



TESTREPORT

Applicant Name : Bolt Modus Corp
Address : Oficina N.33 Edificio Ofidepositos Central, Calidonia - Distrito
Federal, Panama
Report Number: SZNS221019-48008E-RF-00C
FCC ID: 2APW4ART3S

Test Standard (s)

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

Sample Description

Product Type: 4G Smart Phone
Model No.: ART3S
Multiple Model(s) No.: N/A
Trade Mark: YEZZ
Date Received: 2022/10/19
Report Date: 2022/11/09

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

Prepared and Checked By:

Approved By:

Audy Yu
EMC Engineer

Candy Li
EMC Engineer

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

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Version 2: 2021-11-09

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FCC -2G,3G,4G

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Frequency Range	GSM 850: 824-849MHz(TX); 869-894MHz(RX) PCS 1900: 1850-1910MHz(TX); 1930-1990MHz(RX) WCDMA Band 2: 1850-1910MHz(TX); 1930-1990MHz(RX) WCDMA Band 5: 824-849MHz(TX); 869-894MHz(RX) LTE Band 2: 1850-1910MHz(TX); 1930-1990MHz(RX) LTE Band 4: 1710-1755MHz(TX); 2110-2155MHz(RX) LTE Band 7: 2500-2570MHz(TX); 2620-2690MHz(RX) LTE Band 12: 699-716MHz(TX); 729-746MHz(RX) LTE Band 17: 704-716MHz(TX); 734-746MHz(RX)
Modulation Technique	2G: GMSK 3G: BPSK, QPSK, 16QAM 4G: QPSK, 16QAM
Antenna Specification*	GSM850/WCDMA Band 5: -1.3dBi PCS1900/WCDMA Band 2/LTE Band 2: -1.5dBi WCDMA4/LTE Band 4: -1.5dBi LTE Band 12/Band 17: -1.0dBi LTE Band 7: 1.2dBi (provided by the applicant)
Voltage Range	DC3.87V from battery or DC 5V from adapter
Sample serial number	1MS6-1 for Conducted and Radiated Emissions IMS8-3 for RF Conducted Test (Assigned by ATC)
Sample/EUT Status	Good condition
Extreme condition*	L.V.: Low Voltage 3.5V _{DC} N.V.: Normal Voltage 3.87V _{DC} H.V.: High Voltage 4.4V _{DC} (provided by the applicant)
Adapter information	Model: CART3S Input: AC 100-240V, 50/60Hz Output: DC 5.0V, 2.0A
Note: the EUT has two memory capacity configurations, 64GB and 128GB, the 128GB version was selected to test.	

Objective

This test report is in accordance with Part 2-Subpart J, Part 22-Subpart H, Part24-Subpart E, and Part 27 of the Federal Communication Commission's rules.

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

Test Methodology

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

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

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

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

Each test item follows test standards and with no deviation.

Measurement Uncertainty

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

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

Test Facility

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

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

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

SYSTEM TEST CONFIGURATION

Description of Test Configuration

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

Test was performed as below table:

Frequency band	Bandwidth (MHz)	Test Frequency(MHz)		
		Low	Middle	High
GSM850	0.25	824.2	836.6	848.8
DCS1900	0.25	1850.2	1880	1909.8
WCDMA B2	4.2	1852.4	1880	1907.6
WCDMA B5	4.2	826.4	836.4	846.6
LTE B2	1.4	1850.7	1880	1909.3
	3	1851.5	1880	1908.5
	5	1852.5	1880	1907.5
	10	1855	1880	1905
	15	1857.5	1880	1902.5
	20	1860	1880	1900
LTE B4	1.4	1710.7	1732.5	1754.3
	3	1711.5	1732.5	1753.5
	5	1712.5	1732.5	1752.5
	10	1715	1732.5	1750
	15	1717.5	1732.5	1747.5
	20	1720	1732.5	1745
LTE B7	5	2502.5	2535	2567.5
	10	2505	2535	2565
	15	2507.5	2535	2562.5
	20	2510	2535	2560
LTE B12	1.4	699.7	707.5	715.3
	3	700.5	707.5	714.5
	5	701.5	707.5	713.5
	10	704	707.5	711
LTE B17	5	706.5	710	713.5
	10	709	710	711

Equipment Modifications

No modification was made to the EUT.

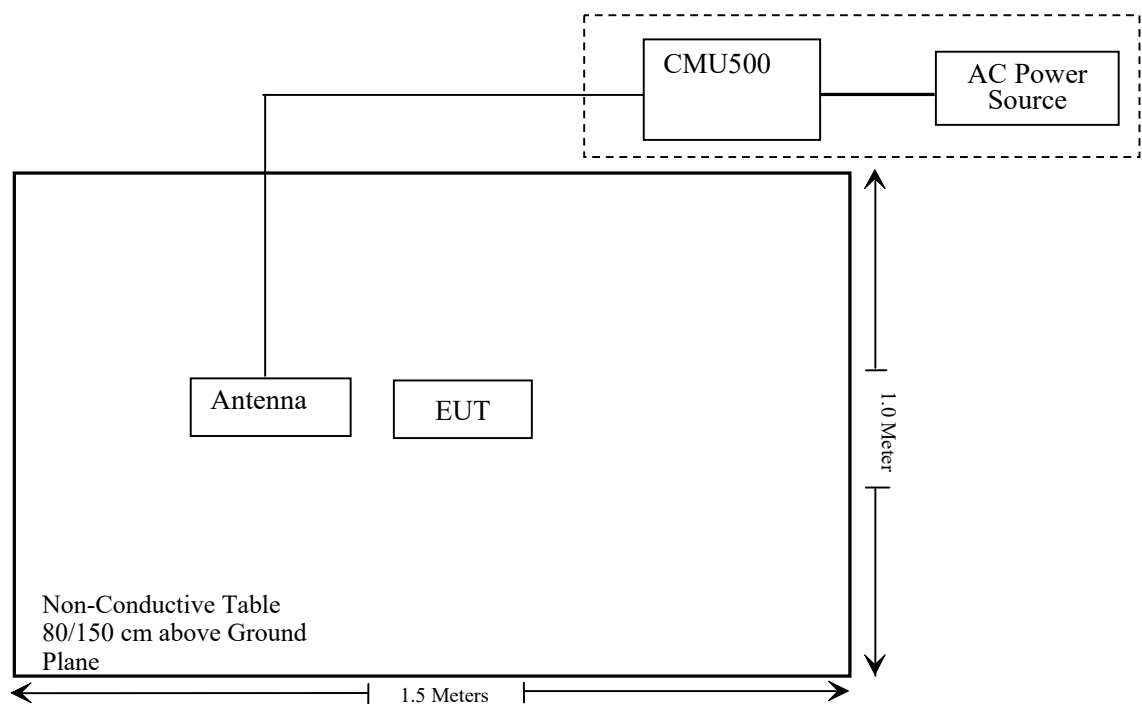
Support Equipment List and Details

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

Support Cable Description

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

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§ 1.1307 ,§2.1093	RF Exposure (SAR)	Compliant*
§2.1046; § 22.913 (a); § 24.232 (c); §27.50(c)(d) (h);	RF Output Power	Compliant
§ 2.1047	Modulation Characteristics	Not Applicable
§ 2.1049; § 22.905; § 22.917; § 24.238; §27.53	Occupied Bandwidth	Compliant
§ 2.1051; §22.917 (a); § 24.238 (a); §27.53;	Spurious Emissions at Antenna Terminal	Compliant
§ 2.1053; § 22.917 (a); § 24.238 (a); §27.53	Field Strength of Spurious Radiation	Compliant
§ 22.917 (a); § 24.238 (a); §27.53(g)(h)(m)	Band Edge	Compliant
§ 2.1055; § 22.355; § 24.235; §27.54;	Frequency stability	Compliant

Note: * Please refer to SAR report number: SZNS221019-48008E-SA.

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emissions 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
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
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
Wainwright	High Pass Filter	WHKX3.6/18G-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	RFCoaxialCable	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					
Rohde&Schwarz	Spectrum Analyzer	FSV-40	101948	2021/12/13	2022/12/12
SPECTRUM ANALYZER	Rohde & Schwarz	FSU26	200982	2022/07/05	2023/07/04
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	154606	2021/12/13	2022/12/12
WEINSCHTEL	10dB Attenuator	5324	AU 3842	2021/12/14	2022/12/13
Mini-Circuits	Power Splitter	DC-18000MHz	SF10944151S	2021/12/14	2022/12/13
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: SZNS221019-48008E-SA.

FCC§2.1047 - MODULATION CHARACTERISTIC

According to FCC § 2.1047(d), Part 22H & 24E& 27, there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

FCC § 2.1046,§ 22.913 (a)&§ 24.232(c); §27.50(c)(d)(h)- RF OUTPUT POWER**Applicable Standard**

According to FCC §2.1046 and §22.913 (a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

According to FCC §2.1046 and §24.232 (c),mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

The peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB.

According to §27.50(c), Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

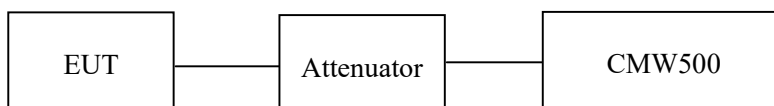
According to §27.50(d), Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

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

Test Procedure

Conducted method:

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



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

Test Data**Environmental Conditions**

Temperature:	28 °C
Relative Humidity:	34 %
ATM Pressure:	101.0 kPa

The testing was performed by Audy Yu on 2022-10-24~2022-10-25.

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

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	ERP(dBm)	Limit (dBm)
GSM	128	824.2	33.60	29.65	38.45
	190	836.6	33.20	29.25	38.45
	251	848.8	33.50	29.55	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	33.55	31.10	29.03	26.91	29.60	27.15	25.08	22.96	38.45
	190	836.6	33.52	31.05	28.98	26.86	29.57	27.10	25.03	22.91	38.45
	251	848.8	33.49	30.94	28.88	26.83	29.54	26.99	24.93	22.88	38.45

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				ERP(dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	1 slot	2 slots	3 slots	4 slots	
EGPRS	128	824.2	23.71	22.33	20.04	18.66	19.76	18.38	16.09	14.71	38.45
	190	836.6	23.70	22.38	20.03	18.65	19.75	18.43	16.08	14.70	38.45
	251	848.8	23.85	22.47	20.11	18.77	19.90	18.52	16.16	14.82	38.45

Mode	Test Mode	3GPP Sub Test	Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
WCDMA (Band 5)	RMC12.2k		23.69	23.64	23.57	19.74	19.69	19.62
	HSDPA	1	22.72	22.80	22.70	18.77	18.85	18.75
		2	22.80	22.41	22.41	18.85	18.46	18.46
		3	22.67	22.63	22.56	18.72	18.68	18.61
		4	22.56	22.74	22.53	18.61	18.79	18.58
	HSUPA	1	22.67	22.69	22.67	18.72	18.74	18.72
		2	22.55	22.54	22.47	18.60	18.59	18.52
		3	22.47	22.64	22.59	18.52	18.69	18.64
		4	22.59	22.48	22.54	18.64	18.53	18.59
		5	22.64	22.49	22.46	18.69	18.54	18.51
	HSPA+	1	22.48	22.59	22.42	18.53	18.64	18.47

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

For GSM850 / WCDMA Band5: Antenna Gain = -1.3dBi = -3.45dBd (0dBd=2.15dBi)

Path loss=0.5dB* (provided by the applicant)

Limit: ERP≤38.45dBm

PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	EIRP(dBm)	Limit (dBm)
GSM	512	1850.2	31.20	28.90	33
	661	1880.0	31.70	29.40	33
	810	1909.8	30.50	28.20	33

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				EIRP(dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	1 slot	2 slots	3 slots	4 slots	
GPRS	512	1850.2	30.70	27.99	26.57	24.51	28.40	25.69	24.27	22.21	33
	661	1880.0	30.14	27.96	26.34	24.56	27.84	25.66	24.04	22.26	33
	810	1909.8	30.33	27.52	25.92	24.03	28.03	25.22	23.62	21.73	33

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				EIRP(dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	1 slot	2 slots	3 slots	4 slots	
EGPRS	512	1850.2	27.43	25.43	23.35	22.27	25.13	23.13	21.05	19.97	33
	661	1880.0	27.23	25.16	23.16	22.13	24.93	22.86	20.86	19.83	33
	810	1909.8	27.11	25.10	23.08	22.04	24.81	22.80	20.78	19.74	33

Mode	Test Mode	3GPP Sub Test	Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
WCDMA (Band 2)	RMC12.2k		24.07	23.48	23.37	21.77	21.18	21.07
	HSDPA	1	22.48	22.13	23.05	20.18	19.83	20.75
		2	22.53	22.23	23.46	20.23	19.93	21.16
		3	22.46	22.47	23.20	20.16	20.17	20.90
		4	22.47	22.35	23.42	20.17	20.05	21.12
	HSUPA	1	22.53	22.09	23.14	20.23	19.79	20.84
		2	22.41	22.12	22.95	20.11	19.82	20.65
		3	22.43	22.23	23.29	20.13	19.93	20.99
		4	22.46	22.24	23.24	20.16	19.94	20.94
		5	22.52	22.14	23.04	20.22	19.84	20.74
	HSPA+	1	22.47	22.16	23.06	20.17	19.86	20.76

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi)- Path loss
 For PCS1900 / WCDMA Band2: Antenna Gain = -1.5dBi
 Path loss=0.8dB* (provided by the applicant)
 Limit: EIRP≤33dBm

LTE Band 2

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
1.4	QPSK	RB1#0	21.21	20.39	20.77	18.91	18.09	18.47
		RB1#3	21.19	20.34	20.78	18.89	18.04	18.48
		RB1#5	21.15	20.38	20.69	18.85	18.08	18.39
		RB3#0	21.26	20.62	20.72	18.96	18.32	18.42
		RB3#3	21.22	20.54	20.78	18.92	18.24	18.48
		RB6#0	20.22	19.52	19.75	17.92	17.22	17.45
	16QAM	RB1#0	21.04	20.06	19.44	18.74	17.76	17.14
		RB1#3	20.89	20.02	19.38	18.59	17.72	17.08
		RB1#5	21.02	20.06	19.46	18.72	17.76	17.16
		RB3#0	20.42	19.56	19.69	18.12	17.26	17.39
		RB3#3	20.13	19.52	19.69	17.83	17.22	17.39
		RB6#0	19.35	18.76	18.94	17.05	16.46	16.64
3.0	QPSK	RB1#0	20.58	20.14	20.24	18.28	17.84	17.94
		RB1#8	20.54	20.17	20.35	18.24	17.87	18.05
		RB1#14	20.35	20.09	20.32	18.05	17.79	18.02
		RB6#0	19.55	19.25	19.32	17.25	16.95	17.02
		RB6#9	19.46	19.25	19.32	17.16	16.95	17.02
		RB15#0	19.42	19.27	19.45	17.12	16.97	17.15
	16QAM	RB1#0	20.29	19.15	19.75	17.99	16.85	17.45
		RB1#8	20.24	19.12	19.79	17.94	16.82	17.49
		RB1#14	20.19	19.08	19.74	17.89	16.78	17.44
		RB6#0	18.63	18.4	18.4	16.33	16.10	16.10
		RB6#9	18.55	18.36	18.39	16.25	16.06	16.09
		RB15#0	18.63	18.37	18.63	16.33	16.07	16.33

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	21.52	20.71	19.64	19.22	18.41	17.34
		RB1#13	21.30	20.72	19.66	19.00	18.42	17.36
		RB1#24	21.31	20.72	19.57	19.01	18.42	17.27
		RB15#0	20.32	19.90	18.74	18.02	17.60	16.44
		RB15#10	20.36	19.82	18.73	18.06	17.52	16.43
		RB25#0	20.25	19.86	18.55	17.95	17.56	16.25
	16QAM	RB1#0	20.46	19.49	17.80	18.16	17.19	15.50
		RB1#13	20.38	19.51	17.79	18.08	17.21	15.49
		RB1#24	20.31	19.56	17.81	18.01	17.26	15.51
		RB15#0	19.37	18.93	17.87	17.07	16.63	15.57
		RB15#10	19.18	18.97	17.88	16.88	16.67	15.58
		RB25#0	19.29	18.83	17.91	16.99	16.53	15.61
10.0	QPSK	RB1#0	21.46	20.13	20.09	19.16	17.83	17.79
		RB1#25	21.24	20.08	20.09	18.94	17.78	17.79
		RB1#49	21.18	20.07	20.19	18.88	17.77	17.89
		RB25#0	20.23	19.07	19.28	17.93	16.77	16.98
		RB25#25	20.20	19.15	19.29	17.90	16.85	16.99
		RB50#0	20.19	19.01	19.24	17.89	16.71	16.94
	16QAM	RB1#0	20.56	18.66	19.54	18.26	16.36	17.24
		RB1#25	20.41	18.53	19.46	18.11	16.23	17.16
		RB1#49	20.25	18.86	19.51	17.95	16.56	17.21
		RB25#0	19.50	18.43	18.38	17.20	16.13	16.08
		RB25#25	19.36	18.33	18.37	17.06	16.03	16.07
		RB50#0	19.40	18.20	18.44	17.10	15.90	16.14

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	21.13	20.05	19.98	18.83	17.75	17.68
		RB1#38	20.98	20.02	19.95	18.68	17.72	17.65
		RB1#74	20.83	19.85	19.95	18.53	17.55	17.65
		RB36#0	20.11	19.11	19.10	17.81	16.81	16.80
		RB36#39	19.94	18.98	19.03	17.64	16.68	16.73
		RB75#0	19.95	19.00	19.02	17.65	16.70	16.72
	16QAM	RB1#0	20.92	19.33	19.28	18.62	17.03	16.98
		RB1#38	20.74	19.29	19.29	18.44	16.99	16.99
		RB1#74	20.59	19.16	19.26	18.29	16.86	16.96
		RB36#0	19.12	18.23	18.26	16.82	15.93	15.96
		RB36#39	19.02	18.10	18.20	16.72	15.80	15.90
		RB75#0	19.14	18.09	18.20	16.84	15.79	15.90
20.0	QPSK	RB1#0	21.11	20.90	20.45	18.81	18.60	18.15
		RB1#50	20.83	20.81	20.36	18.53	18.51	18.06
		RB1#99	20.71	20.73	20.44	18.41	18.43	18.14
		RB50#0	19.91	19.93	19.42	17.61	17.63	17.12
		RB50#50	19.73	19.80	19.36	17.43	17.50	17.06
		RB100#0	19.65	19.79	19.39	17.35	17.49	17.09
	16QAM	RB1#0	20.37	20.72	19.63	18.07	18.42	17.33
		RB1#50	20.13	20.65	19.57	17.83	18.35	17.27
		RB1#99	19.97	20.54	19.58	17.67	18.24	17.28
		RB50#0	19.01	18.99	18.56	16.71	16.69	16.26
		RB50#50	18.83	18.88	18.51	16.53	16.58	16.21
		RB100#0	18.77	18.94	18.51	16.47	16.64	16.21

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

For Band2: Antenna Gain = -1.5dBi

Path loss=0.8dB*(provided by the applicant)

Limit: EIRP≤33dBm

LTE Band 4

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
1.4	QPSK	RB1#0	21.29	21.37	21.57	18.99	19.07	19.27
		RB1#3	21.35	21.39	21.59	19.05	19.09	19.29
		RB1#5	21.36	21.48	21.57	19.06	19.18	19.27
		RB3#0	21.33	21.59	21.56	19.03	19.29	19.26
		RB3#3	21.35	21.60	21.53	19.05	19.30	19.23
		RB6#0	20.44	20.50	20.41	18.14	18.20	18.11
	16QAM	RB1#0	21.15	20.32	21.31	18.85	18.02	19.01
		RB1#3	21.16	20.34	21.23	18.86	18.04	18.93
		RB1#5	21.15	20.27	21.24	18.85	17.97	18.94
		RB3#0	20.31	20.70	20.22	18.01	18.40	17.92
		RB3#3	20.32	20.64	20.14	18.02	18.34	17.84
		RB6#0	19.51	19.87	19.62	17.21	17.57	17.32
3.0	QPSK	RB1#0	21.35	21.25	21.09	19.05	18.95	18.79
		RB1#8	21.33	21.23	21.06	19.03	18.93	18.76
		RB1#14	21.38	21.24	21.09	19.08	18.94	18.79
		RB6#0	20.45	20.50	20.22	18.15	18.20	17.92
		RB6#9	20.34	20.47	20.05	18.04	18.17	17.75
		RB15#0	20.27	20.48	20.26	17.97	18.18	17.96
	16QAM	RB1#0	21.09	20.23	20.24	18.79	17.93	17.94
		RB1#8	21.16	20.18	20.29	18.86	17.88	17.99
		RB1#14	21.15	20.22	20.18	18.85	17.92	17.88
		RB6#0	19.50	19.74	19.30	17.20	17.44	17.00
		RB6#9	19.48	19.76	19.23	17.18	17.46	16.93
		RB15#0	19.45	19.61	19.32	17.15	17.31	17.02

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	21.84	21.71	21.38	19.54	19.41	19.08
		RB1#13	21.86	21.69	21.34	19.56	19.39	19.04
		RB1#24	21.90	21.64	21.31	19.60	19.34	19.01
		RB15#0	20.86	20.81	20.42	18.56	18.51	18.12
		RB15#10	20.93	20.72	20.38	18.63	18.42	18.08
		RB25#0	20.86	20.67	20.37	18.56	18.37	18.07
	16QAM	RB1#0	21.12	20.49	19.53	18.82	18.19	17.23
		RB1#13	21.02	20.44	19.56	18.72	18.14	17.26
		RB1#24	20.89	20.46	19.47	18.59	18.16	17.17
		RB15#0	19.91	19.92	19.45	17.61	17.62	17.15
		RB15#10	19.87	19.90	19.45	17.57	17.60	17.15
		RB25#0	19.95	19.80	19.53	17.65	17.50	17.23
10.0	QPSK	RB1#0	21.41	21.77	20.79	19.11	19.47	18.49
		RB1#25	21.40	21.70	20.71	19.10	19.40	18.41
		RB1#49	21.47	21.72	20.73	19.17	19.42	18.43
		RB25#0	20.31	20.78	19.75	18.01	18.48	17.45
		RB25#25	20.36	20.74	19.70	18.06	18.44	17.40
		RB50#0	20.37	20.76	19.86	18.07	18.46	17.56
	16QAM	RB1#0	21.15	20.27	20.12	18.85	17.97	17.82
		RB1#25	21.13	20.24	20.11	18.83	17.94	17.81
		RB1#49	21.12	20.24	19.97	18.82	17.94	17.67
		RB25#0	19.41	20.01	18.92	17.11	17.71	16.62
		RB25#25	19.50	20.03	18.82	17.20	17.73	16.52
		RB50#0	19.53	19.84	18.90	17.23	17.54	16.60

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15	QPSK	RB1#0	21.46	21.08	21.73	19.16	18.78	19.43
		RB1#38	21.41	21.02	21.59	19.11	18.72	19.29
		RB1#74	21.40	20.95	21.52	19.10	18.65	19.22
		RB36#0	20.36	20.25	20.68	18.06	17.95	18.38
		RB36#39	20.30	20.17	20.64	18.00	17.87	18.34
		RB75#0	20.32	20.12	20.67	18.02	17.82	18.37
	16QAM	RB1#0	20.59	20.63	20.99	18.29	18.33	18.69
		RB1#38	20.55	20.51	20.90	18.25	18.21	18.60
		RB1#74	20.48	20.48	20.84	18.18	18.18	18.54
		RB36#0	19.58	19.30	19.82	17.28	17.00	17.52
		RB36#39	19.44	19.26	19.78	17.14	16.96	17.48
		RB75#0	19.47	19.20	19.67	17.17	16.90	17.37
20	QPSK	RB1#0	21.65	21.50	21.22	19.35	19.20	18.92
		RB1#50	21.55	21.38	21.01	19.25	19.08	18.71
		RB1#99	21.48	21.27	21.02	19.18	18.97	18.72
		RB50#0	20.63	20.35	19.85	18.33	18.05	17.55
		RB50#50	20.54	20.21	19.80	18.24	17.91	17.50
		RB100#0	20.70	20.28	19.79	18.40	17.98	17.49
	16QAM	RB1#0	21.16	21.23	19.37	18.86	18.93	17.07
		RB1#50	21.01	21.10	19.18	18.71	18.80	16.88
		RB1#99	21.00	21.01	19.20	18.70	18.71	16.90
		RB50#0	19.87	19.40	19.01	17.57	17.10	16.71
		RB50#50	19.78	19.31	18.90	17.48	17.01	16.60
		RB100#0	19.64	19.45	18.86	17.34	17.15	16.56

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

For Band4: Antenna Gain = 1.5dBi

Path loss=0.8dB*(provided by the applicant)

Limit: EIRP ≤ 30dBm

LTE Band 7

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
5.0	QPSK	RB1#0	18.27	18.15	16.8	18.47	18.35	17.00
		RB1#13	18.61	18.49	17.09	18.81	18.69	17.29
		RB1#24	18.13	17.93	16.52	18.33	18.13	16.72
		RB15#0	17.7	17.71	17.04	17.9	17.91	17.24
		RB15#10	17.84	17.63	16.93	18.04	17.83	17.13
		RB25#0	17.76	17.62	16.92	17.96	17.82	17.12
	16QAM	RB1#0	17.96	17.31	16.26	18.16	17.51	16.46
		RB1#13	18	17.23	16.27	18.2	17.43	16.47
		RB1#24	17.95	17.28	16.25	18.15	17.48	16.45
		RB15#0	16.91	16.99	16.24	17.11	17.19	16.44
		RB15#10	16.96	17.06	16.21	17.16	17.26	16.41
		RB25#0	17.02	16.76	16.25	17.22	16.96	16.45
10.0	QPSK	RB1#0	17.22	18.99	18.2	17.42	19.19	18.4
		RB1#25	17.58	18.95	18.2	17.78	19.15	18.4
		RB1#49	18.04	19.08	18.15	18.24	19.28	18.35
		RB25#0	16.97	18.3	17.94	17.17	18.5	18.14
		RB25#25	17.02	18.13	17.93	17.22	18.33	18.13
		RB50#0	16.91	18.21	17.93	17.11	18.41	18.13
	16QAM	RB1#0	17.08	17.79	18.58	17.28	17.99	18.78
		RB1#25	17.18	17.69	18.49	17.38	17.89	18.69
		RB1#49	17.23	17.68	18.49	17.43	17.88	18.69
		RB25#0	16.31	17.54	17.28	16.51	17.74	17.48
		RB25#25	16.30	17.52	17.21	16.5	17.72	17.41
		RB50#0	16.36	17.44	17.28	16.56	17.64	17.48

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15	QPSK	RB1#0	17.81	19.26	18.35	18.01	19.46	18.55
		RB1#38	18.18	18.92	17.98	18.38	19.12	18.18
		RB1#74	18.47	18.84	17.63	18.67	19.04	17.83
		RB36#0	17.32	18.25	17.7	17.52	18.45	17.9
		RB36#39	17.53	18.1	17.68	17.73	18.3	17.88
		RB75#0	17.49	18.22	17.72	17.69	18.42	17.92
	16QAM	RB1#0	17.7	18.88	18.09	17.9	19.08	18.29
		RB1#38	17.81	18.86	18.08	18.01	19.06	18.28
		RB1#74	17.8	18.81	18.09	18	19.01	18.29
		RB36#0	16.81	17.48	17.15	17.01	17.68	17.35
		RB36#39	16.79	17.47	17.01	16.99	17.67	17.21
		RB75#0	16.66	17.47	16.98	16.86	17.67	17.18
20	QPSK	RB1#0	18.79	19.24	18.61	18.99	19.44	18.81
		RB1#50	19.25	18.9	18.09	19.45	19.1	18.29
		RB1#99	19.45	19.07	18.23	19.65	19.27	18.43
		RB50#0	18.12	18.26	18.24	18.32	18.46	18.44
		RB50#50	18.21	18.16	18.11	18.41	18.36	18.31
		RB100#0	18.24	18.25	18.25	18.44	18.45	18.45
	16QAM	RB1#0	18.51	19.32	18.26	18.71	19.52	18.46
		RB1#50	18.53	19.23	18.09	18.73	19.43	18.29
		RB1#99	18.56	19.17	18.10	18.76	19.37	18.30
		RB50#0	17.46	17.53	17.07	17.66	17.73	17.27
		RB50#50	17.53	17.47	16.95	17.73	17.67	17.15
		RB100#0	17.44	17.53	17.02	17.64	17.73	17.22

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

For Band7: Antenna Gain = 1.2dBi

Path loss=1dB* (provided by the applicant)

Limit: EIRP≤33dBm

LTE Band 12

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
1.4	QPSK	RB1#0	21.99	21.56	22.25	18.34	17.91	18.60
		RB1#3	22.08	21.51	22.34	18.43	17.86	18.69
		RB1#5	22.05	21.51	22.25	18.40	17.86	18.60
		RB3#0	22.05	21.52	22.25	18.40	17.87	18.60
		RB3#3	21.94	21.59	22.28	18.29	17.94	18.63
		RB6#0	20.85	20.56	21.52	17.20	16.91	17.87
	16QAM	RB1#0	21.79	22.14	21.53	18.14	18.49	17.88
		RB1#3	21.87	22.18	21.54	18.22	18.53	17.89
		RB1#5	21.65	20.27	21.27	18.00	16.62	17.62
		RB3#0	21.06	20.64	20.96	17.41	16.99	17.31
		RB3#3	20.98	20.68	20.90	17.33	17.03	17.25
		RB6#0	21.18	20.21	20.23	17.53	16.56	16.58
3	QPSK	RB1#0	22.34	21.74	21.52	18.69	18.09	17.87
		RB1#8	22.26	21.70	21.48	18.61	18.05	17.83
		RB1#14	22.28	21.68	21.55	18.63	18.03	17.90
		RB6#0	21.34	20.79	20.56	17.69	17.14	16.91
		RB6#9	21.31	20.84	20.50	17.66	17.19	16.85
		RB15#0	21.29	20.83	20.62	17.64	17.18	16.97
	16QAM	RB1#0	22.13	20.29	20.72	18.48	16.64	17.07
		RB1#8	21.98	20.31	20.64	18.33	16.66	16.99
		RB1#14	22.05	20.28	20.64	18.40	16.63	16.99
		RB6#0	20.32	20.33	20.55	16.67	16.68	16.90
		RB6#9	21.19	20.38	20.43	17.54	16.73	16.78
		RB15#0	20.36	21.19	20.54	16.71	17.54	16.89

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
5	QPSK	RB1#0	22.40	22.41	22.17	18.75	18.76	18.52
		RB1#13	22.26	22.18	22.20	18.61	18.53	18.55
		RB1#24	22.19	22.18	22.20	18.54	18.53	18.55
		RB15#0	21.23	21.34	21.23	17.58	17.69	17.58
		RB15#10	21.30	21.32	21.13	17.65	17.67	17.48
		RB25#0	21.35	21.29	21.25	17.70	17.64	17.60
	16QAM	RB1#0	21.38	20.79	20.27	17.73	17.14	16.62
		RB1#13	21.28	20.82	20.25	17.63	17.17	16.60
		RB1#24	21.24	20.88	20.23	17.59	17.23	16.58
		RB15#0	20.15	20.77	20.28	16.50	17.12	16.63
		RB15#10	20.06	20.81	20.27	16.41	17.16	16.62
		RB25#0	20.15	20.62	20.33	16.50	16.97	16.68
10	QPSK	RB1#0	21.70	21.37	22.21	18.05	17.72	18.56
		RB1#25	21.59	21.40	22.18	17.94	17.75	18.53
		RB1#49	21.59	21.35	22.25	17.94	17.70	18.60
		RB25#0	20.48	20.47	21.39	16.83	16.82	17.74
		RB25#25	20.47	20.55	21.30	16.82	16.90	17.65
		RB50#0	20.49	20.52	21.14	16.84	16.87	17.49
	16QAM	RB1#0	20.66	20.26	21.30	17.01	16.61	17.65
		RB1#25	20.50	20.45	21.21	16.85	16.80	17.56
		RB1#49	20.68	20.30	21.19	17.03	16.65	17.54
		RB25#0	19.54	19.91	20.69	15.89	16.26	17.04
		RB25#25	20.00	19.48	20.24	16.35	15.83	16.59
		RB50#0	20.05	19.84	20.15	16.40	16.19	16.50

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

For Band12: Antenna Gain = -1.0dBi = -3.15dBd (0dBd=2.15dBi)

Path loss=0.5dB* (provided by the applicant)

Limit: ERP≤34.77dBm

LTE Band 17

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
5	QPSK	RB1#0	22.39	22.21	22.40	18.74	18.56	18.75
		RB1#13	22.28	22.27	22.45	18.63	18.62	18.8
		RB1#24	22.33	22.23	22.46	18.68	18.58	18.81
		RB15#0	21.34	21.52	21.61	17.69	17.87	17.96
		RB15#10	21.32	21.44	21.61	17.67	17.79	17.96
		RB25#0	21.30	21.29	21.63	17.65	17.64	17.98
	16QAM	RB1#0	21.12	20.87	20.51	17.47	17.22	16.86
		RB1#13	21.33	20.85	20.51	17.68	17.2	16.86
		RB1#24	21.32	20.81	20.48	17.67	17.16	16.83
		RB15#0	20.73	20.39	20.64	17.08	16.74	16.99
		RB15#10	20.72	20.36	20.54	17.07	16.71	16.89
		RB25#0	20.76	20.16	20.59	17.11	16.51	16.94
10	QPSK	RB1#0	21.74	21.66	21.77	18.09	18.01	18.12
		RB1#25	21.64	21.60	21.75	17.99	17.95	18.1
		RB1#49	21.67	21.60	21.82	18.02	17.95	18.17
		RB25#0	20.60	20.56	20.96	16.95	16.91	17.31
		RB25#25	20.46	20.69	20.79	16.81	17.04	17.14
		RB50#0	20.60	20.75	20.84	16.95	17.1	17.19
	16QAM	RB1#0	20.56	20.25	20.86	16.91	16.6	17.21
		RB1#25	20.70	20.10	20.78	17.05	16.45	17.13
		RB1#49	20.73	20.14	20.77	17.08	16.49	17.12
		RB25#0	20.06	20.19	20.21	16.41	16.54	16.56
		RB25#25	19.69	19.79	19.89	16.04	16.14	16.24
		RB50#0	20.15	19.66	19.72	16.5	16.01	16.07

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

For Band17: Antenna Gain = -1.0dBi = -3.15dBd (0dBd=2.15dBi)

Path loss=0.5dB* (provided by the applicant)

Limit: ERP≤34.77dBm

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

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	3.30	13
	Middle	3.40	13
	High	3.48	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	3.68	13
	Middle	3.72	13
	High	3.36	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	4.56	13
	Middle	4.47	13
	High	4.79	13
HSDPA (16QAM)	Low	5.90	13
	Middle	5.51	13
	High	5.67	13
HSUPA (QPSK)	Low	4.89	13
	Middle	4.86	13
	High	5.06	13
HSPA+	Low	4.57	13
	Middle	4.47	13
	High	4.79	13

PCS Band

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	3.37	13
	Middle	3.24	13
	High	3.43	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	3.66	13
	Middle	3.75	13
	High	3.83	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	4.56	13
	Middle	4.47	13
	High	4.79	13
HSDPA (16QAM)	Low	5.90	13
	Middle	5.51	13
	High	5.67	13
HSUPA (QPSK)	Low	4.89	13
	Middle	4.86	13
	High	5.06	13
HSPA+	Low	4.57	13
	Middle	4.47	13
	High	4.79	13

LTE Band 2 20MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	5.19	5.06	4.87	13	Pass
QPSK (100RB Size)	5.67	5.54	5.48	13	Pass
16QAM (1RB Size)	6.38	5.83	5.51	13	Pass
16QAM (100RB Size)	6.38	6.44	6.31	13	Pass

LTE Band 4 20MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	5.06	5.58	4.71	13	Pass
QPSK (100RB Size)	5.67	5.64	5.48	13	Pass
16QAM (1RB Size)	6.41	6.7	5.61	13	Pass
16QAM (100RB Size)	6.51	6.57	6.28	13	Pass

LTE Band 7 20MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	5.32	5.16	4.97	13	Pass
QPSK (100RB Size)	5.54	5.54	5.32	13	Pass
16QAM (1RB Size)	5.74	5.67	5.1	13	Pass
16QAM (100RB Size)	6.28	6.44	6.06	13	Pass

LTE Band 12 10MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.74	5.35	5.06	13	Pass
QPSK (50RB Size)	5.71	5.67	5.64	13	Pass
16QAM (1RB Size)	5.9	6.63	5.74	13	Pass
16QAM (50RB Size)	6.54	6.54	6.63	13	Pass

LTE Band 17 10MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	5.16	5.13	4.84	13	Pass
QPSK (50RB Size)	5.61	5.71	5.71	13	Pass
16QAM (1RB Size)	6.19	6.54	5.77	13	Pass
16QAM (50RB Size)	6.51	6.54	6.6	13	Pass

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

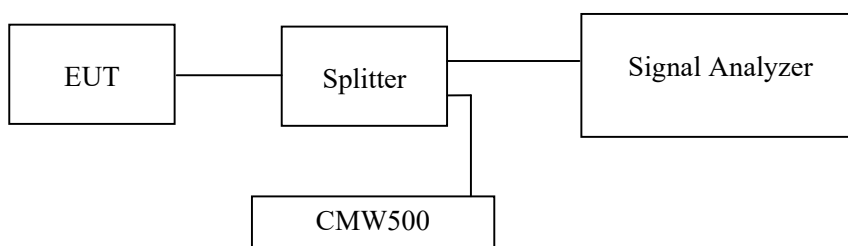
Applicable Standard

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

Test Procedure

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

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



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

Test Data

Environmental Conditions

Temperature:	28 °C
Relative Humidity:	34 %
ATM Pressure:	101.0 kPa

The testing was performed by Audy Yu on 2022-10-24~2022-10-25.

EUT operation mode: Transmitting

Test Result: Pass

Please refer to the following tables and plots.

Cellular Band (Part 22H)

Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM(GMSK)	128	824.2	240.76	320.00
	190	836.6	240.76	319.00
	251	848.8	240.76	319.00
EGPRS(8PSK)	128	824.2	239.76	313.00
	190	836.6	238.76	311.00
	251	848.8	238.76	314.00

	Frequency (MHz)	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	826.4	4.14	4.71
	836.4	4.14	4.71
	846.6	4.14	4.70
HSDPA	826.4	4.15	4.68
	836.4	4.15	4.70
	846.6	4.15	4.70
HSUPA	826.4	4.17	4.71
	836.4	4.15	4.68
	846.6	4.14	4.68

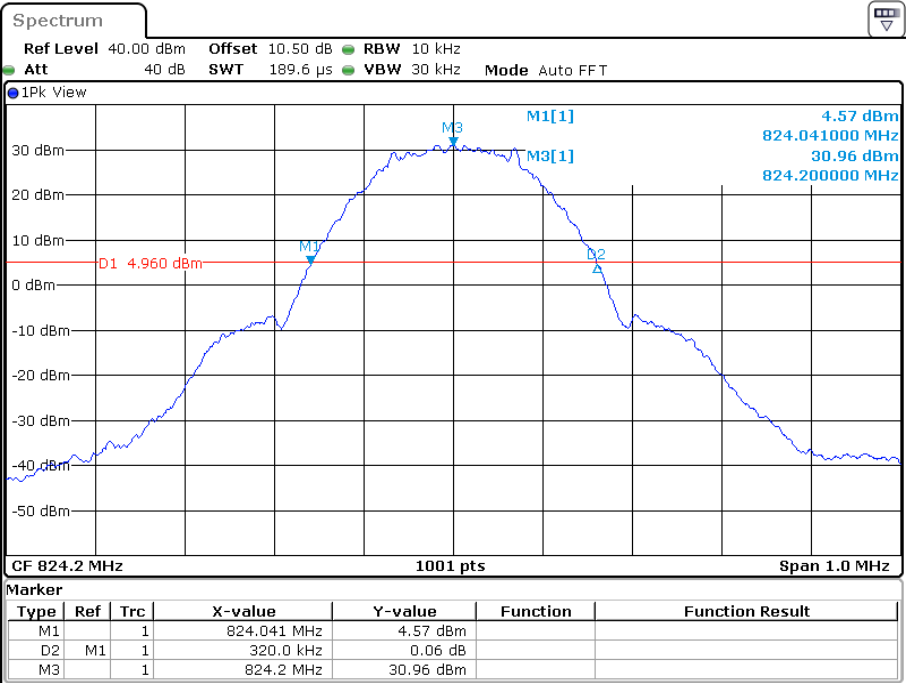
PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM(GMSK)	512	1850.2	239.76	316.00
	661	1880.0	239.76	318.00
	810	1909.8	239.76	321.00
EGPRS(8PSK)	512	1850.2	241.76	316.00
	661	1880.0	238.76	316.00
	810	1909.8	239.76	316.00

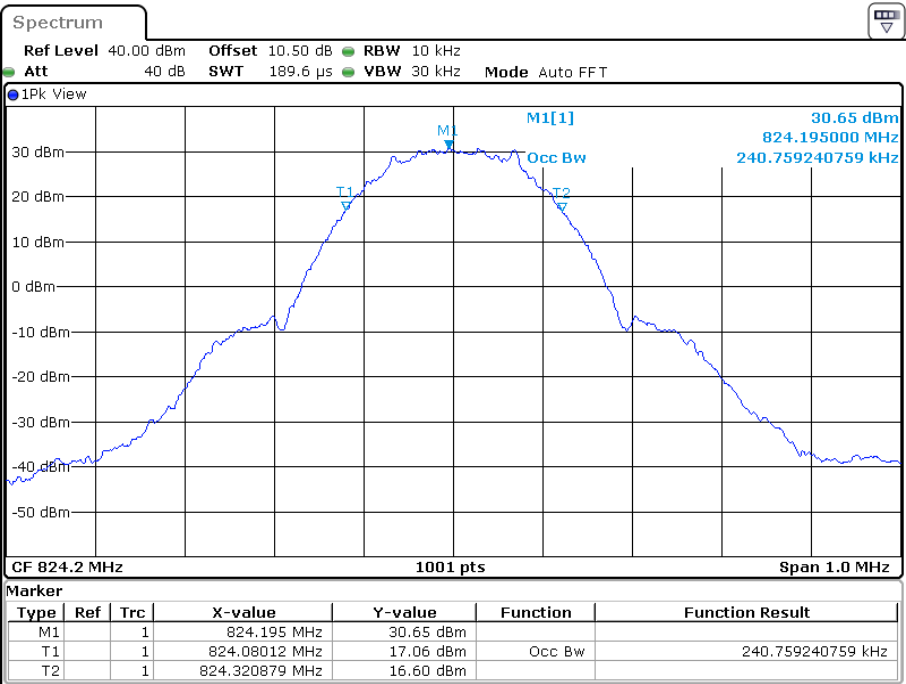
	Frequency (MHz)	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	1852.4	4.15	4.71
	1880.0	4.14	4.71
	1907.6	4.14	4.71
HSDPA	1852.4	4.14	4.68
	1880.0	4.15	4.68
	1907.6	4.15	4.68
HSUPA	1852.4	4.14	4.71
	1880.0	4.15	4.71
	1907.6	4.14	4.71

Cellular Band (Part 22H)

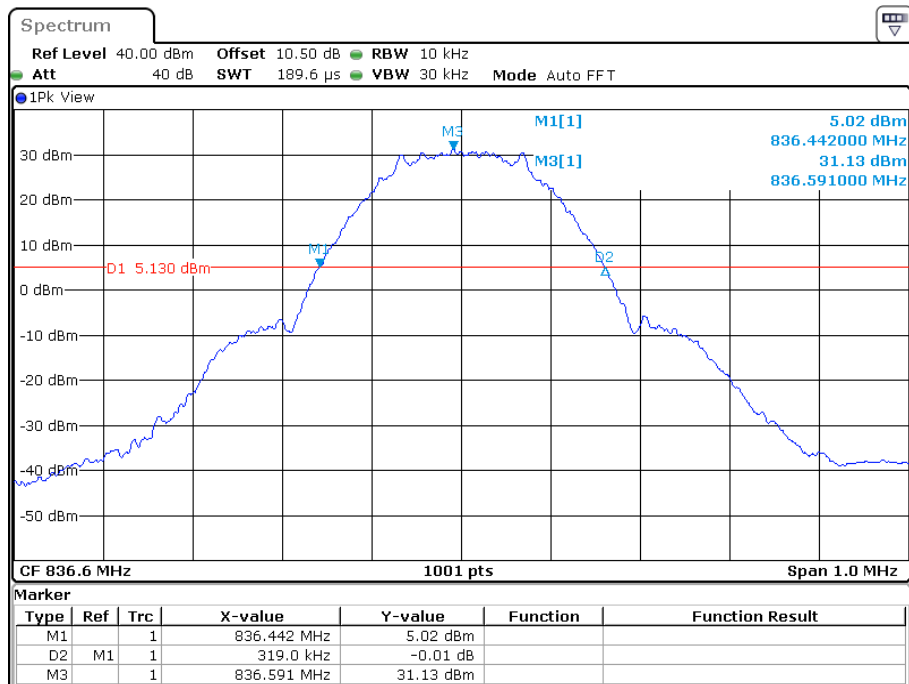
26 dB Emissions & 99% Occupied Bandwidth for GSM (GMSK) Mode, Low channel



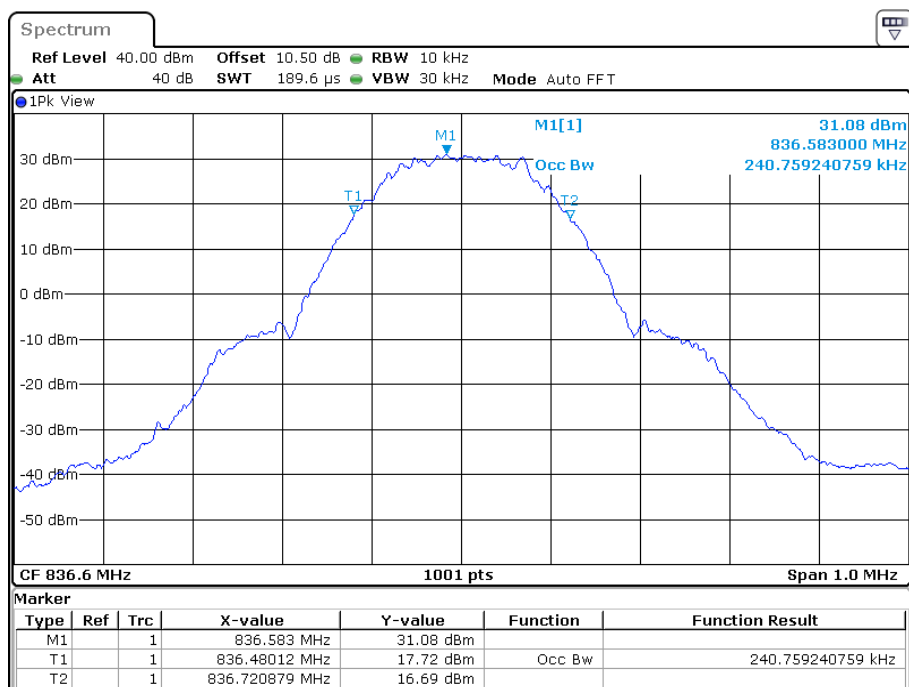
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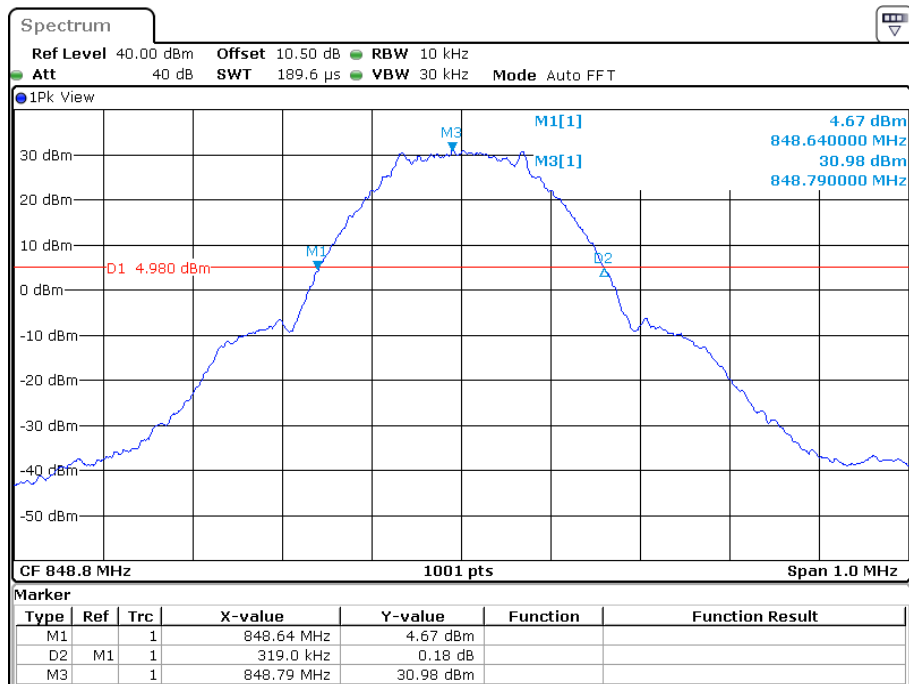
Date: 25.OCT.2022 09:56:12

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

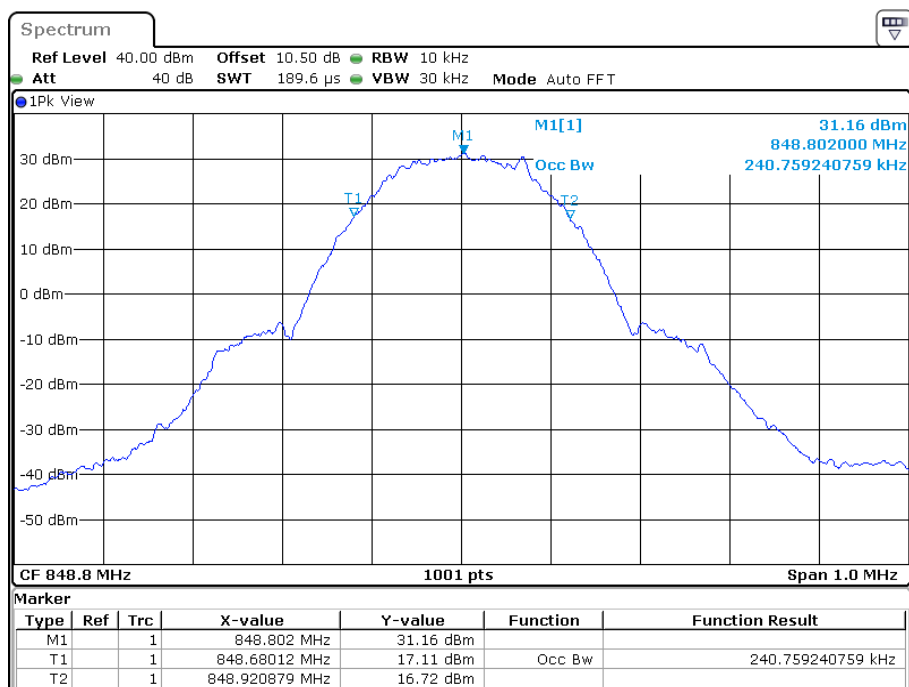
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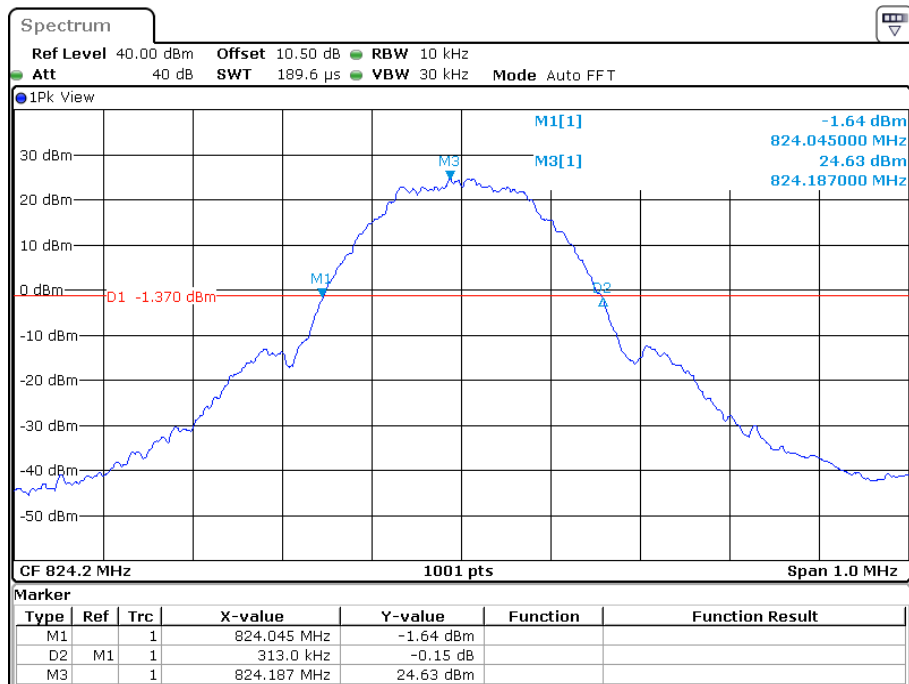
Date: 25.OCT.2022 10:02:22

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

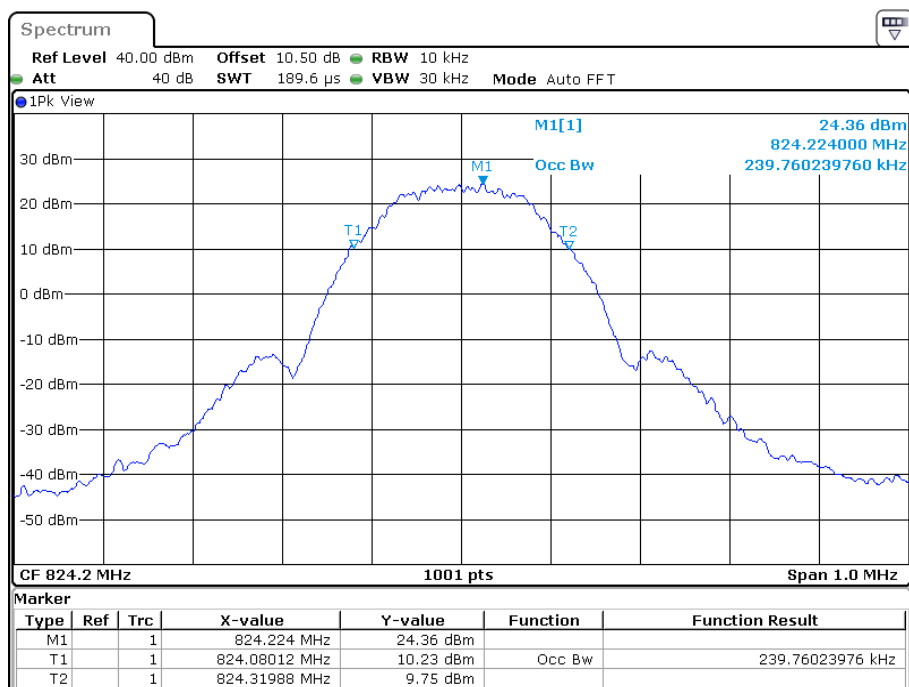
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Date: 25.OCT.2022 10:05:59

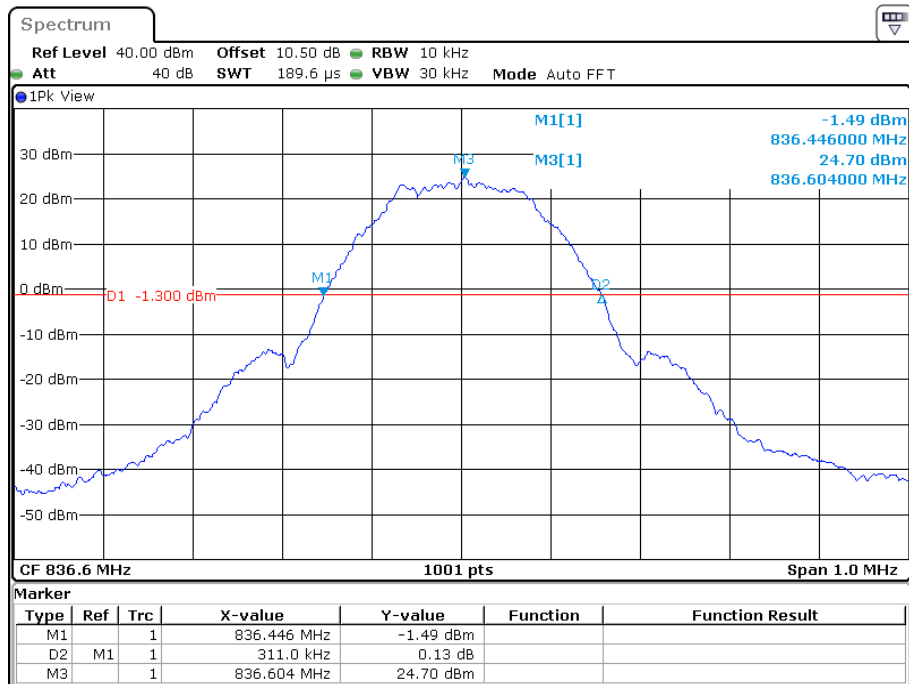
26 dB Emissions & 99% Occupied Bandwidth for EGPRS (8PSK) Mode, Low channel

Date: 25.OCT.2022 10:13:31

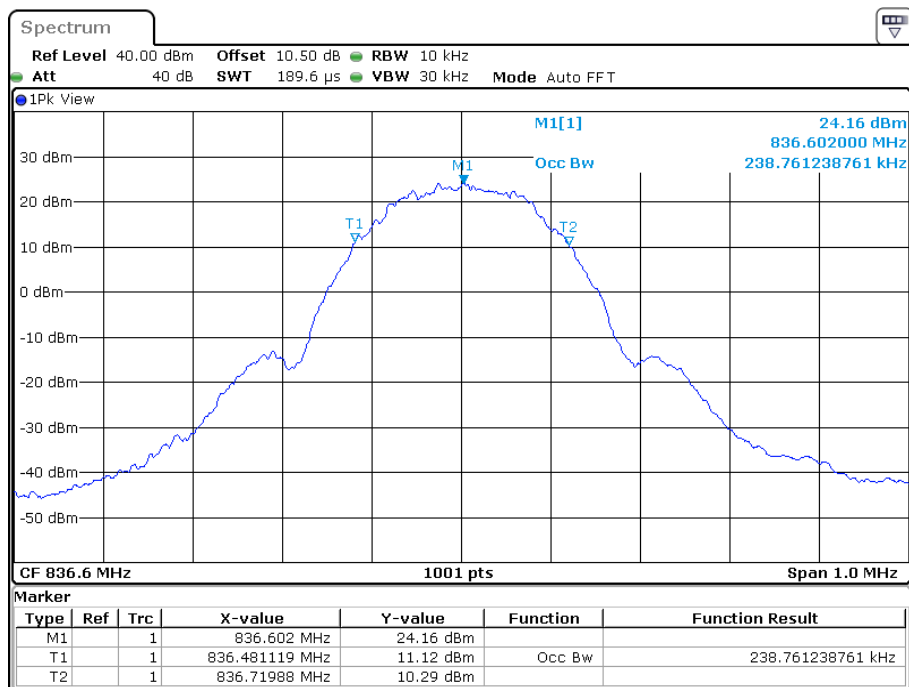


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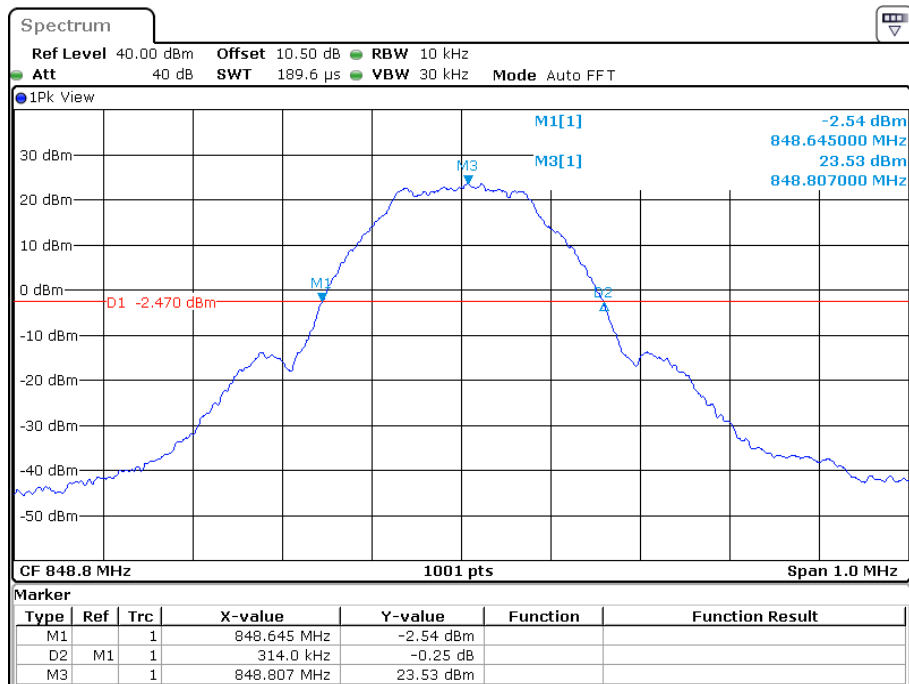
26 dB Emissions & 99% Occupied Bandwidth for EGPRS (8PSK) Mode, Middle channel



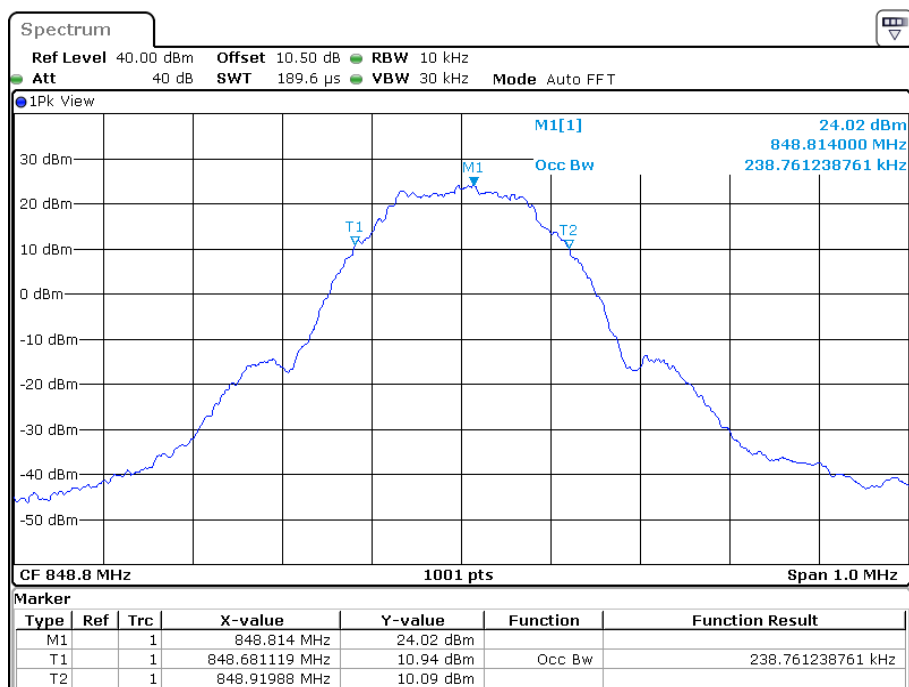
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Date: 25.OCT.2022 10:17:33

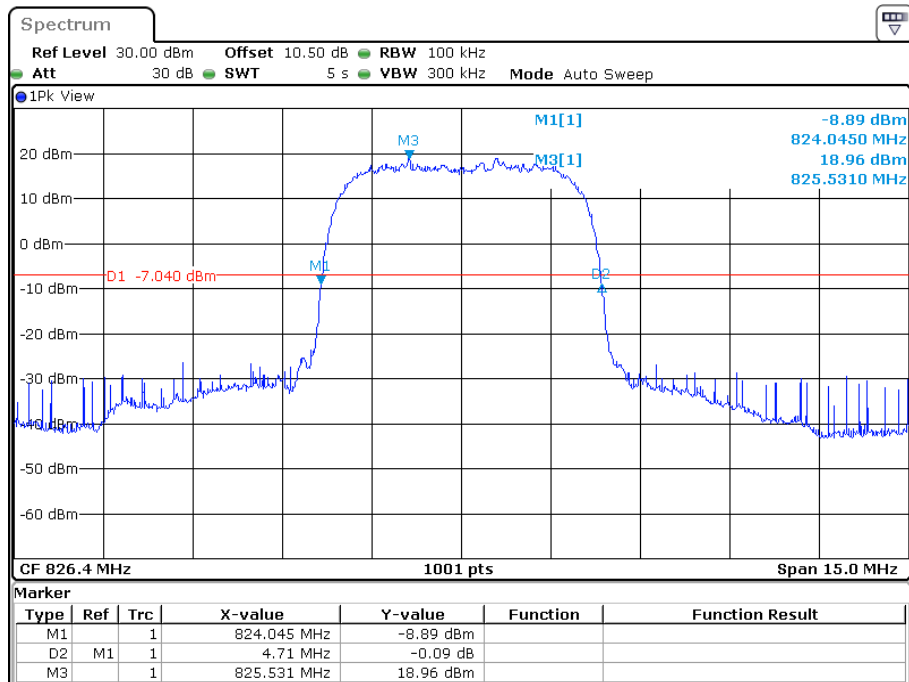
26 dB Emissions & 99% Occupied Bandwidth for EGPRS (8PSK) Mode, High channel

Date: 25.OCT.2022 10:21:25

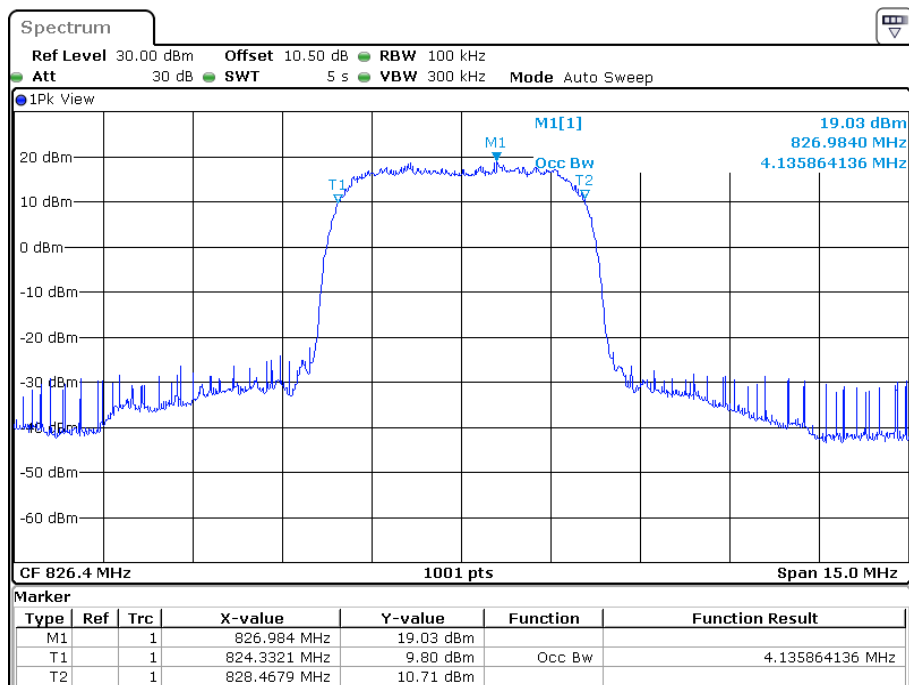


Date: 25.OCT.2022 10:20:46

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

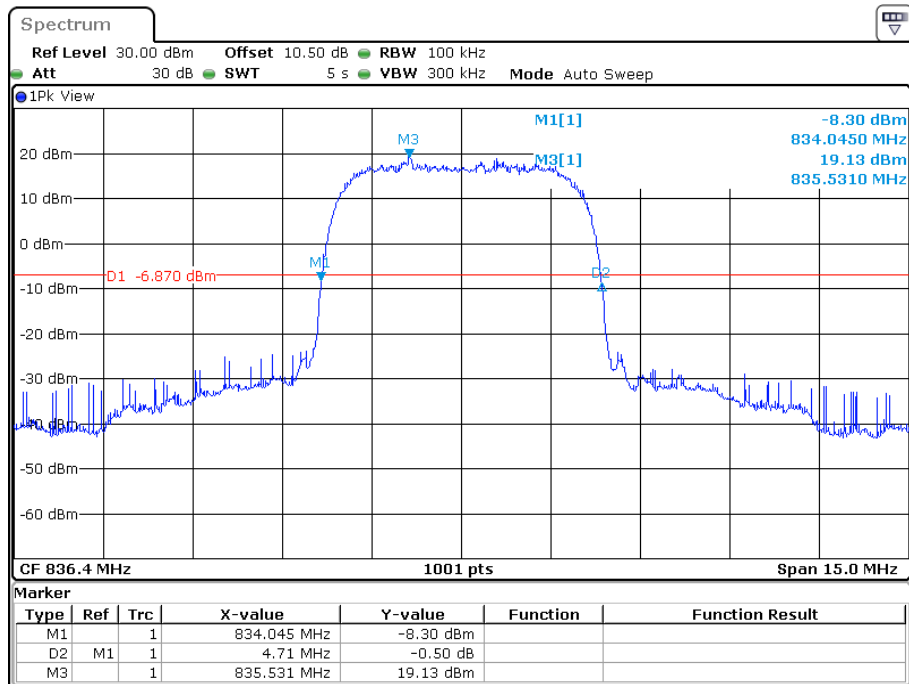


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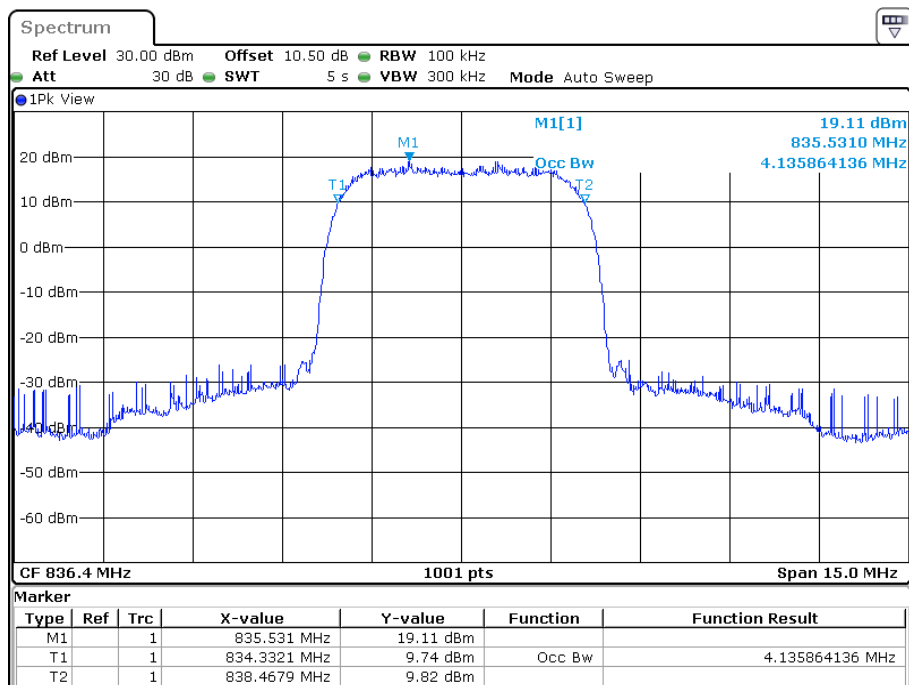


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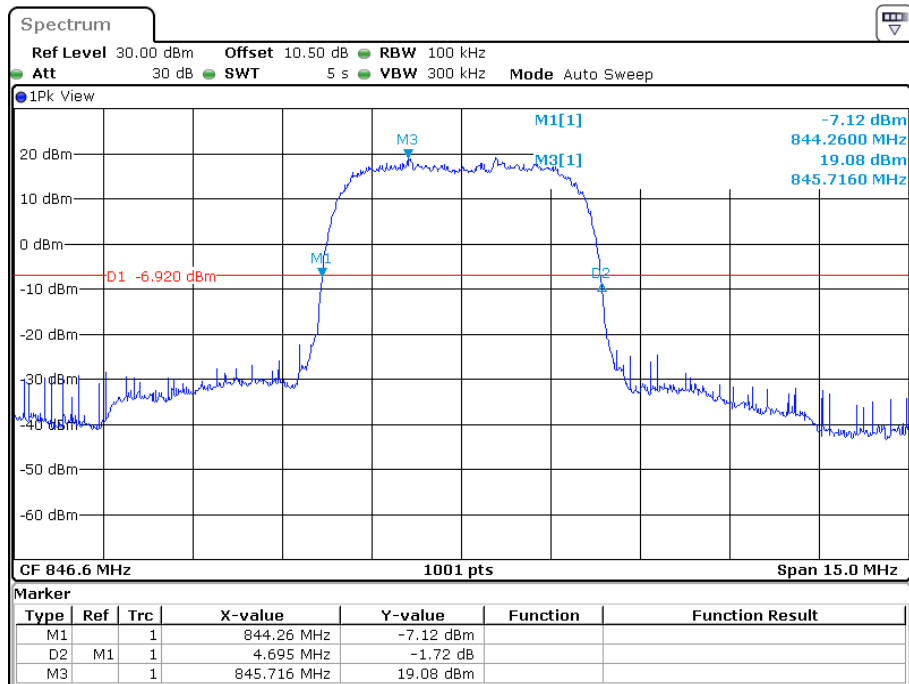
26 dB Emissions & 99% Occupied Bandwidth for RMC (BPSK) Mode, Middle channel



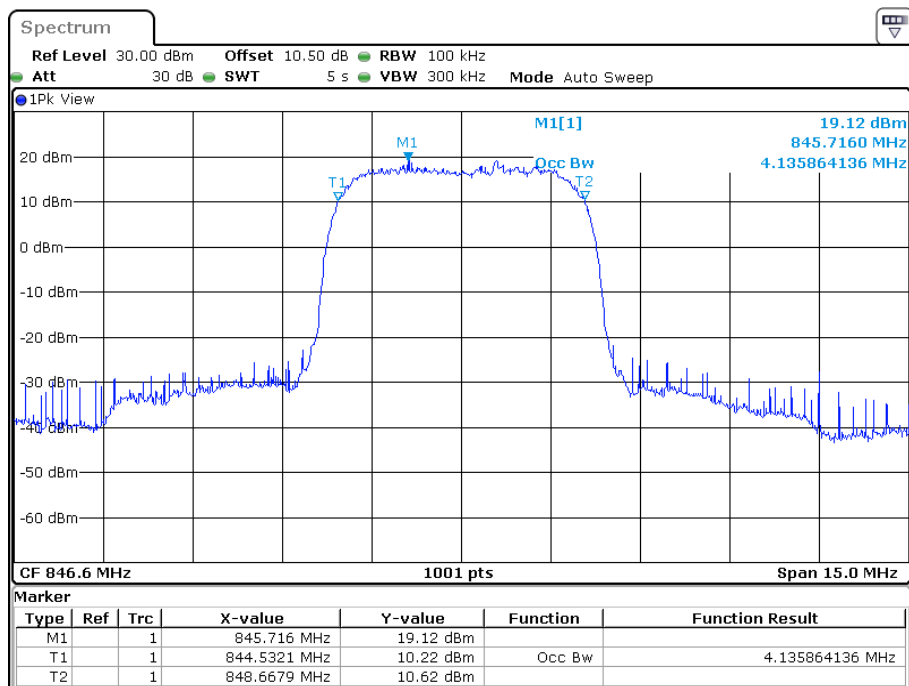
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Date: 25.OCT.2022 13:27:26

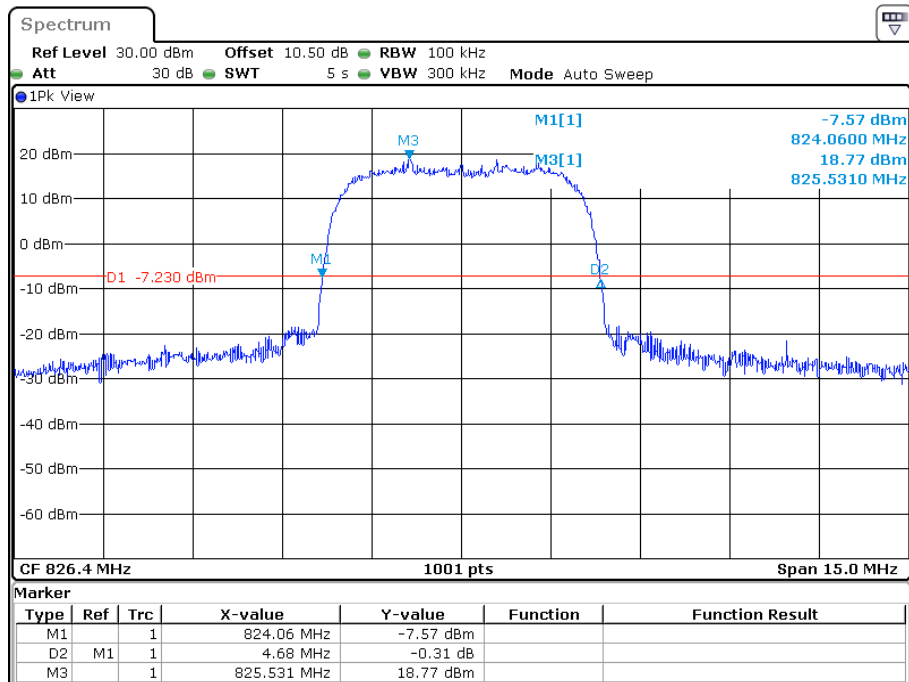
26 dB Emissions & 99% Occupied Bandwidth for RMC (BPSK) Mode, High channel

Date: 25.OCT.2022 13:30:38

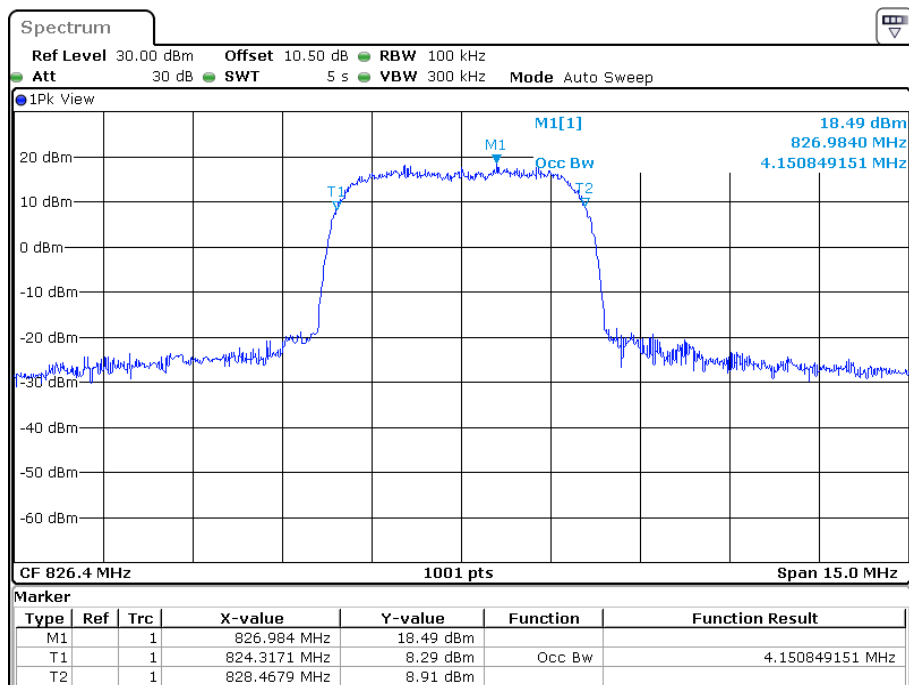


Date: 25.OCT.2022 13:30:01

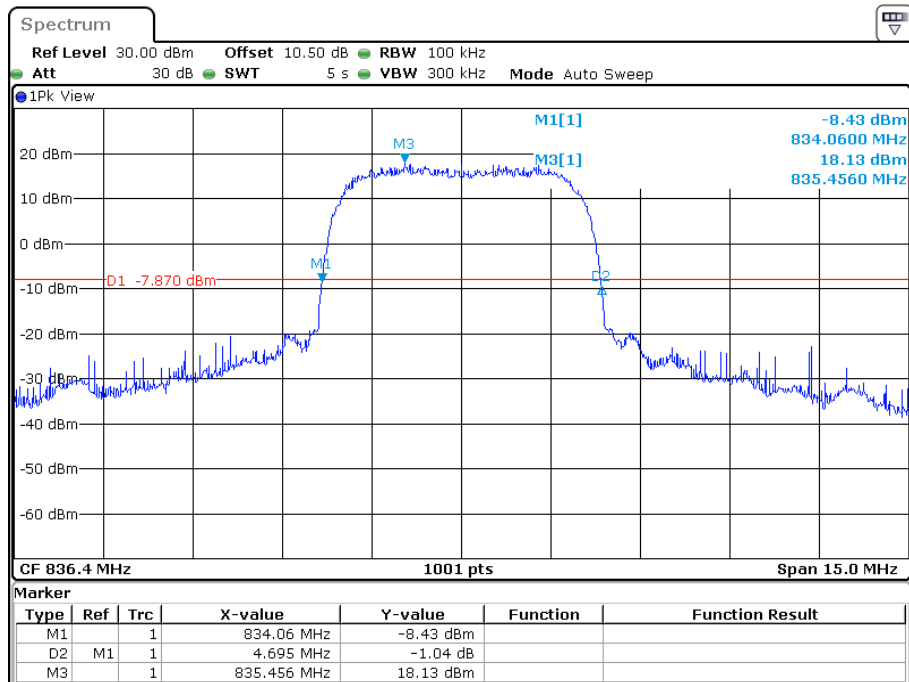
26 dB Emissions & 99% Occupied Bandwidth for HSDPA (QPSK) Mode, Low channel



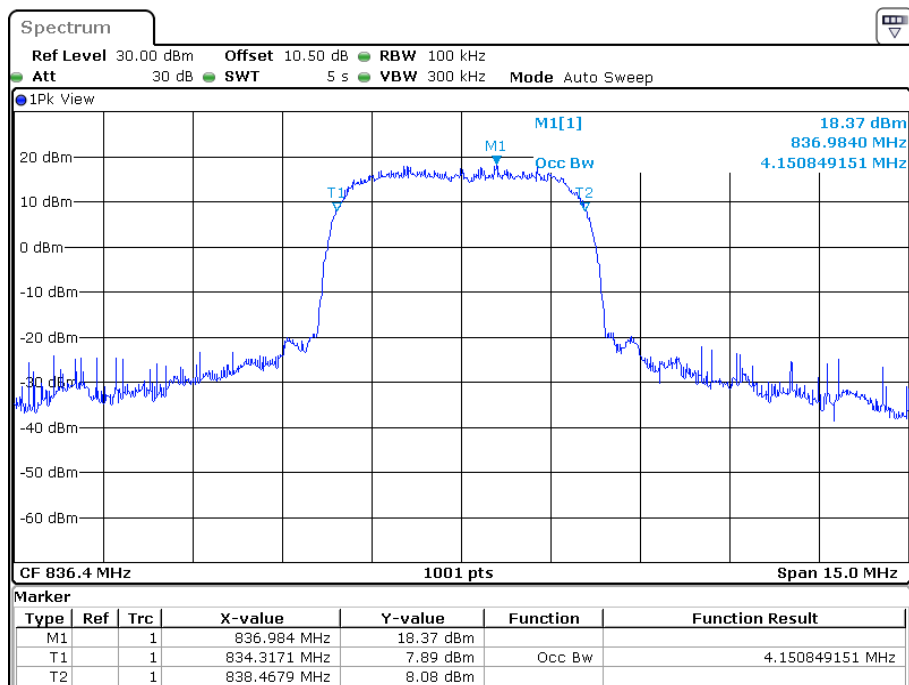
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Date: 25.OCT.2022 13:52:16

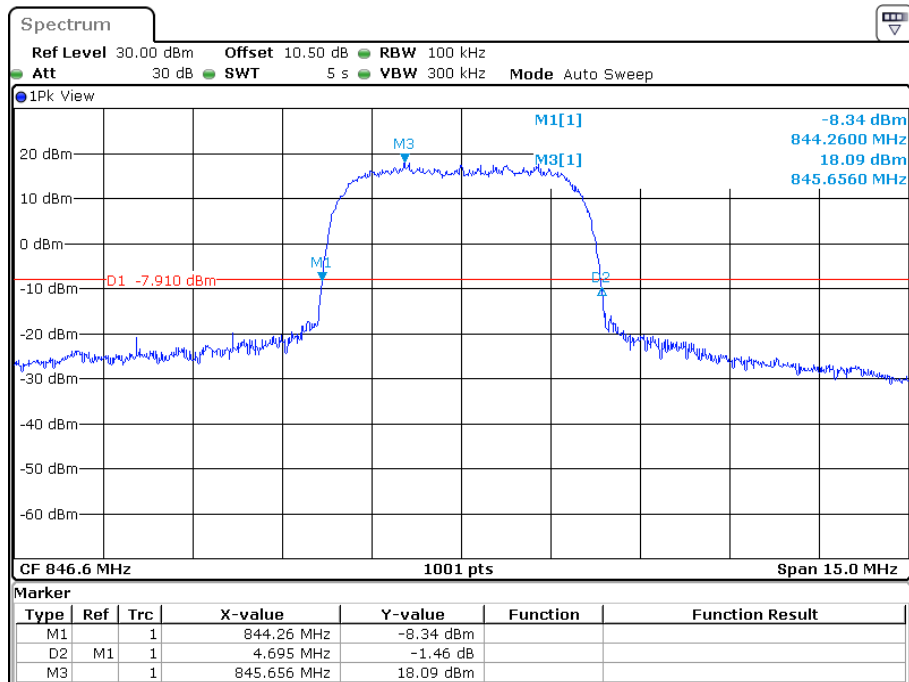
26 dB Emissions & 99% Occupied Bandwidth for HSDPA (QPSK) Mode, Middle channel

Date: 25.OCT.2022 13:56:10

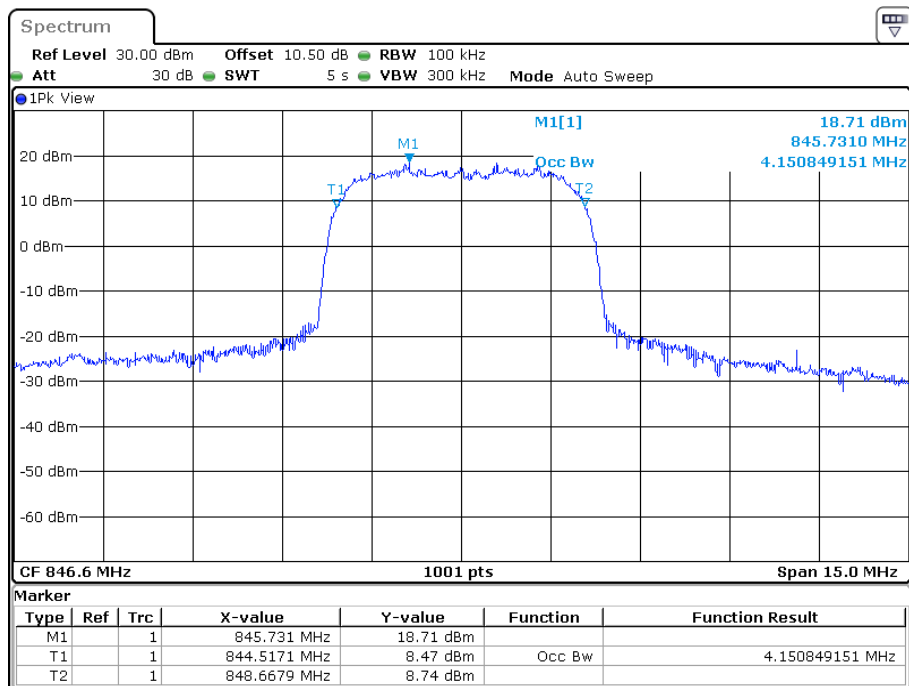


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26 dB Emissions & 99% Occupied Bandwidth for HSDPA (QPSK) Mode, High channel

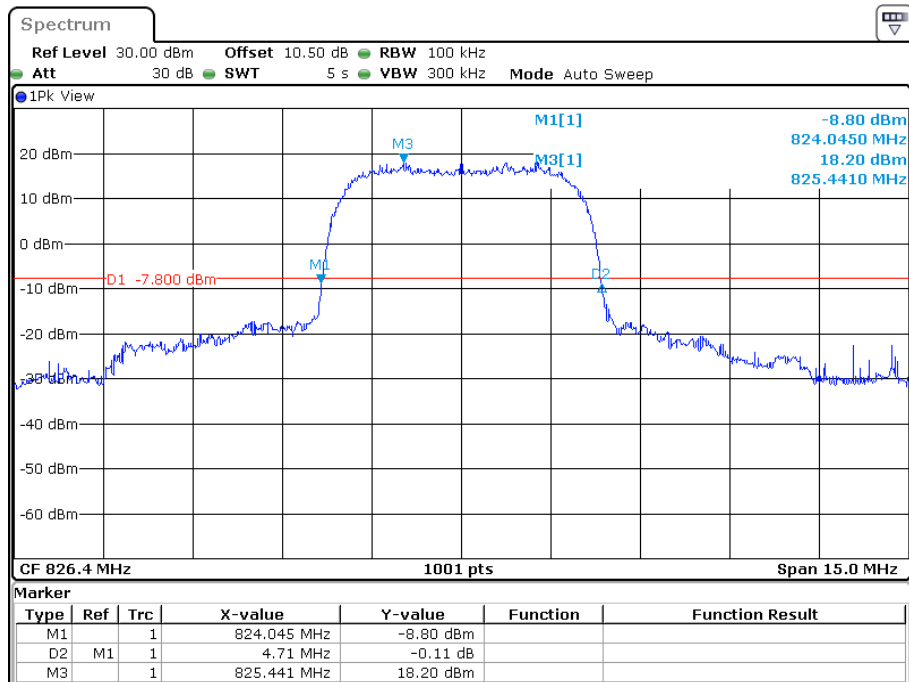


Date: 25.OCT.2022 13:58:41

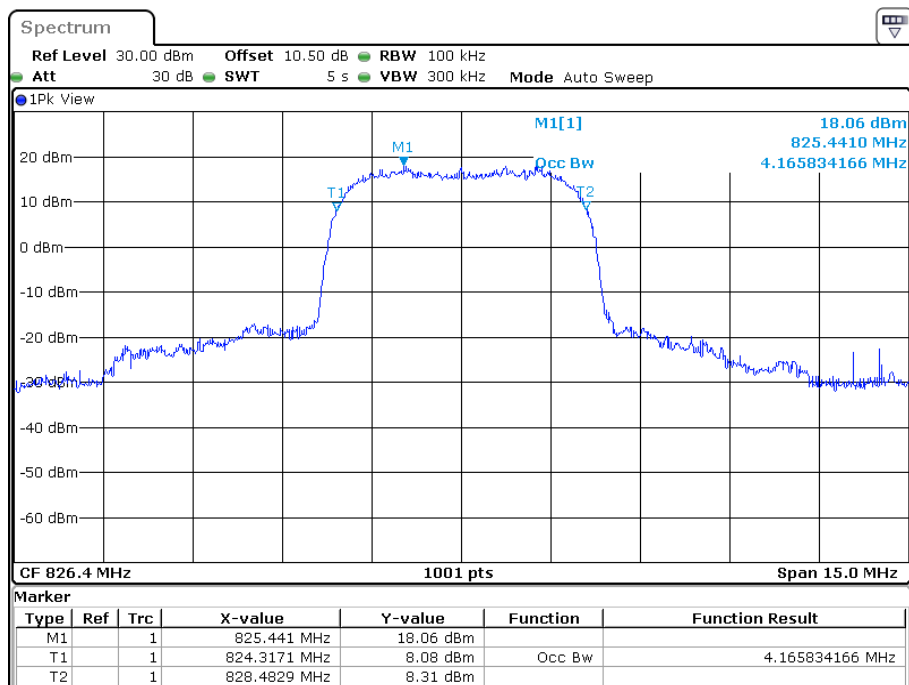


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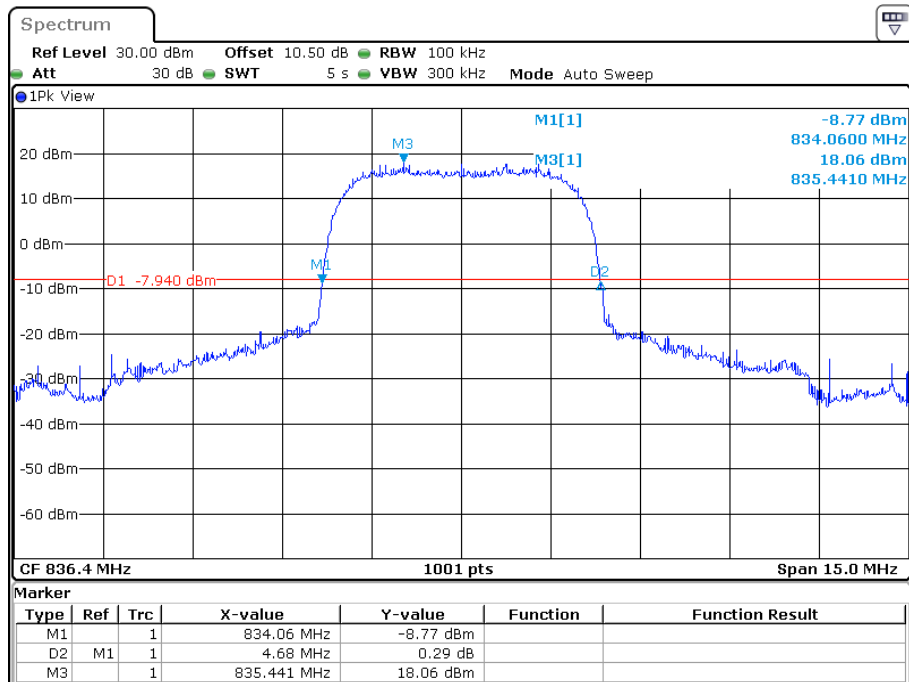
26 dB Emissions & 99% Occupied Bandwidth for HSUPA (16QAM) Mode, Low channel



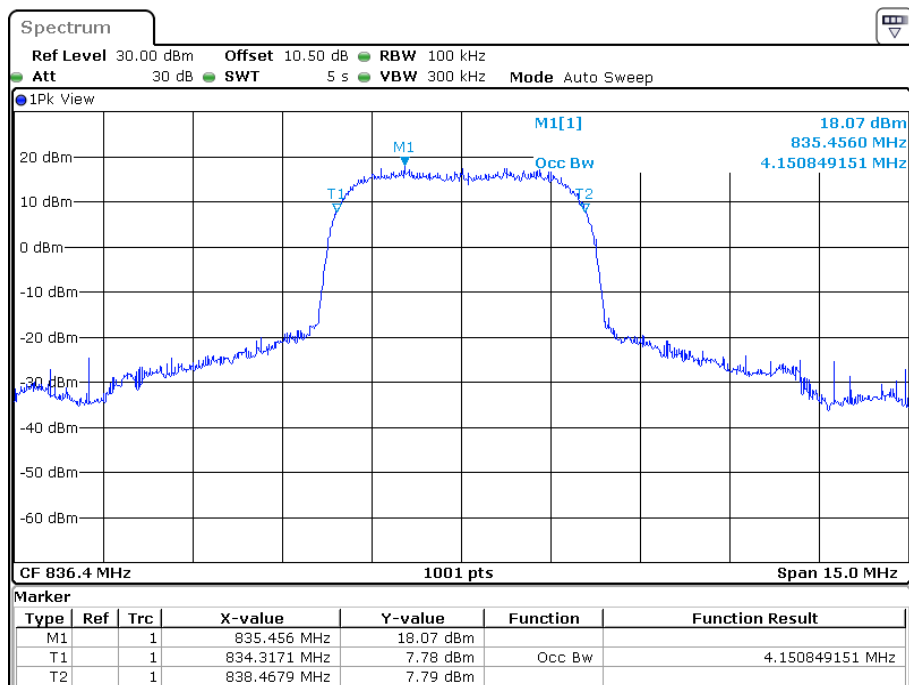
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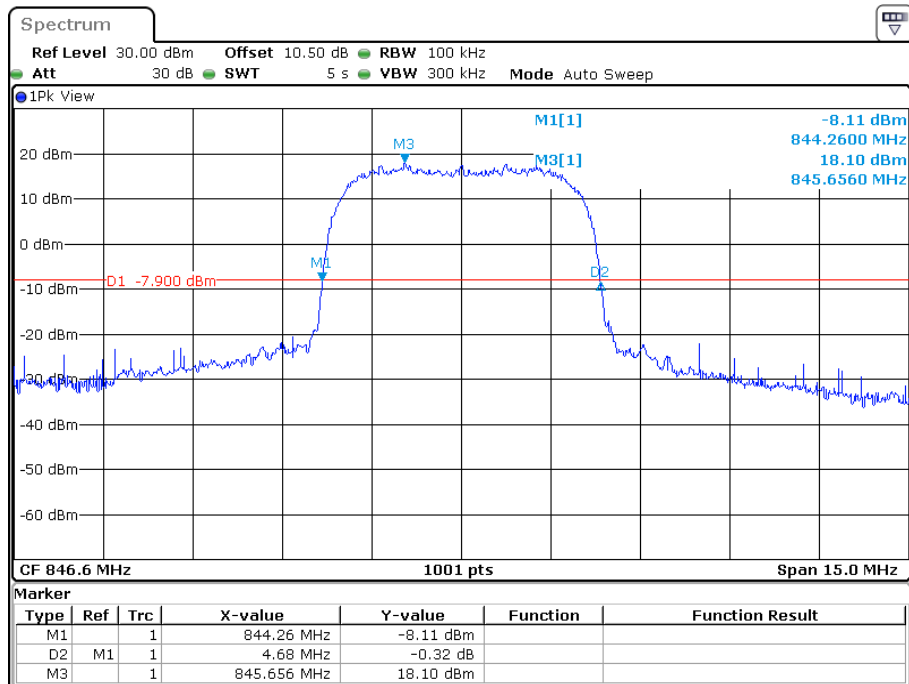
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26 dB Emissions & 99% Occupied Bandwidth for HSUPA (16QAM) Mode, Middle channel

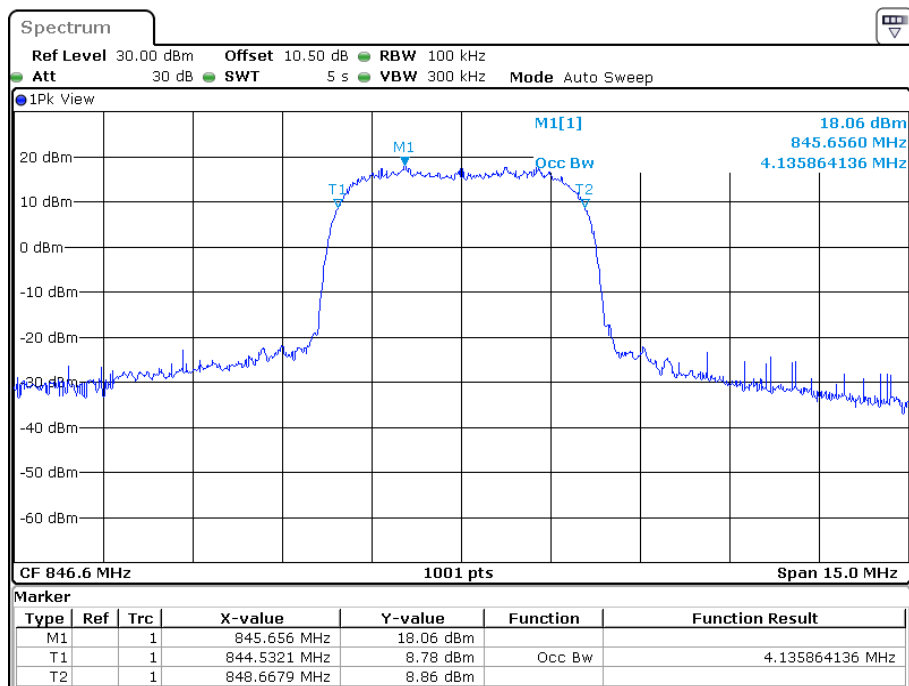
Date: 25.OCT.2022 13:37:21



Date: 25.OCT.2022 13:36:43

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

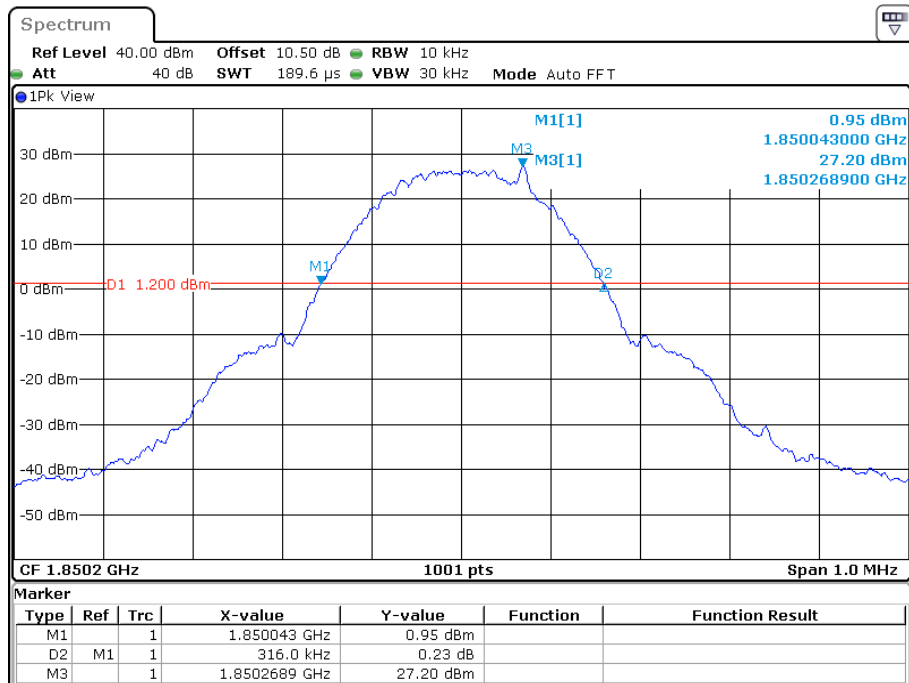
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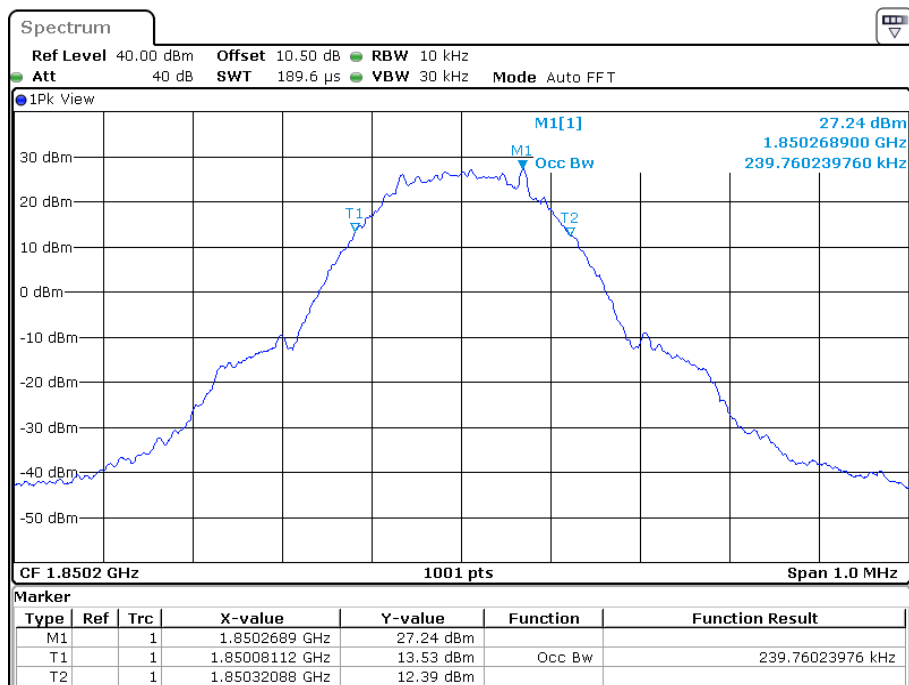
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PCS Band (Part 24E)

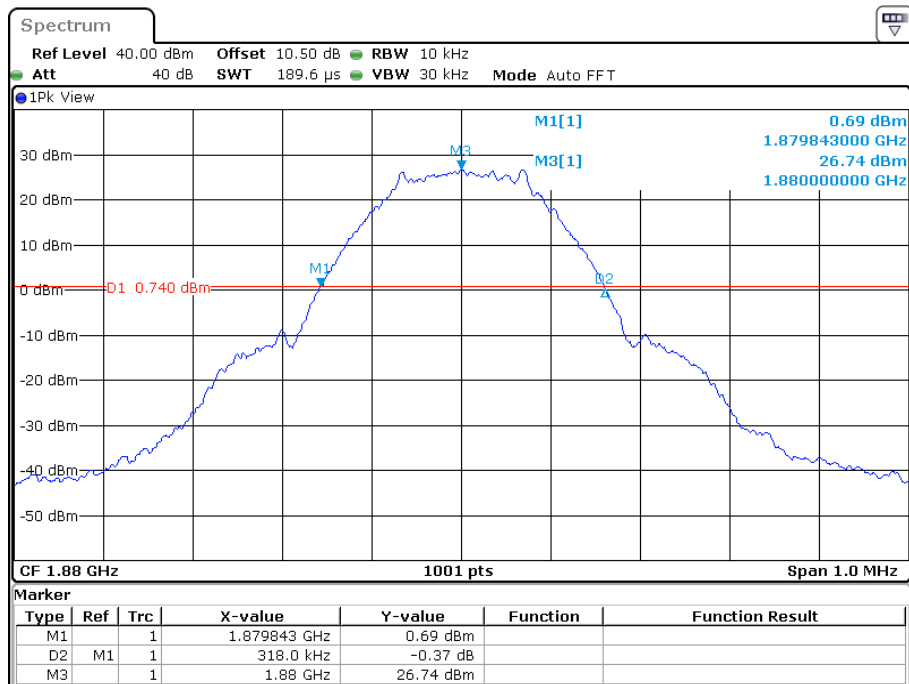
26 dB Emissions & 99% Occupied Bandwidth for GSM (GMSK) Mode, Low channel



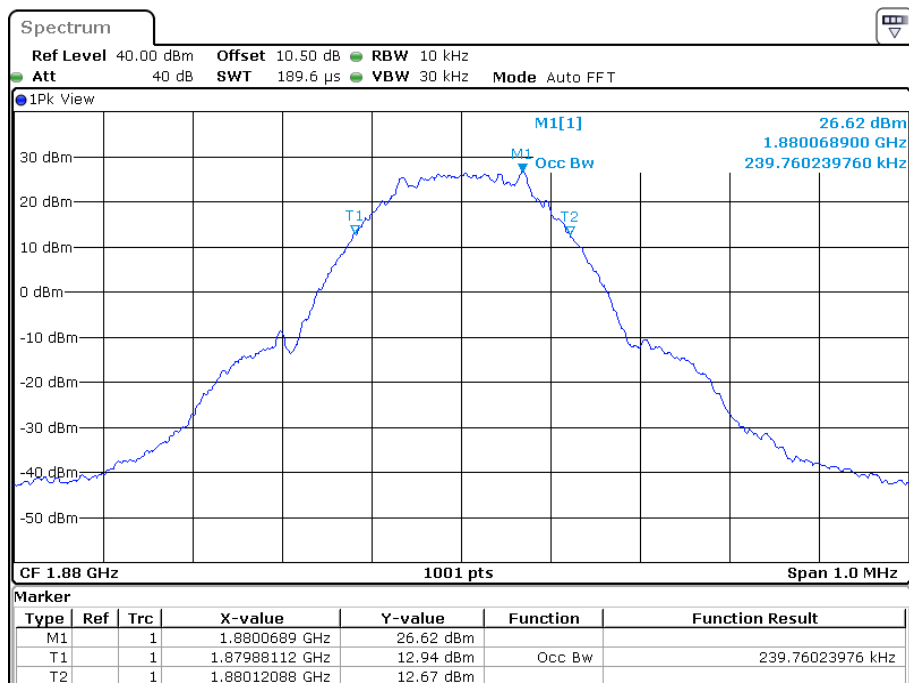
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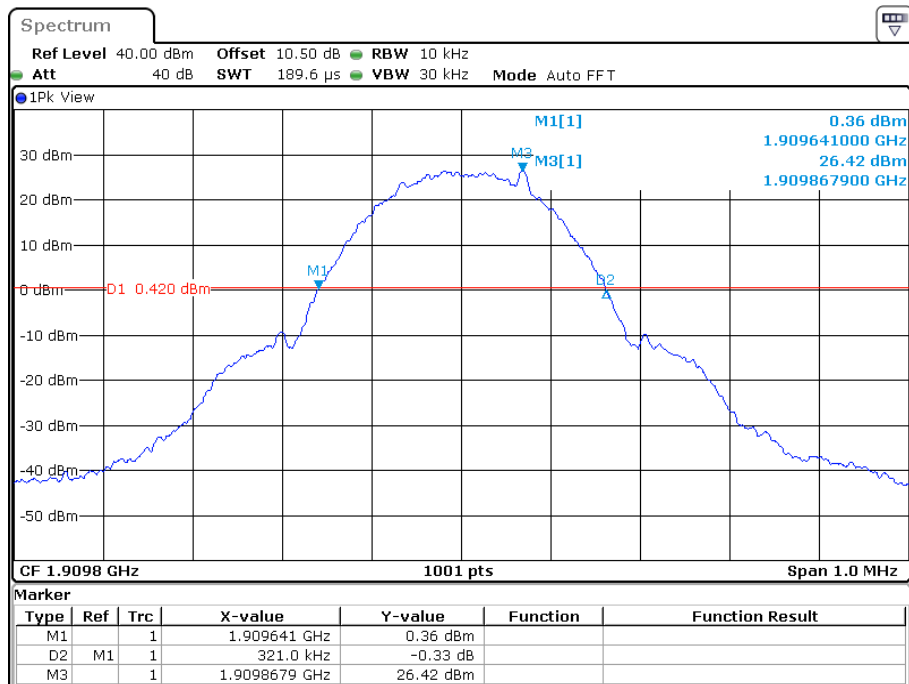
Date: 25.OCT.2022 10:28:34

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

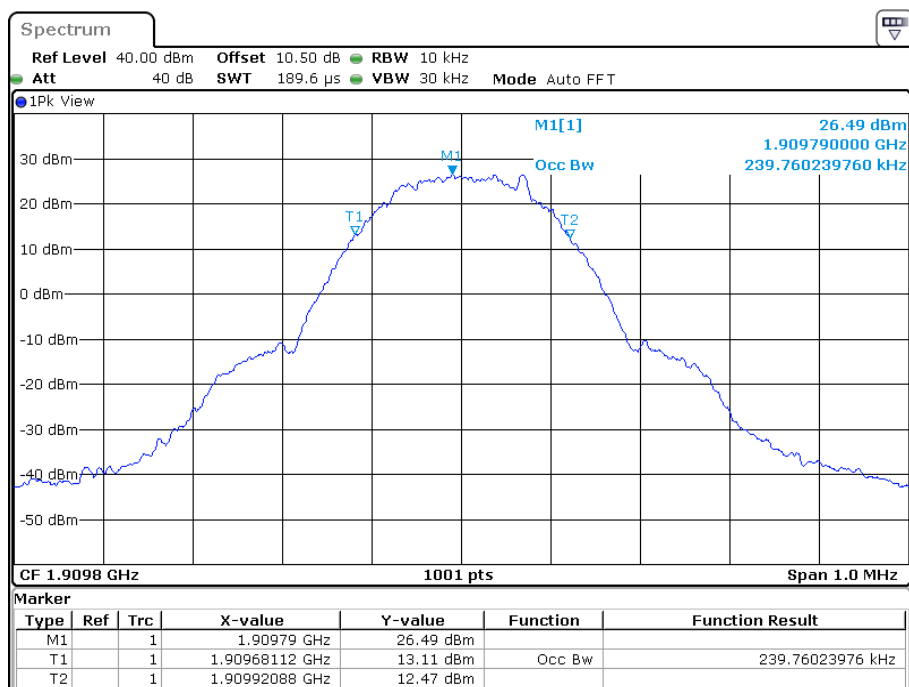
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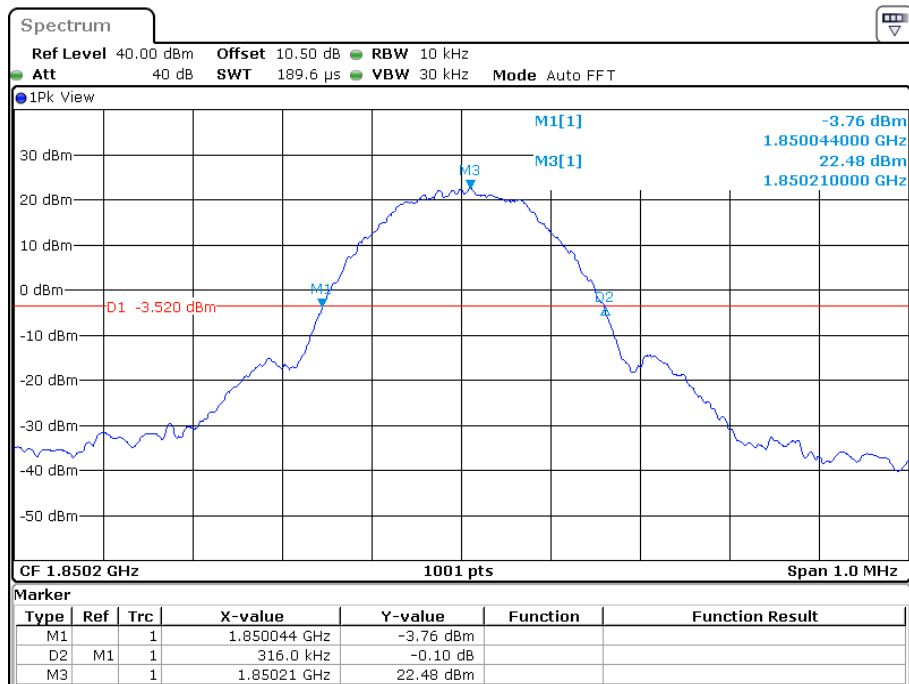
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26 dB Emissions & 99% Occupied Bandwidth for GSM (GMSK) Mode, High channel

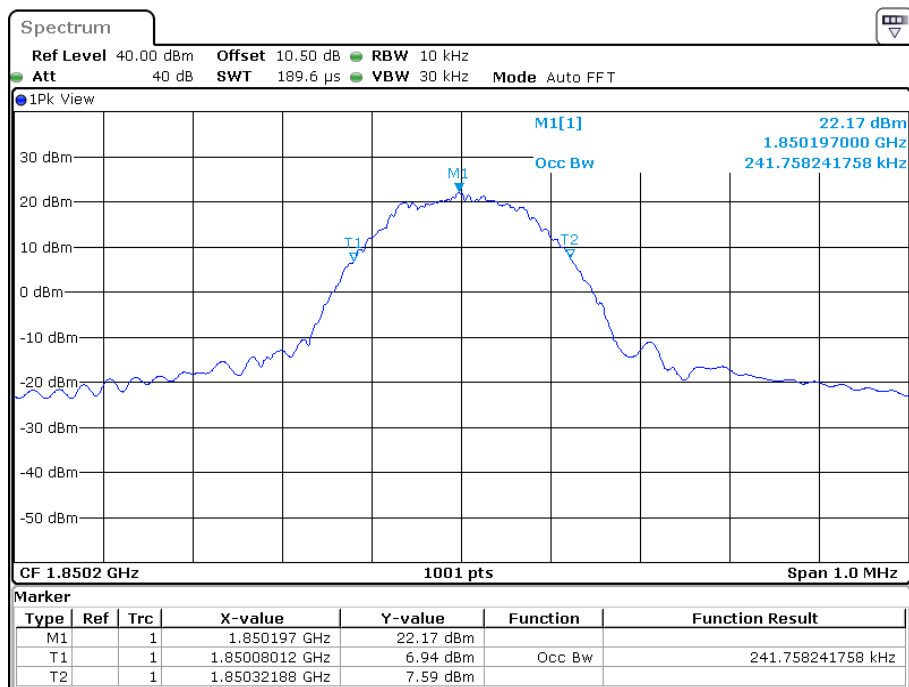
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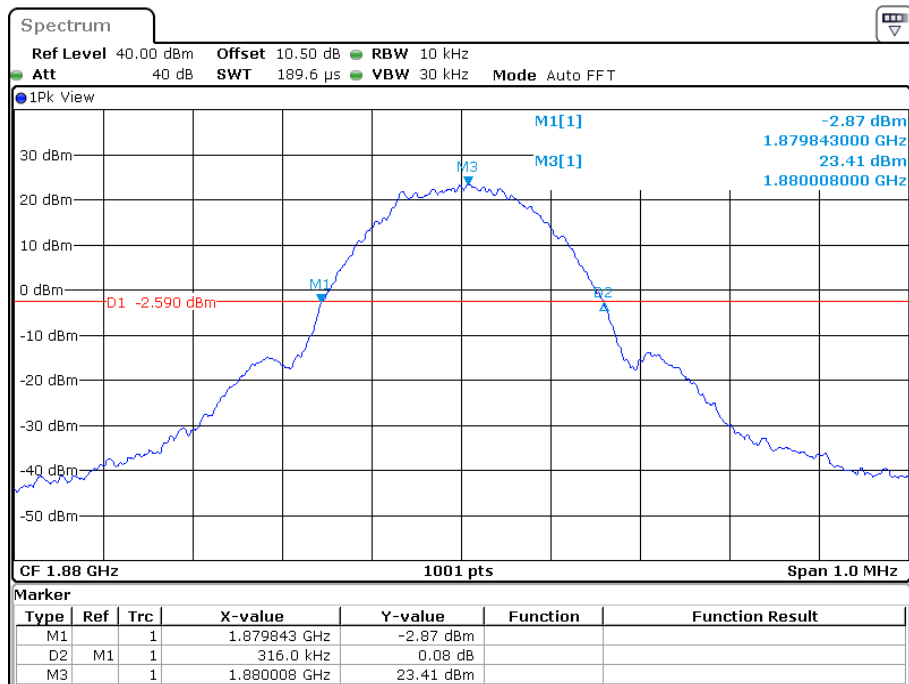
Date: 25.OCT.2022 10:38:53

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

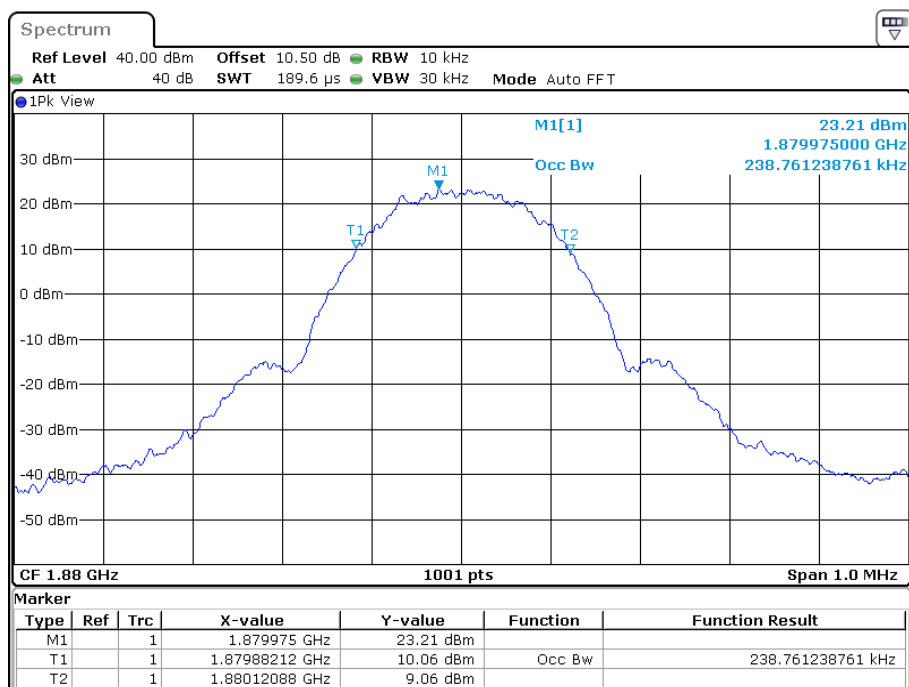
Date: 25.OCT.2022 11:10:22



Date: 25.OCT.2022 11:09:43

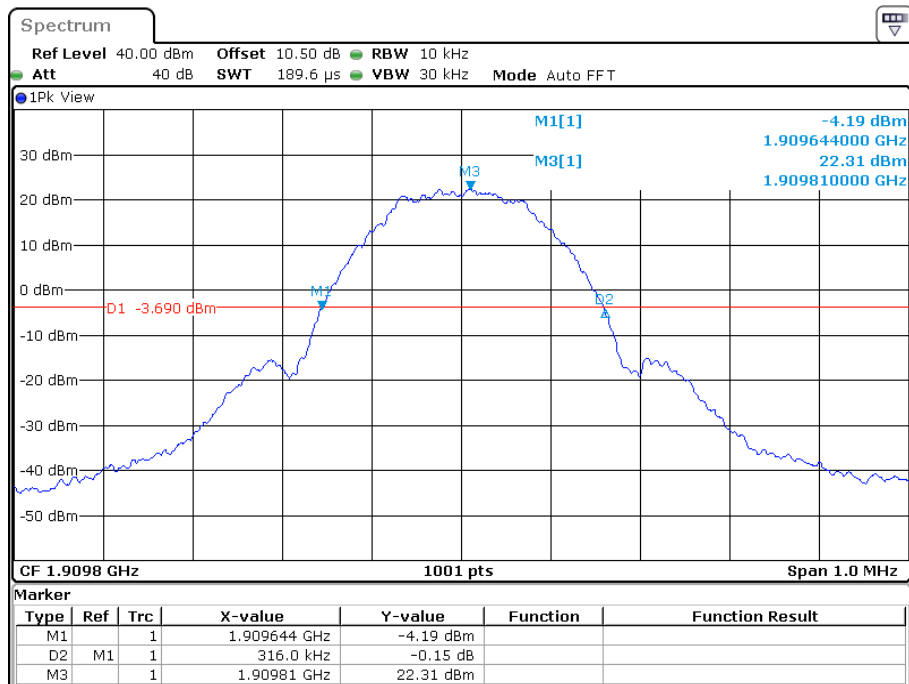
26 dB Emissions & 99% Occupied Bandwidth for EGPRS (8PSK) Mode, Middle channel

Date: 25.OCT.2022 10:52:40

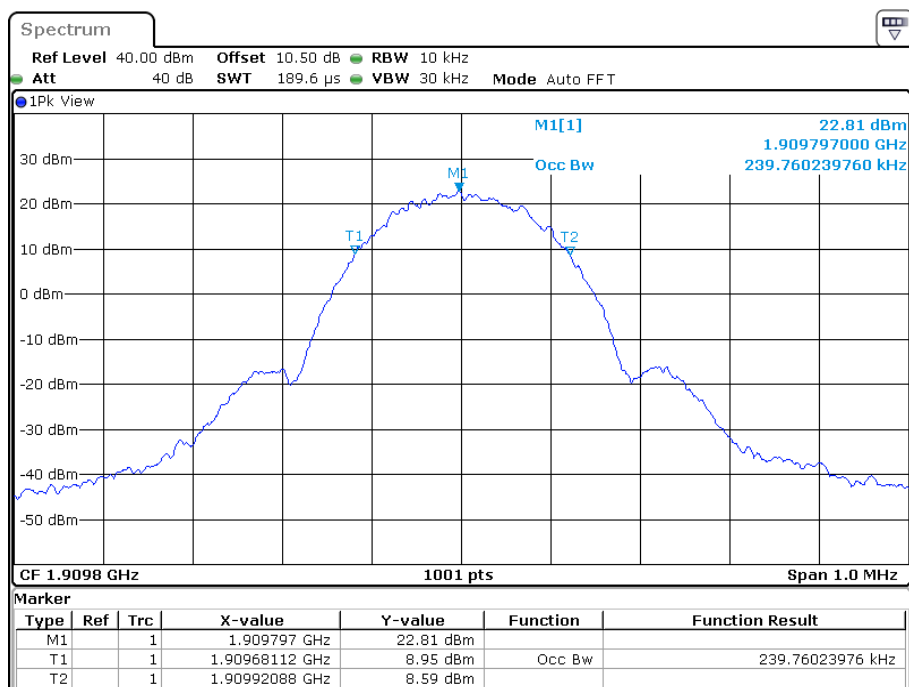


Date: 25.OCT.2022 10:52:02

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

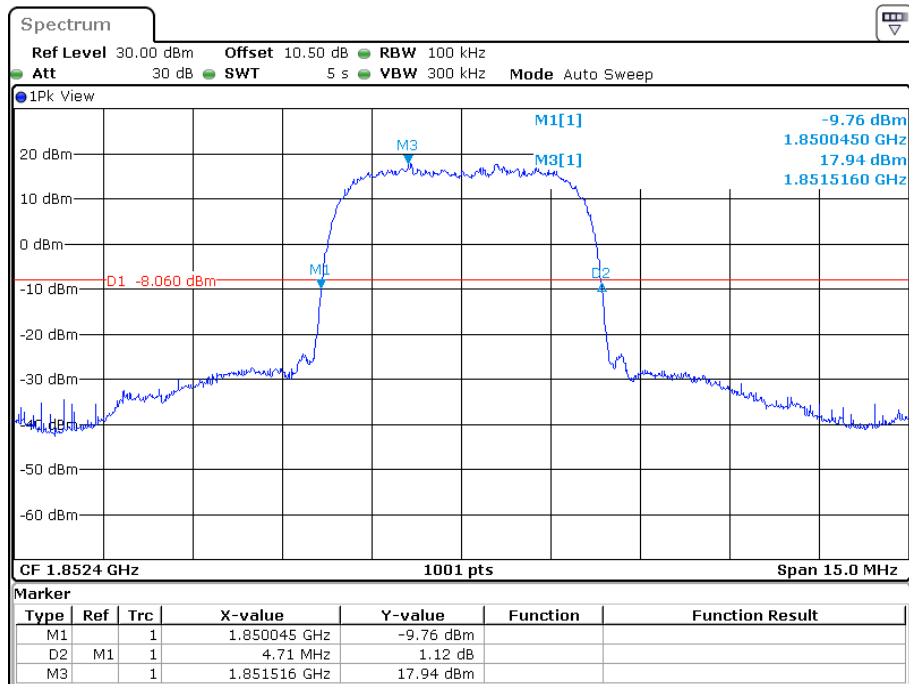


Date: 25.OCT.2022 11:16:14

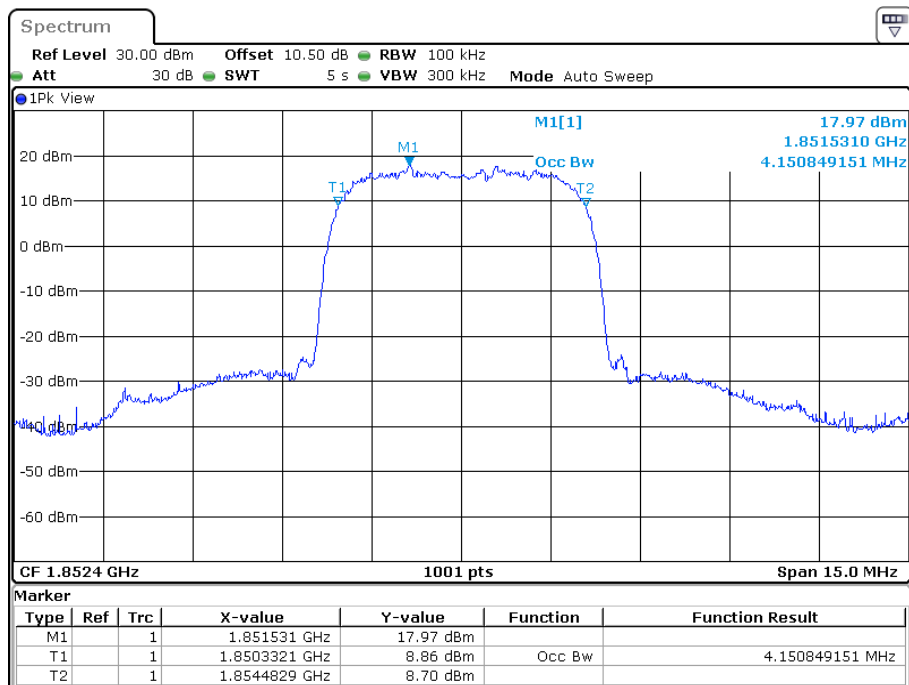


Date: 25.OCT.2022 11:15:36

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

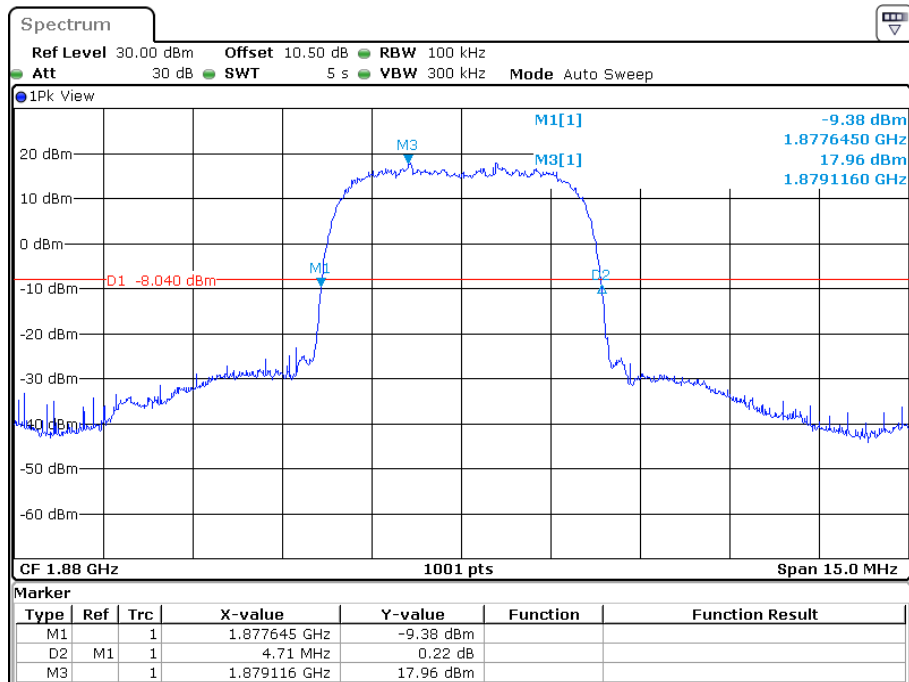


Date: 25.OCT.2022 13:11:18

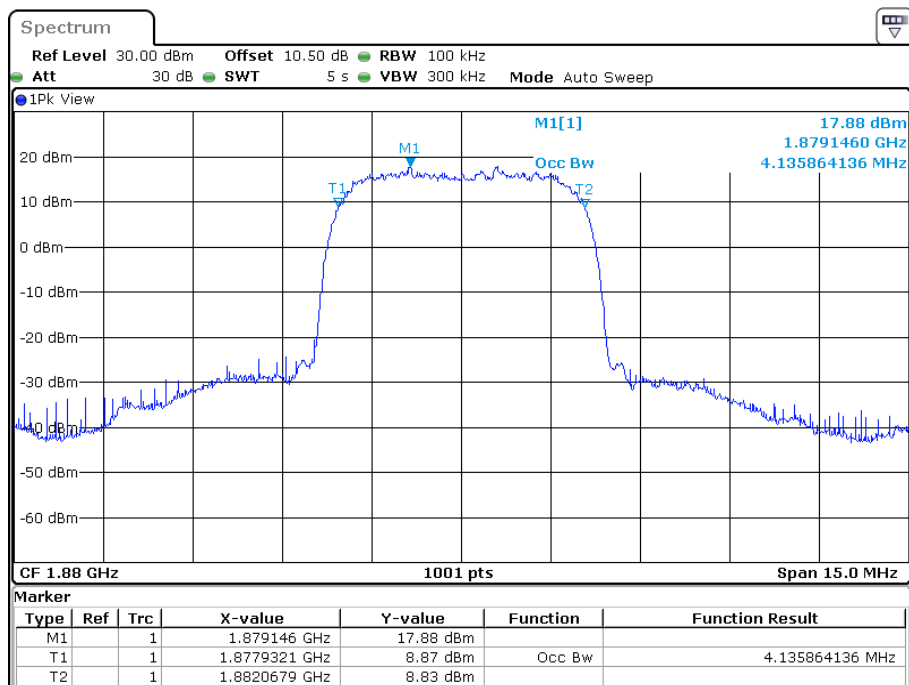


Date: 25.OCT.2022 13:10:39

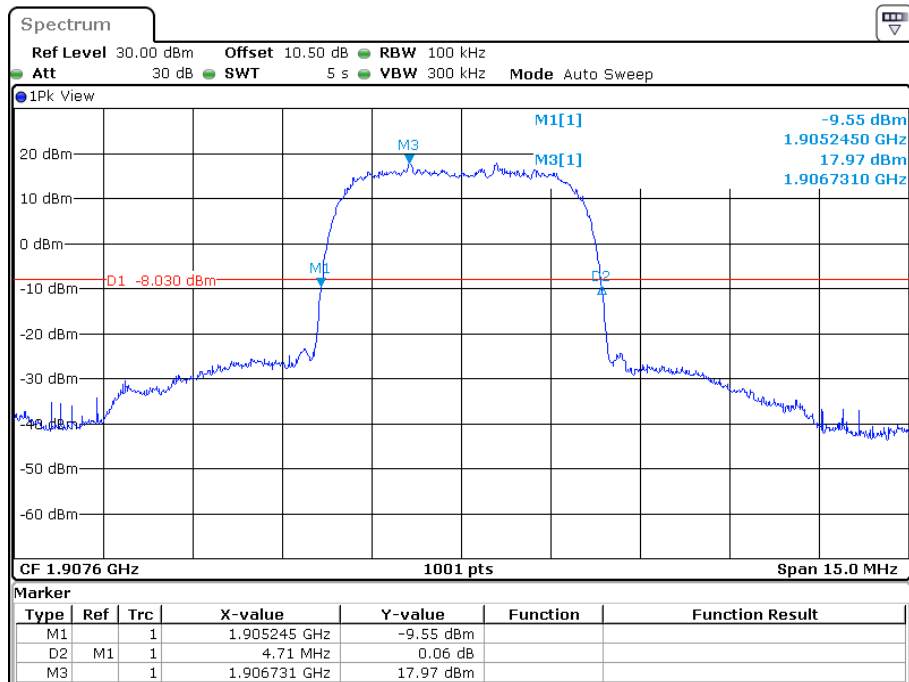
26 dB Emissions & 99% Occupied Bandwidth for RMC (BPSK) Mode, Middle channel



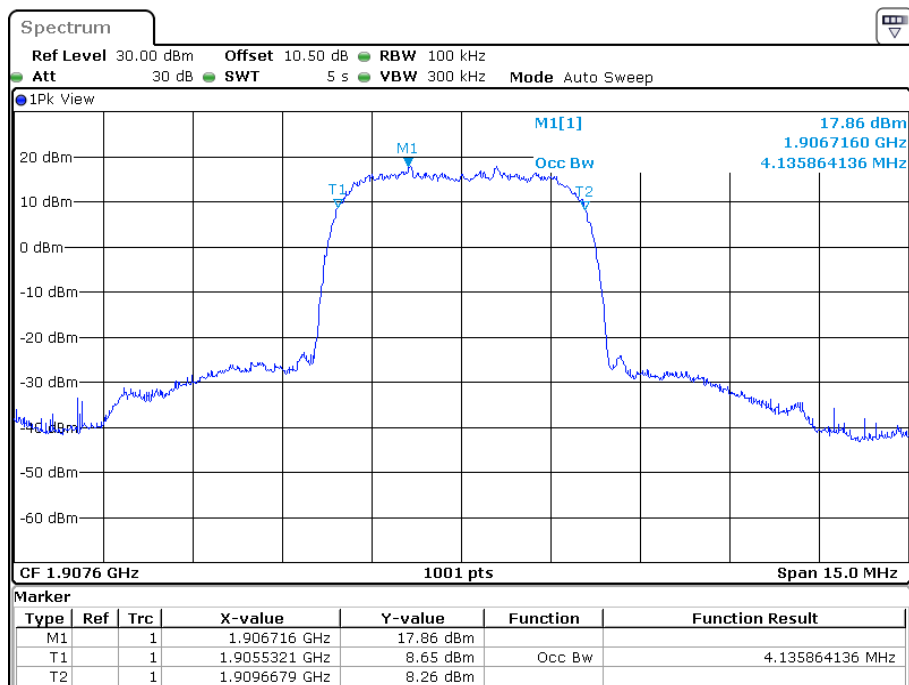
Date: 25.OCT.2022 13:15:19



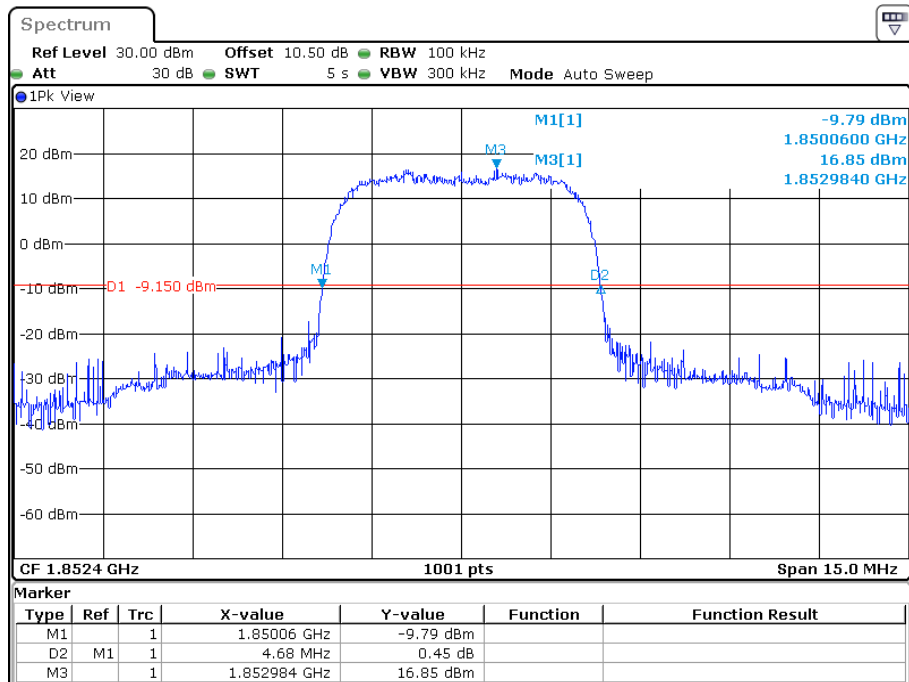
Date: 25.OCT.2022 13:14:39

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

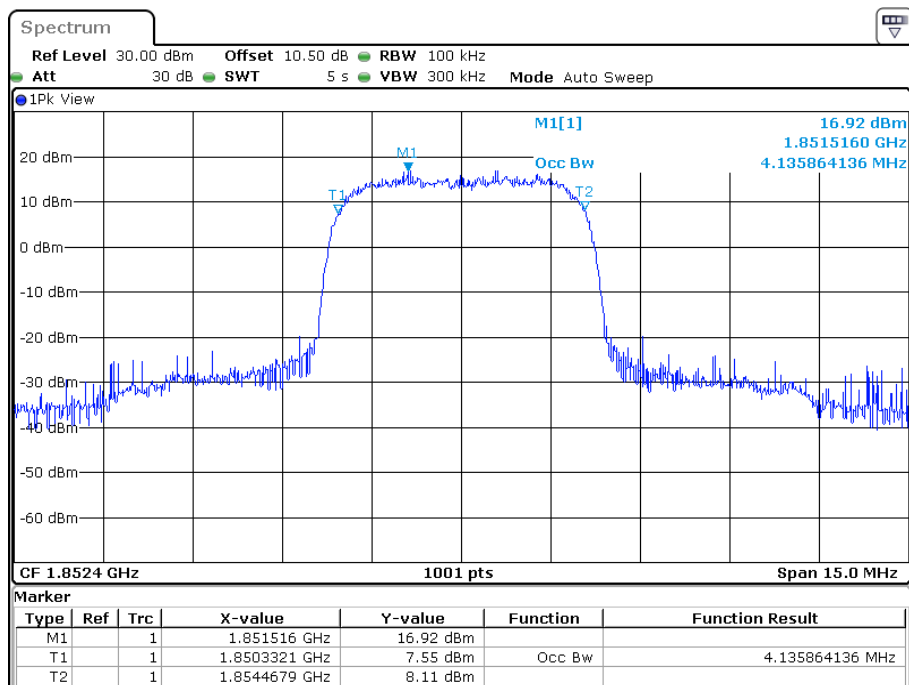
Date: 25.OCT.2022 13:18:31



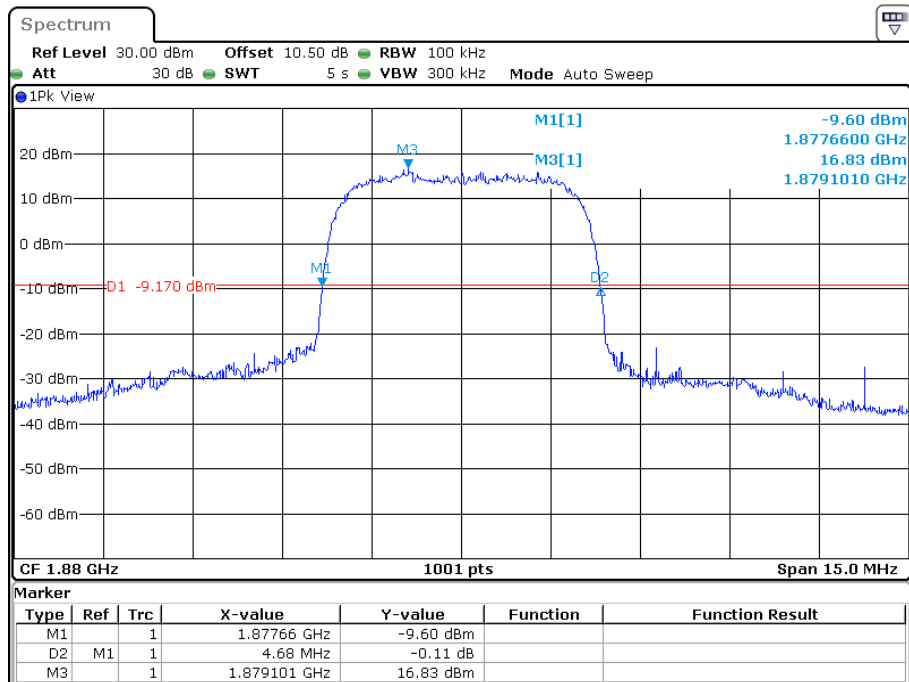
Date: 25.OCT.2022 13:17:53

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

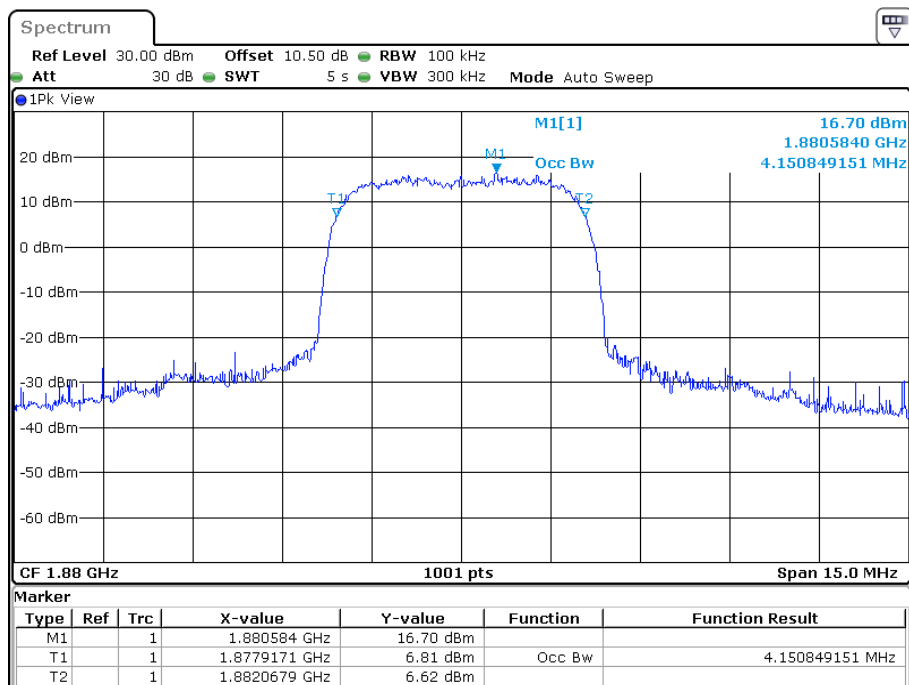
Date: 25.OCT.2022 11:42:54



Date: 25.OCT.2022 11:42:15

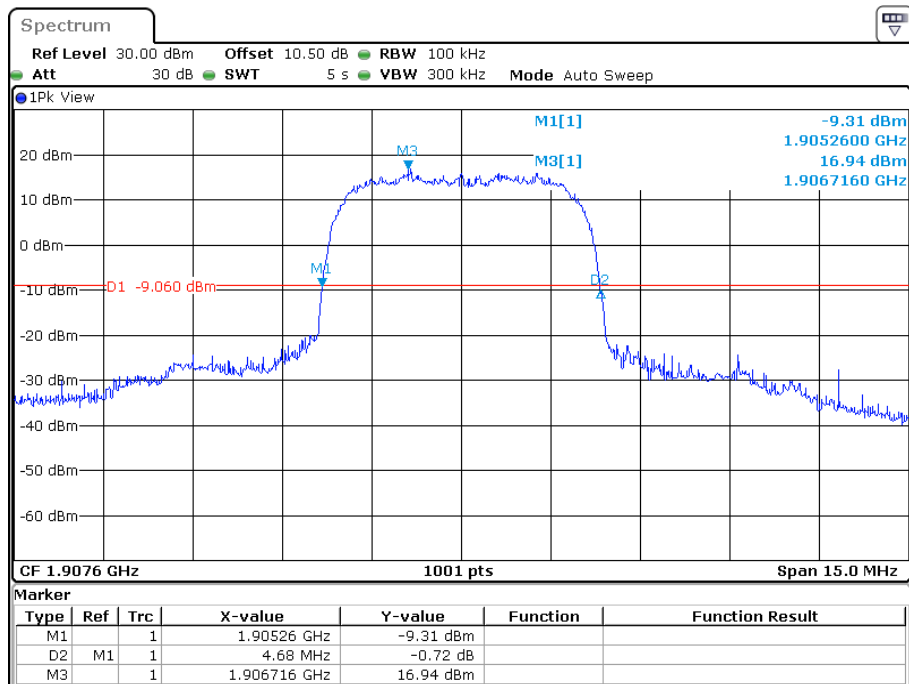
26 dB Emissions & 99% Occupied Bandwidth for HSDPA (QPSK) Mode, Middle channel

Date: 25.OCT.2022 11:39:34

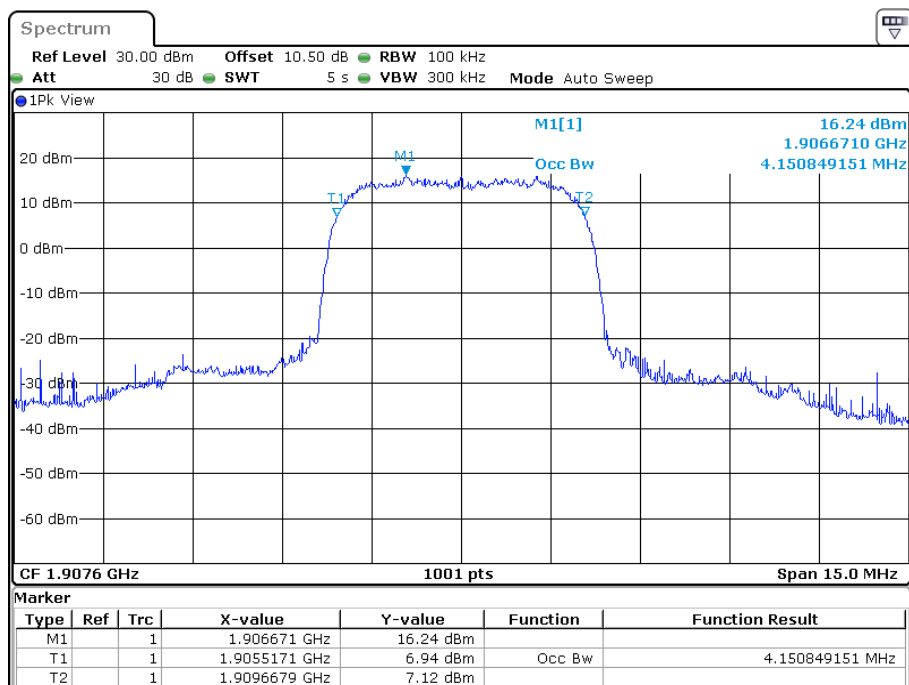


Date: 25.OCT.2022 11:38:57

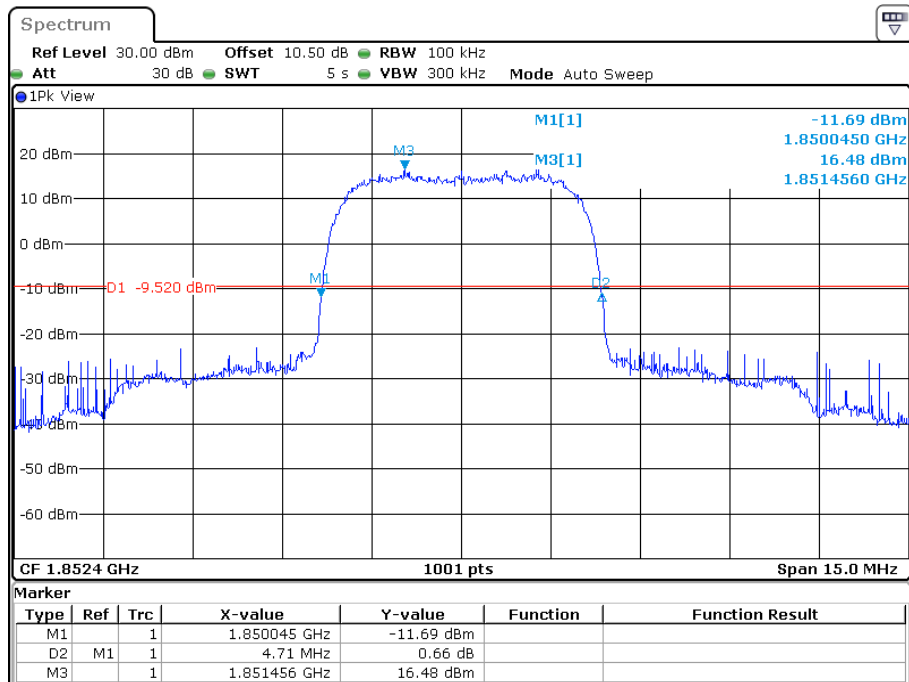
26 dB Emissions & 99% Occupied Bandwidth for HSDPA (QPSK) Mode, High channel



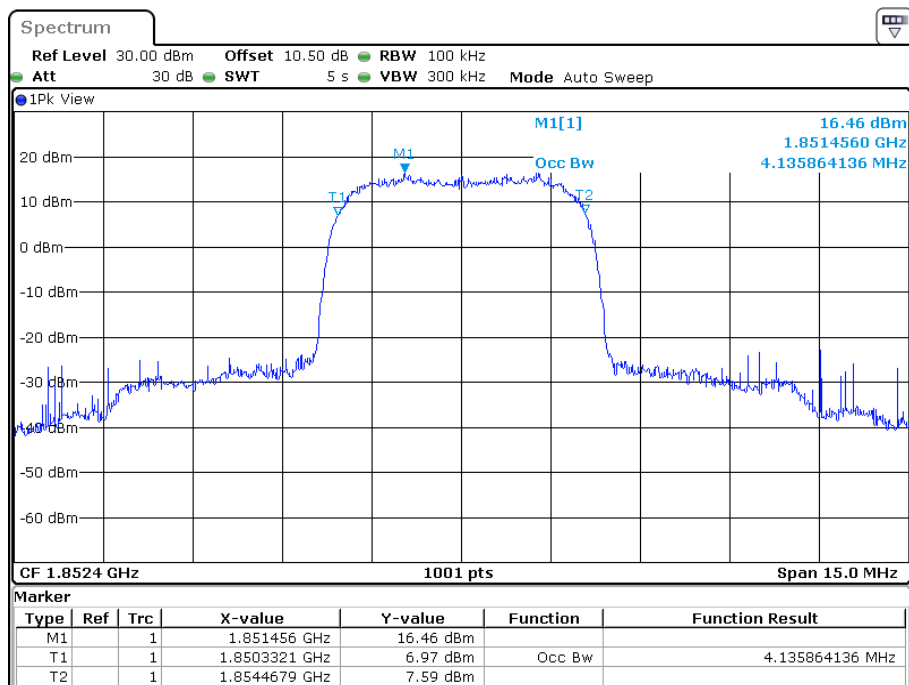
Date: 25.OCT.2022 11:47:48



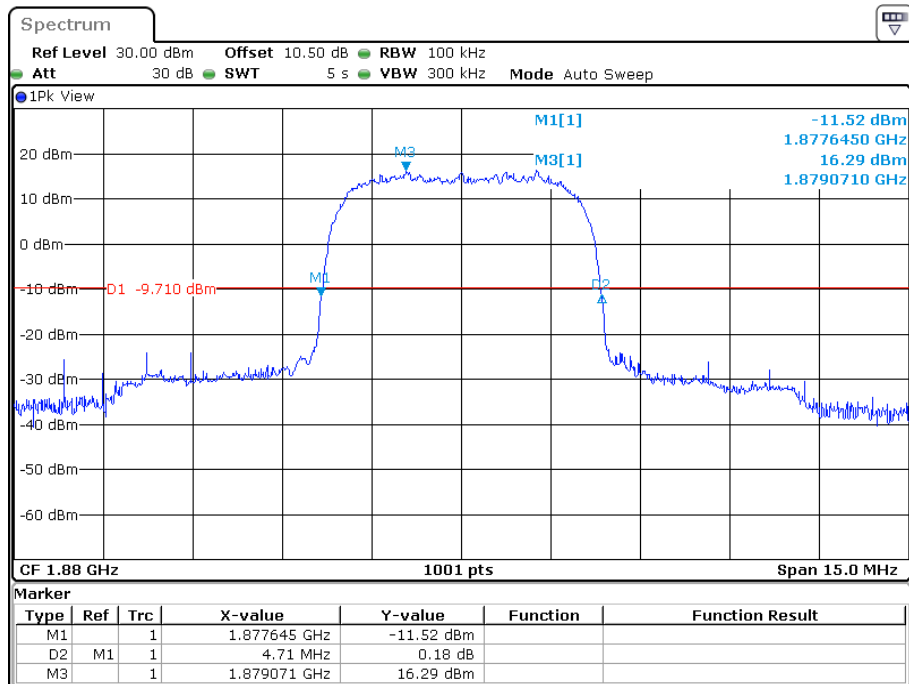
Date: 25.OCT.2022 11:47:09

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

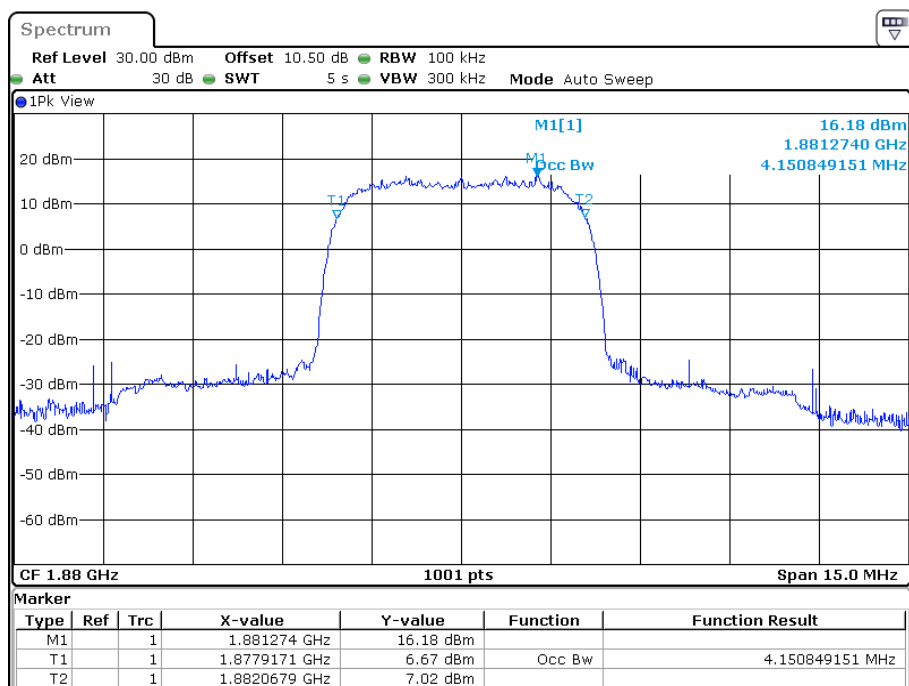
Date: 25.OCT.2022 11:59:56



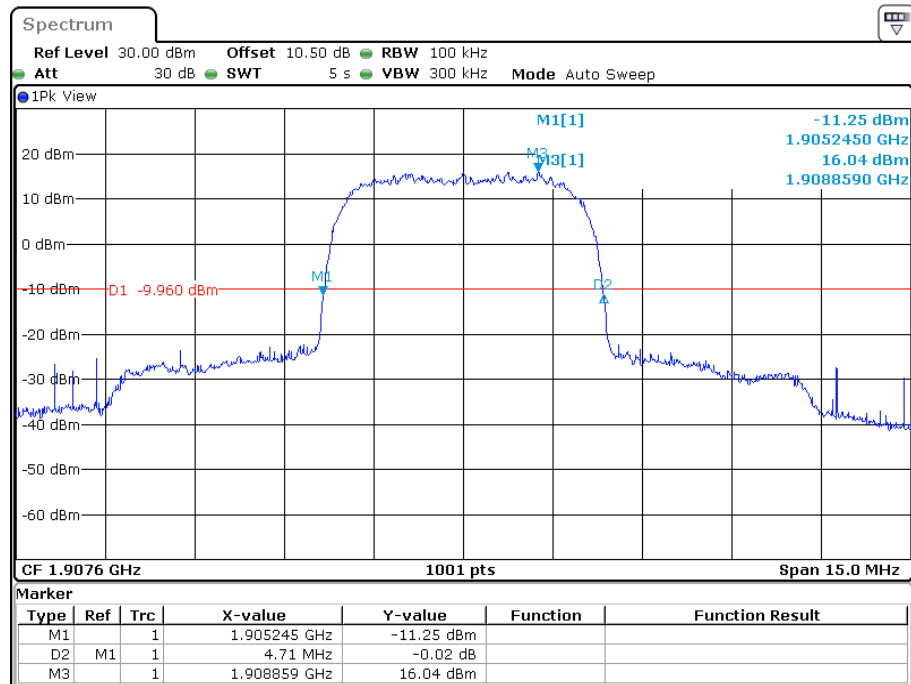
Date: 25.OCT.2022 11:59:18

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

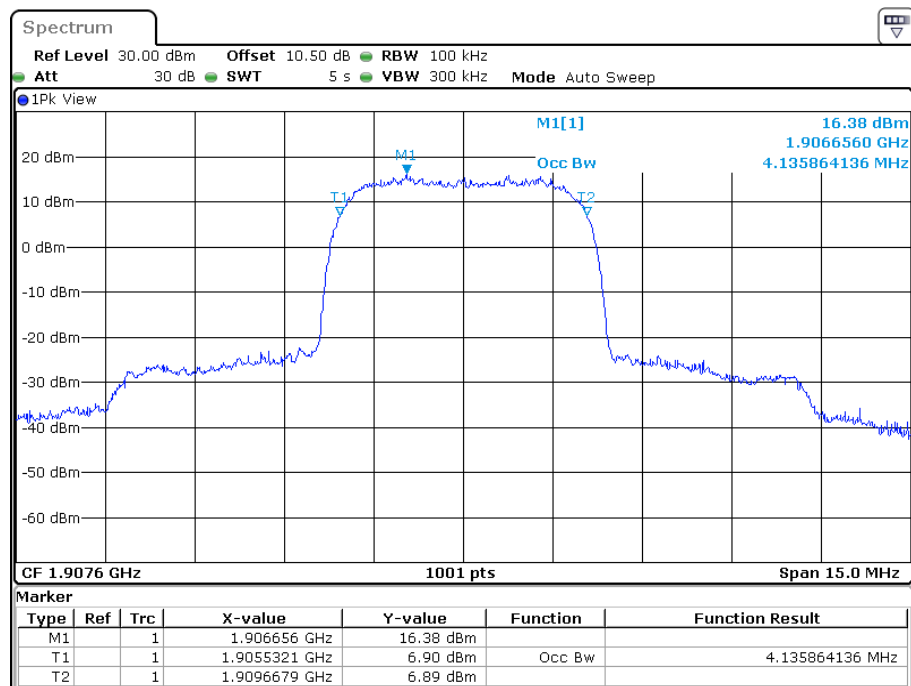
Date: 25.OCT.2022 11:56:34



Date: 25.OCT.2022 11:55:56

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

Date: 25.OCT.2022 11:52:46



Date: 25.OCT.2022 11:52:06

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	1.260	1.104	1.260	1.098	1.260
	16QAM	1.104	1.254	1.110	1.266	1.098	1.254
3 MHz	QPSK	2.700	3.012	2.700	3.012	2.700	2.988
	16QAM	2.688	3.000	2.700	3.024	2.700	3.036
5 MHz	QPSK	4.520	5.000	4.520	5.000	4.520	5.000
	16QAM	4.540	5.000	4.540	5.020	4.520	4.980
10 MHz	QPSK	9.000	9.720	8.960	9.760	8.960	9.760
	16QAM	9.000	9.720	8.960	9.840	8.960	9.760
15 MHz	QPSK	13.500	15.060	13.560	15.120	13.560	15.180
	16QAM	13.620	15.120	13.620	15.060	13.560	15.060
20 MHz	QPSK	18.000	19.600	18.000	19.120	18.000	19.600
	16QAM	18.000	19.840	18.080	19.760	18.080	19.760

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	1.260	1.104	1.260	1.104	1.254
	16QAM	1.092	1.254	1.098	1.248	1.110	1.266
3 MHz	QPSK	2.700	3.000	2.700	3.012	2.700	3.012
	16QAM	2.700	3.024	2.700	3.024	2.700	3.012
5 MHz	QPSK	4.520	5.020	4.520	4.980	4.540	5.000
	16QAM	4.520	5.000	4.540	5.000	4.520	5.020
10 MHz	QPSK	9.000	9.760	9.000	9.800	9.000	9.800
	16QAM	9.000	9.800	8.960	9.840	8.960	9.800
15 MHz	QPSK	13.500	15.000	13.560	15.120	13.560	15.060
	16QAM	13.620	15.240	13.560	15.000	13.560	15.060
20 MHz	QPSK	18.000	19.680	18.000	19.760	18.000	19.680
	16QAM	18.000	19.680	18.080	19.760	18.080	19.840

LTE Band 7:

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
5 MHz	QPSK	4.520	5.020	4.500	4.980	4.540	4.980
	16QAM	4.540	5.000	4.540	5.000	4.520	5.000
10 MHz	QPSK	8.960	9.680	9.000	9.800	9.000	9.760
	16QAM	8.960	9.760	8.960	9.800	9.000	9.760
15 MHz	QPSK	13.560	15.120	13.620	15.180	13.620	15.120
	16QAM	13.560	15.120	13.560	15.060	13.560	15.120
20 MHz	QPSK	17.920	19.680	18.080	19.840	18.000	19.600
	16QAM	18.000	19.760	18.080	19.760	18.000	19.760

LTE Band 12:

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
1.4 MHz	QPSK	1.104	1.260	1.104	1.260	1.104	1.260
	16QAM	1.098	1.248	1.104	1.254	1.116	1.254
3 MHz	QPSK	2.700	3.012	2.700	3.012	2.700	2.988
	16QAM	2.688	3.012	2.688	3.036	2.700	3.024
5 MHz	QPSK	4.520	4.980	4.520	4.980	4.540	5.000
	16QAM	4.540	5.000	4.540	5.020	4.520	4.980
10 MHz	QPSK	8.960	9.720	8.960	9.800	8.960	9.760
	16QAM	9.000	9.760	8.960	9.840	8.960	9.800

LTE Band 17:

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
5 MHz	QPSK	4.520	4.980	4.520	4.980	4.520	5.000
	16QAM	4.520	5.000	4.520	5.020	4.520	4.980
10 MHz	QPSK	8.960	9.760	8.960	9.760	8.960	9.760
	16QAM	8.960	9.720	8.960	9.720	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 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

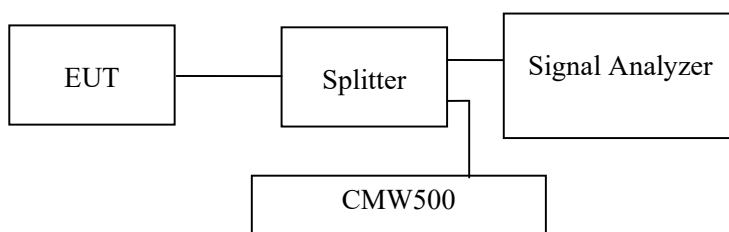
Applicable Standard

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

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

Test Procedure

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



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

Test Data

Environmental Conditions

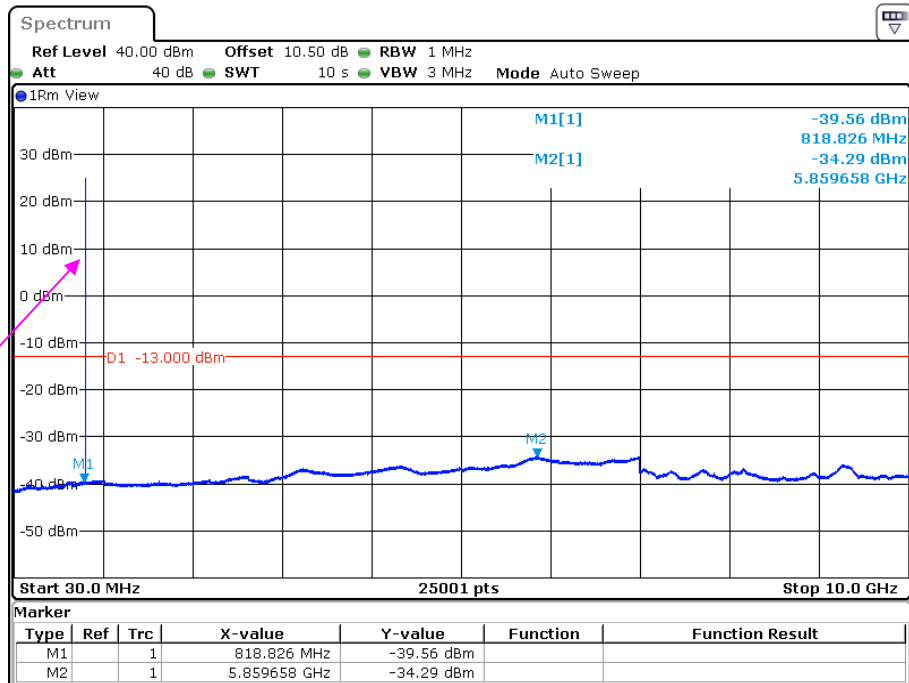
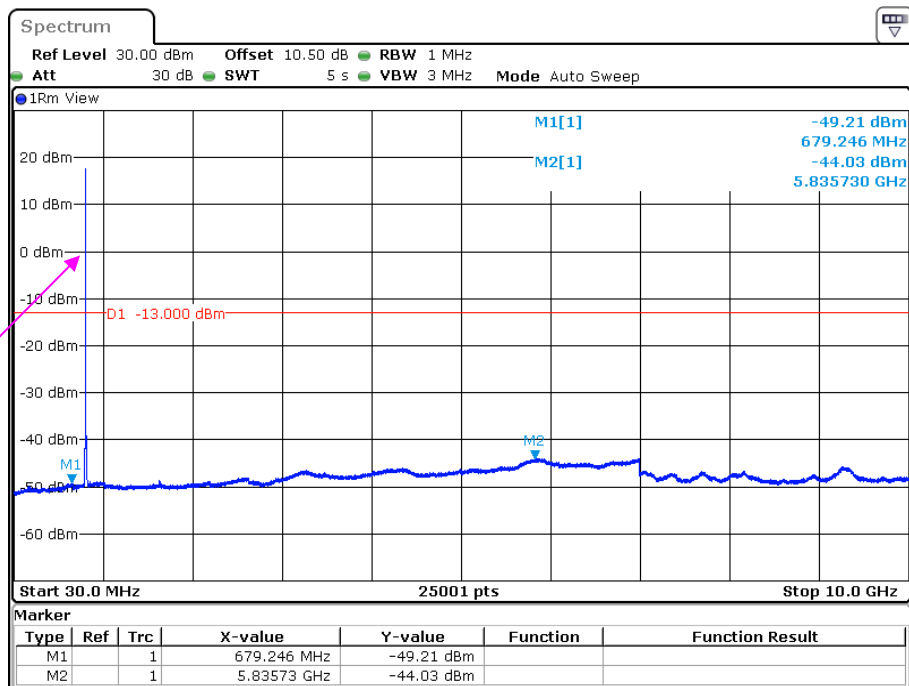
Temperature:	28 °C
Relative Humidity:	34 %
ATM Pressure:	101.0 kPa

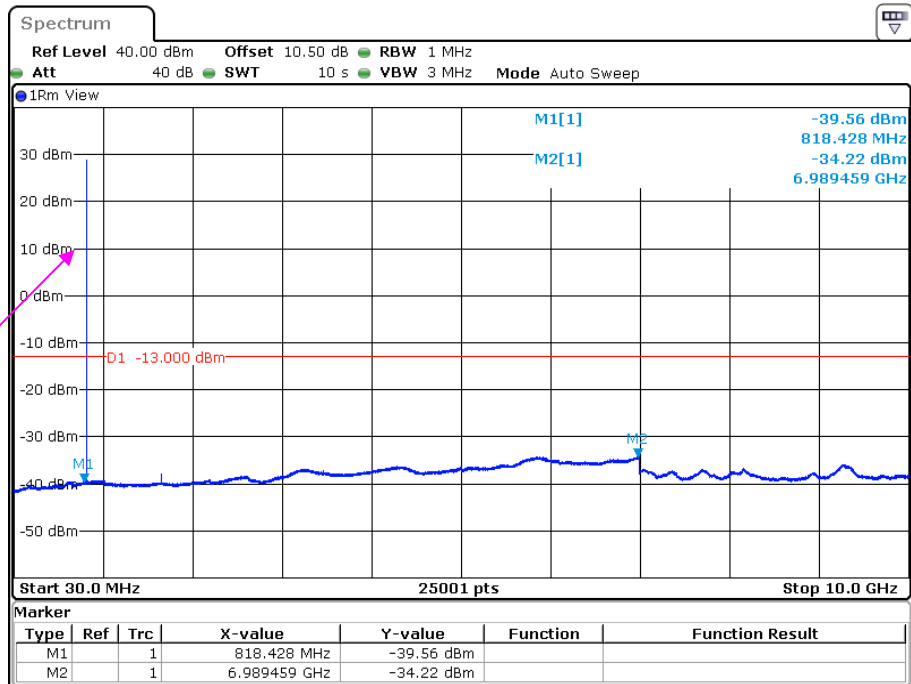
The testing was performed by Audy Yu on 2022-10-24~2022-10-25.

EUT operation mode: Transmitting

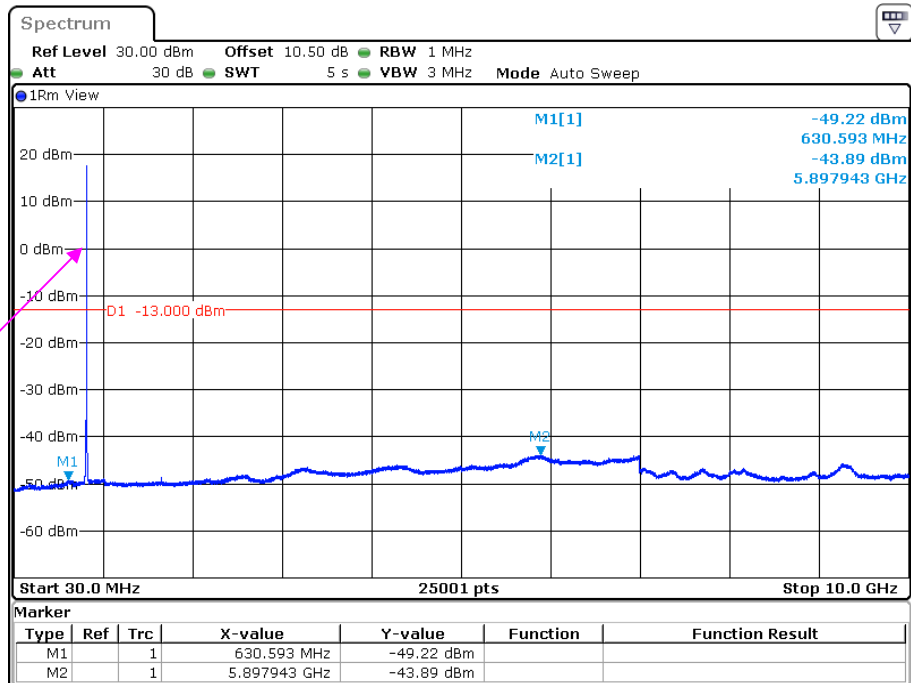
Test result: Pass

Please refer to the following plots.

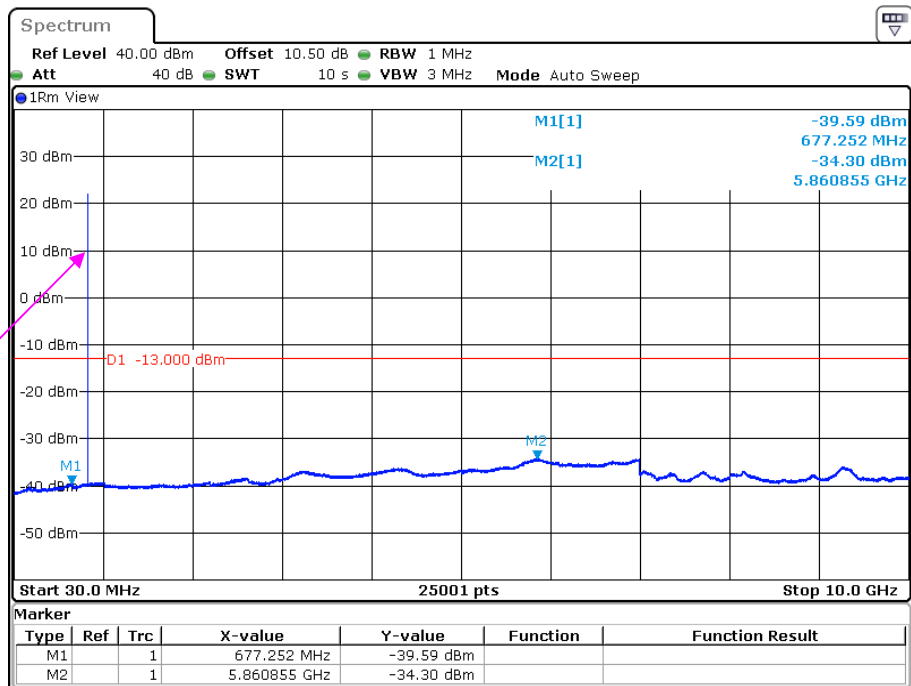
Cellular Band (Part 22H)
Low Channel:**30 MHz – 10 GHz (GSM Mode)****30 MHz – 10 GHz (WCDMA Mode)**

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

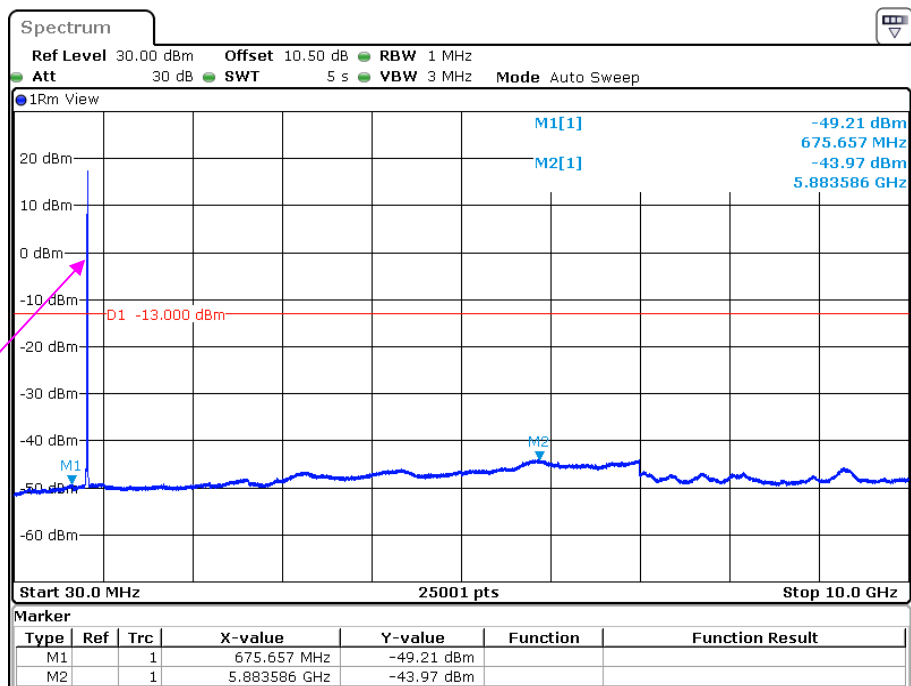
Fundamental test

30 MHz – 10 GHz (WCDMA Mode)

Fundamental test

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

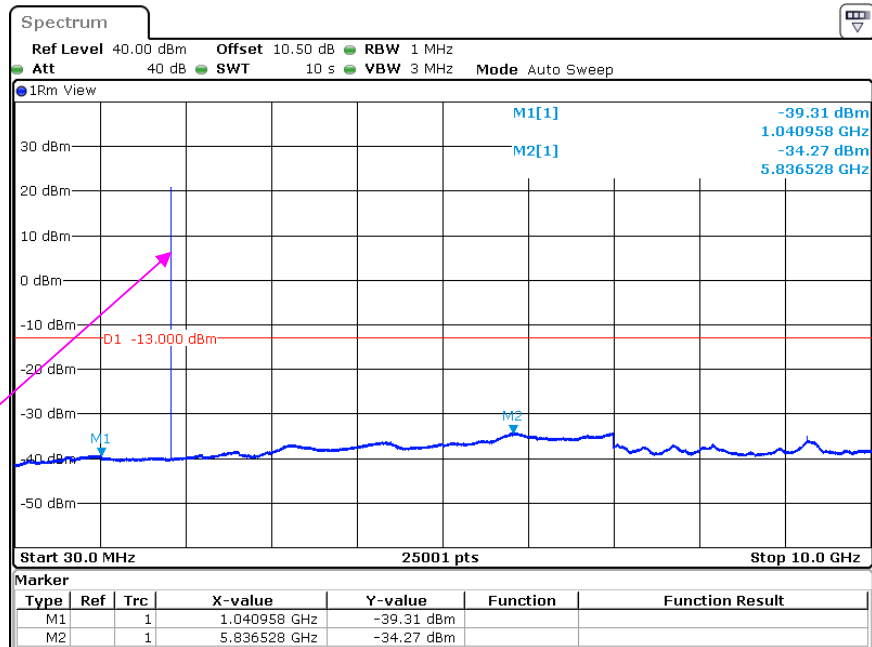
Date: 25.OCT.2022 10:09:16

30 MHz – 10 GHz (WCDMA Mode)

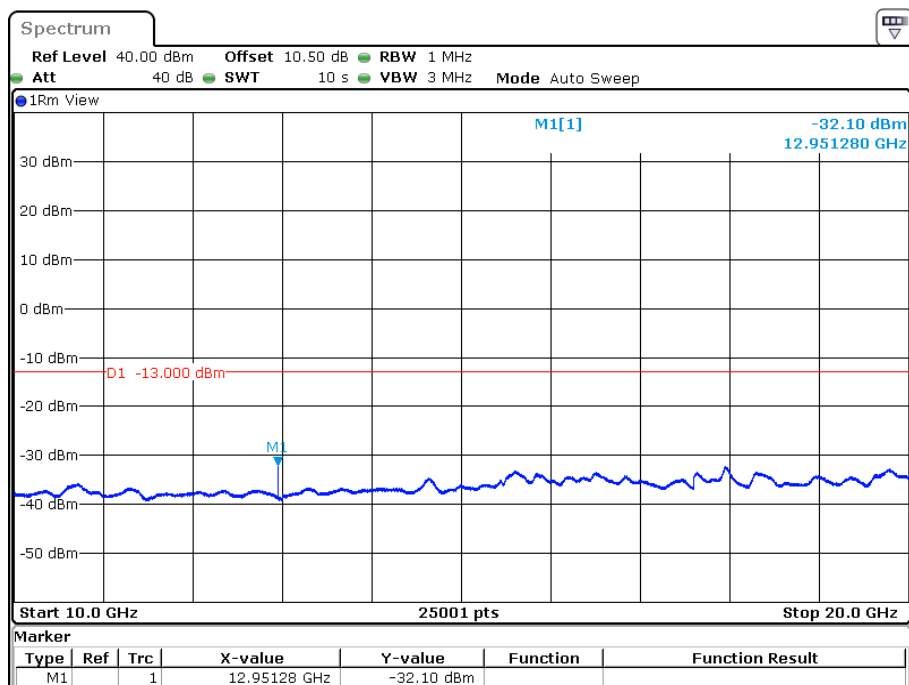
Date: 25.OCT.2022 13:31:56

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

Fundamental test



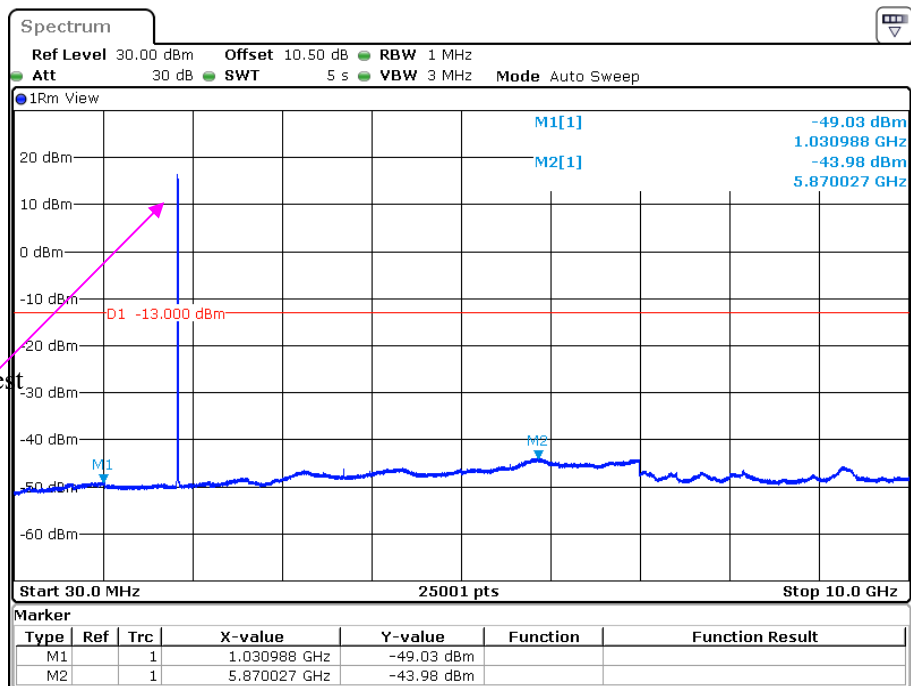
Date: 25.OCT.2022 10:31:52

10 GHz – 20 GHz (GSM Mode)

Date: 25.OCT.2022 10:33:02

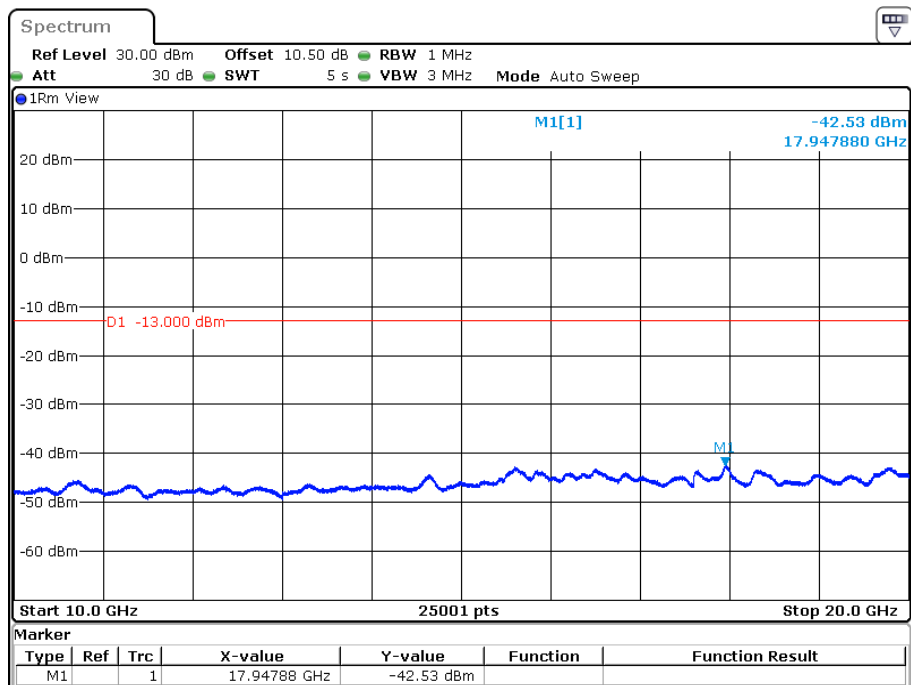
30 MHz – 10 GHz (WCDMA Mode)

Fundamental test

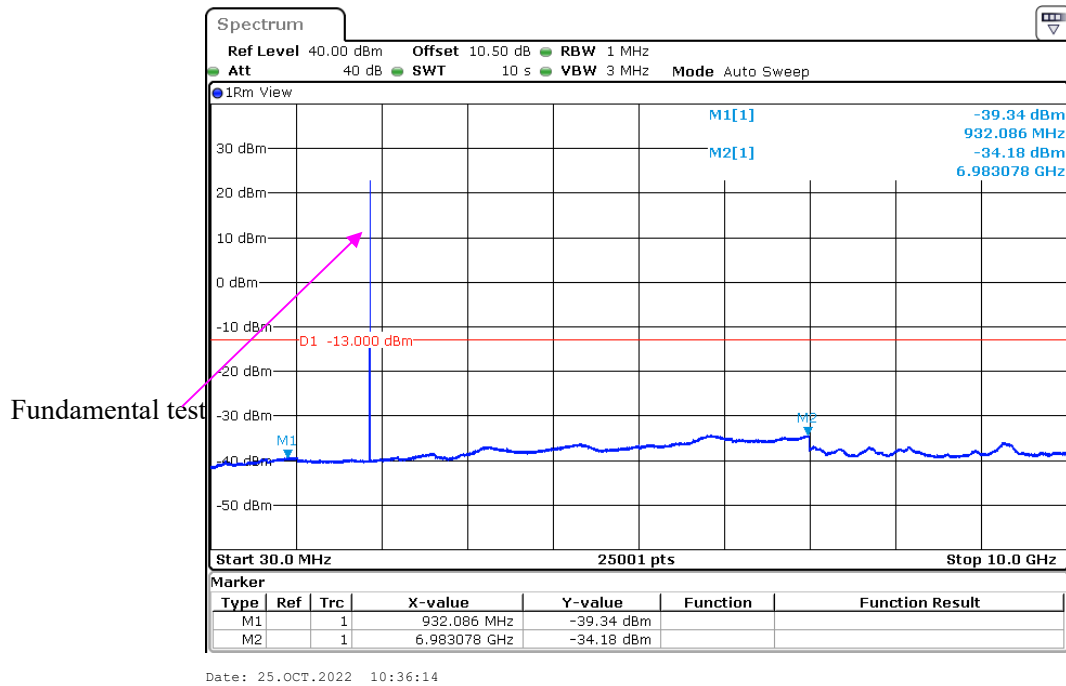
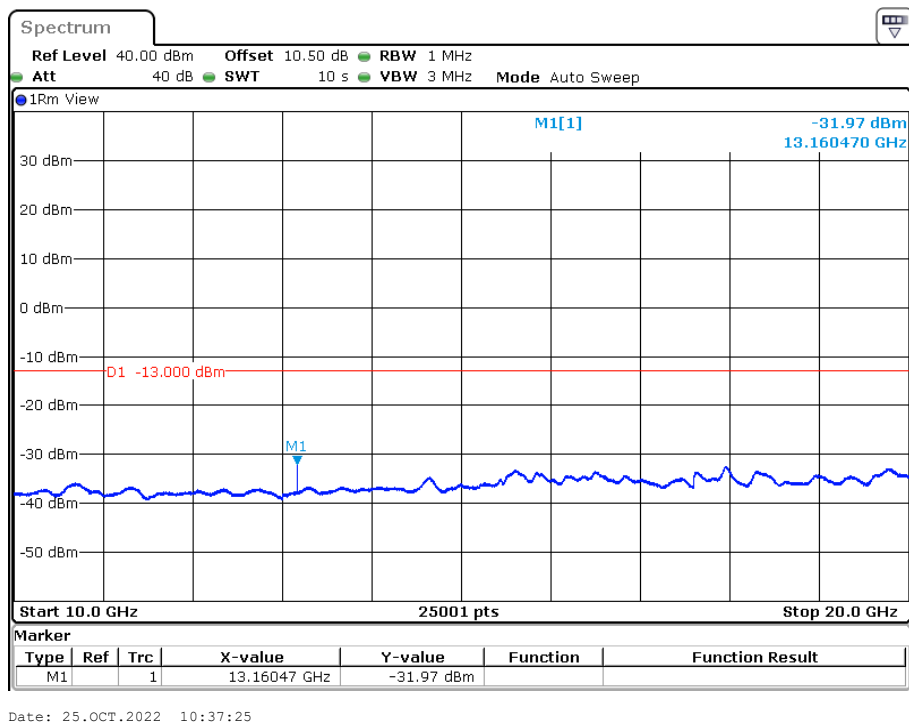


Date: 25.OCT.2022 13:12:36

10 GHz – 20 GHz (WCDMA Mode)

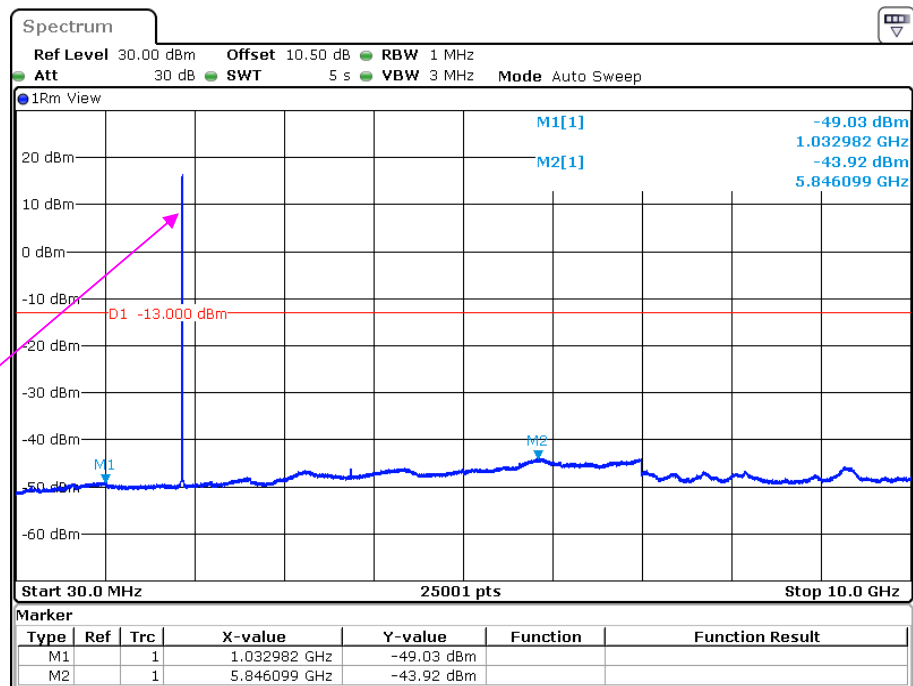


Date: 25.OCT.2022 13:13:16

Middle Channel:**30 MHz – 10 GHz (GSM Mode)****10 GHz – 20 GHz (GSM Mode)**

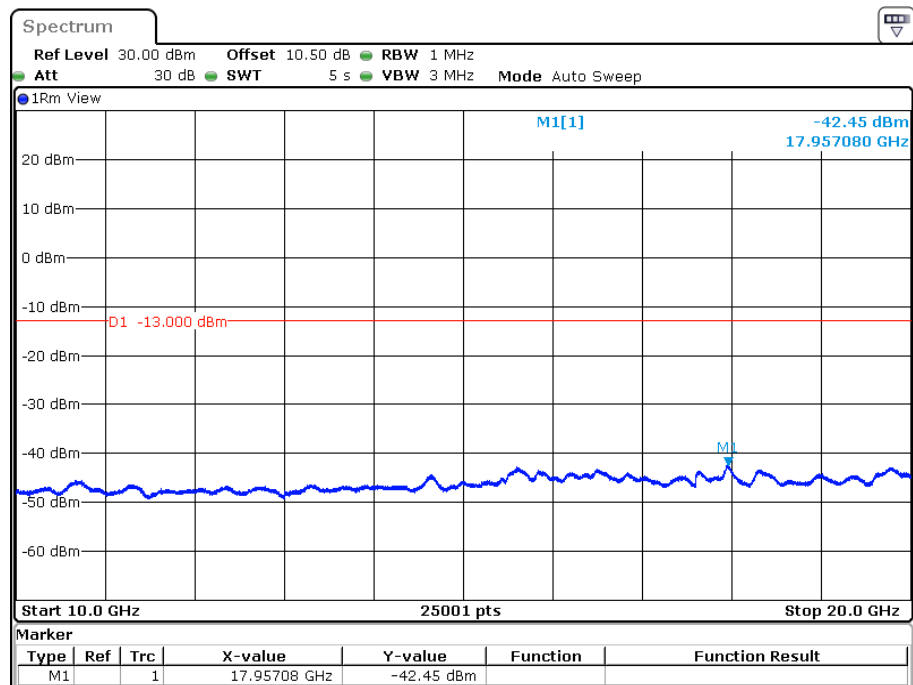
30 MHz – 10 GHz (WCDMA Mode)

Fundamental test



Date: 25.OCT.2022 13:15:57

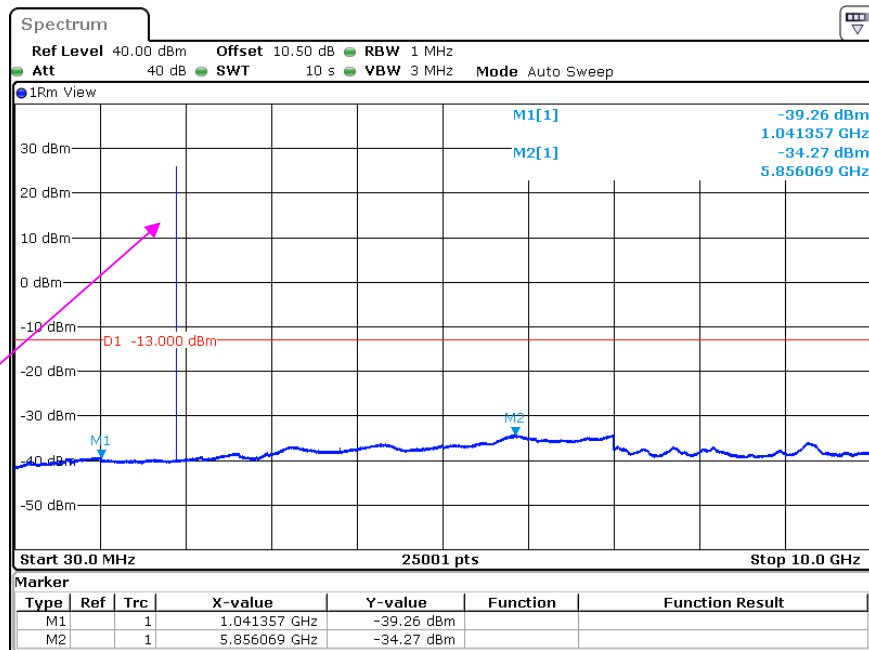
10 GHz – 20 GHz (WCDMA Mode)



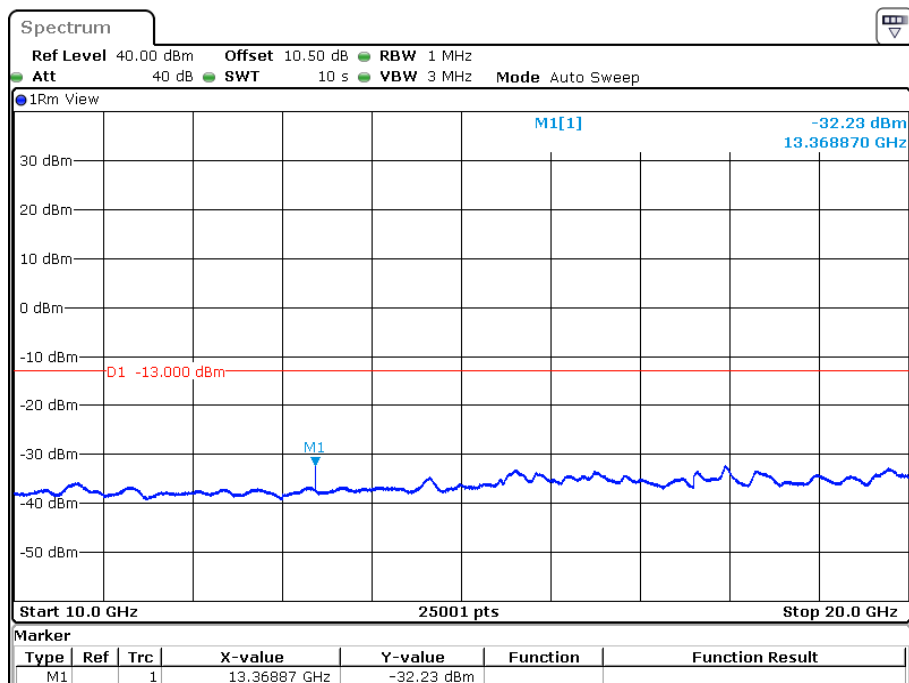
Date: 25.OCT.2022 13:16:37

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

Fundamental test



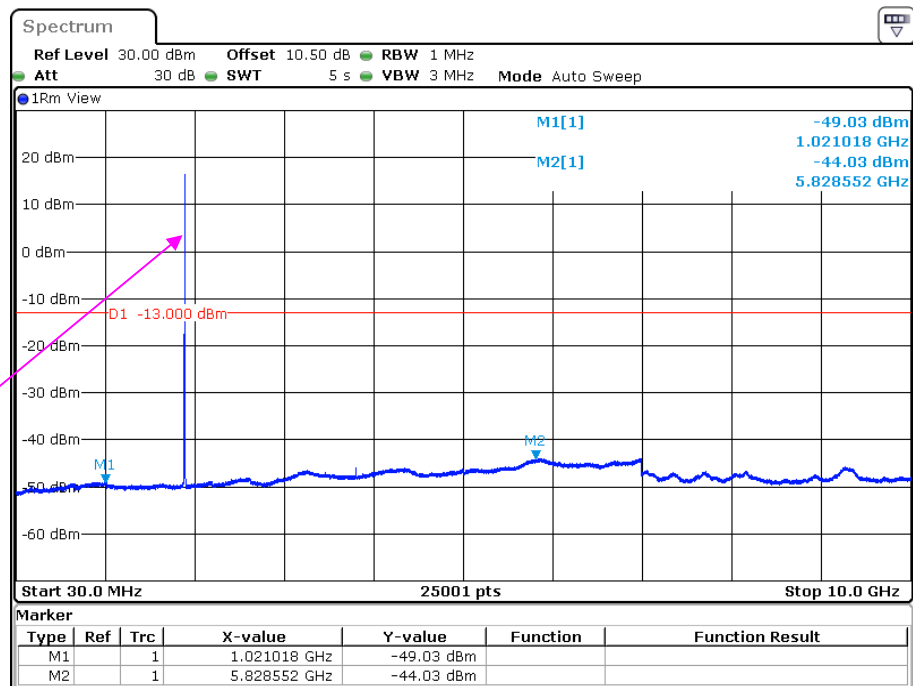
Date: 25.OCT.2022 10:42:11

10 GHz – 20 GHz (GSM Mode)

Date: 25.OCT.2022 10:43:21

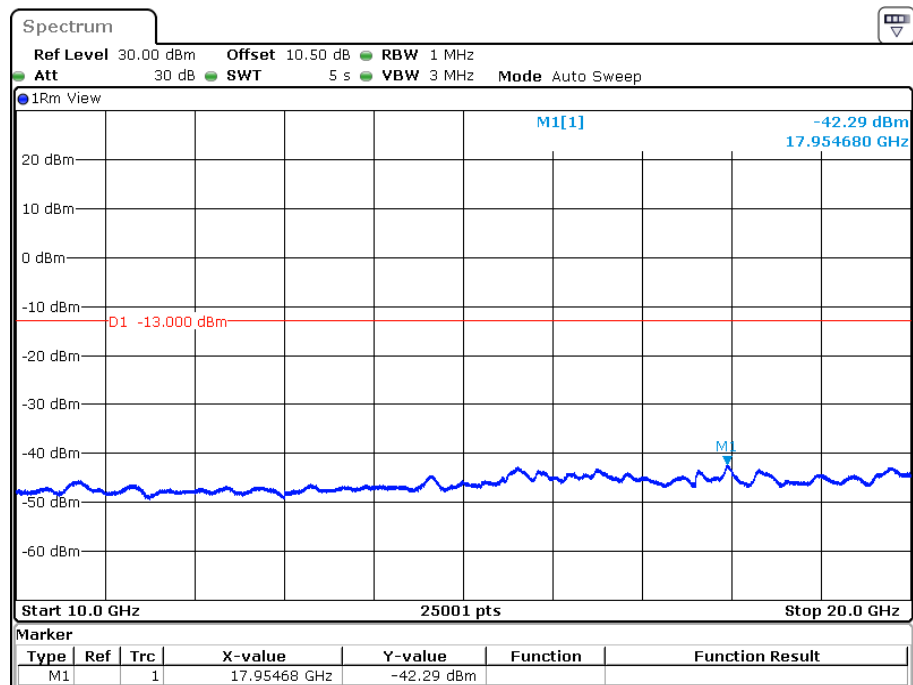
30 MHz – 10 GHz (WCDMA Mode)

Fundamental test



Date: 25.OCT.2022 13:19:49

10 GHz – 20 GHz (WCDMA Mode)



Date: 25.OCT.2022 13:20:30

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

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

Applicable Standard

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

Test Procedure

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

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

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

Test Data

Environmental Conditions

Temperature:	24~27°C
Relative Humidity:	48~56 %
ATM Pressure:	101.0 kPa

The testing was performed by Jeff Jiang from 2022-10-23~2022-10-27.

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

The worst case is as below:

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

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
GSM850, 824.2MHz								
961.3	-59.11	320	1.6	H	10	-49.11	-13	-36.11
961.3	-57.87	303	1.3	V	11.7	-46.17	-13	-33.17
1648.4	-55.10	67	1.7	H	3.5	-51.60	-13	-38.60
1648.4	-55.00	107	1.9	V	3.1	-51.90	-13	-38.90
2472.6	-47.80	158	1.8	H	6.6	-41.20	-13	-28.20
2472.6	-47.60	12	1.4	V	5.8	-41.80	-13	-28.80
3296.8	-49.40	78	1.2	H	6.4	-43.00	-13	-30.00
3296.8	-49.20	145	1	V	5.7	-43.50	-13	-30.50
GSM850, 836.6MHz								
960.61	-60.28	124	2	H	10	-50.28	-13	-37.28
960.61	-59	345	2.1	V	11.7	-47.3	-13	-34.3
1673.2	-50.10	185	2.2	H	3.8	-46.30	-13	-33.30
1673.2	-49.60	182	1.2	V	3.1	-46.50	-13	-33.50
2509.8	-49.40	300	1.9	H	6.2	-43.20	-13	-30.20
2509.8	-51.30	177	2.2	V	5.6	-45.70	-13	-32.70
3346.4	-48.30	238	1.8	H	6.6	-41.70	-13	-28.70
3346.4	-48.50	193	1.2	V	5.4	-43.10	-13	-30.10
GSM850, 848.8MHz								
959.87	-61.56	271	1.6	H	10	-51.56	-13	-38.56
959.87	-60.01	11	1.2	V	11.7	-48.31	-13	-35.31
1697.6	-52.60	308	1.4	H	4.1	-48.50	-13	-35.50
1697.6	-51.70	77	2.2	V	3.1	-48.60	-13	-35.60
2546.4	-43.80	190	1.5	H	6.1	-37.70	-13	-24.70
2546.4	-46.50	170	2.4	V	5.8	-40.70	-13	-27.70
3395.2	-46.40	326	2	H	6.2	-40.20	-13	-27.20
3395.2	-47.30	259	1.5	V	5.4	-41.90	-13	-28.90

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
WCDMA Band5,826.4MHz								
961.44	-59.97	83	1.7	H	10	-49.97	-13	-36.97
961.44	-58.45	98	2	V	11.7	-46.75	-13	-33.75
1652.8	-52.90	114	1.5	H	3.5	-49.40	-13	-36.40
1652.8	-52.10	215	2	V	3.1	-49.00	-13	-36.00
2479.2	-54.60	101	1.9	H	6.6	-48.00	-13	-35.00
2479.2	-53.30	204	2.3	V	5.8	-47.50	-13	-34.50
3305.6	-49.60	150	1.8	H	6.4	-43.20	-13	-30.20
3305.6	-48.20	253	1.4	V	5.7	-42.50	-13	-29.50
WCDMA Band5,836.4MHz								
960.2	-60.3	241	1.3	H	10	-50.3	-13	-37.3
960.2	-58.9	5	2.3	V	11.7	-47.2	-13	-34.2
1672.8	-49.20	153	2.4	H	3.8	-45.40	-13	-32.40
1672.8	-49.40	111	1.9	V	3.1	-46.30	-13	-33.30
2509.2	-53.90	203	1.7	H	6.2	-47.70	-13	-34.70
2509.2	-53.30	104	1.1	V	5.6	-47.70	-13	-34.70
3345.6	-49.50	284	1.2	H	6.6	-42.90	-13	-29.90
3345.6	-48.40	333	1.3	V	5.4	-43.00	-13	-30.00
WCDMA Band5,846.6MHz								
959.83	-61.15	117	1.9	H	10	-51.15	-13	-38.15
959.83	-60.17	183	1.5	V	11.7	-48.47	-13	-35.47
1693.2	-54.00	188	2.5	H	4.1	-49.90	-13	-36.90
1693.2	-53.30	349	1.9	V	3.1	-50.20	-13	-37.20
2539.8	-54.90	225	1.1	H	6.1	-48.80	-13	-35.80
2539.8	-54.20	285	1.5	V	5.8	-48.40	-13	-35.40
3386.4	-49.30	131	2	H	6.2	-43.10	-13	-30.10
3386.4	-48.50	16	2.2	V	5.4	-43.10	-13	-30.10

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

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substitute d Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
GSM 1900, 1850.2MHz								
961.22	-59.89	237	2	H	10	-49.89	-13	-36.89
961.22	-58	305	2.5	V	11.7	-46.3	-13	-33.3
3700.4	-47.50	308	1.2	H	8.1	-39.40	-13	-26.40
3700.4	-50.30	202	1.8	V	7.6	-42.70	-13	-29.70
GSM1900, 1880MHz								
960.2	-59.62	53	1.9	H	10	-49.62	-13	-36.62
960.2	-58.99	169	1.7	V	11.7	-47.29	-13	-34.29
3760.0	-50.80	121	1.2	H	8.8	-42.00	-13	-29.00
3760.0	-52.00	81	2.1	V	8	-44.00	-13	-31.00
GSM 1900, 1909.8MHz								
959.42	-61.56	243	1.9	H	10	-51.56	-13	-38.56
959.42	-60.42	76	2.4	V	11.7	-48.72	-13	-35.72
3819.6	-51.60	346	1.5	H	8.7	-42.90	-13	-29.90
3819.6	-51.10	174	1.3	V	7.9	-43.20	-13	-30.20

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
WCDMA Band2,1852.4MHz								
961.11	-60	44	2.3	H	10	-50	-13	-37
961.11	-57.82	275	1.1	V	11.7	-46.12	-13	-33.12
3704.8	-46.30	229	2.1	H	8.1	-38.20	-13	-25.20
3704.8	-46.00	299	1.6	V	7.6	-38.40	-13	-25.40
5557.2	-42.30	259	2.4	H	9.6	-32.70	-13	-19.70
5557.2	-44.90	3	2.1	V	9.1	-35.80	-13	-22.80
WCDMA Band2,1880MHz								
960.69	-60.1	235	1.8	H	10	-50.1	-13	-37.1
960.69	-58.7	214	1.8	V	11.7	-47	-13	-34
3760.0	-49.70	37	1.4	H	8.8	-40.90	-13	-27.90
3760.0	-48.90	333	1.9	V	8	-40.90	-13	-27.90
5640.0	-42.70	155	1.4	H	10.2	-32.50	-13	-19.50
5640.0	-46.90	49	1.3	V	9.4	-37.50	-13	-24.50
WCDMA Band2,1907.6MHz								
959.5	-61.55	272	1.6	H	10	-51.55	-13	-38.55
959.5	-60.35	125	1.4	V	11.7	-48.65	-13	-35.65
3815.2	-50.00	244	1	H	8.7	-41.30	-13	-28.30
3815.2	-49.50	90	2.3	V	7.9	-41.60	-13	-28.60
5722.8	-44.30	249	2.3	H	10.6	-33.70	-13	-20.70
5722.8	-47.70	79	1.5	V	10.2	-37.50	-13	-24.50

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

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
LTE Band 2								
Test frequency range: 30MHz-20GHz								
1.4MHz bandwidth, QPSK, Low channel								
961.5	-59.19	143	1.5	H	10	-49.19	-13	-36.19
961.5	-58.46	98	1.5	V	11.7	-46.76	-13	-33.76
3701.4	-41.50	151	2	H	8.1	-33.40	-13	-20.40
3701.4	-42.80	234	2	V	7.6	-35.20	-13	-22.20
5552.1	-36.00	283	2.1	H	9.6	-26.40	-13	-13.40
5552.1	-35.10	107	2	V	9.1	-26.00	-13	-13.00
1.4MHz bandwidth, QPSK, Middle channel								
960.75	-59.59	309	1.4	H	10	-49.59	-13	-36.59
960.75	-58.51	12	1.3	V	11.7	-46.81	-13	-33.81
3760.0	-44.70	209	1.2	H	8.8	-35.90	-13	-22.90
3760.0	-45.30	104	2.2	V	8	-37.30	-13	-24.30
5640.0	-37.80	276	1.2	H	10.2	-27.60	-13	-14.60
5640.0	-38.00	115	1.6	V	9.4	-28.60	-13	-15.60
1.4MHz bandwidth, QPSK, High channel								
960.06	-60.67	3	1.6	H	10	-50.67	-13	-37.67
960.06	-60.58	16	2.4	V	11.7	-48.88	-13	-35.88
3818.6	-46.50	234	1.3	H	8.7	-37.80	-13	-24.80
3818.6	-47.00	139	1.8	V	7.9	-39.10	-13	-26.10
5727.9	-34.60	332	1.2	H	10.6	-24.00	-13	-11.00
5727.9	-36.90	76	1.6	V	10.2	-26.70	-13	-13.70

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
LTE Band 4								
Test frequency range: 30MHz-20GHz								
1.4MHz bandwidth, QPSK, Low channel								
961.6	-59.86	203	1.8	H	10	-49.86	-13	-36.86
961.6	-58.8	288	2.1	V	11.7	-47.1	-13	-34.1
3421.4	-43.30	105	1.2	H	6.4	-36.90	-13	-23.90
3421.4	-41.90	0	1.9	V	5.8	-36.10	-13	-23.10
5132.1	-44.60	266	2.3	H	11.4	-33.20	-13	-20.20
5132.1	-42.90	313	1	V	10.8	-32.10	-13	-19.10
1.4MHz bandwidth, QPSK, Middle channel								
960.17	-59.94	179	1.8	H	10	-49.94	-13	-36.94
960.17	-58.8	141	2	V	11.7	-47.1	-13	-34.1
3465.0	-41.00	194	1.1	H	7	-34.00	-13	-21.00
3465.0	-39.00	341	2	V	6.2	-32.80	-13	-19.80
5197.5	-48.00	300	1.1	H	10.4	-37.60	-13	-24.60
5197.5	-41.50	152	1.4	V	9.8	-31.70	-13	-18.70
1.4MHz bandwidth, QPSK, High channel								
959.31	-60.64	252	1.3	H	10	-50.64	-13	-37.64
959.31	-60.29	99	2.3	V	11.7	-48.59	-13	-35.59
3508.6	-44.30	221	2.4	H	7.8	-36.50	-13	-23.50
3508.6	-42.70	40	1.1	V	6.5	-36.20	-13	-23.20
5262.9	-42.70	219	1.1	H	9.4	-33.30	-13	-20.30
5262.9	-43.20	297	1.1	V	9	-34.20	-13	-21.20

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
LTE Band 7								
Test frequency range: 30MHz-26.5GHz								
5MHz bandwidth, QPSK, Low channel								
961.12	-59.95	169	1.1	H	10	-49.95	-25	-24.95
961.12	-58.61	11	1.1	V	11.7	-46.91	-25	-21.91
5005.0	-53.30	344	1.2	H	10.8	-42.50	-25	-17.50
5005.0	-51.20	60	1.1	V	10.2	-41.00	-25	-16.00
7507.5	-51.50	59	1	H	20.4	-31.10	-25	-6.10
7507.5	-48.50	329	2	V	20.1	-28.40	-25	-3.40
5MHz bandwidth, QPSK, Middle channel								
960.76	-59.57	32	1.9	H	10	-49.57	-25	-24.57
960.76	-58.76	207	2.4	V	11.7	-47.06	-25	-22.06
5070.0	-52.70	218	1.1	H	11.1	-41.60	-25	-16.60
5070.0	-49.30	102	2.3	V	10.8	-38.50	-25	-13.50
7605.0	-55.60	332	2.4	H	21.2	-34.40	-25	-9.40
7605.0	-50.40	223	2	V	20.1	-30.30	-25	-5.30
5MHz bandwidth, QPSK, High channel								
961.26	-59.62	207	1.1	H	10	-49.62	-25	-24.62
961.26	-58.33	136	2.2	V	11.7	-46.63	-25	-21.63
5135.0	-53.10	75	1.4	H	11.3	-41.80	-25	-16.80
5135.0	-48.30	88	2.1	V	10.8	-37.50	-25	-12.50
7702.5	-54.90	103	2.1	H	21.2	-33.70	-25	-8.70
7702.5	-51.90	53	1.8	V	21	-30.90	-25	-5.90

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
LTE Band 12								
Test frequency range: 30MHz-10GHz								
1.4MHz bandwidth, QPSK, Low channel								
961.01	-60.16	151	1.6	H	10	-50.16	-13	-37.16
961.01	-58.15	310	1.5	V	11.7	-46.45	-13	-33.45
1399.4	-53.20	6	1.7	H	5.9	-47.30	-13	-34.30
1399.4	-55.20	195	1.8	V	5.9	-49.30	-13	-36.30
2099.1	-51.60	153	2.3	H	6.3	-45.30	-13	-32.30
2099.1	-51.40	327	1.9	V	5.1	-46.30	-13	-33.30
2798.8	-50.80	265	1.7	H	6.7	-44.10	-13	-31.10
2798.8	-53.30	187	2.5	V	6.7	-46.60	-13	-33.60
1.4MHz bandwidth, QPSK, Middle channel								
960.98	-59.54	33	1.9	H	10	-49.54	-13	-36.54
960.98	-57.84	199	1.1	V	11.7	-46.14	-13	-33.14
1415.0	-58.50	4	1.8	H	5.9	-52.60	-13	-39.60
1415.0	-55.90	66	1.3	V	5.9	-50.00	-13	-37.00
2122.5	-51.10	154	2.5	H	6.3	-44.80	-13	-31.80
2122.5	-51.80	88	2.5	V	5.1	-46.70	-13	-33.70
2830.0	-55.00	334	2.1	H	6.7	-48.30	-13	-35.30
2830.0	-54.50	32	1.4	V	6.7	-47.80	-13	-34.80
1.4MHz bandwidth, QPSK, High channel								
960.12	-60.23	223	2.2	H	10	-50.23	-13	-37.23
960.12	-59	70	1.3	V	11.7	-47.3	-13	-34.3
1430.6	-59.30	355	2.3	H	5.9	-53.40	-13	-40.40
1430.6	-56.70	160	1.1	V	5.9	-50.80	-13	-37.80
2145.9	-51.70	197	1.3	H	6.3	-45.40	-13	-32.40
2145.9	-52.00	202	1.6	V	5.1	-46.90	-13	-33.90
2861.2	-53.80	338	2.1	H	6.7	-47.10	-13	-34.10
2861.2	-55.10	292	2.2	V	6.7	-48.40	-13	-35.40

Frequency (MHz)	Receiver Reading (dBm)	Turntable Degree	Rx Antenna		Substituted Factor (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)				
LTE Band 17								
Test frequency range: 30MHz-10GHz								
5MHz bandwidth, QPSK, Low channel								
961.54	-59.84	318	2.4	H	10	-49.84	-13	-36.84
961.54	-58.62	199	1.4	V	11.7	-46.92	-13	-33.92
1413.0	-58.70	124	2	H	5.8	-52.90	-13	-39.90
1413.0	-55.70	237	1.4	V	5.1	-50.60	-13	-37.60
2119.5	-51.20	272	1.1	H	6.5	-44.70	-13	-31.70
2119.5	-52.10	319	1	V	5.7	-46.40	-13	-33.40
2826.0	-54.60	253	2	H	7.1	-47.50	-13	-34.50
2826.0	-54.40	92	1.1	V	6.5	-47.90	-13	-34.90
5MHz bandwidth, QPSK, Middle channel								
961.57	-59.96	63	2.4	H	10	-49.96	-13	-36.96
961.57	-57.86	201	2.5	V	11.7	-46.16	-13	-33.16
1420.0	-56.60	70	1.2	H	5.8	-50.80	-13	-37.80
1420.0	-53.30	275	1.9	V	5.1	-48.20	-13	-35.20
2130.0	-51.30	84	2.1	H	6.5	-44.80	-13	-31.80
2130.0	-52.00	176	2	V	5.7	-46.30	-13	-33.30
2840.0	-53.70	111	1.9	H	7.1	-46.60	-13	-33.60
2840.0	-53.60	357	2	V	6.5	-47.10	-13	-34.10
5MHz bandwidth, QPSK, High channel								
960.21	-59.63	120	1.4	H	10	-49.63	-13	-36.63
960.21	-58.54	194	1.4	V	11.7	-46.84	-13	-33.84
1427.0	-57.70	141	2.4	H	5.8	-51.90	-13	-38.90
1427.0	-56.20	354	1.5	V	5.1	-51.10	-13	-38.10
2140.5	-51.60	153	1.2	H	6.5	-45.10	-13	-32.10
2140.5	-52.00	250	1	V	5.7	-46.30	-13	-33.30
2854.0	-53.00	194	2.1	H	7.1	-45.90	-13	-32.90
2854.0	-53.60	324	2.4	V	6.5	-47.10	-13	-34.10

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 (g)(h)(m) - BAND EDGES**Applicable Standard**

According to § 22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

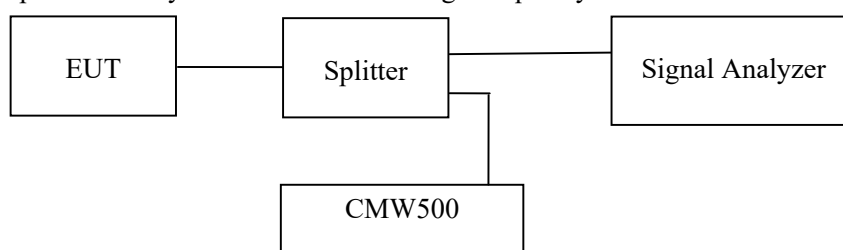
According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

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

Test Procedure

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

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



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

Test Data**Environmental Conditions**

Temperature:	28 °C
Relative Humidity:	34 %
ATM Pressure:	101.0 kPa

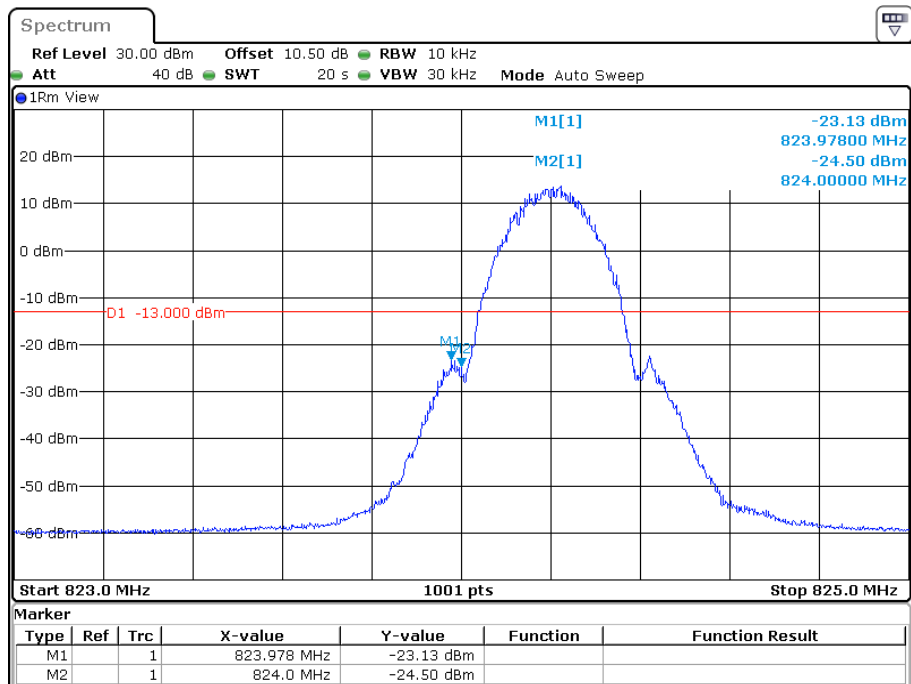
The testing was performed by Audy Yu on 2022-10-24~2022-10-25.

EUT operation mode: Transmitting (Worst case)

Test Result: Pass

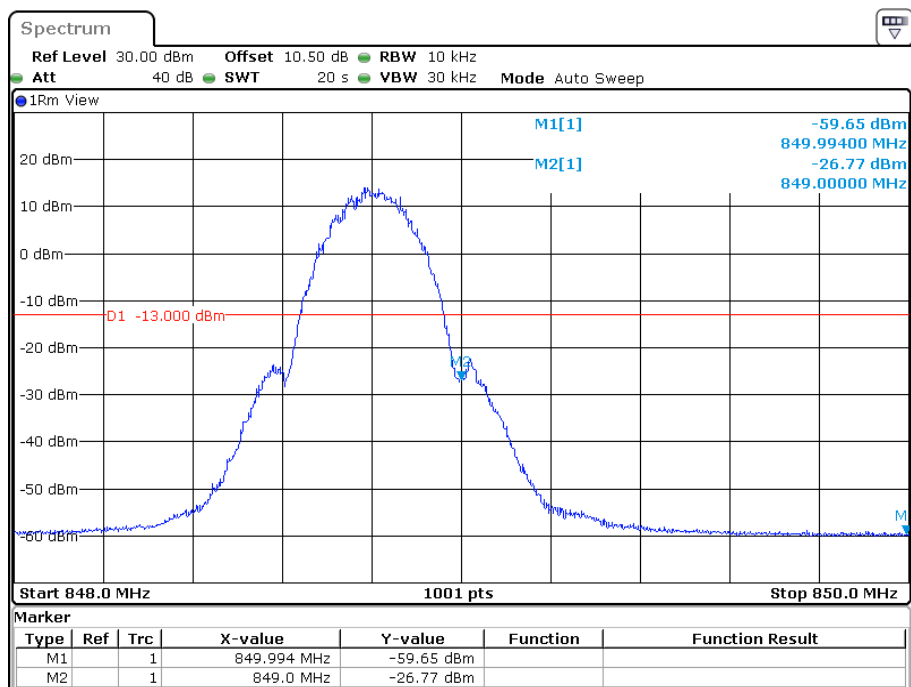
Please refer to the following plots.

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



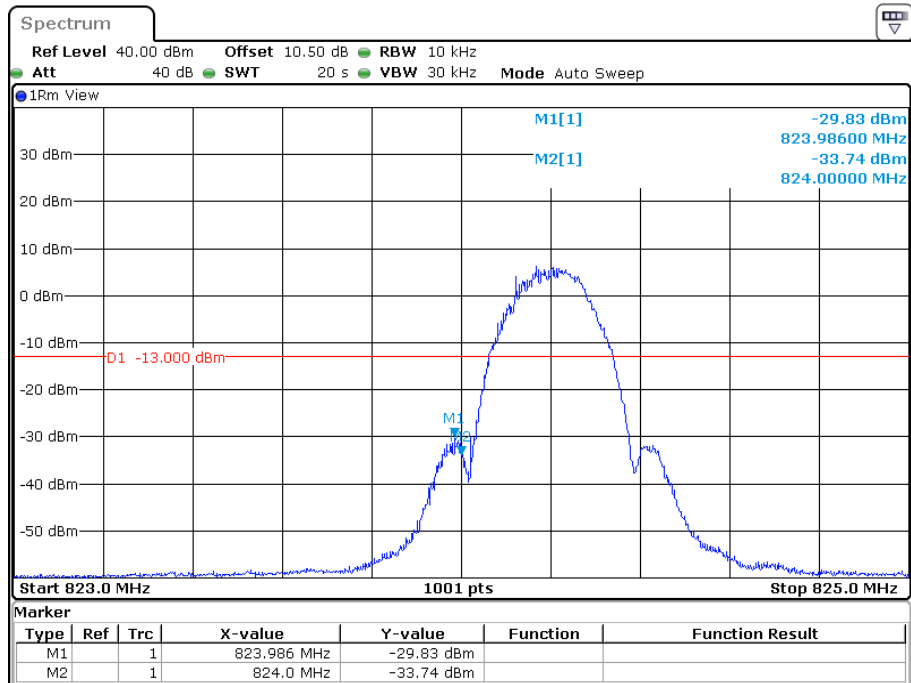
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Cellular Band, Right Band Edge for GSM (GMSK) Mode

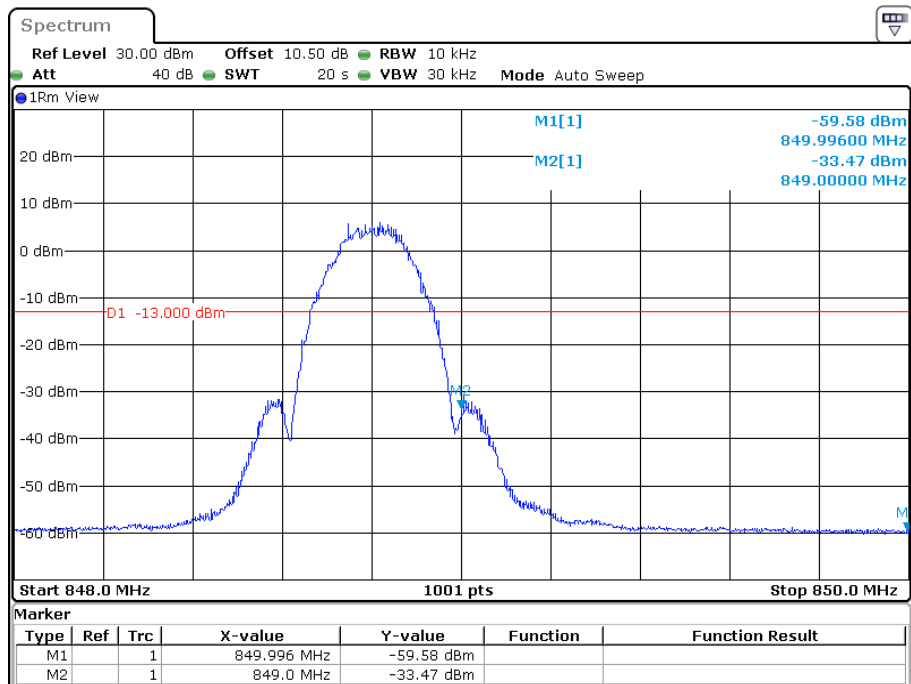


Date: 25.OCT.2022 10:08:07

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

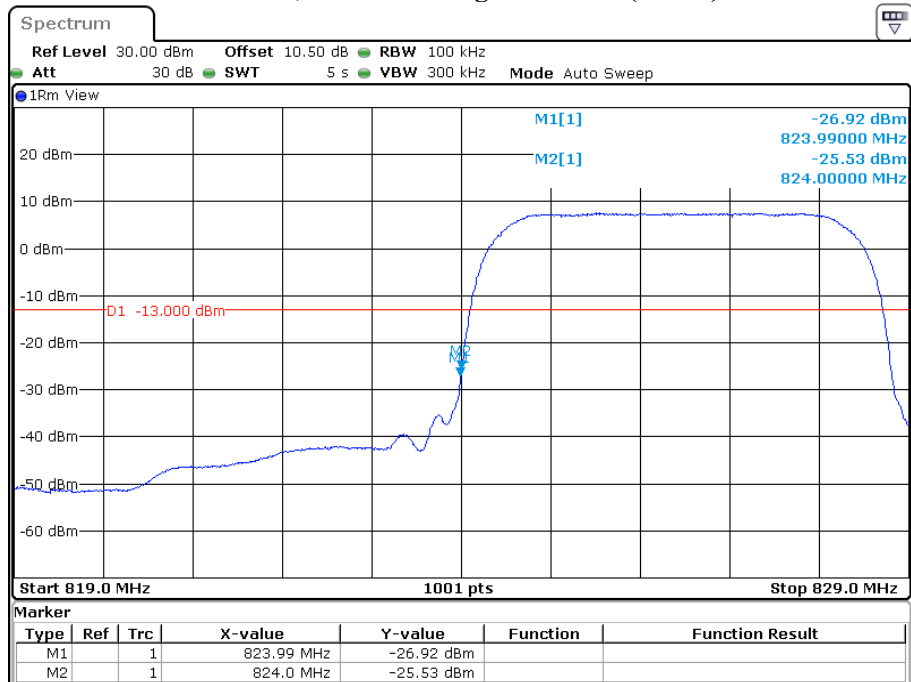


Cellular Band, Right Band Edge for EGPRS (8PSK) Mode



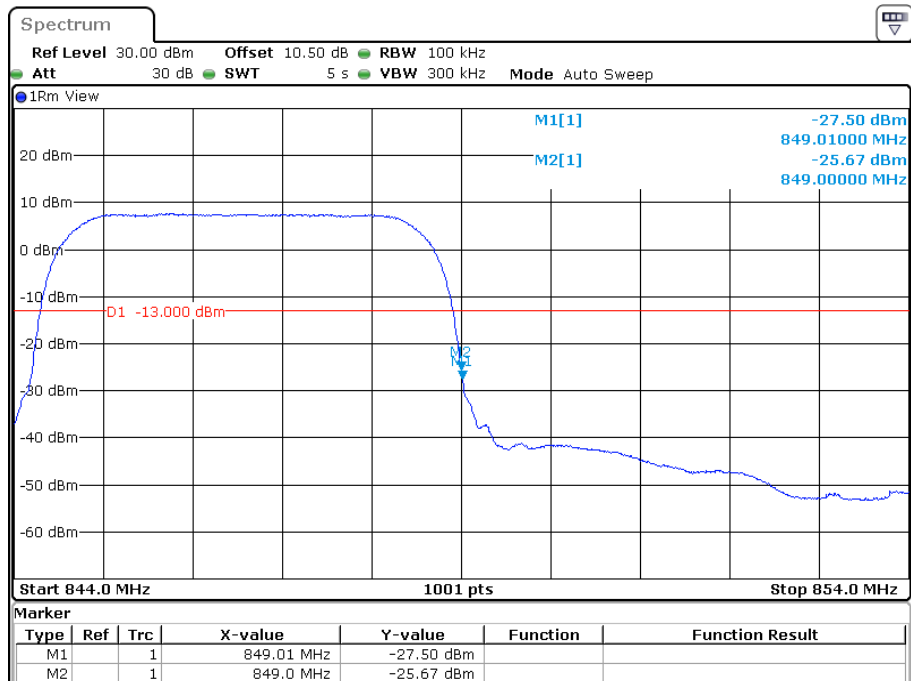
Date: 25.OCT.2022 10:22:55

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



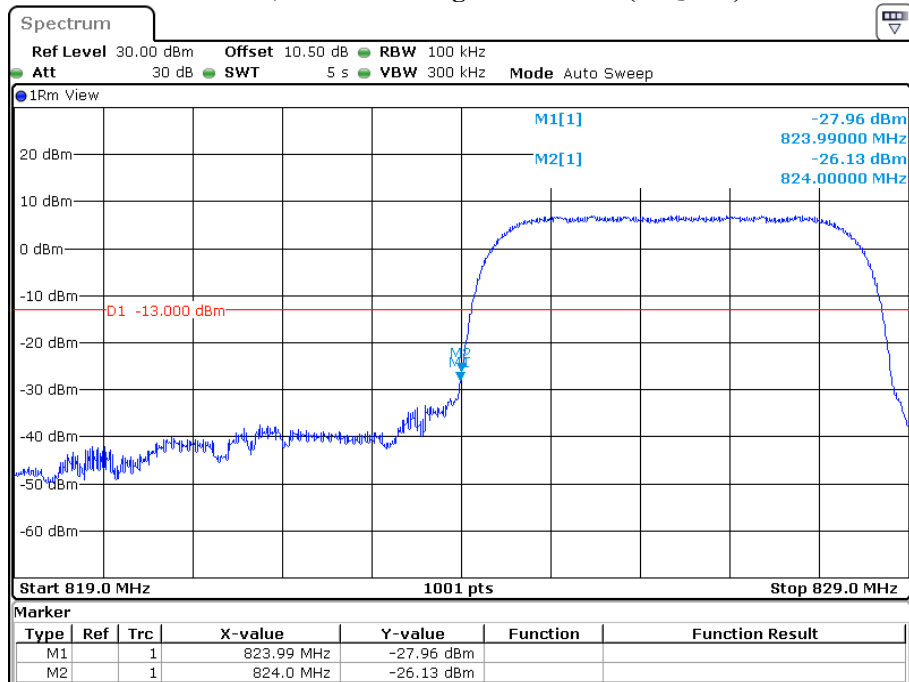
Date: 25.OCT.2022 13:25:06

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



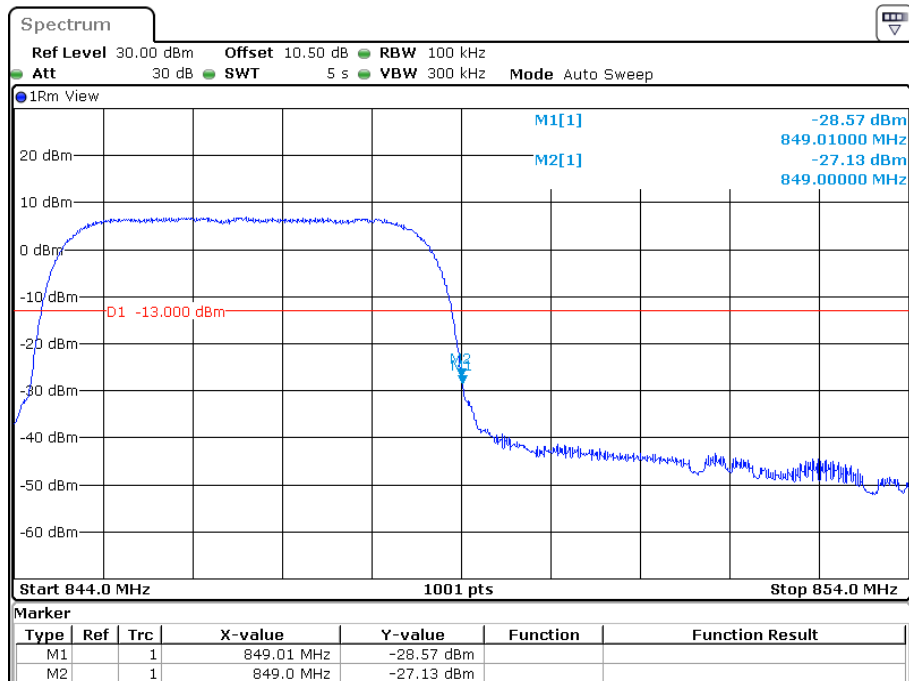
Date: 25.OCT.2022 13:31:18

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



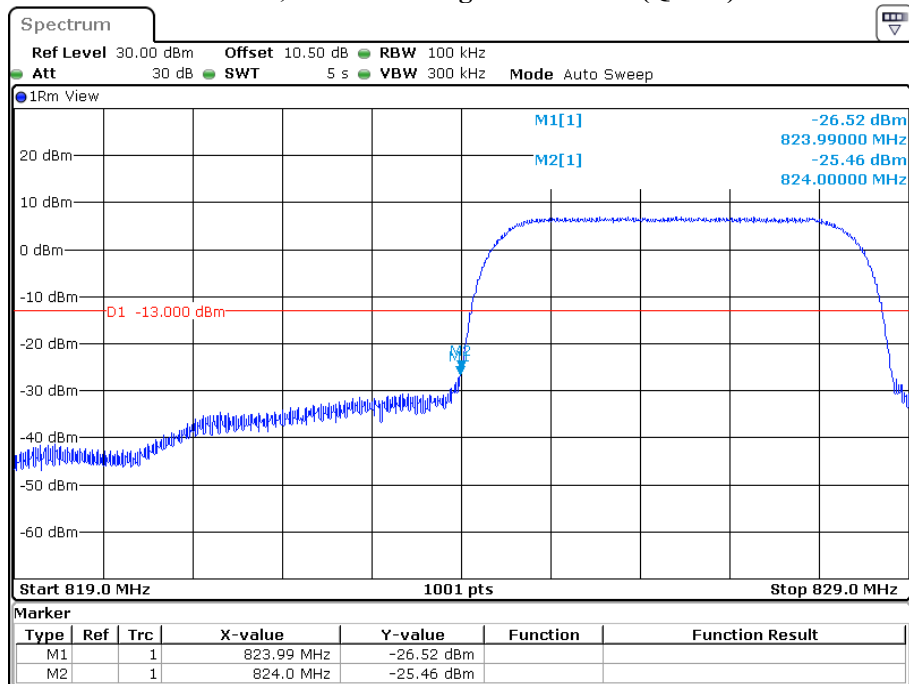
Date: 25.OCT.2022 13:53:32

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



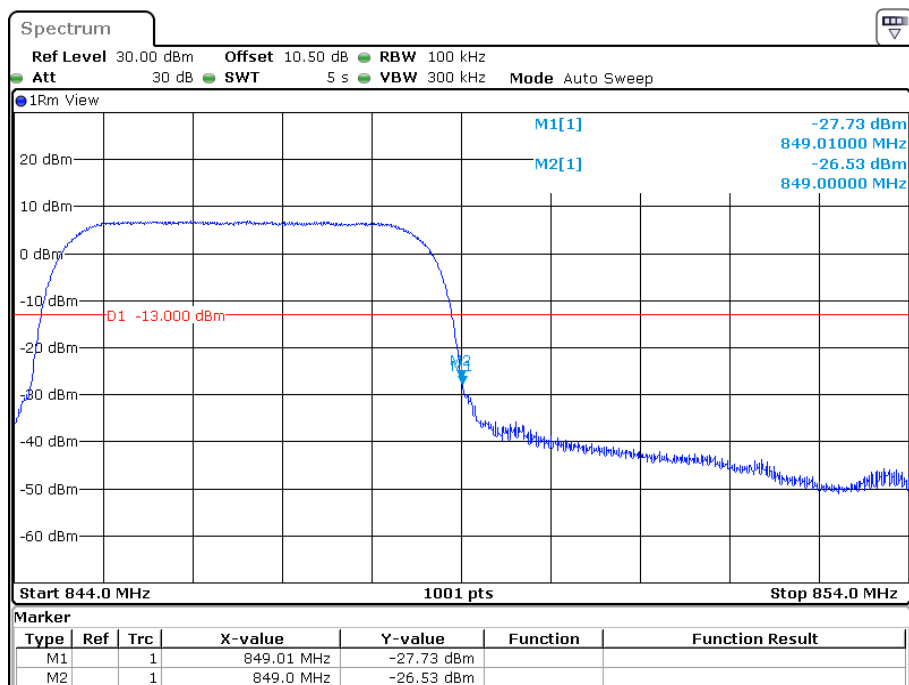
Date: 25.OCT.2022 13:59:20

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



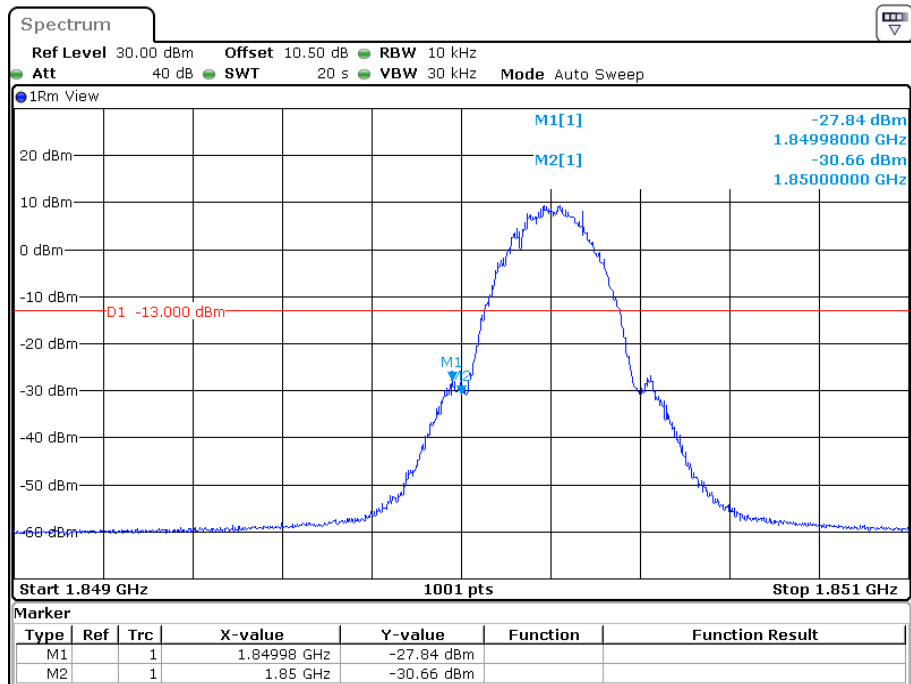
Date: 25.OCT.2022 13:49:49

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



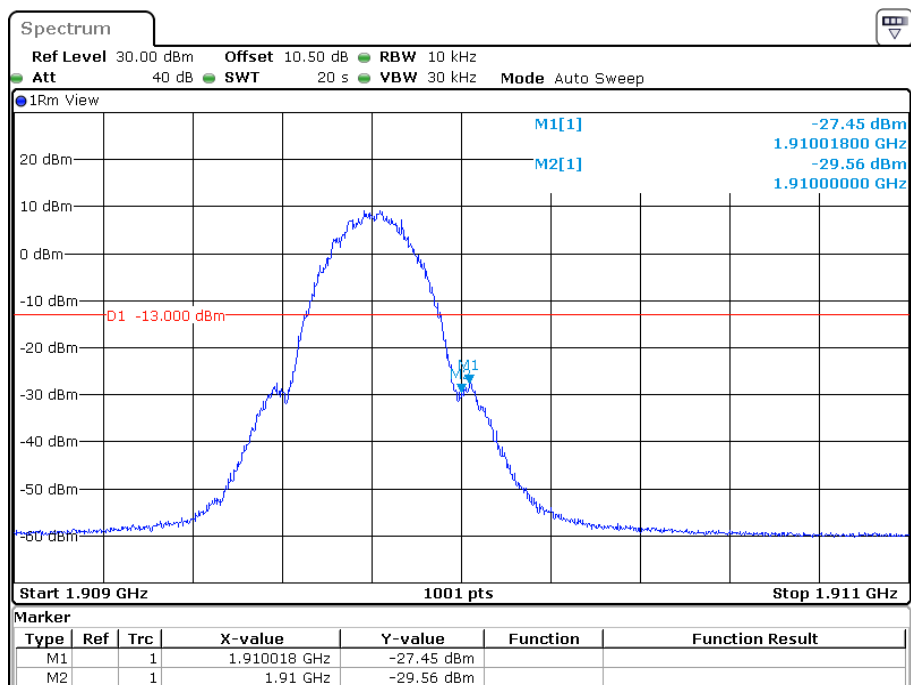
Date: 25.OCT.2022 13:40:40

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



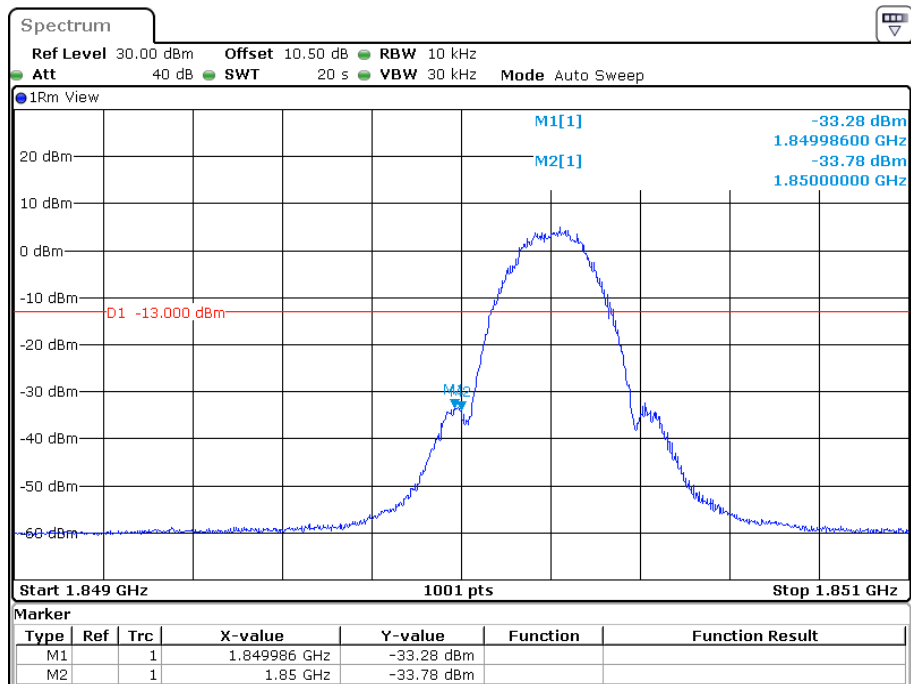
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PCS Band, Right Band Edge for GSM (GMSK) Mode



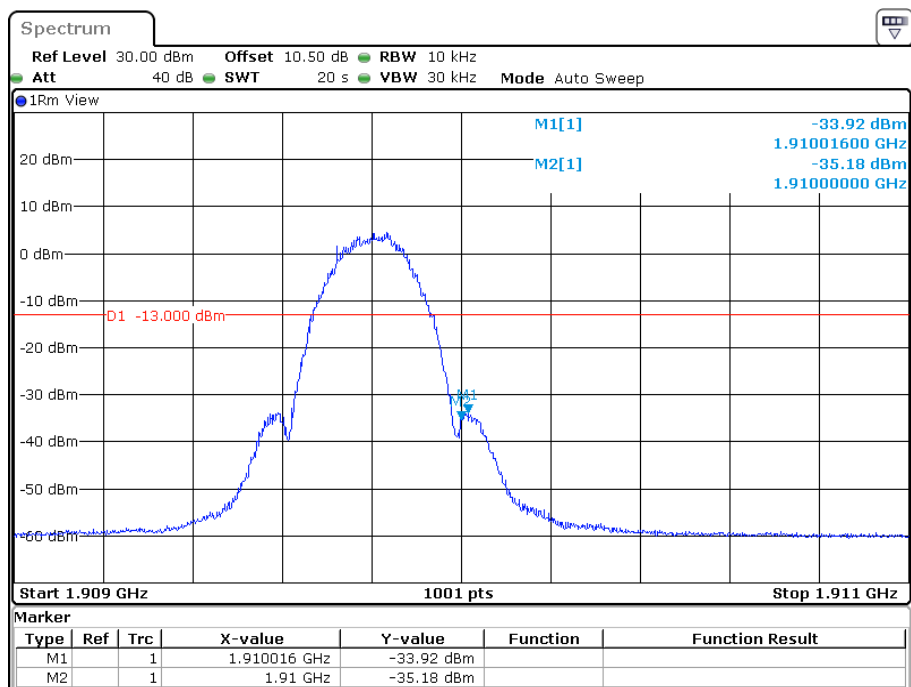
Date: 25.OCT.2022 10:41:01

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



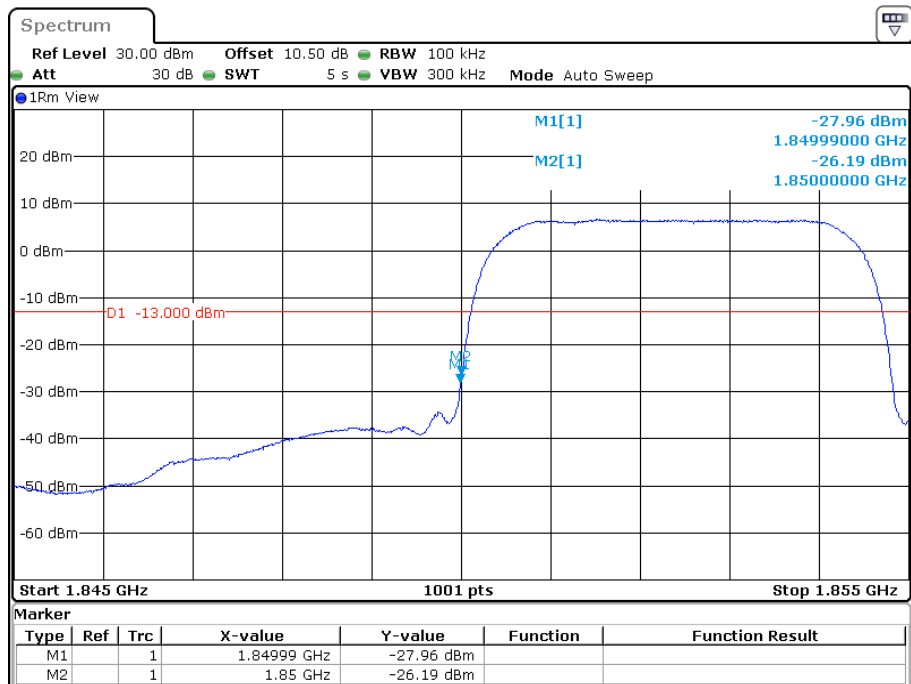
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PCS Band, Right Band Edge for EGPRS (8PSK) Mode



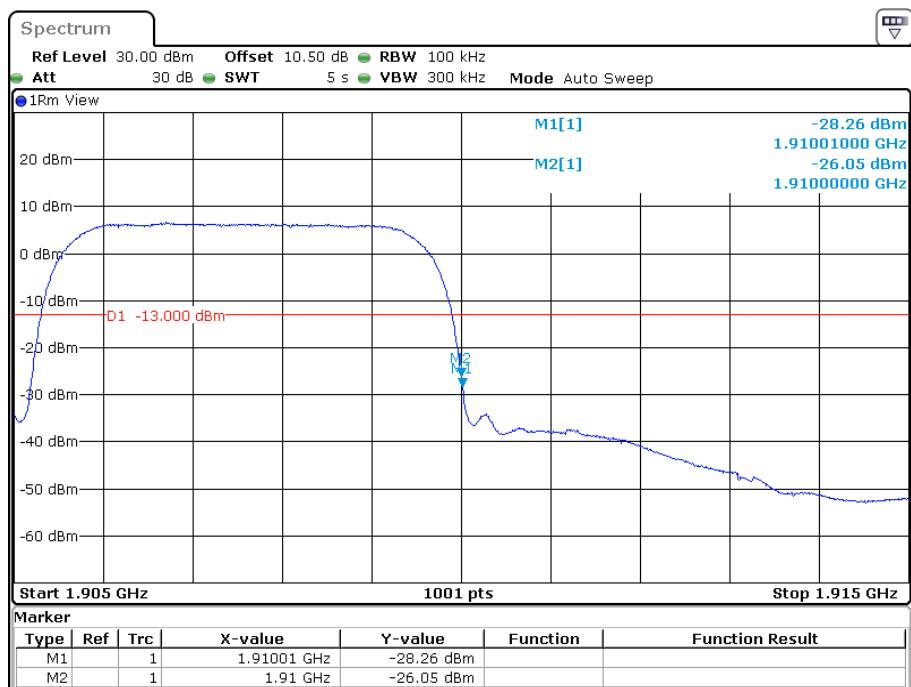
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PCS Band, Left Band Edge for RMC (BPSK) Mode



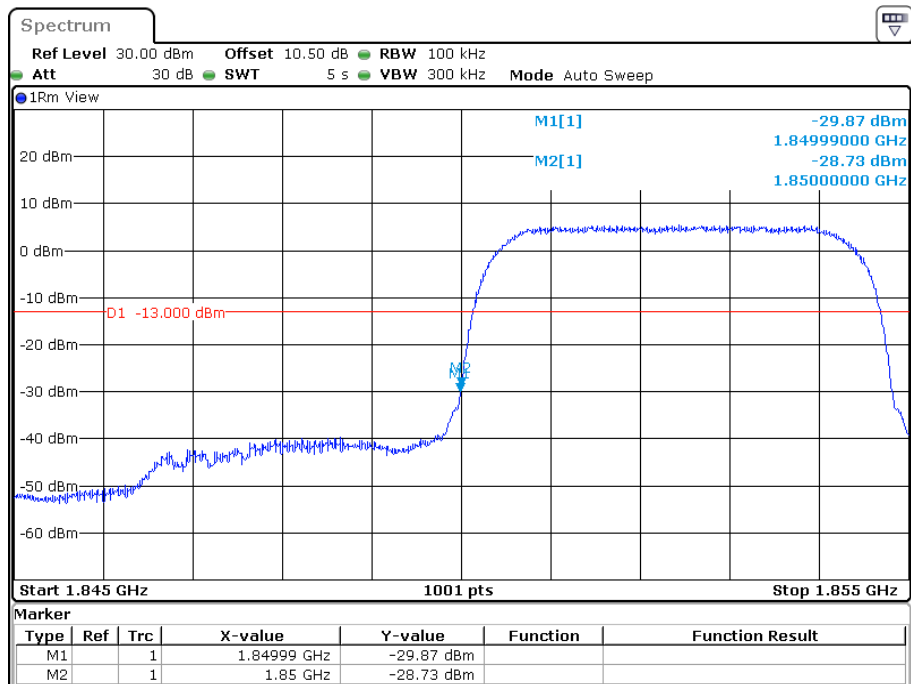
Date: 25.OCT.2022 13:11:57

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



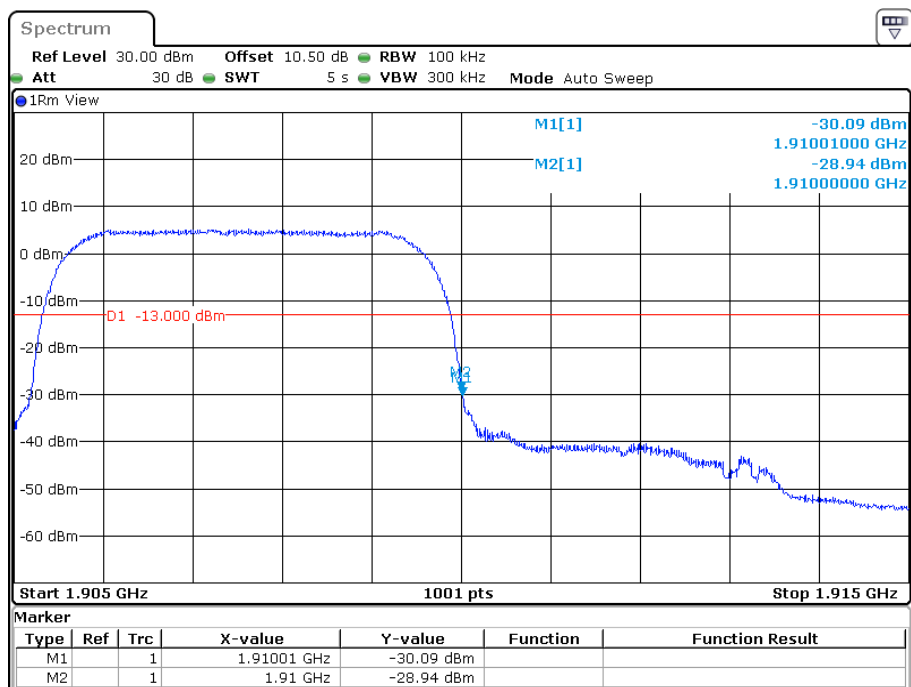
Date: 25.OCT.2022 13:19:10

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



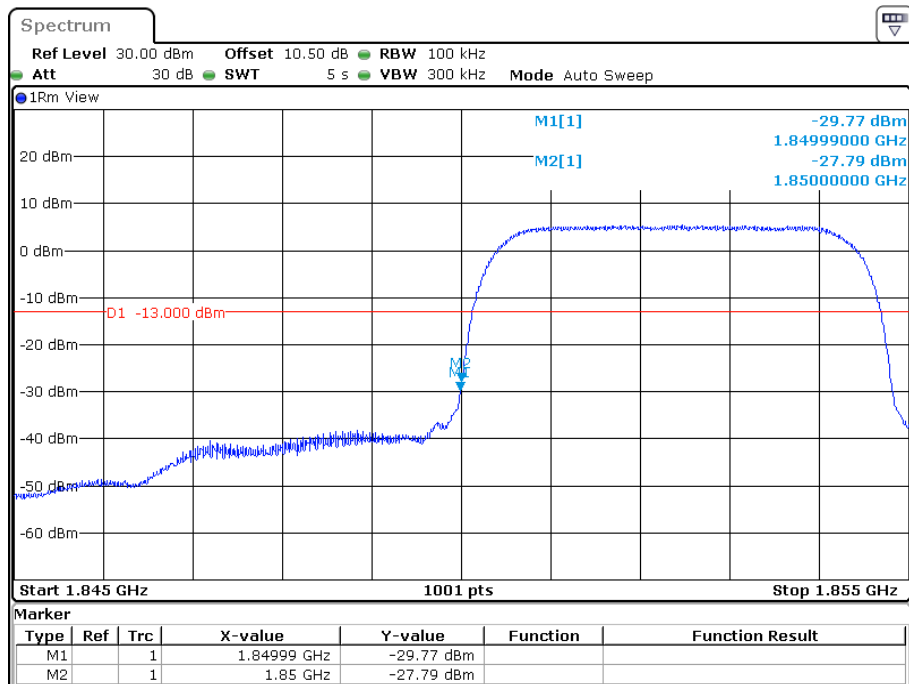
Date: 25.OCT.2022 11:43:32

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



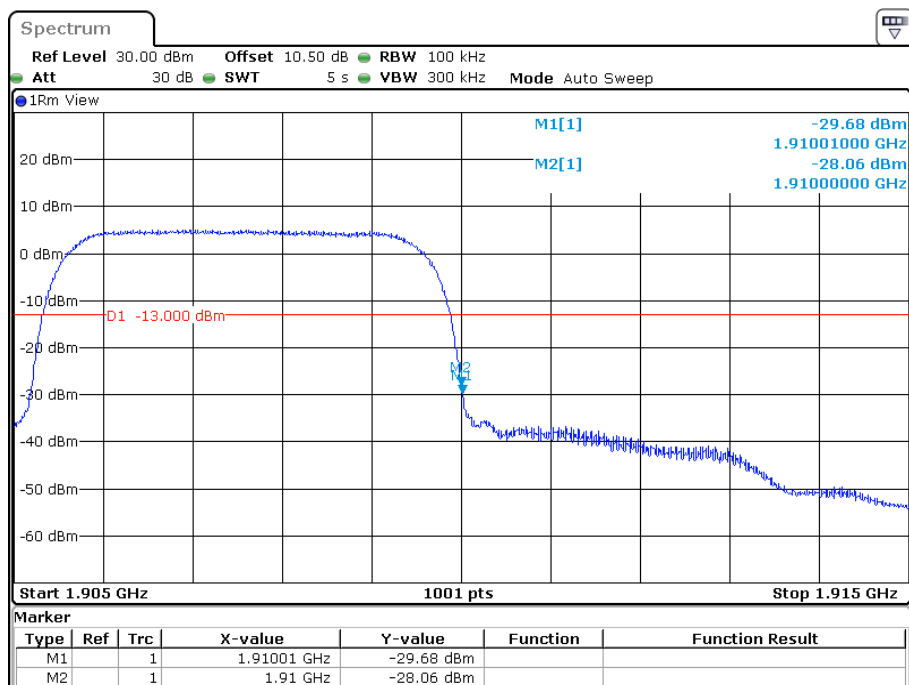
Date: 25.OCT.2022 11:48:26

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



Date: 25.OCT.2022 12:00:35

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



Date: 25.OCT.2022 11:53:25

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

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

Applicable Standard

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

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

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

Frequency Tolerance for Transmitters in the Public Mobile Services

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

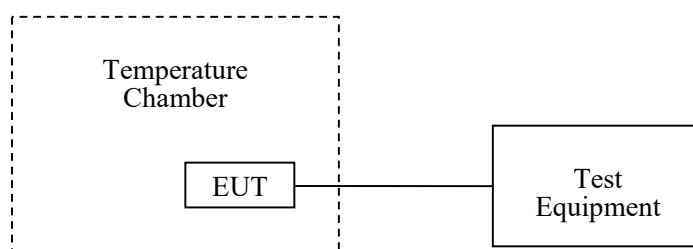
According to §24.235&§27.54, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

Test Procedure

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

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

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



Test Data**Environmental Conditions**

Temperature:	28 °C
Relative Humidity:	34 %
ATM Pressure:	101.0 kPa

The testing was performed by Audy Yu on 2022-10-24~2022-10-25.

EUT operation mode: Transmitting

Test Result: Pass

Please refer to the following tables.

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

Middle Channel, $f_0=836.6\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	N.V.	25.97	0.0310	2.5
-20		19.28	0.0230	2.5
-10		9.64	0.0115	2.5
0		11.85	0.0142	2.5
10		12.62	0.0151	2.5
20		7.26	0.0087	2.5
30		7.96	0.0095	2.5
40		16.13	0.0193	2.5
50		15.05	0.0180	2.5
20	L.V.	15.68	0.0187	2.5
	H.V.	16.41	0.0196	2.5

EGPRS 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.	26.03	0.0311	2.5
-20		19.39	0.0232	2.5
-10		9.74	0.0116	2.5
0		11.86	0.0142	2.5
10		12.62	0.0151	2.5
20		7.27	0.0087	2.5
30		8.05	0.0096	2.5
40		16.23	0.0194	2.5
50		15.12	0.0181	2.5
20	L.V.	15.78	0.0189	2.5
	H.V.	16.52	0.0197	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.	12.30	0.0147	2.5
-20		10.95	0.0131	2.5
-10		4.08	0.0049	2.5
0		7.96	0.0095	2.5
10		4.57	0.0055	2.5
20		0.87	0.0010	2.5
30		0.92	0.0011	2.5
40		3.96	0.0047	2.5
50		6.96	0.0083	2.5
20	L.V.	7.36	0.0088	2.5
	H.V.	7.79	0.0093	2.5

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

Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	1850.0900	1909.8949	1850	1910
-20		1850.0944	1909.9075	1850	1910
-10		1850.0985	1909.9104	1850	1910
0		1850.1071	1909.9074	1850	1910
10		1850.0994	1909.9049	1850	1910
20		1850.0886	1909.8861	1850	1910
30		1850.1075	1909.8926	1850	1910
40		1850.0959	1909.9046	1850	1910
50		1850.1047	1909.8968	1850	1910
20	L.V.	1850.0966	1909.8948	1850	1910
	H.V.	1850.0927	1909.9064	1850	1910

EGPRS Mode

Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	1850.0856	1909.9041	1850	1910
-20		1850.0928	1909.9039	1850	1910
-10		1850.0849	1909.9051	1850	1910
0		1850.1059	1909.9173	1850	1910
10		1850.0854	1909.8962	1850	1910
20		1850.0998	1909.9017	1850	1910
30		1850.1019	1909.9059	1850	1910
40		1850.1025	1909.9007	1850	1910
50		1850.1045	1909.8850	1850	1910
20	L.V.	1850.1042	1909.8931	1850	1910
	H.V.	1850.0921	1909.9027	1850	1910

WCDMA Mode

Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	1850.1091	1909.8913	1850	1910
-20		1850.0990	1909.9030	1850	1910
-10		1850.0999	1909.9037	1850	1910
0		1850.0890	1909.8994	1850	1910
10		1850.0975	1909.9328	1850	1910
20		1850.1117	1909.8656	1850	1910
30		1850.1378	1909.9263	1850	1910
40		1850.0631	1909.8874	1850	1910
50		1850.0994	1909.9023	1850	1910
20	L.V.	1850.0920	1909.8934	1850	1910
	H.V.	1850.0999	1909.9251	1850	1910

LTE:
QPSK:
Band 2:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	1850.0824	1909.9199	1850	1910
-20		1850.0836	1909.9000	1850	1910
-10		1850.0997	1909.8932	1850	1910
0		1850.0636	1909.9080	1850	1910
10		1850.0999	1909.9262	1850	1910
20		1850.0653	1909.8924	1850	1910
30		1850.0914	1909.8771	1850	1910
40		1850.0700	1909.8686	1850	1910
50		1850.0898	1909.9334	1850	1910
20	L.V.	1850.0839	1909.9181	1850	1910
	H.V.	1850.1158	1909.9025	1850	1910

Band 4:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	1710.0490	1754.9752	1710	1755
-20		1710.0461	1754.9700	1710	1755
-10		1710.0530	1754.9765	1710	1755
0		1710.0514	1754.9719	1710	1755
10		1710.0483	1754.9717	1710	1755
20		1710.0511	1754.9706	1710	1755
30		1710.0498	1754.9704	1710	1755
40		1710.0504	1754.9750	1710	1755
50		1710.0489	1754.9767	1710	1755
20	L.V.	1710.0477	1754.9718	1710	1755
	H.V.	1710.0523	1754.9725	1710	1755

Band 7:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	2500.0969	2569.9578	2500	2570
-20		2500.1015	2569.9574	2500	2570
-10		2500.0979	2569.9572	2500	2570
0		2500.1014	2569.9576	2500	2570
10		2500.0997	2569.9545	2500	2570
20		2500.0988	2569.9531	2500	2570
30		2500.0976	2569.9579	2500	2570
40		2500.0990	2569.9585	2500	2570
50		2500.1000	2569.9531	2500	2570
20	L.V.	2500.1013	2569.9592	2500	2570
	H.V.	2500.1012	2569.9534	2500	2570

Band 12:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	699.0347	715.9645	699	716
-20		699.0379	715.9639	699	716
-10		699.0356	715.9640	699	716
0		699.0366	715.9678	699	716
10		699.0343	715.9647	699	716
20		699.0336	715.9642	699	716
30		699.0348	715.9642	699	716
40		699.0340	715.9618	699	716
50		699.0392	715.9642	699	716
20	L.V.	699.0381	715.9696	699	716
	H.V.	699.0360	715.9634	699	716

Band 17:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	704.0798	715.9663	704	716
-20		704.0792	715.9631	704	716
-10		704.0835	715.9651	704	716
0		704.0763	715.9677	704	716
10		704.079	715.9632	704	716
20		704.0783	715.9639	704	716
30		704.0825	715.9654	704	716
40		704.0839	715.9678	704	716
50		704.0826	715.9680	704	716
20	L.V.	704.0824	715.9649	704	716
	H.V.	704.0825	715.9641	704	716

16QAM:**Band 2:**

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	1850.0888	1909.9187	1850	1910
-20		1850.0834	1909.9414	1850	1910
-10		1850.1069	1909.8968	1850	1910
0		1850.0653	1909.8737	1850	1910
10		1850.1105	1909.9026	1850	1910
20		1850.1048	1909.8943	1850	1910
30		1850.0856	1909.9061	1850	1910
40		1850.0906	1909.9055	1850	1910
50		1850.0911	1909.9067	1850	1910
20	L.V.	1850.1102	1909.9168	1850	1910
	H.V.	1850.0695	1909.8699	1850	1910

Band 4:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	1710.0493	1754.9464	1710	1755
-20		1710.0478	1754.9474	1710	1755
-10		1710.0489	1754.9448	1710	1755
0		1710.0466	1754.9404	1710	1755
10		1710.0492	1754.9427	1710	1755
20		1710.0504	1754.9401	1710	1755
30		1710.0527	1754.9409	1710	1755
40		1710.0502	1754.9444	1710	1755
50		1710.0491	1754.9457	1710	1755
20	L.V.	1710.0537	1754.9434	1710	1755
	H.V.	1710.0521	1754.9404	1710	1755

Band 7:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	2500.0884	2569.9120	2500	2570
-20		2500.0817	2569.9128	2500	2570
-10		2500.0853	2569.9140	2500	2570
0		2500.0877	2569.9149	2500	2570
10		2500.084	2569.9108	2500	2570
20		2500.0835	2569.9089	2500	2570
30		2500.0848	2569.9103	2500	2570
40		2500.0889	2569.9104	2500	2570
50		2500.0824	2569.9124	2500	2570
20	L.V.	2500.0820	2569.9103	2500	2570
	H.V.	2500.0889	2569.9105	2500	2570

Band 12:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	699.0351	715.9665	699	716
-20		699.0325	715.9658	699	716
-10		699.0343	715.9676	699	716
0		699.0331	715.9699	699	716
10		699.0341	715.9657	699	716
20		699.0327	715.9652	699	716
30		699.0390	715.9703	699	716
40		699.0368	715.9707	699	716
50		699.0375	715.9686	699	716
20	L.V.	699.0341	715.9671	699	716
	H.V.	699.0376	715.9645	699	716

Band 17:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	N.V.	704.0456	715.9847	704	716
-20		704.0413	715.9836	704	716
-10		704.0471	715.9830	704	716
0		704.0471	715.9849	704	716
10		704.0427	715.9836	704	716
20		704.0449	715.9838	704	716
30		704.0449	715.9853	704	716
40		704.0439	715.9812	704	716
50		704.0473	715.9822	704	716
20	L.V.	704.0398	715.9822	704	716
	H.V.	704.0436	715.9868	704	716

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