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-KG6K

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

Report Number:	SZ1210720-30064E-RF-00A
Report Date:	2021-08-23
Reviewed By:	Jimmy Xiao RF Engineer
Prepared By:	Bay Area Compliance Laboratories Corp. (Shenzhen) 5F(B-West) ,6F,7F,the 3rd Phase of Wan Li Industrial Building D,Shihua Rd, FuTian Free Trade Zone, Shenzhen, China Tel: +86-755-33320018 Fax: +86-755-33320008 www.baclcorp.com.cn

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

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	Mobile Phone
Tested Model	KG6k
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/RX)
Modulation Technique	2G: GMSK, 8PSK 3G: BPSK, QPSK, 16QAM 4G: QPSK, 16QAM
Antenna Specification*	GSM850/WCDMA Band 5/LTE Band 5: -1.6dBi PCS1900/WCDMA Band 2/ LTE Band 2: -0.7dBi WCDMA Band 4/LTE Band 4/LTE Band 66: -0.7dBi LTE Band 7/Band 38/Band 41: -0.4dBi LTE Band 17: -1.9dBi (provided by the applicant)
Voltage Range	DC 3.85V from battery or DC 5.0V from adapter
Date of Test	2021-07-23 to 2021-08-23
Sample number	SZ1210720-30064E-RF-S1(Assigned by BACL, Shenzhen)
Received date	2021-07-20
Sample/EUT Status	Good condition
Adapter information	Model: U100TSA Input: AC 100-240V ~ 50/60Hz, 0.3A Output: DC 5.0V, 2.0A

Objective

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

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

Test Methodology

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

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

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

All emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.
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℃
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
PCS1900	0.25	1850.2	1880	1909.8
WCDMA B2	4.2	1852.4	1880	1907.6
WCDMA B4	4.2	1712.4	1732.6	1752.6
WCDMA B5	4.2	826.4	836.6	846.6
LTE B2	1.4	1850.7	1880	1909.3
	3	1851.5	1880	1908.5
	5	1852.5	1880	1907.5
	10	1855	1880	1905
	15	1857.5	1880	1902.5
	20	1860	1880	1900
LTE B4	1.4	1710.7	1732.5	1754.3
	3	1711.5	1732.5	1753.5
	5	1712.5	1732.5	1752.5
	10	1715	1732.5	1750
	15	1717.5	1732.5	1747.5
	20	1720	1732.5	1745
LTE B5	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.

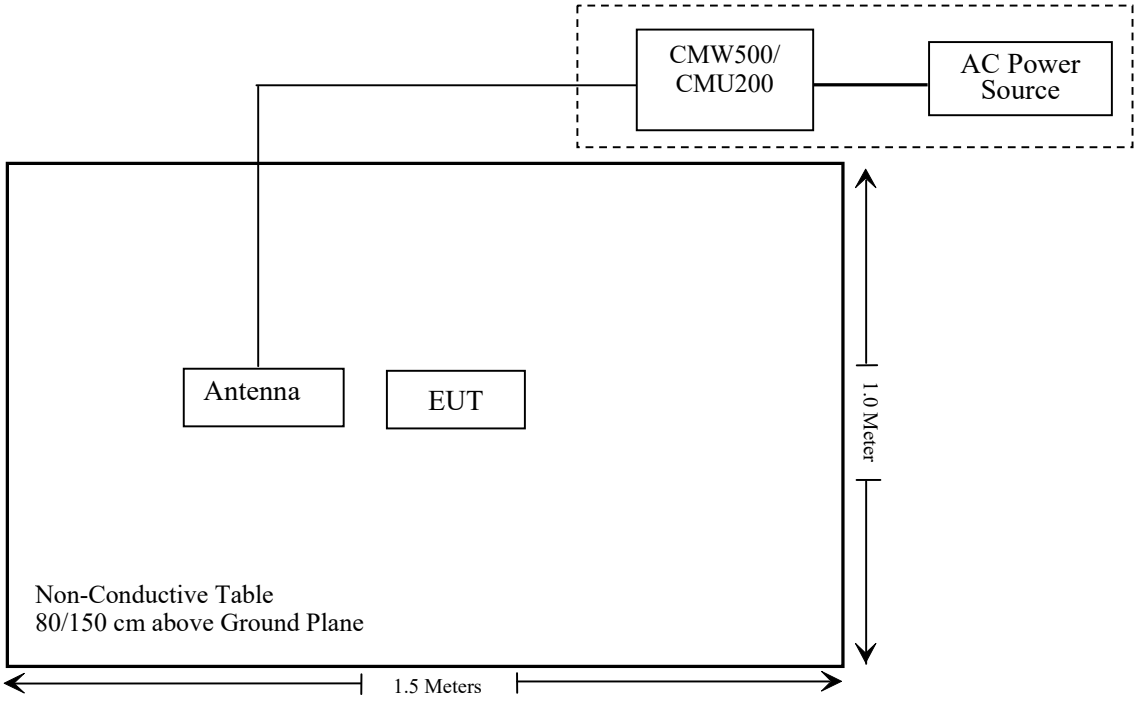
Support Equipment List and Details

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 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: SZ1210720-30064E-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	2021/07/06	2022/07/05
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 Technolagies	Horn antenna	ARH-4223-02	1007726-01 1304	2020/12/06	2023/12/05
Ducommun Technolagies	Horn antenna	ARH-4223-02	1007726-02 1304	2020/12/06	2023/12/05
Agilent	Signal Generator	N5183A	MY51040755	2020/12/29	2021/12/28
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	1201.002K50-146520-wh	2020/08/04	2021/08/03

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
RF Conducted Test					
Rohde & Schwarz	Signal and Spectrum Analyzer	FSV40	101473	2021/07/06	2022/07/05
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	1201.002K50-146520-wh	2021/07/06	2022/07/05
Unknown	RF Cable	Unknown	2301 276	2020/11/29	2021/11/28
Unknown	RF Cable	Unknown	DLO J5/W6102	2020/11/29	2021/11/28
Weinschel	Power divider	1515	MY628	2020/11/29	2021/11/28
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	115500	2020/07/31	2021/07/30
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: SZ1210720-30064E-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.

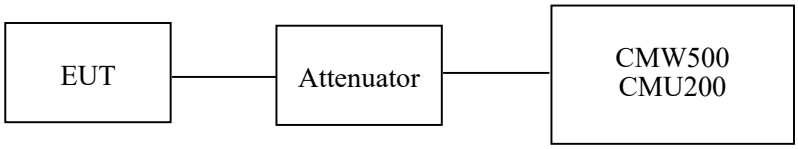
According to §27.50(d), the maximum EIRP must not exceed 1Watts (30dBm) for 1710-1780MHz.

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:	27~29.4 ℃
Relative Humidity:	51~56 %
ATM Pressure:	101.0 kPa

The testing was performed by Bravos Zhao and Pedro Yun from 2021-07-30 to 2021-08-01.

Conducted Power

Cellular Band (Part 22H)

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	ERP (dBm)	Limit (dBm)
GSM	128	824.2	33.54	29.79	38.45
	190	836.6	33.49	29.74	38.45
	251	848.8	33.38	29.63	38.45

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				ERP(dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	1 slot	2 slots	3 slots	4 slots	
GPRS	128	824.2	33.49	32.43	30.37	29.18	29.74	28.68	26.62	25.43	38.45
	190	836.6	33.39	32.32	30.25	29.13	29.64	28.57	26.50	25.38	38.45
	251	848.8	33.26	32.25	30.14	29.01	29.51	28.50	26.39	25.26	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	27.28	25.95	23.61	22.11	23.53	22.20	19.86	18.36	38.45
	190	836.6	27.49	26.13	23.79	22.31	23.74	22.38	20.04	18.56	38.45
	251	848.8	27.55	26.27	23.95	22.35	23.80	22.52	20.20	18.60	38.45

Mode	Test Mode	3GPP Sub Test	Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
WCDMA (Band 5)	RMC12.2k		23.69	23.76	23.68	19.94	20.01	19.93
	HSDPA	1	22.72	22.71	22.87	18.97	18.96	19.12
		2	22.06	22.30	22.31	18.31	18.55	18.56
		3	22.12	22.36	22.37	18.37	18.61	18.62
		4	22.19	22.42	22.44	18.44	18.67	18.69
	HSUPA	1	22.32	22.34	22.57	18.57	18.59	18.82
		2	21.69	21.88	21.94	17.94	18.13	18.19
		3	21.76	21.95	21.01	18.01	18.20	17.26
		4	20.81	20.98	20.06	17.06	17.23	16.31
		5	20.88	20.95	20.13	17.13	17.20	16.38
	HSPA+	1	20.91	20.85	20.16	17.16	17.10	16.41

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd)
For GSM850/WCDMA Band 5: Antenna Gain = -1.6dBi = -3.75dBd (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	26.9	26.2	33
	661	1880.0	27.0	26.3	33
	810	1909.8	27.0	26.3	33

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				EIRP(dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	1 slot	2 slots	3 slots	4 slots	
GPRS	512	1850.2	26.91	26.42	26.01	25.78	26.21	25.72	25.31	25.08	33
	661	1880.0	26.95	26.52	26.02	25.85	26.25	25.82	25.32	25.15	33
	810	1909.8	27.02	26.63	26.12	25.98	26.32	25.93	25.42	25.28	33

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				EIRP(dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	1 slot	2 slots	3 slots	4 slots	
EGPRS	512	1850.2	26.75	25.82	23.83	22.82	26.05	25.12	23.13	22.12	33
	661	1880.0	26.54	25.60	23.64	22.63	25.84	24.90	22.94	21.93	33
	810	1909.8	26.28	25.37	23.36	22.34	25.58	24.67	22.66	21.64	33

Mode	Test Mode	3GPP Sub Test	Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
WCDMA (Band 2)	RMC12.2k		17.69	17.49	17.54	16.99	16.79	16.84
	HSDPA	1	16.53	16.42	16.51	15.83	15.72	15.81
		2	16.52	16.48	16.52	15.82	15.78	15.82
		3	16.50	16.43	16.50	15.80	15.73	15.80
		4	16.56	16.44	16.59	15.86	15.74	15.89
	HSUPA	1	17.18	17.03	17.12	16.48	16.33	16.42
		2	17.21	17.08	17.10	16.51	16.38	16.40
		3	17.25	17.13	17.15	16.55	16.43	16.45
		4	17.16	17.10	17.16	16.46	16.40	16.46
		5	17.18	17.07	17.14	16.48	16.37	16.44
	HSPA+	1	17.19	17.05	17.16	16.49	16.35	16.46

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi)
For PCS1900/WCDMA Band 2: Antenna Gain = -0.7dBi
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		17.57	17.47	17.50	16.87	16.77	16.80
	HSDPA	1	16.55	16.46	16.51	15.85	15.76	15.81
		2	16.54	16.49	16.54	15.84	15.79	15.84
		3	16.61	16.44	16.52	15.91	15.74	15.82
		4	16.59	16.48	16.51	15.89	15.78	15.81
	HSUPA	1	17.15	17.11	17.13	16.45	16.41	16.43
		2	17.18	17.13	17.16	16.48	16.43	16.46
		3	17.17	17.15	17.14	16.47	16.45	16.44
		4	17.09	17.21	17.15	16.39	16.51	16.45
		5	17.14	17.10	17.14	16.44	16.40	16.44
	HSPA+	1	17.19	17.11	17.10	16.49	16.41	16.40

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

Peak-to-average ratio (PAR)

Cellular Band

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	3.80	13
	Middle	3.56	13
	High	3.67	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	3.41	13
	Middle	3.51	13
	High	3.44	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.63	13
	Middle	3.31	13
	High	3.55	13
HSDPA (16QAM)	Low	3.41	13
	Middle	3.34	13
	High	3.51	13
HSUPA (BPSK)	Low	3.32	13
	Middle	3.24	13
	High	3.34	13
HSPA+	Low	3.49	13
	Middle	3.37	13
	High	3.33	13

PCS Band

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	3.36	13
	Middle	3.24	13
	High	3.42	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	3.36	13
	Middle	3.28	13
	High	3.25	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.58	13
	Middle	3.41	13
	High	3.45	13
HSDPA (16QAM)	Low	3.52	13
	Middle	3.39	13
	High	3.41	13
HSUPA (BPSK)	Low	3.34	13
	Middle	3.69	13
	High	3.51	13
HSPA+	Low	3.19	13
	Middle	3.32	13
	High	3.28	13

AWS Band

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.19	13
	Middle	3.52	13
	High	3.26	13
HSDPA (16QAM)	Low	3.41	13
	Middle	3.29	13
	High	3.38	13
HSUPA (BPSK)	Low	3.36	13
	Middle	3.35	13
	High	3.27	13
HSPA+	Low	3.24	13
	Middle	3.41	13
	High	3.36	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	17.49	17.52	17.49	16.79	16.82	16.79
		RB1#3	17.57	17.64	17.59	16.87	16.94	16.89
		RB1#5	17.48	17.47	17.48	16.78	16.77	16.78
		RB3#0	17.66	17.58	17.54	16.96	16.88	16.84
		RB3#3	17.53	17.54	17.62	16.83	16.84	16.92
		RB6#0	16.54	16.53	16.56	15.84	15.83	15.86
	16QAM	RB1#0	16.53	16.64	16.51	15.83	15.94	15.81
		RB1#3	16.72	16.76	16.70	16.02	16.06	16.00
		RB1#5	16.54	16.65	16.54	15.84	15.95	15.84
		RB3#0	16.77	16.55	16.66	16.07	15.85	15.96
		RB3#3	16.79	16.60	16.64	16.09	15.90	15.94
		RB6#0	15.61	15.63	15.53	14.91	14.93	14.83
3.0	QPSK	RB1#0	17.56	17.56	17.57	16.86	16.86	16.87
		RB1#8	17.45	17.47	17.51	16.75	16.77	16.81
		RB1#14	17.51	17.51	17.57	16.81	16.81	16.87
		RB6#0	16.47	16.47	16.51	15.77	15.77	15.81
		RB6#9	16.44	16.47	16.53	15.74	15.77	15.83
		RB15#0	16.51	16.51	16.52	15.81	15.81	15.82
	16QAM	RB1#0	17.19	16.72	16.63	16.49	16.02	15.93
		RB1#8	17.07	16.63	16.51	16.37	15.93	15.81
		RB1#14	17.17	16.67	16.55	16.47	15.97	15.85
		RB6#0	15.59	15.53	15.47	14.89	14.83	14.77
		RB6#9	15.60	15.58	15.46	14.90	14.88	14.76
		RB15#0	15.65	15.51	15.63	14.95	14.81	14.93

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	17.55	17.58	17.53	16.85	16.88	16.83
		RB1#13	17.60	17.52	17.57	16.90	16.82	16.87
		RB1#24	17.57	17.55	17.58	16.87	16.85	16.88
		RB15#0	16.59	16.56	16.64	15.89	15.86	15.94
		RB15#10	16.49	16.55	16.55	15.79	15.85	15.85
		RB25#0	16.51	16.57	16.57	15.81	15.87	15.87
	16QAM	RB1#0	16.45	16.89	16.66	15.75	16.19	15.96
		RB1#13	16.48	16.88	16.66	15.78	16.18	15.96
		RB1#24	16.48	16.83	16.66	15.78	16.13	15.96
		RB15#0	15.69	15.58	15.71	14.99	14.88	15.01
		RB15#10	15.60	15.58	15.63	14.90	14.88	14.93
		RB25#0	15.65	15.62	15.64	14.95	14.92	14.94
10.0	QPSK	RB1#0	17.52	17.57	17.54	16.82	16.87	16.84
		RB1#25	17.63	17.65	17.64	16.93	16.95	16.94
		RB1#49	17.54	17.51	17.59	16.84	16.81	16.89
		RB25#0	16.59	16.53	16.58	15.89	15.83	15.88
		RB25#25	16.51	16.51	16.50	15.81	15.81	15.80
		RB50#0	16.55	16.51	16.58	15.85	15.81	15.88
	16QAM	RB1#0	17.20	16.70	16.55	16.50	16.00	15.85
		RB1#25	17.30	16.90	16.67	16.60	16.20	15.97
		RB1#49	17.22	16.68	16.60	16.52	15.98	15.90
		RB25#0	15.72	15.63	15.73	15.02	14.93	15.03
		RB25#25	15.63	15.58	15.69	14.93	14.88	14.99
		RB50#0	15.65	15.54	15.63	14.95	14.84	14.93

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	17.48	17.54	17.56	16.78	16.84	16.86
		RB1#38	17.54	17.50	17.51	16.84	16.80	16.81
		RB1#74	17.48	17.50	17.53	16.78	16.80	16.83
		RB36#0	16.57	16.57	16.63	15.87	15.87	15.93
		RB36#39	16.54	16.54	16.58	15.84	15.84	15.88
		RB75#0	16.55	16.55	16.56	15.85	15.85	15.86
	16QAM	RB1#0	17.18	16.67	16.98	16.48	15.97	16.28
		RB1#38	17.21	16.67	16.97	16.51	15.97	16.27
		RB1#74	17.16	16.63	16.93	16.46	15.93	16.23
		RB36#0	15.65	15.62	15.62	14.95	14.92	14.92
		RB36#39	15.61	15.56	15.61	14.91	14.86	14.91
		RB75#0	15.62	15.61	15.60	14.92	14.91	14.90
20.0	QPSK	RB1#0	17.45	17.44	17.37	16.75	16.74	16.67
		RB1#50	17.73	17.73	17.65	17.03	17.03	16.95
		RB1#99	17.42	17.41	17.41	16.72	16.71	16.71
		RB50#0	16.68	16.63	16.67	15.98	15.93	15.97
		RB50#50	16.53	16.47	16.52	15.83	15.77	15.82
		RB100#0	16.61	16.56	16.64	15.91	15.86	15.94
	16QAM	RB1#0	16.77	16.70	17.01	16.07	16.00	16.31
		RB1#50	17.07	16.89	17.24	16.37	16.19	16.54
		RB1#99	16.72	16.64	17.02	16.02	15.94	16.32
		RB50#0	15.78	15.65	15.75	15.08	14.95	15.05
		RB50#50	15.58	15.54	15.60	14.88	14.84	14.90
		RB100#0	15.67	15.61	15.70	14.97	14.91	15.00

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi)
For LTE Band2: Antenna Gain = -0.7dBi
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)	5.90	5.26	5.61	13	Pass
QPSK (100RB Size)	5.64	5.54	5.83	13	Pass
16QAM (1RB Size)	7.28	5.99	7.18	13	Pass
16QAM (100RB Size)	6.51	6.57	6.67	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	17.84	17.83	17.74	17.14	17.13	17.04
		RB1#3	17.95	18.00	17.91	17.25	17.30	17.21
		RB1#5	17.86	17.85	17.75	17.16	17.15	17.05
		RB3#0	17.98	17.91	17.87	17.28	17.21	17.17
		RB3#3	17.96	17.94	17.91	17.26	17.24	17.21
		RB6#0	16.89	16.95	16.83	16.19	16.25	16.13
	16QAM	RB1#0	16.88	17.03	16.82	16.18	16.33	16.12
		RB1#3	17.05	17.09	16.99	16.35	16.39	16.29
		RB1#5	16.87	16.99	16.85	16.17	16.29	16.15
		RB3#0	17.15	16.86	17.01	16.45	16.16	16.31
		RB3#3	17.15	16.90	16.97	16.45	16.20	16.27
		RB6#0	15.98	15.99	15.83	15.28	15.29	15.13
3.0	QPSK	RB1#0	17.89	17.93	17.80	17.19	17.23	17.10
		RB1#8	17.84	17.84	17.80	17.14	17.14	17.10
		RB1#14	17.87	17.88	17.80	17.17	17.18	17.10
		RB6#0	16.86	16.89	16.76	16.16	16.19	16.06
		RB6#9	16.86	16.83	16.75	16.16	16.13	16.05
		RB15#0	16.92	16.86	16.80	16.22	16.16	16.10
	16QAM	RB1#0	17.62	17.10	16.89	16.92	16.40	16.19
		RB1#8	17.53	17.00	16.84	16.83	16.30	16.14
		RB1#14	17.55	17.06	16.86	16.85	16.36	16.16
		RB6#0	15.95	15.86	15.77	15.25	15.16	15.07
		RB6#9	15.98	15.91	15.79	15.28	15.21	15.09
		RB15#0	16.03	15.83	15.93	15.33	15.13	15.23

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	17.90	17.89	17.82	17.20	17.19	17.12
		RB1#13	17.89	17.88	17.77	17.19	17.18	17.07
		RB1#24	17.89	17.88	17.81	17.19	17.18	17.11
		RB15#0	16.89	16.85	16.87	16.19	16.15	16.17
		RB15#10	16.87	16.89	16.85	16.17	16.19	16.15
		RB25#0	16.90	16.82	16.84	16.20	16.12	16.14
	16QAM	RB1#0	16.86	17.20	16.93	16.16	16.50	16.23
		RB1#13	16.81	17.23	16.93	16.11	16.53	16.23
		RB1#24	16.79	17.22	16.91	16.09	16.52	16.21
		RB15#0	16.01	15.87	15.90	15.31	15.17	15.20
		RB15#10	15.97	15.90	15.91	15.27	15.20	15.21
		RB25#0	15.98	15.87	15.88	15.28	15.17	15.18
10.0	QPSK	RB1#0	17.85	17.85	17.76	17.15	17.15	17.06
		RB1#25	17.85	17.95	17.91	17.15	17.25	17.21
		RB1#49	17.84	17.88	17.76	17.14	17.18	17.06
		RB25#0	16.88	16.79	16.75	16.18	16.09	16.05
		RB25#25	16.85	16.86	16.78	16.15	16.16	16.08
		RB50#0	16.85	16.83	16.79	16.15	16.13	16.09
	16QAM	RB1#0	17.54	16.99	16.79	16.84	16.29	16.09
		RB1#25	17.56	17.13	16.92	16.86	16.43	16.22
		RB1#49	17.53	17.03	16.82	16.83	16.33	16.12
		RB25#0	15.96	15.91	15.93	15.26	15.21	15.23
		RB25#25	15.99	15.93	15.93	15.29	15.23	15.23
		RB50#0	15.95	15.89	15.87	15.25	15.19	15.17

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	17.82	17.81	17.72	17.12	17.11	17.02
		RB1#38	17.79	17.82	17.77	17.09	17.12	17.07
		RB1#74	17.78	17.78	17.76	17.08	17.08	17.06
		RB36#0	16.86	16.88	16.84	16.16	16.18	16.14
		RB36#39	16.94	16.92	16.84	16.24	16.22	16.14
		RB75#0	16.88	16.86	16.83	16.18	16.16	16.13
	16QAM	RB1#0	17.52	16.99	17.21	16.82	16.29	16.51
		RB1#38	17.46	16.99	17.27	16.76	16.29	16.57
		RB1#74	17.47	16.97	17.27	16.77	16.27	16.57
		RB36#0	15.93	15.91	15.87	15.23	15.21	15.17
		RB36#39	15.97	15.96	15.83	15.27	15.26	15.13
		RB75#0	15.96	15.92	15.85	15.26	15.22	15.15
20.0	QPSK	RB1#0	17.77	17.73	17.65	17.07	17.03	16.95
		RB1#50	17.98	18.02	17.89	17.28	17.32	17.19
		RB1#99	17.74	17.72	17.63	17.04	17.02	16.93
		RB50#0	16.85	16.84	16.87	16.15	16.14	16.17
		RB50#50	16.91	16.90	16.77	16.21	16.20	16.07
		RB100#0	16.91	16.91	16.85	16.21	16.21	16.15
	16QAM	RB1#0	17.08	16.97	17.30	16.38	16.27	16.60
		RB1#50	17.34	17.28	17.53	16.64	16.58	16.83
		RB1#99	17.09	16.97	17.30	16.39	16.27	16.60
		RB50#0	15.89	15.86	15.92	15.19	15.16	15.22
		RB50#50	15.97	15.93	15.90	15.27	15.23	15.20
		RB100#0	15.98	15.93	15.92	15.28	15.23	15.22

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi)
For LTE Band 4: Antenna Gain = -0.7dBi
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)	6.31	6.15	5.83	13	Pass
QPSK (100RB Size)	5.71	5.54	5.67	13	Pass
16QAM (1RB Size)	7.44	7.50	6.54	13	Pass
16QAM (100RB Size)	6.60	6.41	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	23.94	23.88	23.83	20.19	20.13	20.08
		RB1#3	24.04	23.91	24.04	20.29	20.16	20.29
		RB1#5	23.96	23.85	23.86	20.21	20.10	20.11
		RB3#0	24.04	23.97	23.80	20.29	20.22	20.05
		RB3#3	24.00	23.91	23.83	20.25	20.16	20.08
		RB6#0	22.96	22.93	22.88	19.21	19.18	19.13
	16QAM	RB1#0	22.93	22.96	22.75	19.18	19.21	19.00
		RB1#3	22.96	23.13	22.93	19.21	19.38	19.18
		RB1#5	22.94	22.96	22.80	19.19	19.21	19.05
		RB3#0	23.17	22.85	22.85	19.42	19.10	19.10
		RB3#3	23.21	22.91	22.85	19.46	19.16	19.10
		RB6#0	22.06	21.97	21.84	18.31	18.22	18.09
3.0	QPSK	RB1#0	24.01	23.95	23.96	20.26	20.20	20.21
		RB1#8	23.93	23.89	23.89	20.18	20.14	20.14
		RB1#14	23.98	23.93	23.93	20.23	20.18	20.18
		RB6#0	22.93	22.85	22.84	19.18	19.10	19.09
		RB6#9	22.94	22.85	22.79	19.19	19.10	19.04
		RB15#0	22.96	22.93	22.83	19.21	19.18	19.08
	16QAM	RB1#0	23.55	23.02	22.89	19.80	19.27	19.14
		RB1#8	23.46	22.99	22.79	19.71	19.24	19.04
		RB1#14	23.42	23.07	22.78	19.67	19.32	19.03
		RB6#0	22.07	21.93	21.80	18.32	18.18	18.05
		RB6#9	22.05	21.94	21.76	18.30	18.19	18.01
		RB15#0	22.08	21.95	21.91	18.33	18.20	18.16

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	23.97	23.94	23.87	20.22	20.19	20.12
		RB1#13	24.00	23.90	23.86	20.25	20.15	20.11
		RB1#24	23.99	23.91	23.85	20.24	20.16	20.10
		RB15#0	22.94	22.96	22.95	19.19	19.21	19.20
		RB15#10	23.05	22.91	22.81	19.30	19.16	19.06
		RB25#0	22.99	22.94	22.82	19.24	19.19	19.07
	16QAM	RB1#0	22.87	23.18	22.89	19.12	19.43	19.14
		RB1#13	22.86	23.16	22.92	19.11	19.41	19.17
		RB1#24	22.84	23.17	22.81	19.09	19.42	19.06
		RB15#0	22.05	22.01	21.99	18.30	18.26	18.24
		RB15#10	22.14	21.98	21.88	18.39	18.23	18.13
		RB25#0	22.11	21.99	21.93	18.36	18.24	18.18
10.0	QPSK	RB1#0	23.98	24.00	23.90	20.23	20.25	20.15
		RB1#25	24.15	24.04	24.04	20.40	20.29	20.29
		RB1#49	23.97	23.89	23.90	20.22	20.14	20.15
		RB25#0	22.92	23.05	22.94	19.17	19.30	19.19
		RB25#25	22.97	22.95	22.83	19.22	19.20	19.08
		RB50#0	23.00	23.02	22.90	19.25	19.27	19.15
	16QAM	RB1#0	23.48	23.06	22.86	19.73	19.31	19.11
		RB1#25	23.61	23.17	23.01	19.86	19.42	19.26
		RB1#49	23.44	23.00	22.82	19.69	19.25	19.07
		RB25#0	22.06	22.09	22.09	18.31	18.34	18.34
		RB25#25	22.07	22.05	22.01	18.32	18.30	18.26
		RB50#0	22.07	22.07	21.98	18.32	18.32	18.23

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd)
For LTE Band 5: Antenna Gain = -1.6dBi = -3.75dBd (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)	4.17	3.75	3.88	13	Pass
QPSK (50RB Size)	5.42	5.51	5.42	13	Pass
16QAM (1RB Size)	5.00	4.74	4.97	13	Pass
16QAM (50RB Size)	6.35	6.31	6.35	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	17.14	17.36	17.31	16.74	16.96	16.91
		RB1#13	17.13	17.40	17.29	16.73	17.00	16.89
		RB1#24	16.88	17.36	17.29	16.48	16.96	16.89
		RB15#0	15.93	16.40	16.20	15.53	16.00	15.80
		RB15#10	16.12	16.38	16.33	15.72	15.98	15.93
		RB25#0	16.17	16.35	16.34	15.77	15.95	15.94
	16QAM	RB1#0	16.12	16.71	16.29	15.72	16.31	15.89
		RB1#13	15.99	16.79	16.42	15.59	16.39	16.02
		RB1#24	15.98	16.68	16.19	15.58	16.28	15.79
		RB15#0	15.15	15.36	15.36	14.75	14.96	14.96
		RB15#10	15.25	15.34	15.37	14.85	14.94	14.97
		RB25#0	15.24	15.41	15.33	14.84	15.01	14.93
10.0	QPSK	RB1#0	17.12	17.39	17.32	16.72	16.99	16.92
		RB1#25	17.22	17.43	17.40	16.82	17.03	17.00
		RB1#49	17.08	17.38	17.19	16.68	16.98	16.79
		RB25#0	16.09	16.40	16.43	15.69	16.00	16.03
		RB25#25	16.32	16.41	16.35	15.92	16.01	15.95
		RB50#0	16.27	16.44	16.42	15.87	16.04	16.02
	16QAM	RB1#0	16.77	16.55	16.30	16.37	16.15	15.90
		RB1#25	16.92	16.65	16.44	16.52	16.25	16.04
		RB1#49	16.84	16.57	16.23	16.44	16.17	15.83
		RB25#0	15.21	15.48	15.52	14.81	15.08	15.12
		RB25#25	15.42	15.49	15.52	15.02	15.09	15.12
		RB50#0	15.28	15.44	15.48	14.88	15.04	15.08

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	17.10	17.35	17.31	16.70	16.95	16.91
		RB1#38	17.14	17.30	17.29	16.74	16.90	16.89
		RB1#74	17.15	17.32	17.26	16.75	16.92	16.86
		RB36#0	16.18	16.40	16.41	15.78	16.00	16.01
		RB36#39	16.37	16.42	16.41	15.97	16.02	16.01
		RB75#0	16.21	16.40	16.39	15.81	16.00	15.99
	16QAM	RB1#0	16.85	16.55	16.84	16.45	16.15	16.44
		RB1#38	16.91	16.54	16.81	16.51	16.14	16.41
		RB1#74	16.96	16.52	16.77	16.56	16.12	16.37
		RB36#0	15.19	15.43	15.38	14.79	15.03	14.98
		RB36#39	15.37	15.45	15.36	14.97	15.05	14.96
		RB75#0	15.25	15.41	15.37	14.85	15.01	14.97
20.0	QPSK	RB1#0	17.05	17.21	17.18	16.65	16.81	16.78
		RB1#50	17.34	17.44	17.45	16.94	17.04	17.05
		RB1#99	17.19	17.23	17.08	16.79	16.83	16.68
		RB50#0	16.10	16.39	16.38	15.70	15.99	15.98
		RB50#50	16.31	16.39	16.33	15.91	15.99	15.93
		RB100#0	16.23	16.38	16.38	15.83	15.98	15.98
	16QAM	RB1#0	16.43	16.57	16.88	16.03	16.17	16.48
		RB1#50	16.75	16.82	17.14	16.35	16.42	16.74
		RB1#99	16.55	16.51	16.82	16.15	16.11	16.42
		RB50#0	15.14	15.42	15.41	14.74	15.02	15.01
		RB50#50	15.35	15.38	15.38	14.95	14.98	14.98
		RB100#0	15.31	15.41	15.40	14.91	15.01	15.00

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi)
For LTE Band7: Antenna Gain = -0.4dBi
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)	6.60	5.64	5.96	13	Pass
QPSK (100RB Size)	5.74	5.77	5.83	13	Pass
16QAM (1RB Size)	7.76	6.60	7.56	13	Pass
16QAM (100RB Size)	6.54	6.63	6.63	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	23.33	23.40	23.30	19.28	19.35	19.25
		RB1#13	23.37	23.32	23.26	19.32	19.27	19.21
		RB1#24	23.33	23.30	23.25	19.28	19.25	19.20
		RB15#0	22.44	22.28	22.47	18.39	18.23	18.42
		RB15#10	22.48	22.36	22.21	18.43	18.31	18.16
		RB25#0	22.45	22.36	22.28	18.40	18.31	18.23
	16QAM	RB1#0	22.25	22.68	22.37	18.20	18.63	18.32
		RB1#13	22.31	22.60	22.34	18.26	18.55	18.29
		RB1#24	22.28	22.60	22.32	18.23	18.55	18.27
		RB15#0	21.50	21.29	21.47	17.45	17.24	17.42
		RB15#10	21.56	21.34	21.29	17.51	17.29	17.24
		RB25#0	21.54	21.36	21.37	17.49	17.31	17.32
10.0	QPSK	RB1#0	23.31	23.32	23.31	19.26	19.27	19.26
		RB1#25	23.49	23.41	23.41	19.44	19.36	19.36
		RB1#49	23.28	23.26	23.30	19.23	19.21	19.25
		RB25#0	22.38	22.25	22.25	18.33	18.20	18.20
		RB25#25	22.34	22.23	22.11	18.29	18.18	18.06
		RB50#0	22.35	22.26	22.21	18.30	18.21	18.16
	16QAM	RB1#0	22.94	22.50	22.40	18.89	18.45	18.35
		RB1#25	23.07	22.60	22.44	19.02	18.55	18.39
		RB1#49	22.81	22.44	22.29	18.76	18.39	18.24
		RB25#0	21.46	21.35	21.38	17.41	17.30	17.33
		RB25#25	21.40	21.26	21.26	17.35	17.21	17.21
		RB50#0	21.38	21.27	21.28	17.33	17.22	17.23

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd))
For LTE Band17: Antenna Gain = -1.9dBi = -4.05dBd (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)	4.65	4.81	4.78	13	Pass
QPSK (50RB Size)	5.51	5.42	5.45	13	Pass
16QAM (1RB Size)	5.71	5.80	5.64	13	Pass
16QAM (50RB Size)	6.44	6.38	6.38	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	16.15	16.11	16.13	15.75	15.71	15.73
		RB1#13	16.18	16.13	16.09	15.78	15.73	15.69
		RB1#24	16.16	16.13	16.13	15.76	15.73	15.73
		RB15#0	15.06	15.05	15.10	14.66	14.65	14.70
		RB15#10	15.10	15.07	15.11	14.70	14.67	14.71
		RB25#0	15.09	15.10	15.13	14.69	14.70	14.73
	16QAM	RB1#0	15.41	15.11	15.18	15.01	14.71	14.78
		RB1#13	15.42	15.15	15.16	15.02	14.75	14.76
		RB1#24	15.44	15.12	15.21	15.04	14.72	14.81
		RB15#0	14.14	14.01	14.17	13.74	13.61	13.77
		RB15#10	14.21	14.06	14.18	13.81	13.66	13.78
		RB25#0	14.10	14.16	14.21	13.70	13.76	13.81
10.0	QPSK	RB1#0	16.16	16.13	16.21	15.76	15.73	15.81
		RB1#25	16.41	16.40	16.41	16.01	16.00	16.01
		RB1#49	16.13	16.17	16.16	15.73	15.77	15.76
		RB25#0	15.12	15.10	15.18	14.72	14.70	14.78
		RB25#25	15.14	15.12	15.15	14.74	14.72	14.75
		RB50#0	15.15	15.12	15.17	14.75	14.72	14.77
	16QAM	RB1#0	15.40	15.08	15.32	15.00	14.68	14.92
		RB1#25	15.66	15.31	15.52	15.26	14.91	15.12
		RB1#49	15.42	15.10	15.27	15.02	14.70	14.87
		RB25#0	14.17	14.16	14.23	13.77	13.76	13.83
		RB25#25	14.18	14.19	14.20	13.78	13.79	13.80
		RB50#0	14.16	14.17	14.25	13.76	13.77	13.85

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	16.13	16.10	16.09	15.73	15.70	15.69
		RB1#38	16.14	16.13	16.14	15.74	15.73	15.74
		RB1#74	16.03	16.11	16.06	15.63	15.71	15.66
		RB36#0	15.14	15.07	15.10	14.74	14.67	14.70
		RB36#39	15.11	15.12	15.09	14.71	14.72	14.69
		RB75#0	15.13	15.08	15.09	14.73	14.68	14.69
	16QAM	RB1#0	15.34	15.06	15.32	14.94	14.66	14.92
		RB1#38	15.39	15.07	15.38	14.99	14.67	14.98
		RB1#74	15.27	15.05	15.29	14.87	14.65	14.89
		RB36#0	14.13	14.02	14.17	13.73	13.62	13.77
		RB36#39	14.08	14.08	14.19	13.68	13.68	13.79
		RB75#0	14.07	14.08	14.14	13.67	13.68	13.74
20.0	QPSK	RB1#0	15.97	15.93	16.03	15.57	15.53	15.63
		RB1#50	16.31	16.29	16.47	15.91	15.89	16.07
		RB1#99	15.93	15.95	16.07	15.53	15.55	15.67
		RB50#0	15.09	15.09	15.09	14.69	14.69	14.69
		RB50#50	15.09	15.14	15.12	14.69	14.74	14.72
		RB100#0	15.13	15.12	15.10	14.73	14.72	14.70
	16QAM	RB1#0	15.08	14.93	15.24	14.68	14.53	14.84
		RB1#50	15.41	15.29	15.70	15.01	14.89	15.30
		RB1#99	15.04	14.96	15.30	14.64	14.56	14.90
		RB50#0	14.12	14.19	14.14	13.72	13.79	13.74
		RB50#50	14.10	14.18	14.17	13.70	13.78	13.77
		RB100#0	14.12	14.14	14.14	13.72	13.74	13.74

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi)
For LTE Band38: Antenna Gain = -0.4dBi
Limit: EIRP≤33dBm

Peak-to-average ratio (PAR)

20MHz bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	7.18	8.72	9.42	13	Pass
QPSK (100RB Size)	7.12	7.88	8.17	13	Pass
16QAM (1RB Size)	8.91	8.49	9.04	13	Pass
16QAM (100RB Size)	8.52	8.71	8.46	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	17.17	17.07	16.84	16.77	16.67	16.44
		RB1#13	17.18	17.06	16.83	16.78	16.66	16.43
		RB1#24	17.14	17.07	16.79	16.74	16.67	16.39
		RB15#0	16.15	16.08	15.86	15.75	15.68	15.46
		RB15#10	16.18	16.11	15.81	15.78	15.71	15.41
		RB25#0	16.20	16.11	15.85	15.80	15.71	15.45
	16QAM	RB1#0	16.20	16.20	16.17	15.80	15.80	15.77
		RB1#13	16.25	16.21	16.15	15.85	15.81	15.75
		RB1#24	16.20	16.19	16.12	15.80	15.79	15.72
		RB15#0	15.12	15.12	14.92	14.72	14.72	14.52
		RB15#10	15.13	15.18	14.86	14.73	14.78	14.46
		RB25#0	15.26	15.20	14.85	14.86	14.80	14.45
10.0	QPSK	RB1#0	17.15	17.11	16.88	16.75	16.71	16.48
		RB1#25	17.39	17.33	17.11	16.99	16.93	16.71
		RB1#49	17.13	17.10	16.79	16.73	16.70	16.39
		RB25#0	16.19	16.09	15.88	15.79	15.69	15.48
		RB25#25	16.19	16.11	15.81	15.79	15.71	15.41
		RB50#0	16.20	16.15	15.84	15.80	15.75	15.44
	16QAM	RB1#0	16.46	16.08	16.05	16.06	15.68	15.65
		RB1#25	16.71	16.33	16.26	16.31	15.93	15.86
		RB1#49	16.44	16.08	15.97	16.04	15.68	15.57
		RB25#0	15.23	15.21	14.96	14.83	14.81	14.56
		RB25#25	15.23	15.20	14.86	14.83	14.80	14.46
		RB50#0	15.25	15.19	14.92	14.85	14.79	14.52

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15.0	QPSK	RB1#0	17.11	17.06	16.90	16.71	16.66	16.50
		RB1#38	17.15	17.08	16.87	16.75	16.68	16.47
		RB1#74	17.07	17.06	16.73	16.67	16.66	16.33
		RB36#0	16.18	16.08	15.93	15.78	15.68	15.53
		RB36#39	16.16	16.12	15.81	15.76	15.72	15.41
		RB75#0	16.18	16.10	15.89	15.78	15.70	15.49
	16QAM	RB1#0	16.43	16.07	16.18	16.03	15.67	15.78
		RB1#38	16.42	16.10	16.13	16.02	15.70	15.73
		RB1#74	16.37	16.07	16.04	15.97	15.67	15.64
		RB36#0	15.17	15.04	14.98	14.77	14.64	14.58
		RB36#39	15.17	15.08	14.90	14.77	14.68	14.50
		RB75#0	15.16	15.10	14.91	14.76	14.70	14.51
20.0	QPSK	RB1#0	16.96	16.85	16.86	16.56	16.45	16.46
		RB1#50	17.32	17.27	17.19	16.92	16.87	16.79
		RB1#99	16.96	16.88	16.73	16.56	16.48	16.33
		RB50#0	16.15	16.07	15.91	15.75	15.67	15.51
		RB50#50	16.18	16.08	15.80	15.78	15.68	15.40
		RB100#0	16.14	16.07	15.86	15.74	15.67	15.46
	16QAM	RB1#0	16.12	15.91	16.16	15.72	15.51	15.76
		RB1#50	16.49	16.30	16.45	16.09	15.90	16.05
		RB1#99	16.15	15.93	16.02	15.75	15.53	15.62
		RB50#0	15.18	15.16	14.99	14.78	14.76	14.59
		RB50#50	15.21	15.20	14.87	14.81	14.80	14.47
		RB100#0	15.22	15.14	14.90	14.82	14.74	14.50

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

Peak-to-average ratio (PAR)

20MHz bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	7.24	7.66	8.52	13	Pass
QPSK (100RB Size)	9.26	8.14	8.15	13	Pass
16QAM (1RB Size)	7.70	8.81	8.43	13	Pass
16QAM (100RB Size)	8.75	8.75	7.86	13	Pass

LTE Band 66:

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
1.4	QP SK	RB1#0	17.68	17.68	17.69	16.98	16.98	16.99
		RB1#3	17.92	17.84	17.84	17.22	17.14	17.14
		RB1#5	17.76	17.64	17.67	17.06	16.94	16.97
		RB3#0	17.86	17.84	17.84	17.16	17.14	17.14
		RB3#3	17.89	17.87	17.81	17.19	17.17	17.11
		RB6#0	16.81	16.77	16.73	16.11	16.07	16.03
	16QAM	RB1#0	16.93	16.74	16.74	16.23	16.04	16.04
		RB1#3	17.11	16.98	16.90	16.41	16.28	16.20
		RB1#5	16.93	16.77	16.71	16.23	16.07	16.01
		RB3#0	16.96	17.01	17.02	16.26	16.31	16.32
		RB3#3	16.93	17.00	17.04	16.23	16.30	16.34
		RB6#0	15.89	15.78	15.80	15.19	15.08	15.10
3.0	QPSK	RB1#0	17.74	17.73	17.70	17.04	17.03	17.00
		RB1#8	17.71	17.72	17.69	17.01	17.02	16.99
		RB1#14	17.71	17.66	17.68	17.01	16.96	16.98
		RB6#0	16.68	16.69	16.63	15.98	15.99	15.93
		RB6#9	16.73	16.65	16.63	16.03	15.95	15.93
		RB15#0	16.79	16.78	16.74	16.09	16.08	16.04
	16QAM	RB1#0	17.47	16.92	16.77	16.77	16.22	16.07
		RB1#8	17.46	16.90	16.72	16.76	16.20	16.02
		RB1#14	17.43	16.88	16.70	16.73	16.18	16.00
		RB6#0	15.81	15.73	15.65	15.11	15.03	14.95
		RB6#9	15.85	15.77	15.65	15.15	15.07	14.95
		RB15#0	15.88	15.76	15.83	15.18	15.06	15.13

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	17.68	17.63	17.61	16.98	16.93	16.91
		RB1#13	17.84	17.77	17.72	17.14	17.07	17.02
		RB1#24	17.73	17.63	17.61	17.03	16.93	16.91
		RB15#0	16.80	16.74	16.78	16.10	16.04	16.08
		RB15#10	16.83	16.74	16.65	16.13	16.04	15.95
		RB25#0	16.80	16.75	16.66	16.10	16.05	15.96
	16QAM	RB1#0	16.62	17.00	16.71	15.92	16.30	16.01
		RB1#13	16.78	17.15	16.79	16.08	16.45	16.09
		RB1#24	16.69	16.98	16.74	15.99	16.28	16.04
		RB15#0	15.86	15.75	15.87	15.16	15.05	15.17
		RB15#10	15.91	15.74	15.77	15.21	15.04	15.07
		RB25#0	15.92	15.81	15.83	15.22	15.11	15.13
10.0	QPSK	RB1#0	17.64	17.72	17.68	16.94	17.02	16.98
		RB1#25	17.89	17.87	17.78	17.19	17.17	17.08
		RB1#49	17.70	17.66	17.65	17.00	16.96	16.95
		RB25#0	16.80	16.79	16.84	16.10	16.09	16.14
		RB25#25	16.85	16.73	16.66	16.15	16.03	15.96
		RB50#0	16.86	16.81	16.77	16.16	16.11	16.07
	16QAM	RB1#0	17.40	16.92	16.74	16.70	16.22	16.04
		RB1#25	17.60	17.07	16.87	16.90	16.37	16.17
		RB1#49	17.44	16.88	16.71	16.74	16.18	16.01
		RB25#0	15.90	15.87	16.03	15.20	15.17	15.33
		RB25#25	15.97	15.81	15.82	15.27	15.11	15.12
		RB50#0	15.91	15.86	15.86	15.21	15.16	15.16

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	17.58	17.66	17.64	16.88	16.96	16.94
		RB1#38	17.74	17.70	17.74	17.04	17.00	17.04
		RB1#74	17.62	17.62	17.58	16.92	16.92	16.88
		RB36#0	16.77	16.76	16.77	16.07	16.06	16.07
		RB36#39	16.83	16.73	16.66	16.13	16.03	15.96
		RB75#0	16.80	16.74	16.71	16.10	16.04	16.01
	16QAM	RB1#0	17.36	16.86	17.10	16.66	16.16	16.40
		RB1#38	17.51	16.95	17.20	16.81	16.25	16.50
		RB1#74	17.39	16.85	17.04	16.69	16.15	16.34
		RB36#0	15.77	15.80	15.82	15.07	15.10	15.12
		RB36#39	15.85	15.76	15.68	15.15	15.06	14.98
		RB75#0	15.82	15.81	15.78	15.12	15.11	15.08
20.0	QPSK	RB1#0	17.45	17.52	17.37	16.75	16.82	16.67
		RB1#50	17.90	17.93	17.84	17.20	17.23	17.14
		RB1#99	17.54	17.54	17.39	16.84	16.84	16.69
		RB50#0	16.78	16.84	16.86	16.08	16.14	16.16
		RB50#50	16.82	16.78	16.58	16.12	16.08	15.88
		RB100#0	16.79	16.79	16.70	16.09	16.09	16.00
	16QAM	RB1#0	16.85	16.82	17.05	16.15	16.12	16.35
		RB1#50	17.29	17.18	17.52	16.59	16.48	16.82
		RB1#99	16.90	16.86	17.03	16.20	16.16	16.33
		RB50#0	15.83	15.87	16.00	15.13	15.17	15.30
		RB50#50	15.87	15.82	15.69	15.17	15.12	14.99
		RB100#0	15.87	15.87	15.81	15.17	15.17	15.11

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi)
For Band66: Antenna Gain =-0.7dBi
Limit: EIRP≤30dBm

LTE Band 66

20MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	8.27	5.93	6.25	13	Pass
QPSK (100RB Size)	5.77	5.77	5.83	13	Pass
16QAM (1RB Size)	7.47	6.41	7.40	13	Pass
16QAM (100RB Size)	6.63	6.79	6.70	13	Pass

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

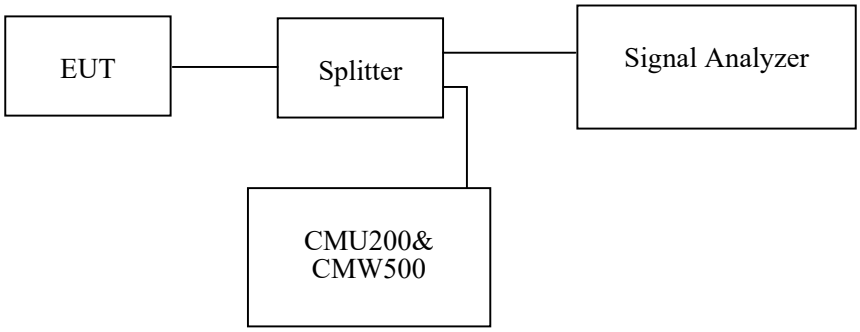
Applicable Standard

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

Test Procedure

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

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



Test Data

Environmental Conditions

Temperature:	27~29.4 ℃
Relative Humidity:	51~56 %
ATM Pressure:	101.0 kPa

The testing was performed by Bravos Zhao and Pedro Yun from 2021-07-30 to 2021-08-03.

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	245.192	319.551
	190	836.6	245.192	315.385
	251	848.8	245.192	318.910
EGPRS(8PSK)	128	824.2	246.795	317.308
	190	836.6	250.000	310.897
	251	848.8	253.205	322.756

Frequency (MHz)		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	826.4	4.167	4.708
	836.6	4.167	4.756
	846.6	4.167	4.696
HSDPA	826.4	4.215	5.064
	836.6	4.183	4.901
	846.6	4.167	4.715
HSUPA	826.4	4.199	5.022
	836.6	4.183	4.712
	846.6	4.167	5.016

PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM(GMSK)	512	1850.2	243.590	315.705
	661	1880.0	245.192	317.308
	810	1909.8	243.590	312.500
EGPRS(8PSK)	512	1850.2	256.410	325.321
	661	1880.0	250.000	312.500
	810	1909.8	251.601	330.128

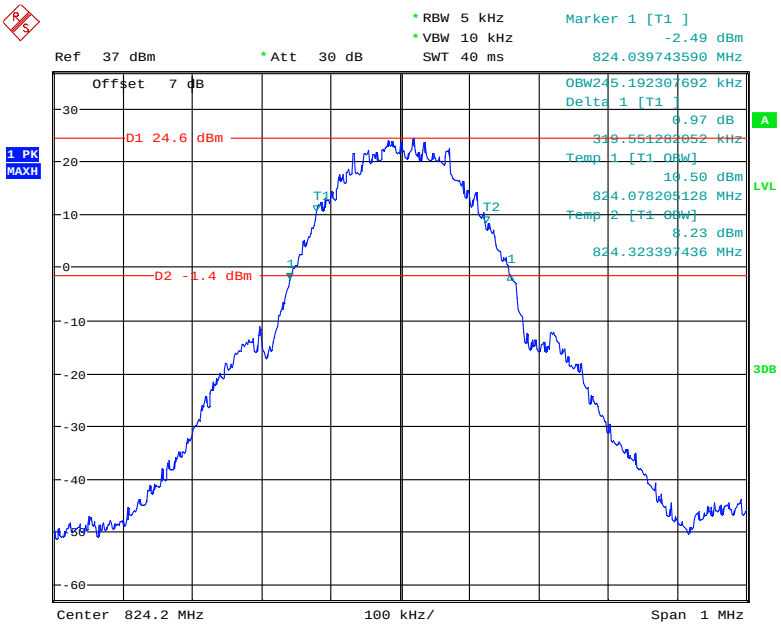
Frequency (MHz)		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	1852.4	4.183	4.718
	1880.0	4.167	4.708
	1907.6	4.191	4.747
HSDPA	1852.4	4.262	8.029
	1880.0	4.167	4.708
	1907.6	4.191	4.750
HSUPA	1852.4	4.183	4.734
	1880.0	4.191	4.708
	1907.6	4.191	4.750

AWS Band (Part 27)

Frequency (MHz)		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	1712.4	4.180	4.725
	1732.6	4.200	4.721
	1752.6	4.200	4.712
HSDPA	1712.4	4.260	6.420
	1732.6	4.295	8.942
	1752.6	4.262	8.542
HSUPA	1712.4	4.240	5.692
	1732.6	4.240	6.317
	1752.6	4.300	6.923

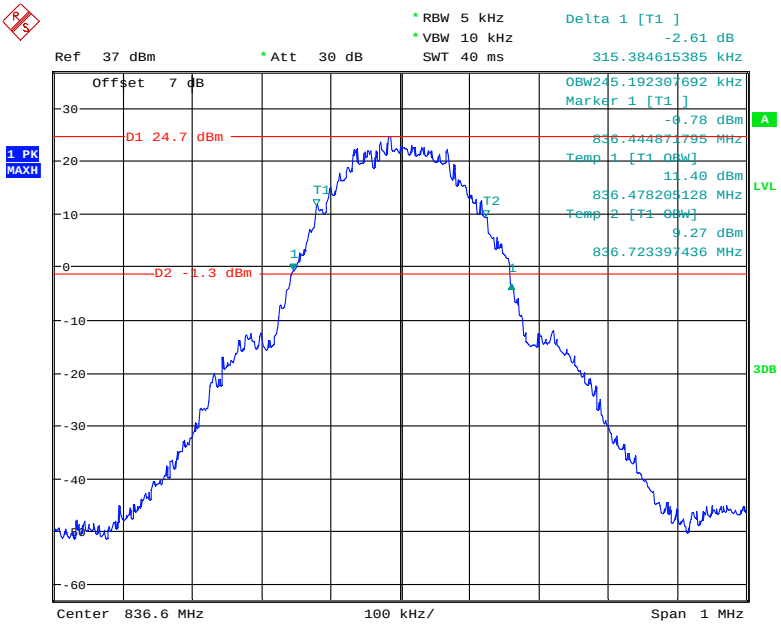
Cellular Band (Part 22H)

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



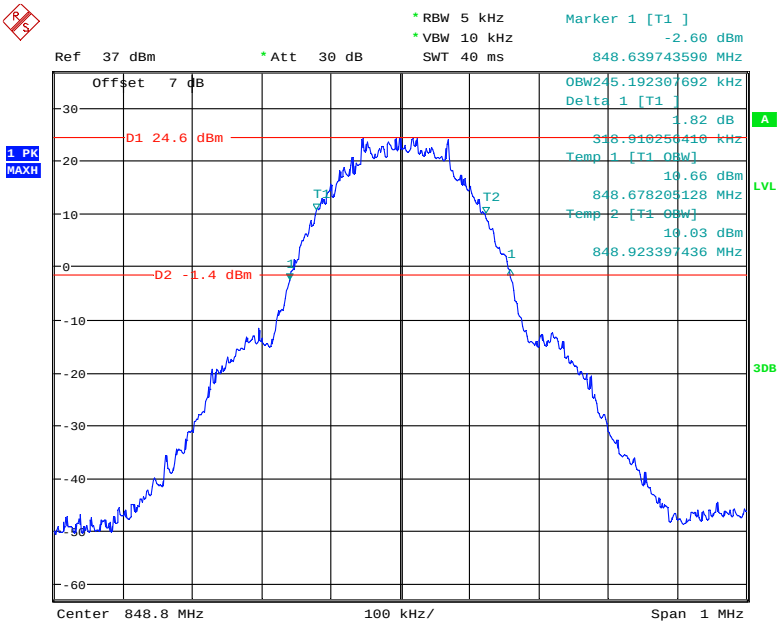
Date: 30.JUL.2021 11:08:59

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



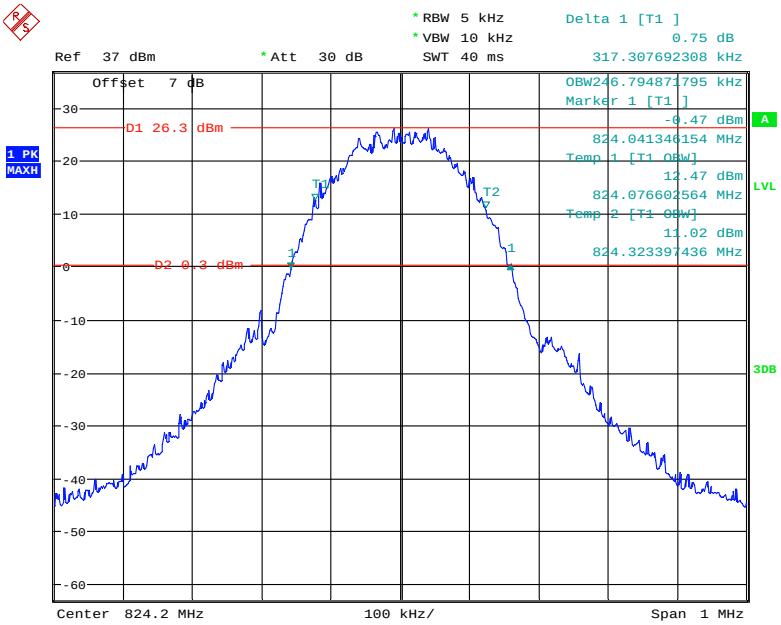
Date: 30.JUL.2021 11:07:29

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



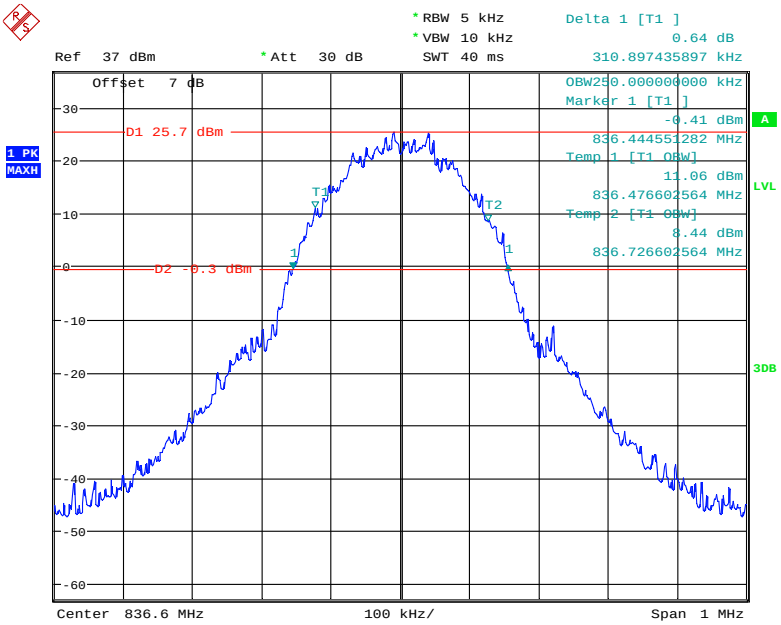
Date: 30.JUL.2021 11:05:53

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



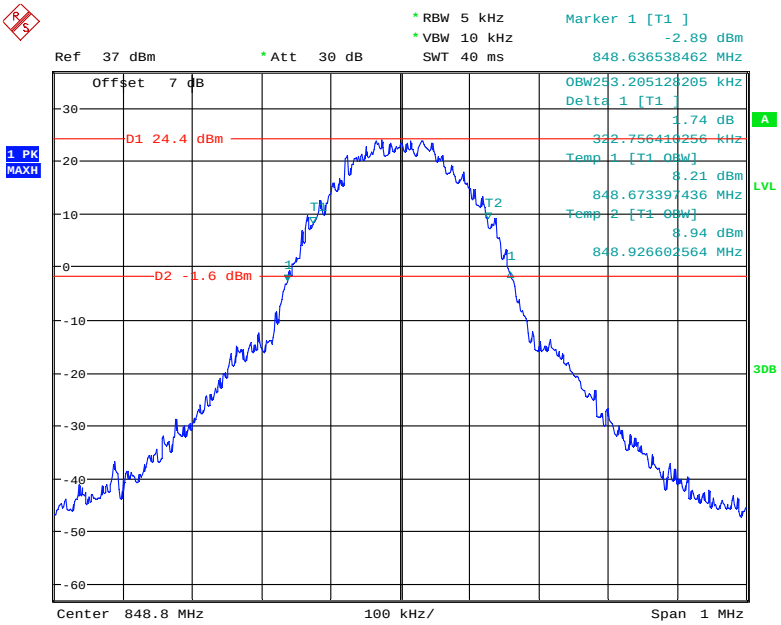
Date: 31.JUL.2021 12:51:24

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



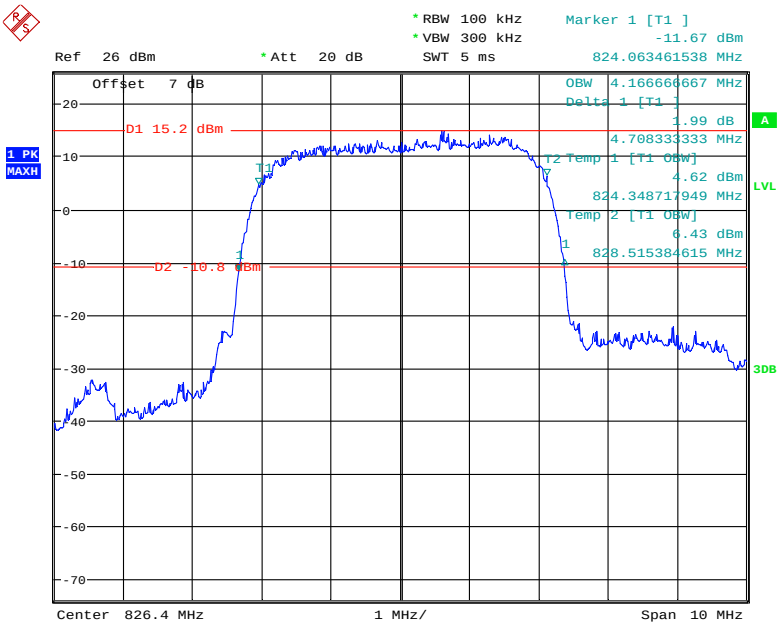
Date: 31.JUL.2021 12:53:03

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



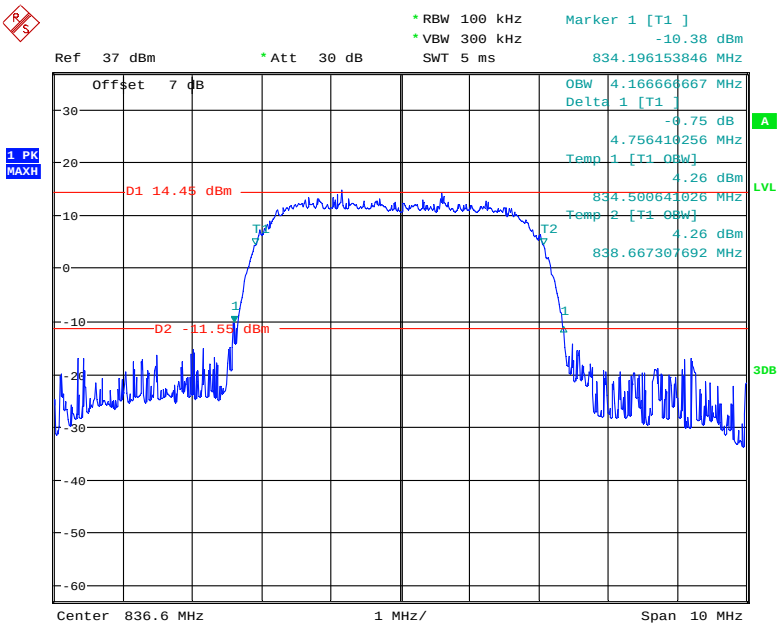
Date: 31.JUL.2021 13:05:09

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



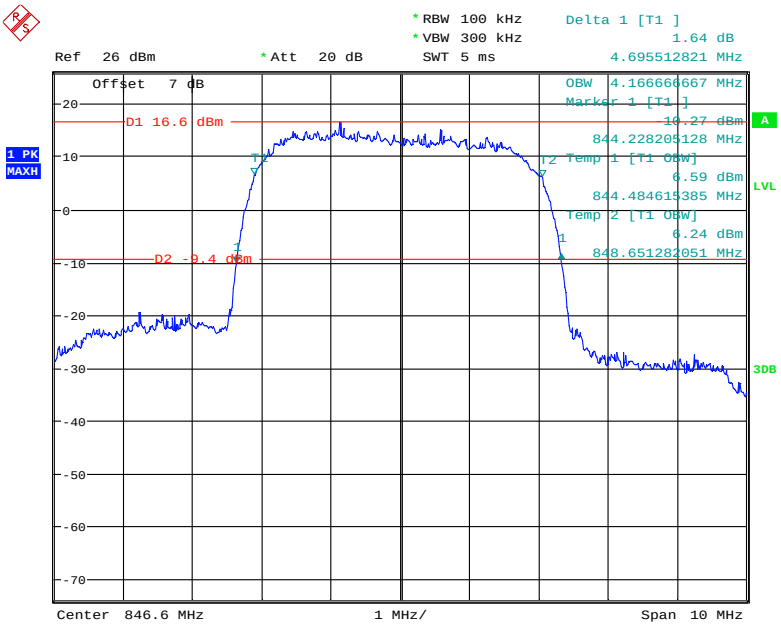
Date: 30.JUL.2021 14:50:37

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



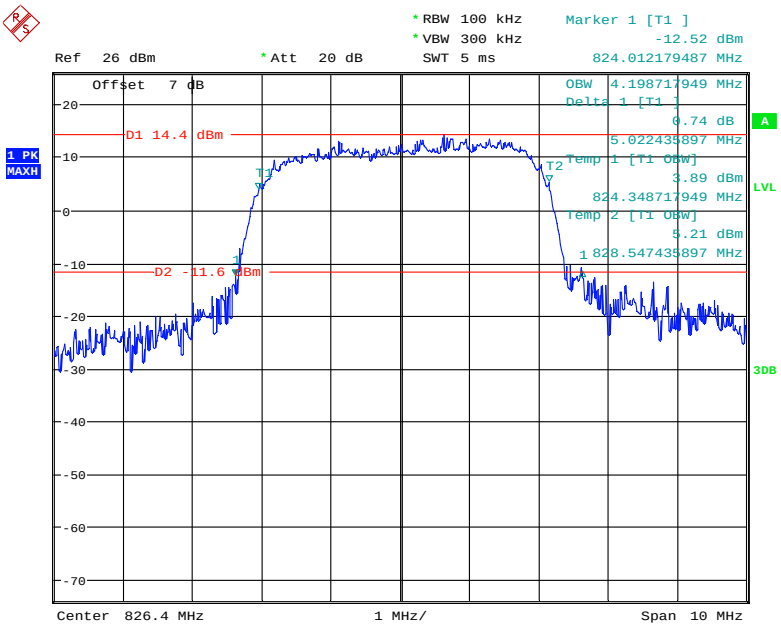
Date: 31.JUL.2021 12:03:30

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



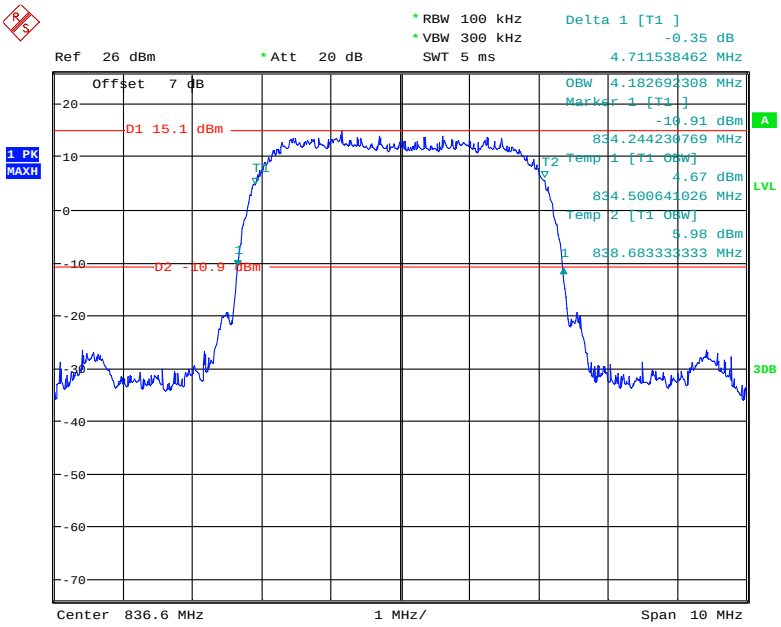
Date: 30.JUL.2021 15:23:15

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



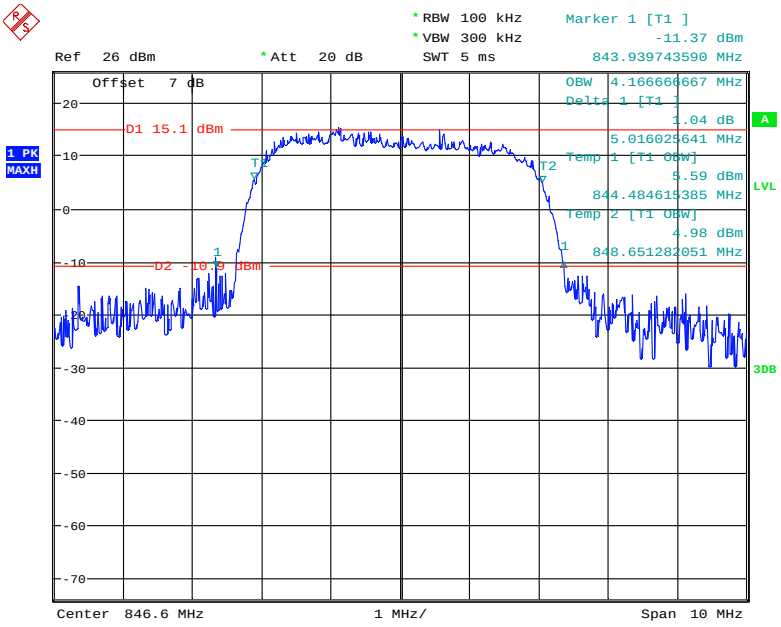
Date: 30.JUL.2021 15:09:29

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



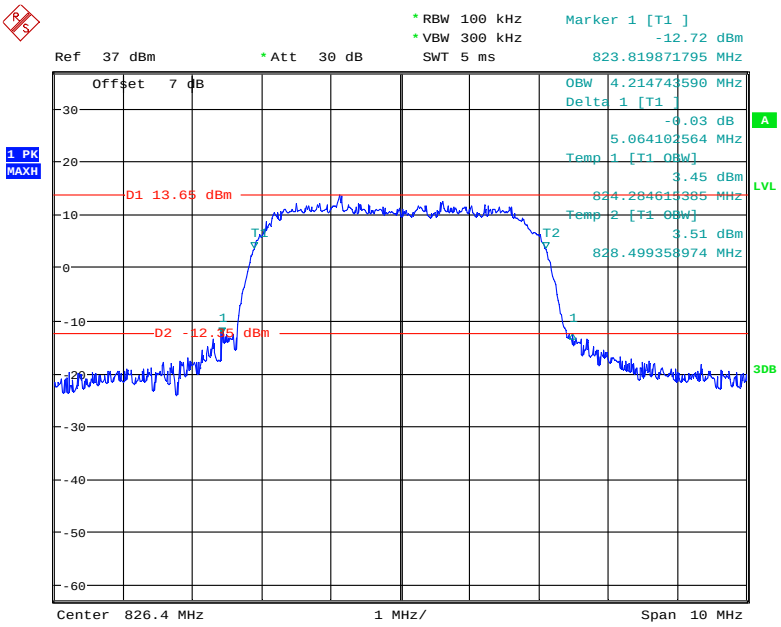
Date: 30.JUL.2021 15:11:12

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



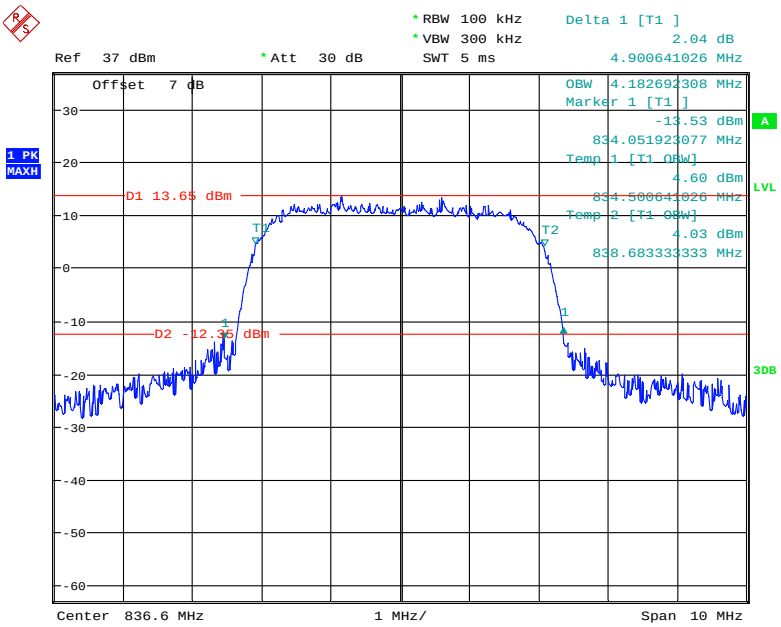
Date: 30.JUL.2021 15:12:19

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



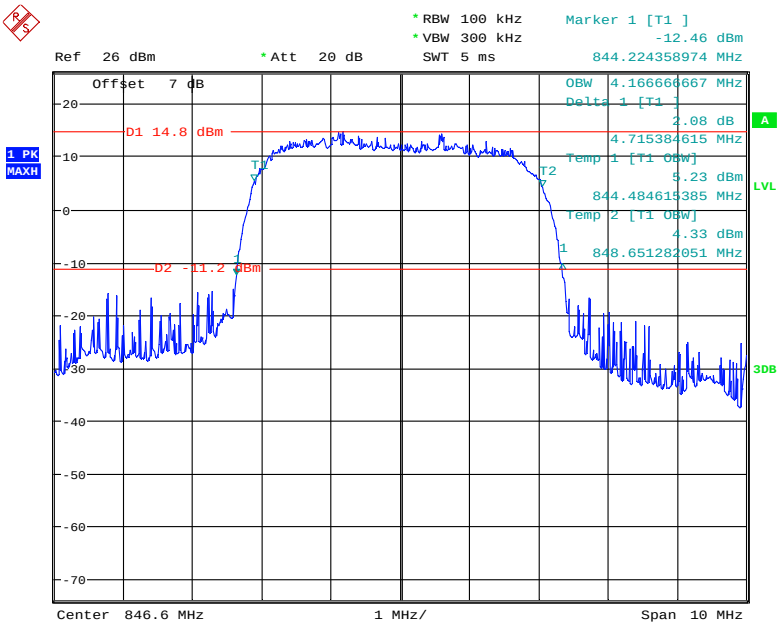
Date: 31.JUL.2021 11:58:48

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



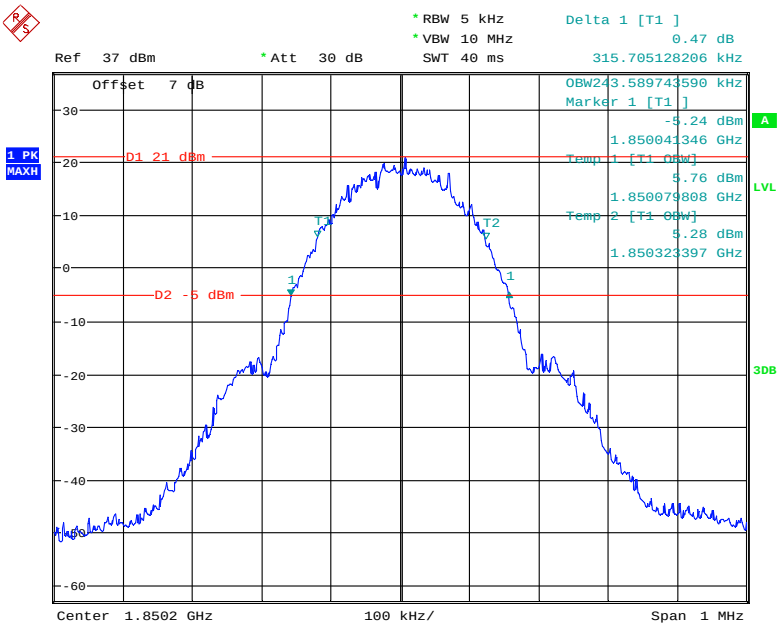
Date: 31.JUL.2021 12:01:32

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



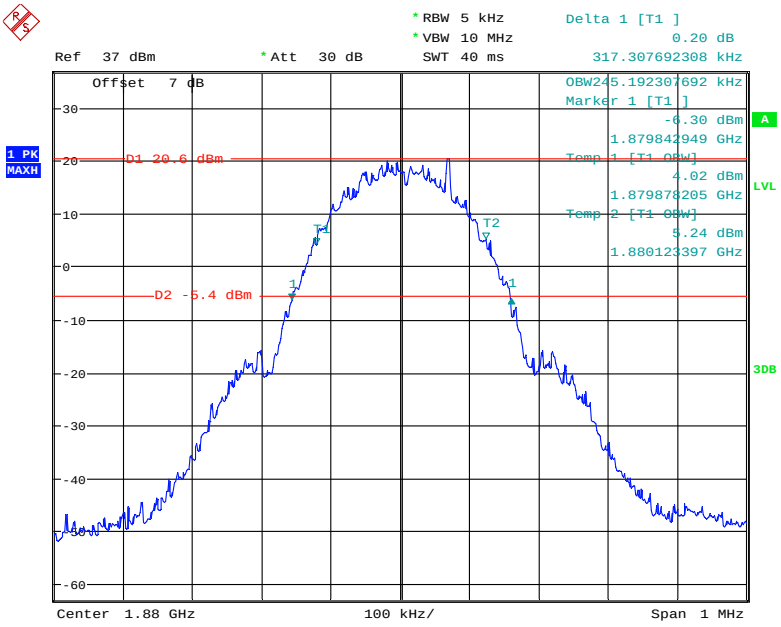
PCS Band (Part 24E)

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



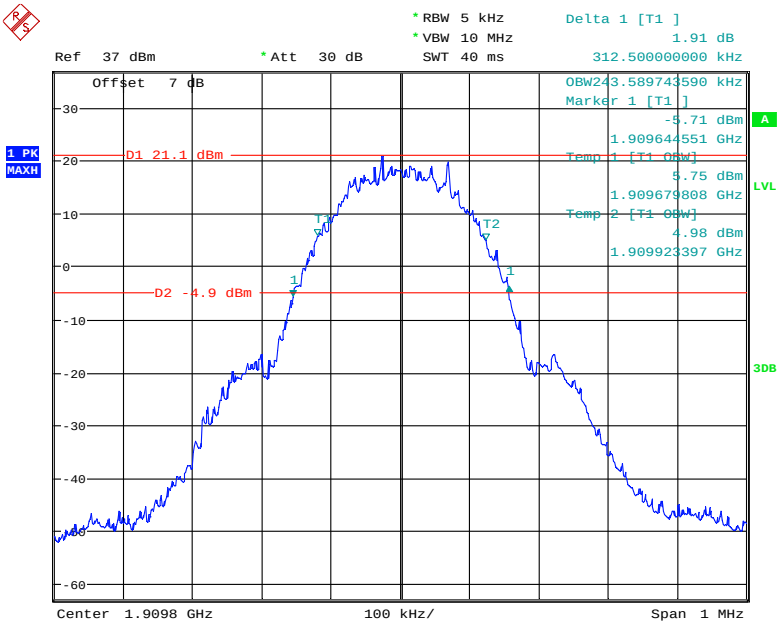
Date: 30.JUL.2021 10:11:43

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



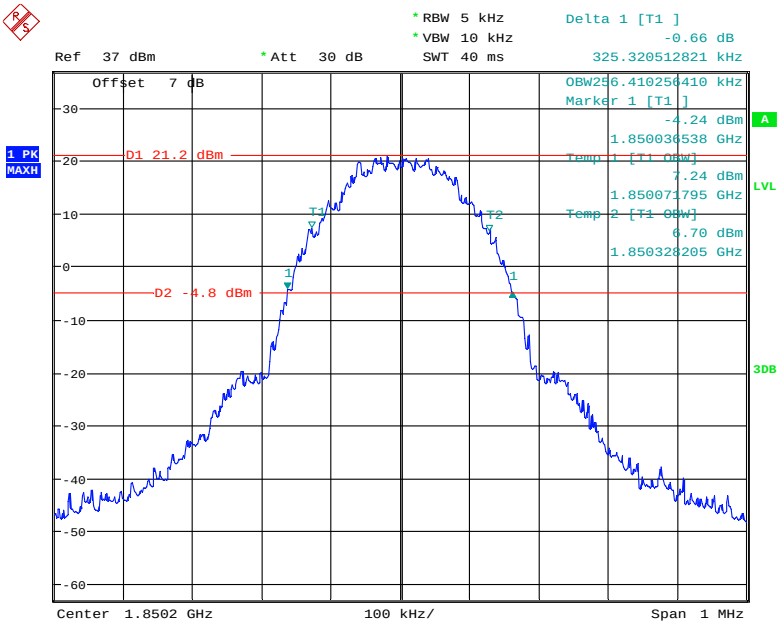
Date: 30.JUL.2021 09:30:54

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



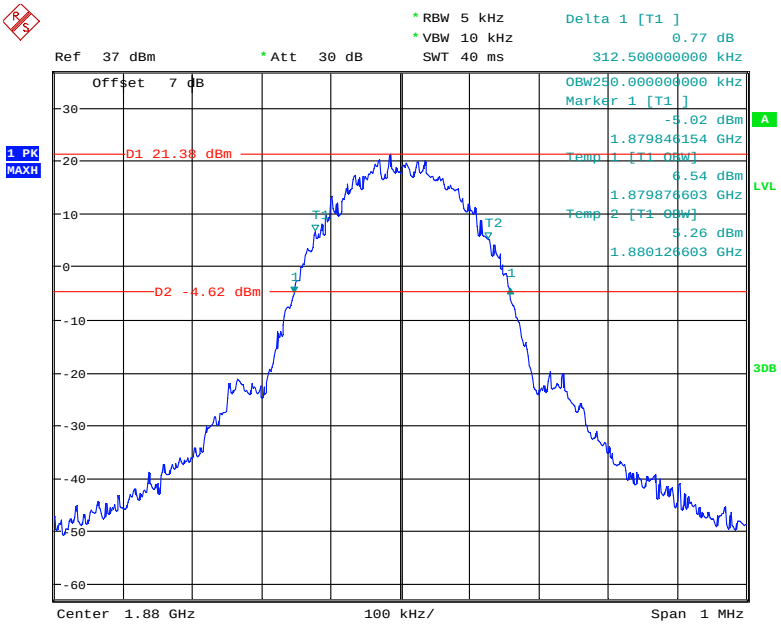
Date: 30.JUL.2021 09:29:24

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



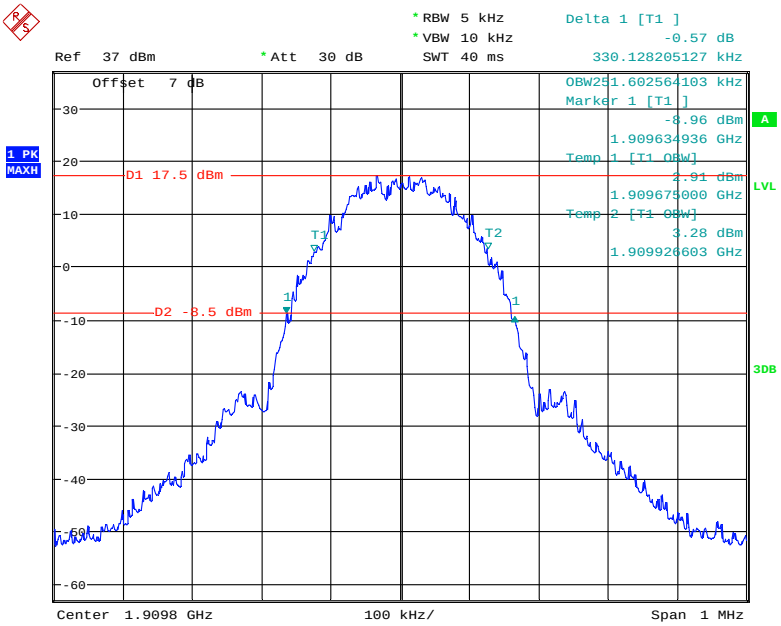
Date: 30.JUL.2021 10:44:10

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



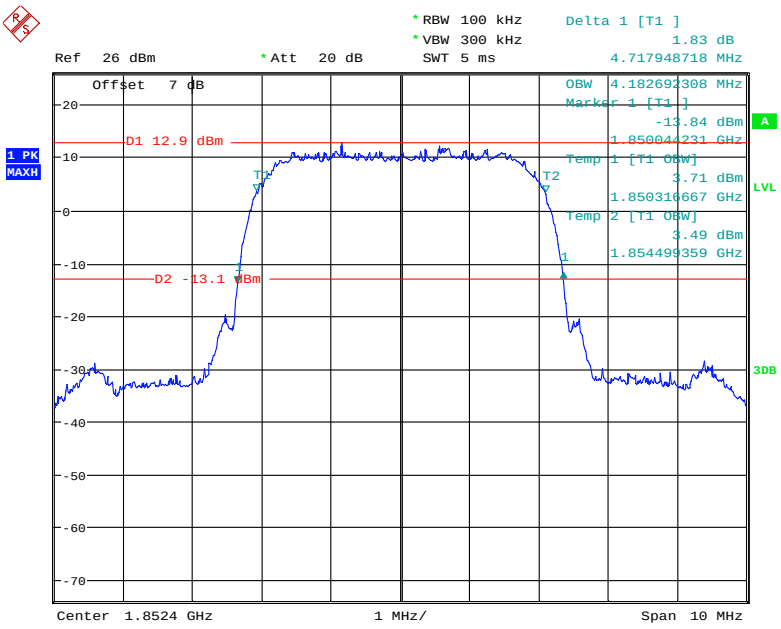
Date: 30.JUL.2021 10:41:18

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



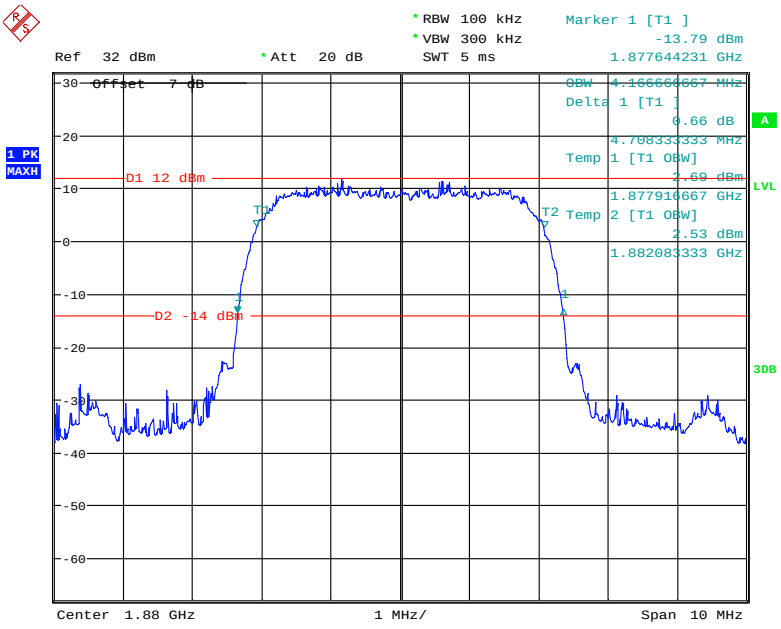
Date: 30.JUL.2021 10:39:50

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



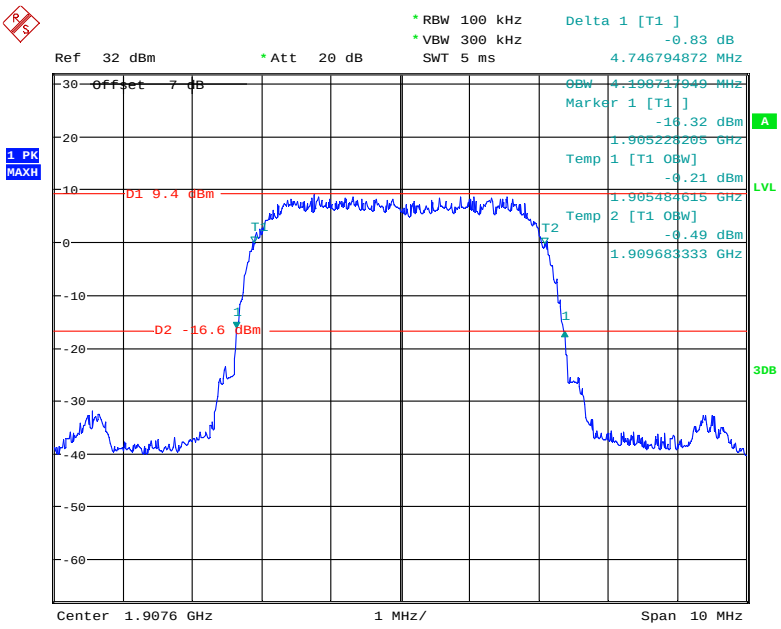
Date: 30.JUL.2021 15:32:22

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



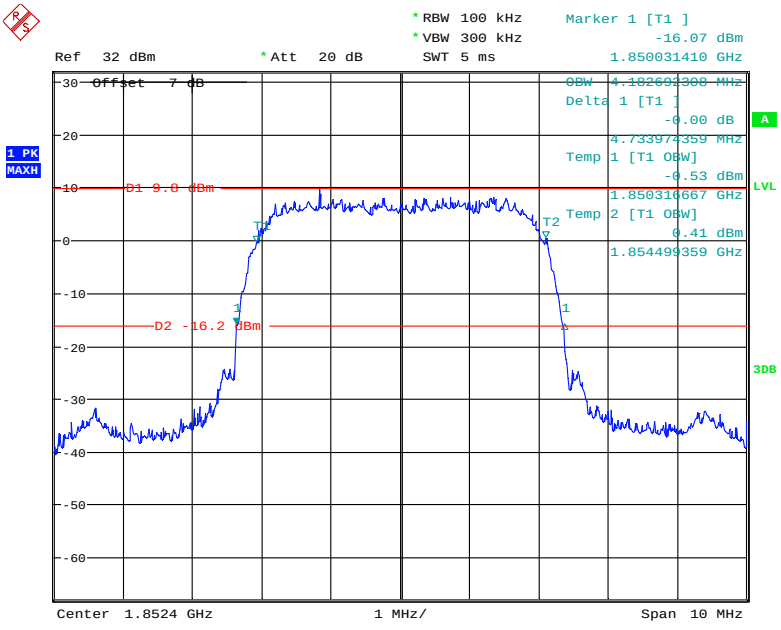
Date: 30.JUL.2021 13:10:35

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



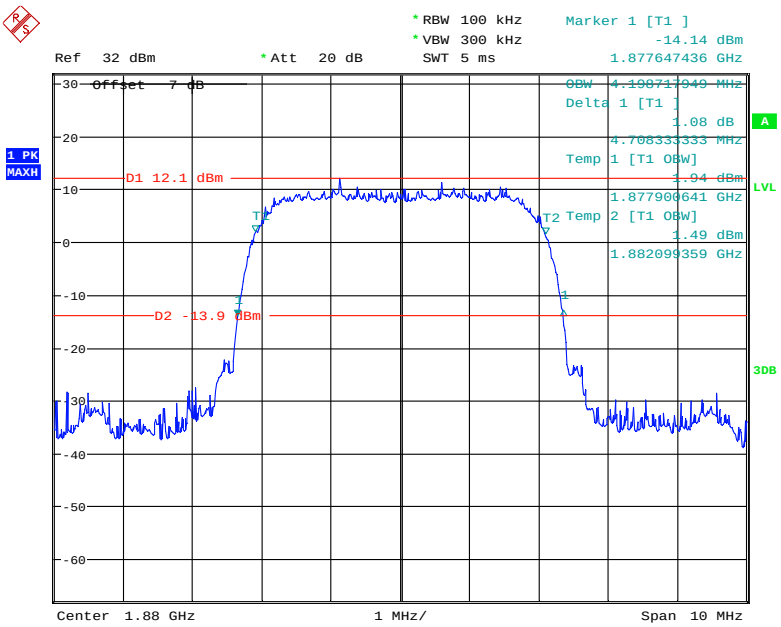
Date: 30.JUL.2021 13:13:23

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



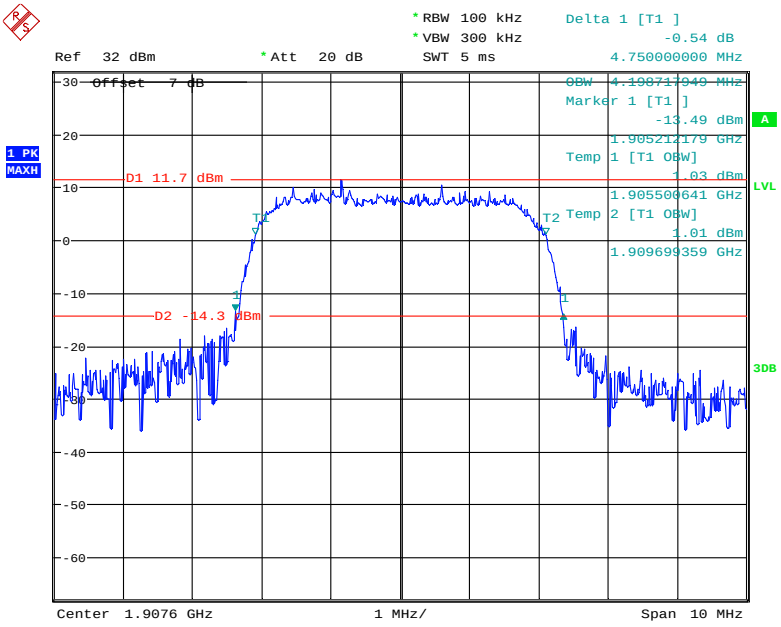
Date: 30.JUL.2021 13:44:39

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



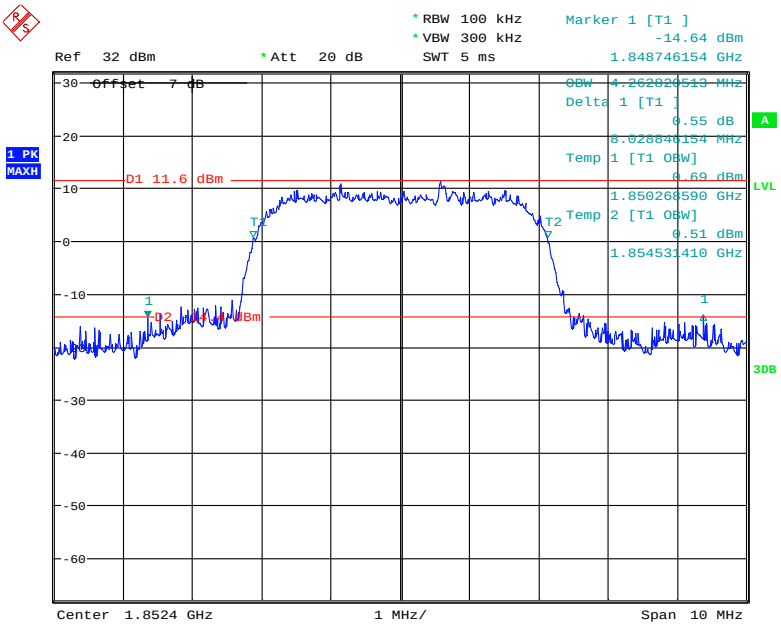
Date: 30.JUL.2021 13:42:18

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



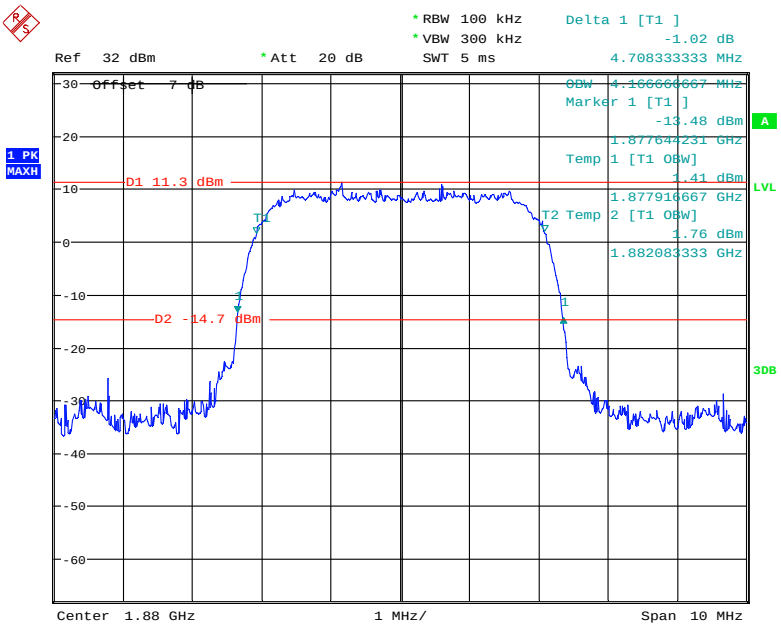
Date: 30.JUL.2021 13:41:23

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



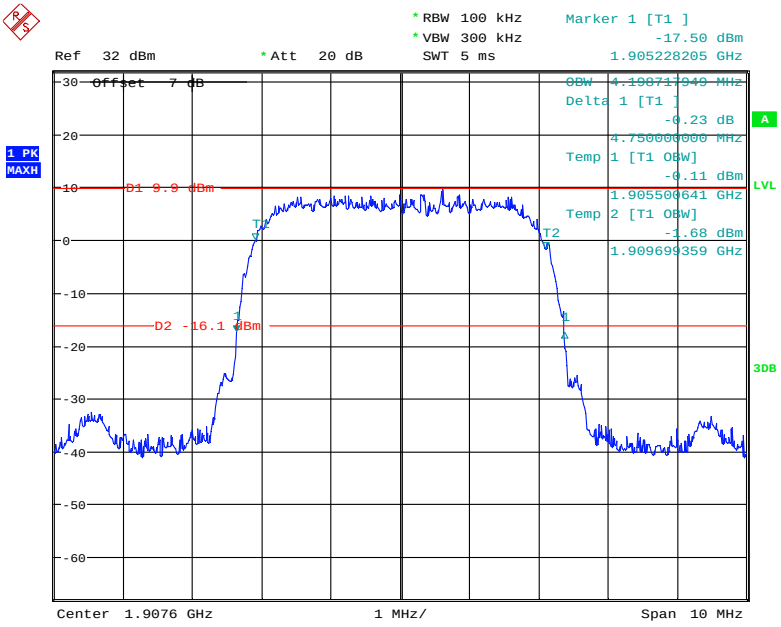
Date: 30.JUL.2021 13:35:08

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



Date: 30.JUL.2021 13:36:47

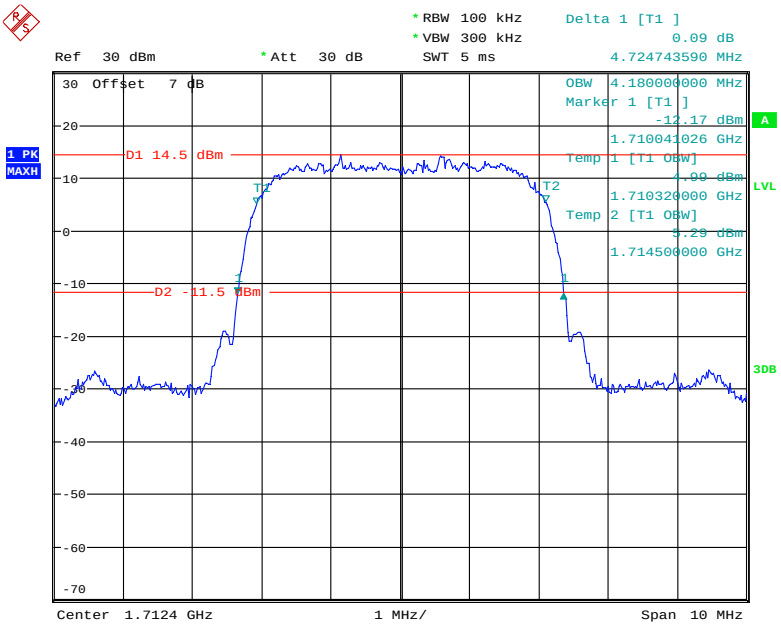
26 dB Emissions &99% Occupied Bandwidth for HSDPA (16QAM) Mode, High channel



Date: 30.JUL.2021 13:37:47

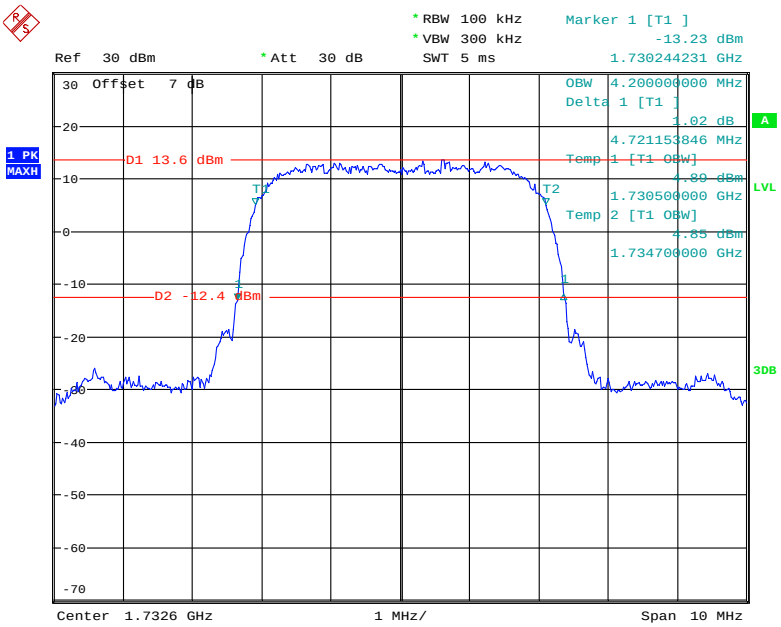
AWS Band (Part 27)

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



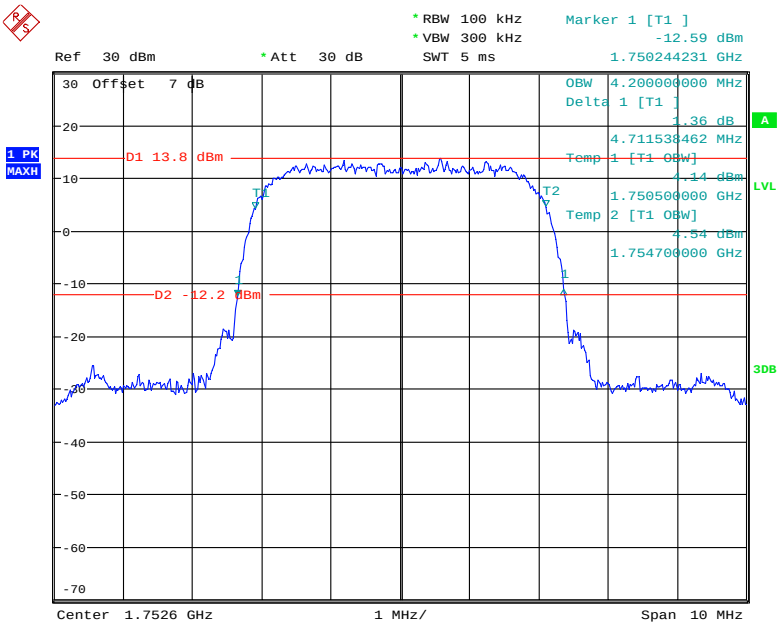
Date: 3.AUG.2021 19:21:48

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



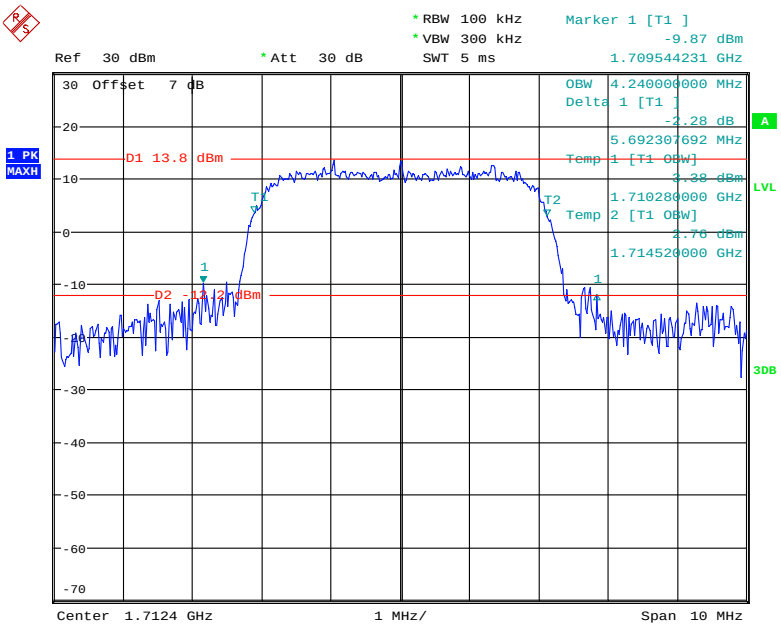
Date: 3.AUG.2021 19:23:03

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



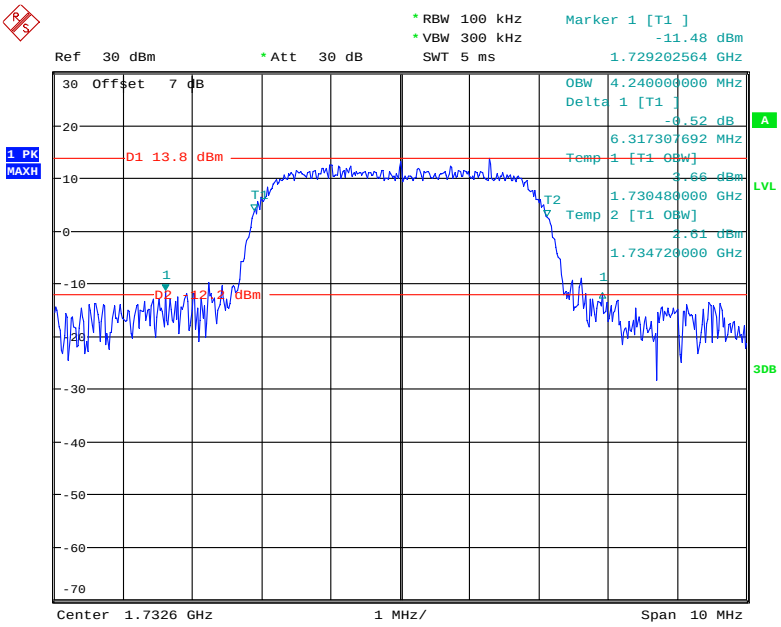
Date: 3.AUG.2021 19:23:59

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



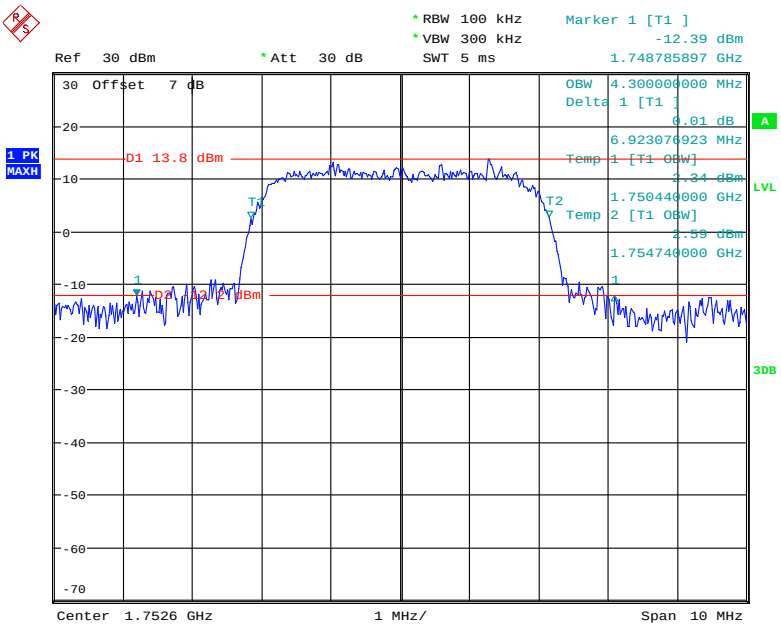
Date: 3.AUG.2021 19:28:26

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



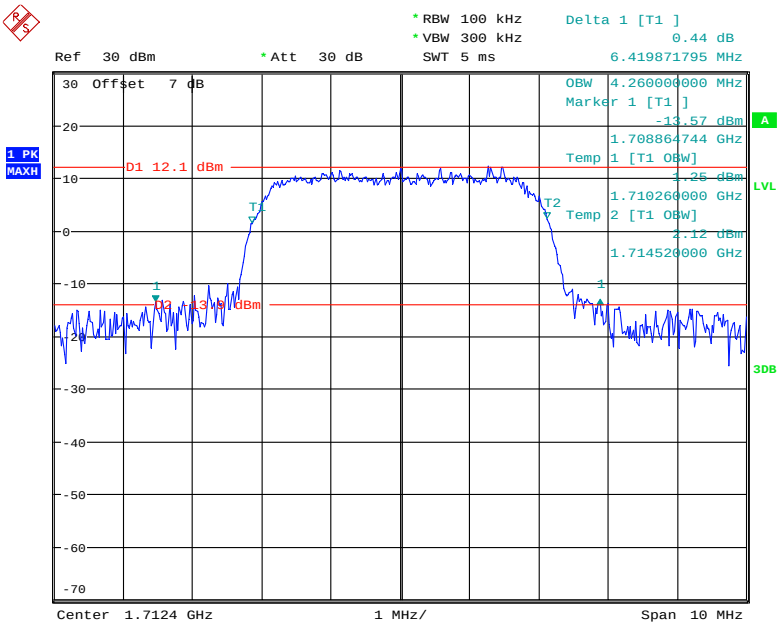
Date: 3.AUG.2021 19:29:49

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



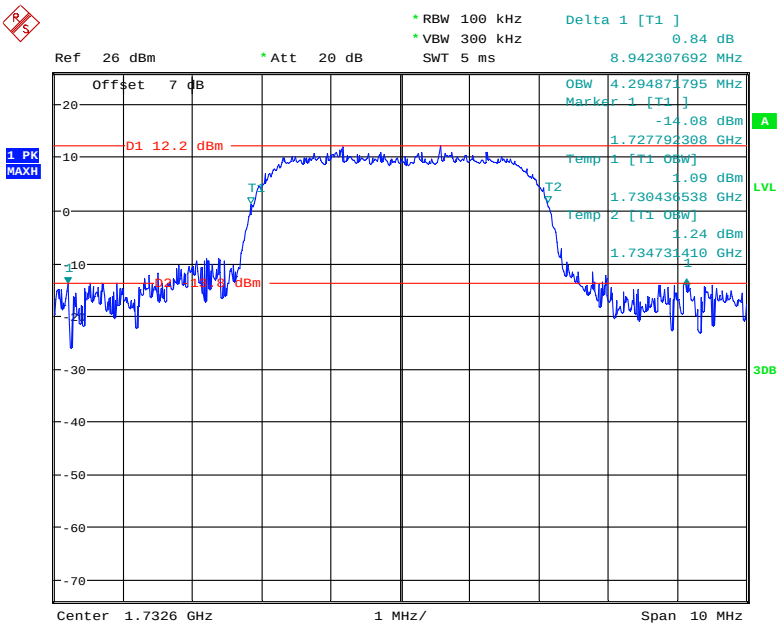
Date: 3.AUG.2021 19:35:47

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



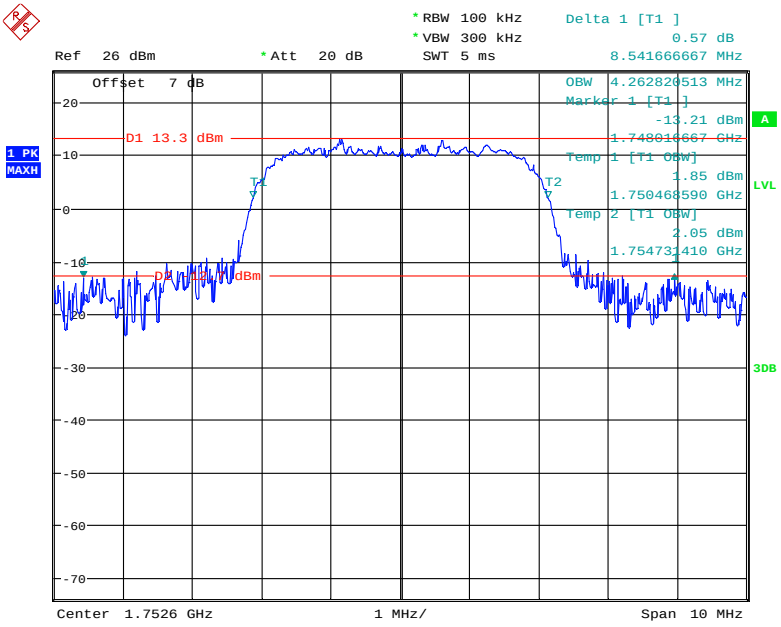
Date: 3.AUG.2021 19:37:49

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



Date: 30.JUL.2021 15:29:54

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



Date: 30.JUL.2021 15:28:32

LTE Band 2:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	Low	1.110	1.303
		Middle	1.098	1.302
		High	1.098	1.302
	16QAM	Low	1.098	1.296
		Middle	1.110	1.320
		High	1.098	1.284
3	QPSK	Low	2.688	2.880
		Middle	2.688	2.880
		High	2.688	2.892
	16QAM	Low	2.688	2.892
		Middle	2.688	2.880
		High	2.724	2.990
5	QPSK	Low	4.520	4.940
		Middle	4.520	4.980
		High	4.500	4.880
	16QAM	Low	4.500	4.940
		Middle	4.520	4.980
		High	4.500	4.980
10	QPSK	Low	8.960	9.600
		Middle	8.960	9.560
		High	8.960	9.560
	16QAM	Low	8.960	9.560
		Middle	8.960	9.600
		High	8.960	9.560
15	QPSK	Low	13.500	14.820
		Middle	13.500	14.760
		High	13.500	14.820
	16QAM	Low	13.560	14.760
		Middle	13.500	14.760
		High	13.500	14.820
20	QPSK	Low	18.000	19.280
		Middle	17.920	19.280
		High	18.000	19.449
	16QAM	Low	18.000	19.280
		Middle	17.920	19.280
		High	18.000	19.360

LTE Band 4:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	Low	1.092	1.308
		Middle	1.104	1.314
		High	1.104	1.296
	16QAM	Low	1.110	1.314
		Middle	1.098	1.296
		High	1.104	1.302
3	QPSK	Low	2.688	2.880
		Middle	2.700	2.880
		High	2.688	2.892
	16QAM	Low	2.688	2.892
		Middle	2.688	2.880
		High	2.688	2.892
5	QPSK	Low	4.520	4.900
		Middle	4.520	4.960
		High	4.500	4.920
	16QAM	Low	4.520	4.860
		Middle	4.520	4.960
		High	4.500	4.980
10	QPSK	Low	9.000	9.600
		Middle	8.960	9.600
		High	8.960	9.640
	16QAM	Low	8.960	9.560
		Middle	8.960	9.640
		High	8.960	9.600
15	QPSK	Low	13.560	14.760
		Middle	13.500	14.700
		High	13.500	14.820
	16QAM	Low	13.560	14.820
		Middle	13.500	14.820
		High	13.500	14.820
20	QPSK	Low	18.000	19.440
		Middle	18.000	19.360
		High	18.080	19.360
	16QAM	Low	18.080	19.360
		Middle	18.000	19.360
		High	18.000	19.440

LTE Band 5:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	Low	1.104	1.308
		Middle	1.104	1.302
		High	1.110	1.296
	16QAM	Low	1.110	1.314
		Middle	1.098	1.290
		High	1.098	1.284
3	QPSK	Low	2.688	2.868
		Middle	2.688	2.880
		High	2.688	2.892
	16QAM	Low	2.688	2.892
		Middle	2.688	2.880
		High	2.688	2.868
5	QPSK	Low	4.500	4.960
		Middle	4.520	4.960
		High	4.500	4.920
	16QAM	Low	4.500	4.900
		Middle	4.520	4.920
		High	4.520	4.960
10	QPSK	Low	8.960	9.600
		Middle	9.000	9.560
		High	8.960	9.560
	16QAM	Low	8.960	9.560
		Middle	9.000	9.600
		High	8.960	9.640

LTE Band 7:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5	QPSK	Low	4.520	4.920
		Middle	4.520	4.920
		High	4.500	4.940
	16QAM	Low	4.500	4.900
		Middle	4.540	5.500
		High	4.520	4.960
10	QPSK	Low	8.960	9.680
		Middle	8.960	9.640
		High	8.960	9.640
	16QAM	Low	8.960	9.520
		Middle	8.960	9.600
		High	8.960	9.640
15	QPSK	Low	13.560	14.880
		Middle	13.500	14.760
		High	13.500	14.760
	16QAM	Low	13.560	14.760
		Middle	13.560	14.880
		High	13.560	14.820
20	QPSK	Low	17.920	19.280
		Middle	18.000	19.360
		High	18.000	19.440
	16QAM	Low	18.000	19.440
		Middle	18.000	19.360
		High	18.000	19.360

LTE Band 17

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5	QPSK	Low	4.560	5.400
		Middle	4.520	5.200
		High	4.520	5.160
	16QAM	Low	4.540	5.300
		Middle	4.540	5.200
		High	4.580	5.240
10	QPSK	Low	8.960	9.960
		Middle	8.960	9.928
		High	8.960	9.840
	16QAM	Low	8.960	9.600
		Middle	8.960	9.800
		High	8.960	9.720

LTE Band 38

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5	QPSK	Low	4.500	5.100
		Middle	4.500	4.940
		High	4.520	4.900
	16QAM	Low	4.500	4.920
		Middle	4.520	5.160
		High	4.500	4.980
10	QPSK	Low	8.960	9.640
		Middle	8.960	9.720
		High	8.960	9.640
	16QAM	Low	8.960	9.560
		Middle	8.960	9.480
		High	8.960	10.000
15	QPSK	Low	13.500	15.433
		Middle	13.500	15.480
		High	13.500	15.060
	16QAM	Low	13.560	16.140
		Middle	13.500	15.120
		High	13.560	16.260
20	QPSK	Low	18.000	19.360
		Middle	18.000	19.680
		High	18.000	20.320
	16QAM	Low	18.000	19.520
		Middle	18.000	20.320
		High	18.000	19.440

LTE Band 41

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5	QPSK	Low	4.520	4.960
		Middle	4.520	5.096
		High	4.520	5.160
	16QAM	Low	4.520	5.180
		Middle	4.500	5.160
		High	4.520	4.980
10	QPSK	Low	9.000	9.560
		Middle	8.960	9.720
		High	8.960	9.560
	16QAM	Low	8.960	9.440
		Middle	8.960	9.480
		High	8.960	9.920
15	QPSK	Low	13.560	15.120
		Middle	13.500	15.300
		High	13.500	15.420
	16QAM	Low	13.560	14.712
		Middle	13.560	15.780
		High	13.620	16.538
20	QPSK	Low	18.000	19.920
		Middle	18.000	19.200
		High	18.000	20.080
	16QAM	Low	18.000	19.440
		Middle	18.000	19.680
		High	17.920	19.360

LTE Band 66

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	Low	1.110	1.323
		Middle	1.098	1.308
		High	1.104	1.320
	16QAM	Low	1.092	1.308
		Middle	1.110	1.320
		High	1.098	1.296
3	QPSK	Low	2.688	2.900
		Middle	2.688	2.888
		High	2.688	2.892
	16QAM	Low	2.676	2.868
		Middle	2.688	2.880
		High	2.688	2.883
5	QPSK	Low	4.520	5.240
		Middle	4.520	5.140
		High	4.520	5.180
	16QAM	Low	4.520	5.120
		Middle	4.560	5.140
		High	4.540	5.160
10	QPSK	Low	8.960	9.960
		Middle	8.960	9.880
		High	8.960	9.840
	16QAM	Low	8.960	9.800
		Middle	8.960	9.800
		High	9.000	9.840
15	QPSK	Low	13.560	15.300
		Middle	13.500	15.000
		High	13.560	15.180
	16QAM	Low	13.560	15.180
		Middle	13.620	15.240
		High	13.560	15.180
20	QPSK	Low	18.000	19.600
		Middle	18.000	19.680
		High	18.000	19.760
	16QAM	Low	18.000	19.840
		Middle	18.000	19.600
		High	18.000	19.600

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

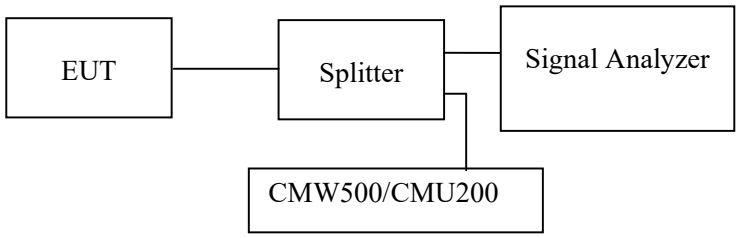
Applicable Standard

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:	27~29.4 ℃
Relative Humidity:	51~56 %
ATM Pressure:	101.0 kPa

The testing was performed by Bravos Zhao and Pedro Yun from 2021-07-30 to 2021-07-31.

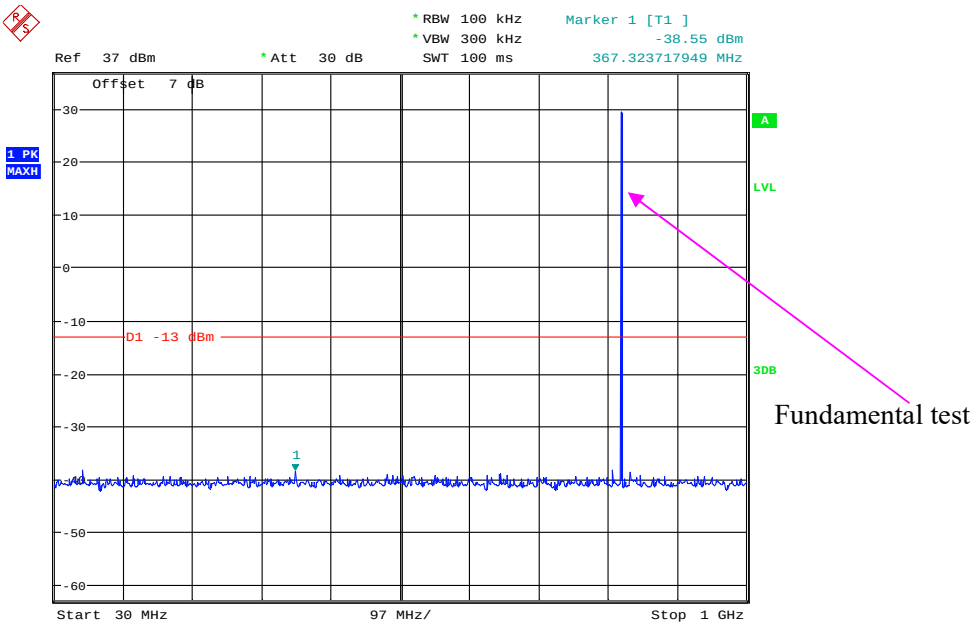
EUT operation mode: Transmitting

Test result: Pass

Please refer to the following plots.

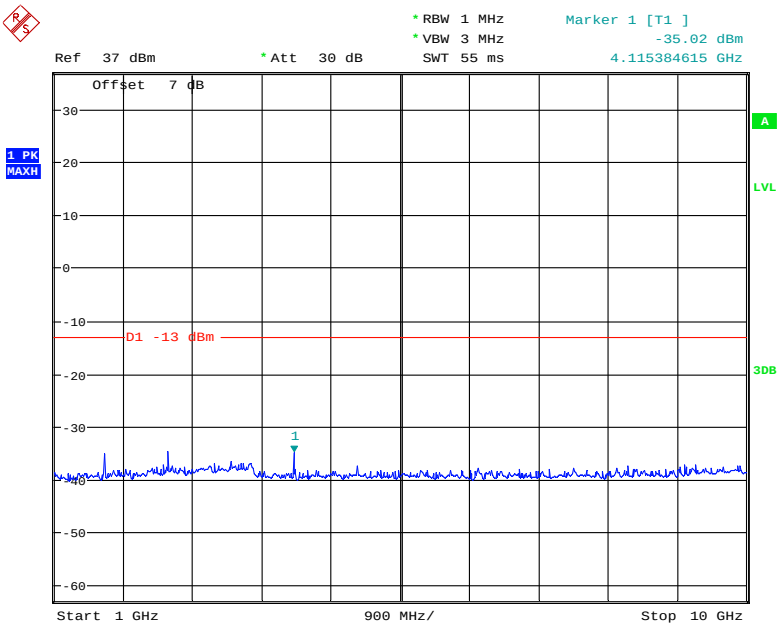
Cellular Band (Part 22H)
Low Channel:

30 MHz – 1 GHz (GSM Mode)



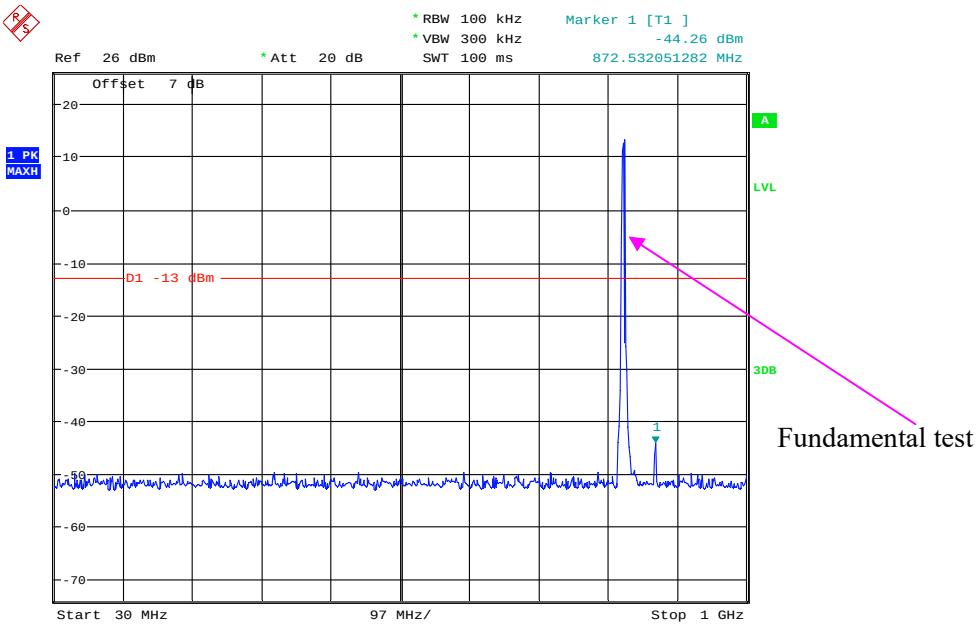
Date: 30.JUL.2021 11:11:41

1 GHz – 10 GHz (GSM Mode)



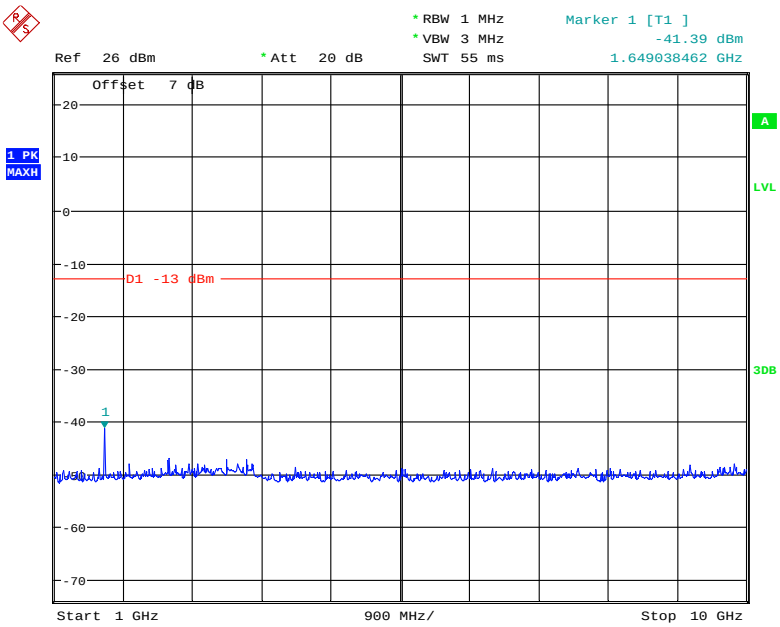
Date: 30.JUL.2021 11:10:33

30 MHz – 1 GHz (WCDMA Mode)



Date: 30.JUL.2021 14:52:44

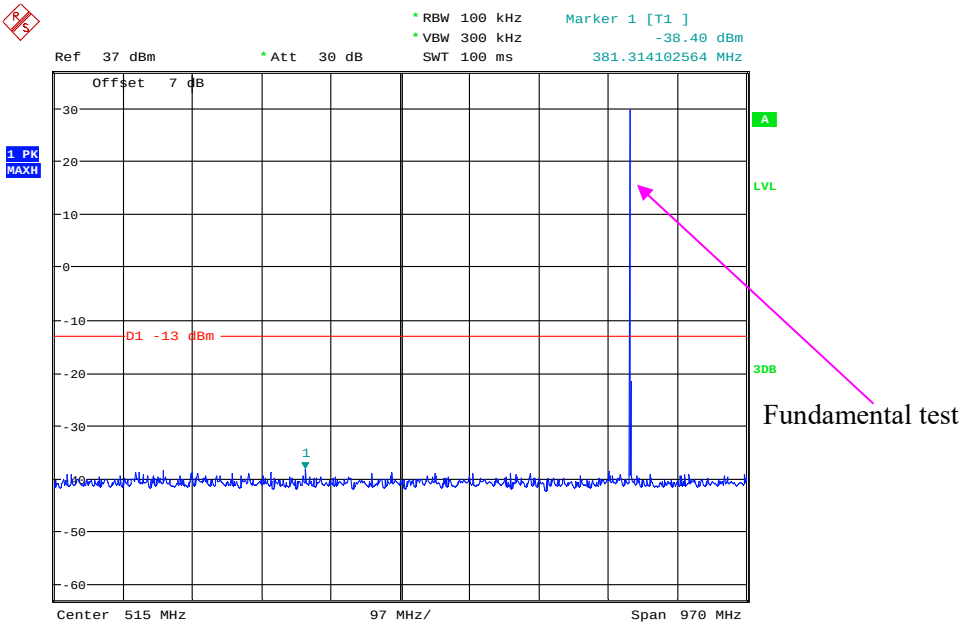
1 GHz – 10 GHz (WCDMA Mode)



Date: 30.JUL.2021 14:55:22

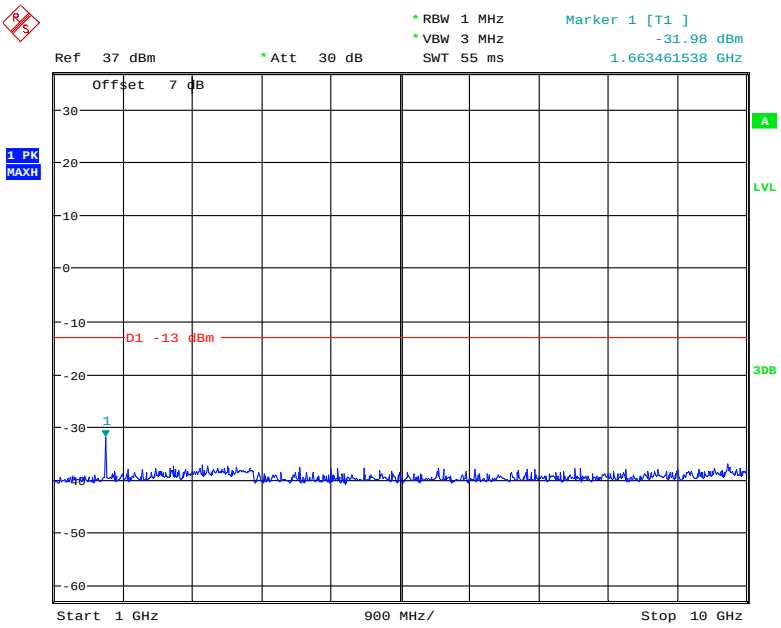
Middle Channel:

30 MHz – 1 GHz (GSM Mode)



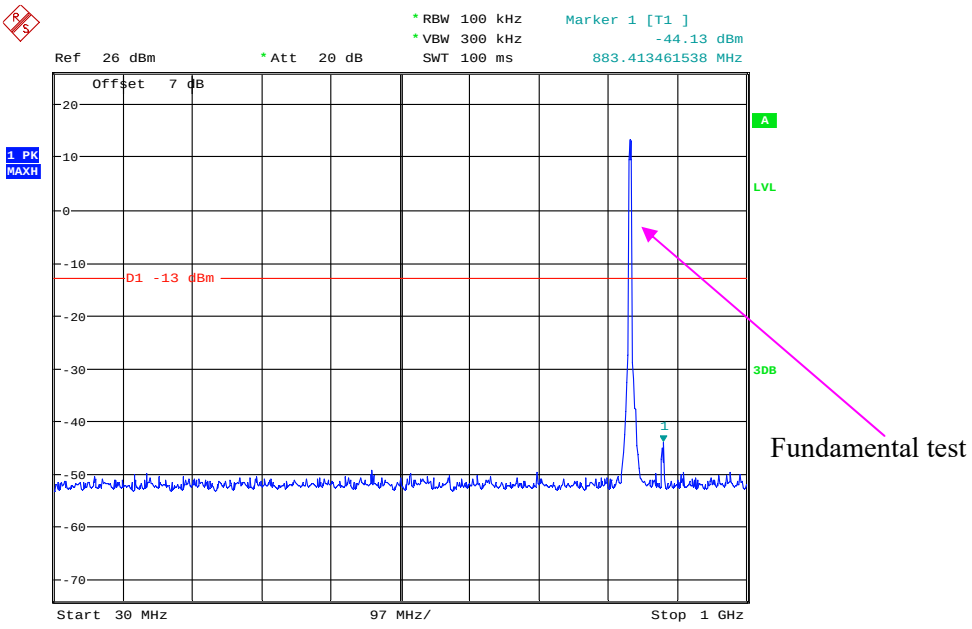
Date: 30.JUL.2021 11:12:31

1 GHz – 10 GHz (GSM Mode)



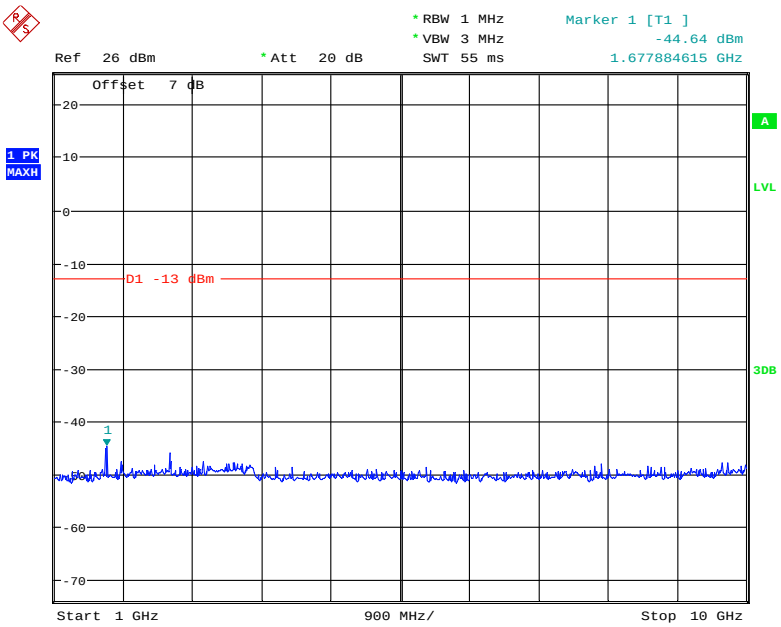
Date: 30.JUL.2021 11:12:52

30 MHz – 1 GHz (WCDMA Mode)



Date: 30.JUL.2021 14:53:30

1 GHz – 20 GHz (WCDMA Mode)



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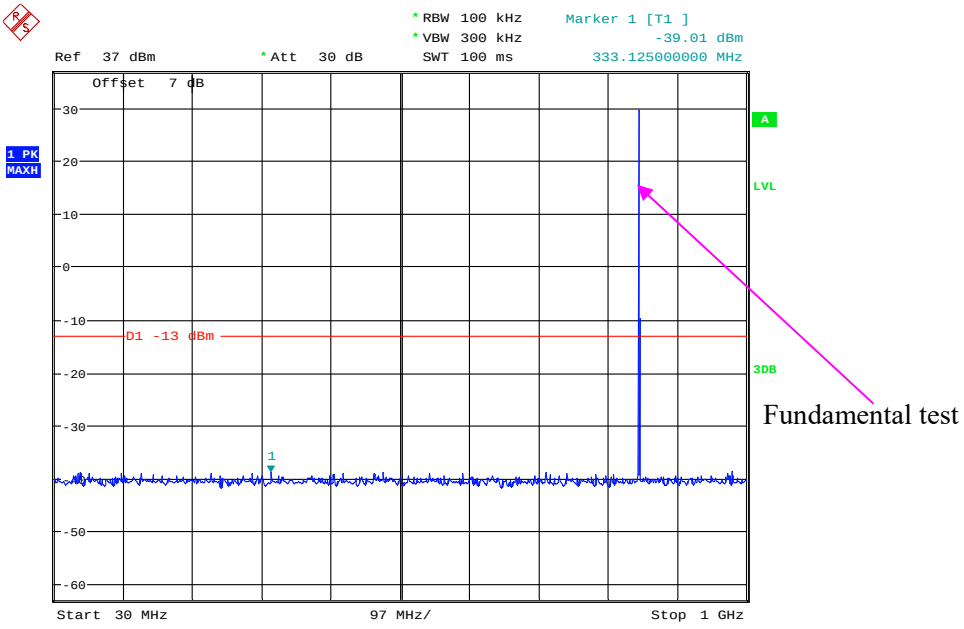
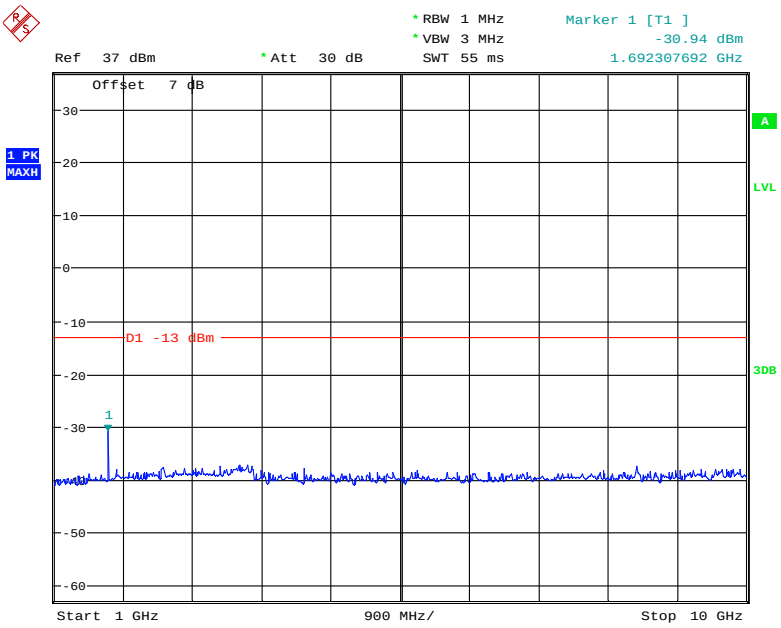
High Channel:

30 MHz – 1 GHz (GSM Mode)



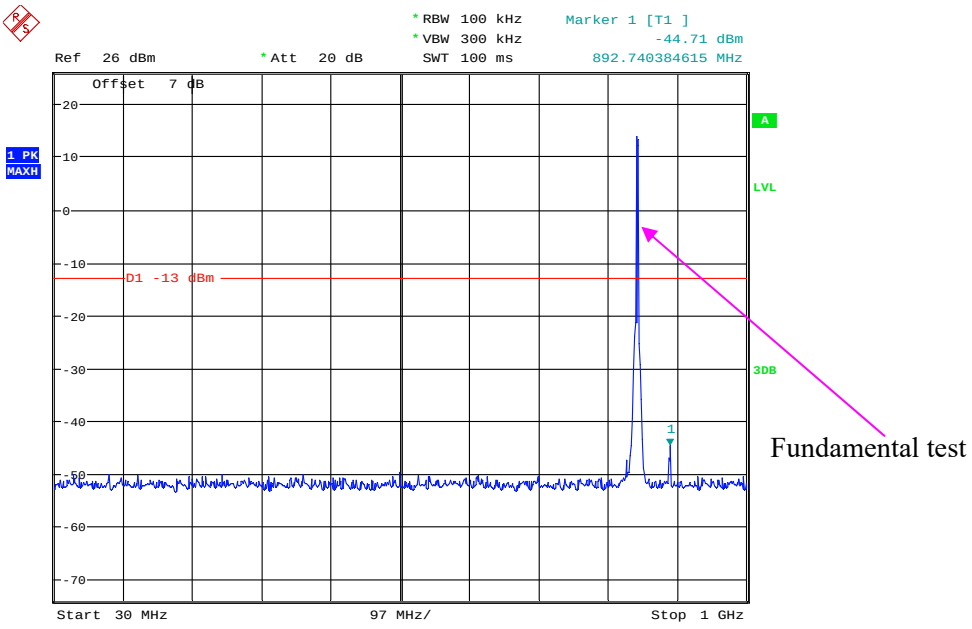
Date: 30.JUL.2021 11:14:09

1 GHz – 10 GHz (GSM Mode)



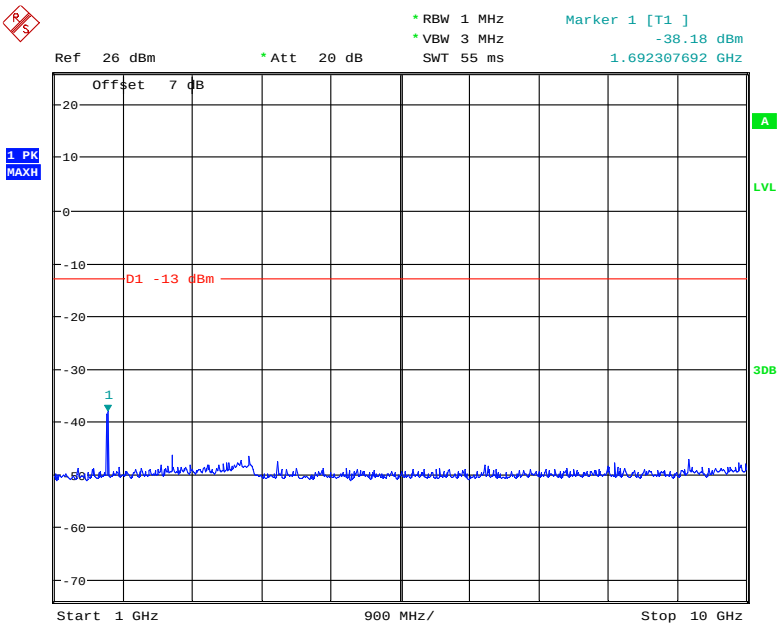
Date: 30.JUL.2021 11:13:18

30 MHz – 1 GHz (WCDMA Mode)



Date: 30.JUL.2021 14:53:54

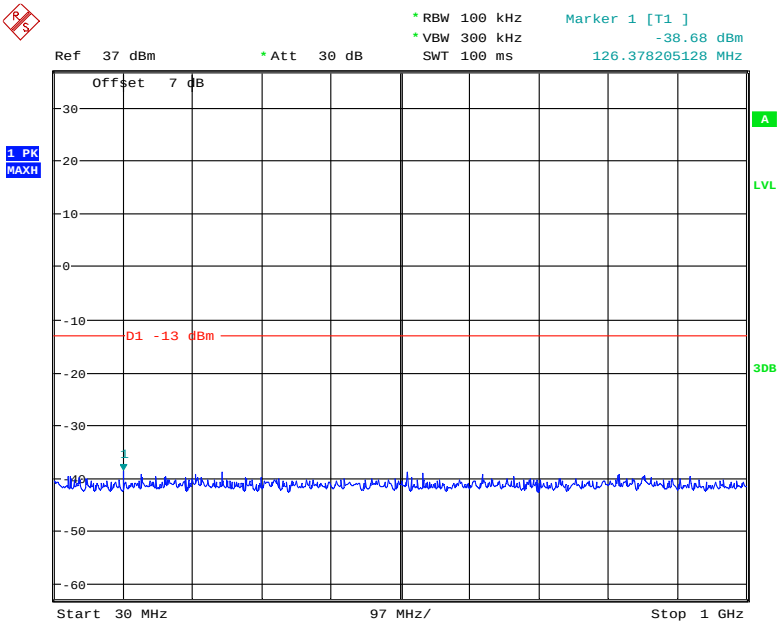
1 GHz – 20 GHz (WCDMA Mode)



Date: 30.JUL.2021 14:54:41

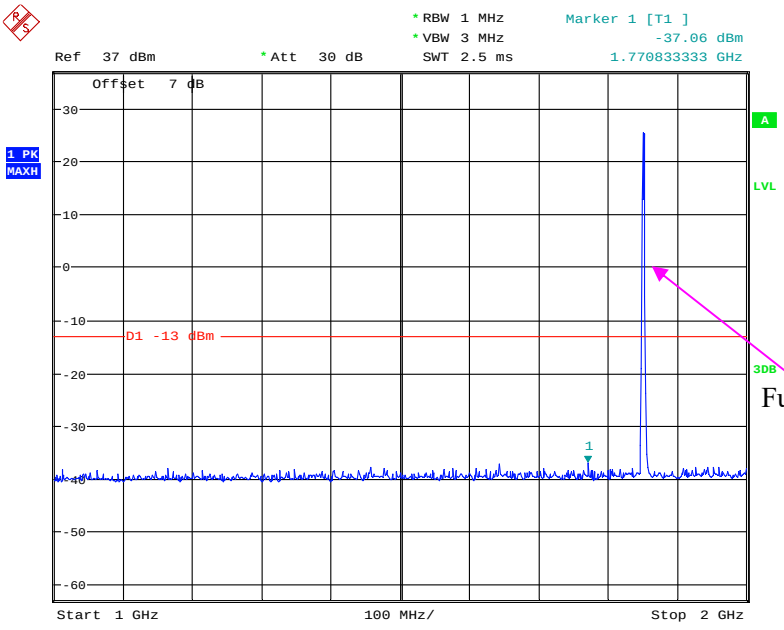
PCS Band (Part 24E) Low Channel:

30 MHz – 1 GHz (GSM Mode)



Date: 31.JUL.2021 11:52:16

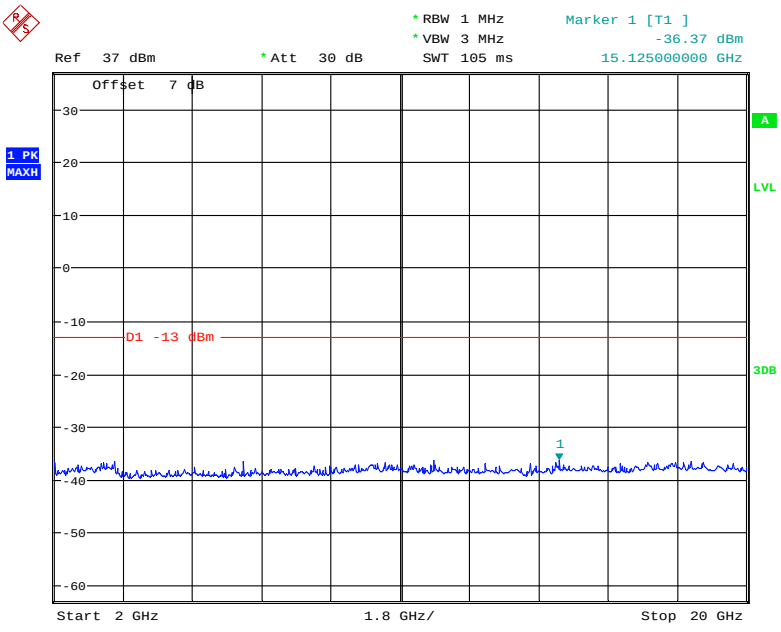
1 GHz – 2 GHz (GSM Mode)



Fundamental test

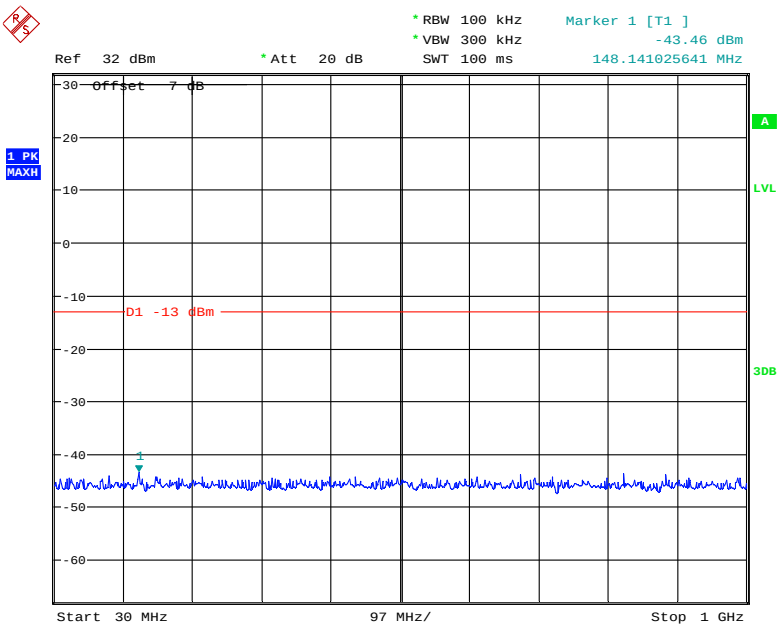
Date: 30.JUL.2021 10:14:15

2 GHz – 20 GHz (GSM Mode)



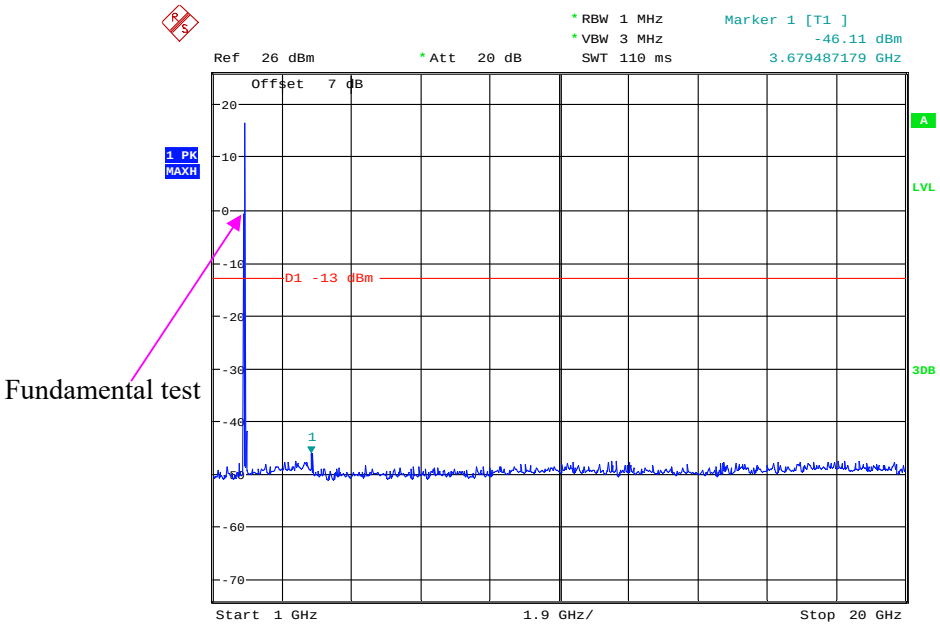
Date: 30.JUL.2021 10:15:31

30 MHz – 1 GHz (WCDMA Mode)



Date: 30.JUL.2021 13:20:25

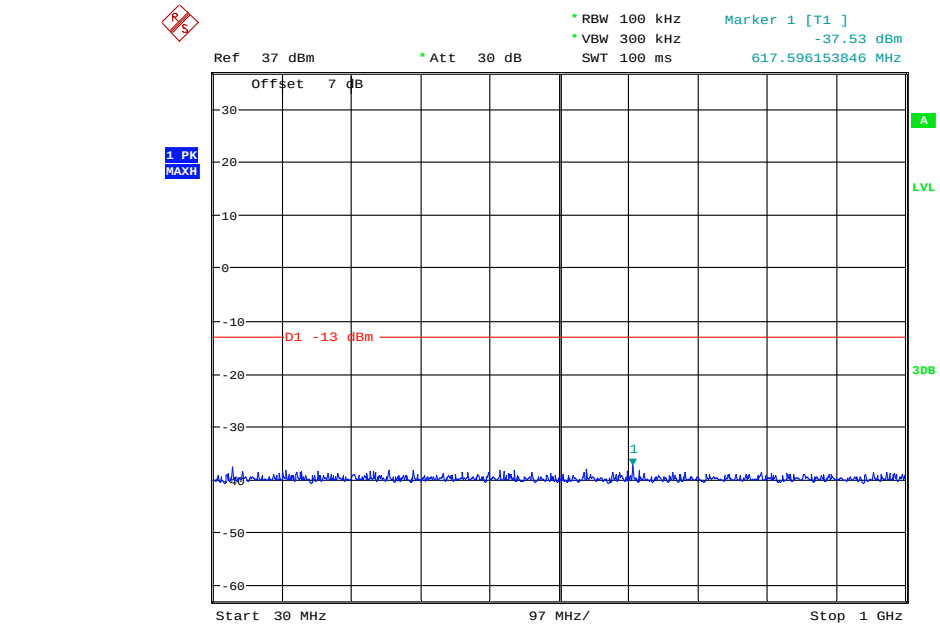
1 GHz – 20 GHz (WCDMA Mode)



Date: 30.JUL.2021 15:35:02

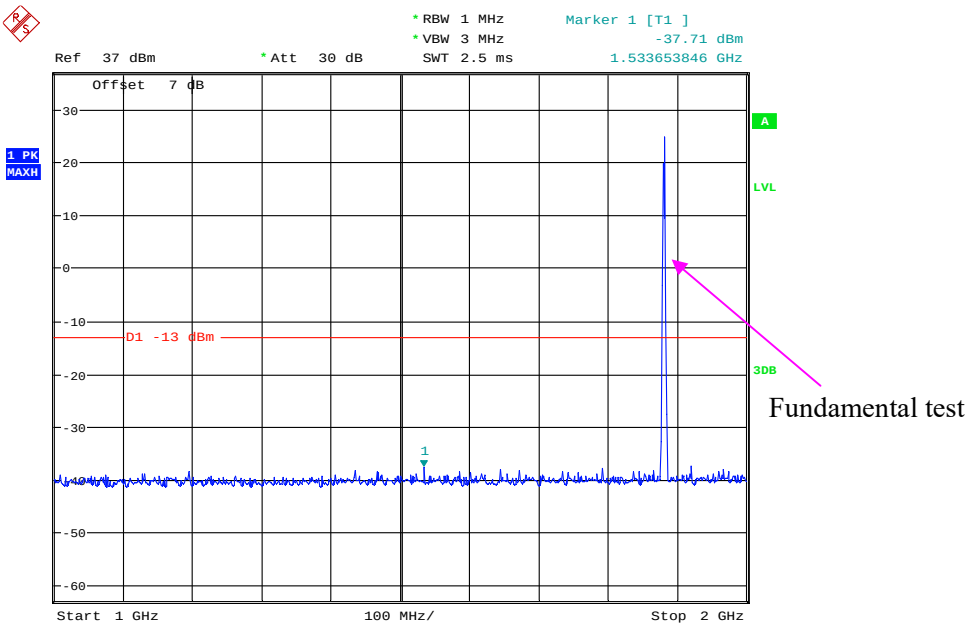
Middle Channel:

30 MHz – 1 GHz (GSM Mode)



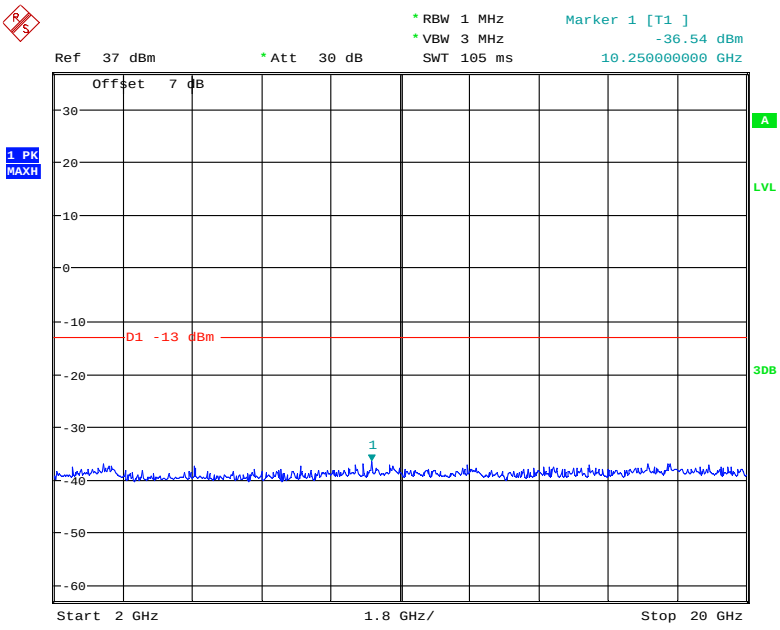
Date: 31.JUL.2021 11:51:58

1 GHz – 2 GHz (GSM Mode)



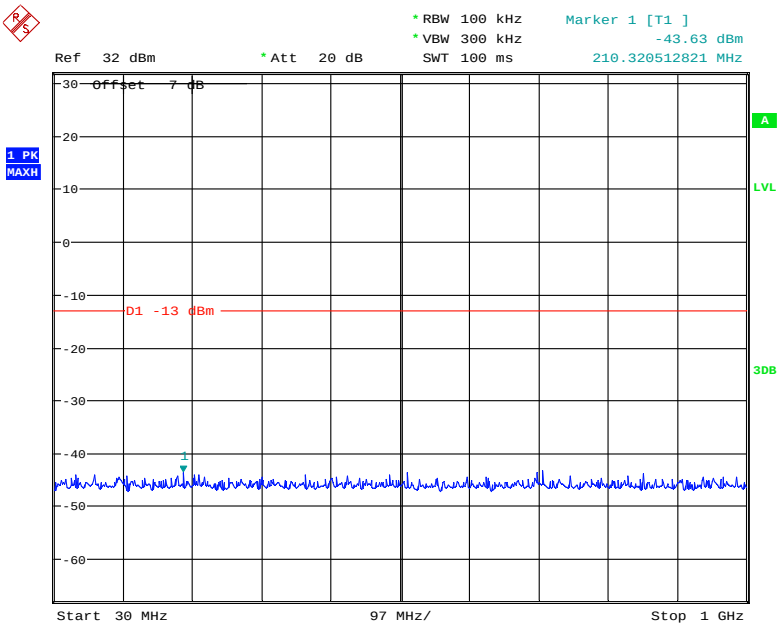
Date: 30.JUL.2021 10:17:29

2 GHz – 20 GHz (GSM Mode)



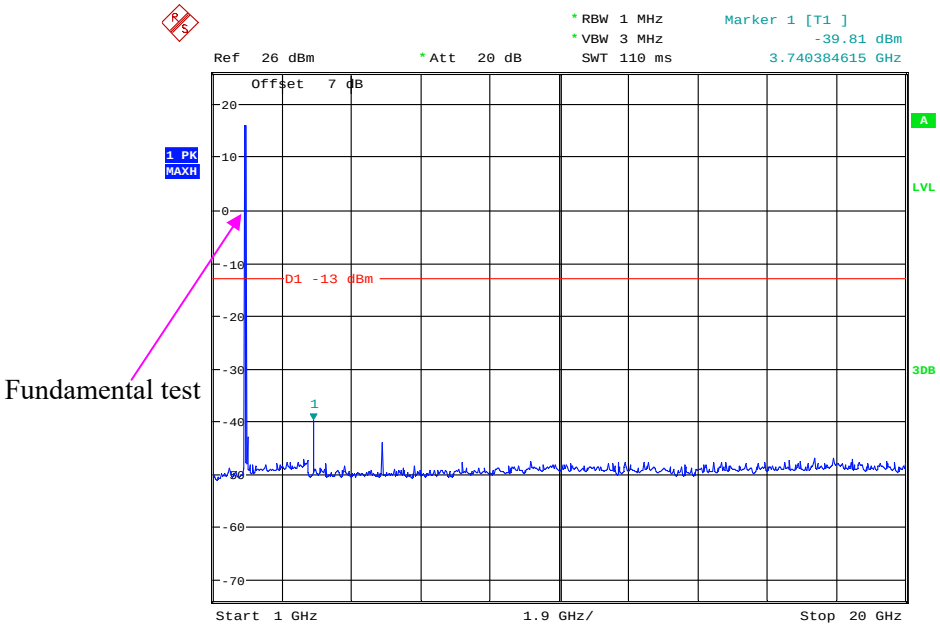
Date: 30.JUL.2021 10:17:55

30 MHz – 1 GHz (WCDMA Mode)



Date: 30.JUL.2021 13:21:01

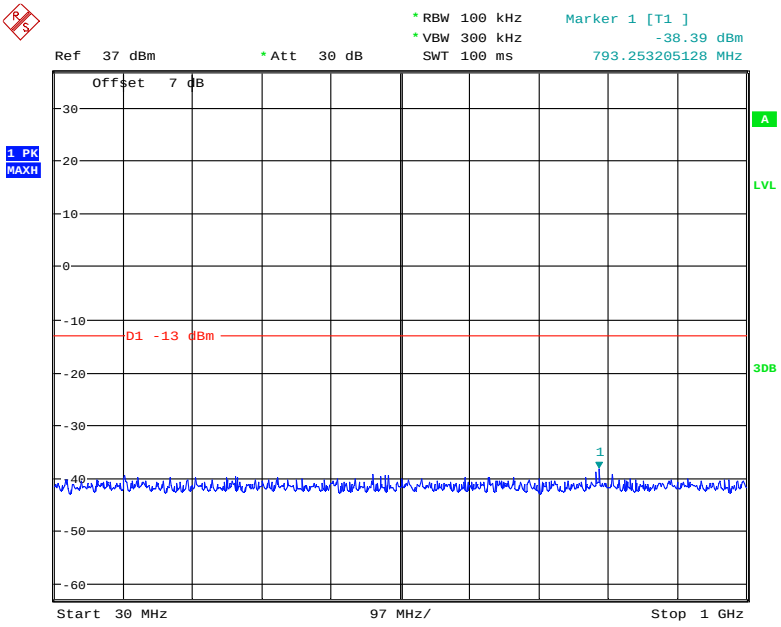
1 GHz – 20 GHz (WCDMA Mode)



Date: 30.JUL.2021 15:35:43

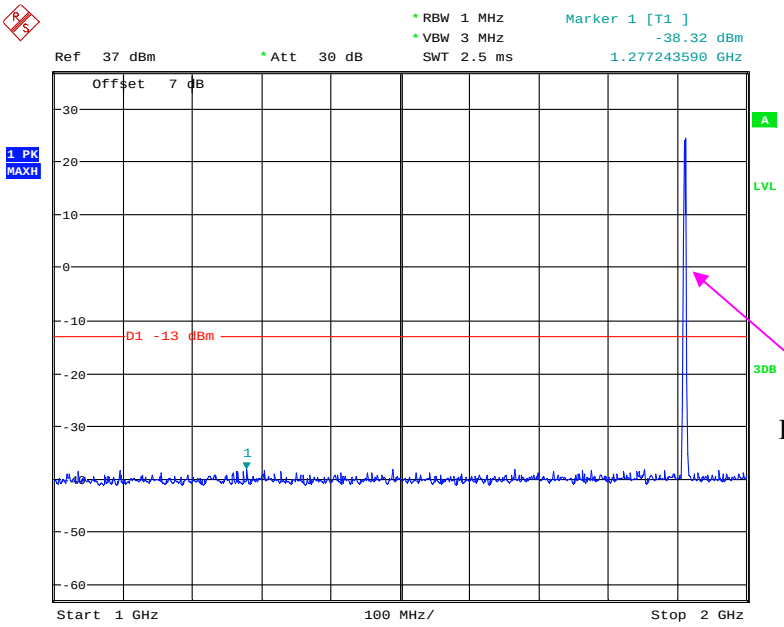
High Channel:

30 MHz – 1 GHz (GSM Mode)



Date: 31.JUL.2021 11:52:31

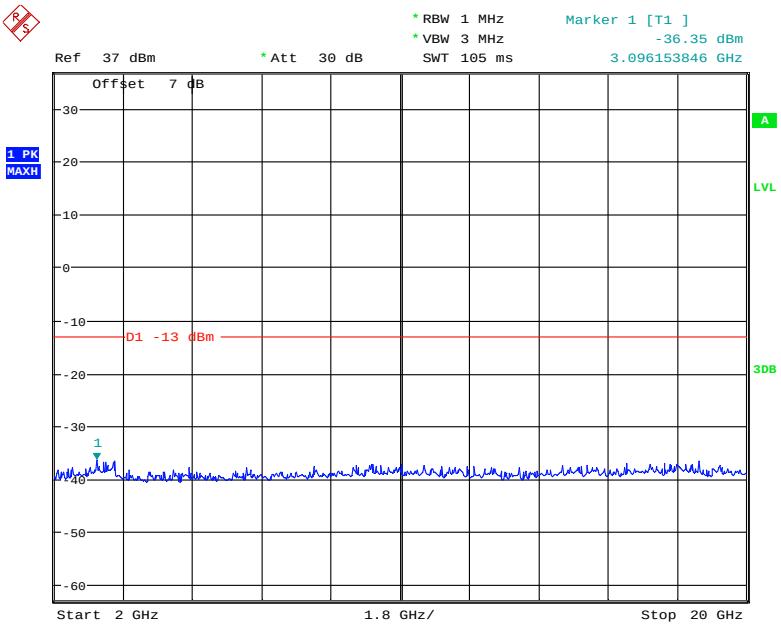
1 GHz – 2 GHz (GSM Mode)



Fundamental test

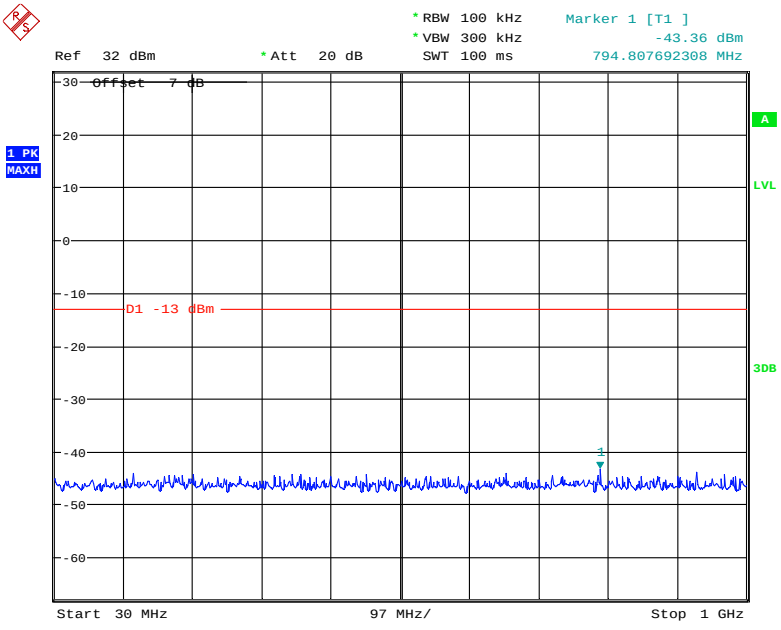
Date: 30.JUL.2021 10:19:00

2 GHz – 20 GHz (GSM Mode)



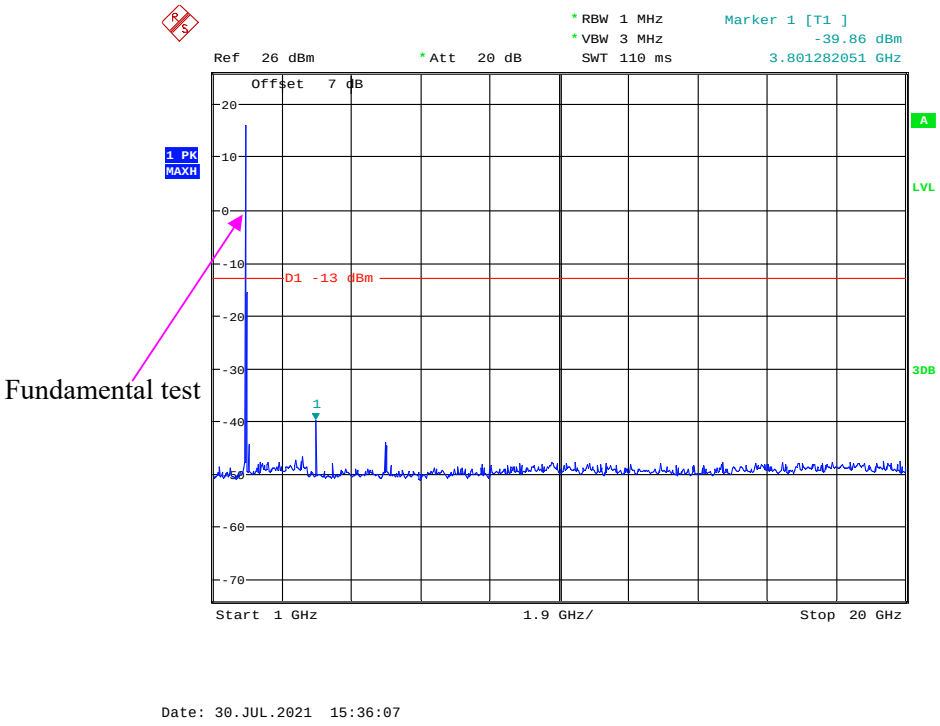
Date: 30.JUL.2021 10:18:30

30 MHz – 1 GHz (WCDMA Mode)



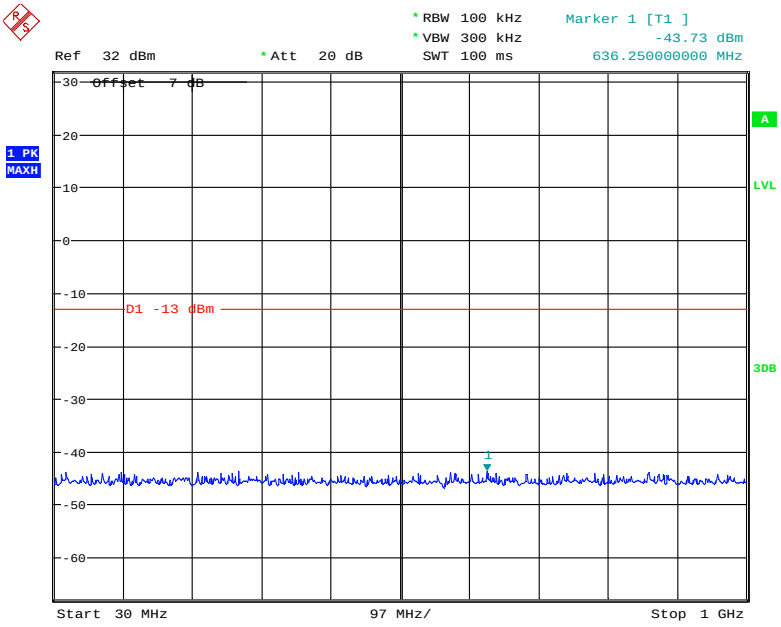
Date: 30.JUL.2021 13:21:22

1 GHz – 20 GHz (WCDMA Mode)



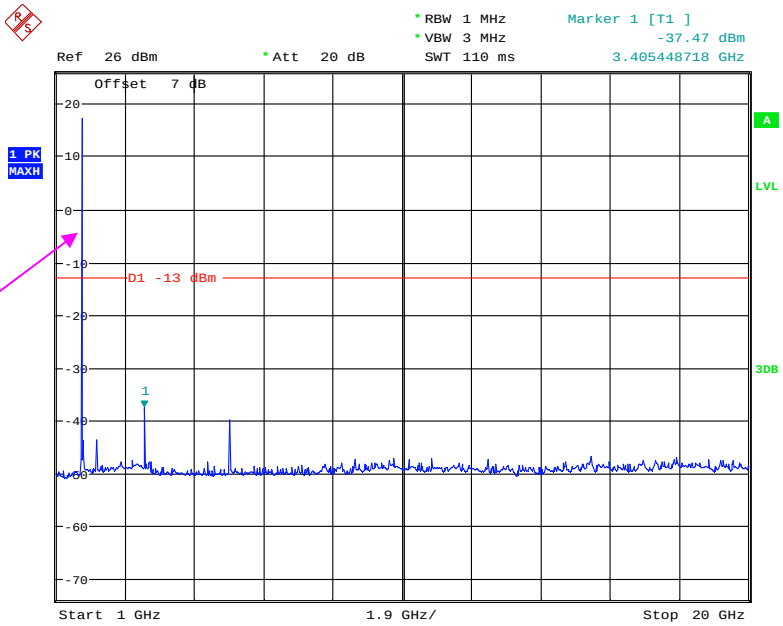
AWS Band (Part 27)
Low Channel:

30 MHz – 1 GHz (WCDMA Mode)



Date: 30.JUL.2021 14:17:27

1 GHz – 20 GHz (WCDMA Mode)

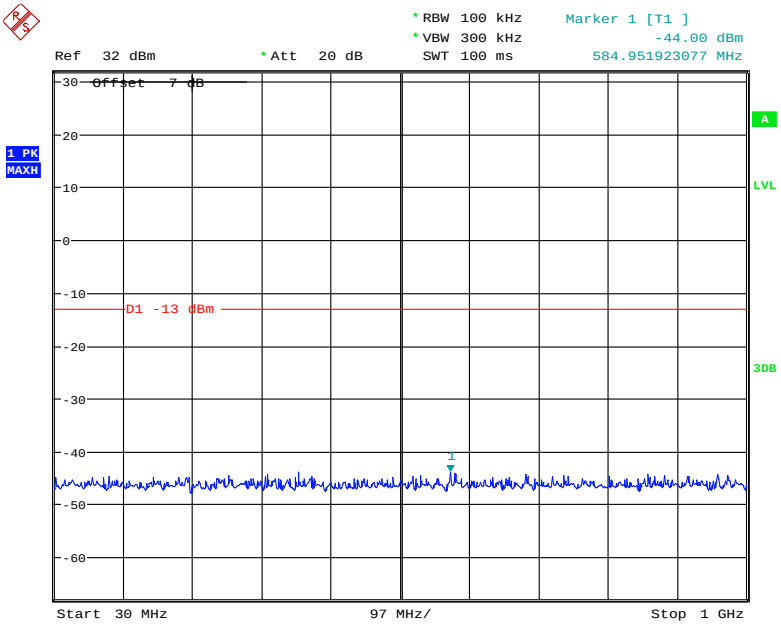


Fundamental test

Date: 30.JUL.2021 14:21:17

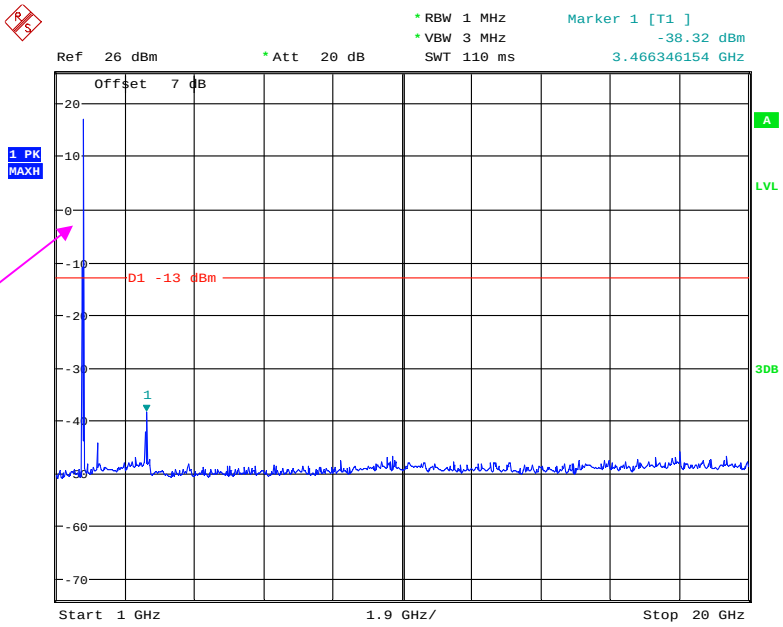
Middle Channel

30 MHz – 1 GHz (WCDMA Mode)



Date: 30.JUL.2021 14:17:09

1 GHz – 20 GHz (WCDMA Mode)

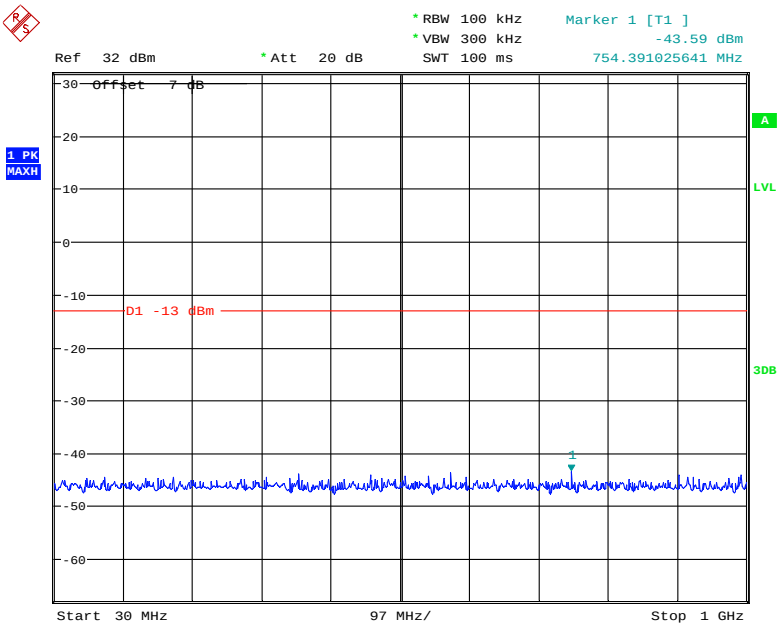


Fundamental test

Date: 30.JUL.2021 14:18:56

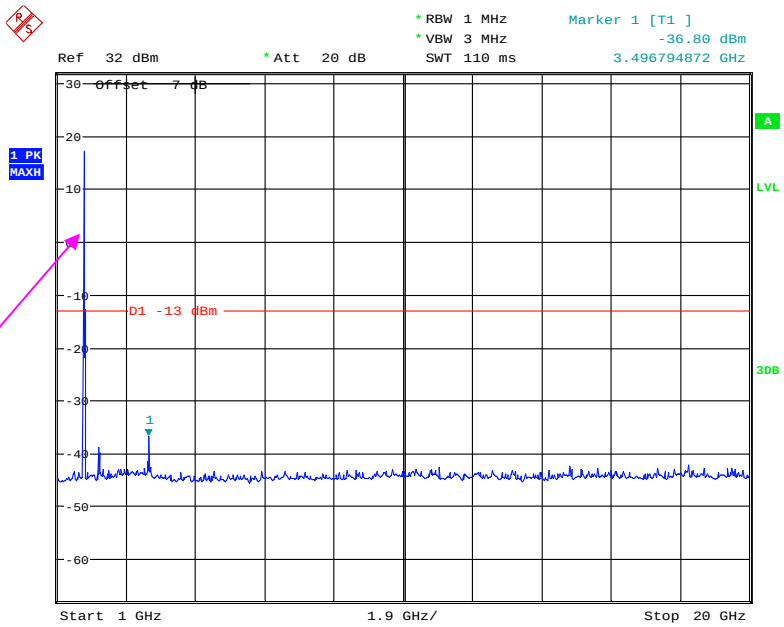
High Channel:

30 MHz – 1 GHz (WCDMA Mode)



Date: 30.JUL.2021 14:16:41

1 GHz – 20 GHz (WCDMA Mode)



Fundamental test

Date: 30.JUL.2021 14:16:10

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:	26.2~ 29 ℃
Relative Humidity:	50~57 %
ATM Pressure:	101.0~101.1 kPa

The testing was performed by Williarm Wang 2021-07-23 for below 1GHz, Alan He 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										
969.1	31.44	49	2.2	H	-65.1	1.36	0.0	-66.46	-13	53.46
969.1	32.67	55	2.3	V	-61.4	1.36	0.0	-62.76	-13	49.76
1648.40	55.86	97	1.8	H	-52.2	1.40	8.70	-44.90	-13	31.90
1648.40	53.14	100	1.6	V	-54.7	1.40	8.70	-47.40	-13	34.40
2472.60	52.12	22	2.4	H	-51.2	2.60	10.20	-43.60	-13	30.60
2472.60	51.56	259	1.4	V	-51.2	2.60	10.20	-43.60	-13	30.60
3296.80	43.78	324	1.1	H	-57.1	1.50	11.70	-46.90	-13	33.90
3296.80	44.86	81	2.2	V	-56.1	1.50	11.70	-45.90	-13	32.90
Middle channel										
973.2	31.47	168	2.2	H	-65.0	1.36	0.0	-66.36	-13	53.36
973.2	32.72	246	1.8	V	-61.3	1.36	0.0	-62.66	-13	49.66
1673.20	56.07	240	2.2	H	-50.3	1.30	8.90	-42.70	-13	29.70
1673.20	53.99	42	1.9	V	-51.7	1.30	8.90	-44.10	-13	31.10
2509.80	52.63	209	1.0	H	-50.7	2.60	10.20	-43.10	-13	30.10
2509.80	51.90	298	2.1	V	-50.8	2.60	10.20	-43.20	-13	30.20
3346.40	43.62	319	2.1	H	-57.3	1.50	11.70	-47.10	-13	34.10
3346.40	45.26	71	1.6	V	-55.7	1.50	11.70	-45.50	-13	32.50
High channel										
965.8	32.38	37	2.0	H	-64.1	1.36	0.0	-65.46	-13	52.46
965.8	33.61	329	1.8	V	-60.4	1.36	0.0	-61.76	-13	48.76
1697.60	56.32	350	1.5	H	-50.0	1.30	8.90	-42.40	-13	29.40
1697.60	53.78	113	1.0	V	-52.0	1.30	8.90	-44.40	-13	31.40
2546.40	52.26	319	2.0	H	-51.1	2.60	10.20	-43.50	-13	30.50
2546.40	51.64	87	1.1	V	-51.1	2.60	10.20	-43.50	-13	30.50
3395.20	44.03	57	2.1	H	-57.2	1.40	11.80	-46.80	-13	33.80
3395.20	45.39	271	1.9	V	-55.7	1.40	11.80	-45.30	-13	32.30

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										
952.3	32.69	226	1.6	H	-63.8	1.36	0.0	-65.16	-13	52.16
952.3	33.54	254	1.1	V	-60.5	1.36	0.0	-61.86	-13	48.86
1652.80	53.48	228	2.3	H	-52.9	1.30	8.90	-45.30	-13	32.30
1652.80	47.40	169	2.4	V	-58.3	1.30	8.90	-50.70	-13	37.70
2479.20	59.25	241	1.7	H	-44.1	2.60	10.20	-36.50	-13	23.50
2479.20	60.35	161	1.5	V	-42.4	2.60	10.20	-34.80	-13	21.80
3305.60	43.64	38	1.9	H	-57.3	1.50	11.70	-47.10	-13	34.10
3305.60	43.80	132	1.9	V	-57.1	1.50	11.70	-46.90	-13	33.90
Middle channel										
971.2	31.41	228	1.0	H	-65.1	1.36	0.0	-66.46	-13	53.46
971.2	32.77	321	2.5	V	-61.3	1.36	0.0	-62.66	-13	49.66
1673.20	53.87	47	2.2	H	-52.5	1.30	8.90	-44.90	-13	31.90
1673.20	47.85	37	1.2	V	-57.9	1.30	8.90	-50.30	-13	37.30
2509.80	59.68	159	1.6	H	-43.7	2.60	10.20	-36.10	-13	23.10
2509.80	60.92	81	1.1	V	-41.8	2.60	10.20	-34.20	-13	21.20
3346.40	43.58	125	1.3	H	-57.3	1.50	11.70	-47.10	-13	34.10
3346.40	43.97	146	1.2	V	-57.0	1.50	11.70	-46.80	-13	33.80
High channel										
976.8	31.46	167	2.5	H	-65.0	1.36	0.0	-66.36	-13	53.36
976.8	32.57	249	1.4	V	-61.5	1.36	0.0	-62.86	-13	49.86
1693.20	52.99	203	1.3	H	-53.3	1.30	8.90	-45.70	-13	32.70
1693.20	47.05	350	2.2	V	-58.7	1.30	8.90	-51.10	-13	38.10
2539.80	58.78	306	1.6	H	-44.6	2.60	10.20	-37.00	-13	24.00
2539.80	60.01	279	2.4	V	-42.7	2.60	10.20	-35.10	-13	22.10
3386.40	43.35	239	2.1	H	-57.9	1.40	11.80	-47.50	-13	34.50
3386.40	43.59	249	1.4	V	-57.5	1.40	11.80	-47.10	-13	34.10

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										
960.3	32.57	216	1.1	H	-63.9	1.36	0.0	-65.26	-13	52.26
960.3	33.64	226	2.4	V	-60.4	1.36	0.0	-61.76	-13	48.76
3700.40	48.32	231	1.6	H	-53.5	1.60	11.90	-43.20	-13	30.20
3700.40	47.68	153	2.1	V	-53.5	1.60	11.90	-43.20	-13	30.20
5550.60	46.57	223	1.5	H	-53.1	1.70	12.40	-42.40	-13	29.40
5550.60	49.36	176	1.1	V	-50.0	1.70	12.40	-39.30	-13	26.30
Middle channel										
971.2	31.51	302	1.5	H	-65.0	1.36	0.0	-66.36	-13	53.36
971.2	32.64	33	2.3	V	-61.4	1.36	0.0	-62.76	-13	49.76
3760.00	48.68	284	1.7	H	-53.4	1.50	11.80	-43.10	-13	30.10
3760.00	48.08	304	2.4	V	-53.5	1.50	11.80	-43.20	-13	30.20
5640.00	47.84	61	2.1	H	-51.8	1.70	12.40	-41.10	-13	28.10
5640.00	50.16	146	2.5	V	-49.2	1.70	12.40	-38.50	-13	25.50
High channel										
956.8	31.53	193	2.2	H	-65.0	1.36	0.0	-66.36	-13	53.36
956.8	32.74	126	1.7	V	-61.3	1.36	0.0	-62.66	-13	49.66
3819.60	48.35	314	2.5	H	-53.7	1.50	11.80	-43.40	-13	30.40
3819.60	48.06	309	1.3	V	-53.5	1.50	11.80	-43.20	-13	30.20
5729.40	47.11	72	1.8	H	-52.7	1.60	12.10	-42.20	-13	29.20
5729.40	50.23	38	1.9	V	-49.0	1.60	12.10	-38.50	-13	25.50
WCDMA Mode										
Low Channel										
964.7	30.31	266	1.0	H	-66.2	1.36	0.0	-67.56	-13	54.56
964.7	31.83	249	1.3	V	-62.2	1.36	0.0	-63.56	-13	50.56
3704.80	55.71	204	1.2	H	-46.1	1.60	11.90	-35.80	-13	22.80
3704.80	54.83	226	1.3	V	-46.4	1.60	11.90	-36.10	-13	23.10
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
3704.80	55.71	204	1.2	H	-46.1	1.60	11.90	-35.80	-13	22.80
3704.80	54.83	226	1.3	V	-46.4	1.60	11.90	-36.10	-13	23.10
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
3815.20	55.42	193	2.5	H	-46.6	1.50	11.80	-36.30	-13	23.30
3815.20	54.78	270	1.0	V	-46.8	1.50	11.80	-36.50	-13	23.50

30 MHz ~ 20 GHz:

AWS Band

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 27	
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)		Limit (dBm)	Margin (dB)
WCDMA Mode										
Low channel										
956.2	31.36	54	1.3	H	-65.1	1.36	0.0	-66.46	-13	53.46
956.2	32.63	22	1.6	V	-61.4	1.36	0.0	-62.76	-13	49.76
3424.80	52.33	207	1.2	H	-48.5	1.40	11.80	-38.10	-13	25.10
3424.80	50.06	48	1.6	V	-50.5	1.40	11.80	-40.10	-13	27.10
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
3465.20	46.14	272	1.0	H	-54.6	1.50	12.00	-44.10	-13	31.10
3465.20	46.78	260	1.5	V	-54.7	1.50	12.00	-44.20	-13	31.20
High channel										
976.8	31.44	260	2.0	H	-65.1	1.36	0.0	-66.46	-13	53.46
976.8	32.71	125	2.1	V	-61.3	1.36	0.0	-62.66	-13	49.66
3505.20	52.03	63	1.3	H	-48.7	1.50	12.00	-38.20	-13	25.20
3505.20	50.12	197	1.4	V	-51.4	1.50	12.00	-40.90	-13	27.90

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

Frequency	Receiver	Turntable	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
(MHz)	Reading (dBμV)	Angle Degree	Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
Band 2										
Test frequency range: 30 MHz ~ 20 GHz										
1.4MHz, Low channel										
961.6	32.56	171	1.9	H	-63.9	1.36	0.0	-65.26	-13	52.26
961.6	33.47	144	1.1	V	-60.6	1.36	0.0	-61.96	-13	48.96
3701.40	57.42	182	1.3	H	-44.4	1.60	11.90	-34.10	-13	21.10
3701.40	57.89	293	1.4	V	-43.3	1.60	11.90	-33.00	-13	20.00
1.4MHz, Middle channel										
978.6	31.23	138	1.0	H	-65.3	1.36	0.0	-66.66	-13	53.66
978.6	32.71	151	1.1	V	-61.3	1.36	0.0	-62.66	-13	49.66
3760.00	57.82	295	1.3	H	-44.2	1.50	11.80	-33.90	-13	20.90
3760.00	58.17	206	1.8	V	-43.4	1.50	11.80	-33.10	-13	20.10
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	58.02	122	2.0	H	-44.0	1.50	11.80	-33.70	-13	20.70
3818.60	58.57	331	2.4	V	-43.0	1.50	11.80	-32.70	-13	19.70
Band 4										
Test frequency range:30 MHz ~ 20 GHz										
1.4MHz, Low channel										
963.9	32.74	192	1.7	H	-63.8	1.36	0.0	-65.16	-13	52.16
963.9	33.49	308	2.0	V	-60.6	1.36	0.0	-61.96	-13	48.96
3421.40	55.11	59	1.3	H	-45.7	1.40	11.80	-35.30	-13	22.30
3421.40	52.32	20	1.9	V	-48.3	1.40	11.80	-37.90	-13	24.90
1.4MHz, Middle channel										
973.1	31.44	133	1.2	H	-65.1	1.36	0.0	-66.46	-13	53.46
973.1	32.73	16	2.2	V	-61.3	1.36	0.0	-62.66	-13	49.66
3465.00	56.05	68	1.5	H	-44.7	1.50	12.00	-34.20	-13	21.20
3465.00	52.75	97	1.4	V	-48.8	1.50	12.00	-38.30	-13	25.30
1.4MHz, High channel										
969.4	31.57	143	1.5	H	-65.0	1.36	0.0	-66.36	-13	53.36
969.4	32.65	62	1.1	V	-61.4	1.36	0.0	-62.76	-13	49.76
3508.60	55.02	168	1.4	H	-45.7	1.50	12.00	-35.20	-13	22.20
3508.60	52.13	152	1.0	V	-49.4	1.50	12.00	-38.90	-13	25.90

Frequency	Receiver	Turntable	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
(MHz)	Reading (dBμV)	Angle Degree	Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
Band 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	53.77	59	1.3	H	-54.3	1.40	8.70	-47.00	-13	34.00
1649.40	58.86	289	1.5	V	-49.0	1.40	8.70	-41.70	-13	28.70
2474.10	61.23	95	1.8	H	-42.1	2.60	10.20	-34.50	-13	21.50
2474.10	55.74	76	2.1	V	-47.0	2.60	10.20	-39.40	-13	26.40
3298.80	58.96	38	2.1	H	-41.9	1.50	11.70	-31.70	-13	18.70
3298.80	54.37	186	2.3	V	-46.6	1.50	11.70	-36.40	-13	23.40
1.4MHz, Middle channel										
971.6	31.56	149	1.3	H	-64.9	1.36	0.0	-66.26	-13	53.26
971.6	32.79	94	2.1	V	-61.3	1.36	0.0	-62.66	-13	49.66
1673.00	53.43	323	1.3	H	-52.9	1.30	8.90	-45.30	-13	32.30
1673.00	58.32	268	2.2	V	-47.4	1.30	8.90	-39.80	-13	26.80
2509.50	62.44	224	1.8	H	-40.9	2.60	10.20	-33.30	-13	20.30
2509.50	56.53	48	2.4	V	-46.2	2.60	10.20	-38.60	-13	25.60
3346.00	59.54	63	1.3	H	-41.4	1.50	11.70	-31.20	-13	18.20
3346.00	55.39	219	1.0	V	-45.5	1.50	11.70	-35.30	-13	22.30
1.4MHz, High channel										
961.2	32.75	326	1.2	H	-63.8	1.36	0.0	-65.16	-13	52.16
961.2	33.61	155	1.1	V	-60.4	1.36	0.0	-61.76	-13	48.76
1696.60	54.02	46	1.7	H	-52.3	1.30	8.90	-44.70	-13	31.70
1696.60	58.91	286	2.4	V	-46.8	1.30	8.90	-39.20	-13	26.20
2544.90	60.33	11	2.4	H	-43.0	2.60	10.20	-35.40	-13	22.40
2544.90	54.78	162	1.6	V	-48.0	2.60	10.20	-40.40	-13	27.40
3393.20	57.75	214	1.4	H	-43.5	1.40	11.80	-33.10	-13	20.10
3393.20	53.64	326	1.6	V	-47.4	1.40	11.80	-37.00	-13	24.00
Band 7										
Test frequency range: 30 MHz ~ 26.5 GHz										
10MHz, 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	58.42	29	1.1	H	-42.2	1.70	12.00	-31.90	-25	6.90
5010.00	61.79	46	1.1	V	-38.2	1.70	12.00	-27.90	-25	2.90
10MHz, Middle channel										
968.7	31.41	359	1.1	H	-65.1	1.36	0.0	-66.46	-25	41.46
968.7	32.87	117	2.0	V	-61.2	1.36	0.0	-62.56	-25	37.56
5070.00	58.90	158	1.8	H	-41.1	1.60	12.10	-30.60	-25	5.60
5070.00	62.39	208	2.3	V	-37.6	1.60	12.10	-27.10	-25	2.10
10MHz, High channel										
973.6	31.56	272	1.0	H	-64.9	1.36	0.0	-66.26	-25	41.26
973.6	32.87	299	2.1	V	-61.2	1.36	0.0	-62.56	-25	37.56
5130.00	58.13	153	2.0	H	-41.9	1.60	12.10	-31.40	-25	6.40
5130.00	61.42	261	1.7	V	-38.6	1.60	12.10	-28.10	-25	3.10

Frequency	Receiver	Turntable	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
(MHz)	Reading (dBμV)	Angle Degree	Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
Band 17										
Test frequency range: 30 MHz ~ 10 GHz										
10MHz, Low 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
1418.00	63.38	281	1.3	H	-44.8	1.60	7.90	-38.50	-13	25.50
1418.00	67.45	321	2.2	V	-41.0	1.60	7.90	-34.70	-13	21.70
2127.00	64.25	294	1.7	H	-36.9	1.30	9.70	-28.50	-13	15.50
2127.00	63.47	265	2.0	V	-38.5	1.30	9.70	-30.10	-13	17.10
2836.00	52.22	188	1.6	H	-51.7	1.80	10.50	-43.00	-13	30.00
2836.00	57.32	239	1.3	V	-46.3	1.80	10.50	-37.60	-13	24.60
10MHz, Middle channel										
968.7	31.41	359	1.1	H	-65.1	1.36	0.0	-66.46	-13	53.46
968.7	32.87	117	2.0	V	-61.2	1.36	0.0	-62.56	-13	49.56
1420.00	64.24	276	2.2	H	-43.9	1.60	7.90	-37.60	-13	24.60
1420.00	68.01	261	2.5	V	-40.4	1.60	7.90	-34.10	-13	21.10
2130.00	64.52	359	1.5	H	-36.6	1.30	9.70	-28.20	-13	15.20
2130.00	63.59	260	1.7	V	-38.4	1.30	9.70	-30.00	-13	17.00
2840.00	53.50	228	1.3	H	-50.5	1.80	10.50	-41.80	-13	28.80
2840.00	57.35	150	1.9	V	-46.3	1.80	10.50	-37.60	-13	24.60
10MHz, High channel										
973.1	31.44	133	1.2	H	-65.1	1.36	0.0	-66.46	-13	53.46
973.1	32.73	16	2.2	V	-61.3	1.36	0.0	-62.66	-13	49.66
1422.00	64.25	312	1.3	H	-43.9	1.60	7.90	-37.60	-13	24.60
1422.00	67.78	38	1.5	V	-40.7	1.60	7.90	-34.40	-13	21.40
2133.00	64.33	7	2.2	H	-36.8	1.30	9.70	-28.40	-13	15.40
2133.00	63.74	120	2.4	V	-38.2	1.30	9.70	-29.80	-13	16.80
2844.00	53.28	259	1.8	H	-50.7	1.80	10.50	-42.00	-13	29.00
2844.00	57.74	344	2.3	V	-45.9	1.80	10.50	-37.20	-13	24.20
Band 38										
Test frequency range: 30 MHz ~ 26.5GHz										
10MHz, 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
5150.00	60.28	285	1.7	H	-39.8	1.60	12.10	-29.30	-25	4.30
5150.00	62.34	336	2.1	V	-37.3	1.60	12.10	-26.80	-25	1.80
10MHz, Middle channel										
958.6	30.53	149	1.7	H	-66.0	1.36	0.0	-67.36	-25	42.36
958.6	31.65	56	1.9	V	-62.4	1.36	0.0	-63.76	-25	38.76
5190.00	61.5	278	1.2	H	-38.6	1.60	12.10	-28.10	-25	3.10
5190.00	62.86	168	2.4	V	-36.8	1.60	12.10	-26.30	-25	1.30
10MHz, High channel										
971.3	31.64	121	1.7	H	-64.9	1.36	0.0	-66.26	-25	41.26
971.3	32.61	54	2.4	V	-61.4	1.36	0.0	-62.76	-25	37.76
5230.00	60.58	328	2.2	H	-39.5	1.60	12.10	-29.00	-25	4.00
5230.00	62.74	181	1.7	V	-36.9	1.60	12.10	-26.40	-25	1.40

Frequency	Receiver	Turntable	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
(MHz)	Reading (dBμV)	Angle Degree	Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
Band 41										
5MHz, Low channel										
960.2	30.36	239	1.9	H	-66.1	1.36	0.0	-67.46	-25	42.46
960.2	31.69	356	1.8	V	-62.4	1.36	0.0	-63.76	-25	38.76
5075.00	60.45	46	1.9	H	-39.6	1.60	12.10	-29.10	-25	4.10
5075.00	62.37	72	2.1	V	-37.6	1.60	12.10	-27.10	-25	2.10
5MHz, Middle Channel										
957.2	30.41	170	1.2	H	-66.1	1.36	0.0	-67.46	-25	42.46
957.2	31.68	345	1.7	V	-62.4	1.36	0.0	-63.76	-25	38.76
5190.00	60.79	209	2.3	H	-39.3	1.60	12.10	-28.80	-25	3.80
5190.00	62.45	276	2.3	V	-37.2	1.60	12.10	-26.70	-25	1.70
5MHz, High Channel										
965.8	32.38	37	2.0	H	-64.1	1.36	0.0	-65.46	-25	40.46
965.8	33.61	329	1.8	V	-60.4	1.36	0.0	-61.76	-25	36.76
5305.00	60.37	27	1.0	H	-39.4	1.60	12.20	-28.80	-25	3.80
5305.00	62.17	239	1.4	V	-37.0	1.60	12.20	-26.40	-25	1.40
Band 66										
Test frequency range: 30 MHz ~ 20GHz										
1.4MHz, Low channel										
954.5	30.27	110	2.1	H	-66.2	1.36	0.0	-67.56	-13	54.56
954.5	31.67	149	2.2	V	-62.4	1.36	0.0	-63.76	-13	50.76
3421.40	55.64	106	2.4	H	-45.2	1.40	11.80	-34.80	-13	21.80
3421.40	48.26	31	1.2	V	-52.3	1.40	11.80	-41.90	-13	28.90
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	54.78	307	2.2	H	-46.0	1.50	12.00	-35.50	-13	22.50
3490.00	47.53	347	1.3	V	-54.0	1.50	12.00	-43.50	-13	30.50
1.4MHz, High channel										
950.6	30.53	305	2.3	H	-66.0	1.36	0.0	-67.36	-13	54.36
950.6	31.72	151	2.3	V	-62.3	1.36	0.0	-63.66	-13	50.66
3558.60	56.32	340	1.3	H	-45.2	1.50	12.10	-34.60	-13	21.60
3558.60	48.85	334	1.9	V	-52.2	1.50	12.10	-41.60	-13	28.60

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.

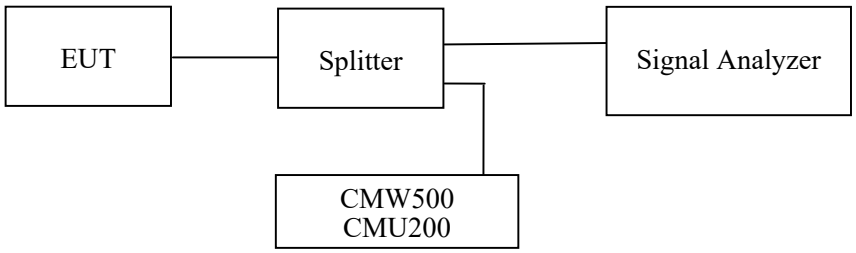
According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

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:	27~29.4 ℃
Relative Humidity:	51~56 %
ATM Pressure:	101.0 kPa

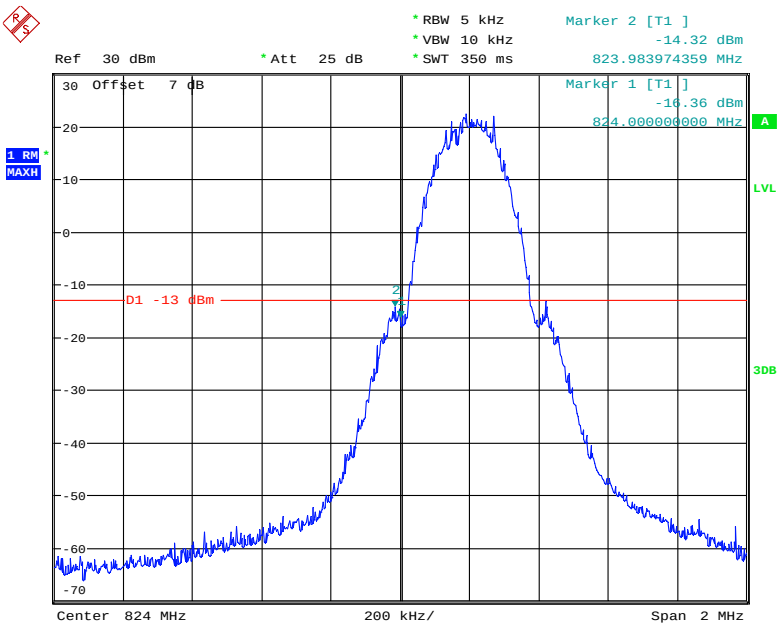
The testing was performed by Bravos Zhao and Pedro Yun from 2021-07-30 to 2021-08-17.

EUT operation mode: Transmitting (Worst case)

Test Result: Pass

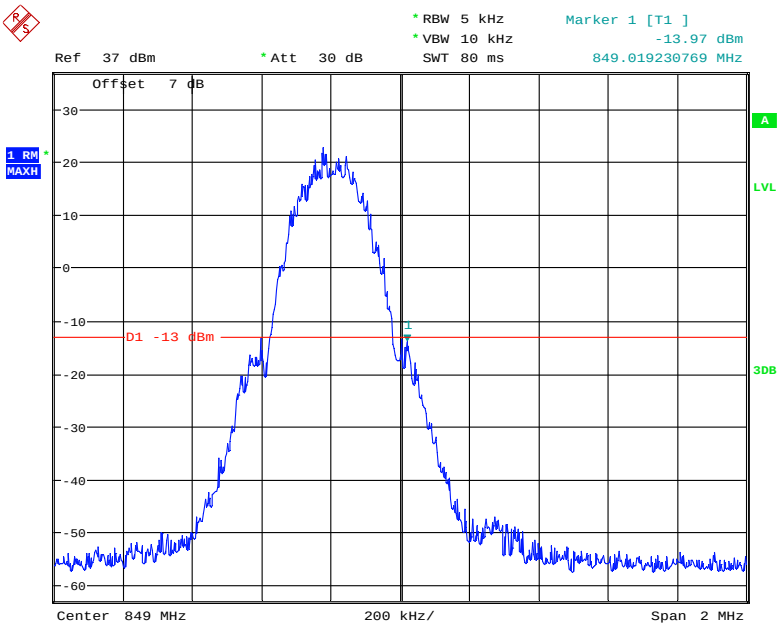
Please refer to the following plots.

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



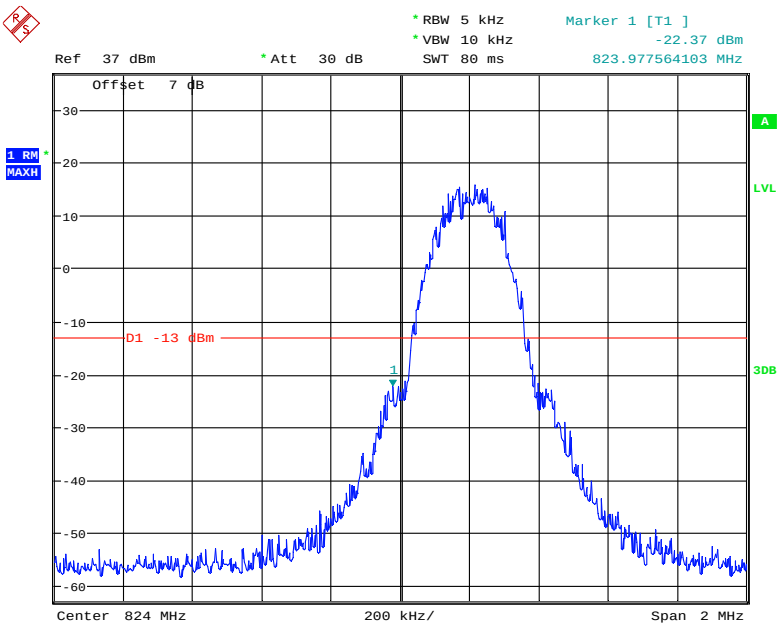
Date: 17.AUG.2021 09:23:43

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



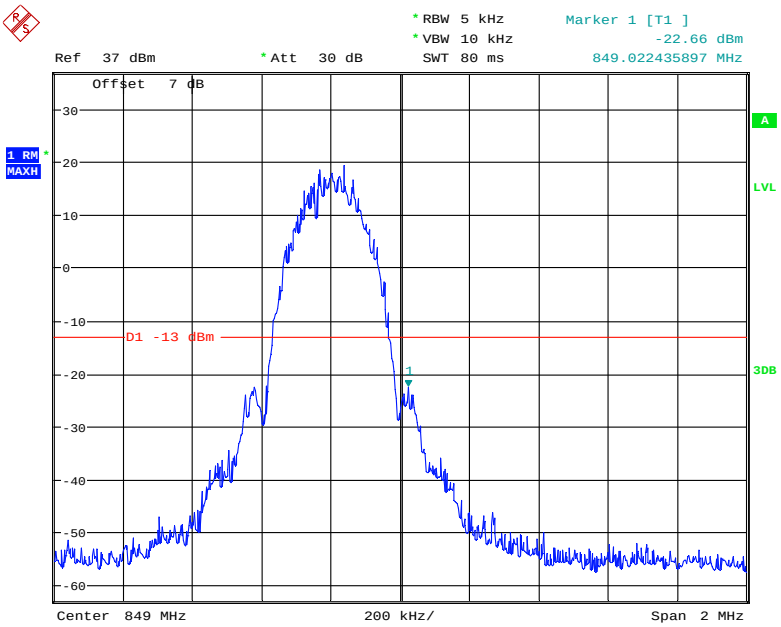
Date: 30.JUL.2021 11:02:45

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



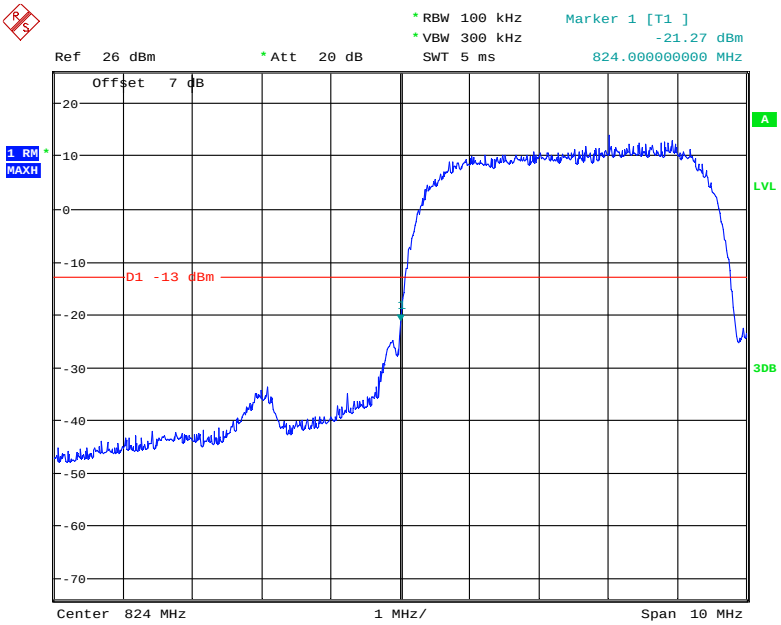
Date: 30.JUL.2021 11:24:44

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



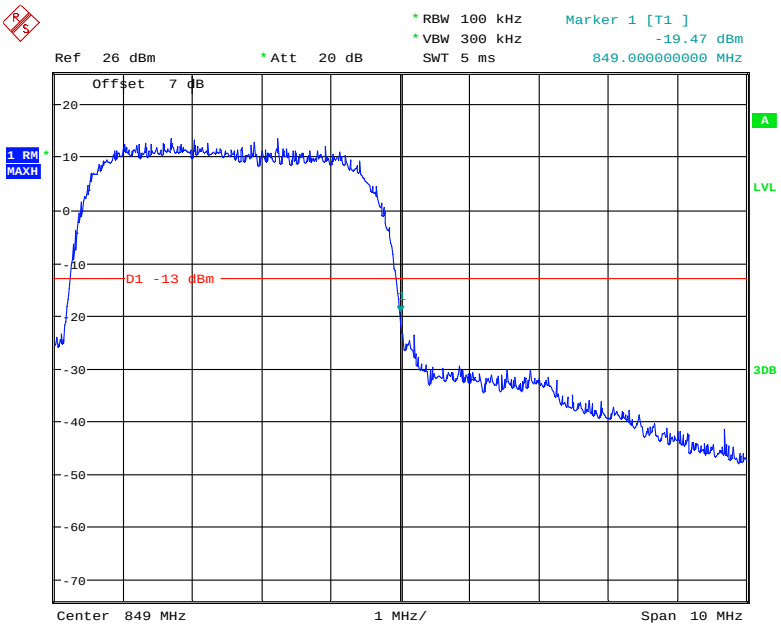
Date: 30.JUL.2021 11:25:31

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



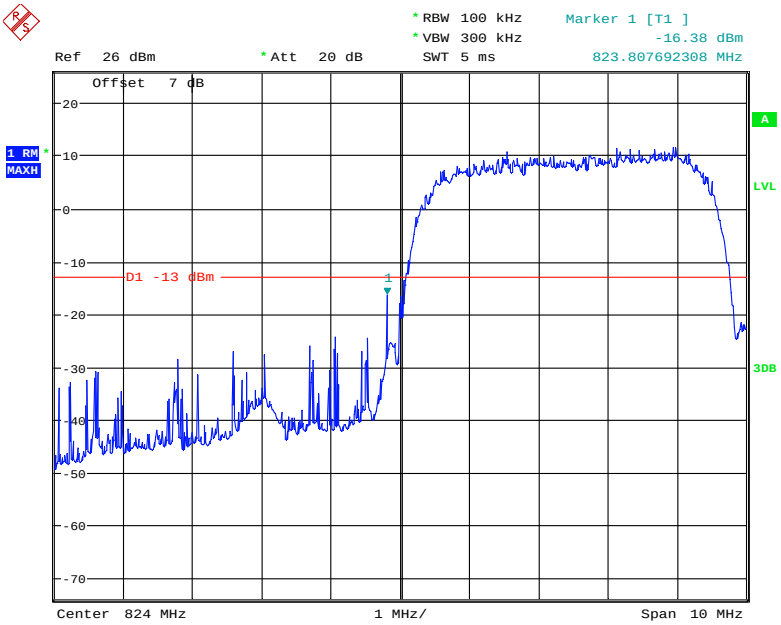
Date: 30.JUL.2021 14:43:03

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



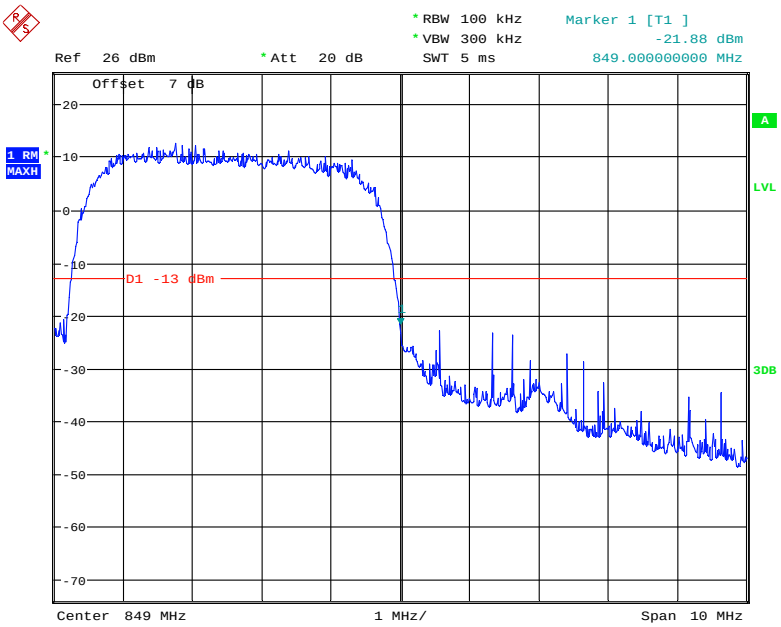
Date: 30.JUL.2021 14:43:43

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



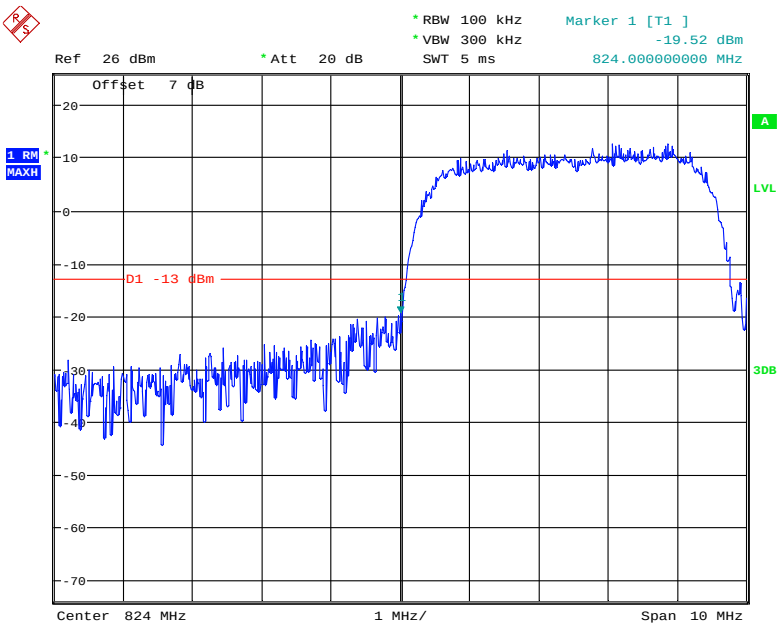
Date: 30.JUL.2021 15:00:58

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



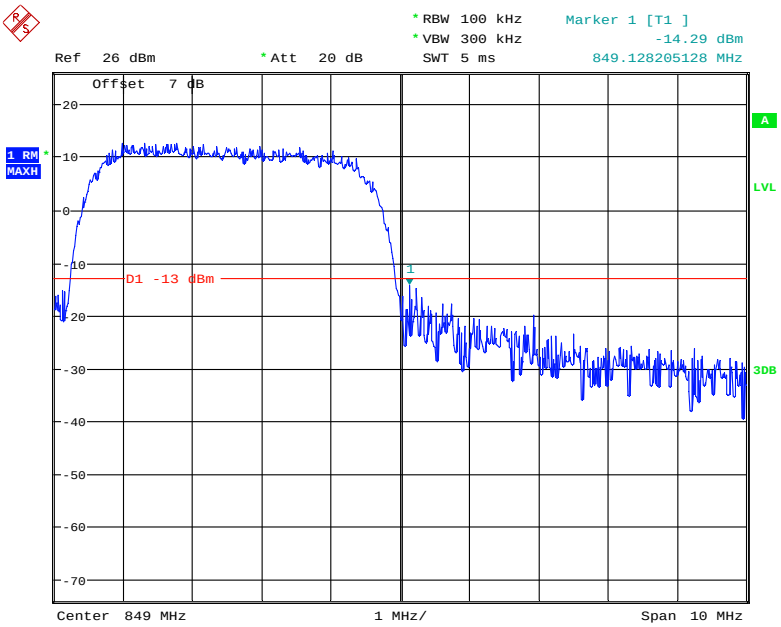
Date: 30.JUL.2021 15:01:53

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



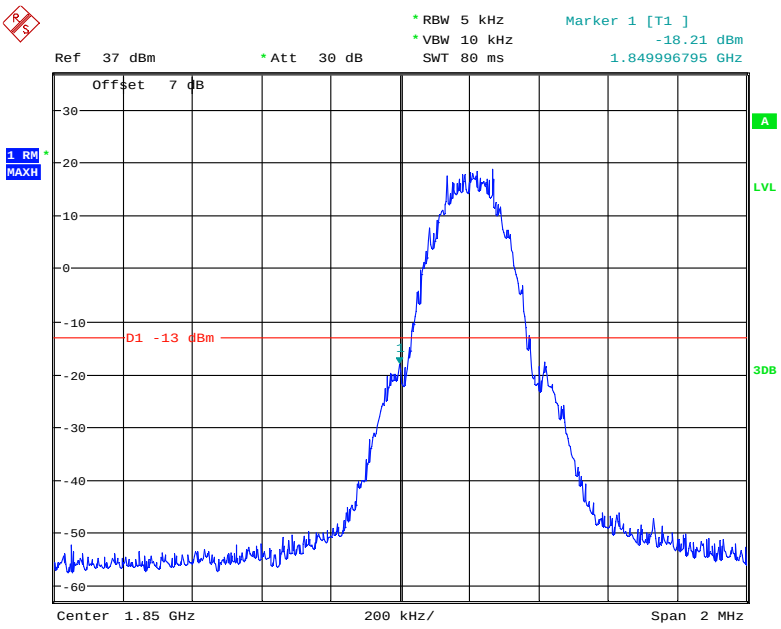
Date: 30.JUL.2021 15:14:19

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



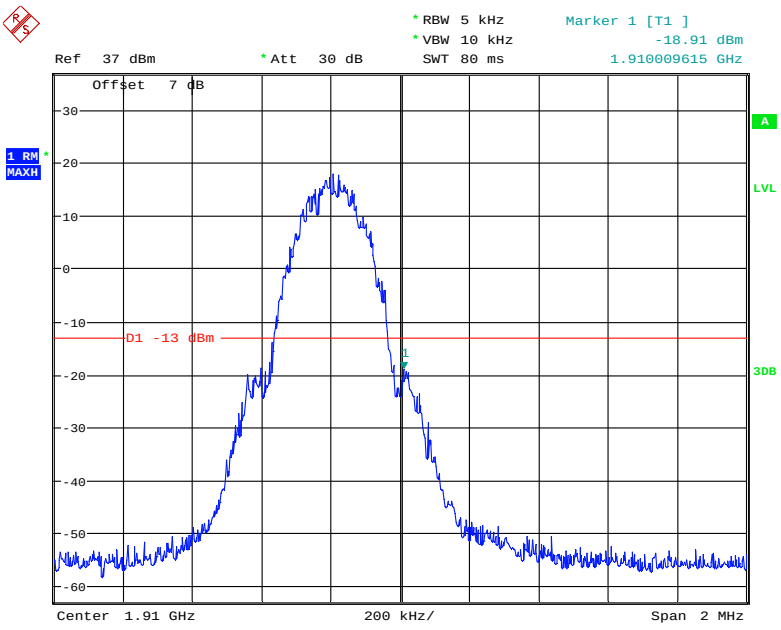
Date: 30.JUL.2021 15:13:30

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



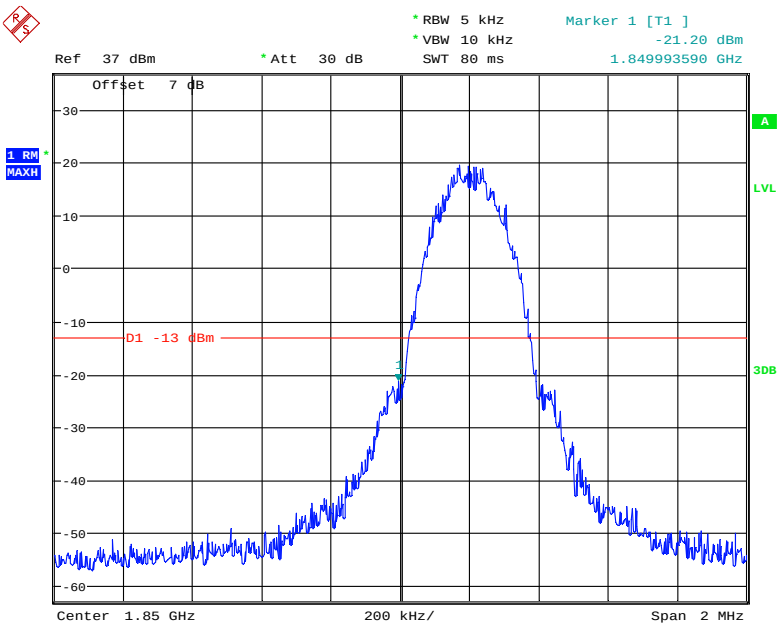
Date: 30.JUL.2021 10:49:22

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



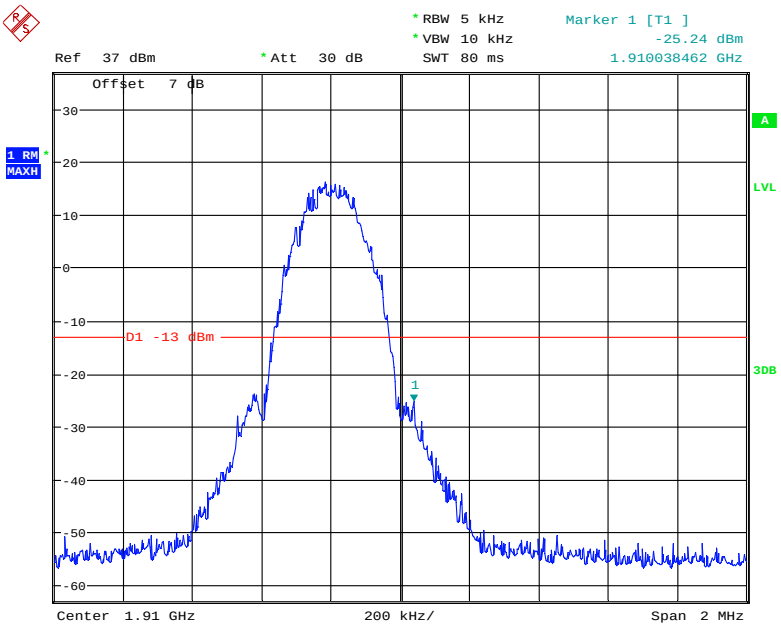
Date: 30.JUL.2021 10:50:08

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



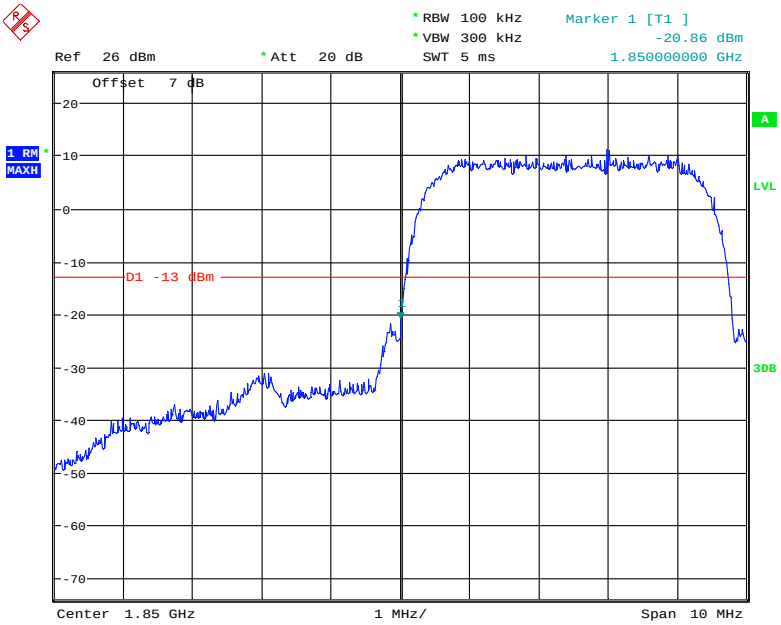
Date: 30.JUL.2021 10:55:20

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



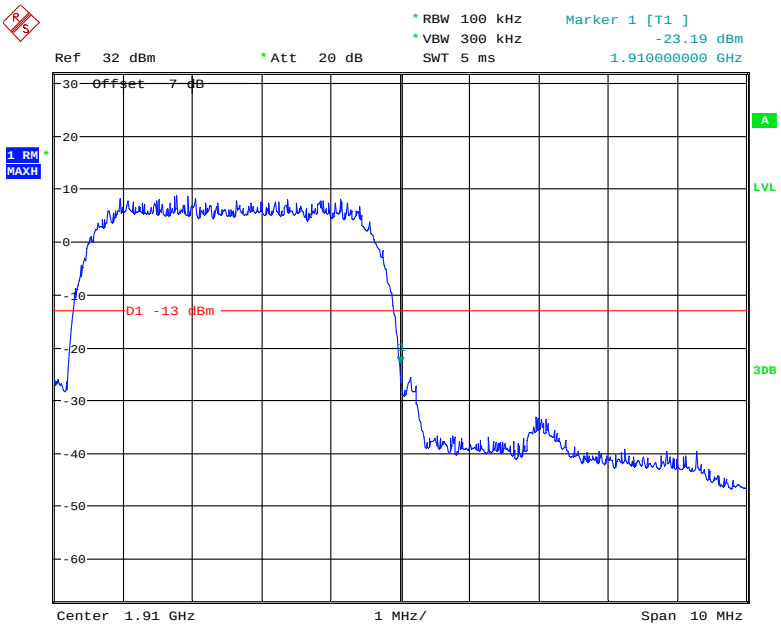
Date: 30.JUL.2021 10:54:39

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



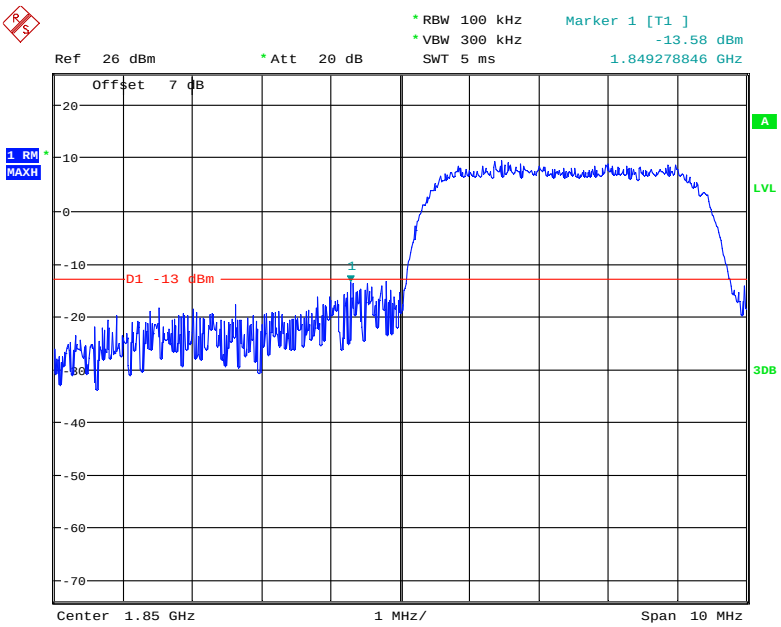
Date: 30.JUL.2021 15:33:31

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



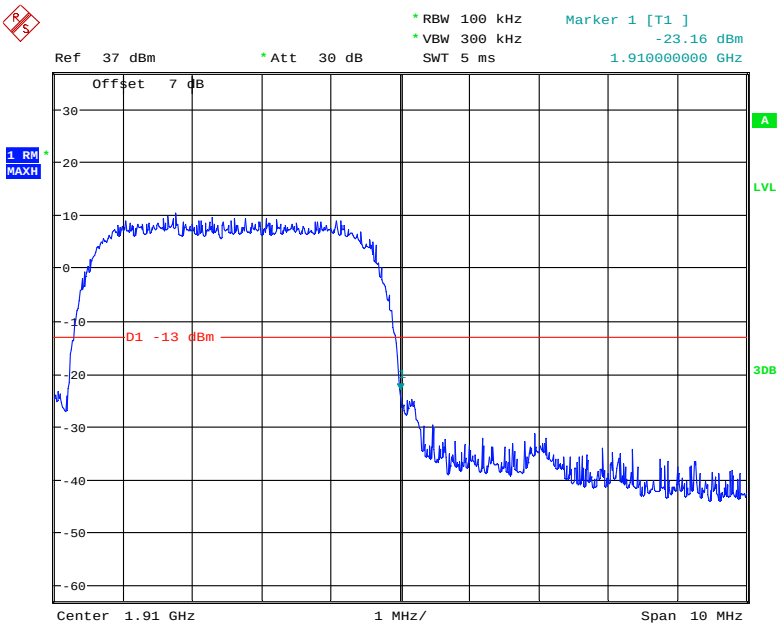
Date: 30.JUL.2021 13:17:29

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



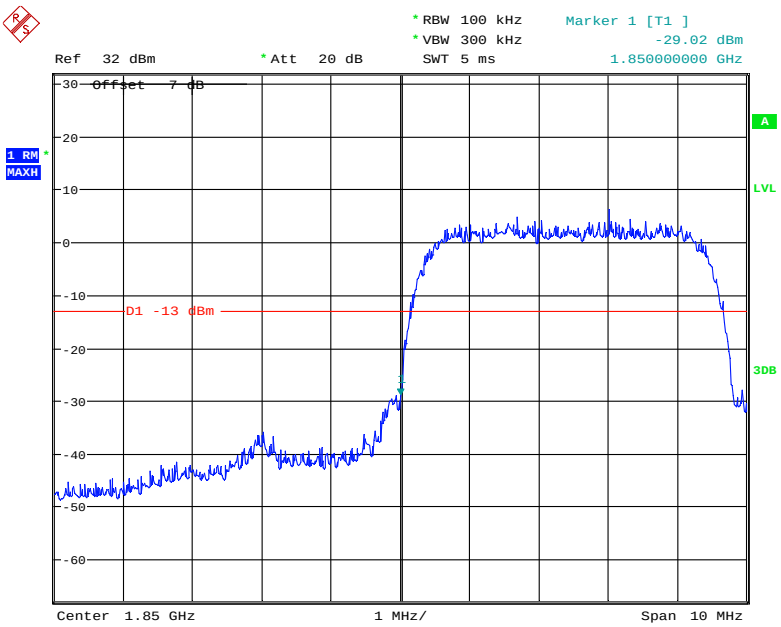
Date: 30.JUL.2021 15:38:07

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



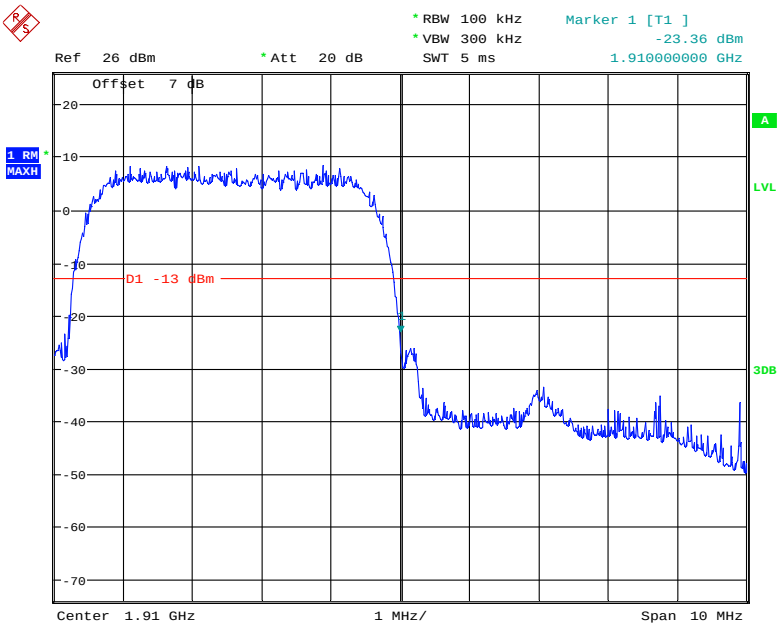
Date: 31.JUL.2021 12:06:46

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



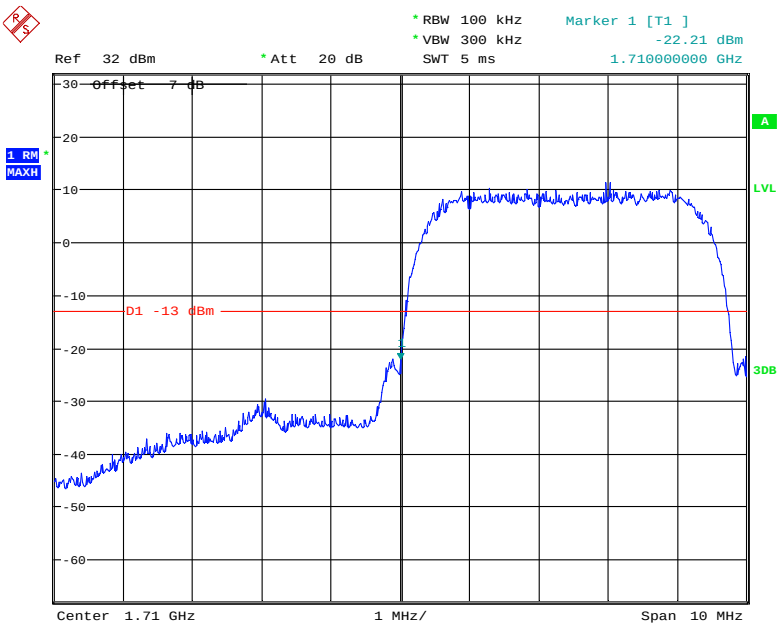
Date: 30.JUL.2021 13:46:39

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



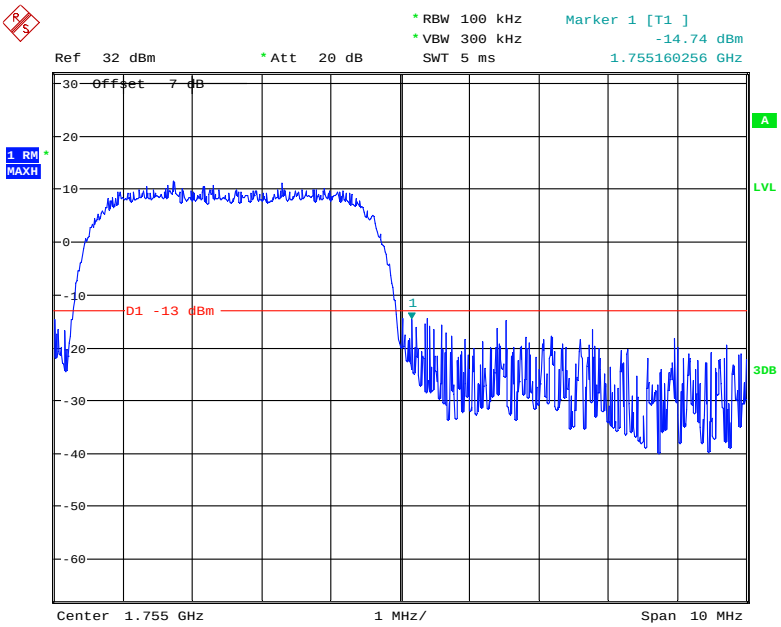
Date: 30.JUL.2021 15:39:08

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



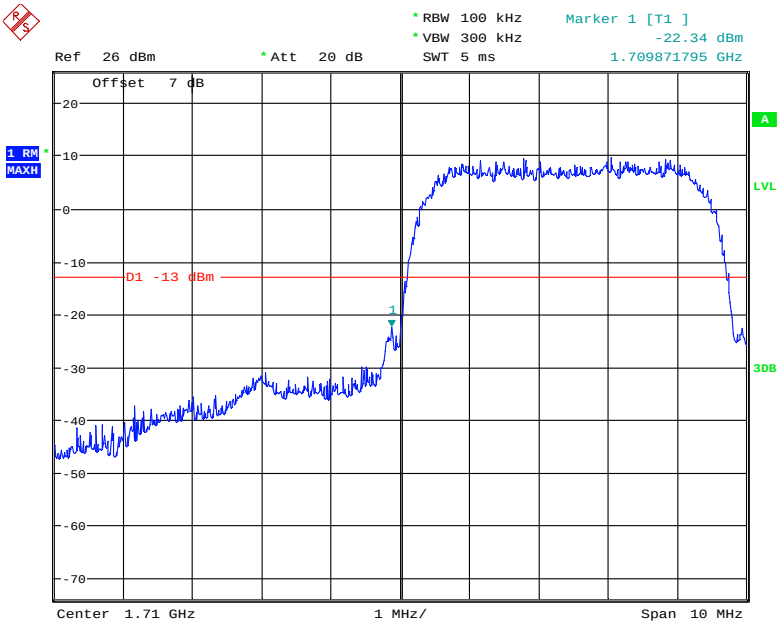
Date: 30.JUL.2021 14:02:23

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



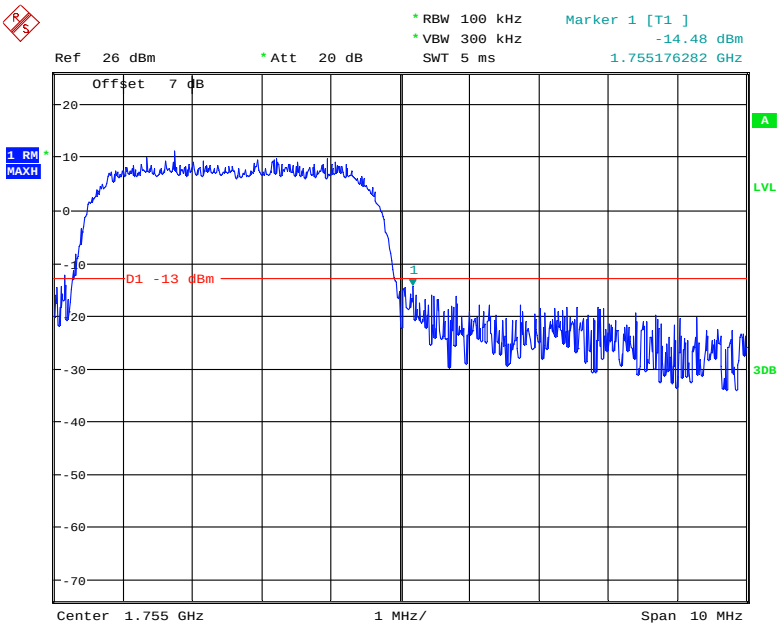
Date: 30.JUL.2021 14:07:29

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



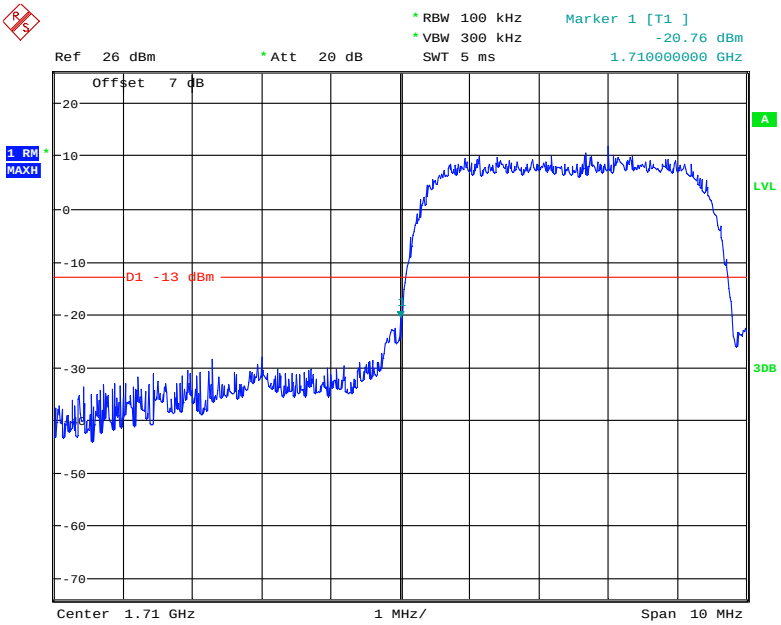
Date: 30.JUL.2021 14:36:48

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

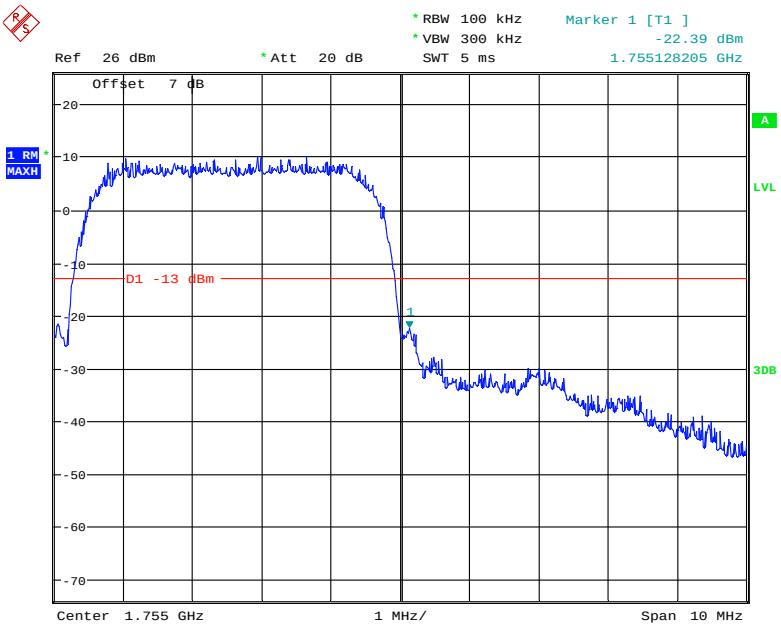


Date: 30.JUL.2021 14:33:15

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



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



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

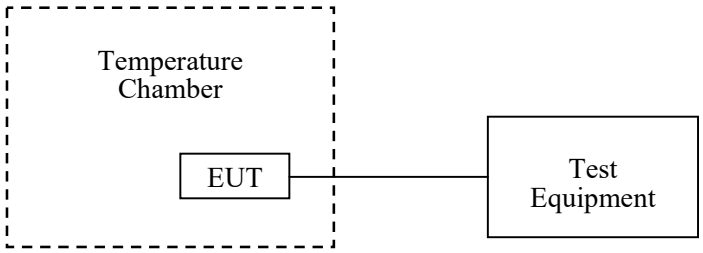
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

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:	27~29.4 ℃
Relative Humidity:	51~56 %
ATM Pressure:	101.0 kPa

The testing was performed by Bravos Zhao and Pedro Yun from 2021-07-30 to 2021-08-01.

EUT operation mode: Transmitting

Test Result: Pass

Please refer to the following tables.

Cellular Band (Part 22H)

GSM Mode

Middle Channel, f_o =836.6MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.85	5	0.0060	2.5
-20		2	0.0024	2.5
-10		4	0.0048	2.5
0		8	0.0096	2.5
10		-3	-0.0036	2.5
20		-4	-0.0048	2.5
30		-7	-0.0084	2.5
40		4	0.0048	2.5
50		5	0.0060	2.5
20	3.45	8	0.0096	2.5
	4.40	-3	-0.0036	2.5

EDGE Mode

Middle Channel, f_o =836.6MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.85	4	0.0048	2.5
-20		6	0.0072	2.5
-10		8	0.0096	2.5
0		1	0.0012	2.5
10		3	0.0036	2.5
20		-4	-0.0048	2.5
30		-5	-0.0060	2.5
40		6	0.0072	2.5
50		-1	-0.0012	2.5
20	3.45	3	0.0036	2.5
	4.40	5	0.0060	2.5

WCDMA Mode

Middle Channel, f_o =836.6MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.85	7	0.0084	2.5
-20		-5	-0.0060	2.5
-10		6	0.0072	2.5
0		9	0.0108	2.5
10		-4	-0.0048	2.5
20		8	0.0096	2.5
30		6	0.0072	2.5
40		7	0.0084	2.5
50		5	0.0060	2.5
20	3.45	6	0.0072	2.5
	4.40	-9	-0.0108	2.5

PCS Band (Part 24E)

GSM Mode

Middle Channel, f_o =1880.0 MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	3.85	8	0.0043	Pass
-20		9	0.0048	Pass
-10		6	0.0032	Pass
0		-4	-0.0021	Pass
10		6	0.0032	Pass
20		33	0.0176	Pass
30		4	0.0021	Pass
40		4	0.0021	Pass
50		-3	-0.0016	Pass
20	3.45	7	0.0037	Pass
	4.40	9	0.0048	Pass

EDGE Mode

Middle Channel, f_o =1880.0 MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	3.85	8	0.0043	Pass
-20		5	0.0027	Pass
-10		3	0.0016	Pass
0		4	0.0021	Pass
10		-6	-0.0032	Pass
20		6	0.0032	Pass
30		-2	-0.0011	Pass
40		3	0.0016	Pass
50		4	0.0021	Pass
20	3.45	6	0.0032	Pass
	4.40	5	0.0027	Pass

WCDMA Mode

Middle Channel, f_o =1880.0 MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	3.85	-3	-0.0016	Pass
-20		6	0.0032	Pass
-10		3	0.0016	Pass
0		7	0.0037	Pass
10		9	0.0048	Pass
20		3	0.0016	Pass
30		8	0.0043	Pass
40		4	0.0021	Pass
50		7	0.0037	Pass
20	3.45	-5	-0.0027	Pass
	4.40	6	0.0032	Pass

AWS Band (Part 27)

Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.85	1710.3531	1754.6827	1710	1755
-20		1710.3548	1754.6858	1710	1755
-10		1710.3588	1754.6882	1710	1755
0		1710.3558	1754.6886	1710	1755
10		1710.3510	1754.6857	1710	1755
20		1710.3505	1754.6832	1710	1755
30		1710.3551	1754.6874	1710	1755
40		1710.3553	1754.6881	1710	1755
50		1710.3568	1754.6835	1710	1755
20	3.45	1710.3572	1754.6868	1710	1755
	4.40	1710.3549	1754.6842	1710	1755

LTE:
QPSK:

Band 2:

10.0 MHz Middle Channel, f_o=1880MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	3.85	-5.75	-0.0031	Pass
-20		-9.58	-0.0051	Pass
-10		-6.27	-0.0033	Pass
0		6.21	0.0033	Pass
10		8.05	0.0043	Pass
20		6.88	0.0037	Pass
30		-6.58	-0.0035	Pass
40		7.26	0.0039	Pass
50		-9.73	-0.0052	Pass
20	3.45	-8.13	-0.0043	Pass
	4.40	-7.01	-0.0037	Pass

Band 4:

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.85	1710.3886	1754.0619	1710	1755
-20		1710.1660	1754.0638	1710	1755
-10		1710.3975	1754.0281	1710	1755
0		1710.0864	1754.0979	1710	1755
10		1710.4724	1754.4288	1710	1755
20		1710.1625	1754.3471	1710	1755
30		1710.2050	1754.0222	1710	1755
40		1710.2404	1754.3589	1710	1755
50		1710.3743	1754.0361	1710	1755
20	3.45	1710.2932	1754.3846	1710	1755
	4.40	1710.4847	1754.0587	1710	1755

Band 5:

10.0 MHz Middle Channel, f_o=836.5MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.85	-8.81	-0.0105	2.5
-20		9.08	0.0109	2.5
-10		8.62	0.0103	2.5
0		-7.17	-0.0086	2.5
10		-5.64	-0.0067	2.5
20		7.01	0.0084	2.5
30		-5.69	-0.0068	2.5
40		5.72	0.0068	2.5
50		6.82	0.0082	2.5
20	3.45	9.84	0.0118	2.5
	4.40	9.80	0.0117	2.5

Band 7:

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.85	2500.0834	2569.0852	2500	2570
-20		2500.4042	2569.0403	2500	2570
-10		2500.4729	2569.0763	2500	2570
0		2500.0694	2569.0203	2500	2570
10		2500.0440	2569.0970	2500	2570
20		2500.0620	2569.0795	2500	2570
30		2500.2200	2569.0325	2500	2570
40		2500.0856	2569.0469	2500	2570
50		2500.2803	2569.0364	2500	2570
20	3.45	2500.0361	2569.2130	2500	2570
	4.40	2500.2348	2569.1305	2500	2570

Band 17:

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.85	704.0602	715.0761	704	716
-20		704.0784	715.2018	704	716
-10		704.0721	715.0749	704	716
0		704.0170	715.2287	704	716
10		704.0369	715.2541	704	716
20		704.0972	715.3467	704	716
30		704.0321	715.3452	704	716
40		704.0126	715.0932	704	716
50		704.0822	715.0872	704	716
20	3.45	704.0244	715.0826	704	716
	4.40	704.0157	715.1449	704	716

Band 38

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.85	2570.4936	2619.0550	2570	2620
-20		2570.4847	2619.0590	2570	2620
-10		2570.3385	2619.0296	2570	2620
0		2570.0740	2619.4472	2570	2620
10		2570.0208	2619.0876	2570	2620
20		2570.3601	2619.0477	2570	2620
30		2570.4449	2619.0763	2570	2620
40		2570.0608	2619.0669	2570	2620
50		2570.0271	2619.0669	2570	2620
20	3.45	2570.0819	2619.0837	2570	2620
	4.40	2570.1103	2619.0914	2570	2620

Band 41

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.85	2535.2492	2654.5321	2535	2655
-20		2535.3425	2654.0933	2535	2655
-10		2535.3385	2654.0296	2535	2655
0		2535.1460	2654.0850	2535	2655
10		2535.0557	2654.0961	2535	2655
20		2535.3024	2654.0496	2535	2655
30		2535.3659	2654.0083	2535	2655
40		2535.3293	2654.4774	2535	2655
50		2535.1925	2654.4034	2535	2655
20	3.45	2535.0273	2654.1143	2535	2655
	4.40	2535.2892	2654.0882	2535	2655

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

Band 66

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.85	1710.0132	1779.0493	1710	1780
-20		1710.0689	1779.2720	1710	1780
-10		1710.3595	1779.0306	1710	1780
0		1710.0103	1779.0689	1710	1780
10		1710.0075	1779.1378	1710	1780
20		1710.1680	1779.2012	1710	1780
30		1710.4595	1779.0862	1710	1780
40		1710.4121	1779.0838	1710	1780
50		1710.2235	1779.0583	1710	1780
20	3.45	1710.0887	1779.0140	1710	1780
	4.40	1710.1415	1779.2874	1710	1780

16QAM:

Band 2:

10.0 MHz Middle Channel, f_o =1880MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	3.85	-8	-0.0043	Pass
-20		-7	-0.0037	Pass
-10		10	0.0053	Pass
0		-5	-0.0027	Pass
10		6	0.0032	Pass
20		-7	-0.0037	Pass
30		-4	-0.0021	Pass
40		-6	-0.0032	Pass
50		9	0.0048	Pass
20	3.45	10	0.0053	Pass
	4.40	8	0.0043	Pass

Band 4:

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.85	1710.1417	1754.4169	1710	1755
-20		1710.1683	1754.4342	1710	1755
-10		1710.5072	1754.0642	1710	1755
0		1710.4392	1754.0827	1710	1755
10		1710.0384	1754.0243	1710	1755
20		1710.4251	1754.0443	1710	1755
30		1710.3472	1754.0119	1710	1755
40		1710.0775	1754.0123	1710	1755
50		1710.0645	1754.0144	1710	1755
20	3.45	1710.2690	1754.0883	1710	1755
	4.40	1710.4249	1754.3927	1710	1755

Band 5:

10.0 MHz Middle Channel, f_o=836.5MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.85	-3.87	-0.0046	2.5
-20		7.02	0.0084	2.5
-10		-9.61	-0.0115	2.5
0		-8.12	-0.0097	2.5
10		-8.83	-0.0106	2.5
20		-9.12	-0.0109	2.5
30		8.62	0.0103	2.5
40		6.46	0.0077	2.5
50		-5.61	-0.0067	2.5
20	3.45	8.92	0.0107	2.5
	4.40	-7.91	-0.0095	2.5

Band 7:

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.85	2500.3122	2569.1226	2500	2570
-20		2500.0041	2569.4016	2500	2570
-10		2500.5102	2569.0386	2500	2570
0		2500.5662	2569.0129	2500	2570
10		2500.3576	2569.0633	2500	2570
20		2500.2367	2569.0620	2500	2570
30		2500.5348	2569.0304	2500	2570
40		2500.3289	2569.0443	2500	2570
50		2500.0921	2569.4882	2500	2570
20	3.45	2500.0156	2569.4840	2500	2570
	4.40	2500.1997	2569.0975	2500	2570

Band 17:

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.85	704.0626	715.0355	704	716
-20		704.4097	715.0899	704	716
-10		704.4721	715.0749	704	716
0		704.4557	715.0949	704	716
10		704.0494	715.0934	704	716
20		704.4576	715.0477	704	716
30		704.1146	715.0076	704	716
40		704.5465	715.0459	704	716
50		704.0077	715.4279	704	716
20	3.45	704.3210	715.1550	704	716
	4.40	704.4624	715.0721	704	716

Band 38

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.85	2570.4318	2619.0460	2570	2620
-20		2570.3961	2619.5348	2570	2620
-10		2570.3385	2619.0096	2570	2620
0		2570.0978	2619.0493	2570	2620
10		2570.4674	2619.0120	2570	2620
20		2570.5782	2619.5929	2570	2620
30		2570.1342	2619.0591	2570	2620
40		2570.1938	2619.0273	2570	2620
50		2570.3636	2619.0322	2570	2620
20	3.45	2570.3009	2619.0831	2570	2620
	4.40	2570.1789	2619.0755	2570	2620

Band 41

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.85	2535.0506	2654.0207	2535	2655
-20		2535.3295	2654.0805	2535	2655
-10		2535.3385	2654.0096	2535	2655
0		2535.1042	2654.0600	2535	2655
10		2535.2155	2654.0361	2535	2655
20		2535.5003	2654.4327	2535	2655
30		2535.4018	2654.3954	2535	2655
40		2535.3999	2654.0635	2535	2655
50		2535.0127	2654.0260	2535	2655
20	3.45	2535.3082	2654.4485	2535	2655
	4.40	2535.1528	2654.0377	2535	2655

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

Band 66

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	3.85	1710.3541	1779.1243	1710	1780
-20		1710.0800	1779.2611	1710	1780
-10		1710.3595	1779.0306	1710	1780
0		1710.1671	1779.0036	1710	1780
10		1710.0125	1779.0755	1710	1780
20		1710.0771	1779.0453	1710	1780
30		1710.5015	1779.0973	1710	1780
40		1710.1383	1779.1405	1710	1780
50		1710.4352	1779.1471	1710	1780
20	3.45	1710.0180	1779.5115	1710	1780
	4.40	1710.1069	1779.0985	1710	1780

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