REGULATORY COMPLIANCE TEST REPORT

FCC CFR 47 Part 15 B & ICES-003

Report No.: WISE05-U2 Rev A

Company: Ingeniería WiseConn Spa

Model: RF-C1-900HP-LTE-SCR-WG

REGULATORY COMPLIANCE TEST REPORT

Company Name: Ingeniería WiseConn Spa

Model Name: RF-C1-900HP-LTE-SCR-WG

To: FCC CFR 47 Part 15 Subpart B & ICES-003

Test Report Serial No.: WISE05-U2 Rev A

This report supersedes: NONE

Applicant:	Ingeniería WiseConn Spa Alcántara 200 Las Condes, Santiago 7550159 Chile
Product Function:	Wireless Controller
Issue Date:	30th July 2021

This Test Report is Issued Under the Authority of:

MiCOM Labs, Inc.
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A2LA ACCREDITED
TESTING CERT #2381.01

MiCOM Labs is an ISO 17025 Accredited Testing Laboratory

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1. ACCREDITATION, LISTINGS & RECOGNITION

1.1. TESTING ACCREDITATION

MiCOM Labs, Inc. is an accredited Electrical testing laboratory per the international standard ISO/IEC 17025:2017. The company is accredited by the American Association for Laboratory Accreditation (A2LA) www.a2la.org test laboratory number 2381.01. MiCOM Labs test schedule is available at the following URL; http://www.a2la.org/scopepdf/2381-01.pdf

Accredited Laboratory

A2LA has accredited

MICOM LABS

Pleasanton, CA

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated April 2017*).

Presented this 24th day of February 2020.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2381.01
Valid to November 30, 2021

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

1.2. RECOGNITION

MiCOM Labs, Inc has widely recognized wireless testing and certification capabilities. In addition to being recognized for Testing and Certification under Phase 2 agreements with Canada, Europe, United Kingdom and Japan, our international recognition includes Conformity Assessment Body designation under Phase 1 agreements with APEC MRA countries. MiCOM Labs test reports are accepted globally.

Country	Recognition Body	Status	MRA Phase	Identification No.
USA	Federal Communications Commission (FCC)	TCB	-	US0159 Test Site Designation #: US1084
Canada	Canada ISED	FCB	APEC MRA 2	US0159 Test Company #: 4143A
Japan	MIC (Ministry of Internal Affairs and Communication)	CAB	Japan MRA 2	RCB 210
	Japan Approvals Institute for Telecommunication Equipment (JATE)			
	VCCI	--	--	A-0012
Europe	European Commission	NB	EU MRA 2	NB 2280
United Kingdom	Department for Business, Energy & Industrial Strategy (BEIS)	AB	UK MRA 2	AB 2280
Mexico	Instituto Federal de Telecomunicaciones (IFT)	CAB	Mexico MRA 1	US0159
Australia	Australian Communications and Media Authority (ACMA)	CAB	APEC MRA 1	US0159
Hong Kong	Office of the Telecommunication Authority (OFTA)			
Korea	Ministry of Information and Communication Radio Research Laboratory (RRL)			
Singapore	Infocomm Development Authority (IDA)			
Taiwan	National Communications Commission (NCC) Bureau of Standards, Metrology and Inspection (BSMI)			
Vietnam	Ministry of Communication (MIC)			

TCB- Telecommunications Certification Bodies (TCB)
FCB – Foreign Certification Body
CAB – Conformity Assessment Body
NB – Notified Body;
AB – Approved Body
MRA – Mutual Recognition Agreement
MRA Phase I - recognition for product testing
MRA Phase II – recognition for both product testing and certification

1.3. PRODUCT CERTIFICATION

MiCOM Labs, Inc. is an accredited Product Certification Body per the international standard ISO/IEC 17065:2012. The company is accredited by the American Association for Laboratory Accreditation (A2LA) www.a2la.org test laboratory number 2381.02. MiCOM Labs test schedule is available at the following URL; http://www.a2la.org/scopepdf/2381-02.pdf

Accredited Product Certification Body

A2LA has accredited

MiCOM LABS

Pleasanton, CA

This product certification body is accredited in accordance with the recognized International Standard ISO/IEC 17065:2012 *Requirements for bodies certifying products, processes and services*. This product certification body also meets the *A2LA R322 – Specific Requirements – Notified Body Accreditation Requirements* and *A2LA R308 - Specific Requirements - ISO-IEC 17065 - Telecommunication Certification Body Accreditation Program*. This accreditation demonstrates technical competence for a defined scope and the operation of a management system.

Presented this 24th day of February 2020

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2381.02
Valid to November 30, 2021

For the product certification schemes to which this accreditation applies, please refer to the organization's Product Certification Scope of Accreditation.

United States of America – Telecommunication Certification Body (TCB)
Industry Canada – Certification Body, CAB Identifier – US0159
Europe – Notified Body (NB), NB Identifier – 2280
United Kingdom – Approved Body (AB), AB Identified - AB 2280
Japan – Recognized Certification Body (RCB), RCB Identifier - 210

2. DOCUMENT HISTORY

Document History		
Revision	Date	Comments
Draft	14th July 2021	Draft report for client review
Rev A	30th July 2021	Initial release.

In the above table the latest report revision will replace all earlier versions.

MiCOM Labs, 575 Boulder Court, Pleasanton, California 94566 USA, Phone: +1 (925) 462 0304, Fax: +1 (925) 462 0306, www.micomlabs.com

3. TEST RESULT CERTIFICATE

Manufacturer:	Ingeniería WiseConn Spa Alcántara 200 Las Condes, Santiago 7550159 Chile	**Tested By:**	MiCOM Labs, Inc. 575 Boulder Court Pleasanton, California 94566 USA
Model:	RF-C1-900HP-LTE-SCR-WG	**Telephone:**	+1 925 462 0304
Equipment Type:	Wireless Controller	**Fax:**	+1 925 462 0306
S/N's:	1917002		
Test Date(s):	4th – 14th June 2021	**Website:**	www.micomlabs.com

STANDARD(S)	TEST RESULTS
FCC CFR 47 Part 15 Subpart B FCC ICES-003	EQUIPMENT COMPLIES

MiCOM Labs, Inc. tested the equipment mentioned in accordance with the requirements set forth in the above standards. Test results indicate that the equipment tested is capable of demonstrating compliance with the requirements as documented within this report.

Notes:

1. This document reports conditions under which testing was conducted and the results of testing performed.

2. Details of test methods used have been recorded and kept on file by the laboratory.

3. Test results apply only to the item(s) tested.

A2LA ACCREDITED TESTING CERT #2381.01

Approved & Released for MiCOM Labs, Inc. by:

Graeme Grieve
Quality Manager MiCOM Labs, Inc.

Gordon Hurst
President & CEO MiCOM Labs, Inc.

4. REFERENCES AND MEASUREMENT UNCERTAINTY

4.1. Normative References

REF.	PUBLICATION	YEAR	TITLE
I	A2LA	October 2020	R105 - Requirement's When Making Reference to A2LA Accreditation Status
II	ETSI TR 100 028	2001-12	Parts 1 and 2 Electromagnetic compatibility and Radio Spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics
III	M 3003	Edition 3 Nov.2012	Expression of Uncertainty and Confidence in Measurements
IV	ICES-003	October 2020	Information Technology Equipment (including Digital Apparatus)
V	RSS-Gen Issue 5	March 2019 Amendment 1	General Requirements for Compliance of Radio Apparatus
VI	FCC CFR 47 Part 15 Subpart B	2020	Title 47 CFR Part 15, Subpart B; Unintentional Radiators

4.2. Test and Uncertainty Procedure

Conducted and radiated emission measurements were conducted in accordance with American National Standards Institute ANSI C63.4, listed in the Normative References section of this report.

Measurement uncertainty figures are calculated in accordance with ETSI TR 100 028 Parts 1 and 2.

Measurement uncertainties stated are based on a standard uncertainty multiplied by a coverage factor k = 2, providing a level of confidence of approximately 95 % in accordance with UKAS document M 3003 listed in the Normative References section of this report.

5. PRODUCT DETAILS AND TEST CONFIGURATIONS

5.1. Technical Details

Details	Description
Purpose:	Test of the WiseConn RF-C1-900HP-LTE-SCR-WG to FCC CFR 47 Part 15 Subpart B & ICES-003
Applicant:	Ingeniería WiseConn Spa Alcántara 200 Las Condes Santiago 7550159 Chile
Manufacturer:	Ingeniería WiseConn Spa
Laboratory performing the tests:	MiCOM Labs, Inc. 575 Boulder Court Pleasanton California 94566 USA
Test report reference number:	WISE05-U2 Rev A
Date EUT received:	4th June 2021
Standard(s) applied:	FCC CFR 47 Part 15 Subpart B & ICES-003
Dates of test (from - to):	4th – 14th June 2021
No of Units Tested:	1
Type of Equipment:	Wireless Controller
Product Family Name:	RF-C1
Model(s):	RF-C1-900HP-LTE-SCR-WG
Location for use:	Indoor/Outdoor
Serial No.:	1917002
Rated Input Voltage and Current:	AC/DC PS: Input: 100-240V 50/60 Hz 1.8A Solar: 5V 1.6A Battery: 3.7V, 6A
Operating Temperature Range:	Nominal 20 ºC Max: +60 ºC Min: -10 ºC
Equipment Dimensions:	9 x 4 x 9 in
Weight:	3.82 Lb
Hardware Rev:	BU-C1 R002G
Software Rev:	V_6_2_3

5.2. Scope Of Test Program

Ingeniería WiseConn Spa RF-C1-900HP-LTE-SCR-WG

The scope of the test program was to test the Ingeniería WiseConn Spa RF-C1-900HP-LTE-SCR-WG for compliance against the following specification:

FCC CFR 47 Part 15 Subpart B
Radio Frequency Devices; Subpart **B** – Unintentional Radiators

ISED ICES-003
Information Technology Equipment (including Digital Apparatus)

Note: No expansions or interfaces provided with system, System tested as stand-alone controller without interfaces

5.3. External A.C/D.C. Power Adaptor

AC/DC Adapter
Arson Nuova Model: YSD60-2403000 IP: 100-240 V_{AC} 50/60 Hz, 1.8A OP: 24V 3A

5.4. Cabling and I/O Ports

The following is a description of the cable and input / output ports available on the EUT;

- Cabling & I/O:
  - DC Input: 2 / Terminal
  - DC Output: 6 / Terminal
  - Serial Interface: 3 / Terminal
  - Digital Input: 10 / Terminal
  - Analog Input: 4 / Terminal
  - Relay Output: 10 / Terminal
  - RF Module: 2 / Pins

Note: No interface cables or support equipment provided with system, System tested as stand-alone controller without interfaces.

5.5. Equipment Model(s) and Serial Number(s)

Type (EUT/ Support)	Equipment Description (Including Brand Name)	Mfr.	Model No.	Serial No.
EUT	Drip Controller RF-C1	WiseConn	RF-C1-900HP-LTE-SCR-WG	1994001
PS	AC /DC PS	Arson Nuova	YSD60-2403000	--
RF Module	DIGI 900 MHz Mesh	DIGI	XBEE 900 AU	--
Cell Module	DIGI Cell Modem	DIGI	XBEE 3 Cell LTE-M/NB-IoT	--
Support	Solar Cell	Topray Solar	Model TPS-107S(36)-50W	--

5.6. Equipment Modifications

The following modifications were required to bring the equipment into compliance:
1. NONE

5.7. Deviations from the Test Standard

The following deviations from the test standard were required in order to complete the test program:
1. NONE

6. TEST SUMMARY

The following table represent the list of measurements required under the FCC CFR 47 Part 15B and ISED ICES-003 standards;

TABLE OF REQUIRED TESTS – Class A Emissions

Test Standard	Description	Limits	Compliance
FCC Part 15B / ICES-003	Radiated Emissions	Class A	Complies
FCC Part 15B / ICES-003	AC Mains Conducted Emissions	Class A	Complies

7. TEST RESULTS

7.1. EMC EMISSIONS TEST RESULTS

7.1.1 Radiated Emissions

FCC, Part 15 Subpart B §15.109
ISED ICES-003 Section 3.2.2

Test Procedure

Testing 30 – 18000 MHz was performed in a anechoic chamber using a CISPR compliant receiver. Preliminary radiated emissions were measured on every azimuth and with the receiving antenna in both horizontal and vertical polarizations. To further maximize emissions the receive antenna was varied between 1 and 4 meters. The emissions are recorded with receiver in peak hold mode.

Emissions nearest the limits were chosen for maximization and formal measurement using a CISPR Compliant receiver. Emissions from 30 MHz – 1000 MHz are measured utilizing a CISPR compliant quasi-peak detector with a tuned receiver, using a bandwidth of 120 kHz. Emissions above 1000 MHz are measured utilizing a CISPR compliant average detector with a tuned receiver, using a bandwidth of 1 MHz. Only the highest emissions relative to the limit are listed.

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Loss, and subtracting Amplifier Gain from the measured reading. All factors are included in the reported data.

FS = R + AF + CORR – FO

FS = Field Strength
R = Measured Spectrum analyzer Input Amplitude
AF = Antenna Factor
FO = Distance Falloff Factor

CORR = Correction Factor = CL – AG + NFL

CL = Cable Loss
AG = Amplifier Gain
NFL = Notch Filter Loss or Waveguide Loss

Field Strength Calculation Example:

Given receiver input reading of 51.5 dBμV; Antenna Factor of 8.5 dB; Cable Loss of 1.3 dB; Falloff Factor of 0 dB, an Amplifier Gain of 26 dB and Notch Filter Loss of 1 dB. The Field Strength of the measured emission is:

FS = 51.5 + 8.5 + 1.3 - 26.0 +1 = 36.3 dBμV/m

Conversion between dBμV/m (or dBμV) and μV/m (or μV) are done as:

Level (dBμV/m) = 20 * Log (level (μV/m))

40 dBμV/m = 100 μV/m
48 dBμV/m = 250 μV/m

FCC and IC Spurious Emissions Limits

FCC, Part 15 Subpart B §15.109
ISED ICES-003 Section 3.2.2

Except for Class A digital device, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values.

Limits below 1 GHz:

The FCC limits are slightly lower in some sub bands and represent the more stringent requirements.

Class A limits

Frequency(MHz)	Quasi-peak Limit (dBµV/m)		Measurement Distance (meters)	Quasi-peak Limit (dBµV/m)		Measurement Distance (meters)
	ISED	FCC		ISED	FCC	
30 to 88	40.0	39.0	10	50.0	49.5	3
88 - 216	43.5	43.5	10	54.0	54.0	3
216 - 230	46.4	46.4	10	56.9	56.9	3
230 - 960	47.0		10	57.0		3
960 - 1000	49.5	49.5	10	60.0	60.0	3

Class B limits

Frequency(MHz)	Quasi-peak Limit (dBµV/m)		Measurement Distance (meters)	Quasi-peak Limit (dBµV/m)		Measurement Distance (meters)
	ISED	FCC		ISED	FCC	
30 to 88	30.0	29.5	10	40.0	40.0	3
88 - 216	33.1	33.0	10	43.5	43.5	3
216 - 230	35.6	35.6	10	46.0	46.0	3
230 - 960	37.0		10	47.0		3
960 - 1000	43.5	43.5	10	54.0	54.0	3

Manufacturer states No Clock sources > 108 MHz. No testing above 1 GHz required.

Limits above 1GHz:

Frequency(MHz)	Average Limit (dBµV/m)	Peak Limit (dBµV/m)	Measurement Distance (meters)	Class (A/B)
1 000 to 6000	54	74	3	Class B

Frequency(MHz)	Average Limit (dBµV/m)	Peak Limit (dBµV/m)	Measurement Distance (meters)	Class (A/B)
1 000 to 6000	60	80	3	Class A

Traceability

Laboratory Measurement Uncertainty	
Measurement uncertainty	+5.6/ -4.5 dB

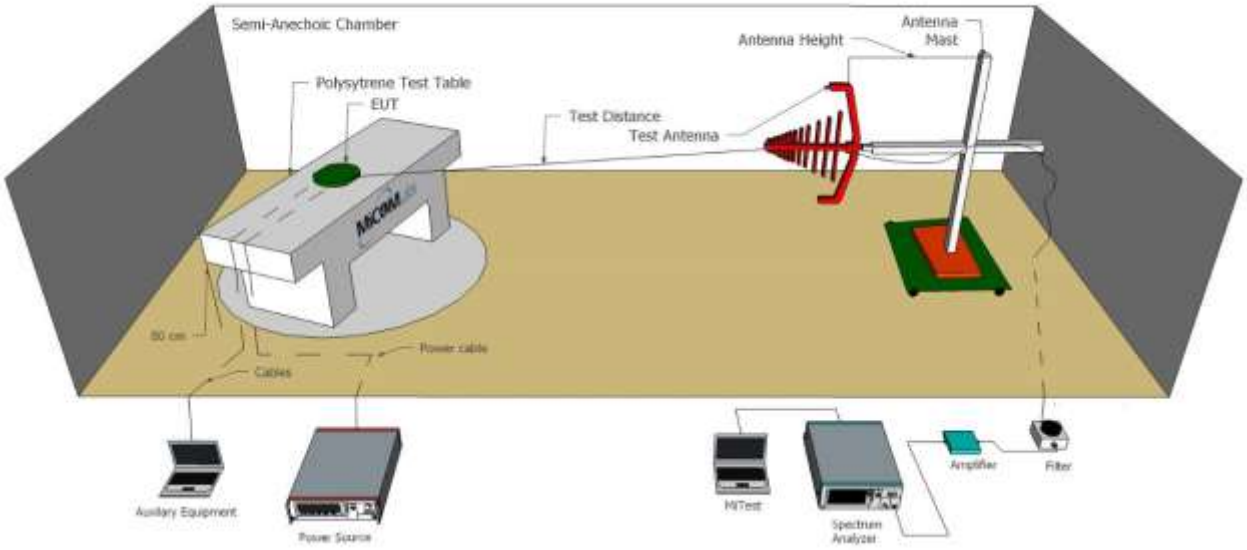
Method
Work instruction WI-EMC-07: Radiated Emissions Test

Test Equipment Utilized

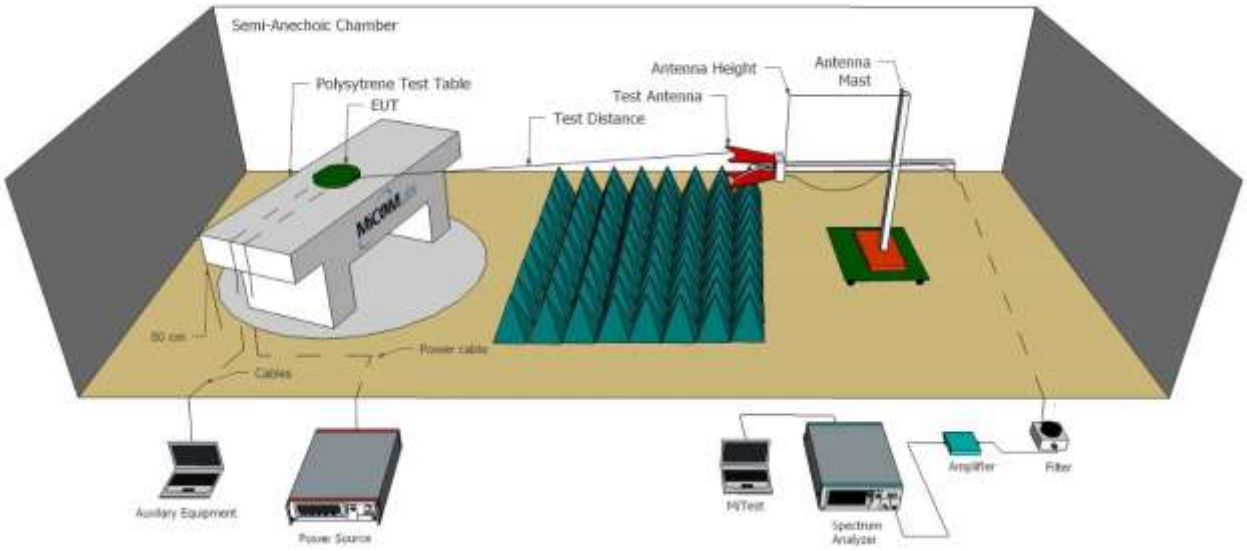
Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
170	Video System Controller for Semi Anechoic Chamber	Panasonic	WV-CU101	04R08507	Not Required
287	Rohde & Schwarz 40 GHz Receiver	Rhode & Schwarz	ESIB40	100201	8 Oct 2021
298	3M Radiated Emissions Chamber Maintenance Check	MiCOM	3M Chamber	298	26 Sep 2021
330	Variac 0-280 Vac	Staco Energy Co	3PN1020B	0546	Cal when used
338	Sunol 30 to 3000 MHz Antenna	Sunol	JB3	A052907	4 Oct 2021
377	Band Rejection Filter 5150 to 5880MHz	Microtronics	BRM50716	034	4 Sep 2021
396	2.4 GHz Notch Filter	Microtronics	BRM50701	001	4 Sep 2021
397	Amp 10 - 2500MHz	MiCOM Labs	Amp 10 - 2500 MHz	NA	9 Sep 2021
399	ETS 1-18 GHz Horn Antenna	ETS	3117	00154575	12 Sep 2021
406	Amplifier for Radiated Emissions	MiCOM Labs	40dB 1 to 18GHz Amp	0406	9 Sep 2021
410	Desktop Computer	Dell	Inspiron 620	WS38	Not Required
411	Mast/Turntable Controller	Sunol Sciences	SC98V	060199-1D	Not Required
412	USB to GPIB Interface	National Instruments	GPIB-USB HS	11B8DC2	Not Required
413	Mast Controller	Sunol Science	TWR95-4	030801-3	Not Required
415	Turntable Controller	Sunol Sciences	Turntable Controller	None	Not Required
447	MiTest Rad Emissions Test Software	MiCOM	Rad Emissions Test Software Version 1.0	447	Not Required
462	Schwarzbeck cable from Antenna to Amplifier.	Schwarzbeck	AK 9513	462	4 Sep 2021
463	Schwarzbeck cable from Amplifier to Bulkhead.	Schwarzbeck	AK 9513	463	4 Sep 2021
464	Schwarzbeck cable from Bulkhead to Receiver	Schwarzbeck	AK 9513	464	4 Sep 2021
466	Low Pass Filter DC-1500 MHz	Mini-Circuits	NLP-1750+	VUU10401438	4 Sep 2021
480	Cable - Bulkhead to Amp	SRC Haverhill	157-3050360	480	4 Sep 2021
481	Cable - Bulkhead to Receiver	SRC Haverhill	151-3050787	481	4 Sep 2021
510	Barometer/Thermometer	Control Company	68000-49	170871375	20 Dec 2021
518	Cable - Amp to Antenna	SRC Haverhill	157-3051574	518	4 Sep 2021
CC05	Confidence Check	MiCOM	CC05	None	4 Sep 2021

Test Setup for Radiated Emissions for above and below 1 GHz

Radiated Emissions Below 1GHz Test Setup

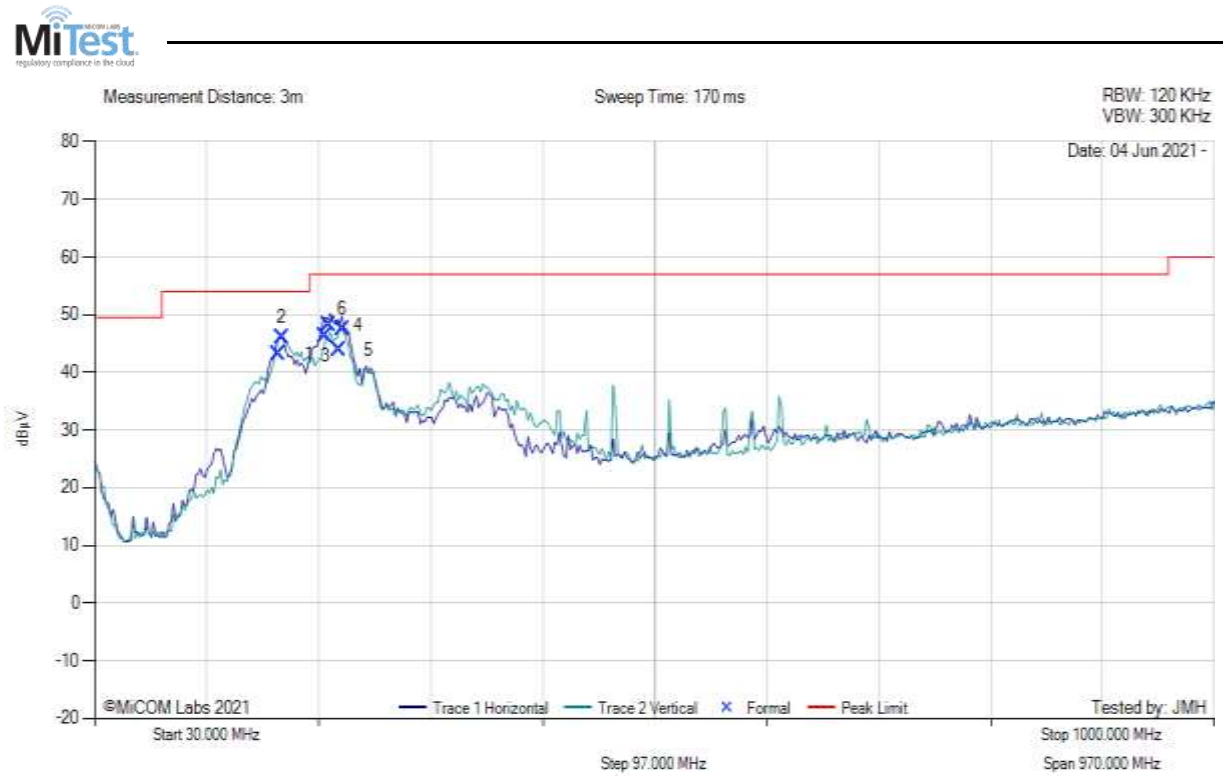


Radiated Emissions Above 1GHz Test Setup



7.1.2.1. 30-1000MHz

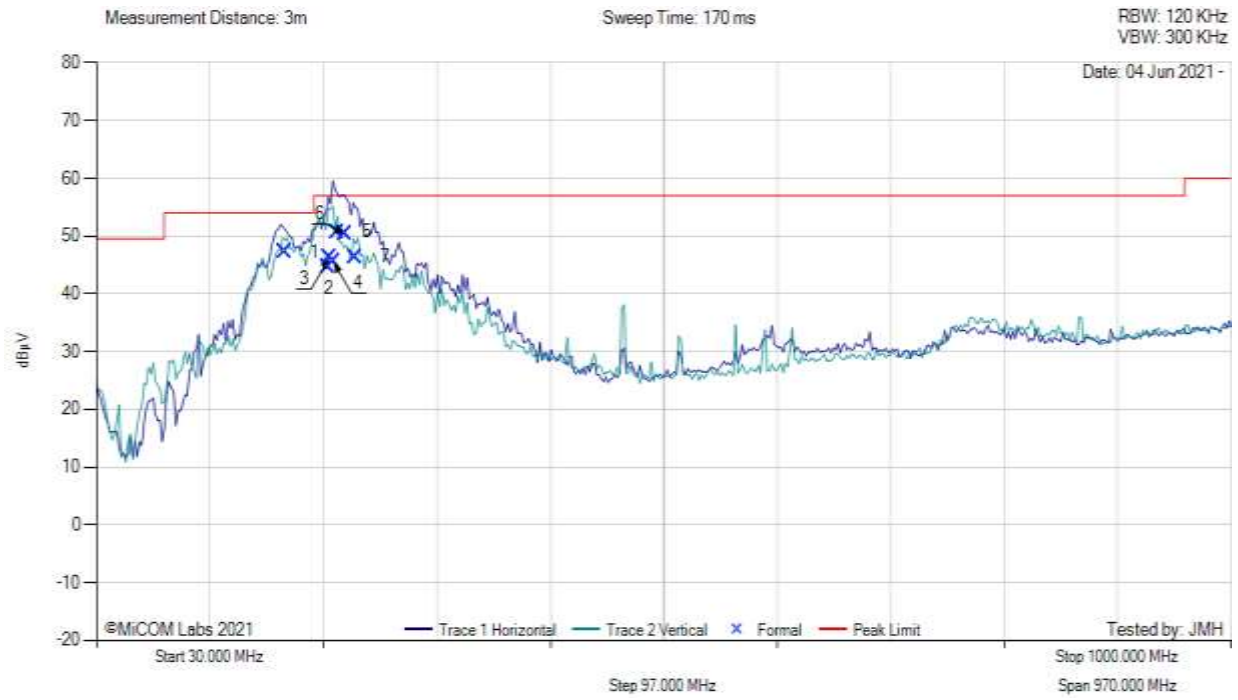
Model:	RF-C1	Configuration tested:	Battery Powered
Input power:	3.7V	Standard:	FCC Part 15B



30.00 - 1000.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB/m	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	189.50	55.52	4.48	-16.91	43.09	MaxQP	Vertical	193	14	54.0	-10.9	Pass
2	191.91	58.33	4.49	-16.73	46.09	MaxQP	Horizontal	98	189	54.0	-7.9	Pass
3	229.28	58.42	4.65	-16.67	46.40	MaxQP	Horizontal	98	136	57.0	-10.6	Pass
4	232.82	60.01	4.67	-16.48	48.20	MaxQP	Horizontal	98	165	57.0	-8.8	Pass
5	241.58	55.43	4.70	-16.19	43.94	MaxQP	Vertical	178	94	57.0	-13.1	Pass
6	244.24	59.02	4.71	-16.20	47.53	MaxQP	Horizontal	98	134	57.0	-9.5	Pass

Test Notes: RF-C1-900HP Battery powered. 900 MHz NOtch in front of amp to prevent overload.

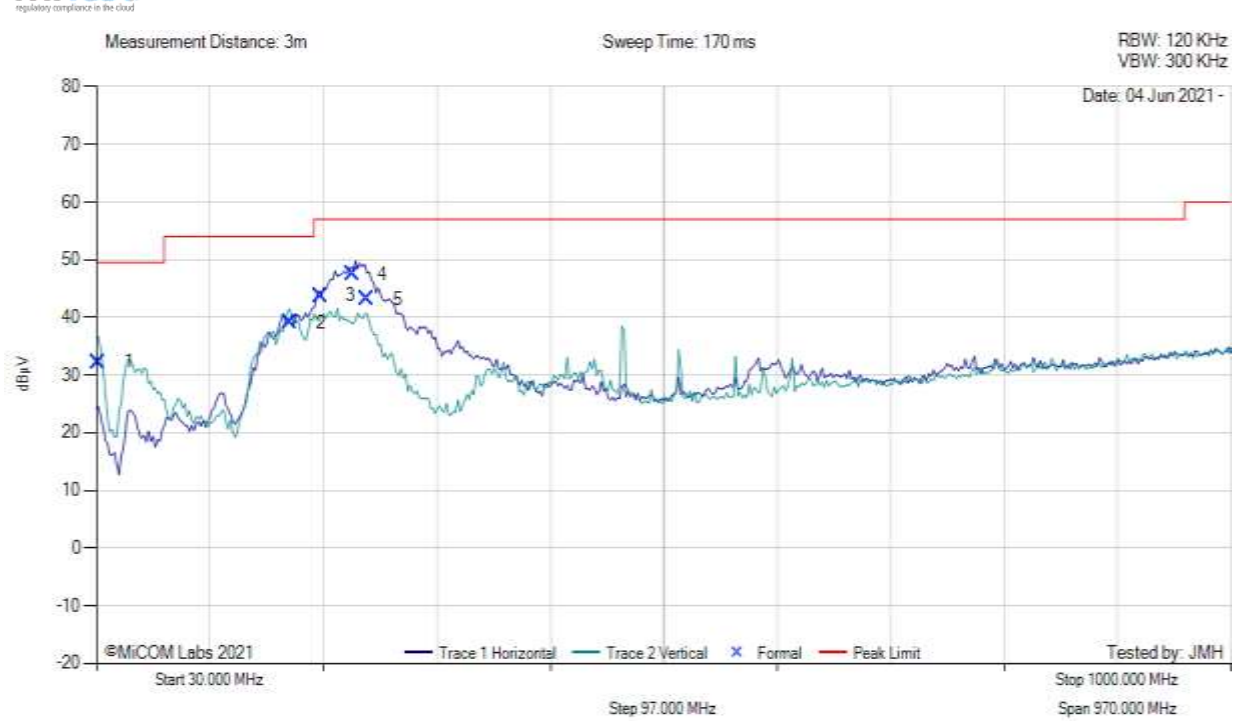
Model:	RF-C1	Configuration tested:	Solar Powered
Input power:	5V	Standard:	FCC Part 15B



30.00 - 1000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
1	190.91	59.59	4.48	-16.82	47.25	MaxQP	Horizontal	100	167	54.0	-6.8	Pass
2	228.19	56.69	4.65	-16.68	44.66	MaxQP	Horizontal	156	149	57.0	-12.3	Pass
3	229.15	58.25	4.65	-16.67	46.23	MaxQP	Horizontal	138	151	57.0	-10.8	Pass
4	232.59	57.31	4.67	-16.48	45.50	MaxQP	Horizontal	112	161	57.0	-11.5	Pass
5	236.04	62.31	4.68	-16.28	50.71	MaxQP	Horizontal	101	143	57.0	-6.3	Pass
6	242.29	61.84	4.71	-16.20	50.35	MaxQP	Horizontal	101	149	57.0	-6.7	Pass
7	251.17	57.84	4.73	-16.22	46.35	MaxQP	Horizontal	100	143	57.0	-10.7	Pass

Test Notes: RF-C1-900HP Solar powered. 900 MHz Notch in front of amp to prevent overload.

Model:	RF-C1	Configuration tested:	AC/DC Powered
Input power:	120V 60 Hz	Standard:	FCC Part 15B



30.00 - 1000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB/m**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
1	32.02	38.08	3.57	-9.41	32.24	MaxQP	Vertical	101	28	49.5	-17.3	Pass
2	195.91	50.65	4.52	-16.04	39.13	MaxQP	Vertical	220	177	54.0	-14.9	Pass
3	221.46	56.06	4.62	-16.88	43.80	MaxQP	Horizontal	154	220	57.0	-13.2	Pass
4	249.06	58.92	4.72	-16.24	47.40	MaxQP	Horizontal	102	182	57.0	-9.6	Pass
5	261.46	53.78	4.76	-15.43	43.11	MaxQP	Horizontal	101	185	57.0	-13.9	Pass

Test Notes: RF-C1-900HP 24V AC/DC powered. 900 MHz Notch in front of amp to prevent overload.

7.1.2 AC Mains Power Input / Output Ports

Scope

This test assesses the ability of the EUT to limit its internal noise from being present on the AC mains power input/output ports.

Test Procedure

The EUT is configured in accordance with ANSI C63.4. The conducted emissions are measured in a shielded room with a spectrum analyzer in peak hold in the first instance. Emissions closest to the limit are measured in the quasi-peak mode (QP) with the tuned receiver using a bandwidth of 9 kHz. The emissions are maximized further by cable manipulation. The highest emissions relative to the limit are listed.

Limits

The equipment shall meet the class B limits given in FCC 15.207 & ICES-003. Alternatively, for equipment intended to be used in telecommunication centers only, the class A limits given in FCC 15B, ICES-003 may be used.

Limits for conducted disturbance at the mains ports of class B ITE

Frequency of emission (MHz)	Quasi-peak dBuV	Average dBuV
0.15–0.5	66 to 56*	56 to 46*
0.5–5	56	46
5–30	60	50
Note 1	* Decreases with the logarithm of the frequency	
Note 2	* The lower limit applies at the boundary between frequency ranges	

Limits for conducted disturbance at the mains ports of class A ITE

Frequency of emission (MHz)	Quasi-peak dBuV	Average dBuV
0.15–0.5	79	66
0.5–30	73	60
Note 1	* The lower limit shall apply at the transition frequency.	

Traceability

All conducted emission measurements are traceable to national standards. The uncertainty of measurement at a confidence level of not less than 95 %, with a coverage factor of k=2, in the range 9 kHz – 30 MHz (Average & Quasi-peak) is ±2.64 dB.

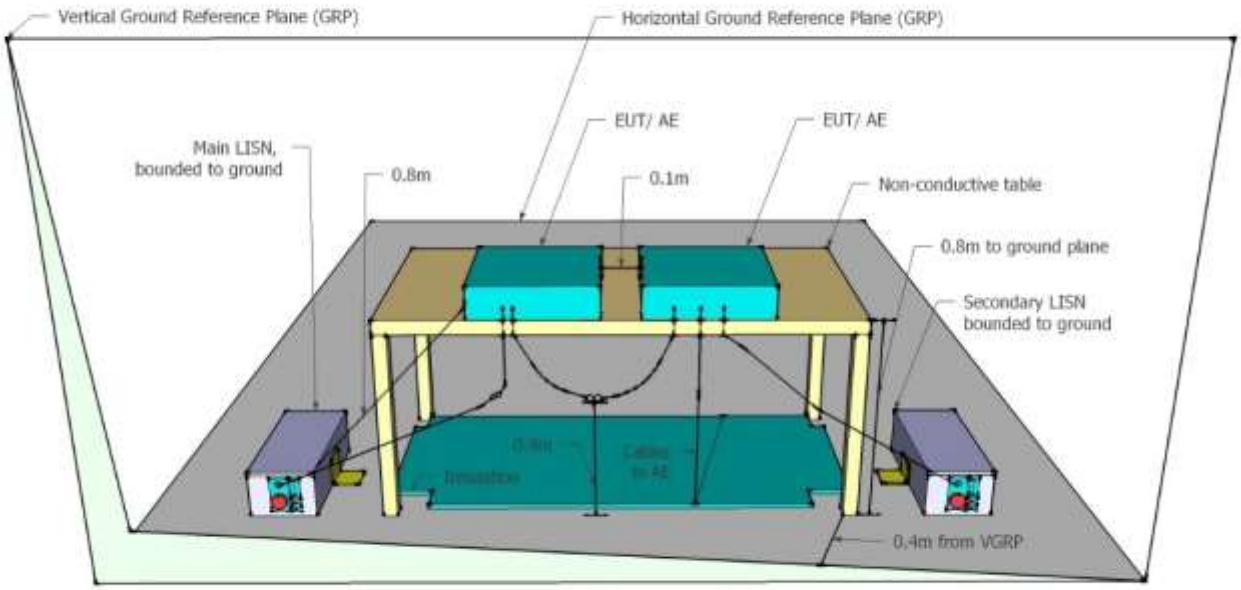
Laboratory Measurement Uncertainty	
Measurement uncertainty	±2.64 dB

Method
Measurements were made per work instruction WI-EMC-01 ‘Measurement of Conducted Emissions’

Test Equipment Utilized

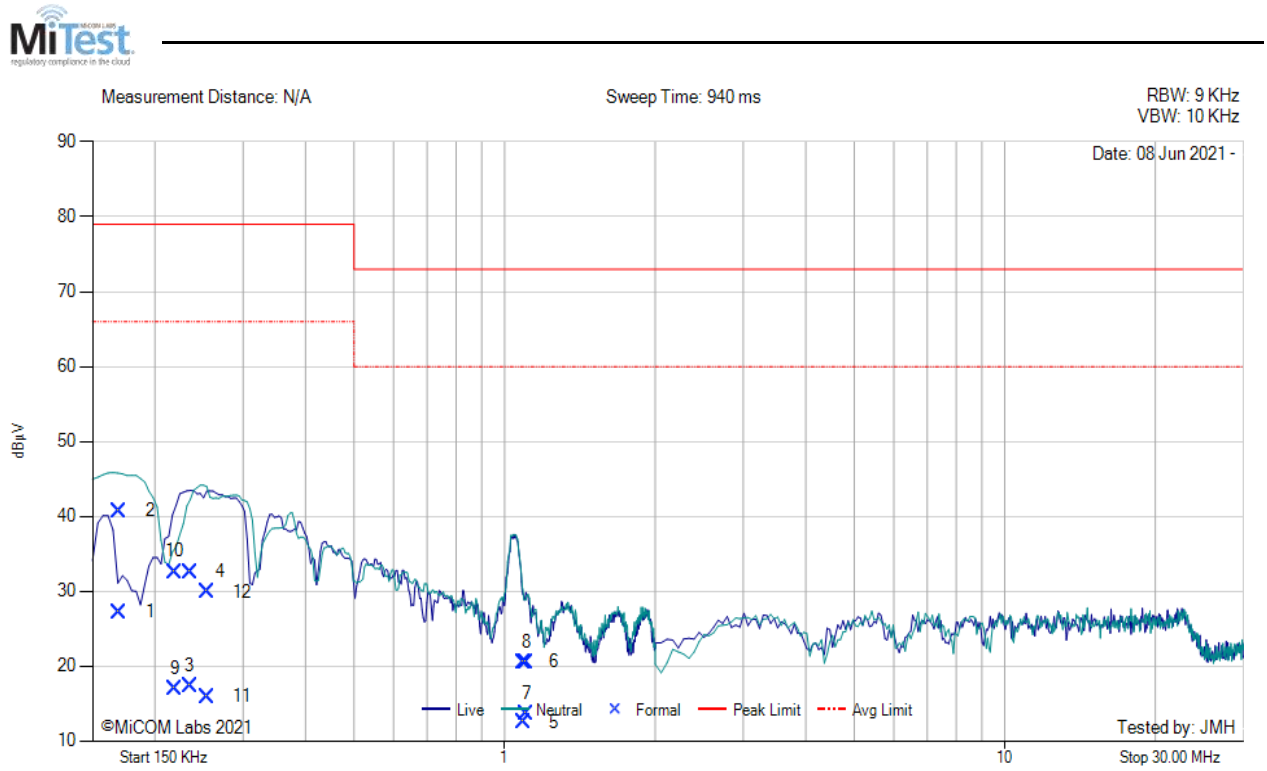
Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
184	Pulse Limiter	Rhode & Schwarz	ESH3Z2	357.8810.52	30 Aug 2021
190	LISN (two-line V-network)	Rhode & Schwarz	ESH3Z5	836679/006	18 Oct 2021
287	Rohde & Schwarz 40 GHz Receiver	Rhode & Schwarz	ESIB40	100201	8 Oct 2021
295	Conducted Emissions Chamber Maintenance Check	MiCOM	Conducted Emissions Chamber	295	26 Aug 2021
307	BNC-CABLE	Megaphase	1689 1GVT4	15F50B002	30 Aug 2021
316	Dell desktop computer workstation	Dell	Desktop	WS04	Not Required
372	AC Variable PS	California Instruments	1251P	L06951	Cal when used
378	Rohde & Schwarz 40 GHz Receiver with Generator	Rhode & Schwarz	ESIB40	100107/040	12 Oct 2021
389	LISN (3 Phase) 9kHz - 30 MHz for support equipment	Rohde & Schwarz	ESH2-Z5	881493/013	Not Required
496	MiTest Conducted Emissions test software.	MiCOM	Conducted Emissions Test Software Version 1.0	496	Not Required
510	Barometer/Thermometer	Control Company	68000-49	170871375	20 Dec 2021
CCEMC01	Confidence Check.	MiCOM	CCEMC01	None	21 Sep 2021

Test Setup – Power Input / Output Port



7.1.2.2. Measurement Results

Model:	RF-C1	Configuration tested:	AC/DC PS
Input power:	120V_{AC}/60Hz	Standard:	FCC 15B



Num	Frequency MHz	Raw dBµV	Cable Loss dB	Factor dB	Total Correction dBµV	Corrected Value dBµV	Measurement Type	Line	Limit dBµV/m	Margin dB	Pass /Fail
1	0.170	17.26	0.05	9.92	9.97	27.23	Max Avg	Neutral	66.0	-38.8	Pass
2	0.170	30.79	0.05	9.92	9.97	40.76	Max Qp	Neutral	79.0	-38.2	Pass
3	0.235	7.32	0.07	9.92	9.99	17.31	Max Avg	Neutral	66.0	-48.7	Pass
4	0.235	22.58	0.07	9.92	9.99	32.57	Max Qp	Neutral	79.0	-46.4	Pass
5	1.093	2.51	0.08	9.94	10.02	12.53	Max Avg	Live	60.0	-47.5	Pass
6	1.093	10.56	0.08	9.94	10.02	20.58	Max Qp	Live	73.0	-52.4	Pass
7	1.107	3.60	0.08	9.94	10.02	13.62	Max Avg	Neutral	60.0	-46.4	Pass
8	1.107	10.43	0.08	9.94	10.02	20.45	Max Qp	Neutral	73.0	-52.6	Pass
9	0.220	7.03	0.06	9.92	9.98	17.01	Max Avg	Live	66.0	-49.0	Pass
10	0.220	22.62	0.06	9.92	9.98	32.60	Max Qp	Live	79.0	-46.4	Pass
11	0.254	5.92	0.07	9.92	9.99	15.91	Max Avg	Live	66.0	-50.1	Pass
12	0.254	19.95	0.07	9.92	9.99	29.94	Max Qp	Live	79.0	-49.1	Pass

Test Notes: RF-C1 powered by AC-DC 24V Transformer. 900HP Radio. 120V 60 Hz

8. PHOTOGRAPHS

8.1 Radio Emissions < 1 GHz

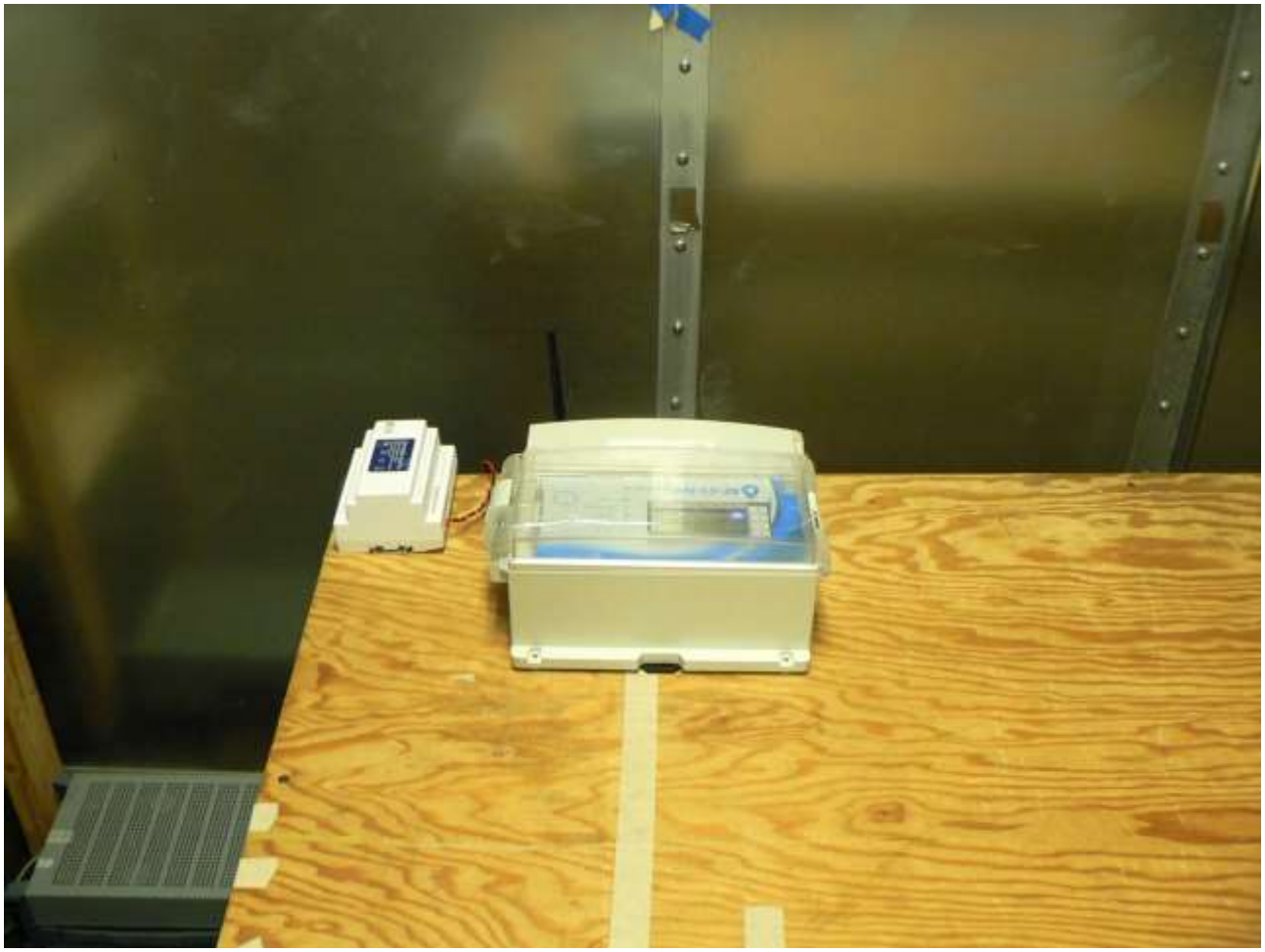
Battery Powered

Solar Powered

AC/DC Powered

8.2 AC Wireline Emissions

AC/DC PS



Side View

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