



## **REGULATORY COMPLIANCE TEST REPORT**

**FCC CFR 47 Part 15 SubPart B & ISSED ICES-003**

**Report No.: CATA03-U8 Rev A**

**Company:** Catapult Sports Pty Ltd

**Model Name:** VA7401

## REGULATORY COMPLIANCE TEST REPORT

**Company:** Catapult Sports Pty Ltd

**Model Name:** VA7401

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

Test Report Serial No.: CATA03-U8 Rev A

This report supersedes: NONE

Applicant: Catapult Sports Pty Ltd  
75-83 High St Prahran  
Melbourne, Victoria 3181  
Australia

Product Function: Mobile & Portable Client Device

Issue Date: 11<sup>th</sup> June 2020

**This Test Report is Issued Under the Authority of:**

**MiCOM Labs, Inc.**  
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**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](http://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

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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 24<sup>th</sup> 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 capabilities. Our international recognition includes Conformity Assessment Body designation by APEC MRA countries. MiCOM Labs test reports are accepted globally.

Country	Recognition Body	Status	Phase	Identification No.
USA	Federal Communications Commission (FCC)	TCB	-	US0159 Listing #: 102167
Canada	Industry Canada (IC)	FCB	APEC MRA 2	US0159 Listing #: 4143A-2 4143A-3
Japan	MIC (Ministry of Internal Affairs and Communication)	CAB	Japan MRA 2	RCB 210
	Telecommunications Equipment (JATE)			
	VCCI	--	--	A-0012
Europe	European Commission	NB	EU MRA	NB 2280
Australia	Australian Communications and Media Authority (ACMA)	CAB	APEC MRA 1	US0159
Hong Kong	Office of the Telecommunication Authority (OFTA)	CAB	APEC MRA 1	
Korea	Ministry of Information and Communication Radio Research Laboratory (RRL)	CAB	APEC MRA 1	
Singapore	Infocomm Development Authority (IDA)	CAB	APEC MRA 1	
Taiwan	National Communications Commission (NCC) Bureau of Standards, Metrology and Inspection (BSMI)	CAB	APEC MRA 1	
Vietnam	Ministry of Communication (MIC)	CAB	APEC MRA 1	

EU MRA – European Union Mutual Recognition Agreement.

NB – Notified Body

APEC MRA – Asia Pacific Economic Community Mutual Recognition Agreement. Recognition agreement under which test lab is accredited to regulatory standards of the APEC member countries.

Phase I - recognition for product testing

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](http://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

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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 24<sup>th</sup> 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  
Japan – Recognized Certification Body (RCB), RCB Identifier - 210

## 2. DOCUMENT HISTORY

Document History		
Revision	Date	Comments
Draft	5th June 2020	Draft for client review.
Rev A	11 <sup>th</sup> June 2020	Initial release.

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

### 3. TEST RESULT CERTIFICATE

**Manufacturer:** Catapult Sports Pty Ltd  
75-83 High St Prahran  
Melbourne, Victoria 3181  
Australia

**Tested By:** MiCOM Labs, Inc.  
575 Boulder Court  
Pleasanton California 94566  
USA

**Model:** VA7401

**Telephone:** +1 925 462 0304

**Equipment Type:** Mobile & Portable Client Device

**Fax:** +1 925 462 0306

**S/N's:** S7CX220171686

**Test Date(s):** 20<sup>th</sup> May - 1<sup>st</sup> June 2020

**Website:** www.micomlabs.com

#### STANDARD(S)

FCC CFR 47 Part 15B & ISSED ICES-003

#### TEST RESULTS

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.

**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)	FCC CFR 47 Part 15, Subpart B	2020	Title 47 CFR Part 15, Sub Part B; Unintentional Radiators
(ii)	FCC CFR 47 Part 24, Subpart D*	2018	Title 47 CFR Part 24, Sub Part D; Personal Communications Services
(iii)	ICES-003, Issue 6	Jan 2016; Updated April 2019	Information Technology Equipment (Including Digital Apparatus) — Limits and Methods of Measurement
(iv)	RSS-119 Issue 12*	May 2015	Land Mobile and Fixed Equipment Operating in the Frequency Range 27.41-960 MHz
(v)	ANSI C63.4	2014	American National Standards for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
(vi)	M 3003	Edition 2 Dec. 2007	Expression of Uncertainty and Confidence in Measurements
(vii)	LAB34	Edition 1 August 2002	The expression of uncertainty in EMC Testing
(viii)	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
(viii)	A2LA	October 2019	R105 - Requirement's When Making Reference to A2LA Accreditation Status

\*Applicable to Radiated Colocation Results

## **4.2 Test and Uncertainty Procedures**

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. TEST SUMMARY

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

**TABLE OF REQUIRED TESTS – Emissions**

Test Standard	Description	Limits	Compliance
FCC Part 15B & ICES-003	Radiated Emissions	Class A	Complies
FCC Part 15B & ICES-003	Conducted Emissions - ac power I/O port	Class A	Complies

## **6. PRODUCT DETAILS AND TEST CONFIGURATIONS**

### **6.1. Test Program Scope**

The scope of the test program was to test the Catapult Sports Pty Ltd VA7401 for compliance to the following standards;

- FCC CFR 47 Part 15, Subpart B - Title 47 CFR Part 15, SubPart B; Unintentional Radiators.
- ICES-003, Issue 6 Jan 2016; Updated April 2019 - Information Technology Equipment (ITE) – Limits and methods of measurement.

## 6.2. EUT Details

Detail	Description
Purpose:	Test of the Catapult Sports Pty Ltd VA7401 for compliance to FCC Part 15 B and Canada ISSED ICES-003.
Applicant:	Catapult Sports Pty Ltd 75-83 High St Prahran Melbourne, Victoria 3181 Australia
Manufacturer:	Same as Applicant
Test Laboratory:	MiCOM Labs, Inc. 575 Boulder Court, Pleasanton, California 94566, USA
Test report reference number:	CATA03-U8 Draft
Dates of test (from - to):	20 <sup>th</sup> May - 1 <sup>st</sup> June 2020
No of Units Tested:	One
Type of Equipment:	Mobliel and Portable Client Device
Product Name:	Vector
Model No.:	VA7401
Serial No.:	S7CX220171686
Equipment Secondary Function(s):	None
Type of Technology:	WiFi and UWB device
Installation type:	Fixed installation
Construction/Location for Use:	Indoor & outdoor
Rated Input Voltage and Current:	POE: 48VDC 350mA DC 3.7- 36V 2A Max, 12V Nominal
Equipment Dimensions:	DC 3.7- 36V 2A Max, 12V Nominal
Temperature:	Nominal: 20 °C Min: -20C Max: +85C
Dimensions:	175 x 130 x 59.5 mm
Weight:	520 g
Software/Firmware Release:	MP
Hardware Release:	7.0.0
Primary Function:	Mobile and Portable Client Device



### 6.3. External A.C/D.C. Power Adaptor

The Catapult Sports is powered via POE or DC. The POE Adapter is not sold with the EUT.

POE Power Supply	DC Power
MicroSemi Inc. Model: 3501GG A IP: 100-240 V <sub>AC</sub> 50/60 Hz, 0.5A OP: 48V 0.35A	DC 3.7- 36V 2A Max, 12V Nominal

### 6.4. Antenna Details

No antennas were tested as part of this test program.

### 6.5. Cabling and I/O Ports

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

Port Type	Port Description	Qty	Screened (Yes/ No)	Length
Ethernet/POE	RJ-45	1	N	>3m
USB	USB	1	N	<5m
DC Input	DC	1	N	-

### 6.6. Test Configurations

Test configurations are as noted in the test results.

### 6.7. Equipment Details

The following is a description of supporting equipment used during the test program.

Type (EUT/ Support)	Equipment Description (Including Brand Name)	Mfr.	Model No.	Serial No.
EUT	Mobile & Portable Client Device	Catapult Sports Pty Ltd	VA7401	S7CX220171686
Support	Power Supply	HP	Linear Supply	--
Support	POE	MicroSemi	3501G	--
Support	Laptop	HP	--	--

## **6.8. Equipment Modifications**

1).. NONE required

## **6.9. Deviations from the Test Standard**

1).. No deviations from the test standard were required in order to complete the test program:

## **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 6.2

Limits for the following standards were applied for co-location testing also shown in this report.  
FCC, Part 24, Subpart D §24.133  
ISED RSS-119 Section 5.8.6

#### **Test Procedure**

Testing 30 – 6,000 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

$$CORR = \text{Correction Factor} = CL - AG + NFL$$

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

### Field Strength Calculation Example:

Given receiver input reading of 51.5 dB $\mu$ V; 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:

$$FS = 51.5 + 8.5 + 1.3 - 26.0 + 1 = 36.3 \text{ dB}\mu\text{V/m}$$

Conversion between dB $\mu$ V/m (or dB $\mu$ V) and  $\mu$ V/m (or  $\mu$ V) are done as:

$$\text{Level (dB}\mu\text{V/m)} = 20 * \text{Log (level (\mu V/m))}$$

$$40 \text{ dB}\mu\text{V/m} = 100 \mu\text{V/m}$$

$$48 \text{ dB}\mu\text{V/m} = 250 \mu\text{V/m}$$

## FCC and IC Spurious Emissions Limits

FCC, Part 15 Subpart B §15.109  
 Industry Canada ICES-003 Section 6.2

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:

Class A limits

Frequency(MHz)	Quasi-peak Limit (dB $\mu$ V/m)	Measurement Distance (meters)	Quasi-peak Limit (dB $\mu$ V/m)	Measurement Distance (meters)
30 to 88	39.0	10	49.5	3
88-216	43.5	10	54	3
216-960	46.4	10	56.5	3
960-1000	49.5	10	60	3

Class B limits

Frequency(MHz)	Quasi-peak Limit (dB $\mu$ V/m)	Measurement Distance (meters)	Quasi-peak Limit (dB $\mu$ V/m)	Measurement Distance (meters)
30 to 88	29.5	10	40	3
88-216	33	10	43.5	3
216-960	35.6	10	46	3
960-1000	43.5	10	54	3

### Limits above 1GHz:

Frequency(MHz)	Average Limit (dB $\mu$ V/m)	Peak Limit (dB $\mu$ V/m)	Measurement Distance (meters)	Class (A/B)
1 000 to 6000	54	74	3	Class B

Frequency(MHz)	Average Limit (dB $\mu$ V/m)	Peak Limit (dB $\mu$ V/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

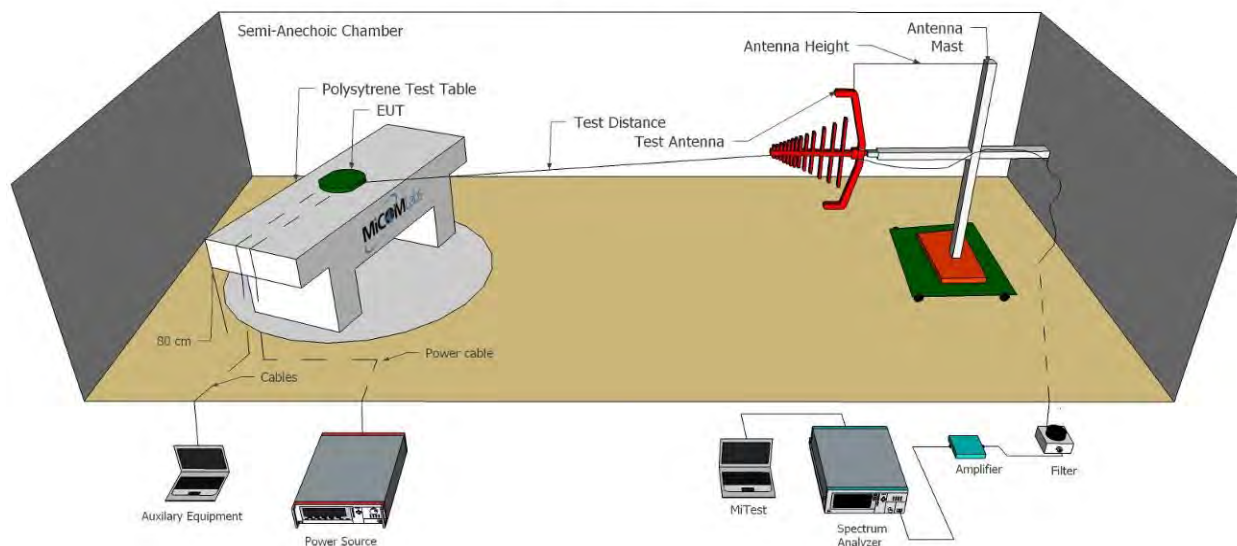
## Test Equipment Utilized

Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
170	Video System Controller for Semi Anechoic Chamber	Panasonic	WV-CU101	04R08507	Not Required
298	3M Radiated Emissions Chamber Maintenance Check	MiCOM	3M Chamber	298	26 Nov 2020
330	Variac 0-280 Vac	Staco Energy Co	3PN1020B	0546	Cal when used
338	Sunol 30 to 3000 MHz Antenna	Sunol	JB3	A052907	4 Apr 2021
373	26III RMS Multimeter	Fluke	Fluke 26 series III	76080720	21 Sep 2020
377	Band Rejection Filter 5150 to 5880MHz	Microtronics	BRM50716	034	3 Sep 2020
378	Rohde & Schwarz 40 GHz Receiver with Generator	Rhode & Schwarz	ESIB40	100107/040	12 Oct 2020
396	2.4 GHz Notch Filter	Microtronics	BRM50701	001	3 Sep 2020
397	Amp 10 - 2500MHz	MiCOM Labs	Amp 10 - 2500 MHz	NA	6 Sep 2020
399	ETS 1-18 GHz Horn Antenna	ETS	3117	00154575	12 Oct 2020
406	Amplifier for Radiated Emissions	MiCOM Labs	40dB 1 to 18GHz Amp	0406	9 Sep 2020
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
414	DC Power Supply 0-60V	HP	6274	1029A01285	Cal when used
415	Turntable Controller	Sunol Sciences	Turntable Controller	None	Not Required
416	Gigabit ethernet filter	ETS-Lingren	Gigafoil 260366	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	5 Sep 2020
463	Schwarzbeck cable from Amplifier to Bulkhead.	Schwarzbeck	AK 9513	463	5 Sep 2020
464	Schwarzbeck cable from Bulkhead to Receiver	Schwarzbeck	AK 9513	464	9 Sep 2020

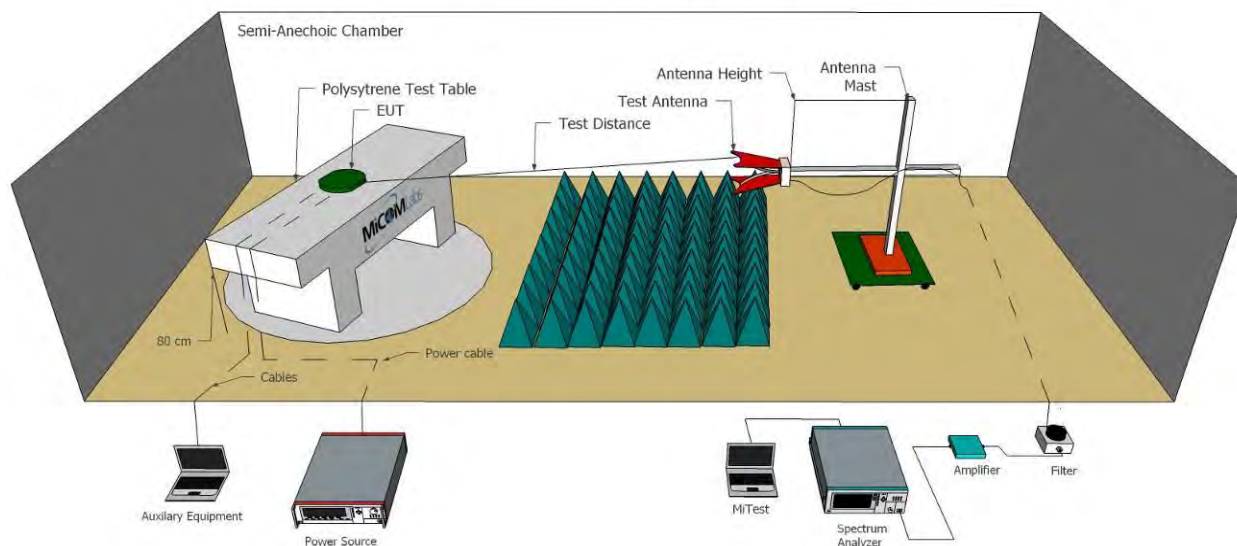
466	Low Pass Filter DC-1500 MHz	Mini-Circuits	NLP-1750+	VUU10401 438	3 Sep 2020
467	2495 to 2650 MHz notch filter	MicroTronics	BRM50709	011	3 Sep 2020
480	Cable - Bulkhead to Amp	SRC Haverhill	157-3050360	480	9 Sep 2020
481	Cable - Bulkhead to Receiver	SRC Haverhill	151-3050787	481	9 Sep 2020
510	Barometer/Thermometer	Control Company	68000-49	170871375	20 Dec 2020
518	Cable - Amp to Antenna	SRC Haverhill	157-3051574	518	9 Sep 2020
CC05	Confidence Check	MiCOM	CC05	None	4 Oct 2020

## Test Setup for Radiated Emissions for above and below 1 GHz

### Radiated Emissions Below 1GHz Test Setup



### Radiated Emissions Above 1GHz Test Setup



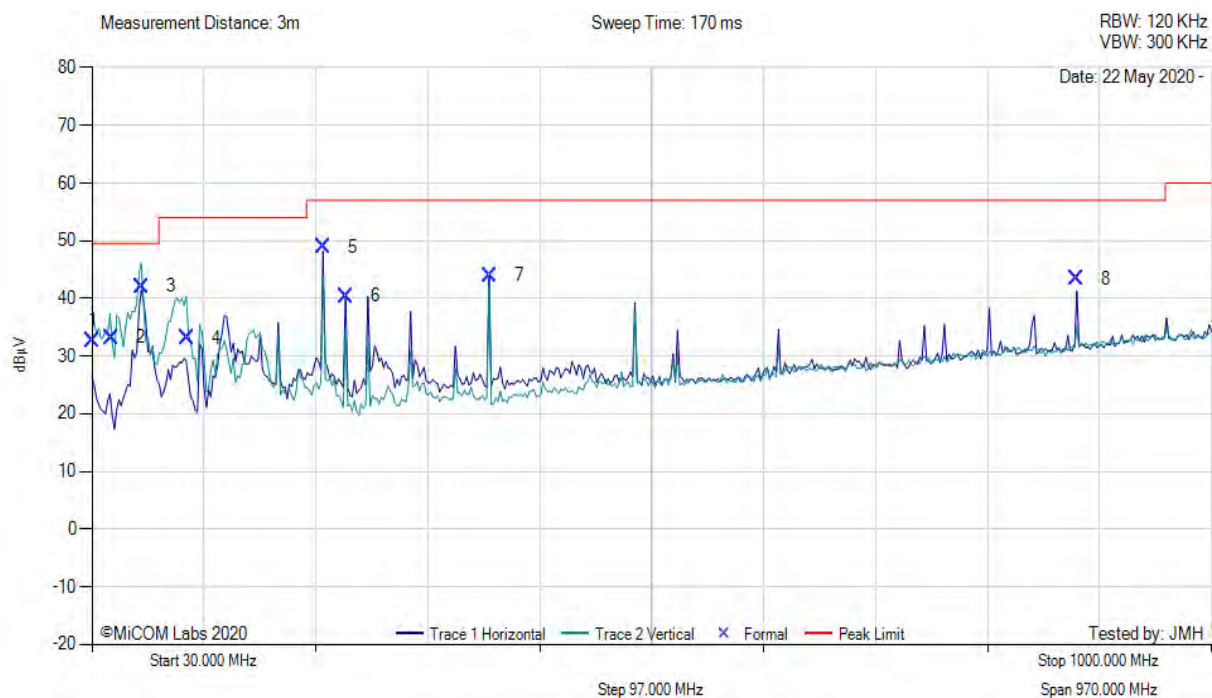
### 30-1000 MHz:

Class A Limit

Model:	VA7401	Configuration tested:	POE
Input power:	120 V AC	Standard:	FCC Part 15



Variant: , Test Freq: 0.00 MHz, Power Setting: NA



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	30.55	37.26	3.54	-8.20	32.60	MaxQP	Vertical	98	100	49.5	-16.9	Pass
2	46.48	48.49	3.69	-18.97	33.21	MaxQP	Vertical	98	86	49.5	-16.3	Pass
3	72.95	58.66	3.90	-20.49	42.07	MaxQP	Vertical	124	64	49.5	-7.4	Pass
4	112.44	44.37	4.13	-15.36	33.14	MaxQP	Vertical	101	177	54.0	-20.9	Pass
5	230.38	60.85	4.66	-16.57	48.94	MaxQP	Horizontal	144	94	57.0	-8.1	Pass
6	249.99	51.92	4.72	-16.24	40.40	MaxQP	Horizontal	115	171	57.0	-16.6	Pass
7	374.99	51.47	5.17	-12.65	43.99	MaxQP	Horizontal	102	288	57.0	-13.0	Pass
8	883.18	41.83	6.71	-5.14	43.40	MaxQP	Horizontal	146	141	57.0	-13.6	Pass

**Test Notes:** EUT powered by POE, connected to hub outside chamber



Model:	VA7401	Configuration tested:	DC
Input power:	12V DC	Standard:	FCC Part 15



Variant: , Test Freq: 0.00 MHz



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	33.07	46.07	3.59	-10.42	39.24	MaxQP	Vertical	101	75	40.0	-0.8	Pass
2	35.11	43.45	3.60	-11.62	35.43	MaxQP	Vertical	105	19	40.0	-4.6	Pass
3	37.60	45.70	3.63	-12.91	36.42	MaxQP	Vertical	107	111	40.0	-3.6	Pass
4	77.64	47.92	3.93	-20.63	31.22	MaxQP	Vertical	121	158	40.0	-8.8	Pass
5	124.98	47.69	4.19	-14.56	37.32	MaxQP	Vertical	103	143	43.5	-6.2	Pass
6	230.37	53.46	4.66	-16.57	41.55	MaxQP	Horizontal	145	73	46.0	-4.5	Pass
7	883.18	40.25	6.71	-5.14	41.82	MaxQP	Horizontal	101	163	46.0	-4.2	Pass

**Test Notes:** EUT powered by DC Supply 20V

[back to matrix](#)



### **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 centres 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  $\pm 2.64$  dB.

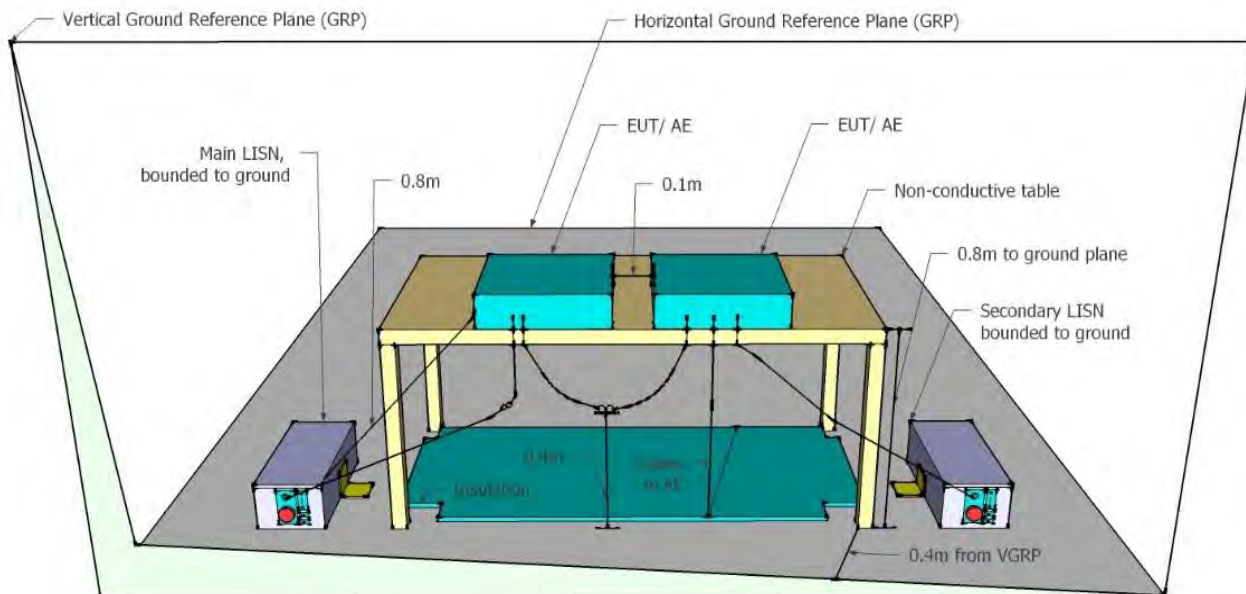
Laboratory Measurement Uncertainty	
Measurement uncertainty	$\pm 2.64$ dB

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 2020
287	Rohde & Schwarz 40 GHz Receiver	Rhode & Schwarz	ESIB40	100201	8 Oct 2020
295	Conducted Emissions Chamber Maintenance Check	MiCOM	Conducted Emissions Chamber	295	26 Jun 2020
307	BNC-CABLE	Megaphase	1689 1GVT4	15F50B002	11 Sep 2020
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 2020
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 2020
CCEMC01	Confidence Check.	MiCOM	CCEMC01	None	28 Aug 2020

## Test Setup – Power Input / Output Port

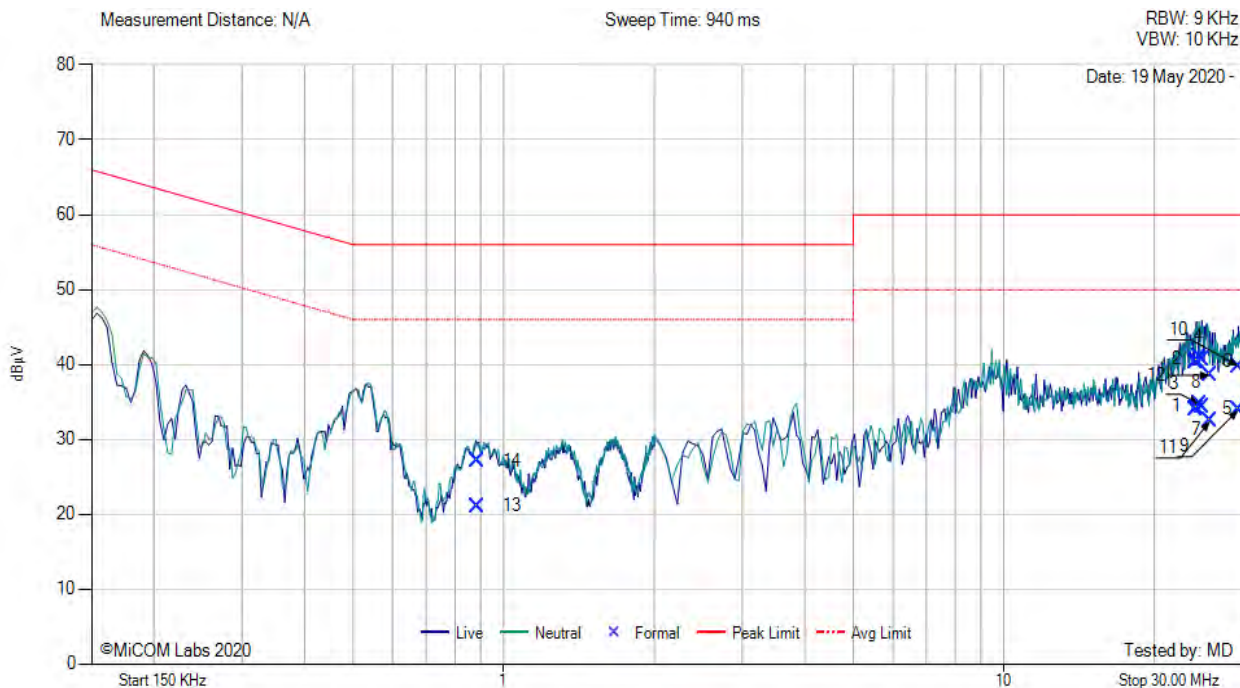


### 7.1.2.1. Measurement Results

Model:	VA7401	Configuration tested:	POE
Input power:	120 V AC	Standard:	FCC Part 15



Variant: , Test Freq: 0.00 MHz



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	24.945	22.94	0.68	10.83	11.51	34.45	Max Avg	Live	50.0	-15.6	Pass
2	24.945	29.19	0.68	10.83	11.51	40.70	Max Qp	Live	60.0	-19.3	Pass
3	24.598	23.17	0.66	10.83	11.49	34.66	Max Avg	Neutral	50.0	-15.3	Pass
4	24.598	29.49	0.66	10.83	11.49	40.98	Max Qp	Neutral	60.0	-19.0	Pass
5	24.269	22.61	0.65	10.83	11.48	34.09	Max Avg	Live	50.0	-15.9	Pass
6	24.269	28.89	0.65	10.83	11.48	40.37	Max Qp	Live	60.0	-19.6	Pass
7	24.294	22.64	0.65	10.83	11.48	34.12	Max Avg	Neutral	50.0	-15.9	Pass
8	24.294	28.92	0.65	10.83	11.48	40.40	Max Qp	Neutral	60.0	-19.6	Pass
9	29.478	22.25	0.80	10.92	11.72	33.97	Max Avg	Live	50.0	-16.0	Pass
10	29.478	28.06	0.80	10.92	11.72	39.78	Max Qp	Live	60.0	-20.2	Pass
11	25.867	20.92	0.71	10.87	11.58	32.50	Max Avg	Live	50.0	-17.5	Pass
12	25.867	26.96	0.71	10.87	11.58	38.54	Max Qp	Live	60.0	-21.5	Pass
13	0.886	11.06	0.09	9.94	10.03	21.09	Max Avg	Neutral	46.0	-24.9	Pass
14	0.886	17.10	0.09	9.94	10.03	27.13	Max Qp	Neutral	56.0	-28.9	Pass

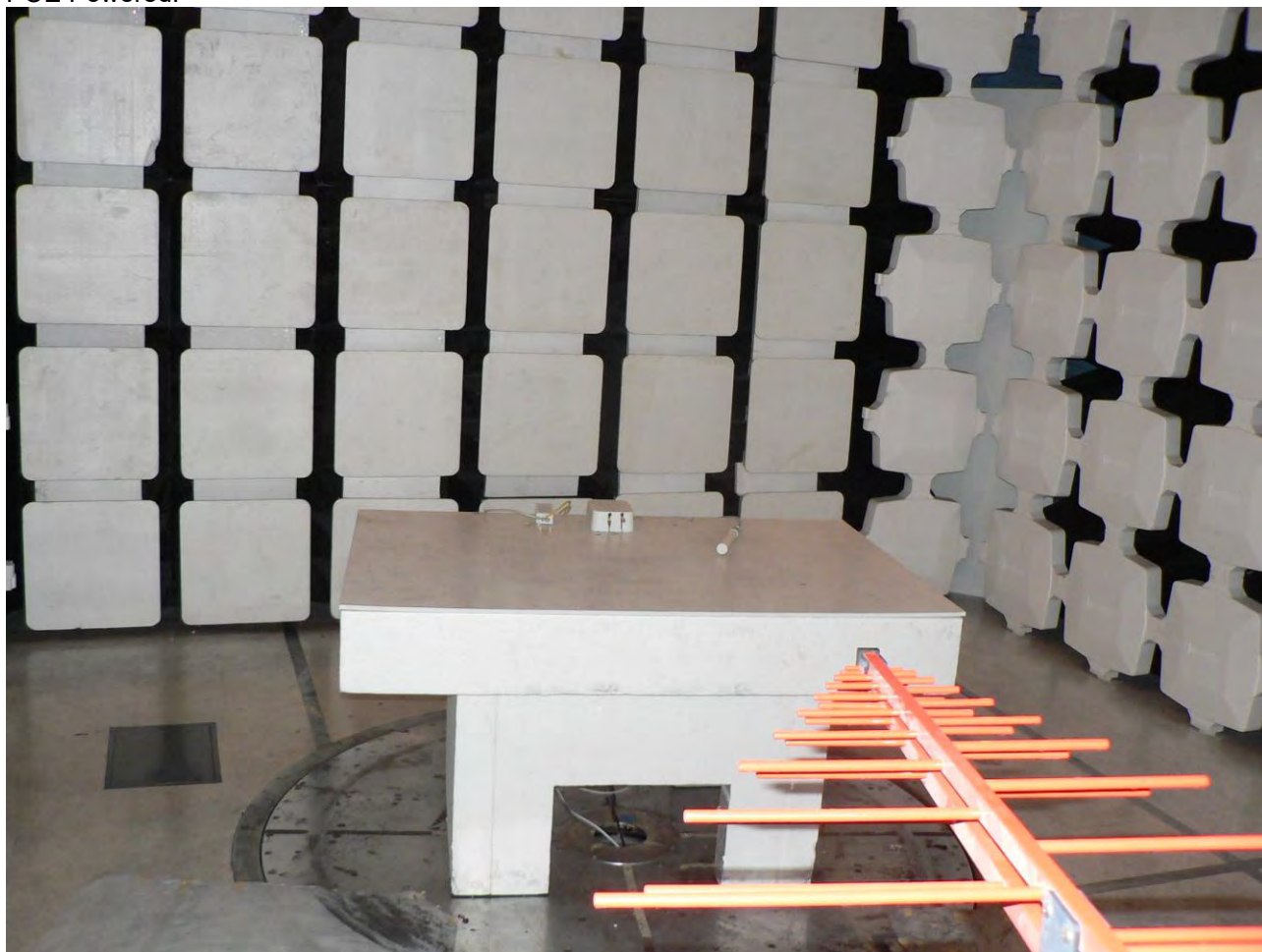
**Test Notes:** 110v POE AC Mains



## 8 PHOTOGRAPHS

### 8.1 Radio Emissions < 1 GHz

POE Powered:



DC Powered:





## 8.2 AC Wireline

Front:



Side:





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