Radio Test Report

Manufacturer: Pyramid Communications
Model: SVR-350MAH and SVR-P252MAH

In accordance with FCC 47 CFR Part 90 and 27, FCC 47 CFR Part 2, Industry Canada RSS-119 and ISED RSS-GEN

Prepared for: Pyramid Communications
30161-A Avenida de las Banderas
Rancho Santa Margarita CA 92688

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Document 0721011445-02 Issue 01

SIGNATURE			
			
NAME	**JOB TITLE**	**RESPONSIBLE FOR**	**ISSUE DATE**
Ferdinand Custodio	Senior EMC Test Engineer/Wireless Team Lead	Authorised Signatory	July 1, 2025

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD document control rules.

EXECUTIVE SUMMARY

A sample of this product was tested and found to be compliant with FCC 47 CFR Part 90, FCC 47 CFR Part 2, Industry Canada RSS-119 Issue 12 (05-2015) and ISED RSS-GEN 2023 Issue 5 (04-2018) + A2 (02-2021) for the tests detailed in section 1.3.

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1 Report Summary

1.1 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

Issue	Description of Change	Date of Issue
01	First version	07-01-2025

Table 1

1.2 Introduction

Applicant	Pyramid Communications
Manufacturer	Pyramid Communications
Model Number(s)	SVR-350MAH and SVR-P252MAH
Serial Number(s)	21688406
Hardware Version(s)	D
Software Version(s)	0.0.1-1674
Number of Samples Tested	1
Test Specification/Issue/Date	FCC 47 CFR Part 90, FCC 47 CFR Part 2, Industry Canada RSS-119 and ISED RSS-GEN 2023, Issue 12 (05-2015) and Issue 5 (04-2018) + A2 (02-2021)
Test Plan/Issue/Date	N/A
Order Number	0721011445
Date	15-April-2025
Date of Receipt of EUT	29-May-2025
Start of Test	25-May-2025
Finish of Test	27-June-2025
Name of Engineer(s)	Ferdinand Custodio
Related Document(s)	ANSI C63.26: 2015

1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with FCC 47 CFR Part 90, FCC 47 CFR Part 2 and Industry Canada RSS-119 and ISED RSS-GEN is shown below.

Section	Specification Clause	Test Description	Result	Comments/Base Standard
Configuration and Mode: SVR-350MAH-_-TX Mode				
2.1	90.205, 2.1046, 5.4 and 6.12	Maximum Conducted Output Power	Pass	ANSI C63.26: 2015
2.2	90.210, 2.1053, 5.8 and 6.13	Radiated Spurious Emissions	Pass	ANSI C63.26: 2015

Table 2

1.4 Customer Supplied Form

PYRAMID COMMUNICATIONS
Since 1990

DECLARATION OF SIMILARITY

May 19, 2025

To:
TUV SUD America, San Diego

Dear Sir or Madam:

We *Pyramid Design & Manufacturing, Inc., dba Pyramid Communications.* hereby declares that product: *Vehicular Repeater (VRS)* model(s): SVR-P250MA, SVR-P255MA, SVR-P752MA, SVR-P252MA, SVR-350MA, SVR-352MA, SVR-P350MA, SVR-D350MA, SVR-P352MA, is/are electrically identical with the same electromagnetic emissions and electromagnetic compatibility characteristics as model:

SVR-350MAH & SVR-P252MAH Number(s) of products being tested by TUV SUD America, San Diego

A description of the differences between the tested model and those that are declared similar are as follows:

Different model numbers signify different user features, but all models have the same RF hardware and emissions are identical. We make no modifications to the emissions from one model to another.

Please contact me should there be need for any additional clarification or information.

Best Regards, *Chris Carbajal, President*

Pyramid Communications
30161 Avenida de las Banderas, Unit A
Rancho Santa Margarita, CA 92688

Pyramid Communications
30161-A Avenida de las Banderas, Rancho Santa Margarita, CA 92688
Voice: (714) 901-5462 - Fax: (714) 901-5472 - www.pyramidcomm.com

1.5 Product Information

1.5.1 Technical Description

The EUT is a simplex vehicular repeater from Pyramid Communications. The EUT is scalable from a full featured analog unit to a digital P25 unit later. Optional Software Feature Keys (SFK) can add capabilities like P25 digital operation, AES/DES Encryption and EVRS. In analog mode, the unit is fully backwards compatible with other analog systems from the same family.

The radio module of the EUT is certified for 30W of operation. The EUT is being certified with its own FCC ID/ISED ID for 12W of operation. This report is a host verification test report to support Class II Permissive Change using a certified radio module for reduced power operation.

The EUT was provided with preset channels for testing. No additional programming is required. A channel table for reference was also provided.

Channel 1 to 5	LOW TxPwr setting
Channel 6 to 10	MID TxPwr setting
Channel 11 to 15	HIGH TxPwr setting

*Center frequencies are identical between each group of channels (i.e. Channel 7 = Channel 12). The group corresponding to 12W operation is used for power level verifications.

1.5.2 Specification

EUT FCC ID	LRUSVR-P250MB
EUT ISED ID	2390A-SVRP250MB
Radio Module FCC ID	CASTMBK5B
Frequency Range	764-776 MHz + 850-870 MHz

1.5.3 Radio Details (RSS-119)

Frequency Min (MHz)	Frequency Max (MHz)	RF Power		Emission Designator
		Min	Max	
768	776	2	12	7K60FXD
768	776	2	12	8K10F7D
768	776	2	12	8K10F1D
768	776	2	12	8K10F1W
768	776	2	12	8K10F1E
768	776	2	12	7K60FXW
798	806	2	12	8K10F1D
798	806	2	12	7K60FXD
798	806	2	12	8K10F7D
798	806	2	12	7K60FXW
798	806	2	12	8K10F1W
798	806	2	12	8K10F1E
806	806	2	12	7K80F2D
806	806	2	12	11K0F3E
806	821	2	12	16K0F3E
806	821	2	12	8K10F1E
806	821	2	12	8K10F1W
806	821	2	12	10K8F2D
806	821	2	12	8K10F1D
806	821	2	12	9K60F2D
806	821	2	12	8K10F7D

806	821	2	12	7K60FXD
806	821	2	12	6K60F2D
806	821	2	12	7K60FXW
806	821	2	12	8K10F7E
851	869	2	12	8K10F7D
851	869	2	12	9K60F2D
851	869	2	12	8K10F1D
851	869	2	12	8K10F1E
851	869	2	12	7K80F2D
851	869	2	12	6K60F2D
851	869	2	12	7K60FXD
851	869	2	12	7K60FXW
851	869	2	12	16K0F3E
851	869	2	12	8K10F1W
851	869	2	12	10K8F2D
851	869	2	12	8K10F7E
851	869	2	12	11K0F3E

1.5.4 Radio Details (FCC 47 CFR Part 90 and Part 27)

Frequency Range (MHz)	Emission Designator
762.0 - 806.0	8K10F1E
762.0 - 806.0	8K10F7E
762.0 - 806.0	8K10F1D
762.0 - 806.0	8K10F7D
762.0 - 806.0	7K60FXW
762.0 - 806.0	7K60FXD
762.0 - 806.0	8K10F1W
762.0 - 806.0	8K10F1E
762.0 - 806.0	8K10F1D
762.0 - 806.0	8K10F7E
762.0 - 806.0	8K10F7D
762.0 - 806.0	7K60FXW
762.0 - 806.0	7K60FXD
806.0 - 870.0	8K10F1W
806.0 - 870.0	8K10F1D
806.0 - 870.0	8K10F1E
806.0 - 870.0	8K10F7E
806.0 - 870.0	8K10F7D
806.0 - 870.0	7K60FXW
806.0 - 870.0	7K60FXD
806.0 - 870.0	11K0F3E
806.0 - 870.0	16K0F3E
806.0 - 870.0	6K60F2D
806.0 - 870.0	7K80F2D
806.0 - 870.0	9K60F2D
806.0 - 870.0	10K8F2D
806.0 - 870.0	8K10F1W
806.0 - 870.0	8K10F1E
806.0 - 870.0	8K10F7E
806.0 - 870.0	8K10F1D
806.0 - 870.0	8K10F7D

806.0 - 870.0	7K60FXW
787.0 - 788.0	11K0F3E
787.0 - 788.0	16K0F3E
787.0 - 788.0	6K60F2D
787.0 - 788.0	9K60F2D
787.0 - 788.0	7K80F2D
787.0 - 788.0	10K8F2D
787.0 - 788.0	7K60FXW

1.6 Deviations from the Standard

No deviations from the applicable test standard were made during testing.

1.7 EUT Modification Record

The table below details modifications made to the EUT during the test programme.

The modifications incorporated during each test are recorded on the appropriate test pages.

Modification State	Description of Modification still fitted to EUT	Modification Fitted By	Date Modification Fitted
SVR-350M, Model: SVR-350MAH and SVR-P252MAH, Serial Number: 21688406			
0	As supplied by the customer	Not Applicable	Not Applicable

Table 3

1.8 Test Location

TÜV SÜD conducted the following tests at our San Diego Test Laboratory.

Test Name	Name of Engineer(s)	Accreditation
Configuration and Mode: SVR-350MAH-_-TX Mode		
Maximum Conducted Output Power	Ferdinand Custodio	A2LA
Radiated Spurious Emissions	Ferdinand Custodio	A2LA

Table 4

Laboratory Address: 10040 Mesa Rim Road,
San Diego, CA,
92121, USA

2 Test Details

2.1 Maximum Conducted Output Power

2.1.1 Specification Reference

FCC 47 CFR Part 90, FCC 47 CFR Part 2, Industry Canada RSS-119 and ISED RSS-GEN, Clause 90.205, 2.1046, 5.4 and 6.12

2.1.2 Equipment Under Test and Modification State

SVR-350MAH and SVR-P252MAH, S/N: 21688406 - Modification State 0

2.1.3 Date of Test

25-May-2025 and 27-June-2025

2.1.4 Test Method

SVR-350MAH-_-TX Mode
The test was applied in accordance with the test method requirements of FCC 47 CFR Part 90, Industry Canada RSS-119, and ISED RSS-GEN with reference to ANSI C63.26, clause 5.2.3.3.

The EUT was configured to transmit on maximum power (12W). The EUT was connected to a spectrum analyser via a cable and sufficient external attenuation. The path loss was measured and entered as a correction in the spectrum analyser. The RBW of the spectrum analyser was set to 120 kHz and the video bandwidth to 3X RBW with the trace set to max hold using a peak detector and the result was recorded.

Channels corresponding to12W operation were used for this test.

2.1.5 Environmental Conditions

Ambient Temperature	23.9 - 24.2 °C
Relative Humidity	47.1 - 47.6 %

2.1.6 Test Results

SVR-350MAH-_-TX Mode

Parameter	762 MHz	776 MHz	850 MHz	860 MHz	870 MHz
Conducted Output Power (dBm)	39.89	40.29	40.56	40.63	40.18
Manufacturer Declared Power (dBm)	40.79	40.79	40.79	40.79	40.79
Δ from manufacturer Power (dB)	0.90	0.50	0.23	0.16	0.61
Antenna Gain (dBi)	0	0	0	0	0
EIRP (dBm)	39.89	40.29	40.56	40.63	40.18

Table 5 - EIRP

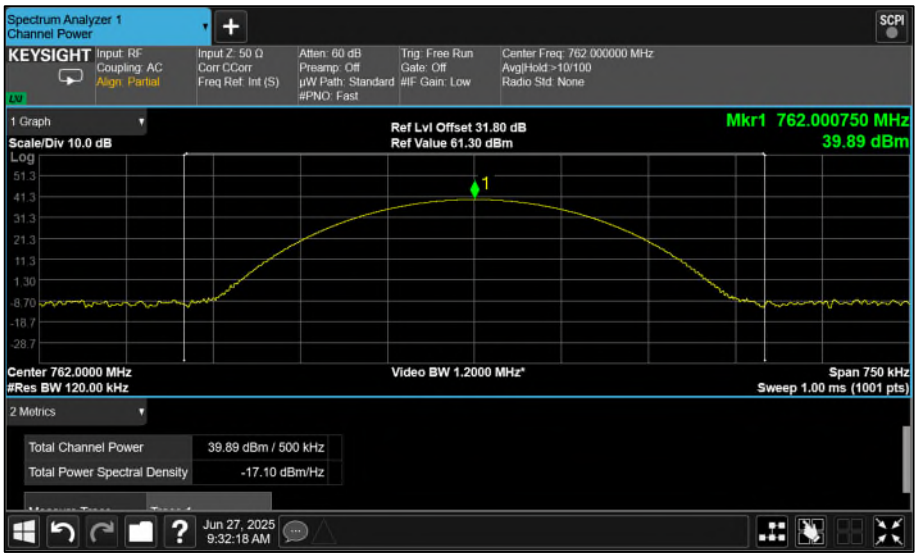


Figure 1 - 762 MHz:

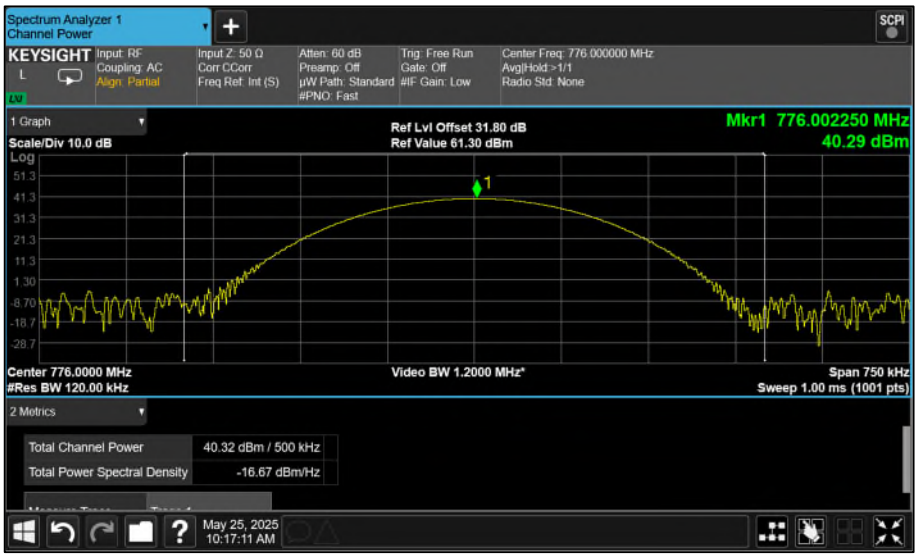


Figure 2 776 MHz:

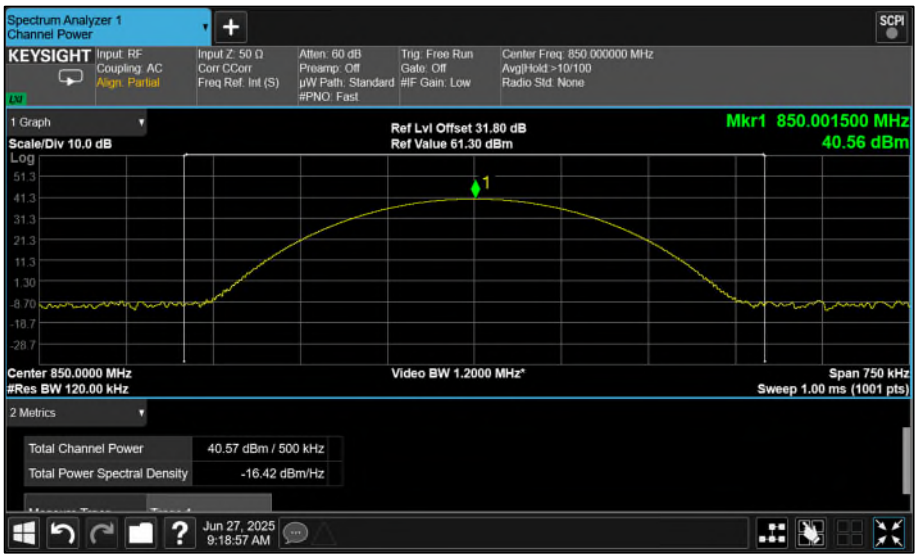


Figure 3 - 850 MHz:

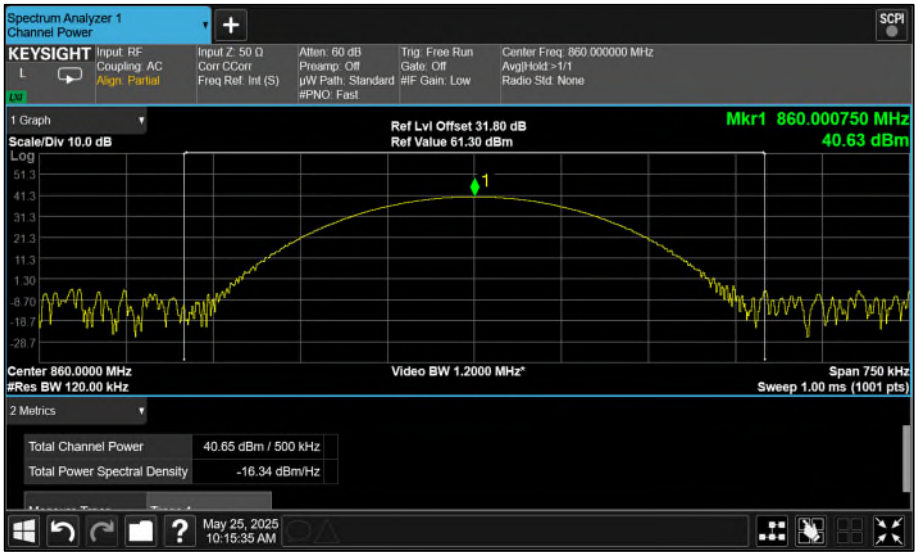


Figure 4 860 MHz:

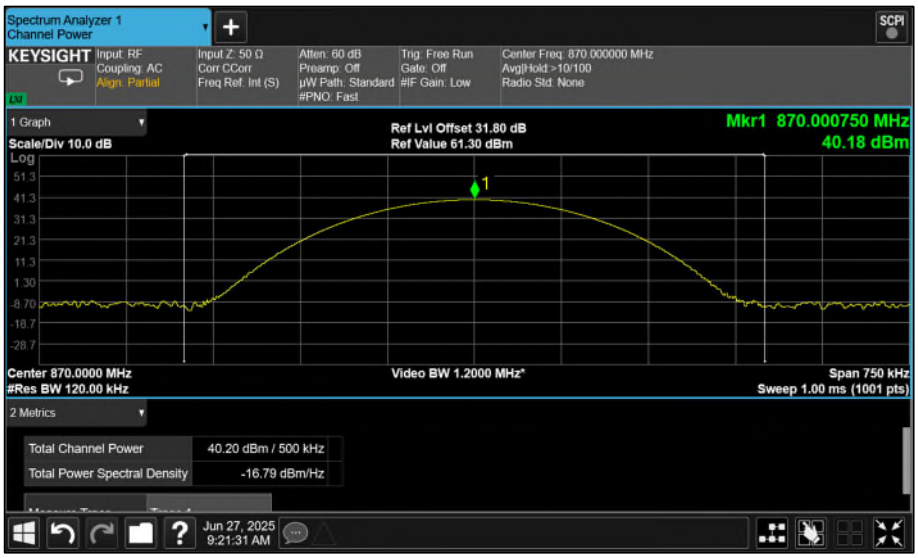


Figure 5 - 870 MHz:

FCC 47 CFR Part 90, Limit Clause 90.205

Frequency (MHz)	Limit
< 25	1000 W
25 to 50	300 W
72 to 76	300 W
150 to 174	Refer to 90.205 (d) of the specification
217 to 220	Refer to 90.259 of the specification
220 to 222	Refer to 90.729 of the specification
421 to 430	Refer to 90.279 of the specification
450 to 470	Refer to 90.205 (h) of the specification
470 to 512	Refer to 90.307 and 90.309 of the specification
758 to 775 and 788 to 805	Refer to 90.541 and 90.542 of the specification
806 to 824, 851 to 869, 869 to 901 and 935 to 940	Refer to 90.635 of the specification
902 to 927.25	LMS systems operating pursuant to subpart M of the specification : 30 W
927.25 to 928	LMS equipment: 300 W
929 to 930	Refer to 90.494 of the specification
1427 to 1429.5 and 1429.5 to 1432	Refer to 90.259 of the specification
2450 to 2483.5	5 W
4940 to 4990	Refer to 90.1215 of the specification

5850 to 5925	Refer to subpart M of the specification
All other frequency bands	On a case by case basis

Table 6 - FCC Limits for Maximum ERP

Industry Canada RSS-119, Limit Clause 5.4

The output power shall be within ±1 dB of the manufacturer's rated power listed in the equipment specifications.

Frequency (MHz)	Transmitter Output Power (W)	
	Base/Fixed Equipment	Mobile Equipment
27.41 to 28 and 29.7 to 50	300	30
72 to 76	No Limit	1
138 to 174	111100	60
217 to 217 and 219 to 220	See SRSP-512 for ERP limit	30*
220 to 222	110	50
406.1 to 430 and 450 to 470	See SRSP-511 for ERP limit	60
768 to 776 and 798 to 806	110	30 3 W ERP for portable equipment
806 to 821, 851 to 866, 821 to 824 and 866 to 869	110	30
896 to 901 and 935 to 940	110	60
929 to 930 and 931 to 932	110	30
928 to 929, 952 to 953, 932 to 932.5 and 941 to 941.5	110	30
932.5 to 935 ad 941.5 to 944	110	30
*Equipment is generally authorised for effective radiated power (ERP) of less than 5 W.		

Table 7 - Industry Canada Limits for Transmitter Output Power

2.1.7 Test Location and Test Equipment Used

This test was carried out in SR5 (MM).

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
MXA Signal Analyzer	Keysight Technologies	N9020B	69046	1 year	10-Oct-2025

Table 8

2.2 Radiated Spurious Emissions

2.2.1 Specification Reference

FCC 47 CFR Part 90, FCC 47 CFR Part 2, Industry Canada RSS-119 and ISED RSS-GEN, Clause 90.210, 2.1053, 5.8 and 6.13

2.2.2 Equipment Under Test and Modification State

SVR-350MAH and SVR-P252MAH, S/N: 21688406 - Modification State 0

2.2.3 Date of Test

07-June-2025

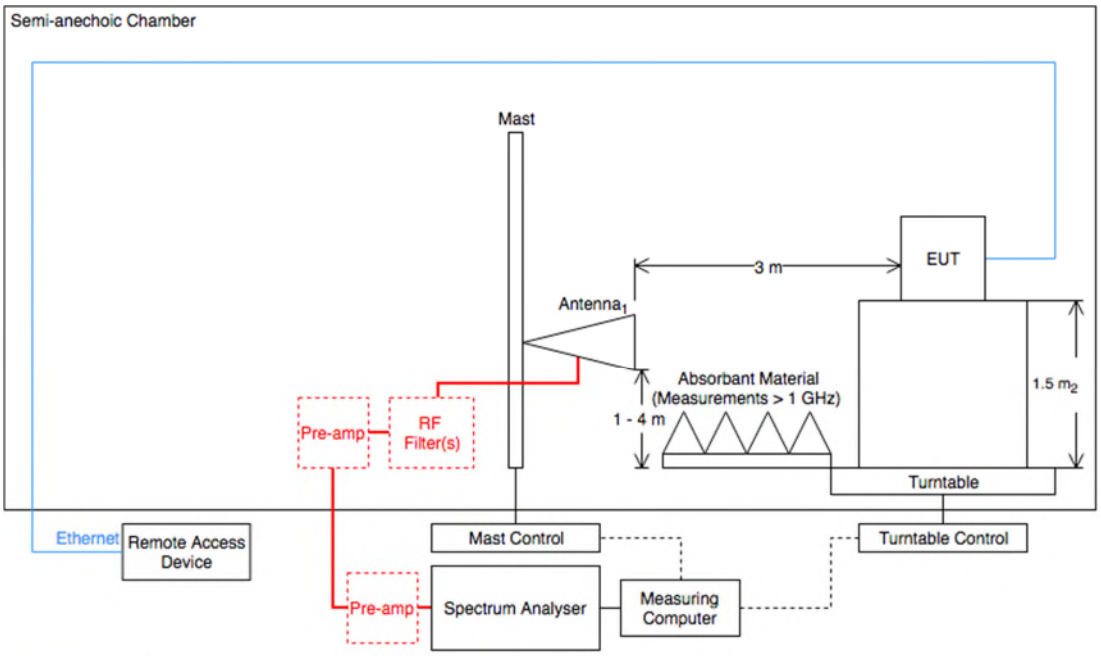
2.2.4 Test Method

SVR-350MAH-_-TX Mode

A preliminary profile of the Radiated Spurious Emissions was obtained up to the 5th harmonic by operating the EUT on a remotely controlled turntable within a semi-anechoic chamber. Measurements of emissions from the EUT were obtained with the Measurement Antenna in both Horizontal and Vertical Polarisations. The profiling produced a list of the worst-case emissions together with the EUT azimuth and antenna polarisation. Limit is based from declared 12W power.

Testing was performed in accordance with ANSI C63.26, Clause 5.5. Prescans and final measurements were performed using the direct field strength method.

Channels corresponding to High TxPwr setting were used for this test (worst case for spurious emissions verifications).



1 Antenna is boresighted for measurements < 1 GHz.
2 Height from the EUT to ground is 0.8 m for measurements < 1 GHz.

Figure 6

Table 9 - Radiated Emissions Test Setup Diagram

2.2.5 Environmental Conditions

Ambient Temperature	23.4 °C
Relative Humidity	59.6 %

2.2.6 Test Results

SVR-350MAH-_-TX Mode

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation	Orientation

Table 10 - 776 MHz

*No emissions were detected within 6 dB of the limit.

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation	Orientation
6879.9	63.97	66.02	-1.79	Peak	353	102	Vertical	-

Table 11 - 860 MHz

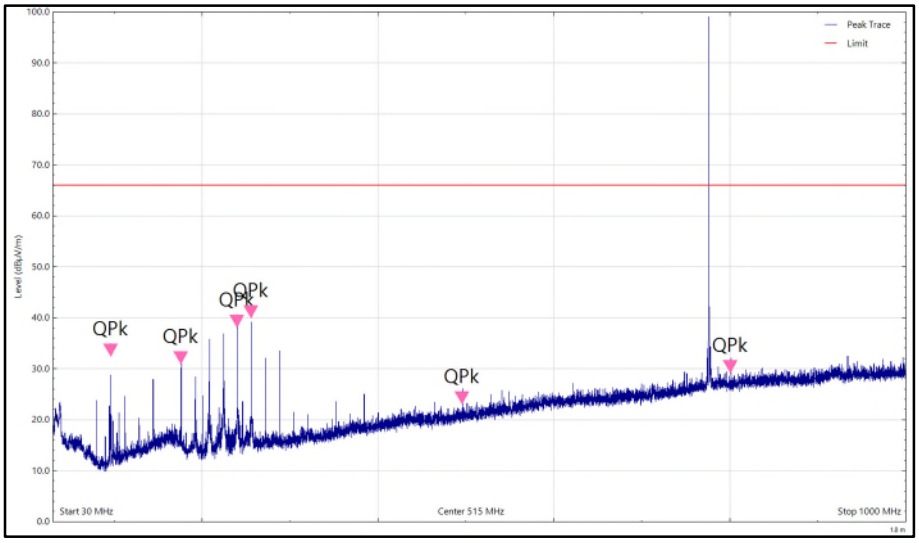
No other emissions were detected within 6 dB of the limit.

FCC 47 CFR Part 90, Limit Clause 90.210

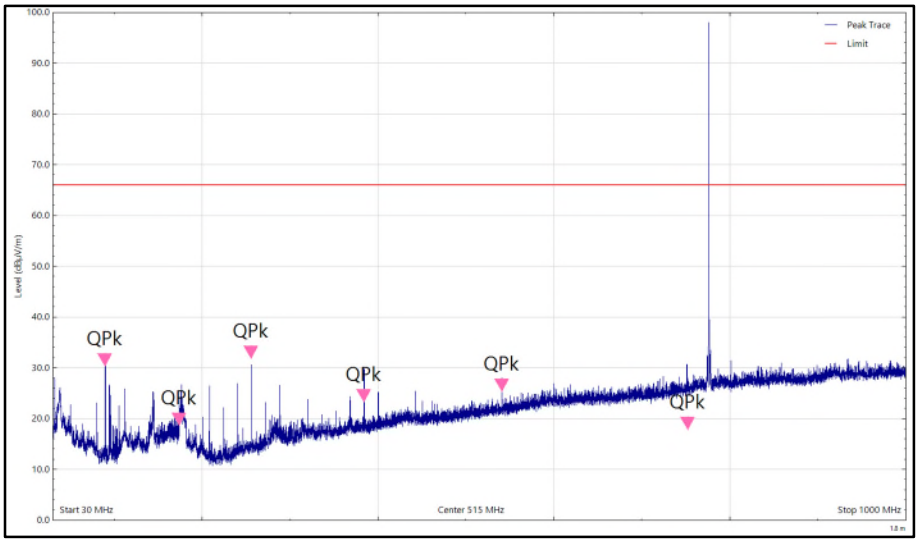
The EUT shall comply with emission mask D as per FCC 47 CFR Part 90, clause 90.210.

Industry Canada RSS-119, Limit Clause 5.8

The EUT shall comply with emission mask D as per ISED RSS-119. clause 5.8.

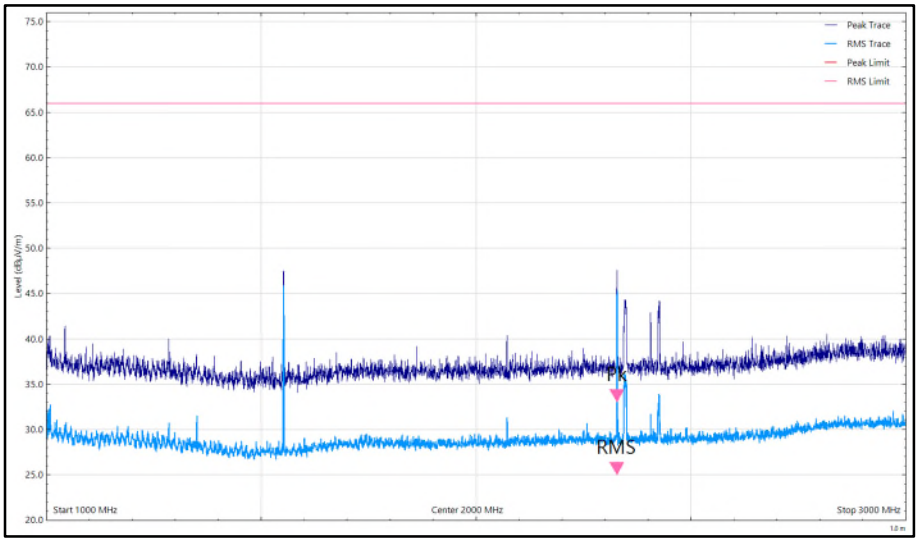


Low Channel 30 MHz to 1 GHz, Horizontal

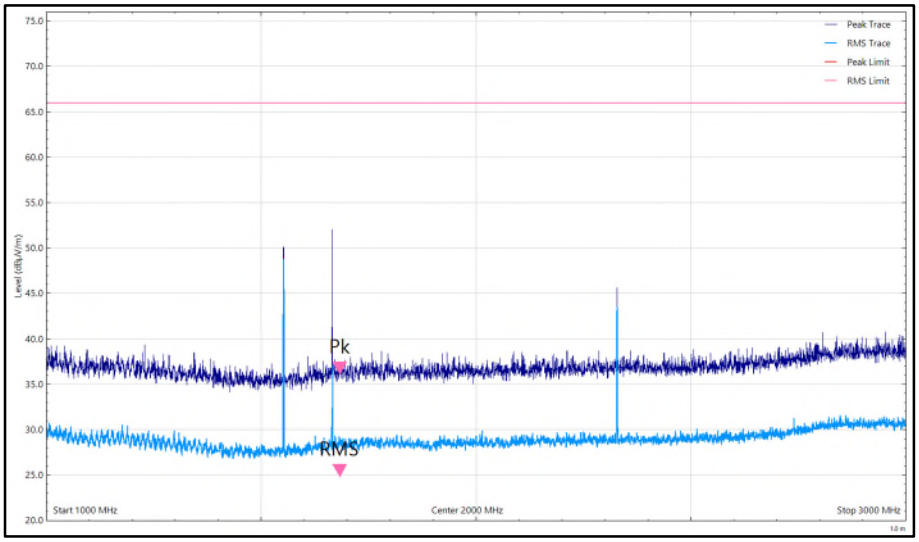


Low Channel 30 MHz to 1 GHz, Vertical

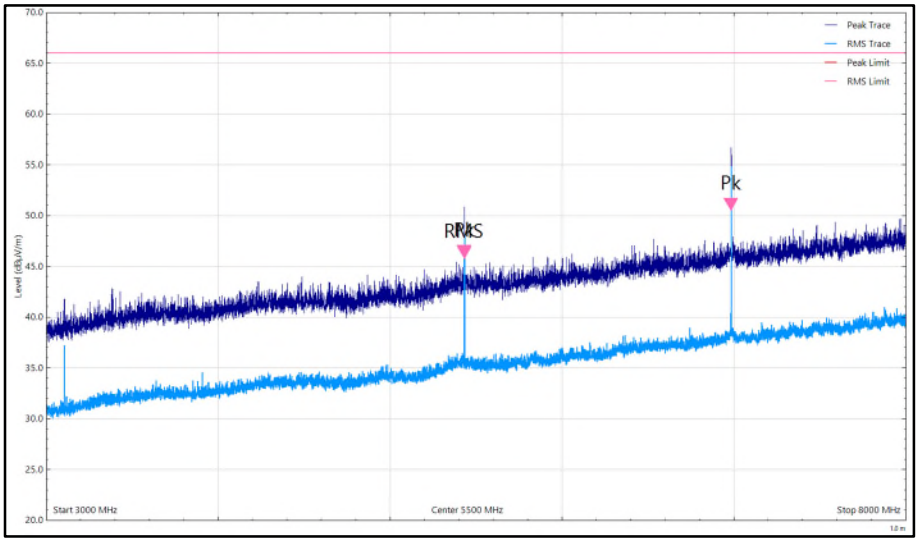
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
89.549	30.02	66.02	-36.00	Q-Peak	360	169	Vertical
95.987	32.07	66.02	-33.95	Q-Peak	251	199	Horizontal
173.810	18.35	66.02	-47.67	Q-Peak	184	113	Vertical
175.985	30.63	66.02	-35.39	Q-Peak	234	100	Horizontal
239.984	37.79	66.02	-28.23	Q-Peak	238	100	Horizontal
255.968	31.48	66.02	-34.54	Q-Peak	138	119	Vertical
255.985	39.59	66.02	-26.43	Q-Peak	232	100	Horizontal
383.978	22.97	66.02	-43.05	Q-Peak	359	128	Vertical
495.970	22.70	66.02	-43.32	Q-Peak	152	101	Horizontal
540.662	25.04	66.02	-40.98	Q-Peak	153	111	Vertical
752.665	17.52	66.02	-48.50	Q-Peak	348	101	Vertical
800.979	28.87	66.02	-37.15	Q-Peak	119	101	Horizontal



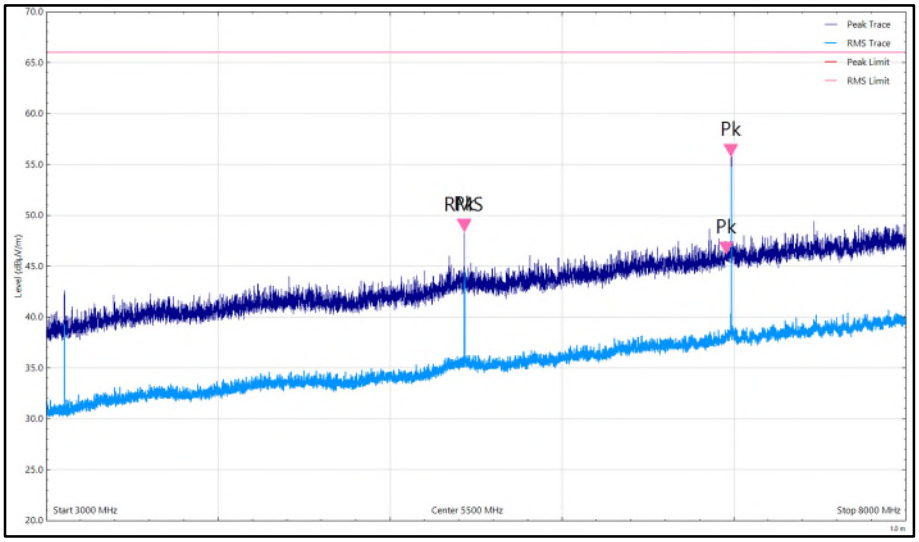
Low Channel 1 to 8 GHz, 1 GHz to 3 GHz, Horizontal



Low Channel 1 to 8 GHz, 1 GHz to 3 GHz, Vertical



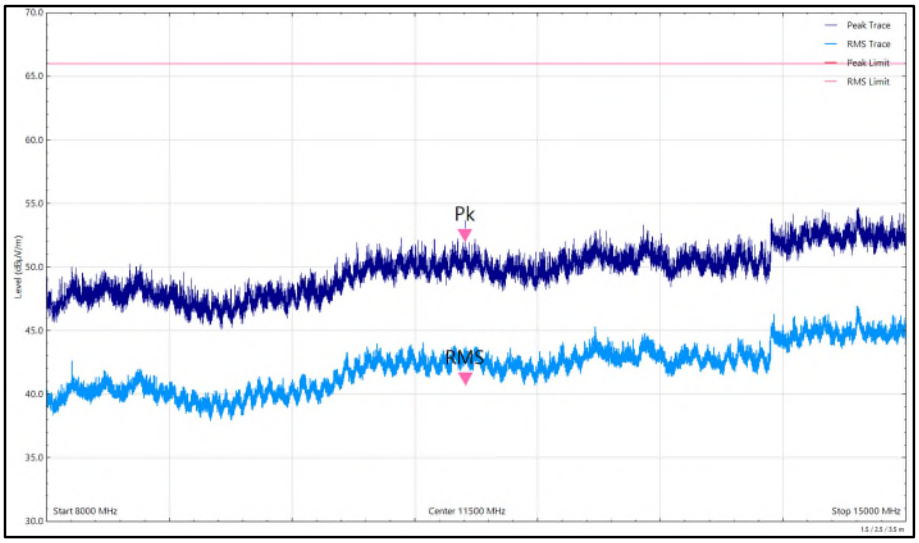
Low Channel 1 to 8 GHz, 3 GHz to 8 GHz, Horizontal



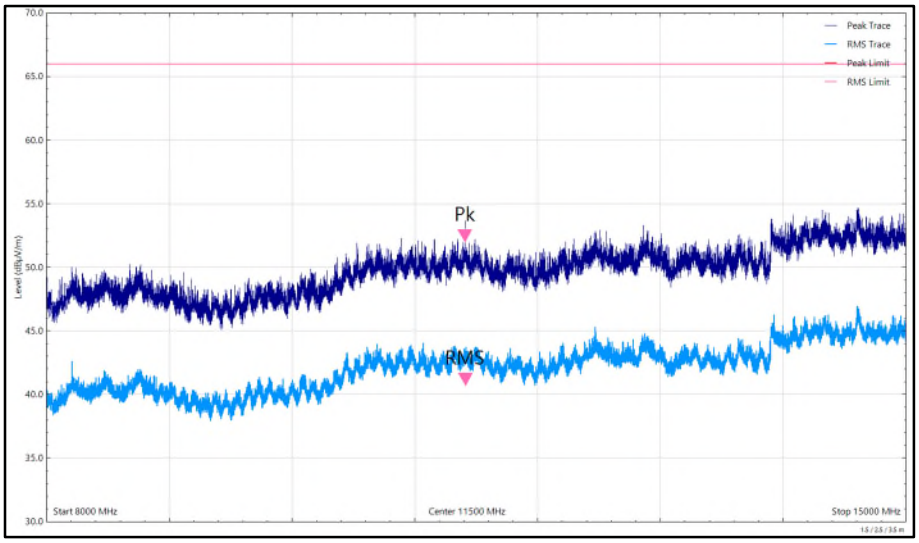
Low Channel 1 to 8 GHz, 3 GHz to 8 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
1683.519	24.61	66.02	-41.41	RMS	314	102	Vertical
1683.519	35.90	66.02	-30.12	Peak	314	102	Vertical
2327.960	24.83	66.02	-41.19	RMS	2	102	Horizontal
2327.960	32.86	66.02	-33.16	Peak	2	102	Horizontal
5432.020	48.18	66.02	-17.84	RMS	353	102	Vertical
5432.020	48.21	66.02	-17.81	Peak	353	102	Vertical
5432.130	45.58	66.02	-20.44	RMS	333	108	Horizontal
5432.130	45.68	66.02	-20.34	Peak	333	108	Horizontal
6956.497	45.99	66.02	-20.03	Peak	303	109	Vertical

6983.930	50.32	66.02	-15.70	Peak	143	108	Horizontal
6984.035	55.56	66.02	-10.46	Peak	320	102	Vertical

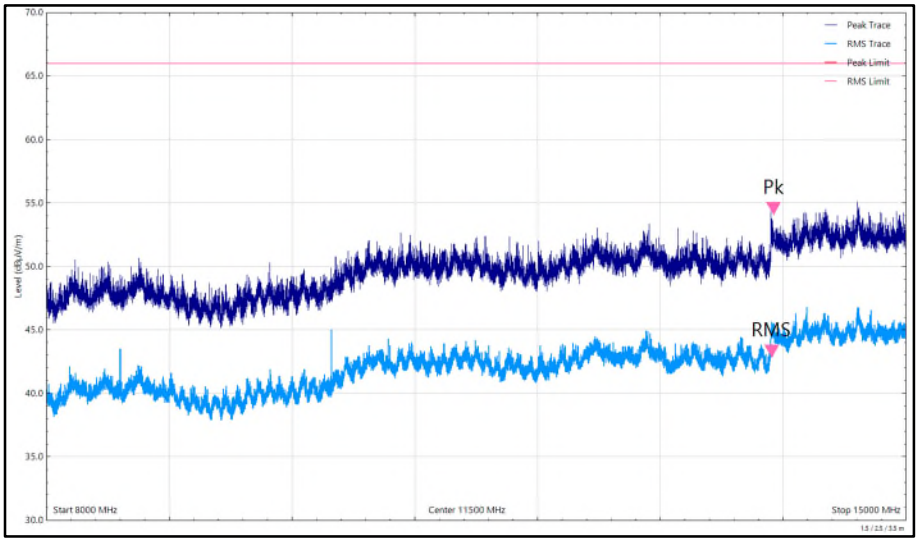


Low Channel 8 to 15 GHz, Horizontal

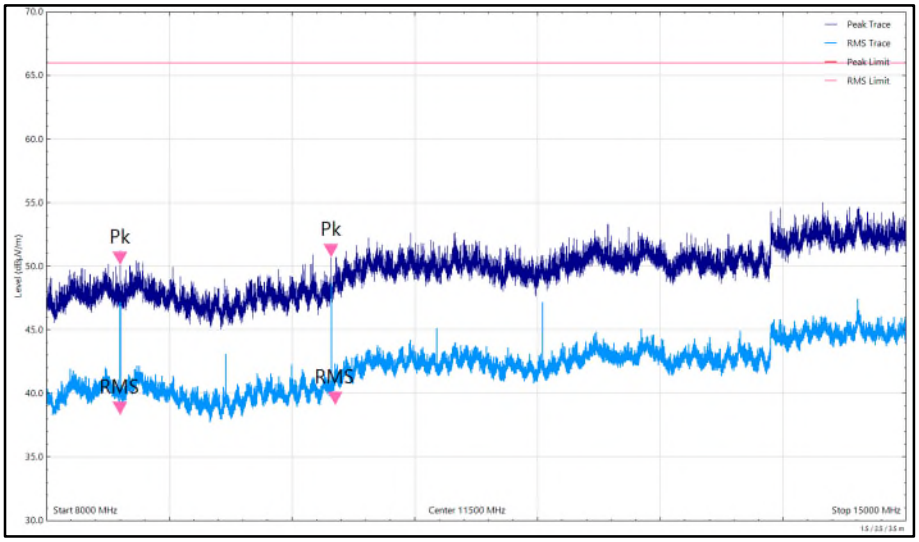


Low Channel 8 to 15 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
11411.979	51.85	66.02	-14.17	Peak	66	379	Horizontal
11416.804	40.55	66.02	-25.47	RMS	66	379	Horizontal
14337.164	43.13	66.02	-22.89	RMS	227	342	Vertical
14337.794	54.45	66.02	-11.57	Peak	227	342	Vertical



High Channel 8 to 15 GHz, Horizontal



High Channel 8 to 15 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
8600.059	50.01	66.02	-16.01	Peak	339	300	Vertical
8600.199	38.22	66.02	-27.80	RMS	339	300	Vertical
10319.860	50.58	66.02	-15.44	Peak	338	300	Vertical
10353.636	38.98	66.02	-27.04	RMS	338	300	Vertical
13911.056	42.68	66.02	-23.34	RMS	342	303	Horizontal
13924.483	53.94	66.02	-12.08	Peak	342	303	Horizontal

2.2.7 Test Location and Test Equipment Used

This test was carried out in SR5 (MM).

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
0.5 to 22GHz Preamplifier	Com Power	PA-122	46797	12 month	06-Jan-2026
ESW44 EMI Test Receiver	Rohde & Schwarz	ESW44 with HF Option	68210	1 year	27-Jun-2025
7.5-18 GHz Double Ridge Horn Antenna	Schwarzbeck Mess-Elektronik	HWRD 750	69562	1 year	06-Nov-2025
1-10 GHz Broad-Band Horn Antenna	Schwarzbeck Mess-Elektronik	BBHA 9120 B	69563	1 year	06-Nov-2025
25-2000 MHz Trilog-Broadband Antenna	Schwarzbeck Mess-Elektronik	VULB 9168	69564	1 year	06-Nov-2025
TUV SSU 010 PLC US	TUV SUD UK	TUV SSU 010 PLC US	74136	1 year	16-Apr-2026

Table 12

3 Photographs

3.1 Equipment Under Test (EUT)

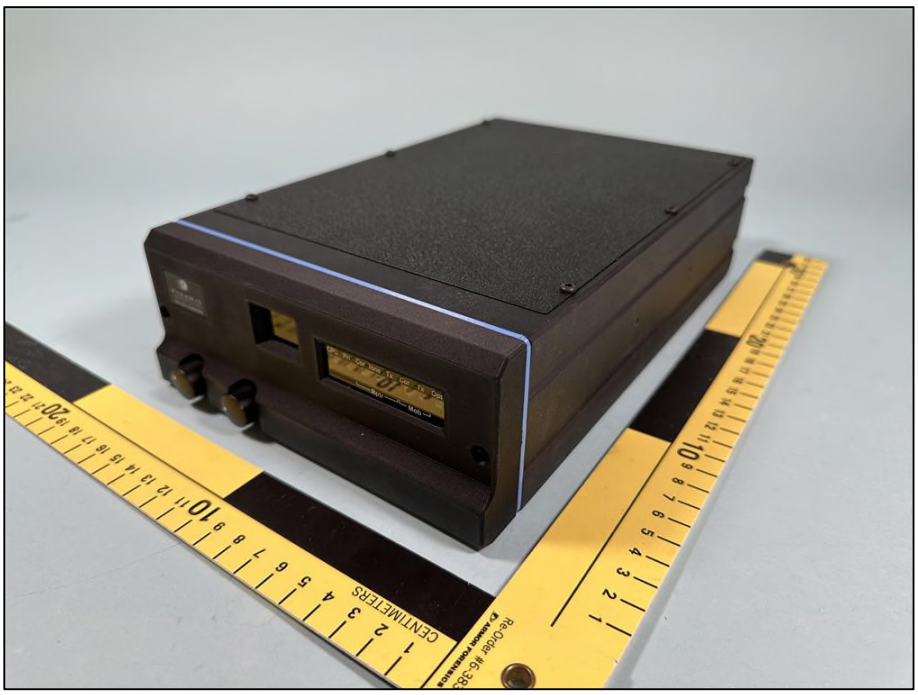


Figure 7 - General View

Figure 8 - General View

4 Test Equipment Information

4.1 General Test Equipment Used

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
True RMS Multimeter	Fluke	85 III	43003	12 months	09-Oct-2025
D.C. Power Supply	Lambda Electronics Inc.	LLS-6040	-	NCR	Verified by 43003
Barometer/Temperature/Humidity Transmitter	Omega	iBTHX-W	30215	1 year	22-May-2026

4.2 Customer Support Equipment

The following customer supplied test equipment was used during testing covered by this document.

Instrument	Manufacturer	Type No	Serial Number	Calibration Period (months)	Calibration Due
EUT Test Set	Pyramid Communications	N/A	N/A		

Table 13

5 Measurement Uncertainty

For a 95% confidence level, the measurement uncertainties for defined systems are:

Test Name	Measurement Uncertainty
Maximum Conducted Output Power	1.04dB
Radiated Spurious Emissions	5.94dB (30MHz to 1GHz)
	4.71dB (1GHz to 40GHz)

Table 14

Measurement Uncertainty Decision Rule

Determination of conformity with the specification limits is based on the decision rule according to Calculation of Measurement Uncertainty per CISPR 16-4-2:2011 with Corr. 1. The measurement results are directly compared with the test limit to determine conformance with the requirements of the standard.

Risk: The uncertainty of measurement about the measured result is negligible with regard to the final pass/fail decision. The measurement result can be directly compared with the test limit to determine conformance with the requirement (compare IEC Guide 115). The level of risk to falsely accept and falsely reject items is further described in ILAC-G8.