

Radio Test Report

Manufacturer: Pyramid Communications
Model: SVR-350UAH and SVR-P252UAH



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

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

COMMERCIAL-IN-CONFIDENCE

Document 0721010282-03 Issue 01

SIGNATURE

A handwritten signature in blue ink, appearing to read "Ferdinand Custodio".

NAME	JOB TITLE	RESPONSIBLE FOR	ISSUE DATE
Ferdinand Custodio	Senior EMC Test Engineer/Wireless Team Lead	Authorised Signatory	June 06, 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 and ISSED RSS-GEN 2023 and Issue 12 (05-2015) and 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	06-10-2025

Table 1

1.2 Introduction

Applicant	Pyramid Communications
Manufacturer	Pyramid Communications
Model Number(s)	SVR-350UAH and SVR-P252UAH
Serial Number(s)	21691484
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 ISSED 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	09-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 ISSED RSS-GEN is shown below.

Section	Specification Clause	Test Description	Result	Comments/Base Standard
Configuration and Mode: SVR-350UAH-_-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



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-P250UA, SVR-P255UA, SVR-P752UA, SVR-P252UA, SVR-350UA, SVR-352UA, SVR-P350UA, SVR-D350UA, SVR-P352UA, is/are electrically identical with the same electromagnetic emissions and electromagnetic compatibility characteristics as model:

SVR-350UAH & SVR-P252UAH 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*

A handwritten signature in blue ink, appearing to read '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 25W 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-P250UA
EUT ISED ID	2390A-SVRP250UA
Radio Module FCC ID	CASTMBH5A
Frequency Range	UHF 406.1-470 MHz



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-350U, Model: SVR-350UAH and SVR-P252UAH, Serial Number: 21691484			
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-350UAH- _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 ISSED RSS-GEN, Clause 90.205, 2.1046, 5.4 and 6.12

2.1.2 Equipment Under Test and Modification State

SVR-350UAH and SVR-P252UAH, S/N: 21691484 - Modification State 0

2.1.3 Date of Test

25-May-2025

2.1.4 Test Method

SVR-350UAH- -TX Mode

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

The EUT was configured to transmit on maximum power (12W) on the bottom and top channels. 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 to 12W operation were used for this test.

2.1.5 Environmental Conditions

Ambient Temperature 24.2 °C
Relative Humidity 48.3 %

2.1.6 Test Results

SVR-350UAH- -TX Mode

Parameter	417 MHz	452 MHz
Conducted Output Power (dBm)	40.67	40.39
Manufacturer Declared Power (dBm)	40.79	40.79
Δ from manufacturer Power (dB)	0.12	0.40
Antenna Gain (dBi)	0	0
EIRP (dBm)	40.67	40.67

Table 5 - EIRP

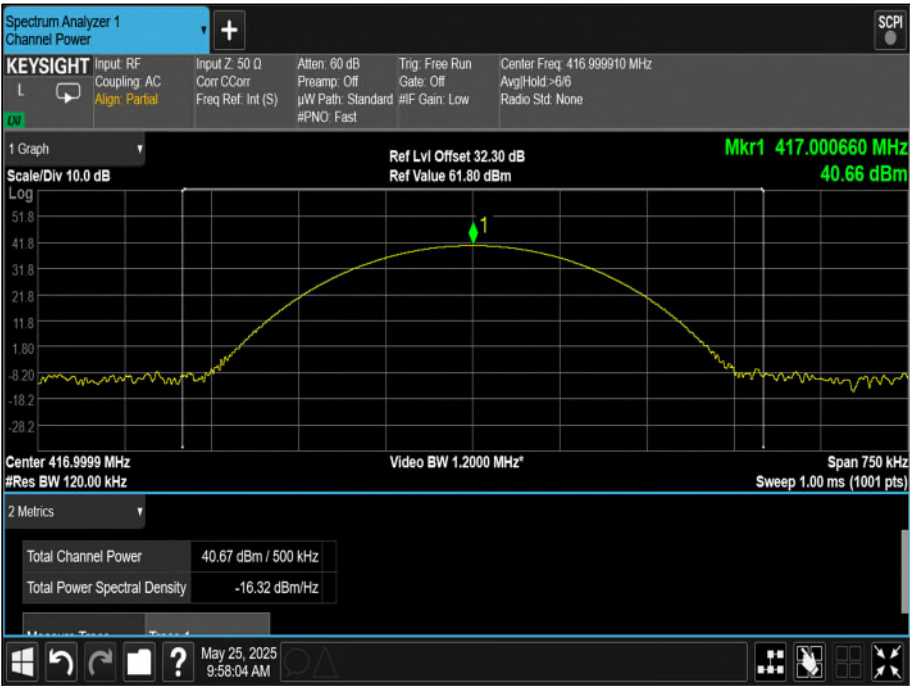


Figure 1 - 417 MHz:

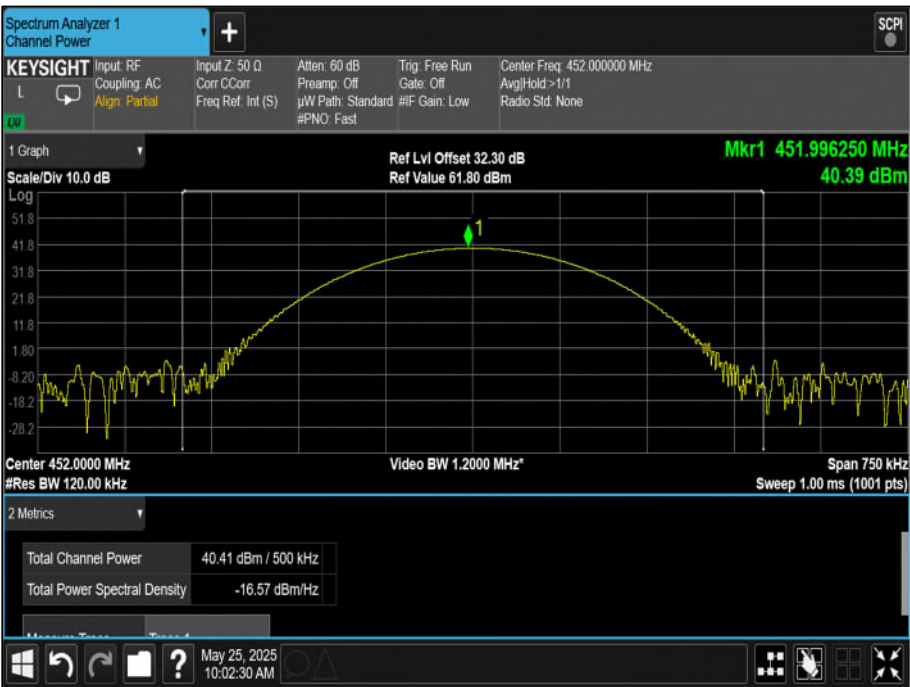


Figure 2 452 MHz:



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 ISSED RSS-GEN, Clause 90.210, 2.1053, 5.8 and 6.13

2.2.2 Equipment Under Test and Modification State

SVR-350UAH and SVR-P252UAH, S/N: 21691484 - Modification State 0

2.2.3 Date of Test

09-June-2025

2.2.4 Test Method

SVR-350UAH- -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).

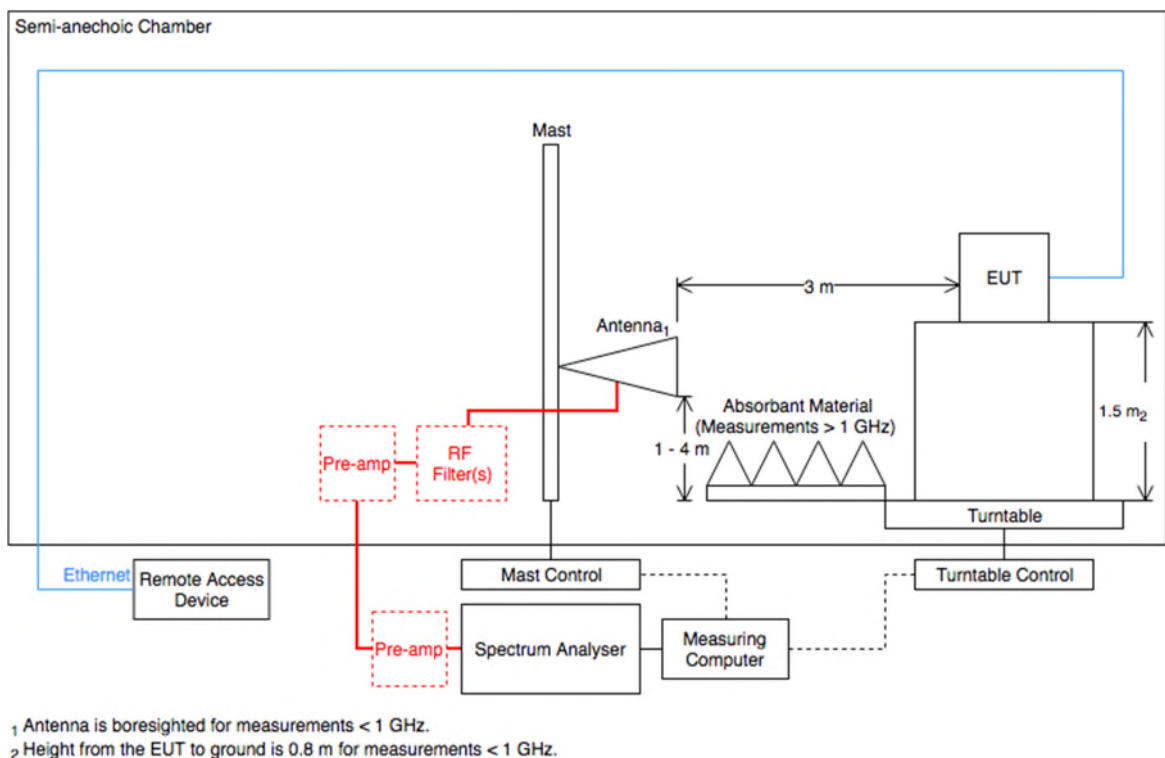


Figure 3

Table 9 - Radiated Emissions Test Setup Diagram

2.2.5 Environmental Conditions

Ambient Temperature 23.6 °C
Relative Humidity 59.3 %

2.2.6 Test Results

SVR-350UAH- -TX Mode

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation	Orientation
833.998	64.97	66.02	-1.05	Q-Peak	247	110	Horizontal	X

Table 10 - 417 MHz

No other 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

Table 11 - 452 MHz

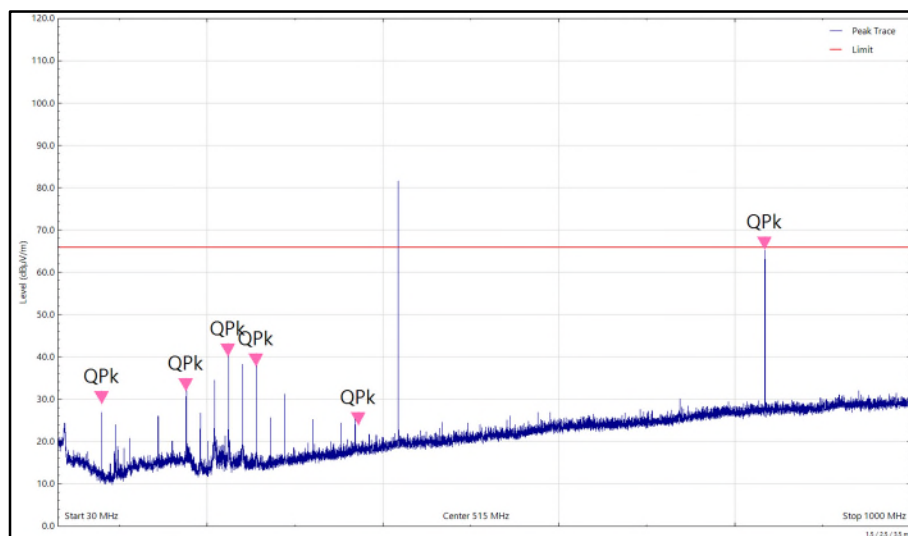
*No emissions were detected within 6 dB of the limit.

FCC 47 CFR Part 90, Limit Clause 90.210

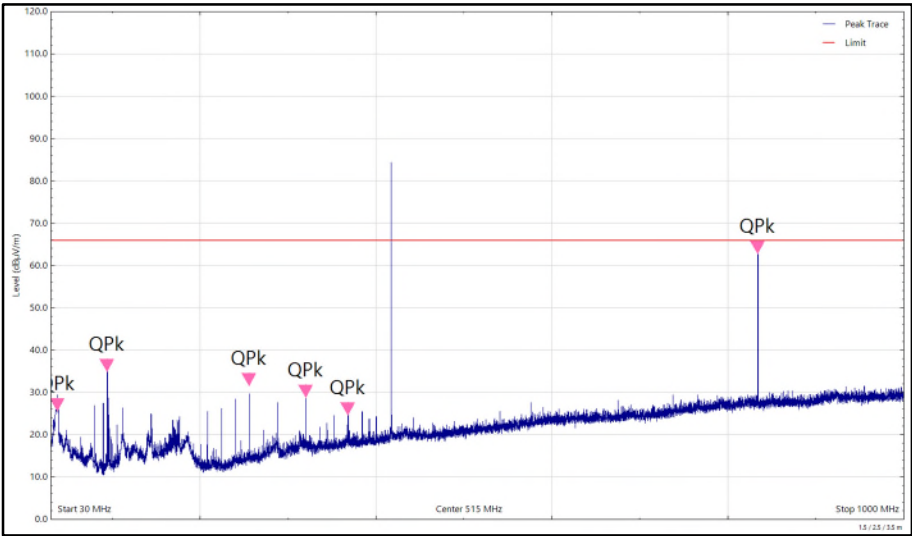
The EUT shall comply with emission mask D as per FCC 47 CFR Part 90, clause 90.210.

Industry Canada RSS-119, Limit Clause 5.8

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

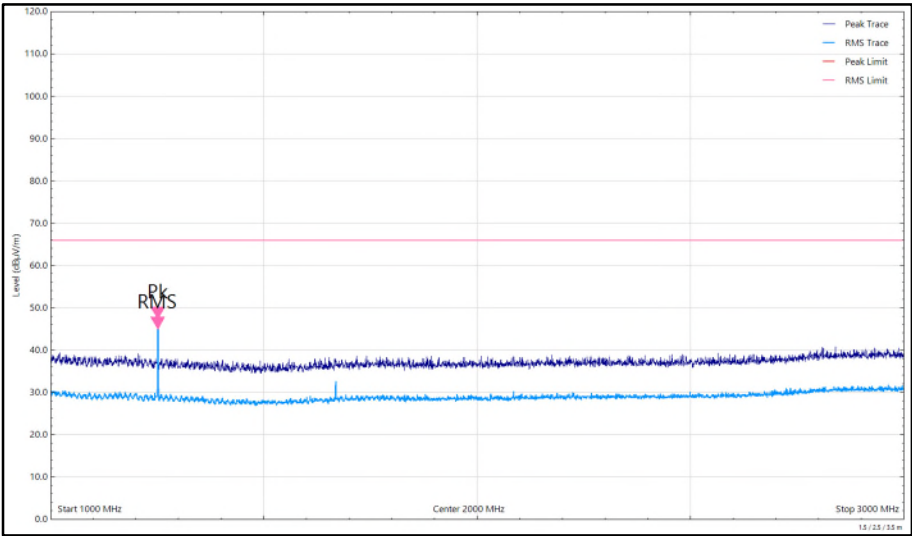


Low Channel 30 MHz to 1 GHz, Horizontal

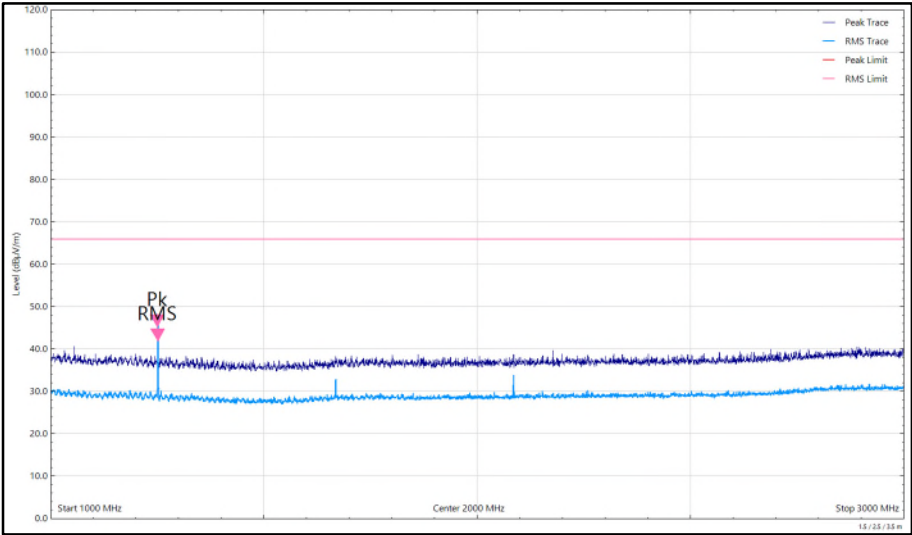


Low Channel 30 MHz to 1 GHz, Vertical

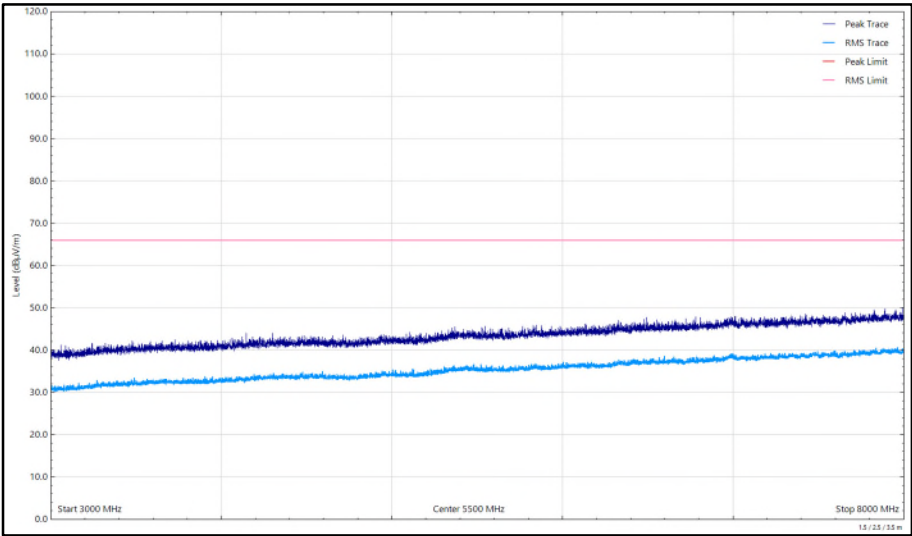
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
37.423	25.14	66.02	-40.88	Q-Peak	293	100	Vertical
79.999	28.52	66.02	-37.50	Q-Peak	92	239	Horizontal
94.046	34.47	66.02	-31.55	Q-Peak	182	330	Vertical
175.994	31.57	66.02	-34.45	Q-Peak	239	120	Horizontal
223.970	39.80	66.02	-26.22	Q-Peak	238	101	Horizontal
255.979	37.42	66.02	-28.60	Q-Peak	220	100	Horizontal
255.984	31.10	66.02	-34.92	Q-Peak	136	116	Vertical
319.986	28.34	66.02	-37.68	Q-Peak	188	100	Vertical
367.977	24.23	66.02	-41.79	Q-Peak	125	101	Vertical
371.898	23.58	66.02	-42.44	Q-Peak	250	100	Horizontal
833.998	64.97	66.02	-1.05	Q-Peak	247	110	Horizontal
833.999	62.35	66.02	-3.67	Q-Peak	360	125	Vertical



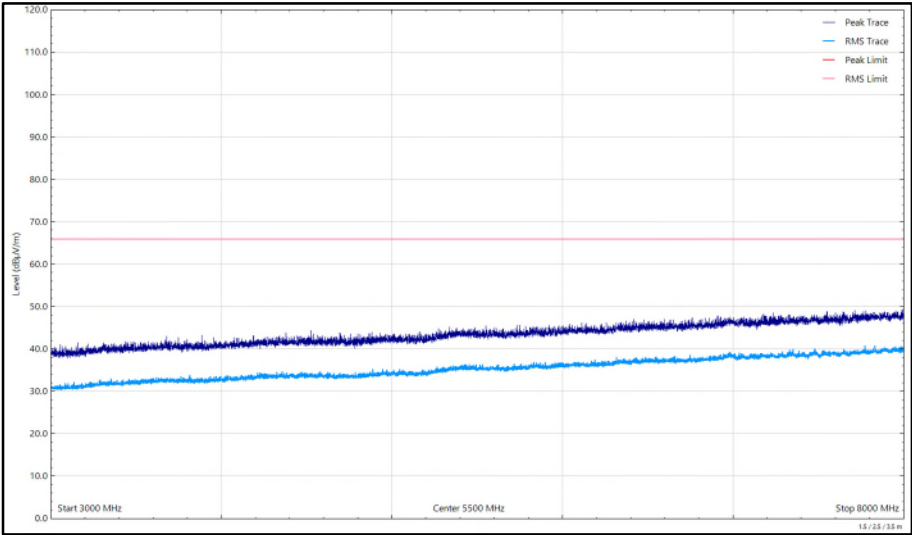
Low Channel 1 to 8 GHz, 1 GHz to 3 GHz, Horizontal



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

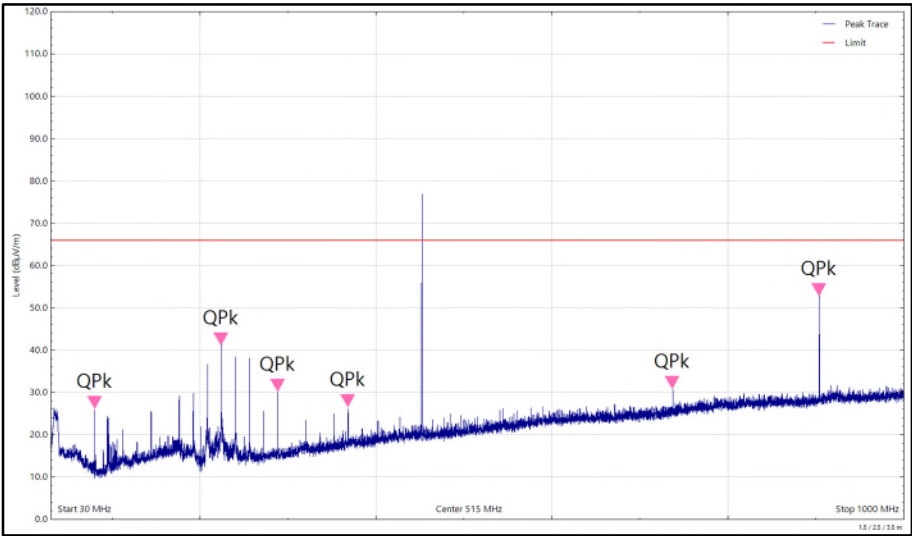


Low Channel 1 to 8 GHz, 3 GHz to 8 GHz, Horizontal

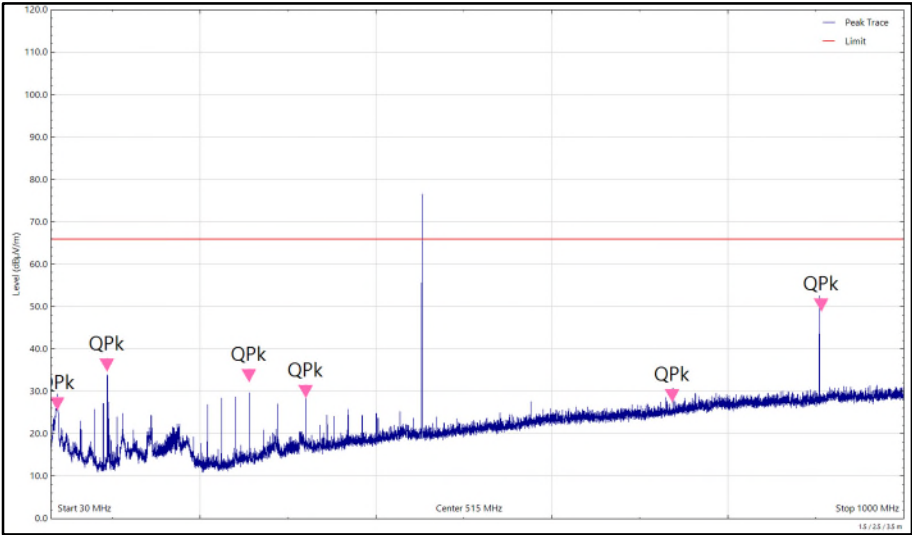


Low Channel 1 to 8 GHz, 3 GHz to 8 GHz, Vertical

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
1250.850	44.79	66.02	-21.23	Peak	178	310	Vertical
1250.990	46.84	66.02	-19.18	Peak	224	310	Horizontal
1250.990	41.40	66.02	-24.62	RMS	178	310	Vertical
1250.990	44.45	66.02	-21.57	RMS	224	310	Horizontal



High Channel 30 MHz to 1 GHz, Horizontal

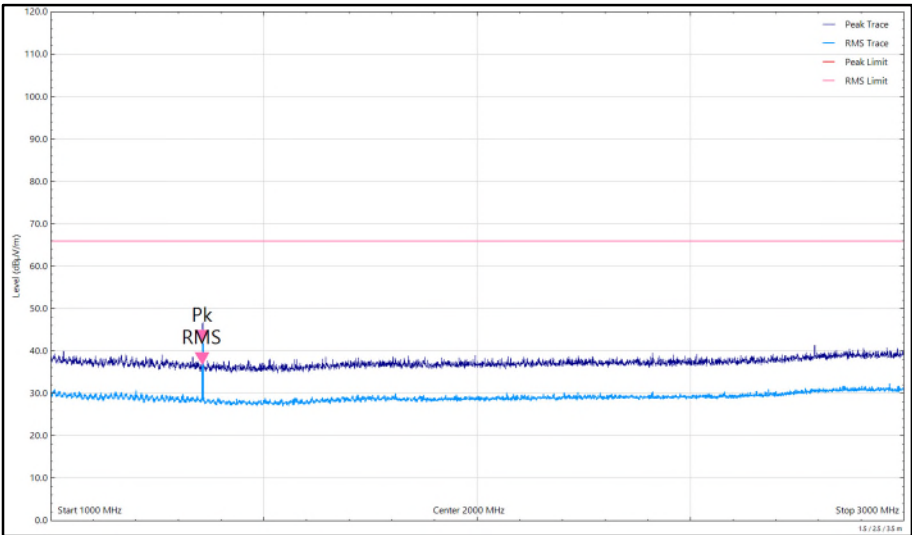


High Channel 30 MHz to 1 GHz, Vertical

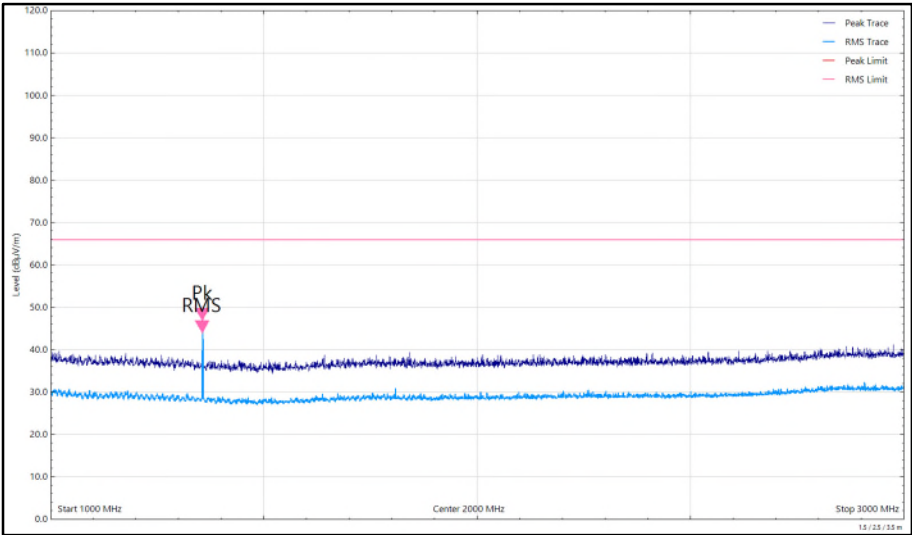
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
37.377	25.12	66.02	-40.90	Q-Peak	303	100	Vertical
79.994	25.71	66.02	-40.31	Q-Peak	99	132	Horizontal
94.055	34.28	66.02	-31.74	Q-Peak	171	334	Vertical
223.972	40.67	66.02	-25.35	Q-Peak	240	126	Horizontal
255.981	31.77	66.02	-34.25	Q-Peak	134	132	Vertical
287.985	29.74	66.02	-36.28	Q-Peak	228	196	Horizontal
319.989	28.12	66.02	-37.90	Q-Peak	145	100	Vertical
367.993	26.10	66.02	-39.92	Q-Peak	148	132	Horizontal
737.273	27.12	66.02	-38.90	Q-Peak	126	101	Vertical



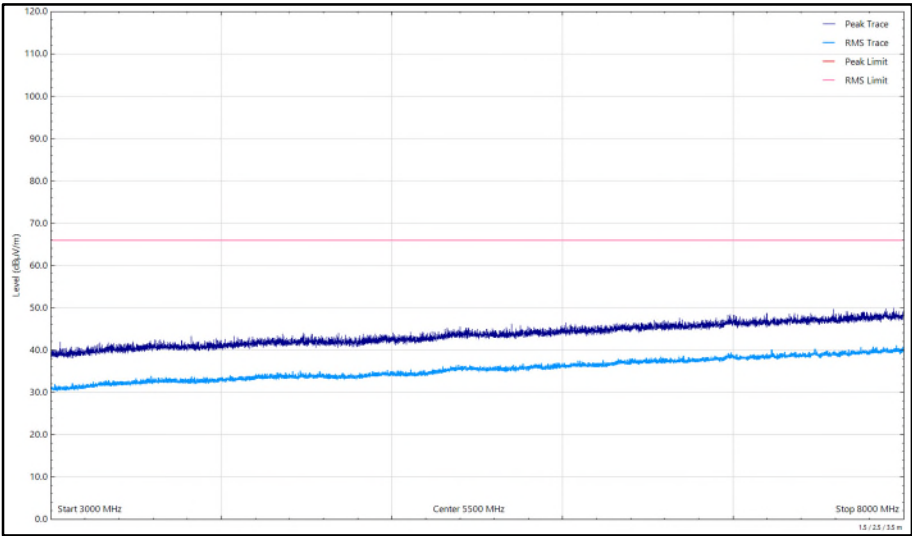
737.305	30.39	66.02	-35.63	Q-Peak	205	113	Horizontal
903.998	52.37	66.02	-13.65	Q-Peak	101	100	Horizontal
906.429	48.48	66.02	-17.54	Q-Peak	350	100	Vertical



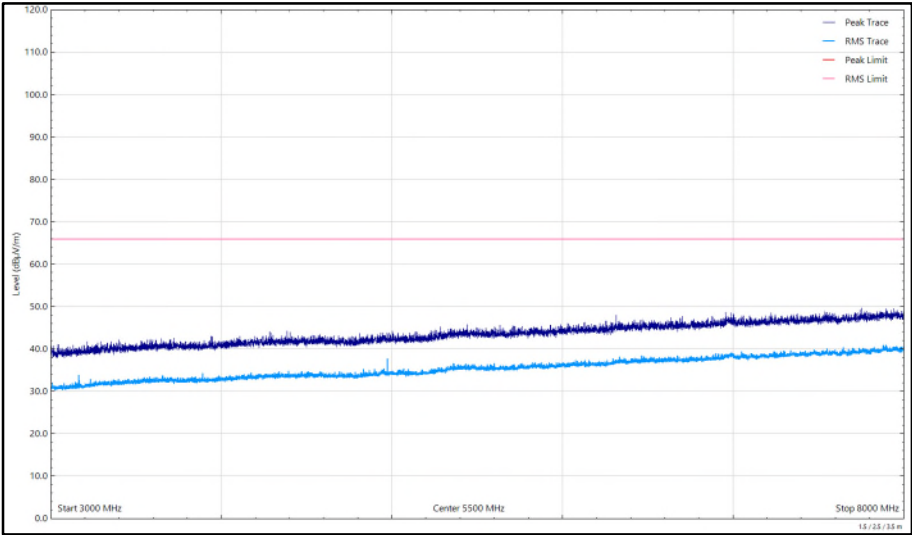
High Channel 1 to 8 GHz, 1 GHz to 3 GHz, Horizontal



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



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



High 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
1355.980	46.40	66.02	-19.62	Peak	155	328	Vertical
1355.980	43.52	66.02	-22.50	RMS	155	328	Vertical
1356.025	41.57	66.02	-24.45	Peak	199	102	Horizontal
1356.025	36.28	66.02	-29.74	RMS	199	102	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)

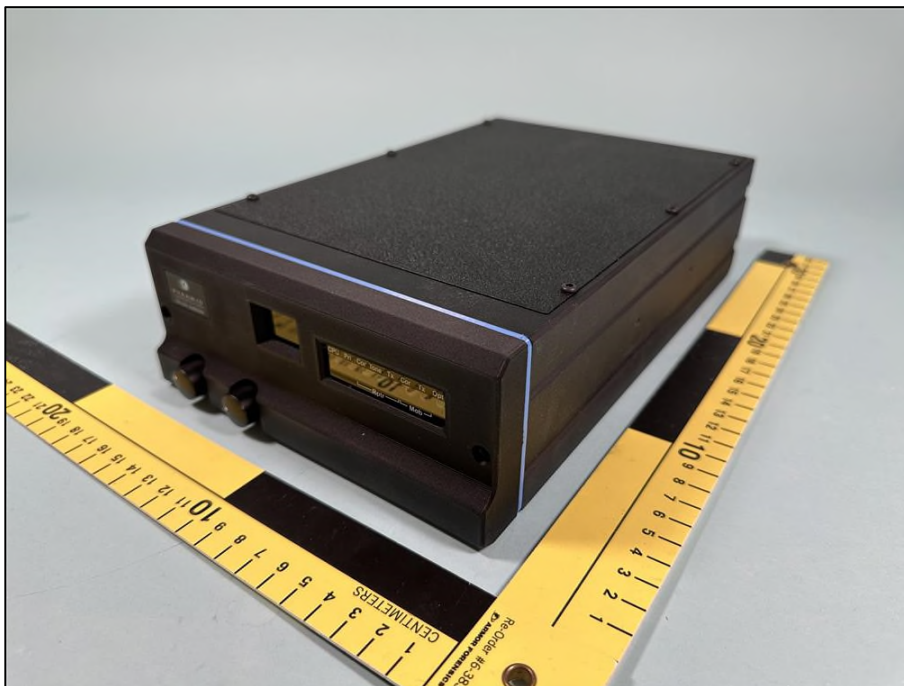


Figure 4 - General View



Figure 5 - 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.