FCC PART 27

FCC PART 22H, PART 24E

TEST REPORT

For

Evolve 3 Holdings Pty Ltd

PO BOX 6222, NARRAWEENA NSW, Australia, 2099

FCC ID: 2AWLG-MEB11V5

Report Type:	**Product Type:**
Original Report	Maestro EBook

Report Number:	RSZ201221003-00D
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	Maestro EBook
Model	Maestro-EBook11V2
Frequency Range	WCDMA Band 2: 1850-1910 MHz(TX); 1930-1990 MHz(RX) WCDMA Band 4: 1710-1755MHz(TX); 2110-2155MHz(RX) WCDMA Band 5: 824-849 MHz(TX); 869-894 MHz(RX) LTE Band 2: 1850-1910 MHz(TX); 1930-1990 MHz(RX) LTE Band 4: 1710-1755 MHz(TX); 2110-2155 MHz(RX) LTE Band 5: 824-849 MHz(TX); 869-894 MHz(RX) LTE Band 12: 699-716MHz(TX); 729-746MHz(RX) LTE Band 13: 777-787 MHz(TX); 746-756 MHz(RX) LTE Band 66: 1710-1780MHz(TX); 2100-2200MHz(RX) LTE Band 71: 663-698 MHz(TX); 617-652 MHz(RX)
Maximum Target Output Power	WCDMA Band 2: 25dBm WCDMA Band 4: 23dBm WCDMA Band 5: 24dBm LTE Band 2/4/5/12/13/66/71: 23dBm
Modulation Technique	3G: BPSK, QPSK, 16QAM 4G: QPSK, 16QAM
Antenna Specification*	B2: 1.57dBi;B4/B66: 1.73dBi;B5: 0.39dBi;B12: 3.16dBi;B13: 0.61dBi; B71: 3.02dBi
Voltage Range	DC 7.6V from battery or DC 12V from adapter
Date of Test	2020-12-30 to 2021-02-04
Sample serial number	RSZ201221003-RF-S1 (Assigned by BACL, Shenzhen)
Received date	2020-12-21
Sample/EUT Status	Good condition
Adapter information	Model: JHD-AP024U-120200BA-A Input: AC 100-240V~ 50/60Hz, 0.55A Output: DC 12V, 2000mA

Objective

This test report is prepared on behalf of *Company Name* 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

Applicable Standards: ANSI C63.26-2015.

All emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		±5%
RF output power, conducted		±0.73dB
Unwanted Emission, conducted		±1.6dB
Emissions, Radiated	Below 1GHz	±4.75dB
	Above 1GHz	±4.88dB
Temperature		±1℃
Humidity		±6%
Supply voltages		±0.4%

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

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 6/F., West Wing, Third Phase of Wanli Industrial Building, Shihua Road, Futian Free Trade Zone, Shenzhen, Guangdong, China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 342867, the FCC Designation No.: CN1221.

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

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The EUT was configured for testing according to ANSI C63.26-2015.

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

Equipment Modifications

No modification was made to the EUT.

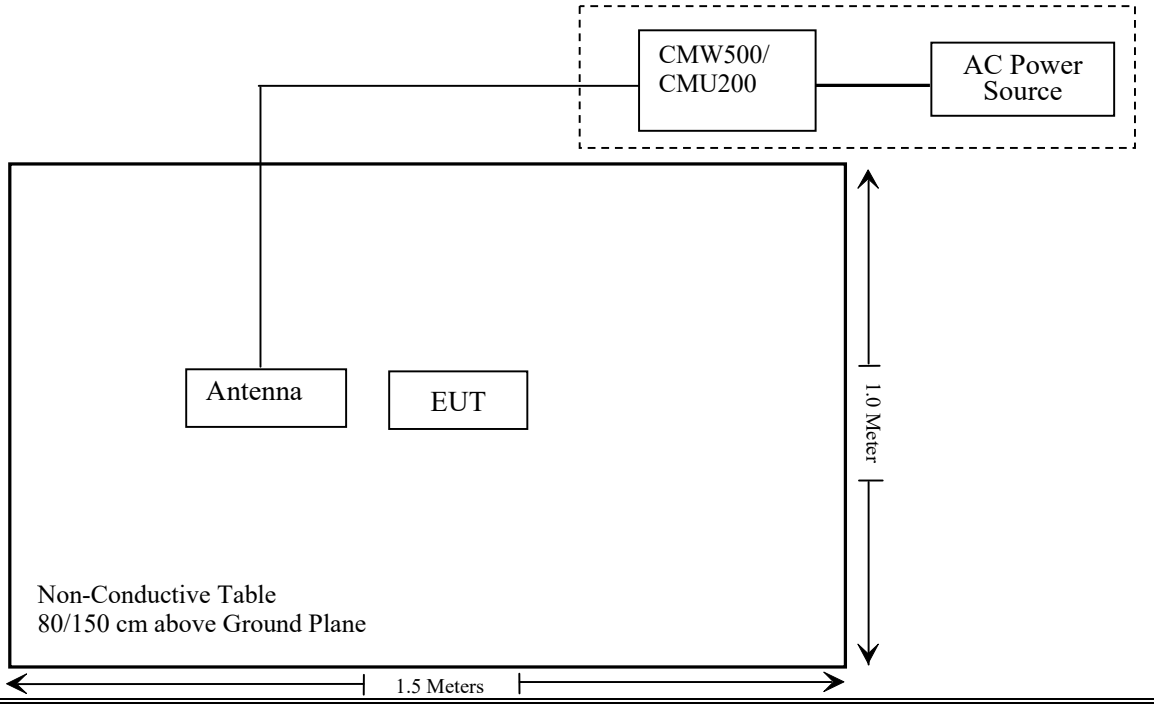
Support Equipment List and Details

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

External I/O Cable

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

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§ 1.1307 , §2.1093	RF Exposure (SAR)	Compliance*
§2.1046; § 22.913 (a); § 24.232 (c); §27.50 (d) (h)	RF Output Power	Compliance
§ 2.1047	Modulation Characteristics	Not Applicable
§ 2.1049; § 22.905; § 22.917; § 24.238; §27.53	Occupied Bandwidth	Compliance
§ 2.1051; § 22.917 (a); § 24.238 (a); §27.53 (h)(m)	Spurious Emissions at Antenna Terminal	Compliance
§ 2.1053; § 22.917 (a); § 24.238 (a); §27.53 (h)(m)	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

Note: * Please refer to SAR report released by BACL, report number: RSZ201221003-20.

TEST EQUIPMENT LIST

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

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
RF Conducted Test					
Rohde & Schwarz	SPECTRUM ANALYZER	FSU26	200120	2020/04/03	2021/04/02
Yijia	Temperature & Humidity Meter	10316377	T-03-EM397	2020/10/14	2021/10/13
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	1201.002K50-146520-wh	2020/08/04	2021/08/03
Unknown	RF Cable	Unknown	2301 276	2020/11/29	2021/11/28
Unknown	RF Cable	Unknown	DLO J5/W6102	2020/11/29	2021/11/28
Weinschel	Power divider	1515	MY628	2020/11/29	2021/11/28
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	115500	2020/07/31	2021/07/30
instek	DC Power Supply	GPS-3030DD	EM832096	NCR	NCR
Fluke	Digital Multimeter	287	19000011	2020/07/23	2021/07/22

* Statement of Traceability: Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC §1.1307(b) & §2.1093 - RF EXPOSURE INFORMATION

Applicable Standard

FCC§1.1310 and §2.1093.

Test Result

Compliance, please refer to the SAR report: RSZ201221003-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 (d) (h) - RF OUTPUT POWER

Applicable Standard

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

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

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

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

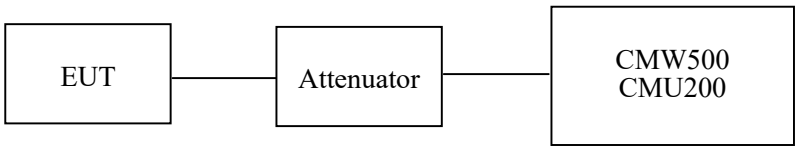
According to §27.50(h), the maximum EIRP must not exceed 2Watts (33dBm) for 2500-2570MHz.

Test Procedure

Conducted method:

ANSI C63.26-2015

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



Test Data

Environmental Conditions

Temperature:	24 ℃
Relative Humidity:	52 %
ATM Pressure:	101.0 kPa

The testing was performed by Thea Xiao and Zero Yan and Blaker Zhang from 2020-01-12 to 2021-01-25.

Conducted Power

Cellular Band (Part 22H)

Mode	Test Mode	3GPP Sub Test	Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
WCDMA (Band 5)	RMC12.2k		23.68	23.68	23.64	21.32	21.32	21.28
	HSDPA	1	22.74	22.74	22.57	20.38	20.38	20.21
		2	22.58	22.62	22.39	20.22	20.26	20.03
		3	22.84	22.58	22.48	20.48	20.22	20.12
		4	22.68	22.61	22.39	20.32	20.25	20.03
	HSUPA	1	22.69	22.45	22.58	20.33	20.09	20.22
		2	22.57	22.51	22.64	20.21	20.15	20.28
		3	22.51	22.47	22.42	20.15	20.11	20.06
		4	22.49	22.45	22.41	20.13	20.09	20.05
		5	22.47	22.43	22.40	20.11	20.07	20.04
	HSPA+	1	22.46	22.38	22.24	20.10	20.02	19.88

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd) - Cable Loss(dB)
For WCDMA Band5: Antenna Gain = 0.39dBi = -1.76dBd (0dBd=2.15dBi)
Cable Loss=0.6dB* (provided by the applicant)
Limit: ERP≤38.45dBm

PCS Band (Part 24E)

Mode	Test Mode	3GPP Sub Test	Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
WCDMA (Band 2)	RMC12.2k		24.45	24.52	24.68	25.02	25.09	25.25
	HSDPA	1	23.52	23.57	23.47	24.09	24.14	24.04
		2	23.47	23.68	23.51	24.04	24.25	24.08
		3	23.49	23.37	23.68	24.06	23.94	24.25
		4	23.45	23.57	23.55	24.02	24.14	24.12
	HSUPA	1	23.33	23.56	23.38	23.90	24.13	23.95
		2	23.51	23.36	23.66	24.08	23.93	24.23
		3	23.42	23.41	23.74	23.99	23.98	24.31
		4	23.29	23.57	23.46	23.86	24.14	24.03
		5	23.36	23.42	23.65	23.93	23.99	24.22
	HSPA+	1	23.74	23.52	23.42	24.31	24.09	23.99

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi) - Cable Loss(dB)
For WCDMA Band2: Antenna Gain = 1.57dBi
Cable Loss=1.0dB*(provided by the applicant)
Limit: EIRP≤33dBm

AWS Band (Part 27)

Mode	Test Mode	3GPP Sub Test	Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
WCDMA (Band 4)	RMC12.2k		22.74	22.70	22.68	23.47	23.43	23.41
	HSDPA	1	21.14	21.14	20.97	21.87	21.87	21.70
		2	20.98	21.02	20.79	21.71	21.75	21.52
		3	21.24	20.98	20.88	21.97	21.71	21.61
		4	21.08	21.01	20.79	21.81	21.74	21.52
	HSUPA	1	21.09	21.15	21.18	21.82	21.88	21.91
		2	21.08	20.85	20.98	21.81	21.58	21.71
		3	21.11	21.07	21.02	21.84	21.80	21.75
		4	21.09	21.05	21.01	21.82	21.78	21.74
		5	21.07	21.03	20.98	21.80	21.76	21.71
	HSPA+	1	21.06	20.98	20.84	21.79	21.71	21.57

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi) - Cable Loss(dB)
For Band4: Antenna Gain = 1.73dBi
Cable Loss=1.0dB*(provided by the applicant)
Limit: EIRP≤30dBm

Peak-to-average ratio (PAR)

Cellular Band

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.18	13
	Middle	3.37	13
	High	3.28	13
HSDPA (16QAM)	Low	4.21	13
	Middle	3.99	13
	High	3.78	13
HSUPA (BPSK)	Low	3.48	13
	Middle	3.67	13
	High	3.61	13
HSPA+	Low	3.37	13
	Middle	3.19	13
	High	3.55	13

PCS Band

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.24	13
	Middle	3.28	13
	High	2.92	13
HSDPA (16QAM)	Low	3.67	13
	Middle	4.02	13
	High	4.47	13
HSUPA (BPSK)	Low	3.64	13
	Middle	3.74	13
	High	3.89	13
HSPA+	Low	3.33	13
	Middle	3.27	13
	High	3.69	13

AWS Band

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.42	13
	Middle	3.35	13
	High	3.92	13
HSDPA (16QAM)	Low	3.72	13
	Middle	4.32	13
	High	4.05	13
HSUPA (BPSK)	Low	3.46	13
	Middle	3.56	13
	High	3.68	13
HSPA+	Low	3.56	13
	Middle	3.63	13
	High	3.65	13

LTE Band 2:

Maximum Output Power

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
1.4	QPSK	RB1#0	21.96	22.36	22.39	22.53	22.93	22.96
		RB1#2	22.11	22.47	22.44	22.68	23.04	23.01
		RB1#5	21.99	22.15	22.50	22.56	22.72	23.07
		RB3#0	22.14	22.18	22.39	22.71	22.75	22.96
		RB3#1	22.33	22.51	22.27	22.90	23.08	22.84
		RB3#2	21.23	21.28	21.34	21.80	21.85	21.91
		RB6#0	20.57	20.87	20.65	21.14	21.44	21.22
	16QAM	RB1#0	21.34	21.24	21.43	21.91	21.81	22.00
		RB1#2	21.69	21.67	21.54	22.26	22.24	22.11
		RB1#5	21.54	21.45	21.40	22.11	22.02	21.97
		RB3#0	21.30	21.70	21.49	21.87	22.27	22.06
		RB3#1	21.16	21.41	21.45	21.73	21.98	22.02
		RB3#2	20.27	20.90	20.57	20.84	21.47	21.14
		RB6#0	20.12	20.15	20.13	20.69	20.72	20.70
3.0	QPSK	RB1#0	22.11	22.61	22.57	22.68	23.18	23.14
		RB1#7	22.09	22.52	22.52	22.66	23.09	23.09
		RB1#14	22.26	22.41	22.57	22.83	22.98	23.14
		RB8#0	21.14	21.34	21.45	21.71	21.91	22.02
		RB8#4	21.24	21.33	21.38	21.81	21.90	21.95
		RB8#7	21.18	21.42	21.43	21.75	21.99	22.00
		RB15#0	20.51	20.48	20.68	21.08	21.05	21.25
	16QAM	RB1#0	21.37	21.93	21.67	21.94	22.50	22.24
		RB1#7	21.27	21.71	21.45	21.84	22.28	22.02
		RB1#14	21.40	21.75	21.49	21.97	22.32	22.06
		RB8#0	20.10	20.75	20.62	20.67	21.32	21.19
		RB8#4	20.21	20.74	20.59	20.78	21.31	21.16
		RB8#7	20.35	20.65	20.61	20.92	21.22	21.18
		RB15#0	20.54	20.24	20.48	21.11	20.81	21.05

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	22.15	22.22	22.57	22.72	22.79	23.14
		RB1#12	22.17	22.39	22.64	22.74	22.96	23.21
		RB1#24	22.19	22.36	22.46	22.76	22.93	23.03
		RB12#0	21.22	21.49	21.59	21.79	22.06	22.16
		RB12#6	21.20	21.37	21.52	21.77	21.94	22.09
		RB12#11	21.15	21.52	21.66	21.72	22.09	22.23
		RB25#0	20.68	20.84	20.69	21.25	21.41	21.26
	16QAM	RB1#0	20.84	21.77	21.35	21.41	22.34	21.92
		RB1#12	20.88	21.80	21.13	21.45	22.37	21.70
		RB1#24	20.60	21.75	21.14	21.17	22.32	21.71
		RB12#0	20.17	20.49	20.68	20.74	21.06	21.25
		RB12#6	20.33	20.35	20.52	20.90	20.92	21.09
		RB12#11	20.42	20.62	20.66	20.99	21.19	21.23
		RB25#0	20.25	20.54	20.43	20.82	21.11	21.00
10.0	QPSK	RB1#0	22.32	22.43	22.27	22.89	23.00	22.84
		RB1#24	22.43	22.54	22.66	23.00	23.11	23.23
		RB1#49	22.51	22.35	22.12	23.08	22.92	22.69
		RB25#0	21.20	21.51	21.40	21.77	22.08	21.97
		RB25#12	21.38	21.42	21.32	21.95	21.99	21.89
		RB25#24	21.23	21.07	21.30	21.80	21.64	21.87
		RB50#0	20.84	20.68	20.79	21.41	21.25	21.36
	16QAM	RB1#0	21.73	21.64	21.28	22.30	22.21	21.85
		RB1#24	22.25	21.79	21.80	22.82	22.36	22.37
		RB1#49	22.32	21.64	21.29	22.89	22.21	21.86
		RB25#0	20.40	20.51	20.49	20.97	21.08	21.06
		RB25#12	20.52	20.28	20.61	21.09	20.85	21.18
		RB25#24	20.39	20.35	20.35	20.96	20.92	20.92
		RB50#0	20.19	20.26	20.24	20.76	20.83	20.81

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15.0	QPSK	RB1#0	21.63	21.92	21.76	22.20	22.49	22.33
		RB1#37	21.67	21.70	21.98	22.24	22.27	22.55
		RB1#74	21.61	21.84	21.82	22.18	22.41	22.39
		RB36#0	20.42	20.92	20.99	20.99	21.49	21.56
		RB36#18	20.62	20.66	21.14	21.19	21.23	21.71
		RB36#37	20.50	20.91	20.99	21.07	21.48	21.56
		RB75#0	20.26	20.68	20.74	20.83	21.25	21.31
	16QAM	RB1#0	21.02	21.31	21.00	21.59	21.88	21.57
		RB1#37	20.88	21.29	21.20	21.45	21.86	21.77
		RB1#74	20.81	21.32	20.88	21.38	21.89	21.45
		RB36#0	19.54	19.89	20.10	20.11	20.46	20.67
		RB36#18	19.59	19.82	20.10	20.16	20.39	20.67
		RB36#37	19.66	19.96	20.20	20.23	20.53	20.77
		RB75#0	19.36	19.48	19.89	19.93	20.05	20.46
20.0	QPSK	RB1#0	21.67	22.20	22.06	22.24	22.77	22.63
		RB1#49	22.16	22.15	22.04	22.73	22.72	22.61
		RB1#99	22.00	22.08	21.86	22.57	22.65	22.43
		RB50#0	20.73	21.07	21.04	21.30	21.64	21.61
		RB50#24	20.90	20.89	21.16	21.47	21.46	21.73
		RB50#49	20.77	21.01	21.02	21.34	21.58	21.59
		RB100#0	20.48	20.69	20.87	21.05	21.26	21.44
	16QAM	RB1#0	21.21	21.03	21.79	21.78	21.60	22.36
		RB1#49	21.75	21.02	22.13	22.32	21.59	22.70
		RB1#99	21.52	20.48	21.73	22.09	21.05	22.30
		RB50#0	19.81	20.16	20.05	20.38	20.73	20.62
		RB50#24	20.00	19.95	20.33	20.57	20.52	20.90
		RB50#49	19.91	20.04	20.18	20.48	20.61	20.75
		RB100#0	19.74	19.86	19.98	20.31	20.43	20.55

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi) - Cable Loss(dB)
For Band2: Antenna Gain = 1.57dBi
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)	4.71	4.29	4.26	13	Pass
QPSK (100RB Size)	5.35	5.32	5.13	13	Pass
16QAM (1RB Size)	5.80	5.10	4.94	13	Pass
16QAM (100RB Size)	6.31	6.15	6.12	13	Pass

LTE Band 4

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
1.4	QPSK	RB1#0	21.71	21.79	21.55	22.44	22.52	22.28
		RB1#2	21.70	21.90	21.72	22.43	22.63	22.45
		RB1#5	21.73	21.81	21.64	22.46	22.54	22.37
		RB3#0	21.72	21.82	21.68	22.45	22.55	22.41
		RB3#1	21.47	21.88	21.76	22.20	22.61	22.49
		RB3#2	20.53	20.74	20.73	21.26	21.47	21.46
		RB6#0	20.42	20.56	20.48	21.15	21.29	21.21
	16QAM	RB1#0	20.62	20.98	20.66	21.35	21.71	21.39
		RB1#2	20.68	21.46	20.57	21.41	22.19	21.30
		RB1#5	20.29	21.01	20.45	21.02	21.74	21.18
		RB3#0	20.55	20.62	20.72	21.28	21.35	21.45
		RB3#1	20.65	20.69	20.82	21.38	21.42	21.55
		RB3#2	19.71	19.69	19.89	20.44	20.42	20.62
		RB6#0	19.36	19.54	19.68	20.09	20.27	20.41
3.0	QPSK	RB1#0	21.66	21.89	21.57	22.39	22.62	22.30
		RB1#7	21.45	22.11	21.56	22.18	22.84	22.29
		RB1#14	21.48	22.28	21.69	22.21	23.01	22.42
		RB8#0	20.59	20.71	20.68	21.32	21.44	21.41
		RB8#4	20.61	20.91	20.77	21.34	21.64	21.50
		RB8#7	20.71	20.75	20.77	21.44	21.48	21.50
		RB15#0	20.34	20.52	20.46	21.07	21.25	21.19
	16QAM	RB1#0	20.85	21.50	20.33	21.58	22.23	21.06
		RB1#7	20.82	21.44	19.31	21.55	22.17	20.04
		RB1#14	20.86	21.58	19.59	21.59	22.31	20.32
		RB8#0	19.78	19.82	18.87	20.51	20.55	19.60
		RB8#4	19.61	20.15	18.83	20.34	20.88	19.56
		RB8#7	19.79	19.99	19.05	20.52	20.72	19.78
		RB15#0	19.53	19.68	19.12	20.26	20.41	19.85

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	20.88	21.15	21.16	21.61	21.88	21.89
		RB1#12	20.70	21.30	21.22	21.43	22.03	21.95
		RB1#24	20.70	21.20	21.50	21.43	21.93	22.23
		RB12#0	19.94	20.19	20.29	20.67	20.92	21.02
		RB12#6	19.49	20.34	20.25	20.22	21.07	20.98
		RB12#11	19.86	20.30	20.25	20.59	21.03	20.98
		RB25#0	19.42	19.53	19.27	20.15	20.26	20.00
	16QAM	RB1#0	20.02	20.43	20.00	20.75	21.16	20.73
		RB1#12	19.41	20.53	20.08	20.14	21.26	20.81
		RB1#24	19.24	20.56	19.84	19.97	21.29	20.57
		RB12#0	19.00	19.03	19.27	19.73	19.76	20.00
		RB12#6	18.87	19.55	19.46	19.60	20.28	20.19
		RB12#11	19.19	19.43	19.53	19.92	20.16	20.26
		RB25#0	19.24	19.37	19.26	19.97	20.10	19.99
10.0	QPSK	RB1#0	21.07	21.34	21.71	21.80	22.07	22.44
		RB1#24	21.15	21.60	21.36	21.88	22.33	22.09
		RB1#49	21.32	21.34	21.48	22.05	22.07	22.21
		RB25#0	20.23	20.30	20.48	20.96	21.03	21.21
		RB25#12	20.27	20.49	20.29	21.00	21.22	21.02
		RB25#24	20.27	20.42	20.36	21.00	21.15	21.09
		RB50#0	20.16	20.18	20.22	20.89	20.91	20.95
	16QAM	RB1#0	21.01	20.74	20.66	21.74	21.47	21.39
		RB1#24	20.29	20.94	20.24	21.02	21.67	20.97
		RB1#49	20.09	20.86	20.29	20.82	21.59	21.02
		RB25#0	19.49	19.38	19.54	20.22	20.11	20.27
		RB25#12	19.30	19.82	19.59	20.03	20.55	20.32
		RB25#24	19.49	19.46	19.51	20.22	20.19	20.24
		RB50#0	19.39	19.42	19.35	20.12	20.15	20.08

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15.0	QPSK	RB1#0	21.28	21.30	21.41	22.01	22.03	22.14
		RB1#37	21.28	21.59	21.43	22.01	22.32	22.16
		RB1#74	21.55	21.40	21.47	22.28	22.13	22.20
		RB36#0	20.32	20.43	20.54	21.05	21.16	21.27
		RB36#18	20.42	20.54	20.48	21.15	21.27	21.21
		RB36#37	20.42	20.45	20.56	21.15	21.18	21.29
		RB75#0	20.28	20.31	20.42	21.01	21.04	21.15
	16QAM	RB1#0	20.67	20.80	20.59	21.40	21.53	21.32
		RB1#37	20.43	21.60	20.37	21.16	22.33	21.10
		RB1#74	20.84	21.58	19.78	21.57	22.31	20.51
		RB36#0	19.27	19.56	19.57	20.00	20.29	20.30
		RB36#18	19.52	19.59	19.62	20.25	20.32	20.35
		RB36#37	19.53	19.73	19.72	20.26	20.46	20.45
		RB75#0	19.35	19.63	19.32	20.08	20.36	20.05
20.0	QPSK	RB1#0	21.39	21.54	22.06	22.12	22.27	22.79
		RB1#49	21.40	21.93	21.50	22.13	22.66	22.23
		RB1#99	21.74	21.92	21.60	22.47	22.65	22.33
		RB50#0	20.48	20.61	20.69	21.21	21.34	21.42
		RB50#24	20.58	20.72	20.59	21.31	21.45	21.32
		RB50#49	20.53	20.58	20.66	21.26	21.31	21.39
		RB100#0	20.23	20.33	20.42	20.96	21.06	21.15
	16QAM	RB1#0	20.90	20.59	21.40	21.63	21.32	22.13
		RB1#49	21.11	20.75	21.43	21.84	21.48	22.16
		RB1#99	20.99	20.49	21.38	21.72	21.22	22.11
		RB50#0	19.55	19.71	19.79	20.28	20.44	20.52
		RB50#24	19.75	19.87	19.46	20.48	20.60	20.19
		RB50#49	19.64	19.80	19.79	20.37	20.53	20.52
		RB100#0	19.44	19.71	19.68	20.17	20.44	20.41

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi) - Cable Loss(dB)
For Band4: Antenna Gain = 1.73dBi
Cable Loss=1.0dB*(provided by the applicant)
Limit: EIRP≤30dBm

Peak-to-average ratio (PAR)

20MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	3.91	4.68	4.42	13	Pass
QPSK (100RB Size)	5.26	5.32	5.22	13	Pass
16QAM (1RB Size)	4.71	5.61	5.32	13	Pass
16QAM (100RB Size)	6.09	6.15	6.12	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	22.24	22.42	22.45	19.88	20.06	20.09
		RB1#2	22.62	22.26	22.39	20.26	19.90	20.03
		RB1#5	22.40	22.12	22.14	20.04	19.76	19.78
		RB3#0	21.86	21.92	21.89	19.50	19.56	19.53
		RB3#1	21.80	21.83	21.91	19.44	19.47	19.55
		RB3#2	21.80	21.80	21.73	19.44	19.44	19.37
		RB6#0	21.65	21.59	20.74	19.29	19.23	18.38
	16QAM	RB1#0	21.79	21.47	22.25	19.43	19.11	19.89
		RB1#2	22.33	22.24	22.28	19.97	19.88	19.92
		RB1#5	22.23	22.24	22.14	19.87	19.88	19.78
		RB3#0	22.05	22.23	21.86	19.69	19.87	19.50
		RB3#1	21.04	21.02	21.05	18.68	18.66	18.69
		RB3#2	20.99	20.95	20.96	18.63	18.59	18.60
		RB6#0	20.67	20.55	20.58	18.31	18.19	18.22
3.0	QPSK	RB1#0	22.19	22.43	22.41	19.83	20.07	20.05
		RB1#7	22.61	22.25	22.33	20.25	19.89	19.97
		RB1#14	22.42	22.12	22.17	20.06	19.76	19.81
		RB8#0	21.85	21.90	21.91	19.49	19.54	19.55
		RB8#4	21.78	21.86	21.91	19.42	19.50	19.55
		RB8#7	21.78	21.76	21.76	19.42	19.40	19.40
		RB15#0	21.36	21.52	21.37	19.00	19.16	19.01
	16QAM	RB1#0	21.80	21.50	22.26	19.44	19.14	19.90
		RB1#7	22.32	22.20	22.30	19.96	19.84	19.94
		RB1#14	22.19	22.25	22.10	19.83	19.89	19.74
		RB8#0	22.05	22.22	21.86	19.69	19.86	19.50
		RB8#4	21.04	21.02	21.05	18.68	18.66	18.69
		RB8#7	20.99	20.94	20.94	18.63	18.58	18.58
		RB15#0	20.66	20.57	20.68	18.30	18.21	18.32

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	21.83	22.38	22.46	19.47	20.02	20.10
		RB1#12	22.58	22.30	22.38	20.22	19.94	20.02
		RB1#24	22.39	22.12	22.17	20.03	19.76	19.81
		RB12#0	21.84	21.92	21.95	19.48	19.56	19.59
		RB12#6	21.82	21.86	21.92	19.46	19.50	19.56
		RB12#11	21.75	21.78	21.76	19.39	19.42	19.40
		RB25#0	20.58	20.43	20.68	18.22	18.07	18.32
	16QAM	RB1#0	21.78	21.50	22.31	19.42	19.14	19.95
		RB1#12	22.34	22.20	22.26	19.98	19.84	19.90
		RB1#24	22.23	22.24	22.11	19.87	19.88	19.75
		RB12#0	22.03	22.24	21.88	19.67	19.88	19.52
		RB12#6	21.09	21.01	21.05	18.73	18.65	18.69
		RB12#11	20.99	20.94	20.95	18.63	18.58	18.59
		RB25#0	20.59	20.51	20.36	18.23	18.15	18.00
10.0	QPSK	RB1#0	21.57	22.44	22.41	19.21	20.08	20.05
		RB1#24	22.62	22.32	22.36	20.26	19.96	20.00
		RB1#49	22.39	22.14	22.16	20.03	19.78	19.80
		RB25#0	21.83	21.89	21.91	19.47	19.53	19.55
		RB25#12	21.81	21.86	21.91	19.45	19.50	19.55
		RB25#24	21.82	21.78	21.74	19.46	19.42	19.38
		RB50#0	20.94	20.75	20.68	18.58	18.39	18.32
	16QAM	RB1#0	21.78	21.51	22.33	19.42	19.15	19.97
		RB1#24	22.31	22.22	22.28	19.95	19.86	19.92
		RB1#49	22.24	22.24	22.12	19.88	19.88	19.76
		RB25#0	22.04	22.23	21.87	19.68	19.87	19.51
		RB25#12	21.04	21.16	21.06	18.68	18.80	18.70
		RB25#24	20.99	20.98	20.98	18.63	18.62	18.62
		RB50#0	20.61	20.46	20.42	18.25	18.10	18.06

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd) - Cable Loss(dB)
For Band5: Antenna Gain = 0.39dBi = -1.76dBd (0dBd=2.15dBi)
Cable Loss=0.6dB* (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)	3.59	4.84	3.46	13	Pass
QPSK (50RB Size)	5.35	5.16	5.29	13	Pass
16QAM (1RB Size)	4.29	5.80	4.13	13	Pass
16QAM (50RB Size)	6.22	6.22	6.12	13	Pass

LTE Band 12

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
1.4	QPSK	RB1#0	21.68	22.41	22.44	22.09	22.82	22.85
		RB1#2	22.61	22.30	22.37	23.02	22.71	22.78
		RB1#5	22.42	22.11	22.15	22.83	22.52	22.56
		RB3#0	21.84	21.92	21.91	22.25	22.33	22.32
		RB3#1	21.80	21.85	21.93	22.21	22.26	22.34
		RB3#2	21.76	21.79	21.72	22.17	22.20	22.13
		RB6#0	20.84	20.58	20.67	21.25	20.99	21.08
	16QAM	RB1#0	21.77	21.48	22.29	22.18	21.89	22.70
		RB1#2	22.33	22.23	22.29	22.74	22.64	22.70
		RB1#5	22.21	22.22	22.09	22.62	22.63	22.50
		RB3#0	22.03	22.26	21.86	22.44	22.67	22.27
		RB3#1	21.04	21.03	21.06	21.45	21.44	21.47
		RB3#2	20.95	20.97	21.05	21.36	21.38	21.46
		RB6#0	20.59	20.62	20.82	21.00	21.03	21.23
3.0	QPSK	RB1#0	22.06	22.43	22.42	22.47	22.84	22.83
		RB1#7	22.58	22.29	22.35	22.99	22.70	22.76
		RB1#14	22.40	22.11	22.14	22.81	22.52	22.55
		RB8#0	21.86	21.89	21.94	22.27	22.30	22.35
		RB8#4	21.80	21.86	21.88	22.21	22.27	22.29
		RB8#7	21.77	21.78	21.72	22.18	22.19	22.13
		RB15#0	21.32	21.41	21.21	21.73	21.82	21.62
	16QAM	RB1#0	21.78	21.51	22.28	22.19	21.92	22.69
		RB1#7	22.31	22.24	22.29	22.72	22.65	22.70
		RB1#14	22.22	22.26	22.11	22.63	22.67	22.52
		RB8#0	22.04	22.24	21.89	22.45	22.65	22.30
		RB8#4	21.05	21.04	21.06	21.46	21.45	21.47
		RB8#7	20.97	20.94	20.99	21.38	21.35	21.40
		RB15#0	20.57	20.53	20.68	20.98	20.94	21.09

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
5.0	QPSK	RB1#0	22.13	22.41	22.46	22.54	22.82	22.87
		RB1#12	22.61	22.26	22.34	23.02	22.67	22.75
		RB1#24	22.41	22.12	22.17	22.82	22.53	22.58
		RB12#0	21.85	21.9	21.89	22.26	22.31	22.30
		RB12#6	21.82	21.82	21.92	22.23	22.23	22.33
		RB12#11	21.79	21.77	21.71	22.20	22.18	22.12
		RB25#0	21.25	21.26	21.30	21.66	21.67	21.71
	16QAM	RB1#0	21.80	21.52	22.29	22.21	21.93	22.70
		RB1#12	22.35	22.22	22.30	22.76	22.63	22.71
		RB1#24	22.21	22.26	22.11	22.62	22.67	22.52
		RB12#0	22.06	22.23	21.89	22.47	22.64	22.30
		RB12#6	21.09	21.03	21.01	21.50	21.44	21.42
		RB12#11	20.97	20.98	20.99	21.38	21.39	21.40
		RB25#0	20.36	20.47	20.64	20.77	20.88	21.05
10.0	QPSK	RB1#0	21.71	22.42	22.45	22.12	22.83	22.86
		RB1#24	22.63	22.29	22.37	23.04	22.70	22.78
		RB1#49	22.42	22.16	22.17	22.83	22.57	22.58
		RB25#0	21.86	21.91	21.95	22.27	22.32	22.36
		RB25#12	21.82	21.81	21.88	22.23	22.22	22.29
		RB25#24	21.85	21.76	21.72	22.26	22.17	22.13
		RB50#0	21.42	20.23	20.27	21.83	20.64	20.68
	16QAM	RB1#0	21.81	21.47	22.27	22.22	21.88	22.68
		RB1#24	22.35	22.24	22.29	22.76	22.65	22.70
		RB1#49	22.19	22.23	22.14	22.60	22.64	22.55
		RB25#0	22.07	22.25	21.86	22.48	22.66	22.27
		RB25#12	21.09	21.03	21.04	21.50	21.44	21.45
		RB25#24	20.97	20.99	20.94	21.38	21.40	21.35
		RB50#0	20.39	20.54	20.66	20.80	20.95	21.07

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd) - Cable Loss(dB)
For Band12: Antenna Gain = 3.16dBi = 1.01dBd (0dBd=2.15dBi)
Cable Loss=0.6dB* (provided by the applicant)
Limit: ERP≤34.77dBm

Peak-to-average ratio (PAR)

10MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.55	4.49	4.52	13	Pass
QPSK (50RB Size)	5.29	5.64	5.13	13	Pass
16QAM (1RB Size)	5.32	5.32	5.48	13	Pass
16QAM (50RB Size)	6.19	6.44	6.12	13	Pass

LTE Band 13

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			ERP(dBm)		
			Low	Mid	High	Low	Mid	High
5.0	QPSK	RB1#0	22.68	22.86	22.87	20.54	20.72	20.73
		RB1#12	22.88	22.88	22.95	20.74	20.74	20.81
		RB1#24	22.74	22.83	22.79	20.60	20.69	20.65
		RB12#0	22.71	22.73	22.82	20.57	20.59	20.68
		RB12#6	22.77	22.75	22.79	20.63	20.61	20.65
		RB12#11	21.86	21.76	21.84	19.72	19.62	19.70
		RB25#0	21.32	21.27	20.42	19.18	19.13	18.28
	16QAM	RB1#0	22.01	21.80	21.89	19.87	19.66	19.75
		RB1#12	22.13	22.06	21.88	19.99	19.92	19.74
		RB1#24	21.99	21.93	22.02	19.85	19.79	19.88
		RB12#0	21.88	21.74	21.75	19.74	19.60	19.61
		RB12#6	21.91	21.77	21.79	19.77	19.63	19.65
		RB12#11	20.81	20.80	20.74	18.67	18.66	18.60
		RB25#0	20.34	20.51	20.65	18.20	18.37	18.51
10.0	QPSK	RB1#0	/	21.52	/	/	19.38	/
		RB1#24	/	21.30	/	/	19.16	/
		RB1#49	/	21.51	/	/	19.37	/
		RB25#0	/	20.26	/	/	18.12	/
		RB25#12	/	20.28	/	/	18.14	/
		RB25#24	/	20.29	/	/	18.15	/
		RB50#0	/	20.32	/	/	18.18	/
	16QAM	RB1#0	/	20.60	/	/	18.46	/
		RB1#24	/	20.41	/	/	18.27	/
		RB1#49	/	20.64	/	/	18.50	/
		RB25#0	/	19.23	/	/	17.09	/
		RB25#12	/	19.15	/	/	17.01	/
		RB25#24	/	19.27	/	/	17.13	/
		RB50#0	/	19.36	/	/	17.22	/

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd) - Cable Loss(dB)
For Band13: Antenna Gain = 0.61dBi = -1.54dBd (0dBd=2.15dBi)
Cable Loss=0.6dB* (provided by the applicant)
Limit: ERP≤34.77dBm

Peak-to-average ratio (PAR)

10MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.43	4.74	4.49	13	Pass
QPSK (50RB Size)	5.35	5.13	5.32	13	Pass
16QAM (1RB Size)	5.10	5.83	5.07	13	Pass
16QAM (50RB Size)	6.22	6.19	6.15	13	Pass

LTE Band 66:

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
1.4	QPSK	RB1#0	21.52	21.45	21.22	22.25	22.18	21.95
		RB1#2	21.46	21.31	21.32	22.19	22.04	22.05
		RB1#5	21.52	21.48	21.28	22.25	22.21	22.01
		RB3#0	20.43	20.27	20.36	21.16	21.00	21.09
		RB3#1	20.42	20.24	20.35	21.15	20.97	21.08
		RB3#2	20.49	20.32	20.35	21.22	21.05	21.08
		RB6#0	20.23	20.15	20.42	20.96	20.88	21.15
	16QAM	RB1#0	20.70	20.47	20.28	21.43	21.20	21.01
		RB1#2	20.51	20.46	20.43	21.24	21.19	21.16
		RB1#5	20.74	20.38	20.46	21.47	21.11	21.19
		RB3#0	19.51	19.38	19.33	20.24	20.11	20.06
		RB3#1	19.49	19.34	19.34	20.22	20.07	20.07
		RB3#2	19.46	19.37	19.29	20.19	20.10	20.02
		RB6#0	19.20	19.21	19.16	19.93	19.94	19.89
3.0	QPSK	RB1#0	21.77	21.73	21.60	22.50	22.46	22.33
		RB1#7	21.79	21.44	21.50	22.52	22.17	22.23
		RB1#14	21.63	21.39	21.54	22.36	22.12	22.27
		RB8#0	20.42	20.40	20.25	21.15	21.13	20.98
		RB8#4	20.57	20.29	20.31	21.30	21.02	21.04
		RB8#7	20.44	20.35	20.30	21.17	21.08	21.03
		RB15#0	20.21	20.06	20.12	20.94	20.79	20.85
	16QAM	RB1#0	20.74	20.77	20.54	21.47	21.50	21.27
		RB1#7	20.88	20.52	20.48	21.61	21.25	21.21
		RB1#14	20.56	20.61	20.53	21.29	21.34	21.26
		RB8#0	19.51	19.44	19.24	20.24	20.17	19.97
		RB8#4	19.59	19.38	19.33	20.32	20.11	20.06
		RB8#7	19.52	19.43	19.37	20.25	20.16	20.10
		RB15#0	19.33	19.25	19.32	20.06	19.98	20.05

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
5.0	QP SK	RB1#0	21.76	21.69	21.42	22.49	22.42	22.15
		RB1#12	21.51	21.23	21.21	22.24	21.96	21.94
		RB1#24	21.57	21.47	21.37	22.30	22.20	22.10
		RB12#0	20.59	20.43	20.41	21.32	21.16	21.14
		RB12#6	20.38	20.41	20.37	21.11	21.14	21.10
		RB12#11	20.43	20.39	20.27	21.16	21.12	21.00
		RB25#0	20.12	20.32	20.07	20.85	21.05	20.80
	16QAM	RB1#0	20.78	20.83	20.57	21.51	21.56	21.30
		RB1#12	20.46	20.50	20.37	21.19	21.23	21.10
		RB1#24	20.64	20.59	20.58	21.37	21.32	21.31
		RB12#0	19.66	19.45	19.47	20.39	20.18	20.20
		RB12#6	19.36	19.41	19.33	20.09	20.14	20.06
		RB12#11	19.51	19.46	19.36	20.24	20.19	20.09
		RB25#0	19.11	19.25	19.06	19.84	19.98	19.79
10.0	QPSK	RB1#0	22.31	22.42	22.44	23.04	23.15	23.17
		RB1#24	22.59	22.26	22.35	23.32	22.99	23.08
		RB1#49	22.41	22.12	22.18	23.14	22.85	22.91
		RB25#0	21.84	21.9	21.93	22.57	22.63	22.66
		RB25#12	21.82	21.82	21.93	22.55	22.55	22.66
		RB25#24	21.85	21.79	21.75	22.58	22.52	22.48
		RB50#0	21.54	21.27	21.35	22.27	22.00	22.08
	16QAM	RB1#0	21.77	21.52	22.31	22.50	22.25	23.04
		RB1#24	22.29	22.21	22.28	23.02	22.94	23.01
		RB1#49	22.23	22.28	22.11	22.96	23.01	22.84
		RB25#0	22.01	22.26	21.86	22.74	22.99	22.59
		RB25#12	21.04	21.02	21.03	21.77	21.75	21.76
		RB25#24	21.01	20.95	20.99	21.74	21.68	21.72
		RB50#0	20.68	20.35	20.42	21.41	21.08	21.15

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15.0	QPSK	RB1#0	21.67	21.70	21.77	22.40	22.43	22.50
		RB1#37	21.61	21.82	21.85	22.34	22.55	22.58
		RB1#74	21.63	21.77	21.75	22.36	22.50	22.48
		RB36#0	21.62	21.66	21.72	22.35	22.39	22.45
		RB36#18	21.69	21.66	21.66	22.42	22.39	22.39
		RB36#37	20.70	20.71	20.74	21.43	21.44	21.47
		RB75#0	20.44	20.51	20.48	21.17	21.24	21.21
	16QAM	RB1#0	20.81	20.77	20.82	21.54	21.50	21.55
		RB1#37	20.92	20.86	20.92	21.65	21.59	21.65
		RB1#74	21.04	21.00	20.93	21.77	21.73	21.66
		RB36#0	20.62	20.70	20.74	21.35	21.43	21.47
		RB36#18	20.60	20.71	20.85	21.33	21.44	21.58
		RB36#37	19.76	19.67	19.75	20.49	20.40	20.48
		RB75#0	19.64	19.35	19.45	20.37	20.08	20.18
20.0	QPSK	RB1#0	21.78	21.69	21.76	22.51	22.42	22.49
		RB1#49	21.53	21.68	21.72	22.26	22.41	22.45
		RB1#99	21.70	21.71	21.74	22.43	22.44	22.47
		RB50#0	20.74	20.77	20.76	21.47	21.50	21.49
		RB50#24	20.73	20.72	20.73	21.46	21.45	21.46
		RB50#49	20.74	20.78	20.77	21.47	21.51	21.50
		RB100#0	20.56	20.47	20.38	21.29	21.20	21.11
	16QAM	RB1#0	20.89	21.05	20.98	21.62	21.78	21.71
		RB1#49	20.73	20.88	20.94	21.46	21.61	21.67
		RB1#99	20.78	20.66	20.86	21.51	21.39	21.59
		RB50#0	19.87	19.69	19.67	20.60	20.42	20.40
		RB50#24	19.68	19.67	19.62	20.41	20.40	20.35
		RB50#49	19.73	19.71	19.77	20.46	20.44	20.50
		RB100#0	19.54	19.62	19.47	20.27	20.35	20.20

Note: EIRP(dBm) = Conducted Power(dBm) + Antenna Gain(dBi) - Cable Loss(dB)
For Band 66: Antenna Gain = 1.73Bi
Cable Loss=1.0dB*(provided by the applicant)
Limit: EIRP≤30dBm

Peak-to-average ratio (PAR)

20MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	4.26	4.52	4.23	13	Pass
QPSK (100RB Size)	5.22	5.26	5.10	13	Pass
16QAM (1RB Size)	4.94	5.54	5.13	13	Pass
16QAM (100RB Size)	6.22	6.22	6.03	13	Pass

LTE Band 71:

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
5.0	QPSK	RB1#0	21.52	21.62	21.47	21.79	21.89	21.74
		RB1#12	21.44	21.41	21.70	21.71	21.68	21.97
		RB1#24	21.41	21.43	21.68	21.68	21.70	21.95
		RB12#0	21.45	21.38	21.71	21.72	21.65	21.98
		RB12#6	21.42	21.43	21.72	21.69	21.70	21.99
		RB12#11	21.45	21.40	21.68	21.72	21.67	21.95
		RB25#0	21.44	21.42	21.70	21.71	21.69	21.97
	16QAM	RB1#0	21.41	21.42	21.71	21.68	21.69	21.98
		RB1#12	21.41	21.38	21.73	21.68	21.65	22.00
		RB1#24	21.45	21.37	21.69	21.72	21.64	21.96
		RB12#0	21.46	21.43	21.71	21.73	21.70	21.98
		RB12#6	21.44	21.42	21.72	21.71	21.69	21.99
		RB12#11	21.44	21.39	21.70	21.71	21.66	21.97
		RB25#0	21.40	21.37	21.71	21.67	21.64	21.98
10.0	QPSK	RB1#0	21.42	21.40	21.41	21.69	21.67	21.68
		RB1#24	21.43	21.38	21.43	21.70	21.65	21.70
		RB1#49	21.46	21.38	21.38	21.73	21.65	21.65
		RB25#0	21.43	21.41	21.39	21.70	21.68	21.66
		RB25#12	21.40	21.41	21.38	21.67	21.68	21.65
		RB25#24	21.43	21.42	21.41	21.70	21.69	21.68
		RB50#0	21.45	21.39	21.42	21.72	21.66	21.69
	16QAM	RB1#0	21.41	21.39	21.42	21.68	21.66	21.69
		RB1#24	21.42	21.41	21.39	21.69	21.68	21.66
		RB1#49	21.45	21.43	21.42	21.72	21.70	21.69
		RB25#0	21.43	21.42	21.43	21.70	21.69	21.70
		RB25#12	21.45	21.38	21.38	21.72	21.65	21.65
		RB25#24	21.41	21.39	21.41	21.68	21.66	21.68
		RB50#0	21.44	21.41	21.42	21.71	21.68	21.69

Bandwidth (MHz)	Modulation	RB size/ RB Offset	Conducted Average Output Power (dBm)			EIRP(dBm)		
			Low	Mid	High	Low	Mid	High
15.0	QPSK	RB1#0	21.34	21.27	21.30	21.61	21.54	21.57
		RB1#37	21.35	21.28	21.29	21.62	21.55	21.56
		RB1#74	21.35	21.28	21.30	21.62	21.55	21.57
		RB36#0	21.36	21.28	21.28	21.63	21.55	21.55
		RB36#18	21.35	21.28	21.30	21.62	21.55	21.57
		RB36#37	21.35	21.33	21.28	21.62	21.60	21.55
		RB75#0	21.36	21.28	21.30	21.63	21.55	21.57
	16QAM	RB1#0	21.35	21.31	21.30	21.62	21.58	21.57
		RB1#37	21.35	21.30	21.29	21.62	21.57	21.56
		RB1#74	21.32	21.32	21.29	21.59	21.59	21.56
		RB36#0	21.30	21.32	21.33	21.57	21.59	21.60
		RB36#18	21.32	21.29	21.28	21.59	21.56	21.55
		RB36#37	21.35	21.28	21.30	21.62	21.55	21.57
		RB75#0	21.33	21.29	21.33	21.60	21.56	21.60
20.0	QPSK	RB1#0	21.31	21.27	21.31	21.58	21.54	21.58
		RB1#49	21.34	21.30	21.31	21.61	21.57	21.58
		RB1#99	21.30	21.33	21.33	21.57	21.60	21.60
		RB50#0	21.32	21.33	21.31	21.59	21.60	21.58
		RB50#24	21.35	21.28	21.28	21.62	21.55	21.55
		RB50#49	21.32	21.30	21.32	21.59	21.57	21.59
		RB100#0	21.33	21.28	21.32	21.60	21.55	21.59
	16QAM	RB1#0	21.31	21.28	21.29	21.58	21.55	21.56
		RB1#49	21.33	21.31	21.30	21.60	21.58	21.57
		RB1#99	21.33	21.28	21.31	21.60	21.55	21.58
		RB50#0	21.30	21.29	21.29	21.57	21.56	21.56
		RB50#24	21.35	21.33	21.32	21.62	21.60	21.59
		RB50#49	21.31	21.28	21.32	21.58	21.55	21.59
		RB100#0	21.34	21.30	21.30	21.61	21.57	21.57

Note: ERP(dBm) = Conducted Power(dBm) + Antenna Gain(dBd) - Cable Loss(dB)
For Band 71: Antenna Gain = 3.02dBi = 0.87dBd (0dBd=2.15dBi)
Cable Loss=0.6dB* (provided by the applicant)
Limit: ERP≤34.77dBm

Peak-to-average ratio (PAR)

20MHz Bandwidth

Modulation	Low channel (dB)	Middle channel (dB)	High channel (dB)	PAR Limit (dB)	Result
QPSK (1RB Size)	5.33	5.42	5.38	13	Pass
QPSK (100RB Size)	5.41	5.44	5.53	13	Pass
16QAM (1RB Size)	5.28	5.36	5.21	13	Pass
16QAM (100RB Size)	5.39	5.45	5.06	13	Pass

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

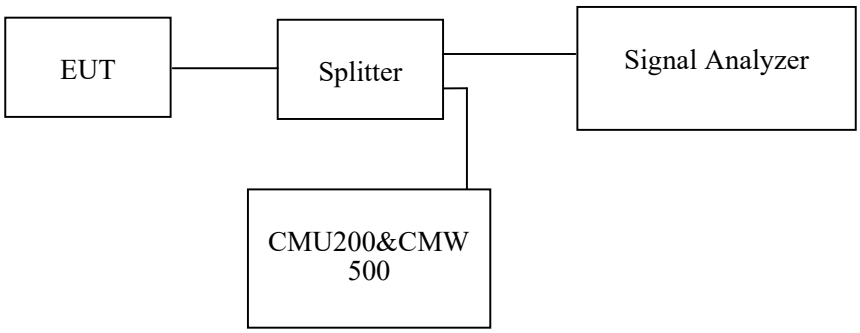
Applicable Standard

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 ℃
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

The testing was performed by Nancy Wang from 2021-01-12 to 2021-01-25.

EUT operation mode: Transmitting

Test Result: Pass

Please refer to the following tables and plots.

Cellular Band (Part 22H)

Frequency (MHz)		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	826.4	4.18	4.78
	836.6	4.14	4.73
	846.6	4.14	4.74
HSDPA	826.4	4.20	4.76
	836.6	4.16	4.75
	846.6	4.16	4.76
HSUPA	826.4	4.18	4.74
	836.6	4.16	4.73
	846.6	4.14	4.76

PCS Band (Part 24E)

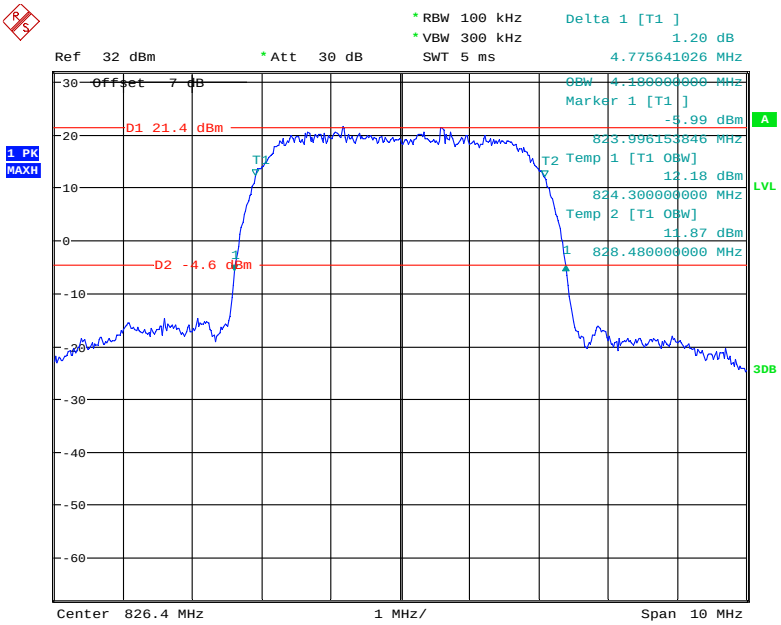
Frequency (MHz)		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	1852.4	4.14	4.73
	1880.0	4.14	4.74
	1907.6	4.14	4.76
HSDPA	1852.4	4.16	4.74
	1880.0	4.14	4.78
	1907.6	4.14	4.74
HSUPA	1852.4	4.14	4.74
	1880.0	4.14	4.78
	1907.6	4.14	4.74

AWS Band (Part 27)

Frequency (MHz)		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)
RMC	1712.4	4.16	4.73
	1732.6	4.14	4.73
	1752.6	4.14	4.74
HSDPA	1712.4	4.14	4.76
	1732.6	4.14	4.75
	1752.6	4.14	4.76
HSUPA	1712.4	4.14	4.73
	1732.6	4.14	4.75
	1752.6	4.14	4.74

Cellular Band (Part 22H)

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



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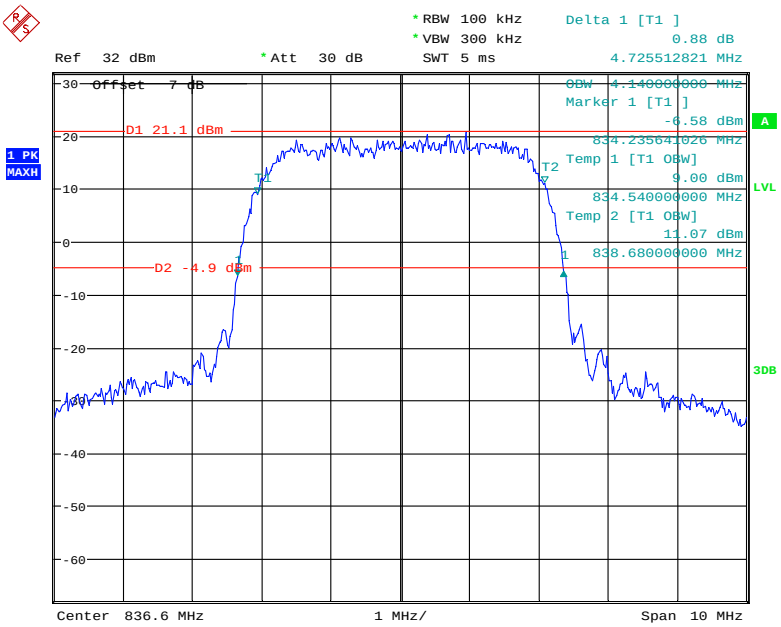
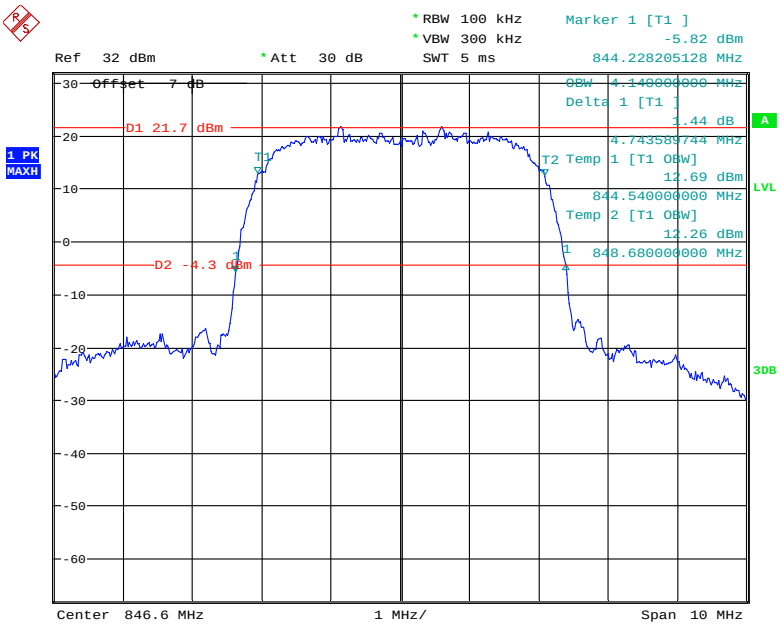
26 dB Emissions &99% Occupied Bandwidth for RMC (BPSK) Mode, Middle channel



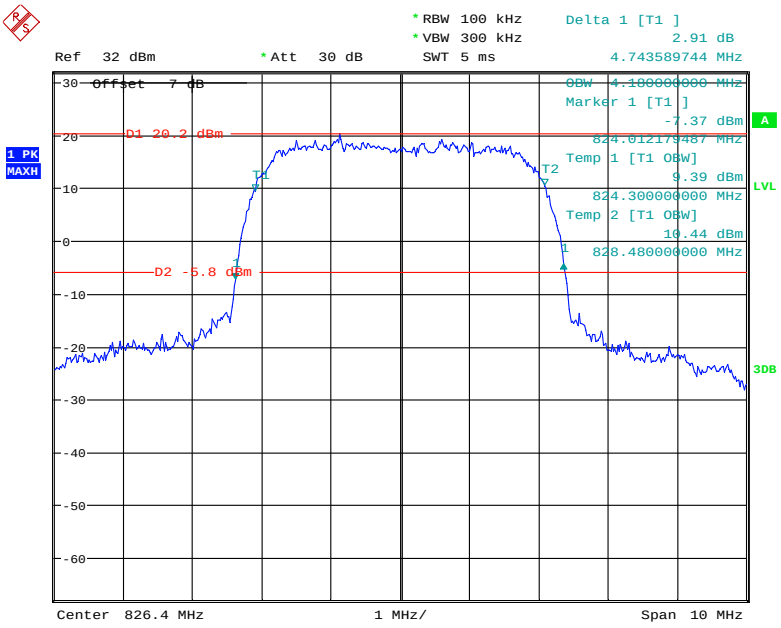
Date: 12.JAN.2021 14:57:06

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



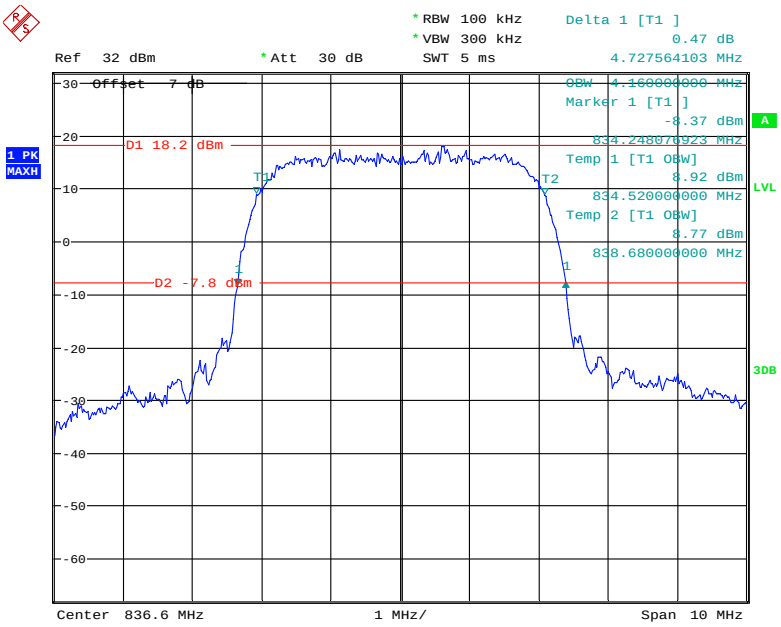
Date: 12.JAN.2021 15:16:39

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



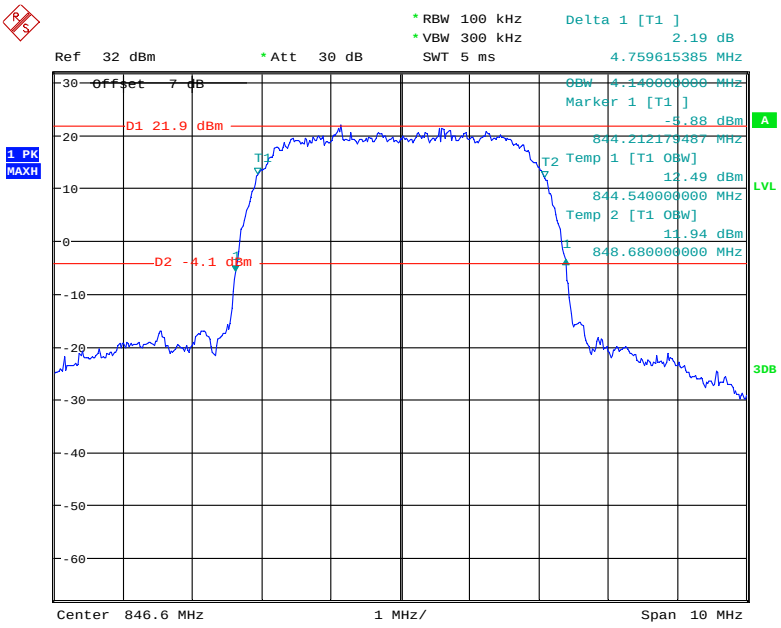
Date: 12.JAN.2021 15:48:02

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



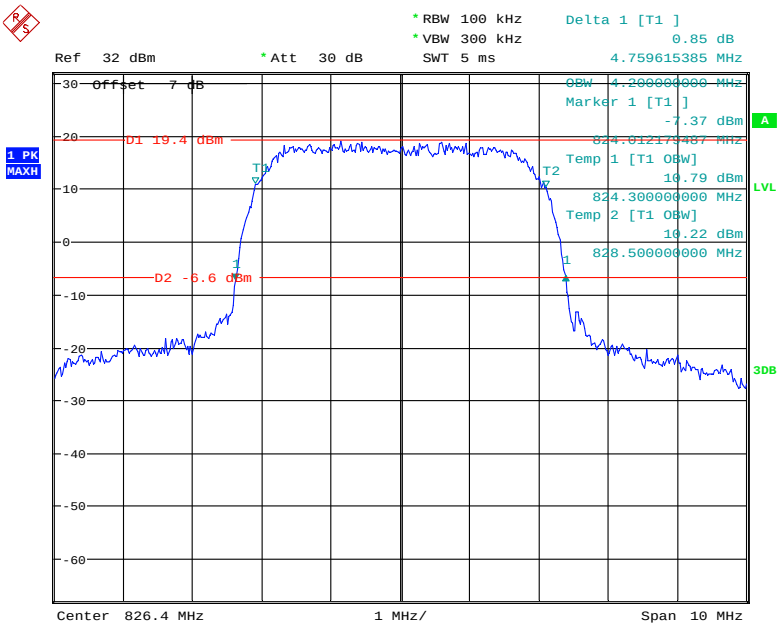
Date: 23.JAN.2021 02:41:01

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



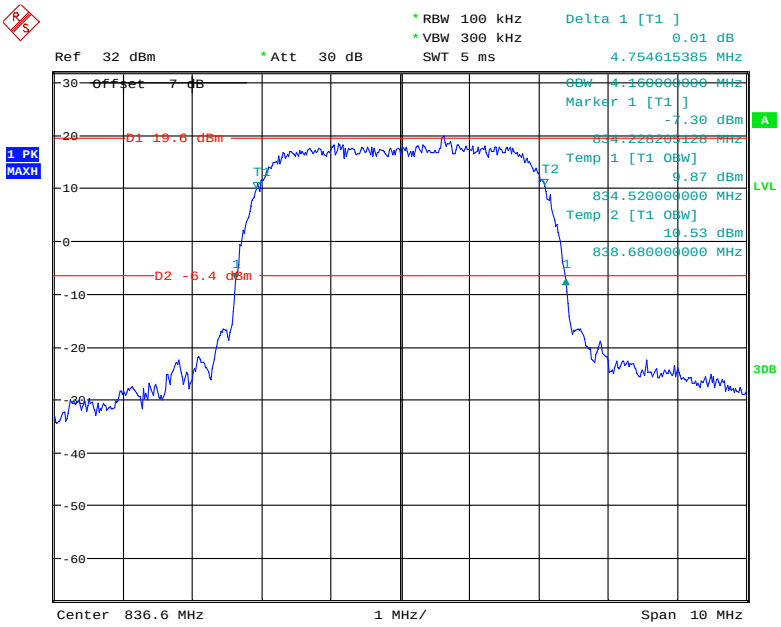
Date: 12.JAN.2021 15:50:36

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



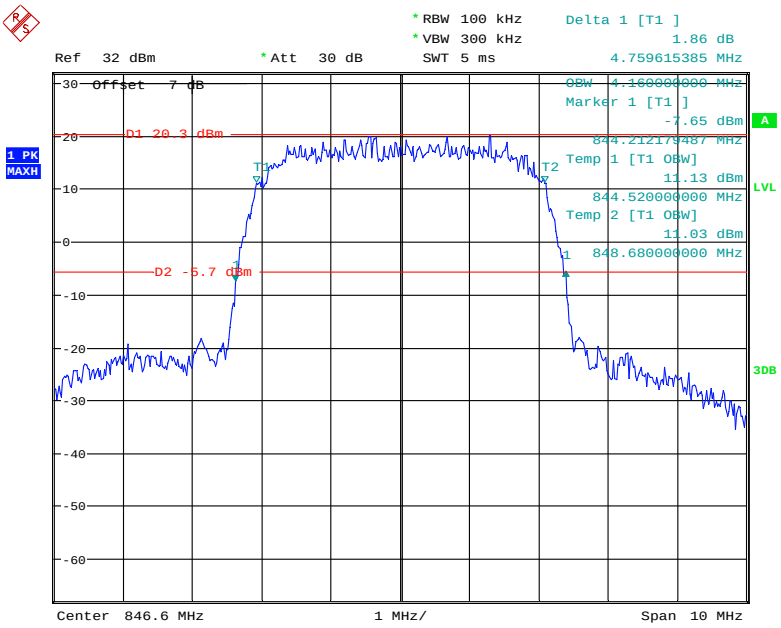
Date: 12.JAN.2021 15:39:00

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



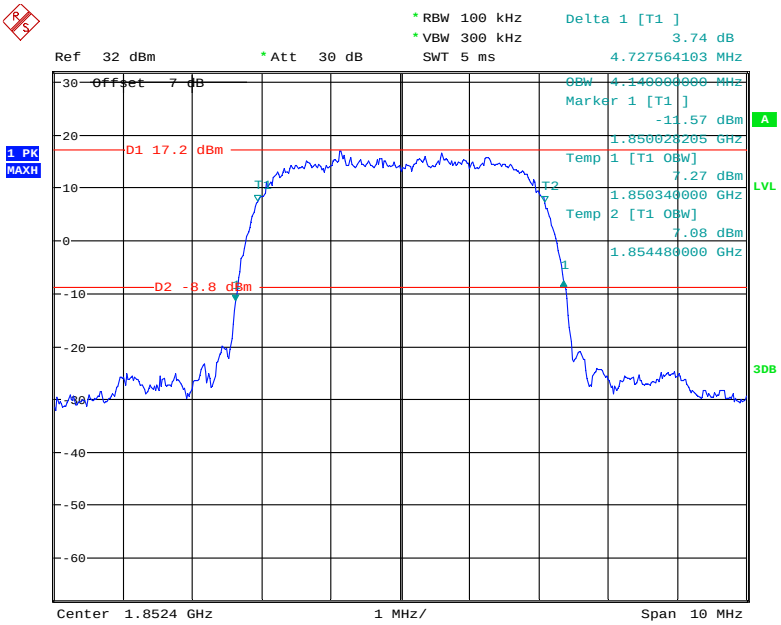
Date: 12.JAN.2021 16:40:01

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



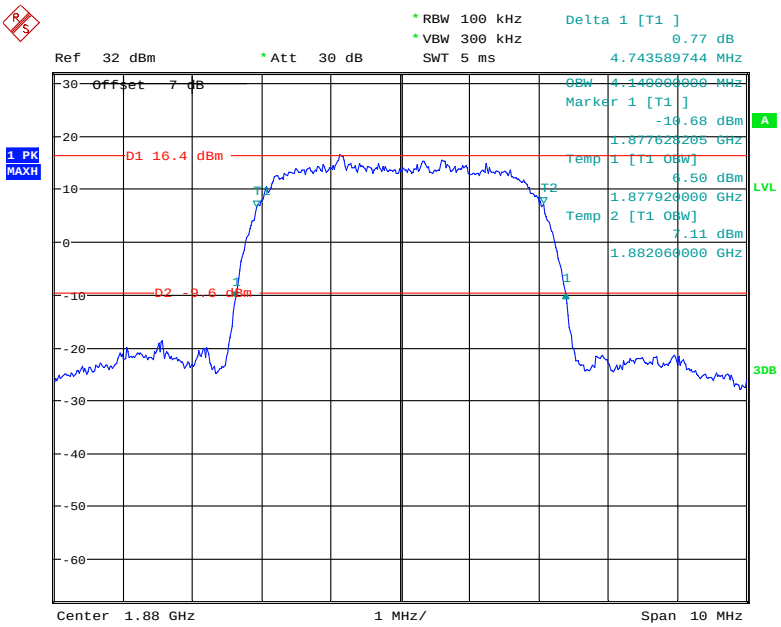
PCS Band (Part 24E)

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



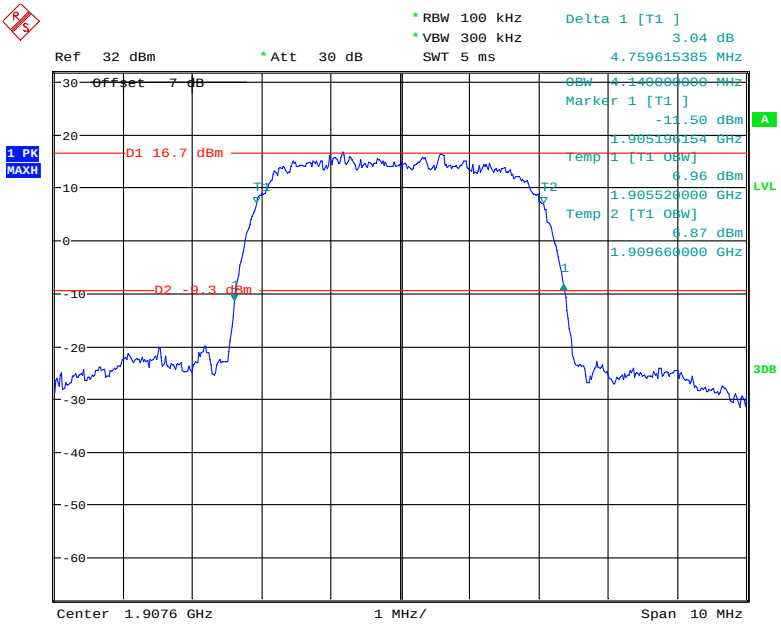
Date: 12.JAN.2021 15:18:31

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



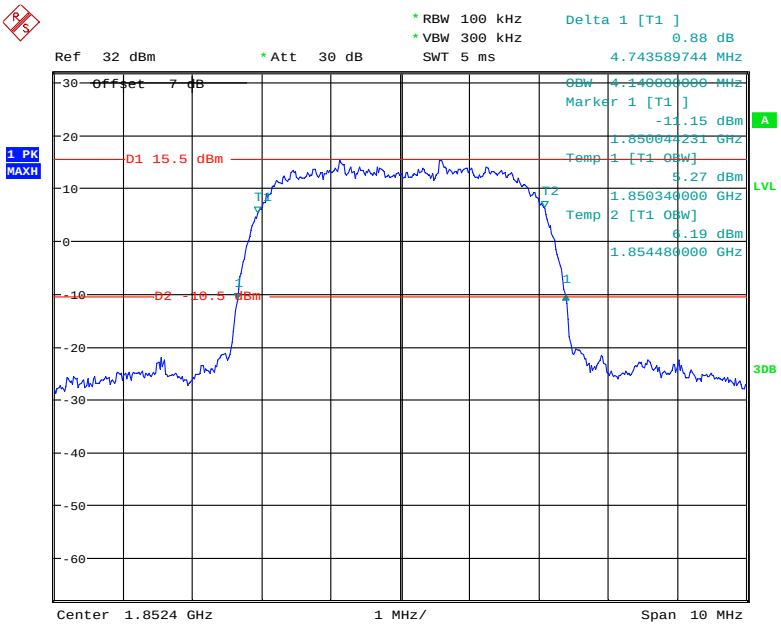
Date: 12.JAN.2021 14:58:43

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



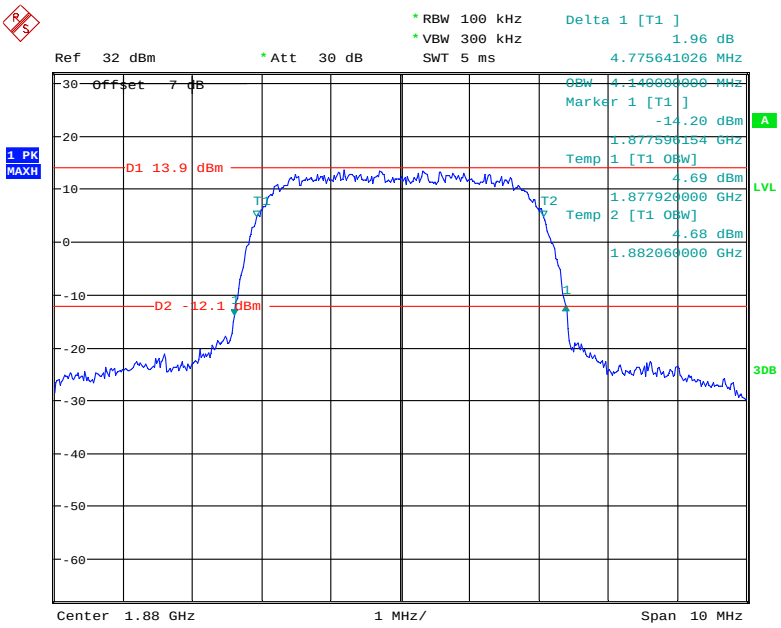
Date: 12.JAN.2021 15:19:58

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



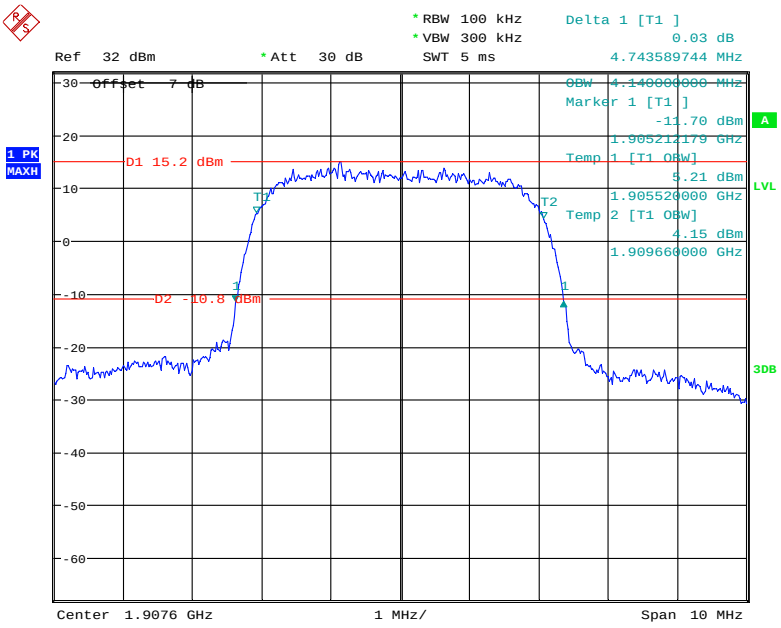
Date: 12.JAN.2021 15:26:31

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



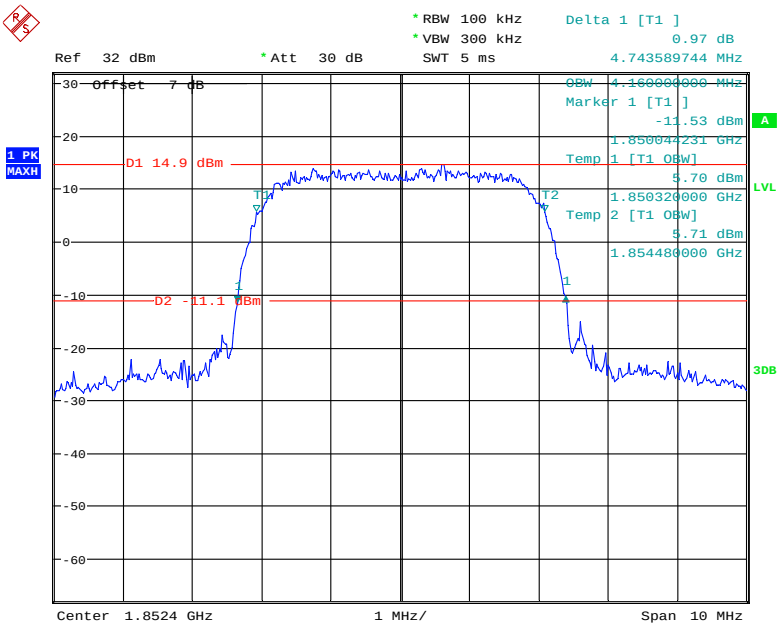
Date: 12.JAN.2021 15:03:46

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



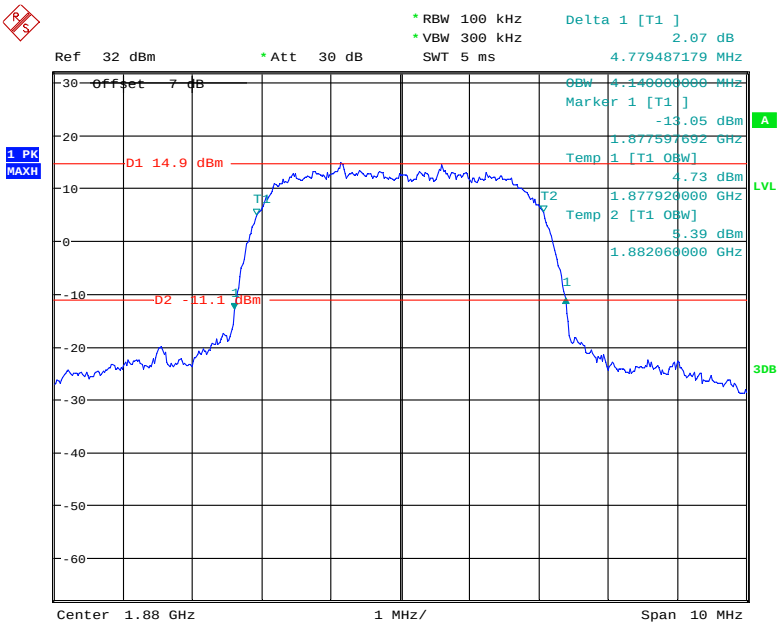
Date: 12.JAN.2021 15:21:42

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



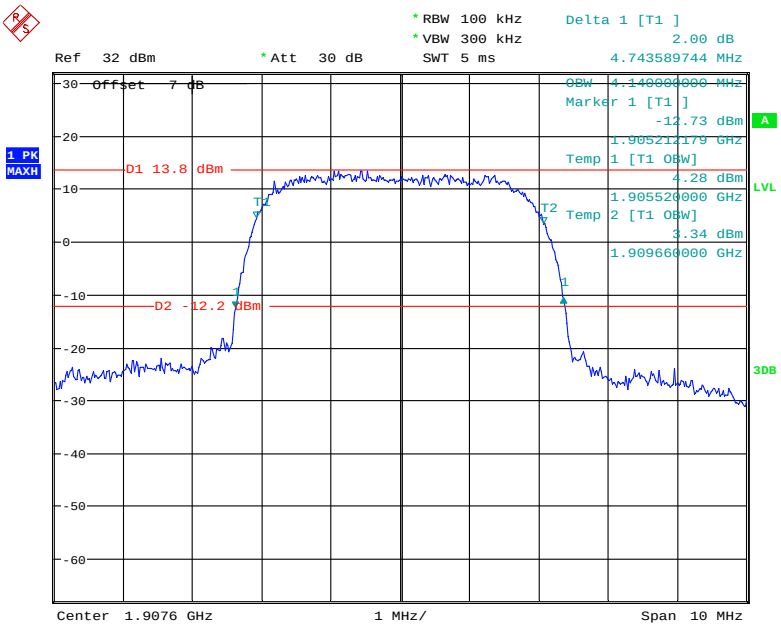
Date: 12.JAN.2021 15:24:42

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



Date: 12.JAN.2021 14:45:09

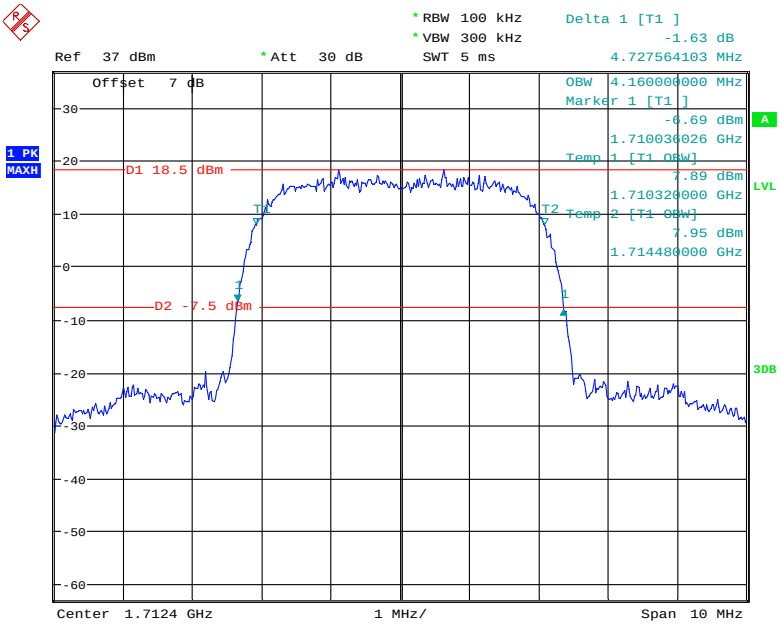
26 dB Emissions &99% Occupied Bandwidth for HSDPA (16QAM) Mode, High channel



Date: 12.JAN.2021 15:22:44

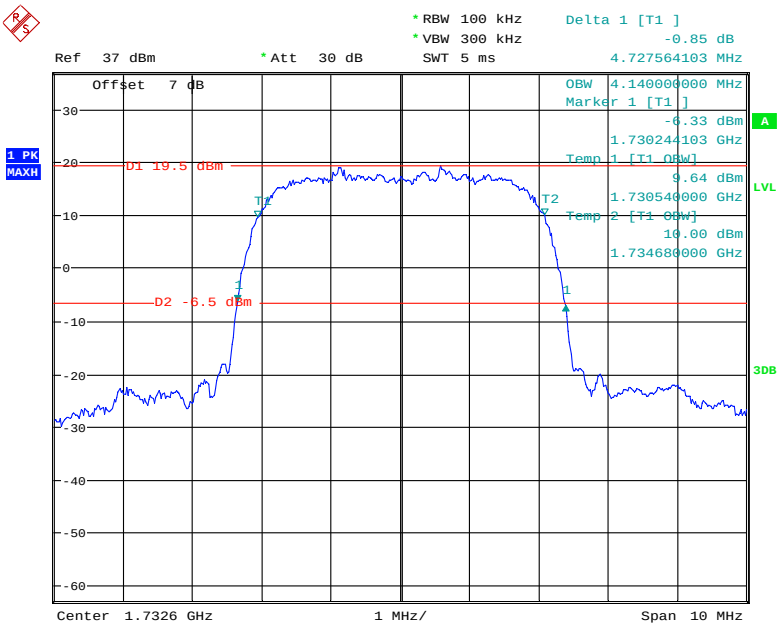
AWS Band (Part 27)

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



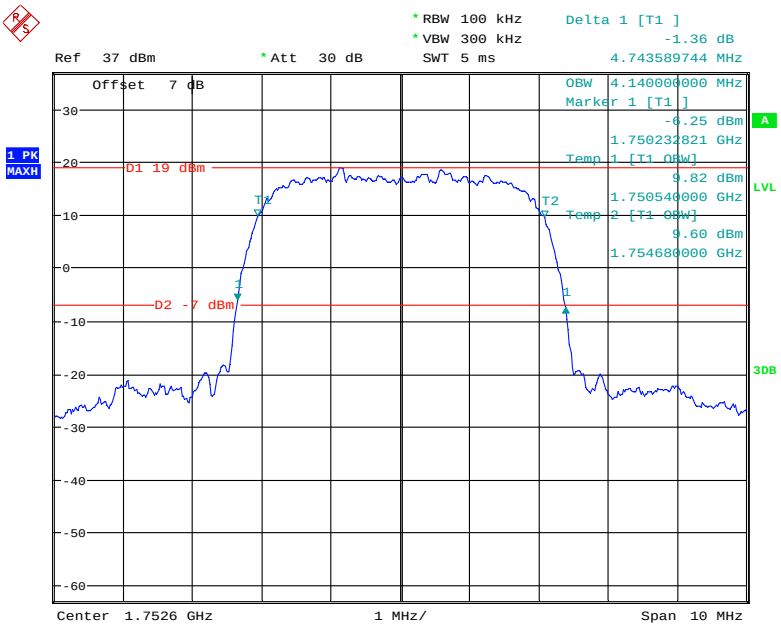
Date: 23.JAN.2021 00:23:39

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



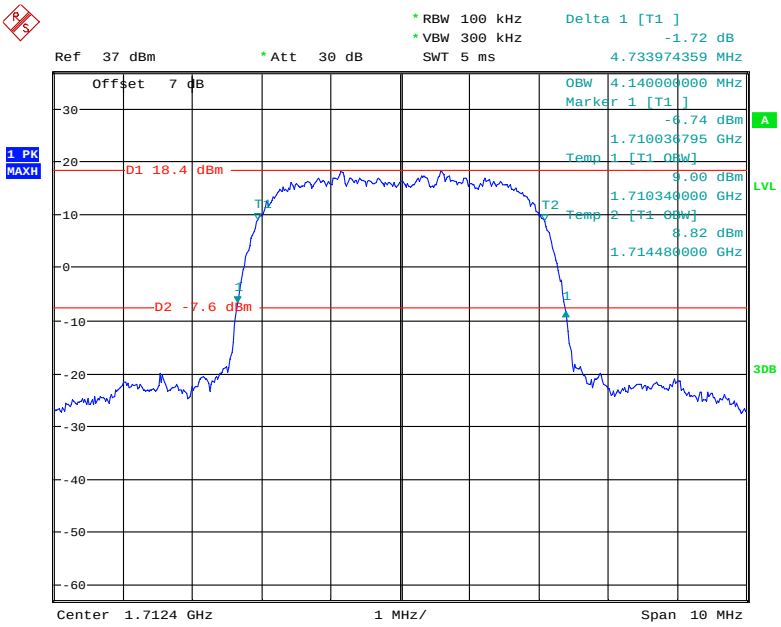
Date: 23.JAN.2021 00:21:46

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



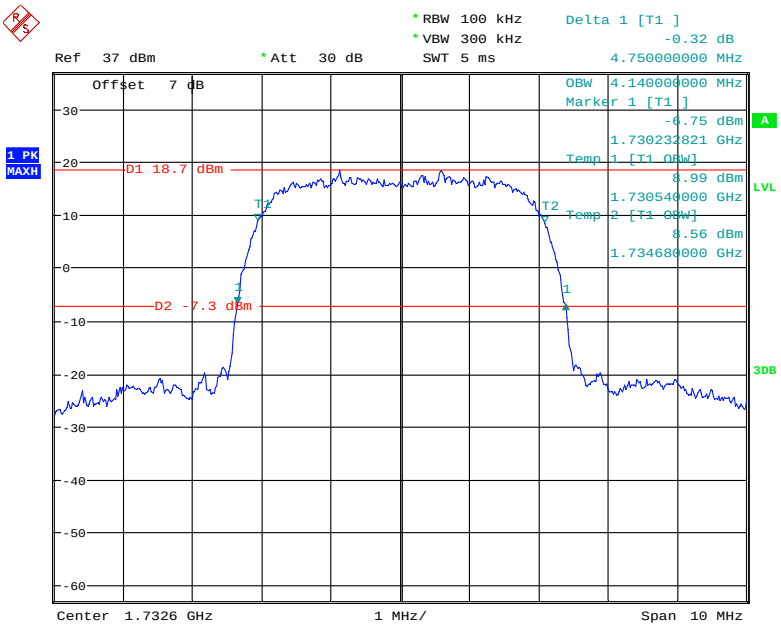
Date: 23.JAN.2021 00:15:48

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



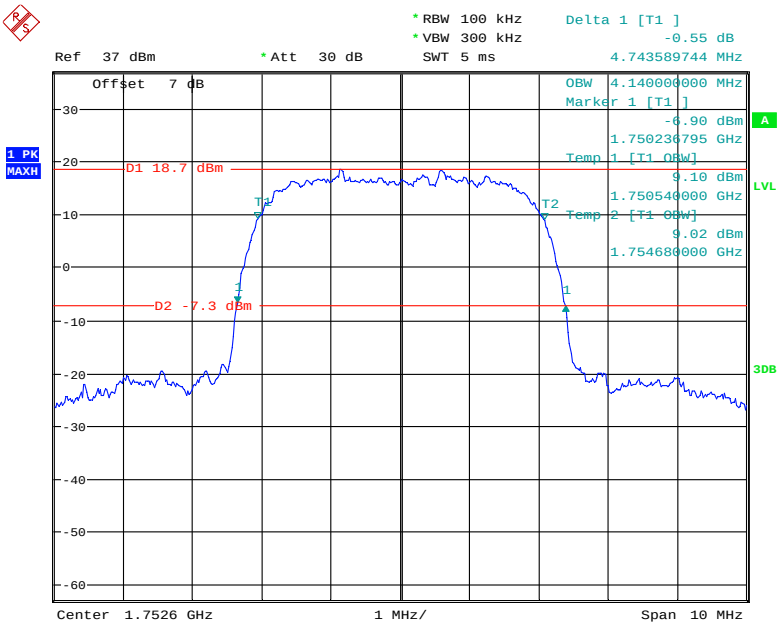
Date: 23.JAN.2021 00:38:22

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



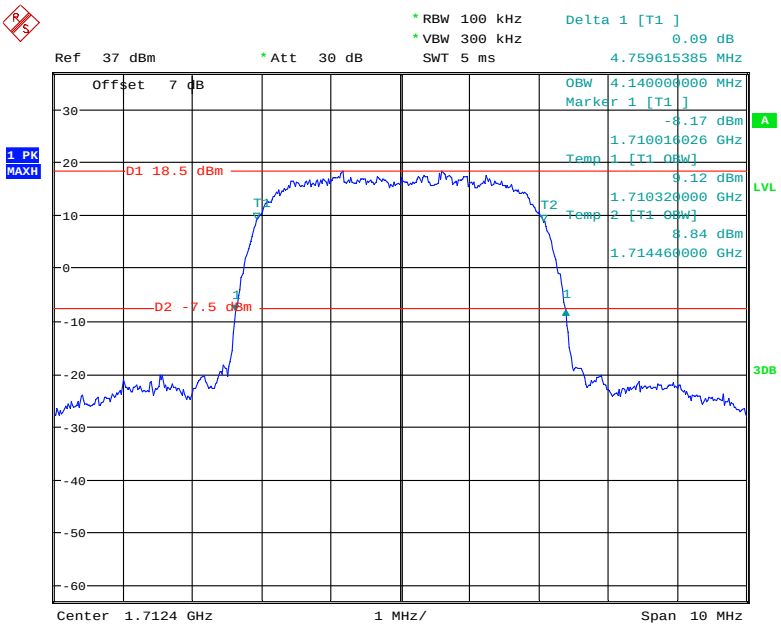
Date: 23.JAN.2021 00:36:05

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



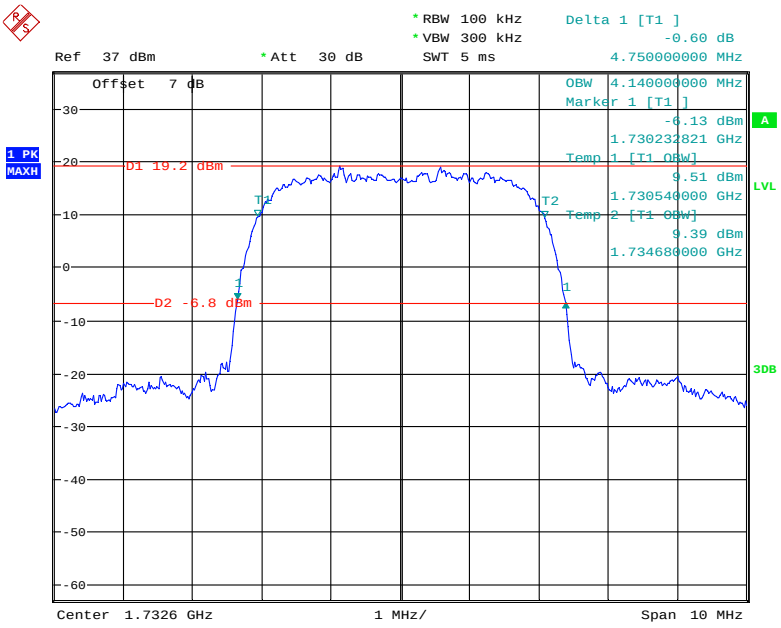
Date: 23.JAN.2021 00:34:55

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



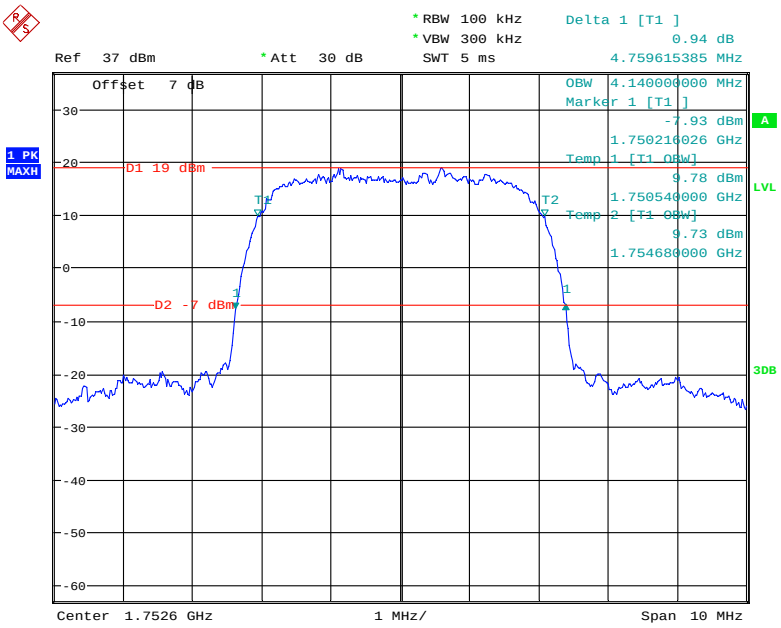
Date: 23.JAN.2021 00:26:32

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



Date: 23.JAN.2021 00:28:46

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



Date: 23.JAN.2021 00:30:40

LTE Band 2:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	Low	1.110	1.302
		Middle	1.104	1.326
		High	1.098	1.326
	16QAM	Low	1.104	1.302
		Middle	1.098	1.302
		High	1.092	1.290
3	QPSK	Low	2.688	2.952
		Middle	2.688	2.952
		High	2.688	2.964
	16QAM	Low	2.700	2.976
		Middle	2.688	2.964
		High	2.688	2.976
5	QPSK	Low	4.540	5.020
		Middle	4.520	5.020
		High	4.520	5.020
	16QAM	Low	4.520	5.000
		Middle	4.520	5.020
		High	4.500	5.000
10	QPSK	Low	8.960	9.760
		Middle	8.960	9.720
		High	8.960	9.720
	16QAM	Low	8.960	9.680
		Middle	8.960	9.680
		High	8.960	9.680
15	QPSK	Low	13.440	14.940
		Middle	13.500	14.880
		High	13.440	14.820
	16QAM	Low	13.500	14.760
		Middle	13.500	14.880
		High	13.440	14.760
20	QPSK	Low	17.920	19.520
		Middle	17.920	19.360
		High	17.920	19.440
	16QAM	Low	17.920	19.440
		Middle	18.000	19.520
		High	17.840	19.440

Band 4:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	Low	1.104	1.326
		Middle	1.104	1.308
		High	1.110	1.290
	16QAM	Low	1.110	1.332
		Middle	1.104	1.320
		High	1.110	1.326
3	QPSK	Low	2.688	2.952
		Middle	2.688	2.952
		High	2.700	2.952
	16QAM	Low	2.688	2.952
		Middle	2.700	2.988
		High	2.700	2.964
5	QPSK	Low	4.540	4.980
		Middle	4.520	5.020
		High	4.520	5.060
	16QAM	Low	4.540	5.040
		Middle	4.520	5.000
		High	4.520	5.040
10	QPSK	Low	8.960	9.840
		Middle	8.960	9.760
		High	8.960	9.760
	16QAM	Low	8.960	9.720
		Middle	9.000	9.640
		High	8.960	9.640
15	QPSK	Low	13.500	14.880
		Middle	13.500	14.880
		High	13.500	14.940
	16QAM	Low	13.500	14.940
		Middle	13.440	14.880
		High	13.500	14.820
20	QPSK	Low	18.000	19.520
		Middle	17.920	19.600
		High	17.840	19.520
	16QAM	Low	18.000	19.440
		Middle	17.920	19.520
		High	17.920	19.440

Band 5:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	Low	1.104	1.314
		Middle	1.092	1.296
		High	1.104	1.326
	16QAM	Low	1.104	1.302
		Middle	1.104	1.290
		High	1.098	1.296
3	QPSK	Low	2.688	2.940
		Middle	2.688	2.964
		High	2.688	2.940
	16QAM	Low	2.700	2.964
		Middle	2.688	2.964
		High	2.688	2.964
5	QPSK	Low	4.520	5.060
		Middle	4.520	5.020
		High	4.520	5.000
	16QAM	Low	4.520	4.980
		Middle	4.520	5.020
		High	4.520	5.040
10	QPSK	Low	8.960	9.680
		Middle	8.920	9.720
		High	8.960	9.640
	16QAM	Low	8.960	9.680
		Middle	8.960	9.680
		High	8.960	9.640

Band 12

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	Low	1.104	1.314
		Middle	1.104	1.314
		High	1.110	1.308
	16QAM	Low	1.110	1.314
		Middle	1.104	1.320
		High	1.110	1.314
3	QPSK	Low	2.688	2.940
		Middle	2.688	2.940
		High	2.688	2.964
	16QAM	Low	2.688	2.964
		Middle	2.688	2.928
		High	2.688	2.940
5	QPSK	Low	4.520	4.940
		Middle	4.520	5.040
		High	4.520	5.060
	16QAM	Low	4.540	5.020
		Middle	4.500	5.020
		High	4.520	5.000
10	QPSK	Low	8.960	9.720
		Middle	8.960	9.760
		High	8.960	9.640
	16QAM	Low	8.960	9.680
		Middle	8.960	9.600
		High	8.960	9.720

Band 13:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5	QPSK	Low	4.520	5.040
		Middle	4.520	5.060
		High	4.520	5.020
	16QAM	Low	4.520	5.020
		Middle	4.520	5.040
		High	4.520	4.940
10	QPSK	Low	/	/
		Middle	8.960	9.760
		High	/	/
	16QAM	Low	/	/
		Middle	8.960	9.680
		High	/	/

Band 66:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	Low	1.104	1.308
		Middle	1.104	1.320
		High	1.110	1.374
	16QAM	Low	1.104	1.302
		Middle	1.098	1.302
		High	1.104	1.308
3	QPSK	Low	2.688	2.952
		Middle	2.688	2.952
		High	2.700	2.940
	16QAM	Low	2.700	2.952
		Middle	2.688	2.964
		High	2.700	2.952
5	QPSK	Low	4.520	5.060
		Middle	4.520	5.040
		High	4.540	5.040
	16QAM	Low	4.540	5.040
		Middle	4.520	5.020
		High	4.520	5.020
10	QPSK	Low	8.960	9.840
		Middle	8.960	9.720
		High	8.960	9.720
	16QAM	Low	8.960	9.640
		Middle	8.960	9.680
		High	8.960	9.680
15	QPSK	Low	13.500	14.820
		Middle	13.500	15.000
		High	13.500	14.820
	16QAM	Low	13.500	15.000
		Middle	13.500	14.880
		High	13.500	14.880
20	QPSK	Low	18.000	19.440
		Middle	18.000	19.520
		High	17.920	19.360
	16QAM	Low	18.000	19.520
		Middle	18.000	19.440
		High	18.000	19.360

Band 71:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5	QPSK	Low	4.519	5.064
		Middle	4.503	5.032
		High	4.503	5.026
	16QAM	Low	4.535	5.042
		Middle	4.535	5.061
		High	4.535	5.058
10	QPSK	Low	8.974	9.776
		Middle	8.942	9.712
		High	8.942	9.712
	16QAM	Low	8.942	9.654
		Middle	8.942	9.667
		High	8.942	9.679
15	QPSK	Low	13.510	14.971
		Middle	13.462	15.000
		High	13.510	14.936
	16QAM	Low	13.558	14.913
		Middle	13.462	14.856
		High	13.558	14.904
20	QPSK	Low	17.949	19.462
		Middle	17.885	19.654
		High	18.013	19.526
	16QAM	Low	17.949	19.551
		Middle	17.949	19.462
		High	18.013	19.526

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

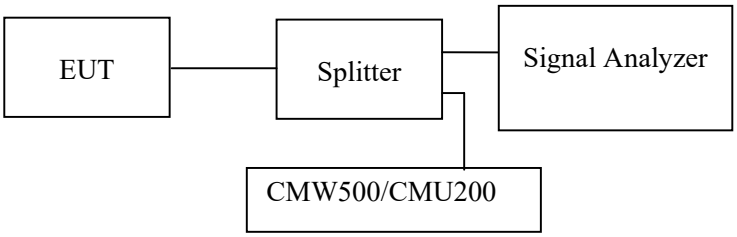
Applicable Standard

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 ℃
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

The testing was performed by Nancy Wang from 2021-01-12 to 2021-01-25.

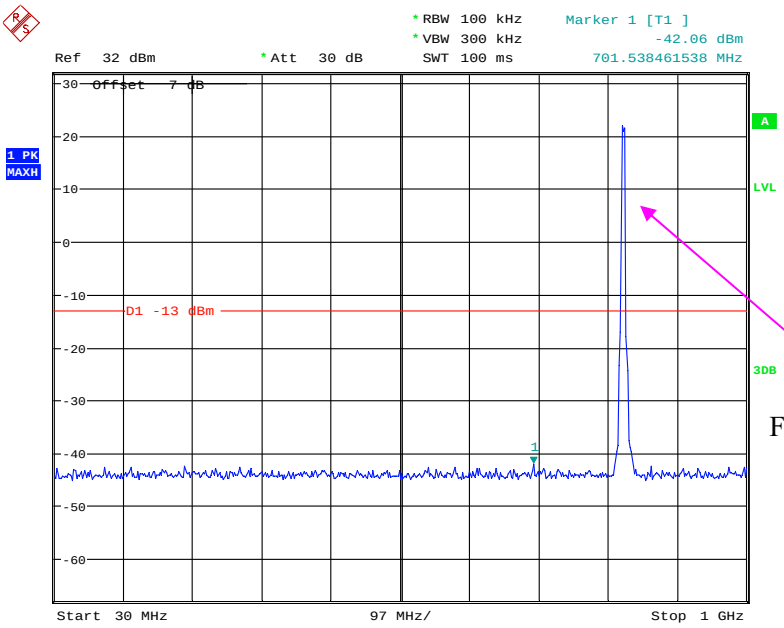
EUT operation mode: Transmitting

Test result: Pass

Please refer to the following plots.

Cellular Band (Part 22H)
Low Channel:

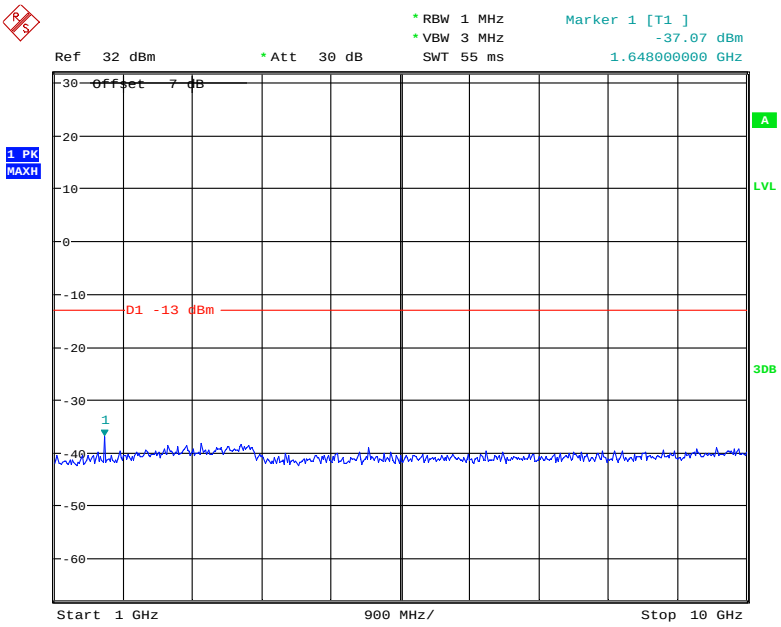
30 MHz – 1 GHz (WCDMA Mode)



Fundamental test

Date: 12.JAN.2021 15:57:27

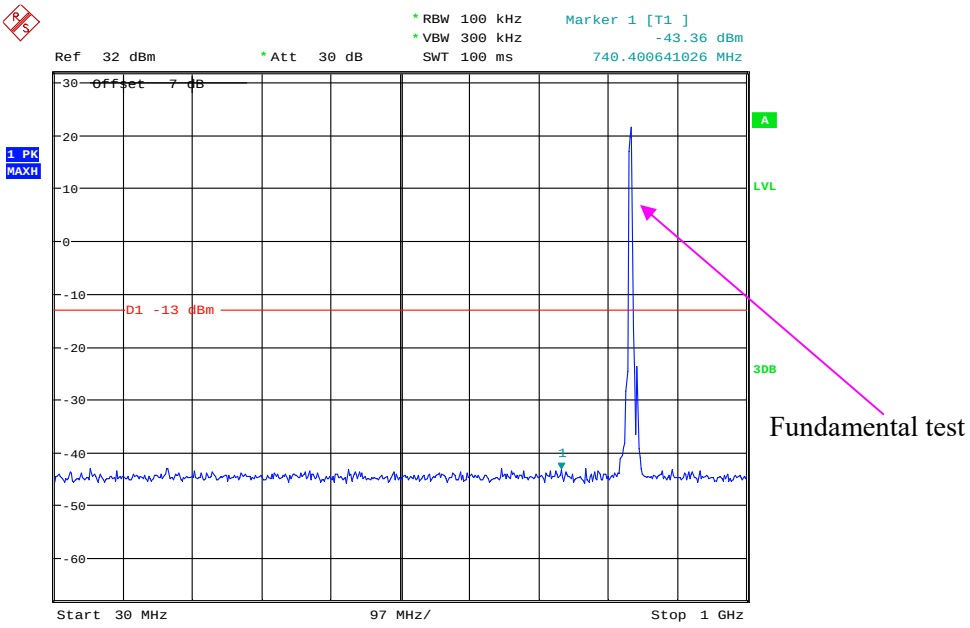
1 GHz – 10 GHz (WCDMA Mode)



Date: 12.JAN.2021 15:54:44

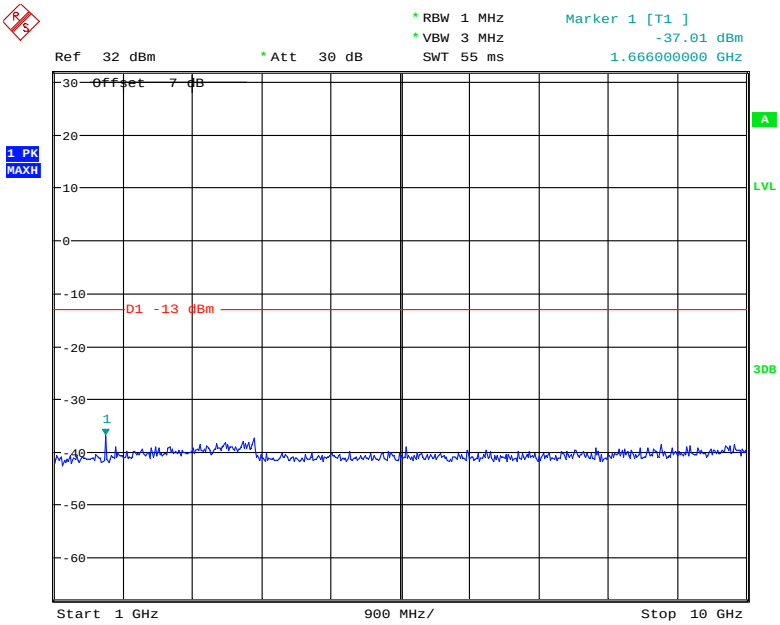
Middle Channel:

30 MHz – 1 GHz (WCDMA Mode)



Date: 12.JAN.2021 15:58:40

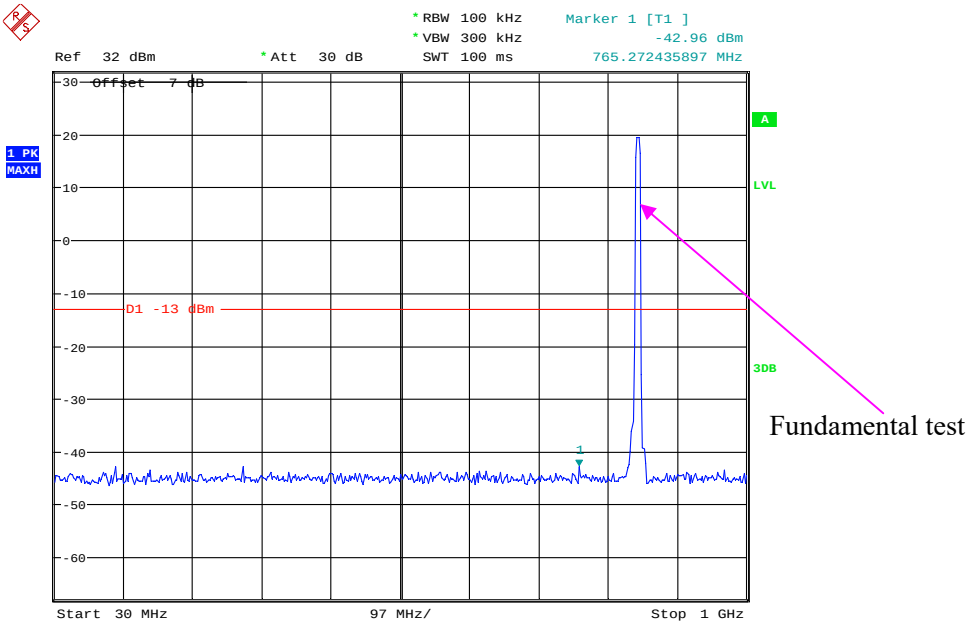
1 GHz – 10 GHz (WCDMA Mode)



Date: 12.JAN.2021 15:59:13

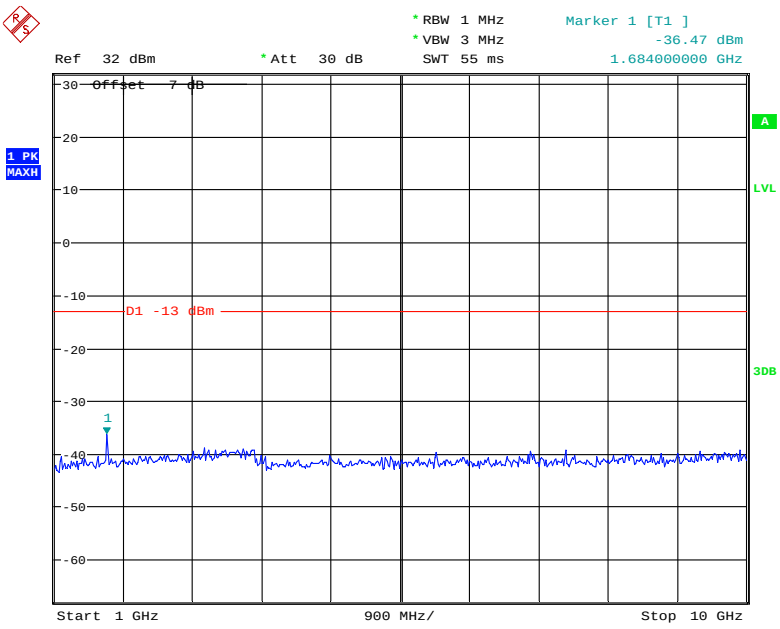
High Channel:

30 MHz – 1 GHz (WCDMA Mode)



Date: 12.JAN.2021 16:00:27

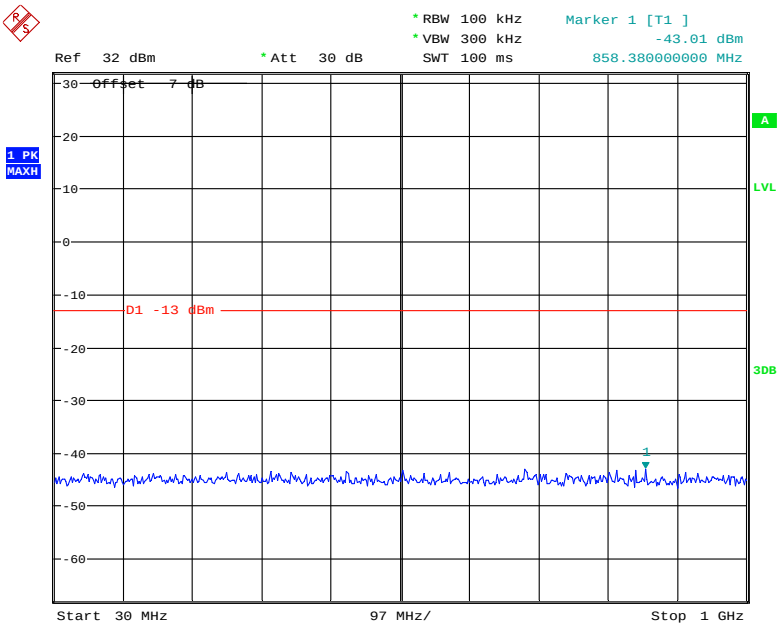
1 GHz – 10 GHz (WCDMA Mode)



Date: 12.JAN.2021 15:59:33

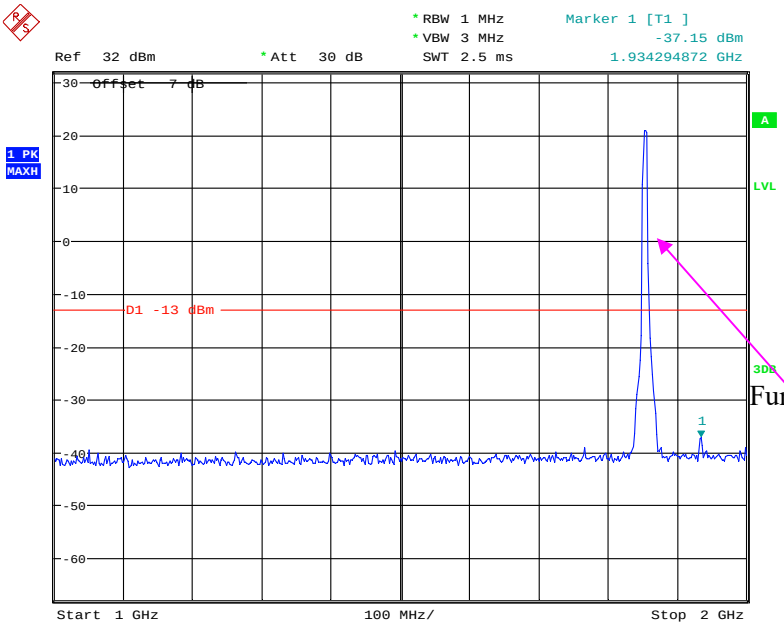
PCS Band (Part 24E)
Low Channel:

30 MHz – 1 GHz (WCDMA Mode)



Date: 12.JAN.2021 16:11:54

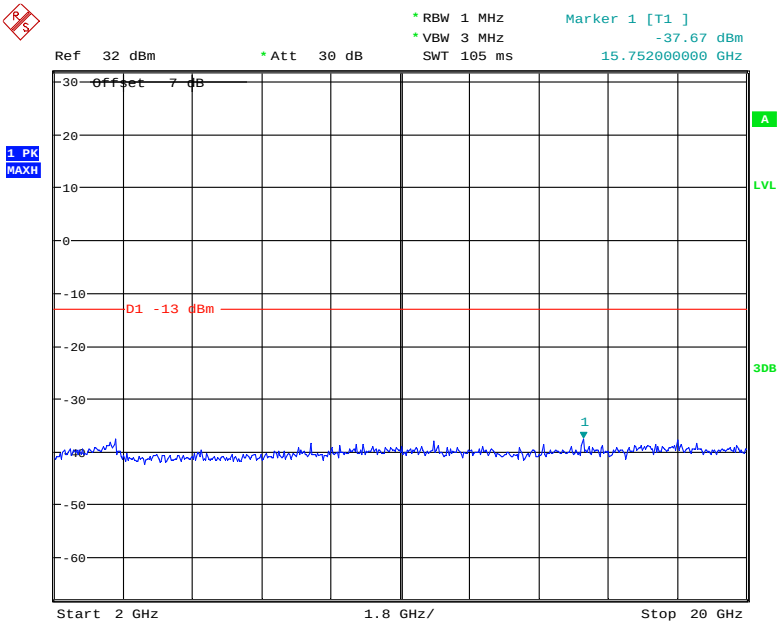
1 GHz – 2 GHz (WCDMA Mode)



Fundamental test

Date: 12.JAN.2021 16:01:55

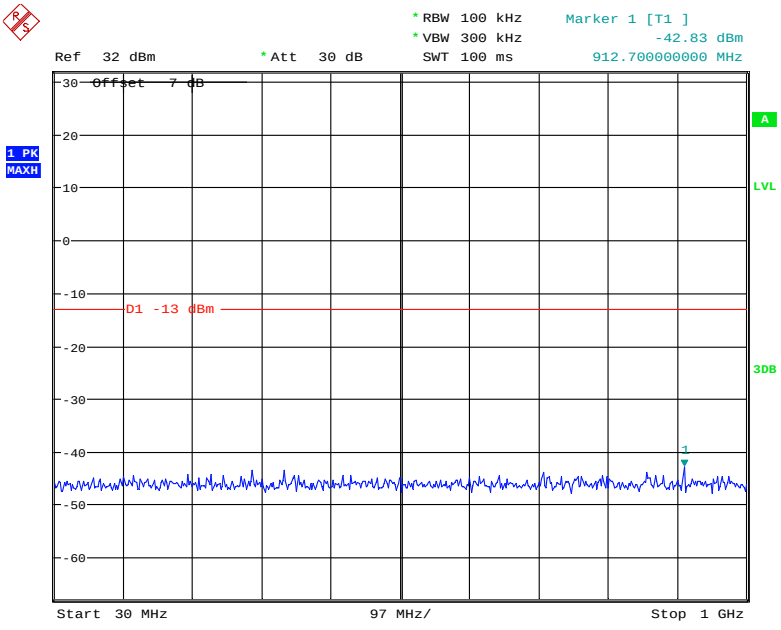
2 GHz – 20 GHz (WCDMA Mode)



Date: 12.JAN.2021 16:10:48

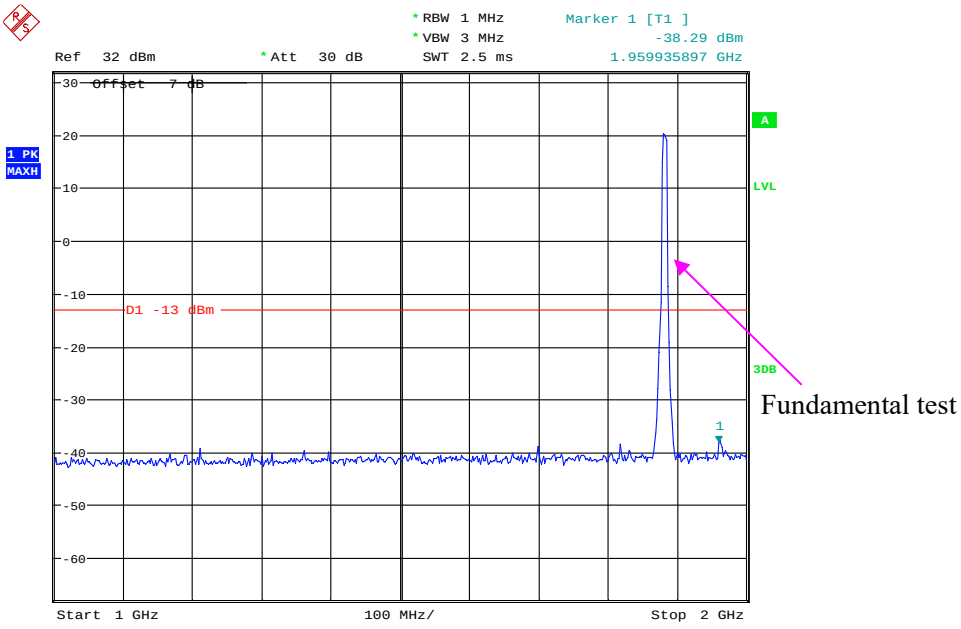
Middle Channel:

30 MHz – 1 GHz (WCDMA Mode)



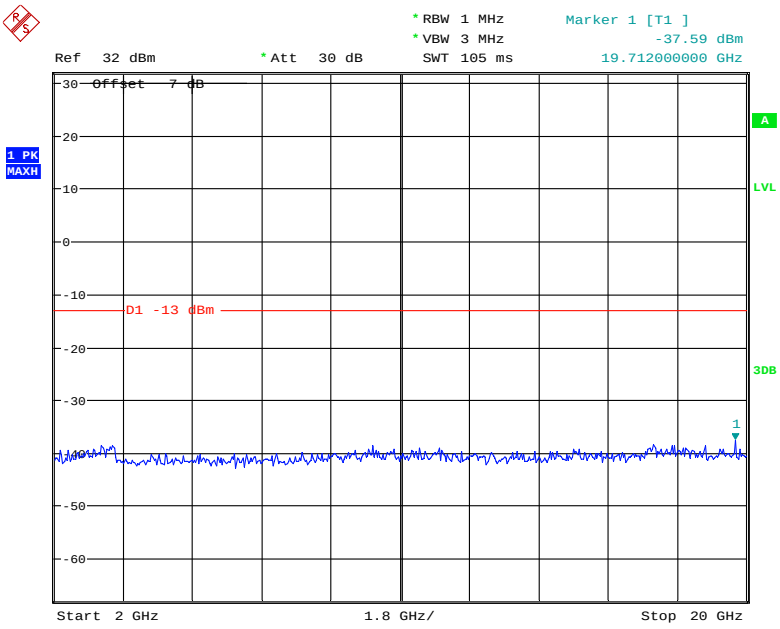
Date: 12.JAN.2021 16:12:13

1 GHz – 2 GHz (WCDMA Mode)



Date: 12.JAN.2021 16:02:57

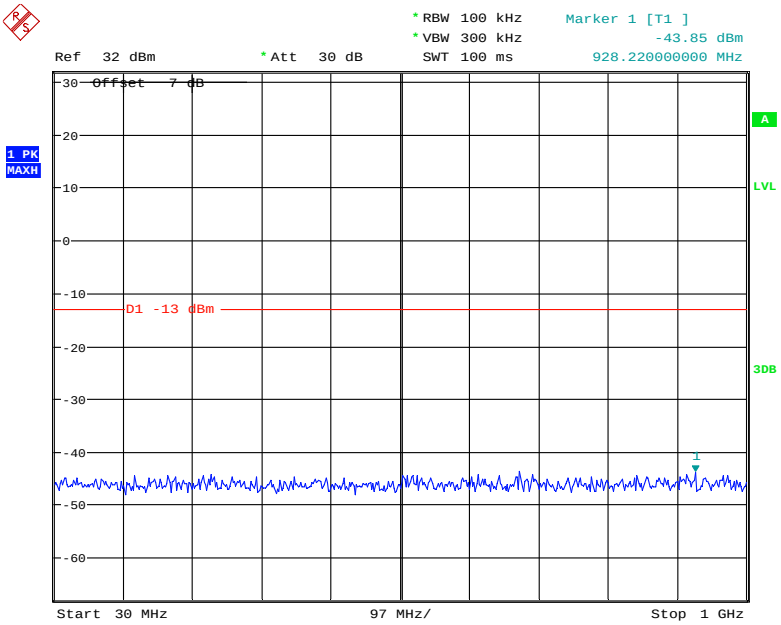
2 GHz – 20 GHz (WCDMA Mode)



Date: 12.JAN.2021 16:11:08

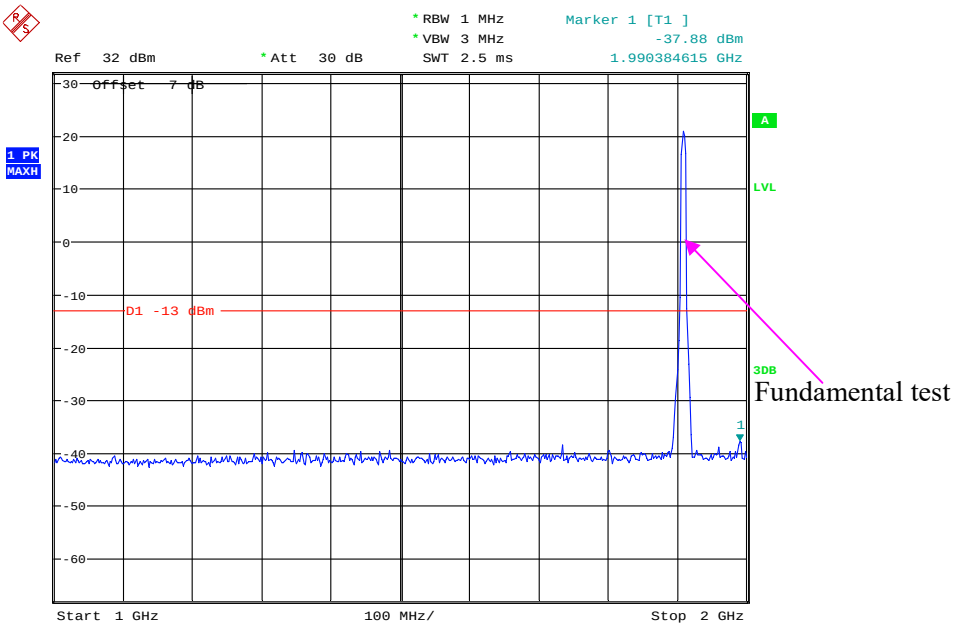
High Channel:

30 MHz – 1 GHz (WCDMA Mode)



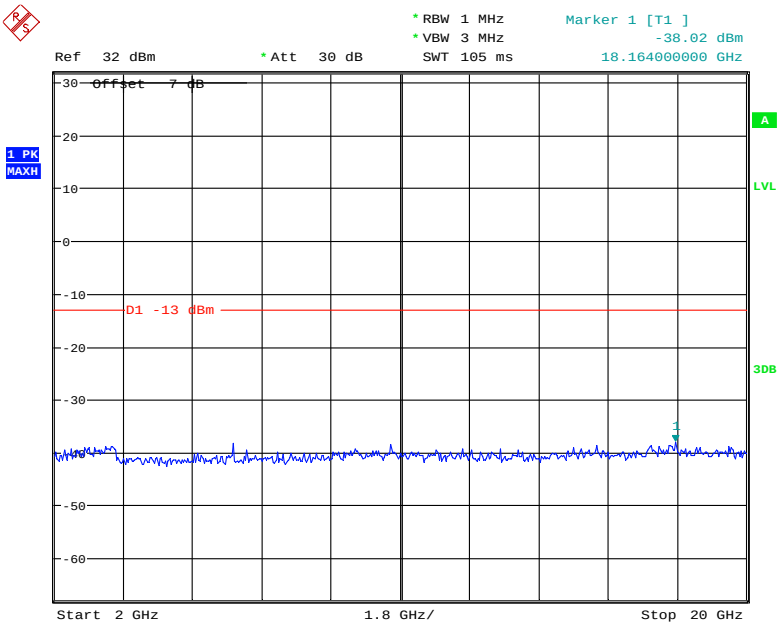
Date: 12.JAN.2021 16:12:23

1 GHz – 2 GHz (WCDMA Mode)



Date: 12.JAN.2021 16:09:09

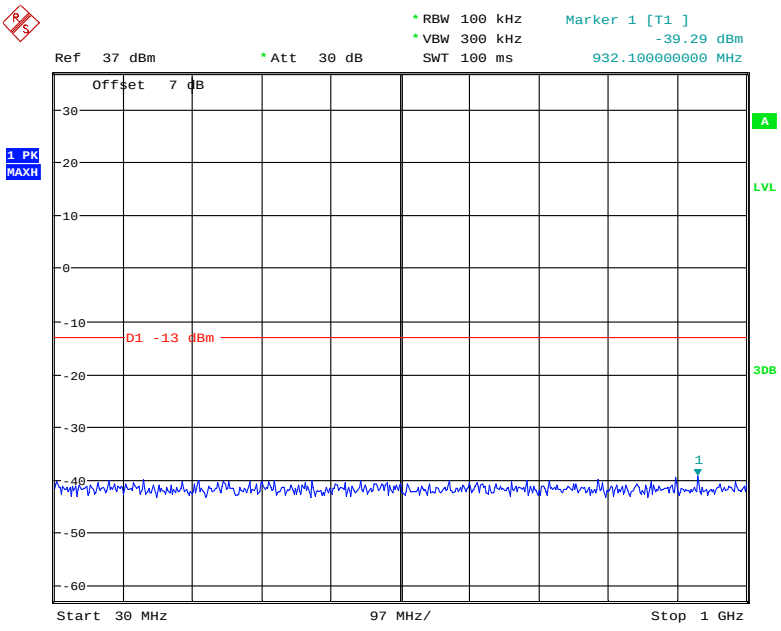
2 GHz – 20 GHz (WCDMA Mode)



Date: 12.JAN.2021 16:11:17

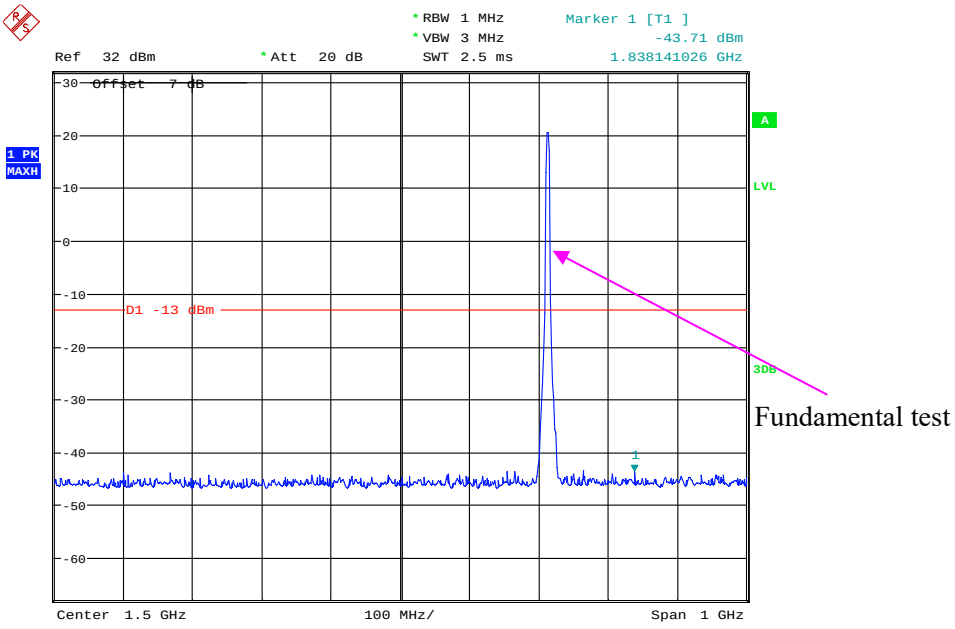
AWS Band (Part 27)
Low Channel:

30 MHz – 1 GHz (WCDMA Mode)



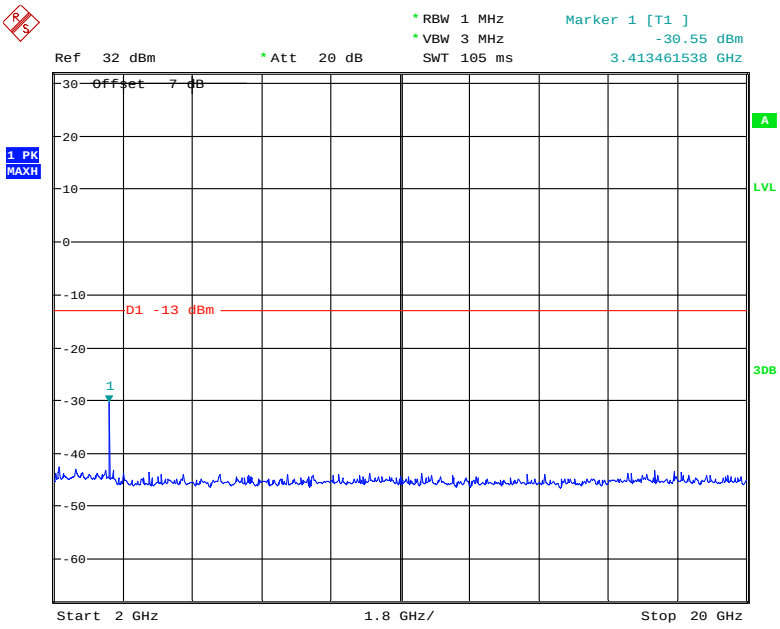
Date: 23.JAN.2021 00:59:35

1 GHz – 2 GHz (WCDMA Mode)



Date: 25.JAN.2021 17:19:04

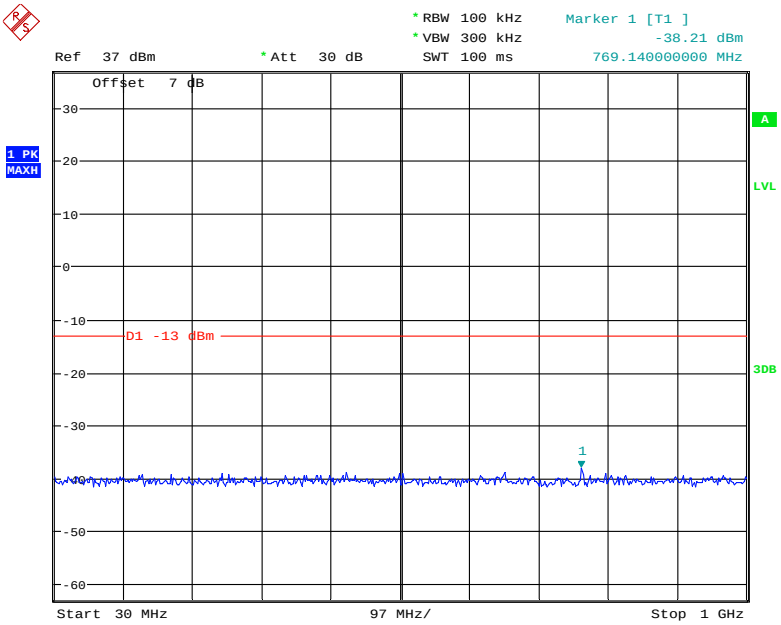
2 GHz – 20 GHz (WCDMA Mode)



Date: 25.JAN.2021 17:22:22

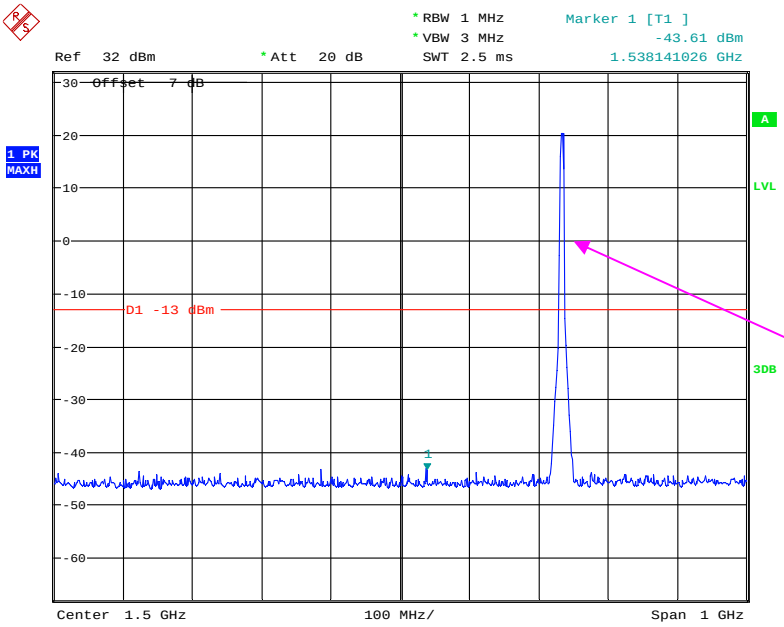
Middle Channel

30 MHz – 1 GHz (WCDMA Mode)



Date: 23.JAN.2021 00:59:22

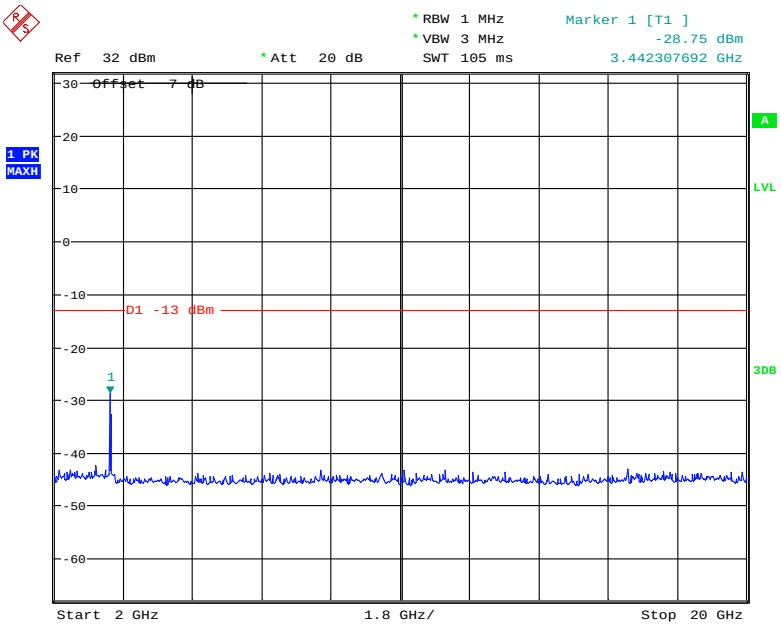
1 GHz – 2 GHz (WCDMA Mode)



Fundamental test

Date: 25.JAN.2021 17:19:39

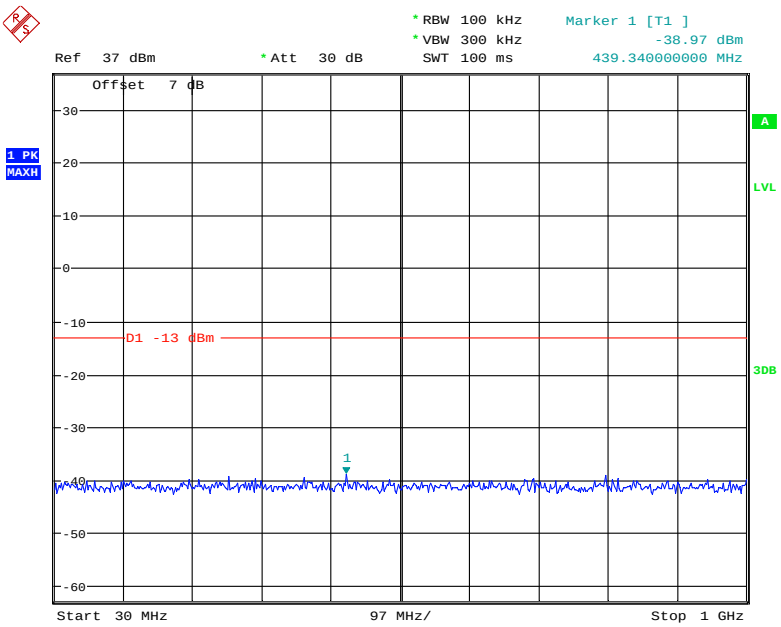
2 GHz – 20 GHz (WCDMA Mode)



Date: 25.JAN.2021 17:21:13

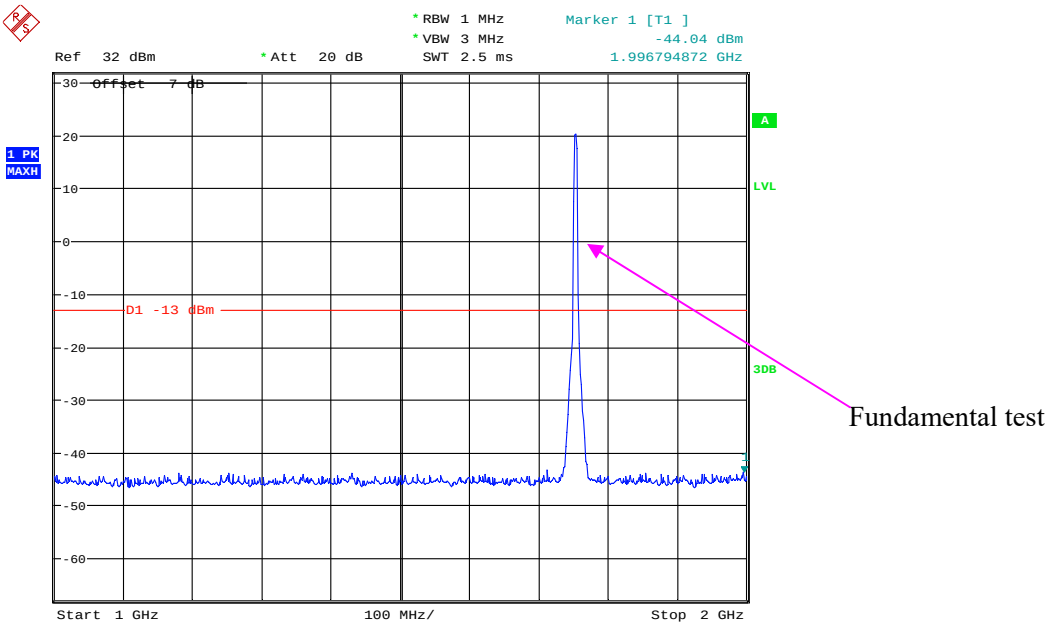
High Channel:

30 MHz – 1 GHz (WCDMA Mode)



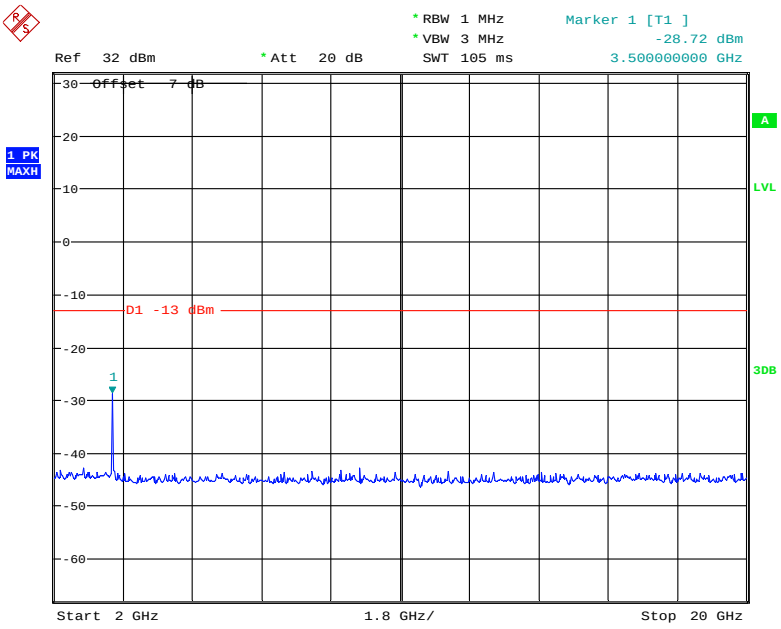
Date: 23.JAN.2021 00:59:01

1 GHz – 2 GHz (WCDMA Mode)



Date: 25.JAN.2021 17:17:43

2 GHz – 20 GHz (WCDMA Mode)



Date: 25.JAN.2021 17:23:04

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:	22.3~24 ℃
Relative Humidity:	50~58 %
ATM Pressure:	101.0~101.1 kPa

The testing was performed by Harris He and Kilroy Deng on 2020-12-30 and 2021-01-25for below 1GHz and Alan He on 2021-01-20 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)
WCDMA Mode										
Low channel										
276.1	49.96	269	1.2	H	-58.0	0.94	0.0	-58.94	-13	45.94
220.2	44.74	335	1.6	V	-61.9	0.85	0.0	-62.75	-13	49.75
1652.80	55.39	109	1.9	H	-50.9	1.30	8.90	-43.30	-13	30.30
1652.80	51.96	24	1.7	V	-53.8	1.30	8.90	-46.20	-13	33.20
2479.20	50.08	299	2.2	H	-53.3	2.60	10.20	-45.70	-13	32.70
2479.20	53.54	274	1.3	V	-49.2	2.60	10.20	-41.60	-13	28.60
3305.60	45.49	145	2.0	H	-55.4	1.50	11.70	-45.20	-13	32.20
3305.60	44.85	297	1.7	V	-56.1	1.50	11.70	-45.90	-13	32.90
Middle channel										
276.1	49.37	205	2.5	H	-58.6	0.94	0.0	-59.54	-13	46.54
220.2	44.92	185	1.7	V	-61.7	0.85	0.0	-62.55	-13	49.55
1673.20	55.49	334	1.1	H	-50.8	1.30	8.90	-43.20	-13	30.20
1673.20	52.01	169	2.4	V	-53.7	1.30	8.90	-46.10	-13	33.10
2509.80	50.10	337	2.5	H	-53.3	2.60	10.20	-45.70	-13	32.70
2509.80	54.12	296	1.5	V	-48.6	2.60	10.20	-41.00	-13	28.00
3346.40	45.28	165	2.0	H	-55.6	1.50	11.70	-45.40	-13	32.40
3346.40	44.92	313	1.5	V	-56.0	1.50	11.70	-45.80	-13	32.80
High channel										
276.1	49.45	29	2.1	H	-58.6	0.94	0.0	-59.54	-13	46.54
220.2	44.39	65	1.6	V	-62.3	0.85	0.0	-63.15	-13	50.15
1693.20	55.27	282	1.4	H	-51.1	1.30	8.90	-43.50	-13	30.50
1693.20	52.12	59	1.1	V	-53.6	1.30	8.90	-46.00	-13	33.00
2539.80	50.24	265	1.1	H	-53.1	2.60	10.20	-45.50	-13	32.50
2539.80	53.95	335	1.5	V	-48.8	2.60	10.20	-41.20	-13	28.20
3386.40	45.33	344	2.5	H	-55.9	1.40	11.80	-45.50	-13	32.50
3386.40	44.95	72	1.3	V	-56.1	1.40	11.80	-45.70	-13	32.70

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)
WCDMA Mode										
Low channel										
276.1	49.14	53	1.7	H	-58.9	0.94	0.0	-59.84	-13	46.84
220.2	45.06	332	2.0	V	-61.6	0.85	0.0	-62.45	-13	49.45
3704.80	44.62	127	2.3	H	-57.2	1.60	11.90	-46.90	-13	33.90
3704.80	44.55	99	1.4	V	-56.7	1.60	11.90	-46.40	-13	33.40
5557.20	46.31	296	2.3	H	-53.4	1.70	12.40	-42.70	-13	29.70
5557.20	48.21	103	1.0	V	-51.1	1.70	12.40	-40.40	-13	27.40
Middle channel										
276.1	49.52	190	1.9	H	-58.5	0.94	0.0	-59.44	-13	46.44
220.2	44.45	327	1.1	V	-62.2	0.85	0.0	-63.05	-13	50.05
3760.00	44.68	324	1.4	H	-57.4	1.50	11.80	-47.10	-13	34.10
3760.00	44.56	308	1.9	V	-57.0	1.50	11.80	-46.70	-13	33.70
5640.00	47.83	185	1.4	H	-51.9	1.70	12.40	-41.20	-13	28.20
5640.00	48.23	189	1.7	V	-51.1	1.70	12.40	-40.40	-13	27.40
High channel										
276.1	49.37	55	1.6	H	-58.6	0.94	0.0	-59.54	-13	46.54
220.2	44.52	199	2.3	V	-62.1	0.85	0.0	-62.95	-13	49.95
3815.20	44.73	1	1.1	H	-57.3	1.50	11.80	-47.00	-13	34.00
3815.20	44.62	139	1.2	V	-57.0	1.50	11.80	-46.70	-13	33.70
5722.80	46.42	324	1.2	H	-53.4	1.60	12.10	-42.90	-13	29.90
5722.80	48.35	306	1.7	V	-50.9	1.60	12.10	-40.40	-13	27.40

30 MHz ~ 20 GHz:

AWS Band

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 27	
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)		Limit (dBm)	Margin (dB)
WCDMA Mode										
Low channel										
276.1	49.77	143	2.2	H	-58.2	0.94	0.0	-59.14	-13	46.14
220.2	45.13	307	1.7	V	-61.5	0.85	0.0	-62.35	-13	49.35
3424.80	46.20	171	1.1	H	-54.6	1.40	11.80	-44.20	-13	31.20
3424.80	45.67	7	2.4	V	-54.9	1.40	11.80	-44.50	-13	31.50
Middle channel										
276.1	49.63	323	2.2	H	-58.4	0.94	0.0	-59.34	-13	46.34
220.2	44.66	312	2.3	V	-62.0	0.85	0.0	-62.85	-13	49.85
3465.20	46.32	295	1.6	H	-54.4	1.50	12.00	-43.90	-13	30.90
3465.20	45.57	139	1.7	V	-55.9	1.50	12.00	-45.40	-13	32.40
High channel										
276.1	49.88	244	1.3	H	-58.1	0.94	0.0	-59.04	-13	46.04
220.2	44.86	27	2.3	V	-61.8	0.85	0.0	-62.65	-13	49.65
3505.20	46.31	117	1.8	H	-54.4	1.50	12.00	-43.90	-13	30.90
3505.20	45.67	238	2.0	V	-55.8	1.50	12.00	-45.30	-13	32.30

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										
276.6	50.14	257	2.2	H	-57.9	0.94	0.0	-58.84	-13	45.84
276.6	38.64	243	2.0	V	-66.6	0.94	0.0	-67.54	-13	54.54
3701.40	46.89	78	1.2	H	-54.9	1.60	11.90	-44.60	-13	31.60
3701.40	45.75	170	1.9	V	-55.5	1.60	11.90	-45.20	-13	32.20
5552.10	49.57	204	1.8	H	-50.1	1.70	12.40	-39.40	-13	26.40
5552.10	51.36	297	1.9	V	-48.0	1.70	12.40	-37.30	-13	24.30
1.4 MHz, Middle channel										
276.6	50.21	20	1.0	H	-57.8	0.94	0.0	-58.74	-13	45.74
276.6	38.84	33	2.0	V	-66.4	0.94	0.0	-67.34	-13	54.34
3760.00	47.36	291	1.9	H	-54.7	1.50	11.80	-44.40	-13	31.40
3760.00	45.65	102	2.5	V	-55.9	1.50	11.80	-45.60	-13	32.60
5640.00	48.36	224	2.1	H	-51.3	1.70	12.40	-40.60	-13	27.60
5640.00	53.16	281	1.0	V	-46.2	1.70	12.40	-35.50	-13	22.50
1.4 MHz, High channel										
276.6	50.38	256	1.5	H	-57.6	0.94	0.0	-58.54	-13	45.54
276.6	38.92	261	1.5	V	-66.3	0.94	0.0	-67.24	-13	54.24
3818.60	47.12	199	2.2	H	-54.9	1.50	11.80	-44.60	-13	31.60
3818.60	45.75	225	1.3	V	-55.8	1.50	11.80	-45.50	-13	32.50
5727.90	48.25	192	2.1	H	-51.6	1.60	12.10	-41.10	-13	28.10
5727.90	52.27	107	1.9	V	-47.0	1.60	12.10	-36.50	-13	23.50
Band 4										
Test frequency range:30 MHz ~ 20 GHz										
1.4 MHz, Low channel										
276.6	50.85	7	1.9	H	-57.2	0.94	0.0	-58.14	-13	45.14
276.6	39.22	341	2.1	V	-66.0	0.94	0.0	-66.94	-13	53.94
3421.40	46.15	190	1.4	H	-54.6	1.40	11.80	-44.20	-13	31.20
3421.40	45.62	138	1.2	V	-55.0	1.40	11.80	-44.60	-13	31.60
1.4 MHz, Middle channel										
276.6	50.74	130	2.3	H	-57.3	0.94	0.0	-58.24	-13	45.24
276.6	39.13	237	1.9	V	-66.1	0.94	0.0	-67.04	-13	54.04
3465.00	46.28	334	2.4	H	-54.5	1.50	12.00	-44.00	-13	31.00
3465.00	45.70	300	1.1	V	-55.8	1.50	12.00	-45.30	-13	32.30
1.4 MHz, High channel										
276.6	50.66	32	2.1	H	-57.3	0.94	0.0	-58.24	-13	45.24
276.6	39.08	70	2.5	V	-66.1	0.94	0.0	-67.04	-13	54.04
3508.60	46.71	235	1.1	H	-54.0	1.50	12.00	-43.50	-13	30.50
3508.60	46.13	192	2.0	V	-55.4	1.50	12.00	-44.90	-13	31.90

Frequency	Receiver	Turntable	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
(MHz)	Reading (dBμV)	Angle Degree	Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
Band 5										
Test frequency range:30 MHz ~ 10 GHz										
1.4 MHz, Low channel										
276.6	50.32	314	1.7	H	-57.7	0.94	0.0	-58.64	-13	45.64
276.6	38.78	24	2.3	V	-66.4	0.94	0.0	-67.34	-13	54.34
1649.40	51.86	60	2.0	H	-56.2	1.40	8.70	-48.90	-13	35.90
1649.40	54.45	163	1.1	V	-53.4	1.40	8.70	-46.10	-13	33.10
2474.10	57.59	140	2.1	H	-45.8	2.60	10.20	-38.20	-13	25.20
2474.10	55.26	49	2.5	V	-47.5	2.60	10.20	-39.90	-13	26.90
3298.80	44.62	59	2.0	H	-56.3	1.50	11.70	-46.10	-13	33.10
3298.80	44.49	3	1.6	V	-56.4	1.50	11.70	-46.20	-13	33.20
1.4 MHz, Middle channel										
276.6	50.44	231	1.6	H	-57.6	0.94	0.0	-58.54	-13	45.54
276.6	38.25	97	2.1	V	-67.0	0.94	0.0	-67.94	-13	54.94
1673.00	51.25	282	1.7	H	-55.1	1.30	8.90	-47.50	-13	34.50
1673.00	53.37	20	2.4	V	-52.4	1.30	8.90	-44.80	-13	31.80
2509.50	57.38	80	2.5	H	-46.0	2.60	10.20	-38.40	-13	25.40
2509.50	56.10	293	2.2	V	-46.6	2.60	10.20	-39.00	-13	26.00
3346.00	44.52	150	1.5	H	-56.4	1.50	11.70	-46.20	-13	33.20
3346.00	44.37	13	2.5	V	-56.6	1.50	11.70	-46.40	-13	33.40
1.4 MHz, High channel										
276.6	50.56	149	2.2	H	-57.4	0.94	0.0	-58.34	-13	45.34
276.6	38.30	96	1.0	V	-66.9	0.94	0.0	-67.84	-13	54.84
1696.60	52.21	131	1.3	H	-54.1	1.30	8.90	-46.50	-13	33.50
1696.60	54.22	147	2.5	V	-51.5	1.30	8.90	-43.90	-13	30.90
2544.90	58.70	333	2.1	H	-44.7	2.60	10.20	-37.10	-13	24.10
2544.90	56.28	272	1.8	V	-46.5	2.60	10.20	-38.90	-13	25.90
3393.20	44.61	144	1.7	H	-56.6	1.40	11.80	-46.20	-13	33.20
3393.20	44.32	321	1.0	V	-56.7	1.40	11.80	-46.30	-13	33.30

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 12										
Test frequency range: 30 MHz ~ 10 GHz										
1.4 MHz, Low channel										
276.6	50.49	41	2.3	H	-57.5	0.94	0.0	-58.44	-13	45.44
276.6	38.36	341	2.0	V	-66.8	0.94	0.0	-67.74	-13	54.74
1399.40	67.23	161	1.0	H	-40.9	1.60	7.90	-34.60	-13	21.60
1399.40	61.55	40	1.9	V	-46.9	1.60	7.90	-40.60	-13	27.60
2099.10	61.68	13	2.0	H	-39.4	1.30	9.70	-31.00	-13	18.00
2099.10	58.76	235	1.6	V	-43.2	1.30	9.70	-34.80	-13	21.80
2798.80	46.13	357	1.7	H	-57.8	1.80	10.50	-49.10	-13	36.10
2798.80	46.79	67	1.4	V	-56.8	1.80	10.50	-48.10	-13	35.10
1.4 MHz, Middle channel										
276.6	50.77	289	1.7	H	-57.2	0.94	0.0	-58.14	-13	45.14
276.6	38.53	189	1.2	V	-66.7	0.94	0.0	-67.64	-13	54.64
1415.00	67.82	174	1.4	H	-40.4	1.60	7.90	-34.10	-13	21.10
1415.00	61.25	192	2.5	V	-47.2	1.60	7.90	-40.90	-13	27.90
2122.50	62.10	273	1.4	H	-39.0	1.30	9.70	-30.60	-13	17.60
2122.50	57.91	319	1.0	V	-44.0	1.30	9.70	-35.60	-13	22.60
2830.00	46.25	108	1.2	H	-57.7	1.80	10.50	-49.00	-13	36.00
2830.00	46.82	324	2.1	V	-56.8	1.80	10.50	-48.10	-13	35.10
1.4 MHz, High channel										
276.6	50.23	141	2.1	H	-57.8	0.94	0.0	-58.74	-13	45.74
276.6	38.09	234	2.0	V	-67.1	0.94	0.0	-68.04	-13	55.04
1430.60	68.95	130	1.8	H	-39.2	1.60	7.90	-32.90	-13	19.90
1430.60	62.05	48	2.1	V	-46.4	1.60	7.90	-40.10	-13	27.10
2145.90	62.50	233	2.1	H	-38.6	1.30	9.70	-30.20	-13	17.20
2145.90	58.24	143	2.1	V	-43.7	1.30	9.70	-35.30	-13	22.30
2861.20	46.19	60	2.4	H	-58.5	1.70	10.70	-49.50	-13	36.50
2861.20	46.72	231	1.2	V	-58.0	1.70	10.70	-49.00	-13	36.00

Frequency	Receiver	Turntable	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
(MHz)	Reading (dBμV)	Angle Degree	Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
Band 13										
Test frequency range: 30 MHz ~10GHz										
5 MHz, Low channel										
276.6	50.34	293	1.1	H	-57.7	0.94	0.0	-58.64	-13	45.64
276.6	38.15	18	1.9	V	-67.1	0.94	0.0	-68.04	-13	55.04
1559.00	57.81	290	2.1	H	-50.3	1.40	8.70	-43.00	-40	3.00
1559.00	55.14	303	1.5	V	-52.7	1.40	8.70	-45.40	-40	5.40
2338.50	66.17	274	1.8	H	-39.1	1.30	10.00	-30.40	-13	17.40
2338.50	57.88	137	2.1	V	-47.3	1.30	10.00	-38.60	-13	25.60
3118.00	45.62	69	1.4	H	-56.0	1.70	11.30	-46.40	-13	33.40
3118.00	45.28	51	1.7	V	-56.2	1.70	11.30	-46.60	-13	33.60
5 MHz, Middle channel										
276.6	50.88	50	1.3	H	-57.1	0.94	0.0	-58.04	-13	45.04
276.6	38.64	254	1.2	V	-66.6	0.94	0.0	-67.54	-13	54.54
1564.00	58.33	93	1.3	H	-49.7	1.40	8.70	-42.40	-40	2.40
1564.00	55.24	277	2.2	V	-52.6	1.40	8.70	-45.30	-40	5.30
2346.00	66.01	220	1.7	H	-39.3	1.30	10.00	-30.60	-13	17.60
2346.00	58.14	180	1.1	V	-47.0	1.30	10.00	-38.30	-13	25.30
3128.00	45.72	227	2.2	H	-55.9	1.70	11.30	-46.30	-13	33.30
3128.00	45.41	218	1.3	V	-56.0	1.70	11.30	-46.40	-13	33.40
5 MHz, High channel										
276.6	50.73	110	2.4	H	-57.3	0.94	0.0	-58.24	-13	45.24
276.6	38.50	203	2.5	V	-66.7	0.94	0.0	-67.64	-13	54.64
1569.00	59.12	84	1.2	H	-49.0	1.40	8.70	-41.70	-40	1.70
1569.00	55.87	239	1.6	V	-52.0	1.40	8.70	-44.70	-40	4.70
2353.50	66.28	29	2.0	H	-38.1	2.30	10.10	-30.30	-13	17.30
2353.50	57.08	8	1.5	V	-46.3	2.30	10.10	-38.50	-13	25.50
3138.00	46.10	79	1.3	H	-55.5	1.70	11.30	-45.90	-13	32.90
3138.00	45.82	93	1.0	V	-55.6	1.70	11.30	-46.00	-13	33.00
Band 66										
Test frequency range: 30 MHz ~ 20GHz										
1.4 MHz, Low channel										
276.6	50.55	118	1.1	H	-57.5	0.94	0.0	-58.44	-13	45.44
276.6	38.36	219	1.5	V	-66.8	0.94	0.0	-67.74	-13	54.74
3421.40	46.53	278	2.4	H	-54.3	1.40	11.80	-43.90	-13	30.90
3421.40	45.55	271	1.9	V	-55.1	1.40	11.80	-44.70	-13	31.70
1.4 MHz, Middle channel										
276.6	50.38	270	1.1	H	-57.6	0.94	0.0	-58.54	-13	45.54
276.6	38.26	90	2.5	V	-66.9	0.94	0.0	-67.84	-13	54.84
3490.00	46.32	20	1.6	H	-54.4	1.50	12.00	-43.90	-13	30.90
3490.00	45.81	307	1.9	V	-55.7	1.50	12.00	-45.20	-13	32.20
1.4 MHz, High channel										
276.6	50.21	131	1.6	H	-57.8	0.94	0.0	-58.74	-13	45.74
276.6	37.98	32	1.7	V	-67.2	0.94	0.0	-68.14	-13	55.14
3558.60	46.28	194	2.1	H	-55.3	1.50	12.10	-44.70	-13	31.70
3558.60	45.47	352	1.7	V	-55.6	1.50	12.10	-45.00	-13	32.00

Frequency	Receiver	Turntable	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
(MHz)	Reading (dBμV)	Angle Degree	Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
Band 71										
Test frequency range: 30 MHz ~ 10GHz										
5 MHz, Low channel										
276.6	50.45	156	1.9	H	-57.6	0.94	0.0	-58.54	-13	45.54
276.6	37.20	241	1.7	V	-68.0	0.94	0.0	-68.94	-13	55.94
1331.00	58.91	251	1.2	H	-49.6	1.60	7.30	-43.90	-13	30.90
1331.00	55.2	54	1.4	V	-53.2	1.60	7.30	-47.50	-13	34.50
1996.50	55.65	121	1.4	H	-44.9	1.30	9.60	-36.60	-13	23.60
1996.50	53.45	344	2.4	V	-47.5	1.30	9.60	-39.20	-13	26.20
2662.00	44.14	213	1.2	H	-58.9	2.00	10.40	-50.50	-13	37.50
2662.00	43.92	169	2.1	V	-58.8	2.00	10.40	-50.40	-13	37.40
5 MHz, Middle channel										
276.6	50.87	6	1.4	H	-57.1	0.94	0.0	-58.04	-13	45.04
276.6	37.67	326	2.4	V	-67.5	0.94	0.0	-68.44	-13	55.44
1361.00	62.56	29	1.0	H	-45.6	1.60	7.90	-39.30	-13	26.30
1361.00	57.26	342	1.1	V	-51.2	1.60	7.90	-44.90	-13	31.90
2041.50	60.20	21	2.0	H	-40.4	1.30	9.60	-32.10	-13	19.10
2041.50	56.28	177	1.2	V	-44.7	1.30	9.60	-36.40	-13	23.40
2722.00	44.13	160	1.9	H	-59.0	2.00	10.40	-50.60	-13	37.60
2722.00	43.84	181	1.5	V	-58.9	2.00	10.40	-50.50	-13	37.50
5 MHz, High channel										
276.6	50.93	333	2.1	H	-57.1	0.94	0.0	-58.04	-13	45.04
276.6	37.77	30	1.4	V	-67.4	0.94	0.0	-68.34	-13	55.34
1391.00	62.85	31	1.7	H	-45.3	1.60	7.90	-39.00	-13	26.00
1391.00	58.26	311	1.5	V	-50.2	1.60	7.90	-43.90	-13	30.90
2086.50	59.25	168	1.3	H	-41.9	1.30	9.70	-33.50	-13	20.50
2086.50	57.21	8	1.7	V	-44.7	1.30	9.70	-36.30	-13	23.30
2782.00	45.02	178	2.0	H	-58.9	1.80	10.50	-50.20	-13	37.20
2782.00	44.39	331	2.5	V	-59.2	1.80	10.50	-50.50	-13	37.50

Note:
Absolute Level = Substituted Level - Cable loss + Antenna Gain
Margin = Limit- Absolute Level
dBd is for the ERP, dBi is for EIRP.

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

Applicable Standard

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

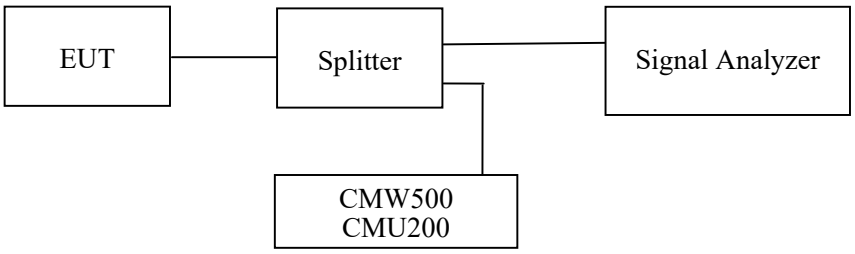
According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

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

Test Procedure

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

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



Test Data

Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

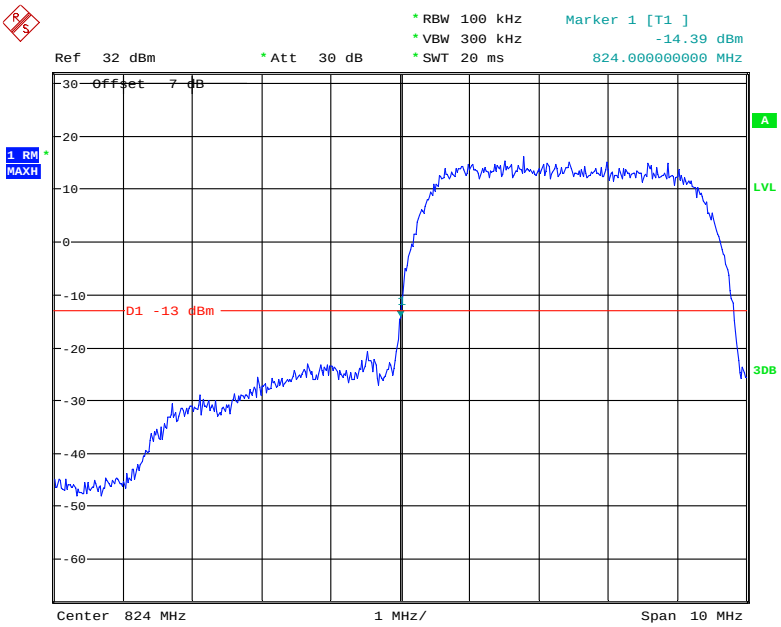
The testing was performed by Nancy Wang from 2021-01-12 to 2021-02-04.

EUT operation mode: Transmitting (Worst case)

Test Result: Pass

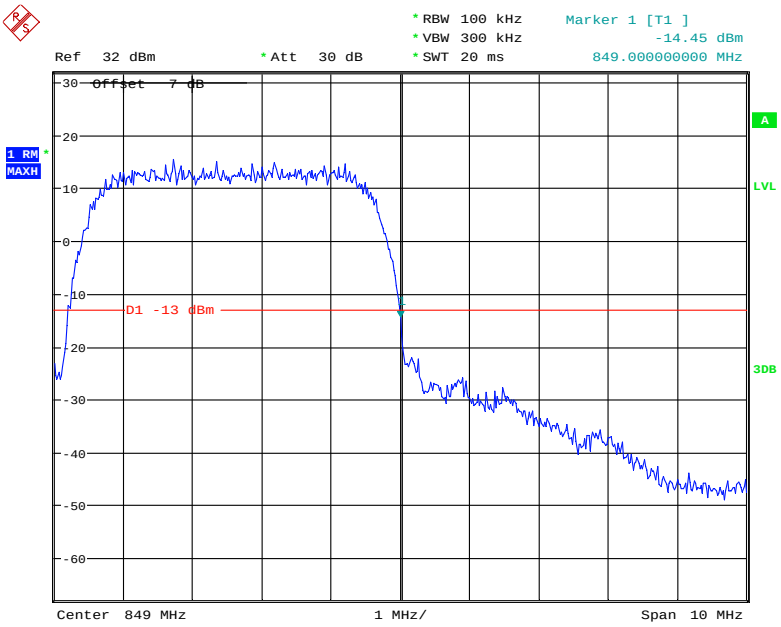
Please refer to the following plots.

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



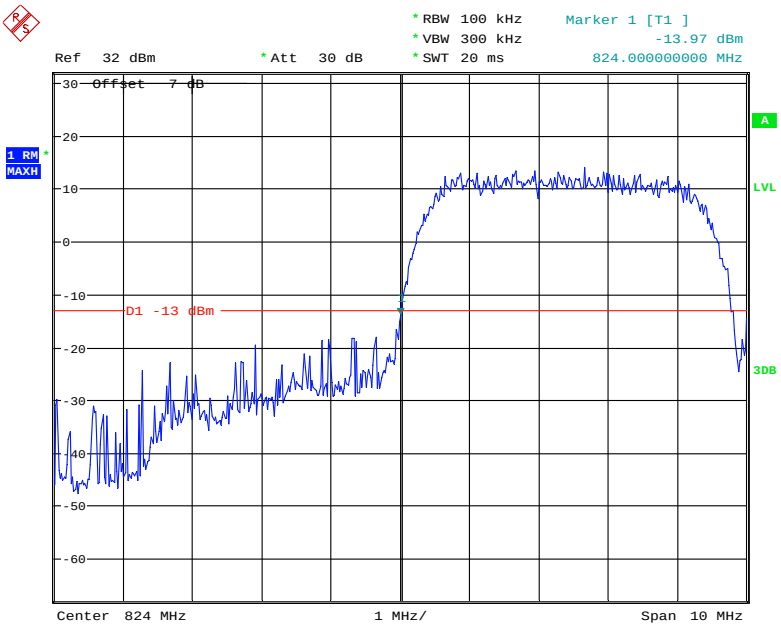
Date: 12.JAN.2021 14:17:43

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



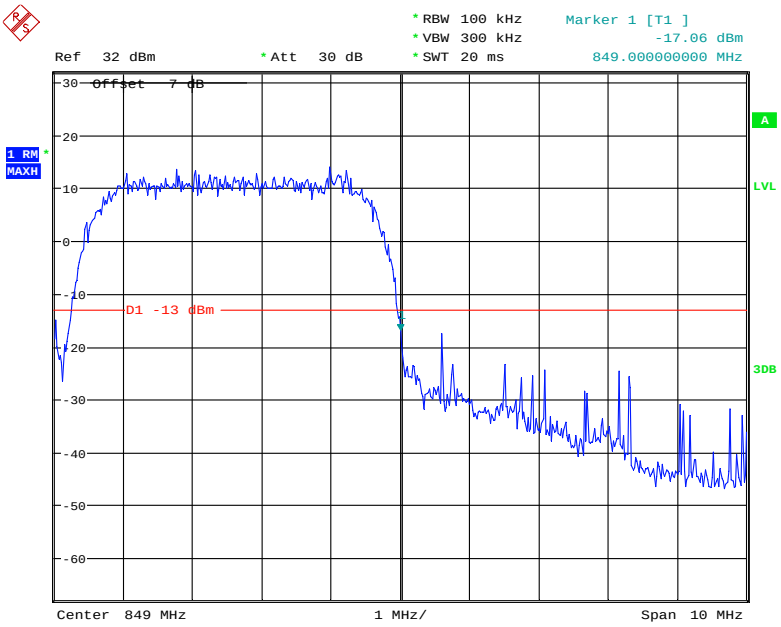
Date: 12.JAN.2021 14:16:59

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



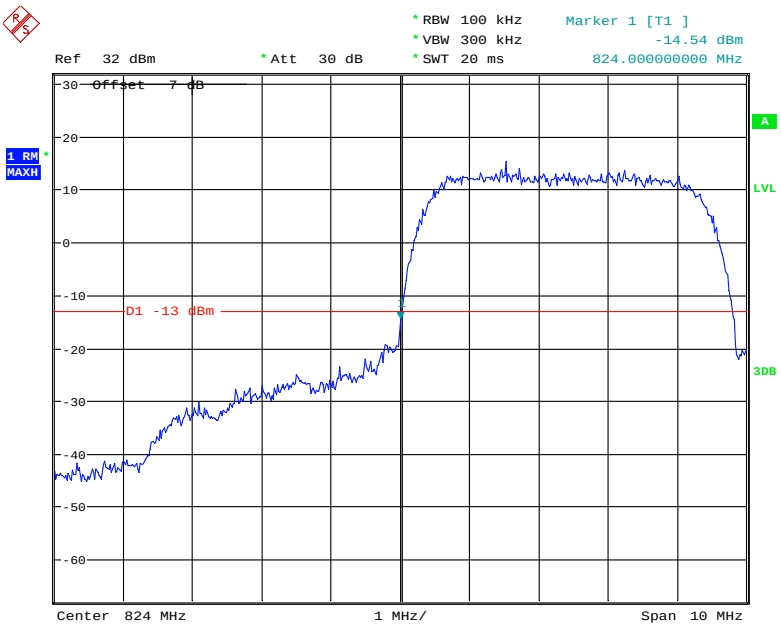
Date: 12.JAN.2021 14:22:47

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



Date: 12.JAN.2021 14:24:55

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



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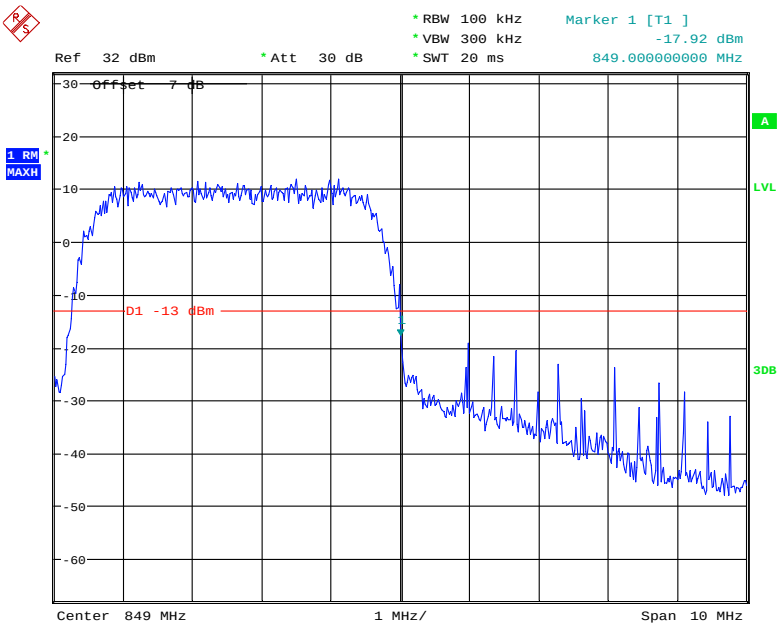
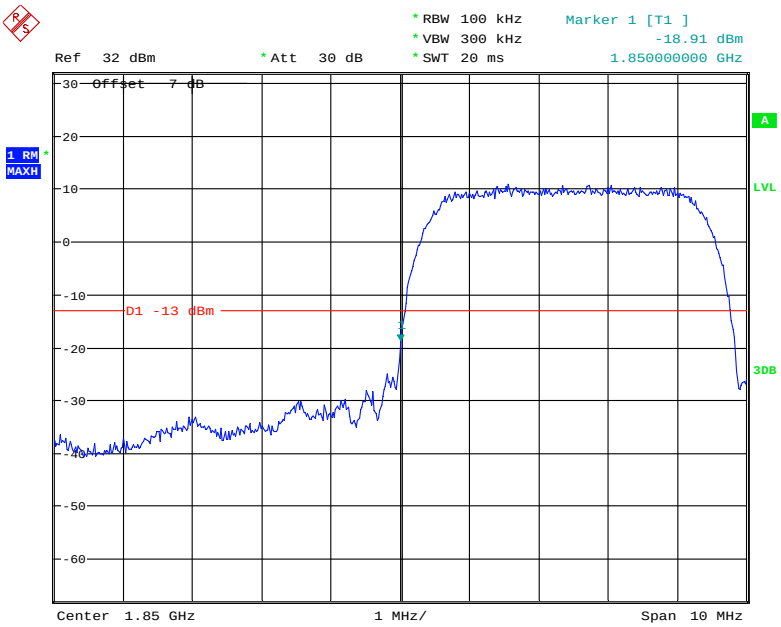
Cellular Band, Right Band Edge for HSUPA (BPSK) Mode



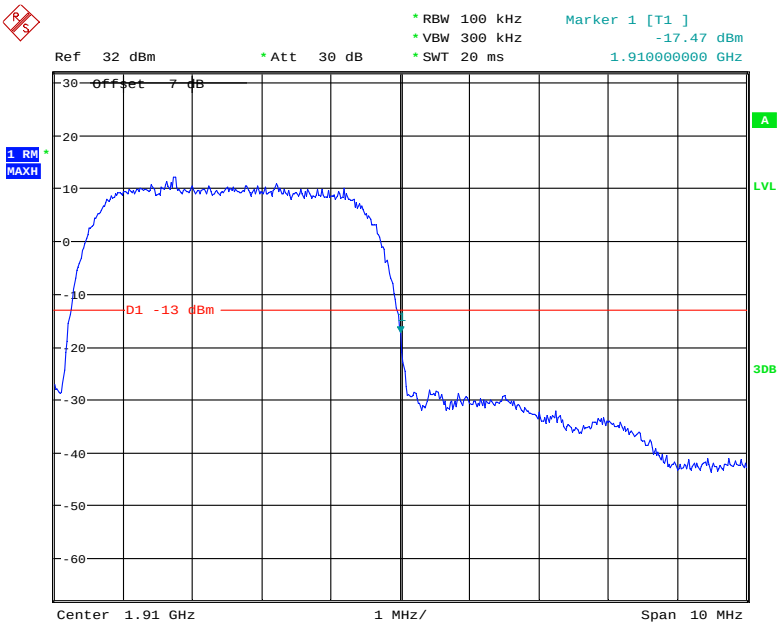
Date: 12.JAN.2021 14:31:04

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



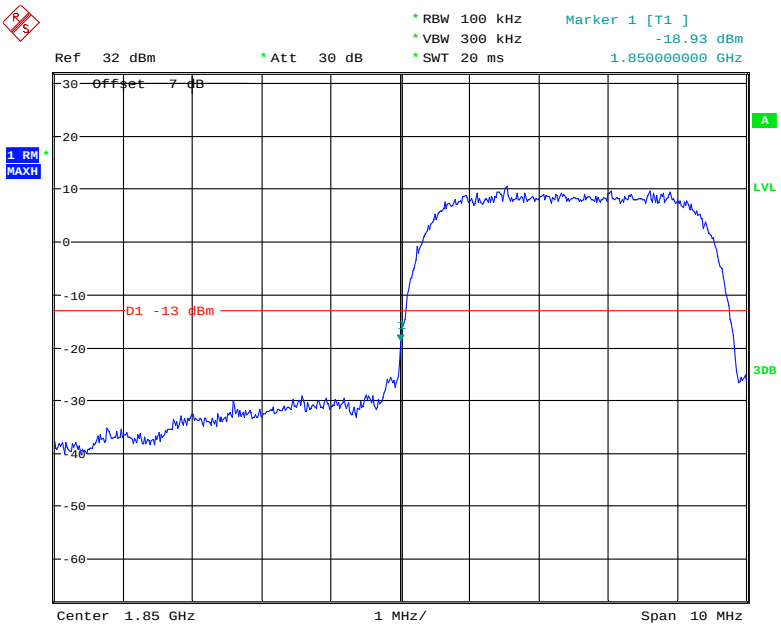
Date: 12.JAN.2021 14:18:58

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



Date: 12.JAN.2021 14:19:47

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



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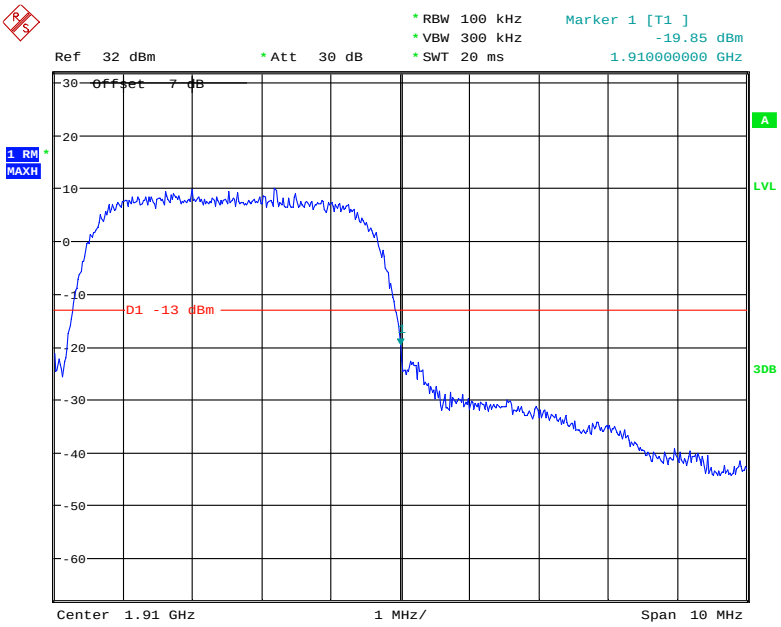
PCS Band, Right Band Edge for HSDPA (16QAM) Mode



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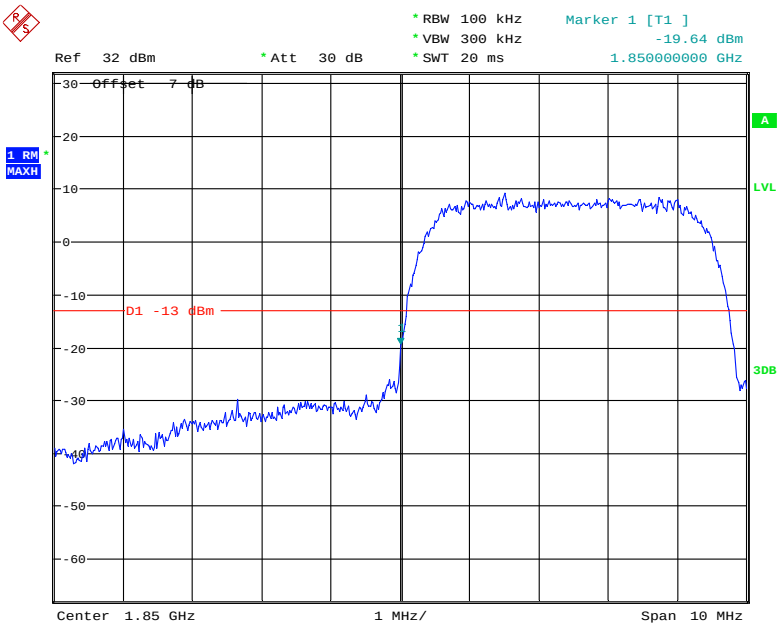
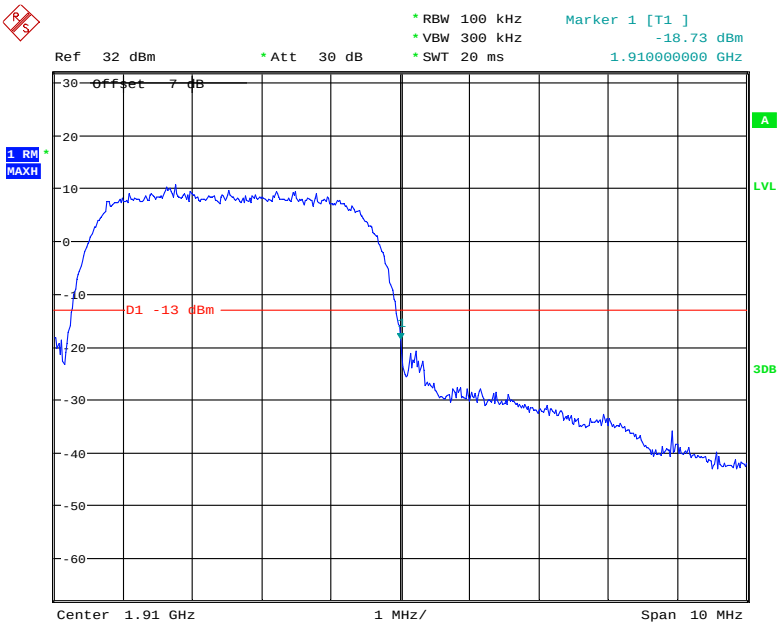
PCS Band, Left Band Edge for HSUPA (BPSK) Mode



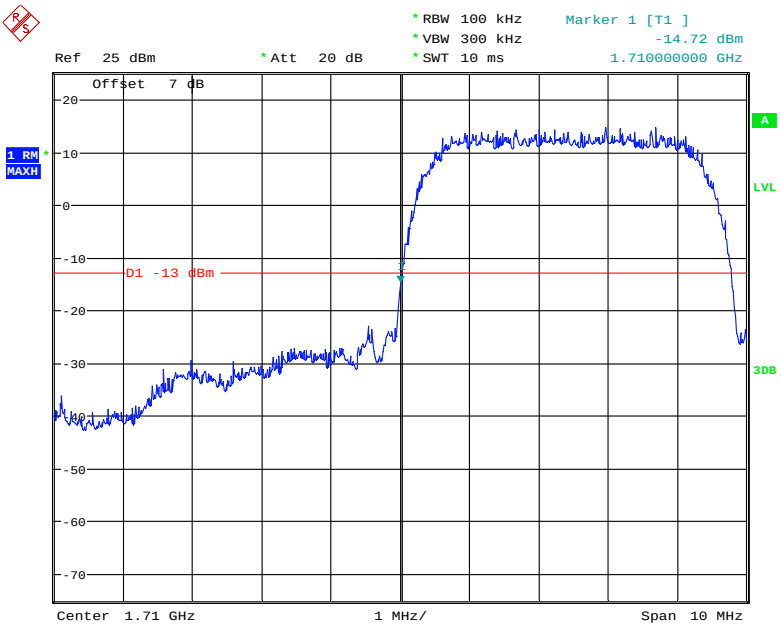
Date: 12.JAN.2021 14:33:04

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



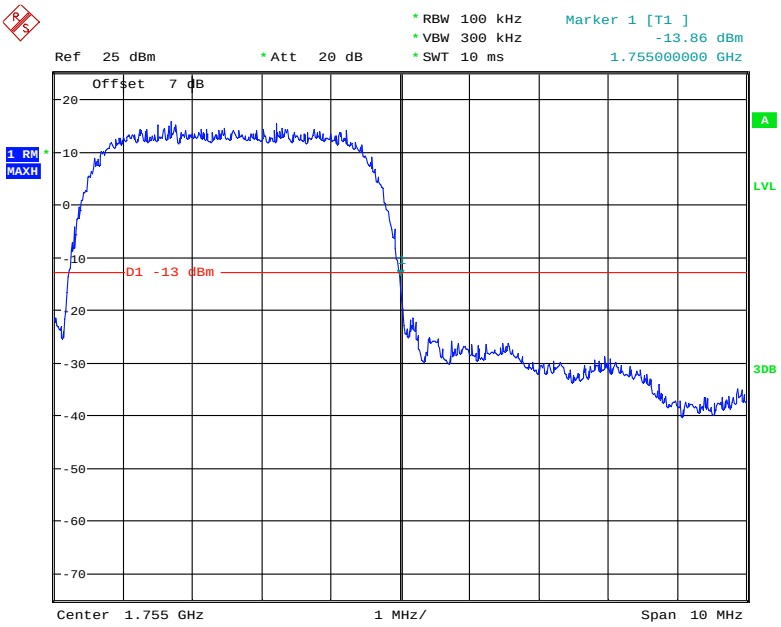
Date: 12.JAN.2021 14:37:15

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



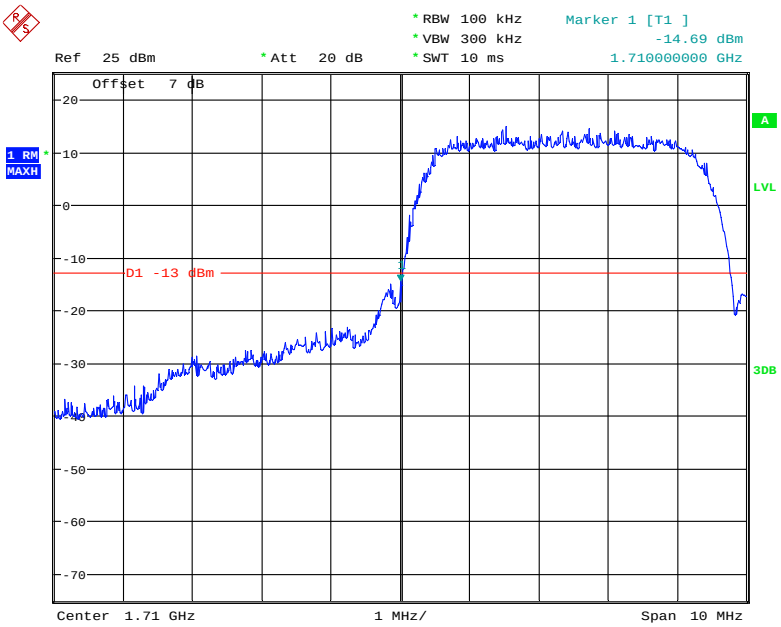
Date: 25.JAN.2021 16:57:30

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



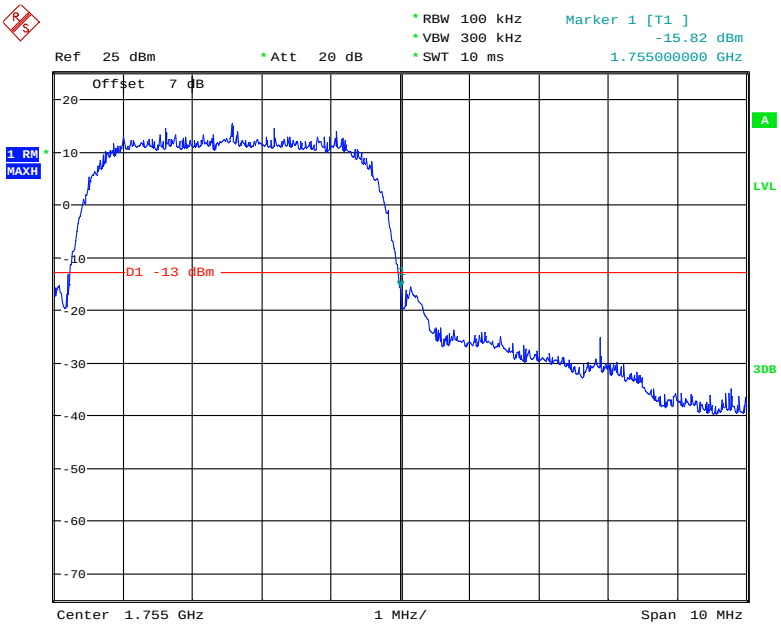
Date: 25.JAN.2021 16:58:57

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



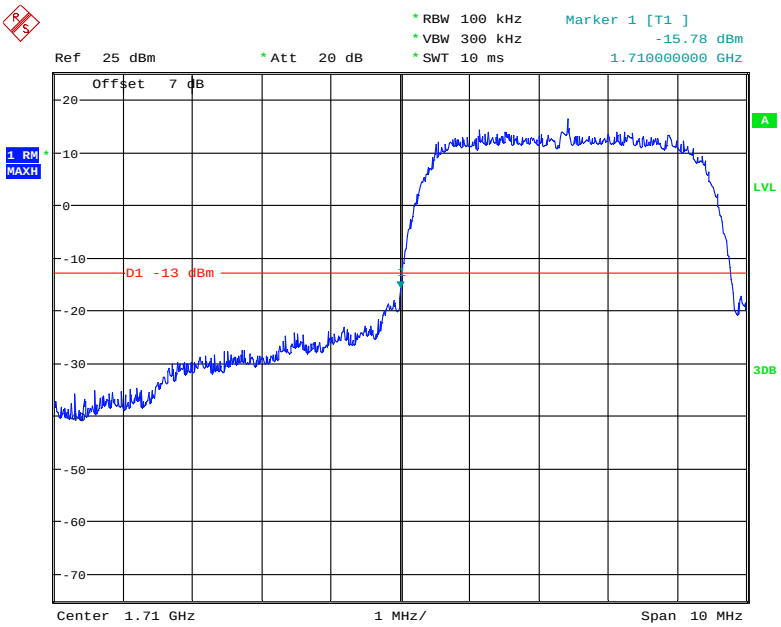
Date: 25.JAN.2021 17:10:55

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

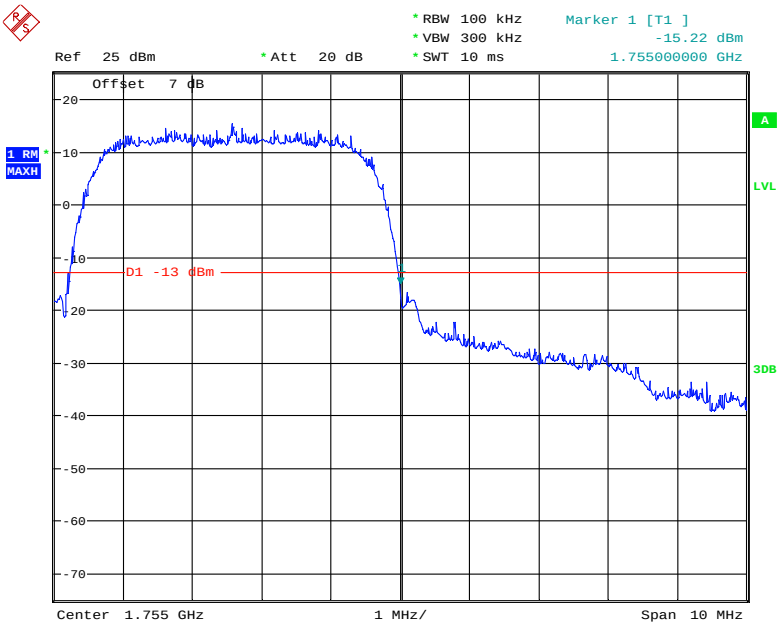


Date: 25.JAN.2021 17:01:42

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



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



The test plot of LTE band 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

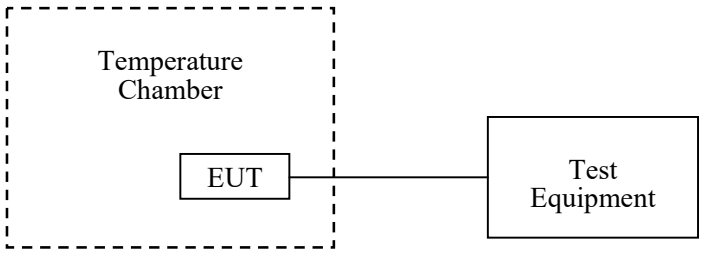
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

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 ℃
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

The testing was performed by Nancy Wang from 2021-01-12 to 2021-01-25.

EUT operation mode: Transmitting

Test Result: Pass

Please refer to the following tables.

Cellular Band (Part 22H)

WCDMA Mode

Middle Channel, f_o =836.6MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	7.6	-10	-0.0120	2.5
-20		9	0.0108	2.5
-10		8	0.0096	2.5
0		-5	-0.0060	2.5
10		-3	-0.0036	2.5
20		-7	-0.0084	2.5
30		4	0.0048	2.5
40		-5	-0.0060	2.5
50		-8	-0.0096	2.5
20	V min.= 6.5	5	0.0060	2.5
	V max.= 8.7	-6	-0.0072	2.5

PCS Band (Part 24E)

WCDMA Mode

Middle Channel, f_o =1880.0 MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	7.6	-11	-0.0059	pass
-20		19	0.0101	pass
-10		18	0.0096	pass
0		-15	-0.0080	pass
10		-13	-0.0069	pass
20		-17	-0.0090	pass
30		14	0.0074	pass
40		-17	-0.0090	pass
50		-10	-0.0053	pass
20	V min.= 6.5	15	0.0080	pass
	V max.= 8.7	-12	-0.0064	pass

AWS Band (Part 27)

Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	7.6	1710.0144	1754.9718	1710	1755
-20		1710.0164	1754.9773	1710	1755
-10		1710.0103	1754.9756	1710	1755
0		1710.0142	1754.9754	1710	1755
10		1710.0124	1754.9728	1710	1755
20		1710.0122	1754.9725	1710	1755
30		1710.0146	1754.9711	1710	1755
40		1710.0160	1754.9757	1710	1755
50		1710.0103	1754.9732	1710	1755
20	V min.= 6.5	1710.0139	1754.9710	1710	1755
	V max.= 8.7	1710.0171	1754.9719	1710	1755

LTE:
QPSK:

Band 2:

10.0 MHz Middle Channel, f_o =1880MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	7.6	-14	-0.0074	pass
-20		-10	-0.0053	pass
-10		-6	-0.0032	pass
0		6	0.0032	pass
10		8	0.0043	pass
20		6	0.0032	pass
30		-7	-0.0037	pass
40		7	0.0037	pass
50		-10	-0.0053	pass
20	V min.= 6.5	-8	-0.0043	pass
	V max.= 8.7	-7	-0.0037	pass

Band 4:

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	7.6	1710.1169	1754.8715	1710	1755
-20		1710.1163	1754.8712	1710	1755
-10		1710.1119	1754.8762	1710	1755
0		1710.1119	1754.8754	1710	1755
10		1710.1126	1754.8742	1710	1755
20		1710.1173	1754.8737	1710	1755
30		1710.1108	1754.8733	1710	1755
40		1710.1141	1754.8767	1710	1755
50		1710.1176	1754.8751	1710	1755
20	V min.= 6.5	1710.1114	1754.8778	1710	1755
	V max.= 8.7	1710.1094	1754.8736	1710	1755

Band 5:

10.0 MHz Middle Channel, f_o=836.5MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	7.6	-3	-0.0036	2.5
-20		-7	-0.0084	2.5
-10		-6	-0.0072	2.5
0		6	0.0072	2.5
10		10	0.0120	2.5
20		5	0.0060	2.5
30		-7	-0.0084	2.5
40		-9	-0.0108	2.5
50		-7	-0.0084	2.5
20	V min.= 6.5	9	0.0108	2.5
	V max.= 8.7	-7	-0.0084	2.5

Band 12:

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	7.6	699.0375	715.9630	699	716
-20		699.0369	715.9620	699	716
-10		699.0365	715.9679	699	716
0		699.0318	715.9664	699	716
10		699.0347	715.9647	699	716
20		699.0384	715.9675	699	716
30		699.0378	715.9665	699	716
40		699.0379	715.9693	699	716
50		699.0368	715.9654	699	716
20	V min.= 6.5	699.0338	715.9676	699	716
	V max.= 8.7	699.0374	715.9640	699	716

Band 13:

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	7.6	777.1293	786.8468	777	787
-20		777.1233	786.8438	777	787
-10		777.1276	786.8442	777	787
0		777.1217	786.8468	777	787
10		777.1247	786.8459	777	787
20		777.1291	786.8487	777	787
30		777.1258	786.8488	777	787
40		777.1291	786.8497	777	787
50		777.1262	786.8455	777	787
20	V min.= 6.5	777.1210	786.8460	777	787
	V max.= 8.7	777.1266	786.8441	777	787

Band 66:

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	7.6	1710.0219	1779.9773	1710	1780
-20		1710.0211	1779.9756	1710	1780
-10		1710.0229	1779.9806	1710	1780
0		1710.0258	1779.9755	1710	1780
10		1710.0239	1779.9762	1710	1780
20		1710.0225	1779.9746	1710	1780
30		1710.0260	1779.9765	1710	1780
40		1710.0257	1779.9757	1710	1780
50		1710.0237	1779.9809	1710	1780
20	V min.= 6.5	1710.0271	1779.9706	1710	1780
	V max.= 8.7	1710.0222	1779.9771	1710	1780

Band 71:

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	7.6	663.0564	697.9469	663	698
-20		663.0559	697.9467	663	698
-10		663.0521	697.9403	663	698
0		663.0538	697.9425	663	698
10		663.0526	697.9426	663	698
20		663.0527	697.9470	663	698
30		663.0510	697.9460	663	698
40		663.0567	697.9401	663	698
50		663.0572	697.9399	663	698
20	V min.= 6.5	663.0494	697.9407	663	698
	V max.= 8.7	663.0500	697.9404	663	698

16QAM:

Band 2:

10.0 MHz Middle Channel, f_o =1880MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	7.6	-9	-0.0048	pass
-20		-7	-0.0037	pass
-10		10	0.0053	pass
0		-8	-0.0043	pass
10		-10	-0.0053	pass
20		-10	-0.0053	pass
30		-7	-0.0037	pass
40		-9	-0.0048	pass
50		6	0.0032	pass
20	V min.= 6.5	6	0.0032	pass
	V max.= 8.7	8	0.0043	pass

Band 4:

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	7.6	1710.2694	1754.7557	1710	1755
-20		1710.2703	1754.7632	1710	1755
-10		1710.2679	1754.7598	1710	1755
0		1710.2653	1754.7569	1710	1755
10		1710.2657	1754.7584	1710	1755
20		1710.2638	1754.7629	1710	1755
30		1710.2650	1754.7606	1710	1755
40		1710.2670	1754.7597	1710	1755
50		1710.2678	1754.7613	1710	1755
20	V min.= 6.5	1710.2657	1754.7573	1710	1755
	V max.= 8.7	1710.2702	1754.7579	1710	1755

Band 5:

10.0 MHz Middle Channel, f_o=836.5MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	7.6	-8	-0.0096	2.5
-20		8	0.0096	2.5
-10		-9	-0.0108	2.5
0		9	0.0108	2.5
10		-7	-0.0084	2.5
20		8	0.0096	2.5
30		6	0.0072	2.5
40		-6	-0.0072	2.5
50		-6	-0.0072	2.5
20	V min.= 6.5	6	0.0072	2.5
	V max.= 8.7	-7	-0.0084	2.5

Band 12:

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	7.6	699.0386	715.9696	699	716
-20		699.0356	715.9621	699	716
-10		699.0399	715.9676	699	716
0		699.0347	715.9672	699	716
10		699.0356	715.9650	699	716
20		699.0406	715.9636	699	716
30		699.0354	715.9625	699	716
40		699.0341	715.9643	699	716
50		699.0386	715.9632	699	716
20	V min.= 6.5	699.0366	715.9664	699	716
	V max.= 8.7	699.0347	715.9671	699	716

Band 13:

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	7.6	777.0315	786.9215	777	787
-20		777.0361	786.9247	777	787
-10		777.0356	786.9242	777	787
0		777.0362	786.9272	777	787
10		777.0314	786.9230	777	787
20		777.0334	786.9246	777	787
30		777.0339	786.9215	777	787
40		777.0313	786.9240	777	787
50		777.0299	786.9248	777	787
20	V min.= 6.5	777.0344	786.9255	777	787
	V max.= 8.7	777.0342	786.9207	777	787

Band 66:

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	7.6	1710.0283	1779.8371	1710	1780
-20		1710.0249	1779.8401	1710	1780
-10		1710.0256	1779.8375	1710	1780
0		1710.0273	1779.8351	1710	1780
10		1710.0246	1779.8365	1710	1780
20		1710.0255	1779.8342	1710	1780
30		1710.0219	1779.8349	1710	1780
40		1710.0255	1779.8363	1710	1780
50		1710.0219	1779.8383	1710	1780
20	V min.= 6.5	1710.0274	1779.8364	1710	1780
	V max.= 8.7	1710.0250	1779.8335	1710	1780

Band 71:

10 MHz Bandwidth					
Temperature (℃)	**Power Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	7.6	663.0503	697.8531	663	698
-20		663.0496	697.8527	663	698
-10		663.0434	697.8554	663	698
0		663.0464	697.8586	663	698
10		663.0454	697.8542	663	698
20		663.0441	697.8572	663	698
30		663.0471	697.8560	663	698
40		663.0449	697.8534	663	698
50		663.0465	697.8592	663	698
20	V min.= 6.5	663.0489	697.8540	663	698
	V max.= 8.7	663.0427	697.8542	663	698

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