



TESTREPORT

Applicant Name : TELECOMUNICACIONES Y SERVICIOS CONOSUR LTDA.
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SANTIAGO-CHILE
Report Number : SZNS220909-40985E-RF-00B
FCC ID: 2A8NN-V909T

Test Standard (s)

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

Sample Description

Product Type: 4G flip phone
Model No.: V909T
Multiple Model(s) No.: N/A
Trade Mark: VISMOV
Date Received: 2022/09/09
Report Date: 2022/10/25

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

Prepared and Checked By:

Approved By:

Roger Ling

Candy Li

Roger Ling
EMC Engineer

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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 4: 1710-1755MHz(TX); 2110-2155MHz(RX) WCDMA Band 5: 824-849MHz(TX); 869-894MHz(RX) LTE Band 2: 1850-1910MHz(TX); 1930-1990MHz(RX) LTE Band 4: 1710-1755MHz(TX); 2110-2155MHz(RX) LTE Band 7: 2500-2570MHz(TX); 2620-2690MHz(RX) LTE Band 66: 1710-1780MHz(TX); 2110-2180MHz(RX)
Modulation Technique	2G: GMSK 3G: BPSK, QPSK, 16QAM 4G: QPSK, 16QAM
Antenna Specification*	GSM850/WCDMA B5 : -0.6dBi, PCS1900 /WCDMA B2/LTE B2: 0.6dBi, WCDMA B4/LTE B4: 0.4dBi, LTE B7: 0.5dBi, LTE B66: 0.4dBi (provided by the applicant)
Voltage Range	3.7V from Battery or DC 5V from Adapter
Sample serial number	SZNS220909-40985E-RF-S1 for Radiated Emissions SZNS220909-40985E-RF-S2 for RF Conducted Test (Assigned by ATC)
Sample/EUT Status	Good condition
Extreme condition*	L.V.: Low Voltage 3.55V _{DC} N.V.: Normal Voltage 3.7V _{DC} H.V.: High Voltage 4.2V _{DC} (provided by the applicant)
US Adapter information	Model: F26 Input: AC 100-240V, 50/60Hz, 0.15A Output: DC 5.0V, 500mA
EU Adapter information	Model: F26 Input: AC 100-240V, 50/60Hz, 0.15A Output: DC 5.0V, 500mA

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.

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 B4	4.2	1712.4	1732.6	1752.6
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 B7	5	2502.5	2535	2567.5
	10	2505	2535	2565
	15	2507.5	2535	2562.5
	20	2510	2535	2560
LTE B66	1.4	1710.7	1745	1779.3
	3	1711.5	1745	1778.5
	5	1712.5	1745	1777.5
	10	1715	1745	1775
	15	1717.5	1745	1772.5
	20	1720	1745	1770

Equipment Modifications

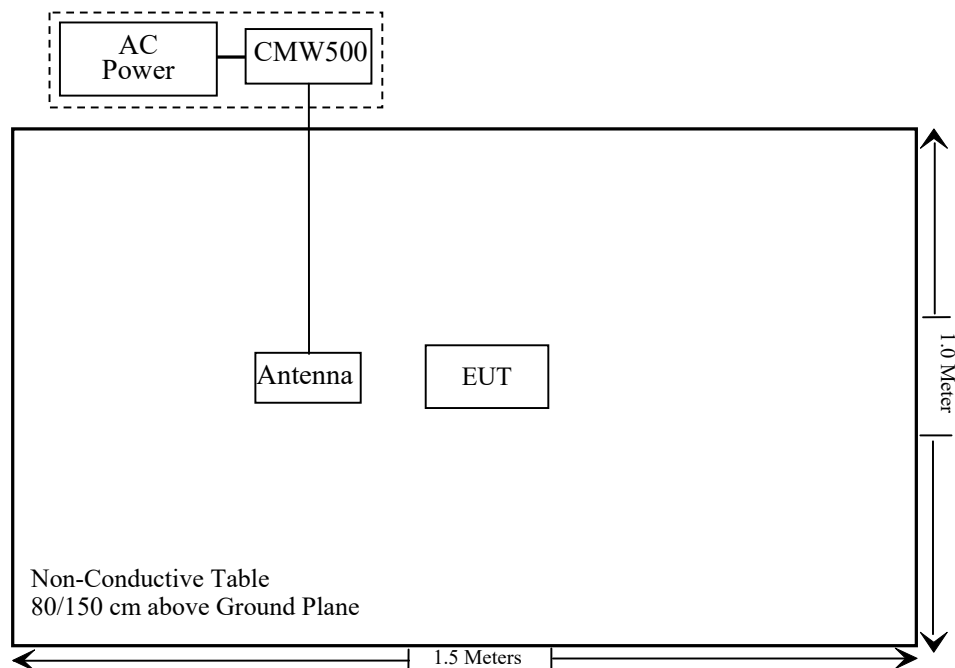
No modification was made to the EUT.

Support Equipment List and Details

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

Support Cable Description

Cable Description	Length (m)	From / Port	To
Un-shielded 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: SZNS220909-40985E-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
WEINSCHEL	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	

* 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: SZNS220909-40985E-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.

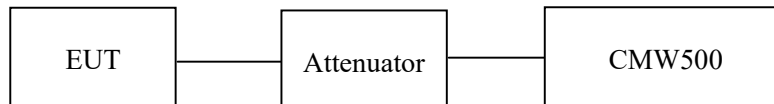
According to §27.50(d), Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

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.



Test Data

Environmental Conditions

Temperature:	27 °C
Relative Humidity:	48%
ATM Pressure:	101.0 kPa

The testing was performed by Andy Yu from 2022-09-21 to 2022-09-25.

Cellular Band (Part 22H)

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	ERP(dBm)	Limit (dBm)
GSM	128	824.2	32.75	30.00	38.45
	190	836.6	32.83	30.08	38.45
	251	848.8	32.84	30.09	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	32.39	30.31	28.77	27.13	29.64	27.56	26.02	24.38	38.45
	190	836.6	32.52	30.38	28.87	27.26	29.77	27.63	26.12	24.51	38.45
	251	848.8	32.46	30.35	28.86	27.22	29.71	27.60	26.11	24.47	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		22.41	22.58	22.38	19.66	19.83	19.63
	HSDPA	1	21.17	21.30	21.33	18.42	18.55	18.58
		2	21.40	21.28	21.32	18.65	18.53	18.57
		3	21.31	21.13	21.18	18.56	18.38	18.43
		4	21.27	21.23	21.14	18.52	18.48	18.39
	HSUPA	1	21.38	21.06	20.91	18.63	18.31	18.16
		2	21.42	20.73	20.95	18.67	17.98	18.20
		3	21.37	20.87	20.82	18.62	18.12	18.07
		4	21.50	20.92	20.85	18.75	18.17	18.10
		5	21.57	20.89	20.77	18.82	18.14	18.02

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd)
 For GSM850 / WCDMA Band5: Antenna Gain = -0.6dBi = -2.75dBd (0dBd=2.15dBi)
 Limit: ERP≤38.45dBm

PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	EIRP(dBm)	Limit (dBm)
GSM	512	1850.2	30.16	30.76	33
	661	1880.0	30.23	30.83	33
	810	1909.8	30.08	30.68	33

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				EIRP(dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	1 slot	2 slots	3 slots	4 slots	
GPRS	512	1850.2	29.96	28.34	26.54	25.06	30.56	28.94	27.14	25.66	33
	661	1880.0	29.98	28.36	26.55	25.13	30.58	28.96	27.15	25.73	33
	810	1909.8	30.05	28.40	26.69	25.26	30.65	29.00	27.29	25.86	33

Mode	Test Mode	3GPP Sub Test	Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
WCDMA (Band 2)	RMC12.2k		22.54	22.39	22.23	23.14	22.99	22.83
	HSDPA	1	20.88	21.07	21.45	21.48	21.67	22.05
		2	21.10	21.19	21.29	21.70	21.79	21.89
		3	21.37	20.88	21.31	21.97	21.48	21.91
		4	21.21	21.08	21.00	21.81	21.68	21.60
	HSUPA	1	21.54	21.36	21.38	22.14	21.96	21.98
		2	21.58	21.39	21.52	22.18	21.99	22.12
		3	21.35	21.30	21.16	21.95	21.90	21.76
		4	21.55	21.30	21.05	22.15	21.90	21.65
		5	21.72	21.25	21.14	22.32	21.85	21.74

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

For PCS1900 / WCDMA Band2: Antenna Gain = 0.6dBi

Limit: EIRP ≤ 33dBm

AWS Band

Mode	Test Mode	3GPP Sub Test	Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
WCDMA (Band 4)	RMC12.2k		21.28	21.32	21.23	21.68	21.72	21.63
	HSDPA	1	20.16	20.39	20.14	20.56	20.79	20.54
		2	20.43	20.27	20.35	20.83	20.67	20.75
		3	20.44	20.36	20.27	20.84	20.76	20.67
		4	20.46	20.34	20.34	20.86	20.74	20.74
	HSUPA	1	19.84	20.04	20.09	20.24	20.44	20.49
		2	19.51	19.93	19.33	19.91	20.33	19.73
		3	19.25	19.64	19.36	19.65	20.04	19.76
		4	19.91	19.41	19.67	20.31	19.81	20.07
		5	19.61	19.48	19.47	20.01	19.88	19.87

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

For Band4: Antenna Gain = 0.4dBi

Limit: EIRP ≤ 30dBm

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	21.17	21.08	20.25	21.77	21.68	20.85
		RB1#3	21.33	21.23	20.32	21.93	21.83	20.92
		RB1#5	21.18	21.10	20.19	21.78	21.70	20.79
		RB3#0	20.37	20.14	19.32	20.97	20.74	19.92
		RB3#3	20.33	20.09	19.25	20.93	20.69	19.85
		RB6#0	20.28	20.16	19.28	20.88	20.76	19.88
	16QAM	RB1#0	20.31	19.95	19.42	20.91	20.55	20.02
		RB1#3	20.39	20.03	19.57	20.99	20.63	20.17
		RB1#5	20.34	19.94	19.43	20.94	20.54	20.03
		RB3#0	19.42	19.21	18.32	20.02	19.81	18.92
		RB3#3	19.36	19.18	18.30	19.96	19.78	18.90
		RB6#0	19.34	19.17	18.24	19.94	19.77	18.84
3.0	QPSK	RB1#0	21.21	21.13	20.93	21.81	21.73	21.53
		RB1#8	21.42	21.26	21.04	22.02	21.86	21.64
		RB1#14	21.25	21.03	20.88	21.85	21.63	21.48
		RB6#0	20.32	20.11	19.93	20.92	20.71	20.53
		RB6#9	20.23	20.07	19.83	20.83	20.67	20.43
		RB15#0	20.31	20.16	19.80	20.91	20.76	20.40
	16QAM	RB1#0	20.85	20.25	19.83	21.45	20.85	20.43
		RB1#8	20.96	20.51	19.93	21.56	21.11	20.53
		RB1#14	20.72	20.26	19.69	21.32	20.86	20.29
		RB6#0	19.41	19.18	18.95	20.01	19.78	19.55
		RB6#9	19.36	19.23	18.87	19.96	19.83	19.47
		RB15#0	19.30	19.12	18.82	19.90	19.72	19.42

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	21.14	21.03	20.21	21.74	21.63	20.81
		RB1#13	21.29	21.17	20.28	21.89	21.77	20.88
		RB1#24	21.14	21.04	20.15	21.74	21.64	20.75
		RB15#0	20.30	20.10	19.26	20.90	20.70	19.86
		RB15#10	20.29	20.05	19.18	20.89	20.65	19.78
		RB25#0	20.24	20.09	19.22	20.84	20.69	19.82
	16QAM	RB1#0	20.26	19.91	19.39	20.86	20.51	19.99
		RB1#13	20.35	20.00	19.51	20.95	20.60	20.11
		RB1#24	20.28	19.88	19.39	20.88	20.48	19.99
		RB15#0	19.37	19.16	18.28	19.97	19.76	18.88
		RB15#10	19.30	19.14	18.23	19.90	19.74	18.83
		RB25#0	19.30	19.12	18.21	19.90	19.72	18.81
10.0	QPSK	RB1#0	21.18	21.09	20.88	21.78	21.69	21.48
		RB1#25	21.38	21.22	20.98	21.98	21.82	21.58
		RB1#49	21.20	20.97	20.82	21.80	21.57	21.42
		RB25#0	20.27	20.07	19.87	20.87	20.67	20.47
		RB25#25	20.20	20.02	19.76	20.80	20.62	20.36
		RB50#0	20.25	20.09	19.76	20.85	20.69	20.36
	16QAM	RB1#0	20.81	20.21	19.78	21.41	20.81	20.38
		RB1#25	20.90	20.45	19.88	21.50	21.05	20.48
		RB1#49	20.68	20.19	19.64	21.28	20.79	20.24
		RB25#0	19.34	19.14	18.91	19.94	19.74	19.51
		RB25#25	19.30	19.16	18.81	19.90	19.76	19.41
		RB50#0	19.26	19.08	18.76	19.86	19.68	19.36

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	21.18	21.09	20.25	21.78	21.69	20.85
		RB1#38	21.34	21.24	20.33	21.94	21.84	20.93
		RB1#74	21.20	21.08	20.19	21.80	21.68	20.79
		RB36#0	20.35	20.16	19.30	20.95	20.76	19.90
		RB36#39	20.33	20.10	19.21	20.93	20.70	19.81
		RB75#0	20.24	20.14	19.25	20.84	20.74	19.85
	16QAM	RB1#0	20.33	19.96	19.40	20.93	20.56	20.00
		RB1#38	20.43	20.06	19.58	21.03	20.66	20.18
		RB1#74	20.34	19.90	19.44	20.94	20.50	20.04
		RB36#0	19.39	19.23	18.35	19.99	19.83	18.95
		RB36#39	19.37	19.22	18.24	19.97	19.82	18.84
		RB75#0	19.34	19.16	18.26	19.94	19.76	18.86
20.0	QPSK	RB1#0	21.24	21.17	20.93	21.84	21.77	21.53
		RB1#50	21.43	21.26	21.01	22.03	21.86	21.61
		RB1#99	21.24	21.03	20.85	21.84	21.63	21.45
		RB50#0	20.31	20.14	19.90	20.91	20.74	20.50
		RB50#50	20.28	20.11	19.84	20.88	20.71	20.44
		RB100#0	20.34	20.15	19.84	20.94	20.75	20.44
	16QAM	RB1#0	20.82	20.25	19.79	21.42	20.85	20.39
		RB1#50	20.94	20.50	19.93	21.54	21.10	20.53
		RB1#99	20.71	20.23	19.68	21.31	20.83	20.28
		RB50#0	19.42	19.19	18.95	20.02	19.79	19.55
		RB50#50	19.30	19.21	18.88	19.90	19.81	19.48
		RB100#0	19.31	19.15	18.83	19.91	19.75	19.43

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

For Band2: Antenna Gain = 0.6dBi

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	21.24	21.05	20.35	21.64	21.45	20.75
		RB1#3	21.13	21.27	20.05	21.53	21.67	20.45
		RB1#5	20.98	21.26	19.95	21.38	21.66	20.35
		RB3#0	20.49	19.98	19.21	20.89	20.38	19.61
		RB3#3	20.43	19.97	19.02	20.83	20.37	19.42
		RB6#0	19.99	20.31	19.15	20.39	20.71	19.55
	16QAM	RB1#0	20.42	19.83	19.23	20.82	20.23	19.63
		RB1#3	20.48	20.15	19.42	20.88	20.55	19.82
		RB1#5	20.17	19.90	19.61	20.57	20.30	20.01
		RB3#0	19.16	19.26	18.52	19.56	19.66	18.92
		RB3#3	19.38	18.96	18.06	19.78	19.36	18.46
		RB6#0	19.16	18.98	18.38	19.56	19.38	18.78
3.0	QPSK	RB1#0	21.18	20.93	20.66	21.58	21.33	21.06
		RB1#8	21.27	21.41	20.80	21.67	21.81	21.20
		RB1#14	21.40	20.93	20.72	21.80	21.33	21.12
		RB6#0	20.43	19.91	19.95	20.83	20.31	20.35
		RB6#9	20.15	19.92	19.87	20.55	20.32	20.27
		RB15#0	20.31	19.92	19.59	20.71	20.32	19.99
	16QAM	RB1#0	20.63	20.18	19.56	21.03	20.58	19.96
		RB1#8	21.04	20.24	19.90	21.44	20.64	20.30
		RB1#14	20.85	20.32	19.67	21.25	20.72	20.07
		RB6#0	19.21	19.02	19.08	19.61	19.42	19.48
		RB6#9	19.09	19.36	18.73	19.49	19.76	19.13
		RB15#0	19.50	19.08	18.90	19.90	19.48	19.30

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	21.21	21.14	20.29	21.61	21.54	20.69
		RB1#13	21.37	21.27	20.39	21.77	21.67	20.79
		RB1#24	21.24	21.12	20.25	21.64	21.52	20.65
		RB15#0	20.40	20.20	19.35	20.80	20.60	19.75
		RB15#10	20.38	20.13	19.27	20.78	20.53	19.67
		RB25#0	20.28	20.17	19.31	20.68	20.57	19.71
	16QAM	RB1#0	20.39	19.99	19.44	20.79	20.39	19.84
		RB1#13	20.47	20.11	19.65	20.87	20.51	20.05
		RB1#24	20.39	19.94	19.50	20.79	20.34	19.90
		RB15#0	19.43	19.27	18.41	19.83	19.67	18.81
		RB15#10	19.42	19.28	18.29	19.82	19.68	18.69
		RB25#0	19.40	19.22	18.33	19.80	19.62	18.73
10.0	QPSK	RB1#0	21.27	21.21	20.97	21.67	21.61	21.37
		RB1#25	21.49	21.31	21.08	21.89	21.71	21.48
		RB1#49	21.31	21.09	20.91	21.71	21.49	21.31
		RB25#0	20.38	20.20	19.94	20.78	20.60	20.34
		RB25#25	20.31	20.17	19.89	20.71	20.57	20.29
		RB50#0	20.39	20.20	19.90	20.79	20.60	20.30
	16QAM	RB1#0	20.85	20.30	19.83	21.25	20.70	20.23
		RB1#25	21.00	20.53	19.97	21.40	20.93	20.37
		RB1#49	20.75	20.27	19.75	21.15	20.67	20.15
		RB25#0	19.46	19.24	18.99	19.86	19.64	19.39
		RB25#25	19.37	19.25	18.93	19.77	19.65	19.33
		RB50#0	19.37	19.22	18.88	19.77	19.62	19.28

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	21.27	21.20	20.35	21.67	21.60	20.75
		RB1#38	21.43	21.31	20.44	21.83	21.71	20.84
		RB1#74	21.28	21.16	20.31	21.68	21.56	20.71
		RB36#0	20.44	20.26	19.40	20.84	20.66	19.80
		RB36#39	20.42	20.17	19.31	20.82	20.57	19.71
		RB75#0	20.34	20.21	19.37	20.74	20.61	19.77
	16QAM	RB1#0	20.43	20.05	19.48	20.83	20.45	19.88
		RB1#38	20.50	20.16	19.72	20.90	20.56	20.12
		RB1#74	20.43	19.99	19.55	20.83	20.39	19.95
		RB36#0	19.49	19.31	18.46	19.89	19.71	18.86
		RB36#39	19.48	19.32	18.34	19.88	19.72	18.74
		RB75#0	19.45	19.28	18.37	19.85	19.68	18.77
20.0	QPSK	RB1#0	21.32	21.28	21.00	21.72	21.68	21.40
		RB1#50	21.54	21.38	21.12	21.94	21.78	21.52
		RB1#99	21.37	21.14	20.94	21.77	21.54	21.34
		RB50#0	20.44	20.27	20.00	20.84	20.67	20.40
		RB50#50	20.36	20.21	19.92	20.76	20.61	20.32
		RB100#0	20.45	20.25	19.95	20.85	20.65	20.35
	16QAM	RB1#0	20.91	20.35	19.89	21.31	20.75	20.29
		RB1#50	21.03	20.58	20.03	21.43	20.98	20.43
		RB1#99	20.80	20.30	19.81	21.20	20.70	20.21
		RB50#0	19.49	19.31	19.03	19.89	19.71	19.43
		RB50#50	19.40	19.30	18.97	19.80	19.70	19.37
		RB100#0	19.43	19.27	18.93	19.83	19.67	19.33

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

For Band4: Antenna Gain = 0.4dBi

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	20.86	21.03	20.89	21.36	21.53	21.39
		RB1#13	21.26	21.25	20.99	21.76	21.75	21.49
		RB1#24	20.99	20.90	20.76	21.49	21.40	21.26
		RB15#0	19.67	20.19	19.98	20.17	20.69	20.48
		RB15#10	19.86	19.98	19.83	20.36	20.48	20.33
		RB25#0	20.76	20.14	20.43	21.26	20.64	20.93
	16QAM	RB1#0	20.71	20.21	19.98	21.21	20.71	20.48
		RB1#13	20.92	20.21	20.12	21.42	20.71	20.62
		RB1#24	19.23	19.05	18.75	19.73	19.55	19.25
		RB15#0	19.08	19.08	19.01	19.58	19.58	19.51
		RB15#10	18.85	19.23	18.67	19.35	19.73	19.17
		RB25#0	21.27	21.33	21.08	21.77	21.83	21.58
10.0	QPSK	RB1#0	20.71	20.90	20.62	21.21	21.40	21.12
		RB1#25	20.03	20.18	20.35	20.53	20.68	20.85
		RB1#49	19.91	20.10	19.84	20.41	20.60	20.34
		RB25#0	20.11	19.99	20.03	20.61	20.49	20.53
		RB25#25	20.23	20.14	20.39	20.73	20.64	20.89
		RB50#0	20.41	20.43	20.61	20.91	20.93	21.11
	16QAM	RB1#0	19.11	19.27	19.12	19.61	19.77	19.62
		RB1#25	19.05	19.18	18.68	19.55	19.68	19.18
		RB1#49	19.12	19.26	19.11	19.62	19.76	19.61
		RB25#0	21.09	21.10	20.63	21.59	21.60	21.13
		RB25#25	21.23	20.91	20.88	21.73	21.41	21.38
		RB50#0	20.91	21.34	20.62	21.41	21.84	21.12

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	21.23	21.08	21.03	21.73	21.58	21.53
		RB1#38	21.14	21.51	20.94	21.64	22.01	21.44
		RB1#74	21.00	21.19	21.03	21.50	21.69	21.53
		RB36#0	19.93	20.27	20.09	20.43	20.77	20.59
		RB36#39	20.06	20.26	19.98	20.56	20.76	20.48
		RB75#0	20.98	20.21	20.92	21.48	20.71	21.42
	16QAM	RB1#0	20.58	20.49	20.41	21.08	20.99	20.91
		RB1#38	20.90	20.60	20.27	21.40	21.10	20.77
		RB1#74	19.07	19.45	19.08	19.57	19.95	19.58
		RB36#0	19.26	19.37	18.85	19.76	19.87	19.35
		RB36#39	19.16	19.18	19.37	19.66	19.68	19.87
		RB75#0	21.29	21.52	21.34	21.79	22.02	21.84
20.0	QPSK	RB1#0	21.03	20.94	20.63	21.53	21.44	21.13
		RB1#50	20.21	20.44	20.66	20.71	20.94	21.16
		RB1#99	20.47	20.49	20.15	20.97	20.99	20.65
		RB50#0	20.32	20.63	20.29	20.82	21.13	20.79
		RB50#50	20.34	20.29	20.51	20.84	20.79	21.01
		RB100#0	21.06	20.90	20.61	21.56	21.40	21.11
	16QAM	RB1#0	19.26	19.32	19.42	19.76	19.82	19.92
		RB1#50	19.11	19.72	19.35	19.61	20.22	19.85
		RB1#99	19.35	19.36	19.09	19.85	19.86	19.59
		RB50#0	20.98	20.94	20.87	21.48	21.44	21.37
		RB50#50	21.56	21.38	21.19	22.06	21.88	21.69
		RB100#0	21.26	21.18	20.94	21.76	21.68	21.44

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

For Band7: Antenna Gain = 0.5dBi

Limit: EIRP ≤ 33dBm

LTE Band 66

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
1.4	QPSK	RB1#0	20.83	20.35	20.69	21.23	20.75	21.09
		RB1#3	21.03	20.49	20.76	21.43	20.89	21.16
		RB1#5	20.90	20.32	20.51	21.30	20.72	20.91
		RB3#0	19.94	19.51	19.72	20.34	19.91	20.12
		RB3#3	19.91	19.45	19.68	20.31	19.85	20.08
		RB6#0	19.86	19.41	19.67	20.26	19.81	20.07
	16QAM	RB1#0	20.08	19.37	19.53	20.48	19.77	19.93
		RB1#3	20.20	19.59	19.64	20.60	19.99	20.04
		RB1#5	20.09	19.38	19.33	20.49	19.78	19.73
		RB3#0	18.91	18.52	18.73	19.31	18.92	19.13
		RB3#3	18.88	18.46	18.73	19.28	18.86	19.13
		RB6#0	18.91	18.47	18.71	19.31	18.87	19.11
3.0	QPSK	RB1#0	20.85	20.94	21.23	21.25	21.34	21.63
		RB1#8	21.07	21.14	21.47	21.47	21.54	21.87
		RB1#14	20.83	20.87	21.13	21.23	21.27	21.53
		RB6#0	19.94	20.03	20.33	20.34	20.43	20.73
		RB6#9	19.88	19.99	20.30	20.28	20.39	20.70
		RB15#0	19.88	20.02	20.34	20.28	20.42	20.74
	16QAM	RB1#0	20.29	19.99	20.18	20.69	20.39	20.58
		RB1#8	20.52	20.25	20.42	20.92	20.65	20.82
		RB1#14	20.32	19.95	20.01	20.72	20.35	20.41
		RB6#0	18.98	19.04	19.44	19.38	19.44	19.84
		RB6#9	18.92	19.03	19.39	19.32	19.43	19.79
		RB15#0	18.94	19.02	19.35	19.34	19.42	19.75

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	20.97	20.16	20.84	21.37	20.56	21.24
		RB1#13	20.88	20.52	20.84	21.28	20.92	21.24
		RB1#24	20.89	20.14	20.65	21.29	20.54	21.05
		RB15#0	19.90	19.61	19.85	20.30	20.01	20.25
		RB15#10	19.72	19.58	19.79	20.12	19.98	20.19
		RB25#0	19.92	19.36	19.72	20.32	19.76	20.12
	16QAM	RB1#0	20.19	19.21	19.42	20.59	19.61	19.82
		RB1#13	20.18	19.77	19.45	20.58	20.17	19.85
		RB1#24	19.95	19.16	19.13	20.35	19.56	19.53
		RB15#0	18.65	18.56	18.59	19.05	18.96	18.99
		RB15#10	18.60	18.17	18.81	19.00	18.57	19.21
		RB25#0	18.83	18.59	18.55	19.23	18.99	18.95
10.0	QPSK	RB1#0	20.78	20.90	21.05	21.18	21.30	21.45
		RB1#25	20.98	21.24	21.48	21.38	21.64	21.88
		RB1#49	20.73	20.71	21.11	21.13	21.11	21.51
		RB25#0	19.71	19.83	20.26	20.11	20.23	20.66
		RB25#25	19.86	20.07	20.38	20.26	20.47	20.78
		RB50#0	19.75	20.16	20.07	20.15	20.56	20.47
	16QAM	RB1#0	20.10	20.10	19.91	20.50	20.50	20.31
		RB1#25	20.63	20.16	20.14	21.03	20.56	20.54
		RB1#49	20.04	19.71	19.90	20.44	20.11	20.30
		RB25#0	19.07	19.12	19.49	19.47	19.52	19.89
		RB25#25	18.80	18.73	19.36	19.20	19.13	19.76
		RB50#0	18.89	18.83	19.13	19.29	19.23	19.53

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	20.68	20.21	20.03	21.08	20.61	20.43
		RB1#38	20.72	20.24	20.10	21.12	20.64	20.50
		RB1#74	20.54	20.06	20.02	20.94	20.46	20.42
		RB36#0	19.78	19.32	19.12	20.18	19.72	19.52
		RB36#39	19.77	19.25	19.11	20.17	19.65	19.51
		RB75#0	19.77	19.26	19.13	20.17	19.66	19.53
	16QAM	RB1#0	20.21	19.30	19.39	20.61	19.70	19.79
		RB1#38	20.25	19.37	19.46	20.65	19.77	19.86
		RB1#74	20.05	19.23	19.35	20.45	19.63	19.75
		RB36#0	18.75	18.26	18.07	19.15	18.66	18.47
		RB36#39	18.71	18.24	18.06	19.11	18.64	18.46
		RB75#0	18.75	18.28	18.09	19.15	18.68	18.49
20.0	QPSK	RB1#0	20.69	20.15	20.40	21.09	20.55	20.80
		RB1#50	20.89	20.28	20.63	21.29	20.68	21.03
		RB1#99	20.53	20.02	20.30	20.93	20.42	20.70
		RB50#0	19.72	19.14	19.54	20.12	19.54	19.94
		RB50#50	19.63	19.05	19.40	20.03	19.45	19.80
		RB100#0	19.72	19.09	19.50	20.12	19.49	19.90
	16QAM	RB1#0	20.02	19.31	19.94	20.42	19.71	20.34
		RB1#50	20.17	19.48	20.16	20.57	19.88	20.56
		RB1#99	19.82	19.18	19.81	20.22	19.58	20.21
		RB50#0	18.69	18.15	18.55	19.09	18.55	18.95
		RB50#50	18.62	18.03	18.38	19.02	18.43	18.78
		RB100#0	18.72	18.13	18.53	19.12	18.53	18.93

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

For Band66: Antenna Gain = 0.4dBi

Limit: EIRP ≤ 30dBm

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

Mode	Channel	PAR (dB)	Limit(dB)
GSM	Low	3.73	13
	Middle	3.05	13
	High	3.59	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	2.94	13
	Middle	2.93	13
	High	2.77	13
HSDPA (16QAM)	Low	4.79	13
	Middle	4.79	13
	High	4.70	13
HSUPA (BPSK)	Low	5.60	13
	Middle	5.68	13
	High	5.61	13

PCS Band

Mode	Channel	PAR (dB)	Limit(dB)
GSM	Low	3.77	13
	Middle	3.59	13
	High	3.60	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	2.94	13
	Middle	3.01	13
	High	2.93	13
HSDPA (16QAM)	Low	4.72	13
	Middle	5.04	13
	High	4.82	13
HSUPA (BPSK)	Low	5.45	13
	Middle	5.83	13
	High	5.81	13

AWS Band

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.47	13
	Middle	3.46	13
	High	3.42	13
HSDPA (16QAM)	Low	3.41	13
	Middle	3.61	13
	High	3.47	13
HSUPA (BPSK)	Low	3.49	13
	Middle	3.51	13
	High	3.33	13

LTE Band 2 20MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.75	4.96	4.64	13	Pass
QPSK (100RB Size)	5.11	5.11	5.06	13	Pass
16QAM (1RB Size)	5.73	5.98	5.35	13	Pass
16QAM (100RB Size)	5.96	6.14	6.00	13	Pass

LTE Band 4 20MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.57	4.17	4.71	13	Pass
QPSK (100RB Size)	4.88	4.96	5.06	13	Pass
16QAM (1RB Size)	5.19	5.55	5.54	13	Pass
16QAM (100RB Size)	5.80	5.81	6.03	13	Pass

LTE Band 7 20MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.95	4.57	5.38	13	Pass
QPSK (100RB Size)	5.14	5.13	5.05	13	Pass
16QAM (1RB Size)	5.92	5.54	6.06	13	Pass
16QAM (100RB Size)	5.95	6.28	5.99	13	Pass

LTE Band 66 20MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.27	4.74	4.78	13	Pass
QPSK (100RB Size)	4.64	4.93	4.96	13	Pass
16QAM (1RB Size)	5.33	5.78	5.43	13	Pass
16QAM (100RB Size)	5.58	5.98	5.89	13	Pass

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

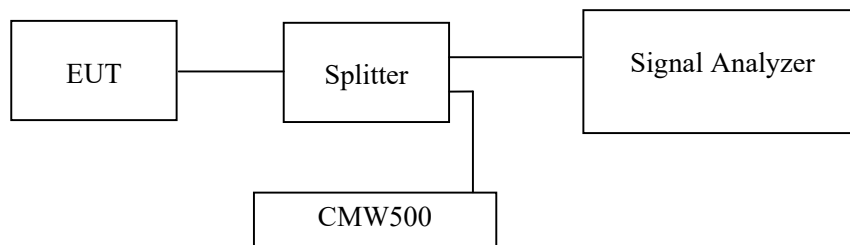
Applicable Standard

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

Test Procedure

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

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



Test Data

Environmental Conditions

Temperature:	27 °C
Relative Humidity:	48%
ATM Pressure:	101.0 kPa

The testing was performed by Andy Yu from 2022-09-18 to 2022-10-21.

EUT operation mode: Transmitting

Test Result: Pass

Please refer to the following tables and plots.

Cellular Band (Part 24E)

Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM(GMSK)	128	824.2	250.00	321.00
	190	836.6	250.00	322.00
	251	848.8	245.00	310.00

	Frequency (MHz)	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	826.4	4.155	4.695
	836.4	4.155	4.680
	846.6	4.140	4.710
HSDPA	826.4	4.155	4.695
	836.4	4.140	4.710
	846.6	4.155	4.695
HSUPA	826.4	4.155	4.710
	836.4	4.140	4.710
	846.6	4.140	4.695

PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM(GMSK)	512	1850.2	243.00	311.00
	661	1880	243.00	309.00
	810	1909.8	243.00	308.00

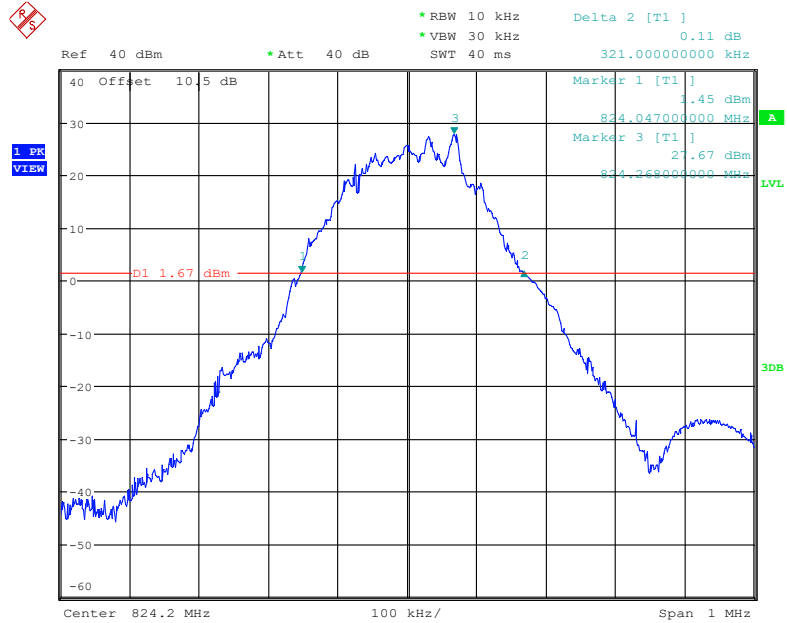
	Frequency (MHz)	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	1852.4	4.155	4.695
	1880.0	4.155	4.695
	1907.6	4.125	4.695
HSDPA	1852.4	4.170	4.695
	1880.0	4.155	4.695
	1907.6	4.155	4.995
HSUPA	1852.4	4.170	4.695
	1880.0	4.155	4.710
	1907.6	4.170	4.725

AWS Band (Part 27)

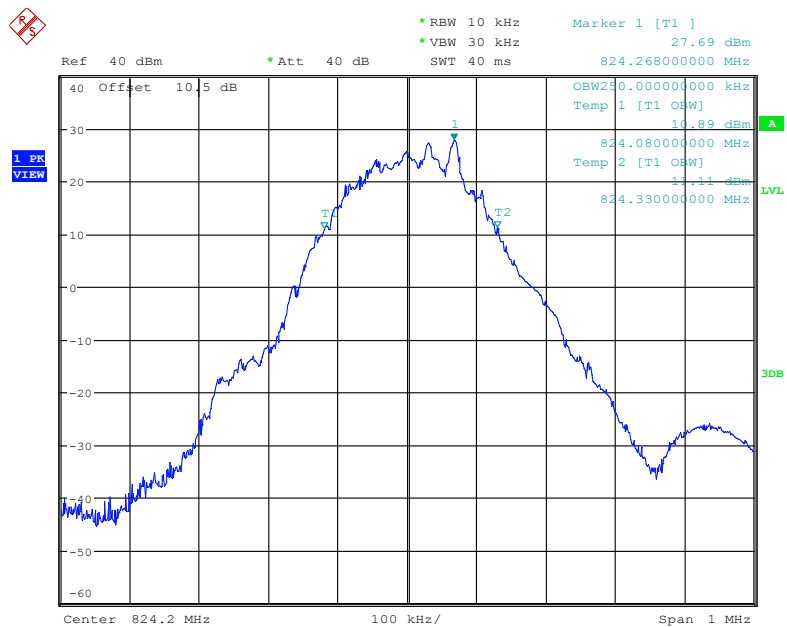
Frequency (MHz)		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	1712.4	4.155	4.965
	1732.6	4.140	4.695
	1752.6	4.155	4.710
HSDPA	1712.4	4.155	4.710
	1732.6	4.170	4.710
	1752.6	4.155	4.710
HSUPA	1712.4	4.155	4.725
	1732.6	4.155	4.725
	1752.6	4.155	4.680

Cellular Band (Part 22H)

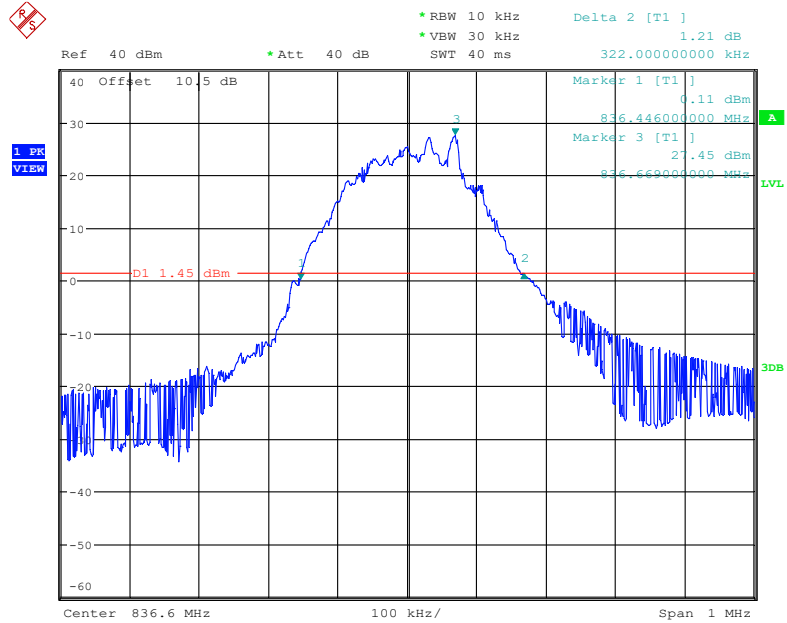
26 dB Emissions & 99% Occupied Bandwidth for GSM (GMSK) Mode, Low channel



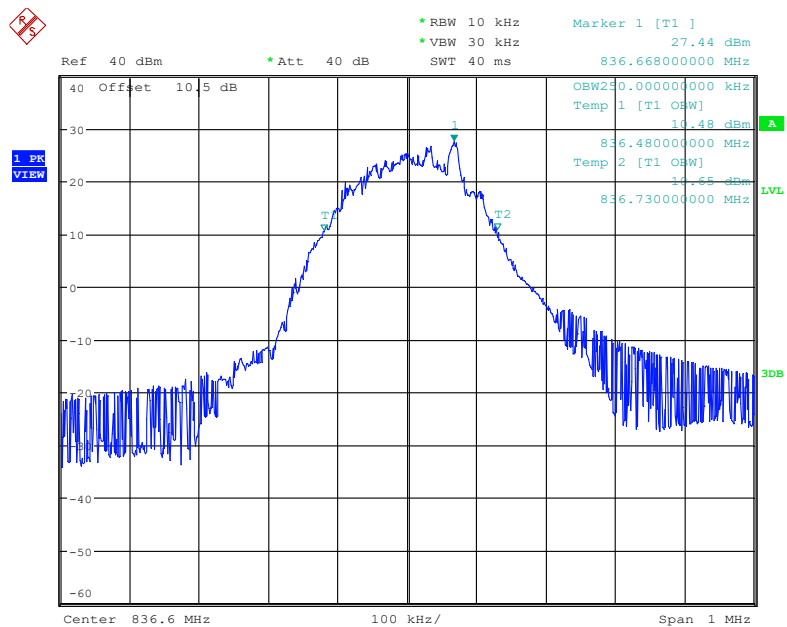
Date: 20.SEP.2022 21:34:56



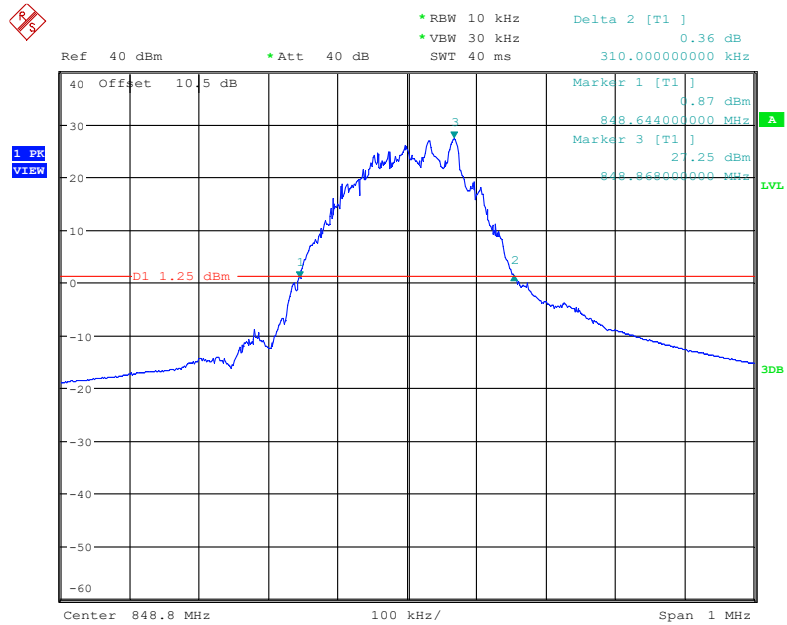
Date: 20.SEP.2022 21:34:17

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

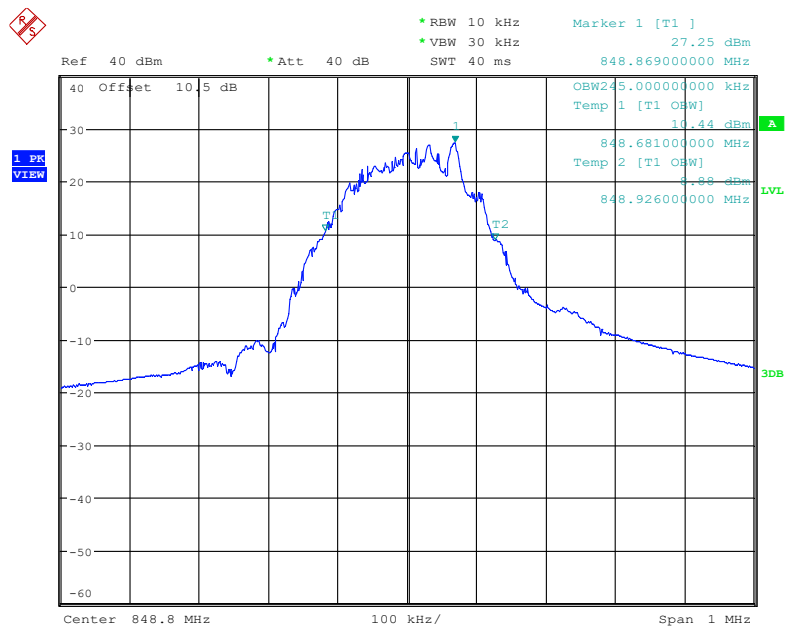
Date: 20.SEP.2022 21:30:26



Date: 20.SEP.2022 21:29:47

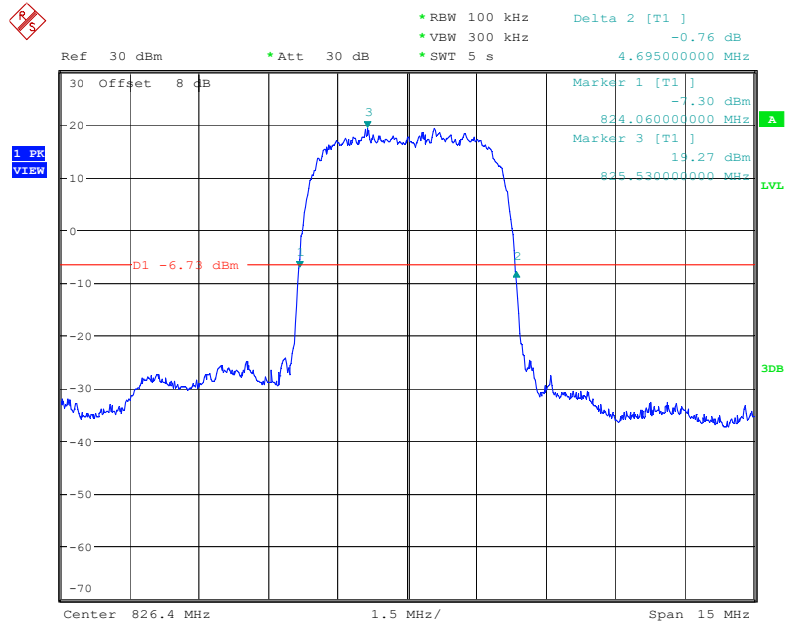
26 dB Emissions & 99% Occupied Bandwidth for GSM (GMSK) Mode, High channel

Date: 20.SEP.2022 21:39:46

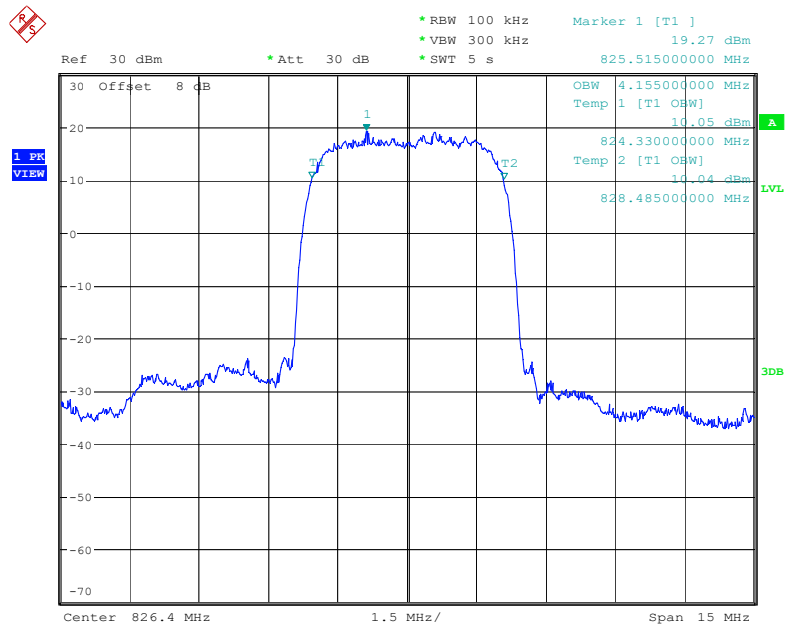


Date: 20.SEP.2022 21:39:05

26 dB Emission Bandwidth for RMC (BPSK) Mode, Low channel

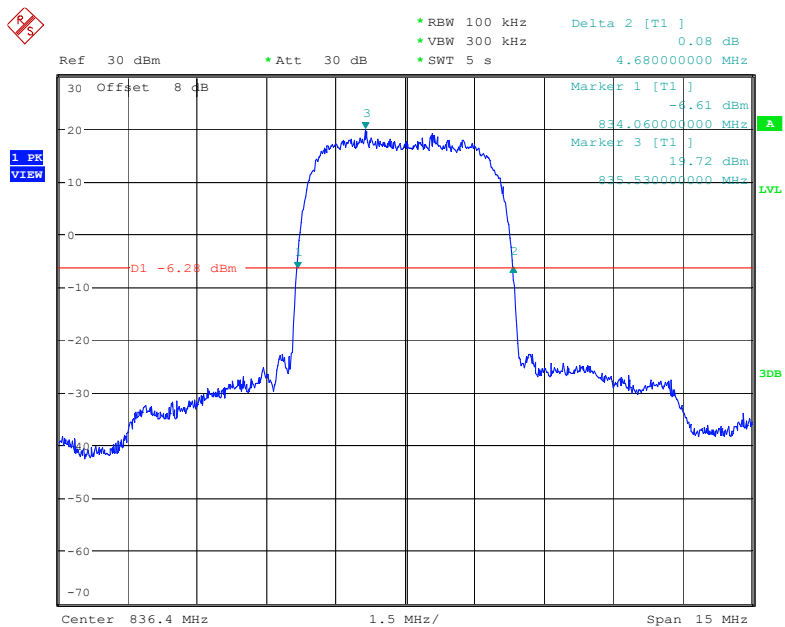


Date: 28.SEP.2022 17:42:46

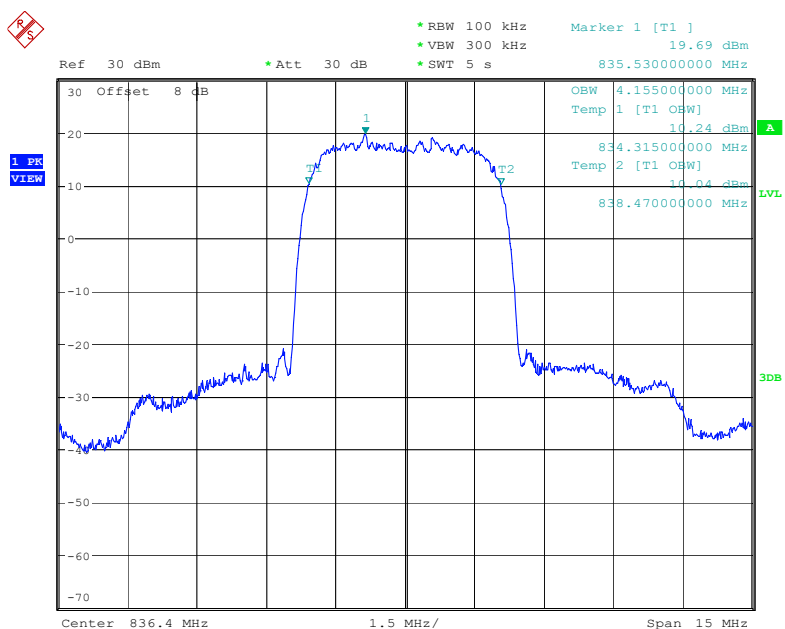


Date: 28.SEP.2022 17:42:07

26 dB Emission Bandwidth for RMC (BPSK) Mode, Middle channel

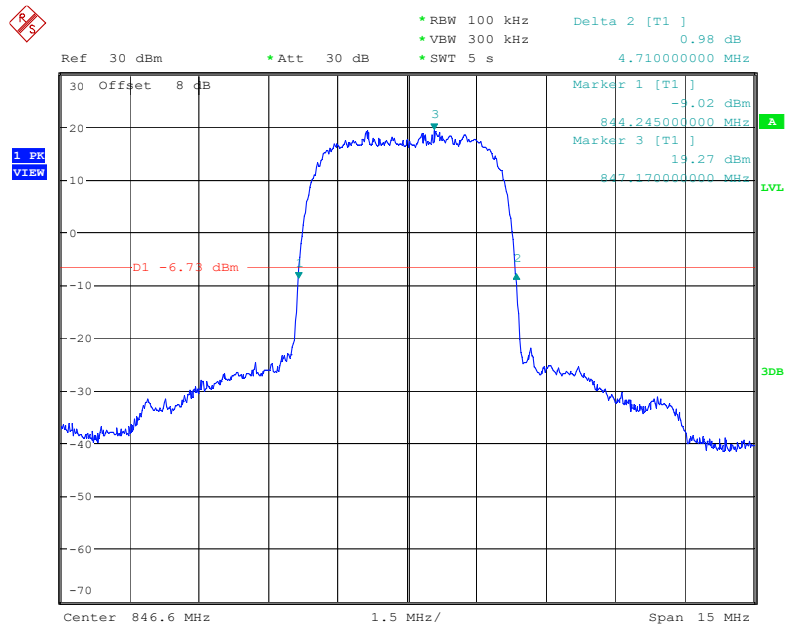


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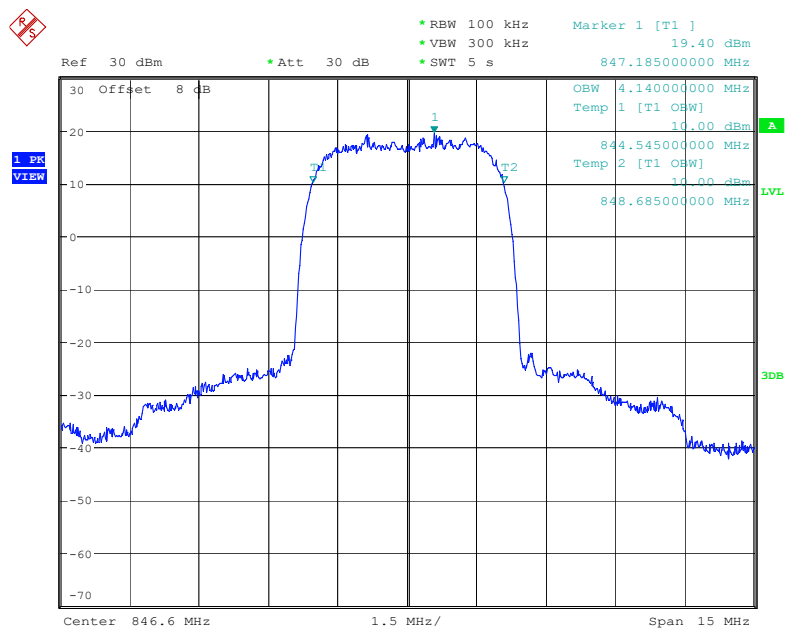


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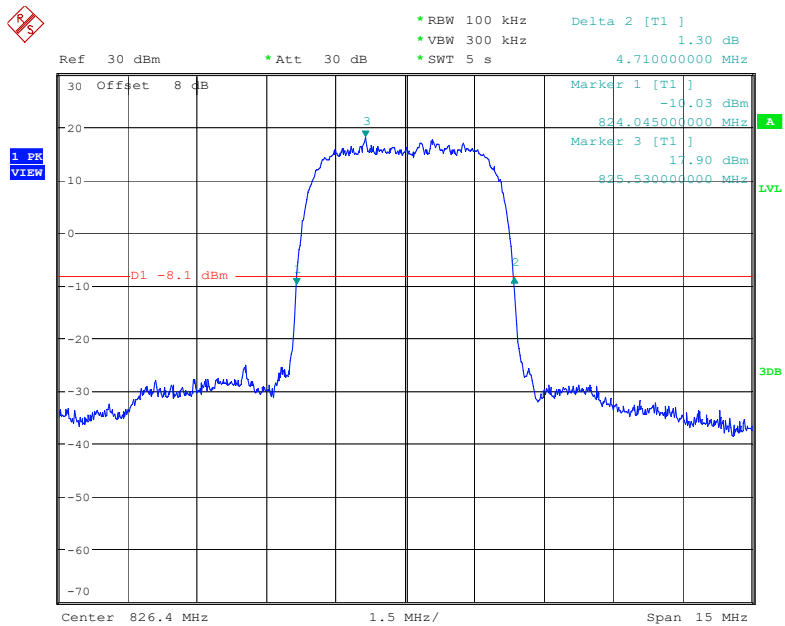
26 dB Emission Bandwidth for RMC (BPSK) Mode, High channel



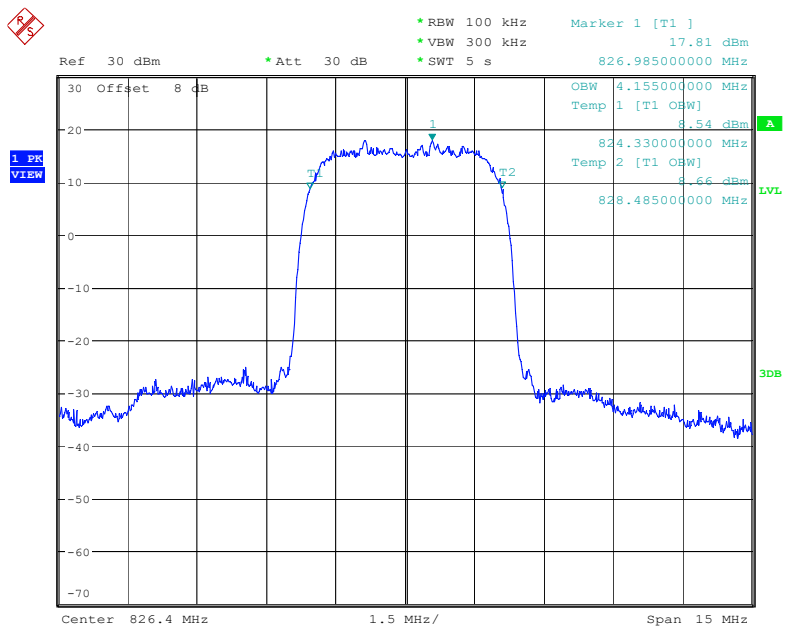
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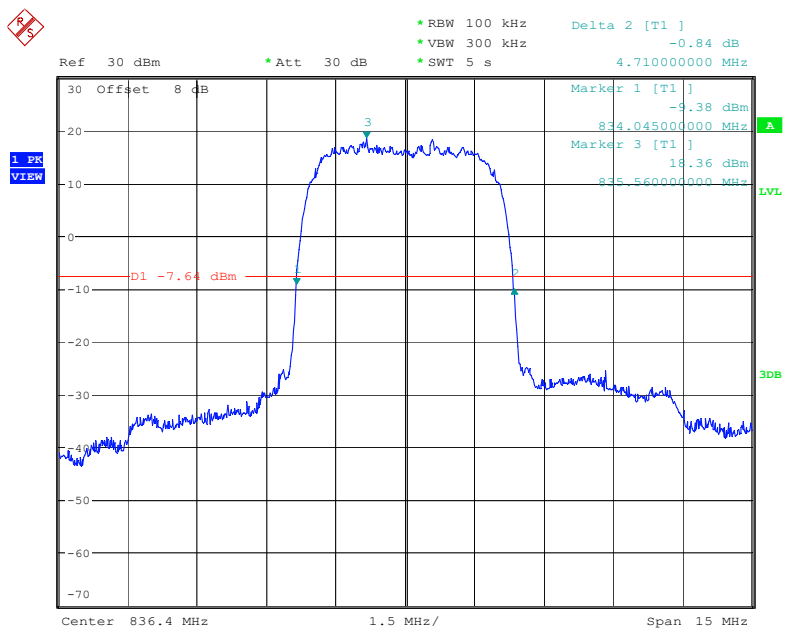
Date: 28.SEP.2022 17:53:04

26 dB Emission Bandwidth for HSUPA (QPSK) Mode, Low channel

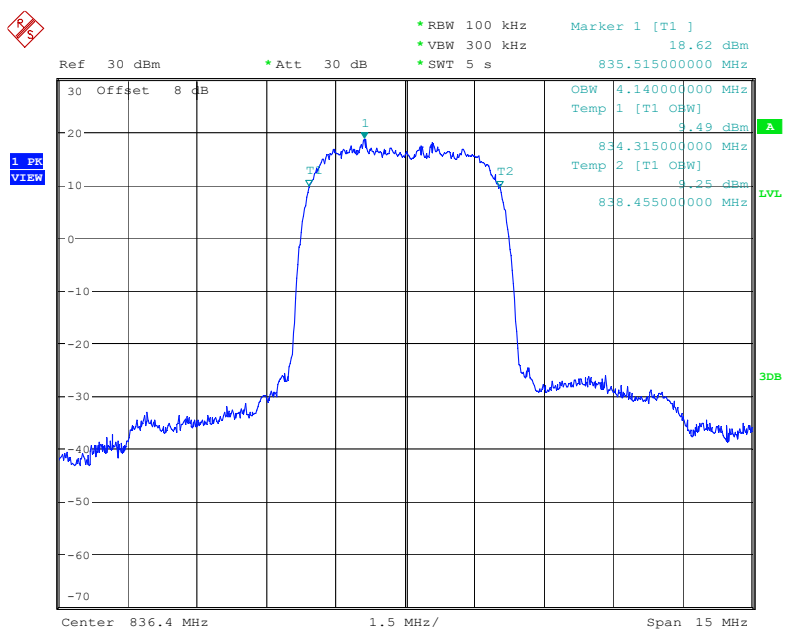
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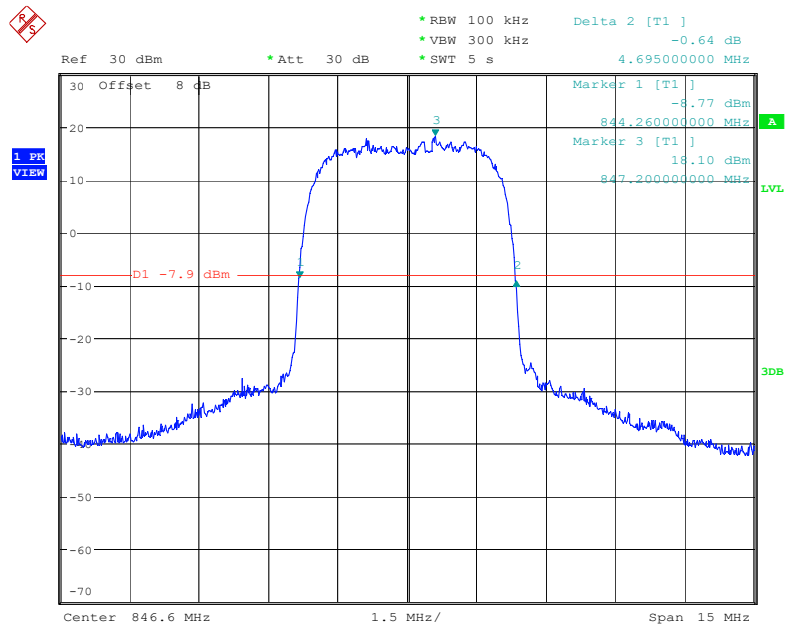
Date: 28.SEP.2022 18:11:47

26 dB Emission Bandwidth for HSUPA (QPSK) Mode, Middle channel

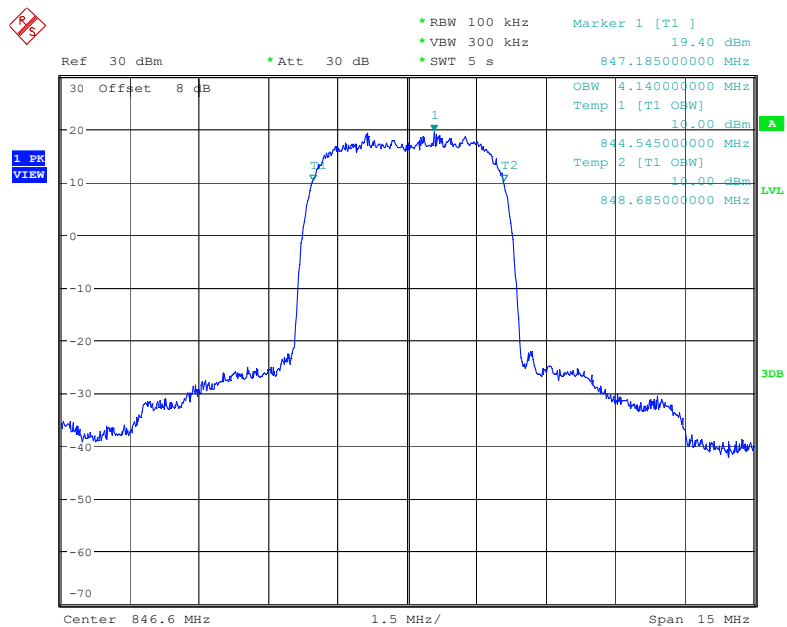
Date: 28.SEP.2022 18:15:52



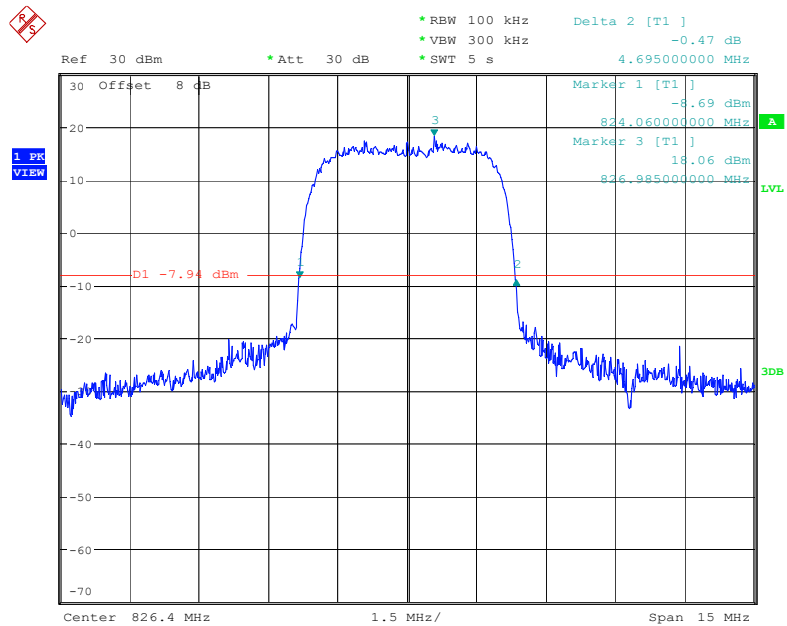
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26 dB Emission Bandwidth for HSUPA (QPSK) Mode, High channel

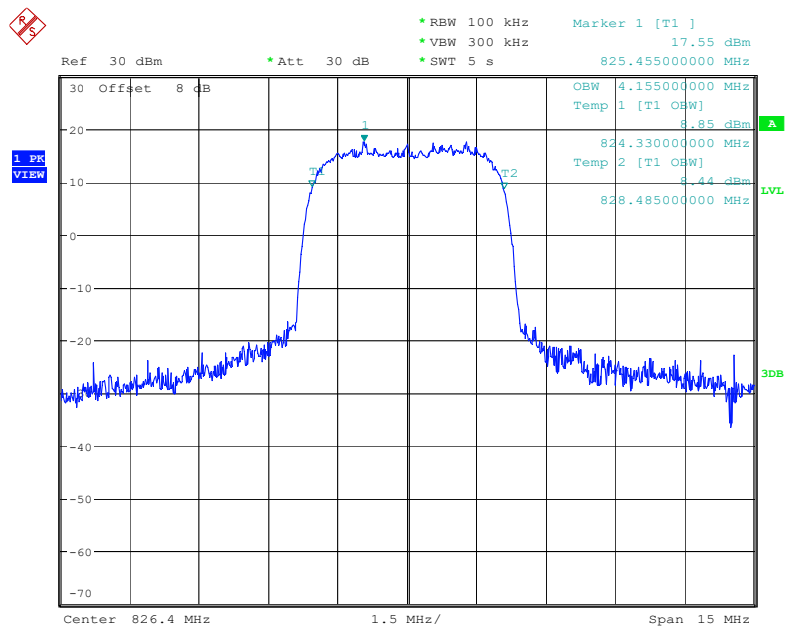
Date: 28.SEP.2022 18:18:41



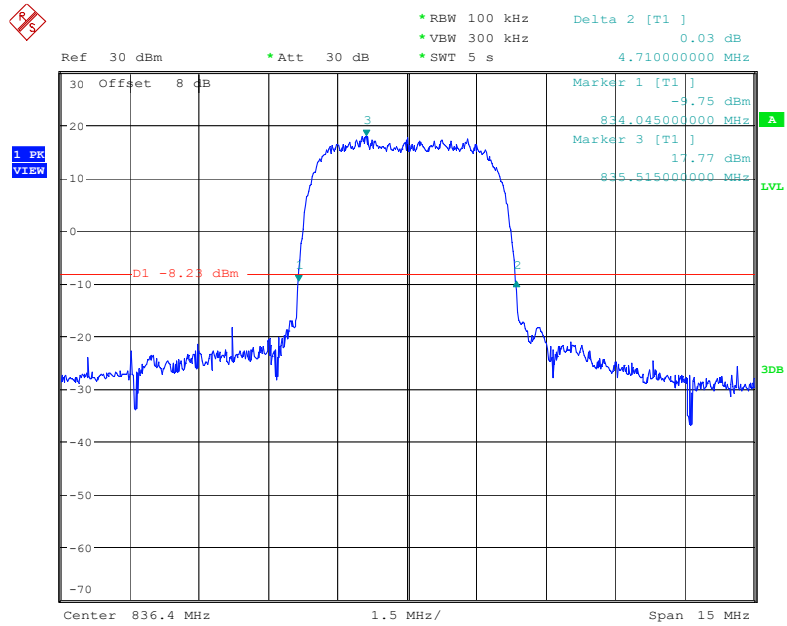
Date: 28.SEP.2022 17:53:04

26 dB Emission Bandwidth for HSDPA (16QAM) Mode, Low channel

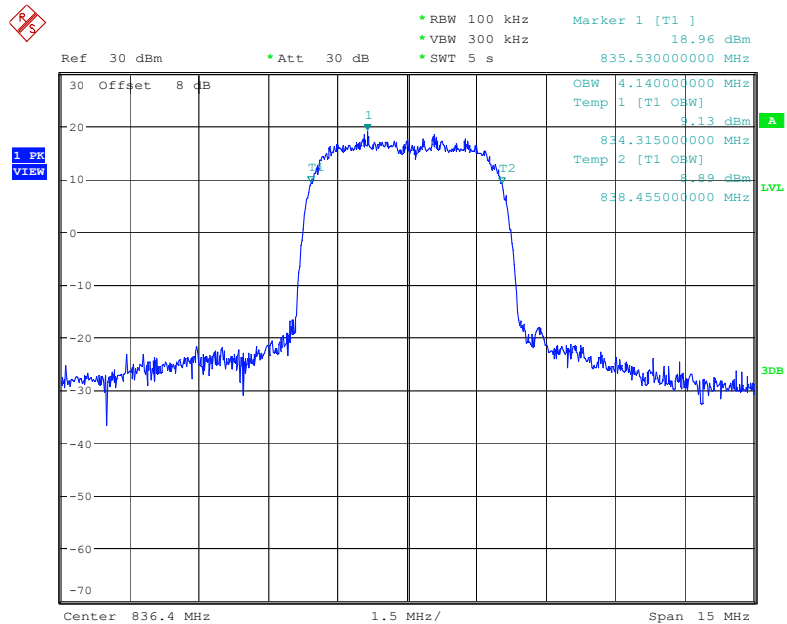
Date: 28.SEP.2022 21:40:13



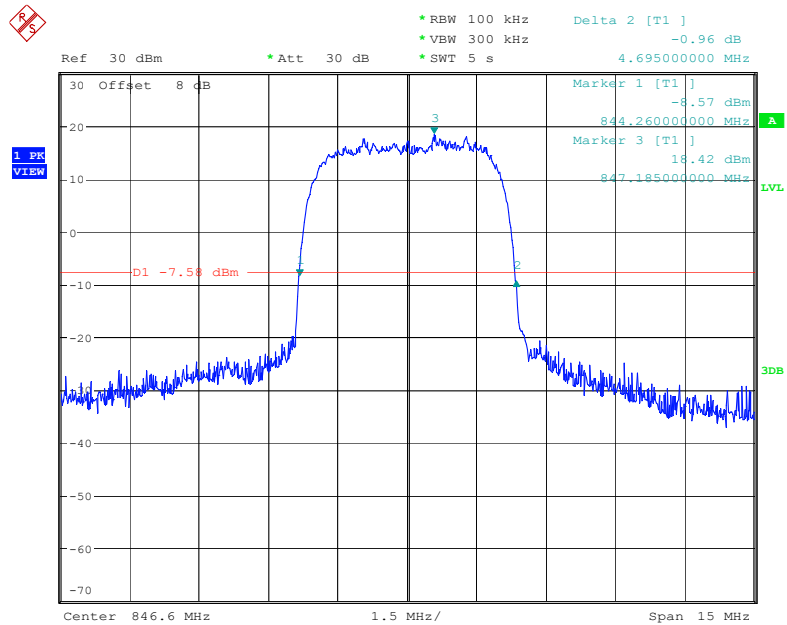
Date: 28.SEP.2022 21:39:33

26 dB Emission Bandwidth for HSDPA (16QAM) Mode, Middle channel

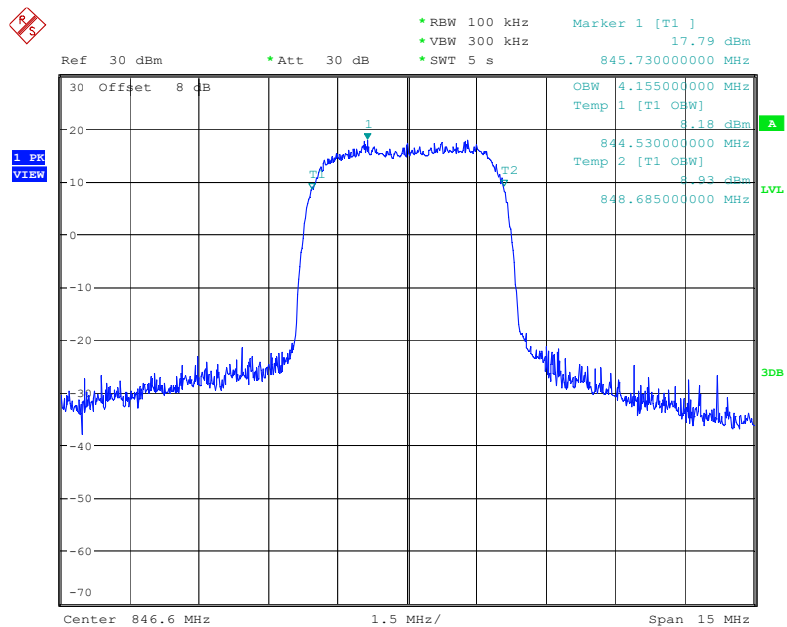
Date: 28.SEP.2022 18:03:34



Date: 28.SEP.2022 18:02:56

26 dB Emission Bandwidth for HSDPA (16QAM) Mode, High channel

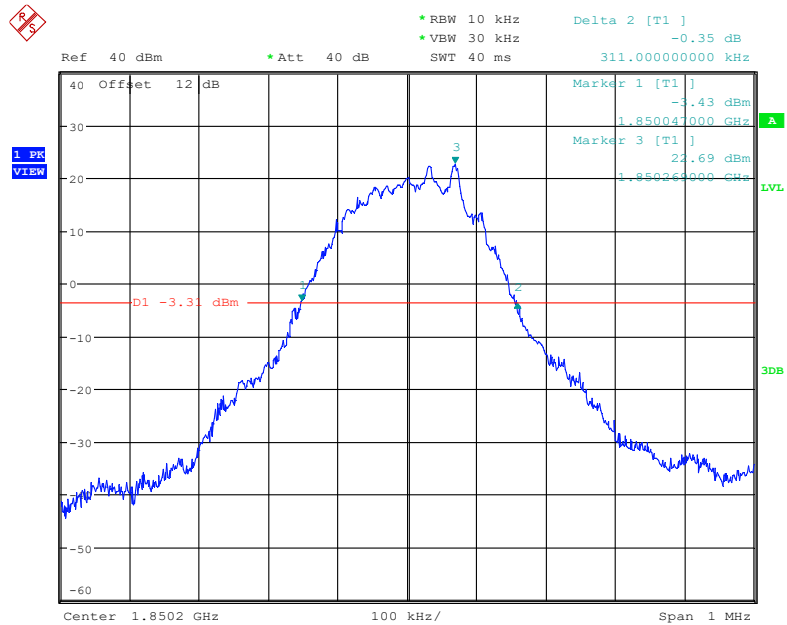
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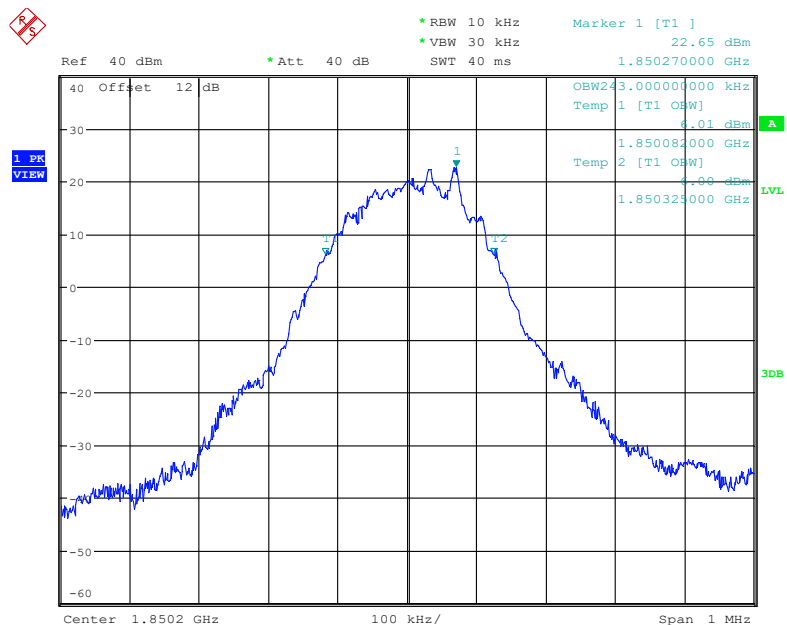
Date: 28.SEP.2022 18:05:50

PCS Band (Part 24E)

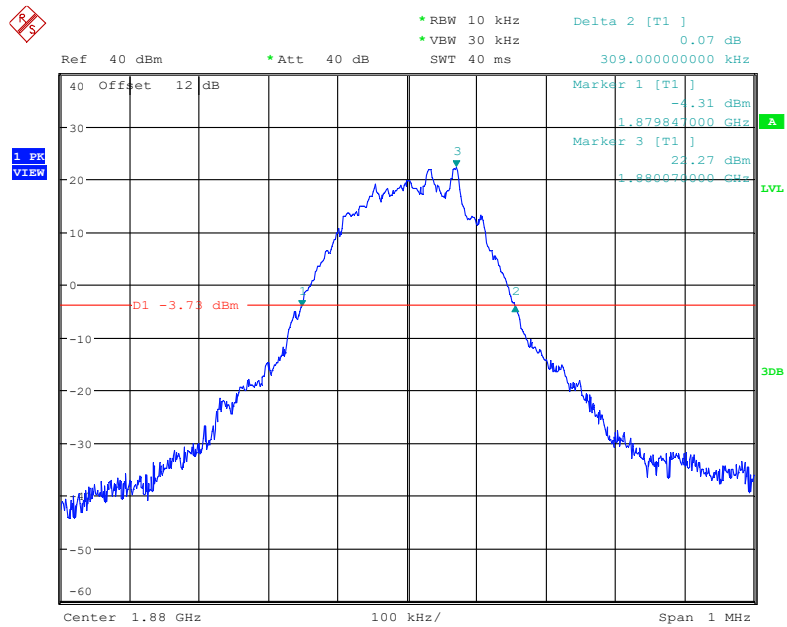
26 dB Emission Bandwidth for GSM(GMSK) Mode, Low channel



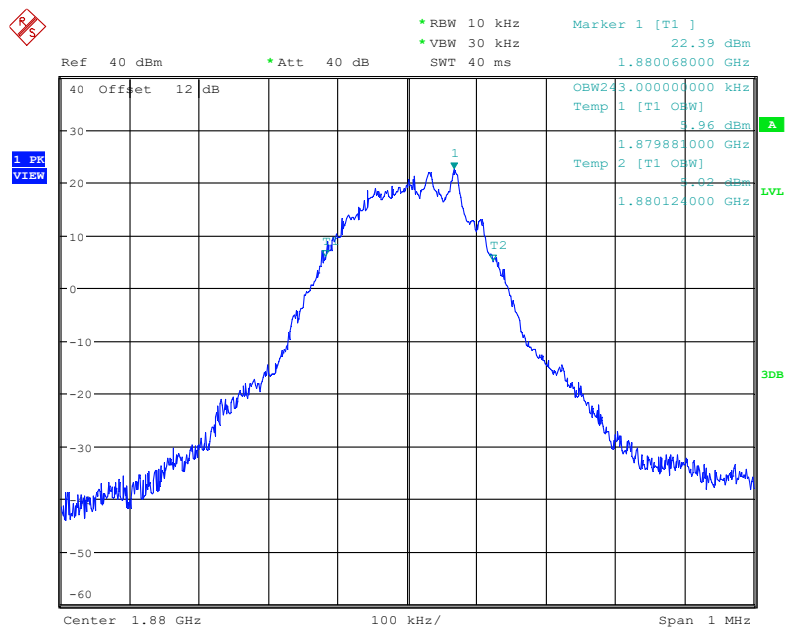
Date: 20.SEP.2022 22:25:14



Date: 20.SEP.2022 22:24:35

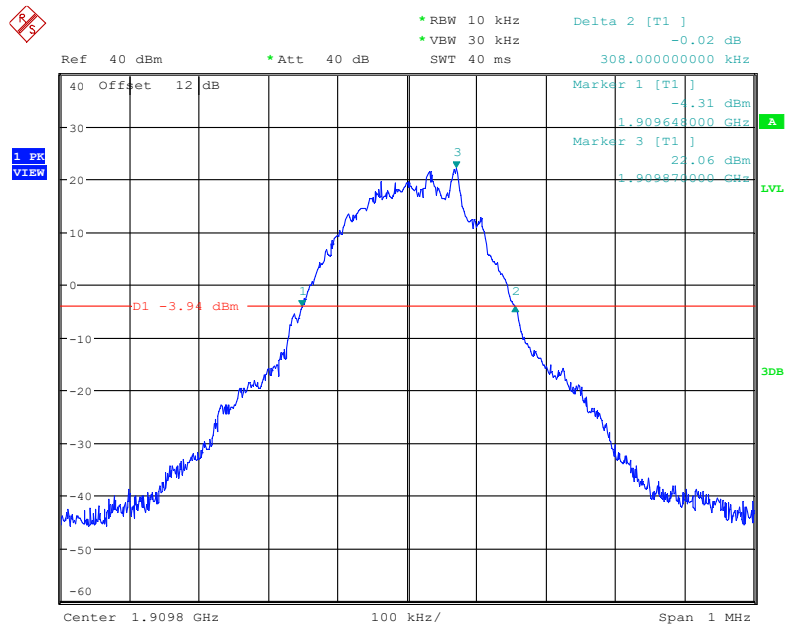
26 dB Emission Bandwidth for GSM(GMSK) Mode, Middle channel

Date: 20.SEP.2022 22:32:00

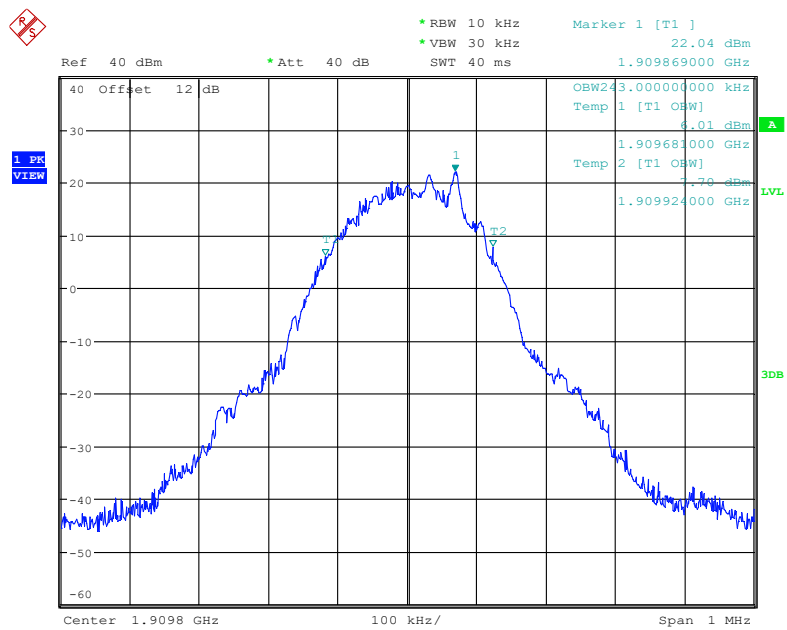


Date: 20.SEP.2022 22:31:21

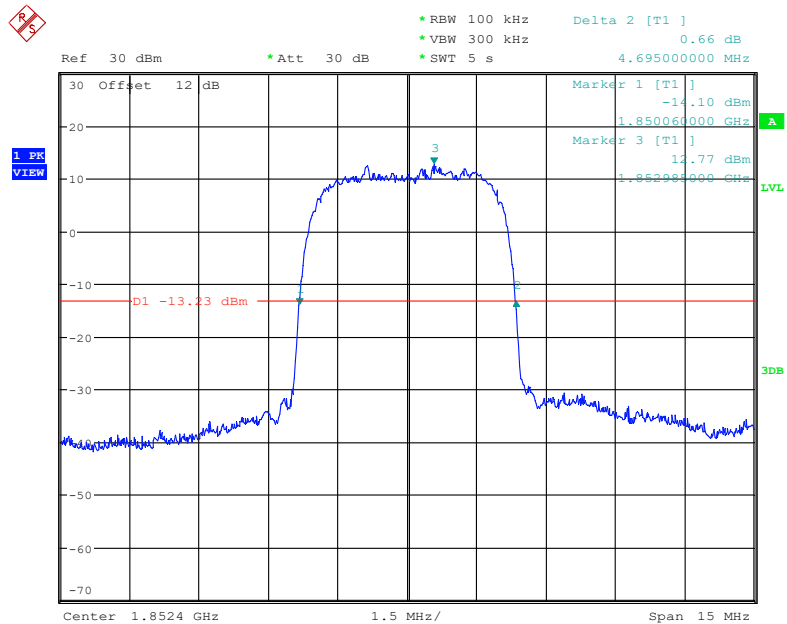
26 dB Emission Bandwidth for GSM(GMSK) Mode, High channel



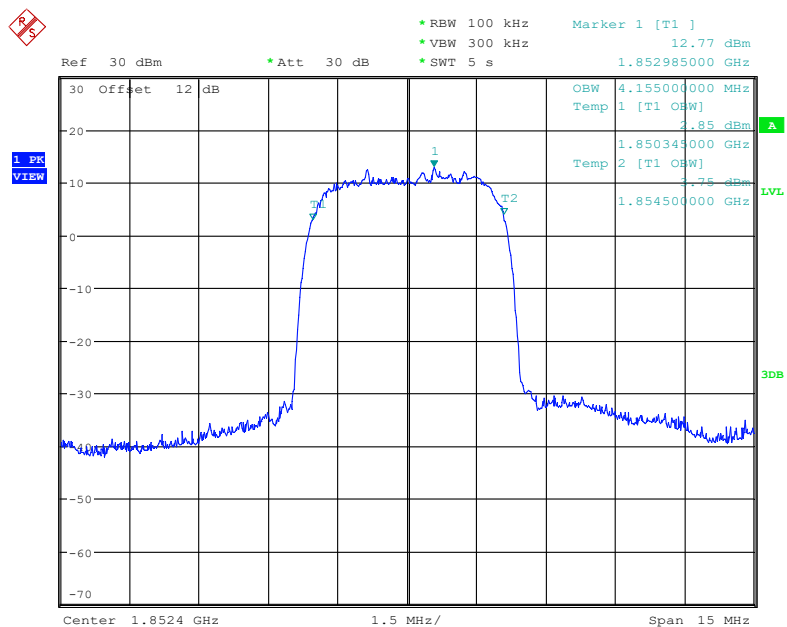
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Date: 20.SEP.2022 22:36:16

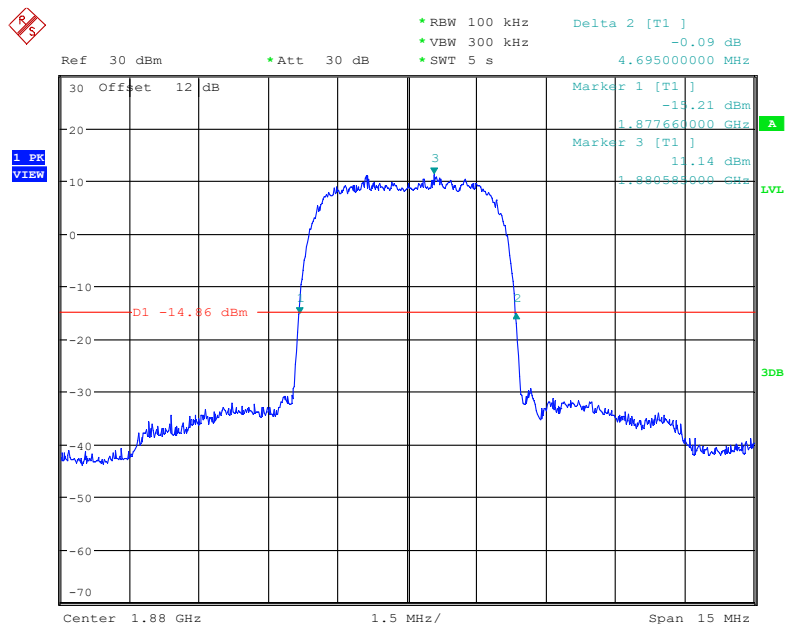
26 dB Emission Bandwidth for RMC (BPSK) Mode, Low channel

Date: 20.SEP.2022 23:10:53

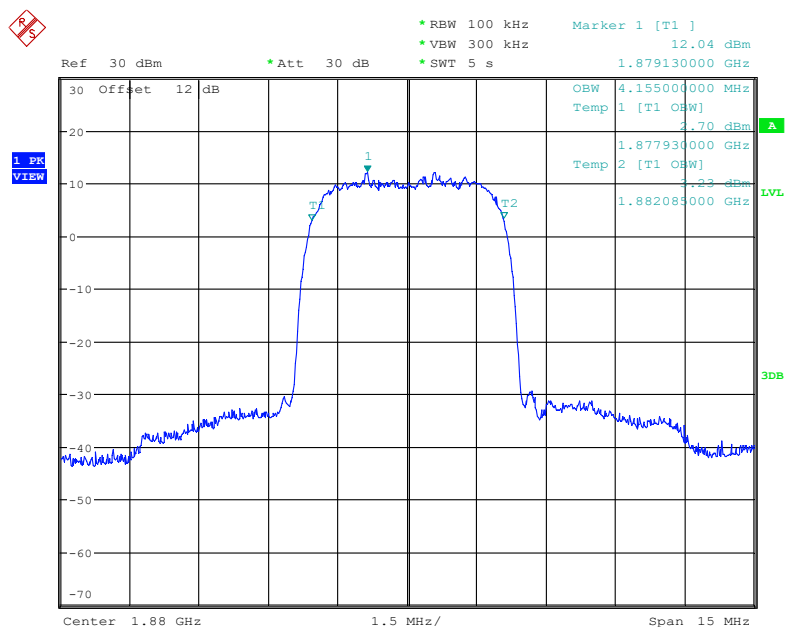


Date: 20.SEP.2022 23:10:14

26 dB Emission Bandwidth for RMC (BPSK) Mode, Middle channel

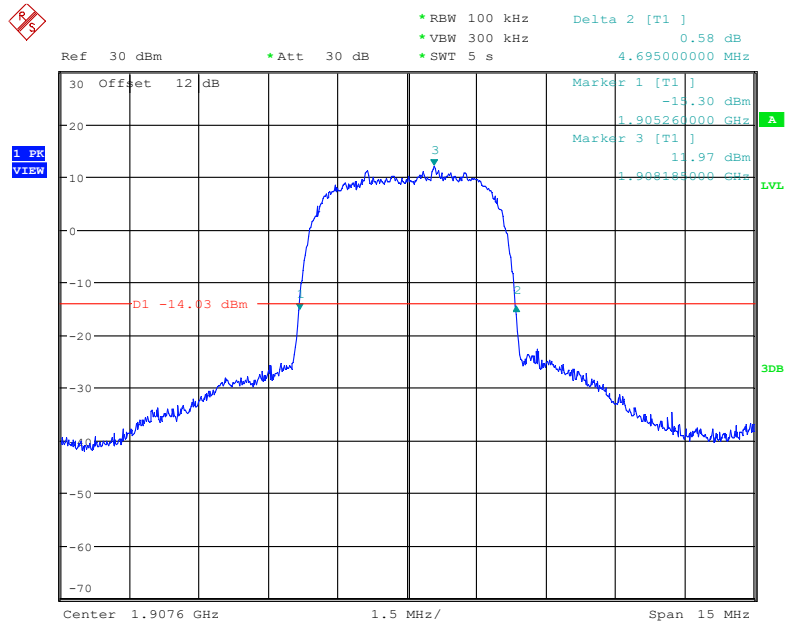


Date: 20.SEP.2022 23:19:42

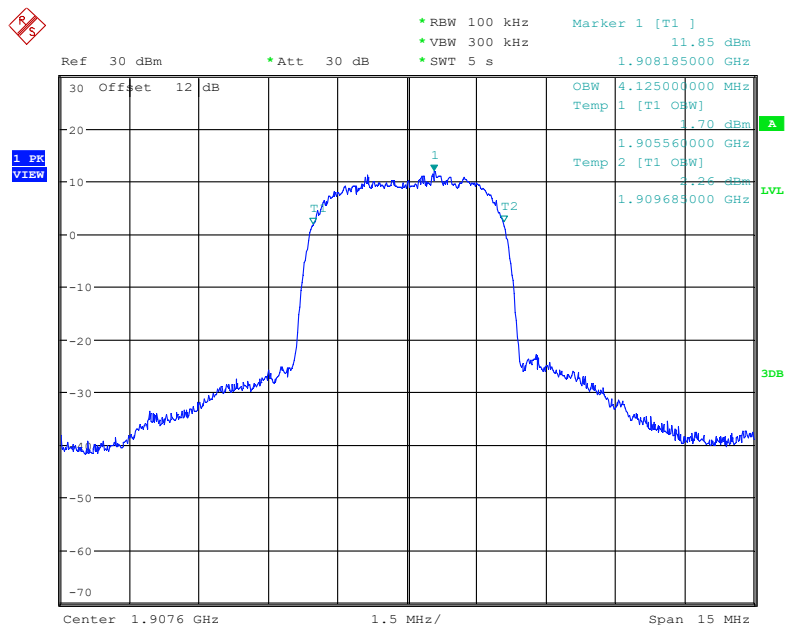


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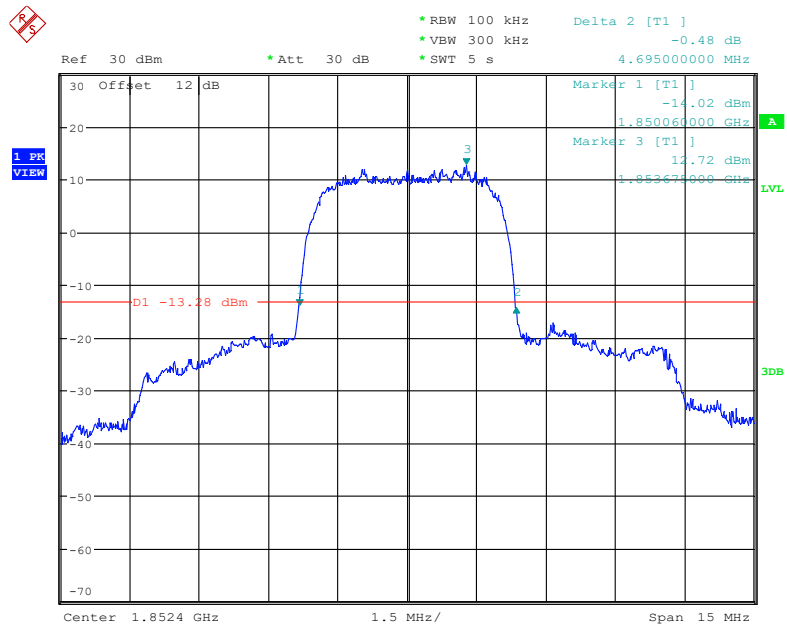
26 dB Emission Bandwidth for RMC (BPSK) Mode, High channel



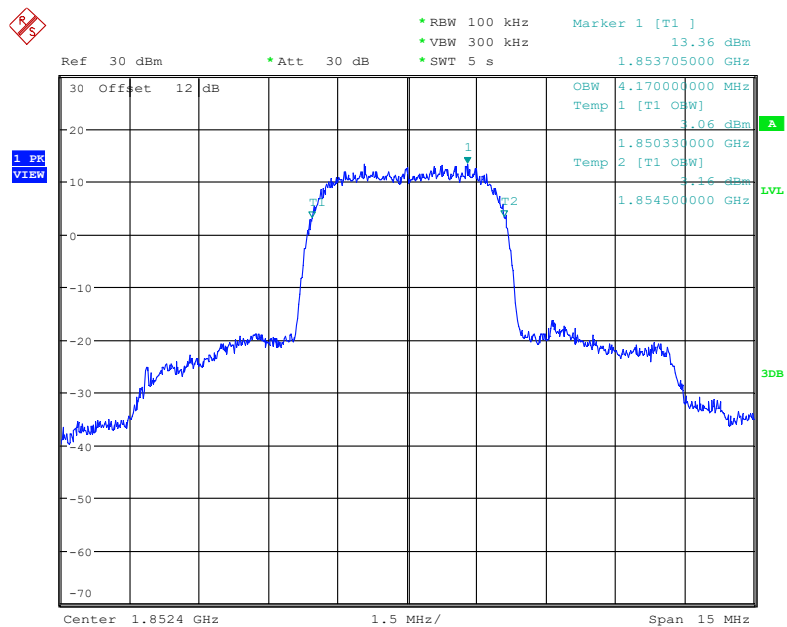
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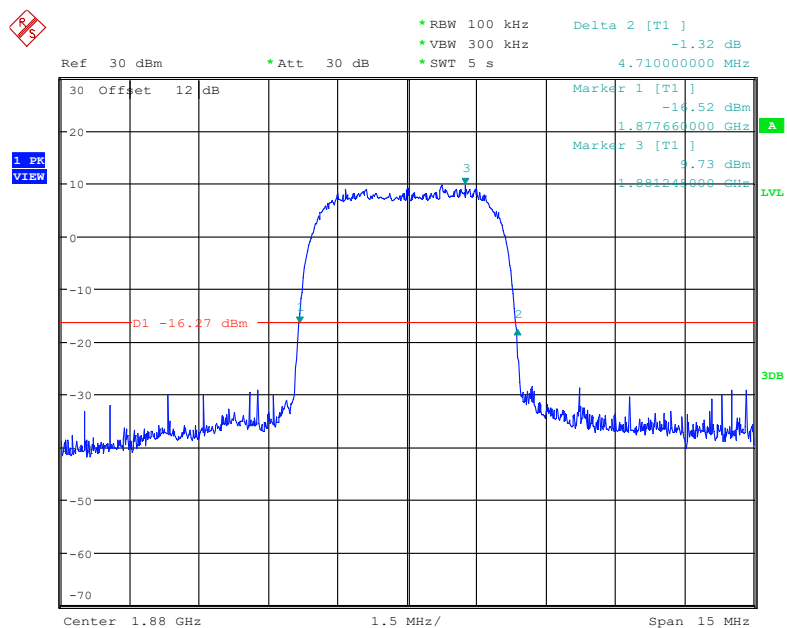
Date: 20.SEP.2022 23:22:46

26 dB Emission Bandwidth for HSUPA (QPSK) Mode, Low channel

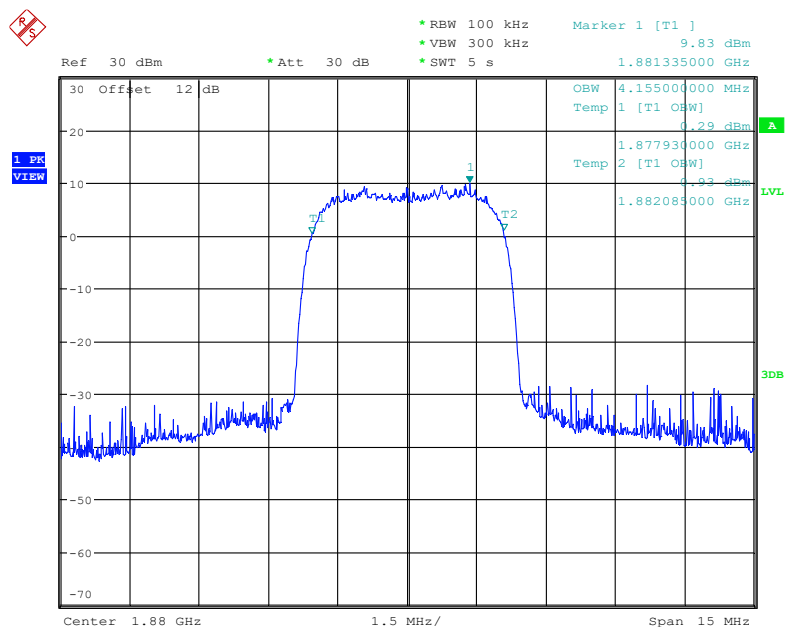
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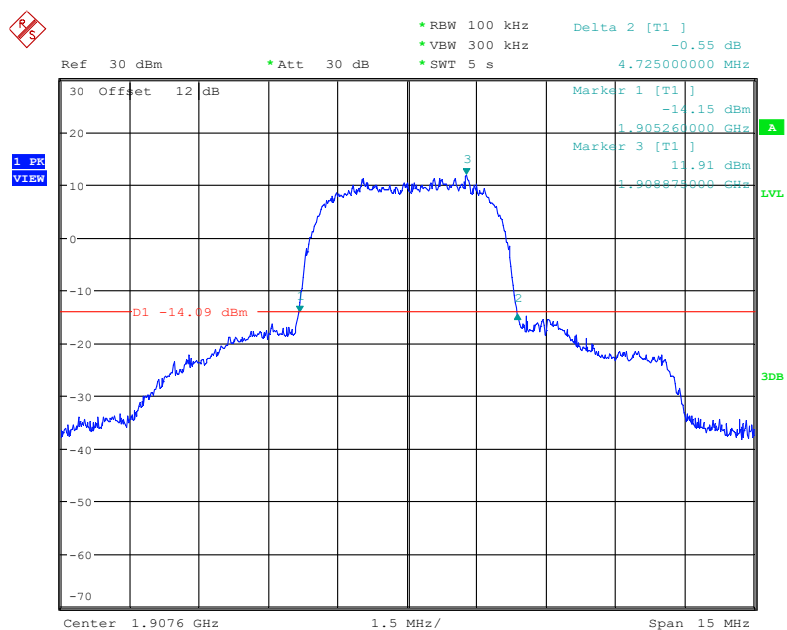
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26 dB Emission Bandwidth for HSUPA (QPSK) Mode, Middle channel

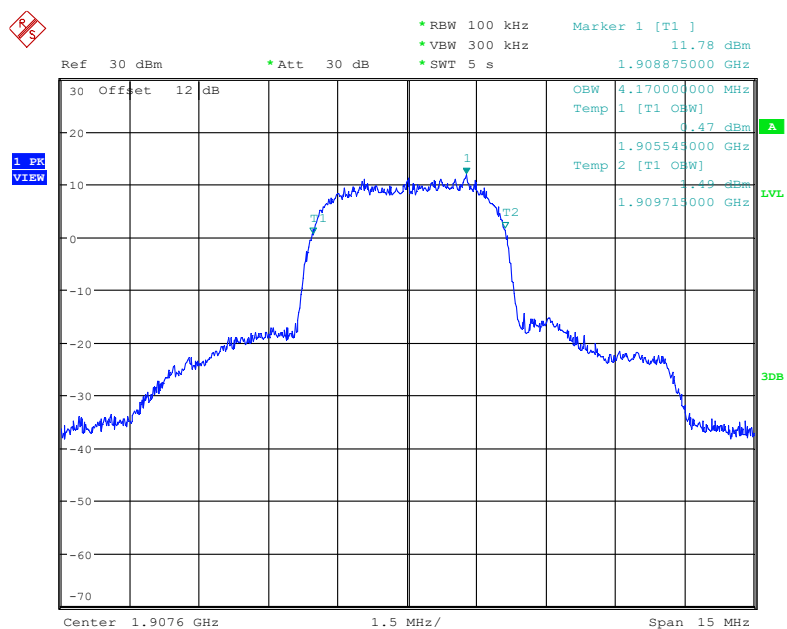
Date: 20.SEP.2022 23:51:04



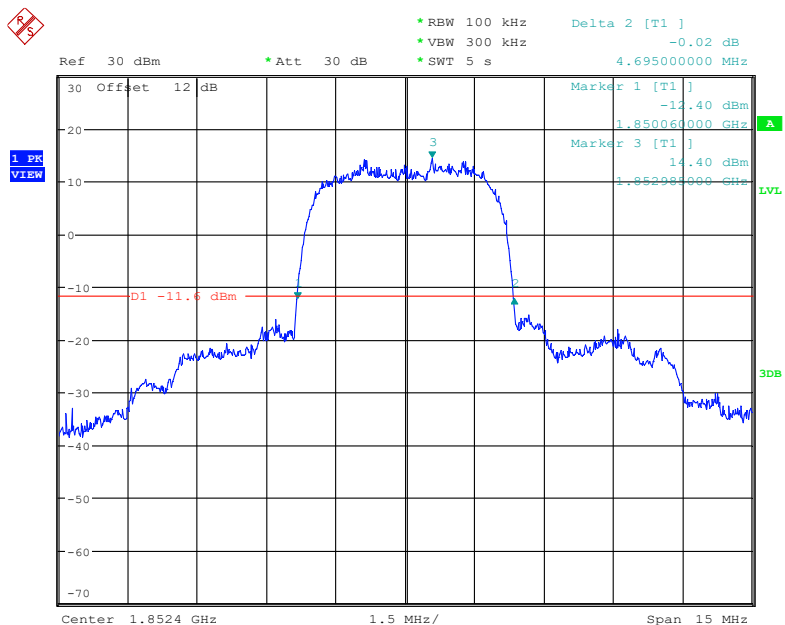
Date: 20.SEP.2022 23:50:25

26 dB Emission Bandwidth for HSUPA (QPSK) Mode, High channel

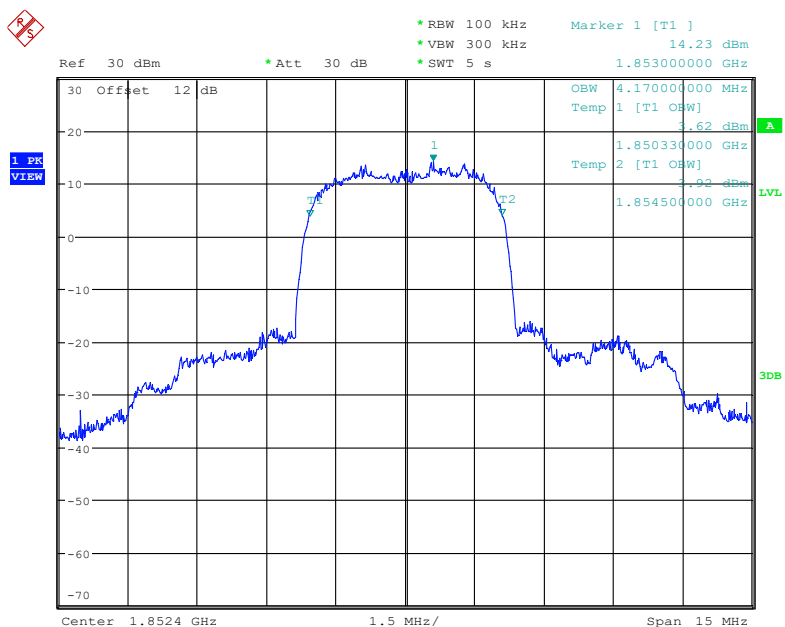
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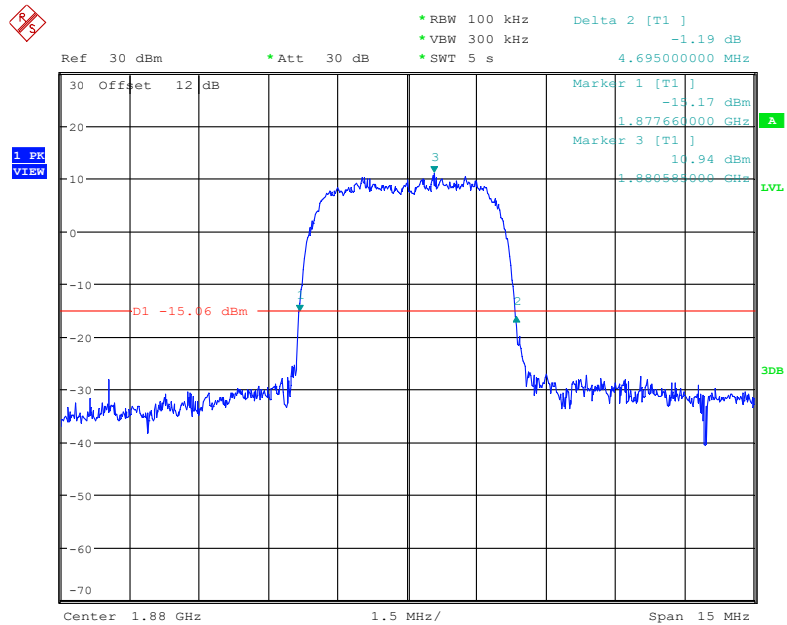
Date: 20.SEP.2022 23:59:45

26 dB Emission Bandwidth for HSDPA (16QAM) Mode, Low channel

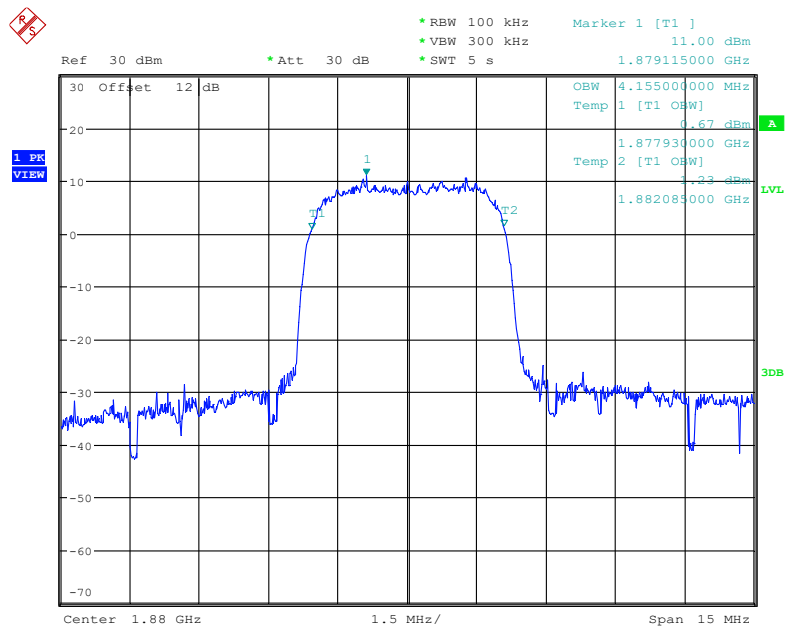
Date: 20.SEP.2022 23:40:14



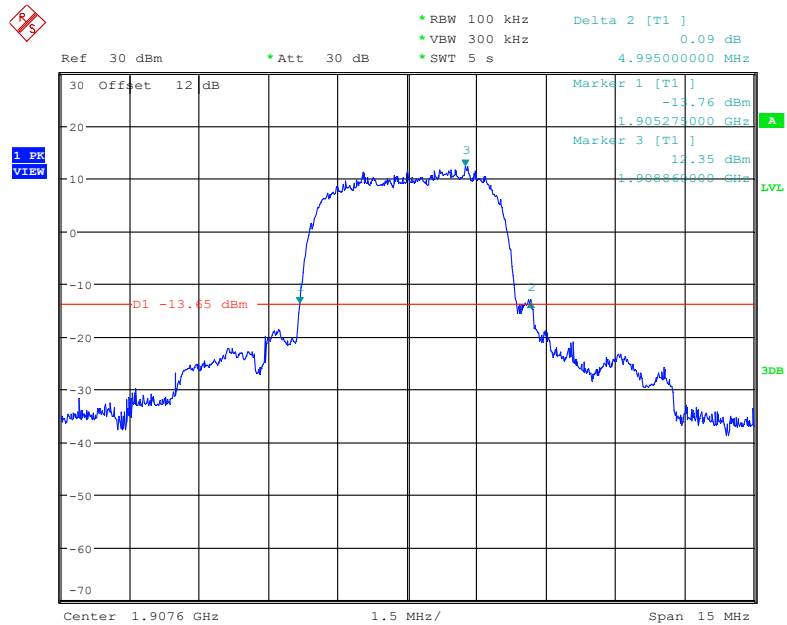
Date: 20.SEP.2022 23:39:35

26 dB Emission Bandwidth for HSDPA (16QAM) Mode, Middle channel

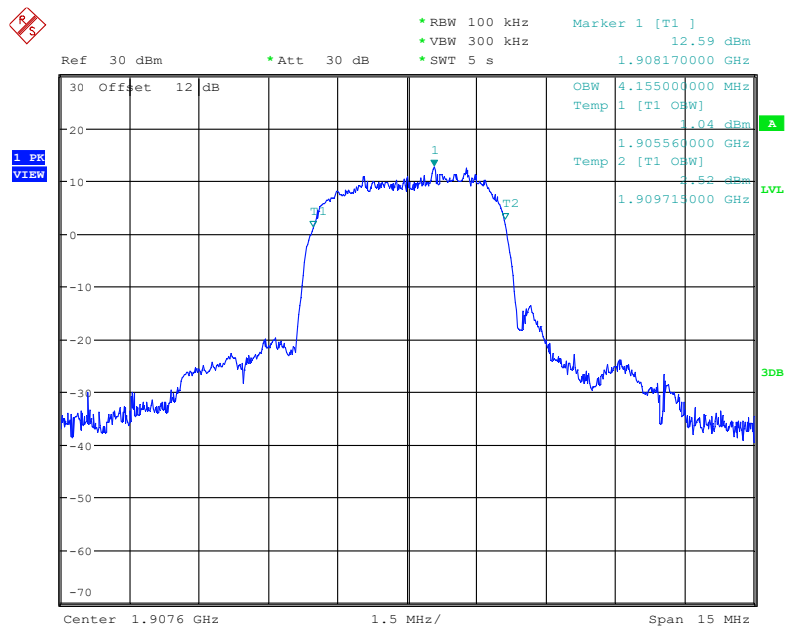
Date: 20.SEP.2022 23:44:35



Date: 20.SEP.2022 23:43:56

26 dB Emission Bandwidth for HSDPA (16QAM) Mode, High channel

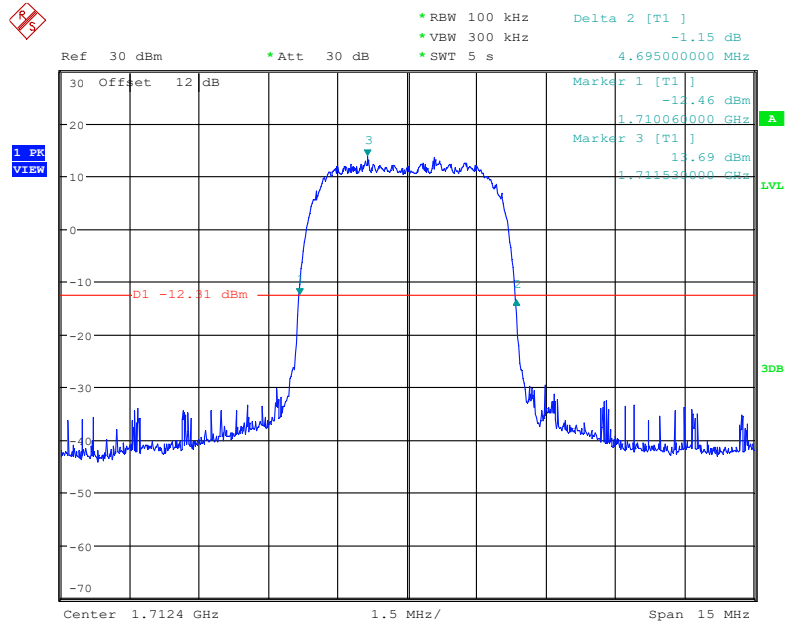
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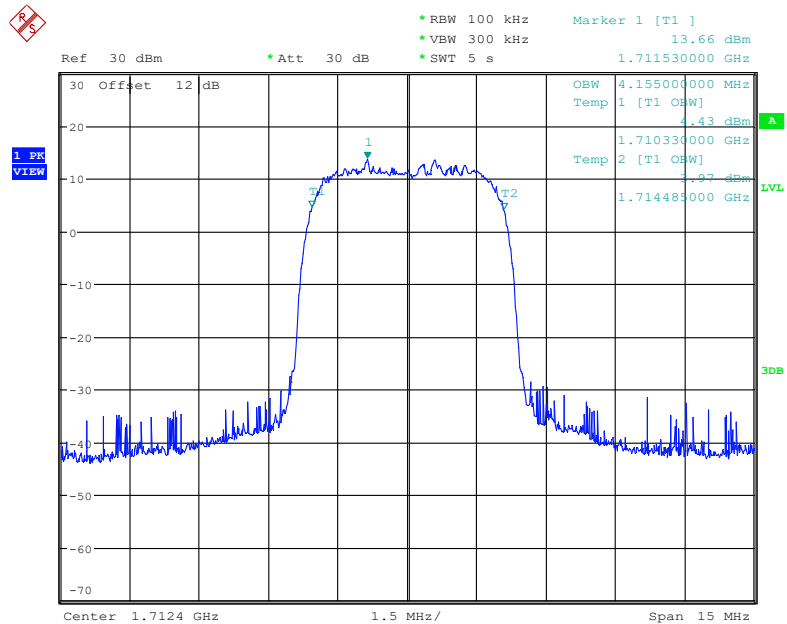
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AWS Band (Part 27)

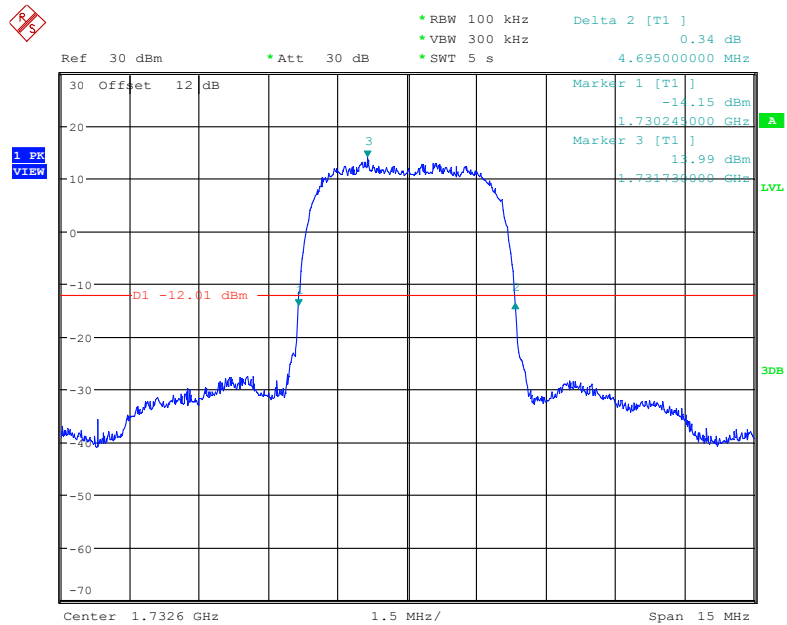
26 dB Emissions & 99% Occupied Bandwidth for RMC (BPSK) Mode, Low channel



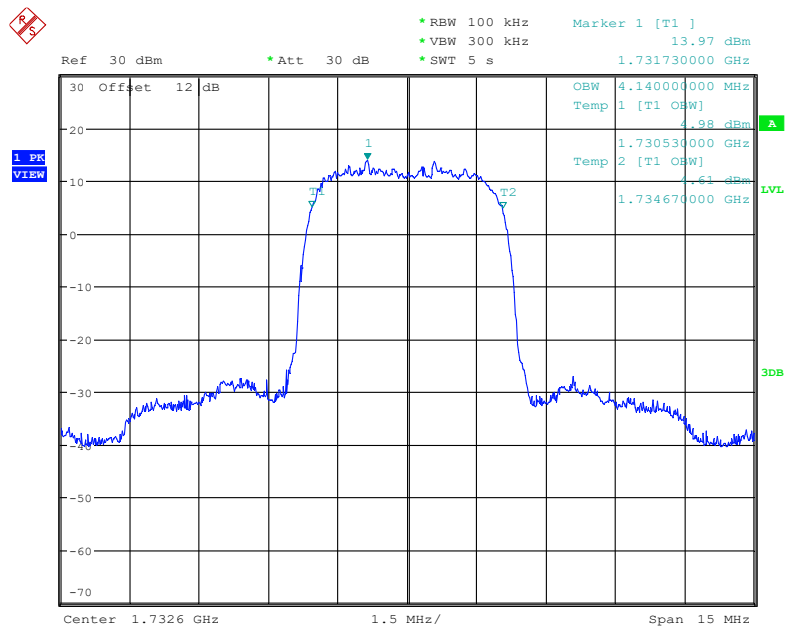
Date: 21.SEP.2022 00:18:51



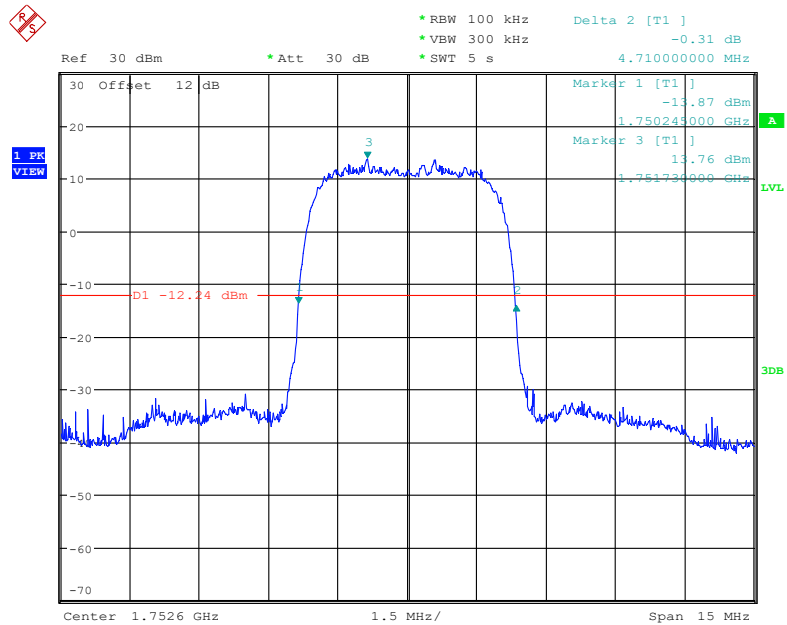
Date: 21.SEP.2022 00:18:12

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

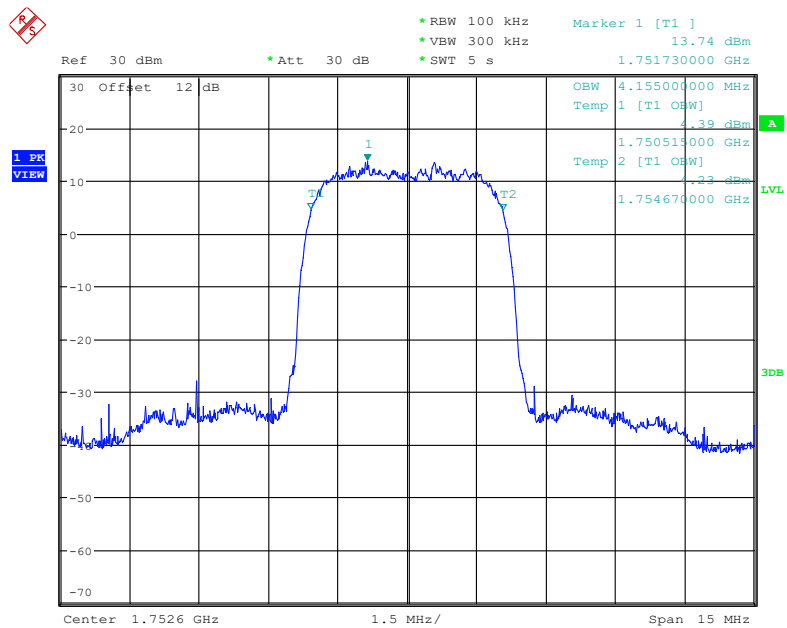
Date: 21.SEP.2022 00:23:09



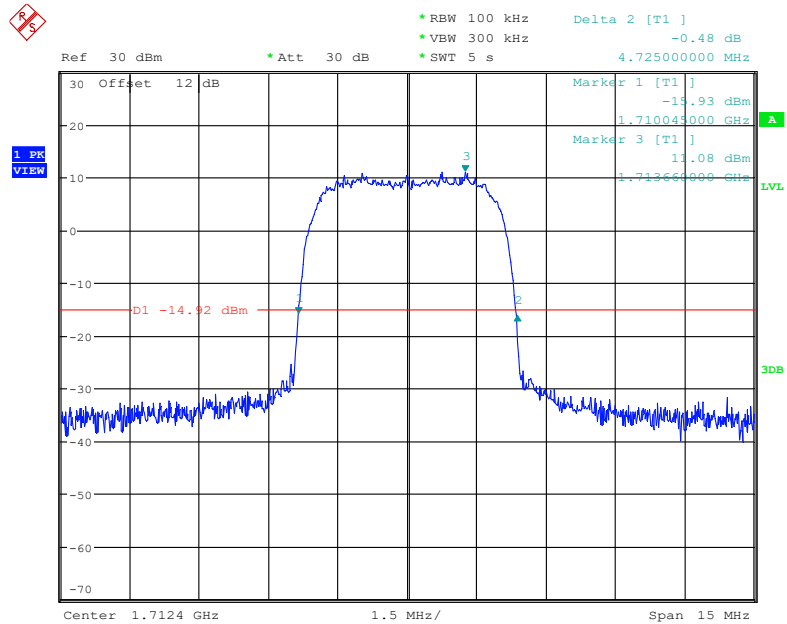
Date: 21.SEP.2022 00:22:30

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

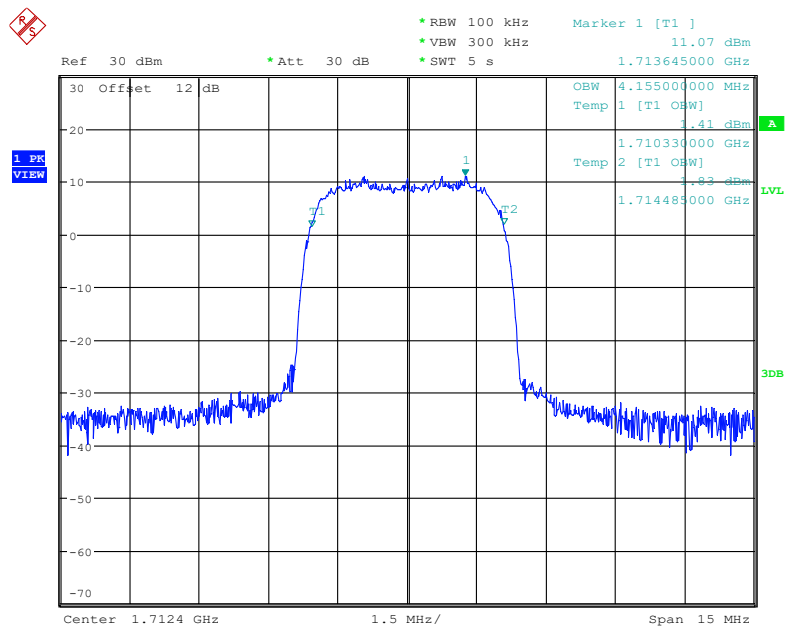
Date: 21.SEP.2022 00:27:13



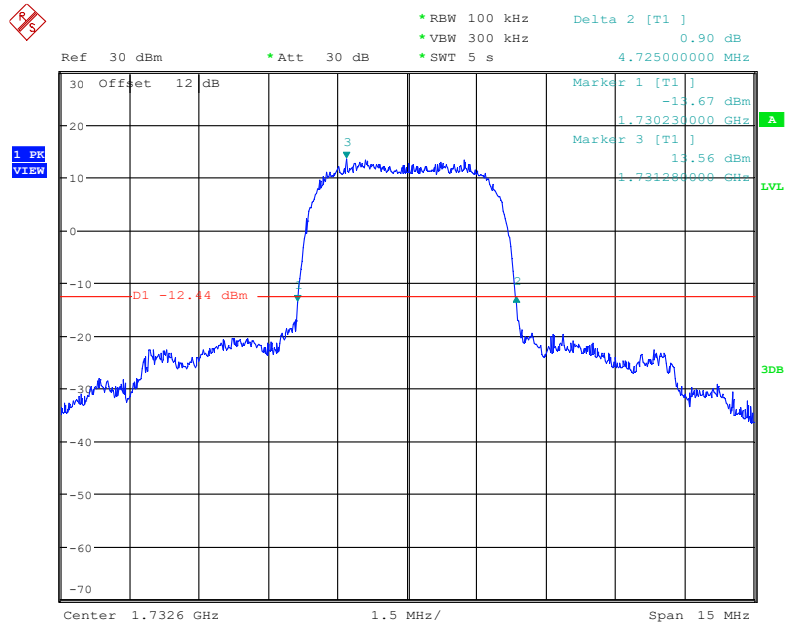
Date: 21.SEP.2022 00:26:34

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

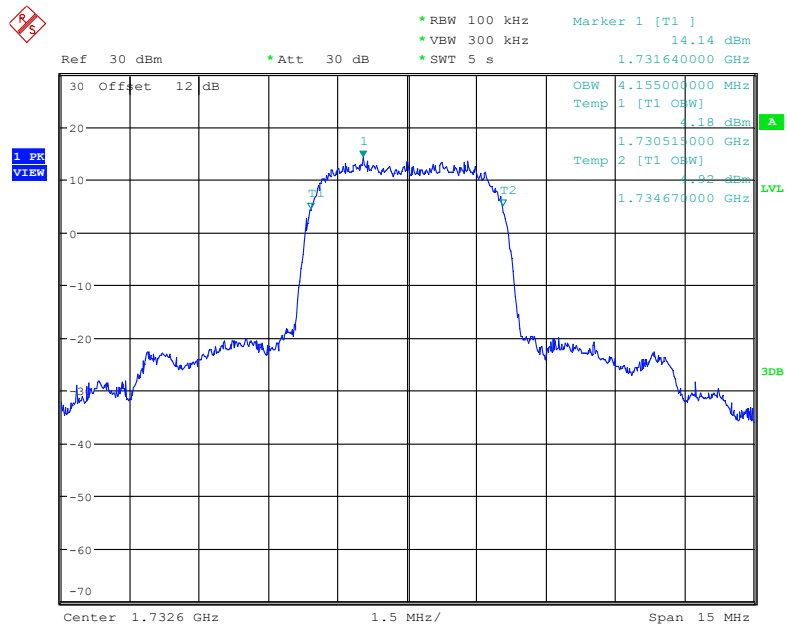
Date: 21.SEP.2022 00:46:59



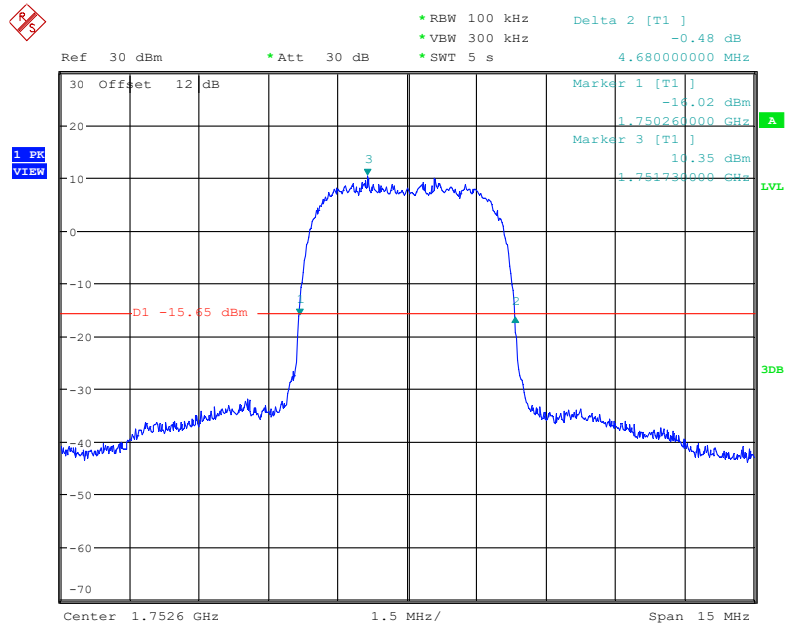
Date: 21.SEP.2022 00:46:20

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

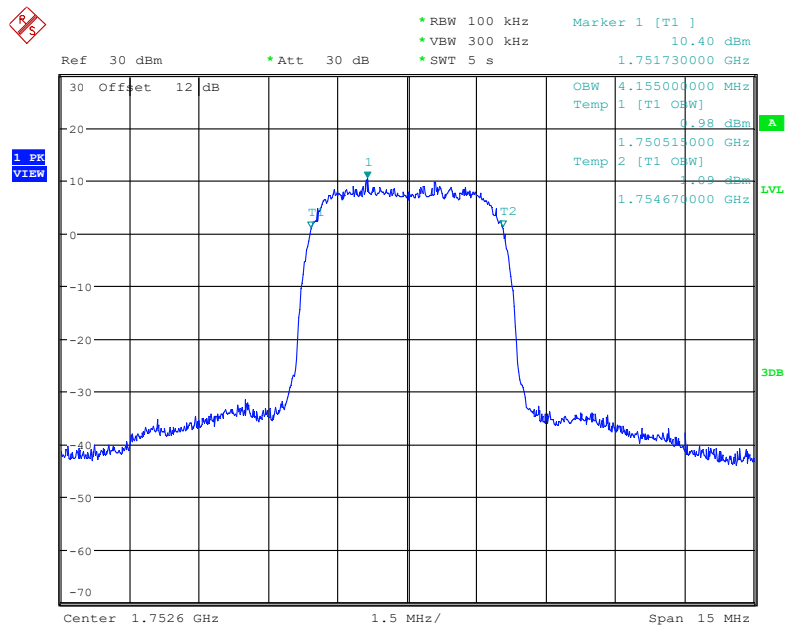
Date: 21.SEP.2022 00:51:18



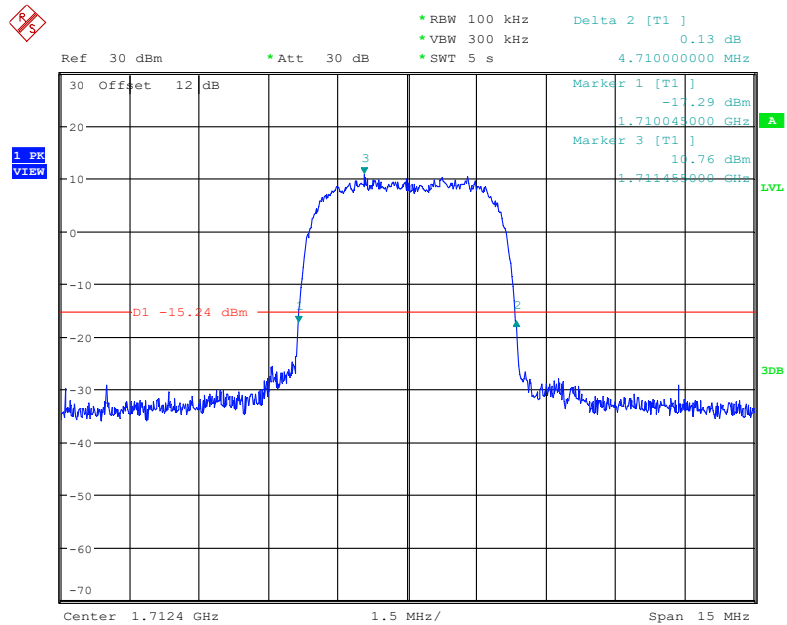
Date: 21.SEP.2022 00:50:39

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

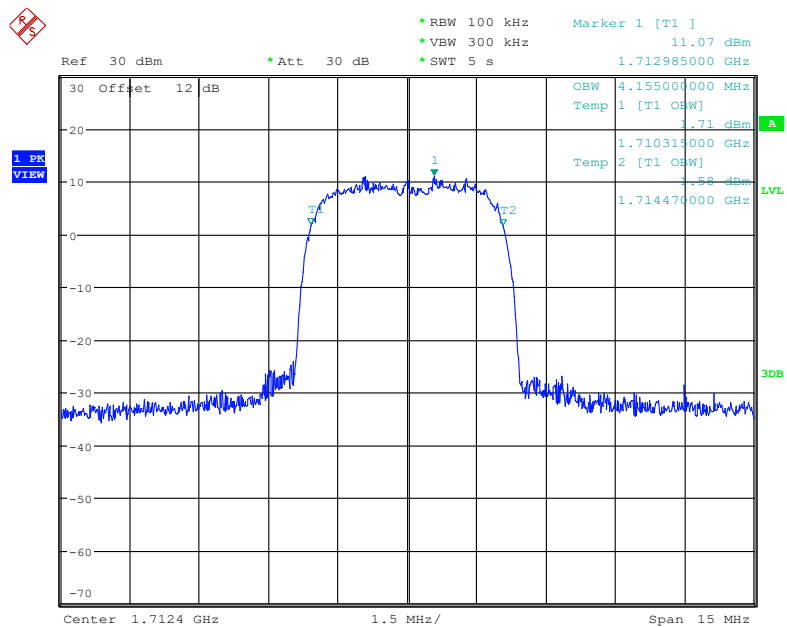
Date: 21.SEP.2022 01:07:04



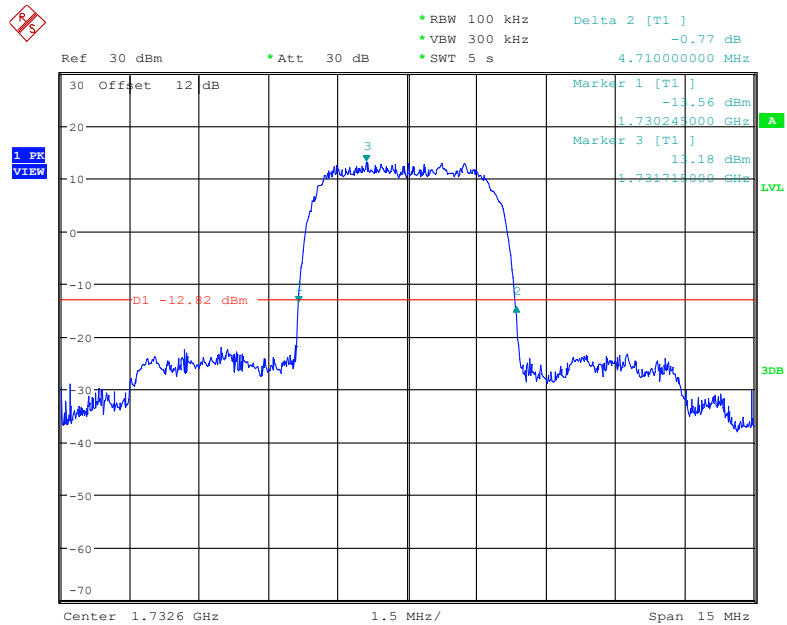
Date: 21.SEP.2022 01:06:25

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

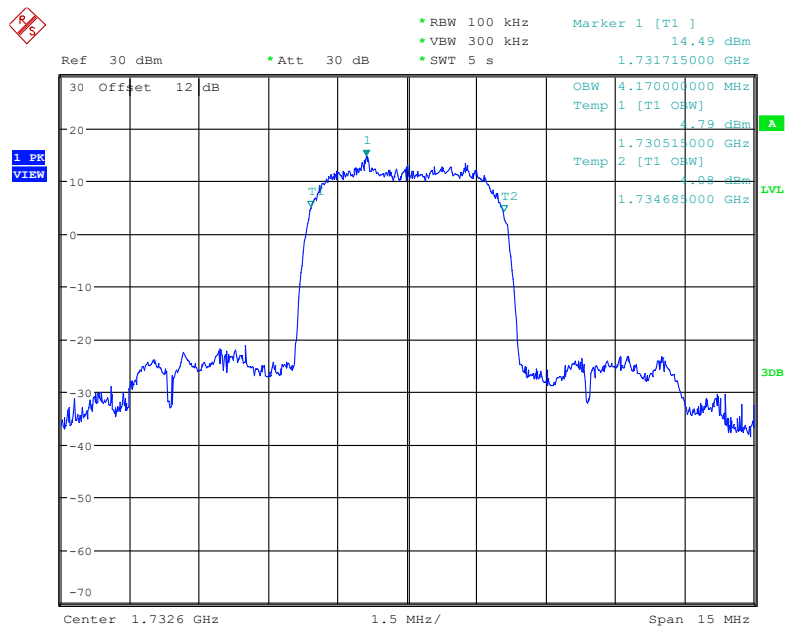
Date: 21.SEP.2022 00:37:17



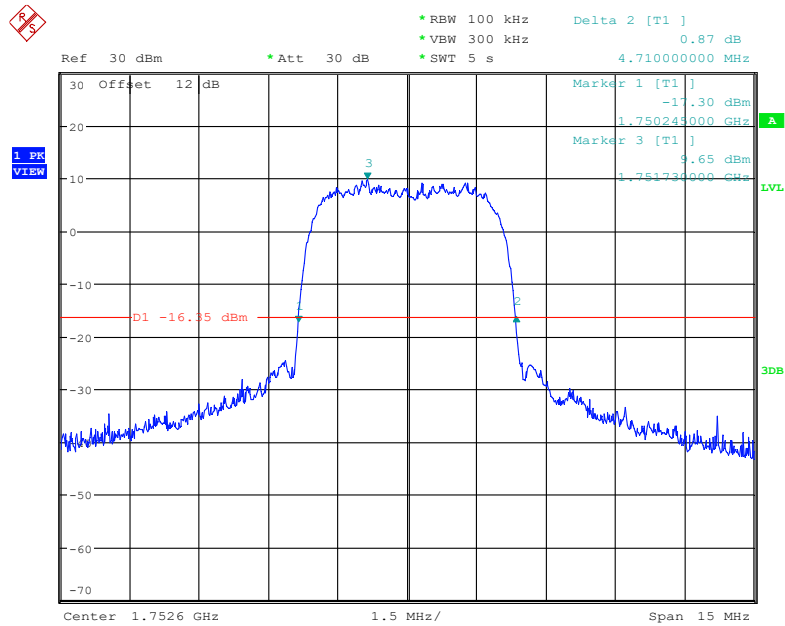
Date: 21.SEP.2022 00:36:38

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

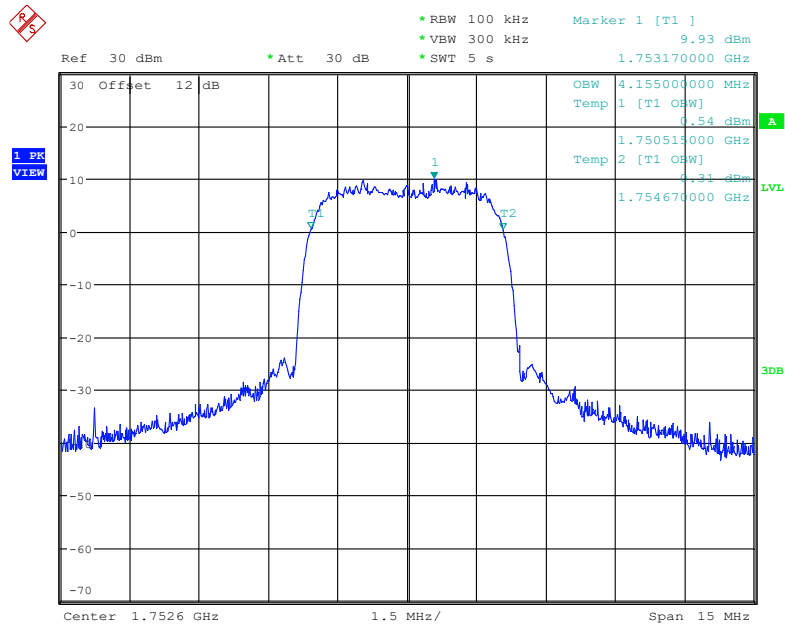
Date: 21.SEP.2022 00:42:17



Date: 21.SEP.2022 00:41:38

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

Date: 21.SEP.2022 00:32:39



Date: 21.SEP.2022 00:32:01

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	1.254	1.104	1.260	1.110	1.260
	16QAM	1.110	1.260	1.098	1.254	1.104	1.260
3 MHz	QPSK	2.700	3.000	2.700	3.000	2.700	2.988
	16QAM	2.700	3.000	2.700	3.012	2.700	3.012
5 MHz	QPSK	4.520	5.000	4.520	4.980	4.540	5.000
	16QAM	4.520	5.000	4.540	5.020	4.520	5.000
10 MHz	QPSK	8.960	9.720	9.000	9.800	9.040	9.720
	16QAM	8.960	9.680	9.000	9.840	9.000	9.720
15 MHz	QPSK	13.440	14.880	13.560	15.120	13.740	15.300
	16QAM	13.440	15.000	13.620	15.120	13.680	15.240
20 MHz	QPSK	17.840	19.440	18.240	19.920	18.080	19.680
	16QAM	17.920	19.440	18.160	19.680	18.160	19.600

LTE Band 4:

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
1.4 MHz	QPSK	1.098	1.260	1.110	1.254	1.110	1.260
	16QAM	1.098	1.254	1.104	1.248	1.098	1.254
3 MHz	QPSK	2.700	3.012	2.700	3.000	2.700	3.012
	16QAM	2.688	3.012	2.700	3.024	2.700	3.000
5 MHz	QPSK	4.520	5.000	4.520	5.020	4.560	4.980
	16QAM	4.560	5.000	4.540	5.000	4.540	4.980
10 MHz	QPSK	9.000	9.760	8.960	9.800	8.960	9.720
	16QAM	9.000	9.800	8.960	9.760	8.960	9.800
15 MHz	QPSK	13.560	15.000	13.440	15.000	13.620	15.000
	16QAM	13.680	15.060	13.500	15.060	13.620	15.180
20 MHz	QPSK	18.000	19.520	17.920	19.520	18.000	19.520
	16QAM	18.000	19.600	17.840	19.440	18.160	19.600

LTE Band 7

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
5 MHz	QPSK	4.540	4.980	4.500	5.000	4.540	5.020
	16QAM	4.540	5.020	4.540	5.020	4.520	5.000
10 MHz	QPSK	8.960	9.800	9.000	9.720	9.000	9.840
	16QAM	8.960	9.800	8.960	9.840	9.000	9.800
15 MHz	QPSK	13.560	15.180	13.560	15.180	13.620	15.360
	16QAM	13.560	15.720	13.620	17.700	13.800	21.570
20 MHz	QPSK	18.000	19.680	18.000	19.760	18.080	19.840
	16QAM	17.920	19.760	18.000	19.600	18.240	32.051

LTE Band 66:

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
1.4 MHz	QPSK	1.098	1.260	1.110	1.986	1.104	1.254
	16QAM	1.110	1.260	1.098	1.260	1.104	1.260
3 MHz	QPSK	2.700	3.024	2.700	3.024	2.700	3.000
	16QAM	2.688	3.012	2.700	3.036	2.700	3.024
5 MHz	QPSK	4.520	5.000	4.520	5.000	4.520	5.000
	16QAM	4.540	5.000	4.560	5.020	4.520	4.960
10 MHz	QPSK	8.960	9.680	9.000	9.800	8.960	9.720
	16QAM	9.000	9.800	9.000	9.800	8.960	9.640
15 MHz	QPSK	13.500	14.940	13.620	14.880	13.560	15.000
	16QAM	13.560	15.060	13.620	15.060	13.500	15.000
20 MHz	QPSK	18.000	19.520	18.080	19.680	18.000	19.440
	16QAM	18.000	19.600	18.080	19.680	18.000	19.520

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

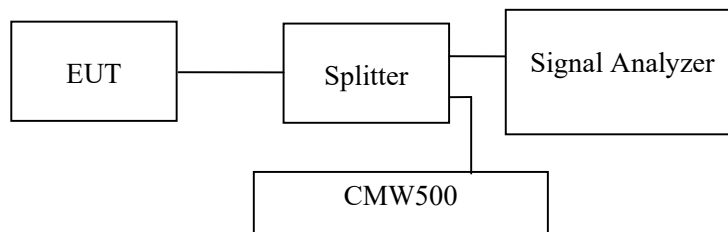
Applicable Standard

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

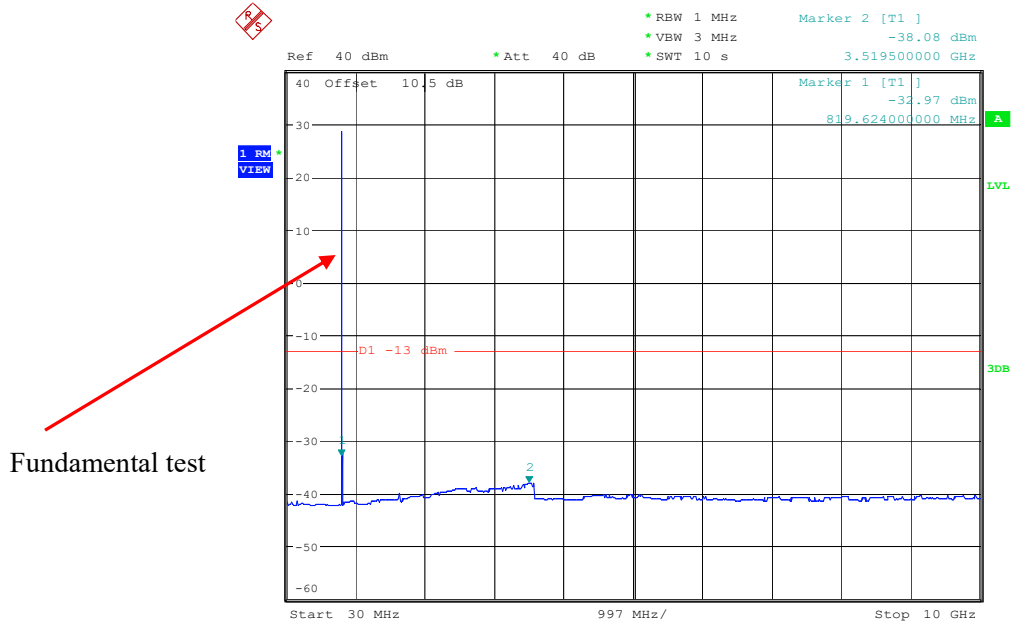
Temperature:	27.6 °C
Relative Humidity:	58 %
ATM Pressure:	101.0 kPa

The testing was performed by Andy Yu from 2022-09-20 to 2022-10-21.

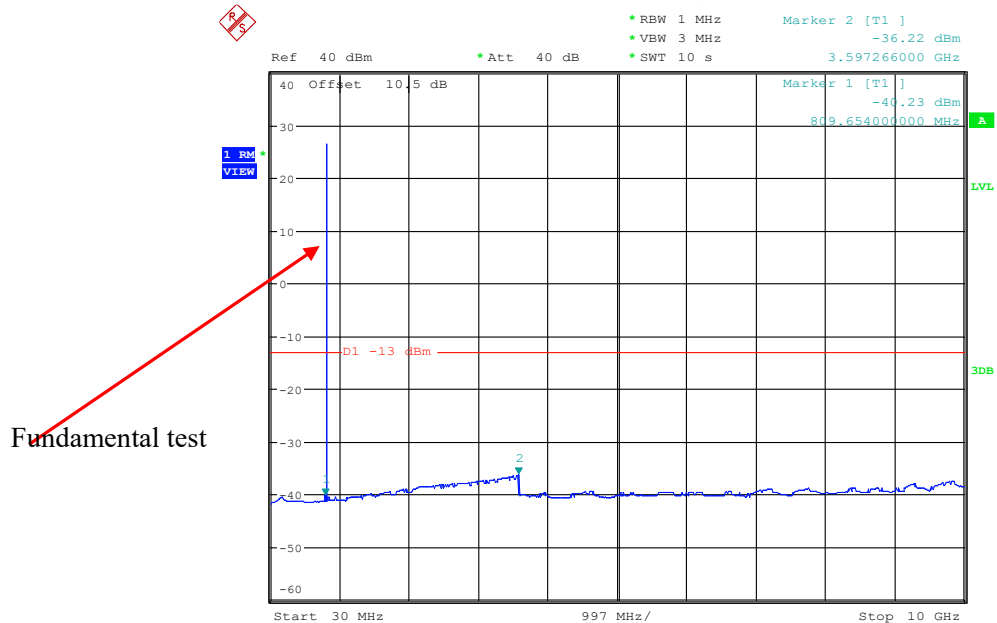
EUT operation mode: Transmitting

Test result: Pass

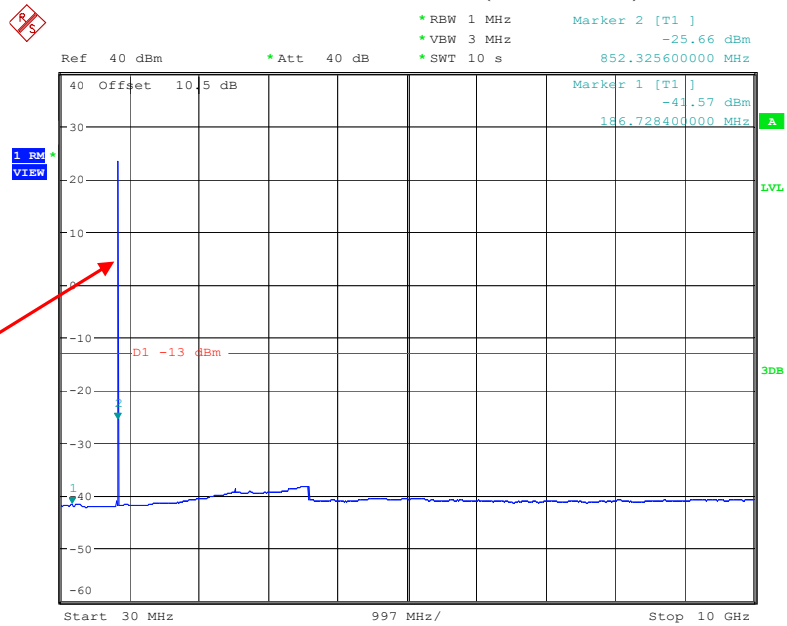
Please refer to the following plots.

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

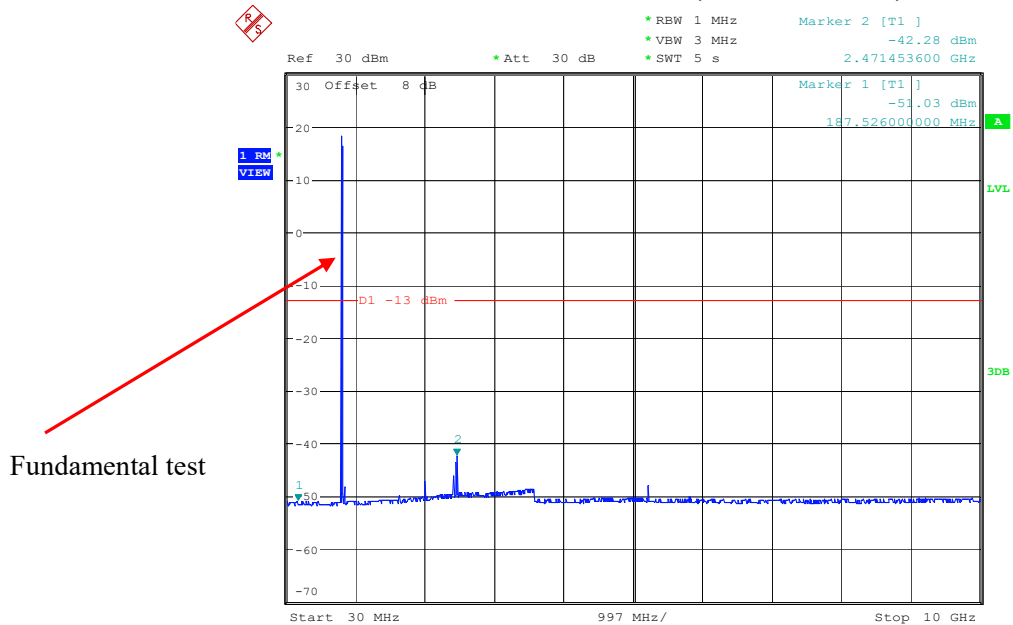
Date: 20.OCT.2022 11:02:22

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

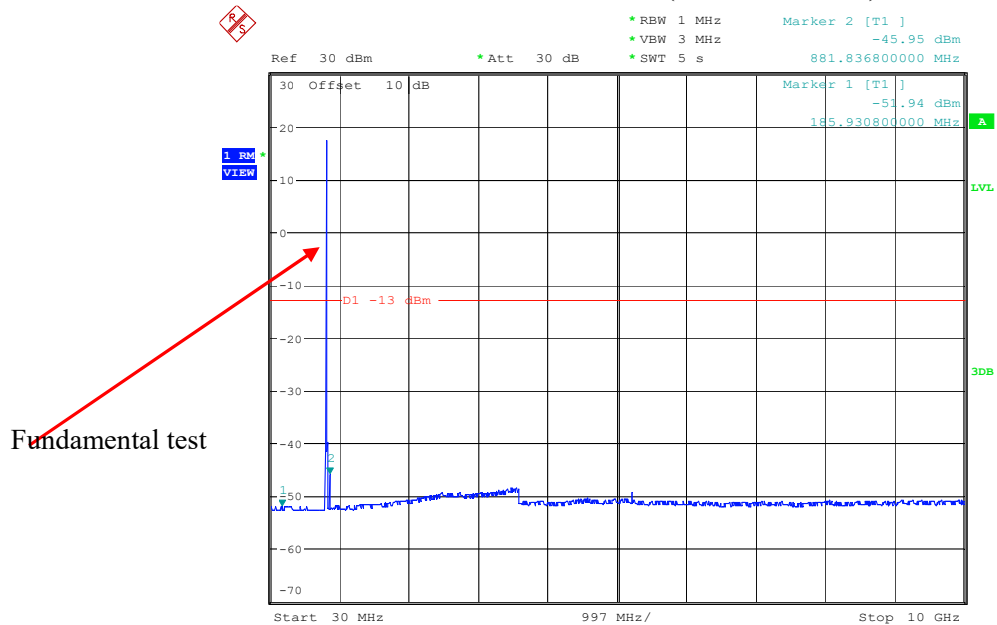
Date: 20.SEP.2022 21:31:37

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

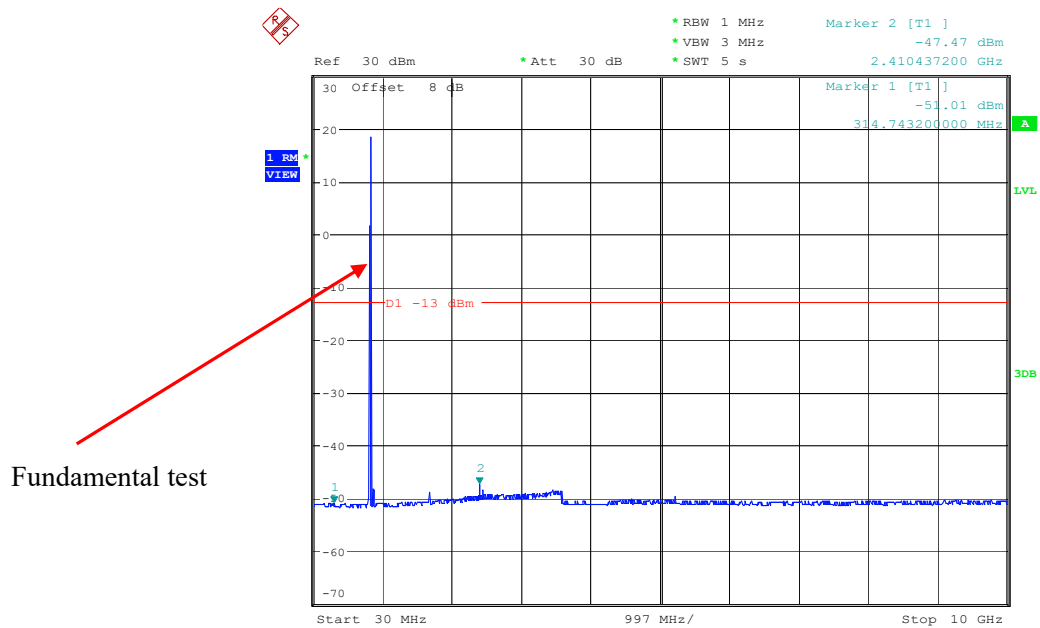
Date: 20.OCT.2022 11:13:10

Low Channel:**30 MHz – 10GHz (WCDMA Mode)**

Date: 28.SEP.2022 17:44:05

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

Date: 29.SEP.2022 16:30:00

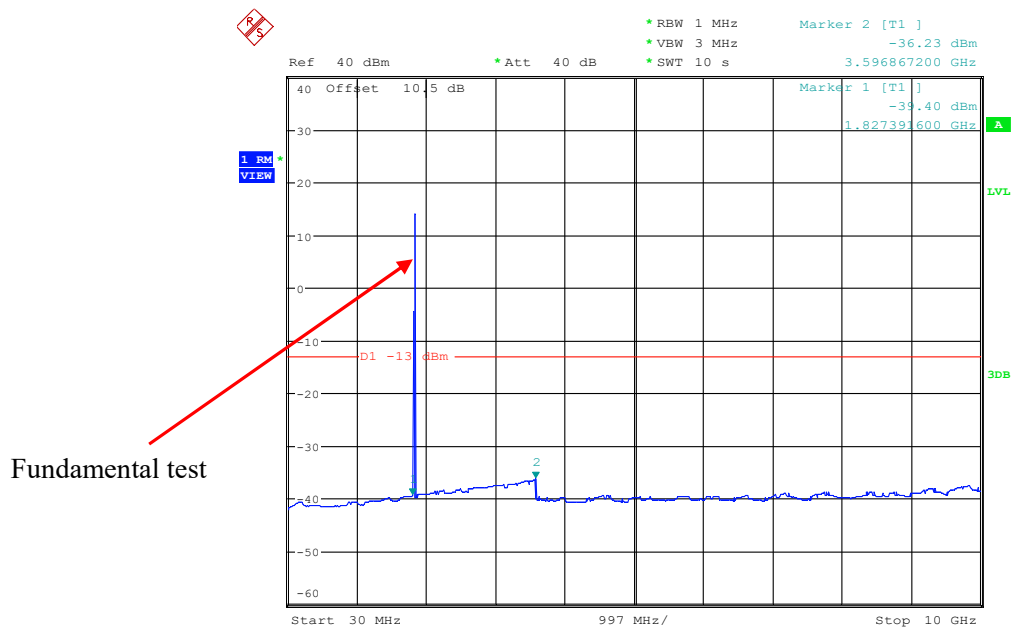
High Channel:**30 MHz – 10GHz (WCDMA Mode)**

Date: 28.SEP.2022 17:55:02

PCS Band (Part 24E)

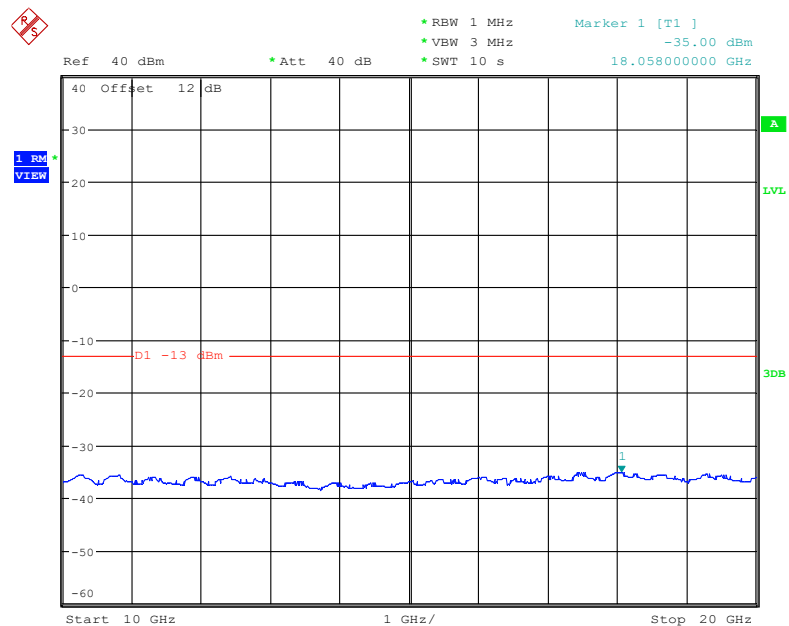
Low Channel:

30 MHz – 10GHz (GSM Mode)

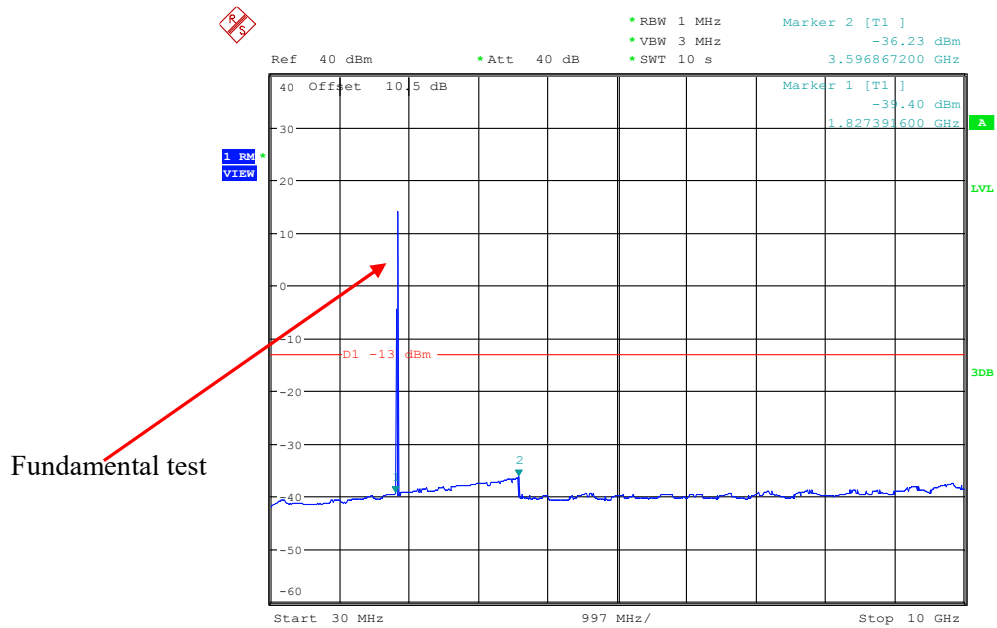


Date: 30.SEP.2022 10:28:44

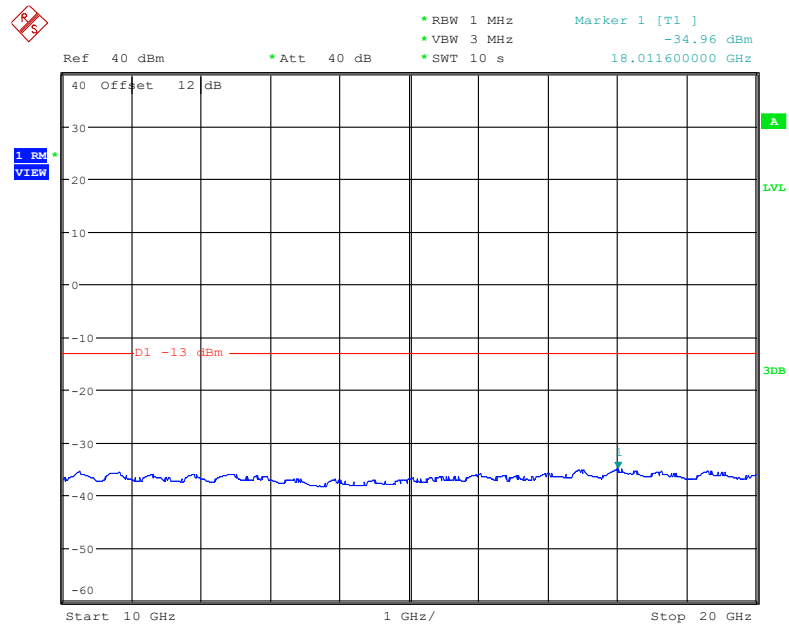
10 GHz – 20GHz (GSM Mode)



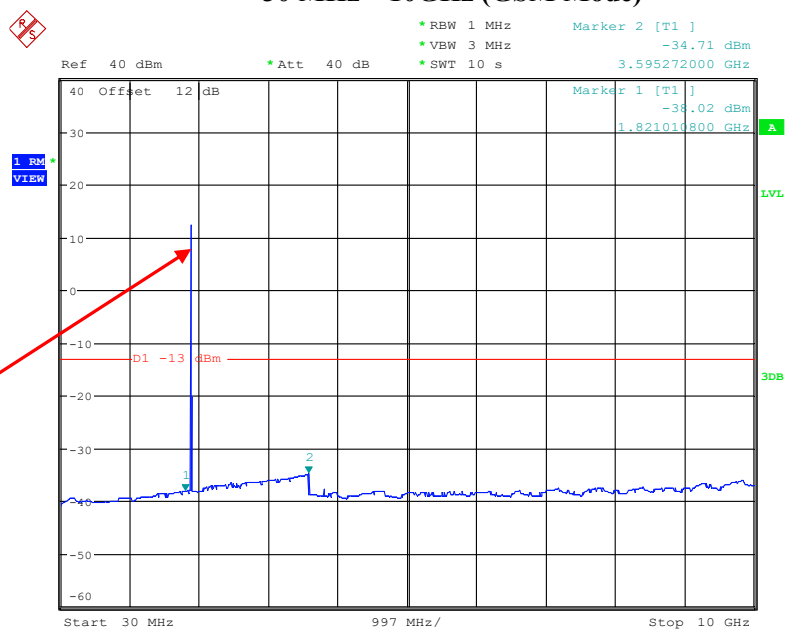
Date: 20.SEP.2022 22:29:06

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

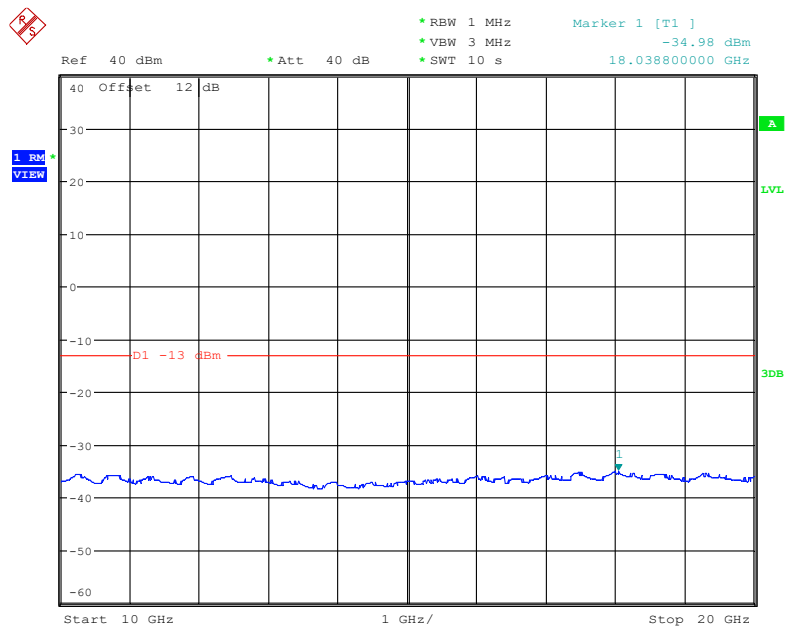
Date: 30.SEP.2022 10:28:44

10 GHz – 20GHz (GSM Mode)

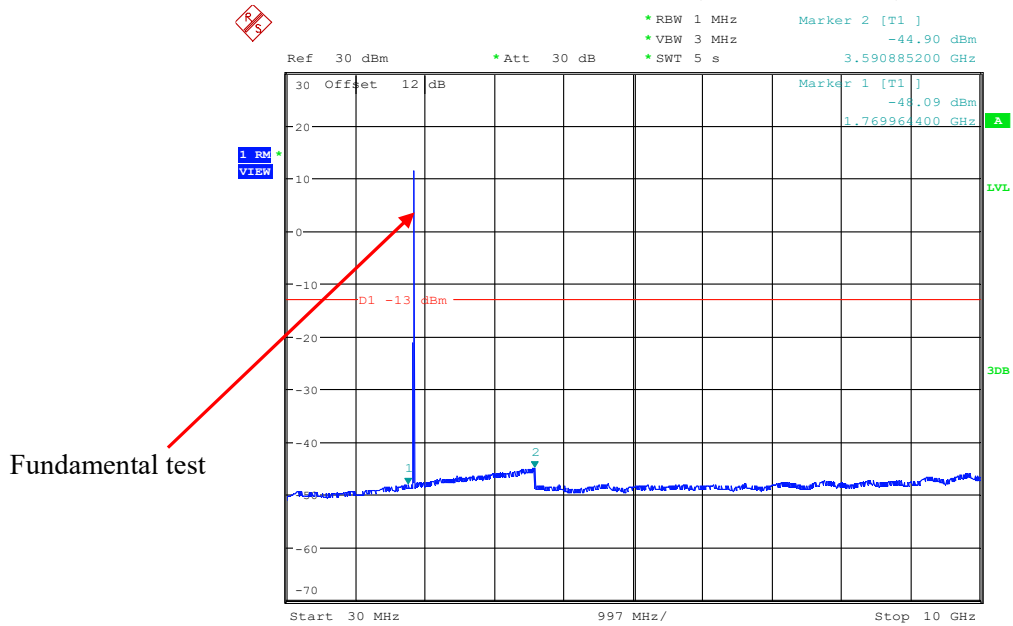
Date: 20.SEP.2022 22:34:22

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

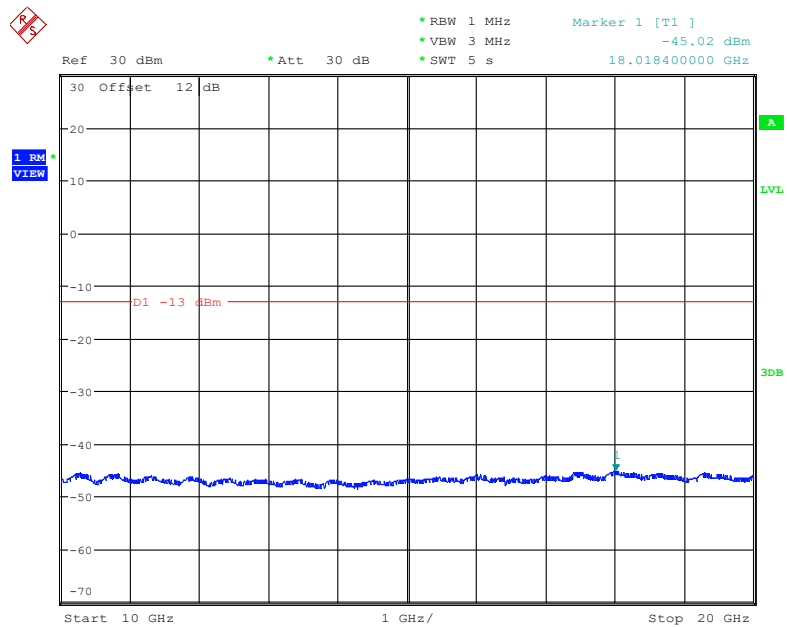
Date: 20.SEP.2022 22:39:37

10 GHz – 20GHz (GSM Mode)

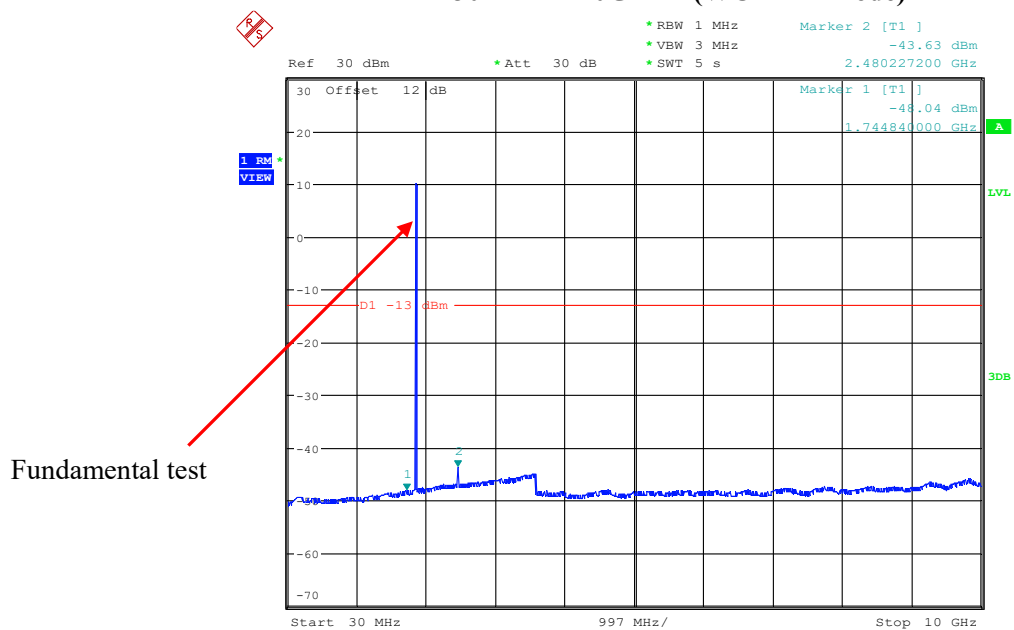
Date: 20.SEP.2022 22:40:48

Low Channel:**30 MHz – 10GHz (WCDMA Mode)**

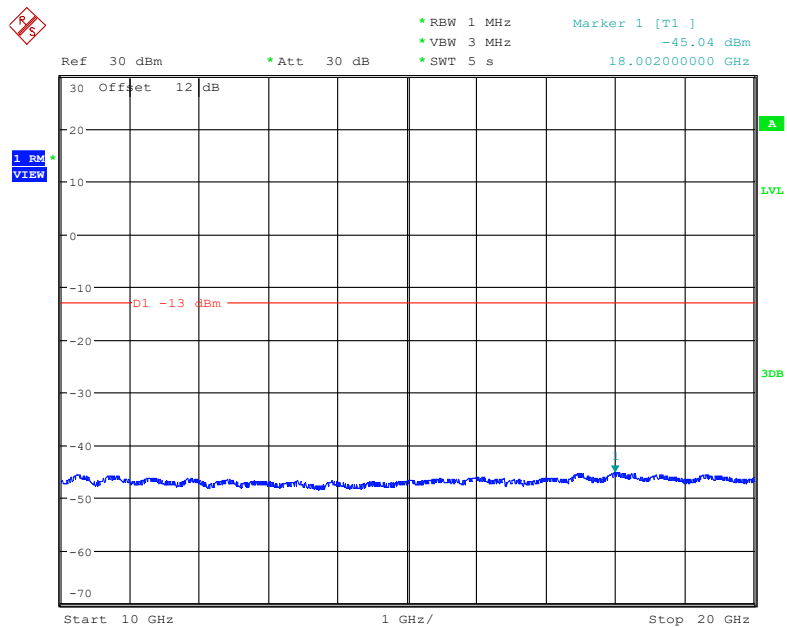
Date: 20.SEP.2022 23:12:12

10 GHz – 20GHz (WCDMA Mode)

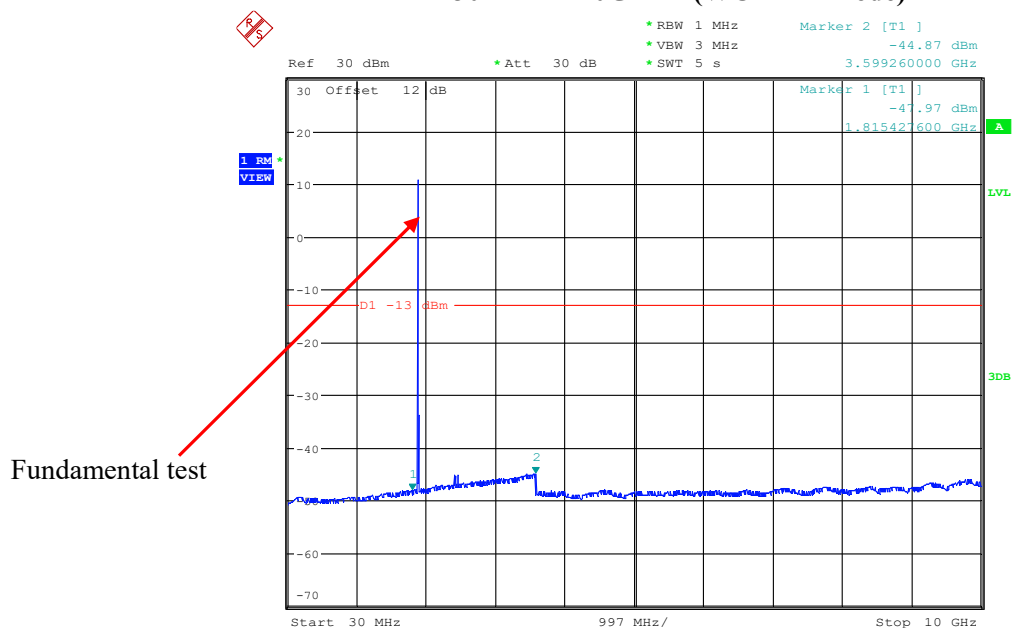
Date: 20.SEP.2022 23:12:53

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

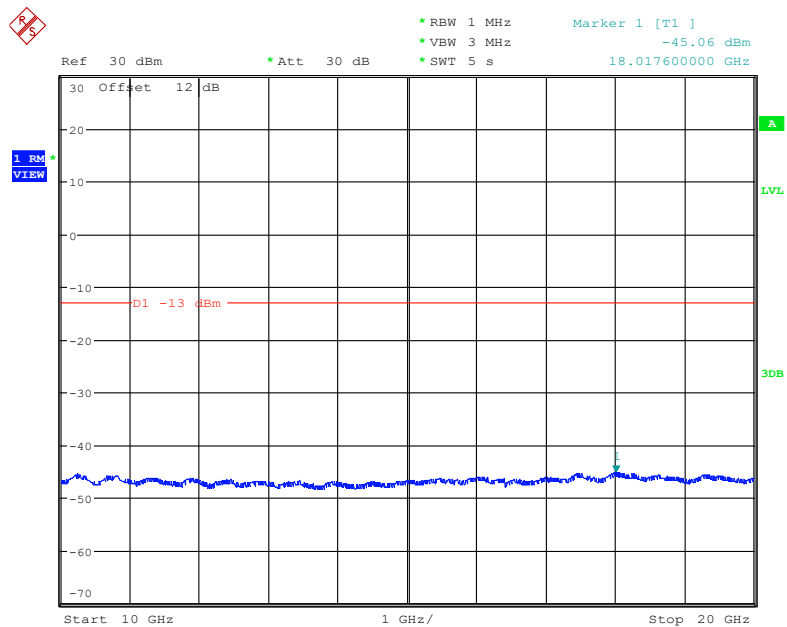
Date: 20.SEP.2022 23:20:22

10 GHz – 20GHz (WCDMA Mode)

Date: 20.SEP.2022 23:21:03

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

Date: 20.SEP.2022 23:24:46

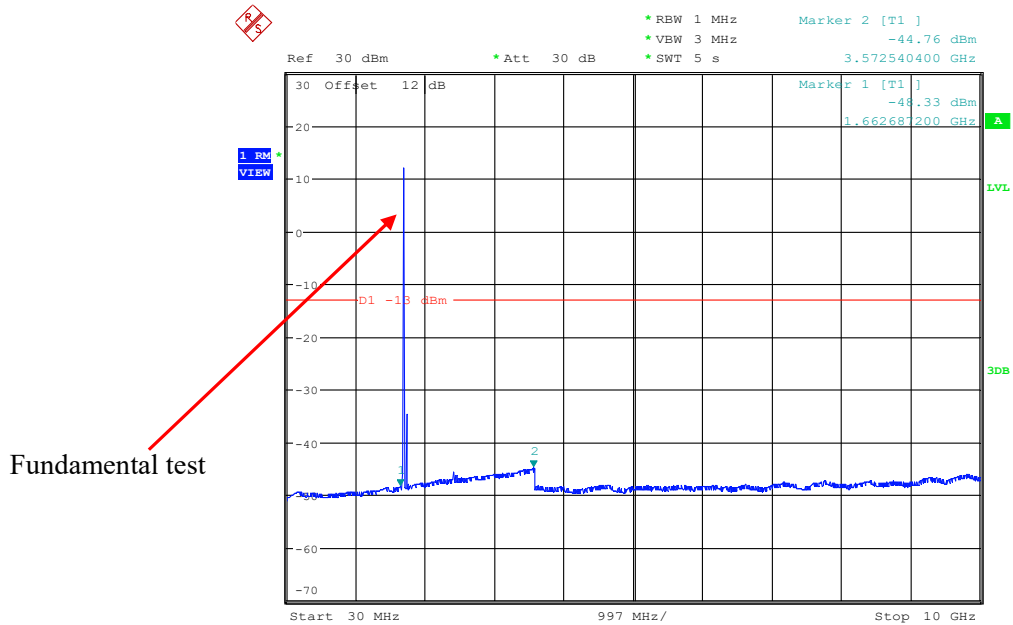
10 GHz – 20GHz (WCDMA Mode)

Date: 20.SEP.2022 23:25:26

AWS Band (Part 27)

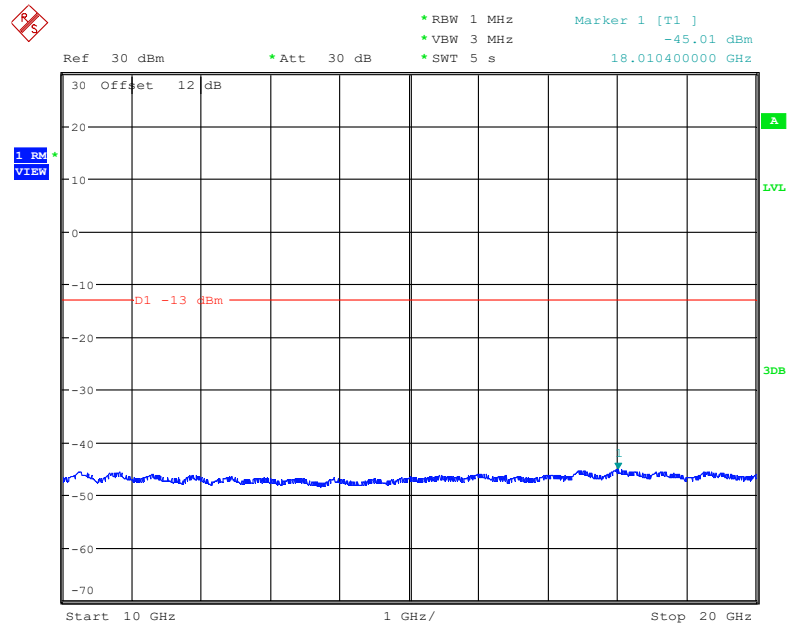
Low Channel:

30 MHz – 10GHz (WCDMA Mode)

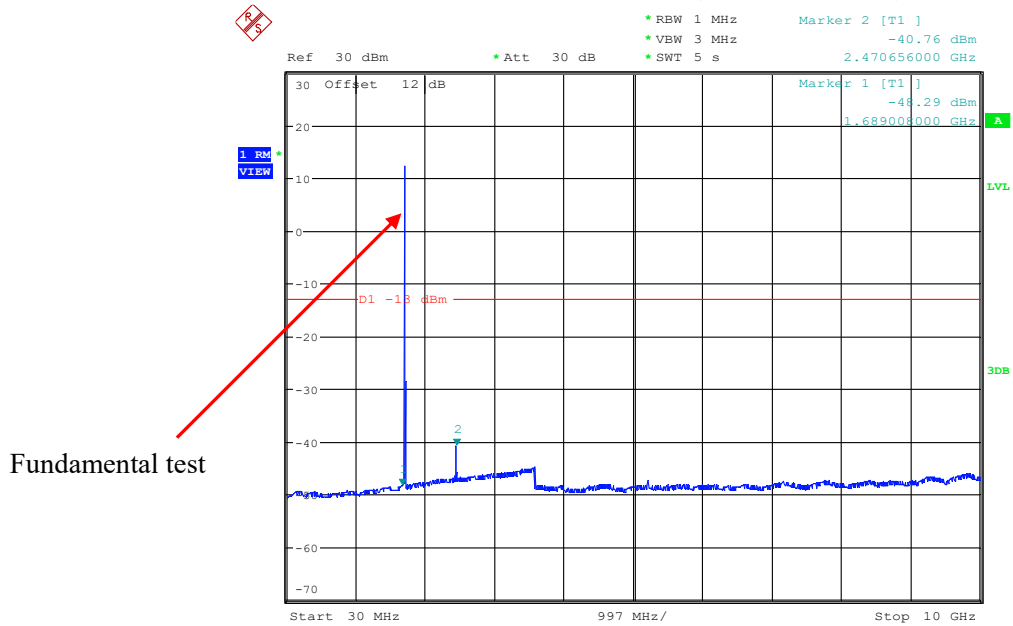


Date: 21.SEP.2022 00:20:11

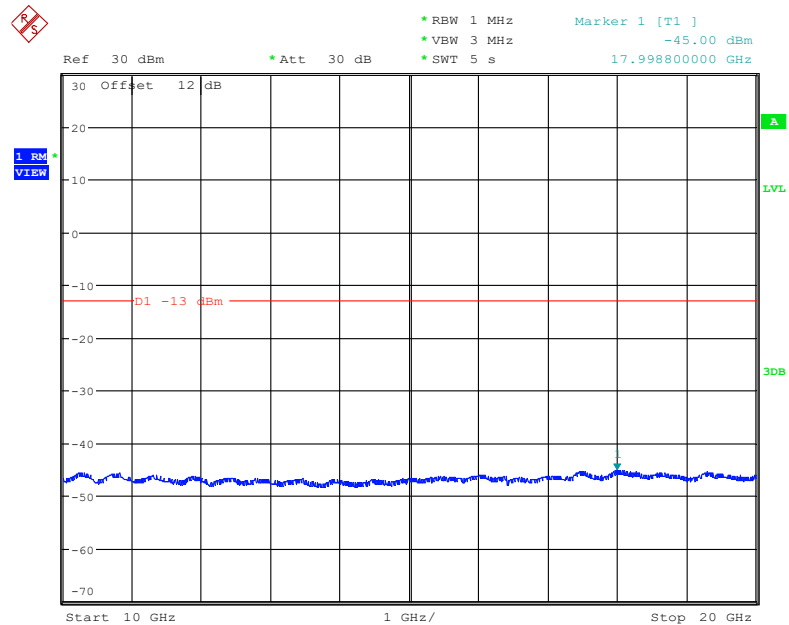
10 GHz – 20GHz (WCDMA Mode)



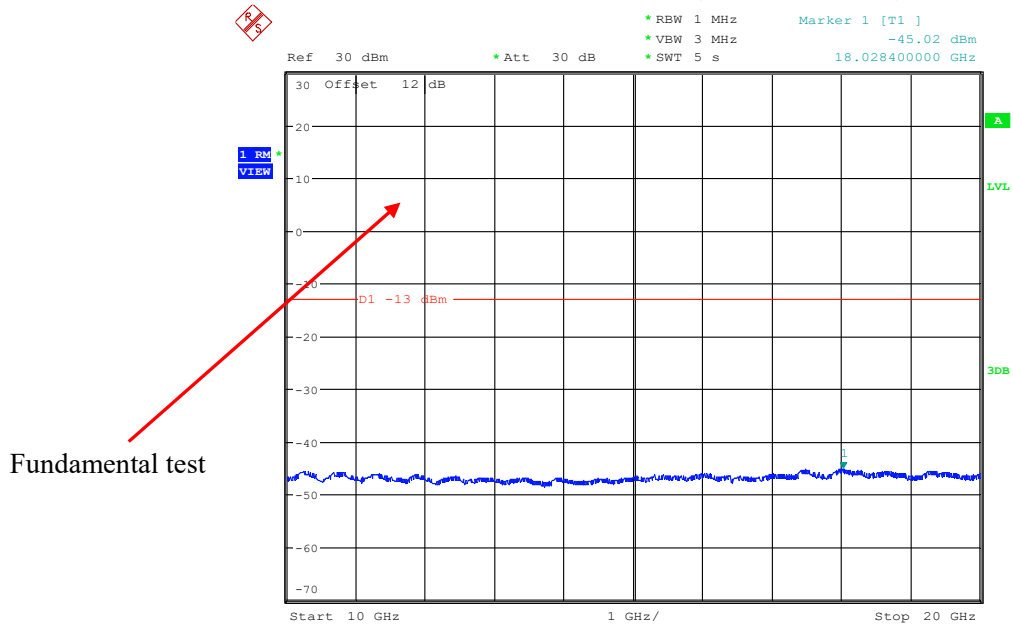
Date: 21.SEP.2022 00:20:51

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

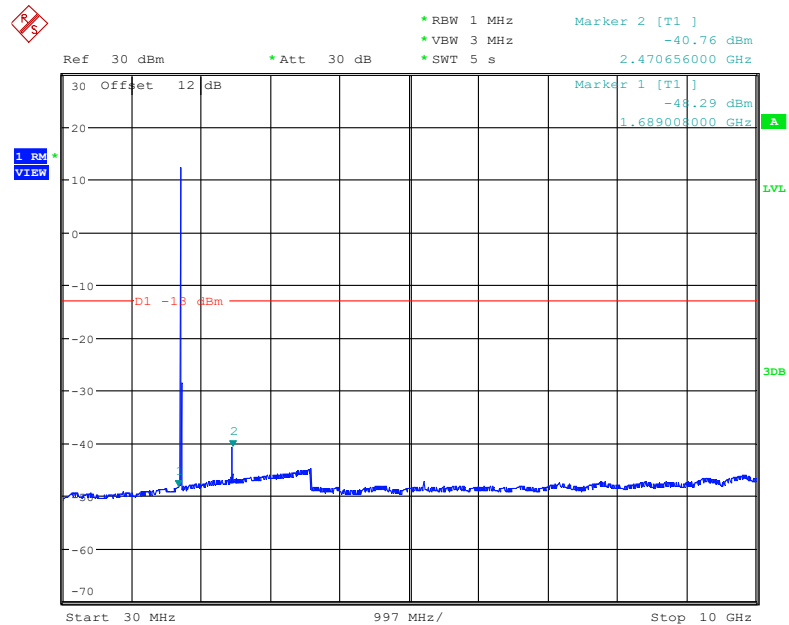
Date: 21.SEP.2022 00:23:49

10 GHz – 20GHz (WCDMA Mode)

Date: 21.SEP.2022 00:24:30

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

Date: 21.SEP.2022 00:29:13

10 GHz – 20GHz (WCDMA Mode)

Date: 21.SEP.2022 00:23:49

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:	26.2℃
Relative Humidity:	56%
ATM Pressure:	101.0kPa

The testing was performed by Zeki Ma on 2022-09-15.

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								
950.07	-72.86	118	1.7	H	10.0	-62.86	-13	49.86
950.07	-75.71	174	1.0	V	11.7	-64.01	-13	51.01
1648.4	-51.1	318	1.9	H	3.5	-47.6	-13	34.6
1648.4	-56.6	278	1.4	V	3.1	-53.5	-13	40.5
2472.6	-49.7	77	1.4	H	6.6	-43.1	-13	30.1
2472.6	-49.9	304	1.3	V	5.8	-44.1	-13	31.1
3296.8	-53.0	288	1.0	H	6.4	-46.6	-13	33.6
3296.8	-52.6	52	2.2	V	5.7	-46.9	-13	33.9
Middle Channel								
953.29	-72.50	211	1.6	H	10.0	-62.50	-13	49.50
953.29	-77.62	352	1.2	V	11.7	-65.92	-13	52.92
1673.2	-49.8	163	1.2	H	3.8	-46	-13	33.0
1673.2	-55.1	263	2.5	V	3.1	-52	-13	39.0
2509.8	-48.5	336	2.3	H	6.2	-42.3	-13	29.3
2509.8	-50.1	126	1.7	V	5.5	-44.6	-13	31.6
3346.4	-51.9	72	1.3	H	6.6	-45.3	-13	32.3
3346.4	-52.7	336	1.2	V	5.4	-47.3	-13	34.3
High Channel								
952.96	-71.39	120	2.4	H	10.0	-61.39	-13	48.39
952.96	-75.17	355	2.3	V	11.7	-63.47	-13	50.47
1697.6	-50.8	350	2.2	H	4.1	-46.7	-13	33.7
1697.6	-55.0	201	1.6	V	3.1	-51.9	-13	38.9
2546.4	-50.0	320	1.5	H	6.1	-43.9	-13	30.9
2546.4	-50.5	310	1.8	V	5.8	-44.7	-13	31.7
3395.2	-53.1	196	1.1	H	6.2	-46.9	-13	33.9
3395.2	-52.2	167	1.6	V	5.4	-46.8	-13	33.8

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 5								
Low Channel								
955.95	-72.58	223	1.9	H	10.0	-62.58	-13	49.58
955.95	-76.10	44	1.1	V	11.7	-64.40	-13	51.40
1652.8	-51.2	348	1.8	H	3.5	-47.7	-13	34.7
1652.8	-53.9	183	1.9	V	3.1	-50.8	-13	37.8
2479.2	-58.5	358	1.2	H	6.6	-51.9	-13	38.9
2479.2	-56.7	152	1.3	V	5.8	-50.9	-13	37.9
3305.6	-53.4	309	1.5	H	6.4	-47	-13	34.0
3305.6	-52.9	81	1.8	V	5.7	-47.2	-13	34.2
Middle Channel								
953.82	-72.77	354	2.2	H	10.0	-62.77	-13	49.77
953.82	-74.74	230	1.9	V	11.7	-63.04	-13	50.04
1672.8	-52.1	198	2.4	H	3.5	-48.6	-13	35.6
1672.8	-54.9	248	1.0	V	3.1	-51.8	-13	38.8
2509.2	-58.1	128	2.0	H	6.6	-51.5	-13	38.5
2509.2	-56.3	37	1.2	V	5.8	-50.5	-13	37.5
3345.6	-52.8	117	2.2	H	6.4	-46.4	-13	33.4
3345.6	-52.5	194	1.0	V	5.7	-46.8	-13	33.8
High Channel								
955.70	-71.11	142	1.6	H	10.0	-61.11	-13	48.11
955.70	-75.19	91	1.3	V	11.7	-63.49	-13	50.49
1693.2	-52.2	348	1.3	H	4.1	-48.1	-13	35.1
1693.2	-54.9	10	1.6	V	3.1	-51.8	-13	38.8
2539.8	-58.0	299	1.2	H	6.1	-51.9	-13	38.9
2539.8	-57.0	172	1.8	V	5.8	-51.2	-13	38.2
3386.4	-52.9	128	1.0	H	6.2	-46.7	-13	33.7
3386.4	-52.4	293	1.5	V	5.4	-47.0	-13	34.0

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								
951.52	-70.90	216	1.4	H	10.0	-60.90	-13	47.90
951.52	-77.66	298	2.0	V	11.7	-65.96	-13	52.96
3700.4	-55.5	257	1.1	H	8.1	-47.4	-13	34.4
3700.4	-55.3	261	1.6	V	7.6	-47.7	-13	34.7
Middle Channel								
953.48	-70.64	71	1.3	H	10.0	-60.64	-13	47.64
953.48	-74.76	36	1.7	V	11.7	-63.06	-13	50.06
3760	-56.9	15	1.1	H	8.8	-48.1	-13	35.1
3760	-56.3	42	1.4	V	8	-48.3	-13	35.3
High Channel								
956.96	-72.68	324	1.2	H	10.0	-62.68	-13	49.68
956.96	-75.85	234	1.7	V	11.7	-64.15	-13	51.15
3819.6	-56.5	76	2.3	H	8.7	-47.8	-13	34.8
3819.6	-55.7	50	2.4	V	8	-47.7	-13	34.7

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
WCDMA Band 2								
Low Channel								
951.42	-71.66	145	2.3	H	10.0	-61.66	-13	48.66
951.42	-75.62	267	1.4	V	11.7	-63.92	-13	50.92
3704.8	-56.4	198	2.3	H	8.1	-48.3	-13	35.3
3704.8	-55.9	300	2.2	V	7.6	-48.3	-13	35.3
Middle Channel								
953.97	-72.02	127	2.4	H	10.0	-62.02	-13	49.02
953.97	-75.08	58	2.1	V	11.7	-63.38	-13	50.38
3760	-58.3	244	1.2	H	8.8	-49.5	-13	36.5
3760	-56.5	67	2.1	V	8	-48.5	-13	35.5
High Channel								
952.57	-70.51	93	1.8	H	10.0	-60.51	-13	47.51
952.57	-77.47	253	1.8	V	11.7	-65.77	-13	52.77
3815.2	-57.8	169	1.3	H	8.7	-49.1	-13	36.1
3815.2	-57.1	151	2.0	V	8	-49.1	-13	36.1

30MHz-20GHz:**AWS Band (Part 27E)**

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 4								
Low Channel								
952.47	-71.37	139	2.3	H	10.0	-61.37	-13	48.37
952.47	-76.55	155	2.0	V	11.7	-64.85	-13	51.85
3424.8	-53.0	286	1.1	H	6.4	-46.6	-13	33.6
3424.8	-52.6	81	2.0	V	5.7	-46.9	-13	33.9
Middle Channel								
950.58	-72.33	290	1.4	H	10.0	-62.33	-13	49.33
950.58	-77.54	138	2.2	V	11.7	-65.84	-13	52.84
3465.2	-52.3	35	1.9	H	7	-45.3	-13	32.3
3465.2	-53.5	136	2.5	V	6.2	-47.3	-13	34.3
High Channel								
952.32	-71.70	78	1.9	H	10.0	-61.70	-13	48.70
952.32	-76.29	49	1.2	V	11.7	-64.59	-13	51.59
3505.2	-54.0	170	2.0	H	7.8	-46.2	-13	33.2
3505.2	-54.4	197	2.3	V	6.6	-47.8	-13	34.8

LTE Band: (Pre-scan with all the bandwidth, 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								
1.4MHz bandwidth, Low Channel								
955.60	-70.19	341	2.3	H	10.0	-60.19	-13	47.19
955.60	-77.05	359	1.3	V	11.7	-65.35	-13	52.35
3701.4	-55.6	290	1.9	H	8.1	-47.5	-13	34.5
3701.4	-54.5	349	1.9	V	7.6	-46.9	-13	33.9
1.4MHz bandwidth, Middle Channel								
955.51	-70.02	325	1.8	H	10.0	-60.02	-13	47.02
955.51	-77.37	266	1.6	V	11.7	-65.67	-13	52.67
3760	-55.9	31	1.0	H	8.8	-47.1	-13	34.1
3760	-55.4	119	1.0	V	8	-47.4	-13	34.4
1.4MHz bandwidth, High Channel								
950.53	-72.04	306	1.4	H	10.0	-62.04	-13	49.04
950.53	-75.92	64	2.4	V	11.7	-64.22	-13	51.22
3818.6	-56.9	336	1.9	H	8.7	-48.2	-13	35.2
3818.6	-56.0	269	1.9	V	8	-48	-13	35.0

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								
1.4MHz bandwidth, Low Channel								
951.93	-70.78	196	2.2	H	10.0	-60.78	-13	47.78
951.93	-74.94	225	1.4	V	11.7	-63.24	-13	50.24
3421.4	-52.0	244	2.0	H	6.4	-45.6	-13	32.6
3421.4	-51.8	129	2.3	V	5.7	-46.1	-13	33.1
1.4MHz bandwidth, Middle Channel								
955.10	-73.00	86	1.3	H	10.0	-63.00	-13	50.00
955.10	-74.87	159	2.0	V	11.7	-63.17	-13	50.17
3465	-53.0	348	2.3	H	7	-46	-13	33.0
3465	-53.6	360	1.9	V	6.2	-47.4	-13	34.4
1.4MHz bandwidth, High Channel								
951.57	-72.94	21	1.4	H	10.0	-62.94	-13	49.94
951.57	-75.53	182	1.5	V	11.7	-63.83	-13	50.83
3508.6	-54.4	231	1.0	H	7.8	-46.6	-13	33.6
3508.6	-53.4	209	2.1	V	6.6	-46.8	-13	33.8

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
Band 7								
Test frequency range: 30MHz-26.5GHz								
5MHz bandwidth, Low Channel								
952.55	-72.78	174	1.1	H	10.0	-62.78	-25	37.78
952.55	-76.31	353	1.4	V	11.7	-64.61	-25	39.61
5005	-56.5	140	1.5	H	10.8	-45.7	-25	20.7
5005	-56.4	175	2.2	V	10.2	-46.2	-25	21.2
5MHz bandwidth, Middle Channel								
955.75	-71.51	0	1.8	H	9.8	-61.71	-25	36.71
955.75	-74.84	269	2.4	V	11.7	-63.14	-25	38.14
5070	-57.3	102	1.2	H	11.1	-46.2	-25	21.2
5070	-57.4	13	1.8	V	10.8	-46.6	-25	21.6
5MHz bandwidth, High Channel								
956.75	-71.42	191	2.3	H	10.0	-61.42	-25	36.42
956.75	-75.31	17	1.4	V	11.7	-63.61	-25	38.61
5135	-56.9	156	2.4	H	11.3	-45.6	-25	20.6
5135	-56.5	130	1.9	V	10.8	-45.7	-25	20.7

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 66								
Test frequency range: 30MHz-20GHz								
1.4MHz, Low Channel								
956.75	-72.48	289	2.4	H	10.0	-62.48	-13	49.48
956.75	-74.96	351	1.1	V	11.7	-63.26	-13	50.26
3421.4	-50.9	169	1.4	H	6.4	-44.5	-13	31.5
3421.4	-50.6	244	2.1	V	5.7	-44.9	-13	31.9
1.4MHz, Middle Channel								
950.62	-71.47	298	1.7	H	10.0	-61.47	-13	48.47
950.62	-77.48	41	1.7	V	11.7	-65.78	-13	52.78
3490	-51.8	11	1.8	H	7.6	-44.2	-13	31.2
3490	-52.2	216	1.3	V	6.4	-45.8	-13	32.8
1.4MHz, High Channel								
953.42	-70.69	238	1.2	H	10.0	-60.69	-13	47.69
953.42	-76.18	10	2.3	V	11.7	-64.48	-13	51.48
3558.6	-52.5	306	1.3	H	7.8	-44.7	-13	31.7
3558.6	-52.2	30	1.6	V	7	-45.2	-13	32.2

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 (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.

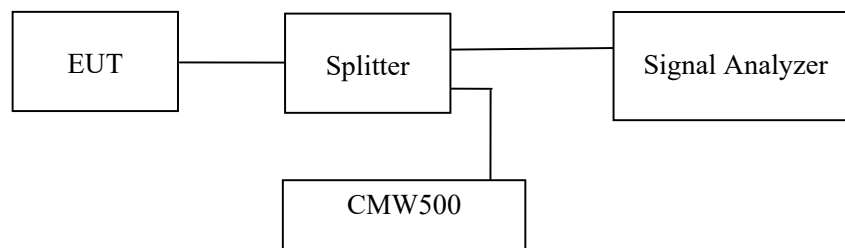
According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

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

Test Procedure

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

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

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

Temperature:	27 °C
Relative Humidity:	48%
ATM Pressure:	101.0 kPa

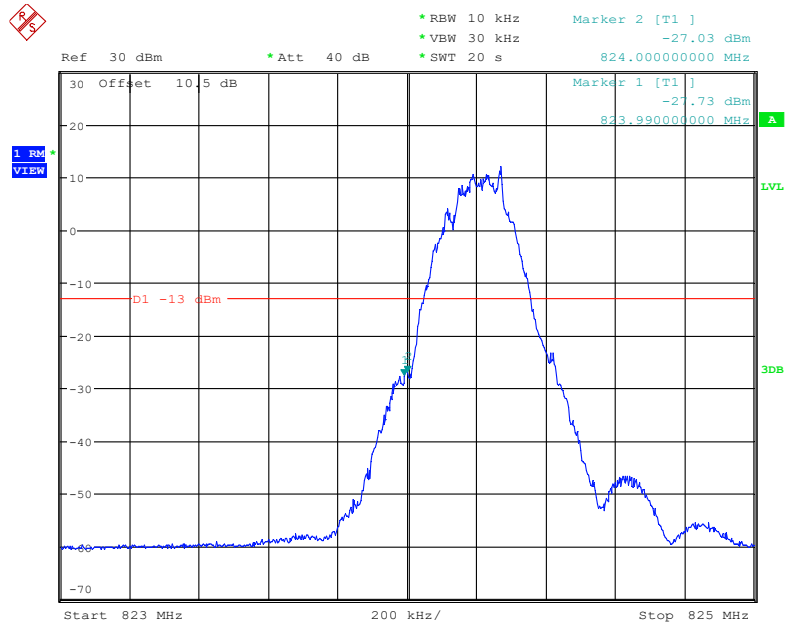
The testing was performed by Roger Ling from 2022-09-18 to 2022-09-28.

EUT operation mode: Transmitting (Worst case)

Test Result: Pass

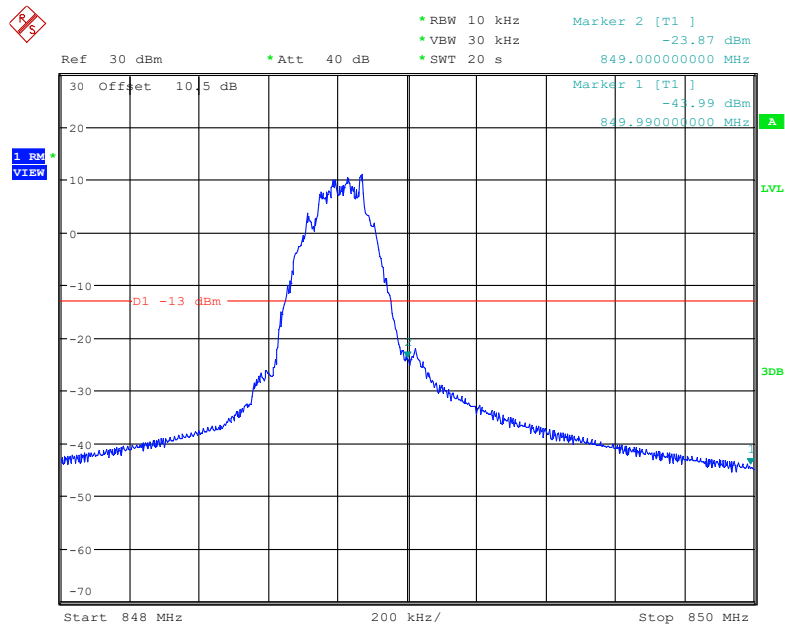
Please refer to the following plots.

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



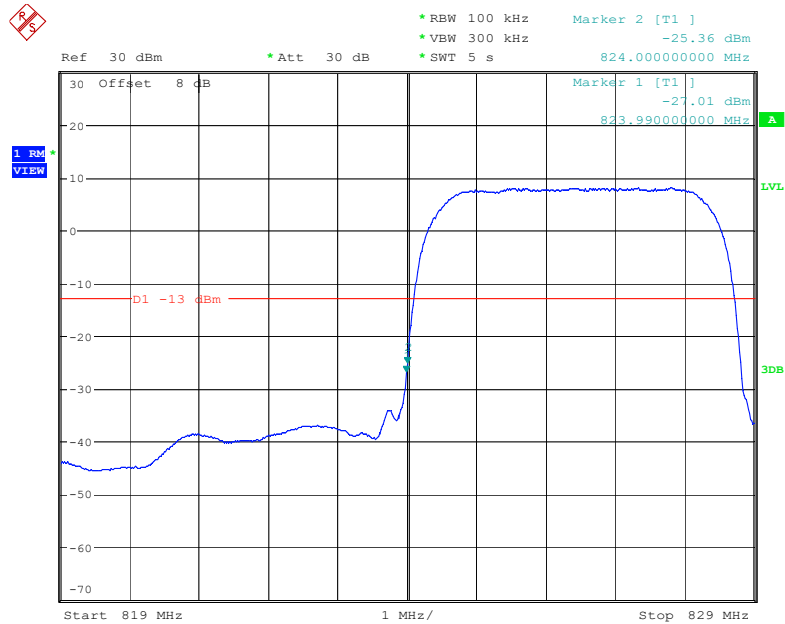
Date: 20.SEP.2022 21:36:27

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



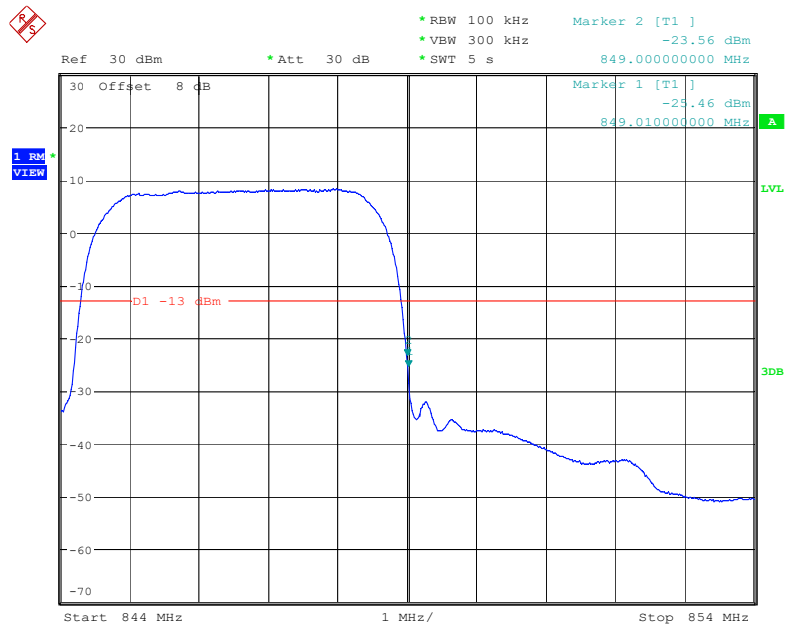
Date: 20.SEP.2022 21:41:17

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



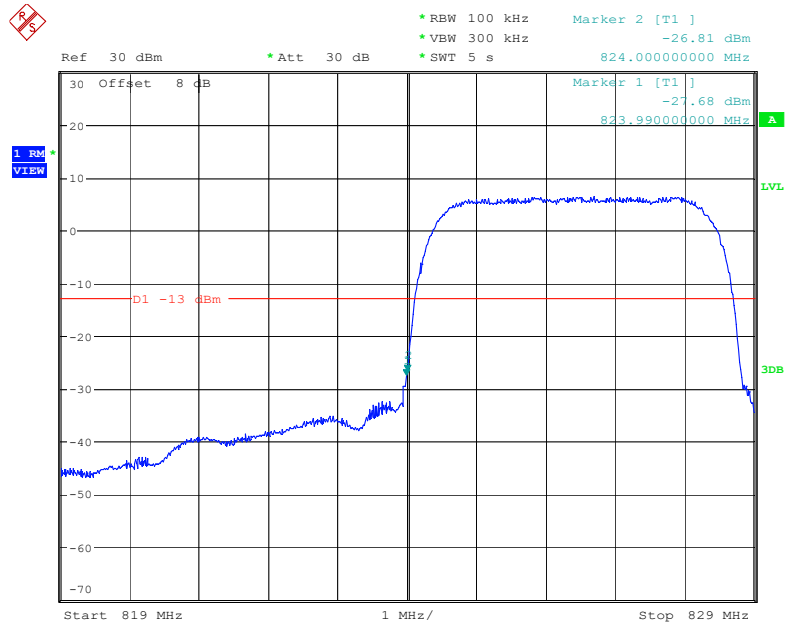
Date: 28.SEP.2022 17:43:26

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



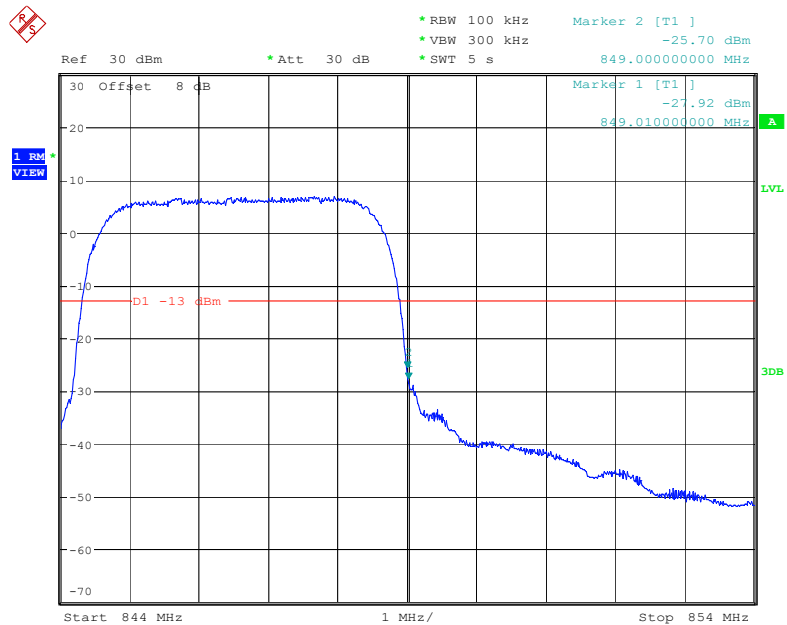
Date: 28.SEP.2022 17:54:23

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



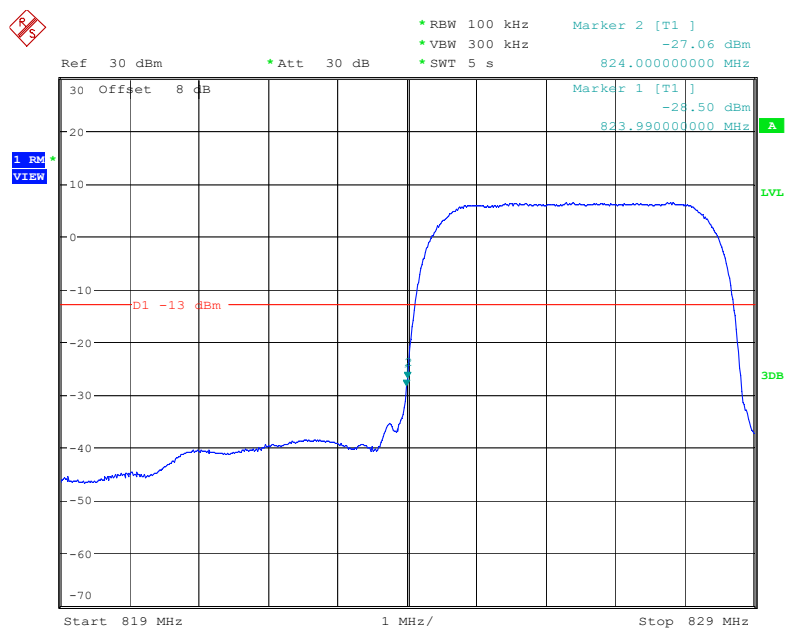
Date: 28.SEP.2022 21:40:52

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



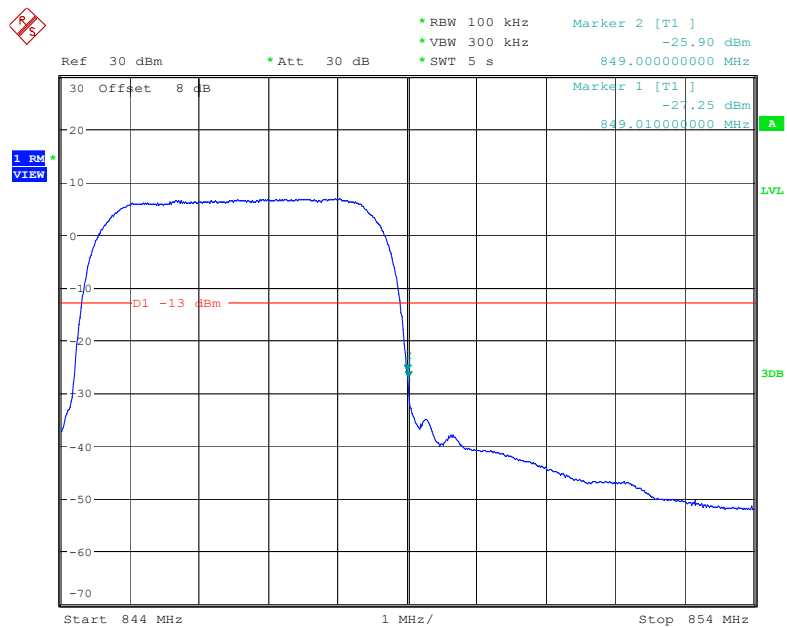
Date: 28.SEP.2022 18:07:08

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



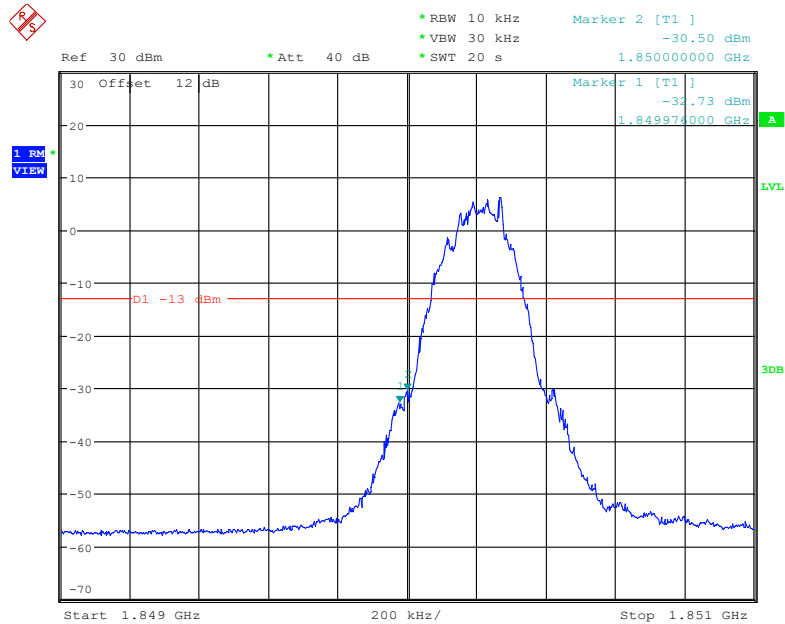
Date: 28.SEP.2022 18:13:06

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



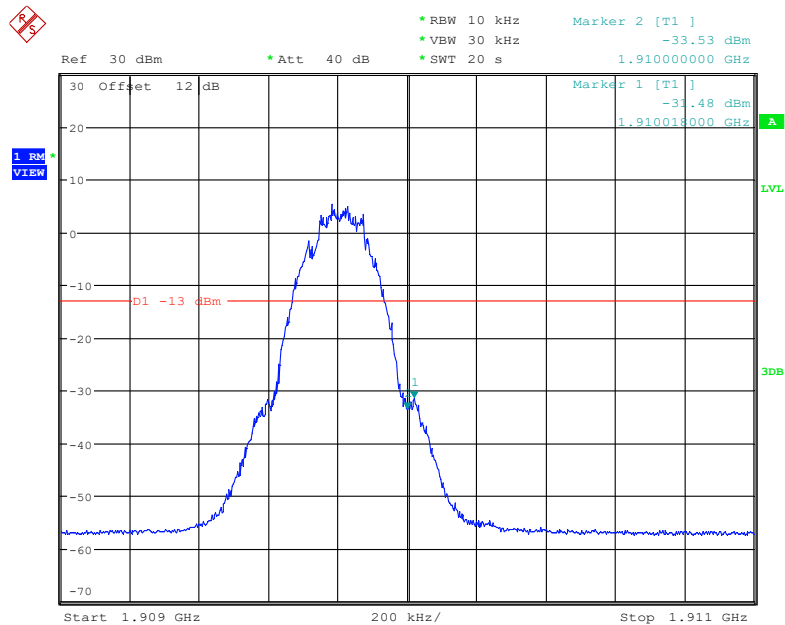
Date: 28.SEP.2022 18:19:20

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



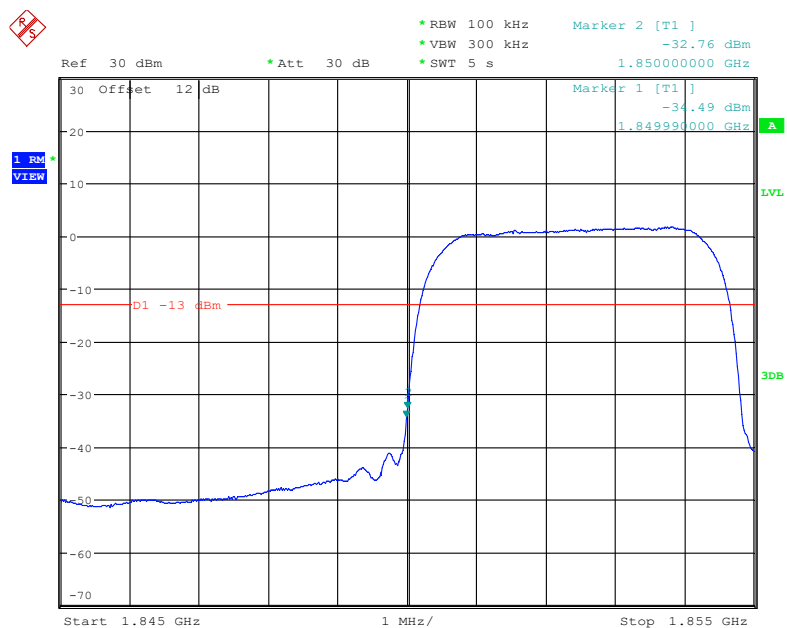
Date: 20.SEP.2022 22:26:44

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



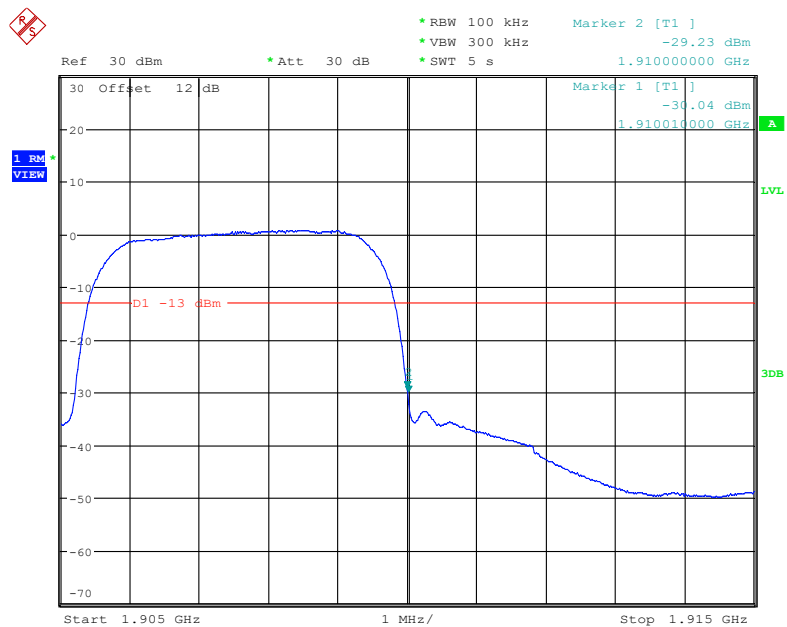
Date: 20.SEP.2022 22:38:25

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



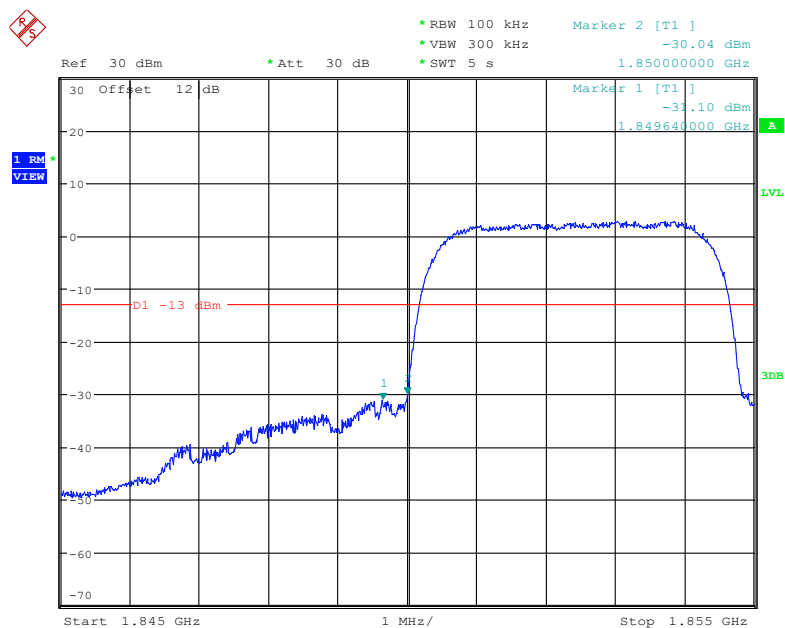
Date: 20.SEP.2022 23:11:32

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



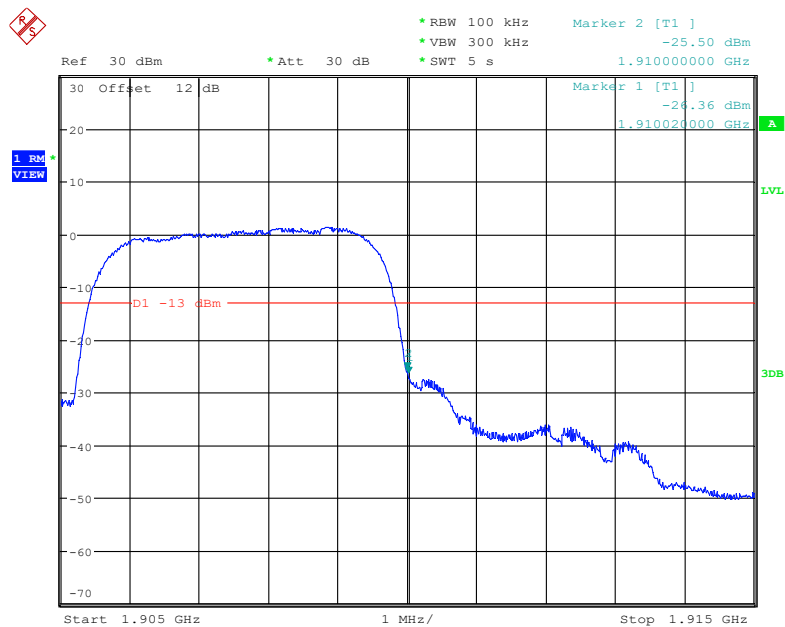
Date: 20.SEP.2022 23:24:05

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



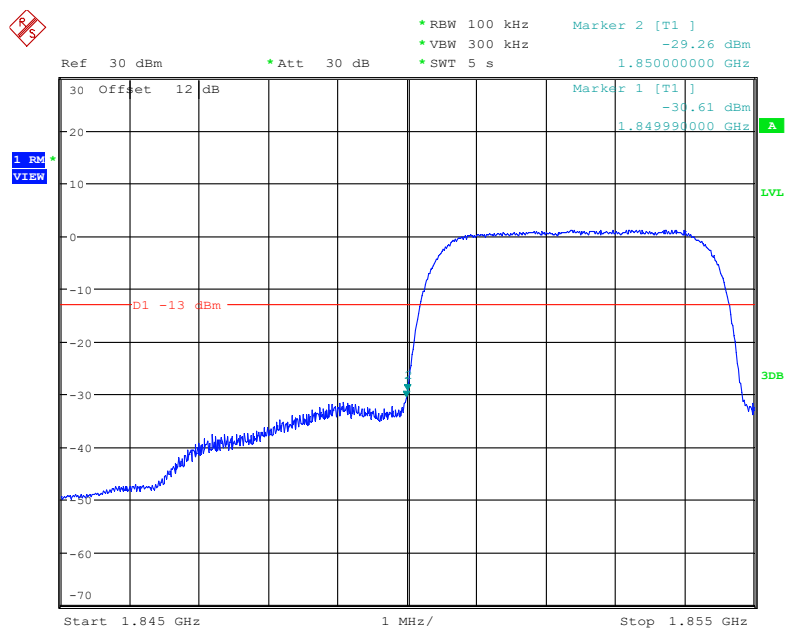
Date: 20.SEP.2022 23:40:53

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



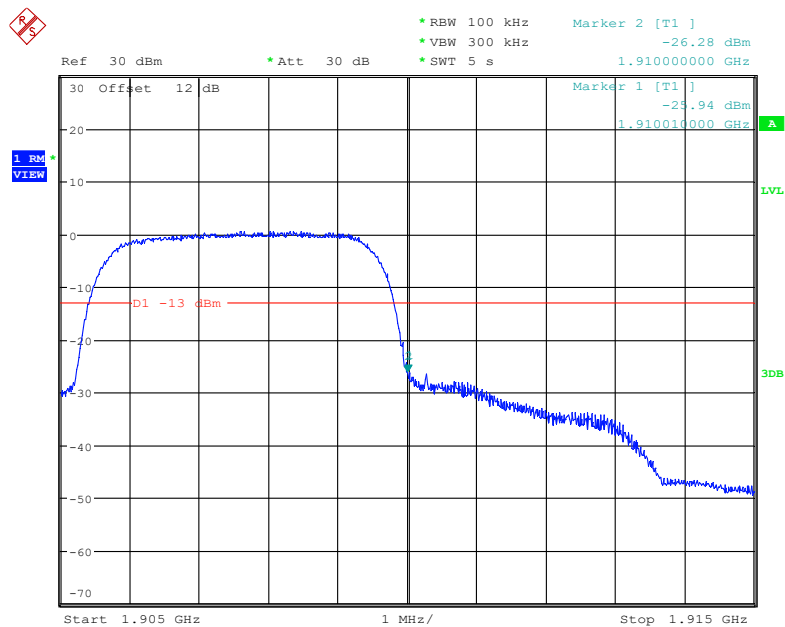
Date: 20.SEP.2022 23:35:56

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



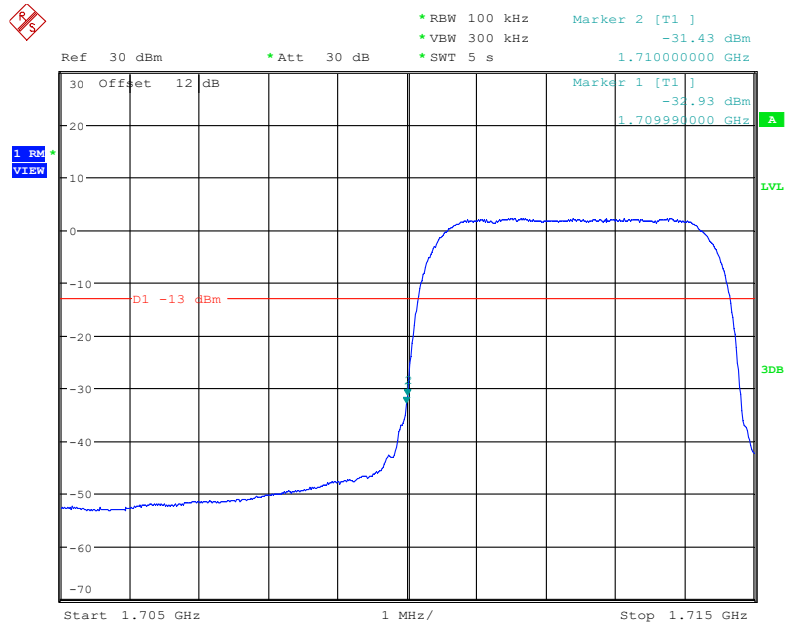
Date: 20.SEP.2022 23:56:17

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



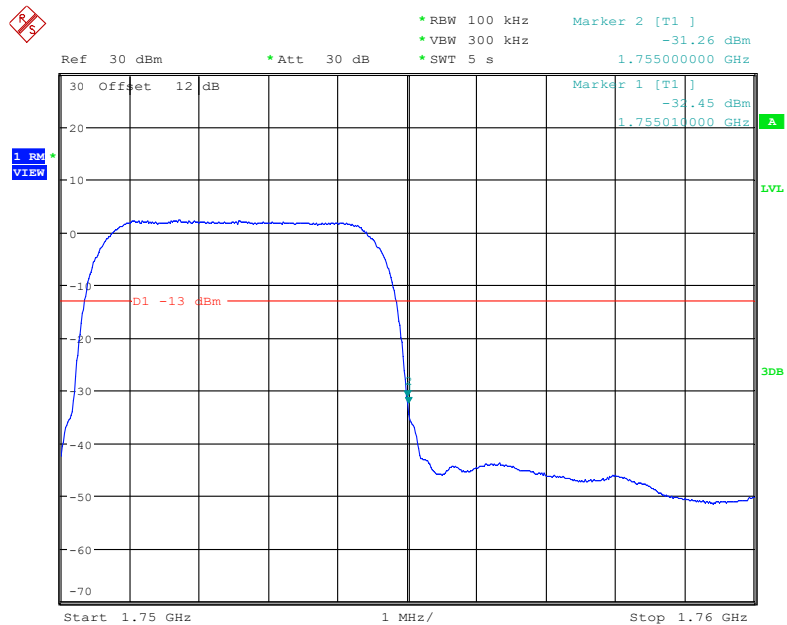
Date: 21.SEP.2022 00:01:03

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

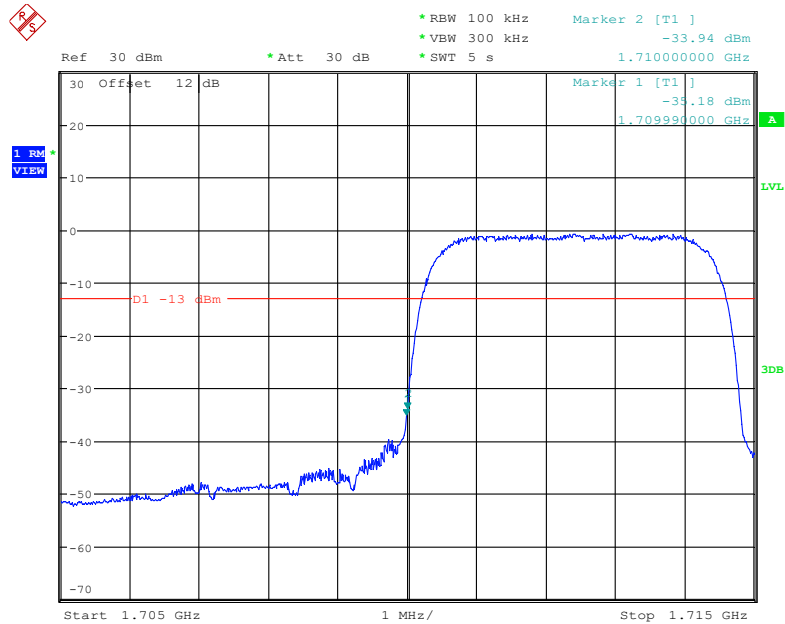


Date: 21.SEP.2022 00:19:29

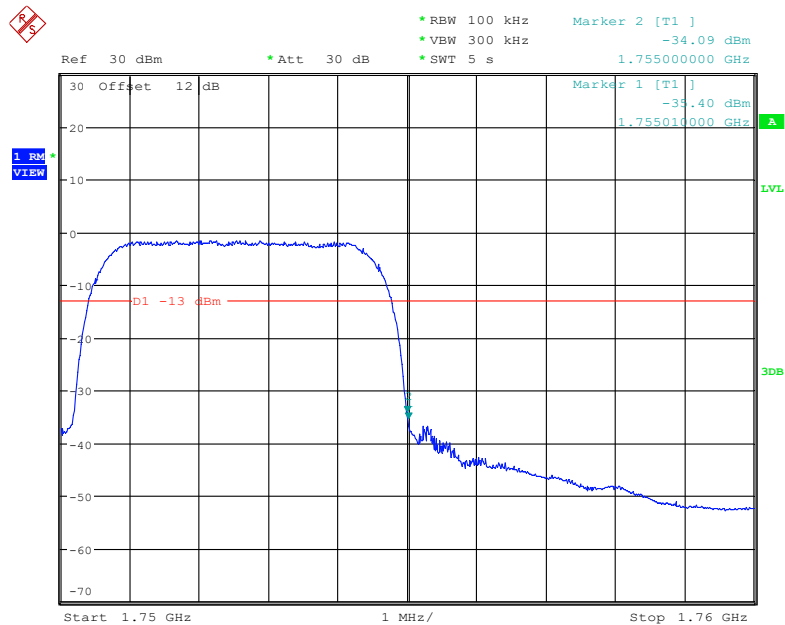
AWS Band, Right Band Edge for RMC (BPSK) Mode



Date: 21.SEP.2022 00:27:52

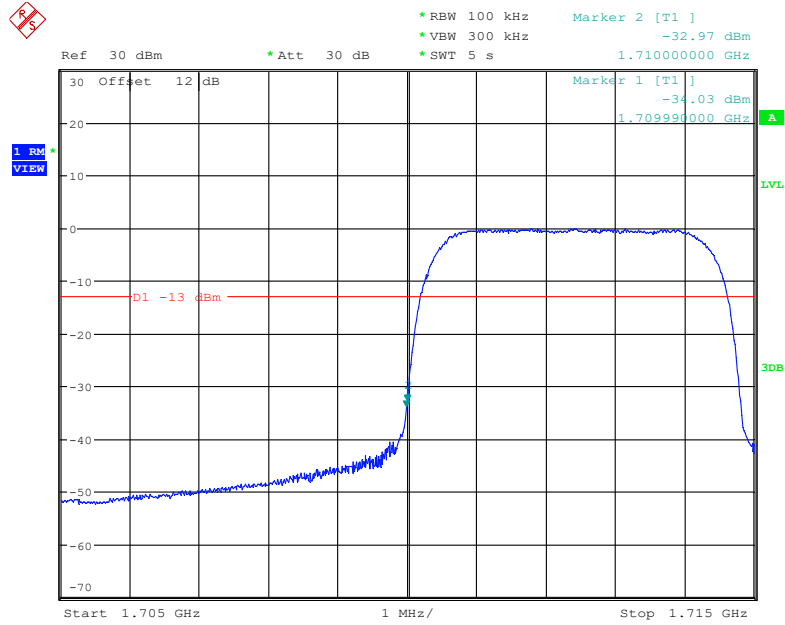
AWS Band, Left Band Edge for HSDPA(16QAM) Mode

Date: 21.SEP.2022 00:37:56

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

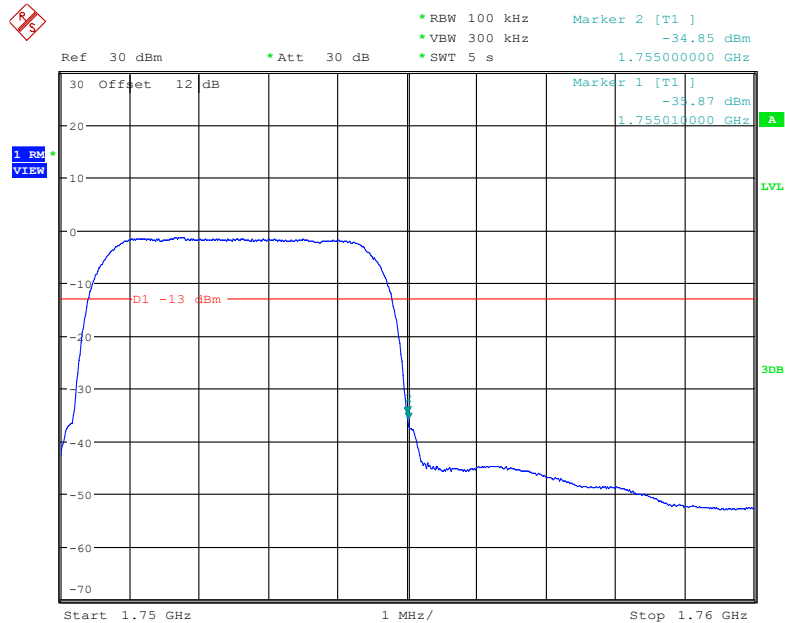
Date: 21.SEP.2022 00:33:18

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



Date: 21.SEP.2022 00:47:39

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



Date: 21.SEP.2022 01:07:43

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

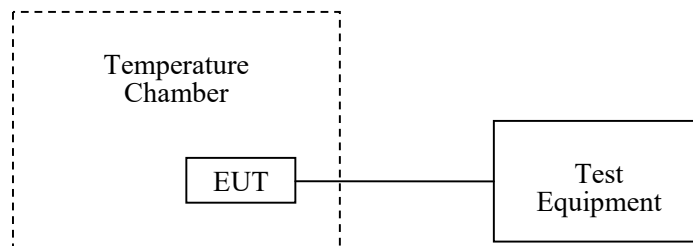
According to §24.235&§27.54, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

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 DsC leads and RF output cable exited the chamber through an opening made for the purpose.

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

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



Test Data**Environmental Conditions**

Temperature:	27 °C
Relative Humidity:	48%
ATM Pressure:	101.0 kPa

The testing was performed by Andy Yu from 2022-09-21 to 2022-09-25.

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.	-4.92	-0.0059	2.5
-20		-10.69	-0.0128	2.5
-10		-14.87	-0.0178	2.5
0		-11.71	-0.0140	2.5
10		-14.48	-0.0173	2.5
20		-16.97	-0.0203	2.5
30		-14.51	-0.0173	2.5
40		-7.39	-0.0088	2.5
50		-13.91	-0.0166	2.5
20	L.V.	-13.20	-0.0158	2.5
	H.V.	-12.74	-0.0152	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.	-11	-0.0131	2.5
-20		8	0.0096	2.5
-10		5	0.0060	2.5
0		-3	-0.0036	2.5
10		-2	-0.0024	2.5
20		-6	-0.0072	2.5
30		7	0.0084	2.5
40		-5	-0.0060	2.5
50		-8	-0.0096	2.5
20	L.V.	6	0.0072	2.5
	H.V.	-3	-0.0036	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		7	0.0037	pass
-10		4	0.0021	pass
0		6	0.0032	pass
10		-1	-0.0005	pass
20		-7	-0.0037	pass
30		-5	-0.0027	pass
40		-6	-0.0032	pass
50		-7	-0.0037	pass
20	L.V.	-2	-0.0011	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.	-12	-0.0064	pass
-20		15	0.0080	pass
-10		16	0.0085	pass
0		-11	-0.0059	pass
10		-14	-0.0074	pass
20		-13	-0.0069	pass
30		15	0.0080	pass
40		-15	-0.0080	pass
50		-14	-0.0074	pass
20	L.V.	11	0.0059	pass
	H.V.	-12	-0.0064	pass

AWS Band (Part 27)

Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	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

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.	-13	-0.0069	pass
-20		-11	-0.0059	pass
-10		-7	-0.0037	pass
0		6	0.0032	pass
10		8	0.0043	pass
20		3	0.0016	pass
30		-7	-0.0037	pass
40		8	0.0043	pass
50		-11	-0.0059	pass
20	L.V.	-7	-0.0037	pass
	H.V.	-5	-0.0027	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.	1710.1128	1754.5634	1710	1755
-20		1710.1102	1754.5643	1710	1755
-10		1710.1125	1754.5677	1710	1755
0		1710.1158	1754.5652	1710	1755
10		1710.1127	1754.5663	1710	1755
20		1710.1108	1754.5648	1710	1755
30		1710.1122	1754.5703	1710	1755
40		1710.1117	1754.5709	1710	1755
50		1710.1143	1754.5699	1710	1755
20	L.V.	1710.1107	1754.5684	1710	1755
	H.V.	1710.1128	1754.5710	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.	2500.0678	2569.9418	2500	2570
-20		2500.0623	2569.9416	2500	2570
-10		2500.0644	2569.9382	2500	2570
0		2500.0686	2569.9415	2500	2570
10		2500.0640	2569.9408	2500	2570
20		2500.0639	2569.9399	2500	2570
30		2500.0641	2569.9452	2500	2570
40		2500.0663	2569.9400	2500	2570
50		2500.0650	2569.9381	2500	2570
20	L.V.	2500.0622	2569.9419	2500	2570
	H.V.	2500.0646	2569.9435	2500	2570

Band 66:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	1710.0975	1779.9014	1710	1780
-20		1710.0986	1779.8995	1710	1780
-10		1710.0960	1779.9058	1710	1780
0		1710.0957	1779.8998	1710	1780
10		1710.0976	1779.9023	1710	1780
20		1710.0948	1779.9037	1710	1780
30		1710.0962	1779.9058	1710	1780
40		1710.0971	1779.9003	1710	1780
50		1710.0984	1779.9035	1710	1780
20	L.V.	1710.0979	1779.9005	1710	1780
	H.V.	1710.0981	1779.9029	1710	1780

16QAM:**Band 2:**

10.0 MHz Middle Channel, $f_0=1880\text{MHz}$				
Temperature (°C)	Voltage Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	N.V.	-9	-0.0048	pass
-20		-5	-0.0027	pass
-10		8	0.0043	pass
0		-8	-0.0043	pass
10		-13	-0.0069	pass
20		-12	-0.0064	pass
30		-6	-0.0032	pass
40		-8	-0.0043	pass
50		5	0.0027	pass
20	L.V.	6	0.0032	pass
	H.V.	4	0.0021	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 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.	2500.0637	2569.9388	2500	2570
-20		2500.0679	2569.9358	2500	2570
-10		2500.0670	2569.9372	2500	2570
0		2500.0660	2569.9353	2500	2570
10		2500.0631	2569.9365	2500	2570
20		2500.0634	2569.9408	2500	2570
30		2500.0640	2569.9392	2500	2570
40		2500.0614	2569.9384	2500	2570
50		2500.0647	2569.9370	2500	2570
20	L.V.	2500.0636	2569.9343	2500	2570
	H.V.	2500.0603	2569.9339	2500	2570

Band 66:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	1710.0961	1779.9067	1710	1780
-20		1710.0981	1779.9002	1710	1780
-10		1710.0963	1779.9045	1710	1780
0		1710.0973	1779.8997	1710	1780
10		1710.0987	1779.9026	1710	1780
20		1710.0999	1779.9001	1710	1780
30		1710.0982	1779.9020	1710	1780
40		1710.0966	1779.8998	1710	1780
50		1710.0984	1779.9048	1710	1780
20	L.V.	1710.0970	1779.9021	1710	1780
	H.V.	1710.0982	1779.9056	1710	1780

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