



MET Laboratories, Inc. *Safety Certification - EMI - Telecom Environmental Simulation*

914 WEST PATAPSCO AVENUE • BALTIMORE, MARYLAND 21230 • PHONE (410) 354-3300 • FAX (410) 354-3313
33439 WESTERN AVENUE • UNION CITY, CALIFORNIA 94587 • PHONE (510) 489-6300 • FAX (510) 489-6372
3162 BELICK STREET • SANTA CLARA, CALIFORNIA 95054 • PHONE (408) 748-3585 • FAX (510) 489-6372
13501 MCCALLEN PASS • AUSTIN, TEXAS 78753 • PHONE (512) 287-2500 • FAX (512) 287-2513

January 5, 2018

Dakota Ultrasonics
1500 Green Hills Road #107
Scotts Valley, CA 95096

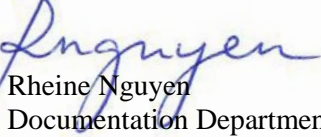
Dear William Holt,

Enclosed is the EMC test report for compliance testing of the Dakota Ultrasonics, DFX-7 USB, tested to the requirements of:

Emission Test: FCC Part 15 Subpart B (per ANSI C63.4: 2014)
for a Class B Device

Thank you for using the services of MET Laboratories, Inc. If you have any questions regarding these results or if MET can be of further service to you, please feel free to contact me.

Sincerely yours,
MET LABORATORIES, INC.



Rheine Nguyen
Documentation Department

Reference: (\\Dakota Ultrasonics\EMCS96296-Global Rev.1)

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**Electromagnetic Compatibility
Test Report**

for the

**Dakota Ultrasonics
DFX-7 USB**

Tested under

**FCC Part 15 Subpart B (per ANSI C63.4: 2014)
for a Class B Device**

**MET Report: EMCS96296-Global Rev.1
January 5, 2018**

**Prepared for:
Dakota Ultrasonics
1500 Green Hills Road #107
Scotts Valley, CA 95096**



**Prepared by:
MET Laboratories, Inc.
3162 Belick Street
Santa Clara, CA 95054**



Electromagnetic Compatibility Test Report

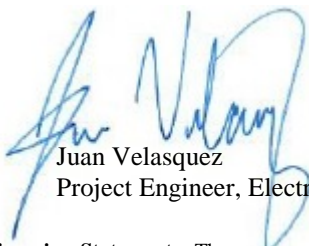
For the

**Dakota Ultrasonics
DFX-7 USB**

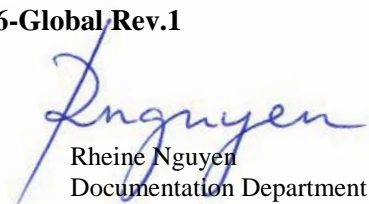
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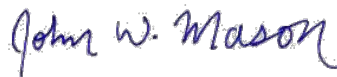


Juan Velasquez
Project Engineer, Electromagnetic Compatibility Lab



Rheine Nguyen
Documentation Department

Engineering Statement: The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the applicable limits. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements per Test Summary (Section 1.0).



John Mason
Director, Electromagnetic Compatibility Lab



Report Status Sheet

Revision	Report Date	Reason for Revision
Ø	December 13, 2017	Initial Issue.
1	January 5, 2018	Added Model Covered on page 2.



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List of Terms and Abbreviations

AC	Alternating Current	FOKI	Frequency of Key Interest
μF	microfarad	GRP	Ground Reference Plane
μH	microhenry	H	Magnetic Field
μs	microseconds	HCP	Horizontal Coupling Plane
ACF	Antenna Correction Factor	Hz	Hertz
AV	Average	IEC	International Electrotechnical Commission
Cal	Calibration	kHz	kilohertz
CE	Conducted Emissions	kPa	kilopascal
CI	Conducted Immunity	kV	kilovolt
CISPR	Comite International Special des Perturbations Radioelectriques (International Special Committee on Radio Interference)	LISN	Line Impedance Stabilization Network
d	Measurement Distance	MHz	Megahertz
dB	Decibels	MI	Magnetic Immunity
dBμA	Decibels above one microamp	PRF	Pulse Repetition Frequency
dBμA/m	Decibels above one microamp per meter	QP	Quasi Peak
dBμV	Decibels above one microvolt	RE	Radiated Emissions
dBμV/m	Decibels above one microvolt per meter	RF	Radio Frequency
DC	Direct Current	RI	Radiated Immunity
E	Electric Field	RMS	Root-Mean-Square
EFT/B	Electrical Fast Transient/Burst	V/m	Volts per meter
ESD	Electrostatic Discharge	VCP	Vertical Coupling Plane
EUT	Equipment Under Test	VDI	Voltage Dips Interruptions
f	Frequency	VF	Voltage Fluctuations



1.0 Testing Summary

The emissions tests specified below were performed with the following results:

Conducted Emissions (Mains)					
Frequency Range	Specification	Measurement (MHz)	Margin (dBμV)	Class	Compliance
0.15 – 30 MHz (120 VAC, 60 Hz)	FCC Part 15 Subpart B (per ANSI C63.4: 2014)				Not Applicable The EUT is DC powered.
Radiated Emissions					
30 MHz – 1 GHz	FCC Part 15 Subpart B (per ANSI C63.4: 2014)	83.88	-1.393	B	Compliant



2.0 Equipment Configuration

2.1. Overview

MET Laboratories, Inc. was contracted by Dakota Ultrasonics to perform testing on the DFX-7 USB, under Dakota Ultrasonics, Quote: 1DAK0504R2.

This document describes the test setups, test methods, required test equipment, and the test limit criteria used to perform compliance testing of the Dakota Ultrasonics, DFX-7 USB.

In accordance with §2.955(a) (3), the following data is presented in support of the verification of the Dakota Ultrasonics, DFX-7 USB. Dakota Ultrasonics should retain a copy of this document which should be kept on file for at least two years after the manufacturing of the DFX-7 USB has been **permanently** discontinued, as per §2.955(b).

The results obtained relate only to the item(s) tested.

Model(s) Tested:	DFX-7 PLUS USB
Model(s) Covered:	DFX-7 USB DFX-7 PLUS USB CMX COLOR USB
Primary Power as Tested:	3 x AA 1.5 V
Equipment Emissions Class:	B
Highest frequency generated or used by the EUT:	9.6 MHz
Evaluated by:	Juan Velasquez
Report Date:	January 5, 2018

2.1.1. Test Site

All testing was performed at MET Laboratories, Inc., 3162 Belick St., Santa Clara, CA 95054. All equipment used in making physical determinations is accurate and bears recent traceability to the National Institute of Standards and Technology.

MET Laboratories is an ISO/IEC 17025 accredited site by A2LA, California #0591.02.

Radiated Emissions measurements were performed in a semi-anechoic chamber. In accordance with §2.948(a)(3), a complete site description is contained at MET Laboratories.

2.1.2. Measurement Uncertainty

Test Method	Typical Expanded Uncertainty (dB)	K	Confidence Level
Radiated Emissions, (30 MHz – 1 GHz)	±3.24	2	95%

Table 1: Uncertainty Calculations Summary

2.2. Detailed EUT Description and Test Setup

2.2.1. Description of Test Sample

The DFX-7 USB, Equipment Under Test (EUT), is used to measure metal thickness and also look for flaws.

2.2.2. Photograph(s) of Test Sample



Photograph 1. Front View of DFX-7 USB



Photograph 2. Bottom View of DFX-7 USB



Photograph 3. Left View of DFX-7 USB



Photograph 4. Right View of DFX-7 USB



Photograph 5. Top View of DFX-7 USB

2.2.3. Block Diagram

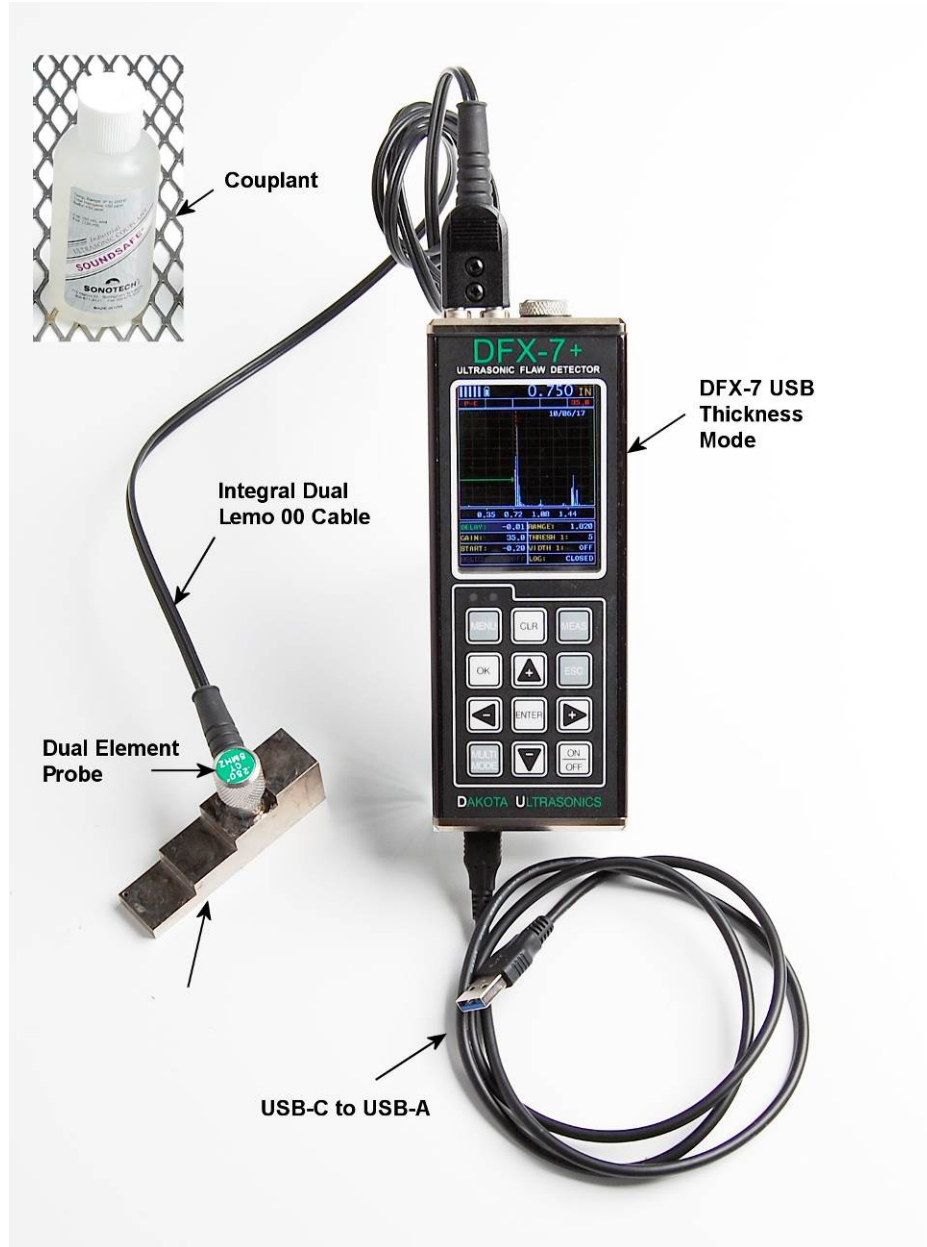


Figure 1. Block Diagram of Test Configuration (Thickness)

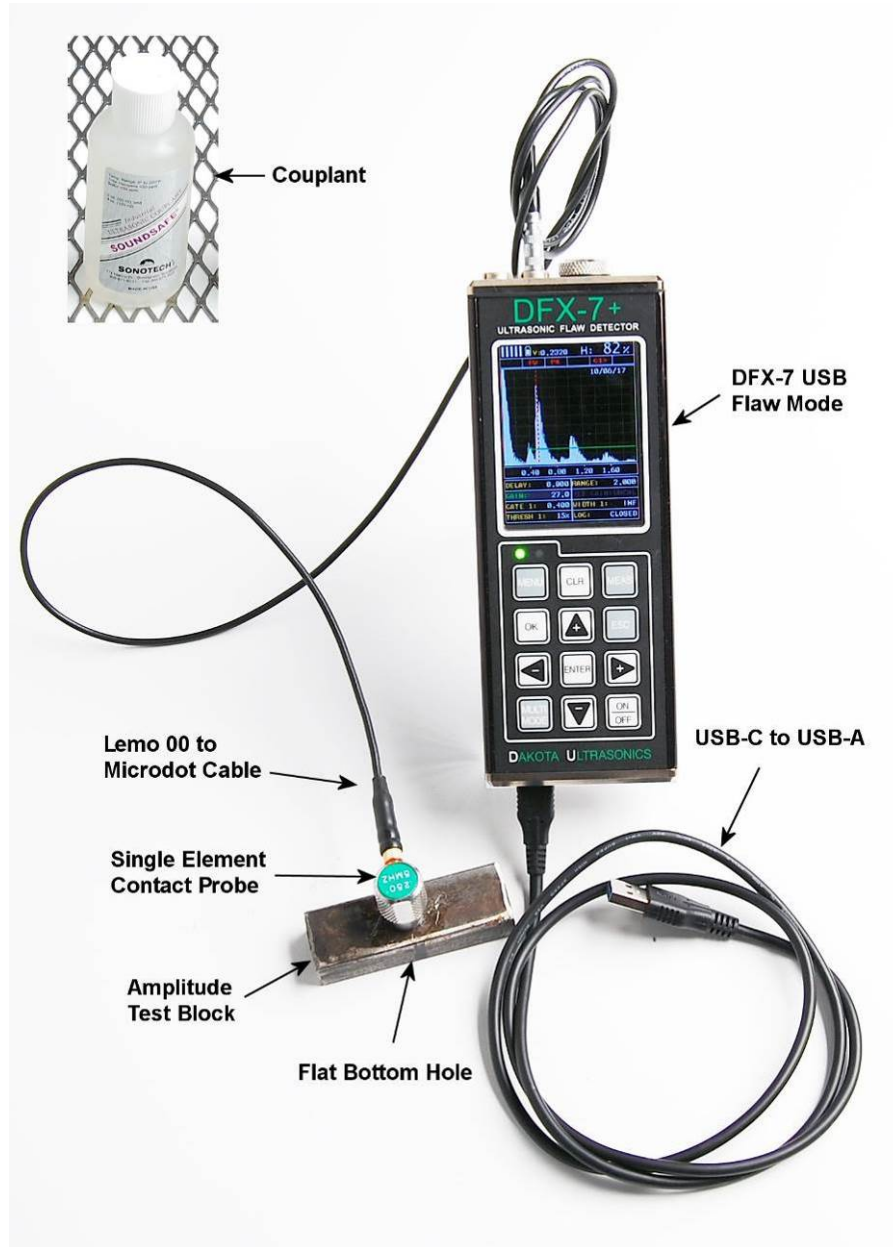


Figure 2. Block Diagram of Test Configuration (Flow)



2.2.4. Equipment Configuration

The EUT was setup as outlined in Figure 1 and Figure 2. All equipment incorporated as part of the EUT is included in the following list.

Ref. ID	Name / Description	Model Number	Part Number	Serial Number	Rev. #
1	DFX-7-USB	Z-221-0003	NA	80101	NA
2	DFX-7-USB	Z-221-0003	NA	80102	NA

Table 2. Equipment Configuration

2.2.5. Support Equipment

Support equipment necessary for the operation and testing of the EUT is included in the following list.

Name / Description	Manufacturer	Model Number	*Customer Supplied Calibration Data
Dual Element Trans	Dakota	T-102-2900	NA
Single Elements Trans	Dakota	T-4023-2845	NA
Test Block Flaw	NA	None	NA
Test Block Thickness	NA	None	NA

Table 3. Support Equipment

* All 'customer supplied' support equipment will include the equipments calibration data. This column will be marked as either not applicable, not available, or will contain the calibration date supplied by the customer.

2.2.6. Ports and Cabling Information

Port name on EUT	Cable Description or reason for no cable	Qty.	Length as tested (m)	Max Length (m)	Shielded (Y/N)
Transducer	Integral to Trans	1	1	3	Y
Transducer	Lemo Microdot	1	1	3	Y
USB C	USB C to USB A	2	1	3	Y

Table 4. Ports and Cabling Information

2.2.7. Mode of Operation & Method of Monitoring EUT Operation

The EUT was operated in the following manner:

1. Amplitude of Signal – For sizing flaws, unit must report “screen height” of echo reflection.
2. Time of Flight – For thickness, measurement unit must measure transit time.

Performance of the EUT was monitored in the following manner:

1. Amplitude Test – Signal height is adjusted to 80% screen height. Readout should remain at $80\% \pm 1$ dB. (89% to 71.3%)
2. T.O.F Test – Transducer is mounted on ½” block – thickness reading should remain stable ± 0.002 inch.

2.2.8. Modifications to EUT

No modifications were made to the EUT.

2.2.9. Test Software Used

MET Labs uses software to gather information from test instrumentation.

For Conducted Emissions, the current version is: PMM Release Suite Rev 2.04 and Jamila CE Rev 5.3.

For Radiated Emissions testing, the current version is: Jamila RE Rev 4.0.

2.2.10. Disposition of EUT

The test sample including all support equipment (if any), submitted to the Electro-Magnetic Compatibility Lab for testing was returned to Dakota Ultrasonics upon completion of testing.



3.0 Electromagnetic Compatibility Emission Criteria

3.1. Radiated Emission: Limits of Electromagnetic Radiation Disturbance

3.1.1. Test Method, Test Requirements, and Test Procedures

3.1.1.1. Test Method

The following standards specified below are covered in the scope of this test report:

Standard	Region	Applicability	
		30 - 1000 MHz <i>Semi-anechoic test environment</i>	> 1 GHz <i>Free-Space test environment</i>
FCC Part 15 Subpart B, Section 15.109(a) (b) (per ANSI C63.4: 2014)	United States	Yes	No

3.1.1.2. Test Requirements

For radiated emission, the EUT shall meet the Class B radiated emission limits shown in Table 5.

Frequency (MHz)	Field Strength dB(μV/m)	
	§15.109 (b), Class A Limit dB(μV/m) @ 10m	§15.109 (a), Class B Limit dB(μV/m) @ 3m
30 – 88	39.00	40.00
88 – 216	43.50	43.50
216 – 230	46.40	46.00
230 – 960	46.40	46.00
960 – 1000	49.50	54.00
Above 1 GHz		
1000 – 3000	49.50	54.00
3000 – 6000	49.50	54.00
6000 – 40000	49.50	54.00

If the highest frequency generated or used in the device or on which the device operates or tunes is:

- less than 108 MHz, the upper frequency of measurement range is 1000 MHz
- between 108 MHz – 500 MHz, the upper frequency of measurement range in 2000 MHz
- between 500 – 1000 MHz, the upper frequency of measurement range is 5000 MHz
- above 1000 MHz, the upper frequency of measurement range is the 5th harmonic of the highest frequency or 40 GHz, whichever is lower

Table 5. Radiated Emissions Limits calculated per FCC Part 15, §15.109 (a) (b)

Sample Calculation for Distance Correction factor (DCF) measurement:

$$F_d = 20 * \text{LOG}_{10} (D_m/D_s)$$

where:

F_d = Distance Factor in dB

D_m = Measurement Distance in meters

D_s = Specification Distance in meters



Sample formula for calculating the Corrected Data for the Radiated Emissions Measurements:

Frequency (MHz)	Antenna Polarity	EUT Azimuth (Degrees)	Antenna Height (cm)	Uncorrected Amplitude (dBuV)	ACF (dB/m) (+)	Pre Amp Gain (dB)(-)	CBL (dB) (+)	DCF (dB) (+)	Corrected Amplitude (dBuV/m)	Limit (dBuV/m)	Margin (dB)
249.99	V	359.9	240.7	55.46	11.4	28.335	0	0	38.525	47	-8.475

$$\begin{aligned} \text{Corrected Amplitude (dBuV/m)} &= \text{Uncorrected Amplitude (dBuV)} + \text{ACF (dB)} - \text{Preamp Gain (dB)} + \text{CBL (dB)} + \text{DCF (dB)}^{**} \\ &= 55.46 + 11.4 - 28.355 + 0 + 0 = \mathbf{38.525} \end{aligned}$$

3.1.1.3. Test Procedure

The EUT was setup in a semi-anechoic chamber (test chamber asset number listed under test results). Various antennas were placed near the EUT and measurements were taken of the field strengths and frequencies. For final measurements different measurement distances were used in accordance with applicable standards as listed under radiated emissions results section.

For pre-scanning, the EMI receiver scanned the desired frequency range (as listed under test results) to obtain an emission profile of the EUT. For each point of measurement, the turntable was rotated, and the antenna height was varied between 1 m and 4 m, in order to find the maximum radiated emissions. Measurements above 30 MHz were taken using this technique with the antenna in two polarizations: horizontal and vertical. Unless otherwise specified, measurements were made using a peak detector with a 120 kHz bandwidth (30 MHz – 1 GHz) and 1 MHz bandwidth (Above 1 GHz).

All peak emissions, within 20 dB of the limit, were reviewed and the six highest peaks were re-measured using a quasi-peak or average detector as appropriate. The antenna beam width (w) used for the measurement range of 1 GHz to 6 GHz was at least 50 degrees in the given range.



3.1.2. Test Results, Test Data, Test Setup, and Test Equipment List

3.1.2.1. Test Result

The EUT was **compliant** with the Class B requirement(s) of this section. Measured emissions were below applicable limits.

Environmental Conditions for Radiated Emission	
Ambient Temperature:	22.5°C
Relative Humidity:	41%
Atmospheric Pressure:	100 kPa

Test Engineer(s): Juan Velasquez

Test Date(s): 10/09/2017

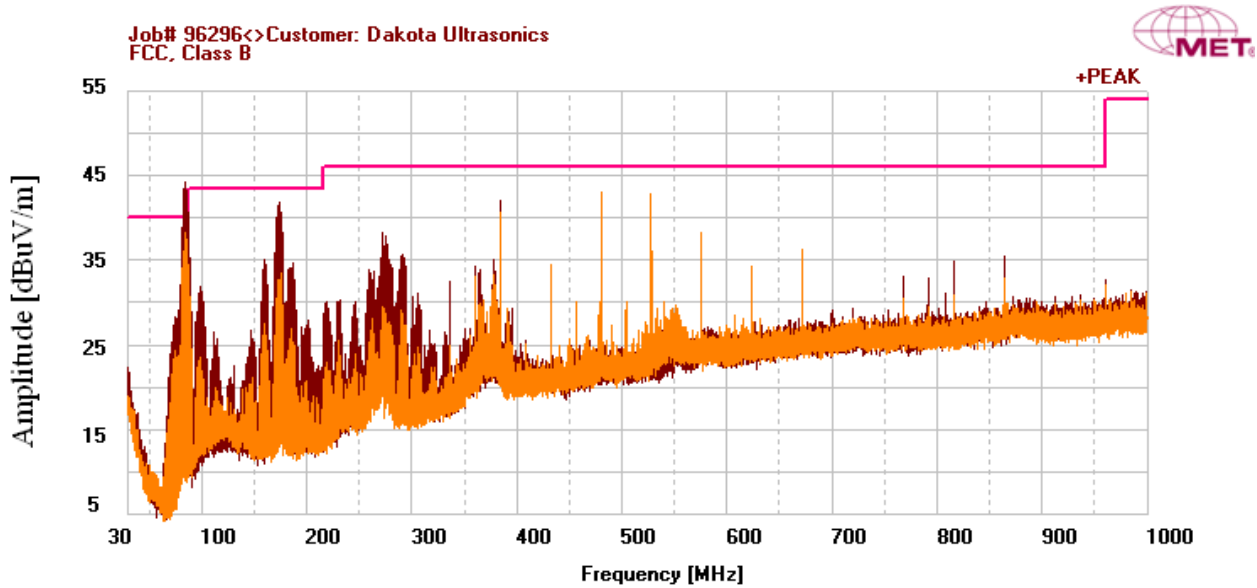


3.1.2.2. Test Data


Frequency (MHz)	Antenna Polarity	EUT Azimuth (Degrees)	Antenna Height (cm)	Uncorrected Amplitude (dBuV)	ACF (dB/m)	Pre Amp Gain (dB)	CBL (dB)	DCF (dB)	Corrected Amplitude (dBuV)	Limit (dBuV)	Margin (dB)
83.64	V	237	339.76	18.3	8.328	0	1.615	0	28.243	40	-11.757
*83.88	H	110	383.88	28.9	8.088	0	1.619	0	38.607	40	-1.393
174.4	H	86	198.17	22.8	9.8	0	2.35	0	34.95	43.5	-8.55
384	H	157	100	22.8	16.04	0	3.533	0	42.373	46	-3.627
384	V	274	129.35	22.3	15.62	0	3.533	0	41.453	46	-4.547
480	V	320	106	20.5	17.7	0	3.928	0	42.128	46	-3.872
528	V	7	100	19.8	18.08	0	4.155	0	42.035	46	-3.965

Table 6. RE - (30 MHz – 1 GHz) Test Results

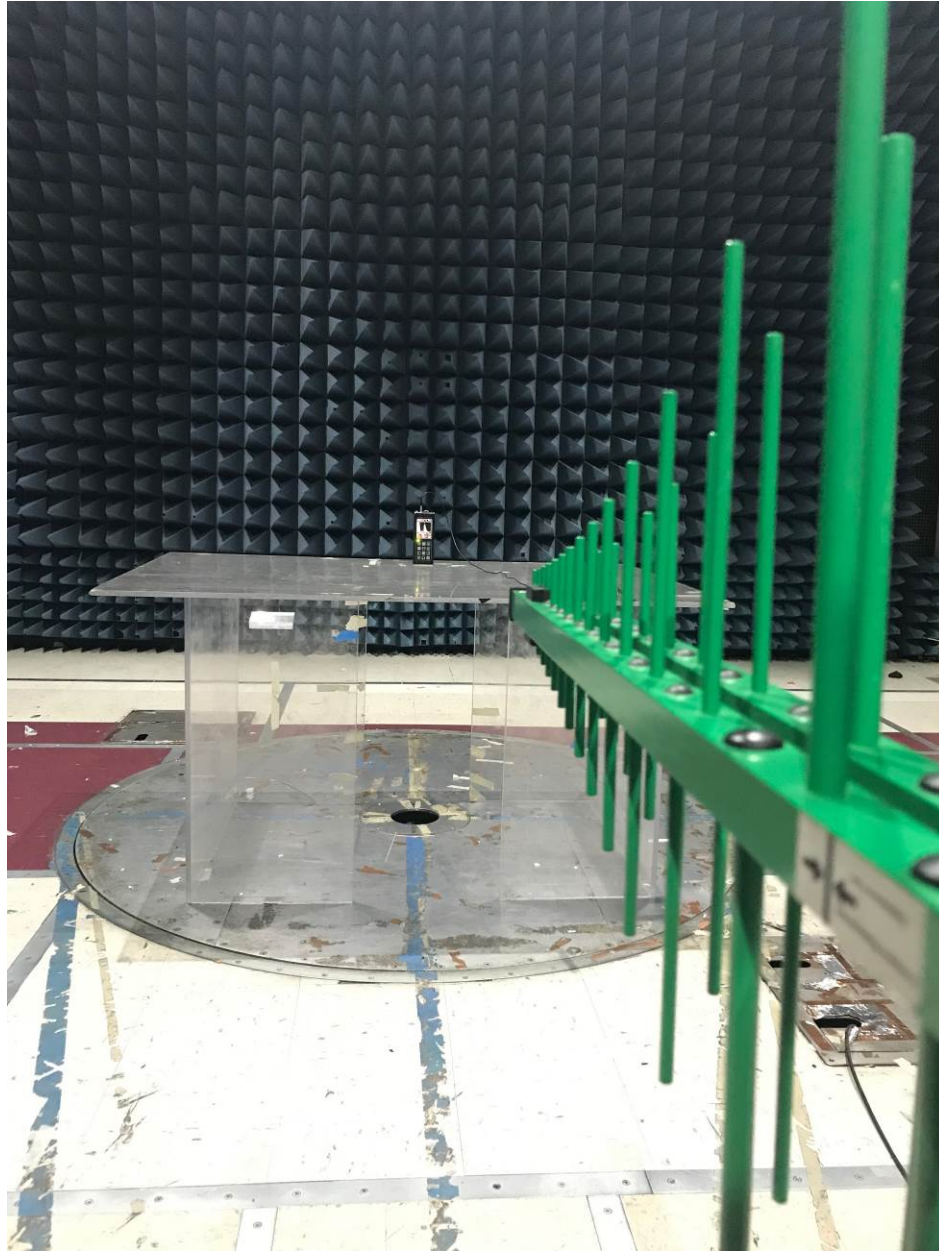
Note: * - At this frequency, the measured electric-field strength exhibits a margin of compliance that is less than 3 dB below the specification limit. We recommend that every emission measured, have at least a 3 dB margin to allow for deviations in the emission characteristics that may occur during the production process.



Plot 1. RE - (30 MHz – 1 GHz), Plot

 = Vertical Polarization
 = Horizontal Polarization

3.1.2.3. Test Setup Photograph



Photograph 6. RE Test Setup



3.1.2.4. Test Equipment List

Calibrated test equipment utilized during testing was maintained in a current state of calibration per the requirements of ISO/IEC 17025:2005.

Test Name: RE			Test Date(s): 10/09/2017		
MET Asset #	Equipment	Manufacturer	Model	Last Cal Date	Cal Due Date
1S2399	Turntable Controller	SUNOL SCIENCE	SC99V	Not Required	Not Required
1S3928	EMI Tester Receiver	Rohde & Schwarz	ESR26	10/28/2016	10/28/2017
1S2482	5 Meter Chamber (NSA)	Panashield	5 Meter Semi-Anechoic Chamber	Not Required	Not Required
1S2600	Bilog Antenna	Teseq	CBL6112D	11/28/2016	11/28/2018

Table 7. RE Test Equipment List



4.0 FCC Part 15 Subpart B Compliance Information

4.1. Verification Information

The following is extracted from Title 47 of the Code of Federal Regulations, Part 2, Subpart I — Marketing of Radio frequency devices:

§ 2.801 Radio-frequency device defined.

As used in this part, a radio-frequency device is any device which in its operation is capable of Emitting radio-frequency energy by radiation, conduction, or other means. Radio- frequency devices include, but are not limited to:

- (a) The various types of radio communication transmitting devices described throughout this chapter.
- (b) *The incidental, unintentional and intentional radiators defined in Part 15 of this chapter.*
- (c) The industrial, scientific, and medical equipment described in Part 18 of this chapter.
- (d) Any part or component thereof which in use emits radio-frequency energy by radiation, conduction, or other means.

§ 2.803 Marketing of radio frequency devices prior to equipment authorization.

- (a) Except as provided elsewhere in this chapter, no person shall sell or lease, or offer for sale or lease (including advertising for sale or lease), or import, ship or distribute for the purpose of selling or leasing or offering for sale or lease, any radio frequency device unless:
 - (1) In the case of a device subject to certification, such device has been authorized by the Commission in accordance with the rules in this chapter and is properly identified and labeled as required by §2.925 and other relevant sections in this chapter; or
 - (2) In the case of a device that is not required to have a grant of equipment authorization issued by the Commission, but which must comply with the specified technical standards prior to use, such device also complies with all applicable administrative (including verification of the equipment or authorization under a Declaration of Conformity, where required), technical, labeling and identification requirements specified in this chapter.
- (d) Notwithstanding the provisions of paragraph (a) of this section, the offer for sale solely to business, commercial, industrial, scientific or medical users (but not an offer for sale to other parties or to end users located in a residential environment) of a radio frequency device that is in the conceptual, developmental, design or pre-production stage is permitted prior to equipment authorization or, for devices not subject to the equipment authorization requirements, prior to a determination of compliance with the applicable technical requirements *provided* that the prospective buyer is advised in writing at the time of the offer for sale that the equipment is subject to the FCC rules and that the equipment will comply with the appropriate rules before delivery to the buyer or to centers of distribution.



- (e)(1) Notwithstanding the provisions of paragraph (a) of this section, prior to equipment authorization or determination of compliance with the applicable technical requirements any radio frequency device may be operated, but not marketed, for the following purposes and under the following conditions:
- (i) *Compliance testing*;
 - (ii) Demonstrations at a trade show provided the notice contained in paragraph (c) of this section is displayed in a conspicuous location on, or immediately adjacent to, the device;
 - (iii) Demonstrations at an exhibition conducted at a business, commercial, industrial, scientific or medical location, but excluding locations in a residential environment, provided the notice contained in paragraphs (c) or (d) of this section, as appropriate, is displayed in a conspicuous location on, or immediately adjacent to, the device;
 - (iv) Evaluation of product performance and determination of customer acceptability, provided such operation takes place at the manufacturer's facilities during developmental, design or pre-production states; or
 - (v) Evaluation of product performance and determination of customer acceptability where customer acceptability of a radio frequency device cannot be determined at the manufacturer's facilities because of size or unique capability of the device, provided the device is operated at a business, commercial, industrial, scientific or medical user's site, but not at a residential site, during the development, design or pre-production stages.
- (e)(2) For the purpose of paragraphs (e)(1)(iv) and (e)(1)(v) of this section, the term *manufacturer's facilities* includes the facilities of the party responsible for compliance with the regulations and the manufacturer's premises, as well as the facilities of other entities working under the authorization of the responsible party in connection with the development and manufacture, but not the marketing, of the equipment.
- (f) For radio frequency devices subject to verification and sold solely to business, commercial, industrial, scientific and medical users (excluding products sold to other parties or for operation in a residential environment), parties responsible for verification of the devices shall have the option of ensuring compliance with the applicable technical specifications of this chapter at each end user's location after installation, provided that the purchase or lease agreement includes a provision that such a determination of compliance be made and is the responsibility of the party responsible for verification of the equipment.



The following is extracted from Title 47 of the Code of Federal Regulations, Part 2, Subpart J — Equipment Authorization Procedures:

§ 2.901 Basis and Purpose

- (a) In order to carry out its responsibilities under the Communications Act and the various treaties and international regulations, and in order to promote efficient use of the radio spectrum, the Commission has developed technical standards for radio frequency equipment and parts or components thereof. The technical standards applicable to individual types of equipment are found in that part of the rules governing the service wherein the equipment is to be operated.¹ *In addition to the technical standards provided, the rules governing the service may require that such equipment be verified by the manufacturer or importer, be authorized under a Declaration of Conformity, or receive an equipment authorization from the Commission by one of the following procedures: certification or registration.*
- (b) The following sections describe the verification procedure, the procedure for a Declaration of Conformity, and the procedures to be followed in obtaining certification from the Commission and the conditions attendant to such a grant.

§ 2.902 Verification.

- (a) *Verification is a procedure where the manufacturer² makes measurements or takes the necessary steps to insure that the equipment complies with the appropriate technical standards. Submission of a sample unit or representative data to the Commission demonstrating compliance is not required unless specifically requested by the Commission pursuant to § 2.957, of this part.*
- (b) Verification attaches to all items subsequently marketed by the manufacturer or importer which are identical as defined in § 2.908 to the sample tested and found acceptable by the manufacturer.

¹ In this case, the equipment is subject to the rules of Part 15. More specifically, the equipment falls under Subpart B (of Part 15), which deals with unintentional radiators.

² In this case, MET Laboratories, Inc. is acting as an agent of the manufacturer.



§ 2.948 Description of measurement facilities.

- (a) Each party making measurements of equipment that is subject to an equipment authorization under Part 15 or Part 18 of this chapter, regardless of whether the measurements are filed with the Commission or kept on file by the party responsible for compliance of equipment marketed within the U.S. or its possessions, shall compile a description of the measurement facilities employed.
 - (1) If the measured equipment is subject to the verification procedure, the description of the measurement facilities shall be retained by the party responsible for verification of the equipment.
 - (i) *If the equipment is verified through measurements performed by an independent laboratory, it is acceptable for the party responsible for verification of the equipment to rely upon the description of the measurement facilities retained by or placed on file with the Commission by that laboratory. In this situation, the party responsible for the verification of the equipment is not required to retain a duplicate copy of the description of the measurement facilities.*
 - (ii) If the equipment is verified based on measurements performed at the installation site of the equipment, no specific site calibration data is required. It is acceptable to retain the description of the measurement facilities at the site at which the measurements were performed.
 - (2) If the equipment is to be authorized by the Commission under the certification procedure, the description of the measurement facilities shall be filed with the Commission's Laboratory in Columbia, Maryland. The data describing the measurement facilities need only be filed once but must be updated as changes are made to the measurement facilities or as otherwise described in this section. At least every three years, the organization responsible for filing the data with the Commission shall certify that the data on file is current.

§ 2.952 Limitation on verification.

- (a) Verification signifies that the manufacturer or importer has determined that the equipment has been shown to be capable of compliance with the applicable technical standards if no unauthorized change is made in the equipment and if the equipment is properly maintained and operated. Compliance with these standards shall not be construed to be a finding by the manufacturer or importer with respect to matters not encompassed by the Commission's rules.
- (b) Verification of the equipment by the manufacturer or importer is effective until a termination date is otherwise established by the Commission.
- (c) No person shall, in any advertising matter, brochure, etc., use or make reference to a verification in a deceptive or misleading manner or convey the impression that such verification reflects more than a determination by the manufacturer or importer that the device or product has been shown to be capable of compliance with the applicable technical standards of the Commission's rules.



§ 2.953 Responsibility for compliance.

- (a) In verifying compliance, the responsible party, as defined in §2.909 warrants that each unit of equipment marketed under the verification procedure will be identical to the unit tested and found acceptable with the standards and that the records maintained by the responsible party continue to reflect the equipment being produced under such verification within the variation that can be expected due to quantity production and testing on a statistical basis.
- (b) The importer of equipment subject to verification may upon receiving a written statement from the manufacturer that the equipment complies with the appropriate technical standards rely on the manufacturer or independent testing agency to verify compliance. The test records required by §2.955 however should be in the English language and made available to the Commission upon a reasonable request, in accordance with §2.956.
- (c) In the case of transfer of control of equipment, as in the case of sale or merger of the grantee, the new manufacturer or importer shall bear the responsibility of continued compliance of the equipment.
- (d) Verified equipment shall be re-verified if any modification or change adversely affects the emanation characteristics of the modified equipment. The party designated in §2.909 bears responsibility for continued compliance of subsequently produced equipment.

§ 2.954 Identification.

Devices subject only to verification shall be uniquely identified by the person responsible for marketing or importing the equipment within the United States. However, the identification shall not be of a format which could be confused with the FCC Identifier required on certified, notified or type accepted equipment. The importer or manufacturer shall maintain adequate identification records to facilitate positive identification for each verified device.

§ 2.955 Retention of records.

- (a) For each equipment subject to verification, the responsible party, as shown in §2.909 shall maintain the records listed as follows:
 - (1) A record of the original design drawings and specifications and all changes that have been made that may affect compliance with the requirements of §2.953.
 - (2) A record of the procedures used for production inspection and testing (if tests were performed) to insure the conformance required by §2.953. (Statistical production line Emission testing is not required.)
- (b) The records listed in paragraph (a) of this section shall be retained for two years after the manufacture of said equipment item has been permanently discontinued, or until the conclusion of an investigation or a proceeding if the manufacturer or importer is officially notified that an investigation or any other administrative proceeding involving his equipment has been instituted.



§ 2.956 FCC inspection and submission of equipment for testing.

- (a) Each responsible party shall upon receipt of reasonable request:
- (1) Submit to the Commission the records required by §2.955.
 - (2) Submit one or more sample units for measurements at the Commission's Laboratory.
 - (i) Shipping costs to the Commission's Laboratory and return shall be borne by the responsible party.
 - (ii) In the event the responsible party believes that shipment of the sample to the Commission's Laboratory is impractical because of the size or weight of the equipment, or the power requirement or for any other reason, the responsible party may submit a written explanation why such shipment is impractical and should not be required.

Label and User's Manual Information

The following is extracted from Title 47 of the Code of Federal Regulations, Part 15, Subpart A — General:

§ 15.19 Labeling requirements.

- (a) *In addition to the requirements in Part 2 of this chapter, a device subject to certification or verification shall be labeled as follows:*
- (1) Receivers associated with the operation of a licensed radio service, e.g., FM broadcast under Part 73 of this chapter, land mobile operation under Part 90, etc., shall bear the following statement in a conspicuous location on the device:

This device complies with Part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.
 - (2) A stand-alone cable input selector switch, shall bear the following statement in a conspicuous location on the device:

This device is verified to comply with Part 15 of the FCC Rules for use with cable television service.
 - (3) All other devices shall bear the following statement in a conspicuous location on the device:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



- (4) Where a device is constructed in two or more sections connected by wires and marketed together, the statement specified under paragraph (a) of this section is required to be affixed only to the main control unit.
- (5) When the device is so small or for such use that it is not practicable to place the statement specified under paragraph (a) of this section on it, the information required by this paragraph shall be placed in a prominent location in the instruction manual or pamphlet supplied to the user or, alternatively, shall be placed on the container in which the device is marketed. However, the FCC identifier or the unique identifier, as appropriate, must be displayed on the device.

§ 15.21 Information to user.

The user's manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

The following is extracted from Title 47 of the Code of Federal Regulations, Part 15, Subpart B — Unintentional Radiators:

§ 15.105 Information to the user.

- (a) For a Class A digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at own expense.

- (b) For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/ TV technician for help.