



TESTREPORT

Applicant Name : Epik One America Corporation
Address : 801 Brickell Ave. #900 Miami Florida United States
Report Number : SZNS221017-47343E-RF-00C
FCC ID: 2AO6ZX602

Test Standard (s)

FCC PART 27; FCC PART 22H; FCC PART 24E; FCC PART 90

Sample Description

Product Type: Mobile Phone
Model No.: X602
Multiple Model(s) No.: N/A
Trade Mark: Epik One
Date Received: 2022/10/17
Report Date: 2022/11/11

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

Prepared and Checked By:

Roger Ling

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EMC Engineer

Approved By:

Candy Li

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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 5: 824-849MHz(TX); 869-894MHz(RX) LTE Band 7: 2500-2570MHz(TX); 2620-2690MHz(RX) LTE Band 26(Part 22): 824-849MHz(TX); 869-894MHz(RX) LTE Band 26(Part 90): 814-824MHz(TX); 859-869MHz(RX) LTE Band 38: 2570-2620MHz(TX/RX)
Modulation Technique	2G: GMSK, 8PSK 3G: BPSK, QPSK, 16QAM 4G: QPSK, 16QAM
Antenna Specification*	GSM850/WCDMA B5/LTE B5 : -0.70 dBi PCS1900/WCDMA B2/ LTE B2 : 0.82 dBi WCDMA B4/LTE B4: 0.92 dBi, LTE B7 : 1.11dBi, LTE B26 : -0.70dBi, LTE B38 : 1.12dBi (provided by the applicant)
Voltage Range	DC 3.8V from battery or DC 5V from adapter
Test Sample serial number	1MCU for Radiated Emissions Test, 1MYX for RF Conducted Test (Assigned by ATC)
Sample/EUT Status	Good condition
Adapter Information	Model: DLX222-0501000 Input: AC 100-240V, 50/60Hz, 0.3A Output: DC 5.0V, 1000mA
Extreme condition*	L.V.: Low Voltage 3.5V _{DC} N.V.: Normal Voltage 3.8V _{DC} H.V.: High Voltage 4.35V _{DC} (provided by the applicant)

Objective

This test report is in accordance with Part 2-Subpart J, Part 22-Subpart H, Part24-Subpart E, Part 27, and Part 90 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
 Part 90 – Private Land Mobile Radio 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
PCS1900	0.25	1850.2	1880	1909.8
WCDMA B2	4.2	1852.4	1880	1907.6
WCDMA B4	4.2	1712.4	1732.6	1752.6
WCDMA B5	4.2	826.4	836.4	846.6
LTE B2	1.4	1850.7	1880	1909.3
	3	1851.5	1880	1908.5
	5	1852.5	1880	1907.5
	10	1855	1880	1905
	15	1857.5	1880	1902.5
	20	1860	1880	1900
LTE B4	1.4	1710.7	1732.5	1754.3
	3	1711.5	1732.5	1753.5
	5	1712.5	1732.5	1752.5
	10	1715	1732.5	1750
	15	1717.5	1732.5	1747.5
	20	1720	1732.5	1745
LTE B5& LTE B26(Part 22H)	1.4	824.7	836.5	848.3
	3	825.5	836.5	847.5
	5	826.5	836.5	846.5
	10	829	836.5	844
	15(only for B26)	831.5	836.5	841.5
LTE B7	5	2502.5	2535	2567.5
	10	2505	2535	2565
	15	2507.5	2535	2562.5
	20	2510	2535	2560
LTE B26(Part 90S)	1.4	814.7	819	823.3
	3	815.5	819	822.5
	5	816.5	819	821.5
	10	/	819	/
LTE B38	5	2572.5	2595	2617.5
	10	2575	2595	2615
	15	2577.5	2595	2612.5
	20	2580	2595	2610

Equipment Modifications

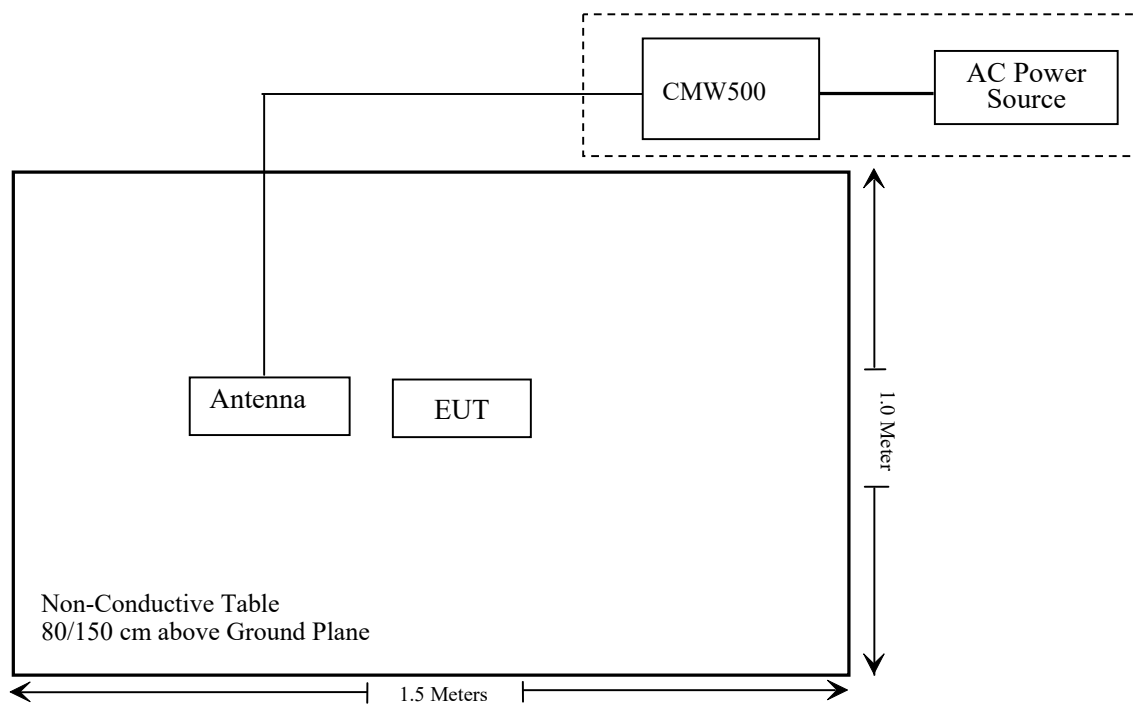
No modification was made to the EUT.

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); §90.635	RF Output Power	Compliant
§ 2.1047	Modulation Characteristics	Not Applicable
§ 2.1049; § 22.905; § 22.917; § 24.238; §27.53 §90.209	Occupied Bandwidth	Compliant
§ 2.1051; §22.917 (a); § 24.238 (a); §27.53; §90.691	Spurious Emissions at Antenna Terminal	Compliant
§ 2.1053; § 22.917 (a); § 24.238 (a); §27.53 §90.691	Field Strength of Spurious Radiation	Compliant
§ 22.917 (a); § 24.238 (a); §27.53 (h) (m) §90.691	Band Edge	Compliant
§ 2.1055; § 22.355; § 24.235; §27.54; §90.213	Frequency stability	Compliant

Note: * Please refer to SAR report number: CR221047343-20.

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
Mini-Circuits	Power Splitter	DC-18000MHz	SF10944151S	2021/12/14	2022/12/13
REALE	Temp. & Humid. Chamber	RHP-800BT	R20170318310	2021/12/14	2022/12/13
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: CR221047343-20.

FCC§2.1047 - MODULATION CHARACTERISTIC

According to FCC § 2.1047(d), Part 22H & 24E& 27& 90, 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) ; § 90.635- 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.

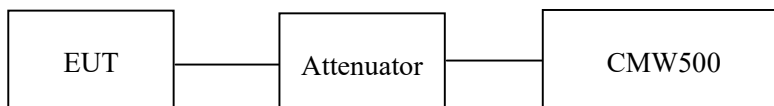
According to §27.50(h), the maximum EIRP must not exceed 2Watts (33dBm) for 2496-2690MHz.

According to §90.635, the maximum ERP must not exceed 100Watts (50dBm) for 814-824MHz.

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 including in the test result.

Test Data

Environmental Conditions

Temperature:	25.7-27.2℃
Relative Humidity:	56.2~58.2%
ATM Pressure:	101.0 kPa

The testing was performed by Roger Lin from 2022-10-26 to 2022-11-04.

Cellular Band (Part 22H)

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	ERP(dBm)	Limit (dBm)
GSM	128	824.2	33.60	30.25	38.45
	190	836.6	33.80	30.45	38.45
	251	848.8	33.80	30.45	38.45

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				ERP(dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	1 slot	2 slots	3 slots	4 slots	
GPRS	128	824.2	33.18	31.09	29.22	27.71	29.83	27.74	25.87	24.36	38.45
	190	836.6	33.32	31.09	29.17	27.88	29.97	27.74	25.82	24.53	38.45
	251	848.8	33.34	31.02	29.10	27.96	29.99	27.67	25.75	24.61	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	26.17	25.56	23.21	20.88	22.82	22.21	19.86	17.53	38.45
	190	836.6	26.32	25.72	23.32	21.03	22.97	22.37	19.97	17.68	38.45
	251	848.8	26.32	25.86	23.33	21.14	22.97	22.51	19.98	17.79	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		22.86	22.78	22.76	19.51	19.43	19.41
	HSDPA	1	22.40	21.84	21.81	19.05	18.49	18.46
		2	22.32	21.76	21.77	18.97	18.41	18.42
		3	22.15	21.69	21.68	18.80	18.34	18.33
		4	22.28	21.57	21.59	18.93	18.22	18.24
	HSUPA	1	22.43	21.83	21.86	19.08	18.48	18.51
		2	22.25	21.68	21.77	18.90	18.33	18.42
		3	22.34	21.74	21.64	18.99	18.39	18.29
		4	22.14	21.69	21.72	18.79	18.34	18.37
		5	22.26	21.45	21.64	18.91	18.10	18.29
	HSPA+	1	22.33	21.58	21.59	18.98	18.23	18.24

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

For GSM850 / WCDMA Band5: -0.7dBi = -2.85dBd (0dBd=2.15dBi) (0dBd=2.15dBi)

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

Limit: ERP≤38.45dBm

PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	EIRP(dBm)	Limit (dBm)
GSM	512	1850.2	29.70	29.52	33
	661	1880.0	30.60	30.42	33
	810	1909.8	30.10	29.92	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	29.65	28.12	25.42	25.24	29.47	27.94	25.24	25.06	33
	661	1880.0	30.53	28.64	26.10	25.08	30.35	28.46	25.92	24.90	33
	810	1909.8	30.43	28.55	26.21	24.90	30.25	28.37	26.03	24.72	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	25.76	24.87	23.43	20.56	25.58	24.69	23.25	20.38	33
	661	1880.0	26.48	25.68	24.99	22.03	26.30	25.50	24.81	21.85	33
	810	1909.8	26.06	25.49	24.10	21.24	25.88	25.31	23.92	21.06	33

Mode	Test Mode	3GPP Sub Test	Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
WCDMA (Band 2)	RMC12.2k		23.47	23.45	23.42	23.29	23.27	23.24
	HSDPA	1	22.91	22.89	22.97	22.73	22.71	22.79
		2	22.57	22.77	22.82	22.39	22.59	22.64
		3	22.88	22.64	22.74	22.70	22.46	22.56
		4	22.69	22.67	22.68	22.51	22.49	22.50
	HSUPA	1	22.77	22.94	22.90	22.59	22.76	22.72
		2	22.53	22.85	22.68	22.35	22.67	22.50
		3	22.67	22.77	22.57	22.49	22.59	22.39
		4	22.43	22.68	22.62	22.25	22.50	22.44
		5	22.48	22.81	22.49	22.30	22.63	22.31
	HSPA+	1	22.67	22.74	22.57	22.49	22.56	22.39

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

For PCS1900 / WCDMA Band2: Antenna Gain = 0.82 dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in 1dB

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		23.47	23.55	23.58	23.39	23.47	23.50
	HSDPA	1	22.66	22.62	22.82	22.58	22.54	22.74
		2	22.54	22.58	22.52	22.46	22.50	22.44
		3	22.42	22.41	22.65	22.34	22.33	22.57
		4	22.36	22.34	22.59	22.28	22.26	22.51
	HSUPA	1	22.59	22.54	22.70	22.51	22.46	22.62
		2	22.48	22.48	22.51	22.40	22.40	22.43
		3	22.36	22.42	22.43	22.28	22.34	22.35
		4	22.52	22.36	22.48	22.44	22.28	22.40
		5	22.24	22.18	22.56	22.16	22.10	22.48
	HSPA+	1	22.16	22.26	22.66	22.08	22.18	22.58

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

For Band4: Antenna Gain = 0.92dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in 1dB

Limit: $EIRP \leq 30dBm$

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	22.11	21.61	21.65	21.93	21.43	21.47
		RB1#3	22.11	21.56	21.70	21.93	21.38	21.52
		RB1#5	22.05	21.71	21.67	21.87	21.53	21.49
		RB3#0	22.20	21.50	21.78	22.02	21.32	21.60
		RB3#3	22.19	21.51	21.70	22.01	21.33	21.52
		RB6#0	21.17	20.48	20.63	20.99	20.30	20.45
	16QAM	RB1#0	21.00	20.79	20.85	20.82	20.61	20.67
		RB1#3	20.99	20.75	20.88	20.81	20.57	20.70
		RB1#5	21.03	20.91	20.87	20.85	20.73	20.69
		RB3#0	21.28	20.48	20.87	21.10	20.30	20.69
		RB3#3	21.24	20.50	20.86	21.06	20.32	20.68
		RB6#0	20.37	19.77	19.86	20.19	19.59	19.68
3.0	QPSK	RB1#0	22.18	21.90	21.61	22.00	21.72	21.43
		RB1#8	22.21	21.89	21.62	22.03	21.71	21.44
		RB1#14	22.10	21.92	21.60	21.92	21.74	21.42
		RB6#0	21.07	20.91	20.65	20.89	20.73	20.47
		RB6#9	21.04	20.96	20.57	20.86	20.78	20.39
		RB15#0	21.11	20.97	20.61	20.93	20.79	20.43
	16QAM	RB1#0	21.30	20.85	21.16	21.12	20.67	20.98
		RB1#8	21.28	20.84	21.01	21.10	20.66	20.83
		RB1#14	21.26	20.86	21.03	21.08	20.68	20.85
		RB6#0	20.28	20.02	19.67	20.10	19.84	19.49
		RB6#9	20.26	19.95	19.73	20.08	19.77	19.55
		RB15#0	20.22	20.06	19.83	20.04	19.88	19.65

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	22.02	21.95	21.41	21.84	21.77	21.23
		RB1#13	21.83	21.93	21.44	21.65	21.75	21.26
		RB1#24	21.85	21.94	21.38	21.67	21.76	21.20
		RB15#0	20.76	20.92	20.44	20.58	20.74	20.26
		RB15#10	20.79	20.97	20.52	20.61	20.79	20.34
		RB25#0	20.75	20.91	20.42	20.57	20.73	20.24
	16QAM	RB1#0	20.80	20.66	19.68	20.62	20.48	19.50
		RB1#13	20.79	20.67	19.66	20.61	20.49	19.48
		RB1#24	20.76	20.68	19.64	20.58	20.50	19.46
		RB15#0	19.73	20.08	19.57	19.55	19.90	19.39
		RB15#10	19.62	20.02	19.62	19.44	19.84	19.44
		RB25#0	19.71	19.96	19.63	19.53	19.78	19.45
10.0	QPSK	RB1#0	21.18	21.96	21.23	21.00	21.78	21.05
		RB1#25	21.07	21.84	21.18	20.89	21.66	21.00
		RB1#49	21.10	21.97	21.19	20.92	21.79	21.01
		RB25#0	20.15	20.87	20.29	19.97	20.69	20.11
		RB25#25	20.16	20.89	20.32	19.98	20.71	20.14
		RB50#0	20.09	20.96	20.30	19.91	20.78	20.12
	16QAM	RB1#0	20.91	20.42	20.61	20.73	20.24	20.43
		RB1#25	20.82	20.41	20.53	20.64	20.23	20.35
		RB1#49	20.86	20.73	20.50	20.68	20.55	20.32
		RB25#0	19.22	20.12	19.36	19.04	19.94	19.18
		RB25#25	19.19	20.14	19.32	19.01	19.96	19.14
		RB50#0	19.29	20.02	19.38	19.11	19.84	19.20

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15.0	QPSK	RB1#0	21.56	21.91	21.70	21.38	21.73	21.52
		RB1#38	21.45	21.84	21.68	21.27	21.66	21.50
		RB1#74	21.46	21.80	21.61	21.28	21.62	21.43
		RB36#0	20.55	20.91	20.73	20.37	20.73	20.55
		RB36#39	20.39	20.90	20.77	20.21	20.72	20.59
		RB75#0	20.57	20.80	20.67	20.39	20.62	20.49
	16QAM	RB1#0	21.34	21.24	21.09	21.16	21.06	20.91
		RB1#38	21.26	21.24	21.04	21.08	21.06	20.86
		RB1#74	21.13	21.20	20.95	20.95	21.02	20.77
		RB36#0	19.61	19.94	19.93	19.43	19.76	19.75
		RB36#39	19.52	19.96	19.84	19.34	19.78	19.66
		RB75#0	19.65	20.03	19.90	19.47	19.85	19.72
20.0	QPSK	RB1#0	21.46	22.03	22.01	21.28	21.85	21.83
		RB1#50	21.30	21.87	21.87	21.12	21.69	21.69
		RB1#99	21.36	21.88	21.79	21.18	21.70	21.61
		RB50#0	20.32	20.84	20.80	20.14	20.66	20.62
		RB50#50	20.22	20.83	20.74	20.04	20.65	20.56
		RB100#0	20.27	21.00	20.79	20.09	20.82	20.61
	16QAM	RB1#0	20.37	21.71	21.05	20.19	21.53	20.87
		RB1#50	20.26	21.60	20.88	20.08	21.42	20.70
		RB1#99	20.11	21.49	20.78	19.93	21.31	20.60
		RB50#0	19.27	19.98	19.97	19.09	19.80	19.79
		RB50#50	19.24	19.98	19.93	19.06	19.80	19.75
		RB100#0	19.21	20.05	19.92	19.03	19.87	19.74

Note: $EIRP(dBm) = \text{Conducted Power}(dBm) + \text{Antenna Gain}(dBi) - L_c (dB)$

For Band2: Antenna Gain = 0.82 dBi

L_c = signal attenuation in the connecting cable between the transmitter and antenna in 1dB

Limit: $EIRP \leq 33dBm$

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	22.48	22.54	22.78	22.40	22.46	22.70
		RB1#3	22.41	22.57	22.73	22.33	22.49	22.65
		RB1#5	22.45	22.61	22.81	22.37	22.53	22.73
		RB3#0	22.58	22.74	22.64	22.50	22.66	22.56
		RB3#3	22.60	22.72	22.61	22.52	22.64	22.53
		RB6#0	21.48	21.64	21.57	21.40	21.56	21.49
	16QAM	RB1#0	21.37	22.30	21.56	21.29	22.22	21.48
		RB1#3	21.41	22.23	21.58	21.33	22.15	21.50
		RB1#5	21.37	22.27	21.61	21.29	22.19	21.53
		RB3#0	21.70	21.68	21.58	21.62	21.60	21.50
		RB3#3	21.60	21.71	21.53	21.52	21.63	21.45
		RB6#0	20.79	20.84	20.90	20.71	20.76	20.82
3.0	QPSK	RB1#0	22.07	22.57	22.46	21.99	22.49	22.38
		RB1#8	22.14	22.56	22.48	22.06	22.48	22.40
		RB1#14	22.10	22.59	22.40	22.02	22.51	22.32
		RB6#0	21.16	21.65	21.52	21.08	21.57	21.44
		RB6#9	21.20	21.62	21.45	21.12	21.54	21.37
		RB15#0	21.13	21.68	21.54	21.05	21.60	21.46
	16QAM	RB1#0	21.83	21.52	21.64	21.75	21.44	21.56
		RB1#8	21.80	21.52	21.64	21.72	21.44	21.56
		RB1#14	21.82	21.48	21.63	21.74	21.40	21.55
		RB6#0	20.30	20.91	20.64	20.22	20.83	20.56
		RB6#9	20.31	20.86	20.58	20.23	20.78	20.50
		RB15#0	20.17	20.77	20.65	20.09	20.69	20.57

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	21.85	22.65	22.64	21.77	22.57	22.56
		RB1#13	21.86	22.57	22.67	21.78	22.49	22.59
		RB1#24	21.90	22.66	22.64	21.82	22.58	22.56
		RB15#0	20.81	21.64	21.67	20.73	21.56	21.59
		RB15#10	20.82	21.61	21.71	20.74	21.53	21.63
		RB25#0	20.78	21.59	21.68	20.70	21.51	21.60
	16QAM	RB1#0	20.91	21.35	20.89	20.83	21.27	20.81
		RB1#13	20.88	21.34	21.00	20.80	21.26	20.92
		RB1#24	20.96	21.40	20.97	20.88	21.32	20.89
		RB15#0	19.74	20.74	20.77	19.66	20.66	20.69
		RB15#10	19.77	20.71	20.84	19.69	20.63	20.76
		RB25#0	19.88	20.58	20.91	19.80	20.50	20.83
10.0	QPSK	RB1#0	22.48	21.81	21.69	22.40	21.73	21.61
		RB1#25	22.47	21.80	21.67	22.39	21.72	21.59
		RB1#49	22.47	21.86	21.70	22.39	21.78	21.62
		RB25#0	21.40	20.75	20.80	21.32	20.67	20.72
		RB25#25	21.47	20.82	20.65	21.39	20.74	20.57
		RB50#0	21.33	20.73	20.64	21.25	20.65	20.56
	16QAM	RB1#0	21.58	20.28	21.03	21.50	20.20	20.95
		RB1#25	21.55	20.28	21.04	21.47	20.20	20.96
		RB1#49	21.57	20.27	21.04	21.49	20.19	20.96
		RB25#0	20.58	20.07	19.86	20.50	19.99	19.78
		RB25#25	20.61	20.03	19.88	20.53	19.95	19.80
		RB50#0	20.56	19.88	19.84	20.48	19.80	19.76

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15.0	QPSK	RB1#0	21.74	22.54	22.00	21.66	22.46	21.92
		RB1#38	21.72	22.59	21.94	21.64	22.51	21.86
		RB1#74	21.69	22.58	21.89	21.61	22.50	21.81
		RB36#0	20.72	21.62	20.95	20.64	21.54	20.87
		RB36#39	20.60	21.57	20.95	20.52	21.49	20.87
		RB75#0	20.54	21.60	20.97	20.46	21.52	20.89
	16QAM	RB1#0	20.84	21.98	21.35	20.76	21.90	21.27
		RB1#38	20.78	21.97	21.32	20.70	21.89	21.24
		RB1#74	20.86	21.99	21.29	20.78	21.91	21.21
		RB36#0	19.82	20.68	20.17	19.74	20.60	20.09
		RB36#39	19.77	20.63	20.13	19.69	20.55	20.05
		RB75#0	19.73	20.75	20.11	19.65	20.67	20.03
20.0	QPSK	RB1#0	22.08	22.68	22.27	22.00	22.60	22.19
		RB1#50	21.95	22.69	22.18	21.87	22.61	22.10
		RB1#99	22.06	22.64	22.17	21.98	22.56	22.09
		RB50#0	21.00	21.57	20.92	20.92	21.49	20.84
		RB50#50	21.02	21.47	20.83	20.94	21.39	20.75
		RB100#0	21.11	21.56	20.86	21.03	21.48	20.78
	16QAM	RB1#0	21.39	22.27	20.56	21.31	22.19	20.48
		RB1#50	21.38	22.19	20.37	21.30	22.11	20.29
		RB1#99	21.41	22.18	20.41	21.33	22.10	20.33
		RB50#0	20.29	20.63	20.05	20.21	20.55	19.97
		RB50#50	20.28	20.54	20.05	20.20	20.46	19.97
		RB100#0	20.14	20.63	19.95	20.06	20.55	19.87

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

For Band4: Antenna Gain = 0.92dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in 1dB

Limit: EIRP ≤ 30dBm

LTE Band 5 & Band 26(Part 22)

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
1.4	QPSK	RB1#0	23.18	22.94	23.23	19.83	19.59	19.88
		RB1#3	23.13	22.92	23.23	19.78	19.57	19.88
		RB1#5	23.27	22.88	23.22	19.92	19.53	19.87
		RB3#0	23.37	22.96	23.34	20.02	19.61	19.99
		RB3#3	23.39	23.02	23.33	20.04	19.67	19.98
		RB6#0	22.33	22.03	22.20	18.98	18.68	18.85
	16QAM	RB1#0	21.94	22.69	21.91	18.59	19.34	18.56
		RB1#3	22.01	22.65	21.98	18.66	19.30	18.63
		RB1#5	22.00	22.64	21.94	18.65	19.29	18.59
		RB3#0	22.47	21.81	22.29	19.12	18.46	18.94
		RB3#3	22.45	21.83	22.31	19.10	18.48	18.96
		RB6#0	21.49	21.45	21.32	18.14	18.10	17.97
3	QPSK	RB1#0	23.03	22.69	22.27	19.68	19.34	18.92
		RB1#8	23.11	22.75	22.22	19.76	19.40	18.87
		RB1#14	23.13	22.61	22.24	19.78	19.26	18.89
		RB6#0	22.10	21.78	21.26	18.75	18.43	17.91
		RB6#9	22.57	21.8	21.27	19.22	18.45	17.92
		RB15#0	21.97	21.78	21.32	18.62	18.43	17.97
	16QAM	RB1#0	22.83	21.50	21.62	19.48	18.15	18.27
		RB1#8	22.78	21.37	21.58	19.43	18.02	18.23
		RB1#14	23.21	21.41	21.48	19.86	18.06	18.13
		RB6#0	21.15	20.94	20.35	17.80	17.59	17.00
		RB6#9	21.65	21.40	20.15	18.30	18.05	16.80
		RB15#0	21.09	21.15	20.31	17.74	17.80	16.96

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
5	QPSK	RB1#0	22.66	22.85	22.29	19.31	19.50	18.94
		RB1#13	22.77	22.72	22.24	19.42	19.37	18.89
		RB1#24	22.73	22.76	22.18	19.38	19.41	18.83
		RB15#0	21.63	21.97	21.28	18.28	18.62	17.93
		RB15#10	22.15	21.90	21.29	18.80	18.55	17.94
		RB25#0	22.08	21.83	21.34	18.73	18.48	17.99
	16QAM	RB1#0	21.83	21.51	20.39	18.48	18.16	17.04
		RB1#13	22.18	21.43	20.36	18.83	18.08	17.01
		RB1#24	21.75	21.51	20.40	18.40	18.16	17.05
		RB15#0	20.51	20.87	20.34	17.16	17.52	16.99
		RB15#10	21.05	21.28	20.37	17.70	17.93	17.02
		RB25#0	21.16	21.19	20.51	17.81	17.84	17.16
10	QPSK	RB1#0	22.98	22.92	22.20	19.63	19.57	18.85
		RB1#25	23.02	22.92	22.11	19.67	19.57	18.76
		RB1#49	22.92	22.84	22.23	19.57	19.49	18.88
		RB25#0	22.31	22.04	21.25	18.96	18.69	17.90
		RB25#25	21.90	22.01	21.35	18.55	18.66	18.00
		RB50#0	21.97	21.99	21.23	18.62	18.64	17.88
	16QAM	RB1#0	22.07	21.42	21.47	18.72	18.07	18.12
		RB1#25	21.98	21.40	21.40	18.63	18.05	18.05
		RB1#49	22.06	21.43	21.41	18.71	18.08	18.06
		RB25#0	21.40	21.03	20.36	18.05	17.68	17.01
		RB25#25	21.39	21.10	20.31	18.04	17.75	16.96
		RB50#0	21.04	21.36	20.73	17.69	18.01	17.38

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
15	QPSK	RB1#0	23.41	22.48	22.29	20.06	19.13	18.94
		RB1#38	23.33	22.42	22.18	19.98	19.07	18.83
		RB1#74	23.38	22.28	22.17	20.03	18.93	18.82
		RB36#0	22.47	21.60	21.31	19.12	18.25	17.96
		RB36#39	22.25	21.43	21.20	18.90	18.08	17.85
		RB75#0	22.36	21.56	21.42	19.01	18.21	18.07
	16QAM	RB1#0	23.07	21.81	21.60	19.72	18.46	18.25
		RB1#38	23.04	21.64	21.44	19.69	18.29	18.09
		RB1#74	23.04	21.60	21.46	19.69	18.25	18.11
		RB36#0	21.83	20.96	20.90	18.48	17.61	17.55
		RB36#39	21.78	20.89	20.36	18.43	17.54	17.01
		RB75#0	21.32	20.39	20.31	17.97	17.04	16.96

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

For Band5: Antenna Gain = -0.7dBi = -2.85dBd (0dBd = 2.15dBi)

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

Limit: ERP ≤ 38.45dBm

LTE Band 7

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
5.0	QPSK	RB1#0	19.65	19.74	19.55	19.76	19.85	19.66
		RB1#13	19.67	19.82	19.55	19.78	19.93	19.66
		RB1#24	19.70	19.66	19.45	19.81	19.77	19.56
		RB15#0	18.56	18.82	18.72	18.67	18.93	18.83
		RB15#10	18.59	18.79	18.69	18.70	18.90	18.80
		RB25#0	18.54	18.78	18.65	18.65	18.89	18.76
	16QAM	RB1#0	18.61	18.36	18.01	18.72	18.47	18.12
		RB1#13	18.58	18.36	18.00	18.69	18.47	18.11
		RB1#24	18.62	18.39	17.97	18.73	18.50	18.08
		RB15#0	17.56	17.85	17.73	17.67	17.96	17.84
		RB15#10	17.59	17.75	17.77	17.70	17.86	17.88
		RB25#0	17.67	17.76	17.82	17.78	17.87	17.93
10.0	QPSK	RB1#0	18.96	19.25	19.19	19.07	19.36	19.30
		RB1#25	18.92	19.23	19.13	19.03	19.34	19.24
		RB1#49	18.96	19.21	19.15	19.07	19.32	19.26
		RB25#0	17.97	18.20	18.28	18.08	18.31	18.39
		RB25#25	17.87	18.29	18.25	17.98	18.40	18.36
		RB50#0	17.95	18.28	18.29	18.06	18.39	18.40
	16QAM	RB1#0	18.11	17.77	18.35	18.22	17.88	18.46
		RB1#25	18.08	17.72	18.29	18.19	17.83	18.40
		RB1#49	18.01	17.78	18.42	18.12	17.89	18.53
		RB25#0	17.14	17.45	17.34	17.25	17.56	17.45
		RB25#25	16.99	17.42	17.32	17.10	17.53	17.43
		RB50#0	17.08	17.31	17.34	17.19	17.42	17.45

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15.0	QPSK	RB1#0	19.13	19.24	19.02	19.24	19.35	19.13
		RB1#38	19.05	19.27	19.03	19.16	19.38	19.14
		RB1#74	19.07	19.23	19.07	19.18	19.34	19.18
		RB36#0	18.11	18.20	18.18	18.22	18.31	18.29
		RB36#39	18.14	18.20	18.25	18.25	18.31	18.36
		RB75#0	18.11	18.18	18.17	18.22	18.29	18.28
	16QAM	RB1#0	18.38	18.63	18.35	18.49	18.74	18.46
		RB1#38	18.28	18.63	18.34	18.39	18.74	18.45
		RB1#74	18.26	18.66	18.37	18.37	18.77	18.48
		RB36#0	17.30	17.38	17.33	17.41	17.49	17.44
		RB36#39	17.24	17.37	17.30	17.35	17.48	17.41
		RB75#0	17.23	17.35	17.41	17.34	17.46	17.52
20.0	QPSK	RB1#0	18.98	19.23	19.31	19.09	19.34	19.42
		RB1#50	18.90	19.35	19.22	19.01	19.46	19.33
		RB1#99	18.83	19.26	19.28	18.94	19.37	19.39
		RB50#0	18.00	18.35	18.30	18.11	18.46	18.41
		RB50#50	18.01	18.20	18.23	18.12	18.31	18.34
		RB100#0	17.93	18.25	18.27	18.04	18.36	18.38
	16QAM	RB1#0	18.41	19.11	18.13	18.52	19.22	18.24
		RB1#50	18.33	19.01	18.20	18.44	19.12	18.31
		RB1#99	18.31	19.10	18.19	18.42	19.21	18.30
		RB50#0	17.17	17.33	17.36	17.28	17.44	17.47
		RB50#50	17.08	17.31	17.52	17.19	17.42	17.63
		RB100#0	16.94	17.40	17.36	17.05	17.51	17.47

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

For Band7: Antenna Gain = 1.11dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in 1dB

Limit: EIRP ≤ 33dBm

LTE Band 38:

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	20.71	20.71	20.07	20.83	20.83	20.19
		RB1#13	20.76	20.70	20.07	20.88	20.82	20.19
		RB1#24	20.69	20.67	20.04	20.81	20.79	20.16
		RB15#0	19.71	19.81	19.18	19.83	19.93	19.30
		RB15#10	19.70	19.80	19.19	19.82	19.92	19.31
		RB25#0	19.82	19.77	19.15	19.94	19.89	19.27
	16QAM	RB1#0	19.74	19.47	19.80	19.86	19.59	19.92
		RB1#13	19.77	19.44	19.73	19.89	19.56	19.85
		RB1#24	19.52	19.38	19.76	19.64	19.50	19.88
		RB15#0	18.54	18.25	17.78	18.66	18.37	17.90
		RB15#10	18.54	18.24	17.78	18.66	18.36	17.90
		RB25#0	18.10	18.45	17.77	18.22	18.57	17.89
10.0	QPSK	RB1#0	20.71	20.09	20.51	20.83	20.21	20.63
		RB1#25	20.59	20.00	20.54	20.71	20.12	20.66
		RB1#49	20.64	19.89	20.40	20.76	20.01	20.52
		RB25#0	19.35	19.04	19.29	19.47	19.16	19.41
		RB25#25	19.36	19.07	19.32	19.48	19.19	19.44
		RB50#0	19.40	18.95	19.37	19.52	19.07	19.49
	16QAM	RB1#0	19.76	19.01	19.49	19.88	19.13	19.61
		RB1#25	19.68	18.99	19.53	19.80	19.11	19.65
		RB1#49	19.55	18.87	19.48	19.67	18.99	19.60
		RB25#0	18.17	17.91	17.86	18.29	18.03	17.98
		RB25#25	18.05	17.77	17.79	18.17	17.89	17.91
		RB50#0	18.07	17.49	17.82	18.19	17.61	17.94

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	20.67	20.15	20.30	20.79	20.27	20.42
		RB1#38	20.68	19.95	20.30	20.80	20.07	20.42
		RB1#74	20.59	19.91	20.20	20.71	20.03	20.32
		RB36#0	19.45	19.07	19.37	19.57	19.19	19.49
		RB36#39	19.45	19.03	19.32	19.57	19.15	19.44
		RB75#0	19.45	19.05	19.34	19.57	19.17	19.46
	16QAM	RB1#0	19.89	18.56	19.32	20.01	18.68	19.44
		RB1#38	19.74	18.42	19.24	19.86	18.54	19.36
		RB1#74	19.68	18.29	19.28	19.80	18.41	19.40
		RB36#0	17.89	17.82	17.88	18.01	17.94	18.00
		RB36#39	17.89	17.62	17.83	18.01	17.74	17.95
		RB75#0	18.09	17.59	17.99	18.21	17.71	18.11
20.0	QPSK	RB1#0	20.19	20.35	20.77	20.31	20.47	20.89
		RB1#50	20.11	20.15	20.58	20.23	20.27	20.70
		RB1#99	20.17	20.16	20.55	20.29	20.28	20.67
		RB50#0	19.14	19.14	19.54	19.26	19.26	19.66
		RB50#50	19.09	19.02	19.63	19.21	19.14	19.75
		RB100#0	19.08	19.07	19.47	19.20	19.19	19.59
	16QAM	RB1#0	19.07	19.88	19.99	19.19	20.00	20.11
		RB1#50	18.83	19.70	20.14	18.95	19.82	20.26
		RB1#99	18.67	19.64	20.11	18.79	19.76	20.23
		RB50#0	17.75	17.65	18.23	17.87	17.77	18.35
		RB50#50	17.80	17.59	18.17	17.92	17.71	18.29
		RB100#0	17.64	17.57	18.17	17.76	17.69	18.29

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

For Band38: Antenna Gain = 1.12dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in 1dB

Limit: EIRP ≤ 33dBm

LTE Band 26(Part 90S) :

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
1.4	QPSK	RB1#0	22.63	22.49	22.38	19.28	19.14	19.03
		RB1#3	22.62	22.55	22.35	19.27	19.20	19.00
		RB1#5	22.57	22.61	22.31	19.22	19.26	18.96
		RB3#0	22.72	22.72	22.40	19.37	19.37	19.05
		RB3#3	22.69	22.68	22.43	19.34	19.33	19.08
		RB6#0	21.63	21.62	21.39	18.28	18.27	18.04
	16QAM	RB1#0	22.31	21.23	21.72	18.96	17.88	18.37
		RB1#3	22.38	21.25	21.71	19.03	17.90	18.36
		RB1#5	22.29	21.30	21.71	18.94	17.95	18.36
		RB3#0	21.36	21.67	21.34	18.01	18.32	17.99
		RB3#3	21.36	21.65	21.47	18.01	18.30	18.12
		RB6#0	21.02	20.70	21.00	17.67	17.35	17.65
3.0	QPSK	RB1#0	23.40	23.23	23.21	20.05	19.88	19.86
		RB1#8	23.43	23.25	23.19	20.08	19.90	19.84
		RB1#14	23.44	23.19	23.07	20.09	19.84	19.72
		RB6#0	22.39	22.36	22.2	19.04	19.01	18.85
		RB6#9	22.46	22.34	22.21	19.11	18.99	18.86
		RB15#0	22.40	22.33	22.23	19.05	18.98	18.88
	16QAM	RB1#0	23.24	21.95	22.42	19.89	18.60	19.07
		RB1#8	23.20	21.90	22.36	19.85	18.55	19.01
		RB1#14	23.15	21.98	22.29	19.80	18.63	18.94
		RB6#0	21.78	21.37	21.57	18.43	18.02	18.22
		RB6#9	21.43	21.45	21.64	18.08	18.10	18.29
		RB15#0	21.86	21.22	21.62	18.51	17.87	18.27

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
5.0	QPSK	RB1#0	22.57	22.48	22.72	19.22	19.13	19.37
		RB1#13	22.52	22.43	22.81	19.17	19.08	19.46
		RB1#24	22.55	22.37	22.72	19.20	19.02	19.37
		RB15#0	21.41	21.44	21.75	18.06	18.09	18.40
		RB15#10	21.53	21.49	21.83	18.18	18.14	18.48
		RB25#0	21.57	21.52	21.76	18.22	18.17	18.41
	16QAM	RB1#0	21.47	21.04	20.81	18.12	17.69	17.46
		RB1#13	21.52	21.10	20.89	18.17	17.75	17.54
		RB1#24	21.52	21.18	20.85	18.17	17.83	17.50
		RB15#0	20.86	20.39	20.87	17.51	17.04	17.52
		RB15#10	20.43	20.38	21.18	17.08	17.03	17.83
		RB25#0	20.64	20.27	21.28	17.29	16.92	17.93
10.0	QPSK	RB1#0	/	23.14	/	/	19.79	/
		RB1#25	/	23.07	/	/	19.72	/
		RB1#49	/	23.14	/	/	19.79	/
		RB25#0	/	22.09	/	/	18.74	/
		RB25#25	/	22.15	/	/	18.80	/
		RB50#0	/	22.12	/	/	18.77	/
	16QAM	RB1#0	/	21.72	/	/	18.37	/
		RB1#25	/	21.54	/	/	18.19	/
		RB1#49	/	21.59	/	/	18.24	/
		RB25#0	/	21.67	/	/	18.32	/
		RB25#25	/	21.17	/	/	17.82	/
		RB50#0	/	21.08	/	/	17.73	/

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

For Band26: Antenna Gain = -0.70dBi* = -2.85dBd (0dBd=2.15dBi)(provided by the applicant)

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

Limit: $ERP \leq 50dBm$

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

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	3.56	13
	Middle	3.81	13
	High	3.52	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	3.15	13
	Middle	3.26	13
	High	3.37	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	4.58	13
	Middle	4.64	13
	High	4.72	13
HSDPA (16QAM)	Low	4.77	13
	Middle	4.42	13
	High	4.25	13
HSUPA (BPSK)	Low	4.64	13
	Middle	4.15	13
	High	4.16	13
HSPA+	Low	4.56	13
	Middle	4.62	13
	High	4.02	13

PCS Band

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	3.33	13
	Middle	3.33	13
	High	4.25	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	3.27	13
	Middle	3.26	13
	High	3.45	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	4.45	13
	Middle	4.25	13
	High	4.41	13
HSDPA (16QAM)	Low	4.35	13
	Middle	4.45	13
	High	4.53	13
HSUPA (BPSK)	Low	4.32	13
	Middle	4.27	13
	High	4.26	13
HSPA+	Low	4.44	13
	Middle	4.32	13
	High	4.46	13

AWS Band

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.47	13
	Middle	3.62	13
	High	3.57	13
HSDPA (16QAM)	Low	3.52	13
	Middle	3.56	13
	High	3.55	13
HSUPA (BPSK)	Low	3.67	13
	Middle	3.52	13
	High	3.66	13
HSPA+	Low	3.54	13
	Middle	3.62	13
	High	3.60	13

LTE Band 2 20MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	5.72	5.76	7.26	13	Pass
QPSK (100RB Size)	5.53	5.33	6.32	13	Pass
16QAM (1RB Size)	6.75	7.15	7.14	13	Pass
16QAM (100RB Size)	6.54	6.82	6.32	13	Pass

LTE Band 4 20MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	5.56	6.25	6.25	13	Pass
QPSK (100RB Size)	5.28	5.62	5.33	13	Pass
16QAM (1RB Size)	6.45	6.57	7.22	13	Pass
16QAM (100RB Size)	6.54	6.25	6.52	13	Pass

LTE Band 5 10MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.25	3.44	3.22	13	Pass
QPSK (50RB Size)	4.35	4.72	4.54	13	Pass
16QAM (1RB Size)	4.25	4.24	4.52	13	Pass
16QAM (50RB Size)	4.28	6.12	5.46	13	Pass

LTE Band 26(Part 22H) 15MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.46	3.38	3.49	13	Pass
QPSK (75RB Size)	4.29	4.69	4.36	13	Pass
16QAM (1RB Size)	4.53	4.45	4.61	13	Pass
16QAM (75RB Size)	4.17	5.88	5.37	13	Pass

LTE Band 7 20MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	5.72	5.75	6.25	13	Pass
QPSK (100RB Size)	5.45	5.44	5.64	13	Pass
16QAM (1RB Size)	6.28	7.52	7.65	13	Pass
16QAM (100RB Size)	6.43	7.15	7.32	13	Pass

LTE Band 38 20MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	5.72	5.53	5.38	13	Pass
QPSK (100RB Size)	5.41	5.42	5.72	13	Pass
16QAM (1RB Size)	6.54	7.55	7.26	13	Pass
16QAM (100RB Size)	6.42	6.56	6.44	13	Pass

LTE Band 26(Part 90S) 10MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	/	3.16	/	13	Pass
QPSK (50RB Size)	/	3.52	/	13	Pass
16QAM (1RB Size)	/	3.63	/	13	Pass
16QAM (50RB Size)	/	4.77	/	13	Pass

FCC §2.1049, §22.917, §22.905 & §24.238&§27.53 &§90.209- OCCUPIED BANDWIDTH

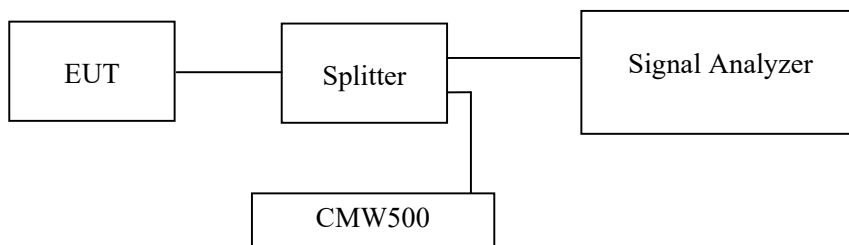
Applicable Standard

FCC 47 §2.1049, §22.917, §22.905, §24.238, §27.53 and §90.209.

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 added into plot.

Test Data

Environmental Conditions

Temperature:	25.7-27.2℃
Relative Humidity:	56.2~58.2%
ATM Pressure:	101.0 kPa

The testing was performed by Roger Lin from 2022-10-26 to 2022-11-11.

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 Emissions Bandwidth (kHz)
GSM(GMSK)	128	824.2	246.00	315.00
	190	836.6	247.00	321.00
	251	848.8	245.00	316.00
EGPRS(8PSK)	128	824.2	246.00	315.00
	190	836.6	248.00	324.00
	251	848.8	248.00	320.00

	Frequency (MHz)	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	826.4	4.16	4.68
	836.4	4.14	4.70
	846.6	4.16	4.70
HSDPA	826.4	4.14	4.68
	836.4	4.16	4.70
	846.6	4.16	4.70
HSUPA	826.4	4.14	4.70
	836.4	4.16	4.70
	846.6	4.16	4.68

PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emissions Bandwidth (kHz)
GSM(GMSK)	512	1850.2	245.00	320.00
	661	1880.0	248.00	325.00
	810	1909.8	248.00	322.00
EGPRS(8PSK)	512	1850.2	254.00	329.00
	661	1880.0	258.00	330.00
	810	1909.8	251.00	327.00

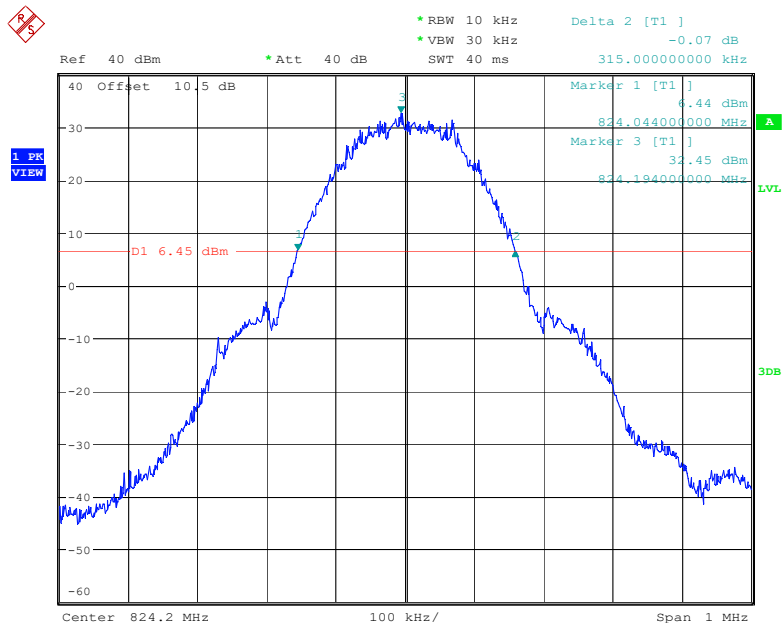
Frequency (MHz)		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	1852.4	4.16	4.70
	1880.0	4.16	4.70
	1907.6	4.16	4.74
HSDPA	1852.4	4.16	4.68
	1880.0	4.16	4.70
	1907.6	4.16	4.70
HSUPA	1852.4	4.16	4.70
	1880.0	4.16	4.71
	1907.6	4.14	4.71

AWS Band (Part 27)

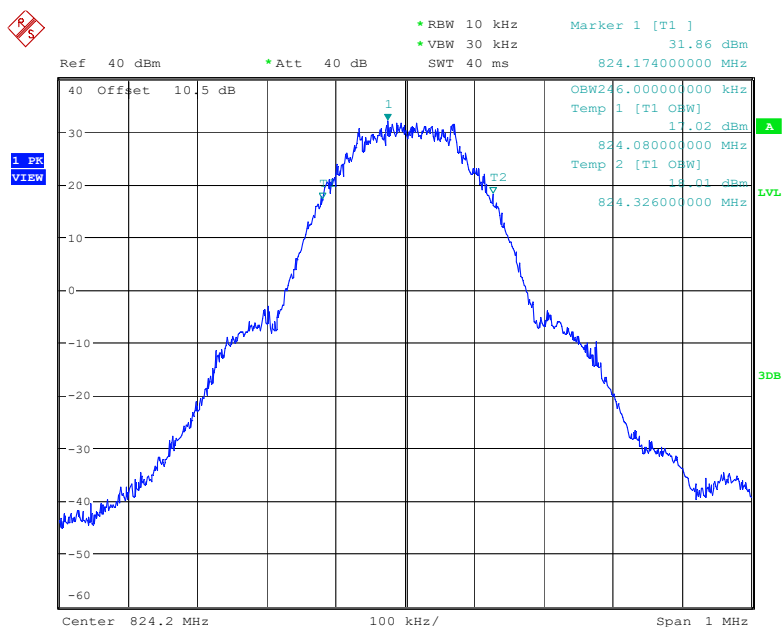
Frequency (MHz)		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	1712.4	4.16	4.71
	1732.6	4.16	4.70
	1752.6	4.16	4.70
HSDPA	1712.4	4.16	4.70
	1732.6	4.14	4.70
	1752.6	4.16	4.68
HSUPA	1712.4	4.16	4.70
	1732.6	4.14	4.68
	1752.6	4.16	4.68

Cellular Band (Part 22H)

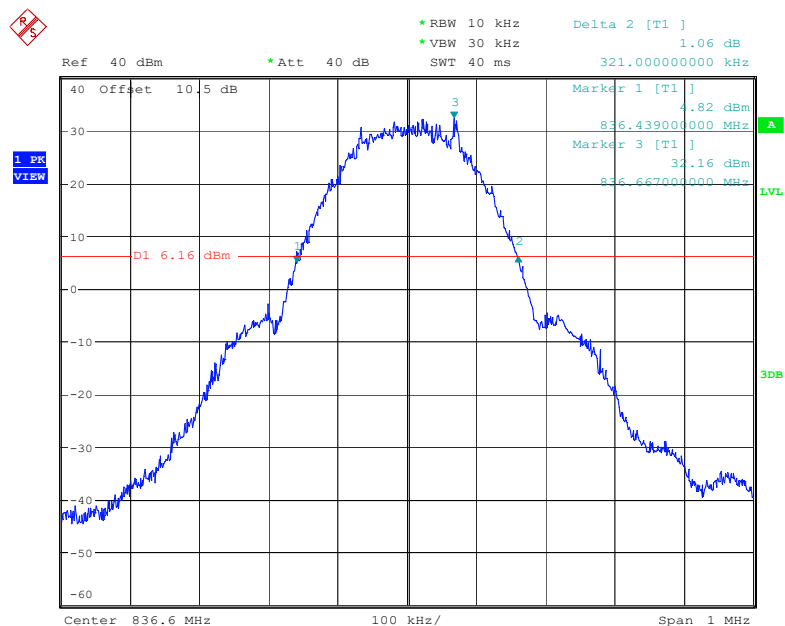
26 dB Emissions & 99% Occupied Bandwidth for GSM (GMSK) Mode, Low channel



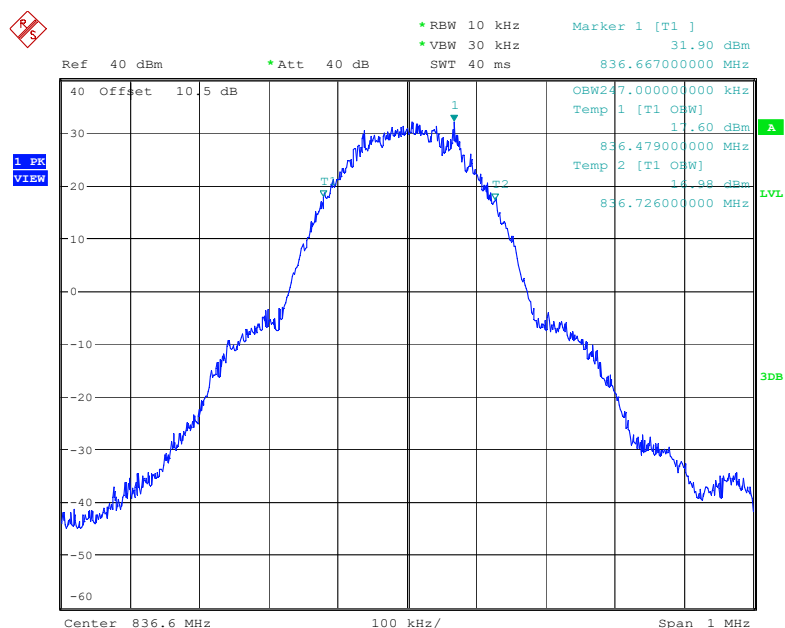
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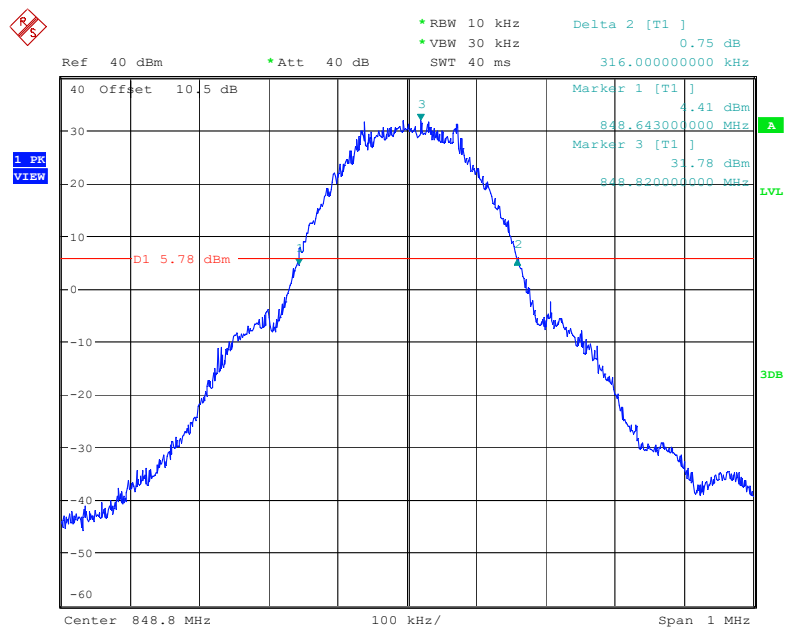
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26 dB Emissions & 99% Occupied Bandwidth for GSM (GMSK) Mode, Middle channel

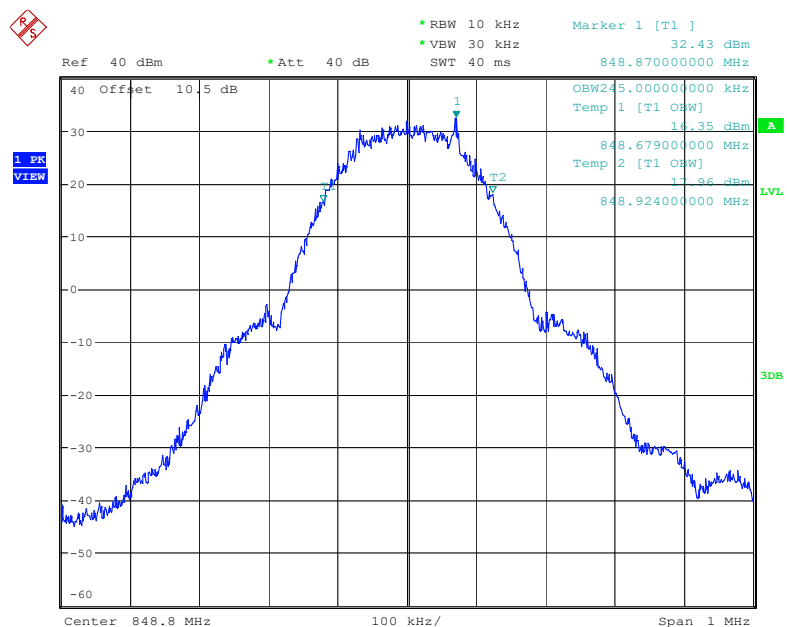
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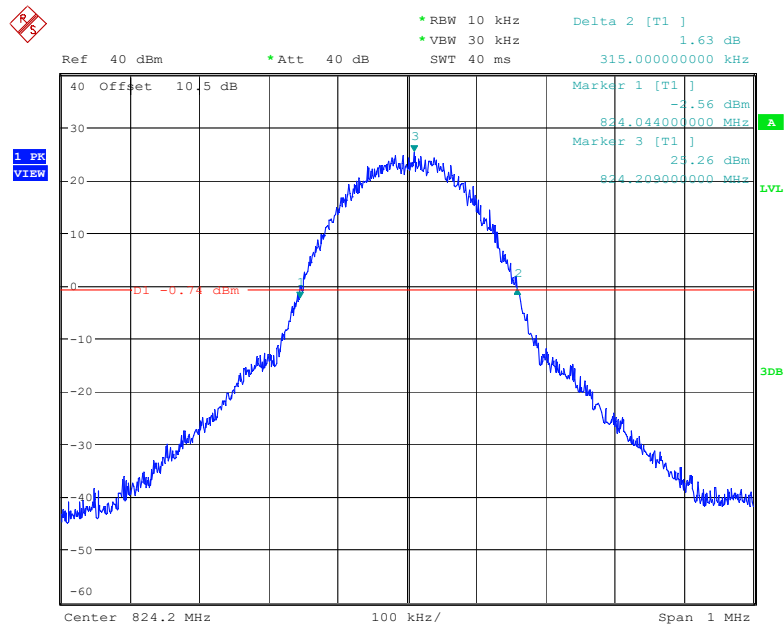
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26 dB Emissions & 99% Occupied Bandwidth for GSM (GMSK) Mode, High channel

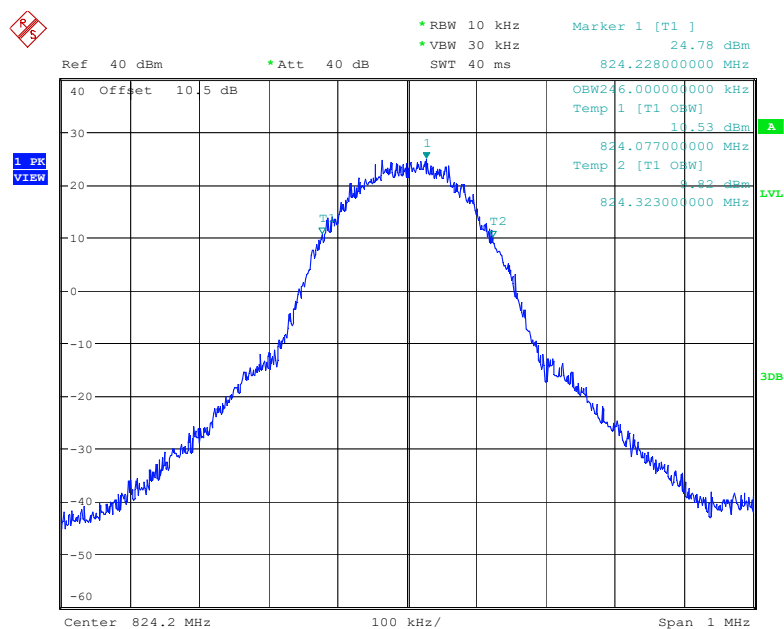
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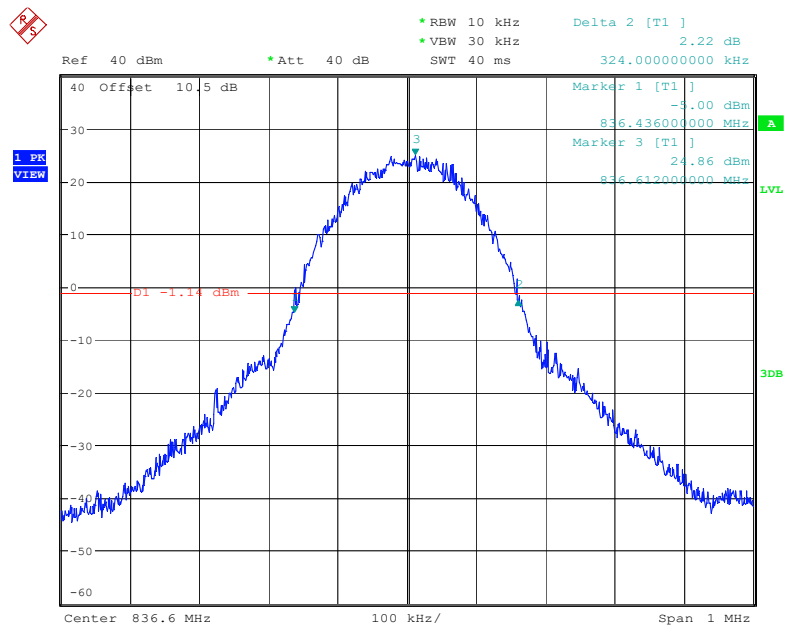
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26 dB Emissions & 99% Occupied Bandwidth for GSM(8PSK) Mode, Low channel

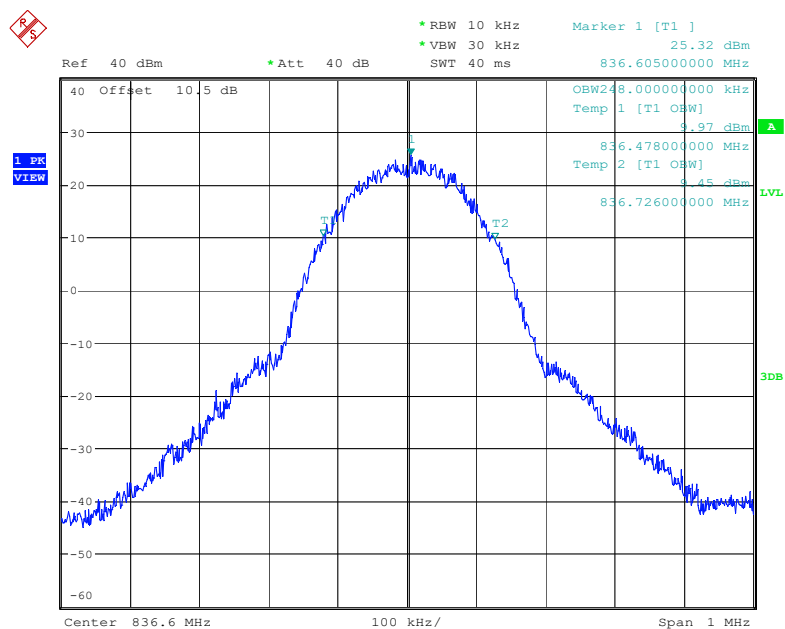
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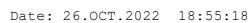
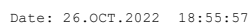
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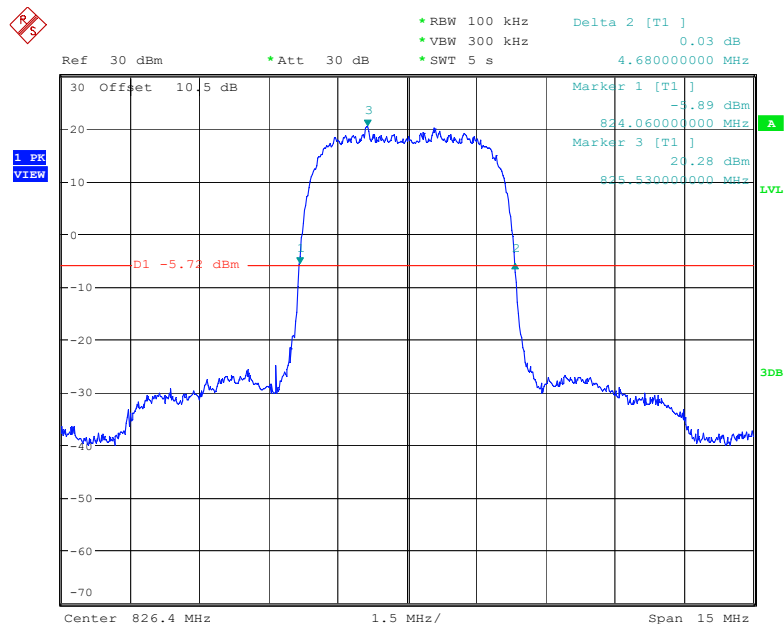
26 dB Emissions & 99% Occupied Bandwidth for GSM(8PSK) Mode, Middle channel

Date: 26.OCT.2022 18:52:17

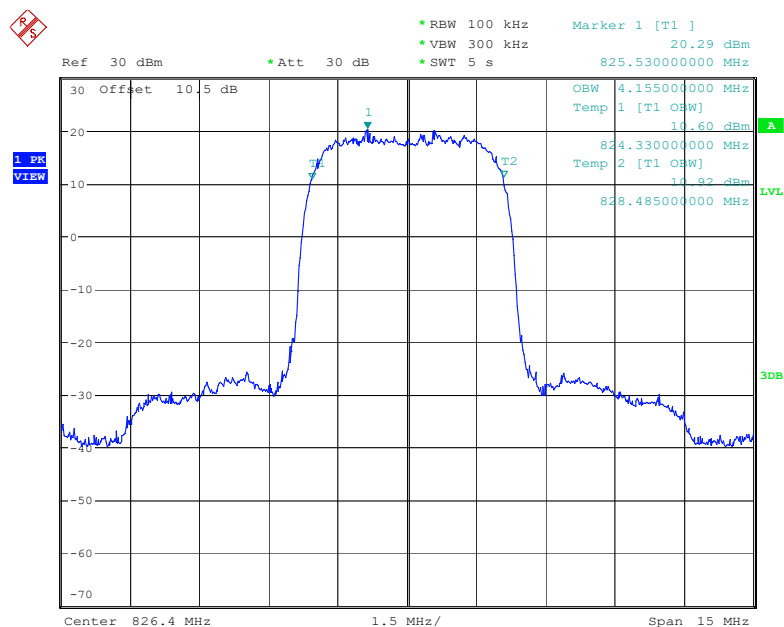


Date: 26.OCT.2022 18:51:38

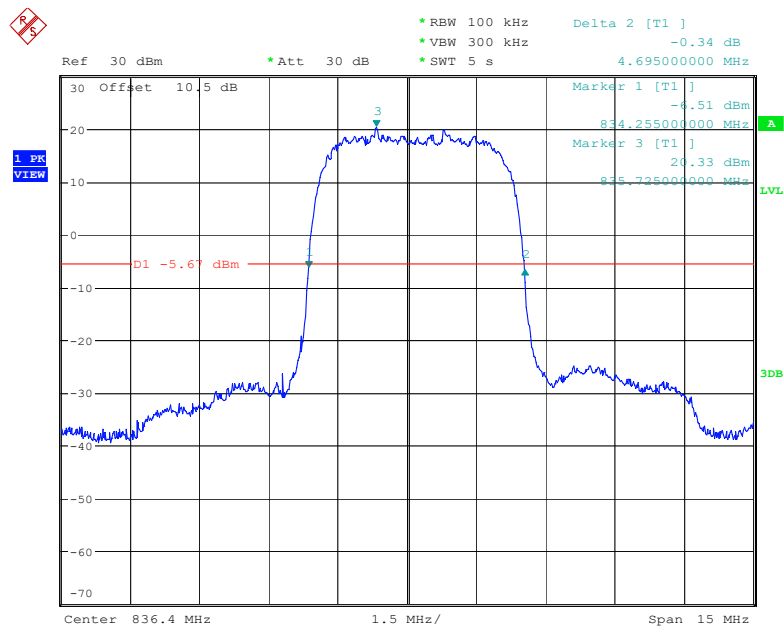


26 dB Emissions & 99% Occupied Bandwidth for RMC (BPSK) Mode, Low channel

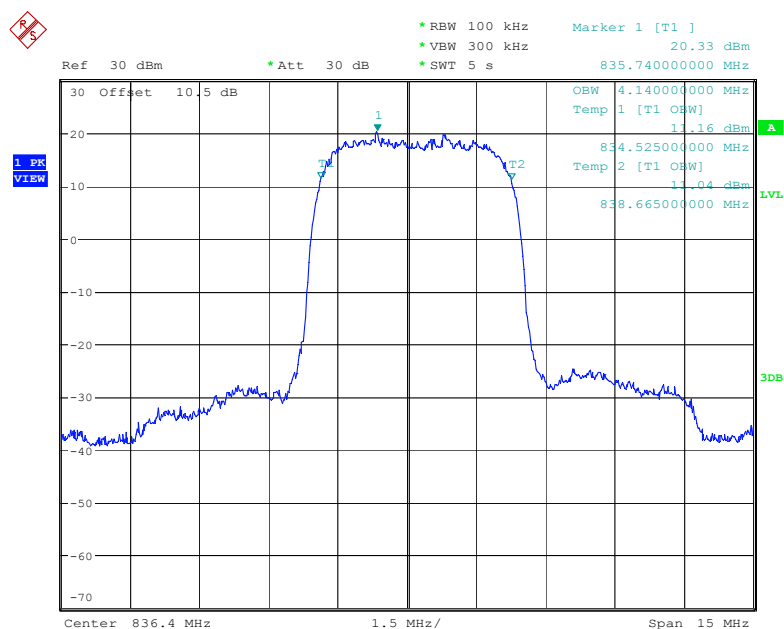
Date: 27.OCT.2022 08:52:25



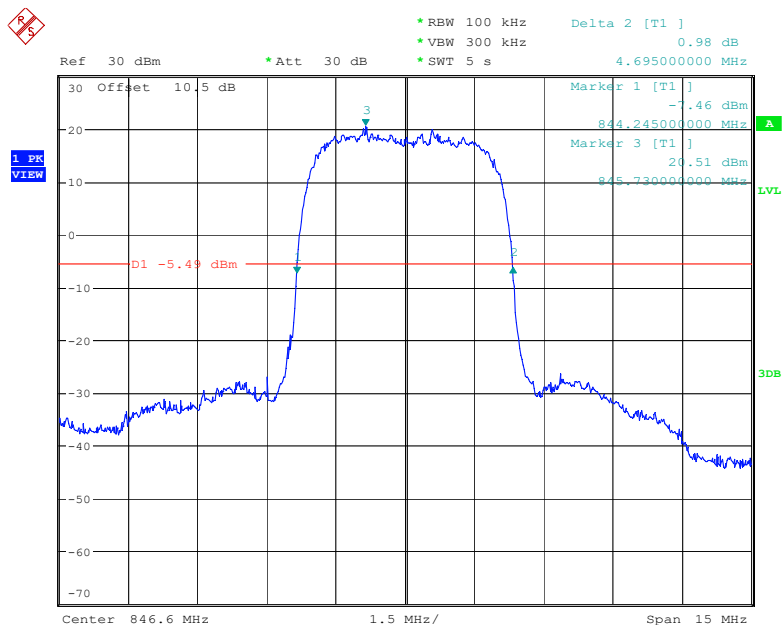
Date: 27.OCT.2022 08:51:45

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

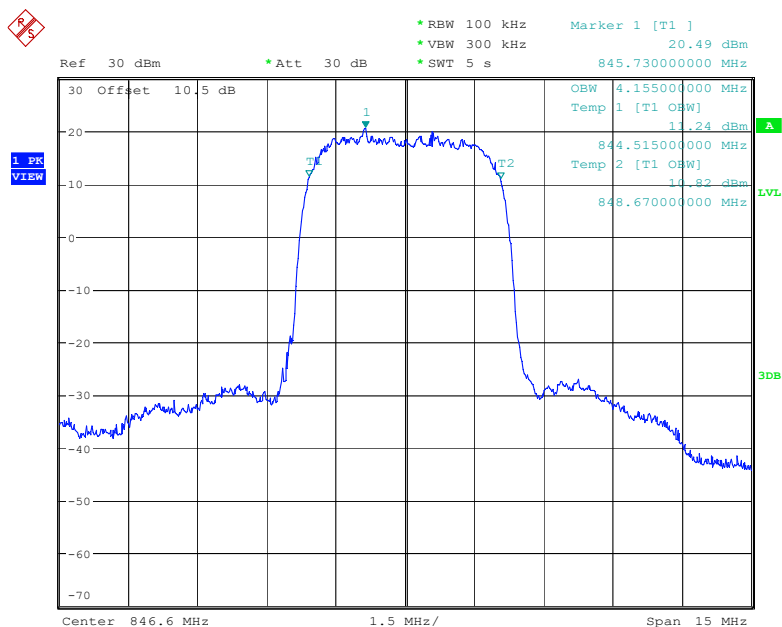
Date: 27.OCT.2022 08:56:45



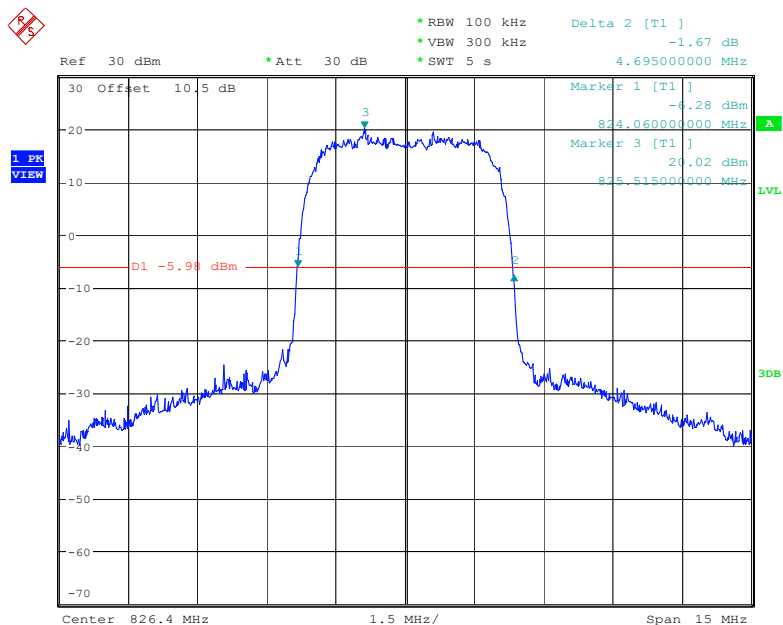
Date: 27.OCT.2022 08:56:06

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

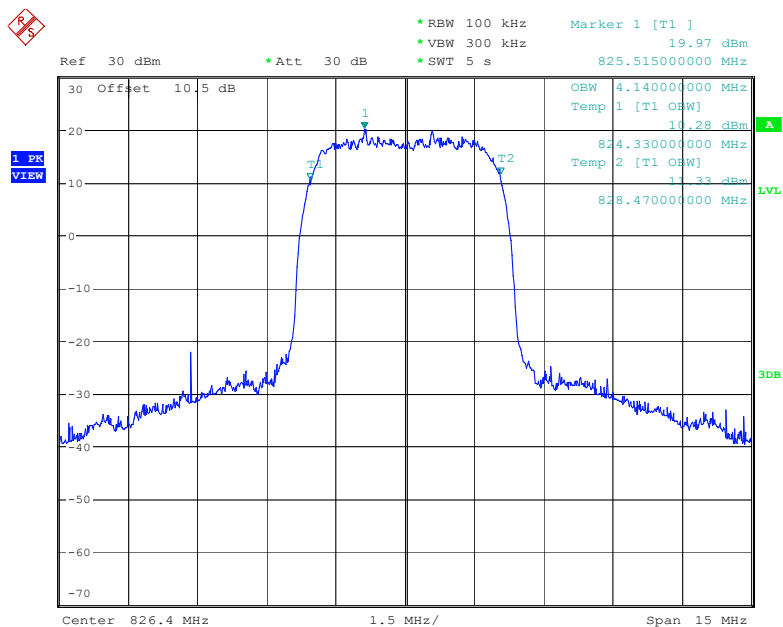
Date: 27.OCT.2022 09:00:17



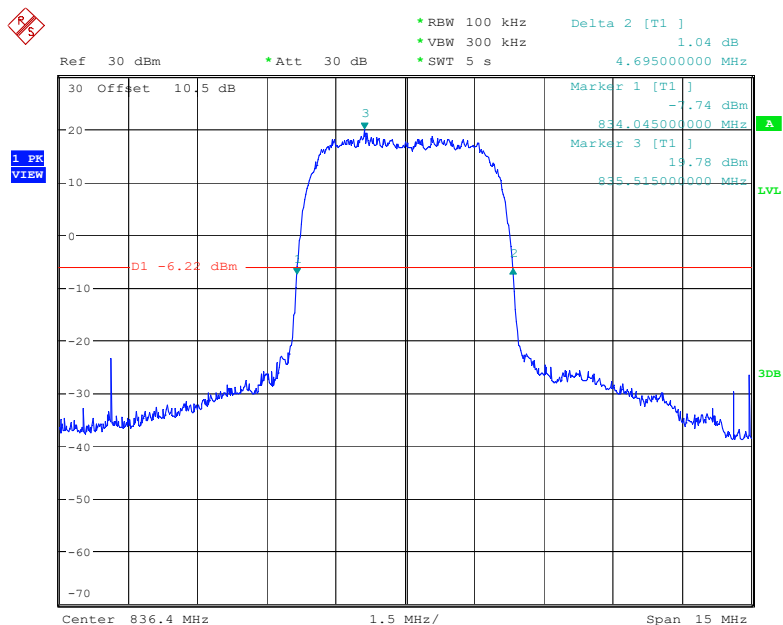
Date: 27.OCT.2022 08:59:38

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

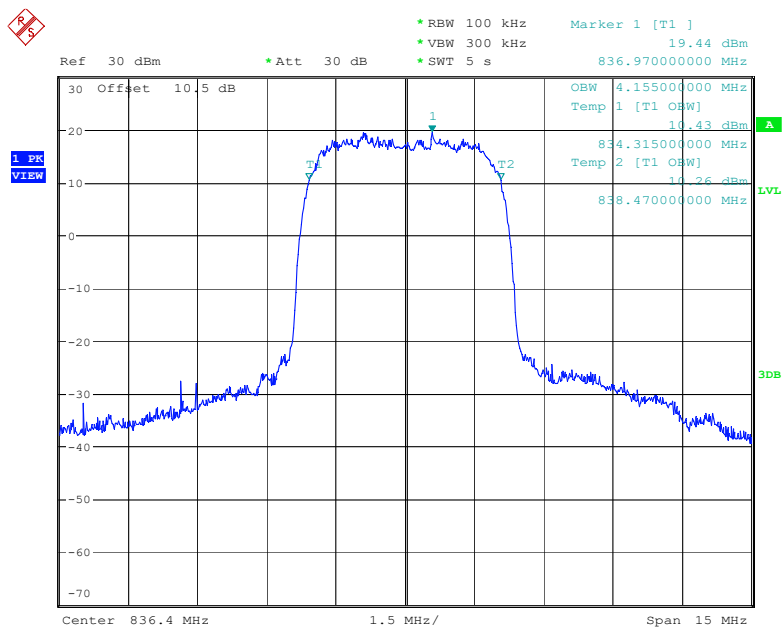
Date: 27.OCT.2022 10:37:38



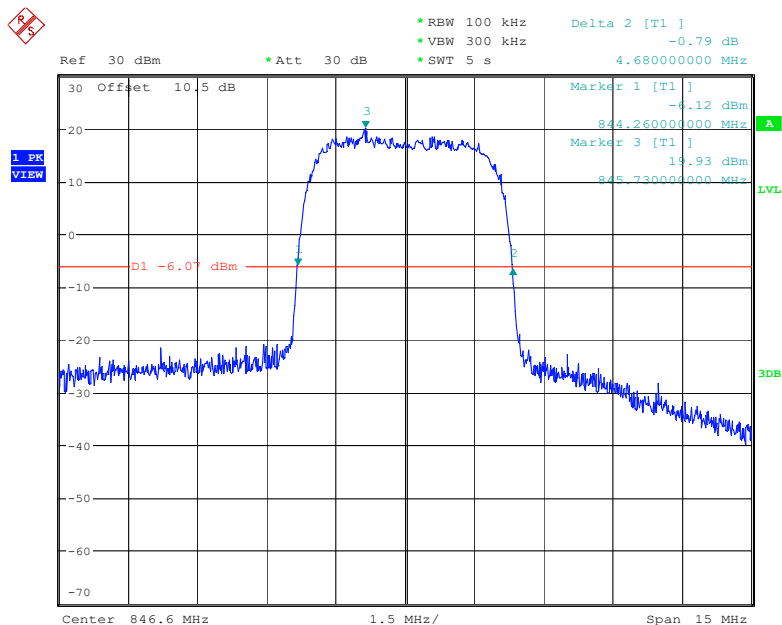
Date: 27.OCT.2022 10:36:59

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

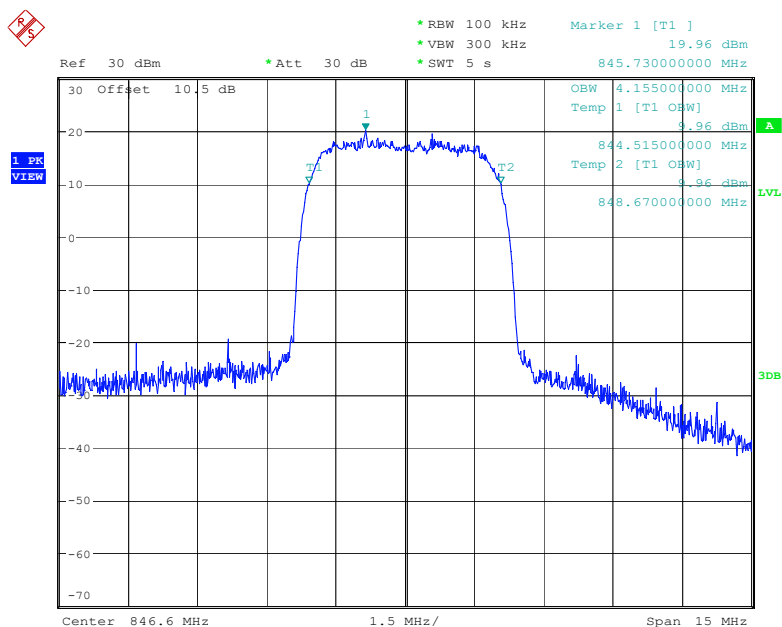
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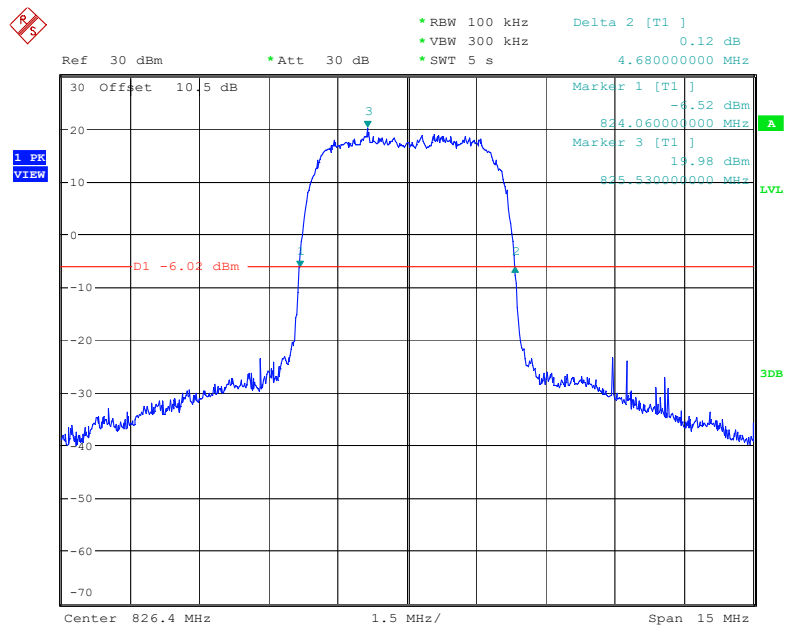
Date: 27.OCT.2022 10:41:27

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

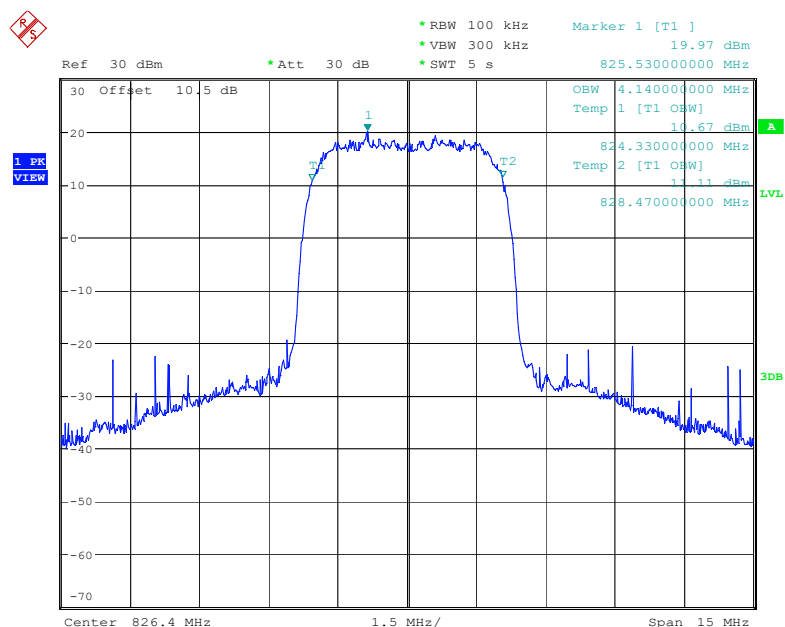
Date: 27.OCT.2022 10:44:50



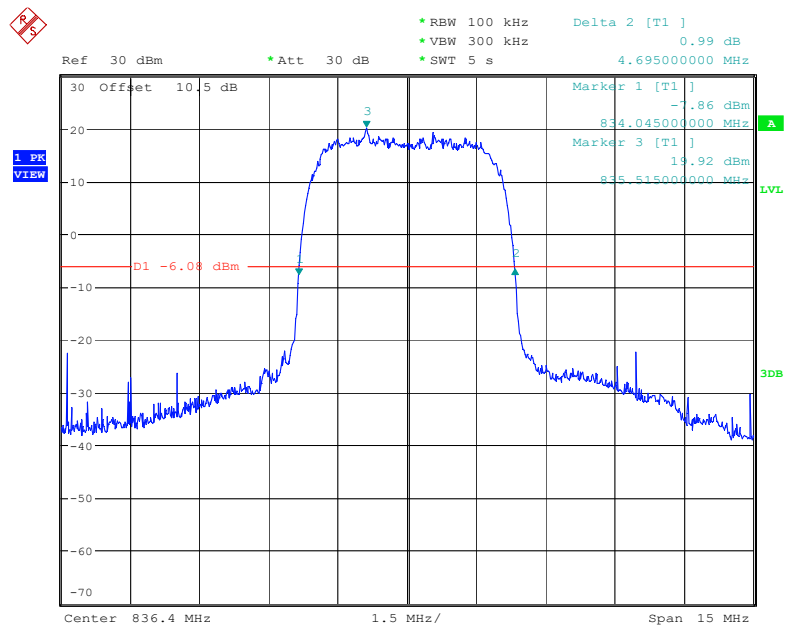
Date: 27.OCT.2022 10:44:11

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

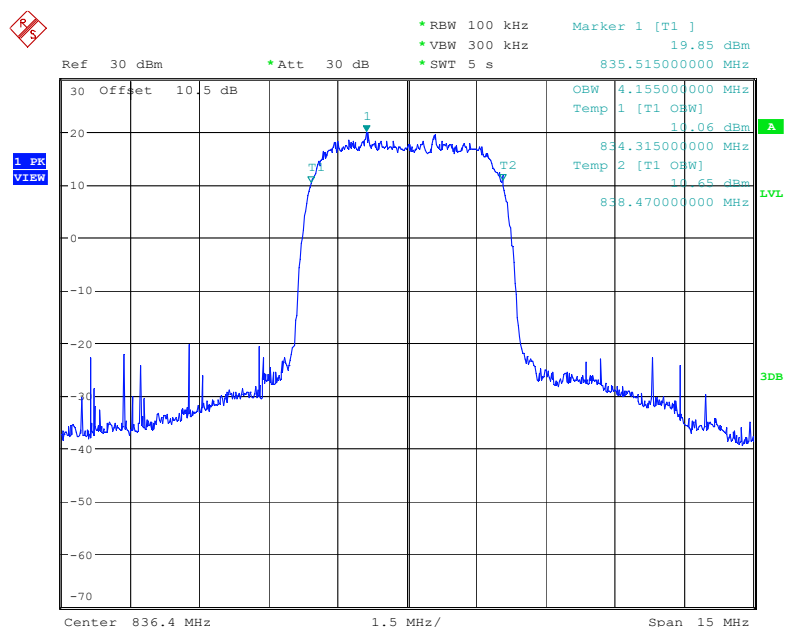
Date: 27.OCT.2022 09:20:25



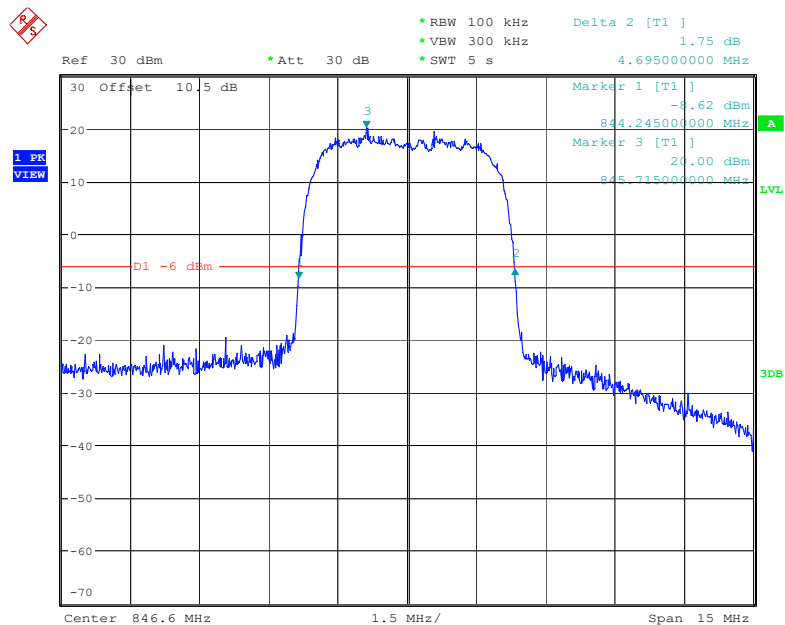
Date: 27.OCT.2022 09:19:46

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

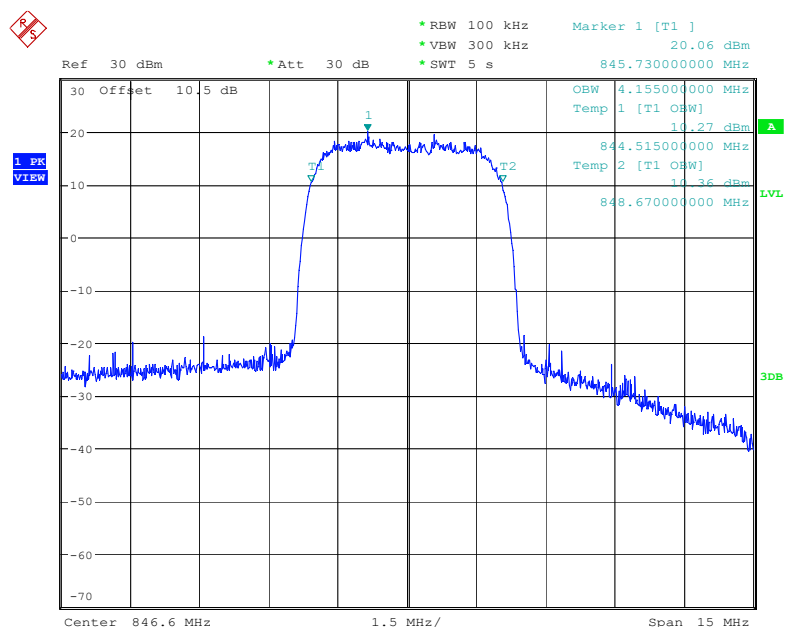
Date: 27.OCT.2022 09:17:38



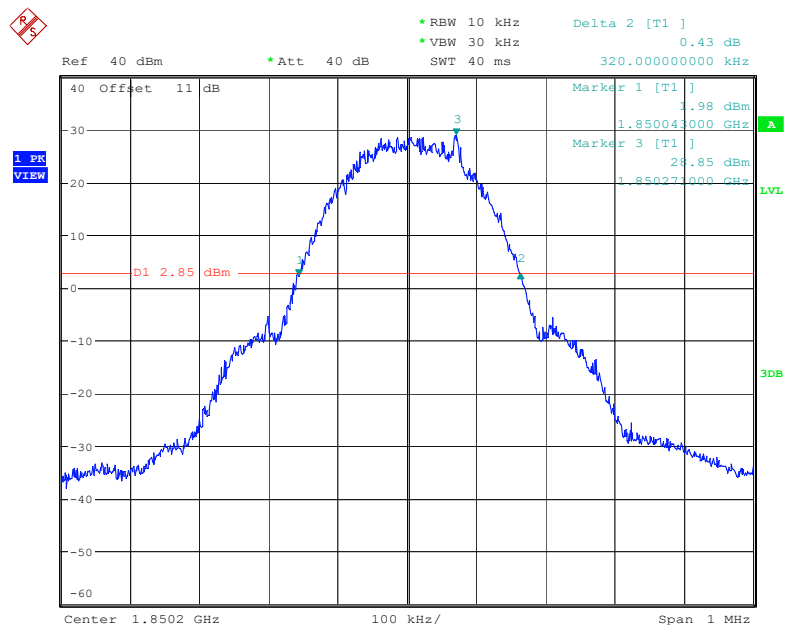
Date: 27.OCT.2022 09:16:59

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

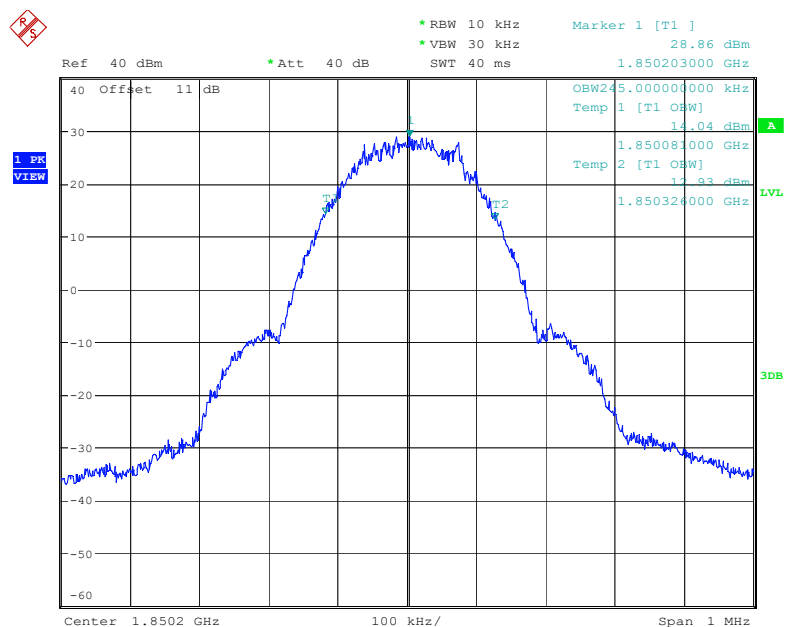
Date: 27.OCT.2022 09:14:17



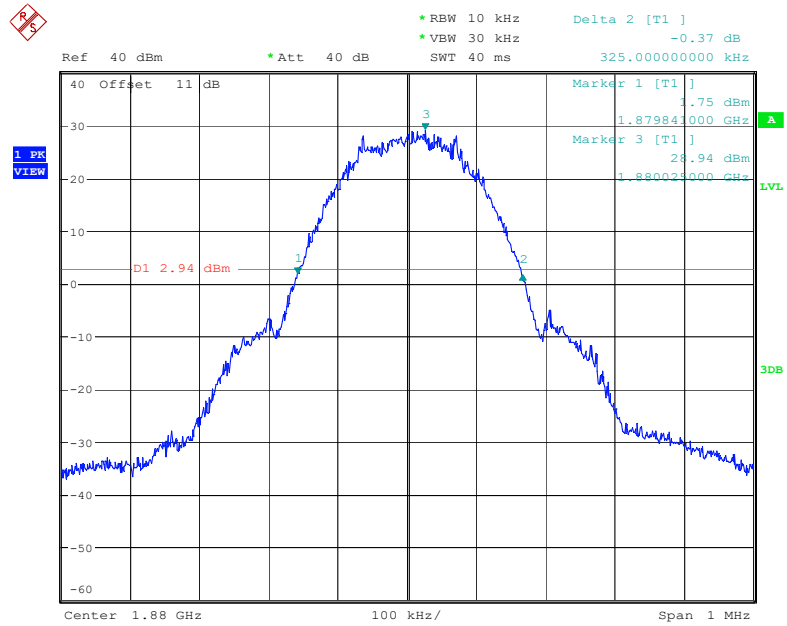
Date: 27.OCT.2022 09:13:38

PCS Band (Part 24E)**26 dB Emissions & 99% Occupied Bandwidth for GSM(GMSK) Mode, Low channel**

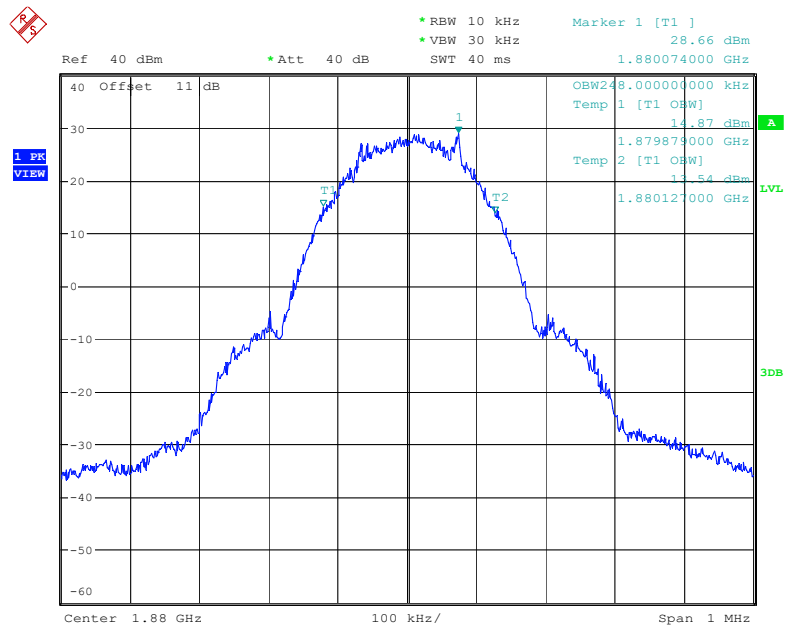
Date: 26.OCT.2022 19:02:50



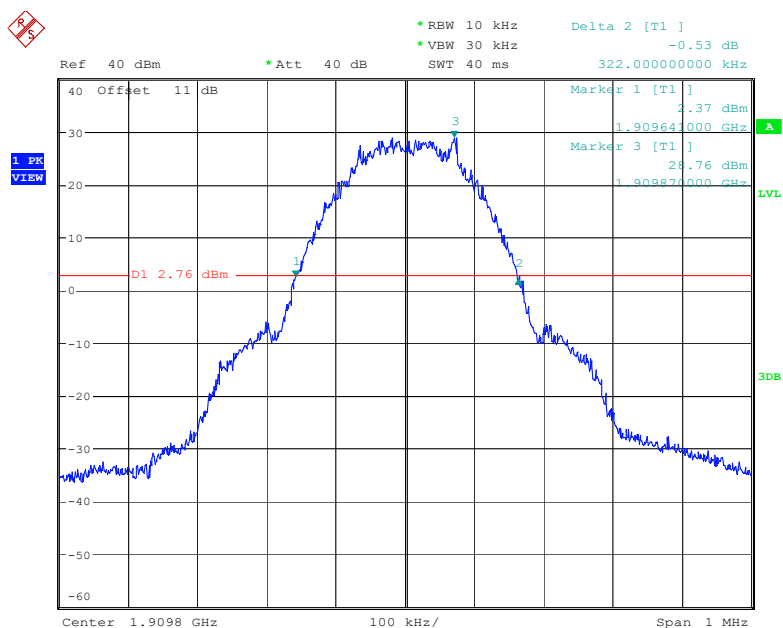
Date: 26.OCT.2022 19:02:11

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

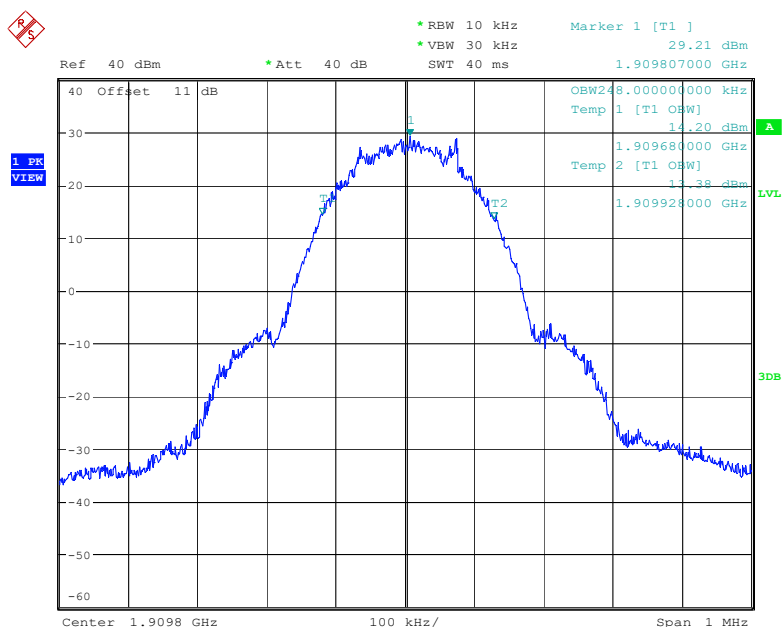
Date: 26.OCT.2022 19:09:11



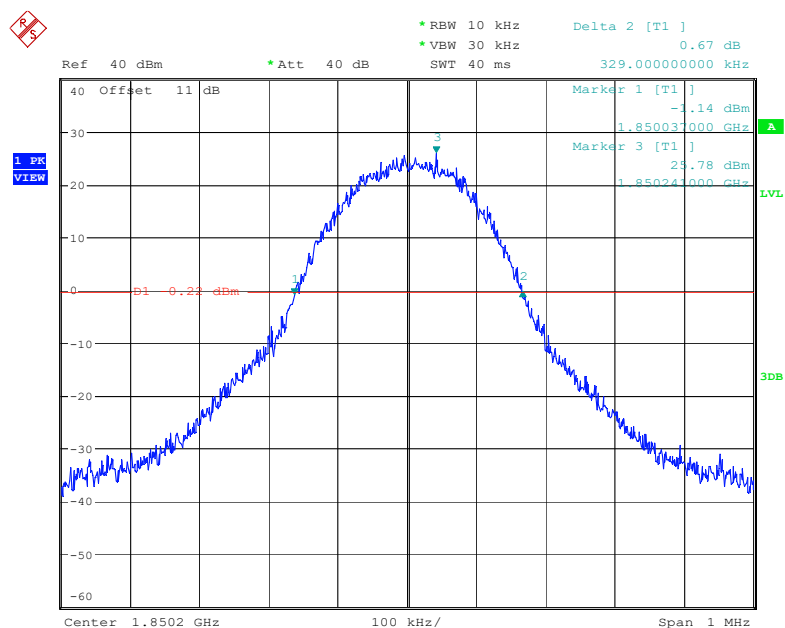
Date: 26.OCT.2022 19:08:32

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

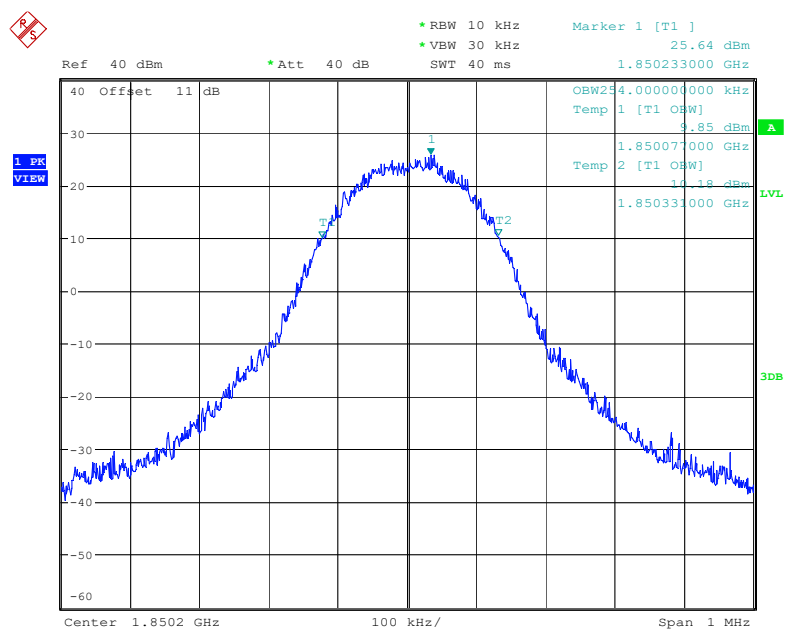
Date: 26.OCT.2022 19:14:03



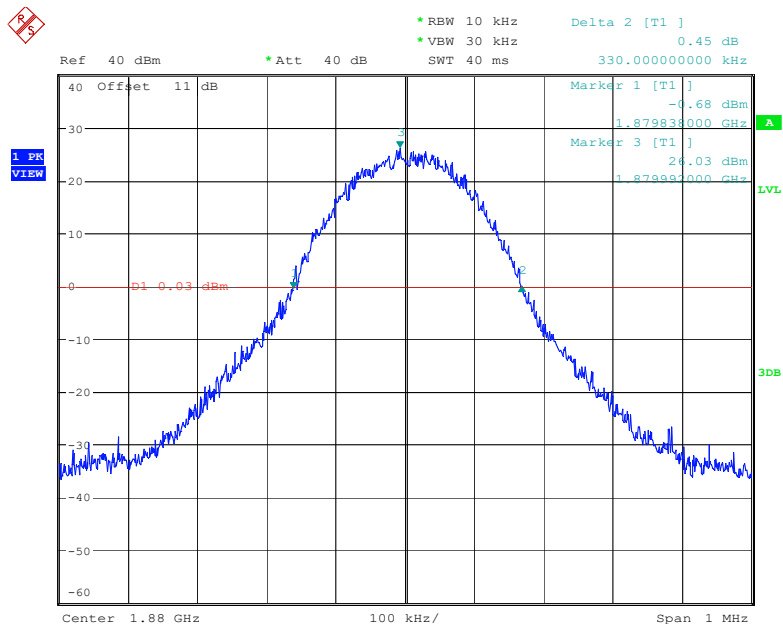
Date: 26.OCT.2022 19:13:24

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

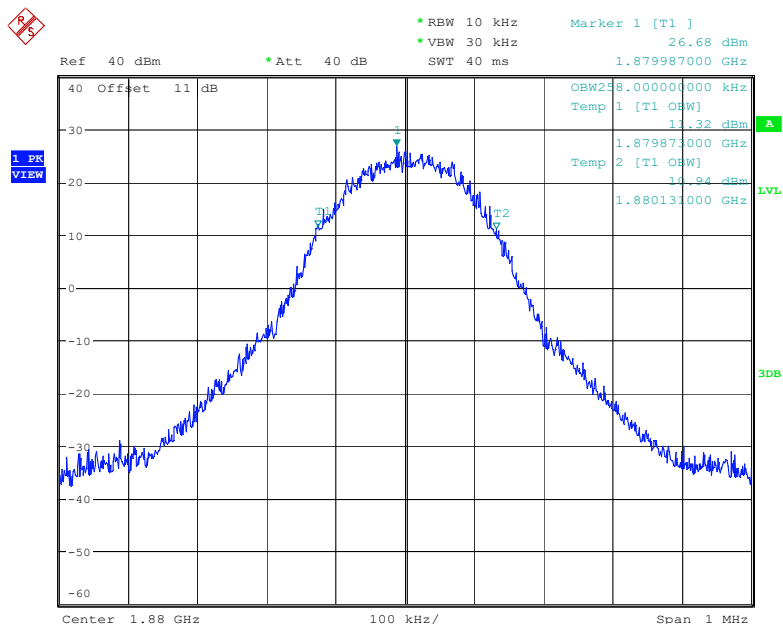
Date: 26.OCT.2022 19:22:08



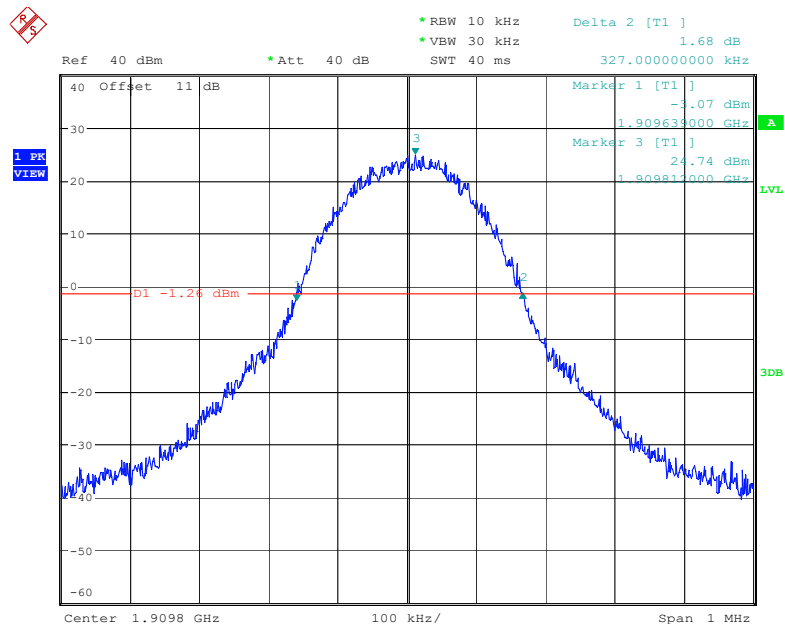
Date: 26.OCT.2022 19:21:29

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

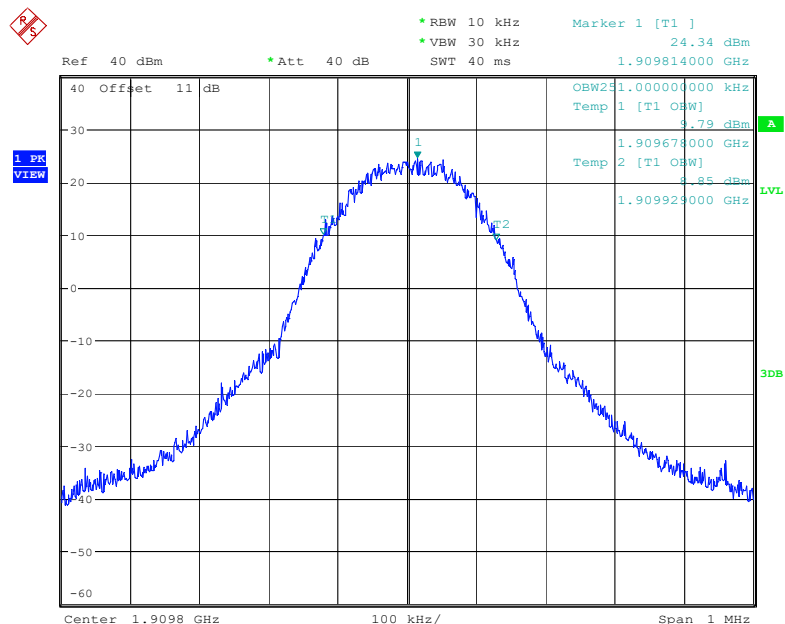
Date: 26.OCT.2022 19:27:57



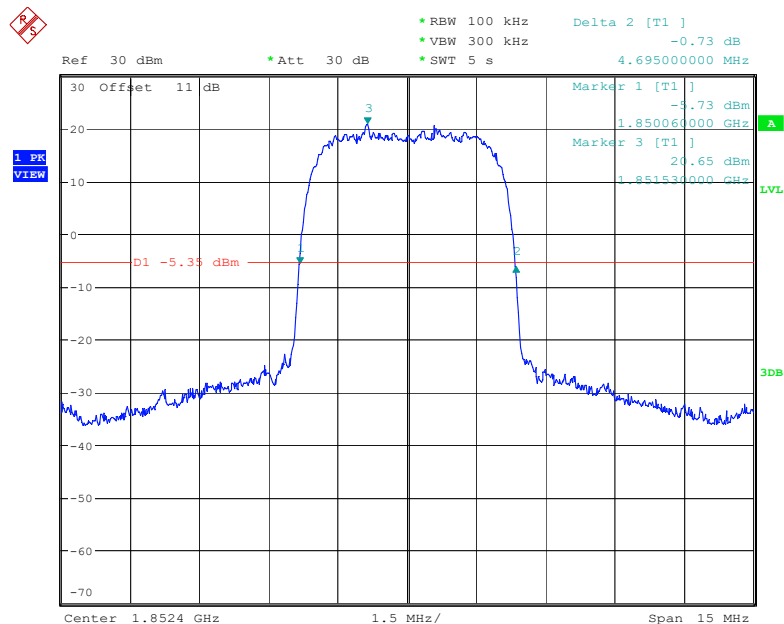
Date: 26.OCT.2022 19:27:17

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

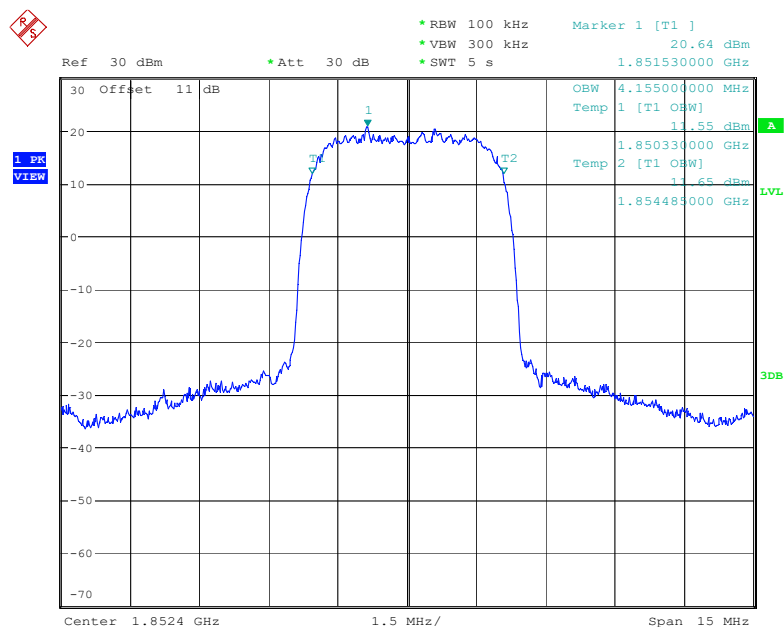
Date: 26.OCT.2022 19:32:24



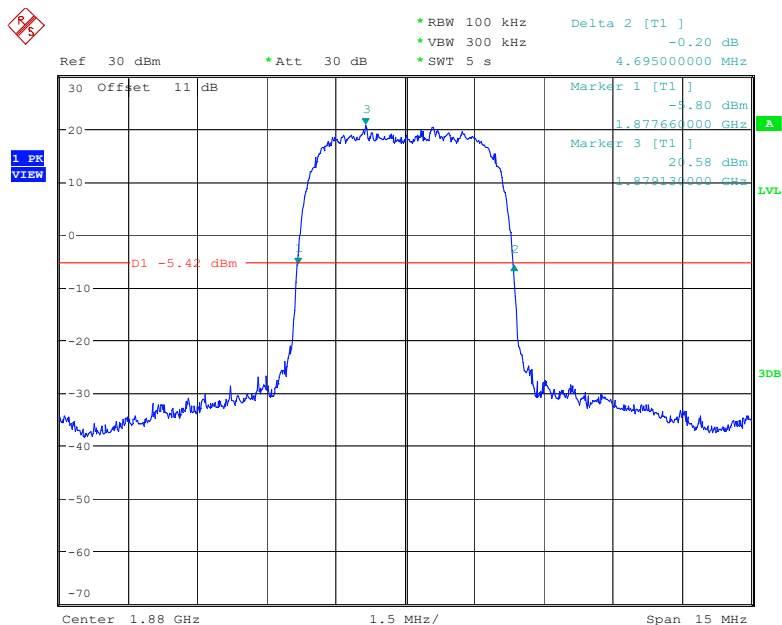
Date: 26.OCT.2022 19:31:45

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

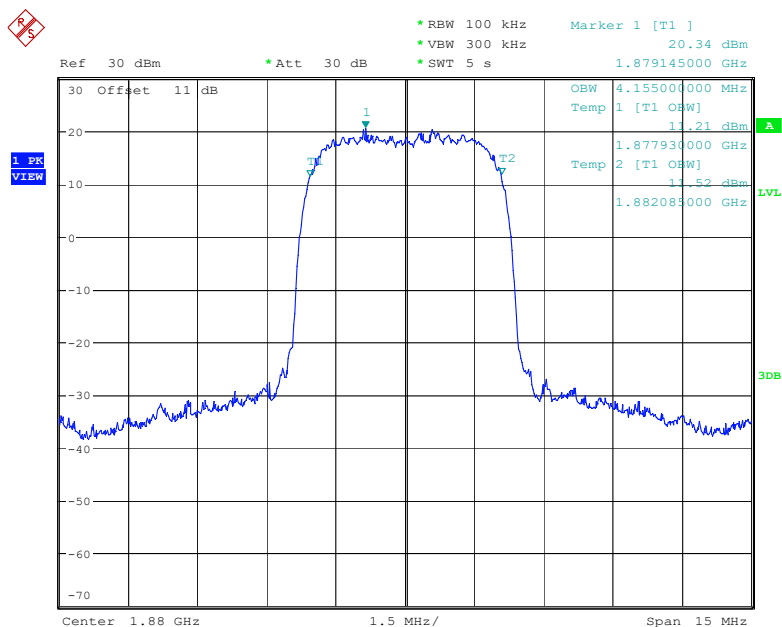
Date: 26.OCT.2022 19:39:39



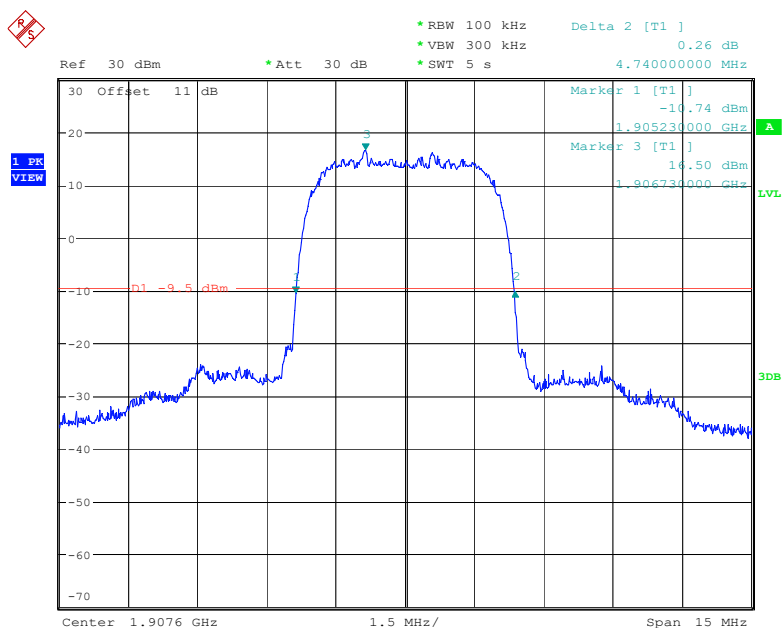
Date: 26.OCT.2022 19:39:00

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

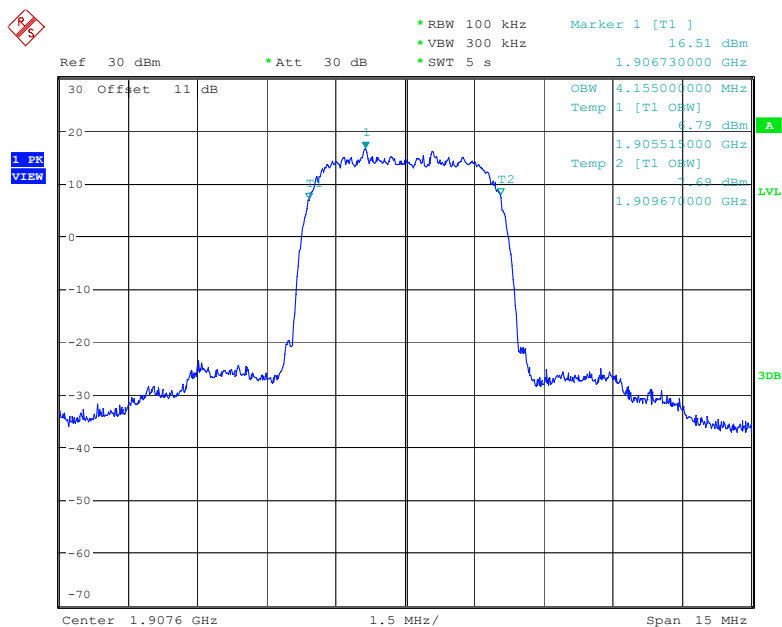
Date: 26.OCT.2022 19:44:03



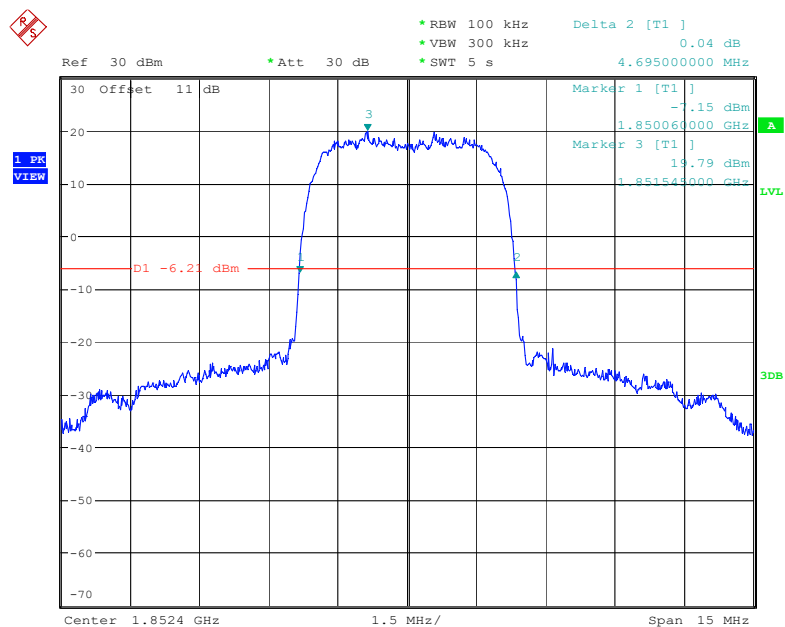
Date: 26.OCT.2022 19:43:24

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

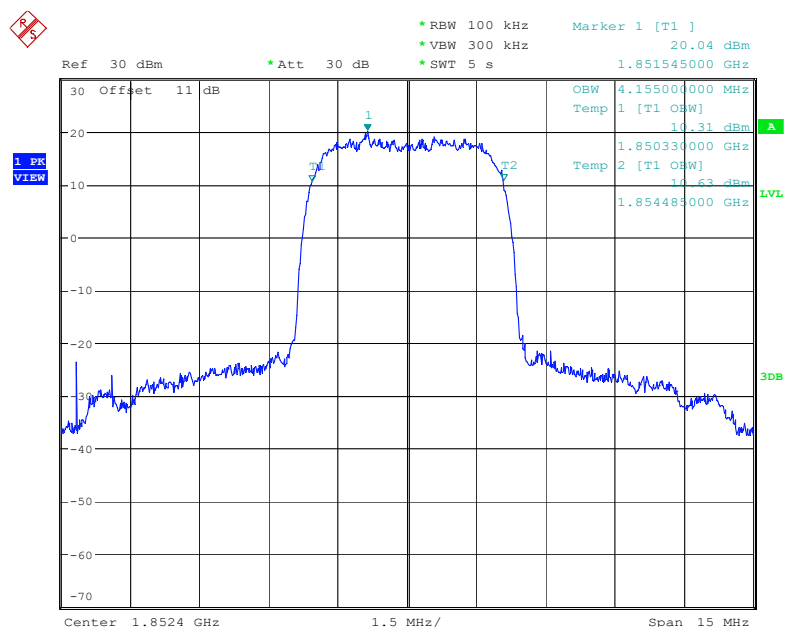
Date: 28.OCT.2022 19:40:51



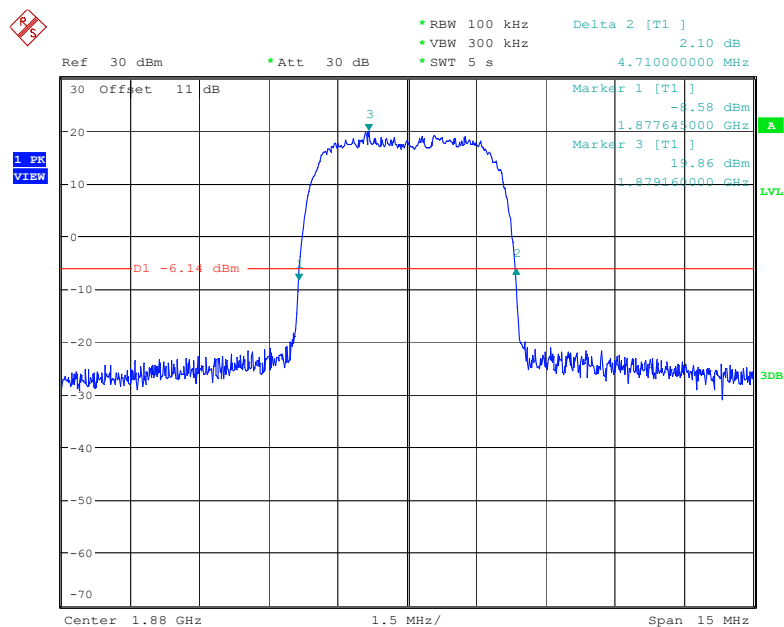
Date: 28.OCT.2022 19:40:24

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

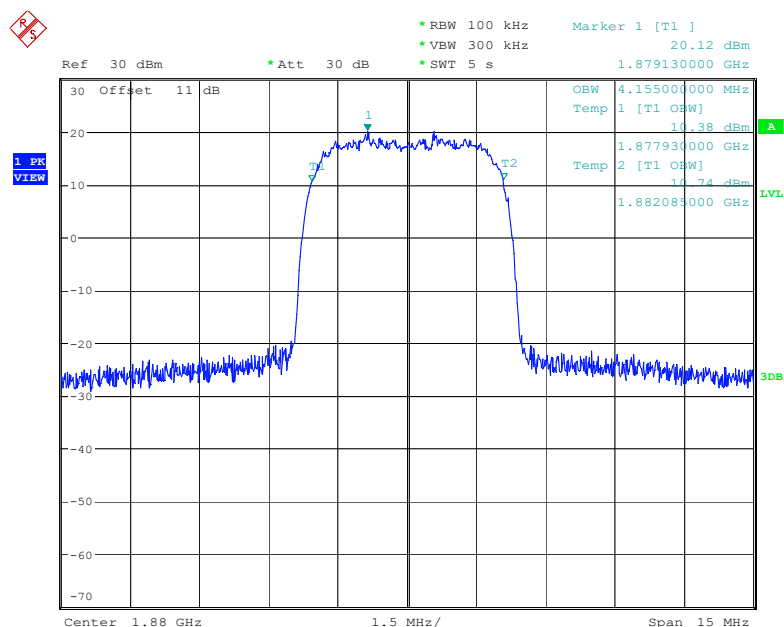
Date: 27.OCT.2022 10:00:21



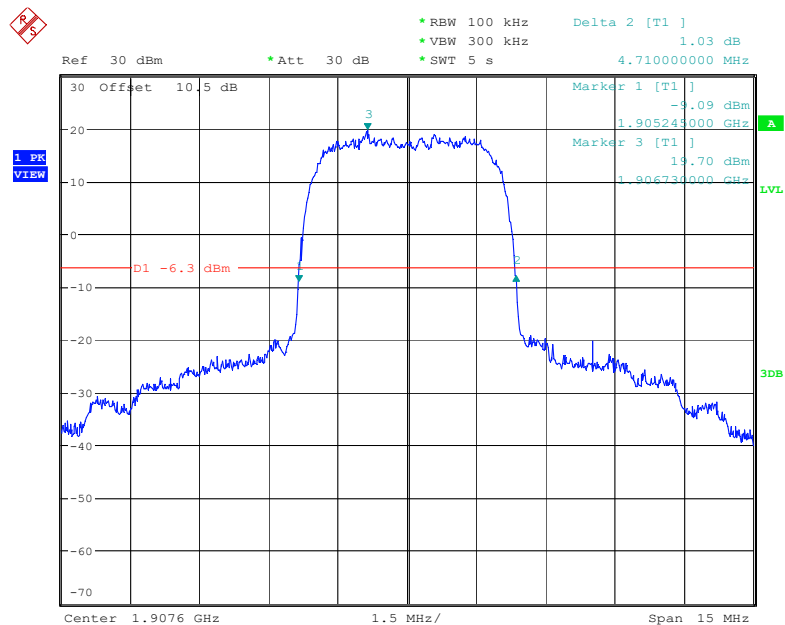
Date: 27.OCT.2022 09:59:41

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

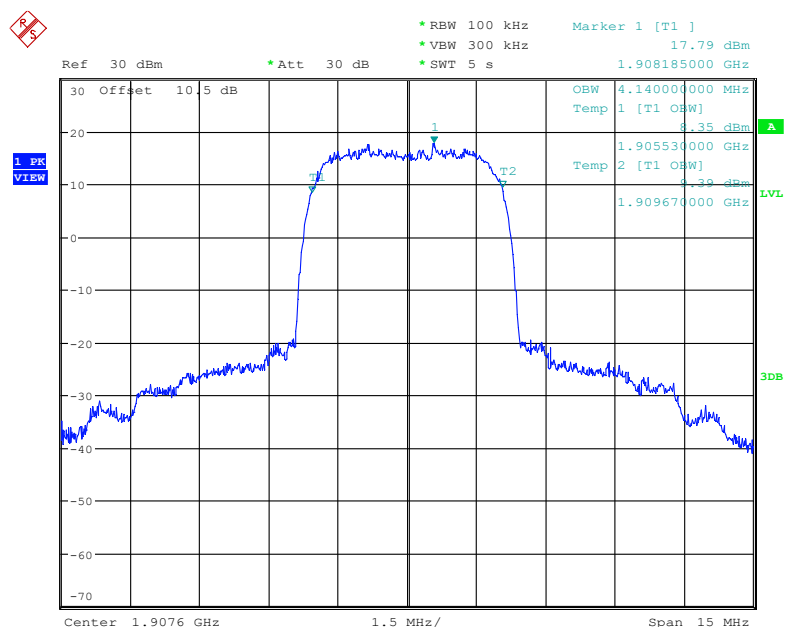
Date: 27.OCT.2022 10:04:30



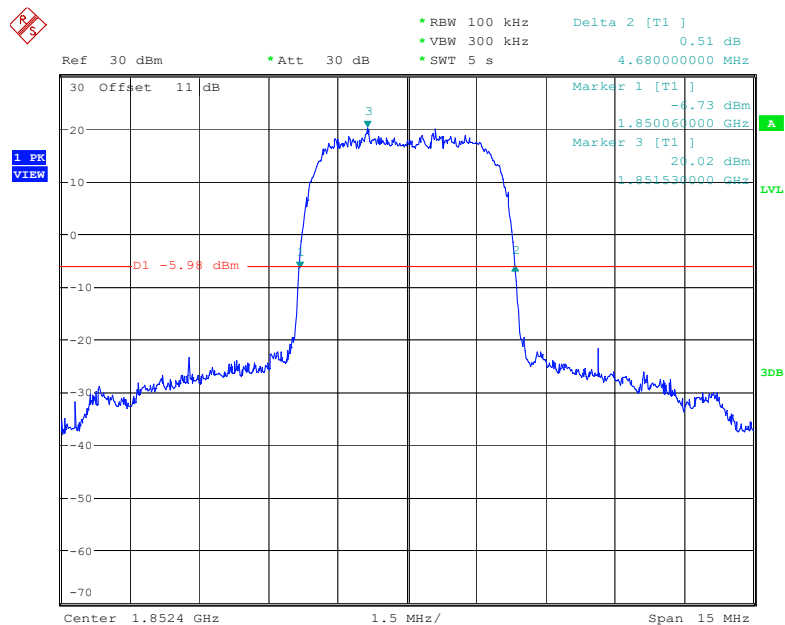
Date: 27.OCT.2022 10:03:51

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

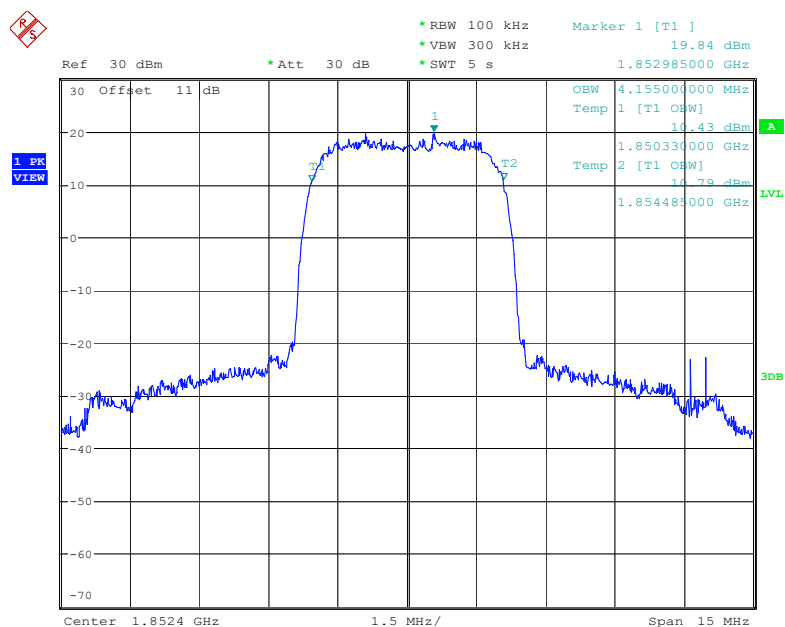
Date: 27.OCT.2022 10:07:41



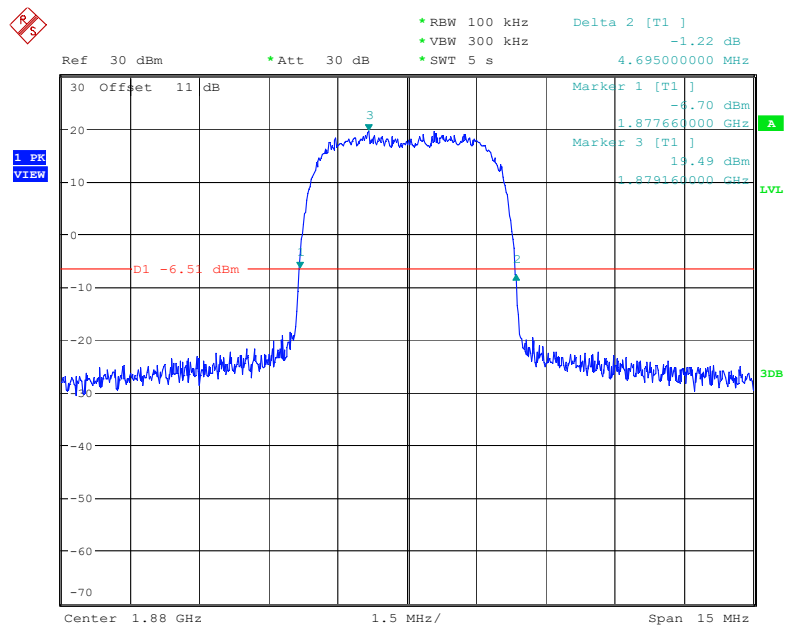
Date: 11.NOV.2022 11:14:44

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

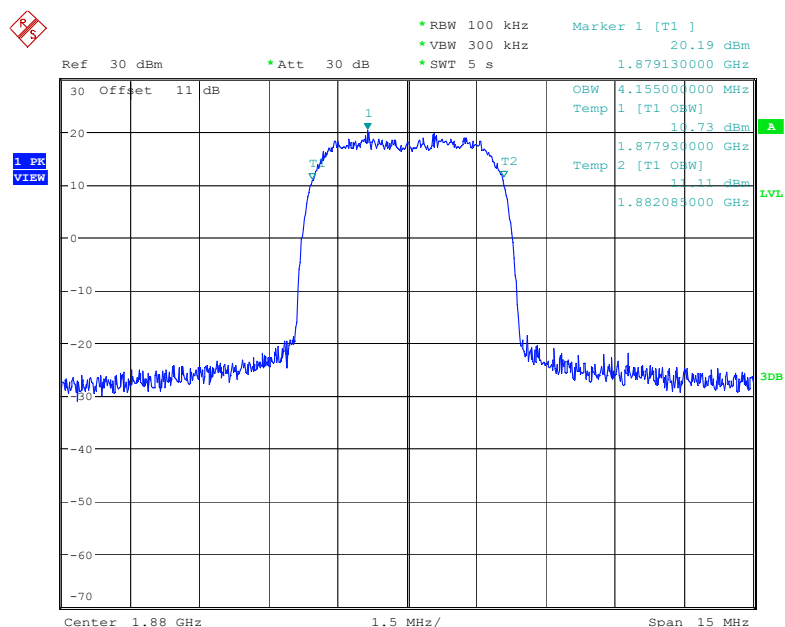
Date: 27.OCT.2022 09:43:23



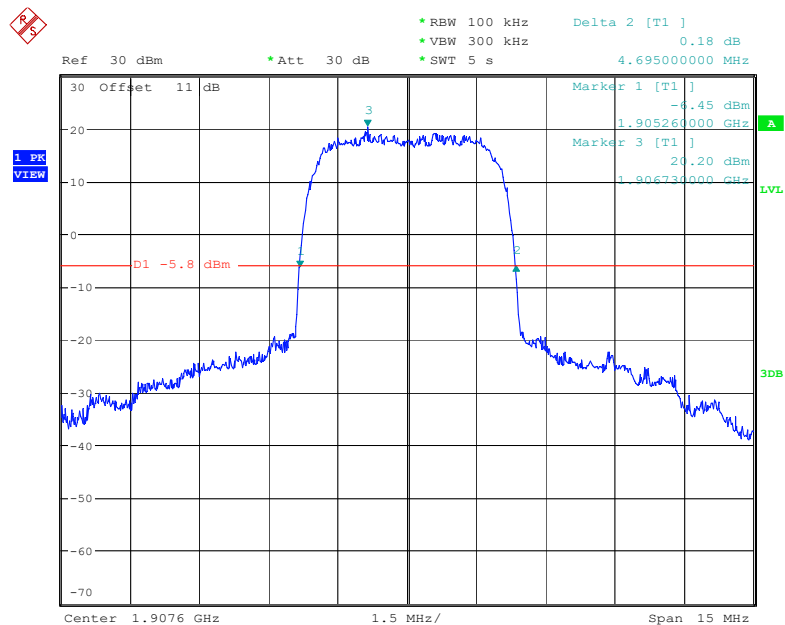
Date: 27.OCT.2022 09:42:44

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

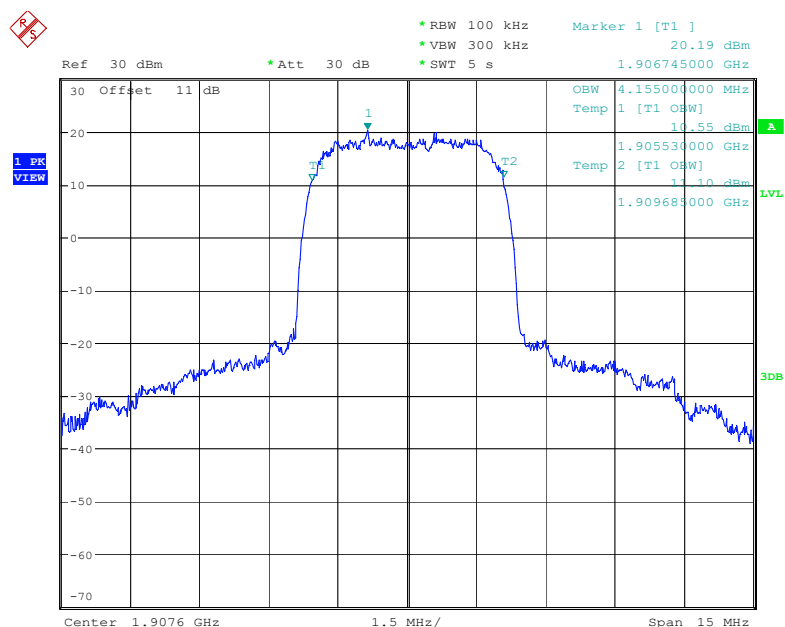
Date: 27.OCT.2022 09:47:22



Date: 27.OCT.2022 09:46:43

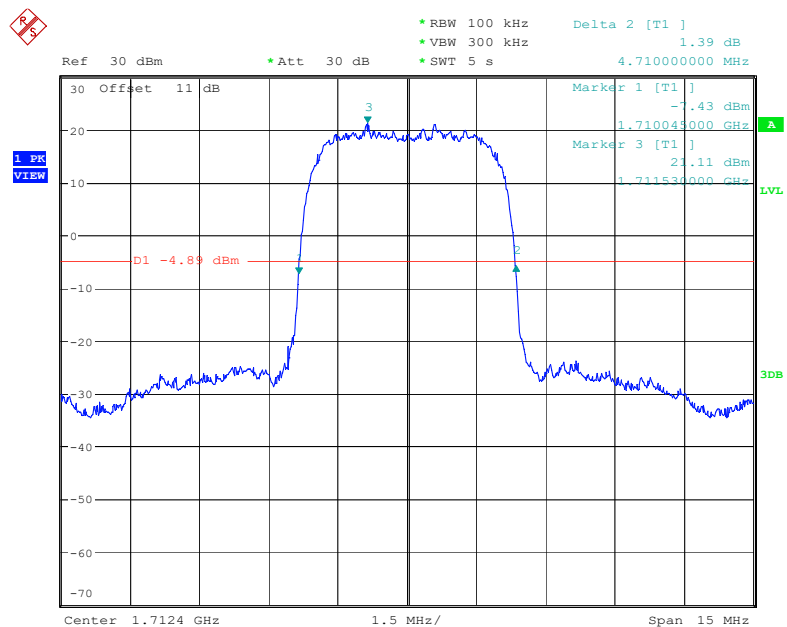
26 dB Emissions & 99% Occupied Bandwidth for HSDPA (16QAM) Mode, High channel

Date: 27.OCT.2022 09:50:38

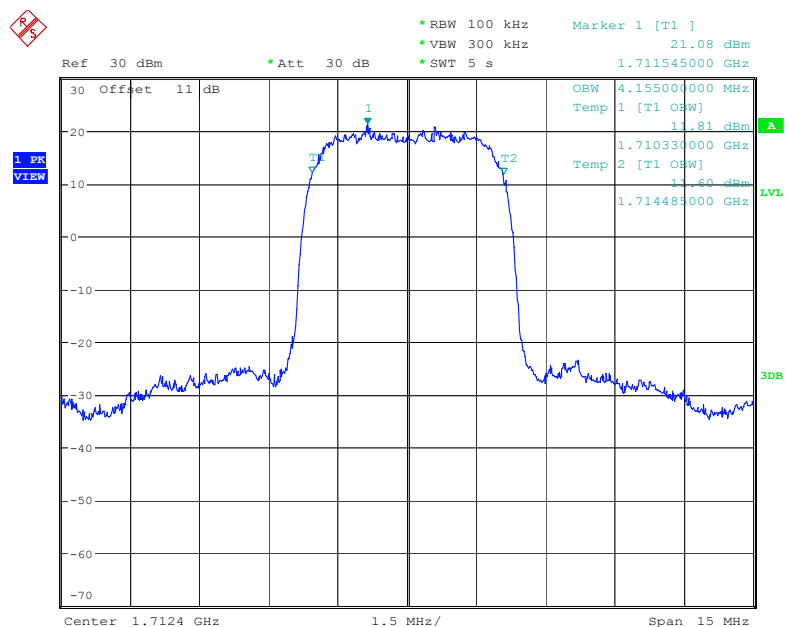


Date: 27.OCT.2022 09:49:59

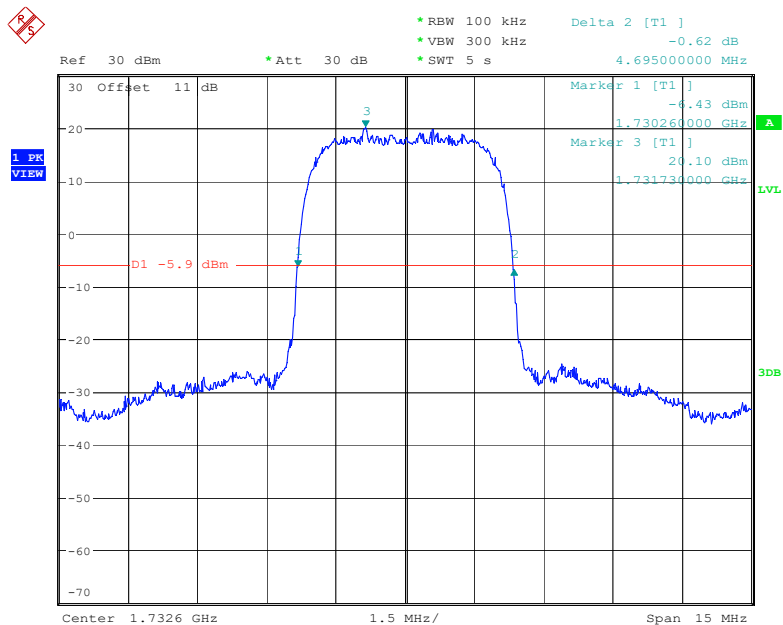
AWS Band:

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

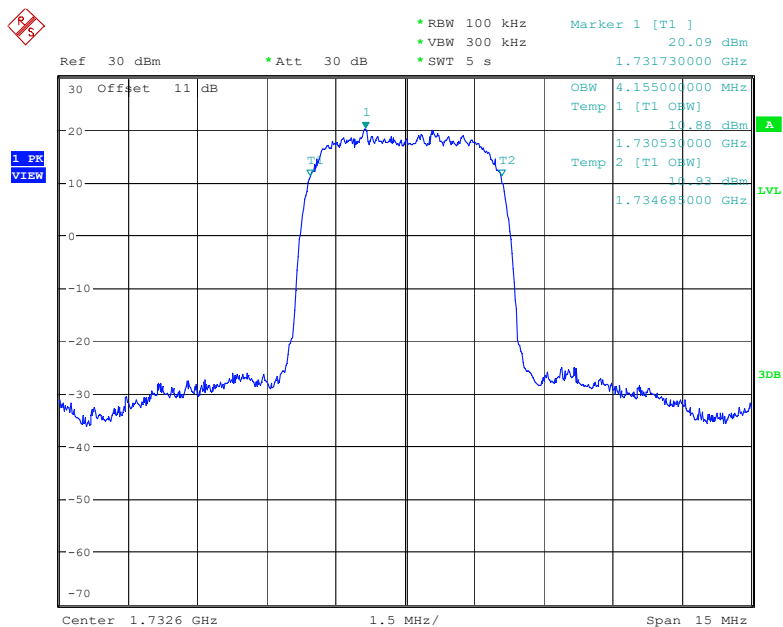
Date: 27.OCT.2022 08:35:54



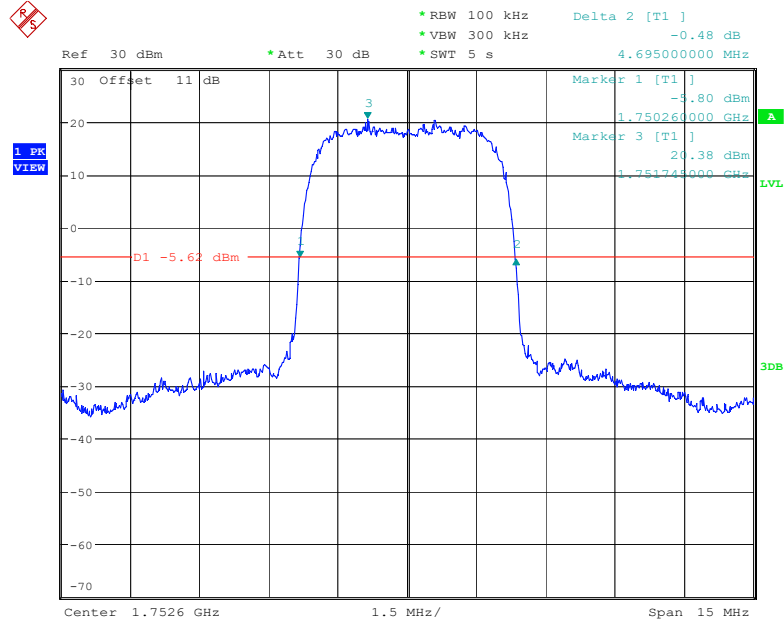
Date: 27.OCT.2022 08:35:14

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

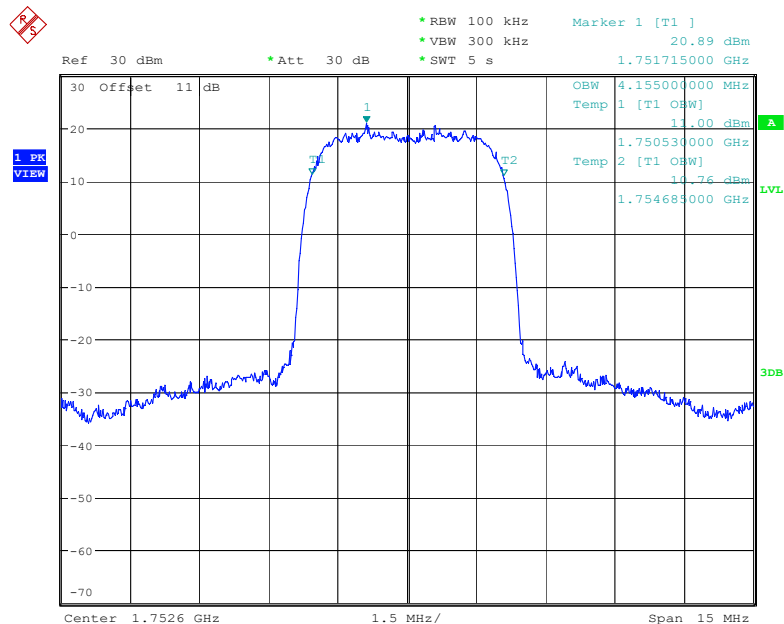
Date: 27.OCT.2022 08:39:51



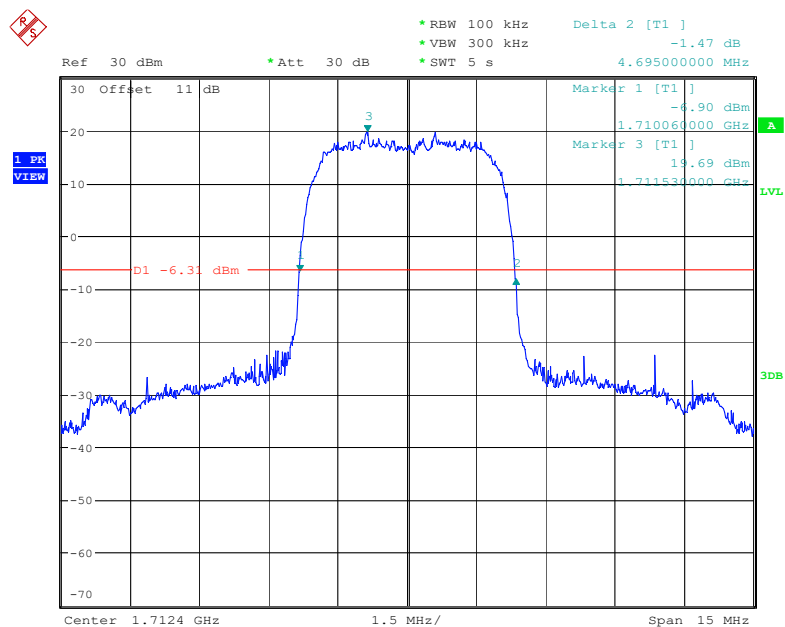
Date: 27.OCT.2022 08:39:12

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

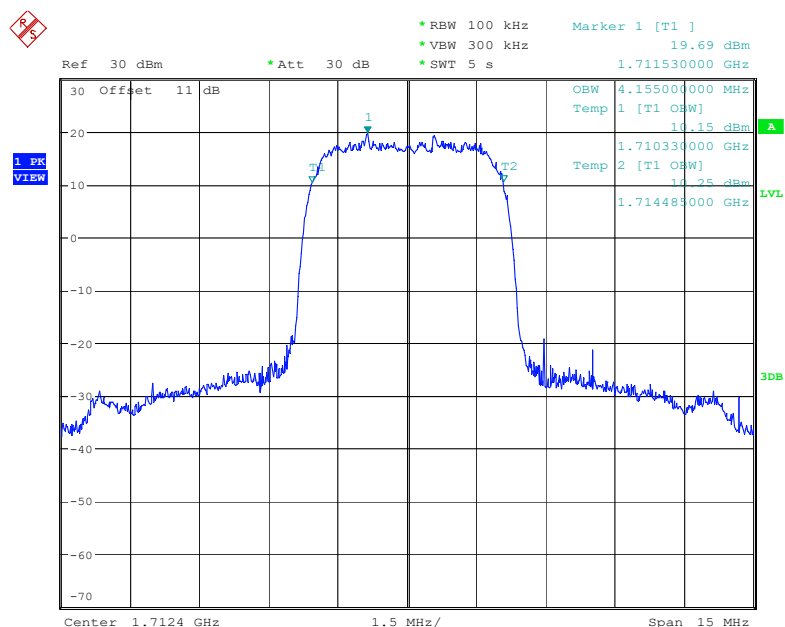
Date: 27.OCT.2022 08:43:03



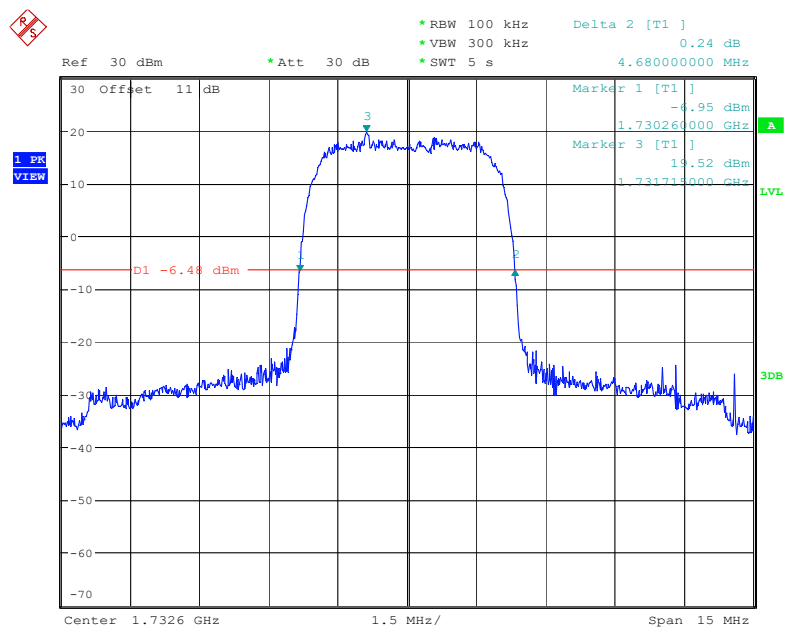
Date: 27.OCT.2022 08:42:24

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

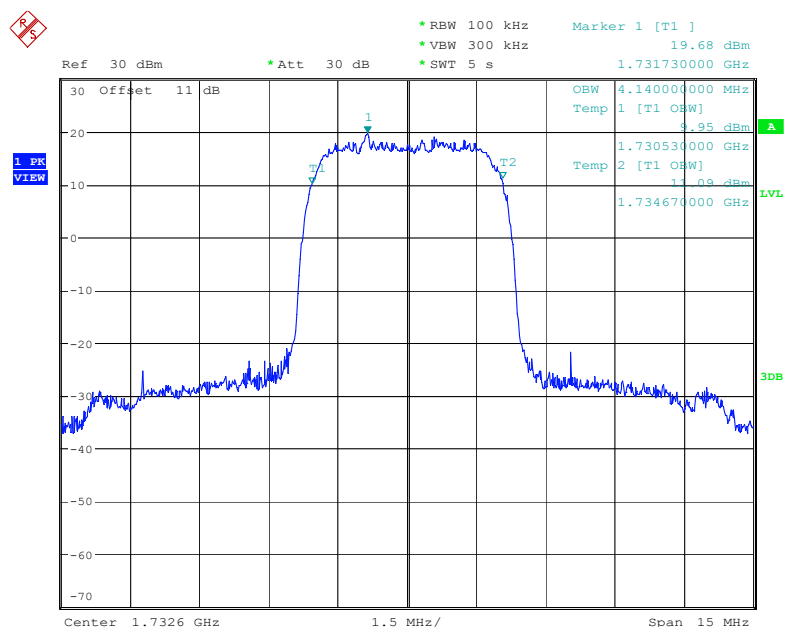
Date: 27.OCT.2022 10:13:14



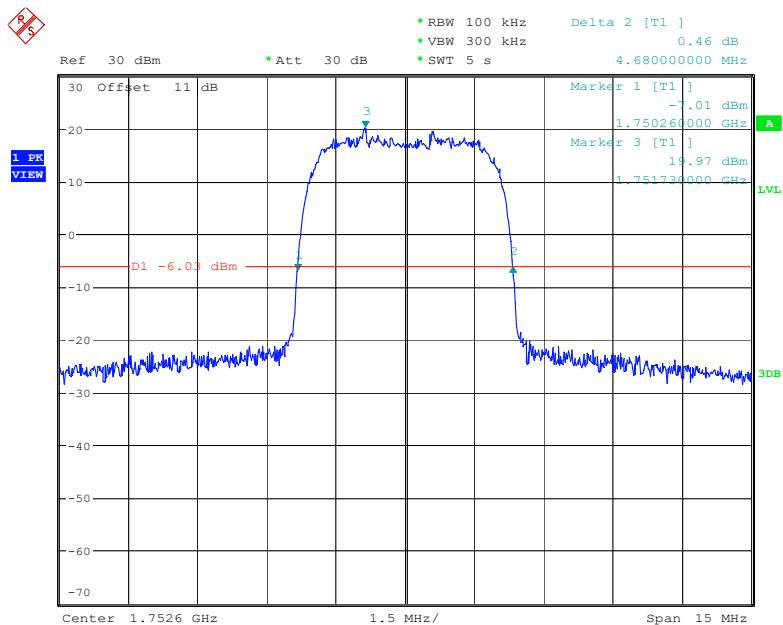
Date: 27.OCT.2022 10:12:35

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

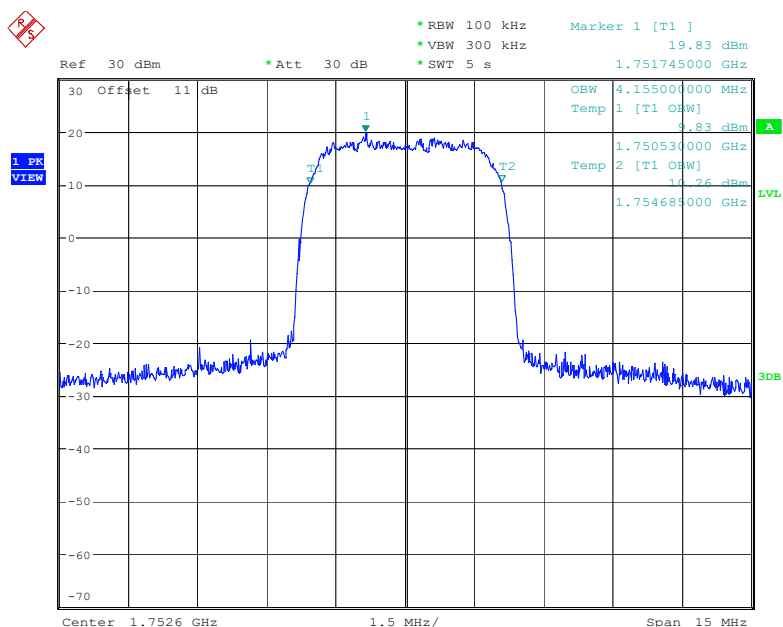
Date: 27.OCT.2022 10:18:24



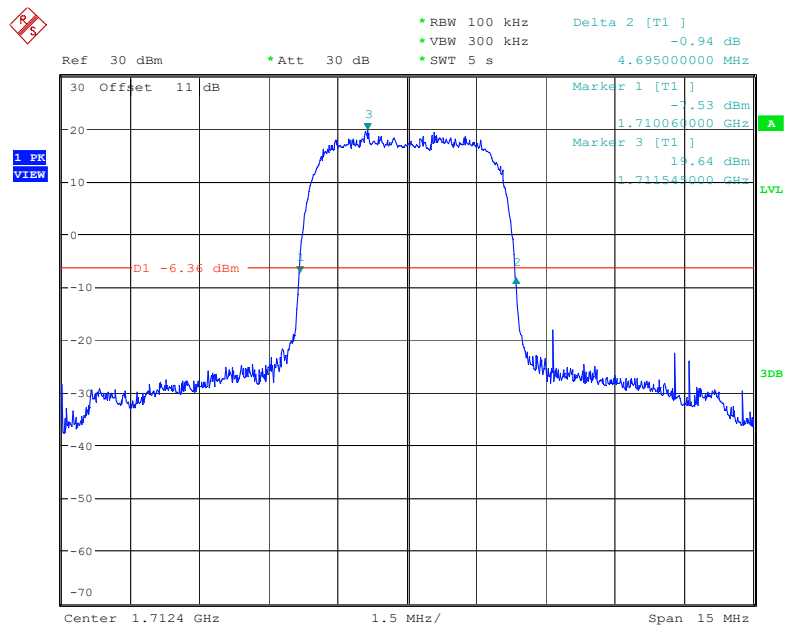
Date: 27.OCT.2022 10:17:45

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

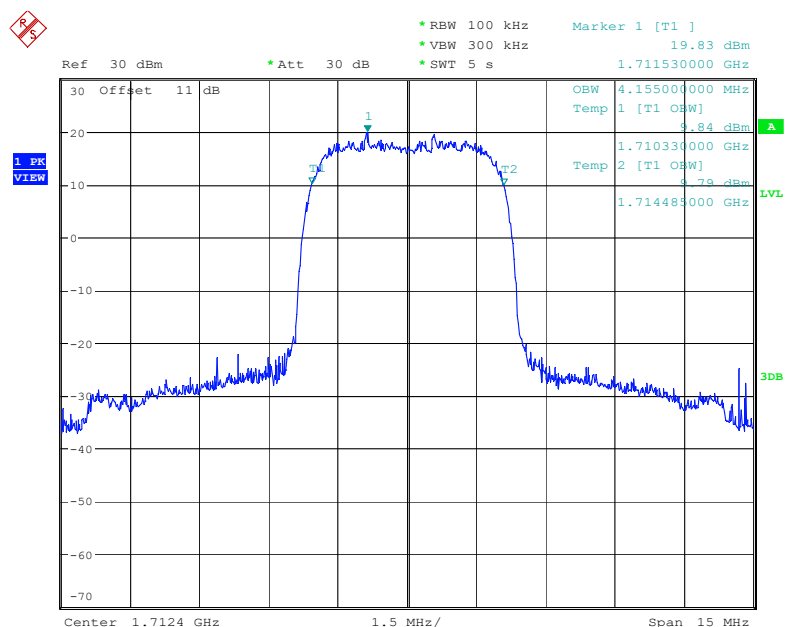
Date: 27.OCT.2022 10:21:32



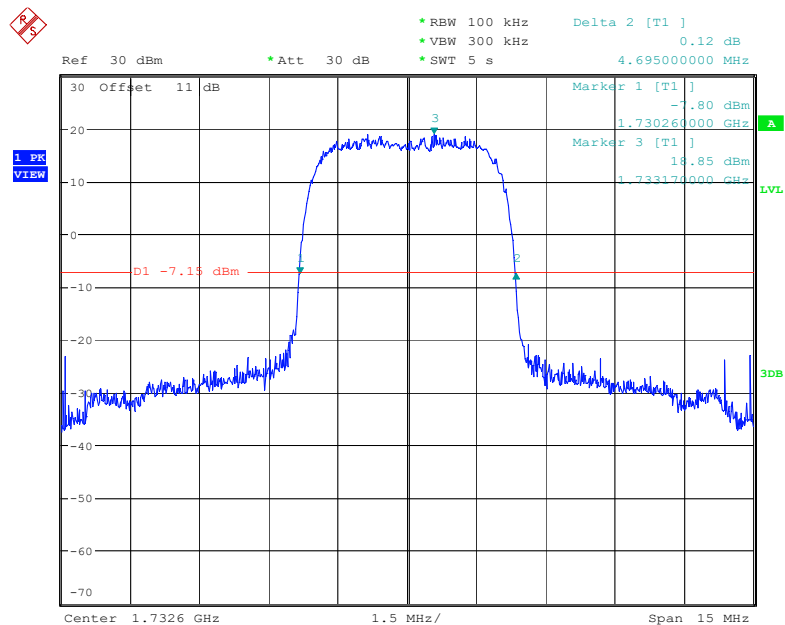
Date: 27.OCT.2022 10:20:53

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

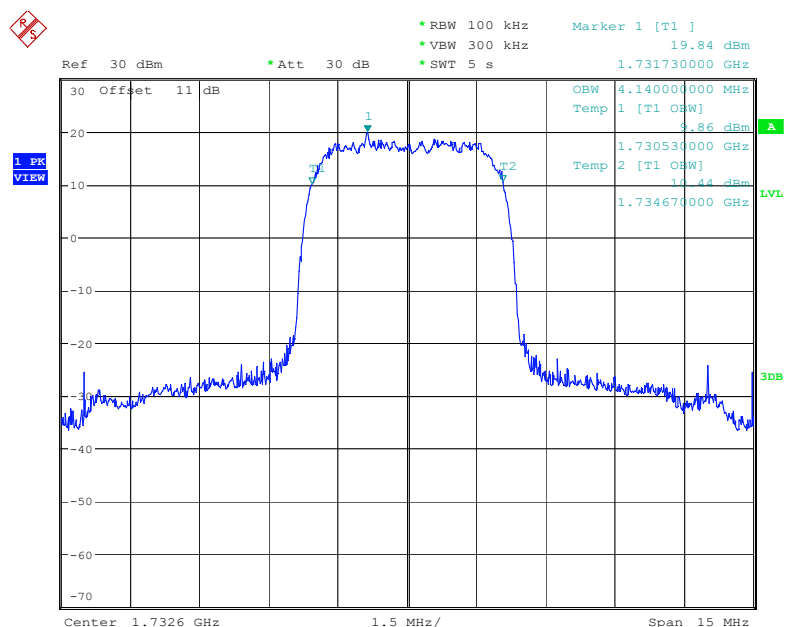
Date: 27.OCT.2022 09:26:02



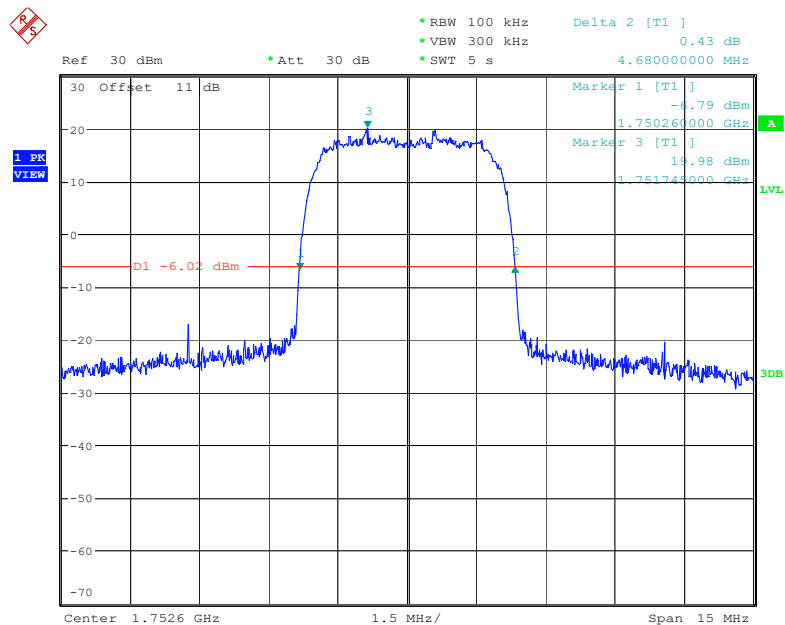
Date: 27.OCT.2022 09:25:23

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

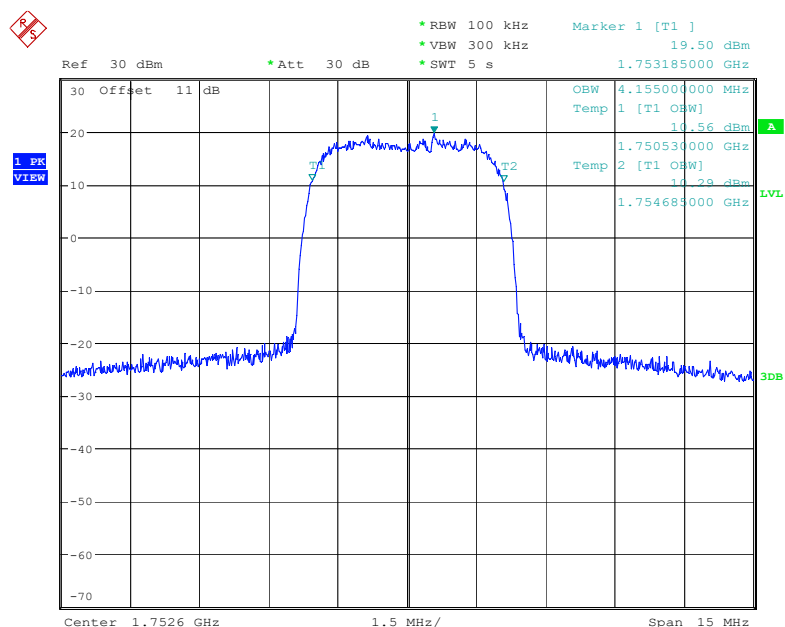
Date: 27.OCT.2022 09:30:50



Date: 27.OCT.2022 09:30:11

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

Date: 27.OCT.2022 09:34:11



Date: 27.OCT.2022 09:33:32

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	1.266	1.110	1.266
	16QAM	1.104	1.254	1.110	1.266	1.110	1.260
3 MHz	QPSK	2.700	3.000	2.700	3.024	2.700	3.024
	16QAM	2.700	3.012	2.700	3.036	2.700	3.012
5 MHz	QPSK	4.540	5.000	4.520	4.980	4.540	5.000
	16QAM	4.540	5.020	4.560	5.020	4.520	5.000
10 MHz	QPSK	8.960	9.720	8.960	9.720	8.960	9.760
	16QAM	8.920	9.240	8.960	9.840	8.920	9.760
15 MHz	QPSK	13.500	15.120	13.560	15.120	13.560	15.180
	16QAM	13.620	15.120	13.560	15.120	13.620	15.180
20 MHz	QPSK	18.000	19.680	18.080	19.840	18.000	19.680
	16QAM	18.080	19.760	18.080	19.760	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	1.266	1.104	1.272	1.110	1.266
	16QAM	1.110	1.260	1.122	1.278	1.110	1.254
3 MHz	QPSK	2.700	3.000	2.700	3.024	2.700	3.048
	16QAM	2.688	3.012	2.712	3.024	2.700	3.036
5 MHz	QPSK	4.520	5.000	4.520	5.020	4.540	5.000
	16QAM	4.520	5.000	4.560	5.040	4.520	4.980
10 MHz	QPSK	8.960	9.720	8.960	9.760	8.960	9.760
	16QAM	9.000	9.720	9.000	9.800	8.960	9.840
15 MHz	QPSK	13.560	15.060	13.560	15.060	13.620	15.180
	16QAM	13.620	15.060	13.560	15.120	13.620	15.060
20 MHz	QPSK	18.000	19.600	18.000	19.920	18.000	19.680
	16QAM	18.000	19.680	18.080	19.760	18.080	19.760

LTE Band 5& LTE Band 26(Part 22H):

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	1.260	1.104	1.260	1.104	1.254
	16QAM	1.116	1.260	1.098	1.248	1.104	1.254
3 MHz	QPSK	2.688	3.000	2.688	3.000	2.712	3.012
	16QAM	2.700	3.000	2.700	3.024	2.700	3.024
5 MHz	QPSK	4.520	5.000	4.520	5.000	4.520	4.980
	16QAM	4.540	5.020	4.540	5.000	4.520	4.960
10 MHz	QPSK	8.960	9.720	8.960	9.680	8.960	9.760
	16QAM	8.960	9.760	8.960	9.800	8.960	9.720
15 MHz	QPSK	13.500	15.000	13.560	15.000	13.560	15.060
	16QAM	13.560	15.060	13.560	15.120	13.500	14.940

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	5.040	4.520	5.000	4.540	5.240
	16QAM	4.540	5.040	4.520	5.020	4.560	5.020
10 MHz	QPSK	8.960	9.760	8.960	9.840	8.960	9.840
	16QAM	9.000	9.760	8.960	9.840	8.960	9.800
15 MHz	QPSK	13.500	15.060	13.560	15.180	13.500	15.120
	16QAM	13.620	15.180	13.620	15.120	13.620	15.060
20 MHz	QPSK	18.000	19.680	18.000	19.840	18.000	19.600
	16QAM	18.000	19.840	18.000	19.760	18.080	19.680

LTE Band 38

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
5 MHz	QPSK	4.520	4.980	4.500	4.980	4.520	5.220
	16QAM	4.520	5.000	4.500	4.980	4.540	5.260
10 MHz	QPSK	9.000	9.760	9.000	9.920	9.000	9.840
	16QAM	8.960	9.720	8.960	9.840	8.960	9.800
15 MHz	QPSK	13.500	15.120	13.560	16.020	13.680	16.740
	16QAM	13.500	15.060	13.620	15.120	13.620	15.060
20 MHz	QPSK	18.000	19.600	18.000	19.680	18.000	19.680
	16QAM	18.000	19.680	18.000	19.680	18.000	19.680

LTE Band 26(Part 90S):

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	1.260	1.098	1.254	1.104	1.254
	16QAM	1.098	1.248	1.104	1.254	1.116	1.260
3 MHz	QPSK	2.700	3.012	2.700	3.024	2.700	2.988
	16QAM	2.700	3.000	2.688	3.024	2.700	3.000
5 MHz	QPSK	4.520	5.000	4.520	5.000	4.520	4.980
	16QAM	4.520	4.980	4.520	5.040	4.520	4.980
10 MHz	QPSK	/	/	8.960	9.760	/	/
	16QAM	/	/	8.960	9.760	/	/

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

FCC §2.1051, §22.917(a) & §24.238(a) & §27.53 & §90.691 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

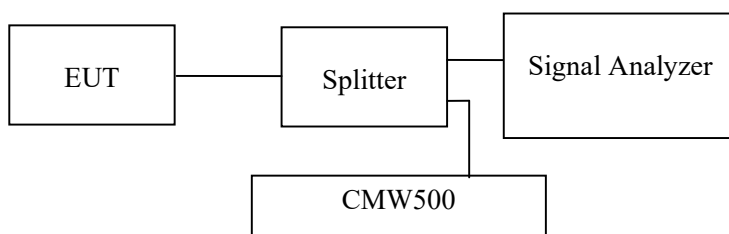
Applicable Standard

FCC §2.1051, §22.917(a) & §24.238(a) & §27.53 & §90.691.

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 added into plot.

Test Data

Environmental Conditions

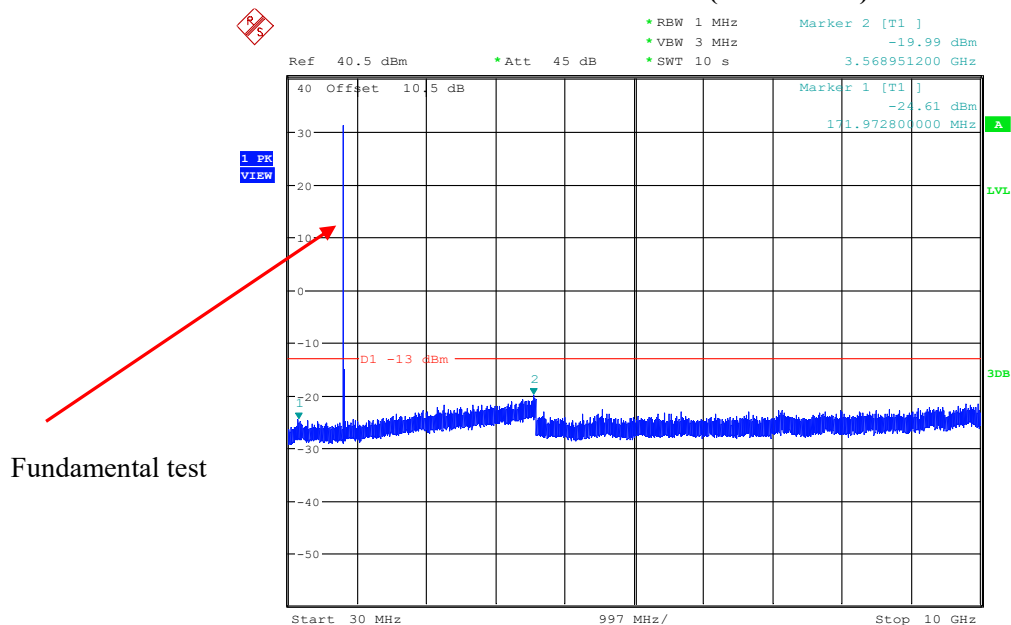
Temperature:	25.7-27.2℃
Relative Humidity:	56.2~58.2%
ATM Pressure:	101.0 kPa

The testing was performed by Roger Lin from 2022-10-26 to 2022-11-11.

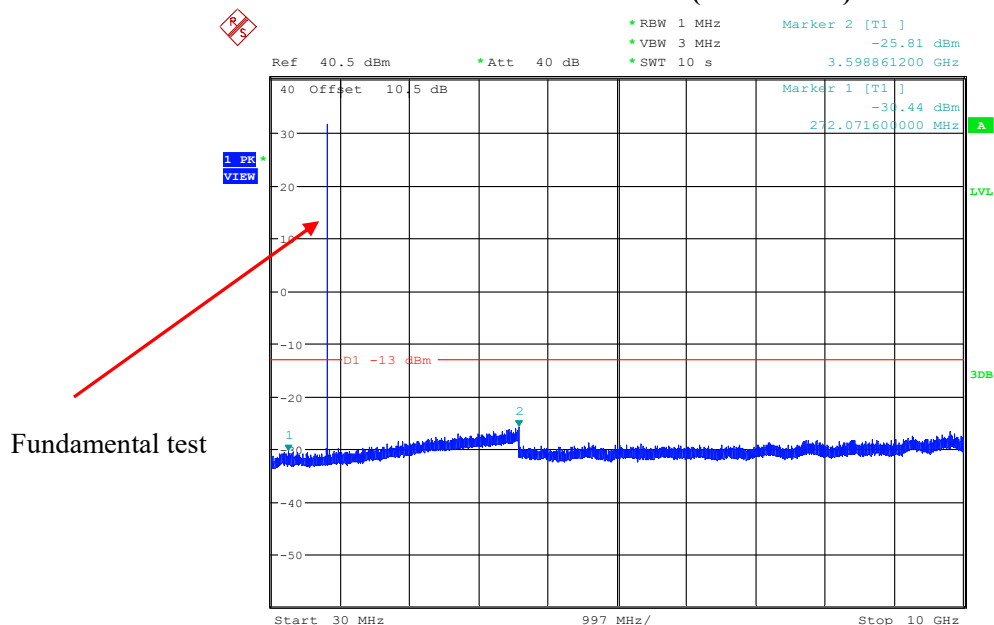
EUT operation mode: Transmitting

Test result: Pass

Please refer to the following plots.

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

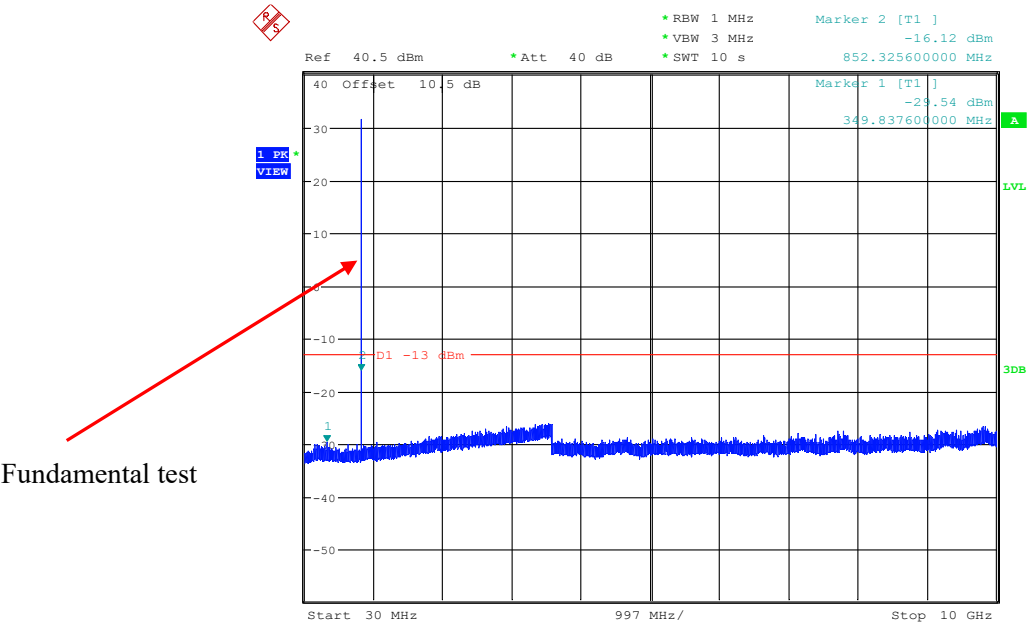
Date: 11.NOV.2022 10:15:54

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

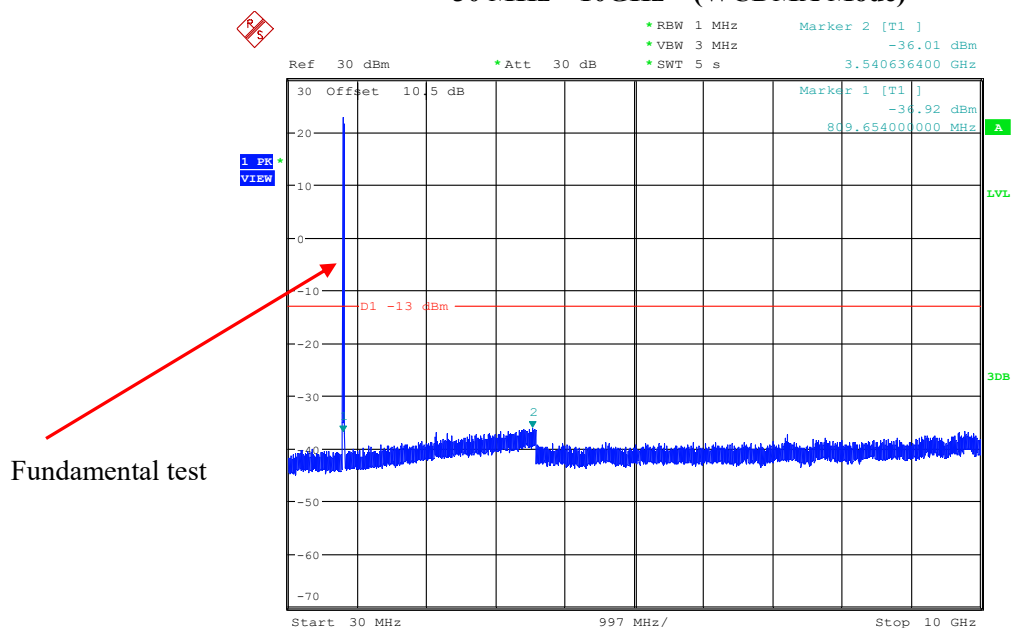
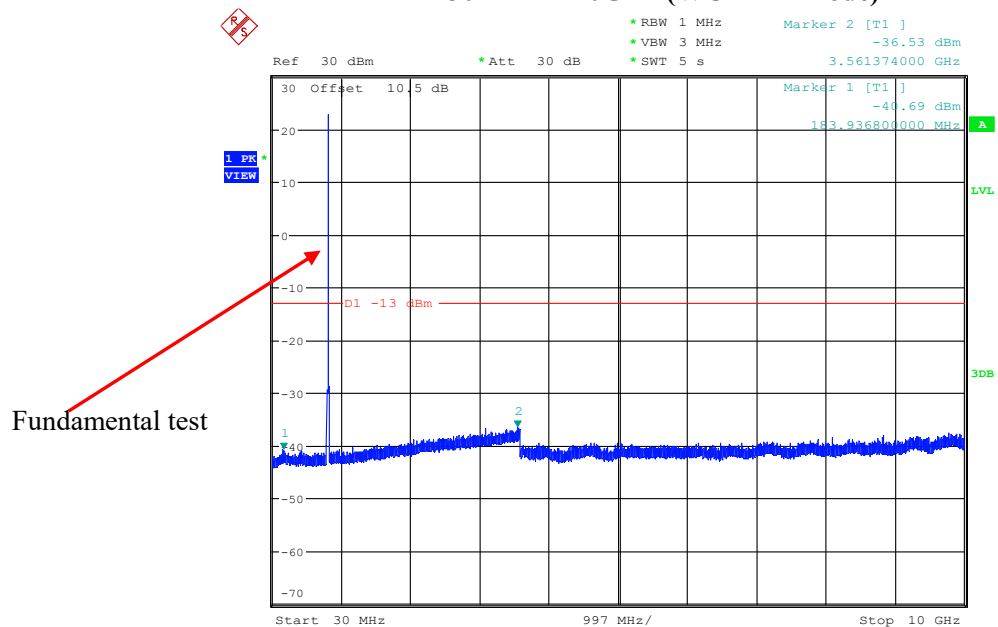
Date: 11.NOV.2022 10:18:56

High Channel:

30 MHz – 10GHz (GSM Mode)

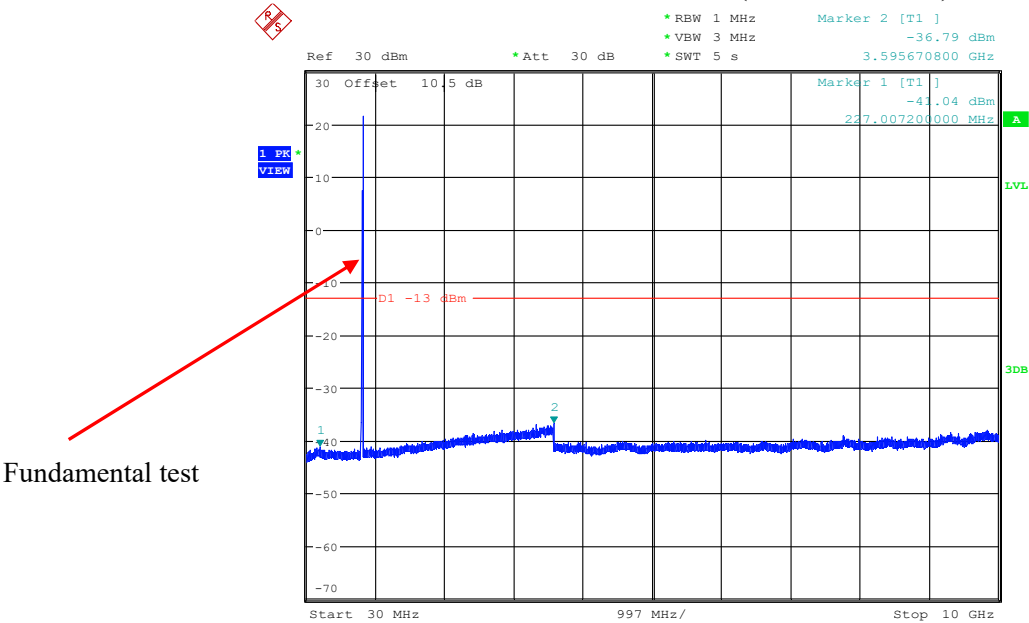


Date: 11.NOV.2022 10:21:20

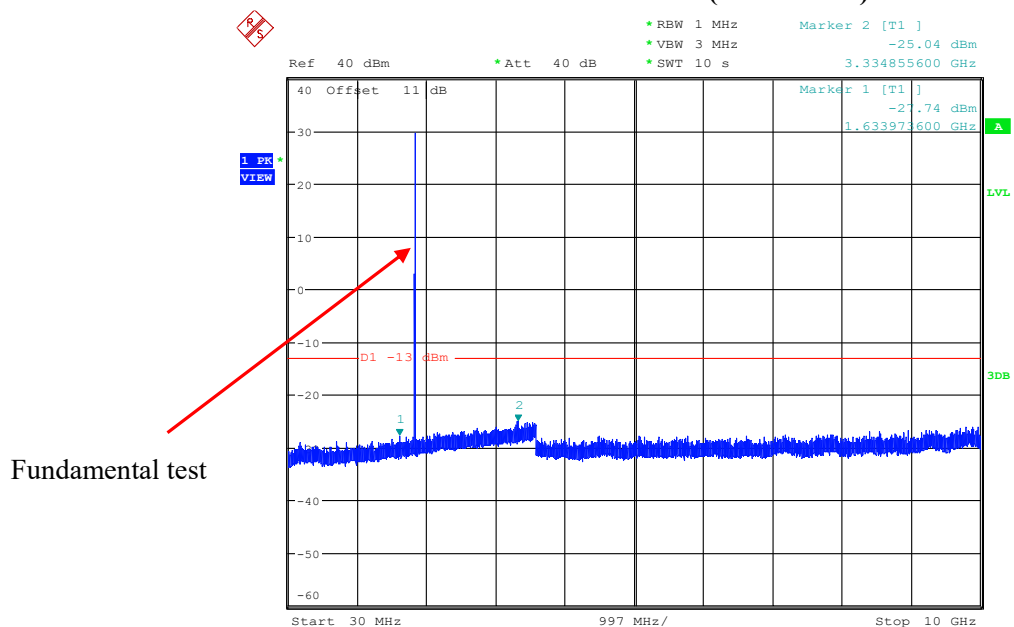
Low Channel:**30 MHz – 10GHz (WCDMA Mode)****Middle Channel:****30 MHz – 10GHz (WCDMA Mode)**

High Channel:

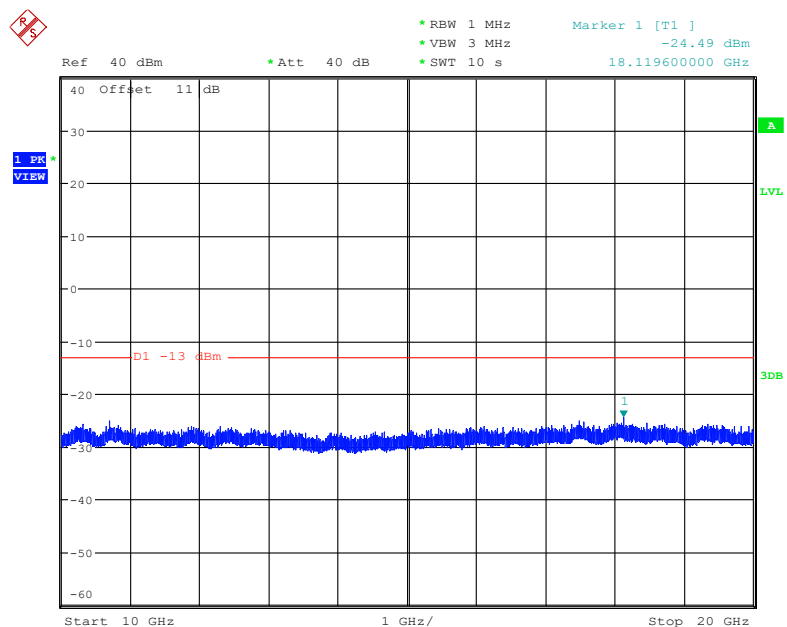
30 MHz – 10GHz RMC (WCDMA Mode)



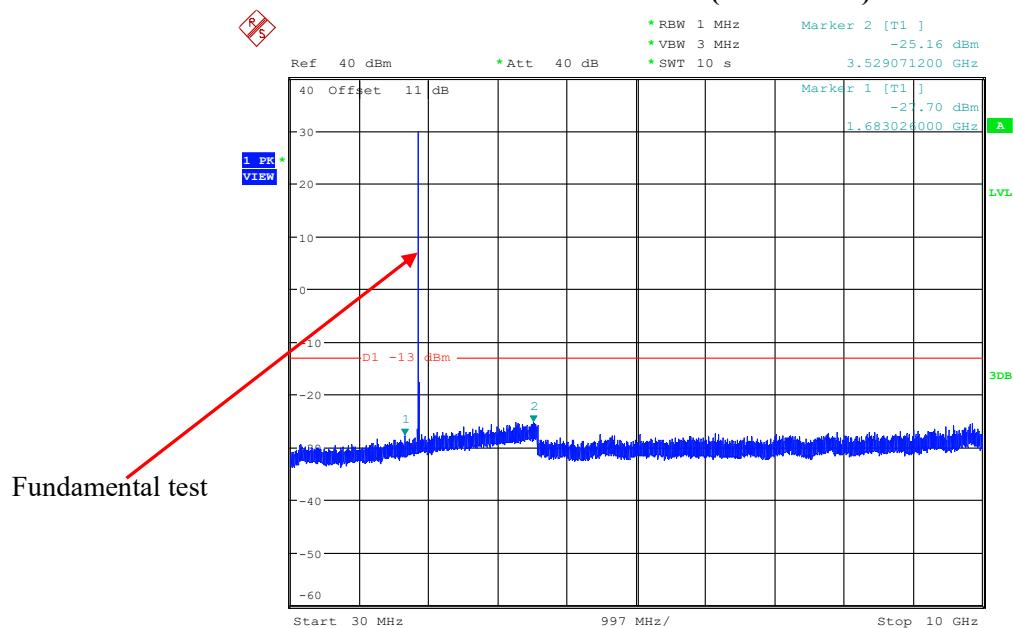
Date: 11.NOV.2022 11:09:40

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

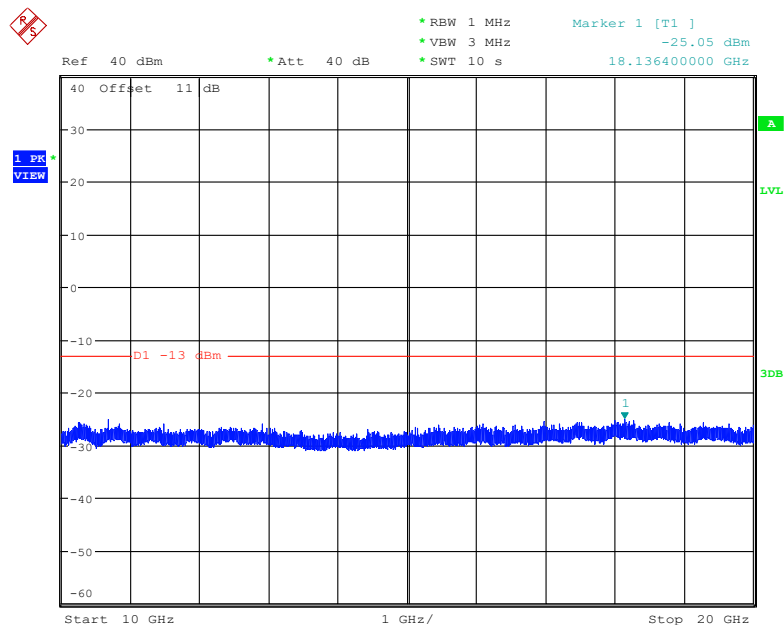
Date: 11.NOV.2022 10:25:27

10 GHz – 20GHz (GSM Mode)

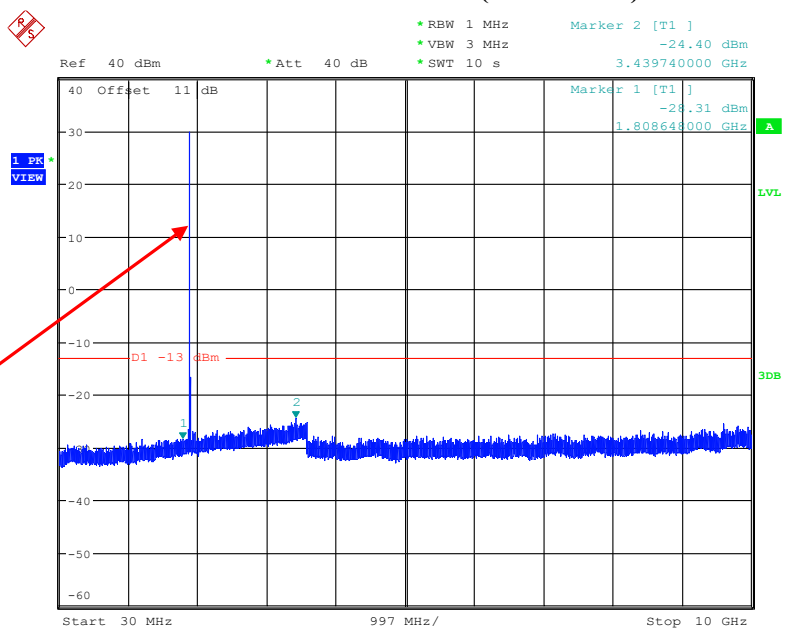
Date: 11.NOV.2022 10:26:11

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

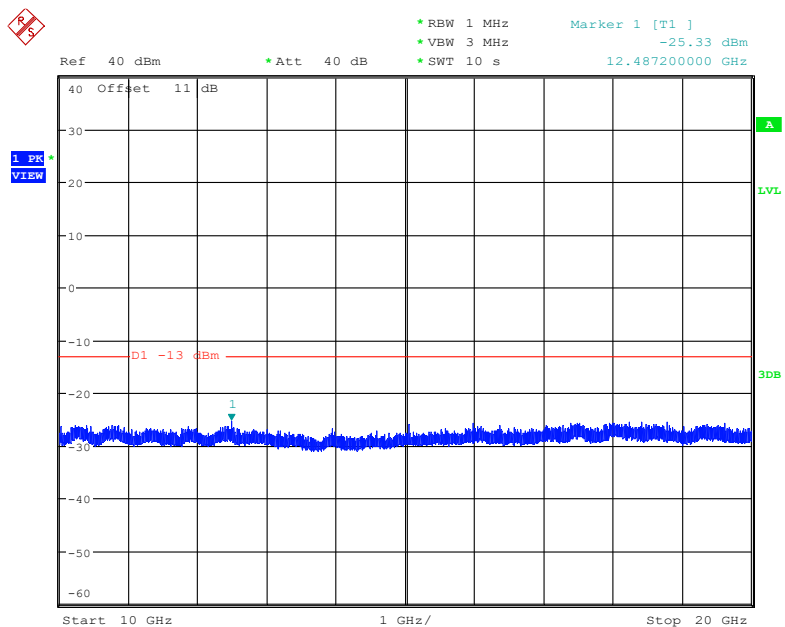
Date: 11.NOV.2022 10:27:52

10 GHz – 20GHz (GSM Mode)

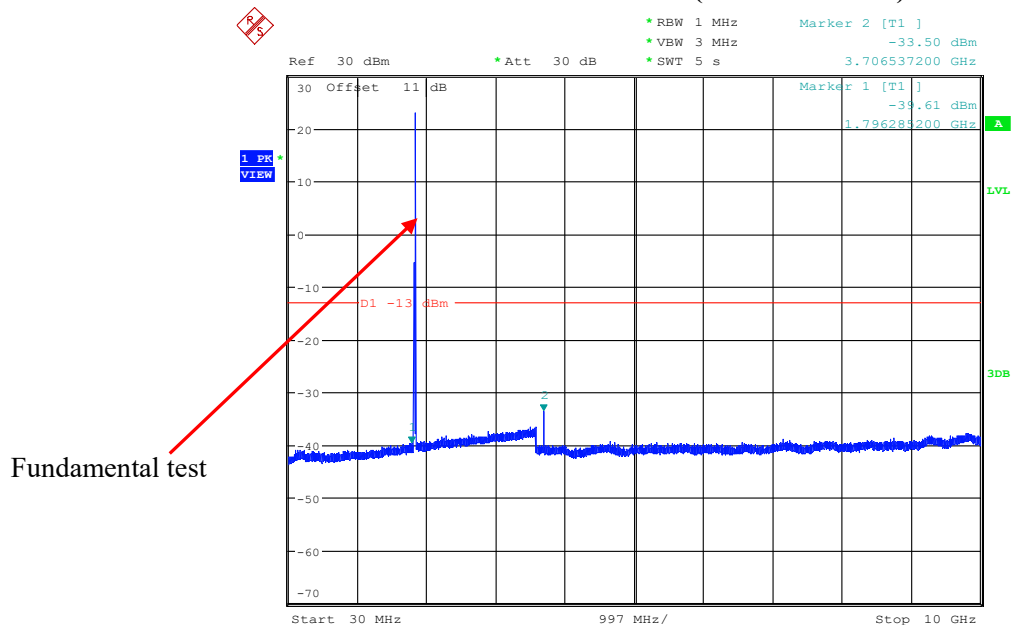
Date: 11.NOV.2022 10:28:38

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

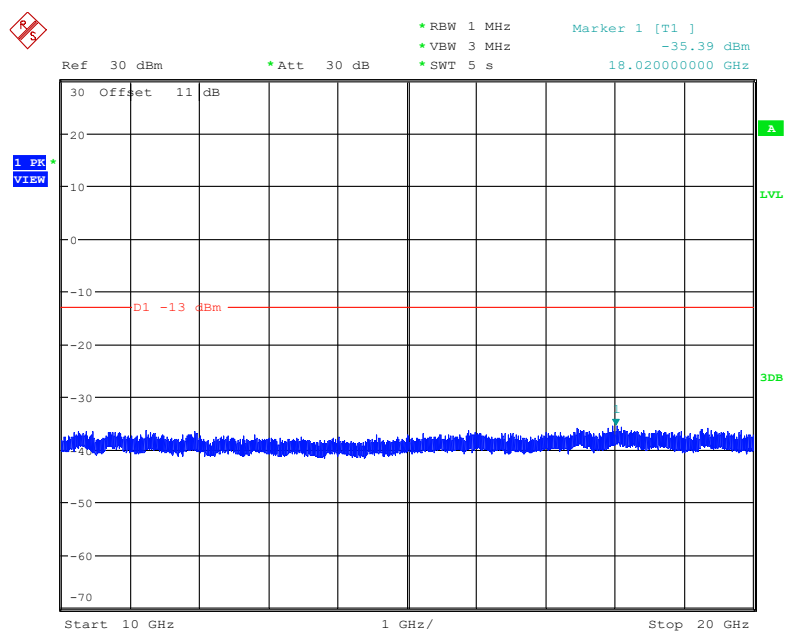
Date: 11.NOV.2022 10:30:31

10 GHz – 20GHz (GSM Mode)

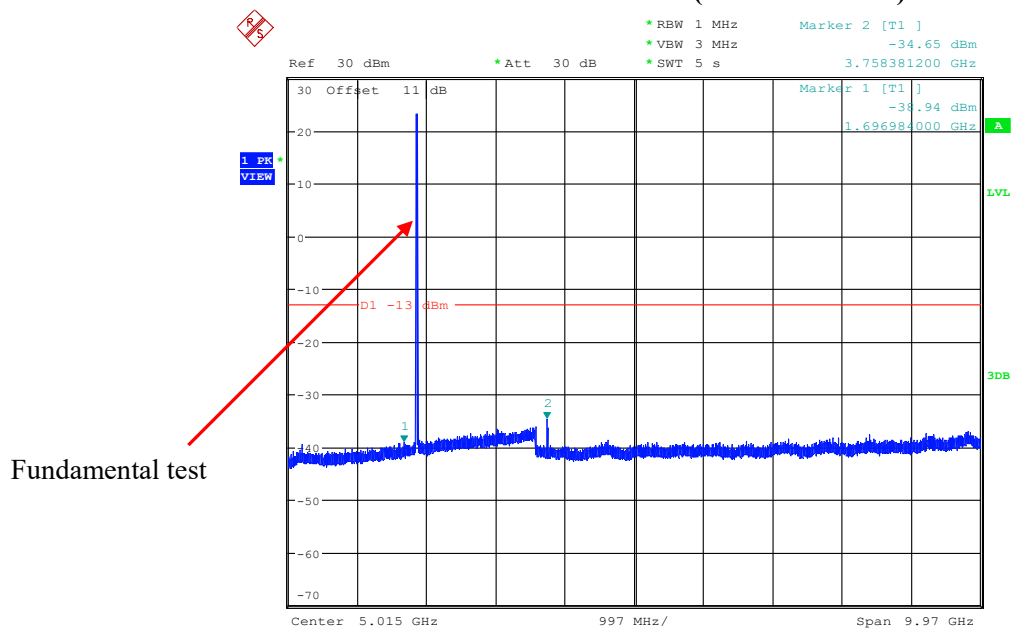
Date: 11.NOV.2022 10:31:29

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

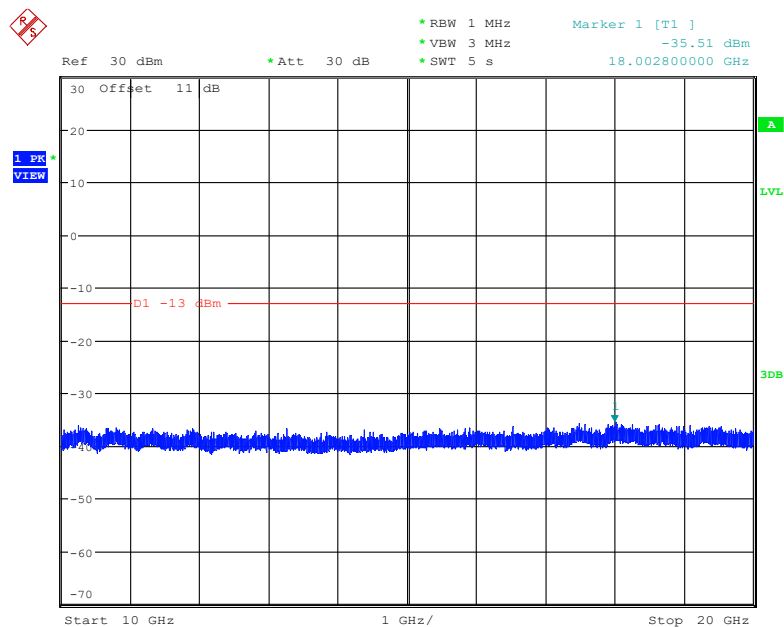
Date: 11.NOV.2022 10:38:33

10 GHz – 20GHz (WCDMA Mode)

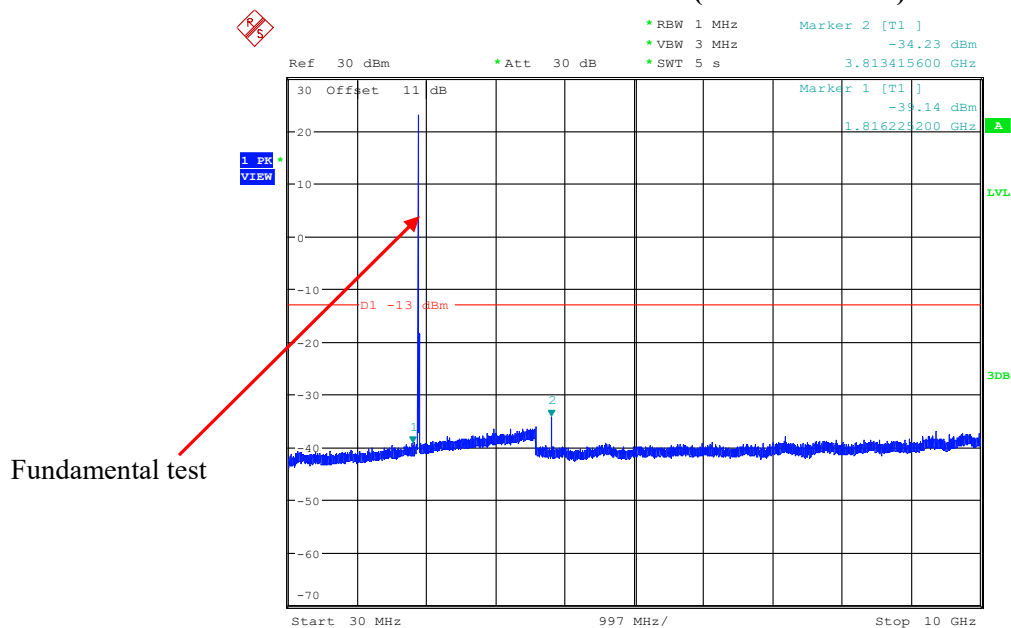
Date: 11.NOV.2022 10:39:03

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

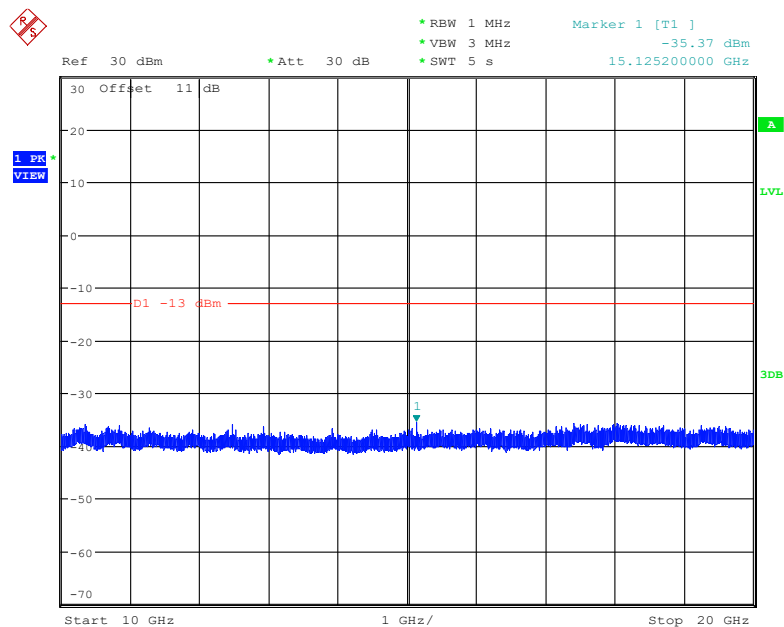
Date: 11.NOV.2022 10:41:00

10 GHz – 20GHz (WCDMA Mode)

Date: 11.NOV.2022 10:41:29

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

Date: 11.NOV.2022 10:45:57

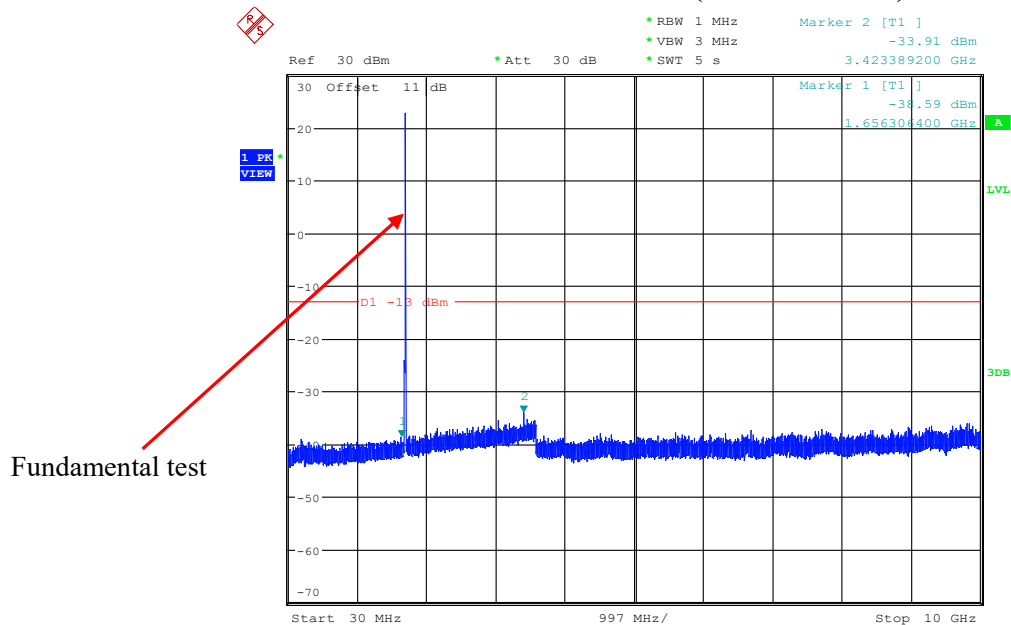
10 GHz – 20GHz (WCDMA Mode)

Date: 11.NOV.2022 10:46:26

AWS Band:

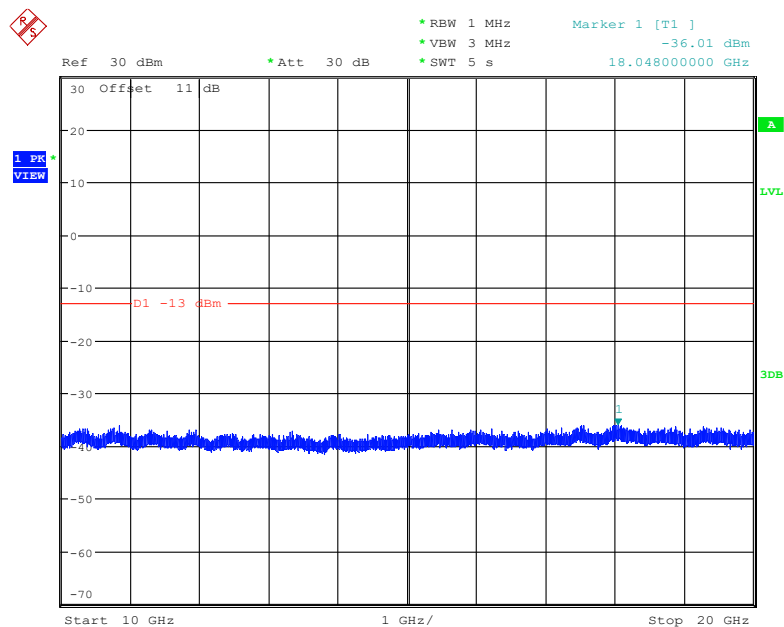
Low Channel:

30 MHz – 10GHz (WCDMA Mode)

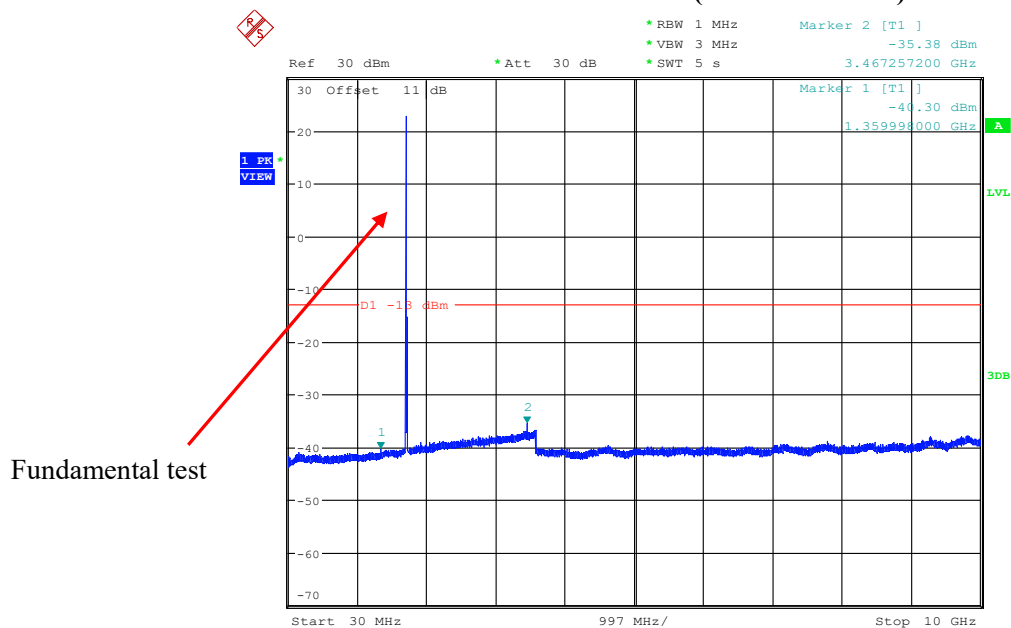


Date: 11.NOV.2022 10:56:51

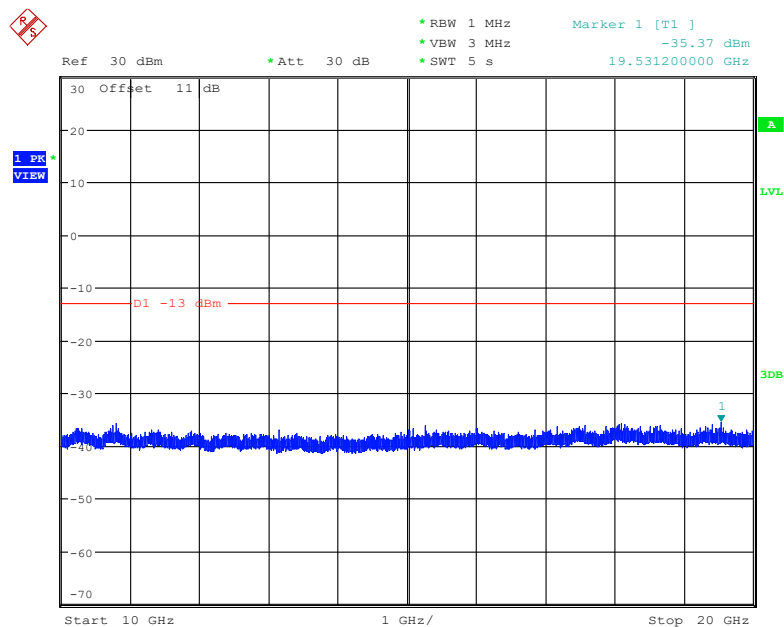
10 GHz – 20GHz (WCDMA Mode)



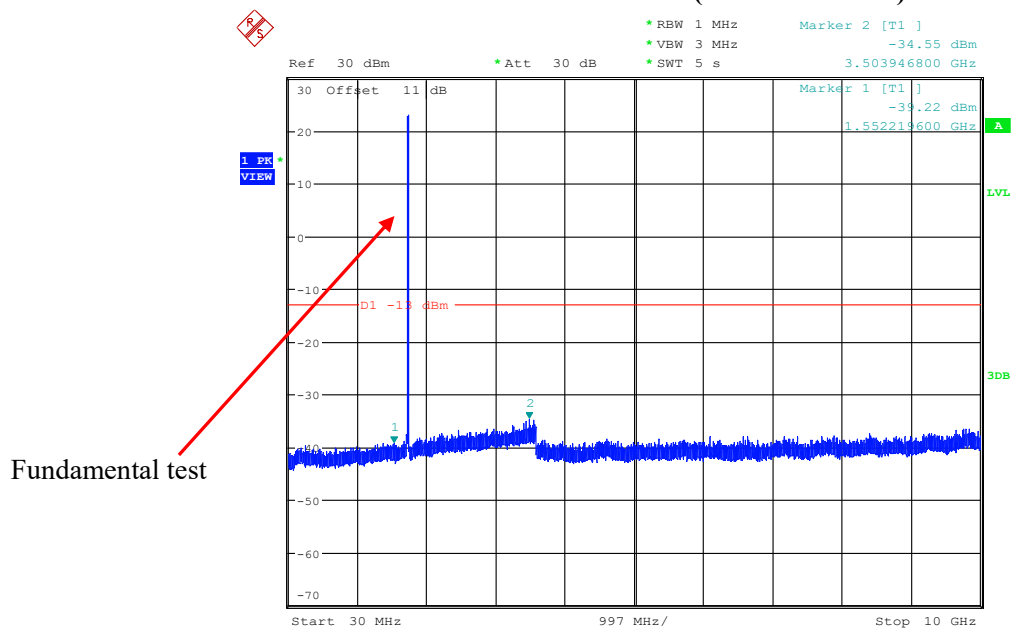
Date: 11.NOV.2022 10:57:31

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

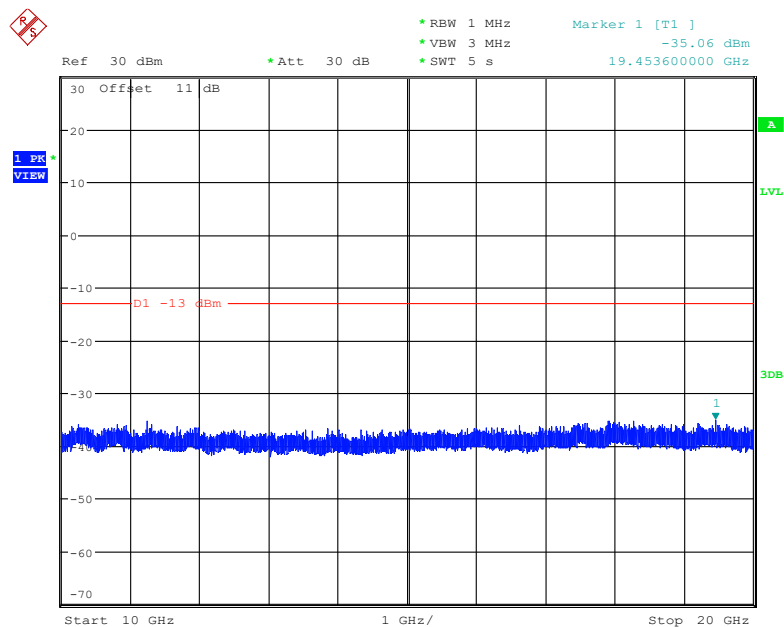
Date: 11.NOV.2022 10:55:24

10 GHz – 20GHz (WCDMA Mode)

Date: 11.NOV.2022 10:56:03

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

Date: 11.NOV.2022 10:58:30

10 GHz – 20GHz (WCDMA Mode)

Date: 11.NOV.2022 10:58:50

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

FCC § 2.1053; § 22.917 (a); § 24.238 (a); §27.53; §90.691- SPURIOUS RADIATED EMISSIONS

Applicable Standard

FCC § 2.1053, §22.917(a)& § 24.238(a) & § 27.53 & §90.691.

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:	24℃
Relative Humidity:	58 %
ATM Pressure:	101.2kPa

The testing was performed by Level Li on 2022-10-28.

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		Turntable Angle Degree	Rx Antenna		Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
	Reading (dBm)	PK/Ave		Height (m)	Polar (H/V)				
GSM850, Low Channel									
57.29	-77.56	PK	32	1.2	H	4.8	-72.76	-13	-59.76
731.28	-77.30	PK	162	1.7	V	11.05	-66.25	-13	-53.25
1648.4	-63.25	PK	32	1.2	H	3.52	-59.73	-13	-46.73
1648.4	-61.99	PK	162	1.7	V	3.1	-58.89	-13	-45.89
GSM850, Middle Channel									
57.29	-78.70	PK	150	1.3	H	4.8	-73.90	-13	-60.90
731.28	-78.60	PK	260	1.4	V	11.05	-67.55	-13	-54.55
1673.2	-46.11	PK	94	1.5	H	3.78	-42.33	-13	-29.33
1673.2	-43.97	PK	286	1.6	V	3.1	-40.87	-13	-27.87
GSM850, High Channel									
57.29	-79.22	PK	130	1.4	H	4.8	-74.42	-13	-61.42
731.28	-79.42	PK	168	1.7	V	11.05	-68.37	-13	-55.37
1697.6	-63.33	PK	43	1.7	H	4.07	-59.26	-13	-46.26
1697.6	-62.36	PK	301	1.8	V	3.1	-59.26	-13	-46.26

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
	Reading (dBm)	PK/Ave		Height (m)	Polar (H/V)				
WCDMA Band 5, Low Channel									
57.29	-74.12	PK	293	1.8	H	4.8	-69.32	-13	-56.32
731.28	-74.81	PK	103	1.3	V	11.05	-63.76	-13	-50.76
1652.8	-61.77	PK	101	1.8	H	3.53	-58.24	-13	-45.24
1652.8	-63.42	PK	276	2.0	V	3.1	-60.32	-13	-47.32
WCDMA Band 5, Middle Channel									
57.29	-72.09	PK	335	1.3	H	4.8	-67.29	-13	-54.29
731.28	-77.22	PK	100	2.0	V	11.05	-66.17	-13	-53.17
1672.8	-61.07	PK	291	1.1	H	3.78	-57.29	-13	-44.29
1672.8	-62.67	PK	85	1.8	V	3.1	-59.57	-13	-46.57
WCDMA Band 5, High Channel									
57.29	-73.21	PK	274	1.0	H	4.8	-68.41	-13	-55.41
731.28	-76.51	PK	262	1.2	V	11.05	-65.46	-13	-52.46
1693.2	-60.27	PK	99	1.8	H	4.02	-56.25	-13	-43.25
1693.2	-60.47	PK	206	1.4	V	3.1	-57.37	-13	-44.37

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

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
	Reading (dBm)	PK/Ave		Height (m)	Polar (H/V)				
PCS1900, Low Channel									
57.29	-77.94	PK	297	1.2	H	4.8	-73.14	-13	-60.14
731.28	-77.89	PK	164	1.8	V	11.05	-66.84	-13	-53.84
3700.4	-62.54	PK	261	1.8	H	8.11	-54.43	-13	-41.43
3700.4	-61.98	PK	113	2.0	V	7.6	-54.38	-13	-41.38
PCS1900, Middle Channel									
57.29	-78.23	PK	80	2.1	H	4.8	-73.43	-13	-60.43
731.28	-78.33	PK	351	1.9	V	11.05	-67.28	-13	-54.28
3760	-61.93	PK	108	1.6	H	8.84	-53.09	-13	-40.09
3760	-62.49	PK	258	1.1	V	7.96	-54.53	-13	-41.53
PCS1900, High Channel									
57.29	-76.86	PK	261	1.8	H	4.8	-72.06	-13	-59.06
731.28	-76.99	PK	58	1.9	V	11.05	-65.94	-13	-52.94
3819.6	-62.18	PK	187	1.2	H	8.68	-53.50	-13	-40.50
3819.6	-61.76	PK	296	2.0	V	7.96	-53.80	-13	-40.80

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
	Reading (dBm)	PK/Ave		Height (m)	Polar (H/V)				
WCDMA Band 2, Low Channel									
57.29	-77.28	PK	162	2.1	H	4.8	-72.48	-13	-59.48
731.28	-78.66	PK	121	1.3	V	11.05	-67.61	-13	-54.61
3704.8	-54.34	PK	253	1.2	H	8.18	-46.16	-13	-33.16
3704.8	-60.05	PK	311	1.5	V	7.64	-52.41	-13	-39.41
WCDMA Band 2, Middle Channel									
57.29	-76.53	PK	21	2.1	H	4.8	-71.73	-13	-58.73
731.28	-77.32	PK	112	1.3	V	11.05	-66.27	-13	-53.27
3760	-52.86	PK	93	1.0	H	8.84	-44.02	-13	-31.02
3760	-59.33	PK	115	2.1	V	7.96	-51.37	-13	-38.37
WCDMA Band 2, High Channel									
57.29	-75.18	PK	79	1.1	H	4.8	-70.38	-13	-57.38
731.28	-76.99	PK	128	1.3	V	11.05	-65.94	-13	-52.94
3815.2	-52.40	PK	54	1.2	H	8.66	-43.74	-13	-30.74
3815.2	-57.39	PK	123	1.0	V	7.92	-49.47	-13	-36.47

AWS Band (Part 27E)

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
	Reading (dBm)	PK/Ave		Height (m)	Polar (H/V)				
WCDMA Band 4, Low Channel									
57.29	-73.88	PK	212	2.1	H	4.8	-69.08	-13	-56.08
731.28	-74.94	PK	162	1.6	V	11.05	-63.89	-13	-50.89
3424.8	-61.73	PK	101	1.8	H	6.4	-55.33	-13	-42.33
3424.8	-60.60	PK	276	2.0	V	5.75	-54.85	-13	-41.85
WCDMA Band 4, Middle Channel									
57.29	-74.57	PK	34	1.1	H	4.8	-69.77	-13	-56.77
731.28	-75.88	PK	57	1.2	V	11.05	-64.83	-13	-51.83
3465.2	-61.63	PK	291	1.1	H	6.96	-54.67	-13	-41.67
3465.2	-60.76	PK	85	1.8	V	6.22	-54.54	-13	-41.54
WCDMA Band 4, High Channel									
57.29	-74.29	PK	32	1.6	H	4.8	-69.49	-13	-56.49
731.28	-76.12	PK	314	2.1	V	11.05	-65.07	-13	-52.07
3505.2	-60.91	PK	99	1.8	H	7.79	-53.12	-13	-40.12
3505.2	-59.89	PK	206	1.4	V	6.54	-53.35	-13	-40.35

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

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
	Reading (dBm)	PK/Ave		Height (m)	Polar (H/V)				
Band 2									
Test frequency range: 30MHz-20GHz									
QPSK, 1.4MHz bandwidth, Low Channel									
57.29	-74.11	PK	231	1.3	H	4.8	-69.31	-13	-56.31
731.28	-74.53	PK	311	1.5	V	11.05	-63.48	-13	-50.48
3701.4	-61.65	PK	268	1.7	H	8.12	-53.53	-13	-40.53
3701.4	-61.84	PK	86	2.2	V	7.61	-54.23	-13	-41.23
QPSK, 1.4MHz bandwidth, Middle Channel									
57.29	-74.92	PK	241	1.2	H	4.8	-70.12	-13	-57.12
731.28	-77.96	PK	180	2.1	V	11.05	-66.91	-13	-53.91
3760	-56.78	PK	221	1.3	H	8.84	-47.94	-13	-34.94
3760	-62.04	PK	127	1.8	V	7.96	-54.08	-13	-41.08
QPSK, 1.4MHz bandwidth, High Channel									
57.29	-72.09	PK	169	1.3	H	4.8	-67.29	-13	-54.29
731.28	-75.60	PK	266	1.1	V	11.05	-64.55	-13	-51.55
3818.6	-62.23	PK	325	1.7	H	8.67	-53.56	-13	-40.56
3818.6	-62.15	PK	325	1.1	V	7.95	-54.20	-13	-41.20
Band 4									
Test frequency range: 30MHz-20GHz									
QPSK, 1.4MHz bandwidth, Low Channel									
57.29	-73.04	PK	217	2.1	H	4.8	-68.24	-13	-55.24
731.28	-77.09	PK	206	1.6	V	11.05	-66.04	-13	-53.04
3421.4	-62.96	PK	347	1.7	H	6.37	-56.59	-13	-43.59
3421.4	-62.84	PK	235	1.3	V	5.7	-57.14	-13	-44.14
QPSK, 1.4MHz bandwidth, Middle Channel									
57.29	-72.19	PK	105	1.7	H	4.8	-67.39	-13	-54.39
731.28	-75.13	PK	91	1.7	V	11.05	-64.08	-13	-51.08
3465	-62.04	PK	197	1.6	H	6.22	-55.82	-13	-42.82
3465	-62.48	PK	294	1.9	V	6.96	-55.52	-13	-42.52
QPSK, 1.4MHz bandwidth, High Channel									
57.29	-70.75	PK	281	1.4	H	4.8	-65.95	-13	-52.95
731.28	-74.89	PK	230	1.5	V	11.05	-63.84	-13	-50.84
3508.6	-58.12	PK	58	1.5	H	3.44	-54.68	-13	-41.68
3508.6	23.93	PK	138	1.2	V	3.31	27.24	-13	40.24

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
	Reading (dBm)	PK/Ave		Height (m)	Polar (H/V)				
Band 5									
Test frequency range: 30MHz-10GHz									
QPSK, 1.4MHz bandwidth, Low Channel									
57.29	-73.17	PK	271	2.1	H	4.8	-68.37	-13	-55.37
731.28	-78.18	PK	163	1.8	V	11.05	-67.13	-13	-54.13
1649.4	-56.45	PK	278	1.2	H	-2.79	-59.24	-13	-46.24
1649.4	-57.28	PK	295	1.5	V	-2.73	-60.01	-13	-47.01
QPSK, 1.4MHz bandwidth, Middle Channel									
57.29	-72.08	PK	118	2.1	H	4.8	-67.28	-13	-54.28
731.28	-76.66	PK	268	1.6	V	11.05	-65.61	-13	-52.61
1673	-56.07	PK	337	2.0	H	-2.74	-58.81	-13	-45.81
1673	-56.81	PK	215	1.3	V	-2.69	-59.50	-13	-46.50
QPSK, 1.4MHz bandwidth, High Channel									
57.29	-70.68	PK	18	1.8	H	4.8	-65.88	-13	-52.88
731.28	-74.32	PK	344	1.6	V	11.05	-63.27	-13	-50.27
1696.6	-53.97	PK	102	1.5	H	-2.7	-56.67	-13	-43.67
1696.6	-55.75	PK	233	1.5	V	-2.65	-58.40	-13	-45.40
Band 7									
Test frequency range: 30MHz-26.5GHz									
QPSK, 5MHz bandwidth, Low Channel									
57.29	-72.09	PK	72	2.0	H	4.8	-67.29	-25	-42.29
731.28	-75.07	PK	147	2.0	V	11.05	-64.02	-25	-39.02
5005	-62.60	PK	272	1.4	H	10.83	-51.77	-25	-26.77
5005	-61.92	PK	50	1.4	V	10.16	-51.76	-25	-26.76
QPSK, 5MHz bandwidth, Middle Channel									
57.29	-71.72	PK	339	1.4	H	4.8	-66.92	-25	-41.92
731.28	-74.81	PK	14	1.9	V	11.05	-63.76	-25	-38.76
5070	-61.90	PK	244	1.3	H	11.14	-50.76	-25	-25.76
5070	-61.84	PK	138	1.4	V	10.78	-51.06	-25	-26.06
QPSK, 5MHz bandwidth, High Channel									
57.29	-70.81	PK	310	1.9	H	4.8	-66.01	-25	-41.01
731.28	-73.94	PK	309	1.9	V	11.05	-62.89	-25	-37.89
5135	-61.73	PK	229	1.8	H	11.34	-50.39	-25	-25.39
5135	-60.79	PK	24	2.0	V	10.76	-50.03	-25	-25.03

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
	Reading (dBm)	PK/Ave		Height (m)	Polar (H/V)				
Band 26									
Test frequency range: 30MHz-10GHz									
QPSK, 1.4MHz bandwidth, Low Channel									
57.29	-75.22	PK	262	2.1	H	4.8	-70.42	-13	-57.42
731.28	-80.43	PK	340	1.3	V	11.05	-69.38	-13	-56.38
1629.4	-61.66	PK	123	1.3	H	3.75	-57.90	-13	-44.90
1629.4	-63.43	PK	311	1.7	V	3.14	-60.30	-13	-47.30
QPSK, 1.4MHz bandwidth, Middle Channel									
57.29	-74.01	PK	106	1.4	H	4.8	-69.21	-13	-56.21
731.28	-78.21	PK	252	1.5	V	11.05	-67.16	-13	-54.16
1638	-62.76	PK	181	1.6	H	3.64	-59.10	-13	-46.10
1638	-62.59	PK	343	2.1	V	3.12	-59.50	-13	-46.50
QPSK, 1.4MHz bandwidth, High Channel									
57.29	-71.96	PK	167	1.1	H	4.8	-67.16	-13	-54.16
731.28	-76.78	PK	321	2.0	V	11.05	-65.73	-13	-52.73
1646.6	-63.13	PK	332	1.3	H	3.54	-59.6	-13	-46.60
1646.6	-62.53	PK	248	2.1	V	3.11	-59.40	-13	-46.40
Band 38									
Test frequency range: 30MHz-26.5GHz									
QPSK, 5MHz bandwidth, Low Channel									
57.29	-73.83	PK	184	1.5	H	4.8	-69.03	-25	-44.03
731.28	-77.24	PK	9	1.9	V	11.05	-66.19	-25	-41.19
5145	-61.80	PK	204	1.3	H	11.38	-50.42	-25	-25.42
5145	-62.58	PK	167	1.5	V	10.72	-51.86	-25	-26.86
QPSK, 5MHz bandwidth, Middle Channel									
57.29	-73.23	PK	157	1.5	H	4.8	-68.43	-25	-43.43
731.28	-75.42	PK	81	1.2	V	11.05	-64.37	-25	-39.37
5190	-61.53	PK	268	2.0	H	9.98	-51.55	-25	-26.55
5190	-61.20	PK	119	1.8	V	10.52	-50.68	-25	-25.68
QPSK, 5MHz bandwidth, High Channel									
57.29	-71.04	PK	188	1.3	H	4.8	-66.24	-25	-41.24
731.28	-75.13	PK	246	1.2	V	11.05	-64.08	-25	-39.08
5235	-61.58	PK	196	1.2	H	9.67	-51.91	-25	-26.91
5235	-61.40	PK	160	1.7	V	9.24	-52.16	-25	-27.16

Note:

Absolute Level = Reading Level + Substituted Factor

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

Margin = Absolute Level -Limit

FCC§ 22.917 (a);§ 24.238 (a); §27.53 h)(m); §90.691 - 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), 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 2490.5 MHz.

According to § 90.691, (a) Out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $116 \log_{10}(f/6.1)$ decibels or $50 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

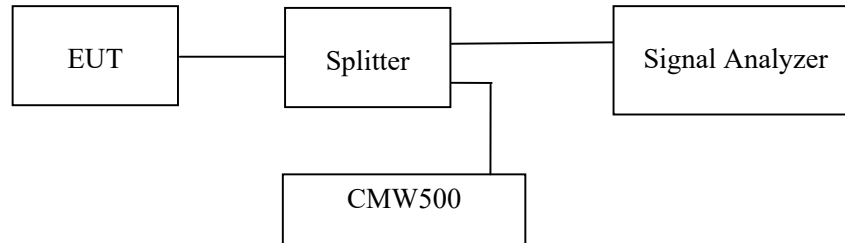
(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

(b) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section

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 added into plot.

Test Data

Environmental Conditions

Temperature:	25.7-27.2℃
Relative Humidity:	56.2~58.2%
ATM Pressure:	101.0 kPa

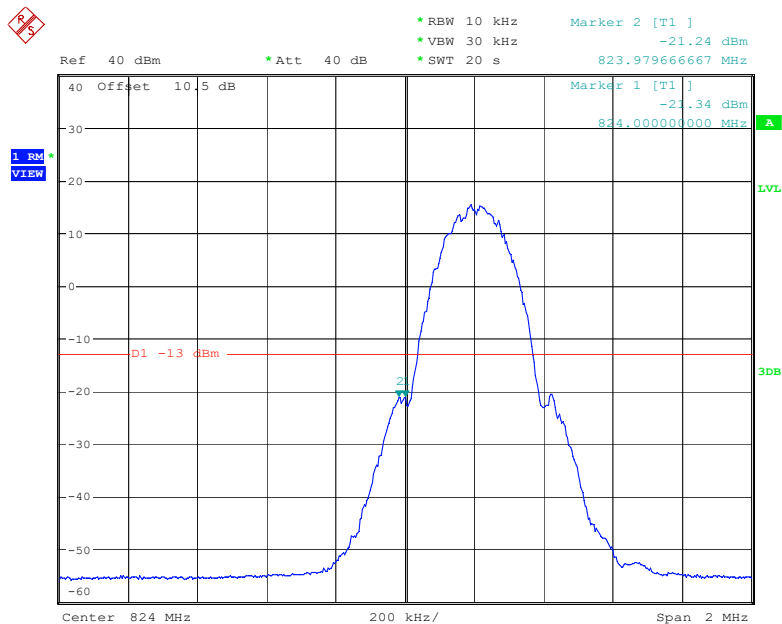
The testing was performed by Roger Lin from 2022-10-26 to 2022-11-04.

EUT operation mode: Transmitting (Worst case)

Test Result: Pass

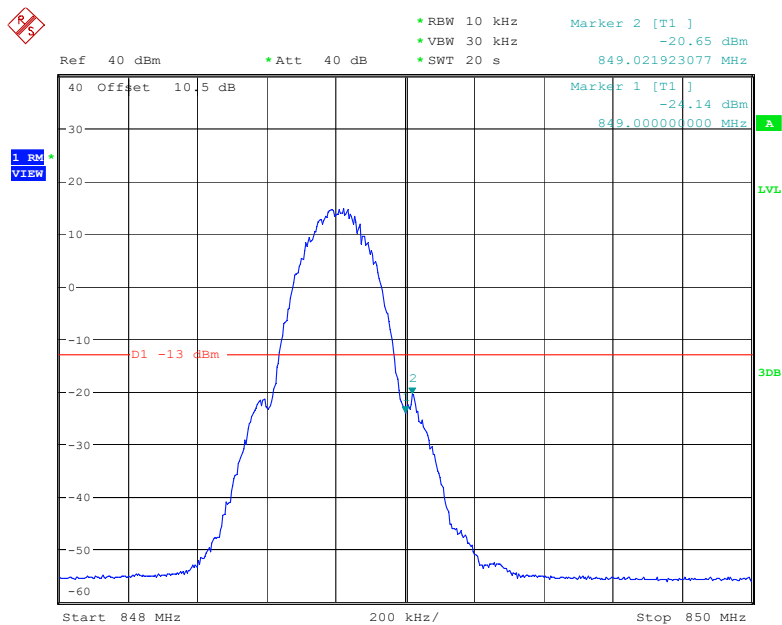
Please refer to the following plots.

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

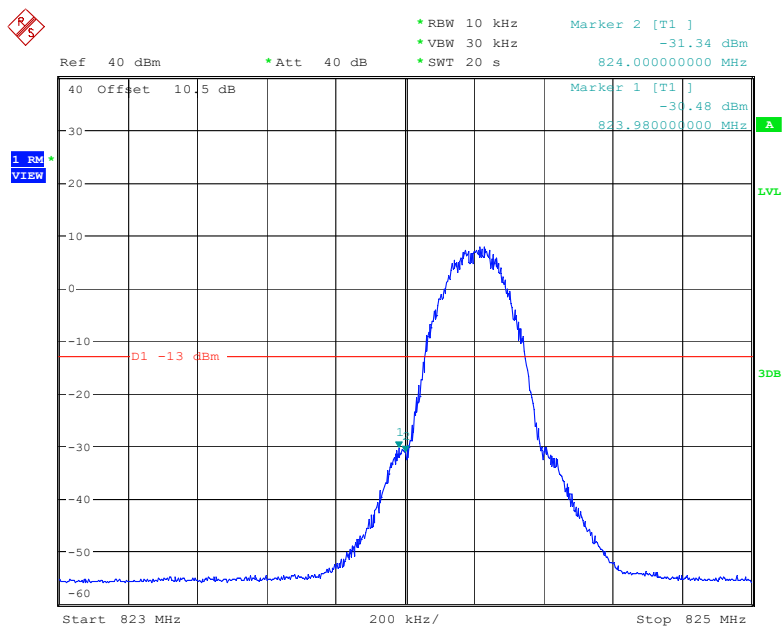


Date: 27.OCT.2022 13:51:42

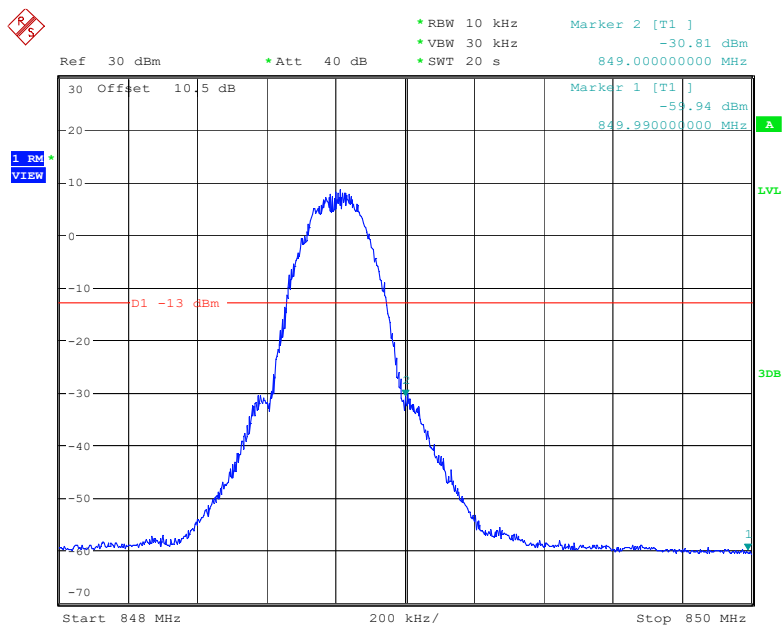
Cellular Band, Right Band Edge for GSM (GMSK) Mode



Date: 27.OCT.2022 13:52:42

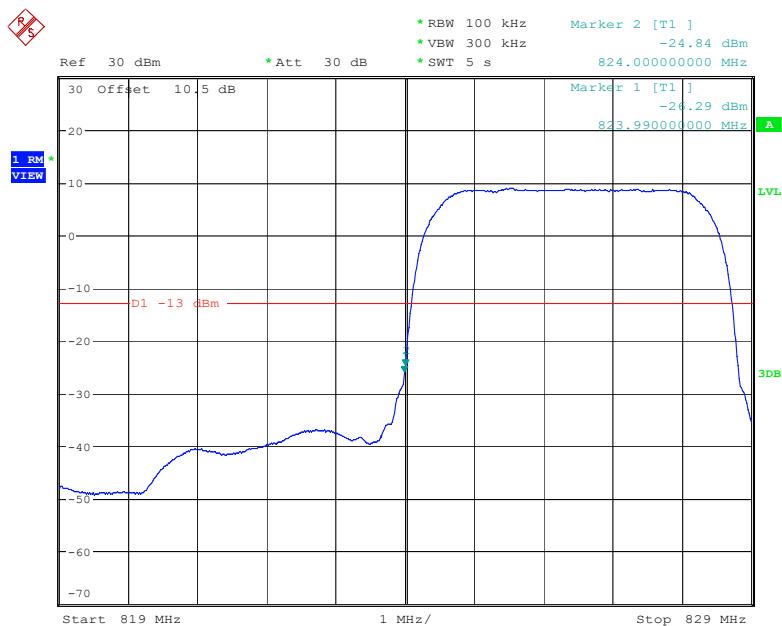
Cellular Band, Left Band Edge for EGPRS (8PSK) Mode

Date: 26.OCT.2022 18:48:24

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

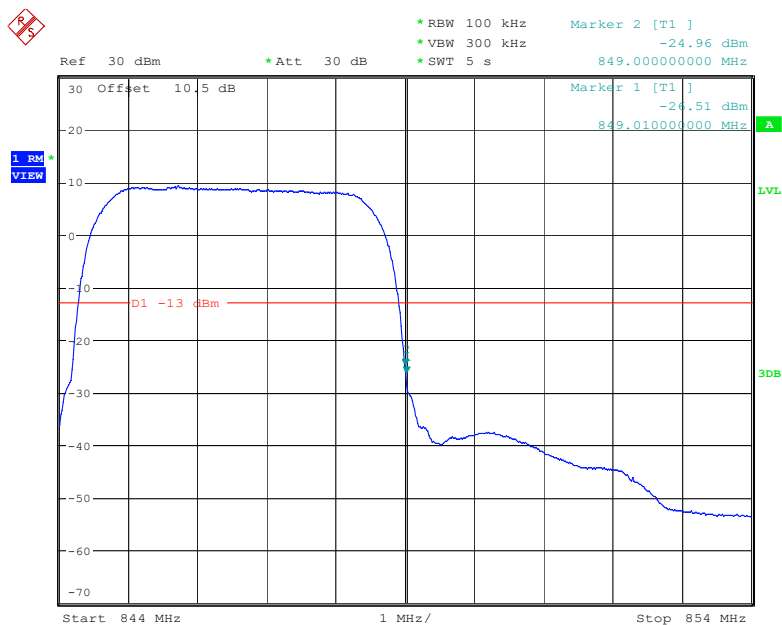
Date: 26.OCT.2022 18:57:27

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

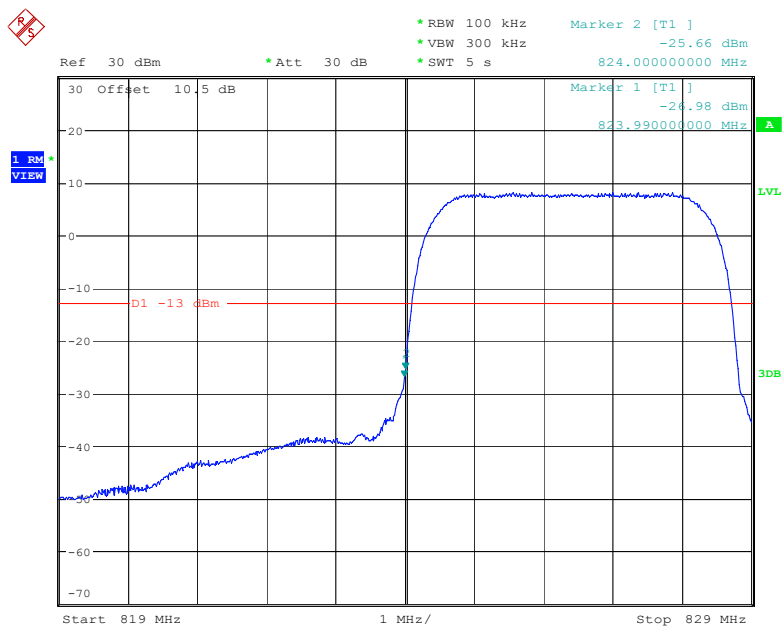


Date: 27.OCT.2022 08:53:04

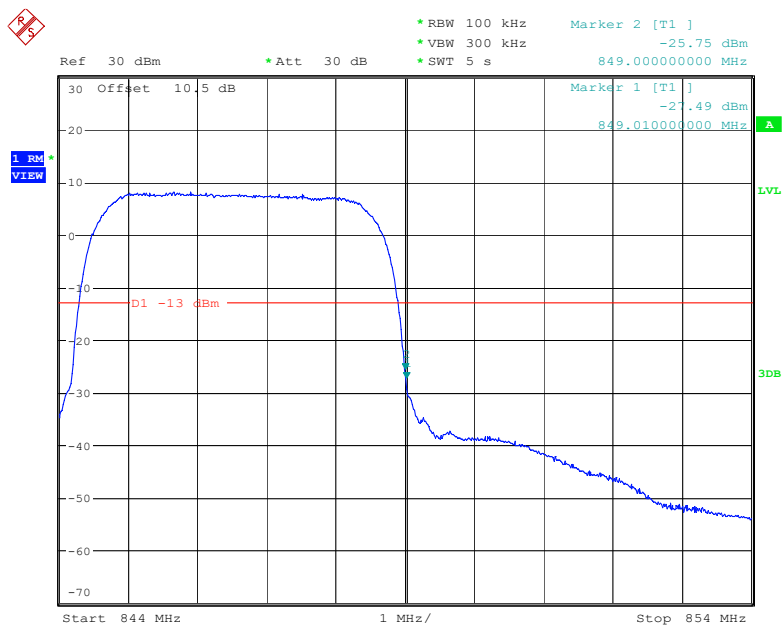
Cellular Band, Right Band Edge for RMC (BPSK) Mode



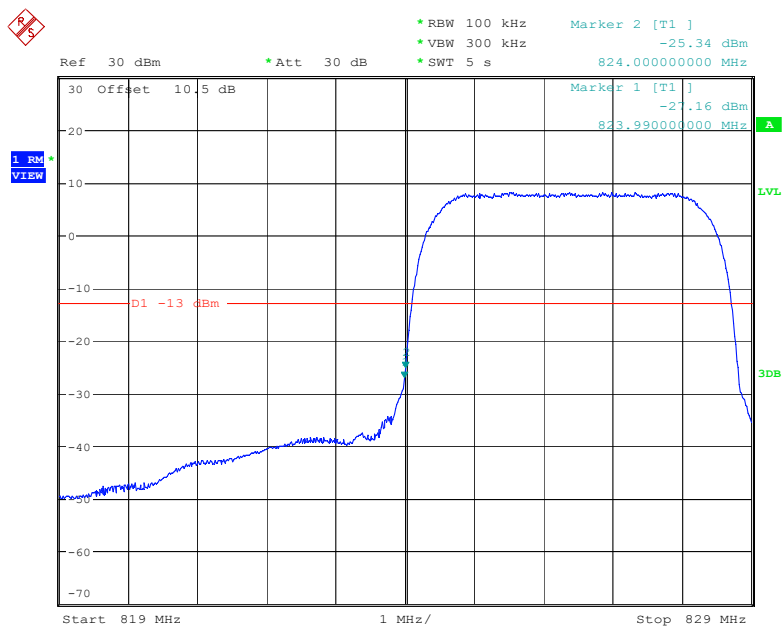
Date: 27.OCT.2022 09:00:56

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

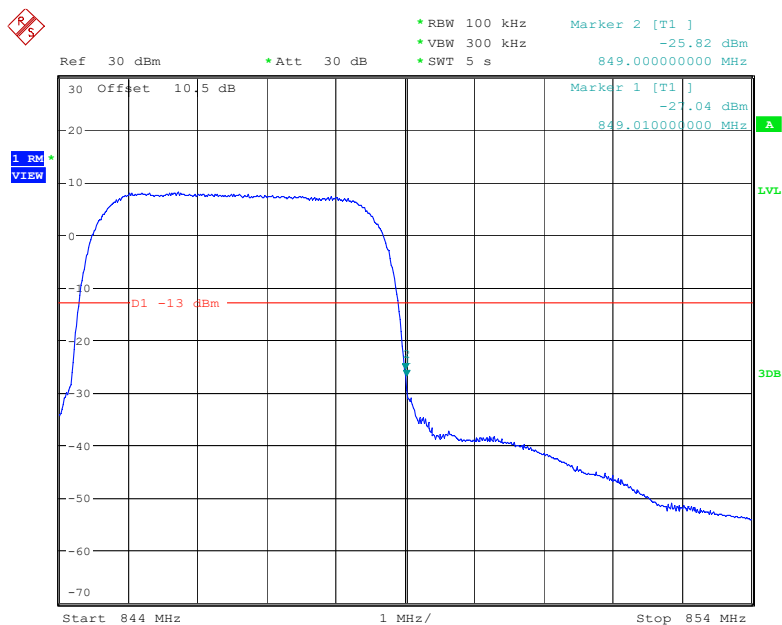
Date: 27.OCT.2022 09:21:05

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

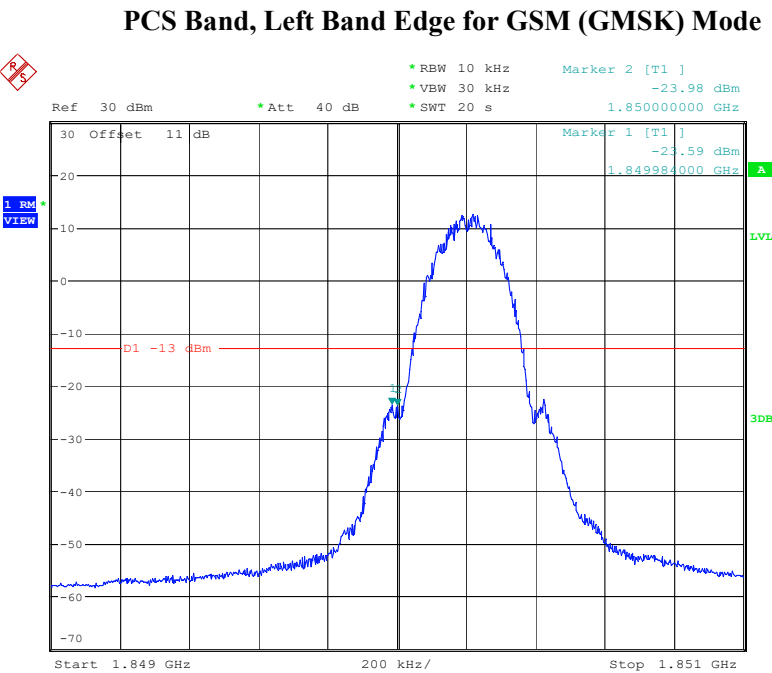
Date: 27.OCT.2022 09:14:56

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

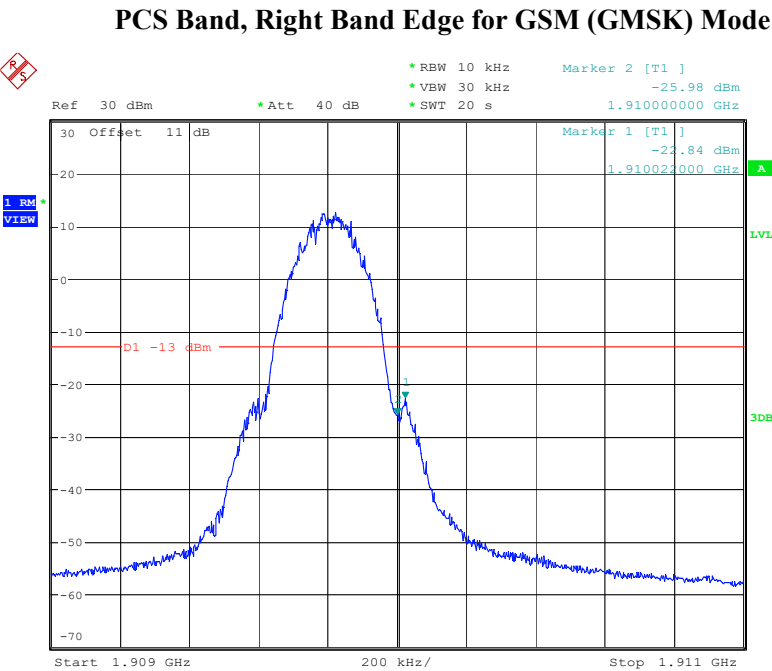
Date: 27.OCT.2022 10:38:18

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

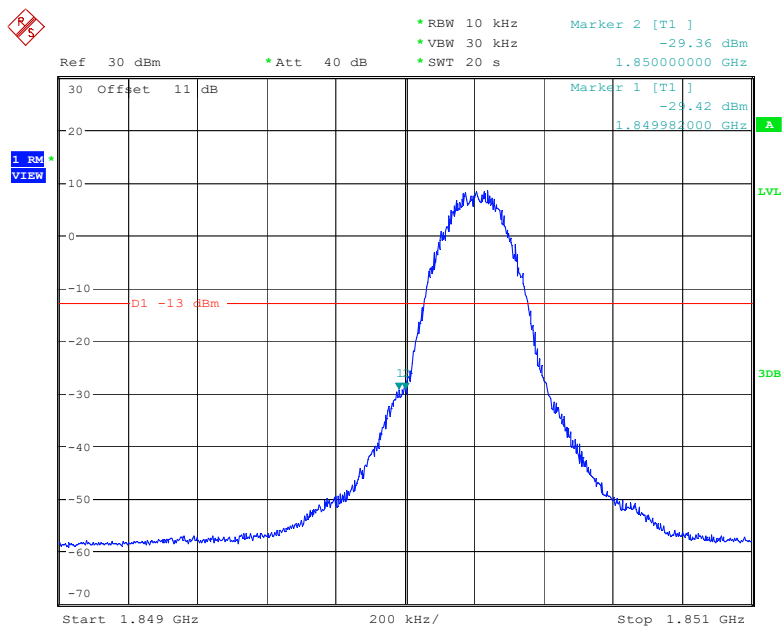
Date: 27.OCT.2022 10:45:29



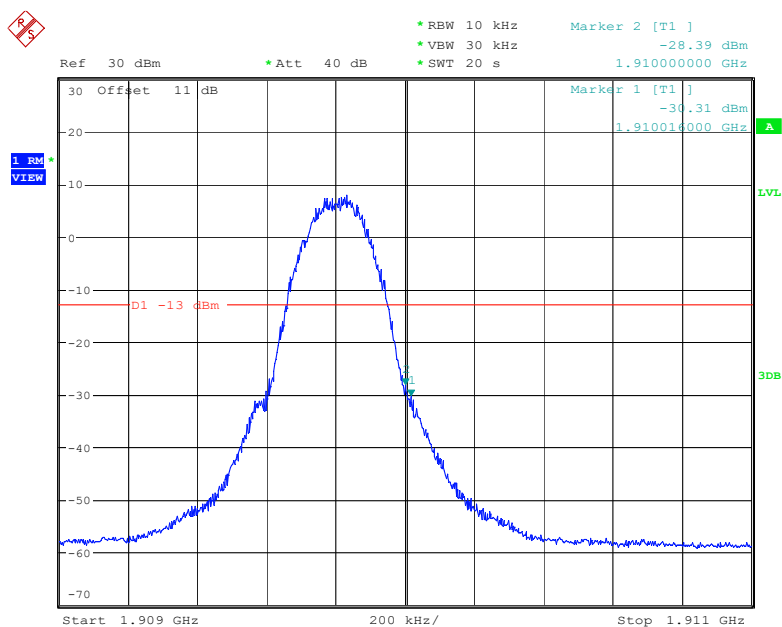
Date: 26.OCT.2022 19:04:21



Date: 26.OCT.2022 19:15:33

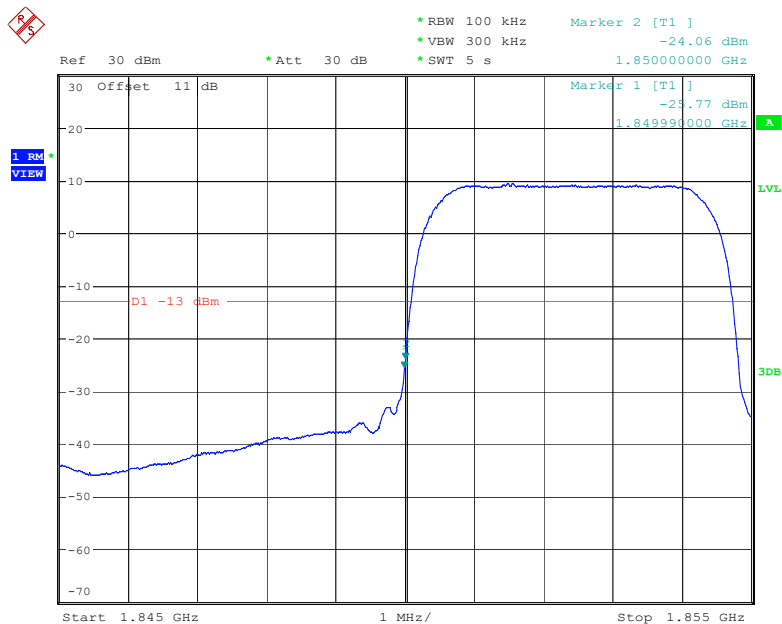
PCS Band, Left Band Edge for EGPRS (8PSK) Mode

Date: 26.OCT.2022 19:23:37

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

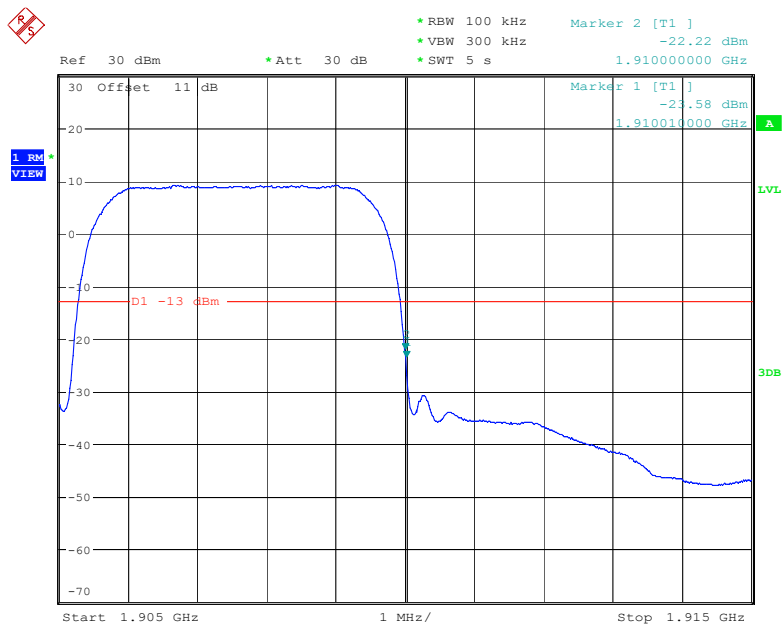
Date: 26.OCT.2022 19:33:55

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

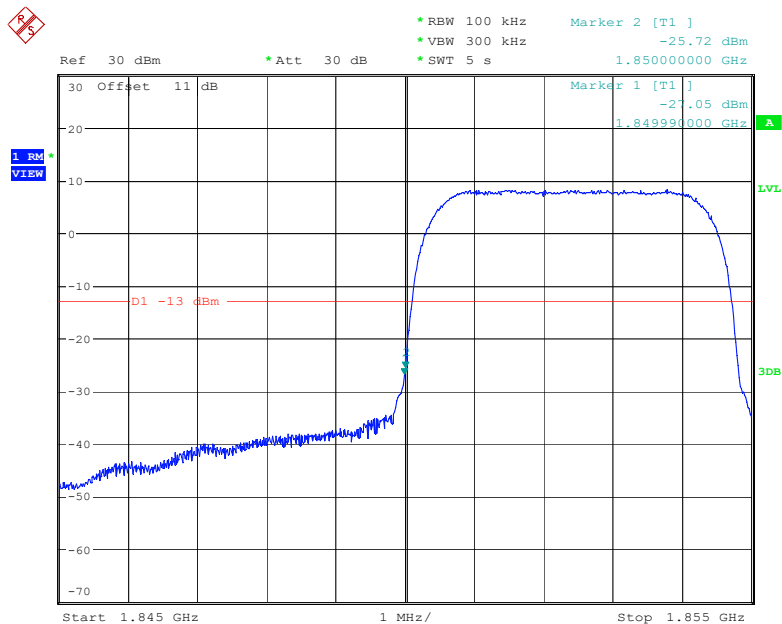


Date: 26.OCT.2022 19:40:18

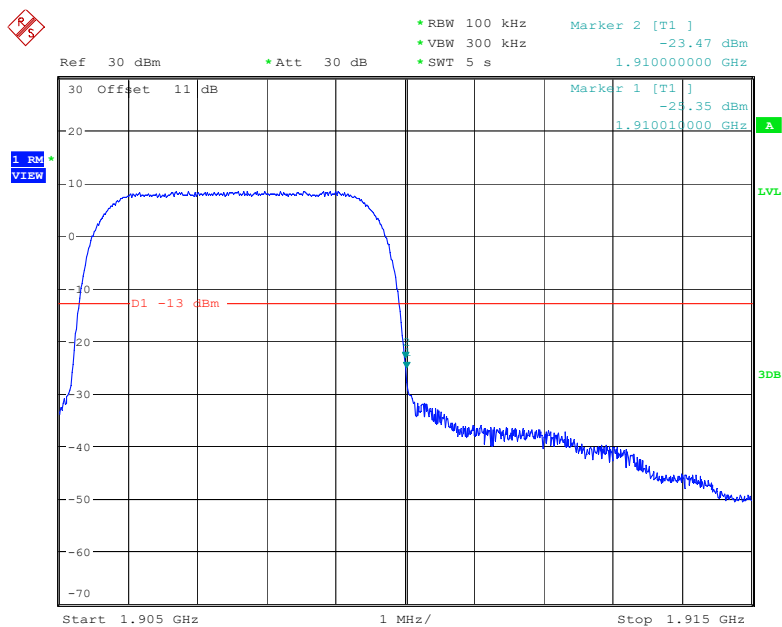
PCS Band, Right Band Edge for RMC (BPSK) Mode



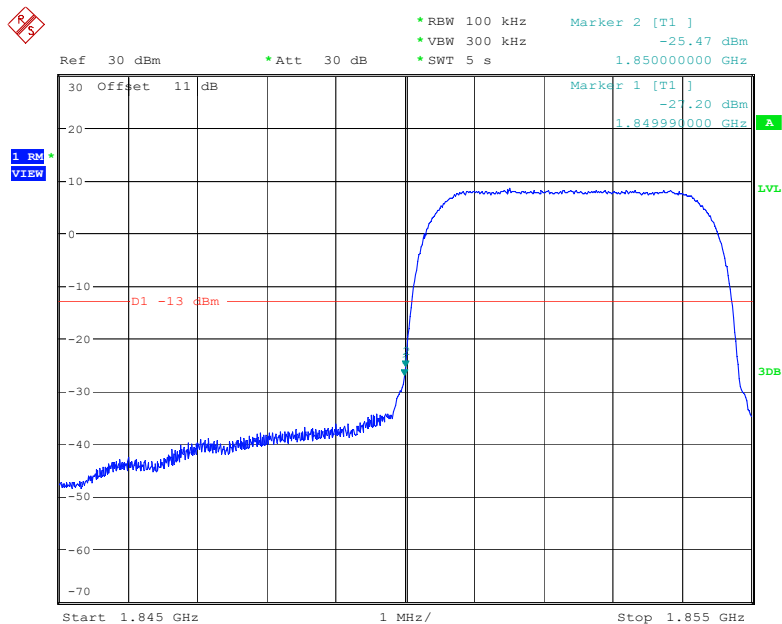
Date: 26.OCT.2022 19:48:12

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

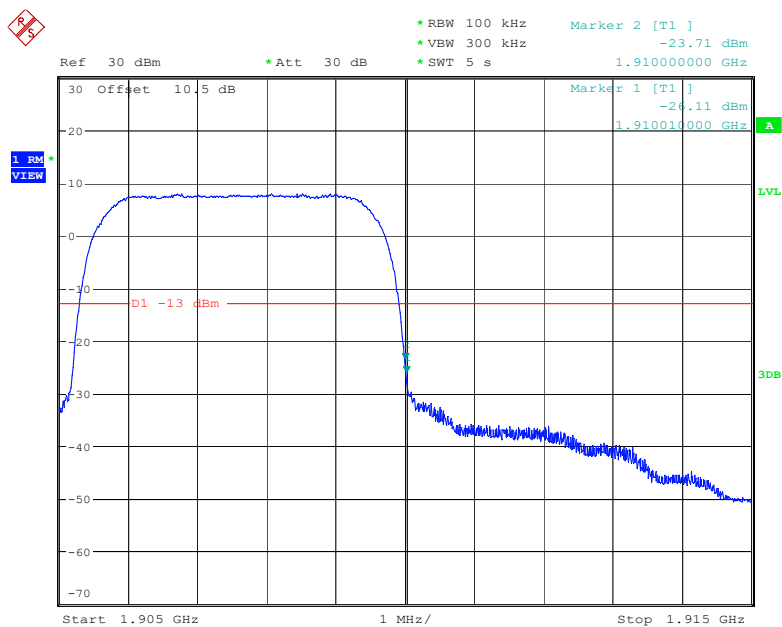
Date: 27.OCT.2022 09:44:02

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

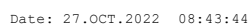
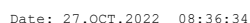
Date: 27.OCT.2022 09:51:18

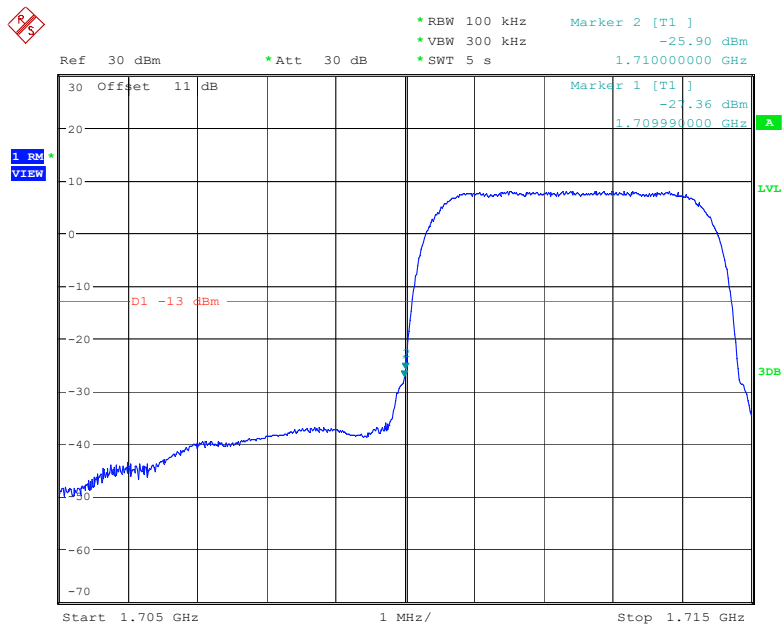
PCS Band, Left Band Edge for HSUPA (QPSK) Mode

Date: 27.OCT.2022 10:01:00

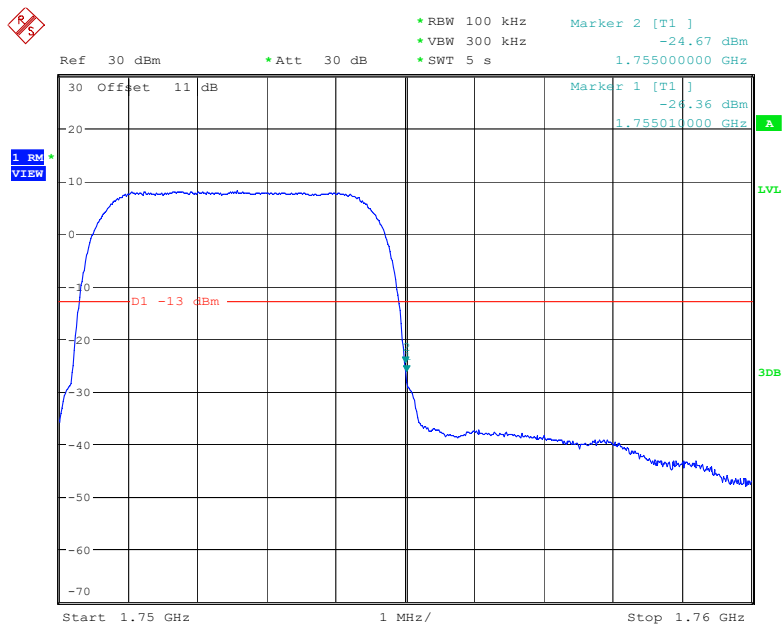
PCS Band, Right Band Edge for HSUPA (QPSK) Mode

Date: 27.OCT.2022 10:08:21

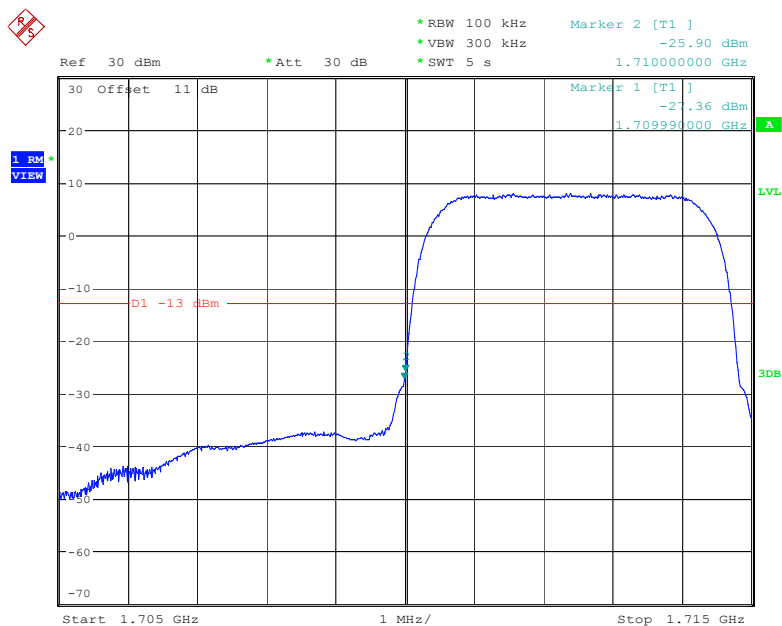


AWS Band, Left Band Edge for HSDPA(16QAM) Mode

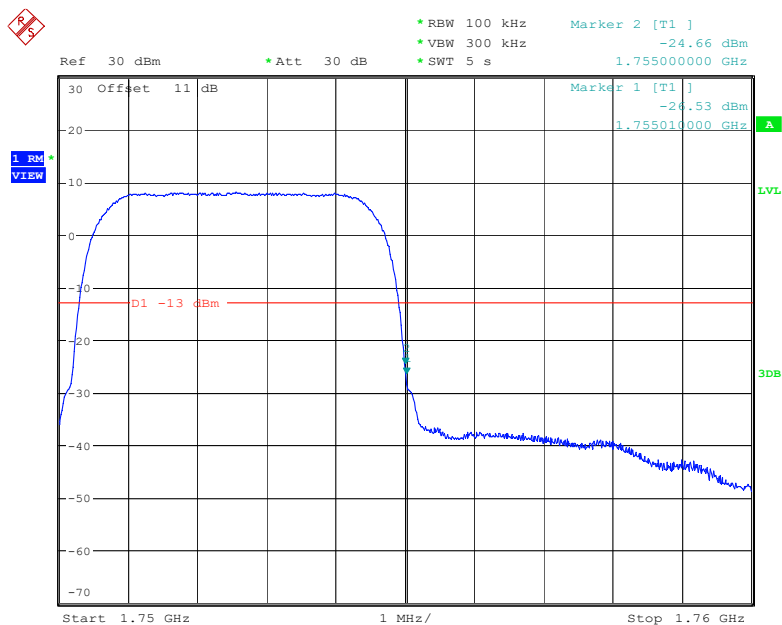
Date: 27.OCT.2022 09:26:42

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

Date: 27.OCT.2022 09:34:51

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

Date: 27.OCT.2022 10:13:54

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

Date: 27.OCT.2022 10:22:11

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

FCC § 2.1055; § 22.355; § 24.235; §27.54; §90.213- FREQUENCY STABILITY

Applicable Standard

FCC § 2.1055, §22.355, §24.235&§27.54&§90.213.

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.

According to §90.213, unless noted elsewhere, transmitters used in the services governed by this part must have a minimum frequency stability as specified in the following table:

TABLE 1 TO §90.213(a)—MINIMUM FREQUENCY STABILITY

[Parts per million (ppm)]

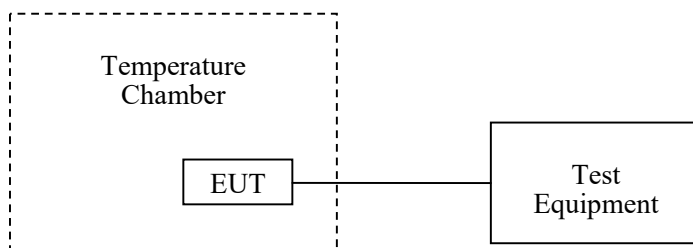
Frequency range (MHz)	Fixed and base stations	Mobile stations	
		Over 2 watts output power	2 watts or less output power
Below 25	1 2 3 100	100	200
25-50	20	20	50
72-76	5		50
150-174	5 11 5	6 5	4 6 50
216-220	1.0		1.0
220-222 ¹²	0.1	1.5	1.5
421-512	7 11 14 2.5	8 5	8 5
806-809	14 1.0	1.5	1.5
809-824	14 1.5	2.5	2.5
851-854	1.0	1.5	1.5
854-869	1.5	2.5	2.5
896-901	14 0.1	1.5	1.5
902-928	2.5	2.5	2.5
902-928 ¹³	2.5	2.5	2.5
929-930	1.5		
935-940	0.1	1.5	1.5
1427-1435	9 300	300	300
Above 2450 ¹⁰			

Test Procedure

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

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

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



Test Data

Environmental Conditions

Temperature:	25.7-27.2℃
Relative Humidity:	56.2~58.2%
ATM Pressure:	101.0 kPa

The testing was performed by Roger Lin from 2022-10-26 to 2022-11-04.

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.	2	0.0024	2.5
-20		-3	-0.0036	2.5
-10		4	0.0048	2.5
0		3	0.0036	2.5
10		-7	-0.0084	2.5
20		-2	-0.0024	2.5
30		5	0.0060	2.5
40		-3	-0.0036	2.5
50		-6	-0.0072	2.5
20	L.V.	-8	-0.0096	2.5
	H.V.	-9	-0.0108	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.	2.41	0.0029	2.5
-20		2.36	0.0028	2.5
-10		2.53	0.0030	2.5
0		2.22	0.0027	2.5
10		2.31	0.0028	2.5
20		2.10	0.0025	2.5
30		2.37	0.0028	2.5
40		2.18	0.0026	2.5
50		2.64	0.0032	2.5
20	L.V.	2.38	0.0028	2.5
	H.V.	2.46	0.0029	2.5

WCDMA Mode

Middle Channel, $f_0 = 836.4\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	N.V.	1.11	0.0013	2.5
-20		1.32	0.0016	2.5
-10		1.25	0.0015	2.5
0		1.36	0.0016	2.5
10		1.48	0.0018	2.5
20		0.88	0.0011	2.5
30		1.36	0.0016	2.5
40		1.45	0.0017	2.5
50		1.29	0.0015	2.5
20	L.V.	1.26	0.0015	2.5
	H.V.	1.45	0.0017	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.	-5	-0.0027	pass
-20		2	0.0011	pass
-10		-4	-0.0021	pass
0		-2	-0.0011	pass
10		7	0.0037	pass
20		-6	-0.0032	pass
30		-4	-0.0021	pass
40		-5	-0.0027	pass
50		-7	-0.0037	pass
20	L.V.	6	0.0032	pass
	H.V.	-8	-0.0043	pass

EDGE Mode

Middle Channel, $f_0=1880.0$ MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	N.V.	1.94	0.0010	pass
-20		1.33	0.0007	pass
-10		1.82	0.0010	pass
0		1.68	0.0009	pass
10		1.58	0.0008	pass
20		1.60	0.0009	pass
30		1.47	0.0008	pass
40		1.33	0.0007	pass
50		1.69	0.0009	pass
20	L.V.	1.72	0.0009	pass
	H.V.	1.57	0.0008	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.	1.34	0.0007	pass
-20		1.27	0.0007	pass
-10		1.63	0.0009	pass
0		1.54	0.0008	pass
10		1.33	0.0007	pass
20		0.96	0.0005	pass
30		1.12	0.0006	pass
40		1.23	0.0007	pass
50		1.56	0.0008	pass
20	L.V.	1.64	0.0009	pass
	H.V.	1.29	0.0007	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.	1710.0687	1754.9339	1710	1755
-20		1710.0735	1754.9285	1710	1755
-10		1710.0964	1754.9618	1710	1755
0		1710.0548	1754.9620	1710	1755
10		1710.0576	1754.9501	1710	1755
20		1710.0286	1754.9697	1710	1755
30		1710.0584	1754.9530	1710	1755
40		1710.0845	1754.9261	1710	1755
50		1710.0727	1754.9690	1710	1755
20	L.V.	1710.0685	1754.9655	1710	1755
	H.V.	1710.0598	1754.9239	1710	1755

LTE:
QPSK:
Band 2:

10.0 MHz Middle Channel, f ₀ =1880MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	N.V.	22.62	0.0120	pass
-20		-5.27	-0.0028	pass
-10		6.46	0.0034	pass
0		-9.62	-0.0051	pass
10		-8.53	-0.0045	pass
20		8.93	0.0048	pass
30		-8.97	-0.0048	pass
40		-5.23	-0.0028	pass
50		8.12	0.0043	pass
20	L.V.	5.49	0.0029	pass
	H.V.	-6.26	-0.0033	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.	1710.5655	1754.4263	1710	1755
-20		1710.5723	1754.4274	1710	1755
-10		1710.5724	1754.4273	1710	1755
0		1710.5745	1754.4314	1710	1755
10		1710.5722	1754.4288	1710	1755
20		1710.5735	1754.4265	1710	1755
30		1710.5708	1754.4253	1710	1755
40		1710.5721	1754.4277	1710	1755
50		1710.5705	1754.4312	1710	1755
20	L.V.	1710.5642	1754.4325	1710	1755
	H.V.	1710.5683	1754.4322	1710	1755

Band 5& Band 26(Part 22H):

10.0 MHz Middle Channel, f ₀ =836.5MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	N.V.	12.7	0.0152	2.5
-20		5.7	0.0068	2.5
-10		-6.8	-0.0081	2.5
0		8.5	0.0102	2.5
10		7.5	0.0090	2.5
20		-8.2	-0.0098	2.5
30		6.7	0.0080	2.5
40		-6.9	-0.0082	2.5
50		-9.2	-0.0110	2.5
20	L.V.	6.6	0.0079	2.5
	H.V.	-9.5	-0.0114	2.5

Band 7:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	2500.4014	2569.6955	2500	2570
-20		2500.4043	2569.7041	2500	2570
-10		2500.3925	2569.6913	2500	2570
0		2500.3933	2569.6814	2500	2570
10		2500.4020	2569.6962	2500	2570
20		2500.3911	2569.6535	2500	2570
30		2500.3835	2569.6614	2500	2570
40		2500.3634	2569.6921	2500	2570
50		2500.3611	2569.6913	2500	2570
20	L.V.	2500.4515	2569.6823	2500	2570
	H.V.	2500.3634	2569.6745	2500	2570

Band 38:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	2570.1473	2619.8566	2570	2620
-20		2570.1464	2619.8541	2570	2620
-10		2570.1475	2619.8563	2570	2620
0		2570.1416	2619.8568	2570	2620
10		2570.1458	2619.8554	2570	2620
20		2570.1477	2619.8552	2570	2620
30		2570.1453	2619.5214	2570	2620
40		2570.1472	2619.5367	2570	2620
50		2570.1434	2619.8551	2570	2620
20	L.V.	2570.1428	2619.8562	2570	2620
	H.V.	2570.1466	2619.8555	2570	2620

LTE Band 26(Part 90S)

10.0 MHz Middle Channel, $f_0=819\text{MHz}$				
Temperature (°C)	Voltage Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	N.V.	19.4	0.0236	2.5
-20		13.6	0.0166	2.5
-10		7.1	0.0086	2.5
0		13.4	0.0163	2.5
10		12.9	0.0157	2.5
20		5.8	0.0071	2.5
30		6.3	0.0077	2.5
40		10.9	0.0133	2.5
50		7.0	0.0086	2.5
20	L.V.	7.7	0.0094	2.5
	H.V.	8.0	0.0098	2.5

**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.	-19.51	-0.0104	pass
-20		9.13	0.0049	pass
-10		6.24	0.0033	pass
0		7.41	0.0039	pass
10		-9.73	-0.0052	pass
20		-8.11	-0.0043	pass
30		7.52	0.0040	pass
40		9.95	0.0053	pass
50		-7.87	-0.0042	pass
20	L.V.	-5.83	-0.0031	pass
	H.V.	-6.42	-0.0034	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.	1710.5911	1754.5652	1710	1755
-20		1710.5922	1754.5672	1710	1755
-10		1710.5884	1754.5743	1710	1755
0		1710.5943	1754.5695	1710	1755
10		1710.5954	1754.5683	1710	1755
20		1710.5932	1754.5742	1710	1755
30		1710.5943	1754.5673	1710	1755
40		1710.5858	1754.5665	1710	1755
50		1710.5927	1754.5714	1710	1755
20	L.V.	1710.5954	1754.5672	1710	1755
	H.V.	1710.5926	1754.5661	1710	1755

Band 5& Band 26(Part 22H):

10.0 MHz Middle Channel, $f_o=836.5\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	N.V.	-8.9	-0.0106	2.5
-20		-5.7	-0.0068	2.5
-10		7.7	0.0091	2.5
0		8.2	0.0098	2.5
10		-6.2	-0.0074	2.5
20		-5.9	-0.0070	2.5
30		9.9	0.0118	2.5
40		6.0	0.0071	2.5
50		6.3	0.0076	2.5
20	L.V.	8.5	0.0102	2.5
	H.V.	8.5	0.0102	2.5

Band 7:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	2500.5625	2569.3615	2500	2570
-20		2500.6541	2569.3647	2500	2570
-10		2500.6518	2569.3522	2500	2570
0		2500.6433	2569.3625	2500	2570
10		2500.6546	2569.4336	2500	2570
20		2500.6412	2569.3972	2500	2570
30		2500.6527	2569.3955	2500	2570
40		2500.6515	2569.3532	2500	2570
50		2500.6513	2569.3527	2500	2570
20	L.V.	2500.6425	2569.4415	2500	2570
	H.V.	2500.5612	2569.4362	2500	2570

Band 38

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	2570.0315	2619.9233	2570	2620
-20		2570.0325	2619.9245	2570	2620
-10		2570.0326	2619.9244	2570	2620
0		2570.0341	2619.9273	2570	2620
10		2570.0315	2619.9237	2570	2620
20		2570.0322	2619.9242	2570	2620
30		2570.0311	2619.9215	2570	2620
40		2570.0317	2619.9243	2570	2620
50		2570.0296	2619.9245	2570	2620
20	L.V.	2570.0357	2619.9254	2570	2620
	H.V.	2570.0345	2619.9216	2570	2620

LTE Band 26(Part 90S):

10.0 MHz Middle Channel, f ₀ =819MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	N.V.	7.5	0.0092	2.5
-20		8.6	0.0105	2.5
-10		-4.6	-0.0056	2.5
0		9.1	0.0111	2.5
10		6.8	0.0083	2.5
20		5.3	0.0065	2.5
30		-6.7	-0.0082	2.5
40		-7.8	-0.0095	2.5
50		-10.3	-0.0126	2.5
20	L.V.	7.9	0.0096	2.5
	H.V.	-5.5	-0.0067	2.5

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