Vista Labs
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FCC RF Test Report

Test Report Number	FST-20013122-LC-RF-FCC-IC
FCC ID	2AVZQ-FM12218131P
ISED ID	25911-FM12218131P
Applicant	Frostime LLC
Applicant Address	1441 Broadway Suite 5011, New York, NY 10018
Product Name	FROSTMED
Model (s)	FROSTMED PRO GEN1 FROSTMED LITE GEN1
Date of Receipt	02/07/2020
Date of Test	02/07/2020-02/11/2020
Report Issue Date	04/21/2020
Test Standards	47 CFR Part 15.247 RSS-247 Issue 2, Feb 2017
Test Result	**PASS**

Issued by:

Vista Compliance Laboratories
1261 Puerta Del Sol, San Clemente, CA 92673 USA
www.vista-compliance.com

Daniel Bruno (Test Technician)

David Zhang (Technical Manager)

REVISION HISTORY

Report Number	Version	Description	Issued Date
FST-20013122-LC-RF-FCC-IC	01	Initial report	04/21/2020

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1 Test Summary

Test Item	Test Requirement	Test Method	Result
Radiated Emission Below 1GHz	47 CFR Part 15.247 RSS-247 Issue 2, Feb 2017	ANSI C63.10-2013	Pass
Radiated Emission Above 1GHz	47 CFR Part 15.247 RSS-247 Issue 2, Feb 2017	ANSI C63.10-2013	Pass

2 General Information

2.1 Applicant

Applicant	Frostime LLC
Applicant address	1441 Broadway Suite 5011, New York, NY 10018
Manufacturer	Frostime LLC
Manufacturer Address	1441 Broadway Suite 5011, New York, NY 10018

2.2 Product information

Product Name	FROSTMED
Product Description	FROSTMED PRO GEN1 Cooling device using CO2 as coolant, powered by Li-Ion battery. Cooling plate 18", 1 temperature probe, 2 CO2 canisters 2.5lb/each, Bluetooth module to communicate with an App: FROSTMED LITE GEN1 Cooling device using CO2 as coolant, powered by Li-Ion battery. Cooling plate 13", 1 temperature probe, 2 CO2 canisters 1lb/each, Bluetooth module to communicate with an App
Model Number	FROSTMED PRO GEN1
Family Models	FROSTMED LITE GEN1
Serial Number	FROSTMED PRO GEN1: 00860003258415 FROSTMED LITE GEN1: 00860003258408
Frequency Band	2400-2483.5 MHz
Type of modulation	GFSK
Equipment Class	DTS
Antenna Information	N/A
Clock Frequencies	N/A
Input Power	5VDC Li-Ion battery
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	EMC Emission Class B

2.3 Test standard and method

Test standard	47 CFR Part 15.247 RSS-247 Issue 2, Feb 2017
Test method	ANSI C63.10-2013

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
RF 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 is powered by an 5VDC Li-Ion battery. EUT has a built-in Bluetooth module to communicate with an App installed on mobile phone.

The following software was used for testing and to monitor EUT performance

Software	Description
EMISoft Vasona	EMC/RF Spurious emission test software used during testing
BLIZBOX	Mobile App Version 1.46 Used to communicate with Bluetooth module to obtain EUT real time status.

5.2 Supporting Equipment

Description	Manufacturer	Model #	Serial #
Mobile Phone	Samsung	SM-S102DL (GP)	GPSAS102DCGB

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 Radiated Spurious Emission

7.1.1 Requirement

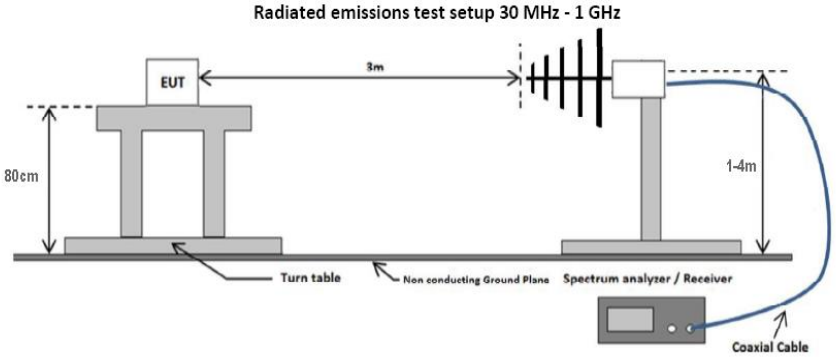
§ 15.247 (d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

Attenuation below the general limits specified in §15.209(a) and RSS-Gen is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

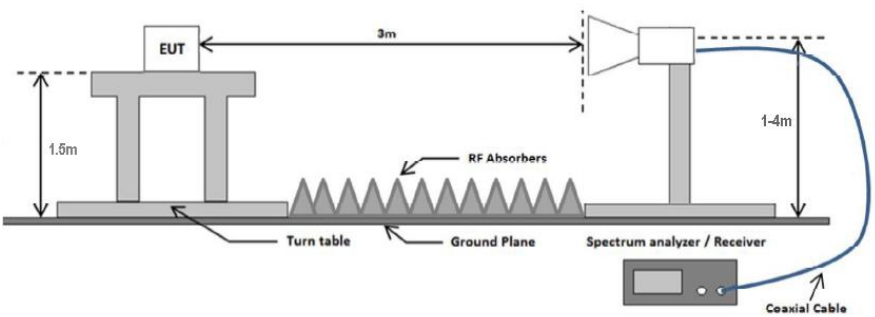
Frequency Range (MHZ)	Field Strength (μV/m)
0.009~0.490	2400/F(KHz)
0.490~1.705	24000/F(KHz)
1.705~30.0	30
30 – 88	100
88 – 216	150
216 960	200
Above 960	500

7.1.2 Test Setup

Radiated emissions test setup 30 MHz - 1 GHz



Radiated emissions test setup above 1 GHz



7.1.3 Test Procedure

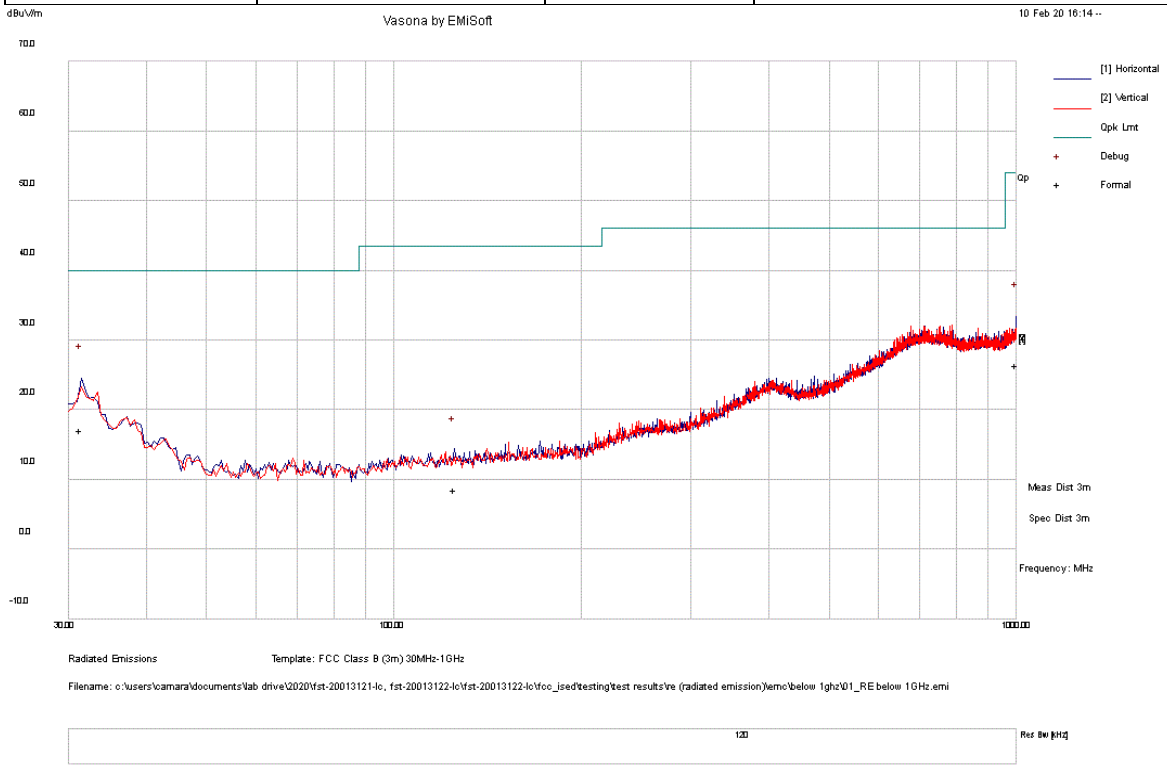
According to section 8.6 in KDB 558074 D01 DTS Meas Guidance v05r02 and subclause 11.12.2.7 Radiated spurious emission measurements in ANSI C62.10-2013 as well as the procedures for maximizing and measuring radiated emissions that are described in ANSI C63.10 was followed. Boresight antenna mast was 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

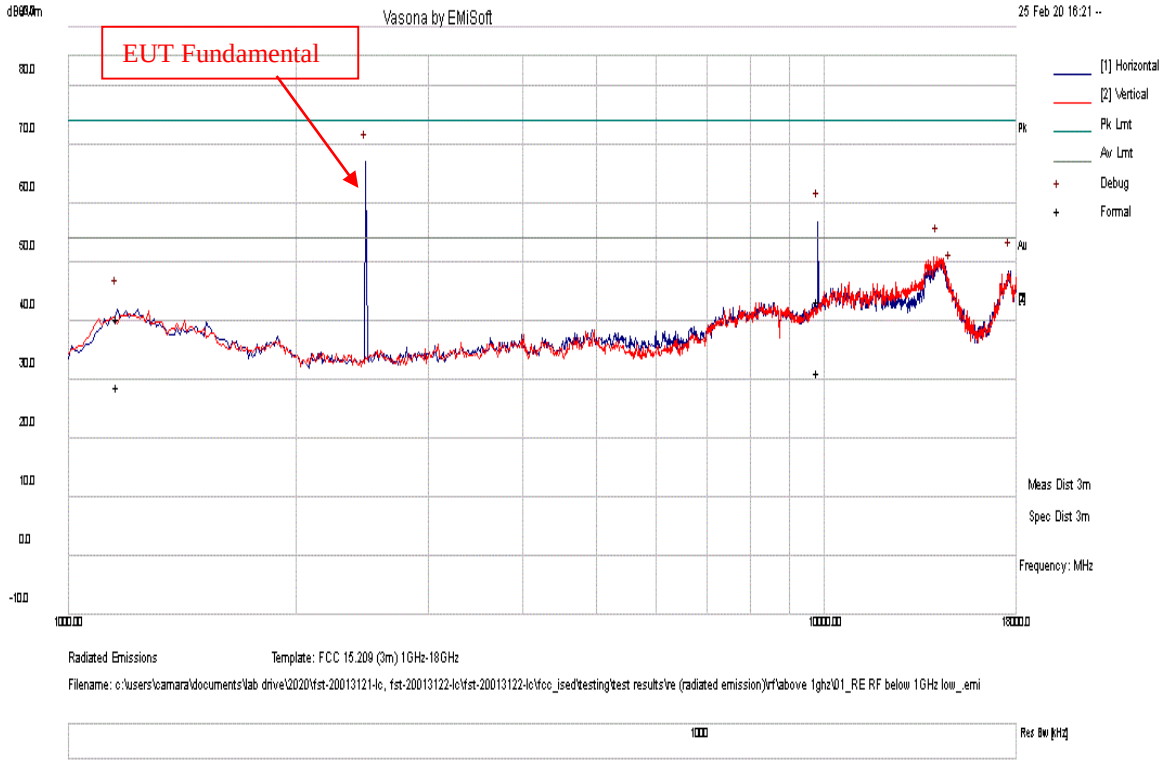
Test Standard:	15.247, RSS-247	Mode:	Radiated Emission Below 1GHz
Frequency Range:	30 MHz - 1 GHz	Test Date:	02/07/2020 - 02/26/2020
Antenna Type/Polarity:	Bi-Log/Hor & Ver	Test Personnel:	Daniel Bruno
Remark:	N/A	Test Result:	Pass



Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass/Fail
31.45	30.25	2.28	-15.46	17.07	Quasi Max	H	143	136	40.00	-22.93	Pass
1000.0	24.61	7.99	-6.18	26.42	Quasi Max	H	309	218	54.00	-27.58	Pass
125.12	27.72	3.94	-23.04	8.62	Quasi Max	H	303	113	43.50	-34.88	Pass

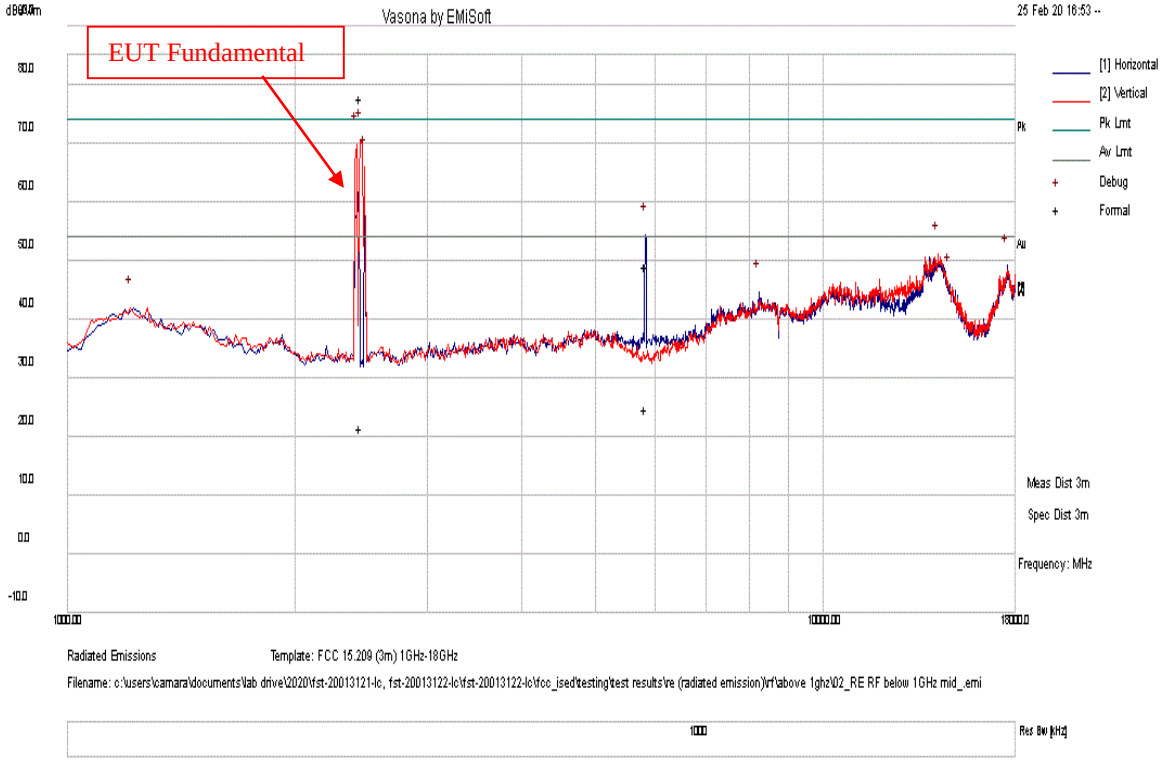
RADIATED EMISSIONS 1 - 12.75 GHZ

Test Standard:	15.209, 15.247	Mode:	Radiated Emission RF Above 1GHz Low
Frequency Range:	1 GHz - 12.75 GHz	Test Date:	02/07/2020 - 02/26/2020
Antenna Type/Polarity:	Horn/Hor & Ver	Test Personnel:	Daniel Bruno
Remark:	N/A	Test Result:	Pass



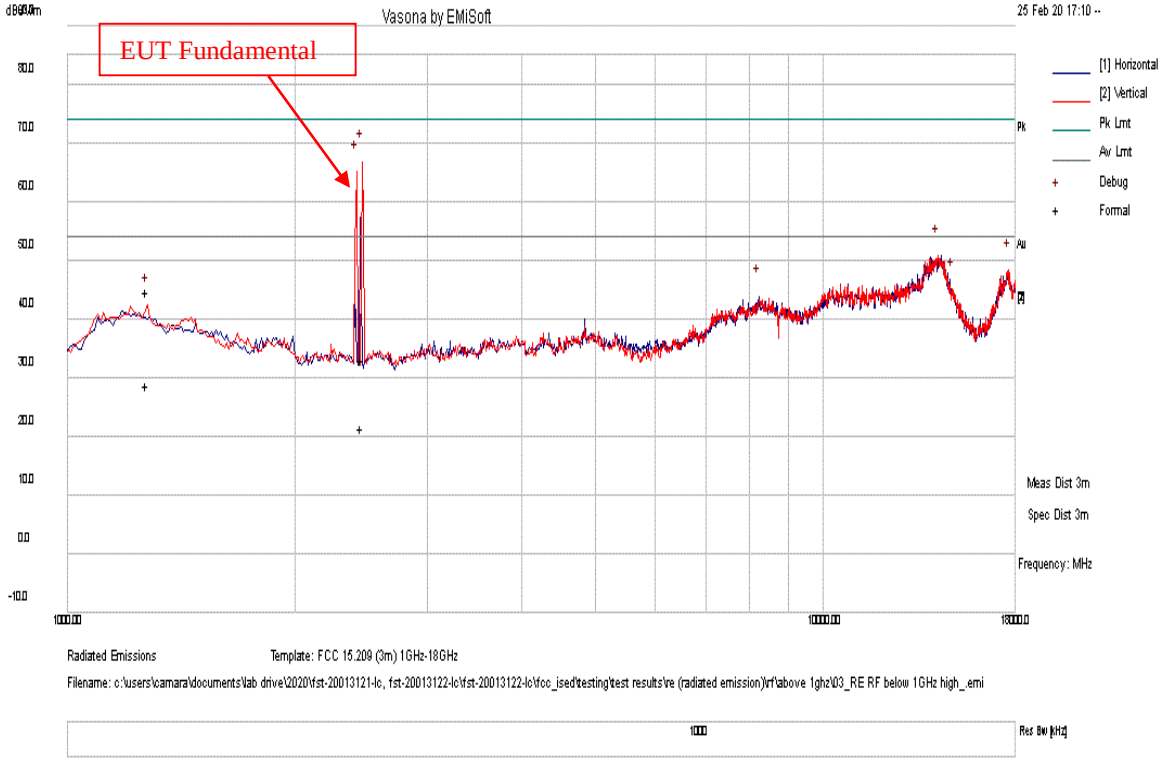
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass/Fail
9828.12	25.73	22.15	-4.46	43.42	Peak Max	H	116	292	74.00	-30.58	Pass
1160.63	45.39	14.22	-19.18	40.43	Peak Max	H	199	250	74.00	-33.57	Pass
9828.12	13.40	22.15	-4.46	31.09	Average Max	H	116	292	54.00	-22.91	Pass
1160.63	33.74	14.22	-19.18	28.78	Average Max	H	199	250	54.00	-25.22	Pass

Test Standard:	15.209, 15.247	Mode:	Radiated Emission RF Above 1GHz Mid
Frequency Range:	1 GHz - 12.75 GHz	Test Date:	02/07/2020 - 02/26/2020
Antenna Type/Polarity:	Horn/Hor & Ver	Test Personnel:	Daniel Bruno
Remark:	N/A	Test Result:	Pass



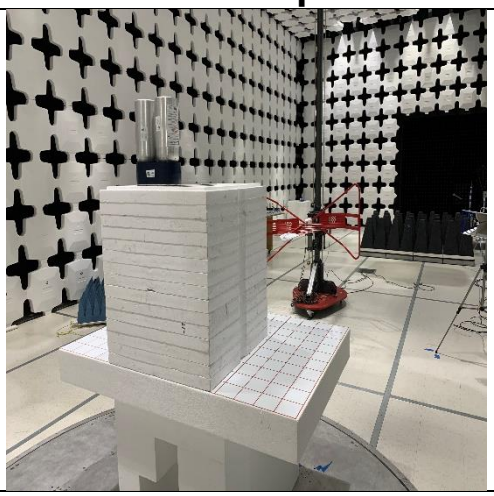
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass/Fail
5821.76	43.10	18.39	-12.47	49.02	Peak Max	H	219	213	74.00	-24.98	Pass
5821.76	18.89	18.39	-12.47	24.82	Average Max	H	219	213	54.00	-29.19	Pass

Test Standard:	15.247	Mode:	Radiated Emission RF Above 1GHz High
Frequency Range:	1 GHz - 12.75 GHz	Test Date:	02/07/2020 - 02/26/2020
Antenna Type/Polarity:	Horn/Hor & Ver	Test Personnel:	Daniel Bruno
Remark:	N/A	Test Result:	Pass

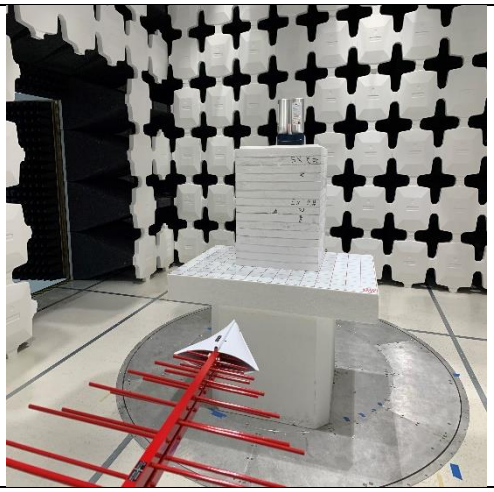


Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass/Fail
1275.81	50	14.46	-19.73	44.73	Peak Max	H	219	213	54	-29.19	Pass
1275.81	40.42	14.77	-22.07	33.11	Average Max	H	219	213	74	-24.98	Pass

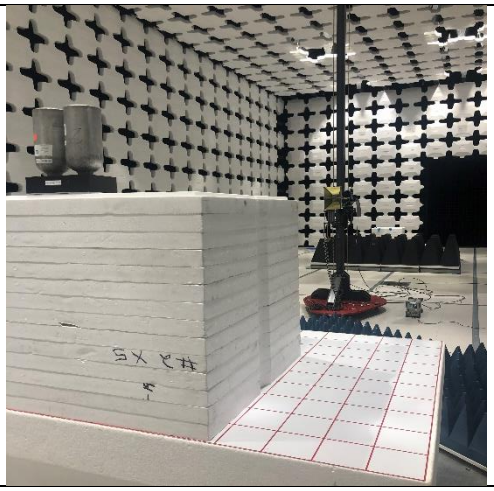
8 EUT and Test Setup Photos



RF Below 1GHz-Back



RF Below 1GHz-Front



RF Above 1GHz-Back

RF Above 1GHz-Front

9 Test Instrument List

Equipment	Manufacturer	Model	Instrument Number	Cal. Date	Cal. Due
Semi-Anechoic Chamber	ETS-Lindgren	10M	VL001	5/11/2019	5/11/2020
Shielding Control Room	ETS-Lindgren	Series 81	VL006	N/A	N/A
Spectrum Analyzer	Keysight	N9020A	MY50110074	5/4/2019	5/4/2020
EMC Test Receiver	R&S	ESL6	100230	5/7/2019	5/7/2020
LISN (9KHz – 30MHz)	EMCO	3816/2	9705-1066	5/4/2019	5/4/2020
Bi-Log Antenna	ETS-Lindgren	3142E	217921	11/15/2019	11/15/2020
Horn Antenna (1-18GHz)	Electro-Metrics	EM-6961	6292	5/2/2019	5/2/2020
Horn Antenna (18-40GHz)	Com-Power	AH-840	101109	5/2/2019	5/2/2020
Preamplifier	RF Bay, Inc.	LPA-10-20	11180621	5/10/2019	5/10/2020
True RMS Multi-meter	UNI-T	UT181A	C173014829	5/10/2019	5/10/2020
Temp / Humidity / Pressure Meter	PCE Instruments	PCE-THB 40	R062028	5/9/2019	5/9/2020
RF Attenuator	Pasternack	PE7005-3	VL061	5/10/2019	5/10/2020
Preamplifier 100KHz - 40GHz	Aeroflex	33711-392-77150-11	064	5/10/2019	5/10/2020
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	5/9/2019	5/9/2020
RE test cable(below 6GHz)	Vista	RE-6GHz-01	RE-6GHz-01	5/10/2019	5/10/2020
RE test cable (1-18GHz)	PhaseTrack	II-240	RE-18GHz-01	5/10/2019	5/10/2020
RE test cable (>18GHz)	Sucoflex	104	344903/4	5/10/2019	5/10/2020
Pulse limiter	Com-Power	LIT-930A	531727	5/15/2019	5/15/2020
CE test cable #1	FIRST RF	FRF-C-1002-001	CE-6GHz-01	5/10/2019	5/10/2020
CE test cable#2	FIRST RF	FRF-C-1002-001	CE-6GHz-02	5/9/2019	5/9/2020