



TESTREPORT

Applicant Name : Bolt Modus Corp
Address : Oficina N.33 Edificio Ofidepositos Central, Calidonia - Distrito
Federal, Panama
Report Number: SZNS220812-36652E-RF-00D
FCC ID: 2APW4ART3P

Test Standard (s)

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

Sample Description

Product Type: 4G Smart Phone
Model No.: ART 3 PRO
Multiple Model(s) No.: N/A
Trade Mark: YEZZ
Date Received: 2022/08/12
Report Date: 2022/09/20

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

Prepared and Checked By:

Roger Ling

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EMC Engineer

Approved By:

Candy Li

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EMC Engineer

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

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FCC -2G,3G,4G

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Frequency Range	GSM 850: 824-849MHz(TX); 869-894MHz(RX) PCS 1900: 1850-1910MHz(TX); 1930-1990MHz(RX) WCDMA Band 2: 1850-1910MHz(TX); 1930-1990MHz(RX) WCDMA Band 5: 824-849MHz(TX); 869-894MHz(RX) LTE Band 2: 1850-1910MHz(TX); 1930-1990MHz(RX) LTE Band 4: 1710-1755MHz(TX); 2110-2155MHz(RX) LTE Band 5: 824-849MHz(TX); 869-894MHz(RX) LTE Band 7: 2500-2570MHz(TX); 2620-2690MHz(RX) LTE Band 12: 699-716MHz(TX); 729-746MHz(RX) LTE Band 17: 704-716MHz(TX); 734-746MHz(RX)
Modulation Technique	2G: GMSK, 8PSK 3G: BPSK, QPSK, 16QAM 4G: QPSK, 16QAM
Antenna Specification*	GSM850/WCDMA Band 5/ LTE Band5: -1.6dBi PCS1900/WCDMA Band 2/ LTE Band 2: -1.4dBi LTE Band 4: -1.4dBi, LTE Band 7: -0.9dBi, LTE Band 12/Band 17: -1.6dBi, (provided by the applicant)
Voltage Range	DC 3.85V from battery or DC 5V from adapter
Sample serial number	SZNS220812-36652E-RF-S1 for Conducted and Radiated Emissions SZNS220812-36652E-RF-S2 for RF Conducted Test (Assigned by ATC)
Sample/EUT Status	Good condition
Extreme condition*	L.V.: Low Voltage 3.4V _{DC} N.V.: Normal Voltage 3.85V _{DC} H.V.: High Voltage 4.5V _{DC} (provided by the applicant)
Adapter information	Model: CART3P Input: AC 100-240V, 50/60Hz Output: DC 5.0V, 2.0A

Objective

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

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

Test Methodology

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

Part 22 Subpart H - Public Mobile Services
 Part 24 Subpart E - Personal Communication Services
 Part 27 - Miscellaneous Wireless Communications Services

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

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

Each test item follows test standards and with no deviation.

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		±5%
RF output power, conducted		±0.73dB
Unwanted Emission, conducted		±1.6dB
RF Frequency		±0.082*10 ⁻⁷
Emissions, Radiated	30MHz - 1GHz	±4.28dB
	1GHz - 18GHz	±4.98dB
	18GHz - 26.5GHz	±5.06dB
Temperature		±1 °C
Humidity		±6%
Supply voltages		±0.4%

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

Test Facility

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

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

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

SYSTEM TEST CONFIGURATION

Description of Test Configuration

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

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 B5	4.2	826.4	836.4	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 B12	1.4	699.7	707.5	715.3
	3	700.5	707.5	714.5
	5	701.5	707.5	713.5
	10	704	707.5	711
LTE B17	5	706.5	710	713.5
	10	709	710	711

Equipment Modifications

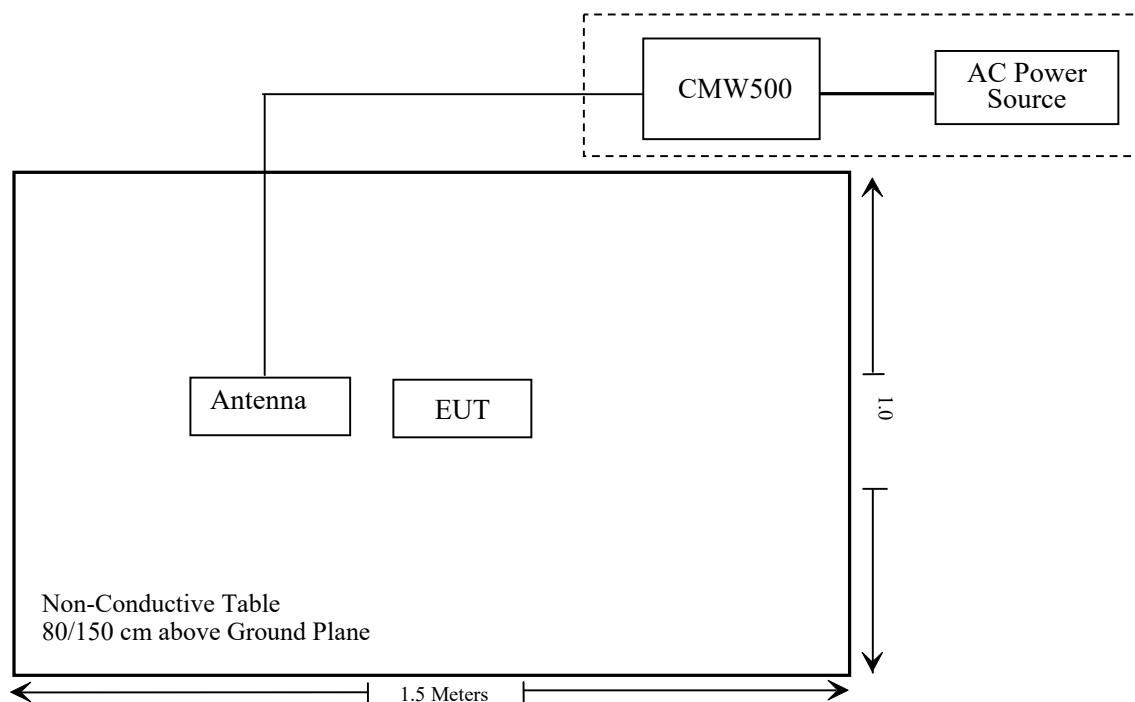
No modification was made to the EUT.

Support Equipment List and Details

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

Support Cable Description

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

Block Diagram of Test Setup

SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§ 1.1307 ,§2.1093	RF Exposure (SAR)	Compliant*
§2.1046; § 22.913 (a) (d); § 24.232 (c) (d); §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(g)(h)(m)	Band Edge	Compliant
§ 2.1055; § 22.355; § 24.235; §27.54;	Frequency stability	Compliant

Note: * Please refer to SAR report number: SZNS220812-36652E-SA.

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test					
Rohde& Schwarz	Test Receiver	ESR	102725	2021/12/13	2022/12/12
Rohde&Schwarz	Spectrum Analyzer	FSV40	101949	2021/12/13	2022/12/12
SONOMA INSTRUMENT	Amplifier	310 N	186131	2021/11/09	2022/11/08
A.H. Systems, inc.	Preamplifier	PAM-0118P	135	2021/11/09	2022/11/08
Quinstar	Amplifier	QLW-184055 36-J0	15964001002	2021/11/11	2022/11/10
Radiated Emission Test Software: e3 19821b (V9)					
Unknown	RF Coaxial Cable	No.10	N050	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.11	N1000	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.12	N040	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.13	N300	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.14	N800	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.15	N600	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.16	N650	2021/12/14	2022/12/13
Schwarzbeck	Bilog Antenna	VULB9163	9163-194	2020/01/05	2023/01/04
Schwarzbeck	Bilog Antenna	VULB9163	9163-323	2021/07/06	2024/07/05
Schwarzbeck	Horn Antenna	BBHA9120D	9120D-655	2020/01/05	2023/01/04
Schwarzbeck	Horn Antenna	BBHA9120D	9120D-1067	2020/01/05	2023/01/04
PASTERNAK	Horn Antenn	PE9852/2F-20	1120 (ATC-BA-024-1)	2020/01/05	2023/01/04
PASTERNAK	Horn Antenn	PE9852/2F-20	1120 (ATC-BA-025-1)	2020/01/05	2023/01/04
Wainwright	High Pass Filter	WHKX3.6/18 G-10SS	5	2021/12/14	2022/12/13
CD	High Pass Filter	HPM-1.2/18G -60	110	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.16	N200	2021/12/14	2022/12/13
Agilent	Signal Generator	N5183A	MY51040755	2021/12/13	2022/12/12

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
RF Conducted Test					
SPECTRUM ANALYZER	Rohde & Schwarz	FSU26	200982	2022/07/06	2023/07/05
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	154606	2021/12/13	2022/12/12
WEINSCHTEL	10dB Attenuator	5324	AU 3842	2021/12/14	2022/12/13
Mini-Circuits	Power Splitter	DC-18000MHz	SF10944151S	2021/12/14	2022/12/13
Gongwen	Temp. & Humid. Chamber	HSD-500	109	2021/10/14	2022/10/13
Fluke	Multi Meter	45	7664009	2021/12/14	2022/12/13
Manson	DC Power Source	KPS-6604	ATCS-205	NCR	NCR
Unknown	RF Coaxial Cable	No.33	RF-03	Each time	
Rohde & Schwarz	Spectrum Analyzer	FSV-40	101495	2021/12/13	2022/12/12
HP	6dB Attenuator	8493B 6dB Attenuator	2708A 04769	2021/12/14	2022/12/13

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

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

Applicable Standard

FCC§1.1310 and §2.1093.

Test Result

Compliant, please refer to the SAR report: SZNS220812-36652E-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) (d) & 24.232(c) (d); §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.

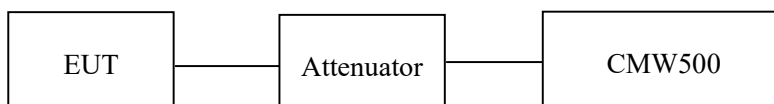
According to §27.50(d), Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

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

Test Procedure

Conducted method:

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



Test Data

Environmental Conditions

Temperature:	28 °C
Relative Humidity:	50 %
ATM Pressure:	101.0 kPa

The testing was performed by Andy Yu on 2022-08-27.

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

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	ERP(dBm)	Limit (dBm)
GSM	128	824.2	32.71	28.46	38.45
	190	836.6	32.74	28.49	38.45
	251	848.8	32.77	28.52	38.45

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				ERP(dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	1 slot	2 slots	3 slots	4 slots	
GPRS	128	824.2	32.23	31.26	29.37	28.06	27.98	27.01	25.12	23.81	38.45
	190	836.6	32.25	31.25	29.09	27.84	28.00	27.00	24.84	23.59	38.45
	251	848.8	32.31	31.35	29.21	28.20	28.06	27.10	24.96	23.95	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	27.05	26.08	24.22	22.89	22.80	21.83	19.97	18.64	38.45
	190	836.6	26.99	25.96	23.82	22.59	22.74	21.71	19.57	18.34	38.45
	251	848.8	26.76	25.80	23.65	22.62	22.51	21.55	19.40	18.37	38.45

Mode	Test Mode	3GPP Sub Test	Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
WCDMA (Band 5)	RMC12.2k		22.34	22.54	22.31	18.09	18.29	18.06
	HSDPA	1	21.65	21.77	21.68	17.40	17.52	17.43
		2	21.43	21.37	21.70	17.18	17.12	17.45
		3	21.65	21.35	21.56	17.40	17.10	17.31
		4	21.36	21.78	21.59	17.11	17.53	17.34
	HSUPA	1	21.47	21.69	21.65	17.22	17.44	17.40
		2	21.30	21.09	21.17	17.05	16.84	16.92
		3	21.00	21.12	21.15	16.75	16.87	16.90
		4	21.16	21.49	21.48	16.91	17.24	17.23
		5	21.15	21.42	21.10	16.90	17.17	16.85
	HSPA+	1	21.24	21.49	21.11	16.99	17.24	16.86

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

For GSM850 / WCDMA Band5: Antenna Gain = -1.6dBi = -3.75dBd (0dBd=2.15dBi)

L_C = signal attenuation in the connecting cable between the transmitter and antenna in 0.5dB

Limit: ERP ≤ 38.45dBm

PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	EIRP(dBm)	Limit (dBm)
GSM	512	1850.2	32.12	29.92	33
	661	1880.0	32.18	29.98	33
	810	1909.8	32.04	29.84	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	31.03	30.25	28.28	26.86	28.83	28.05	26.08	24.66	33
	661	1880.0	30.97	30.27	28.03	26.62	28.77	28.07	25.83	24.42	33
	810	1909.8	31.12	29.93	27.89	26.97	28.92	27.73	25.69	24.77	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	26.08	24.55	22.25	20.20	23.88	22.35	20.05	18.00	33
	661	1880.0	26.41	24.23	21.55	20.57	24.21	22.03	19.35	18.37	33
	810	1909.8	26.24	23.91	21.29	20.49	24.04	21.71	19.09	18.29	33

Mode	Test Mode	3GPP Sub Test	Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
WCDMA (Band 2)	RMC12.2k		22.35	22.65	22.65	20.15	20.45	20.45
	HSDPA	1	21.81	21.66	22.13	19.61	19.46	19.93
		2	21.77	21.52	22.09	19.57	19.32	19.89
		3	21.83	21.63	22.15	19.63	19.43	19.95
		4	21.73	21.51	22.05	19.53	19.31	19.85
	HSUPA	1	21.80	21.53	22.12	19.60	19.33	19.92
		2	21.40	21.04	21.72	19.20	18.84	19.52
		3	21.42	21.34	21.74	19.22	19.14	19.54
		4	21.26	21.34	21.58	19.06	19.14	19.38
		5	21.42	21.42	21.74	19.22	19.22	19.54
	HSPA+	1	21.04	21.37	21.36	18.84	19.17	19.16

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

For PCS1900 / WCDMA Band2: Antenna Gain = -1.4dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in 0.8dB

Limit: EIRP ≤ 33dBm

LTE Band 2

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	19.90	18.96	18.66	17.70	16.76	16.46
		RB1#3	19.99	19.17	18.81	17.79	16.97	16.61
		RB1#5	19.82	18.96	18.65	17.62	16.76	16.45
		RB3#0	19.9	19.03	18.73	17.70	16.83	16.53
		RB3#3	19.88	19.02	18.73	17.68	16.82	16.53
		RB6#0	18.93	18.03	17.79	16.73	15.83	15.59
	16QAM	RB1#0	18.9	17.95	17.67	16.70	15.75	15.47
		RB1#3	19.12	18.13	17.83	16.92	15.93	15.63
		RB1#5	18.93	17.91	17.66	16.73	15.71	15.46
		RB3#0	18.83	18.09	17.86	16.63	15.89	15.66
		RB3#3	18.83	18.08	17.8	16.63	15.88	15.60
		RB6#0	18.32	18.20	18.64	16.12	16.00	16.44
3.0	QPSK	RB1#0	19.86	19.68	19.32	17.66	17.48	17.12
		RB1#8	19.84	19.66	19.31	17.64	17.46	17.11
		RB1#14	19.8	19.61	19.28	17.60	17.41	17.08
		RB6#0	18.85	18.66	18.25	16.65	16.46	16.05
		RB6#9	18.84	18.59	18.29	16.64	16.39	16.09
		RB15#0	18.82	18.66	18.26	16.62	16.46	16.06
	16QAM	RB1#0	19.43	18.78	18.34	17.23	16.58	16.14
		RB1#8	19.37	18.83	18.29	17.17	16.63	16.09
		RB1#14	19.36	18.77	18.28	17.16	16.57	16.08
		RB6#0	17.97	17.73	17.26	15.77	15.53	15.06
		RB6#9	17.89	17.72	17.24	15.69	15.52	15.04
		RB15#0	17.91	17.65	17.35	15.71	15.45	15.15

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	19.76	19.61	18.76	17.56	17.41	16.56
		RB1#13	19.86	19.72	18.87	17.66	17.52	16.67
		RB1#24	19.73	19.59	18.71	17.53	17.39	16.51
		RB15#0	18.87	18.67	17.86	16.67	16.47	15.66
		RB15#10	18.86	18.66	17.77	16.66	16.46	15.57
		RB25#0	18.82	18.67	17.78	16.62	16.47	15.58
	16QAM	RB1#0	18.85	18.5	17.98	16.65	16.30	15.78
		RB1#13	18.96	18.59	18.12	16.76	16.39	15.92
		RB1#24	18.85	18.44	17.99	16.65	16.24	15.79
		RB15#0	17.93	17.75	16.86	15.73	15.55	14.66
		RB15#10	17.91	17.72	16.79	15.71	15.52	14.59
		RB25#0	17.87	17.71	16.79	15.67	15.51	14.59
10.0	QPSK	RB1#0	19.78	19.66	19.48	17.58	17.46	17.28
		RB1#25	19.94	19.8	19.57	17.74	17.60	17.37
		RB1#49	19.78	19.57	19.4	17.58	17.37	17.20
		RB25#0	18.85	18.68	18.43	16.65	16.48	16.23
		RB25#25	18.81	18.63	18.34	16.61	16.43	16.14
		RB50#0	18.83	18.67	18.34	16.63	16.47	16.14
	16QAM	RB1#0	19.37	18.78	18.33	17.17	16.58	16.13
		RB1#25	19.49	19.01	18.46	17.29	16.81	16.26
		RB1#49	19.26	18.76	18.24	17.06	16.56	16.04
		RB25#0	17.92	17.74	17.49	15.72	15.54	15.29
		RB25#25	17.87	17.71	17.39	15.67	15.51	15.19
		RB50#0	17.83	17.68	17.35	15.63	15.48	15.15

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15.0	QPSK	RB1#0	19.68	19.69	19.56	17.48	17.49	17.36
		RB1#38	19.77	19.72	19.60	17.57	17.52	17.40
		RB1#74	19.64	19.59	19.46	17.44	17.39	17.26
		RB36#0	18.81	18.76	18.67	16.61	16.56	16.47
		RB36#39	18.81	18.73	18.55	16.61	16.53	16.35
		RB75#0	18.82	18.73	18.58	16.62	16.53	16.38
	16QAM	RB1#0	19.27	18.79	18.91	17.07	16.59	16.71
		RB1#38	19.31	18.83	18.94	17.11	16.63	16.74
		RB1#74	19.17	18.70	18.83	16.97	16.50	16.63
		RB36#0	17.82	17.77	17.64	15.62	15.57	15.44
		RB36#39	17.81	17.74	17.57	15.61	15.54	15.37
		RB75#0	17.83	17.78	17.60	15.63	15.58	15.40
20.0	QPSK	RB1#0	19.71	18.93	19.31	17.51	16.73	17.11
		RB1#50	19.92	19.11	19.51	17.72	16.91	17.31
		RB1#99	19.59	18.78	19.17	17.39	16.58	16.97
		RB50#0	18.80	17.88	18.30	16.60	15.68	16.10
		RB50#50	18.76	17.82	18.21	16.56	15.62	16.01
		RB100#0	18.77	17.89	18.21	16.57	15.69	16.01
	16QAM	RB1#0	19.21	18.16	18.47	17.01	15.96	16.27
		RB1#50	19.34	18.36	18.65	17.14	16.16	16.45
		RB1#99	19.07	18.02	18.31	16.87	15.82	16.11
		RB50#0	17.80	16.89	17.30	15.60	14.69	15.10
		RB50#50	17.78	16.89	17.24	15.58	14.69	15.04
		RB100#0	17.81	16.90	17.26	15.61	14.70	15.06

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

For Band2: Antenna Gain = -1.4dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in 0.8dB

Limit: EIRP ≤ 33dBm

LTE Band 4

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
1.4	QPSK	RB1#0	20.36	19.42	19.26	18.16	17.22	17.06
		RB1#3	20.52	19.60	19.45	18.32	17.40	17.25
		RB1#5	20.36	19.42	19.30	18.16	17.22	17.10
		RB3#0	20.42	19.50	19.30	18.22	17.30	17.10
		RB3#3	20.46	19.50	19.36	18.26	17.30	17.16
		RB6#0	20.44	18.47	18.37	18.24	16.27	16.17
	16QAM	RB1#0	19.37	18.41	18.39	17.17	16.21	16.19
		RB1#3	19.52	18.51	18.56	17.32	16.31	16.36
		RB1#5	19.35	18.41	18.42	17.15	16.21	16.22
		RB3#0	19.46	18.62	18.31	17.26	16.42	16.11
		RB3#3	19.44	18.73	18.32	17.24	16.53	16.12
		RB6#0	18.39	17.52	17.39	16.19	15.32	15.19
3.0	QPSK	RB1#0	20.18	19.12	19.68	17.98	16.92	17.48
		RB1#8	20.18	19.09	19.69	17.98	16.89	17.49
		RB1#14	20.15	19.05	19.65	17.95	16.85	17.45
		RB6#0	19.15	18.10	18.66	16.95	15.90	16.46
		RB6#9	19.10	18.07	18.68	16.90	15.87	16.48
		RB15#0	19.12	18.11	18.67	16.92	15.91	16.47
	16QAM	RB1#0	19.19	18.64	18.83	16.99	16.44	16.63
		RB1#8	19.13	18.69	18.83	16.93	16.49	16.63
		RB1#14	19.15	18.59	18.79	16.95	16.39	16.59
		RB6#0	18.07	17.16	17.72	15.87	14.96	15.52
		RB6#9	18.06	17.15	17.73	15.86	14.95	15.53
		RB15#0	18.16	17.16	17.64	15.96	14.96	15.44

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	20.14	19.48	19.29	17.94	17.28	17.09
		RB1#13	20.22	19.56	19.40	18.02	17.36	17.20
		RB1#24	20.09	19.44	19.29	17.89	17.24	17.09
		RB15#0	19.21	18.59	18.35	17.01	16.39	16.15
		RB15#10	19.19	18.54	18.34	16.99	16.34	16.14
		RB25#0	19.14	18.55	18.31	16.94	16.35	16.11
	16QAM	RB1#0	19.19	18.36	18.56	16.99	16.16	16.36
		RB1#13	19.32	18.40	18.67	17.12	16.20	16.47
		RB1#24	19.17	18.34	18.54	16.97	16.14	16.34
		RB15#0	18.17	17.62	17.29	15.97	15.42	15.09
		RB15#10	18.20	17.54	17.30	16.00	15.34	15.10
		RB25#0	18.16	17.56	17.27	15.96	15.36	15.07
10.0	QPSK	RB1#0	20.24	19.46	19.92	18.04	17.26	17.72
		RB1#25	20.39	19.58	20.07	18.19	17.38	17.87
		RB1#49	20.13	19.30	19.86	17.93	17.10	17.66
		RB25#0	19.21	18.45	18.95	17.01	16.25	16.75
		RB25#25	19.25	18.37	18.93	17.05	16.17	16.73
		RB50#0	19.22	18.41	18.94	17.02	16.21	16.74
	16QAM	RB1#0	19.37	18.42	19.41	17.17	16.22	17.21
		RB1#25	19.50	18.58	19.54	17.30	16.38	17.34
		RB1#49	19.26	18.32	19.36	17.06	16.12	17.16
		RB25#0	18.23	17.56	18.02	16.03	15.36	15.82
		RB25#25	18.25	17.50	17.96	16.05	15.30	15.76
		RB50#0	18.19	17.45	17.96	15.99	15.25	15.76

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15.0	QPSK	RB1#0	20.18	19.71	19.53	17.98	17.51	17.33
		RB1#38	20.22	19.74	19.60	18.02	17.54	17.40
		RB1#74	20.04	19.56	19.52	17.84	17.36	17.32
		RB36#0	19.28	18.82	18.62	17.08	16.62	16.42
		RB36#39	19.27	18.75	18.61	17.07	16.55	16.41
		RB75#0	19.27	18.76	18.63	17.07	16.56	16.43
	16QAM	RB1#0	19.71	18.80	18.89	17.51	16.60	16.69
		RB1#38	19.75	18.87	18.96	17.55	16.67	16.76
		RB1#74	19.55	18.73	18.85	17.35	16.53	16.65
		RB36#0	18.25	17.76	17.57	16.05	15.56	15.37
		RB36#39	18.21	17.74	17.56	16.01	15.54	15.36
		RB75#0	18.25	17.78	17.59	16.05	15.58	15.39
20.0	QPSK	RB1#0	20.19	19.65	19.90	17.99	17.45	17.70
		RB1#50	20.39	19.78	20.13	18.19	17.58	17.93
		RB1#99	20.03	19.52	19.80	17.83	17.32	17.60
		RB50#0	19.22	18.64	19.04	17.02	16.44	16.84
		RB50#50	19.13	18.55	18.90	16.93	16.35	16.70
		RB100#0	19.22	18.59	19.00	17.02	16.39	16.80
	16QAM	RB1#0	19.52	18.81	19.44	17.32	16.61	17.24
		RB1#50	19.67	18.98	19.66	17.47	16.78	17.46
		RB1#99	19.32	18.68	19.31	17.12	16.48	17.11
		RB50#0	18.19	17.65	18.05	15.99	15.45	15.85
		RB50#50	18.12	17.53	17.88	15.92	15.33	15.68
		RB100#0	18.22	17.63	18.03	16.02	15.43	15.83

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

For Band4: Antenna Gain = -1.4dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in 0.8dB

Limit: EIRP ≤ 30dBm

LTE Band 5

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	21.85	21.82	20.96	17.60	17.57	16.71
		RB1#3	21.98	21.98	21.12	17.73	17.73	16.87
		RB1#5	21.81	21.75	20.95	17.56	17.50	16.70
		RB3#0	21.88	21.90	21.02	17.63	17.65	16.77
		RB3#3	21.84	21.89	21.02	17.59	17.64	16.77
		RB6#0	20.92	20.92	20.06	16.67	16.67	15.81
	16QAM	RB1#0	21.02	20.86	20.00	16.77	16.61	15.75
		RB1#3	21.14	21.02	20.15	16.89	16.77	15.90
		RB1#5	20.99	20.90	20.01	16.74	16.65	15.76
		RB3#0	20.93	21.01	20.22	16.68	16.76	15.97
		RB3#3	20.94	21.02	20.27	16.69	16.77	16.02
		RB6#0	19.96	19.83	19.05	15.71	15.58	14.80
3.0	QPSK	RB1#0	22.00	21.56	21.18	17.75	17.31	16.93
		RB1#8	21.93	21.48	21.12	17.68	17.23	16.87
		RB1#14	21.92	21.44	21.12	17.67	17.19	16.87
		RB6#0	20.95	20.55	20.16	16.70	16.30	15.91
		RB6#9	20.94	20.51	20.05	16.69	16.26	15.80
		RB15#0	20.98	20.58	20.12	16.73	16.33	15.87
	16QAM	RB1#0	21.07	21.15	20.27	16.82	16.90	16.02
		RB1#8	20.98	21.09	20.28	16.73	16.84	16.03
		RB1#14	20.94	21.10	20.28	16.69	16.85	16.03
		RB6#0	19.92	19.62	19.17	15.67	15.37	14.92
		RB6#9	19.89	19.56	19.13	15.64	15.31	14.88
		RB15#0	20.01	19.62	19.09	15.76	15.37	14.84

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	21.90	21.58	21.61	17.65	17.33	17.36
		RB1#13	21.90	21.67	21.64	17.65	17.42	17.39
		RB1#24	21.77	21.56	21.50	17.52	17.31	17.25
		RB15#0	21.00	20.73	20.73	16.75	16.48	16.48
		RB15#10	20.96	20.63	20.58	16.71	16.38	16.33
		RB25#0	20.99	20.65	20.63	16.74	16.40	16.38
	16QAM	RB1#0	21.07	20.47	20.85	16.82	16.22	16.60
		RB1#13	21.07	20.55	20.90	16.82	16.30	16.65
		RB1#24	20.87	20.48	20.82	16.62	16.23	16.57
		RB15#0	20.05	19.78	19.66	15.80	15.53	15.41
		RB15#10	20.01	19.65	19.54	15.76	15.40	15.29
		RB25#0	19.99	19.72	19.62	15.74	15.47	15.37
10.0	QPSK	RB1#0	21.99	21.97	22.02	17.74	17.72	17.77
		RB1#25	22.02	21.99	22.11	17.77	17.74	17.86
		RB1#49	21.81	21.78	21.81	17.56	17.53	17.56
		RB25#0	21.00	21.01	21.07	16.75	16.76	16.82
		RB25#25	20.92	20.82	20.85	16.67	16.57	16.60
		RB50#0	20.97	20.92	20.96	16.72	16.67	16.71
	16QAM	RB1#0	21.66	21.10	21.07	17.41	16.85	16.82
		RB1#25	21.48	21.17	21.08	17.23	16.92	16.83
		RB1#49	21.30	20.96	20.84	17.05	16.71	16.59
		RB25#0	20.02	20.01	20.11	15.77	15.76	15.86
		RB25#25	19.94	19.86	19.94	15.69	15.61	15.69
		RB50#0	19.93	19.95	19.94	15.68	15.70	15.69

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

For Band5: Antenna Gain = -1.6dBi = -3.75dBd (0dBd=2.15dBi)

L_C = signal attenuation in the connecting cable between the transmitter and antenna in 0.5dB

Limit: ERP ≤ 38.45dBm

LTE Band 7

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	17.59	17.89	17.83	15.89	16.19	16.13
		RB1#13	17.46	17.61	17.43	15.76	15.91	15.73
		RB1#24	17.64	17.42	17.78	15.94	15.72	16.08
		RB15#0	17.48	17.50	17.84	15.78	15.80	16.14
		RB15#10	17.89	17.75	17.86	16.19	16.05	16.16
		RB25#0	17.54	17.86	17.49	15.84	16.16	15.79
	16QAM	RB1#0	17.62	17.34	17.60	15.92	15.64	15.90
		RB1#13	17.64	17.19	17.59	15.94	15.49	15.89
		RB1#24	17.50	17.60	17.18	15.80	15.90	15.48
		RB15#0	17.41	17.58	17.21	15.71	15.88	15.51
		RB15#10	17.65	17.43	17.42	15.95	15.73	15.72
		RB25#0	17.32	17.36	17.29	15.62	15.66	15.59
10.0	QPSK	RB1#0	17.26	17.23	17.33	15.56	15.53	15.63
		RB1#25	17.64	17.23	17.21	15.94	15.53	15.51
		RB1#49	17.45	17.17	17.15	15.75	15.47	15.45
		RB25#0	17.27	17.41	17.28	15.57	15.71	15.58
		RB25#25	17.64	17.24	17.53	15.94	15.54	15.83
		RB50#0	17.52	17.32	17.45	15.82	15.62	15.75
	16QAM	RB1#0	17.53	17.46	17.16	15.83	15.76	15.46
		RB1#25	17.61	17.28	17.27	15.91	15.58	15.57
		RB1#49	17.17	17.18	17.20	15.47	15.48	15.50
		RB25#0	17.17	17.22	17.27	15.47	15.52	15.57
		RB25#25	17.42	17.31	17.46	15.72	15.61	15.76
		RB50#0	17.17	17.29	17.35	15.47	15.59	15.65

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	17.46	17.78	17.56	15.76	16.08	15.86
		RB1#38	17.87	17.60	17.89	16.17	15.90	16.19
		RB1#74	17.48	17.41	17.83	15.78	15.71	16.13
		RB36#0	17.81	17.53	17.39	16.11	15.83	15.69
		RB36#39	17.49	17.41	17.41	15.79	15.71	15.71
		RB75#0	17.21	17.58	17.45	15.51	15.88	15.75
	16QAM	RB1#0	17.30	17.44	17.40	15.60	15.74	15.70
		RB1#38	17.51	17.44	17.57	15.81	15.74	15.87
		RB1#74	17.46	17.52	17.51	15.76	15.82	15.81
		RB36#0	17.30	17.17	17.62	15.60	15.47	15.92
		RB36#39	17.56	17.35	17.50	15.86	15.65	15.80
		RB75#0	17.64	17.45	17.58	15.94	15.75	15.88
20.0	QPSK	RB1#0	17.60	17.26	17.32	15.90	15.56	15.62
		RB1#50	17.57	17.38	17.61	15.87	15.68	15.91
		RB1#99	17.51	17.53	17.61	15.81	15.83	15.91
		RB50#0	17.53	17.40	17.42	15.83	15.70	15.72
		RB50#50	17.36	17.57	17.61	15.66	15.87	15.91
		RB100#0	17.52	17.53	17.17	15.82	15.83	15.47
	16QAM	RB1#0	17.49	17.33	17.54	15.79	15.63	15.84
		RB1#50	17.62	17.64	17.23	15.92	15.94	15.53
		RB1#99	17.59	17.46	17.51	15.89	15.76	15.81
		RB50#0	17.58	17.31	17.16	15.88	15.61	15.46
		RB50#50	17.44	17.45	17.61	15.74	15.75	15.91
		RB100#0	17.15	17.40	17.57	15.45	15.70	15.87

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

For Band7: Antenna Gain = -0.9dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in 0.8dB

Limit: EIRP ≤ 33dBm

LTE Band 12

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
1.4	QPSK	RB1#0	22.80	23.07	22.72	18.55	18.82	18.47
		RB1#13	22.98	23.24	22.90	18.73	18.99	18.65
		RB1#24	22.76	23.07	22.67	18.51	18.82	18.42
		RB15#0	22.91	23.10	22.69	18.66	18.85	18.44
		RB15#10	22.82	23.11	22.67	18.57	18.86	18.42
		RB25#0	21.83	22.16	21.80	17.58	17.91	17.55
	16QAM	RB1#0	21.75	22.16	21.65	17.50	17.91	17.40
		RB1#13	21.92	22.36	21.74	17.67	18.11	17.49
		RB1#24	21.73	22.16	21.59	17.48	17.91	17.34
		RB15#0	21.97	22.05	21.72	17.72	17.80	17.47
		RB15#10	21.92	22.04	21.63	17.67	17.79	17.38
		RB25#0	20.82	21.18	20.68	16.57	16.93	16.43
3	QPSK	RB1#0	22.86	22.61	23.18	18.61	18.36	18.93
		RB1#25	22.77	22.62	23.11	18.52	18.37	18.86
		RB1#49	22.75	22.66	23.01	18.50	18.41	18.76
		RB25#0	21.77	21.59	22.06	17.52	17.34	17.81
		RB25#25	21.77	21.58	22.05	17.52	17.33	17.80
		RB50#0	21.78	21.64	22.05	17.53	17.39	17.80
	16QAM	RB1#0	22.37	21.67	22.15	18.12	17.42	17.90
		RB1#25	22.28	21.70	22.04	18.03	17.45	17.79
		RB1#49	22.30	21.69	21.93	18.05	17.44	17.68
		RB25#0	20.86	20.54	21.04	16.61	16.29	16.79
		RB25#25	20.81	20.57	20.96	16.56	16.32	16.71
		RB50#0	20.85	20.51	21.12	16.60	16.26	16.87

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
5	QPSK	RB1#0	22.77	22.80	23.26	18.52	18.55	19.01
		RB1#13	22.87	22.96	23.34	18.62	18.71	19.09
		RB1#24	22.69	22.88	23.08	18.44	18.63	18.83
		RB15#0	21.81	21.96	22.26	17.56	17.71	18.01
		RB15#10	21.84	21.84	22.24	17.59	17.59	17.99
		RB25#0	21.79	21.88	22.23	17.54	17.63	17.98
	16QAM	RB1#0	21.81	21.65	22.51	17.56	17.40	18.26
		RB1#13	21.85	21.76	22.57	17.60	17.51	18.32
		RB1#24	21.77	21.74	22.29	17.52	17.49	18.04
		RB15#0	20.84	20.97	21.23	16.59	16.72	16.98
		RB15#10	20.89	20.90	21.25	16.64	16.65	17.00
		RB25#0	20.86	20.93	21.23	16.61	16.68	16.98
10	QPSK	RB1#0	22.85	22.86	23.19	18.60	18.61	18.94
		RB1#25	23.01	23.12	23.39	18.76	18.87	19.14
		RB1#49	22.91	22.93	23.05	18.66	18.68	18.80
		RB25#0	21.77	21.86	22.32	17.52	17.61	18.07
		RB25#25	21.84	21.87	22.27	17.59	17.62	18.02
		RB50#0	21.79	21.86	22.26	17.54	17.61	18.01
	16QAM	RB1#0	21.99	21.83	22.64	17.74	17.58	18.39
		RB1#25	22.10	22.04	22.90	17.85	17.79	18.65
		RB1#49	21.96	21.91	22.51	17.71	17.66	18.26
		RB25#0	20.81	20.96	21.37	16.56	16.71	17.12
		RB25#25	20.87	20.95	21.33	16.62	16.70	17.08
		RB50#0	20.82	20.92	21.34	16.57	16.67	17.09

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

For Band12: Antenna Gain = -1.6dBi = -3.75dBd (0dBd=2.15dBi)

L_C = signal attenuation in the connecting cable between the transmitter and antenna in 0.5dB

Limit: ERP ≤ 34.77dBm

LTE Band 17:

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
5.0	QPSK	RB1#0	22.68	22.20	22.54	18.43	17.95	18.29
		RB1#13	22.88	22.34	22.61	18.63	18.09	18.36
		RB1#24	22.75	22.17	22.36	18.50	17.92	18.11
		RB15#0	21.79	21.36	21.57	17.54	17.11	17.32
		RB15#10	21.76	21.30	21.53	17.51	17.05	17.28
		RB25#0	21.71	21.26	21.52	17.46	17.01	17.27
	16QAM	RB1#0	22.05	21.44	21.49	17.80	17.19	17.24
		RB1#13	21.94	21.23	21.18	17.69	16.98	16.93
		RB1#24	20.76	20.37	20.58	16.51	16.12	16.33
		RB15#0	20.73	20.31	20.58	16.48	16.06	16.33
		RB15#10	20.76	20.32	20.56	16.51	16.07	16.31
		RB25#0	22.70	22.79	23.08	18.45	18.54	18.83
10.0	QPSK	RB1#0	22.68	22.72	22.98	18.43	18.47	18.73
		RB1#25	21.79	21.88	22.18	17.54	17.63	17.93
		RB1#49	21.73	21.84	22.15	17.48	17.59	17.90
		RB25#0	21.73	21.87	22.19	17.48	17.62	17.94
		RB25#25	22.14	21.84	22.03	17.89	17.59	17.78
		RB50#0	22.37	22.10	22.27	18.12	17.85	18.02
	16QAM	RB1#0	20.83	20.89	21.29	16.58	16.64	17.04
		RB1#25	20.77	20.88	21.24	16.52	16.63	16.99
		RB1#49	20.79	20.87	21.20	16.54	16.62	16.95
		RB25#0	20.56	20.74	21.06	16.31	16.49	16.81
		RB25#25	20.67	20.59	20.98	16.42	16.34	16.73
		RB50#0	20.56	20.38	20.79	16.31	16.13	16.54

Note: $ERP(dBm) = \text{Conducted Power}(dBm) + \text{Antenna Gain}(dBd) - L_C (dB)$

For Band17: Antenna Gain = -1.6dBi = -3.75 (0dBd=2.15dBi)

L_C = signal attenuation in the connecting cable between the transmitter and antenna in 0.5dB

Limit: $ERP \leq 34.77dBm$

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

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	3.48	13
	Middle	3.54	13
	High	3.65	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	4.23	13
	Middle	4.38	13
	High	4.46	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	2.88	13
	Middle	2.88	13
	High	2.72	13
HSDPA (16QAM)	Low	4.74	13
	Middle	4.74	13
	High	4.65	13
HSUPA (BPSK)	Low	5.54	13
	Middle	5.61	13
	High	5.54	13
HSPA+	Low	3.24	13
	Middle	3.30	13
	High	3.30	13

PCS Band

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	3.59	13
	Middle	3.51	13
	High	3.48	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	3.97	13
	Middle	3.83	13
	High	3.73	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	2.85	13
	Middle	2.88	13
	High	2.85	13
HSDPA (16QAM)	Low	4.65	13
	Middle	4.97	13
	High	4.74	13
HSUPA (BPSK)	Low	5.35	13
	Middle	5.75	13
	High	5.71	13
HSPA+	Low	3.24	13
	Middle	3.21	13
	High	3.24	13

LTE Band 2 20MHz

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.7	4.9	4.58	13	Pass
QPSK (100RB Size)	5.04	5.04	4.99	13	Pass
16QAM (1RB Size)	5.68	5.94	5.3	13	Pass
16QAM (100RB Size)	5.91	6.09	5.94	13	Pass

LTE Band 4 20MHz

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.52	4.12	4.67	13	Pass
QPSK (100RB Size)	4.84	4.93	5.01	13	Pass
16QAM (1RB Size)	5.16	5.51	5.48	13	Pass
16QAM (100RB Size)	5.74	5.77	5.97	13	Pass

LTE Band 5 10MHz

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.9	4.52	5.33	13	Pass
QPSK (50RB Size)	5.07	5.07	4.99	13	Pass
16QAM (1RB Size)	5.88	5.48	6.00	13	Pass
16QAM (50RB Size)	5.91	6.23	5.94	13	Pass

LTE Band 7 20MHz

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.23	4.7	4.72	13	Pass
QPSK (100RB Size)	4.61	4.87	4.90	13	Pass
16QAM (1RB Size)	5.28	5.74	5.36	13	Pass
16QAM (100RB Size)	5.54	5.91	5.83	13	Pass

LTE Band 12 10MHz

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.99	5.54	4.67	13	Pass
QPSK (50RB Size)	5.25	5.13	5.19	13	Pass
16QAM (1RB Size)	6.23	6.52	5.04	13	Pass
16QAM (50RB Size)	6.09	6.14	6.09	13	Pass

LTE Band 17 10MHz

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	5.33	4.84	4.64	13	Pass
QPSK (50RB Size)	5.04	5.13	5.01	13	Pass
16QAM (1RB Size)	6.41	6.06	5.22	13	Pass
16QAM (50RB Size)	5.91	6.12	5.97	13	Pass

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

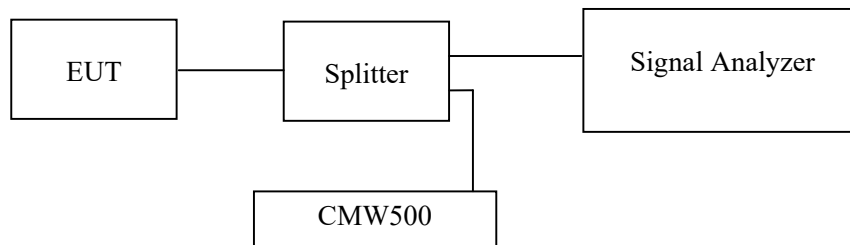
Applicable Standard

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:	28 °C
Relative Humidity:	50 %
ATM Pressure:	101.0 kPa

The testing was performed by Andy Yu from 2022-08-26 to 2022-09-18.

EUT operation mode: Transmitting

Test Result: Pass

Please refer to the following tables and plots.

Cellular Band (Part 22H)

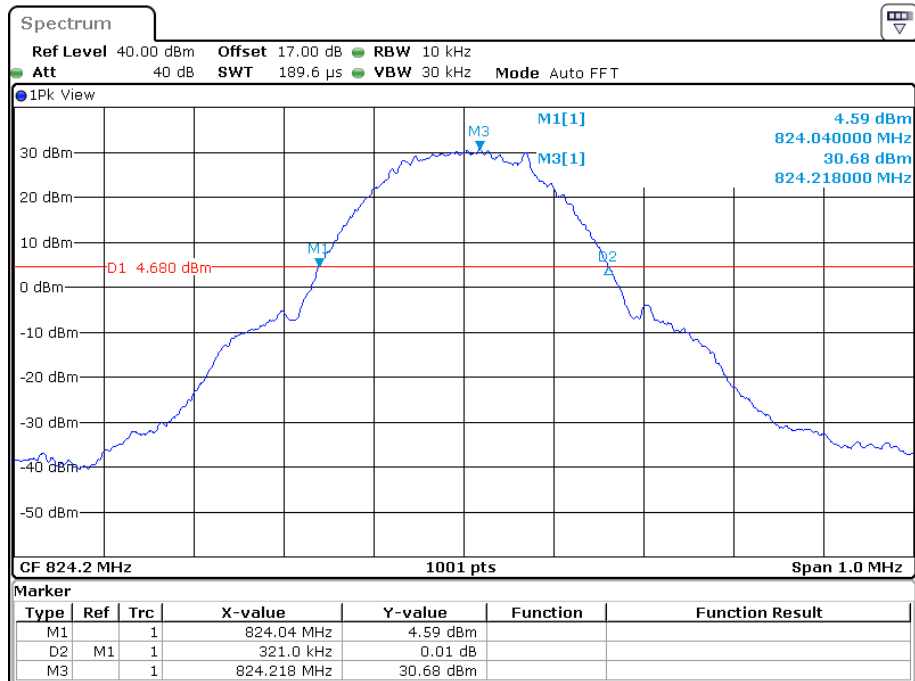
Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM(GMSK)	128	824.2	243.76	321.00
	190	836.6	243.76	321.00
	251	848.8	241.76	321.00
EGPRS(8PSK)	128	824.2	251.75	330.00
	190	836.6	251.75	333.00
	251	848.8	255.74	328.00

	Frequency (MHz)	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	826.4	4.17	4.76
	836.4	4.16	4.74
	846.6	4.19	4.76
HSDPA	826.4	4.22	4.76
	836.4	4.19	4.71
	846.6	4.20	4.77
HSUPA	826.4	4.23	4.77
	836.4	4.14	4.68
	846.6	4.22	4.74

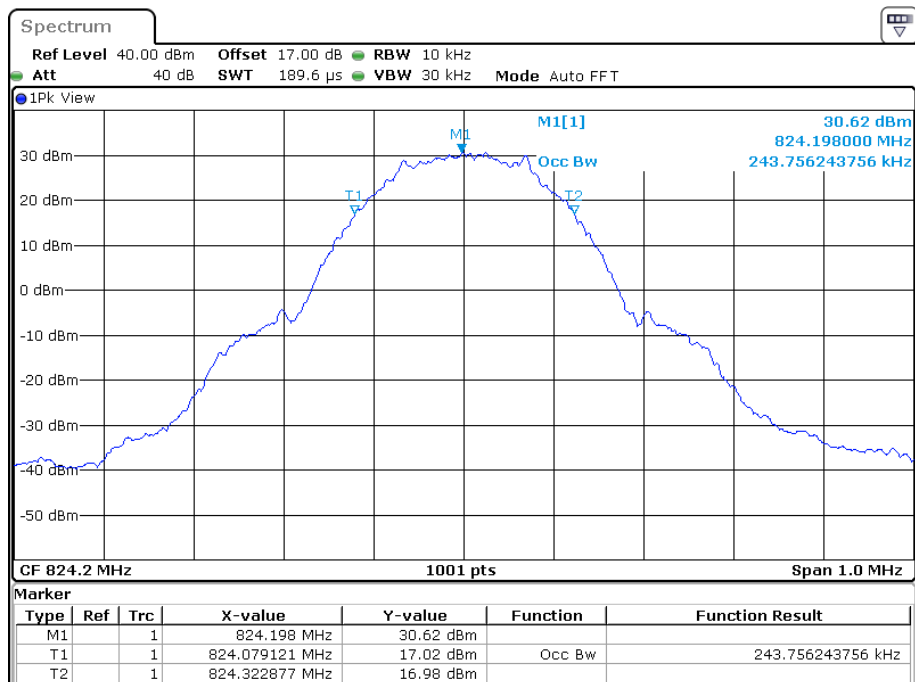
PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM(GMSK)	512	1850.2	244.76	320.00
	661	1880	242.76	320.00
	810	1909.8	243.76	319.00
EGPRS(8PSK)	512	1850.2	265.73	350.00
	661	1880	206.74	345.00
	810	1909.8	255.74	341.00

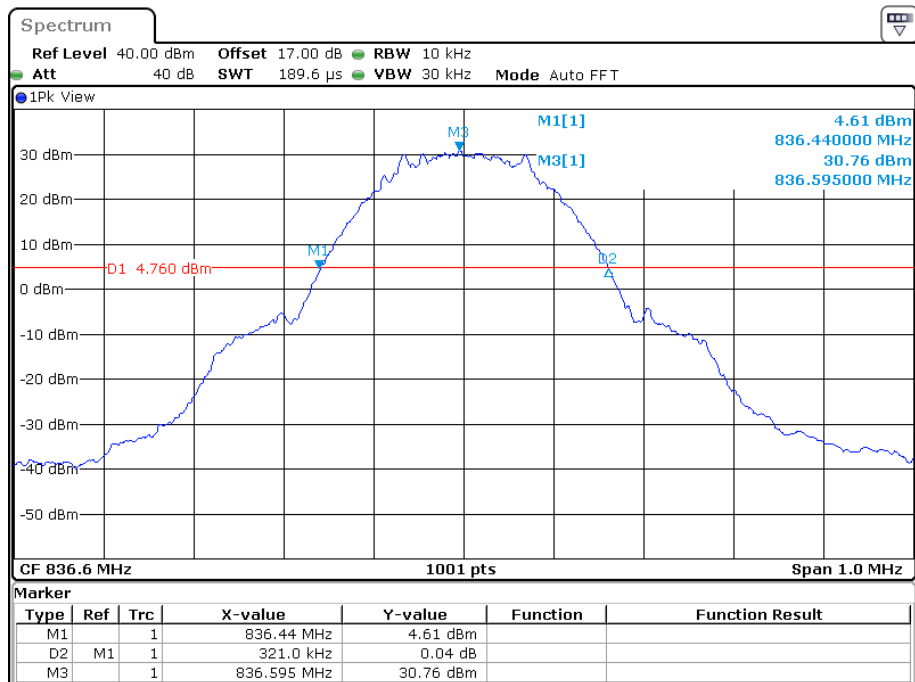
	Frequency (MHz)	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	1852.4	4.17	4.74
	1880.0	4.17	4.74
	1907.6	4.16	4.74
HSDPA	1852.4	4.20	4.73
	1880.0	4.20	4.76
	1907.6	4.19	4.71
HSUPA	1852.4	4.20	4.73
	1880.0	4.20	4.73
	1907.6	4.20	4.71

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

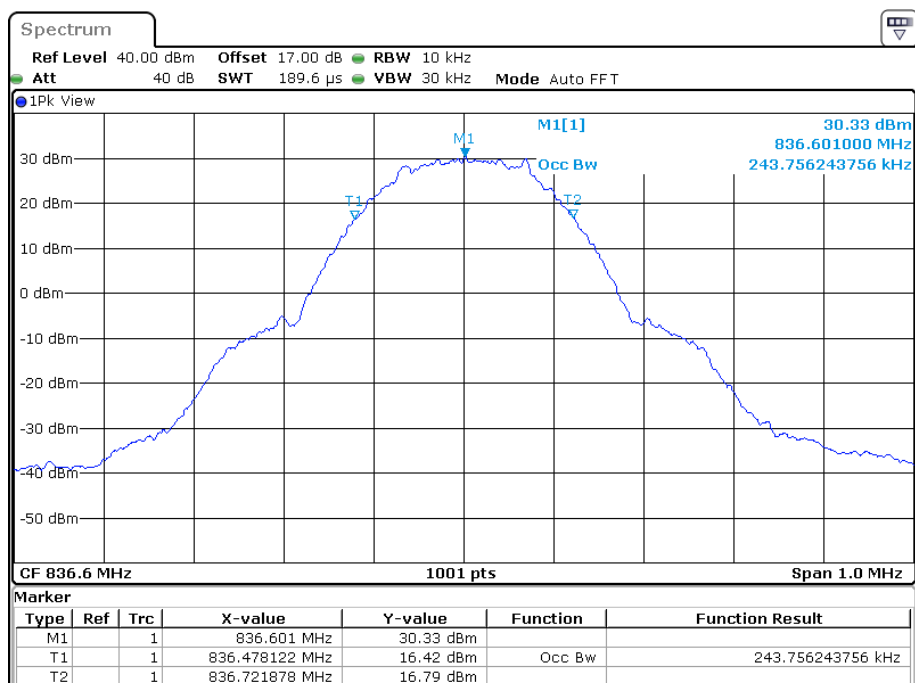
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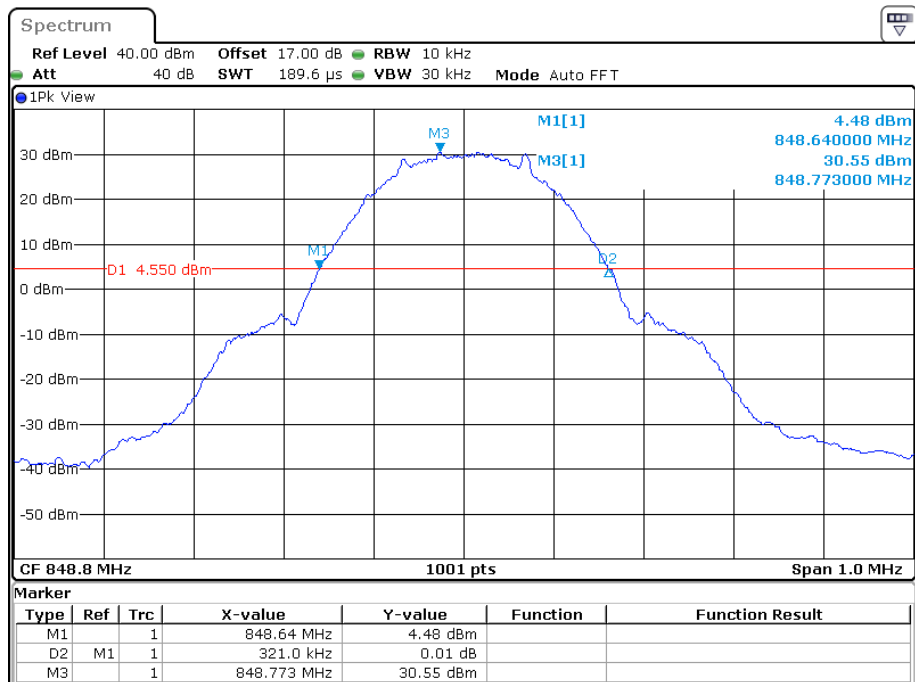
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26 dB Emissions & 99% Occupied Bandwidth for GSM (GMSK) Mode, Middle channel

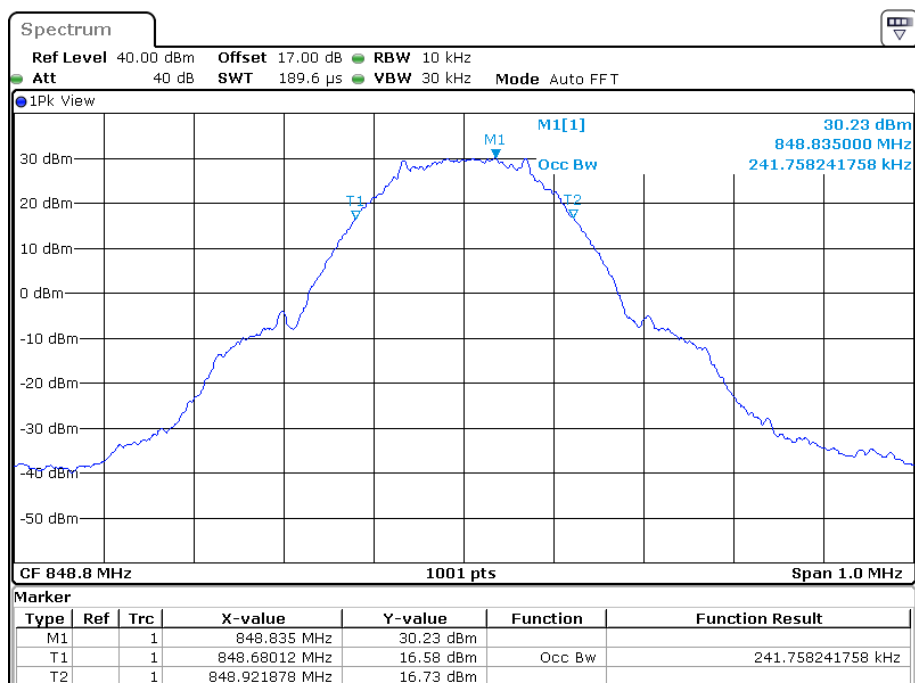
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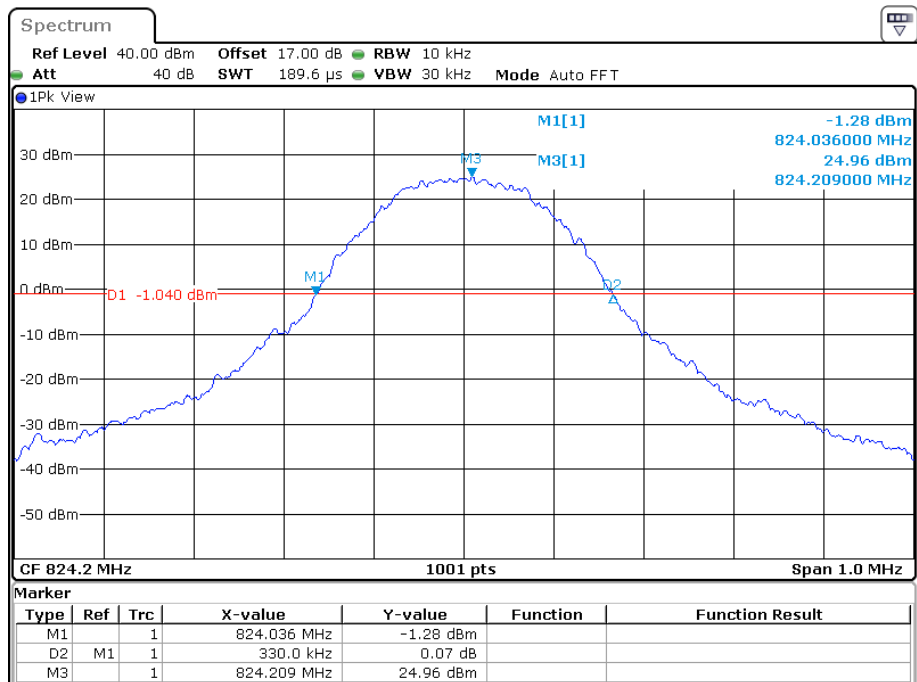
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26 dB Emissions & 99% Occupied Bandwidth for GSM (GMSK) Mode, High channel

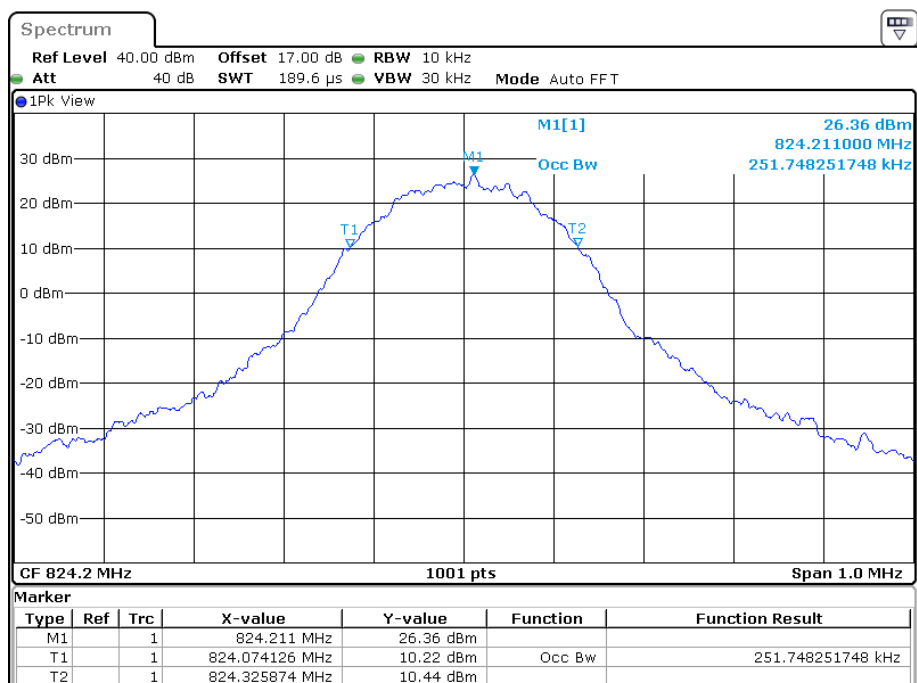
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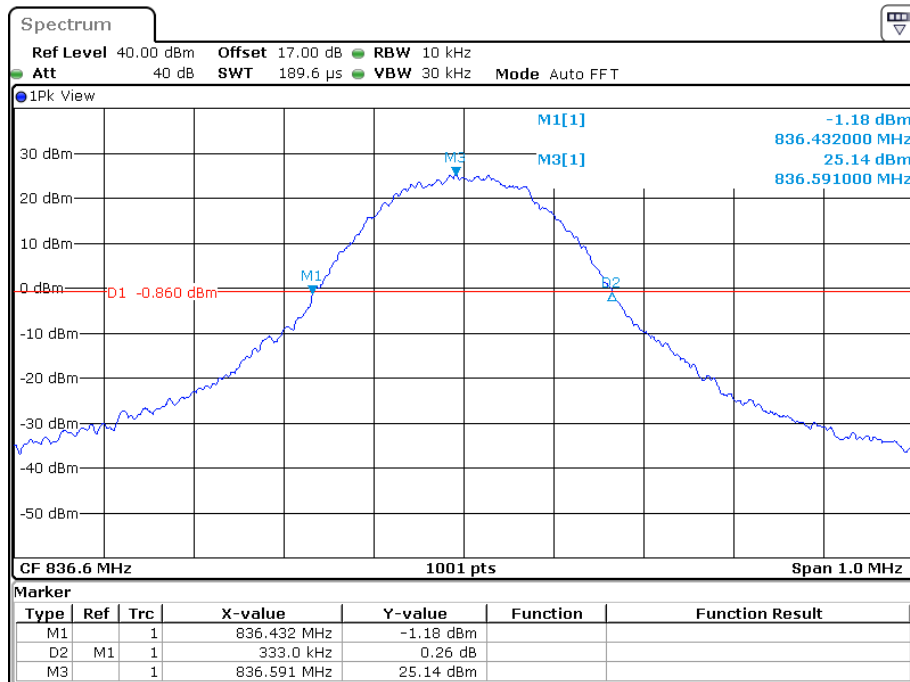
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26 dB Emissions & 99% Occupied Bandwidth for EGPRS (8PSK) Mode, Low channel

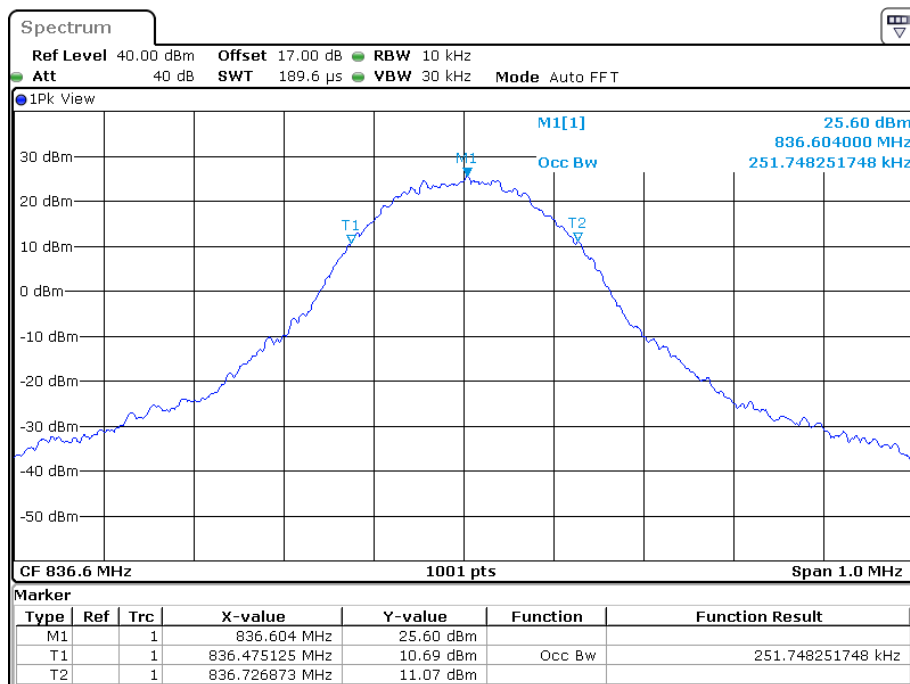
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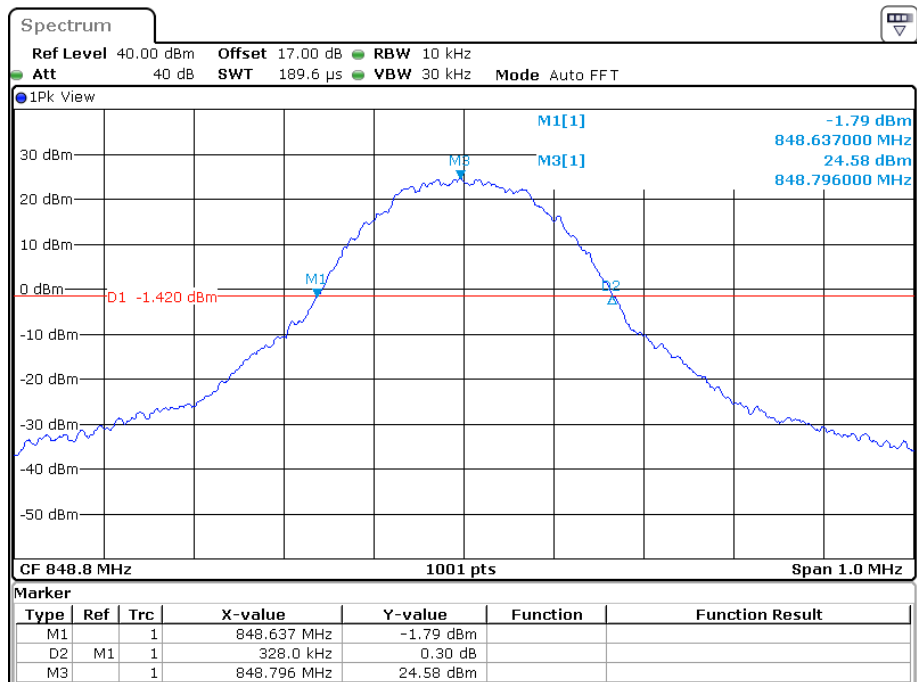
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26 dB Emissions & 99% Occupied Bandwidth for EGPRS (8PSK) Mode, Middle channel

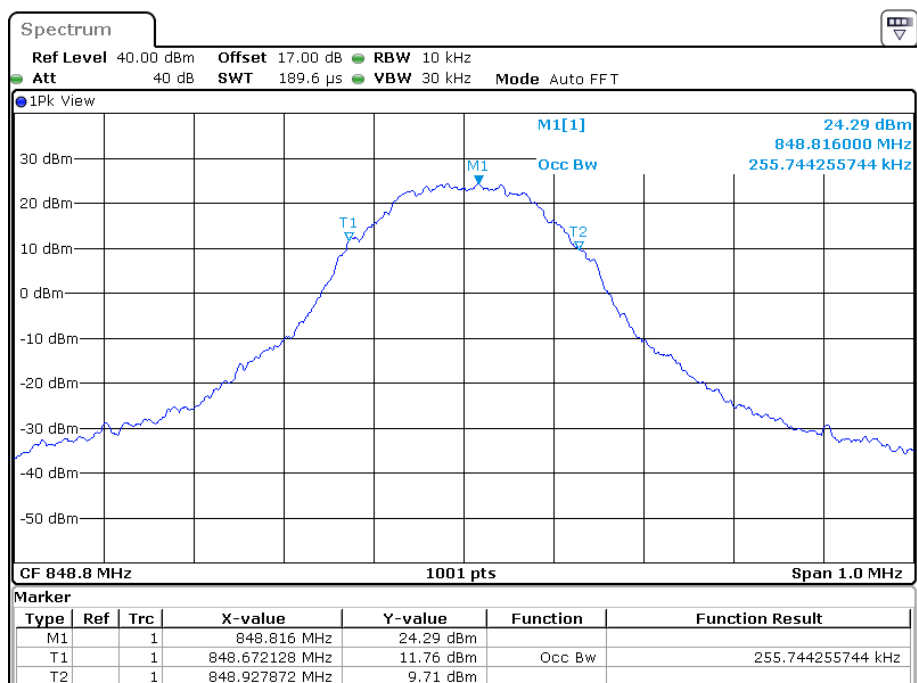
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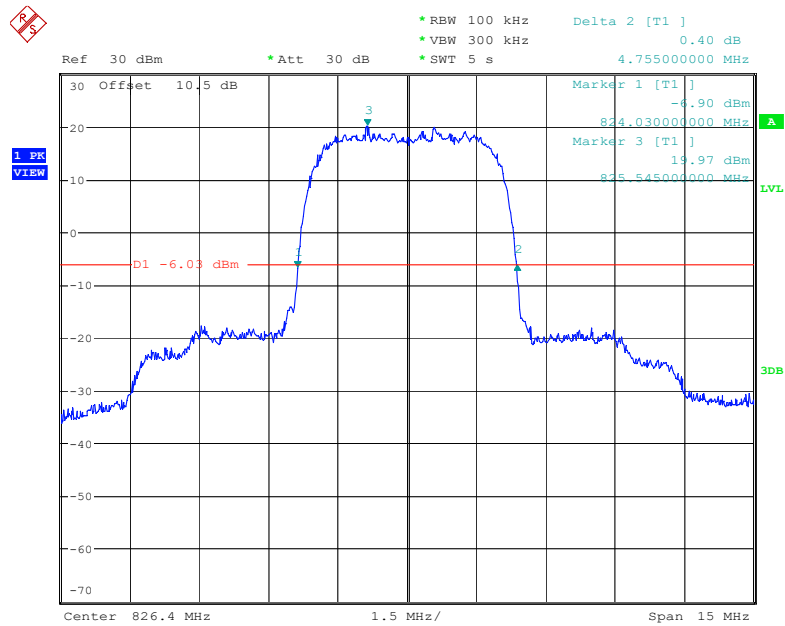
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26 dB Emissions & 99% Occupied Bandwidth for EGPRS (8PSK) Mode, High channel

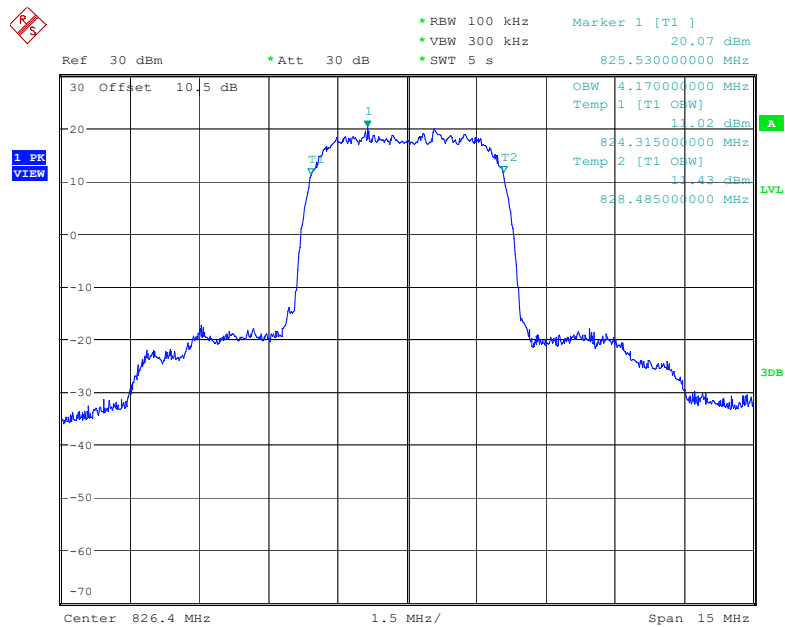
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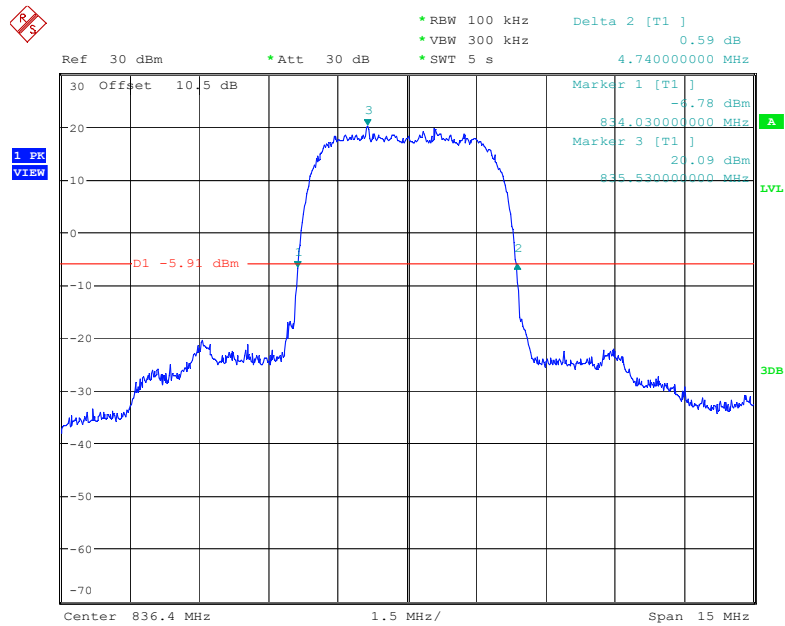
Date: 29.AUG.2022 15:24:44

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

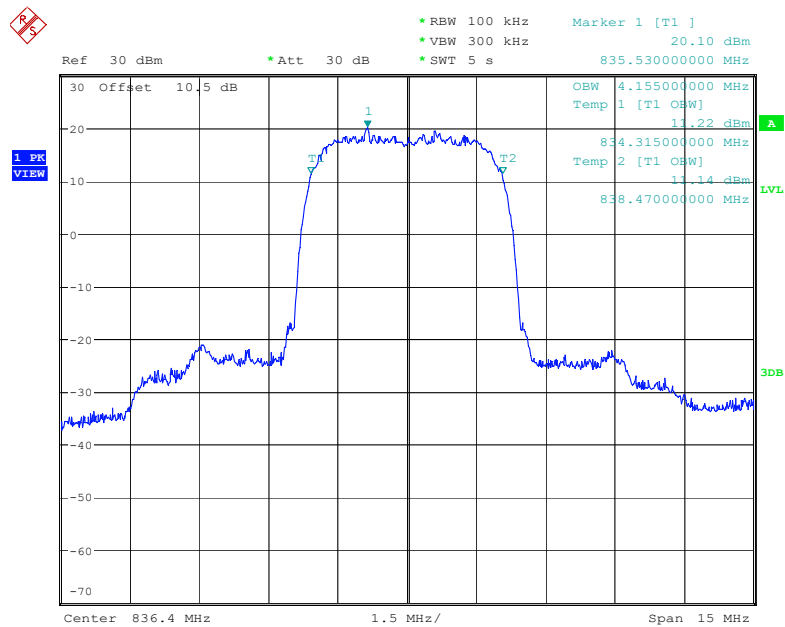
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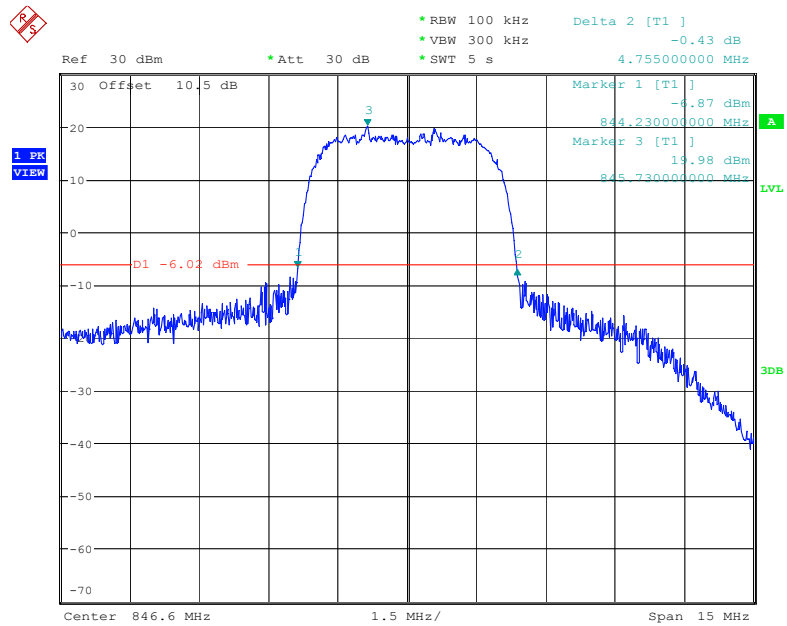
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26 dB Emissions & 99% Occupied Bandwidth for RMC (BPSK) Mode, Middle channel

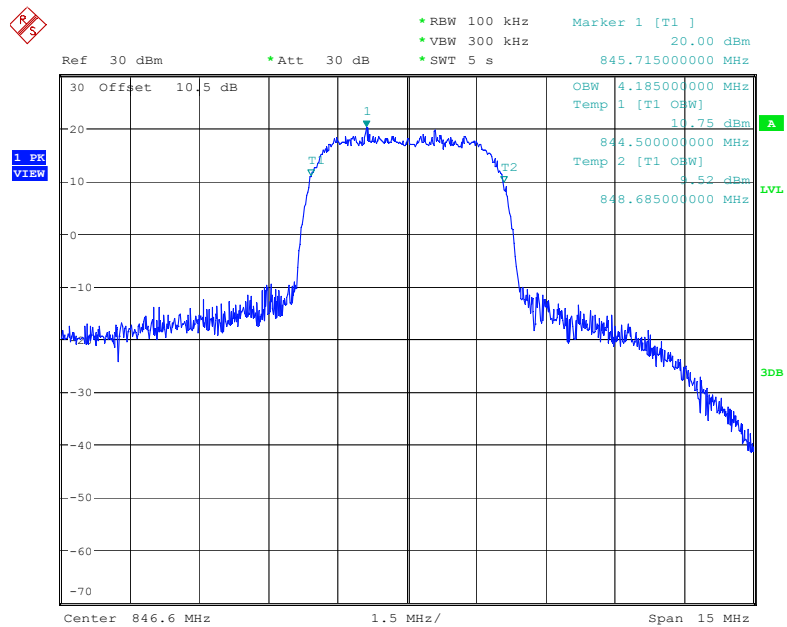
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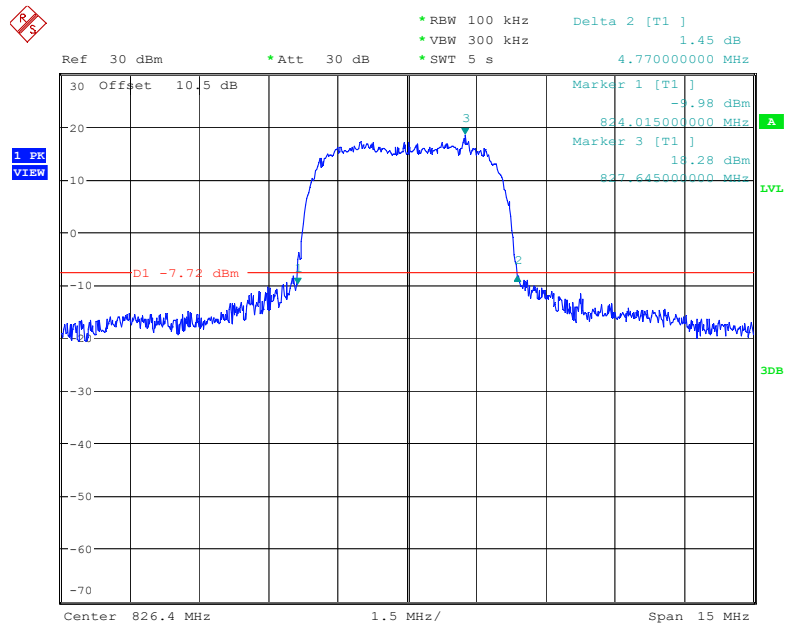
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26 dB Emissions & 99% Occupied Bandwidth for RMC (BPSK) Mode, High channel

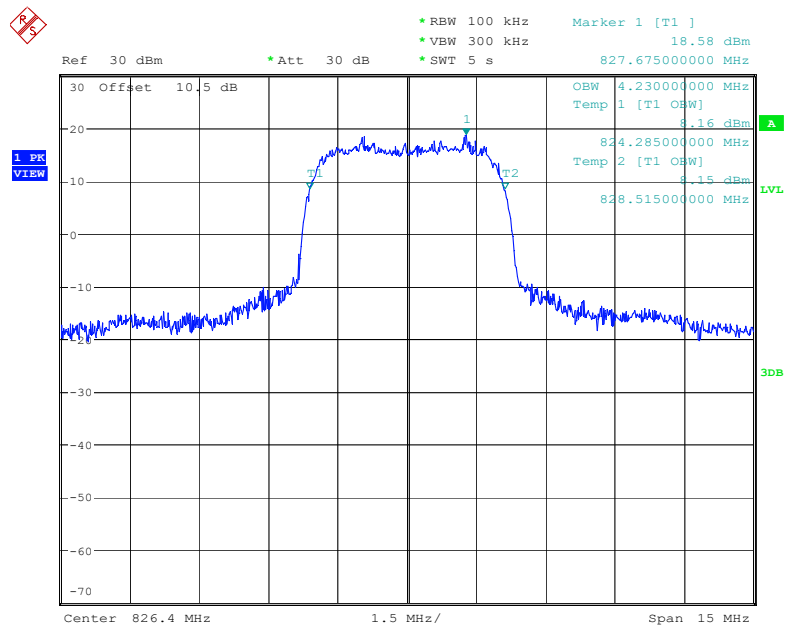
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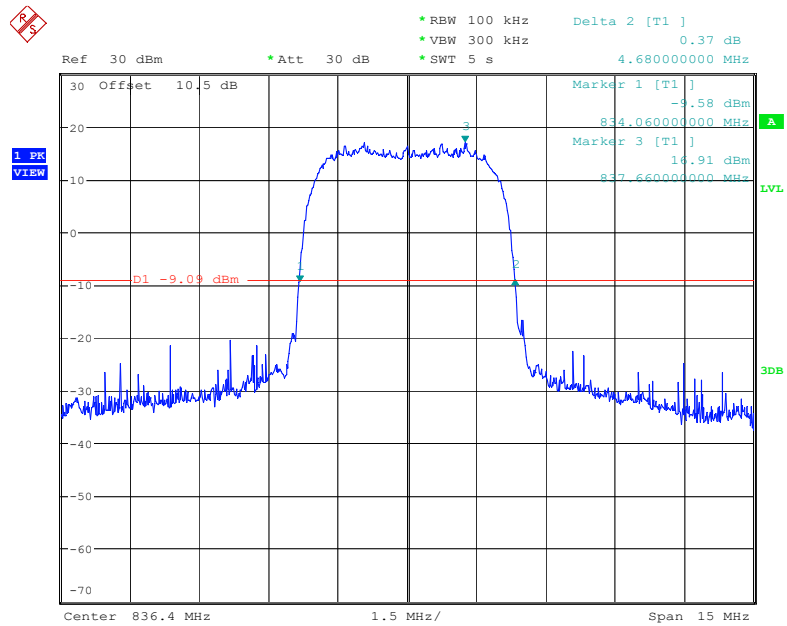
Date: 26.AUG.2022 22:00:20

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

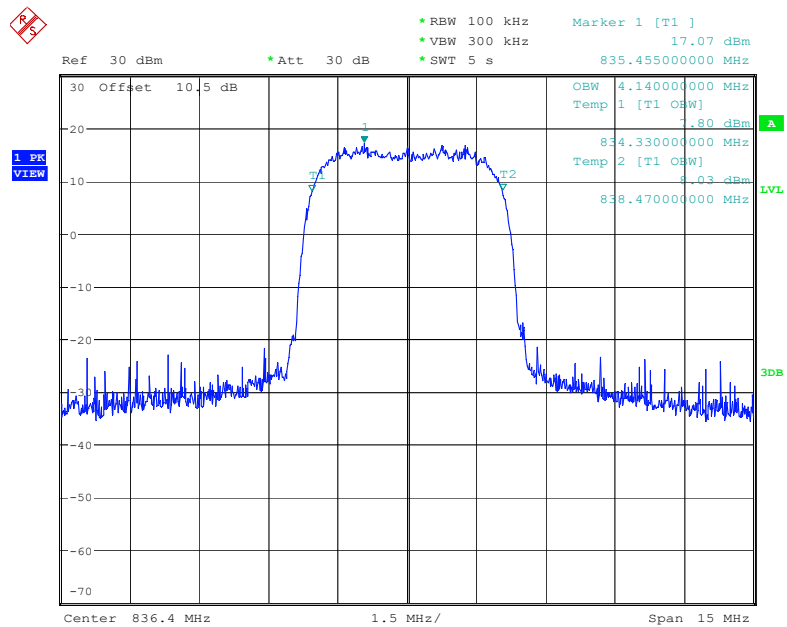
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Date: 26.AUG.2022 22:20:21

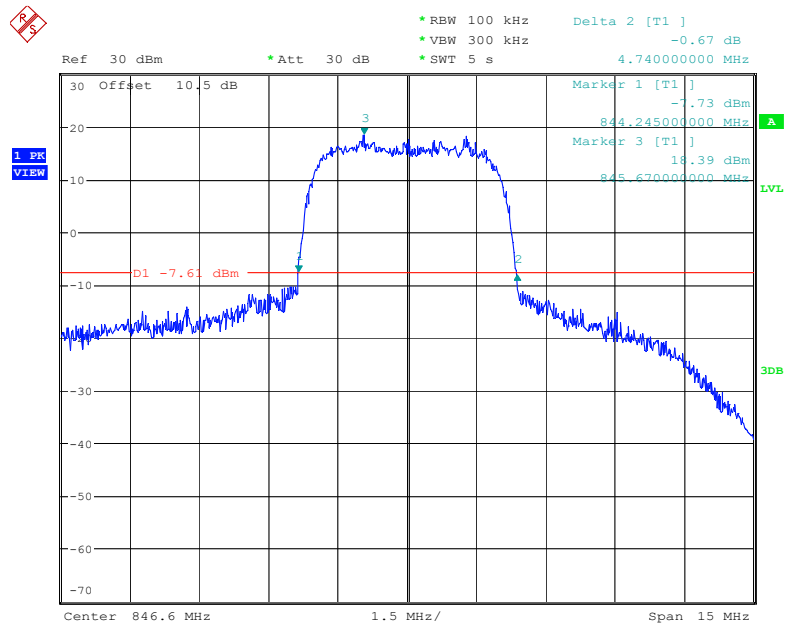
26 dB Emissions & 99% Occupied Bandwidth for HSUPA (QPSK) Mode, Middle channel

Date: 30.AUG.2022 15:06:40

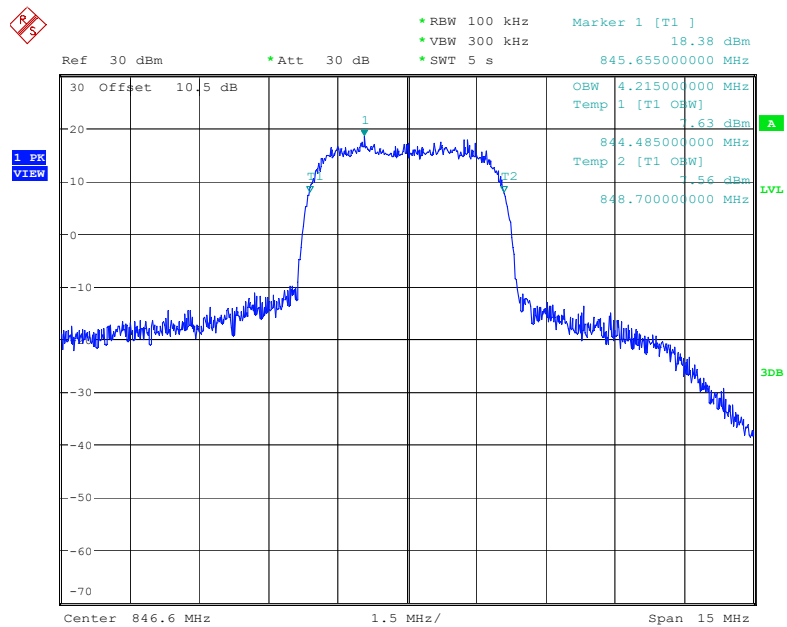


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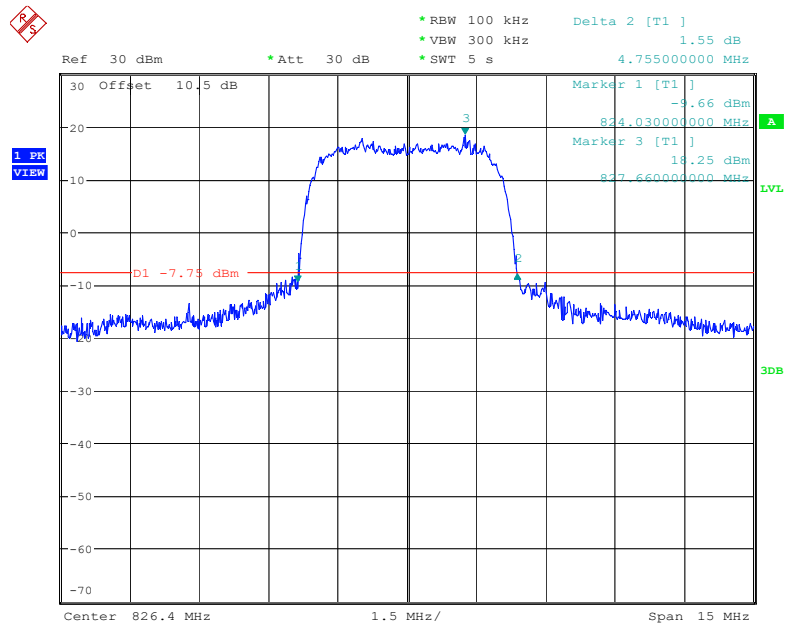
26 dB Emissions & 99% Occupied Bandwidth for HSUPA (QPSK) Mode, High channel



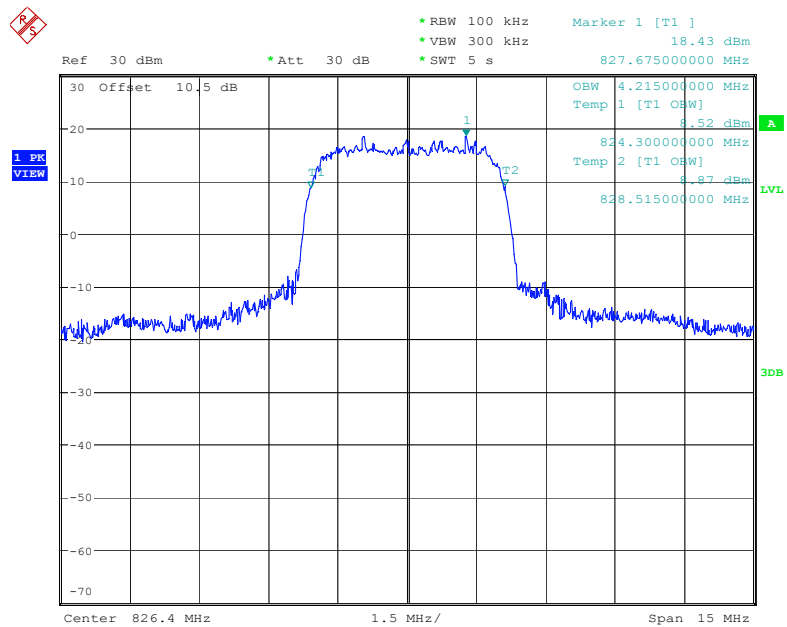
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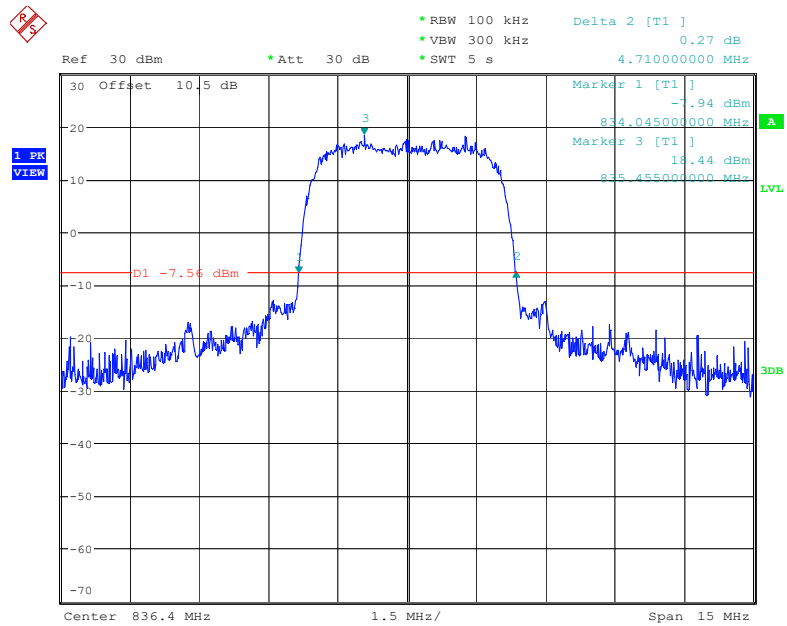
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26 dB Emissions & 99% Occupied Bandwidth for HSDPA (16QAM) Mode, Low channel

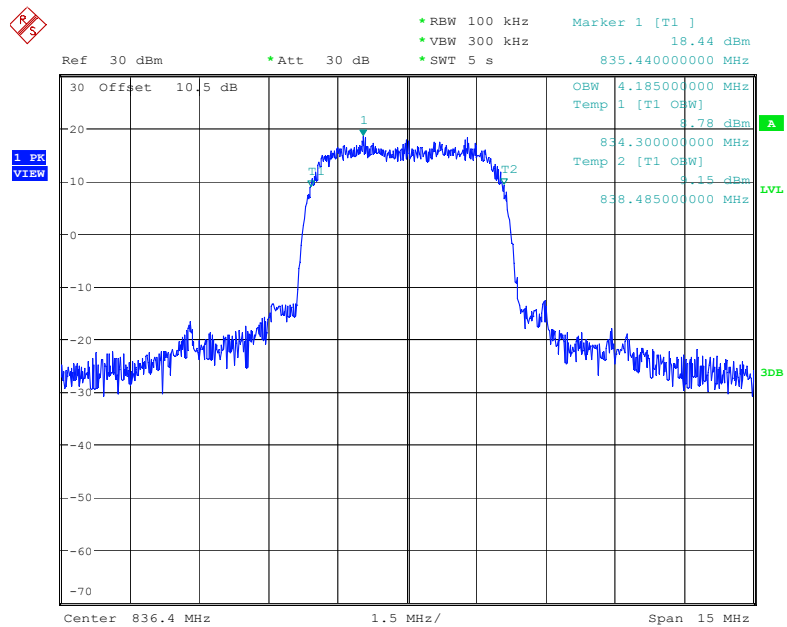
Date: 26.AUG.2022 22:07:36



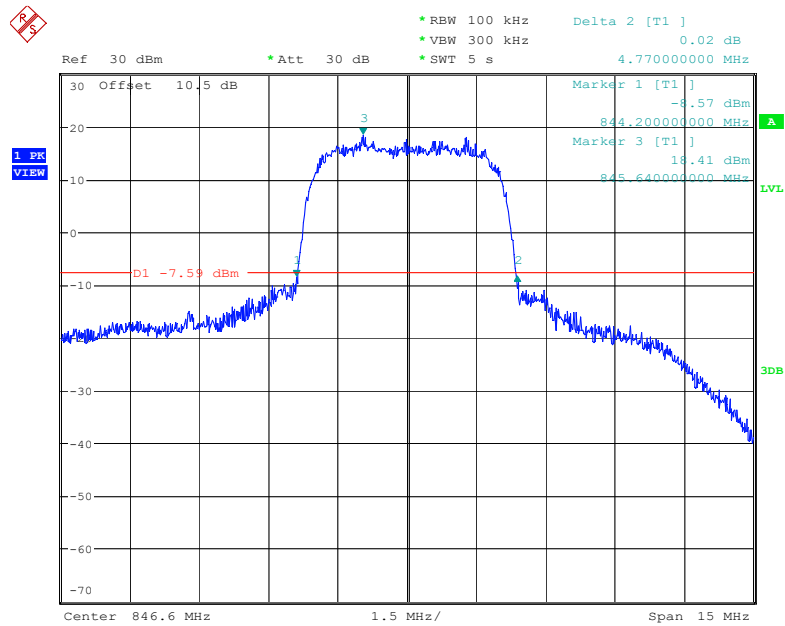
Date: 26.AUG.2022 22:06:58

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

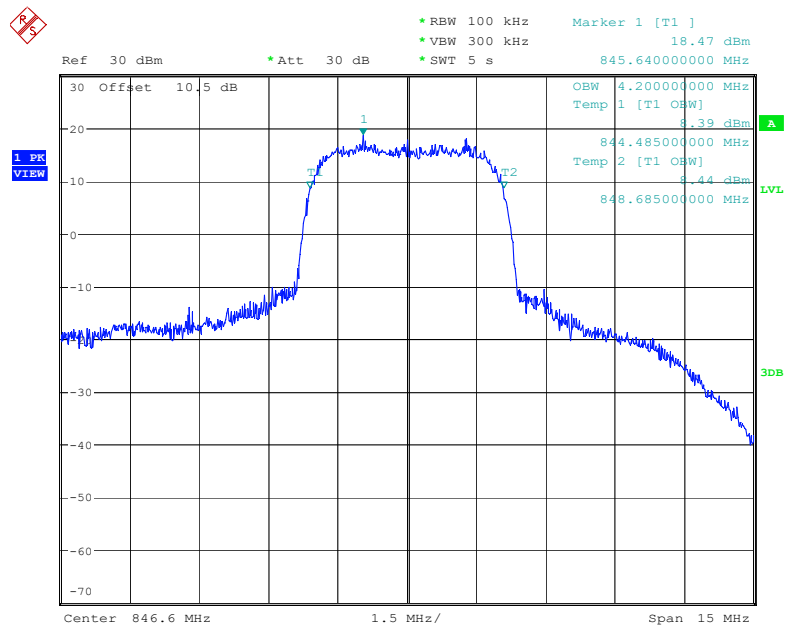
Date: 26.AUG.2022 22:34:24



Date: 26.AUG.2022 22:33:46

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

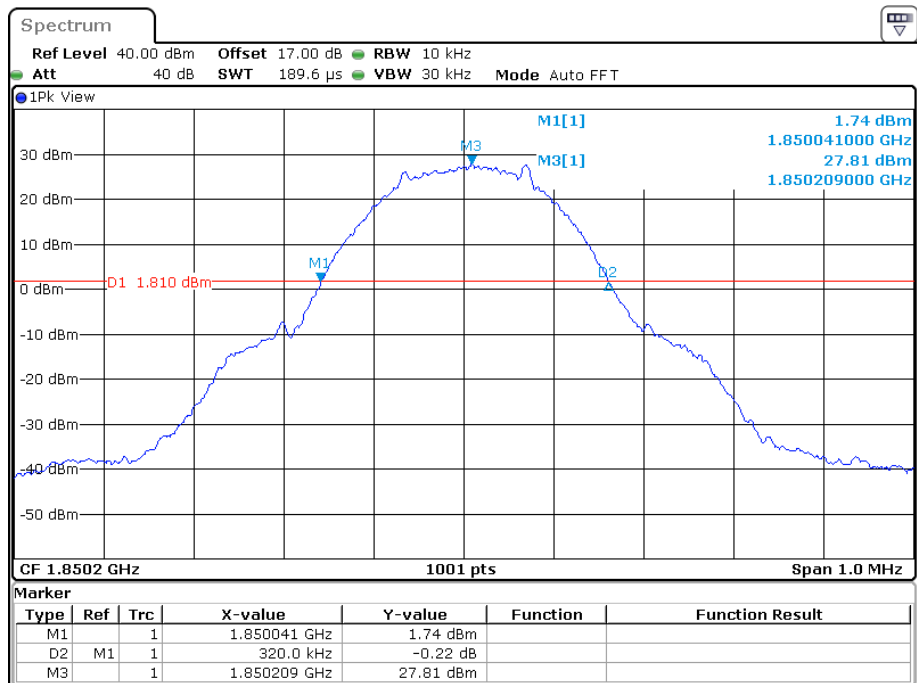
Date: 26.AUG.2022 22:14:27



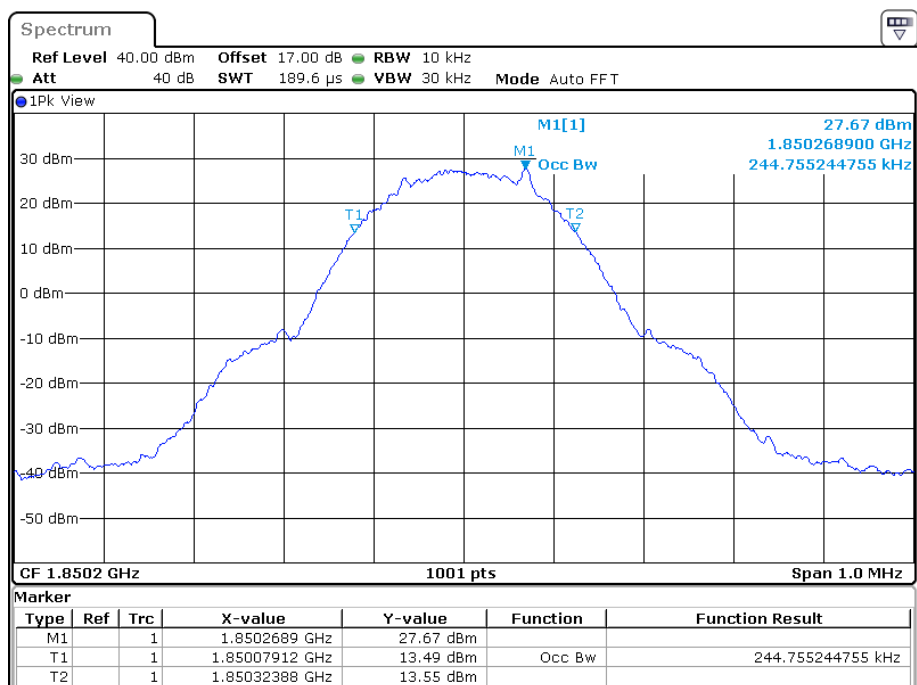
Date: 26.AUG.2022 22:13:50

PCS Band (Part 24E)

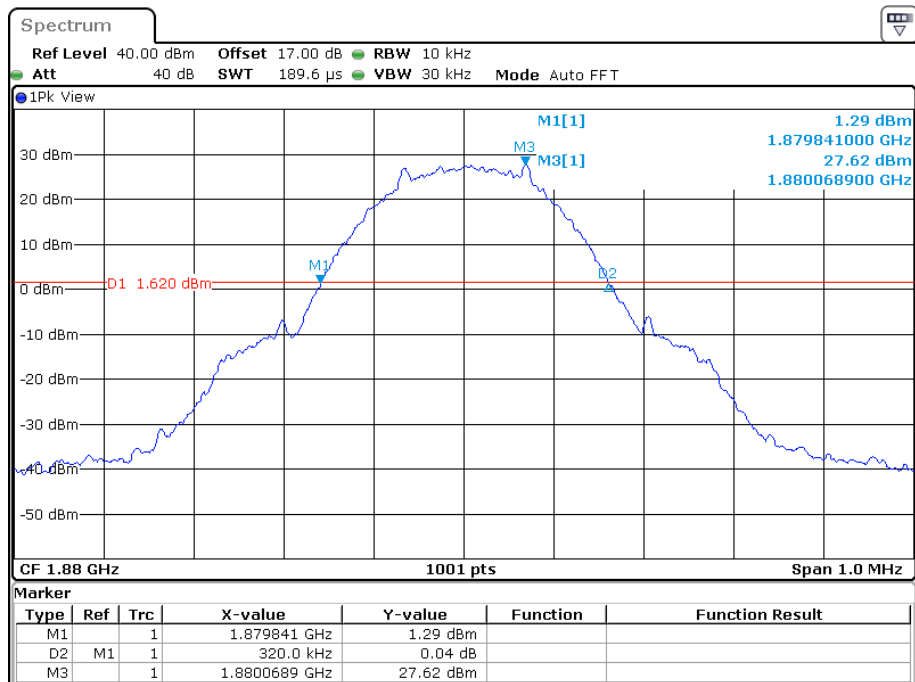
26 dB Emissions & 99% Occupied Bandwidth for GSM (GMSK) Mode, Low channel



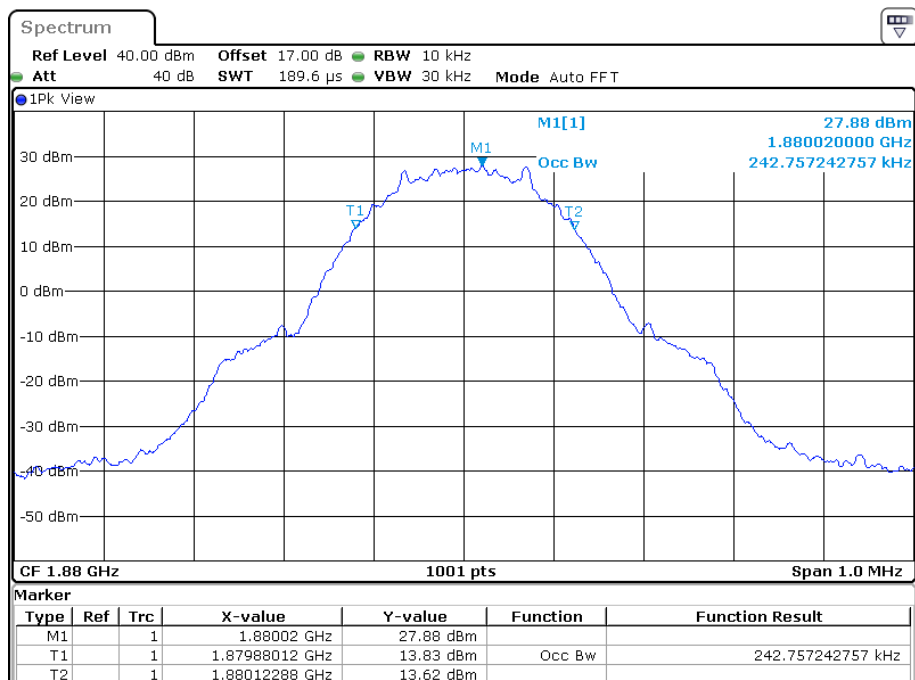
Date: 29.AUG.2022 15:38:42



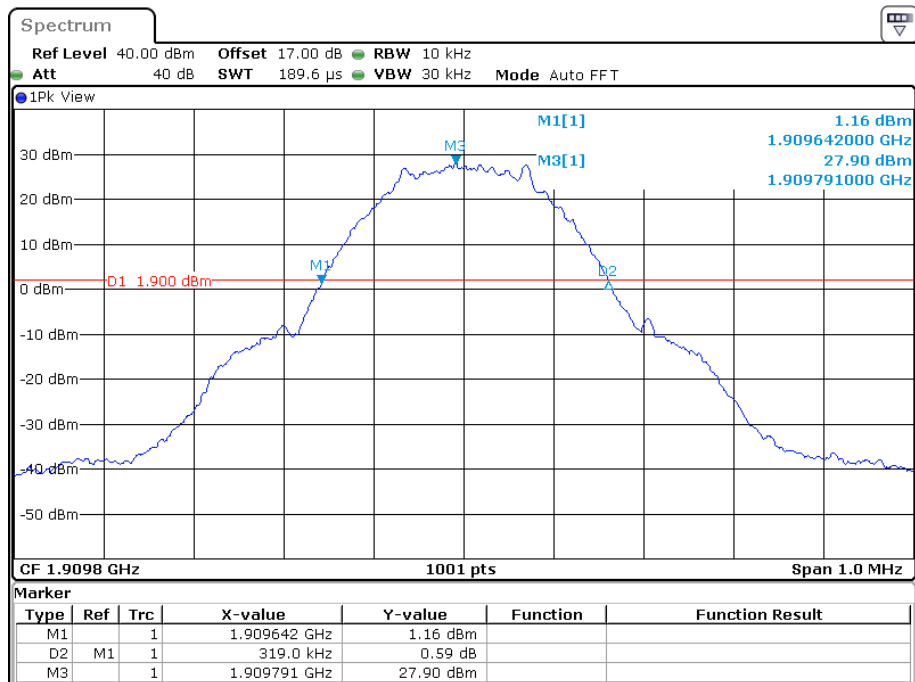
Date: 29.AUG.2022 15:38:01

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

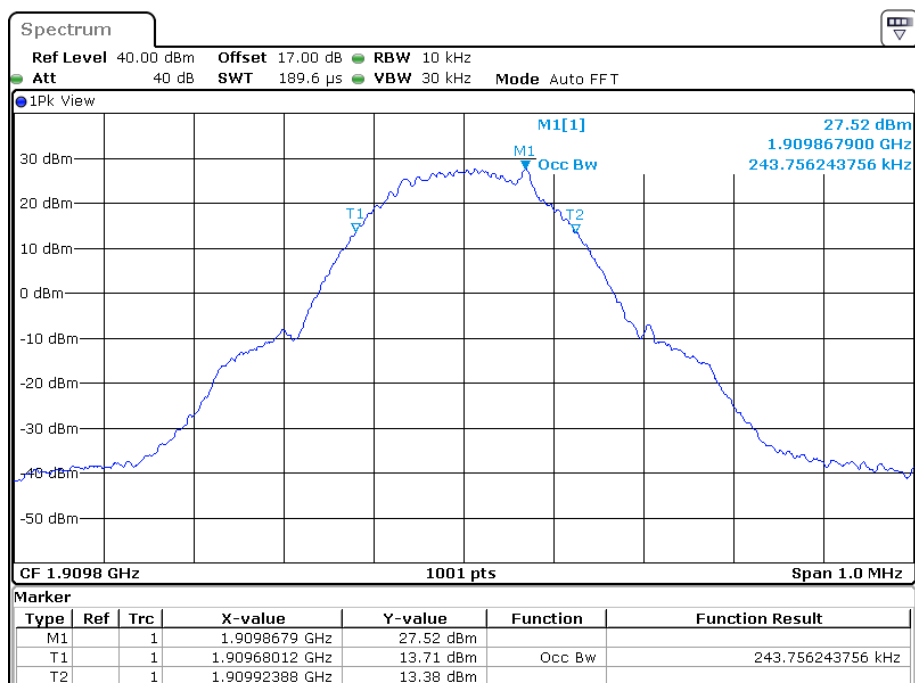
Date: 29.AUG.2022 15:46:43



Date: 29.AUG.2022 15:46:03

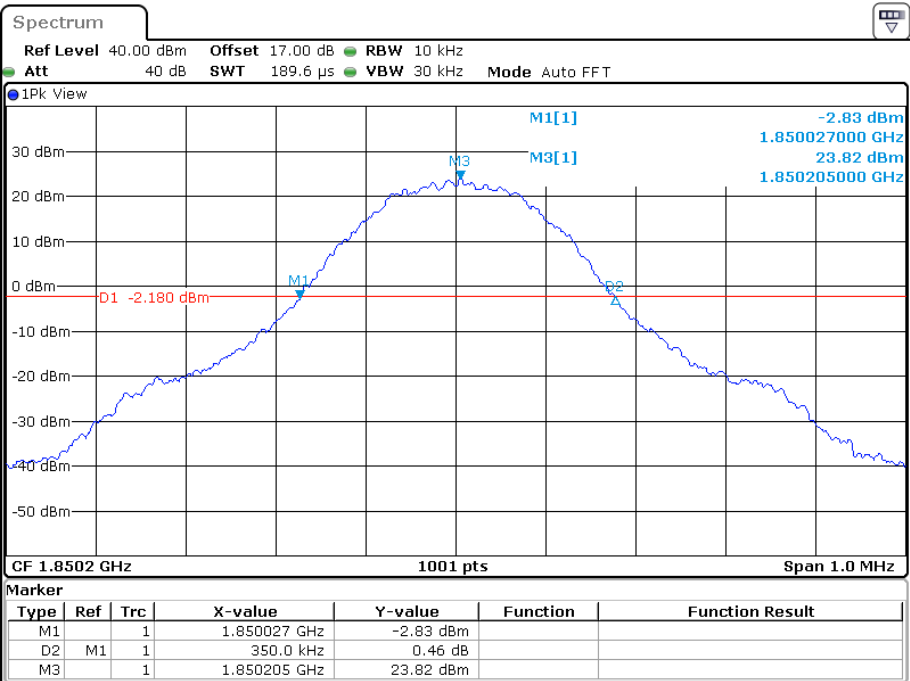
26 dB Emissions & 99% Occupied Bandwidth for GSM (GMSK) Mode, High channel

Date: 29.AUG.2022 15:52:26

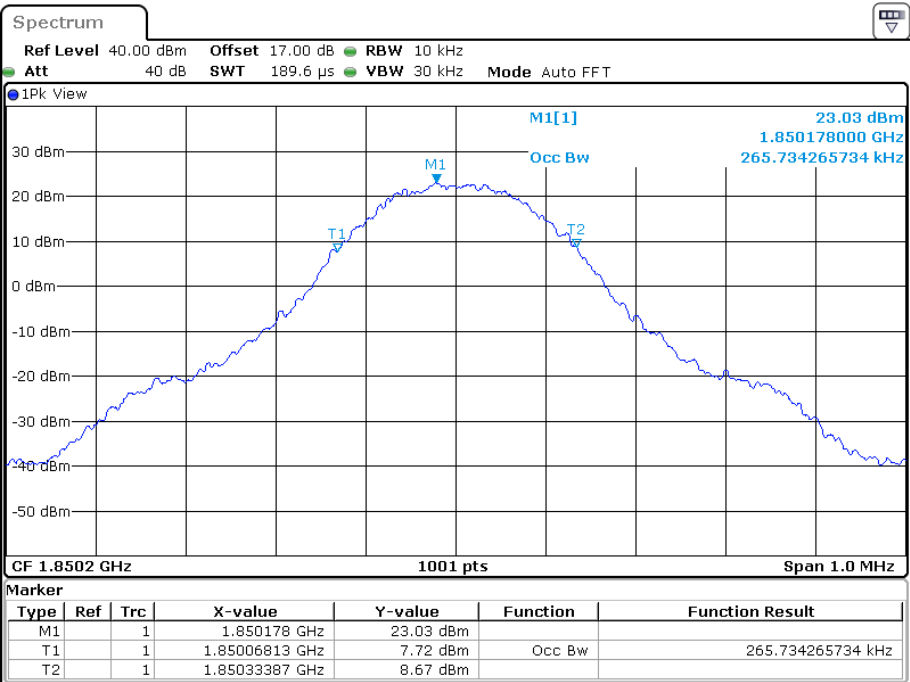


Date: 29.AUG.2022 15:51:46

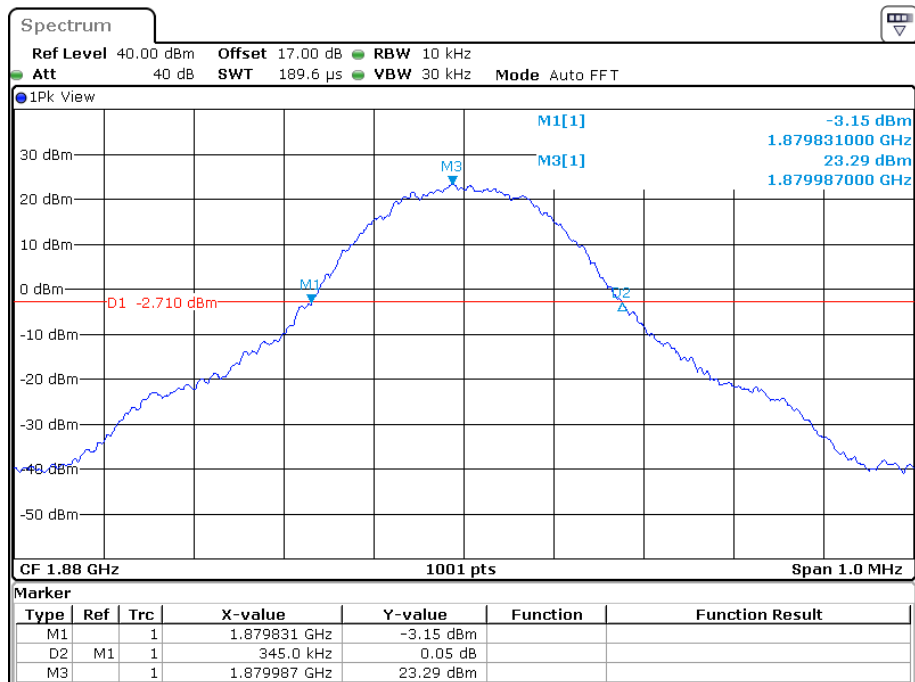
26 dB Emissions & 99% Occupied Bandwidth for EGPRS (8PSK) Mode, Low channel



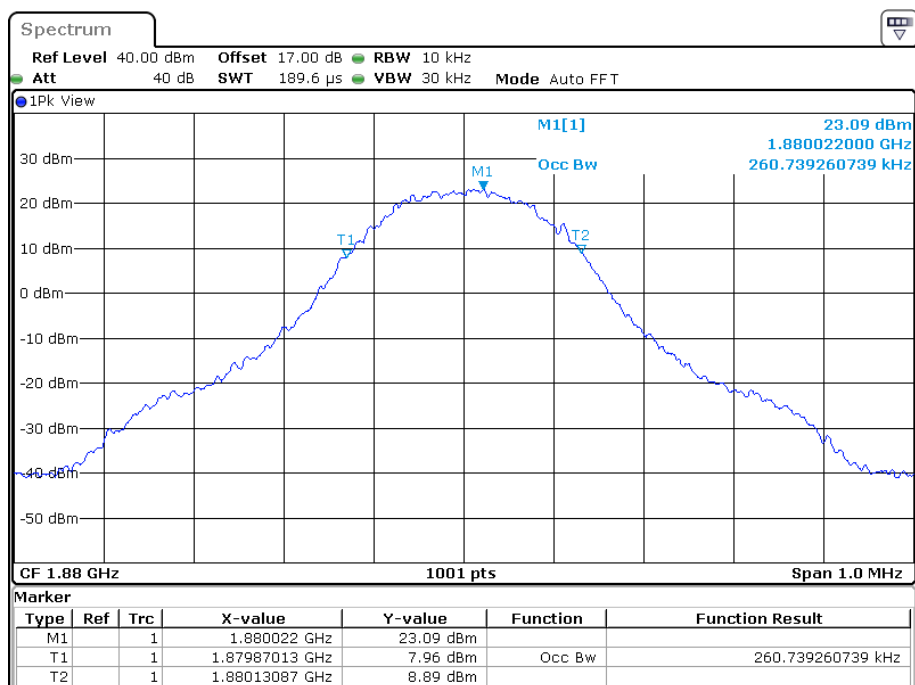
Date: 29.AUG.2022 16:24:16



Date: 29.AUG.2022 16:23:36

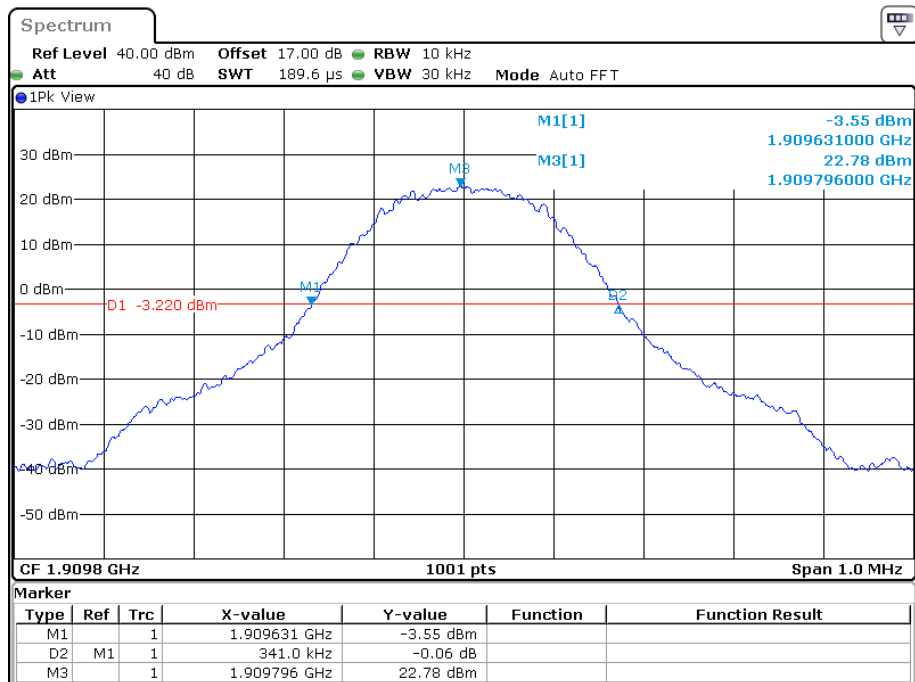
26 dB Emissions & 99% Occupied Bandwidth for EGPRS (8PSK) Mode, Middle channel

Date: 29.AUG.2022 16:30:41

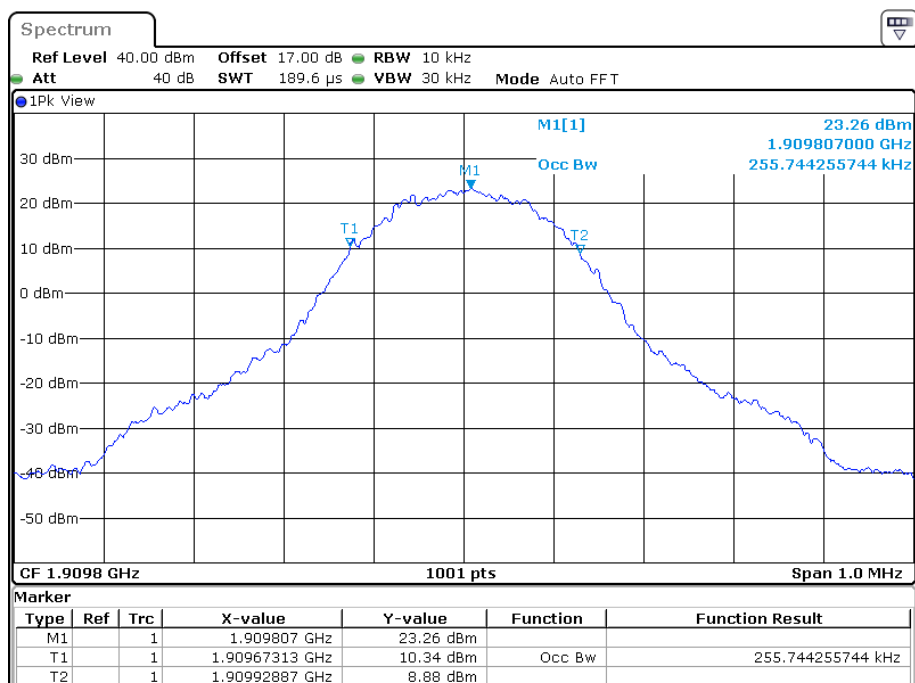


Date: 29.AUG.2022 16:30:01

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

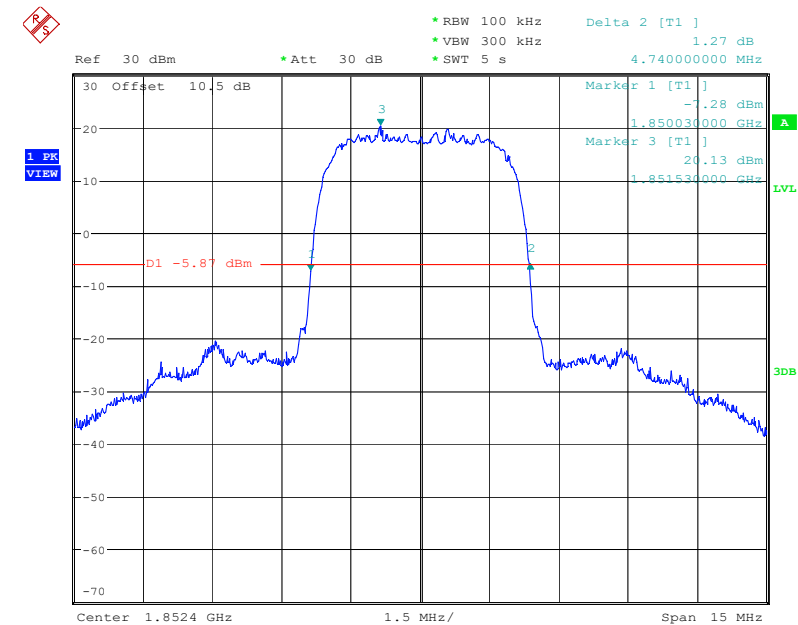


Date: 29.AUG.2022 16:36:01

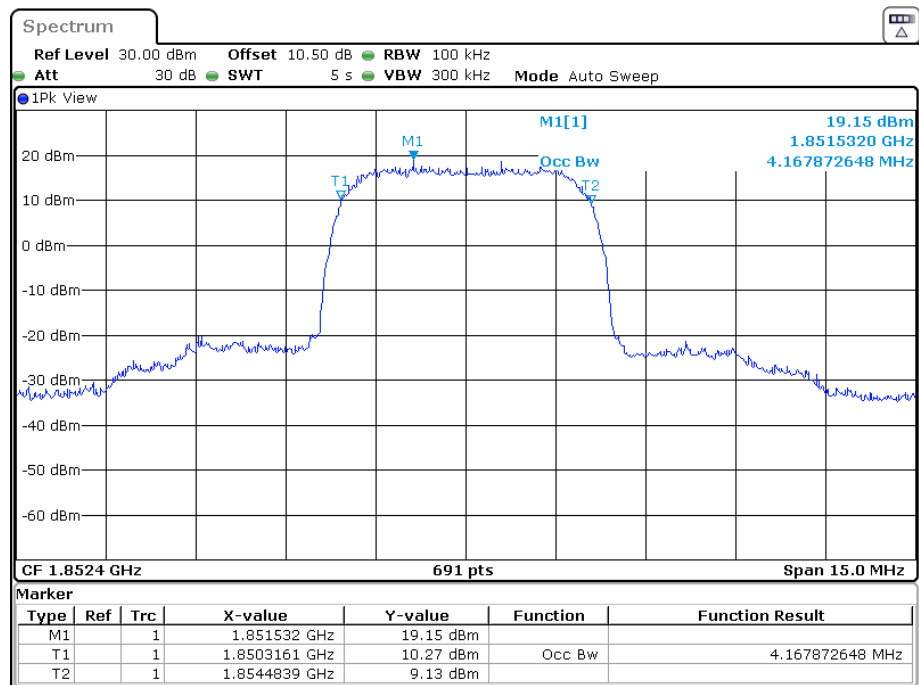


Date: 29.AUG.2022 16:35:21

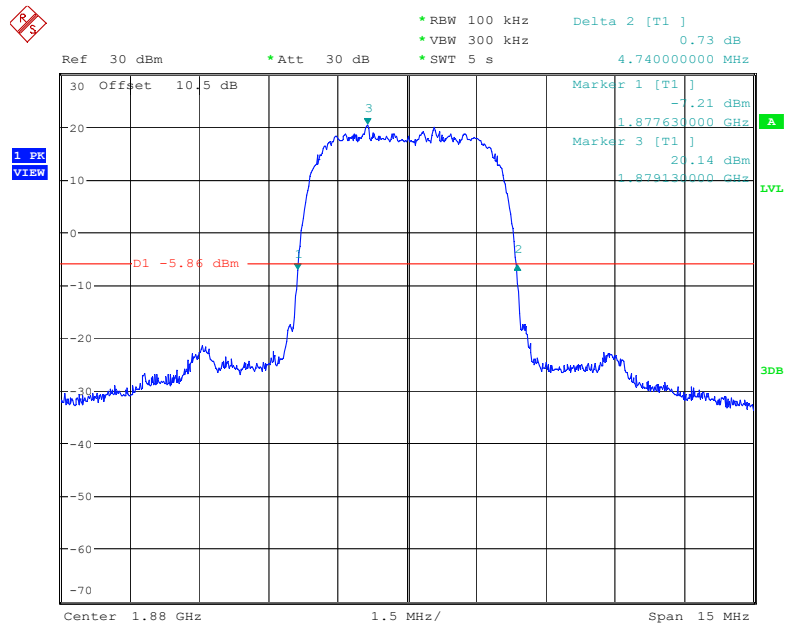
26 dB Emissions & 99% Occupied Bandwidth for RMC (BPSK) Mode, Low channel



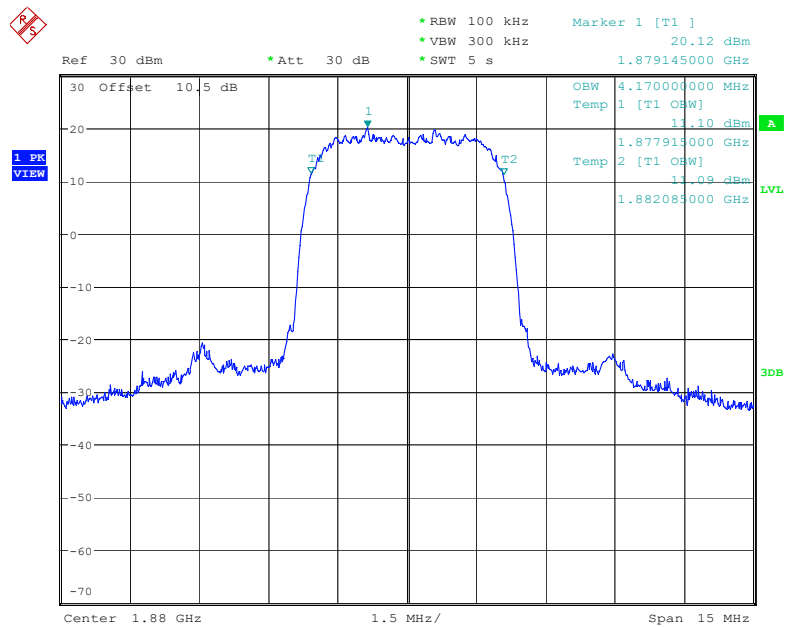
Date: 26.AUG.2022 19:50:09



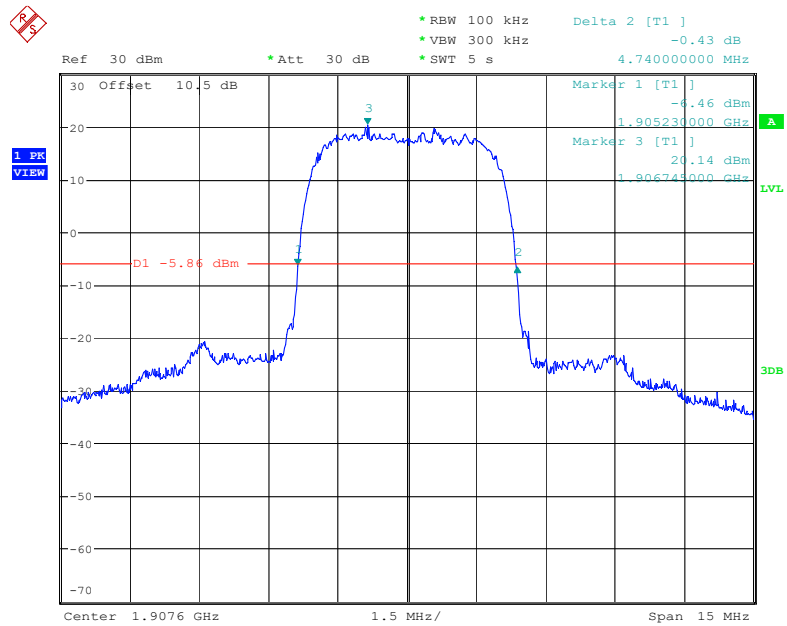
Date: 18.SEP.2022 17:29:07

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

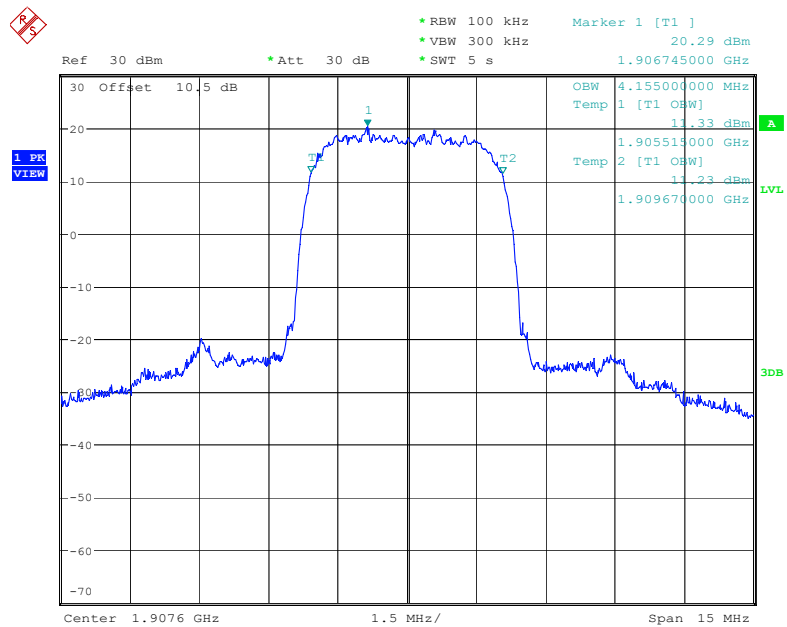
Date: 26.AUG.2022 19:54:30



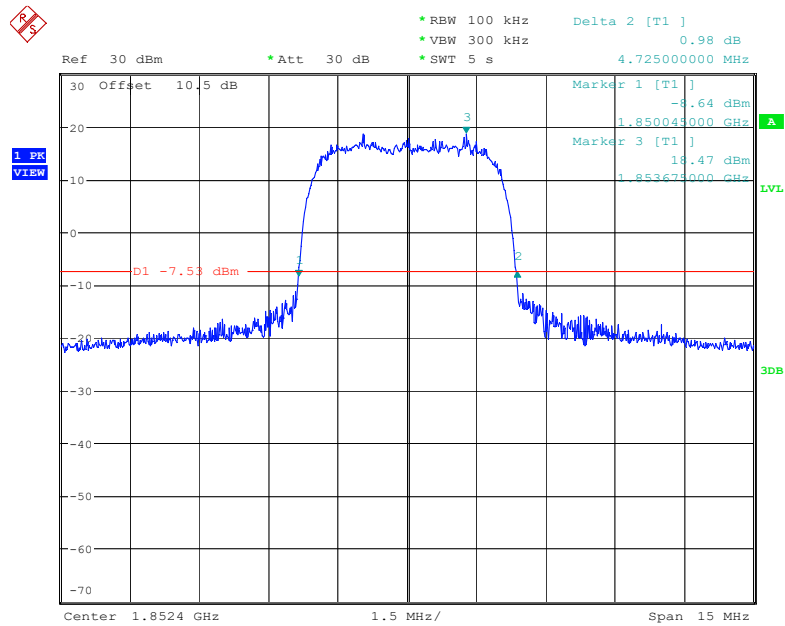
Date: 26.AUG.2022 19:53:54

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

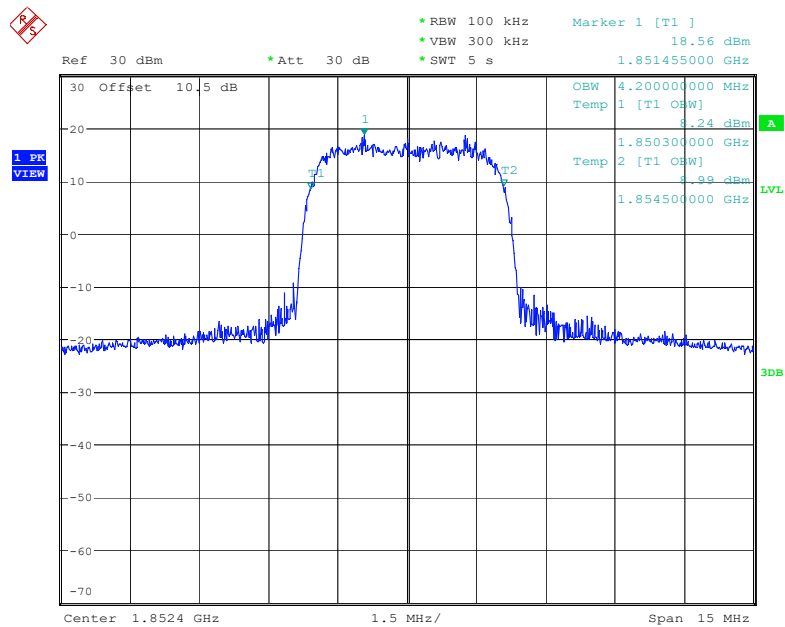
Date: 26.AUG.2022 19:58:03



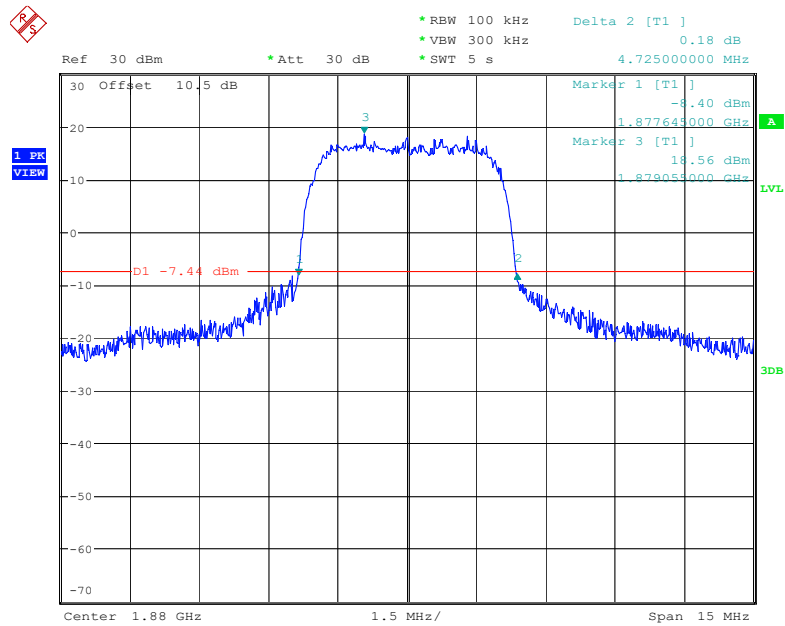
Date: 26.AUG.2022 19:57:26

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

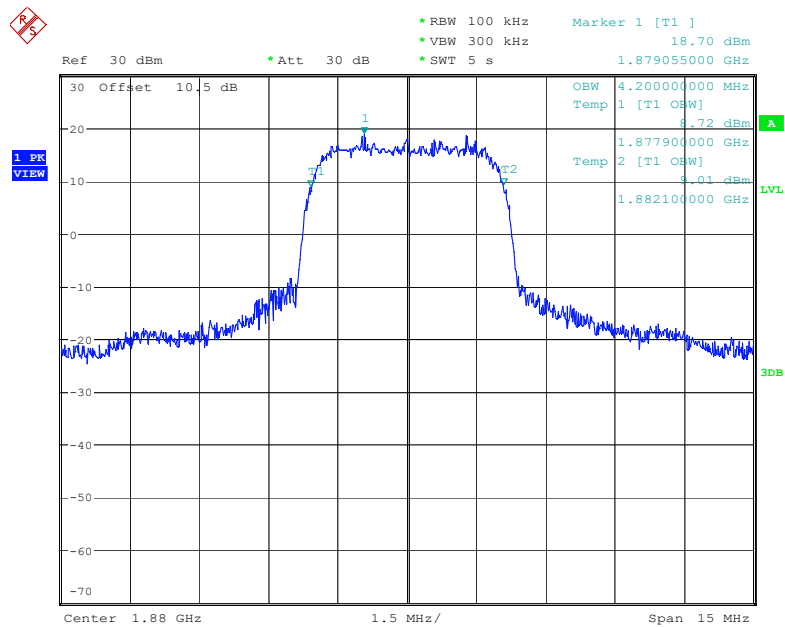
Date: 26.AUG.2022 21:12:09



Date: 26.AUG.2022 21:11:32

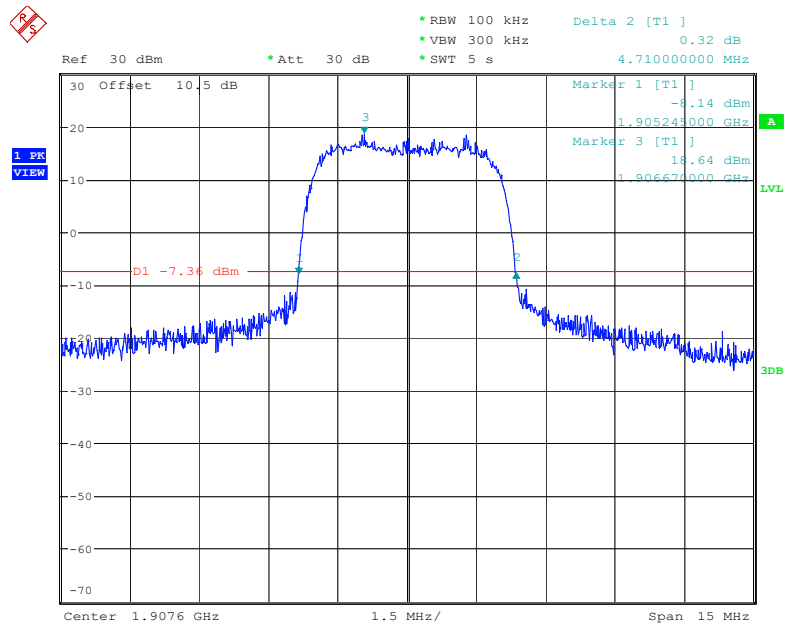
26 dB Emissions & 99% Occupied Bandwidth for HSUPA (QPSK) Mode, Middle channel

Date: 26.AUG.2022 21:17:06

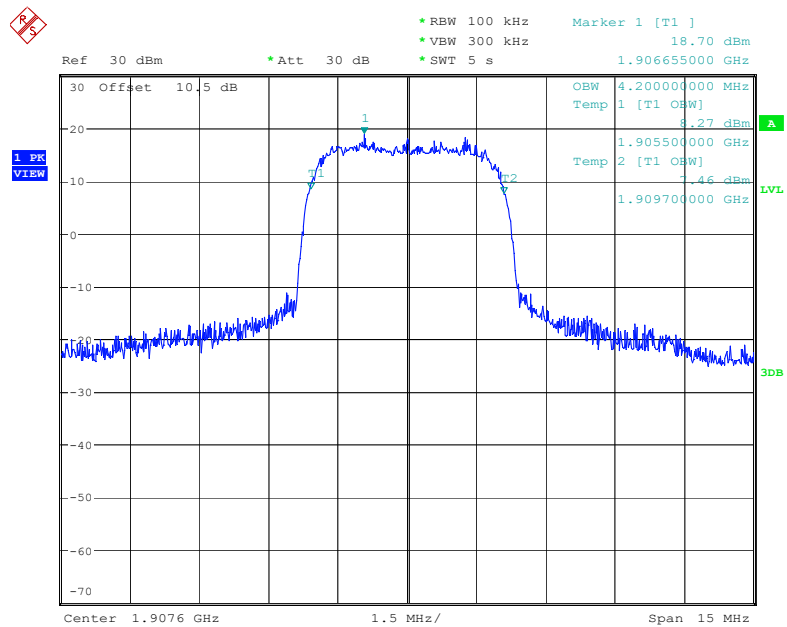


Date: 26.AUG.2022 21:16:29

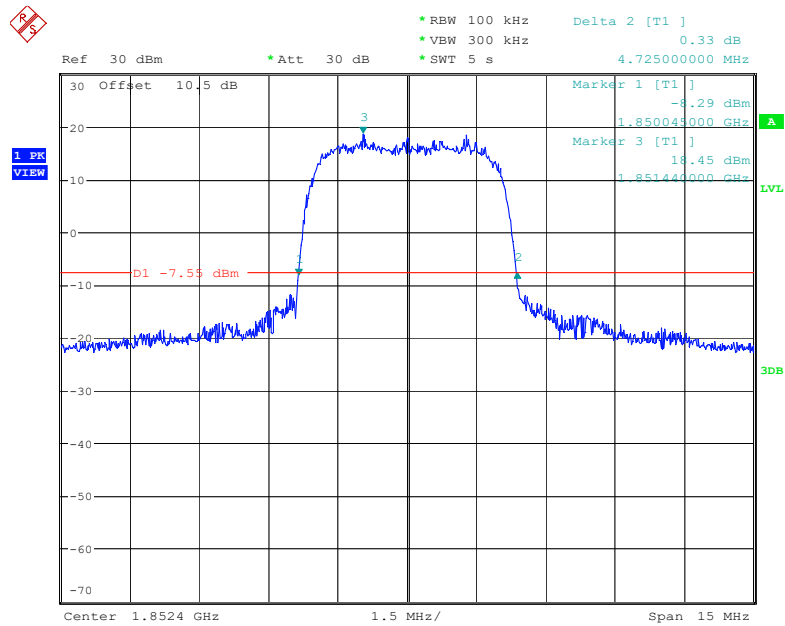
26 dB Emissions & 99% Occupied Bandwidth for HSUPA (QPSK) Mode, High channel



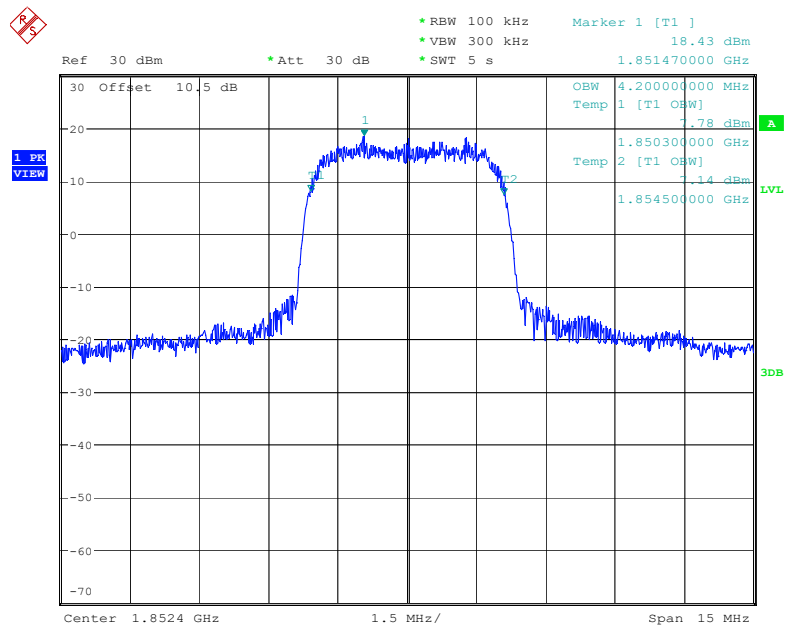
Date: 26.AUG.2022 21:22:20



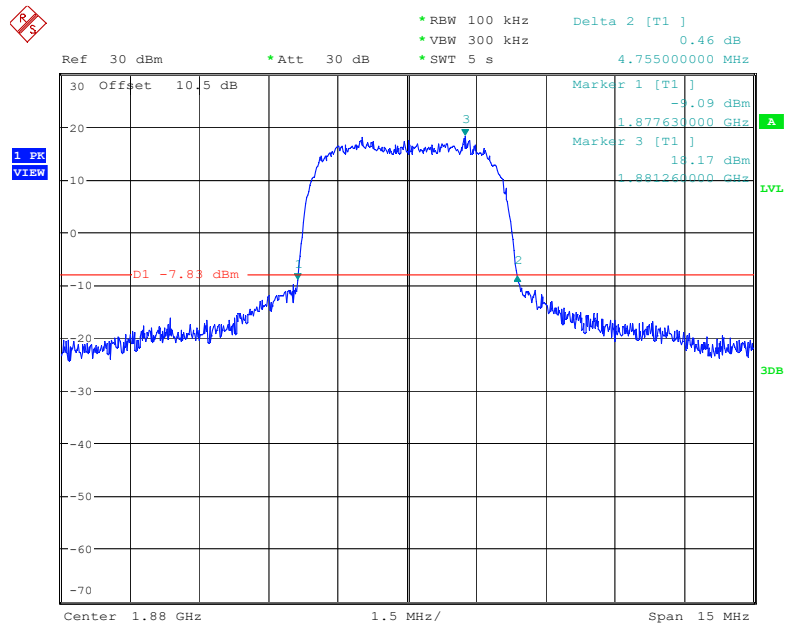
Date: 26.AUG.2022 21:21:42

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

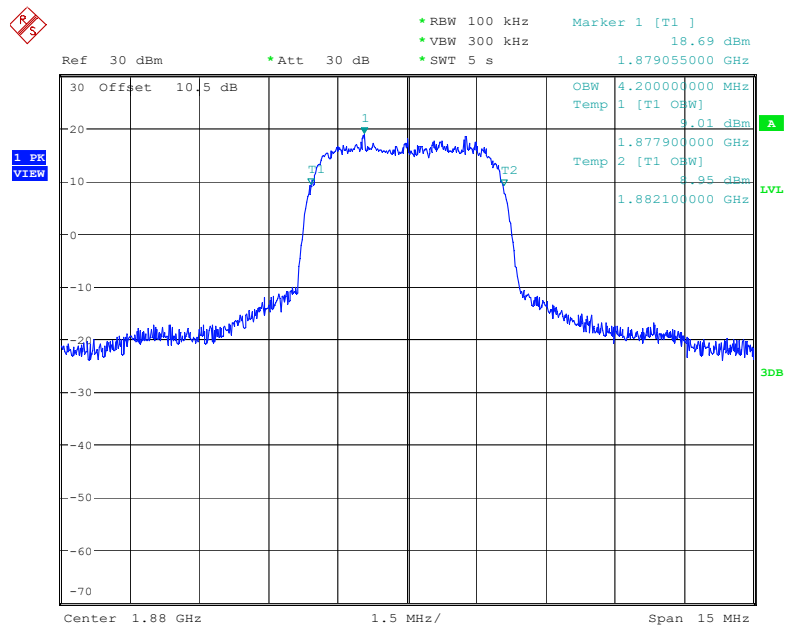
Date: 26.AUG.2022 20:53:46



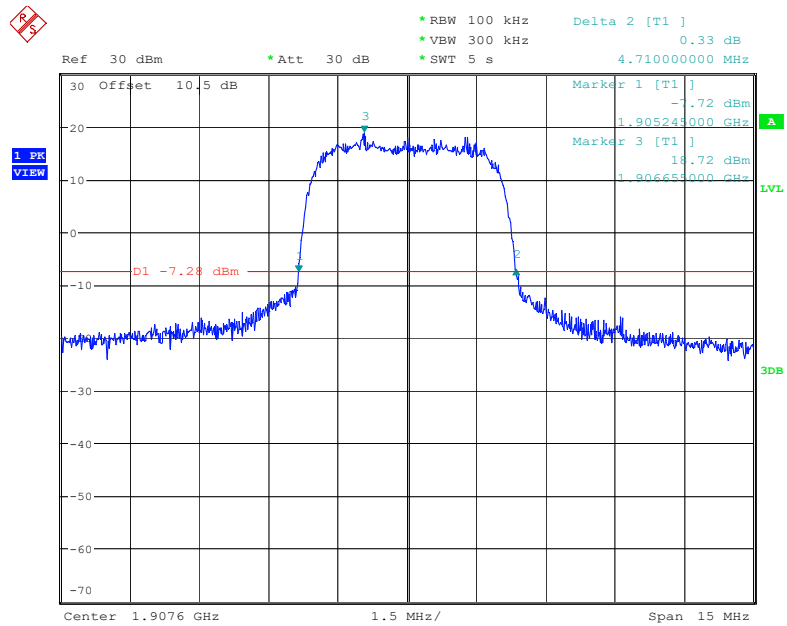
Date: 26.AUG.2022 20:53:04

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

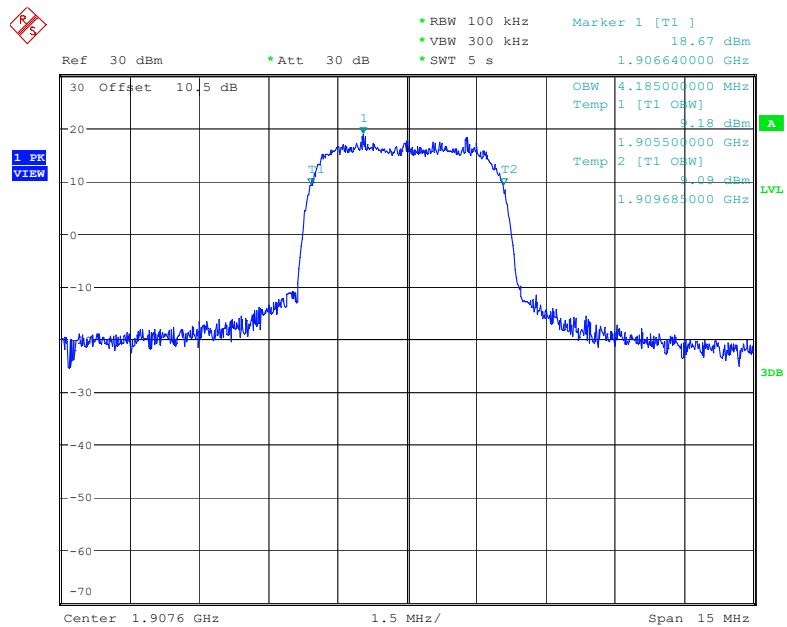
Date: 26.AUG.2022 20:58:36



Date: 26.AUG.2022 20:57:59

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

Date: 26.AUG.2022 21:02:00



Date: 26.AUG.2022 21:01:22

LTE Band 2:

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
1.4 MHz	QPSK	1.104	1.302	1.098	1.308	1.098	1.314
	16QAM	1.098	1.314	1.104	1.320	1.092	1.296
3 MHz	QPSK	2.688	2.880	2.676	2.880	2.688	2.892
	16QAM	2.688	2.880	2.688	2.880	2.688	2.880
5 MHz	QPSK	4.520	4.920	4.520	4.980	4.520	4.920
	16QAM	4.520	4.980	4.500	4.920	4.540	4.960
10 MHz	QPSK	8.960	9.560	8.960	9.680	8.960	9.520
	16QAM	8.960	9.600	8.960	9.600	8.960	9.600
15 MHz	QPSK	13.560	14.820	13.560	14.820	13.500	14.760
	16QAM	13.560	14.760	13.500	14.700	13.560	14.760
20 MHz	QPSK	18.000	19.360	18.000	19.360	18.000	19.440
	16QAM	18.000	19.360	18.000	19.360	18.000	19.360

LTE Band 4:

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
1.4 MHz	QPSK	1.104	1.320	1.110	1.284	1.104	1.314
	16QAM	1.092	1.296	1.104	1.296	1.104	1.320
3 MHz	QPSK	2.676	2.880	2.700	2.880	2.688	2.880
	16QAM	2.688	2.892	2.688	2.880	2.688	2.880
5 MHz	QPSK	4.500	4.940	4.520	4.940	4.520	4.960
	16QAM	4.520	4.940	4.500	4.920	4.520	4.960
10 MHz	QPSK	8.960	9.600	8.960	9.600	8.960	9.560
	16QAM	9.000	9.680	8.960	9.600	8.960	9.600
15 MHz	QPSK	13.500	14.820	13.500	14.820	13.560	14.820
	16QAM	13.560	14.760	13.500	14.760	13.560	14.760
20 MHz	QPSK	17.920	19.280	18.000	19.680	17.920	19.440
	16QAM	18.000	19.520	18.000	19.360	18.080	19.360

LTE Band 5:

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
1.4 MHz	QPSK	1.098	1.326	1.098	1.278	1.098	1.314
	16QAM	1.092	1.920	1.098	1.290	1.104	1.320
3 MHz	QPSK	2.688	2.904	2.676	2.880	2.688	2.868
	16QAM	2.688	2.880	2.688	2.856	2.688	2.880
5 MHz	QPSK	4.500	4.980	4.520	4.920	4.500	4.960
	16QAM	4.540	4.980	4.520	4.920	4.520	4.920
10 MHz	QPSK	8.960	9.600	8.960	9.600	8.960	9.640
	16QAM	8.960	9.600	8.960	9.680	8.960	9.560

LTE Band 7

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
5 MHz	QPSK	4.520	5.000	4.500	4.920	4.500	4.940
	16QAM	4.520	5.000	4.520	4.960	4.500	4.920
10 MHz	QPSK	8.960	9.560	8.960	9.680	8.960	9.640
	16QAM	8.960	9.560	9.000	9.640	8.960	9.560
15 MHz	QPSK	13.560	14.880	13.500	14.760	13.500	14.880
	16QAM	13.560	14.880	13.560	14.760	13.560	14.940
20 MHz	QPSK	18.000	19.440	18.000	19.360	18.000	19.280
	16QAM	17.920	19.440	18.000	19.360	18.000	20.960

LTE Band 12:

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
1.4 MHz	QPSK	1.104	1.290	1.104	1.314	1.104	1.308
	16QAM	1.098	1.290	1.104	1.320	1.092	1.272
3 MHz	QPSK	2.688	2.880	2.688	2.868	2.688	2.880
	16QAM	2.688	2.892	2.688	2.892	2.688	2.868
5 MHz	QPSK	4.540	5.100	4.520	5.180	4.540	5.200
	16QAM	4.540	5.220	4.520	5.200	4.540	5.220
10 MHz	QPSK	8.960	9.840	8.960	9.960	9.000	9.800
	16QAM	8.960	9.840	8.960	9.760	8.960	9.800

LTE Band 17

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
5 MHz	QPSK	4.540	5.120	4.540	5.140	4.540	5.220
	16QAM	4.520	5.220	4.560	5.240	4.520	5.200
10 MHz	QPSK	8.960	10.160	9.000	9.920	9.000	10.040
	16QAM	8.960	9.840	8.960	9.840	8.960	9.800

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

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

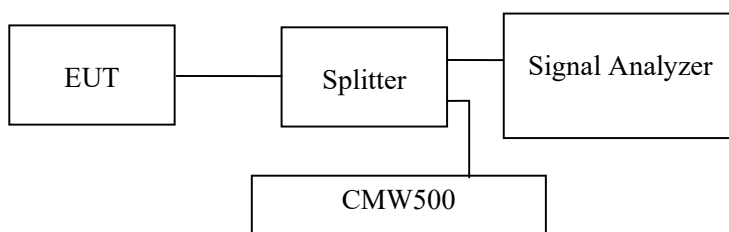
Applicable Standard

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

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

Test Procedure

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



Note: the worst path loss (cable loss and splitter inset loss) among the test frequency range was added into plots.

Test Data

Environmental Conditions

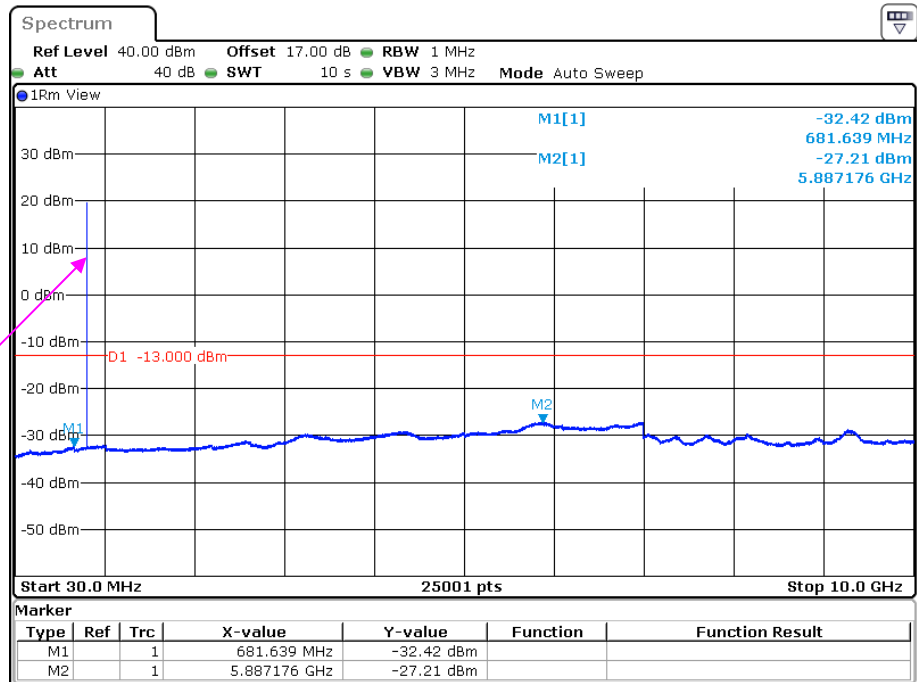
Temperature:	28 °C
Relative Humidity:	50 %
ATM Pressure:	101.0 kPa

The testing was performed by Andy Yu from 2022-08-26 to 2022-08-29.

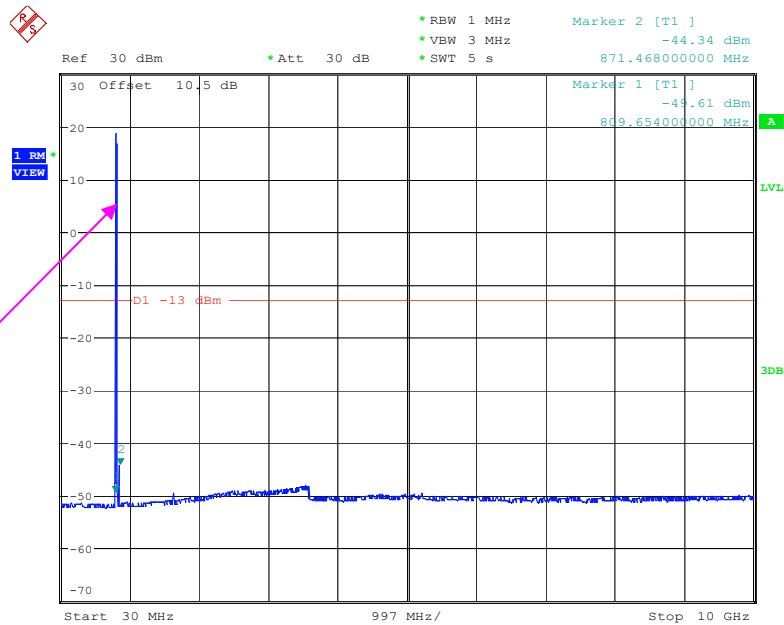
EUT operation mode: Transmitting

Test result: Pass

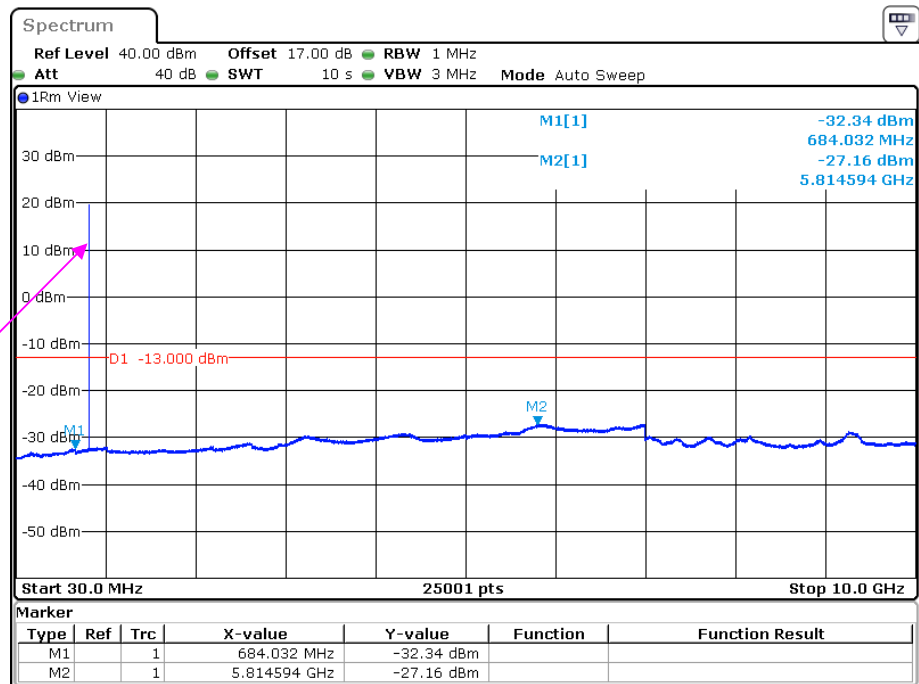
Please refer to the following plots.

Cellular Band (Part 22H)**Low Channel:****30 MHz – 10 GHz (GSM Mode)**

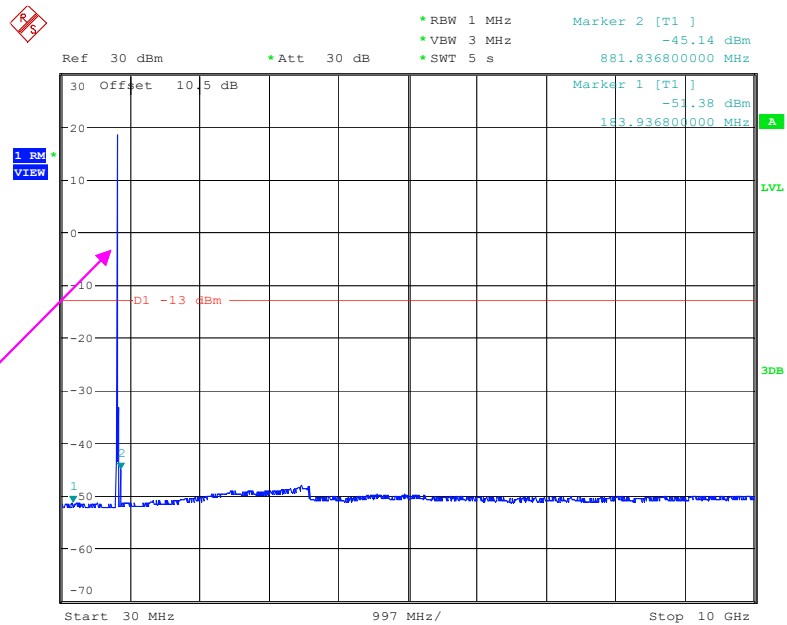
Date: 29.AUG.2022 14:39:10

30 MHz – 10 GHz (RMC Mode)

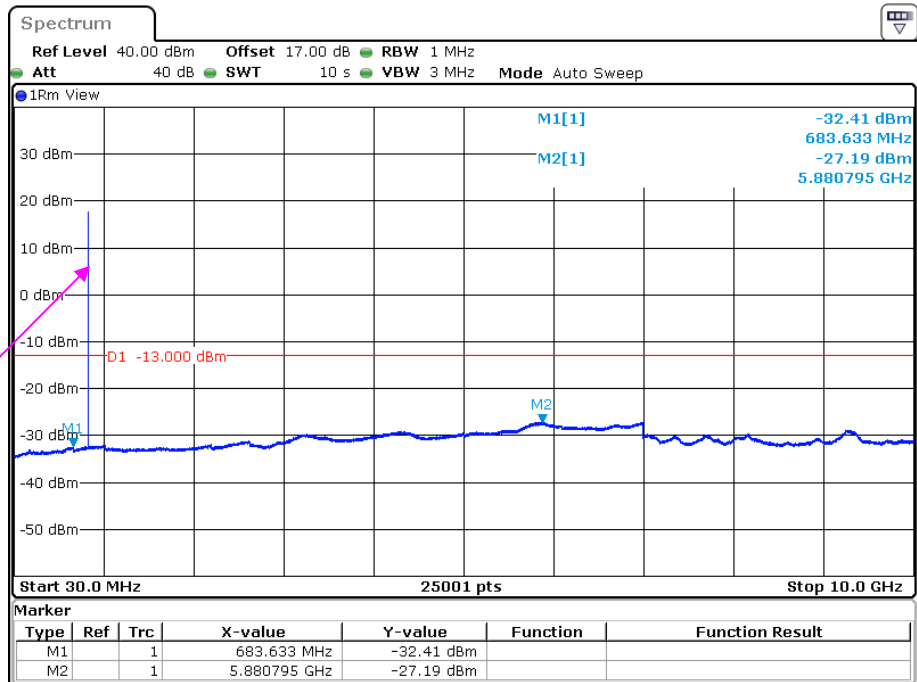
Date: 26.AUG.2022 21:54:27

Middle Channel:**30 MHz – 10 GHz (GSM Mode)**

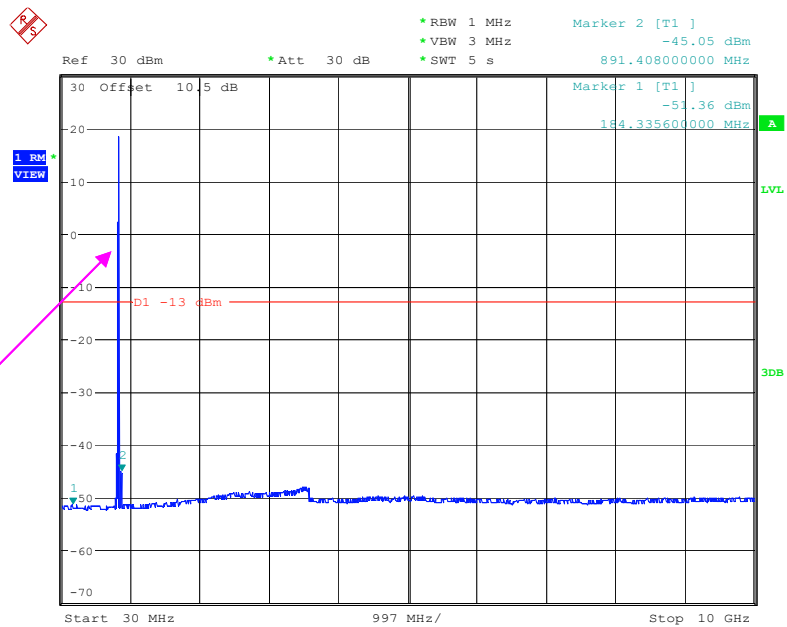
Date: 29.AUG.2022 14:42:54

30 MHz – 10 GHz (RMC Mode)

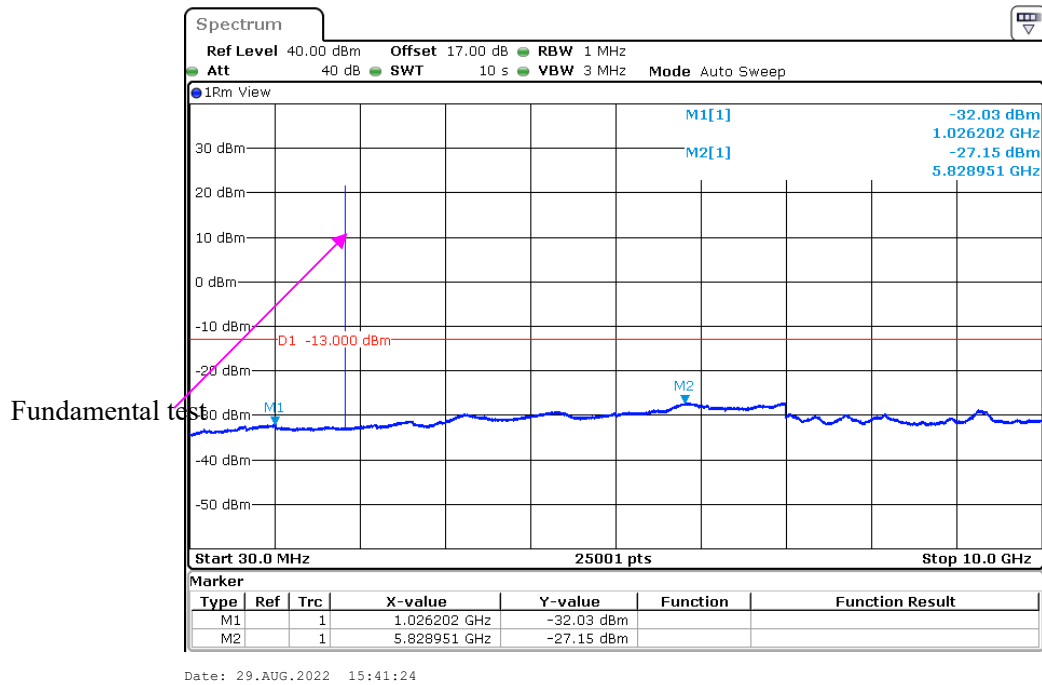
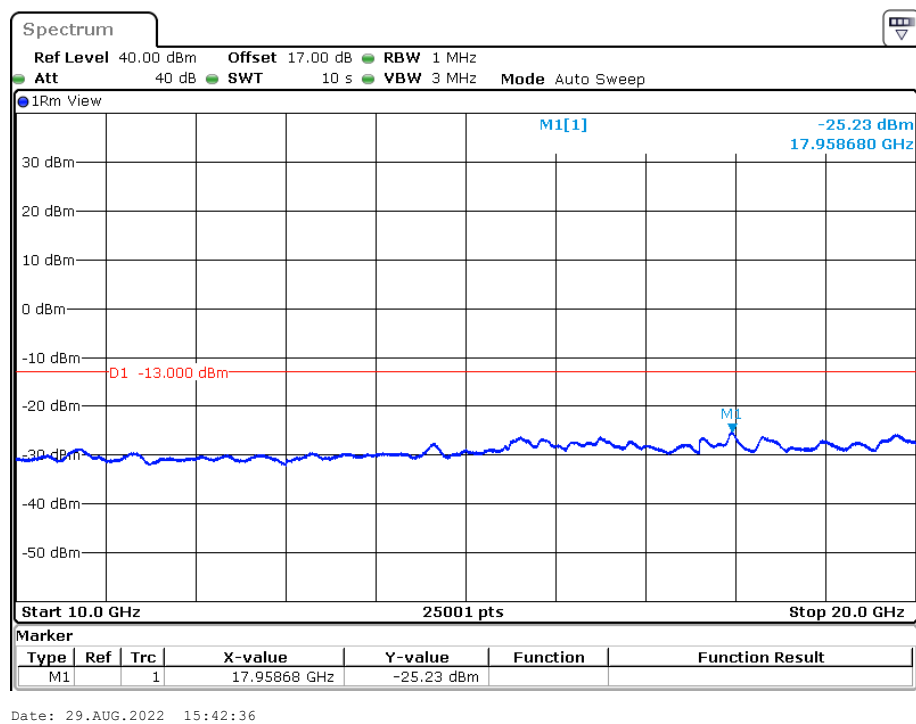
Date: 26.AUG.2022 21:58:42

High Channel:**30 MHz – 10 GHz (GSM Mode)**

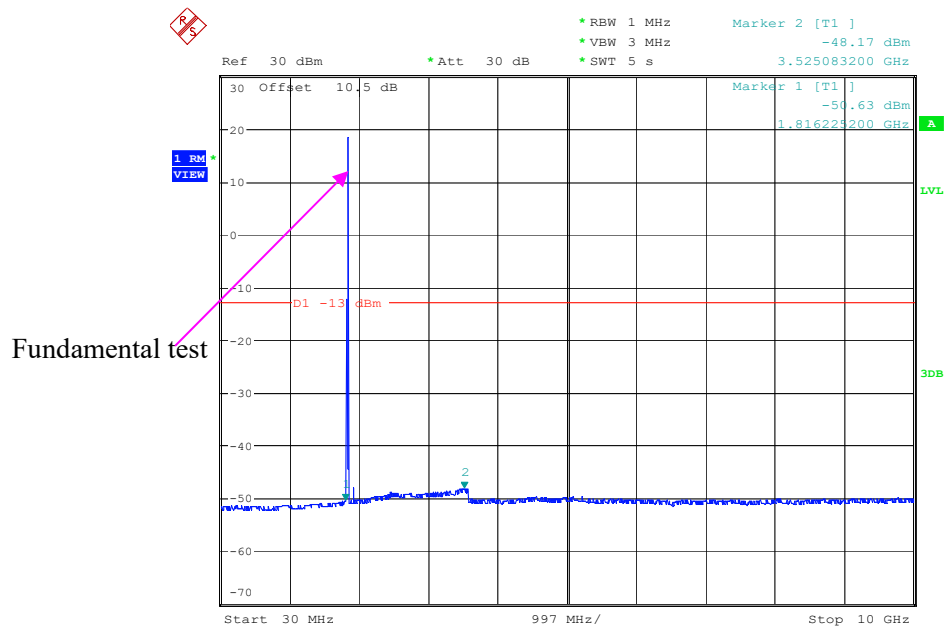
Date: 29.AUG.2022 14:47:57

30 MHz – 10 GHz (RMC Mode)

Date: 26.AUG.2022 22:02:14

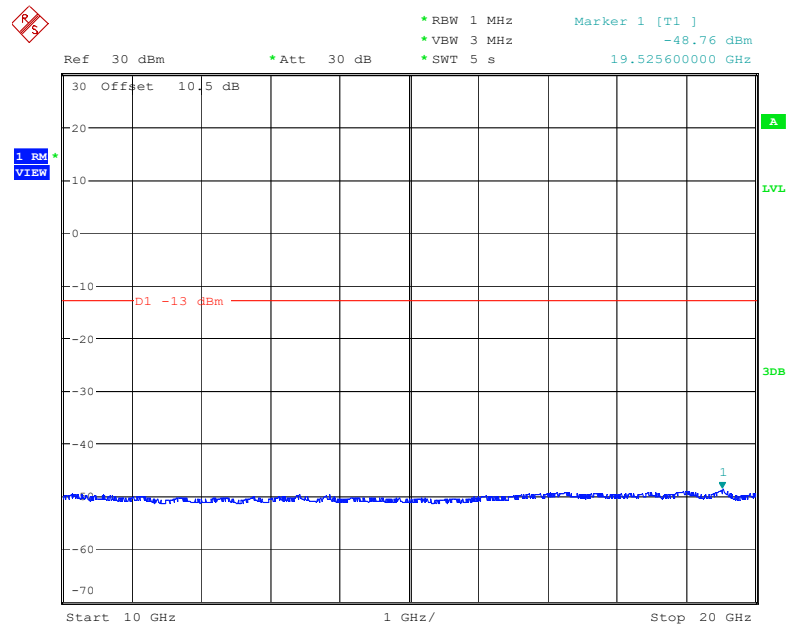
PCS Band (Part 24E)
Low Channel:**30 MHz – 10 GHz (GSM Mode)****10 GHz – 20 GHz (GSM Mode)**

30 MHz – 10 GHz (RMC Mode)



Date: 26.AUG.2022 19:51:25

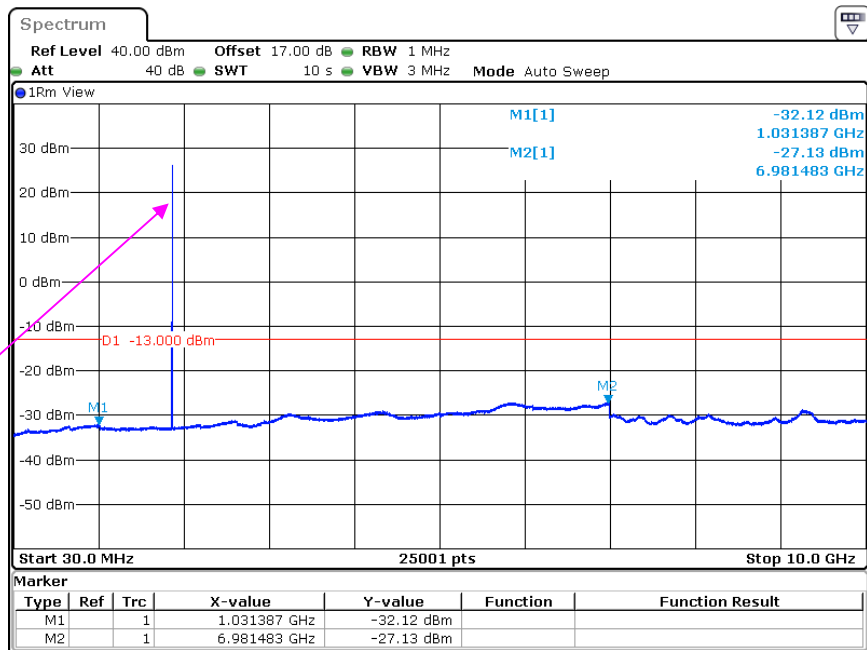
10 GHz – 20 GHz (RMC Mode)



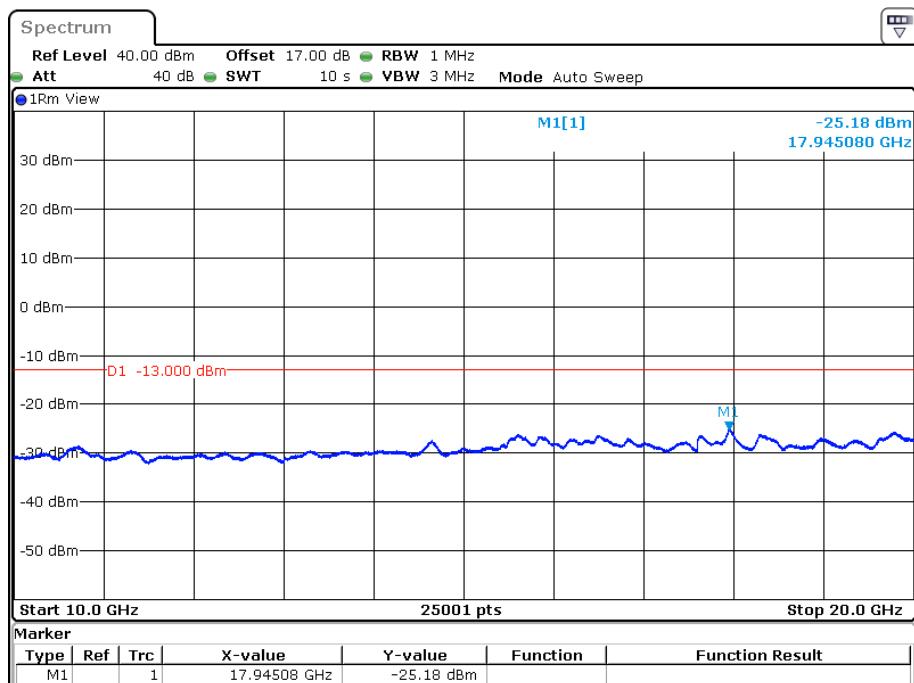
Date: 26.AUG.2022 19:52:05

Middle Channel:**30 MHz – 10 GHz (GSM Mode)**

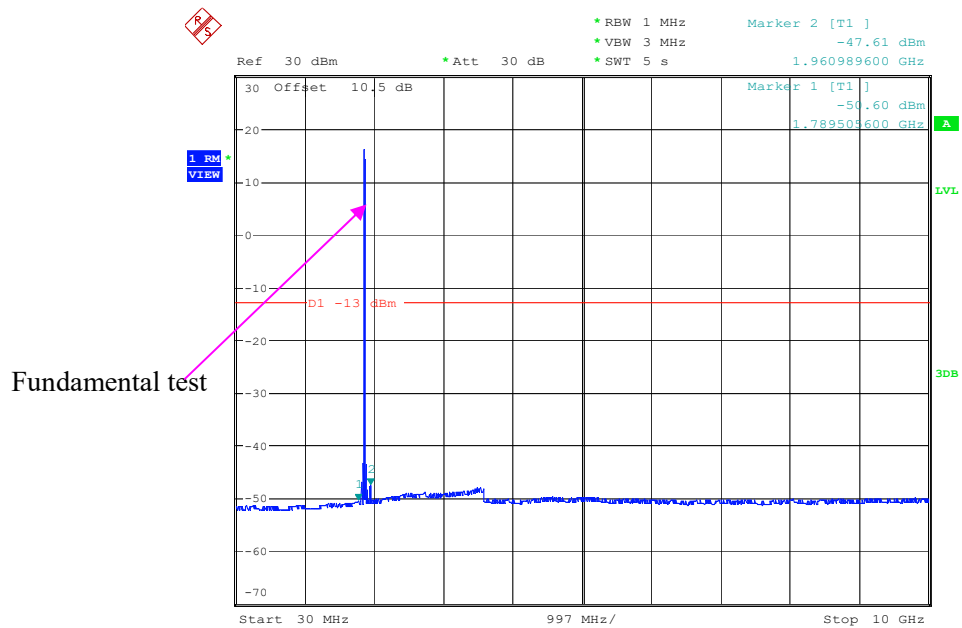
Fundamental test



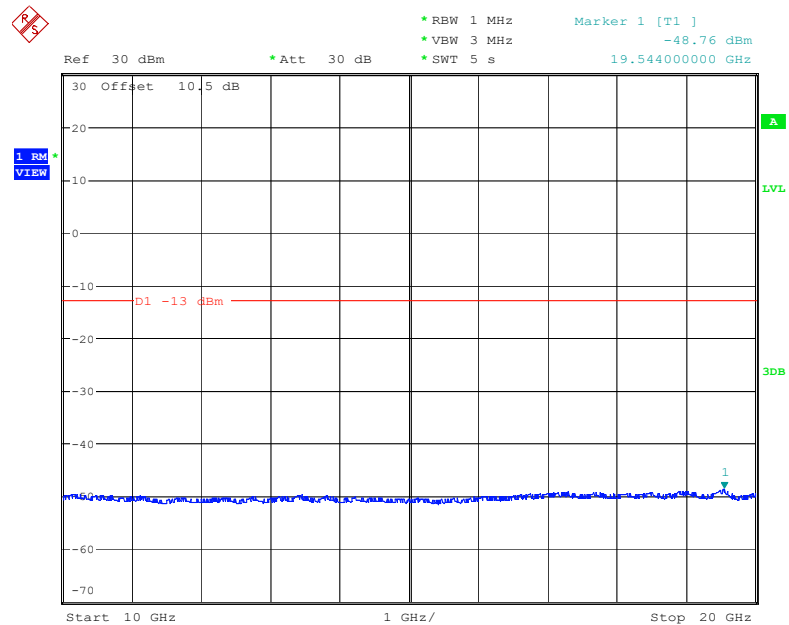
Date: 29.AUG.2022 15:47:55

10 GHz – 20 GHz (GSM Mode)

Date: 29.AUG.2022 15:49:07

30 MHz – 10 GHz (RMC Mode)

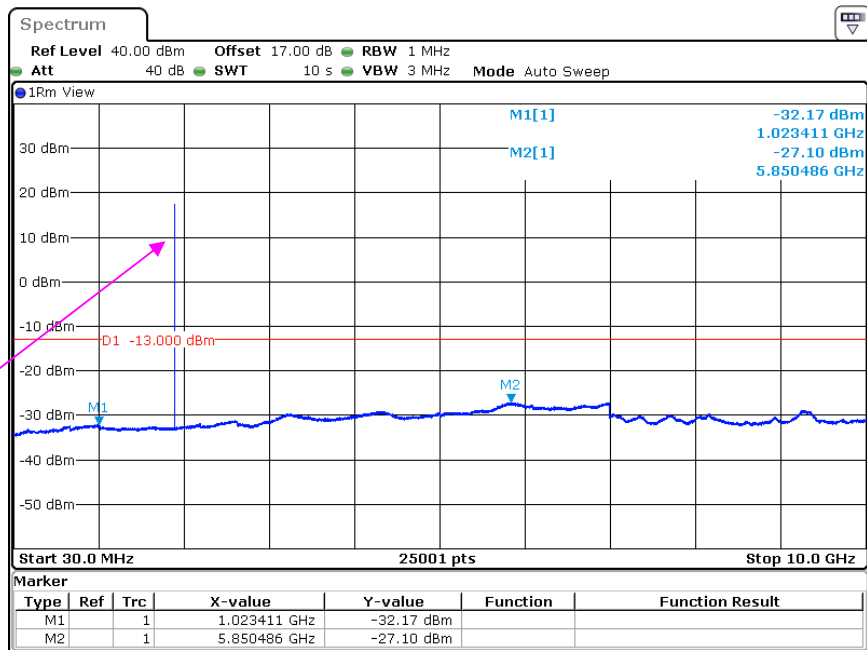
Date: 26.AUG.2022 21:17:46

10 GHz – 20 GHz (RMC Mode)

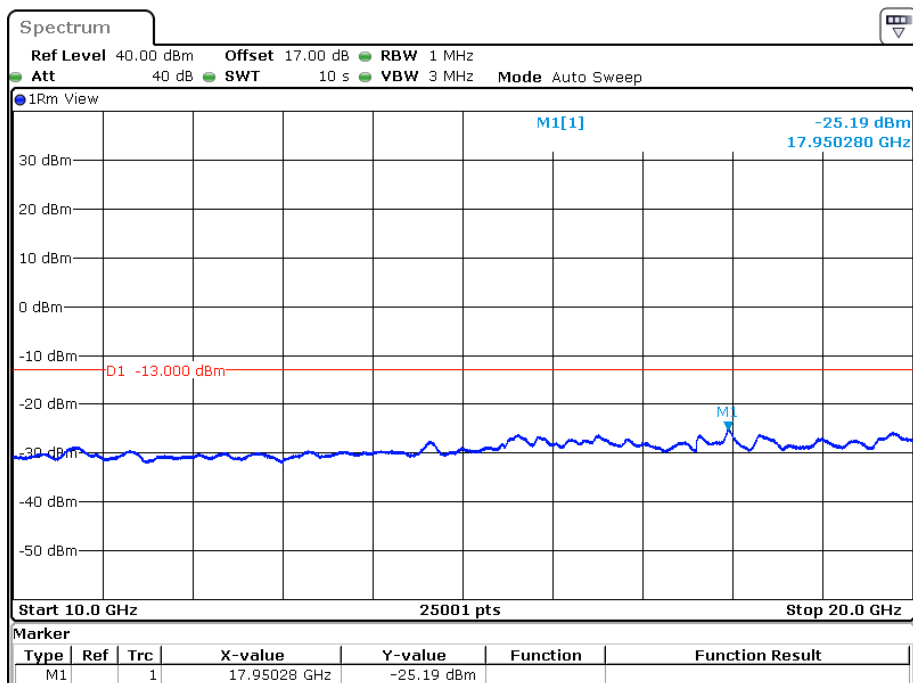
Date: 26.AUG.2022 21:18:25

High Channel:**30 MHz – 10 GHz (GSM Mode)**

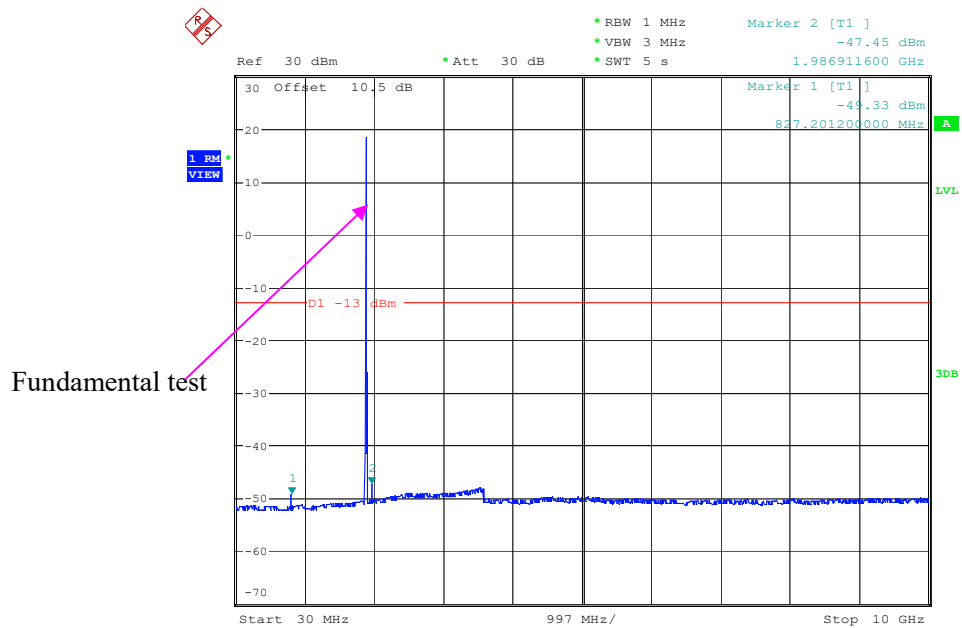
Fundamental test



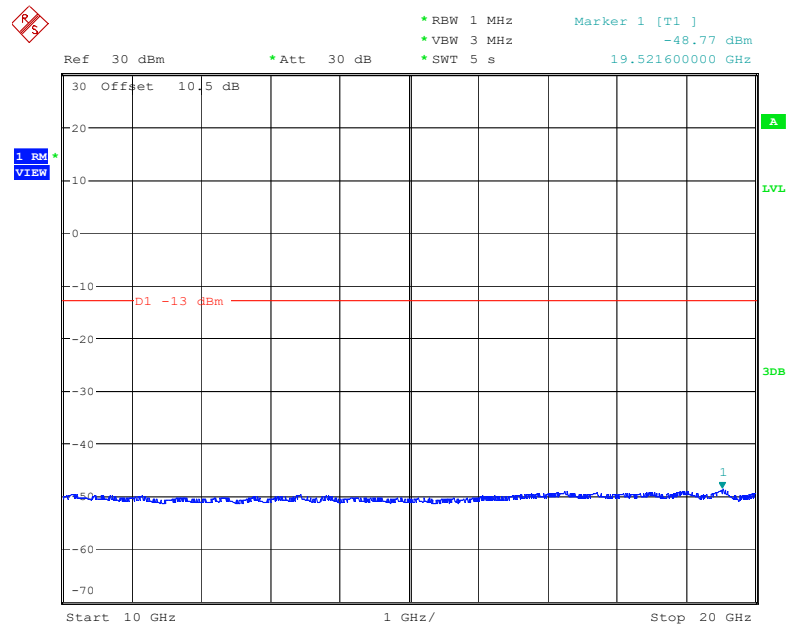
Date: 29.AUG.2022 15:55:09

10 GHz – 20 GHz (GSM Mode)

Date: 29.AUG.2022 15:56:21

30 MHz – 10 GHz (RMC Mode)

Date: 26.AUG.2022 19:59:20

10 GHz – 20 GHz (RMC Mode)

Date: 26.AUG.2022 20:00:00

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

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

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

Test Procedure

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

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

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

Test Data**Environmental Conditions**

Temperature:	25.6 °C
Relative Humidity:	56 %
ATM Pressure:	101.0 kPa

The testing was performed by Zeki Ma from 2022-08-17 to 2022-08-18.

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

The worst case is as below:

30MHz-10GHz:**Cellular Band (Part 22H)**

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)						
			Height (m)	Polar (H/V)										
GSM850														
Low Channel														
955.19	-70.84	236	1.5	H	10.0	-60.84	-13	47.84						
955.19	-77.05	217	1.6	V	11.7	-65.35	-13	52.35						
1648.4	-41.0	130	1.5	H	3.5	-37.5	-13	24.5						
1648.4	-41.8	189	1.1	V	3.1	-38.7	-13	25.7						
2472.6	-49.7	57	1.3	H	6.6	-43.1	-13	30.1						
2472.6	-47.5	298	1.5	V	5.8	-41.7	-13	28.7						
3296.8	-48.4	297	2.4	H	6.4	-42	-13	29.0						
3296.8	-47.1	237	2.2	V	5.7	-41.4	-13	28.4						
Middle Channel														
951.50	-70.87	52	2.0	H	10.0	-60.87	-13	47.87						
951.50	-76.94	247	1.7	V	11.7	-65.24	-13	52.24						
1673.2	-44.9	200	1.3	H	3.8	-41.1	-13	28.1						
1673.2	-40.8	101	1.5	V	3.1	-37.7	-13	24.7						
2509.8	-52.3	214	2.2	H	6.2	-46.1	-13	33.1						
2509.8	-50.4	275	1.3	V	5.5	-44.9	-13	31.9						
3346.4	-50.2	97	2.0	H	6.6	-43.6	-13	30.6						
3346.4	-47.3	259	1.6	V	5.4	-41.9	-13	28.9						
High Channel														
950.19	-72.51	118	2.2	H	10.0	-62.51	-13	49.51						
950.19	-76.13	345	1.5	V	11.7	-64.43	-13	51.43						
1697.6	-45.2	260	1.9	H	4.1	-41.1	-13	28.1						
1697.6	-40.8	253	2.3	V	3.1	-37.7	-13	24.7						
2546.4	-52.2	210	1.9	H	6.1	-46.1	-13	33.1						
2546.4	-50.7	119	1.7	V	5.8	-44.9	-13	31.9						
3395.2	-49.8	349	1.9	H	6.2	-43.6	-13	30.6						
3395.2	-47.3	337	2.3	V	5.4	-41.9	-13	28.9						

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)						
			Height (m)	Polar (H/V)										
WCDMA Band 5														
Low Channel														
953.00	-71.26	25	1.6	H	10.0	-61.26	-13	48.26						
953.00	-76.00	115	2.5	V	11.7	-64.30	-13	51.30						
1652.8	-58.2	110	2.4	H	3.5	-54.7	-13	41.7						
1652.8	-55.4	77	2.0	V	3.1	-52.3	-13	39.3						
2479.2	-52.6	42	1.7	H	6.6	-46	-13	33.0						
2479.2	-51.0	83	2.1	V	5.8	-45.2	-13	32.2						
3305.6	-51.2	119	1.2	H	6.4	-44.8	-13	31.8						
3305.6	-52.0	317	1.8	V	5.7	-46.3	-13	33.3						
Middle Channel														
952.51	-70.95	128	2.3	H	10.0	-60.95	-13	47.95						
952.51	-75.17	315	2.3	V	11.7	-63.47	-13	50.47						
1672.8	-51.8	220	2.3	H	3.5	-48.3	-13	35.3						
1672.8	-54.6	275	1.5	V	3.1	-51.5	-13	38.5						
2509.2	-57.5	144	1.7	H	6.6	-50.9	-13	37.9						
2509.2	-55.8	50	1.1	V	5.8	-50.0	-13	37.0						
3345.6	-51.8	103	1.5	H	6.4	-45.4	-13	32.4						
3345.6	-51.8	33	2.1	V	5.7	-46.1	-13	33.1						
High Channel														
952.86	-72.69	56	2.1	H	10.0	-62.69	-13	49.69						
952.86	-75.42	216	2.3	V	11.7	-63.72	-13	50.72						
1693.2	-57.9	3	2.0	H	4.1	-53.8	-13	40.8						
1693.2	-56.7	12	1.9	V	3.1	-53.6	-13	40.6						
2539.8	-56.4	50	2.4	H	6.1	-50.3	-13	37.3						
2539.8	-56.1	173	2.2	V	5.8	-50.3	-13	37.3						
3386.4	-52.5	159	2.4	H	6.2	-46.3	-13	33.3						
3386.4	-51.2	7	1.1	V	5.4	-45.8	-13	32.8						

30MHz-20GHz:**PCS Band (Part 24E)**

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
GSM 1900								
Low Channel								
955.88	-71.96	224	1.8	H	10.0	-61.96	-13	48.96
955.88	-75.24	314	2.4	V	11.7	-63.54	-13	50.54
3700.4	-54.0	304	2.1	H	8.1	-45.9	-13	32.9
3700.4	-54.0	73	1.7	V	7.6	-46.4	-13	33.4
5550.6	-52.4	336	1.6	H	9.6	-42.8	-13	29.8
5550.6	-51.8	65	2.3	V	9.1	-42.7	-13	29.7
Middle Channel								
954.93	-71.50	259	1.9	H	10.0	-61.50	-13	48.50
954.93	-75.67	18	1.5	V	11.7	-63.97	-13	50.97
3760	-53.7	72	2.0	H	8.8	-44.9	-13	31.9
3760	-54.3	272	1.0	V	8	-46.3	-13	33.3
5640	-54.5	1	1.2	H	10.2	-44.3	-13	31.3
5640	-52.0	90	2.5	V	9.5	-42.5	-13	29.5
High Channel								
950.68	-71.71	38	1.7	H	10.0	-61.71	-13	48.71
950.68	-75.01	286	2.1	V	11.7	-63.31	-13	50.31
3819.6	-52.9	184	1.7	H	8.7	-44.2	-13	31.2
3819.6	-54.0	114	1.8	V	8	-46	-13	33.0
5729.4	-53.8	102	1.2	H	10.8	-43	-13	30.0
5729.4	-49.2	207	1.5	V	10.4	-38.8	-13	25.8

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
WCDMA Band 2								
Low Channel								
955.57	-72.63	205	2.0	H	10.0	-62.63	-13	49.63
955.57	-76.13	1	1.7	V	11.7	-64.43	-13	51.43
3704.8	-55.1	299	1.3	H	8.1	-47	-13	34.0
3704.8	-54.5	160	2.0	V	7.6	-46.9	-13	33.9
5557.2	-53.9	181	1.6	H	9.6	-44.3	-13	31.3
5557.2	-53.6	129	1.8	V	9.1	-44.5	-13	31.5
Middle Channel								
950.70	-71.65	27	2.4	H	10.0	-61.65	-13	48.65
950.70	-75.32	206	1.9	V	11.7	-63.62	-13	50.62
3760	-54.7	129	1.4	H	8.8	-45.9	-13	32.9
3760	-53.6	107	1.0	V	8	-45.6	-13	32.6
5640	-54.9	69	1.9	H	10.2	-44.7	-13	31.7
5640	-54.4	9	1.9	V	9.5	-44.9	-13	31.9
High Channel								
955.22	-70.52	87	1.8	H	10.0	-60.52	-13	47.52
955.22	-75.96	260	1.8	V	11.7	-64.26	-13	51.26
3815.2	-55.7	113	1.6	H	8.7	-47	-13	34.0
3815.2	-54.6	349	1.3	V	8	-46.6	-13	33.6
5722.8	-55.8	101	2.3	H	10.4	-45.4	-13	32.4
5722.8	-55.0	294	1.4	V	9.9	-45.1	-13	32.1

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

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)						
			Height (m)	Polar (H/V)										
Band 2														
Test frequency range: 30MHz-20GHz														
QPSK, 1.4MHz bandwidth, Low Channel														
952.17	-71.23	186	1.4	H	10.0	-61.23	-13	48.23						
952.17	-74.72	236	2.0	V	11.7	-63.02	-13	50.02						
3701.4	-55.4	217	2.2	H	8.1	-47.3	-13	34.3						
3701.4	-54.0	248	1.4	V	7.6	-46.4	-13	33.4						
5552.1	-53.7	265	2.5	H	9.6	-44.1	-13	31.1						
5552.1	-52.7	301	1.7	V	9.1	-43.6	-13	30.6						
QPSK, 1.4MHz bandwidth, Middle Channel														
953.53	-72.92	28	1.4	H	10.0	-62.92	-13	49.92						
953.53	-75.47	73	1.9	V	11.7	-63.77	-13	50.77						
3760	-56.9	309	2.0	H	8.8	-48.1	-13	35.1						
3760	-55.1	43	2.5	V	8	-47.1	-13	34.1						
5640	-54.6	206	1.6	H	10.2	-44.4	-13	31.4						
5640	-53.3	123	2.4	V	9.5	-43.8	-13	30.8						
QPSK, 1.4MHz bandwidth, High Channel														
955.29	-70.94	10	2.3	H	10.0	-60.94	-13	47.94						
955.29	-76.44	205	1.2	V	11.7	-64.74	-13	51.74						
3818.6	-56.9	46	2.4	H	8.7	-48.2	-13	35.2						
3818.6	-55.3	259	1.7	V	8	-47.3	-13	34.3						
5727.9	-55.5	256	1.4	H	10.6	-44.9	-13	31.9						
5727.9	-54.2	102	2.4	V	10.2	-44	-13	31.0						

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)						
			Height (m)	Polar (H/V)										
Band 4														
Test frequency range: 30MHz-20GHz														
QPSK, 1.4MHz bandwidth, Low Channel														
954.30	-72.51	95	2.4	H	10.0	-62.51	-13	49.51						
954.30	-74.88	29	2.3	V	11.7	-63.18	-13	50.18						
3421.4	-48.9	193	1.3	H	6.4	-42.5	-13	29.5						
3421.4	-46.5	342	1.4	V	5.7	-40.8	-13	27.8						
5132.1	-56.7	77	1.2	H	11.3	-45.4	-13	32.4						
5132.1	-55.7	214	2.0	V	10.8	-44.9	-13	31.9						
QPSK, 1.4MHz bandwidth, Middle Channel														
951.73	-70.12	115	2.2	H	10.0	-60.12	-13	47.12						
951.73	-75.41	105	1.2	V	11.7	-63.71	-13	50.71						
3465	-50.5	272	2.1	H	7	-43.5	-13	30.5						
3465	-48.8	330	2.1	V	6.2	-42.6	-13	29.6						
5197.5	-55.2	87	1.3	H	10.4	-44.8	-13	31.8						
5197.5	-53.7	190	2.2	V	9.8	-43.9	-13	30.9						
QPSK, 1.4MHz bandwidth, High Channel														
956.25	-71.27	177	1.3	H	10.0	-61.27	-13	48.27						
956.25	-76.75	335	2.4	V	11.7	-65.05	-13	52.05						
3508.6	-52.1	148	2.3	H	7.8	-44.3	-13	31.3						
3508.6	-51.4	135	1.3	V	6.6	-44.8	-13	31.8						
5262.9	-53.7	98	1.3	H	9.5	-44.2	-13	31.2						
5262.9	-52.0	114	1.3	V	8.9	-43.1	-13	30.1						

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)						
			Height (m)	Polar (H/V)										
Band 5														
Test frequency range: 30MHz-10GHz														
QPSK, 1.4MHz bandwidth, Low Channel														
956.66	-72.03	276	1.7	H	10.0	-62.03	-13	49.03						
956.66	-76.81	60	1.6	V	11.7	-65.11	-13	52.11						
1649.4	-57.5	327	1.0	H	3.5	-54	-13	41.0						
1649.4	-56.3	161	1.1	V	3.1	-53.2	-13	40.2						
2474.1	-49.9	158	1.9	H	6.6	-43.3	-13	30.3						
2474.1	-49.6	204	1.8	V	5.8	-43.8	-13	30.8						
3298.8	-52.6	89	2.2	H	6.4	-46.2	-13	33.2						
3298.8	-51.2	203	1.6	V	5.7	-45.5	-13	32.5						
QPSK, 1.4MHz bandwidth, Middle Channel														
952.28	-71.44	85	2.0	H	10.0	-61.44	-13	48.44						
952.28	-74.74	9	1.7	V	11.7	-63.04	-13	50.04						
1673	-55.2	175	2.0	H	3.8	-51.4	-13	38.4						
1673	-53.4	192	2.5	V	3.1	-50.3	-13	37.3						
2509.5	-57.3	25	1.5	H	6.2	-51.1	-13	38.1						
2509.5	-55.6	3	1.7	V	5.5	-50.1	-13	37.1						
3346	-52.1	288	1.3	H	6.6	-45.5	-13	32.5						
3346	-51.3	9	2.5	V	5.4	-45.9	-13	32.9						
QPSK, 1.4MHz bandwidth, High Channel														
954.66	-72.01	87	1.2	H	10.0	-62.01	-13	49.01						
954.66	-76.67	160	1.2	V	11.7	-64.97	-13	51.97						
1696.6	-57.5	52	2.1	H	4.1	-53.4	-13	40.4						
1696.6	-54.9	89	1.5	V	3.1	-51.8	-13	38.8						
2544.9	-56.4	313	2.0	H	6.1	-50.3	-13	37.3						
2544.9	-55.4	45	2.0	V	5.8	-49.6	-13	36.6						
3393.2	-52.2	241	2.2	H	6.2	-46	-13	33.0						
3393.2	-51.7	190	2.2	V	5.4	-46.3	-13	33.3						

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)						
			Height (m)	Polar (H/V)										
Band 7														
Test frequency range: 30MHz-26.5GHz														
QPSK, 5MHz bandwidth, Low Channel														
954.26	-71.26	190	1.8	H	10.0	-61.26	-25	36.26						
954.26	-75.24	151	1.3	V	11.7	-63.54	-25	38.54						
5005	-57.0	160	1.4	H	10.8	-46.2	-25	21.2						
5005	-55.6	136	2.2	V	10.2	-45.4	-25	20.4						
7507.5	-62.9	244	1.1	H	20.3	-42.6	-25	17.6						
7507.5	-62.6	340	1.5	V	20.1	-42.5	-25	17.5						
QPSK, 5MHz bandwidth, Middle Channel														
953.76	-72.41	13	1.6	H	9.8	-62.61	-25	37.61						
953.76	-75.96	319	1.2	V	11.7	-64.26	-25	39.26						
5070	-56.8	328	1.9	H	11.1	-45.7	-25	20.7						
5070	-56.2	360	2.1	V	10.8	-45.4	-25	20.4						
7605	-66.0	357	1.7	H	21.2	-44.8	-25	19.8						
7605	-64.5	10	1.8	V	20.1	-44.4	-25	19.4						
QPSK, 5MHz bandwidth, High Channel														
954.93	-71.90	163	1.3	H	10.0	-61.90	-25	36.90						
954.93	-76.25	73	2.1	V	11.7	-64.55	-25	39.55						
5135	-57.1	71	1.8	H	11.3	-45.8	-25	20.8						
5135	-56.3	352	2.1	V	10.8	-45.5	-25	20.5						
7702.5	-66.0	18	1.8	H	21.2	-44.8	-25	19.8						
7702.5	-65.3	287	1.3	V	21	-44.3	-25	19.3						

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)						
			Height (m)	Polar (H/V)										
Band 12														
Test frequency range: 30MHz-10GHz														
QPSK, 1.4MHz bandwidth, Low Channel														
955.06	-62.62	253	1.4	H	-0.2	-62.82	-13	49.15						
955.06	-68.38	316	1.5	V	3.1	-65.28	-13	51.73						
1399.4	-54.8	241	1.2	H	5.9	-48.9	-13	35.9						
1399.4	-57.1	52	1.7	V	5.9	-51.2	-13	38.2						
2099.1	-53.4	72	2.0	H	6.3	-47.1	-13	34.1						
2099.1	-53.3	310	1.8	V	5.1	-48.2	-13	35.2						
QPSK, 1.4MHz bandwidth, Middle Channel														
951.97	-60.96	117	1.9	H	-0.2	-61.16	-13	49.53						
951.97	-70.85	9	1.2	V	3.1	-67.75	-13	51.21						
1415	-57.9	298	2.0	H	5.7	-52.2	-13	39.2						
1415	-58.2	306	1.9	V	5.4	-52.8	-13	39.8						
2122.5	-53.5	5	1.4	H	6.7	-46.8	-13	33.8						
2122.5	-54.1	94	2.4	V	5.8	-48.3	-13	35.3						
QPSK, 1.4MHz bandwidth, High Channel														
952.72	-62.98	8	2.1	H	-0.2	-63.18	-13	47.82						
952.72	-68.52	267	2.5	V	3.1	-65.42	-13	50.57						
1430.6	-60.5	333	1.0	H	5.4	-55.1	-13	42.1						
1430.6	-58.7	90	2.3	V	4.8	-53.9	-13	40.9						
2145.9	-54.1	212	2.3	H	7	-47.1	-13	34.1						
2145.9	-55.3	181	1.0	V	6.6	-48.7	-13	35.7						

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)						
			Height (m)	Polar (H/V)										
Band 17														
Test frequency range: 30MHz-10GHz														
QPSK, 5MHz bandwidth, Low Channel														
955.05	-71.16	317	2.0	H	10.0	-61.16	-13	48.16						
955.05	-77.70	352	1.8	V	11.7	-66.00	-13	53.00						
1413	-59.7	316	1.9	H	5.7	-54	-13	41.0						
1413	-59.4	251	2.3	V	5.4	-54	-13	41.0						
2119.5	-53.9	299	2.4	H	6.6	-47.3	-13	34.3						
2119.5	-53.5	81	2.4	V	5.7	-47.8	-13	34.8						
QPSK, 5MHz bandwidth, Middle Channel														
951.59	-71.26	236	2.5	H	10.0	-61.26	-13	48.26						
951.59	-77.59	211	1.9	V	11.7	-65.89	-13	52.89						
1420	-55.9	86	1.3	H	5.6	-50.3	-13	37.3						
1420	-56.1	77	1.3	V	5.2	-50.9	-13	37.9						
2130	-55.0	291	1.9	H	6.8	-48.2	-13	35.2						
2130	-54.3	328	2.5	V	6.1	-48.2	-13	35.2						
QPSK, 5MHz bandwidth, High Channel														
952.49	-71.43	38	2.3	H	10.0	-61.43	-13	48.43						
952.49	-76.15	65	2.3	V	11.7	-64.45	-13	51.45						
1427	-59.1	328	2.4	H	5.5	-53.6	-13	40.6						
1427	-59.4	105	1.8	V	4.9	-54.5	-13	41.5						
2140.5	-54.8	115	2.2	H	7	-47.8	-13	34.8						
2140.5	-54.3	30	1.4	V	6.4	-47.9	-13	34.9						

Note:

Absolute Level = Reading Level + Substituted Factor

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

Margin = Limit - Absolute Level

FCC§ 22.917 (a);§ 24.238 (a); §27.53 (g)(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.

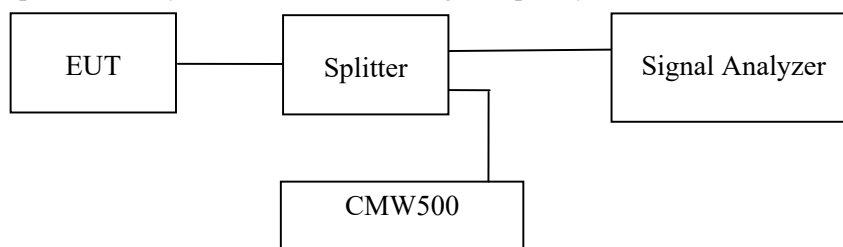
According to FCC §27.53 (g)(h), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

According to FCC §27.53 (m), the attenuation factor shall be not less than $40 + 10 \log(P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log(P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log(P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in [paragraph \(m\)\(6\)](#) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log(P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log(P)$ dB at or below 2490.5MHz.

Test Procedure

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

The center of the spectrum analyzer was set to block edge frequency

**Test Data****Environmental Conditions**

Temperature:	28 °C
Relative Humidity:	50 %
ATM Pressure:	101.0 kPa

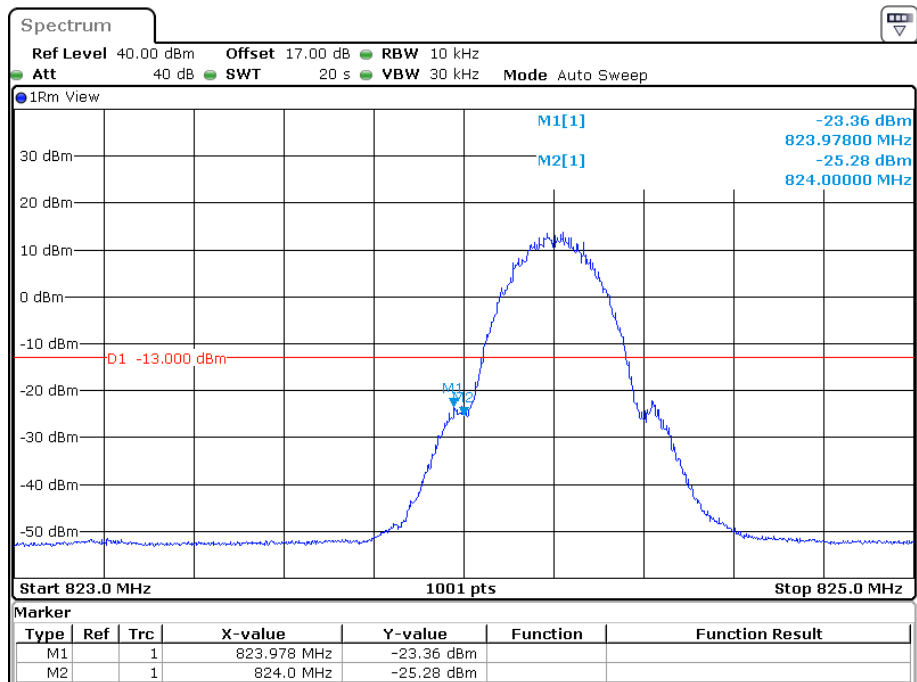
The testing was performed by Andy Yu from 2022-08-26 to 2022-09-20.

EUT operation mode: Transmitting (Worst case)

Test Result: Pass

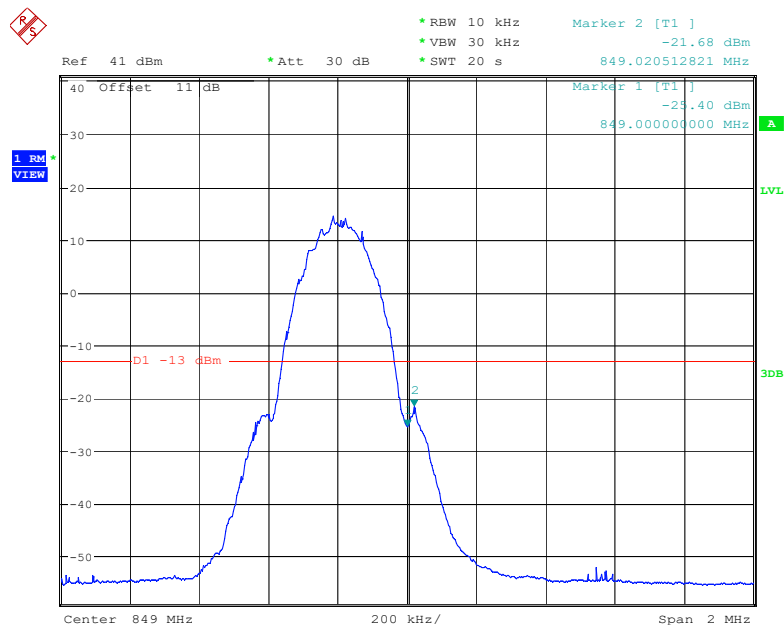
Please refer to the following plots.

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



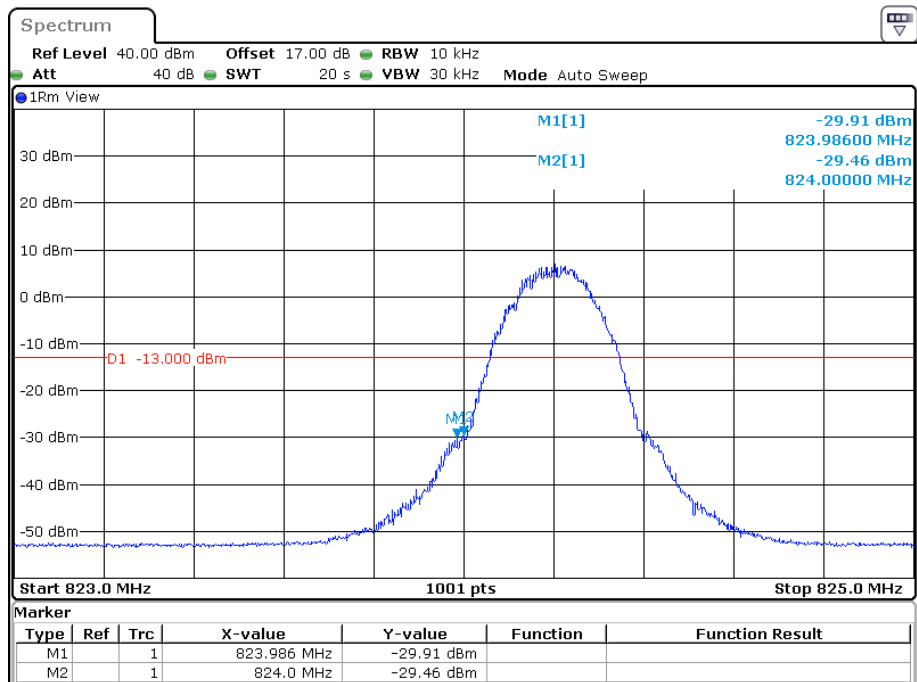
Date: 29.AUG.2022 14:37:58

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



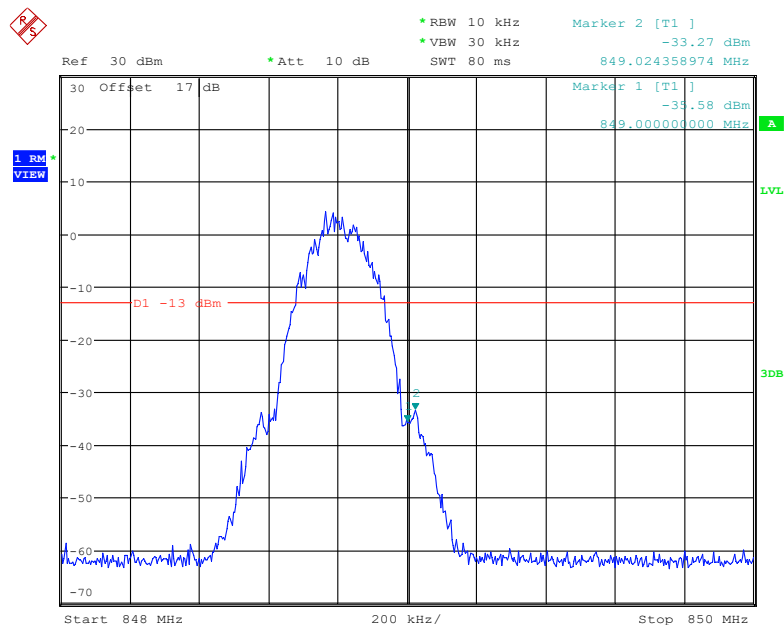
Date: 20.SEP.2022 09:51:06

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

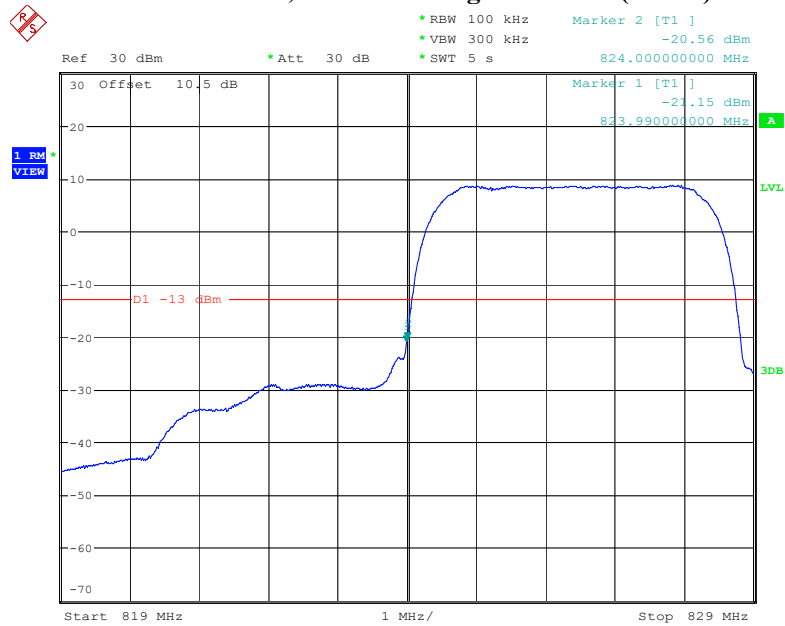


Date: 29.AUG.2022 15:14:41

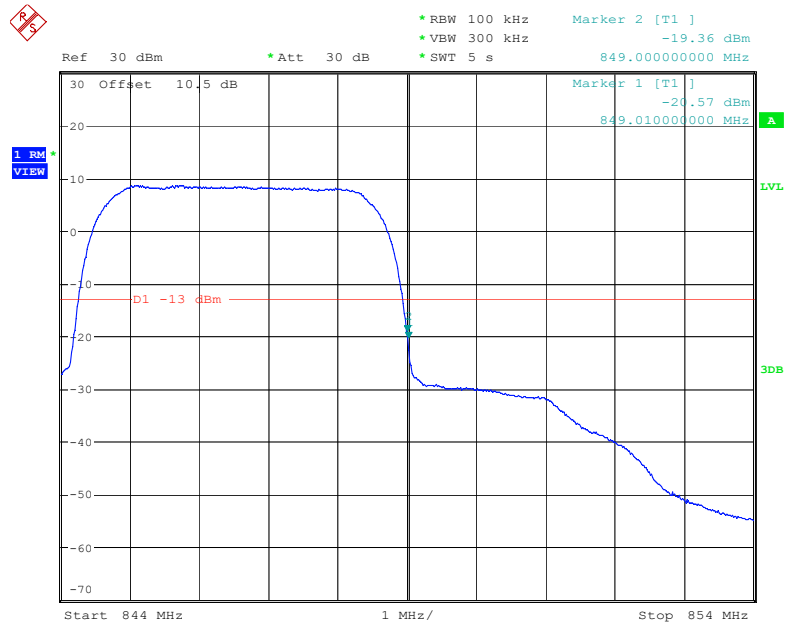
Cellular Band, Right Band Edge for EGPRS (8PSK) Mode



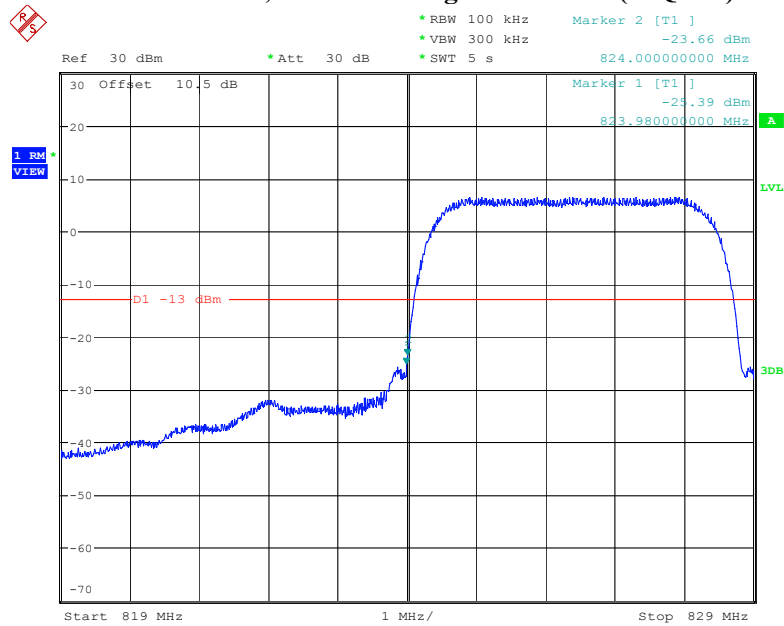
Date: 12.SEP.2022 09:03:11

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

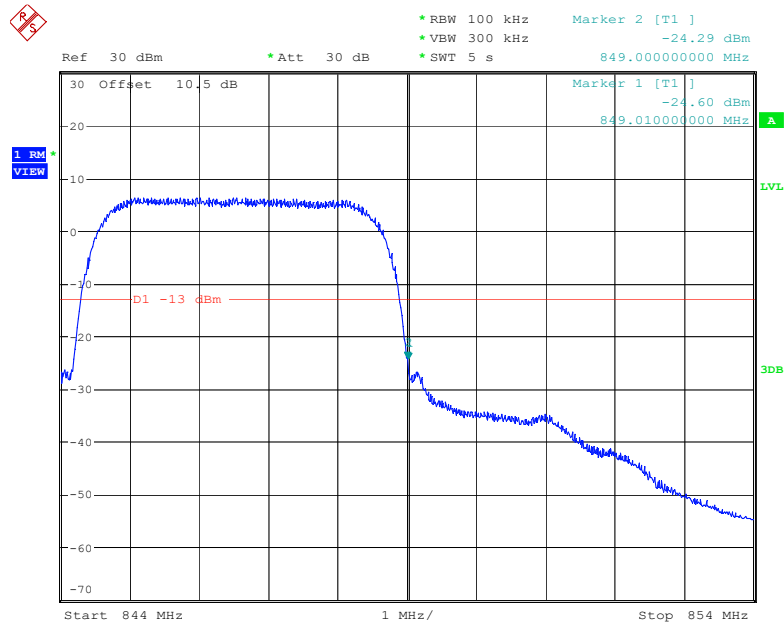
Date: 26.AUG.2022 21:53:49

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

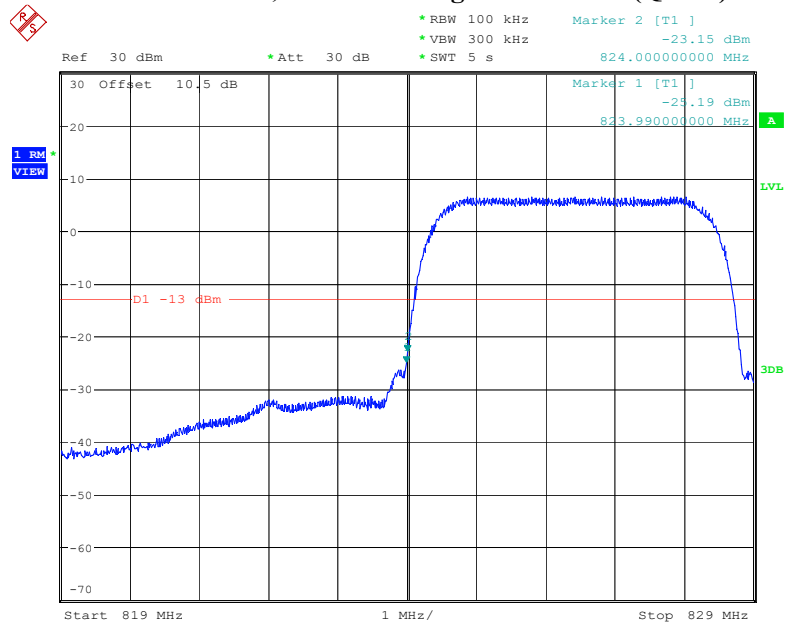
Date: 26.AUG.2022 22:01:36

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

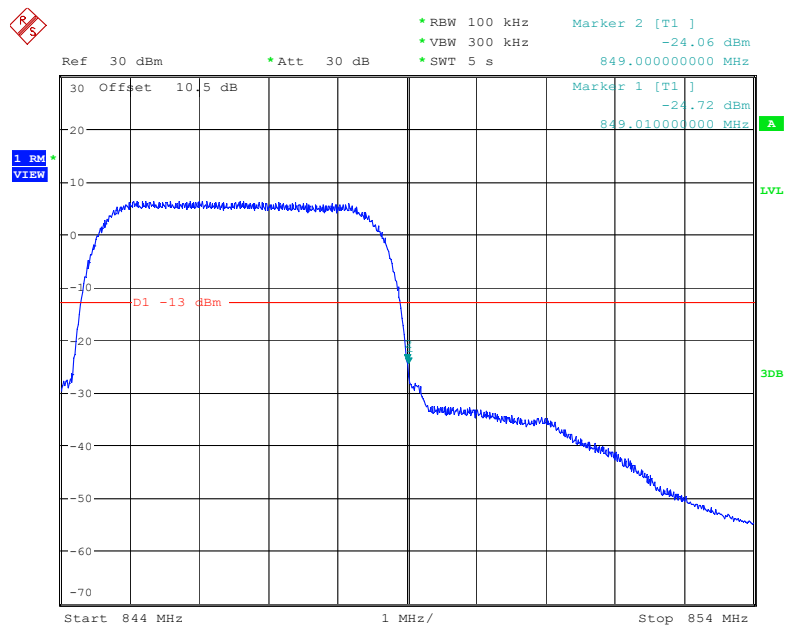
Date: 26.AUG.2022 22:08:15

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

Date: 26.AUG.2022 22:15:06

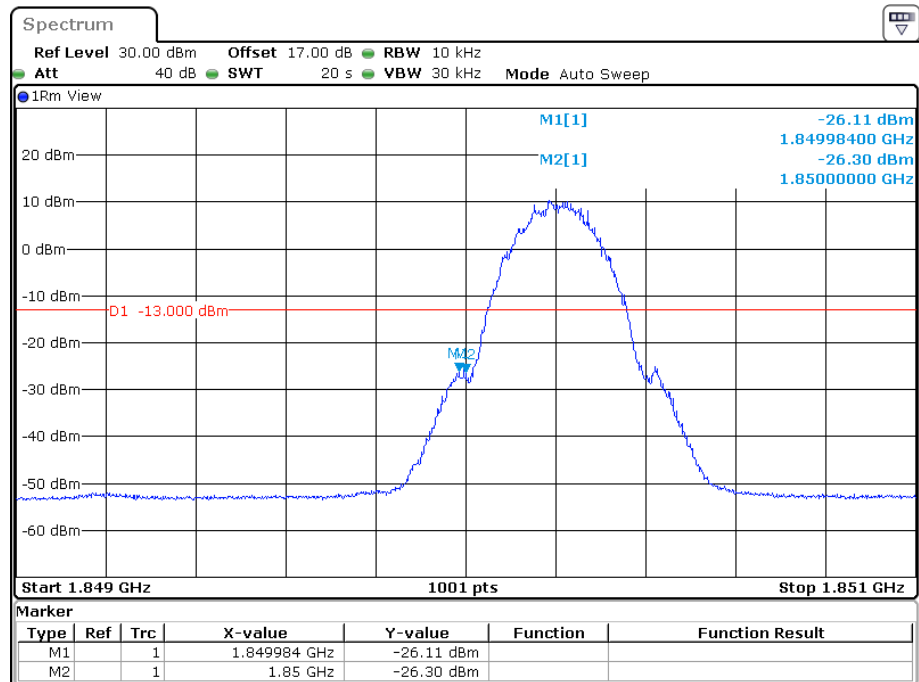
Cellular Band, Left Band Edge for HSUPA (QPSK) Mode

Date: 26.AUG.2022 22:21:37

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

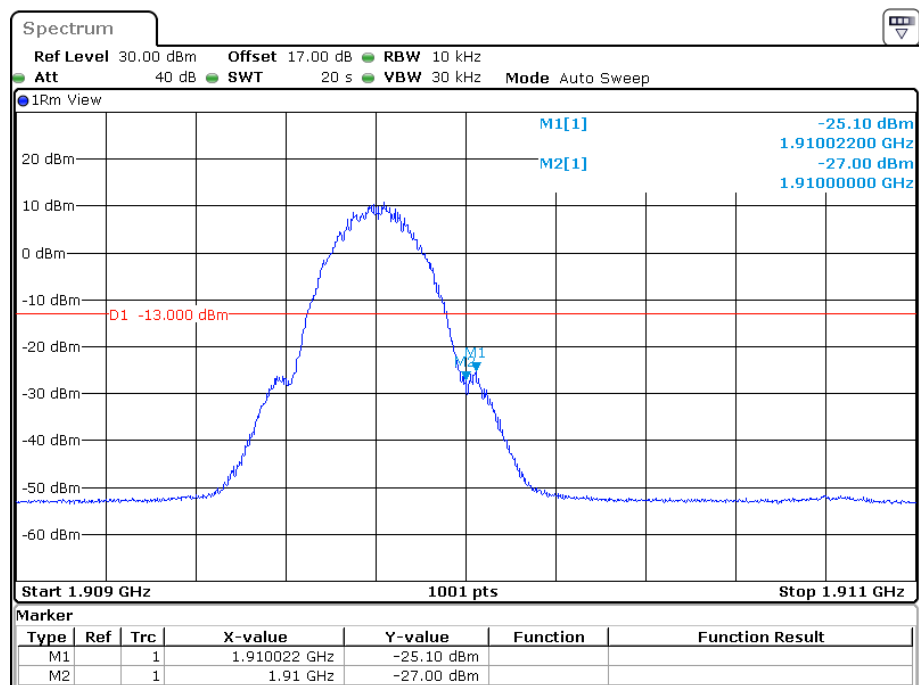
Date: 26.AUG.2022 22:30:26

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



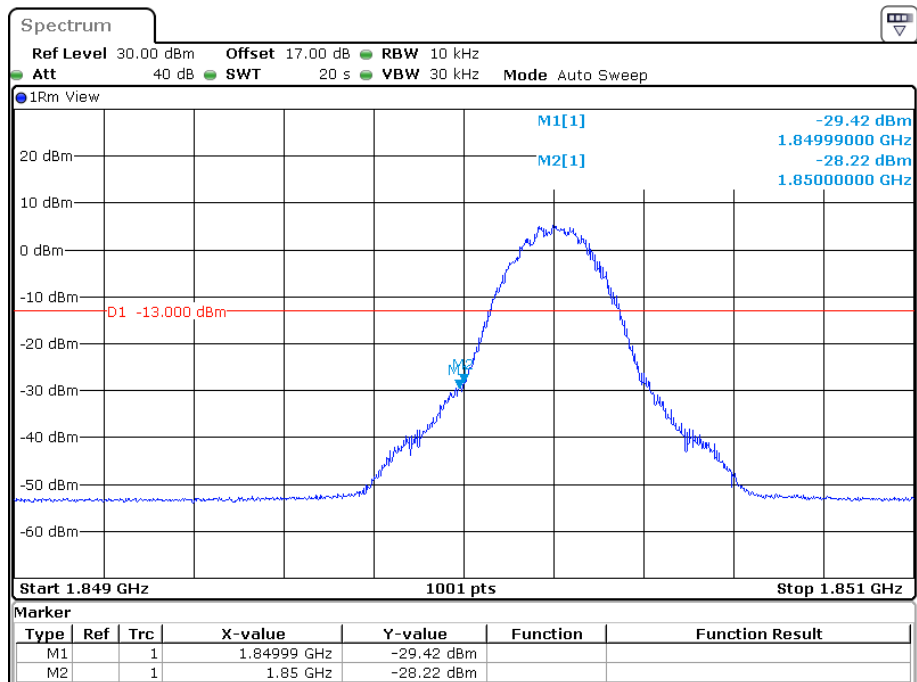
Date: 29.AUG.2022 15:40:13

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



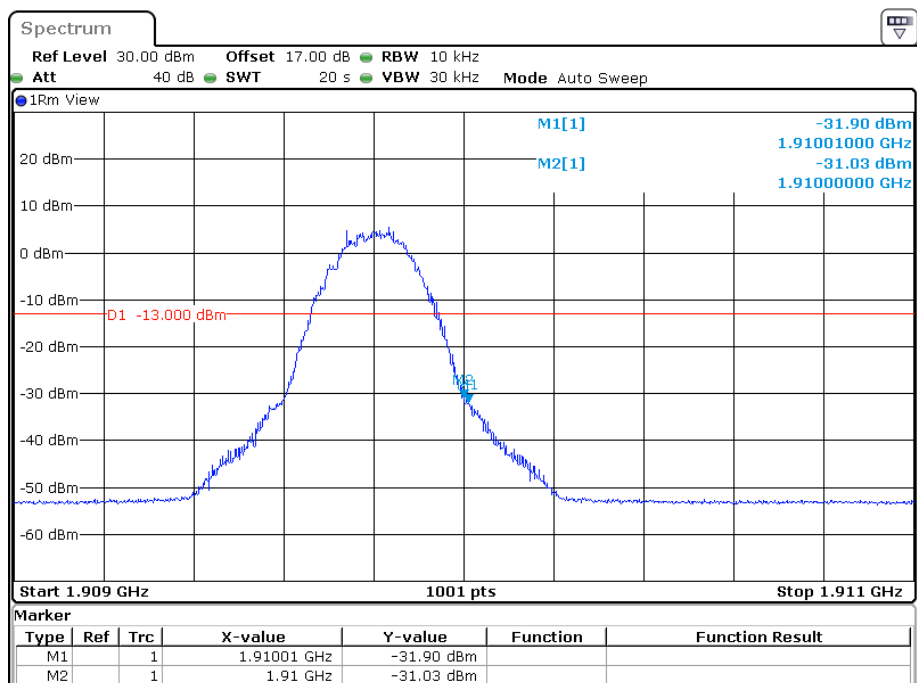
Date: 29.AUG.2022 15:53:57

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



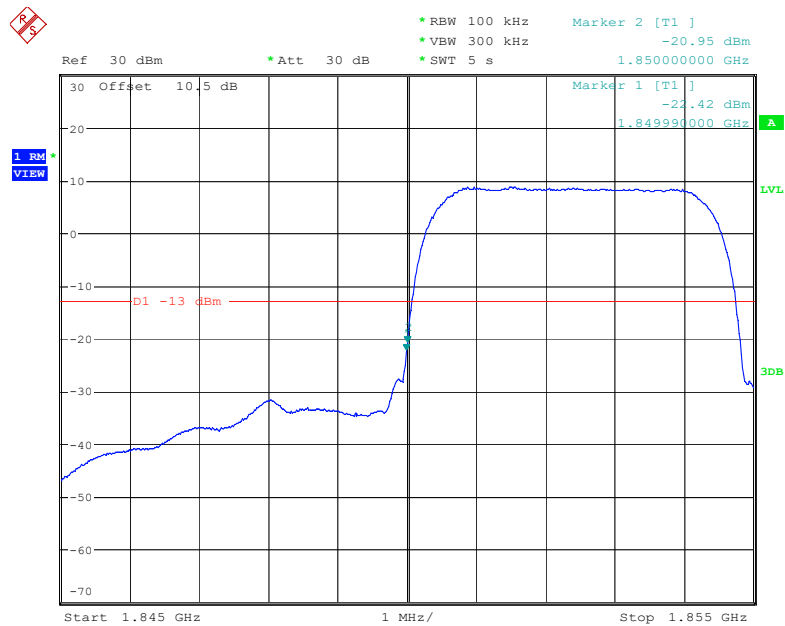
Date: 29.AUG.2022 16:25:47

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



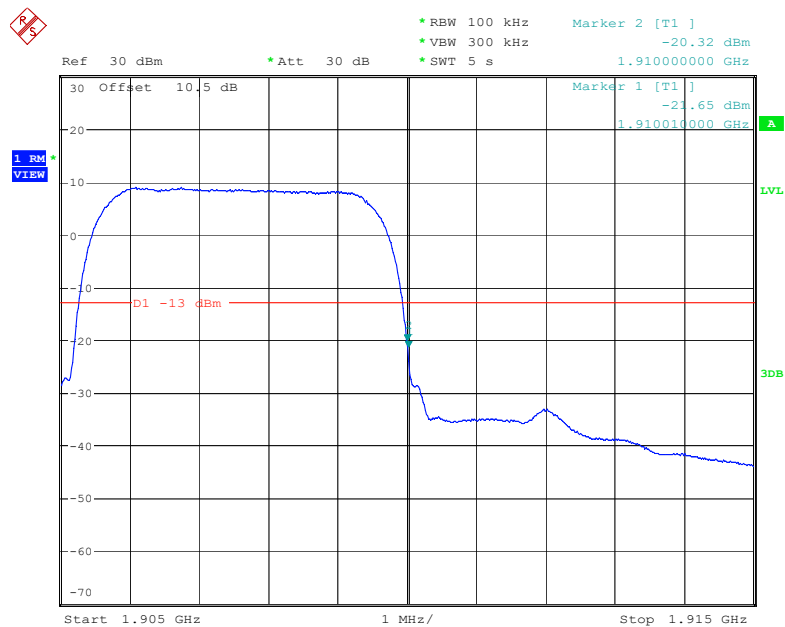
Date: 29.AUG.2022 16:37:33

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

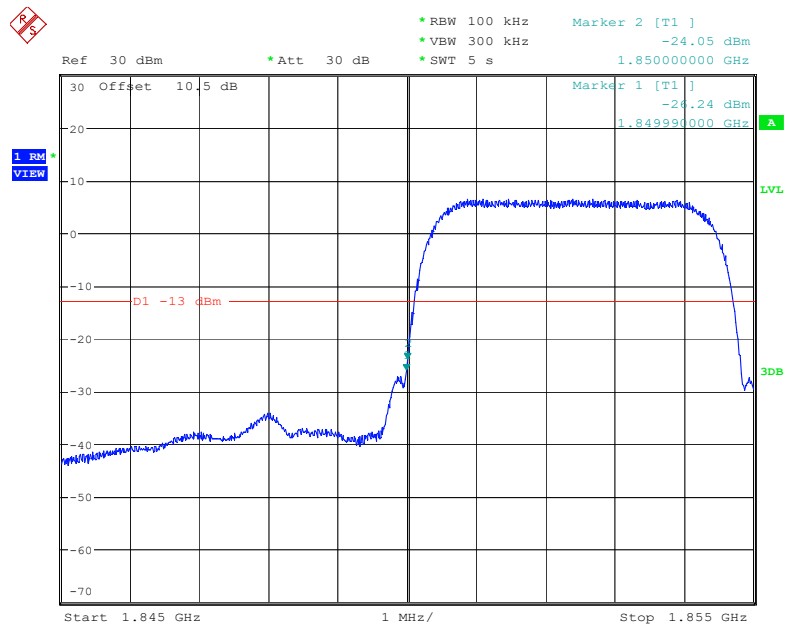


Date: 26.AUG.2022 19:50:47

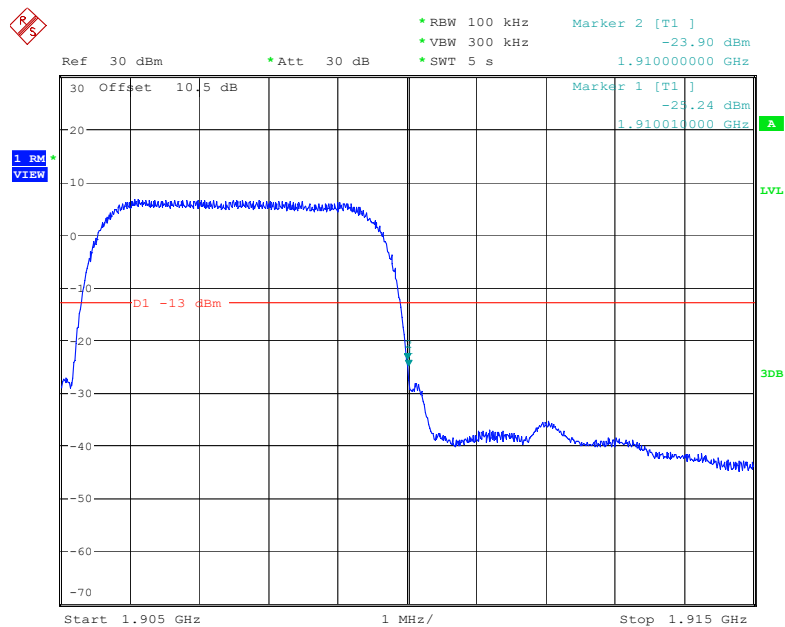
PCS Band, Right Band Edge for RMC (BPSK) Mode



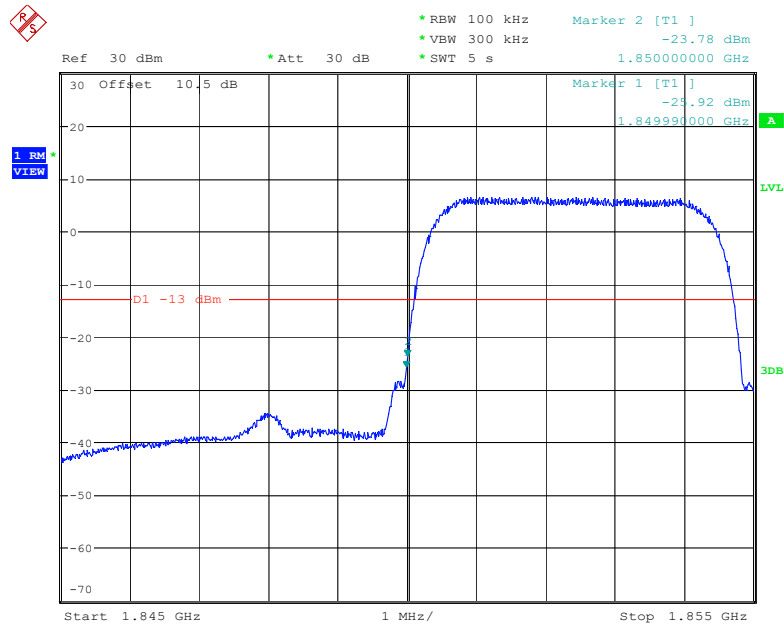
Date: 26.AUG.2022 19:58:41

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

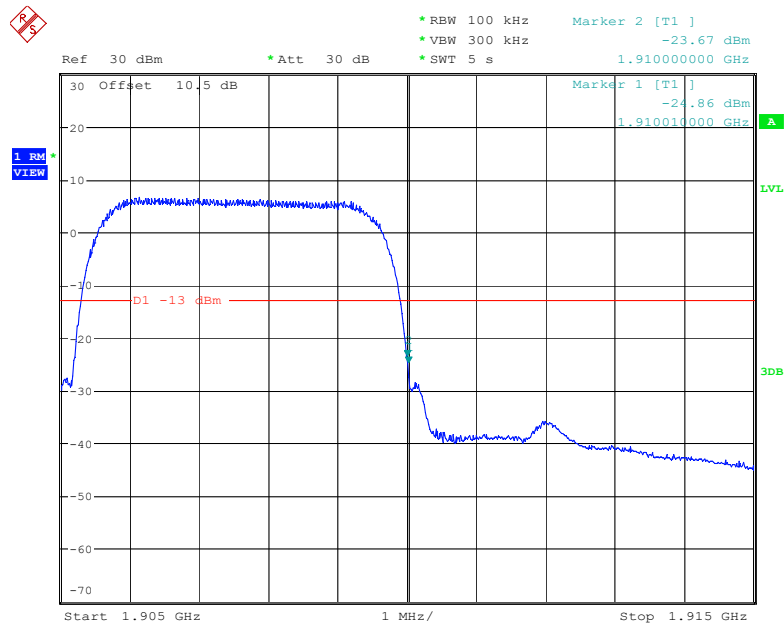
Date: 26.AUG.2022 20:54:23

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

Date: 26.AUG.2022 21:02:38

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

Date: 26.AUG.2022 21:12:47

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

Date: 26.AUG.2022 21:22:58

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

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

Applicable Standard

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

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

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

Frequency Tolerance for Transmitters in the Public Mobile Services

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

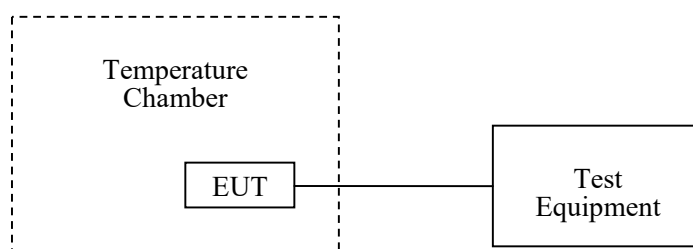
According to §24.235&§27.54, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

Test Procedure

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

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

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



Test Data**Environmental Conditions**

Temperature:	28 °C
Relative Humidity:	50 %
ATM Pressure:	101.0 kPa

The testing was performed by Andy Yu on 2022-08-27.

EUT operation mode: Transmitting

Test Result: Pass

Please refer to the following tables.

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

Middle Channel, $f_0 = 836.6\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	N.V.	-4.97	-0.0059	2.5
-20		-10.74	-0.0128	2.5
-10		-14.92	-0.0178	2.5
0		-11.78	-0.0141	2.5
10		-14.54	-0.0174	2.5
20		-17.00	-0.0203	2.5
30		-14.55	-0.0174	2.5
40		-7.43	-0.0089	2.5
50		-13.94	-0.0167	2.5
20	L.V.	-13.25	-0.0158	2.5
	H.V.	-12.77	-0.0153	2.5

EDGE Mode

Middle Channel, $f_0 = 836.6\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	N.V.	4	0.0048	2.5
-20		5	0.0060	2.5
-10		7	0.0084	2.5
0		5	0.0060	2.5
10		6	0.0072	2.5
20		6	0.0072	2.5
30		7	0.0084	2.5
40		6	0.0072	2.5
50		6	0.0072	2.5
20	L.V.	4	0.0048	2.5
	H.V.	6	0.0072	2.5

WCDMA Mode

Middle Channel, $f_0=836.4\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	N.V.	-10	-0.0120	2.5
-20		6	0.0072	2.5
-10		8	0.0096	2.5
0		-5	-0.0060	2.5
10		-4	-0.0048	2.5
20		-7	-0.0084	2.5
30		4	0.0048	2.5
40		-5	-0.0060	2.5
50		-6	-0.0072	2.5
20	L.V.	4	0.0048	2.5
	H.V.	-6	-0.0072	2.5

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

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

EDGE Mode

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

WCDMA Mode

Middle Channel, $f_0=1880.0$ MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	N.V.	-11	-0.0059	pass
-20		17	0.0090	pass
-10		18	0.0096	pass
0		-12	-0.0064	pass
10		-13	-0.0069	pass
20		-13	-0.0069	pass
30		14	0.0074	pass
40		-15	-0.0080	pass
50		-10	-0.0053	pass
20	L.V.	13	0.0069	pass
	H.V.	-12	-0.0064	pass

LTE:
QPSK:
Band 2:

10.0 MHz Middle Channel, $f_0=1880\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	N.V.	-12	-0.0064	pass
-20		-9	-0.0048	pass
-10		-6	-0.0032	pass
0		6	0.0032	pass
10		7	0.0037	pass
20		4	0.0021	pass
30		-7	-0.0037	pass
40		6	0.0032	pass
50		-10	-0.0053	pass
20	L.V.	-7	-0.0037	pass
	H.V.	-7	-0.0037	pass

Band 4:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	1710.0113	1754.9733	1710	1755
-20		1710.0132	1754.9770	1710	1755
-10		1710.0108	1754.9755	1710	1755
0		1710.0111	1754.9708	1710	1755
10		1710.0122	1754.9725	1710	1755
20		1710.0142	1754.9701	1710	1755
30		1710.0132	1754.9757	1710	1755
40		1710.0128	1754.9696	1710	1755
50		1710.0170	1754.9747	1710	1755
20	L.V.	1710.0130	1754.9715	1710	1755
	H.V.	1710.0114	1754.9733	1710	1755

Band 5:

10.0 MHz Middle Channel, f ₀ = 836.5MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	N.V.	-4.29	-0.0051	2.5
-20		-6.97	-0.0083	2.5
-10		-5.5	-0.0066	2.5
0		6.14	0.0073	2.5
10		9.43	0.0113	2.5
20		5.24	0.0063	2.5
30		-6.62	-0.0079	2.5
40		-8.73	-0.0104	2.5
50		-7.05	-0.0084	2.5
20	L.V.	7.98	0.0095	2.5
	H.V.	-6.43	-0.0077	2.5

Band 7:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	2500.8728	2569.9804	2500	2570
-20		2500.8708	2569.9934	2500	2570
-10		2500.8724	2569.9838	2500	2570
0		2500.8772	2569.9712	2500	2570
10		2500.7920	2569.9823	2500	2570
20		2500.7838	2569.9420	2500	2570
30		2500.7706	2569.9288	2500	2570
40		2500.7645	2569.9876	2500	2570
50		2500.7517	2569.9857	2500	2570
20	L.V.	2500.7478	2569.9818	2500	2570
	H.V.	2500.7413	2569.9707	2500	2570

Band 12:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	699.0327	715.9705	699	716
-20		699.0340	715.9702	699	716
-10		699.0304	715.9698	699	716
0		699.0349	715.9661	699	716
10		699.0318	715.9664	699	716
20		699.0290	715.9704	699	716
30		699.0352	715.9706	699	716
40		699.0351	715.9679	699	716
50		699.0293	715.9637	699	716
20	L.V.	699.0335	715.9689	699	716
	H.V.	699.0346	715.9679	699	716

Band 17:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	704.4878	715.5404	704	716
-20		704.4838	715.5404	704	716
-10		704.4859	715.5365	704	716
0		704.4854	715.5362	704	716
10		704.4884	715.5385	704	716
20		704.4807	715.5417	704	716
30		704.4880	715.5351	704	716
40		704.4871	715.5350	704	716
50		704.4868	715.5354	704	716
20	L.V.	704.4825	715.5403	704	716
	H.V.	704.4817	715.5363	704	716

16QAM:**Band 2:**

10.0 MHz Middle Channel, $f_0=1880\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	N.V.	-9	-0.0048	pass
-20		-5	-0.0027	pass
-10		9	0.0048	pass
0		-8	-0.0043	pass
10		-10	-0.0053	pass
20		-11	-0.0059	pass
30		-5	-0.0027	pass
40		-9	-0.0048	pass
50		5	0.0027	pass
20	L.V.	7	0.0037	pass
	H.V.	6	0.0032	pass

Band 4:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	1710.2653	1754.7591	1710	1755
-20		1710.2700	1754.7587	1710	1755
-10		1710.2659	1754.7618	1710	1755
0		1710.2652	1754.7626	1710	1755
10		1710.2657	1754.7584	1710	1755
20		1710.2659	1754.7599	1710	1755
30		1710.2681	1754.7594	1710	1755
40		1710.2699	1754.7603	1710	1755
50		1710.2661	1754.7626	1710	1755
20	L.V.	1710.2659	1754.7610	1710	1755
	H.V.	1710.2690	1754.7568	1710	1755

Band 5:

10.0 MHz Middle Channel, $f_o=836.5\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	N.V.	-8	-0.0096	2.5
-20		7	0.0084	2.5
-10		-8	-0.0096	2.5
0		9	0.0108	2.5
10		-7	-0.0084	2.5
20		6	0.0072	2.5
30		8	0.0096	2.5
40		-6	-0.0072	2.5
50		-7	-0.0084	2.5
20	L.V.	8	0.0096	2.5
	H.V.	-6	-0.0072	2.5

Band 7:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	2500.8725	2569.9818	2500	2570
-20		2500.8720	2569.9898	2500	2570
-10		2500.8747	2569.9854	2500	2570
0		2500.8765	2569.9751	2500	2570
10		2500.7887	2569.9799	2500	2570
20		2500.7831	2569.9386	2500	2570
30		2500.7725	2569.9312	2500	2570
40		2500.7605	2569.9894	2500	2570
50		2500.7530	2569.9830	2500	2570
20	L.V.	2500.7504	2569.9786	2500	2570
	H.V.	2500.7396	2569.9726	2500	2570

Band 12:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	699.0359	715.9694	699	716
-20		699.0398	715.9666	699	716
-10		699.0369	715.9684	699	716
0		699.0357	715.9632	699	716
10		699.0356	715.9650	699	716
20		699.0351	715.9663	699	716
30		699.0400	715.9622	699	716
40		699.0371	715.9631	699	716
50		699.0392	715.9659	699	716
20	L.V.	699.0391	715.9623	699	716
	H.V.	699.0388	715.9649	699	716

Band 17:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	704.4819	715.5385	704	716
-20		704.4846	715.5377	704	716
-10		704.4830	715.5340	704	716
0		704.4838	715.5347	704	716
10		704.4836	715.5369	704	716
20		704.4814	715.5389	704	716
30		704.4868	715.5356	704	716
40		704.4875	715.5378	704	716
50		704.4873	715.5371	704	716
20	L.V.	704.4807	715.5346	704	716
	H.V.	704.4832	715.5369	704	716

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