FCC Part 22H, Part 24E

TEST REPORT

For

Jiangsu Lynkworld IOT Technology Co., Ltd.

18th Floor No.1 Building Gusu Cloud Park Gusu District Suzhou China

FCC ID: 2A4FJLW2G-12F

Report Type:	**Product Type:**
Original Report	GNSS/GSM Terminal

Report Producer : Nana Hsu

Report Number : RLK220308004RF01

Report Date : 2022-04-01

Reviewed By: Andy Shih Andy. Shih

Prepared By:

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Revision History

Revision	No.	Report Number	Issue Date	Description	Author/ Revised by
0.0	RLK220308004	RLK220308004RF01	2022.04.01	Original Report	Nana Hsu

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General Information

Product Description for Equipment under Test (EUT)

Applicant	Jiangsu Lynkworld IOT Technology Co., Ltd.
	18th Floor No.1 Building Gusu Cloud Park Gusu District Suzhou China
Manufacturer	Jiangsu Lynkworld IOT Technology Co., Ltd.
	18th Floor No.1 Building Gusu Cloud Park Gusu District Suzhou China
Brand(Trade) Name	N/A
Product (Equipment)	GNSS/GSM Terminal
Main Model Name	LW2G-12F
Series Model Name	LW2G-6A, LW2G-6C, LW2G-12B, LW2G-12C
Model Discrepancy	Please review the series of declaration letters
Frequency Range	Cellular: 824.2 - 848.8 MHz (GSM/GPRS) PCS: 1850.2 - 1909.8 MHz (GSM/ GPRS)
Modulation Technique	GMSK
Antenna Specification	GSM 850 Brand: Jiangsu Lynkworld IOT Technology Co., Ltd. model: LW2G PCB Antenna Gain : 2.0 dBi GSM 1900 Brand: Jiangsu Lynkworld IOT Technology Co., Ltd. model: LW2G PCB Antenna Gain : 3.0 dBi
Output Voltage	☐ AC Type ☐ Adapter ☐ By AC Power Cord ☐ PoE
	☒ DC Type: 9-90Vdc , Battery: 3.7Vdc ☐ DC Power Supply ☐ External from USB Cable ☐ External DC Adapter
Received Date	Mar 08, 2022
Date of Test	Mar 11, 2022 ~ Mar. 21, 2022

** All measurement and test data in this report was gathered from production sample serial number: RLK220308004-01~ RLK220308004-05 (Assigned by BACL, Linkou Laboratory)*

Objective

This report is prepared on behalf of *Jiangsu Lynkworld IOT Technology Co., Ltd.* in accordance with Part 2, Part 22-Subpart H and Part 24-Subpart E of the Federal Communication Commission's rules.

Related Submittal(s)/Grant(s)

N/A

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 Communications Services

Applicable Standards: ANSI C63.26-2015.

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

Statement

Decision Rule: No, (The test results do not include MU judgment)

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

The determination of the test results does not require consideration of the uncertainty of the measurement, unless the assessment is required by customer agreement, regulation or standard document specification.

Bay Area Compliance Laboratories Corp. (Linkou Laboratory) is not responsible for the authenticity of the information provided by the applicant that affects the test results.

Measurement Uncertainty

Parameter		Uncertainty
RF output power, conducted		+/- 0.74 dB
Frequency stability		+/- 0.02 MHz
Occupied Bandwidth		+/- 0.94 MHz
Unwanted Emissions, conducted		+/- 2.57 dB
Emissions, radiated	30 MHz~1GHz	+/- 1.36 dB
	1 GHz~18 GHz	+/- 2.3 dB
	18 GHz~40 GHz	+/- 2.23 dB
Temperature		+/- 1.71 °C
Humidity		+/- 3 %

Environmental Conditions

Test Site	Test Date	Temperature (°C)	Relative Humidity (%)	ATM Pressure (hPa)	Test Engineer
Radiation Spurious Emissions	2022/3/18~2022/3/21	20.0~21.5	63~64	1010	Allen Cheng
Conducted Spurious Emissions	2022/03/11	20.5	68	1010	David Lee
Emission Bandwidth	2022/03/11	20.5	68	1010	
Maximum Output Power	2022/03/11	20.5	68	1010	
Band Edge	2022/03/11	20.5	68	1010	
Frequency stability	2022/03/11	20.5	68	1010	

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Linkou Laboratory) to collect test data is located on

☒ No.6, Wende 2Rd., Guishan Dist., Taoyuan City 33382, Taiwan (R.O.C.).

Bay Area Compliance Laboratories Corp. (Linkou Laboratory) is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 3546) and the FCC designation No.TW3546 under the Mutual Recognition Agreement (MRA) in FCC Test.

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.

EUT Exercise Software

N/A.

Test Mode

Pre-scan

Radiated Spurious Emissions

Mode 1: LW2G-12F (Sample serial number: RLK220308004-01).

Mode 2: LW2G-6A (Sample serial number: RLK220308004-02).

Mode 3: LW2G-6C (Sample serial number: RLK220308004-03).

Mode 4: LW2G-12B (Sample serial number: RLK220308004-04).

Mode 5: LW2G-12C (Sample serial number: RLK220308004-05).

Worst case is the LW2G-12F (Sample serial number: RLK220308004-01).

Model : LW2G-12F for all test item.

Other series model test Radiated Spurious Emissions below 1GHz.

Support Equipment List and Details

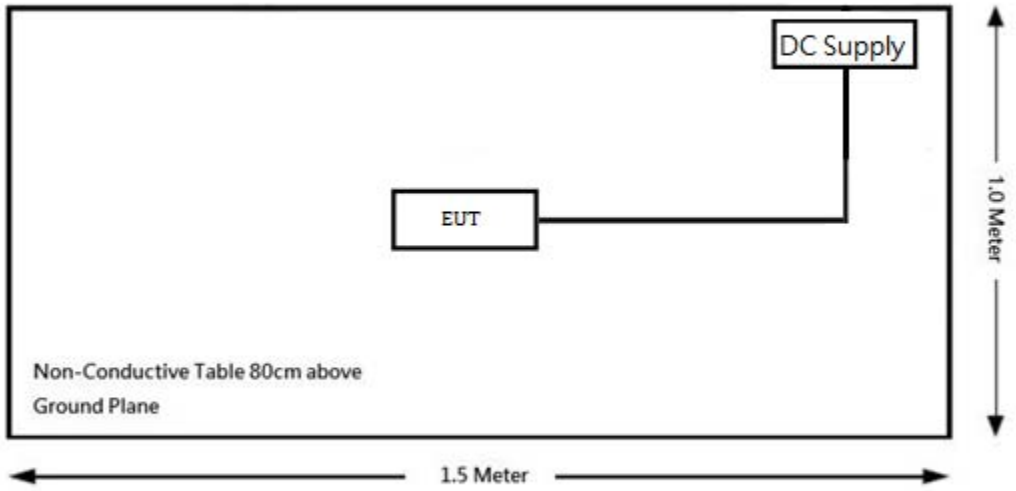
Description	Manufacturer	Model Number	S/N
DC Power Supply	KIKUSUI	PWR400M	SJ002716

External Cable List and Details

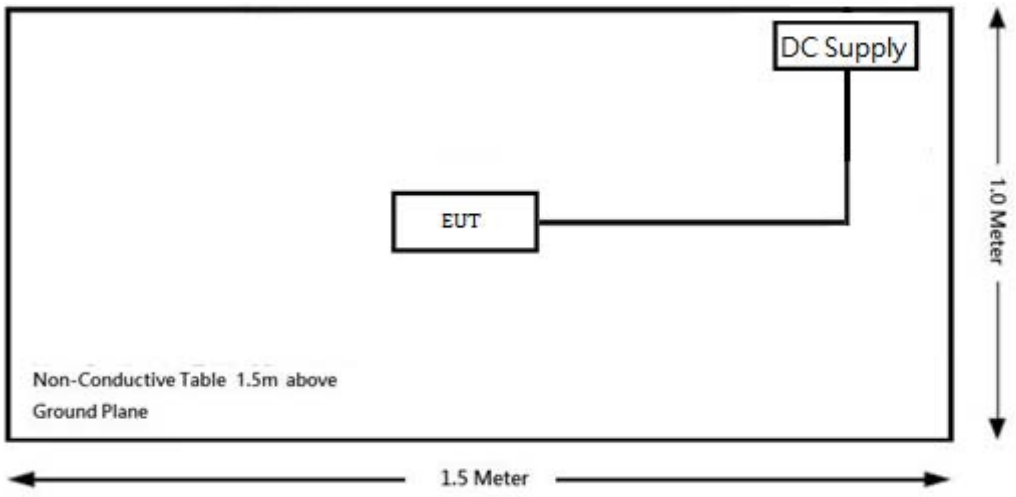
N/A

Block Diagram of Test Setup

For Radiated Emissions (Below 1GHz).



For Radiated Emissions (Above 1GHz).



Summary of Test Results

FCC Rules	Description of Test	Result
§1.1310 ,§ 2.1091	Maximum Permissible Exposure (MPE)	Compliance
§2.1046; §22.913 (a); §24.232(c)	RF Output Power	Compliance
§ 2.1047	Modulation Characteristics	Not Applicable
§ 2.1049; §22.905; §22.917; §24.238	Occupied Bandwidth	Compliance
§ 2.1051; §22.917(a); §24.238(a)	Spurious Emissions at Antenna Terminal	Compliance
§ 2.1053; §22.917(a); §24.238(a)	Field Strength of Spurious Radiation	Compliance
§22.917(a); §24.238(a)	Band Edge	Compliance
§ 2.1055; §22.355; §24.235	Frequency stability	Compliance

Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Room (966-A)					
Bilog Antenna & 6 dB Attenuator	SUNOL SCIENCES & EMCI	JB3 & N-6-06	A111513 & AT-N0668	2021/03/30	2022/03/29
Bilog Antenna & 6 dB Attenuator	SUNOL SCIENCES & EMCI	JB3 & N-6-06	A071318 & AT-N0670	2021/08/3	2022/8/2
Horn Antenna	ETS-Lindgren	3115	109141	2021/07/12	2022/07/11
Horn Antenna	ETS-Lindgren	3115	00085775	2021/09/08	2022/09/07
Horn Antenna	ETS-Lindgren	3160-09	123852	2021/07/13	2022/07/12
Horn Antenna	ETS-Lindgren	3160-09	00123853	2021/9/8	2022/9/7
Preamplifier	A.H. Systems	PAM-0118P	478	2021/05/12	2022/05/11
Preamplifier	A.H. Systems	PAM-1840VH	174	2021/03/22	2022/03/21
ESR EMI Test Receiver	Rohde & Schwarz	ESR3	102448	2021/09/28	2022/09/27
Signal and Spectrum Analyzer	Rohde & Schwarz	FSV40	101434	2021/05/12	2022/05/11
MXG Analog Signal Generator	AGILENT	N5183A	MY50140330	2021/12/15	2022/12/14
Wideband Radio Communication Tester (with CA)	Rohde & Schwarz	CMW 500	107105	2022/03/08	2023/03/07
Microflex Cable	MTJ	00000-MT26A-100	H0919	2021/08/07	2022/08/06
Microflex Cable	EMCI	EMC106-SM-SM-2000	180515	2021/08/07	2022/08/06
Microflex Cable	UTIFLEX	UFA210A-1-3149-300300	MFR 64639 232490-001	2021/08/07	2022/08/06
Coaxial Cable 5C-2V (1.5M)	PX	P5C-2P-1.5M	PTP246-01	2021/11/05	2022/11/04
Coaxial Cable 5C-2V (3M)	HER YING	RG-10-3M	LKTE059	2021/11/05	2022/11/04
RF Cable	EMCI	EMCCFD300-BM-BM-8000	180526	2021/08/17	2022/08/16
Reference Cable	MTJ	MT40S	620620-MT40S-100	2021/12/22	2022/12/21
Band-stop filter	Chengdu E-Microwave Inc.	OBF-ZP-1850-1910-NF	OE01201055	2021/03/12	2022/03/11

Band-stop filter	XB TECHNOLOGY	XBLBQ-DZA111	200121-3-18	2021/03/12	2022/03/11
Turn Table	Chaintek	T-200-S-1	003501	N.C.R	N.C.R
Antenna Tower	Chaintek	MBD-400-1	003504	N.C.R	N.C.R
Controller	Chaintek	3000-1	003507	N.C.R	N.C.R
Software	Audix	e3 v9	E3LK-01	N.C.R	N.C.R
Conducted Room					
Spectrum Analyzer	Rohde & Schwarz	FSU40	102248	2021/09/09	2022/09/08
RF Cable	EMCI	EMCCFD300-BM-BM-8000	180526	2021/08/17	2022/08/16
Attenuator	HAEFELY TEST AG	PAT50A & PAT1000	187177 & 187176	2021/10/20	2022/10/19
Power Splitter	Mini-Circuits	ZFRSC-183-S+	S F448201614	2021/6/23	2022/6/22
Multimeter	Fluke	114	28810152WS	2022/2/9	2023/2/8
Constant Temperature and Humidity Chamber	BACL	BTH-408-60	30073	2021/10/01	2022/09/30
Wideband Radio Communication Tester (with CA)	Rohde & Schwarz	CMW 500	107105	2022/03/08	2023/03/07

***Statement of Traceability:** BACL Corp. attests that all of the calibrations on the equipment items listed above were traceable to the SI System of Units via the R.O.C. Center for Measurement Standards of the Electronics Testing Center, Taiwan (ETC) or to another internationally recognized National Metrology Institute (NMI), and were compliant with the current Taiwan Accreditation Foundation (TAF) requirements.*

FCC §1.1310, § 2.1091 - Maximum Permissible Exposure (MPE)

Applicable Standard

According to subpart 1.1310, 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	**Electric Field Strength (V/m)**	**Magnetic Field Strength (A/m)**	**Power Density (mW/cm^2)**	**Averaging Time (minutes)**
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f^2)	30
30–300	27.5	0.073	0.2	30
300–1500	/	/	f/1500	30
1500–100,000	/	/	1.0	30

f = frequency in MHz; * = Plane-wave equivalent power density;

According to §1.1310 and §2.1091 RF exposure is calculated.

Calculated Formulary:

Predication of MPE limit at a given distance

$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm^2);

P = power input to the antenna (in appropriate units, e.g., mW);

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

MPE evaluation:

Mode	Frequency Range (MHz)	Antenna Gain		Tune-up Output Power		Evaluation Distance (cm)	Power Density (mW/cm2)	MPE Limit (mW/cm2)
		(dBi)	(numeric)	(dBm)	(mW)			
GSM 850	824-249	2	1.585	25.00	316.228	20	0.100	0.55
GPRS 850	824-249	2	1.585	25.00	316.228	20	0.100	0.55
GSM 1900	1850 - 1910	3	1.995	19.50	89.125	20	0.035	1
GPRS 1900	1850 - 1910	3	1.995	20.00	100.000	20	0.040	1

GSM 850: Maximum Tune-up output power with 1 slot is 34.00 dBm, so the max tune-up time based Ave. power compared to slot Ave. power is 25.00 dBm.
GPRS 850: Maximum Tune-up output power with 1 slot is 34.00 dBm, 2 slots is 31.00 dBm, 3 slots is 29.00 dBm, 4 slots is 28.00 dBm, so the max tune-up time based Ave. power compared to slot Ave. power are 25.00 dBm.

GSM 1900: Maximum Tune-up output power with 1 slot is 28.50 dBm, so the max tune-up time based Ave. power compared to slot Ave. power is 19.50 dBm .
GPRS 1900: Maximum Tune-up output power with 1 slot is 28.00 dBm, 2 slots is 26.00 dBm, 3 slots is 24.00 dBm, 4 slots is 23.00 dBm, so the max tune-up time based Ave. power compared to slot Ave. power are 20.00 dBm .

Number of Time slot	1	2	3	4
Duty Cycle	1:8	1:4	1:2.66	1:2
Time based Ave. power compared to slotted Ave. power	-9 dB	-6 dB	-4.26 dB	-3 dB

Result: MPE evaluation meets the requirements of the **20cm** standard.

FCC §2.1047 - MODULATION CHARACTERISTIC

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

FCC § 2.1046, § 22.913 (A) & § 24.232 (C) - 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.

According to §24.232 (d) Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of §24.51. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

According to FCC §2.1046 and §27.50 (d), (4) Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP. Fixed stations operating in the 1710-1755 MHz band are limited to a maximum antenna height of 10 meters above ground. Mobile and portable stations operating in these bandsmust employ a means for limiting power to the minimum necessary for successful communications.

Test Procedure

For Conducted method:

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

For ERP measurement:

ERP can be calculated by below formula from KDB 412172 D01.

$EIRP=P_T + G_T - L_C$

P_T = transmitter output power, in dBm.

G_T = gain of the transmitting antenna, in dBi (EIRP).

L_C = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

ERP = EIRP – 2.15 dB.

Test Results

Cellular Band (Part 22H)

Mode	Test Condition	Channel	Frequency (MHz)	Average Output Power (dBm)	Limit (dBm)
GSM	Normal	128	824.2	33.44	38.45
		190	836.6	33.55	
		251	848.8	33.47	

Mode	Test Condition	Channel	Frequency (MHz)	Burst Average Output Power (dBm)				Limit (dBm)
				1 slot	2 slot	3 slot	4 slot	
GPRS	Normal	128	824.2	33.55	30.84	28.39	27.49	38.45
		190	836.6	33.62	30.95	28.35	27.38	
		251	848.8	33.73	30.74	28.54	27.58	

PCS Band (Part 24E)

Mode	Test Condition	Channel	Frequency (MHz)	Average Output Power (dBm)	Limit (dBm)
GSM	Normal	512	1850.2	28.38	33
		661	1880.0	28.31	
		810	1909.8	28.44	

Mode	Test Condition	Channel	Frequency (MHz)	Burst Average Output Power (dBm)				Limit (dBm)
				1 slot	2 slot	3 slot	4 slot	
GPRS	Normal	512	1850.2	27.60	25.35	23.54	22.54	33
		661	1880.0	27.45	25.58	23.31	22.58	
		810	1909.8	27.51	25.42	23.58	22.74	

ERP/EIRP

Cellular Band (Part 22H)

Antenna Gain (dBi):	2	Antenna Gain (dBd):	-0.15	Cable Loss (dB):	0.5

Mode	Test Condition	Channel	Frequency (MHz)	Average Output Power (dBm)	Maximum ERP (dBm)	Limit (dBm)
GSM	Normal	128	824.2	33.44	32.79	38.45
		190	836.6	33.55	32.90	
		251	848.8	33.47	32.82	

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

PCS Band (Part 24E)

Antenna Gain (dBi):	3	Cable Loss (dB):	0.5

Mode	Test Condition	Channel	Frequency (MHz)	Average Output Power (dBm)	Maximum EIRP (dBm)	Limit (dBm)
GSM	Normal	512	1850.2	28.38	30.88	33
		661	1880.0	28.31	30.81	
		810	1909.8	28.44	30.94	

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

Peak-to-average ratio (PAR)

Cellular Band (Part 22H)

mode	Channel	PAR (dB)	PAR Limit (dB)
GSM	Low	1.35	≤ 13
	Middle	1.41	≤ 13
	High	1.28	≤ 13

PCS Band (Part 24E)

mode	Channel	PAR (dB)	PAR Limit (dB)
GSM	Low	1.38	≤ 13
	Middle	1.37	≤ 13
	High	1.45	≤ 13

FCC §2.1049, §22.917, §22.905 & §24.238 – Occupied Bandwidth

Applicable Standard

FCC §2.1049, §22.917, §22.905, §24.238,

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 Results

Test Mode: Transmitting

Test Result: Compliant.

Please refer to the following table and plots.

Cellular Band (Part 22H)

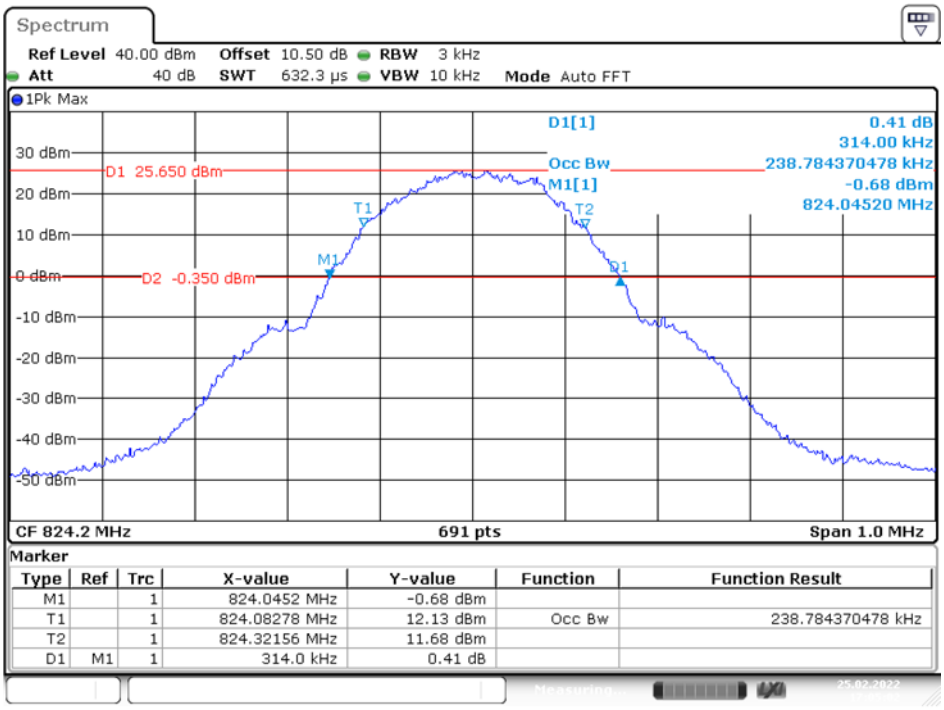
Mode	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
GSM(GMSK)	824.2	0.239	0.314
	836.6	0.240	0.311
	848.8	0.237	0.311
GPRS (GMSK)	824.2	0.239	0.310
	836.6	0.239	0.313
	848.8	0.237	0.310

PCS Band (Part 24E)

Mode	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
GSM(GMSK)	1850.2	0.236	0.313
	1880.0	0.237	0.314
	1909.8	0.239	0.313
GPRS (GMSK)	1850.2	0.236	0.314
	1880.0	0.237	0.314
	1909.8	0.240	0.305

Cellular Band (Part 22H)

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



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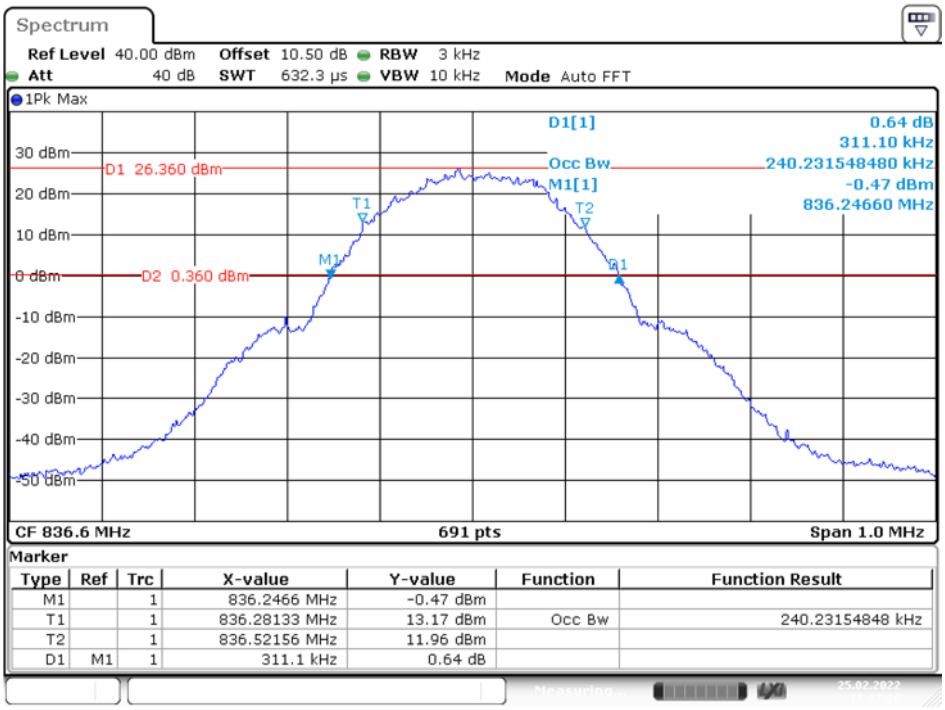
99% Occupied & 26 dB Emissions Bandwidth for GSM (GMSK) Middle channel



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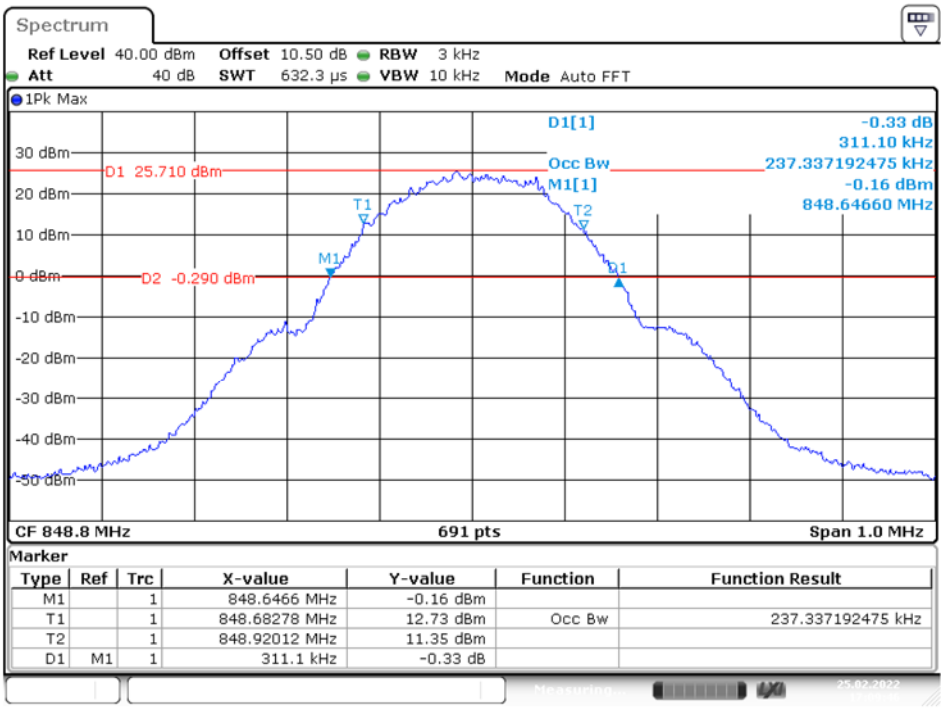
99% Occupied & 26 dB Emissions Bandwidth for GSM (GMSK) High channel



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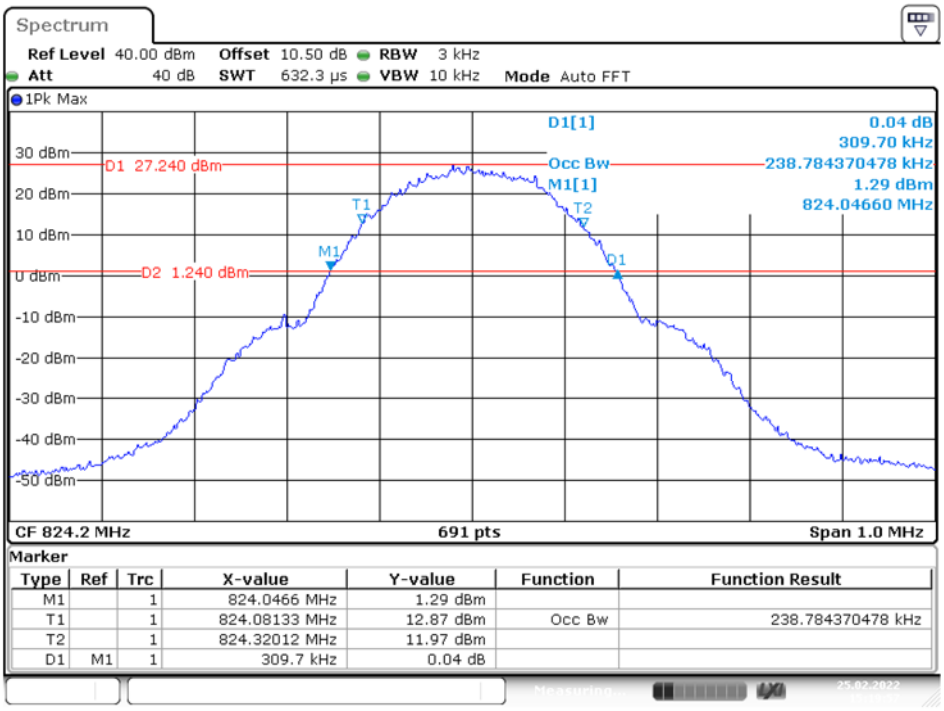
99% Occupied & 26 dB Emissions Bandwidth for GPRS (GMSK) Low Channel



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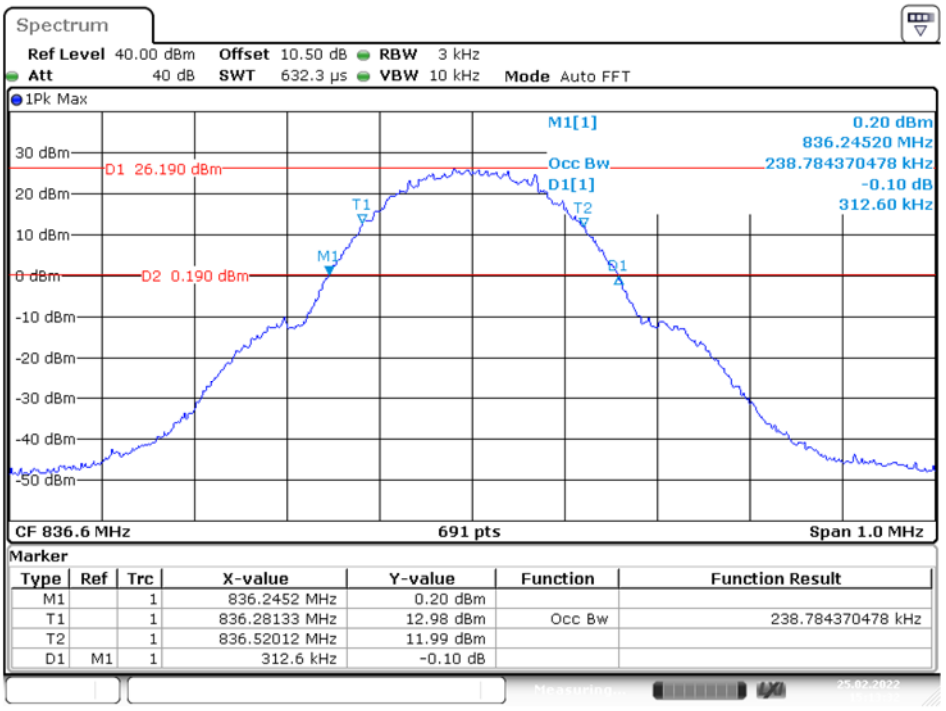

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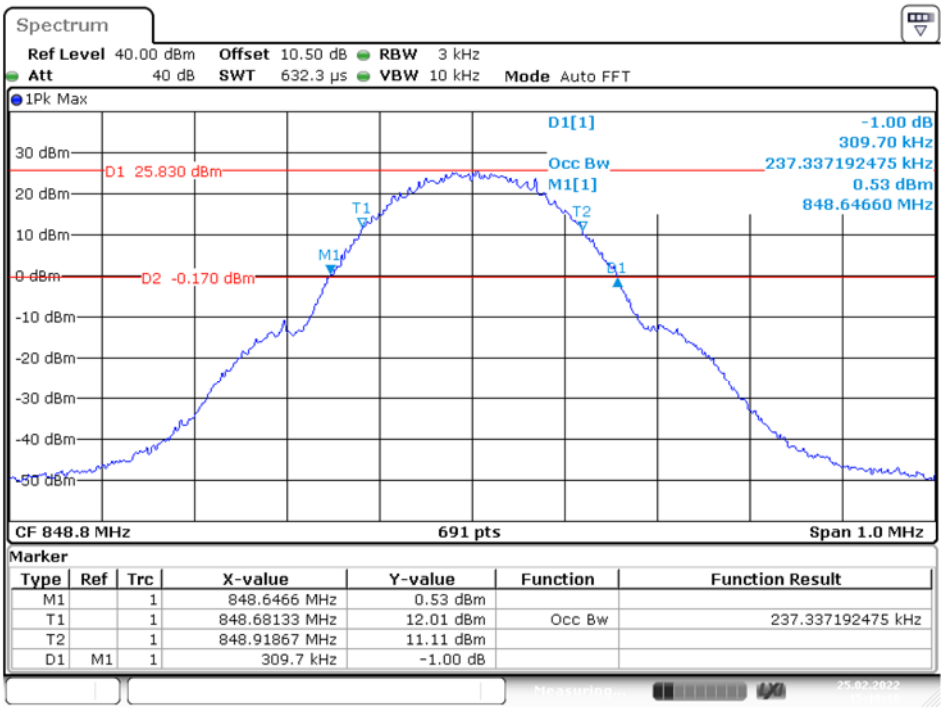

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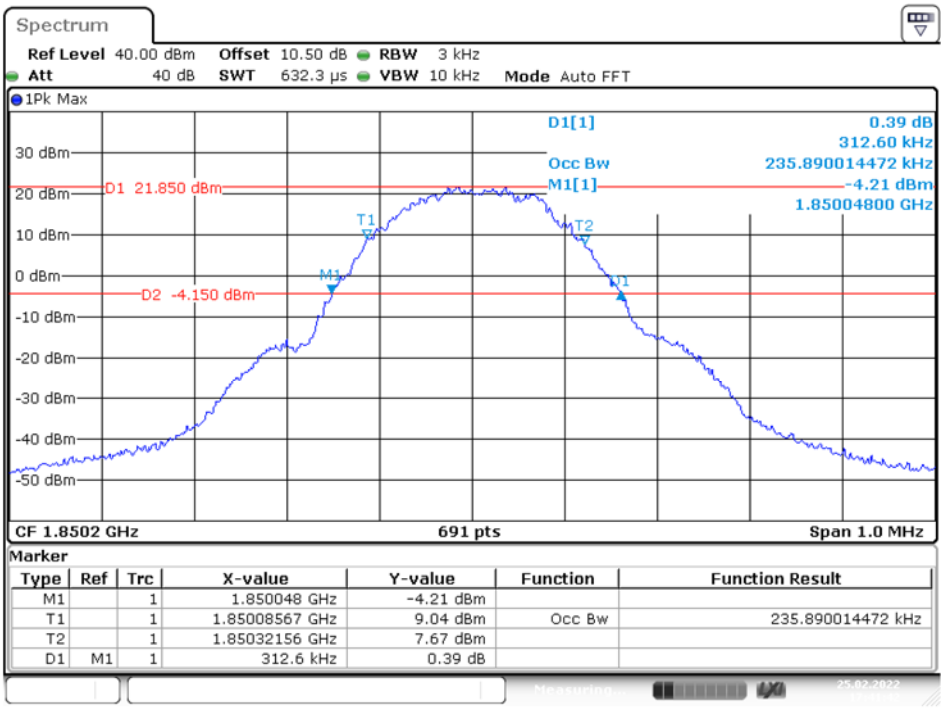
PCS Band (Part 24E)

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



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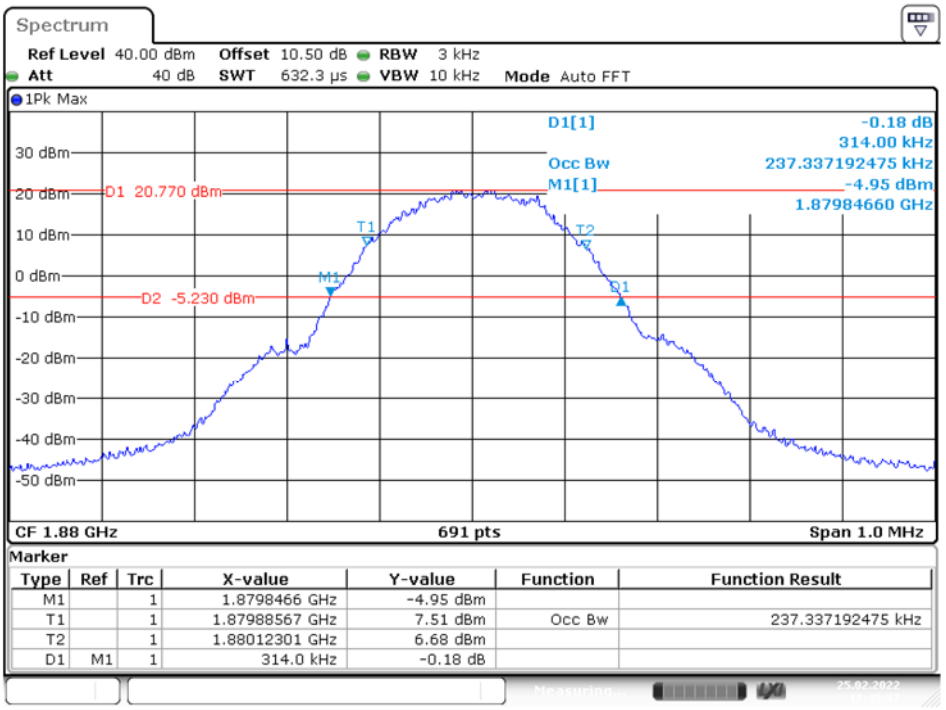
99% Occupied & 26 dB Emissions Bandwidth for GSM (GMSK) Middle channel



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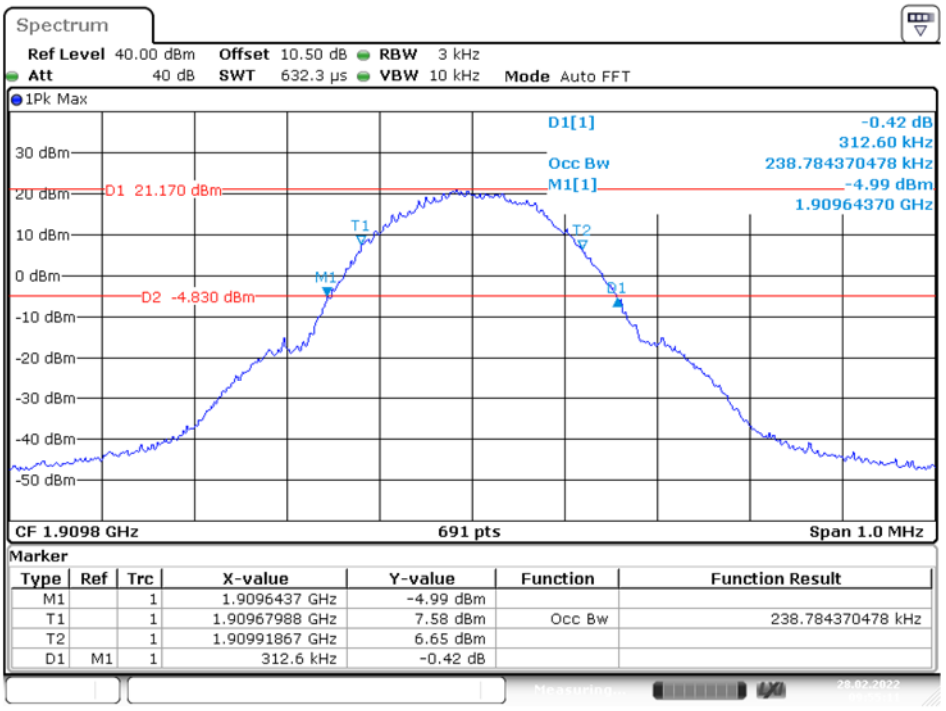
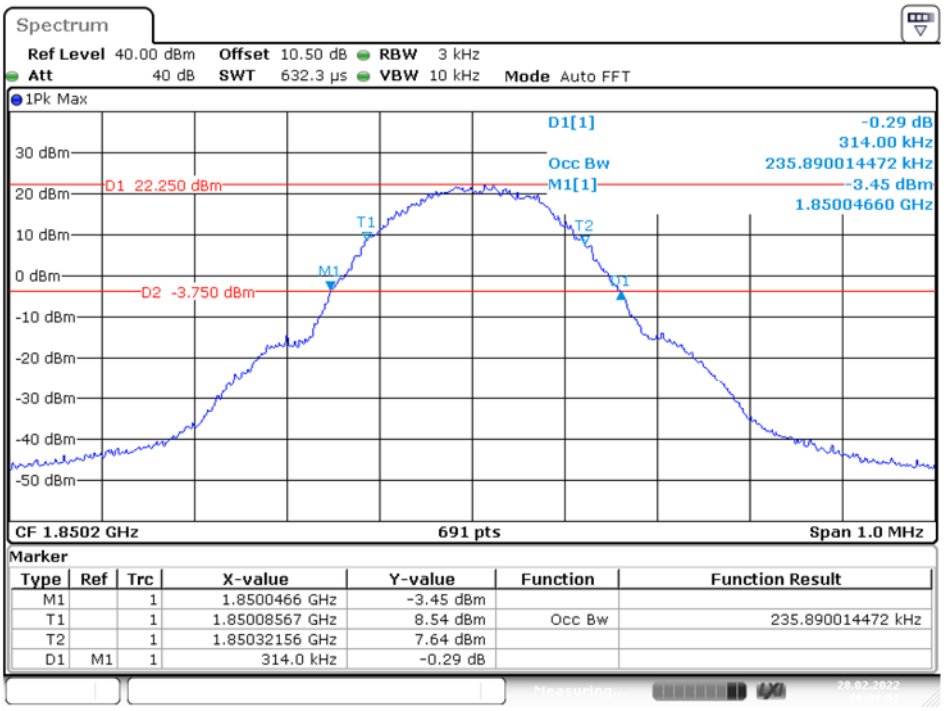
99% Occupied & 26 dB Emissions Bandwidth for GSM (GMSK) High channel



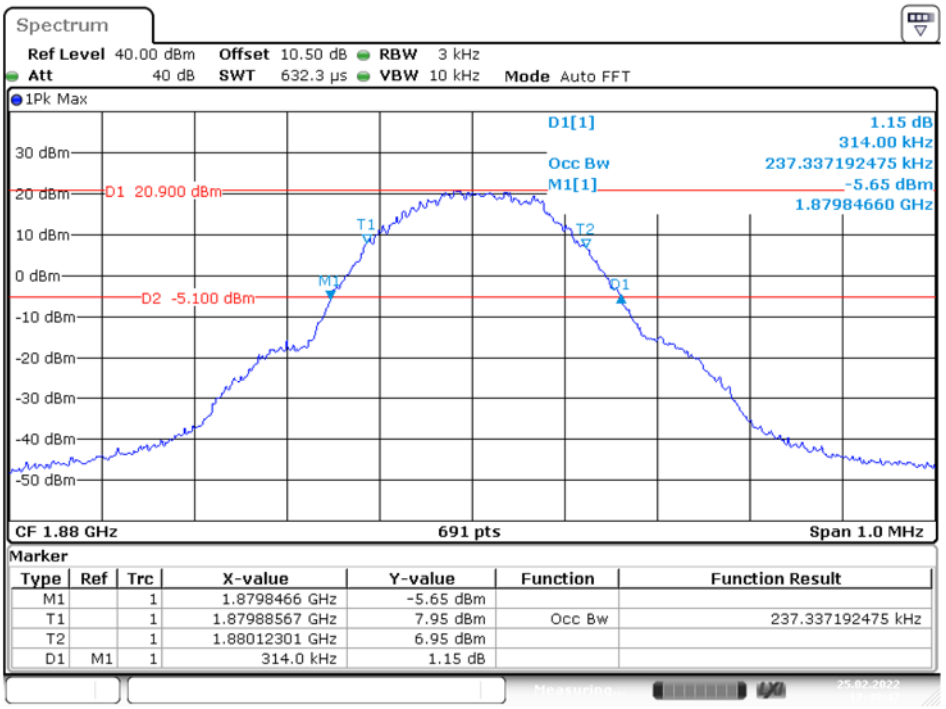
Date: 10.MAR.2022 16:28:29

99% Occupied & 26 dB Emissions Bandwidth for GPRS (GMSK) Low Channel



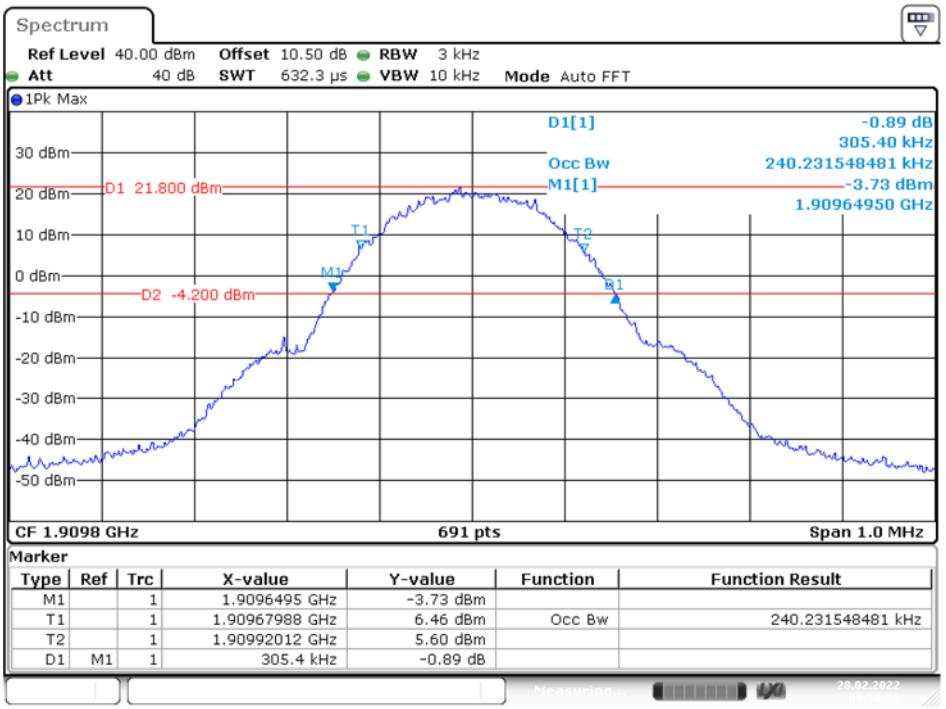
Date: 10.MAR.2022 15:02:06

99% Occupied & 26 dB Emissions Bandwidth for GPRS (GMSK) Middle Channel



Date: 10.MAR.2022 15:05:22

99% Occupied & 26 dB Emissions Bandwidth for GPRS (GMSK) High Channel



Date: 10.MAR.2022 15:10:44

FCC§2.1051, §22.917(a) & §24.238(a) – Spurious Emissions At Antenna Terminals

Applicable Standard

FCC § 2.1051, §22.917, § 24.238,

Test Procedure

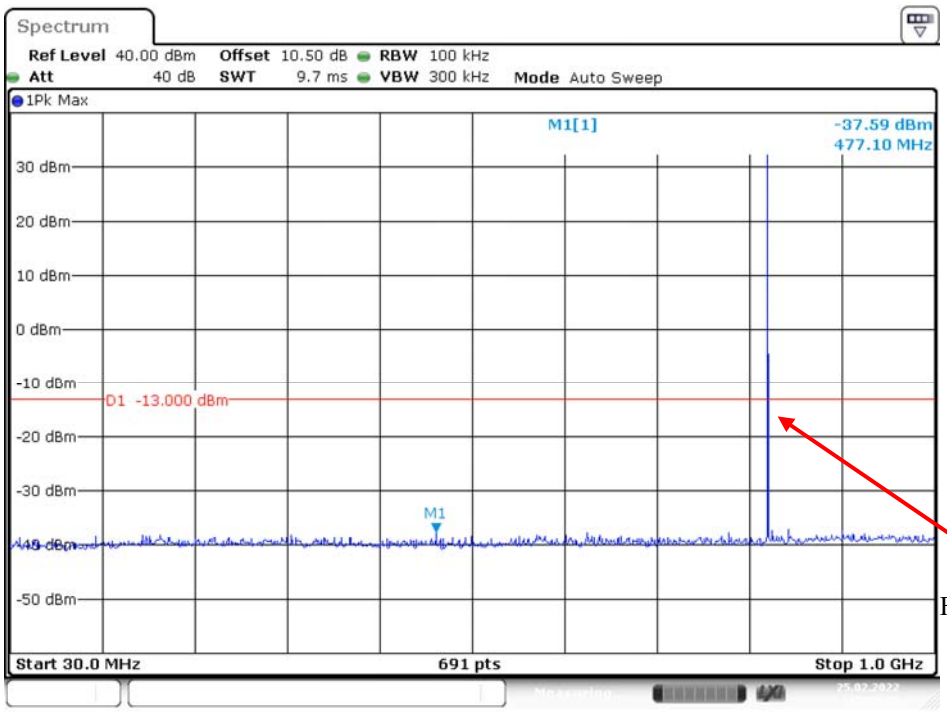
The RF output of the transceiver was connected to a spectrum analyzer and simulator through appropriate attenuation. Sufficient scans were taken to show any out of band emissions up to 10th harmonic.
The resolution bandwidth of the spectrum analyzer was set at 100 kHz for below 1GHz & 1MHz for above 1GHz.

Test Results

Please refer to the following plots

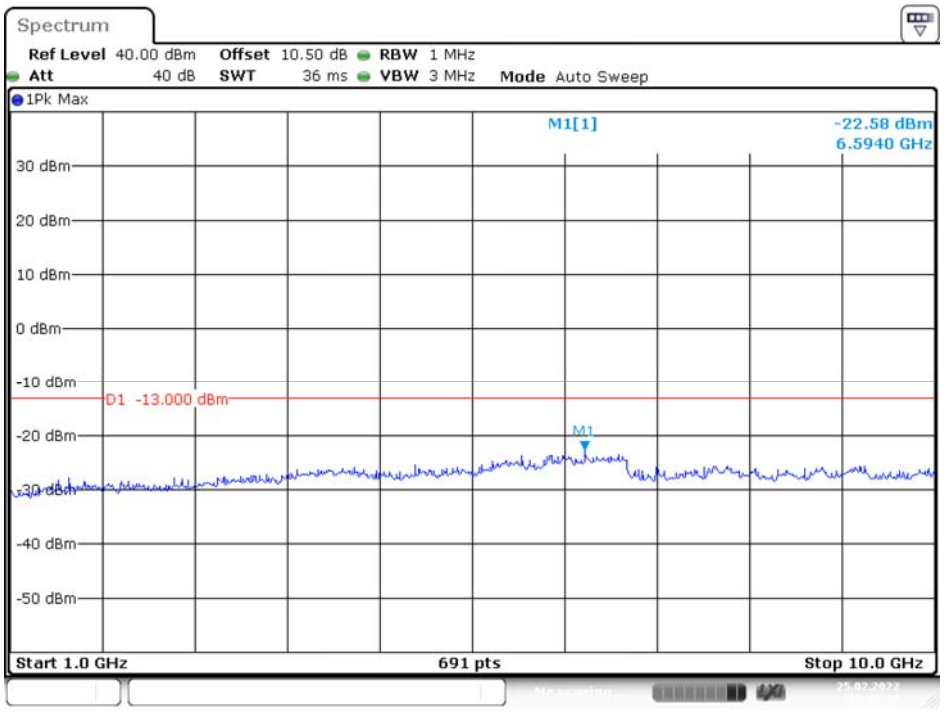
Cellular Band (Part 22H)

30 MHz – 1GHz (GPRS Mode) Low Channel



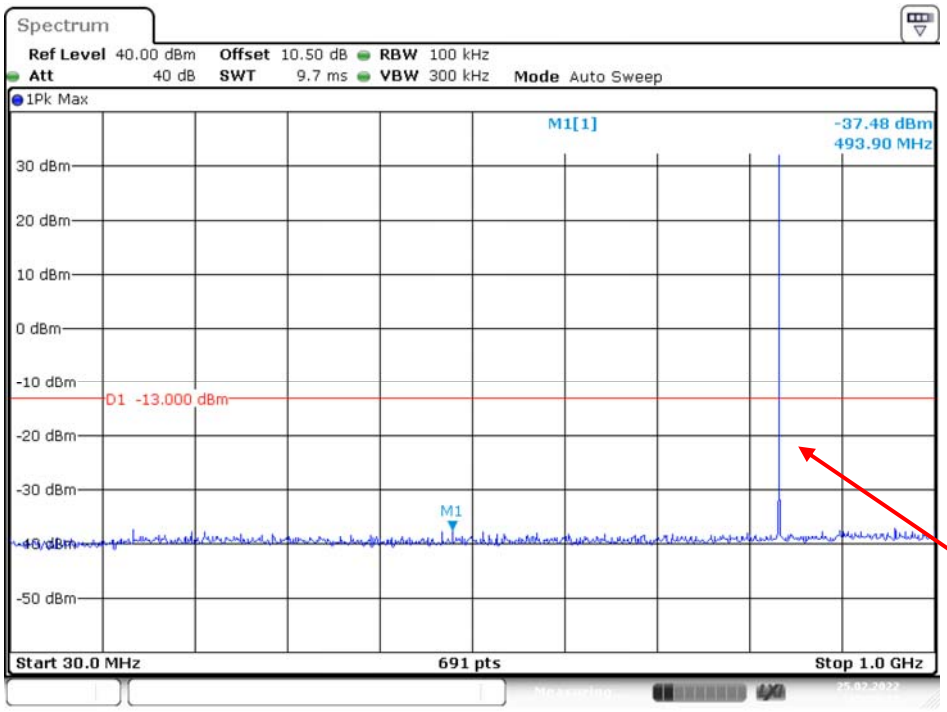
Date: 10.MAR.2022 13:28:08

1 GHz – 10 GHz(GPRS Mode) Mode Low Channel



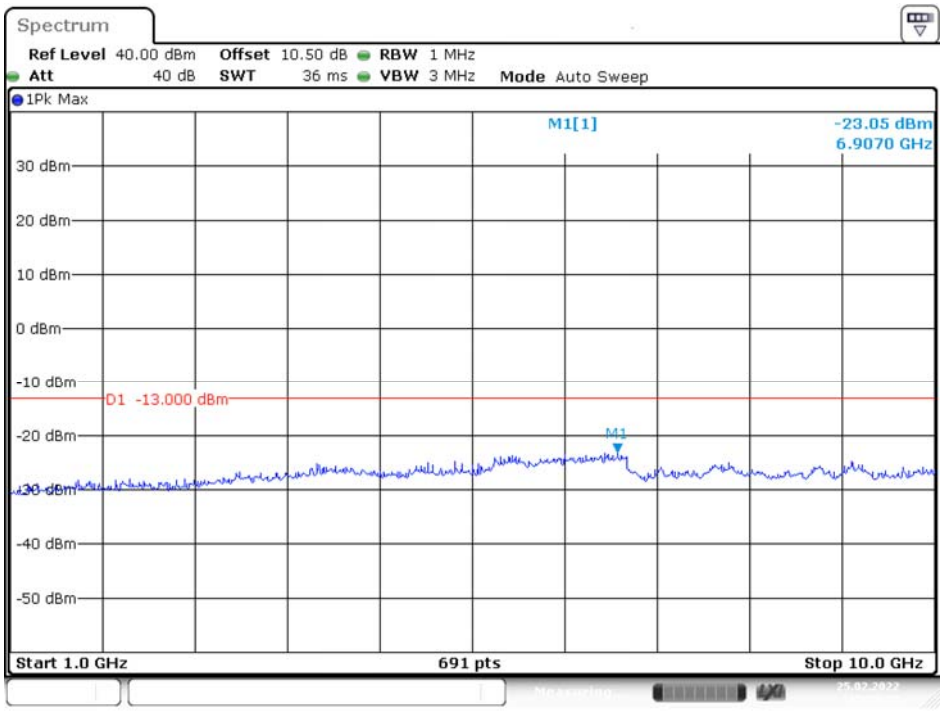
Date: 10.MAR.2022 13:18:18

30 MHz – 1GHz (GPRS Mode) Middle Channel



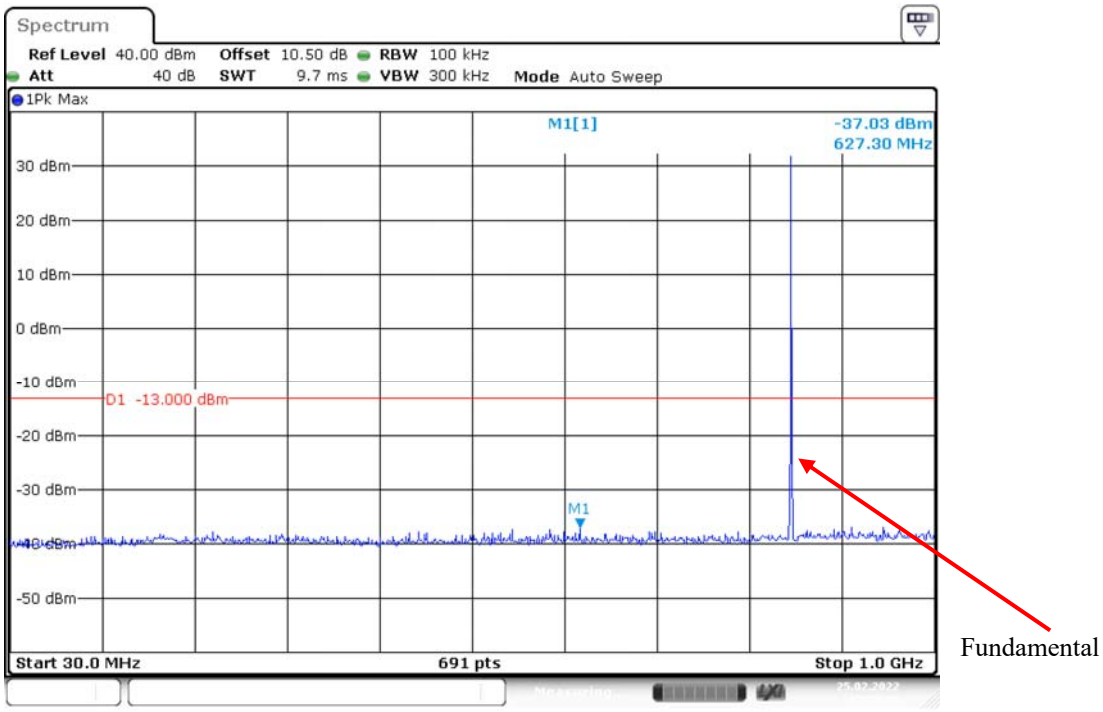
Date: 10.MAR.2022 13:31:34

1 GHz – 10 GHz(GPRS Mode) Middle Channel



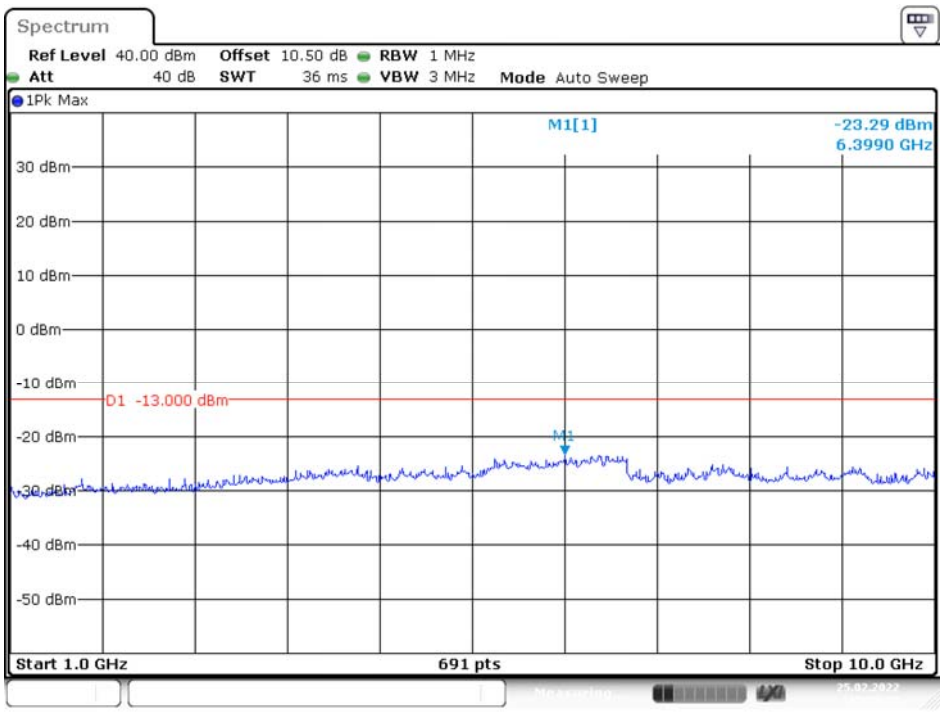
Date: 10.MAR.2022 13:20:33

30 MHz – 1GHz (GPRS Mode) High Channel



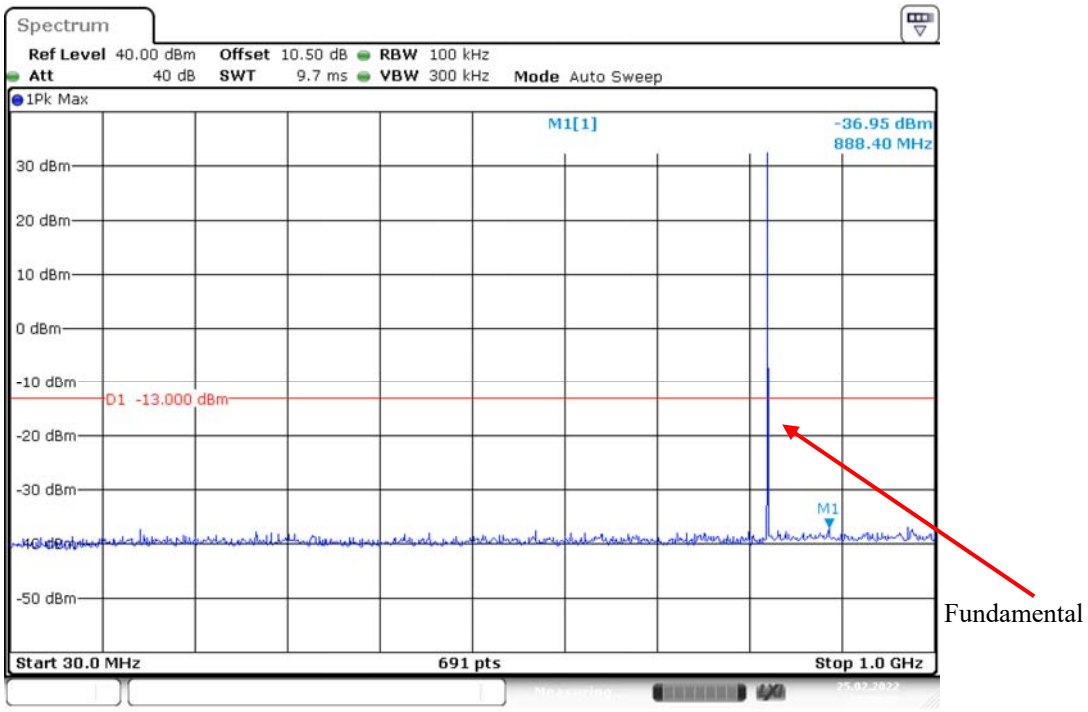
Date: 10.MAR.2022 13:35:09

1 GHz – 10 GHz(GPRS Mode) High Channel



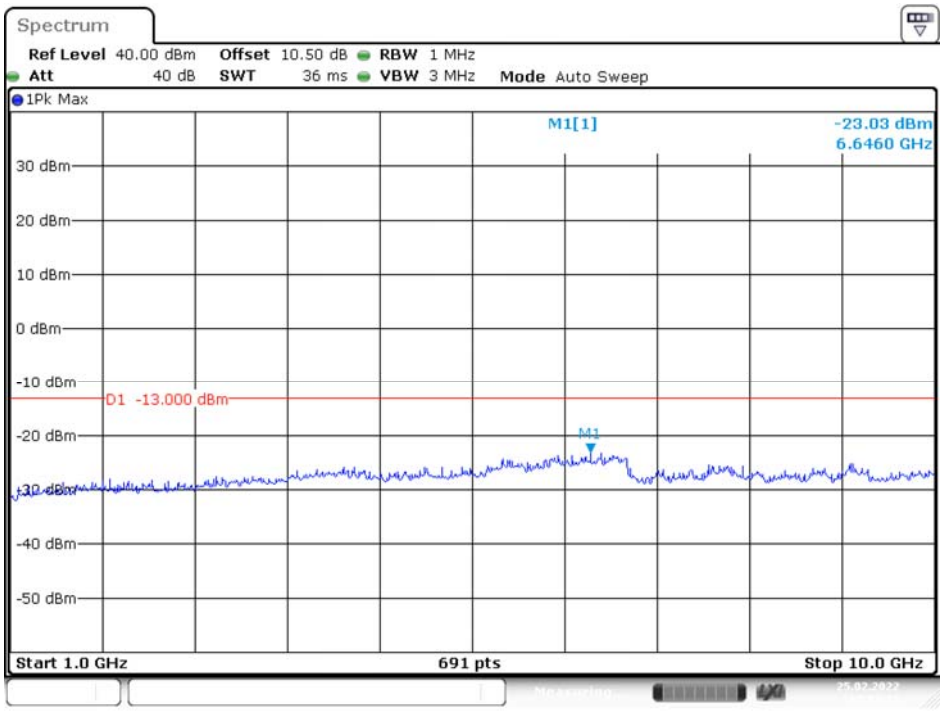
Date: 10.MAR.2022 13:24:40

30 MHz – 1GHz (GSM Mode) Low Channel



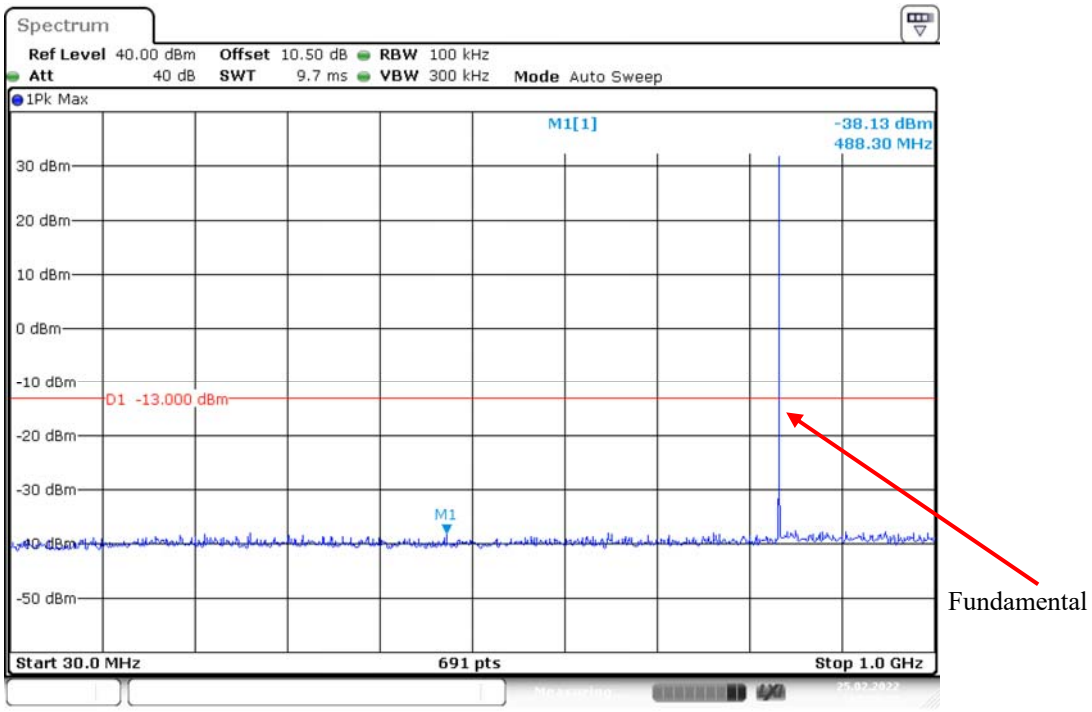
Date: 10.MAR.2022 14:08:28

1 GHz – 10 GHz (GSM Mode) Low Channel



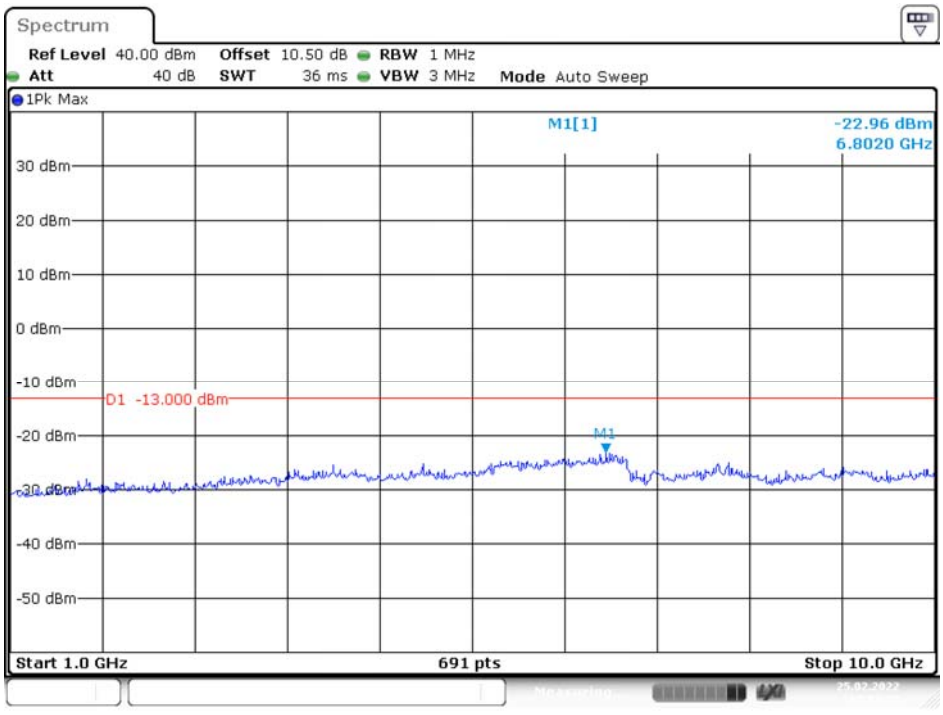
Date: 10.MAR.2022 13:58:09

30 MHz – 1GHz (GSM Mode) Middle Channel



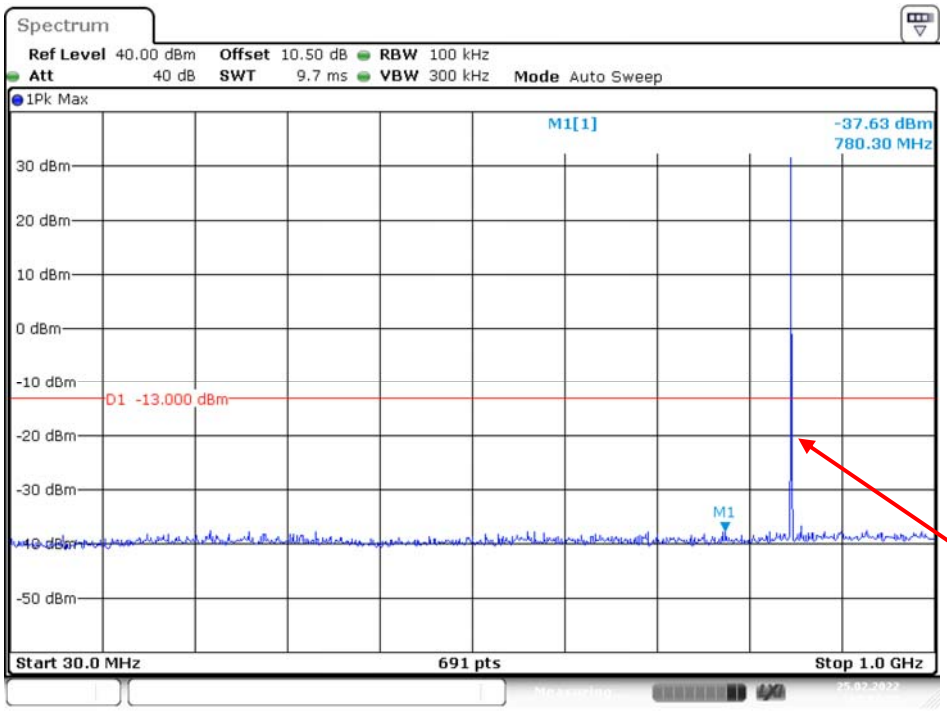
Date: 10.MAR.2022 14:12:08

1 GHz – 10 GHz (GSM Mode) Middle Channel



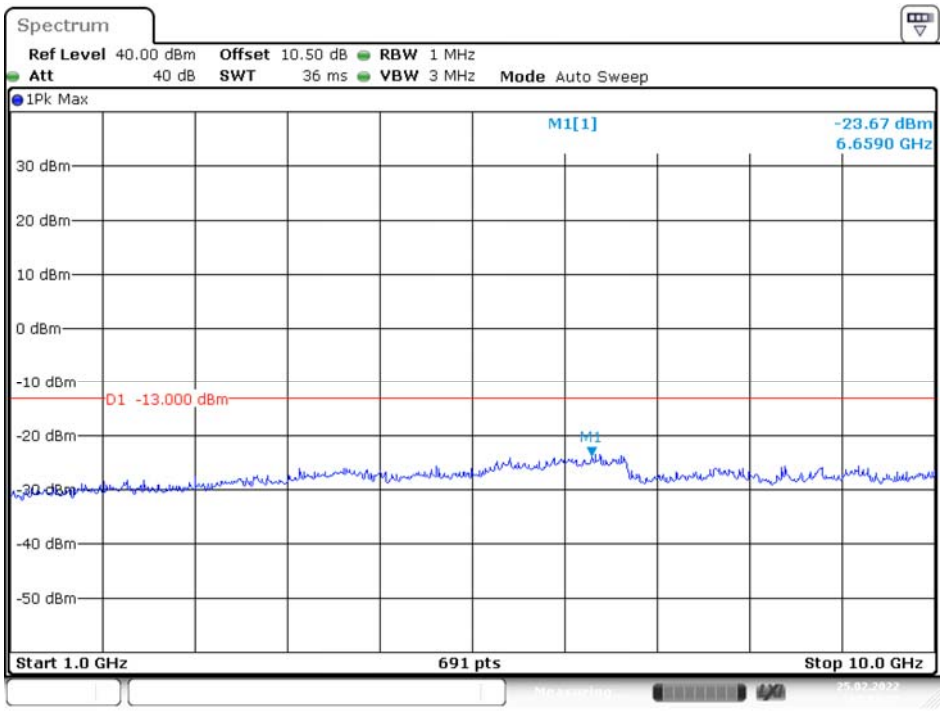
Date: 10.MAR.2022 14:02:09

30 MHz – 1GHz (GSM Mode) High Channel



Date: 10.MAR.2022 14:15:33

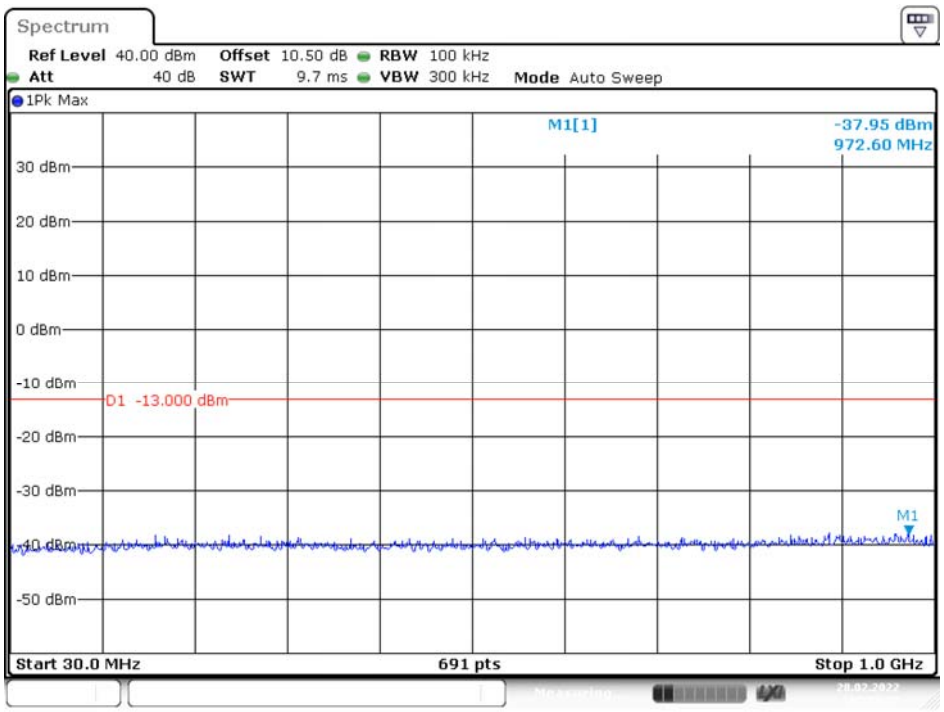
1 GHz – 10 GHz (GSM Mode) High Channel



Date: 10.MAR.2022 14:05:43

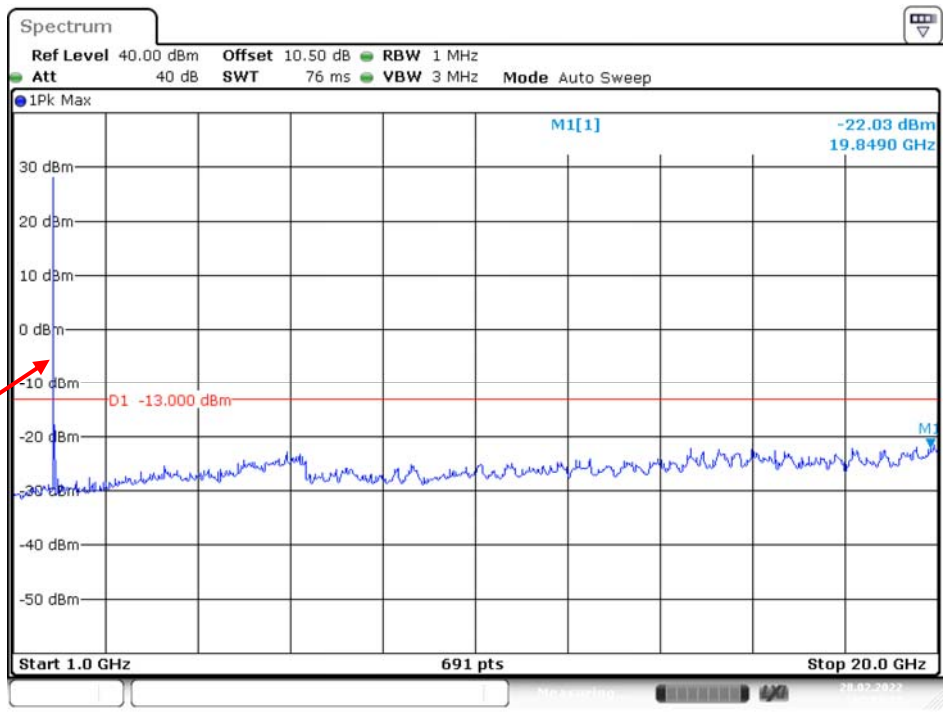
PCS Band (Part 24E)

30 MHz – 1GHz (GPRS Mode) Low Channel



Date: 10.MAR.2022 14:51:06

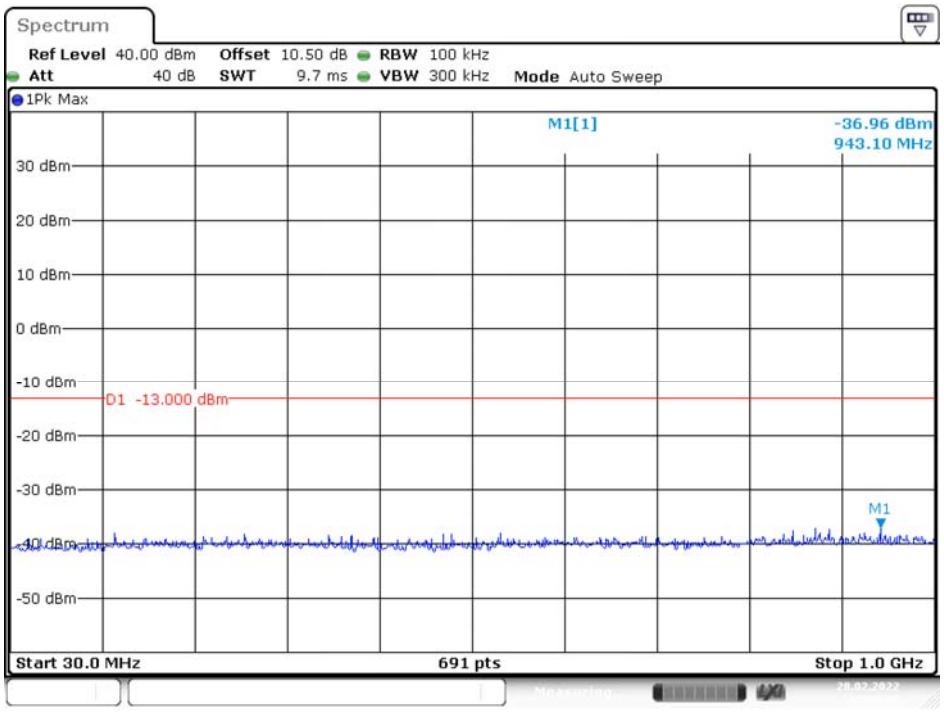
1 GHz – 20 GHz (GPRS Mode) Low Channel



Fundamental

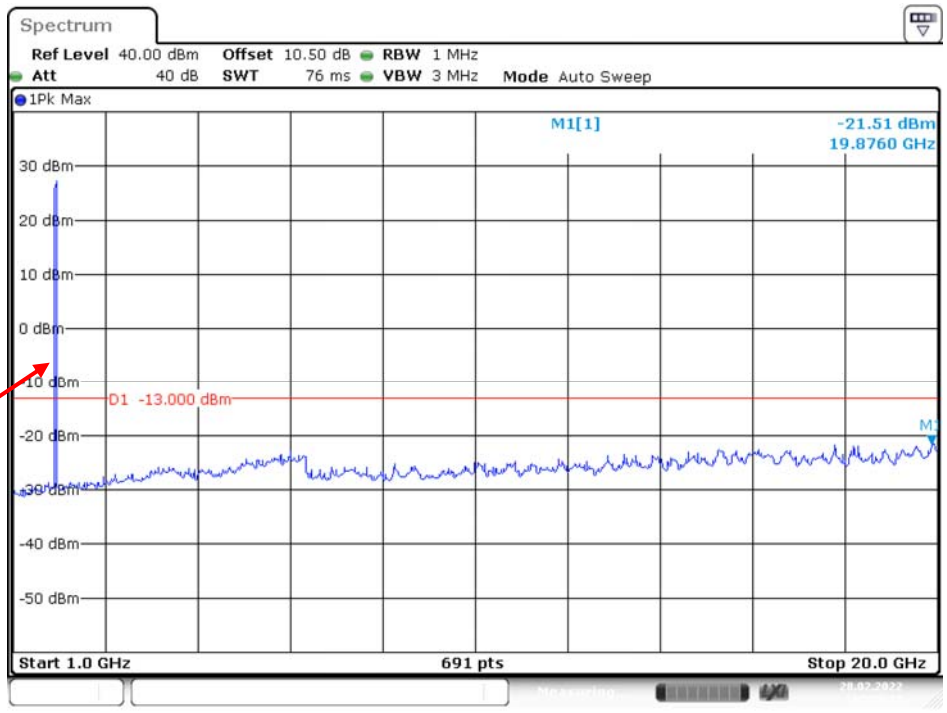
Date: 10.MAR.2022 14:37:02

30 MHz – 1GHz (GPRS Mode) Middle Channel



Date: 10.MAR.2022 14:54:20

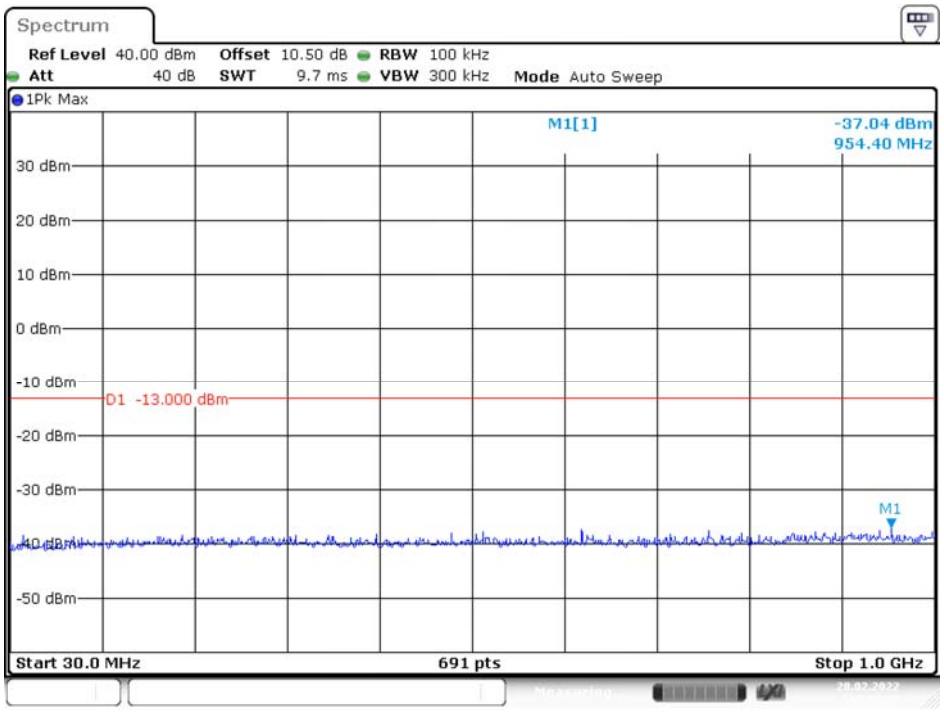
1 GHz – 20 GHz (GPRS Mode) Middle Channel



Fundamental

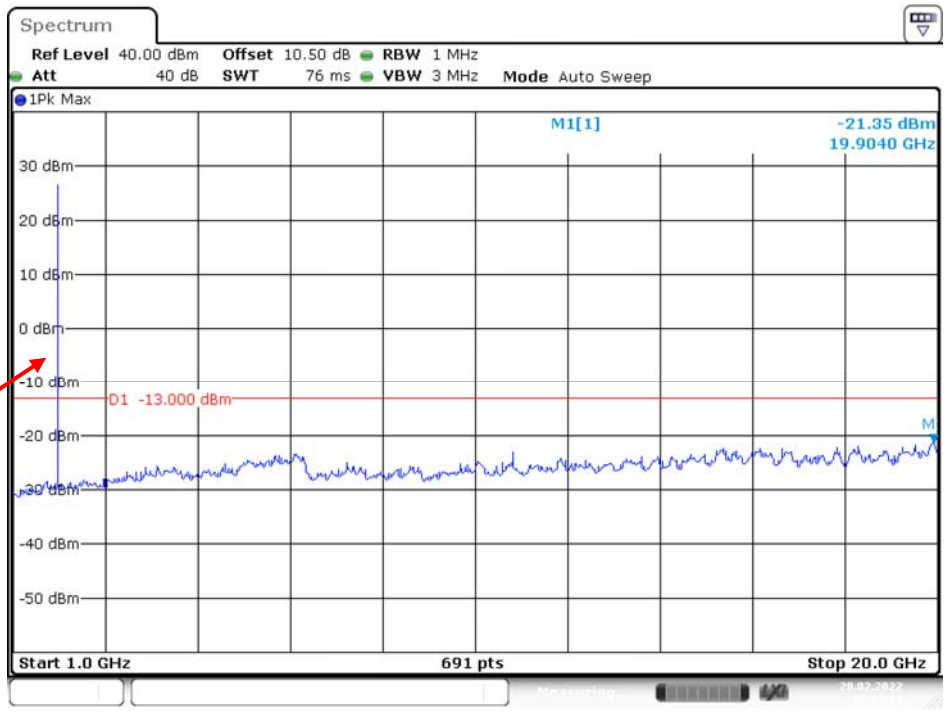
Date: 10.MAR.2022 14:41:35

30 MHz – 1GHz (GPRS Mode) High Channel



Date: 10.MAR.2022 14:57:33

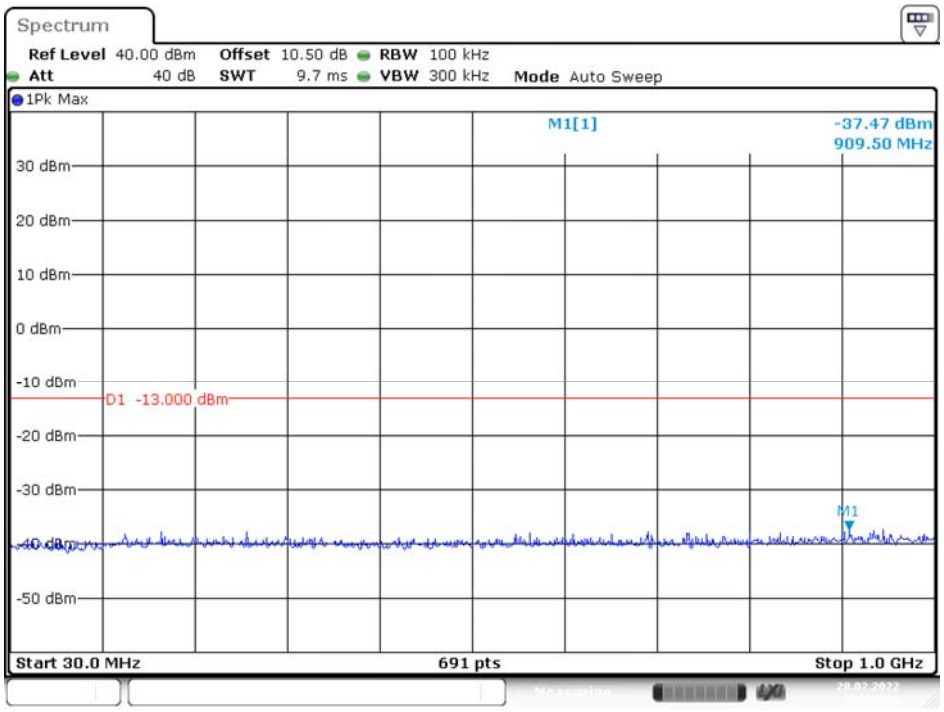
1 GHz – 20 GHz (GPRS Mode) High Channel



Fundamental

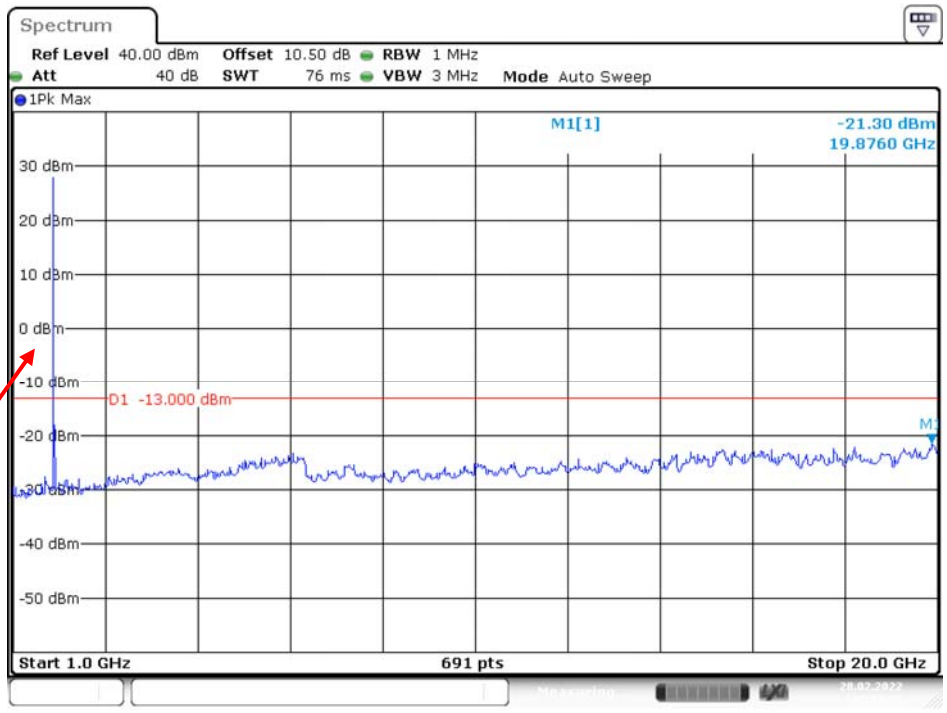
Date: 10.MAR.2022 14:44:53

30 MHz – 1GHz (GSM Mode) Low Channel



Date: 10.MAR.2022 16:04:43

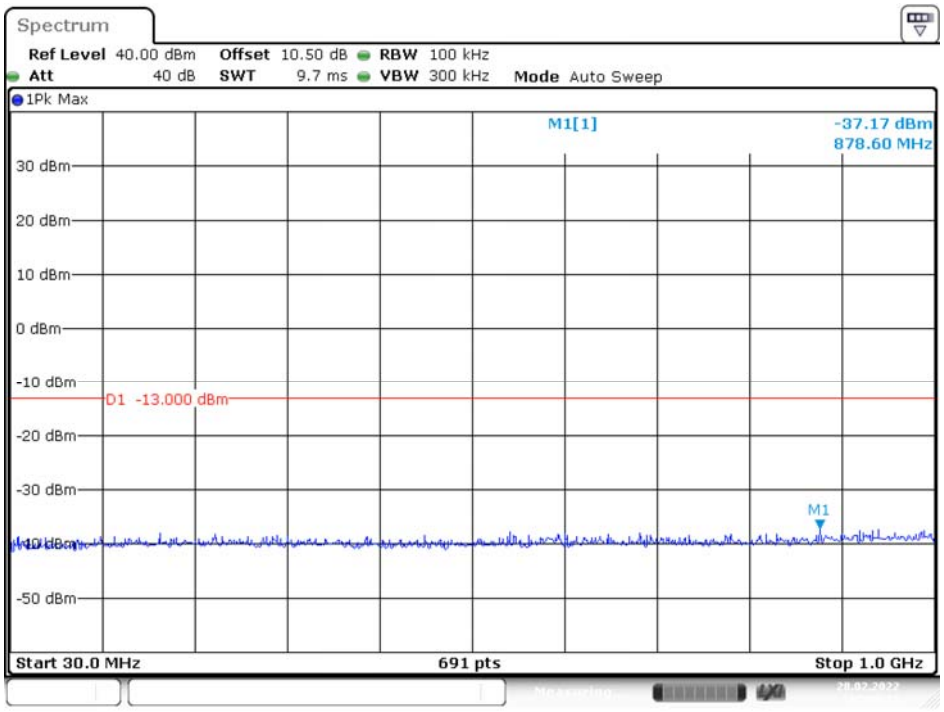
1 GHz – 20 GHz (GSM Mode) Low Channel



Fundamental

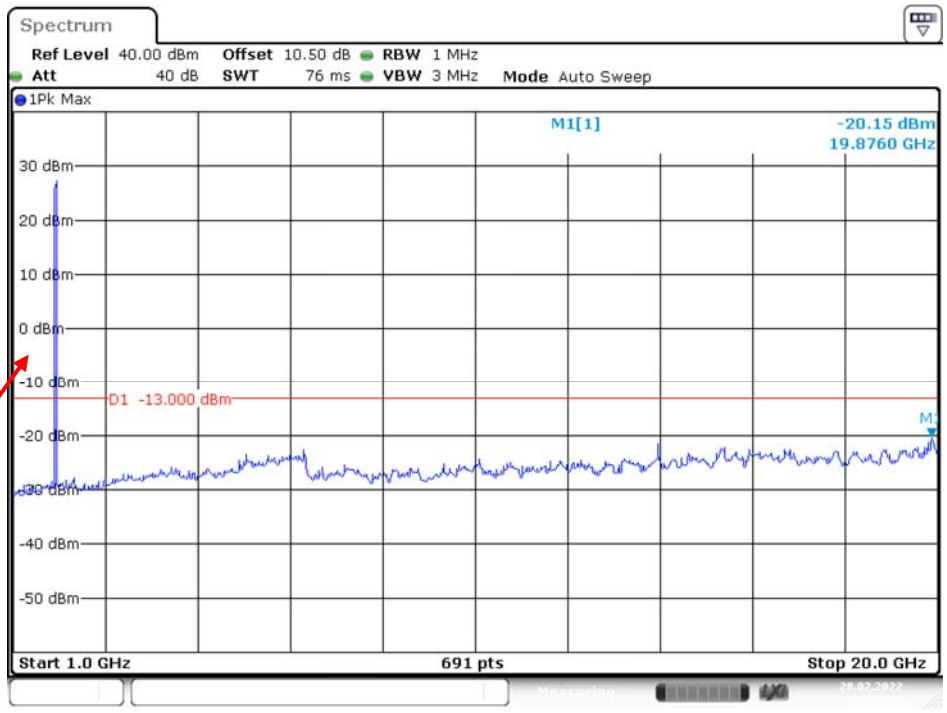
Date: 10.MAR.2022 15:57:56

30 MHz – 1GHz (GSM Mode) Middle Channel



Date: 10.MAR.2022 16:11:34

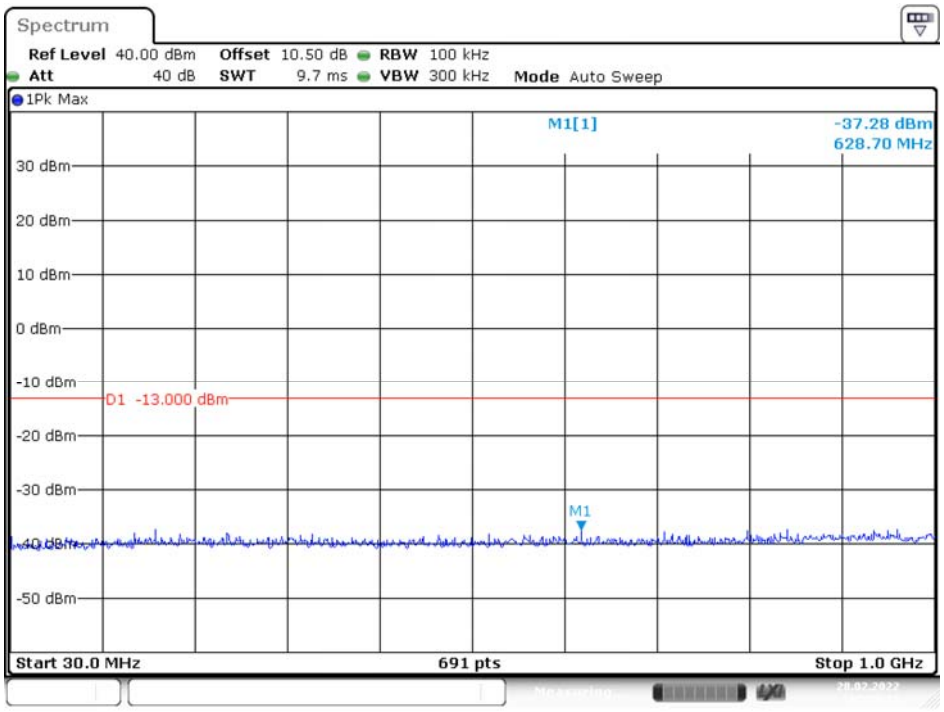
1 GHz – 20 GHz (GSM Mode) Middle Channel



Fundamental

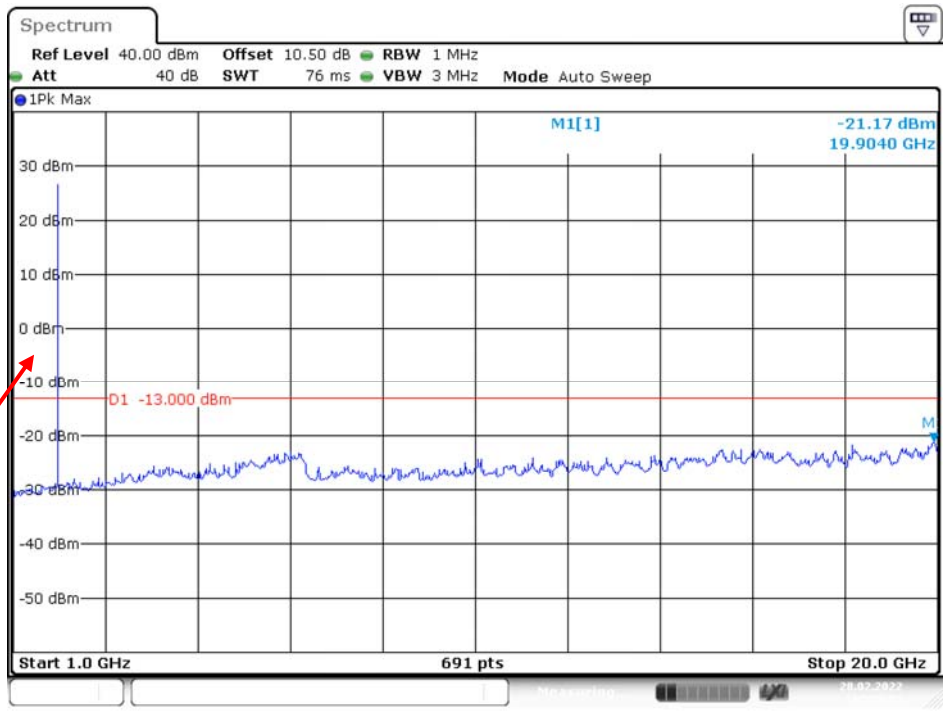
Date: 10.MAR.2022 16:01:04

30 MHz – 1GHz (GSM Mode) High Channel



Date: 10.MAR.2022 16:18:36

1 GHz – 20 GHz (GSM Mode) High Channel



Fundamental

Date: 10.MAR.2022 16:04:17

FCC§2.1053, §22.917 & §24.238 – Spurious Radiated Emissions

Applicable Standard

FCC § 2.1053, §22.917, § 24.238

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 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.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

ANSI C63.26-2015 the defined surrogate measurement reproduces the EUT's emission in a two-stage measurement using a well-characterized transmission path. The EUT's transmissions are replicated using alternate antenna settings and the transmit power is calculated using the known characteristics of each transmit's transmit path.

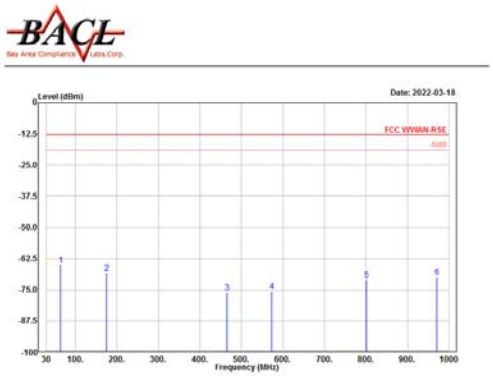
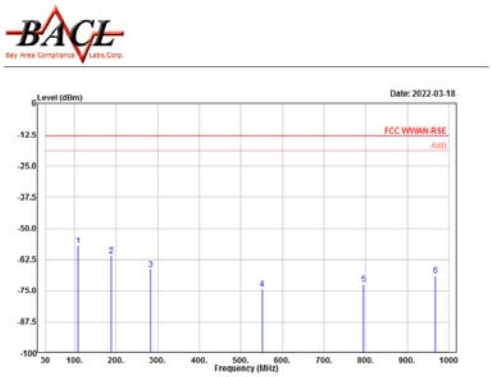
This alternative method uses the same well-characterized transmit path to establish a reference radiated power chosen by the tester to characterize the path loss from the transmit antenna to the measurement receiver. This allows calculation of correction factors that can be used to directly determine EUT emissions without having to perform two-stage measurements for each emissions.

Test Mode: Transmitting

<LW2G-12F>

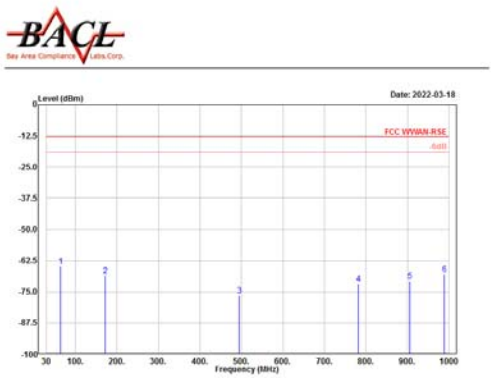
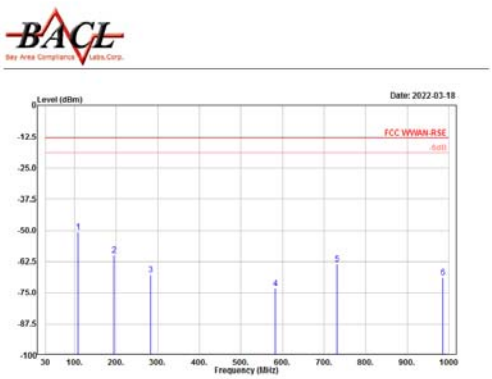
Below 1G

Cellular_Band

824.2 MHz Horizontal	824.2 MHz Vertical
	
Site : LK-966A Condition: D:\limit\FCC WWAN-RSE.csv Horizontal Mode : Cellular_824.2 Note : ant=A/site=Z Note : Temp/RH:21.5℃/63% Tester: Allen	Site : LK-966A Condition: D:\limit\FCC WWAN-RSE.csv Vertical Mode : Cellular_824.2 Note : ant=A/site=Z Note : Temp/RH:21.5℃/63% Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	63.950	-64.94	-13.00	-51.94	-48.78	-16.16	Peak
2	175.500	-68.30	-13.00	-55.30	-55.81	-12.49	Peak
3	465.530	-76.07	-13.00	-63.07	-70.38	-5.69	Peak
4	572.230	-75.48	-13.00	-62.48	-71.16	-4.32	Peak
5	801.150	-71.01	-13.00	-58.01	-70.11	-0.90	Peak
6	970.900	-69.95	-13.00	-56.95	-71.01	1.06	Peak

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	108.570	-56.84	-13.00	-43.84	-49.97	-6.87	Peak
2	188.110	-60.89	-13.00	-47.89	-49.94	-10.95	Peak
3	283.170	-66.31	-13.00	-53.31	-56.53	-9.78	Peak
4	550.890	-74.12	-13.00	-61.12	-70.76	-3.36	Peak
5	794.360	-72.42	-13.00	-59.42	-71.95	-0.47	Peak
6	967.020	-68.81	-13.00	-55.81	-70.15	1.34	Peak

836.6 MHz Horizontal	836.6 MHz Vertical
	
Site : LK-966A Condition: D:\limit\FCC WWAN-RSE.csv Horizontal Mode : Cellular_836.6 Note : ant=A/site=Z Note : Temp/RH:21.5℃/63% Tester: Allen	Site : LK-966A Condition: D:\limit\FCC WWAN-RSE.csv Vertical Mode : Cellular_836.6 Note : ant=A/site=Z Note : Temp/RH:21.5℃/63% Tester: Allen

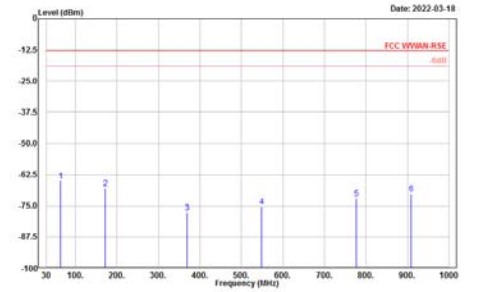
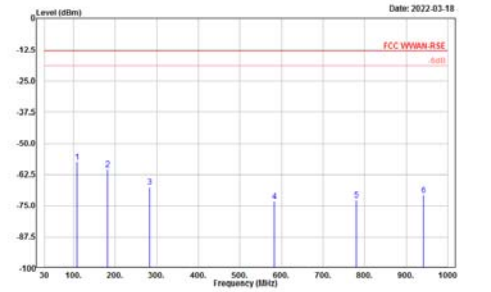
	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	63.950	-64.73	-13.00	-51.73	-48.57	-16.16	Peak
2	172.590	-68.66	-13.00	-55.66	-56.30	-12.36	Peak
3	494.630	-76.38	-13.00	-63.38	-71.28	-5.10	Peak
4	780.780	-71.77	-13.00	-58.77	-70.59	-1.18	Peak
5	904.940	-70.63	-13.00	-57.63	-71.09	0.46	Peak
6	988.360	-68.07	-13.00	-55.07	-69.45	1.38	Peak

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	108.570	-50.60	-13.00	-37.60	-43.73	-6.87	Peak
2	194.900	-59.95	-13.00	-46.95	-49.91	-10.04	Peak
3	283.170	-67.88	-13.00	-54.88	-58.10	-9.78	Peak
4	581.930	-73.06	-13.00	-60.06	-69.47	-3.59	Peak
5	730.340	-63.29	-13.00	-50.29	-62.12	-1.17	Peak
6	985.450	-68.72	-13.00	-55.72	-70.16	1.44	Peak

EUT emissions correction = Read Level

Level = Read Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Over Limit = Level – Limit Line.

848.8 MHz Horizontal	848.8 MHz Vertical
	

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : Cellular_848.8
Note : ant=A/site=Z
Note : Temp/RH:21.5℃/63%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	63.950	-64.93	-13.00	-51.93	-48.77	-16.16	Peak
2	172.590	-67.93	-13.00	-54.93	-55.57	-12.36	Peak
3	369.500	-77.83	-13.00	-64.83	-70.64	-7.19	Peak
4	547.980	-75.38	-13.00	-62.38	-70.49	-4.89	Peak
5	776.900	-72.15	-13.00	-59.15	-70.90	-1.25	Peak
6	907.850	-70.21	-13.00	-57.21	-70.57	0.36	Peak

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : Cellular_848.8
Note : ant=A/site=Z
Note : Temp/RH:21.5℃/63%
Tester: Allen

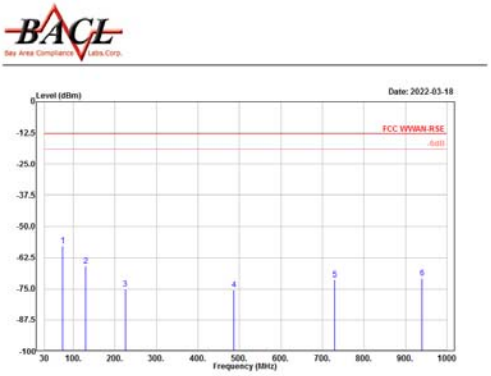
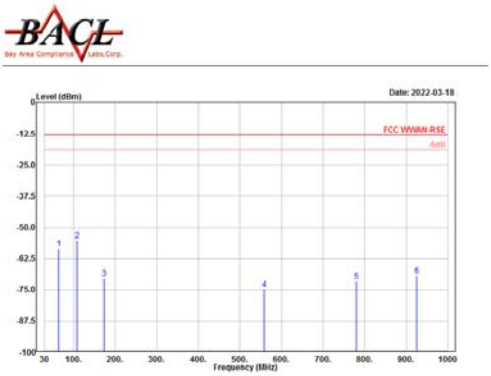
	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	108.570	-57.44	-13.00	-44.44	-50.57	-6.87	Peak
2	182.290	-60.53	-13.00	-47.53	-49.62	-10.91	Peak
3	283.170	-67.56	-13.00	-54.56	-57.78	-9.78	Peak
4	581.930	-73.25	-13.00	-60.25	-69.66	-3.59	Peak
5	779.810	-72.61	-13.00	-59.61	-72.07	-0.54	Peak
6	941.800	-70.63	-13.00	-57.63	-71.67	1.04	Peak

EUT emissions correction = Read Level

Level = Read Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Over Limit = Level – Limit Line.

PCS_Band

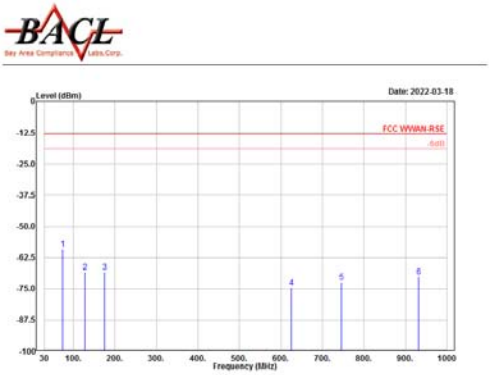
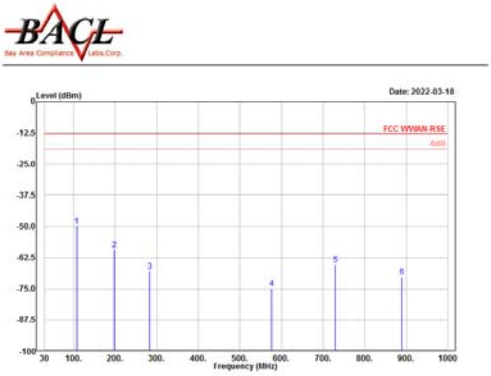
1850.2 MHz Horizontal	1850.2 MHz Vertical
	

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : PCS_1850.2
Note : ant=A/site=Z
Note : Temp/RH:21.5℃/63%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	73.650	-57.63	-13.00	-44.63	-42.08	-15.55	Peak
2	129.910	-65.78	-13.00	-52.78	-54.69	-11.09	Peak
3	224.970	-74.98	-13.00	-61.98	-62.80	-12.18	Peak
4	486.870	-75.26	-13.00	-62.26	-70.07	-5.19	Peak
5	729.370	-71.17	-13.00	-58.17	-69.21	-1.96	Peak
6	939.860	-70.81	-13.00	-57.81	-71.81	1.00	Peak

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : PCS_1850.2
Note : ant=A/site=Z
Note : Temp/RH:21.5℃/63%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	64.920	-58.64	-13.00	-45.64	-43.37	-15.27	Peak
2	108.570	-55.33	-13.00	-42.33	-48.46	-6.87	Peak
3	173.560	-70.55	-13.00	-57.55	-59.71	-10.84	Peak
4	558.650	-74.79	-13.00	-61.79	-71.38	-3.41	Peak
5	779.810	-71.58	-13.00	-58.58	-71.04	-0.54	Peak
6	925.310	-69.35	-13.00	-56.35	-70.04	0.69	Peak

1880 MHz Horizontal	1880 MHz Vertical
	

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : PCS_1880
Note : ant=A/site=Z
Note : Temp/RH:21.5℃/63%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	73.650	-59.05	-13.00	-46.05	-43.50	-15.55	Peak
2	127.970	-68.20	-13.00	-55.20	-56.99	-11.21	Peak
3	175.500	-68.29	-13.00	-55.29	-55.80	-12.49	Peak
4	624.610	-74.41	-13.00	-61.41	-70.68	-3.73	Peak
5	744.890	-72.30	-13.00	-59.30	-70.74	-1.56	Peak
6	931.130	-70.17	-13.00	-57.17	-71.02	0.85	Peak

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : PCS_1880
Note : ant=A/site=Z
Note : Temp/RH:21.5℃/63%
Tester: Allen

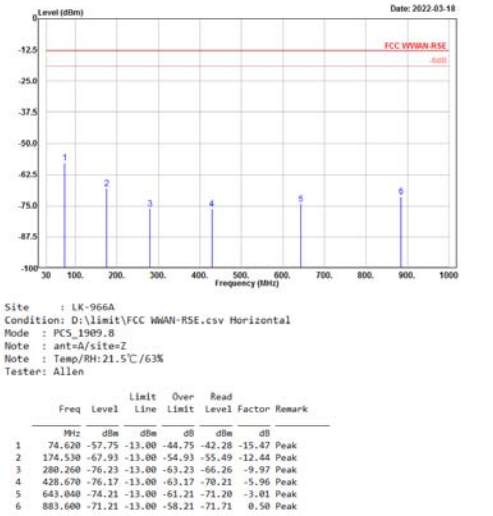
	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	107.600	-49.95	-13.00	-36.95	-42.94	-7.01	Peak
2	197.810	-59.44	-13.00	-46.44	-49.95	-9.49	Peak
3	283.170	-67.96	-13.00	-54.96	-58.18	-9.78	Peak
4	576.110	-74.68	-13.00	-61.68	-71.14	-3.54	Peak
5	729.370	-65.22	-13.00	-52.22	-64.05	-1.17	Peak
6	889.420	-70.11	-13.00	-57.11	-71.04	0.93	Peak

EUT emissions correction = Read Level

Level = Read Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

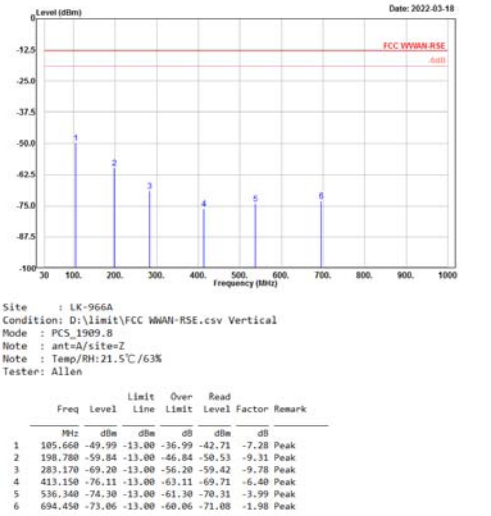
Over Limit = Level – Limit Line.

1909.8 MHz Horizontal	1909.8MHz Vertical



Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : PCS_1909.8
Note : ant=A/site=Z
Note : Temp/RH:21.5℃/63%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	74.620	-57.75	-13.00	-44.75	-42.28	-15.47	Peak
2	174.530	-67.93	-13.00	-54.93	-55.49	-12.44	Peak
3	280.260	-76.23	-13.00	-63.23	-66.26	-9.97	Peak
4	428.670	-76.17	-13.00	-63.17	-70.21	-5.96	Peak
5	643.040	-74.21	-13.00	-61.21	-71.20	-3.01	Peak
6	883.600	-71.21	-13.00	-58.21	-71.71	0.50	Peak



Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : PCS_1909.8
Note : ant=A/site=Z
Note : Temp/RH:21.5℃/63%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	105.660	-49.99	-13.00	-36.99	-42.71	-7.28	Peak
2	198.780	-59.84	-13.00	-46.84	-50.53	-9.31	Peak
3	283.170	-69.20	-13.00	-56.20	-59.42	-9.78	Peak
4	413.150	-76.11	-13.00	-63.11	-69.71	-6.40	Peak
5	536.340	-74.30	-13.00	-61.30	-70.31	-3.99	Peak
6	694.450	-73.06	-13.00	-60.06	-71.08	-1.98	Peak

EUT emissions correction = Read Level

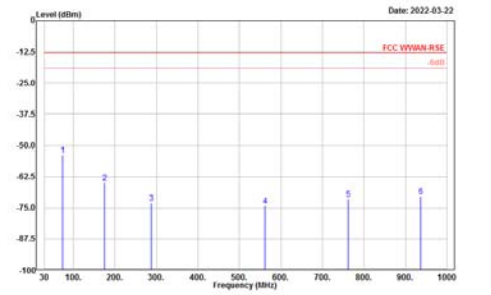
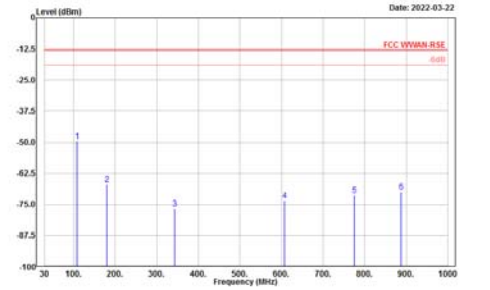
Level = Read Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Over Limit = Level – Limit Line.

<LW2G-6A>

Below 1G

Cellular Band

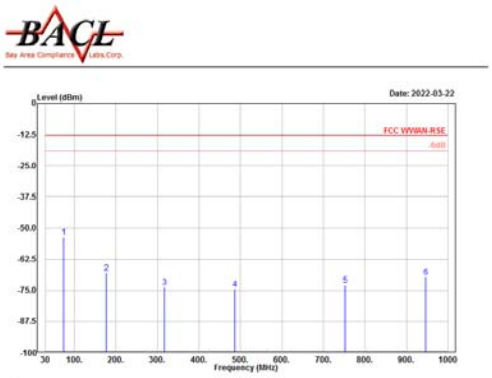
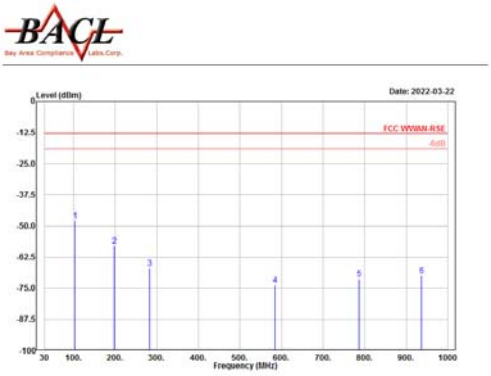
824.2 MHz Horizontal	824.2 MHz Vertical
	

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : Cellular_824.2
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	74.620	-54.00	-13.00	-41.00	-38.53	-15.47	Peak
2	175.500	-65.15	-13.00	-52.15	-52.66	-12.49	Peak
3	288.020	-73.06	-13.00	-60.06	-63.36	-9.70	Peak
4	561.560	-74.31	-13.00	-61.31	-69.79	-4.52	Peak
5	761.380	-71.64	-13.00	-58.64	-70.24	-1.40	Peak
6	936.950	-70.49	-13.00	-57.49	-71.44	0.95	Peak

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : Cellular_824.2
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	108.570	-49.66	-13.00	-36.66	-42.79	-6.87	Peak
2	179.380	-66.90	-13.00	-53.90	-56.01	-10.89	Peak
3	342.340	-76.81	-13.00	-63.81	-69.04	-7.77	Peak
4	607.150	-73.55	-13.00	-60.55	-70.76	-2.79	Peak
5	774.960	-71.30	-13.00	-58.30	-70.74	-0.56	Peak
6	887.480	-69.98	-13.00	-56.98	-70.83	0.85	Peak

836.6 MHz Horizontal	836.6 MHz Vertical
	

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : Cellular_836.6
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	73.650	-53.66	-13.00	-40.66	-38.11	-15.55	Peak
2	176.470	-68.07	-13.00	-55.07	-55.54	-12.53	Peak
3	317.120	-73.80	-13.00	-60.80	-64.82	-8.98	Peak
4	486.870	-74.58	-13.00	-61.58	-69.39	-5.19	Peak
5	752.650	-72.78	-13.00	-59.78	-71.37	-1.41	Peak
6	946.650	-69.60	-13.00	-56.60	-70.72	1.12	Peak

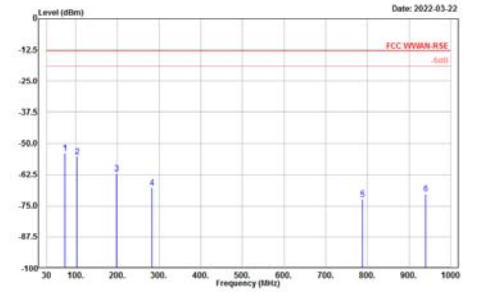
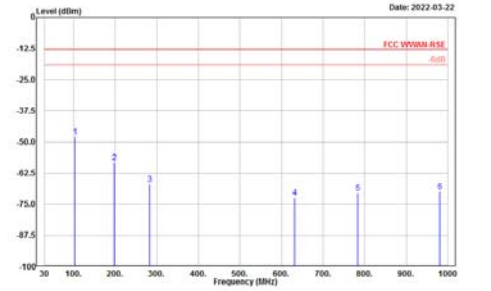
Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : Cellular_836.6
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	103.720	-47.86	-13.00	-34.86	-40.31	-7.55	Peak
2	197.810	-58.13	-13.00	-45.13	-48.64	-9.49	Peak
3	283.170	-66.91	-13.00	-53.91	-57.13	-9.78	Peak
4	583.870	-73.64	-13.00	-60.64	-70.03	-3.61	Peak
5	785.630	-71.37	-13.00	-58.37	-70.85	-0.52	Peak
6	936.950	-69.97	-13.00	-56.97	-70.93	0.96	Peak

EUT emissions correction = Read Level

Level = Read Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Over Limit = Level – Limit Line.

848.8 MHz Horizontal	848.8 MHz Vertical
	

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : Cellular_848.8
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	74.620	-54.05	-13.00	-41.05	-38.58	-15.47	Peak
2	103.720	-55.42	-13.00	-42.42	-40.44	-14.98	Peak
3	198.780	-62.04	-13.00	-49.04	-49.72	-12.32	Peak
4	283.170	-67.67	-13.00	-54.67	-57.80	-9.87	Peak
5	787.570	-72.33	-13.00	-59.33	-71.28	-1.05	Peak
6	938.890	-70.22	-13.00	-57.22	-71.21	0.99	Peak

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : Cellular_848.8
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

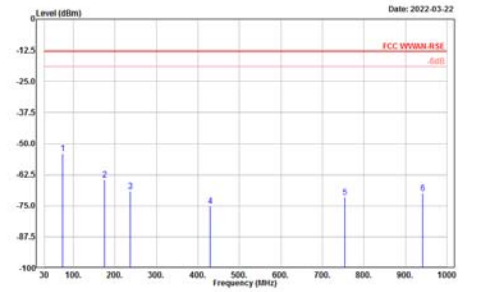
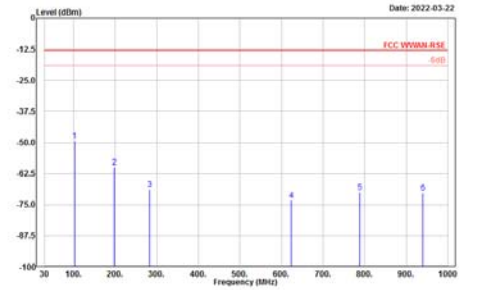
	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	103.720	-47.88	-13.00	-34.88	-40.33	-7.55	Peak
2	197.810	-58.38	-13.00	-45.38	-48.89	-9.49	Peak
3	283.170	-66.89	-13.00	-53.89	-57.11	-9.78	Peak
4	631.400	-72.49	-13.00	-59.49	-69.74	-2.75	Peak
5	783.690	-70.53	-13.00	-57.53	-70.00	-0.53	Peak
6	979.630	-69.86	-13.00	-56.86	-71.27	1.41	Peak

EUT emissions correction = Read Level

Level = Read Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Over Limit = Level – Limit Line.

PCS_Band

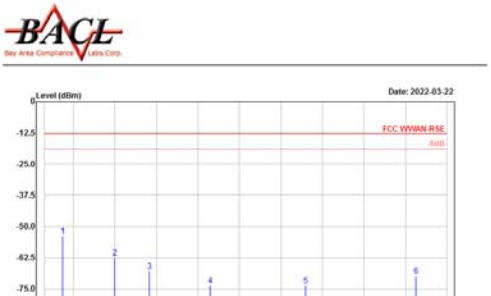
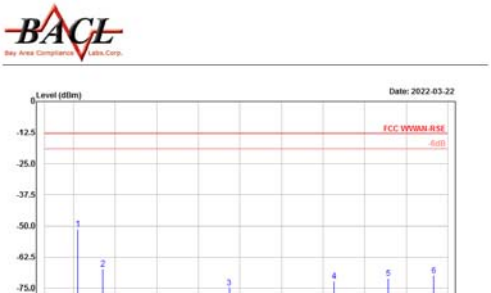
1850.2 MHz Horizontal	1850.2 MHz Vertical
	

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : PCS_1850.2
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	73.650	-53.98	-13.00	-40.98	-38.43	-15.55	Peak
2	175.500	-64.57	-13.00	-51.57	-52.08	-12.49	Peak
3	237.580	-69.17	-13.00	-56.17	-57.56	-11.61	Peak
4	429.640	-75.18	-13.00	-62.18	-69.26	-5.92	Peak
5	753.620	-71.59	-13.00	-58.59	-70.18	-1.41	Peak
6	941.800	-69.98	-13.00	-56.98	-71.02	1.04	Peak

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : PCS_1850.2
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	102.750	-49.20	-13.00	-36.20	-41.52	-7.68	Peak
2	198.780	-59.98	-13.00	-46.98	-50.67	-9.31	Peak
3	283.170	-68.71	-13.00	-55.71	-58.93	-9.78	Peak
4	623.640	-73.27	-13.00	-60.27	-70.78	-2.49	Peak
5	787.570	-70.03	-13.00	-57.03	-69.51	-0.52	Peak
6	938.890	-70.13	-13.00	-57.13	-71.12	0.99	Peak

1880 MHz Horizontal	1880 MHz Vertical
	

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : PCS_1880
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	74.620	-53.90	-13.00	-40.90	-38.43	-15.47	Peak
2	199.750	-62.56	-13.00	-49.56	-50.33	-12.23	Peak
3	283.170	-68.02	-13.00	-55.02	-58.15	-9.87	Peak
4	429.640	-73.83	-13.00	-60.83	-67.91	-5.92	Peak
5	658.560	-73.72	-13.00	-60.72	-70.90	-2.82	Peak
6	925.310	-69.98	-13.00	-56.98	-70.52	0.54	Peak

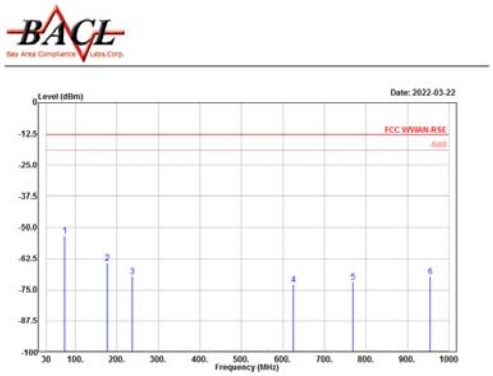
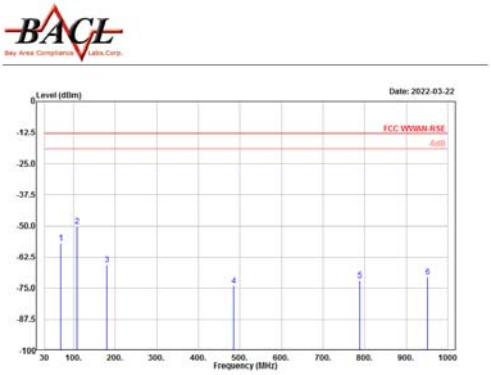
Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : PCS_1880
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	109.540	-51.35	-13.00	-38.35	-44.62	-6.73	Peak
2	169.680	-67.27	-13.00	-54.27	-56.45	-10.82	Peak
3	474.260	-74.93	-13.00	-61.93	-70.07	-4.86	Peak
4	725.490	-72.14	-13.00	-59.14	-70.95	-1.19	Peak
5	856.440	-71.02	-13.00	-58.02	-71.13	0.11	Peak
6	966.050	-69.84	-13.00	-56.84	-71.17	1.33	Peak

EUT emissions correction = Read Level

Level = Read Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Over Limit = Level – Limit Line.

1909.8 MHz Horizontal	1909.8MHz Vertical
	

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : PCS_1909.8
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	74.620	-53.45	-13.00	-40.45	-37.98	-15.47	Peak
2	176.470	-64.14	-13.00	-51.14	-51.61	-12.53	Peak
3	237.580	-69.51	-13.00	-56.51	-57.90	-11.61	Peak
4	624.610	-73.03	-13.00	-60.03	-69.30	-3.73	Peak
5	768.170	-71.93	-13.00	-58.93	-70.55	-1.38	Peak
6	954.410	-69.77	-13.00	-56.77	-70.92	1.15	Peak

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : PCS_1909.8
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	69.770	-56.86	-13.00	-43.86	-42.37	-14.49	Peak
2	108.570	-50.19	-13.00	-37.19	-43.32	-6.87	Peak
3	179.380	-65.64	-13.00	-52.64	-54.75	-10.89	Peak
4	484.930	-73.91	-13.00	-60.91	-69.14	-4.77	Peak
5	788.540	-71.85	-13.00	-58.85	-71.34	-0.51	Peak
6	950.530	-70.44	-13.00	-57.44	-71.63	1.19	Peak

EUT emissions correction = Read Level

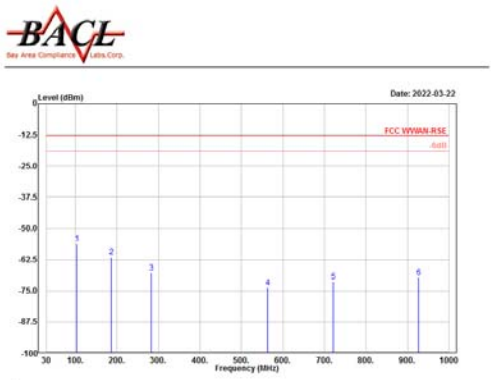
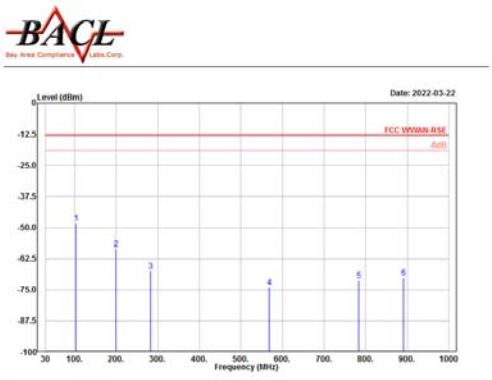
Level = Read Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Over Limit = Level – Limit Line.

<LW2G-6C>

Below 1G

Cellular Band

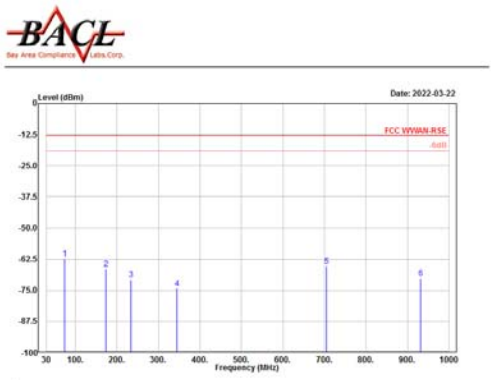
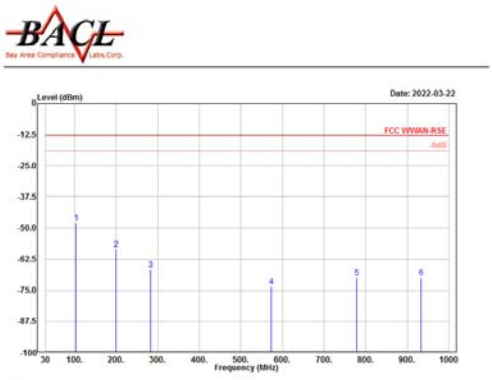
824.2 MHz Horizontal	824.2 MHz Vertical
	

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : Cellular_824.2
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	103.720	-56.14	-13.00	-43.14	-41.16	-14.98	Peak
2	186.170	-61.49	-13.00	-48.49	-48.52	-12.97	Peak
3	283.170	-67.85	-13.00	-54.85	-57.98	-9.87	Peak
4	562.530	-73.78	-13.00	-60.78	-69.29	-4.49	Peak
5	720.640	-71.19	-13.00	-58.19	-69.16	-2.03	Peak
6	927.250	-69.66	-13.00	-56.66	-70.32	0.66	Peak

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : Cellular_824.2
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	103.720	-48.21	-13.00	-35.21	-40.66	-7.55	Peak
2	199.750	-58.51	-13.00	-45.51	-49.38	-9.13	Peak
3	283.170	-67.56	-13.00	-54.56	-57.78	-9.78	Peak
4	568.350	-73.91	-13.00	-60.91	-70.43	-3.48	Peak
5	783.690	-71.39	-13.00	-58.39	-70.86	-0.53	Peak
6	891.360	-70.20	-13.00	-57.20	-71.13	0.93	Peak

836.6 MHz Horizontal	836.6 MHz Vertical
	

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : Cellular_836.6
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	74.620	-62.27	-13.00	-49.27	-46.80	-15.47	Peak
2	173.560	-66.37	-13.00	-53.37	-53.97	-12.40	Peak
3	234.670	-70.85	-13.00	-57.85	-59.20	-11.65	Peak
4	345.250	-74.26	-13.00	-61.26	-66.13	-8.13	Peak
5	704.150	-65.31	-13.00	-52.31	-62.60	-2.71	Peak
6	932.100	-70.12	-13.00	-57.12	-70.99	0.87	Peak

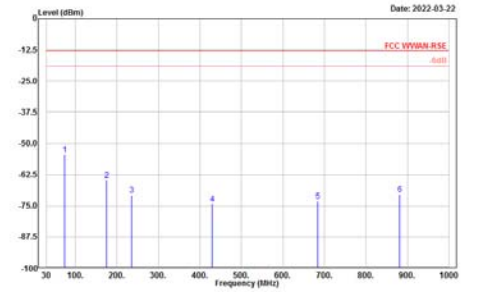
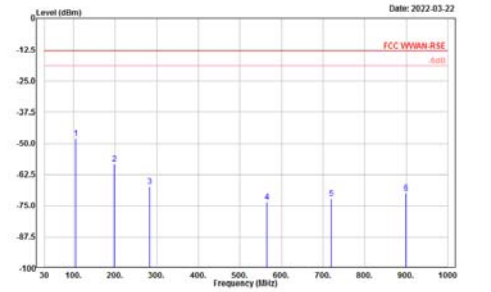
Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : Cellular_836.6
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	103.720	-48.08	-13.00	-35.08	-40.53	-7.55	Peak
2	199.750	-58.65	-13.00	-45.65	-49.52	-9.13	Peak
3	283.170	-66.80	-13.00	-53.80	-57.02	-9.78	Peak
4	573.200	-73.38	-13.00	-60.38	-69.86	-3.52	Peak
5	778.840	-69.85	-13.00	-56.85	-69.31	-0.54	Peak
6	933.070	-69.96	-13.00	-56.96	-70.85	0.89	Peak

EUT emissions correction = Read Level

Level = Read Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Over Limit = Level – Limit Line.

848.8 MHz Horizontal	848.8 MHz Vertical
	

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : Cellular_848.8
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	74.620	-54.53	-13.00	-41.53	-39.06	-15.47	Peak
2	175.500	-64.89	-13.00	-51.89	-52.40	-12.49	Peak
3	235.640	-70.83	-13.00	-57.83	-59.19	-11.64	Peak
4	429.640	-74.21	-13.00	-61.21	-68.29	-5.92	Peak
5	683.780	-73.26	-13.00	-60.26	-70.19	-3.07	Peak
6	880.690	-70.46	-13.00	-57.46	-70.84	0.38	Peak

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : Cellular_848.8
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

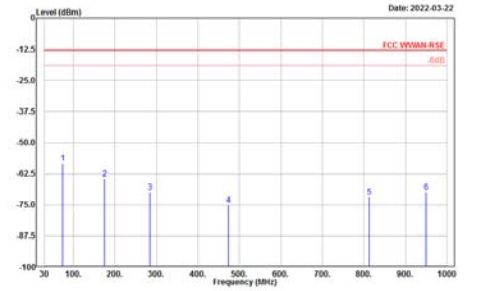
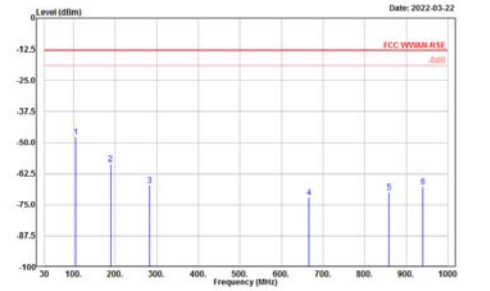
	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	104.690	-47.94	-13.00	-34.94	-40.53	-7.41	Peak
2	197.810	-58.14	-13.00	-45.14	-48.65	-9.49	Peak
3	283.170	-67.18	-13.00	-54.18	-57.40	-9.78	Peak
4	564.470	-73.51	-13.00	-60.51	-70.06	-3.45	Peak
5	719.670	-71.97	-13.00	-58.97	-70.75	-1.22	Peak
6	898.150	-69.81	-13.00	-56.81	-70.66	0.85	Peak

EUT emissions correction = Read Level

Level = Read Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Over Limit = Level – Limit Line.

PCS_Band

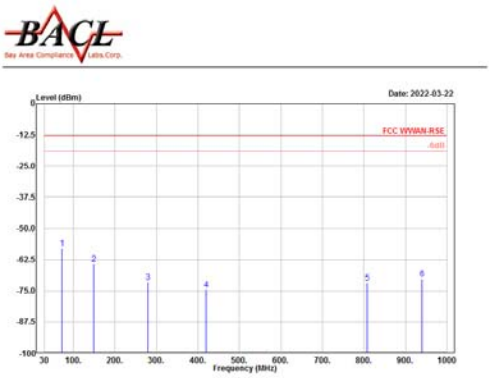
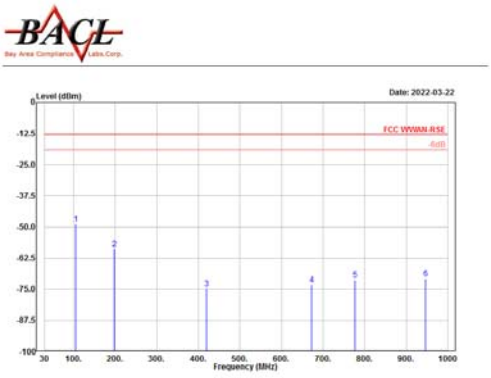
1850.2 MHz Horizontal	1850.2 MHz Vertical
	

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : PCS_1850.2
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	74.620	-58.14	-13.00	-45.14	-42.67	-15.47	Peak
2	175.500	-64.53	-13.00	-51.53	-52.04	-12.49	Peak
3	284.140	-70.05	-13.00	-57.05	-60.21	-9.84	Peak
4	473.290	-75.18	-13.00	-62.18	-69.60	-5.58	Peak
5	812.790	-71.71	-13.00	-58.71	-70.85	-0.86	Peak
6	949.560	-69.79	-13.00	-56.79	-70.96	1.17	Peak

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : PCS_1850.2
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	104.690	-47.82	-13.00	-34.82	-40.41	-7.41	Peak
2	189.080	-58.45	-13.00	-45.45	-47.50	-10.95	Peak
3	283.170	-67.09	-13.00	-54.09	-57.31	-9.78	Peak
4	665.350	-72.05	-13.00	-59.05	-69.91	-2.14	Peak
5	857.410	-69.92	-13.00	-56.92	-70.03	0.11	Peak
6	938.890	-67.78	-13.00	-54.78	-68.77	0.99	Peak

1880 MHz Horizontal	1880 MHz Vertical
	

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : PCS_1880
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	72.680	-57.95	-13.00	-44.95	-42.31	-15.64	Peak
2	149.310	-64.33	-13.00	-51.33	-51.94	-12.39	Peak
3	280.260	-71.53	-13.00	-58.53	-61.56	-9.97	Peak
4	418.970	-74.39	-13.00	-61.39	-68.10	-6.29	Peak
5	806.970	-71.74	-13.00	-58.74	-70.86	-0.88	Peak
6	939.860	-70.11	-13.00	-57.11	-71.11	1.00	Peak

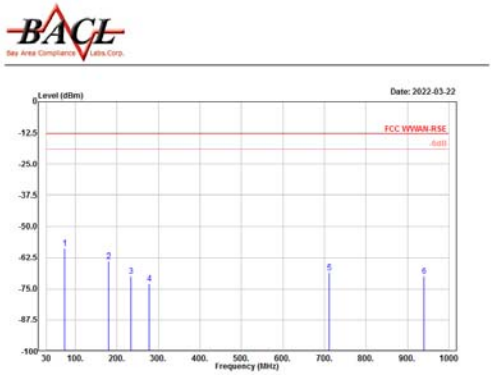
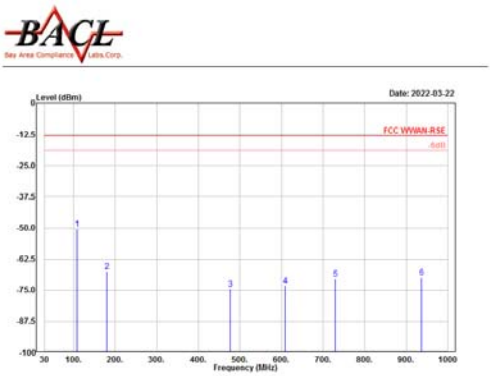
Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : PCS_1880
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	104.690	-48.83	-13.00	-35.83	-41.42	-7.41	Peak
2	197.810	-58.68	-13.00	-45.68	-49.19	-9.49	Peak
3	418.970	-74.67	-13.00	-61.67	-68.42	-6.25	Peak
4	672.140	-73.25	-13.00	-60.25	-71.17	-2.08	Peak
5	776.900	-71.16	-13.00	-58.16	-70.61	-0.55	Peak
6	946.650	-70.69	-13.00	-57.69	-71.82	1.13	Peak

EUT emissions correction = Read Level

Level = Read Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Over Limit = Level – Limit Line.

1909.8 MHz Horizontal	1909.8MHz Vertical
	

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : PCS_1909.8
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	74.620	-58.90	-13.00	-45.90	-43.43	-15.47	Peak
2	180.350	-64.06	-13.00	-51.06	-51.35	-12.71	Peak
3	234.670	-69.80	-13.00	-56.80	-58.15	-11.65	Peak
4	277.350	-72.91	-13.00	-59.91	-62.84	-10.07	Peak
5	711.910	-68.65	-13.00	-55.65	-66.20	-2.45	Peak
6	938.890	-69.98	-13.00	-56.98	-70.97	0.99	Peak

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : PCS_1909.8
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	108.570	-50.52	-13.00	-37.52	-43.65	-6.87	Peak
2	180.350	-67.59	-13.00	-54.59	-56.70	-10.89	Peak
3	477.170	-74.51	-13.00	-61.51	-69.67	-4.84	Peak
4	608.120	-73.30	-13.00	-60.30	-70.57	-2.73	Peak
5	729.370	-70.40	-13.00	-57.40	-69.23	-1.17	Peak
6	935.980	-69.95	-13.00	-56.95	-70.89	0.94	Peak

EUT emissions correction = Read Level

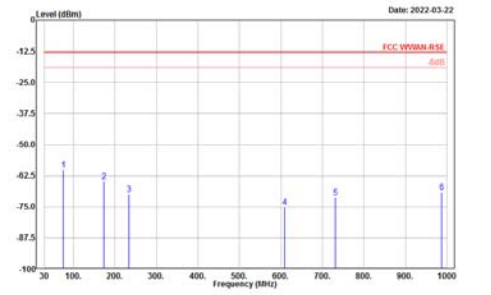
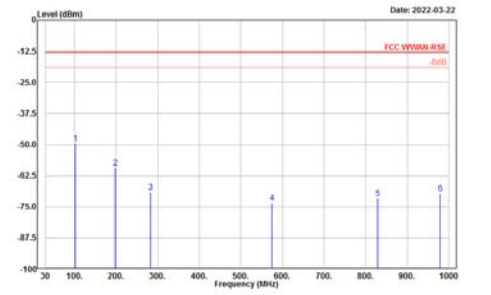
Level = Read Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Over Limit = Level – Limit Line.

<LW2G-12B>

Below 1G

Cellular Band

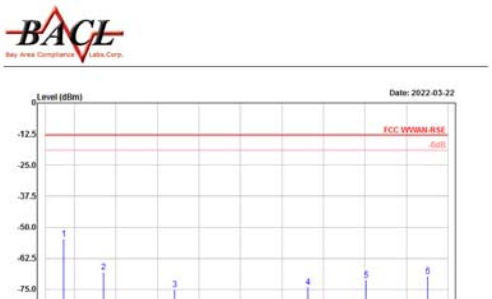
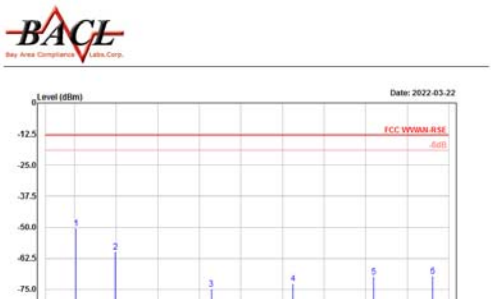
824.2 MHz Horizontal	824.2 MHz Vertical
	

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : Cellular_824.2
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	76.560	-60.18	-13.00	-47.18	-44.88	-15.30	Peak
2	173.560	-64.74	-13.00	-51.74	-52.34	-12.40	Peak
3	234.670	-69.86	-13.00	-56.86	-58.21	-11.65	Peak
4	608.120	-75.09	-13.00	-62.09	-71.07	-4.02	Peak
5	731.310	-71.16	-13.00	-58.16	-69.24	-1.92	Peak
6	986.420	-69.22	-13.00	-56.22	-70.56	1.34	Peak

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : Cellular_824.2
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	101.780	-49.46	-13.00	-36.46	-41.64	-7.82	Peak
2	197.810	-59.33	-13.00	-46.33	-49.84	-9.49	Peak
3	283.170	-69.22	-13.00	-56.22	-59.44	-9.78	Peak
4	575.140	-73.39	-13.00	-60.39	-69.86	-3.53	Peak
5	828.310	-71.45	-13.00	-58.45	-71.43	-0.02	Peak
6	978.660	-69.65	-13.00	-56.65	-71.06	1.41	Peak

836.6 MHz Horizontal	836.6 MHz Vertical
	

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : Cellular_836.6
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	74.620	-54.63	-13.00	-41.63	-39.16	-15.47	Peak
2	169.680	-67.90	-13.00	-54.90	-55.66	-12.24	Peak
3	341.370	-75.01	-13.00	-62.01	-66.76	-8.25	Peak
4	662.440	-74.04	-13.00	-61.04	-71.15	-2.89	Peak
5	802.120	-71.19	-13.00	-58.19	-70.29	-0.90	Peak
6	951.500	-69.53	-13.00	-56.53	-70.70	1.17	Peak

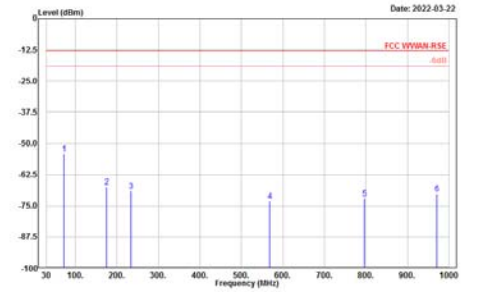
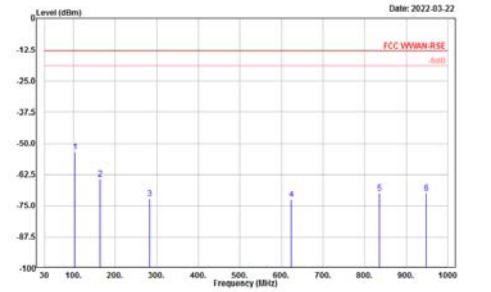
Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : Cellular_836.6
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	103.720	-50.37	-13.00	-37.37	-42.82	-7.55	Peak
2	197.810	-59.89	-13.00	-46.89	-50.40	-9.49	Peak
3	428.670	-74.71	-13.00	-61.71	-68.60	-6.11	Peak
4	625.580	-72.71	-13.00	-59.71	-70.13	-2.58	Peak
5	818.610	-69.84	-13.00	-56.84	-69.81	-0.03	Peak
6	961.200	-69.68	-13.00	-56.68	-70.97	1.29	Peak

EUT emissions correction = Read Level

Level = Read Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Over Limit = Level – Limit Line.

848.8 MHz Horizontal	848.8 MHz Vertical
	

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : Cellular_848.8
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	72.680	-54.15	-13.00	-41.15	-38.51	-15.64	Peak
2	175.500	-67.55	-13.00	-54.55	-55.06	-12.49	Peak
3	233.700	-68.98	-13.00	-55.98	-57.32	-11.66	Peak
4	567.380	-73.14	-13.00	-60.14	-68.79	-4.35	Peak
5	796.300	-72.13	-13.00	-59.13	-71.19	-0.94	Peak
6	970.900	-70.28	-13.00	-57.28	-71.34	1.06	Peak

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : Cellular_848.8
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

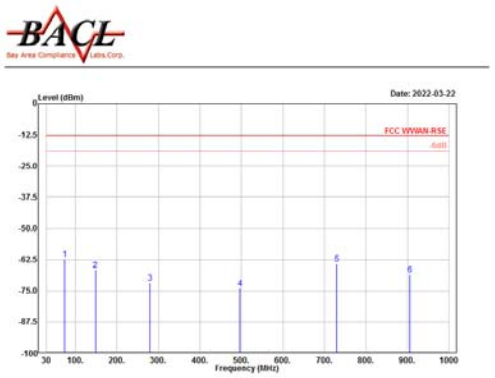
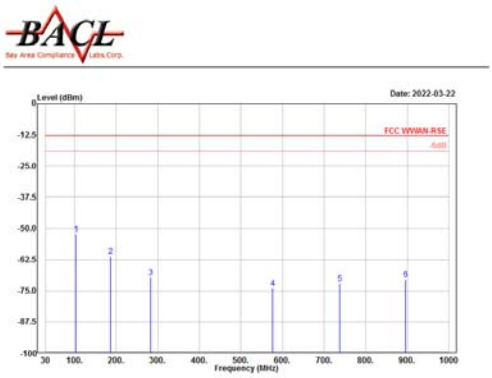
	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	103.720	-53.32	-13.00	-40.32	-45.77	-7.55	Peak
2	163.860	-64.22	-13.00	-51.22	-53.50	-10.72	Peak
3	283.170	-72.20	-13.00	-59.20	-62.42	-9.78	Peak
4	623.640	-72.39	-13.00	-59.39	-69.90	-2.49	Peak
5	835.100	-70.02	-13.00	-57.02	-70.03	0.01	Peak
6	947.620	-69.91	-13.00	-56.91	-71.06	1.15	Peak

EUT emissions correction = Read Level

Level = Read Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

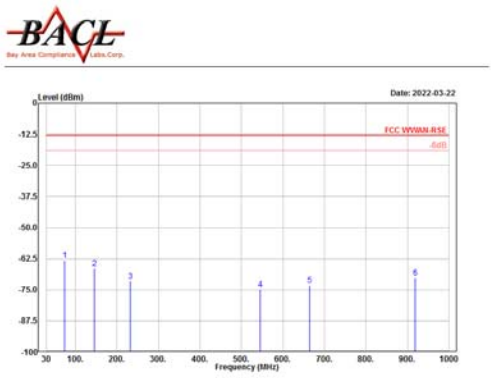
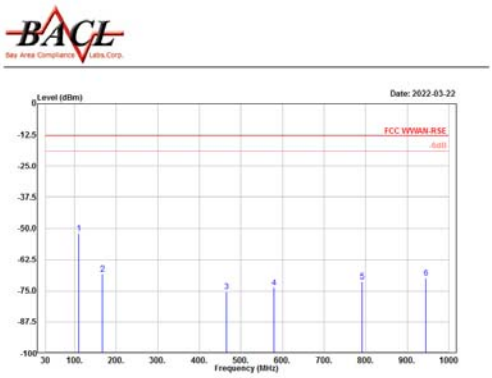
Over Limit = Level – Limit Line.

PCS_Band

1850.2 MHz Horizontal	1850.2 MHz Vertical
	
Site : LK-966A Condition: D:\limit\FCC WWAN-RSE.csv Horizontal Mode : PCS_1850.2 Note : ant=A/site=Z Note : Temp/RH:20.5℃/62% Tester: Allen	Site : LK-966A Condition: D:\limit\FCC WWAN-RSE.csv Vertical Mode : PCS_1850.2 Note : ant=A/site=Z Note : Temp/RH:20.5℃/62% Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	74.620	-62.35	-13.00	-49.35	-46.88	-15.47	Peak
2	148.340	-66.60	-13.00	-53.60	-54.27	-12.33	Peak
3	280.260	-71.83	-13.00	-58.83	-61.86	-9.97	Peak
4	495.600	-73.99	-13.00	-60.99	-68.90	-5.09	Peak
5	729.370	-64.33	-13.00	-51.33	-62.37	-1.96	Peak
6	905.910	-68.64	-13.00	-55.64	-69.06	0.42	Peak

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	103.720	-52.31	-13.00	-39.31	-44.76	-7.55	Peak
2	186.170	-61.14	-13.00	-48.14	-50.21	-10.93	Peak
3	283.170	-69.72	-13.00	-56.72	-59.94	-9.78	Peak
4	576.110	-74.05	-13.00	-61.05	-70.51	-3.54	Peak
5	738.100	-72.12	-13.00	-59.12	-70.95	-1.17	Peak
6	895.240	-70.39	-13.00	-57.39	-71.28	0.89	Peak

1880 MHz Horizontal	1880 MHz Vertical
	
Site : LK-966A Condition: D:\limit\FCC WWAN-RSE.csv Horizontal Mode : PCS_1880 Note : ant=A/site=Z Note : Temp/RH:20.5℃/62% Tester: Allen	Site : LK-966A Condition: D:\limit\FCC WWAN-RSE.csv Vertical Mode : PCS_1880 Note : ant=A/site=Z Note : Temp/RH:20.5℃/62% Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	74.620	-63.11	-13.00	-50.11	-47.64	-15.47	Peak
2	146.400	-66.43	-13.00	-53.43	-54.23	-12.20	Peak
3	232.730	-71.52	-13.00	-58.52	-59.85	-11.67	Peak
4	545.070	-74.93	-13.00	-61.93	-70.02	-4.91	Peak
5	663.410	-73.05	-13.00	-60.05	-70.15	-2.90	Peak
6	918.520	-70.11	-13.00	-57.11	-70.33	0.22	Peak

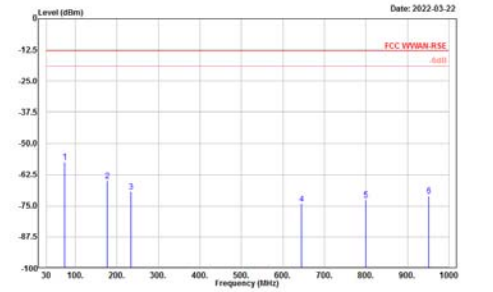
	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	109.540	-52.04	-13.00	-39.04	-45.31	-6.73	Peak
2	166.770	-68.30	-13.00	-55.30	-57.53	-10.77	Peak
3	465.530	-75.35	-13.00	-62.35	-70.18	-5.17	Peak
4	579.020	-73.69	-13.00	-60.69	-70.12	-3.57	Peak
5	791.450	-71.35	-13.00	-58.35	-70.85	-0.50	Peak
6	943.740	-69.90	-13.00	-56.90	-70.98	1.08	Peak

EUT emissions correction = Read Level

Level = Read Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

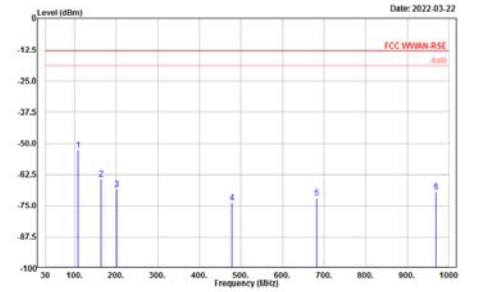
Over Limit = Level – Limit Line.

1909.8 MHz Horizontal	1909.8MHz Vertical



Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : PCS_1909.8
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	74.620	-57.41	-13.00	-44.41	-41.94	-15.47	Peak
2	176.470	-65.17	-13.00	-52.17	-52.64	-12.53	Peak
3	233.700	-69.49	-13.00	-56.49	-57.83	-11.66	Peak
4	644.010	-74.27	-13.00	-61.27	-71.31	-2.96	Peak
5	800.180	-72.64	-13.00	-59.64	-71.73	-0.91	Peak
6	950.530	-71.06	-13.00	-58.06	-72.24	1.18	Peak



Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : PCS_1909.8
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	108.570	-52.71	-13.00	-39.71	-45.84	-6.87	Peak
2	163.860	-64.10	-13.00	-51.10	-53.38	-10.72	Peak
3	200.720	-68.38	-13.00	-55.38	-59.12	-9.26	Peak
4	479.110	-73.79	-13.00	-60.79	-68.97	-4.82	Peak
5	681.840	-71.71	-13.00	-58.71	-69.63	-2.08	Peak
6	968.960	-69.34	-13.00	-56.34	-70.70	1.36	Peak

EUT emissions correction = Read Level

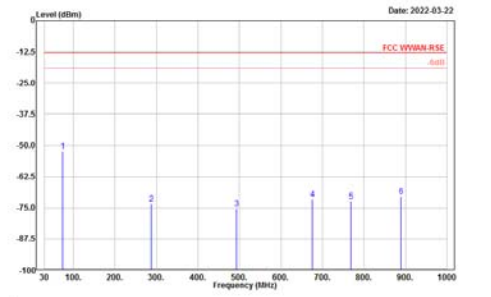
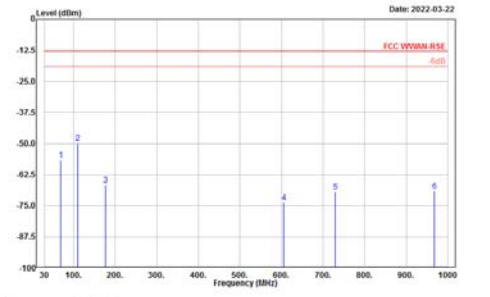
Level = Read Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Over Limit = Level – Limit Line.

<LW2G-12C>

Below 1G

Cellular Band

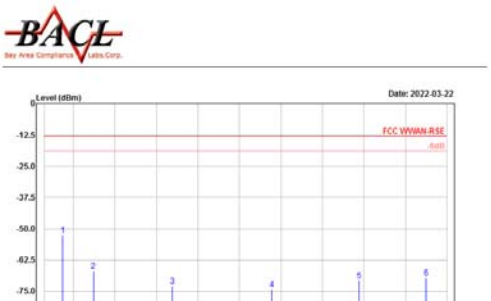
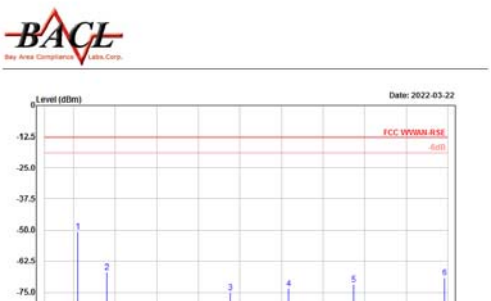
824.2 MHz Horizontal	824.2 MHz Vertical
	

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : Cellular_824.2
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	73.650	-52.37	-13.00	-39.37	-36.82	-15.55	Peak
2	287.050	-73.48	-13.00	-60.48	-63.75	-9.73	Peak
3	492.690	-75.41	-13.00	-62.41	-70.31	-5.10	Peak
4	675.050	-71.60	-13.00	-58.60	-68.57	-3.03	Peak
5	768.170	-72.35	-13.00	-59.35	-70.97	-1.38	Peak
6	889.420	-70.37	-13.00	-57.37	-71.10	0.73	Peak

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : Cellular_824.2
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	69.770	-56.50	-13.00	-43.50	-42.01	-14.49	Peak
2	109.540	-49.93	-13.00	-36.93	-43.20	-6.73	Peak
3	176.470	-66.76	-13.00	-53.76	-55.89	-10.87	Peak
4	605.210	-73.71	-13.00	-60.71	-70.81	-2.90	Peak
5	729.370	-69.41	-13.00	-56.41	-68.24	-1.17	Peak
6	967.020	-69.14	-13.00	-56.14	-70.48	1.34	Peak

836.6 MHz Horizontal	836.6 MHz Vertical
	

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : Cellular_836.6
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	73.650	-52.53	-13.00	-39.53	-36.98	-15.55	Peak
2	148.340	-66.86	-13.00	-53.86	-54.53	-12.33	Peak
3	338.460	-72.92	-13.00	-59.92	-64.58	-8.34	Peak
4	578.050	-74.31	-13.00	-61.31	-69.85	-4.46	Peak
5	788.540	-70.77	-13.00	-57.77	-69.74	-1.03	Peak
6	948.590	-69.72	-13.00	-56.72	-70.88	1.16	Peak

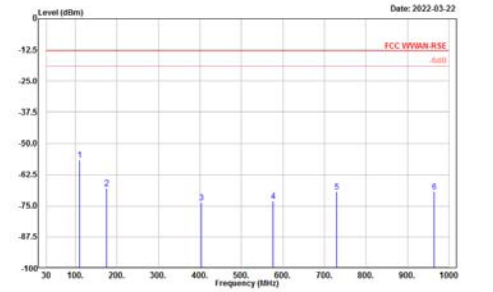
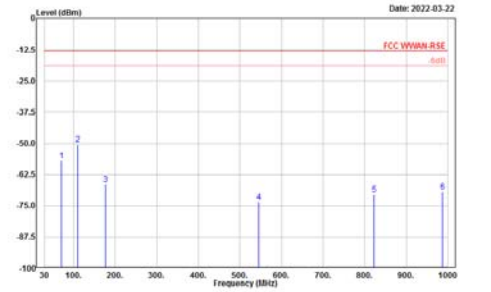
Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : Cellular_836.6
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	109.540	-50.60	-13.00	-37.60	-43.87	-6.73	Peak
2	179.380	-66.82	-13.00	-53.82	-55.93	-10.89	Peak
3	476.200	-75.06	-13.00	-62.06	-70.22	-4.84	Peak
4	616.850	-73.43	-13.00	-60.43	-71.01	-2.42	Peak
5	773.990	-71.75	-13.00	-58.75	-71.19	-0.56	Peak
6	992.240	-69.24	-13.00	-56.24	-70.75	1.51	Peak

EUT emissions correction = Read Level

Level = Read Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Over Limit = Level – Limit Line.

848.8 MHz Horizontal	848.8 MHz Vertical
	

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : Cellular_848.8
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	109.540	-56.53	-13.00	-43.53	-42.85	-13.68	Peak
2	175.500	-67.89	-13.00	-54.89	-55.40	-12.49	Peak
3	403.450	-73.75	-13.00	-60.75	-67.22	-6.53	Peak
4	576.110	-73.29	-13.00	-60.29	-68.87	-4.42	Peak
5	729.370	-69.29	-13.00	-56.29	-67.33	-1.96	Peak
6	964.110	-69.25	-13.00	-56.25	-70.33	1.08	Peak

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : Cellular_848.8
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

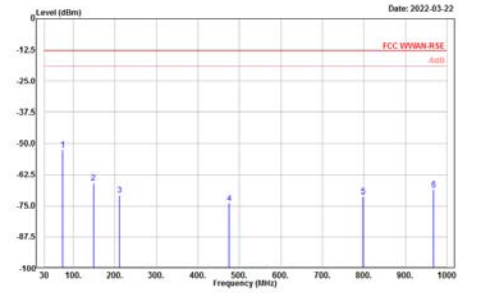
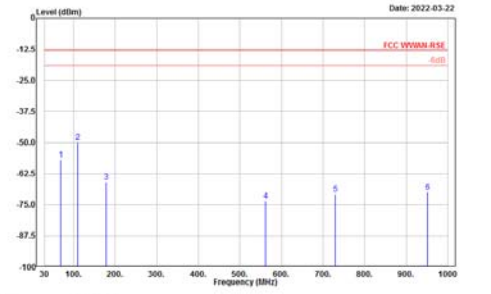
	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	70.740	-56.85	-13.00	-43.85	-42.48	-14.37	Peak
2	109.540	-50.42	-13.00	-37.42	-43.69	-6.73	Peak
3	176.470	-66.28	-13.00	-53.28	-55.41	-10.87	Peak
4	545.070	-73.43	-13.00	-60.43	-69.85	-3.58	Peak
5	821.520	-70.55	-13.00	-57.55	-70.54	-0.01	Peak
6	986.420	-69.51	-13.00	-56.51	-70.95	1.44	Peak

EUT emissions correction = Read Level

Level = Read Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Over Limit = Level – Limit Line.

PCS_Band

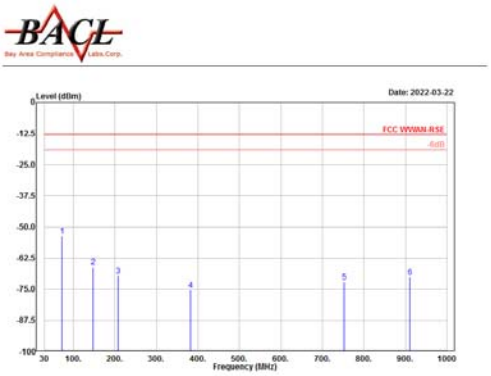
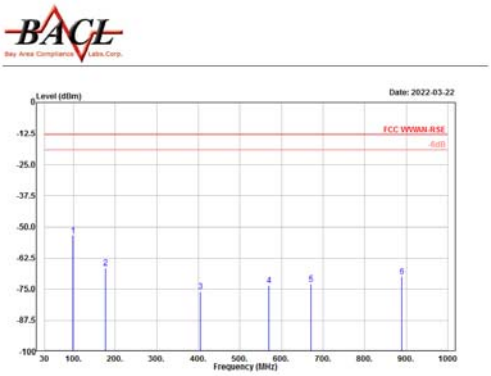
1850.2 MHz Horizontal	1850.2 MHz Vertical
	

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : PCS_1850.2
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	74.620	-52.46	-13.00	-39.46	-36.99	-15.47	Peak
2	148.340	-65.92	-13.00	-52.92	-53.59	-12.33	Peak
3	211.390	-70.68	-13.00	-57.68	-57.31	-13.37	Peak
4	475.230	-73.93	-13.00	-60.93	-68.41	-5.52	Peak
5	798.240	-71.20	-13.00	-58.20	-70.27	-0.93	Peak
6	967.990	-68.64	-13.00	-55.64	-69.69	1.05	Peak

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : PCS_1850.2
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	69.770	-56.90	-13.00	-43.90	-42.41	-14.49	Peak
2	109.540	-49.76	-13.00	-36.76	-43.03	-6.73	Peak
3	178.410	-65.79	-13.00	-52.79	-54.91	-10.88	Peak
4	561.560	-73.47	-13.00	-60.47	-70.04	-3.43	Peak
5	729.370	-70.74	-13.00	-57.74	-69.57	-1.17	Peak
6	951.500	-69.96	-13.00	-56.96	-71.16	1.20	Peak

1880 MHz Horizontal	1880 MHz Vertical
	

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : PCS_1880
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	72.680	-53.67	-13.00	-40.67	-38.03	-15.64	Peak
2	147.370	-66.19	-13.00	-53.19	-53.93	-12.26	Peak
3	207.510	-69.74	-13.00	-56.74	-56.58	-13.16	Peak
4	382.110	-75.33	-13.00	-62.33	-68.21	-7.12	Peak
5	751.680	-72.13	-13.00	-59.13	-70.71	-1.42	Peak
6	910.760	-70.14	-13.00	-57.14	-70.41	0.27	Peak

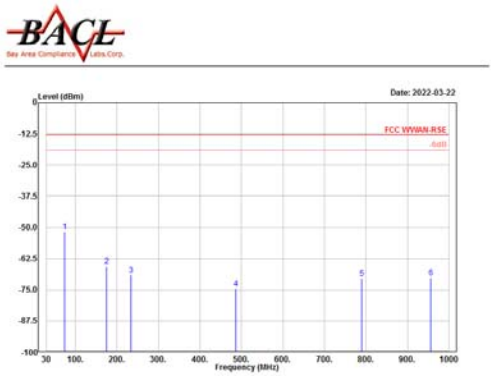
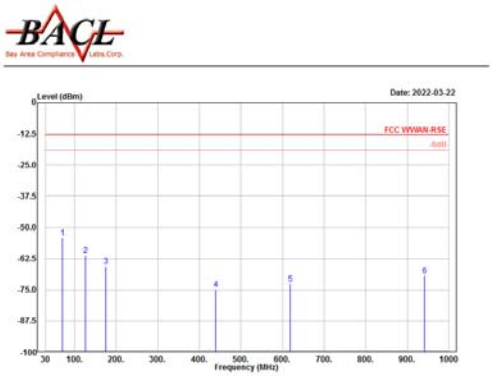
Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : PCS_1880
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	97.900	-53.33	-13.00	-40.33	-44.73	-8.60	Peak
2	176.470	-66.35	-13.00	-53.35	-55.48	-10.87	Peak
3	405.390	-75.77	-13.00	-62.77	-69.10	-6.67	Peak
4	569.320	-73.35	-13.00	-60.35	-69.86	-3.49	Peak
5	671.170	-72.88	-13.00	-59.88	-70.80	-2.08	Peak
6	889.420	-69.89	-13.00	-56.89	-70.82	0.93	Peak

EUT emissions correction = Read Level

Level = Read Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Over Limit = Level – Limit Line.

1909.8 MHz Horizontal	1909.8MHz Vertical
	

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : PCS_1909.8
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	73.650	-51.69	-13.00	-38.69	-36.14	-15.55	Peak
2	174.530	-65.55	-13.00	-52.55	-53.11	-12.44	Peak
3	234.670	-69.21	-13.00	-56.21	-57.56	-11.65	Peak
4	486.870	-74.43	-13.00	-61.43	-69.24	-5.19	Peak
5	789.510	-70.48	-13.00	-57.48	-69.47	-1.01	Peak
6	955.380	-70.07	-13.00	-57.07	-71.21	1.14	Peak

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : PCS_1909.8
Note : ant=A/site=Z
Note : Temp/RH:20.5℃/62%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	71.710	-54.08	-13.00	-41.08	-39.82	-14.26	Peak
2	126.030	-61.22	-13.00	-48.22	-54.56	-6.66	Peak
3	174.530	-65.65	-13.00	-52.65	-54.80	-10.85	Peak
4	439.340	-74.86	-13.00	-61.86	-68.77	-6.09	Peak
5	617.820	-72.56	-13.00	-59.56	-70.17	-2.39	Peak
6	941.800	-69.37	-13.00	-56.37	-70.41	1.04	Peak

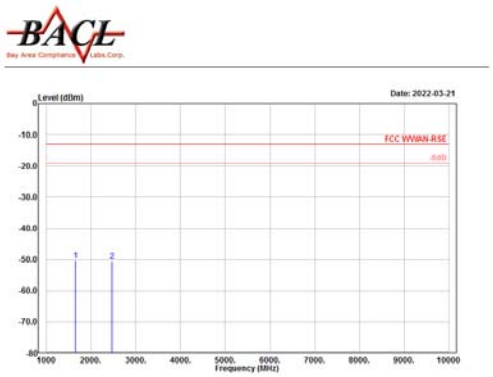
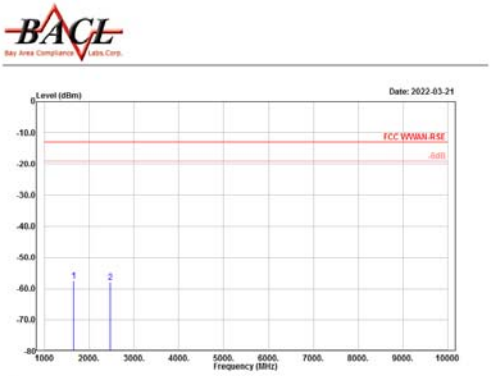
EUT emissions correction = Read Level

Level = Read Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Over Limit = Level – Limit Line.

Cellular_Band

1GHz ~ 10GHz

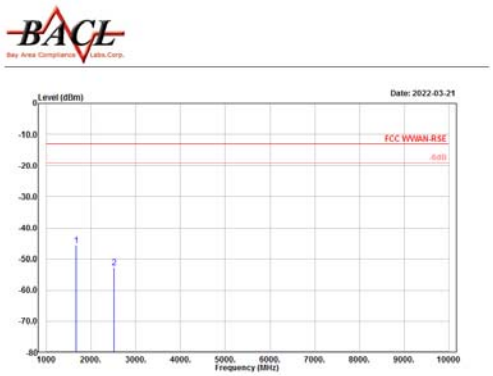
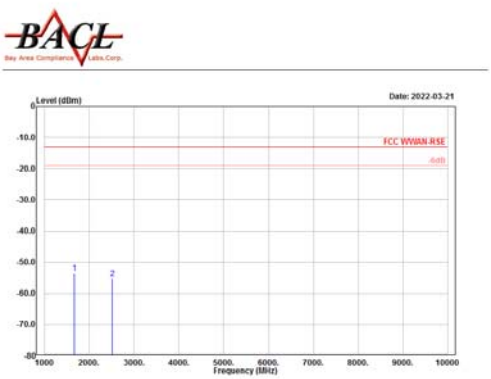
824.2 MHz Horizontal	824.2 MHz Vertical
	

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : Cellular_824.2
Note : ant=A/site=Z
Note : Temp/RH:20.0℃/64%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1648.400	-50.27	-13.00	-37.27	-51.95	1.68	Peak
2	2472.600	-50.49	-13.00	-37.49	-55.77	5.28	Peak

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : Cellular_824.2
Note : ant=A/site=Z
Note : Temp/RH:20.0℃/64%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1648.400	-57.56	-13.00	-44.56	-58.99	1.43	Peak
2	2472.600	-57.98	-13.00	-44.98	-62.84	4.86	Peak

836.6 MHz Horizontal	836.6 MHz Vertical
	

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : Cellular_836.6
Note : ant=A/site=Z
Note : Temp/RH:20.0℃/64%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1673.200	-45.55	-13.00	-32.55	-47.37	1.82	Peak
2	2509.800	-52.59	-13.00	-39.59	-58.01	5.42	Peak

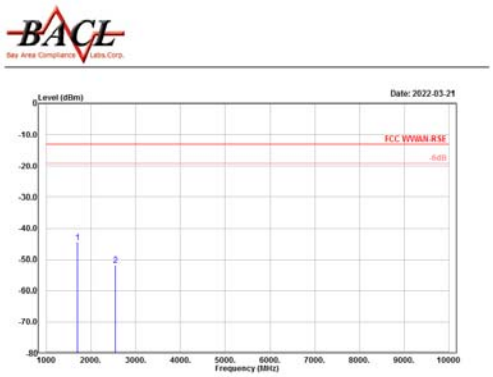
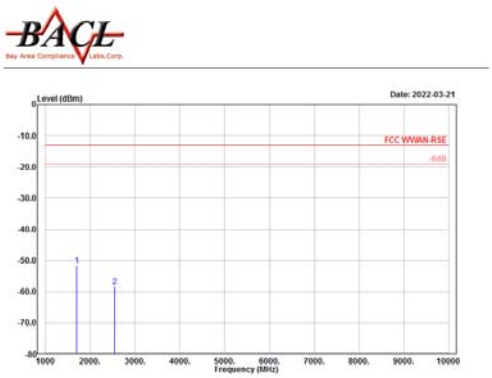
Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : Cellular_836.6
Note : ant=A/site=Z
Note : Temp/RH:20.0℃/64%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1673.200	-53.61	-13.00	-40.61	-55.10	1.49	Peak
2	2509.800	-55.19	-13.00	-42.19	-60.07	4.88	Peak

EUT emissions correction = Read Level

Level = Read Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Over Limit = Level – Limit Line.

848.8 MHz Horizontal	848.8 MHz Vertical
	

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : Cellular_848.8
Note : ant=A/site=Z
Note : Temp/RH:20.0℃/64%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1697.600	-44.38	-13.00	-31.38	-46.34	1.96	Peak
2	2546.400	-51.92	-13.00	-38.92	-57.51	5.59	Peak

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : Cellular_848.8
Note : ant=A/site=Z
Note : Temp/RH:20.0℃/64%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	1697.600	-51.57	-13.00	-38.57	-53.12	1.55	Peak
2	2546.400	-58.27	-13.00	-45.27	-63.41	5.14	Peak

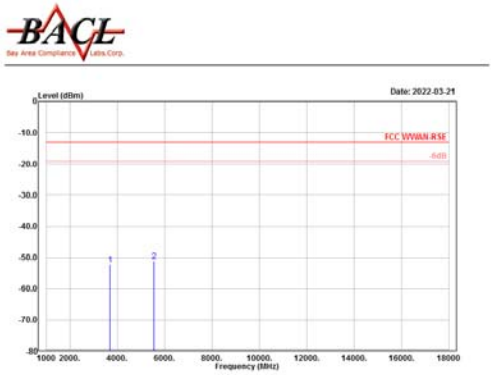
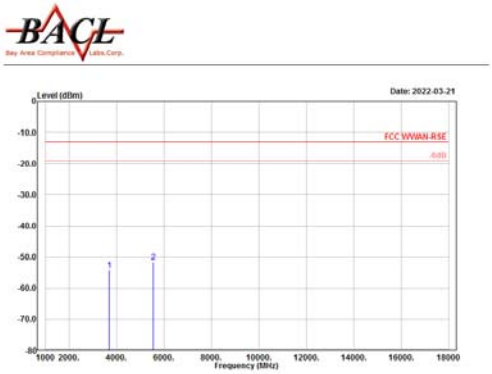
EUT emissions correction = Read Level

Level = Read Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Over Limit = Level – Limit Line.

PCS_Band

1GHz ~ 18GHz

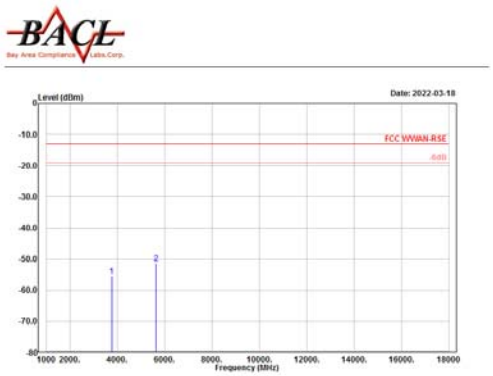
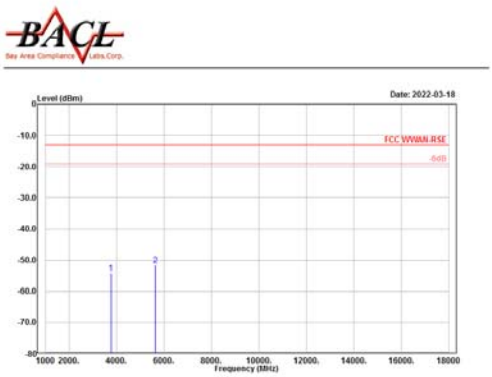
1850.2 MHz Horizontal	1850.2 MHz Vertical
	

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : PCS_1850.2
Note : ant=A/site=Z
Note : Temp/RH:20.0℃/64%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3700.400	-52.35	-13.00	-39.35	-60.89	8.54	Peak
2	5550.600	-51.21	-13.00	-38.21	-63.83	12.62	Peak

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : PCS_1850.2
Note : ant=A/site=Z
Note : Temp/RH:20.0℃/64%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3700.400	-54.28	-13.00	-41.28	-64.41	10.13	Peak
2	5550.600	-51.58	-13.00	-38.58	-64.88	13.30	Peak

1880 MHz Horizontal	1880 MHz Vertical
	

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : PCS_1880.0
Note : ant=A/site=Z
Note : Temp/RH:20.0℃/64%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3760.000	-55.45	-13.00	-42.45	-64.60	9.15	Peak
2	5640.000	-51.35	-13.00	-38.35	-64.28	12.93	Peak

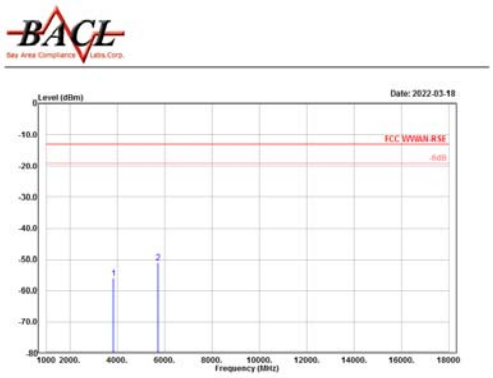
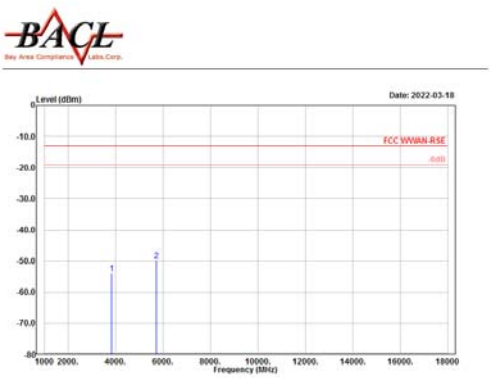
Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : PCS_1880.0
Note : ant=A/site=Z
Note : Temp/RH:20.0℃/64%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3760.000	-54.20	-13.00	-41.20	-64.72	10.52	Peak
2	5640.000	-51.53	-13.00	-38.53	-64.95	13.42	Peak

EUT emissions correction = Read Level

Level = Read Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Over Limit = Level – Limit Line.

1909.8 MHz Horizontal	1909.8MHz Vertical
	

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : PCS_1909.8
Note : ant=A/site=Z
Note : Temp/RH:21.5℃/63%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3819.600	-55.99	-13.00	-42.99	-65.68	9.69	Peak
2	5729.400	-50.99	-13.00	-37.99	-64.13	13.14	Peak

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : PCS_1909.8
Note : ant=A/site=Z
Note : Temp/RH:21.5℃/63%
Tester: Allen

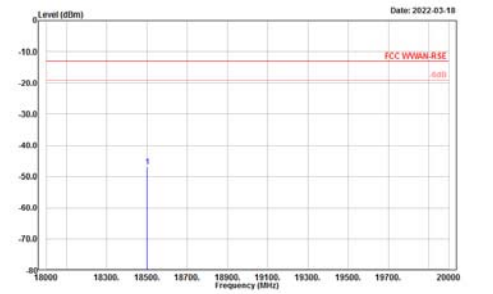
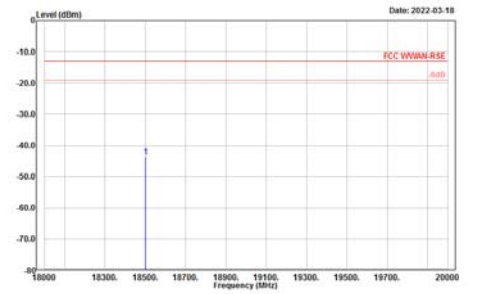
	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	3819.600	-53.92	-13.00	-40.92	-65.20	11.28	Peak
2	5729.400	-49.94	-13.00	-36.94	-63.62	13.68	Peak

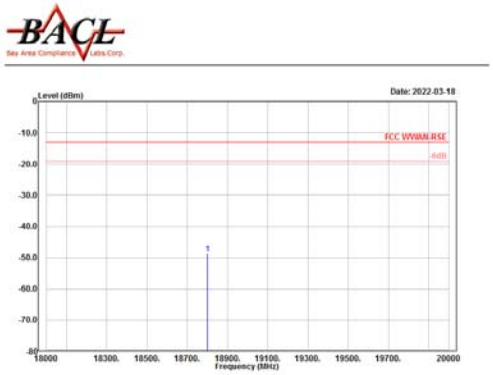
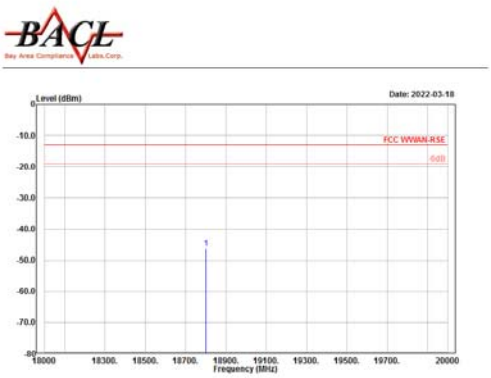
EUT emissions correction = Read Level

Level = Read Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Over Limit = Level – Limit Line.

18GHz ~ 20GHz

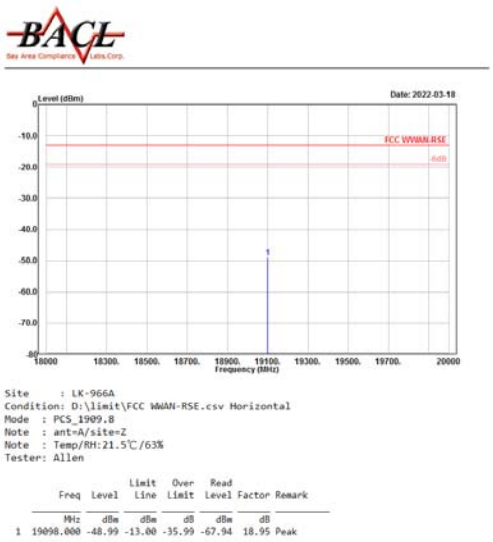
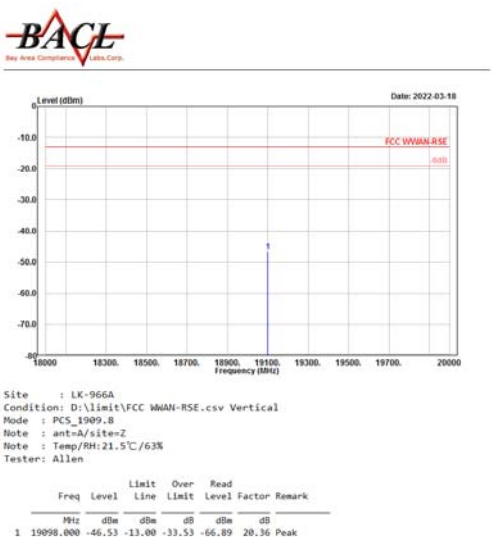
1850.2 MHz Horizontal	1850.2 MHz Vertical
 Site : LK-966A Condition: D:\limit\FCC WWAN-RSE.csv Horizontal Mode : PCS_1850.2 Note : ant=A/site=Z Note : Temp/RH:21.5℃/63% Tester: Allen Freq / Level / Limit Line / Over Limit / Read Level / Factor / Remark MHz / dBm / dBm / dB / dBm / dB 1 18502.000 -46.78 -13.00 -33.78 -66.76 19.98 Peak	 Site : LK-966A Condition: D:\limit\FCC WWAN-RSE.csv Vertical Mode : PCS_1850.2 Note : ant=A/site=Z Note : Temp/RH:21.5℃/63% Tester: Allen Freq / Level / Limit Line / Over Limit / Read Level / Factor / Remark MHz / dBm / dBm / dB / dBm / dB 1 18502.000 -43.61 -13.00 -30.61 -66.96 23.35 Peak

1880 MHz Horizontal	1880 MHz Vertical
 Site : LK-966A Condition: D:\limit\FCC WWAN-RSE.csv Horizontal Mode : PCS_1880 Note : ant=A/site=Z Note : Temp/RH:21.5℃/63% Tester: Allen Freq / Level / Limit Line / Over Limit / Read Level / Factor / Remark MHz / dBm / dBm / dB / dBm / dB 1 18800.000 -48.75 -13.00 -35.75 -67.95 19.20 Peak	 Site : LK-966A Condition: D:\limit\FCC WWAN-RSE.csv Vertical Mode : PCS_1880 Note : ant=A/site=Z Note : Temp/RH:21.5℃/63% Tester: Allen Freq / Level / Limit Line / Over Limit / Read Level / Factor / Remark MHz / dBm / dBm / dB / dBm / dB 1 18800.000 -46.13 -13.00 -33.13 -67.64 21.51 Peak

EUT emissions correction = Read Level

Level = Read Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Over Limit = Level – Limit Line.

1909.8 MHz Horizontal	1909.8MHz Vertical
	

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Horizontal
Mode : PCS_1909.8
Note : ant=A/site=Z
Note : Temp/RH:21.5℃/63%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	19098.000	-48.99	-13.00	-35.99	-67.94	18.95	Peak

Site : LK-966A
Condition: D:\limit\FCC WWAN-RSE.csv Vertical
Mode : PCS_1909.8
Note : ant=A/site=Z
Note : Temp/RH:21.5℃/63%
Tester: Allen

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBm	dBm	dB	dBm	dB	
1	19098.000	-46.53	-13.00	-33.53	-66.89	20.36	Peak

EUT emissions correction = Read Level

Level = Read Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Over Limit = Level – Limit Line.

FCC§22.917(a) & §24.238(a) – Band Edges

Applicable Standard

FCC §22.917, § 24.238,

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.

Test Procedure

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

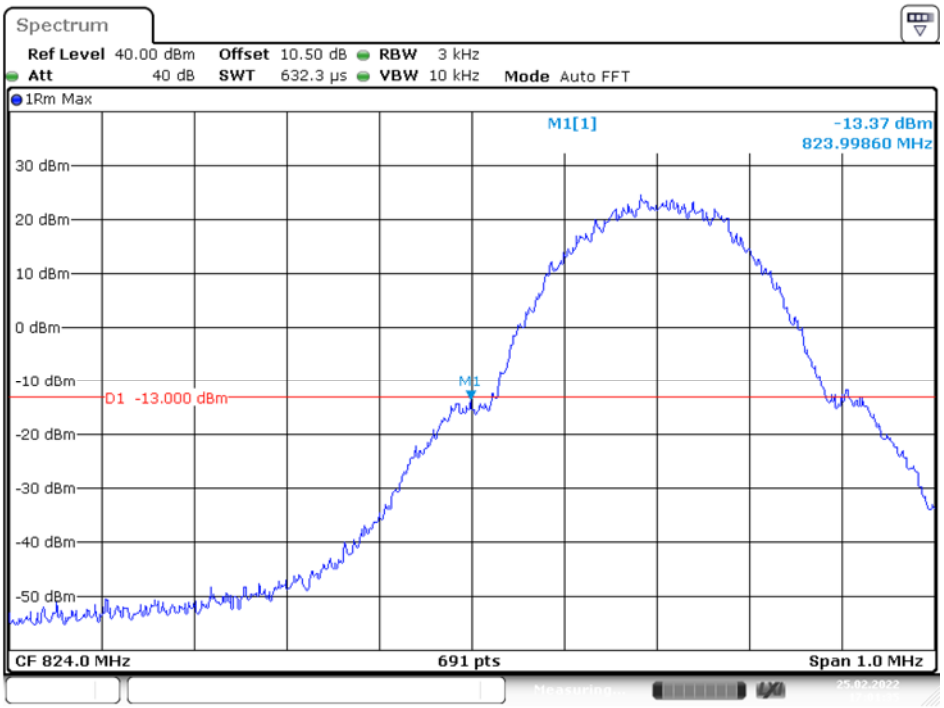
The center of the spectrum analyzer was set to block edge frequency.

Test Results

Please refer to the following plots

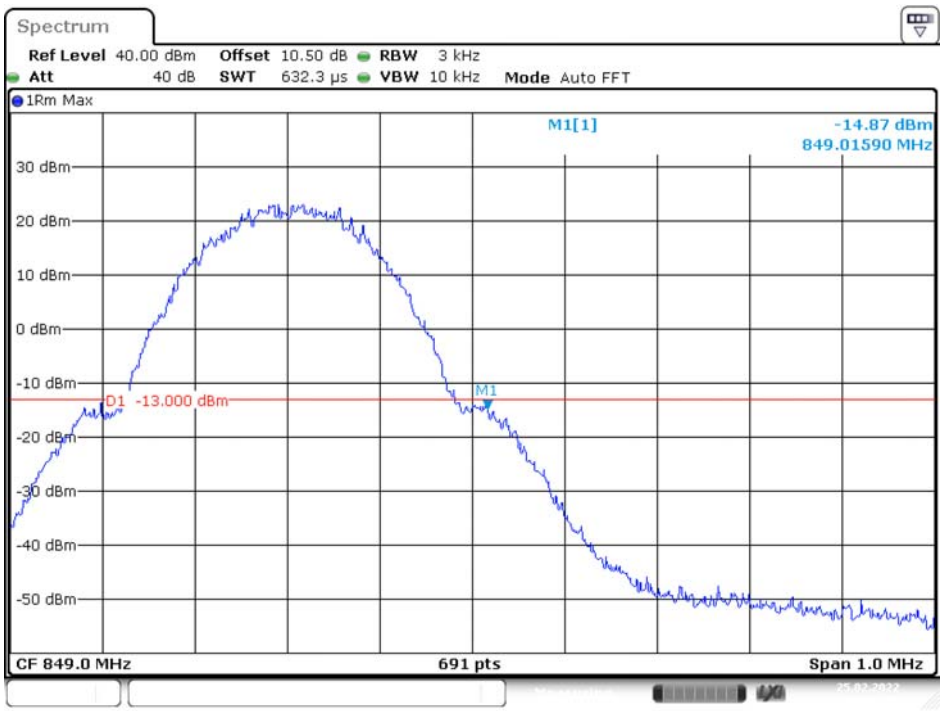
Cellular Band (Part 22H)

GSM Mode, Left Band Edge



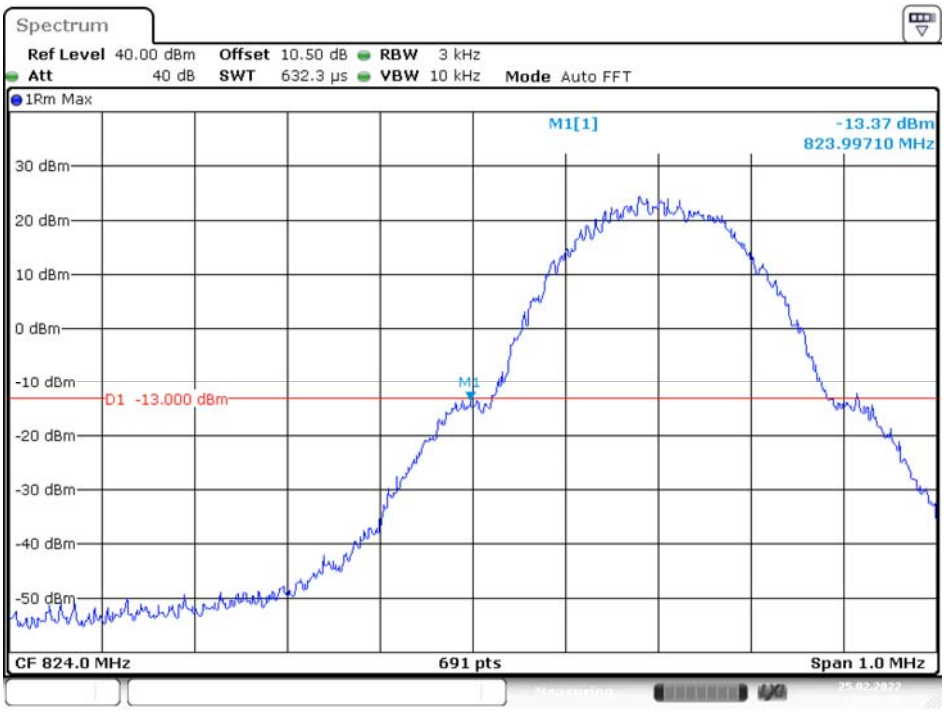
Date: 10.MAR.2022 13:50:33

GSM Mode, Right Band Edge



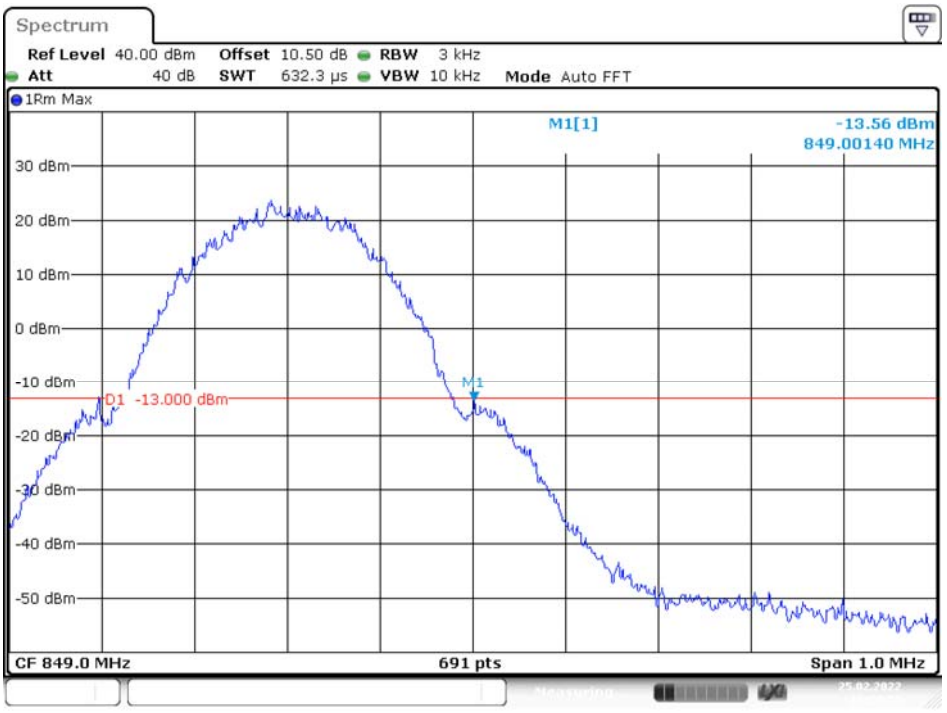
Date: 10.MAR.2022 13:54:51

GPRS Mode, Left Band Edge



Date: 10.MAR.2022 13:13:38

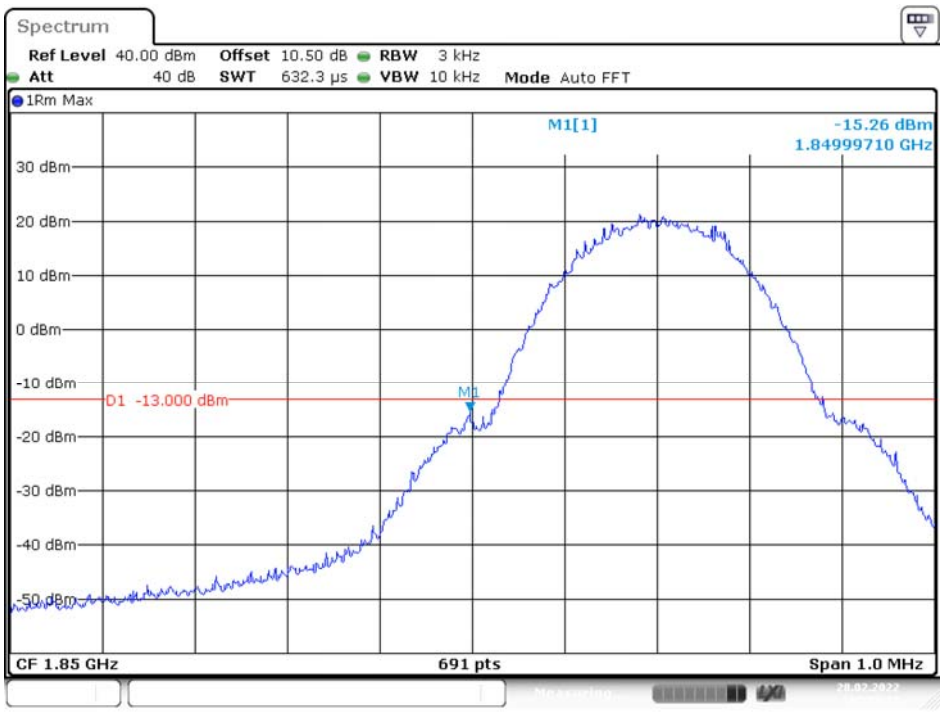
GPRS Mode, Right Band Edge



Date: 10.MAR.2022 13:15:36

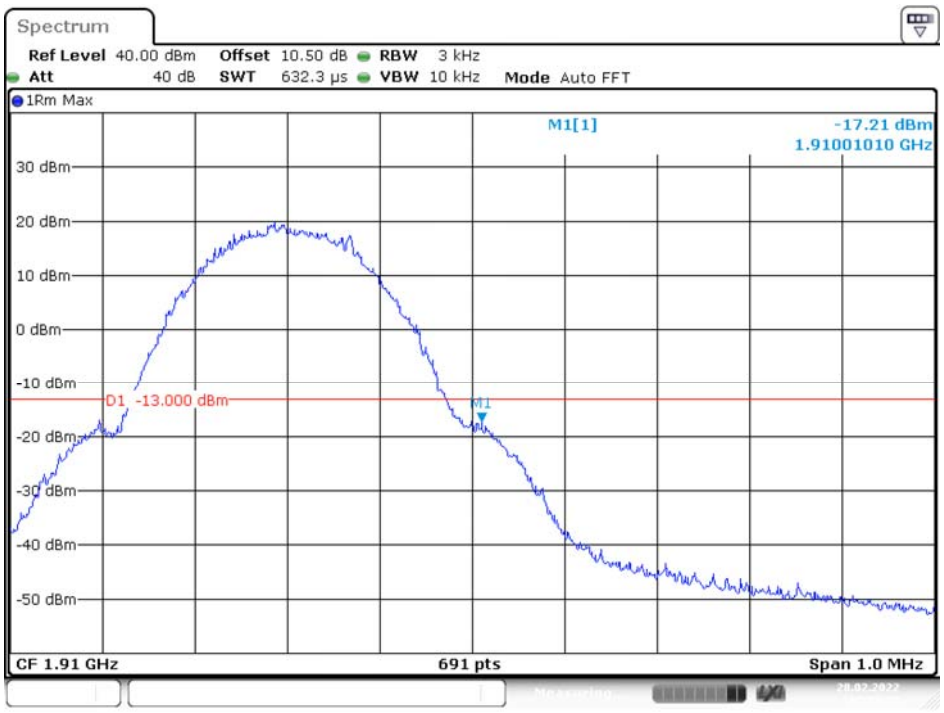
PCS Band (Part 24E)

GSM Mode, Left Band Edge



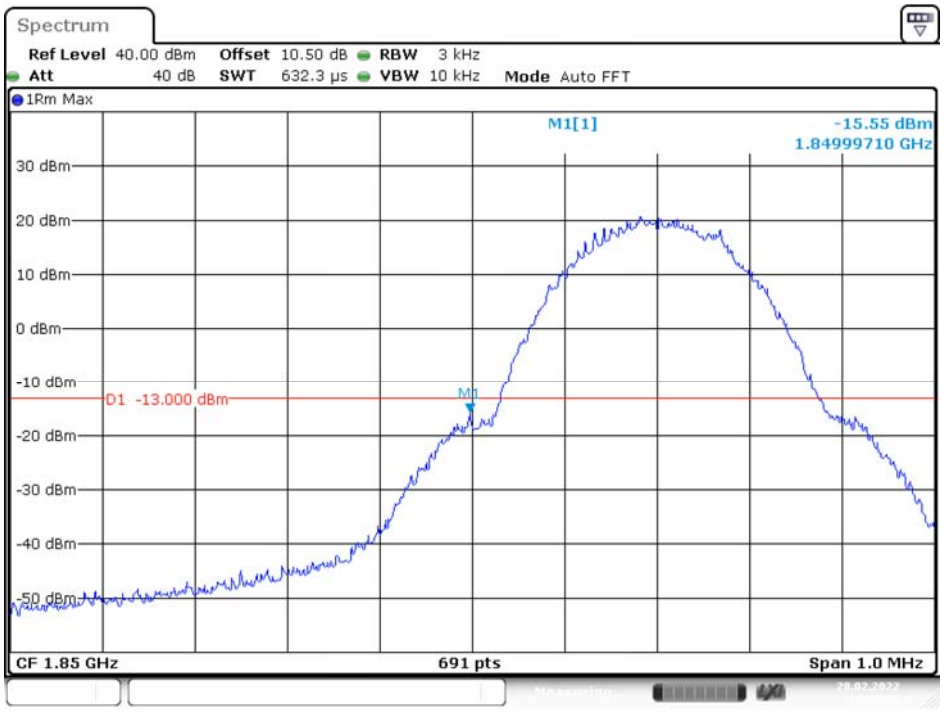
Date: 10.MAR.2022 15:53:22

GSM Mode, Right Band Edge



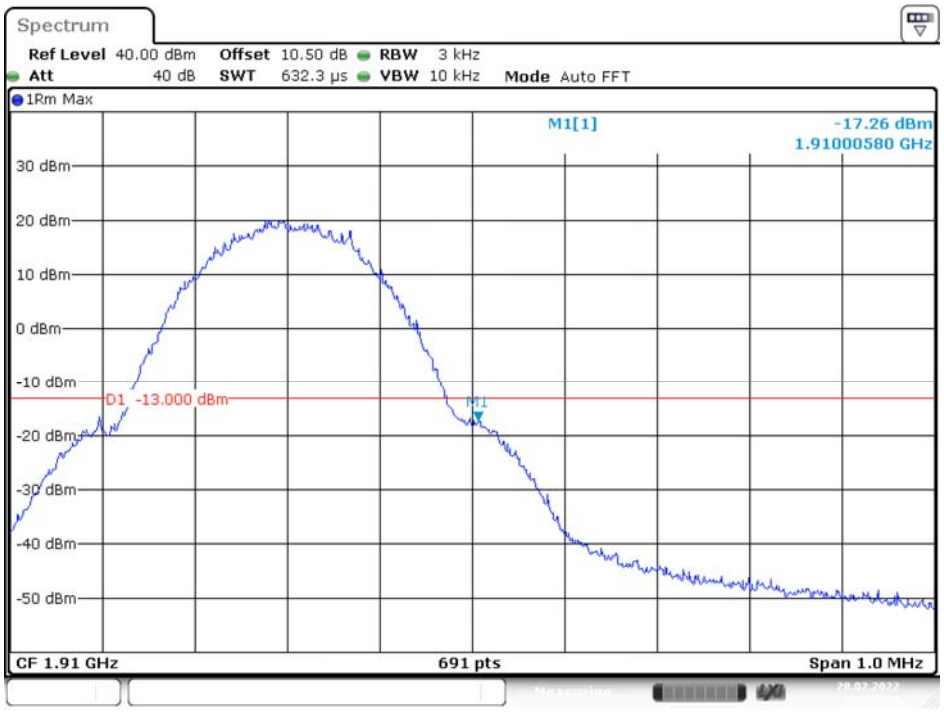
Date: 10.MAR.2022 15:50:03

GPRS Mode, Left Band Edge



Date: 10.MAR.2022 14:30:49

GPRS Mode, Right Band Edge



Date: 10.MAR.2022 14:34:16

FCC §2.1055, §22.355 & §24.235 – FREQUENCY STABILITY

Applicable Standard

FCC § 2.1055 (a)(d), §22.355, §24.235

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: An external variable DC power supply was connected to the battery terminals of the equipment under test. The voltage was set from 85% to 115% of the nominal value and was then decreased until the transmitter light no longer illuminated; i.e., the battery end point. The output frequency was recorded for each battery voltage.

Test Results

Cellular Band (Part 22H) GSM

Middle Channel, fo=836.6MHz				
Temperature (°C)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.7	15	0.0179	±2.5
-20		16	0.0191	±2.5
-10		18	0.0215	±2.5
0		17	0.0203	±2.5
10		18	0.0215	±2.5
20		16	0.0191	±2.5
30		15	0.0179	±2.5
40		19	0.0227	±2.5
50		12	0.0143	±2.5
25	V min= 3.33	17	0.0203	±2.5
25	V max= 4.07	16	0.0191	±2.5

Middle Channel, fo=836.6MHz				
Temperature (°C)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	12	18	0.0215	±2.5
-20		15	0.0179	±2.5
-10		19	0.0227	±2.5
0		13	0.0155	±2.5
10		12	0.0143	±2.5
20		17	0.0203	±2.5
30		16	0.0191	±2.5
40		13	0.0155	±2.5
50		20	0.0239	±2.5
25	V min= 9	15	0.0179	±2.5
25	V max= 90	16	0.0191	±2.5

Cellular Band (Part 24E) GSM

Middle Channel,fo=1880MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	3.7	21	0.0112	Pass
-20		23	0.0122	Pass
-10		25	0.0133	Pass
0		24	0.0128	Pass
10		26	0.0138	Pass
20		22	0.0117	Pass
30		19	0.0101	Pass
40		24	0.0128	Pass
50		25	0.0133	Pass
25	V min= 3.33	19	0.0101	Pass
25	V max= 4.07	21	0.0112	Pass

Middle Channel,fo=1880MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	12	26	0.0138	Pass
-20		23	0.0122	Pass
-10		27	0.0144	Pass
0		21	0.0112	Pass
10		29	0.0154	Pass
20		25	0.0133	Pass
30		24	0.0128	Pass
40		21	0.0112	Pass
50		26	0.0138	Pass
25	V min= 9	20	0.0106	Pass
25	V max= 90	22	0.0117	Pass

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