002K50-146520-wh	2021/08/04	2022/08/03
Unknown	RF Cable	Unknown	2301 276	2020/11/29	2021/11/28
Unknown	RF Cable	Unknown	DLO J5/W6102	2020/11/29	2021/11/28
Weinschel	Power divider	1515	MY628	2020/11/29	2021/11/28
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	115500	2021/07/31	2022/07/30
instek	DC Power Supply	GPS-3030DD	EM832096	NCR	NCR
ESPEC	Temperature & Humidity Chamber	EL-10KA	9107726	2021/01/05	2022/01/05
Fluke	Digital Multimeter	287	19000011	2021/07/23	2022/07/22

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

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

Applicable Standard

FCC§1.1310 and §2.1093.

Test Result

Compliance, please refer to the SAR report: SZ1210720-30052E-SA.

FCC §2.1047 - MODULATION CHARACTERISTIC

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

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

Applicable Standard

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

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

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

According to §27.50(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.

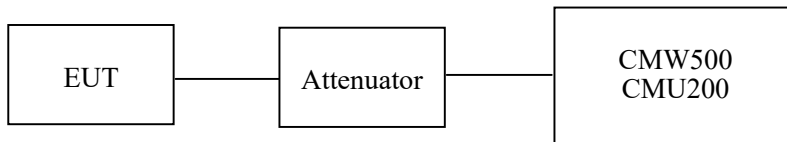
According to §27.50(d), the maximum EIRP must not exceed 1Watts (30dBm) for 1710-1780MHz.

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

Test Procedure

Conducted method:

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



Test Data

Environmental Conditions

Temperature:	29.1 °C
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

The testing was performed by Pedro Yun from 2021-07-31 to 2021-08-11.

Conducted Power

Cellular Band (Part 22H)

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	ERP (dBm)	Limit (dBm)
GSM	128	824.2	32.71	27.18	38.45
	190	836.6	32.76	27.23	38.45
	251	848.8	32.71	27.18	38.45

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				ERP(dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	1 slot	2 slots	3 slots	4 slots	
GPRS	128	824.2	32.80	32.77	30.70	29.48	27.27	27.24	25.17	23.95	38.45
	190	836.6	32.79	32.73	30.62	29.43	27.26	27.20	25.09	23.90	38.45
	251	848.8	32.66	32.60	30.50	29.31	27.13	27.07	24.97	23.78	38.45

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				ERP(dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	1 slot	2 slots	3 slots	4 slots	
EGPRS	128	824.2	27.42	26.72	25.34	23.85	21.89	21.19	19.81	18.32	38.45
	190	836.6	27.63	26.58	25.26	23.73	22.1	21.05	19.73	18.20	38.45
	251	848.8	27.51	26.43	25.10	23.55	21.98	20.90	19.57	18.02	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		22.89	22.98	22.91	17.36	17.45	17.38
	HSDPA	1	20.98	21.12	21.07	15.45	15.59	15.54
		2	20.96	21.12	21.05	15.43	15.59	15.52
		3	20.87	21.12	21.06	15.34	15.59	15.53
		4	20.92	21.12	21.09	15.39	15.59	15.56
	HSUPA	1	21.26	21.38	21.44	15.73	15.85	15.91
		2	21.24	21.36	21.45	15.71	15.83	15.92
		3	21.25	21.35	21.48	15.72	15.82	15.95
		4	21.25	21.34	21.43	15.72	15.81	15.90
		5	21.26	21.39	21.40	15.73	15.86	15.87
HSPA+	1	21.26	21.29	21.41	15.73	15.76	15.88	

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd)
 For GSM850/WCDMA Band 5: Antenna Gain = -3.38dBi = -5.53dBd (0dBd=2.15dBi)
 The limit: ERP ≤ 38.45dBm

PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	EIRP(dBm)	Limit (dBm)
GSM	512	1850.2	29.03	28.27	33
	661	1880.0	29.02	28.26	33
	810	1909.8	28.59	27.83	33

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				EIRP(dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	1 slot	2 slots	3 slots	4 slots	
GPRS	512	1850.2	29.02	28.25	27.28	26.12	28.26	27.49	26.52	25.36	33
	661	1880.0	29.27	28.41	27.39	26.26	28.51	27.65	26.63	25.5	33
	810	1909.8	28.61	28.48	27.47	26.35	27.85	27.72	26.71	25.59	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	27.67	25.63	23.67	22.66	26.91	24.87	22.91	21.9	33
	661	1880.0	27.42	25.32	23.32	22.33	26.66	24.56	22.56	21.57	33
	810	1909.8	26.47	25.18	23.28	22.27	25.71	24.42	22.52	21.51	33

Mode	Test Mode	3GPP Sub Test	Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
WCDMA (Band 2)	RMC12.2k		17.64	17.72	17.69	16.88	16.96	16.93
	HSDPA	1	15.12	15.34	15.22	14.36	14.58	14.46
		2	15.15	15.39	15.24	14.39	14.63	14.48
		3	15.19	15.34	15.29	14.43	14.58	14.53
		4	15.14	15.30	15.27	14.38	14.54	14.51
	HSUPA	1	15.01	15.31	15.24	14.25	14.55	14.48
		2	15.09	15.36	15.23	14.33	14.6	14.47
		3	15.05	15.39	15.26	14.29	14.63	14.50
		4	15.05	15.38	15.20	14.29	14.62	14.44
		5	15.01	15.34	15.21	14.25	14.58	14.45
	HSPA+	1	15.12	15.39	15.28	14.36	14.63	14.52

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi)
 For PCS1900/WCDMA Band 2: Antenna Gain = -0.76dBi
 The limit: EIRP ≤ 33dBm

AWS Band (Part 27)

Mode	Test Mode	3GPP Sub Test	Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
WCDMA (Band 4)	RMC12.2k		17.59	17.92	18.12	17.91	18.24	18.44
	HSDPA	1	15.21	15.36	15.19	15.53	15.68	15.51
		2	15.29	15.34	15.14	15.61	15.66	15.46
		3	15.24	15.39	15.13	15.56	15.71	15.45
		4	15.25	15.38	15.16	15.57	15.70	15.48
	HSUPA	1	15.01	15.28	15.03	15.33	15.60	15.35
		2	15.03	15.25	15.06	15.35	15.57	15.38
		3	15.06	15.27	15.04	15.38	15.59	15.36
		4	15.04	15.29	15.03	15.36	15.61	15.35
		5	15.01	15.26	15.04	15.33	15.58	15.36
	HSPA+	1	15.09	15.24	15.06	15.41	15.56	15.38

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi)

For WCDMA Band 4: Antenna Gain = 0.32dBi

The limit: EIRP ≤ 30dBm

Peak-to-average ratio (PAR)

Cellular Band

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	3.71	13
	Middle	3.53	13
	High	3.69	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	3.42	13
	Middle	3.57	13
	High	3.30	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.61	13
	Middle	3.32	13
	High	3.40	13
HSDPA (16QAM)	Low	3.33	13
	Middle	3.26	13
	High	3.40	13
HSUPA (BPSK)	Low	3.30	13
	Middle	3.31	13
	High	3.38	13
HSPA+	Low	3.59	13
	Middle	3.15	13
	High	3.77	13

PCS Band

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	3.34	13
	Middle	3.37	13
	High	3.45	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	3.23	13
	Middle	3.43	13
	High	3.12	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.46	13
	Middle	3.52	13
	High	3.58	13
HSDPA (16QAM)	Low	3.62	13
	Middle	3.38	13
	High	3.28	13
HSUPA (BPSK)	Low	3.35	13
	Middle	3.90	13
	High	3.41	13
HSPA+	Low	3.34	13
	Middle	3.30	13
	High	3.46	13

AWS Band

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.31	13
	Middle	3.47	13
	High	3.45	13
HSDPA (16QAM)	Low	3.43	13
	Middle	3.39	13
	High	3.39	13
HSUPA (BPSK)	Low	3.50	13
	Middle	3.16	13
	High	3.28	13
HSPA+	Low	3.12	13
	Middle	3.24	13
	High	3.31	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	17.70	17.73	17.75	16.94	16.97	16.99
		RB1#3	17.18	17.16	17.43	16.42	16.40	16.67
		RB1#5	17.52	17.44	17.51	16.76	16.68	16.75
		RB3#0	17.15	17.13	17.12	16.39	16.37	16.36
		RB3#3	17.18	17.13	17.07	16.42	16.37	16.31
		RB6#0	17.04	17.17	17.20	16.28	16.41	16.44
	16QAM	RB1#0	17.05	17.00	16.83	16.29	16.24	16.07
		RB1#3	17.23	17.38	17.34	16.47	16.62	16.58
		RB1#5	17.04	17.11	17.17	16.28	16.35	16.41
		RB3#0	17.32	17.31	17.28	16.56	16.55	16.52
		RB3#3	17.35	17.32	17.35	16.59	16.56	16.59
		RB6#0	16.07	16.01	15.99	15.31	15.25	15.23
3.0	QPSK	RB1#0	17.69	17.76	17.62	16.93	17.00	16.86
		RB1#8	17.48	17.45	17.35	16.72	16.69	16.59
		RB1#14	17.97	17.93	17.78	17.21	17.17	17.02
		RB6#0	16.93	16.90	16.89	16.17	16.14	16.13
		RB6#9	17.17	17.17	17.39	16.41	16.41	16.63
		RB15#0	17.15	16.90	16.93	16.39	16.14	16.17
	16QAM	RB1#0	17.16	17.12	17.19	16.40	16.36	16.43
		RB1#8	17.09	17.02	16.88	16.33	16.26	16.12
		RB1#14	17.29	17.32	17.05	16.53	16.56	16.29
		RB6#0	16.03	15.99	15.86	15.27	15.23	15.10
		RB6#9	16.00	16.02	16.25	15.24	15.26	15.49
		RB15#0	16.02	16.03	15.87	15.26	15.27	15.11

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	16.70	16.87	16.75	15.94	16.11	15.99
		RB1#13	17.39	17.47	17.43	16.63	16.71	16.67
		RB1#24	16.19	16.17	16.23	15.43	15.41	15.47
		RB15#0	16.56	16.61	16.74	15.80	15.85	15.98
		RB15#10	17.55	17.57	17.52	16.79	16.81	16.76
		RB25#0	17.27	17.35	17.15	16.51	16.59	16.39
	16QAM	RB1#0	16.67	16.71	16.75	15.91	15.95	15.99
		RB1#13	17.04	17.04	17.07	16.28	16.28	16.31
		RB1#24	17.33	17.11	17.08	16.57	16.35	16.32
		RB15#0	16.30	16.26	16.54	15.54	15.50	15.78
		RB15#10	16.22	16.28	16.21	15.46	15.52	15.45
		RB25#0	16.20	16.21	16.07	15.44	15.45	15.31
10.0	QPSK	RB1#0	16.67	16.79	17.06	15.91	16.03	16.30
		RB1#25	17.52	17.52	17.75	16.76	16.76	16.99
		RB1#49	16.29	16.31	16.52	15.53	15.55	15.76
		RB25#0	16.59	16.74	16.62	15.83	15.98	15.86
		RB25#25	17.34	17.47	17.41	16.58	16.71	16.65
		RB50#0	17.16	17.04	17.12	16.40	16.28	16.36
	16QAM	RB1#0	17.07	17.06	17.04	16.31	16.30	16.28
		RB1#25	16.88	17.08	17.03	16.12	16.32	16.27
		RB1#49	17.24	17.37	17.36	16.48	16.61	16.60
		RB25#0	16.09	15.98	15.93	15.33	15.22	15.17
		RB25#25	16.22	16.25	16.09	15.46	15.49	15.33
		RB50#0	16.18	16.21	16.31	15.42	15.45	15.55

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	16.71	16.73	16.82	15.95	15.97	16.06
		RB1#38	17.28	17.34	17.26	16.52	16.58	16.50
		RB1#74	16.02	15.94	16.01	15.26	15.18	15.25
		RB36#0	16.75	16.78	16.83	15.99	16.02	16.07
		RB36#39	17.53	17.45	17.43	16.77	16.69	16.67
		RB75#0	17.36	17.30	17.40	16.60	16.54	16.64
	16QAM	RB1#0	17.18	17.26	17.00	16.42	16.50	16.24
		RB1#38	16.87	16.93	16.84	16.11	16.17	16.08
		RB1#74	17.03	17.15	17.30	16.27	16.39	16.54
		RB36#0	16.17	16.24	16.25	15.41	15.48	15.49
		RB36#39	15.94	16.02	16.19	15.18	15.26	15.43
		RB75#0	16.07	15.98	15.91	15.31	15.22	15.15
20.0	QPSK	RB1#0	16.63	16.71	16.63	15.87	15.95	15.87
		RB1#50	17.28	17.13	17.23	16.52	16.37	16.47
		RB1#99	16.07	16.02	15.93	15.31	15.26	15.17
		RB50#0	16.54	16.36	16.35	15.78	15.60	15.59
		RB50#50	17.35	17.40	17.40	16.59	16.64	16.64
		RB100#0	17.23	17.23	17.21	16.47	16.47	16.45
	16QAM	RB1#0	17.03	17.04	17.12	16.27	16.28	16.36
		RB1#50	16.82	16.66	16.40	16.06	15.90	15.64
		RB1#99	17.42	17.56	17.51	16.66	16.80	16.75
		RB50#0	16.00	16.17	16.12	15.24	15.41	15.36
		RB50#50	16.11	16.36	16.38	15.35	15.60	15.62
		RB100#0	16.08	15.99	16.09	15.32	15.23	15.33

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi)
 For LTE Band2: Antenna Gain = -0.76dBi
 The Limit: EIRP ≤ 33dBm

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

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	5.71	5.51	5.71	13	Pass
QPSK (100RB Size)	5.61	5.64	5.74	13	Pass
16QAM (1RB Size)	6.96	6.19	7.08	13	Pass
16QAM (100RB Size)	6.44	6.54	6.54	13	Pass

LTE Band 4

Maximum Output Power

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
1.4	QPSK	RB1#0	17.55	17.48	17.66	17.87	17.80	17.98
		RB1#3	18.00	18.04	18.07	18.32	18.36	18.39
		RB1#5	17.71	17.70	17.58	18.03	18.02	17.90
		RB3#0	17.89	17.85	18.07	18.21	18.17	18.39
		RB3#3	17.79	17.78	17.74	18.11	18.10	18.06
		RB6#0	17.63	17.69	17.81	17.95	18.01	18.13
	16QAM	RB1#0	17.91	17.67	17.55	18.23	17.99	17.87
		RB1#3	17.07	17.13	17.18	17.39	17.45	17.50
		RB1#5	17.93	17.84	17.75	18.25	18.16	18.07
		RB3#0	17.37	17.22	17.10	17.69	17.54	17.42
		RB3#3	17.22	17.23	17.31	17.54	17.55	17.63
		RB6#0	17.83	17.82	17.84	18.15	18.14	18.16
3.0	QPSK	RB1#0	17.95	17.69	17.63	18.27	18.01	17.95
		RB1#8	18.10	18.17	18.28	18.42	18.49	18.60
		RB1#14	17.49	17.51	17.47	17.81	17.83	17.79
		RB6#0	17.85	17.97	18.16	18.17	18.29	18.48
		RB6#9	18.11	18.16	18.07	18.43	18.48	18.39
		RB15#0	17.94	17.92	17.88	18.26	18.24	18.20
	16QAM	RB1#0	17.96	18.16	18.09	18.28	18.48	18.41
		RB1#8	17.20	17.26	17.13	17.52	17.58	17.45
		RB1#14	17.81	17.84	17.79	18.13	18.16	18.11
		RB6#0	16.96	17.10	16.94	17.28	17.42	17.26
		RB6#9	17.19	17.17	17.32	17.51	17.49	17.64
		RB15#0	17.89	17.82	17.80	18.21	18.14	18.12

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	17.66	17.48	17.24	17.98	17.80	17.56
		RB1#13	18.16	18.20	18.18	18.48	18.52	18.50
		RB1#24	17.68	17.92	18.08	18.00	18.24	18.40
		RB15#0	17.76	17.54	17.59	18.08	17.86	17.91
		RB15#10	17.75	17.69	17.82	18.07	18.01	18.14
		RB25#0	17.78	17.87	17.71	18.10	18.19	18.03
	16QAM	RB1#0	17.91	17.83	17.84	18.23	18.15	18.16
		RB1#13	16.94	16.87	17.13	17.26	17.19	17.45
		RB1#24	17.64	17.59	17.36	17.96	17.91	17.68
		RB15#0	17.23	17.12	17.21	17.55	17.44	17.53
		RB15#10	17.11	17.09	17.08	17.43	17.41	17.40
		RB25#0	17.93	18.10	17.94	18.25	18.42	18.26
10.0	QPSK	RB1#0	17.90	17.90	17.78	18.22	18.22	18.10
		RB1#25	17.76	17.71	17.46	18.08	18.03	17.78
		RB1#49	17.62	17.55	17.77	17.94	17.87	18.09
		RB25#0	18.11	18.09	18.08	18.43	18.41	18.40
		RB25#25	17.82	17.88	17.96	18.14	18.20	18.28
		RB50#0	17.95	18.05	18.11	18.27	18.37	18.43
	16QAM	RB1#0	18.02	17.92	17.97	18.34	18.24	18.29
		RB1#25	17.06	17.07	17.08	17.38	17.39	17.40
		RB1#49	18.00	18.21	18.28	18.32	18.53	18.60
		RB25#0	17.11	17.08	17.12	17.43	17.40	17.44
		RB25#25	17.01	16.90	17.03	17.33	17.22	17.35
		RB50#0	17.90	17.63	17.53	18.22	17.95	17.85

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	17.73	17.94	17.82	18.05	18.26	18.14
		RB1#38	17.99	18.10	18.07	18.31	18.42	18.39
		RB1#74	17.97	18.19	18.27	18.29	18.51	18.59
		RB36#0	17.75	17.72	17.66	18.07	18.04	17.98
		RB36#39	17.97	17.78	17.91	18.29	18.10	18.23
		RB75#0	17.81	17.75	17.82	18.13	18.07	18.14
	16QAM	RB1#0	17.68	17.59	17.36	18.00	17.91	17.68
		RB1#38	16.82	16.65	16.63	17.14	16.97	16.95
		RB1#74	17.67	17.65	17.57	17.99	17.97	17.89
		RB36#0	16.95	16.82	16.60	17.27	17.14	16.92
		RB36#39	17.13	17.38	17.34	17.45	17.70	17.66
		RB75#0	17.66	17.42	17.40	17.98	17.74	17.72
20.0	QPSK	RB1#0	17.75	17.75	17.93	18.07	18.07	18.25
		RB1#50	18.14	17.96	18.03	18.46	18.28	18.35
		RB1#99	17.76	17.83	18.01	18.08	18.15	18.33
		RB50#0	17.99	18.17	18.36	18.31	18.49	18.68
		RB50#50	18.12	18.19	18.22	18.44	18.51	18.54
		RB100#0	17.82	17.66	17.64	18.14	17.98	17.96
	16QAM	RB1#0	17.88	17.97	17.91	18.20	18.29	18.23
		RB1#50	16.88	16.93	17.11	17.20	17.25	17.43
		RB1#99	17.98	18.02	18.23	18.30	18.34	18.55
		RB50#0	17.31	17.50	17.76	17.63	17.82	18.08
		RB50#50	16.97	17.15	17.12	17.29	17.47	17.44
		RB100#0	17.91	17.95	18.02	18.23	18.27	18.34

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi)
 For LTE Band 4: Antenna Gain = 0.32dBi
 The 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)	5.83	5.77	5.87	13	Pass
QPSK (100RB Size)	5.67	5.80	5.83	13	Pass
16QAM (1RB Size)	6.50	6.47	7.07	13	Pass
16QAM (100RB Size)	6.54	6.70	6.63	13	Pass

LTE Band 5:

Maximum Output Power

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
1.4	QPSK	RB1#0	23.40	23.48	23.28	17.87	17.95	17.75
		RB1#3	23.71	23.98	23.76	18.18	18.45	18.23
		RB1#5	23.65	23.87	23.77	18.12	18.34	18.24
		RB3#0	23.28	23.15	23.31	17.75	17.62	17.78
		RB3#3	23.28	23.29	23.19	17.75	17.76	17.66
		RB6#0	22.59	22.70	22.78	17.06	17.17	17.25
	16QAM	RB1#0	22.69	22.77	23.04	17.16	17.24	17.51
		RB1#3	22.58	22.52	22.26	17.05	16.99	16.73
		RB1#5	22.42	22.64	22.75	16.89	17.11	17.22
		RB3#0	23.03	22.97	22.90	17.50	17.44	17.37
		RB3#3	22.65	22.62	22.72	17.12	17.09	17.19
		RB6#0	21.53	21.37	21.14	16.00	15.84	15.61
3.0	QPSK	RB1#0	23.44	23.49	23.27	17.91	17.96	17.74
		RB1#8	23.79	23.54	23.58	18.26	18.01	18.05
		RB1#14	23.67	23.54	23.44	18.14	18.01	17.91
		RB6#0	23.51	23.43	23.60	17.98	17.90	18.07
		RB6#9	23.32	23.39	23.29	17.79	17.86	17.76
		RB15#0	22.67	22.57	22.40	17.14	17.04	16.87
	16QAM	RB1#0	22.53	22.57	22.80	17.00	17.04	17.27
		RB1#8	22.44	22.61	22.47	16.91	17.08	16.94
		RB1#14	22.55	22.46	22.47	17.02	16.93	16.94
		RB6#0	22.91	22.83	22.85	17.38	17.30	17.32
		RB6#9	22.75	22.66	22.63	17.22	17.13	17.10
		RB15#0	21.87	21.78	21.75	16.34	16.25	16.22

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
5.0	QPSK	RB1#0	23.58	23.55	23.57	18.05	18.02	18.04
		RB1#13	23.76	23.58	23.60	18.23	18.05	18.07
		RB1#24	23.53	23.52	23.53	18.00	17.99	18.00
		RB15#0	23.49	23.60	23.36	17.96	18.07	17.83
		RB15#10	23.31	23.28	23.29	17.78	17.75	17.76
		RB25#0	22.65	22.75	22.80	17.12	17.22	17.27
	16QAM	RB1#0	22.43	22.36	22.46	16.90	16.83	16.93
		RB1#13	22.46	22.59	22.53	16.93	17.06	17.00
		RB1#24	22.33	22.40	22.43	16.80	16.87	16.90
		RB15#0	23.01	23.09	23.20	17.48	17.56	17.67
		RB15#10	22.61	22.50	22.63	17.08	16.97	17.10
		RB25#0	21.77	21.72	21.73	16.24	16.19	16.20
10.0	QPSK	RB1#0	23.71	23.65	23.42	18.18	18.12	17.89
		RB1#25	23.46	23.40	23.26	17.93	17.87	17.73
		RB1#49	23.40	23.57	23.60	17.87	18.04	18.07
		RB25#0	23.52	23.46	23.50	17.99	17.93	17.97
		RB25#25	23.40	23.39	23.28	17.87	17.86	17.75
		RB50#0	22.76	22.61	22.43	17.23	17.08	16.90
	16QAM	RB1#0	22.26	22.01	22.16	16.73	16.48	16.63
		RB1#25	22.74	22.70	22.64	17.21	17.17	17.11
		RB1#49	22.71	22.72	22.71	17.18	17.19	17.18
		RB25#0	22.61	22.77	22.85	17.08	17.24	17.32
		RB25#25	22.63	22.43	22.39	17.10	16.90	16.86
		RB50#0	21.36	21.23	21.24	15.83	15.70	15.71

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd)
 For LTE Band 5: Antenna Gain = -3.38dBi = -5.53dBd (0dBd=2.15dBi)
 Limit: ERP ≤ 38.45dBm

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

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	5.22	4.87	4.71	13	Pass
QPSK (50RB Size)	5.77	5.58	5.54	13	Pass
16QAM (1RB Size)	6.19	5.61	5.54	13	Pass
16QAM (50RB Size)	6.60	6.51	6.47	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	17.76	17.82	17.77	18.22	18.28	18.23
		RB1#13	17.83	17.85	17.85	18.29	18.31	18.31
		RB1#24	17.77	17.81	17.75	18.23	18.27	18.21
		RB15#0	17.90	17.90	17.87	18.36	18.36	18.33
		RB15#10	17.89	17.89	17.84	18.35	18.35	18.30
		RB25#0	16.94	16.95	16.9	17.40	17.41	17.36
	16QAM	RB1#0	16.79	16.91	16.76	17.25	17.37	17.22
		RB1#13	16.88	16.99	16.84	17.34	17.45	17.30
		RB1#24	16.85	16.89	16.76	17.31	17.35	17.22
		RB15#0	17.10	16.84	16.93	17.56	17.30	17.39
		RB15#10	17.11	16.85	16.91	17.57	17.31	17.37
		RB25#0	16.03	16.01	15.91	16.49	16.47	16.37
10.0	QPSK	RB1#0	17.62	17.69	17.65	18.08	18.15	18.11
		RB1#25	17.70	17.76	17.76	18.16	18.22	18.22
		RB1#49	17.64	17.67	17.66	18.10	18.13	18.12
		RB25#0	16.83	16.82	16.77	17.29	17.28	17.23
		RB25#25	16.85	16.83	16.79	17.31	17.29	17.25
		RB50#0	16.85	16.84	16.83	17.31	17.30	17.29
	16QAM	RB1#0	17.25	16.82	16.60	17.71	17.28	17.06
		RB1#25	17.39	16.87	16.80	17.85	17.33	17.26
		RB1#49	17.30	16.79	16.63	17.76	17.25	17.09
		RB25#0	15.96	15.85	15.8	16.42	16.31	16.26
		RB25#25	15.92	15.90	15.75	16.38	16.36	16.21
		RB50#0	15.92	15.81	15.89	16.38	16.27	16.35

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	17.95	17.96	17.88	18.41	18.42	18.34
		RB1#38	18.09	18.05	18.02	18.55	18.51	18.48
		RB1#74	17.98	17.90	17.89	18.44	18.36	18.35
		RB36#0	16.92	16.99	16.96	17.38	17.45	17.42
		RB36#39	17.01	16.92	16.97	17.47	17.38	17.43
		RB75#0	16.98	16.95	16.93	17.44	17.41	17.39
	16QAM	RB1#0	16.85	17.25	16.95	17.31	17.71	17.41
		RB1#38	16.99	17.33	17.06	17.45	17.79	17.52
		RB1#74	16.89	17.19	16.94	17.35	17.65	17.40
		RB36#0	16.00	15.94	16.02	16.46	16.40	16.48
		RB36#39	16.06	15.91	16.00	16.52	16.37	16.46
		RB75#0	16.08	15.96	16.01	16.54	16.42	16.47
20.0	QPSK	RB1#0	17.95	18.01	17.95	18.41	18.47	18.41
		RB1#50	18.03	18.05	18.02	18.49	18.51	18.48
		RB1#99	18.00	17.96	18.01	18.46	18.42	18.47
		RB50#0	16.91	16.95	16.94	17.37	17.41	17.40
		RB50#50	16.99	16.86	16.96	17.45	17.32	17.42
		RB100#0	17.01	16.93	16.95	17.47	17.39	17.41
	16QAM	RB1#0	17.61	17.15	16.93	18.07	17.61	17.39
		RB1#50	17.68	17.18	17.04	18.14	17.64	17.50
		RB1#99	17.57	17.1	17	18.03	17.56	17.46
		RB50#0	16.00	16.02	16.03	16.46	16.48	16.49
		RB50#50	16.13	15.93	16.06	16.59	16.39	16.52
		RB100#0	16.03	15.95	16.01	16.49	16.41	16.47

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi)
 For LTE Band7: Antenna Gain = 0.46dBi
 Limit: EIRP ≤ 33dBm

Peak-to-average ratio (PAR)

20MHz bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	5.61	5.71	5.96	13	Pass
QPSK (100RB Size)	5.67	5.71	5.64	13	Pass
16QAM (1RB Size)	7.08	6.19	6.54	13	Pass
16QAM (100RB Size)	6.47	6.63	6.47	13	Pass

LTE Band 17:

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	23.13	23.02	22.90	16.07	15.96	15.84
		RB1#13	23.21	23.12	22.99	16.15	16.06	15.93
		RB1#24	23.11	23.00	22.88	16.05	15.94	15.82
		RB15#0	21.98	21.99	21.98	14.92	14.93	14.92
		RB15#10	22.17	22.08	22.00	15.11	15.02	14.94
		RB25#0	22.11	22.06	21.98	15.05	15.00	14.92
	16QAM	RB1#0	21.94	22.31	22.02	14.88	15.25	14.96
		RB1#13	22.06	22.42	22.13	15.00	15.36	15.07
		RB1#24	21.98	22.27	22.02	14.92	15.21	14.96
		RB15#0	21.10	21.01	21.05	14.04	13.95	13.99
		RB15#10	21.25	21.05	21.04	14.19	13.99	13.98
		RB25#0	21.19	21.06	21.02	14.13	14.00	13.96
10.0	QPSK	RB1#0	23.10	23.09	23.01	16.04	16.03	15.95
		RB1#25	23.10	23.08	23.02	16.04	16.02	15.96
		RB1#49	23.13	23.08	23.01	16.07	16.02	15.95
		RB25#0	21.91	21.96	21.97	14.85	14.90	14.91
		RB25#25	22.14	22.16	22.02	15.08	15.10	14.96
		RB50#0	22.08	22.12	22.01	15.02	15.06	14.95
	16QAM	RB1#0	22.73	22.22	22.03	15.67	15.16	14.97
		RB1#25	22.78	22.25	22.08	15.72	15.19	15.02
		RB1#49	22.76	22.23	22.03	15.70	15.17	14.97
		RB25#0	20.96	21.05	21.12	13.90	13.99	14.06
		RB25#25	21.24	21.18	21.13	14.18	14.12	14.07
		RB50#0	21.12	21.09	21.04	14.06	14.03	13.98

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd)
 For LTE Band17: Antenna Gain = -4.91dBi = -7.06dBd (0dBd=2.15dBi)
 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)	5.67	5.67	5.51	13	Pass
QPSK (50RB Size)	5.74	5.71	5.67	13	Pass
16QAM (1RB Size)	6.15	7.31	7.24	13	Pass
16QAM (50RB Size)	6.57	6.60	6.44	13	Pass

LTE Band 38:

Maximum Output Power

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
5.0	QP SK	RB1#0	17.00	17.07	17.01	17.46	17.53	17.47
		RB1#13	17.14	17.15	17.17	17.60	17.61	17.63
		RB1#24	17.01	17.05	17.05	17.47	17.51	17.51
		RB15#0	16.02	16.06	16.07	16.48	16.52	16.53
		RB15#10	16.00	16.07	16.11	16.46	16.53	16.57
		RB25#0	15.99	16.06	16.07	16.45	16.52	16.53
	16QAM	RB1#0	16.25	16.04	16.10	16.71	16.50	16.56
		RB1#13	16.41	16.16	16.24	16.87	16.62	16.70
		RB1#24	16.28	16.05	16.13	16.74	16.51	16.59
		RB15#0	15.05	15.03	15.11	15.51	15.49	15.57
		RB15#10	15.04	15.03	15.17	15.50	15.49	15.63
		RB25#0	15.01	15.13	15.16	15.47	15.59	15.62
10.0	QPSK	RB1#0	17.11	17.14	17.12	17.57	17.60	17.58
		RB1#25	17.15	17.22	17.20	17.61	17.68	17.66
		RB1#49	17.13	17.22	17.20	17.59	17.68	17.66
		RB25#0	16.03	16.10	16.05	16.49	16.56	16.51
		RB25#25	16.01	16.08	16.10	16.47	16.54	16.56
		RB50#0	16.09	16.11	16.12	16.55	16.57	16.58
	16QAM	RB1#0	16.34	16.03	16.23	16.80	16.49	16.69
		RB1#25	16.40	16.12	16.29	16.86	16.58	16.75
		RB1#49	16.36	16.16	16.29	16.82	16.62	16.75
		RB25#0	15.06	15.14	15.13	15.52	15.60	15.59
		RB25#25	15.07	15.16	15.20	15.53	15.62	15.66
		RB50#0	15.10	15.14	15.14	15.56	15.60	15.60

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	17.02	17.08	17.04	17.48	17.54	17.50
		RB1#38	17.19	17.18	17.14	17.65	17.64	17.60
		RB1#74	17.11	17.13	17.14	17.57	17.59	17.60
		RB36#0	16.02	16.02	15.98	16.48	16.48	16.44
		RB36#39	16.03	16.03	16.03	16.49	16.49	16.49
		RB75#0	16.05	16.04	16.02	16.51	16.50	16.48
	16QAM	RB1#0	16.25	16.05	16.27	16.71	16.51	16.73
		RB1#38	16.40	16.14	16.39	16.86	16.60	16.85
		RB1#74	16.33	16.06	16.35	16.79	16.52	16.81
		RB36#0	15.02	15.01	15.07	15.48	15.47	15.53
		RB36#39	15.04	15.01	15.13	15.50	15.47	15.59
		RB75#0	15.02	15.04	15.04	15.48	15.50	15.50
20.0	QPSK	RB1#0	16.90	16.96	17.04	17.36	17.42	17.50
		RB1#50	17.20	17.15	17.23	17.66	17.61	17.69
		RB1#99	17.02	16.99	17.13	17.48	17.45	17.59
		RB50#0	16.06	16.10	16.08	16.52	16.56	16.54
		RB50#50	16.05	16.11	16.08	16.51	16.57	16.54
		RB100#0	16.05	16.12	16.09	16.51	16.58	16.55
	16QAM	RB1#0	16.01	15.97	16.27	16.47	16.43	16.73
		RB1#50	16.30	16.17	16.47	16.76	16.63	16.93
		RB1#99	16.12	16.02	16.40	16.58	16.48	16.86
		RB50#0	15.07	15.16	15.10	15.53	15.62	15.56
		RB50#50	15.08	15.17	15.14	15.54	15.63	15.60
		RB100#0	15.06	15.14	15.08	15.52	15.60	15.54

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi)
 For LTE Band38: Antenna Gain = 0.46dBi
 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)	6.76	8.71	8.49	13	Pass
QPSK (100RB Size)	9.77	8.04	9.35	13	Pass
16QAM (1RB Size)	6.73	8.17	6.47	13	Pass
16QAM (100RB Size)	8.69	8.88	8.59	13	Pass

LTE Band 41:

Maximum Output Power

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
5.0	QP SK	RB1#0	17.55	17.56	17.61	18.01	18.02	18.07
		RB1#13	17.70	17.67	17.73	18.16	18.13	18.19
		RB1#24	17.53	17.60	17.63	17.99	18.06	18.09
		RB15#0	16.56	16.60	16.61	17.02	17.06	17.07
		RB15#10	16.63	16.63	16.64	17.09	17.09	17.10
		RB25#0	16.56	16.60	16.64	17.02	17.06	17.10
	16QAM	RB1#0	16.55	16.63	16.86	17.01	17.09	17.32
		RB1#13	16.70	16.78	16.99	17.16	17.24	17.45
		RB1#24	16.56	16.66	16.90	17.02	17.12	17.36
		RB15#0	15.52	15.64	15.65	15.98	16.10	16.11
		RB15#10	15.54	15.69	15.70	16.00	16.15	16.16
		RB25#0	15.63	15.69	15.69	16.09	16.15	16.15
10.0	QPSK	RB1#0	17.63	17.71	17.66	18.09	18.17	18.12
		RB1#25	17.66	17.75	17.77	18.12	18.21	18.23
		RB1#49	17.64	17.71	17.73	18.10	18.17	18.19
		RB25#0	16.50	16.62	16.60	16.96	17.08	17.06
		RB25#25	16.64	16.64	16.67	17.10	17.10	17.13
		RB50#0	16.60	16.67	16.68	17.06	17.13	17.14
	16QAM	RB1#0	16.85	16.61	16.77	17.31	17.07	17.23
		RB1#25	16.87	16.67	16.86	17.33	17.13	17.32
		RB1#49	16.86	16.65	16.83	17.32	17.11	17.29
		RB25#0	15.58	15.72	15.69	16.04	16.18	16.15
		RB25#25	15.68	15.72	15.76	16.14	16.18	16.22
		RB50#0	15.63	15.69	15.74	16.09	16.15	16.20

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	17.54	17.62	17.58	18.00	18.08	18.04
		RB1#38	17.72	17.75	17.75	18.18	18.21	18.21
		RB1#74	17.59	17.70	17.66	18.05	18.16	18.12
		RB36#0	16.48	16.58	16.55	16.94	17.04	17.01
		RB36#39	16.62	16.57	16.60	17.08	17.03	17.06
		RB75#0	16.56	16.62	16.62	17.02	17.08	17.08
	16QAM	RB1#0	16.78	16.56	16.81	17.24	17.02	17.27
		RB1#38	16.94	16.70	16.98	17.40	17.16	17.44
		RB1#74	16.81	16.63	16.93	17.27	17.09	17.39
		RB36#0	15.50	15.57	15.63	15.96	16.03	16.09
		RB36#39	15.63	15.58	15.72	16.09	16.04	16.18
		RB75#0	15.53	15.60	15.64	15.99	16.06	16.10
20.0	QPSK	RB1#0	17.39	17.45	17.57	17.85	17.91	18.03
		RB1#50	17.67	17.69	17.83	18.13	18.15	18.29
		RB1#99	17.46	17.53	17.67	17.92	17.99	18.13
		RB50#0	16.41	16.65	16.60	16.87	17.11	17.06
		RB50#50	16.69	16.59	16.69	17.15	17.05	17.15
		RB100#0	16.55	16.63	16.61	17.01	17.09	17.07
	16QAM	RB1#0	16.50	16.46	16.78	16.96	16.92	17.24
		RB1#50	16.77	16.72	17.04	17.23	17.18	17.50
		RB1#99	16.58	16.51	16.91	17.04	16.97	17.37
		RB50#0	15.43	15.71	15.62	15.89	16.17	16.08
		RB50#50	15.69	15.67	15.74	16.15	16.13	16.20
		RB100#0	15.51	15.67	15.64	15.97	16.13	16.10

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi)
 For LTE Band 41: Antenna Gain = 0.46dBi
 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)	8.24	8.03	7.05	13	Pass
QPSK (100RB Size)	7.53	7.47	8.32	13	Pass
16QAM (1RB Size)	7.44	9.55	8.62	13	Pass
16QAM (100RB Size)	9.77	8.19	8.97	13	Pass

LTE Band 66:

Maximum Output Power

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
1.4	QPSK	RB1#0	17.97	18.02	17.91	18.29	18.34	18.23
		RB1#3	18.10	18.16	18.04	18.42	18.48	18.36
		RB1#5	18.03	18.04	17.92	18.35	18.36	18.24
		RB3#0	16.89	16.93	16.98	17.21	17.25	17.30
		RB3#3	17.00	17.09	16.98	17.32	17.41	17.30
		RB6#0	17.02	17.05	17.02	17.34	17.37	17.34
	16QAM	RB1#0	17.61	17.15	17.33	17.93	17.47	17.65
		RB1#3	17.73	17.23	17.50	18.05	17.55	17.82
		RB1#5	17.68	17.18	17.38	18.00	17.50	17.70
		RB3#0	15.93	15.97	15.96	16.25	16.29	16.28
		RB3#3	16.05	16.11	15.98	16.37	16.43	16.30
		RB6#0	16.00	16.10	15.98	16.32	16.42	16.30
3.0	QPSK	RB1#0	16.92	16.93	16.82	17.24	17.25	17.14
		RB1#8	18.17	18.17	18.03	18.49	18.49	18.35
		RB1#14	18.03	18.04	17.80	18.35	18.36	18.12
		RB6#0	16.87	16.89	17.06	17.19	17.21	17.38
		RB6#9	16.99	17.14	17.05	17.31	17.46	17.37
		RB15#0	16.89	17.03	17.04	17.21	17.35	17.36
	16QAM	RB1#0	16.23	16.15	16.42	16.55	16.47	16.74
		RB1#8	17.47	17.37	17.65	17.79	17.69	17.97
		RB1#14	17.30	17.22	17.52	17.62	17.54	17.84
		RB6#0	15.85	15.88	16.02	16.17	16.20	16.34
		RB6#9	15.96	16.13	16.04	16.28	16.45	16.36
		RB15#0	15.91	16.07	16.01	16.23	16.39	16.33

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	17.96	17.98	17.93	18.28	18.30	18.25
		RB1#13	18.03	17.93	18.08	18.35	18.25	18.40
		RB1#24	18.02	18.03	17.84	18.34	18.35	18.16
		RB15#0	17.01	16.86	17.11	17.33	17.18	17.43
		RB15#10	17.16	16.88	16.90	17.48	17.20	17.22
		RB25#0	17.07	16.91	16.80	17.39	17.23	17.12
	16QAM	RB1#0	16.83	17.31	16.98	17.15	17.63	17.30
		RB1#13	17.02	17.39	17.14	17.34	17.71	17.46
		RB1#24	16.88	17.34	17.06	17.2	17.66	17.38
		RB15#0	16.06	15.84	16.11	16.38	16.16	16.43
		RB15#10	16.16	16.04	15.91	16.48	16.36	16.23
		RB25#0	16.28	15.97	15.98	16.60	16.29	16.30
10.0	QPSK	RB1#0	17.98	17.99	18.04	18.3	18.31	18.36
		RB1#25	17.90	18.06	17.98	18.22	18.38	18.30
		RB1#49	18.06	17.85	18.03	18.38	18.17	18.35
		RB25#0	16.79	16.72	16.87	17.11	17.04	17.19
		RB25#25	17.05	16.94	16.89	17.37	17.26	17.21
		RB50#0	16.96	16.88	16.96	17.28	17.20	17.28
	16QAM	RB1#0	17.52	17.14	17.05	17.84	17.46	17.37
		RB1#25	17.70	17.30	17.16	18.02	17.62	17.48
		RB1#49	17.55	17.09	16.97	17.87	17.41	17.29
		RB25#0	16.11	15.92	15.92	16.43	16.24	16.24
		RB25#25	16.09	16.03	15.99	16.41	16.35	16.31
		RB50#0	16.02	15.91	15.88	16.34	16.23	16.20

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	17.20	17.63	17.74	17.52	17.95	18.06
		RB1#38	17.24	17.69	17.83	17.56	18.01	18.15
		RB1#74	17.19	17.68	17.74	17.51	18.00	18.06
		RB36#0	17.28	17.76	17.91	17.60	18.08	18.23
		RB36#39	17.31	17.79	17.90	17.63	18.11	18.22
		RB75#0	16.35	16.80	16.92	16.67	17.12	17.24
	16QAM	RB1#0	16.12	16.70	16.72	16.44	17.02	17.04
		RB1#38	16.23	16.85	16.83	16.55	17.17	17.15
		RB1#74	16.16	16.72	16.74	16.48	17.04	17.06
		RB36#0	16.46	16.76	16.93	16.78	17.08	17.25
		RB36#39	16.52	16.80	16.94	16.84	17.12	17.26
		RB75#0	15.37	15.86	15.84	15.69	16.18	16.16
20.0	QPSK	RB1#0	17.01	17.51	17.66	17.33	17.83	17.98
		RB1#50	17.11	17.63	17.73	17.43	17.95	18.05
		RB1#99	17.08	17.53	17.64	17.40	17.85	17.96
		RB50#0	16.21	16.71	16.81	16.53	17.03	17.13
		RB50#50	16.29	16.74	16.82	16.61	17.06	17.14
		RB100#0	16.24	16.72	16.81	16.56	17.04	17.13
	16QAM	RB1#0	16.61	16.66	16.63	16.93	16.98	16.95
		RB1#50	16.75	16.78	16.71	17.07	17.10	17.03
		RB1#99	16.60	16.71	16.67	16.92	17.03	16.99
		RB50#0	15.26	15.72	15.80	15.58	16.04	16.12
		RB50#50	15.33	15.79	15.74	15.65	16.11	16.06
		RB100#0	15.32	15.69	15.84	15.64	16.01	16.16

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi)
 For LTE Band 66: Antenna Gain = 0.32dBi
 The 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)	5.64	5.35	6.09	13	Pass
QPSK (100RB Size)	5.83	5.74	5.74	13	Pass
16QAM (1RB Size)	6.67	6.25	6.96	13	Pass
16QAM (100RB Size)	6.76	6.63	6.57	13	Pass

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

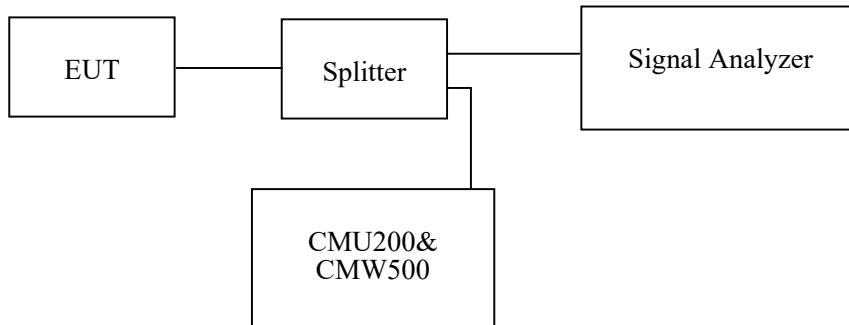
Applicable Standard

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

Test Procedure

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

The resolution bandwidth of the spectrum analyzer was set at 1% to 5% of the anticipated emission bandwidth and the 26 dB & 99% bandwidth was recorded.



Test Data

Environmental Conditions

Temperature:	29.1 °C
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

The testing was performed by Pedro Yun from 2021-07-31 to 2021-08-17.

EUT operation mode: Transmitting

Test Result: Pass

Please refer to the following tables and plots.

Cellular Band (Part 22H)

Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM(GMSK)	128	824.2	243.59	305.77
	190	836.6	246.79	302.56
	251	848.8	241.99	310.58
EGPRS(8PSK)	128	824.2	245.19	319.55
	190	836.6	245.19	315.38
	251	848.8	245.19	318.91

	Frequency (MHz)	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	826.4	4.17	4.69
	836.6	4.15	4.67
	846.6	4.17	4.69
HSDPA	826.4	4.18	4.72
	836.6	4.17	4.71
	846.6	4.18	4.73
HSUPA	826.4	4.18	4.71
	836.6	4.18	4.68
	846.6	4.18	4.70

PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM(GMSK)	512	1850.2	246.79	317.31
	661	1880.0	246.79	318.91
	810	1909.8	245.19	312.18
EGPRS(8PSK)	512	1850.2	245.19	313.14
	661	1880.0	243.59	316.35
	810	1909.8	245.19	306.09

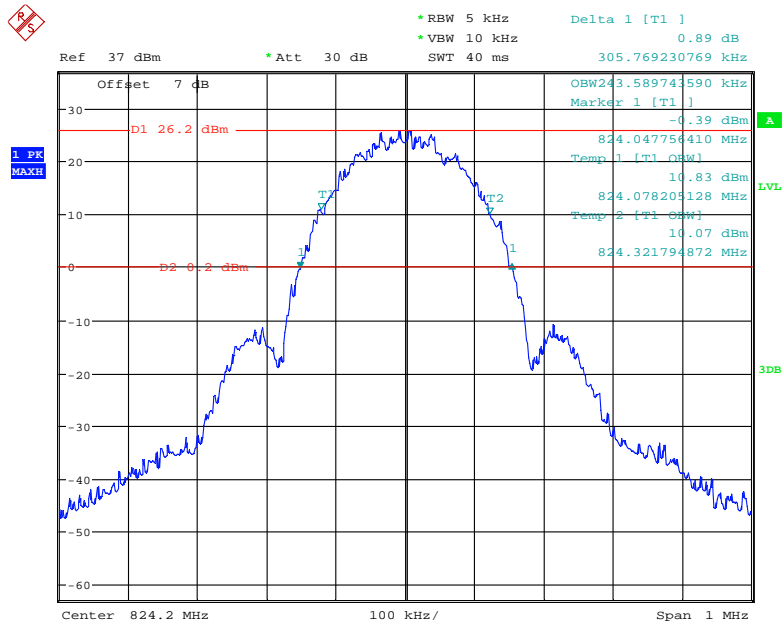
Frequency (MHz)		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	1852.4	4.15	4.71
	1880.0	4.15	4.71
	1907.6	4.17	4.71
HSDPA	1852.4	4.18	4.71
	1880.0	4.18	4.68
	1907.6	4.17	4.69
HSUPA	1852.4	4.17	4.69
	1880.0	4.18	4.71
	1907.6	4.18	4.71

AWS Band (Part 27)

Frequency (MHz)		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	1712.4	4.17	4.70
	1732.6	4.18	4.70
	1752.6	4.17	4.73
HSDPA	1712.4	4.17	4.71
	1732.6	4.18	4.71
	1752.6	4.18	4.72
HSUPA	1712.4	4.17	4.70
	1732.6	4.18	4.71
	1752.6	4.18	4.71

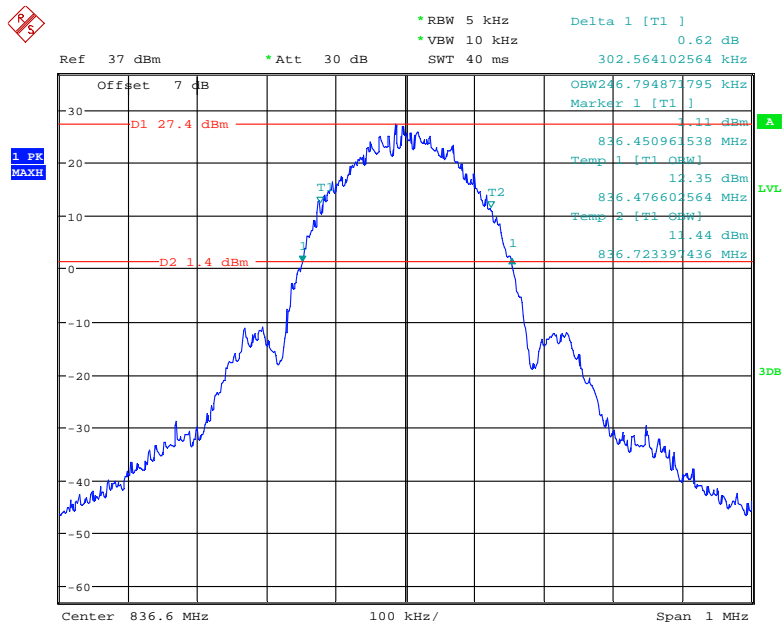
Cellular Band (Part 22H)

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



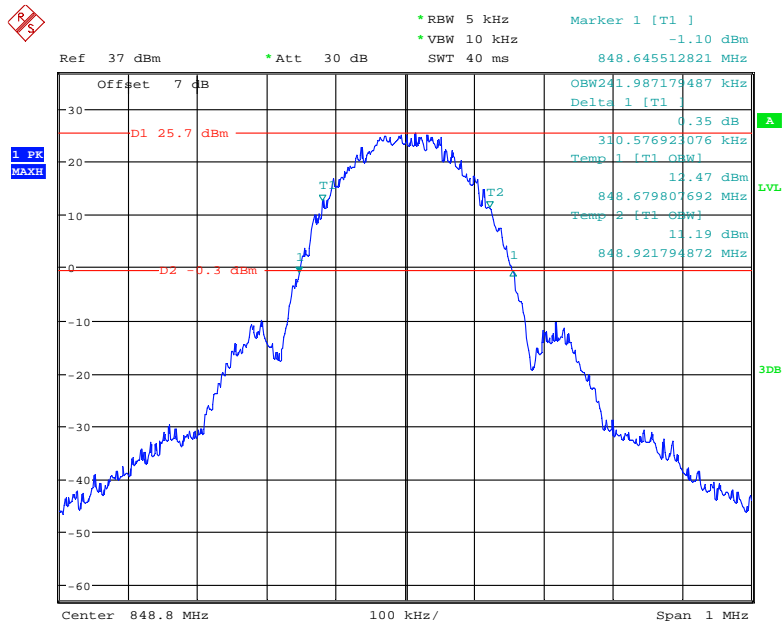
Date: 31.JUL.2021 13:39:32

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



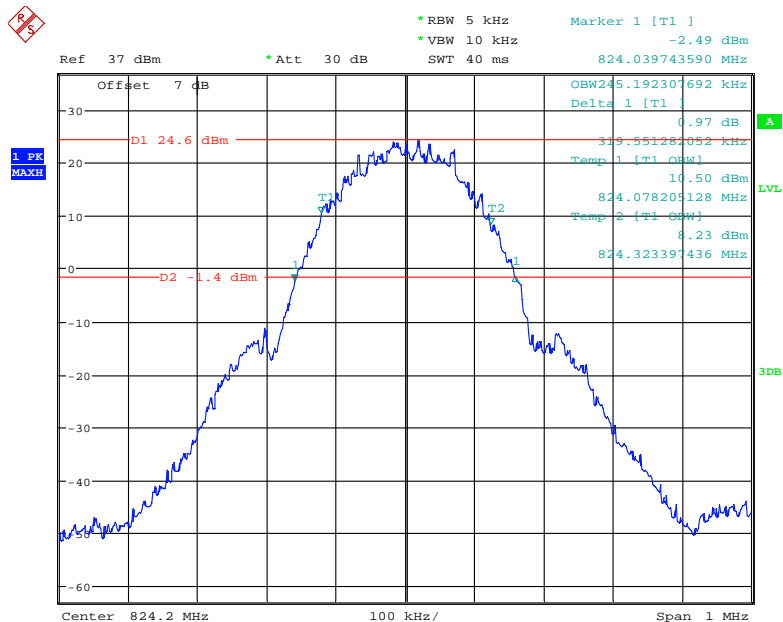
Date: 31.JUL.2021 13:41:14

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



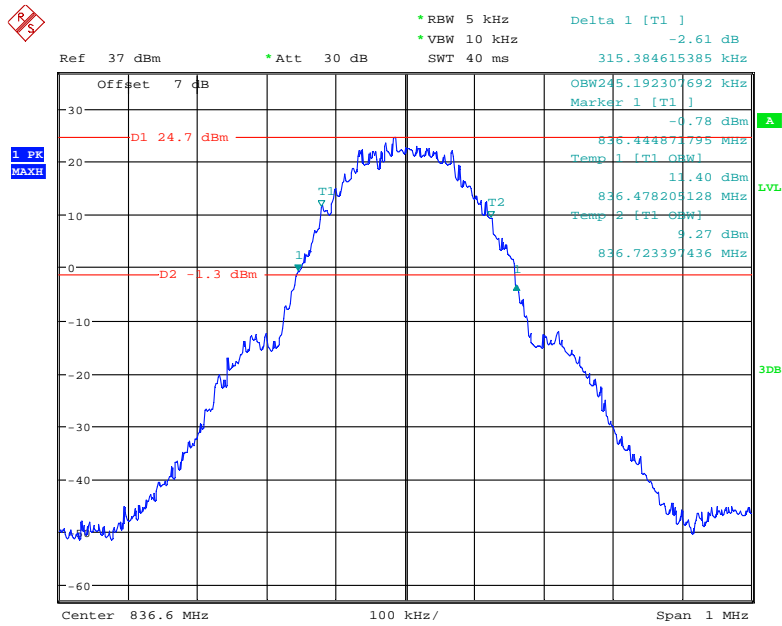
Date: 31.JUL.2021 13:42:22

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



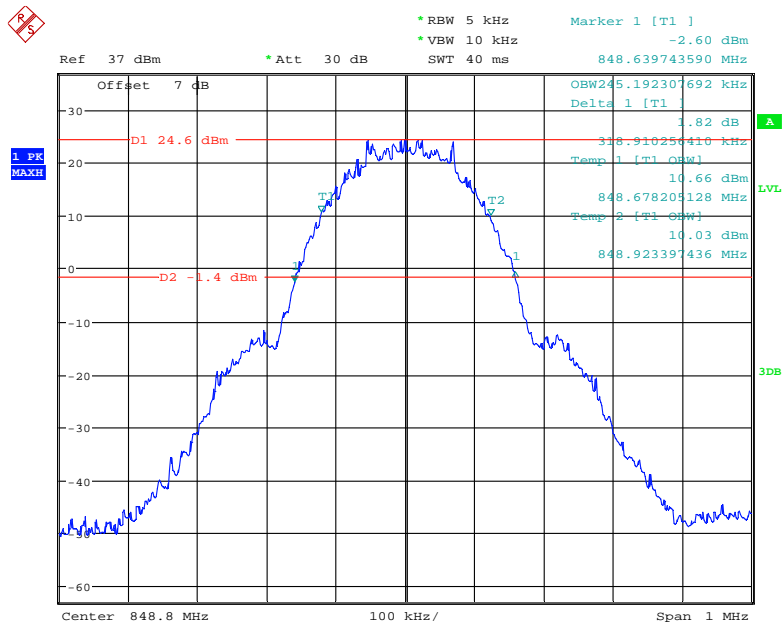
Date: 30.JUL.2021 11:08:59

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



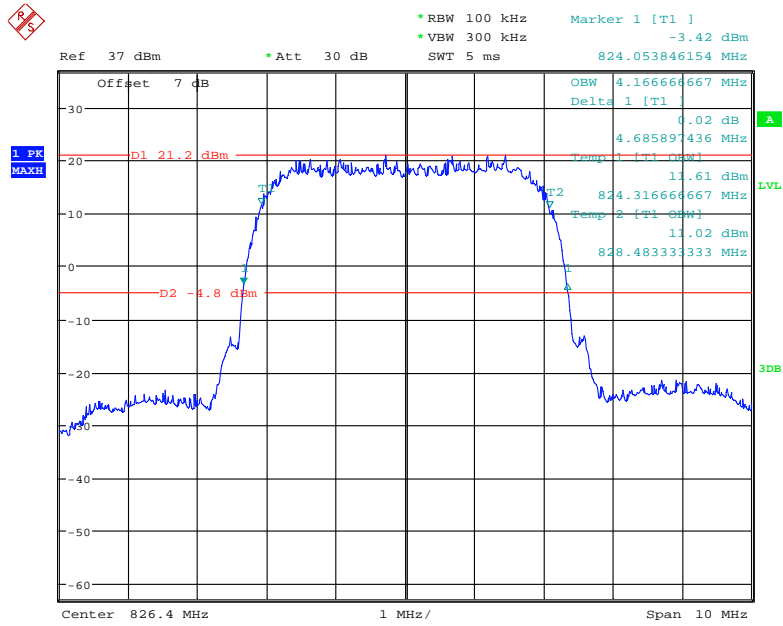
Date: 30.JUL.2021 11:07:29

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



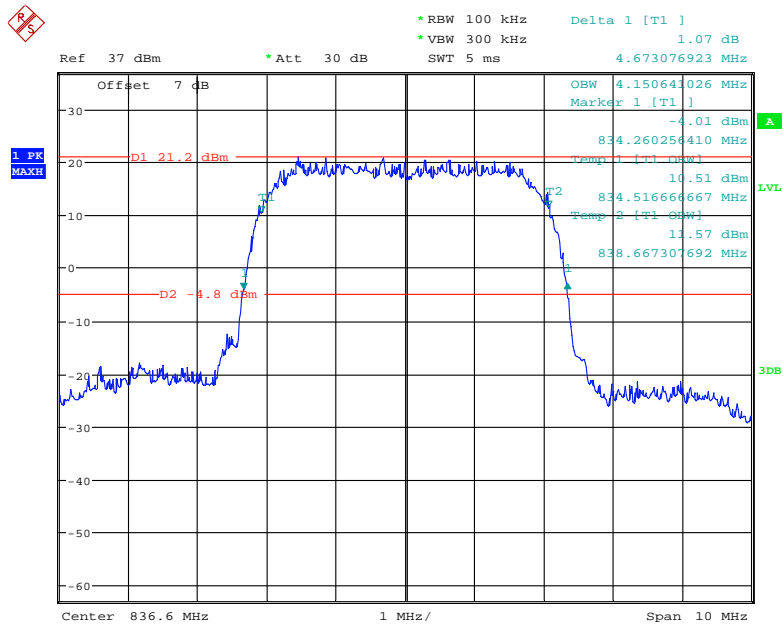
Date: 30.JUL.2021 11:05:53

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



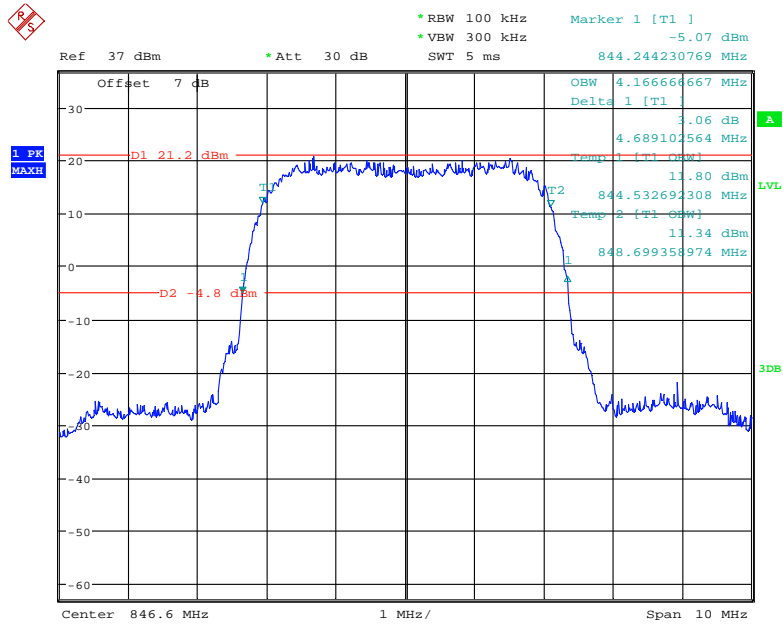
Date: 31.JUL.2021 16:12:07

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



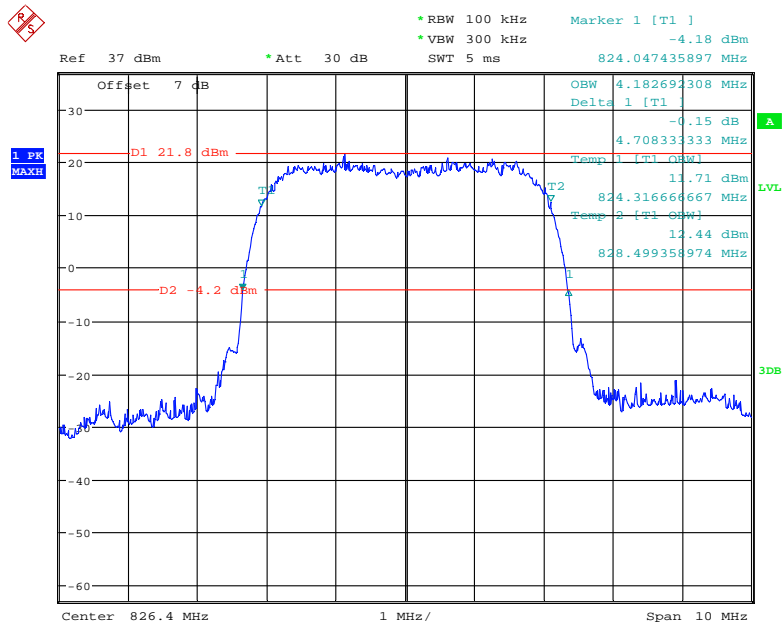
Date: 31.JUL.2021 16:12:57

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



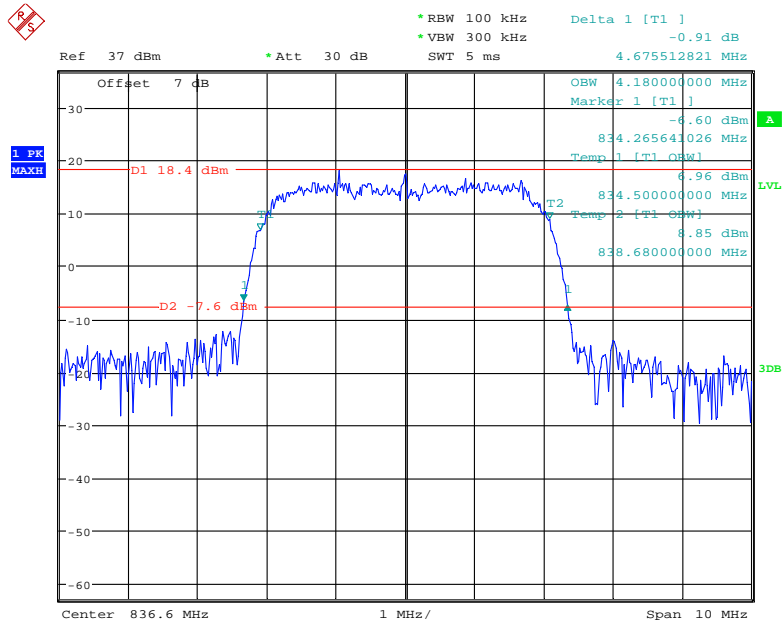
Date: 31.JUL.2021 16:13:43

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



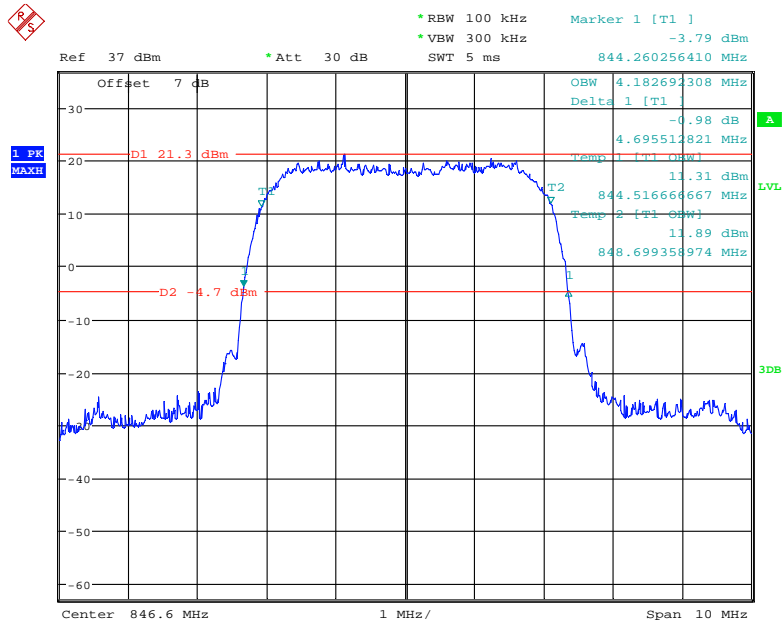
Date: 31.JUL.2021 16:32:35

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



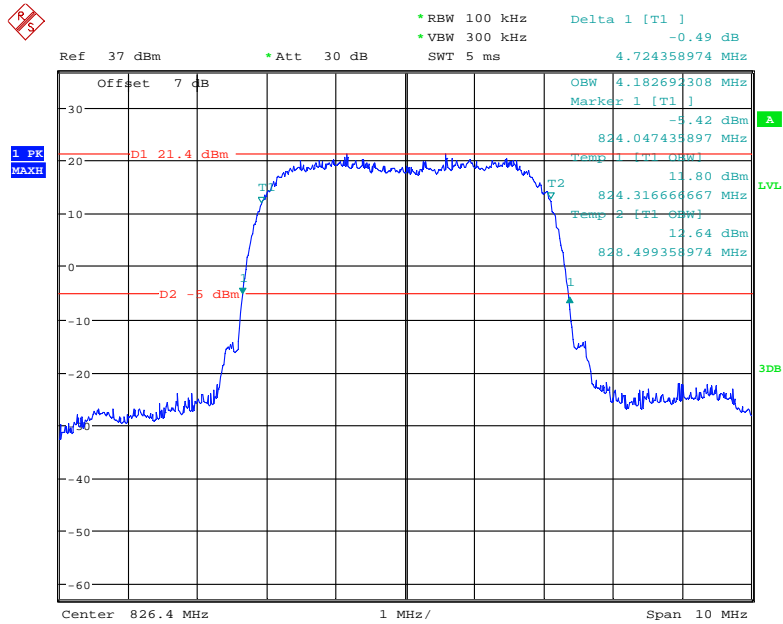
Date: 17.AUG.2021 20:06:54

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



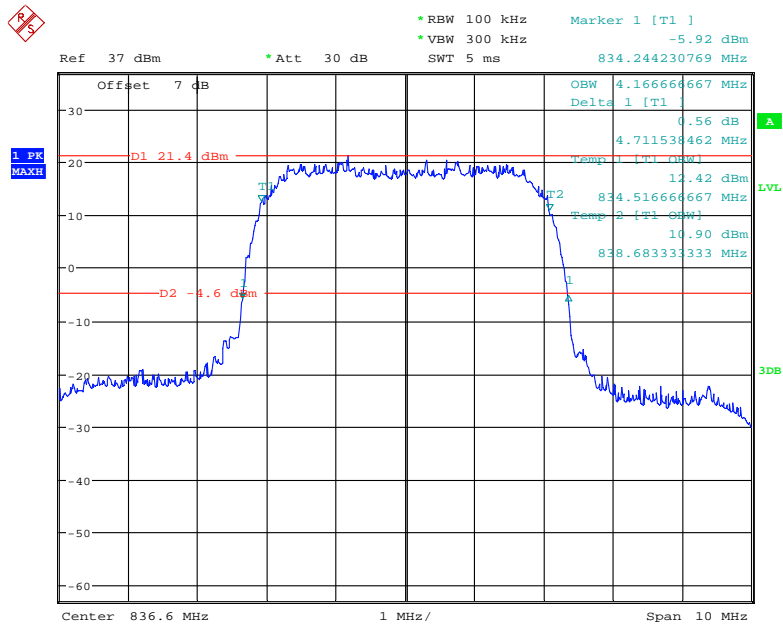
Date: 31.JUL.2021 16:35:44

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



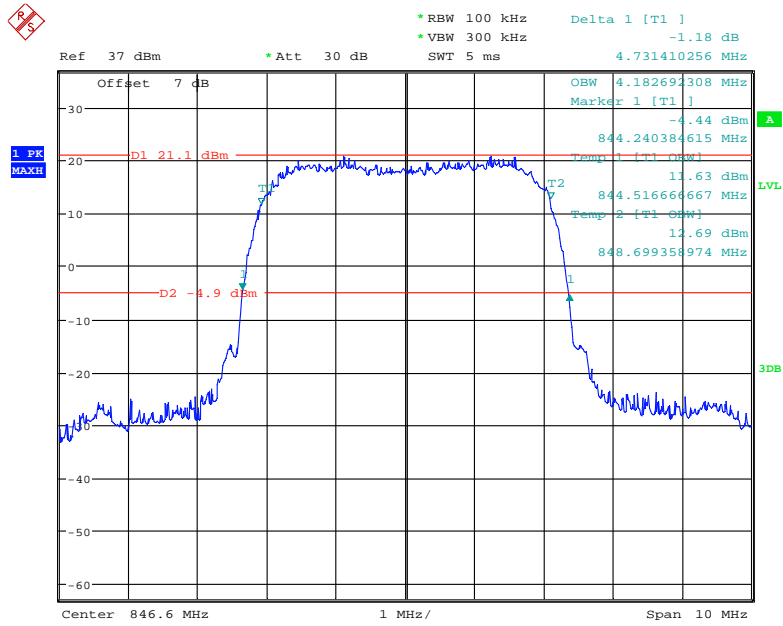
Date: 31.JUL.2021 16:30:01

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



Date: 31.JUL.2021 16:28:22

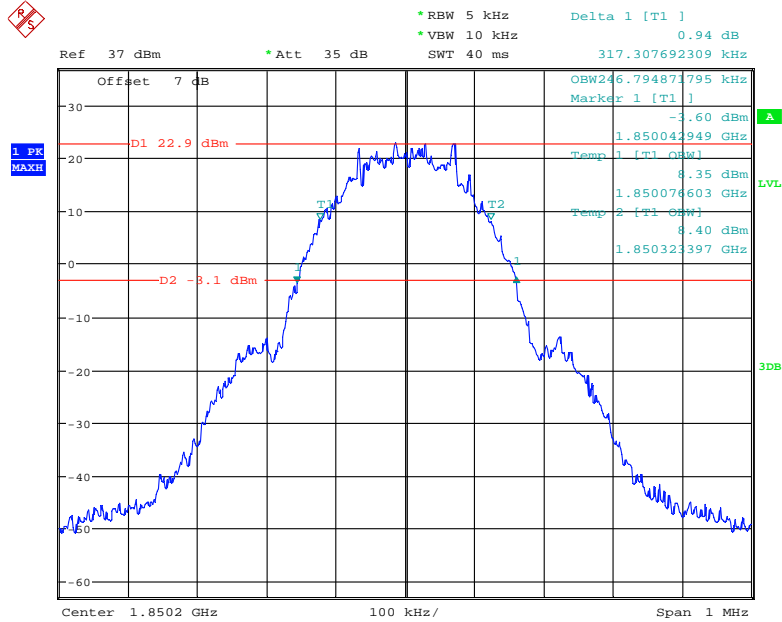
26 dB Emissions & 99% Occupied Bandwidth for HSDPA (16QAM) Mode, High channel



Date: 31.JUL.2021 16:27:07

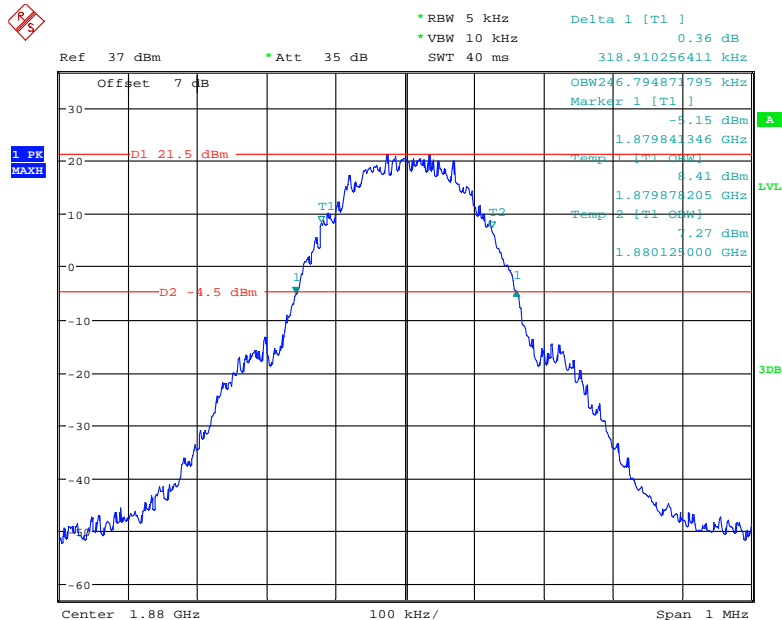
PCS Band (Part 24E)

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



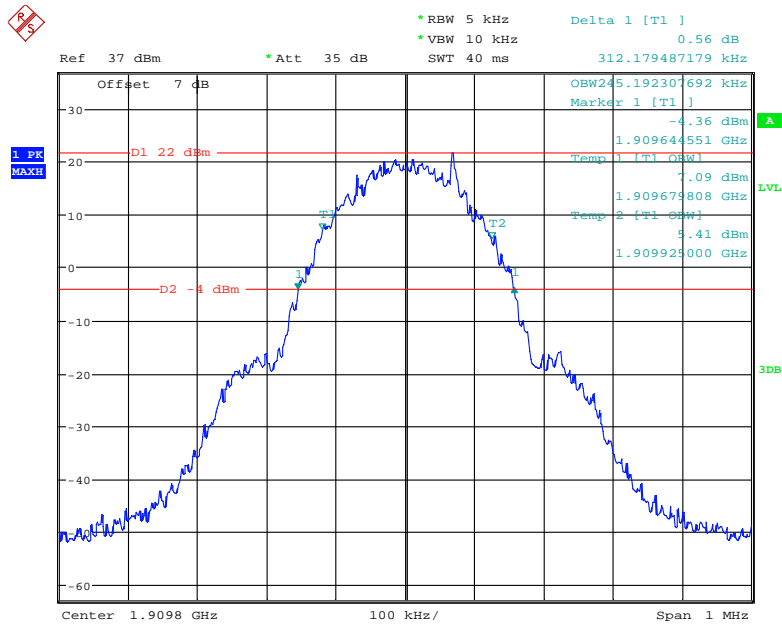
Date: 31.JUL.2021 14:57:00

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



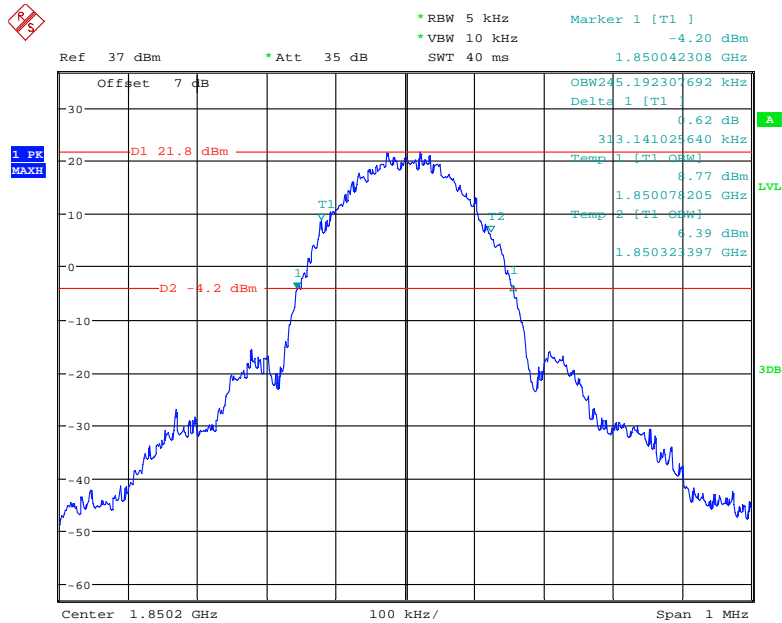
Date: 31.JUL.2021 14:55:30

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



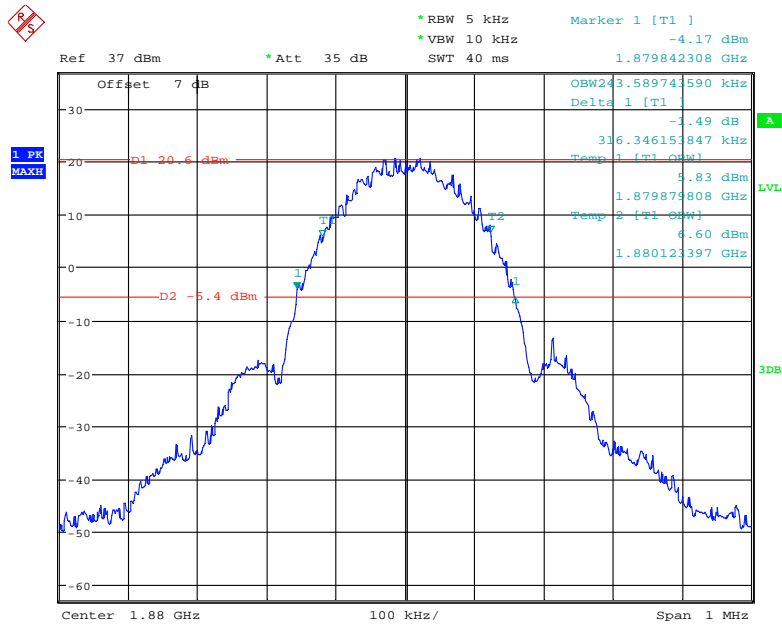
Date: 31.JUL.2021 14:58:02

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



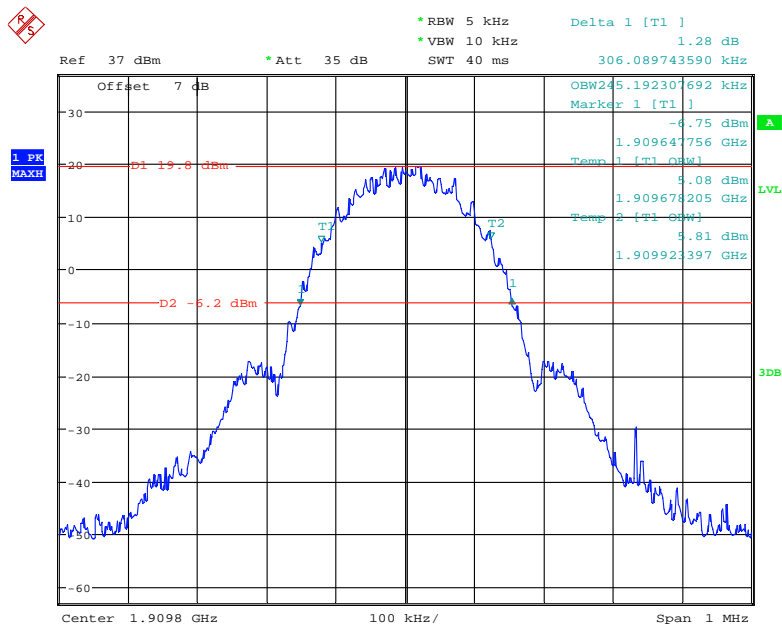
Date: 31.JUL.2021 15:08:11

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



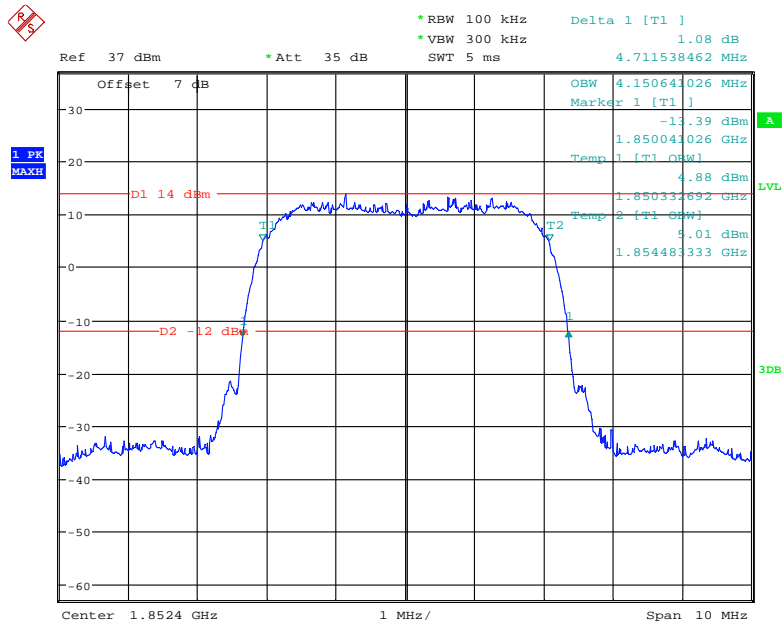
Date: 31.JUL.2021 15:06:53

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



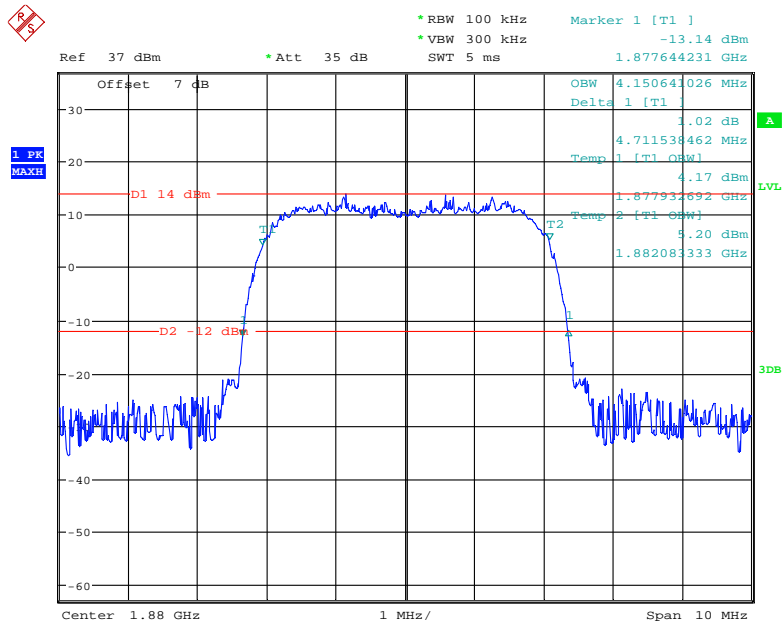
Date: 31.JUL.2021 15:05:18

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



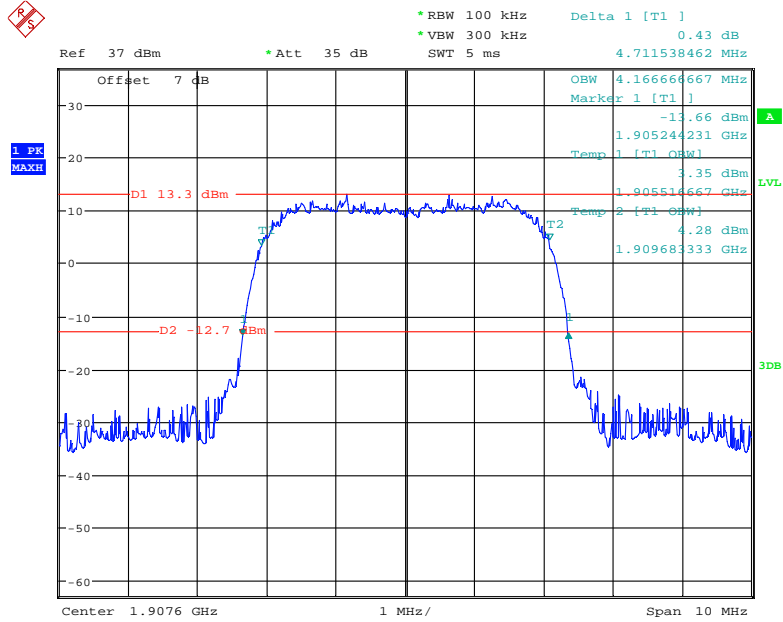
Date: 31.JUL.2021 15:12:34

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



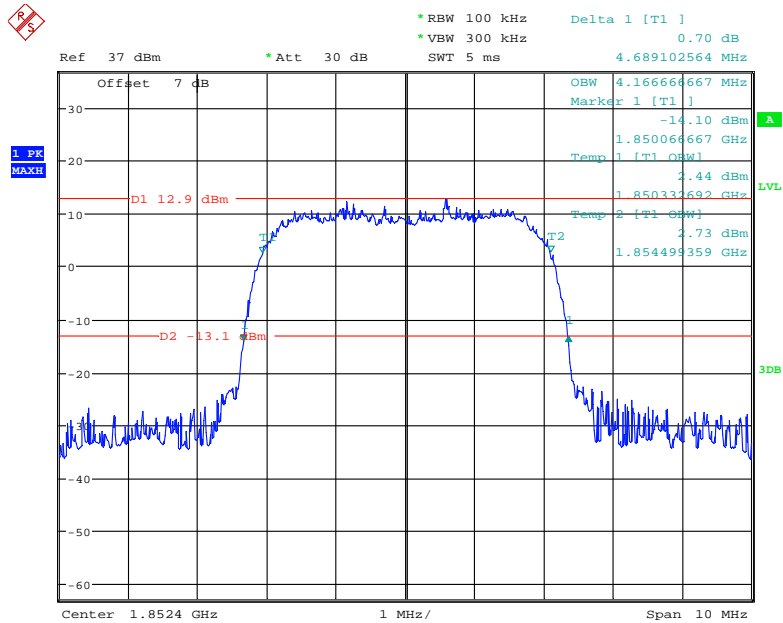
Date: 31.JUL.2021 15:13:35

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



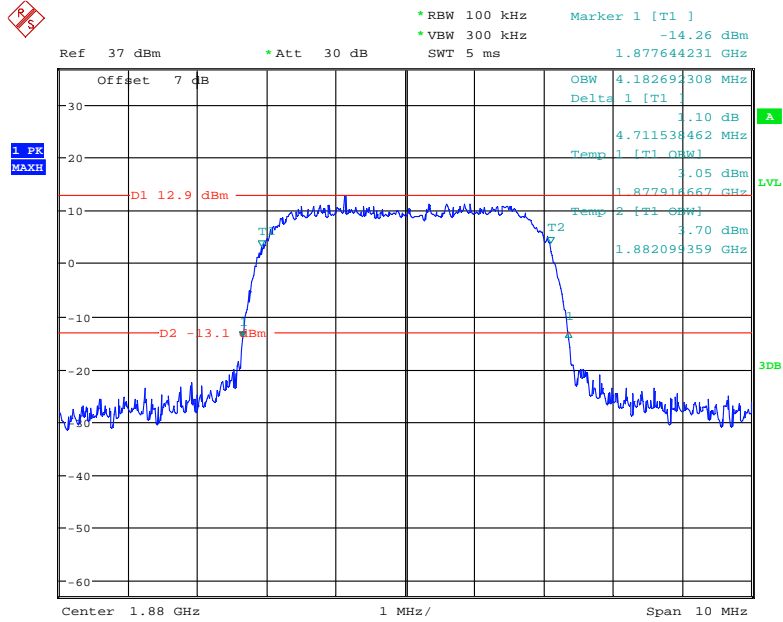
Date: 31.JUL.2021 15:15:27

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



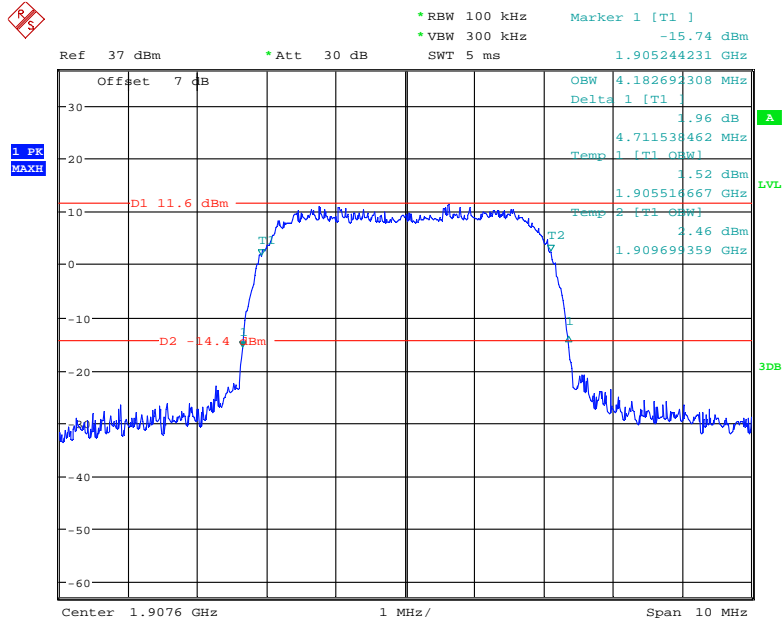
Date: 31.JUL.2021 15:43:41

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



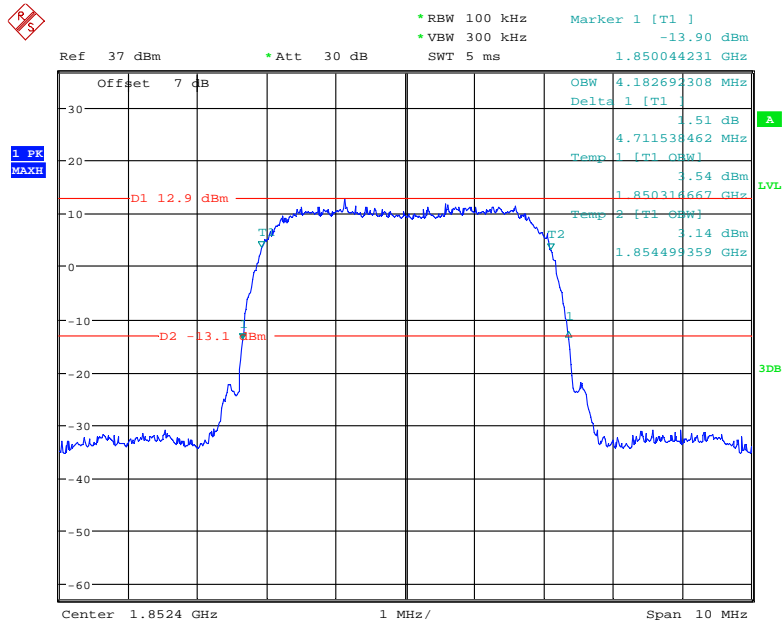
Date: 31.JUL.2021 15:43:02

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



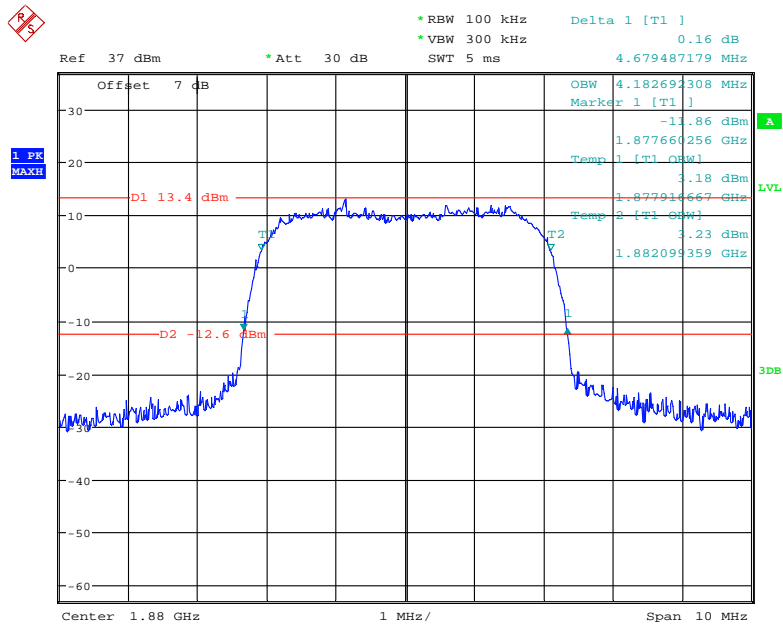
Date: 31.JUL.2021 15:42:14

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



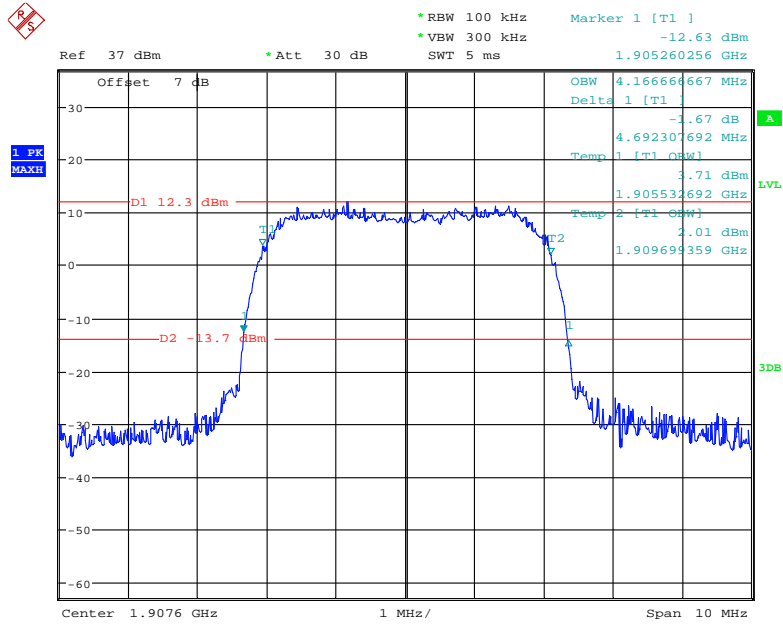
Date: 31.JUL.2021 15:34:31

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



Date: 31.JUL.2021 15:32:38

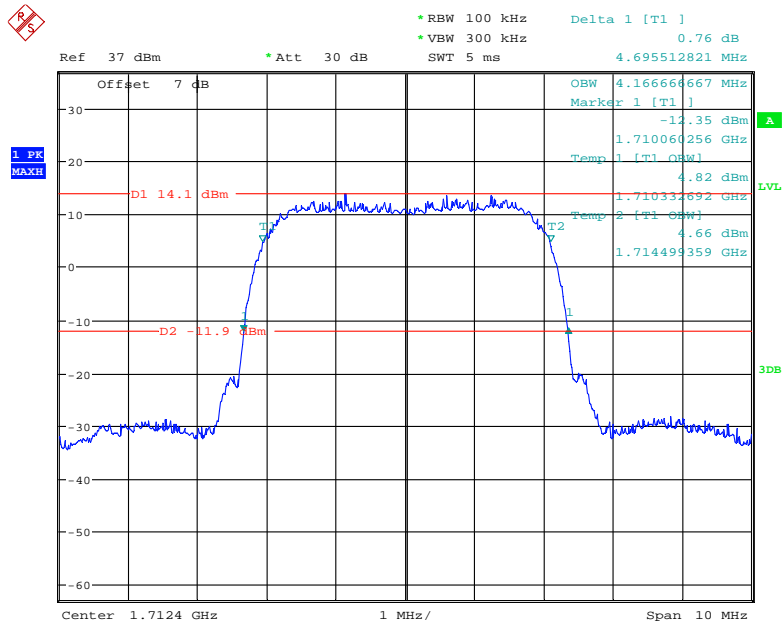
26 dB Emissions & 99% Occupied Bandwidth for HSDPA (16QAM) Mode, High channel



Date: 31.JUL.2021 15:36:03

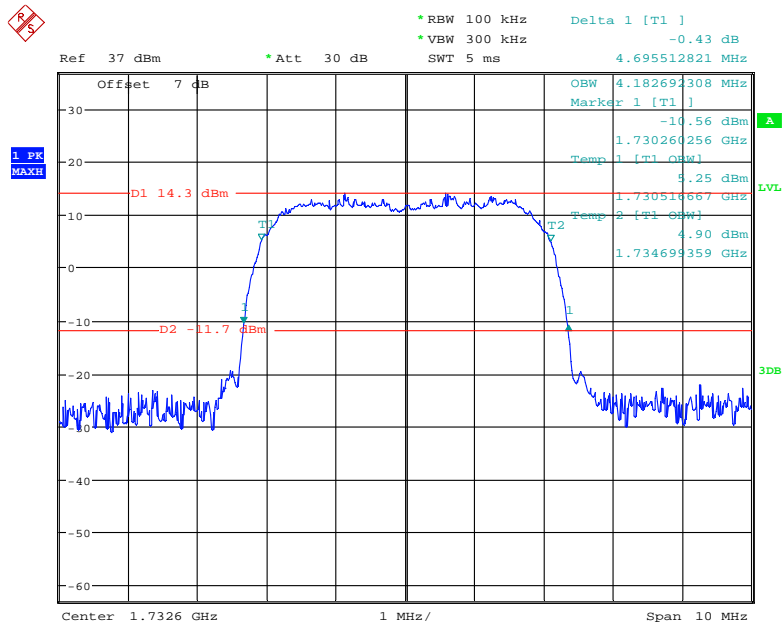
AWS Band (Part 27)

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



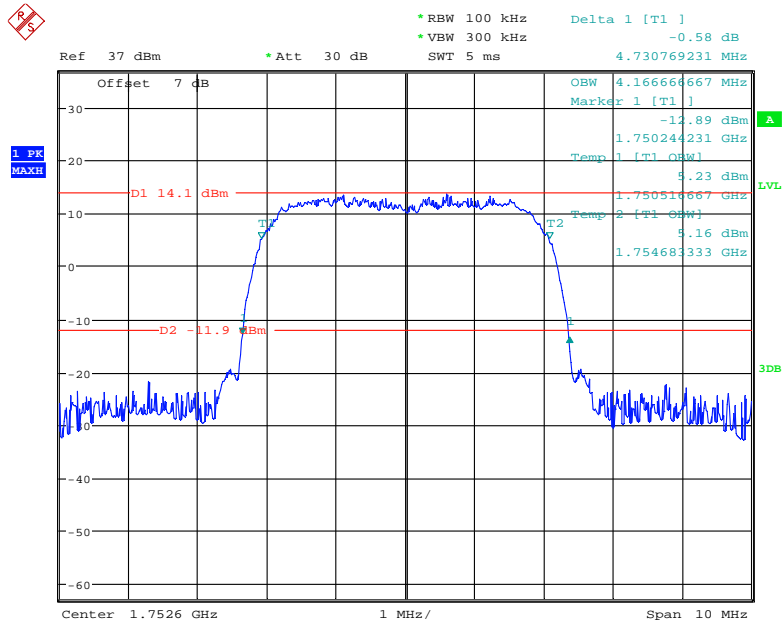
Date: 31.JUL.2021 15:46:19

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



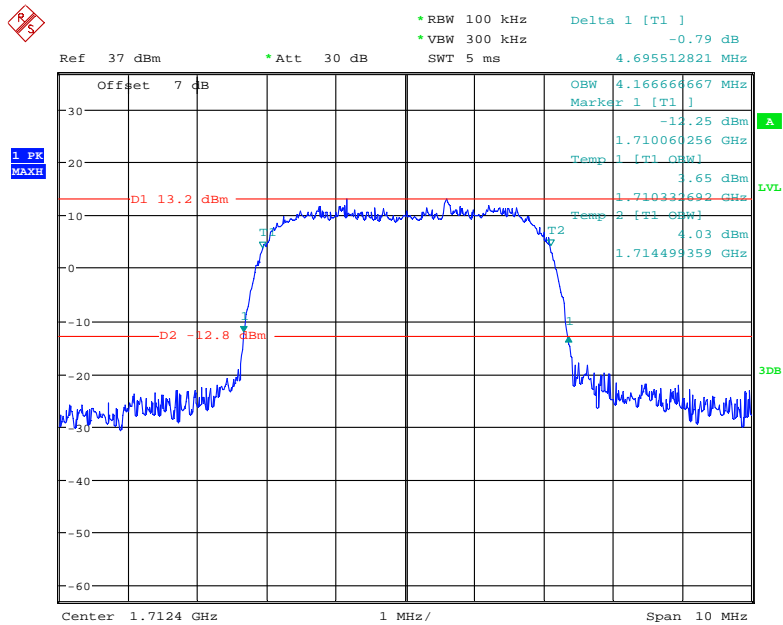
Date: 31.JUL.2021 15:47:55

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



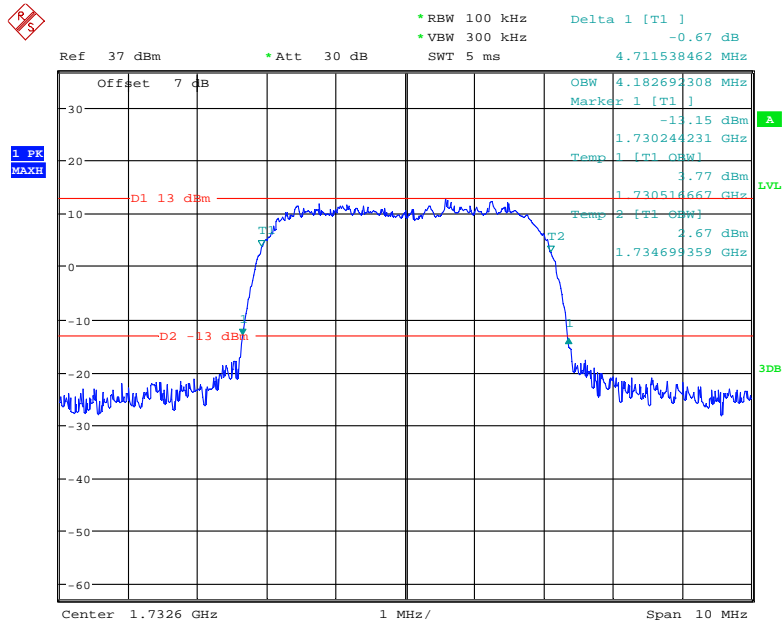
Date: 31.JUL.2021 15:48:55

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



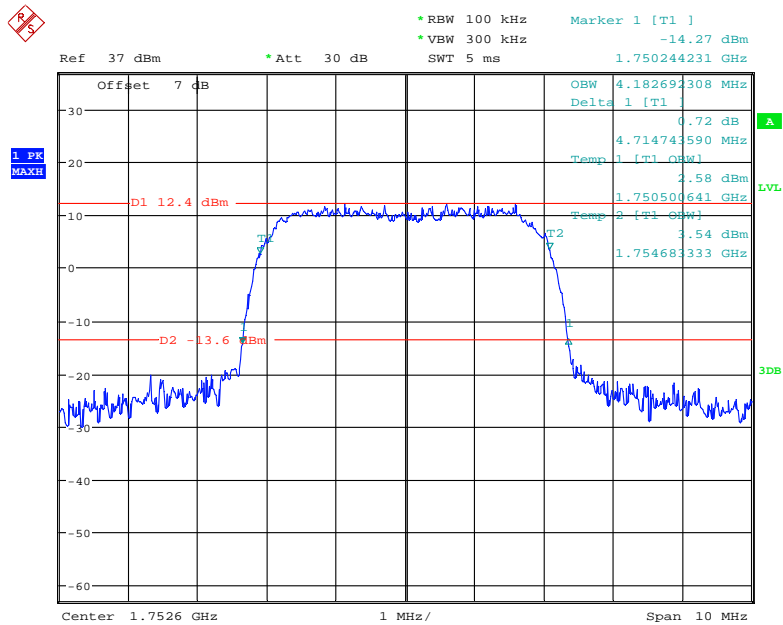
Date: 31.JUL.2021 15:57:22

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



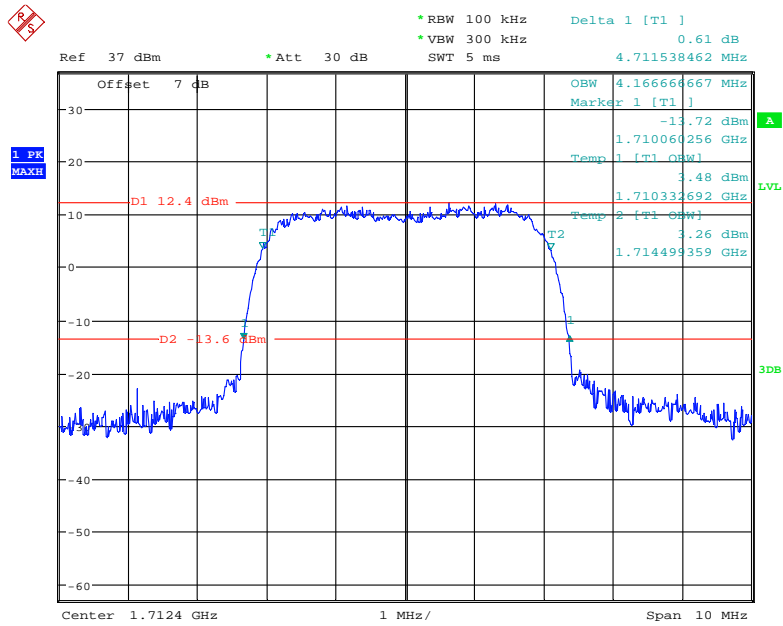
Date: 31.JUL.2021 15:58:22

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



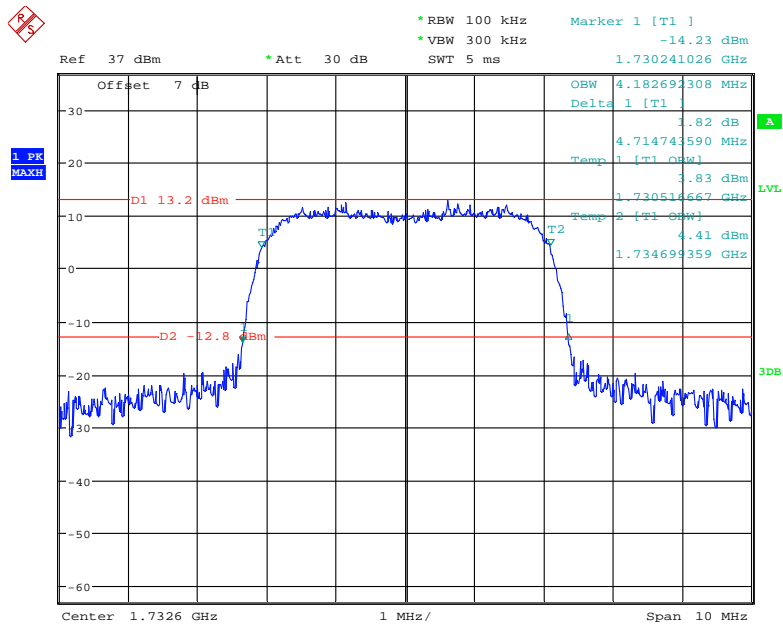
Date: 31.JUL.2021 16:02:36

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



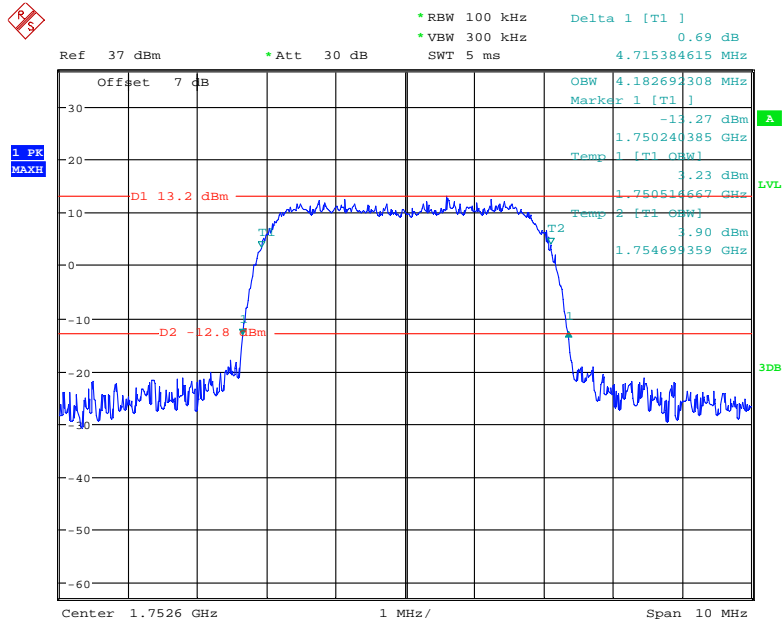
Date: 31.JUL.2021 16:10:15

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



Date: 31.JUL.2021 16:09:09

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



Date: 31.JUL.2021 16:08:03

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	1.110	1.332	1.098	1.290	1.110	1.296
	16QAM	1.104	1.284	1.110	1.302	1.104	1.284
3 MHz	QPSK	2.688	2.916	2.688	2.940	2.688	2.940
	16QAM	2.688	2.916	2.688	2.940	2.688	2.928
5 MHz	QPSK	4.520	4.940	4.520	4.920	4.540	4.900
	16QAM	4.520	4.900	4.520	4.940	4.500	4.940
10 MHz	QPSK	9.000	9.600	8.960	9.600	8.960	9.600
	16QAM	8.960	9.560	8.960	9.560	8.960	9.600
15 MHz	QPSK	13.560	14.760	13.500	14.760	13.560	14.700
	16QAM	13.500	14.700	13.500	14.700	13.560	15.060
20 MHz	QPSK	17.920	19.280	17.920	19.280	18.000	19.360
	16QAM	18.000	19.360	18.000	19.360	18.000	19.440

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	1.098	1.284	1.104	1.308	1.110	1.284
	16QAM	1.110	1.302	1.104	1.284	1.104	1.284
3 MHz	QPSK	2.700	2.904	2.700	2.928	2.688	2.940
	16QAM	2.688	2.952	2.688	2.952	2.688	2.928
5 MHz	QPSK	4.540	4.940	4.520	4.920	4.520	4.920
	16QAM	4.520	4.920	4.520	4.940	4.500	4.980
10 MHz	QPSK	8.960	9.640	8.960	9.600	8.960	9.680
	16QAM	8.960	9.560	8.960	9.640	8.960	9.640
15 MHz	QPSK	13.560	14.820	13.440	14.760	13.500	14.640
	16QAM	13.560	14.640	13.500	14.760	13.560	14.760
20 MHz	QPSK	18.000	19.280	17.920	19.280	18.000	19.440
	16QAM	18.000	19.280	18.000	19.440	18.000	19.280

LTE Band 5:

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	1.290	1.104	1.314	1.104	1.278
	16QAM	1.104	1.296	1.098	1.278	1.098	1.284
3 MHz	QPSK	2.688	2.904	2.688	2.928	2.688	2.940
	16QAM	2.688	2.952	2.688	2.952	2.688	2.940
5 MHz	QPSK	4.500	4.900	4.520	4.920	4.500	4.880
	16QAM	4.500	4.920	4.520	4.920	4.540	4.960
10 MHz	QPSK	8.960	9.640	9.000	9.560	8.960	9.560
	16QAM	8.920	9.520	8.960	9.560	8.960	9.600

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	4.920	4.500	4.940	4.540	4.900
	16QAM	4.500	4.900	4.520	4.920	4.520	4.940
10 MHz	QPSK	8.960	9.640	8.960	9.640	8.960	9.600
	16QAM	9.000	9.600	8.960	9.640	8.960	9.640
15 MHz	QPSK	13.500	14.700	13.500	14.700	13.560	14.820
	16QAM	13.500	14.640	13.500	14.700	13.500	14.580
20 MHz	QPSK	17.920	19.200	17.920	19.280	17.920	19.360
	16QAM	17.920	19.280	18.000	19.280	17.920	19.280

LTE Band 17

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	4.520	4.940	4.520	4.940	4.520	5.160
	16QAM	4.500	4.900	4.540	4.920	4.520	4.940
10 MHz	QPSK	9.000	9.640	8.960	9.640	8.960	9.600
	16QAM	8.920	9.520	8.960	9.600	8.960	9.520

LTE Band 38

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	4.520	4.920	4.520	5.032	4.520	4.920
	16QAM	4.520	5.039	4.520	4.940	4.500	5.020
10 MHz	QPSK	8.960	9.600	8.960	9.720	8.960	9.560
	16QAM	8.960	9.600	8.960	9.560	8.960	9.920
15 MHz	QPSK	13.500	14.880	13.500	14.820	13.500	15.000
	16QAM	13.560	14.880	13.500	14.820	13.560	15.180
20 MHz	QPSK	17.920	19.280	18.000	19.280	18.000	19.360
	16QAM	17.920	19.440	18.000	19.360	18.000	19.280

LTE Band 41

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	4.520	4.940	4.520	4.960	4.520	5.020
	16QAM	4.520	4.960	4.520	4.980	4.520	4.940
10 MHz	QPSK	9.000	9.640	8.960	9.720	8.960	9.600
	16QAM	8.960	9.560	8.960	9.560	8.960	9.880
15 MHz	QPSK	13.560	14.760	13.500	14.700	13.500	15.000
	16QAM	13.560	14.820	13.560	14.926	13.500	14.880
20 MHz	QPSK	17.920	19.280	18.000	19.440	17.920	19.440
	16QAM	17.920	19.600	18.000	19.520	18.000	19.280

LTE Band 66:

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	1.290	1.104	1.302	1.110	1.278
	16QAM	1.104	1.296	1.092	1.278	1.104	1.296
3 MHz	QPSK	2.688	2.904	2.688	2.940	2.688	2.940
	16QAM	2.688	2.964	2.688	2.952	2.688	2.928
5 MHz	QPSK	4.520	4.900	4.520	4.940	4.500	4.880
	16QAM	4.520	4.880	4.520	4.920	4.520	4.920
10 MHz	QPSK	8.960	9.600	8.960	9.600	8.960	9.560
	16QAM	8.960	9.520	8.960	9.600	8.960	9.560
15 MHz	QPSK	13.560	14.760	13.500	14.700	13.500	14.640
	16QAM	13.500	14.820	13.500	14.640	13.560	14.640
20 MHz	QPSK	18.000	19.551	18.000	19.677	18.000	19.484
	16QAM	18.000	19.388	18.000	19.677	18.000	19.420

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

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

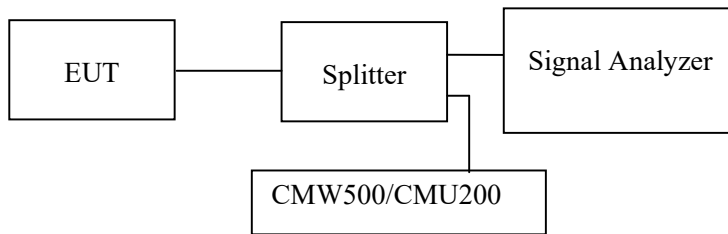
Applicable Standard

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

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

Test Procedure

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



Test Data

Environmental Conditions

Temperature:	29.1 °C
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

The testing was performed by Pedro Yun from 2021-07-31 to 2021-08-11.

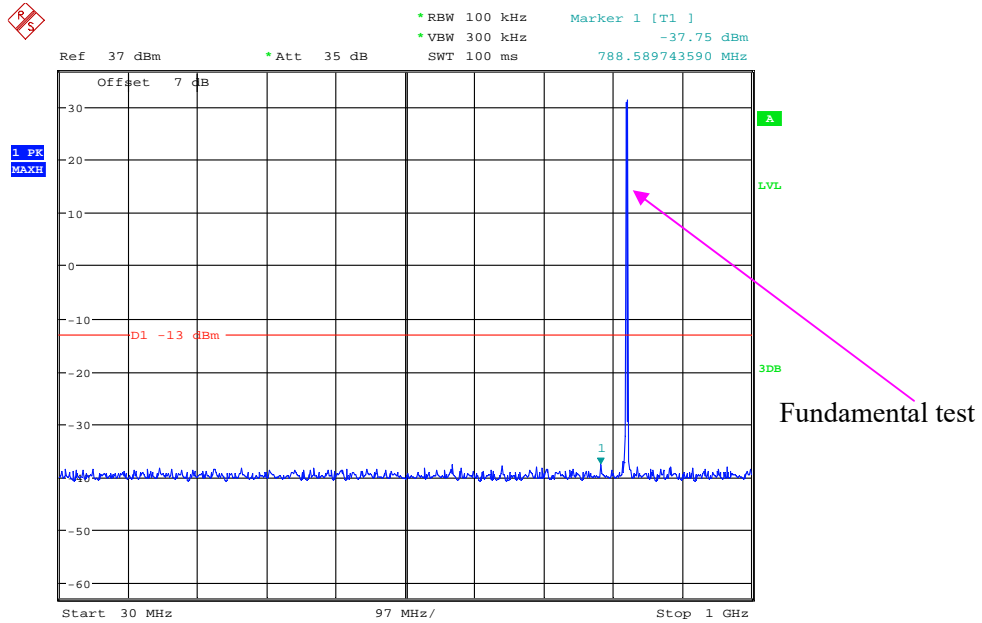
EUT operation mode: Transmitting

Test result: Pass

Please refer to the following plots.

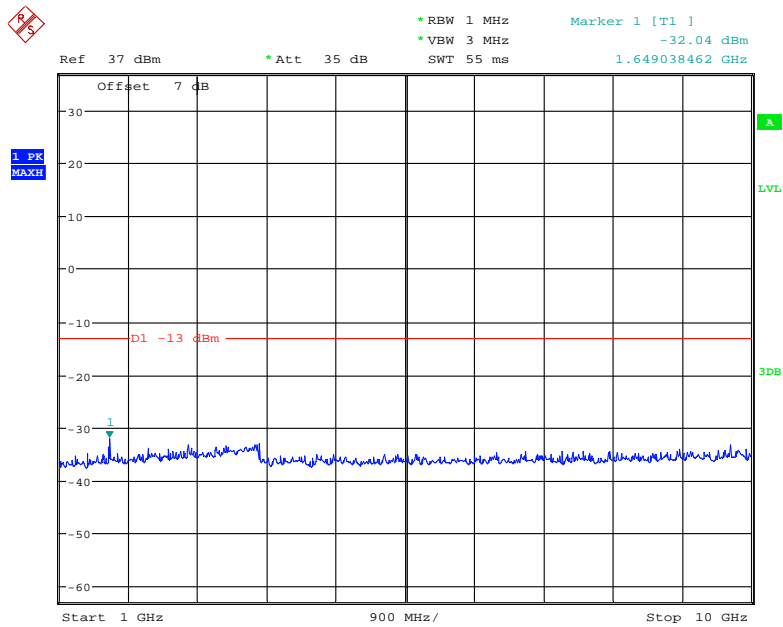
**Cellular Band (Part 22H)
Low Channel:**

30 MHz – 1 GHz (GSM Mode)



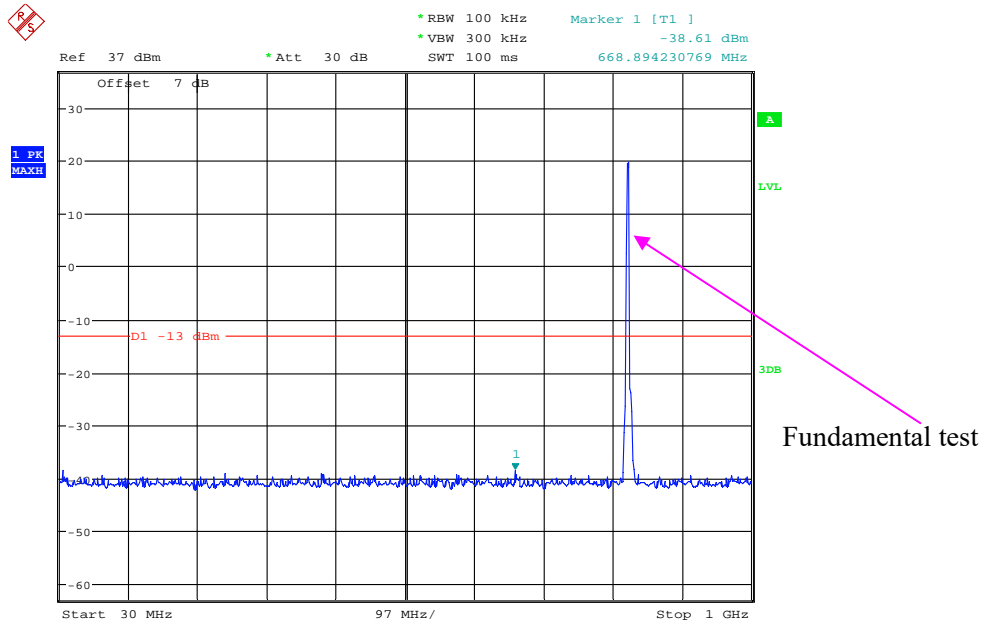
Date: 31.JUL.2021 14:09:36

1 GHz – 10 GHz (GSM Mode)



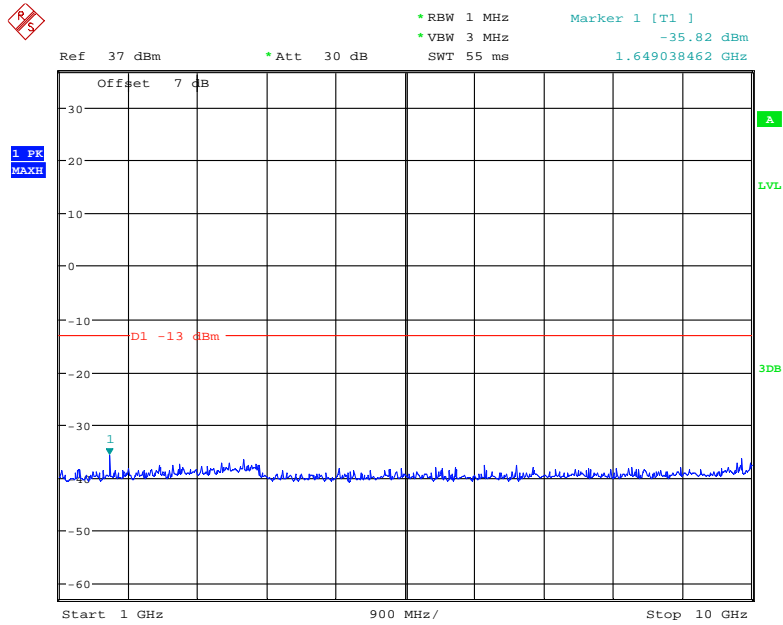
Date: 31.JUL.2021 14:08:45

30 MHz – 1 GHz (WCDMA Mode)



Date: 31.JUL.2021 16:15:53

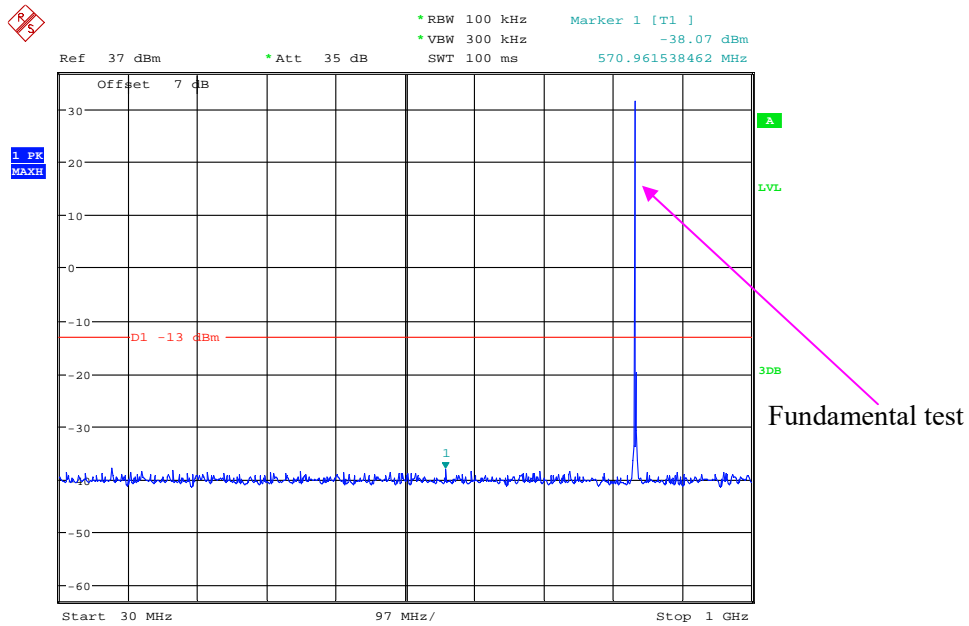
1 GHz – 10 GHz (WCDMA Mode)



Date: 31.JUL.2021 16:16:21

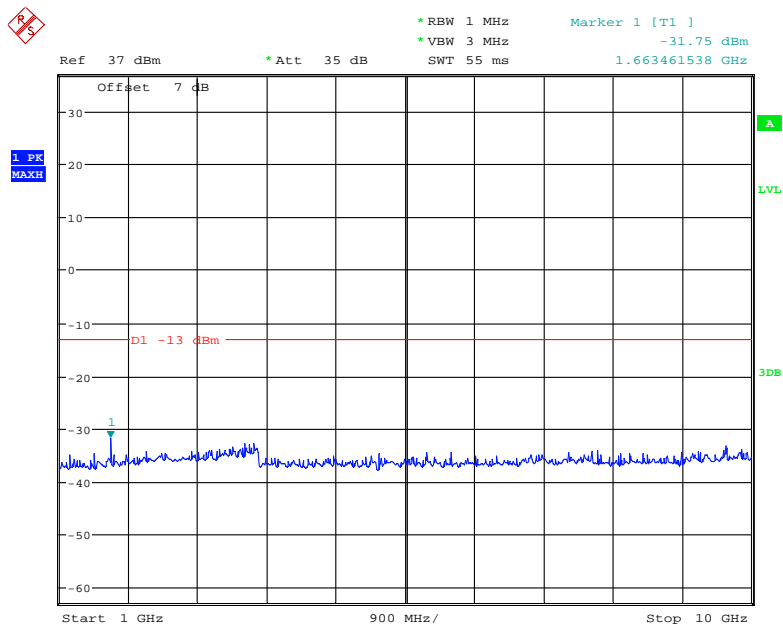
Middle Channel:

30 MHz – 1 GHz (GSM Mode)



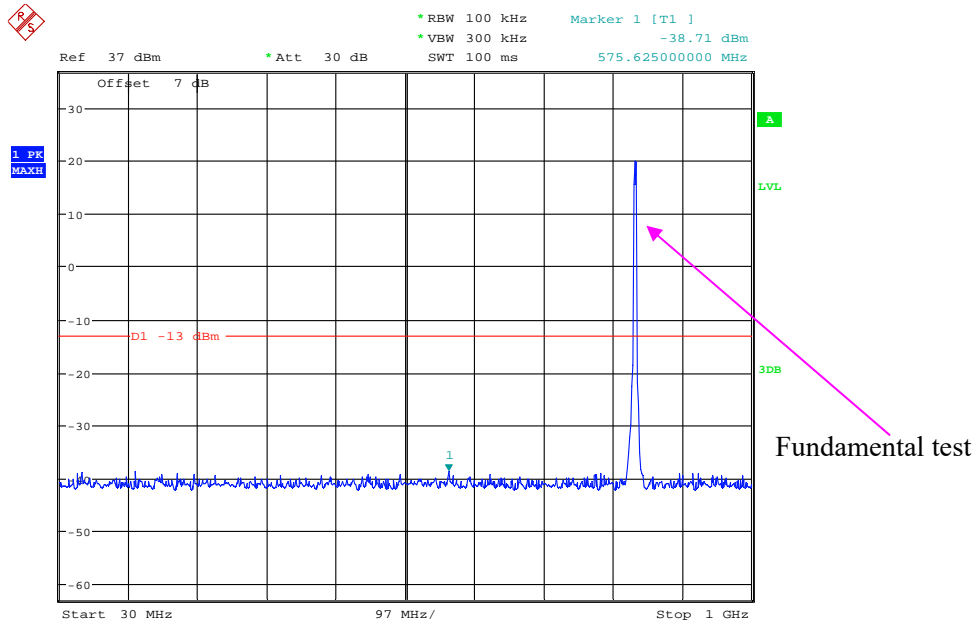
Date: 31.JUL.2021 14:10:02

1 GHz – 10 GHz (GSM Mode)



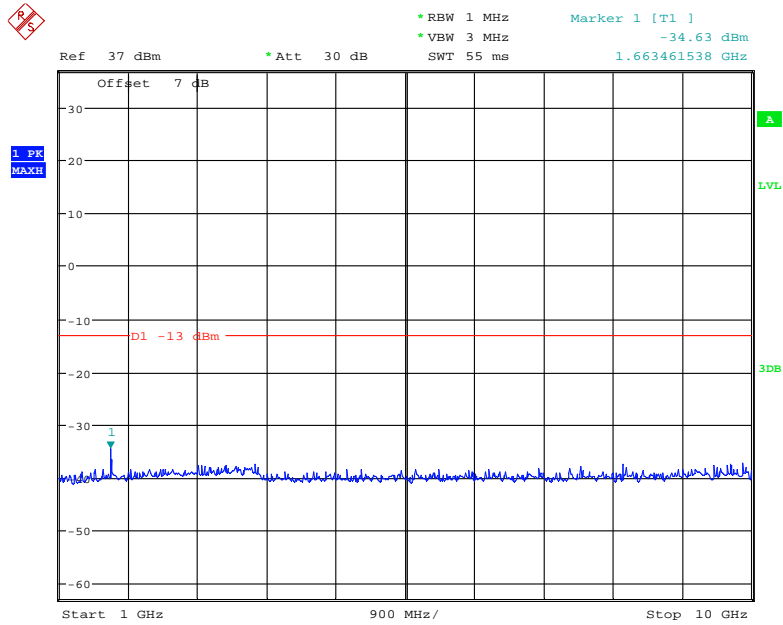
Date: 31.JUL.2021 14:08:02

30 MHz – 1 GHz (WCDMA Mode)



Date: 31.JUL.2021 16:15:26

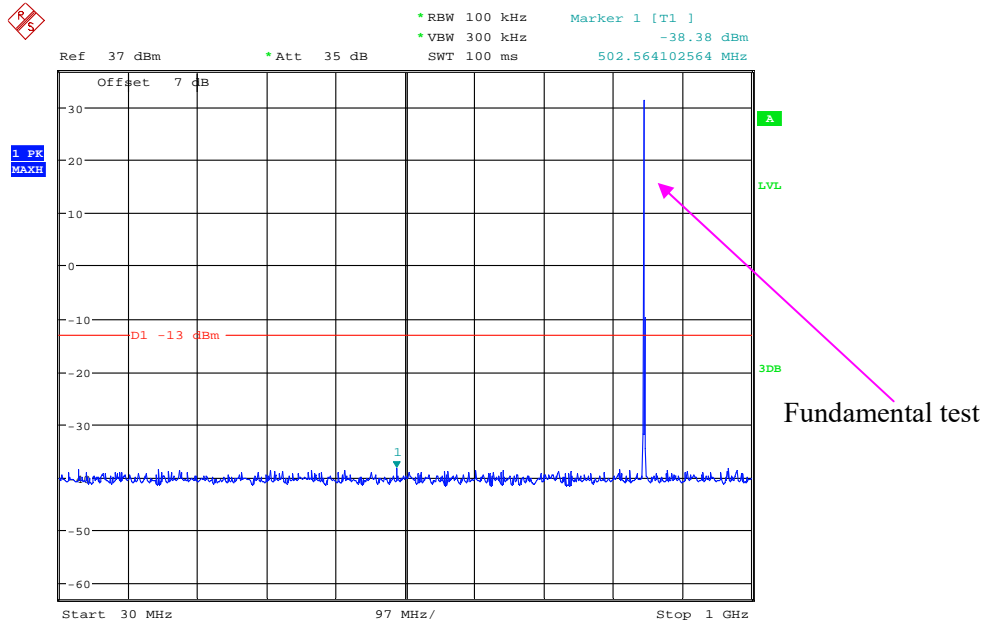
1 GHz – 20 GHz (WCDMA Mode)



Date: 31.JUL.2021 16:17:28

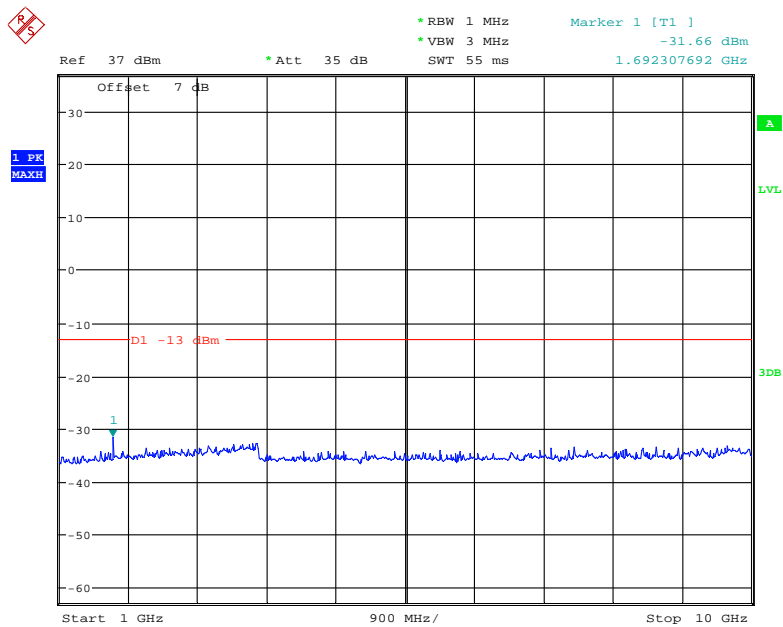
High Channel:

30 MHz – 1 GHz (GSM Mode)



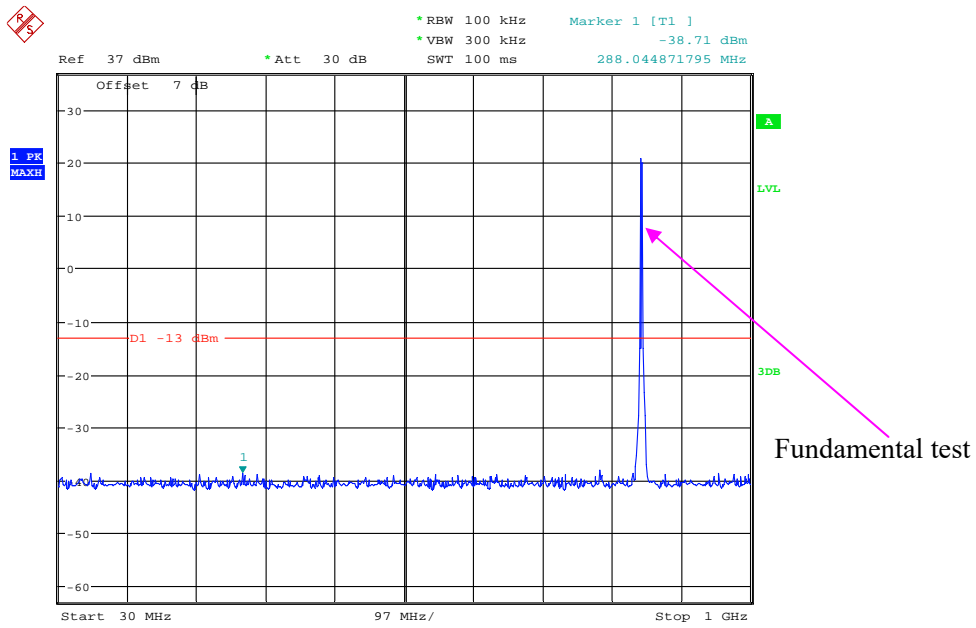
Date: 31.JUL.2021 14:10:28

1 GHz – 10 GHz (GSM Mode)



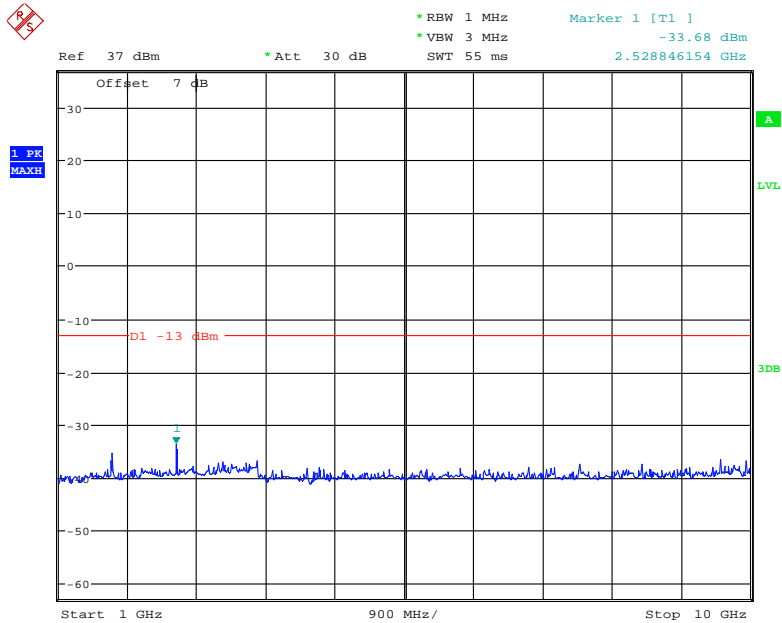
Date: 31.JUL.2021 14:07:43

30 MHz – 1 GHz (WCDMA Mode)



Date: 31.JUL.2021 16:14:48

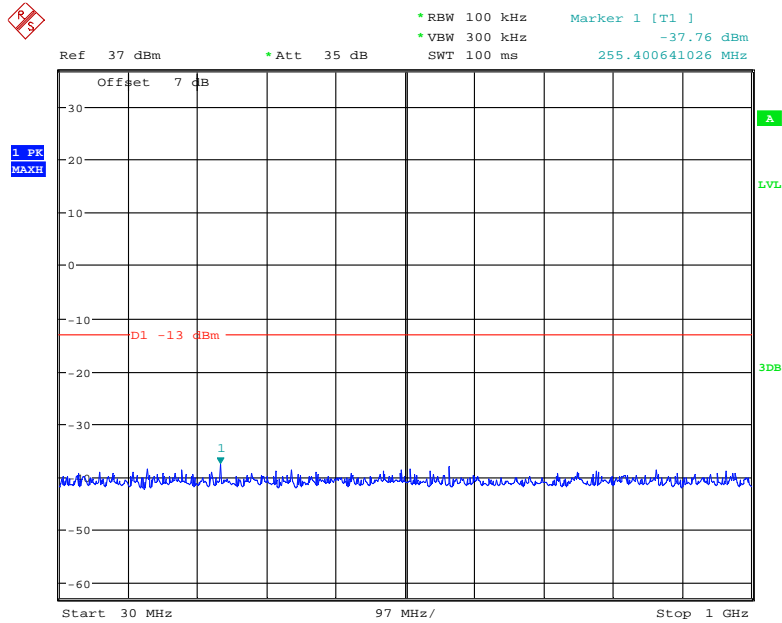
1 GHz – 20 GHz (WCDMA Mode)



Date: 31.JUL.2021 16:17:50

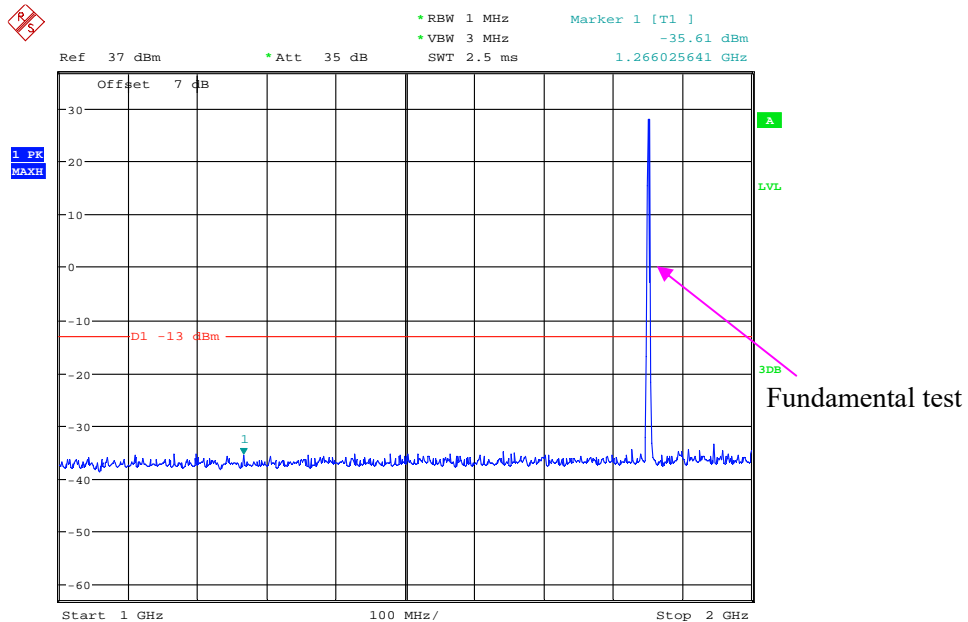
PCS Band (Part 24E) Low Channel:

30 MHz – 1 GHz (GSM Mode)



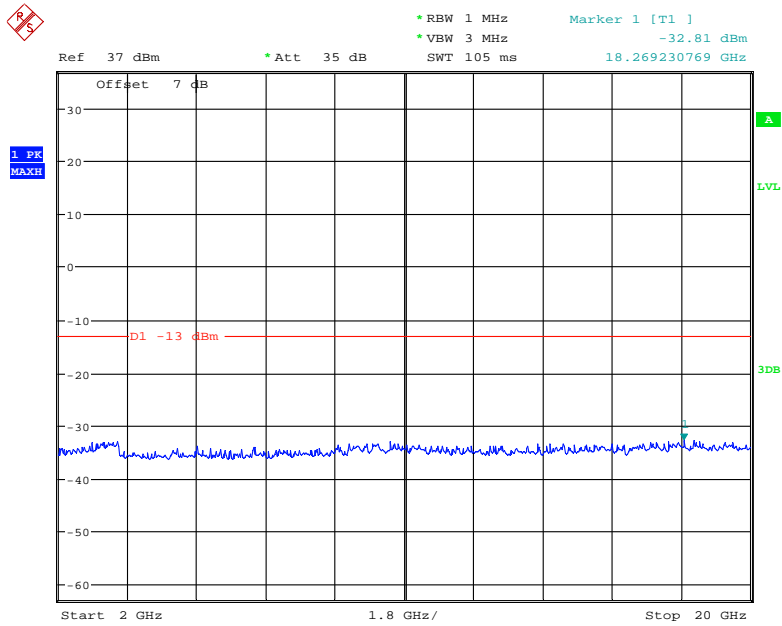
Date: 31.JUL.2021 14:49:50

1 GHz – 2 GHz (GSM Mode)



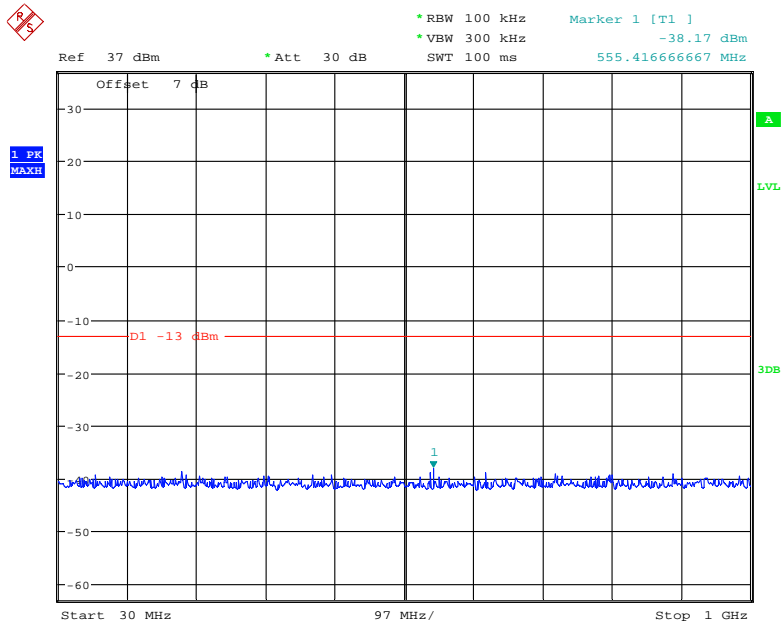
Date: 31.JUL.2021 14:48:50

2 GHz – 20 GHz (GSM Mode)



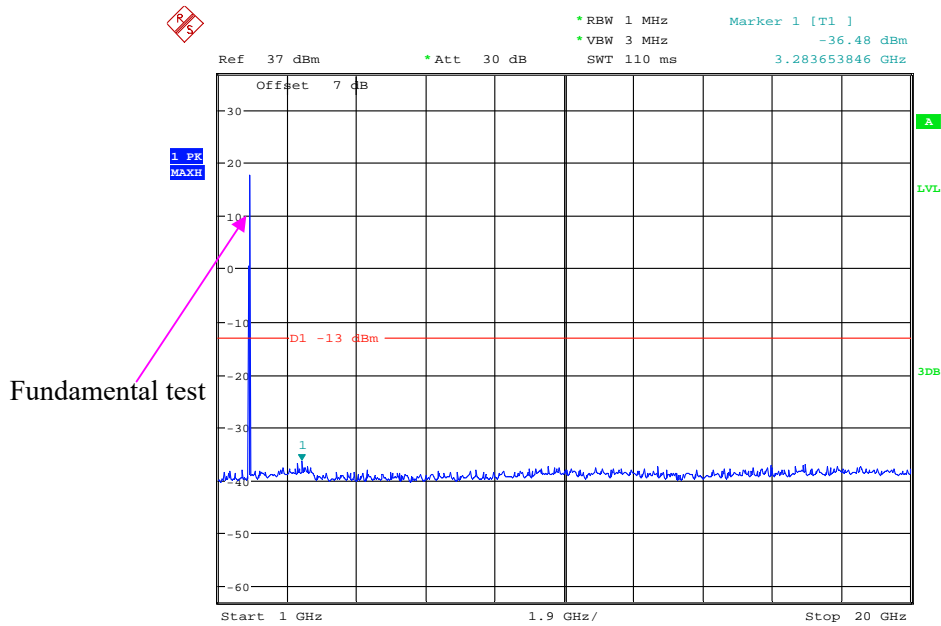
Date: 31.JUL.2021 14:49:31

30 MHz – 1 GHz (WCDMA Mode)



Date: 31.JUL.2021 15:18:51

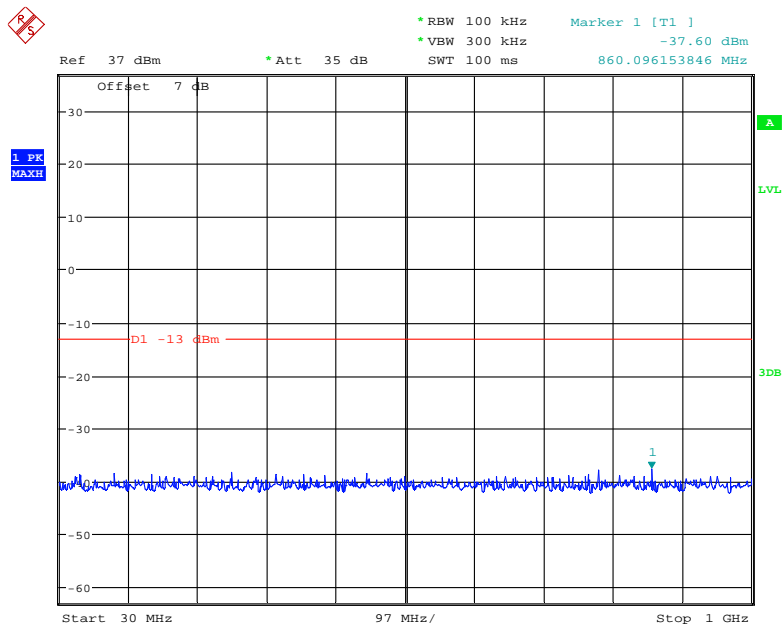
1 GHz – 20 GHz (WCDMA Mode)



Date: 31.JUL.2021 15:20:14

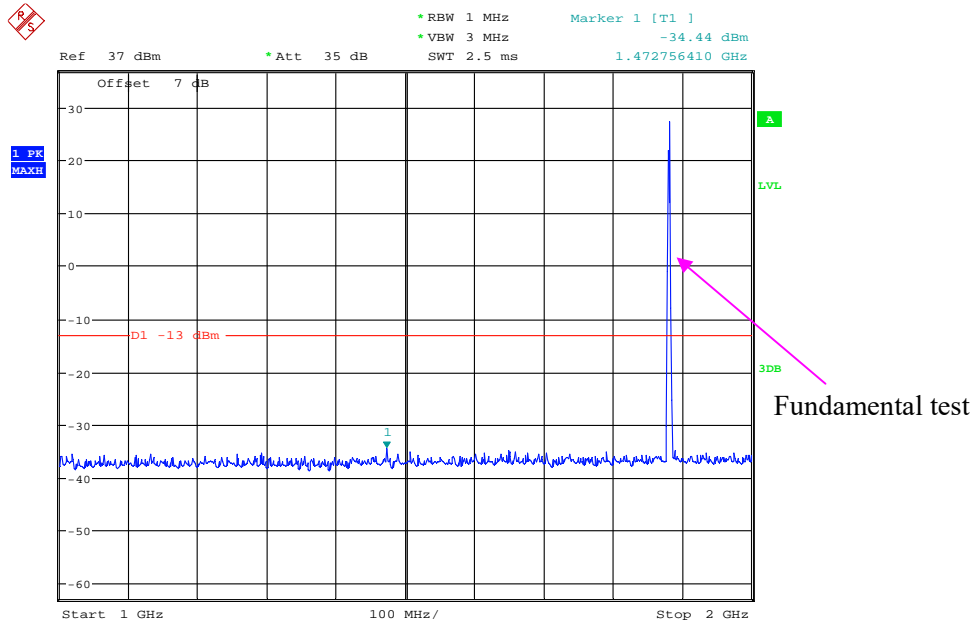
Middle Channel:

30 MHz – 1 GHz (GSM Mode)



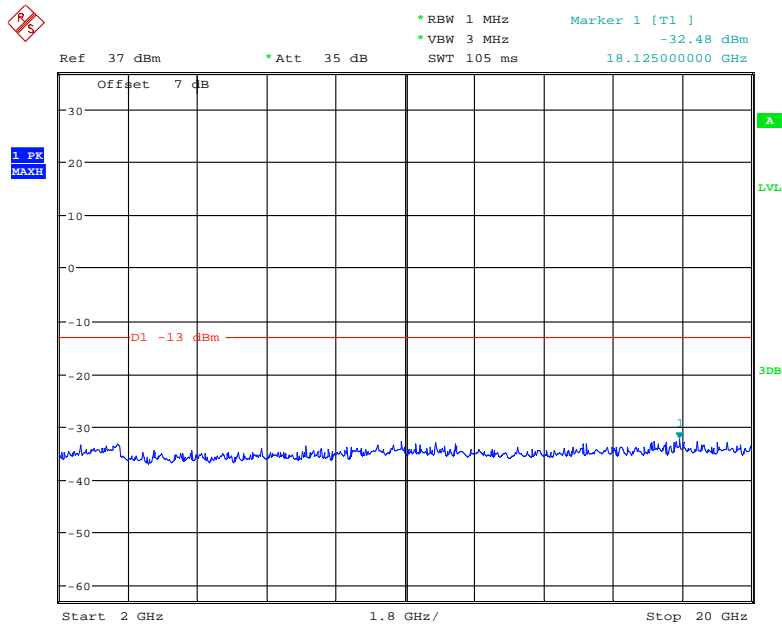
Date: 31.JUL.2021 14:50:30

1 GHz – 2 GHz (GSM Mode)



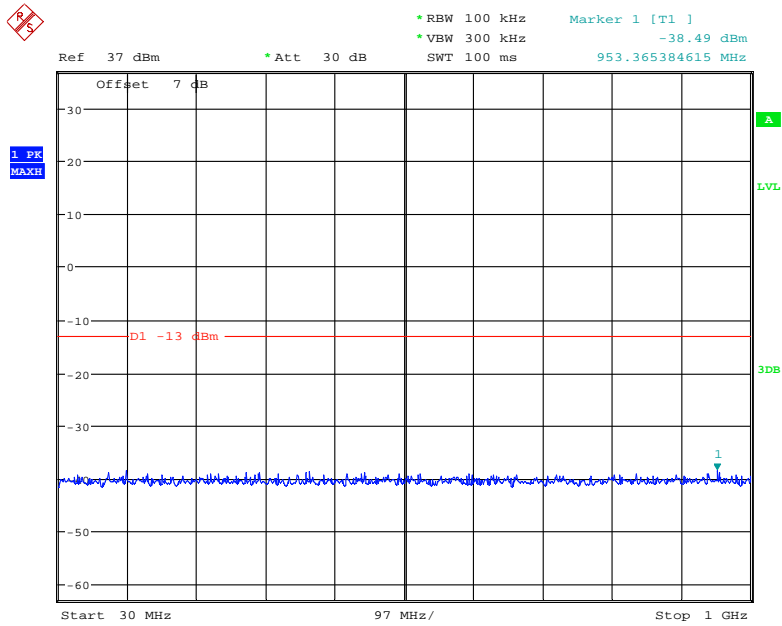
Date: 31.JUL.2021 14:52:29

2 GHz – 20 GHz (GSM Mode)



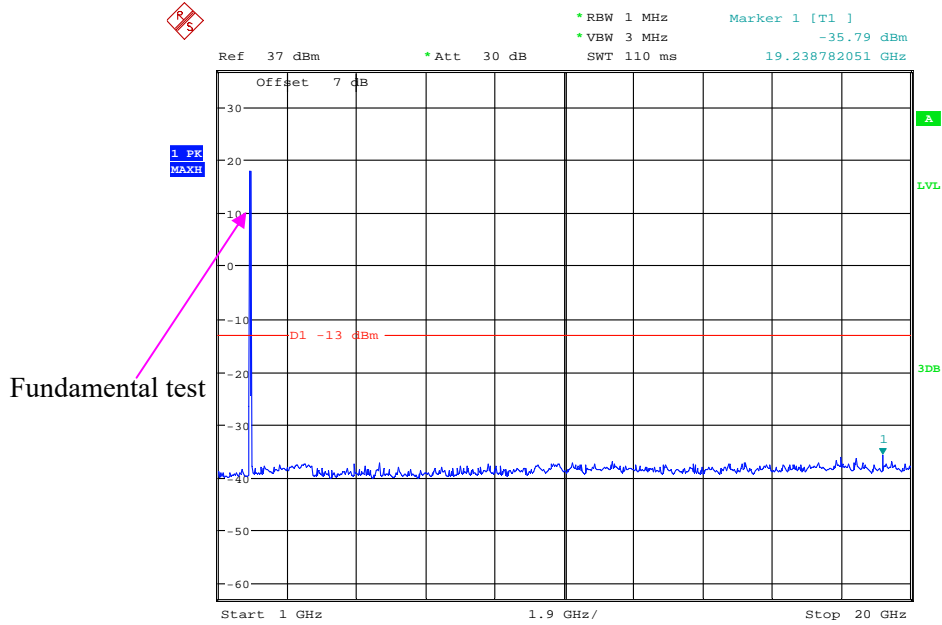
Date: 31.JUL.2021 14:53:05

30 MHz – 1 GHz (WCDMA Mode)



Date: 31.JUL.2021 15:27:59

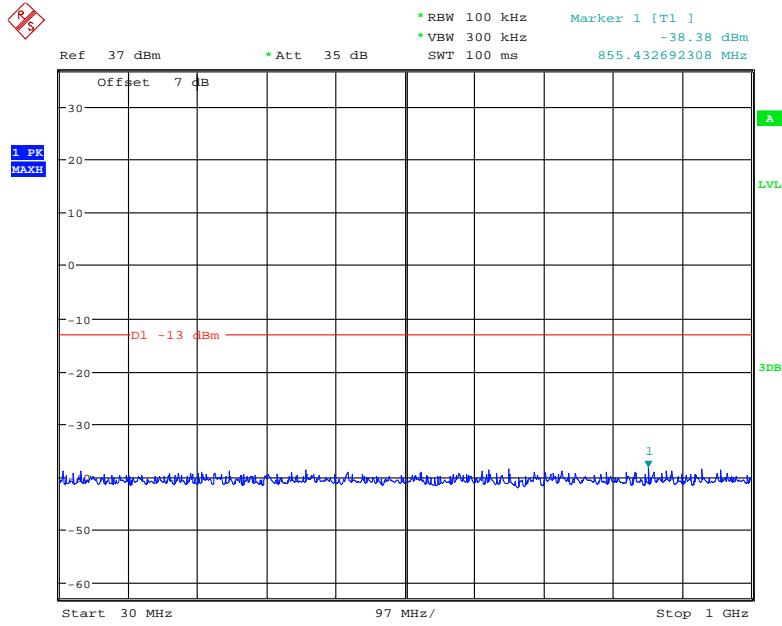
1 GHz – 20 GHz (WCDMA Mode)



Date: 31.JUL.2021 15:21:48

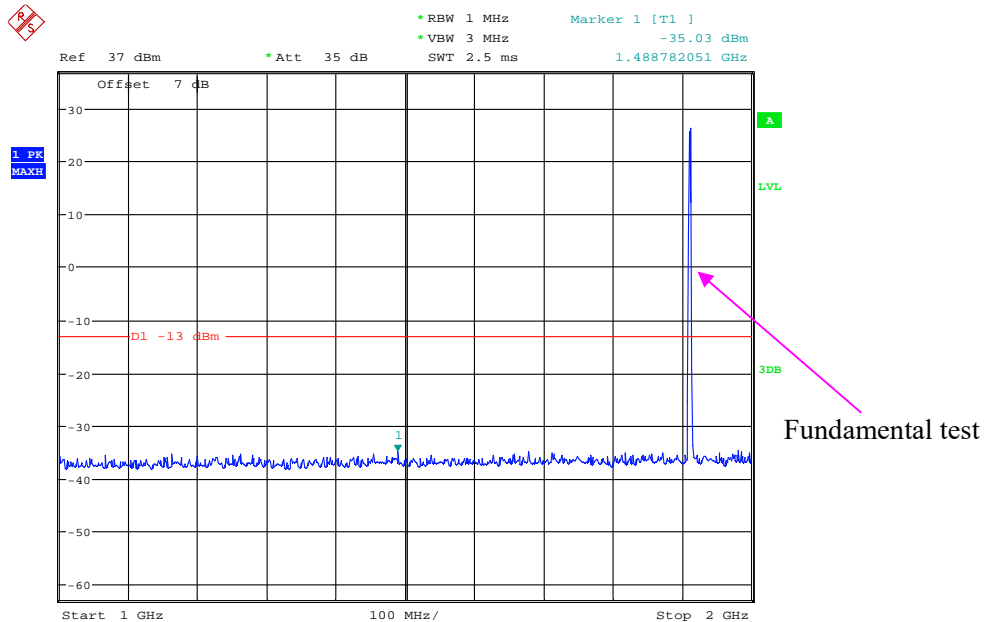
High Channel:

30 MHz – 1 GHz (GSM Mode)



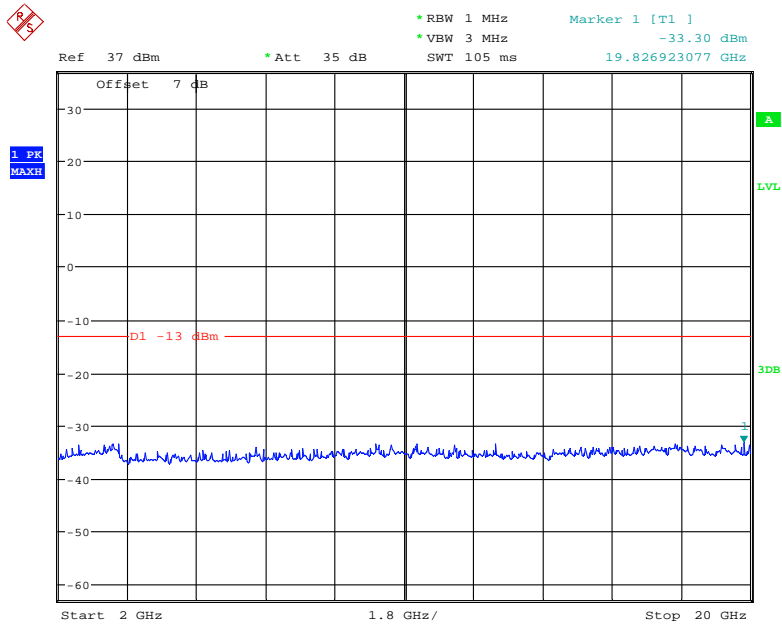
Date: 31.JUL.2021 14:50:56

1 GHz – 2 GHz (GSM Mode)



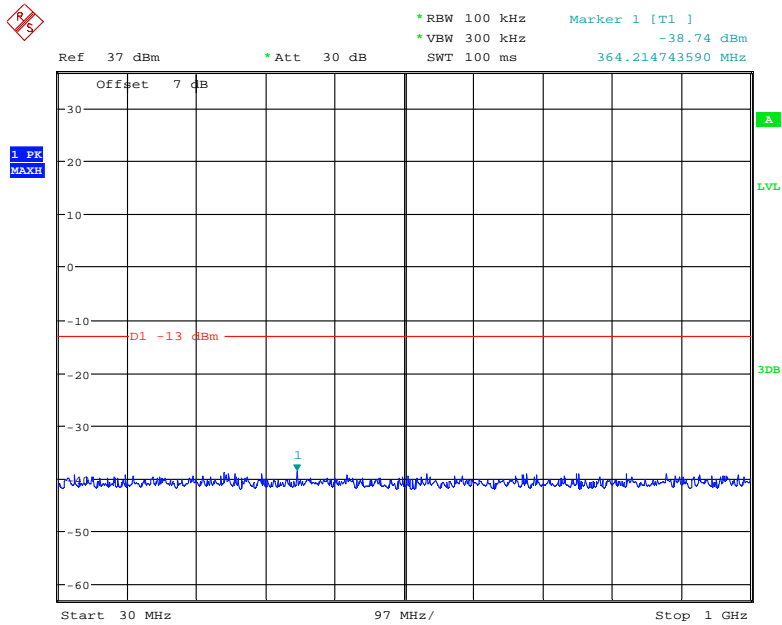
Date: 31.JUL.2021 14:52:01

2 GHz – 20 GHz (GSM Mode)



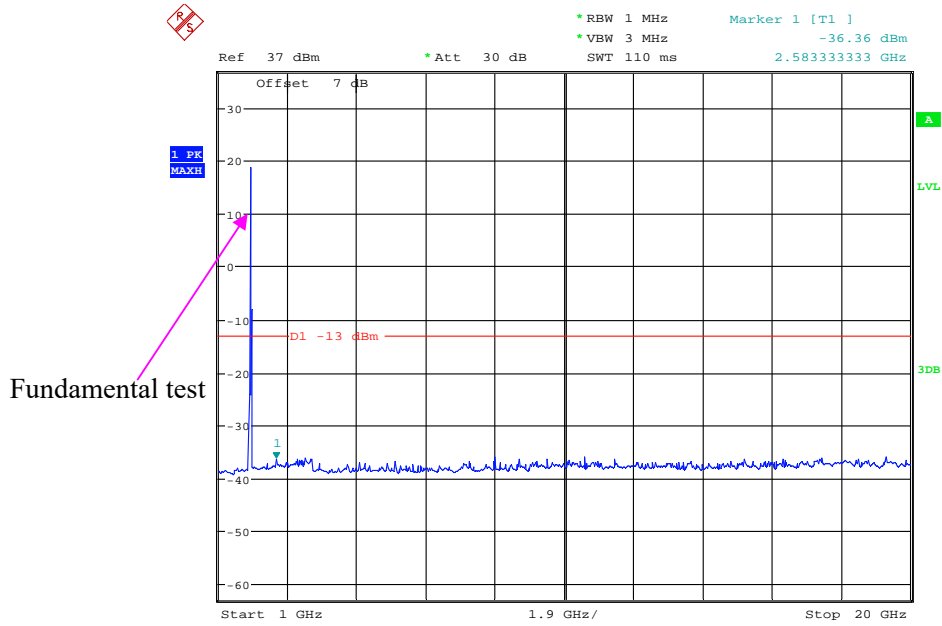
Date: 31.JUL.2021 14:51:17

30 MHz – 1 GHz (WCDMA Mode)



Date: 31.JUL.2021 15:27:07

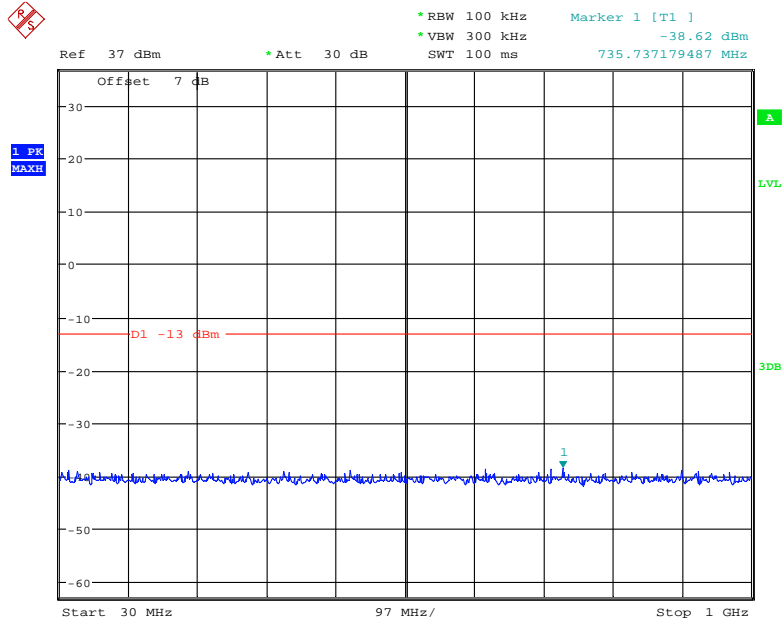
1 GHz – 20 GHz (WCDMA Mode)



Date: 31.JUL.2021 15:26:26

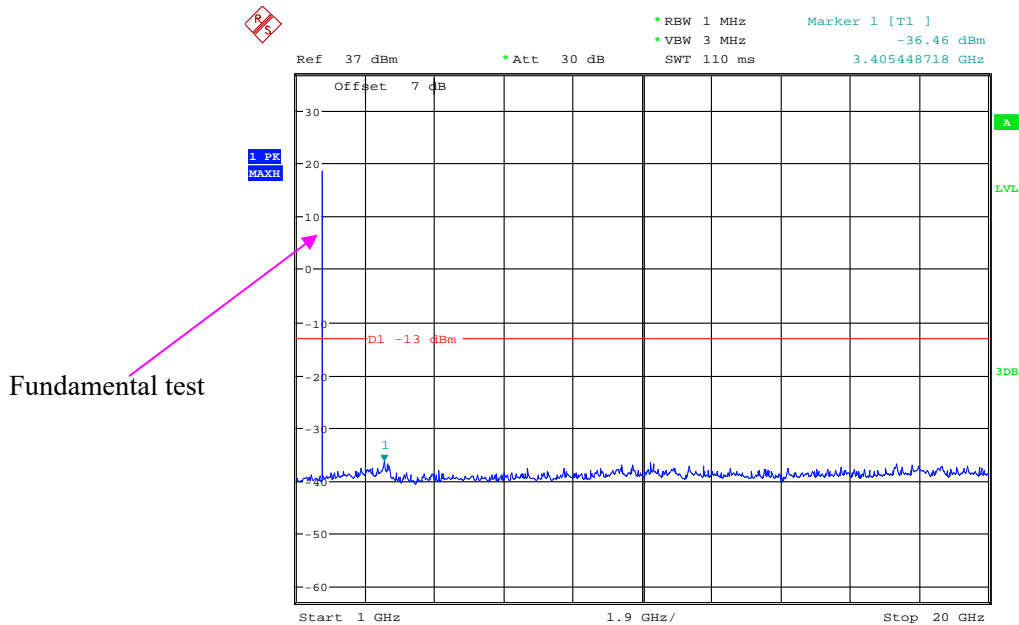
**AWS Band (Part 27)
Low Channel:**

30 MHz – 1 GHz (WCDMA Mode)



Date: 31.JUL.2021 15:52:12

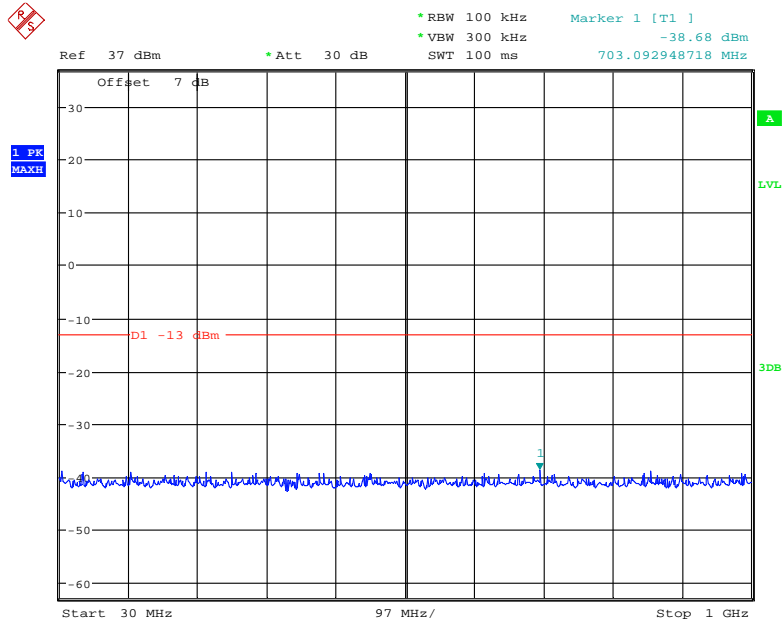
1 GHz – 20 GHz (WCDMA Mode)



Date: 31.JUL.2021 15:55:11

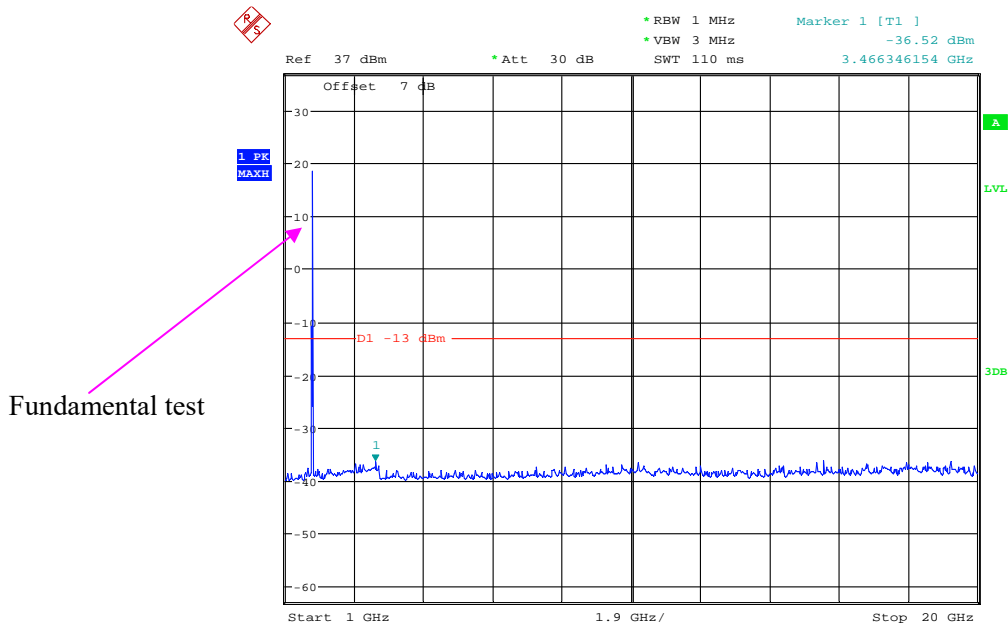
Middle Channel

30 MHz – 1 GHz (WCDMA Mode)



Date: 31.JUL.2021 15:52:45

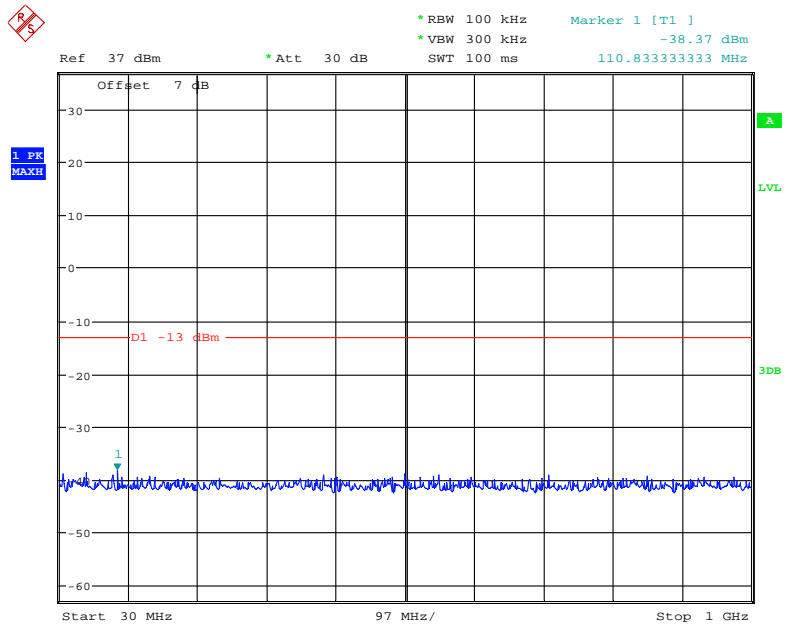
1 GHz – 20 GHz (WCDMA Mode)



Date: 31.JUL.2021 15:54:48

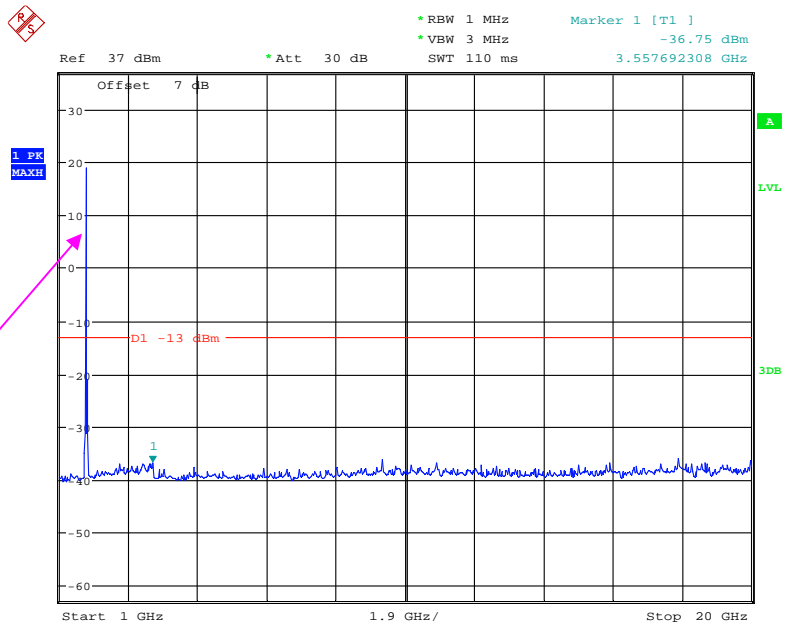
High Channel:

30 MHz – 1 GHz (WCDMA Mode)



Date: 31.JUL.2021 15:53:11

1 GHz – 20 GHz (WCDMA Mode)



Date: 31.JUL.2021 15:53:55

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

FCC § 2.1053; § 22.917 (a); § 24.238 (a); §27.53 SPURIOUS RADIATED EMISSIONS**Applicable Standard**

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

Test Procedure

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

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

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

Test Data**Environmental Conditions**

Temperature:	26.3~29 °C
Relative Humidity:	46~52 %
ATM Pressure:	101.0~101.1 kPa

The testing was performed by Williarm Wang on 2021-07-23 for below 1GHz and Hanic Pan on 2021-07-27 for above 1GHz.

EUT operation mode: Transmitting

30 MHz ~ 10 GHz:

Cellular Band (Part 22H)

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 22H	
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)		Limit (dBm)	Margin (dB)
GSM Mode										
Low channel										
965.3	32.69	43	2.0	H	-63.8	1.36	0.0	-65.16	-13	52.16
965.3	33.81	53	1.4	V	-60.2	1.36	0.0	-61.56	-13	48.56
1648.40	52.23	12	2.4	H	-55.8	1.40	8.70	-48.50	-13	35.50
1648.40	55.78	59	2.0	V	-52.1	1.40	8.70	-44.80	-13	31.80
2472.60	59.63	283	1.9	H	-43.7	2.60	10.20	-36.10	-13	23.10
2472.60	57.42	123	2.2	V	-45.3	2.60	10.20	-37.70	-13	24.70
3296.80	44.02	30	2.0	H	-56.9	1.50	11.70	-46.70	-13	33.70
3296.80	43.77	47	1.6	V	-57.2	1.50	11.70	-47.00	-13	34.00
Middle channel										
952.3	30.76	216	1.0	H	-65.7	1.36	0.0	-67.06	-13	54.06
952.3	31.89	302	1.6	V	-62.2	1.36	0.0	-63.56	-13	50.56
1673.20	51.46	107	1.9	H	-54.9	1.30	8.90	-47.30	-13	34.30
1673.20	55.34	358	1.1	V	-50.4	1.30	8.90	-42.80	-13	29.80
2509.80	60.97	179	1.3	H	-42.4	2.60	10.20	-34.80	-13	21.80
2509.80	58.01	328	2.1	V	-44.7	2.60	10.20	-37.10	-13	24.10
3346.40	43.71	355	1.5	H	-57.2	1.50	11.70	-47.00	-13	34.00
3346.40	43.63	19	2.0	V	-57.3	1.50	11.70	-47.10	-13	34.10
High channel										
955.8	30.65	270	1.0	H	-65.9	1.36	0.0	-67.26	-13	54.26
955.8	31.78	290	1.7	V	-62.3	1.36	0.0	-63.66	-13	50.66
1697.60	51.03	123	2.3	H	-55.3	1.30	8.90	-47.70	-13	34.70
1697.60	55.18	95	1.7	V	-50.6	1.30	8.90	-43.00	-13	30.00
2546.40	58.96	231	2.4	H	-44.4	2.60	10.20	-36.80	-13	23.80
2546.40	56.74	259	1.6	V	-46.0	2.60	10.20	-38.40	-13	25.40
3395.20	43.84	307	1.8	H	-57.4	1.40	11.80	-47.00	-13	34.00
3395.20	43.57	17	2.5	V	-57.5	1.40	11.80	-47.10	-13	34.10

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 22H	
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)		Limit (dBm)	Margin (dB)
WCDMA Mode										
Low channel										
951.2	30.64	200	2.0	H	-65.9	1.36	0.0	-67.26	-13	54.26
951.2	31.43	118	1.4	V	-62.6	1.36	0.0	-63.96	-13	50.96
1652.80	44.15	104	2.4	H	-62.2	1.30	8.90	-54.60	-13	41.60
1652.80	45.61	43	1.3	V	-60.1	1.30	8.90	-52.50	-13	39.50
2479.20	50.12	223	1.9	H	-53.2	2.60	10.20	-45.60	-13	32.60
2479.20	54.24	289	1.9	V	-48.5	2.60	10.20	-40.90	-13	27.90
3305.60	44.04	148	2.3	H	-56.9	1.50	11.70	-46.70	-13	33.70
3305.60	43.56	245	2.4	V	-57.4	1.50	11.70	-47.20	-13	34.20
Middle channel										
951.6	32.66	170	1.1	H	-63.8	1.36	0.0	-65.16	-13	52.16
951.6	33.49	322	2.0	V	-60.6	1.36	0.0	-61.96	-13	48.96
1673.20	44.56	336	1.3	H	-61.8	1.30	8.90	-54.20	-13	41.20
1673.20	45.82	152	2.3	V	-59.9	1.30	8.90	-52.30	-13	39.30
2509.80	51.23	168	1.3	H	-52.1	2.60	10.20	-44.50	-13	31.50
2509.80	55.17	98	2.0	V	-47.6	2.60	10.20	-40.00	-13	27.00
3346.40	43.95	26	2.2	H	-56.9	1.50	11.70	-46.70	-13	33.70
3346.40	43.71	359	2.0	V	-57.2	1.50	11.70	-47.00	-13	34.00
High channel										
954.8	30.56	324	2.0	H	-65.9	1.36	0.0	-67.26	-13	54.26
954.8	31.76	151	1.3	V	-62.3	1.36	0.0	-63.66	-13	50.66
1693.20	44.25	220	1.6	H	-62.1	1.30	8.90	-54.50	-13	41.50
1693.20	45.27	292	1.4	V	-60.5	1.30	8.90	-52.90	-13	39.90
2539.80	50.14	348	1.3	H	-53.2	2.60	10.20	-45.60	-13	32.60
2539.80	54.36	161	2.5	V	-48.4	2.60	10.20	-40.80	-13	27.80
3386.40	44.12	88	1.9	H	-57.1	1.40	11.80	-46.70	-13	33.70
3386.40	43.87	124	2.4	V	-57.2	1.40	11.80	-46.80	-13	33.80

30 MHz ~ 20 GHz:

PCS Band (Part 24E)

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 24E	
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)		Limit (dBm)	Margin (dB)
GSM Mode										
Low channel										
953.2	30.44	251	1.5	H	-66.1	1.36	0.0	-67.46	-13	54.46
953.2	31.37	65	2.0	V	-62.7	1.36	0.0	-64.06	-13	51.06
3700.40	43.68	117	2.3	H	-58.4	1.60	11.90	-48.10	-13	35.10
3700.40	44.21	228	2.1	V	-57.3	1.60	11.90	-47.00	-13	34.00
Middle channel										
952.8	30.36	300	2.1	H	-66.1	1.36	0.0	-67.46	-13	54.46
952.8	31.47	83	2.4	V	-62.6	1.36	0.0	-63.96	-13	50.96
3760.00	43.52	72	2.2	H	-58.9	1.50	11.80	-48.60	-13	35.60
3760.00	43.93	292	1.7	V	-58.0	1.50	11.80	-47.70	-13	34.70
High channel										
962.5	32.49	354	1.2	H	-64.0	1.36	0.0	-65.36	-13	52.36
962.5	33.56	210	1.6	V	-60.5	1.36	0.0	-61.86	-13	48.86
3819.60	43.58	294	2.2	H	-58.8	1.50	11.80	-48.50	-13	35.50
3819.60	43.98	269	1.3	V	-57.9	1.50	11.80	-47.60	-13	34.60
WCDMA Mode										
Low Channel										
962.7	32.58	108	2.2	H	-63.9	1.36	0.0	-65.26	-13	52.26
962.7	33.71	161	1.8	V	-60.3	1.36	0.0	-61.66	-13	48.66
3704.80	52.36	293	1.1	H	-49.4	1.60	11.90	-39.10	-13	26.10
3704.80	52.48	330	1.2	V	-48.7	1.60	11.90	-38.40	-13	25.40
Middle channel										
951.8	30.55	180	2.4	H	-66.0	1.36	0.0	-67.36	-13	54.36
951.8	31.73	7	1.5	V	-62.3	1.36	0.0	-63.66	-13	50.66
3760.00	53.32	187	1.0	H	-48.7	1.50	11.80	-38.40	-13	25.40
3760.00	53.05	245	2.1	V	-48.5	1.50	11.80	-38.20	-13	25.20
High channel										
956.4	30.66	97	1.1	H	-65.8	1.36	0.0	-67.16	-13	54.16
956.4	31.45	93	2.1	V	-62.6	1.36	0.0	-63.96	-13	50.96
3815.20	51.74	14	1.8	H	-50.3	1.50	11.80	-40.00	-13	27.00
3815.20	51.48	30	1.5	V	-50.1	1.50	11.80	-39.80	-13	26.80

30 MHz ~ 20 GHz:

AWS Band

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 27	
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)		Limit (dBm)	Margin (dB)
WCDMA Mode										
Low channel										
954.3	30.52	231	2.4	H	-66.0	1.36	0.0	-67.36	-13	54.36
954.3	31.49	30	1.2	V	-62.6	1.36	0.0	-63.96	-13	50.96
3424.80	55.36	28	2.1	H	-45.4	1.40	11.80	-35.00	-13	22.00
3424.80	53.58	246	1.6	V	-47.0	1.40	11.80	-36.60	-13	23.60
Middle channel										
954.7	32.52	32	1.4	H	-64.0	1.36	0.0	-65.36	-13	52.36
954.7	33.65	155	1.2	V	-60.4	1.36	0.0	-61.76	-13	48.76
3465.20	54.89	217	1.6	H	-45.9	1.50	12.00	-35.40	-13	22.40
3465.20	53.01	185	1.8	V	-48.5	1.50	12.00	-38.00	-13	25.00
High channel										
961.2	32.64	17	2.2	H	-63.9	1.36	0.0	-65.26	-13	52.26
961.2	33.58	109	1.5	V	-60.5	1.36	0.0	-61.86	-13	48.86
3505.20	54.63	228	2.0	H	-46.1	1.50	12.00	-35.60	-13	22.60
3505.20	52.47	301	1.9	V	-49.0	1.50	12.00	-38.50	-13	25.50

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

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
Band 2										
Test frequency range: 30 MHz ~ 20 GHz										
1.4MHz, Low channel										
950.3	30.45	191	2.4	H	-66.1	1.36	0.0	-67.46	-13	54.46
950.3	31.71	32	1.9	V	-62.3	1.36	0.0	-63.66	-13	50.66
3701.40	52.84	147	2.1	H	-49.0	1.60	11.90	-38.70	-13	25.70
3701.40	54.15	283	1.0	V	-47.1	1.60	11.90	-36.80	-13	23.80
1.4MHz, Middle channel										
961.3	32.64	20	1.0	H	-63.9	1.36	0.0	-65.26	-13	52.26
961.3	33.51	255	1.4	V	-60.5	1.36	0.0	-61.86	-13	48.86
3760.00	53.33	6	1.1	H	-48.7	1.50	11.80	-38.40	-13	25.40
3760.00	54.76	64	1.4	V	-46.8	1.50	11.80	-36.50	-13	23.50
1.4MHz, High channel										
959.4	32.71	298	1.4	H	-63.8	1.36	0.0	-65.16	-13	52.16
959.4	33.57	213	1.3	V	-60.5	1.36	0.0	-61.86	-13	48.86
3818.60	53.17	334	1.9	H	-48.9	1.50	11.80	-38.60	-13	25.60
3818.60	54.48	248	2.1	V	-47.1	1.50	11.80	-36.80	-13	23.80
Band 4										
Test frequency range:30 MHz ~ 20 GHz										
1.4MHz, Low channel										
952.4	30.34	330	2.3	H	-66.2	1.36	0.0	-67.56	-13	54.56
952.4	31.65	89	1.0	V	-62.4	1.36	0.0	-63.76	-13	50.76
3421.40	53.01	289	1.1	H	-47.8	1.40	11.80	-37.40	-13	24.40
3421.40	51.23	62	2.1	V	-49.4	1.40	11.80	-39.00	-13	26.00
1.4MHz, Middle channel										
958.6	32.55	92	2.5	H	-64.0	1.36	0.0	-65.36	-13	52.36
958.6	33.43	1	1.6	V	-60.6	1.36	0.0	-61.96	-13	48.96
3465.00	53.53	184	2.3	H	-47.2	1.50	12.00	-36.70	-13	23.70
3465.00	51.16	277	2.1	V	-50.3	1.50	12.00	-39.80	-13	26.80
1.4MHz, High channel										
948.6	30.27	340	1.0	H	-66.2	1.36	0.0	-67.56	-13	54.56
948.6	31.58	26	1.1	V	-62.5	1.36	0.0	-63.86	-13	50.86
3508.60	52.54	358	2.0	H	-48.2	1.50	12.00	-37.70	-13	24.70
3508.60	50.41	314	1.6	V	-51.1	1.50	12.00	-40.60	-13	27.60

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
Band 5										
Test frequency range:30 MHz ~ 10 GHz										
1.4MHz, Low channel										
956.8	32.73	74	1.7	H	-63.8	1.36	0.0	-65.16	-13	52.16
956.8	33.59	161	2.4	V	-60.5	1.36	0.0	-61.86	-13	48.86
1649.40	52.87	291	2.0	H	-55.2	1.40	8.70	-47.90	-13	34.90
1649.40	51.11	315	2.2	V	-56.7	1.40	8.70	-49.40	-13	36.40
2474.10	48.59	235	1.6	H	-54.8	2.60	10.20	-47.20	-13	34.20
2474.10	48.42	189	1.8	V	-54.3	2.60	10.20	-46.70	-13	33.70
3298.80	43.77	341	2.1	H	-57.1	1.50	11.70	-46.90	-13	33.90
3298.80	43.24	16	1.3	V	-57.7	1.50	11.70	-47.50	-13	34.50
1.4MHz, Middle channel										
964.7	32.77	300	1.2	H	-63.7	1.36	0.0	-65.06	-13	52.06
964.7	33.62	55	1.9	V	-60.4	1.36	0.0	-61.76	-13	48.76
1673.00	53.12	111	2.4	H	-53.2	1.30	8.90	-45.60	-13	32.60
1673.00	51.31	353	1.9	V	-54.4	1.30	8.90	-46.80	-13	33.80
2509.50	49.24	182	1.1	H	-54.1	2.60	10.20	-46.50	-13	33.50
2509.50	49.07	115	2.1	V	-53.7	2.60	10.20	-46.10	-13	33.10
3346.00	43.85	172	1.6	H	-57.0	1.50	11.70	-46.80	-13	33.80
3346.00	43.37	68	1.9	V	-57.6	1.50	11.70	-47.40	-13	34.40
1.4MHz, High channel										
954.1	30.35	282	1.1	H	-66.2	1.36	0.0	-67.56	-13	54.56
954.1	31.85	288	1.6	V	-62.2	1.36	0.0	-63.56	-13	50.56
1696.60	53.02	198	1.6	H	-53.3	1.30	8.90	-45.70	-13	32.70
1696.60	50.89	286	1.1	V	-54.8	1.30	8.90	-47.20	-13	34.20
2544.90	48.78	132	2.0	H	-54.6	2.60	10.20	-47.00	-13	34.00
2544.90	48.56	17	1.4	V	-54.2	2.60	10.20	-46.60	-13	33.60
3393.20	43.65	21	2.1	H	-57.6	1.40	11.80	-47.20	-13	34.20
3393.20	43.32	76	1.2	V	-57.7	1.40	11.80	-47.30	-13	34.30

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
Band 7										
Test frequency range: 30 MHz ~ 26.5 GHz										
5MHz, Low channel										
957.3	32.86	229	2.0	H	-63.6	1.36	0.0	-64.96	-25	39.96
957.3	33.66	79	1.6	V	-60.4	1.36	0.0	-61.76	-25	36.76
5010.00	48.32	194	1.0	H	-52.3	1.70	12.00	-42.00	-25	17.00
5010.00	47.91	113	1.1	V	-52.1	1.70	12.00	-41.80	-25	16.80
5MHz, Middle channel										
956.2	30.55	320	2.1	H	-66.0	1.36	0.0	-67.36	-25	42.36
956.2	31.73	185	1.3	V	-62.3	1.36	0.0	-63.66	-25	38.66
5070.00	48.8	269	2.4	H	-51.2	1.60	12.10	-40.70	-25	15.70
5070.00	48.08	181	1.0	V	-51.9	1.60	12.10	-41.40	-25	16.40
5MHz, High channel										
966.8	32.85	109	1.3	H	-63.7	1.36	0.0	-65.06	-25	40.06
966.8	33.71	304	2.5	V	-60.3	1.36	0.0	-61.66	-25	36.66
5130.00	48.25	265	2.2	H	-51.8	1.60	12.10	-41.30	-25	16.30
5130.00	48.03	185	1.3	V	-52.0	1.60	12.10	-41.50	-25	16.50
Band 17										
Test frequency range: 30 MHz ~ 10 GHz										
10MHz, Low channel										
953.6	30.54	89	2.1	H	-66.0	1.36	0.0	-67.36	-13	54.36
953.6	31.83	335	1.5	V	-62.2	1.36	0.0	-63.56	-13	50.56
1418.00	47.89	212	1.8	H	-60.3	1.60	7.90	-54.00	-13	41.00
1418.00	45.41	29	2.3	V	-63.0	1.60	7.90	-56.70	-13	43.70
2127.00	51.23	159	1.6	H	-49.9	1.30	9.70	-41.50	-13	28.50
2127.00	47.01	258	2.4	V	-54.9	1.30	9.70	-46.50	-13	33.50
2836.00	43.95	296	1.5	H	-60.0	1.80	10.50	-51.30	-13	38.30
2836.00	44.12	105	2.1	V	-59.5	1.80	10.50	-50.80	-13	37.80
10MHz, Middle channel										
961.7	32.59	157	2.4	H	-63.9	1.36	0.0	-65.26	-13	52.26
961.7	33.71	301	1.6	V	-60.3	1.36	0.0	-61.66	-13	48.66
1420.00	48.02	280	1.6	H	-60.2	1.60	7.90	-53.90	-13	40.90
1420.00	45.51	225	2.0	V	-62.9	1.60	7.90	-56.60	-13	43.60
2130.00	51.74	359	1.9	H	-49.4	1.30	9.70	-41.00	-13	28.00
2130.00	47.27	114	2.2	V	-54.7	1.30	9.70	-46.30	-13	33.30
2840.00	44.02	335	2.3	H	-59.9	1.80	10.50	-51.20	-13	38.20
2840.00	44.17	286	2.3	V	-59.4	1.80	10.50	-50.70	-13	37.70
10MHz, High channel										
963.6	32.46	200	2.1	H	-64.0	1.36	0.0	-65.36	-13	52.36
963.6	33.63	77	2.1	V	-60.4	1.36	0.0	-61.76	-13	48.76
1422.00	47.69	76	2.4	H	-60.5	1.60	7.90	-54.20	-13	41.20
1422.00	44.87	197	2.2	V	-63.6	1.60	7.90	-57.30	-13	44.30
2133.00	50.89	359	1.7	H	-50.2	1.30	9.70	-41.80	-13	28.80
2133.00	46.57	167	1.6	V	-55.4	1.30	9.70	-47.00	-13	34.00
2844.00	44.13	154	1.0	H	-59.8	1.80	10.50	-51.10	-13	38.10
2844.00	44.25	123	1.9	V	-59.4	1.80	10.50	-50.70	-13	37.70

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
Band 38										
Test frequency range: 30 MHz ~ 26.5GHz										
5MHz, Low channel										
962.3	32.58	313	1.2	H	-63.9	1.36	0.0	-65.26	-25	40.26
962.3	33.67	42	2.0	V	-60.4	1.36	0.0	-61.76	-25	36.76
5145.00	52.13	314	1.7	H	-47.9	1.60	12.10	-37.40	-25	12.40
5145.00	50.28	339	1.5	V	-49.7	1.60	12.10	-39.20	-25	14.20
7717.50	58.42	147	1.1	H	-39.1	2.10	10.50	-30.70	-25	5.70
7717.50	57.51	7	1.9	V	-39.8	2.10	10.50	-31.40	-25	6.40
5MHz, Middle channel										
959.3	32.53	129	1.3	H	-64.0	1.36	0.0	-65.36	-25	40.36
959.3	33.61	146	1.8	V	-60.4	1.36	0.0	-61.76	-25	36.76
5190.00	51.99	88	2.4	H	-48.1	1.60	12.10	-37.60	-25	12.60
5190.00	50.27	250	2.0	V	-49.3	1.60	12.10	-38.80	-25	13.80
7785.00	61.33	336	1.8	H	-34.9	2.00	10.50	-26.40	-25	1.40
7785.00	58.78	188	1.1	V	-37.4	2.00	10.50	-28.90	-25	3.90
5MHz, High channel										
955.3	30.36	140	2.1	H	-66.1	1.36	0.0	-67.46	-25	42.46
955.3	31.64	61	2.4	V	-62.4	1.36	0.0	-63.76	-25	38.76
5235.00	52.14	79	1.9	H	-47.9	1.60	12.10	-37.40	-25	12.40
5235.00	50.44	233	1.5	V	-49.6	1.60	12.10	-39.10	-25	14.10
7717.50	60.29	41	2.4	H	-37.2	2.10	10.50	-28.80	-25	3.80
7717.50	58.33	204	1.7	V	-39.0	2.10	10.50	-30.60	-25	5.60

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
Band 41										
Test frequency range: 30 MHz ~ 26.5GHz										
5MHz, Low channel										
965.3	32.69	43	2.0	H	-63.8	1.36	0.0	-65.16	-25	40.16
965.3	33.81	53	1.4	V	-60.2	1.36	0.0	-61.56	-25	36.56
5075.00	49.10	295	2.0	H	-50.9	1.60	12.10	-40.40	-25	15.40
5075.00	49.81	350	1.5	V	-50.2	1.60	12.10	-39.70	-25	14.70
7612.50	57.28	166	2.0	H	-40.2	2.10	10.50	-31.80	-25	6.80
7612.50	59.05	195	1.3	V	-38.2	2.10	10.50	-29.80	-25	4.80
5MHz, Middle Channel										
953.8	30.78	212	2.0	H	-65.7	1.36	0.0	-67.06	-25	42.06
953.8	31.57	148	1.0	V	-62.5	1.36	0.0	-63.86	-25	38.86
5190.00	50.17	118	1.9	H	-49.9	1.60	12.10	-39.40	-25	14.40
5190.00	48.25	337	1.7	V	-51.4	1.60	12.10	-40.90	-25	15.90
7785.00	59.32	106	1.6	H	-36.9	2.00	10.50	-28.40	-25	3.40
7785.00	61.48	335	1.3	V	-34.7	2.00	10.50	-26.20	-25	1.20
5MHz, High Channel										
957.7	30.74	172	1.7	H	-65.8	1.36	0.0	-67.16	-25	42.16
957.7	31.82	270	1.9	V	-62.2	1.36	0.0	-63.56	-25	38.56
5305.00	50.11	69	1.0	H	-49.6	1.60	12.20	-39.00	-25	14.00
5305.00	49.72	173	1.7	V	-49.4	1.60	12.20	-38.80	-25	13.80
7957.50	59.26	179	1.5	H	-38.8	2.10	10.70	-30.20	-25	5.20
7957.50	60.14	52	2.0	V	-37.8	2.10	10.70	-29.20	-25	4.20
Band 66										
Test frequency range: 30 MHz ~ 20GHz										
1.4MHz, Low channel										
947.8	30.59	212	2.4	H	-65.9	1.36	0.0	-67.26	-13	54.26
947.8	31.49	35	2.0	V	-62.6	1.36	0.0	-63.96	-13	50.96
3421.40	53.92	275	1.7	H	-46.9	1.40	11.80	-36.50	-13	23.50
3421.40	49.85	91	1.4	V	-50.8	1.40	11.80	-40.40	-13	27.40
1.4MHz, Middle channel										
962.1	32.57	216	1.1	H	-63.9	1.36	0.0	-65.26	-13	52.26
962.1	33.64	226	2.4	V	-60.4	1.36	0.0	-61.76	-13	48.76
3490.00	54.03	300	1.2	H	-46.7	1.50	12.00	-36.20	-13	23.20
3490.00	50.78	337	1.2	V	-50.7	1.50	12.00	-40.20	-13	27.20
1.4MHz, High channel										
966.0	32.63	61	2.5	H	-63.9	1.36	0.0	-65.26	-13	52.26
966.0	33.74	67	1.9	V	-60.3	1.36	0.0	-61.66	-13	48.66
3558.60	53.87	71	1.0	H	-47.7	1.50	12.10	-37.10	-13	24.10
3558.60	50.02	266	1.7	V	-51.0	1.50	12.10	-40.40	-13	27.40

Note:

Absolute Level = Substituted Level - Cable loss + Antenna Gain

Margin = Limit- Absolute Level

dBd is for the ERP, dBi is for EIRP.

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

Applicable Standard

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

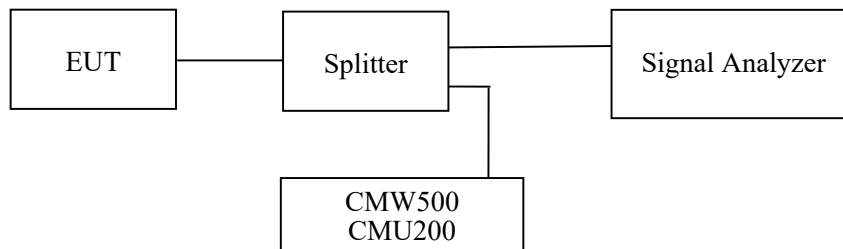
According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

According to FCC §27.53 (c)(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:	29.1 °C
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

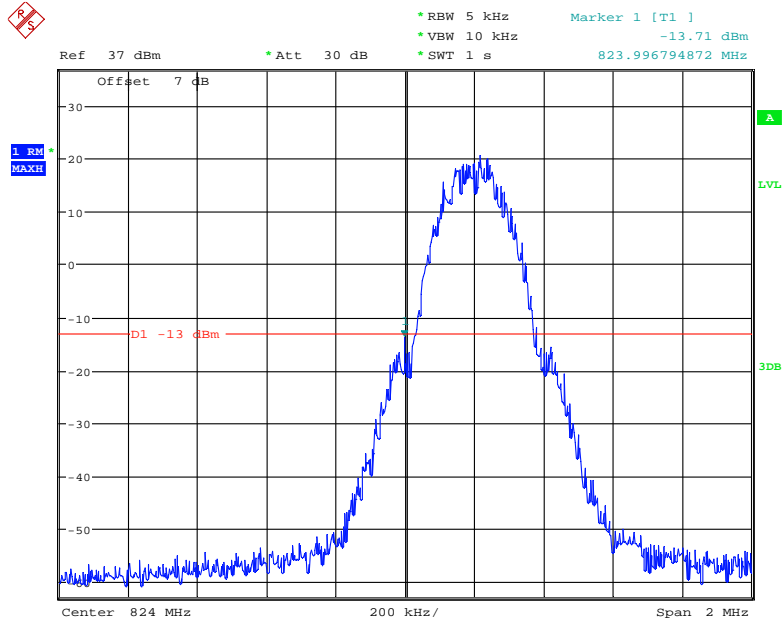
The testing was performed by Pedro Yun from 2021-07-31 to 2021-8-11.

EUT operation mode: Transmitting (Worst case)

Test Result: Pass

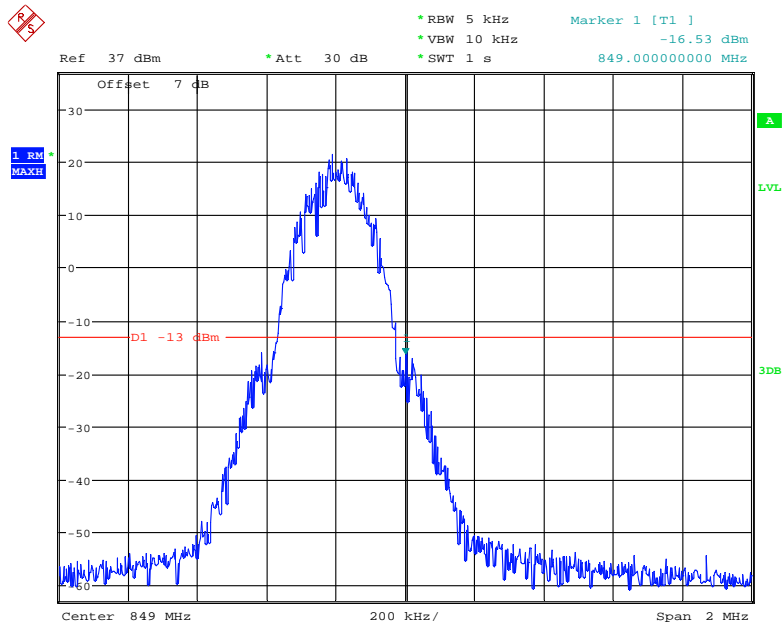
Please refer to the following plots.

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



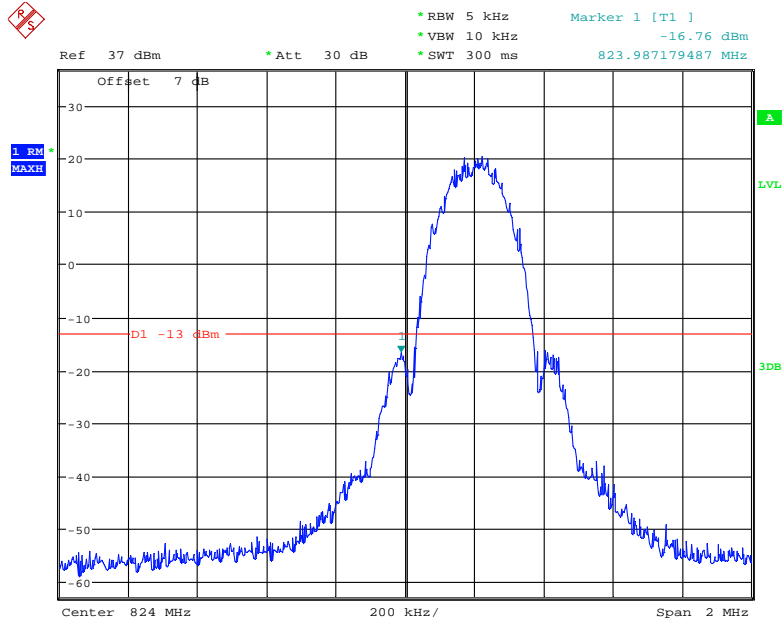
Date: 31.JUL.2021 13:50:45

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



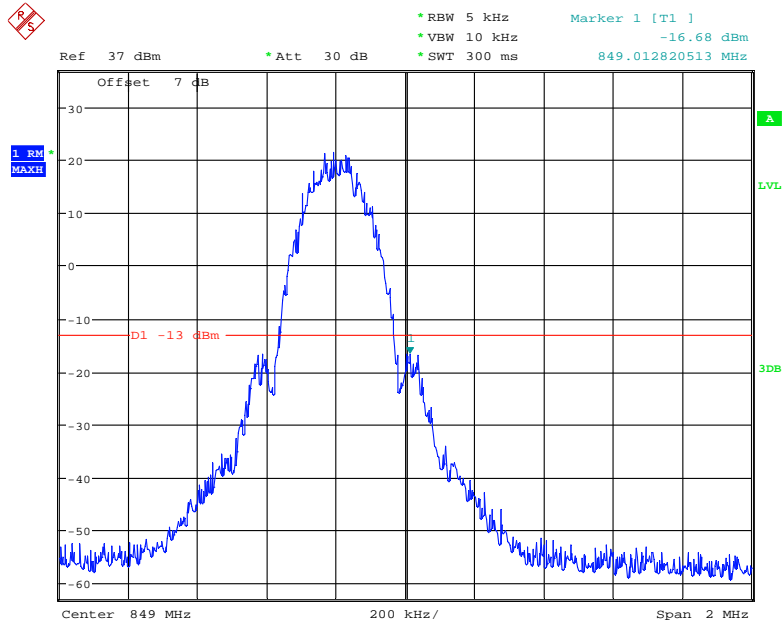
Date: 31.JUL.2021 13:54:25

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



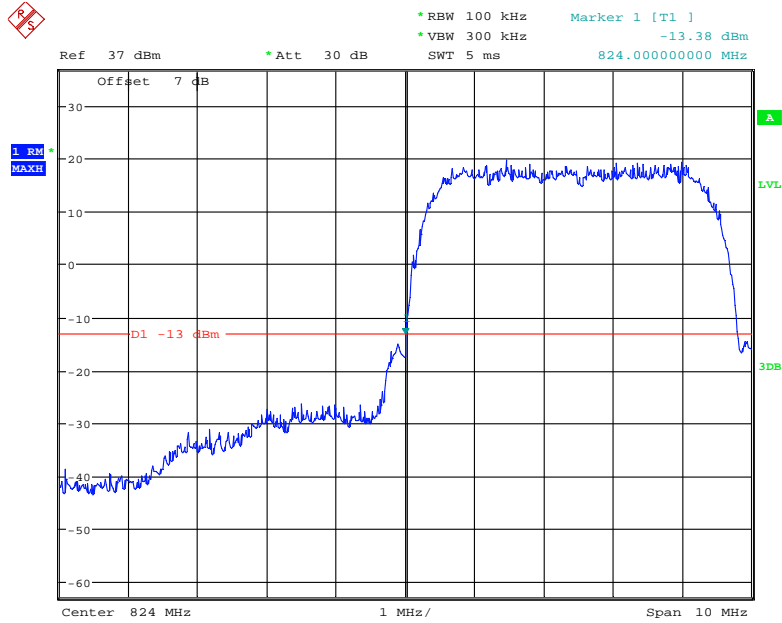
Date: 31.JUL.2021 13:46:25

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



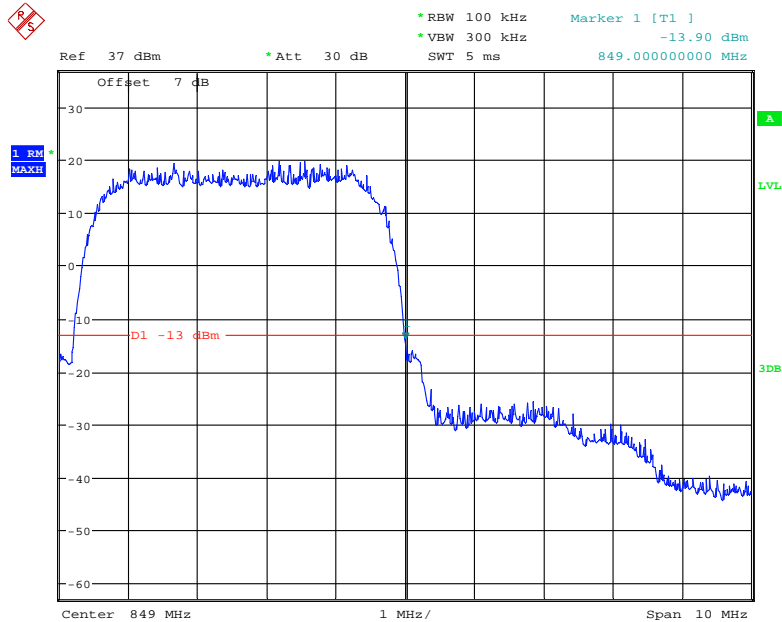
Date: 31.JUL.2021 13:43:57

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



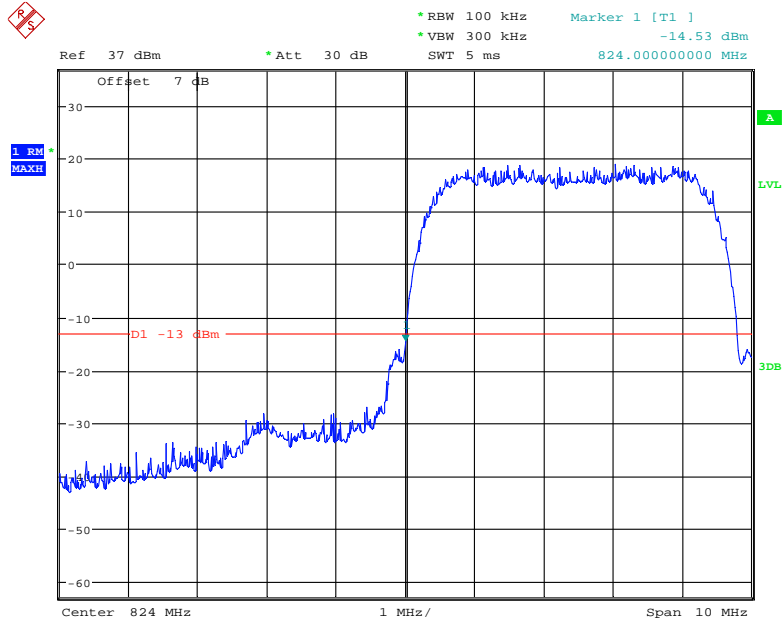
Date: 31.JUL.2021 16:22:50

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



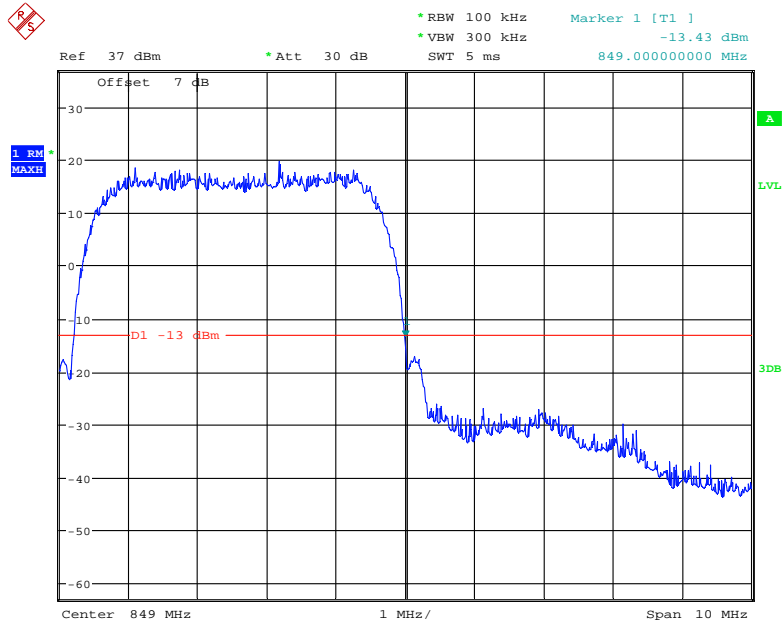
Date: 31.JUL.2021 16:20:31

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



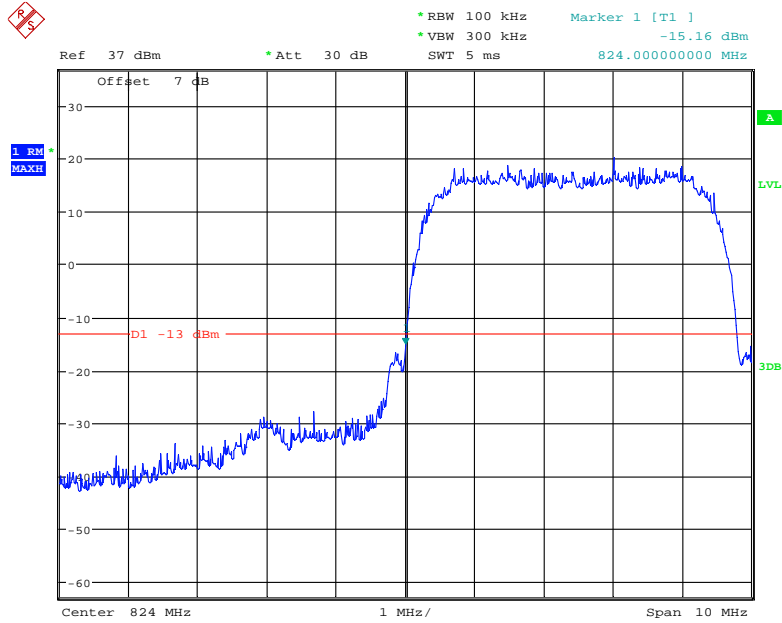
Date: 31.JUL.2021 16:24:42

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



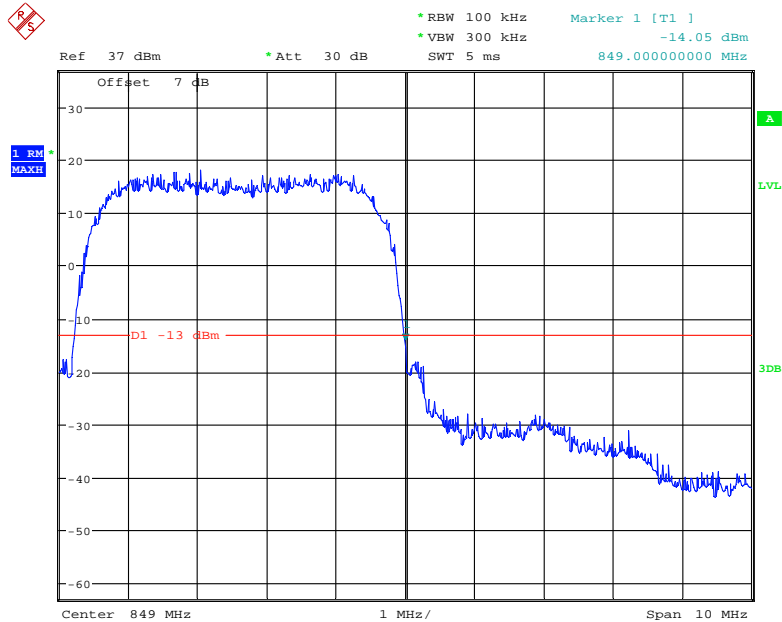
Date: 31.JUL.2021 16:25:50

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



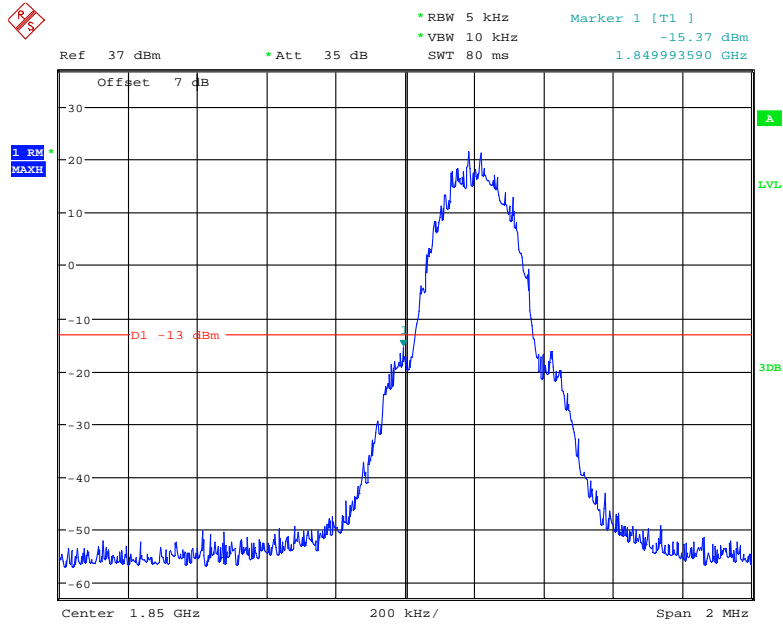
Date: 31.JUL.2021 16:39:34

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



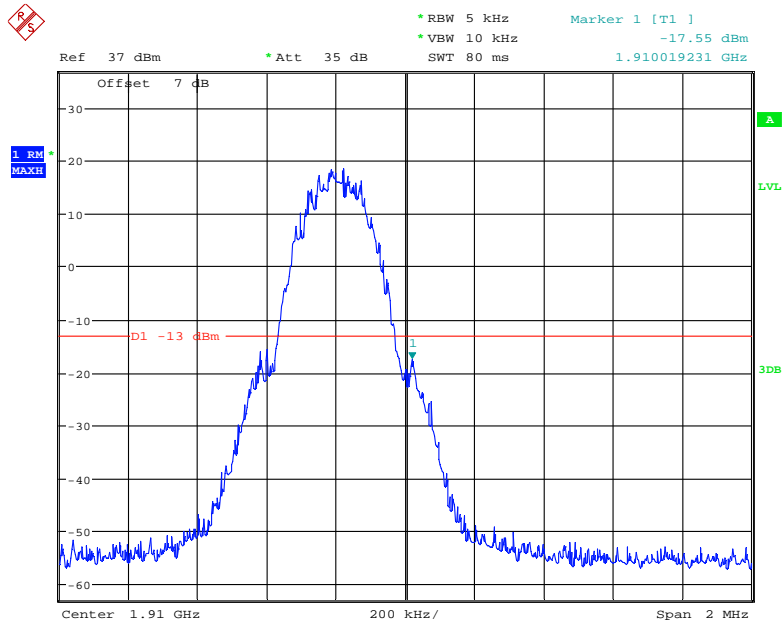
Date: 31.JUL.2021 16:37:48

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



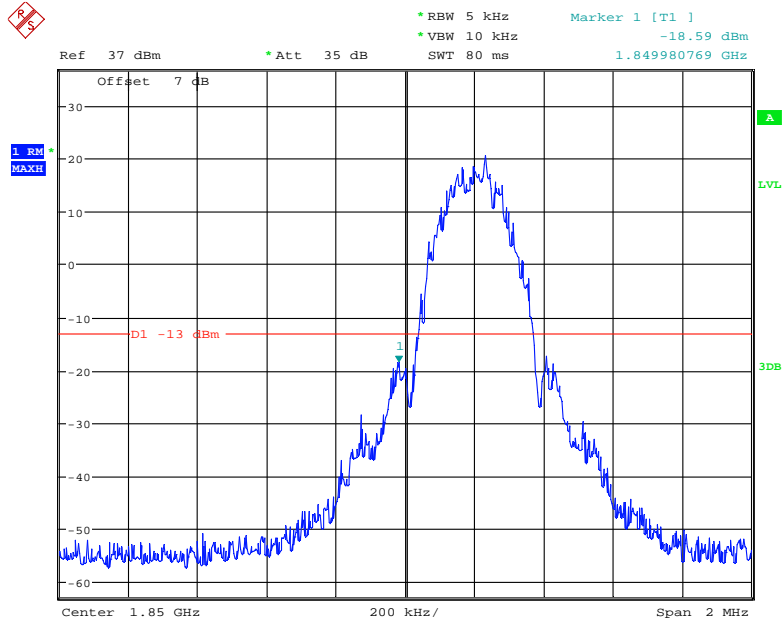
Date: 31.JUL.2021 15:00:44

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



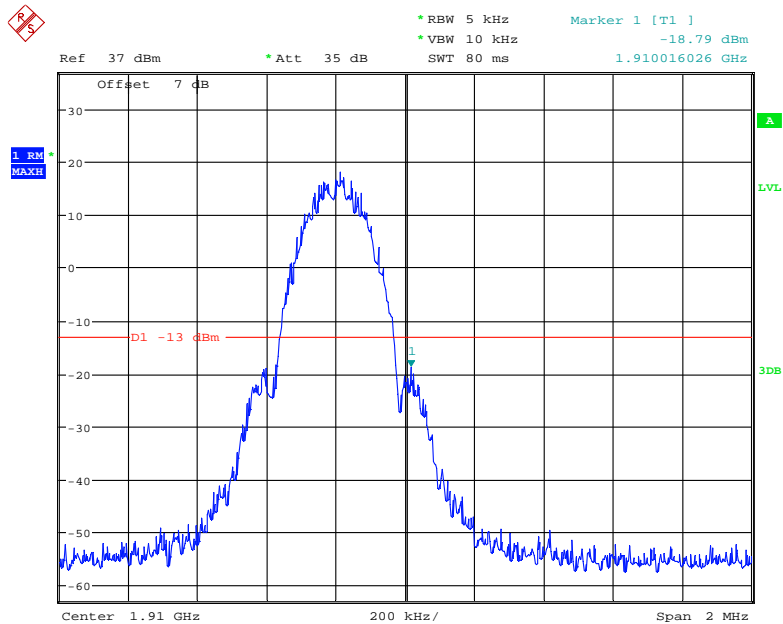
Date: 31.JUL.2021 14:59:28

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



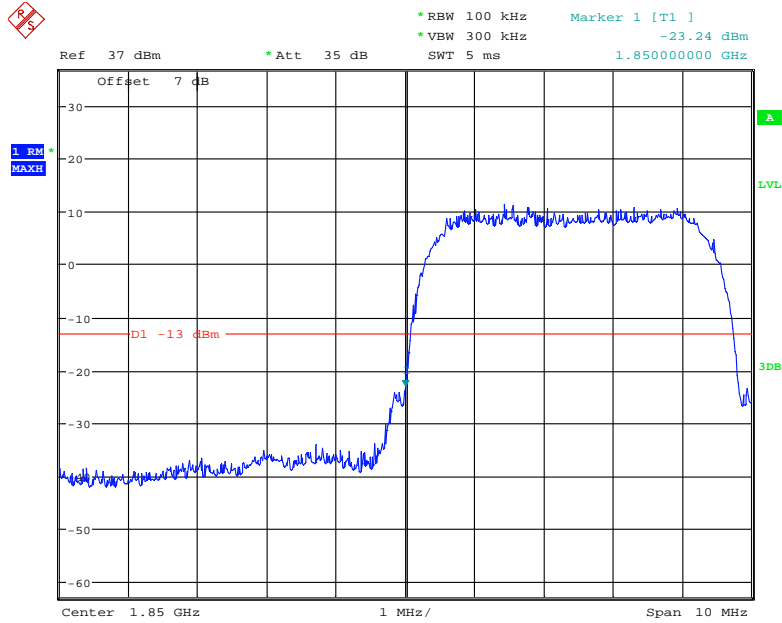
Date: 31.JUL.2021 15:02:49

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



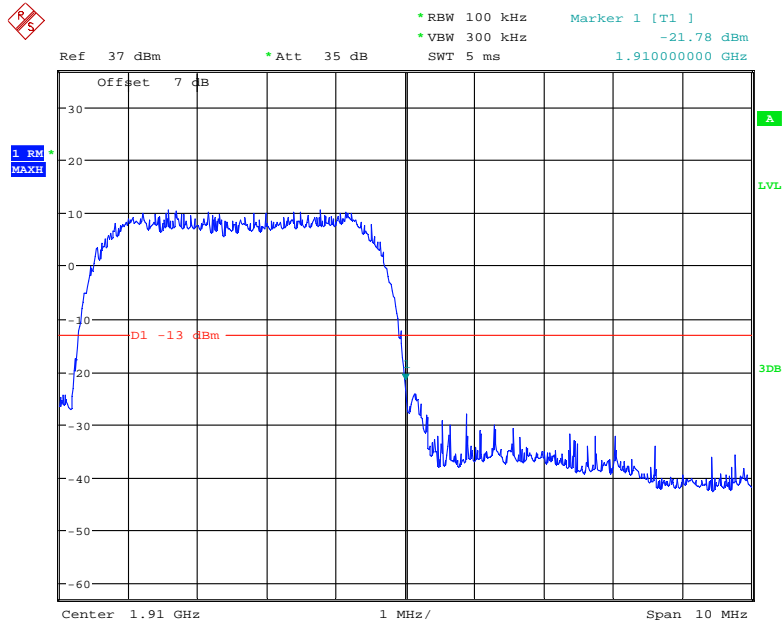
Date: 31.JUL.2021 15:03:53

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



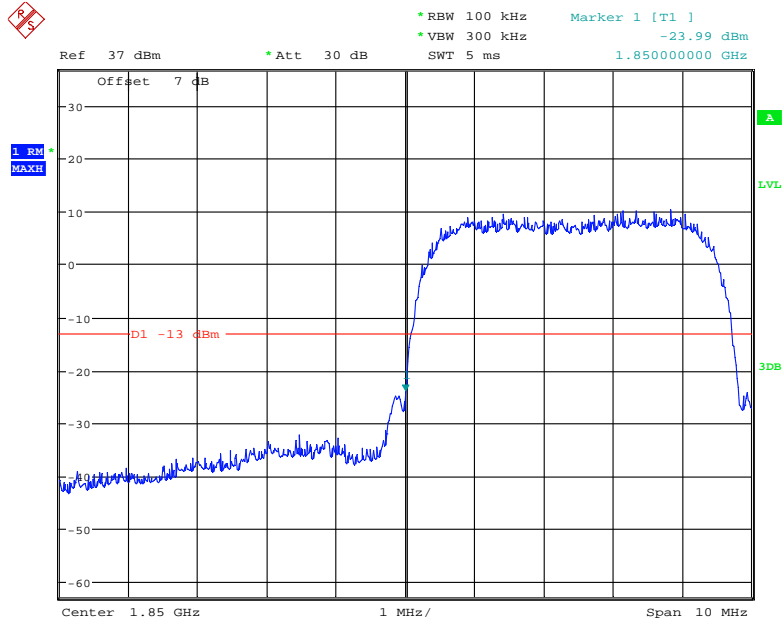
Date: 31.JUL.2021 15:17:36

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



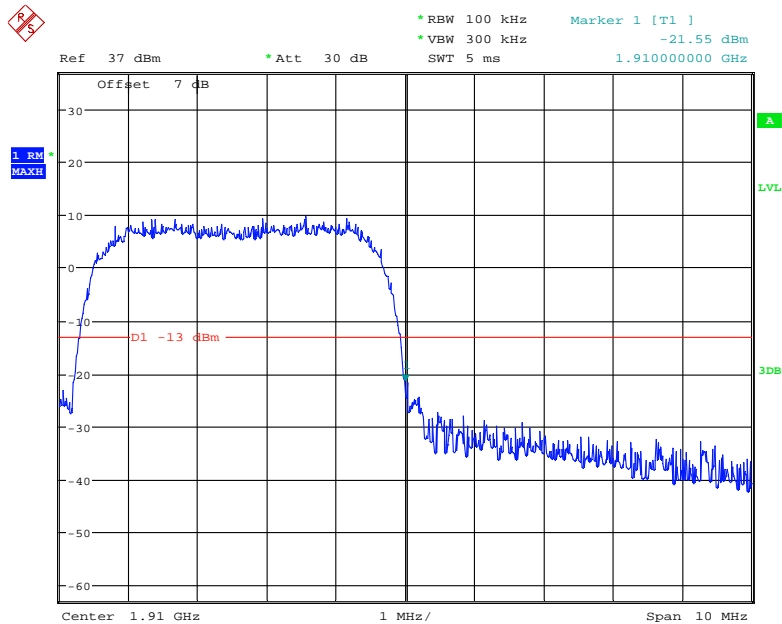
Date: 31.JUL.2021 15:16:57

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



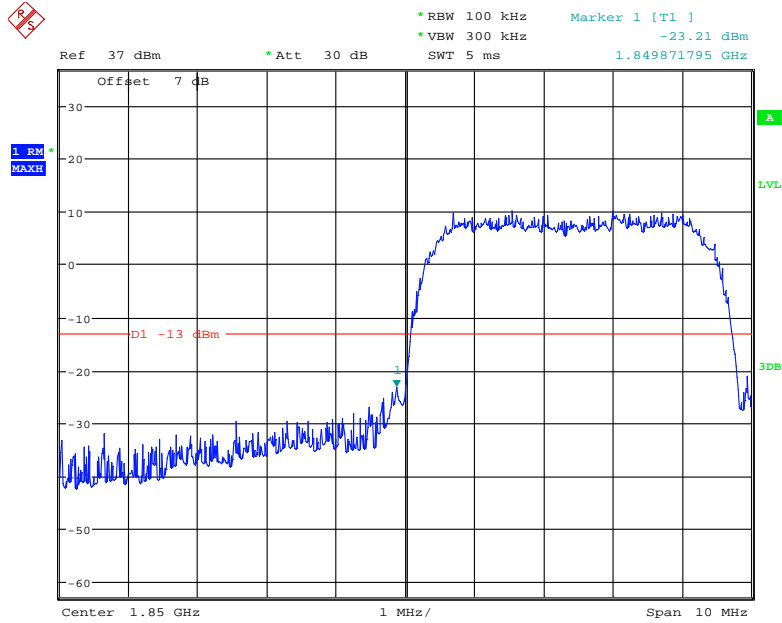
Date: 31.JUL.2021 15:38:08

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



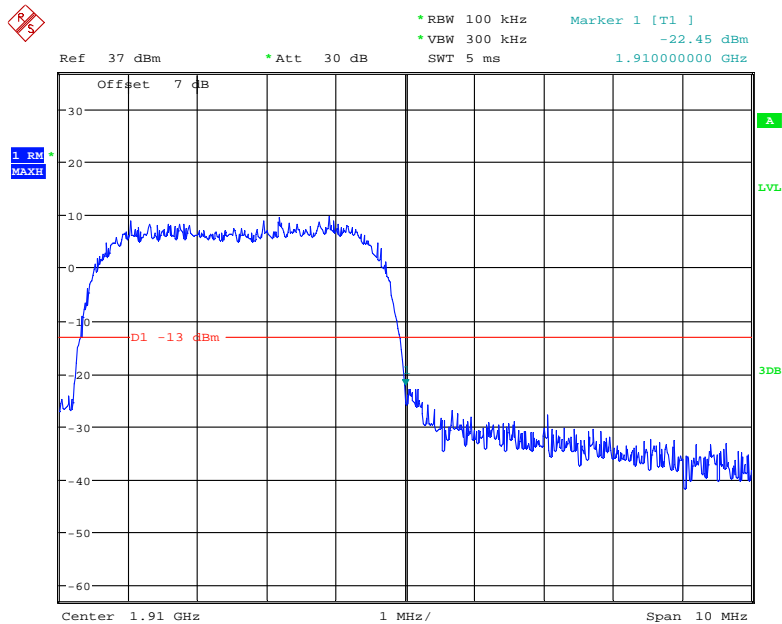
Date: 31.JUL.2021 15:37:12

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



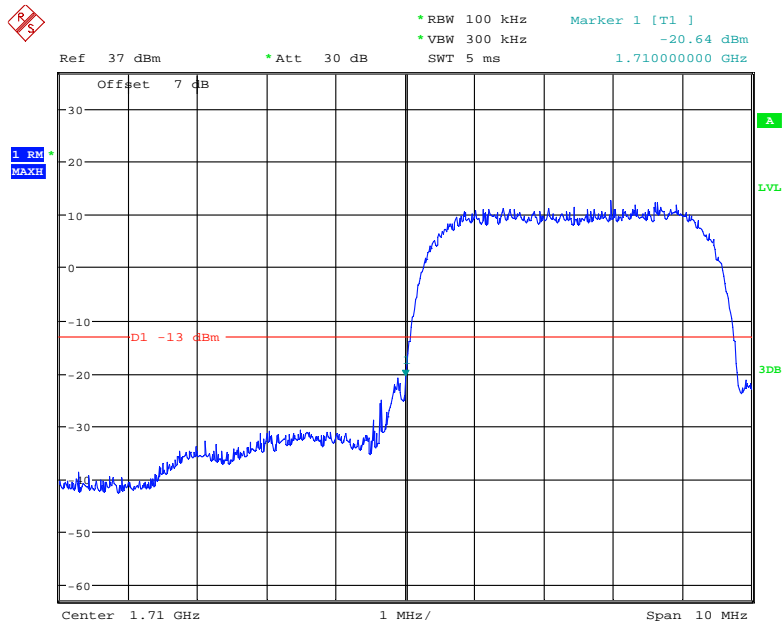
Date: 31.JUL.2021 15:39:03

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



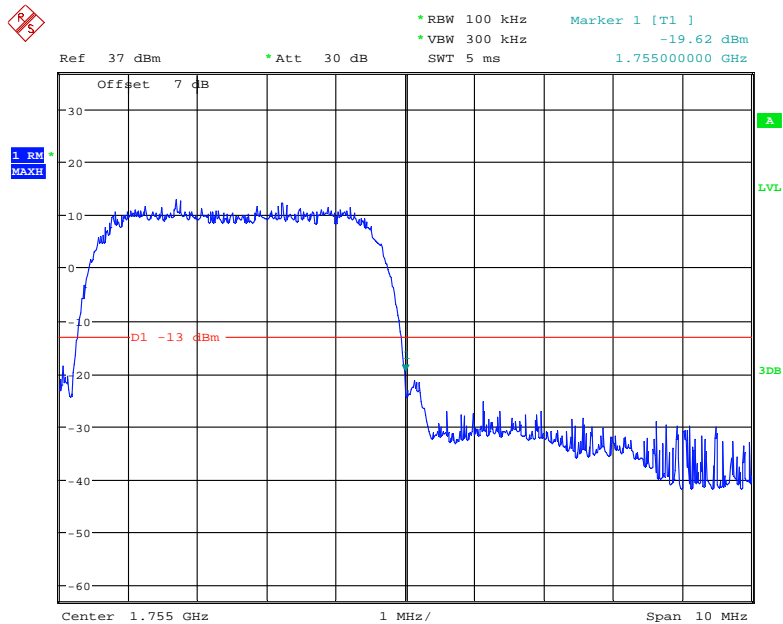
Date: 31.JUL.2021 15:40:02

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



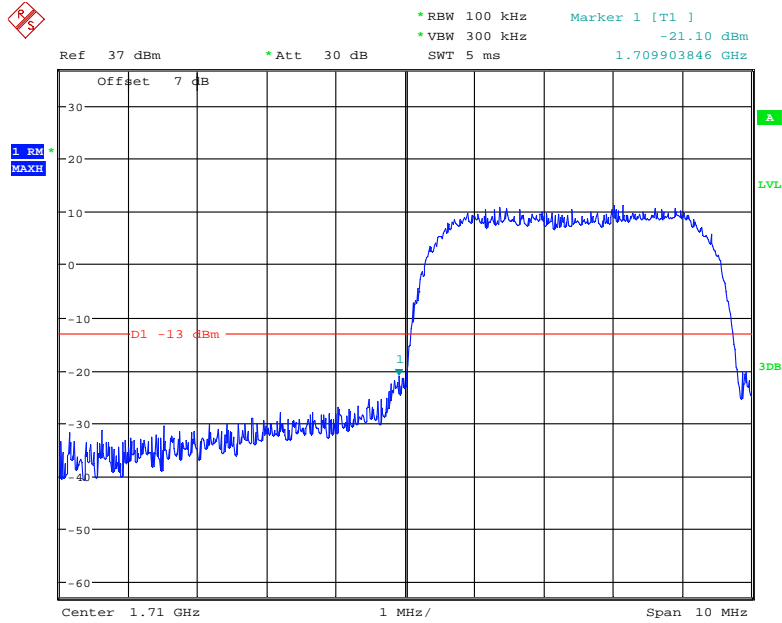
Date: 31.JUL.2021 15:51:15

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



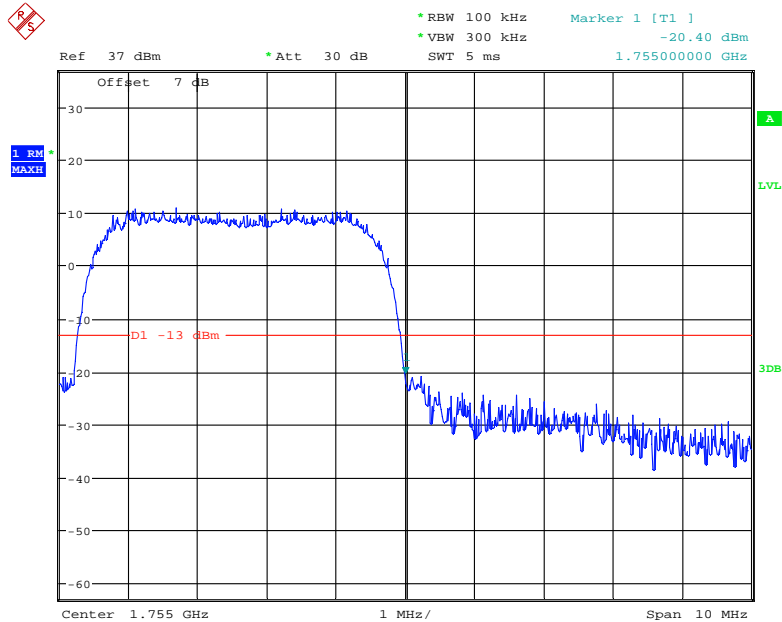
Date: 31.JUL.2021 15:50:16

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



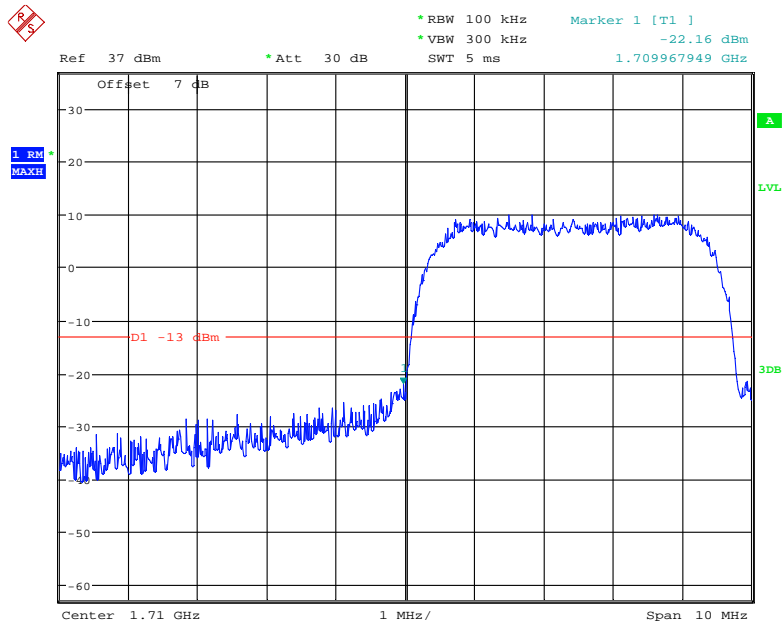
Date: 31.JUL.2021 16:05:37

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



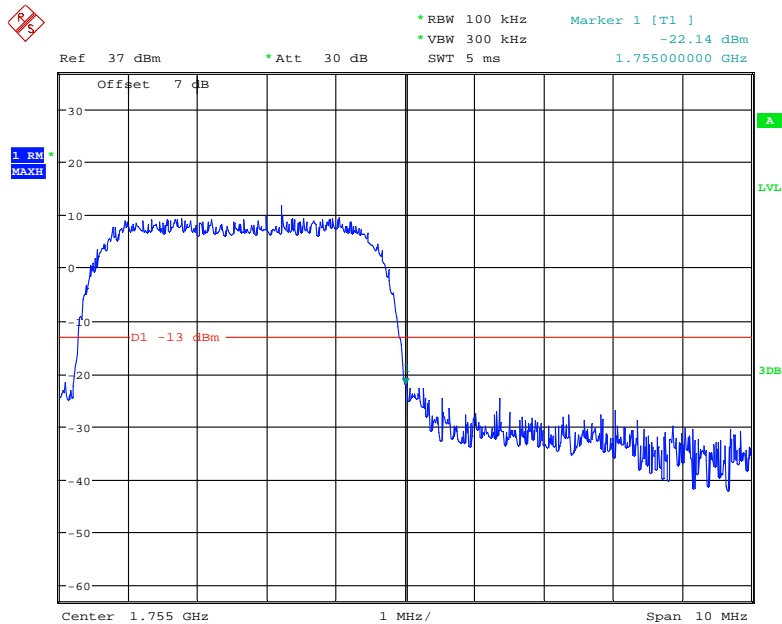
Date: 31.JUL.2021 16:06:37

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



Date: 31.JUL.2021 16:04:29

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



Date: 31.JUL.2021 16:03:31

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

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

Applicable Standard

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

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

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

Frequency Tolerance for Transmitters in the Public Mobile Services

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

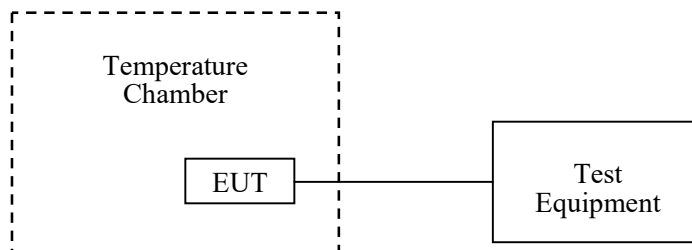
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

Test Procedure

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

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

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



Test Data

Environmental Conditions

Temperature:	29.1 °C
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

The testing was performed by Pedro Yun and from 2021-07-31 to 2021-08-11.

EUT operation mode: Transmitting

Test Result: Pass

Please refer to the following tables.

Cellular Band (Part 22H)

GSM Mode

Middle Channel, $f_0=836.6\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	NV	5	0.005977	2.5
-20		6	0.007172	2.5
-10		8	0.009563	2.5
0		8	0.009563	2.5
10		-3	-0.00359	2.5
20		-4	-0.00478	2.5
30		-8	-0.00956	2.5
40		5	0.005977	2.5
50		6	0.007172	2.5
20		LV	9	0.010758
	HV	-3	-0.00359	2.5

EDGE Mode

Middle Channel, $f_0 = 836.6\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	NV	5	0.005977	2.5
-20		2	0.002391	2.5
-10		5	0.005977	2.5
0		7	0.008367	2.5
10		-2	-0.00239	2.5
20		-4	-0.00478	2.5
30		-6	-0.00717	2.5
40		5	0.005977	2.5
50		5	0.005977	2.5
20	LV	8	0.009563	2.5
	HV	-3	-0.00359	2.5

WCDMA Mode

Middle Channel, $f_0 = 836.6\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	NV	7	0.008367	2.5
-20		-5	-0.00598	2.5
-10		6	0.007172	2.5
0		9	0.010758	2.5
10		-4	-0.00478	2.5
20		8	0.009563	2.5
30		6	0.007172	2.5
40		7	0.008367	2.5
50		5	0.005977	2.5
20	LV	6	0.007172	2.5
	HV	-9	-0.01076	2.5

PCS Band (Part 24E)

GSM Mode

Middle Channel, $f_0 = 1880.0$ MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	NV	7	0.003723	Pass
-20		8	0.004255	Pass
-10		5	0.002660	Pass
0		-5	-0.002660	Pass
10		5	0.002660	Pass
20		3	0.001596	Pass
30		4	0.002128	Pass
40		4	0.002128	Pass
50		-3	-0.001596	Pass
20	LV	7	0.003723	Pass
	HV	9	0.004787	Pass

EDGE Mode

Middle Channel, $f_0 = 1880.0$ MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	NV	9	0.004787	Pass
-20		6	0.003191	Pass
-10		4	0.002128	Pass
0		5	0.002660	Pass
10		-6	-0.003191	Pass
20		6	0.003191	Pass
30		-2	-0.001064	Pass
40		3	0.001596	Pass
50		4	0.002128	Pass
20	LV	6	0.003191	Pass
	HV	5	0.002660	Pass

WCDMA Mode

Middle Channel, $f_0 = 1880.0$ MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	NV	-3	-0.001596	Pass
-20		6	0.003191	Pass
-10		3	0.001596	Pass
0		7	0.003723	Pass
10		9	0.004787	Pass
20		3	0.001596	Pass
30		8	0.004255	Pass
40		4	0.002128	Pass
50		7	0.003723	Pass
20		LV	-5	-0.002660
	HV	6	0.003191	Pass

AWS Band (Part 27)

Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	NV	1710.373	1754.468	1710	1755
-20		1710.202	1754.708	1710	1755
-10		1710.388	1754.688	1710	1755
0		1710.382	1754.720	1710	1755
10		1710.501	1754.895	1710	1755
20		1710.348	1754.870	1710	1755
30		1710.255	1754.961	1710	1755
40		1710.299	1754.751	1710	1755
50		1710.382	1754.703	1710	1755
20		LV	1710.458	1754.843	1710
	HV	1710.429	1754.777	1710	1755

LTE:
QPSK:

Band 2:

10.0 MHz Middle Channel, $f_0 = 1880\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	NV	-2.96	-0.0016	Pass
-20		-9.97	-0.0053	Pass
-10		-6.13	-0.0033	Pass
0		6.17	0.0033	Pass
10		7.92	0.0042	Pass
20		6.46	0.0034	Pass
30		-6.52	-0.0035	Pass
40		7.18	0.0038	Pass
50		-9.69	-0.0052	Pass
20		LV	-8.17	-0.0043
	HV	-7.05	-0.0038	Pass

Band 4:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	NV	1710.3895	1754.4669	1710	1755
-20		1710.1540	1754.4882	1710	1755
-10		1710.3975	1754.5281	1710	1755
0		1710.0560	1754.8620	1710	1755
10		1710.3242	1754.6057	1710	1755
20		1710.3246	1754.3940	1710	1755
30		1710.1982	1754.5956	1710	1755
40		1710.3440	1754.4978	1710	1755
50		1710.2570	1754.5505	1710	1755
20		LV	1710.2969	1754.5483	1710
	HV	1710.4830	1754.5563	1710	1755

Band 5:

10.0 MHz Middle Channel, $f_0=836.5\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	NV	-6.59	-0.0079	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		LV	9.94	0.0119
	HV	9.99	0.0119	2.5

Band 7:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	NV	2500.3919	2569.5110	2500	2570
-20		2500.1692	2569.4379	2500	2570
-10		2500.4749	2569.5763	2500	2570
0		2500.6685	2569.7118	2500	2570
10		2500.4814	2569.6612	2500	2570
20		2500.4753	2569.6384	2500	2570
30		2500.6214	2569.3721	2500	2570
40		2500.4717	2569.9382	2500	2570
50		2500.3249	2569.6058	2500	2570
20		LV	2500.4921	2569.4544	2500
	HV	2500.2669	2569.2568	2500	2570

Band 17:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	NV	704.4479	715.3795	704	716
-20		704.4494	715.3100	704	716
-10		704.4723	715.5749	704	716
0		704.5524	715.3605	704	716
10		704.1838	715.3940	704	716
20		704.4774	715.4317	704	716
30		704.5548	715.4694	704	716
40		704.5505	715.7499	704	716
50		704.5536	715.4796	704	716
20		LV	704.5765	715.5895	704
	HV	704.4829	715.2538	704	716

Band 38

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	NV	2570.6149	2619.7148	2570	2620
-20		2570.6084	2619.7020	2570	2620
-10		2570.3385	2619.6096	2570	2620
0		2570.5603	2619.4199	2570	2620
10		2570.0475	2619.7944	2570	2620
20		2570.2265	2619.5812	2570	2620
30		2570.5096	2619.8415	2570	2620
40		2570.5095	2619.6749	2570	2620
50		2570.5085	2619.7342	2570	2620
20		LV	2570.2280	2619.8457	2570
	HV	2570.0484	2619.9854	2570	2620

Band 41

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	NV	2535.4263	2654.5420	2535	2655
-20		2535.4845	2654.8821	2535	2655
-10		2535.3355	2654.6096	2535	2655
0		2535.2047	2654.7398	2535	2655
10		2535.5088	2654.7752	2535	2655
20		2535.3283	2654.4637	2535	2655
30		2535.4084	2654.4885	2535	2655
40		2535.3974	2654.4455	2535	2655
50		2535.3941	2654.6234	2535	2655
20	LV	2535.6343	2654.3806	2535	2655
	HV	2535.3519	2654.7235	2535	2655

Note: the frequency range 2535-2655MHz was declared by applicant.

Band 66

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	NV	1710.0145	1779.0113	1710	1780
-20		1710.3026	1779.1651	1710	1780
-10		1710.3595	1779.0306	1710	1780
0		1710.1602	1779.1838	1710	1780
10		1710.2397	1779.9046	1710	1780
20		1710.2088	1779.3236	1710	1780
30		1710.4432	1779.2320	1710	1780
40		1710.3965	1779.0137	1710	1780
50		1710.2123	1779.0529	1710	1780
20	LV	1710.9816	1779.2635	1710	1780
	HV	1710.3684	1779.3799	1710	1780

16QAM:

Band 2:

10.0 MHz Middle Channel, $f_0 = 1880\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	NV	-2.20	-0.0012	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	0.0030	Pass
20		LV	6.05	0.0032
	HV	7.52	0.0040	Pass

Band 4:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	NV	1710.9831	1754.7248	1710	1755
-20		1710.5322	1754.8675	1710	1755
-10		1710.6063	1754.5578	1710	1755
0		1710.5394	1754.2929	1710	1755
10		1710.4772	1754.9276	1710	1755
20		1710.7845	1754.8138	1710	1755
30		1710.4958	1754.6435	1710	1755
40		1710.6365	1754.9918	1710	1755
50		1710.7137	1754.6388	1710	1755
20		LV	1710.1166	1754.0085	1710
	HV	1710.5828	1754.3894	1710	1755

Band 5:

10.0 MHz Middle Channel, $f_0=836.5\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	NV	-2.17	-0.0026	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	0.0100	2.5
40		6.75	0.0081	2.5
50		-5.89	-0.0070	2.5
20	LV	8.98	0.0107	2.5
	HV	-7.83	-0.0094	2.5

Band 7:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	NV	2500.4155	2569.4178	2500	2570
-20		2500.8752	2569.0098	2500	2570
-10		2500.5655	2569.8018	2500	2570
0		2500.6946	2569.7247	2500	2570
10		2500.6835	2569.8880	2500	2570
20		2500.1384	2569.4337	2500	2570
30		2500.2348	2569.4688	2500	2570
40		2500.1454	2569.8148	2500	2570
50		2500.9158	2569.7018	2500	2570
20	LV	2500.8439	2569.7555	2500	2570
	HV	2500.2614	2569.21654	2500	2570

Band 17:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	NV	704.5574	715.8385	704	716
-20		704.5345	715.9538	704	716
-10		704.5002	715.7725	704	716
0		704.5128	715.8157	704	716
10		704.0715	715.5568	704	716
20		704.7035	715.8299	704	716
30		704.3026	715.9909	704	716
40		704.9189	715.5018	704	716
50		704.4404	715.3748	704	716
20		LV	704.7168	715.4655	704
	HV	704.8745	715.7962	704	716

Band 38

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	NV	2570.0019	2619.0155	2570	2620
-20		2570.5710	2619.8188	2570	2620
-10		2570.5080	2619.4440	2570	2620
0		2570.5643	2619.7756	2570	2620
10		2570.2617	2619.5464	2570	2620
20		2570.3275	2619.8914	2570	2620
30		2570.8243	2619.5021	2570	2620
40		2570.3451	2619.8074	2570	2620
50		2570.4909	2619.4256	2570	2620
20		LV	2570.4558	2619.8034	2570
	HV	2570.6698	2619.0111	2570	2620

Band 41

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	NV	2535.2682	2654.3011	2535	2655
-20		2535.7373	2654.0166	2535	2655
-10		2535.0670	2654.7040	2535	2655
0		2535.2132	2654.4473	2535	2655
10		2535.2749	2654.5567	2535	2655
20		2535.7537	2654.2895	2535	2655
30		2535.0479	2654.6084	2535	2655
40		2535.1809	2654.3333	2535	2655
50		2535.4121	2654.8182	2535	2655
20		LV	2535.5768	2654.5322	2535
	HV	2535.1480	2654.5391	2535	2655

Note: the frequency range 2535-2655MHz was declared by applicant.

Band 66

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	NV	1710.4208	1779.2824	1710	1780
-20		1710.1342	1779.3645	1710	1780
-10		1710.3594	1779.0328	1710	1780
0		1710.2872	1779.3312	1710	1780
10		1710.2121	1779.2234	1710	1780
20		1710.2618	1779.6724	1710	1780
30		1710.6025	1779.1058	1710	1780
40		1710.0821	1779.0757	1710	1780
50		1710.6232	1779.3812	1710	1780
20		LV	1710.0197	1779.6575	1710
	HV	1710.2852	1779.2115	1710	1780

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