



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

For

Shenzhen Youmi Intelligent Technology Co., Ltd.

406-407 Jinqi Zhigu Building, 4/F, 1 Tangling Road, Nanshan District, Shenzhen City, China

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Reviewed By: RF Engineer	Jacob Kong <i>Jacob Kong</i>
Prepared By: Bay Area Compliance Laboratories Corp. (Shenzhen) 5F(B-West) , 6F, 7F, the 3rd Phase of Wan Li Industrial Building D, Shihua Rd, FuTian Free Trade Zone, Shenzhen, China Tel: +86-755-33320018 Fax: +86-755-33320008 www.baclcorp.com.cn	

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	A11
Tested Model	A11
Multiple Models	A11 Pro Max、A11 Pro、Power 5、Power 5X、Power 5 Max
Model Differences	Refer to the DoS letter
Frequency Range	EGSM 850: 824-849MHz(TX); 869-894MHz(RX) PCS 1900: 1850-1910MHz(TX); 1930-1990MHz(RX) WCDMA Band 2: 1850-1910MHz(TX); 1930-1990MHz(RX) WCDMA Band 5: 824-849MHz(TX); 869-894MHz(RX) LTE Band 2: 1850-1910MHz(TX); 1930-1990MHz(RX) LTE Band 5: 824-849MHz(TX); 869-894MHz(RX) LTE Band 7: 2500-2570MHz(TX); 2620-2690MHz(RX) LTE Band 38: 2570-2620MHz(TX/RX) LTE Band 40: 2305-2315MHz& 2350-2360MHz(TX/RX) LTE Band 41: 2555-2655MHz(TX/RX)
Modulation Technique	2G: GMSK 3G: BPSK, QPSK, 16QAM 4G: QPSK, 16QAM
Antenna Specification*	EGSM850/WCDMA Band 5/LTE Band 5: -1.23dBi PCS1900/WCDMA Band 2/LTE Band 2: 0.87dBi LTE Band 7/ LTE Band 38/ LTE Band 41: 1.89dBi LTE Band 40: 1.56dBi (provided by the applicant)
Voltage Range	DC 3.87 V from battery or DC5.0V from adapter
Date of Test	2021-05-10 to 2021-06-01
Sample serial number	SZ1210426-13944E-RF-S1(Assigned by BACL, Shenzhen)
Received date	2021-04-26
Sample/EUT Status	Good condition
Adapter information	Model: HJ-0501000B2-US Input: 100-240V _{AC} , 50/60Hz, 0.15A Output: 5V _{DC} , 1A

Objective

This test report is in accordance with Part 2-Subpart J, Part 22-Subpart H and Part 24-Subpart E and Subpart 27 of the Federal Communication Commissions rules.

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

Test Methodology

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

Part 22 Subpart H - Public Mobile Services
Part 24 Subpart E - Personal Communication Services
Part 27 – Miscellaneous wireless communications services

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

All emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters. 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 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 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 B38	5	2572.5	2595	2617.5
	10	2575	2595	2615
	15	2577.5	2595	2612.5
	20	2580	2595	2610
LTE B40 Lower	5	2307.5	2310	2312.5
	10	/	2310	/
LTE B40 Upper	5	2352.5	2355	2357.5
	10	/	2355	/
LTE B41	5	2557.5	2605	2652.5
	10	2560	2605	2650
	15	2562.5	2605	2647.5
	20	2565	2605	2645

EUT have two antennas, the main antenna and diversity antenna, the LTE Band 7/38/40 transmit on diversity antenna, for other bands transmit on main antenna.

Equipment Modifications

No modification was made to the EUT.

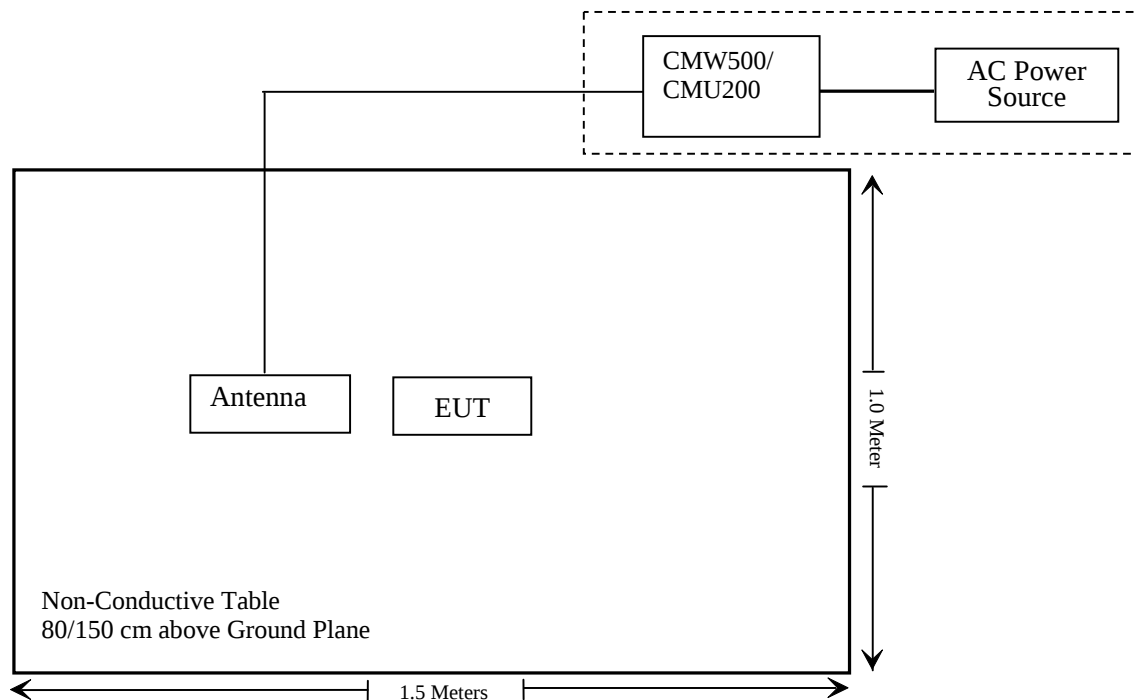
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	1201.002K50-146520-wh
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	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 (a)(h)	RF Output Power	Compliance
§ 2.1047	Modulation Characteristics	Not Applicable
§ 2.1049; § 22.905; § 22.917; § 24.238; §27.53	Occupied Bandwidth	Compliance
§ 2.1051; § 22.917 (a); § 24.238 (a); §27.53	Spurious Emissions at Antenna Terminal	Compliance
§ 2.1053; § 22.917 (a); § 24.238 (a); §27.53	Field Strength of Spurious Radiation	Compliance
§ 22.917 (a); § 24.238 (a); §27.53(h) (m)	Band Edge	Compliance
§ 2.1055; § 22.355; § 24.235; §27.54;	Frequency stability	Compliance

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test					
R&S	EMI Test Receiver	ESR3	102455	2020/08/04	2021/08/03
Sonoma instrument	Pre-amplifier	310 N	186238	2020/08/04	2021/08/03
Sunol Sciences	Broadband Antenna	JB1	A040904-2	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	2020/11/28	2021/11/27
Sunol Sciences	Horn Antenna	3115	9107-3694	2021/01/15	2024/01/14
A.H.System	Horn Antenna	SAS-200/571	135	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
Ducommun Technologies	Horn antenna	ARH-4223-02	1007726-02 1304	2020/12/06	2023/12/05
Ducommun Technologies	Horn antenna	ARH-4223-02	1007726-01 1304	2020/12/06	2023/12/05
Agilent	Signal Generator	N5183A	MY51040755	2020/12/29	2021/12/28

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
RF Conducted Test					
Rohde & Schwarz	SPECTRUM ANALYZER	FSU26	200120	2021/04/02	2022/04/01
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: SZ1210426-13944E-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 (a) (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.

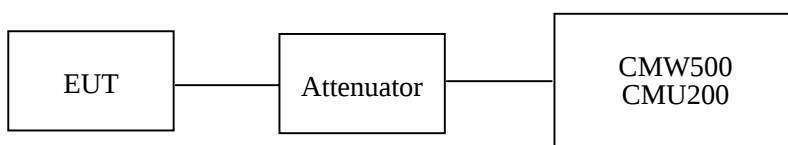
According to §27.50(a), for mobile and portable stations transmitting in the 2305-2315 MHz band or the 2350-2360 MHz band, the average EIRP must not exceed 50 milliwatts within any 1 megahertz of authorized bandwidth, except that for mobile and portable stations compliant with 3GPP LTE standards or another advanced mobile broadband protocol that avoids concentrating energy at the edge of the operating band the average EIRP must not exceed 250 milliwatts within any 5 megahertz of authorized bandwidth but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth. For mobile and portable stations using time division duplexing (TDD) technology, the duty cycle must not exceed 38 percent in the 2305-2315 MHz and 2350-2360 MHz bands. Mobile and portable stations using FDD technology are restricted to transmitting in the 2305-2315 MHz band. Power averaging shall not include intervals in which the transmitter is off.

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.



Radiated method:

ANSI C63.26-2015 section 5.5.3.

Test Data

Environmental Conditions

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

The testing was performed by Orlo Yang on 2021-06-01.

Conducted Power**Cellular 850**

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	ERP (dBm)	Limit (dBm)
GSM	128	824.2	32.5	28.62	38.45
	190	836.6	32.2	28.32	38.45
	251	848.8	32.4	28.52	38.45

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				ERP (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	1 slot	2 slots	3 slots	4 slots	
GPRS	128	824.2	32.47	31.46	29.49	28.37	28.59	27.58	25.61	24.49	38.45
	190	836.6	32.22	31.19	29.10	27.92	28.34	27.31	25.22	24.04	38.45
	251	848.8	32.43	31.40	29.26	28.05	28.55	27.52	25.38	24.17	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	26.45	25.12	22.82	21.29	22.57	21.24	18.94	17.41	38.45
	190	836.6	26.24	24.73	22.62	21.14	22.36	20.85	18.74	17.26	38.45
	251	848.8	25.95	24.46	22.29	20.86	22.07	20.58	18.41	16.98	38.45

Mode	Test Mode	3GPP Sub Test	Average Output Power (dBm)			ERP (dBm)			Limit (dBm)
			Low	Mid	High	Low	Mid	High	
WCDMA (Band 5)	RMC12.2k		21.79	21.93	22.73	17.91	18.05	18.85	38.45
	HSDPA	1	20.86	21.43	21.28	16.98	17.55	17.40	38.45
		2	20.94	21.50	21.36	17.06	17.62	17.48	38.45
		3	21.00	21.53	21.42	17.12	17.65	17.54	38.45
		4	21.04	21.58	21.46	17.16	17.70	17.58	38.45
	HSUPA	1	20.29	20.87	20.71	16.41	16.99	16.83	38.45
		2	20.32	20.91	20.74	16.44	17.03	16.86	38.45
		3	20.35	20.94	20.77	16.47	17.06	16.89	38.45
		4	20.38	21.01	20.8	16.50	17.13	16.92	38.45
		5	20.44	21.08	20.86	16.98	17.55	17.40	38.45
	HSPA+	1	20.47	21.15	20.89	17.06	17.62	17.48	38.45

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd)-Cable Loss(dB)
 For GSM850/WCDMA Band 5: Antenna Gain = -1.23dBi = -3.38dBd (0dBd=2.15dBi)
 Cable Loss=0.5dB*(provided by the applicant)

PCS 1900

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	EIRP (dBm)	Limit (dBm)
GSM	512	1850.2	29.8	29.67	33
	661	1880.0	29.7	29.57	33
	810	1909.8	29.5	29.37	33

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				EIRP (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	1 slot	2 slots	3 slots	4 slots	
GPRS	512	1850.2	29.73	28.67	26.63	25.49	29.6	28.54	26.5	25.36	33
	661	1880.0	29.58	28.51	26.45	25.29	29.45	28.38	26.32	25.16	33
	810	1909.8	29.47	28.39	26.31	25.14	29.34	28.26	26.18	25.01	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	25.48	24.15	22.12	20.84	25.35	24.02	21.99	20.71	33
	661	1880.0	25.57	24.31	22.22	20.95	25.44	24.18	22.09	20.82	33
	810	1909.8	26.16	24.91	22.93	21.75	26.03	24.78	22.8	21.62	33

Mode	Test Mode	3GPP Sub Test	Average Output Power (dBm)			EIRP (dBm)			Limit (dBm)
			Low	Mid	High	Low	Mid	High	
WCDMA (Band 2)	RMC12.2k		22.94	22.88	22.83	22.81	22.75	22.7	33
	HSDPA	1	22.26	22.15	21.97	22.13	22.02	21.84	33
		2	22.33	22.19	22.02	22.2	22.06	21.89	33
		3	22.35	22.25	22.06	22.22	22.12	21.93	33
		4	22.41	22.28	22.12	22.28	22.15	21.99	33
	HSUPA	1	21.98	21.71	21.65	21.85	21.58	21.52	33
		2	22.01	21.77	21.72	21.88	21.64	21.59	33
		3	22.05	21.85	21.76	21.92	21.72	21.63	33
		4	22.07	21.89	21.82	21.94	21.76	21.69	33
		5	22.15	21.94	21.88	22.02	21.81	21.75	33
	HSPA+	1	22.19	22.02	21.93	22.06	21.89	21.8	33

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi) -Cable Loss(dB)
 For PCS1900/WCDMA Band 2: Antenna Gain = 0.87dBi
 Cable Loss=1.0dB*(provided by the applicant)

Cellular Band

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	3.86	13
	Middle	3.62	13
	High	3.74	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	3.66	13
	Middle	3.54	13
	High	3.31	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.64	13
	Middle	3.55	13
	High	3.48	13
HSDPA (16QAM)	Low	3.40	13
	Middle	3.27	13
	High	3.32	13
HSUPA (BPSK)	Low	3.28	13
	Middle	3.28	13
	High	3.38	13
HSPA+	Low	3.77	13
	Middle	3.64	13
	High	3.57	13

PCS Band

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	3.35	13
	Middle	3.29	13
	High	3.42	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	3.31	13
	Middle	3.22	13
	High	3.29	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.53	13
	Middle	3.42	13
	High	3.41	13
HSDPA (16QAM)	Low	3.59	13
	Middle	3.37	13
	High	3.48	13
HSUPA (BPSK)	Low	3.34	13
	Middle	3.61	13
	High	3.56	13
HSPA+	Low	3.18	13
	Middle	3.36	13
	High	3.29	13

LTE Band 2

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
1.4	QPSK	RB1#0	22.74	22.92	22.74	22.61	22.79	22.61
		RB1#3	22.88	22.88	22.62	22.75	22.75	22.49
		RB1#5	22.78	22.82	22.47	22.65	22.69	22.34
		RB3#0	22.25	22.61	22.37	22.12	22.48	22.24
		RB3#3	22.31	22.27	22.36	22.18	22.14	22.23
		RB6#0	22.35	22.28	21.95	22.22	22.15	21.82
	16QAM	RB1#0	22.24	22.53	22.36	22.11	22.40	22.23
		RB1#3	22.48	22.11	22.27	22.35	21.98	22.14
		RB1#5	22.05	22.10	21.97	21.92	21.97	21.84
		RB3#0	22.19	22.42	22.49	22.06	22.29	22.36
		RB3#3	21.91	22.19	22.22	21.78	22.06	22.09
		RB6#0	21.97	22.32	22.25	21.84	22.19	22.12
3.0	QPSK	RB1#0	22.66	23.01	23.12	22.53	22.88	22.99
		RB1#8	22.55	22.54	22.67	22.42	22.41	22.54
		RB1#14	22.70	22.52	22.42	22.57	22.39	22.29
		RB6#0	22.50	22.28	22.41	22.37	22.15	22.28
		RB6#9	22.49	22.35	22.06	22.36	22.22	21.93
		RB15#0	22.15	21.88	22.17	22.02	21.75	22.04
	16QAM	RB1#0	22.48	22.21	22.33	22.35	22.08	22.20
		RB1#8	22.35	22.35	22.48	22.22	22.22	22.35
		RB1#14	21.72	21.72	22.17	21.59	21.59	22.04
		RB6#0	22.39	22.07	22.43	22.26	21.94	22.30
		RB6#9	21.84	21.69	22.16	21.71	21.56	22.03
		RB15#0	22.18	21.93	22.32	22.05	21.80	22.19

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
5.0	QPSK	RB1#0	22.67	22.97	22.89	22.54	22.84	22.76
		RB1#13	22.62	22.95	22.60	22.49	22.82	22.47
		RB1#24	22.62	22.48	22.57	22.49	22.35	22.44
		RB15#0	22.52	22.49	22.30	22.39	22.36	22.17
		RB15#10	22.35	22.31	22.43	22.22	22.18	22.30
		RB25#0	22.04	22.31	22.30	21.91	22.18	22.17
	16QAM	RB1#0	22.25	22.33	22.26	22.12	22.20	22.13
		RB1#13	22.08	22.11	22.23	21.95	21.98	22.10
		RB1#24	21.93	21.73	22.08	21.80	21.60	21.95
		RB15#0	22.02	22.16	22.13	21.89	22.03	22.00
		RB15#10	21.78	21.95	21.75	21.65	21.82	21.62
		RB25#0	22.15	21.90	22.02	22.02	21.77	21.89
10.0	QPSK	RB1#0	22.45	22.84	22.73	22.32	22.71	22.60
		RB1#25	22.61	22.72	22.59	22.48	22.59	22.46
		RB1#49	22.43	22.55	22.30	22.30	22.42	22.17
		RB25#0	22.36	22.30	22.02	22.23	22.17	21.89
		RB25#25	22.13	22.00	22.10	22.00	21.87	21.97
		RB50#0	21.91	21.98	21.76	21.78	21.85	21.63
	16QAM	RB1#0	22.26	22.11	21.91	22.13	21.98	21.78
		RB1#25	22.27	22.25	21.95	22.14	22.12	21.82
		RB1#49	21.49	21.76	21.98	21.36	21.63	21.85
		RB25#0	22.15	21.90	22.13	22.02	21.77	22.00
		RB25#25	21.96	21.47	21.58	21.83	21.34	21.45
		RB50#0	22.15	22.10	21.95	22.02	21.97	21.82

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15.0	QPSK	RB1#0	22.56	22.90	23.04	22.43	22.77	22.91
		RB1#38	22.83	22.40	22.39	22.70	22.27	22.26
		RB1#74	22.36	22.56	22.59	22.23	22.43	22.46
		RB36#0	22.21	22.02	22.08	22.08	21.89	21.95
		RB36#39	22.03	22.22	22.35	21.90	22.09	22.22
		RB75#0	22.16	22.01	21.94	22.03	21.88	21.81
	16QAM	RB1#0	22.24	22.17	22.32	22.11	22.04	22.19
		RB1#38	22.07	22.29	22.41	21.94	22.16	22.28
		RB1#74	21.82	21.75	21.73	21.69	21.62	21.60
		RB36#0	22.00	22.17	21.94	21.87	22.04	21.81
		RB36#39	21.74	21.91	21.81	21.61	21.78	21.68
		RB75#0	21.84	21.82	21.98	21.71	21.69	21.85
20.0	QPSK	RB1#0	22.37	22.75	22.51	22.24	22.62	22.38
		RB1#50	22.65	22.62	22.38	22.52	22.49	22.25
		RB1#99	22.26	22.34	22.24	22.13	22.21	22.11
		RB50#0	22.18	21.98	22.21	22.05	21.85	22.08
		RB50#50	21.90	22.08	22.20	21.77	21.95	22.07
		RB100#0	21.77	21.58	21.71	21.64	21.45	21.58
	16QAM	RB1#0	22.08	21.78	21.83	21.95	21.65	21.70
		RB1#50	22.15	21.89	22.00	22.02	21.76	21.87
		RB1#99	21.57	21.83	21.70	21.44	21.70	21.57
		RB50#0	22.15	22.00	21.82	22.02	21.87	21.69
		RB50#50	21.54	21.86	21.41	21.41	21.73	21.28
		RB100#0	21.87	21.63	21.87	21.74	21.50	21.74

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

For Band 2: Antenna Gain = 0.87dBi

Cable Loss=1.0dB*(provided by the applicant)

Limit: EIRP ≤ 33dBm

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

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	5.60	6.25	6.24	13	Pass
QPSK (100RB Size)	5.94	6.14	5.66	13	Pass
16QAM (1RB Size)	6.11	7.42	7.29	13	Pass
16QAM (100RB Size)	6.71	6.99	6.95	13	Pass

LTE Band 5

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	23.44	23.44	23.73	19.56	19.56	19.85
		RB1#3	23.45	23.42	23.64	19.57	19.54	19.76
		RB1#5	23.50	23.20	23.63	19.62	19.32	19.75
		RB3#0	23.12	23.05	23.25	19.24	19.17	19.37
		RB3#3	22.82	23.10	23.04	18.94	19.22	19.16
		RB6#0	22.86	22.70	23.02	18.98	18.82	19.14
	16QAM	RB1#0	23.31	23.07	23.31	19.43	19.19	19.43
		RB1#3	23.22	22.82	23.01	19.34	18.94	19.13
		RB1#5	22.85	22.96	22.61	18.97	19.08	18.73
		RB3#0	22.86	22.78	22.83	18.98	18.90	18.95
		RB3#3	22.84	22.90	22.69	18.96	19.02	18.81
		RB6#0	22.95	23.14	22.86	19.07	19.26	18.98
3.0	QPSK	RB1#0	23.56	23.75	23.78	19.68	19.87	19.90
		RB1#8	23.71	23.55	23.73	19.83	19.67	19.85
		RB1#14	23.30	23.46	23.55	19.42	19.58	19.67
		RB6#0	23.28	23.11	23.30	19.40	19.23	19.42
		RB6#9	23.41	23.08	23.32	19.53	19.20	19.44
		RB15#0	23.17	23.14	23.10	19.29	19.26	19.22
	16QAM	RB1#0	22.99	23.28	23.25	19.11	19.40	19.37
		RB1#8	23.37	23.21	23.20	19.49	19.33	19.32
		RB1#14	22.91	22.65	22.70	19.03	18.77	18.82
		RB6#0	23.16	23.26	23.25	19.28	19.38	19.37
		RB6#9	22.97	22.95	23.04	19.09	19.07	19.16
		RB15#0	23.15	22.80	22.84	19.27	18.92	18.96

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	23.51	23.71	23.82	19.63	19.83	19.94
		RB1#13	23.79	23.44	23.41	19.91	19.56	19.53
		RB1#24	23.38	23.61	23.68	19.50	19.73	19.80
		RB15#0	23.00	23.21	23.31	19.12	19.33	19.43
		RB15#10	23.23	23.26	22.90	19.35	19.38	19.02
		RB25#0	23.08	23.08	22.99	19.20	19.20	19.11
	16QAM	RB1#0	23.12	23.09	22.97	19.24	19.21	19.09
		RB1#13	22.96	23.17	23.23	19.08	19.29	19.35
		RB1#24	22.98	23.00	22.99	19.10	19.12	19.11
		RB15#0	23.13	23.31	23.00	19.25	19.43	19.12
		RB15#10	22.66	22.69	22.91	18.78	18.81	19.03
		RB25#0	23.07	22.99	22.91	19.19	19.11	19.03
10.0	QPSK	RB1#0	23.42	23.79	23.91	19.54	19.91	20.03
		RB1#25	23.49	23.60	23.34	19.61	19.72	19.46
		RB1#49	23.39	23.42	23.50	19.51	19.54	19.62
		RB25#0	22.99	23.09	22.87	19.11	19.21	18.99
		RB25#25	22.98	23.21	22.94	19.10	19.33	19.06
		RB50#0	22.75	23.08	22.65	18.87	19.20	18.77
	16QAM	RB1#0	23.01	22.88	22.90	19.13	19.00	19.02
		RB1#25	23.10	23.07	23.18	19.22	19.19	19.30
		RB1#49	22.72	22.62	22.68	18.84	18.74	18.80
		RB25#0	22.75	23.01	23.11	18.87	19.13	19.23
		RB25#25	22.51	22.76	22.66	18.63	18.88	18.78
		RB50#0	22.87	22.86	22.70	18.99	18.98	18.82

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd)
 For Band 5: Antenna Gain = -1.23dBi = -3.38dBd (0dBd=2.15dBi)
 Cable Loss= 0.5dB*(provided by the applicant)
 Limit: ERP ≤ 38.45dBm

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

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.70	4.60	4.11	13	Pass
QPSK (50RB Size)	5.64	5.84	5.93	13	Pass
16QAM (1RB Size)	5.85	5.44	4.98	13	Pass
16QAM (50RB Size)	6.84	6.45	6.65	13	Pass

LTE Band 7:**Maximum Output Power**

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
5.0	QPSK	RB1#0	23.57	23.60	23.60	25.46	25.49	25.49
		RB1#13	23.52	23.67	23.81	25.41	25.56	25.70
		RB1#24	23.35	23.71	23.41	25.24	25.60	25.30
		RB15#0	23.11	23.24	23.52	25.00	25.13	25.41
		RB15#10	23.26	23.34	23.30	25.15	25.23	25.19
		RB25#0	22.86	22.87	22.85	24.75	24.76	24.74
	16QAM	RB1#0	23.16	23.34	23.07	25.05	25.23	24.96
		RB1#13	23.29	22.97	22.93	25.18	24.86	24.82
		RB1#24	22.68	22.75	22.89	24.57	24.64	24.78
		RB15#0	23.00	23.25	22.97	24.89	25.14	24.86
		RB15#10	22.74	23.07	22.81	24.63	24.96	24.70
		RB25#0	22.91	23.05	23.23	24.80	24.94	25.12
10.0	QPSK	RB1#0	23.35	23.47	23.82	25.24	25.36	25.71
		RB1#25	23.65	23.18	23.48	25.54	25.07	25.37
		RB1#49	23.36	23.49	23.28	25.25	25.38	25.17
		RB25#0	23.26	23.12	22.84	25.15	25.01	24.73
		RB25#25	23.19	22.98	22.91	25.08	24.87	24.80
		RB50#0	22.95	23.04	22.64	24.84	24.93	24.53
	16QAM	RB1#0	22.98	23.13	23.13	24.87	25.02	25.02
		RB1#25	22.83	22.78	22.73	24.72	24.67	24.62
		RB1#49	22.60	22.39	22.65	24.49	24.28	24.54
		RB25#0	22.74	22.94	23.13	24.63	24.83	25.02
		RB25#25	22.71	22.82	22.65	24.60	24.71	24.54
		RB50#0	23.04	22.75	22.86	24.93	24.64	24.75

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15.0	QPSK	RB1#0	23.41	23.86	23.45	25.30	25.75	25.34
		RB1#38	23.55	23.51	23.22	25.44	25.40	25.11
		RB1#74	23.27	23.35	23.13	25.16	25.24	25.02
		RB36#0	23.07	22.94	23.05	24.96	24.83	24.94
		RB36#39	23.11	23.10	22.89	25.00	24.99	24.78
		RB75#0	22.75	22.89	23.09	24.64	24.78	24.98
	16QAM	RB1#0	23.08	22.92	23.21	24.97	24.81	25.10
		RB1#38	22.78	23.04	23.09	24.67	24.93	24.98
		RB1#74	22.46	22.88	22.69	24.35	24.77	24.58
		RB36#0	22.79	22.83	22.87	24.68	24.72	24.76
		RB36#39	22.69	22.52	22.87	24.58	24.41	24.76
		RB75#0	22.82	22.99	22.97	24.71	24.88	24.86
20.0	QPSK	RB1#0	23.33	23.82	23.59	25.22	25.71	25.48
		RB1#50	23.63	23.28	23.40	25.52	25.17	25.29
		RB1#99	23.37	23.15	23.21	25.26	25.04	25.10
		RB50#0	23.26	22.94	22.85	25.15	24.83	24.74
		RB50#50	23.00	22.79	23.12	24.89	24.68	25.01
		RB100#0	22.64	22.89	22.64	24.53	24.78	24.53
	16QAM	RB1#0	22.87	22.87	22.93	24.76	24.76	24.82
		RB1#50	23.08	22.73	22.76	24.97	24.62	24.65
		RB1#99	22.72	22.61	22.81	24.61	24.50	24.70
		RB50#0	23.13	22.82	23.04	25.02	24.71	24.93
		RB50#50	22.63	22.60	22.45	24.52	24.49	24.34
		RB100#0	22.86	22.93	23.02	24.75	24.82	24.91

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

For Band 7: Antenna Gain = 1.89dBi

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)	5.59	6.18	6.41	13	Pass
QPSK (100RB Size)	5.76	5.91	5.83	13	Pass
16QAM (1RB Size)	6.81	7.48	7.87	13	Pass
16QAM (100RB Size)	6.92	6.67	6.80	13	Pass

LTE Band 38:**Maximum Output Power**

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
5.0	QPSK	RB1#0	22.78	23.06	22.94	24.67	24.95	24.83
		RB1#13	22.79	22.99	22.99	24.68	24.88	24.88
		RB1#24	22.81	22.80	22.76	24.70	24.69	24.65
		RB15#0	22.51	22.33	22.53	24.40	24.22	24.42
		RB15#5	22.23	22.56	22.18	24.12	24.45	24.07
		RB15#10	22.36	22.46	22.21	24.25	24.35	24.10
		RB25#0	22.45	22.60	22.48	24.34	24.49	24.37
	16QAM	RB1#0	22.18	22.34	22.33	24.07	24.23	24.22
		RB1#13	21.93	21.97	22.03	23.82	23.86	23.92
		RB1#24	22.46	22.16	22.37	24.35	24.05	24.26
		RB15#0	21.86	21.99	22.21	23.75	23.88	24.10
		RB15#5	22.13	22.00	22.18	24.02	23.89	24.07
		RB15#10	22.19	22.40	22.49	24.08	24.29	24.38
		RB25#0	22.62	22.82	22.90	24.51	24.71	24.79
10.0	QPSK	RB1#0	22.55	22.79	22.99	24.44	24.68	24.88
		RB1#25	22.79	22.73	22.66	24.68	24.62	24.55
		RB1#49	22.61	22.41	22.34	24.50	24.30	24.23
		RB25#0	22.39	22.45	22.24	24.28	24.34	24.13
		RB25#13	22.13	22.19	22.22	24.02	24.08	24.11
		RB25#25	21.88	22.10	22.03	23.77	23.99	23.92
		RB50#0	22.36	22.07	22.38	24.25	23.96	24.27
	16QAM	RB1#0	22.06	22.12	22.15	23.95	24.01	24.04
		RB1#25	21.79	21.98	21.80	23.68	23.87	23.69
		RB1#49	21.99	22.07	21.92	23.88	23.96	23.81
		RB25#0	21.94	21.97	21.78	23.83	23.86	23.67
		RB25#13	22.17	21.89	22.26	24.06	23.78	24.15
		RB25#25	22.30	22.12	22.55	24.19	24.01	24.44
		RB50#0	22.51	22.56	22.76	24.40	24.45	24.65

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15.0	QPSK	RB1#0	22.42	22.78	22.42	24.31	24.67	24.31
		RB1#38	22.25	22.53	22.43	24.14	24.42	24.32
		RB1#74	22.39	22.43	22.28	24.28	24.32	24.17
		RB36#0	22.17	22.13	21.98	24.06	24.02	23.87
		RB36#20	22.23	21.96	22.19	24.12	23.85	24.08
		RB36#39	21.89	21.82	22.05	23.78	23.71	23.94
		RB75#0	22.11	21.99	22.26	24.00	23.88	24.15
	16QAM	RB1#0	22.20	22.06	21.89	24.09	23.95	23.78
		RB1#38	21.62	21.71	21.92	23.51	23.60	23.81
		RB1#74	22.14	22.06	21.76	24.03	23.95	23.65
		RB36#0	21.65	21.49	21.66	23.54	23.38	23.55
		RB36#20	21.91	21.96	21.68	23.80	23.85	23.57
		RB36#39	22.07	22.31	22.14	23.96	24.20	24.03
		RB75#0	22.26	22.47	22.23	24.15	24.36	24.12
20.0	QPSK	RB1#0	22.41	22.86	22.46	24.30	24.75	24.35
		RB1#50	22.54	22.53	22.37	24.43	24.42	24.26
		RB1#99	22.36	22.35	22.26	24.25	24.24	24.15
		RB50#0	22.22	22.19	22.30	24.11	24.08	24.19
		RB50#25	22.19	21.87	22.03	24.08	23.76	23.92
		RB50#50	21.99	21.93	21.67	23.88	23.82	23.56
		RB100#0	21.85	21.82	22.20	23.74	23.71	24.09
	16QAM	RB1#0	21.84	21.79	22.18	23.73	23.68	24.07
		RB1#50	21.60	21.55	21.47	23.49	23.44	23.36
		RB1#99	21.79	21.96	22.21	23.68	23.85	24.10
		RB50#0	21.67	21.54	21.64	23.56	23.43	23.53
		RB50#25	21.79	22.04	21.86	23.68	23.93	23.75
		RB50#50	22.22	22.17	22.01	24.11	24.06	23.90
		RB100#0	22.62	22.36	22.22	24.51	24.25	24.11

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

For Band 38: Antenna Gain = 1.89dBi

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)	6.24	5.46	5.53	13	Pass
QPSK (100RB Size)	6.06	5.29	5.98	13	Pass
16QAM (1RB Size)	6.37	5.65	5.67	13	Pass
16QAM (100RB Size)	6.39	5.23	5.64	13	Pass

LTE Band 40 Lower:**Maximum Output Power**

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
5	QPSK	RB 1#0	22.34	22.63	22.49	22.70	22.99	22.85
		RB 1#13	22.52	22.45	22.56	22.88	22.81	22.92
		RB 1#24	22.38	22.22	22.29	22.74	22.58	22.65
		RB 15#0	21.99	22.05	21.98	22.35	22.41	22.34
		RB 15#10	21.96	21.83	21.88	22.32	22.19	22.24
		RB 25#0	21.54	21.98	21.89	21.90	22.34	22.25
	16QAM	RB 1#0	21.83	21.83	21.87	22.19	22.19	22.23
		RB 1#13	21.96	21.96	22.18	22.32	22.32	22.54
		RB 1#24	21.87	21.49	21.67	22.23	21.85	22.03
		RB 15#0	21.97	22.03	21.98	22.33	22.39	22.34
		RB 15#10	21.75	21.85	21.56	22.11	22.21	21.92
		RB 25#0	21.59	21.70	21.78	21.95	22.06	22.14
10	QPSK	RB 1#0	/	22.37	/	/	22.73	/
		RB 1#25	/	22.21	/	/	22.57	/
		RB 1#49	/	21.97	/	/	22.33	/
		RB 25#0	/	21.72	/	/	22.08	/
		RB 25#25	/	21.92	/	/	22.28	/
		RB 50#0	/	21.45	/	/	21.81	/
	16QAM	RB 1#0	/	21.61	/	/	21.97	/
		RB 1#25	/	21.52	/	/	21.88	/
		RB 1#49	/	21.45	/	/	21.81	/
		RB 25#0	/	21.80	/	/	22.16	/
		RB 25#25	/	21.27	/	/	21.63	/
		RB 50#0	/	21.75	/	/	22.11	/

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

For Band 40: Antenna Gain = 1.56dBi, Cable Loss=1.2dB*(provided by the applicant)

Limit: EIRP ≤ 24dBm/5MHz

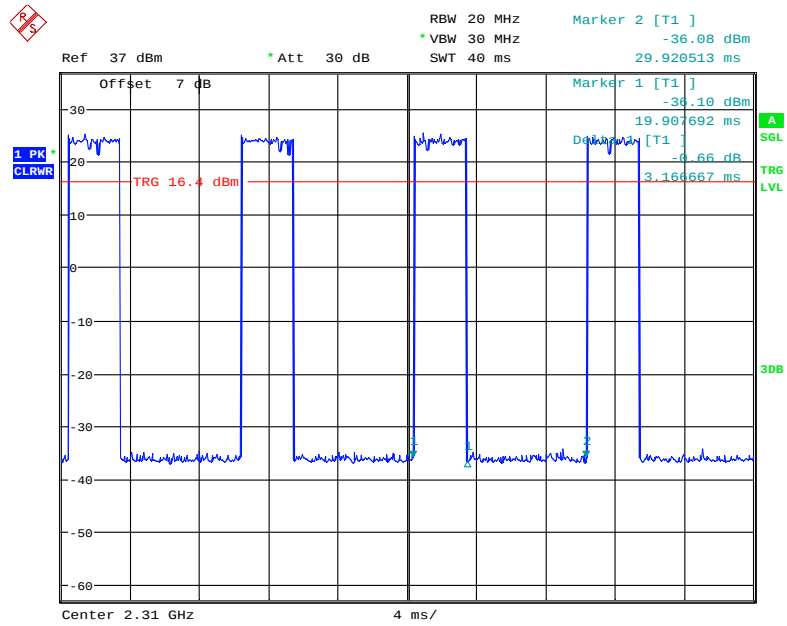
For 5MHz mode, the channel power is equal to the test result in dBm/5MHz

For 10MHz mode, the channel power is sum of 10MHz bandwidth, the result is less than 24dBm, so in any 5MHz bandwidth, it will not exceed the limit

Duty cycle

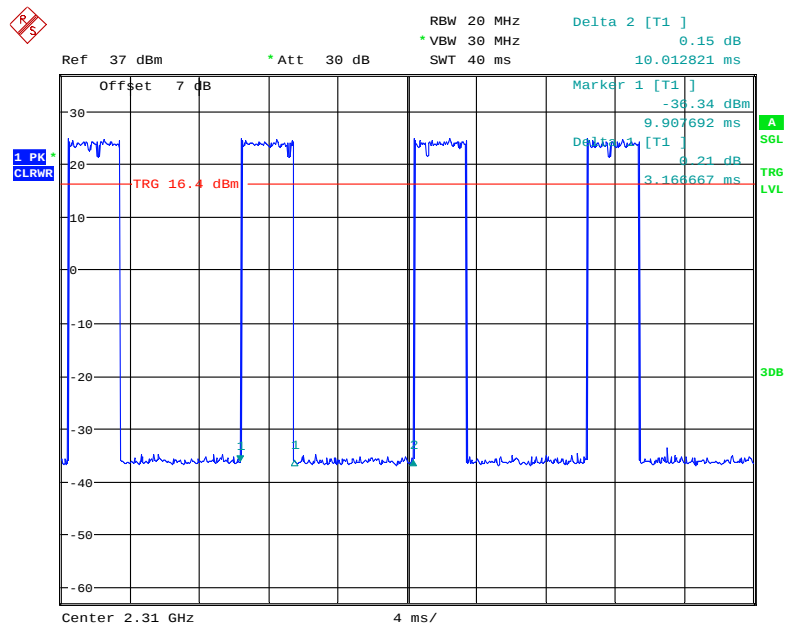
Modulation	Bandwidth (MHz)	Ton (ms)	Ton+Toff (ms)	Duty cycle (%)	Limit (%)
QPSK	5	3.167	10.013	31.63	38
	10	3.167	10.077	31.43	38
16QAM	5	3.167	10.013	31.63	38
	10	3.167	9.987	31.71	38

5MHz, QPSK



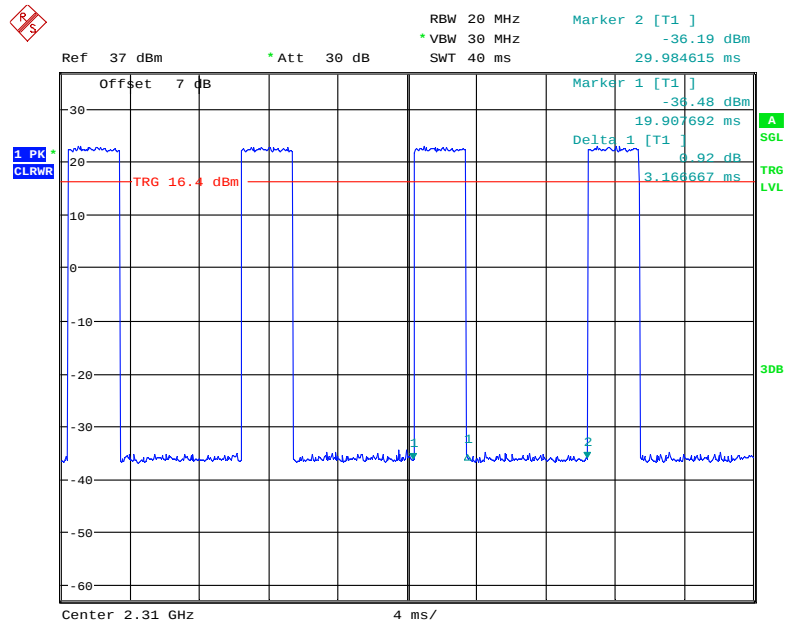
Date: 1.JUN.2021 15:47:07

5MHz, 16QAM



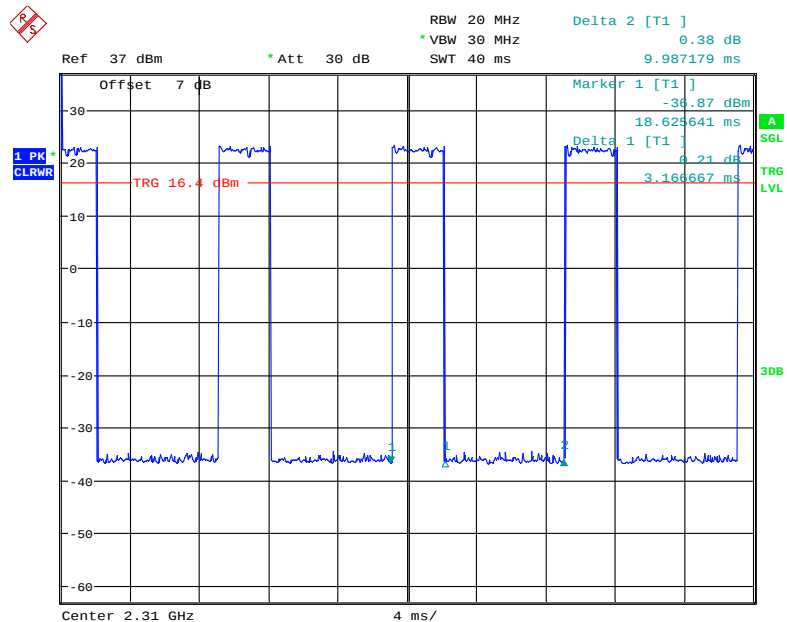
Date: 1.JUN.2021 15:40:08

10MHz, QPSK



Date: 1.JUN.2021 15:46:03

10MHz, 16QAM



Date: 1.JUN.2021 15:45:02

LTE Band 40 Upper

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
5	QPSK	RB 1#0	22.14	22.54	22.16	22.50	22.90	22.52
		RB 1#13	22.27	22.37	22.40	22.63	22.73	22.76
		RB 1#24	22.03	22.02	22.17	22.39	22.38	22.53
		RB 15#0	21.63	21.72	21.76	21.99	22.08	22.12
		RB 15#10	22.00	21.81	21.53	22.36	22.17	21.89
		RB 25#0	21.73	21.40	21.55	22.09	21.76	21.91
	16QAM	RB 1#0	21.68	21.74	21.84	22.04	22.10	22.20
		RB 1#13	21.91	21.92	21.58	22.27	22.28	21.94
		RB 1#24	21.39	21.28	21.66	21.75	21.64	22.02
		RB 15#0	21.59	21.70	21.85	21.95	22.06	22.21
		RB 15#10	21.50	21.37	21.48	21.86	21.73	21.84
		RB 25#0	21.47	21.71	21.69	21.83	22.07	22.05
10	QPSK	RB 1#0	/	22.24	/	/	22.60	/
		RB 1#25	/	21.97	/	/	22.33	/
		RB 1#49	/	21.90	/	/	22.26	/
		RB 25#0	/	21.91	/	/	22.27	/
		RB 25#25	/	21.95	/	/	22.31	/
		RB 50#0	/	21.57	/	/	21.93	/
	16QAM	RB 1#0	/	21.93	/	/	22.29	/
		RB 1#25	/	21.48	/	/	21.84	/
		RB 1#49	/	21.27	/	/	21.63	/
		RB 25#0	/	21.72	/	/	22.08	/
		RB 25#25	/	21.60	/	/	21.96	/
		RB 50#0	/	21.36	/	/	21.72	/

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

For Band 40: Antenna Gain = 1.56dBi, Cable Loss=1.2dB*(provided by the applicant)

Limit: EIRP ≤ 24dBm/5MHz

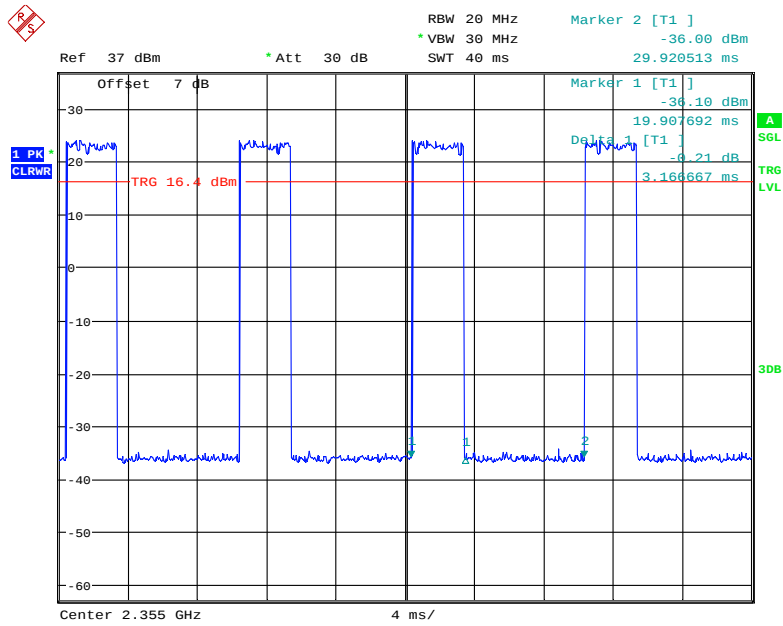
For 5MHz mode, the channel power is equal to the test result in dBm/5MHz

For 10MHz mode, the channel power is sum of 10MHz bandwidth, the result is less than 24dBm, so in any 5MHz bandwidth, it will not exceed the limit

Duty cycle

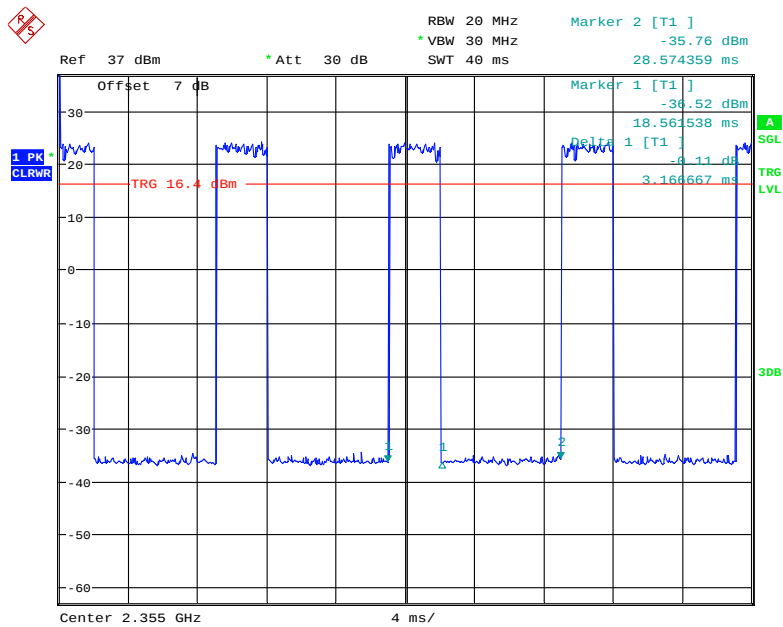
Modulation	Bandwidth (MHz)	Ton (ms)	Ton+Toff (ms)	Duty cycle (%)	Limit (%)
QPSK	5	3.167	10.013	31.63	38
	10	3.167	10.077	31.43	38
16QAM	5	3.167	10.013	31.63	38
	10	3.167	10.013	31.63	38

5MHz, QPSK



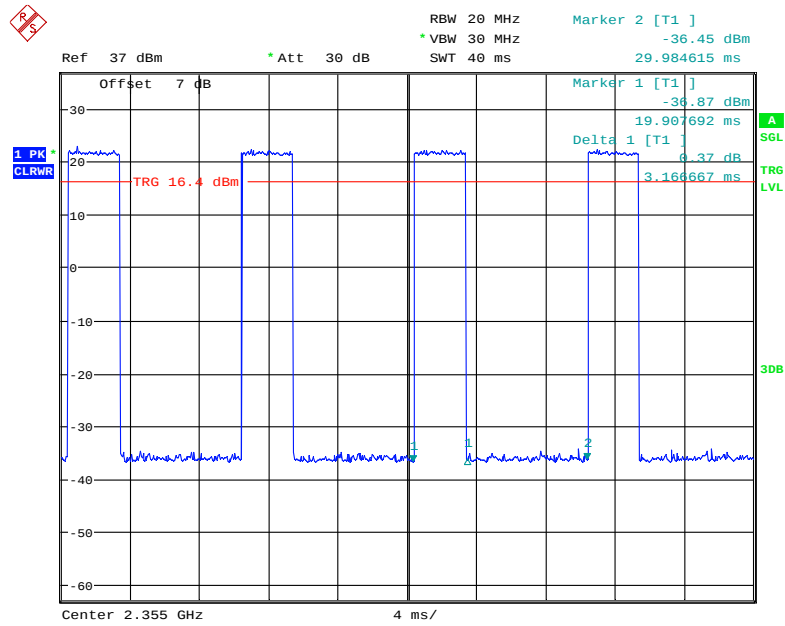
Date: 1.JUN.2021 15:53:27

5MHz, 16QAM



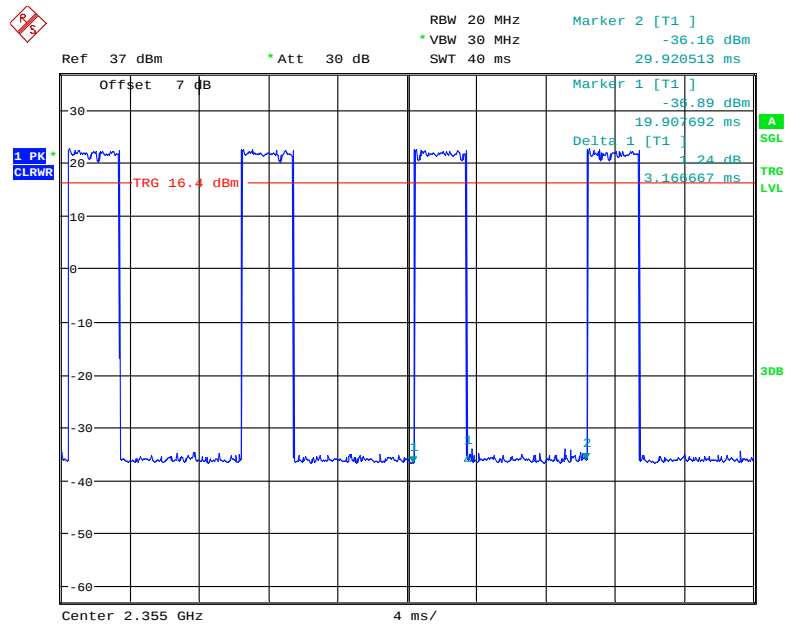
Date: 1.JUN.2021 15:51:27

10MHz, QPSK



Date: 1.JUN.2021 16:02:31

10MHz, 16QAM



Date: 1.JUN.2021 15:55:38

LTE Band 41:**Maximum Output Power**

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
5	QPSK	RB1#0	23.47	23.70	23.87	25.36	25.59	25.76
		RB1#13	23.40	23.45	23.67	25.29	25.34	25.56
		RB1#24	23.44	23.20	23.37	25.33	25.09	25.26
		RB15#0	23.08	23.37	23.04	24.97	25.26	24.93
		RB15#5	23.08	23.14	23.19	24.97	25.03	25.08
		RB15#10	22.79	22.73	22.73	24.68	24.62	24.62
		RB25#0	22.95	23.36	22.99	24.84	25.25	24.88
	16QAM	RB1#0	23.28	23.24	23.10	25.17	25.13	24.99
		RB1#13	22.87	22.92	22.51	24.76	24.81	24.40
		RB1#24	22.90	23.02	22.88	24.79	24.91	24.77
		RB15#0	22.97	22.50	22.80	24.86	24.39	24.69
		RB15#5	22.85	22.72	23.09	24.74	24.61	24.98
		RB15#10	22.96	22.72	23.18	24.85	24.61	25.07
		RB25#0	23.33	22.86	23.36	25.22	24.75	25.25
10	QPSK	RB1#0	23.51	23.76	23.82	25.40	25.65	25.71
		RB1#25	23.79	23.45	23.58	25.68	25.34	25.47
		RB1#49	23.67	23.63	23.62	25.56	25.52	25.51
		RB25#0	23.32	23.20	23.05	25.21	25.09	24.94
		RB25#13	23.04	23.25	22.93	24.93	25.14	24.82
		RB25#25	22.88	23.04	22.88	24.77	24.93	24.77
		RB50#0	23.40	23.21	23.37	25.29	25.10	25.26
	16QAM	RB1#0	23.24	22.93	23.27	25.13	24.82	25.16
		RB1#25	22.86	23.03	22.67	24.75	24.92	24.56
		RB1#49	23.10	22.99	23.29	24.99	24.88	25.18
		RB25#0	22.75	22.97	22.86	24.64	24.86	24.75
		RB25#13	22.82	23.03	22.74	24.71	24.92	24.63
		RB25#25	23.04	23.41	22.79	24.93	25.30	24.68
		RB50#0	23.52	23.71	23.20	25.41	25.60	25.09

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15	QPSK	RB1#0	23.49	23.56	23.52	25.38	25.45	25.41
		RB1#38	23.75	23.69	23.46	25.64	25.58	25.35
		RB1#74	23.58	23.66	23.34	25.47	25.55	25.23
		RB36#0	23.27	22.97	23.17	25.16	24.86	25.06
		RB36#20	23.19	22.86	22.98	25.08	24.75	24.87
		RB36#39	22.91	23.05	22.88	24.80	24.94	24.77
		RB75#0	23.18	22.91	23.00	25.07	24.80	24.89
	16QAM	RB1#0	23.25	23.18	23.18	25.14	25.07	25.07
		RB1#38	22.75	22.60	22.59	24.64	24.49	24.48
		RB1#74	23.06	22.94	23.29	24.95	24.83	25.18
		RB36#0	22.87	22.86	23.00	24.76	24.75	24.89
		RB36#20	22.78	22.83	22.96	24.67	24.72	24.85
		RB36#39	23.05	23.13	23.26	24.94	25.02	25.15
		RB75#0	23.44	23.31	23.34	25.33	25.20	25.23
20	QPSK	RB1#0	23.45	23.73	23.65	25.34	25.62	25.54
		RB1#50	23.31	23.28	23.65	25.20	25.17	25.54
		RB1#99	23.32	23.55	23.31	25.21	25.44	25.20
		RB50#0	23.20	22.98	23.10	25.09	24.87	24.99
		RB50#25	23.11	23.27	23.29	25.00	25.16	25.18
		RB50#50	22.66	22.87	22.82	24.55	24.76	24.71
		RB100#0	22.88	22.95	22.94	24.77	24.84	24.83
	16QAM	RB1#0	23.12	23.20	22.80	25.01	25.09	24.69
		RB1#50	22.70	22.71	22.92	24.59	24.60	24.81
		RB1#99	23.22	23.12	22.95	25.11	25.01	24.84
		RB50#0	22.84	22.73	22.81	24.73	24.62	24.70
		RB50#25	22.93	22.70	23.04	24.82	24.59	24.93
		RB50#50	23.21	22.79	23.33	25.10	24.68	25.22
		RB100#0	23.26	22.84	23.79	25.15	24.73	25.68

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

For Band 41: Antenna Gain = 1.89dBi

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)	5.69	6.50	6.85	13	Pass
QPSK (100RB Size)	5.38	6.76	6.97	13	Pass
16QAM (1RB Size)	6.03	6.25	6.84	13	Pass
16QAM (100RB Size)	5.83	6.89	7.09	13	Pass

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

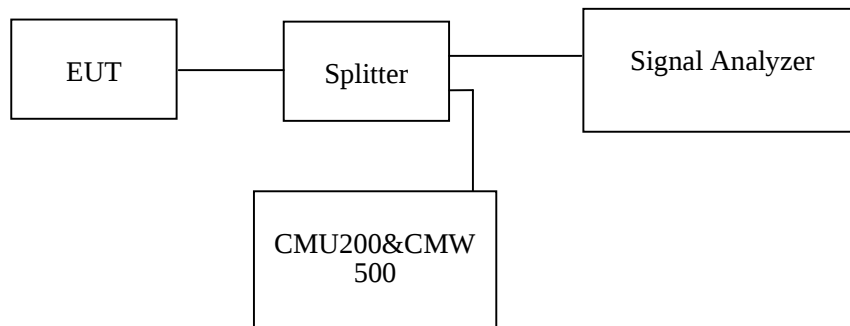
Applicable Standard

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

Test Procedure

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

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



Test Data

Environmental Conditions

Temperature:	25~25.5 °C
Relative Humidity:	56~59 %
ATM Pressure:	101.0 kPa

The testing was performed by Orlo Yang from 2021-05-11 to 2021-05-31.

EUT operation mode: Transmitting

Test Result: Pass

Please refer to the following tables and plots.

Cellular Band (Part 22H)

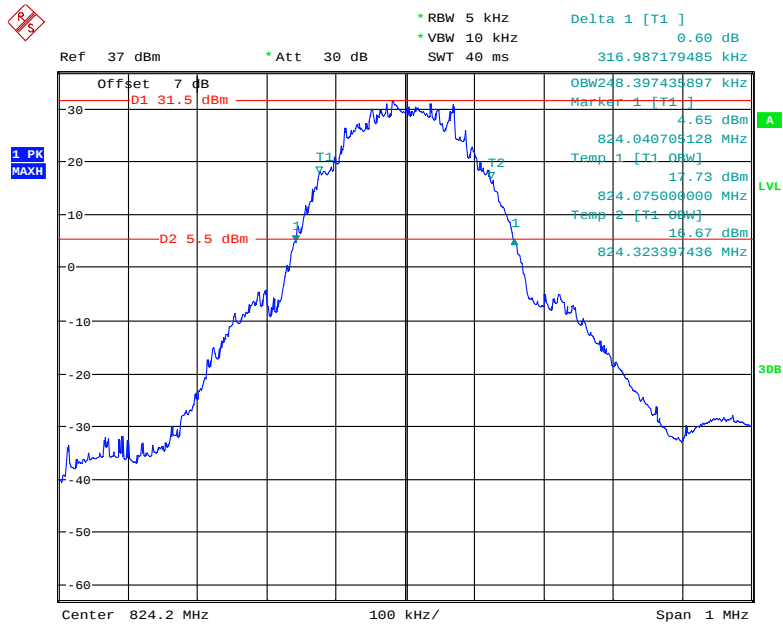
Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM(GMSK)	128	824.2	248.40	316.99
	190	836.6	246.79	312.18
	251	848.8	246.79	313.78
EGPRS(8PSK)	128	824.2	250.00	321.47
	190	836.6	246.79	317.63
	251	848.8	250.00	316.03

	Frequency (MHz)	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	826.4	4.21	5.32
	836.6	4.17	4.71
	846.6	4.18	4.74
HSDPA	826.4	4.21	4.93
	836.6	4.20	5.04
	846.6	4.18	4.74
HSUPA	826.4	4.20	4.87
	836.6	4.20	4.78
	846.6	4.21	4.75

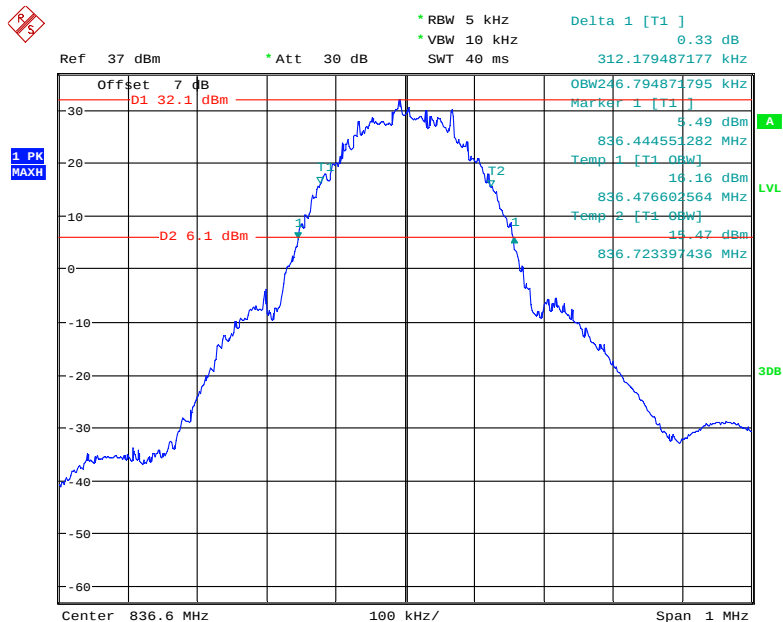
PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM(GMSK)	512	1850.2	245.19	312.82
	661	1880.0	243.59	313.78
	810	1909.8	245.19	315.71
EGPRS(8PSK)	512	1850.2	246.79	320.83
	661	1880.0	250.00	316.03
	810	1909.8	251.60	314.42

	Frequency (MHz)	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	1852.4	4.18	4.74
	1880.0	4.17	4.74
	1907.6	4.17	4.71
HSDPA	1852.4	4.18	4.71
	1880.0	4.17	4.71
	1907.6	4.20	4.81
HSUPA	1852.4	4.18	4.73
	1880.0	4.18	4.74
	1907.6	4.20	4.94

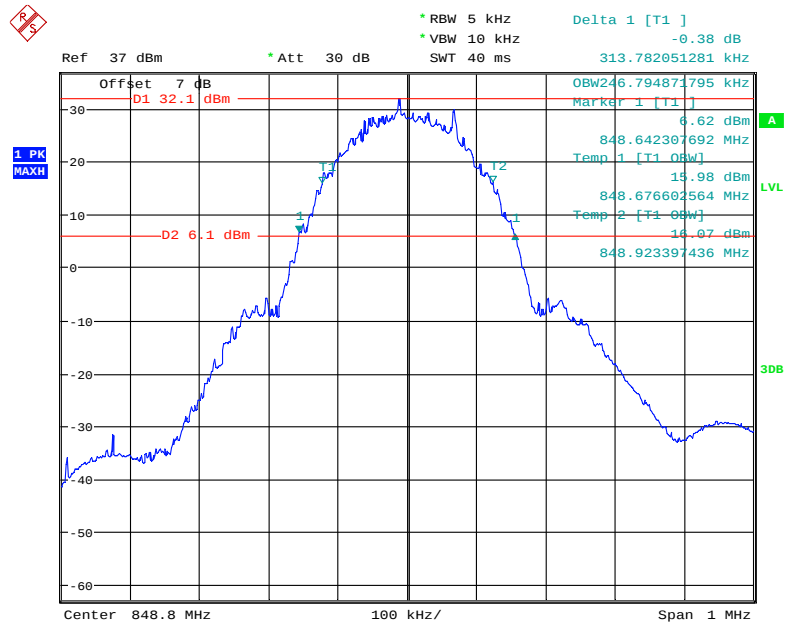
Cellular Band (Part 22H)**26 dB Emissions & 99% Occupied Bandwidth for GSM (GMSK) Mode, Low channel**

Date: 11.MAY.2021 01:48:35

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

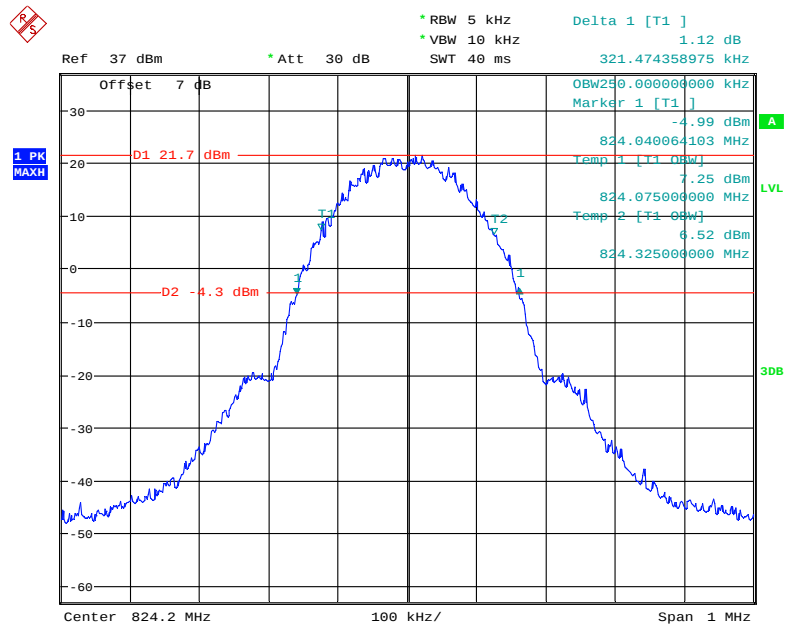
Date: 11.MAY.2021 01:46:48

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



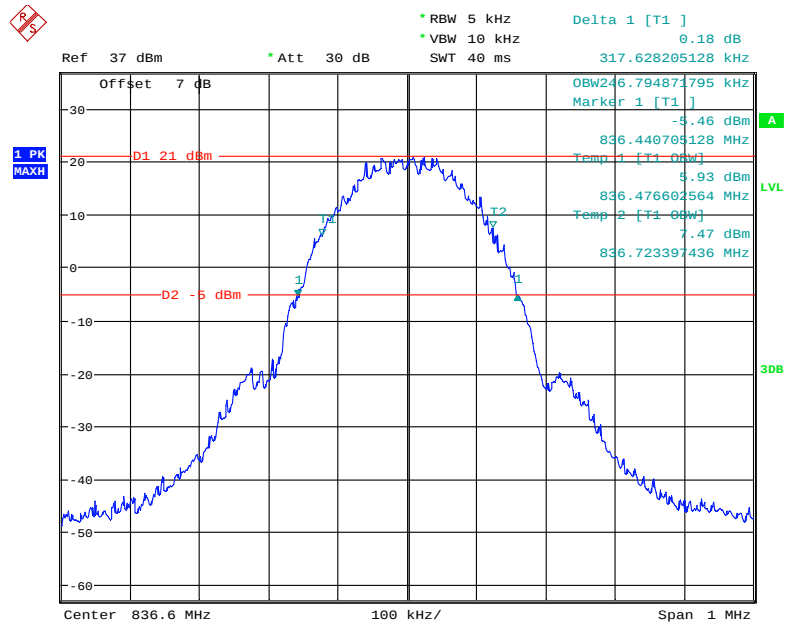
Date: 11.MAY.2021 01:43:15

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



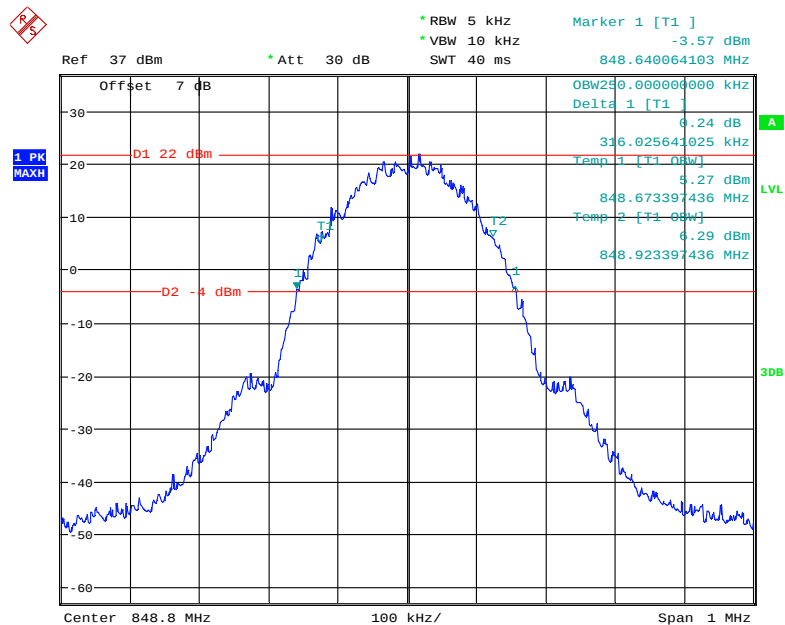
Date: 14.MAY.2021 21:54:29

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



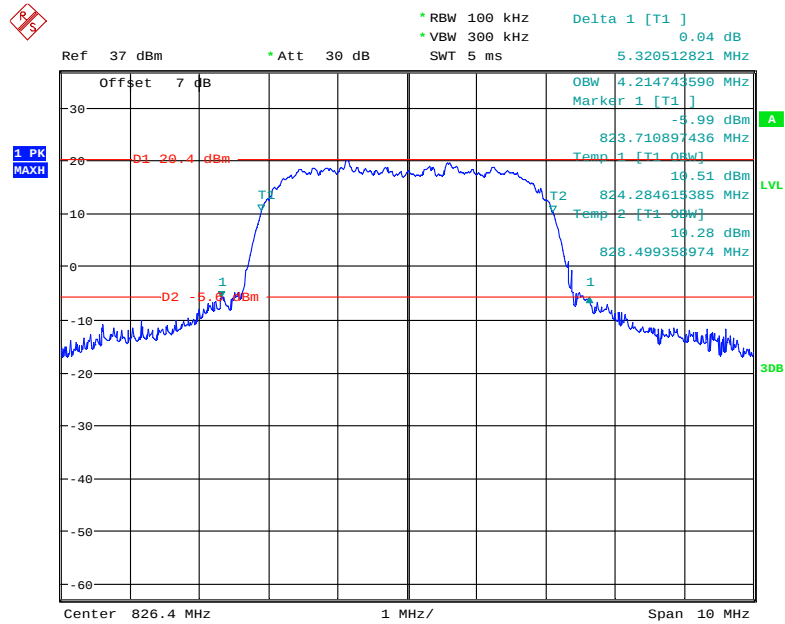
Date: 14.MAY.2021 21:56:31

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



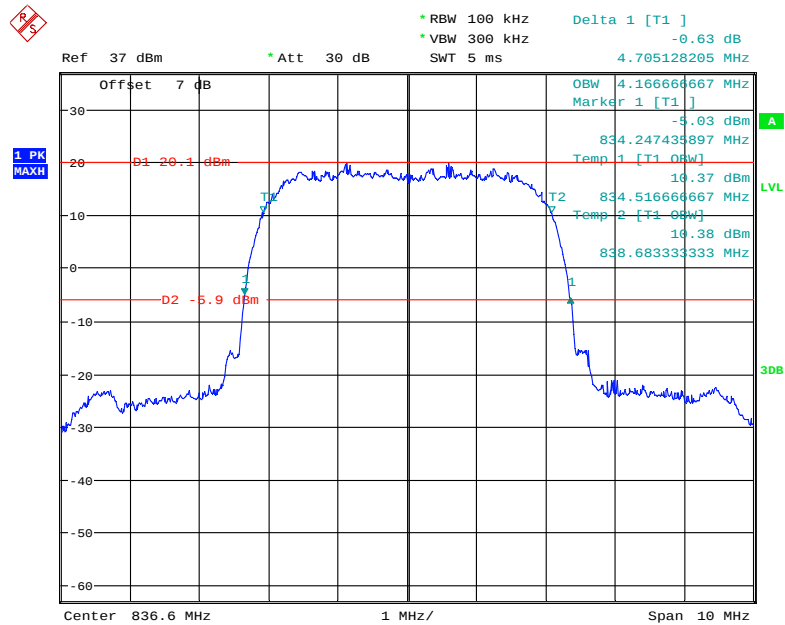
Date: 14.MAY.2021 21:57:57

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

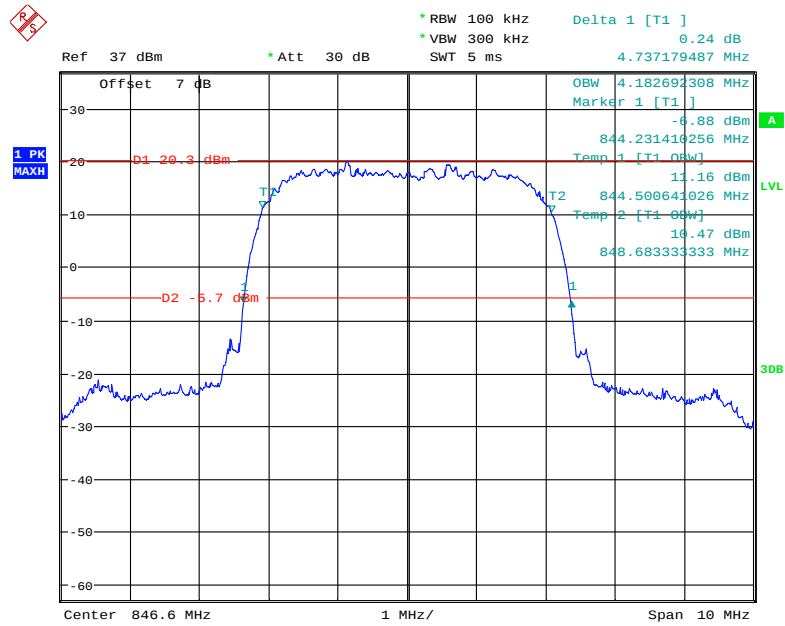


Date: 12.MAY.2021 20:56:54

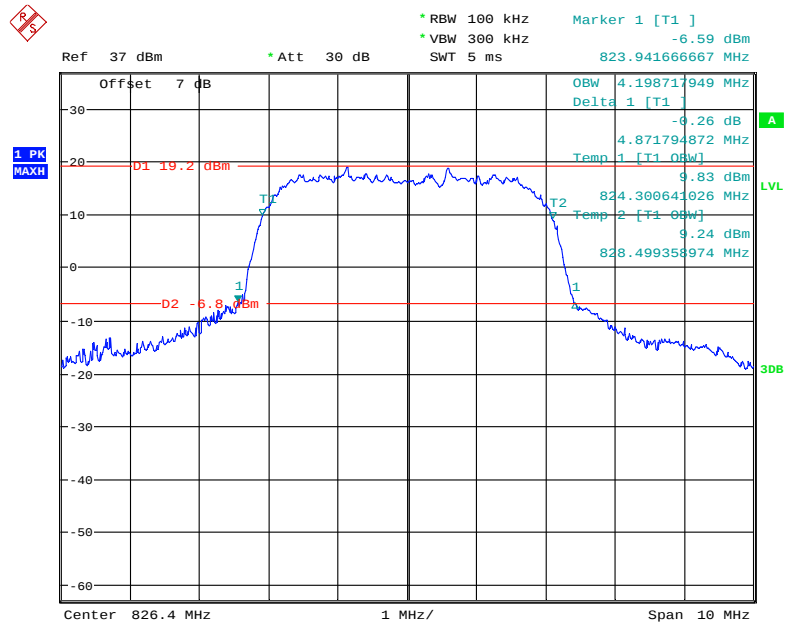
26 dB Emissions & 99% Occupied Bandwidth for RMC (BPSK) Mode, Middle channel



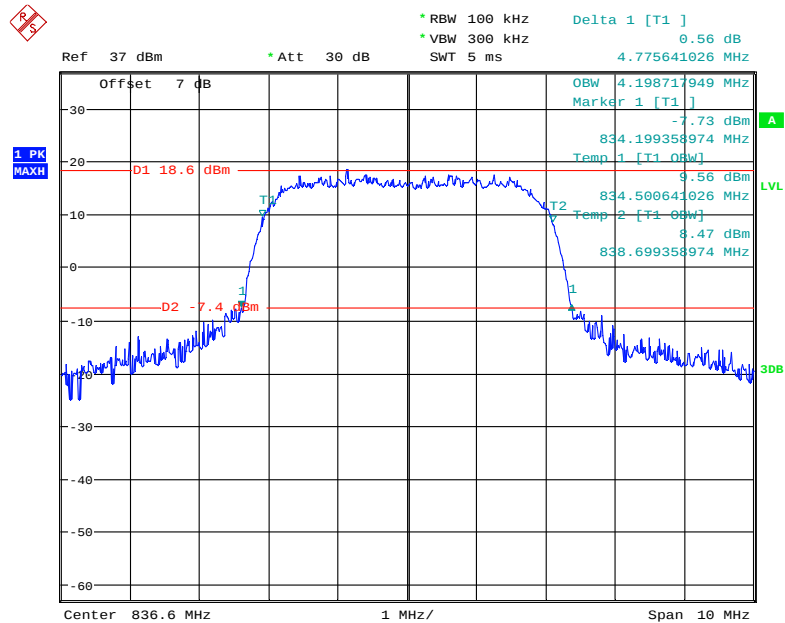
Date: 12.MAY.2021 20:52:05

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

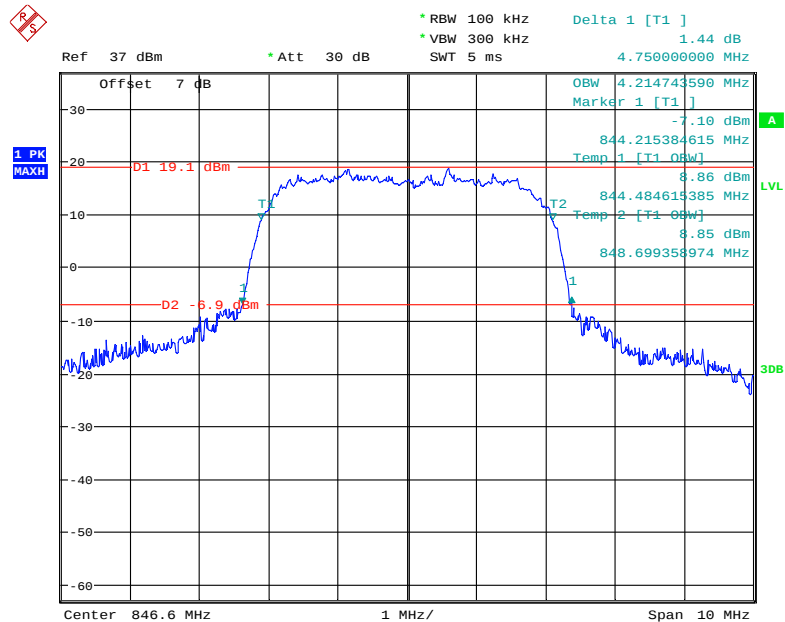
Date: 12.MAY.2021 20:49:38

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

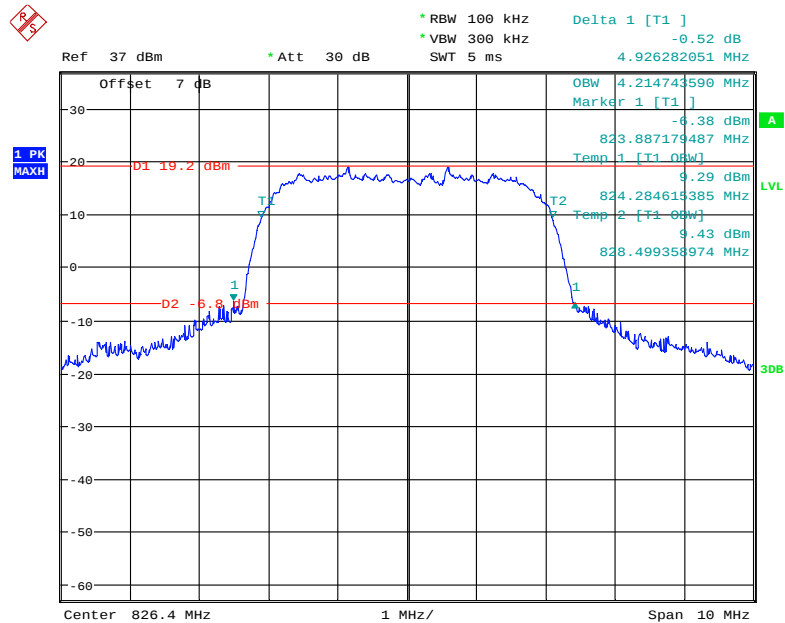
Date: 12.MAY.2021 20:22:23

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

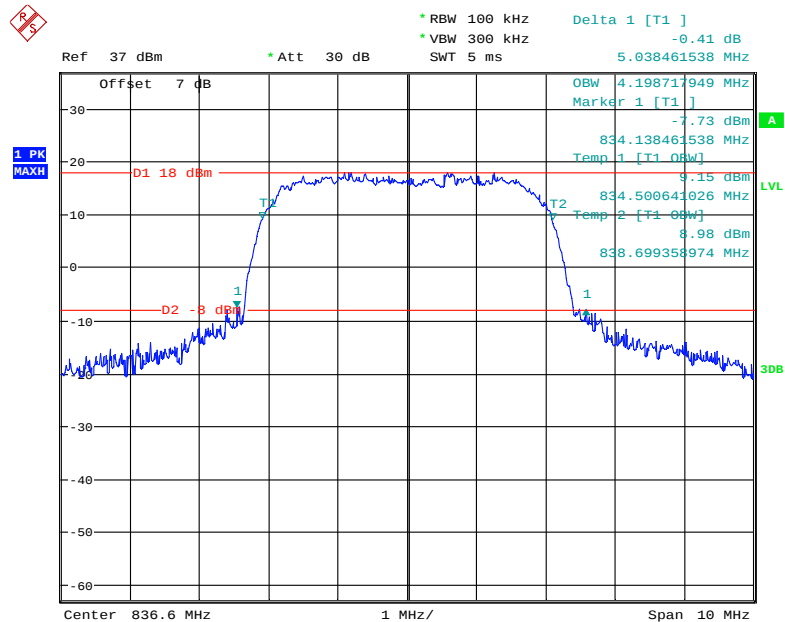
Date: 12.MAY.2021 20:12:22

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

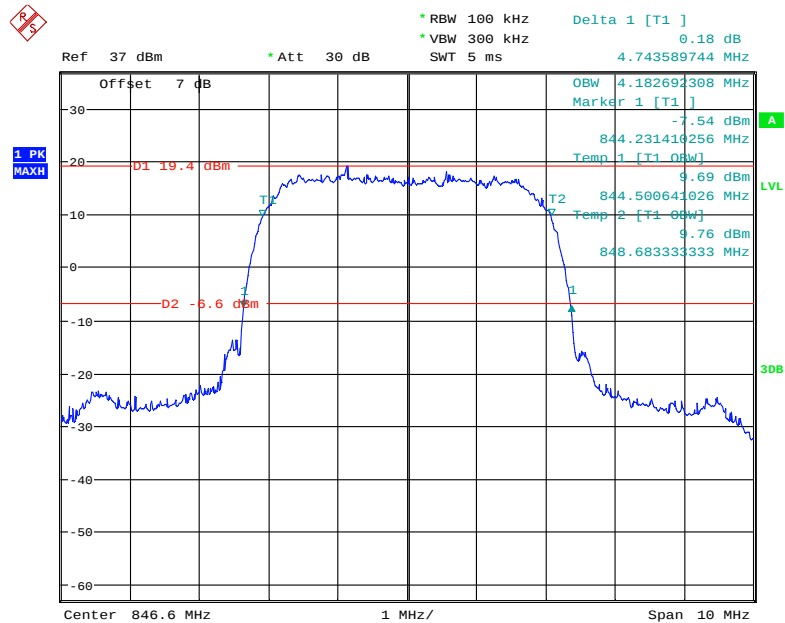
Date: 12.MAY.2021 20:08:29

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

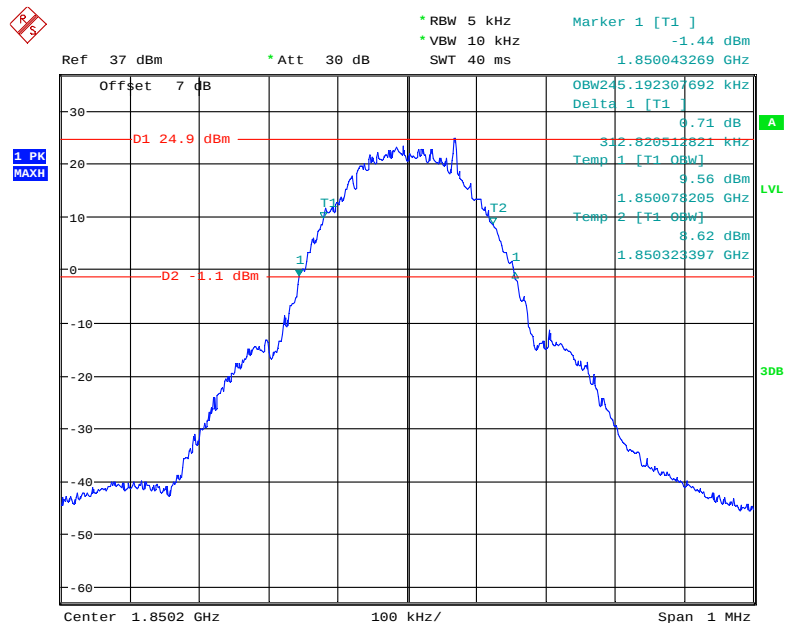
Date: 12.MAY.2021 20:40:41

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

Date: 12.MAY.2021 20:43:25

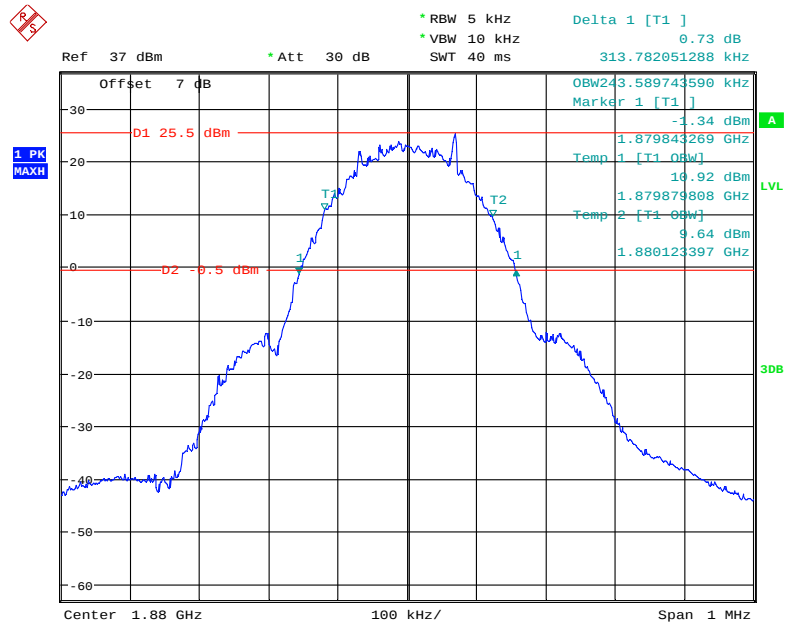
26 dB Emissions & 99% Occupied Bandwidth for HSDPA (16QAM) Mode, High channel

Date: 12.MAY.2021 20:46:05

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

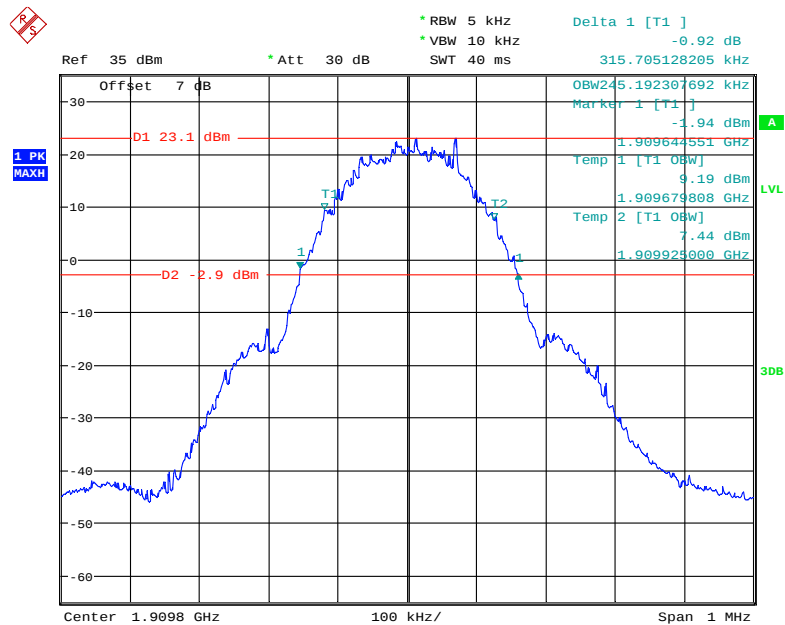
Date: 11.MAY.2021 01:15:27

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

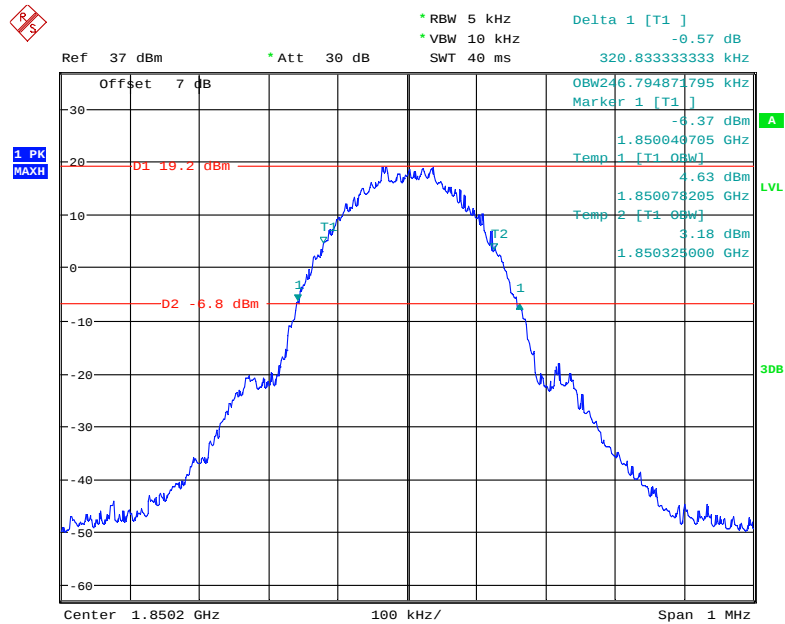


Date: 11.MAY.2021 01:23:54

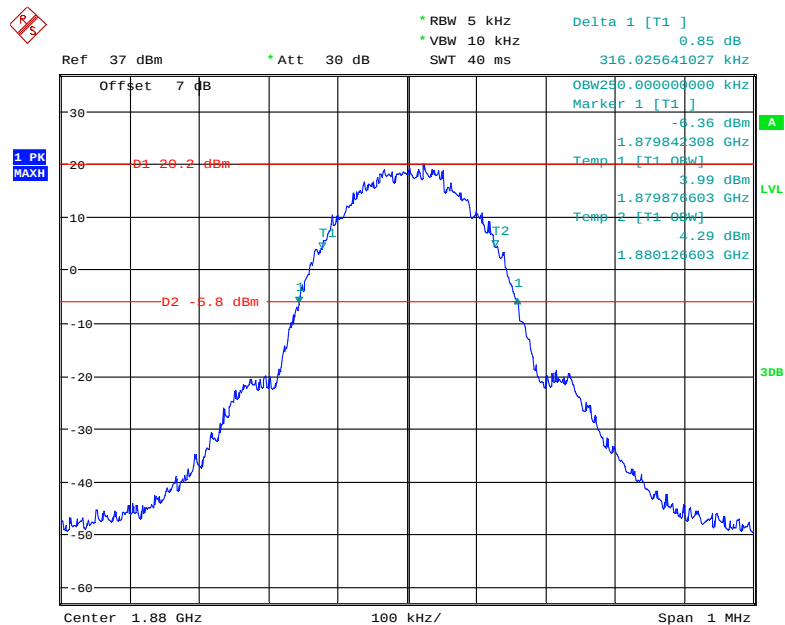
26 dB Emissions & 99% Occupied Bandwidth for GSM (GMSK) Mode, High channel



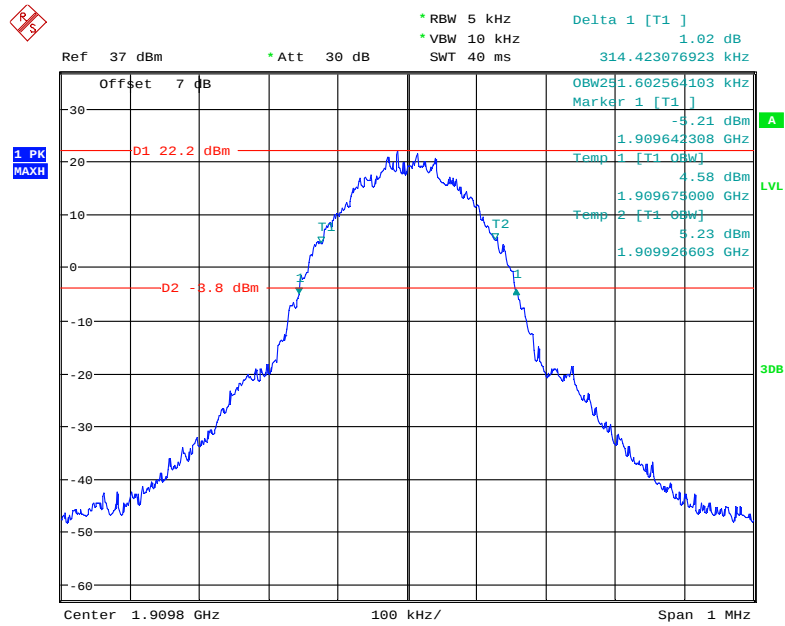
Date: 31.MAY.2021 22:28:55

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

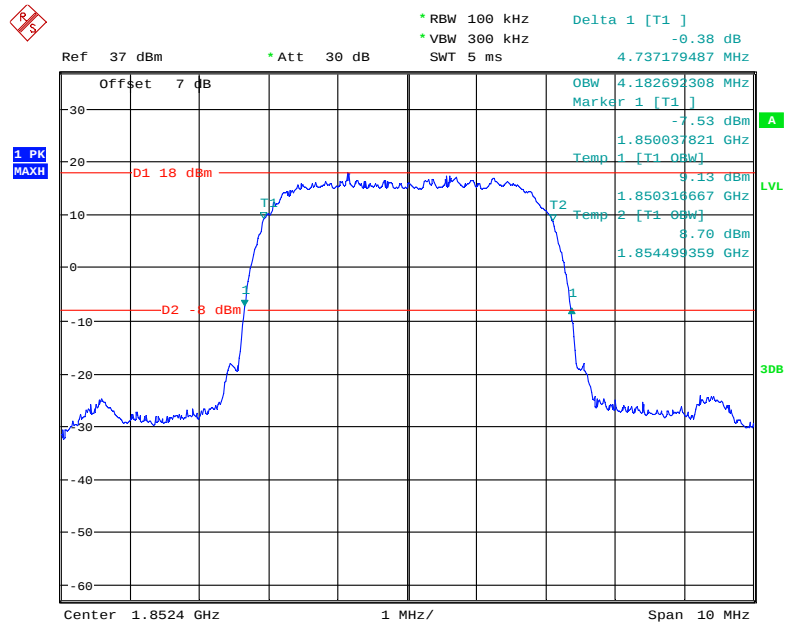
Date: 14.MAY.2021 21:49:59

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

Date: 14.MAY.2021 21:47:51

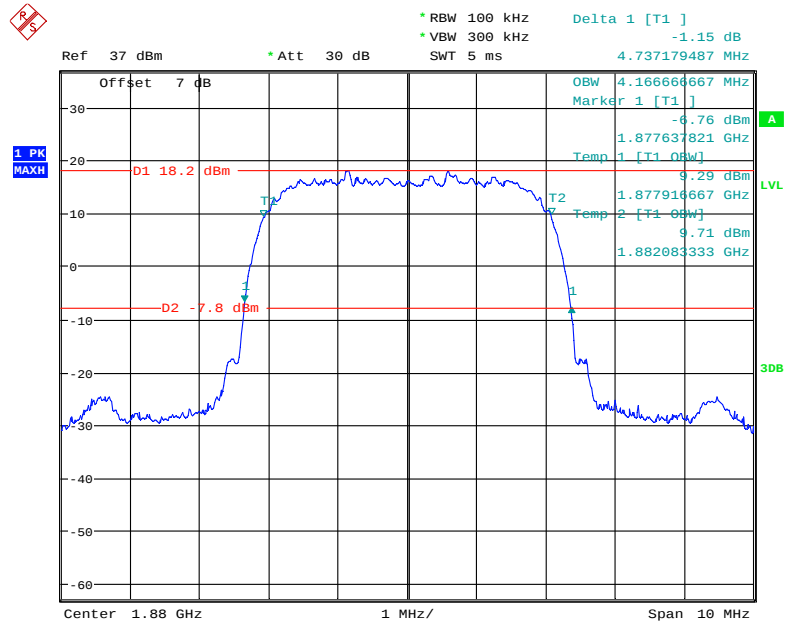
26 dB Emissions & 99% Occupied Bandwidth for EGPRS (8PSK) Mode, High channel

Date: 14.MAY.2021 21:43:53

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

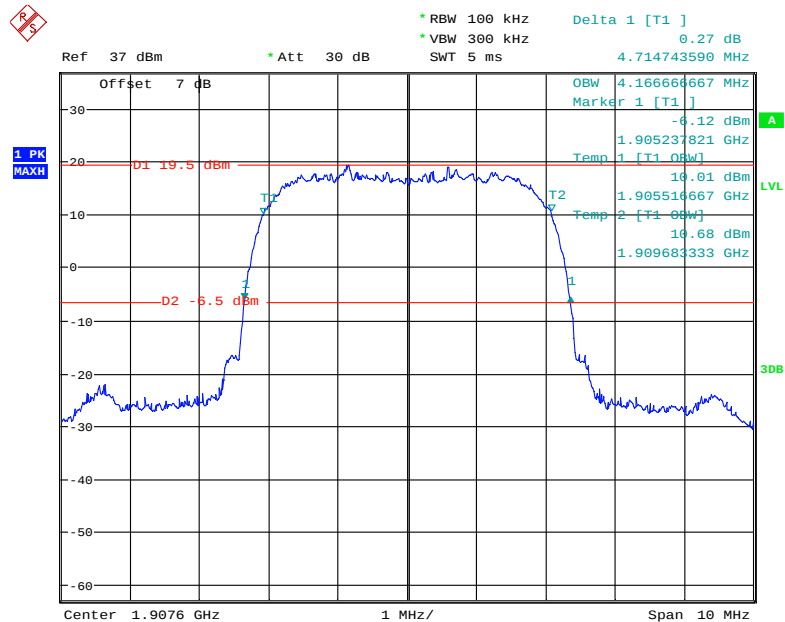
Date: 12.MAY.2021 20:58:51

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



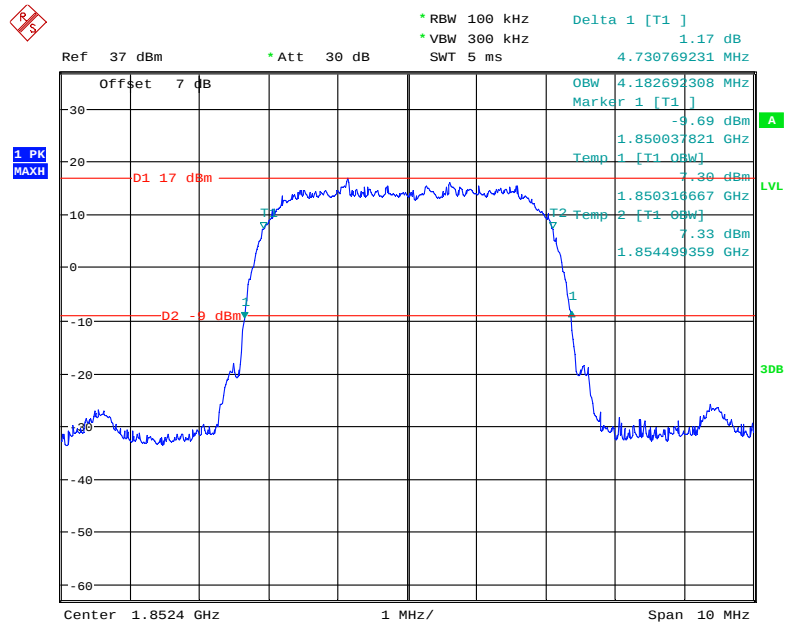
Date: 12.MAY.2021 21:02:07

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



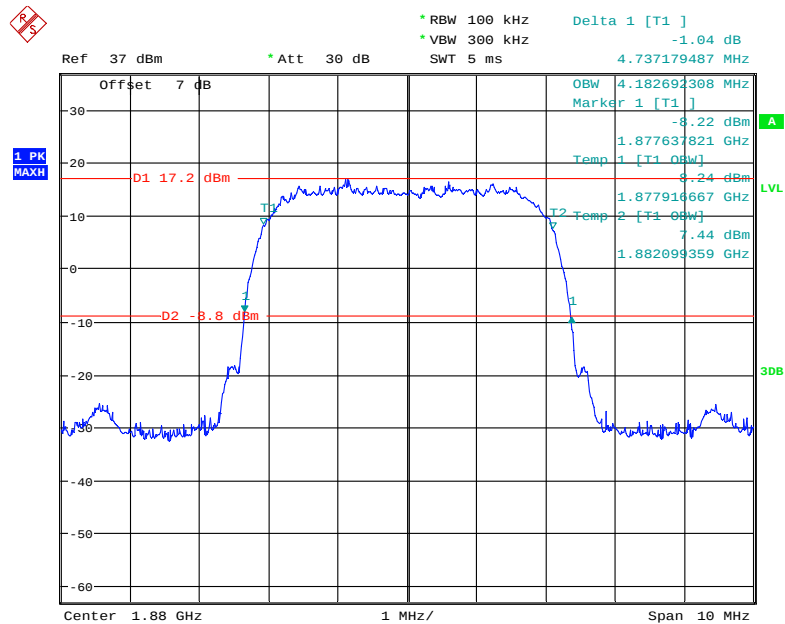
Date: 12.MAY.2021 21:04:24

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

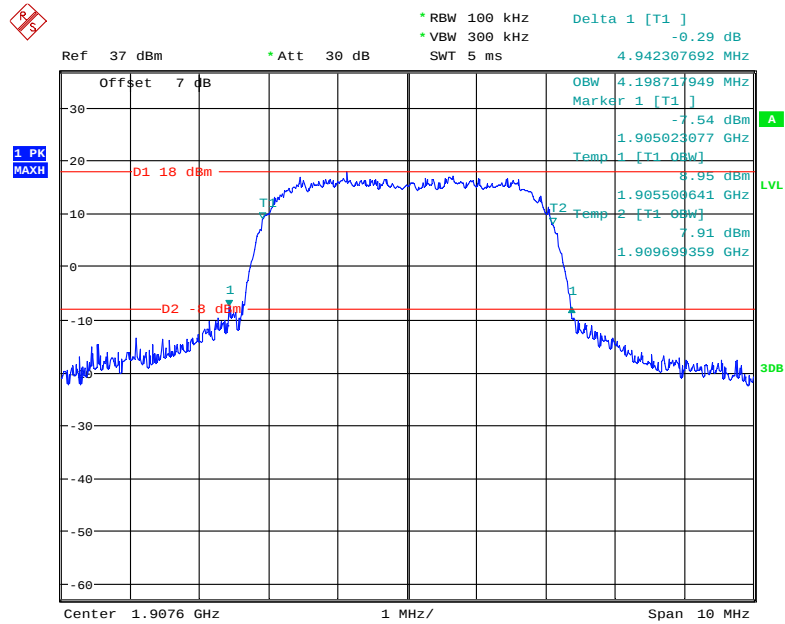


Date: 12.MAY.2021 20:24:14

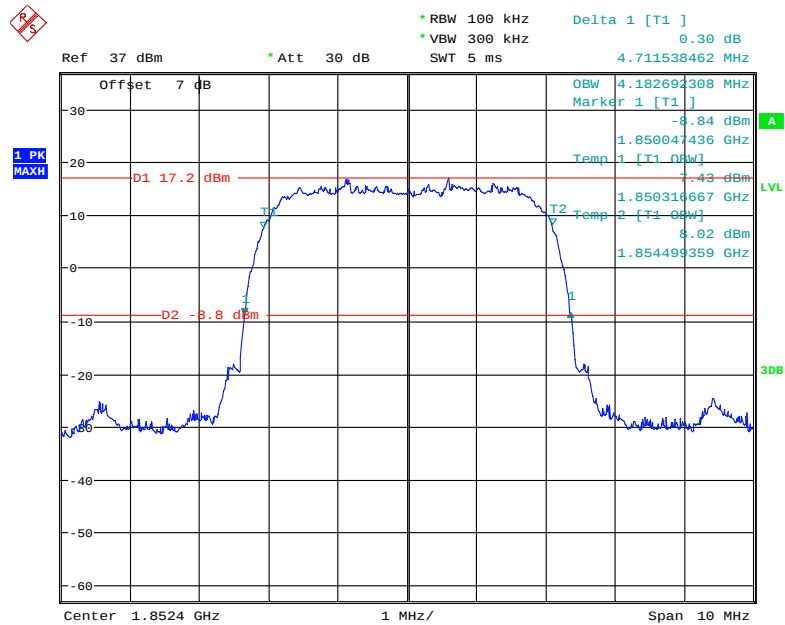
26 dB Emissions & 99% Occupied Bandwidth for HSUPA (BPSK) Mode, Middle channel



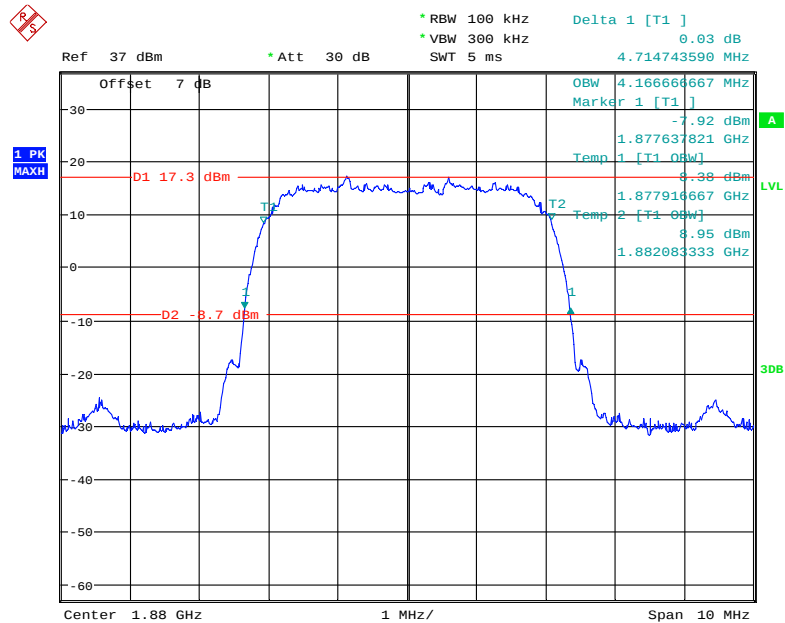
Date: 12.MAY.2021 20:26:17

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

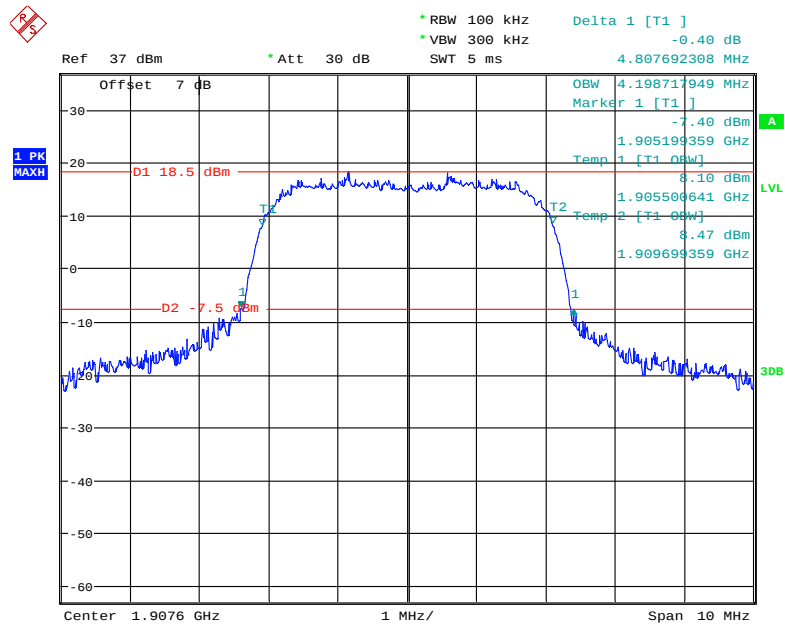
Date: 12.MAY.2021 20:29:00

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

Date: 12.MAY.2021 20:36:53

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

Date: 12.MAY.2021 20:34:15

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

Date: 12.MAY.2021 20:31:29

LTE Band 2:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	Low	1.110	1.308
		Middle	1.098	1.338
		High	1.104	1.314
	16QAM	Low	1.104	1.308
		Middle	1.110	1.326
		High	1.098	1.284
3	QPSK	Low	2.688	2.880
		Middle	2.688	2.892
		High	2.688	2.892
	16QAM	Low	2.688	2.868
		Middle	2.688	2.892
		High	2.688	2.880
5	QPSK	Low	4.500	4.940
		Middle	4.520	4.960
		High	4.500	4.900
	16QAM	Low	4.500	4.920
		Middle	4.520	4.960
		High	4.520	4.960
10	QPSK	Low	9.000	9.760
		Middle	8.960	9.560
		High	8.960	9.600
	16QAM	Low	8.960	9.560
		Middle	8.960	9.600
		High	8.960	9.640
15	QPSK	Low	13.560	14.820
		Middle	13.500	14.700
		High	13.500	14.760
	16QAM	Low	13.500	14.940
		Middle	13.500	14.820
		High	13.500	14.760
20	QPSK	Low	17.920	19.280
		Middle	17.920	19.280
		High	18.000	19.360
	16QAM	Low	18.000	19.200
		Middle	18.000	19.280
		High	18.000	19.360

LTE Band 5:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	Low	1.098	1.296
		Middle	1.098	1.314
		High	1.104	1.290
	16QAM	Low	1.104	1.320
		Middle	1.098	1.290
		High	1.092	1.290
3	QPSK	Low	2.700	2.892
		Middle	2.688	2.880
		High	2.688	2.892
	16QAM	Low	2.688	2.880
		Middle	2.688	2.880
		High	2.688	2.868
5	QPSK	Low	4.520	4.940
		Middle	4.500	4.900
		High	4.500	4.920
	16QAM	Low	4.500	4.920
		Middle	4.500	4.920
		High	4.520	4.980
10	QPSK	Low	8.960	9.600
		Middle	8.960	9.600
		High	8.960	9.480
	16QAM	Low	8.920	9.600
		Middle	9.000	9.560
		High	8.960	9.520

LTE Band 7:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5	QPSK	Low	4.520	4.940
		Middle	4.520	4.940
		High	4.500	4.940
	16QAM	Low	4.500	4.920
		Middle	4.540	4.940
		High	4.520	4.940
10	QPSK	Low	8.960	9.680
		Middle	8.960	9.640
		High	8.960	9.600
	16QAM	Low	8.960	9.520
		Middle	8.960	9.600
		High	8.960	9.640
15	QPSK	Low	13.560	14.760
		Middle	13.500	14.700
		High	13.500	14.820
	16QAM	Low	13.500	14.820
		Middle	13.560	14.760
		High	13.500	14.700
20	QPSK	Low	18.000	19.280
		Middle	18.000	19.280
		High	18.000	19.440
	16QAM	Low	18.000	19.440
		Middle	18.000	19.440
		High	18.000	19.280

LTE Band 38:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5	QPSK	Low	4.500	5.360
		Middle	4.500	4.960
		High	4.520	4.940
	16QAM	Low	4.520	5.060
		Middle	4.500	5.240
		High	4.520	5.200
10	QPSK	Low	9.000	9.640
		Middle	8.960	9.680
		High	8.960	9.680
	16QAM	Low	9.000	9.560
		Middle	8.960	9.560
		High	8.960	9.840
15	QPSK	Low	13.560	15.120
		Middle	13.500	15.480
		High	13.500	15.180
	16QAM	Low	13.560	15.180
		Middle	13.560	16.560
		High	13.620	16.560
20	QPSK	Low	18.000	19.760
		Middle	17.920	19.280
		High	18.000	20.400
	16QAM	Low	18.000	19.600
		Middle	18.000	20.640
		High	18.000	19.200

LTE Band 40 Lower

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5	QPSK	Low	4.500	5.060
		Middle	4.520	5.100
		High	4.540	5.240
	16QAM	Low	4.520	5.260
		Middle	4.520	5.140
		High	4.540	5.180
10	QPSK	Low	/	/
		Middle	9.000	9.960
		High	/	/
	16QAM	Low	/	/
		Middle	8.960	9.680
		High	/	/

LTE Band 40 Upper

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5	QPSK	Low	4.520	5.220
		Middle	4.520	5.240
		High	4.520	5.180
	16QAM	Low	4.520	5.300
		Middle	4.520	5.140
		High	4.520	5.260
10	QPSK	Low	/	/
		Middle	9.000	10.000
		High	/	/
	16QAM	Low	/	/
		Middle	9.000	9.680
		High		

LTE Band 41:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5	QPSK	Low	4.520	4.960
		Middle	4.520	5.060
		High	4.520	5.320
	16QAM	Low	4.500	5.340
		Middle	4.500	4.880
		High	4.500	5.080
10	QPSK	Low	8.960	9.560
		Middle	9.000	9.720
		High	8.960	9.840
	16QAM	Low	8.960	9.480
		Middle	9.000	9.520
		High	8.960	9.960
15	QPSK	Low	13.560	15.780
		Middle	13.440	15.180
		High	13.500	15.720
	16QAM	Low	13.560	16.380
		Middle	13.560	16.140
		High	13.560	16.920
20	QPSK	Low	17.920	19.680
		Middle	17.920	19.840
		High	18.000	20.320
	16QAM	Low	17.920	19.600
		Middle	18.000	20.560
		High	17.920	19.200

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

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

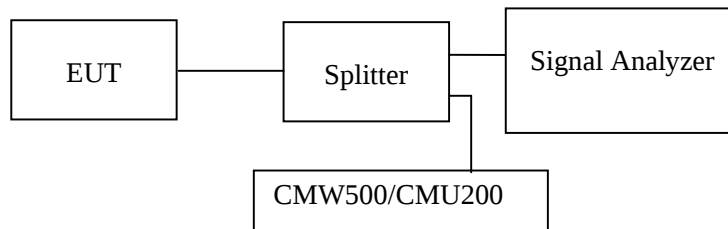
Applicable Standard

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

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

Test Procedure

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



Test Data

Environmental Conditions

Temperature:	25~25.5 °C
Relative Humidity:	56~59 %
ATM Pressure:	101.0 kPa

The testing was performed by Orlo Yang from 2021-05-10 to 2021-05-29.

EUT operation mode: Transmitting

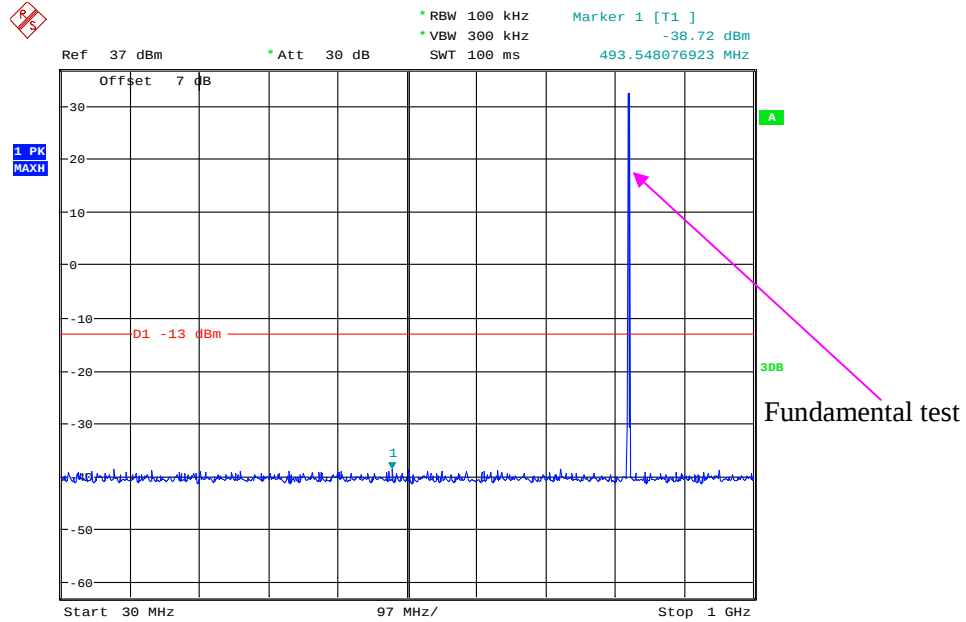
Test result: Pass

Please refer to the following plots.

Cellular Band (Part 22H)

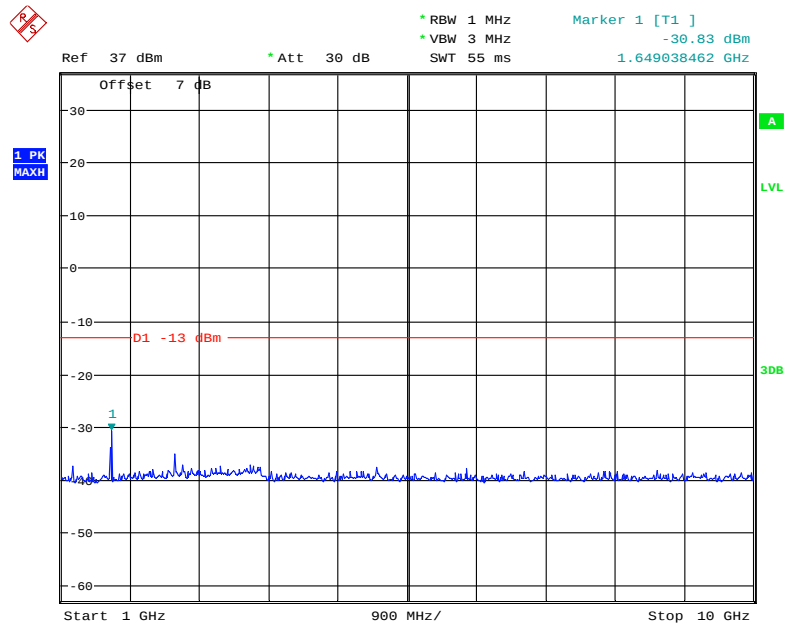
Low Channel:

30 MHz – 1 GHz (GSM Mode)



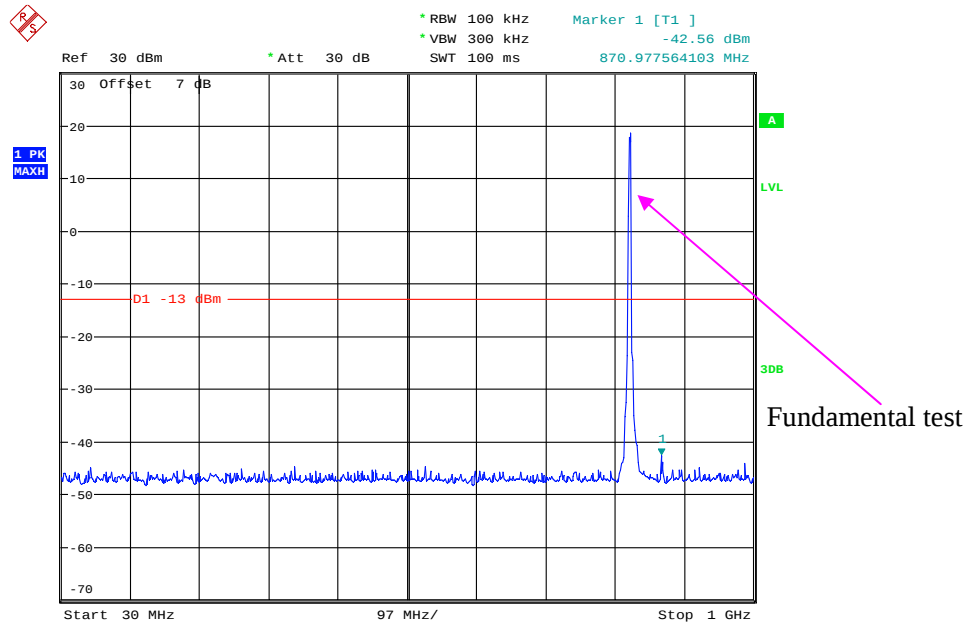
Date: 11.MAY.2021 00:23:21

1 GHz – 10 GHz (GSM Mode)



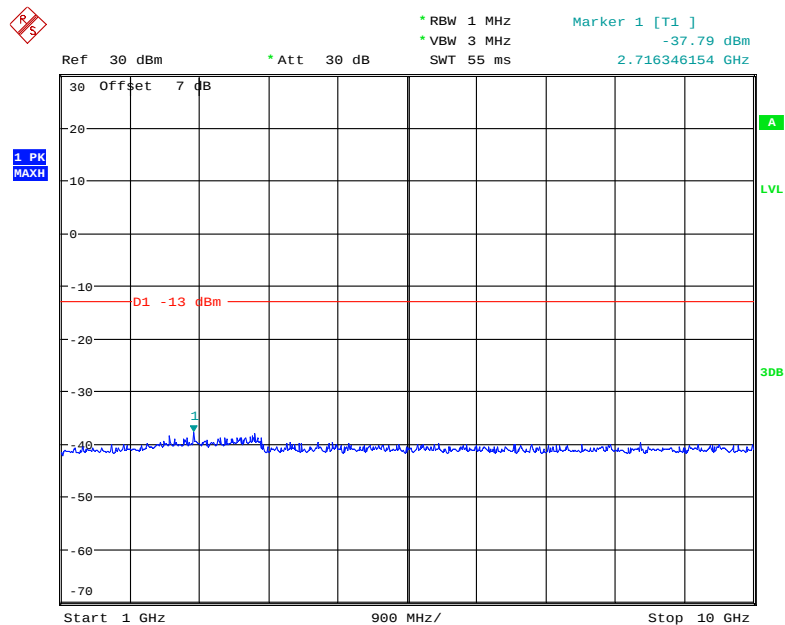
Date: 11.MAY.2021 00:29:42

30 MHz – 1 GHz (WCDMA Mode)



Date: 12.MAY.2021 00:45:34

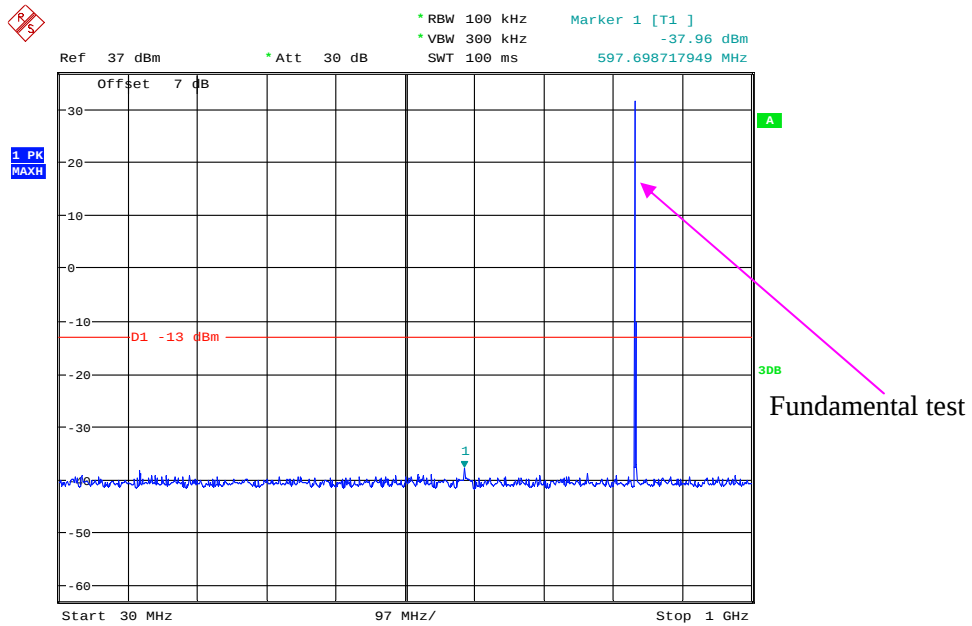
1 GHz – 10 GHz (WCDMA Mode)



Date: 12.MAY.2021 01:01:23

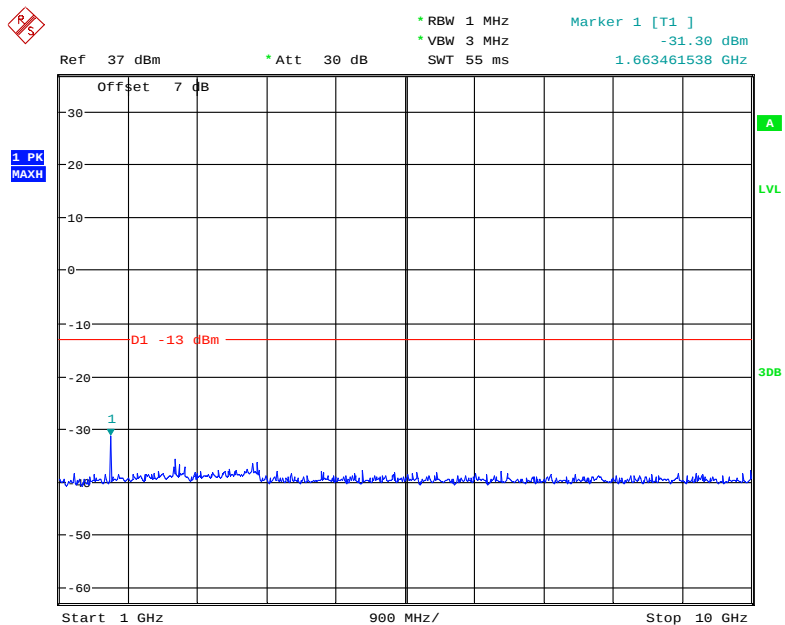
Middle Channel:

30 MHz – 1 GHz (GSM Mode)



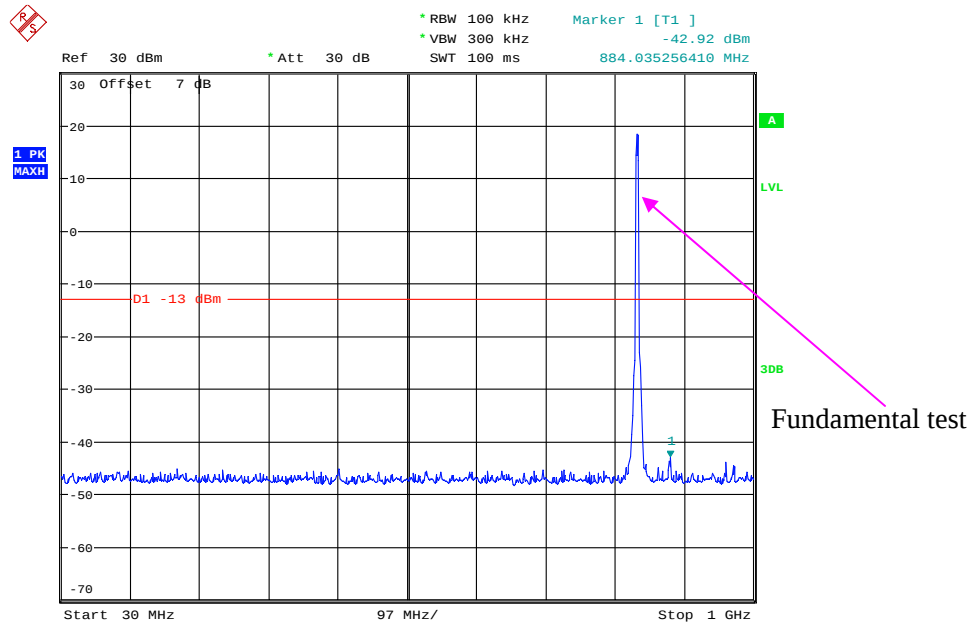
Date: 11.MAY.2021 00:25:32

1 GHz – 10 GHz (GSM Mode)



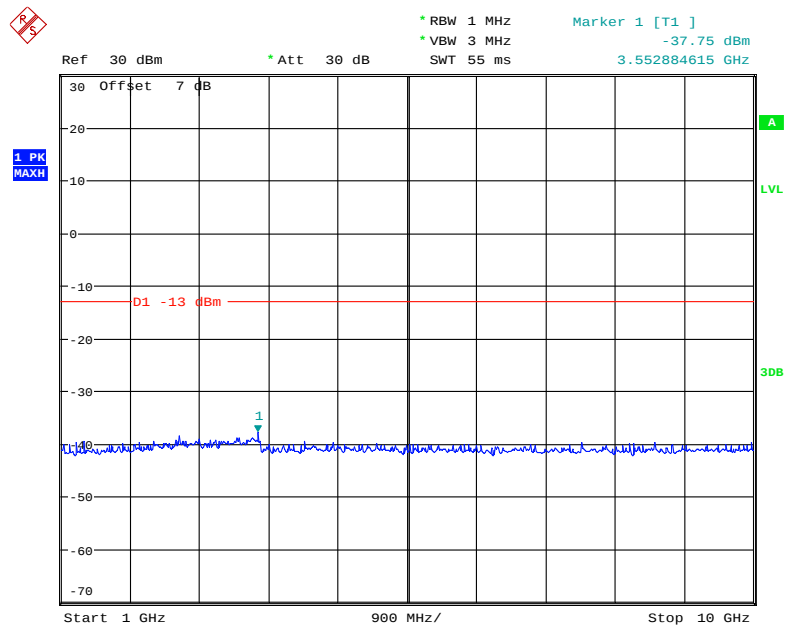
Date: 11.MAY.2021 00:29:01

30 MHz – 1 GHz (WCDMA Mode)



Date: 12.MAY.2021 00:46:31

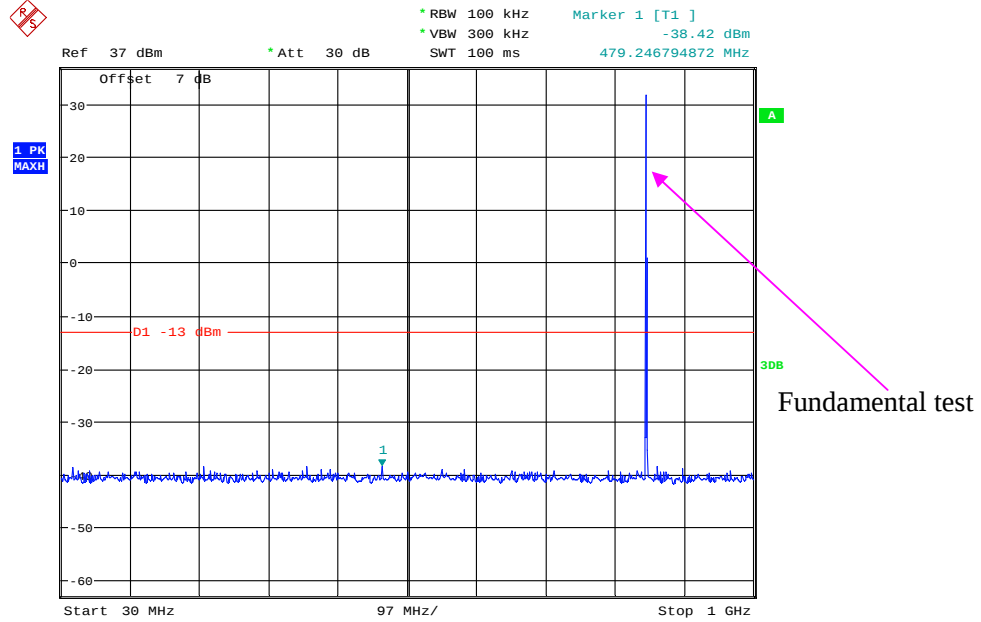
1 GHz – 10 GHz (WCDMA Mode)



Date: 12.MAY.2021 00:59:51

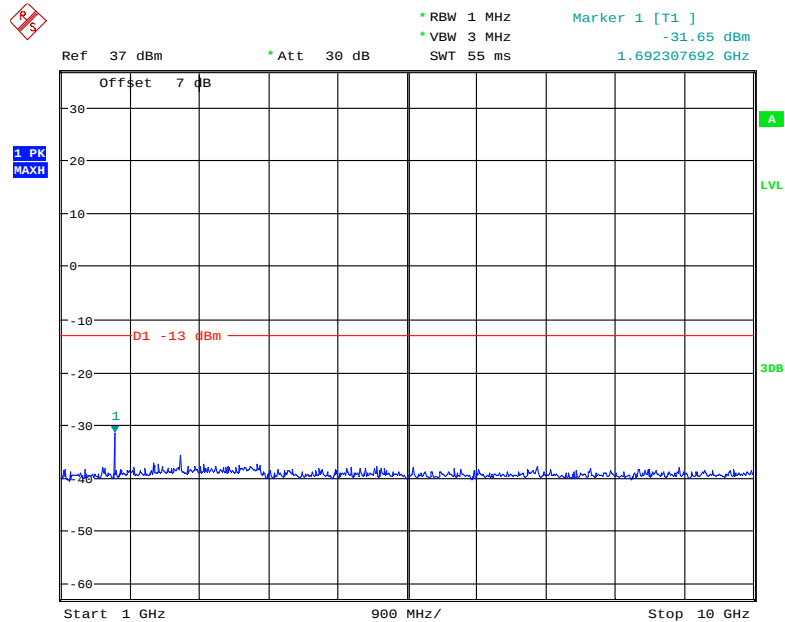
High Channel:

30 MHz – 1 GHz (GSM Mode)



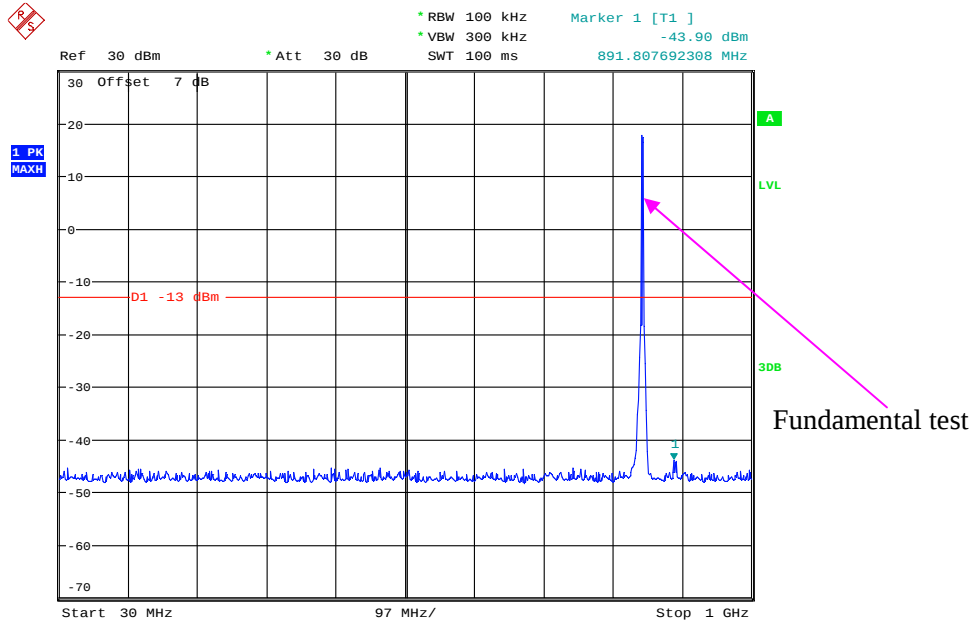
Date: 11.MAY.2021 00:26:25

1 GHz – 10 GHz (GSM Mode)



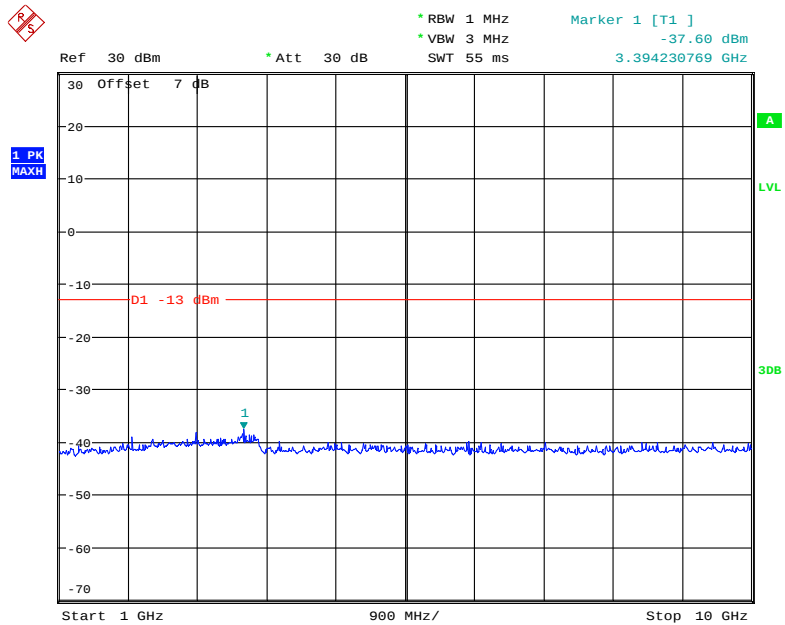
Date: 11.MAY.2021 00:28:15

30 MHz – 1 GHz (WCDMA Mode)

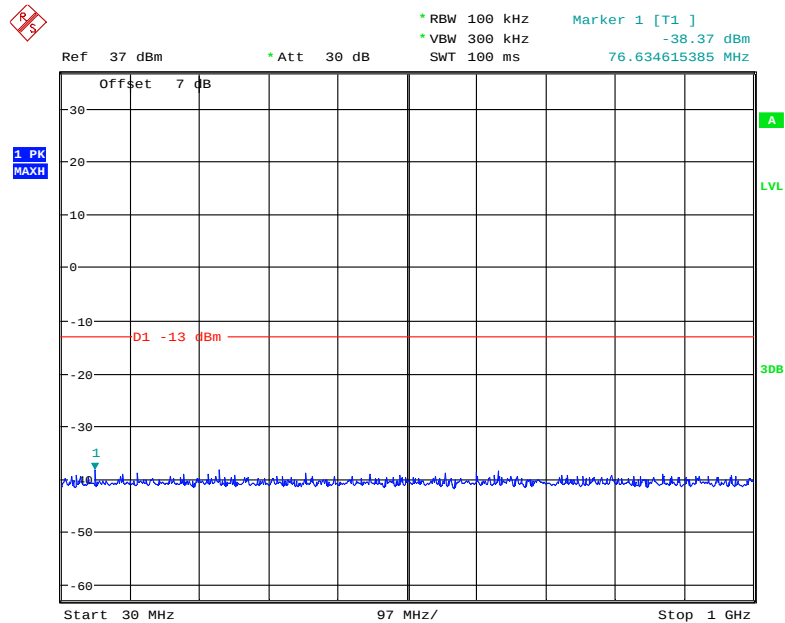


Date: 12.MAY.2021 00:47:10

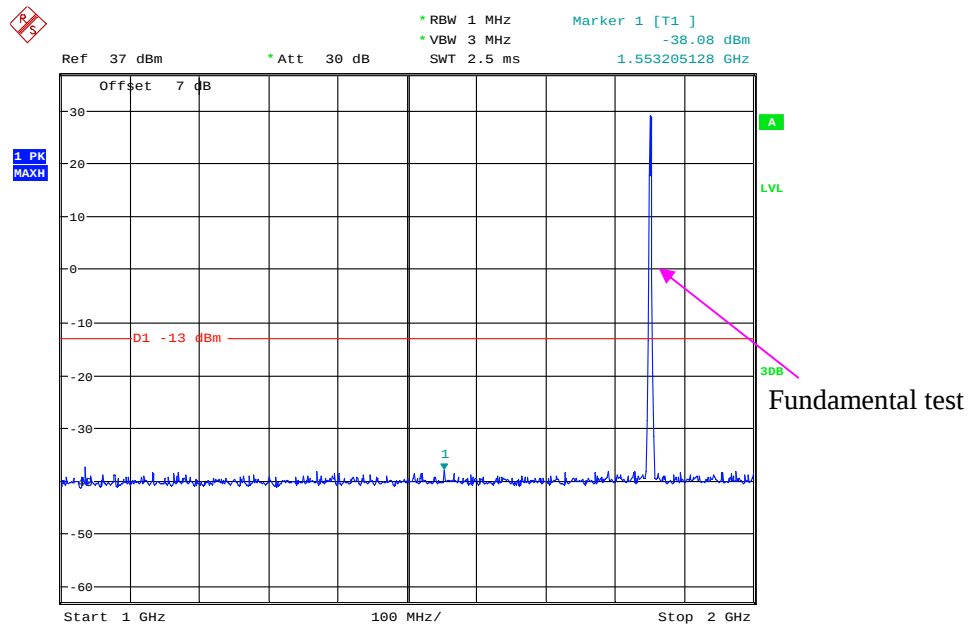
1 GHz – 10 GHz (WCDMA Mode)



Date: 12.MAY.2021 00:58:33

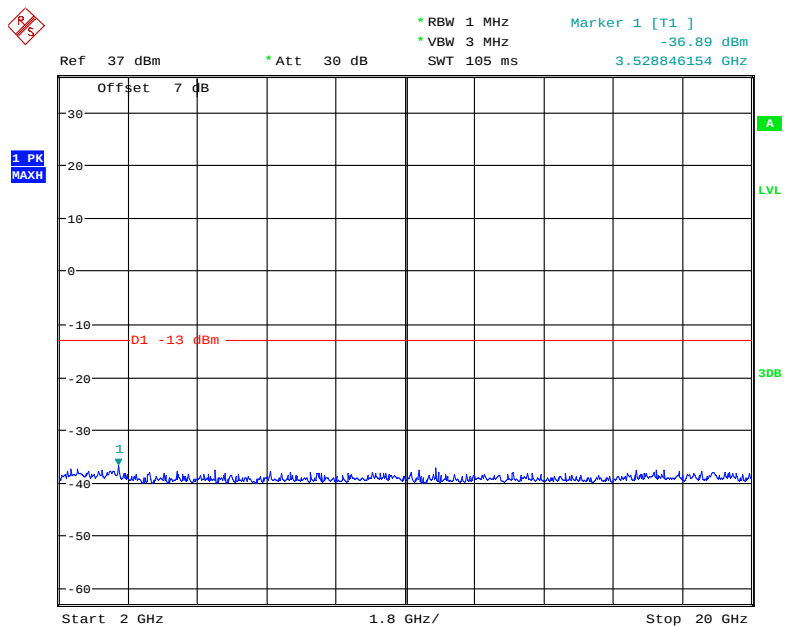
PCS Band (Part 24E) Low Channel:**30 MHz – 1 GHz (GSM Mode)**

Date: 11.MAY.2021 01:04:48

1 GHz – 2 GHz (GSM Mode)

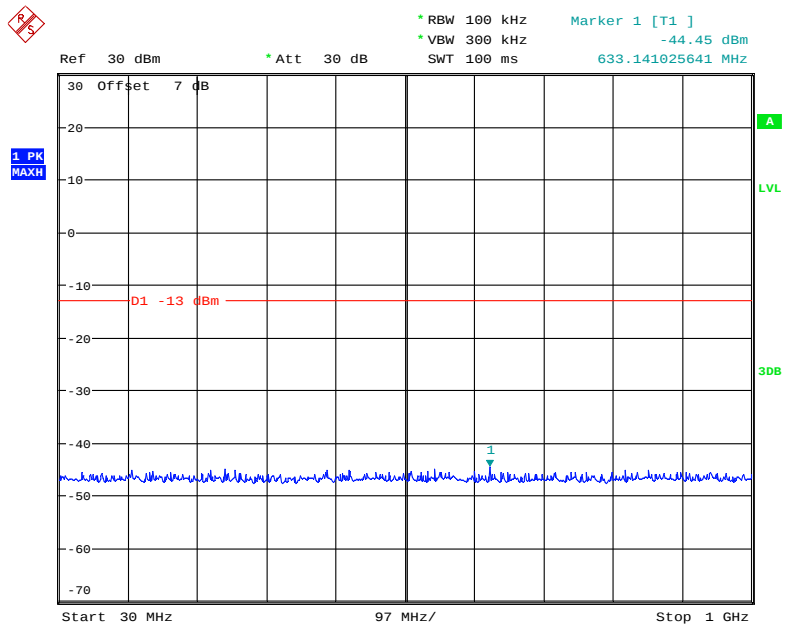
Date: 11.MAY.2021 01:05:45

2 GHz – 20 GHz (GSM Mode)



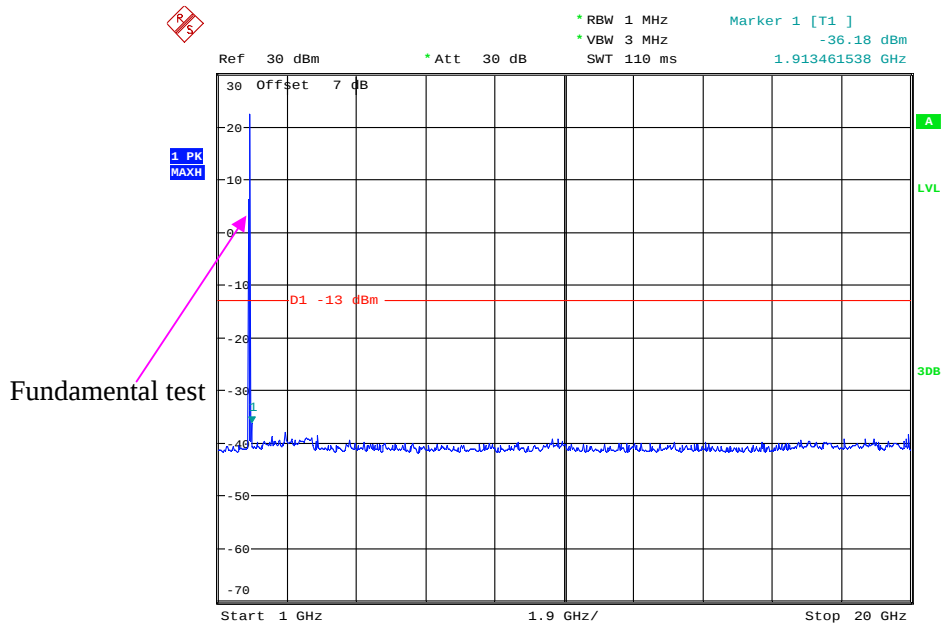
Date: 11.MAY.2021 01:10:20

30 MHz – 1 GHz (WCDMA Mode)



Date: 12.MAY.2021 00:51:14

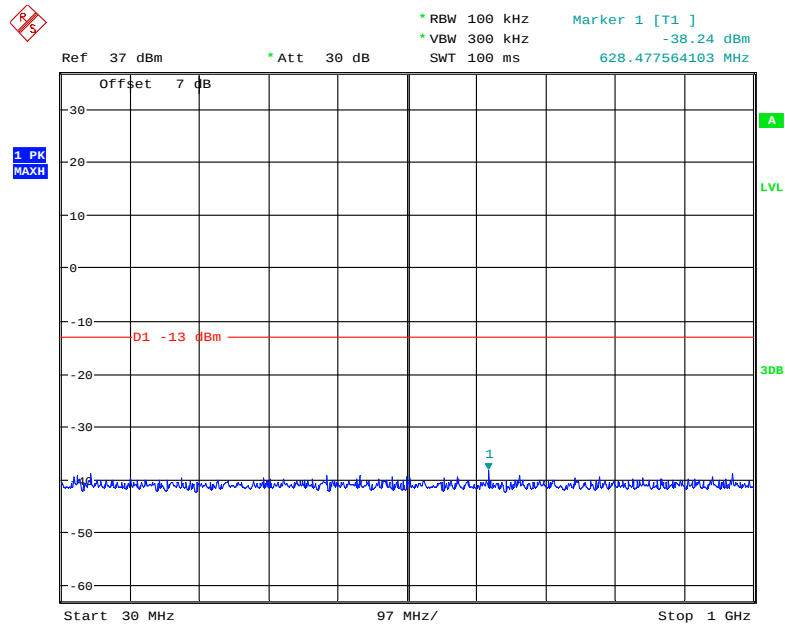
1 GHz – 20 GHz (WCDMA Mode)



Date: 12.MAY.2021 00:54:40

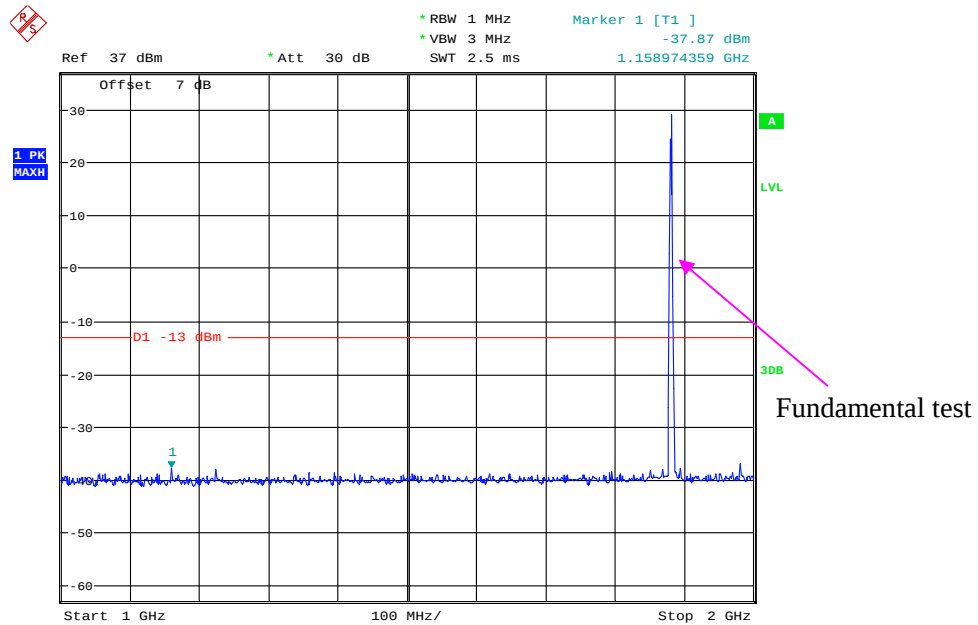
Middle Channel:

30 MHz – 1 GHz (GSM Mode)



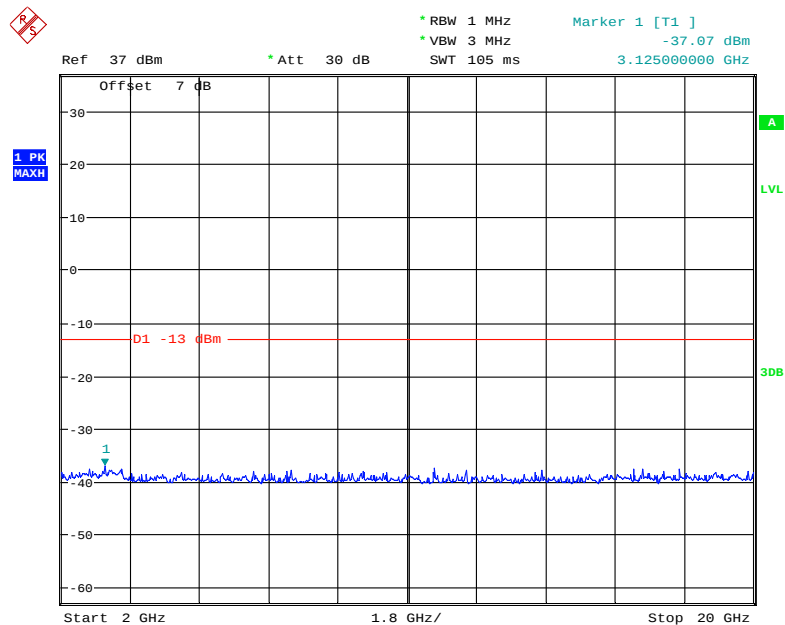
Date: 11.MAY.2021 01:03:55

1 GHz – 2 GHz (GSM Mode)



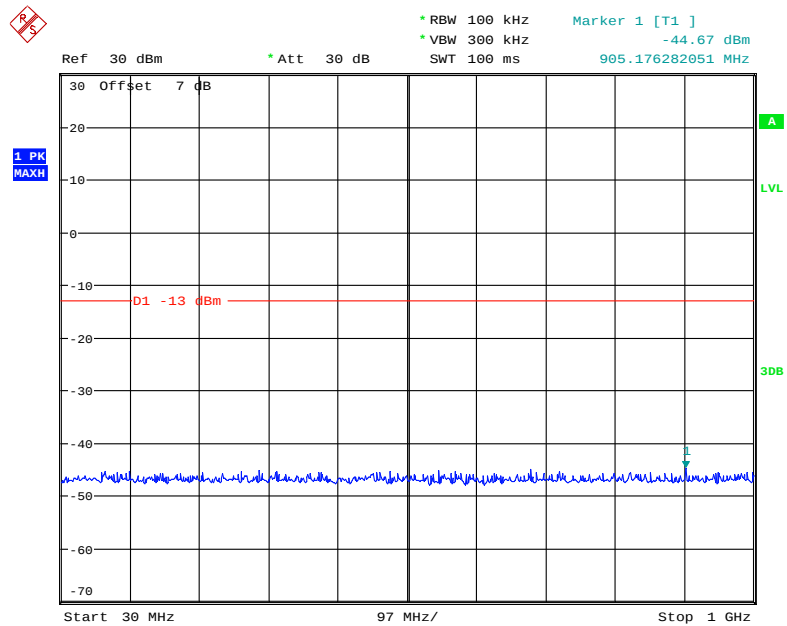
Date: 11.MAY.2021 01:06:41

2 GHz – 20 GHz (GSM Mode)



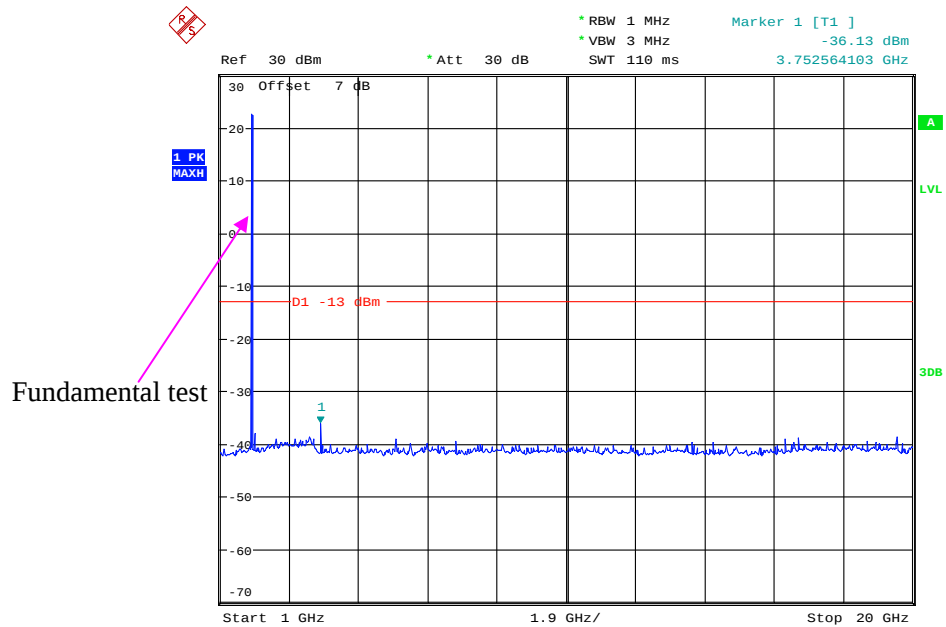
Date: 11.MAY.2021 01:10:59

30 MHz – 1 GHz (WCDMA Mode)



Date: 12.MAY.2021 00:50:01

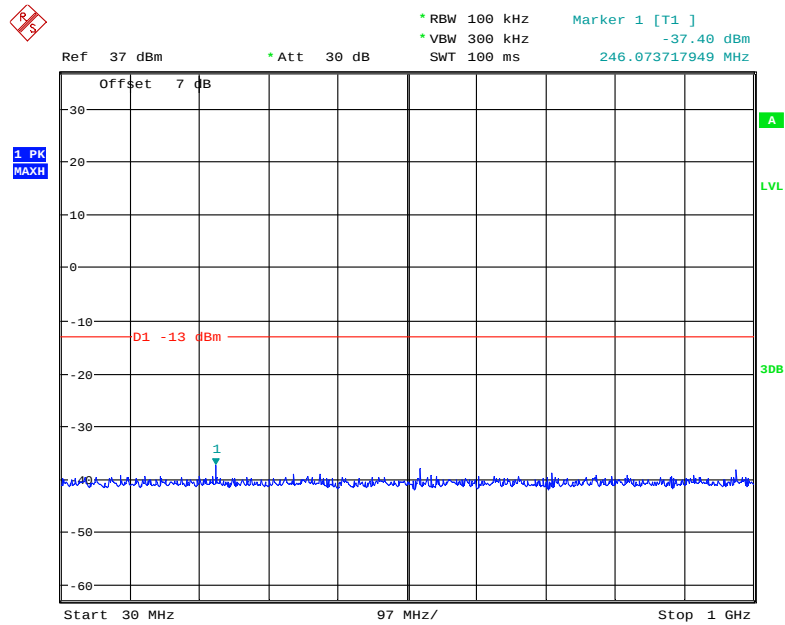
1 GHz – 20 GHz (WCDMA Mode)



Date: 12.MAY.2021 00:55:30

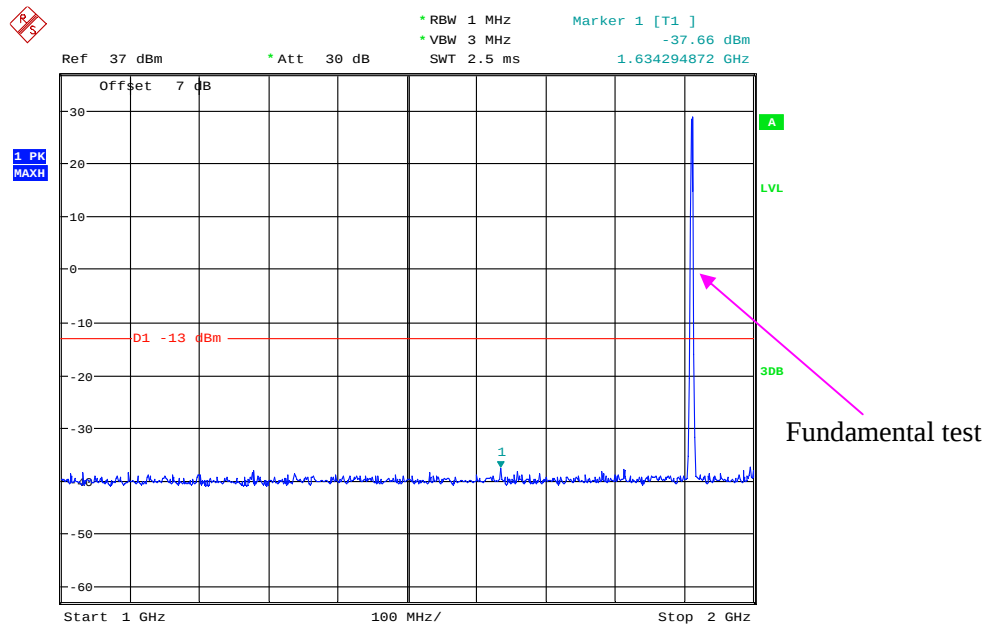
High Channel:

30 MHz – 1 GHz (GSM Mode)



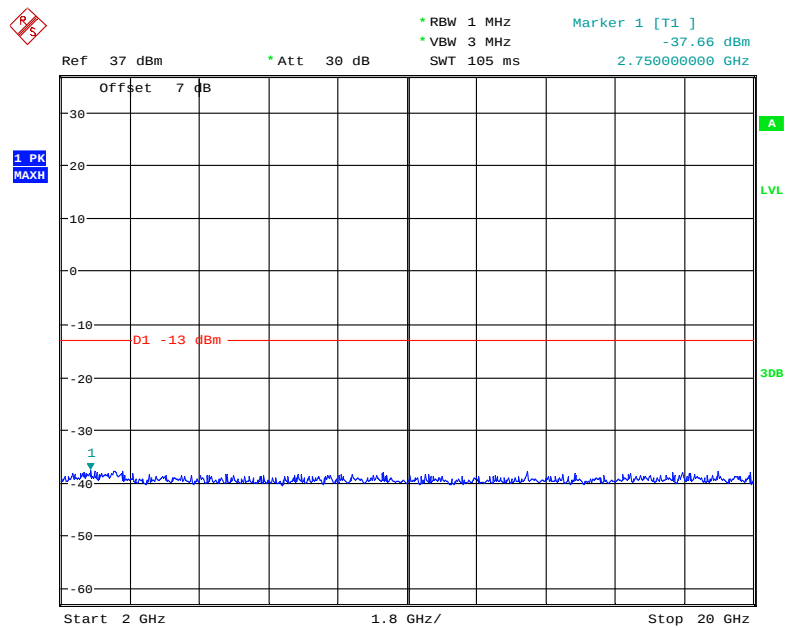
Date: 11.MAY.2021 00:59:29

1 GHz – 2 GHz (GSM Mode)



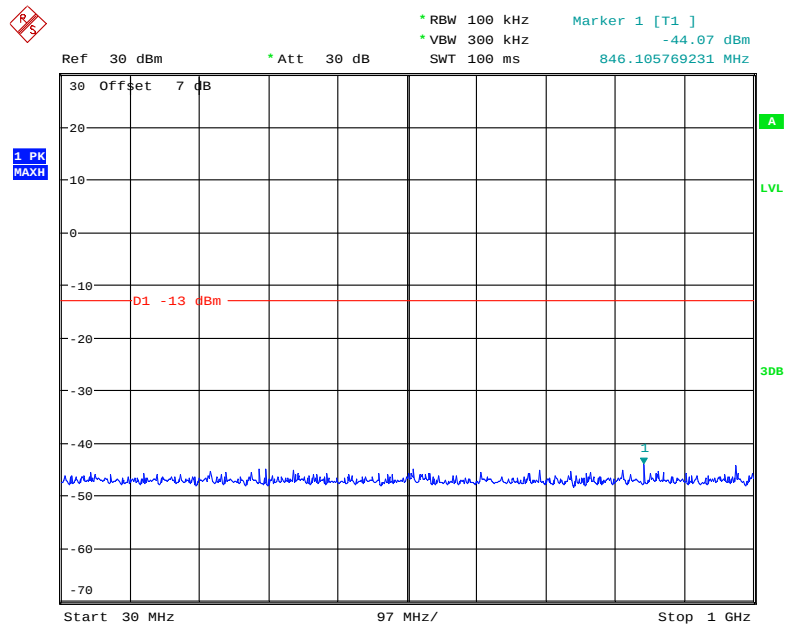
Date: 11.MAY.2021 01:08:05

2 GHz – 20 GHz (GSM Mode)



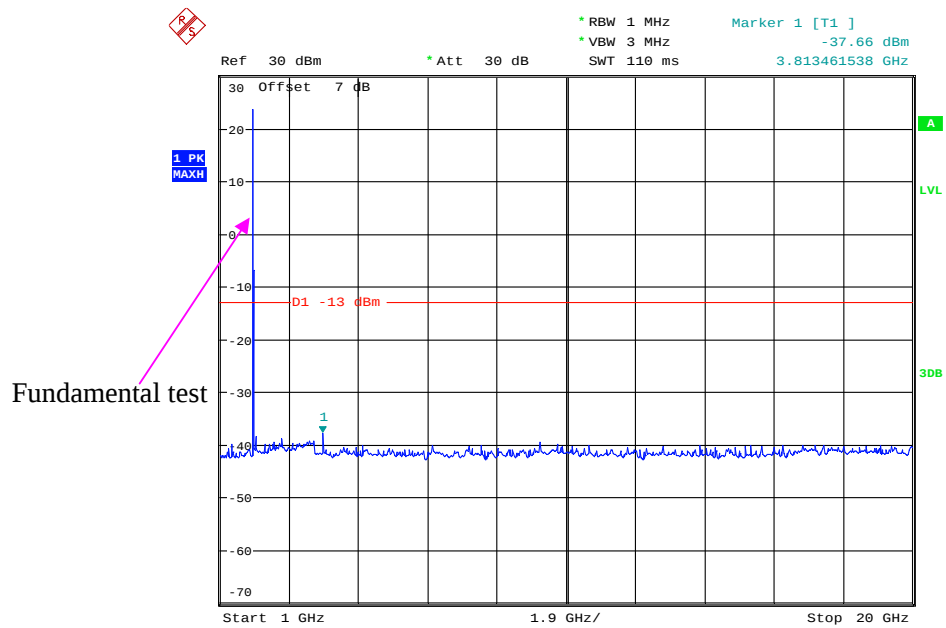
Date: 11.MAY.2021 01:11:32

30 MHz – 1 GHz (WCDMA Mode)



Date: 12.MAY.2021 00:49:03

1 GHz – 20 GHz (WCDMA Mode)



Date: 12.MAY.2021 00:56:17

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:	25.3~28 °C
Relative Humidity:	46~58 %
ATM Pressure:	101.0~101.2 kPa

The testing was performed by Zero Yan on 2021-05-25 for below 1GHz, Hanic Pan on 2021-05-28 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										
960.3	30.43	343	2.1	H	-66.1	1.36	0.0	-67.46	-13	54.46
960.3	31.63	177	1.2	V	-62.4	1.36	0.0	-63.76	-13	50.76
1648.40	44.04	151	1.8	H	-64.0	1.40	8.70	-56.70	-13	43.70
1648.40	44.82	40	1.5	V	-63.0	1.40	8.70	-55.70	-13	42.70
2472.60	49.77	241	1.1	H	-53.6	2.60	10.20	-46.00	-13	33.00
2472.60	53.53	126	1.1	V	-49.2	2.60	10.20	-41.60	-13	28.60
Middle channel										
953.6	30.47	157	1.9	H	-66.0	1.36	0.0	-67.36	-13	54.36
953.6	31.61	97	2.3	V	-62.4	1.36	0.0	-63.76	-13	50.76
1673.20	50.16	312	1.6	H	-56.2	1.30	8.90	-48.60	-13	35.60
1673.20	47.01	309	2.0	V	-58.7	1.30	8.90	-51.10	-13	38.10
2509.80	49.58	299	1.6	H	-53.8	2.60	10.20	-46.20	-13	33.20
2509.80	51.7	350	1.1	V	-51.0	2.60	10.20	-43.40	-13	30.40
High channel										
955.3	30.32	150	2.4	H	-66.2	1.36	0.0	-67.56	-13	54.56
955.3	31.54	120	2.0	V	-62.5	1.36	0.0	-63.86	-13	50.86
1697.60	47.52	190	1.5	H	-58.8	1.30	8.90	-51.20	-13	38.20
1697.60	44.88	352	1.9	V	-60.9	1.30	8.90	-53.30	-13	40.30
2546.40	48.18	313	2.4	H	-55.2	2.60	10.20	-47.60	-13	34.60
2546.40	49.42	166	2.1	V	-53.3	2.60	10.20	-45.70	-13	32.70

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										
952.8	30.39	326	1.9	H	-66.1	1.36	0.0	-67.46	-13	54.46
952.8	31.51	191	1.4	V	-62.5	1.36	0.0	-63.86	-13	50.86
1652.80	44.17	309	2.1	H	-62.2	1.30	8.90	-54.60	-13	41.60
1652.80	46.22	237	1.2	V	-59.5	1.30	8.90	-51.90	-13	38.90
2479.20	45.01	105	2.1	H	-58.3	2.60	10.20	-50.70	-13	37.70
2479.20	44.26	138	1.4	V	-58.5	2.60	10.20	-50.90	-13	37.90
Middle channel										
951.9	30.48	286	1.5	H	-66.0	1.36	0.0	-67.36	-13	54.36
951.9	31.47	256	1.3	V	-62.6	1.36	0.0	-63.96	-13	50.96
1673.20	52.94	0	1.6	H	-53.4	1.30	8.90	-45.80	-13	32.80
1673.20	50.04	4	1.1	V	-55.7	1.30	8.90	-48.10	-13	35.10
2509.80	44.36	329	2.3	H	-59.0	2.60	10.20	-51.40	-13	38.40
2509.80	43.27	287	2.0	V	-59.5	2.60	10.20	-51.90	-13	38.90
High channel										
956.3	30.33	24	1.8	H	-66.2	1.36	0.0	-67.56	-13	54.56
956.3	31.54	123	2.2	V	-62.5	1.36	0.0	-63.86	-13	50.86
1693.20	43.50	176	1.5	H	-62.8	1.30	8.90	-55.20	-13	42.20
1693.20	44.01	330	1.0	V	-61.7	1.30	8.90	-54.10	-13	41.10
2539.80	43.63	137	1.2	H	-59.7	2.60	10.20	-52.10	-13	39.10
2539.80	43.16	253	2.1	V	-59.6	2.60	10.20	-52.00	-13	39.00

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										
952.9	30.41	159	1.4	H	-66.1	1.36	0.0	-67.46	-13	54.46
952.9	31.51	308	2.3	V	-62.5	1.36	0.0	-63.86	-13	50.86
3700.40	43.26	179	1.3	H	-58.8	1.60	11.90	-48.50	-13	35.50
3700.40	44.52	347	1.9	V	-57.0	1.60	11.90	-46.70	-13	33.70
5550.60	45.97	338	1.9	H	-49.8	1.70	12.40	-39.10	-13	26.10
5550.60	47.15	358	2.3	V	-48.2	1.70	12.40	-37.50	-13	24.50
Middle channel										
954.2	30.37	14	2.3	H	-66.1	1.36	0.0	-67.46	-13	54.46
954.2	31.59	271	2.3	V	-62.5	1.36	0.0	-63.86	-13	50.86
3760.00	43.89	43	1.7	H	-58.5	1.50	11.80	-48.20	-13	35.20
3760.00	44.16	238	2.1	V	-57.8	1.50	11.80	-47.50	-13	34.50
5640.00	46.11	334	1.3	H	-49.6	1.70	12.40	-38.90	-13	25.90
5640.00	47.71	236	1.9	V	-47.7	1.70	12.40	-37.00	-13	24.00
High channel										
956.5	30.44	40	1.2	H	-66.1	1.36	0.0	-67.46	-13	54.46
956.5	31.53	20	2.2	V	-62.5	1.36	0.0	-63.86	-13	50.86
3819.60	44.34	61	1.3	H	-58.1	1.50	11.80	-47.80	-13	34.80
3819.60	46.62	21	1.9	V	-55.3	1.50	11.80	-45.00	-13	32.00
5729.40	45.7	224	1.1	H	-50.4	1.60	12.10	-39.90	-13	26.90
5729.40	47.89	188	1.5	V	-47.6	1.60	12.10	-37.10	-13	24.10

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 24E	
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)		Limit (dBm)	Margin (dB)
WCDMA Mode										
Low channel										
956.1	30.42	214	1.1	H	-66.1	1.36	0.0	-67.46	-13	54.46
956.1	31.55	340	2.2	V	-62.5	1.36	0.0	-63.86	-13	50.86
3704.80	44.05	104	1.7	H	-58.0	1.60	11.90	-47.70	-13	34.70
3704.80	43.11	284	1.2	V	-58.4	1.60	11.90	-48.10	-13	35.10
Middle channel										
954.9	30.46	210	1.5	H	-66.0	1.36	0.0	-67.36	-13	54.36
954.9	31.59	8	2.2	V	-62.5	1.36	0.0	-63.86	-13	50.86
3760.00	45.37	258	1.0	H	-57.0	1.50	11.80	-46.70	-13	33.70
3760.00	44.11	144	2.0	V	-57.8	1.50	11.80	-47.50	-13	34.50
High channel										
951.2	30.34	285	1.1	H	-66.2	1.36	0.0	-67.56	-13	54.56
951.2	31.57	296	2.0	V	-62.5	1.36	0.0	-63.86	-13	50.86
3815.20	45.77	144	1.5	H	-56.6	1.50	11.80	-46.30	-13	33.30
3815.20	43.60	21	1.6	V	-58.3	1.50	11.80	-48.00	-13	35.00

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

Frequency	Receiver	Turntable	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
(MHz)	Reading (dBμV)	Angle Degree	Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
Band 2										
Test frequency range: 30 MHz ~ 20 GHz										
1.4 MHz, Low channel										
951.6	30.32	359	1.9	H	-66.2	1.36	0.0	-67.56	-13	54.56
951.6	31.64	315	1.7	V	-62.4	1.36	0.0	-63.76	-13	50.76
3701.40	44.89	160	1.1	H	-57.2	1.60	11.90	-46.90	-13	33.90
3701.40	44.35	145	1.8	V	-57.2	1.60	11.90	-46.90	-13	33.90
1.4 MHz, Middle channel										
957.3	30.37	263	2.0	H	-66.1	1.36	0.0	-67.46	-13	54.46
957.3	31.62	297	1.2	V	-62.4	1.36	0.0	-63.76	-13	50.76
3760.00	45.45	123	2.1	H	-56.9	1.50	11.80	-46.60	-13	33.60
3760.00	44.41	119	1.3	V	-57.5	1.50	11.80	-47.20	-13	34.20
1.4 MHz, High channel										
959.4	30.35	211	1.4	H	-66.2	1.36	0.0	-67.56	-13	54.56
959.4	31.57	153	2.5	V	-62.5	1.36	0.0	-63.86	-13	50.86
3818.60	46.1	58	1.6	H	-56.3	1.50	11.80	-46.00	-13	33.00
3818.60	44.73	100	1.5	V	-57.2	1.50	11.80	-46.90	-13	33.90
Band 5										
Test frequency range:30 MHz ~ 10 GHz										
1.4 MHz, Low channel										
953.2	30.41	140	1.6	H	-66.1	1.36	0.0	-67.46	-13	54.46
953.2	31.59	109	1.9	V	-62.5	1.36	0.0	-63.86	-13	50.86
1649.40	44.82	235	1.8	H	-63.3	1.40	8.70	-56.00	-13	43.00
1649.40	49.17	246	1.5	V	-58.7	1.40	8.70	-51.40	-13	38.40
2474.10	44.29	203	2.0	H	-59.1	2.60	10.20	-51.50	-13	38.50
2474.10	43.21	66	1.4	V	-59.5	2.60	10.20	-51.90	-13	38.90
1.4 MHz, Middle channel										
958.6	30.43	245	1.5	H	-66.1	1.36	0.0	-67.46	-13	54.46
958.6	31.61	93	2.5	V	-62.4	1.36	0.0	-63.76	-13	50.76
1673.00	53.39	52	2.0	H	-52.9	1.30	8.90	-45.30	-13	32.30
1673.00	51.39	49	1.6	V	-54.3	1.30	8.90	-46.70	-13	33.70
2509.50	43.26	190	2.1	H	-60.1	2.60	10.20	-52.50	-13	39.50
2509.50	43.74	265	1.7	V	-59.0	2.60	10.20	-51.40	-13	38.40
1.4 MHz, High channel										
959.3	30.38	94	2.2	H	-66.1	1.36	0.0	-67.46	-13	54.46
959.3	31.55	31	1.9	V	-62.5	1.36	0.0	-63.86	-13	50.86
1696.60	46.01	235	2.0	H	-60.3	1.30	8.90	-52.70	-13	39.70
1696.60	43.43	176	2.0	V	-62.3	1.30	8.90	-54.70	-13	41.70
2544.90	44.01	167	2.2	H	-59.3	2.60	10.20	-51.70	-13	38.70
2544.90	43.62	80	1.3	V	-59.1	2.60	10.20	-51.50	-13	38.50

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 7										
Test frequency range: 30 MHz ~26.5GHz										
5 MHz, Low channel										
956.8	30.49	78	1.1	H	-66.0	1.36	0.0	-67.36	-25	42.36
956.8	31.64	131	1.2	V	-62.4	1.36	0.0	-63.76	-25	38.76
5005.00	43.78	268	1.2	H	-56.8	1.70	12.00	-46.50	-25	21.50
5005.00	43.69	70	2.2	V	-56.3	1.70	12.00	-46.00	-25	21.00
7507.50	51.91	243	2.3	H	-44.0	1.90	10.70	-35.20	-25	10.20
7507.50	54.22	5	1.6	V	-41.3	1.90	10.70	-32.50	-25	7.50
10010.0	44.07	181	1.9	H	-52.4	2.40	10.80	-44.00	-25	19.00
10010.0	44.39	168	1.2	V	-52.3	2.40	10.80	-43.90	-25	18.90
5 MHz, Middle channel										
954.7	30.43	344	1.2	H	-66.1	1.36	0.0	-67.46	-25	42.46
954.7	31.61	265	2.0	V	-62.4	1.36	0.0	-63.76	-25	38.76
5070.00	44.68	172	1.6	H	-55.3	1.60	12.10	-44.80	-25	19.80
5070.00	47.03	197	1.5	V	-53.0	1.60	12.10	-42.50	-25	17.50
7605.00	43.01	107	2.2	H	-54.5	2.10	10.50	-46.10	-25	21.10
7605.00	43.22	178	1.1	V	-54.1	2.10	10.50	-45.70	-25	20.70
5 MHz, High channel										
960.2	30.38	240	1.2	H	-66.1	1.36	0.0	-67.46	-25	42.46
960.2	31.58	354	1.6	V	-62.5	1.36	0.0	-63.86	-25	38.86
5135.00	44.52	195	1.3	H	-55.5	1.60	12.10	-45.00	-25	20.00
5135.00	46.93	117	1.9	V	-53.1	1.60	12.10	-42.60	-25	17.60
7702.50	43.25	312	1.6	H	-54.3	2.10	10.50	-45.90	-25	20.90
7702.50	43.86	3	1.1	V	-53.4	2.10	10.50	-45.00	-25	20.00
Band 38										
Test frequency range: 30 MHz ~26.5GHz										
5 MHz, Low channel										
957.1	30.44	270	2.1	H	-66.1	1.36	0.0	-67.46	-25	42.46
957.1	31.51	79	2.2	V	-62.5	1.36	0.0	-63.86	-25	38.86
5145.00	44.38	102	2.4	H	-55.6	1.60	12.10	-45.10	-25	20.10
5145.00	44.39	45	1.2	V	-55.6	1.60	12.10	-45.10	-25	20.10
7717.50	46.47	335	2.0	H	-51.0	2.10	10.50	-42.60	-25	17.60
7717.50	45.17	12	1.1	V	-52.1	2.10	10.50	-43.70	-25	18.70
5 MHz, Middle channel										
957.6	30.42	262	2.3	H	-66.1	1.36	0.0	-67.46	-25	42.46
957.6	31.56	128	1.0	V	-62.5	1.36	0.0	-63.86	-25	38.86
5190.00	45.3	306	1.0	H	-54.8	1.60	12.10	-44.30	-25	19.30
5190.00	44.51	189	1.8	V	-55.1	1.60	12.10	-44.60	-25	19.60
7785.00	43.33	213	1.2	H	-52.9	2.00	10.50	-44.40	-25	19.40
7785.00	44.36	137	1.9	V	-51.8	2.00	10.50	-43.30	-25	18.30
5 MHz, High channel										
956.6	30.37	232	1.9	H	-66.1	1.36	0.0	-67.46	-25	42.46
956.6	31.52	286	1.7	V	-62.5	1.36	0.0	-63.86	-25	38.86
5235.00	43.84	127	2.1	H	-56.3	1.60	12.10	-45.80	-25	20.80
5235.00	44.66	56	1.1	V	-55.0	1.60	12.10	-44.50	-25	19.50
7852.50	44.52	29	1.8	H	-51.7	2.00	10.50	-43.20	-25	18.20
7852.50	45.1	200	1.2	V	-51.1	2.00	10.50	-42.60	-25	17.60

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 40 Lower										
Test frequency range: 30 MHz ~24GHz										
5 MHz, Low channel										
952.40	35.97	238	2.4	H	-60.5	1.36	0.0	-61.86	-40	21.86
952.40	35.44	6	1.3	V	-58.6	1.36	0.0	-59.96	-40	19.96
4615.00	43.93	337	1.5	H	-57.2	1.60	12.00	-46.80	-40	6.80
4615.00	44.28	29	1.6	V	-55.7	1.60	12.00	-45.30	-40	5.30
5 MHz, Middle channel										
953.16	35.04	74	2.0	H	-61.5	1.36	0.0	-62.86	-40	22.86
953.16	33.13	148	2.0	V	-60.9	1.36	0.0	-62.26	-40	22.26
4620.00	43.93	275	1.6	H	-57.2	1.60	12.00	-46.80	-40	6.80
4620.00	44.28	171	1.5	V	-55.7	1.60	12.00	-45.30	-40	5.30
5 MHz, High channel										
956.47	35.03	299	1.5	H	-61.5	1.36	0.0	-62.86	-40	22.86
956.47	33.92	290	2.2	V	-60.1	1.36	0.0	-61.46	-40	21.46
4625.00	43.27	293	1.2	H	-57.8	1.60	12.00	-47.40	-40	7.40
4625.00	44.24	205	2.3	V	-55.7	1.60	12.00	-45.30	-40	5.30
Band 40 Upper										
Test frequency range: 30 MHz ~ 24GHz										
5 MHz, Low channel										
959.70	35.36	264	2.2	H	-61.1	1.36	0.0	-62.46	-40	22.46
959.70	35.22	148	1.6	V	-58.8	1.36	0.0	-60.16	-40	20.16
4705.00	44.01	148	1.6	H	-58.1	1.70	12.00	-47.80	-40	7.80
4705.00	44.45	187	1.2	V	-56.0	1.70	12.00	-45.70	-40	5.70
5 MHz, Middle channel										
955.68	34.84	312	1.1	H	-61.7	1.36	0.0	-63.06	-40	23.06
955.68	35.31	243	2.2	V	-58.7	1.36	0.0	-60.06	-40	20.06
4710.00	44.27	88	2.3	H	-57.8	1.70	12.00	-47.50	-40	7.50
4710.00	44.22	288	1.1	V	-56.3	1.70	12.00	-46.00	-40	6.00
5 MHz, High channel										
960.12	35.87	76	2.0	H	-60.6	1.36	0.0	-61.96	-40	21.96
960.12	35.62	42	1.2	V	-58.4	1.36	0.0	-59.76	-40	19.76
4715.00	43.28	222	2.5	H	-58.8	1.70	12.00	-48.50	-40	8.50
4715.00	44.51	90	1.6	V	-56.0	1.70	12.00	-45.70	-40	5.70

Frequency	Receiver	Turntable	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
(MHz)	Reading (dBμV)	Angle Degree	Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
Band 41										
Test frequency range: 30 MHz ~26.5GHz										
5 MHz, Low channel										
952.4	30.31	51	2.0	H	-66.2	1.36	0.0	-67.56	-25	42.56
952.4	31.61	253	2.1	V	-62.4	1.36	0.0	-63.76	-25	38.76
5115.00	43.99	333	2.3	H	-56.0	1.60	12.10	-45.50	-25	20.50
5115.00	43.93	296	1.1	V	-56.1	1.60	12.10	-45.60	-25	20.60
7672.50	45.01	257	2.2	H	-52.5	2.10	10.50	-44.10	-25	19.10
7672.50	43.68	24	1.1	V	-53.6	2.10	10.50	-45.20	-25	20.20
5 MHz, Middle channel										
959.3	30.35	332	2.0	H	-66.2	1.36	0.0	-67.56	-25	42.56
959.3	31.64	323	1.6	V	-62.4	1.36	0.0	-63.76	-25	38.76
5210.00	44.47	121	1.7	H	-55.6	1.60	12.10	-45.10	-25	20.10
5210.00	43.81	273	2.0	V	-55.8	1.60	12.10	-45.30	-25	20.30
7815.00	44.82	315	1.3	H	-51.4	2.00	10.50	-42.90	-25	17.90
7815.00	44.8	71	2.3	V	-51.4	2.00	10.50	-42.90	-25	17.90
5 MHz, High channel										
960.1	30.45	23	1.5	H	-66.1	1.36	0.0	-67.46	-25	42.46
960.1	31.61	19	1.8	V	-62.4	1.36	0.0	-63.76	-25	38.76
5305.00	44.52	359	1.1	H	-55.2	1.60	12.20	-44.60	-25	19.60
5305.00	43.79	142	1.2	V	-55.4	1.60	12.20	-44.80	-25	19.80
7957.50	45.53	69	1.9	H	-52.5	2.10	10.70	-43.90	-25	18.90
7957.50	43.67	177	2.3	V	-54.3	2.10	10.70	-45.70	-25	20.70

Note:

Absolute Level = Substituted Level - Cable loss + Antenna Gain

Margin = Limit- Absolute Level

dBd is for the below 1GHz, dBi is for above 1GHz.

FCC § 22.917 (a); § 24.238 (a); §27.53 (a) (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 (a), for mobile and portable stations operating in the 2305-2315 MHz and 2350-2360 MHz bands:

(i) By a factor of not less than: $43 + 10 \log(P)$ dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than $55 + 10 \log(P)$ dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than $61 + 10 \log(P)$ dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than $67 + 10 \log(P)$ dB on all frequencies between 2328 and 2337 MHz;

(ii) By a factor of not less than $43 + 10 \log(P)$ dB on all frequencies between 2300 and 2305 MHz, $55 + 10 \log(P)$ dB on all frequencies between 2296 and 2300 MHz, $61 + 10 \log(P)$ dB on all frequencies between 2292 and 2296 MHz, $67 + 10 \log(P)$ dB on all frequencies between 2288 and 2292 MHz, and $70 + 10 \log(P)$ dB below 2288 MHz;

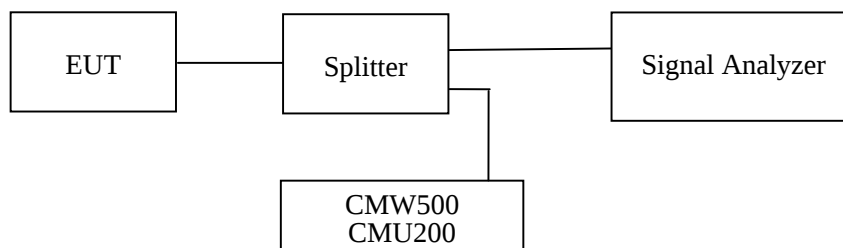
(iii) By a factor of not less than $43 + 10 \log(P)$ dB on all frequencies between 2360 and 2365 MHz, and not less than $70 + 10 \log(P)$ dB above 2365 MHz.

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

Test Procedure

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

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



Test Data**Environmental Conditions**

Temperature:	25~25.5 °C
Relative Humidity:	56~59 %
ATM Pressure:	101.0 kPa

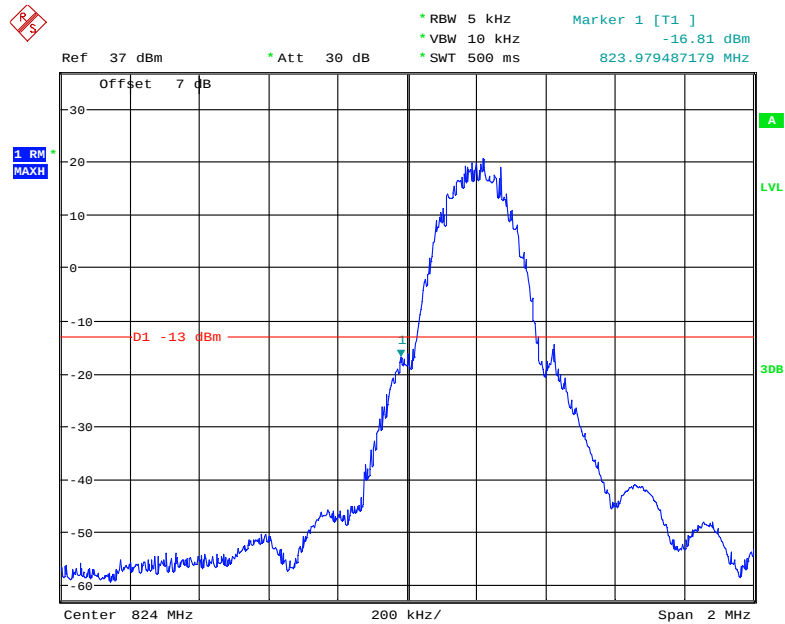
The testing was performed by Orlo Yang from 2021-05-11 to 2021-06-01.

EUT operation mode: Transmitting (Worst case)

Test Result: Pass

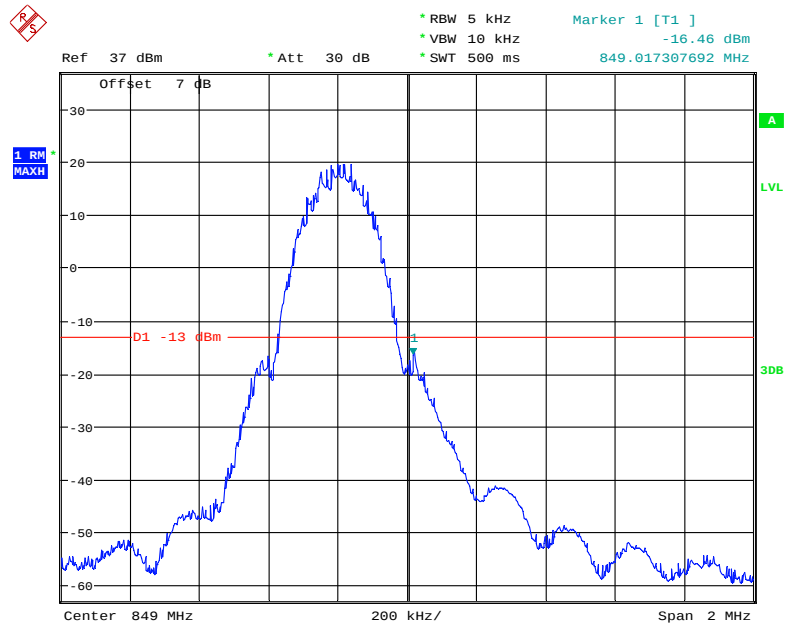
Please refer to the following plots.

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



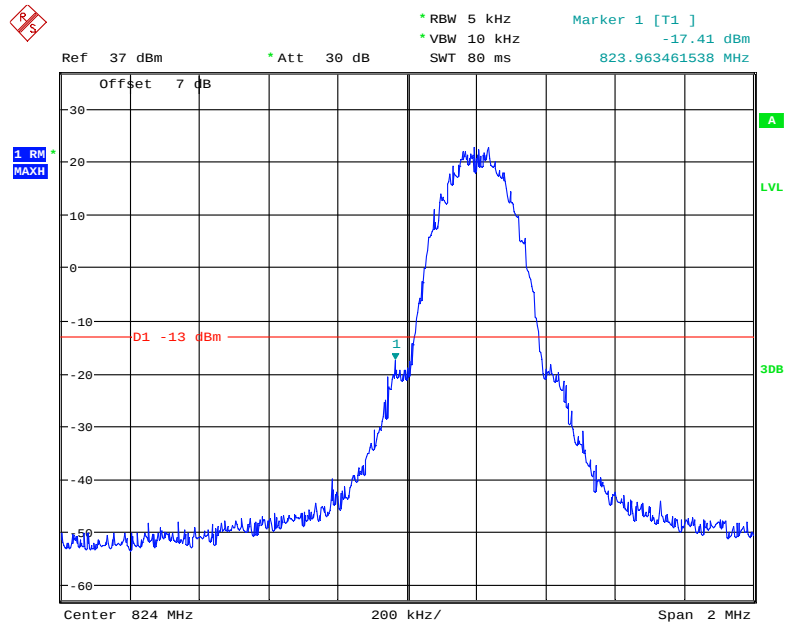
Date: 11.MAY.2021 01:37:10

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



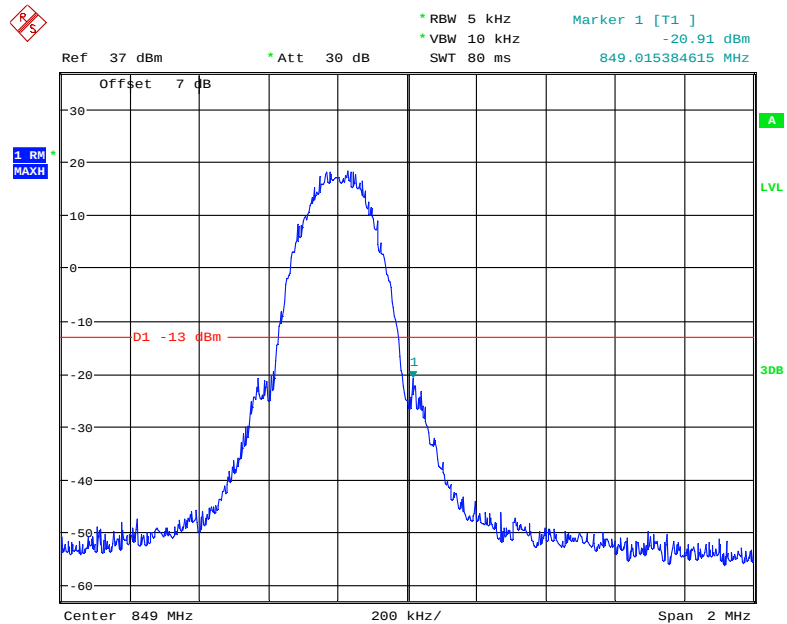
Date: 11.MAY.2021 01:38:20

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



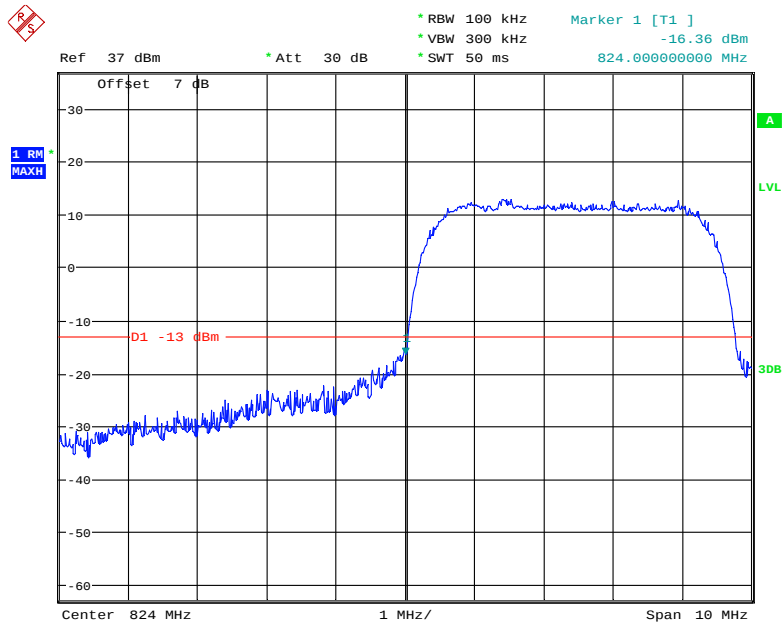
Date: 14.MAY.2021 21:27:17

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



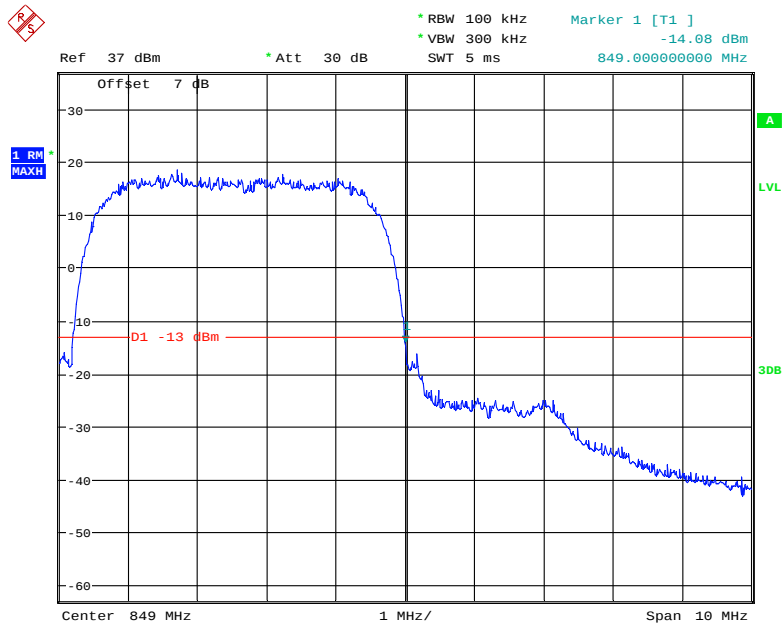
Date: 14.MAY.2021 21:31:34

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



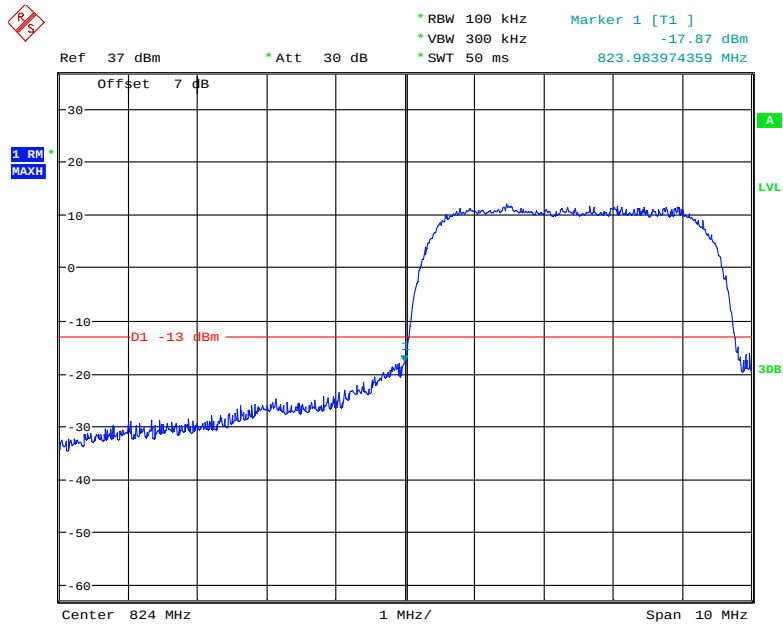
Date: 12.MAY.2021 19:12:09

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



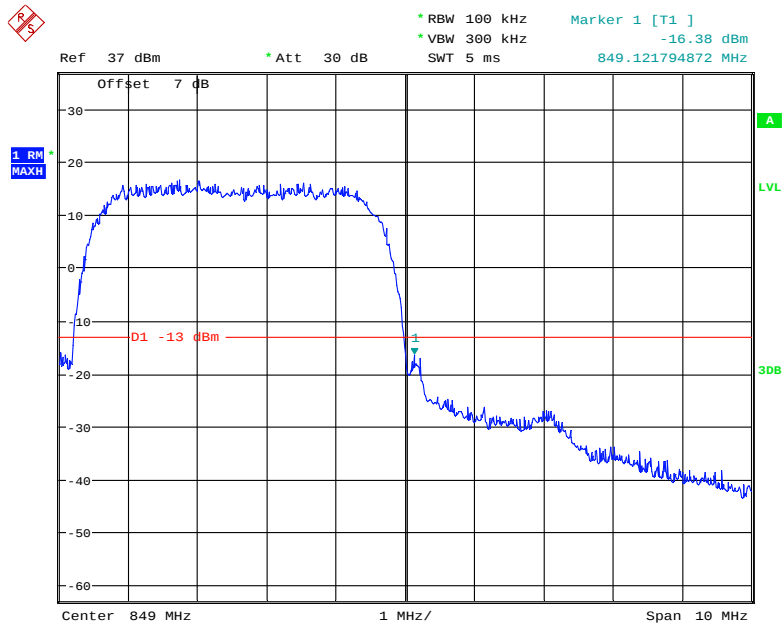
Date: 12.MAY.2021 19:14:40

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



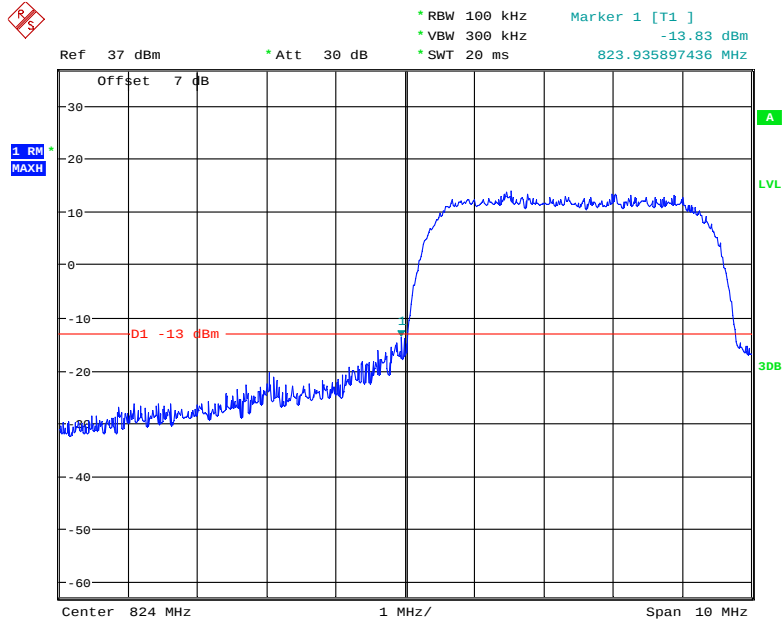
Date: 12.MAY.2021 19:28:04

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



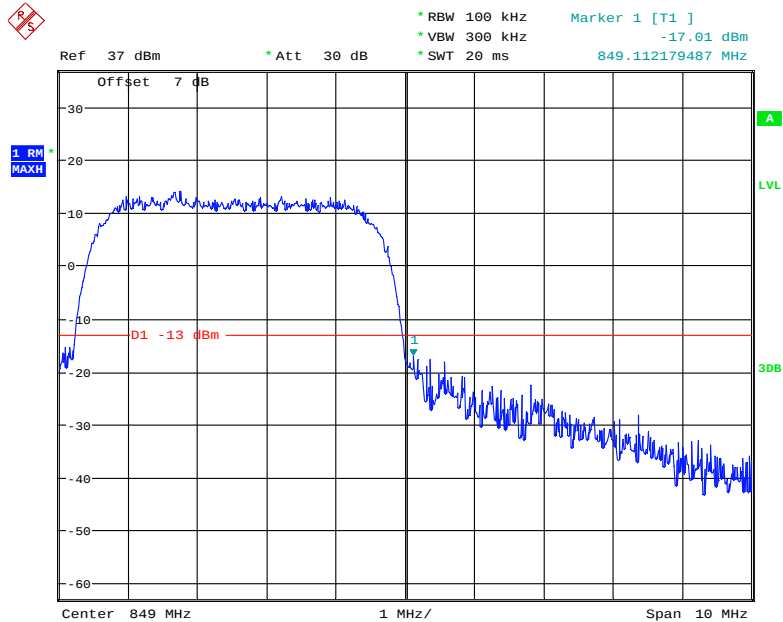
Date: 12.MAY.2021 19:37:03

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



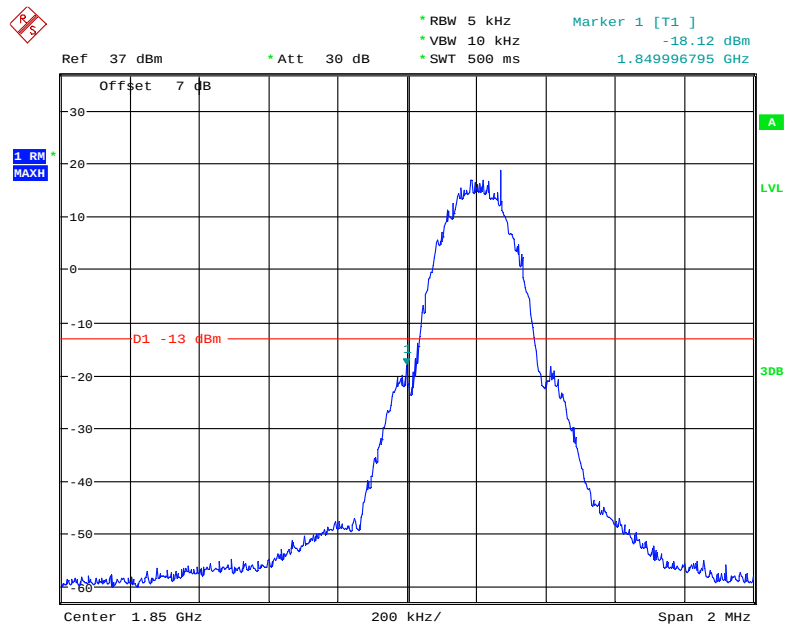
Date: 12.MAY.2021 19:56:19

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



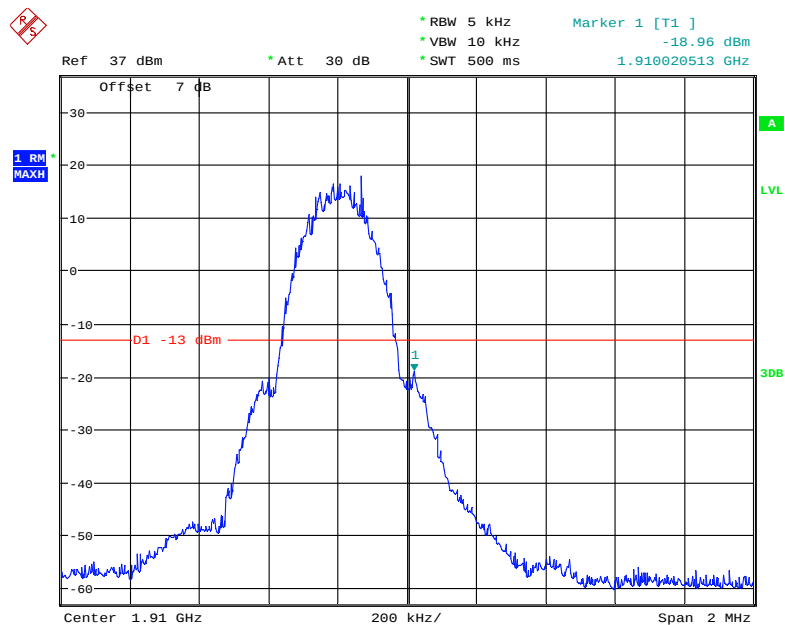
Date: 12.MAY.2021 19:53:52

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



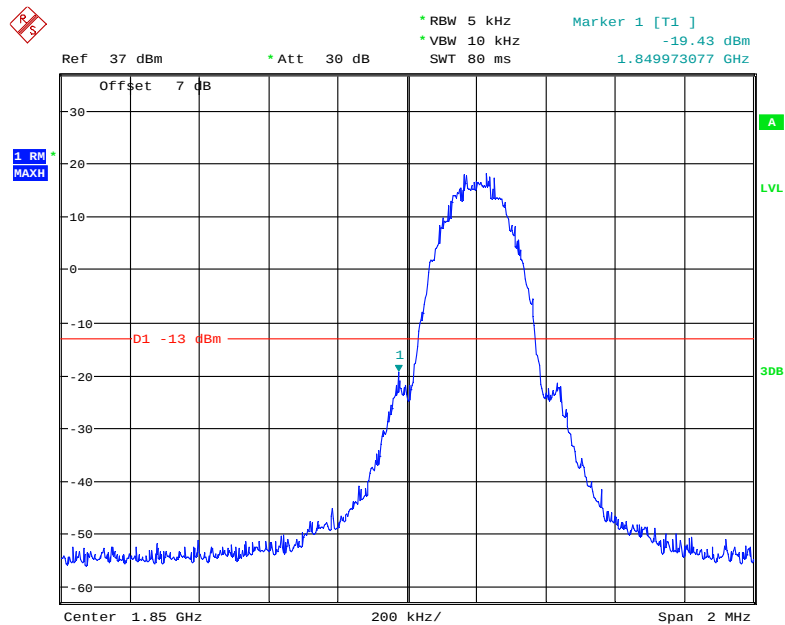
Date: 11.MAY.2021 01:33:55

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



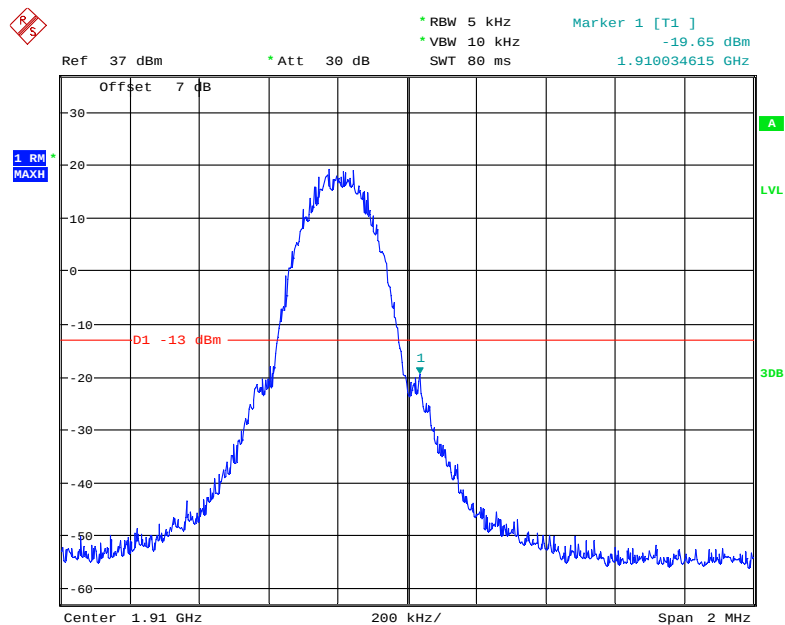
Date: 11.MAY.2021 01:30:05

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



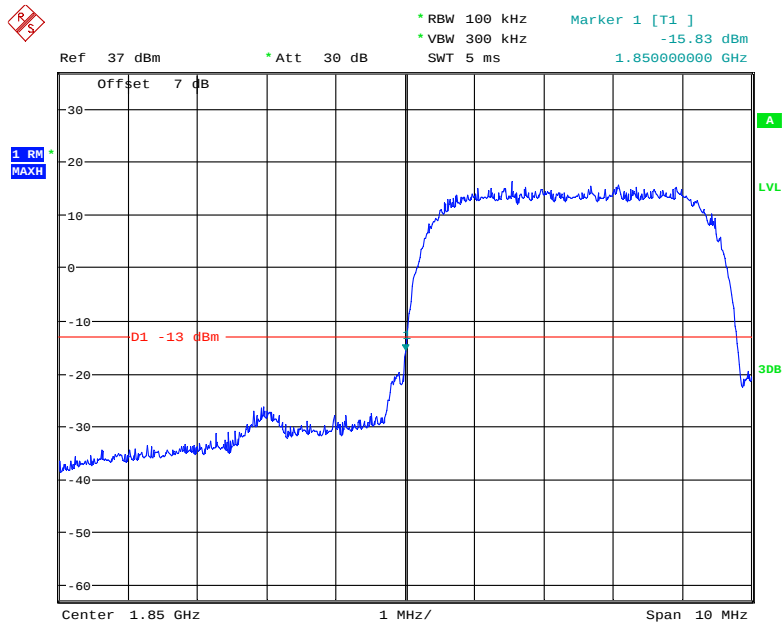
Date: 14.MAY.2021 21:37:03

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



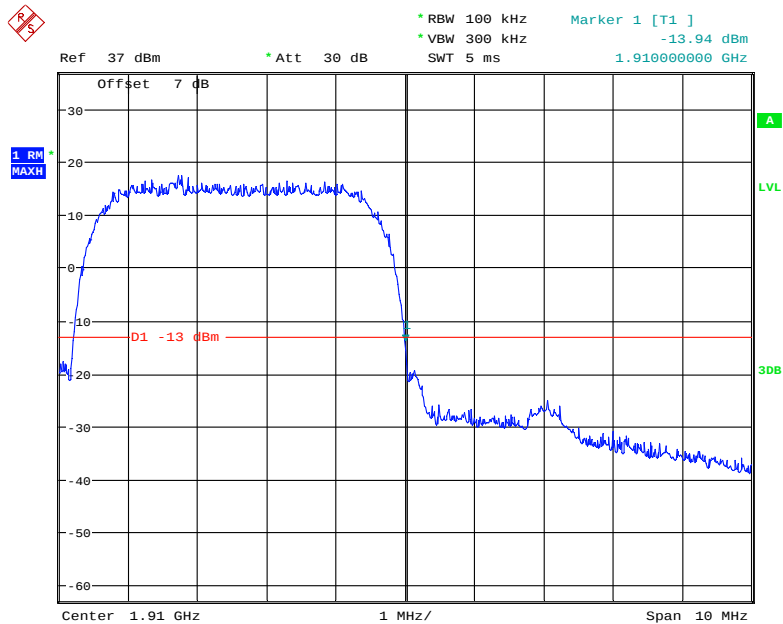
Date: 14.MAY.2021 21:39:12

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



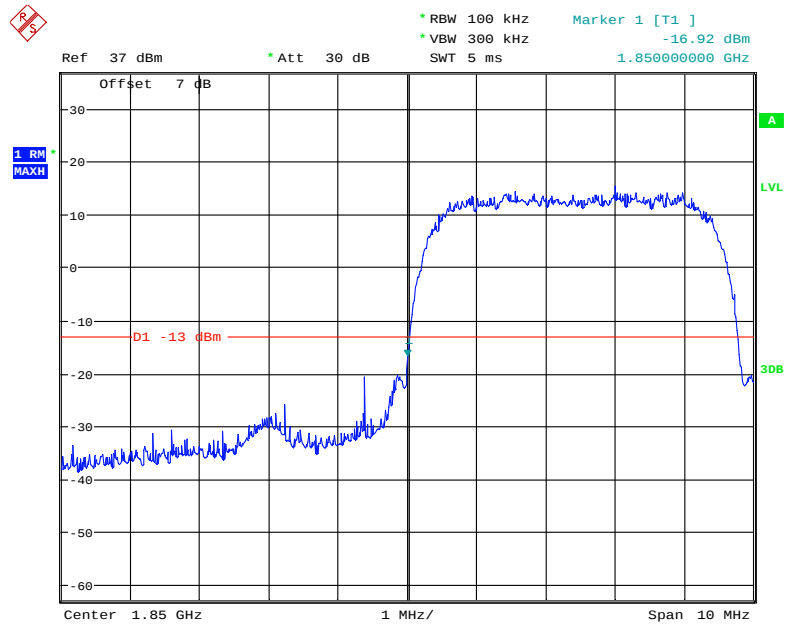
Date: 12.MAY.2021 19:18:55

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



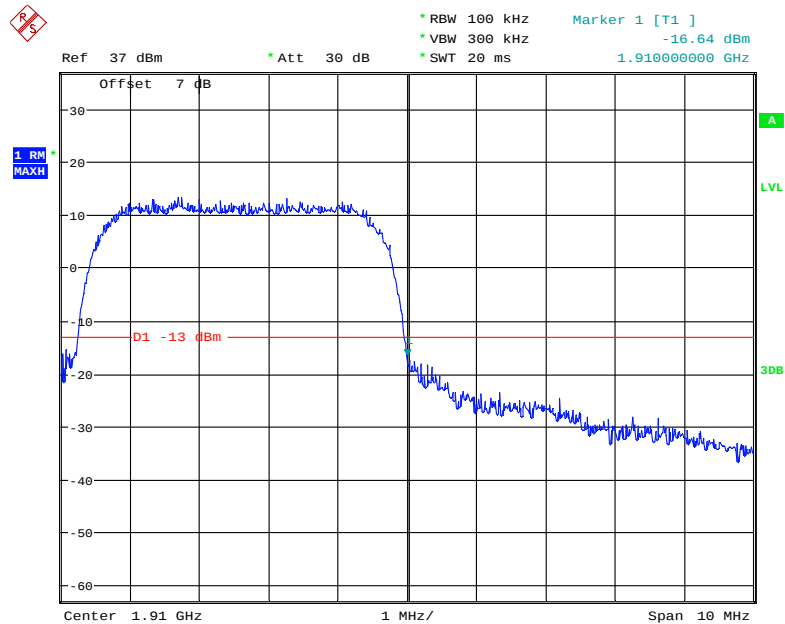
Date: 12.MAY.2021 19:17:23

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



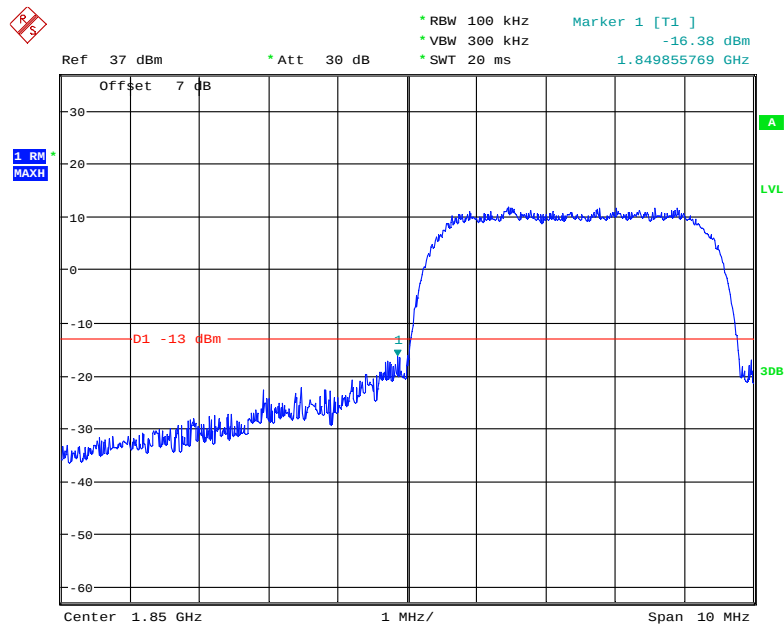
Date: 12.MAY.2021 19:38:14

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



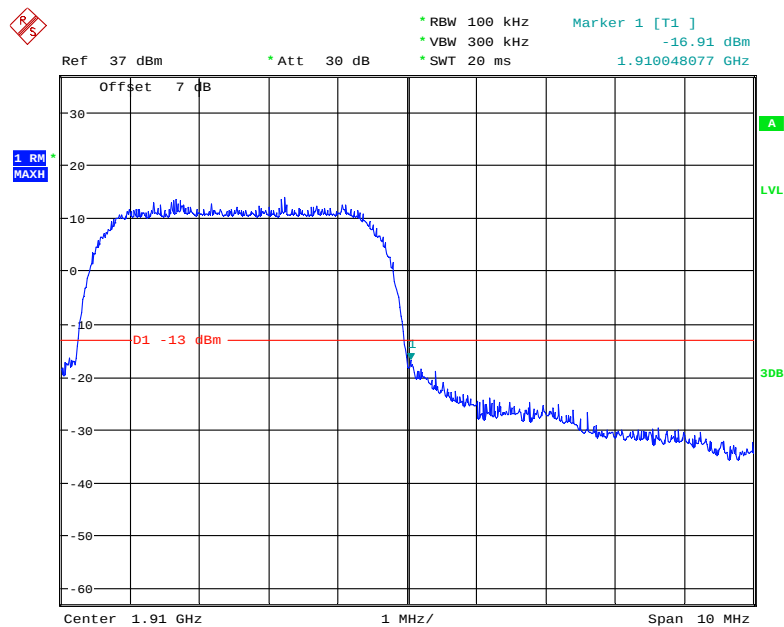
Date: 12.MAY.2021 19:41:41

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



Date: 12.MAY.2021 19:51:10

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



Date: 12.MAY.2021 19:45:03

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

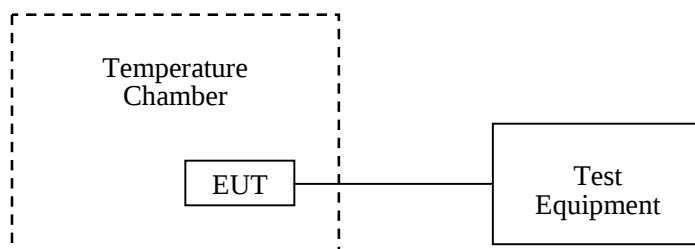
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

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:	25~25.5 °C
Relative Humidity:	56~59 %
ATM Pressure:	101.0 kPa

The testing was performed by Orlo Yang from 2021-05-11 to 2021-05-12.

EUT operation mode: Transmitting

Test Result: Pass

Please refer to the following tables.

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

Middle Channel, $f_0 = 836.6\text{MHz}$				
Temperature (°C)	Voltage Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.87	9	0.0108	2.5
-20		12	0.0143	2.5
-10		8	0.0096	2.5
0		13	0.0155	2.5
10		6	0.0072	2.5
20		5	0.0060	2.5
30		-6	-0.0072	2.5
40		7	0.0084	2.5
50		4	0.0048	2.5
20	3.4	6	0.0072	2.5
	4.45	-5	-0.0060	2.5

EDGE Mode

Middle Channel, $f_0=836.6\text{MHz}$				
Temperature (°C)	Voltage Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.87	1	0.0012	2.5
-20		0	0	2.5
-10		3	0.0036	2.5
0		1	0.0012	2.5
10		3	0.0036	2.5
20		2	0.0024	2.5
30		4	0.0048	2.5
40		-1	-0.0012	2.5
50		-3	-0.0036	2.5
20	3.4	1	0.0012	2.5
	4.45	4	0.0048	2.5

WCDMA Mode

Middle Channel, $f_0=836.6\text{MHz}$				
Temperature (°C)	Voltage Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.87	7	0.0084	2.5
-20		3	0.0036	2.5
-10		9	0.0108	2.5
0		6	0.0072	2.5
10		8	0.0096	2.5
20		5	0.0060	2.5
30		4	0.0048	2.5
40		-6	-0.0072	2.5
50		7	0.0084	2.5
20	3.4	5	0.0060	2.5
	4.45	9	0.0108	2.5

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

Middle Channel, $f_0 = 1880.0$ MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	3.87	6	0.0032	pass
-20		9	0.0048	pass
-10		7	0.0037	pass
0		4	0.0021	pass
10		5	0.0027	pass
20		-8	-0.0043	pass
30		6	0.0032	pass
40		-9	-0.0048	pass
50		-7	-0.0037	pass
20	3.4	-8	-0.0043	pass
	4.45	8	0.0043	pass

EDGE Mode

Middle Channel, $f_0 = 1880.0$ MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	3.87	4	0.0021	pass
-20		0	0	pass
-10		5	0.0027	pass
0		1	0.0005	pass
10		-3	-0.0016	pass
20		-2	-0.0011	pass
30		0	0	pass
40		1	0.0005	pass
50		-1	-0.0005	pass
20	3.4	4	0.0021	pass
	4.45	-3	-0.0016	pass

WCDMA Mode

Middle Channel, $f_0 = 1880.0$ MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	3.87	7	0.0037	pass
-20		6	0.0032	pass
-10		9	0.0048	pass
0		5	0.0027	pass
10		9	0.0048	pass
20		-8	-0.0043	pass
30		7	0.0037	pass
40		-9	-0.0048	pass
50		-7	-0.0037	pass
20	3.4	-6	-0.0032	pass
	4.45	9	0.0048	pass

LTE:
QPSK:
Band 2:

10.0 MHz Middle Channel, $f_0=1880\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	3.87	5	0.0027	pass
-20		-3	-0.0016	pass
-10		4	0.0021	pass
0		4	0.0021	pass
10		-2	-0.0011	pass
20		0	0	pass
30		-2	-0.0011	pass
40		2	0.0011	pass
50		3	0.0016	pass
20	3.4	-1	-0.0005	pass
	4.45	0	0	pass

Band 5:

10.0 MHz Middle Channel, $f_0=836.5\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.87	3	0.0036	2.5
-20		0	0	2.5
-10		-2	-0.0024	2.5
0		0	0	2.5
10		2	0.0024	2.5
20		3	0.0036	2.5
30		-2	-0.0024	2.5
40		1	0.0012	2.5
50		1	0.0012	2.5
20	3.4	-2	-0.0024	2.5
	4.45	5	0.0060	2.5

Band 7:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	3.87	2500.1347	2569.8231	2500	2570
-20		2500.0221	2569.6310	2500	2570
-10		2500.1277	2569.6390	2500	2570
0		2500.0076	2569.7623	2500	2570
10		2500.1801	2569.7678	2500	2570
20		2500.0448	2569.9771	2500	2570
30		2500.0446	2569.9444	2500	2570
40		2500.1596	2569.6806	2500	2570
50		2500.1474	2569.8479	2500	2570
20	3.4	2500.0954	2569.5648	2500	2570
	4.45	2500.1320	2569.8618	2500	2570

Band 38:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	3.87	2570.1103	2619.5787	2570	2620
-20		2570.1158	2619.6792	2570	2620
-10		2570.1838	2619.8049	2570	2620
0		2570.1027	2619.9547	2570	2620
10		2570.1203	2619.8887	2570	2620
20		2570.0802	2619.7991	2570	2620
30		2570.0350	2619.7062	2570	2620
40		2570.1919	2619.7882	2570	2620
50		2570.1265	2619.5792	2570	2620
20	3.4	2570.1310	2619.8183	2570	2620
	4.45	2570.1223	2619.7967	2570	2620

Band 40 Lower

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	3.87	2305.0026	2314.5205	2305	2315
-20		2305.1508	2314.9149	2305	2315
-10		2305.0944	2314.7518	2305	2315
0		2305.1893	2314.9702	2305	2315
10		2305.0342	2314.8027	2305	2315
20		2305.0753	2314.9020	2305	2315
30		2305.1848	2314.6302	2305	2315
40		2305.0683	2314.7429	2305	2315
50		2305.0379	2314.8521	2305	2315
20	3.4	2305.0135	2314.5592	2305	2315
	4.45	2305.1216	2314.7026	2305	2315

Band 40 Upper

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	3.87	2350.0852	2359.8318	2350	2360
-20		2350.0795	2359.5482	2350	2360
-10		2350.0363	2359.7800	2350	2360
0		2350.1320	2359.5903	2350	2360
10		2350.1338	2359.7245	2350	2360
20		2350.0680	2359.8437	2350	2360
30		2350.0587	2359.6106	2350	2360
40		2350.1719	2359.8654	2350	2360
50		2350.0241	2359.5188	2350	2360
20	3.4	2350.1594	2359.6369	2350	2360
	4.45	2350.1204	2359.8205	2350	2360

Band 41:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	3.87	2555.1058	2654.8426	2555	2655
-20		2555.0617	2654.8225	2555	2655
-10		2555.1807	2654.9747	2555	2655
0		2555.1779	2654.9746	2555	2655
10		2555.0078	2654.6613	2555	2655
20		2555.1224	2654.7095	2555	2655
30		2555.1398	2654.7783	2555	2655
40		2555.1547	2654.7093	2555	2655
50		2555.0856	2654.6298	2555	2655
20	3.4	2555.1927	2654.7262	2555	2655
	4.45	2555.0599	2654.8187	2555	2655

Note: The applicant declared the operating frequency range is 2555-2655MHz.

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	3.87	-1	-0.0005	pass
-20		3	0.0016	pass
-10		-2	-0.0011	pass
0		-3	-0.0016	pass
10		-2	-0.0011	pass
20		2	0.0011	pass
30		0	0	pass
40		-2	-0.0011	pass
50		4	0.0021	pass
20	3.4	-1	-0.0005	pass
	4.45	5	0.0027	pass

Band 5:

10.0 MHz Middle Channel, $f_o = 836.6\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.87	6	0.0072	2.5
-20		-2	-0.0024	2.5
-10		-1	-0.0012	2.5
0		4	0.0048	2.5
10		-2	-0.0024	2.5
20		2	0.0024	2.5
30		-2	-0.0024	2.5
40		5	0.0060	2.5
50		2	0.0024	2.5
20	3.4	-1	-0.0012	2.5
	4.45	-1	-0.0012	2.5

Band 7:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	3.87	2500.0541	2569.9303	2500	2570
-20		2500.0883	2569.5797	2500	2570
-10		2500.1935	2569.5524	2500	2570
0		2500.1845	2569.7490	2500	2570
10		2500.1784	2569.9359	2500	2570
20		2500.0999	2569.8909	2500	2570
30		2500.0689	2569.8114	2500	2570
40		2500.0116	2569.8372	2500	2570
50		2500.0824	2569.7472	2500	2570
20	3.4	2500.0432	2569.6213	2500	2570
	4.45	2500.0405	2569.6337	2500	2570

Band 38

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	3.87	2570.0778	2619.8738	2570	2620
-20		2570.1252	2619.7872	2570	2620
-10		2570.0867	2619.7448	2570	2620
0		2570.0295	2619.5061	2570	2620
10		2570.0786	2619.6722	2570	2620
20		2570.0858	2619.6877	2570	2620
30		2570.1711	2619.9373	2570	2620
40		2570.0383	2619.7364	2570	2620
50		2570.1598	2619.6415	2570	2620
20	3.4	2570.0512	2619.7493	2570	2620
	4.45	2570.1522	2619.7743	2570	2620

Band 40 Lower:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	3.87	2305.1026	2314.8984	2305	2315
-20		2305.1280	2314.9529	2305	2315
-10		2305.0372	2314.8132	2305	2315
0		2305.0433	2314.9842	2305	2315
10		2305.1612	2314.9267	2305	2315
20		2305.0374	2314.7754	2305	2315
30		2305.0259	2314.9164	2305	2315
40		2305.1734	2314.8151	2305	2315
50		2305.1438	2314.7611	2305	2315
20	3.4	2305.1465	2314.8608	2305	2315
	4.45	2305.2371	2314.7646	2305	2315

Band 40 Upper:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	3.87	2350.1111	2359.8985	2350	2360
-20		2350.0960	2359.9132	2350	2360
-10		2350.1143	2359.9387	2350	2360
0		2350.0734	2359.8261	2350	2360
10		2350.1180	2359.8384	2350	2360
20		2350.0830	2359.7872	2350	2360
30		2350.1098	2359.7688	2350	2360
40		2350.0448	2359.8233	2350	2360
50		2350.1587	2359.9702	2350	2360
20	3.4	2350.1790	2359.9592	2350	2360
	4.45	2350.0980	2359.9974	2350	2360

Band 41:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	3.87	2555.0611	2654.9499	2555	2655
-20		2555.0846	2654.7939	2555	2655
-10		2555.1358	2654.8660	2555	2655
0		2555.0213	2654.9579	2555	2655
10		2555.1024	2654.7238	2555	2655
20		2555.1229	2654.8472	2555	2655
30		2555.1208	2654.5980	2555	2655
40		2555.0140	2654.5771	2555	2655
50		2555.0290	2654.6059	2555	2655
20	3.4	2555.1668	2654.7860	2555	2655
	4.45	2555.1130	2654.8832	2555	2655

Note: The applicant declared the operating frequency range is 2555-2655MHz.

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