

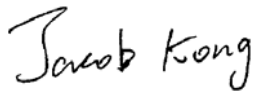
FCC PART 27
FCC PART 22H, PART 24E
TEST REPORT

For

TECNO MOBILE LIMITED

FLAT 39 8/F BLOCK D WAH LOK INDUSTRIAL CENTRE 31-35 SHAN MEI STREET
FOTAN NT Hong Kong

FCC ID: 2ADYY-KF6KS

Report Type: Original Report	Product Type: Mobile phone
Report Number: SZ1210419-12212E-00E	
Report Date: 2021-05-19	
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Reviewed By: RF Engineer	
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TABLE OF CONTENTS

GENERAL INFORMATION.....	3
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	3
OBJECTIVE	3
TEST METHODOLOGY	4
MEASUREMENT UNCERTAINTY	4
TEST FACILITY	4
SYSTEM TEST CONFIGURATION.....	5
DESCRIPTION OF TEST CONFIGURATION	5
EQUIPMENT MODIFICATIONS	6
SUPPORT EQUIPMENT LIST AND DETAILS	6
SUPPORT CABLE DESCRIPTION	6
BLOCK DIAGRAM OF TEST SETUP	7
SUMMARY OF TEST RESULTS	8
TEST EQUIPMENT LIST	9
FCC §1.1307(B) & §2.1093 - RF EXPOSURE INFORMATION.....	11
APPLICABLE STANDARD	11
TEST RESULT	11
FCC §2.1047 - MODULATION CHARACTERISTIC	12
FCC § 2.1046, § 22.913 (A) & § 24.232 (C); §27.50 (C) (D) (H) - RF OUTPUT POWER.....	13
APPLICABLE STANDARD	13
TEST PROCEDURE	13
TEST DATA	13
FCC §2.1049, §22.917, §22.905 & §24.238 & §27.53 - OCCUPIED BANDWIDTH	39
APPLICABLE STANDARD	39
TEST PROCEDURE	39
TEST DATA	39
FCC §2.1051, §22.917(A) & §24.238(A); §27.53 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS	69
APPLICABLE STANDARD	69
TEST PROCEDURE	69
TEST DATA	69
FCC § 2.1053; § 22.917 (A);§ 24.238 (A); §27.53 SPURIOUS RADIATED EMISSIONS	87
APPLICABLE STANDARD	87
TEST PROCEDURE	87
TEST DATA	87
FCC § 22.917 (A);§ 24.238 (A); §27.53(C) (H)(M) - BAND EDGES	96
APPLICABLE STANDARD	96
TEST PROCEDURE	96
TEST DATA	96
FCC § 2.1055; § 22.355; § 24.235; §27.54 - FREQUENCY STABILITY	110
APPLICABLE STANDARD	110
TEST PROCEDURE	110
TEST DATA	111

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	Mobile phone
Tested Model	KF6ks
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) LTE Band 66: 1710-1780MHz(TX); 2110-2180MHz(RX)
Modulation Technique	2G: GMSK, 8PSK 3G: BPSK, QPSK, 16QAM 4G: QPSK, 16QAM
Antenna Specification*	EGSM850/WCDMA Band 5/LTE Band 5: -1.6dBi PCS1900/WCDMA Band 2/ LTE Band 2: -0.7dBi WCDMA Band 4/ LTE Band 4/LTE Band 66: -0.7dBi LTE Band 7: -0.7dBi LTE Band 17: -1.9dBi (provided by the applicant)
Voltage Range	DC 3.87V from battery or DC 5.0V from adapter
Date of Test	2021-04-26 to 2021-05-19
Sample number	SZ1210419-12212E-RF-S_2P3(Assigned by BACL, Shenzhen)
Received date	2021-04-19
Sample/EUT Status	Good condition
Normal/Extreme Condition	L.V.: Low Voltage 3.45V _{DC} N.V.: Normal Voltage 3.87V _{DC} H.V.: High Voltage 4.45V _{DC} The extreme condition was declared by the applicant
Adapter information	Model: U100TSA Input: AC 100-240V ~ 50/60Hz, 0.3A Output: DC 5.0V, 2.0A

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.

Test was performed as below table:

Frequency band	Bandwidth (MHz)	Test Frequency(MHz)		
		Low	Middle	High
EGSM850	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
LTE B66	1.4	1710.7	1745	1779.3
	3	1711.5	1745	1778.5
	5	1712.5	1745	1777.5
	10	1715	1745	1775
	15	1717.5	1745	1772.5
	20	1720	1745	1770

Equipment Modifications

No modification was made to the EUT.

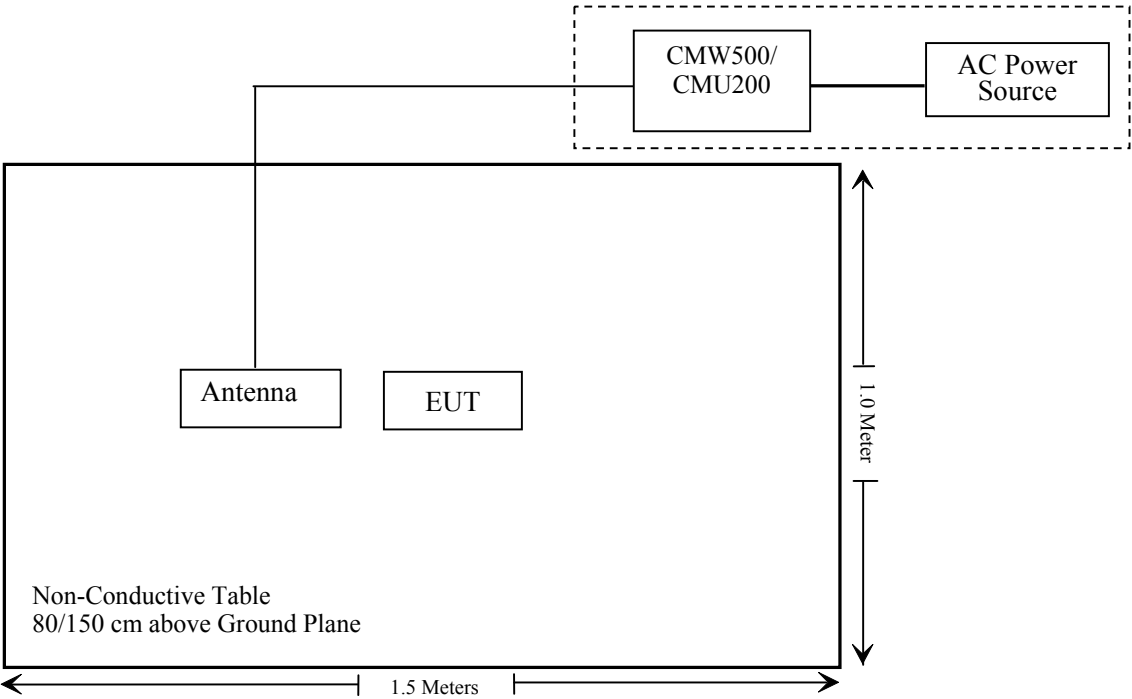
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	1201.002K50-116218-U
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	115500

Support Cable Description

Cable Description	Length (m)	From / Port	To
Un-Shielded Detachable AC Cable	1.2	AC Power Source	CMW500/ CMU200

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§ 1.1307 , §2.1093	RF Exposure (SAR)	Compliance*
§2.1046; § 22.913 (a); § 24.232 (c); §27.50 (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(c)(h) (m)	Band Edge	Compliance
§ 2.1055; § 22.355; § 24.235; §27.54;	Frequency stability	Compliance

Note: * Please refer to SAR report released by BACL, report number: SZ1210419-12212E-SA.

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	A040904-2	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 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	3115	9107-3694	2021/01/15	2024/01/14
A.H.System	Horn Antenna	SAS-200/571	135	2018/09/01	2021/08/31
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
MICRO-TRONICS	Passband filter	HPM50111	F-19-EM006	2021/04/20	2022/04/19
Unknown	High Pass filter	1.3GHz	101120	2021/04/20	2022/04/19
Ducommun Technologies	Horn antenna	ARH-4223-02	1007726-01 1304	2020/12/06	2023/12/05
Ducommun Technologies	Horn antenna	ARH-4223-02	1007726-02 1304	2020/12/06	2023/12/05
Agilent	Signal Generator	N5183A	MY51040755	2020/12/29	2021/12/28
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	1201.002K50-146520-wh	2020/08/04	2021/08/03
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	115500	2020/07/31	2021/07/30

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
RF Conducted Test					
Rohde & Schwarz	Signal and Spectrum Analyzer	FSV40	101473	2020/08/04	2021/08/03
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
ESPEC	Temperature & Humidity Chamber	EL-10KA	9107726	2021/01/05	2022/01/05
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: SZ1210419-12212E-SA.

FCC §2.1047 - MODULATION CHARACTERISTIC

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

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

Applicable Standard

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

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

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

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

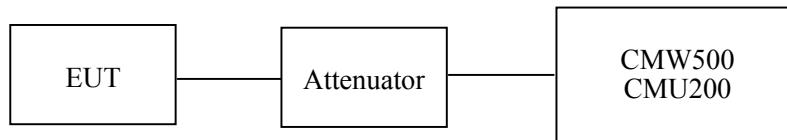
According to §27.50(d), the maximum EIRP must not exceed 1Watts (30dBm) for 1710-1780MHz.

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/CMU200 through sufficient attenuation.



Test Data

Environmental Conditions

Temperature:	28.2~28.5 °C
Relative Humidity:	43~46 %
ATM Pressure:	101.0 kPa

The testing was performed by Pedro Yun and Andy Yu from 2021-04-26 to 2021-05-01.

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

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	ERP (dBm)	Limit (dBm)
GSM	128	824.2	33.7	29.95	38.45
	190	836.6	33.7	29.95	38.45
	251	848.8	33.6	29.85	38.45

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				ERP(dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	1 slot	2 slots	3 slots	4 slots	
GPRS	128	824.2	33.80	32.77	30.70	29.48	30.05	29.02	26.95	25.73	38.45
	190	836.6	33.77	32.73	30.62	29.43	30.02	28.98	26.87	25.68	38.45
	251	848.8	33.67	32.60	30.50	29.31	29.92	28.85	26.75	25.56	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	
EGPRS	128	824.2	27.48	26.72	24.34	22.85	23.73	22.97	20.59	19.1	38.45
	190	836.6	27.83	26.58	24.26	22.73	24.08	22.83	20.51	18.98	38.45
	251	848.8	27.63	26.43	24.10	22.55	23.88	22.68	20.35	18.8	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		23.75	23.76	23.78	20.00	20.01	20.03
	HSDPA	1	22.74	22.71	22.74	18.99	18.96	18.99
		2	22.54	22.86	22.83	18.79	19.11	19.08
		3	22.48	22.78	22.86	18.73	19.03	19.11
		4	22.52	22.78	22.64	18.77	19.03	18.89
	HSUPA	1	23.40	23.36	23.25	19.65	19.61	19.50
		2	23.27	23.59	23.25	19.52	19.84	19.50
		3	23.55	23.61	23.34	19.80	19.86	19.59
		4	23.27	23.60	23.44	19.52	19.85	19.69
		5	23.28	23.60	23.34	19.53	19.85	19.59
	HSPA+	/	23.22	23.47	23.47	19.47	19.72	19.72

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

For GSM850/WCDMA Band 5: Antenna Gain = -1.6dBi = -3.75dBd (0dBd=2.15dBi)

The limit: ERP ≤ 38.45dBm

PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	EIRP(dBm)	Limit (dBm)
GSM	512	1850.2	28.5	27.80	33
	661	1880.0	28.6	27.90	33
	810	1909.8	28.7	28.00	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	28.34	28.25	27.28	26.12	27.64	27.55	26.58	25.42	33
	661	1880.0	28.48	28.41	27.39	26.26	27.78	27.71	26.69	25.56	33
	810	1909.8	28.55	28.48	27.47	26.35	27.85	27.78	26.77	25.65	33

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				EIRP(dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	1 slot	2 slots	3 slots	4 slots	
EGPRS	512	1850.2	26.61	25.63	23.67	22.66	25.91	24.93	22.97	21.96	33
	661	1880.0	26.28	25.32	23.32	22.33	25.58	24.62	22.62	21.63	33
	810	1909.8	26.20	25.18	23.28	22.27	25.5	24.48	22.58	21.57	33

Mode	Test Mode	3GPP Sub Test	Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
WCDMA (Band 2)	RMC12.2k		16.09	15.96	16.01	15.39	15.26	15.31
	HSDPA	1	14.82	14.73	14.83	14.12	14.03	14.13
		2	14.86	14.58	14.71	14.16	13.88	14.01
		3	14.83	14.52	14.60	14.13	13.82	13.90
		4	14.69	14.30	14.65	13.99	13.60	13.95
	HSUPA	1	15.39	15.38	15.45	14.69	14.68	14.75
		2	15.33	15.35	15.47	14.63	14.65	14.77
		3	15.23	15.27	15.24	14.53	14.57	14.54
		4	15.18	15.53	15.28	14.48	14.83	14.58
		5	15.19	15.75	15.39	14.49	15.05	14.69
	HSPA+	\	15.15	15.62	15.29	14.45	14.92	14.59

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

For PCS1900/WCDMA Band 2: Antenna Gain = -0.7dBi

The 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		17.14	17.00	17.08	16.44	16.30	16.38
	HSDPA	1	16.03	15.95	15.99	15.33	15.25	15.29
		2	16.02	15.85	16.16	15.32	15.15	15.46
		3	15.76	15.63	16.21	15.06	14.93	15.51
		4	15.58	15.70	16.28	14.88	15.00	15.58
	HSUPA	1	16.60	16.49	16.66	15.90	15.79	15.96
		2	16.46	16.50	16.68	15.76	15.80	15.98
		3	16.46	16.65	16.66	15.76	15.95	15.96
		4	16.52	16.64	16.56	15.82	15.94	15.86
		5	16.55	16.55	16.53	15.85	15.85	15.83
	HSPA+	\	16.43	16.60	16.56	15.73	15.90	15.86

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

For WCDMA Band 4: Antenna Gain = -0.7dBi

The limit: EIRP ≤ 30dBm

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

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	3.15	13
	Middle	3.42	13
	High	3.43	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	3.41	13
	Middle	3.32	13
	High	3.17	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.48	13
	Middle	3.31	13
	High	3.49	13
HSDPA (16QAM)	Low	3.42	13
	Middle	3.15	13
	High	3.36	13
HSUPA (BPSK)	Low	3.07	13
	Middle	3.13	13
	High	3.31	13
HSPA+	Low	3.42	13
	Middle	3.29	13
	High	3.22	13

PCS Band

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	3.14	13
	Middle	3.12	13
	High	3.46	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	3.18	13
	Middle	3.36	13
	High	3.46	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.53	13
	Middle	3.42	13
	High	3.35	13
HSDPA (16QAM)	Low	3.49	13
	Middle	3.32	13
	High	3.42	13
HSUPA (BPSK)	Low	3.29	13
	Middle	3.62	13
	High	3.46	13
HSPA+	Low	3.12	13
	Middle	3.28	13
	High	3.22	13

AWS Band

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.09	13
	Middle	3.21	13
	High	3.49	13
HSDPA (16QAM)	Low	3.36	13
	Middle	3.35	13
	High	3.49	13
HSUPA (BPSK)	Low	3.13	13
	Middle	3.38	13
	High	3.33	13
HSPA+	Low	3.28	13
	Middle	3.43	13
	High	3.31	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	15.05	15.18	15.30	14.35	14.48	14.60
		RB1#3	15.18	15.34	15.44	14.48	14.64	14.74
		RB1#5	15.12	15.23	15.29	14.42	14.53	14.59
		RB3#0	15.26	15.37	15.47	14.56	14.67	14.77
		RB3#3	15.21	15.44	15.42	14.51	14.74	14.72
		RB6#0	14.20	14.35	14.37	13.50	13.65	13.67
	16QAM	RB1#0	14.33	14.34	14.41	13.63	13.64	13.71
		RB1#3	14.49	14.53	14.56	13.79	13.83	13.86
		RB1#5	14.36	14.39	14.44	13.66	13.69	13.74
		RB3#0	14.26	14.55	14.73	13.56	13.85	14.03
		RB3#3	14.33	14.50	14.71	13.63	13.80	14.01
		RB6#0	13.29	13.34	13.49	12.59	12.64	12.79
3.0	QPSK	RB1#0	15.47	15.74	15.72	14.77	15.04	15.02
		RB1#8	15.40	15.68	15.70	14.70	14.98	15.00
		RB1#14	15.45	15.68	15.71	14.75	14.98	15.01
		RB6#0	14.53	14.66	14.67	13.83	13.96	13.97
		RB6#9	14.53	14.64	14.64	13.83	13.94	13.94
		RB15#0	14.56	14.73	14.74	13.86	14.03	14.04
	16QAM	RB1#0	15.24	14.92	14.87	14.54	14.22	14.17
		RB1#8	15.18	14.90	14.78	14.48	14.20	14.08
		RB1#14	15.23	14.90	14.80	14.53	14.20	14.10
		RB6#0	13.69	13.73	13.71	12.99	13.03	13.01
		RB6#9	13.67	13.72	13.69	12.97	13.02	12.99
		RB15#0	13.77	13.72	13.88	13.07	13.02	13.18

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	15.74	15.33	15.82	15.04	14.63	15.12
		RB1#13	15.75	15.39	15.83	15.05	14.69	15.13
		RB1#24	15.73	15.40	15.80	15.03	14.70	15.10
		RB15#0	14.77	14.51	14.97	14.07	13.81	14.27
		RB15#10	14.78	14.51	14.83	14.08	13.81	14.13
		RB25#0	14.79	14.53	14.88	14.09	13.83	14.18
	16QAM	RB1#0	14.71	15.07	15.01	14.01	14.37	14.31
		RB1#13	14.74	15.09	15.00	14.04	14.39	14.30
		RB1#24	14.69	15.12	15.00	13.99	14.42	14.30
		RB15#0	13.81	13.87	14.04	13.11	13.17	13.34
		RB15#10	13.84	13.88	13.86	13.14	13.18	13.16
		RB25#0	13.38	13.94	13.93	12.68	13.24	13.23
10.0	QPSK	RB1#0	15.80	15.91	15.89	15.10	15.21	15.19
		RB1#25	15.98	16.08	15.98	15.28	15.38	15.28
		RB1#49	15.79	15.89	15.89	15.09	15.19	15.19
		RB25#0	14.94	15.07	15.06	14.24	14.37	14.36
		RB25#25	14.97	14.95	14.85	14.27	14.25	14.15
		RB50#0	14.96	15.01	14.96	14.26	14.31	14.26
	16QAM	RB1#0	15.51	15.12	14.91	14.81	14.42	14.21
		RB1#25	15.63	15.19	15.11	14.93	14.49	14.41
		RB1#49	15.50	15.09	14.93	14.80	14.39	14.23
		RB25#0	14.00	14.13	14.13	13.30	13.43	13.43
		RB25#25	14.06	14.01	13.96	13.36	13.31	13.26
		RB50#0	13.99	14.07	13.98	13.29	13.37	13.28

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15.0	QPSK	RB1#0	15.81	15.90	15.83	15.11	15.20	15.13
		RB1#38	15.79	15.92	15.84	15.09	15.22	15.14
		RB1#74	15.77	15.86	15.84	15.07	15.16	15.14
		RB36#0	14.94	14.99	14.94	14.24	14.29	14.24
		RB36#39	14.93	14.94	14.88	14.23	14.24	14.18
		RB75#0	14.92	14.99	14.91	14.22	14.29	14.21
	16QAM	RB1#0	15.52	15.12	15.34	14.82	14.42	14.64
		RB1#38	15.53	15.09	15.35	14.83	14.39	14.65
		RB1#74	15.50	15.03	15.29	14.80	14.33	14.59
		RB36#0	13.91	14.06	13.95	13.21	13.36	13.25
		RB36#39	13.92	13.99	13.86	13.22	13.29	13.16
		RB75#0	13.93	13.99	13.88	13.23	13.29	13.18
20.0	QPSK	RB1#0	15.72	15.88	15.74	15.02	15.18	15.04
		RB1#50	16.05	16.13	16.04	15.35	15.43	15.34
		RB1#99	15.75	15.82	15.77	15.05	15.12	15.07
		RB50#0	14.92	15.19	15.02	14.22	14.49	14.32
		RB50#50	14.97	15.02	14.88	14.27	14.32	14.18
		RB100#0	14.94	15.11	14.97	14.24	14.41	14.27
	16QAM	RB1#0	15.12	15.17	15.47	14.42	14.47	14.77
		RB1#50	15.40	15.35	15.71	14.70	14.65	15.01
		RB1#99	15.19	15.13	15.45	14.49	14.43	14.75
		RB50#0	14.00	14.22	14.00	13.30	13.52	13.30
		RB50#50	13.99	14.05	13.90	13.29	13.35	13.20
		RB100#0	13.99	14.16	13.98	13.29	13.46	13.28

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

For LTE Band2: Antenna Gain = -0.7dBi

The 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)	5.38	5.99	5.83	13	Pass
QPSK (100RB Size)	5.77	5.87	5.61	13	Pass
16QAM (1RB Size)	6.06	7.34	7.28	13	Pass
16QAM (100RB Size)	6.57	6.57	6.51	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	15.60	15.64	15.62	14.90	14.94	14.92
		RB1#3	15.76	15.74	15.81	15.06	15.04	15.11
		RB1#5	15.63	15.63	15.60	14.93	14.93	14.90
		RB3#0	15.76	15.75	15.79	15.06	15.05	15.09
		RB3#3	15.73	15.74	15.80	15.03	15.04	15.10
		RB6#0	14.64	14.68	14.66	13.94	13.98	13.96
	16QAM	RB1#0	14.67	14.79	14.68	13.97	14.09	13.98
		RB1#3	14.80	14.89	14.80	14.10	14.19	14.10
		RB1#5	14.68	14.80	14.72	13.98	14.10	14.02
		RB3#0	14.96	14.76	14.94	14.26	14.06	14.24
		RB3#3	14.92	14.78	14.91	14.22	14.08	14.21
		RB6#0	13.73	13.72	13.64	13.03	13.02	12.94
3.0	QPSK	RB1#0	15.70	15.76	15.71	15.00	15.06	15.01
		RB1#8	15.62	15.68	15.62	14.92	14.98	14.92
		RB1#14	15.63	15.74	15.70	14.93	15.04	15.00
		RB6#0	14.60	14.64	14.61	13.90	13.94	13.91
		RB6#9	14.59	14.66	14.64	13.89	13.96	13.94
		RB15#0	14.67	14.72	14.70	13.97	14.02	14.00
	16QAM	RB1#0	15.36	14.92	14.77	14.66	14.22	14.07
		RB1#8	15.27	14.88	14.67	14.57	14.18	13.97
		RB1#14	15.33	14.90	14.72	14.63	14.20	14.02
		RB6#0	13.73	13.70	13.58	13.03	13.00	12.88
		RB6#9	13.71	13.72	13.58	13.01	13.02	12.88
		RB15#0	13.79	13.70	13.76	13.09	13.00	13.06

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	15.69	15.75	15.68	14.99	15.05	14.98
		RB1#13	15.68	15.73	15.67	14.98	15.03	14.97
		RB1#24	15.69	15.77	15.72	14.99	15.07	15.02
		RB15#0	14.72	14.69	14.78	14.02	13.99	14.08
		RB15#10	14.63	14.79	14.74	13.93	14.09	14.04
		RB25#0	14.65	14.72	14.73	13.95	14.02	14.03
	16QAM	RB1#0	14.66	15.02	14.81	13.96	14.32	14.11
		RB1#13	14.59	15.05	14.83	13.89	14.35	14.13
		RB1#24	14.60	15.06	14.81	13.90	14.36	14.11
		RB15#0	13.80	13.69	13.82	13.10	12.99	13.12
		RB15#10	13.74	13.76	13.71	13.04	13.06	13.01
		RB25#0	13.72	13.79	13.74	13.02	13.09	13.04
10.0	QPSK	RB1#0	15.67	15.73	15.67	14.97	15.03	14.97
		RB1#25	15.78	15.81	15.84	15.08	15.11	15.14
		RB1#49	15.67	15.76	15.71	14.97	15.06	15.01
		RB25#0	14.77	14.72	14.85	14.07	14.02	14.15
		RB25#25	14.74	14.83	14.73	14.04	14.13	14.03
		RB50#0	14.74	14.74	14.78	14.04	14.04	14.08
	16QAM	RB1#0	15.35	14.87	14.73	14.65	14.17	14.03
		RB1#25	15.43	14.96	14.85	14.73	14.26	14.15
		RB1#49	15.37	14.94	14.80	14.67	14.24	14.10
		RB25#0	13.86	13.77	13.95	13.16	13.07	13.25
		RB25#25	13.80	13.89	13.83	13.10	13.19	13.13
		RB50#0	13.79	13.81	13.87	13.09	13.11	13.17

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	15.66	15.75	15.72	14.96	15.05	15.02
		RB1#38	15.65	15.71	15.69	14.95	15.01	14.99
		RB1#74	15.68	15.73	15.68	14.98	15.03	14.98
		RB36#0	14.76	14.73	14.86	14.06	14.03	14.16
		RB36#39	14.79	14.84	14.73	14.09	14.14	14.03
		RB75#0	14.78	14.77	14.83	14.08	14.07	14.13
	16QAM	RB1#0	15.34	14.93	15.13	14.64	14.23	14.43
		RB1#38	15.36	14.93	15.17	14.66	14.23	14.47
		RB1#74	15.38	14.92	15.20	14.68	14.22	14.50
		RB36#0	13.79	13.76	13.84	13.09	13.06	13.14
		RB36#39	13.80	13.86	13.71	13.10	13.16	13.01
		RB75#0	13.79	13.83	13.80	13.09	13.13	13.10
20.0	QPSK	RB1#0	15.60	15.61	15.56	14.90	14.91	14.86
		RB1#50	15.85	15.88	15.83	15.15	15.18	15.13
		RB1#99	15.68	15.71	15.61	14.98	15.01	14.91
		RB50#0	14.87	14.68	14.99	14.17	13.98	14.29
		RB50#50	14.97	14.88	14.68	14.27	14.18	13.98
		RB100#0	14.94	14.82	14.86	14.24	14.12	14.16
	16QAM	RB1#0	14.92	14.88	15.22	14.22	14.18	14.52
		RB1#50	15.18	15.15	15.48	14.48	14.45	14.78
		RB1#99	14.97	14.93	15.29	14.27	14.23	14.59
		RB50#0	13.88	13.72	14.04	13.18	13.02	13.34
		RB50#50	14.01	13.91	13.75	13.31	13.21	13.05
		RB100#0	14.00	13.83	13.87	13.30	13.13	13.17

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

For LTE Band 4: Antenna Gain = -0.7dBi

The 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)	5.77	5.45	5.54	13	Pass
QPSK (100RB Size)	5.83	5.77	5.80	13	Pass
16QAM (1RB Size)	7.08	6.38	6.79	13	Pass
16QAM (100RB Size)	6.51	6.67	6.57	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	23.35	23.32	23.27	19.60	19.57	19.52
		RB1#3	23.48	23.44	23.39	19.73	19.69	19.64
		RB1#5	23.34	23.28	23.26	19.59	19.53	19.51
		RB3#0	23.40	23.36	23.35	19.65	19.61	19.60
		RB3#3	23.40	23.35	23.31	19.65	19.60	19.56
		RB6#0	22.36	22.41	22.38	18.61	18.66	18.63
	16QAM	RB1#0	22.40	22.43	22.29	18.65	18.68	18.54
		RB1#3	22.47	22.62	22.48	18.72	18.87	18.73
		RB1#5	22.39	22.45	22.33	18.64	18.70	18.58
		RB3#0	22.61	22.34	22.37	18.86	18.59	18.62
		RB3#3	22.54	22.35	22.46	18.79	18.60	18.71
		RB6#0	21.41	21.40	21.32	17.66	17.65	17.57
3.0	QPSK	RB1#0	23.38	23.40	23.37	19.63	19.65	19.62
		RB1#8	23.36	23.34	23.30	19.61	19.59	19.55
		RB1#14	23.39	23.36	23.32	19.64	19.61	19.57
		RB6#0	22.41	22.40	22.31	18.66	18.65	18.56
		RB6#9	22.41	22.38	22.27	18.66	18.63	18.52
		RB15#0	22.41	22.40	22.37	18.66	18.65	18.62
	16QAM	RB1#0	22.97	22.59	22.41	19.22	18.84	18.66
		RB1#8	22.92	22.51	22.34	19.17	18.76	18.59
		RB1#14	22.93	22.53	22.36	19.18	18.78	18.61
		RB6#0	21.40	21.39	21.30	17.65	17.64	17.55
		RB6#9	21.43	21.38	21.30	17.68	17.63	17.55
		RB15#0	21.49	21.29	21.42	17.74	17.54	17.67

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	23.38	23.39	23.33	19.63	19.64	19.58
		RB1#13	23.43	23.34	23.32	19.68	19.59	19.57
		RB1#24	23.41	23.37	23.31	19.66	19.62	19.56
		RB15#0	22.36	22.43	22.47	18.61	18.68	18.72
		RB15#10	22.49	22.41	22.33	18.74	18.66	18.58
		RB25#0	22.44	22.39	22.37	18.69	18.64	18.62
	16QAM	RB1#0	22.31	22.67	22.43	18.56	18.92	18.68
		RB1#13	22.34	22.68	22.44	18.59	18.93	18.69
		RB1#24	22.34	22.64	22.41	18.59	18.89	18.66
		RB15#0	21.44	21.39	21.49	17.69	17.64	17.74
		RB15#10	21.50	21.38	21.44	17.75	17.63	17.69
		RB25#0	21.49	21.40	21.45	17.74	17.65	17.70
10.0	QPSK	RB1#0	23.37	23.38	23.37	19.62	19.63	19.62
		RB1#25	23.52	23.53	23.46	19.77	19.78	19.71
		RB1#49	23.37	23.34	23.35	19.62	19.59	19.60
		RB25#0	22.46	22.46	22.49	18.71	18.71	18.74
		RB25#25	22.49	22.42	22.33	18.74	18.67	18.58
		RB50#0	22.46	22.47	22.42	18.71	18.72	18.67
	16QAM	RB1#0	22.94	22.58	22.36	19.19	18.83	18.61
		RB1#25	23.07	22.70	22.51	19.32	18.95	18.76
		RB1#49	22.92	22.54	22.39	19.17	18.79	18.64
		RB25#0	21.51	21.51	21.57	17.76	17.76	17.82
		RB25#25	21.53	21.47	21.47	17.78	17.72	17.72
		RB50#0	21.49	21.47	21.45	17.74	17.72	17.70

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd)
For LTE Band 5: Antenna Gain = -1.6dBi = -3.75dBd (0dBd=2.15dBi)
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)	4.36	4.26	3.97	13	Pass
QPSK (50RB Size)	5.61	5.51	5.48	13	Pass
16QAM (1RB Size)	5.45	5.16	4.94	13	Pass
16QAM (50RB Size)	6.44	6.38	6.38	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	16.71	16.67	16.23	16.31	16.27	15.83
		RB1#13	16.78	16.61	16.21	16.38	16.21	15.81
		RB1#24	16.76	16.65	16.15	16.36	16.25	15.75
		RB15#0	15.66	15.58	15.16	15.26	15.18	14.76
		RB15#10	15.69	15.55	15.18	15.29	15.15	14.78
		RB25#0	15.65	15.59	15.15	15.25	15.19	14.75
	16QAM	RB1#0	15.64	15.99	15.31	15.24	15.59	14.91
		RB1#13	15.72	15.90	15.25	15.32	15.50	14.85
		RB1#24	15.66	15.99	15.25	15.26	15.59	14.85
		RB15#0	14.72	14.57	14.18	14.32	14.17	13.78
		RB15#10	14.75	14.57	14.22	14.35	14.17	13.82
		RB25#0	14.74	14.58	14.14	14.34	14.18	13.74
10.0	QPSK	RB1#0	16.69	16.68	16.26	16.29	16.28	15.86
		RB1#25	16.75	16.71	16.33	16.35	16.31	15.93
		RB1#49	16.77	16.55	16.16	16.37	16.15	15.76
		RB25#0	15.64	15.63	15.20	15.24	15.23	14.80
		RB25#25	15.75	15.54	15.19	15.35	15.14	14.79
		RB50#0	15.69	15.58	15.22	15.29	15.18	14.82
	16QAM	RB1#0	16.42	15.85	15.32	16.02	15.45	14.92
		RB1#25	16.46	15.86	15.41	16.06	15.46	15.01
		RB1#49	16.45	15.74	15.17	16.05	15.34	14.77
		RB25#0	14.72	14.64	14.30	14.32	14.24	13.90
		RB25#25	14.81	14.59	14.32	14.41	14.19	13.92
		RB50#0	14.75	14.56	14.28	14.35	14.16	13.88

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	16.67	16.72	16.32	16.27	16.32	15.92
		RB1#38	16.68	16.63	16.27	16.28	16.23	15.87
		RB1#74	16.67	16.61	16.13	16.27	16.21	15.73
		RB36#0	15.71	15.64	15.33	15.31	15.24	14.93
		RB36#39	15.75	15.56	15.24	15.35	15.16	14.84
		RB75#0	15.71	15.56	15.27	15.31	15.16	14.87
	16QAM	RB1#0	16.42	15.81	15.78	16.02	15.41	15.38
		RB1#38	16.41	15.74	15.70	16.01	15.34	15.30
		RB1#74	16.44	15.67	15.57	16.04	15.27	15.17
		RB36#0	14.71	14.65	14.27	14.31	14.25	13.87
		RB36#39	14.79	14.55	14.23	14.39	14.15	13.83
		RB75#0	14.74	14.59	14.26	14.34	14.19	13.86
20.0	QPSK	RB1#0	16.64	16.60	16.24	16.24	16.20	15.84
		RB1#50	16.92	16.84	16.39	16.52	16.44	15.99
		RB1#99	16.62	16.46	16.00	16.22	16.06	15.60
		RB50#0	15.78	15.67	15.36	15.38	15.27	14.96
		RB50#50	15.78	15.53	15.36	15.38	15.13	14.96
		RB100#0	15.83	15.60	15.41	15.43	15.20	15.01
	16QAM	RB1#0	15.98	15.80	15.87	15.58	15.40	15.47
		RB1#50	16.24	16.09	16.03	15.84	15.69	15.63
		RB1#99	15.93	15.69	15.66	15.53	15.29	15.26
		RB50#0	14.76	14.70	14.38	14.36	14.30	13.98
		RB50#50	14.82	14.53	14.40	14.42	14.13	14.00
		RB100#0	14.84	14.62	14.42	14.44	14.22	14.02

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

For LTE Band7: Antenna Gain = -0.4dBi

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)	5.45	5.96	5.93	13	Pass
QPSK (100RB Size)	5.61	5.71	5.71	13	Pass
16QAM (1RB Size)	6.44	7.34	7.50	13	Pass
16QAM (100RB Size)	6.54	6.47	6.47	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	23.20	23.23	23.12	19.15	19.18	19.07
		RB1#13	23.18	23.13	23.08	19.13	19.08	19.03
		RB1#24	23.16	23.16	23.09	19.11	19.11	19.04
		RB15#0	22.20	22.26	22.24	18.15	18.21	18.19
		RB15#10	22.26	22.17	22.22	18.21	18.12	18.17
		RB25#0	22.22	22.23	22.17	18.17	18.18	18.12
	16QAM	RB1#0	22.14	22.56	22.25	18.09	18.51	18.20
		RB1#13	22.16	22.50	22.20	18.11	18.45	18.15
		RB1#24	22.11	22.50	22.16	18.06	18.45	18.11
		RB15#0	21.29	21.21	21.27	17.24	17.16	17.22
		RB15#10	21.32	21.18	21.30	17.27	17.13	17.25
		RB25#0	21.26	21.23	21.24	17.21	17.18	17.19
10.0	QPSK	RB1#0	23.16	23.18	23.18	19.11	19.13	19.13
		RB1#25	23.22	23.21	23.19	19.17	19.16	19.14
		RB1#49	23.12	23.12	23.11	19.07	19.07	19.06
		RB25#0	22.26	22.33	22.29	18.21	18.28	18.24
		RB25#25	22.24	22.21	22.19	18.19	18.16	18.14
		RB50#0	22.26	22.25	22.29	18.21	18.20	18.24
	16QAM	RB1#0	22.82	22.39	22.27	18.77	18.34	18.22
		RB1#25	22.84	22.37	22.28	18.79	18.32	18.23
		RB1#49	22.78	22.36	22.14	18.73	18.31	18.09
		RB25#0	21.32	21.35	21.42	17.27	17.30	17.37
		RB25#25	21.28	21.23	21.34	17.23	17.18	17.29
		RB50#0	21.25	21.25	21.31	17.20	17.20	17.26

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

For LTE Band17: Antenna Gain = -1.9dBi = -4.05dBd (0dBd=2.15dBi)

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)	4.55	4.49	4.46	13	Pass
QPSK (50RB Size)	5.67	5.67	5.77	13	Pass
16QAM (1RB Size)	5.74	5.22	5.19	13	Pass
16QAM (50RB Size)	6.60	6.51	6.57	13	Pass

LTE Band 66:**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	16.44	16.49	16.51	15.74	15.79	15.81
		RB1#3	16.50	16.61	16.78	15.80	15.91	16.08
		RB1#5	16.37	16.47	16.50	15.67	15.77	15.80
		RB3#0	16.48	16.62	16.65	15.78	15.92	15.95
		RB3#3	16.49	16.63	16.71	15.79	15.93	16.01
		RB6#0	15.44	15.54	15.63	14.74	14.84	14.93
	16QAM	RB1#0	15.40	15.65	15.60	14.70	14.95	14.90
		RB1#3	15.70	15.84	15.81	15.00	15.14	15.11
		RB1#5	15.47	15.67	15.62	14.77	14.97	14.92
		RB3#0	15.81	15.61	15.79	15.11	14.91	15.09
		RB3#3	15.85	15.64	15.78	15.15	14.94	15.08
		RB6#0	14.52	14.62	14.55	13.82	13.92	13.85
3.0	QPSK	RB1#0	16.42	16.57	16.59	15.72	15.87	15.89
		RB1#8	16.38	16.54	16.56	15.68	15.84	15.86
		RB1#14	16.43	16.55	16.57	15.73	15.85	15.87
		RB6#0	15.40	15.54	15.50	14.70	14.84	14.80
		RB6#9	15.45	15.53	15.58	14.75	14.83	14.88
		RB15#0	15.52	15.60	15.64	14.82	14.90	14.94
	16QAM	RB1#0	16.10	15.79	15.67	15.40	15.09	14.97
		RB1#8	16.12	15.75	15.66	15.42	15.05	14.96
		RB1#14	16.16	15.73	15.63	15.46	15.03	14.93
		RB6#0	14.50	14.61	14.57	13.80	13.91	13.87
		RB6#9	14.57	14.62	14.56	13.87	13.92	13.86
		RB15#0	14.62	14.59	14.72	13.92	13.89	14.02

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
5.0	QP SK	RB1#0	16.35	16.48	16.47	15.65	15.78	15.77
		RB1#13	16.52	16.58	16.60	15.82	15.88	15.90
		RB1#24	16.42	16.46	16.54	15.72	15.76	15.84
		RB15#0	15.48	15.65	15.69	14.78	14.95	14.99
		RB15#10	15.50	15.51	15.58	14.80	14.81	14.88
		RB25#0	15.49	15.59	15.61	14.79	14.89	14.91
	16QAM	RB1#0	15.28	15.86	15.62	14.58	15.16	14.92
		RB1#13	15.47	15.95	15.75	14.77	15.25	15.05
		RB1#24	15.38	15.82	15.64	14.68	15.12	14.94
		RB15#0	14.57	14.67	14.78	13.87	13.97	14.08
		RB15#10	14.59	14.57	14.64	13.89	13.87	13.94
		RB25#0	14.59	14.65	14.65	13.89	13.95	13.95
10.0	QPSK	RB1#0	16.38	16.56	16.54	15.68	15.86	15.84
		RB1#25	16.64	16.76	16.77	15.94	16.06	16.07
		RB1#49	16.48	16.59	16.59	15.78	15.89	15.89
		RB25#0	15.54	15.71	15.79	14.84	15.01	15.09
		RB25#25	15.64	15.62	15.54	14.94	14.92	14.84
		RB50#0	15.61	15.67	15.67	14.91	14.97	14.97
	16QAM	RB1#0	16.11	15.75	15.65	15.41	15.05	14.95
		RB1#25	16.34	15.89	15.81	15.64	15.19	15.11
		RB1#49	16.24	15.76	15.67	15.54	15.06	14.97
		RB25#0	14.63	14.76	14.92	13.93	14.06	14.22
		RB25#25	14.75	14.66	14.67	14.05	13.96	13.97
		RB50#0	14.68	14.72	14.72	13.98	14.02	14.02

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	16.31	16.50	16.44	15.61	15.80	15.74
		RB1#38	16.50	16.59	16.58	15.80	15.89	15.88
		RB1#74	16.45	16.53	16.54	15.75	15.83	15.84
		RB36#0	15.57	15.68	15.71	14.87	14.98	15.01
		RB36#39	15.63	15.56	15.55	14.93	14.86	14.85
		RB75#0	15.59	15.65	15.64	14.89	14.95	14.94
	16QAM	RB1#0	16.03	15.71	15.97	15.33	15.01	15.27
		RB1#38	16.24	15.80	16.10	15.54	15.10	15.40
		RB1#74	16.18	15.73	16.06	15.48	15.03	15.36
		RB36#0	14.55	14.71	14.65	13.85	14.01	13.95
		RB36#39	14.69	14.61	14.55	13.99	13.91	13.85
		RB75#0	14.60	14.67	14.61	13.90	13.97	13.91
20.0	QPSK	RB1#0	16.19	16.34	16.27	15.49	15.64	15.57
		RB1#50	16.66	16.78	16.66	15.96	16.08	15.96
		RB1#99	16.32	16.42	16.37	15.62	15.72	15.67
		RB50#0	15.54	15.76	15.73	14.84	15.06	15.03
		RB50#50	15.73	15.56	15.44	15.03	14.86	14.74
		RB100#0	15.63	15.69	15.63	14.93	14.99	14.93
	16QAM	RB1#0	15.54	15.66	15.99	14.84	14.96	15.29
		RB1#50	16.00	16.08	16.31	15.30	15.38	15.61
		RB1#99	15.69	15.68	16.00	14.99	14.98	15.30
		RB50#0	14.55	14.78	14.75	13.85	14.08	14.05
		RB50#50	14.76	14.60	14.49	14.06	13.90	13.79
		RB100#0	14.67	14.72	14.65	13.97	14.02	13.95

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

For LTE Band 66: Antenna Gain = -0.7dBi

The 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)	8.64	5.21	4.89	13	Pass
QPSK (100RB Size)	5.35	5.54	5.63	13	Pass
16QAM (1RB Size)	5.78	6.10	6.10	13	Pass
16QAM (100RB Size)	6.49	6.52	6.48	13	Pass

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

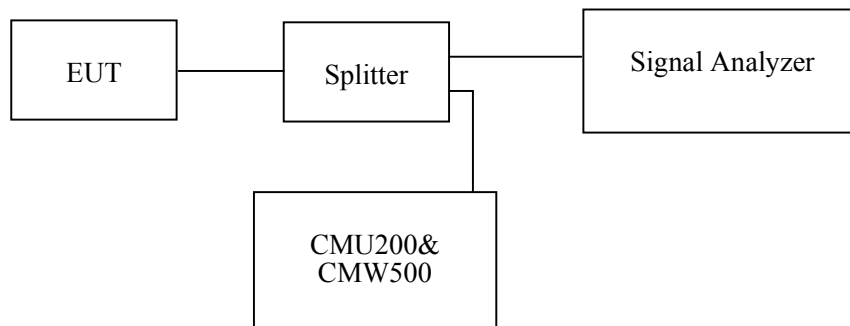
Applicable Standard

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:	28.2~28.5 °C
Relative Humidity:	43~46 %
ATM Pressure:	101.0 kPa

The testing was performed by Pedro Yun and Andy Yu from 2021-04-26 to 2021-05-19.

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	316.03
	190	836.6	245.19	321.79
	251	848.8	246.79	316.67
EGPRS(8PSK)	128	824.2	250.00	312.82
	190	836.6	245.19	318.59
	251	848.8	251.60	312.82

	Frequency (MHz)	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	826.4	4.18	4.73
	836.6	4.17	4.71
	846.6	4.17	4.75
HSDPA	826.4	4.21	5.13
	836.6	4.21	5.15
	846.6	4.20	4.83
HSUPA	826.4	4.21	5.04
	836.6	4.20	4.96
	846.6	4.18	4.74

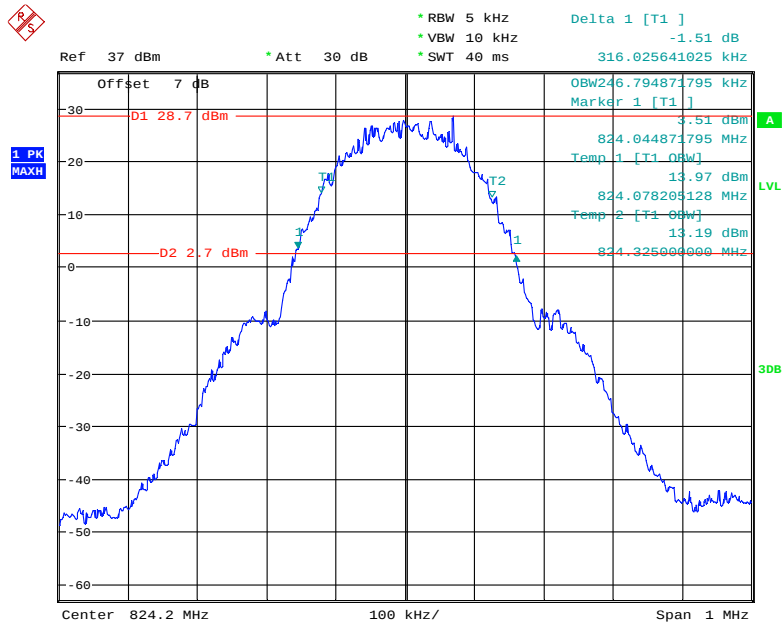
PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM(GMSK)	512	1850.2	243.59	319.55
	661	1880.0	245.19	316.35
	810	1909.8	243.59	319.55
EGPRS(8PSK)	512	1850.2	251.60	328.21
	661	1880.0	248.40	320.83
	810	1909.8	253.21	320.19

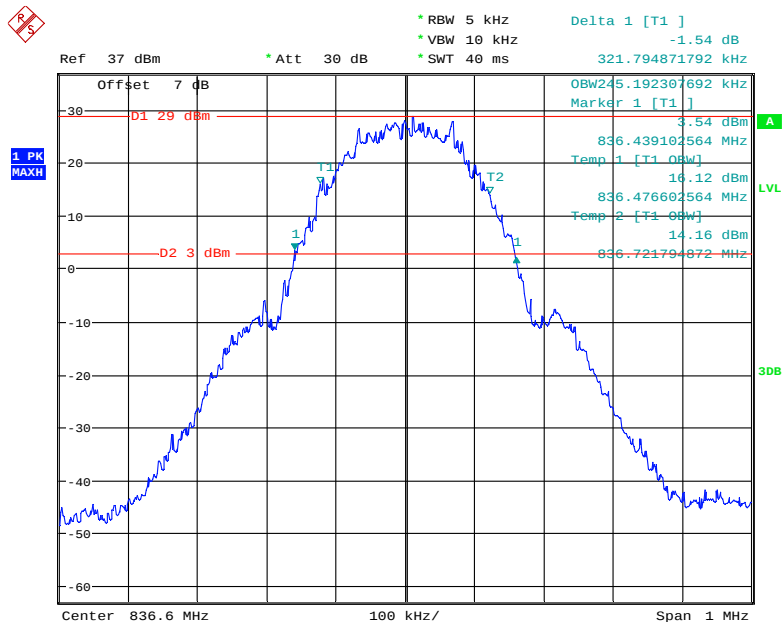
Frequency (MHz)		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	1852.4	4.18	4.71
	1880.0	4.18	4.72
	1907.6	4.18	4.71
HSDPA	1852.4	4.20	4.70
	1880.0	4.18	4.72
	1907.6	4.18	4.71
HSUPA	1852.4	4.18	4.73
	1880.0	4.18	4.73
	1907.6	4.18	4.71

AWS Band (Part 27)

Frequency (MHz)		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	1712.4	4.18	4.71
	1732.6	4.17	4.71
	1752.6	4.18	4.71
HSDPA	1712.4	4.20	4.73
	1732.6	4.18	4.71
	1752.6	4.18	4.72
HSUPA	1712.4	4.18	4.72
	1732.6	4.18	4.72
	1752.6	4.20	4.72

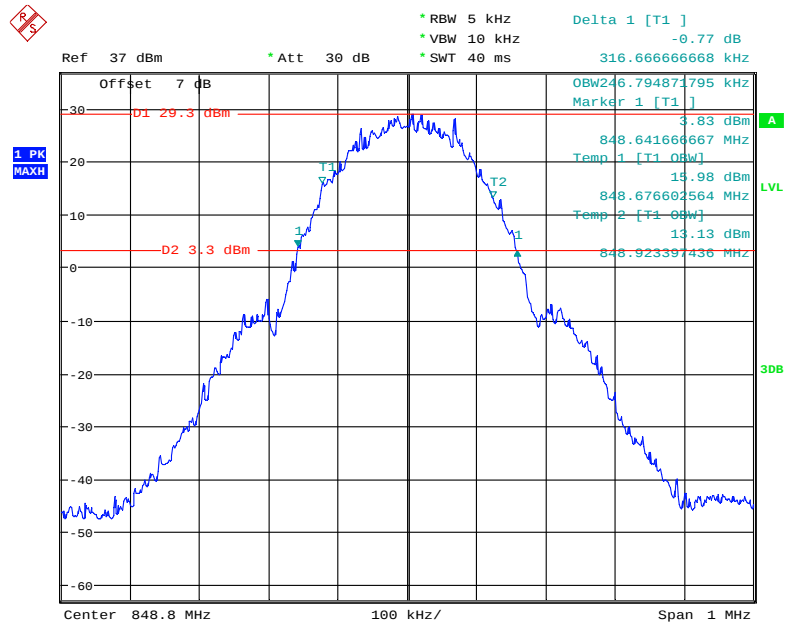
Cellular Band (Part 22H)**26 dB Emissions & 99% Occupied Bandwidth for GSM (GMSK) Mode, Low channel**

Date: 26.APR.2021 01:35:12

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

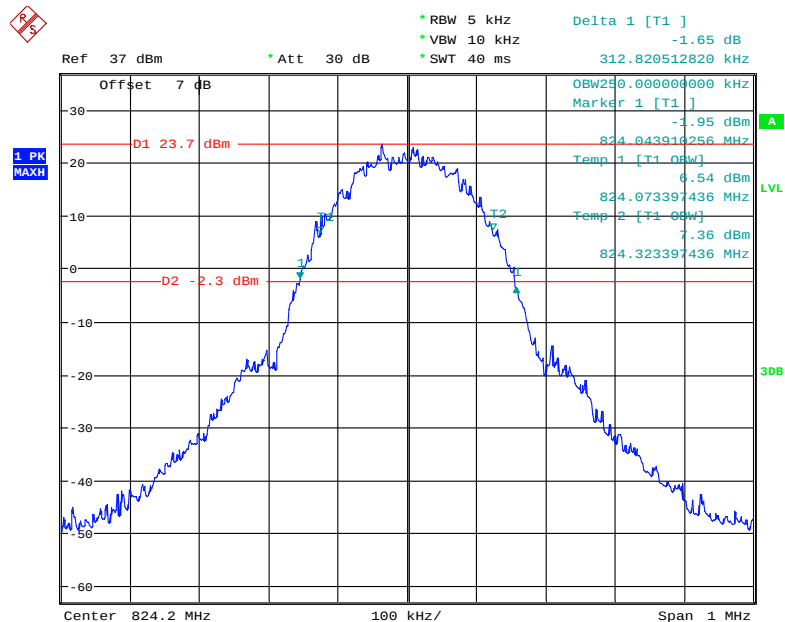
Date: 26.APR.2021 01:36:25

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

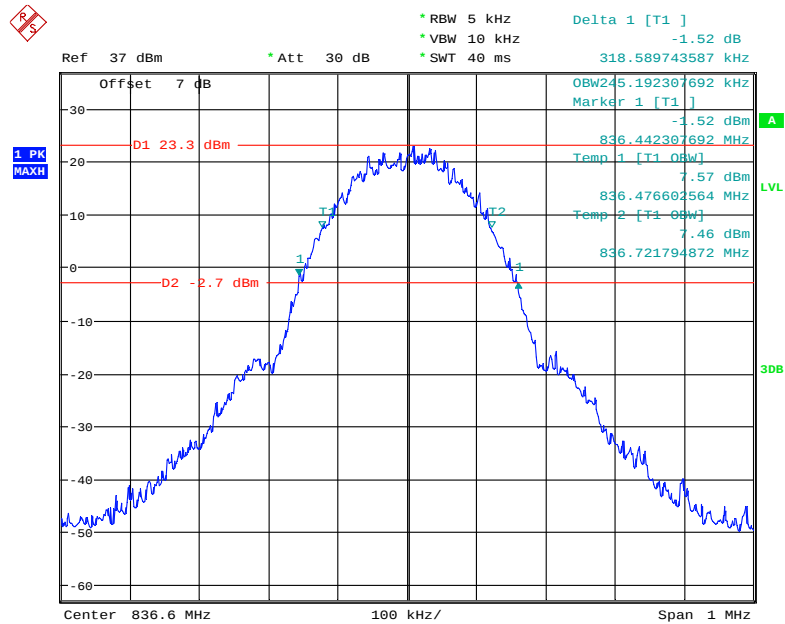


Date: 26.APR.2021 01:37:49

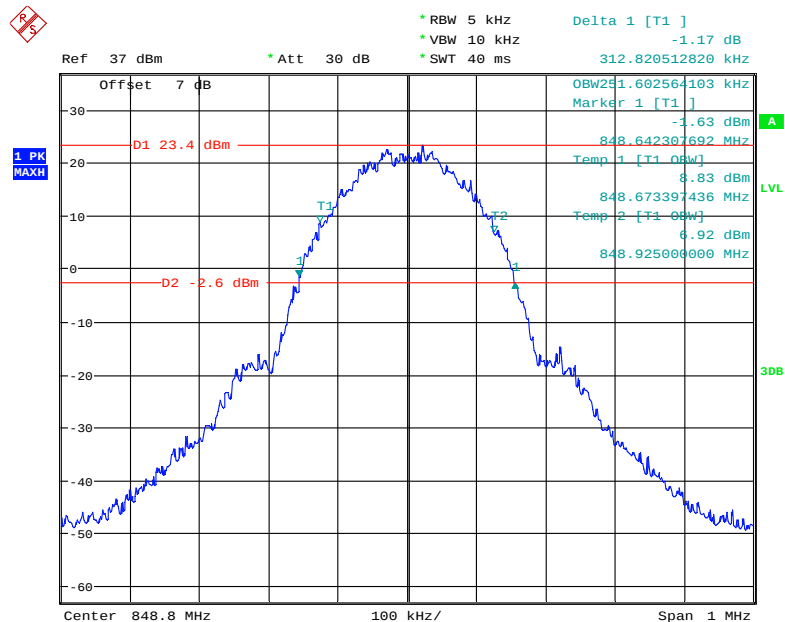
26 dB Emissions & 99% Occupied Bandwidth for EGPRS (8PSK) Mode, Low channel



Date: 26.APR.2021 01:28:55

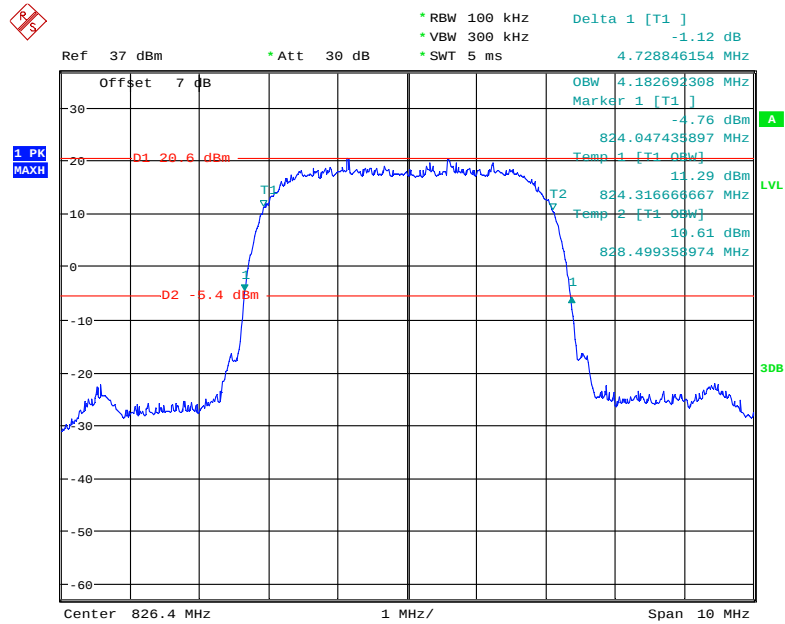
26 dB Emissions & 99% Occupied Bandwidth for EGPRS (8PSK) Mode, Middle channel

Date: 26.APR.2021 01:30:23

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

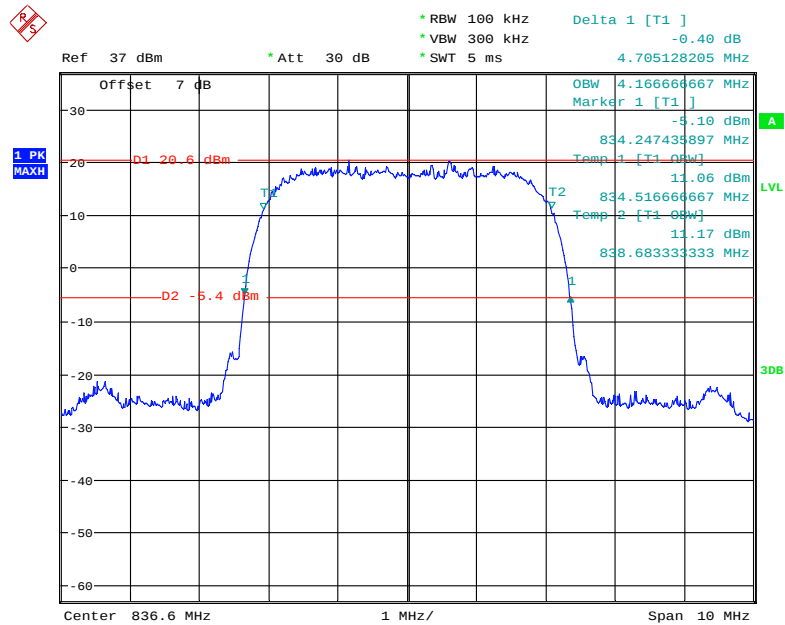
Date: 26.APR.2021 01:32:14

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



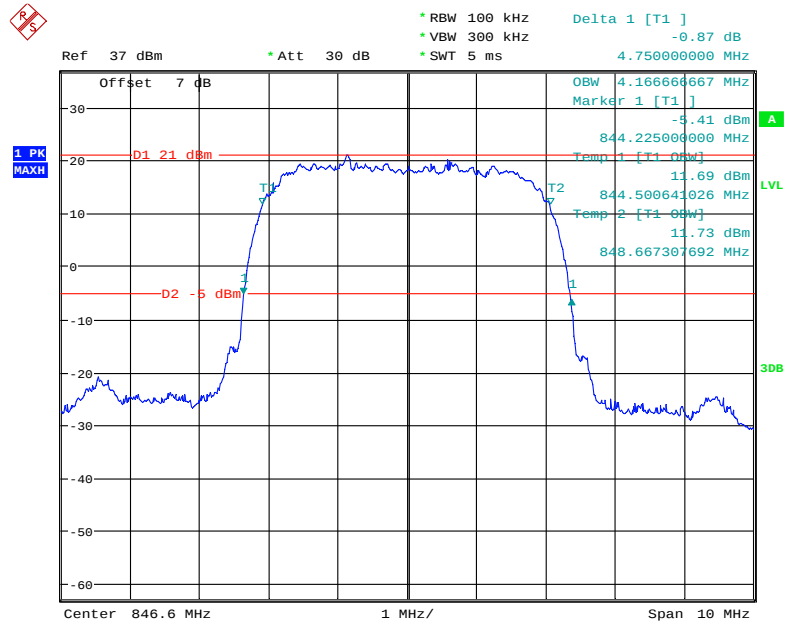
Date: 1.MAY.2021 18:54:51

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



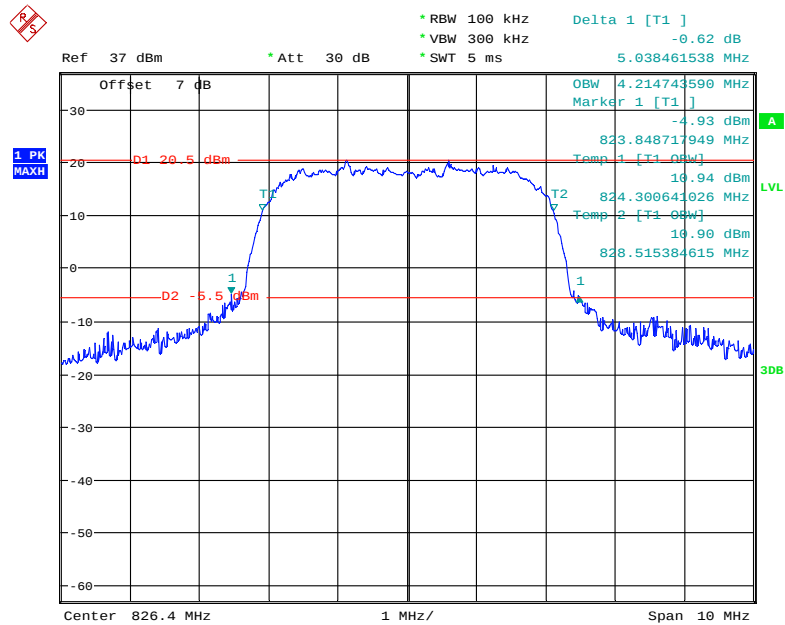
Date: 1.MAY.2021 18:53:36

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



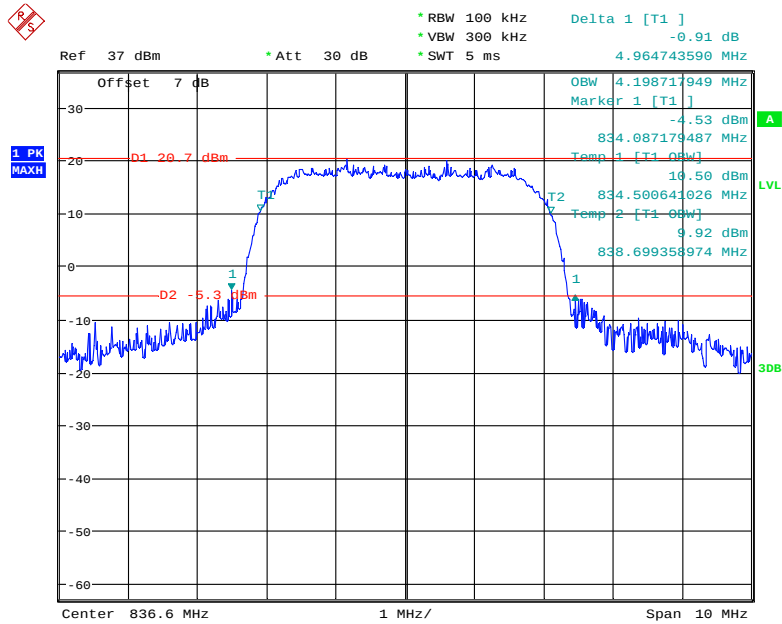
Date: 1.MAY.2021 18:57:23

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



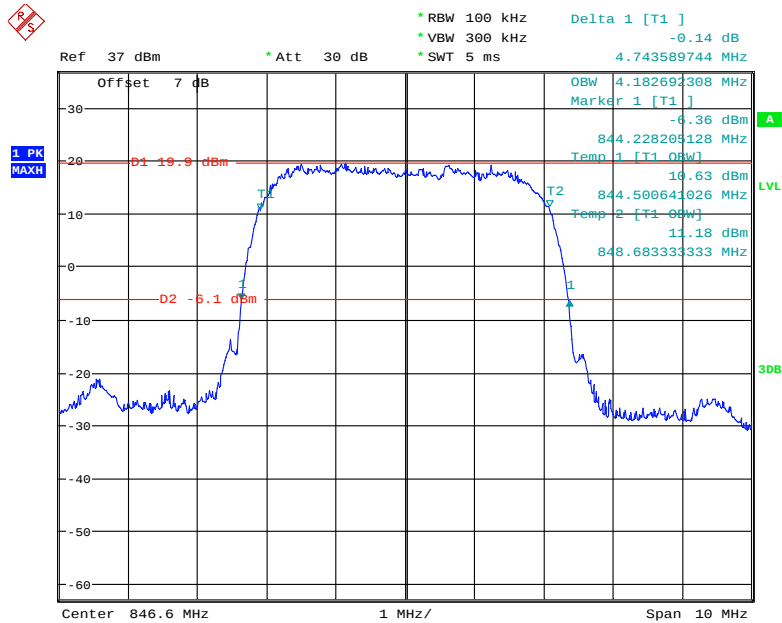
Date: 1.MAY.2021 18:37:01

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

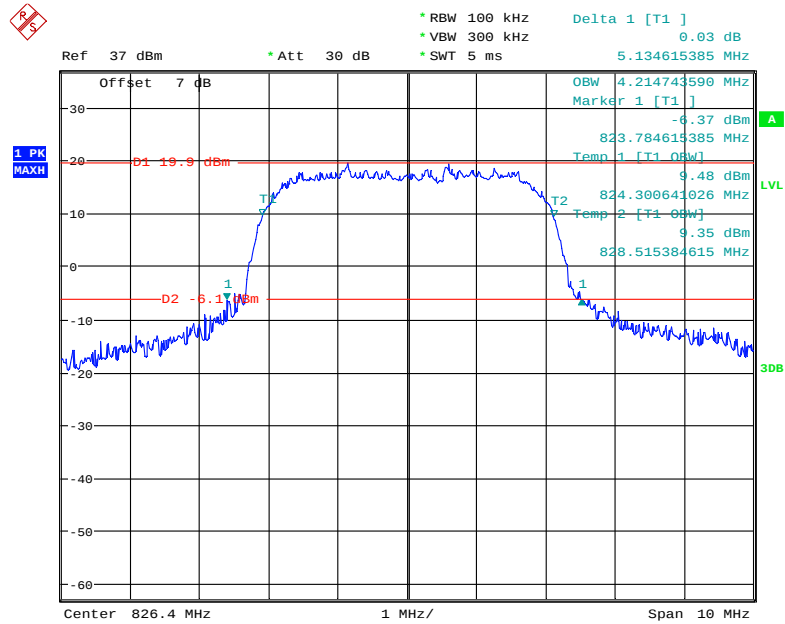


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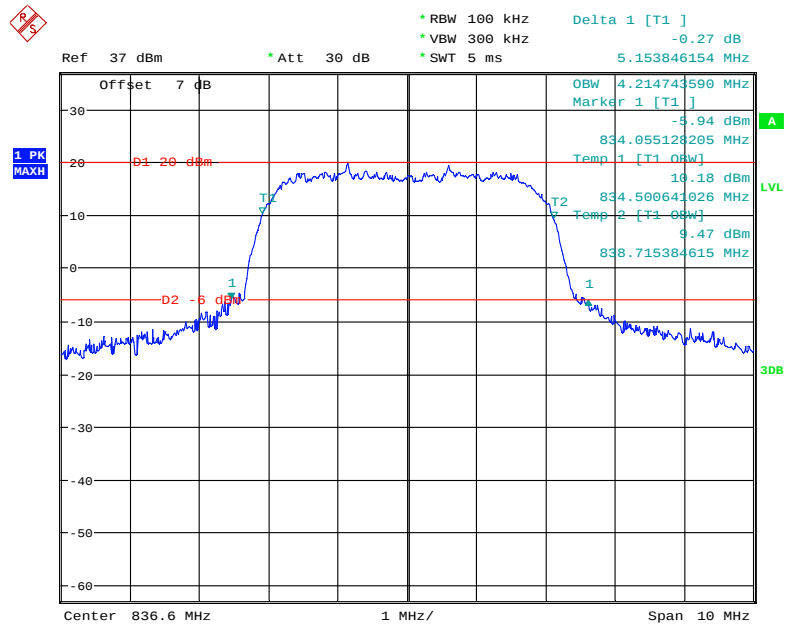
26 dB Emissions & 99% Occupied Bandwidth for HSUPA (BPSK) Mode, High channel



Date: 1.MAY.2021 18:25:21

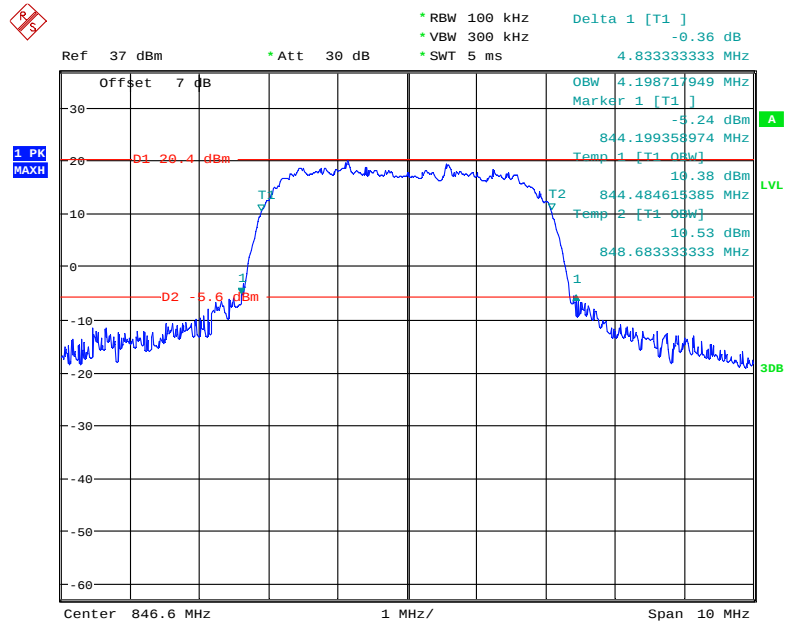
26 dB Emissions & 99% Occupied Bandwidth for HSDPA (16QAM) Mode, Low channel

Date: 1.MAY.2021 18:38:55

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

Date: 1.MAY.2021 18:45:03

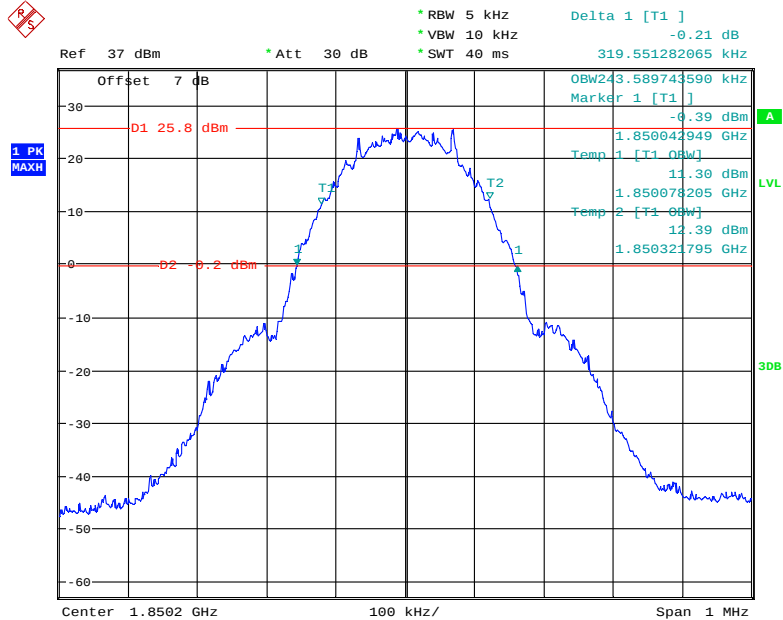
26 dB Emissions & 99% Occupied Bandwidth for HSDPA (16QAM) Mode, High channel



Date: 1.MAY.2021 18:49:41

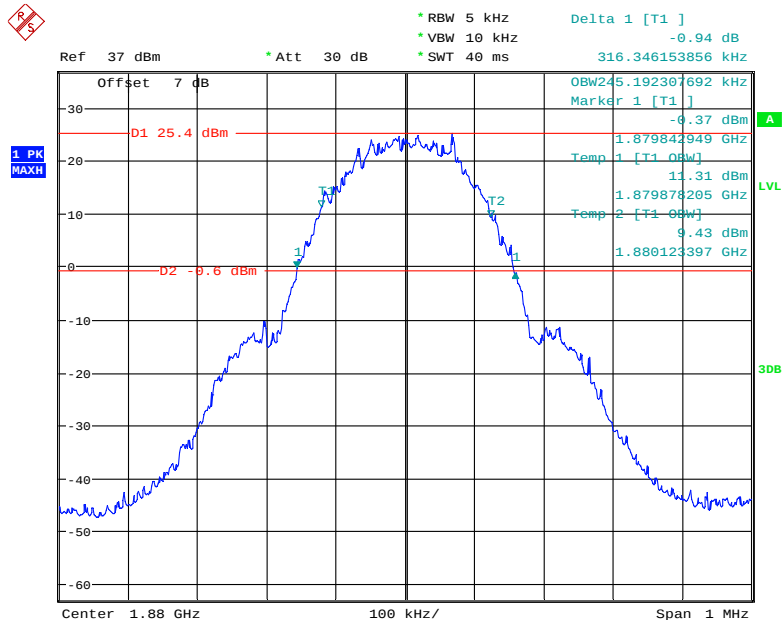
PCS Band (Part 24E)

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

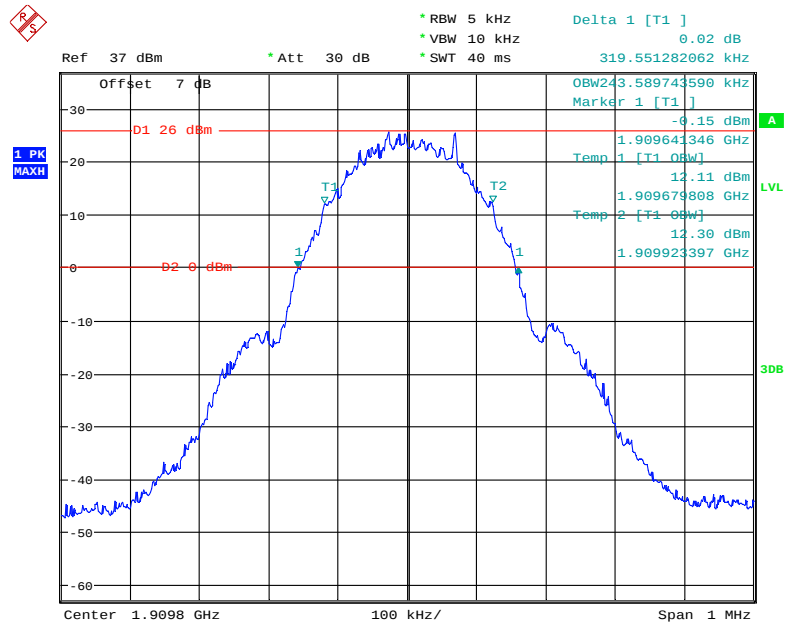


Date: 26.APR.2021 01:10:47

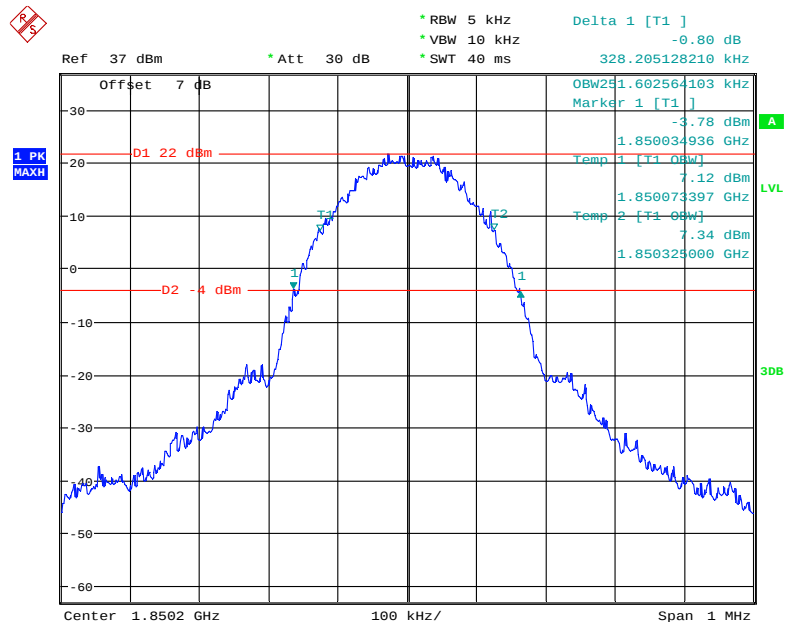
26 dB Emissions & 99% Occupied Bandwidth for GSM (GMSK) Mode, Middle channel



Date: 26.APR.2021 01:12:48

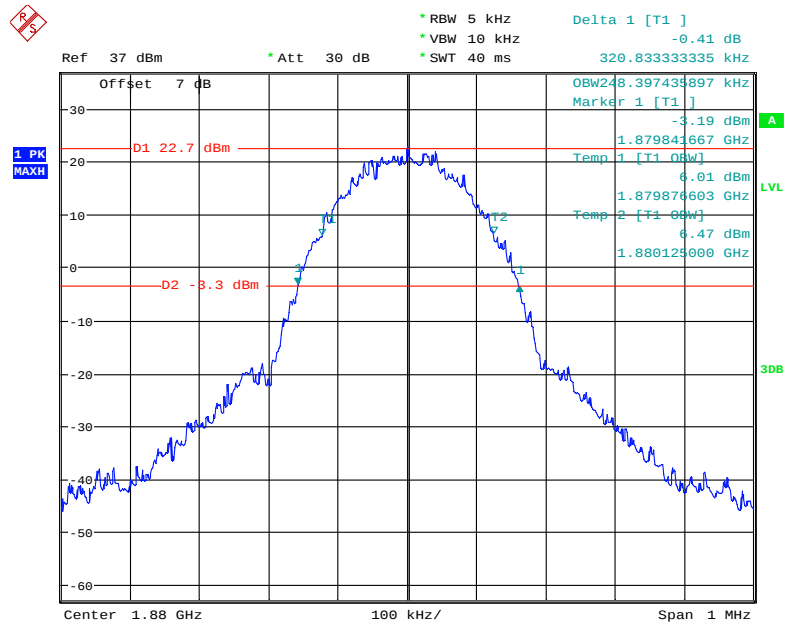
26 dB Emissions & 99% Occupied Bandwidth for GSM (GMSK) Mode, High channel

Date: 26.APR.2021 01:15:02

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

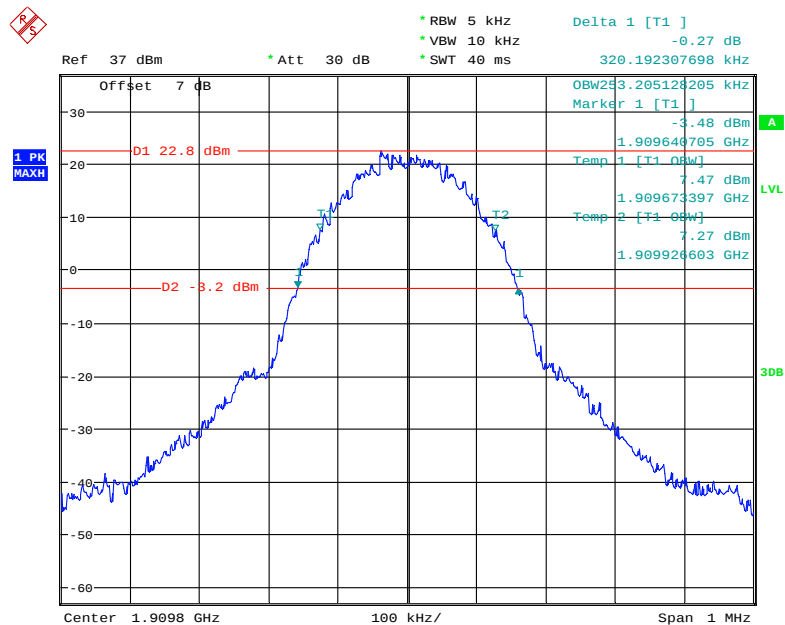
Date: 26.APR.2021 01:18:26

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



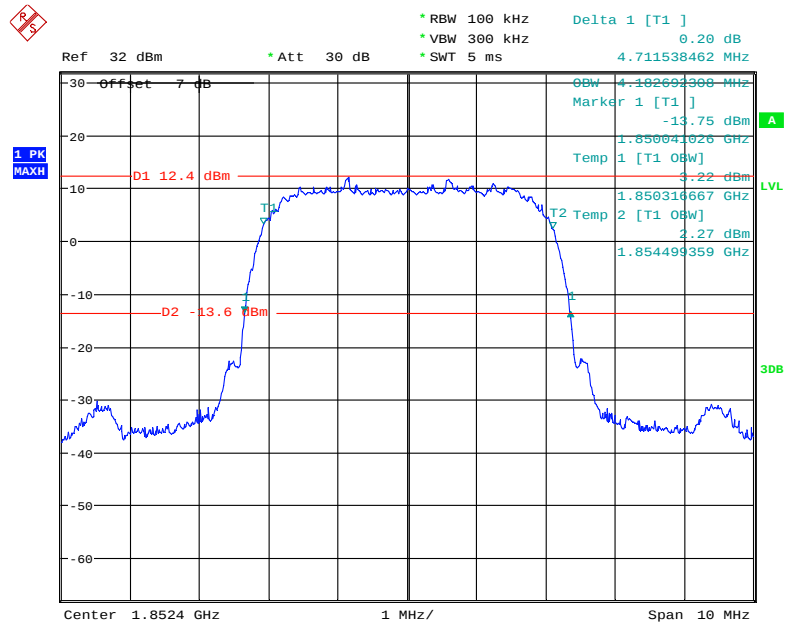
Date: 26.APR.2021 01:19:42

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



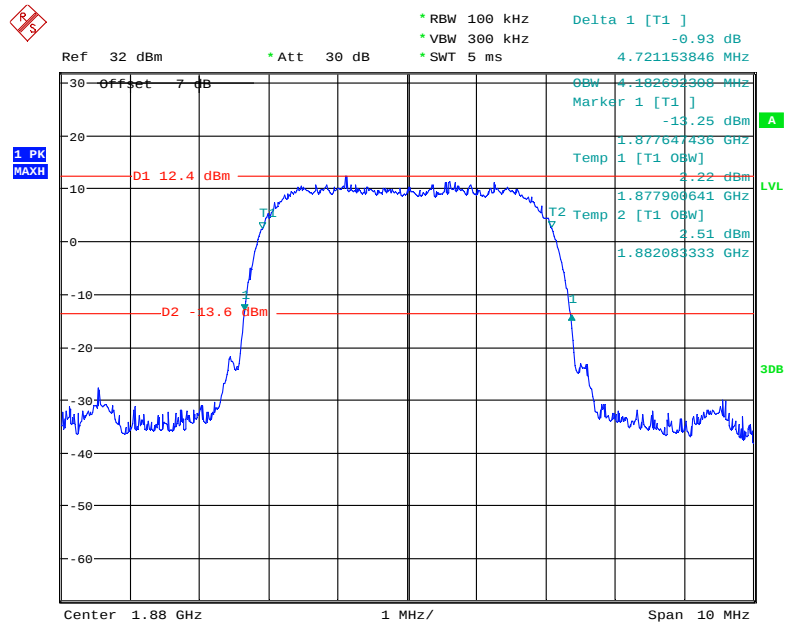
Date: 26.APR.2021 01:21:11

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



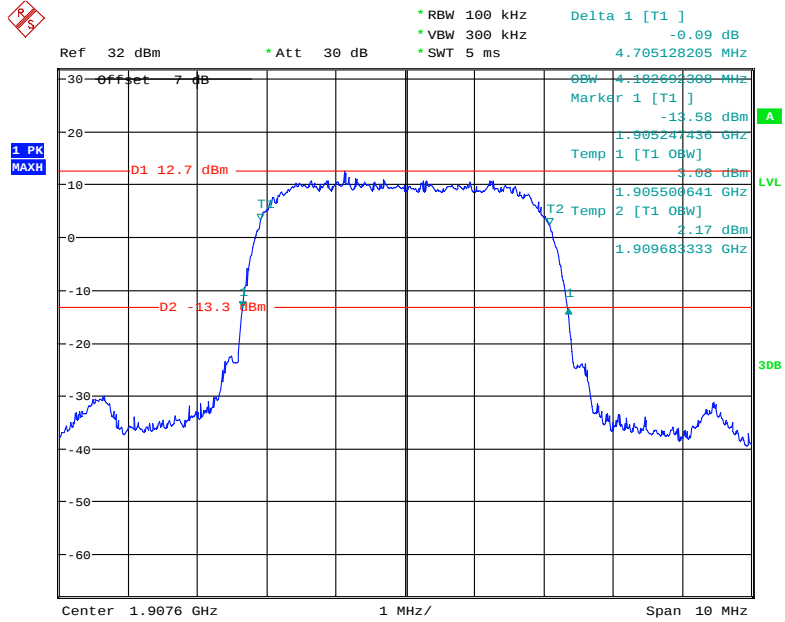
Date: 1.MAY.2021 19:44:24

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



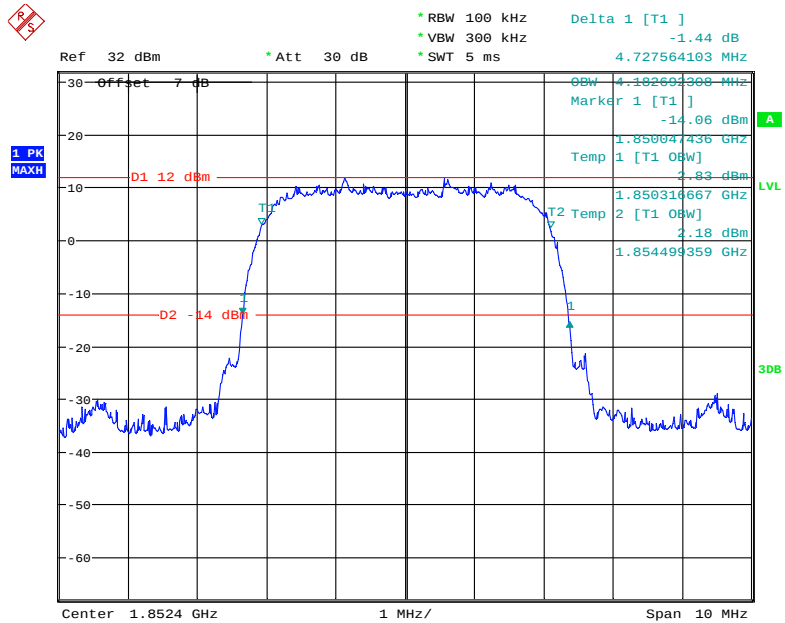
Date: 1.MAY.2021 19:45:28

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



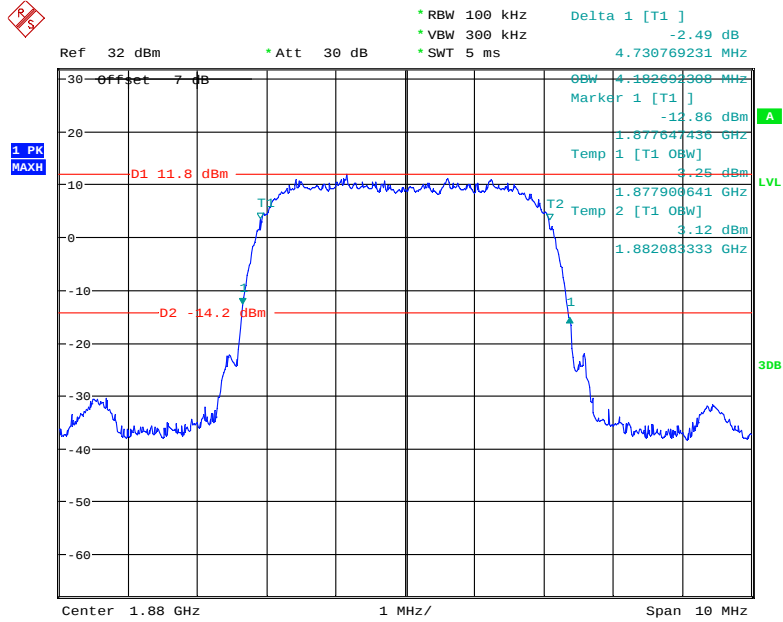
Date: 1.MAY.2021 19:43:09

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



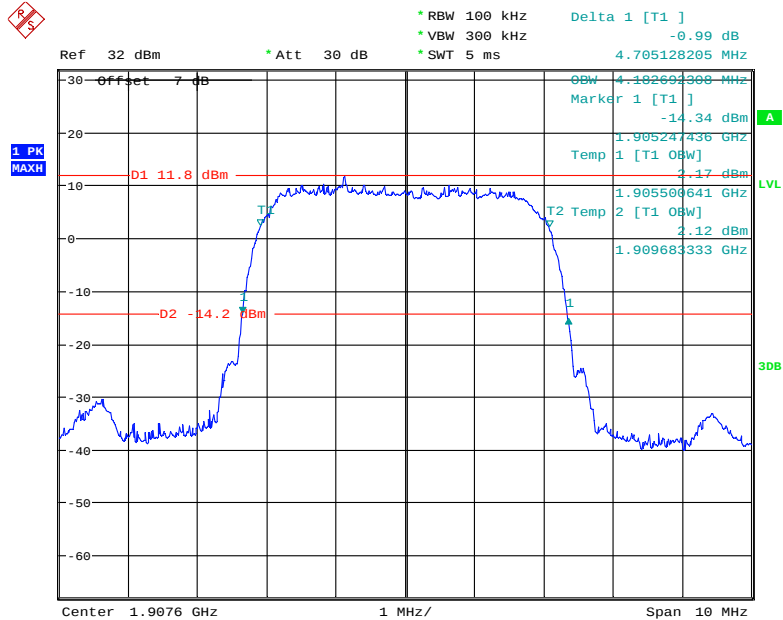
Date: 1.MAY.2021 19:28:44

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

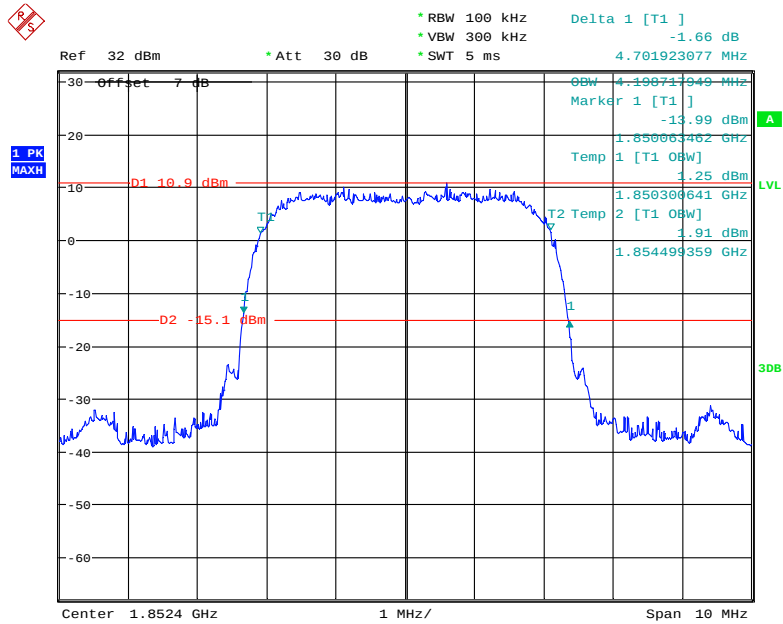


Date: 1.MAY.2021 19:30:14

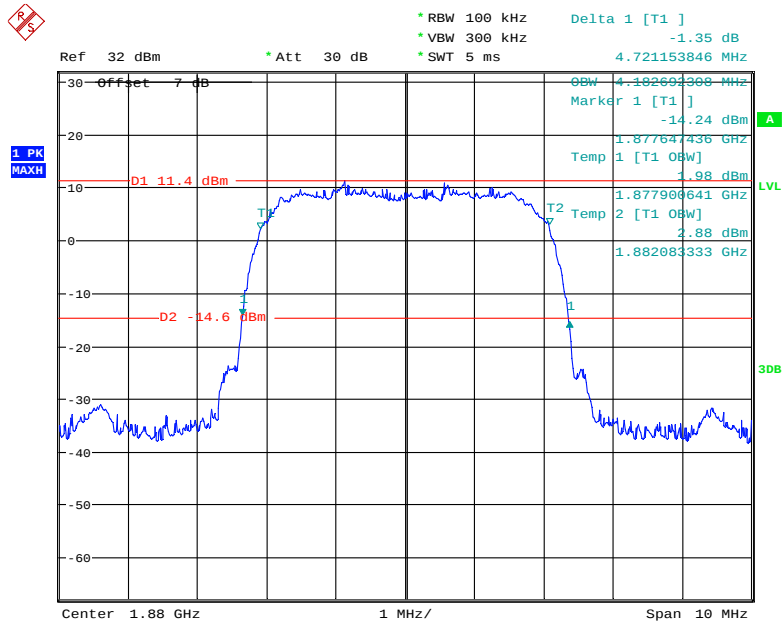
26 dB Emissions & 99% Occupied Bandwidth for HSUPA (BPSK) Mode, High channel



Date: 1.MAY.2021 19:41:54

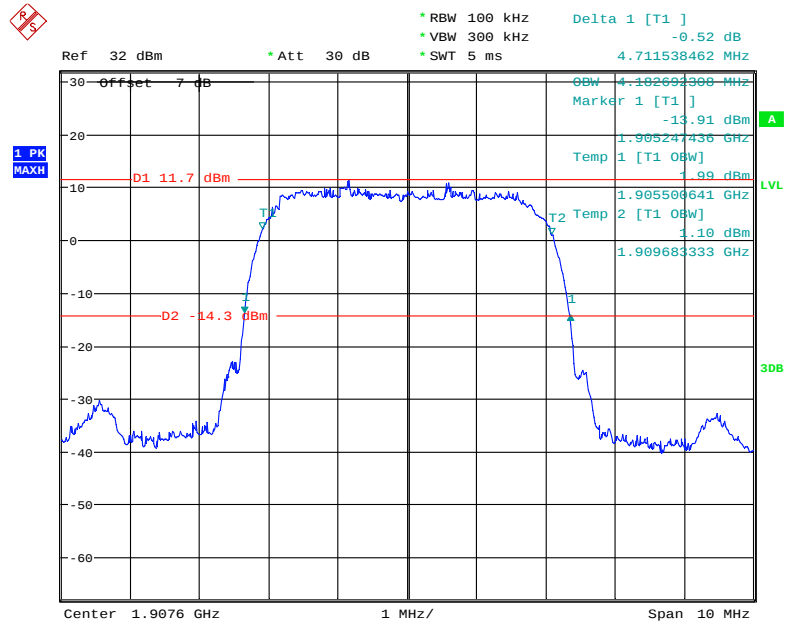
26 dB Emissions & 99% Occupied Bandwidth for HSDPA (16QAM) Mode, Low channel

Date: 1.MAY.2021 19:37:46

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

Date: 1.MAY.2021 19:38:49

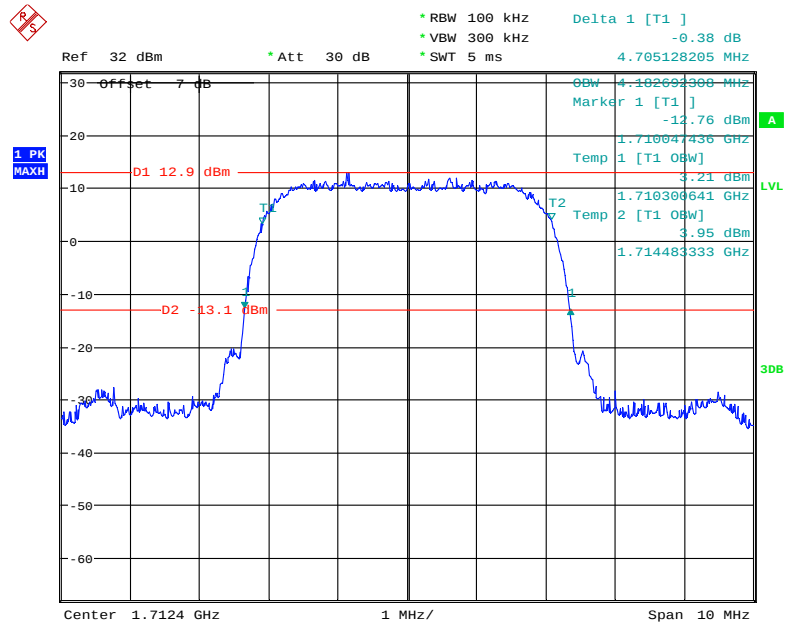
26 dB Emissions & 99% Occupied Bandwidth for HSDPA (16QAM) Mode, High channel



Date: 1.MAY.2021 19:35:09

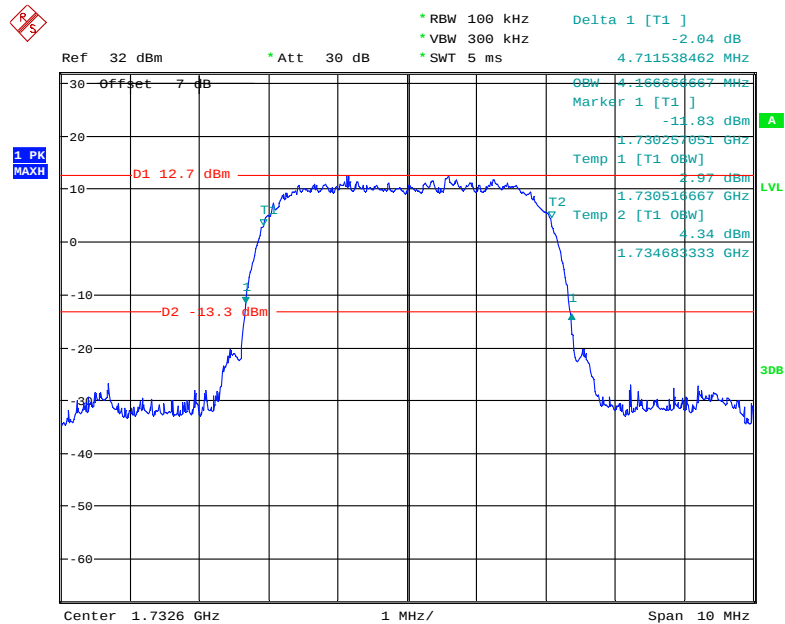
AWS Band (Part 27)

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



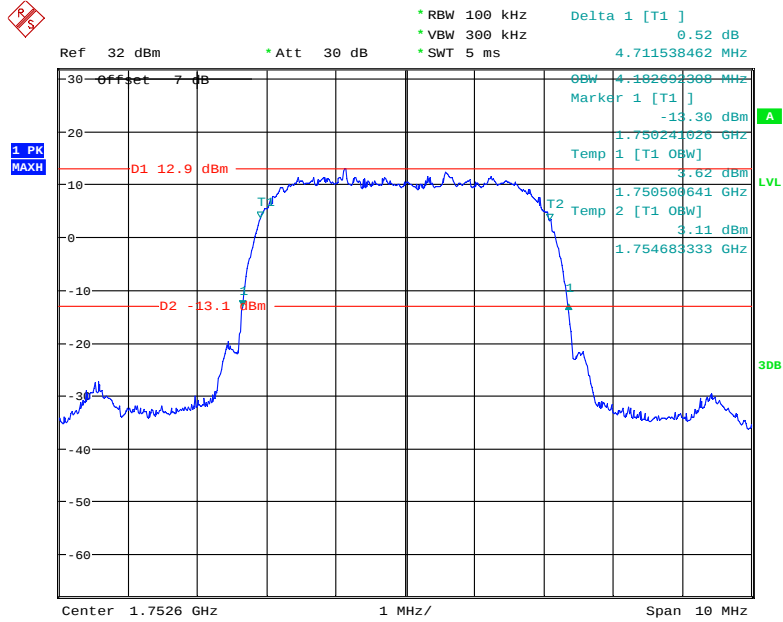
Date: 1.MAY.2021 19:04:23

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



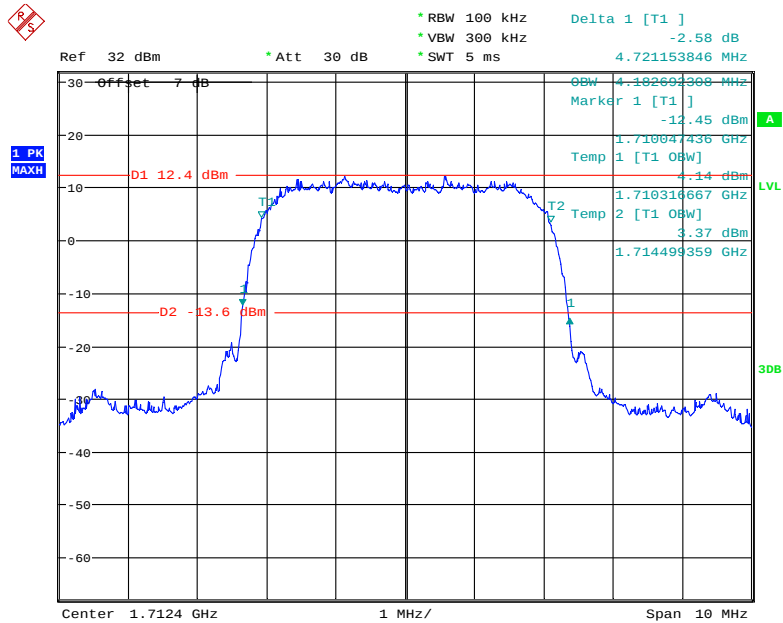
Date: 1.MAY.2021 19:05:26

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



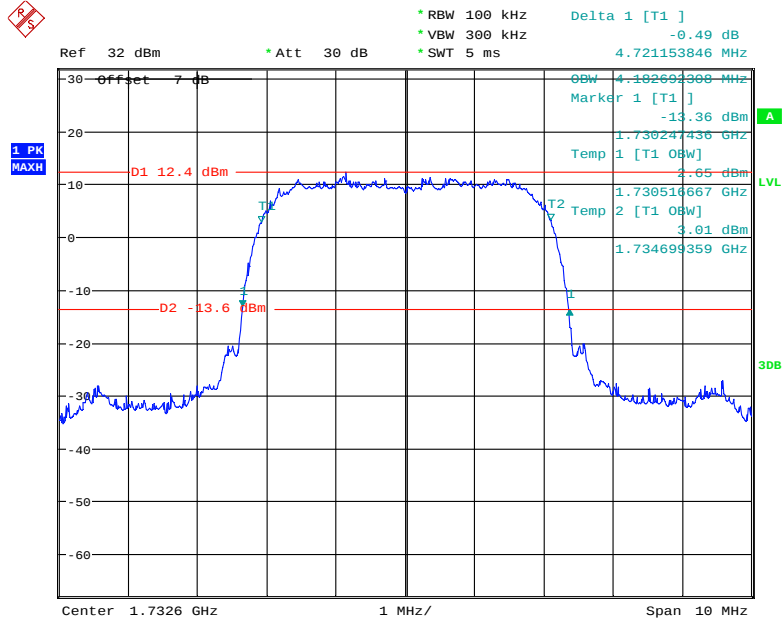
Date: 1.MAY.2021 19:01:14

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



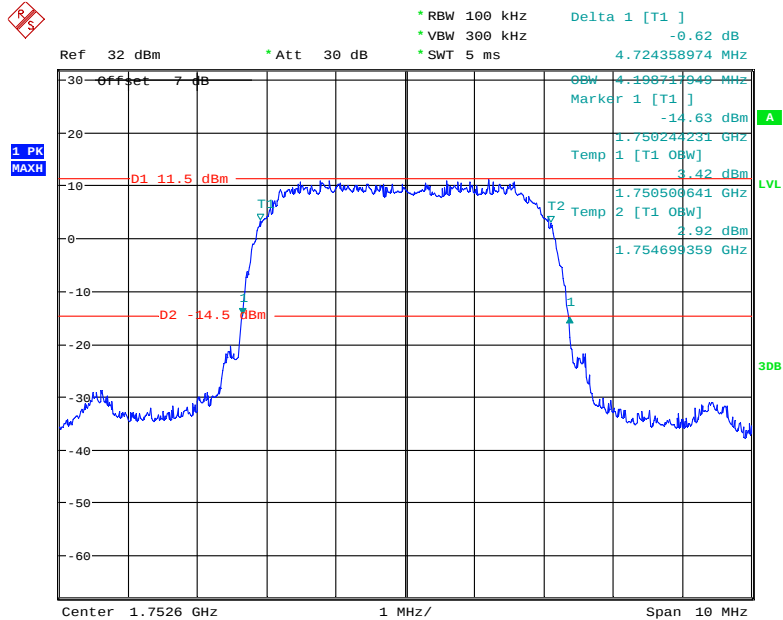
Date: 1.MAY.2021 19:18:53

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

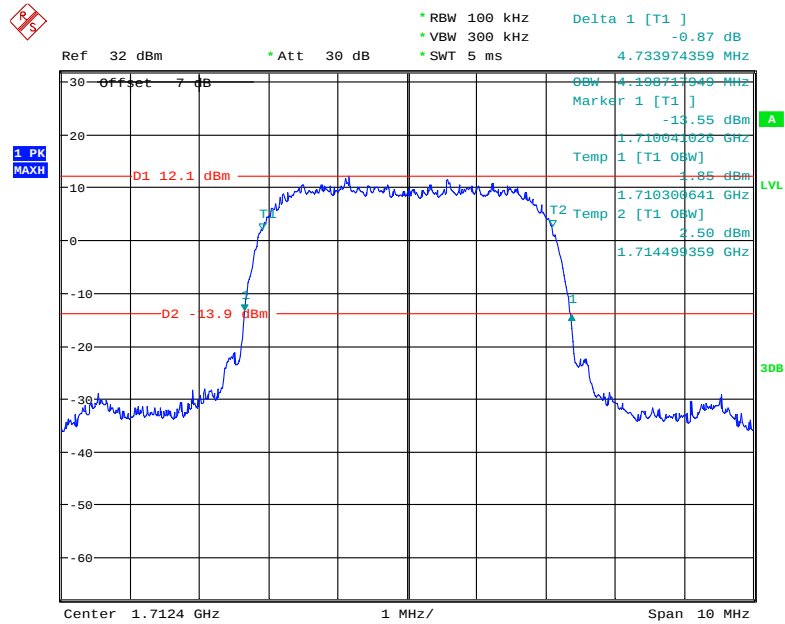


Date: 1.MAY.2021 19:20:22

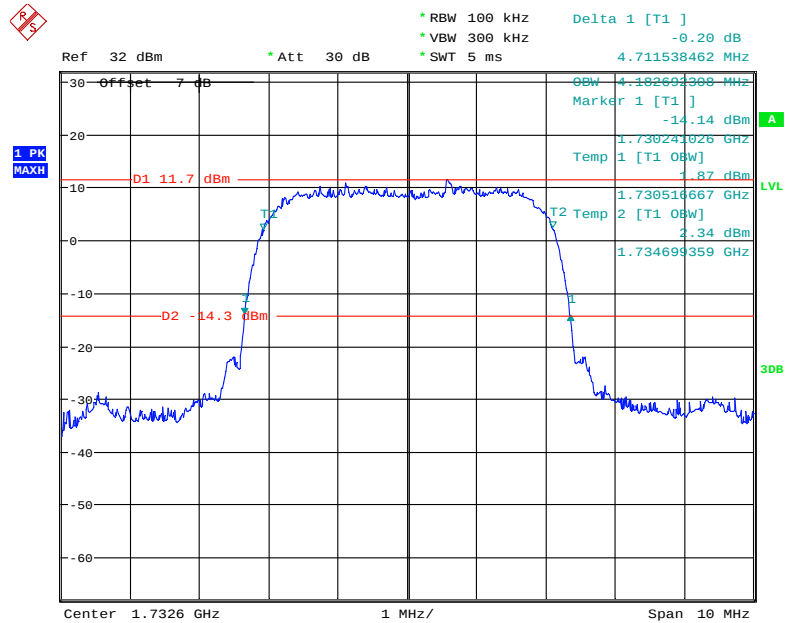
26 dB Emissions & 99% Occupied Bandwidth for HSUPA (BPSK) Mode, High channel



Date: 1.MAY.2021 19:13:24

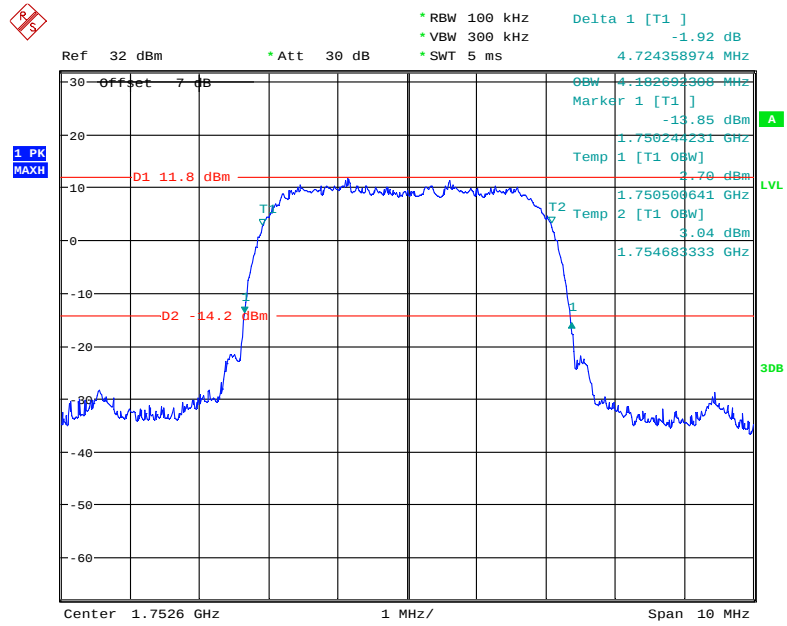
26 dB Emissions & 99% Occupied Bandwidth for HSDPA (16QAM) Mode, Low channel

Date: 1.MAY.2021 19:07:56

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

Date: 1.MAY.2021 19:06:40

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



Date: 1.MAY.2021 19:09:48

LTE Band 2:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	Low	1.110	1.332
		Middle	1.104	1.296
		High	1.092	1.302
	16QAM	Low	1.098	1.296
		Middle	1.104	1.296
		High	1.104	1.320
3	QPSK	Low	2.688	2.880
		Middle	2.688	2.880
		High	2.688	2.880
	16QAM	Low	2.688	2.880
		Middle	2.688	2.916
		High	2.688	2.892
5	QPSK	Low	4.520	4.940
		Middle	4.520	4.980
		High	4.520	4.900
	16QAM	Low	4.500	4.920
		Middle	4.520	5.000
		High	4.520	4.940
10	QPSK	Low	8.960	9.600
		Middle	8.960	9.640
		High	8.960	9.600
	16QAM	Low	8.960	9.640
		Middle	8.960	9.560
		High	8.960	9.600
15	QPSK	Low	13.560	15.300
		Middle	13.560	14.640
		High	13.500	14.760
	16QAM	Low	13.500	14.880
		Middle	13.560	14.760
		High	13.500	14.760
20	QPSK	Low	18.000	19.360
		Middle	18.000	19.360
		High	17.920	19.280
	16QAM	Low	18.000	19.440
		Middle	18.080	19.440
		High	17.920	19.360

LTE Band 4:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	Low	1.098	1.296
		Middle	1.104	1.314
		High	1.110	1.290
	16QAM	Low	1.104	1.314
		Middle	1.098	1.296
		High	1.104	1.308
3	QPSK	Low	2.688	2.868
		Middle	2.688	2.880
		High	2.688	2.892
	16QAM	Low	2.688	2.892
		Middle	2.688	2.880
		High	2.688	2.892
5	QPSK	Low	4.500	4.960
		Middle	4.520	4.940
		High	4.520	4.940
	16QAM	Low	4.500	4.920
		Middle	4.520	4.940
		High	4.520	4.960
10	QPSK	Low	8.960	9.640
		Middle	8.960	9.520
		High	8.960	9.600
	16QAM	Low	8.960	9.600
		Middle	8.960	9.640
		High	8.960	9.600
15	QPSK	Low	13.500	14.820
		Middle	13.500	14.760
		High	13.560	14.820
	16QAM	Low	13.500	14.700
		Middle	13.560	14.760
		High	13.560	15.060
20	QPSK	Low	17.920	19.280
		Middle	18.000	19.360
		High	17.920	19.440
	16QAM	Low	17.920	19.280
		Middle	18.000	19.440
		High	17.920	19.360

LTE Band 5:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	Low	1.104	1.302
		Middle	1.098	1.296
		High	1.104	1.320
	16QAM	Low	1.098	1.302
		Middle	1.104	1.326
		High	1.098	1.368
3	QPSK	Low	2.688	2.868
		Middle	2.688	2.880
		High	2.688	2.892
	16QAM	Low	2.688	2.892
		Middle	2.688	2.880
		High	2.688	2.904
5	QPSK	Low	4.540	4.940
		Middle	4.520	4.920
		High	4.520	6.700
	16QAM	Low	4.500	4.900
		Middle	4.500	4.960
		High	4.520	5.320
10	QPSK	Low	8.960	9.560
		Middle	8.960	9.520
		High	8.960	9.640
	16QAM	Low	8.960	9.480
		Middle	9.000	9.560
		High	8.960	9.480

LTE Band 7:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5	QPSK	Low	4.520	4.920
		Middle	4.520	4.940
		High	4.500	4.920
	16QAM	Low	4.503	4.984
		Middle	4.500	4.940
		High	4.500	4.960
10	QPSK	Low	8.960	9.680
		Middle	8.960	9.520
		High	8.960	9.640
	16QAM	Low	8.960	9.600
		Middle	8.960	9.600
		High	8.960	9.560
15	QPSK	Low	13.560	14.880
		Middle	13.500	14.820
		High	13.500	14.820
	16QAM	Low	13.500	14.760
		Middle	13.500	14.700
		High	13.500	14.700
20	QPSK	Low	18.000	19.280
		Middle	18.000	19.440
		High	18.000	19.600
	16QAM	Low	18.000	20.800
		Middle	17.920	19.360
		High	18.000	19.360

LTE Band 17

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5	QPSK	Low	4.560	5.200
		Middle	4.560	6.500
		High	4.560	6.540
	16QAM	Low	4.540	5.100
		Middle	4.560	5.180
		High	4.600	5.900
10	QPSK	Low	8.960	11.400
		Middle	8.960	10.960
		High	8.960	10.080
	16QAM	Low	8.960	10.040
		Middle	8.960	9.920
		High	8.960	9.920

LTE Band 66

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	Low	1.092	1.302
		Middle	1.110	1.332
		High	1.116	1.440
	16QAM	Low	1.110	1.320
		Middle	1.098	1.290
		High	1.098	1.290
3	QPSK	Low	2.688	2.868
		Middle	2.688	2.880
		High	2.688	3.840
	16QAM	Low	2.688	2.880
		Middle	2.688	2.892
		High	2.688	3.672
5	QPSK	Low	4.540	5.180
		Middle	4.540	5.200
		High	4.520	5.140
	16QAM	Low	4.520	5.140
		Middle	4.540	5.180
		High	4.540	5.200
10	QPSK	Low	9.000	9.960
		Middle	8.960	9.840
		High	9.000	9.880
	16QAM	Low	9.000	9.720
		Middle	8.960	9.840
		High	9.000	9.920
15	QPSK	Low	13.620	15.180
		Middle	13.500	14.940
		High	13.560	15.240
	16QAM	Low	13.560	15.240
		Middle	13.560	15.120
		High	13.500	15.060
20	QPSK	Low	18.000	19.600
		Middle	18.000	19.760
		High	18.000	19.920
	16QAM	Low	18.080	19.760
		Middle	18.000	19.600
		High	18.000	19.520

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

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

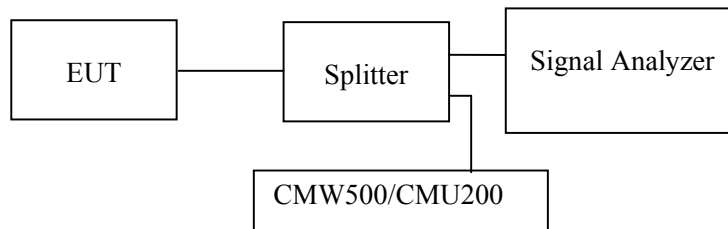
Applicable Standard

FCC §2.1051, §22.917(a) 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:	28.2~28.5 °C
Relative Humidity:	43~46 %
ATM Pressure:	101.0 kPa

The testing was performed by Pedro Yun and Andy Yu from 2021-04-26 to 2021-05-08.

EUT operation mode: Transmitting

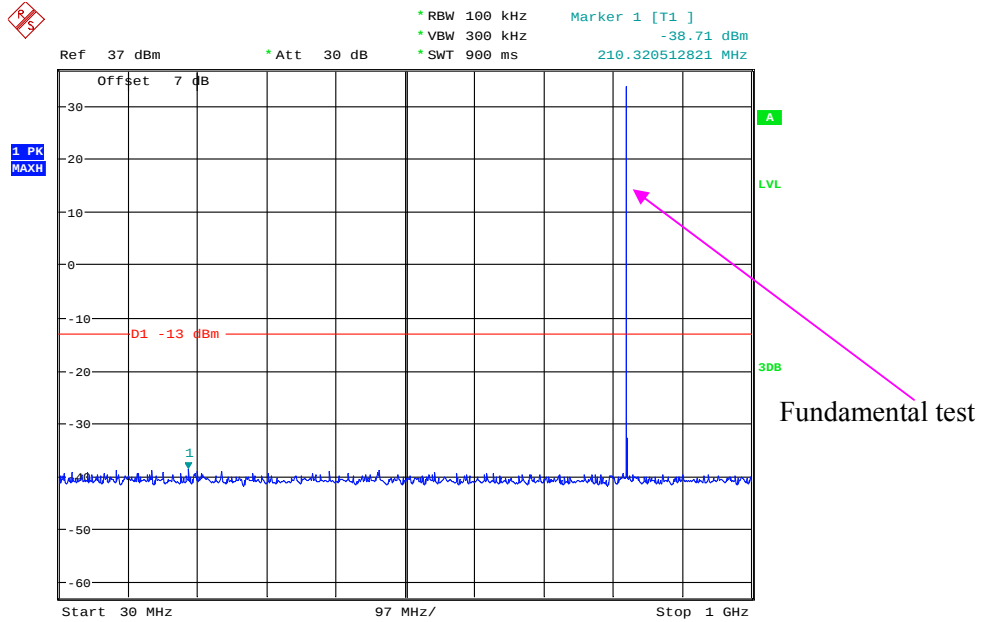
Test result: Pass

Please refer to the following plots.

Cellular Band (Part 22H)

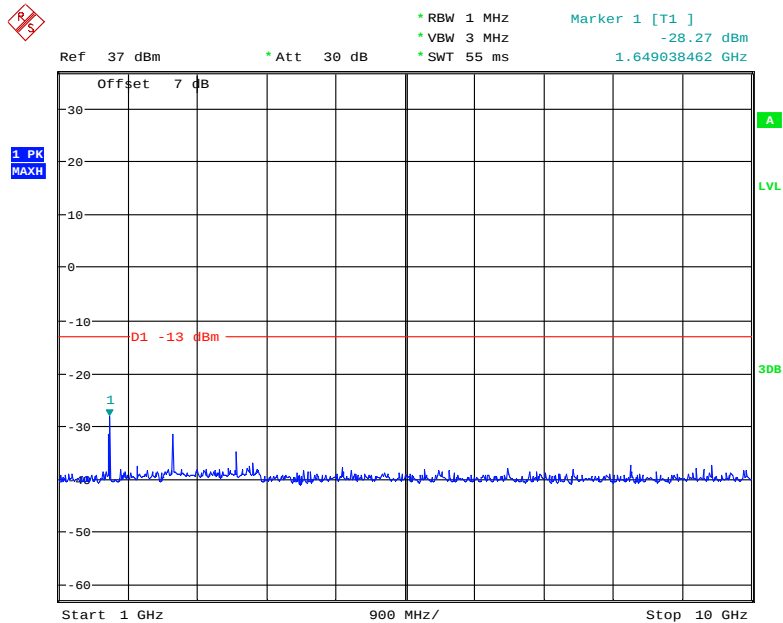
Low Channel:

30 MHz – 1 GHz (GSM Mode)



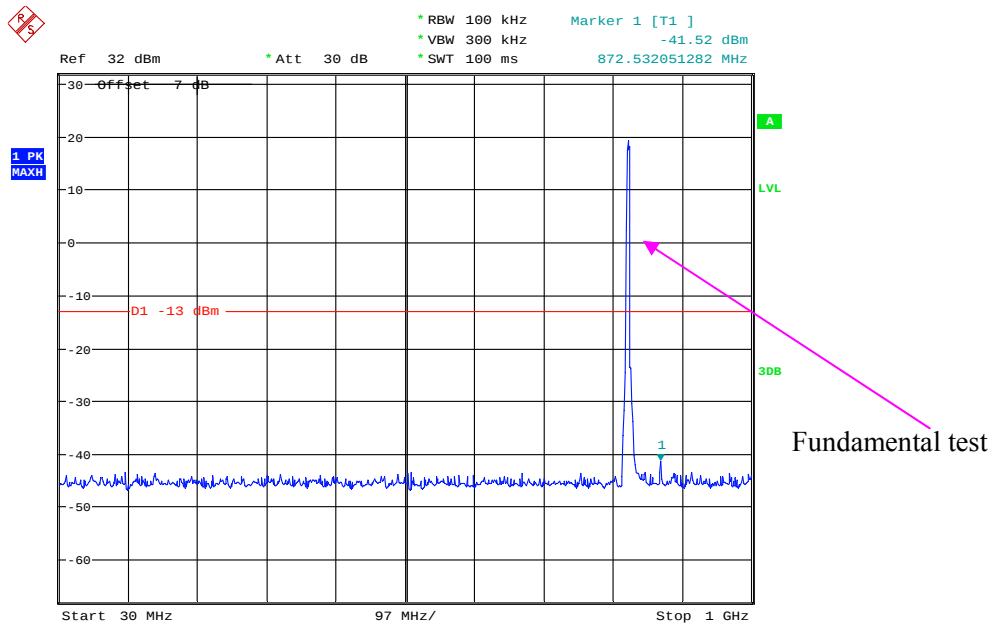
Date: 26.APR.2021 01:44:52

1 GHz – 10 GHz (GSM Mode)



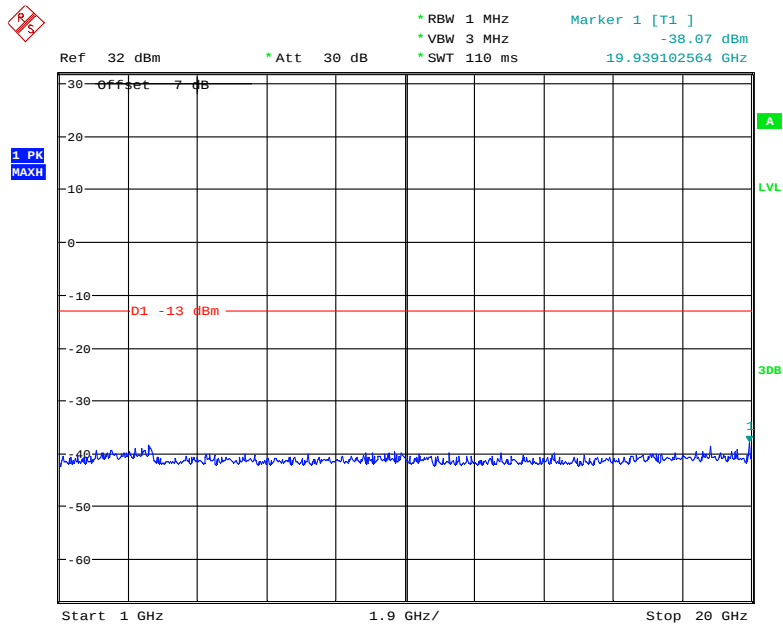
Date: 26.APR.2021 02:05:57

30 MHz – 1 GHz (WCDMA Mode)



Date: 1.MAY.2021 20:00:50

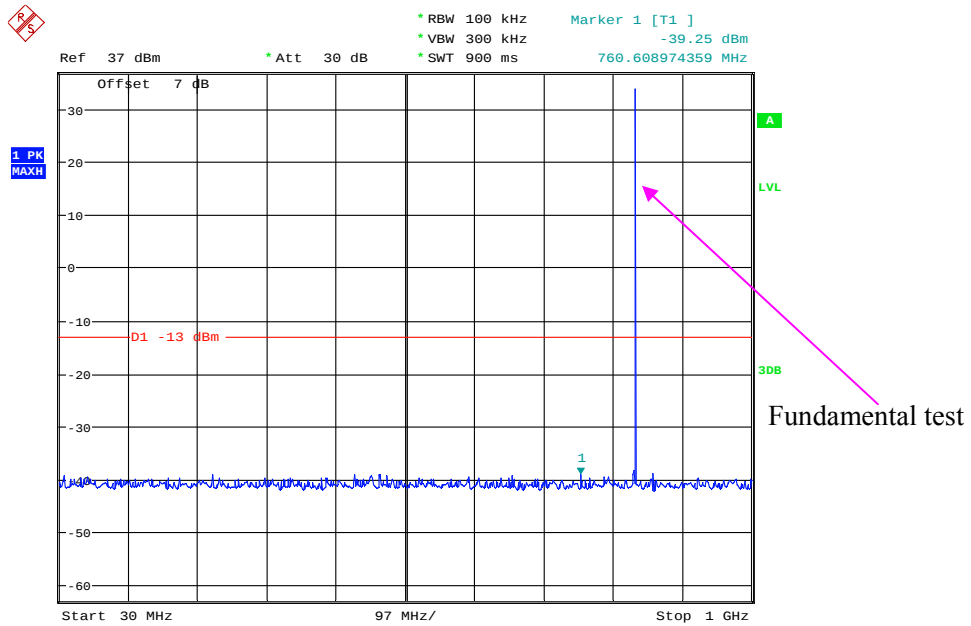
1 GHz – 10 GHz (WCDMA Mode)



Date: 1.MAY.2021 20:00:03

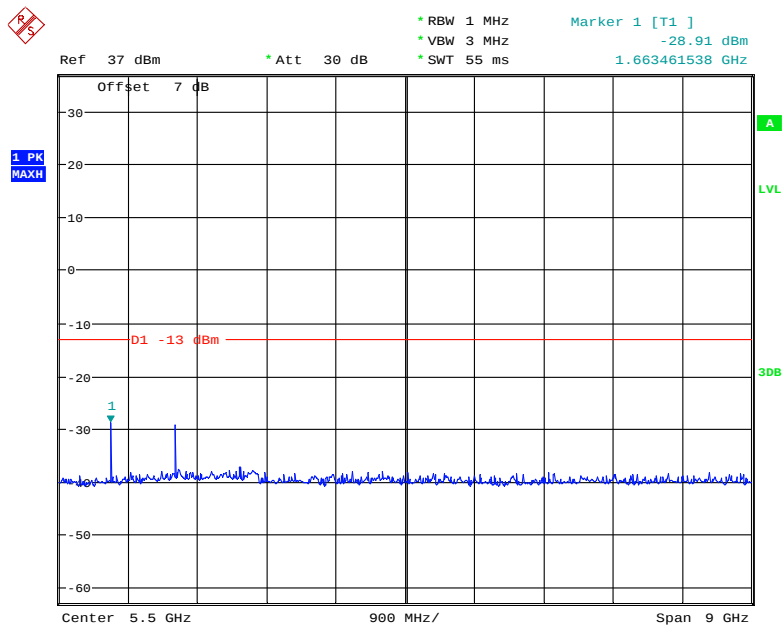
Middle Channel:

30 MHz – 1 GHz (GSM Mode)



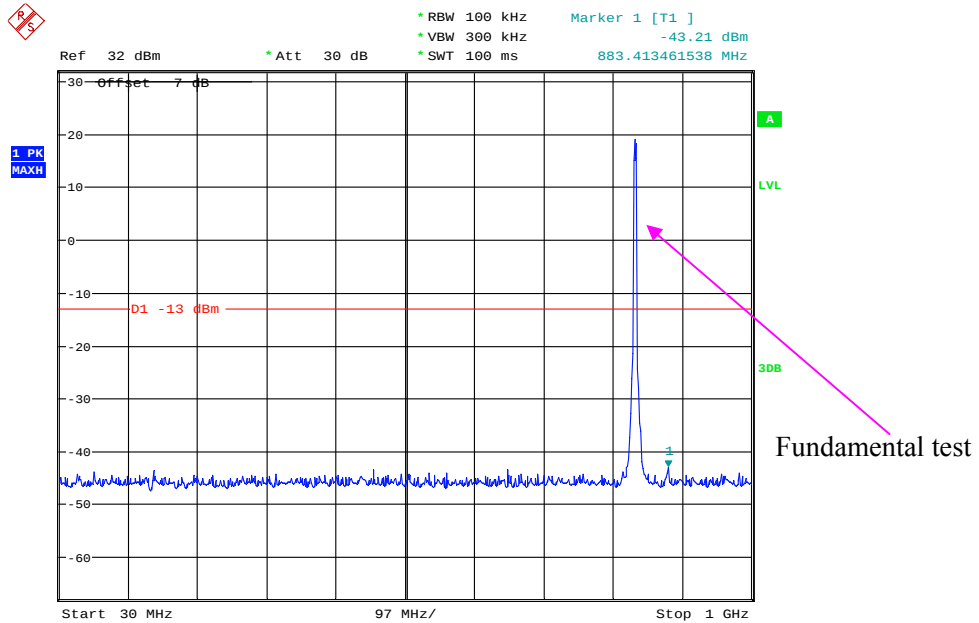
Date: 26.APR.2021 01:43:43

1 GHz – 10 GHz (GSM Mode)



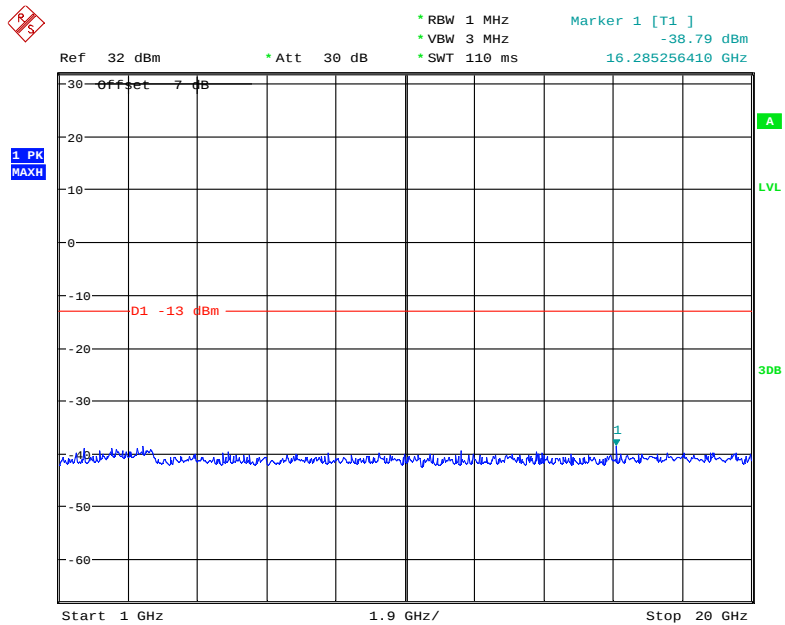
Date: 26.APR.2021 02:06:39

30 MHz – 1 GHz (WCDMA Mode)



Date: 1.MAY.2021 20:01:25

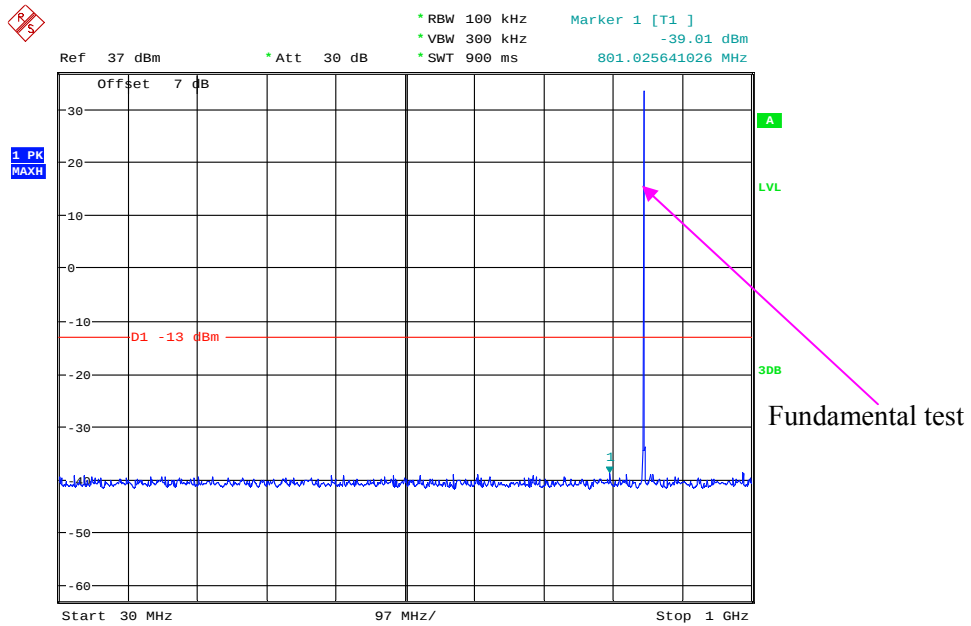
1 GHz – 10 GHz (WCDMA Mode)



Date: 1.MAY.2021 19:59:36

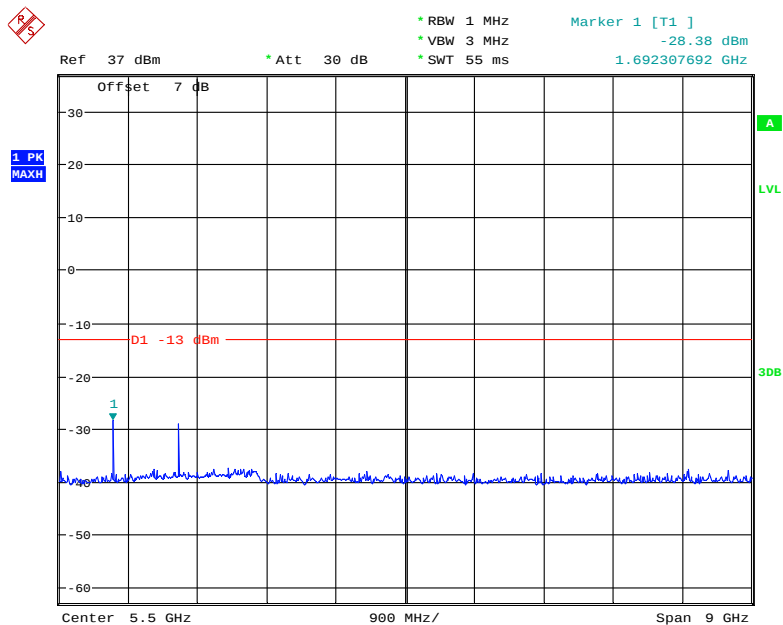
High Channel:

30 MHz – 1 GHz (GSM Mode)



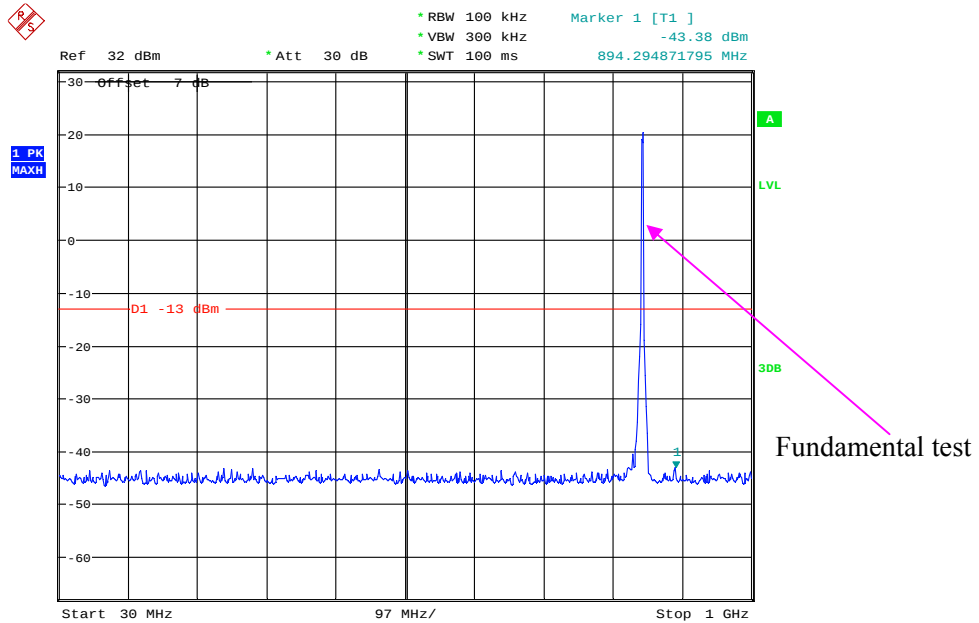
Date: 26.APR.2021 01:40:27

1 GHz – 10 GHz (GSM Mode)



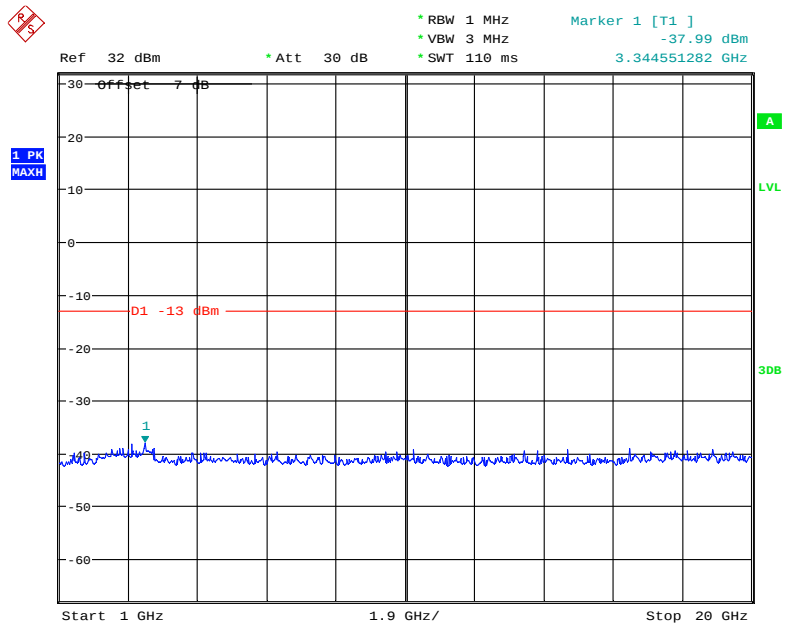
Date: 26.APR.2021 02:07:13

30 MHz – 1 GHz (WCDMA Mode)



Date: 1.MAY.2021 20:03:13

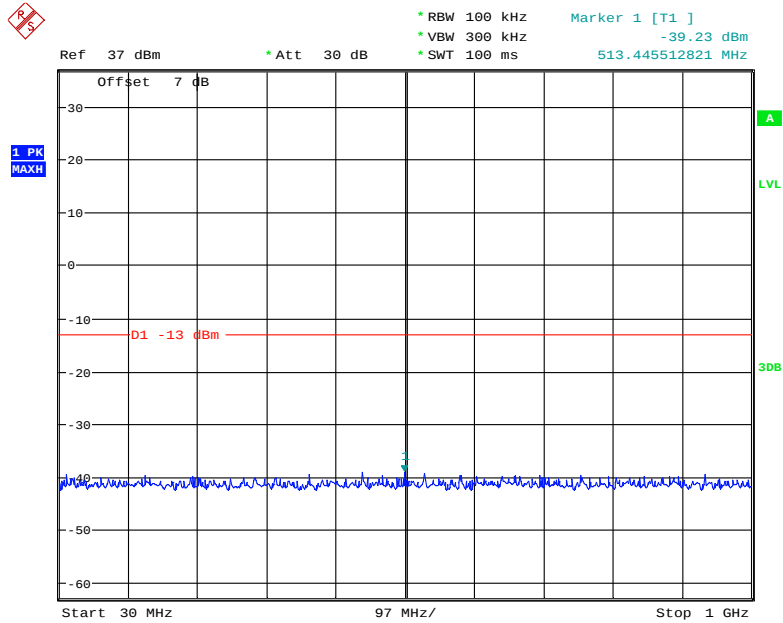
1 GHz – 20 GHz (WCDMA Mode)



Date: 1.MAY.2021 19:59:02

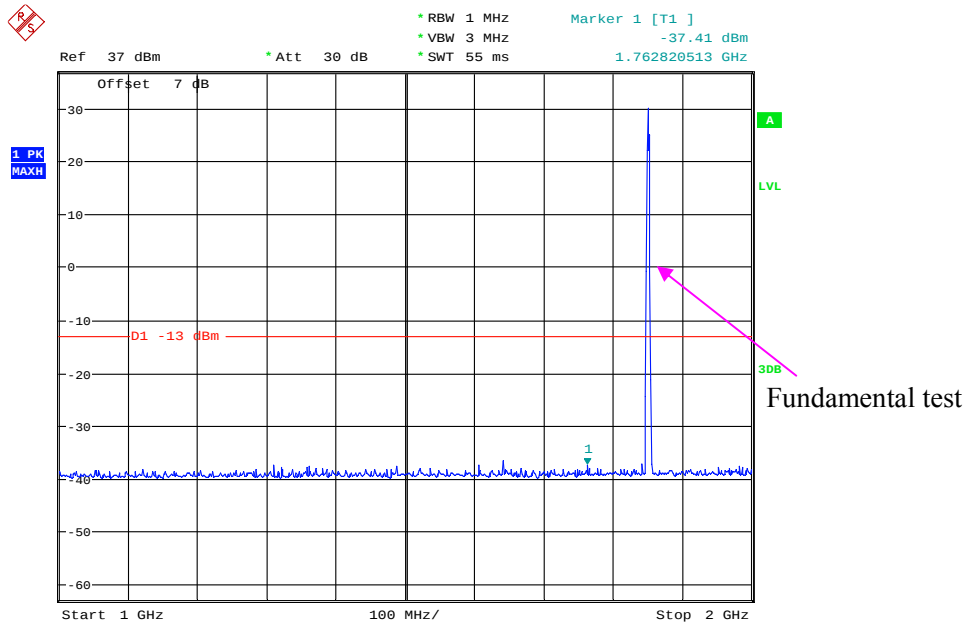
PCS Band (Part 24E) Low Channel:

30 MHz – 1 GHz (GSM Mode)



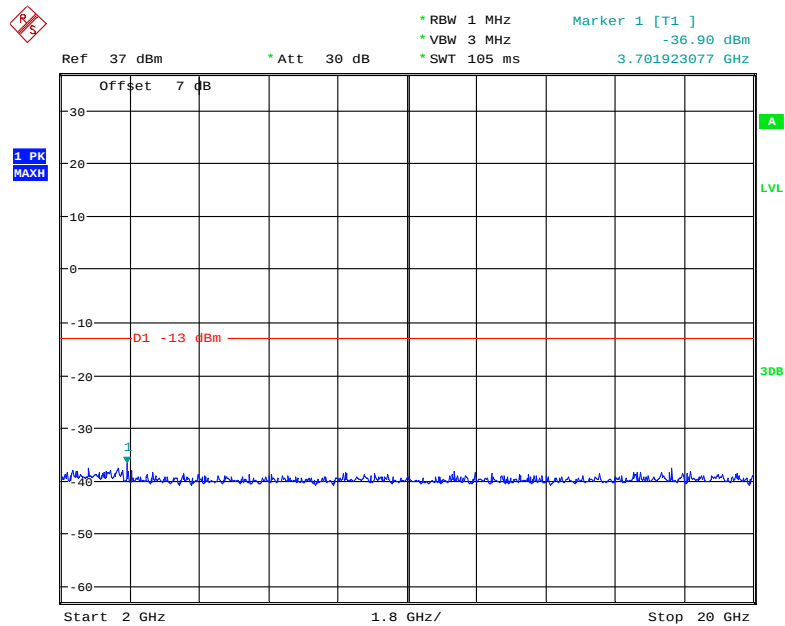
Date: 26.APR.2021 01:54:34

1 GHz – 2 GHz (GSM Mode)



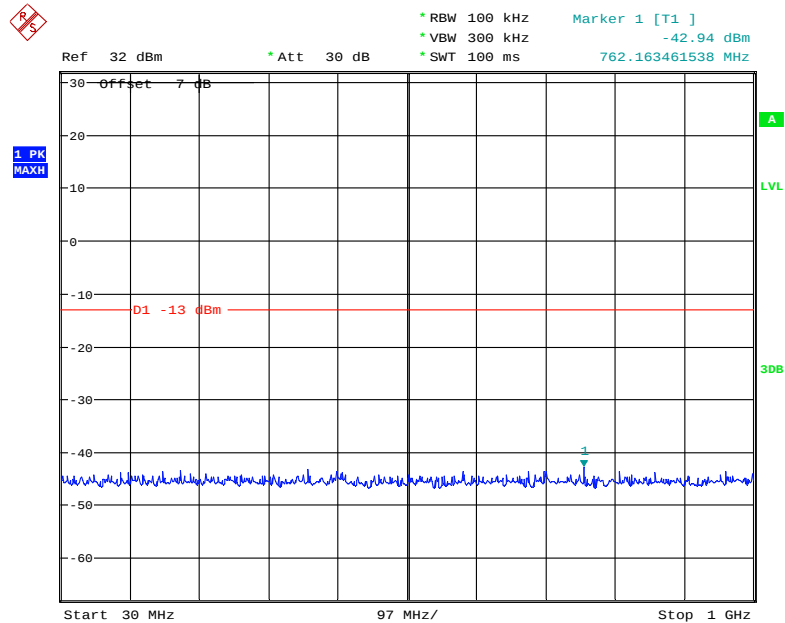
Date: 26.APR.2021 02:10:57

2 GHz – 20 GHz (GSM Mode)



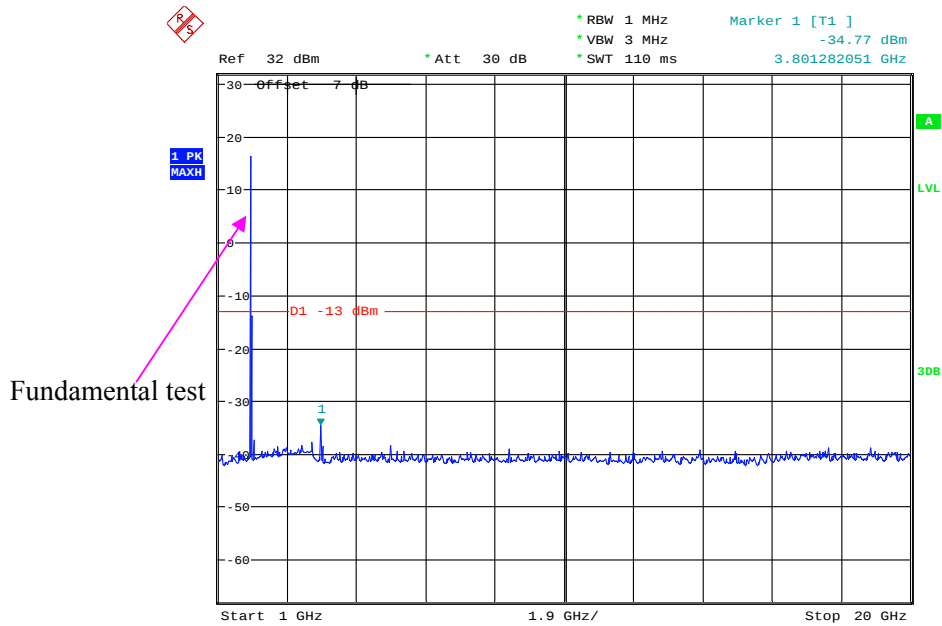
Date: 26.APR.2021 02:00:28

30 MHz – 1 GHz (WCDMA Mode)



Date: 1.MAY.2021 19:48:29

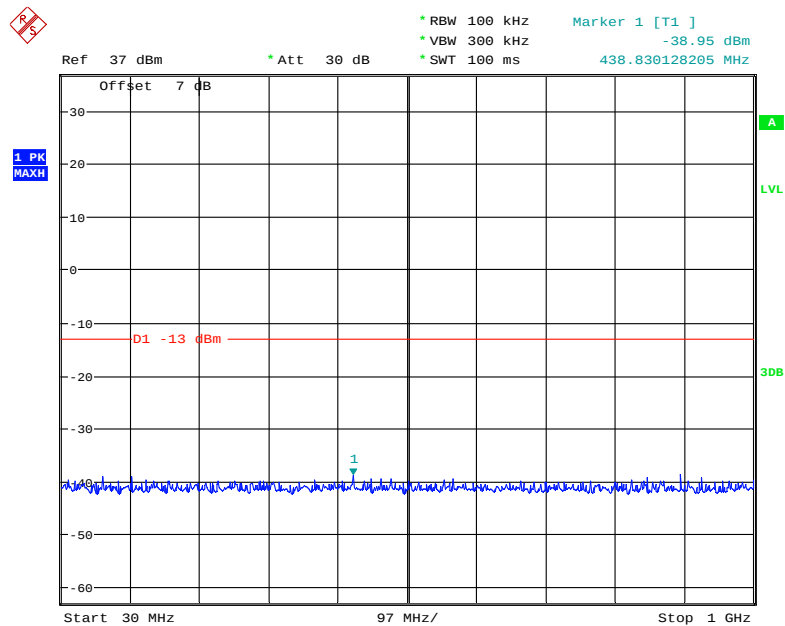
1 GHz – 20 GHz (WCDMA Mode)



Date: 1.MAY.2021 19:52:58

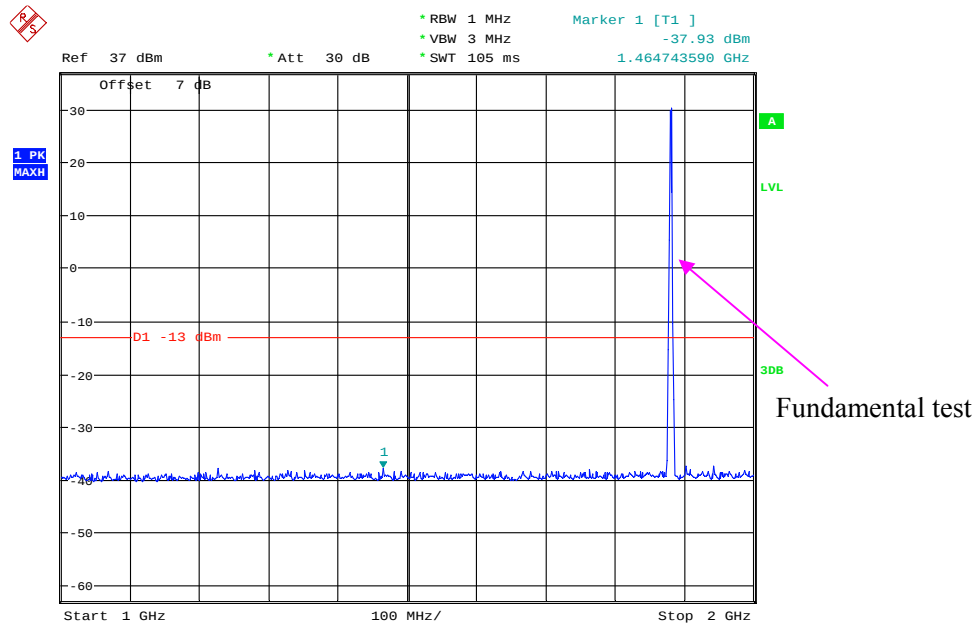
Middle Channel:

30 MHz – 1 GHz (GSM Mode)



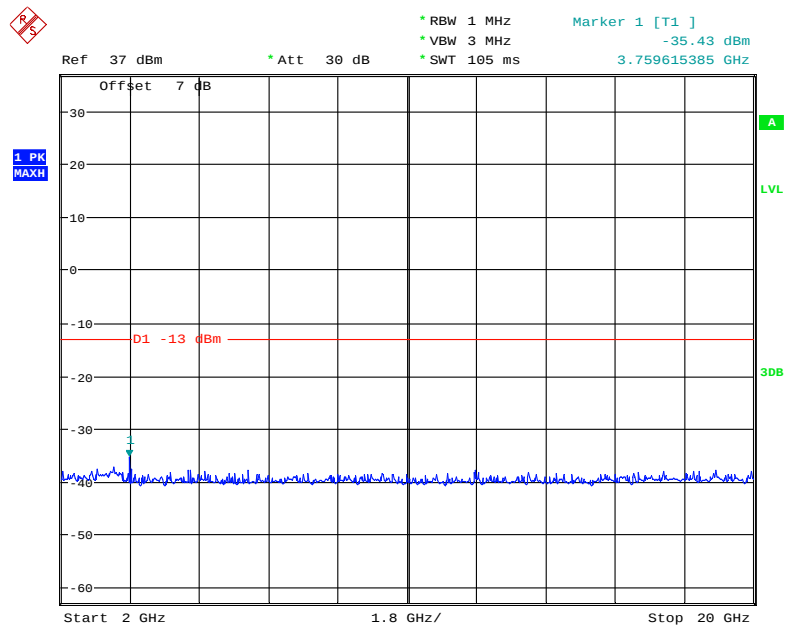
Date: 26.APR.2021 01:54:13

1 GHz – 2 GHz (GSM Mode)



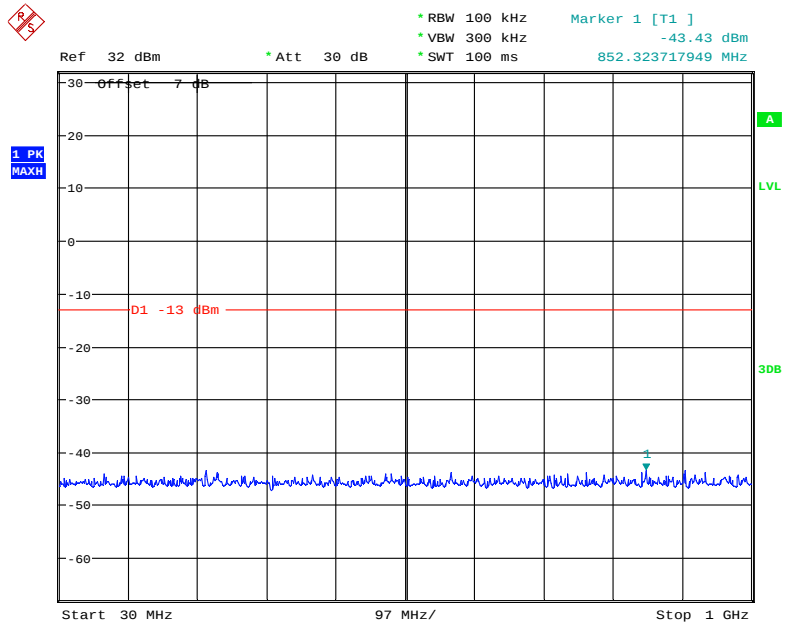
Date: 26.APR.2021 02:02:51

2 GHz – 20 GHz (GSM Mode)



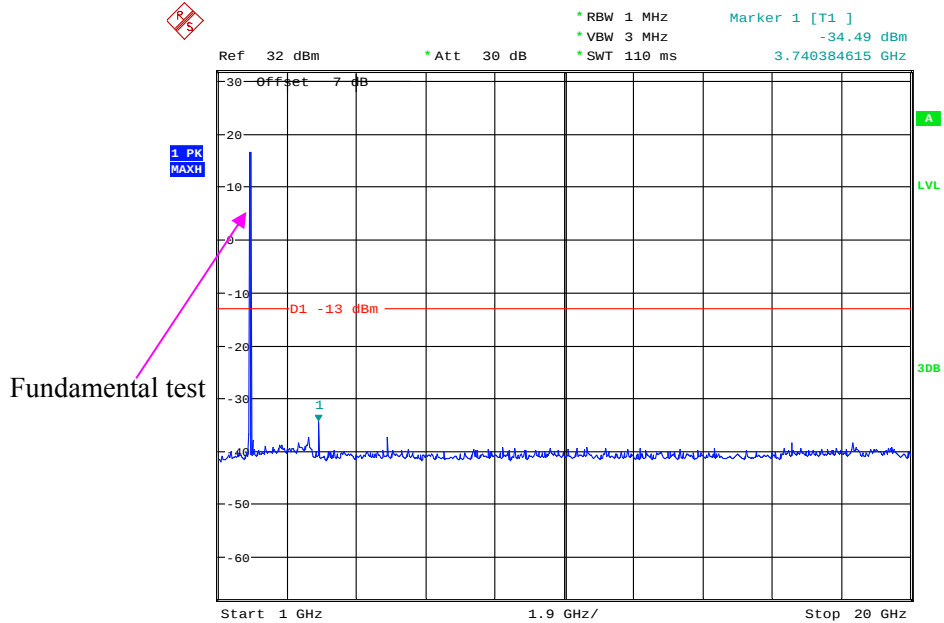
Date: 26.APR.2021 02:00:57

30 MHz – 1 GHz (WCDMA Mode)

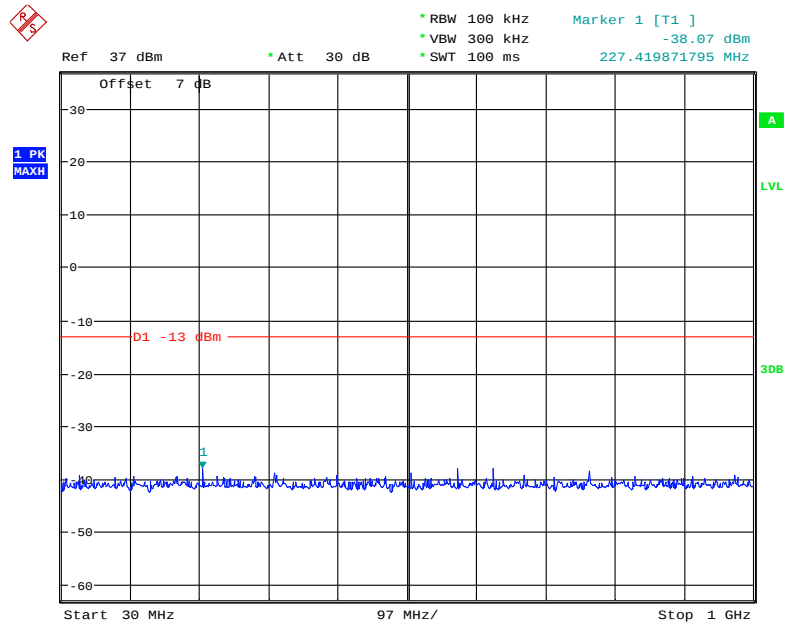


Date: 1.MAY.2021 19:49:19

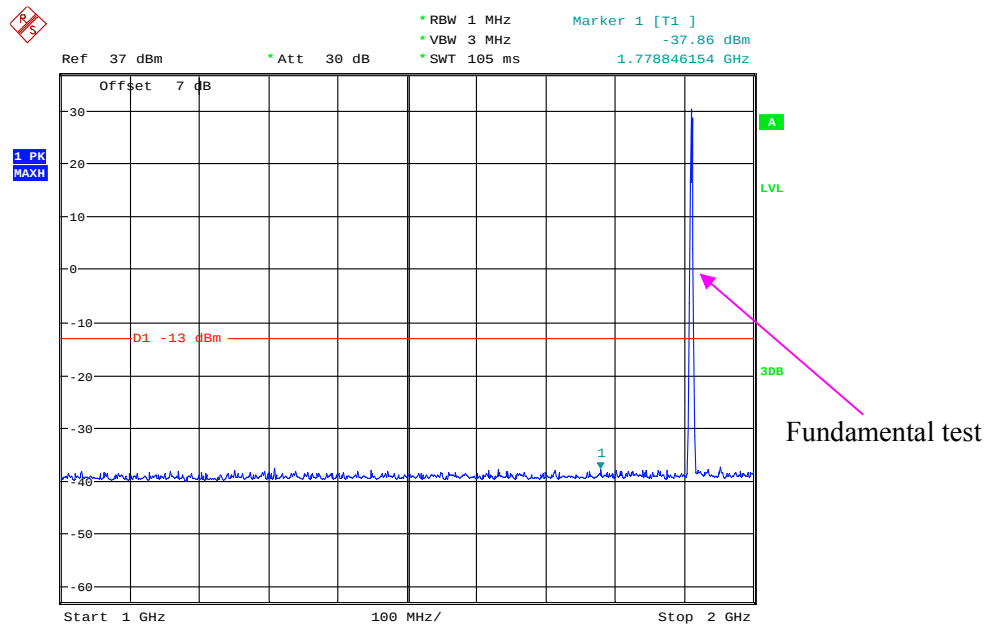
1 GHz – 20 GHz (WCDMA Mode)



Date: 1.MAY.2021 19:52:12

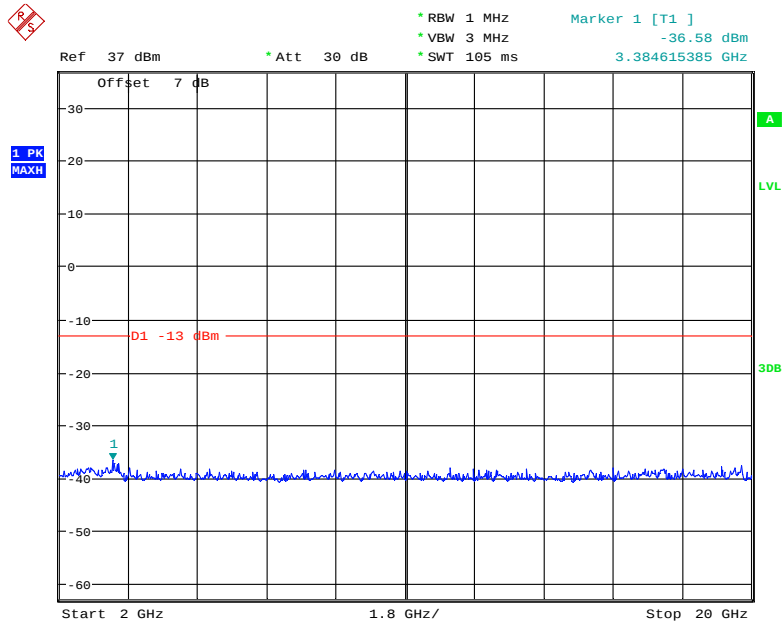
High Channel:**30 MHz – 1 GHz (GSM Mode)**

Date: 26.APR.2021 01:53:44

1 GHz – 2 GHz (GSM Mode)

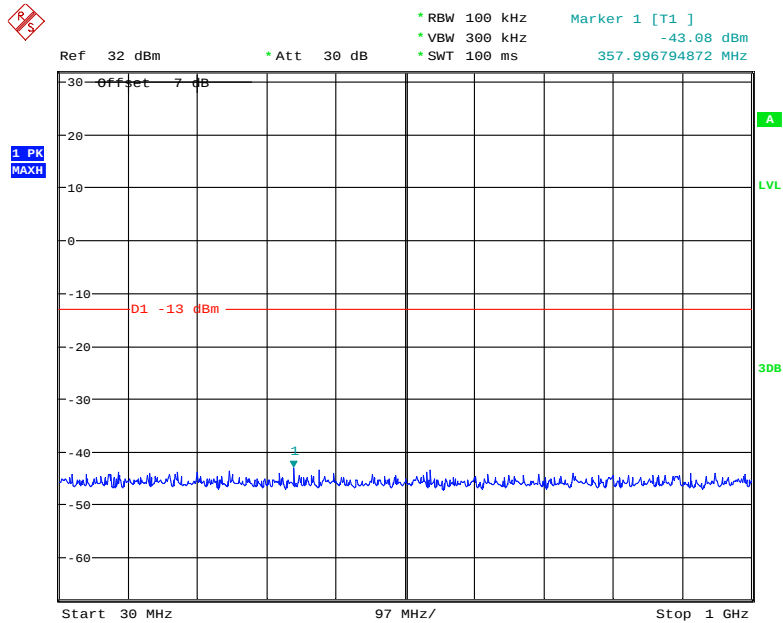
Date: 26.APR.2021 02:02:15

2 GHz – 20 GHz (GSM Mode)



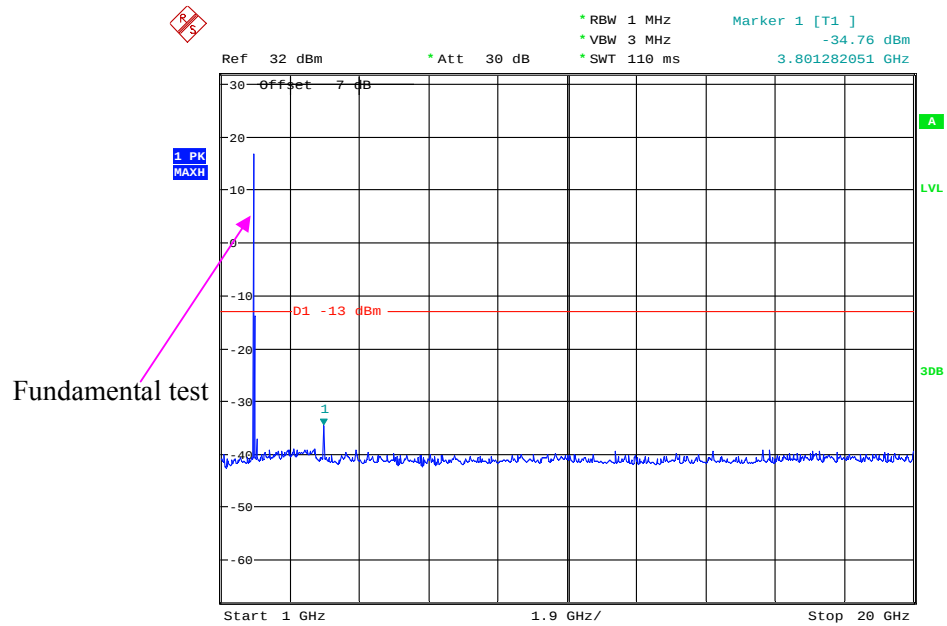
Date: 26.APR.2021 02:01:25

30 MHz – 1 GHz (WCDMA Mode)



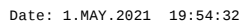
Date: 1.MAY.2021 19:49:48

1 GHz – 20 GHz (WCDMA Mode)



Date: 1.MAY.2021 19:51:03

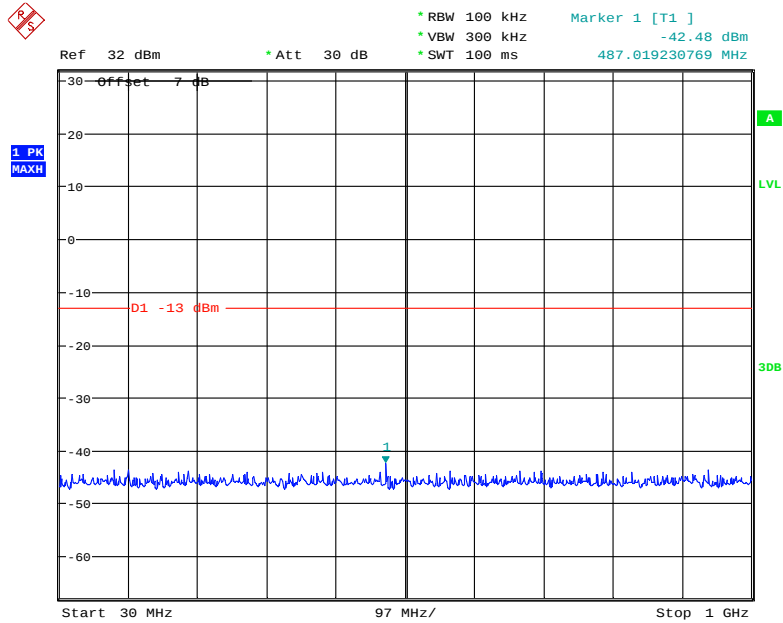
30 MHz – 1 GHz (WCDMA Mode)



Date: 1.MAY.2021 19:57:46

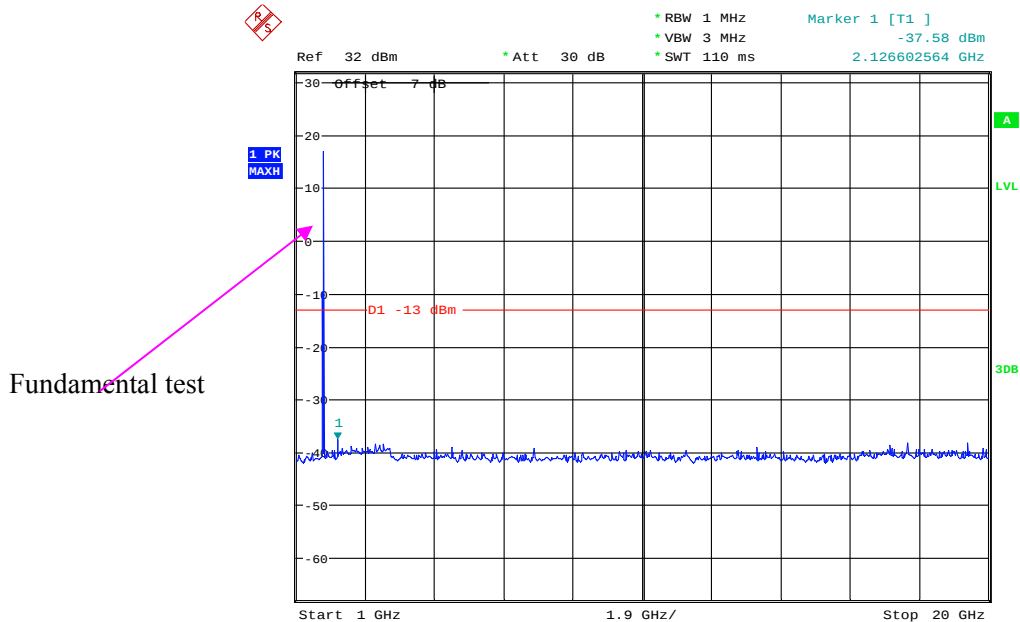
Middle Channel

30 MHz – 1 GHz (WCDMA Mode)

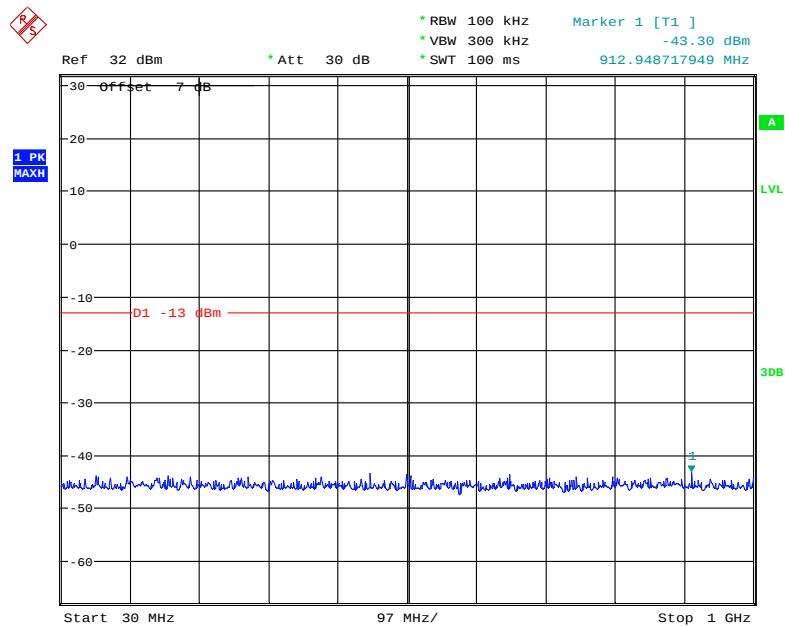


Date: 1.MAY.2021 19:54:58

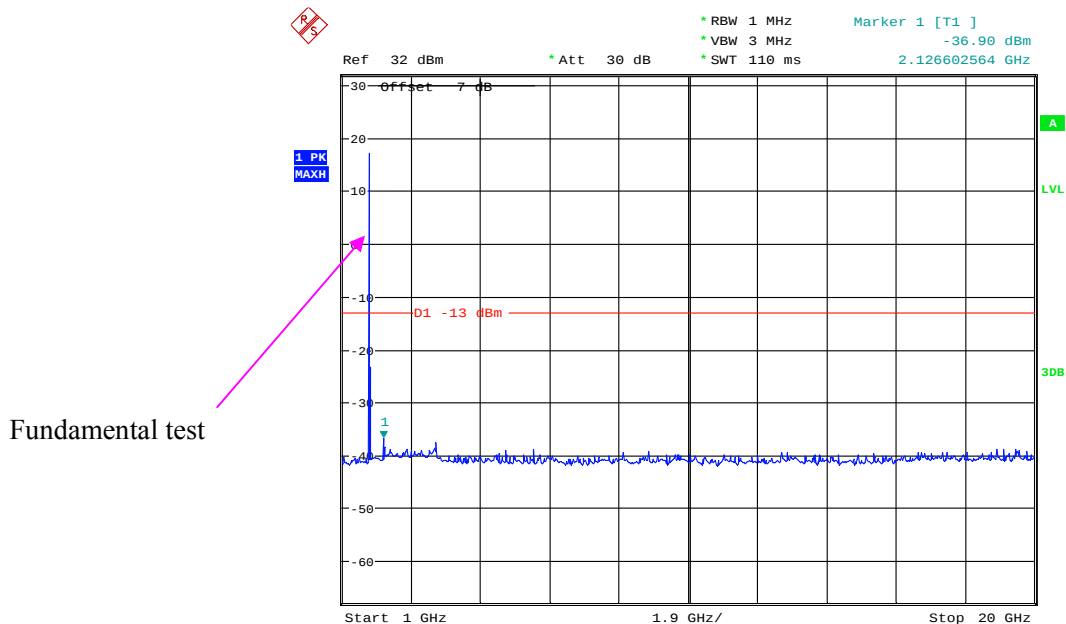
1 GHz – 20 GHz (WCDMA Mode)



Date: 1.MAY.2021 19:57:13

High Channel:**30 MHz – 1 GHz (WCDMA Mode)**

Date: 1.MAY.2021 19:55:23

1 GHz – 20 GHz (WCDMA Mode)

Date: 1.MAY.2021 19:56:20

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:	25~25.2 °C
Relative Humidity:	50~52 %
ATM Pressure:	101.0~101.1 kPa

The testing was performed by Andy Yu 2021-05-07 for below 1GHz, Alan He on 2021-05-13 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										
951.49	35.35	223	2.1	H	-61.2	1.36	0.0	-62.56	-13	49.56
951.49	33.47	266	1.2	V	-60.6	1.36	0.0	-61.96	-13	48.96
1648.40	50.51	44	1.6	H	-57.6	1.40	8.70	-50.30	-13	37.30
1648.40	48.45	37	1.5	V	-59.4	1.40	8.70	-52.10	-13	39.10
2472.60	47.64	139	1.7	H	-55.7	2.60	10.20	-48.10	-13	35.10
2472.60	46.22	323	2.0	V	-56.5	2.60	10.20	-48.90	-13	35.90
Middle channel										
950.61	35.99	18	1.5	H	-60.5	1.36	0.0	-61.86	-13	48.86
950.61	34.33	192	2.1	V	-59.7	1.36	0.0	-61.06	-13	48.06
1673.20	50.89	243	1.1	H	-55.4	1.30	8.90	-47.80	-13	34.80
1673.20	48.62	279	1.7	V	-57.1	1.30	8.90	-49.50	-13	36.50
2509.80	47.91	71	2.3	H	-55.4	2.60	10.20	-47.80	-13	34.80
2509.80	46.50	300	1.6	V	-56.2	2.60	10.20	-48.60	-13	35.60
High channel										
949.29	35.19	33	1.0	H	-61.3	1.36	0.0	-62.66	-13	49.66
949.29	35.66	109	1.9	V	-58.4	1.36	0.0	-59.76	-13	46.76
1697.60	50.67	336	1.3	H	-55.7	1.30	8.90	-48.10	-13	35.10
1697.60	48.78	166	2.2	V	-57.0	1.30	8.90	-49.40	-13	36.40
2546.40	47.28	167	2.1	H	-56.1	2.60	10.20	-48.50	-13	35.50
2546.40	46.46	195	2.4	V	-56.3	2.60	10.20	-48.70	-13	35.70

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										
959.35	36.58	103	1.3	H	-59.9	1.36	0.0	-61.26	-13	48.26
959.35	35.74	127	2.2	V	-58.3	1.36	0.0	-59.66	-13	46.66
1652.80	54.57	198	1.9	H	-51.8	1.30	8.90	-44.20	-13	31.20
1652.80	52.63	91	1.2	V	-53.1	1.30	8.90	-45.50	-13	32.50
2479.20	48.5	187	1.6	H	-54.9	2.60	10.20	-47.30	-13	34.30
2479.20	46.61	135	1.5	V	-56.1	2.60	10.20	-48.50	-13	35.50
Middle channel										
960.07	37.46	167	1.8	H	-59.0	1.36	0.0	-60.36	-13	47.36
960.07	34.53	243	1.9	V	-59.5	1.36	0.0	-60.86	-13	47.86
1673.20	54.26	247	1.8	H	-52.1	1.30	8.90	-44.50	-13	31.50
1673.20	52.48	347	1.1	V	-53.3	1.30	8.90	-45.70	-13	32.70
2509.80	48.24	221	2.3	H	-55.1	2.60	10.20	-47.50	-13	34.50
2509.80	46.34	170	2.2	V	-56.4	2.60	10.20	-48.80	-13	35.80
High channel										
961.02	37.27	153	1.9	H	-59.2	1.36	0.0	-60.56	-13	47.56
961.02	34.87	148	1.0	V	-59.2	1.36	0.0	-60.56	-13	47.56
1693.20	54.18	297	1.5	H	-52.2	1.30	8.90	-44.60	-13	31.60
1693.20	53.02	92	1.3	V	-52.7	1.30	8.90	-45.10	-13	32.10
2539.80	48.82	107	1.0	H	-54.5	2.60	10.20	-46.90	-13	33.90
2539.80	46.75	169	1.9	V	-56.0	2.60	10.20	-48.40	-13	35.40

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										
955.11	37.16	224	1.9	H	-59.3	1.36	0.0	-60.66	-13	47.66
955.11	35.29	31	2.0	V	-58.8	1.36	0.0	-60.16	-13	47.16
3700.40	47.68	236	2.4	H	-54.1	1.60	11.90	-43.80	-13	30.80
3700.40	46.01	252	1.1	V	-55.2	1.60	11.90	-44.90	-13	31.90
Middle channel										
954.78	36.42	150	1.9	H	-60.1	1.36	0.0	-61.46	-13	48.46
954.78	35.21	260	1.7	V	-58.8	1.36	0.0	-60.16	-13	47.16
3760.00	47.24	64	1.8	H	-54.8	1.50	11.80	-44.50	-13	31.50
3760.00	45.63	320	1.3	V	-56.0	1.50	11.80	-45.70	-13	32.70
High channel										
955.91	36.44	109	1.9	H	-60.1	1.36	0.0	-61.46	-13	48.46
955.91	34.73	225	1.0	V	-59.3	1.36	0.0	-60.66	-13	47.66
3819.60	47.52	313	1.5	H	-54.5	1.50	11.80	-44.20	-13	31.20
3819.60	46.18	42	1.2	V	-55.4	1.50	11.80	-45.10	-13	32.10
WCDMA Mode										
Low channel										
954.23	38.20	104	1.7	H	-58.3	1.36	0.0	-59.66	-13	46.66
954.23	35.75	232	1.7	V	-58.3	1.36	0.0	-59.66	-13	46.66
3704.80	58.87	340	1.4	H	-42.9	1.60	11.90	-32.60	-13	19.60
3704.80	57.52	241	1.5	V	-43.7	1.60	11.90	-33.40	-13	20.40
Middle channel										
952.87	38.39	189	2.1	H	-58.1	1.36	0.0	-59.46	-13	46.46
952.87	36.30	156	1.3	V	-57.8	1.36	0.0	-59.16	-13	46.16
3760.00	59.39	278	1.8	H	-42.7	1.50	11.80	-32.40	-13	19.40
3760.00	58.2	91	1.2	V	-43.4	1.50	11.80	-33.10	-13	20.10
High channel										
953.31	37.28	104	1.6	H	-59.2	1.36	0.0	-60.56	-13	47.56
953.31	34.50	189	2.2	V	-59.6	1.36	0.0	-60.96	-13	47.96
3815.20	58.62	15	1.9	H	-43.4	1.50	11.80	-33.10	-13	20.10
3815.20	55.7	339	1.4	V	-45.9	1.50	11.80	-35.60	-13	22.60

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										
948.95	36.16	247	1.2	H	-60.3	1.36	0.0	-61.66	-13	48.66
948.95	36.56	117	1.8	V	-57.5	1.36	0.0	-58.86	-13	45.86
3424.80	53.86	195	1.3	H	-46.9	1.40	11.80	-36.50	-13	23.50
3424.80	51.92	335	1.4	V	-48.7	1.40	11.80	-38.30	-13	25.30
Middle channel										
949.74	36.99	240	1.6	H	-59.5	1.36	0.0	-60.86	-13	47.86
949.74	35.58	42	1.2	V	-58.5	1.36	0.0	-59.86	-13	46.86
3465.20	53.5	273	1.3	H	-47.2	1.50	12.00	-36.70	-13	23.70
3465.20	51.86	89	2.1	V	-49.6	1.50	12.00	-39.10	-13	26.10
High channel										
948.27	36.76	73	1.0	H	-59.7	1.36	0.0	-61.06	-13	48.06
948.27	35.55	21	1.5	V	-58.5	1.36	0.0	-59.86	-13	46.86
3505.20	54.22	351	2.1	H	-46.5	1.50	12.00	-36.00	-13	23.00
3505.20	52.61	68	1.7	V	-48.9	1.50	12.00	-38.40	-13	25.40

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										
955.34	35.79	201	1.9	H	-60.7	1.36	0.0	-62.06	-13	49.06
955.34	35.53	89	1.9	V	-58.5	1.36	0.0	-59.86	-13	46.86
3701.40	60.46	270	1.7	H	-41.3	1.60	11.90	-31.00	-13	18.00
3701.40	60.93	122	2.3	V	-40.3	1.60	11.90	-30.00	-13	17.00
5552.10	47.24	132	1.8	H	-52.4	1.70	12.40	-41.70	-13	28.70
5552.10	47.16	194	1.7	V	-52.2	1.70	12.40	-41.50	-13	28.50
1.4MHz, Middle channel										
954.66	37.53	20	1.8	H	-59.0	1.36	0.0	-60.36	-13	47.36
954.66	36.22	270	2.5	V	-57.8	1.36	0.0	-59.16	-13	46.16
3760.00	60.23	187	1.5	H	-41.8	1.50	11.80	-31.50	-13	18.50
3760.00	60.8	10	1.9	V	-40.8	1.50	11.80	-30.50	-13	17.50
5640.00	47.11	292	1.9	H	-52.6	1.70	12.40	-41.90	-13	28.90
5640.00	47.01	263	2.1	V	-52.3	1.70	12.40	-41.60	-13	28.60
1.4MHz, High channel										
954.06	36.51	72	1.7	H	-60.0	1.36	0.0	-61.36	-13	48.36
954.06	36.39	303	1.2	V	-57.7	1.36	0.0	-59.06	-13	46.06
3818.60	60.18	53	2.2	H	-41.9	1.50	11.80	-31.60	-13	18.60
3818.60	60.35	113	1.7	V	-41.2	1.50	11.80	-30.90	-13	17.90
5727.90	47.57	236	1.4	H	-52.3	1.60	12.10	-41.80	-13	28.80
5727.90	47.25	72	1.8	V	-52.0	1.60	12.10	-41.50	-13	28.50

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 4										
Test frequency range:30 MHz ~ 20 GHz										
1.4MHz, Low channel										
954.43	37.44	210	1.3	H	-59.1	1.36	0.0	-60.46	-13	47.46
954.43	36.60	234	2.5	V	-57.5	1.36	0.0	-58.86	-13	45.86
3421.40	67.62	238	1.2	H	-33.2	1.40	11.80	-22.80	-13	9.80
3421.40	63.85	216	2.4	V	-36.8	1.40	11.80	-26.40	-13	13.40
5132.10	60.43	107	2.4	H	-39.6	1.60	12.10	-29.10	-13	16.10
5132.10	56.23	162	1.3	V	-43.8	1.60	12.10	-33.30	-13	20.30
6842.80	53.19	101	2.5	H	-45.5	1.80	11.20	-36.10	-13	23.10
6842.80	50.58	242	1.9	V	-48.5	1.80	11.20	-39.10	-13	26.10
1.4MHz, Middle channel										
956.65	35.61	359	2.4	H	-60.9	1.36	0.0	-62.26	-13	49.26
956.65	34.76	156	2.1	V	-59.3	1.36	0.0	-60.66	-13	47.66
3465.00	67.39	191	1.6	H	-33.4	1.50	12.00	-22.90	-13	9.90
3465.00	63.6	197	1.7	V	-37.9	1.50	12.00	-27.40	-13	14.40
5197.50	60.21	271	2.4	H	-39.9	1.60	12.10	-29.40	-13	16.40
5197.50	56.06	239	2.0	V	-43.6	1.60	12.10	-33.10	-13	20.10
6930.00	53.02	185	1.7	H	-45.3	1.80	11.30	-35.80	-13	22.80
6930.00	50.54	305	1.2	V	-47.9	1.80	11.30	-38.40	-13	25.40
1.4MHz, High channel										
954.83	36.85	157	1.4	H	-59.7	1.36	0.0	-61.06	-13	48.06
954.83	34.74	30	1.9	V	-59.3	1.36	0.0	-60.66	-13	47.66
3508.60	67.41	328	1.6	H	-33.3	1.50	12.00	-22.80	-13	9.80
3508.60	63.64	22	2.3	V	-37.9	1.50	12.00	-27.40	-13	14.40
5262.90	60.51	2	1.3	H	-39.2	1.60	12.20	-28.60	-13	15.60
5262.90	56.29	130	1.1	V	-42.9	1.60	12.20	-32.30	-13	19.30
7017.20	53.04	113	1.9	H	-45.8	1.90	11.20	-36.50	-13	23.50
7017.20	50.46	325	1.7	V	-48.5	1.90	11.20	-39.20	-13	26.20

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										
958.50	36.77	291	1.2	H	-59.7	1.36	0.0	-61.06	-13	48.06
958.50	34.92	35	1.8	V	-59.1	1.36	0.0	-60.46	-13	47.46
1649.40	52.38	20	2.2	H	-55.7	1.40	8.70	-48.40	-13	35.40
1649.40	50.34	349	2.3	V	-57.5	1.40	8.70	-50.20	-13	37.20
1.4MHz, Middle channel										
959.15	36.77	288	1.6	H	-59.7	1.36	0.0	-61.06	-13	48.06
959.15	34.90	19	1.1	V	-59.2	1.36	0.0	-60.56	-13	47.56
1673.00	52.02	290	2.4	H	-54.3	1.30	8.90	-46.70	-13	33.70
1673.00	50.19	351	2.2	V	-55.5	1.30	8.90	-47.90	-13	34.90
1.4MHz, High channel										
958.04	36.15	21	2.4	H	-60.4	1.36	0.0	-61.76	-13	48.76
958.04	36.12	55	2.4	V	-57.9	1.36	0.0	-59.26	-13	46.26
1696.60	52.45	282	2.4	H	-53.9	1.30	8.90	-46.30	-13	33.30
1696.60	50.39	96	1.7	V	-55.3	1.30	8.90	-47.70	-13	34.70
Band 7										
Test frequency range: 30 MHz ~ 26.5 GHz										
5MHz, Low channel										
957.55	37.12	109	1.5	H	-59.4	1.36	0.0	-60.76	-25	35.76
957.55	36.56	332	1.5	V	-57.5	1.36	0.0	-58.86	-25	33.86
5005.00	63.72	283	1.1	H	-36.9	1.70	12.00	-26.60	-25	1.60
5005.00	61.98	83	1.4	V	-38.1	1.70	12.00	-27.80	-25	2.80
7507.50	60.37	114	1.9	H	-35.6	1.90	10.70	-26.80	-25	1.80
7507.50	58.95	304	1.3	V	-36.6	1.90	10.70	-27.80	-25	2.80
5MHz, Middle channel										
958.89	37.09	242	1.4	H	-59.4	1.36	0.0	-60.76	-25	35.76
958.89	36.39	165	2.4	V	-57.7	1.36	0.0	-59.06	-25	34.06
5070.00	63.18	355	1.2	H	-36.8	1.60	12.10	-26.30	-25	1.30
5070.00	62.64	37	2.3	V	-37.4	1.60	12.10	-26.90	-25	1.90
7605.00	60.54	26	2.0	H	-37.0	2.10	10.50	-28.60	-25	3.60
7605.00	58.76	233	1.1	V	-38.5	2.10	10.50	-30.10	-25	5.10
5MHz, High channel										
956.97	36.44	92	1.8	H	-60.1	1.36	0.0	-61.46	-25	36.46
956.97	36.57	19	1.7	V	-57.5	1.36	0.0	-58.86	-25	33.86
5135.00	63.45	319	2.1	H	-36.6	1.60	12.10	-26.10	-25	1.10
5135.00	62.84	17	2.4	V	-37.2	1.60	12.10	-26.70	-25	1.70
7702.50	59.93	86	1.4	H	-37.6	2.10	10.50	-29.20	-25	4.20
7702.50	58.62	94	2.0	V	-38.7	2.10	10.50	-30.30	-25	5.30

Frequency	Receiver	Turntable	Rx Antenna		Substituted			Absolute Level	Limit	Margin
(MHz)	Reading (dBμV)	Angle Degree	Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)	(dBm)	(dBm)	(dB)
Band 17										
Test frequency range: 30 MHz ~ 10 GHz										
5MHz, Low channel										
948.85	37.28	109	1.6	H	-59.2	1.36	0.0	-60.56	-13	47.56
948.85	36.82	209	1.9	V	-57.2	1.36	0.0	-58.56	-13	45.56
1413.00	52.82	41	1.4	H	-55.4	1.60	7.90	-49.10	-13	36.10
1413.00	50.57	321	2.3	V	-57.9	1.60	7.90	-51.60	-13	38.60
5MHz, Middle channel										
949.04	37.45	88	1.7	H	-59.1	1.36	0.0	-60.46	-13	47.46
949.04	36.81	298	1.2	V	-57.2	1.36	0.0	-58.56	-13	45.56
1420.00	52.64	209	1.5	H	-55.5	1.60	7.90	-49.20	-13	36.20
1420.00	50.45	183	1.7	V	-58.0	1.60	7.90	-51.70	-13	38.70
5MHz, High channel										
949.66	37.76	188	1.2	H	-58.7	1.36	0.0	-60.06	-13	47.06
949.66	37.03	33	2.0	V	-57.0	1.36	0.0	-58.36	-13	45.36
1427.00	52.44	161	2.2	H	-55.7	1.60	7.90	-49.40	-13	36.40
1427.00	50.32	122	1.9	V	-58.1	1.60	7.90	-51.80	-13	38.80
Band 66										
Test frequency range: 30 MHz ~ 20GHz										
1.4MHz, Low channel										
948.98	37.08	193	1.7	H	-59.4	1.36	0.0	-60.76	-13	47.76
948.98	35.94	214	2.5	V	-58.1	1.36	0.0	-59.46	-13	46.46
3421.40	55.82	224	2.3	H	-45.0	1.40	11.80	-34.60	-13	21.60
3421.40	53.23	21	1.8	V	-47.4	1.40	11.80	-37.00	-13	24.00
1.4MHz, Middle channel										
949.83	37.67	82	1.9	H	-58.8	1.36	0.0	-60.16	-13	47.16
949.83	36.64	258	2.5	V	-57.4	1.36	0.0	-58.76	-13	45.76
3490.00	55.96	17	2.1	H	-44.8	1.50	12.00	-34.30	-13	21.30
3490.00	53.16	232	1.4	V	-48.3	1.50	12.00	-37.80	-13	24.80
1.4MHz, High channel										
950.85	38.60	223	1.2	H	-57.9	1.36	0.0	-59.26	-13	46.26
950.85	36.96	323	1.9	V	-57.1	1.36	0.0	-58.46	-13	45.46
3558.60	56.07	132	1.6	H	-45.5	1.50	12.10	-34.90	-13	21.90
3558.60	53.29	16	1.4	V	-47.7	1.50	12.10	-37.10	-13	24.10

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(c) (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.

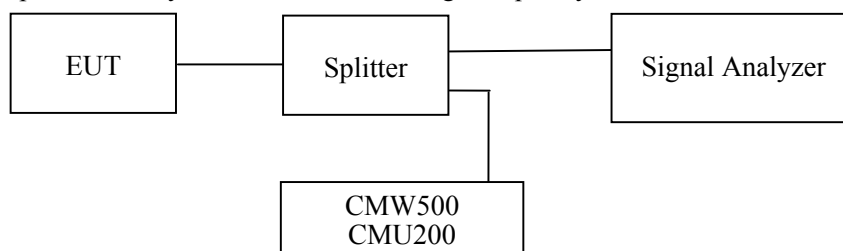
According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

According to FCC §27.53 (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:	28.2~28.5 °C
Relative Humidity:	43~46 %
ATM Pressure:	101.0 kPa

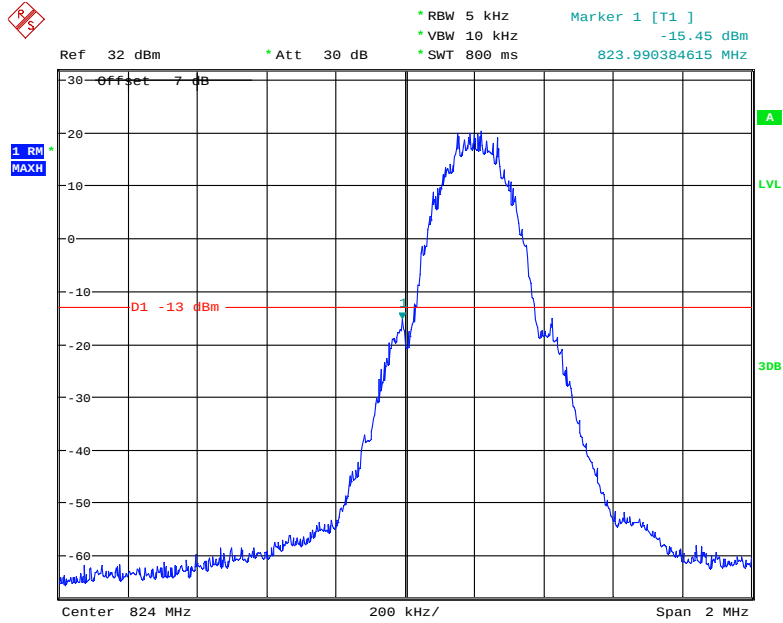
The testing was performed by Pedro Yun and Andy Yu from 2021-04-26 to 2021-05-14.

EUT operation mode: Transmitting (Worst case)

Test Result: Pass

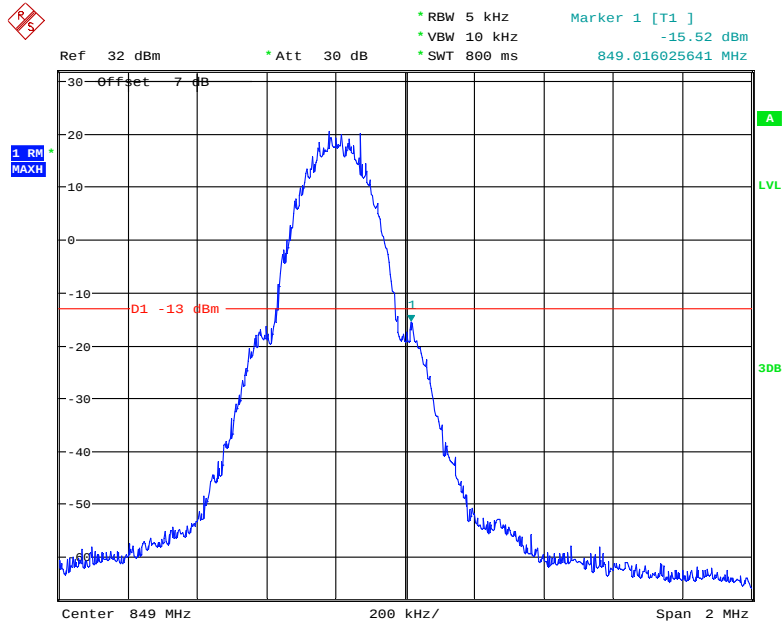
Please refer to the following plots.

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



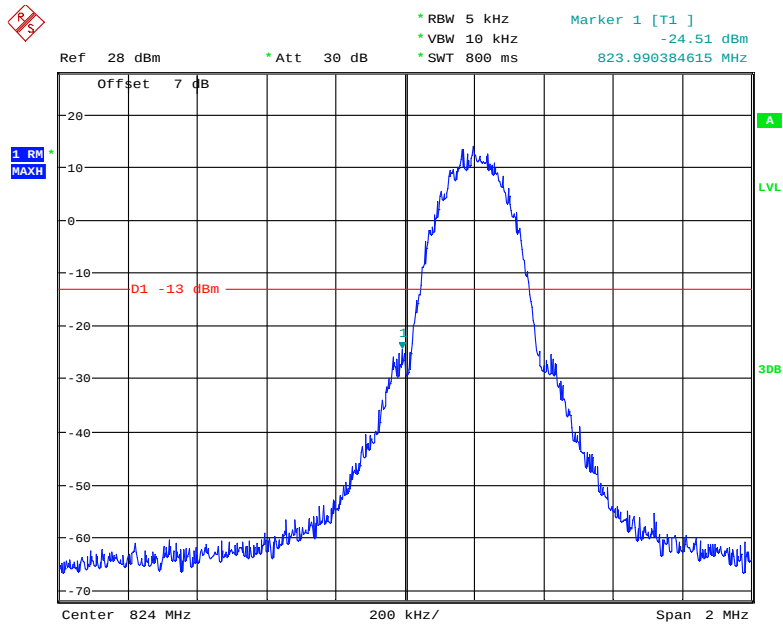
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Cellular Band, Right Band Edge for GSM (GMSK) Mode



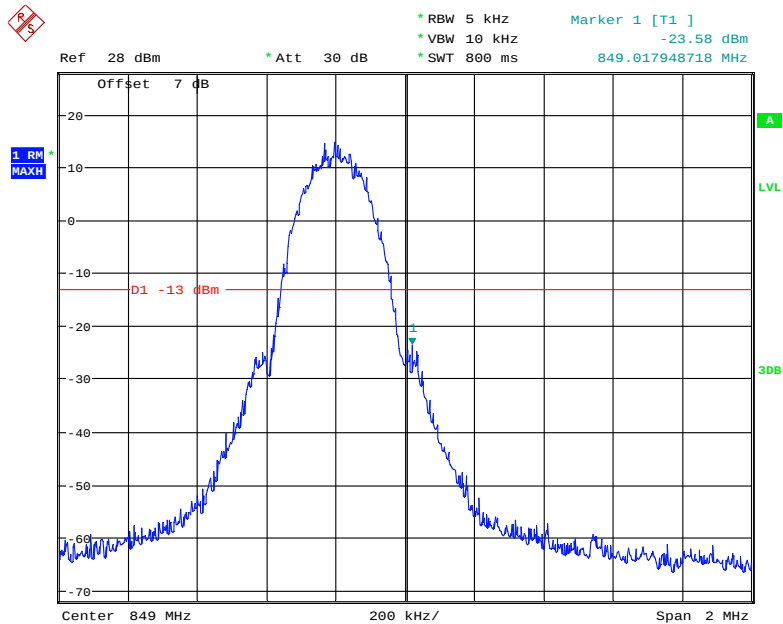
Date: 26.APR.2021 00:35:16

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



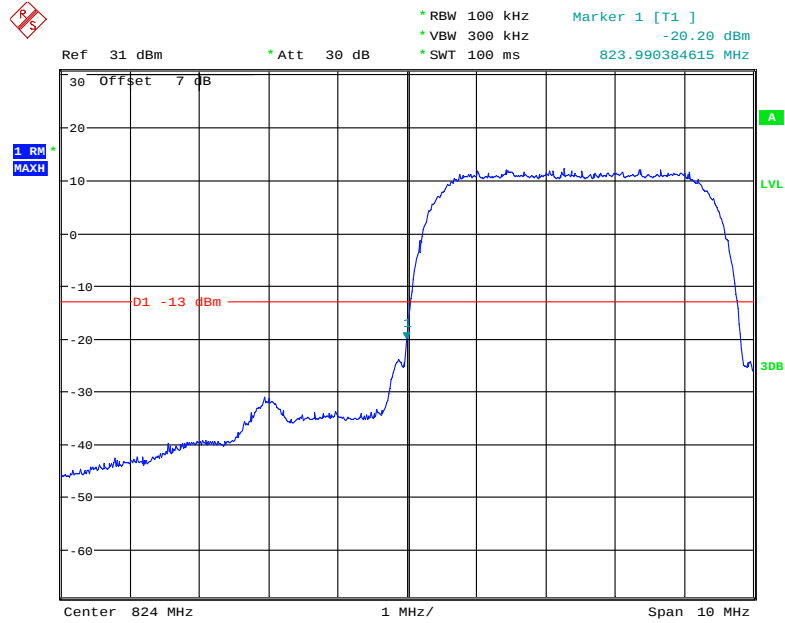
Date: 26.APR.2021 00:37:39

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



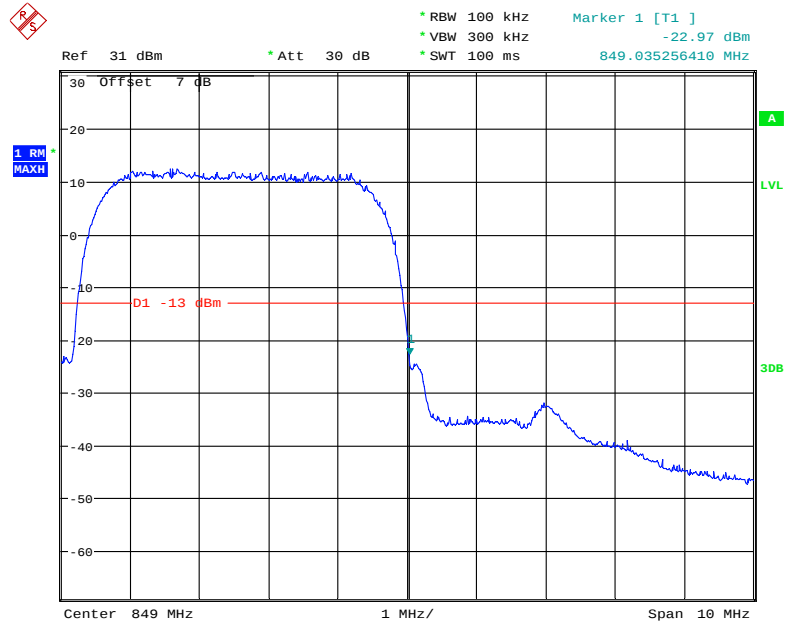
Date: 26.APR.2021 00:38:46

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



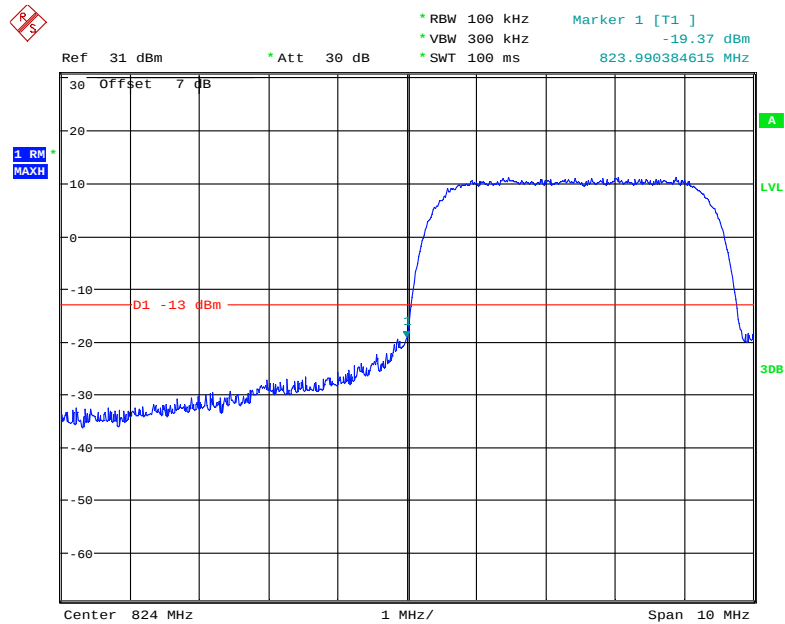
Date: 1.MAY.2021 18:10:20

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



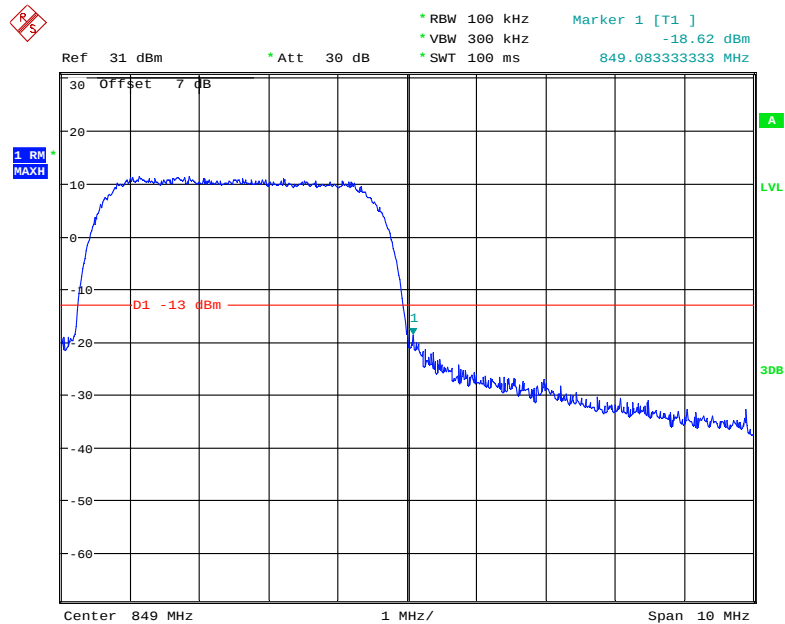
Date: 1.MAY.2021 18:12:47

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



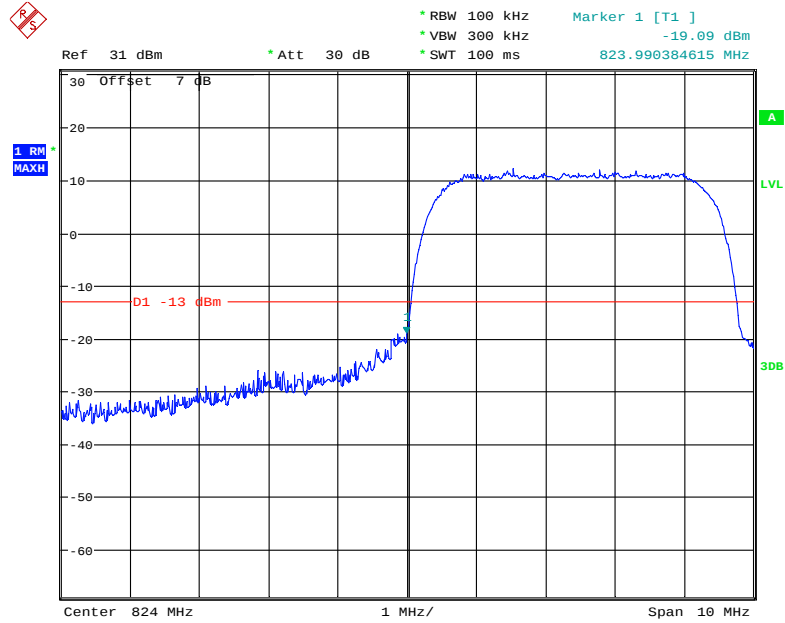
Date: 1.MAY.2021 18:17:26

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



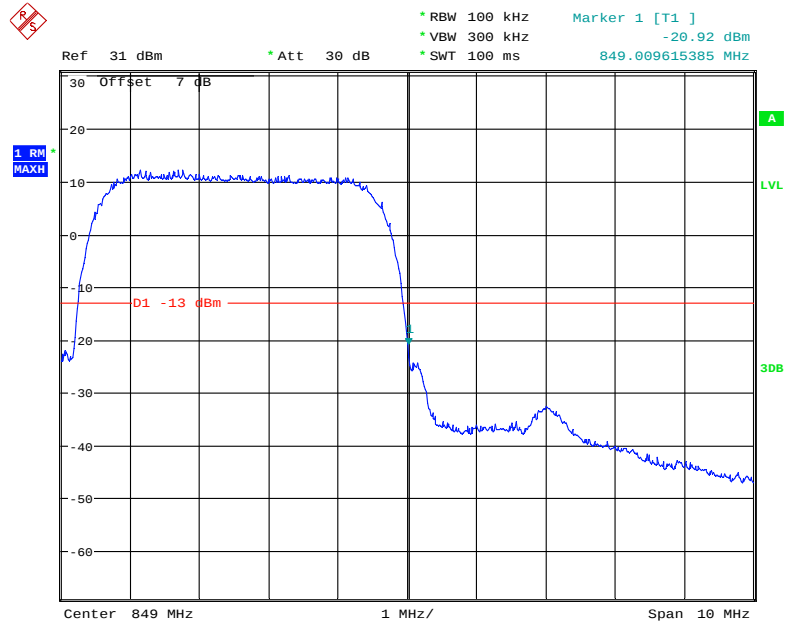
Date: 1.MAY.2021 18:15:20

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



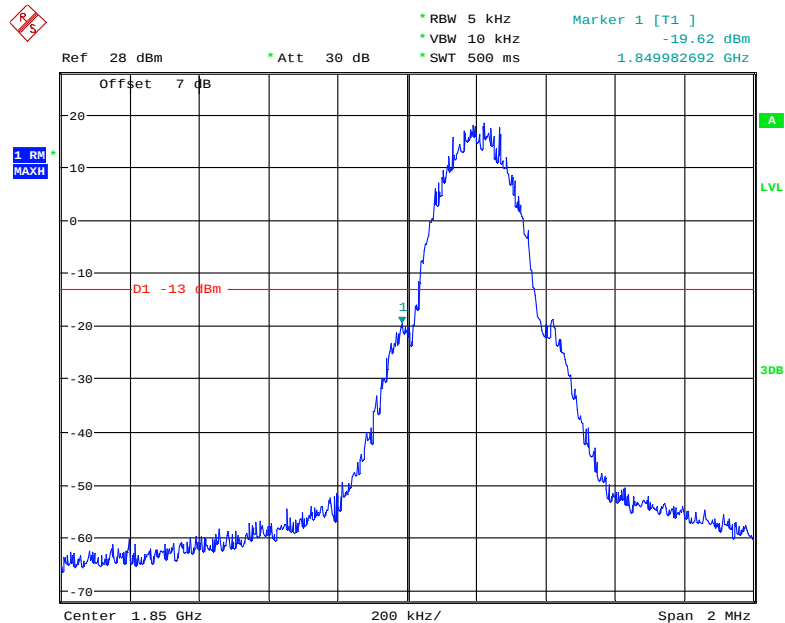
Date: 1.MAY.2021 18:18:45

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



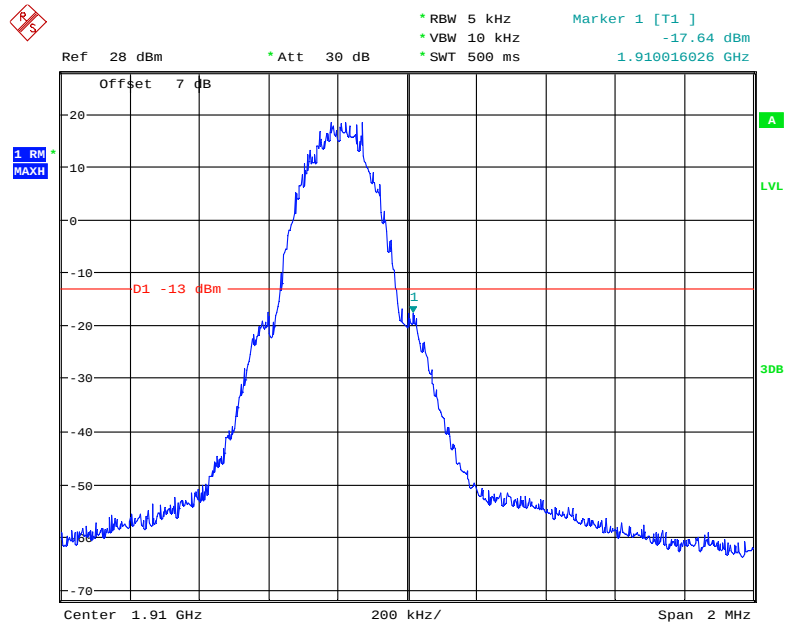
Date: 1.MAY.2021 18:19:43

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



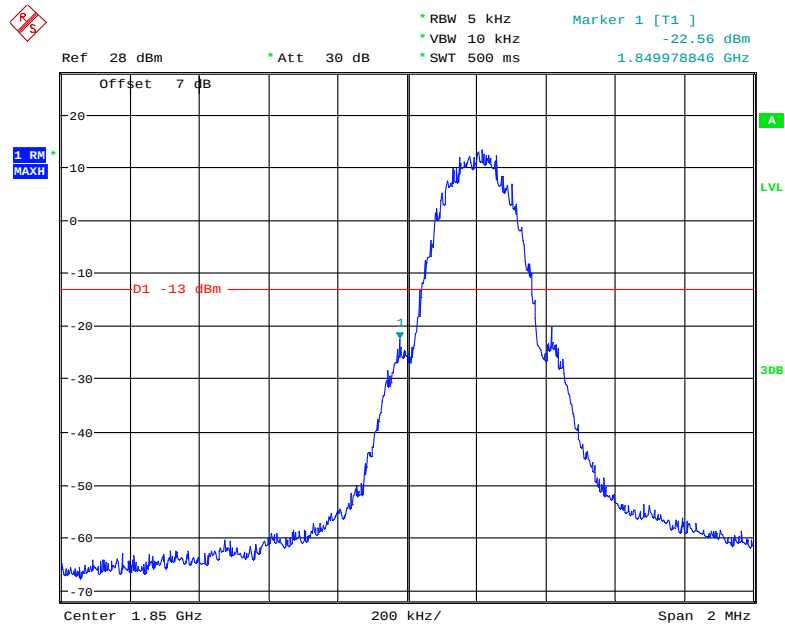
Date: 26.APR.2021 00:41:56

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



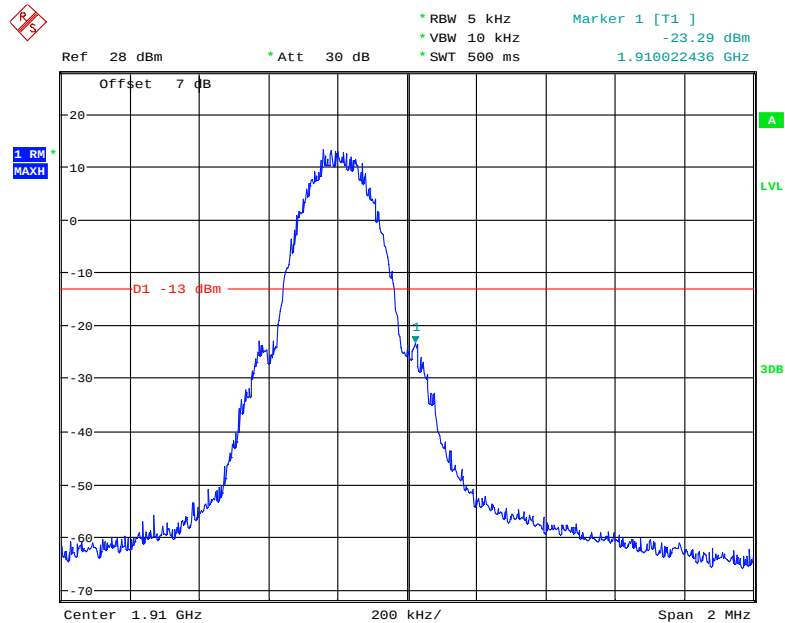
Date: 26.APR.2021 00:43:18

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



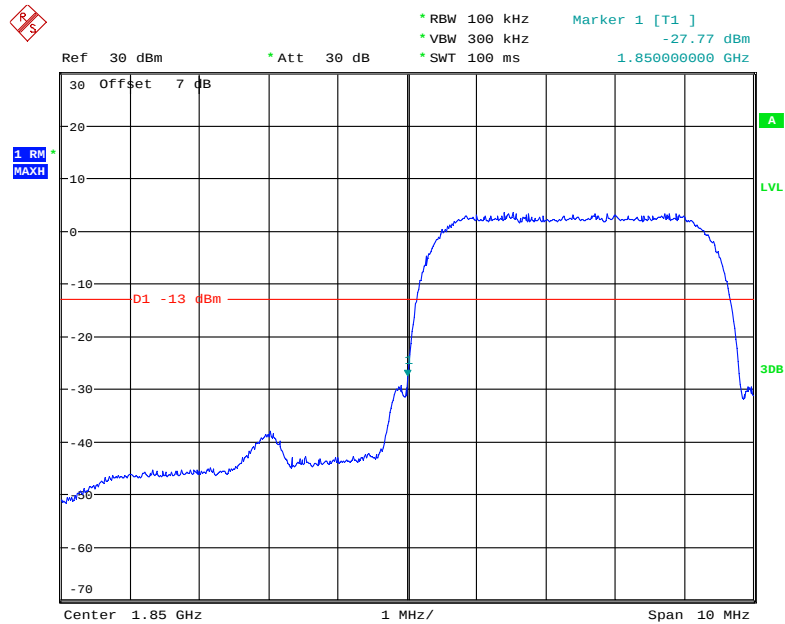
Date: 26.APR.2021 00:45:17

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



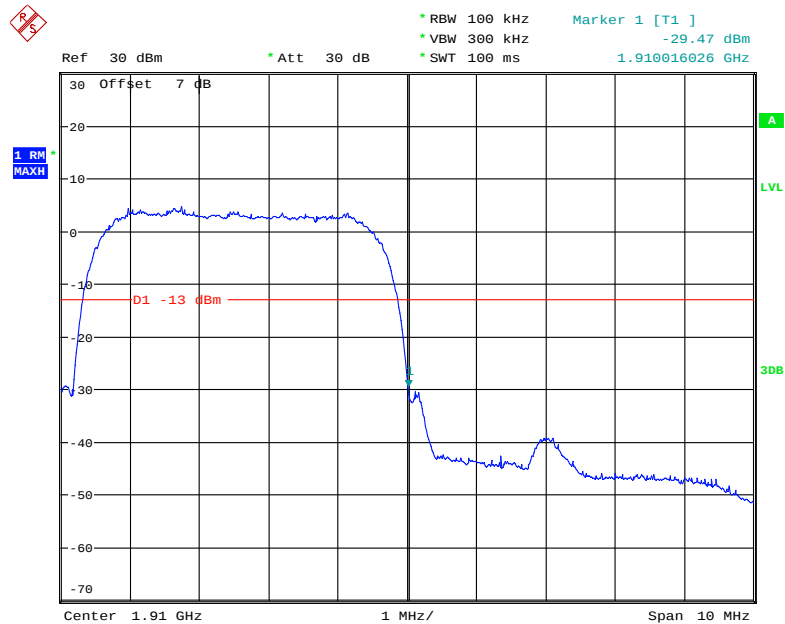
Date: 26.APR.2021 00:46:14

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



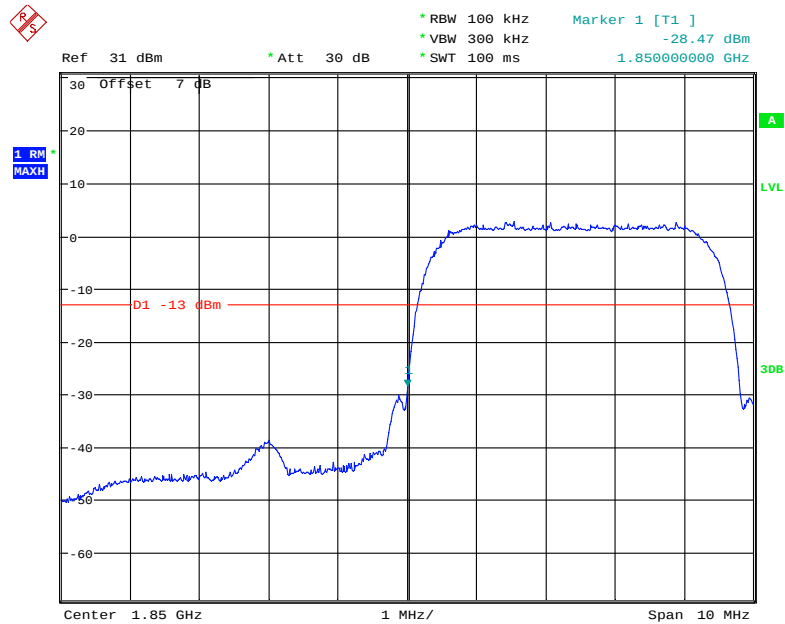
Date: 1.MAY.2021 16:25:08

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



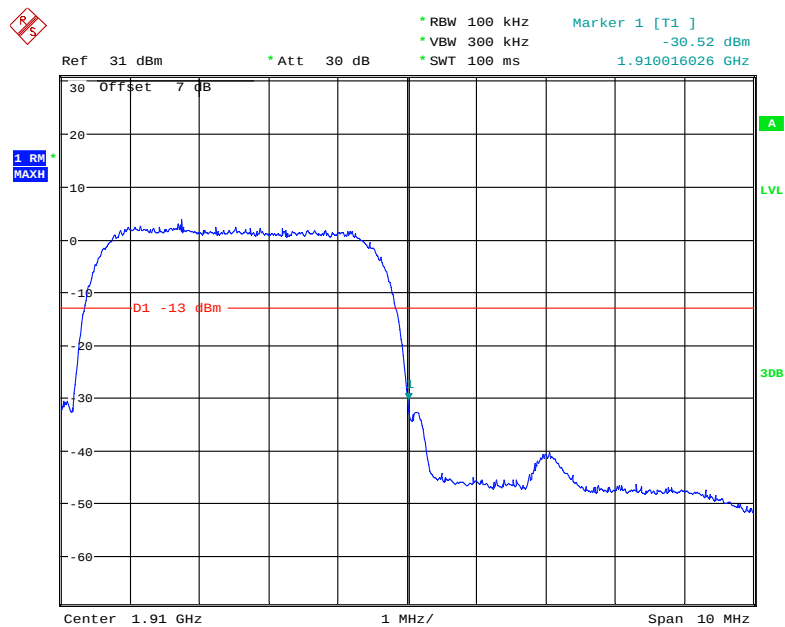
Date: 1.MAY.2021 16:59:08

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



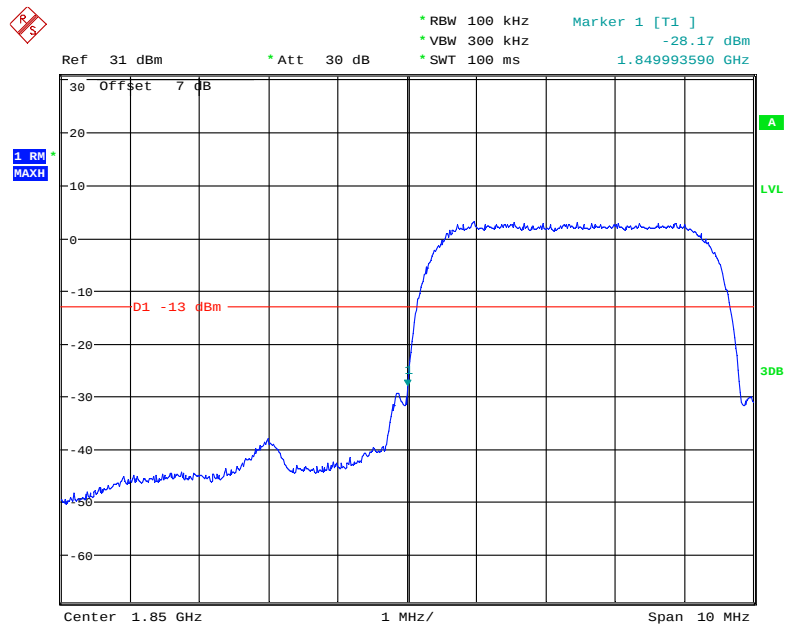
Date: 1.MAY.2021 17:39:25

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



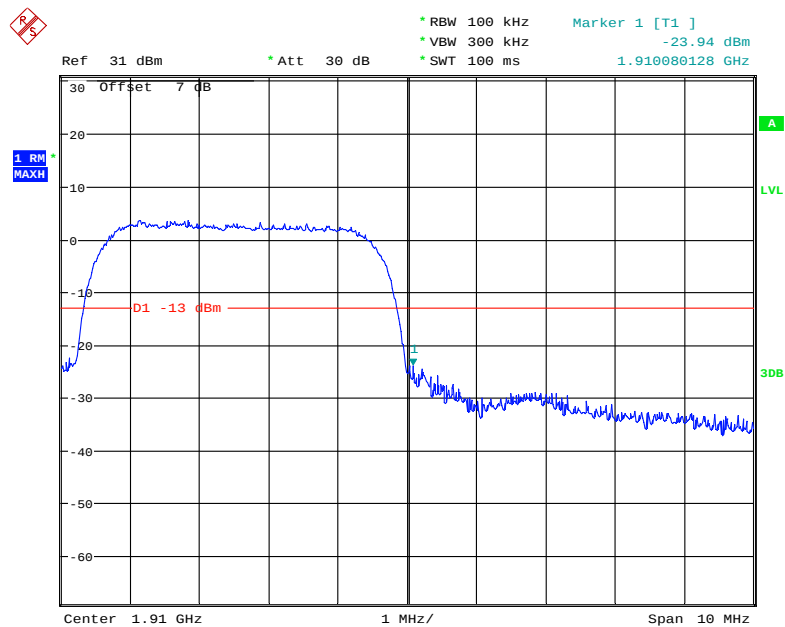
Date: 1.MAY.2021 17:47:28

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



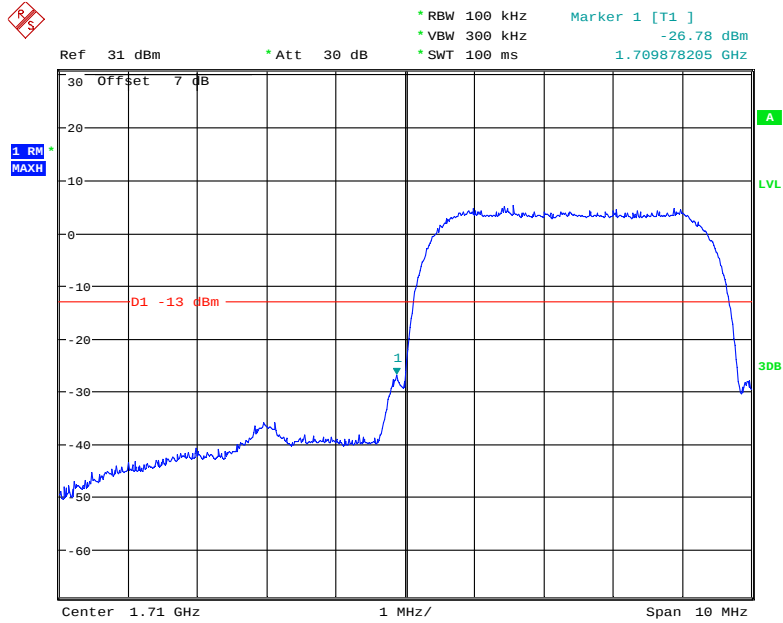
Date: 1.MAY.2021 17:52:11

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



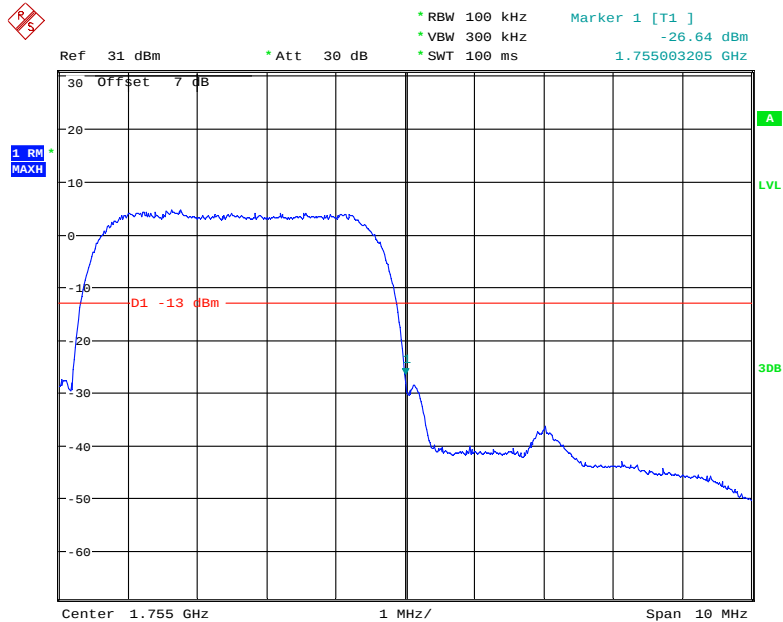
Date: 1.MAY.2021 17:50:34

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



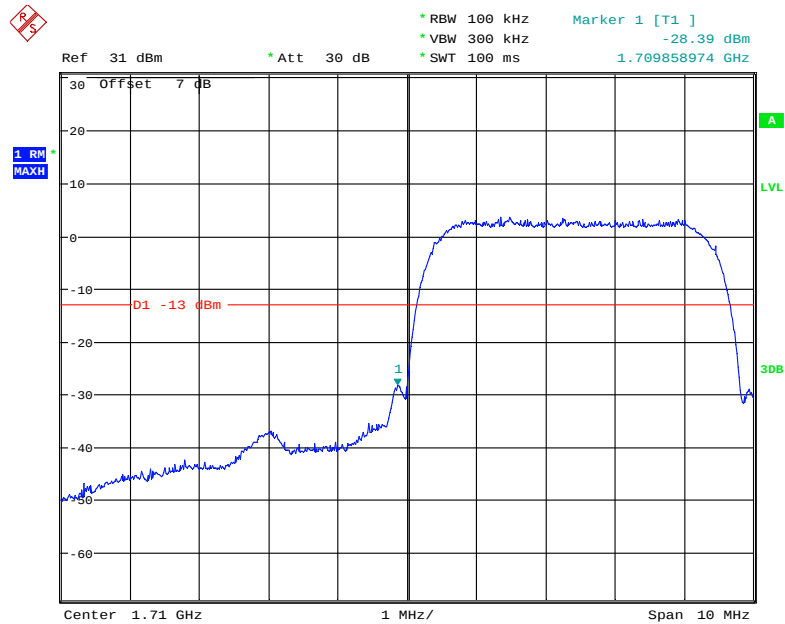
Date: 1.MAY.2021 18:01:37

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



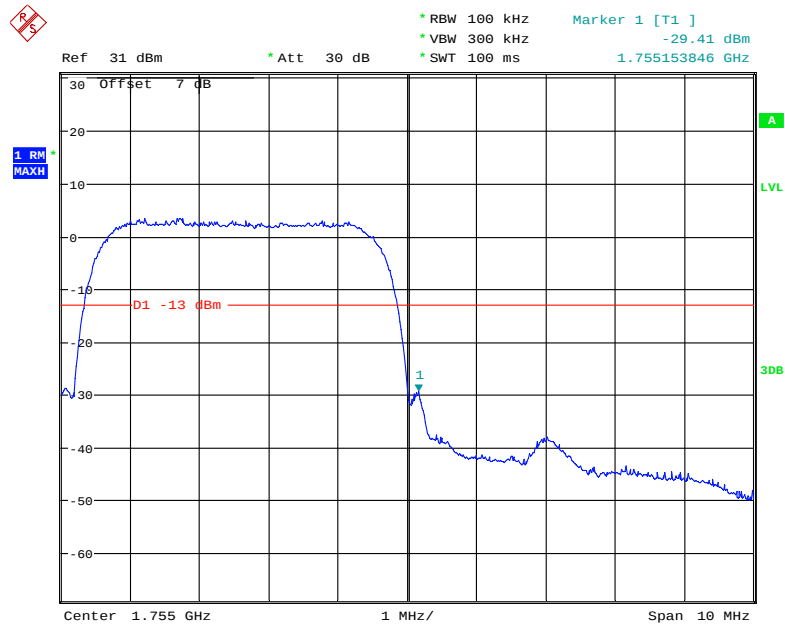
Date: 1.MAY.2021 18:00:28

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



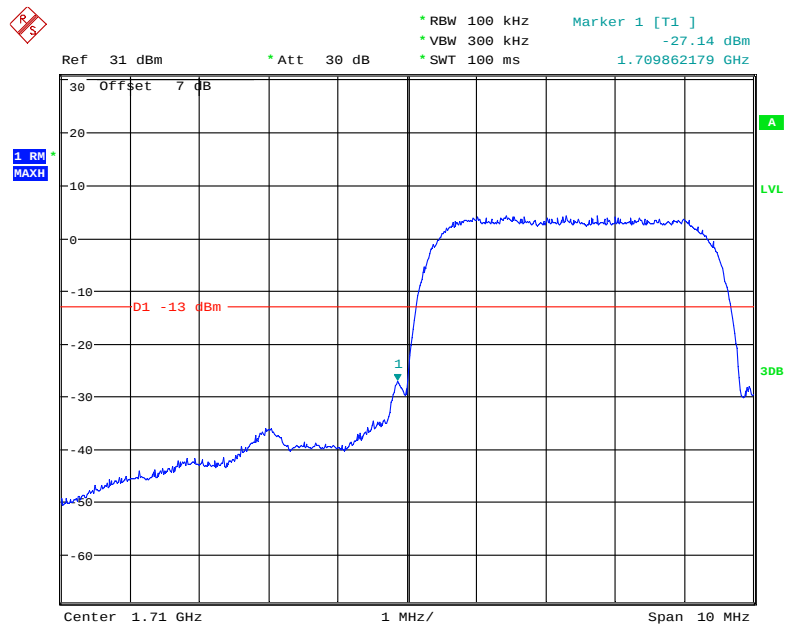
Date: 1.MAY.2021 18:08:42

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



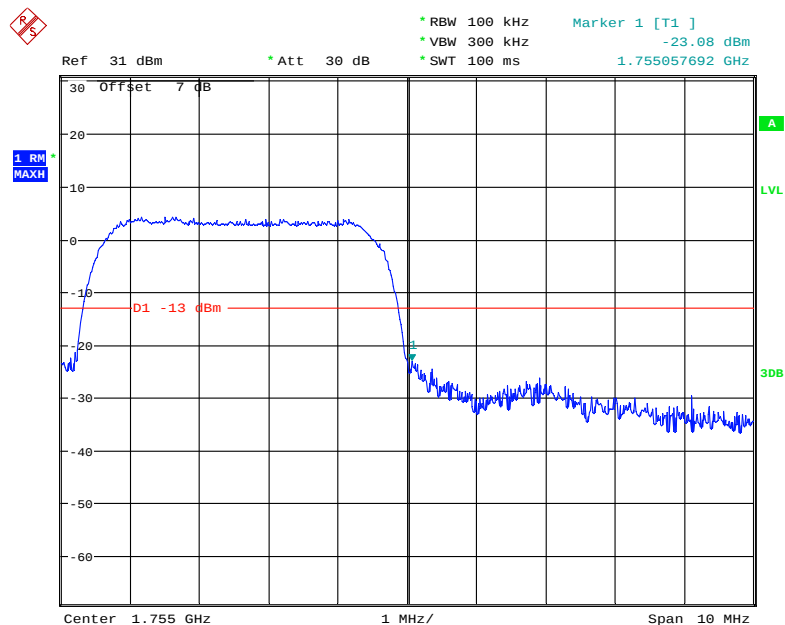
Date: 1.MAY.2021 18:07:41

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



Date: 1.MAY.2021 18:02:50

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



Date: 1.MAY.2021 18:04:56

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

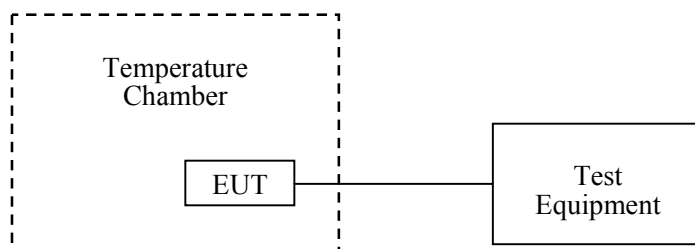
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

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:	28.2~28.5 °C
Relative Humidity:	43~46 %
ATM Pressure:	101.0 kPa

The testing was performed by Pedro Yun and Andy Yu from 2021-04-25 to 2021-05-07.

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	NV	-4	-0.0048	2.5
-20		-3	-0.0036	2.5
-10		-3	-0.0036	2.5
0		-2	-0.0024	2.5
10		-3	-0.0036	2.5
20		-2	-0.0024	2.5
30		1	0.0012	2.5
40		1	0.0012	2.5
50		-3	-0.0036	2.5
20	LV	2	0.0024	2.5
	HV	-4	-0.0048	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	NV	10	0.0120	2.5
-20		7	0.0084	2.5
-10		-1	-0.0012	2.5
0		3	0.0036	2.5
10		-1	-0.0012	2.5
20		6	0.0072	2.5
30		-2	-0.0024	2.5
40		5	0.0060	2.5
50		10	0.0120	2.5
20	LV	5	0.0060	2.5
	HV	5	0.0060	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	NV	4	0.0048	2.5
-20		3	0.0036	2.5
-10		6	0.0072	2.5
0		8	0.0096	2.5
10		7	0.0084	2.5
20		3	0.0036	2.5
30		5	0.0060	2.5
40		4	0.0048	2.5
50		2	0.0024	2.5
20	LV	8	0.0096	2.5
	HV	3	0.0036	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	NV	3	0.0016	pass
-20		4	0.0021	pass
-10		6	0.0032	pass
0		2	0.0011	pass
10		1	0.0005	pass
20		3	0.0016	pass
30		4	0.0021	pass
40		6	0.0032	pass
50		2	0.0011	pass
20	LV	3	0.0016	pass
	HV	2	0.0011	pass

EDGE Mode

Middle Channel, $f_0 = 1880.0$ MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	NV	2	0.0011	pass
-20		7	0.0037	pass
-10		-3	-0.0016	pass
0		-3	-0.0016	pass
10		-2	-0.0011	pass
20		7	0.0037	pass
30		2	0.0011	pass
40		3	0.0016	pass
50		-2	-0.0011	pass
20	LV	2	0.0011	pass
	HV	-2	-0.0011	pass

WCDMA Mode

Middle Channel, $f_0 = 1880.0$ MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	NV	-3	-0.0016	pass
-20		-2	-0.0011	pass
-10		1	0.0005	pass
0		3	0.0016	pass
10		4	0.0021	pass
20		-3	-0.0016	pass
30		-3	-0.0016	pass
40		-5	-0.0027	pass
50		-6	-0.0032	pass
20	LV	-3	-0.0016	pass
	HV	-4	-0.0021	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	NV	1710.0398	1754.5423	1710	1755
-20		1710.0356	1754.5414	1710	1755
-10		1710.0395	1754.5403	1710	1755
0		1710.0412	1754.5411	1710	1755
10		1710.0362	1754.5368	1710	1755
20		1710.0413	1754.5421	1710	1755
30		1710.0332	1754.5353	1710	1755
40		1710.0375	1754.5396	1710	1755
50		1710.0391	1754.5347	1710	1755
20	LV	1710.0392	1754.5362	1710	1755
	HV	1710.0342	1754.5389	1710	1755

LTE:
QPSK:

Band 2:

10.0 MHz Middle Channel, $f_o=1880\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	NV	-5.68	-0.0030	pass
-20		-9.57	-0.0051	pass
-10		-6.12	-0.0033	pass
0		6.15	0.0033	pass
10		7.88	0.0042	pass
20		6.53	0.0035	pass
30		-6.45	-0.0034	pass
40		7.36	0.0039	pass
50		-9.69	-0.0052	pass
20	LV	-8.21	-0.0044	pass
	HV	-7.13	-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	1710.3651	1754.7204	1710	1755
-20		1710.3910	1754.6442	1710	1755
-10		1710.3975	1754.5281	1710	1755
0		1710.3514	1754.5474	1710	1755
10		1710.3019	1754.6372	1710	1755
20		1710.1569	1754.6552	1710	1755
30		1710.2857	1754.4308	1710	1755
40		1710.3093	1754.6205	1710	1755
50		1710.5395	1754.6576	1710	1755
20	LV	1710.5532	1754.6953	1710	1755
	HV	1710.5297	1754.5645	1710	1755

Band 5:

10.0 MHz Middle Channel, $f_o=836.5\text{MHz}$				
Temperature (°C)	Voltage Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	NV	-8.54	-0.0102	2.5
-20		9.25	0.0111	2.5
-10		8.21	0.0098	2.5
0		-7.53	-0.0090	2.5
10		-5.36	-0.0064	2.5
20		7.69	0.0092	2.5
30		-5.93	-0.0071	2.5
40		5.95	0.0071	2.5
50		6.88	0.0082	2.5
20	LV	9.89	0.0118	2.5
	HV	9.96	0.0119	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	2500.2481	2569.7861	2500	2570
-20		2500.6443	2569.3426	2500	2570
-10		2500.4729	2569.5763	2500	2570
0		2500.4913	2569.6578	2500	2570
10		2500.6094	2569.5838	2500	2570
20		2500.4808	2569.5851	2500	2570
30		2500.5518	2569.4950	2500	2570
40		2500.3438	2569.5474	2500	2570
50		2500.4018	2569.3269	2500	2570
20	LV	2500.2091	2569.6688	2500	2570
	HV	2500.2437	2569.3596	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	704.4850	715.5949	704	716
-20		704.4800	715.4420	704	716
-10		704.4721	715.5749	704	716
0		704.3940	715.5823	704	716
10		704.2202	715.5027	704	716
20		704.6014	715.5230	704	716
30		704.4578	715.2565	704	716
40		704.6516	715.4073	704	716
50		704.6923	715.5023	704	716
20	LV	704.6494	715.5939	704	716

Band 66:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	NV	1710.1914	1779.5293	1710	1780
-20		1710.2793	1779.7458	1710	1780
-10		1710.3385	1779.6096	1710	1780
0		1710.5196	1779.5881	1710	1780
10		1710.1852	1779.5483	1710	1780
20		1710.3929	1779.6160	1710	1780
30		1710.3016	1779.8246	1710	1780
40		1710.4205	1779.8057	1710	1780
50		1710.5563	1779.6337	1710	1780
20	LV	1710.5100	1779.5477	1710	1780
	HV	1710.1198	1779.5697	1710	1780

16QAM:**Band 2:**

10.0 MHz Middle Channel, $f_o=1880\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	NV	-7	-0.0037	pass
-20		-4	-0.0021	pass
-10		13	0.0069	pass
0		-4	-0.0021	pass
10		7	0.0037	pass
20		-8	-0.0043	pass
30		-4	-0.0021	pass
40		-5	-0.0027	pass
50		11	0.0059	pass
20	LV	11	0.0059	pass
	HV	12	0.0064	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	1710.2265	1754.6951	1710	1755
-20		1710.2559	1754.6425	1710	1755
-10		1710.5072	1754.5642	1710	1755
0		1710.2038	1754.4481	1710	1755
10		1710.3675	1754.6062	1710	1755
20		1710.5386	1754.4930	1710	1755
30		1710.4959	1754.4297	1710	1755
40		1710.1966	1754.2785	1710	1755
50		1710.6006	1754.7253	1710	1755
20	LV	1710.4842	1754.7854	1710	1755
	HV	1710.4758	1754.4437	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	-0.0060	2.5
-20		7	0.0084	2.5
-10		-8	-0.0096	2.5
0		-7	-0.0084	2.5
10		-8	-0.0096	2.5
20		-6	-0.0072	2.5
30		8	0.0096	2.5
40		7	0.0084	2.5
50		-5	-0.0060	2.5
20	LV	9	0.0108	2.5
	HV	-8	-0.0096	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	2500.4093	2569.4179	2500	2570
-20		2500.7183	2569.3504	2500	2570
-10		2500.5102	2569.5386	2500	2570
0		2500.4564	2569.5110	2500	2570
10		2500.6614	2569.6323	2500	2570
20		2500.5159	2569.4946	2500	2570
30		2500.5089	2569.5863	2500	2570
40		2500.2180	2569.5585	2500	2570
50		2500.5145	2569.6259	2500	2570
20	LV	2500.6345	2569.4434	2500	2570
	HV	2500.5192	2569.2748	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	704.6388	715.6709	704	716
-20		704.3970	715.6213	704	716
-10		704.4669	715.5746	704	716
0		704.2176	715.4919	704	716
10		704.4782	715.4580	704	716
20		704.7379	715.6071	704	716
30		704.5842	715.5405	704	716
40		704.3480	715.6275	704	716
50		704.3532	715.3334	704	716
20	LV	704.1584	715.5097	704	716
	HV	704.5260	715.5295	704	716

Band 66:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	NV	1710.3085	1779.6466	1710	1780
-20		1710.3719	1779.5928	1710	1780
-10		1710.3315	1779.6089	1710	1780
0		1710.3736	1779.7574	1710	1780
10		1710.5027	1779.8156	1710	1780
20		1710.1523	1779.5746	1710	1780
30		1710.2598	1779.7894	1710	1780
40		1710.5164	1779.6067	1710	1780
50		1710.3090	1779.8515	1710	1780
20	LV	1710.1092	1779.8794	1710	1780
	HV	1710.2480	1779.6555	1710	1780

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