



TESTREPORT

Applicant Name : KRIPTO MOBILE CORPORATION
Address : 7640 NW 25TH ST STE 101 MIAMI Florida United States 33122
Report Number: RA221223-63489E-RF-00C
FCC ID: 2APX7K51

Test Standard (s)

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

Sample Description

Product Type: 4G Smart Phone
Model No.: K51
Multiple Model(s) No.: N/A
Trade Mark: KRIP
Date Received: 2022/12/23
Report Date: 2023/01/13

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

Prepared and Checked By:

Approved By:

Andy Yu
EMC Engineer

Candy Li
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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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	RA221223-63489E-RF-00C	Original Report	2023/01/13

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 7: 2500-2570MHz(TX); 2620-2690MHz(RX)
Modulation Technique	2G: GMSK, 8PSK 3G: BPSK, QPSK, 16QAM 4G: QPSK, 16QAM
Antenna Specification*	GSM850/WCDMA Band 5: 0.58dBi PCS1900/WCDMA Band 2/LTE Band 2: 0.52dBi LTE Band 4: 0.47dBi, LTE Band 7: 0.68dBi (provided by the applicant)
Voltage Range	DC 3.8V from battery or DC 5V from adapter
Sample serial number	1WJ5-2 for Radiated Emissions Test, 1WJ4-1 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 3.8V _{DC} H.V.: High Voltage 4.35V _{DC} (provided by the applicant)
Adapter information	Model: C51 Input: AC 100-240V, 50/60Hz, 0.2A Output: DC 5.0V, 1.0A

Objective

This test report is in accordance with Part 2-Subpart J, Part 22-Subpart H, Part24-Subpart E, and Part 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
DCS1900	0.25	1850.2	1880	1909.8
WCDMA B2	4.2	1852.4	1880	1907.6
WCDMA B5	4.2	826.4	836.6	846.6
LTE B2	1.4	1850.7	1880	1909.3
	3	1851.5	1880	1908.5
	5	1852.5	1880	1907.5
	10	1855	1880	1905
	15	1857.5	1880	1902.5
	20	1860	1880	1900
LTE B4	1.4	1710.7	1732.5	1754.3
	3	1711.5	1732.5	1753.5
	5	1712.5	1732.5	1752.5
	10	1715	1732.5	1750
	15	1717.5	1732.5	1747.5
	20	1720	1732.5	1745
LTE B7	5	2502.5	2535	2567.5
	10	2505	2535	2565
	15	2507.5	2535	2562.5
	20	2510	2535	2560

Equipment Modifications

No modification was made to the EUT.

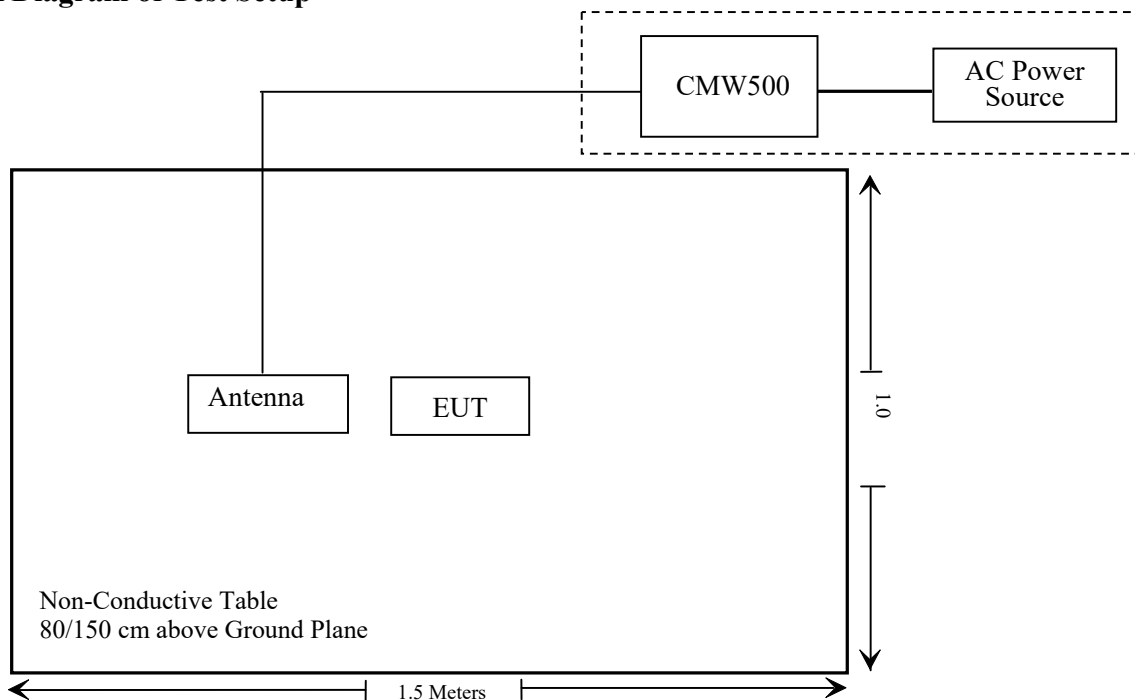
Support Equipment List and Details

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 (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 (h)(m)	Band Edge	Compliant
§ 2.1055; § 22.355; § 24.235; §27.54;	Frequency stability	Compliant

Note: * Please refer to SAR report number: RA221223-63489E-SA.

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test					
Rohde& Schwarz	Test Receiver	ESR	102725	2022/11/25	2023/11/24
Rohde&Schwarz	Spectrum Analyzer	FSV40	101949	2022/11/25	2023/11/24
SONOMA INSTRUMENT	Amplifier	310 N	186131	2022/11/08	2023/11/07
A.H. Systems, inc.	Preamplifier	PAM-0118P	135	2022/11/08	2023/11/07
Quinstar	Amplifier	QLW-184055 36-J0	15964001002	2022/11/08	2023/11/07
Radiated Emission Test Software: e3 19821b (V9)					
Unknown	RF Coaxial Cable	No.10	N050	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.11	N1000	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.12	N040	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.13	N300	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.14	N800	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.15	N600	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.16	N650	2022/11/25	2023/11/24
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	2022/11/25	2023/11/24
CD	High Pass Filter	HPM-1.2/18G -60	110	2022/11/25	2023/11/24
Unknown	RFCoaxialCable	No.16	N200	2022/11/25	2023/11/24
Agilent	Signal Generator	N5183A	MY51040755	2022/11/25	2023/11/24

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
RF Conducted Test					
SPECTRUM ANALYZER	Rohde & Schwarz	FSU26	200982	2022/07/04	2023/07/03
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	154606	2022/11/25	2023/11/24
Mini-Circuits	Power Splitter	DC-18000MHz	SF10944151S	2022/11/25	2023/11/24
REALE	Temp. & Humid. Chamber	RHP-800BT	R20170318310	2022/11/23	2023/11/22
Fluke	Multi Meter	45	7664009	2022/11/23	2023/11/22
Manson	DC Power Source	KPS-6604	ATCS-205	NCR	NCR
Unknown	RF Coaxial Cable	No.33	RF-03	Each time	

* 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§1.1307 and §2.1093.

Test Result

Compliant, please refer to the SAR report: RA221223-63489E-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 (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.

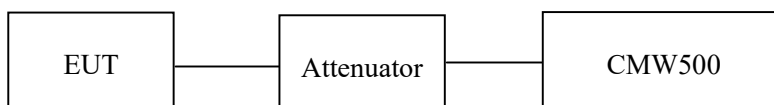
According to §27.50(d), Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

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.



Note: the path loss (cable loss and attenuator) has included in the result.

Test Data

Environmental Conditions

Temperature:	25.7 °C
Relative Humidity:	58.2 %
ATM Pressure:	101.0 kPa

The testing was performed by Glenn Jiang from 2022-12-29 to 2022-12-30.

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

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	ERP(dBm)	Limit (dBm)
GSM	128	824.2	32.70	30.53	38.45
	190	836.6	32.80	30.63	38.45
	251	848.8	33.00	30.83	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	32.68	30.55	28.51	26.40	30.51	28.38	26.34	24.23	38.45
	190	836.6	32.77	30.59	28.52	26.41	30.60	28.42	26.35	24.24	38.45
	251	848.8	32.93	30.55	28.50	26.41	30.76	28.38	26.33	24.24	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	
EDGE	128	824.2	25.30	23.50	20.60	18.48	23.13	21.33	18.43	16.31	38.45
	190	836.6	25.41	23.55	20.69	18.60	23.24	21.38	18.52	16.43	38.45
	251	848.8	24.95	23.06	20.19	18.29	22.78	20.89	18.02	16.12	38.45

Mode	Test Mode	3GPP	Average Output Power (dBm)			ERP(dBm)		
		Sub	Low	Mid	High	Low	Mid	High
		Test						
WCDMA (Band 5)	RMC12.2k		23.23	23.27	23.24	21.06	21.10	21.07
	HSDPA	1	22.55	22.63	22.65	20.38	20.46	20.48
		2	22.42	22.58	22.28	20.25	20.41	20.11
		3	22.43	22.41	22.17	20.26	20.24	20.00
		4	22.36	22.54	22.31	20.19	20.37	20.14
	HSUPA	1	22.57	22.76	22.69	20.40	20.59	20.52
		2	22.52	22.58	22.51	20.35	20.41	20.34
		3	22.41	22.42	22.31	20.24	20.25	20.14
		4	22.36	22.41	22.42	20.19	20.24	20.25
		5	22.28	22.36	22.18	20.11	20.19	20.01
	HSPA+	1	22.54	22.26	22.38	20.37	20.09	20.21

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

For GSM850 / WCDMA Band5: Antenna Gain =0.58 dBi = -1.57dBd (0dBd=2.15dBi)

L_C = signal attenuation in the connecting cable between the transmitter and antenna in 0.6dB

Limit: ERP≤38.45dBm

PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	EIRP(dBm)	Limit (dBm)
GSM	512	1850.2	30.30	29.62	33
	661	1880.0	30.10	29.42	33
	810	1909.8	30.20	29.52	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	30.33	28.03	26.36	24.26	29.65	27.35	25.68	23.58	33
	661	1880.0	30.24	27.82	26.15	24.12	29.56	27.14	25.47	23.44	33
	810	1909.8	30.27	27.66	26.02	23.90	29.59	26.98	25.34	23.22	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	
EDGE	512	1850.2	25.99	24.55	21.97	19.80	25.31	23.87	21.29	19.12	33
	661	1880.0	26.81	24.97	22.44	20.24	26.13	24.29	21.76	19.56	33
	810	1909.8	26.90	24.85	22.27	19.72	26.22	24.17	21.59	19.04	33

Mode	Test Mode	3GPP	Average Output Power (dBm)			ERP(dBm)		
		Sub						
		Test	Low	Mid	High	Low	Mid	High
WCDMA (Band 2)	RMC12.2k		23.82	23.76	23.80	23.14	23.08	23.12
	HSDPA	1	23.15	23.25	23.09	22.47	22.57	22.41
		2	23.22	23.14	23.05	22.54	22.46	22.37
		3	23.10	23.18	23.04	22.42	22.50	22.36
		4	23.07	23.17	23.08	22.39	22.49	22.40
	HSUPA	1	23.20	23.19	23.09	22.52	22.51	22.41
		2	23.15	23.17	23.07	22.47	22.49	22.39
		3	23.11	23.16	23.08	22.43	22.48	22.40
		4	23.14	23.18	23.06	22.46	22.50	22.38
		5	23.12	23.14	23.05	22.44	22.46	22.37
	HSPA+	1	23.14	23.19	23.09	22.46	22.51	22.41

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

For PCS1900 / WCDMA Band2: Antenna Gain = 0.52dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in 1.2dB

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	22.97	22.93	22.54	22.29	22.25	21.86
		RB1#3	22.97	22.90	22.44	22.29	22.22	21.76
		RB1#5	23.00	22.91	22.22	22.32	22.23	21.54
		RB3#0	23.09	23.15	22.48	22.41	22.47	21.80
		RB3#3	23.06	23.11	22.31	22.38	22.43	21.63
		RB6#0	21.94	22.07	22.01	21.26	21.39	21.33
	16QAM	RB1#0	22.57	22.52	22.01	21.89	21.84	21.33
		RB1#3	22.63	22.47	22.00	21.95	21.79	21.32
		RB1#5	22.65	22.47	21.91	21.97	21.79	21.23
		RB3#0	22.10	22.03	22.13	21.42	21.35	21.45
		RB3#3	22.18	22.01	22.05	21.50	21.33	21.37
		RB6#0	21.30	21.19	21.18	20.62	20.51	20.50
3.0	QPSK	RB1#0	23.10	23.08	22.92	22.42	22.40	22.24
		RB1#8	23.09	23.07	22.56	22.41	22.39	21.88
		RB1#14	23.07	23.03	22.14	22.39	22.35	21.46
		RB6#0	22.09	22.12	21.99	21.41	21.44	21.31
		RB6#9	22.07	22.06	21.84	21.39	21.38	21.16
		RB15#0	22.15	22.06	22.05	21.47	21.38	21.37
	16QAM	RB1#0	22.25	22.02	22.34	21.57	21.34	21.66
		RB1#8	22.24	21.94	22.25	21.56	21.26	21.57
		RB1#14	22.23	22.01	22.14	21.55	21.33	21.46
		RB6#0	21.23	21.10	20.97	20.55	20.42	20.29
		RB6#9	21.22	21.06	20.94	20.54	20.38	20.26
		RB15#0	21.16	21.05	21.21	20.48	20.37	20.53

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
5.0	QPSK	RB1#0	23.23	23.02	22.98	22.55	22.34	22.30
		RB1#13	23.21	23.05	22.84	22.53	22.37	22.16
		RB1#24	23.21	23.03	21.95	22.53	22.35	21.27
		RB15#0	22.06	22.13	22.06	21.38	21.45	21.38
		RB15#10	22.05	21.96	22.09	21.37	21.28	21.41
		RB25#0	22.03	21.98	22.00	21.35	21.30	21.32
	16QAM	RB1#0	22.10	21.77	21.30	21.42	21.09	20.62
		RB1#13	22.07	21.71	21.40	21.39	21.03	20.72
		RB1#24	22.10	21.78	21.53	21.42	21.10	20.85
		RB15#0	20.98	21.15	21.18	20.30	20.47	20.50
		RB15#10	20.99	21.06	21.11	20.31	20.38	20.43
		RB25#0	20.97	21.09	21.24	20.29	20.41	20.56
10.0	QPSK	RB1#0	23.06	23.10	22.96	22.38	22.42	22.28
		RB1#25	23.04	23.05	22.94	22.36	22.37	22.26
		RB1#49	23.08	23.08	22.33	22.40	22.40	21.65
		RB25#0	22.13	22.11	22.06	21.45	21.43	21.38
		RB25#25	22.14	22.05	22.08	21.46	21.37	21.40
		RB50#0	21.99	22.08	22.00	21.31	21.40	21.32
	16QAM	RB1#0	22.25	21.63	22.24	21.57	20.95	21.56
		RB1#25	22.21	21.52	22.27	21.53	20.84	21.59
		RB1#49	22.21	21.56	22.32	21.53	20.88	21.64
		RB25#0	21.21	21.28	21.11	20.53	20.60	20.43
		RB25#25	21.18	21.22	21.09	20.50	20.54	20.41
		RB50#0	21.12	21.06	21.21	20.44	20.38	20.53

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	22.99	23.01	22.92	22.31	22.33	22.24
		RB1#38	22.94	23.00	22.88	22.26	22.32	22.20
		RB1#74	22.99	23.04	22.24	22.31	22.36	21.56
		RB36#0	22.00	22.09	21.95	21.32	21.41	21.27
		RB36#39	22.15	21.98	22.04	21.47	21.30	21.36
		RB75#0	22.06	21.99	21.94	21.38	21.31	21.26
	16QAM	RB1#0	22.71	22.39	22.34	22.03	21.71	21.66
		RB1#38	22.74	22.31	22.31	22.06	21.63	21.63
		RB1#74	22.75	22.38	22.26	22.07	21.70	21.58
		RB36#0	21.05	21.13	21.11	20.37	20.45	20.43
		RB36#39	21.20	21.08	21.19	20.52	20.40	20.51
		RB75#0	21.13	21.16	21.17	20.45	20.48	20.49
20.0	QPSK	RB1#0	23.17	23.15	22.99	22.49	22.47	22.31
		RB1#50	23.19	23.19	22.96	22.51	22.51	22.28
		RB1#99	23.17	23.19	22.59	22.49	22.51	21.91
		RB50#0	22.08	22.17	22.10	21.40	21.49	21.42
		RB50#50	22.00	22.13	22.02	21.32	21.45	21.34
		RB100#0	22.09	22.15	22.13	21.41	21.47	21.45
	16QAM	RB1#0	22.09	22.02	22.31	21.41	21.34	21.63
		RB1#50	22.01	22.07	22.28	21.33	21.39	21.60
		RB1#99	22.75	22.07	22.16	22.07	21.39	21.48
		RB50#0	21.05	21.11	21.15	20.37	20.43	20.47
		RB50#50	21.20	21.12	21.20	20.52	20.44	20.52
		RB100#0	21.17	21.10	21.14	20.49	20.42	20.46

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

For Band2: Antenna Gain = 0.52 dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in 1.2dB

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	22.87	22.80	22.85	22.14	22.07	22.12
		RB1#3	22.79	22.72	22.77	22.06	21.99	22.04
		RB1#5	22.87	22.82	22.74	22.14	22.09	22.01
		RB3#0	22.97	22.89	23.02	22.24	22.16	22.29
		RB3#3	23.01	22.84	23.01	22.28	22.11	22.28
		RB6#0	21.95	21.76	21.92	21.22	21.03	21.19
	16QAM	RB1#0	21.76	22.36	22.54	21.03	21.63	21.81
		RB1#3	21.79	22.42	22.51	21.06	21.69	21.78
		RB1#5	21.76	22.4	22.49	21.03	21.67	21.76
		RB3#0	22.14	21.88	21.90	21.41	21.15	21.17
		RB3#3	22.05	21.92	21.94	21.32	21.19	21.21
		RB6#0	21.10	21.06	20.85	20.37	20.33	20.12
3.0	QPSK	RB1#0	23.00	22.88	22.80	22.27	22.15	22.07
		RB1#8	22.95	22.88	22.83	22.22	22.15	22.10
		RB1#14	22.94	22.88	22.82	22.21	22.15	22.09
		RB6#0	21.98	21.81	21.86	21.25	21.08	21.13
		RB6#9	21.93	21.91	21.92	21.20	21.18	21.19
		RB15#0	21.88	21.90	21.94	21.15	21.17	21.21
	16QAM	RB1#0	22.65	21.39	21.98	21.92	20.66	21.25
		RB1#8	22.71	21.32	21.97	21.98	20.59	21.24
		RB1#14	22.68	21.30	21.96	21.95	20.57	21.23
		RB6#0	21.04	20.95	20.85	20.31	20.22	20.12
		RB6#9	20.99	20.94	20.90	20.26	20.21	20.17
		RB15#0	20.97	21.02	20.91	20.24	20.29	20.18

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	22.93	22.84	22.90	22.20	22.11	22.17
		RB1#13	23.02	22.87	22.95	22.29	22.14	22.22
		RB1#24	23.05	22.78	22.83	22.32	22.05	22.10
		RB15#0	21.97	21.83	21.81	21.24	21.10	21.08
		RB15#10	21.93	21.79	21.97	21.20	21.06	21.24
		RB25#0	21.90	21.82	21.89	21.17	21.09	21.16
	16QAM	RB1#0	22.12	21.57	21.11	21.39	20.84	20.38
		RB1#13	22.09	21.50	21.08	21.36	20.77	20.35
		RB1#24	22.05	21.64	21.14	21.32	20.91	20.41
		RB15#0	20.95	20.92	20.96	20.22	20.19	20.23
		RB15#10	20.89	20.97	20.91	20.16	20.24	20.18
		RB25#0	20.93	20.82	20.97	20.20	20.09	20.24
10.0	QPSK	RB1#0	23.02	22.89	22.85	22.29	22.16	22.12
		RB1#25	22.99	22.88	22.86	22.26	22.15	22.13
		RB1#49	22.95	22.90	22.92	22.22	22.17	22.19
		RB25#0	21.82	21.92	21.86	21.09	21.19	21.13
		RB25#25	21.84	21.81	21.78	21.11	21.08	21.05
		RB50#0	21.96	21.87	21.83	21.23	21.14	21.10
	16QAM	RB1#0	22.12	21.39	22.11	21.39	20.66	21.38
		RB1#25	22.10	21.36	22.19	21.37	20.63	21.46
		RB1#49	22.01	21.33	22.15	21.28	20.60	21.42
		RB25#0	21.09	21.07	20.90	20.36	20.34	20.17
		RB25#25	21.09	21.07	20.86	20.36	20.34	20.13
		RB50#0	21.06	20.97	20.85	20.33	20.24	20.12

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	22.97	22.86	22.82	22.24	22.13	22.09
		RB1#38	22.99	22.76	22.83	22.26	22.03	22.10
		RB1#74	22.96	22.80	22.84	22.23	22.07	22.11
		RB36#0	21.92	21.85	21.86	21.19	21.12	21.13
		RB36#39	21.94	21.82	21.75	21.21	21.09	21.02
		RB75#0	21.99	21.74	21.82	21.26	21.01	21.09
	16QAM	RB1#0	22.13	22.21	22.20	21.40	21.48	21.47
		RB1#38	22.10	22.13	22.16	21.37	21.40	21.43
		RB1#74	22.02	22.15	22.21	21.29	21.42	21.48
		RB36#0	21.07	20.92	20.98	20.34	20.19	20.25
		RB36#39	21.00	20.95	21.00	20.27	20.22	20.27
		RB75#0	21.04	20.94	20.98	20.31	20.21	20.25
20.0	QPSK	RB1#0	22.86	23.05	23.15	22.13	22.32	22.42
		RB1#50	22.86	22.99	23.17	22.13	22.26	22.44
		RB1#99	22.81	23.04	23.29	22.08	22.31	22.56
		RB50#0	21.96	21.94	21.85	21.23	21.21	21.12
		RB50#50	21.98	21.99	21.98	21.25	21.26	21.25
		RB100#0	21.88	21.89	21.93	21.15	21.16	21.20
	16QAM	RB1#0	22.28	22.60	21.42	21.55	21.87	20.69
		RB1#50	22.21	22.50	21.43	21.48	21.77	20.70
		RB1#99	22.21	22.50	21.47	21.48	21.77	20.74
		RB50#0	21.09	20.99	20.98	20.36	20.26	20.25
		RB50#50	21.09	20.91	21.02	20.36	20.18	20.29
		RB100#0	21.05	21.05	20.91	20.32	20.32	20.18

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

For Band4: Antenna Gain = 0.47dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in 1.2dB

Limit: EIRP ≤ 30dBm

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	23.39	23.16	22.53	22.87	22.64	22.01
		RB1#13	23.45	23.18	22.48	22.93	22.66	21.96
		RB1#24	23.42	23.20	21.71	22.90	22.68	21.19
		RB15#0	22.33	22.25	22.26	21.81	21.73	21.74
		RB15#10	22.30	22.18	22.34	21.78	21.66	21.82
		RB25#0	22.39	22.24	22.19	21.87	21.72	21.67
	16QAM	RB1#0	22.40	21.79	21.64	21.88	21.27	21.12
		RB1#13	22.41	21.89	21.69	21.89	21.37	21.17
		RB1#24	22.59	21.85	21.46	22.07	21.33	20.94
		RB15#0	21.34	21.38	21.42	20.82	20.86	20.90
		RB15#10	21.45	21.32	21.39	20.93	20.80	20.87
		RB25#0	21.44	21.20	21.47	20.92	20.68	20.95
10.0	QPSK	RB1#0	22.93	22.79	22.50	22.41	22.27	21.98
		RB1#25	22.92	22.69	22.72	22.40	22.17	22.20
		RB1#49	22.94	22.78	22.03	22.42	22.26	21.51
		RB25#0	21.99	21.77	21.71	21.47	21.25	21.19
		RB25#25	22.02	21.74	21.76	21.50	21.22	21.24
		RB50#0	22.01	21.84	21.83	21.49	21.32	21.31
	16QAM	RB1#0	22.10	21.26	22.04	21.58	20.74	21.52
		RB1#25	22.10	21.29	22.03	21.58	20.77	21.51
		RB1#49	22.14	21.33	22.02	21.62	20.81	21.50
		RB25#0	21.15	21.05	21.00	20.63	20.53	20.48
		RB25#25	21.17	21.07	21.02	20.65	20.55	20.50
		RB50#0	21.15	20.96	20.99	20.63	20.44	20.47

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	22.91	22.79	22.60	22.39	22.27	22.08
		RB1#38	22.95	22.76	22.68	22.43	22.24	22.16
		RB1#74	22.97	22.80	21.92	22.45	22.28	21.40
		RB36#0	22.03	21.71	21.74	21.51	21.19	21.22
		RB36#39	21.80	21.85	21.83	21.28	21.33	21.31
		RB75#0	22.03	21.71	21.85	21.51	21.19	21.33
	16QAM	RB1#0	22.15	22.27	22.07	21.63	21.75	21.55
		RB1#38	22.20	22.27	22.15	21.68	21.75	21.63
		RB1#74	22.24	22.21	22.09	21.72	21.69	21.57
		RB36#0	21.13	20.95	21.12	20.61	20.43	20.60
		RB36#39	21.16	20.95	21.11	20.64	20.43	20.59
		RB75#0	21.17	20.95	21.03	20.65	20.43	20.51
20.0	QPSK	RB1#0	22.78	23.01	22.77	22.26	22.49	22.25
		RB1#50	22.82	22.95	22.71	22.30	22.43	22.19
		RB1#99	22.87	22.97	22.26	22.35	22.45	21.74
		RB50#0	21.96	21.78	21.86	21.44	21.26	21.34
		RB50#50	21.94	21.89	21.84	21.42	21.37	21.32
		RB100#0	21.98	21.81	21.85	21.46	21.29	21.33
	16QAM	RB1#0	22.37	22.35	21.71	21.85	21.83	21.19
		RB1#50	22.37	22.31	21.69	21.85	21.79	21.17
		RB1#99	22.38	22.35	21.82	21.86	21.83	21.30
		RB50#0	21.28	20.92	21.00	20.76	20.40	20.48
		RB50#50	21.22	20.85	21.06	20.70	20.33	20.54
		RB100#0	21.01	20.94	21.04	20.49	20.42	20.52

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

For Band7: Antenna Gain = 0.68dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in 1.2dB

Limit: ERP ≤ 33dBm

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

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	3.54	13
	Middle	3.75	13
	High	3.46	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	3.80	13
	Middle	4.76	13
	High	3.61	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	2.98	13
	Middle	3.01	13
	High	2.95	13
HSDPA (16QAM)	Low	3.75	13
	Middle	3.94	13
	High	3.85	13
HSUPA (BPSK)	Low	3.88	13
	Middle	3.85	13
	High	3.88	13
HSPA+	Low	3.75	13
	Middle	3.56	13
	High	3.59	13

PCS Band

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	3.84	13
	Middle	3.18	13
	High	4.06	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	3.89	13
	Middle	3.41	13
	High	3.52	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	2.50	13
	Middle	2.63	13
	High	2.15	13
HSDPA (16QAM)	Low	3.62	13
	Middle	3.59	13
	High	3.30	13
HSUPA (BPSK)	Low	3.56	13
	Middle	3.62	13
	High	3.33	13
HSPA+	Low	3.52	13
	Middle	3.67	13
	High	3.54	13

LTE Band 2 20MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	2.87	2.93	2.75	13	Pass
QPSK (100RB Size)	2.78	2.96	3.01	13	Pass
16QAM (1RB Size)	3.83	4.35	3.91	13	Pass
16QAM (100RB Size)	3.68	4.14	3.45	13	Pass

LTE Band 4 20MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	3.57	4.72	3.01	13	Pass
QPSK (100RB Size)	3.59	3.51	3.07	13	Pass
16QAM (1RB Size)	4.55	4.64	3.45	13	Pass
16QAM (100RB Size)	4.49	4.49	3.74	13	Pass

LTE Band 7 20MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	3.36	4.17	3.25	13	Pass
QPSK (100RB Size)	3.22	4.35	3.51	13	Pass
16QAM (1RB Size)	4.03	5.19	4.23	13	Pass
16QAM (100RB Size)	4.06	5.36	4.55	13	Pass

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

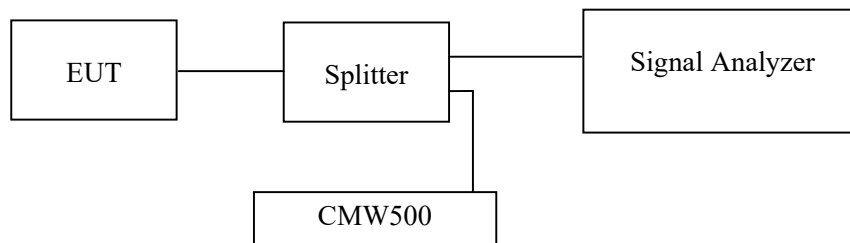
Applicable Standard

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.



Note: the worst path loss (cable loss and splitter inset loss) among the test frequency range has included in plot.

Test Data

Environmental Conditions

Temperature:	25.7 °C
Relative Humidity:	58.2 %
ATM Pressure:	101.0 kPa

The testing was performed by Glenn Jiang on 2022-12-29.

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	248.00	320.00
	190	836.6	243.00	316.00
	251	848.8	246.00	319.00
EGPRS(8PSK)	128	824.2	245.00	317.00
	190	836.6	251.00	318.00
	251	848.8	246.00	311.00

	Frequency (MHz)	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	826.4	4.16	4.71
	836.6	4.16	4.68
	846.6	4.14	4.70
HSDPA	826.4	4.16	4.70
	836.6	4.16	4.70
	846.6	4.14	4.68
HSUPA	826.4	4.14	4.68
	836.6	4.16	4.71
	846.6	4.16	4.71

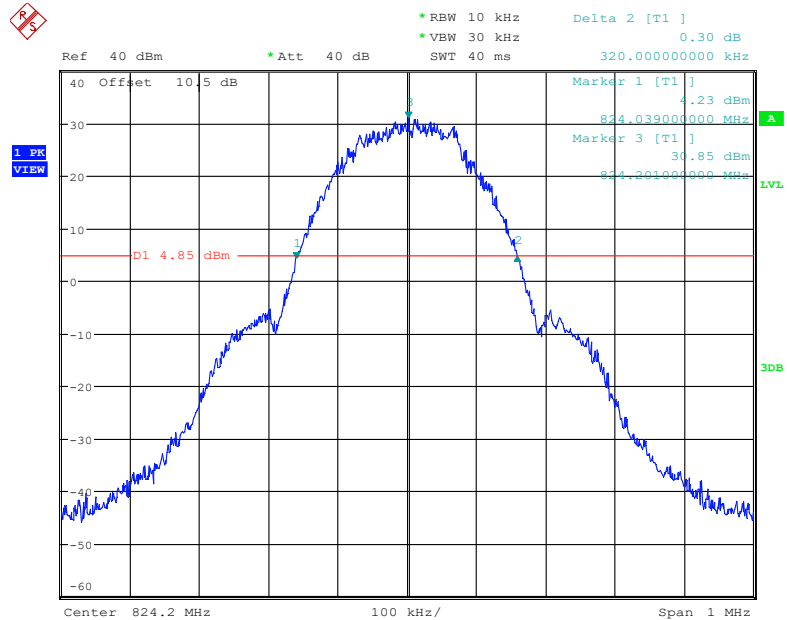
PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM(GMSK)	512	1850.2	245.00	317.00
	661	1880.0	246.00	315.00
	810	1909.8	244.00	312.00
EGPRS(8PSK)	512	1850.2	245.00	315.00
	661	1880.0	246.00	311.00
	810	1909.8	245.00	308.00

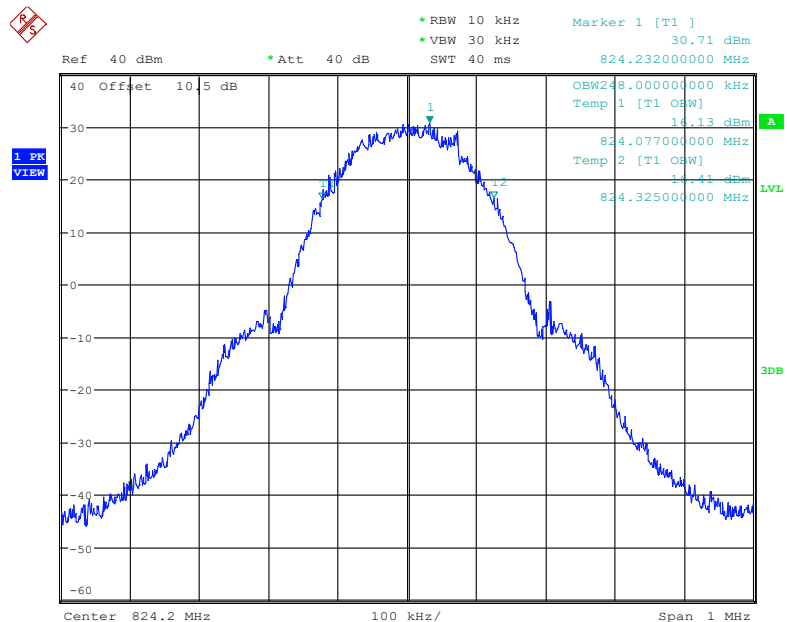
	Frequency (MHz)	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	1852.4	4.17	4.71
	1880.0	4.17	4.71
	1907.6	4.17	4.74
HSDPA	1852.4	4.16	4.71
	1880.0	4.16	4.70
	1907.6	4.16	4.70
HSUPA	1852.4	4.17	4.70
	1880.0	4.14	4.71
	1907.6	4.16	4.70

Cellular Band (Part 22H)

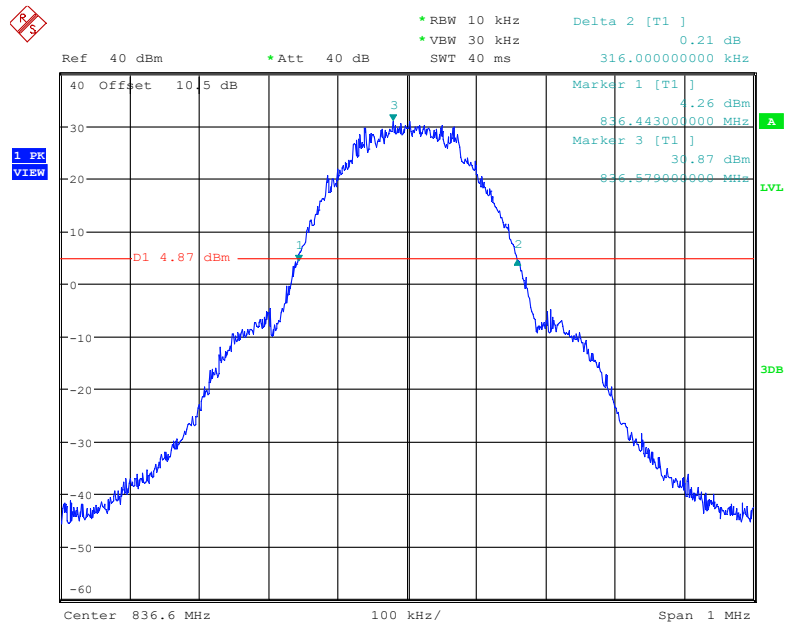
26 dB Emissions & 99% Occupied Bandwidth for GSM (GMSK) Mode, Low channel



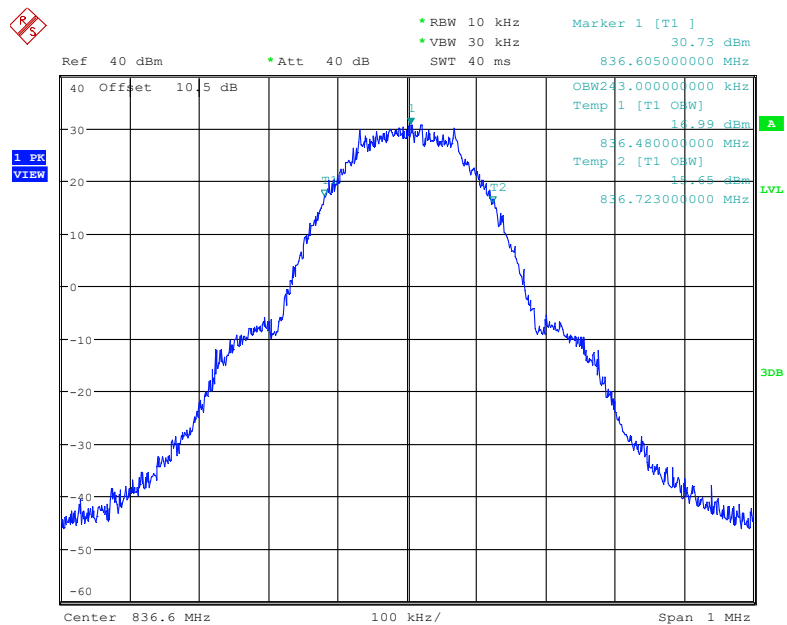
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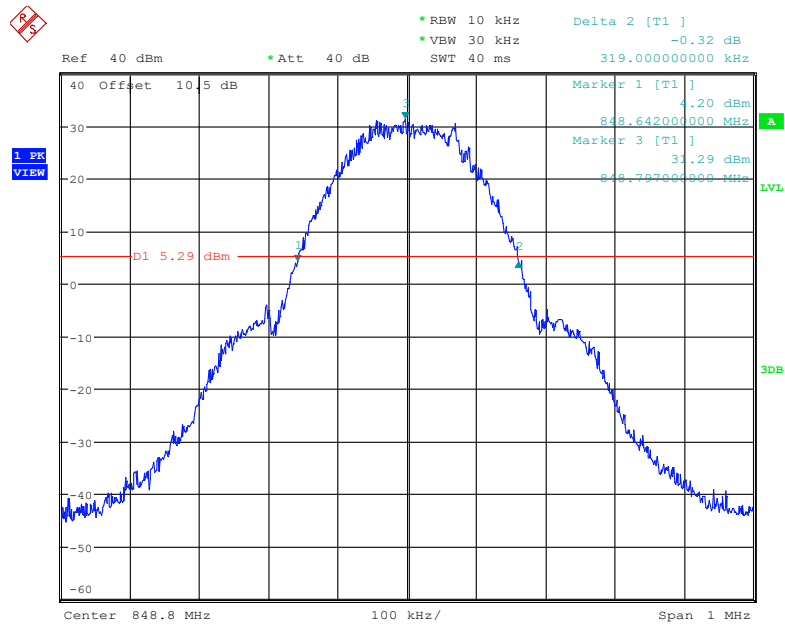
Date: 29.DEC.2022 08:43:37

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

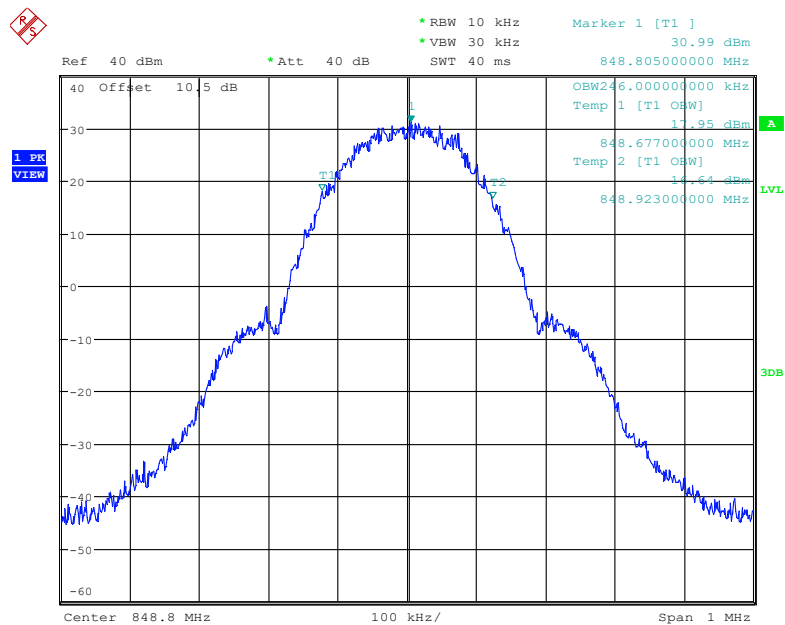
Date: 29.DEC.2022 08:48:51



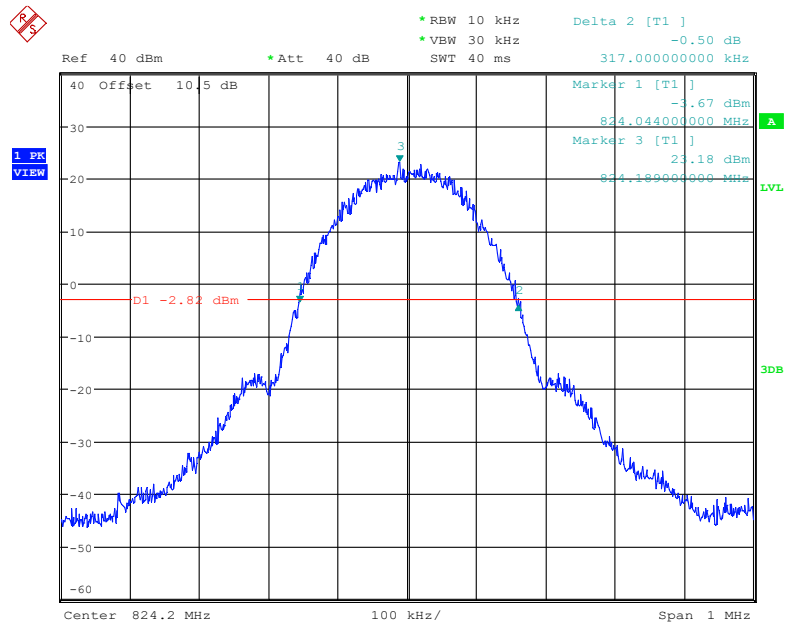
Date: 29.DEC.2022 08:48:12

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

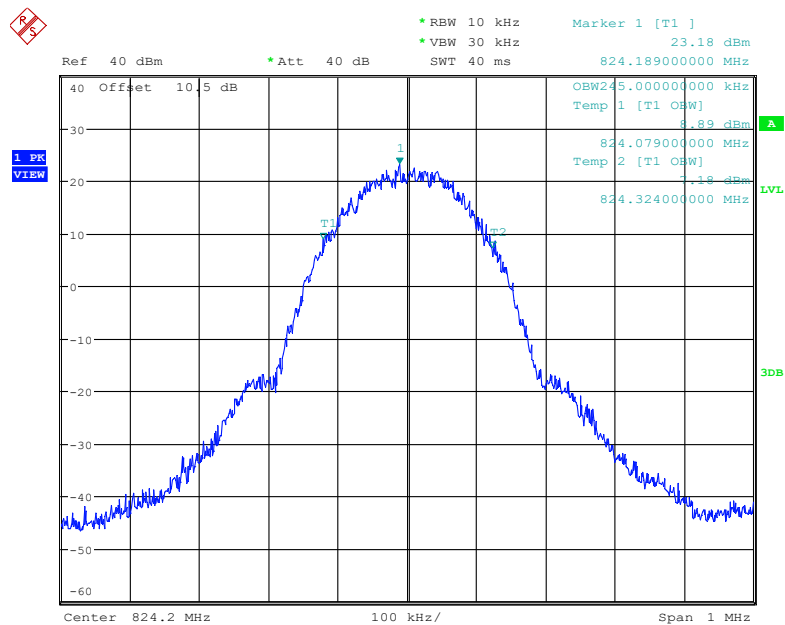
Date: 29.DEC.2022 08:54:40



Date: 29.DEC.2022 08:54:00

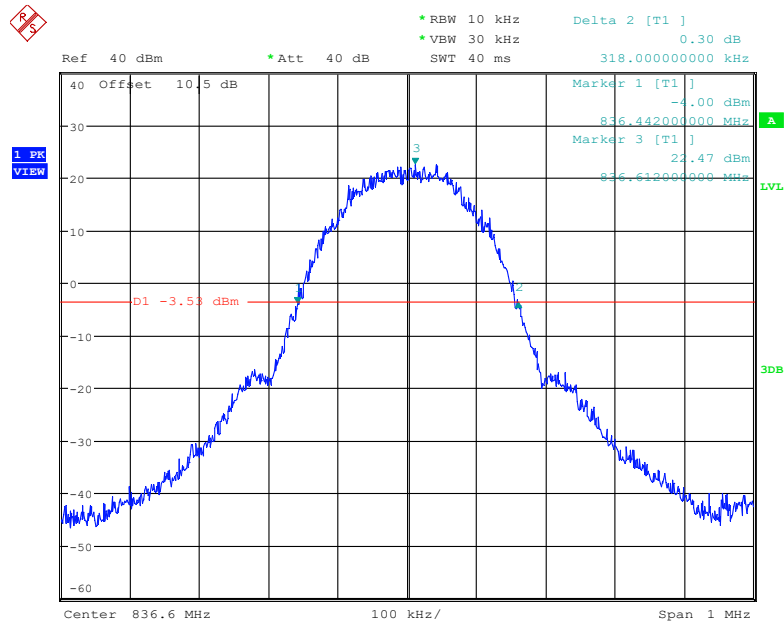
26 dB Emissions & 99% Occupied Bandwidth for EGPRS (8PSK) Mode, Low channel

Date: 29.DEC.2022 09:07:55

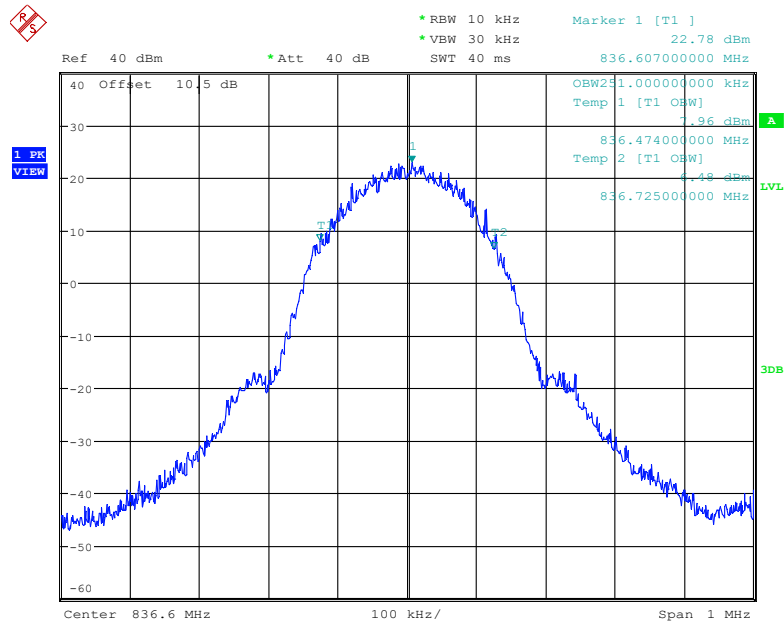


Date: 29.DEC.2022 09:07:16

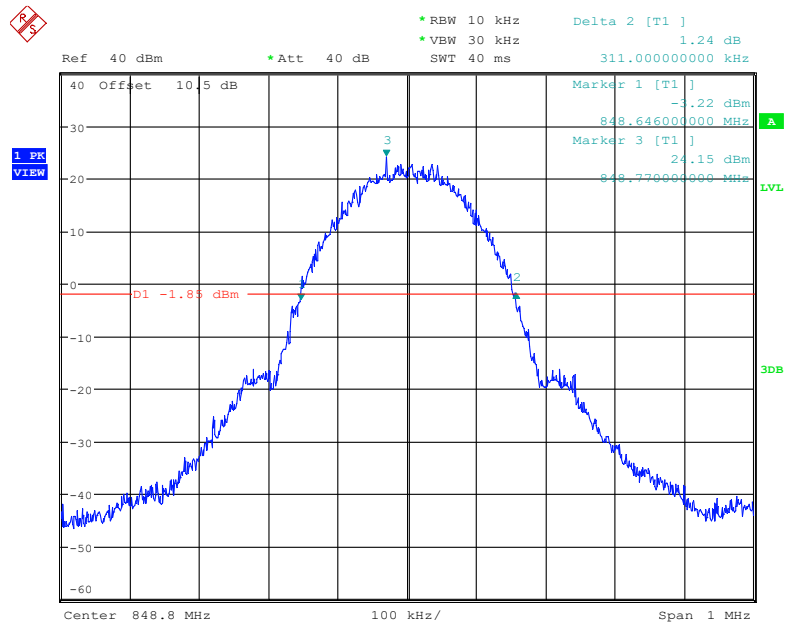
26 dB Emissions & 99% Occupied Bandwidth for EGPRS (8PSK) Mode, Middle channel



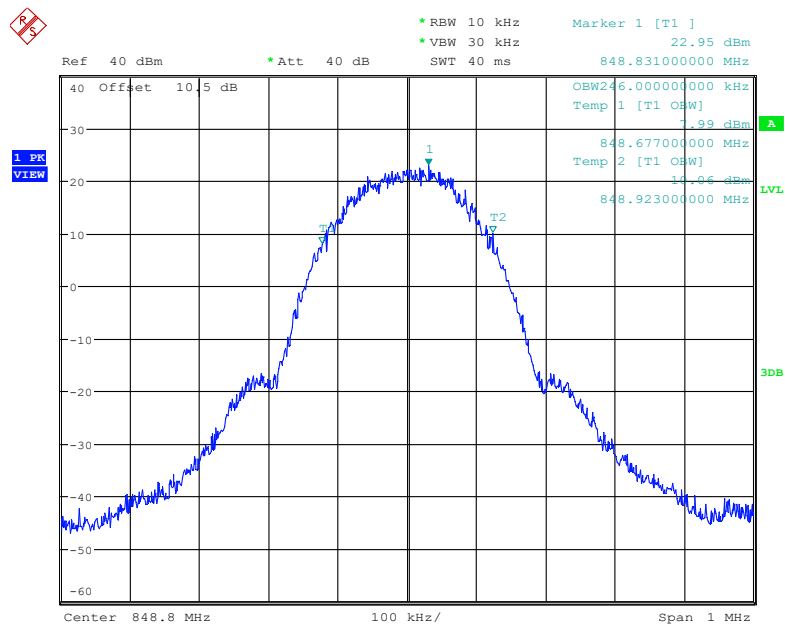
Date: 29.DEC.2022 09:12:56



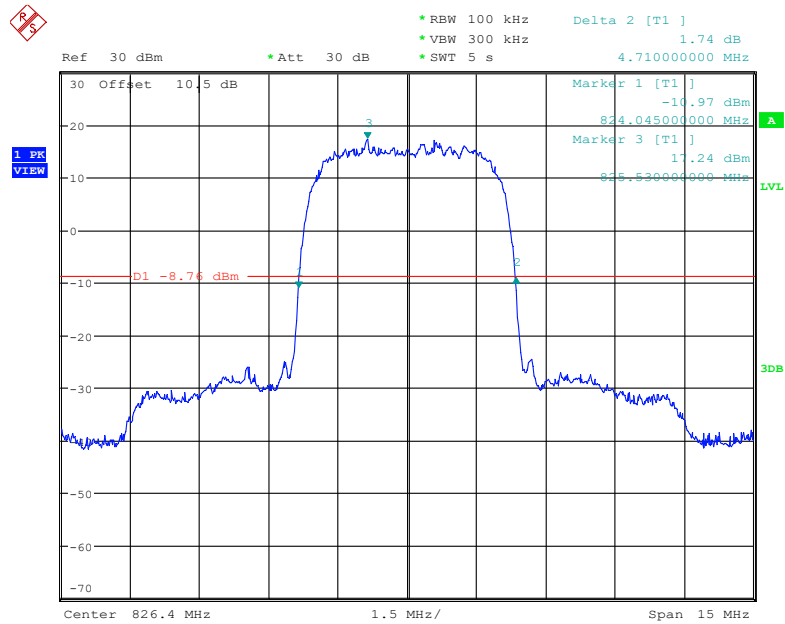
Date: 29.DEC.2022 09:12:16

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

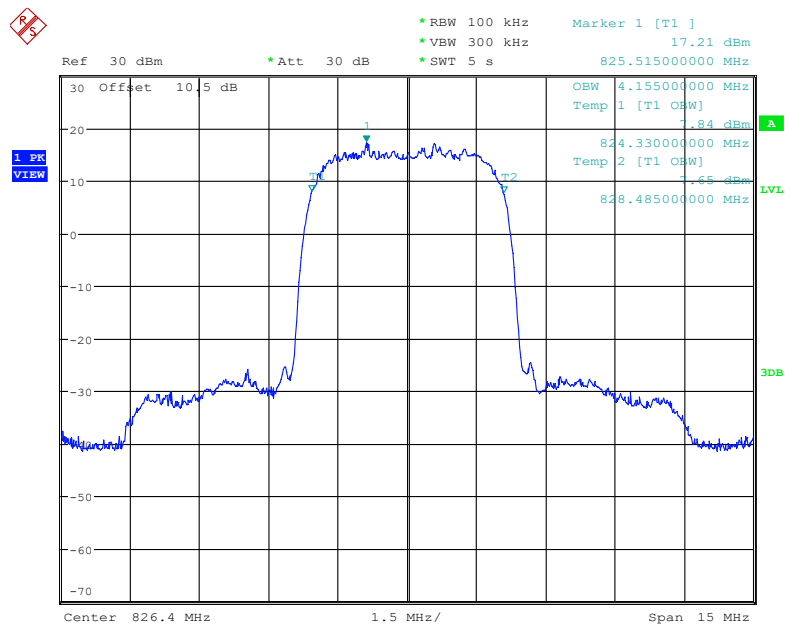
Date: 29.DEC.2022 09:16:16



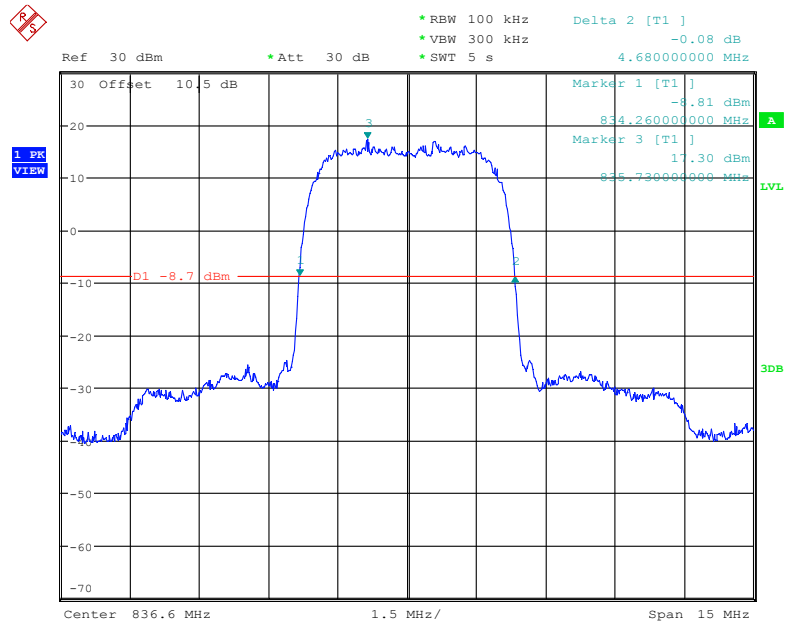
Date: 29.DEC.2022 09:15:37

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

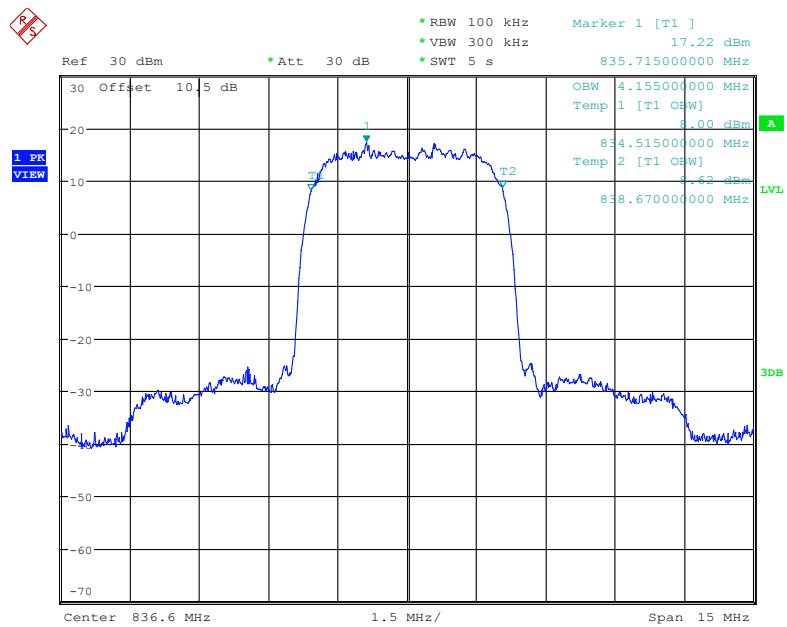
Date: 29.DEC.2022 10:22:08



Date: 29.DEC.2022 10:21:28

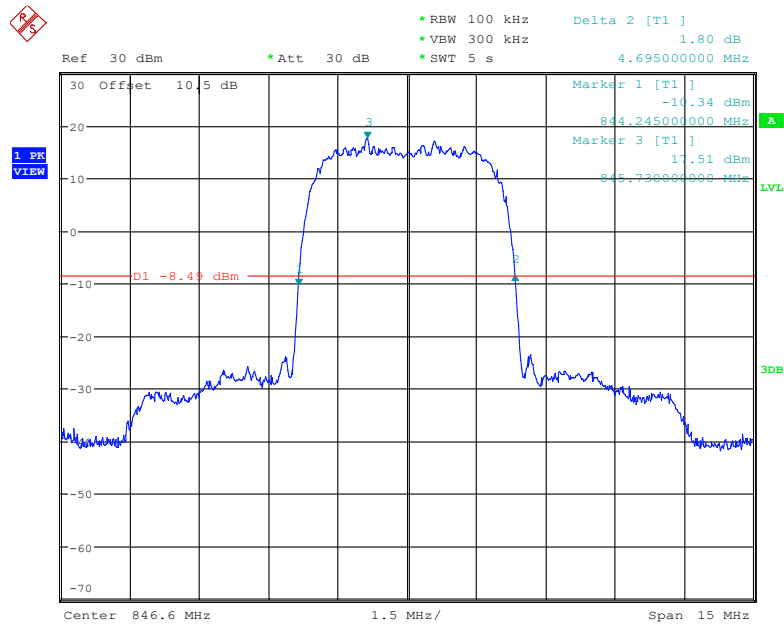
26 dB Emissions & 99% Occupied Bandwidth for RMC (BPSK) Mode, Middle channel

Date: 29.DEC.2022 10:25:38

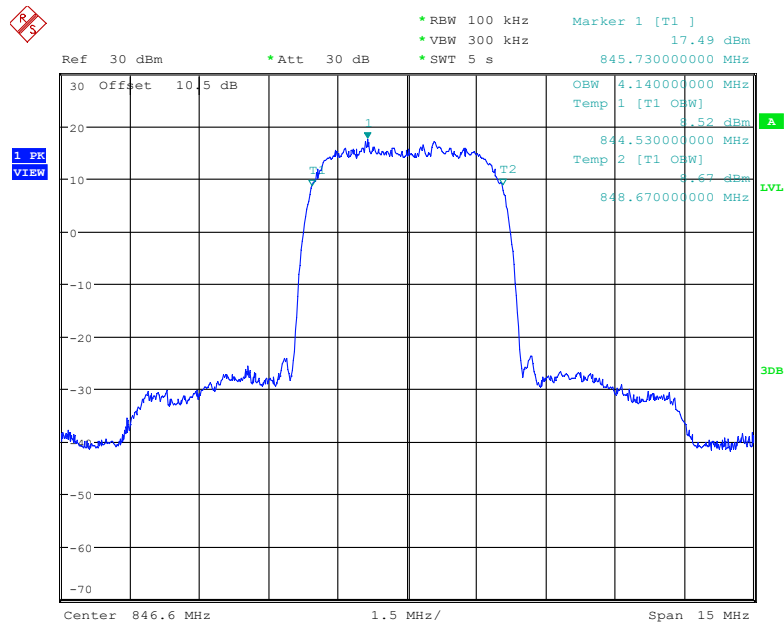


Date: 29.DEC.2022 10:24:58

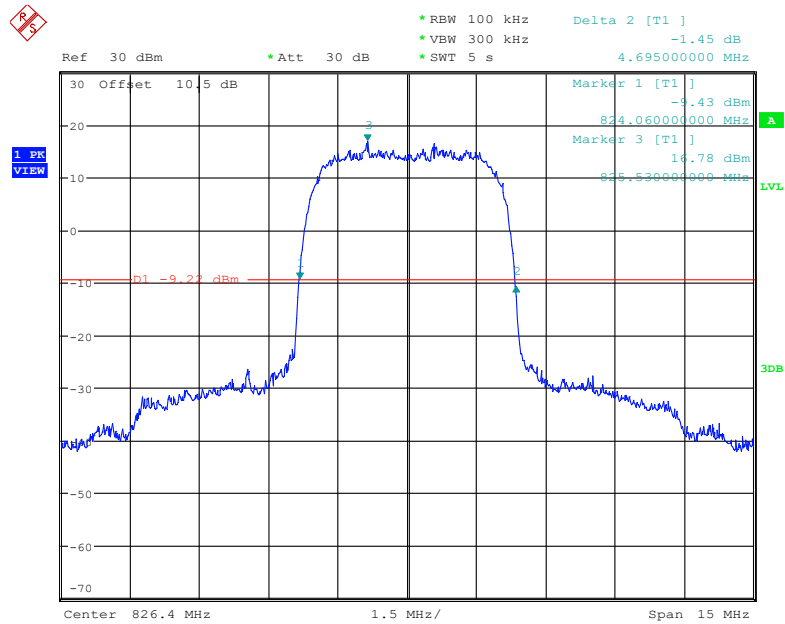
26 dB Emissions & 99% Occupied Bandwidth for RMC (BPSK) Mode, High channel



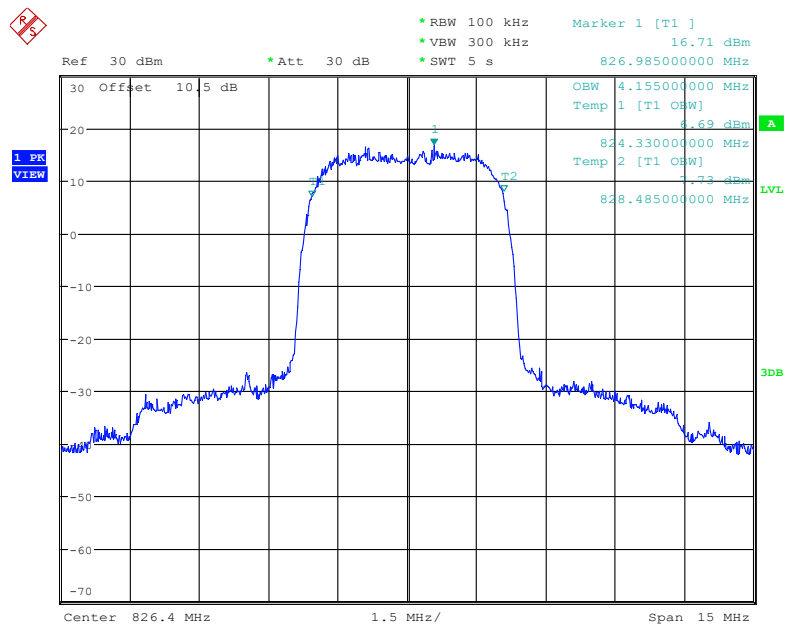
Date: 29.DEC.2022 10:28:27



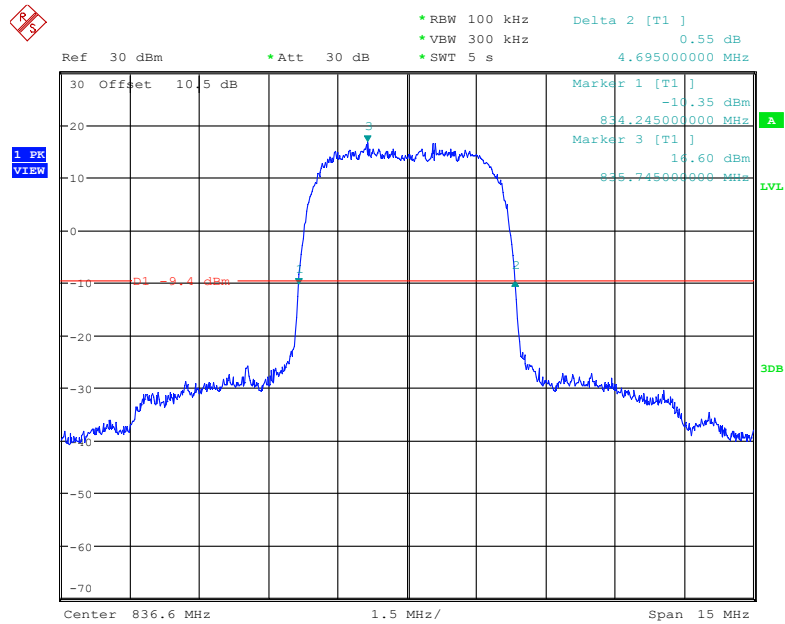
Date: 29.DEC.2022 10:27:48

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

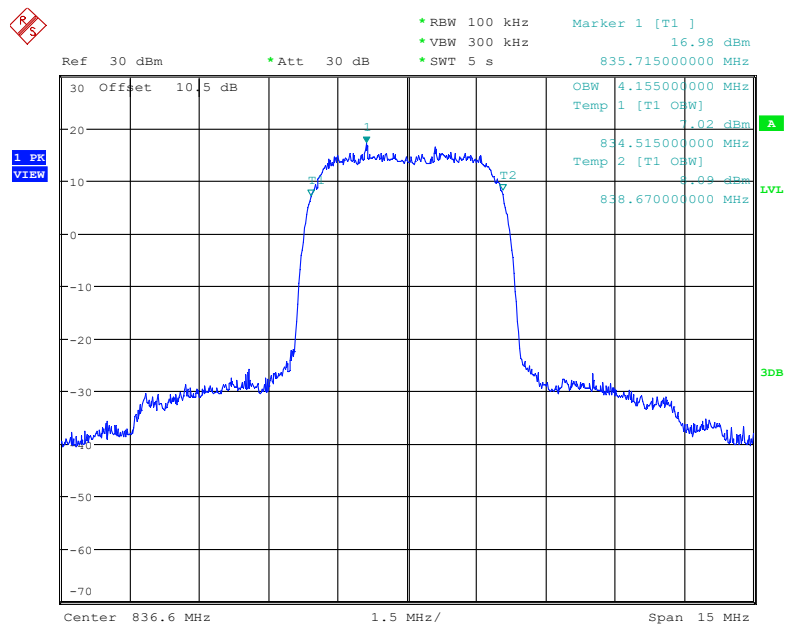
Date: 29.DEC.2022 10:33:45



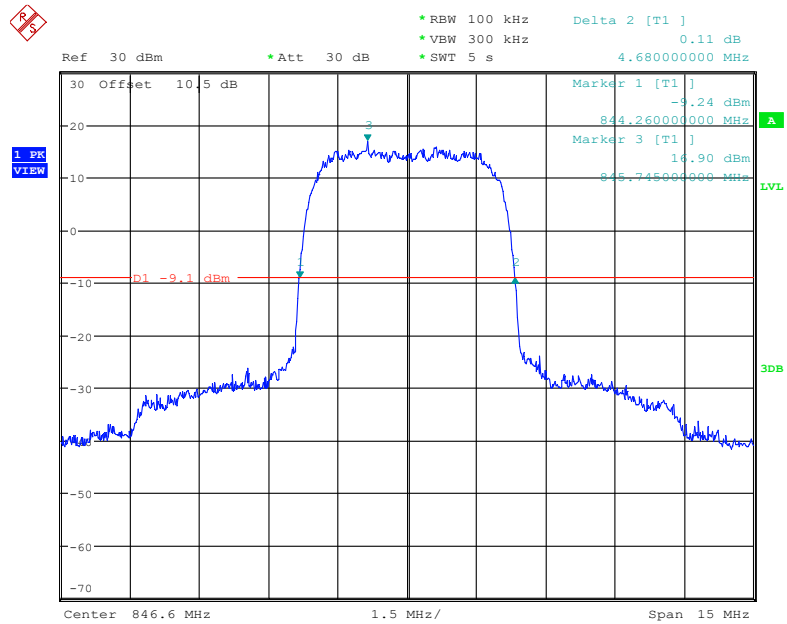
Date: 29.DEC.2022 10:33:05

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

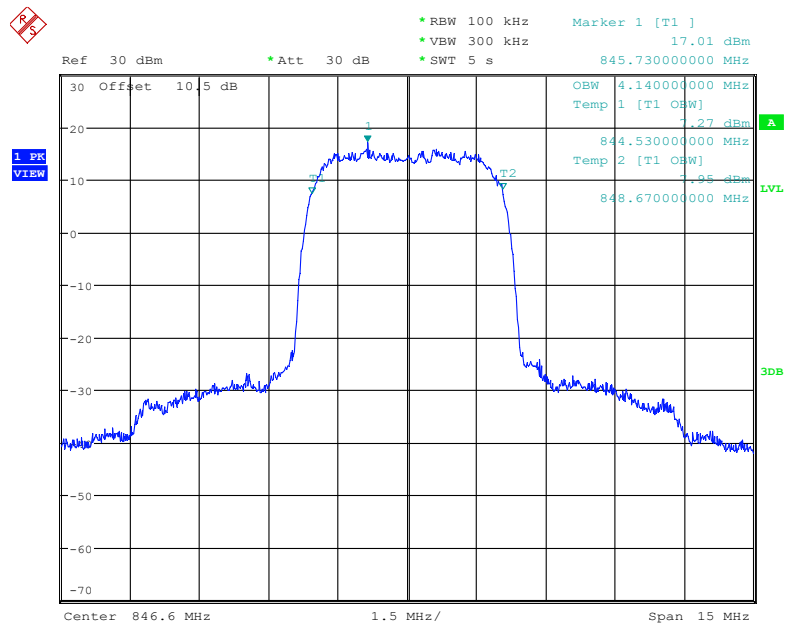
Date: 29.DEC.2022 10:44:37



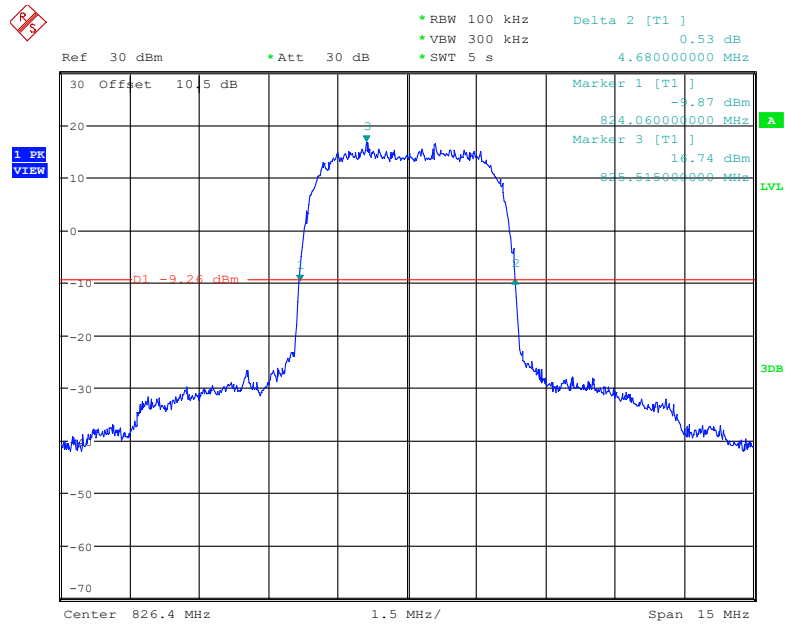
Date: 29.DEC.2022 10:43:58

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

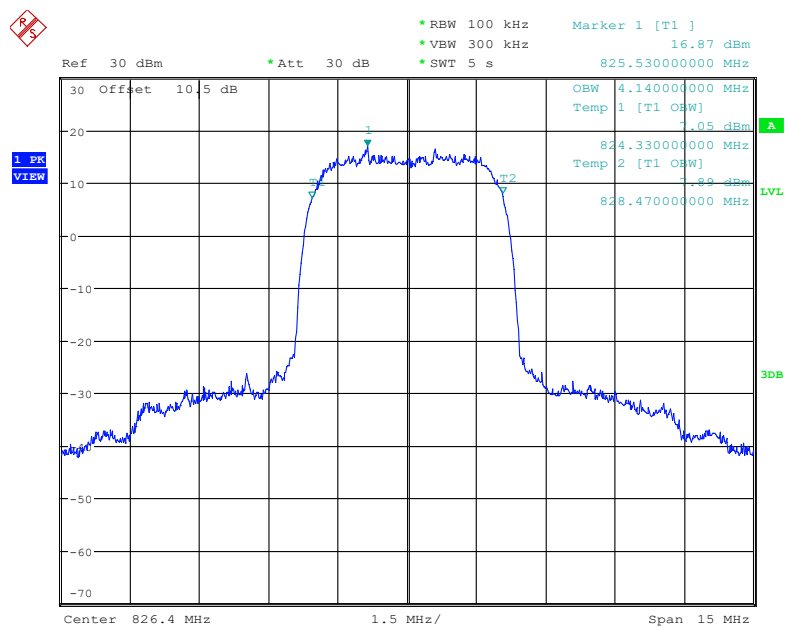
Date: 29.DEC.2022 10:47:39



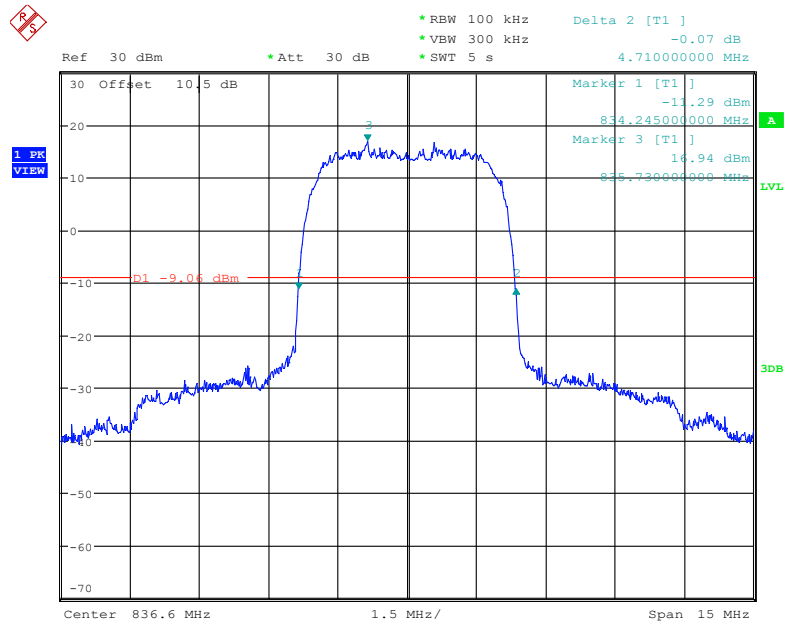
Date: 29.DEC.2022 10:46:59

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

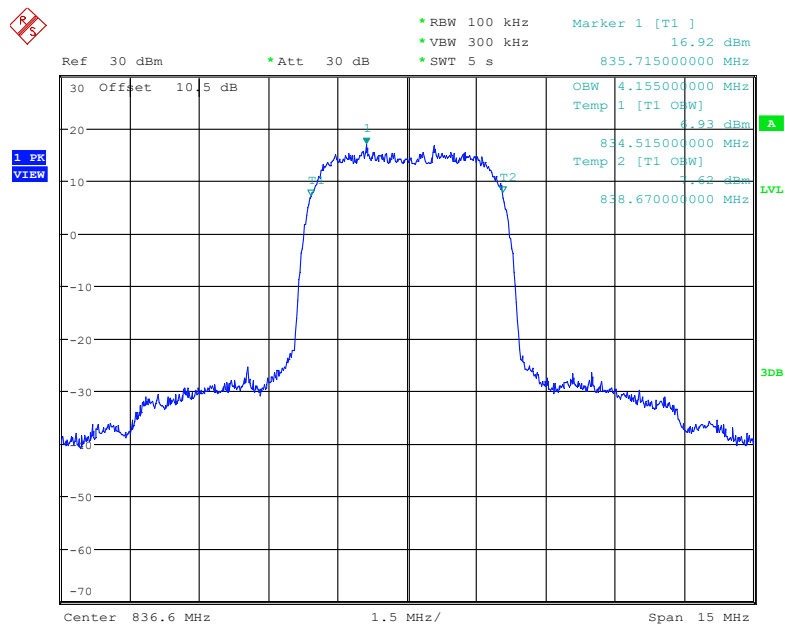
Date: 29.DEC.2022 10:52:01



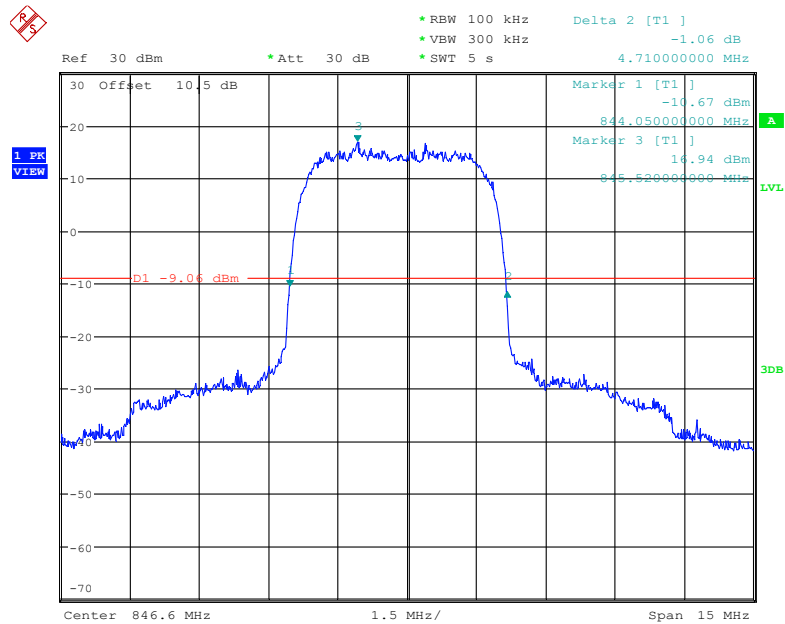
Date: 29.DEC.2022 10:51:21

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

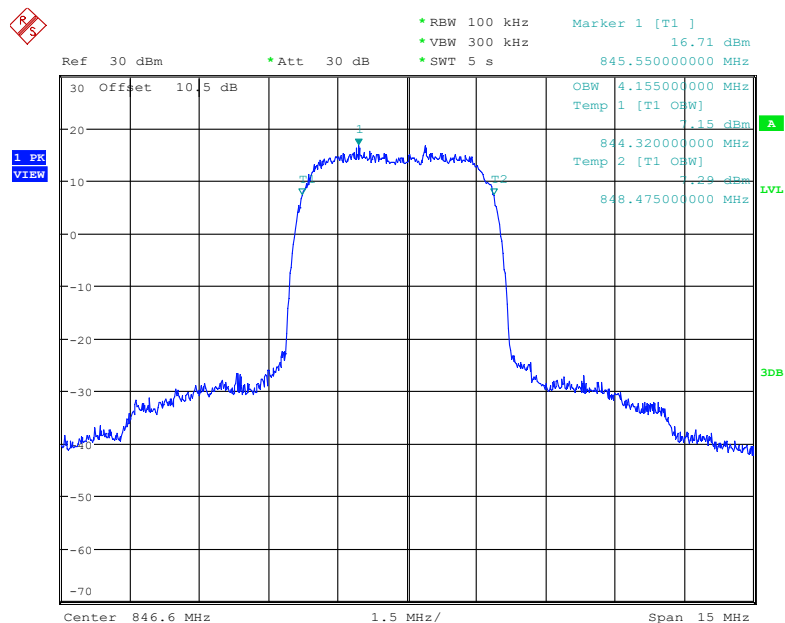
Date: 29.DEC.2022 10:55:33



Date: 29.DEC.2022 10:54:53

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

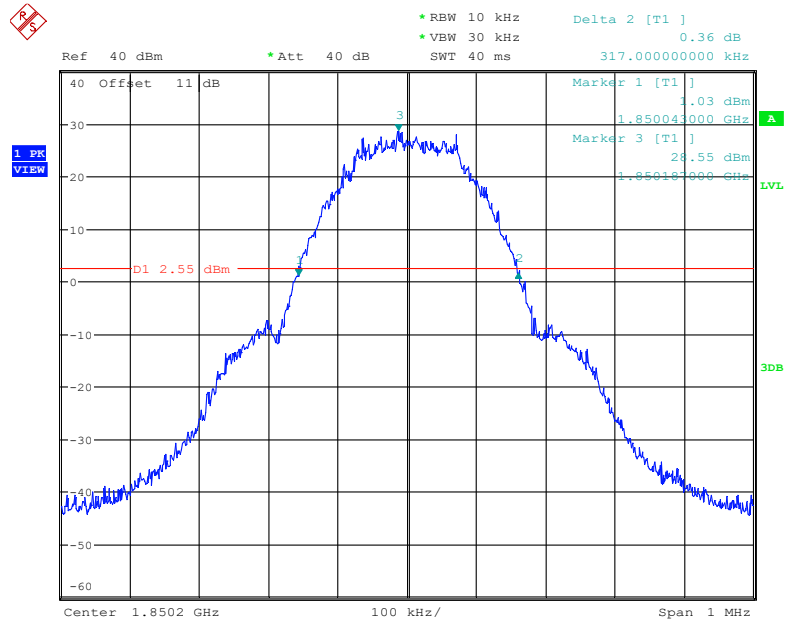
Date: 29.DEC.2022 10:58:09



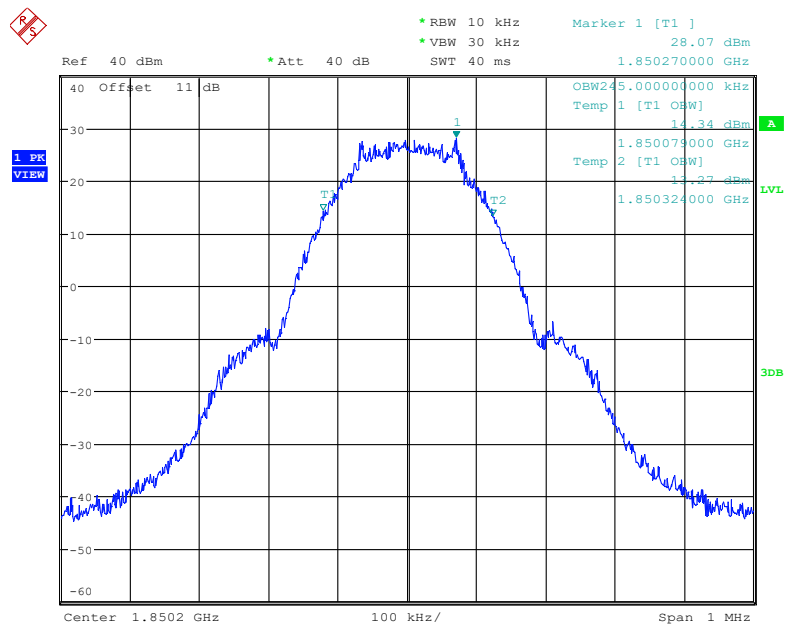
Date: 29.DEC.2022 10:57:29

PCS Band (Part 24E)

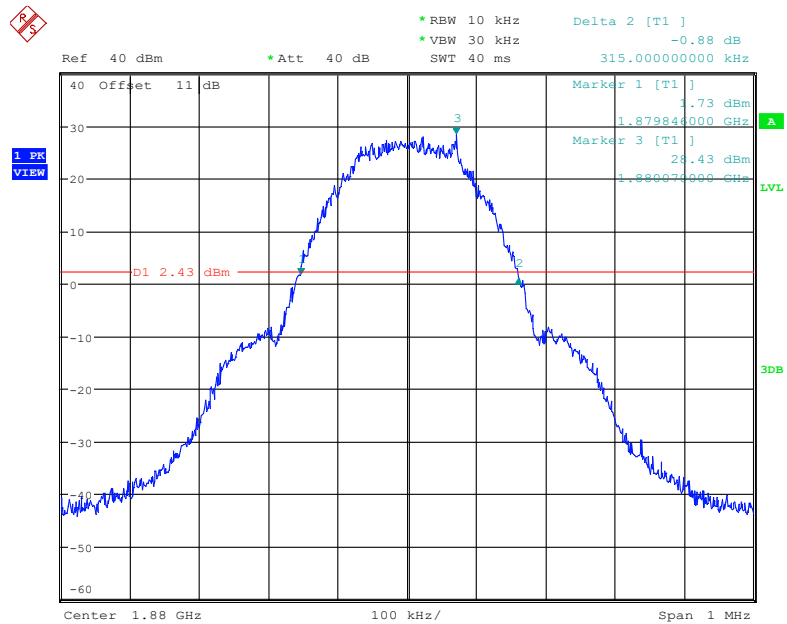
26 dB Emissions & 99% Occupied Bandwidth for GSM (GMSK) Mode, Low channel



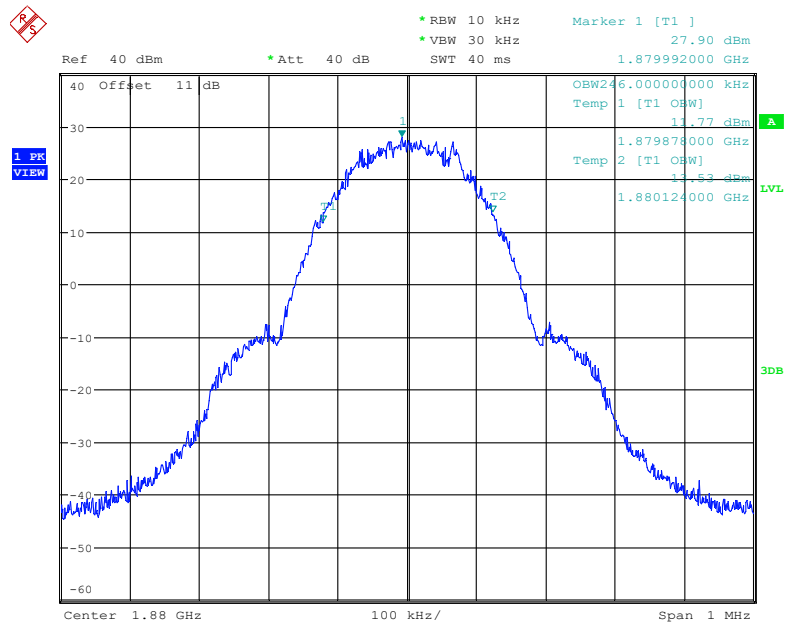
Date: 29.DEC.2022 09:22:08



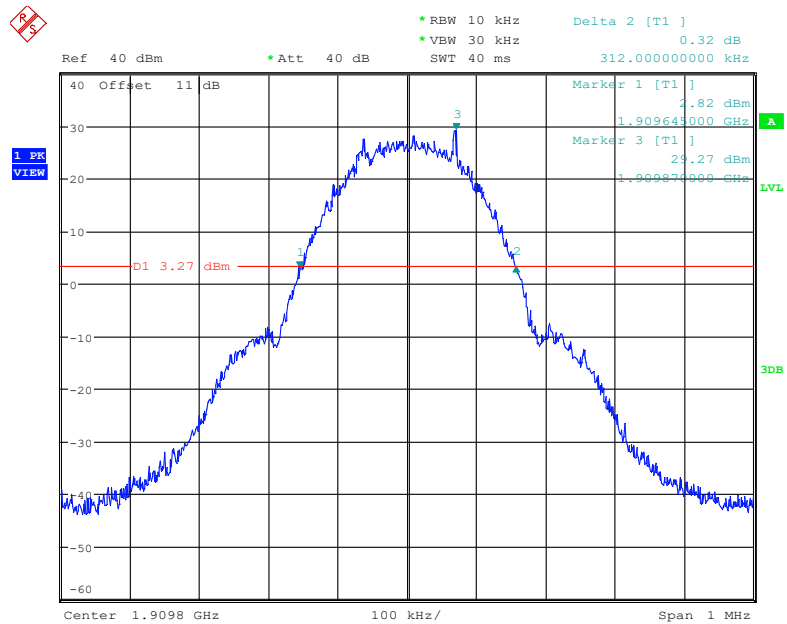
Date: 29.DEC.2022 09:21:30

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

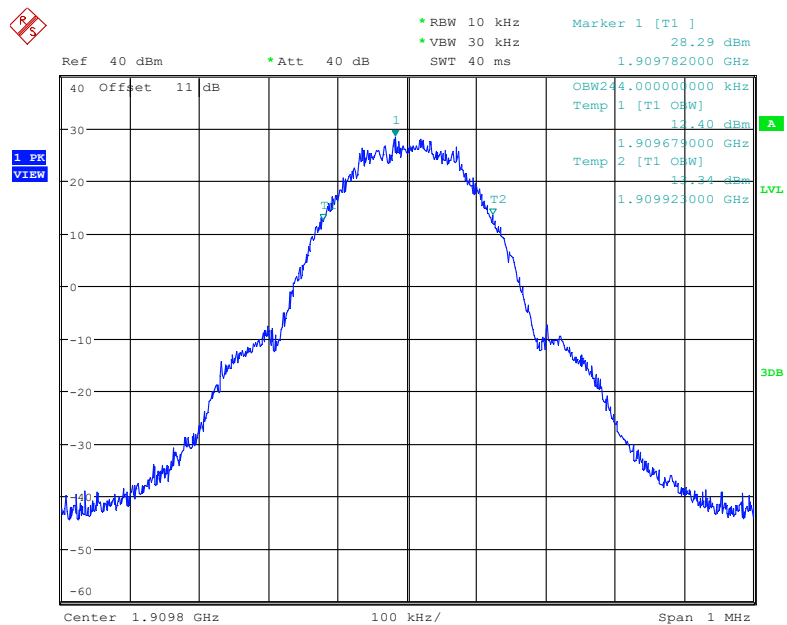
Date: 29.DEC.2022 09:29:06



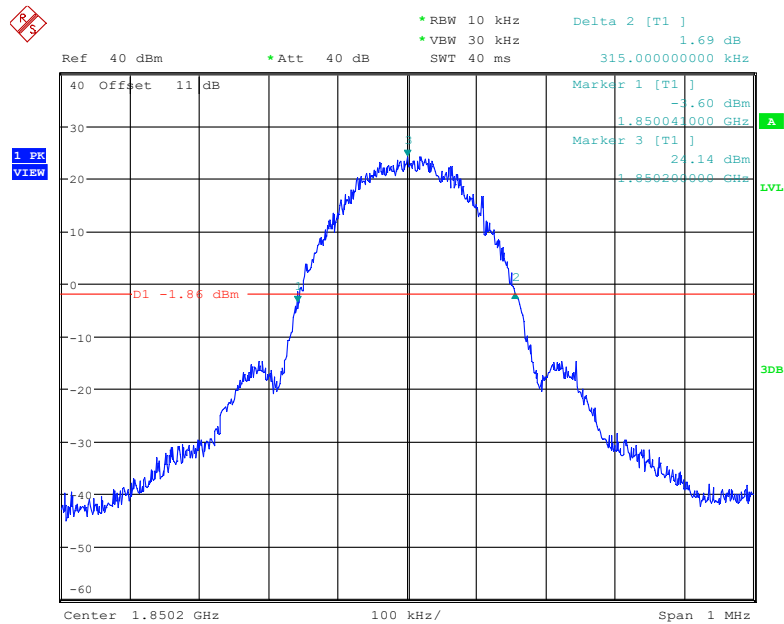
Date: 29.DEC.2022 09:28:20

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

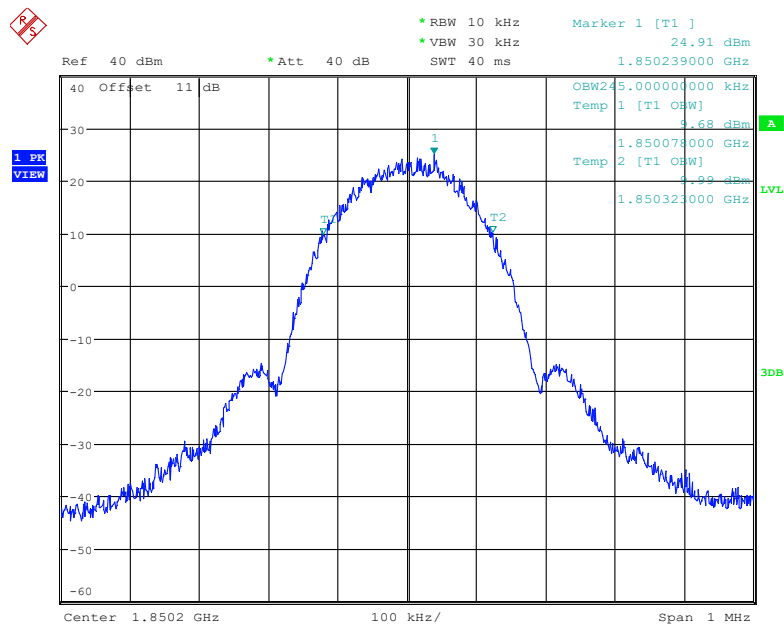
Date: 29.DEC.2022 09:33:41



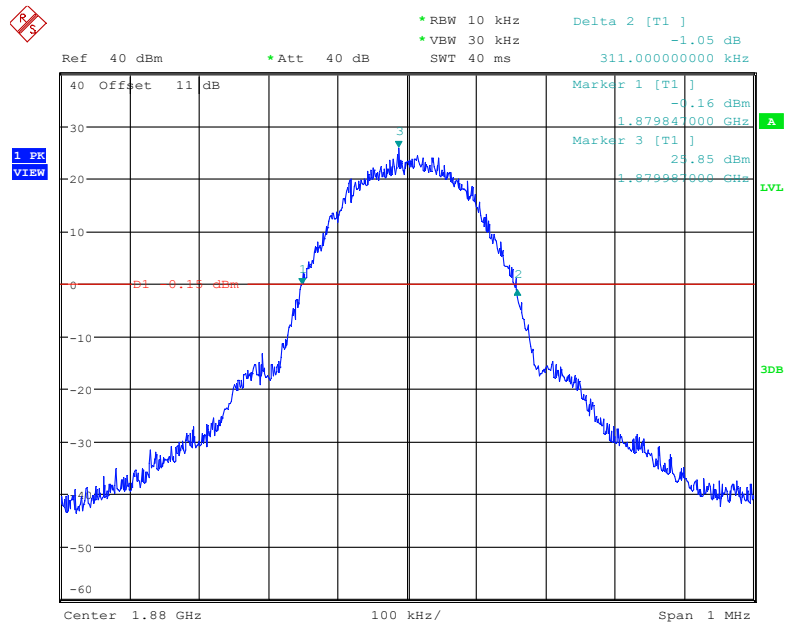
Date: 29.DEC.2022 09:33:01

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

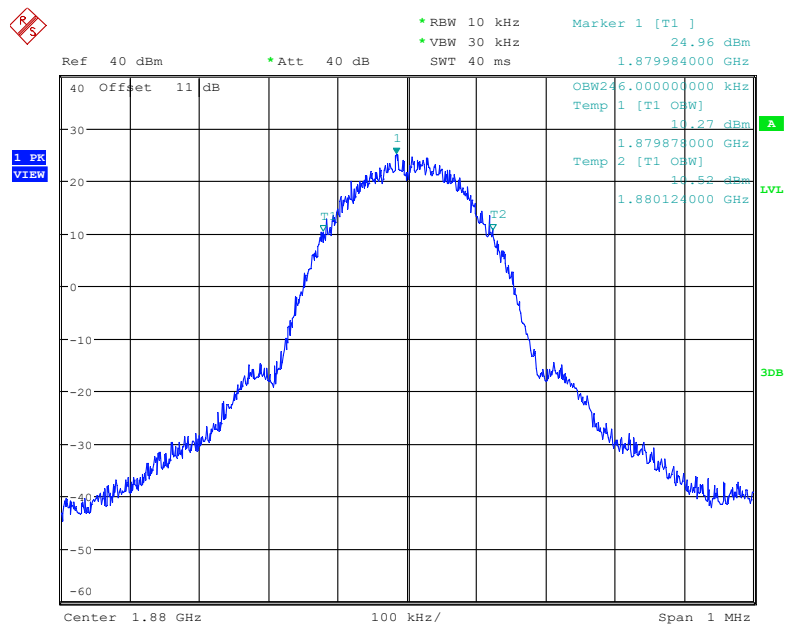
Date: 29.DEC.2022 09:41:05



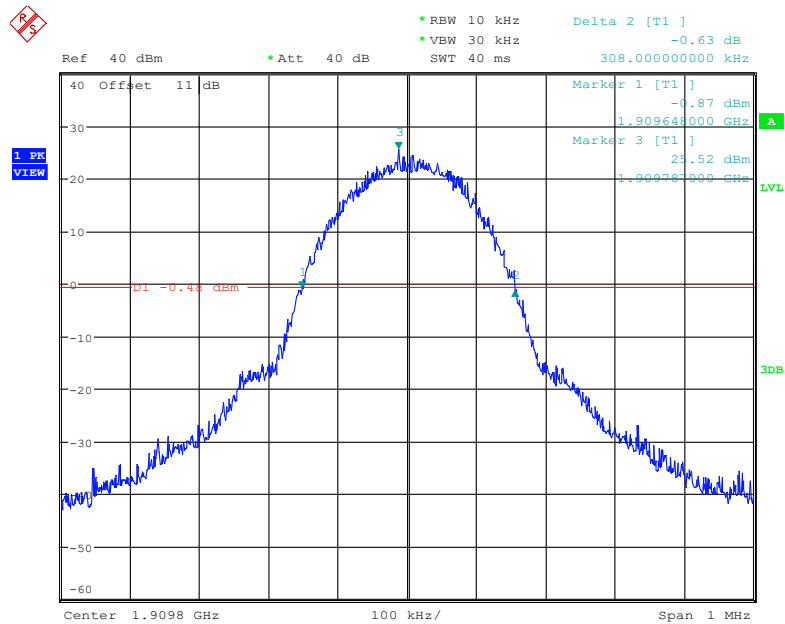
Date: 29.DEC.2022 09:40:27

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

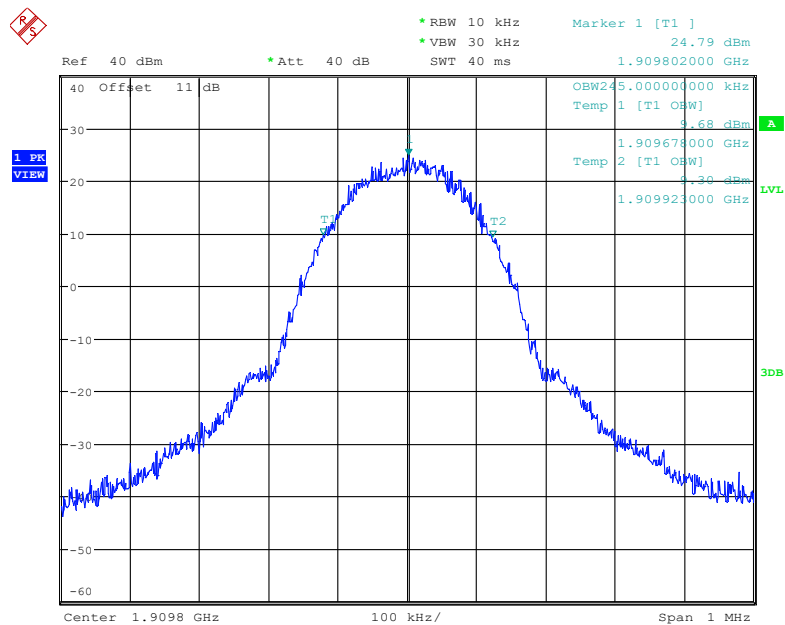
Date: 29.DEC.2022 09:47:19



Date: 29.DEC.2022 09:46:40

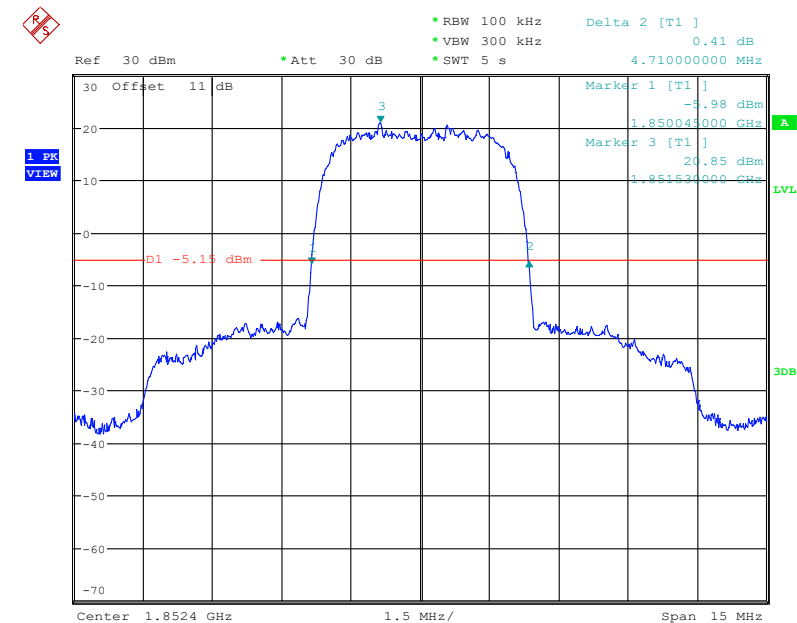
26 dB Emissions & 99% Occupied Bandwidth for EGPRS (8PSK) Mode, High channel

Date: 29.DEC.2022 09:51:53

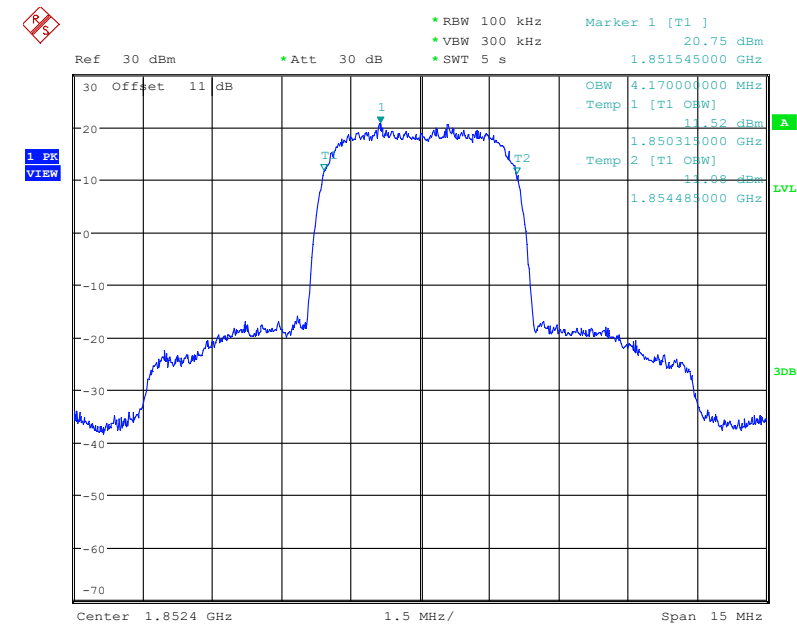


Date: 29.DEC.2022 09:51:13

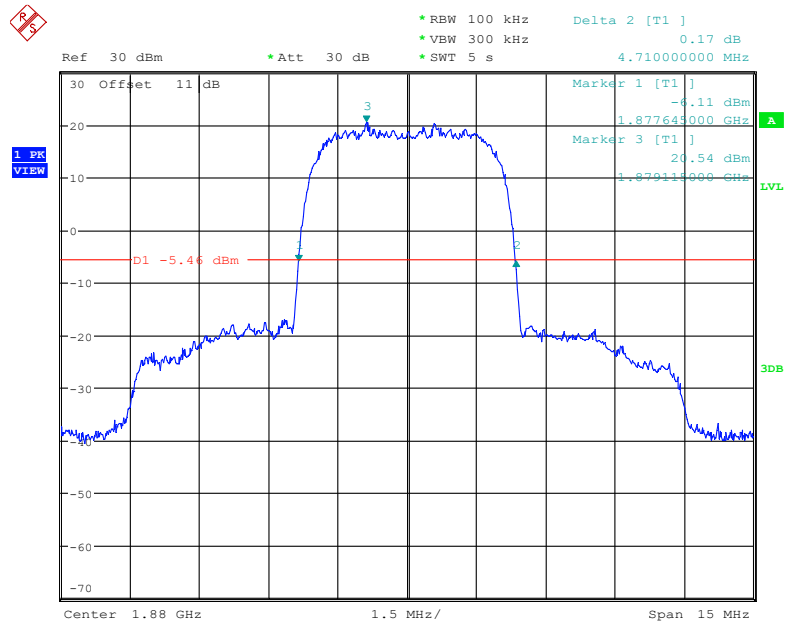
26 dB Emissions & 99% Occupied Bandwidth for RMC (BPSK) Mode, Low channel



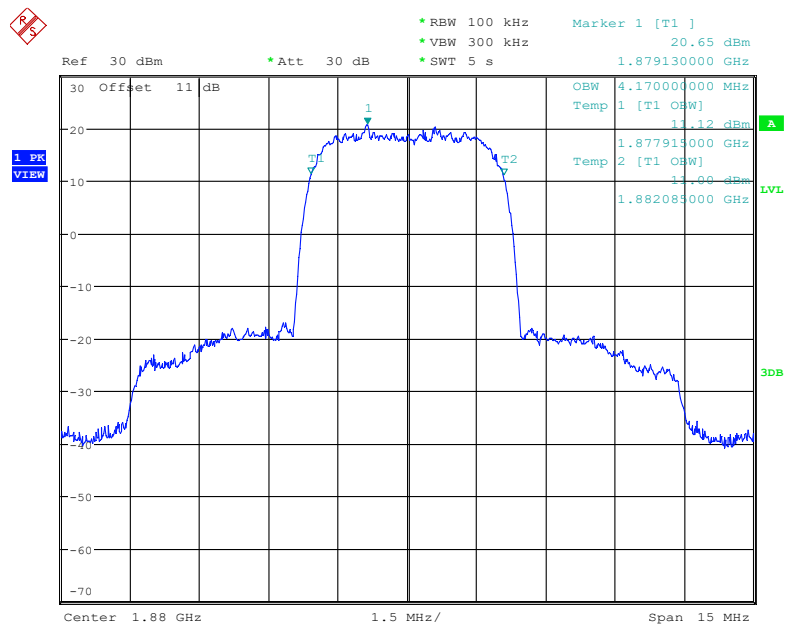
Date: 29.DEC.2022 10:00:58



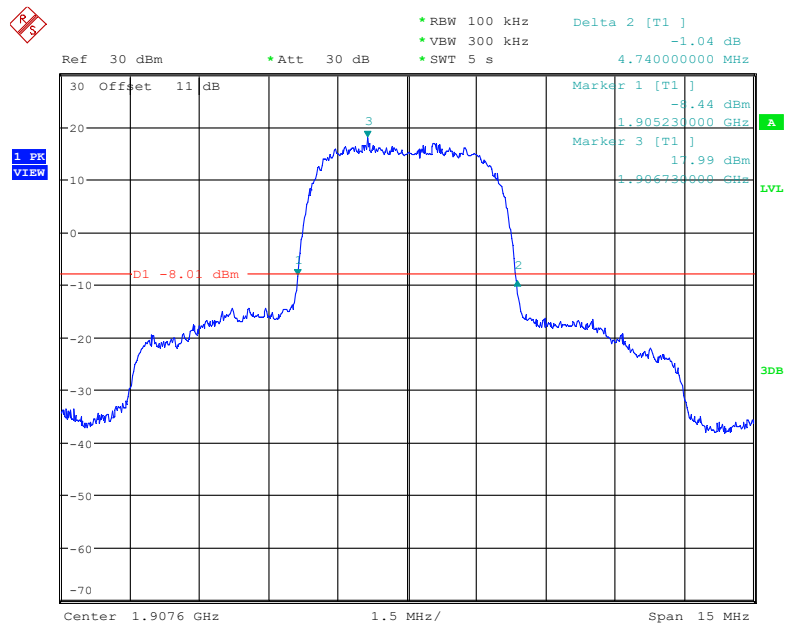
Date: 29.DEC.2022 10:00:18

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

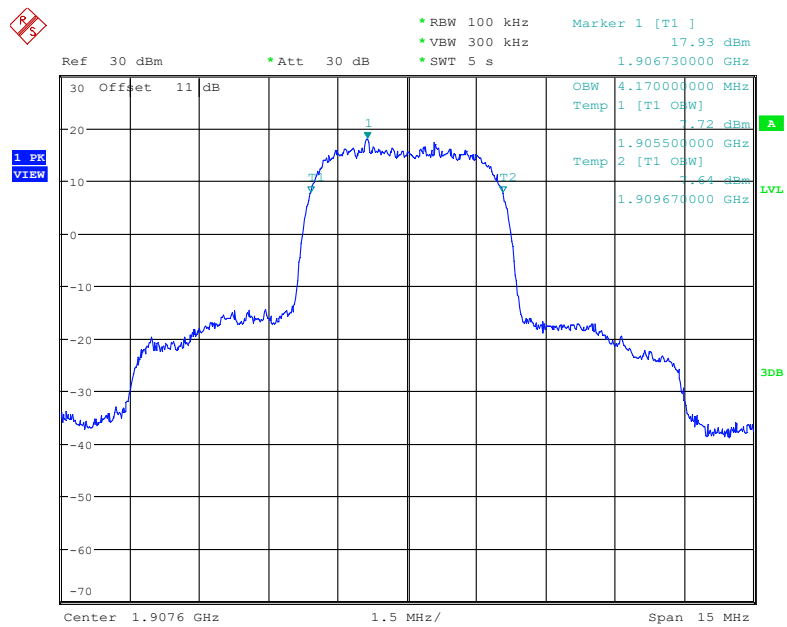
Date: 29.DEC.2022 10:06:00



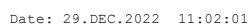
Date: 29.DEC.2022 10:05:19

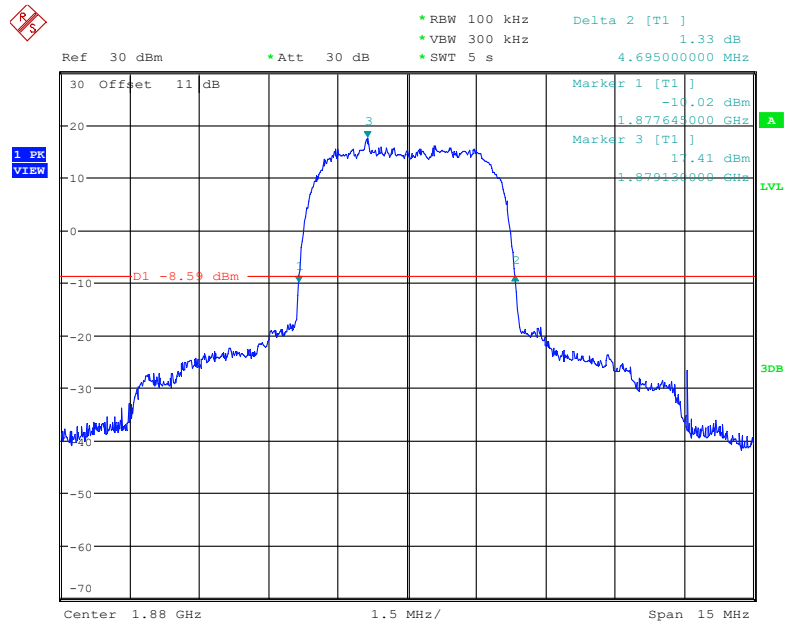
26 dB Emissions & 99% Occupied Bandwidth for RMC (BPSK) Mode, High channel

Date: 29.DEC.2022 10:14:38

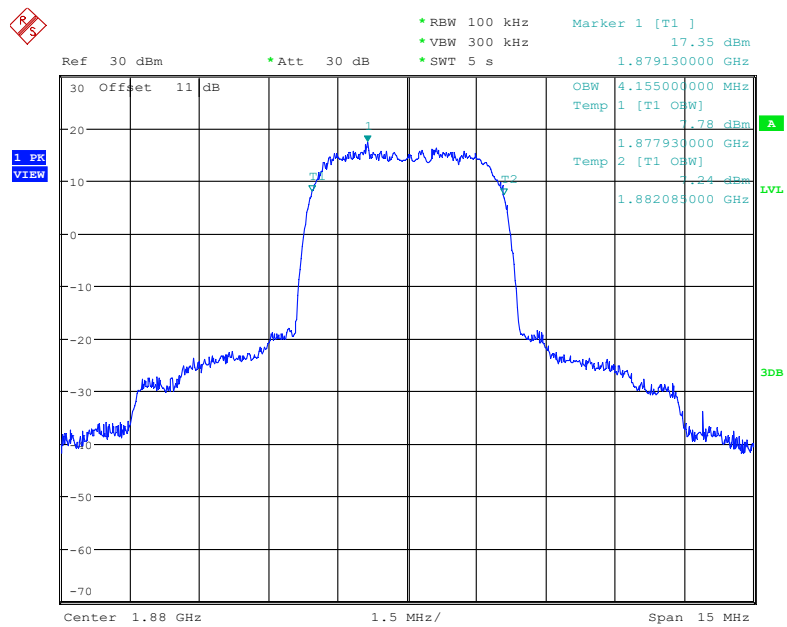


Date: 29.DEC.2022 10:13:59

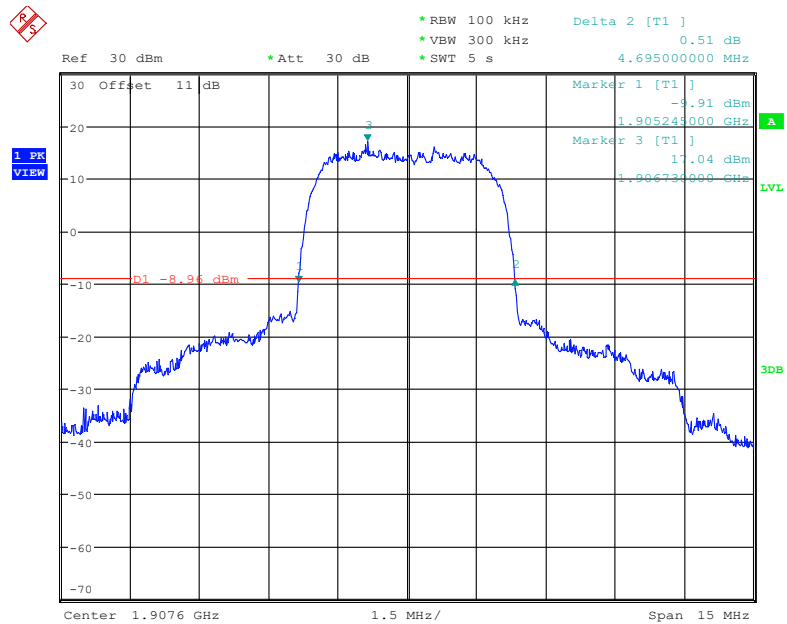


26 dB Emissions & 99% Occupied Bandwidth for HSDPA (QPSK) Mode, Middle channel

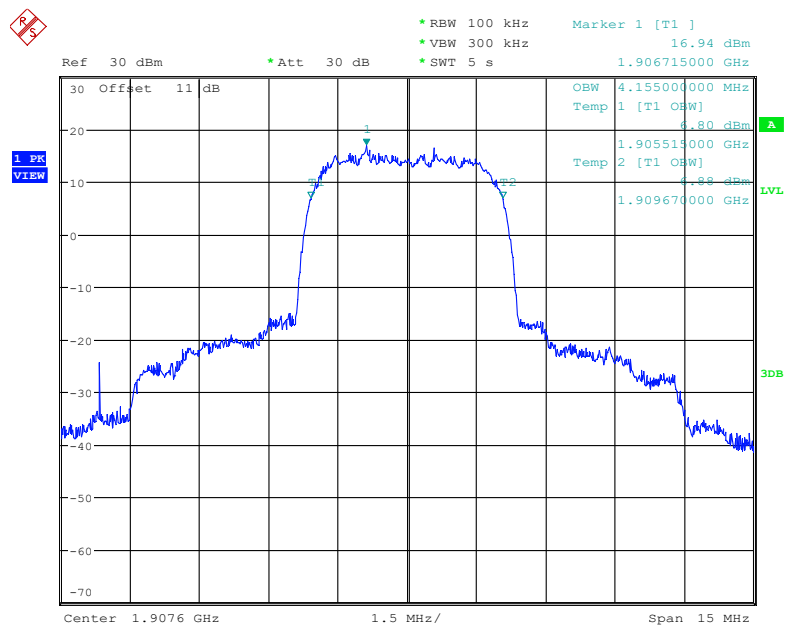
Date: 29.DEC.2022 11:06:24



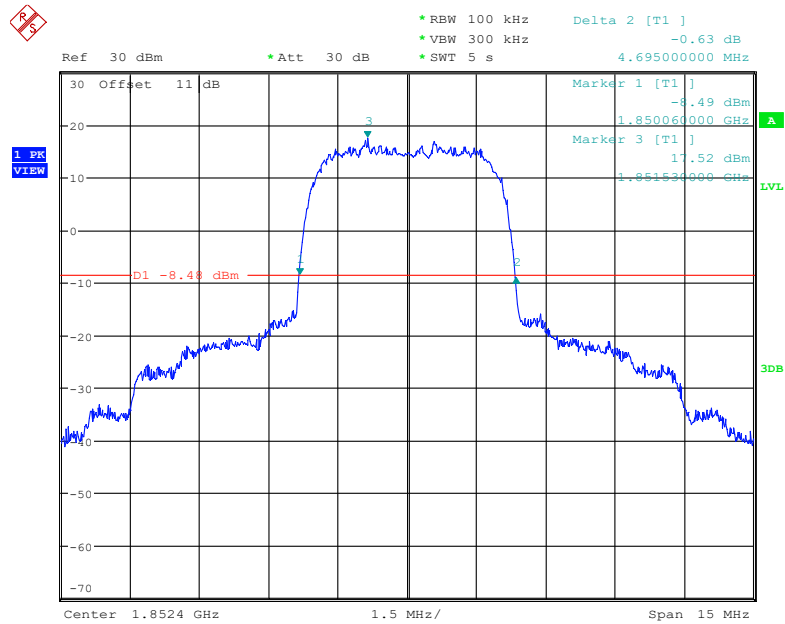
Date: 29.DEC.2022 11:05:45

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

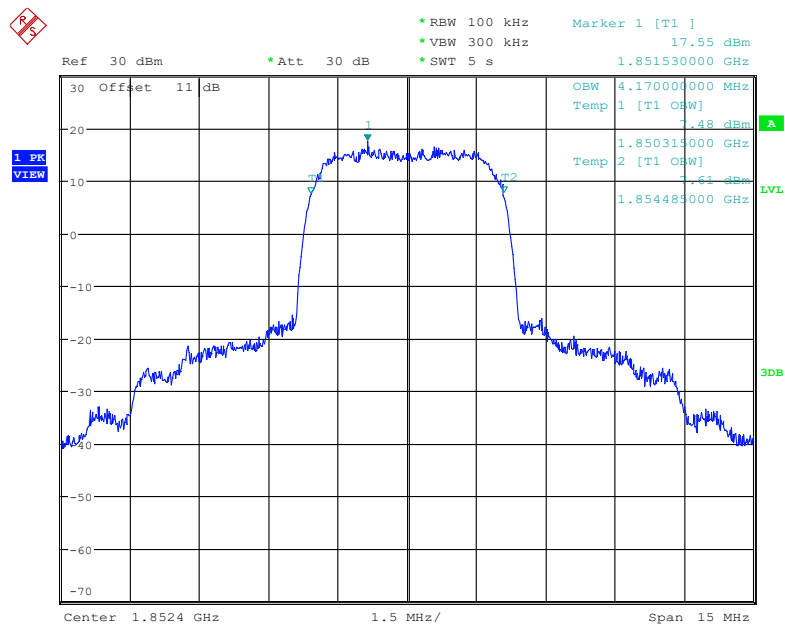
Date: 29.DEC.2022 11:10:02



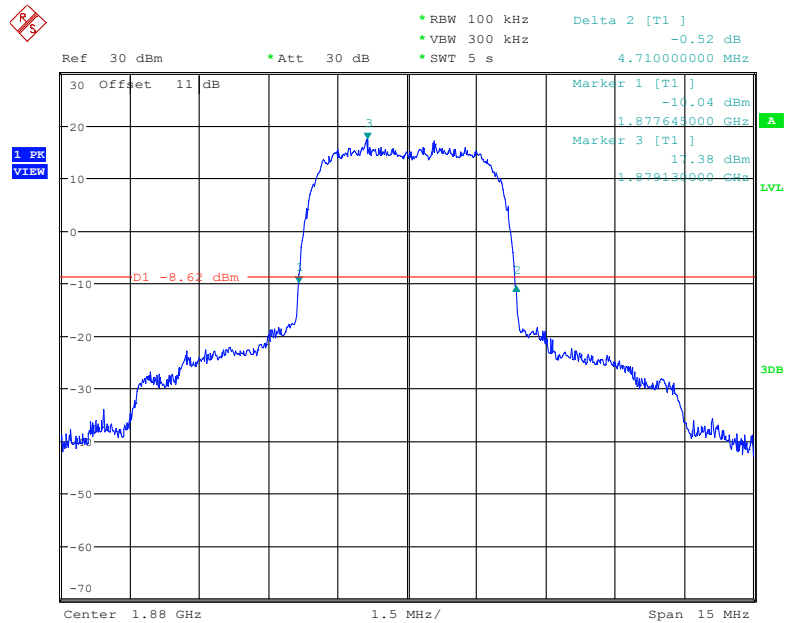
Date: 29.DEC.2022 11:09:22

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

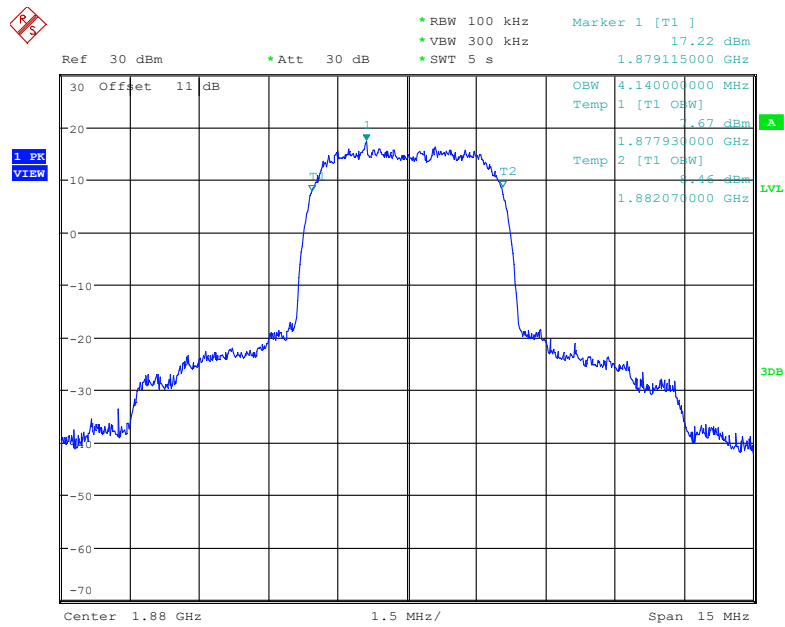
Date: 29.DEC.2022 11:16:10



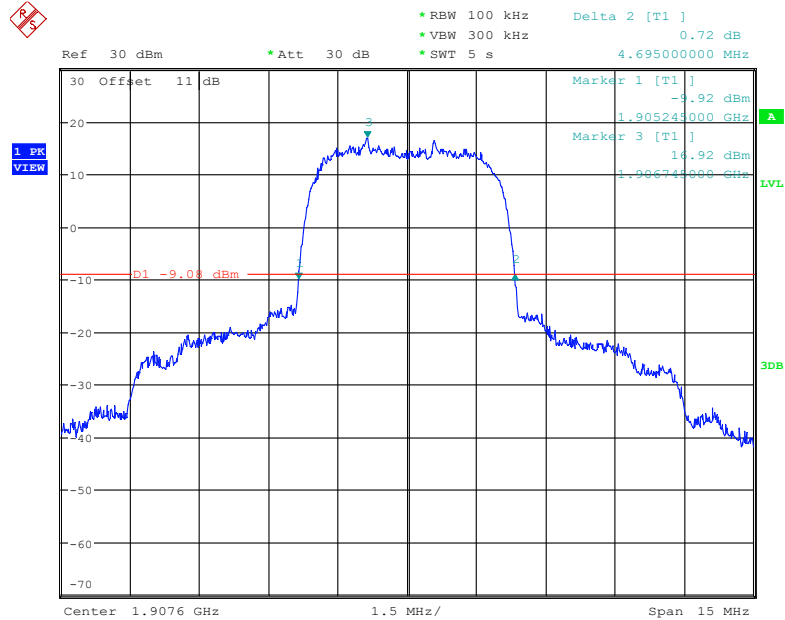
Date: 29.DEC.2022 11:15:30

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

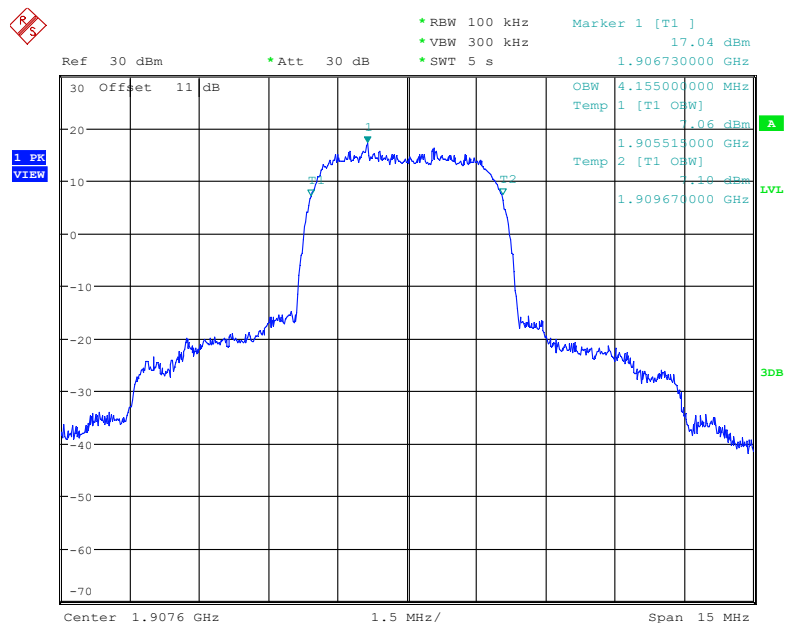
Date: 29.DEC.2022 11:20:49



Date: 29.DEC.2022 11:20:08

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

Date: 29.DEC.2022 11:24:13



Date: 29.DEC.2022 11:23:34

LTE Band 2:

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
1.4 MHz	QPSK	1.110	1.272	1.110	1.296	1.146	2.070
	16QAM	1.116	1.284	1.098	1.260	1.140	2.136
3 MHz	QPSK	2.700	3.024	2.700	3.048	2.724	3.864
	16QAM	2.700	2.988	2.712	3.060	2.724	4.080
5 MHz	QPSK	4.520	5.020	4.520	5.000	4.540	6.440
	16QAM	4.520	5.040	4.540	5.020	4.540	5.300
10 MHz	QPSK	8.960	9.880	8.960	9.840	8.960	9.920
	16QAM	9.000	9.800	8.960	9.800	8.960	9.840
15 MHz	QPSK	13.560	15.300	13.560	15.060	13.620	15.120
	16QAM	13.620	15.120	13.620	15.060	13.620	15.240
20 MHz	QPSK	18.000	19.680	18.080	19.840	18.000	19.840
	16QAM	18.080	19.920	18.080	19.920	18.000	19.840

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	1.254	1.110	1.272	1.110	1.260
	16QAM	1.104	1.260	1.116	1.278	1.116	1.266
3 MHz	QPSK	2.700	3.000	2.700	3.048	2.700	3.012
	16QAM	2.700	3.000	2.712	3.060	2.688	3.036
5 MHz	QPSK	4.520	5.000	4.520	5.000	4.540	5.000
	16QAM	4.540	4.980	4.560	5.000	4.520	5.000
10 MHz	QPSK	8.920	9.680	8.960	9.880	9.000	9.800
	16QAM	8.960	9.760	8.960	9.840	8.960	9.760
15 MHz	QPSK	13.560	15.060	13.560	15.180	13.620	15.120
	16QAM	13.560	15.060	13.560	15.120	13.620	15.180
20 MHz	QPSK	17.920	19.520	18.080	19.840	18.080	19.760
	16QAM	18.000	19.600	18.000	19.840	18.080	19.760

LTE Band 7:

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
5 MHz	QPSK	4.540	5.360	4.520	5.000	4.560	6.380
	16QAM	4.560	5.060	4.540	5.020	4.520	5.100
10 MHz	QPSK	8.960	9.760	8.960	9.800	8.960	9.880
	16QAM	9.000	9.760	9.000	9.800	8.960	9.760
15 MHz	QPSK	13.560	15.120	13.560	15.120	13.560	15.120
	16QAM	13.560	15.180	13.560	15.120	13.560	15.060
20 MHz	QPSK	18.000	19.600	18.000	19.600	18.000	19.520
	16QAM	18.080	20.400	18.000	19.760	18.000	19.760

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

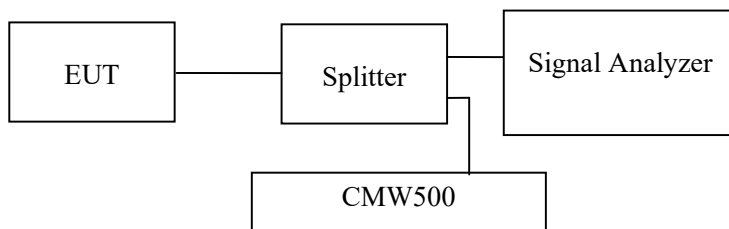
Applicable Standard

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 has included in plot.

Test Data

Environmental Conditions

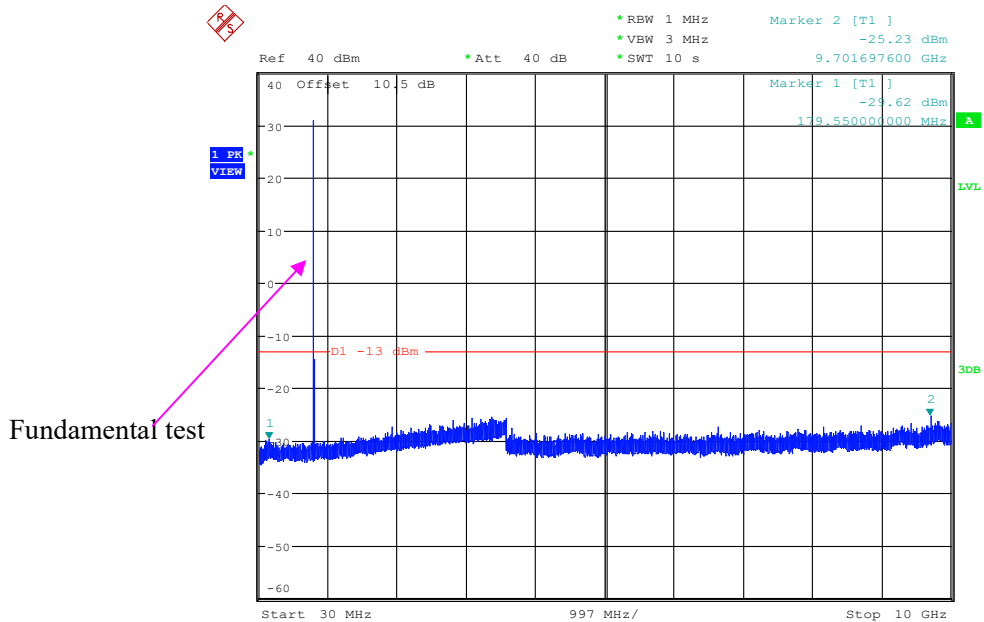
Temperature:	25.7 °C
Relative Humidity:	58.2 %
ATM Pressure:	101.0 kPa

The testing was performed by Glenn Jiang on 2022-12-29.

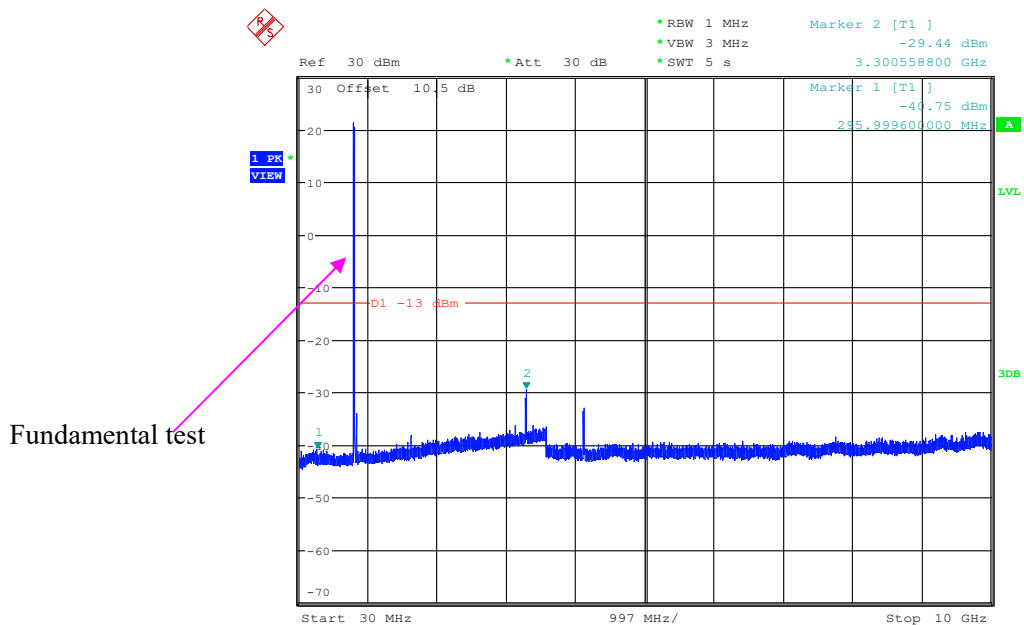
EUT operation mode: Transmitting

Test result: Pass

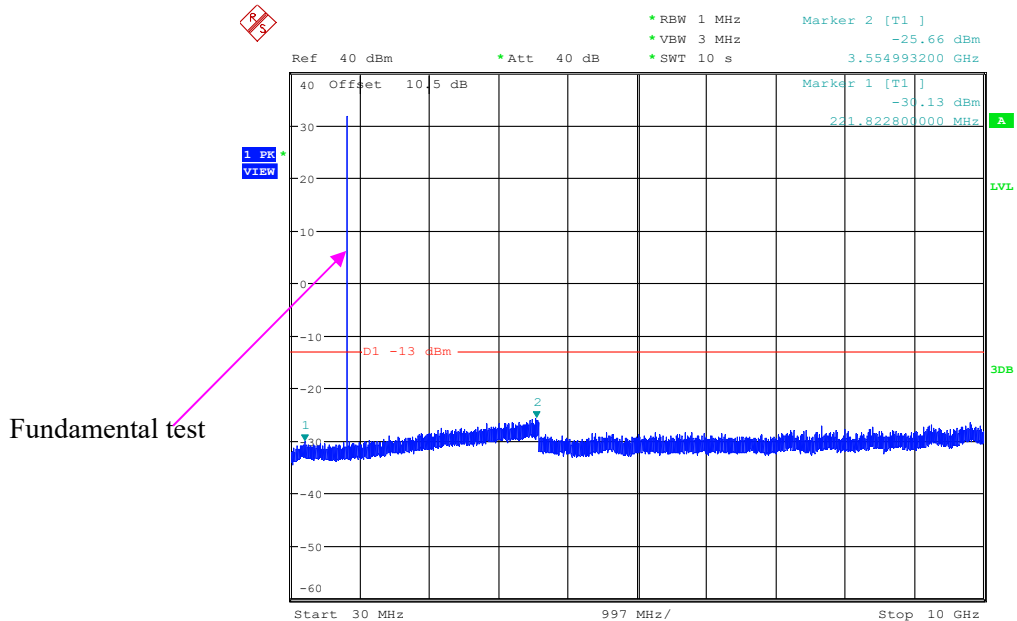
Please refer to the following plots.

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

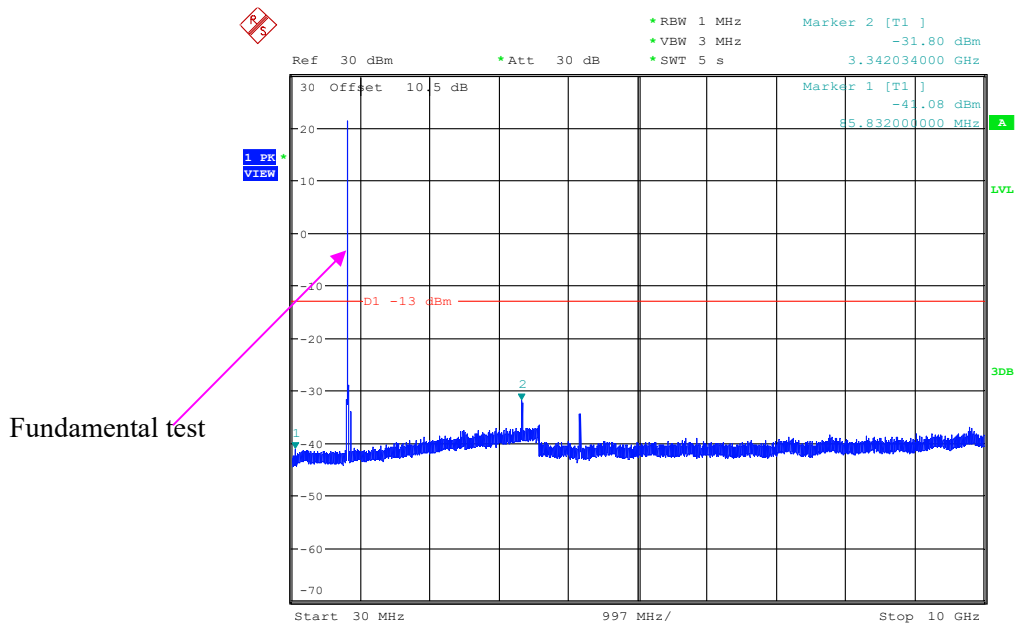
Date: 29.DEC.2022 09:02:44

30 MHz – 10 GHz (WCDMA Mode)

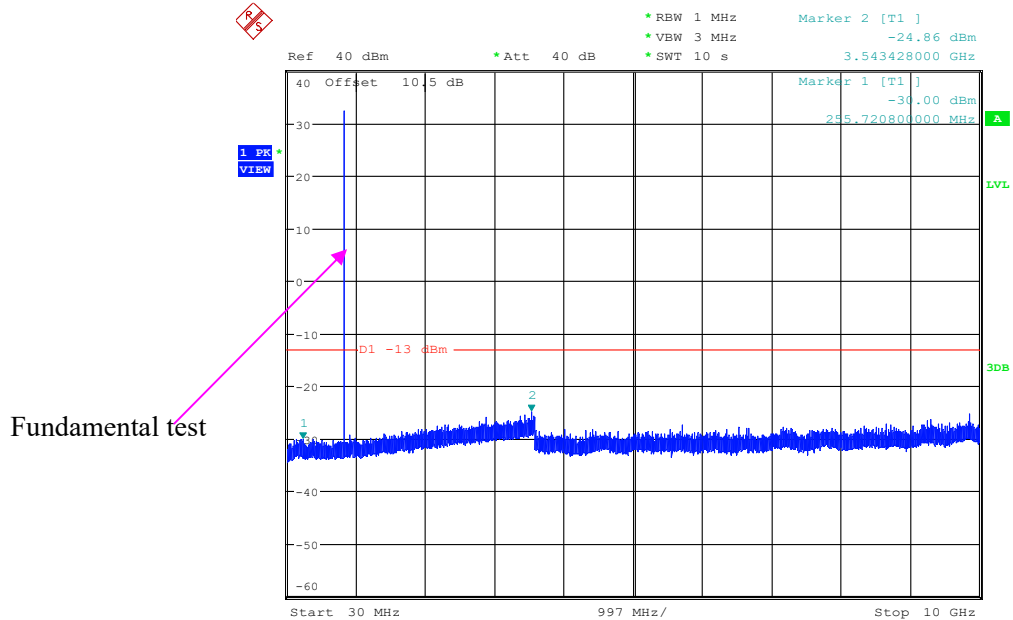
Date: 29.DEC.2022 10:23:27

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

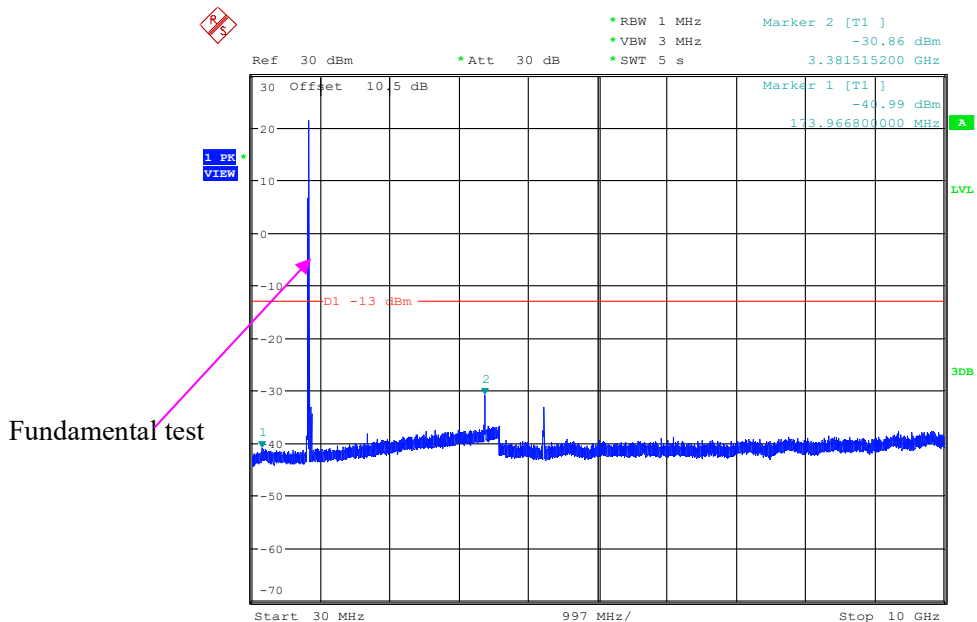
Date: 29.DEC.2022 09:04:28

30 MHz – 10 GHz (WCDMA Mode)

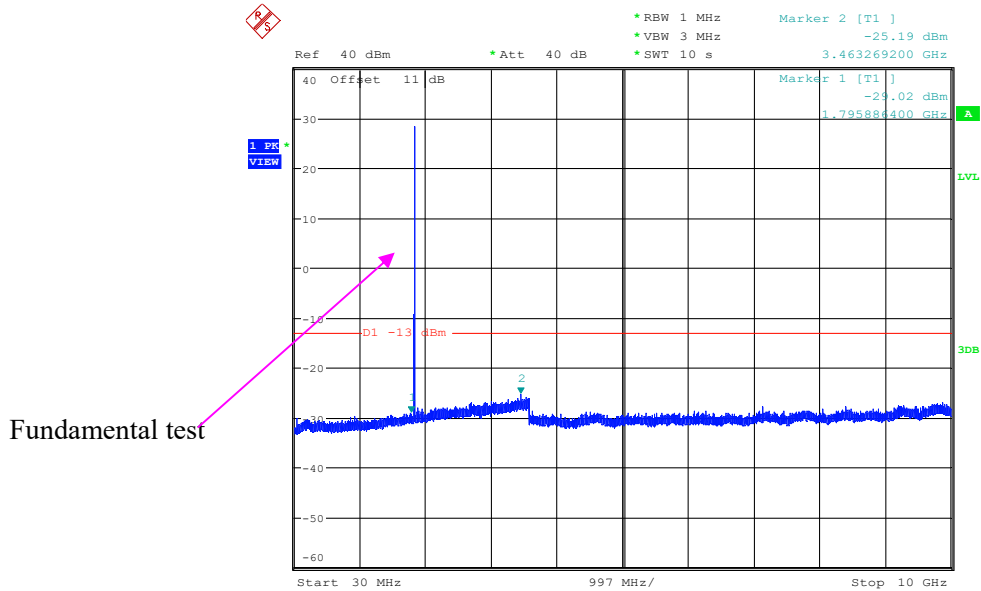
Date: 29.DEC.2022 10:26:18

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

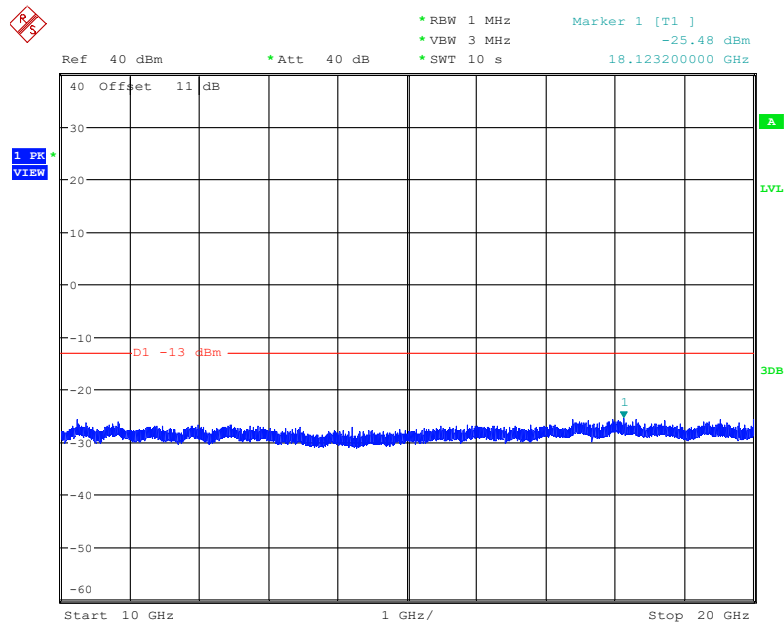
Date: 29.DEC.2022 08:59:41

30 MHz – 10 GHz (WCDMA Mode)

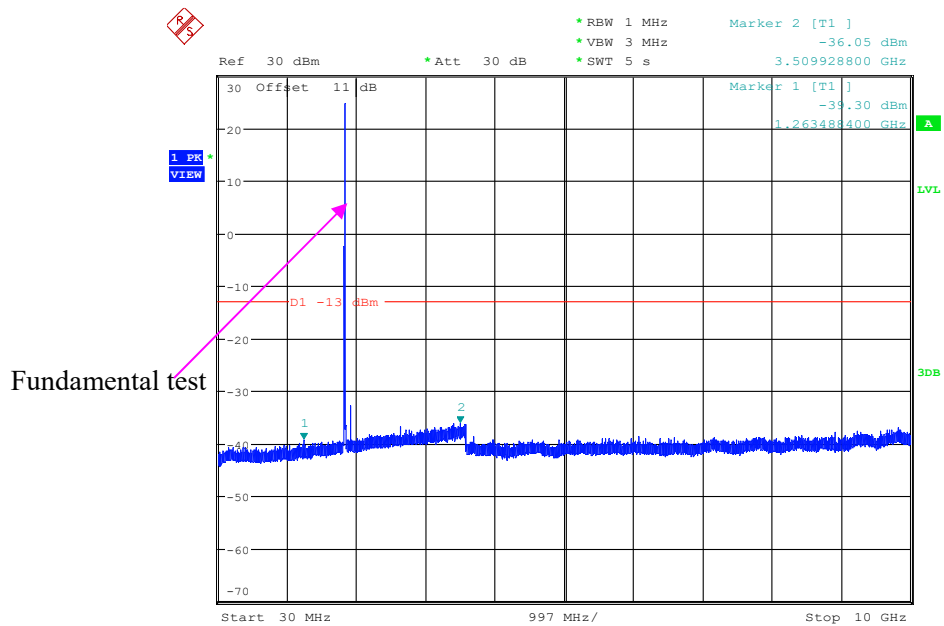
Date: 29.DEC.2022 10:29:49

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

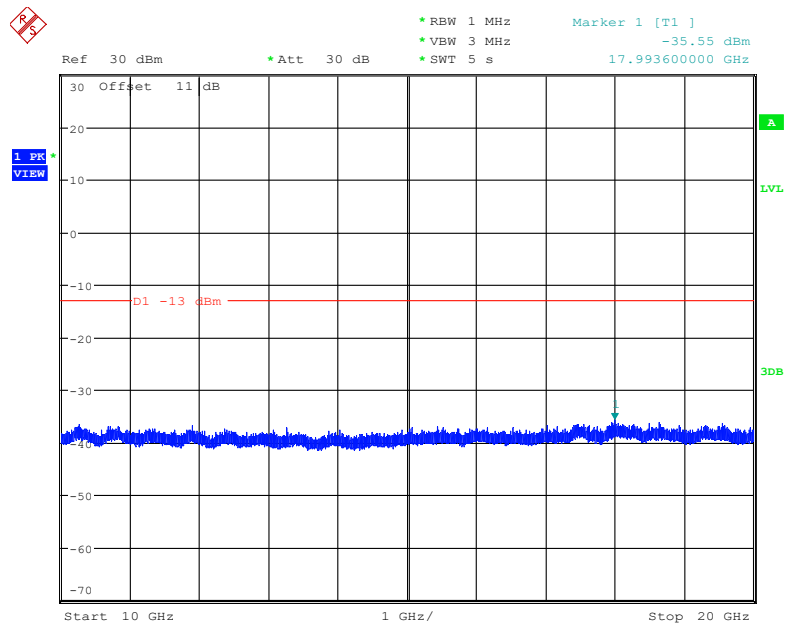
Date: 29.DEC.2022 09:25:18

10 GHz – 20 GHz (GSM Mode)

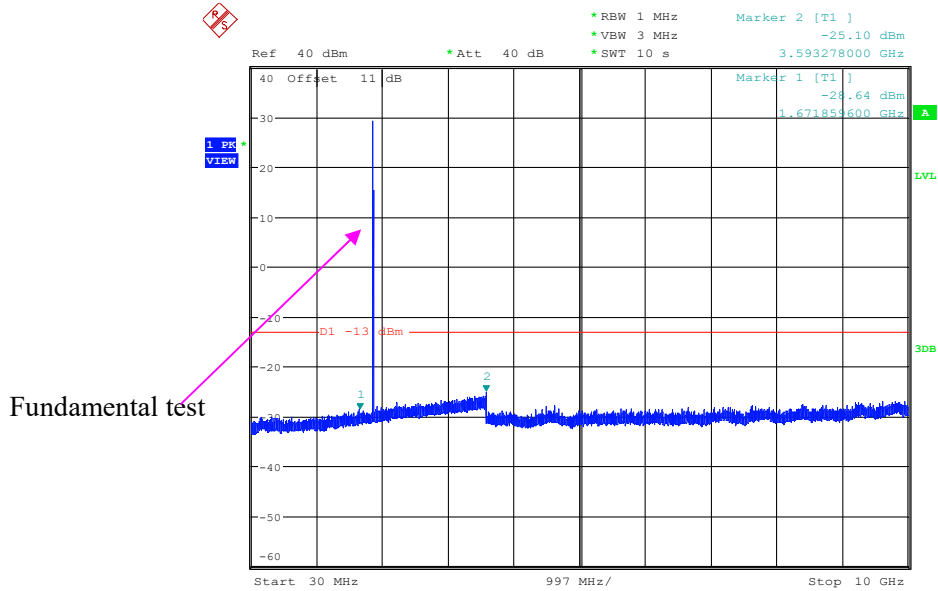
Date: 29.DEC.2022 09:26:30

30 MHz – 10 GHz (WCDMA Mode)

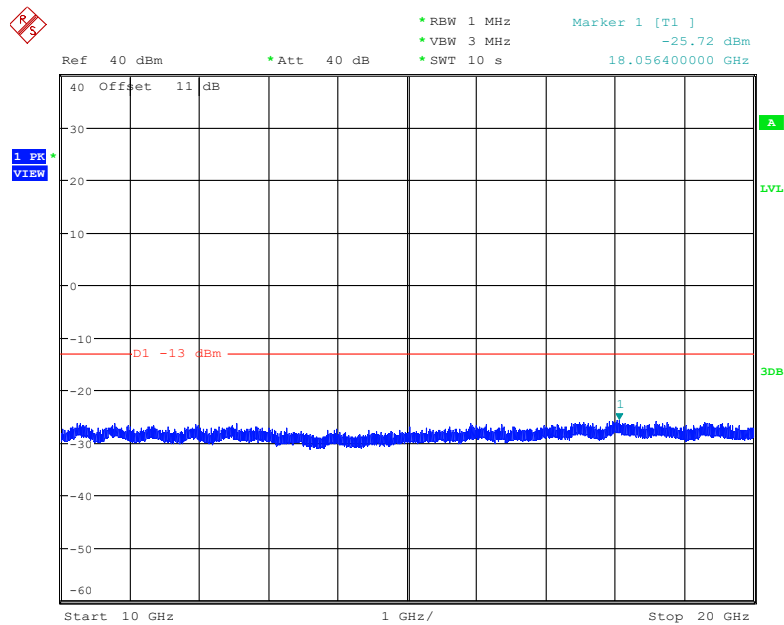
Date: 29.DEC.2022 10:02:20

10 GHz – 20 GHz (WCDMA Mode)

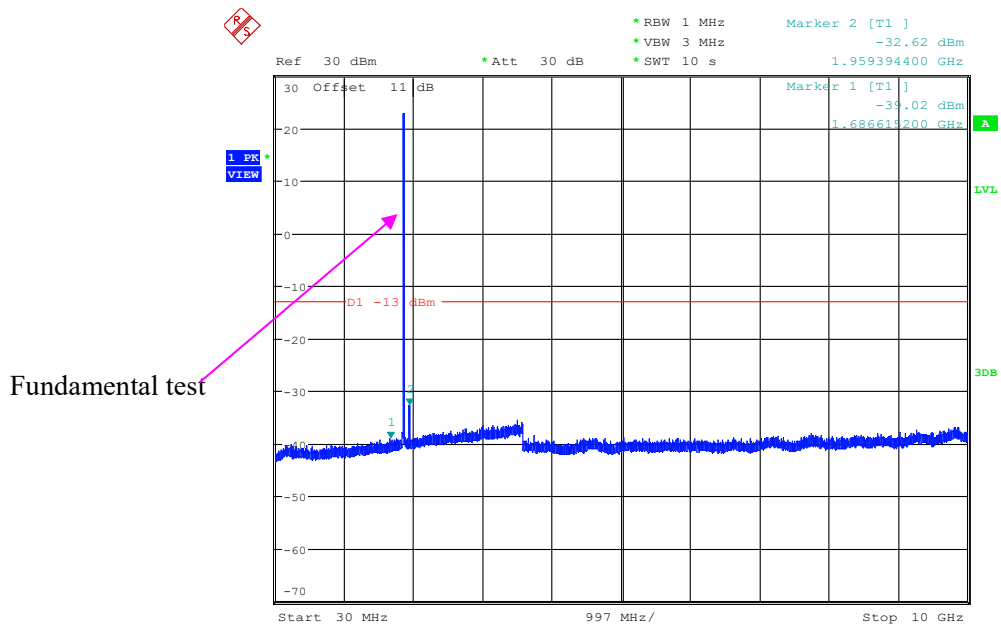
Date: 29.DEC.2022 10:03:00

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

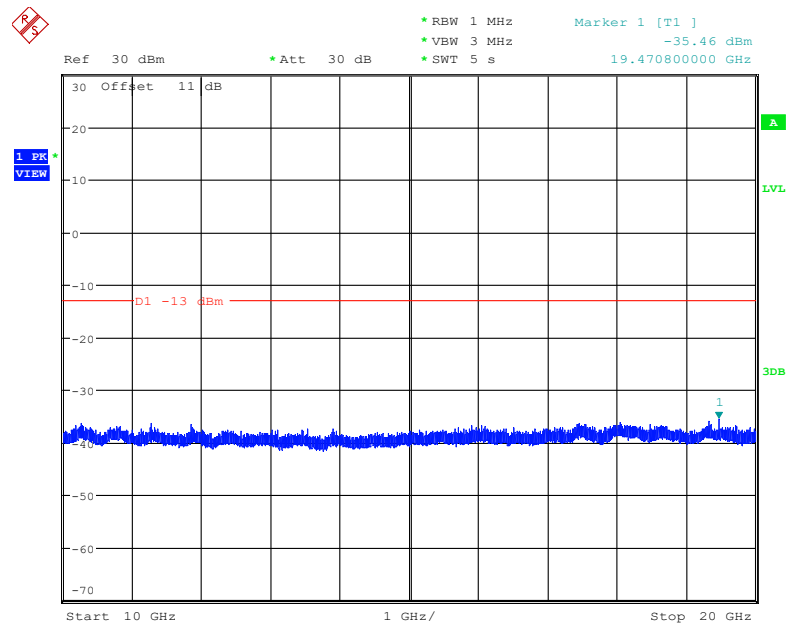
Date: 29.DEC.2022 09:30:22

10 GHz – 20 GHz (GSM Mode)

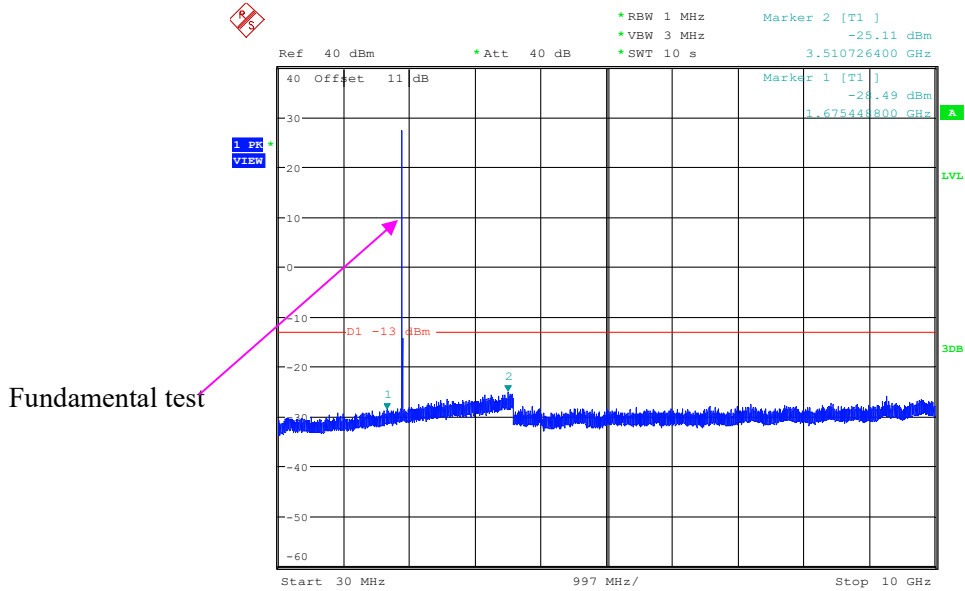
Date: 29.DEC.2022 09:31:35

30 MHz – 10 GHz (WCDMA Mode)

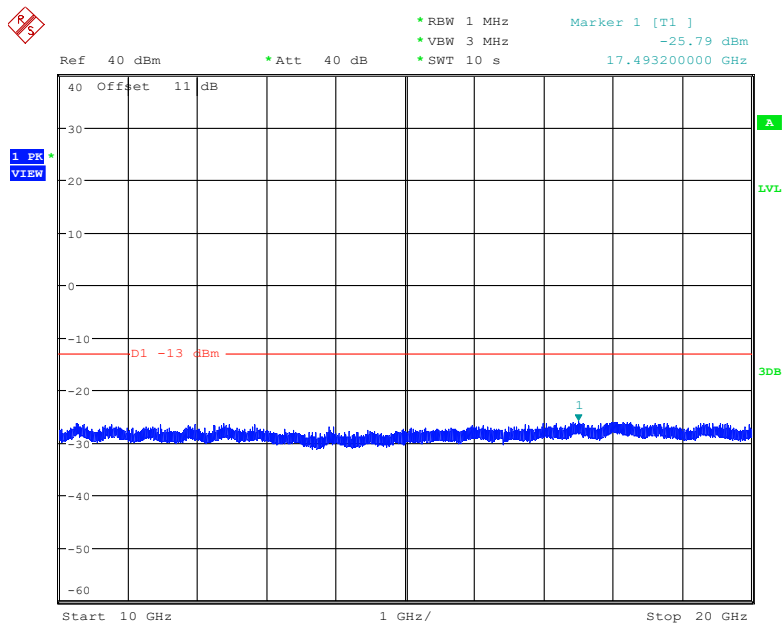
Date: 29.DEC.2022 10:11:52

10 GHz – 20 GHz (WCDMA Mode)

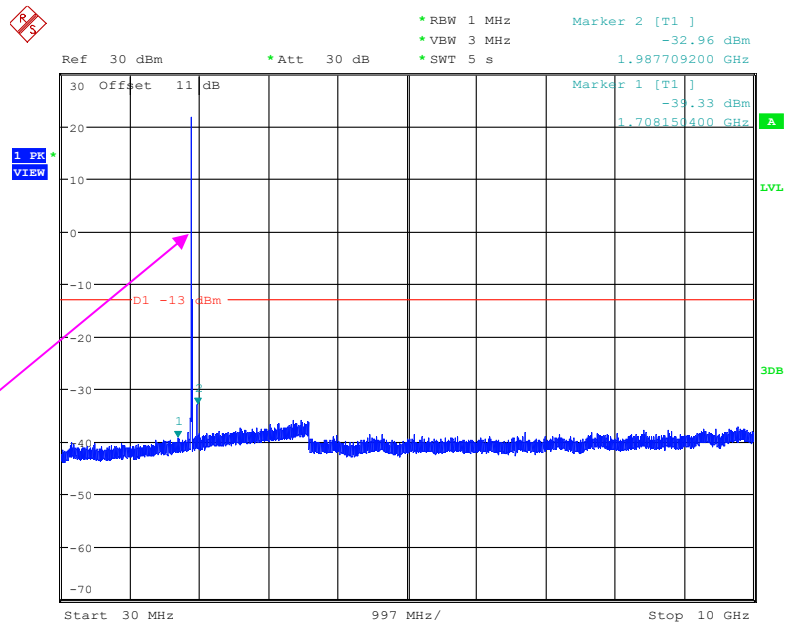
Date: 29.DEC.2022 10:12:34

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

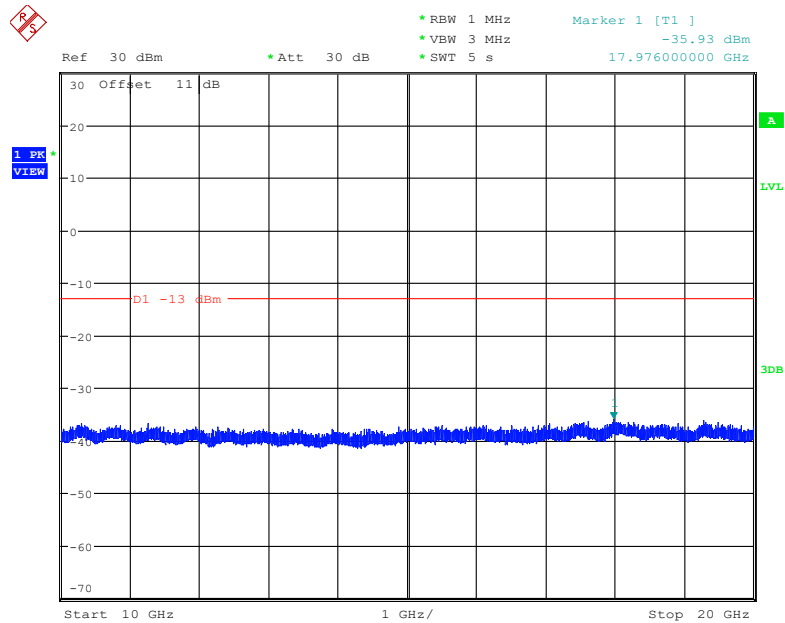
Date: 29.DEC.2022 09:36:22

10 GHz – 20 GHz (GSM Mode)

Date: 29.DEC.2022 09:37:35

30 MHz – 10 GHz (WCDMA Mode)

Date: 29.DEC.2022 10:16:00

10 GHz – 20 GHz (WCDMA Mode)

Date: 29.DEC.2022 10:16:41

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:	25.5 °C
Relative Humidity:	50 %
ATM Pressure:	101.0 kPa

The testing was performed by Jimi Zheng on 2023-01-04.

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, 824.2MHz								
950.78	-72.83	231	1.2	H	10.0	-62.83	-13	-49.83
950.78	-77.21	6	1.4	V	11.7	-65.51	-13	-52.51
1648.4	-51.10	349	2	H	3.5	-47.60	-13	-34.60
1648.4	-52.60	164	1.5	V	3.1	-49.50	-13	-36.50
2472.6	-43.80	139	2.4	H	6.6	-37.20	-13	-24.20
2472.6	-40.60	321	2.2	V	5.8	-34.80	-13	-21.80
3296.8	-41.40	127	2.5	H	6.4	-35.00	-13	-22.00
3296.8	-40.70	84	2	V	5.7	-35.00	-13	-22.00
GSM850, 836.6MHz								
955.79	-70.67	338	1.1	H	10.0	-60.67	-13	-47.67
955.79	-77.45	121	2.4	V	11.7	-65.75	-13	-52.75
1673.2	-52.10	316	1.4	H	3.8	-48.30	-13	-35.30
1673.2	-50.40	160	1.9	V	3.1	-47.30	-13	-34.30
2509.8	-47.10	93	1.5	H	6.2	-40.90	-13	-27.90
2509.8	-45.00	75	2.1	V	5.6	-39.40	-13	-26.40
3346.4	-43.00	14	1.2	H	6.6	-36.40	-13	-23.40
3346.4	-40.90	78	1.3	V	5.4	-35.50	-13	-22.50
GSM850, 848.8MHz								
953.63	-72.51	31	2.5	H	10.0	-62.51	-13	-49.51
953.63	-77.22	225	1.4	V	11.7	-65.52	-13	-52.52
1697.6	-49.30	91	1.1	H	4.1	-45.20	-13	-32.20
1697.6	-51.00	20	1.2	V	3.1	-47.90	-13	-34.90
2546.4	-42.90	320	1.4	H	6.1	-36.80	-13	-23.80
2546.4	-42.00	173	1.8	V	5.8	-36.20	-13	-23.20
3395.2	-42.80	47	1.8	H	6.2	-36.60	-13	-23.60
3395.2	-41.30	99	1.7	V	5.4	-35.90	-13	-22.90

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 Band5,826.4MHz								
955.23	-71.50	182	1.1	H	10.0	-61.50	-13	-48.50
955.23	-76.88	80	1.2	V	11.7	-65.18	-13	-52.18
1652.8	-50.80	31	2.1	H	3.5	-47.30	-13	-34.30
1652.8	-50.60	343	1.7	V	3.1	-47.50	-13	-34.50
2479.2	-51.10	167	2.2	H	6.5	-44.60	-13	-31.60
2479.2	-49.80	261	1.2	V	5.7	-44.10	-13	-31.10
3305.6	-33.70	266	1.6	H	6.4	-27.30	-13	-14.30
3305.6	-33.70	229	1	V	5.7	-28.00	-13	-15.00
WCDMA Band5,836.6MHz								
953.43	-72.70	314	1.3	H	10.0	-62.70	-13	-49.70
953.43	-77.38	163	1.6	V	11.7	-65.68	-13	-52.68
1673.2	-50.90	294	1.5	H	3.8	-47.10	-13	-34.10
1673.2	-50.30	92	1.7	V	3.1	-47.20	-13	-34.20
2509.8	-49.60	195	2.4	H	6.2	-43.40	-13	-30.40
2509.8	-48.70	126	1.7	V	5.6	-43.10	-13	-30.10
3346.4	-37.20	169	1.9	H	6.6	-30.60	-13	-17.60
3346.4	-34.30	66	1.6	V	5.4	-28.90	-13	-15.90
WCDMA Band5,846.6MHz								
950.21	-72.36	47	2.3	H	10.0	-62.36	-13	-49.36
950.21	-75.18	167	2.0	V	11.7	-63.48	-13	-50.48
1693.2	-51.40	141	1.4	H	4	-47.40	-13	-34.40
1693.2	-49.70	278	2.3	V	3.1	-46.60	-13	-33.60
2539.8	-49.80	240	2.4	H	6.1	-43.70	-13	-30.70
2539.8	-49.70	164	2	V	5.7	-44.00	-13	-31.00
3386.4	-34.70	331	1.3	H	6.3	-28.40	-13	-15.40
3386.4	-33.60	159	2.2	V	5.4	-28.20	-13	-15.20

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

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substitute d Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
GSM 1900, 1850.2MHz								
955.44	-70.85	341	1.6	H	10.0	-60.85	-13	-47.85
955.44	-75.18	242	2.4	V	11.7	-63.48	-13	-50.48
3700.4	-40.60	223	1.3	H	8.1	-32.50	-13	-19.50
3700.4	-41.20	231	2	V	7.6	-33.60	-13	-20.60
GSM1900, 1880MHz								
955.94	-71.29	35	1.7	H	10.0	-61.29	-13	-48.29
955.94	-77.05	151	2.2	V	11.7	-65.35	-13	-52.35
3760.0	-42.70	107	2.4	H	8.8	-33.90	-13	-20.90
3760.0	-41.70	338	1.9	V	8	-33.70	-13	-20.70
GSM 1900, 1909.8MHz								
956.90	-70.31	2	1.2	H	10.0	-60.31	-13	-47.31
956.90	-75.89	287	2.2	V	11.7	-64.19	-13	-51.19
3819.6	-43.30	148	1.4	H	8.7	-34.60	-13	-21.60
3819.6	-42.40	244	2.4	V	8	-34.40	-13	-21.40

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
WCDMA Band2,1852.4MHz								
956.54	-72.37	228	1.8	H	10.0	-62.37	-13	-49.37
956.54	-75.01	187	1.8	V	11.7	-63.31	-13	-50.31
3704.8	-50.00	355	1.2	H	8.2	-41.80	-13	-28.80
3704.8	-48.50	256	1.5	V	7.6	-40.90	-13	-27.90
WCDMA Band2,1880MHz								
956.81	-72.90	99	2.0	H	10.0	-62.90	-13	-49.90
956.81	-76.03	282	2.2	V	11.7	-64.33	-13	-51.33
3760.0	-49.00	110	2.2	H	8.8	-40.20	-13	-27.20
3760.0	-47.80	226	1.1	V	8	-39.80	-13	-26.80
WCDMA Band2,1907.6MHz								
953.70	-72.12	331	1.2	H	10.0	-62.12	-13	-49.12
953.70	-77.23	246	1.2	V	11.7	-65.53	-13	-52.53
3815.2	-51.40	187	1.7	H	8.7	-42.70	-13	-29.70
3815.2	-49.30	283	1.3	V	7.9	-41.40	-13	-28.40

LTE Band: (Pre-scan all bandwidth/modulation, the 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)				
LTE Band 2								
Test frequency range: 30MHz-20GHz								
1.4MHz bandwidth, QPSK, Low channel								
955.53	-72.41	19	1.8	H	10.0	-62.41	-13	-49.41
955.53	-77.51	183	1.3	V	11.7	-65.81	-13	-52.81
3701.4	-47.50	145	2.3	H	8.1	-39.40	-13	-26.40
3701.4	-46.00	31	2.4	V	7.6	-38.40	-13	-25.40
1.4MHz bandwidth, QPSK, Middle channel								
952.47	-71.51	76	2.2	H	10.0	-61.51	-13	-48.51
952.47	-76.40	359	2.3	V	11.7	-64.70	-13	-51.70
3760.0	-47.20	116	2.4	H	8.8	-38.40	-13	-25.40
3760.0	-44.00	92	2.3	V	8	-36.00	-13	-23.00
1.4MHz bandwidth, QPSK, High channel								
956.04	-71.03	163	1.8	H	10.0	-61.03	-13	-48.03
956.04	-75.89	231	1.2	V	11.7	-64.19	-13	-51.19
3818.6	-49.50	62	1.2	H	8.7	-40.80	-13	-27.80
3818.6	-47.50	233	1	V	7.9	-39.60	-13	-26.60

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
LTE Band 4								
Test frequency range: 30MHz-20GHz								
1.4MHz bandwidth, QPSK, Low channel								
950.12	-70.83	255	1.2	H	10.0	-60.83	-13	-47.83
950.12	-75.43	331	2.2	V	11.7	-63.73	-13	-50.73
3421.4	-45.90	58	2	H	6.4	-39.50	-13	-26.50
3421.4	-45.30	166	1.4	V	5.7	-39.60	-13	-26.60
1.4MHz bandwidth, QPSK, Middle channel								
953.21	-72.85	52	1.6	H	10.0	-62.85	-13	-49.85
953.21	-76.20	21	1.2	V	11.7	-64.50	-13	-51.50
3465.0	-46.90	242	1.7	H	7	-39.90	-13	-26.90
3465.0	-47.50	261	1.7	V	6.2	-41.30	-13	-28.30
1.4MHz bandwidth, QPSK, High channel								
950.46	-71.19	111	1.4	H	10.0	-61.19	-13	-48.19
950.46	-77.41	316	1.6	V	11.7	-65.71	-13	-52.71
3508.6	-48.60	61	1.7	H	7.8	-40.80	-13	-27.80
3508.6	-47.30	154	2.3	V	6.6	-40.70	-13	-27.70

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
LTE Band 7								
Test frequency range: 30MHz-26.5GHz								
5MHz bandwidth, QPSK, Low channel								
954.16	-70.12	229	1.6	H	10.0	-60.12	-25	-35.12
954.16	-74.91	292	2.0	V	11.7	-63.21	-25	-38.21
5005.0	-50.60	303	1.1	H	10.8	-39.80	-25	-14.80
5005.0	-50.30	194	1.2	V	10.2	-40.10	-25	-15.10
5MHz bandwidth, QPSK, Middle channel								
954.70	-71.67	146	1.4	H	9.8	-61.87	-25	-36.87
954.70	-76.95	330	2.3	V	11.7	-65.25	-25	-40.25
5070.0	-50.80	173	2.2	H	11.1	-39.70	-25	-14.70
5070.0	-49.30	90	1.5	V	10.8	-38.50	-25	-13.50
5MHz bandwidth, QPSK, High channel								
955.91	-71.27	346	2.0	H	10.0	-61.27	-25	-36.27
955.91	-75.71	254	1.6	V	11.7	-64.01	-25	-39.01
5135.0	-50.70	116	2.2	H	11.3	-39.40	-25	-14.40
5135.0	-50.90	142	1.1	V	10.8	-40.10	-25	-15.10

Note:

Absolute Level = Reading Level + Substituted Factor

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

Margin = Absolute Level - Limit

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

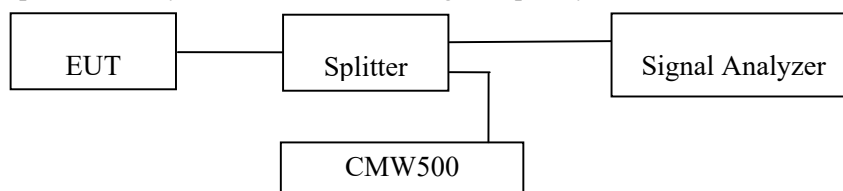
According to FCC §27.53 (h), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

According to FCC §27.53 (m), For mobile digital stations, 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



Note: the worst path loss (cable loss and splitter inset loss) among the test frequency range has included in plot.

Test Data

Environmental Conditions

Temperature:	25.7 °C
Relative Humidity:	58.2 %
ATM Pressure:	101.0 kPa

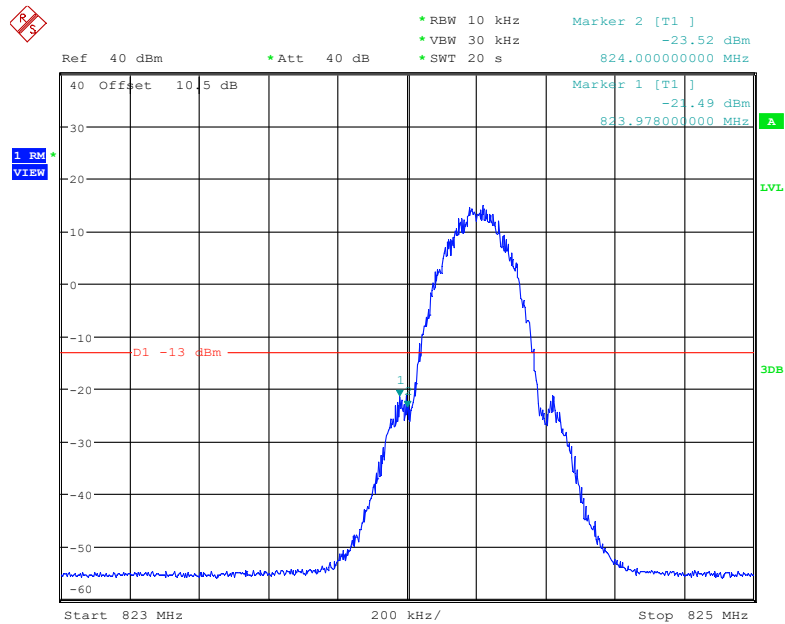
The testing was performed by Glenn Jiang on 2022-12-29.

EUT operation mode: Transmitting (Worst case)

Test Result: Pass

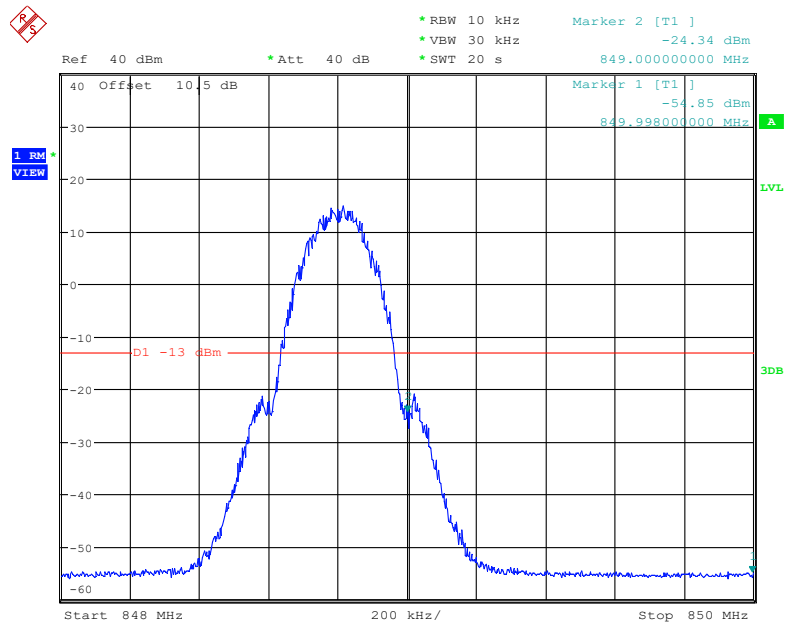
Please refer to the following plots.

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

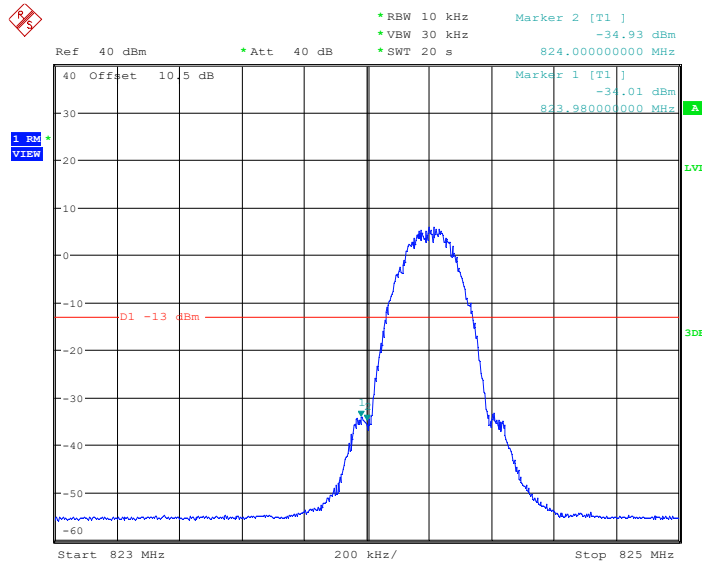


Date: 29.DEC.2022 09:02:20

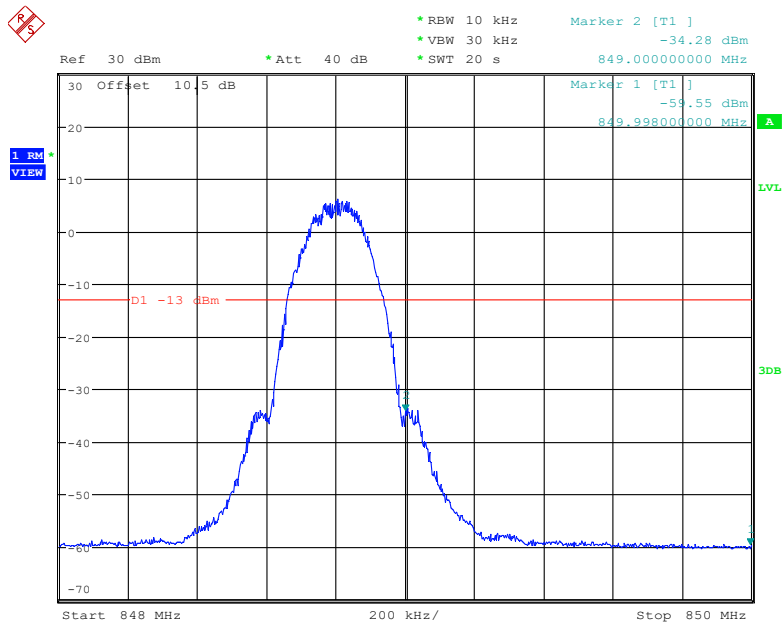
Cellular Band, Right Band Edge for GSM (GMSK) Mode



Date: 29.DEC.2022 08:57:38

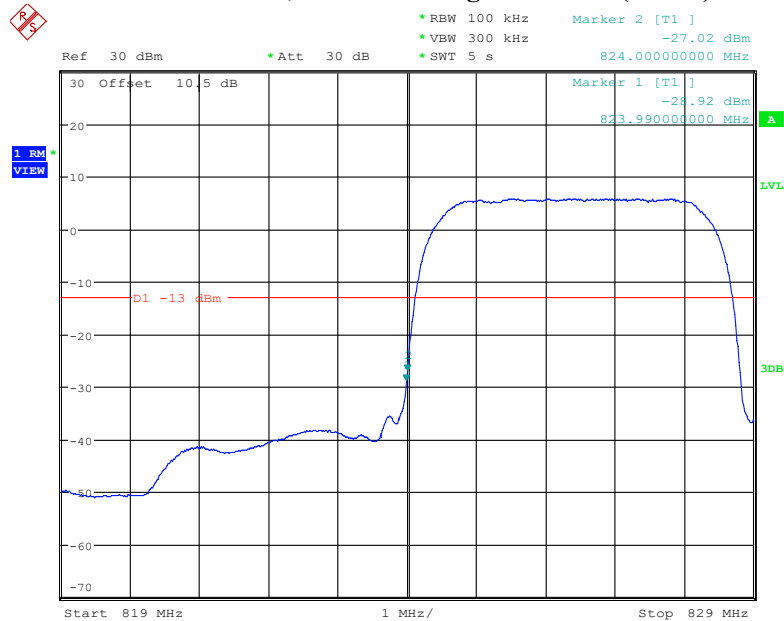
Cellular Band, Left Band Edge for EGPRS (8PSK) Mode

Date: 29.DEC.2022 09:09:26

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

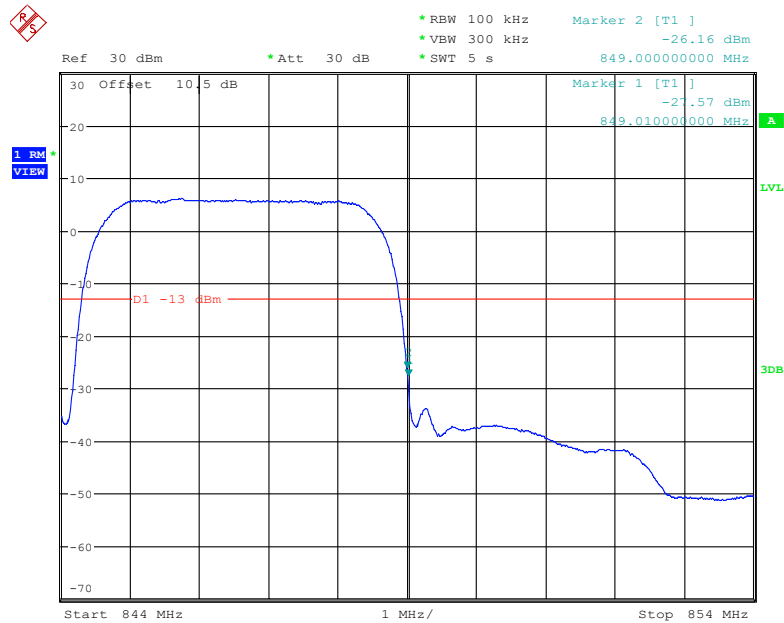
Date: 29.DEC.2022 09:17:47

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

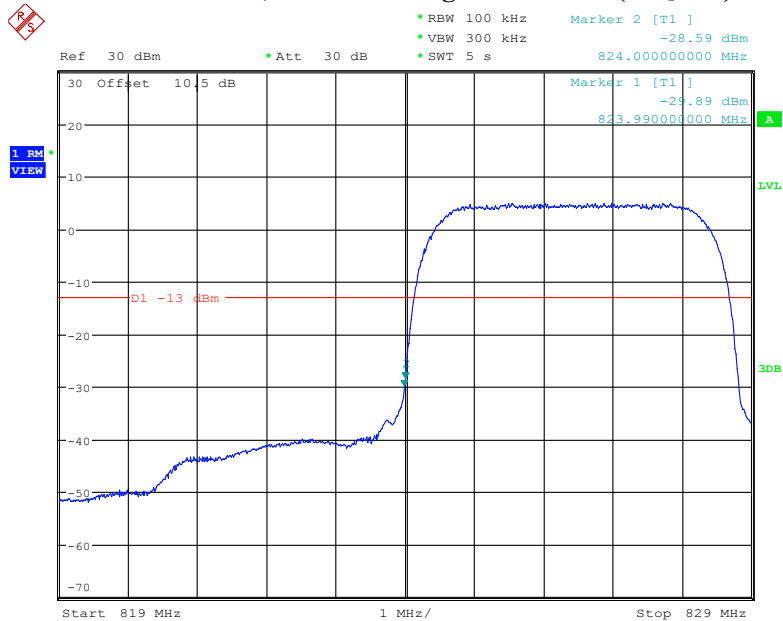


Date: 29.DEC.2022 10:22:48

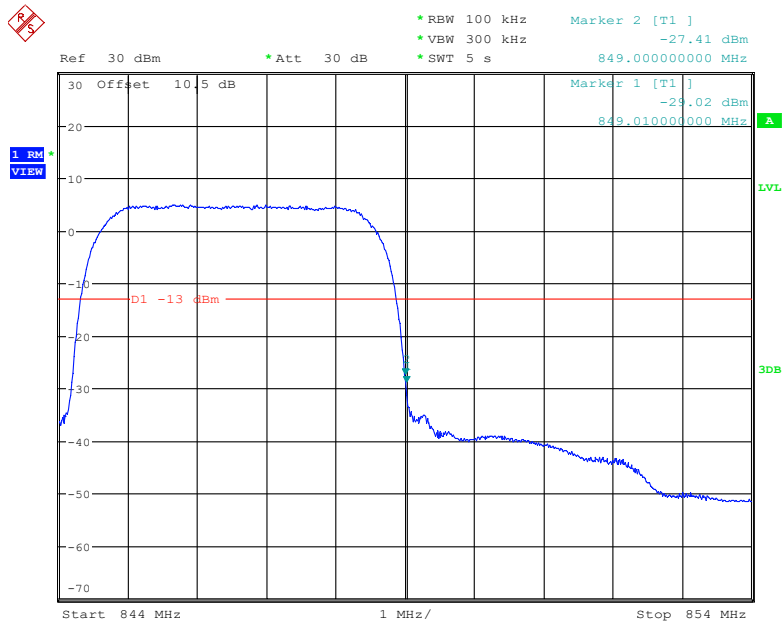
Cellular Band, Right Band Edge for RMC (BPSK) Mode



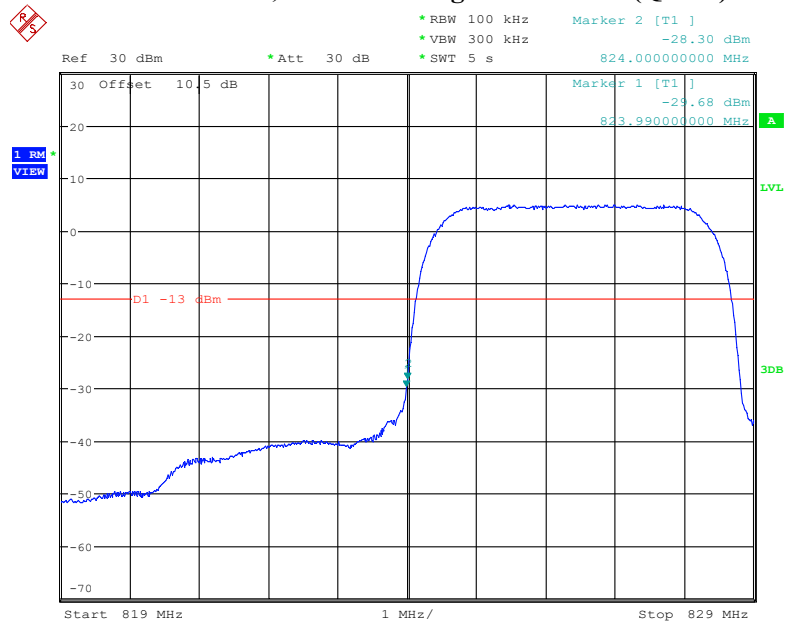
Date: 29.DEC.2022 10:29:08

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

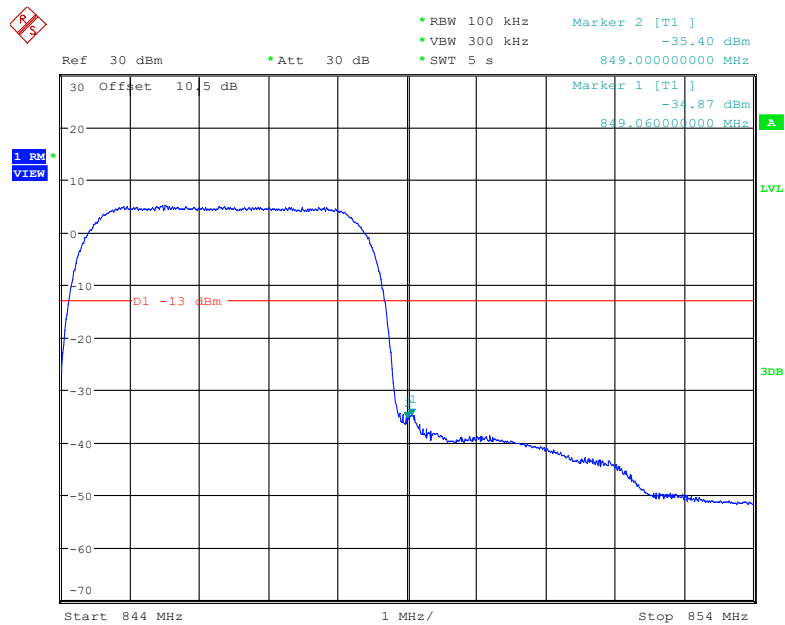
Date: 29.DEC.2022 10:34:25

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

Date: 29.DEC.2022 10:48:18

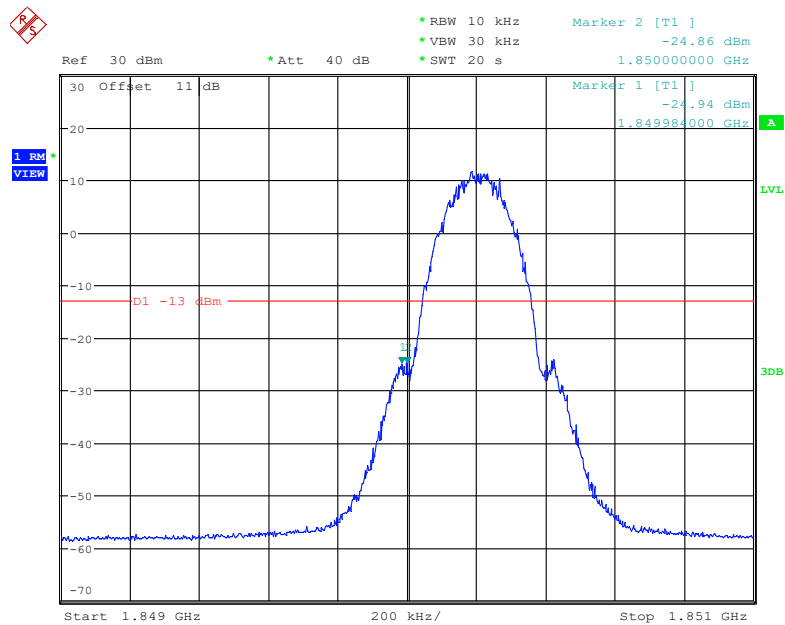
Cellular Band, Left Band Edge for HSUPA (QPSK) Mode

Date: 29.DEC.2022 10:52:41

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

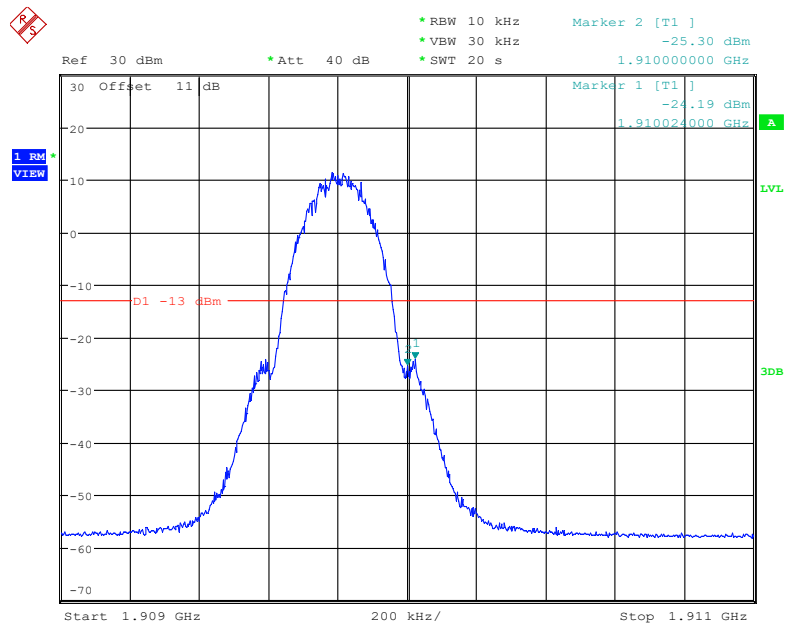
Date: 29.DEC.2022 10:58:49

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

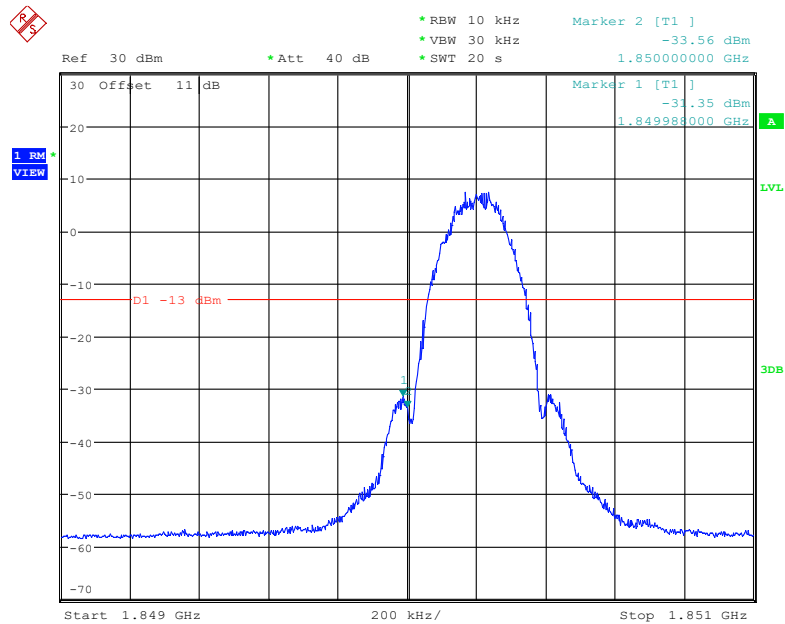


Date: 29.DEC.2022 09:23:40

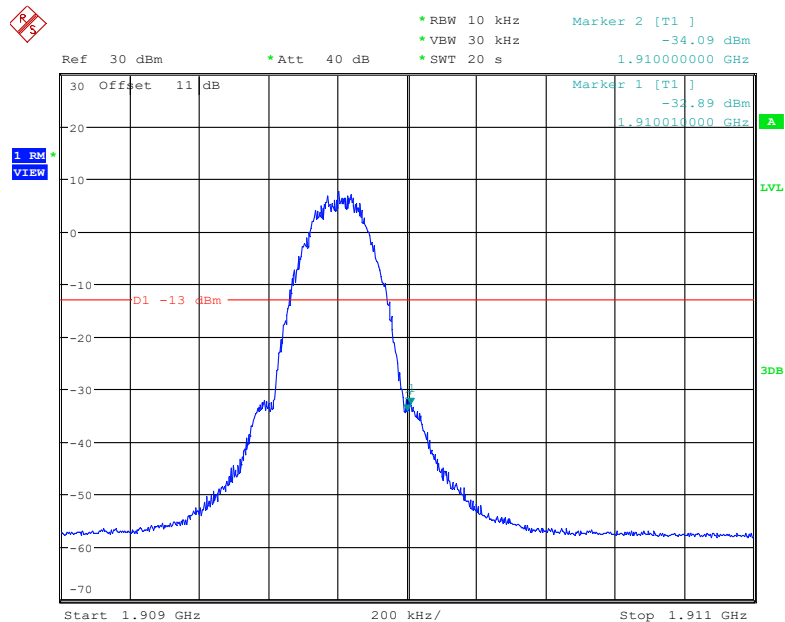
PCS Band, Right Band Edge for GSM (GMSK) Mode



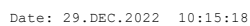
Date: 29.DEC.2022 09:35:11

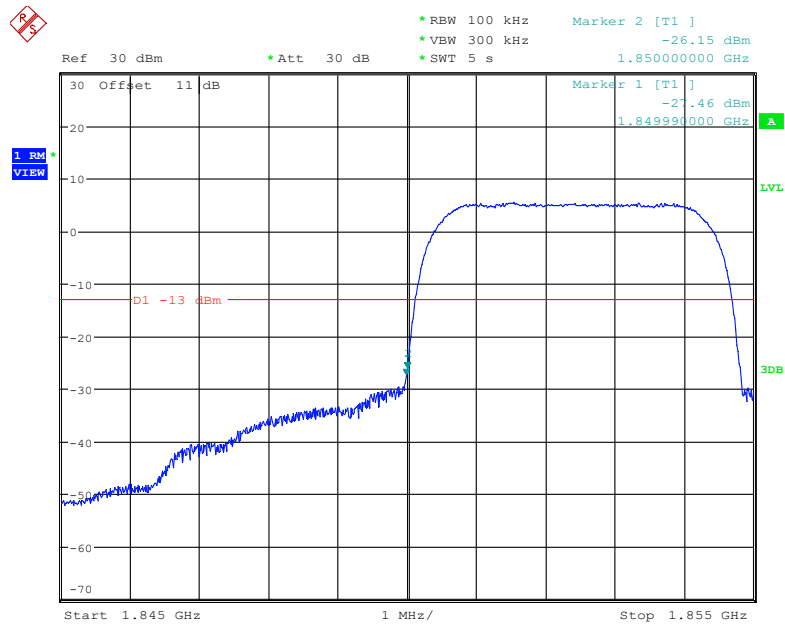
PCS Band, Left Band Edge for EGPRS (8PSK) Mode

Date: 29.DEC.2022 09:42:36

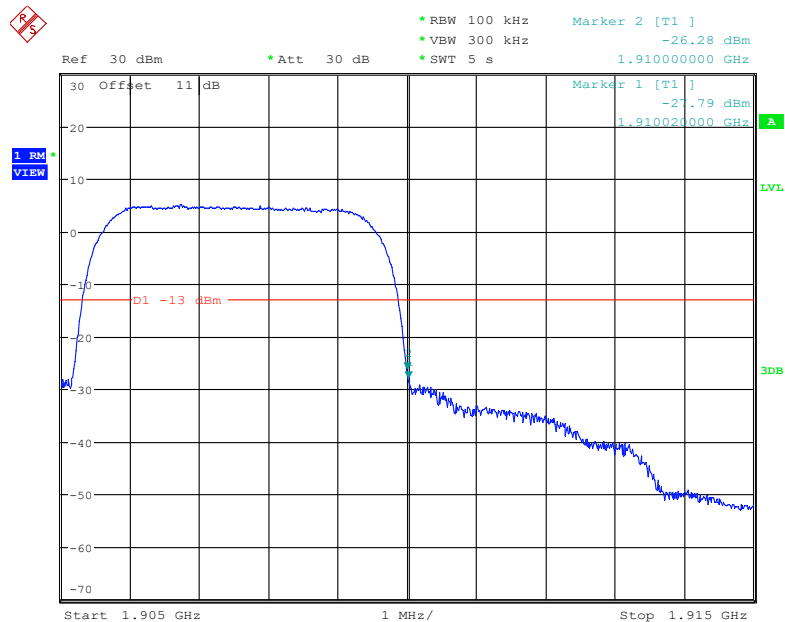
PCS Band, Right Band Edge for EGPRS (8PSK) Mode

Date: 29.DEC.2022 09:53:23

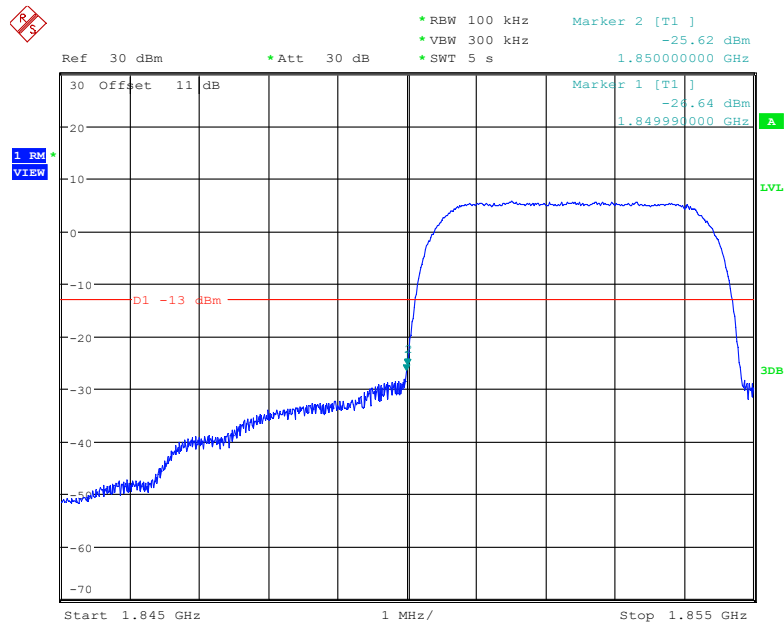


PCS Band, Left Band Edge for HSDPA(16QAM) Mode

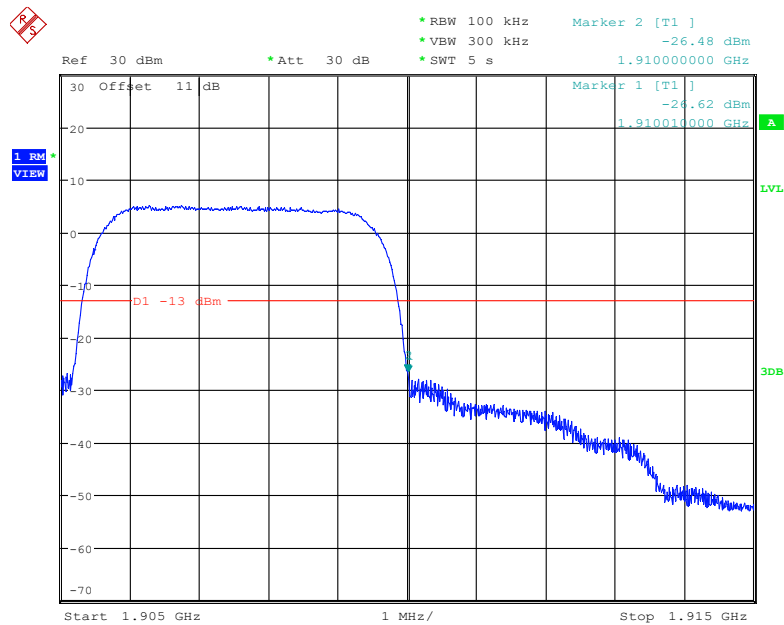
Date: 29.DEC.2022 11:03:20

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

Date: 29.DEC.2022 11:10:42

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

Date: 29.DEC.2022 11:16:49

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

Date: 29.DEC.2022 11:24:53

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

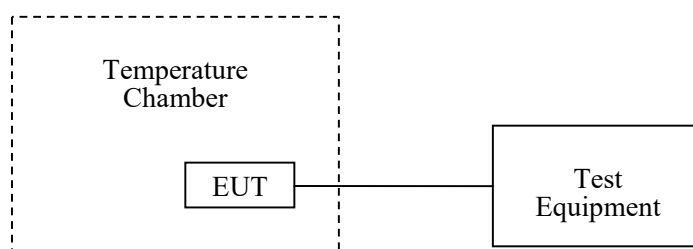
According to §24.235&§27.54, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

Test Procedure

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

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

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



Test Data**Environmental Conditions**

Temperature:	25.7 °C
Relative Humidity:	58.2 %
ATM Pressure:	101.0 kPa

The testing was performed by Glenn Jiang from 2022-12-29 to 2022-12-30.

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.	6	0.0072	2.5
-20		4	0.0048	2.5
-10		8	0.0096	2.5
0		4	0.0048	2.5
10		6	0.0072	2.5
20		0	0.0000	2.5
30		3	0.0036	2.5
40		4	0.0048	2.5
50		7	0.0084	2.5
20	L.V.	5	0.0060	2.5
	H.V.	2	0.0024	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.	1.64	0.0020	2.5
-20		1.59	0.0019	2.5
-10		1.39	0.0017	2.5
0		1.48	0.0018	2.5
10		1.55	0.0019	2.5
20		1.60	0.0019	2.5
30		1.59	0.0019	2.5
40		1.58	0.0019	2.5
50		1.64	0.0020	2.5
20	L.V.	1.36	0.0016	2.5
	H.V.	1.54	0.0018	2.5

WCDMA Mode

Middle Channel, $f_0 = 836.6\text{MHz}$				
Temperature (°C)	Voltage Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	N.V.	1.22	0.0015	2.5
-20		1.54	0.0018	2.5
-10		1.28	0.0015	2.5
0		1.36	0.0016	2.5
10		1.54	0.0018	2.5
20		0.68	0.0008	2.5
30		1.46	0.0017	2.5
40		1.34	0.0016	2.5
50		1.52	0.0018	2.5
20	L.V.	2.24	0.0027	2.5
	H.V.	1.11	0.0013	2.5

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

Temperature (°C)	Power Supplied (V_{DC})	F_L (MHz)	F_H (MHz)	F_L Limit (MHz)	F_H Limit (MHz)
-30	N.V.	1850.0768	1909.9279	1850	1910
-20		1850.0770	1909.9283	1850	1910
-10		1850.0795	1909.9282	1850	1910
0		1850.0752	1909.9240	1850	1910
10		1850.0754	1909.9243	1850	1910
20		1850.0785	1909.9252	1850	1910
30		1850.0780	1909.9219	1850	1910
40		1850.0782	1909.9290	1850	1910
50		1850.0766	1909.9285	1850	1910
20	L.V.	1850.0762	1909.9245	1850	1910
	H.V.	1850.0796	1909.9237	1850	1910

EDGE Mode

Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	1850.0725	1909.9300	1850	1910
-20		1850.0720	1909.9250	1850	1910
-10		1850.0725	1909.9313	1850	1910
0		1850.0753	1909.9278	1850	1910
10		1850.0724	1909.9266	1850	1910
20		1850.0766	1909.9275	1850	1910
30		1850.0701	1909.9265	1850	1910
40		1850.0756	1909.9293	1850	1910
50		1850.0754	1909.9251	1850	1910
20	L.V.	1850.0735	1909.9263	1850	1910
	H.V.	1850.0741	1909.9269	1850	1910

WCDMA Mode

Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	1850.3161	1909.6893	1850	1910
-20		1850.3103	1909.6864	1850	1910
-10		1850.3167	1909.6895	1850	1910
0		1850.3132	1909.6878	1850	1910
10		1850.3128	1909.6877	1850	1910
20		1850.3145	1909.6887	1850	1910
30		1850.3177	1909.6863	1850	1910
40		1850.3139	1909.6875	1850	1910
50		1850.3131	1909.6867	1850	1910
20	L.V.	1850.3131	1909.6924	1850	1910
	H.V.	1850.3178	1909.6918	1850	1910

LTE:
QPSK:
Band 2:

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.	1850.5143	1909.4881	1850	1910
-20		1850.5183	1909.4881	1850	1910
-10		1850.5114	1909.4840	1850	1910
0		1850.5131	1909.4881	1850	1910
10		1850.5133	1909.4862	1850	1910
20		1850.5183	1909.4878	1850	1910
30		1850.5165	1909.4875	1850	1910
40		1850.5153	1909.4842	1850	1910
50		1850.5135	1909.4887	1850	1910
20	L.V.	1850.5137	1909.4891	1850	1910
	H.V.	1850.5155	1909.4846	1850	1910

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.	1710.5519	1754.4484	1710	1755
-20		1710.5567	1754.4508	1710	1755
-10		1710.5583	1754.4490	1710	1755
0		1710.5560	1754.4457	1710	1755
10		1710.5536	1754.4461	1710	1755
20		1710.5537	1754.4508	1710	1755
30		1710.5558	1754.4466	1710	1755
40		1710.5565	1754.4456	1710	1755
50		1710.5521	1754.4472	1710	1755
20	L.V.	1710.5540	1754.4465	1710	1755
	H.V.	1710.5518	1754.4472	1710	1755

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.	2500.5194	2569.4802	2500	2570
-20		2500.5186	2569.4810	2500	2570
-10		2500.5206	2569.4832	2500	2570
0		2500.5159	2569.4805	2500	2570
10		2500.5183	2569.4804	2500	2570
20		2500.5216	2569.4841	2500	2570
30		2500.5160	2569.4833	2500	2570
40		2500.5175	2569.4800	2500	2570
50		2500.5206	2569.4838	2500	2570
20	L.V.	2500.5221	2569.4801	2500	2570
	H.V.	2500.5193	2569.4812	2500	2570

16QAM:**Band 2:**

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.	1850.5175	1909.4900	1850	1910
-20		1850.5178	1909.4845	1850	1910
-10		1850.5165	1909.4886	1850	1910
0		1850.5124	1909.4859	1850	1910
10		1850.5129	1909.4871	1850	1910
20		1850.5127	1909.4886	1850	1910
30		1850.5160	1909.4892	1850	1910
40		1850.5115	1909.4914	1850	1910
50		1850.5106	1909.4877	1850	1910
20	L.V.	1850.5132	1909.4901	1850	1910
	H.V.	1850.5115	1909.4904	1850	1910

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.	1710.5532	1754.4413	1710	1755
-20		1710.5556	1754.4440	1710	1755
-10		1710.5579	1754.4426	1710	1755
0		1710.5564	1754.4446	1710	1755
10		1710.5532	1754.4436	1710	1755
20		1710.5537	1754.4482	1710	1755
30		1710.5533	1754.4456	1710	1755
40		1710.5508	1754.4458	1710	1755
50		1710.5530	1754.4484	1710	1755
20	L.V.	1710.5533	1754.4420	1710	1755
	H.V.	1710.5510	1754.4426	1710	1755

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.	2500.5145	2569.4847	2500	2570
-20		2500.5205	2569.4780	2500	2570
-10		2500.5193	2569.4783	2500	2570
0		2500.5215	2569.4794	2500	2570
10		2500.5167	2569.4799	2500	2570
20		2500.5137	2569.4808	2500	2570
30		2500.5157	2569.4771	2500	2570
40		2500.5164	2569.4804	2500	2570
50		2500.5167	2569.4809	2500	2570
20	L.V.	2500.5137	2569.4780	2500	2570
	H.V.	2500.5199	2569.4804	2500	2570

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