


RF Test Report

Test Report Number	PFT-23012462-LC-FCC-IC-RF-PCB
FCC ID	2ALBDPT40Q
IC	23259-PT40Q
Applicant	Pacific Track, LLC
Applicant Address	1300 Bristol Street North, Newport Beach, CA 92660
Product Name	Telematics Device
Model (s)	PT40-Q
Date of Receipt	03/24/2023
Date of Test	04/04/2023- 04/12/2023
Report Issue Date	04/27/2023
Test Standards	47CFR Part 22 47CFR Part 24 47CFR Part 27 47CFR Part 90 RSS-130 Issue 2: Feb 2019 RSS-132 Issue 4: Jan 2023 RSS-133 Issue 6: Jan 2018 RSS-139 Issue 4: Sep 2022
Test Result	PASS
	<p>Issued by:</p> <p>Vista Compliance Laboratories 1261 Puerta Del Sol, San Clemente, CA 92673 USA www.vista-compliance.com</p>



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REVISION HISTORY

Report Number	Version	Description	Issued Date
PFT-23012462-LC-FCC-IC-RF-PCB	01	Initial report	04/27/2023

TABLE OF CONTENTS

1	TEST SUMMARY	4
2	GENERAL INFORMATION.....	5
2.1	Applicant.....	5
2.2	Product information.....	5
2.3	Test standard and method	6
3	TEST SITE INFORMATION.....	6
4	MODIFICATION OF EUT / DEVIATIONS FROM STANDARDS.....	6
5	TEST CONFIGURATION AND OPERATION.....	7
5.1	EUT Test Configuration.....	7
5.2	Supporting Equipment	7
6	UNCERTAINTY OF MEASUREMENT	7
7	TEST RESULTS.....	8
7.1	Strength of Spurious Radiation.....	8
8	EUT AND TEST SETUP PHOTOS.....	23
9	TEST INSTRUMENT LIST	26

1 Test Summary

Test Item	Test Requirement	Test Method	Result
Field Strength of Spurious Radiation	2.1046 22.917 (a), 24.238 (a), 90.691, 27.53 (f), (g), (h), (c)(2) and (5) RSS-130(4.7.1) and (4.7.2) RSS-132 (5.5) RSS-133 (6.5) RSS-139 (6.6)	ANSI C63.26: 2015 KDB 971168 D01 Power Meas License Digital Systems v03r01 KDB 412172 D01 Determining ERP and EIRP v01r01	Pass

Note: Only radiated spurious emission test in this report, for other test item details please see module BG95-M1 original RF report (FCC ID: XMR2020BG95M1; ISED ID: 10224A-2020BG95M1).

2 General Information

2.1 Applicant

Applicant	Pacific Track, LLC
Applicant address	1300 Bristol Street North, Suite 100, Newport Beach, CA, 92660
Manufacturer	Pacific Track, LLC
Manufacturer Address	1300 Bristol Street North, Suite 100, Newport Beach, CA, 92660

2.2 Product information

Product Name	Telematics Device
Model Number	PT40
Family Models	N/A
Serial Number	Q1-A4444
Frequency Band	LTE Cat-M1 Band 2: 1850.7-1909.3MHz LTE Cat-M1 Band 4: 1710.7-1754.3MHz LTE Cat-M1 Band 5: 824.7-836.5MHz LTE Cat-M1 Band 12: 699.7-715.3MHz LTE Cat-M1 Band 13: 777.7-786.3MHz
Type of modulation	LTE CAT-M1: QPSK, 16QAM
Equipment Class	BT_LE: DXX LTE Cat-M1: PCB
Antenna Information	BLE - On board PCB trace antenna, gain: 2 dBi LTE Cat-M1 - On board PIFA antenna, gain: -2.2 dBi
Clock Frequencies	N/A
Input Power	DC 12.0V (EUT obtains power from Vehicle power system)
Power Adapter Manufacturer/Model	N/A
Power Adapter SN	N/A
Hardware version	N/A
Software version	N/A
Simultaneous Transmission	N/A
Additional Info	Cellular module integrated: QUECTEL BG-95-M1Module (FCC ID: XMR2020BG95M1)

2.3 Test standard and method

Test standard	47CFR Part 22 47CFR Part 24 47CFR Part 27 47CFR Part 90 RSS-130 Issue 2: Feb 2019 RSS-132 Issue 3: Jan 2013 RSS-133 Issue 6: Jan 2018 RSS-139 Issue 3: Jul 2015 RSS-Gen Issue 5: Feb 2021
Test method	ANSI C63.26: 2015 KDB 971168 D01 Power Meas License Digital Systems v03r01 KDB 412172 D01 Determining ERP and EIRP v01r01

3 Test Site Information

Lab performing tests	Vista Laboratories, Inc.
Lab Address	1261 Puerta Del Sol, San Clemente, CA 92673 USA
Phone Number	+1 (949) 393-1123
Website	www.vista-compliance.com

Test Condition	Temperature	Humidity	Atmospheric Pressure
Radiated Emission Testing	23.5°C	58.2%	996 mbar

4 Modification of EUT / Deviations from Standards

N/A

5 Test Configuration and Operation

5.1 EUT Test Configuration

The EUT has the option to be powered by an vehicular 12VDC power source.
A test laptop is used to send the test commands through USB port of the EUT.
Testing was completed with worst case radio configuration.

The following software was used to monitor EUT performance

Software	Description
EMISOFT Vasona	EMC/RF Spurious emission test software used during testing
Tera term	Use command to set the EUT work at different Band/Channal etc.

5.2 Supporting Equipment

Description	Manufacturer	Model #	Serial #
Laptop	Dell	Inspiron 15 3000	72YPMJ2
DC Power Adapter	WERKER	WK12V1000	MRG05
12 Vdc Battery	Ascent Battery Supply, LLC	DURACELL ULTRA	N/A

6 Uncertainty of Measurement

Test item	Measurement Uncertainty (dB)
RF Conducted Measurement (30MHz - 18GHz)	±1.5 dB
Radiated Emission (30MHz-1GHz)	±4.6 dB
Radiated Emission (1-18GHz)	±4.9 dB
Radiated Emission (18-40GHz)	±3.5 dB

7 Test Results

7.1 Strength of Spurious Radiation

7.1.1 Requirement

§ 2.1051, 22.917(a), 24.238(a), 27.53 (f), (g), (h) and (c)(2) and (5)

RSS-130(4.7.1) and (4.7.2), RSS-132(5.5), RSS-133(6.5), RSS-139(6.6)

FCC 47 CFR Part 22, Clause 22.917 (a) and FCC 47 CFR Part 24, Clause 24.238 (a)

(a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

FCC 47 CFR Part 27, Clause 27.53 (c)(2) and (5)

(c) For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log(P)$ dB;

(5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed;

FCC 47 CFR Part 27, Clause 27.53 (f)

(f) For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

FCC 47 CFR Part 27, Clause 27.53 (g)

(g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

FCC 47 CFR Part 27, Clause 27.53 (h)

(h) AWS emission limits — (1) General protection levels. Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ dB.

(3) Measurement procedure. (i) Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

FCC 47 CFR Part 90, Clause 90.691

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

RSS-130, Clause 4.7.1 and 4.7.2

The unwanted emissions in any 100 kHz bandwidth on any frequency outside the low frequency edge and the high frequency edge of each frequency block range(s), shall be attenuated below the transmitter power, P (dBW), by at least $43 + 10 \log_{10} p$ (watts), dB. However, in the 100 kHz band immediately outside of the equipment's frequency block range, a resolution bandwidth of 30 kHz may be employed.

In addition to the limit outlined in section 4.7.1 above, equipment operating in the frequency bands 746- 756 MHz and 777-787 MHz shall also comply with the following restrictions:

- a) The power of any unwanted emissions in any 6.25 kHz bandwidth for all frequencies between 763-775 MHz and 793-806 MHz shall be attenuated below the transmitter power, P (dBW), by at least:
- (i) $76 + 10 \log_{10} p$ (watts), dB, for base and fixed equipment, and
 - (ii) $65 + 10 \log_{10} p$ (watts), dB, for mobile and portable equipment.
- b) The e.i.r.p. in the band 1559-1610 MHz shall not exceed -70 dBW/MHz for wideband signal and 80 dBW for discrete emission with bandwidth less than 700 Hz.

RSS-132, Clause 5.5

Mobile and base station equipment shall comply with the limits in (i) and (ii) below.

- (i) In the first 1.0 MHz band immediately outside and adjacent to each of the sub-bands specified in Section 5.1, the power of emissions per any 1% of the occupied bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p$ (watts).
- (ii) After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any 100 kHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p$ (watts). If the measurement is performed using 1% of the occupied bandwidth, power integration over 100 kHz is required.

RSS-133, Clause 6.5.1

Equipment shall comply with the limits in (i) and (ii) below.

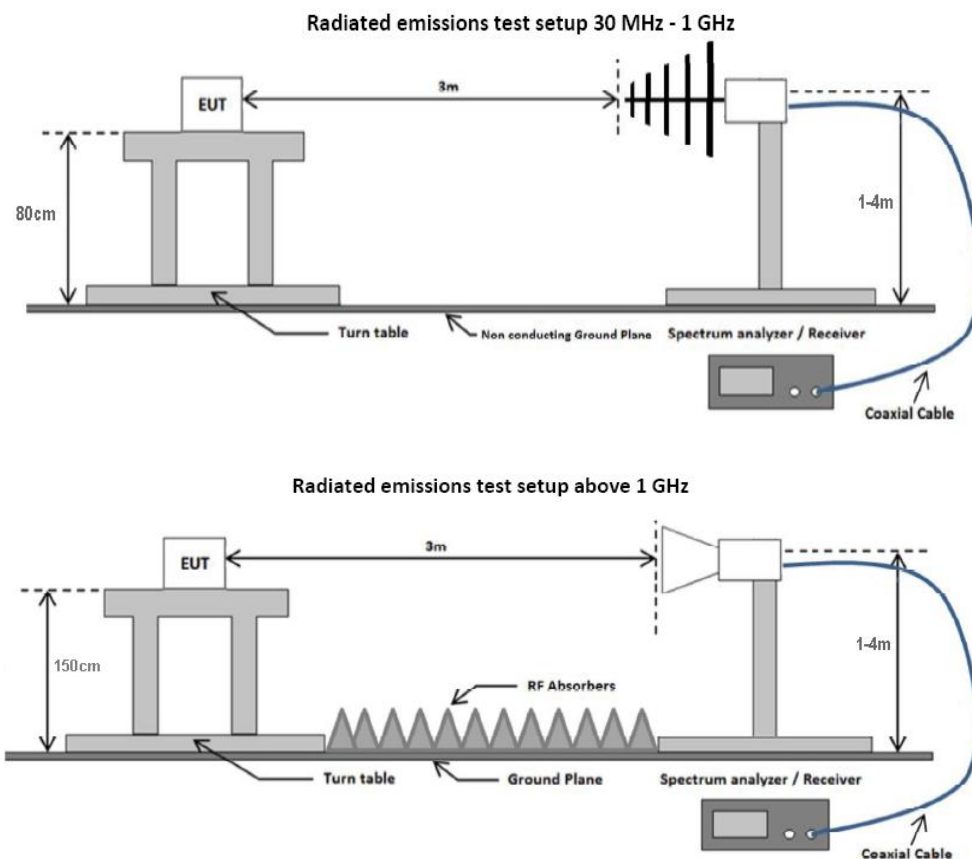
- (i) In the 1.0 MHz bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p$ (watts).
- (ii) After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p$ (watts). If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.

RSS-139, Clause 6.6

(i) In the first 1.0 MHz bands immediately outside and adjacent to the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least $43 + 10 \log_{10} p$ (watts) dB.

(ii) After the first 1.0 MHz outside the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power in any 1 MHz bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least $43 + 10 \log_{10} p$ (watts) dB.

7.1.2 Test setup



7.1.3 Test Procedure

ANSI C63.26: 2015 section 5.5

KDB 971168 D01 Power Meas License Digital Systems v03r01 section 7

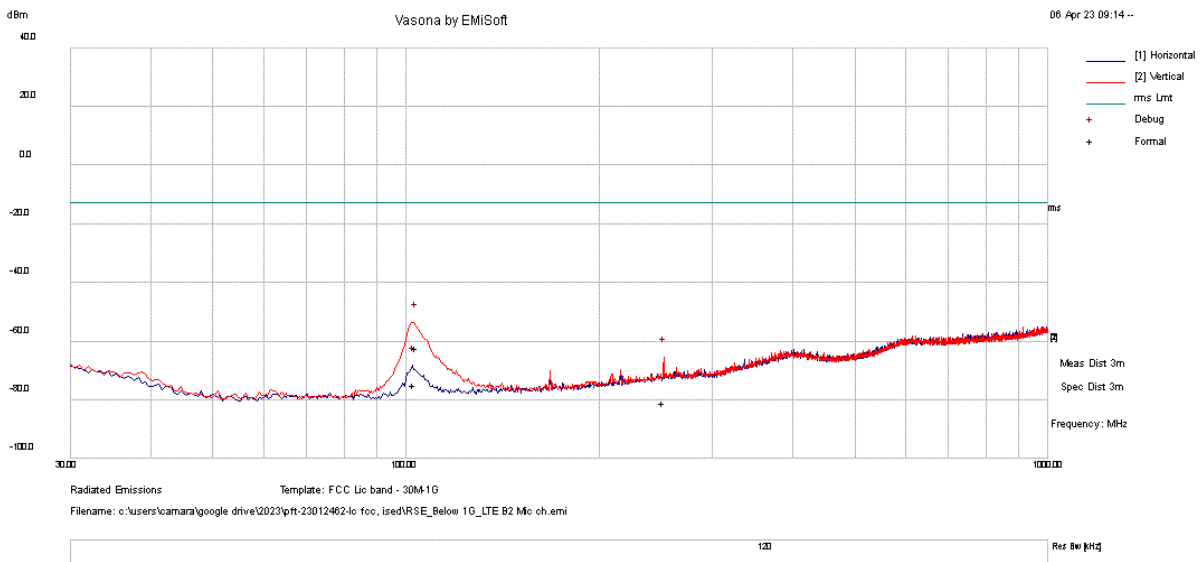
Boresight antenna mast was used during the scanning to point to EUT to maximize the emission. The process will be repeated in 3 EUT orientations.

1. The EUT was switched on and allowed to warm up to its normal operating condition.
2. The test was carried out at the selected frequency points obtained from the EUT characterization. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner:
 - a. Vertical or horizontal polarization (whichever gave the higher emission level over a full rotation of the EUT) was chosen.
 - b. The EUT was then rotated to the direction that gave the maximum emission.
 - c. Finally, the antenna height was adjusted to the height that gave the maximum emission.
3. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 300 Hz for frequency below 150KHz.
4. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 10 kHz for frequency between 150KHz – 30MHz.
5. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-Peak detection at frequency between 30MHz - 1GHz.
6. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz with Peak detection for Peak and average measurement at frequency above 1GHz.
7. Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured.

7.1.4 Test Result

RADIATED EMISSIONS BELOW 1 GHZ

Test Standard:	Part 24E & RSS 133	Mode:	LTE Cat M1- B2
Frequency Range:	30 MHz - 1 GHz	Test Date:	08/04/2021-08/06/2021
Antenna Type/Polarity:	Bi-Log/Hor & Ver	Test Personnel:	Devin Tai
Remark:	N/A	Test Result:	Pass



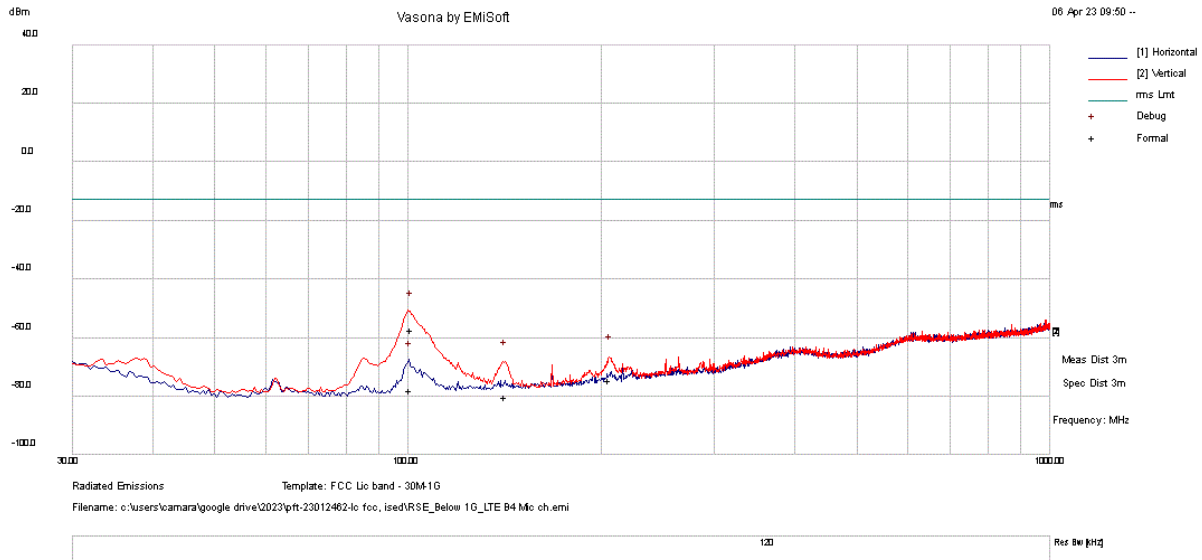
No.	Frequency MHz	Raw dBm	Cable Loss dB	AF dB/m	Level dBm	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBm	Margin dB	Pass/Fail
1	103.59	-58.7	15.4	-19	-62.3	RMS Max	V	113	360	-13	-49.3	Pass
2	252.016	-83.2	17	-14.6	-80.8	RMS Max	V	121	313	-13	-67.8	Pass
3	103.063	-71.2	15.4	-19	-74.8	RMS Max	H	194	0	-13	-61.8	Pass

Remarks:

1. Level (dBm) = Raw (dBm) + Cable loss(dB) + AF (dB/m).
2. AF (dB/m) = Antenna Factor (dB) - Pre-amplifier Gain (dB)
3. Margin = Level (dBm) - Limit value(dBm)

RADIATED EMISSIONS BELOW 1 GHZ

Test Standard:	Part 27 & RSS 139	Mode:	LTE Cat M1- B4
Frequency Range:	30 MHz - 1 GHz	Test Date:	08/04/2021-08/06/2021
Antenna Type/Polarity:	Bi-Log/Hor & Ver	Test Personnel:	Devin Tai
Remark:	N/A	Test Result:	Pass



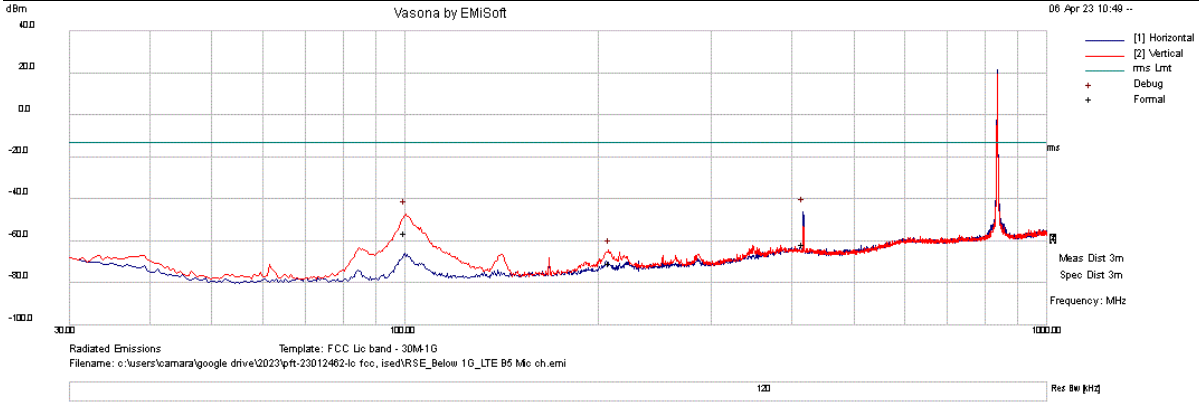
No.	Frequency MHz	Raw dBm	Cable Loss dB	AF dB/m	Level dBm	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBm	Margin dB	Pass/Fail
1	101.266	-53.5	15.4	-19.1	-57.2	RMS Max	V	101	199	-13	-44.2	Pass
2	206.226	-74.4	16.6	-16.7	-74.5	RMS Max	V	121	334	-13	-61.5	Pass
3	142.028	-78.2	15.9	-18	-80.3	RMS Max	V	213	104	-13	-67.3	Pass
4	100.685	-74	15.3	-19.1	-77.8	RMS Max	H	116	128	-13	-64.8	Pass

Remarks:

1. Level (dBm) = Raw (dBm) + Cable loss(dB) + AF (dB/m).
2. AF (dB/m) = Antenna Factor (dB) – Pre-amplifier Gain (dB)
3. Margin = Level (dBm) - Limit value(dBm)

RADIATED EMISSIONS BELOW 1 GHZ

Test Standard:	Part 22H & RSS 132	Mode:	LTE Cat M1- B5
Frequency Range:	30 MHz - 1 GHz	Test Date:	08/04/2021-08/06/2021
Antenna Type/Polarity:	Bi-Log/Hor & Ver	Test Personnel:	Devin Tai
Remark:	N/A	Test Result:	Pass



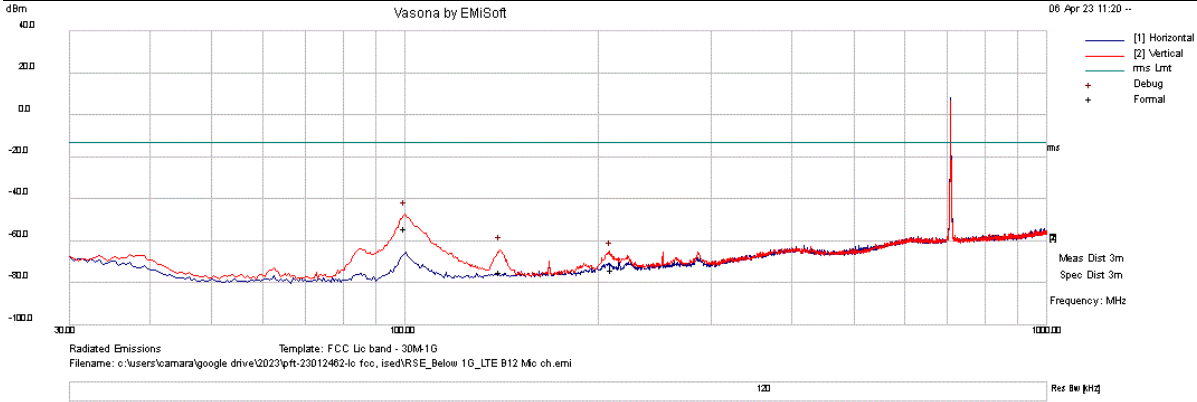
No.	Frequency MHz	Raw dBm	Cable Loss dB	AF dB/m	Level dBm	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBm	Margin dB	Pass/Fail
1	417.196	-71.1	18.1	-8.4	-61.4	RMS Max	H	100	150	-13	-48.4	Pass
2	100.1	-52.2	15.3	-19.1	-56	RMS Max	V	113	211	-13	-43	Pass
3	208.057	-70.4	16.6	-16.6	-70.4	RMS Max	V	127	241	-13	-57.4	Pass

Remarks:

1. Level (dBm) = Raw (dBm) + Cable loss(dB) + AF (dB/m).
2. AF (dB/m) = Antenna Factor (dB) – Pre-amplifier Gain (dB)
3. Margin = Level (dBm) - Limit value(dBm)
4. Frequency at around 836.5MHz is EUT fundamental emission.

RADIATED EMISSIONS BELOW 1 GHZ

Test Standard:	Part 27 & RSS 130	Mode:	LTE Cat M1- B12
Frequency Range:	30 MHz - 1 GHz	Test Date:	08/04/2021-08/06/2021
Antenna Type/Polarity:	Bi-Log/Hor & Ver	Test Personnel:	Devin Tai
Remark:	N/A	Test Result:	Pass



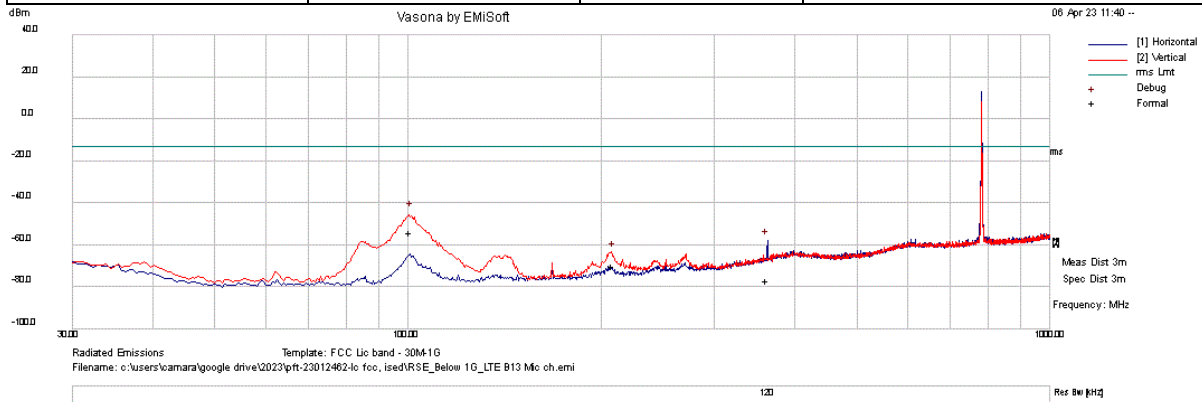
No.	Frequency MHz	Raw dBm	Cable Loss dB	AF dB/m	Level dBm	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBm	Margin dB	Pass/Fail
1	100.136	-50.5	15.3	-19.1	-54.3	RMS Max	V	100	138	-13	-41.3	Pass
2	140.746	-73	15.9	-18	-75.1	RMS Max	V	227	160	-13	-62.1	Pass
3	209.779	-74	16.6	-16.5	-73.9	RMS Max	V	100	230	-13	-60.9	Pass

Remarks:

1. Level (dBm) = Raw (dBm) + Cable loss(dB) + AF (dB/m).
2. AF (dB/m) = Antenna Factor (dB) – Preamplifier Gain (dB)
3. Margin = Level (dBm) - Limit value(dBm)
4. Frequency at around 707.5MHz is EUT fundamental emission.

RADIATED EMISSIONS BELOW 1 GHZ

Test Standard:	Part 27 & RSS 130	Mode:	LTE Cat M1- B13
Frequency Range:	30 MHz - 1 GHz	Test Date:	08/04/2021-08/06/2021
Antenna Type/Polarity:	Bi-Log/Hor & Ver	Test Personnel:	Devin Tai
Remark:	N/A	Test Result:	Pass



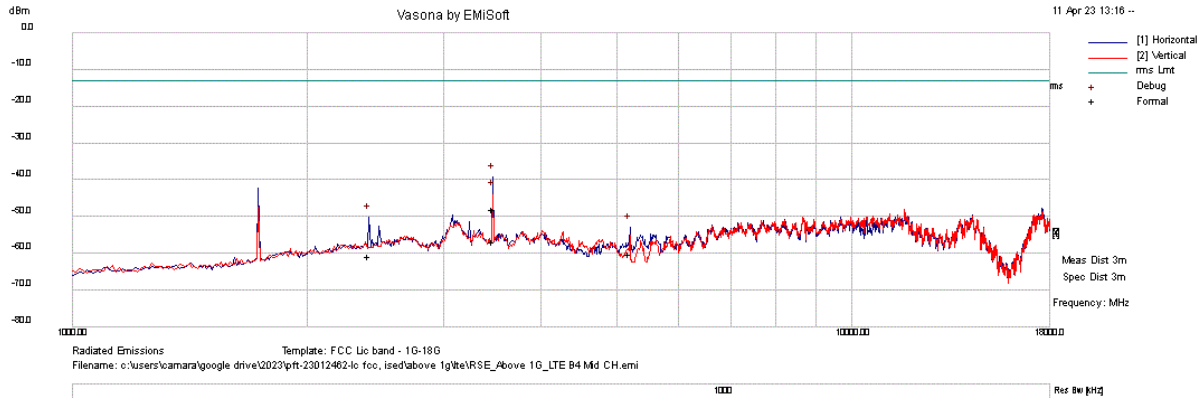
No.	Frequency MHz	Raw dBm	Cable Loss dB	AF dB/m	Level dBm	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBm	Margin dB	Pass/Fail
1	100.937	-50.6	15.3	-19.1	-54.4	RMS Max	V	115	196	-13	-41.4	Pass
2	362.729	-84.8	17.9	-10.2	-77.1	RMS Max	H	310	116	-13	-64.1	Pass
3	208.753	-70.2	16.6	-16.5	-70.1	RMS Max	V	146	206	-13	-57.1	Pass

Remarks:

1. Level (dBm) = Raw (dBm) + Cable loss(dB) + AF (dB/m).
2. AF (dB/m) = Antenna Factor (dB) - Pre-amplifier Gain (dB)
3. Margin = Level (dBm) - Limit value(dBm)
4. Frequency at around 782MHz is EUT fundamental emission.

RADIATED EMISSIONS 1 - 18 GHZ

Test Standard:	Part 27 & RSS 139	Mode:	LTE Cat M1- B4
Frequency Range:	1 GHz - 18GHz	Test Date:	08/04/2021-08/06/2021
Antenna Type/Polarity:	Horn/Hor & Ver	Test Personnel:	Devin Tai
Remark:	N/A	Test Result:	Pass



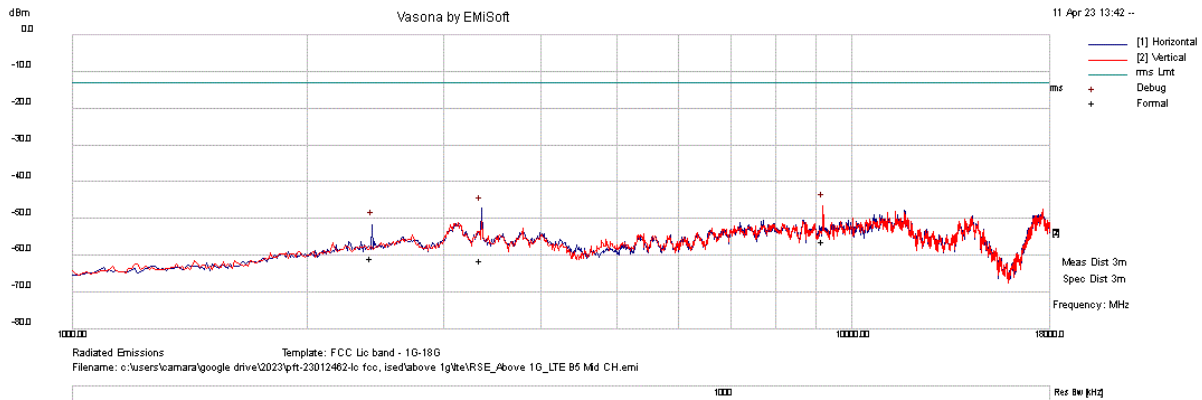
No.	Frequency MHz	Raw dBm	Cable Loss dB	AF dB/m	Level dBm	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBm	Margin dB	Pass/Fail
1	3464.822	-65.9	19.9	-1.9	-47.9	RMS Max	H	150	0	-13	-34.9	Pass
2	3464.81	-74.9	19.9	-1.9	-56.9	RMS Max	V	199	10	-13	-43.9	Pass
3	2402.901	-96.3	33.1	2.3	-60.9	RMS Max	V	145	0	-13	-47.9	Pass
4	5196.81	-73.3	21.7	-8.4	-60	RMS Max	H	100	166	-13	-47	Pass

Remarks:

1. Level (dBm) = Raw (dBm) + Cable loss(dB) + AF (dB/m).
2. AF (dB/m) = Antenna Factor (dB) - Preamplifier Gain (dB)
3. Margin = Level (dBm) - Limit value(dBm)
4. Frequency at around 1732.5MHz is EUT fundamental emission.

RADIATED EMISSIONS 1 - 18 GHZ

Test Standard:	Part 22H & RSS 132	Mode:	LTE Cat M1- B5
Frequency Range:	1 GHz - 18GHz	Test Date:	08/04/2021-08/06/2021
Antenna Type/Polarity:	Horn/Hor & Ver	Test Personnel:	Devin Tai
Remark:	N/A	Test Result:	Pass



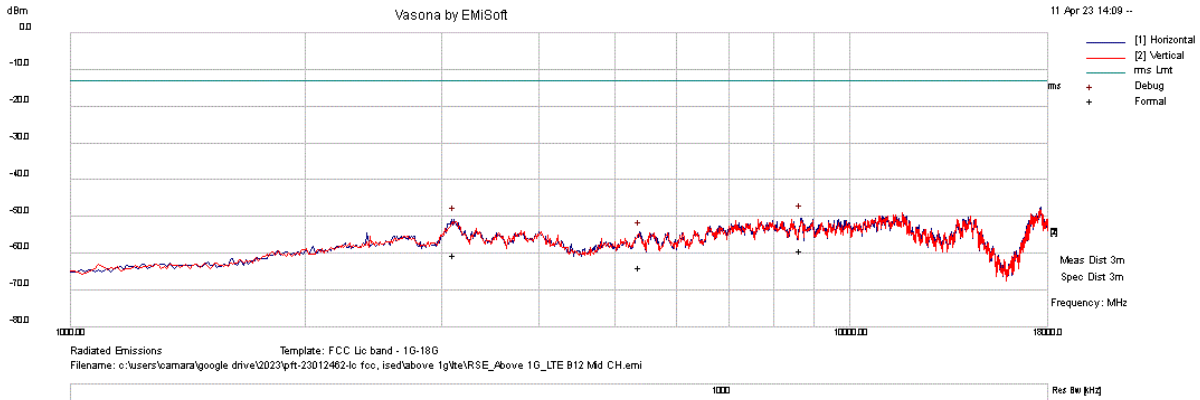
No.	Frequency MHz	Raw dBm	Cable Loss dB	AF dB/m	Level dBm	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBm	Margin dB	Pass/Fail
1	9201.609	-77.4	26.9	-5.7	-56.2	RMS Max	V	100	284	-13	-43.2	Pass
2	3347.184	-75.7	19.8	-5.5	-61.4	RMS Max	V	100	0	-13	-48.4	Pass
3	2423.14	-96.4	33.1	2.3	-61	RMS Max	V	249	215	-13	-48	Pass

Remarks:

1. Level (dBm) = Raw (dBm) + Cable loss(dB) + AF (dB/m).
2. AF (dB/m) = Antenna Factor (dB) - Preamplifier Gain (dB)
3. Margin = Level (dBm) - Limit value(dBm)

RADIATED EMISSIONS 1 - 18 GHZ

Test Standard:	Part 27 & RSS 130	Mode:	LTE Cat M1- B12
Frequency Range:	1 GHz - 18GHz	Test Date:	08/04/2021-08/06/2021
Antenna Type/Polarity:	Horn/Hor & Ver	Test Personnel:	Devin Tai
Remark:	N/A	Test Result:	Pass



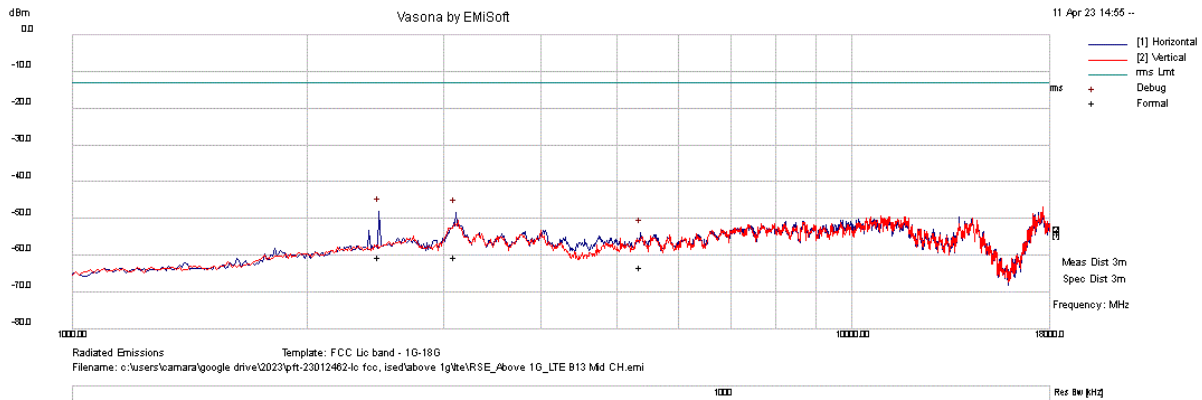
No.	Frequency MHz	Raw dBm	Cable Loss dB	AF dB/m	Level dBm	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBm	Margin dB	Pass/Fail
1	8679.282	-81.4	27.9	-5.7	-59.2	RMS Max	H	394	82	-13	-46.2	Pass
2	3109.628	-78.7	19.5	-1.2	-60.4	RMS Max	V	345	0	-13	-47.4	Pass
3	5393.157	-76.7	22.2	-9.3	-63.8	RMS Max	V	273	162	-13	-50.8	Pass

Remarks:

1. Level (dBm) = Raw (dBm) + Cable loss(dB) + AF (dB/m).
2. AF (dB/m) = Antenna Factor (dB) - Pre-amplifier Gain (dB)
3. Margin = Level (dBm) - Limit value(dBm)

RADIATED EMISSIONS 1 - 18 GHZ

Test Standard:	Part 27 & RSS 130	Mode:	LTE Cat M1- B13
Frequency Range:	1 GHz - 18GHz	Test Date:	08/04/2021-08/06/2021
Antenna Type/Polarity:	Horn/Hor & Ver	Test Personnel:	Devin Tai
Remark:	N/A	Test Result:	Pass



No.	Frequency MHz	Raw dBm	Cable Loss dB	AF dB/m	Level dBm	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBm	Margin dB	Pass/Fail
1	2478.542	-96.2	33.1	2.5	-60.6	RMS Max	H	387	247	-13	-47.6	Pass
2	3105.185	-78.9	19.5	-1	-60.4	RMS Max	H	225	43	-13	-47.4	Pass
3	5365.912	-76.4	22.1	-9.1	-63.4	RMS Max	H	121	178	-13	-50.4	Pass

Remarks:

1. Level (dBm) = Raw (dBm) + Cable loss(dB) + AF (dB/m).
2. AF (dB/m) = Antenna Factor (dB) - Pre-amplifier Gain (dB)
3. Margin = Level (dBm) - Limit value(dBm)

18GHz - 40GHz test result

Note: no substantial emission is found other than the noise floor.
Different modes have been verified.

8 EUT and Test Setup Photos



EUT _ Front View



EUT _ Rear View



EUT _ Bottom view



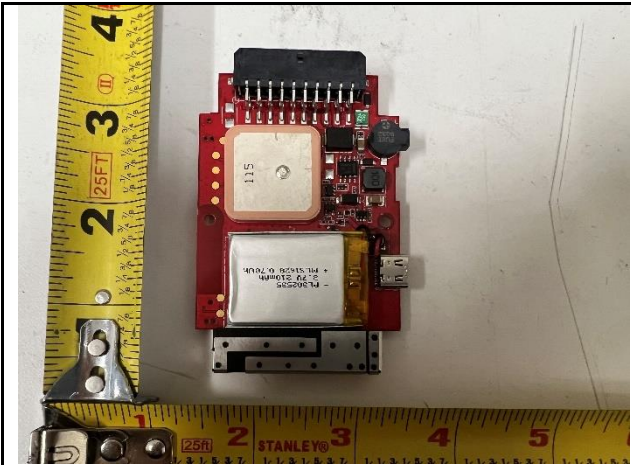
EUT _ Top view



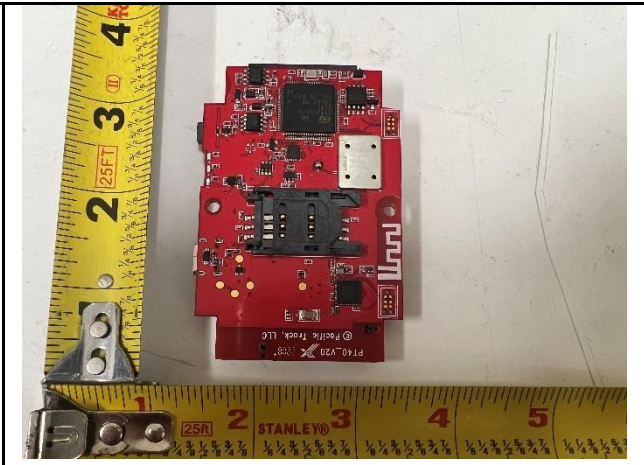
EUT _ Left view



EUT _ Right view



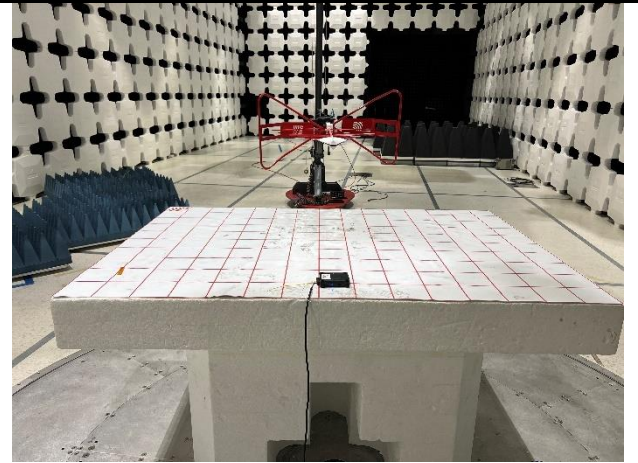
Mainboard _ Front View



Mainboard _ Rear View



Radiated Emission Test below 1GHz Front View



Radiated Emission Test below 1GHz Rear View



Radiated Emission Test above 1GHz Front View



Radiated Emission Test above 1GHz Rear View

9 Test Instrument List

Equipment	Manufacturer	Model	Instrument Number	Cal. Date	Cal. Due
Semi-Anechoic Chamber	ETS-Lindgren	10M	VL001	10/18/2022	10/18/2023
Shielding Control Room	ETS-Lindgren	Series 81	VL006	N/A	N/A
Spectrum Analyzer	Keysight	N9020A	MY50110074	06/09/2022	06/09/2023
EMC Test Receiver	R&S	ESL6	100230	06/07/2022	06/07/2023
LISN (9KHz – 30MHz)	EMCO	3816/2	9705-1066	07/12/2022	07/12/2023
Bi-Log Antenna	ETS-Lindgren	3142E	217921	07/19/2022	07/19/2023
Horn Antenna (1-18GHz)	Electro-Metrics	EM-6961	6292	07/21/2022	07/21/2023
Horn Antenna (18-40GHz)	Com-Power	AH-840	101109	07/21/2022	07/21/2023
Preamplifier	RF Bay, Inc.	LPA-10-20	11180621	07/16/2022	07/16/2023
True RMS Multi-meter	UNI-T	UT181A	C173014829	06/07/2022	06/07/2023
Temp / Humidity / Pressure Meter	PCE Instruments	PCE-THB 40	R062028	06/07/2022	06/07/2023
RF Attenuator	Pasternack	PE7005-3	VL061	07/16/2022	07/16/2023
Preamplifier 100KHz - 40GHz	Aeroflex	33711-392-77150-11	064	07/16/2022	07/16/2023
EM Center Control	ETS-Lindgren	7006-001	160136	N/A	N/A
Turn Table	ETS-Lindgren	2181-3.03	VL002	N/A	N/A
Boresight Antenna Tower	ETS-Lindgren	2171B	VL003	N/A	N/A
Loop Antenna (9k-30MHz)	Com-Power	AL-130	121012	06/10/2022	06/10/2023
RE test cable(below 6GHz)	Vista	RE-6GHz-01	RE-6GHz-01	07/16/2022	07/16/2023
RE test cable (1-18GHz)	PhaseTrack	II-240	RE-18GHz-01	07/16/2022	07/16/2023
RE test cable (>18GHz)	Sucoflex	104	344903/4	07/16/2022	07/16/2023
Pulse limiter	Com-Power	LIT-930A	531727	07/16/2022	07/16/2023
CE test cable #1	FIRST RF	FRF-C-1002-001	CE-6GHz-01	07/16/2022	07/16/2023
CE test cable#2	FIRST RF	FRF-C-1002-001	CE-6GHz-02	07/16/2022	07/16/2023

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