

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

For

Exacta Digital Media Research SpA

Canada 253 Depto E, Comuna Providencia, Santiago, Chile

FCC ID: 2A23YV37

Report Type: Original Report	Product Type: MOBILE ELECTRONIC DEVICE
Report Number: SZ1210809-33446E-RF-00D	
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	MOBILE ELECTRONIC DEVICE
Tested Model	EXACTA V37
Frequency Range	GSM 850: 824-849MHz(TX); 869-894MHz(RX) PCS 1900: 1850-1910MHz(TX); 1930-1990MHz(RX) WCDMA Band 2: 1850-1910MHz(TX); 1930-1990MHz(RX) WCDMA Band 4: 1710-1755MHz(TX); 2110-2155MHz(RX) WCDMA Band 5: 824-849MHz(TX); 869-894MHz(RX) LTE Band 2: 1850-1910MHz(TX); 1930-1990MHz(RX) LTE Band 4: 1710-1755MHz(TX); 2110-2155MHz(RX) LTE Band 5: 824-849MHz(TX); 869-894MHz(RX) LTE Band 7: 2500-2570MHz(TX); 2620-2690MHz(RX) LTE Band 17: 704-716MHz(TX); 734-746MHz(RX)
Modulation Technique	2G: GMSK 3G: BPSK, QPSK, 16QAM 4G: QPSK, 16QAM
Antenna Specification*	GSM850/WCDMA Band 5/LTE Band 5: 0.81dBi PCS1900/WCDMA Band 2/ LTE Band 2: 0.93dBi WCDMA Band 4/LTE Band 4: 0.92dBi LTE Band 7: 0.92dBi LTE Band 17: 0.69dBi(provided by the applicant)
Voltage Range	DC 3.8V from battery or DC 5V from adapter
Date of Test	2021-08-13 to 2021-09-09
Sample number	SZ1210809-33446E-RF-S1(Assigned by BACL, Shenzhen)
Received date	2021-08-09
Sample/EUT Status	Good condition
Normal/Extreme Condition	L.V.: Low Voltage 3.5V _{DC} N.V.: Normal Voltage 3.8V _{DC} H.V.: High Voltage 4.35V _{DC} The extreme condition was declared by the applicant
Adapter information	Input: AC 100-240V ~ 50-60Hz, 150mA Output: DC 5V, 1000mA

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. Each test item follows test standards and with no deviation.

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		±5%
RF output power, conducted		±0.73dB
Unwanted Emission, conducted		±1.6dB
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 5F(B-West) ,6F,7F,the 3rd Phase of Wan Li Industrial Building D,Shihua Rd, FuTian Free Trade Zone, Shenzhen, 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.

Frequency band	Bandwidth (MHz)	Test Frequency(MHz)		
		Low	Middle	High
GSM850	0.25	824.2	836.6	848.8
PCS1900	0.25	1850.2	1880	1909.8
WCDMA B2	4.2	1852.4	1880	1907.6
WCDMA B4	4.2	1712.4	1732.6	1752.6
WCDMA B5	4.2	826.4	836.6	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.

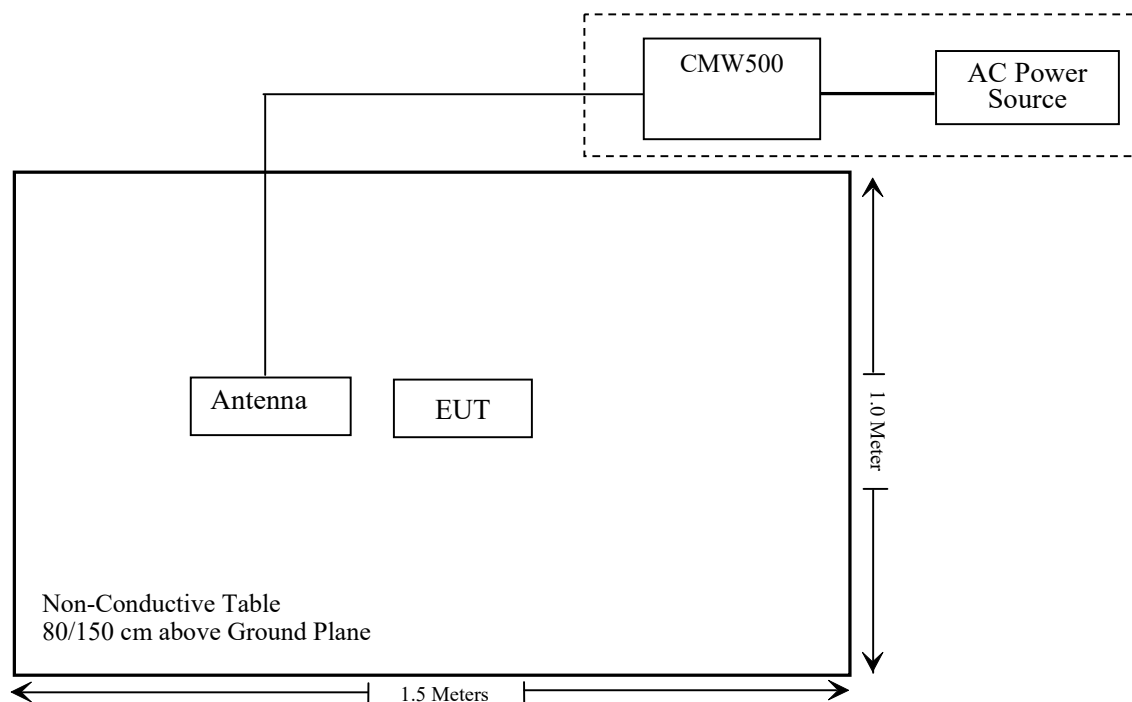
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Rohde & Schwarz	Wideband Radio Communication tester	CMW500	146520

Support Cable Description

Cable Description	Length (m)	From / Port	To
/	/	/	/

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

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

Note: * Please refer to SAR report released by BACL, report number: SZ1210809-33446E-SA.

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test					
R&S	EMI Test Receiver	ESR3	102455	2021/07/06	2022/07/05
Sonoma instrument	Pre-amplifier	310 N	186238	2021/08/03	2022/08/02
Sunol Sciences	Broadband Antenna	JB1	A040904-2	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 4	EC-007	2021/08/03	2022/08/02
Rohde & Schwarz	Spectrum Analyzer	FSV40-N	102259	2021/07/06	2022/07/05
COM-POWER	Pre-amplifier	PA-122	181919	2020/11/29	2021/11/28
Quinstar	Amplifier	QLW-18405536-J0	15964001002	2020/11/28	2021/11/27
Sunol Sciences	Horn Antenna	3115	9107-3694	2021/01/15	2024/01/14
A.H.System	Horn Antenna	SAS-200/571	135	2021/07/14	2024/07/13
Insulted 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
Unknown	Signal Cable	RG-214	2	2020/11/29	2021/11/28
MICRO-TRONICS	Passband filter	HPM50111	F-19-EM006	2021/04/20	2022/04/20
Unknown	High Pass filter	1.3GHz	101120	2021/04/20	2022/04/20
Ducommun Technologies	Horn antenna	ARH-4223-02	1007726-02 1304	2020/12/06	2023/12/05
Ducommun Technologies	Horn antenna	ARH-4223-02	1007726-01 1304	2020/12/06	2023/12/05
Agilent	Signal Generator	N5183A	MY51040755	2020/12/29	2021/12/28

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
RF Conducted Test					
Rohde & Schwarz	SPECTRUM ANALYZER	FSU26	200120	2021/04/02	2022/04/01
Unknown	RF Cable	Unknown	0501 067	2020/11/29	2021/11/28
Weinschel	Power divider	1515	RH386	2021/04/20	2022/04/20
ESPEC	Temperature & Humidity Chamber	EL-10KA	9107726	2021/02/23	2022/02/22
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	1201.002K50-146520-wh	2021/07/06	2022/07/05
instek	DC Power Supply	GPS-3030DD	EM832096	NCR	NCR
Fluke	Digital Multimeter	287	19000011	2021/02/22	2022/02/21

* 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: SZ1210809-33446E-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 - RF OUTPUT POWER**Applicable Standard**

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

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

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

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

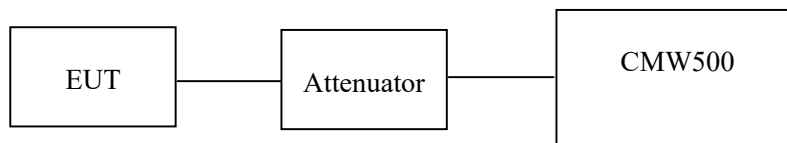
According to §27.50(d), the maximum EIRP must not exceed 1Watts (30dBm) for 1710-1780MHz.

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 through sufficient attenuation.

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

Temperature:	28.5~29.2 °C
Relative Humidity:	51~53 %
ATM Pressure:	101.0 ~102.0kPa

The testing was performed by Pedro Yun on 2021-08-13.

Conducted Power**Cellular Band (Part22H)**

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	ERP(dBm)	Limit (dBm)
GSM	128	824.2	32.52	30.68	38.45
	190	836.6	32.33	30.49	38.45
	251	848.8	32.17	30.33	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	31.01	30.15	27.36	26.24	29.17	28.31	25.52	24.40	38.45
	190	836.6	30.13	29.24	27.44	26.37	28.29	27.40	25.60	24.53	38.45
	251	848.8	30.07	29.21	27.43	26.36	28.23	27.37	25.59	24.52	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		21.89	21.84	21.82	20.05	20.00	19.98
	HSDPA	1	21.90	21.70	21.95	20.06	19.86	20.11
		2	21.75	21.61	21.40	19.91	19.77	19.56
		3	21.76	21.60	21.40	19.92	19.76	19.56
		4	21.79	21.66	21.48	19.95	19.82	19.64
	HSUPA	1	21.65	19.48	21.69	19.81	17.64	19.85
		2	20.00	19.17	20.62	18.16	17.33	18.78
		3	20.04	19.23	20.68	18.20	17.39	18.84
		4	20.04	19.22	20.68	18.20	17.38	18.84
		5	20.11	19.28	20.70	18.27	17.44	18.86
	HSPA+	1	20.13	19.35	20.73	18.29	17.51	18.89

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

For GSM850/WCDMA Band5: Antenna Gain = 0.81dBi = -1.34dBd (0dBd=2.15dBi)

Cable loss=0.5dB* (Provided by applicant)

Limit: ERP≤38.45dBm

PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	EIRP(dBm)	Limit (dBm)
GSM	512	1850.2	30.0	30.13	33
	661	1880.0	29.8	29.93	33
	810	1909.8	28.9	29.03	33

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				EIRP(dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	1 slot	2 slots	3 slots	4 slots	
GPRS	512	1850.2	30.01	29.10	27.30	26.19	30.14	29.23	27.43	26.32	33
	661	1880.0	29.97	29.10	27.30	26.20	30.10	29.23	27.43	26.33	33
	810	1909.8	29.65	28.88	27.10	26.00	29.78	29.01	27.23	26.13	33

Mode	Test Mode	3GPP Sub Test	Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
WCDMA (Band 2)	RMC12.2k		21.70	21.58	21.36	21.83	21.71	21.49
	HSDPA	1	21.31	22.46	21.49	21.44	22.59	21.62
		2	21.38	22.48	21.52	21.51	22.61	21.65
		3	21.37	22.49	21.50	21.50	22.62	21.63
		4	21.39	22.54	21.57	21.52	22.67	21.70
	HSUPA	1	20.00	19.15	20.63	20.13	19.28	20.76
		2	20.01	19.14	20.63	20.14	19.27	20.76
		3	20.06	19.17	20.71	20.19	19.30	20.84
		4	20.05	19.17	20.69	20.18	19.30	20.82
		5	20.09	19.23	20.73	20.22	19.36	20.86
	HSPA+	1	20.13	19.30	20.76	20.26	19.43	20.89

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

For PCS1900/WCDMA Band 2: Antenna Gain = 0.93dBi

Cable loss=0.8dB* (Provided by applicant)

Limit: EIRP≤33dBm

AWS Band (Part 27)

Mode	Test Mode	3GPP Sub Test	Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
WCDMA (Band 4)	RMC12.2k		22.29	22.33	22.27	22.41	22.45	22.39
	HSDPA	1	21.35	22.27	22.22	21.47	22.39	22.34
		2	21.39	22.34	22.28	21.51	22.46	22.40
		3	21.39	22.36	22.24	21.51	22.48	22.36
		4	21.47	22.42	22.29	21.59	22.54	22.41
	HSUPA	1	22.00	21.71	21.95	22.12	21.83	22.07
		2	21.98	21.68	21.89	22.10	21.80	22.01
		3	22.03	21.73	21.95	22.15	21.85	22.07
		4	22.01	21.73	21.94	22.13	21.85	22.06
		5	22.05	21.78	21.97	22.17	21.90	22.09
	HSPA+	1	22.07	21.84	22.03	22.19	21.96	22.15

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

Antenna Gain = 0.92dBi

Cable loss=0.8dB* (Provided by applicant)

The limit: EIRP≤30dBm

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

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	3.23	13
	Middle	3.25	13
	High	3.28	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	4.75	13
	Middle	4.60	13
	High	4.74	13
HSDPA (16QAM)	Low	4.73	13
	Middle	4.62	13
	High	4.64	13
HSUPA (BPSK)	Low	4.65	13
	Middle	4.66	13
	High	4.70	13
HSUPA+	Low	4.78	13
	Middle	4.70	13
	High	4.71	13

PCS Band

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	3.26	13
	Middle	3.34	13
	High	3.39	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	5.02	13
	Middle	5.11	13
	High	5.27	13
HSDPA (16QAM)	Low	5.03	13
	Middle	4.88	13
	High	5.01	13
HSUPA (BPSK)	Low	4.92	13
	Middle	5.38	13
	High	4.95	13
HSUPA+	Low	4.96	13
	Middle	4.99	13
	High	4.96	13

AWS Band

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	4.67	13
	Middle	4.63	13
	High	4.86	13
HSDPA (16QAM)	Low	4.87	13
	Middle	4.81	13
	High	4.92	13
HSUPA (BPSK)	Low	4.88	13
	Middle	4.80	13
	High	4.95	13
HSUPA+	Low	4.87	13
	Middle	5.04	13
	High	4.91	13

LTE Band 2:**Maximum Output Power**

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	23.16	22.94	22.88	23.29	23.07	23.01
		RB1#3	23.17	22.96	22.94	23.30	23.09	23.07
		RB1#5	23.14	22.93	22.90	23.27	23.06	23.03
		RB3#0	23.27	23.03	22.98	23.40	23.16	23.11
		RB3#3	23.24	23.02	23.00	23.37	23.15	23.13
		RB6#0	22.07	21.85	21.82	22.20	21.98	21.95
	16QAM	RB1#0	22.08	21.99	21.84	22.21	22.12	21.97
		RB1#3	22.11	22.03	21.92	22.24	22.16	22.05
		RB1#5	22.09	21.99	21.88	22.22	22.12	22.01
		RB3#0	22.36	21.90	21.96	22.49	22.03	22.09
		RB3#3	22.39	21.90	21.96	22.52	22.03	22.09
		RB6#0	21.11	20.91	20.75	21.24	21.04	20.88
3.0	QPSK	RB1#0	23.11	22.88	22.84	23.24	23.01	22.97
		RB1#8	23.11	22.92	22.86	23.24	23.05	22.99
		RB1#14	23.05	22.87	22.83	23.18	23.00	22.96
		RB6#0	22.06	21.81	21.78	22.19	21.94	21.91
		RB6#9	22.01	21.82	21.79	22.14	21.95	21.92
		RB15#0	22.12	21.89	21.86	22.25	22.02	21.99
	16QAM	RB1#0	22.61	21.94	21.83	22.74	22.07	21.96
		RB1#8	22.59	21.97	21.83	22.72	22.10	21.96
		RB1#14	22.50	21.93	21.81	22.63	22.06	21.94
		RB6#0	22.64	21.72	21.64	22.77	21.85	21.77
		RB6#9	22.49	21.47	21.49	22.62	21.60	21.62
		RB15#0	22.35	21.49	21.35	22.48	21.62	21.48

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
5.0	QPSK	RB1#0	23.15	22.95	22.91	23.28	23.08	23.04
		RB1#13	23.09	22.94	22.87	23.22	23.07	23.00
		RB1#24	22.94	22.87	22.83	23.07	23.00	22.96
		RB15#0	22.09	21.86	21.89	22.22	21.99	22.02
		RB15#10	22.06	21.86	21.86	22.19	21.99	21.99
		RB25#0	22.03	21.85	21.82	22.16	21.98	21.95
	16QAM	RB1#0	22.00	22.19	21.92	22.13	22.32	22.05
		RB1#13	21.94	22.14	21.88	22.07	22.27	22.01
		RB1#24	21.88	22.08	21.85	22.01	22.21	21.98
		RB15#0	21.15	20.88	20.94	21.28	21.01	21.07
		RB15#10	21.12	20.86	20.92	21.25	20.99	21.05
		RB25#0	21.11	20.88	20.89	21.24	21.01	21.02
10.0	QPSK	RB1#0	23.15	22.85	22.90	23.28	22.98	23.03
		RB1#25	23.00	22.90	22.88	23.13	23.03	23.01
		RB1#49	22.89	22.86	22.45	23.02	22.99	22.58
		RB25#0	22.06	21.85	21.83	22.19	21.98	21.96
		RB25#25	21.99	21.82	21.84	22.12	21.95	21.97
		RB50#0	22.02	21.87	21.82	22.15	22.00	21.95
	16QAM	RB1#0	22.63	22.04	21.85	22.76	22.17	21.98
		RB1#25	22.58	21.98	21.85	22.71	22.11	21.98
		RB1#49	22.50	21.93	21.51	22.63	22.06	21.64
		RB25#0	22.24	21.48	21.36	22.37	21.61	21.49
		RB25#25	21.86	21.34	21.42	21.99	21.47	21.55
		RB50#0	22.04	21.28	21.21	22.17	21.41	21.34

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	23.15	22.83	22.88	23.28	22.96	23.01
		RB1#38	22.88	22.89	22.88	23.01	23.02	23.01
		RB1#74	22.82	22.89	22.64	22.95	23.02	22.77
		RB36#0	22.05	21.92	21.85	22.18	22.05	21.98
		RB36#39	21.91	21.87	21.87	22.04	22.00	22.00
		RB75#0	21.99	21.93	21.88	22.12	22.06	22.01
	16QAM	RB1#0	22.60	22.01	22.25	22.73	22.14	22.38
		RB1#38	22.49	21.99	22.25	22.62	22.12	22.38
		RB1#74	22.47	21.95	22.07	22.60	22.08	22.20
		RB36#0	21.07	20.94	20.87	21.20	21.07	21.00
		RB36#39	20.95	20.88	20.87	21.08	21.01	21.00
		RB75#0	21.04	20.93	20.88	21.17	21.06	21.01
20.0	QPSK	RB1#0	23.20	22.92	22.87	23.33	23.05	23.00
		RB1#50	22.93	22.94	22.86	23.06	23.07	22.99
		RB1#99	22.90	22.93	22.61	23.03	23.06	22.74
		RB50#0	22.04	21.89	21.84	22.17	22.02	21.97
		RB50#50	21.90	21.82	21.87	22.03	21.95	22.00
		RB100#0	21.96	21.86	21.81	22.09	21.99	21.94
	16QAM	RB1#0	22.40	22.17	22.38	22.53	22.30	22.51
		RB1#50	22.26	22.07	22.43	22.39	22.20	22.56
		RB1#99	22.22	22.01	22.24	22.35	22.14	22.37
		RB50#0	21.94	21.74	21.86	22.07	21.87	21.99
		RB50#50	21.75	21.58	21.61	21.88	21.71	21.74
		RB100#0	21.68	21.62	21.42	21.81	21.75	21.55

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

For Band 2: Antenna Gain =0.93dBi

Cable loss=0.8dB* (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)	5.04	5.45	5.61	13	Pass
QPSK (100RB Size)	6.86	6.54	6.76	13	Pass
16QAM (1RB Size)	5.94	6.34	6.20	13	Pass
16QAM (100RB Size)	7.83	7.50	7.52	13	Pass

LTE Band 4**Maximum Output Power**

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	23.65	23.93	23.85	23.77	24.05	23.97
		RB1#3	23.68	23.94	23.91	23.80	24.06	24.03
		RB1#5	23.71	23.94	23.86	23.83	24.06	23.98
		RB3#0	23.78	24.07	23.92	23.90	24.19	24.04
		RB3#3	23.79	24.07	23.92	23.91	24.19	24.04
		RB6#0	22.67	22.85	22.75	22.79	22.97	22.87
	16QAM	RB1#0	22.72	23.04	22.77	22.84	23.16	22.89
		RB1#3	22.75	23.05	22.86	22.87	23.17	22.98
		RB1#5	22.73	23.04	22.79	22.85	23.16	22.91
		RB3#0	23.00	23.00	22.92	23.12	23.12	23.04
		RB3#3	23.07	23.02	22.91	23.19	23.14	23.03
		RB6#0	21.74	21.92	21.71	21.86	22.04	21.83
3.0	QPSK	RB1#0	23.63	23.90	23.86	23.75	24.02	23.98
		RB1#8	23.70	23.94	23.90	23.82	24.06	24.02
		RB1#14	23.69	23.93	23.85	23.81	24.05	23.97
		RB6#0	22.67	22.83	22.76	22.79	22.95	22.88
		RB6#9	22.70	22.85	22.77	22.82	22.97	22.89
		RB15#0	22.79	22.93	22.84	22.91	23.05	22.96
	16QAM	RB1#0	23.27	23.02	22.81	23.39	23.14	22.93
		RB1#8	23.32	23.02	22.83	23.44	23.14	22.95
		RB1#14	23.28	23.03	22.78	23.40	23.15	22.90
		RB6#0	21.79	21.89	21.74	21.91	22.01	21.86
		RB6#9	21.83	21.95	21.74	21.95	22.07	21.86
		RB15#0	21.92	21.96	21.94	22.04	22.08	22.06

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
5.0	QPSK	RB1#0	23.73	24.00	23.91	23.85	24.12	24.03
		RB1#13	23.74	23.73	23.90	23.86	23.85	24.02
		RB1#24	23.85	23.83	23.88	23.97	23.95	24.00
		RB15#0	22.64	22.96	22.88	22.76	23.08	23.00
		RB15#10	22.87	22.66	22.86	22.99	22.78	22.98
		RB25#0	22.76	22.88	22.83	22.88	23.00	22.95
	16QAM	RB1#0	22.65	23.23	22.92	22.77	23.35	23.04
		RB1#13	22.57	22.98	22.90	22.69	23.10	23.02
		RB1#24	22.70	23.21	22.85	22.82	23.33	22.97
		RB15#0	21.61	21.97	21.96	21.73	22.09	22.08
		RB15#10	21.88	21.62	21.93	22.00	21.74	22.05
		RB25#0	21.77	21.88	21.91	21.89	22.00	22.03
10.0	QPSK	RB1#0	23.17	24.01	23.91	23.29	24.13	24.03
		RB1#25	23.89	23.60	23.92	24.01	23.72	24.04
		RB1#49	23.73	22.79	23.93	23.85	22.91	24.05
		RB25#0	22.71	22.91	22.88	22.83	23.03	23.00
		RB25#25	22.83	22.34	22.82	22.95	22.46	22.94
		RB50#0	22.87	22.71	22.88	22.99	22.83	23.00
	16QAM	RB1#0	22.72	23.08	22.84	22.84	23.20	22.96
		RB1#25	23.41	22.81	22.86	23.53	22.93	22.98
		RB1#49	23.34	21.96	22.81	23.46	22.08	22.93
		RB25#0	21.70	22.01	22.04	21.82	22.13	22.16
		RB25#25	21.97	21.37	21.97	22.09	21.49	22.09
		RB50#0	21.94	21.73	21.98	22.06	21.85	22.10

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	23.34	23.96	23.50	23.46	24.08	23.62
		RB1#38	23.76	23.64	23.96	23.88	23.76	24.08
		RB1#74	23.92	23.14	23.99	24.04	23.26	24.11
		RB36#0	22.87	22.96	22.94	22.99	23.08	23.06
		RB36#39	22.88	22.31	22.93	23.00	22.43	23.05
		RB75#0	22.87	22.80	22.95	22.99	22.92	23.07
	16QAM	RB1#0	22.96	23.05	22.88	23.08	23.17	23.00
		RB1#38	23.38	22.83	23.32	23.50	22.95	23.44
		RB1#74	23.43	22.33	23.22	23.55	22.45	23.34
		RB36#0	21.91	22.01	21.93	22.03	22.13	22.05
		RB36#39	21.92	21.34	21.94	22.04	21.46	22.06
		RB75#0	21.92	21.87	21.97	22.04	21.99	22.09
20.0	QPSK	RB1#0	23.39	23.98	23.57	23.51	24.10	23.69
		RB1#50	23.82	23.86	23.96	23.94	23.98	24.08
		RB1#99	23.80	23.30	23.94	23.92	23.42	24.06
		RB50#0	22.85	22.95	22.56	22.97	23.07	22.68
		RB50#50	22.93	22.33	22.92	23.05	22.45	23.04
		RB100#0	22.88	22.93	22.94	23.00	23.05	23.06
	16QAM	RB1#0	22.78	23.09	23.16	22.90	23.21	23.28
		RB1#50	23.14	23.04	23.50	23.26	23.16	23.62
		RB1#99	23.24	22.61	23.41	23.36	22.73	23.53
		RB50#0	21.91	22.03	21.53	22.03	22.15	21.65
		RB50#50	21.99	21.36	21.98	22.11	21.48	22.10
		RB100#0	21.96	21.94	22.01	22.08	22.06	22.13

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

For Band 4: Antenna Gain =0.92dBi

Cable loss=0.8dB* (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)	5.46	5.71	5.63	13	Pass
QPSK (100RB Size)	6.68	7.21	6.69	13	Pass
16QAM (1RB Size)	6.09	6.61	6.63	13	Pass
16QAM (100RB Size)	8.00	8.14	7.92	13	Pass

LTE Band 5:**Maximum Output Power**

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
1.4	QPSK	RB1#0	23.74	23.43	23.43	21.90	21.59	21.59
		RB1#3	23.77	23.48	23.45	21.93	21.64	21.61
		RB1#5	23.73	23.42	23.45	21.89	21.58	21.61
		RB3#0	23.83	23.51	23.55	21.99	21.67	21.71
		RB3#3	23.79	23.54	23.55	21.95	21.70	21.71
		RB6#0	22.74	22.42	22.45	20.90	20.58	20.61
	16QAM	RB1#0	22.91	22.48	22.50	21.07	20.64	20.66
		RB1#3	22.93	22.54	22.50	21.09	20.70	20.66
		RB1#5	22.89	22.50	22.51	21.05	20.66	20.67
		RB3#0	22.85	22.63	22.74	21.01	20.79	20.90
		RB3#3	22.84	22.62	22.79	21.00	20.78	20.95
		RB6#0	21.81	21.42	21.49	19.97	19.58	19.65
3.0	QPSK	RB1#0	23.66	23.44	23.38	21.82	21.60	21.54
		RB1#8	23.65	23.44	23.45	21.81	21.60	21.61
		RB1#14	23.41	23.36	23.44	21.57	21.52	21.60
		RB6#0	22.73	22.45	22.38	20.89	20.61	20.54
		RB6#9	22.69	22.39	22.44	20.85	20.55	20.60
		RB15#0	22.78	22.50	22.51	20.94	20.66	20.67
	16QAM	RB1#0	23.30	22.61	22.46	21.46	20.77	20.62
		RB1#8	23.33	22.59	22.49	21.49	20.75	20.65
		RB1#14	23.19	22.54	22.49	21.35	20.70	20.65
		RB6#0	21.83	21.50	21.38	19.99	19.66	19.54
		RB6#9	21.82	21.47	21.43	19.98	19.63	19.59
		RB15#0	21.89	21.51	21.60	20.05	19.67	19.76

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	23.68	23.55	23.42	21.84	21.71	21.58
		RB1#13	23.17	23.49	23.15	21.33	21.65	21.31
		RB1#24	23.24	23.42	23.45	21.40	21.58	21.61
		RB15#0	22.39	22.53	22.07	20.55	20.69	20.23
		RB15#10	22.21	22.49	22.28	20.37	20.65	20.44
		RB25#0	22.32	22.50	22.13	20.48	20.66	20.29
	16QAM	RB1#0	22.71	22.86	22.42	20.87	21.02	20.58
		RB1#13	22.22	22.82	22.25	20.38	20.98	20.41
		RB1#24	22.32	22.74	22.57	20.48	20.90	20.73
		RB15#0	21.53	21.54	21.23	19.69	19.70	19.39
		RB15#10	21.33	21.49	21.44	19.49	19.65	19.60
		RB25#0	21.45	21.53	21.33	19.61	19.69	19.49
10.0	QPSK	RB1#0	23.06	23.73	23.42	21.22	21.89	21.58
		RB1#25	22.34	23.52	23.15	20.50	21.68	21.31
		RB1#49	22.62	23.43	23.47	20.78	21.59	21.63
		RB25#0	21.81	22.58	22.41	19.97	20.74	20.57
		RB25#25	21.65	22.49	22.37	19.81	20.65	20.53
		RB50#0	21.76	22.55	22.47	19.92	20.71	20.63
	16QAM	RB1#0	22.79	22.90	22.47	20.95	21.06	20.63
		RB1#25	22.12	22.68	22.19	20.28	20.84	20.35
		RB1#49	22.44	22.60	22.53	20.60	20.76	20.69
		RB25#0	20.95	21.66	21.57	19.11	19.82	19.73
		RB25#25	20.81	21.54	21.61	18.97	19.70	19.77
		RB50#0	20.90	21.59	21.53	19.06	19.75	19.69

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

For Band5: Antenna Gain =0.81dBi = -1.34dBd (0dBd=2.15dBi)

Cable loss=0.5dB* (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)	6.39	5.47	6.24	13	Pass
QPSK (50RB Size)	7.05	6.64	7.62	13	Pass
16QAM (1RB Size)	7.21	6.06	6.94	13	Pass
16QAM (50RB Size)	7.78	7.82	8.29	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	23.27	23.28	22.61	23.39	23.40	22.73
		RB1#13	23.29	23.27	22.58	23.41	23.39	22.70
		RB1#24	23.26	23.21	22.53	23.38	23.33	22.65
		RB15#0	22.39	22.31	21.71	22.51	22.43	21.83
		RB15#10	22.39	22.28	21.69	22.51	22.40	21.81
		RB25#0	22.35	22.29	21.66	22.47	22.41	21.78
	16QAM	RB1#0	22.22	22.61	21.73	22.34	22.73	21.85
		RB1#13	22.25	22.59	21.71	22.37	22.71	21.83
		RB1#24	22.23	22.54	21.66	22.35	22.66	21.78
		RB15#0	21.41	21.27	20.71	21.53	21.39	20.83
		RB15#10	21.41	21.22	20.67	21.53	21.34	20.79
		RB25#0	21.39	21.28	20.63	21.51	21.40	20.75
10.0	QPSK	RB1#0	23.29	23.37	22.67	23.41	23.49	22.79
		RB1#25	23.32	23.22	22.58	23.44	23.34	22.70
		RB1#49	23.25	23.23	22.63	23.37	23.35	22.75
		RB25#0	22.37	22.37	21.74	22.49	22.49	21.86
		RB25#25	22.51	22.31	21.59	22.63	22.43	21.71
		RB50#0	22.50	22.34	21.66	22.62	22.46	21.78
	16QAM	RB1#0	23.04	22.49	21.74	23.16	22.61	21.86
		RB1#25	23.00	22.42	21.53	23.12	22.54	21.65
		RB1#49	23.07	22.40	21.63	23.19	22.52	21.75
		RB25#0	21.44	21.34	20.78	21.56	21.46	20.90
		RB25#25	21.48	21.30	20.72	21.60	21.42	20.84
		RB50#0	21.44	21.32	20.70	21.56	21.44	20.82

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	23.62	23.35	22.79	23.74	23.47	22.91
		RB1#38	23.42	23.28	22.61	23.54	23.40	22.73
		RB1#74	23.45	23.24	22.60	23.57	23.36	22.72
		RB36#0	22.55	22.43	21.75	22.67	22.55	21.87
		RB36#39	22.53	22.34	21.67	22.65	22.46	21.79
		RB75#0	22.58	22.42	21.72	22.70	22.54	21.84
	16QAM	RB1#0	22.98	22.52	22.28	23.10	22.64	22.40
		RB1#38	23.07	22.41	22.07	23.19	22.53	22.19
		RB1#74	23.07	22.46	22.04	23.19	22.58	22.16
		RB36#0	21.50	21.30	20.69	21.62	21.42	20.81
		RB36#39	21.51	21.32	20.45	21.63	21.44	20.57
		RB75#0	21.50	21.36	20.62	21.62	21.48	20.74
20.0	QPSK	RB1#0	23.45	23.43	22.94	23.57	23.55	23.06
		RB1#50	23.48	23.36	22.66	23.60	23.48	22.78
		RB1#99	23.47	23.26	22.63	23.59	23.38	22.75
		RB50#0	22.58	22.44	21.92	22.70	22.56	22.04
		RB50#50	22.58	22.35	21.76	22.70	22.47	21.88
		RB100#0	22.56	22.38	21.82	22.68	22.50	21.94
	16QAM	RB1#0	22.80	22.65	22.60	22.92	22.77	22.72
		RB1#50	22.85	22.53	22.31	22.97	22.65	22.43
		RB1#99	22.85	22.52	22.26	22.97	22.64	22.38
		RB50#0	21.54	21.41	20.89	21.66	21.53	21.01
		RB50#50	21.55	21.26	20.70	21.67	21.38	20.82
		RB100#0	21.54	21.32	20.78	21.66	21.44	20.90

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

For Band 7: Antenna Gain =0.92dBi

Cable loss=0.8dB* (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)	4.26	6.93	5.17	13	Pass
QPSK (100RB Size)	6.79	7.01	6.64	13	Pass
16QAM (1RB Size)	5.11	5.26	6.20	13	Pass
16QAM (100RB Size)	8.05	7.94	7.56	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
5.0	QPSK	RB1#0	22.70	23.86	23.75	20.74	21.90	21.79
		RB1#13	22.98	23.49	23.21	21.02	21.53	21.25
		RB1#24	23.62	23.70	23.24	21.66	21.74	21.28
		RB15#0	21.81	22.58	22.47	19.85	20.62	20.51
		RB15#10	22.27	22.54	22.18	20.31	20.58	20.22
		RB25#0	22.08	22.57	22.31	20.12	20.61	20.35
	16QAM	RB1#0	21.81	23.16	22.83	19.85	21.20	20.87
		RB1#13	22.07	22.99	22.35	20.11	21.03	20.39
		RB1#24	22.69	23.04	22.33	20.73	21.08	20.37
		RB15#0	21.07	21.67	21.61	19.11	19.71	19.65
		RB15#10	21.56	21.65	21.34	19.60	19.69	19.38
		RB25#0	21.35	21.72	21.49	19.39	19.76	19.53
10.0	QPSK	RB1#0	22.88	23.30	23.52	20.92	21.34	21.56
		RB1#25	23.41	23.37	23.33	21.45	21.41	21.37
		RB1#49	22.97	22.80	22.70	21.01	20.84	20.74
		RB25#0	22.28	22.45	22.56	20.32	20.49	20.60
		RB25#25	22.36	22.28	22.16	20.40	20.32	20.20
		RB50#0	22.33	22.38	22.40	20.37	20.42	20.44
	16QAM	RB1#0	22.59	22.51	22.60	20.63	20.55	20.64
		RB1#25	23.26	22.75	22.49	21.30	20.79	20.53
		RB1#49	22.75	22.09	21.85	20.79	20.13	19.89
		RB25#0	21.45	21.61	21.76	19.49	19.65	19.80
		RB25#25	21.59	21.47	21.44	19.63	19.51	19.48
		RB50#0	21.51	21.56	21.57	19.55	19.60	19.61

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

Antenna Gain = 0.69dBi = -1.46dBd (0dBd=2.15dBi)

Cable loss=0.5dB* (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)	6.87	6.34	6.47	13	Pass
QPSK (50RB Size)	6.93	6.75	7.21	13	Pass
16QAM (1RB Size)	7.80	6.73	7.22	13	Pass
16QAM (50RB Size)	7.97	7.99	8.50	13	Pass

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

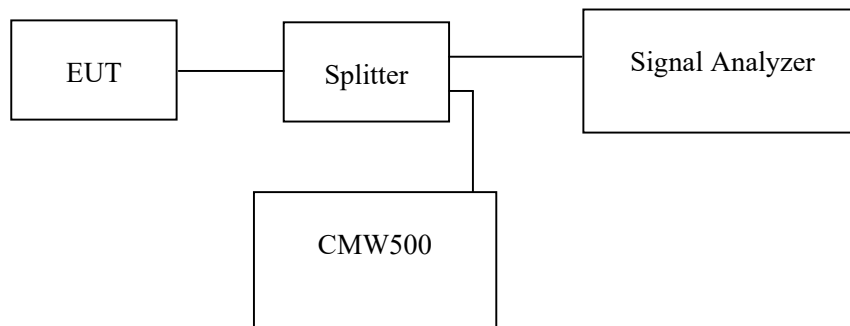
Applicable Standard

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:	28.5~29.2 °C
Relative Humidity:	51~53 %
ATM Pressure:	101.0 ~102.0kPa

The testing was performed by Pedro Yun on 2021-08-12 and 2021-08-13.

EUT operation mode: Transmitting

Test Result: Pass

Please refer to the following tables and plots.

Cellular Band (Part 22H)

Mode	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM(GMSK)	824.2	245.19	324.04
	836.6	245.19	320.19
	848.8	245.19	316.35

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

PCS Band (Part 24E)

Mode	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM(GMSK)	1850.2	245.19	315.38
	1880.0	245.19	322.44
	1909.8	243.59	316.03

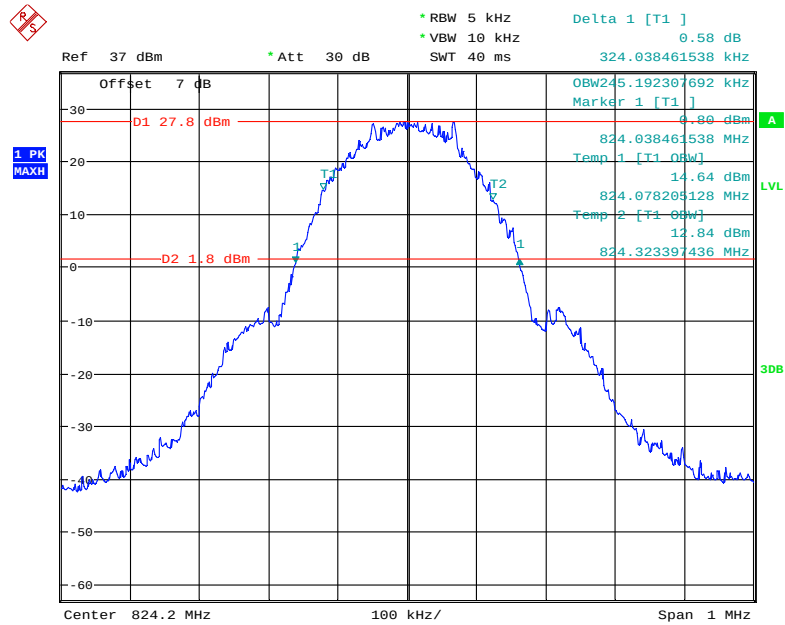
	Frequency (MHz)	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	1852.4	4.20	4.87
	1880.0	4.21	4.88
	1907.6	4.20	4.84
HSDPA	1852.4	4.23	4.89
	1880.0	4.23	4.88
	1907.6	4.21	4.85
HSUPA	1852.4	4.23	4.88
	1880.0	4.21	4.87
	1907.6	4.21	4.87

AWS Band (Part 27)

Frequency (MHz)		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	1712.4	4.20	4.86
	1732.6	4.21	4.86
	1752.6	4.20	4.86
HSDPA	1712.4	4.23	4.86
	1732.6	4.21	4.89
	1752.6	4.25	5.02
HSUPA	1712.4	4.21	4.86
	1732.6	4.21	4.87
	1752.6	4.23	4.86

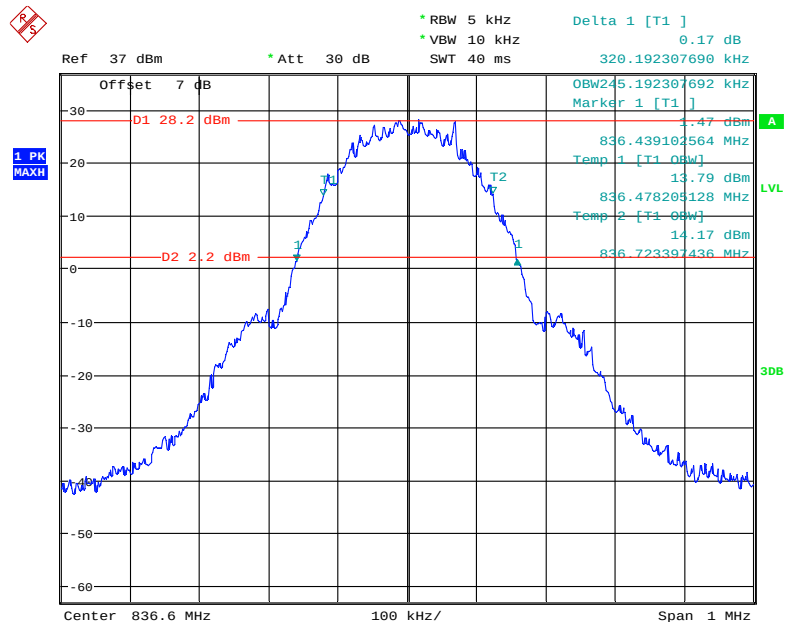
Cellular Band (Part 22H)

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



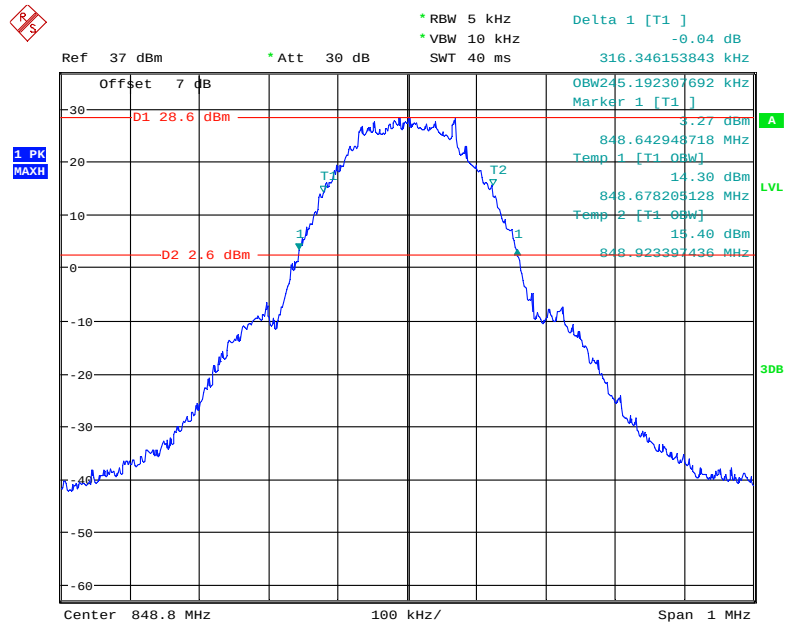
Date: 12.AUG.2021 21:42:46

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



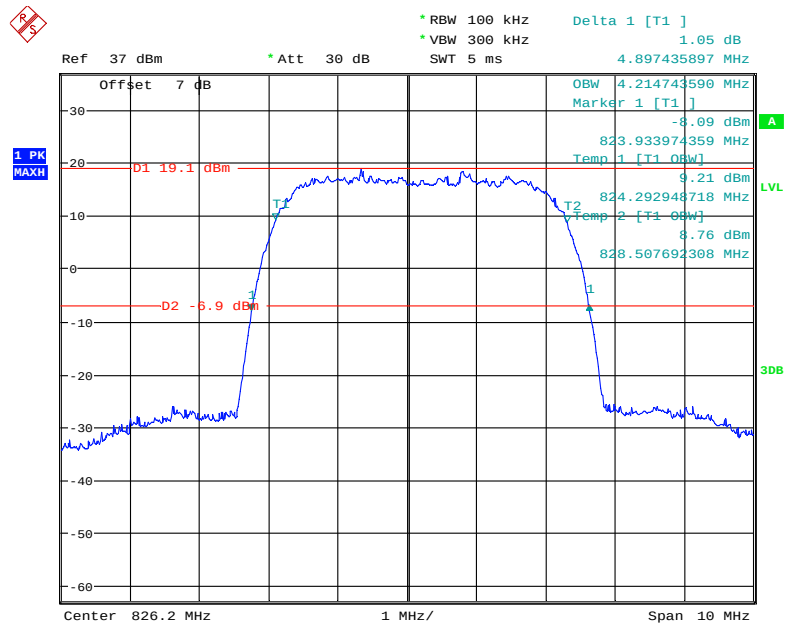
Date: 12.AUG.2021 21:44:56

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



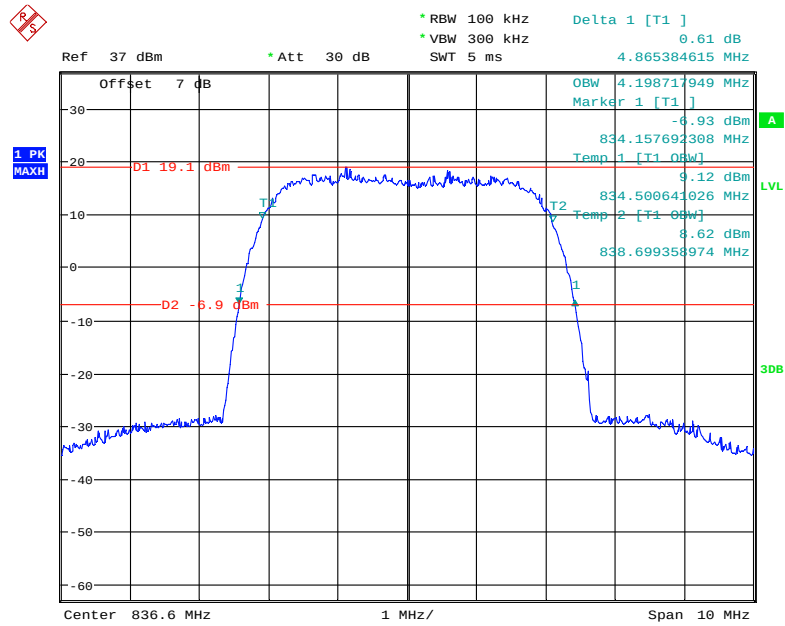
Date: 12.AUG.2021 21:40:08

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



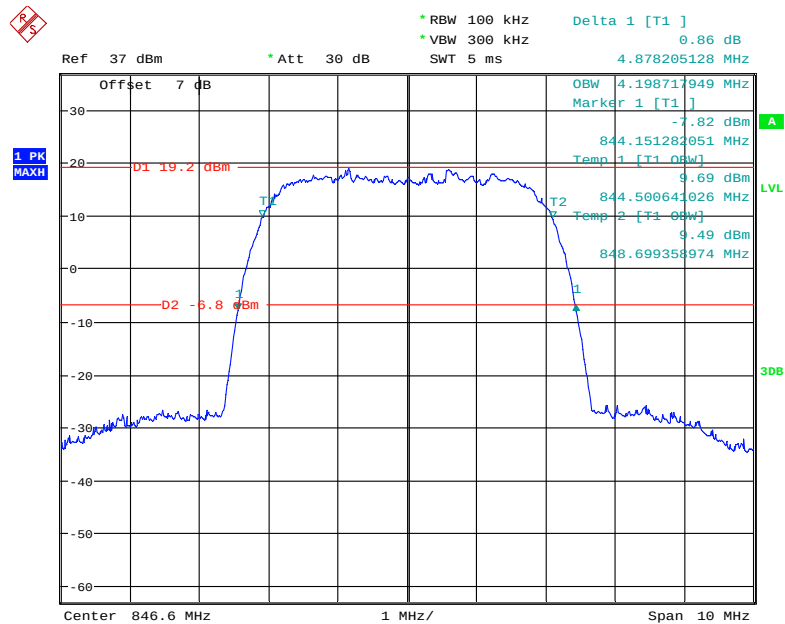
Date: 12.AUG.2021 20:10:22

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

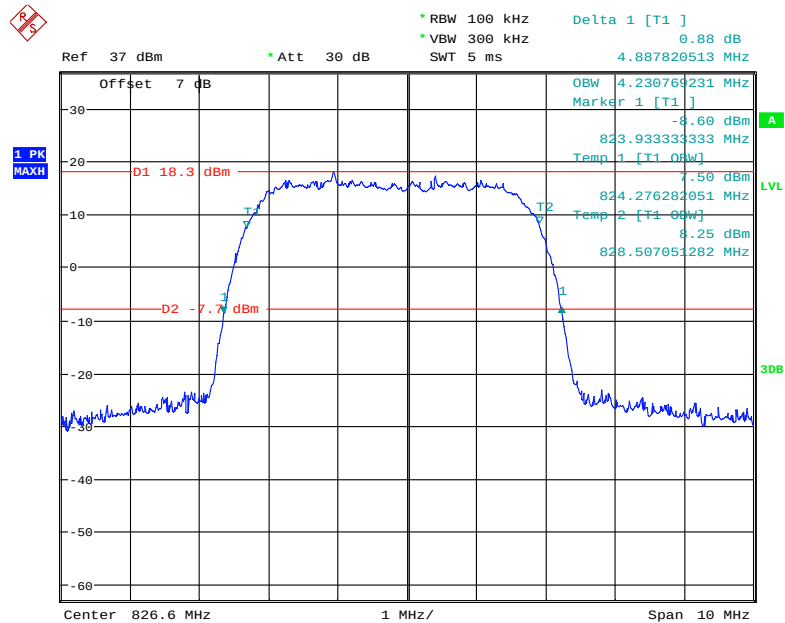


Date: 12.AUG.2021 20:12:34

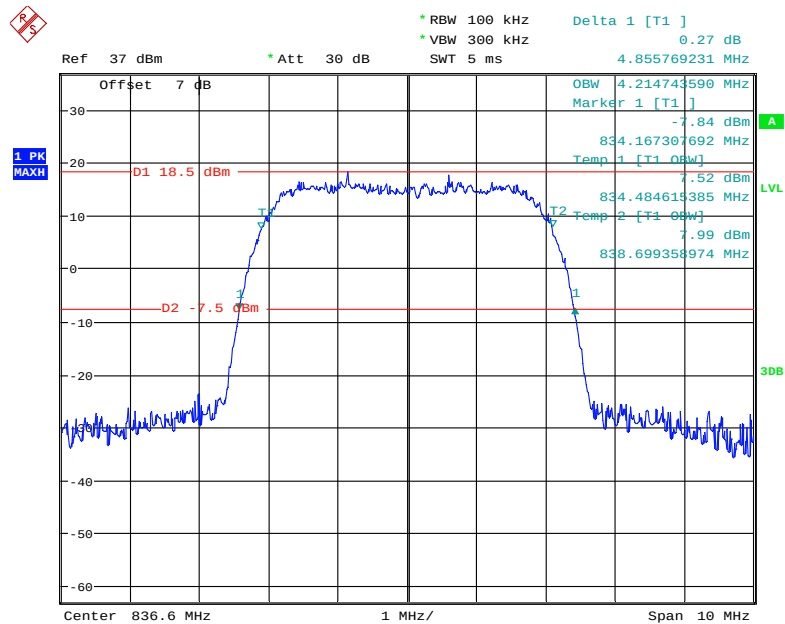
26 dB Emissions & 99% Occupied Bandwidth for RMC (BPSK) Mode, High channel



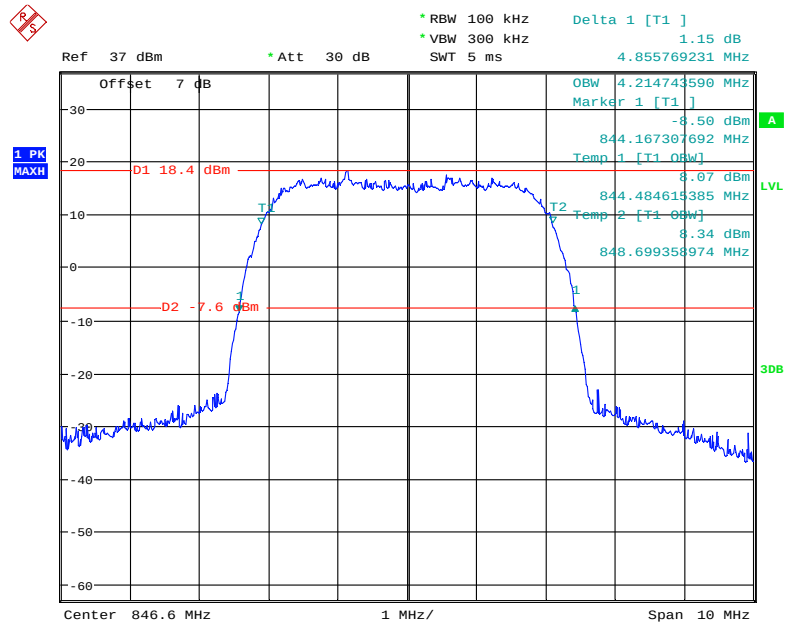
Date: 12.AUG.2021 20:08:06

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

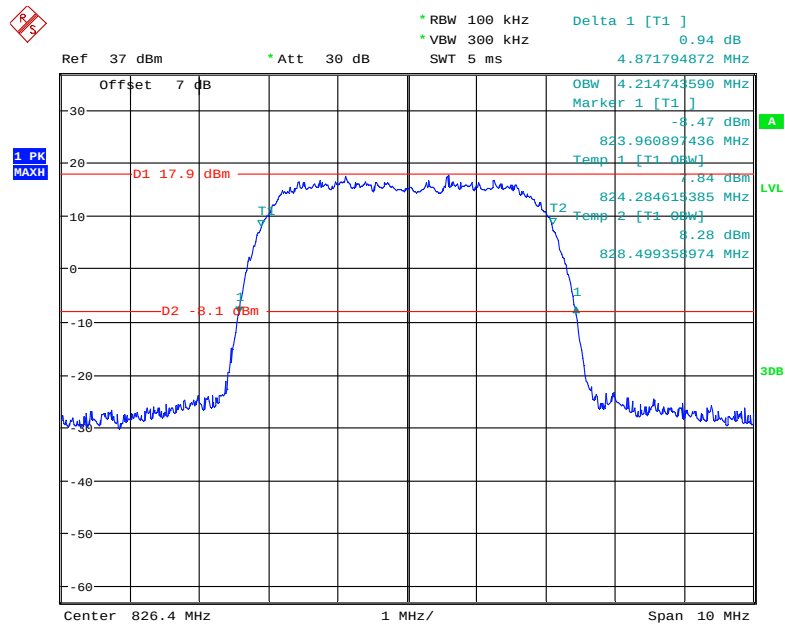
Date: 12.AUG.2021 20:57:07

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

Date: 12.AUG.2021 20:58:43

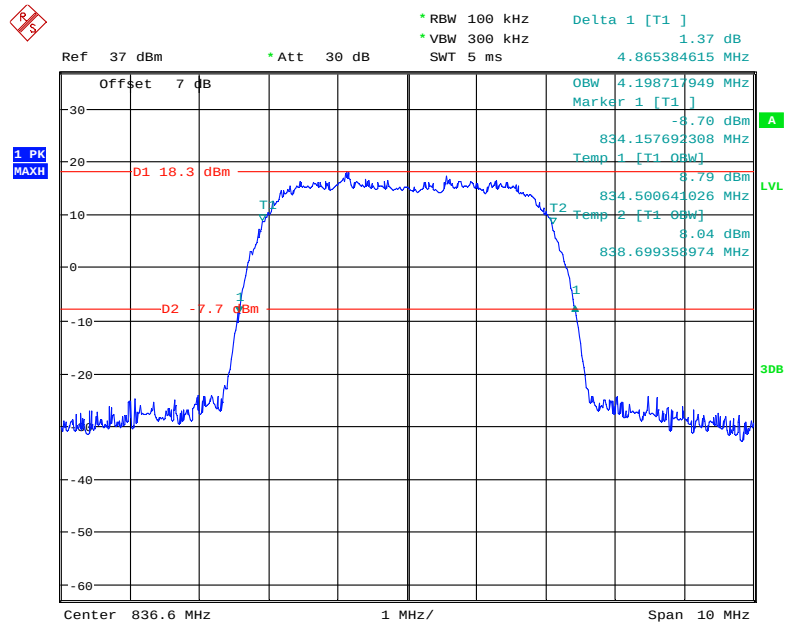
26 dB Emissions & 99% Occupied Bandwidth for HSUPA (BPSK) Mode, High channel

Date: 12.AUG.2021 20:54:36

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

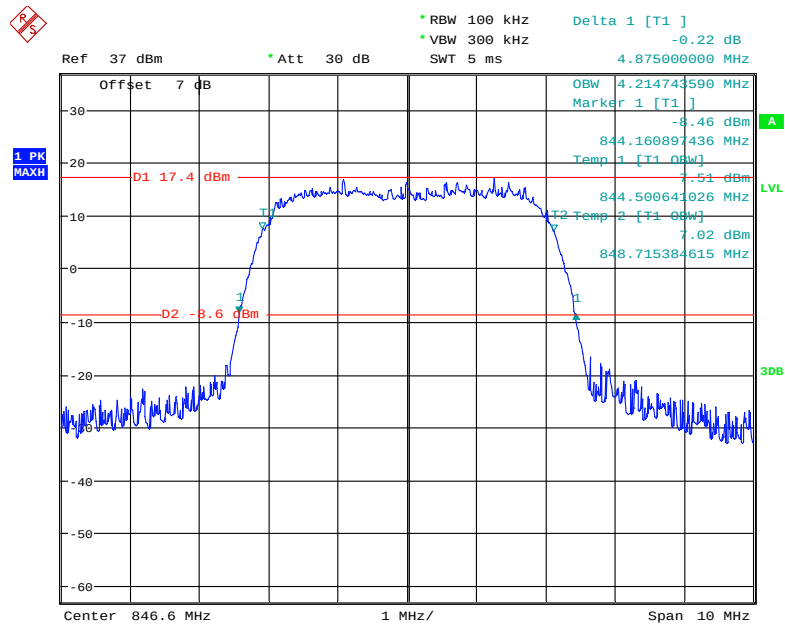
Date: 12.AUG.2021 20:36:00

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



Date: 12.AUG.2021 20:39:15

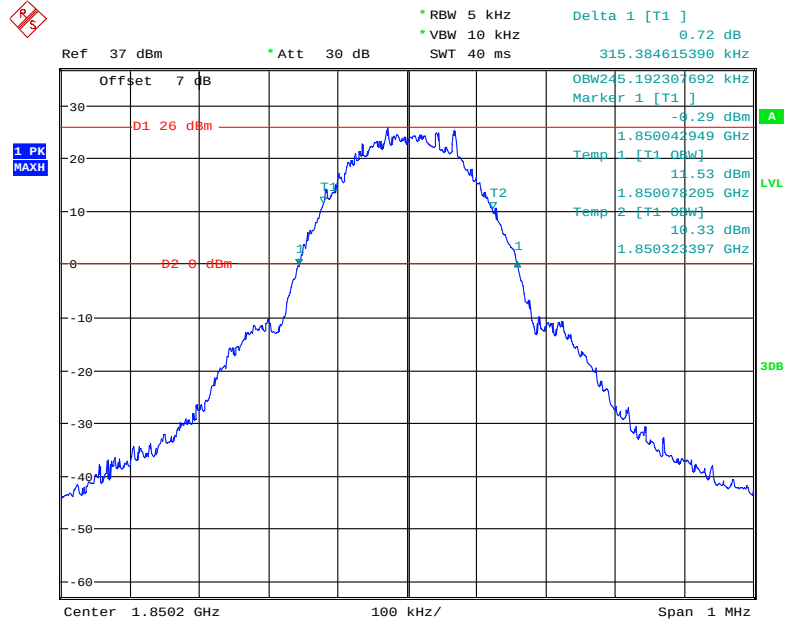
26 dB Emissions & 99% Occupied Bandwidth for HSDPA (16QAM) Mode, High channel



Date: 12.AUG.2021 20:32:33

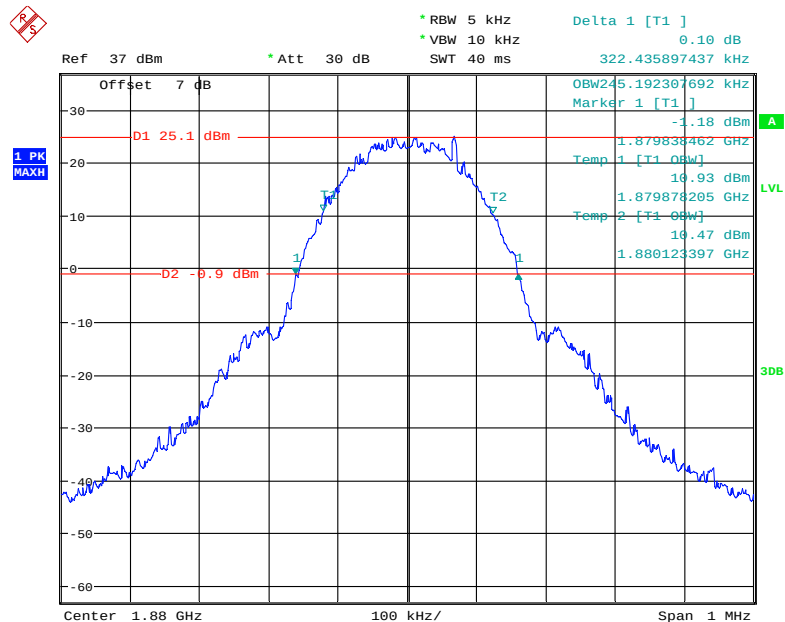
PCS Band (Part 24E)

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

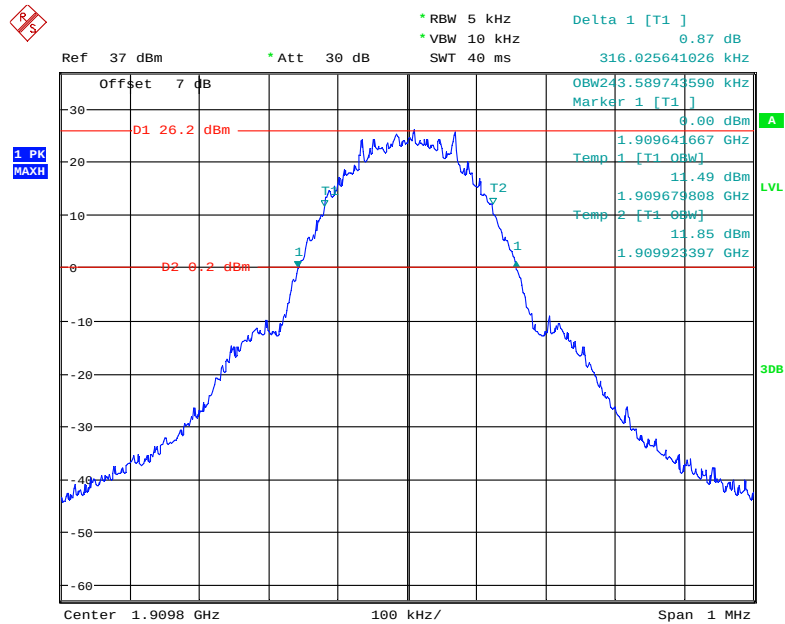


Date: 12.AUG.2021 21:54:58

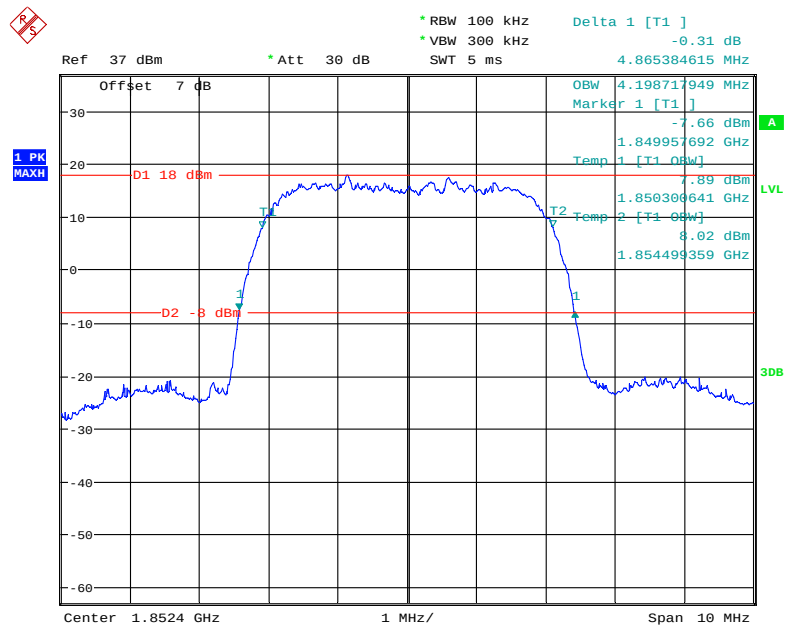
26 dB Emissions & 99% Occupied Bandwidth for GSM (GMSK) Mode, Middle channel



Date: 12.AUG.2021 21:56:52

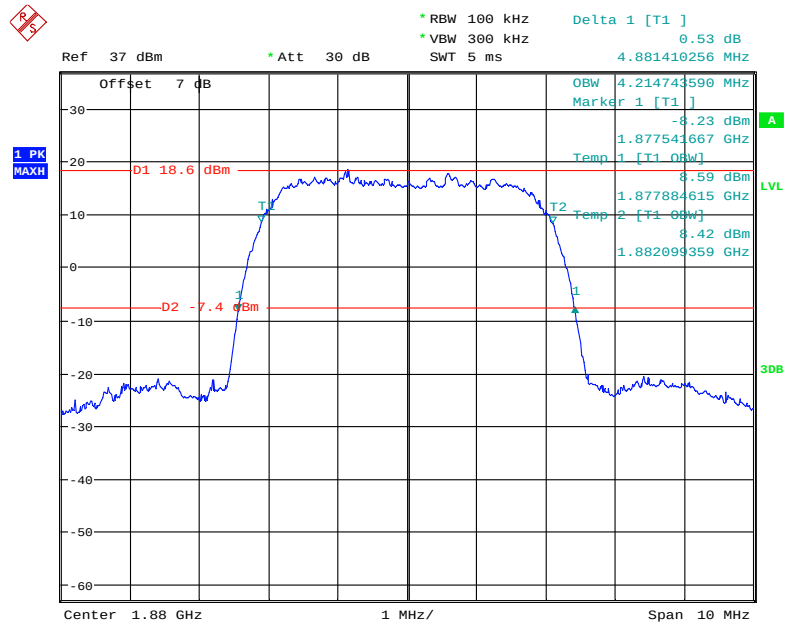
26 dB Emissions & 99% Occupied Bandwidth for GSM (GMSK) Mode, High channel

Date: 12.AUG.2021 21:51:17

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

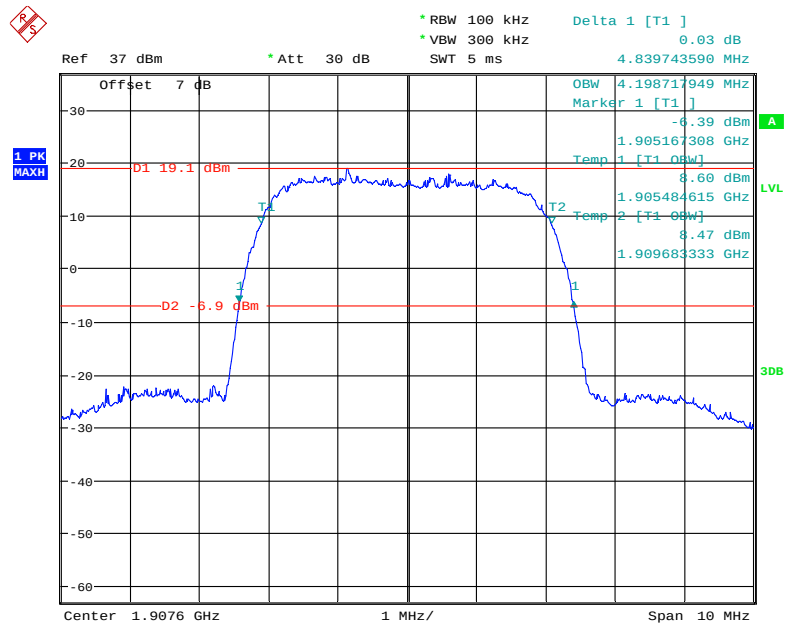
Date: 12.AUG.2021 19:54:02

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



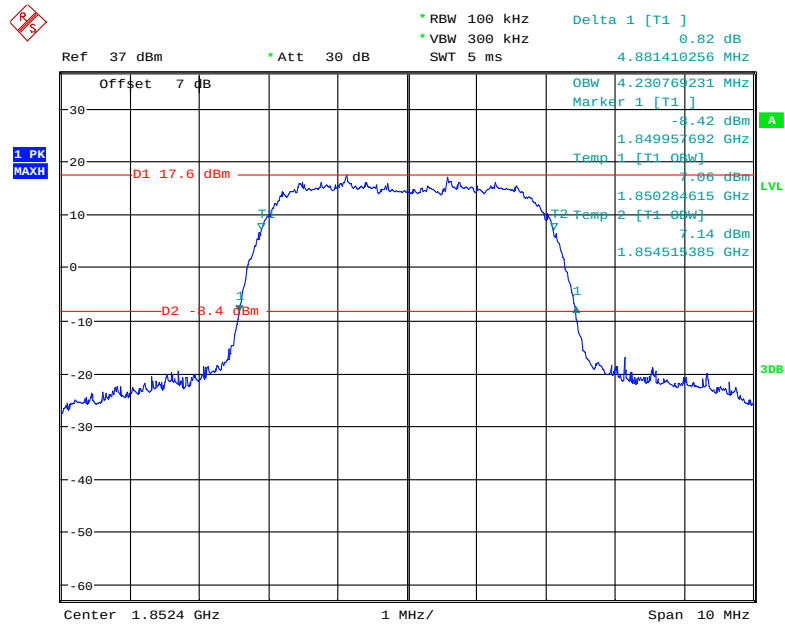
Date: 12.AUG.2021 19:55:39

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



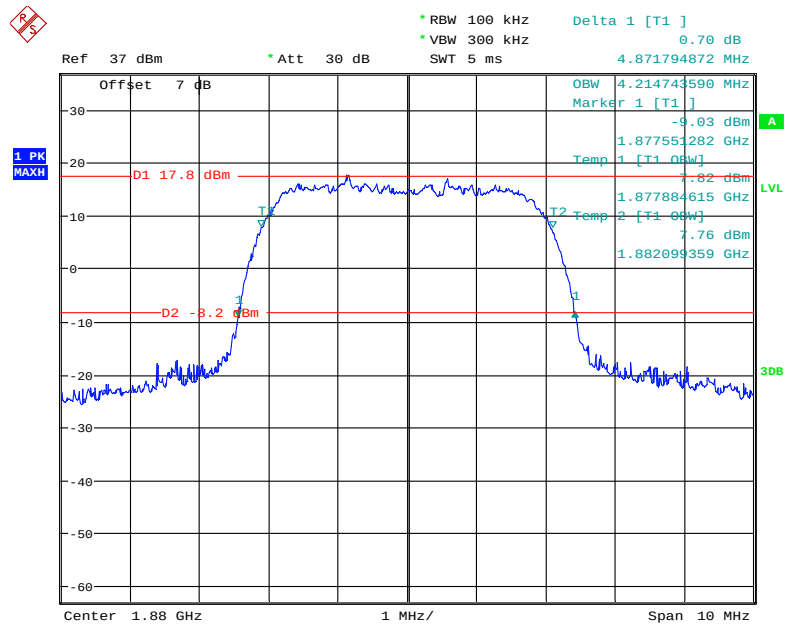
Date: 12.AUG.2021 19:51:51

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

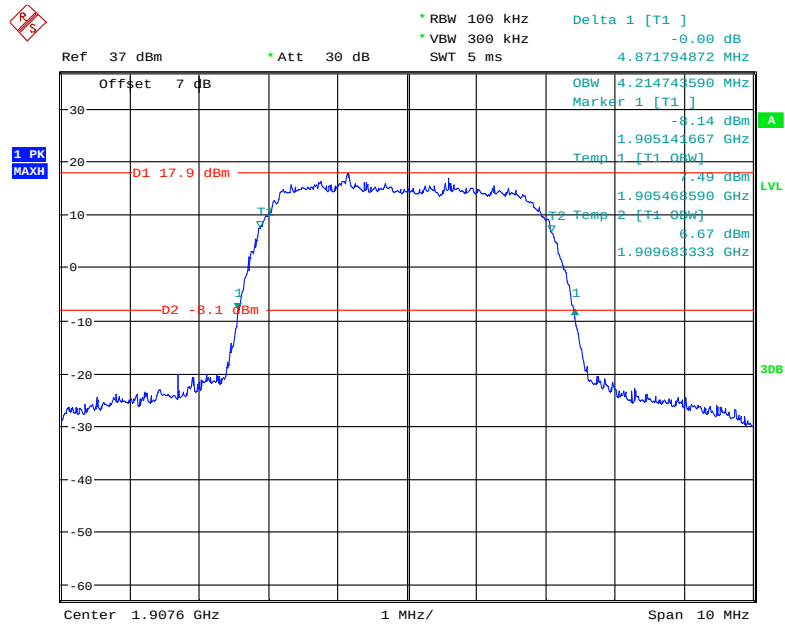


Date: 12.AUG.2021 20:44:31

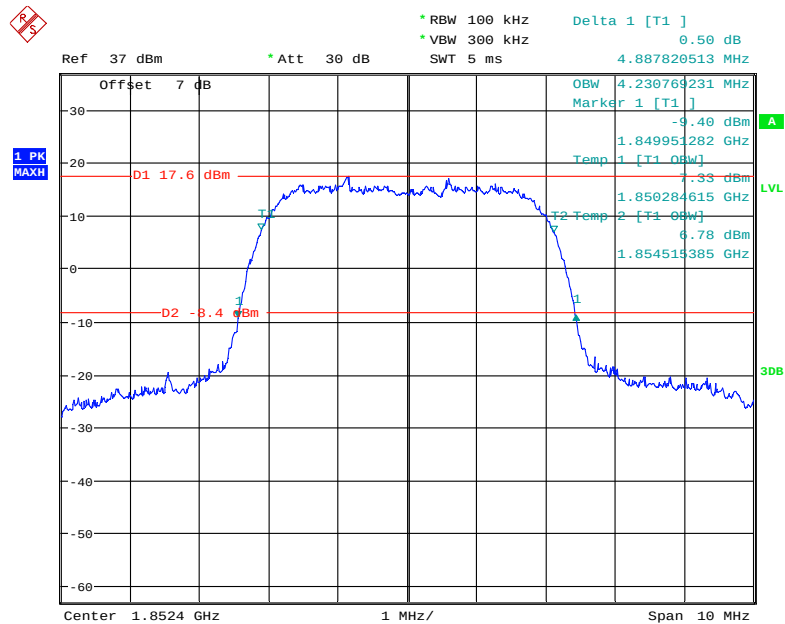
26 dB Emissions & 99% Occupied Bandwidth for HSUPA (BPSK) Mode, Middle channel



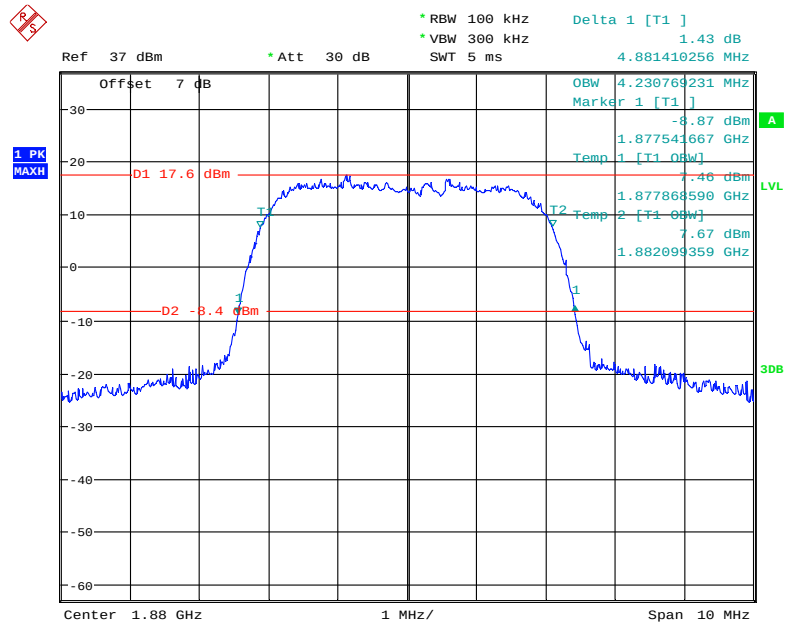
Date: 12.AUG.2021 20:46:13

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

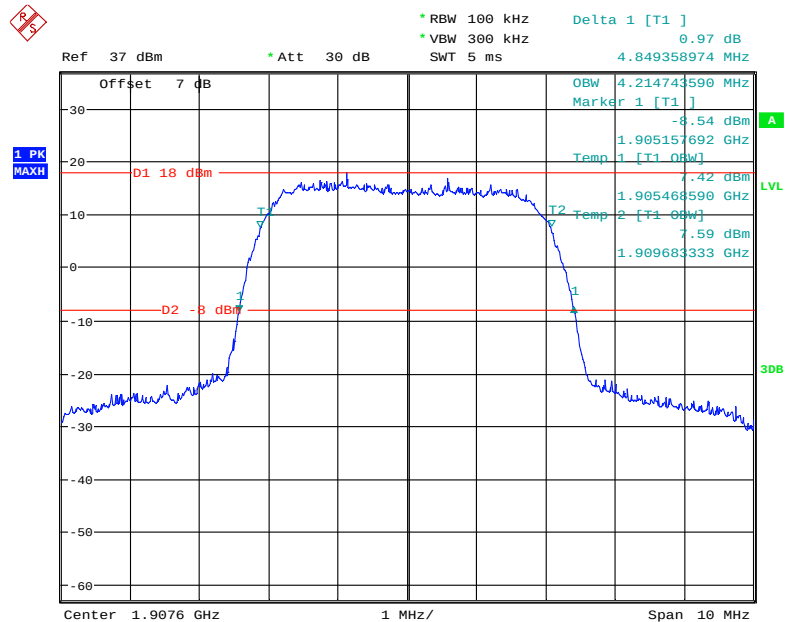
Date: 12.AUG.2021 20:42:26

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

Date: 12.AUG.2021 20:18:33

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

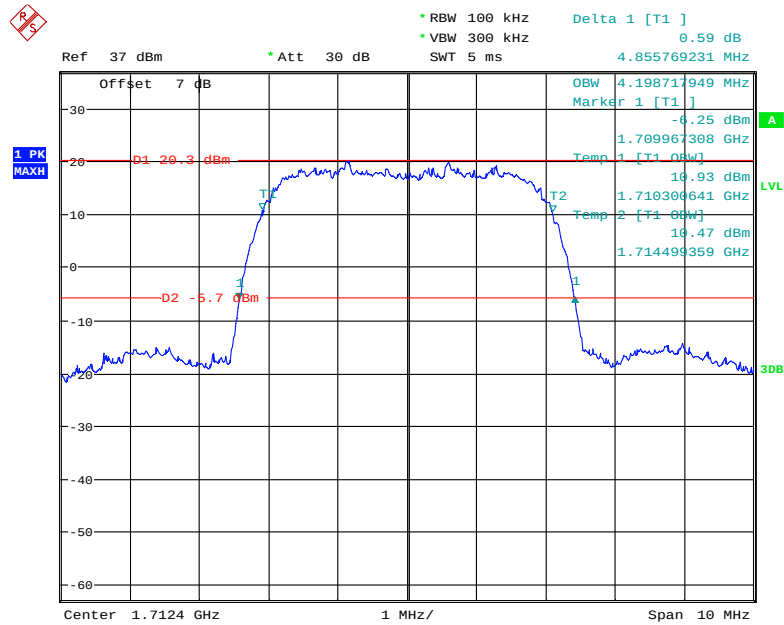
Date: 12.AUG.2021 20:20:15

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

Date: 12.AUG.2021 20:16:24

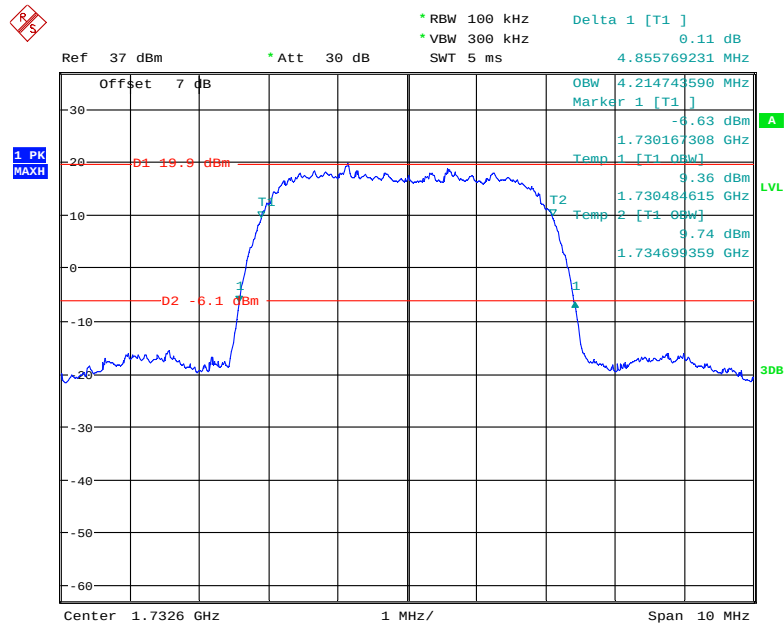
AWS Band (Part 27)

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

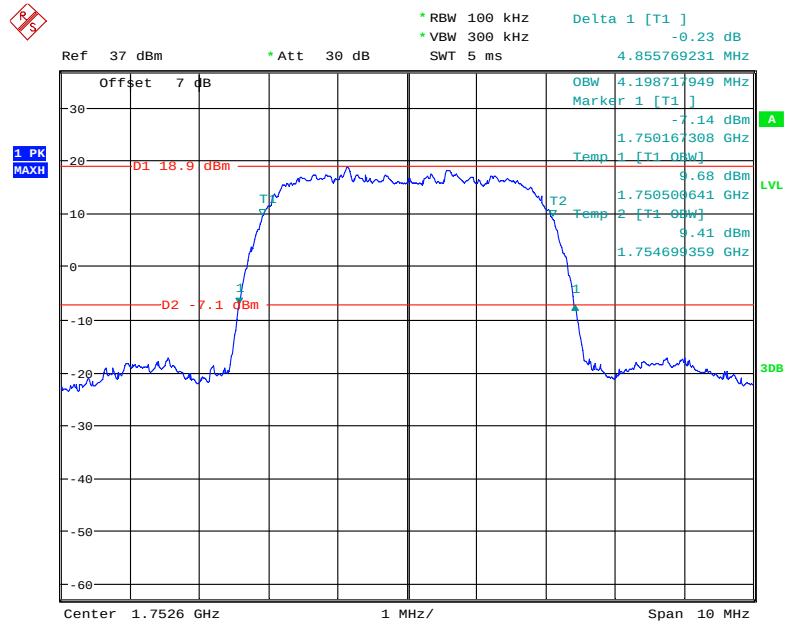


Date: 12.AUG.2021 20:01:35

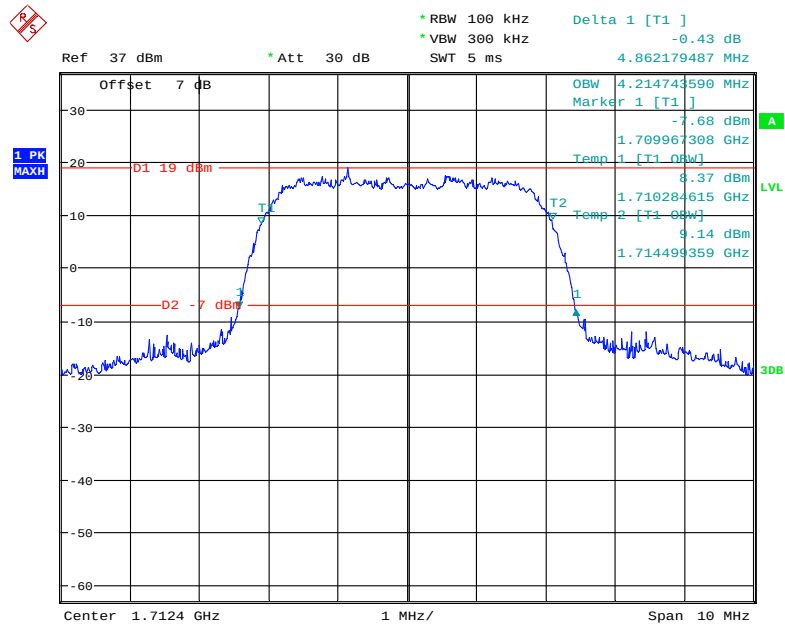
26 dB Emissions & 99% Occupied Bandwidth for RMC (BPSK) Mode, Middle channel



Date: 12.AUG.2021 20:04:13

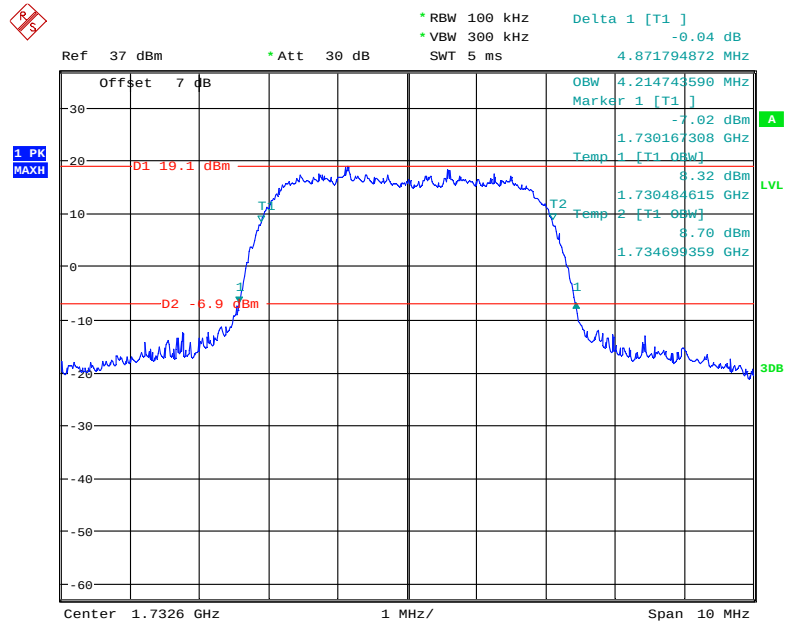
26 dB Emissions & 99% Occupied Bandwidth for RMC (BPSK) Mode, High channel

Date: 12.AUG.2021 19:58:53

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

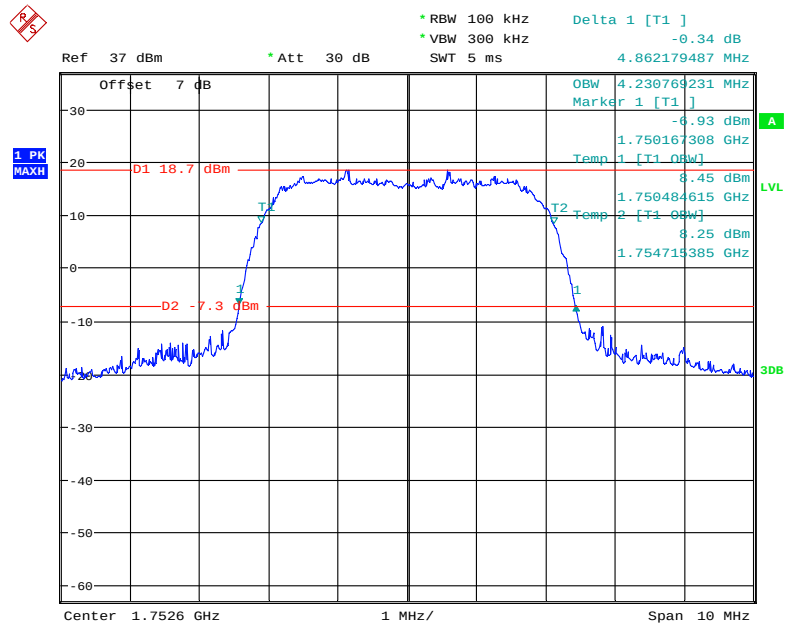
Date: 12.AUG.2021 20:50:48

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

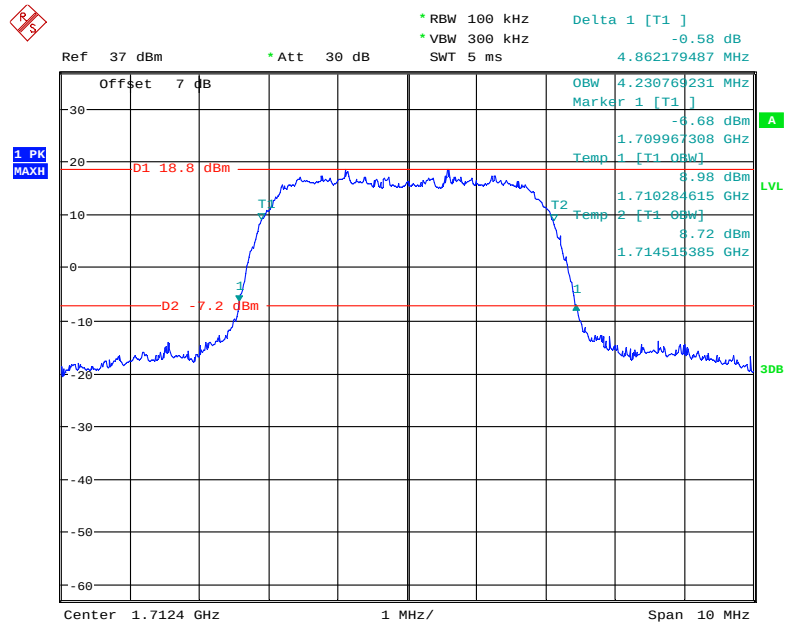


Date: 12.AUG.2021 20:52:12

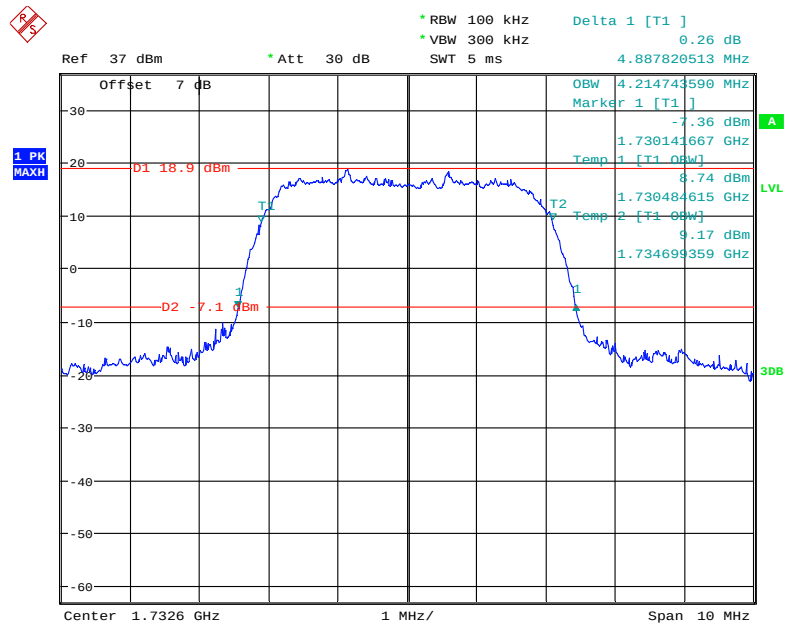
26 dB Emissions & 99% Occupied Bandwidth for HSUPA (BPSK) Mode, High channel



Date: 12.AUG.2021 20:48:26

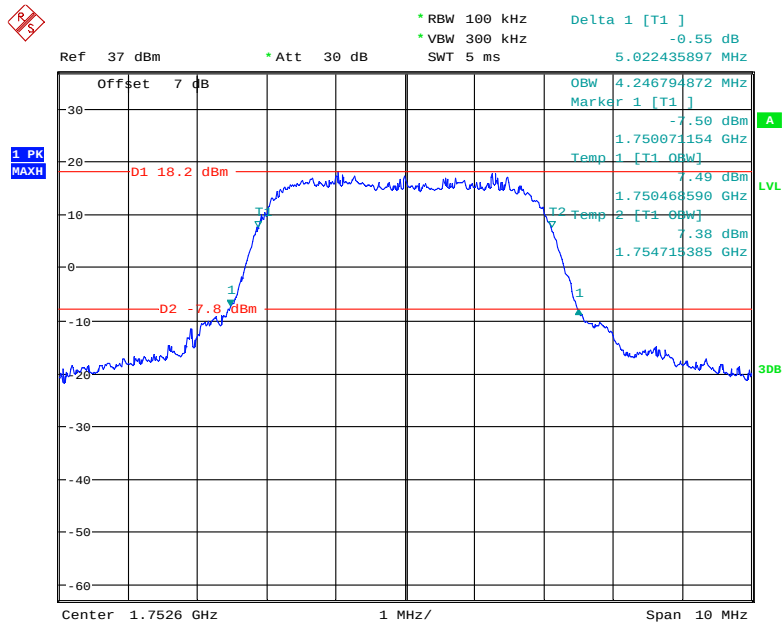
26 dB Emissions & 99% Occupied Bandwidth for HSDPA (16QAM) Mode, Low channel

Date: 12.AUG.2021 20:27:25

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

Date: 12.AUG.2021 20:29:48

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



Date: 12.AUG.2021 20:20:47

LTE Band 2:

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
1.4 MHz	QPSK	1.098	1.284	1.104	1.296	1.104	1.284
	16QAM	1.110	1.284	1.098	1.278	1.098	1.278
3 MHz	QPSK	2.700	2.928	2.688	2.928	2.688	2.928
	16QAM	2.700	2.952	2.688	2.952	2.688	2.916
5 MHz	QPSK	4.540	5.080	4.540	5.100	4.520	5.000
	16QAM	4.520	5.040	4.560	5.100	4.540	5.080
10 MHz	QPSK	8.960	9.760	8.960	9.640	8.960	9.720
	16QAM	8.960	9.720	8.960	9.720	8.960	9.760
15 MHz	QPSK	13.620	15.000	13.500	14.880	13.500	15.060
	16QAM	13.560	15.000	13.500	14.940	13.560	15.000
20 MHz	QPSK	18.000	19.520	18.000	19.520	17.920	19.520
	16QAM	18.000	19.600	17.920	19.520	18.000	19.680

LTE Band 4:

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
1.4 MHz	QPSK	1.098	1.284	1.104	1.290	1.110	1.266
	16QAM	1.110	1.296	1.098	1.290	1.104	1.290
3 MHz	QPSK	2.688	2.928	2.700	2.928	2.688	2.940
	16QAM	2.688	2.952	2.688	2.940	2.688	2.928
5 MHz	QPSK	4.560	5.100	4.540	5.080	4.520	5.080
	16QAM	4.540	5.040	4.540	5.100	4.560	5.120
10 MHz	QPSK	8.960	9.840	8.960	9.720	8.960	9.680
	16QAM	8.960	9.760	8.960	9.720	8.960	9.760
15 MHz	QPSK	13.620	15.180	13.500	14.940	13.560	15.060
	16QAM	13.560	15.000	13.500	14.940	13.560	15.000
20 MHz	QPSK	18.000	19.600	18.000	19.520	18.080	19.680
	16QAM	18.080	19.600	18.000	19.600	18.000	19.600

LTE Band 5:

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
1.4 MHz	QPSK	1.098	1.278	1.110	1.278	1.110	1.266
	16QAM	1.110	1.284	1.098	1.266	1.104	1.278
3 MHz	QPSK	2.688	2.928	2.688	2.916	2.688	2.940
	16QAM	2.688	2.940	2.688	2.928	2.688	2.916
5 MHz	QPSK	4.560	5.060	4.540	5.060	4.540	5.020
	16QAM	4.540	5.060	4.520	5.100	4.540	5.100
10 MHz	QPSK	9.000	9.800	8.960	9.640	9.000	9.680
	16QAM	8.960	9.760	8.960	9.680	9.000	9.840

LTE Band 7:

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
5 MHz	QPSK	4.540	5.040	4.540	5.060	4.520	5.060
	16QAM	4.520	5.080	4.560	5.080	4.540	5.160
10 MHz	QPSK	8.960	9.720	8.960	9.640	8.960	9.720
	16QAM	8.960	9.600	8.960	9.800	8.960	9.800
15 MHz	QPSK	13.560	15.000	13.500	14.940	13.500	15.000
	16QAM	13.500	15.000	13.500	14.940	13.500	14.940
20 MHz	QPSK	18.000	19.600	18.000	19.600	18.000	19.680
	16QAM	18.000	19.600	18.000	19.520	18.000	19.680

LTE Band 17

Bandwidth	Modulation	Low channel		Middle channel		High channel	
		OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)	OBW (MHz)	26dB EBW (MHz)
5 MHz	QPSK	4.540	5.120	4.520	5.060	4.520	5.080
	16QAM	4.520	5.000	4.520	5.060	4.560	5.100
10 MHz	QPSK	8.960	9.800	8.960	9.680	8.960	9.840
	16QAM	8.960	9.680	8.960	9.720	8.960	9.800

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

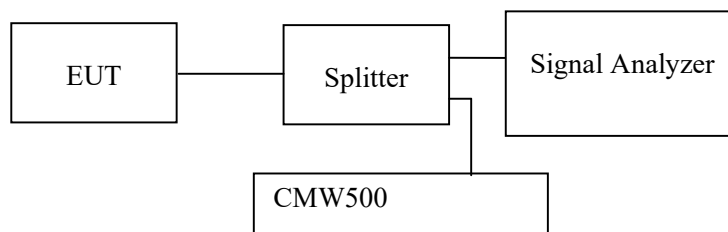
Applicable Standard

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:	28.5~29.2 °C
Relative Humidity:	51~53 %
ATM Pressure:	101.0 ~102.0kPa

The testing was performed by Pedro Yun on 2021-08-12 and 2021-08-13.

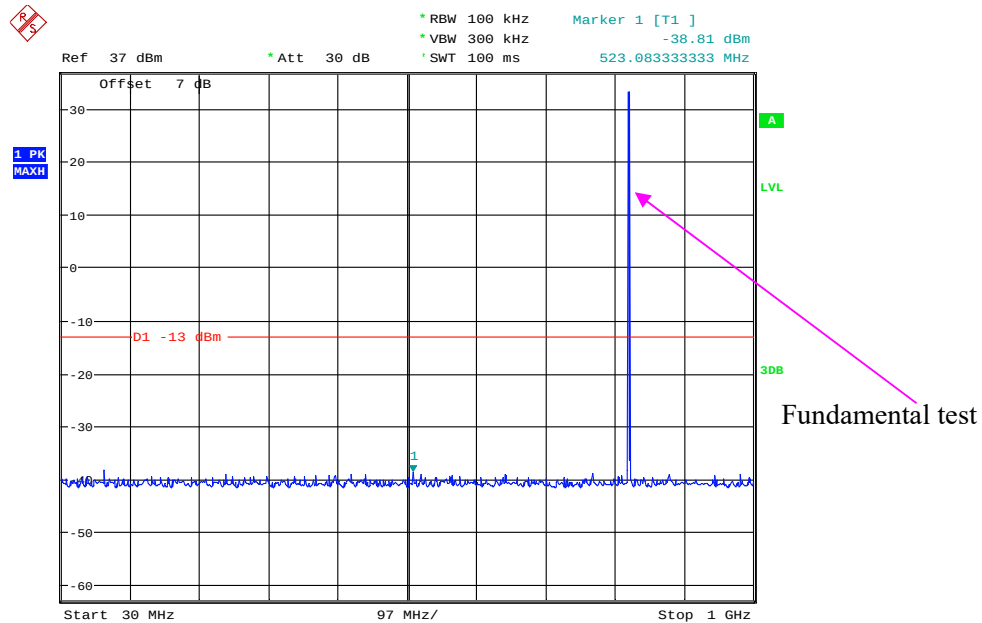
EUT operation mode: Transmitting

Test result: Pass

Please refer to the following plots.

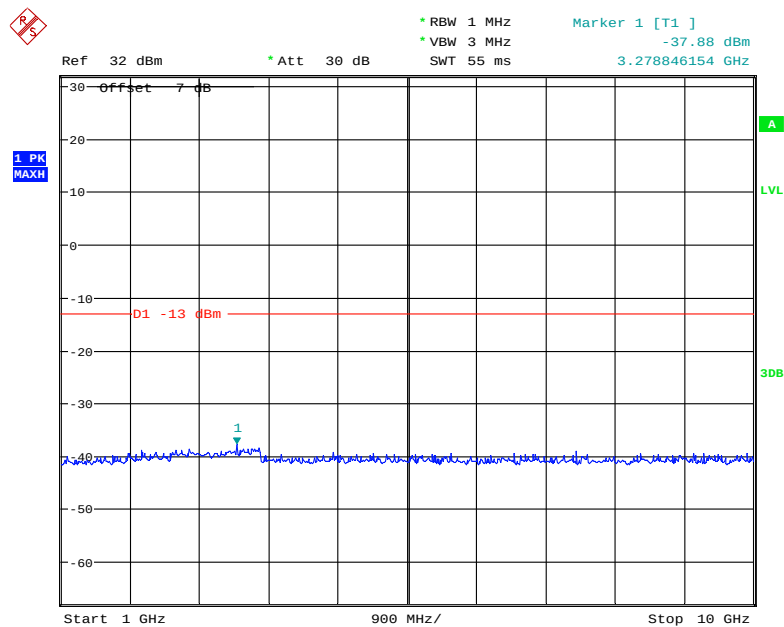
Cellular Band (Part 22H)
Low Channel:

30 MHz – 1 GHz (GSM Mode)



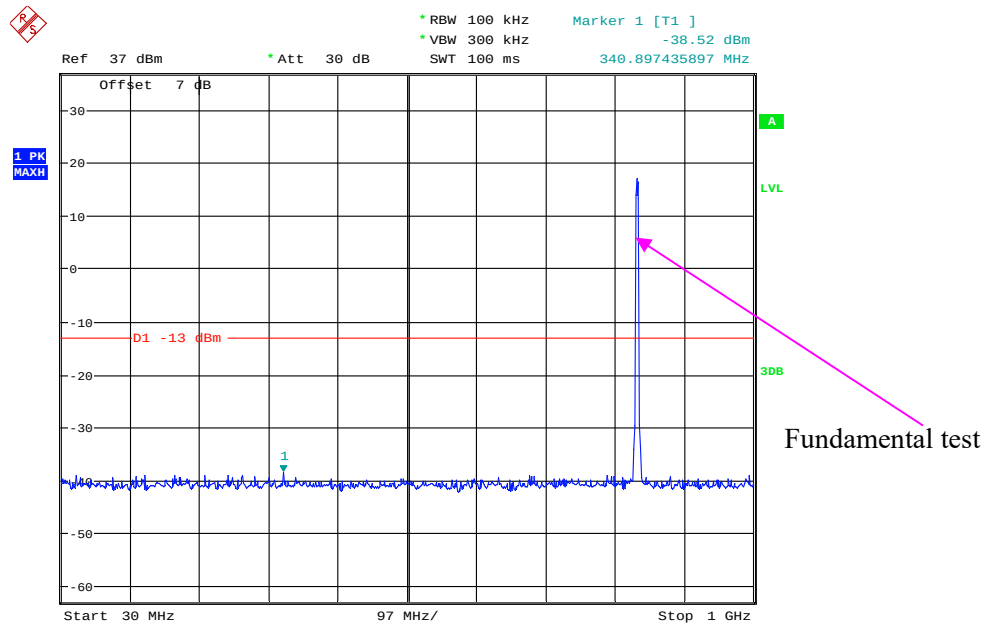
Date: 12.AUG.2021 23:08:32

1 GHz – 10 GHz (GSM Mode)



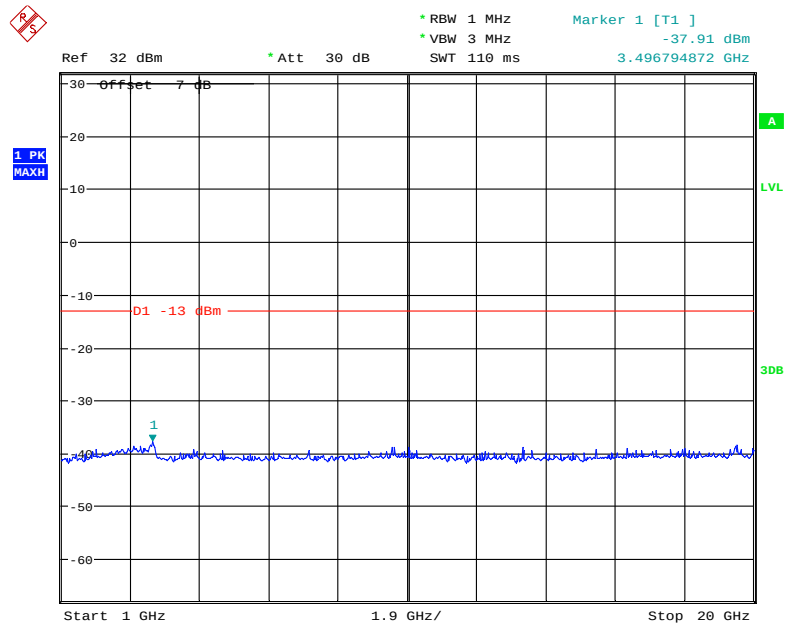
Date: 11.AUG.2021 23:08:04

30 MHz – 1 GHz (WCDMA Mode)



Date: 12.AUG.2021 21:29:09

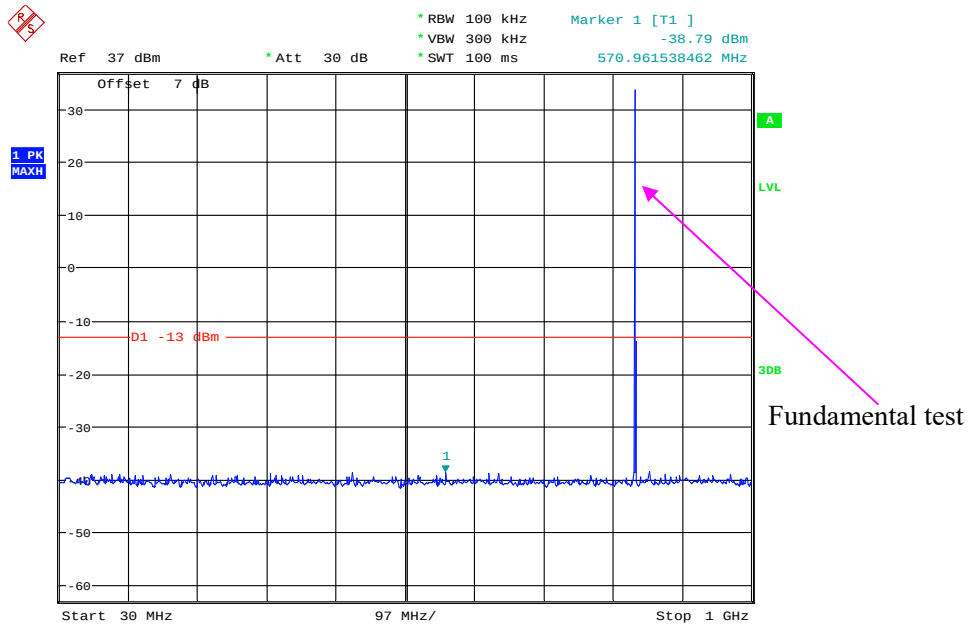
1 GHz – 20 GHz (WCDMA Mode)



Date: 12.AUG.2021 02:57:03

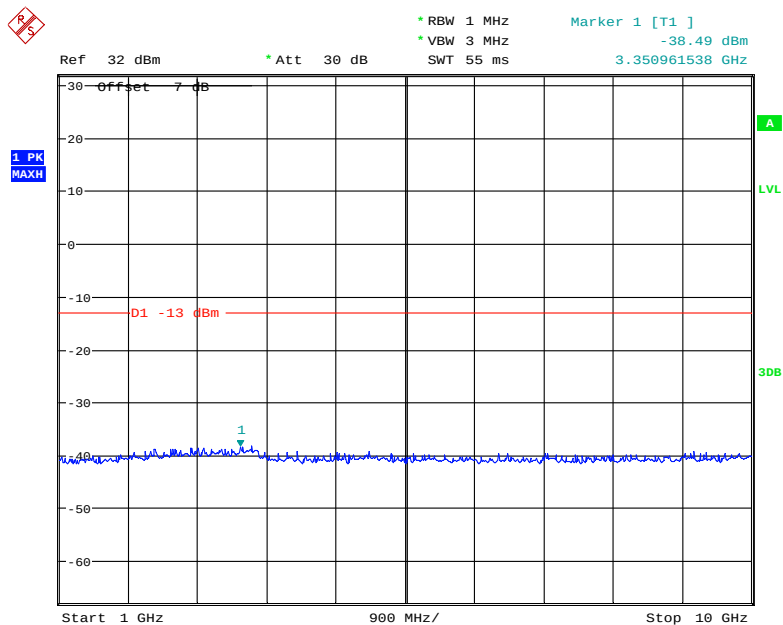
Middle Channel:

30 MHz – 1 GHz (GSM Mode)



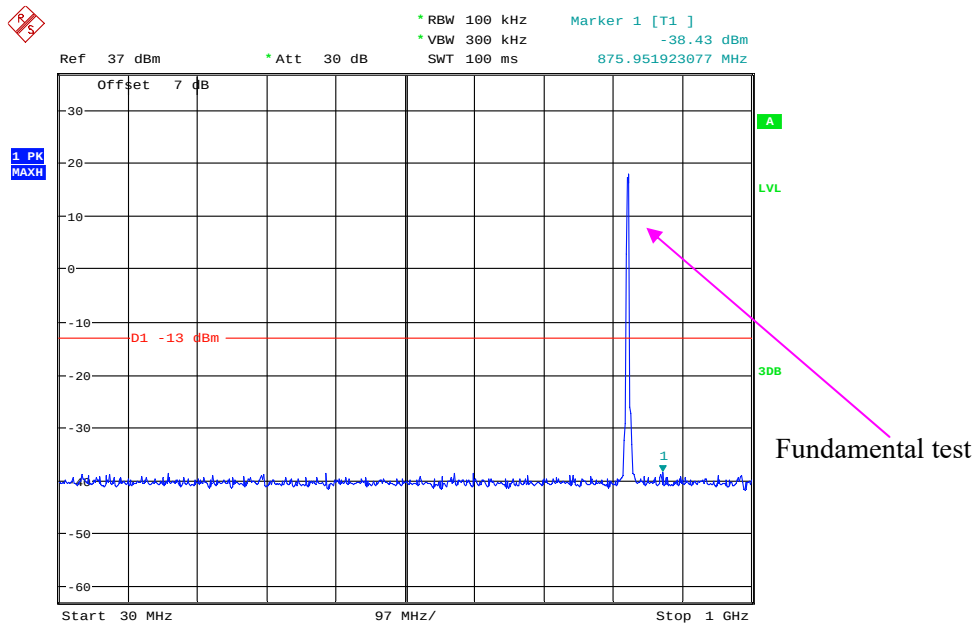
Date: 12.AUG.2021 23:04:40

1 GHz – 10 GHz (GSM Mode)



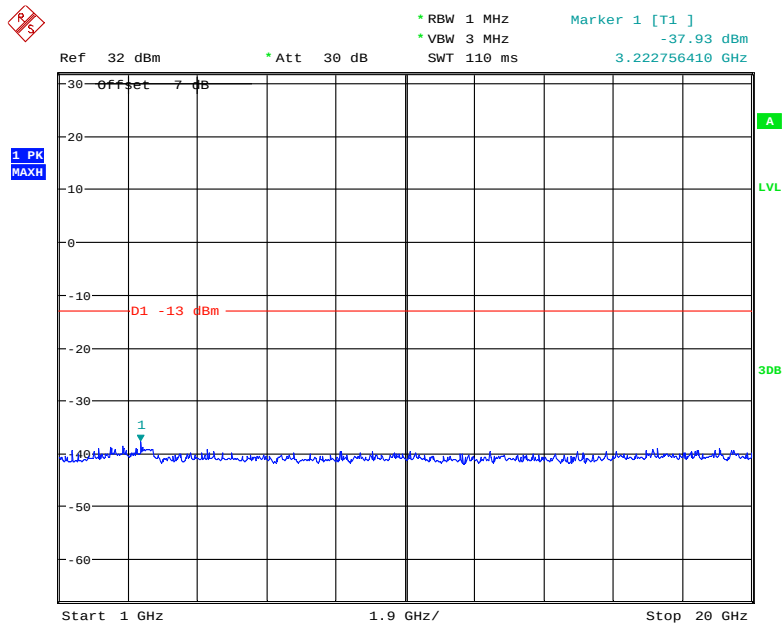
Date: 11.AUG.2021 23:11:58

30 MHz – 1 GHz (WCDMA Mode)



Date: 12.AUG.2021 21:30:36

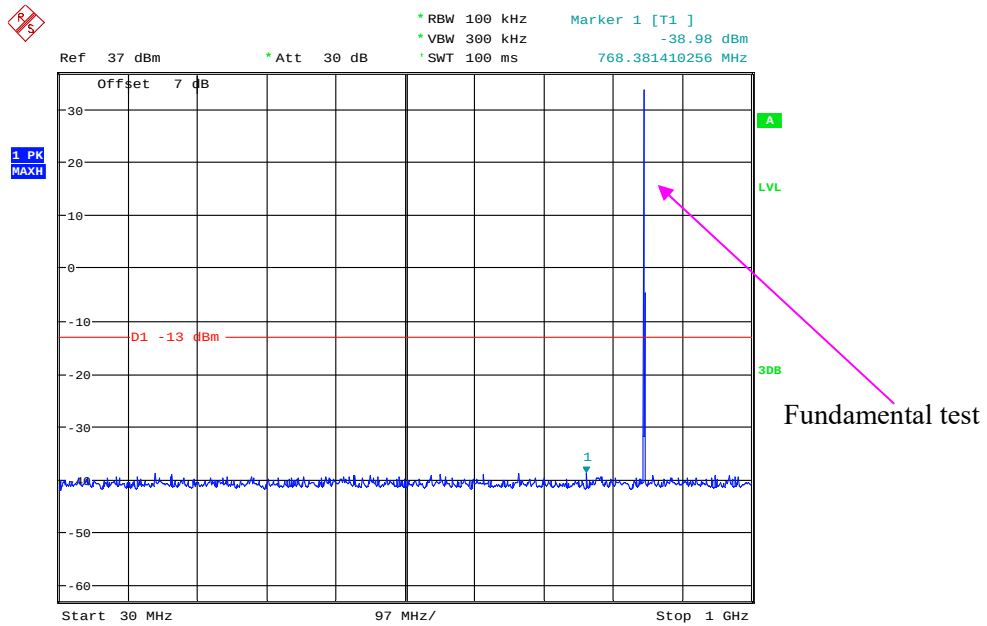
1 GHz – 20 GHz (WCDMA Mode)



Date: 12.AUG.2021 02:58:33

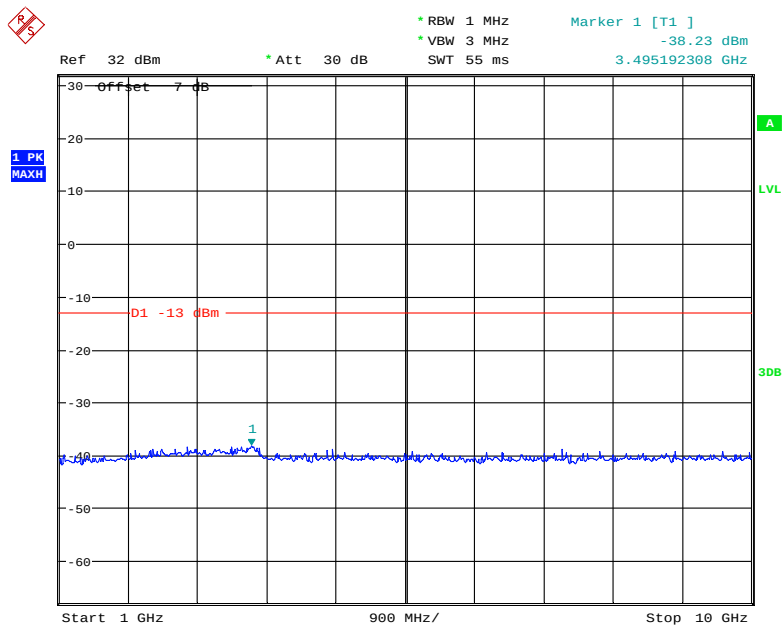
High Channel:

30 MHz – 1 GHz (GSM Mode)



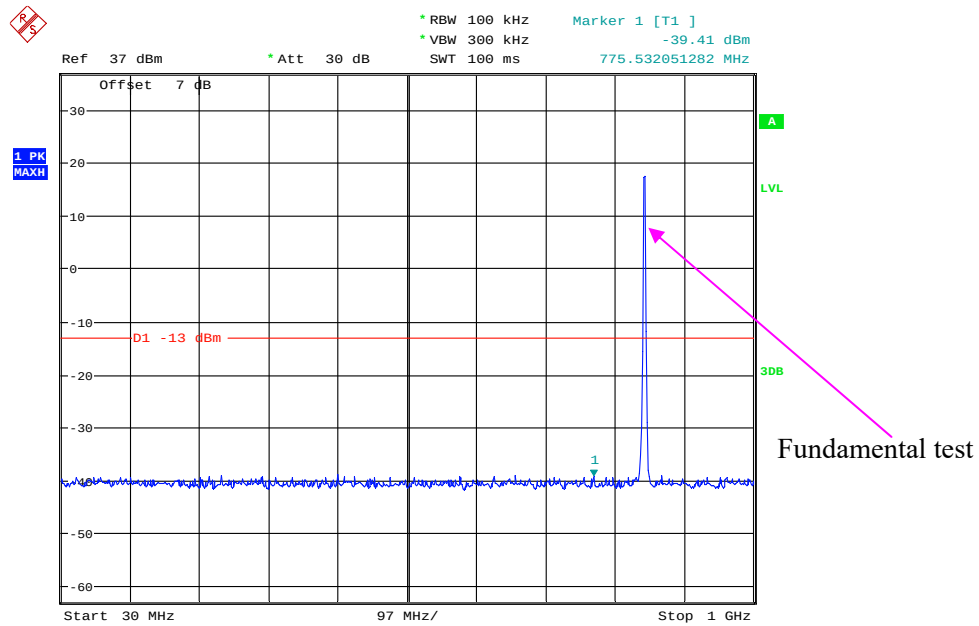
Date: 12.AUG.2021 23:07:37

1 GHz – 10 GHz (GSM Mode)



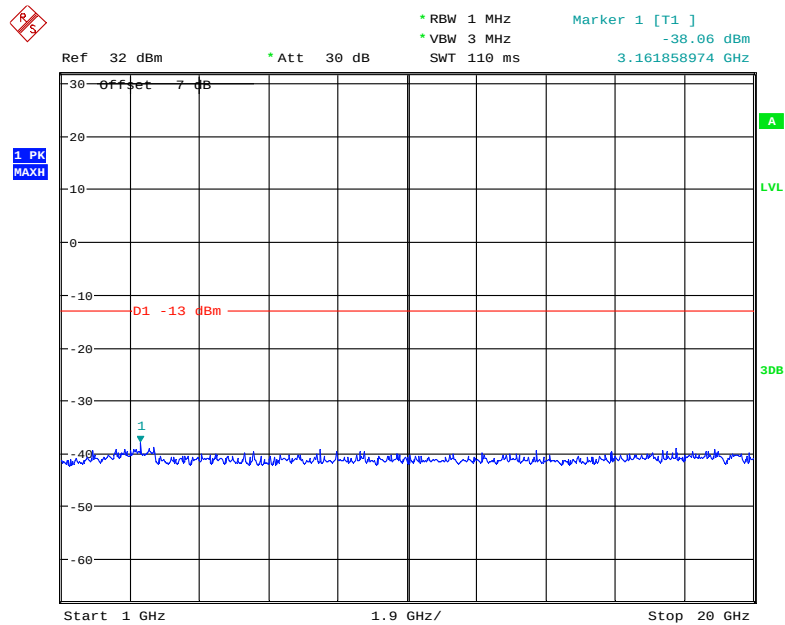
Date: 11.AUG.2021 23:05:43

30 MHz – 1 GHz (WCDMA Mode)



Date: 12.AUG.2021 21:28:19

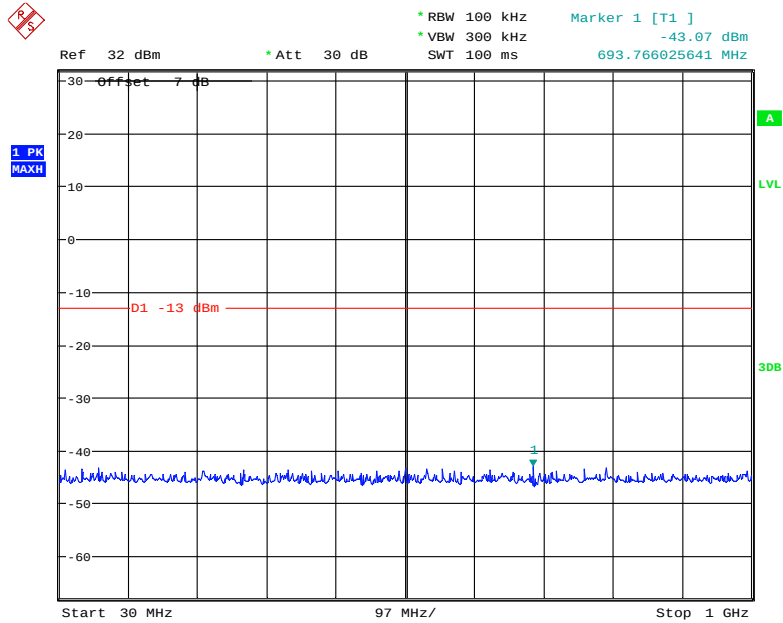
1 GHz – 20 GHz (WCDMA Mode)



Date: 12.AUG.2021 02:54:33

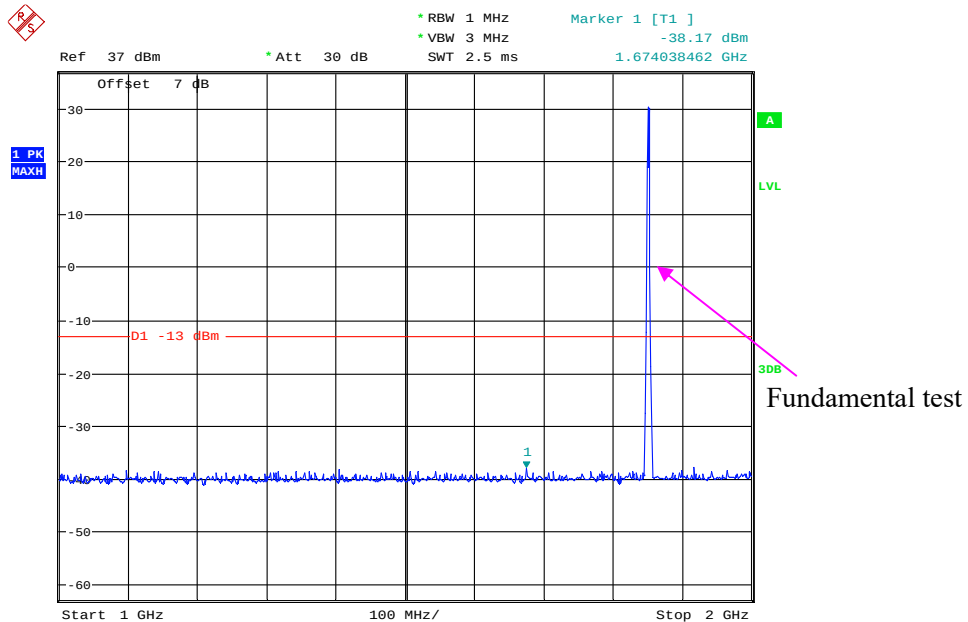
PCS Band (Part 24E) Low Channel:

30 MHz – 1 GHz (GSM Mode)



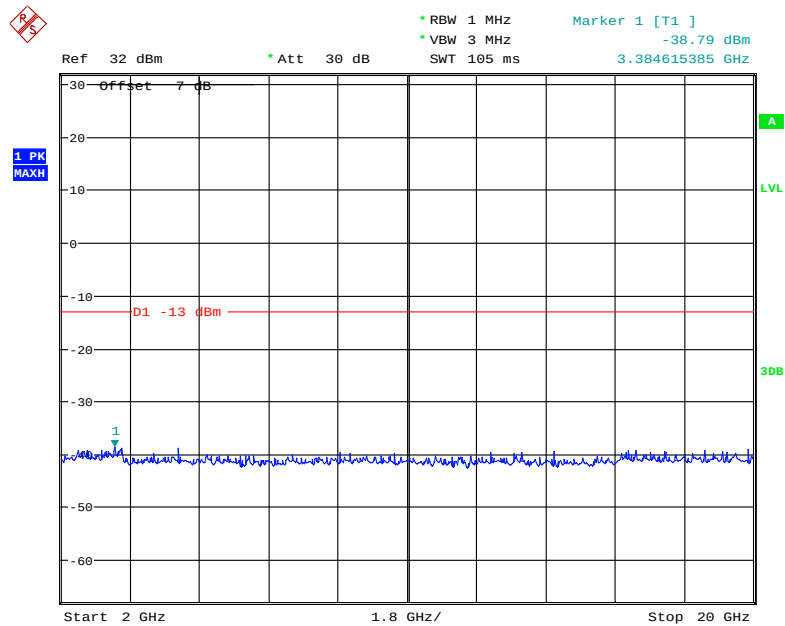
Date: 11.AUG.2021 23:50:44

1 GHz – 2 GHz (GSM Mode)



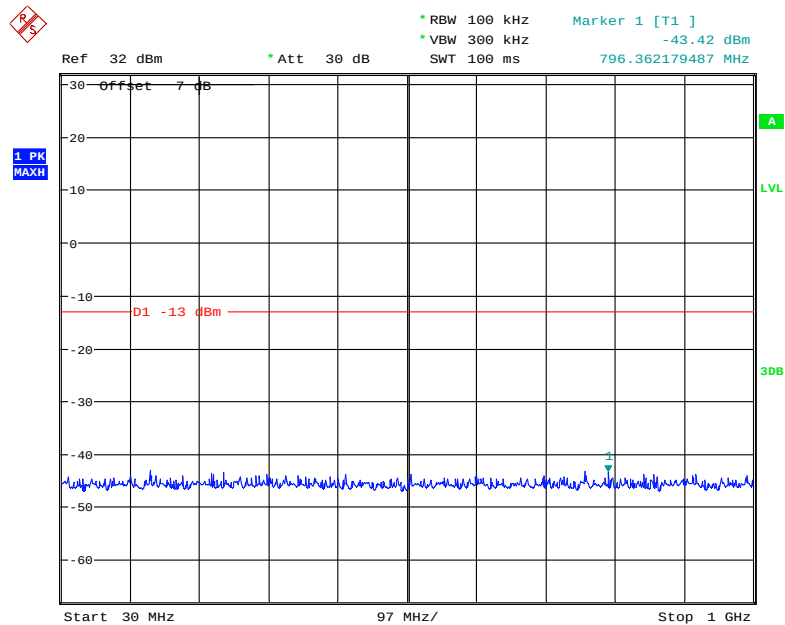
Date: 12.AUG.2021 22:01:39

2 GHz – 20 GHz (GSM Mode)

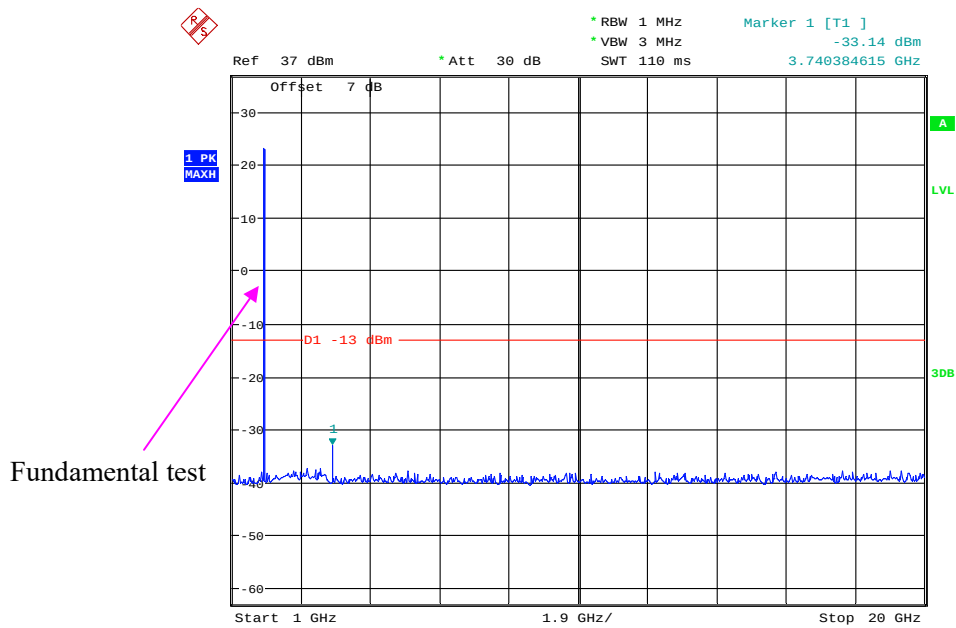


Date: 11.AUG.2021 23:49:24

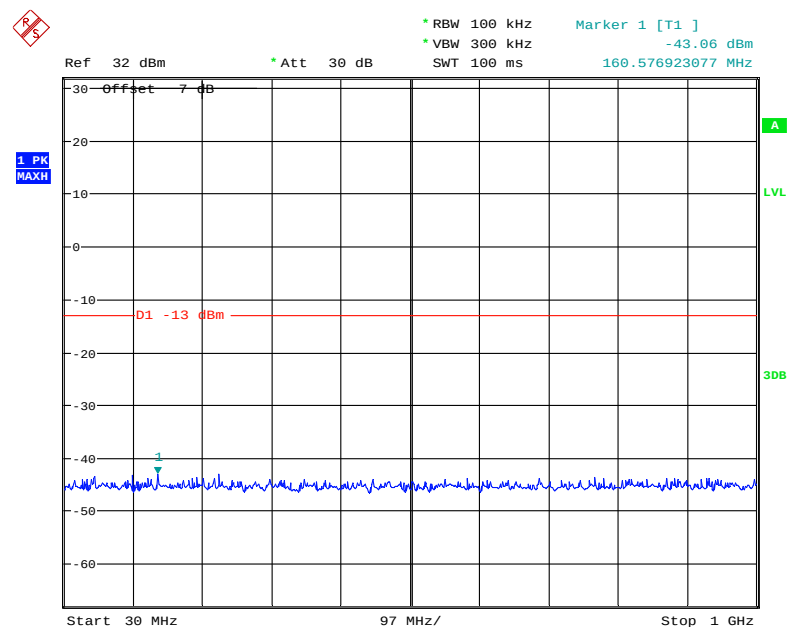
30 MHz – 1 GHz (WCDMA Mode)



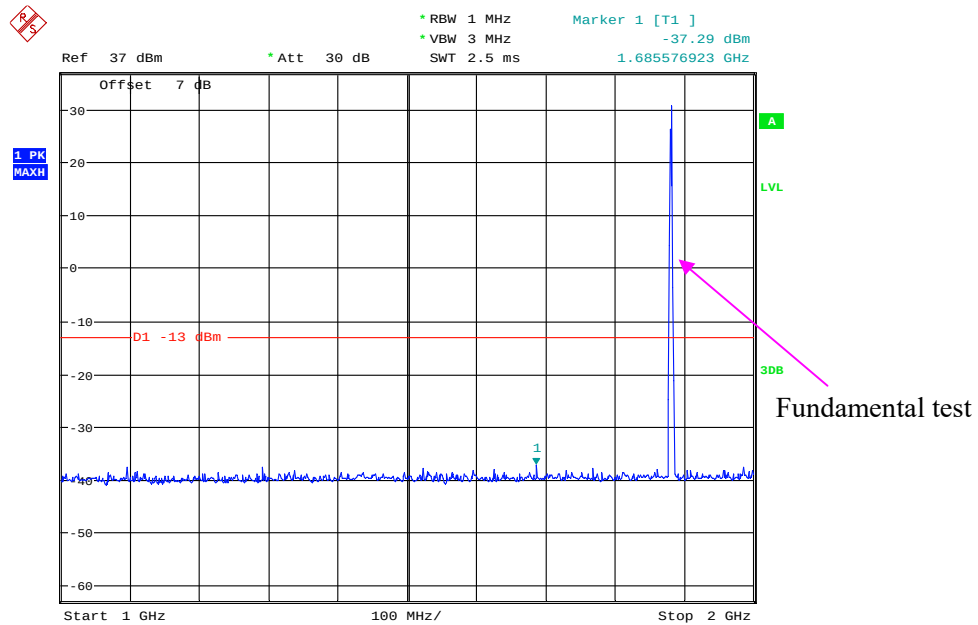
Date: 12.AUG.2021 02:43:19

1 GHz – 20 GHz (WCDMA Mode)

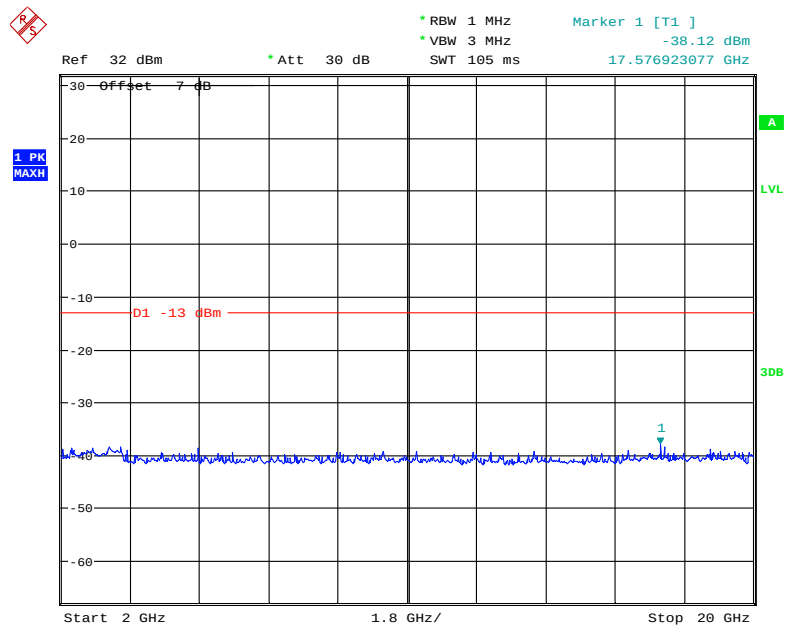
Date: 12.AUG.2021 21:21:42

Middle Channel:**30 MHz – 1 GHz (GSM Mode)**

Date: 11.AUG.2021 23:52:57

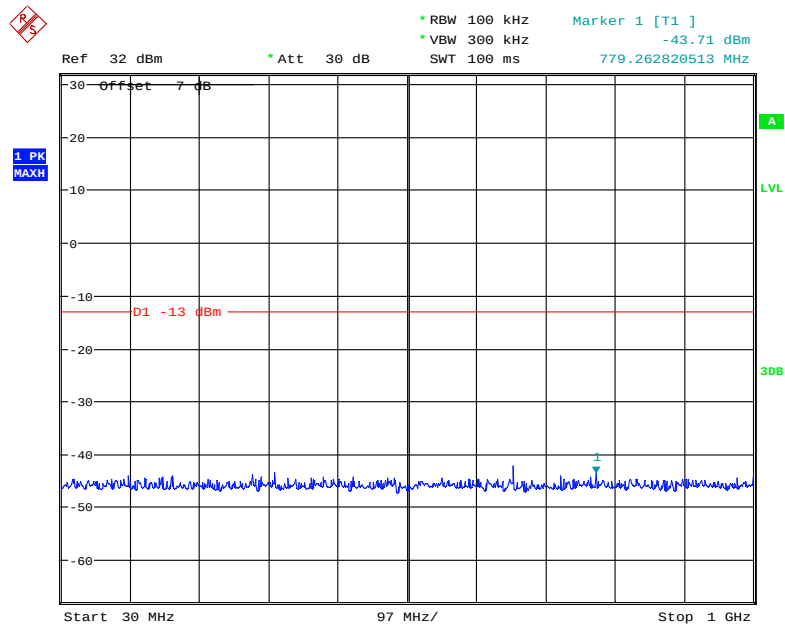
1 GHz – 2 GHz (GSM Mode)

Date: 12.AUG.2021 22:03:20

2 GHz – 20 GHz (GSM Mode)

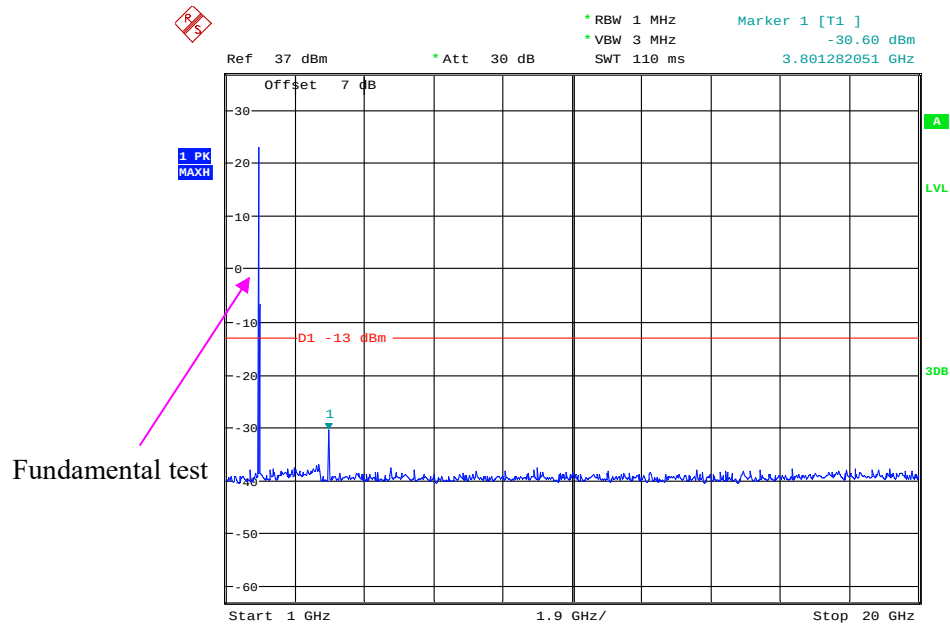
Date: 11.AUG.2021 23:52:11

30 MHz – 1 GHz (WCDMA Mode)



Date: 12.AUG.2021 02:44:59

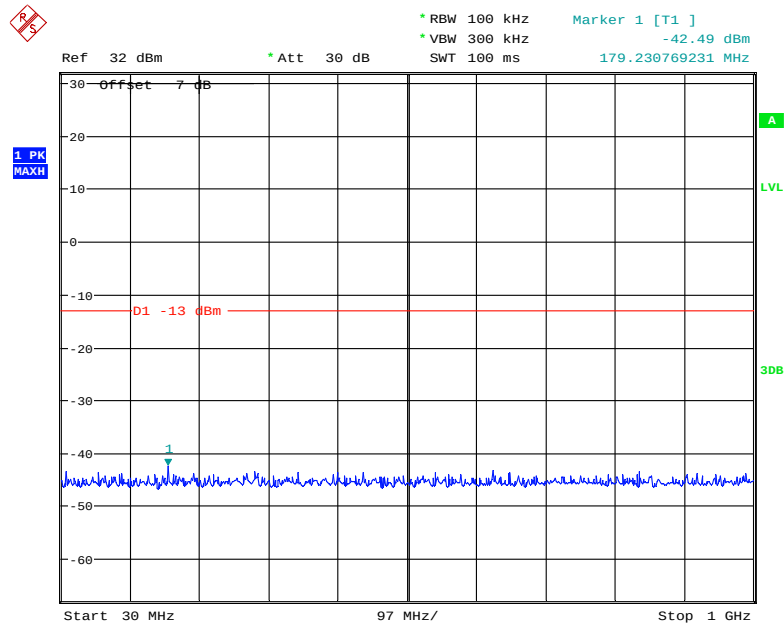
1 GHz – 20 GHz (WCDMA Mode)



Date: 12.AUG.2021 21:22:32

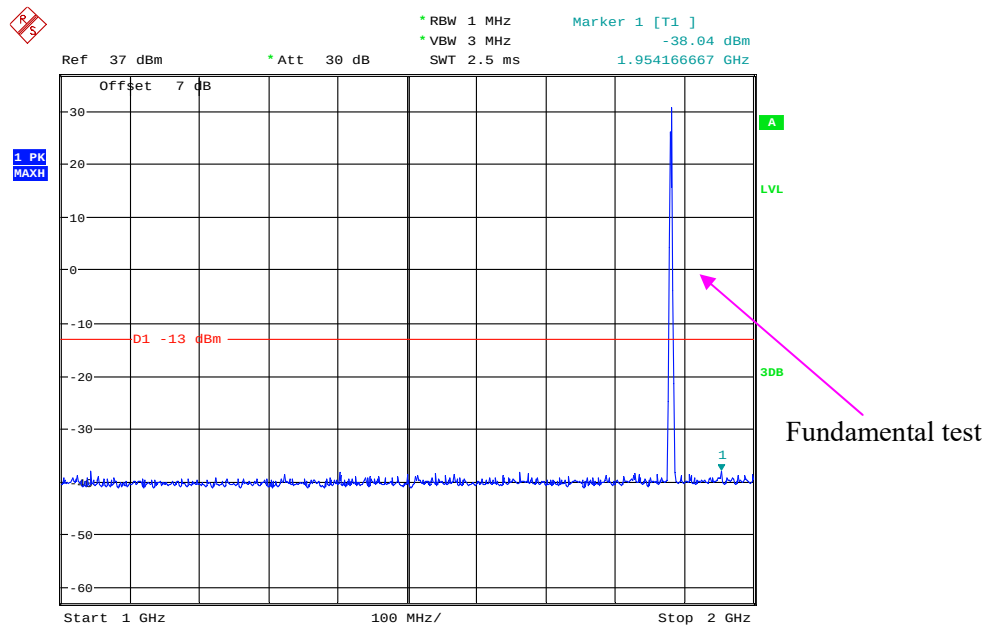
High Channel:

30 MHz – 1 GHz (GSM Mode)



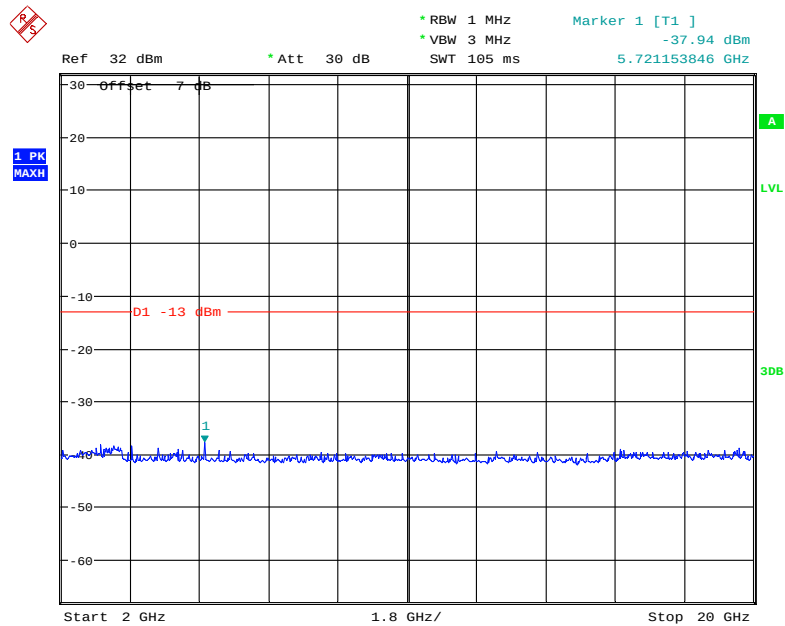
Date: 11.AUG.2021 23:47:29

1 GHz – 2 GHz (GSM Mode)



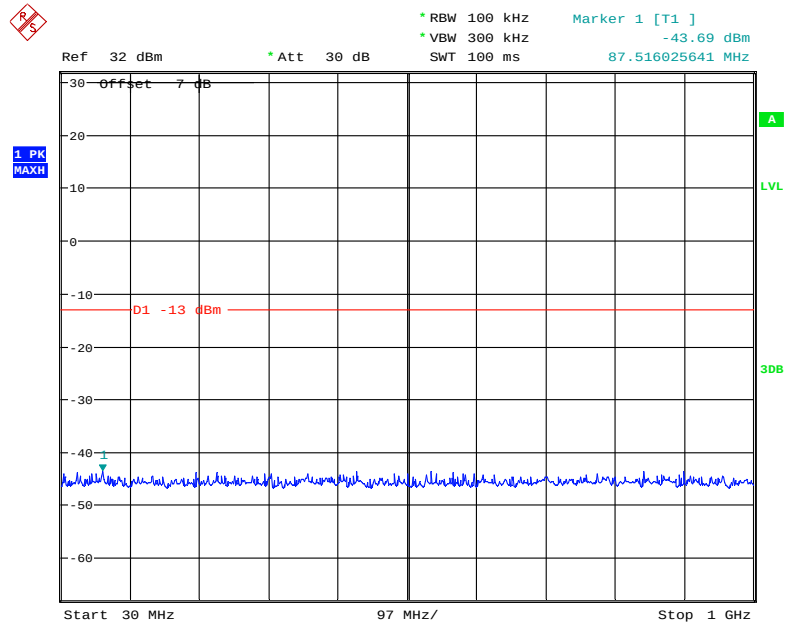
Date: 12.AUG.2021 22:00:15

2 GHz – 20 GHz (GSM Mode)



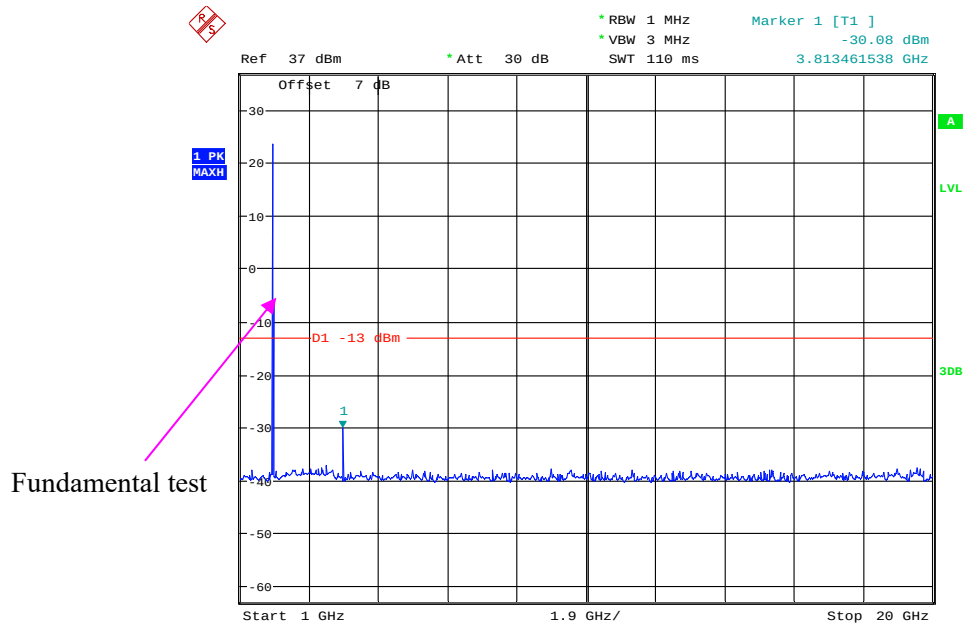
Date: 11.AUG.2021 23:46:43

30 MHz – 1 GHz (WCDMA Mode)



Date: 12.AUG.2021 02:41:26

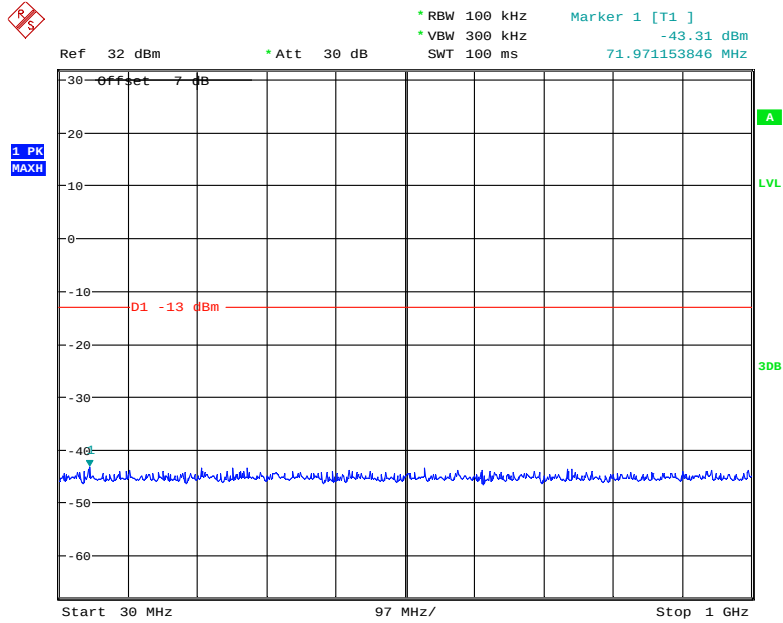
1 GHz – 20 GHz (WCDMA Mode)



Date: 12.AUG.2021 21:19:16

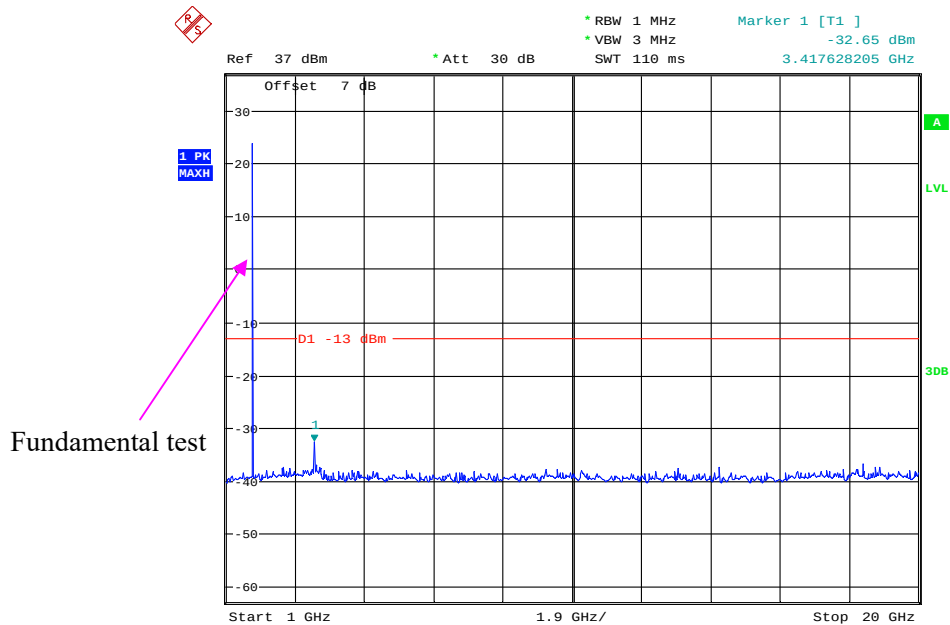
AWS Band (Part 27)
Low Channel:

30 MHz – 1 GHz (WCDMA Mode)



Date: 12.AUG.2021 02:51:03

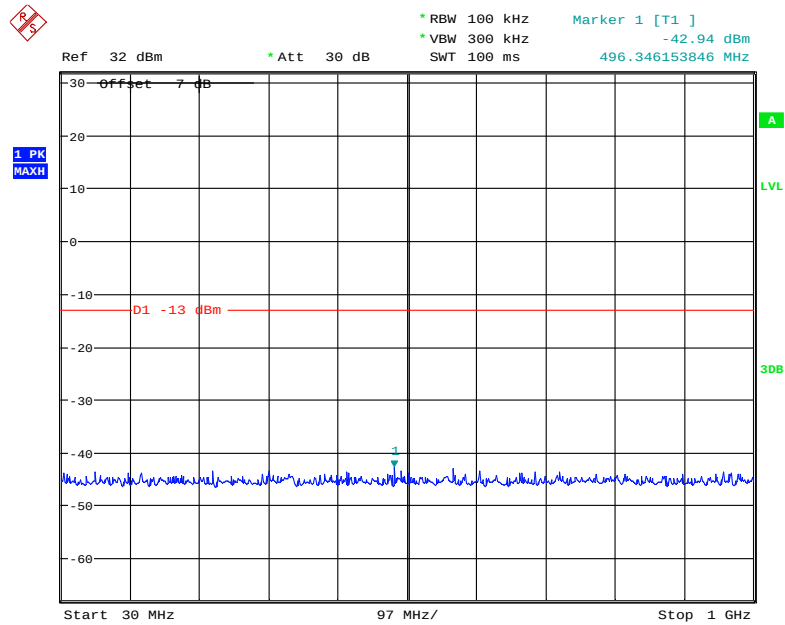
1 GHz – 20 GHz (WCDMA Mode)



Date: 12.AUG.2021 21:25:03

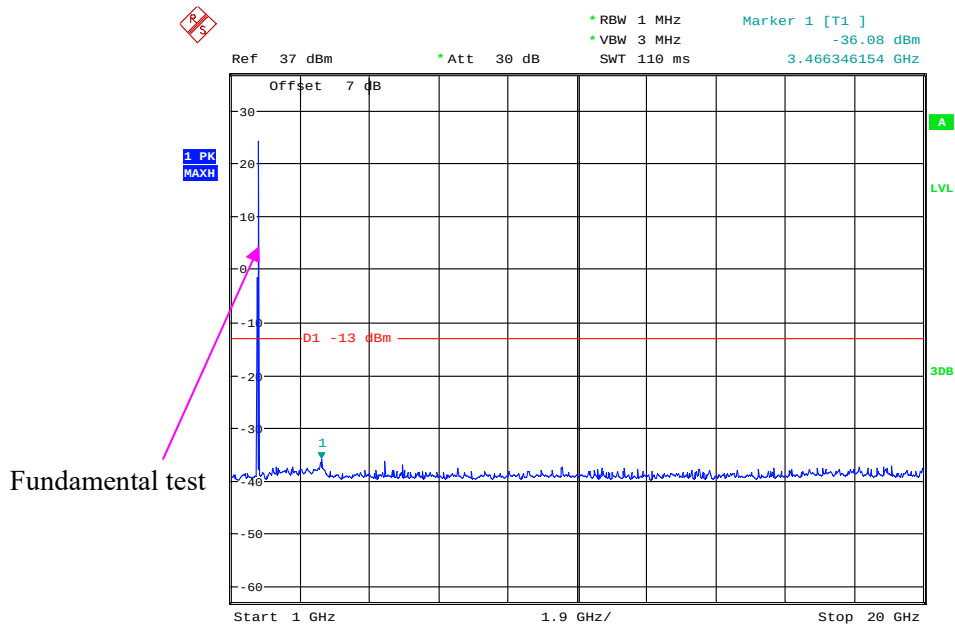
Middle Channel

30 MHz – 1 GHz (WCDMA Mode)



Date: 12.AUG.2021 02:53:12

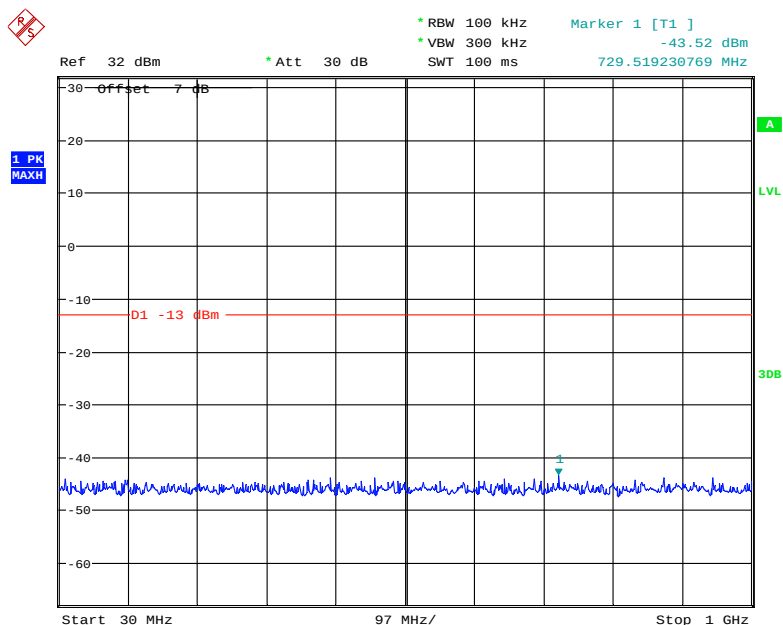
1 GHz – 20 GHz (WCDMA Mode)



Date: 12.AUG.2021 21:24:03

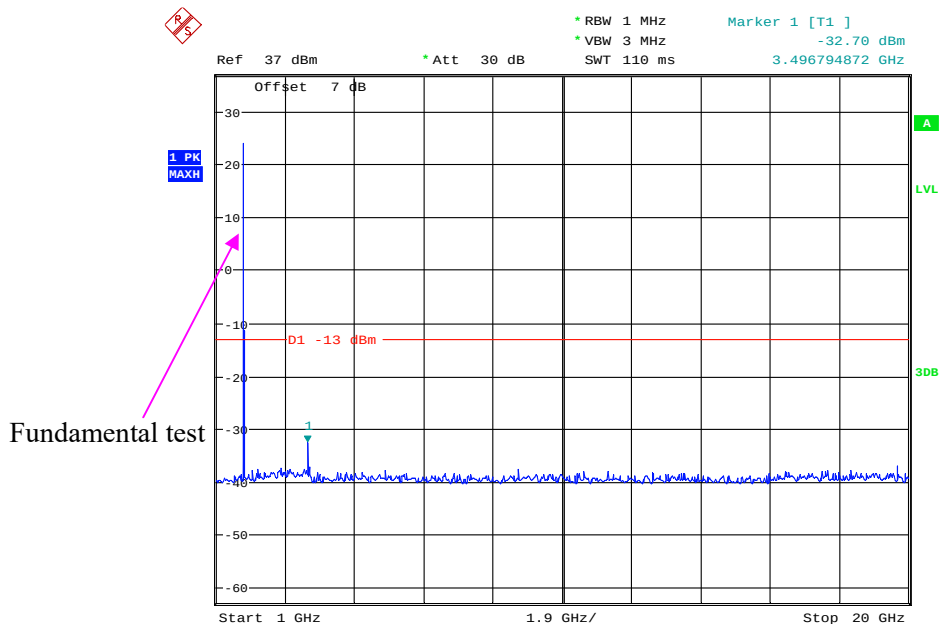
High Channel:

30 MHz – 1 GHz (WCDMA Mode)



Date: 12.AUG.2021 02:48:58

1 GHz – 20 GHz (WCDMA Mode)



Date: 12.AUG.2021 21:25:51

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

FCC § 2.1053, § 22.917 (a), § 24.238 (a), § 27.53-SPURIOUS RADIATED EMISSIONS**Applicable Standard**

FCC § 2.1053, § 22.917(a) 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:	26~28.8 °C
Relative Humidity:	51~56 %
ATM Pressure:	101.0~101.2 kPa

The testing was performed by Cloud Qiu on 2021-08-17 for below 1GHz and Bruce Lin from 2021-08-26 to 2021-08-29 for above 1GHz.

EUT operation mode: Transmitting

30 MHz ~ 10 GHz:**Cellular Band**

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										
956.3	31.27	4	1.0	H	-65.2	1.36	0.0	-66.56	-13	53.56
956.3	32.22	61	1.1	V	-61.8	1.36	0.0	-63.16	-13	50.16
1648.40	57.72	76	2.3	H	-50.4	1.40	8.70	-43.10	-13	30.10
1648.40	56.83	150	1.9	V	-51.0	1.40	8.70	-43.70	-13	30.70
2472.60	61.92	278	1.3	H	-41.4	2.60	10.20	-33.80	-13	20.80
2472.60	64.79	296	2.4	V	-38.0	2.60	10.20	-30.40	-13	17.40
3296.80	45.07	88	1.8	H	-55.8	1.50	11.70	-45.60	-13	32.60
3296.80	48.27	41	2.0	V	-52.7	1.50	11.70	-42.50	-13	29.50
Middle channel										
960.6	31.33	31	1.6	H	-65.2	1.36	0.0	-66.56	-13	53.56
960.6	32.27	127	1.3	V	-61.8	1.36	0.0	-63.16	-13	50.16
1673.20	58.42	8	1.9	H	-47.9	1.30	8.90	-40.30	-13	27.30
1673.20	58.40	3	1.4	V	-47.3	1.30	8.90	-39.70	-13	26.70
2509.80	64.55	93	1.5	H	-38.8	2.60	10.20	-31.20	-13	18.20
2509.80	63.13	145	2.2	V	-39.6	2.60	10.20	-32.00	-13	19.00
3346.40	48.01	152	2.2	H	-52.9	1.50	11.70	-42.70	-13	29.70
3346.40	47.57	346	1.5	V	-53.3	1.50	11.70	-43.10	-13	30.10
High channel										
957.8	31.18	221	2.0	H	-65.3	1.36	0.0	-66.66	-13	53.66
957.8	32.31	299	1.8	V	-61.7	1.36	0.0	-63.06	-13	50.06
1697.60	58.22	160	2.1	H	-48.1	1.30	8.90	-40.50	-13	27.50
1697.60	58.31	125	1.1	V	-47.4	1.30	8.90	-39.80	-13	26.80
2546.40	60.72	32	1.4	H	-42.6	2.60	10.20	-35.00	-13	22.00
2546.40	66.28	82	2.3	V	-36.5	2.60	10.20	-28.90	-13	15.90
3395.20	45.97	240	2.0	H	-55.3	1.40	11.80	-44.90	-13	31.90
3395.20	47.23	96	2.5	V	-53.8	1.40	11.80	-43.40	-13	30.40

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										
952.7	31.16	261	1.4	H	-65.3	1.36	0.0	-66.66	-13	53.66
952.7	32.15	273	1.0	V	-61.9	1.36	0.0	-63.26	-13	50.26
1652.80	50.11	113	2.2	H	-56.2	1.30	8.90	-48.60	-13	35.60
1652.80	49.37	124	2.0	V	-56.4	1.30	8.90	-48.80	-13	35.80
2479.20	69.25	30	2.3	H	-34.1	2.60	10.20	-26.50	-13	13.50
2479.20	58.69	290	1.3	V	-44.1	2.60	10.20	-36.50	-13	23.50
3305.60	44.14	127	1.0	H	-56.8	1.50	11.70	-46.60	-13	33.60
3305.60	44.08	354	2.5	V	-56.8	1.50	11.70	-46.60	-13	33.60
Middle channel										
957.6	31.19	174	2.0	H	-65.3	1.36	0.0	-66.66	-13	53.66
957.6	32.34	274	1.5	V	-61.7	1.36	0.0	-63.06	-13	50.06
1673.20	52.67	250	2.2	H	-53.7	1.30	8.90	-46.10	-13	33.10
1673.20	48.76	253	1.8	V	-57.0	1.30	8.90	-49.40	-13	36.40
2509.80	70.24	354	1.1	H	-33.1	2.60	10.20	-25.50	-13	12.50
2509.80	57.28	283	2.2	V	-45.5	2.60	10.20	-37.90	-13	24.90
3346.40	43.97	49	1.7	H	-56.9	1.50	11.70	-46.70	-13	33.70
3346.40	43.27	354	1.9	V	-57.7	1.50	11.70	-47.50	-13	34.50
High channel										
956.2	31.07	134	1.1	H	-65.4	1.36	0.0	-66.76	-13	53.76
956.2	32.31	22	1.6	V	-61.7	1.36	0.0	-63.06	-13	50.06
1693.20	52.14	57	2.3	H	-54.2	1.30	8.90	-46.60	-13	33.60
1693.20	48.67	187	1.7	V	-57.1	1.30	8.90	-49.50	-13	36.50
2539.80	71.69	117	1.1	H	-31.7	2.60	10.20	-24.10	-13	11.10
2539.80	60.58	192	1.7	V	-42.2	2.60	10.20	-34.60	-13	21.60
3386.40	44.85	332	2.0	H	-56.4	1.40	11.80	-46.00	-13	33.00
3386.40	43.17	68	1.2	V	-57.9	1.40	11.80	-47.50	-13	34.50

30 MHz ~ 20 GHz:**PCS Band**

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										
959.1	31.14	157	1.9	H	-65.4	1.36	0.0	-66.76	-13	53.76
959.1	32.35	326	1.6	V	-61.7	1.36	0.0	-63.06	-13	50.06
3700.40	46.51	101	1.3	H	-55.6	1.60	11.90	-45.30	-13	32.30
3700.40	47.26	35	1.8	V	-54.2	1.60	11.90	-43.90	-13	30.90
Middle channel										
960.2	31.25	183	2.3	H	-65.3	1.36	0.0	-66.66	-13	53.66
960.2	32.39	218	1.7	V	-61.7	1.36	0.0	-63.06	-13	50.06
3760.00	47.10	336	1.2	H	-55.3	1.50	11.80	-45.00	-13	32.00
3760.00	46.62	147	2.3	V	-55.3	1.50	11.80	-45.00	-13	32.00
High channel										
957.5	31.29	200	1.7	H	-65.2	1.36	0.0	-66.56	-13	53.56
957.5	32.36	349	2.0	V	-61.7	1.36	0.0	-63.06	-13	50.06
3819.60	46.73	162	1.1	H	-55.7	1.50	11.80	-45.40	-13	32.40
3819.60	48.63	171	1.3	V	-53.3	1.50	11.80	-43.00	-13	30.00
WCDMA Mode										
Low Channel										
954.9	31.22	96	1.8	H	-65.3	1.36	0.0	-66.66	-13	53.66
954.9	32.38	138	1.8	V	-61.7	1.36	0.0	-63.06	-13	50.06
3704.80	47.35	208	1.3	H	-54.5	1.60	11.90	-44.20	-13	31.20
3704.80	48.39	116	2.4	V	-52.8	1.60	11.90	-42.50	-13	29.50
Middle channel										
956.7	31.25	53	1.9	H	-65.3	1.36	0.0	-66.66	-13	53.66
956.7	32.32	295	1.3	V	-61.7	1.36	0.0	-63.06	-13	50.06
3760.00	47.82	157	1.3	H	-54.2	1.50	11.80	-43.90	-13	30.90
3760.00	46.52	189	1.5	V	-55.1	1.50	11.80	-44.80	-13	31.80
High channel										
952.2	31.29	219	2.3	H	-65.2	1.36	0.0	-66.56	-13	53.56
952.2	32.18	3	2.2	V	-61.9	1.36	0.0	-63.26	-13	50.26
3818.60	48.70	218	1.8	H	-53.4	1.50	11.80	-43.10	-13	30.10
3818.60	47.33	54	1.2	V	-54.3	1.50	11.80	-44.00	-13	31.00

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										
952.8	31.09	264	2.2	H	-65.4	1.36	0.0	-66.76	-13	53.76
952.8	32.25	87	2.4	V	-61.8	1.36	0.0	-63.16	-13	50.16
3424.80	45.87	20	1.4	H	-54.9	1.40	11.80	-44.50	-13	31.50
3424.80	45.65	286	2.2	V	-55.0	1.40	11.80	-44.60	-13	31.60
Middle channel										
958.6	31.17	289	1.3	H	-65.3	1.36	0.0	-66.66	-13	53.66
958.6	32.21	255	2.1	V	-61.8	1.36	0.0	-63.16	-13	50.16
3480.00	46.85	34	1.5	H	-53.9	1.50	12.00	-43.40	-13	30.40
3480.00	45.27	167	2.1	V	-56.2	1.50	12.00	-45.70	-13	32.70
High channel										
954.5	31.32	234	1.2	H	-65.2	1.36	0.0	-66.56	-13	53.56
954.5	32.11	179	2.3	V	-61.9	1.36	0.0	-63.26	-13	50.26
3505.20	46.27	155	2.0	H	-54.5	1.50	12.00	-44.00	-13	31.00
3505.20	46.27	155	2.0	H	-54.5	1.50	12.00	-44.00	-13	31.00

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

Frequency	Receiver	Turntable	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
(MHz)	Reading (dBμV)	Angle Degree	Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
Band 2										
Test frequency range: 30 MHz ~ 20 GHz										
1.4MHz, Low channel										
958.6	31.17	234	1.9	H	-65.3	1.36	0.0	-66.66	-13	53.66
958.6	32.32	214	1.2	V	-61.7	1.36	0.0	-63.06	-13	50.06
3701.40	49.53	170	2.1	H	-52.3	1.60	11.90	-42.00	-13	29.00
3701.40	48.63	40	2.5	V	-52.6	1.60	11.90	-42.30	-13	29.30
1.4MHz, Middle channel										
956.3	31.12	280	2.5	H	-65.4	1.36	0.0	-66.76	-13	53.76
956.3	32.35	310	2.3	V	-61.7	1.36	0.0	-63.06	-13	50.06
3760.00	48.88	32	1.5	H	-53.2	1.50	11.80	-42.90	-13	29.90
3760.00	48.82	182	1.2	V	-52.8	1.50	11.80	-42.50	-13	29.50
1.4MHz, High channel										
958.4	31.08	212	1.1	H	-65.4	1.36	0.0	-66.76	-13	53.76
958.4	32.27	317	1.2	V	-61.8	1.36	0.0	-63.16	-13	50.16
3818.60	50.14	148	1.2	H	-51.9	1.50	11.80	-41.60	-13	28.60
3818.60	50.93	251	2.2	V	-50.7	1.50	11.80	-40.40	-13	27.40
Band 4										
Test frequency range:30 MHz ~ 20 GHz										
1.4MHz, Low channel										
953.9	31.13	359	2.4	H	-65.4	1.36	0.0	-66.76	-13	53.76
953.9	32.24	178	1.7	V	-61.8	1.36	0.0	-63.16	-13	50.16
3421.40	46.85	349	2.3	H	-53.9	1.40	11.80	-43.50	-13	30.50
3421.40	46.57	343	2.1	V	-54.0	1.40	11.80	-43.60	-13	30.60
1.4MHz, Middle channel										
958.2	31.19	132	1.5	H	-65.3	1.36	0.0	-66.66	-13	53.66
958.2	32.21	286	1.7	V	-61.8	1.36	0.0	-63.16	-13	50.16
3465.00	47.20	97	1.0	H	-53.5	1.50	12.00	-43.00	-13	30.00
3465.00	46.27	13	1.9	V	-55.2	1.50	12.00	-44.70	-13	31.70
1.4MHz, High channel										
959.7	31.27	111	1.8	H	-65.2	1.36	0.0	-66.56	-13	53.56
959.7	32.26	52	1.5	V	-61.8	1.36	0.0	-63.16	-13	50.16
3508.60	48.67	337	2.2	H	-52.1	1.50	12.00	-41.60	-13	28.60
3508.60	47.05	275	2.5	V	-54.5	1.50	12.00	-44.00	-13	31.00

Frequency	Receiver	Turntable	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
(MHz)	Reading (dBμV)	Angle Degree	Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
Band 5										
Test frequency range:30 MHz ~ 10 GHz										
1.4MHz, Low channel										
956.8	31.35	284	1.9	H	-65.2	1.36	0.0	-66.56	-13	53.56
956.8	32.36	36	1.7	V	-61.7	1.36	0.0	-63.06	-13	50.06
1649.40	63.85	283	2.0	H	-44.2	1.40	8.70	-36.90	-13	23.90
1649.40	57.24	298	2.5	V	-50.6	1.40	8.70	-43.30	-13	30.30
2474.10	71.88	217	1.7	H	-31.5	2.60	10.20	-23.90	-13	10.90
2474.10	61.28	149	1.4	V	-41.5	2.60	10.20	-33.90	-13	20.90
3298.80	44.77	225	1.7	H	-56.1	1.50	11.70	-45.90	-13	32.90
3298.80	43.86	281	1.5	V	-57.1	1.50	11.70	-46.90	-13	33.90
1.4MHz, Middle channel										
960.7	31.24	88	1.6	H	-65.3	1.36	0.0	-66.66	-13	53.66
960.7	32.39	71	1.8	V	-61.7	1.36	0.0	-63.06	-13	50.06
1673.00	61.34	166	2.3	H	-45.0	1.30	8.90	-37.40	-13	24.40
1673.00	56.44	237	2.1	V	-49.3	1.30	8.90	-41.70	-13	28.70
2509.50	73.04	142	1.6	H	-30.3	2.60	10.20	-22.70	-13	9.70
2509.50	60.25	152	1.3	V	-42.5	2.60	10.20	-34.90	-13	21.90
3346.00	44.82	238	1.1	H	-56.1	1.50	11.70	-45.90	-13	32.90
3346.00	43.78	131	2.1	V	-57.1	1.50	11.70	-46.90	-13	33.90
1.4MHz, High channel										
961.2	31.13	123	1.5	H	-65.4	1.36	0.0	-66.76	-13	53.76
961.2	32.16	12	1.9	V	-61.9	1.36	0.0	-63.26	-13	50.26
1696.60	62.79	226	1.6	H	-43.5	1.30	8.90	-35.90	-13	22.90
1696.60	58.34	307	1.4	V	-47.4	1.30	8.90	-39.80	-13	26.80
2544.90	72.71	187	2.0	H	-30.6	2.60	10.20	-23.00	-13	10.00
2544.90	62.78	193	1.3	V	-40.0	2.60	10.20	-32.40	-13	19.40
3393.20	44.67	246	2.2	H	-56.6	1.40	11.80	-46.20	-13	33.20
3393.20	43.95	308	2.0	V	-57.1	1.40	11.80	-46.70	-13	33.70

Frequency	Receiver	Turntable	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
(MHz)	Reading (dBμV)	Angle Degree	Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
Band 7										
Test frequency range: 30 MHz ~ 26.5 GHz										
5MHz, Low channel										
957.1	31.05	346	1.1	H	-65.5	1.36	0.0	-66.86	-25	41.86
957.1	32.35	10	2.0	V	-61.7	1.36	0.0	-63.06	-25	38.06
5005.00	44.85	354	1.4	H	-55.7	1.70	12.00	-45.40	-25	20.40
5005.00	43.75	148	1.9	V	-56.3	1.70	12.00	-46.00	-25	21.00
5MHz, Middle channel										
957.5	31.12	257	1.3	H	-65.4	1.36	0.0	-66.76	-25	41.76
951.5	32.33	202	2.3	V	-61.7	1.36	0.0	-63.06	-25	38.06
5070.00	44.25	133	2.5	H	-55.8	1.60	12.10	-45.30	-25	20.30
5070.00	44.31	298	1.6	V	-55.7	1.60	12.10	-45.20	-25	20.20
5MHz, High channel										
961.8	31.26	132	1.8	H	-65.2	1.36	0.0	-66.56	-25	41.56
961.8	32.42	303	2.4	V	-61.6	1.36	0.0	-62.96	-25	37.96
5135.00	44.08	327	1.2	H	-55.9	1.60	12.10	-45.40	-25	20.40
5135.00	43.84	40	1.4	V	-56.2	1.60	12.10	-45.70	-25	20.70
Band 17										
Test frequency range: 30 MHz ~ 10 GHz										
5MHz, Low channel										
962.5	31.12	267	2.3	H	-65.4	1.36	0.0	-66.76	-13	53.76
962.5	32.26	84	2.4	V	-61.8	1.36	0.0	-63.16	-13	50.16
1413.00	66.87	202	2.1	H	-41.3	1.60	7.90	-35.00	-13	22.00
1413.00	69.57	0	1.5	V	-38.9	1.60	7.90	-32.60	-13	19.60
2119.50	73.21	46	2.2	H	-27.9	1.30	9.70	-19.50	-13	6.50
2119.50	70.14	295	2.2	V	-31.8	1.30	9.70	-23.40	-13	10.40
2826.00	50.17	176	1.6	H	-53.8	1.80	10.50	-45.10	-13	32.10
2826.00	52.74	253	2.4	V	-50.9	1.80	10.50	-42.20	-13	29.20
5MHz, Middle channel										
955.7	31.01	300	1.3	H	-65.5	1.36	0.0	-66.86	-13	53.86
955.7	32.37	201	1.3	V	-61.7	1.36	0.0	-63.06	-13	50.06
1420.00	70.25	334	2.4	H	-37.9	1.60	7.90	-31.60	-13	18.60
1420.00	66.96	113	1.3	V	-41.5	1.60	7.90	-35.20	-13	22.20
2130.00	74.21	53	1.5	H	-26.9	1.30	9.70	-18.50	-13	5.50
2130.00	71.28	244	1.3	V	-30.7	1.30	9.70	-22.30	-13	9.30
2840.00	49.36	211	1.9	H	-54.6	1.80	10.50	-45.90	-13	32.90
2840.00	49.44	351	2.0	V	-54.2	1.80	10.50	-45.50	-13	32.50
5MHz, High channel										
953.8	31.11	158	1.4	H	-65.4	1.36	0.0	-66.76	-13	53.76
953.8	32.22	139	1.3	V	-61.8	1.36	0.0	-63.16	-13	50.16
1427.00	72.89	3	1.5	H	-35.3	1.60	7.90	-29.00	-13	16.00
1427.00	68.82	64	2.0	V	-39.6	1.60	7.90	-33.30	-13	20.30
2140.50	73.33	345	2.4	H	-27.8	1.30	9.70	-19.40	-13	6.40
2140.50	70.57	138	1.6	V	-31.4	1.30	9.70	-23.00	-13	10.00
2854.00	52.84	244	2.2	H	-51.8	1.70	10.70	-42.80	-13	29.80
2854.00	50.11	246	1.9	V	-54.6	1.70	10.70	-45.60	-13	32.60

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 - 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.

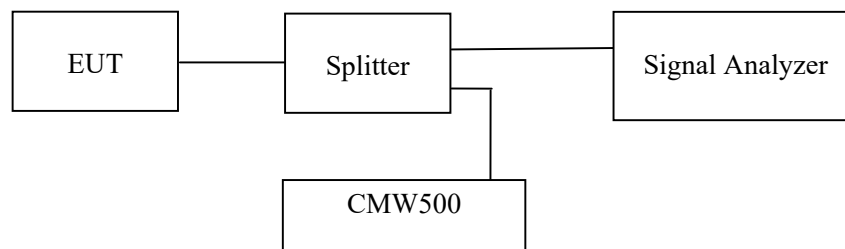
According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

According to FCC §27.53 (c)(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:	28.5~29.2 °C
Relative Humidity:	51~53 %
ATM Pressure:	101.0 ~102.0kPa

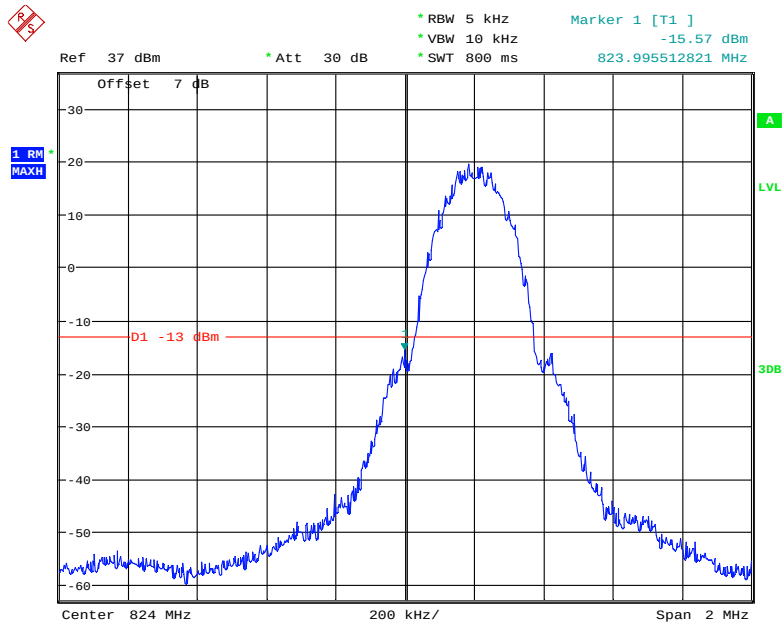
The testing was performed by Pedro Yun from 2021-08-12 to 2021-09-09.

EUT operation mode: Transmitting (Worst case)

Test Result: Pass

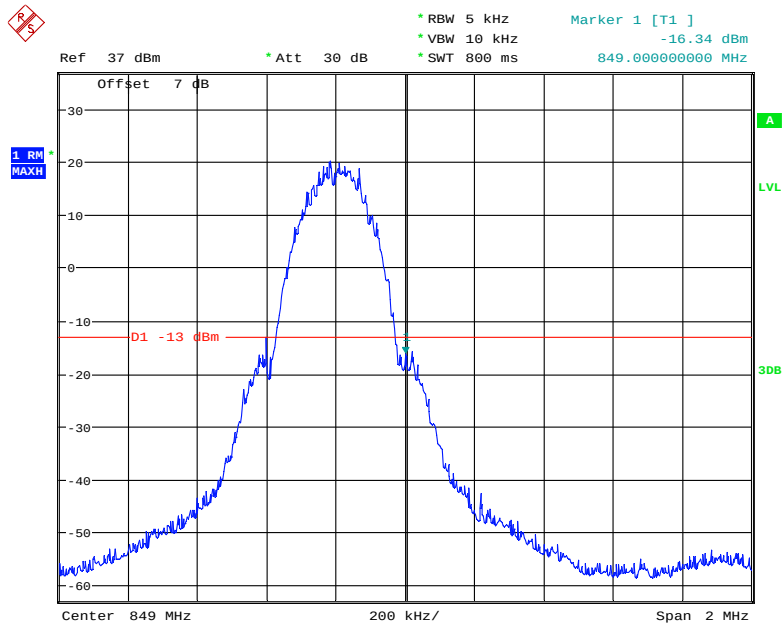
Please refer to the following plots.

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



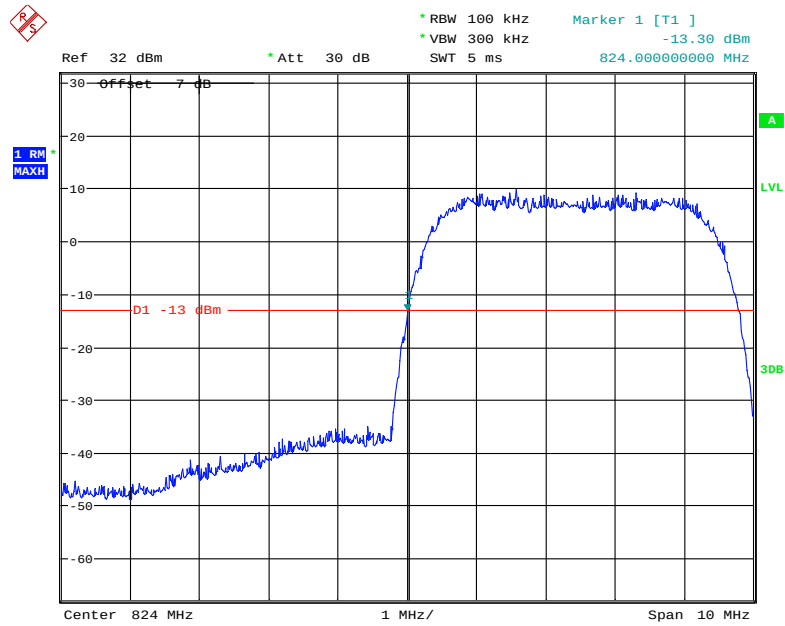
Date: 12.AUG.2021 22:36:34

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



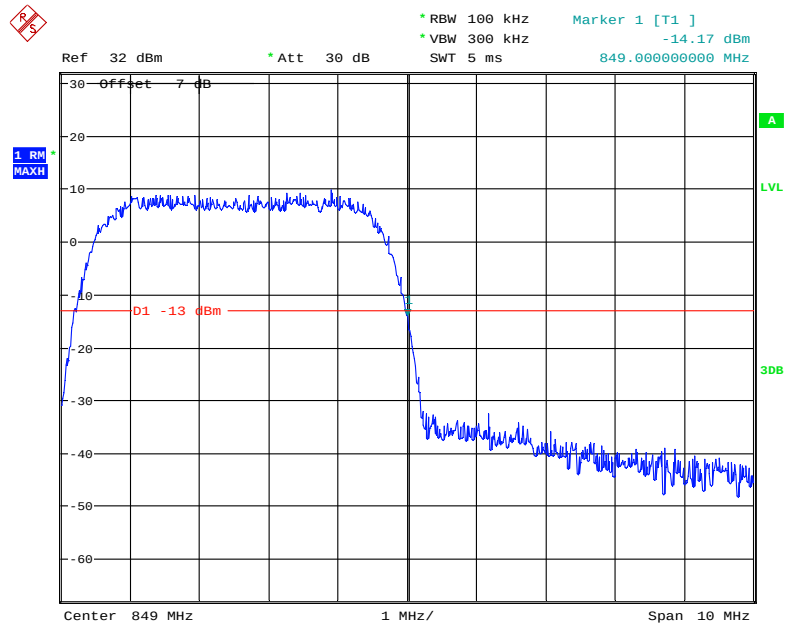
Date: 12.AUG.2021 22:35:26

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



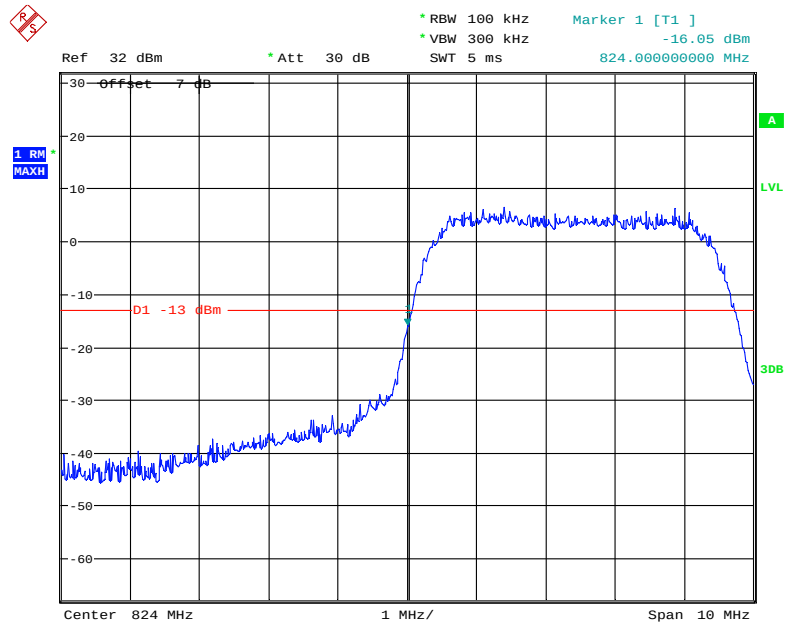
Date: 12.AUG.2021 00:39:04

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



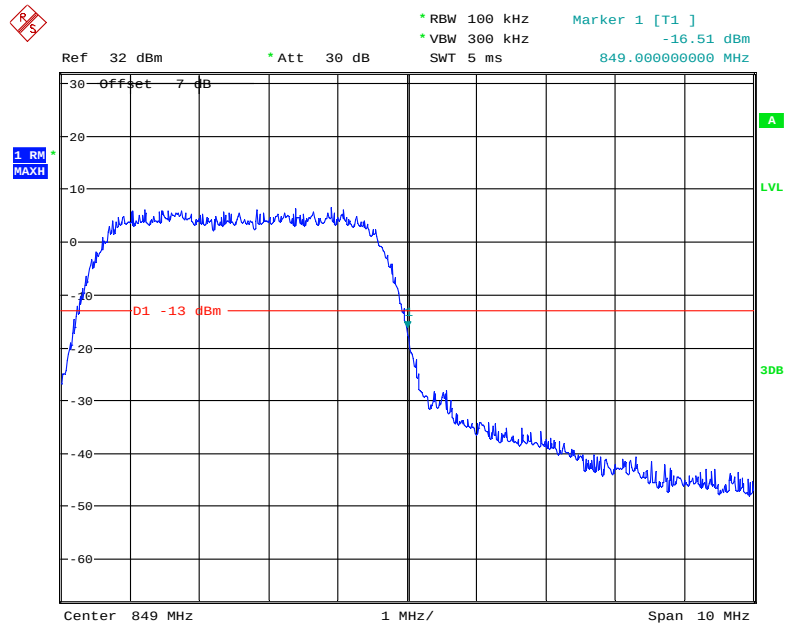
Date: 12.AUG.2021 00:37:17

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



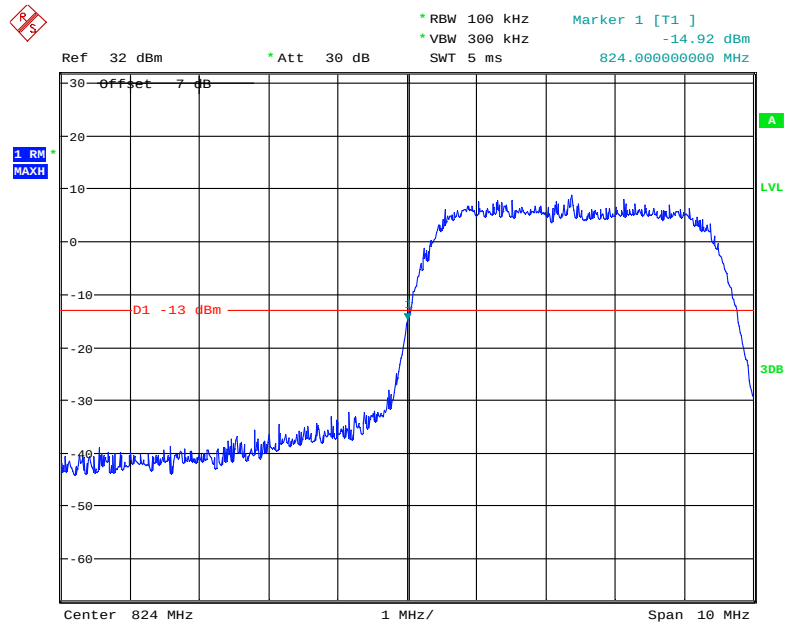
Date: 12.AUG.2021 00:34:06

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



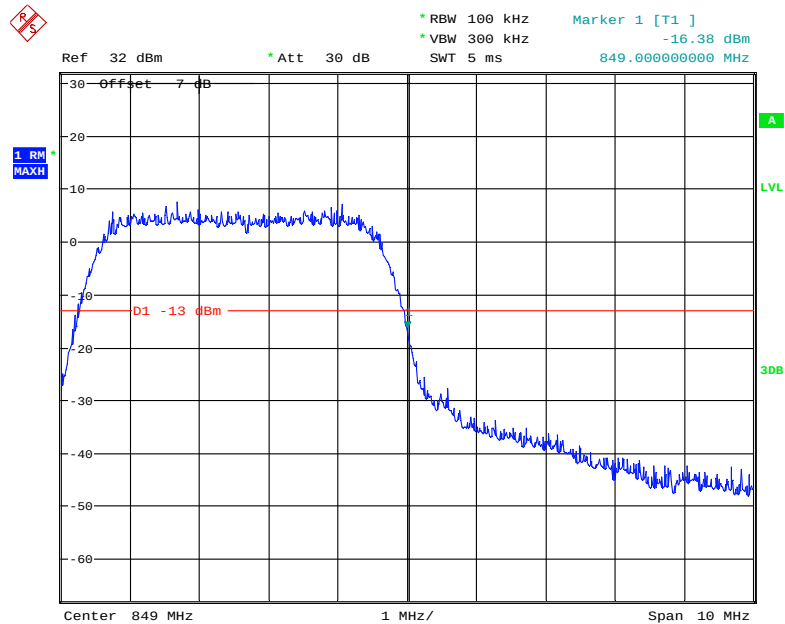
Date: 12.AUG.2021 00:34:44

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



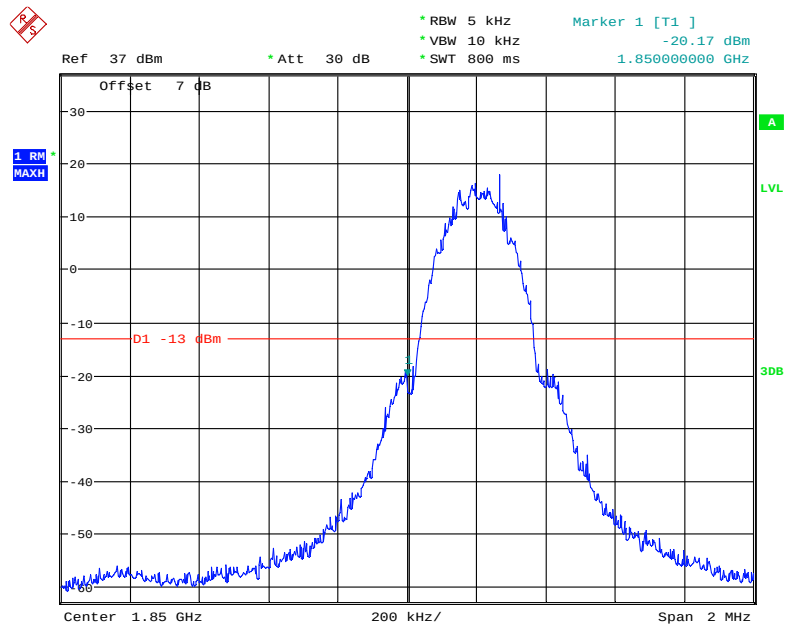
Date: 12.AUG.2021 00:32:40

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



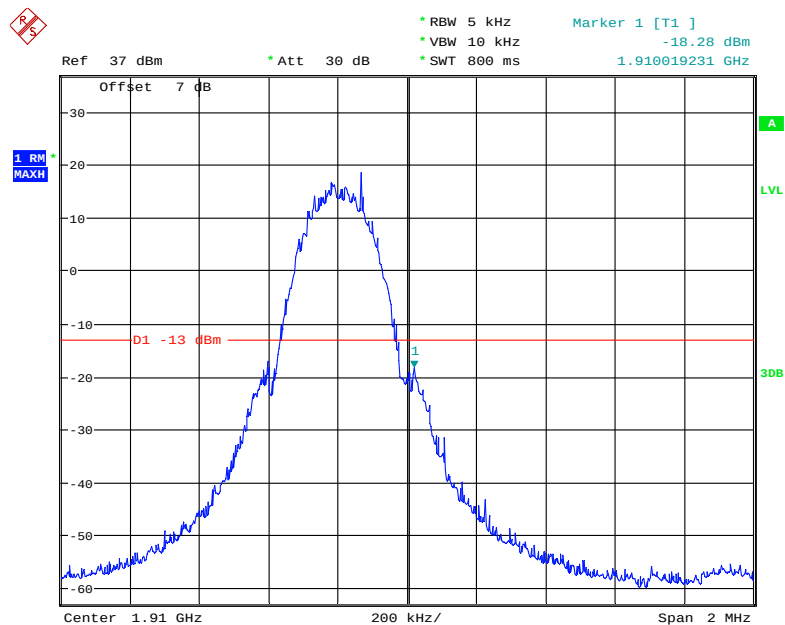
Date: 12.AUG.2021 00:33:29

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



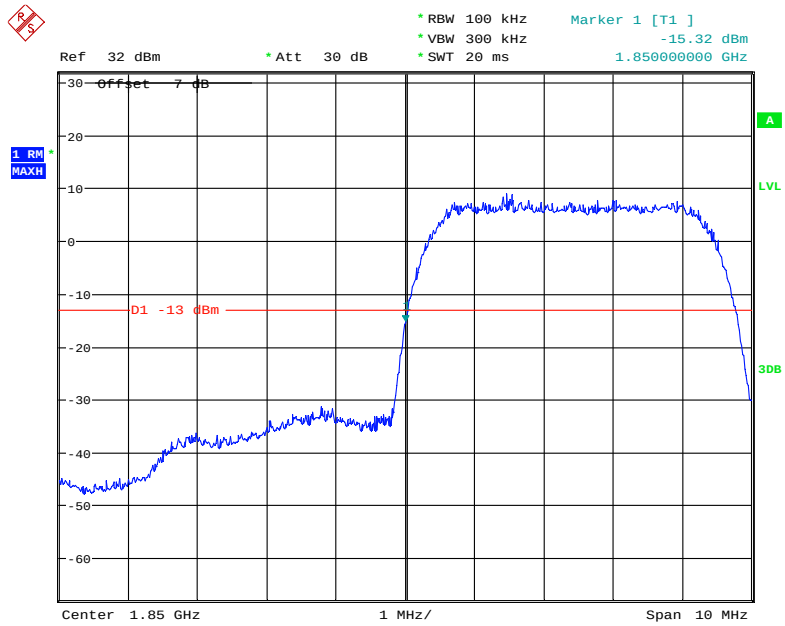
Date: 12.AUG.2021 22:30:58

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



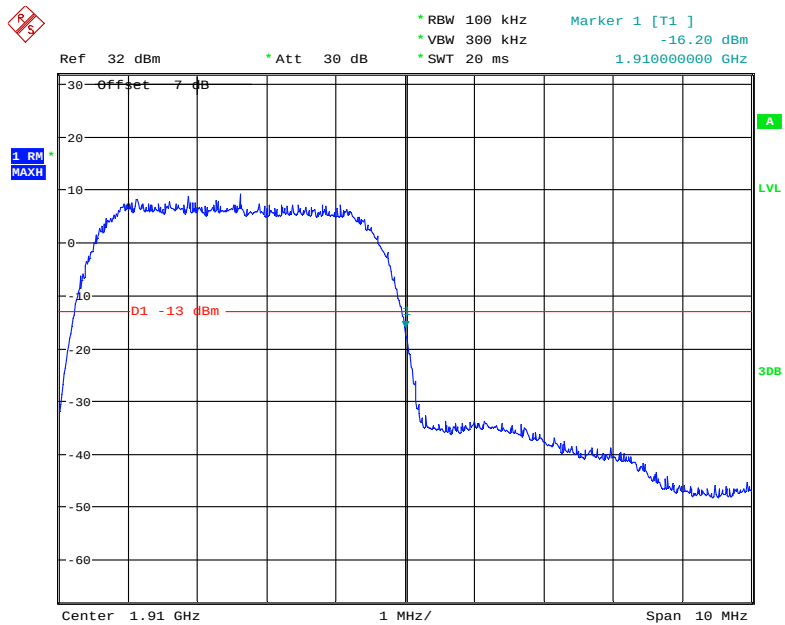
Date: 12.AUG.2021 22:40:48

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



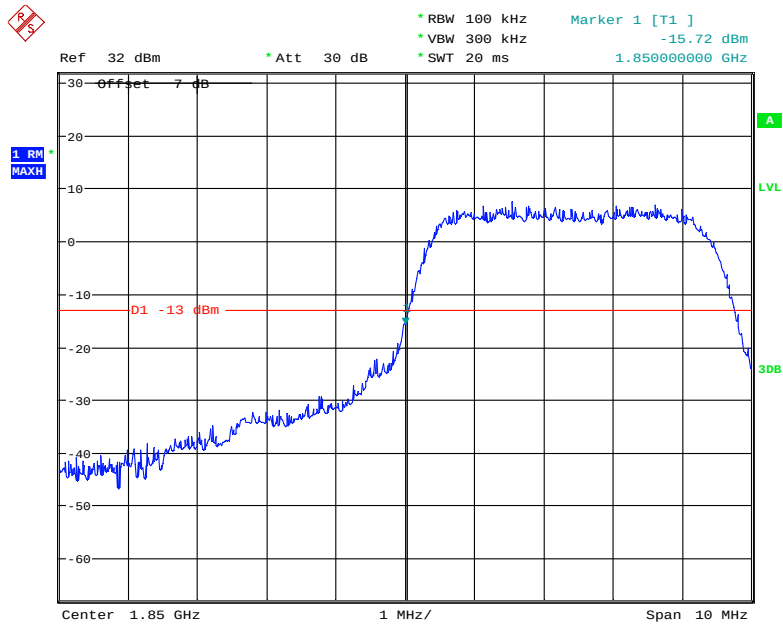
Date: 12.AUG.2021 01:14:13

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



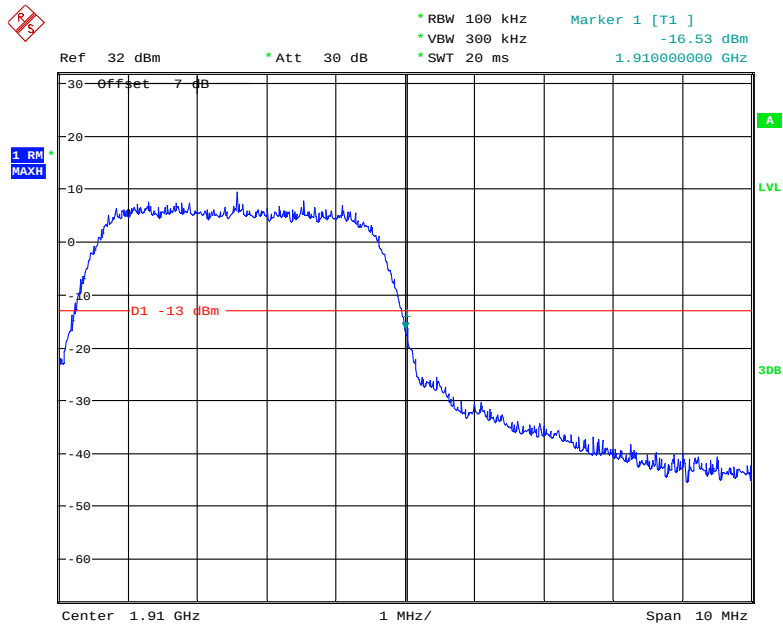
Date: 12.AUG.2021 01:15:01

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



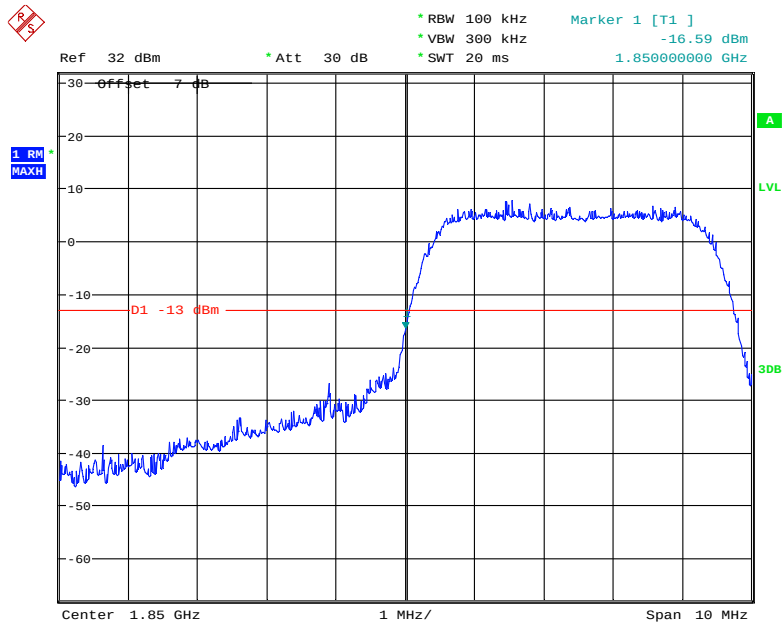
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PCS Band, Right Band Edge for HSDPA (16QAM) Mode



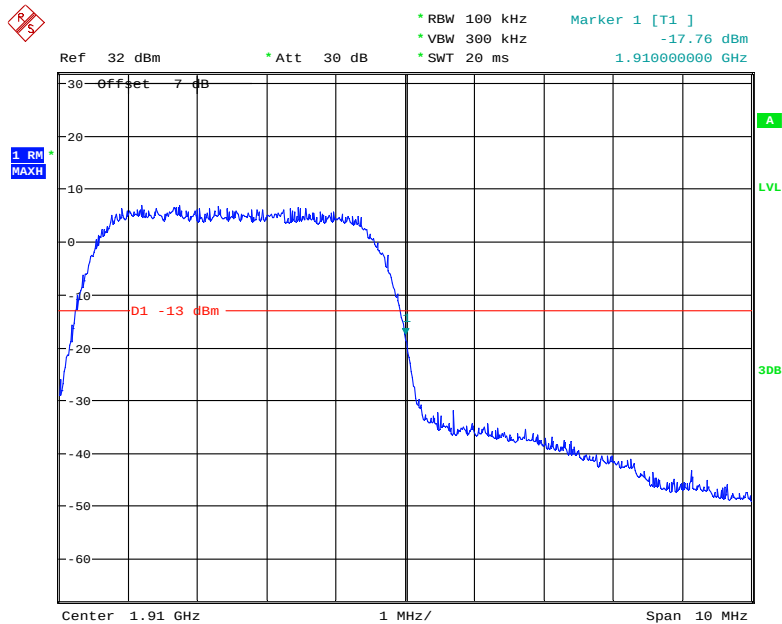
Date: 12.AUG.2021 00:25:07

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



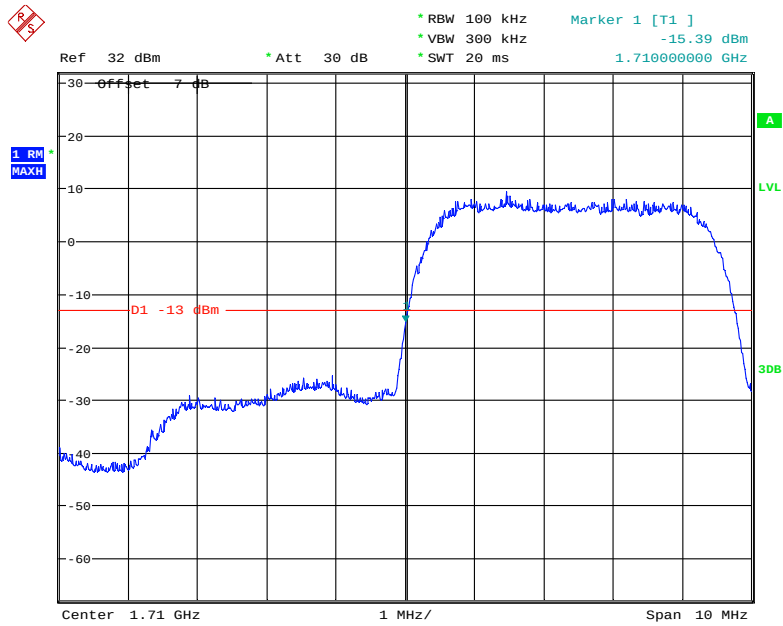
Date: 12.AUG.2021 01:09:56

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



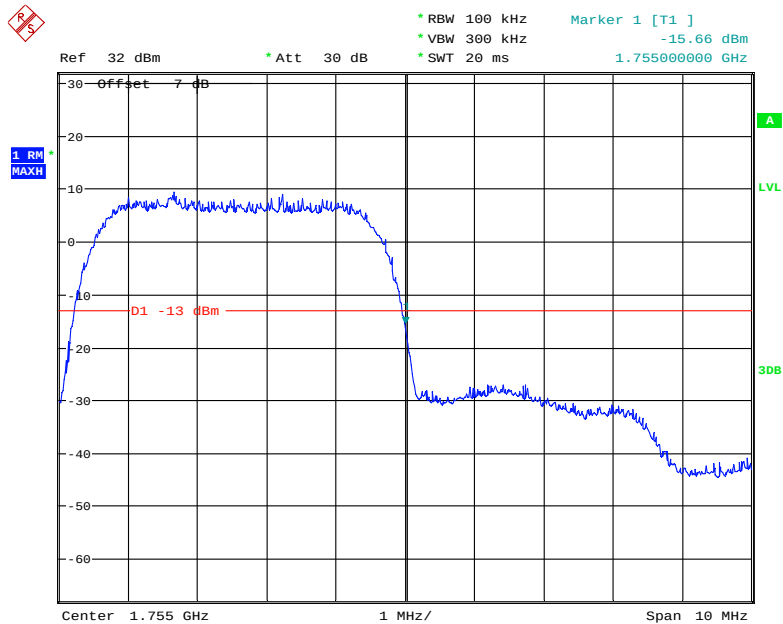
Date: 12.AUG.2021 01:07:33

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



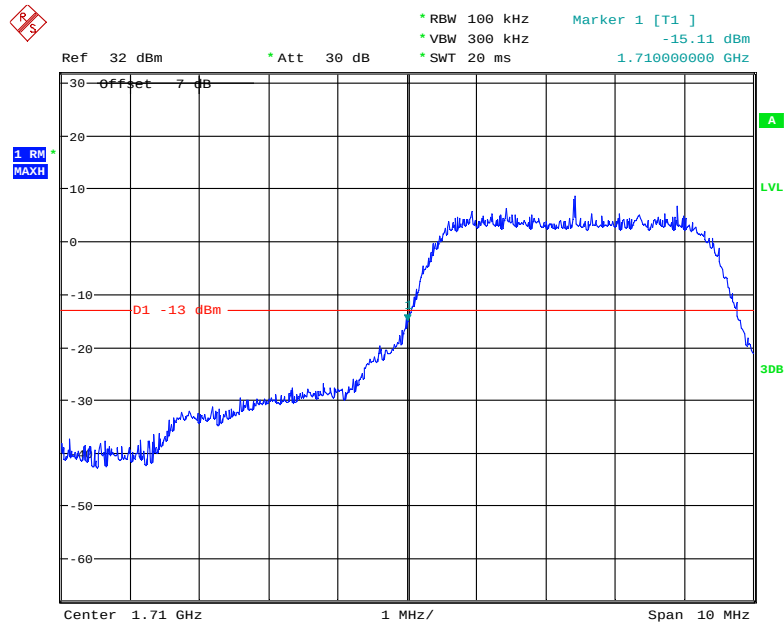
Date: 12.AUG.2021 01:16:40

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



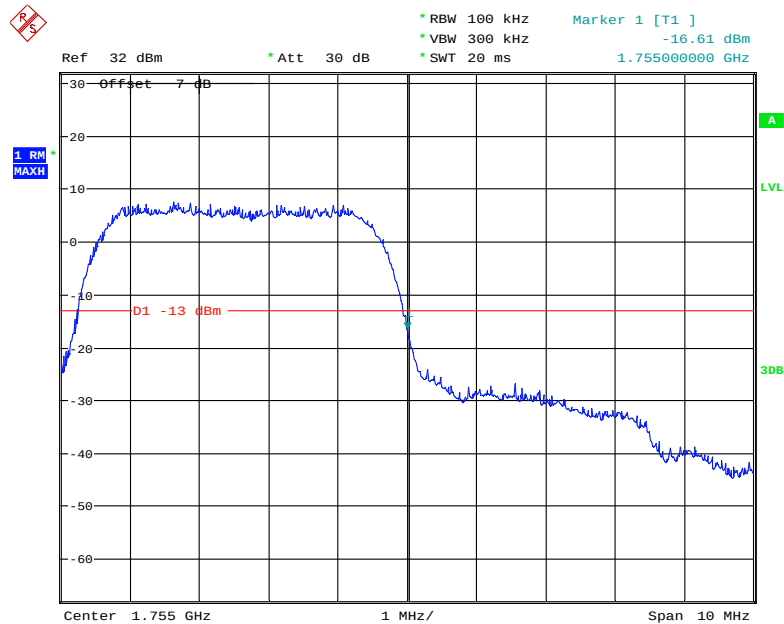
Date: 12.AUG.2021 01:15:54

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



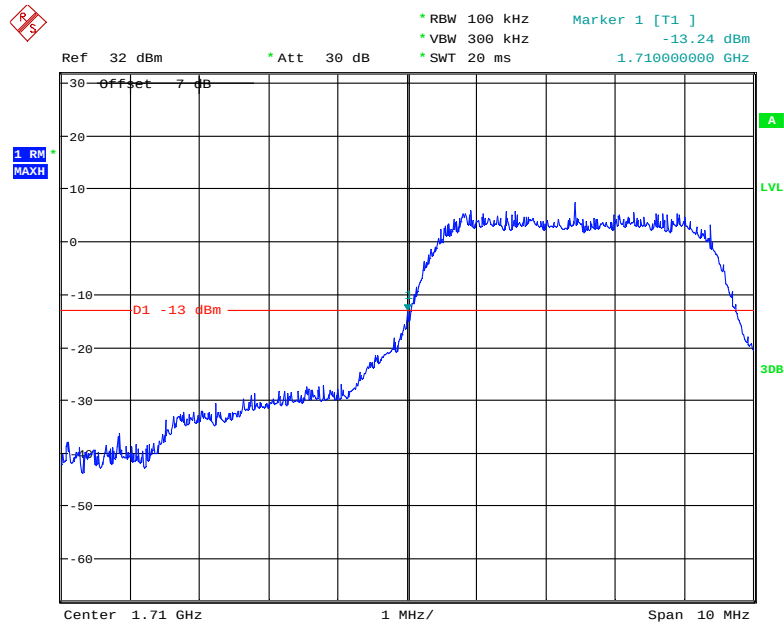
Date: 12.AUG.2021 00:29:54

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



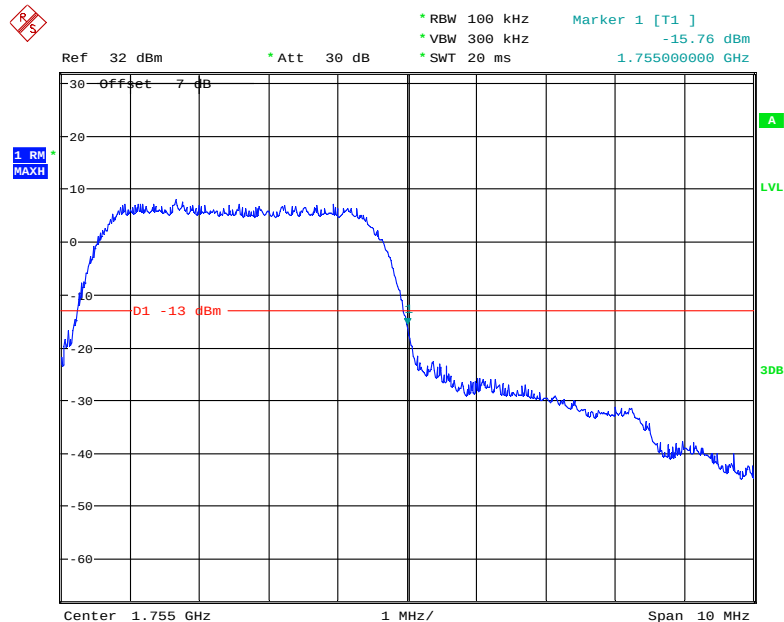
Date: 12.AUG.2021 00:57:20

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



Date: 12.AUG.2021 00:30:24

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



Date: 12.AUG.2021 01:06:33

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

FCC § 2.1055, § 22.355, § 24.235, §27.54 - FREQUENCY STABILITY**Applicable Standard**

FCC § 2.1055, §22.355, §24.235 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

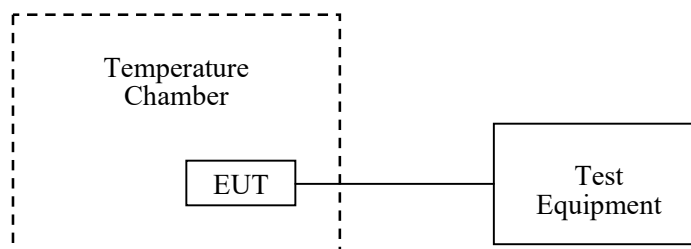
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

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:	28.5~29.2 °C
Relative Humidity:	51~53 %
ATM Pressure:	101.0 ~102.0kPa

The testing was performed by Pedro Yun on 2021-08-13.

EUT operation mode: Transmitting (Worst case)

Test Result: Pass

Please refer to the following tables.

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

Middle Channel, $f_0 = 836.6\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	N.V.	-5	-0.0060	2.5
-20		-4	-0.0048	2.5
-10		-3	-0.0036	2.5
0		-2	-0.0024	2.5
10		-2	-0.0024	2.5
20		-4	-0.0048	2.5
30		4	0.0048	2.5
40		5	0.0060	2.5
50		-4	-0.0048	2.5
20	L.V.	5	0.0060	2.5
	H.V.	-3	-0.0036	2.5

WCDMA Mode

Middle Channel, $f_0=836.6\text{MHz}$				
Temperature (°C)	Voltage Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	N.V.	8	0.0096	2.5
-20		6	0.0072	2.5
-10		7	0.0084	2.5
0		4	0.0048	2.5
10		5	0.0060	2.5
20		6	0.0072	2.5
30		7	0.0084	2.5
40		4	0.0048	2.5
50		5	0.0060	2.5
20	L.V.	6	0.0072	2.5
	H.V.	7	0.0084	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	N.V.	6	0.0032	Pass
-20		7	0.0037	Pass
-10		6	0.0032	Pass
0		3	0.0016	Pass
10		4	0.0021	Pass
20		5	0.0027	Pass
30		6	0.0032	Pass
40		8	0.0043	Pass
50		5	0.0027	Pass
20	L.V.	4	0.0021	Pass
	H.V.	5	0.0027	Pass

WCDMA Mode

Middle Channel, $f_0 = 1880.0$ MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	N.V.	-4	-0.0021	Pass
-20		-3	-0.0016	Pass
-10		6	0.0032	Pass
0		4	0.0021	Pass
10		5	0.0027	Pass
20		-4	-0.0021	Pass
30		-5	-0.0027	Pass
40		-4	-0.0021	Pass
50		-7	-0.0037	Pass
20	L.V.	-6	-0.0032	Pass
	H.V.	-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	N.V.	1710.0475	1754.6716	1710	1755
-20		1710.0283	1754.3322	1710	1755
-10		1710.0395	1754.5403	1710	1755
0		1710.3763	1754.4425	1710	1755
10		1710.0419	1754.2533	1710	1755
20		1710.1085	1754.5881	1710	1755
30		1710.0518	1754.4473	1710	1755
40		1710.2347	1754.5685	1710	1755
50		1710.2800	1754.3375	1710	1755
20	L.V.	1710.0278	1754.5930	1710	1755
	H.V.	1710.0198	1754.3809	1710	1755

LTE:
QPSK:

Band 2:

10.0 MHz Middle Channel, $f_0=1880\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	NV	-5.69	-0.0030	Pass
-20		-9.97	-0.0053	Pass
-10		-6.12	-0.0033	Pass
0		6.15	0.0033	Pass
10		7.88	0.0042	Pass
20		6.54	0.0035	Pass
30		-6.46	-0.0034	Pass
40		7.18	0.0038	Pass
50		-9.61	-0.0051	Pass
20	LV	-8.13	-0.0043	Pass
	HV	-7.08	-0.0038	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	NV	1710.3128	1754.0718	1710	1755
-20		1710.0519	1754.0715	1710	1755
-10		1710.3975	1754.0281	1710	1755
0		1710.3333	1754.0623	1710	1755
10		1710.4430	1754.5951	1710	1755
20		1710.0723	1754.2535	1710	1755
30		1710.1327	1754.1306	1710	1755
40		1710.3029	1754.4006	1710	1755
50		1710.3472	1754.0327	1710	1755
20	LV	1710.2835	1754.4537	1710	1755
	HV	1710.2460	1754.2222	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	NV	-5.88	-0.007	2.5
-20		-6.97	-0.0083	2.5
-10		-5.50	-0.0066	2.5
0		6.06	0.0072	2.5
10		9.80	0.0117	2.5
20		5.03	0.006	2.5
30		-6.62	-0.0079	2.5
40		-8.73	-0.0104	2.5
50		-7.05	-0.0084	2.5
20	LV	8.99	0.0107	2.5
	HV	-7.17	-0.0086	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	NV	2500.0864	2569.0839	2500	2570
-20		2500.5664	2569.0525	2500	2570
-10		2500.4729	2569.0763	2500	2570
0		2500.0483	2569.2082	2500	2570
10		2500.0614	2569.0683	2500	2570
20		2500.0881	2569.1044	2500	2570
30		2500.2511	2569.0154	2500	2570
40		2500.1806	2569.1223	2500	2570
50		2500.4674	2569.2134	2500	2570
20	LV	2500.1777	2569.1365	2500	2570
	HV	2500.0196	2569.0397	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	NV	704.2343	715.2650	704	716
-20		704.0195	715.0560	704	716
-10		704.0721	715.0749	704	716
0		704.0220	715.3543	704	716
10		704.0070	715.3718	704	716
20		704.2318	715.4764	704	716
30		704.1424	715.2484	704	716
40		704.0737	715.3161	704	716
50		704.0809	715.0862	704	716
20	LV	704.2015	715.0839	704	716
	HV	704.0814	715.2184	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	NV	-5.55	-0.0030	Pass
-20		-9.88	-0.0053	Pass
-10		-6.03	-0.0032	Pass
0		6.22	0.0033	Pass
10		7.95	0.0042	Pass
20		6.90	0.0037	Pass
30		-6.40	-0.0034	Pass
40		7.37	0.0039	Pass
50		-9.32	-0.0050	Pass
20	LV	-7.76	-0.0041	Pass
	HV	-6.87	-0.0037	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	NV	1710.5018	1754.5865	1710	1755
-20		1710.2690	1754.5195	1710	1755
-10		1710.3975	1754.5281	1710	1755
0		1710.1224	1754.6900	1710	1755
10		1710.5100	1754.7475	1710	1755
20		1710.3811	1754.4755	1710	1755
30		1710.1447	1754.5536	1710	1755
40		1710.5071	1754.5129	1710	1755
50		1710.3607	1754.8362	1710	1755
20	LV	1710.3998	1754.6197	1710	1755
	HV	1710.2446	1754.8029	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	NV	-9.00	-0.0108	2.5
-20		9.17	0.0110	2.5
-10		8.51	0.0102	2.5
0		-7.18	-0.0086	2.5
10		-5.22	-0.0062	2.5
20		7.12	0.0085	2.5
30		-5.79	-0.0069	2.5
40		5.41	0.0065	2.5
50		6.81	0.0081	2.5
20	LV	9.75	0.0117	2.5
	HV	9.79	0.0117	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	NV	2500.4632	2569.3974	2500	2570
-20		2500.3828	2569.3787	2500	2570
-10		2500.4729	2569.5763	2500	2570
0		2500.5172	2569.5383	2500	2570
10		2500.4325	2569.6837	2500	2570
20		2500.4504	2569.5244	2500	2570
30		2500.3489	2569.3272	2500	2570
40		2500.4419	2569.7474	2500	2570
50		2500.5695	2569.5820	2500	2570
20	LV	2500.5758	2569.3541	2500	2570
	HV	2500.2450	2569.3867	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	NV	704.0763	715.1677	704	716
-20		704.4561	715.1868	704	716
-10		704.4721	715.0749	704	716
0		704.4393	715.2261	704	716
10		704.5019	715.1493	704	716
20		704.2955	715.8214	704	716
30		704.1982	715.2434	704	716
40		704.7212	715.0119	704	716
50		704.2321	715.5777	704	716
20	LV	704.3589	715.2179	704	716
	HV	704.3973	715.3657	704	716

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