



FCC PART 27
FCC PART 22H, PART 24E
TEST REPORT

For

Figgers Communication

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 33319

FCC ID: 2ATAYFIG668

Report Type: Original Report	Product Type: Figgers
Report Number: RSZ201224002-00D	
Report Date: 2021-01-21	
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	Figgers
Tested Model	Figgers DragonX
Frequency Range	PCS1900/WCDMA Band 2/LTE Band 2: 1850-1910MHz(TX); 1930-1990MHz(RX) WCDMA Band 4/LTE Band 4: 1710-1755MHz(TX); 2110-2155MHz(RX) GSM850/WCDMA Band 5/LTE Band 5: 824-849MHz(TX); 869-894MHz(RX) LTE Band 7: 2500-2570MHz(TX); 2620-2690MHz(RX) LTE Band 17: 704-716MHz(TX); 734-746MHz(RX)
Maximum Target Output Power	GSM850: 33.5dBm(GMSK), 26dBm(8PSK) PCS1900: 29.5dBm(GMSK), 25dBm(8PSK) WCDMA B2/4/5: 24.2dBm LTE Band 2/4/5/7/17: 23.0dBm
Modulation Technique	2G: GMSK, 8PSK 3G: BPSK, QPSK, 16QAM 4G: QPSK, 16QAM
Antenna Specification*	PCS1900/WCDMA Band 2/LTE Band 2: 1.07dBi WCDMA Band 4/LTE Band 4: 0.56dBi GSM850/WCDMA Band 5/LTE Band 5: -1.23dBi LTE Band 7: 1.89dBi; LTE Band 17: -1.88dBi (provided by the applicant)
Voltage Range	DC3.85V from battery or DC 5.0V from adapter
Date of Test	2021-01-01 to 2021-01-20
Sample serial number	RSZ201224002-RF-S1(Assigned by BAACL, Shenzhen)
Received date	2020-12-24
Sample/EUT Status	Good condition
Adapter information	Model: HJ-0501000B2-US Input: AC 100-240V, 50/60Hz, 0.15A Output: DC 5V, 1A

Objective

This test report is in accordance with Part 2-Subpart J, Part 22-Subpart H and Part 24-Subpart E and Subpart 27 of the Federal Communication Commissions 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 Bay Area Compliance Laboratories Corp. (Shenzhen). 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
Emissions, Radiated	Below 1GHz	±4.75dB
	Above 1GHz	±4.88dB
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 Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 6/F., West Wing, Third Phase of Wanli Industrial Building, Shihua Road, Futian Free Trade Zone, Shenzhen, Guangdong, 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.: 342867, the FCC Designation No.: CN1221.

The test site has been registered with ISED Canada under ISED Canada Registration Number 3062B.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

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

The EUT has two antennas for WWAN, the main antenna and the AUX antenna, detail refer to EUT photo.

The GSM850& WCDMA B5& LTE B5/B7/B17 transmit on main antenna.

The DCS1900& WCDMA B2/B4& LTE B2/B4 transmit on AUX antenna.

Test was performed as below table:

Frequency band	Bandwidth (MHz)	Test Frequency(MHz)		
		Low	Middle	High
GSM850	0.25	824.2	836.6	848.8
DCS1900	0.25	1850.2	1880	1909.8
WCDMA B2	4.2	1852.4	1880	1907.6
WCDMA B4	4.2	1712.4	1732.6	1752.6
WCDMA B5	4.2	826.4	836.6	846.6
LTE B2	1.4	1850.7	1880	1909.3
	3	1851.5	1880	1908.5
	5	1852.5	1880	1907.5
	10	1855	1880	1905
	15	1857.5	1880	1902.5
	20	1860	1880	1900
LTE B4	1.4	1710.7	1732.5	1754.3
	3	1711.5	1732.5	1753.5
	5	1712.5	1732.5	1752.5
	10	1715	1732.5	1750
	15	1717.5	1732.5	1747.5
	20	1720	1732.5	1745
LTE B5	1.4	824.7	836.5	848.3
	3	825.5	836.5	847.5
	5	826.5	836.5	846.5
	10	829	836.5	844
LTE B7	5	2502.5	2535	2567.5
	10	2505	2535	2565
	15	2507.5	2535	2562.5
	20	2510	2535	2560
LTE B17	5	706.5	710	713.5
	10	709	710	711

Equipment Modifications

No modification was made to the EUT.

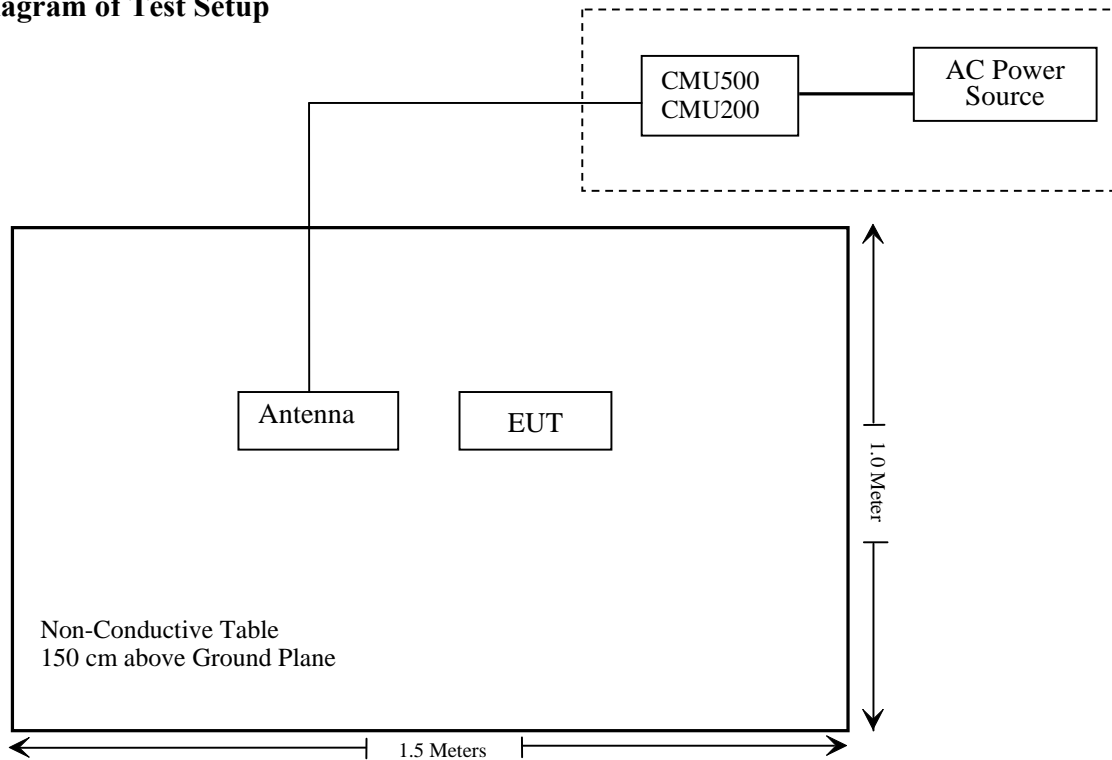
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	1201.002K50-116218-UY
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	110605

Support Cable Description

Cable Description	Length (m)	From / Port	To
Un-shielded Un-detachable AC Cable	1.2	AC Power	CMW500/ CMU200

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.247 (i), §2.1091	Maximum Permissible Exposure(MPE)	Compliance
§2.1046; § 22.913 (a); § 24.232 (c); §27.50 (b)(c) (d) (h)	RF Output Power	Compliance
§ 2.1047	Modulation Characteristics	Not Applicable
§ 2.1049; § 22.905; § 22.917; § 24.238; §27.53	Occupied Bandwidth	Compliance
§ 2.1051; § 22.917 (a); § 24.238 (a); §27.53	Spurious Emissions at Antenna Terminal	Compliance
§ 2.1053; § 22.917 (a); § 24.238 (a); §27.53	Field Strength of Spurious Radiation	Compliance
§ 22.917 (a); § 24.238 (a); §27.53(h) (m)	Band Edge	Compliance
§ 2.1055; § 22.355; § 24.235; §27.54;	Frequency stability	Compliance

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test					
R&S	EMI Test Receiver	ESR3	102455	2020/08/04	2021/08/03
Sonoma instrument	Pre-amplifier	310 N	186238	2020/08/04	2021/08/03
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2020/12/22	2023/12/21
COM-POWER	Dipole Antenna	AD-100	721027	NCR	NCR
Unknown	Cable 2	RF Cable 2	F-03-EM197	2020/11/29	2021/11/28
Unknown	Cable	Chamber Cable 1	F-03-EM236	2020/11/29	2021/11/28
Rohde & Schwarz	Spectrum Analyzer	FSV40-N	102259	2020/08/04	2021/08/03
COM-POWER	Pre-amplifier	PA-122	181919	2020/11/29	2021/11/28
Quinstar	Amplifier	QLW-18405536-J0	15964001002	2020/11/29	2021/11/28
Sunol Sciences	Horn Antenna	DRH-118	A052604	2020/12/22	2023/12/21
A.H.System	Horn Antenna	SAS-200/571	135	2018/09/01	2021/08/31
Insulated Wire Inc.	RF Cable	SPS-2503-3150	02222010	2020/11/29	2021/11/28
Unknown	RF Cable	W1101-EQ1 OUT	F-19-EM005	2020/11/29	2021/11/28
MICRO-TRONICS	Passband filter	HPM50111	F-19-EM006	2020/04/20	2021/04/20
Unknown	High Pass filter	1.3GHz	101120	2020/04/20	2021/04/20
Ducommun Technologies	Horn antenna	ARH-4223-02	1007726-02 1304	2018/12/06	2021/12/05
Ducommun Technologies	Horn antenna	ARH-4223-02	1007726-01 1304	2018/12/06	2021/12/05
Agilent	Signal Generator	N5183A	MY51040755	2020/12/04	2021/12/04

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
RF Conducted Test					
Rohde & Schwarz	SPECTRUM ANALYZER	FSU26	200120	2020/04/03	2021/04/02
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	1201.002K50-146520-wh	2020/08/04	2021/08/03
Unknown	RF Cable	Unknown	2301 276	2020/11/29	2021/11/28
Unknown	RF Cable	Unknown	DLO J5/W6102	2020/11/29	2021/11/28
Weinschel	Power divider	1515	MY628	2020/11/29	2021/11/28
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	115500	2020/07/31	2021/07/30
instek	DC Power Supply	GPS-3030DD	EM832096	NCR	NCR
Fluke	Digital Multimeter	287	19000011	2020/07/23	2021/07/22

* Statement of Traceability: Bay Area Compliance Laboratories Corp. (Shenzhen) 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

Compliance, please refer to the SAR report: RSZ201224002-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), the maximum EIRP must not exceed 3Watts (34.77dBm) for 698-746MHz.

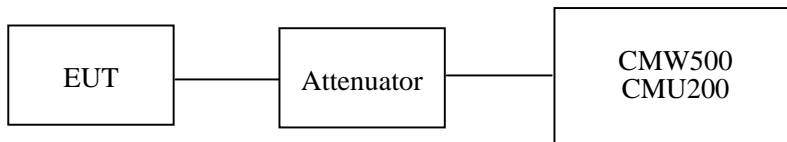
According to §27.50(d), the maximum EIRP must not exceed 1Watts (30dBm) for 1710-1755MHz.

According to §27.50(h), the maximum EIRP must not exceed 2Watts (33dBm) for 2500-2570MHz & 2496-2690MHz.

Test Procedure

Conducted method:

The RF output of the transmitter was connected to the CMW500/CMU200 through sufficient attenuation.



Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

The testing was performed by Coco Liu on 2021-01-08.

Conducted Power

Cellular 850

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	ERP(dBm)	Limit (dBm)
GSM	128	824.2	32.96	29.08	38.45
	190	836.6	33.08	29.20	38.45
	251	848.8	33.02	29.14	38.45

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				ERP(dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	1 slot	2 slots	3 slots	4 slots	
GPRS	128	824.2	32.90	32.25	29.92	28.72	29.02	28.37	26.04	24.84	38.45
	190	836.6	33.02	32.34	30.12	28.83	29.14	28.46	26.24	24.95	38.45
	251	848.8	32.99	32.14	29.68	28.44	29.11	28.26	25.80	24.56	38.45

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				ERP(dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	1 slot	2 slots	3 slots	4 slots	
EDGE	128	824.2	25.46	24.20	21.97	20.75	21.58	20.32	18.09	16.87	38.45
	190	836.6	25.54	24.32	22.10	20.84	21.66	20.44	18.22	16.96	38.45
	251	848.8	25.58	24.36	22.16	20.93	21.70	20.48	18.28	17.05	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		23.92	24.03	23.99	20.04	20.15	20.11
	HSDPA	1	22.90	23.04	22.95	19.02	19.16	19.07
		2	22.98	23.17	22.93	19.1	19.29	19.05
		3	22.83	22.99	23.02	18.95	19.11	19.14
		4	22.97	23.12	22.98	19.09	19.24	19.10
	HSUPA	1	22.92	23.05	22.97	19.04	19.17	19.09
		2	22.89	22.93	22.90	19.01	19.05	19.02
		3	23.03	23.09	23.01	19.15	19.21	19.13
		4	22.80	22.95	22.92	18.92	19.07	19.04
		5	23.04	23.09	22.89	19.16	19.21	19.01
HSPA+	1	23.03	23.14	22.95	19.15	19.26	19.07	

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd) -Cable Loss(dB)
 For GSM850 / WCDMA Band5: Antenna Gain = -1.23dBi = -3.38dBd (0dBd=2.15dBi)
 For 700MHz-1GHz range, Cable loss is 0.5dB, which was provided by applicant.
 Limit: ERP ≤ 38.45dBm

PCS 1900

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	EIRP(dBm)	Limit (dBm)
GSM	512	1850.2	29.20	30.27	33
	661	1880.0	29.24	30.31	33
	810	1909.8	29.26	30.33	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	29.22	28.16	25.65	24.35	30.29	29.23	26.72	25.42	33
	661	1880.0	29.26	28.27	25.89	24.74	30.33	29.34	26.96	25.81	33
	810	1909.8	29.31	28.41	26.06	24.81	30.38	29.48	27.13	25.88	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	24.51	23.12	20.70	19.31	25.58	24.19	21.77	20.38	33
	661	1880.0	24.56	23.17	20.73	19.38	25.63	24.24	21.8	20.45	33
	810	1909.8	24.58	23.19	20.75	19.40	25.65	24.26	21.82	20.47	33

Mode	Test Mode	3GPP Sub Test	Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
WCDMA (Band 2)	RMC12.2k		23.87	23.79	23.92	24.94	24.86	24.99
	HSDPA	1	22.72	22.65	22.58	23.79	23.72	23.65
		2	22.84	22.74	22.70	23.91	23.81	23.77
		3	22.62	22.62	22.49	23.69	23.69	23.56
		4	22.83	22.68	22.68	23.90	23.75	23.75
	HSUPA	1	22.76	22.65	22.74	23.83	23.72	23.81
		2	22.71	22.60	22.70	23.78	23.67	23.77
		3	22.87	22.72	22.83	23.94	23.79	23.90
		4	22.70	22.61	22.69	23.77	23.68	23.76
		5	22.83	22.74	22.87	23.90	23.81	23.94
HSPA+	1	22.83	22.71	22.81	23.90	23.78	23.88	

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

For PCS1900 / WCDMA Band2: Antenna Gain = 1.07dBi, Cable loss is 0dB, which was provided by applicant.

Limit: EIRP ≤ 33dBm

AWS Band4

Mode	Test Mode	3GPP Sub Test	Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
WCDMA (Band 4)	RMC12.2k		22.90	22.88	22.75	23.46	23.44	23.31
	HSDPA	1	21.84	21.83	21.80	22.40	22.39	22.36
		2	21.97	21.88	21.86	22.53	22.44	22.42
		3	21.71	21.78	21.75	22.27	22.34	22.31
		4	21.92	21.95	21.89	22.48	22.51	22.45
	HSUPA	1	21.80	21.83	21.83	22.36	22.39	22.39
		2	21.70	21.71	21.77	22.26	22.27	22.33
		3	21.88	21.87	21.96	22.44	22.43	22.52
		4	21.71	21.73	21.80	22.27	22.29	22.36
		5	21.84	21.92	21.94	22.40	22.48	22.50
	HSPA+	1	21.85	21.93	21.86	22.41	22.49	22.42

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi) -Cable Loss(dB)
 For Band4: Antenna Gain = 0.56dBi, Cable loss is 0dB, which was provided by applicant.
 Limit: EIRP ≤ 30dBm

Peak-to-average ratio (PAR)

Cellular Band

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	4.17	13
	Middle	4.49	13
	High	3.63	13
EGPRS	Low	4.20	13
	Middle	4.33	13
	High	4.14	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.88	13
	Middle	3.94	13
	High	3.64	13
HSDPA (16QAM)	Low	3.29	13
	Middle	3.80	13
	High	3.60	13
HSUPA (BPSK)	Low	3.32	13
	Middle	3.11	13
	High	3.10	13
HSPA+	Low	3.34	13
	Middle	3.46	13
	High	3.72	13

PCS Band

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	3.18	13
	Middle	3.21	13
	High	3.80	13
EGPRS	Low	3.69	13
	Middle	3.30	13
	High	3.68	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.21	13
	Middle	3.49	13
	High	3.68	13
HSDPA (16QAM)	Low	3.55	13
	Middle	3.29	13
	High	3.78	13
HSUPA (BPSK)	Low	3.67	13
	Middle	3.89	13
	High	3.08	13
HSPA+	Low	3.36	13
	Middle	3.56	13
	High	3.42	13

AWS Band

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.86	13
	Middle	3.03	13
	High	3.73	13
HSDPA (16QAM)	Low	3.45	13
	Middle	3.17	13
	High	3.79	13
HSUPA (BPSK)	Low	3.83	13
	Middle	3.35	13
	High	3.41	13
HSPA+	Low	3.36	13
	Middle	3.59	13
	High	3.46	13

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	22.72	22.72	22.81	23.79	23.79	23.88
		RB1#2	22.69	22.69	22.49	23.76	23.76	23.56
		RB1#5	22.73	22.70	22.46	23.80	23.77	23.53
		RB3#0	22.81	22.76	22.55	23.88	23.83	23.62
		RB3#1	22.81	22.69	22.38	23.88	23.76	23.45
		RB3#2	21.79	21.69	21.74	22.86	22.76	22.81
		RB6#0	21.76	21.78	21.80	22.83	22.85	22.87
	16QAM	RB1#0	21.73	21.76	21.65	22.80	22.83	22.72
		RB1#2	21.76	21.79	21.66	22.83	22.86	22.73
		RB1#5	21.96	21.69	21.72	23.03	22.76	22.79
		RB3#0	21.99	21.66	21.58	23.06	22.73	22.65
		RB3#1	20.82	20.70	20.59	21.89	21.77	21.66
		RB3#2	22.71	22.69	22.78	23.78	23.76	23.85
		RB6#0	22.71	22.66	22.50	23.78	23.73	23.57
3.0	QPSK	RB1#0	22.65	22.53	22.72	23.72	23.60	23.79
		RB1#7	22.69	22.53	22.60	23.76	23.60	23.67
		RB1#14	22.68	22.48	22.30	23.75	23.55	23.37
		RB8#0	21.63	21.53	21.72	22.70	22.60	22.79
		RB8#4	21.66	21.52	21.72	22.73	22.59	22.79
		RB8#7	21.66	21.54	21.68	22.73	22.61	22.75
		RB15#0	22.10	21.62	21.60	23.17	22.69	22.67
	16QAM	RB1#0	22.12	21.63	21.62	23.19	22.70	22.69
		RB1#7	22.07	21.58	21.49	23.14	22.65	22.56
		RB1#14	20.71	20.59	20.56	21.78	21.66	21.63
		RB8#0	20.76	20.60	20.59	21.83	21.67	21.66
		RB8#4	20.71	20.52	20.72	21.78	21.59	21.79
		RB8#7	22.71	22.74	22.82	23.78	23.81	23.89
		RB15#0	22.75	22.67	22.47	23.82	23.74	23.54

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	22.70	22.71	22.75	23.77	23.78	23.82
		RB1#12	22.67	22.62	22.39	23.74	23.69	23.46
		RB1#24	22.59	22.61	22.22	23.66	23.68	23.29
		RB12#0	21.71	21.63	21.67	22.78	22.70	22.74
		RB12#6	21.67	21.61	21.62	22.74	22.68	22.69
		RB12#11	21.64	21.63	21.65	22.71	22.70	22.72
		RB25#0	21.53	21.85	21.68	22.60	22.92	22.75
	16QAM	RB1#0	21.56	21.76	21.63	22.63	22.83	22.70
		RB1#12	21.51	21.78	21.48	22.58	22.85	22.55
		RB1#24	20.74	20.36	20.64	21.81	21.43	21.71
		RB12#0	20.75	20.41	20.68	21.82	21.48	21.75
		RB12#6	20.73	20.58	20.65	21.80	21.65	21.72
		RB12#11	22.71	22.73	22.82	23.78	23.80	23.89
		RB25#0	22.73	22.69	22.50	23.80	23.76	23.57
10.0	QPSK	RB1#0	22.73	22.68	22.74	23.80	23.75	23.81
		RB1#24	22.53	22.54	22.62	23.60	23.61	23.69
		RB1#49	22.56	22.53	21.90	23.63	23.60	22.97
		RB25#0	21.61	21.55	21.50	22.68	22.62	22.57
		RB25#12	21.62	21.57	21.64	22.69	22.64	22.71
		RB25#24	21.63	21.56	21.55	22.70	22.63	22.62
		RB50#0	22.13	21.71	21.57	23.20	22.78	22.64
	16QAM	RB1#0	22.09	21.63	21.55	23.16	22.70	22.62
		RB1#24	22.04	21.70	21.07	23.11	22.77	22.14
		RB1#49	20.72	20.60	20.65	21.79	21.67	21.72
		RB25#0	20.74	20.62	20.72	21.81	21.69	21.79
		RB25#12	20.69	20.62	20.68	21.76	21.69	21.75
		RB25#24	22.74	22.71	22.80	23.81	23.78	23.87
		RB50#0	22.74	22.69	22.52	23.81	23.76	23.59

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15.0	QPSK	RB1#0	22.78	22.79	22.70	23.85	23.86	23.77
		RB1#37	22.72	22.63	22.64	23.79	23.70	23.71
		RB1#74	22.73	22.67	22.13	23.80	23.74	23.20
		RB36#0	21.81	21.79	21.80	22.88	22.86	22.87
		RB36#18	21.78	21.74	21.81	22.85	22.81	22.88
		RB36#37	21.82	21.73	21.84	22.89	22.80	22.91
		RB75#0	22.23	21.82	22.00	23.30	22.89	23.07
	16QAM	RB1#0	22.21	21.76	21.91	23.28	22.83	22.98
		RB1#37	22.13	21.78	21.55	23.20	22.85	22.62
		RB1#74	20.84	20.71	20.73	21.91	21.78	21.80
		RB36#0	20.78	20.72	20.75	21.85	21.79	21.82
		RB36#18	20.78	20.74	20.75	21.85	21.81	21.82
		RB36#37	22.78	22.79	22.70	23.85	23.86	23.77
		RB75#0	22.72	22.63	22.64	23.79	23.70	23.71
20.0	QPSK	RB1#0	22.67	22.69	22.63	23.74	23.76	23.70
		RB1#49	22.60	22.54	22.54	23.67	23.61	23.61
		RB1#99	22.65	22.60	22.04	23.72	23.67	23.11
		RB50#0	21.73	21.68	21.69	22.80	22.75	22.76
		RB50#24	21.66	21.64	21.72	22.73	22.71	22.79
		RB50#49	21.72	21.62	21.78	22.79	22.69	22.85
		RB100#0	22.16	21.72	21.90	23.23	22.79	22.97
	16QAM	RB1#0	22.11	21.66	21.76	23.18	22.73	22.83
		RB1#49	22.07	21.73	21.46	23.14	22.80	22.53
		RB1#99	20.72	20.66	20.65	21.79	21.73	21.72
		RB50#0	20.67	20.57	20.67	21.74	21.64	21.74
		RB50#24	20.73	20.67	20.64	21.80	21.74	21.71
		RB50#49	22.61	22.63	22.69	23.68	23.70	23.76
		RB100#0	22.64	22.58	22.42	23.71	23.65	23.49

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi)
 For Band2: Antenna Gain = 1.07dBi, Cable loss is 0dB, which was provided by applicant.
 Limit: EIRP ≤ 33dBm

Peak-to-average ratio (PAR)**20MHz Bandwidth**

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.21	4.17	4.16	13	Pass
QPSK (100RB Size)	5.12	5.20	5.18	13	Pass
16QAM (1RB Size)	4.17	4.48	4.22	13	Pass
16QAM (100RB Size)	6.18	6.24	6.17	13	Pass

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	22.36	22.67	22.62	22.92	23.23	23.18
		RB1#2	22.64	22.55	22.59	23.20	23.11	23.15
		RB1#5	22.66	22.54	22.01	23.22	23.10	22.57
		RB3#0	21.71	21.72	21.69	22.27	22.28	22.25
		RB3#1	21.71	21.64	21.71	22.27	22.20	22.27
		RB3#2	21.72	21.61	21.73	22.28	22.17	22.29
		RB6#0	22.14	21.73	21.88	22.70	22.29	22.44
	16QAM	RB1#0	22.07	21.64	21.80	22.63	22.20	22.36
		RB1#2	22.08	21.73	21.49	22.64	22.29	22.05
		RB1#5	20.73	20.65	20.64	21.29	21.21	21.20
		RB3#0	20.64	20.61	20.68	21.20	21.17	21.24
		RB3#1	20.69	20.65	20.68	21.25	21.21	21.24
		RB3#2	22.60	22.59	22.71	23.16	23.15	23.27
		RB6#0	22.61	22.61	22.37	23.17	23.17	22.93
3.0	QPSK	RB1#0	22.38	22.38	22.32	22.94	22.94	22.88
		RB1#7	22.30	22.27	22.27	22.86	22.83	22.83
		RB1#14	22.37	22.26	21.72	22.93	22.82	22.28
		RB8#0	21.44	21.38	21.41	22.00	21.94	21.97
		RB8#4	21.38	21.33	21.44	21.94	21.89	22.00
		RB8#7	21.40	21.34	21.46	21.96	21.90	22.02
		RB15#0	21.87	21.45	21.57	22.43	22.01	22.13
	16QAM	RB1#0	21.77	21.36	21.47	22.33	21.92	22.03
		RB1#7	21.78	21.38	21.16	22.34	21.94	21.72
		RB1#14	20.42	20.32	20.35	20.98	20.88	20.91
		RB8#0	20.37	20.28	20.39	20.93	20.84	20.95
		RB8#4	20.37	20.37	20.37	20.93	20.93	20.93
		RB8#7	22.30	22.31	22.41	22.86	22.87	22.97
		RB15#0	22.30	22.29	22.11	22.86	22.85	22.67

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	22.35	22.36	22.34	22.91	22.92	22.90
		RB1#12	22.30	22.23	22.25	22.86	22.79	22.81
		RB1#24	22.32	22.25	21.70	22.88	22.81	22.26
		RB12#0	21.41	21.37	21.40	21.97	21.93	21.96
		RB12#6	21.40	21.34	21.40	21.96	21.90	21.96
		RB12#11	21.41	21.36	21.43	21.97	21.92	21.99
		RB25#0	21.87	21.41	21.58	22.43	21.97	22.14
	16QAM	RB1#0	21.80	21.32	21.50	22.36	21.88	22.06
		RB1#12	21.74	21.41	21.14	22.30	21.97	21.70
		RB1#24	20.41	20.37	20.34	20.97	20.93	20.90
		RB12#0	20.37	20.30	20.39	20.93	20.86	20.95
		RB12#6	20.37	20.32	20.39	20.93	20.88	20.95
		RB12#11	22.34	22.29	22.44	22.90	22.85	23.00
		RB25#0	22.33	22.29	22.09	22.89	22.85	22.65
10.0	QPSK	RB1#0	22.34	22.34	22.31	22.90	22.90	22.87
		RB1#24	22.29	22.24	22.30	22.85	22.80	22.86
		RB1#49	22.36	22.26	21.71	22.92	22.82	22.27
		RB25#0	21.45	21.42	21.38	22.01	21.98	21.94
		RB25#12	21.40	21.31	21.42	21.96	21.87	21.98
		RB25#24	21.45	21.34	21.42	22.01	21.90	21.98
		RB50#0	21.88	21.45	21.57	22.44	22.01	22.13
	16QAM	RB1#0	21.81	21.35	21.51	22.37	21.91	22.07
		RB1#24	21.73	21.38	21.16	22.29	21.94	21.72
		RB1#49	20.40	20.34	20.33	20.96	20.90	20.89
		RB25#0	20.37	20.32	20.37	20.93	20.88	20.93
		RB25#12	20.42	20.33	20.33	20.98	20.89	20.89
		RB25#24	22.32	22.30	22.43	22.88	22.86	22.99
		RB50#0	22.30	22.29	22.13	22.86	22.85	22.69

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15.0	QPSK	RB1#0	22.25	22.25	22.22	22.81	22.81	22.78
		RB1#37	22.21	22.13	22.19	22.77	22.69	22.75
		RB1#74	22.27	22.15	21.59	22.83	22.71	22.15
		RB36#0	21.32	21.27	21.31	21.88	21.83	21.87
		RB36#18	21.26	21.19	21.31	21.82	21.75	21.87
		RB36#37	21.32	21.24	21.34	21.88	21.80	21.90
		RB75#0	21.75	21.34	21.50	22.31	21.90	22.06
	16QAM	RB1#0	21.70	21.26	21.40	22.26	21.82	21.96
		RB1#37	21.69	21.30	21.07	22.25	21.86	21.63
		RB1#74	20.31	20.27	20.24	20.87	20.83	20.80
		RB36#0	20.28	20.20	20.30	20.84	20.76	20.86
		RB36#18	20.33	20.22	20.25	20.89	20.78	20.81
		RB36#37	22.22	22.19	22.30	22.78	22.75	22.86
		RB75#0	22.20	22.19	22.01	22.76	22.75	22.57
20.0	QPSK	RB1#0	22.23	22.25	22.22	22.79	22.81	22.78
		RB1#49	22.24	22.13	22.20	22.80	22.69	22.76
		RB1#99	22.24	22.17	21.61	22.80	22.73	22.17
		RB50#0	21.33	21.27	21.32	21.89	21.83	21.88
		RB50#24	21.28	21.23	21.33	21.84	21.79	21.89
		RB50#49	21.31	21.26	21.34	21.87	21.82	21.90
		RB100#0	21.76	21.31	21.48	22.32	21.87	22.04
	16QAM	RB1#0	21.70	21.26	21.35	22.26	21.82	21.91
		RB1#49	21.64	21.27	21.07	22.20	21.83	21.63
		RB1#99	20.33	20.24	20.21	20.89	20.80	20.77
		RB50#0	20.30	20.22	20.24	20.86	20.78	20.80
		RB50#24	20.31	20.21	20.24	20.87	20.77	20.80
		RB50#49	22.20	22.19	22.29	22.76	22.75	22.85
		RB100#0	22.22	22.22	22.01	22.78	22.78	22.57

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi)
 For Band4: Antenna Gain = 0.56dBi, Cable loss is 0dB, which was provided by applicant.
 Limit: EIRP ≤ 30dBm

Peak-to-average ratio (PAR)**20MHz Bandwidth**

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.21	4.43	4.11	13	Pass
QPSK (100RB Size)	5.44	5.43	5.51	13	Pass
16QAM (1RB Size)	5.21	5.16	5.43	13	Pass
16QAM (100RB Size)	6.21	6.24	6.24	13	Pass

LTE Band5

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	22.25	22.27	22.24	18.37	18.39	18.36
		RB1#2	22.21	22.15	22.15	18.33	18.27	18.27
		RB1#5	22.23	22.17	21.58	18.35	18.29	17.7
		RB3#0	21.32	21.32	21.29	17.44	17.44	17.41
		RB3#1	21.26	21.22	21.36	17.38	17.34	17.48
		RB3#2	21.29	21.21	21.33	17.41	17.33	17.45
		RB6#0	21.78	21.34	21.49	17.9	17.46	17.61
	16QAM	RB1#0	21.68	21.27	21.39	17.8	17.39	17.51
		RB1#2	21.68	21.32	21.05	17.8	17.44	17.17
		RB1#5	20.33	20.24	20.23	16.45	16.36	16.35
		RB3#0	20.27	20.19	20.25	16.39	16.31	16.37
		RB3#1	20.31	20.23	20.26	16.43	16.35	16.38
		RB3#2	22.22	22.23	22.32	18.34	18.35	18.44
		RB6#0	22.20	22.20	21.99	18.32	18.32	18.11
3.0	QPSK	RB1#0	22.28	22.27	22.22	18.4	18.39	18.34
		RB1#7	22.22	22.16	22.19	18.34	18.28	18.31
		RB1#14	22.25	22.19	21.58	18.37	18.31	17.7
		RB8#0	21.32	21.27	21.29	17.44	17.39	17.41
		RB8#4	21.31	21.25	21.31	17.43	17.37	17.43
		RB8#7	21.34	21.24	21.38	17.46	17.36	17.5
		RB15#0	21.75	21.31	21.51	17.87	17.43	17.63
	16QAM	RB1#0	21.66	21.23	21.38	17.78	17.35	17.5
		RB1#7	21.66	21.27	21.09	17.78	17.39	17.21
		RB1#14	20.30	20.27	20.21	16.42	16.39	16.33
		RB8#0	20.24	20.22	20.29	16.36	16.34	16.41
		RB8#4	20.28	20.25	20.28	16.4	16.37	16.4
		RB8#7	22.24	22.19	22.32	18.36	18.31	18.44
		RB15#0	22.21	22.22	21.99	18.33	18.34	18.11

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	22.15	22.19	22.11	18.27	18.31	18.23
		RB1#12	22.09	22.07	22.10	18.21	18.19	18.22
		RB1#24	22.15	22.04	21.51	18.27	18.16	17.63
		RB12#0	21.22	21.19	21.19	17.34	17.31	17.31
		RB12#6	21.20	21.12	21.24	17.32	17.24	17.36
		RB12#11	21.25	21.13	21.26	17.37	17.25	17.38
		RB25#0	21.66	21.24	21.41	17.78	17.36	17.53
	16QAM	RB1#0	21.61	21.17	21.30	17.73	17.29	17.42
		RB1#12	21.59	21.23	20.94	17.71	17.35	17.06
		RB1#24	20.23	20.16	20.13	16.35	16.28	16.25
		RB12#0	20.14	20.09	20.16	16.26	16.21	16.28
		RB12#6	20.18	20.17	20.15	16.3	16.29	16.27
		RB12#11	22.13	22.12	22.22	18.25	18.24	18.34
		RB25#0	22.12	22.07	21.88	18.24	18.19	18
10.0	QPSK	RB1#0	22.16	22.19	22.10	18.28	18.31	18.22
		RB1#24	22.12	22.04	22.07	18.24	18.16	18.19
		RB1#49	22.14	22.06	21.52	18.26	18.18	17.64
		RB25#0	21.25	21.19	21.20	17.37	17.31	17.32
		RB25#12	21.20	21.14	21.22	17.32	17.26	17.34
		RB25#24	21.19	21.14	21.25	17.31	17.26	17.37
		RB50#0	21.67	21.25	21.42	17.79	17.37	17.54
	16QAM	RB1#0	21.58	21.15	21.30	17.7	17.27	17.42
		RB1#24	21.56	21.17	21.00	17.68	17.29	17.12
		RB1#49	20.20	20.16	20.10	16.32	16.28	16.22
		RB25#0	20.15	20.07	20.18	16.27	16.19	16.3
		RB25#12	20.23	20.17	20.18	16.35	16.29	16.3
		RB25#24	22.10	22.14	22.24	18.22	18.26	18.36
		RB50#0	22.12	22.10	21.91	18.24	18.22	18.03

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd)
 For Band5: Antenna Gain = -1.23dBi = -3.38dBd (0dBd=2.15dBi)
 For 700MHz-1GHz range, Cable loss is 0.5dB, which was provided by applicant.
 Limit: ERP ≤ 38.45dBm

Peak-to-average ratio (PAR)**10MHz bandwidth**

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.31	4.39	4.27	13	Pass
QPSK (50RB Size)	5.39	5.56	5.62	13	Pass
16QAM (1RB Size)	5.50	4.57	5.29	13	Pass
16QAM (50RB Size)	6.29	6.67	6.40	13	Pass

LTE Band 7:

Maximum Output Power

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	22.24	22.22	22.16	22.93	22.91	22.85
		RB1#12	22.17	22.09	22.11	22.86	22.78	22.8
		RB1#24	22.21	22.14	21.55	22.9	22.83	22.24
		RB12#0	21.28	21.26	21.26	21.97	21.95	21.95
		RB12#6	21.25	21.20	21.28	21.94	21.89	21.97
		RB12#11	21.24	21.17	21.31	21.93	21.86	22
		RB25#0	21.70	21.27	21.43	22.39	21.96	22.12
	16QAM	RB1#0	21.62	21.18	21.32	22.31	21.87	22.01
		RB1#12	21.63	21.23	21.02	22.32	21.92	21.71
		RB1#24	20.30	20.20	20.20	20.99	20.89	20.89
		RB12#0	20.20	20.14	20.24	20.89	20.83	20.93
		RB12#6	20.25	20.18	20.19	20.94	20.87	20.88
		RB12#11	22.20	22.14	22.23	22.89	22.83	22.92
		RB25#0	22.18	22.11	21.94	22.87	22.8	22.63
10.0	QPSK	RB1#0	22.20	22.18	22.18	22.89	22.87	22.87
		RB1#24	22.18	22.09	22.12	22.87	22.78	22.81
		RB1#49	22.21	22.11	21.59	22.9	22.8	22.28
		RB25#0	21.29	21.25	21.28	21.98	21.94	21.97
		RB25#12	21.22	21.18	21.31	21.91	21.87	22
		RB25#24	21.27	21.20	21.28	21.96	21.89	21.97
		RB50#0	21.70	21.30	21.48	22.39	21.99	22.17
	16QAM	RB1#0	21.65	21.19	21.31	22.34	21.88	22
		RB1#24	21.63	21.27	21.00	22.32	21.96	21.69
		RB1#49	20.28	20.18	20.17	20.97	20.87	20.86
		RB25#0	20.21	20.16	20.23	20.9	20.85	20.92
		RB25#12	20.27	20.21	20.19	20.96	20.9	20.88
		RB25#24	22.19	22.13	22.27	22.88	22.82	22.96
		RB50#0	22.20	22.16	21.98	22.89	22.85	22.67

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15.0	QPSK	RB1#0	22.21	22.22	22.16	22.9	22.91	22.85
		RB1#37	22.15	22.13	22.12	22.84	22.82	22.81
		RB1#74	22.17	22.14	21.58	22.86	22.83	22.27
		RB36#0	21.27	21.25	21.23	21.96	21.94	21.92
		RB36#18	21.23	21.19	21.28	21.92	21.88	21.97
		RB36#37	21.29	21.17	21.27	21.98	21.86	21.96
		RB75#0	21.69	21.25	21.47	22.38	21.94	22.16
	16QAM	RB1#0	21.63	21.21	21.32	22.32	21.9	22.01
		RB1#37	21.63	21.23	21.01	22.32	21.92	21.7
		RB1#74	20.30	20.16	20.14	20.99	20.85	20.83
		RB36#0	20.23	20.17	20.22	20.92	20.86	20.91
		RB36#18	20.25	20.20	20.22	20.94	20.89	20.91
		RB36#37	22.20	22.15	22.25	22.89	22.84	22.94
		RB75#0	22.14	22.13	21.96	22.83	22.82	22.65
20.0	QPSK	RB1#0	22.20	22.21	22.18	22.89	22.9	22.87
		RB1#49	22.19	22.07	22.10	22.88	22.76	22.79
		RB1#99	22.18	22.14	21.58	22.87	22.83	22.27
		RB50#0	21.29	21.28	21.23	21.98	21.97	21.92
		RB50#24	21.22	21.16	21.31	21.91	21.85	22
		RB50#49	21.28	21.21	21.33	21.97	21.9	22.02
		RB100#0	21.72	21.28	21.47	22.41	21.97	22.16
	16QAM	RB1#0	21.64	21.18	21.31	22.33	21.87	22
		RB1#49	21.62	21.24	21.03	22.31	21.93	21.72
		RB1#99	20.25	20.19	20.17	20.94	20.88	20.86
		RB50#0	20.20	20.13	20.21	20.89	20.82	20.9
		RB50#24	20.23	20.16	20.19	20.92	20.85	20.88
		RB50#49	22.19	22.17	22.25	22.88	22.86	22.94
		RB100#0	22.17	22.15	21.95	22.86	22.84	22.64

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi)
 For Band7: Antenna Gain = 1.89dBi
 For 2.3GHz-2.7GHz range, Cable loss is 1.2dB, which was provided by applicant.
 Limit: EIRP ≤ 33dBm

Peak-to-average ratio (PAR)**20MHz bandwidth**

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.87	4.46	3.60	13	Pass
QPSK (100RB Size)	5.51	5.60	5.57	13	Pass
16QAM (1RB Size)	5.54	5.59	4.63	13	Pass
16QAM (100RB Size)	6.19	6.43	6.28	13	Pass

LTE Band 17

Maximum Output Power

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
5	QPSK	RB1#0	22.07	22.08	22.04	17.54	17.55	17.51
		RB1#13	21.99	21.94	21.99	17.46	17.41	17.46
		RB1#24	22.02	21.97	21.43	17.49	17.44	16.90
		RB15#0	21.12	21.11	21.12	16.59	16.58	16.59
		RB15#10	21.08	21.04	21.12	16.55	16.51	16.59
		RB25#0	21.09	21.03	21.15	16.56	16.50	16.62
		RB1#0	21.56	21.12	21.33	17.03	16.59	16.80
	16QAM	RB1#13	21.50	21.04	21.19	16.97	16.51	16.66
		RB1#24	21.44	21.08	20.88	16.91	16.55	16.35
		RB15#0	20.10	20.03	20.04	15.57	15.50	15.51
		RB15#10	20.05	20.00	20.05	15.52	15.47	15.52
		RB25#0	20.12	20.02	20.06	15.59	15.49	15.53
		RB1#0	22.01	22.02	22.11	17.48	17.49	17.58
		RB1#13	22.04	22.01	21.79	17.51	17.48	17.26
10	QPSK	RB1#0	22.04	22.04	22.06	17.51	17.51	17.53
		RB1#25	22.00	21.98	21.99	17.47	17.45	17.46
		RB1#49	22.08	21.96	21.39	17.55	17.43	16.86
		RB25#0	21.15	21.08	21.12	16.62	16.55	16.59
		RB25#25	21.07	21.00	21.16	16.54	16.47	16.63
		RB50#0	21.12	21.03	21.12	16.59	16.50	16.59
		RB1#0	21.57	21.09	21.28	17.04	16.56	16.75
	16QAM	RB1#25	21.48	21.03	21.19	16.95	16.50	16.66
		RB1#49	21.46	21.08	20.86	16.93	16.55	16.33
		RB25#0	20.09	20.04	20.00	15.56	15.51	15.47
		RB25#25	20.06	19.98	20.08	15.53	15.45	15.55
		RB50#0	20.11	20.07	20.05	15.58	15.54	15.52
		RB1#0	22.02	21.99	22.10	17.49	17.46	17.57
		RB1#25	22.00	21.99	21.83	17.47	17.46	17.30

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd)
 For Band12: Antenna Gain = -1.88dBi = -4.03dBd (0dBd=2.15dBi)
 For 700MHz-1GHz range, Cable loss is 0.5dB, which was provided by applicant.
 Limit: ERP≤34.77dBm

Peak-to-average ratio (PAR)**10MHz bandwidth**

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.29	4.33	4.32	13	Pass
QPSK (50RB Size)	5.32	5.32	5.21	13	Pass
16QAM (1RB Size)	5.46	5.40	5.53	13	Pass
16QAM (50RB Size)	6.12	6.25	6.70	13	Pass

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

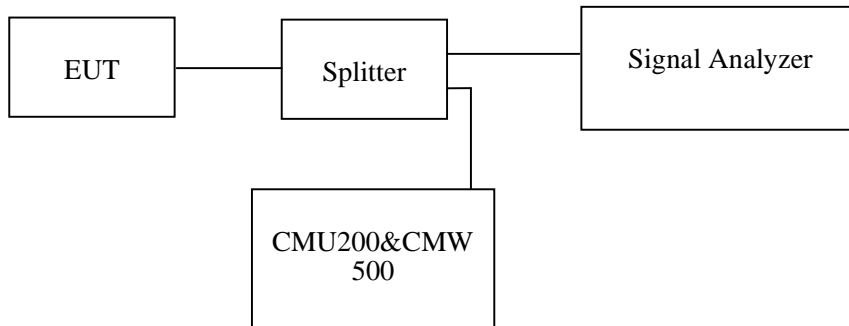
Applicable Standard

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

Test Procedure

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

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



Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

The testing was performed by Coco Liu from 2021-01-01 to 2021-01-20.

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	246.79	318.59
	190	836.6	245.19	325.64
	251	848.8	243.59	318.27
EGPRS(8PSK)	128	824.2	243.59	316.03
	190	836.6	245.19	312.18
	251	848.8	246.79	311.22

	Frequency (MHz)	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	826.4	4.21	4.90
	836.6	4.21	4.86
	846.6	4.20	4.88
HSDPA	826.4	4.23	4.88
	836.6	4.21	4.87
	846.6	4.21	4.88
HSUPA	826.4	4.21	4.89
	836.6	4.21	4.87
	846.6	4.23	4.88

PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM(GMSK)	512	1850.2	245.19	318.27
	661	1880.0	245.19	320.83
	810	1909.8	245.19	316.67
EGPRS(8PSK)	512	1850.2	241.99	312.82
	661	1880.0	243.59	306.41
	810	1909.8	240.38	300.00

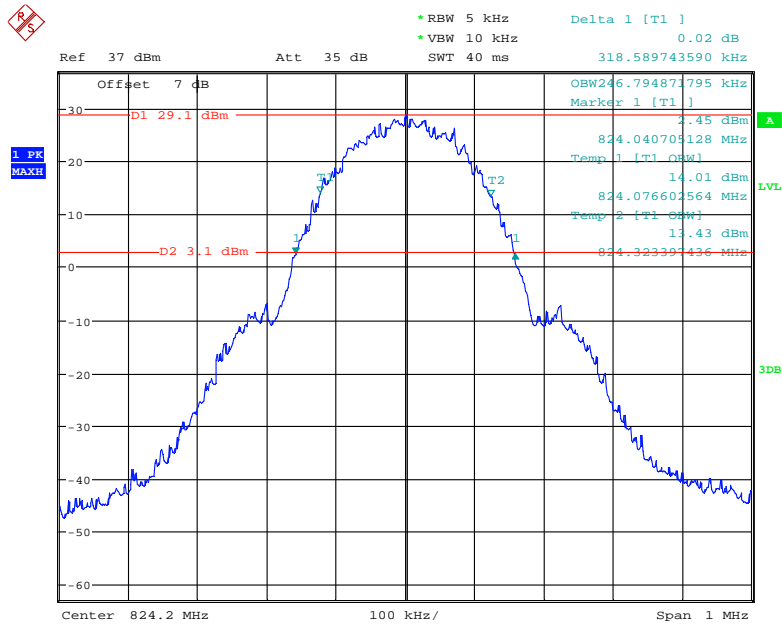
	Frequency (MHz)	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	1852.4	4.21	4.91
	1880.0	4.21	4.89
	1907.6	4.21	4.89
HSDPA	1852.4	4.23	4.88
	1880.0	4.21	4.89
	1907.6	4.21	4.89
HSUPA	1852.4	4.21	4.90
	1880.0	4.21	4.86
	1907.6	4.21	4.90

AWS Band (Part 27)

	Frequency (MHz)	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	1712.4	4.21	4.91
	1732.6	4.20	4.89
	1752.6	4.21	4.89
HSDPA	1712.4	4.23	4.88
	1732.6	4.21	4.89
	1752.6	4.21	4.89
HSUPA	1712.4	4.21	4.89
	1732.6	4.23	4.88
	1752.6	4.21	4.91

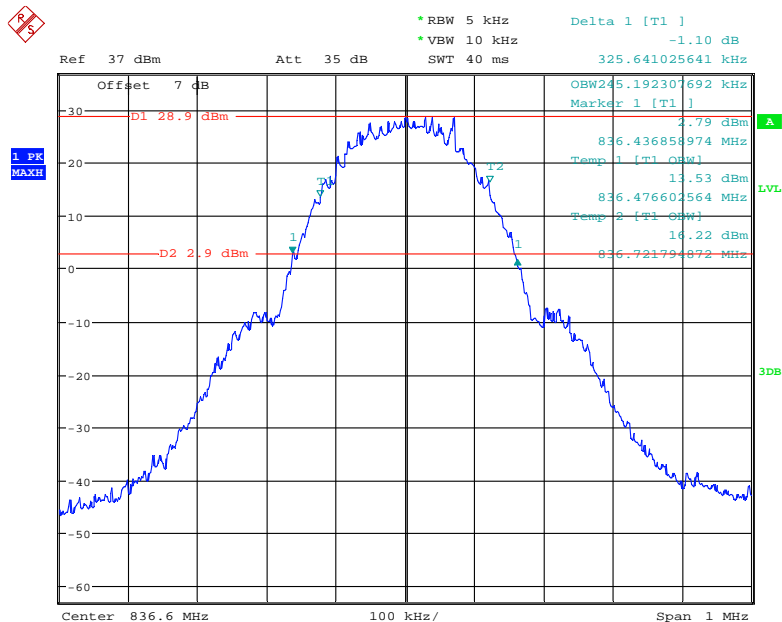
Cellular Band (Part 22H)

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



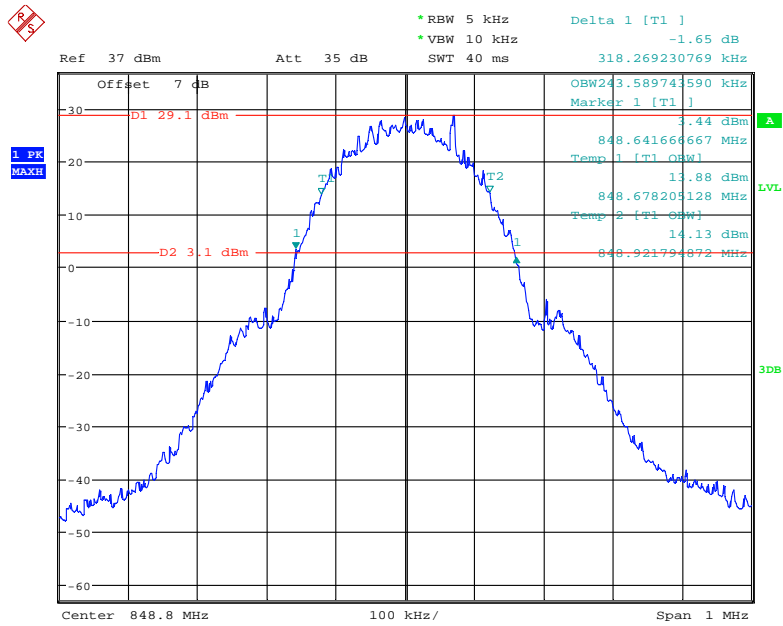
Date: 13.JAN.2021 16:09:27

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



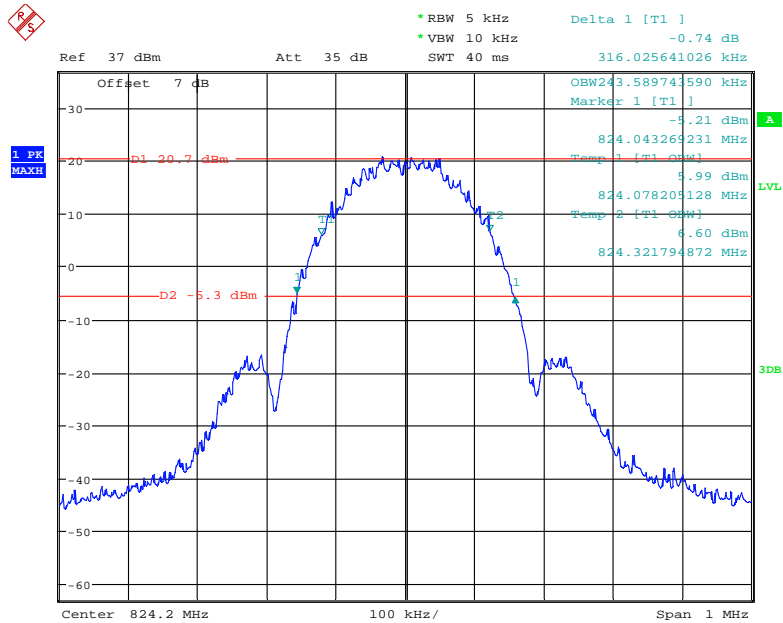
Date: 13.JAN.2021 16:11:45

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



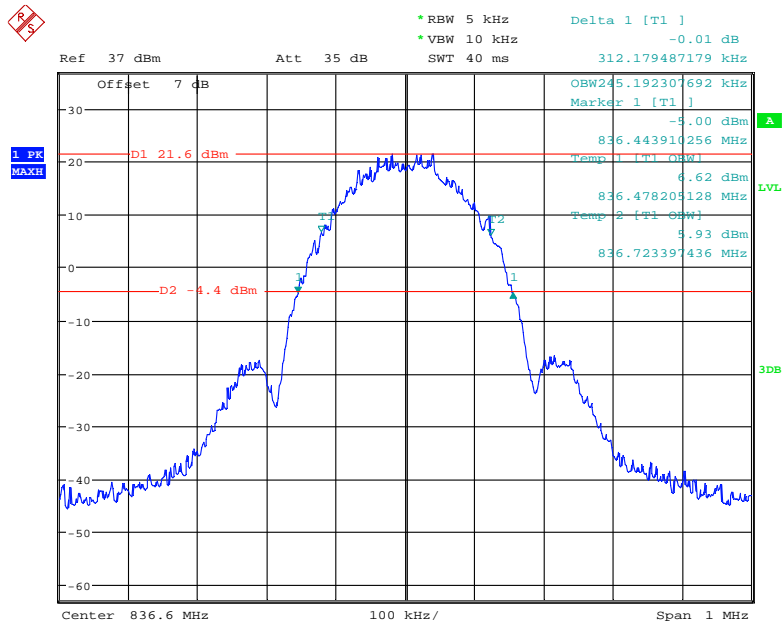
Date: 13.JAN.2021 16:13:21

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



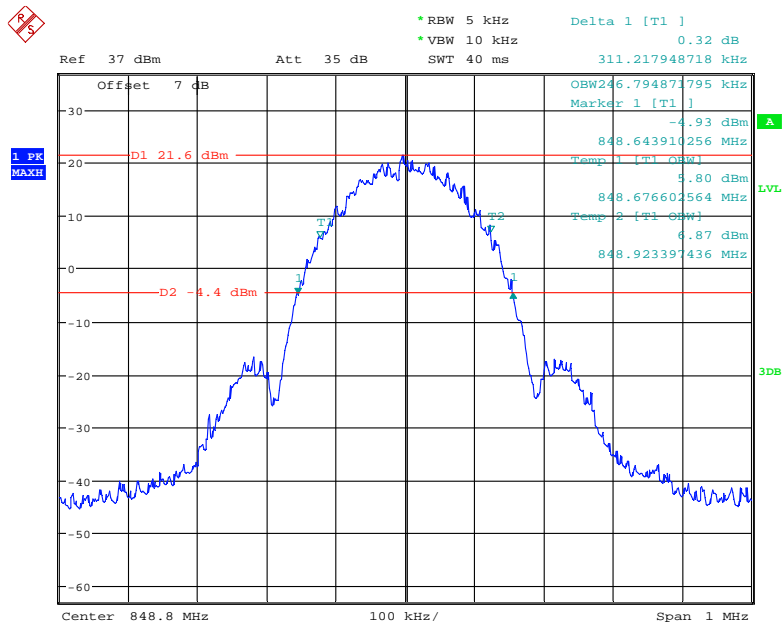
Date: 13.JAN.2021 15:59:47

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



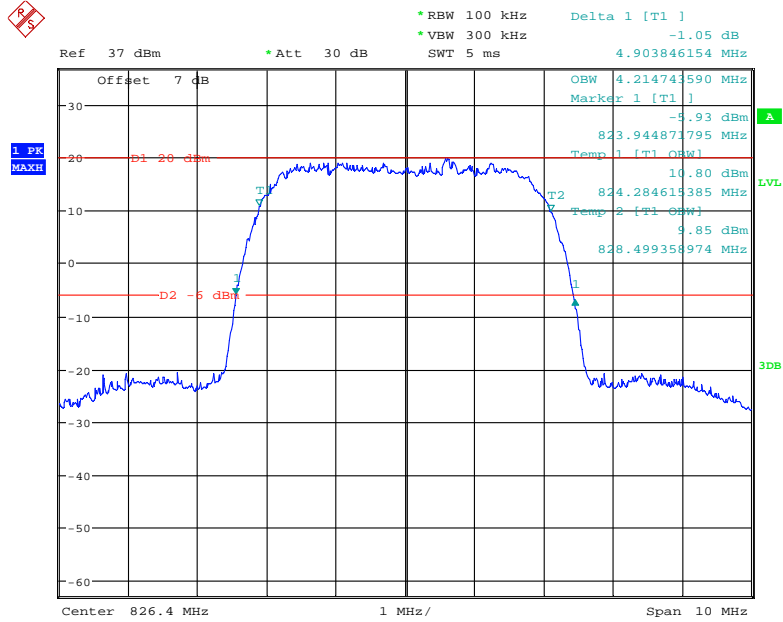
Date: 13.JAN.2021 15:56:23

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



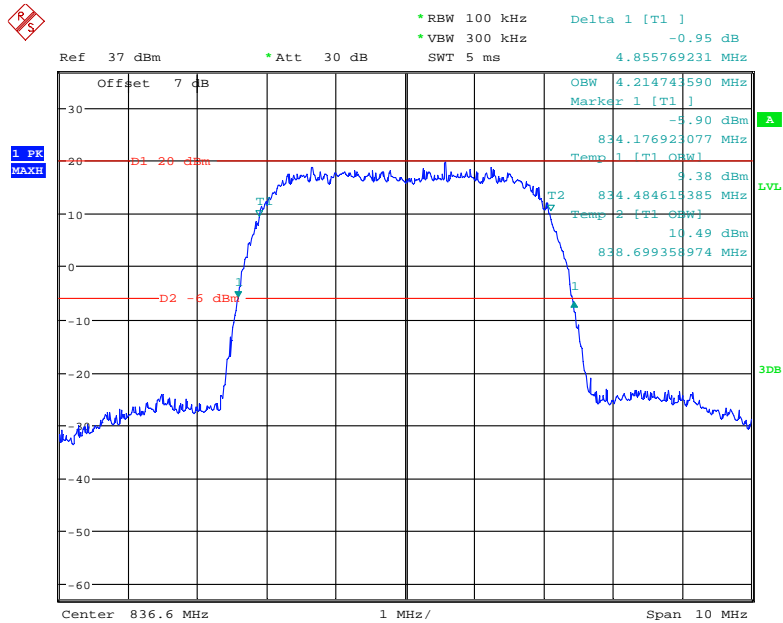
Date: 13.JAN.2021 15:57:40

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



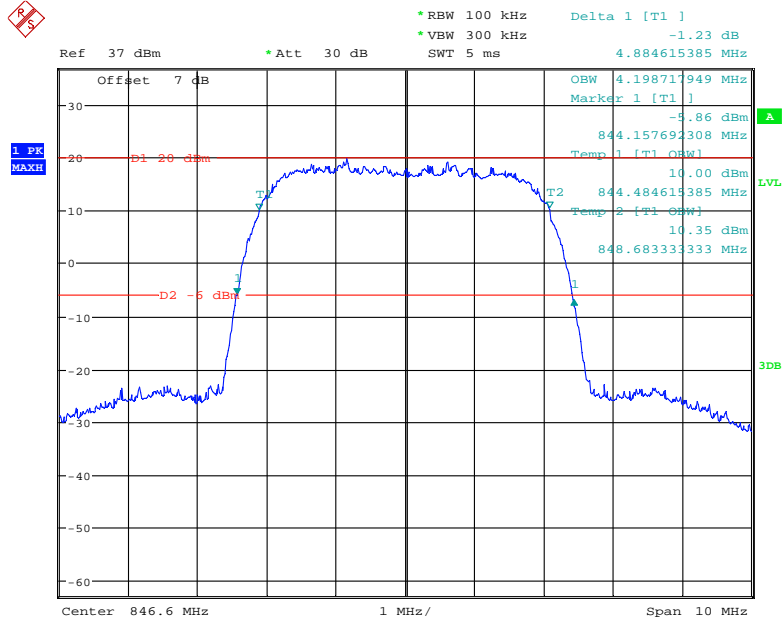
Date: 16.JAN.2021 13:33:17

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



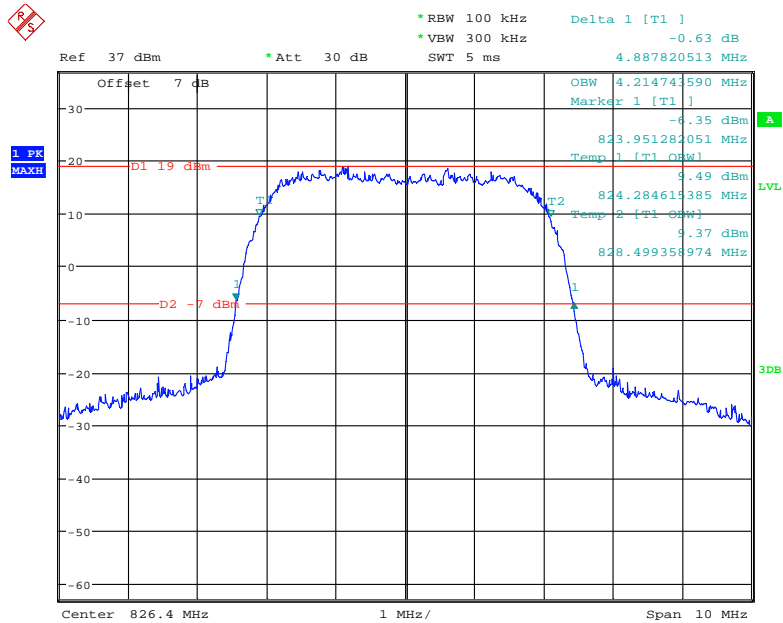
Date: 16.JAN.2021 13:31:51

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



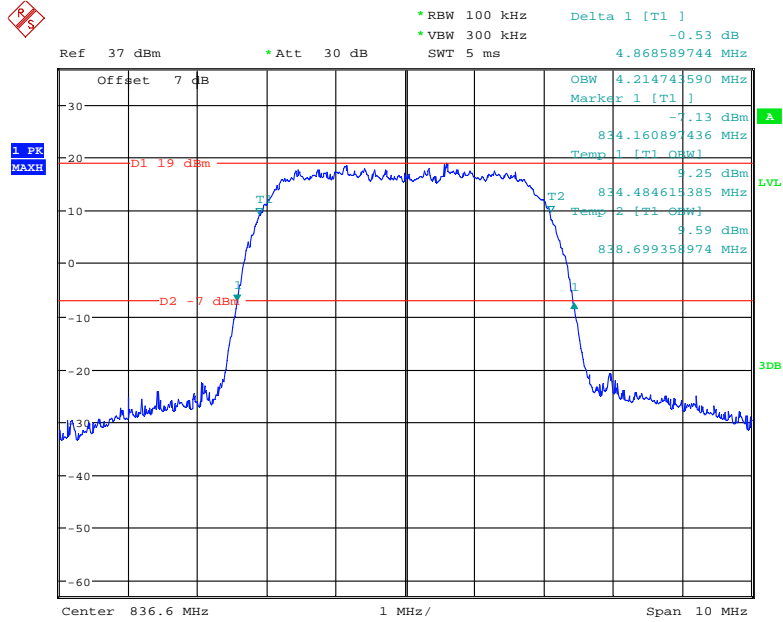
Date: 16.JAN.2021 13:30:50

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



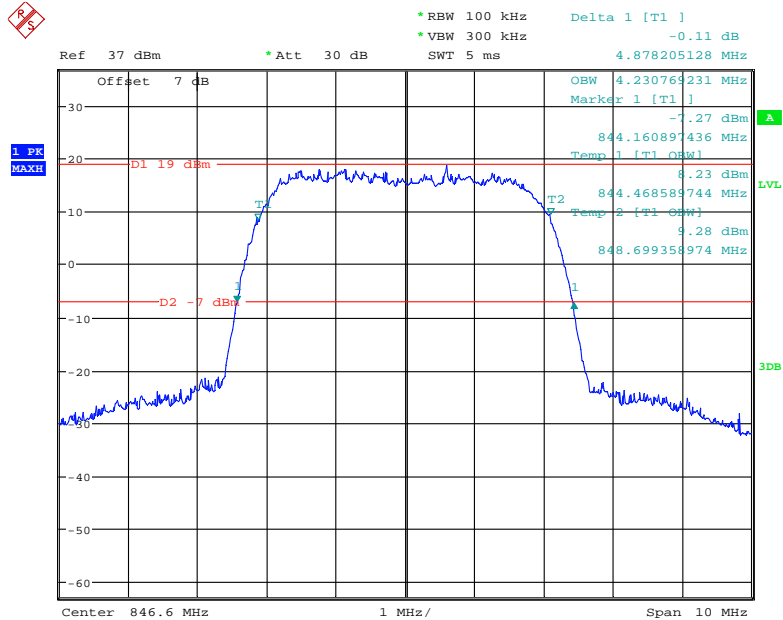
Date: 16.JAN.2021 13:20:46

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



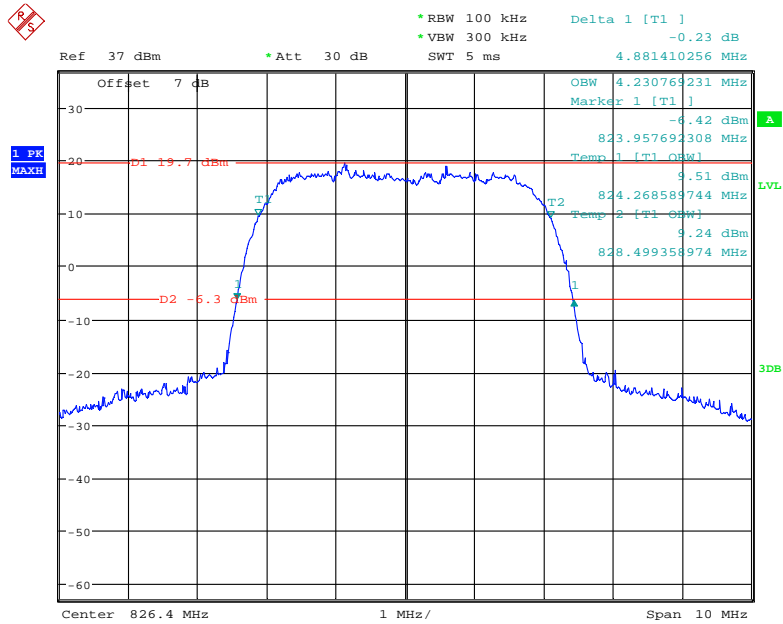
Date: 16.JAN.2021 11:59:40

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



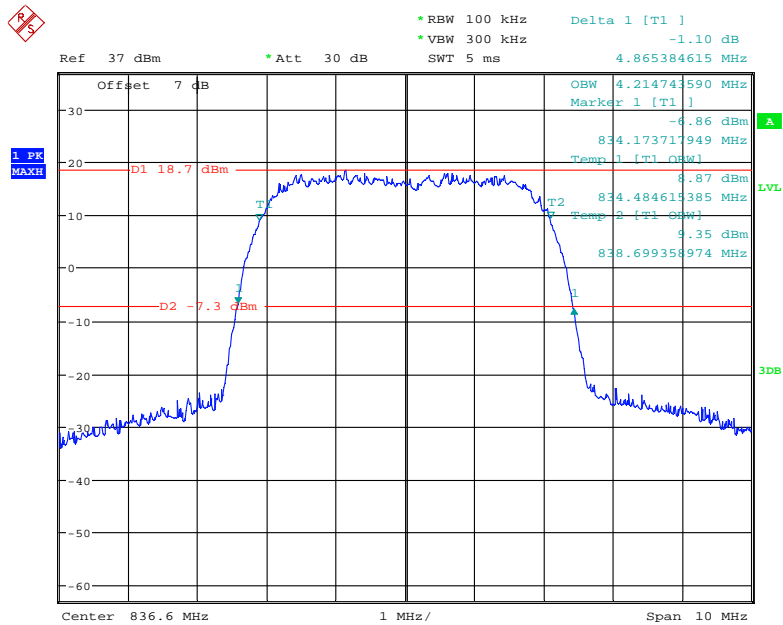
Date: 16.JAN.2021 13:19:02

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



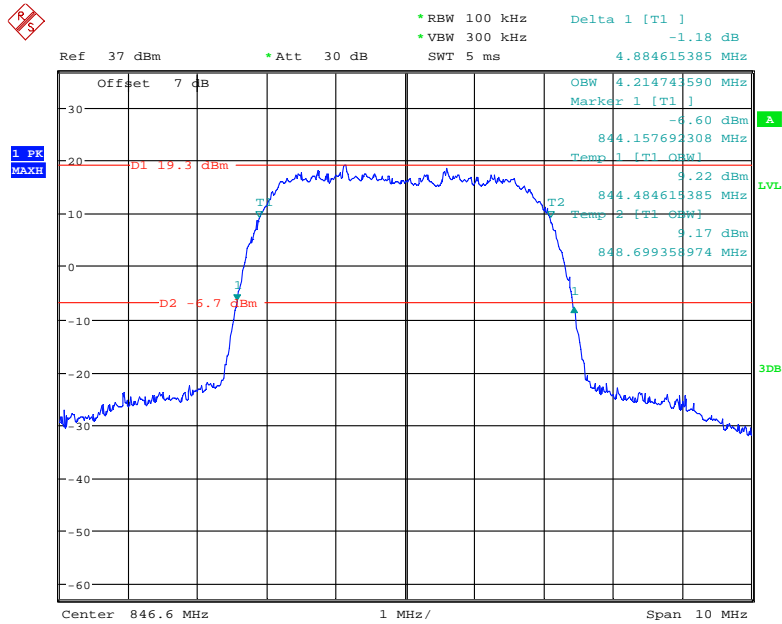
Date: 16.JAN.2021 13:23:39

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



Date: 16.JAN.2021 13:25:44

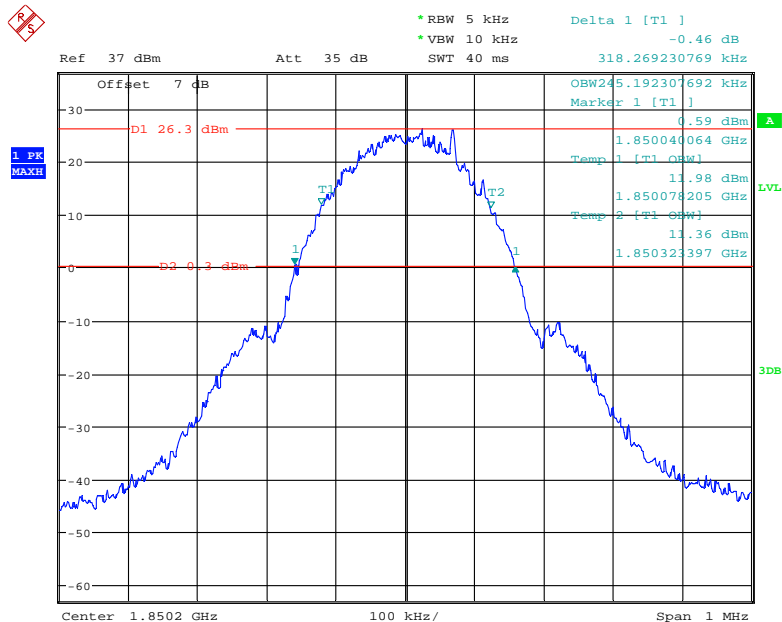
26 dB Emissions & 99% Occupied Bandwidth for HSDPA (16QAM) Mode, High channel



Date: 16.JAN.2021 13:28:57

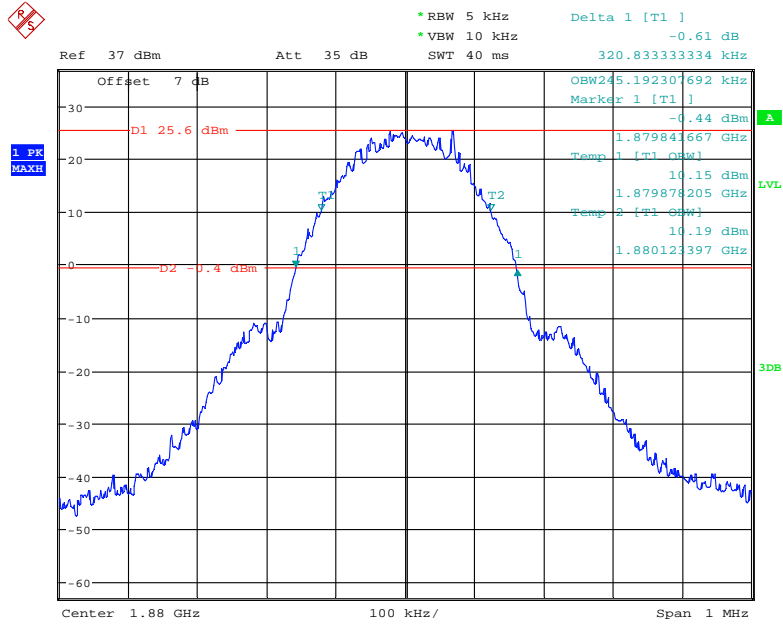
PCS Band (Part 24E)

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



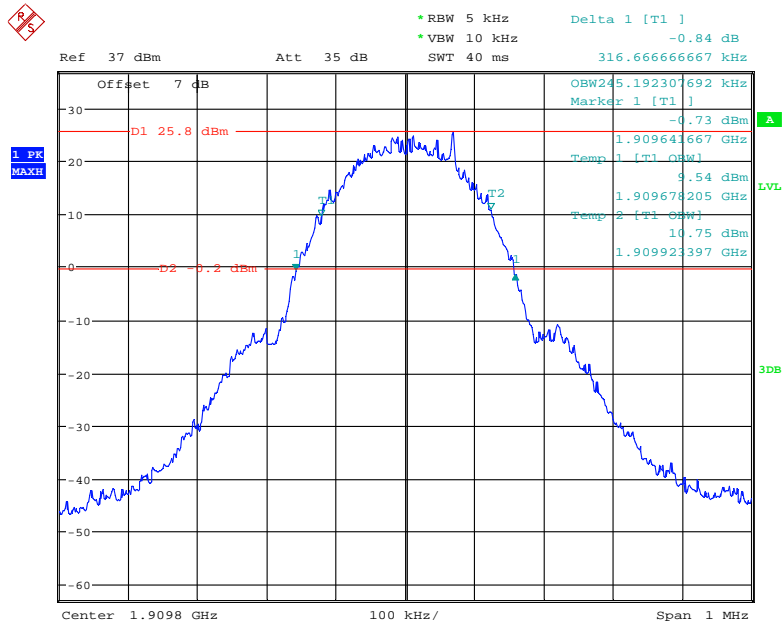
Date: 13.JAN.2021 16:16:42

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



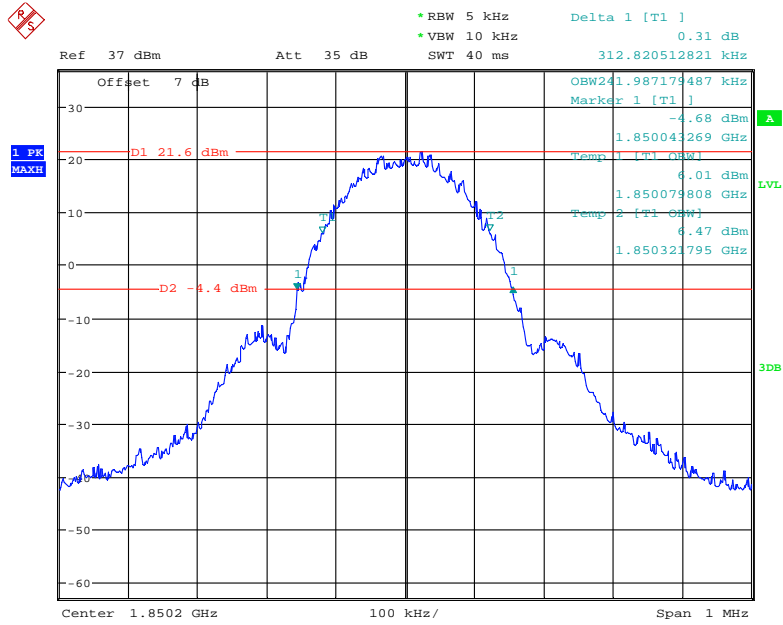
Date: 13.JAN.2021 16:18:04

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



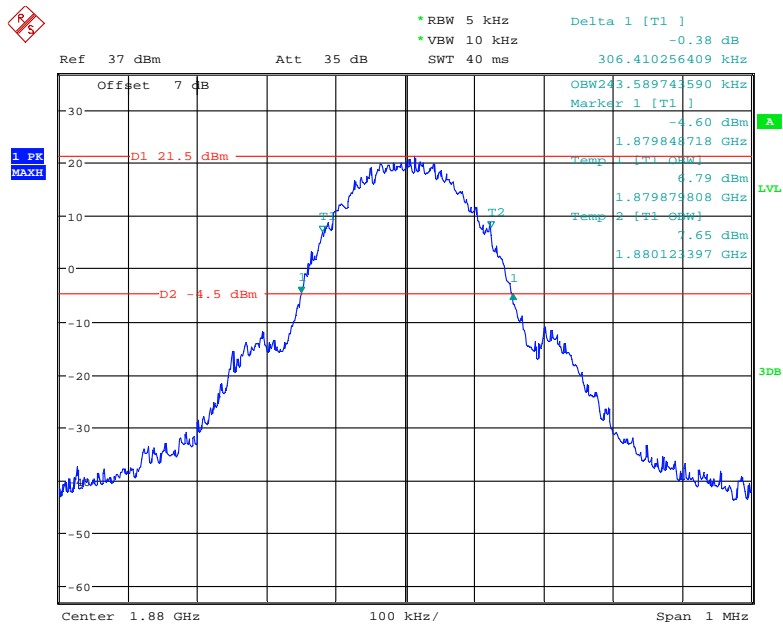
Date: 13.JAN.2021 16:19:35

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



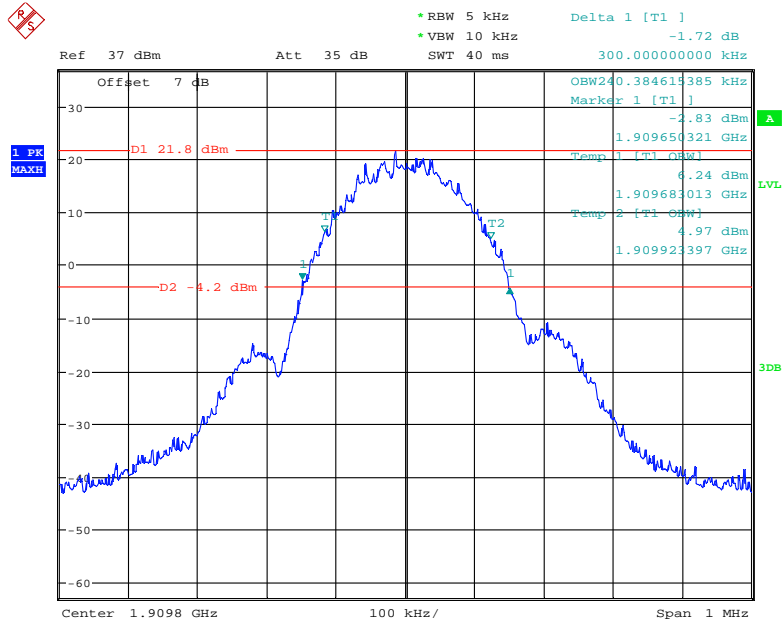
Date: 13.JAN.2021 15:47:13

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



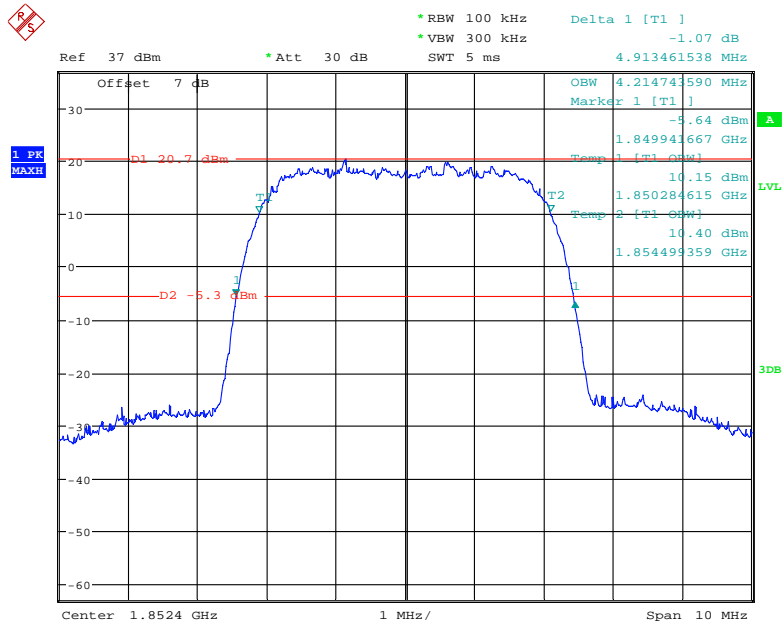
Date: 13.JAN.2021 15:45:00

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



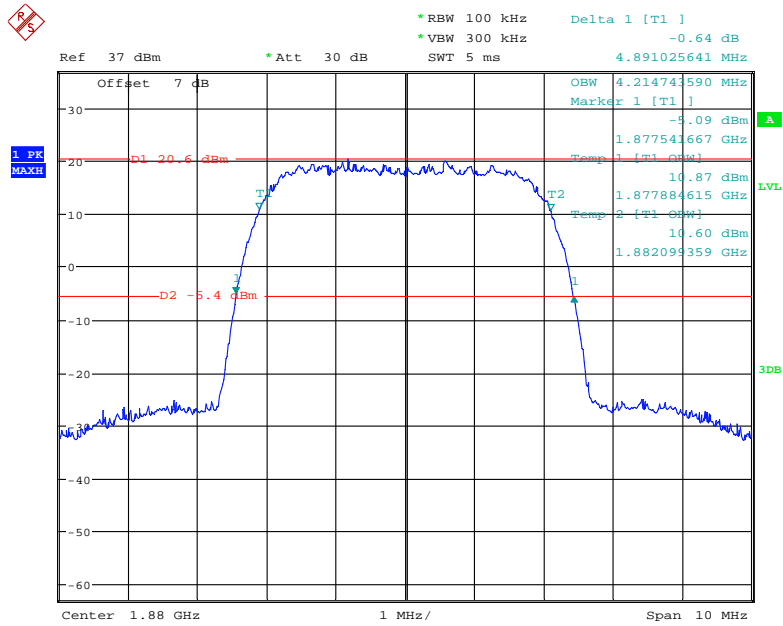
Date: 13.JAN.2021 15:43:33

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



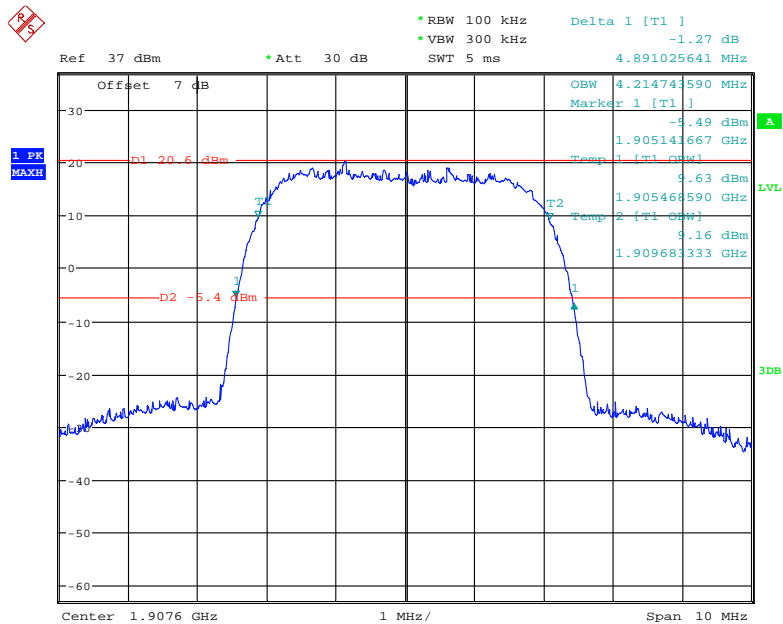
Date: 16.JAN.2021 14:04:24

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



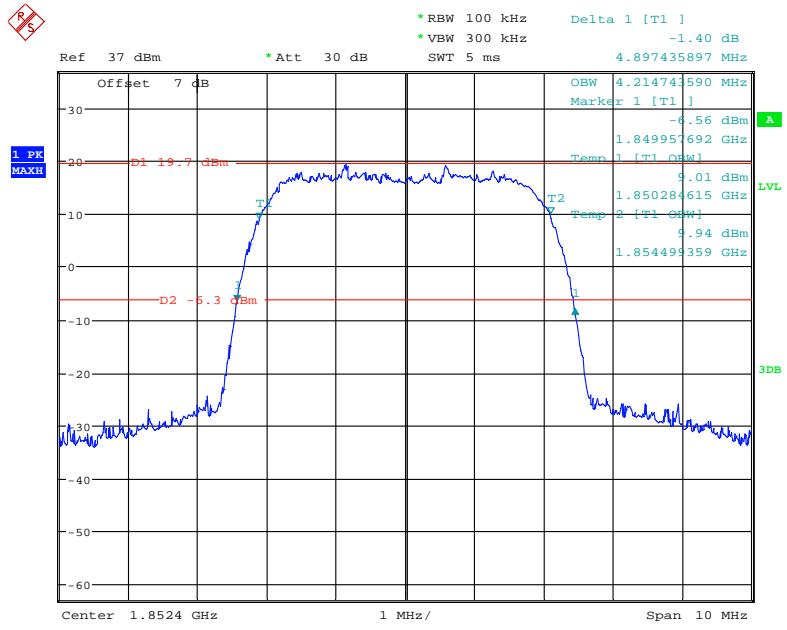
Date: 16.JAN.2021 14:06:11

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



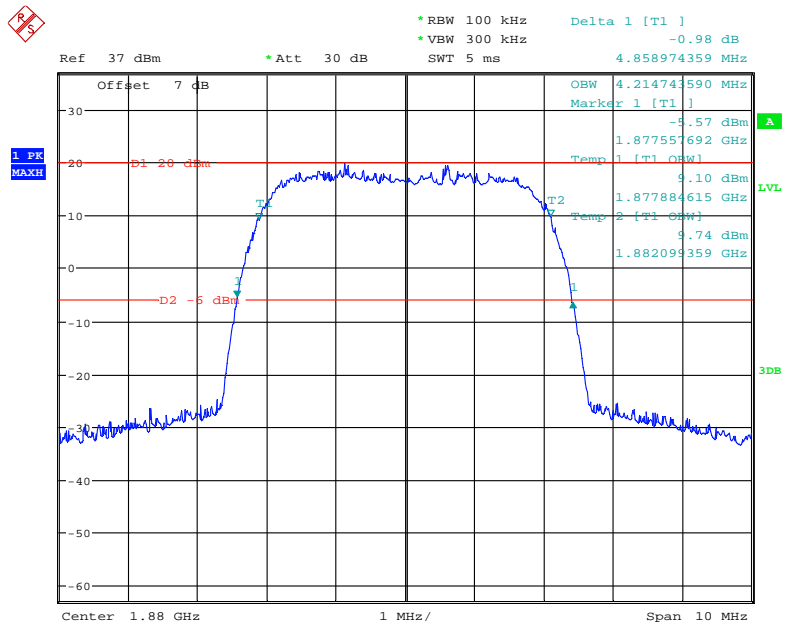
Date: 16.JAN.2021 14:07:52

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



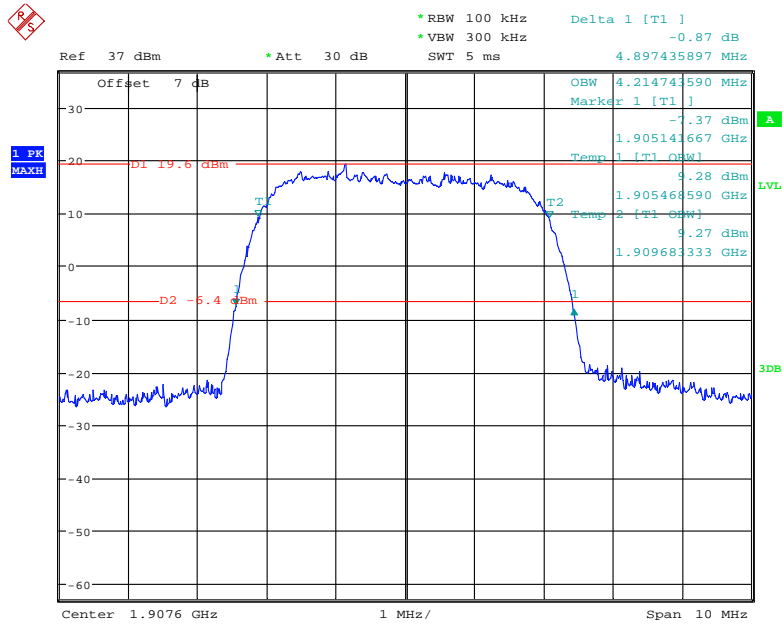
Date: 16.JAN.2021 14:02:07

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



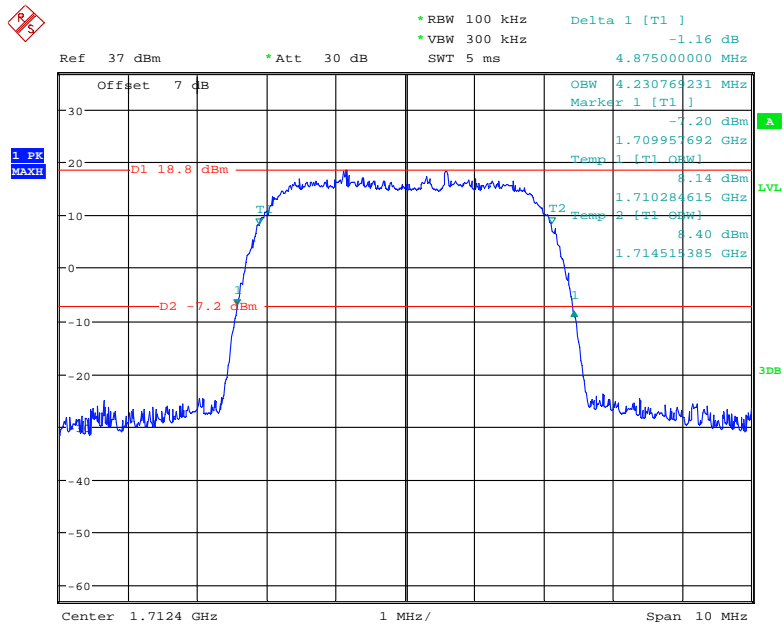
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26 dB Emissions & 99% Occupied Bandwidth for HSUPA (BPSK) Mode, High channel



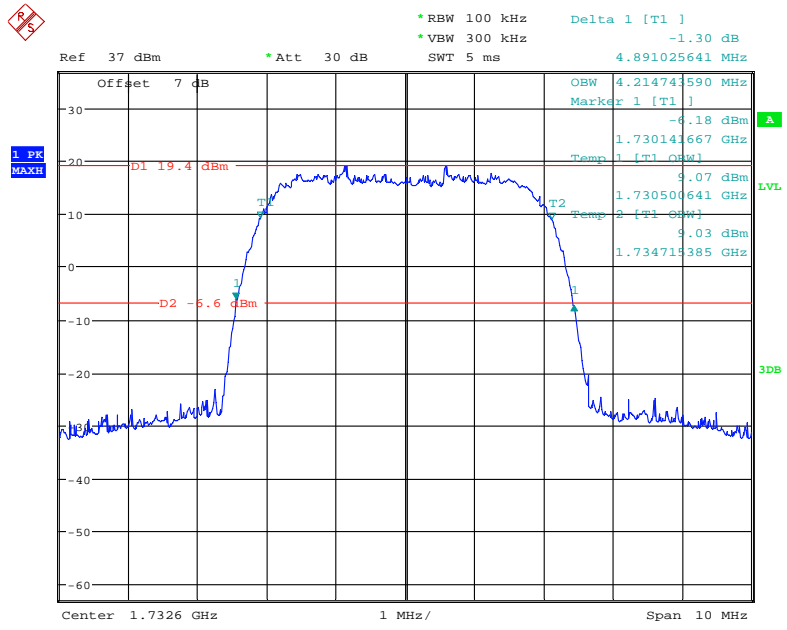
Date: 16.JAN.2021 13:57:47

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



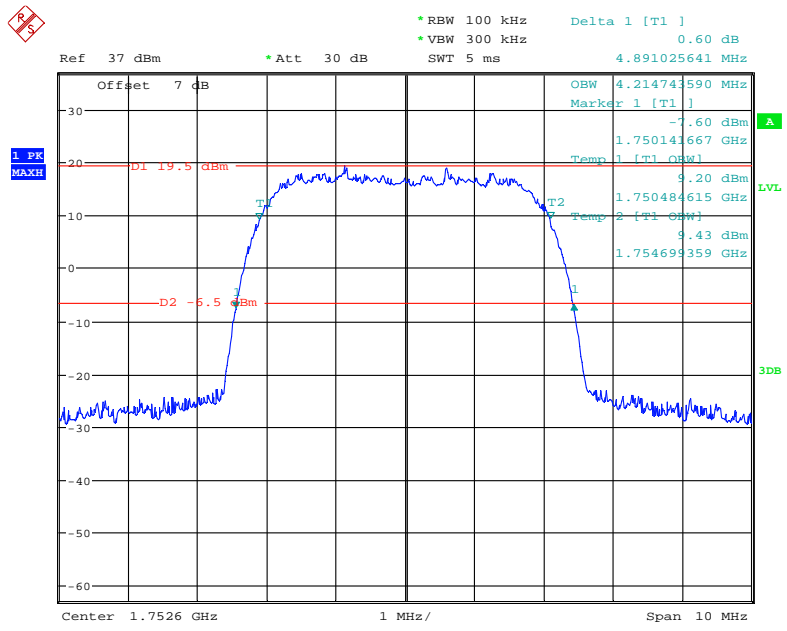
Date: 16.JAN.2021 13:43:05

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



Date: 16.JAN.2021 13:44:48

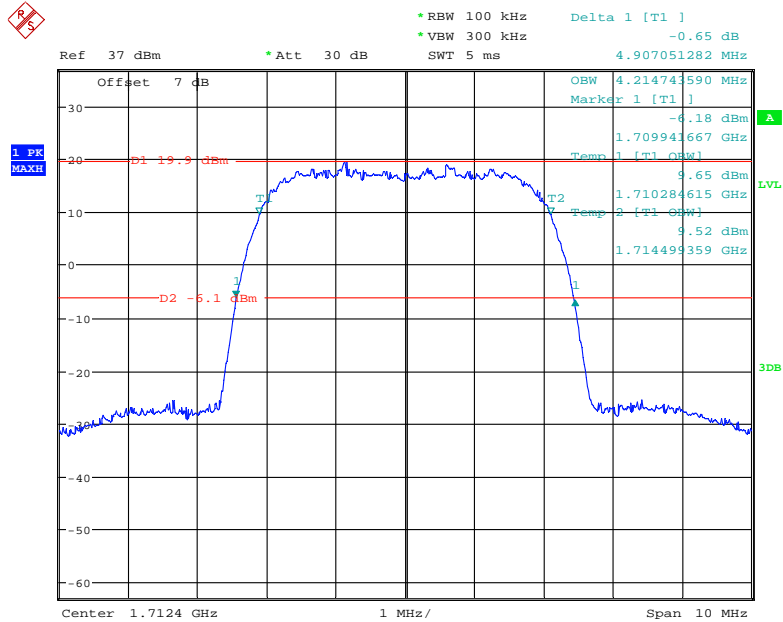
26 dB Emissions & 99% Occupied Bandwidth for HSDPA (16QAM) Mode, High channel



Date: 16.JAN.2021 13:46:44

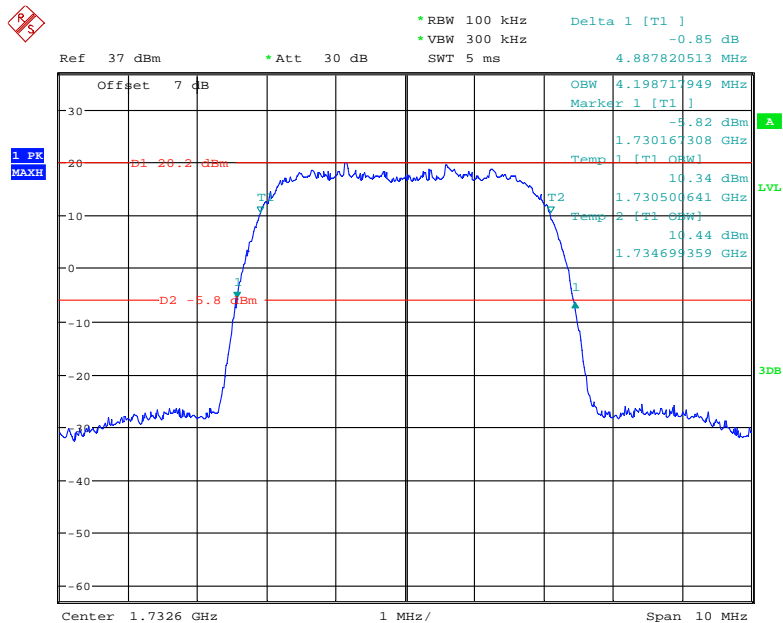
AWS Band (Part 27)

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



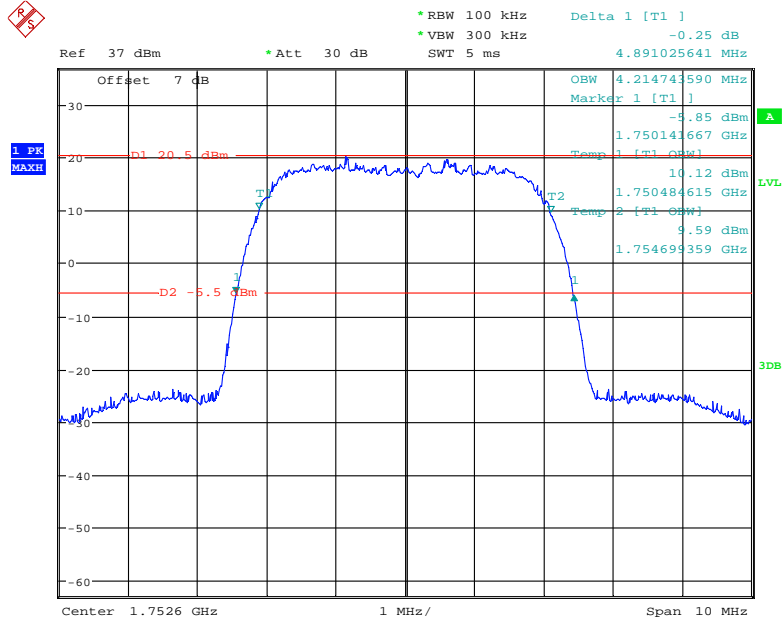
Date: 16.JAN.2021 13:41:19

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



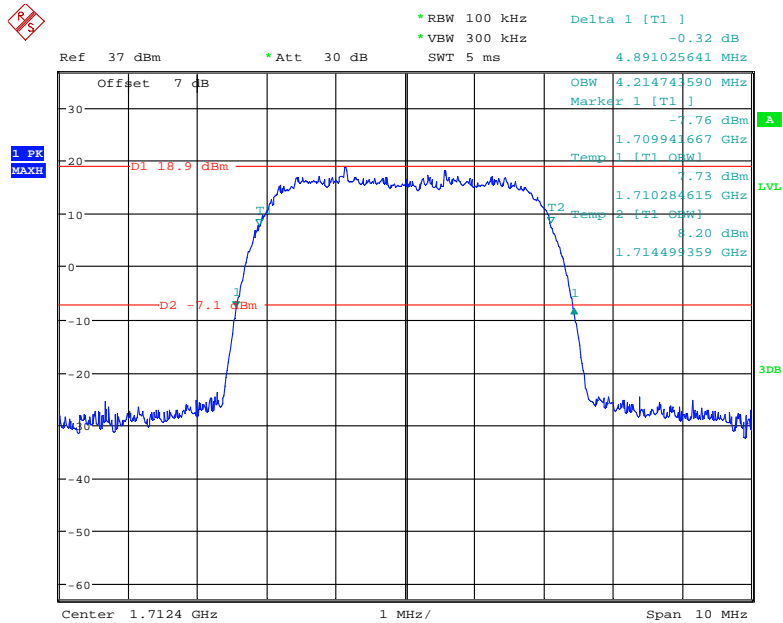
Date: 16.JAN.2021 13:38:31

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



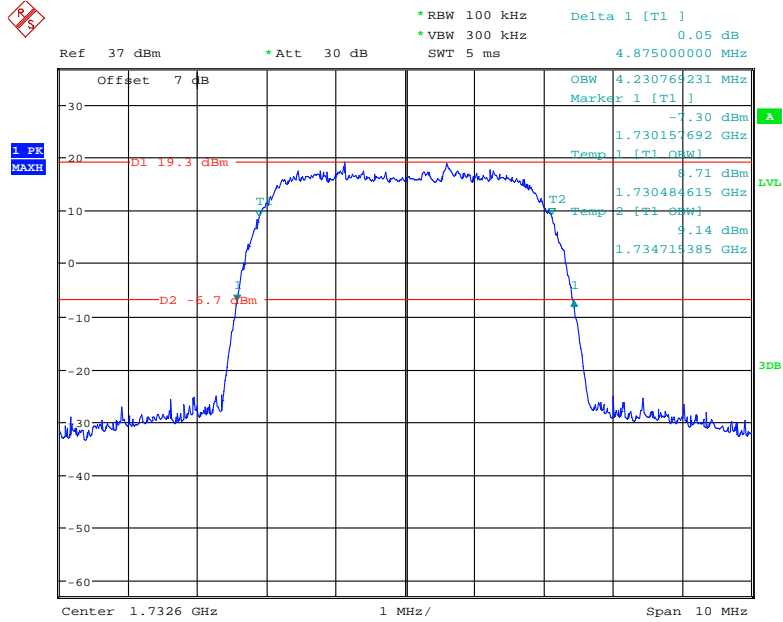
Date: 16.JAN.2021 13:36:55

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



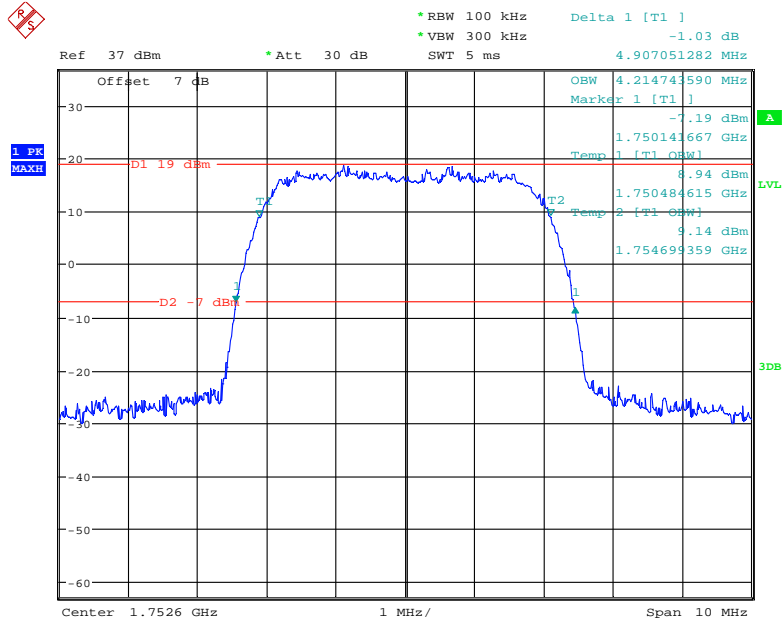
Date: 16.JAN.2021 13:52:53

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



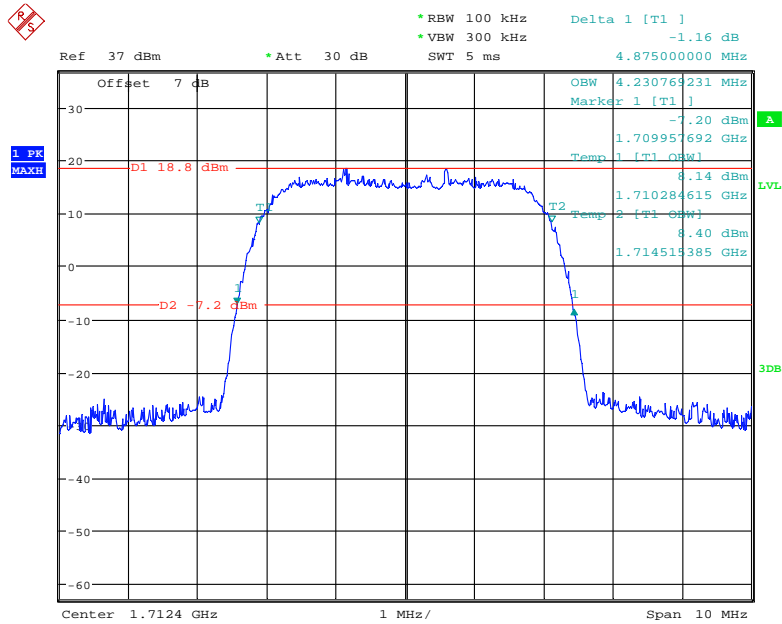
Date: 16.JAN.2021 13:50:50

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



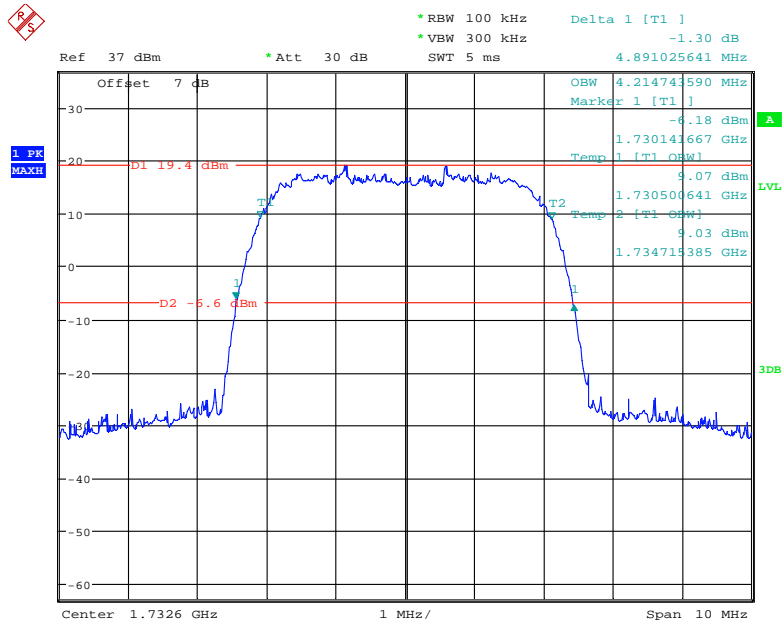
Date: 16.JAN.2021 13:48:28

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



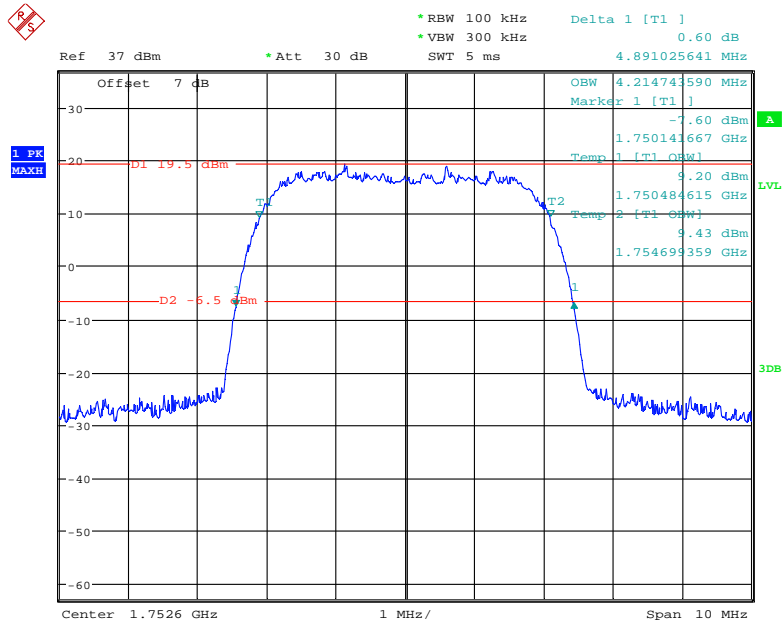
Date: 16.JAN.2021 13:43:05

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



Date: 16.JAN.2021 13:44:48

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



Date: 16.JAN.2021 13:46:44

LTE Band 2:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	Low	1.11	1.27
		Middle	1.11	1.27
		High	1.11	1.31
	16QAM	Low	1.10	1.28
		Middle	1.10	1.28
		High	1.10	1.27
3	QPSK	Low	2.69	2.91
		Middle	2.70	2.93
		High	2.69	2.94
	16QAM	Low	2.69	2.95
		Middle	2.69	2.95
		High	2.69	2.94
5	QPSK	Low	4.52	5.10
		Middle	4.56	5.10
		High	4.54	5.10
	16QAM	Low	4.55	5.06
		Middle	4.54	5.10
		High	4.54	5.08
10	QPSK	Low	8.97	9.81
		Middle	8.96	9.84
		High	8.97	9.90
	16QAM	Low	8.94	9.68
		Middle	8.96	9.72
		High	8.97	9.78
15	QPSK	Low	13.51	14.95
		Middle	13.62	15.12
		High	13.61	15.19
	16QAM	Low	13.56	14.95
		Middle	13.62	15.00
		High	13.56	15.05
20	QPSK	Low	18.01	19.54
		Middle	18.00	19.44
		High	18.01	19.55
	16QAM	Low	18.01	19.68
		Middle	18.08	19.68
		High	18.01	19.67

LTE Band 4:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	Low	1.11	1.31
		Middle	1.10	1.30
		High	1.11	1.29
	16QAM	Low	1.11	1.29
		Middle	1.11	1.30
		High	1.11	1.28
3	QPSK	Low	2.69	2.93
		Middle	2.70	2.93
		High	2.69	2.93
	16QAM	Low	2.69	2.94
		Middle	2.70	2.95
		High	2.69	2.94
5	QPSK	Low	4.55	5.08
		Middle	4.54	5.08
		High	4.54	5.10
	16QAM	Low	4.54	5.08
		Middle	4.52	5.08
		High	4.55	5.08
10	QPSK	Low	8.97	9.68
		Middle	8.96	9.84
		High	8.97	9.76
	16QAM	Low	8.94	9.65
		Middle	8.96	9.60
		High	8.97	9.82
15	QPSK	Low	13.60	15.34
		Middle	13.56	15.12
		High	13.56	15.13
	16QAM	Low	13.61	14.95
		Middle	13.56	15.06
		High	13.51	14.99
20	QPSK	Low	18.01	19.55
		Middle	18.00	19.68
		High	17.95	19.68
	16QAM	Low	18.01	19.62
		Middle	18.08	19.44
		High	18.01	19.81

LTE Band 5:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	Low	1.10	1.28
		Middle	1.10	1.27
		High	1.11	1.32
	16QAM	Low	1.11	1.29
		Middle	1.11	1.28
		High	1.10	1.27
3	QPSK	Low	2.69	2.91
		Middle	2.69	2.90
		High	2.69	2.96
	16QAM	Low	2.69	2.94
		Middle	2.69	2.94
		High	2.70	2.94
5	QPSK	Low	4.55	5.10
		Middle	4.54	5.10
		High	4.54	5.22
	16QAM	Low	4.52	5.09
		Middle	4.52	5.10
		High	4.57	5.08
10	QPSK	Low	8.97	9.85
		Middle	8.96	9.84
		High	8.97	9.71
	16QAM	Low	8.97	9.69
		Middle	8.96	9.72
		High	8.97	9.81

LTE Band 7:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5	QPSK	Low	4.55	5.11
		Middle	4.54	5.08
		High	4.52	5.06
	16QAM	Low	4.55	5.06
		Middle	4.54	5.10
		High	4.54	5.11
10	QPSK	Low	8.97	9.97
		Middle	8.96	9.88
		High	8.97	9.72
	16QAM	Low	8.97	9.71
		Middle	8.96	9.80
		High	8.94	9.72
15	QPSK	Low	13.61	15.19
		Middle	13.62	15.06
		High	13.50	15.06
	16QAM	Low	13.56	15.00
		Middle	13.56	15.06
		High	13.56	15.05
20	QPSK	Low	18.00	19.73
		Middle	18.00	19.60
		High	18.00	19.51
	16QAM	Low	18.00	19.64
		Middle	18.08	19.60
		High	18.00	19.87

LTE Band 17

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5	QPSK	Low	4.52	5.18
		Middle	4.56	5.10
		High	4.54	5.69
	16QAM	Low	4.54	5.08
		Middle	4.56	5.08
		High	4.57	5.66
10	QPSK	Low	8.97	9.94
		Middle	8.96	10.00
		High	8.97	9.77
	16QAM	Low	8.97	9.78
		Middle	8.96	9.76
		High	8.97	9.99

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

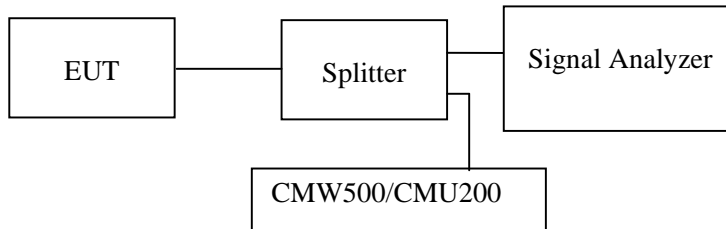
Applicable Standard

FCC §2.1051, §22.917(a) and §24.238(a) and §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.



Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

The testing was performed by Coco Liu from 2021-01-01 to 2021-01-20.

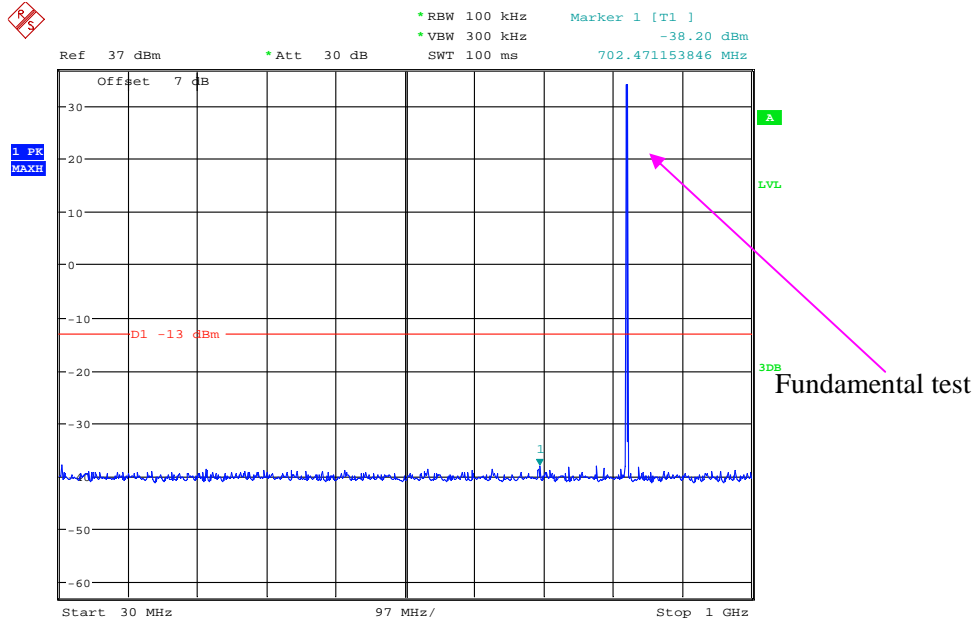
EUT operation mode: Transmitting

Test result: Pass

Please refer to the following plots.

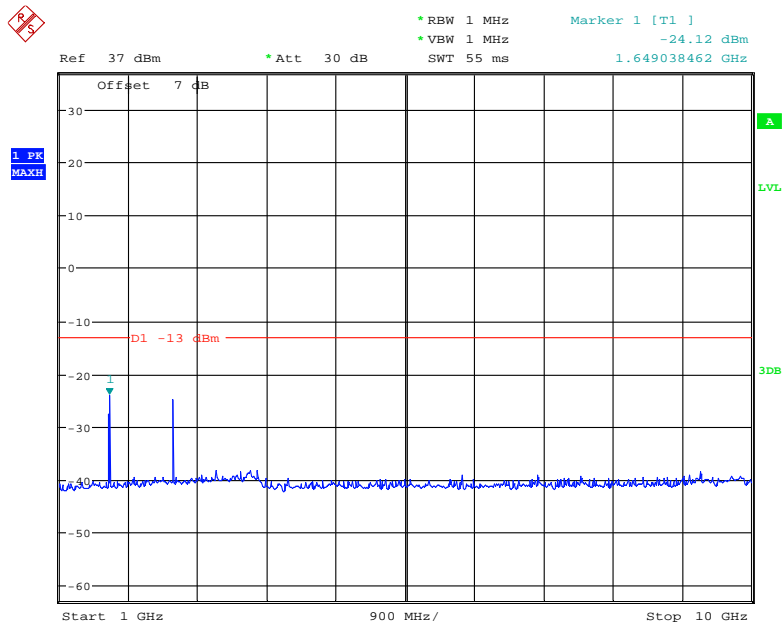
Cellular Band (Part 22H)
Low Channel:

30 MHz – 1 GHz (GSM Mode)



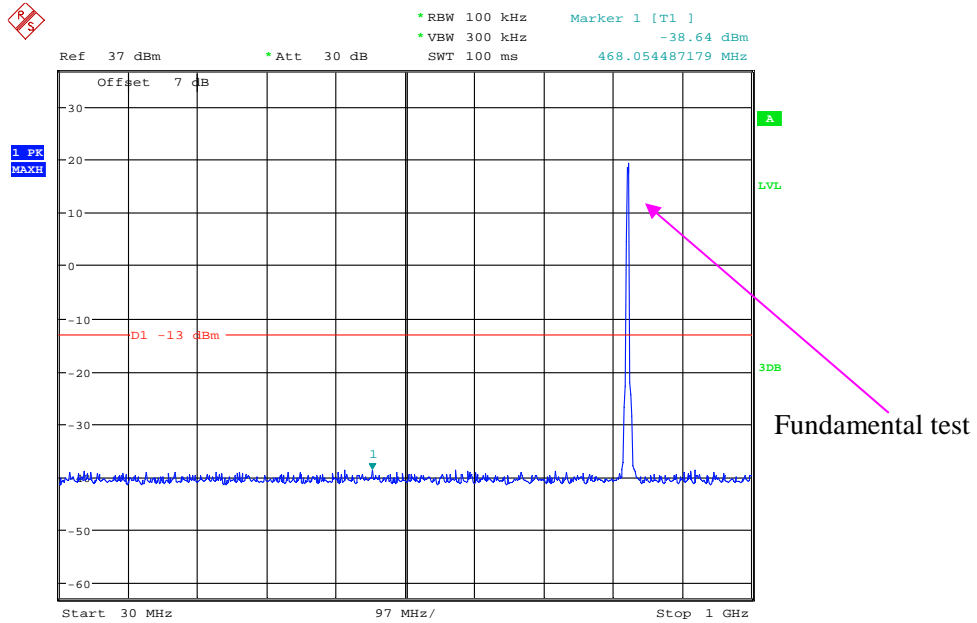
Date: 13.JAN.2021 16:49:38

1 GHz – 10 GHz (GSM Mode)



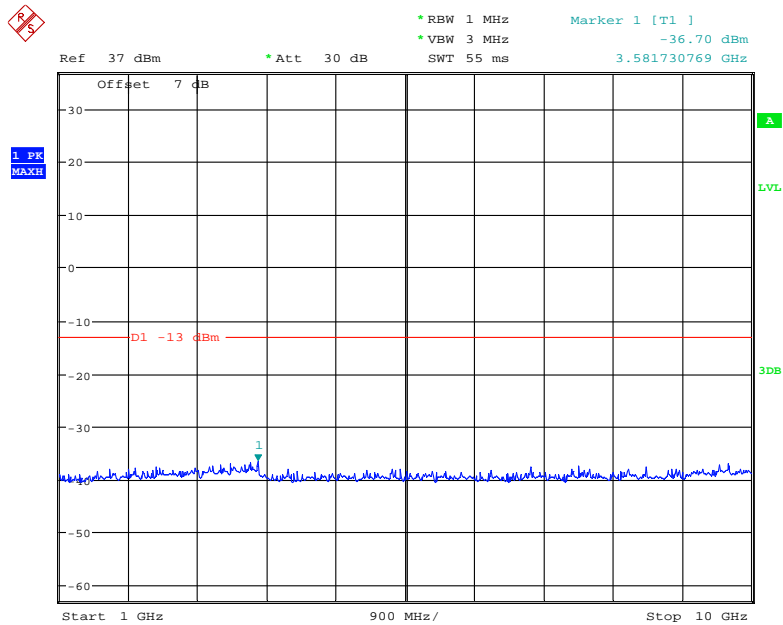
Date: 13.JAN.2021 16:53:42

30 MHz – 1 GHz (WCDMA Mode)



Date: 16.JAN.2021 14:33:50

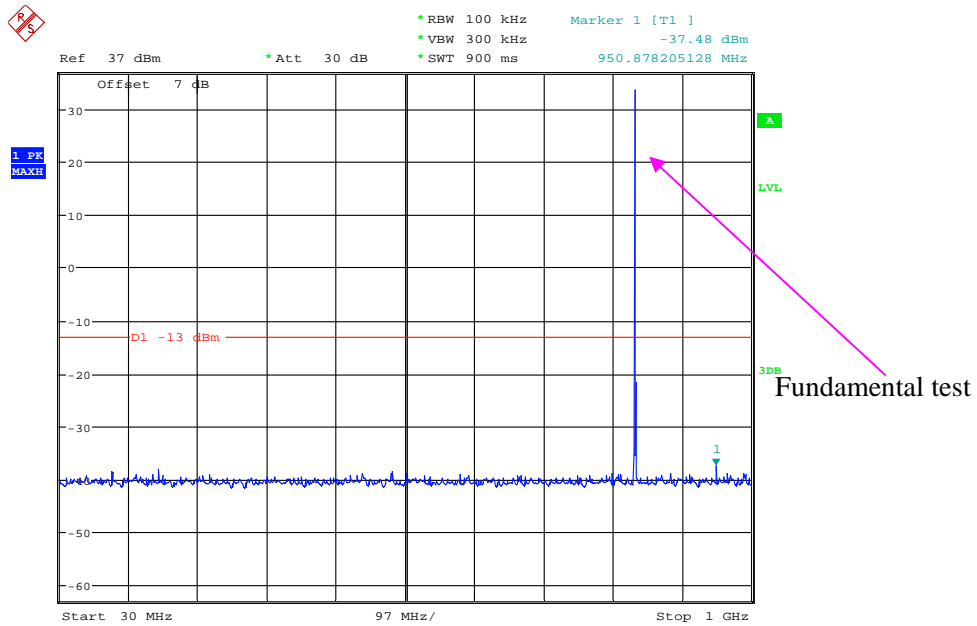
1 GHz – 10 GHz (WCDMA Mode)



Date: 16.JAN.2021 14:34:33

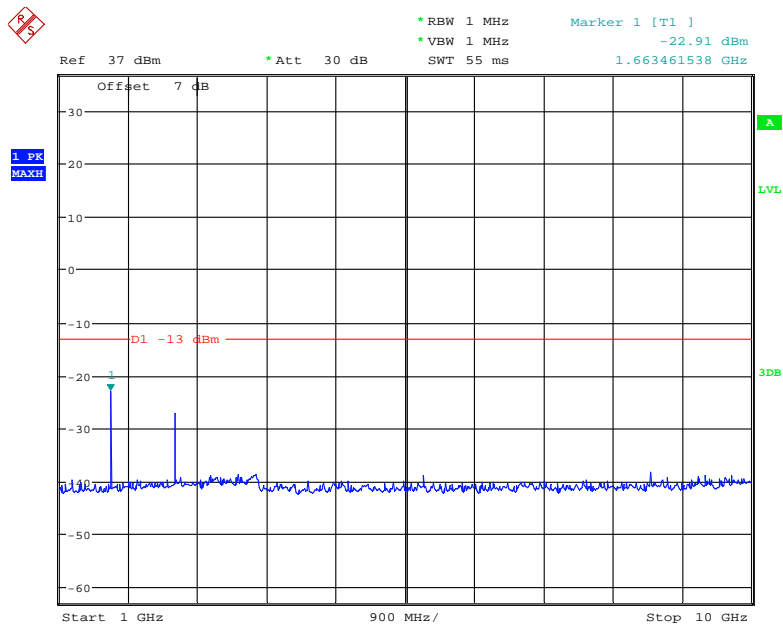
Middle Channel:

30 MHz – 1 GHz (GSM Mode)



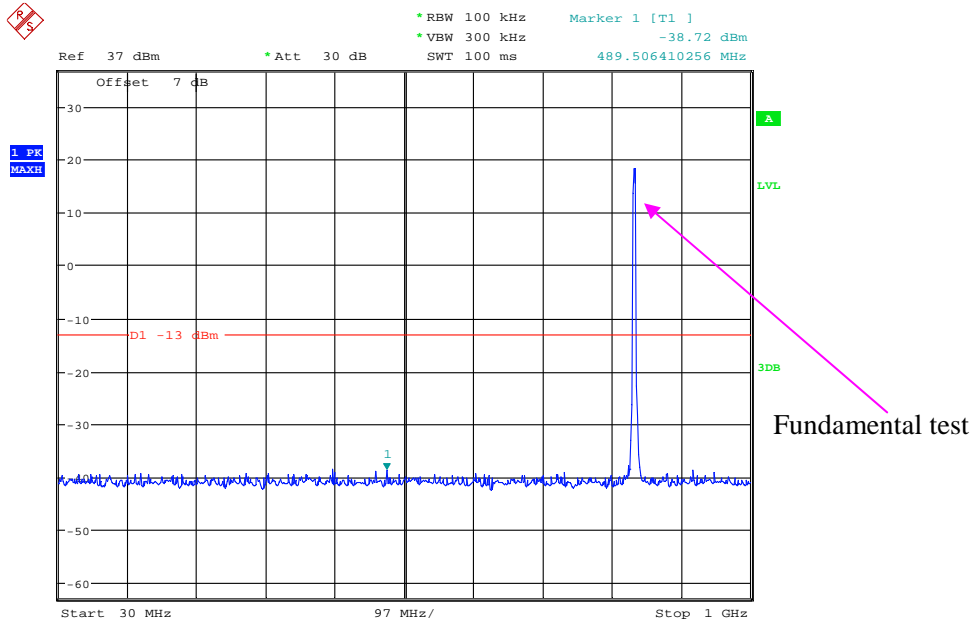
Date: 13.JAN.2021 16:56:23

1 GHz – 10 GHz (GSM Mode)



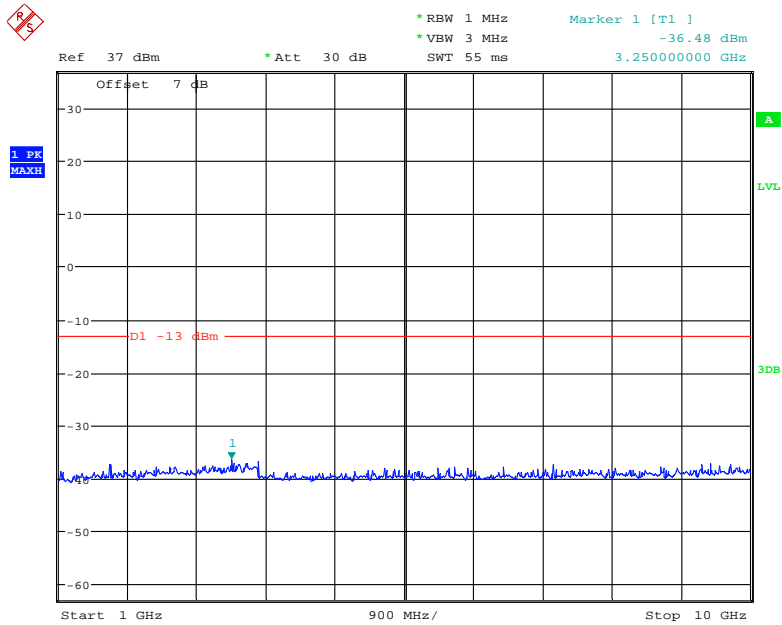
Date: 13.JAN.2021 16:54:05

30 MHz – 1 GHz (WCDMA Mode)



Date: 16.JAN.2021 14:36:20

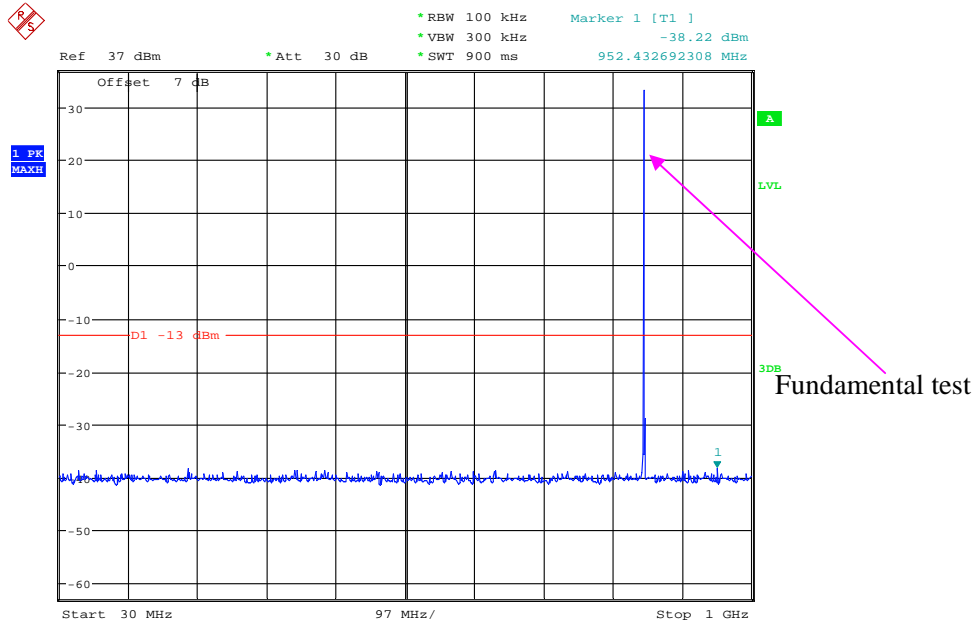
1 GHz – 10 GHz (WCDMA Mode)



Date: 16.JAN.2021 14:35:34

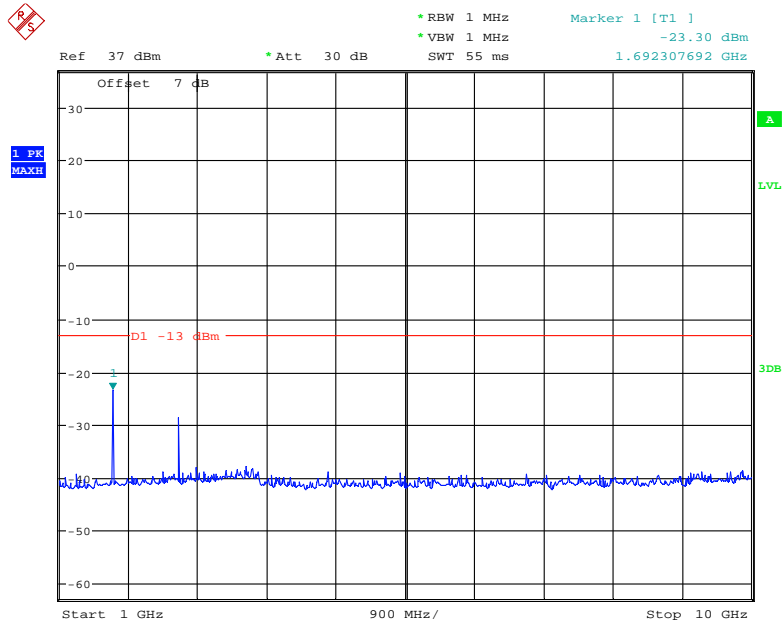
High Channel:

30 MHz – 1 GHz (GSM Mode)



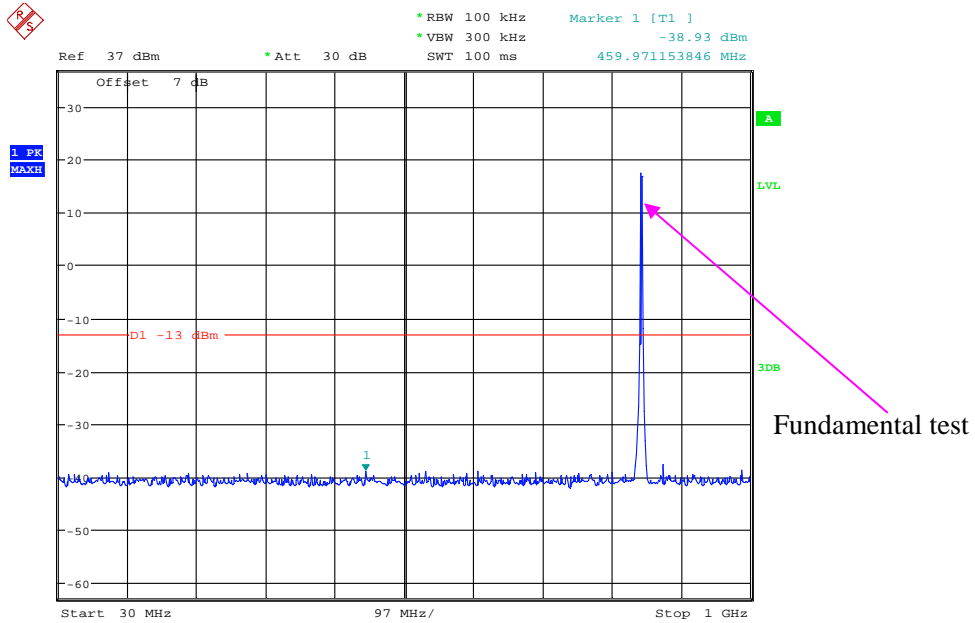
Date: 13.JAN.2021 16:55:42

1 GHz – 10 GHz (GSM Mode)



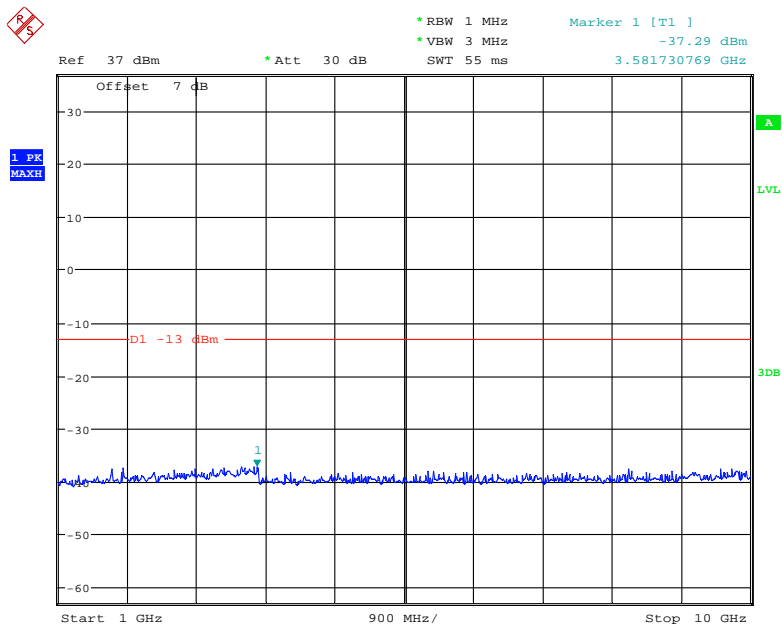
Date: 13.JAN.2021 16:54:32

30 MHz – 1 GHz (WCDMA Mode)



Date: 16.JAN.2021 14:37:04

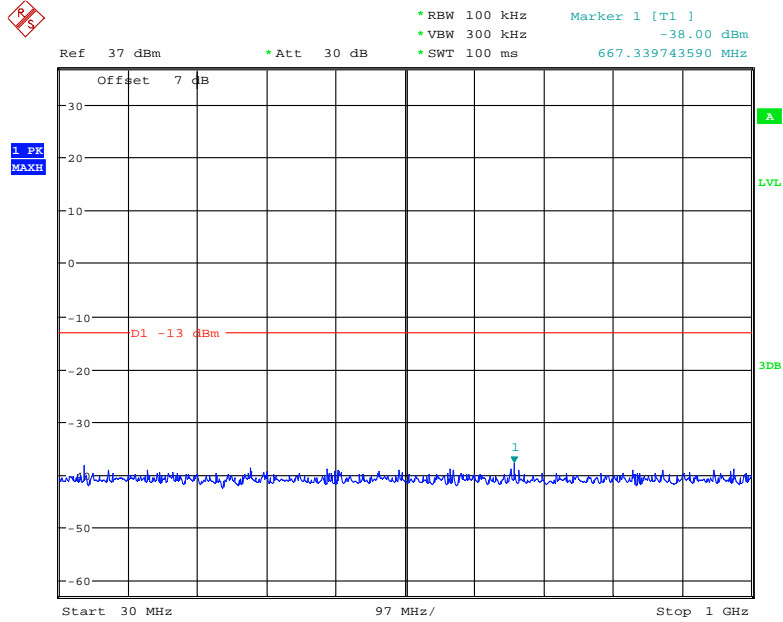
1 GHz – 10 GHz (WCDMA Mode)



Date: 16.JAN.2021 14:37:40

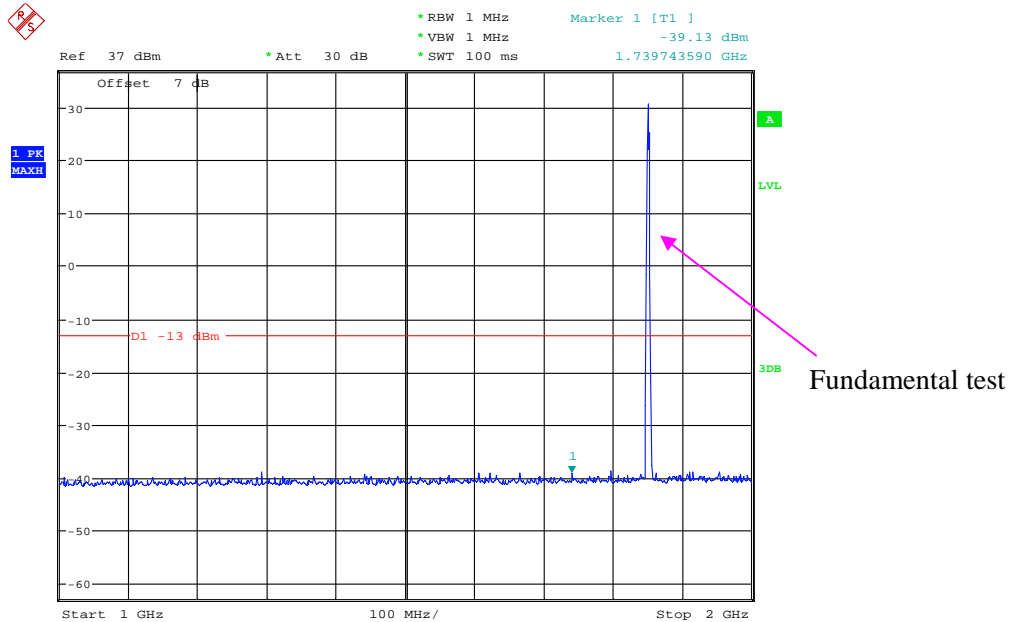
**PCS Band (Part 24E)
Low Channel:**

30 MHz – 1 GHz (GSM Mode)



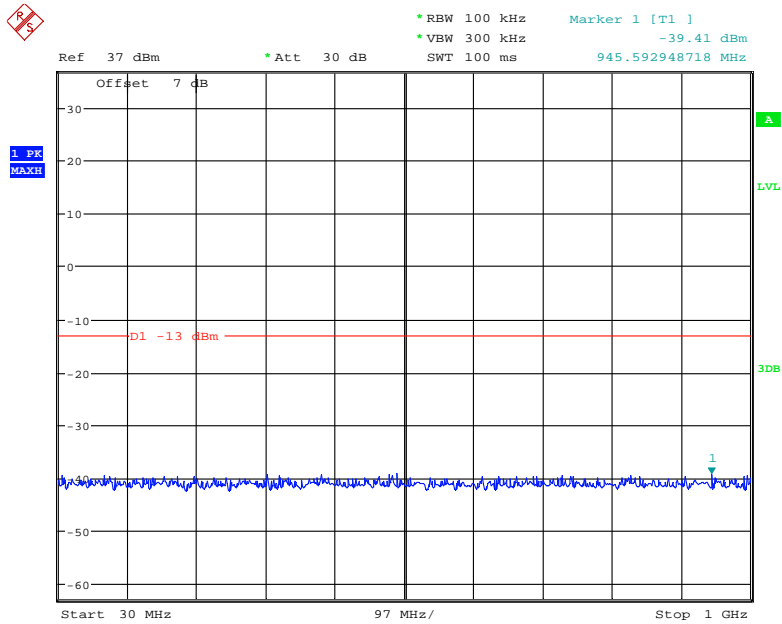
Date: 13.JAN.2021 16:59:08

1 GHz – 2 GHz (GSM Mode)



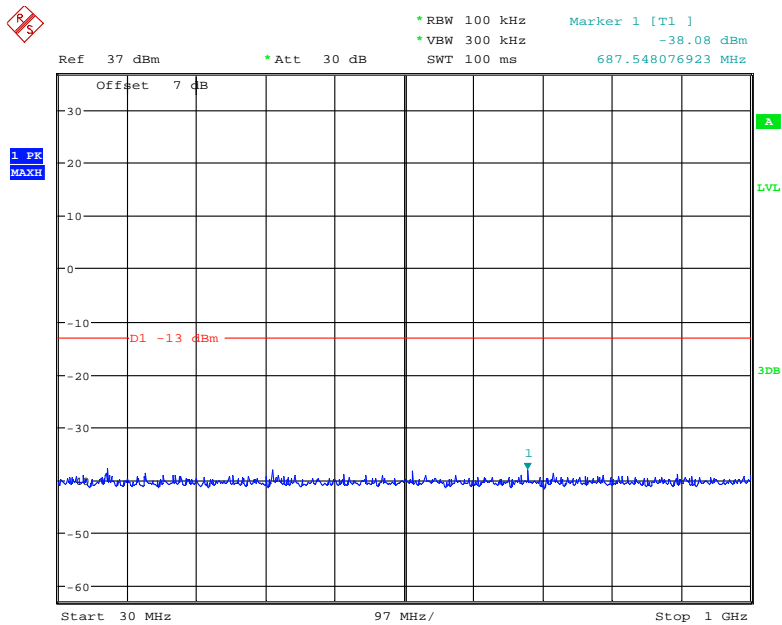
Date: 13.JAN.2021 17:03:09

2 GHz – 2 0GHz (GSM Mode)



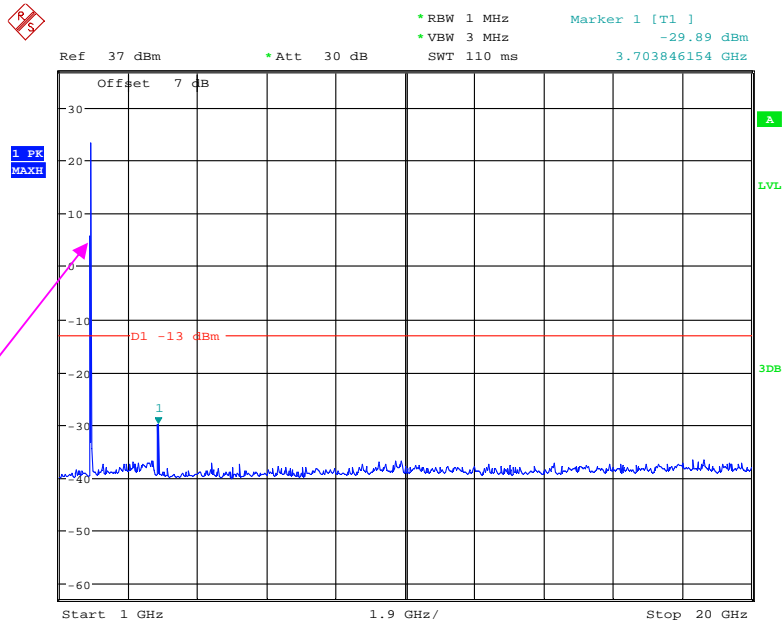
Date: 16.JAN.2021 14:28:10

30 MHz – 1 GHz (WCDMA Mode)



Date: 16.JAN.2021 14:17:01

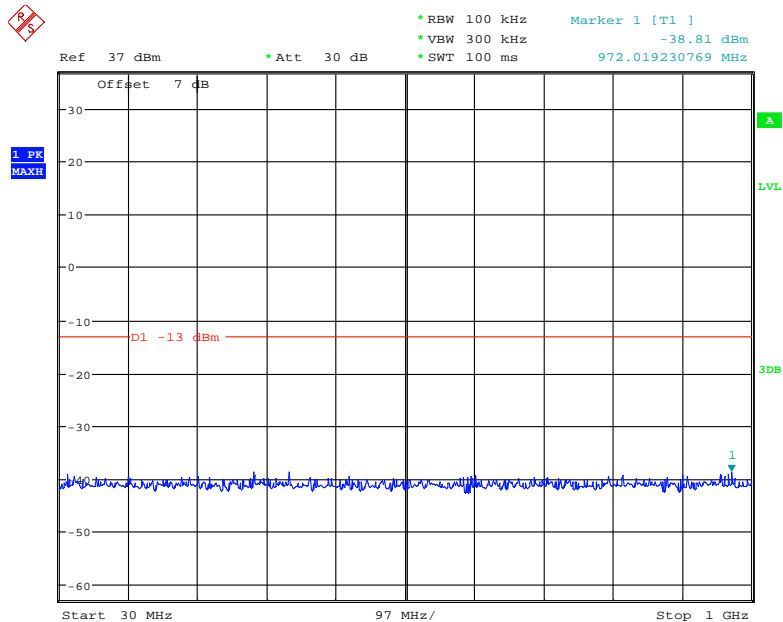
1 GHz – 20 GHz (WCDMA Mode)



Date: 16.JAN.2021 14:18:28

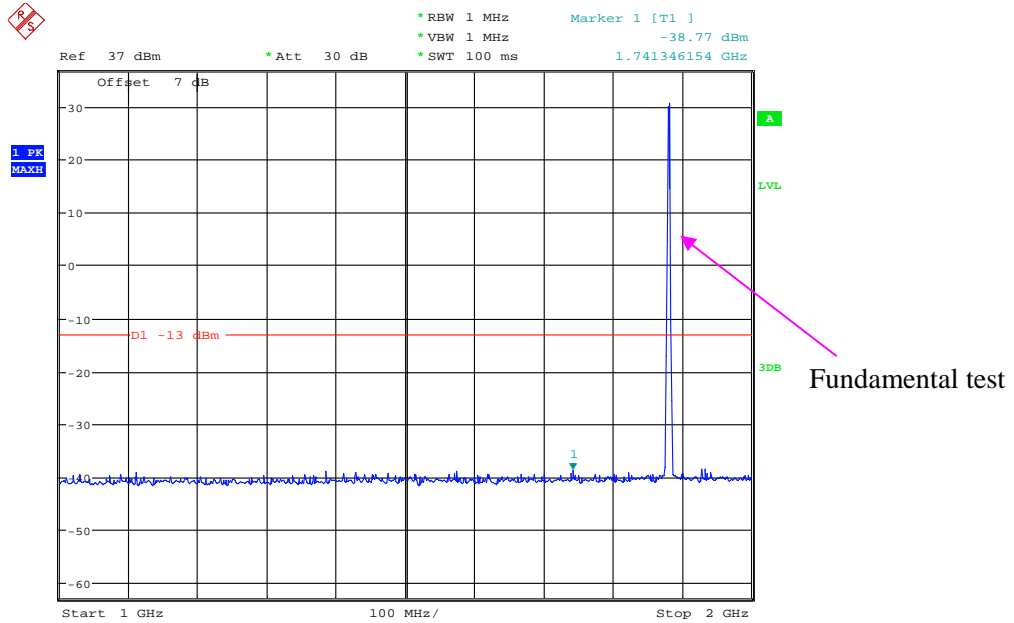
Middle Channel:

30 MHz – 1 GHz (GSM Mode)



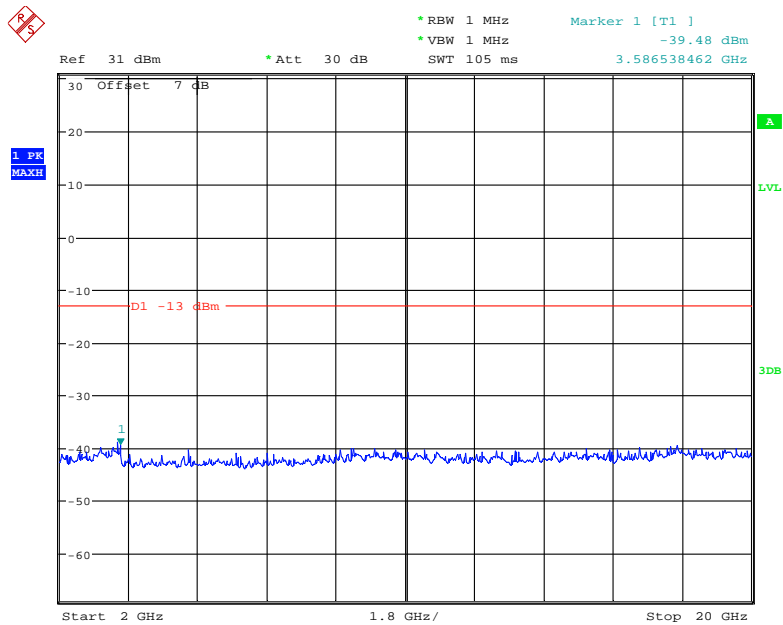
Date: 13.JAN.2021 16:59:42

1 GHz – 2 GHz (GSM Mode)



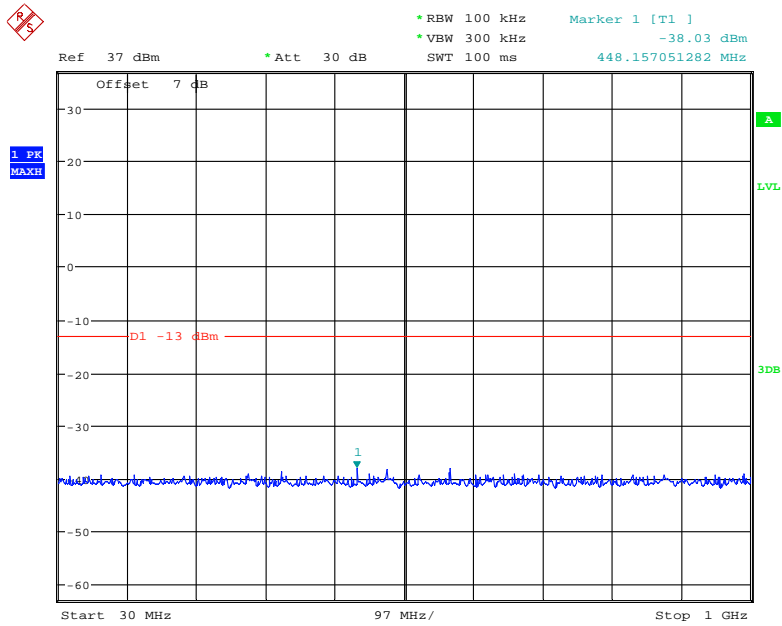
Date: 13.JAN.2021 17:02:39

2 GHz – 20GHz (GSM Mode)



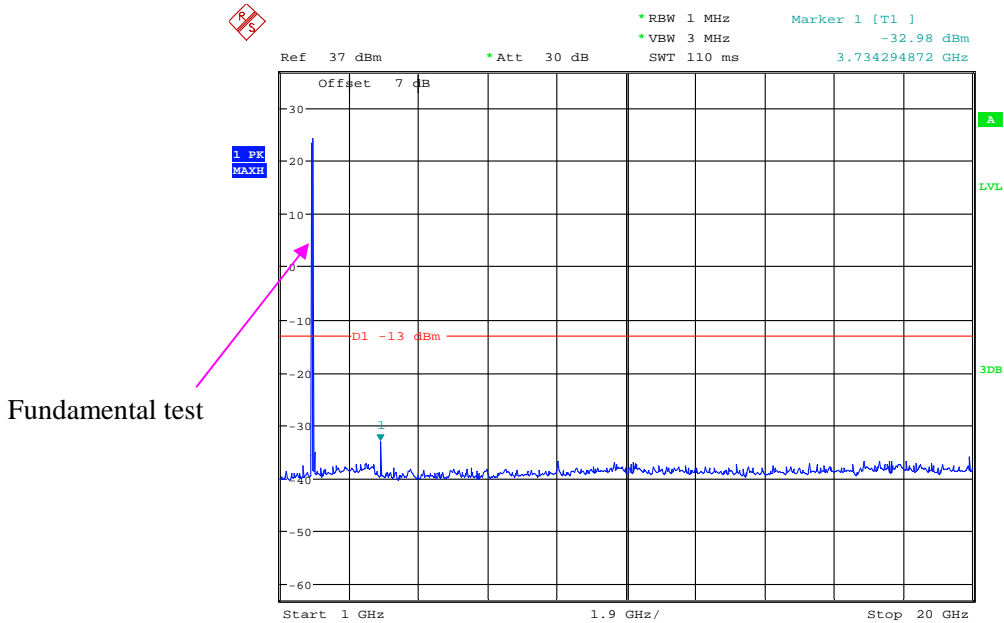
Date: 13.JAN.2021 17:05:07

30 MHz – 1 GHz (WCDMA Mode)



Date: 16.JAN.2021 14:19:58

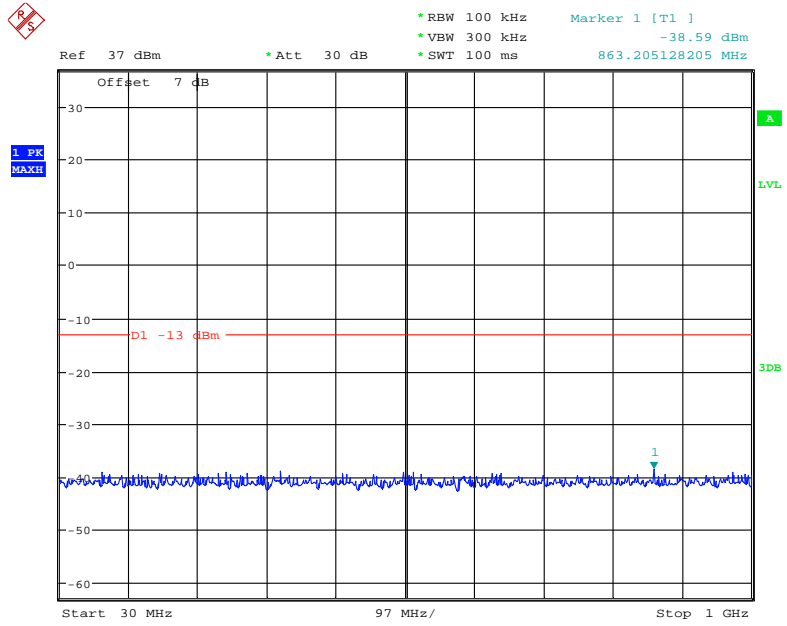
1 GHz – 20 GHz (WCDMA Mode)



Date: 16.JAN.2021 14:19:17

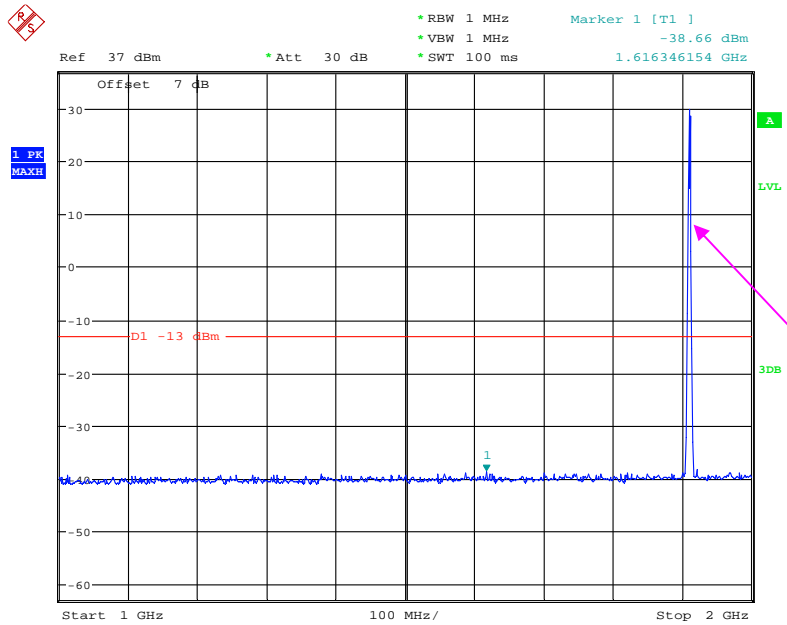
High Channel:

30 MHz – 1 GHz (GSM Mode)



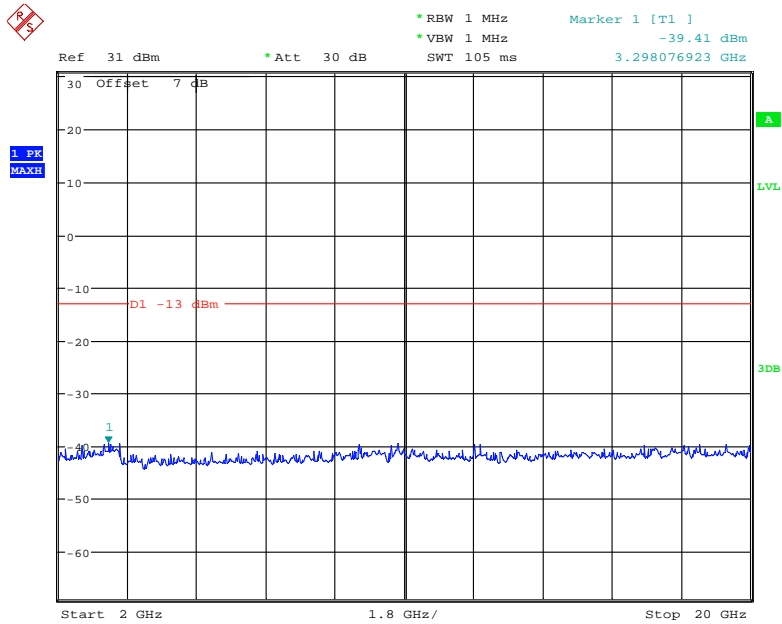
Date: 13.JAN.2021 17:00:07

1 GHz – 2 GHz (GSM Mode)



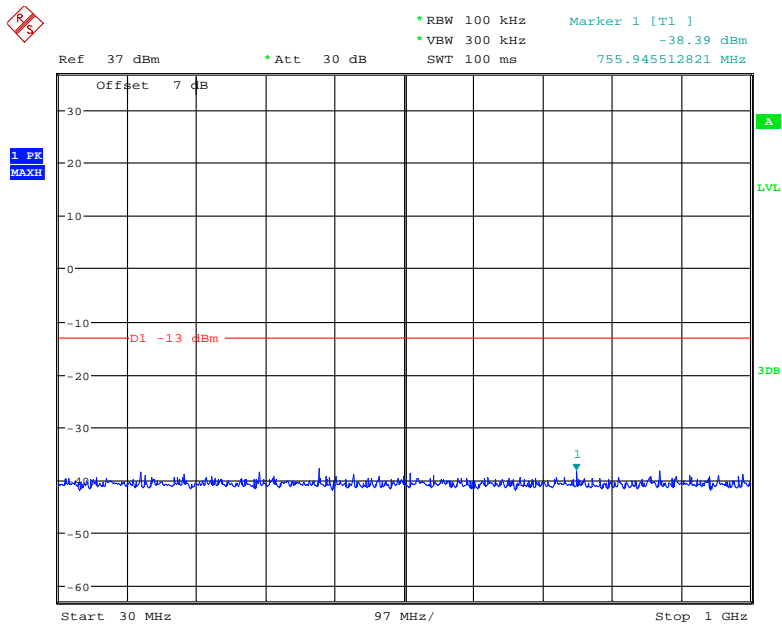
Date: 13.JAN.2021 17:02:07

2 GHz – 20GHz (GSM Mode)



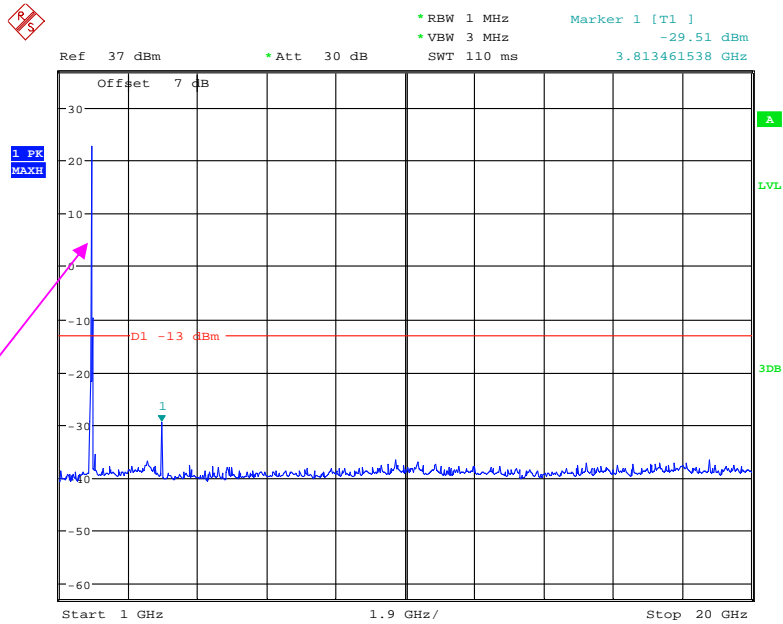
Date: 13.JAN.2021 17:05:25

30 MHz – 1 GHz (WCDMA Mode)



Date: 16.JAN.2021 14:20:51

1 GHz – 20 GHz (WCDMA Mode)

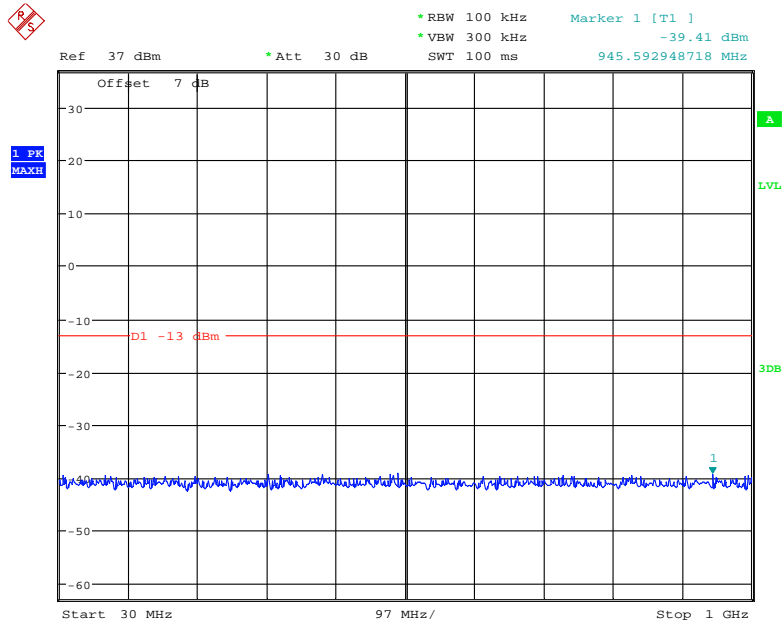


Fundamental test

Date: 16.JAN.2021 14:21:28

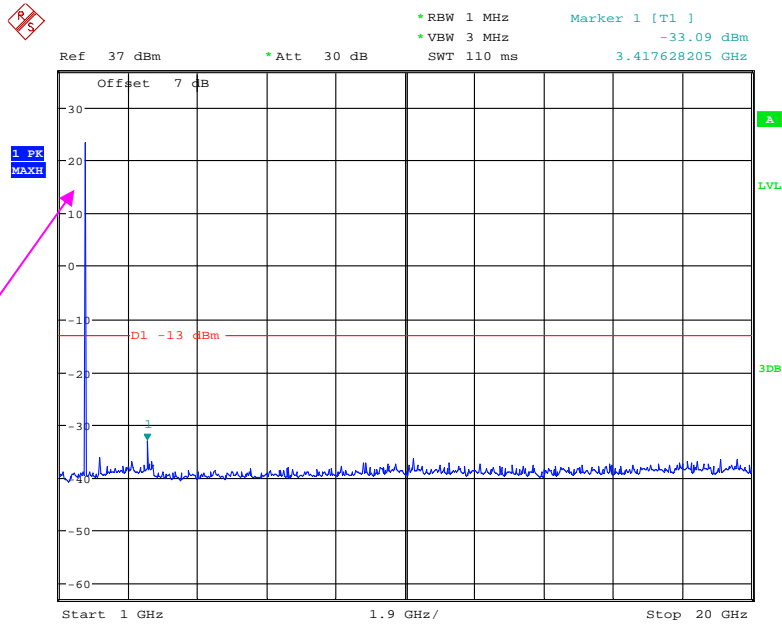
AWS Band (Part 27) Low Channel:

30 MHz – 1 GHz (WCDMA Mode)



Date: 16.JAN.2021 14:28:10

1 GHz – 20 GHz (WCDMA Mode)

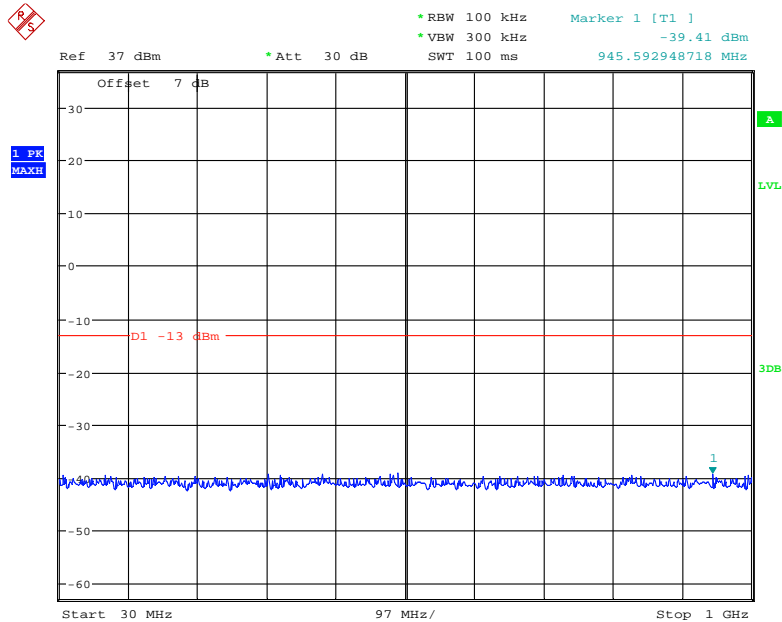


Fundamental test

Date: 16.JAN.2021 14:26:54

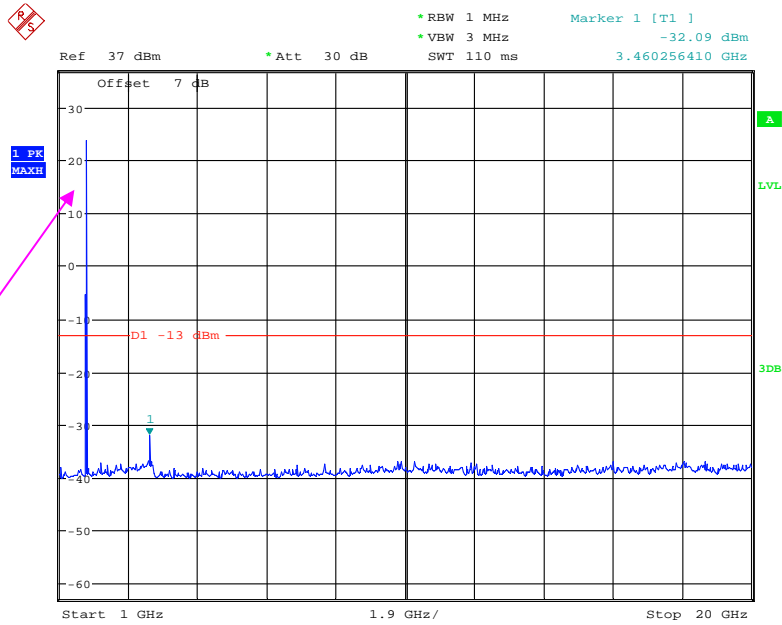
Middle Channel

30 MHz – 1 GHz (WCDMA Mode)



Date: 16.JAN.2021 14:28:10

1 GHz – 20 GHz (WCDMA Mode)

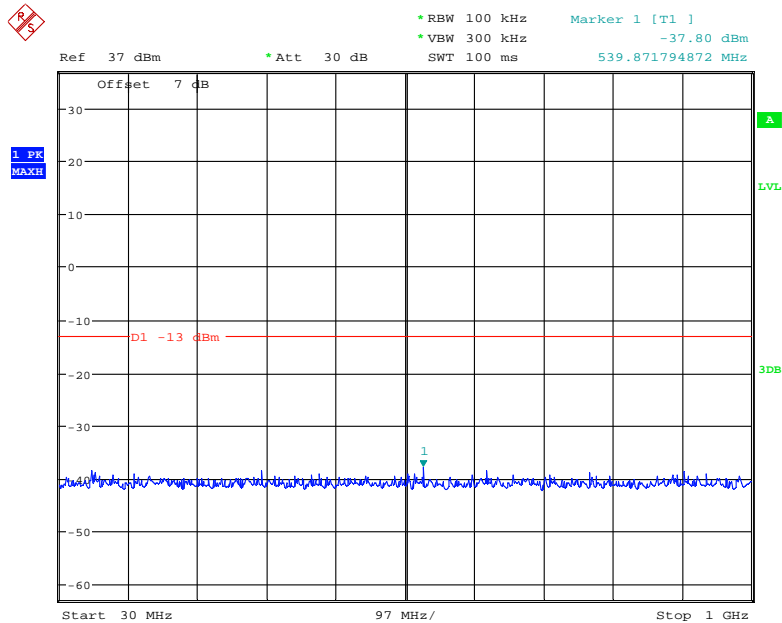


Fundamental test

Date: 16.JAN.2021 14:29:53

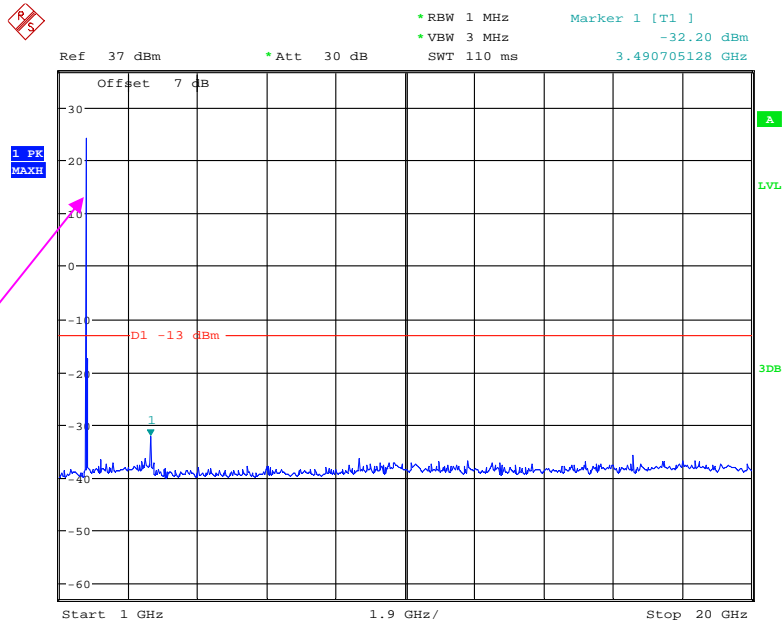
High Channel:

30 MHz – 1 GHz (WCDMA Mode)



Date: 16.JAN.2021 14:31:24

1 GHz – 20 GHz (WCDMA Mode)



Fundamental test

Date: 16.JAN.2021 14:30:51

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

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

Applicable Standard

FCC § 2.1053, §22.917(a) and § 24.238(a) and § 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:	18.1~25 °C
Relative Humidity:	42~52%
ATM Pressure:	101.0~101.1 kPa

The testing was performed by Holland Yang on 2021-01-08 for below 1GHz and Leven gan on 2021-01-08 for above 1GHz.

EUT operation mode: Transmitting

30 MHz ~ 10 GHz:

Cellular Band (Part 22H)

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 22H	
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)		Limit (dBm)	Margin (dB)
GSM Mode										
Low channel										
965.3	32.69	43	2.0	H	-63.8	1.36	0.0	-65.16	-13	52.16
965.3	33.81	53	1.4	V	-60.2	1.36	0.0	-61.56	-13	48.56
1648.40	63.24	39	2.4	H	-44.8	1.40	8.70	-37.50	-13	24.50
1648.40	62.40	261	1.0	V	-45.5	1.40	8.70	-38.20	-13	25.20
2472.60	61.75	202	1.7	H	-41.6	2.60	10.20	-34.00	-13	21.00
2472.60	57.64	341	1.8	V	-45.1	2.60	10.20	-37.50	-13	24.50
3296.80	47.12	290	1.3	H	-53.8	1.50	11.70	-43.60	-13	30.60
3296.80	49.11	230	1.2	V	-51.8	1.50	11.70	-41.60	-13	28.60
Middle channel										
960.6	32.57	61	1.6	H	-63.9	1.36	0.0	-65.26	-13	52.26
960.6	33.69	198	1.7	V	-60.4	1.36	0.0	-61.76	-13	48.76
1673.20	62.36	291	2.0	H	-44.0	1.30	8.90	-36.40	-13	23.40
1673.20	62.22	194	1.3	V	-43.5	1.30	8.90	-35.90	-13	22.90
2509.80	60.81	57	1.5	H	-42.5	2.60	10.20	-34.90	-13	21.90
2509.80	58.31	131	1.9	V	-44.4	2.60	10.20	-36.80	-13	23.80
3346.40	46.94	223	1.1	H	-54.0	1.50	11.70	-43.80	-13	30.80
3346.40	48.98	125	1.4	V	-51.9	1.50	11.70	-41.70	-13	28.70
High channel										
965.8	32.38	37	2.0	H	-64.1	1.36	0.0	-65.46	-13	52.46
965.8	33.61	329	1.8	V	-60.4	1.36	0.0	-61.76	-13	48.76
1697.60	62.48	357	1.0	H	-43.9	1.30	8.90	-36.30	-13	23.30
1697.60	62.23	296	1.5	V	-43.5	1.30	8.90	-35.90	-13	22.90
2546.40	60.53	287	2.2	H	-42.8	2.60	10.20	-35.20	-13	22.20
2546.40	57.49	339	1.5	V	-45.3	2.60	10.20	-37.70	-13	24.70
3395.20	47.23	259	2.1	H	-54.0	1.40	11.80	-43.60	-13	30.60
3395.20	48.55	252	2.3	V	-52.5	1.40	11.80	-42.10	-13	29.10

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 22H	
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)		Limit (dBm)	Margin (dB)
WCDMA Mode										
Low channel										
952.3	32.69	226	1.6	H	-63.8	1.36	0.0	-65.16	-13	52.16
952.3	33.54	254	1.1	V	-60.5	1.36	0.0	-61.86	-13	48.86
1652.80	48.24	115	2.2	H	-58.1	1.30	8.90	-50.50	-13	37.50
1652.80	50.93	287	1.7	V	-54.8	1.30	8.90	-47.20	-13	34.20
2479.20	44.96	186	1.4	H	-58.4	2.60	10.20	-50.80	-13	37.80
2479.20	45.84	242	1.9	V	-56.9	2.60	10.20	-49.30	-13	36.30
3305.60	44.68	330	1.9	H	-56.2	1.50	11.70	-46.00	-13	33.00
3305.60	45.13	319	2.3	V	-55.8	1.50	11.70	-45.60	-13	32.60
Middle channel										
959.6	32.67	62	1.9	H	-63.8	1.36	0.0	-65.16	-13	52.16
958.6	33.72	244	1.7	V	-60.3	1.36	0.0	-61.66	-13	48.66
1673.20	47.35	133	1.3	H	-59.0	1.30	8.90	-51.40	-13	38.40
1673.20	51.14	111	1.9	V	-54.6	1.30	8.90	-47.00	-13	34.00
2509.80	45.39	329	1.8	H	-58.0	2.60	10.20	-50.40	-13	37.40
2509.80	46.02	142	2.4	V	-56.7	2.60	10.20	-49.10	-13	36.10
3346.40	44.75	188	1.2	H	-56.1	1.50	11.70	-45.90	-13	32.90
3346.40	44.86	79	2.0	V	-56.1	1.50	11.70	-45.90	-13	32.90
High channel										
966.8	32.72	329	2.2	H	-63.8	1.36	0.0	-65.16	-13	52.16
966.8	33.58	205	1.6	V	-60.5	1.36	0.0	-61.86	-13	48.86
1693.20	47.48	137	2.4	H	-58.9	1.30	8.90	-51.30	-13	38.30
1693.20	50.26	255	1.7	V	-55.5	1.30	8.90	-47.90	-13	34.90
2539.80	45.54	206	1.1	H	-57.8	2.60	10.20	-50.20	-13	37.20
2539.80	45.90	251	2.4	V	-56.8	2.60	10.20	-49.20	-13	36.20
3386.40	44.86	316	1.7	H	-56.4	1.40	11.80	-46.00	-13	33.00
3386.40	45.05	138	1.3	V	-56.0	1.40	11.80	-45.60	-13	32.60

30 MHz ~ 20 GHz:

PCS Band (Part 24E)

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 24E	
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)		Limit (dBm)	Margin (dB)
GSM Mode										
Low channel										
962.1	32.57	216	1.1	H	-63.9	1.36	0.0	-65.26	-13	52.26
962.1	33.64	226	2.4	V	-60.4	1.36	0.0	-61.76	-13	48.76
3700.40	50.67	53	2.2	H	-51.1	1.60	11.90	-40.80	-13	27.80
3700.40	52.27	201	2.2	V	-49.0	1.60	11.90	-38.70	-13	25.70
Middle channel										
963.2	32.44	329	2.4	H	-64.1	1.36	0.0	-65.46	-13	52.46
963.2	33.66	97	2.3	V	-60.4	1.36	0.0	-61.76	-13	48.76
3760.00	50.33	242	1.6	H	-51.7	1.50	11.80	-41.40	-13	28.40
3760.00	50.97	235	1.2	V	-50.6	1.50	11.80	-40.30	-13	27.30
High channel										
962.5	32.49	354	1.2	H	-64.0	1.36	0.0	-65.36	-13	52.36
962.5	33.56	210	1.6	V	-60.5	1.36	0.0	-61.86	-13	48.86
3819.60	49.67	35	1.5	H	-52.4	1.50	11.80	-42.10	-13	29.10
3819.60	49.88	44	2.3	V	-51.7	1.50	11.80	-41.40	-13	28.40

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 24E	
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)		Limit (dBm)	Margin (dB)
WCDMA Mode										
Low channel										
962.7	32.58	108	2.2	H	-63.9	1.36	0.0	-65.26	-13	52.26
962.7	33.71	161	1.8	V	-60.3	1.36	0.0	-61.66	-13	48.66
3704.80	48.77	100	1.2	H	-53.0	1.60	11.90	-42.70	-13	29.70
3704.80	47.95	122	1.4	V	-53.3	1.60	11.90	-43.00	-13	30.00
Middle channel										
958.7	32.52	32	1.4	H	-64.0	1.36	0.0	-65.36	-13	52.36
958.7	33.65	155	1.2	V	-60.4	1.36	0.0	-61.76	-13	48.76
3760.00	48.96	270	2.3	H	-53.1	1.50	11.80	-42.80	-13	29.80
3760.00	48.18	188	2.1	V	-53.4	1.50	11.80	-43.10	-13	30.10
High channel										
961.2	32.64	17	2.2	H	-63.9	1.36	0.0	-65.26	-13	52.26
961.2	33.58	109	1.5	V	-60.5	1.36	0.0	-61.86	-13	48.86
3815.20	49.35	239	1.6	H	-52.7	1.50	11.80	-42.40	-13	29.40
3815.20	47.98	310	1.5	V	-53.6	1.50	11.80	-43.30	-13	30.30

30 MHz ~ 20 GHz:

AWS Band

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 27	
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)		Limit (dBm)	Margin (dB)
WCDMA Mode										
Low channel										
952.3	32.59	24	1.3	H	-63.9	1.36	0.0	-65.26	-13	52.26
952.3	33.63	216	2.2	V	-60.4	1.36	0.0	-61.76	-13	48.76
3424.80	63.27	211	1.2	H	-37.5	1.40	11.80	-27.10	-13	14.10
3424.80	66.36	339	2.3	V	-34.2	1.40	11.80	-23.80	-13	10.80
Middle channel										
956.6	32.66	170	1.1	H	-63.8	1.36	0.0	-65.16	-13	52.16
956.6	33.49	322	2.0	V	-60.6	1.36	0.0	-61.96	-13	48.96
3465.20	62.74	201	1.3	H	-38.0	1.50	12.00	-27.50	-13	14.50
3465.20	66.23	4	2.2	V	-35.3	1.50	12.00	-24.80	-13	11.80
High channel										
964.8	32.52	25	1.1	H	-64.0	1.36	0.0	-65.36	-13	52.36
964.8	33.73	167	2.3	V	-60.3	1.36	0.0	-61.66	-13	48.66
3505.20	62.97	266	2.3	H	-37.8	1.50	12.00	-27.30	-13	14.30
3505.20	66.73	85	1.0	V	-34.8	1.50	12.00	-24.30	-13	11.30

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

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
Band 2										
Test frequency range: 30 MHz ~ 20 GHz										
1.4 MHz, Low channel										
961.6	32.56	171	1.9	H	-63.9	1.36	0.0	-65.26	-13	52.26
961.6	33.47	144	1.1	V	-60.6	1.36	0.0	-61.96	-13	48.96
3701.40	48.27	265	1.3	H	-53.5	1.60	11.90	-43.20	-13	30.20
3701.40	49.33	197	1.3	V	-51.9	1.60	11.90	-41.60	-13	28.60
1.4 MHz, Middle channel										
963.2	32.44	329	2.4	H	-64.1	1.36	0.0	-65.46	-13	52.46
963.2	33.66	97	2.3	V	-60.4	1.36	0.0	-61.76	-13	48.76
3760.00	48.24	13	1.2	H	-53.8	1.50	11.80	-43.50	-13	30.50
3760.00	49.62	161	1.9	V	-52.0	1.50	11.80	-41.70	-13	28.70
1.4 MHz, High channel										
961.4	32.47	246	2.3	H	-64.0	1.36	0.0	-65.36	-13	52.36
961.4	33.62	147	2.5	V	-60.4	1.36	0.0	-61.76	-13	48.76
3800.00	47.98	352	2.0	H	-54.1	1.50	11.80	-43.80	-13	30.80
3800.00	49.29	119	1.8	V	-52.3	1.50	11.80	-42.00	-13	29.00
Band 4										
Test frequency range:30 MHz ~ 20 GHz										
1.4 MHz, Low channel										
963.9	32.74	192	1.7	H	-63.8	1.36	0.0	-65.16	-13	52.16
963.9	33.49	308	2.0	V	-60.6	1.36	0.0	-61.96	-13	48.96
3421.40	51.26	16	2.5	H	-49.5	1.40	11.80	-39.10	-13	26.10
3421.40	50.38	332	1.2	V	-50.2	1.40	11.80	-39.80	-13	26.80
1.4 MHz, Middle channel										
961.8	32.44	220	1.5	H	-64.1	1.36	0.0	-65.46	-13	52.46
961.8	33.65	354	1.0	V	-60.4	1.36	0.0	-61.76	-13	48.76
3465.00	50.45	248	1.4	H	-50.3	1.50	12.00	-39.80	-13	26.80
3465.00	49.38	332	1.7	V	-52.1	1.50	12.00	-41.60	-13	28.60
1.4 MHz, High channel										
959.7	32.59	186	2.0	H	-63.9	1.36	0.0	-65.26	-13	52.26
959.7	33.53	21	1.1	V	-60.5	1.36	0.0	-61.86	-13	48.86
3508.60	49.91	218	2.1	H	-50.8	1.50	12.00	-40.30	-13	27.30
3508.60	49.33	332	2.1	V	-52.2	1.50	12.00	-41.70	-13	28.70

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
Band 5										
Test frequency range:30 MHz ~ 10 GHz										
1.4 MHz, Low channel										
956.8	32.73	74	1.7	H	-63.8	1.36	0.0	-65.16	-13	52.16
956.8	33.59	161	2.4	V	-60.5	1.36	0.0	-61.86	-13	48.86
1649.40	46.54	285	2.3	H	-61.5	1.40	8.70	-54.20	-13	41.20
1649.40	46.01	52	1.4	V	-61.8	1.40	8.70	-54.50	-13	41.50
2474.10	44.26	212	1.4	H	-59.1	2.60	10.20	-51.50	-13	38.50
2474.10	43.87	353	2.0	V	-58.9	2.60	10.20	-51.30	-13	38.30
3298.80	43.37	263	2.3	H	-57.5	1.50	11.70	-47.30	-13	34.30
3298.80	43.09	185	2.1	V	-57.8	1.50	11.70	-47.60	-13	34.60
1.4 MHz, Middle channel										
964.7	32.77	300	1.2	H	-63.7	1.36	0.0	-65.06	-13	52.06
964.7	33.62	55	1.9	V	-60.4	1.36	0.0	-61.76	-13	48.76
1673.00	47.75	271	1.0	H	-58.6	1.30	8.90	-51.00	-13	38.00
1673.00	46.53	176	2.0	V	-59.2	1.30	8.90	-51.60	-13	38.60
2509.50	44.89	232	1.6	H	-58.5	2.60	10.20	-50.90	-13	37.90
2509.50	44.36	192	1.3	V	-58.4	2.60	10.20	-50.80	-13	37.80
3346.00	43.75	22	1.8	H	-57.1	1.50	11.70	-46.90	-13	33.90
3346.00	42.96	346	1.2	V	-58.0	1.50	11.70	-47.80	-13	34.80
1.4 MHz, High channel										
961.2	32.75	326	1.2	H	-63.8	1.36	0.0	-65.16	-13	52.16
961.2	33.61	155	1.1	V	-60.4	1.36	0.0	-61.76	-13	48.76
1696.60	47.81	124	1.0	H	-58.5	1.30	8.90	-50.90	-13	37.90
1696.60	47.14	5	1.3	V	-58.6	1.30	8.90	-51.00	-13	38.00
2544.90	45.23	311	1.7	H	-58.1	2.60	10.20	-50.50	-13	37.50
2544.90	44.68	30	2.2	V	-58.1	2.60	10.20	-50.50	-13	37.50
3393.20	43.78	54	2.2	H	-57.5	1.40	11.80	-47.10	-13	34.10
3393.20	43.25	310	1.1	V	-57.8	1.40	11.80	-47.40	-13	34.40

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
Band 7										
Test frequency range: 30 MHz ~26.5GHz										
5 MHz, Low channel										
962.5	32.49	354	1.2	H	-64.0	1.36	0.0	-65.36	-25	40.36
962.5	33.56	210	1.6	V	-60.5	1.36	0.0	-61.86	-25	36.86
5005.00	50.75	345	2.3	H	-49.8	1.70	12.00	-39.50	-25	14.50
5005.00	53.49	304	2.1	V	-46.5	1.70	12.00	-36.20	-25	11.20
5 MHz, Middle channel										
961.7	32.59	157	2.4	H	-63.9	1.36	0.0	-65.26	-25	40.26
961.7	33.71	301	1.6	V	-60.3	1.36	0.0	-61.66	-25	36.66
5070.00	51.14	236	1.1	H	-48.9	1.60	12.10	-38.40	-25	13.40
5070.00	53.64	121	2.0	V	-46.4	1.60	12.10	-35.90	-25	10.90
5 MHz, High channel										
963.6	32.46	200	2.1	H	-64.0	1.36	0.0	-65.36	-25	40.36
963.6	33.63	77	2.1	V	-60.4	1.36	0.0	-61.76	-25	36.76
5135.00	51.17	34	1.6	H	-48.8	1.60	12.10	-38.30	-25	13.30
5135.00	54.36	48	1.3	V	-45.7	1.60	12.10	-35.20	-25	10.20
Band 17										
Test frequency range: 30 MHz ~ 10GHz										
5 MHz, Low channel										
962.3	32.58	313	1.2	H	-63.9	1.36	0.0	-65.26	-13	52.26
962.3	33.67	42	2.0	V	-60.4	1.36	0.0	-61.76	-13	48.76
1413.00	47.84	182	1.4	H	-60.3	1.60	7.90	-54.00	-13	41.00
1413.00	47.65	79	1.8	V	-60.8	1.60	7.90	-54.50	-13	41.50
2119.50	43.69	39	1.9	H	-57.4	1.30	9.70	-49.00	-13	36.00
2119.50	43.87	198	2.4	V	-58.1	1.30	9.70	-49.70	-13	36.70
2826.00	43.26	322	2.1	H	-60.7	1.80	10.50	-52.00	-13	39.00
2826.00	43.49	154	1.0	V	-60.1	1.80	10.50	-51.40	-13	38.40
5 MHz, Middle channel										
960.6	32.57	61	1.6	H	-63.9	1.36	0.0	-65.26	-13	52.26
960.6	33.69	198	1.7	V	-60.4	1.36	0.0	-61.76	-13	48.76
1420.00	48.24	353	2.4	H	-59.9	1.60	7.90	-53.60	-13	40.60
1420.00	46.55	15	1.3	V	-61.9	1.60	7.90	-55.60	-13	42.60
2130.00	44.02	350	1.0	H	-57.1	1.30	9.70	-48.70	-13	35.70
2130.00	43.48	100	1.6	V	-58.5	1.30	9.70	-50.10	-13	37.10
2840.00	42.81	264	2.3	H	-61.1	1.80	10.50	-52.40	-13	39.40
2840.00	43.29	5	1.8	V	-60.3	1.80	10.50	-51.60	-13	38.60
5 MHz, High channel										
965.3	32.69	43	2.0	H	-63.8	1.36	0.0	-65.16	-13	52.16
965.3	33.81	53	1.4	V	-60.2	1.36	0.0	-61.56	-13	48.56
1427.00	47.75	260	1.2	H	-60.4	1.60	7.90	-54.10	-13	41.10
1427.00	47.21	25	2.5	V	-61.2	1.60	7.90	-54.90	-13	41.90
2140.50	44.57	235	2.3	H	-56.6	1.30	9.70	-48.20	-13	35.20
2140.50	43.56	15	1.7	V	-58.4	1.30	9.70	-50.00	-13	37.00
2854.00	43.06	135	1.8	H	-61.6	1.70	10.70	-52.60	-13	39.60
2854.00	43.33	241	2.3	V	-61.4	1.70	10.70	-52.40	-13	39.40

Note:

Absolute Level = Substituted Level - Cable loss + Antenna Gain

Margin = Limit- Absolute Level

dBd is for the ERP, dBi is for EIRP.

FCC § 22.917 (a); § 24.238 (a); §27.53 (h)(m) - BAND EDGES

Applicable Standard

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

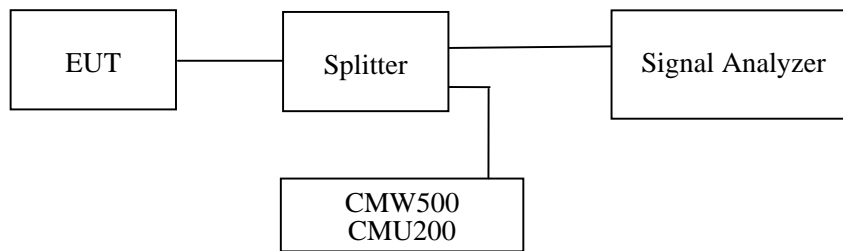
According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

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

Test Procedure

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

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



Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

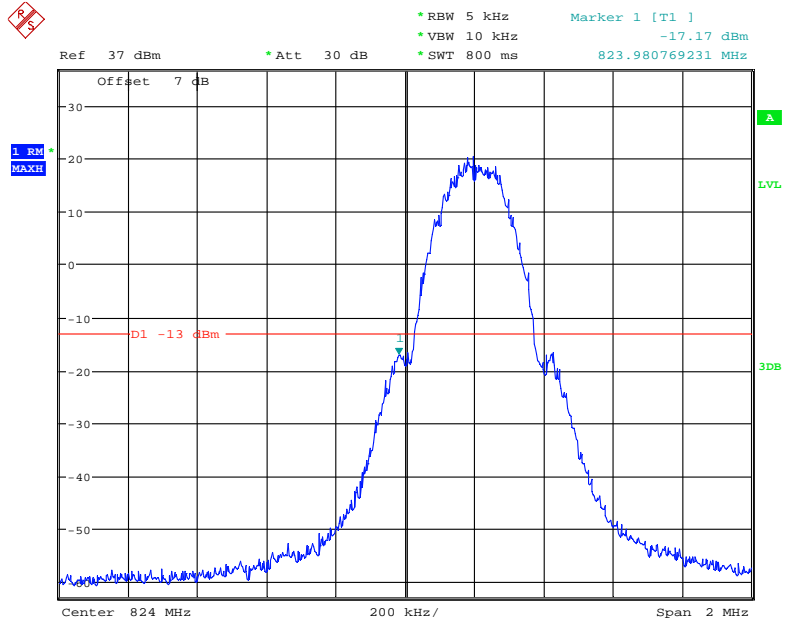
The testing was performed by Coco Liu from 2021-01-08 to 2021-01-20.

EUT operation mode: Transmitting (Worst case)

Test Result: Pass

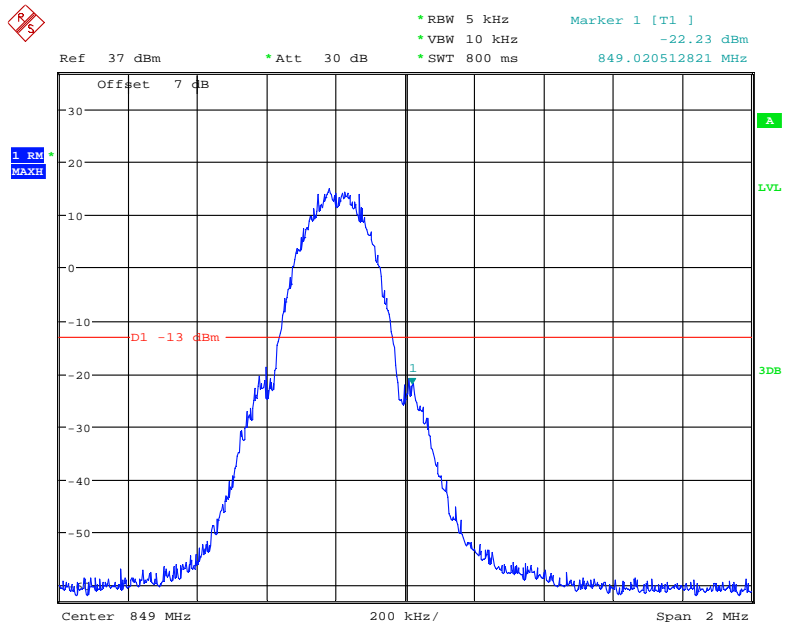
Please refer to the following plots.

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



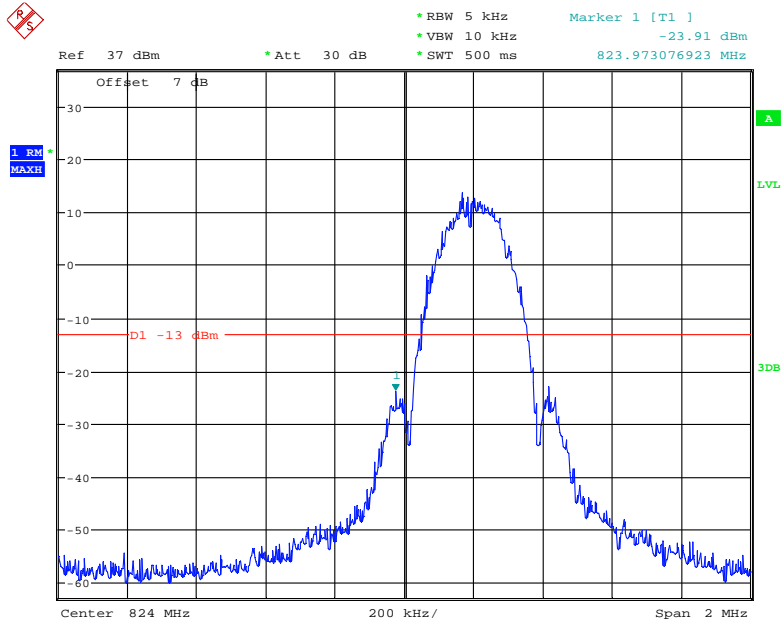
Date: 8.JAN.2021 14:59:02

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



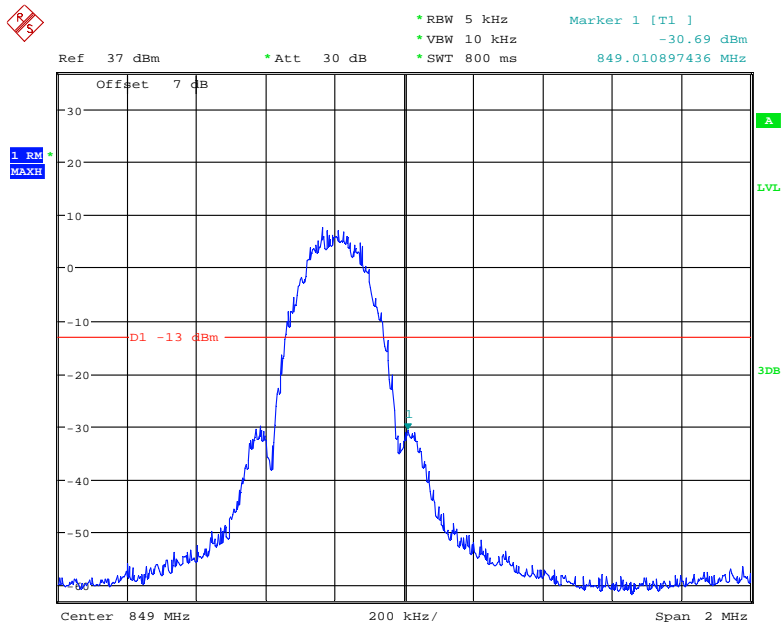
Date: 8.JAN.2021 15:01:37

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



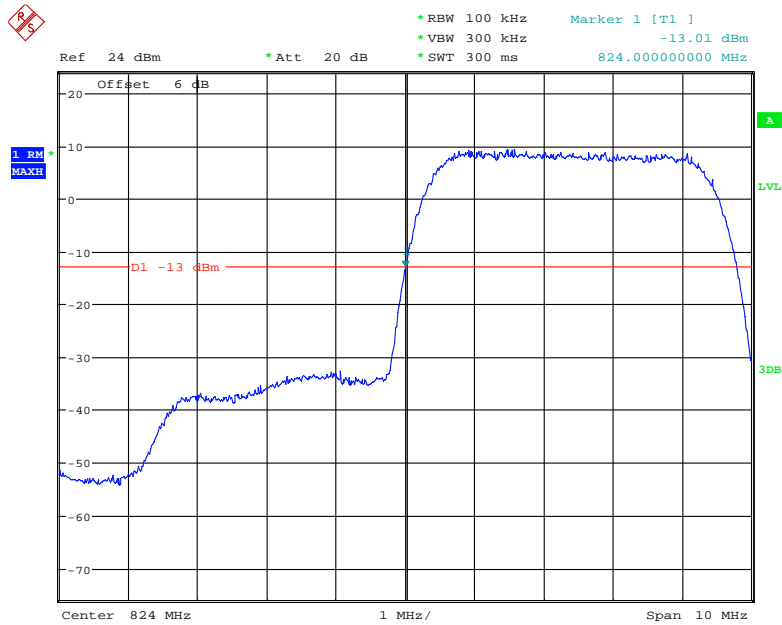
Date: 8.JAN.2021 15:06:45

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



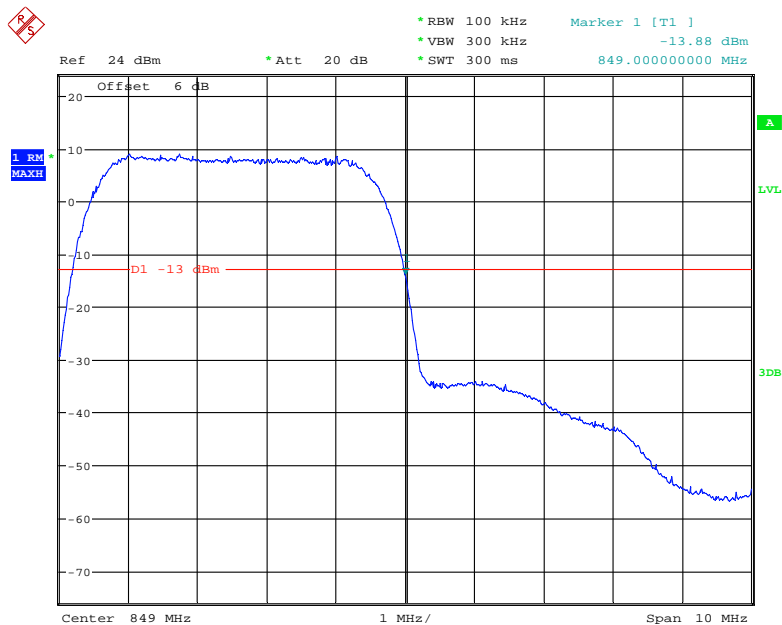
Date: 8.JAN.2021 15:04:37

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



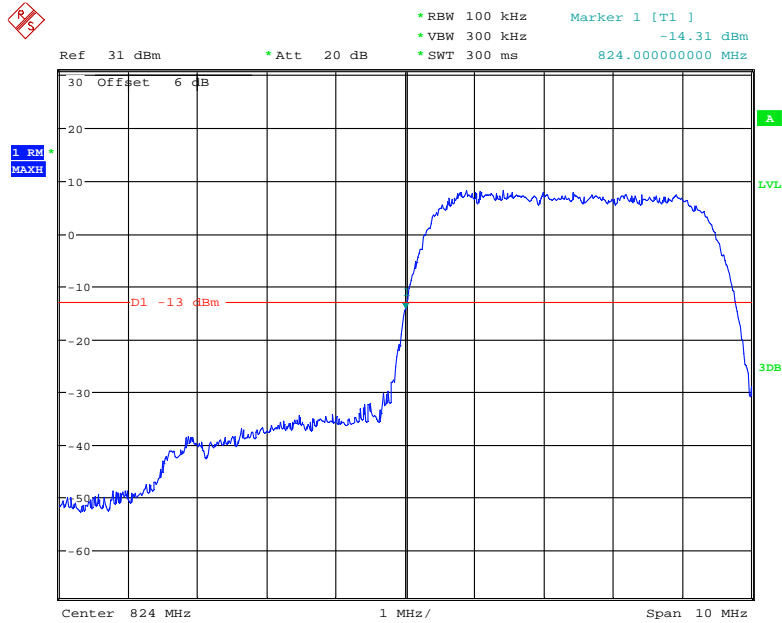
Date: 14.JAN.2021 11:26:58

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



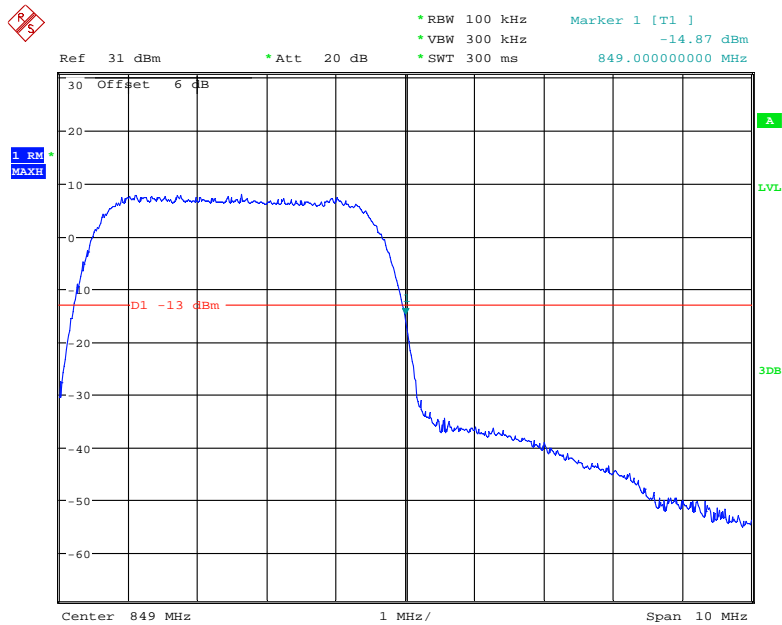
Date: 14.JAN.2021 11:29:57

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



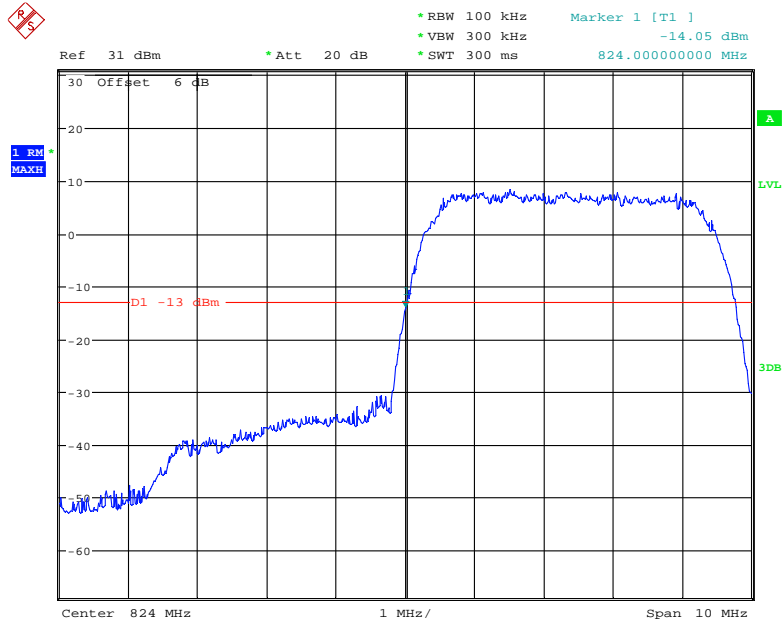
Date: 16.JAN.2021 11:39:03

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



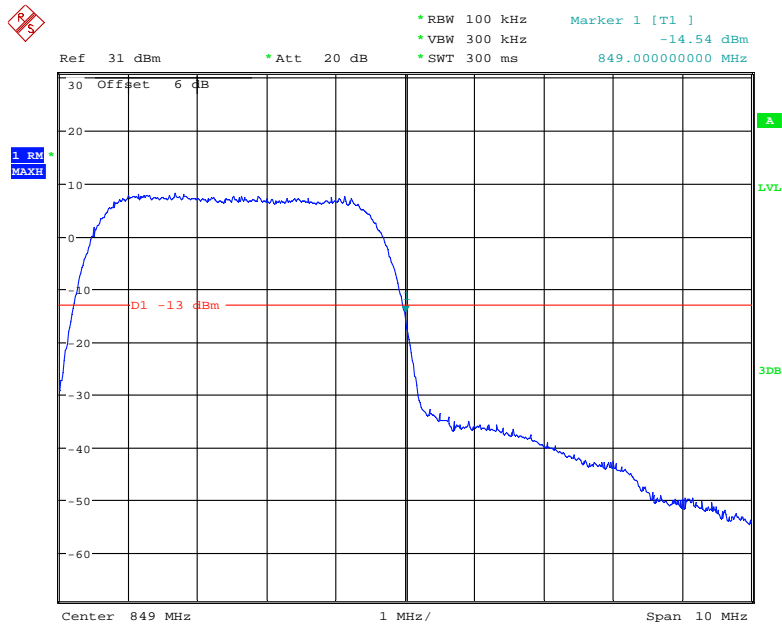
Date: 16.JAN.2021 11:37:09

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



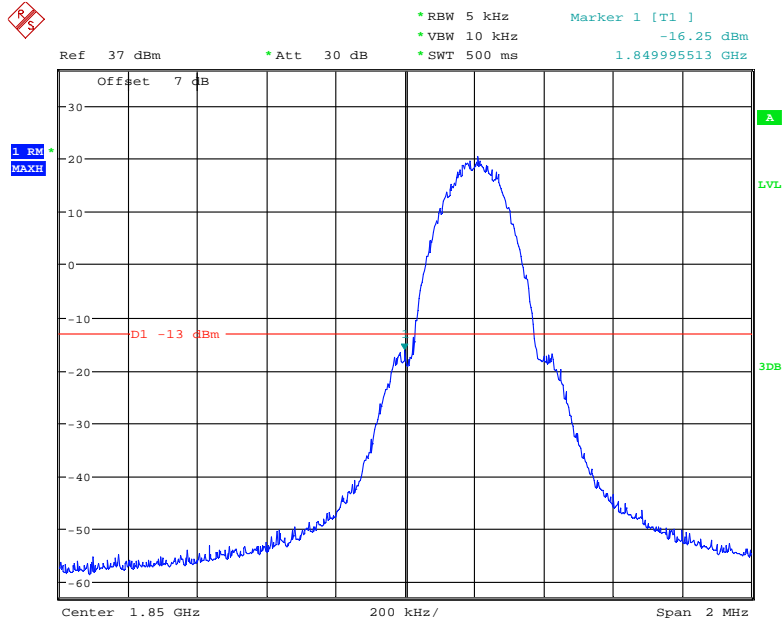
Date: 16.JAN.2021 11:41:52

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



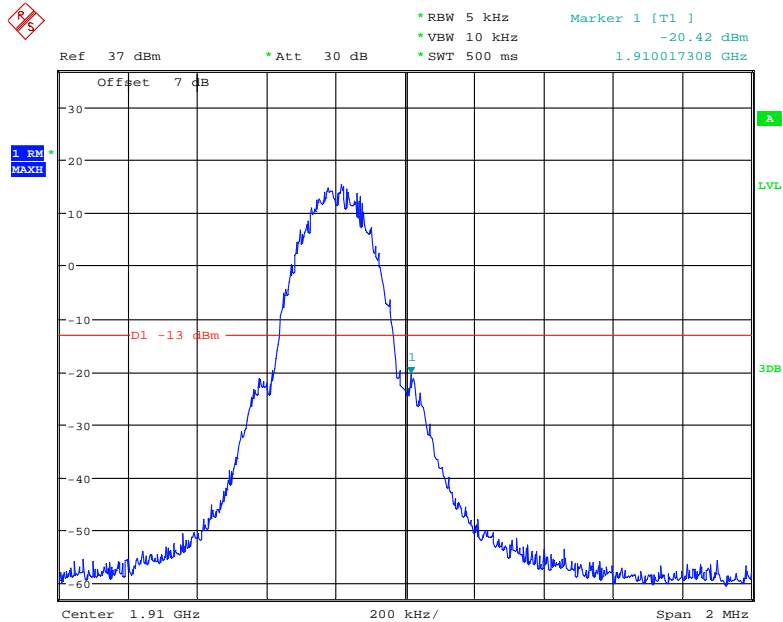
Date: 16.JAN.2021 11:42:29

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



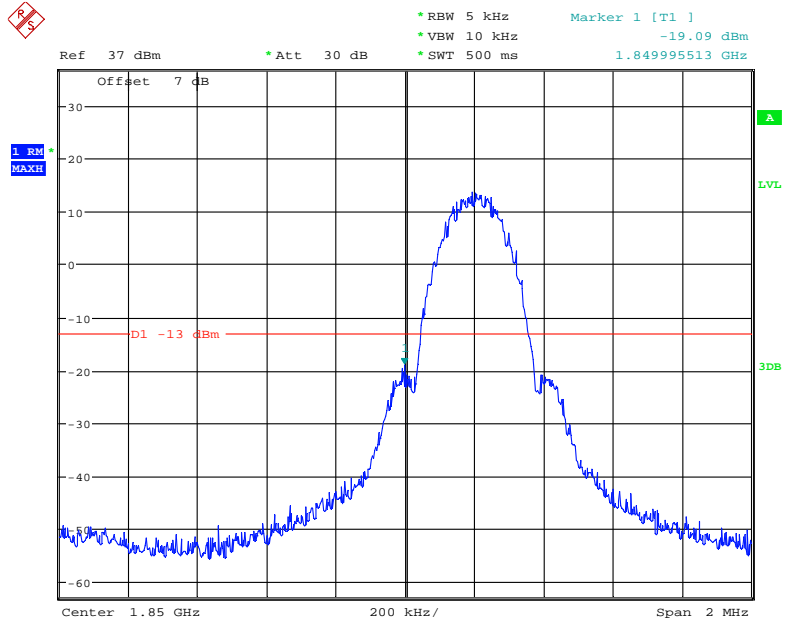
Date: 8.JAN.2021 15:24:13

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



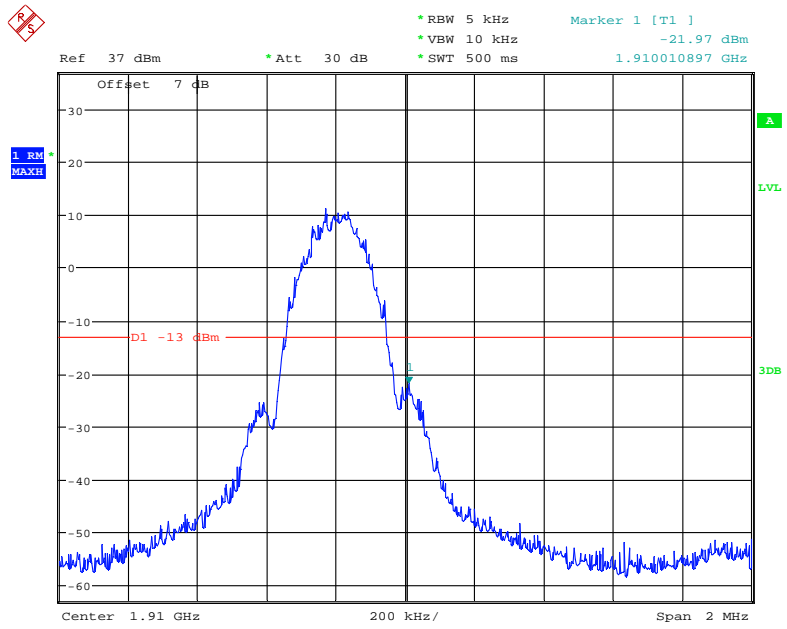
Date: 8.JAN.2021 15:28:47

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



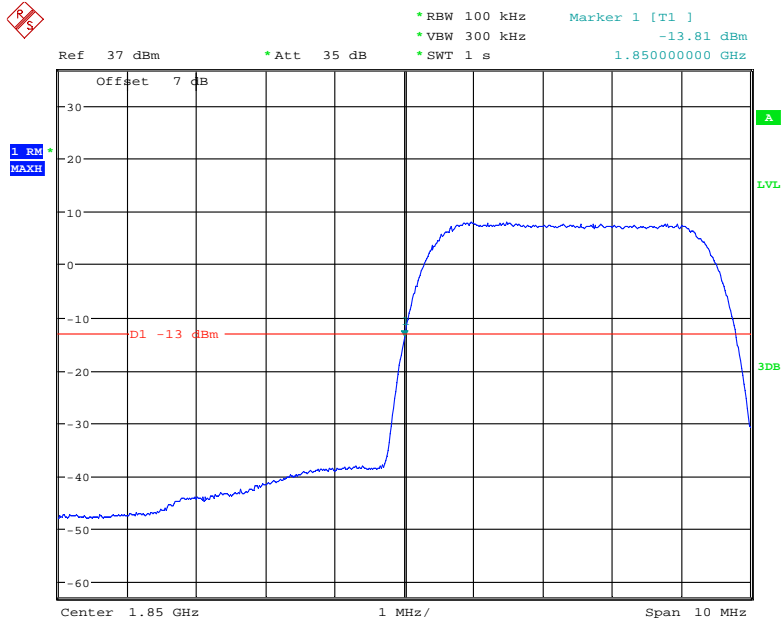
Date: 8.JAN.2021 15:11:50

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



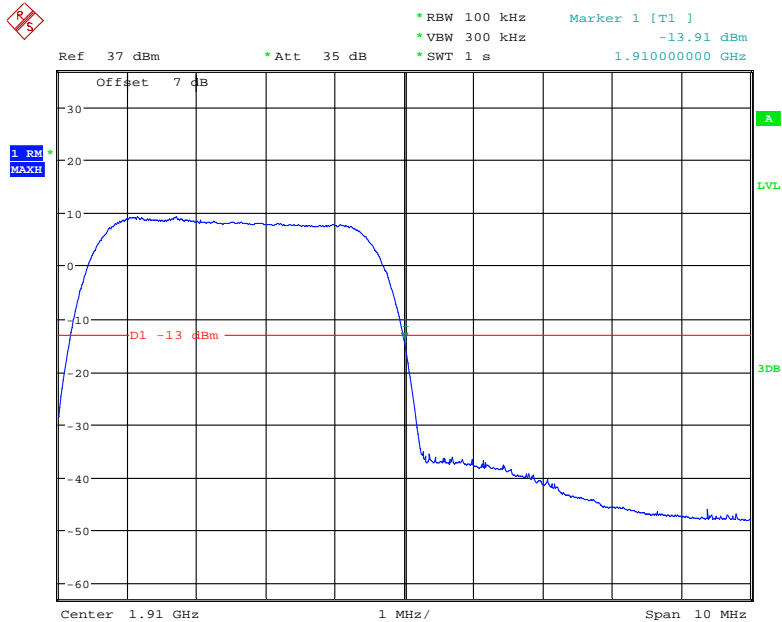
Date: 8.JAN.2021 15:13:23

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



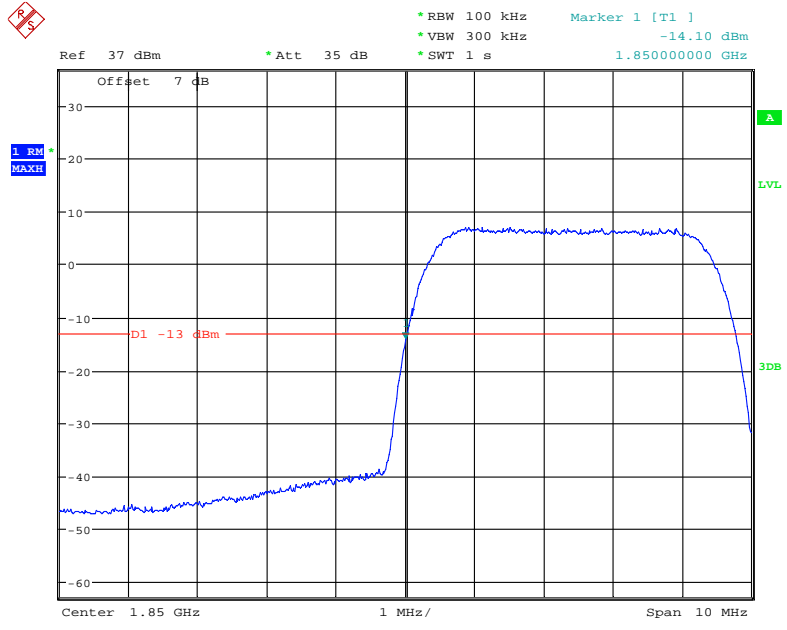
Date: 16.JAN.2021 10:07:52

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



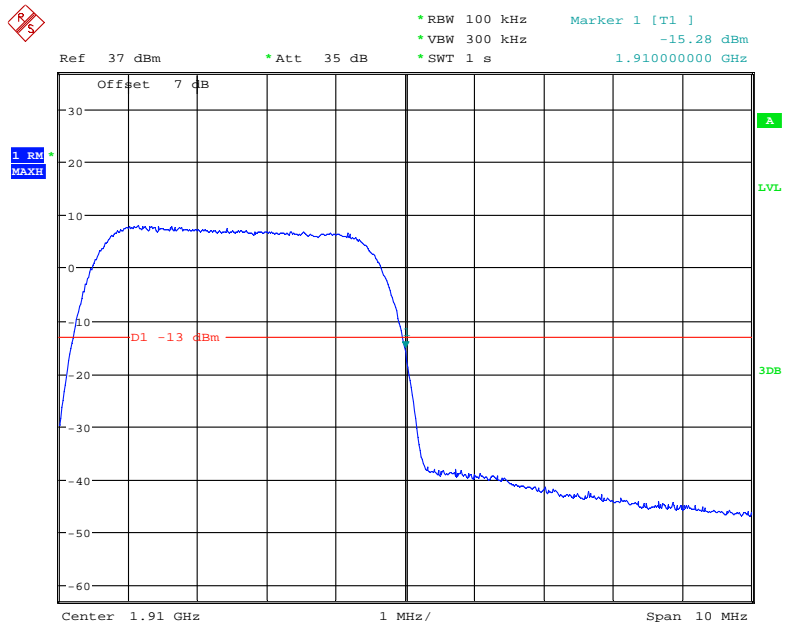
Date: 16.JAN.2021 10:16:47

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



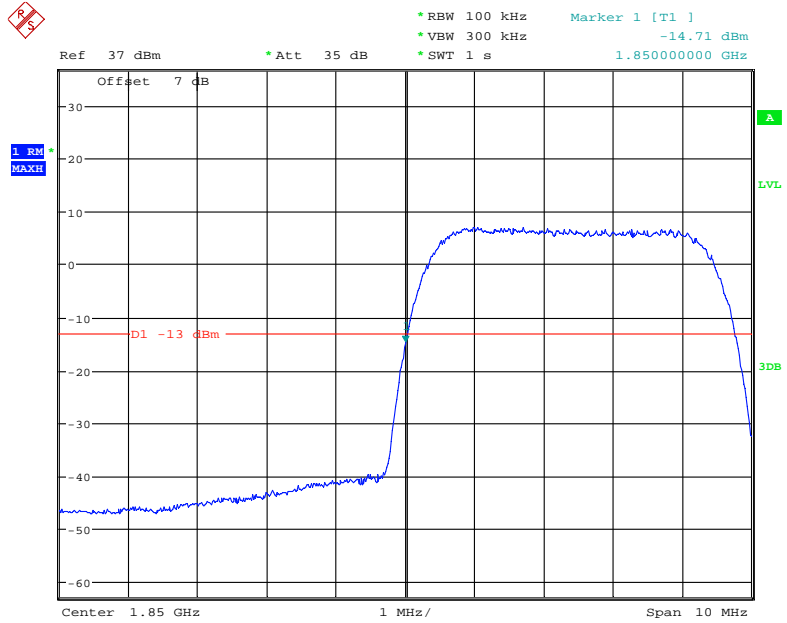
Date: 16.JAN.2021 10:27:05

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



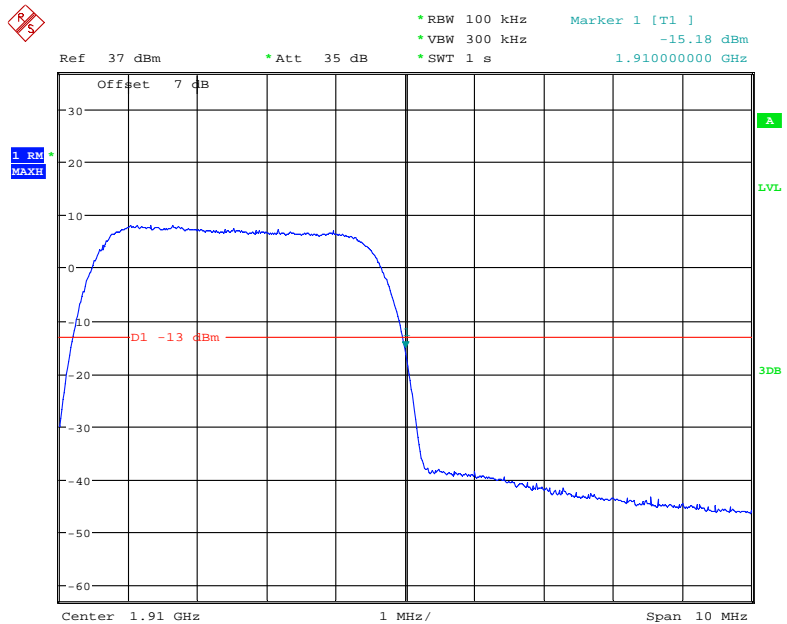
Date: 16.JAN.2021 10:20:54

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



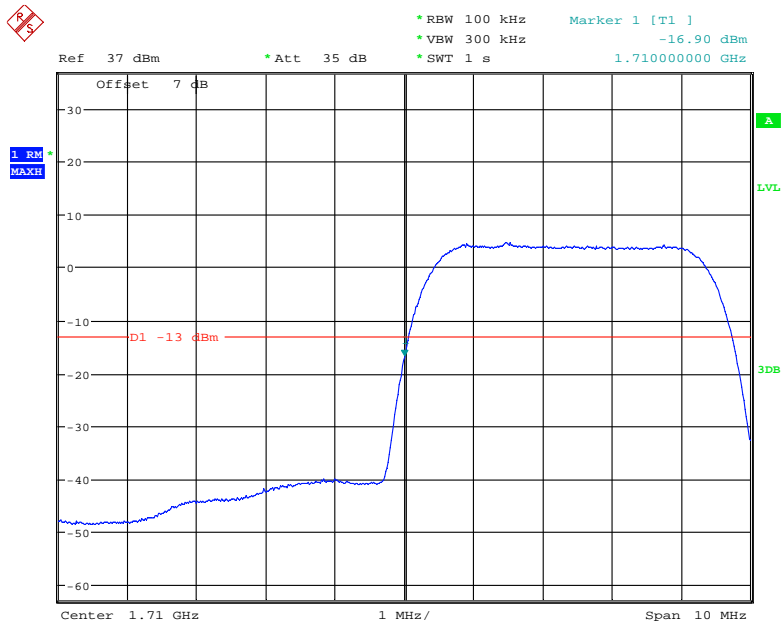
Date: 16.JAN.2021 10:28:21

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



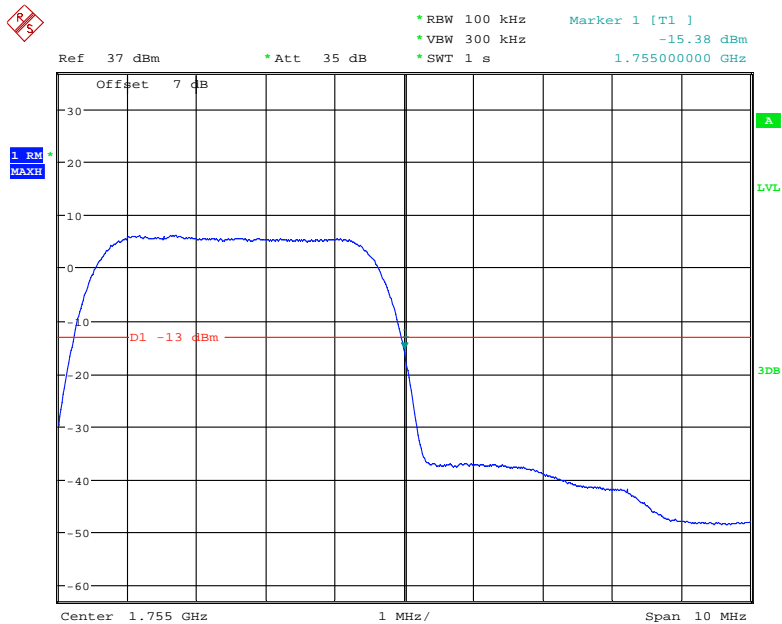
Date: 16.JAN.2021 10:29:18

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



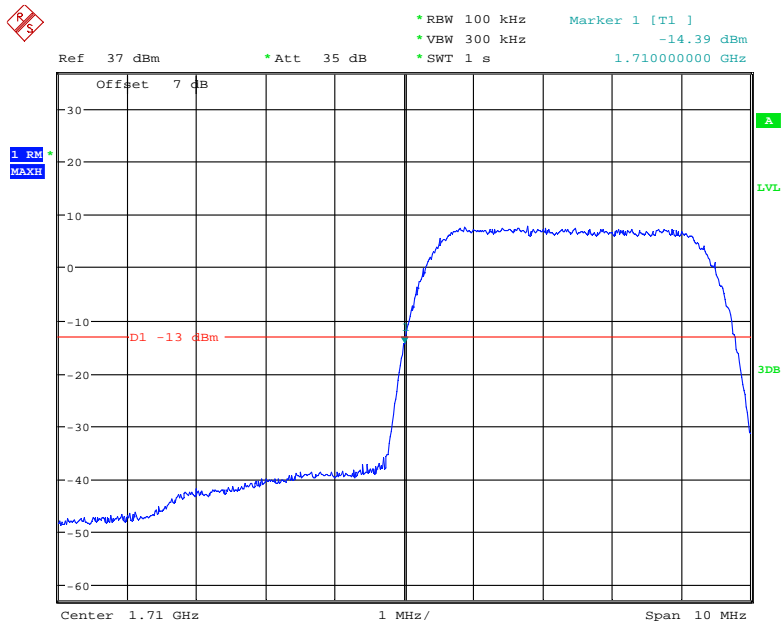
Date: 16.JAN.2021 10:32:06

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



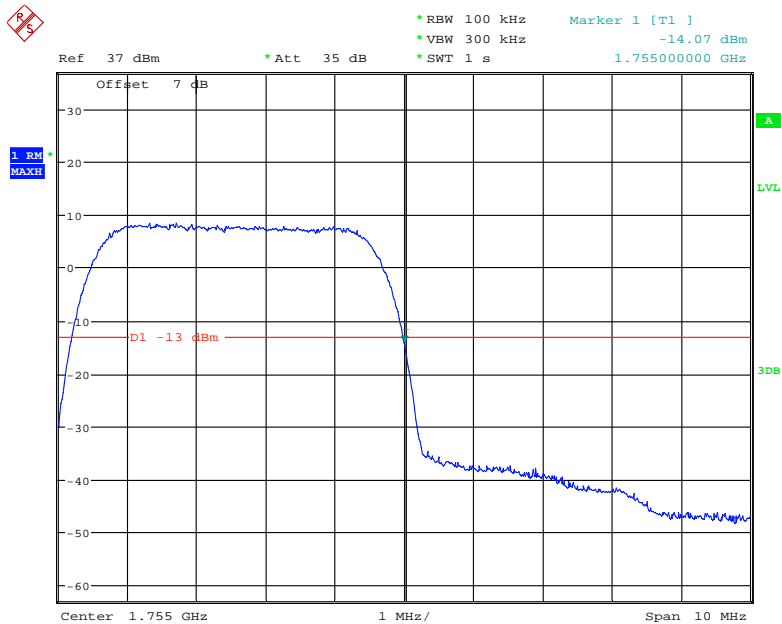
Date: 16.JAN.2021 10:34:30

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



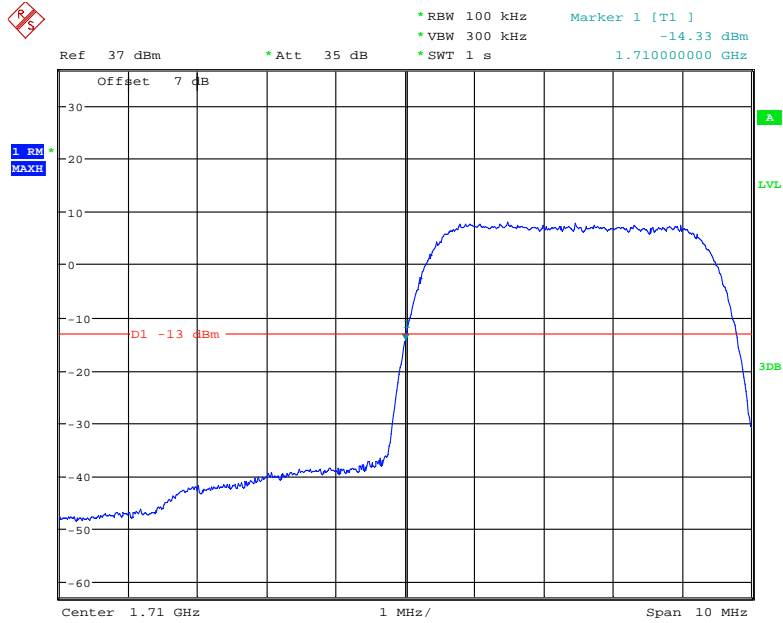
Date: 16.JAN.2021 11:09:20

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



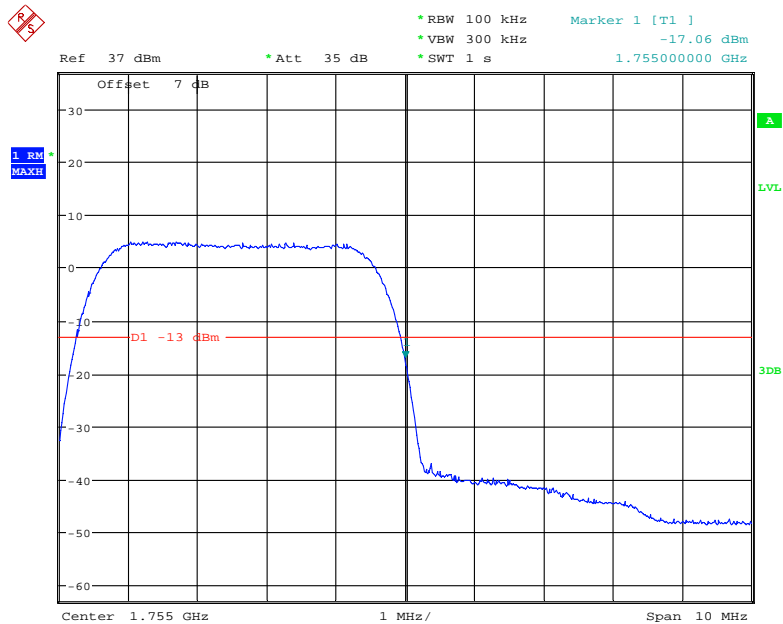
Date: 16.JAN.2021 11:10:11

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



Date: 16.JAN.2021 11:07:49

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



Date: 16.JAN.2021 10:36:10

The test plot of LTE band please refer to the Appendix B

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

Applicable Standard

FCC § 2.1055, §22.355, §24.235 and & §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

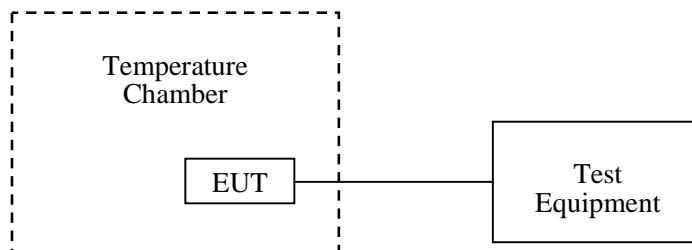
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

Test Procedure

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

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

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



Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

The testing was performed by Coco Liu on 2021-01-08.

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	3.85	-1	-0.0012	2.5
-20		7	0.0084	2.5
-10		-2	-0.0024	2.5
0		-3	-0.0036	2.5
10		4	0.0048	2.5
20		-1	-0.0012	2.5
30		9	0.0108	2.5
40		2	0.0024	2.5
50		0	0.0000	2.5
20		V min.= 3.5	6	0.0072
	V max.= 4.4	-1	-0.0012	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	3.85	-3	-0.0036	2.5
-20		4	0.0048	2.5
-10		-1	-0.0012	2.5
0		9	0.0108	2.5
10		-4	-0.0048	2.5
20		2	0.0024	2.5
30		6	0.0072	2.5
40		-4	-0.0048	2.5
50		-1	-0.0012	2.5
20		V min.= 3.5	8	0.0096
	V max.= 4.4	1	0.0012	2.5

WCDMA Mode

Middle Channel, $f_0=836.6\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.85	4	0.0048	2.5
-20		2	0.0024	2.5
-10		1	0.0012	2.5
0		-1	-0.0012	2.5
10		8	0.0096	2.5
20		2	0.0024	2.5
30		2	0.0024	2.5
40		4	0.0048	2.5
50		3	0.0036	2.5
20		V min.= 3.5	2	0.0024
	V max.= 4.4	6	0.0072	2.5

PCS Band (Part 24E)

GSM Mode

Middle Channel, $f_0 = 1880.0$ MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	3.85	9	0.0048	pass
-20		7	0.0037	pass
-10		5	0.0027	pass
0		5	0.0027	pass
10		-1	-0.0005	pass
20		-1	-0.0005	pass
30		8	0.0043	pass
40		5	0.0027	pass
50		2	0.0011	pass
20		V min.= 3.5	8	0.0043
	V max.= 4.4	4	0.0021	pass

EDGE Mode

Middle Channel, $f_0 = 1880.0$ MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	3.85	8	0.0043	pass
-20		-3	-0.0016	pass
-10		-3	-0.0016	pass
0		-5	-0.0027	pass
10		5	0.0027	pass
20		7	0.0037	pass
30		5	0.0027	pass
40		4	0.0021	pass
50		-5	-0.0027	pass
20		V min.= 3.5	2	0.0011
	V max.= 4.4	4	0.0021	pass

PCS Band (Part 24E)

WCDMA Mode

Middle Channel, $f_0 = 1880.0$ MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	3.85	4	0.0021	pass
-20		6	0.0032	pass
-10		2	0.0011	pass
0		7	0.0037	pass
10		6	0.0032	pass
20		2	0.0011	pass
30		-5	-0.0027	pass
40		8	0.0043	pass
50		8	0.0043	pass
20		V min.= 3.5	2	0.0011
	V max.= 4.4	5	0.0027	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	3.85	1710.0598	1754.9331	1710	1755
-20		1710.0624	1754.9353	1710	1755
-10		1710.0601	1754.9344	1710	1755
0		1710.0664	1754.9321	1710	1755
10		1710.0623	1754.9327	1710	1755
20		1710.0613	1754.9310	1710	1755
30		1710.0637	1754.9353	1710	1755
40		1710.0614	1754.9377	1710	1755
50		1710.0661	1754.9305	1710	1755
20		V min.= 3.5	1710.0633	1754.9366	1710
	V max.= 4.4	1710.0654	1754.9340	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	3.85	-3	-0.0016	pass
-20		-9	-0.0048	pass
-10		4	0.0021	pass
0		5	0.0027	pass
10		7	0.0037	pass
20		6	0.0032	pass
30		3	0.0016	pass
40		6	0.0032	pass
50		-3	-0.0016	pass
20		V min.= 3.5	-7	0.0037
	V max.= 4.4	5	0.0059	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	3.85	1710.4004	1754.5614	1710	1755
-20		1710.4168	1754.5350	1710	1755
-10		1710.3989	1754.5297	1710	1755
0		1710.3806	1754.5881	1710	1755
10		1710.4660	1754.5596	1710	1755
20		1710.3995	1754.4954	1710	1755
30		1710.4000	1754.4627	1710	1755
40		1710.4385	1754.5111	1710	1755
50		1710.3888	1754.5530	1710	1755
20		V min.= 3.5	1710.4346	1754.5282	1710
	V max.= 4.4	1710.4659	1754.5906	1710	1755

Band 5:

10.0 MHz Middle Channel, $f_0=836.5\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.85	3	0.0036	2.5
-20		4	0.0048	2.5
-10		-2	-0.0024	2.5
0		7	0.0084	2.5
10		3	0.0036	2.5
20		6	0.0072	2.5
30		-6	-0.0072	2.5
40		-7	-0.0084	2.5
50		5	0.0060	2.5
20		V min.= 3.5	8	0.0096
	V max.= 4.4	7	0.0084	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	3.85	2500.4079	2569.5474	2500	2570
-20		2500.5087	2569.4881	2500	2570
-10		2500.4720	2569.5750	2500	2570
0		2500.4894	2569.5212	2500	2570
10		2500.4673	2569.5280	2500	2570
20		2500.4649	2569.5680	2500	2570
30		2500.5106	2569.4457	2500	2570
40		2500.4243	2569.5356	2500	2570
50		2500.4698	2569.5592	2500	2570
20		V min.= 3.5	2500.4104	2569.5144	2500
	V max.= 4.4	2500.4320	2569.4949	2500	2570

Band17

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	3.85	704.3709	715.6199	704	716
-20		704.3697	715.6172	704	716
-10		704.3769	715.6205	704	716
0		704.3718	715.6223	704	716
10		704.3726	715.6183	704	716
20		704.3724	715.6156	704	716
30		704.3770	715.6226	704	716
40		704.3763	715.6180	704	716
50		704.3712	715.6168	704	716
20		V min.= 3.5	704.3733	715.6156	704
	V max.= 4.4	704.3714	715.6184	704	716

16QAM:

Band 2:

10.0 MHz Middle Channel, f ₀ =1880MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	3.85	3	0.0016	pass
-20		-5	-0.0027	pass
-10		1	0.0005	pass
0		-4	-0.0021	pass
10		6	0.0032	pass
20		2	0.0011	pass
30		-3	-0.0016	pass
40		1	0.0005	pass
50		5	0.0027	pass
20		V min.= 3.5	6	0.0037
	V max.= 4.4	11	0.0059	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	3.85	1710.3578	1754.5239	1710	1755
-20		1710.4041	1754.5064	1710	1755
-10		1710.5069	1754.5633	1710	1755
0		1710.3406	1754.5774	1710	1755
10		1710.4148	1754.5564	1710	1755
20		1710.4102	1754.5090	1710	1755
30		1710.4143	1754.5497	1710	1755
40		1710.4414	1754.4745	1710	1755
50		1710.4574	1754.6363	1710	1755
20		V min.= 3.5	1710.4285	1754.6002	1710
	V max.= 4.4	1710.4478	1754.5463	1710	1755

Band 5:

10.0 MHz Middle Channel, f _o =836.5MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.85	2	0.0024	2.5
-20		6	0.0072	2.5
-10		-3	-0.0036	2.5
0		-5	-0.0060	2.5
10		4	0.0048	2.5
20		-9	-0.0108	2.5
30		5	0.0060	2.5
40		-8	-0.0096	2.5
50		2	0.0024	2.5
20		V min.= 3.5	6	0.0072
	V max.= 4.4	7	0.0084	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	3.85	2500.4794	2569.4722	2500	2570
-20		2500.5106	2569.5630	2500	2570
-10		2500.5066	2569.5336	2500	2570
0		2500.4748	2569.5734	2500	2570
10		2500.5130	2569.5501	2500	2570
20		2500.4391	2569.5237	2500	2570
30		2500.4977	2569.4932	2500	2570
40		2500.4741	2569.5283	2500	2570
50		2500.4427	2569.5697	2500	2570
20	V min.= 3.5	2500.4173	2569.5525	2500	2570
	V max.= 4.4	2500.4529	2569.5062	2500	2570

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	3.85	704.3752	715.6192	704	716
-20		704.3721	715.6167	704	716
-10		704.3704	715.6196	704	716
0		704.3705	715.6180	704	716
10		704.3726	715.6148	704	716
20		704.3727	715.6164	704	716
30		704.3750	715.6126	704	716
40		704.3709	715.6177	704	716
50		704.3708	715.6158	704	716
20	V min.= 3.5	704.3760	715.6197	704	716
	V max.= 4.4	704.3774	715.6151	704	716

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