



Test Report Serial Number:

45462024 r1.0

Test Report Date:

21 October 2025

Project Number:

1683

EMC Test Report - C2PC

Applicant:



4RF Limited
PO Box 13-506
Wellington 6440
New Zealand

FCC ID:

UIPSQ896M141

Product Model Number / HVIN

SQ896M141

Product Name / PMN

Aprisa SR+

In Accordance With:

FCC 47 CFR Part 15, Subpart B
Unintentional Radiators

Approved By:

Ben Hewson, President

Celltech Labs Inc.
21-364 Lougheed Rd.
Kelowna, BC, V1X 7R8
Canada



Test Lab Certificate: 2470.01



**Industry
Canada**

IC Registration 3874A



FCC Registration: CA3874

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1.0 REVISION HISTORY

Revision History				
Samples Tested By:		Date(s) of Evaluation:		
Report Prepared By:		Report Reviewed By:		
Report Revision	Description of Revision	Revised Section	Revised By	Revision Date
1.0	Initial Release	n/a	Art Voss	21 October 2025

2.0 CLIENT AND DUT INFORMATION

Client Information	
Applicant Name (FCC)	4RF Limited
Applicant Address (FCC)	PO Box 13-506
	Wellington 6440,
	New Zealand
DUT Information	
Device Identifier(s):	FCC ID: UIPSQ896M141
Device Type:	Digital Transceiver
Device Model(s) / HVIN:	SQ896M141
Device Marketing Name / PMN:	Aprisa SR+
Test Sample Serial No.:	R5310007043
Equipment Class (FCC):	PCB - PCS Licensed Transmitter
Transmit Frequency Range:	Part 24: 901-902MHz, 930-931MHz, 940-941MHz
	Part 90: 896-901MHz, 929-930MHz, 935-940MHz
	Part 101: 928-929MHz, 932-932.5MHz, 932.5-935MHz
	Part 101: 941-941.5MHz, 941.5-944MHz, 952-960MHz
Test Channels:	Programmable
Manuf. Max. Rated Output Power:	10dBm (10mW) to 37dBm (5W), Field-Programmable
Manuf. Max. Rated BW:	Part 24. 12.5kHz, 25kHz, 50kHz, 100kHz
	Part 90. 12.5kHz, 25kHz
	Part 101. 12.5kHz, 25kHz, 50kHz
Antenna Type and Gain:	Max: 28dBi (25.85dBd)
Modulation:	QPSK, 16QAM, 64QAM, 256QAM
Mode:	Half Duplex
DUT Power Source:	10 - 30VDC
DUT Dimensions [HxWxD] (mm)	H x W x D: 40mm x 140mm x 210mm.
Deviation(s) from standard/procedure:	None
Modification of DUT:	None

3.0 SCOPE

Preface:

This Certification Report was prepared on behalf of:

4RF Limited

,(the '*Applicant*'), in accordance with the applicable Federal Communications Commission (FCC) CFR 47 and Innovation, Scientific and Economic Development (ISED) Canada rules parts and regulations (the '*Rules*'). The scope of this investigation was limited to only the equipment, devices and accessories (the '*Equipment*') supplied by the *Applicant*. The tests and measurements performed on this *Equipment* were only those set forth in the applicable *Rules* and/or the Test and Measurement Standards they reference. The *Rules* applied and the Test and Measurement Standards used during this evaluation appear in the Normative References section of this report. The limits set forth in the technical requirements of the applicable *Rules* were applied to the measurement results obtained during this evaluation and ,unless otherwise noted, these limits were used as the Pass/Fail criteria. The Pass/Fail statements made in this report apply to only the tests and measurements performed on only the *Equipment* tested during this evaluation. Where applicable and permissible, information including test and measurement data and/or results from previous evaluations of same or similar equipment, devices and/or accessories may be cited in this report.

Device:

The SQ896M141, FCC ID: UIPSQ896M141, is a digital PCS transceiver and was previously certified to Parts 24, 90 and 101. The transceiver synthesizers are being replaced and are not pin-to-pin compatible. All other aspects of the transmitter with regards to output power, bands of operation, bandwidths and modulations have not been changed from those in the previous filings.

Requirement:

As per FCC KDB 388624 D02v18r07, a C2PC (C2PCPX) using the procedures of FCC KDB 178919 (Notification 202109-001) is being sought.

Application:

This is an application for a C2PC.

Scope:

The scope of this investigation is limited to the evaluation and reporting of the wanted and spurious emissions in accordance with the rule parts cited in Normative References section of this report.

4.0 TEST SUMMARY

TEST SUMMARY					
Section	Description of Test	Procedure Reference	Applicable Rule Part(s) FCC	Test Date	Result
7.0	Radiated Rx Spurious Emissions	ANSI C63.4a-2017	§15B	3 Apr 2025	Pass

Test Station Day Log					
Date	Ambient Temp (°C)	Relative Humidity (%)	Barometric Pressure (kPa)	Test Station	Tests Performed Section(s)
3 Apr 2025	9.0	46	101.8	OATS	7

EMC - EMC Test Bench

OATS - Open Area Test Site

LISN - LISN Test Area

IMM - Immunity Test Area

SAC - Semi-Anechoic Chamber

TC - Temperature Chamber

ESD - ESD Test Bench

RI - Radiated Immunity Chamber

I attest that the data reported herein is true and accurate within the tolerance of the Measurement Instrument Uncertainty; that all tests and measurements were performed in accordance with accepted practices or procedures; and that all tests and measurements were performed by me or by trained personnel under my direct supervision. The results of this investigation are based solely on the test sample(s) provided by the client which were not adjusted, modified or altered in any manner whatsoever, except as required to carry out specific tests or measurements. This test report has been completed in accordance with ISO/IEC 17025.



Art Voss, P.Eng.
Technical Manager
Celltech Labs Inc.
21 October 2025
Date



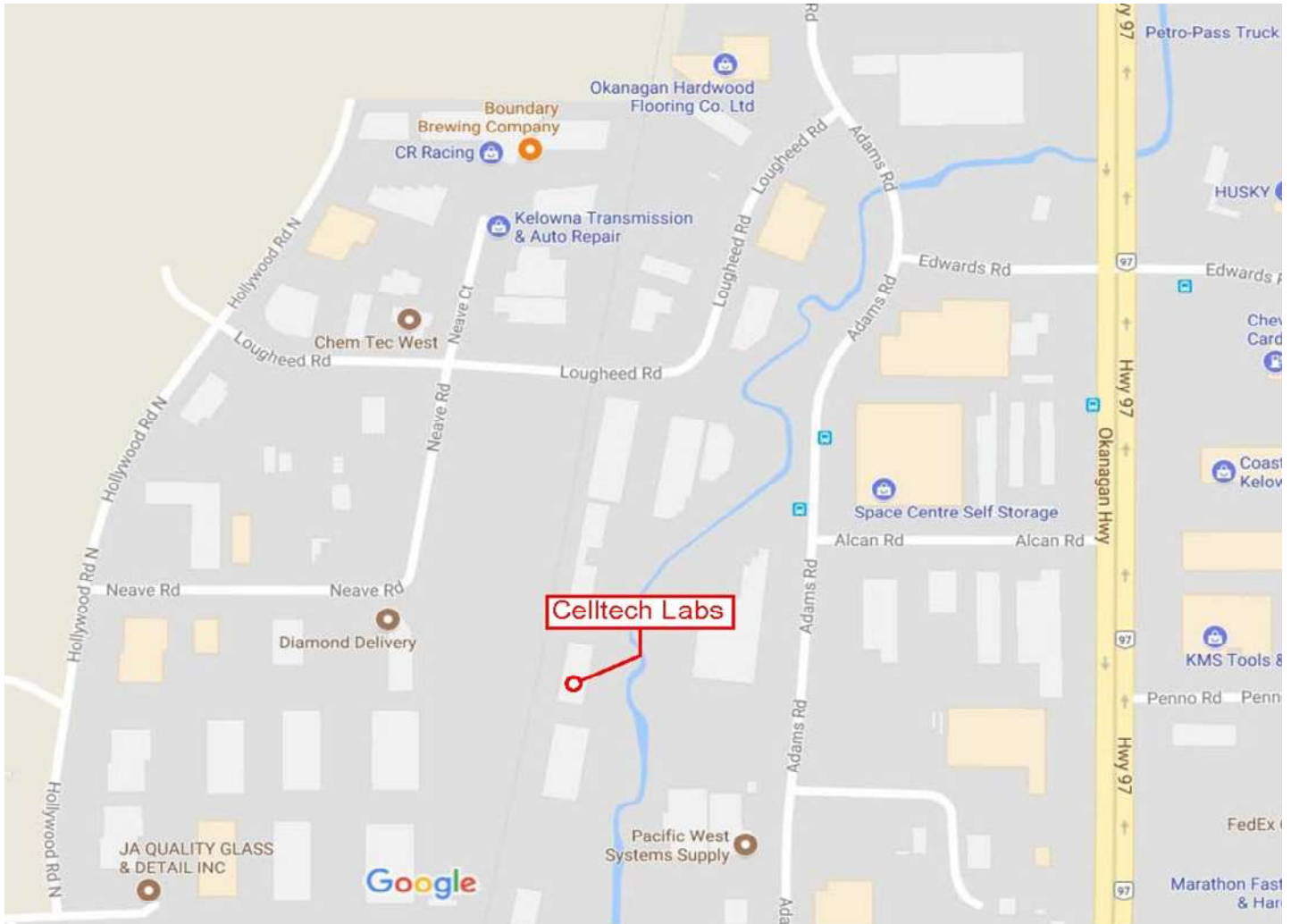
5.0 NORMATIVE REFERENCES

Normative References	
ISO/IEC 17025:2017	General requirements for the competence of testing and calibration laboratories
IEEE/ANSI C63.4:2014	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
CFR	Code of Federal Regulations Title 47: Telecommunication Part 2: Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
CFR	Code of Federal Regulations Title 47: Telecommunication Part 15: Radio Frequency Devices Subpart B: Unintentional Radiators
ISED	Innovation, Science and Economic Development Canada Spectrum Management and Telecommunications Radio Standards Specification RSS-Gen Issue 5: General Requirements and Information for the Certification of Radiocommunication Equipment
Industry Canada Spectrum Management & Telecommunications Policy	ICES-003 Issue 6: Information Technology Equipment (Including Digital Apparatus) - Limits and Methods of Measurement

6.0 FACILITIES AND ACCREDITATIONS

Facility and Accreditation:

The facilities used to evaluate this device outlined in this report are located at 21-364 Lougheed Road, Kelowna, British Columbia, Canada V1X 7R8. The radiated emissions site (OATS) conforms to the requirements set forth in ANSI C63.4 and is filed and listed with the FCC under Test Firm Registration Number CA3874 and Innovation, Science and Economic Development Canada under Test Site File Number ISED 3874A. Celltech is accredited to ISO 17025, through accrediting body A2LA and with certificate 2470.01.



7.0 RADIATED SPURIOUS EMISSIONS

Test Procedure

Normative Reference

FCC 47 CFR §15.109
ANSI C63.4-2014

Limits

47 CFR §15.109

(b) The field strength of radiated emissions from a Class A digital device, as determined at a distance of 10 meters, shall not exceed the following:

30-88MHz: 39.1dBuV/m

30-88MHz: 49.6dBuV/m @ 3m

88-216MHz: 43.5dBuV/m

88-216MHz: 54.0dBuV/m @ 3m

216-960MHz: 46.4dBuV/m

216-960MHz: 56.9dBuV/m @ 3m

> 960MHz: 49.5dBuV/m

> 960MHz: 60.0dBuV/m @ 3m

Test Setup

Appendix A

Figure A.2

Measurement Procedure

The DUT was set up as per ANSI C63.4:2014. Emissions were scanned between 30MHz and 1000MHz. The turntable was rotated 360 degrees and the antenna was elevated to 4m to optimize the measured emissions.

See Appendix 7D for Measurement Plots, 15B

Table 7.1 – Summary of Radiated Rx Spurious Emissions Measurements

Radiated Rx (Receiver) Spurious Emissions Measurement Results:						
Emission Frequency [F _{em}] (MHz)	Measured Emission [M _{em}] (dBuV)	Receive ACF @ [F _{em}] [ACF _E] (dB/m)	Cable Loss @ [F _{em}] [L _E] (dB)	Emission Field Strength [E _{em}] (dBuV/m)	Limit (dBuV/m)	Margin (dB)
ND	ND	n/a	n/a	ND	n/a	n/a
Result:						Complies

Emission Field Strength [E_{em}] = [M_{em}] + [ACF_E] + [L_E]

Margin = Limit - [E_{em}]

ND = None Detected

n/a = Not Applicable

APPENDIX A – TEST SETUP DRAWINGS AND CONDITIONS

Table A.1 – Radiated Measurement Setup

Equipment List				
Asset Number	Manufacturer	Model Number	Serial Number	Description
00050	Chase	CBL-6111A	1607	Bilog Antenna
00035	ETS	3115	6276	Double Ridged Guide Horn
00085	EMCO	6502	9203-2724	Loop Antenna
00241	R&S	FSU40	100500	Spectrum Analyzer
00005	HP	8648D	3847A00611	Signal Generator
00071	EMCO	2090	9912-1484	Multi-Device Controller
00263	Koaxis	KP10-1.00M-TD	263	1m Armoured Cable
00264	Koaxis	KP10-7.00M-TD	264	7m Armoured Cable
00275	TMS	LMR400	n/a	25m Cable
00276	TMS	LMR400	n/a	4m Cable
00278	TILE	34G3	n/a	TILE Test Software

NCR: No Calibration Required

COU: Calibrate On Use

Figure A.1 – Test Setup Radiated Measurements 30MHz – 1GHz

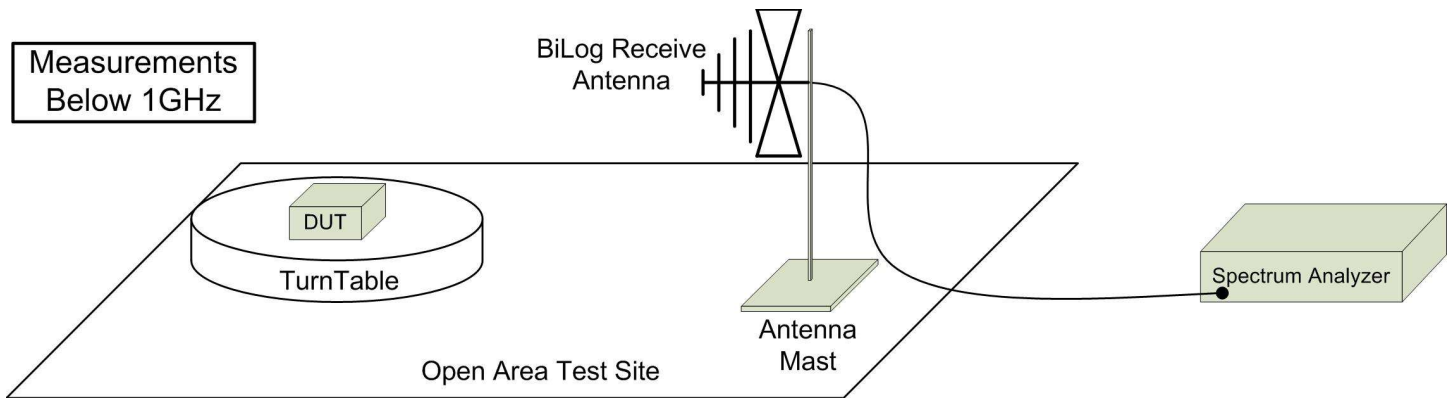
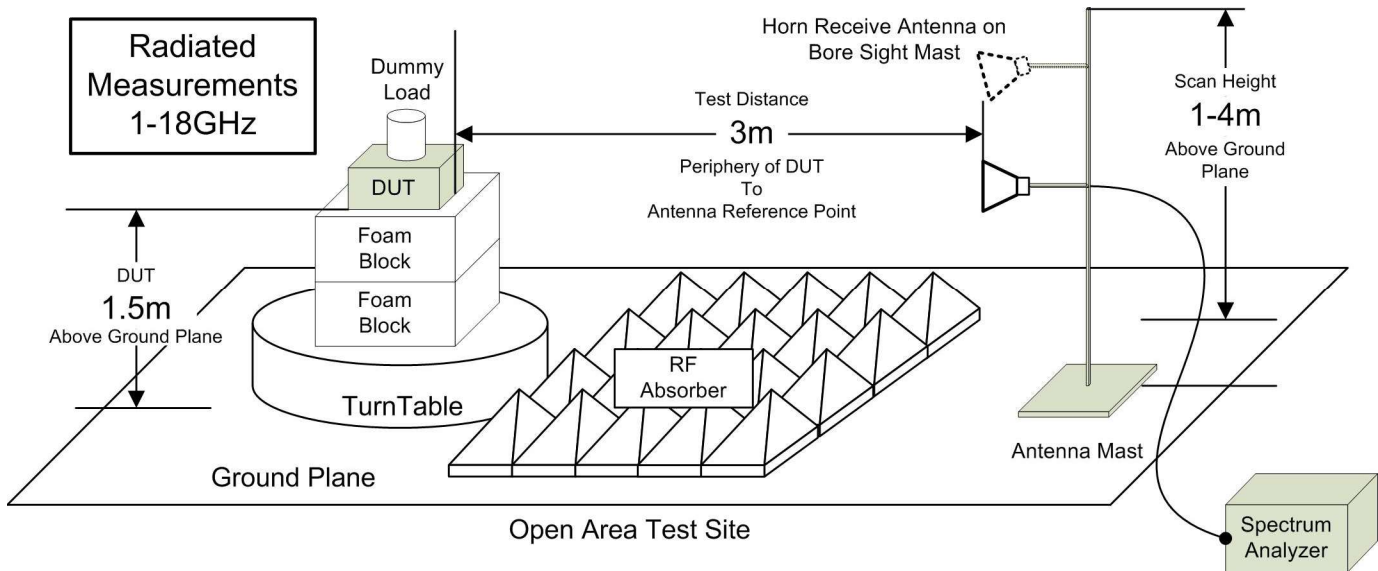


Figure A.2 – Test Setup Radiated Measurements 1 – 18GHz



APPENDIX B – EQUIPMENT LIST AND CALIBRATION

Equipment List							
Asset Number	Manufacturer	Model Number	Serial Number	Description	Last Calibrated	Calibration Interval	Calibration Due
00050	Chase	CBL-6111A	1607	Bilog Antenna	16 Nov 2023	Triennial	16 Nov 2026
00035	ETS	3115	6276	Double Ridged Guide Horn	27 Mar 2025	Triennial	27 Mar 2028
00241	R&S	FSU40	100500	Spectrum Analyzer	6 Sep 2024	Triennial	6 Sep 2027
00005	HP	8648D	3847A00611	Signal Generator	28 Jun 2023	Triennial	28 Jun 2026
00071	EMCO	2090	9912-1484	Multi-Device Controller	n/a	n/a	n/a
00072	EMCO	2075	0001-2277	Mini-mast	n/a	n/a	n/a
00073	EMCO	2080	0002-1002	Turn Table	n/a	n/a	n/a
00263	Koaxis	KP10-1.00M-TD	263	1m Armoured Cable	COU	n/a	COU

APPENDIX C – MEASUREMENT INSTRUMENT UNCERTAINTY

CISPR 16-4 Measurement Uncertainty (U_{LAB})

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence interval using a coverage factor of $k=2$

Radiated Emissions 30MHz - 200MHz

$U_{LAB} = 5.14\text{dB}$ $U_{CISPR} = 6.3\text{dB}$

Radiated Emissions 200MHz - 1000MHz

$U_{LAB} = 5.90\text{dB}$ $U_{CISPR} = 6.3\text{dB}$

Radiated Emissions 1GHz - 6GHz

$U_{LAB} = 4.80\text{dB}$ $U_{CISPR} = 5.2\text{dB}$

Radiated Emissions 6GHz - 18GHz

$U_{LAB} = 5.1\text{dB}$ $U_{CISPR} = 5.5\text{dB}$

Power Line Conducted Emissions 9kHz to 150kHz

$U_{LAB} = 2.96\text{dB}$ $U_{CISPR} = 3.8\text{dB}$

Power Line Conducted Emissions 150kHz to 30MHz

$U_{LAB} = 3.12\text{dB}$ $U_{CISPR} = 3.4\text{dB}$

If the calculated uncertainty U_{lab} is **less** than U_{CISPR} then:

- | | |
|---|---|
| 1 | Compliance is deemed to occur if NO measured disturbance exceeds the disturbance limit |
| 2 | Non-Compliance is deemed to occur if ANY measured disturbance EXCEEDS the disturbance limit |

If the calculated uncertainty U_{lab} is **greater** than U_{CISPR} then:

- | | |
|---|--|
| 3 | Compliance is deemed to occur if NO measured disturbance, increased by ($U_{lab} - U_{CISPR}$), exceeds the disturbance limit |
| 4 | Non-Compliance is deemed to occur if ANY measured disturbance, increased by ($U_{lab} - U_{CISPR}$), EXCEEDS the disturbance limit |

Other Measurement Uncertainties (U_{LAB})

RF Conducted Emissions 9kHz - 40GHz

$U_{LAB} = 1.0\text{dB}$ $U_{CISPR} = \text{n/a}$

Frequency/Bandwidth 9kHz - 40GHz

$U_{LAB} = 0.1\text{ppm}$ $U_{CISPR} = \text{n/a}$

Temperature

$U_{LAB} = 1^{\circ}\text{C}$ $U_{CISPR} = \text{n/a}$

END OF REPORT

27 Oct 2025 9:50