

FCC and ISED Test Report

Manufacturer: Ocean Signal Ltd.
AIS SART, Model: S200
Brand Variant: ACR Electronics Inc.
AIS SART, Model: Pathfinder AIS



In accordance with FCC 47 CFR Part 80, FCC 47 CFR Part 2 and
ISED RSS-182 and ISSED RSS-GEN (AIS Locating Signal)

Prepared for: Ocean Signal Ltd.
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FCC ID: XYES200 IC: 9296A-S200

COMMERCIAL-IN-CONFIDENCE
Document 75959389-05 Issue 02

SIGNATURE			
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Steve Marshall	Senior Engineer	Authorised Signatory	11 August 2026
Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD document control rules.			
RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Testing	Matthew Sellers	11 August 2026	
	Ahmad Javid	11 August 2026	
	Hugo Petty	11 August 2026	

ISED Accreditation
12669A Octagon House, Fareham Test Laboratory

EXECUTIVE SUMMARY / ENGINEERING STATEMENT

The measurements shown in this report were made in accordance with the procedures described on the test pages A sample of this product was tested to demonstrate limited compliance with FCC 47 CFR Part 80, FCC 47 CFR Part 2, ISSED RSS-182 and ISSED RSS-GEN for the tests detailed in sections 1.2 and 1.3. The sample tested was found to comply with the requirements defined in the applied rules.

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Contents

1	Report Summary	2
1.1	Report Modification Record.....	2
1.2	Introduction.....	2
1.3	Brief Summary of Results	3
1.4	Application Form	4
1.5	Product Information	7
1.6	Deviations from the Standard.....	7
1.7	EUT Modification Record	7
1.8	Test Location.....	8
2	Test Details	9
2.1	Authorisation of Transmitters for Licensing.....	9
2.2	Bandwidths.....	10
2.3	Transmitter Frequency Tolerances	14
2.4	Spurious Emissions at Antenna Terminals	17
2.5	Radiated Spurious Emissions	22
2.6	Modulation Requirements	38
2.7	Transmitter Power	43
3	Test Equipment Information	45
3.1	General Test Equipment Used.....	45
3.2	Customer Support Equipment.....	45
4	Incident Reports	46
5	Measurement Uncertainty	47
ANNEX A	TÜV SÜD Document 75959389 Report 02	A.2
ANNEX B	Manufacturer Declaration.....	B.2



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
1	First version	15-Sept-2025
2	FCC Tests & Limits applied	11-Aug-2026

Table 1

1.2 Introduction

Applicant	Ocean Signal Ltd.
Manufacturer	Ocean Signal Ltd. / ACR Electronics Inc
Model Tested	S200 / Pathfinder AIS *
Serial Number(s)	TA000019 (TUV Ref: TSR0003) (S200: Conducted Unit) TA000016 (TUV Ref: TSR0004) (Pathfinder AIS: Radiated Unit)
Hardware Version(s)	01.00 / 01.00
Software Version(s)	01.00 / 01.00
Number of Samples Tested	2
Test Specification/Issue/Date	FCC 47 CFR Part 80: (2025) FCC 47 CFR Part 2: (2024) ISED RSS-182: Issue 6 (2021-06) ISED RSS-GEN: Issue 5 (04-2018) + A2 (02-2021)
Order Number	P8980 - QAF
Date	14-September-2023
Date of Receipt of EUT	01-February-2024
Start of Test	23-June-2025
Finish of Test	08-July-2026
Name of Engineer(s)	Matthew Sellers Ahmad Javid Hugo Petty
Related Document(s)	IEC 61097-14, Ed. 1 ANSI C63.26 2015

*Manufacturer declared variants: Refer to documents "Variant Relation Declaration - AIS SART Model Variants 300625.pdf" and "921S-06454 Issue 01.00 AIS SART Variant Comparison.pdf".



1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with ISED RSS-182 and ISED RSS-GEN is shown below.

Section	Specification Clause			Test Description	Result	Comments/Base Standard
	FCC	RSS-182	RSS-GEN			
Configuration and Mode: Configuration 1 - AIS						
2.1	80.203	-	-	Authorisation of Transmitters for Licensing	-	Refer to Annex B – Manufacturer Declaration
2.2	80.205 2.1049	5.4	6.7	Bandwidths	Pass	ANSI C63.26 (2015)
2.3	80.209 2.1055	5.5	6.11	Transmitter Frequency Tolerances	Pass	ANSI C63.26 (2015)
2.4	80.211 2.1051	5.9	6.13	Spurious Emissions at Antenna Terminals	Pass	ANSI C63.26 (2015)
2.5	80.211 2.1051	5.9	6.13	Radiated Spurious Emissions	Pass	ANSI C63.26 (2015)
2.6	80.213 2.1047	5.4	-	Modulation Requirements	Pass	
2.7	80.215 2.1046	5.6	6.12	Transmitter Power	Pass	ANSI C63.26 (2015) Refer also to Annex A

Table 2



1.4 Application Form

Equipment Description

Technical Description: (Please provide a brief description of the intended use of the equipment)	AIS SART
Manufacturer:	Ocean Signal Ltd. / ACR Electronics Inc.
Model:	S200 / Pathfinder AIS
Part Number:	900S-04810 / 900S-05232
Hardware Version:	01.00 / 01.00
Software Version:	01.00 / 01.00

Type of Equipment

Fixed Station ☐	Transmitter ☒ Receiver ☐	Simplex ☒ Duplex ☐	Integral Antenna ☒ Single Antenna ☐
Mobile Station ☐	Transceiver ☐		Two Antenna Connector ☐ Multiple Antenna Connectors ☐ Number:
Portable Station ☒			
Transponder (Tag) ☒	Active ☐ Passive ☒		

Transmitter Technical Characteristics – Frequency Characteristics

Transmitter frequency alignment range:	161.975 & 162.025 MHz
Transmitter channel switching frequency range	25KHz

Transmitter RF Power Characteristics - Maximum rated transmitter output

At transmitter permanent external 50 Ω RF output connector:	2.0W	W
Effective radiated power (for equipment with integral antenna)	1.0	W

Transmitter RF Power Characteristics - Minimum rated transmitter output

At transmitter permanent external 50 Ω RF output connector:	-	W
Effective radiated power (for equipment with integral antenna)	0.5	W

Transmitter RF Power Characteristics - Other

Antenna Gain:			-3.2 dB		
Is transmitter intended for:					
Continuous duty: Yes ☐ No ☒					
Intermittent duty only: Yes ☒ No ☐					
If intermittent duty state DUTY CYCLE: 0.36%					
Transmitter ON:	0.0267	seconds	Transmitter OFF:	8 transmissions at 2s, then 48s.	seconds



Transmitter Modulation

Amplitude ☐ Frequency ☒ Phase ☐ Other ☐	Please Detail:	GMSK
Channel spacing:		25KHz
Can the transmitter be operated without modulation? Yes ☒ No ☐		

Battery Power Source

Voltage:	6.0	V
End-point voltage:	3.8	V (Point at which the battery will terminate)
Alkaline ☐ Leclanche ☒ Lithium ☐ Nickel Cadmium ☐ Lead Acid* ☐ *(Vehicle regulated)		
Other ☐	Please detail:	

Temperature (over which equipment is to be type tested)

Not Applicable (no extreme temperature testing required) ☐	
Category I (General) ☒	-20°C to +55°C
Category II (Portable equipment) ☐	-10°C to +55°C
Other ☐	°C to °C

Cable Loss

Adapter Cable Loss (Conducted sample)	0.0	dB
---------------------------------------	-----	----

Automatic Equipment Switch Off

If the equipment is designed to automatically switch off at a predetermined voltage level which is higher or lower in value than the battery minimum and minimum calculated values this shall be clearly stated.	
Applies ☒	Cut off voltage: 3.8V
Does not apply ☐	

Channel Identification

Each equipment, whether one or more submitted for tests shall carry clear identification (such as a serial number), together with the frequencies associated with the channel identification displayed on the equipment.			
Equipment Identification (eg Serial Number)	Channel Number	Transmit Nominal Frequency (MHz)	Receive Nominal Frequency (MHz)
S/N:TA000016 (Radiated)	AIS1 / AIS2	161.975MHz / 162.025MHz	
S/N:TA000019 (Conducted)	AIS1 / AIS2	161.975MHz / 162.025MHz	



Build Status Information

Contract Manufacturer:	Ocean Signal Ltd	Part Number:	900S-04810 / 900S-05232
Model:	S200 / Pathfinder AIS	Country of Origin:	UK
HVIN:	900S-04810 / 900S-05232	FVIN:	01.00/01.00

I hereby declare that the information supplied is correct and complete.

A handwritten signature in black ink, appearing to read "Simon Nolan".

Name: Simon Nolan
Position held: Chief Technical Officer
Date: 3/08/2026

1.5 Product Information

The Equipment Under Test (EUT) was Ocean Signal's S200 Automatic Identification System (AIS) Search and Rescue Transponder (SART).

The primary function of the EUT is to provide location data in emergencies.



Figure 1 - Equipment Under Test (EUT)

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
Model: S200, Serial Number: TA000019 (Conducted Unit)			
0	As supplied by the customer	Not Applicable	Not Applicable
1	Fitting an inductor the opposite direction to reduce the spurious emission from the transmitter. See manufacturer document "S200 Mod State 1 justification 030725.pdf".	Manufacturer	18-04-2024
Model: Pathfinder AIS, Serial Number: TA000016 (Radiated Unit)			
0	As supplied by the customer	Not Applicable	Not Applicable

Table 3



1.8 Test Location

TÜV SÜD conducted the following tests at our Octagon House Test Laboratory.

Test Name	Name of Engineer(s)	Accreditation
Configuration and Mode: Configuration 1 - AIS		
Bandwidths	Matthew Sellers	UKAS
Transmitter Frequency Tolerances	Matthew Sellers Hugo Petty	UKAS
Spurious Emissions at Antenna Terminals	Matthew Sellers	UKAS
Radiated Spurious Emissions	Ahmad Javid	UKAS
Modulation Requirements	Matthew Sellers	UKAS
Transmitter Power	Matthew Sellers	UKAS

Table 4

Laboratory Address:

TÜV SÜD,
Octagon House,
Concorde Way,
Fareham,
Hampshire,
PO15 5RL,
United Kingdom



2 Test Details

2.1 Authorisation of Transmitters for Licensing

2.1.1 Specification Reference

FCC 47 CFR Part 80, Clause 80.203
FCC 47 CFR Part 2, Clause N/A
ISED RSS-182, Clause N/A
ISED RSS-GEN, Clause N/A

2.1.2 Equipment Under Test and Modification State

S200, S/N: TA000019 - Modification State 1

2.1.3 Date of Test

08-July-2026

2.1.4 Test Method

Configuration 1 – AIS

See Annex B – Manufacturer Declaration.

2.2 Bandwidths

2.2.1 Specification Reference

FCC 47 CFR Part 80, Clause 80.205
FCC 47 CFR Part 2, Clause 2.1049
ISED RSS-182, Clause 5.4
ISED RSS-GEN, Clause 6.7

2.2.2 Equipment Under Test and Modification State

S200, S/N: TA000019 - Modification State 1

2.2.3 Date of Test

23-June-2025

2.2.4 Test Method

Configuration 1 – AIS

The test was applied in accordance with the test method requirements of ANSI 63.26 Clause 5.4.4 and Industry Canada RSS-GEN Clause 6.7.

The EUT was transmitting at maximum power, modulated by the standard AIS test signals using PRBS packet payloads. The EUT was connected to a spectrum analyser via a cable and attenuator, the RBW of the spectrum analyser was set to at least 1% of the emission bandwidth, the occupied bandwidth measurement function of the analyser was used and the 99% bandwidth recorded.

The plots on the following pages show the resultant display from the Spectrum Analyser.

2.2.5 Environmental Conditions

Ambient Temperature	21.6 °C
Relative Humidity	54.2 %

2.2.6 Test Setup Diagram

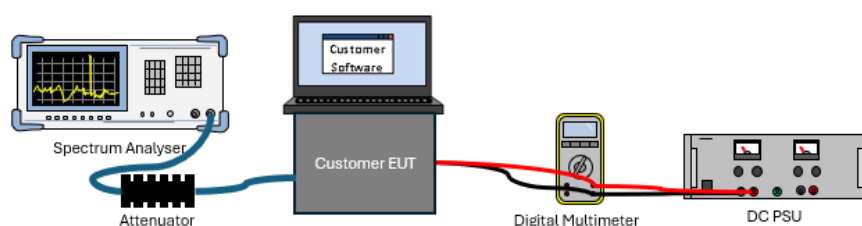


Figure 2



2.2.7 Test Results

Configuration 1 - AIS

99% Occupied Bandwidth (kHz)	
161.975 MHz	162.025 MHz
9.436	9.435

Table 5 – Occupied Bandwidth Results



Figure 3 - 161.975 MHz Occupied Bandwidth



Figure 4 - 162.025 MHz Occupied Bandwidth



FCC 47 CFR Part 80, Limit Clause 80.205 and ISSED RSS-182, Limit Clause 5.4

20 kHz

2.2.8 Test Location and Test Equipment Used

This test was carried out in Beacons and NavE Laboratory.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
Hygrometer	Rotronic	I-1000	2784	12	10-Oct-2025
Attenuator (20dB, 10W)	Aeroflex / Weinschel	23-20-34	3160	12	11-Oct-2025
Rubidium Frequency Standard	Symmetricon	8040C	3490	12	16-Dec-2025
EXA Signal Analyser	Keysight Technologies	N9010B	4969	24	7-Feb-2026
Load Short open	Rohde & Schwarz	FSH-Z29	5400	12	21-Oct-2025
Portable Network Analyser	Rohde & Schwarz	ZVH4	6250	12	21-Oct-2025
Cable N to N 1m	Junkosha	MWX221-01000NMSN/B	6776	12	22-Apr-2026

Table 6

2.3 Transmitter Frequency Tolerances

2.3.1 Specification Reference

FCC 47 CFR Part 2 Clause 2.1055
FCC 47 CFR Part 80 Clause 80.209 (5) (ii)
ISED RSS-182, Clause 5.5.
ISED RSS-GEN, Clause 6.11

2.3.2 Equipment Under Test and Modification State

S200, S/N: TA000019 - Modification State 1

2.3.3 Date of Test

25-June-2025 to 08-July-2026

2.3.4 Test Method

Configuration 1 - AIS

The EUT was transmitting at maximum power in turn on either AIS channel. The EUT was enabled with an unmodulated carrier. The EUT was connected to the spectrum analyser via a cable and attenuator. The external frequency reference of the spectrum analyser was locked to a 10 MHz rubidium frequency reference. The OBW function of the spectrum analyser was used which records the carrier frequency error.

In accordance with RSS-GEN and RSS-182, the temperature was varied from -30°C to +55° at both nominal and end-point voltage extremes.

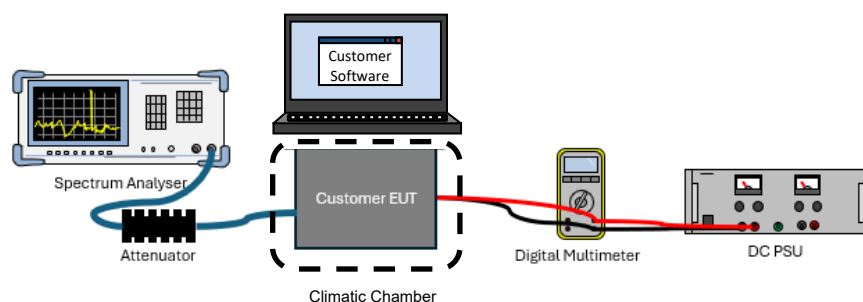
In accordance with FCC CFR 47 Part 80.209 and FCC CFR 47 Part 2.1055 (a) (2) & (d) (1), the temperature was varied from -20°C to +50°C at nominal voltage and voltage variation (Nominal 6VDC & End-Point 3.8VDC) testing at Room Temperature.

Throughout testing the DUT was powered from an external DC power supply via a battery eliminator.

2.3.5 Environmental Conditions

Ambient Temperature	21.5 °C to 22.3 °C
Relative Humidity	44.8 % to 55.7 %

2.3.6 Test Setup Diagram



e 5



2.3.7 Test Results

Configuration 1 - AIS

Temperature	Frequency Error (ppm)			
	161.975 MHz		162.025 MHz	
	Nominal (6V)	End-Point (3.8V)	Nominal (6V)	End-Point (3.8V)
-30 °C	0.47	0.01	0.78	-0.09
-20 °C	0.04	-0.43	0.13	-0.47
20 °C	-0.41	-0.76	-0.28	-1.07
50 °C	0.05	-0.40	0.15	-0.49
55 °C	0.19	-0.28	-0.04	-0.52

Table 7 – ISED Frequency Stability Under Temperature and Voltage Variations

Temperature	Frequency Error (ppm)			
	161.975 MHz		162.025 MHz	
	Nominal (6V)	End Point (3.8V)	Nominal (6V)	End Point (3.8V)
-20 °C	0.105	N/A	0.265	N/A
-10 °C	0.494	N/A	0.303	N/A
0 °C	0.500	N/A	0.398	N/A
10 °C	0.522	N/A	0.440	N/A
20 °C	0.654	N/A	0.565	N/A
22.4 °C – Ambient	0.306	0.292	0.279	0.398
30 °C	0.781	N/A	0.713	N/A
40 °C	0.656	N/A	0.698	N/A
50 °C	0.676	N/A	0.656	N/A

Table 8 – FCC Frequency Stability Under Temperature Voltage Variations

FCC 47 CFR Part 80, Limit Clause 80.209

± 10 ppm.

ISED RSS-182, Limit Clause 5.5

Coast Station: ±10.0 ppm for transmitter power less than 3 W.
±5.0 ppm for transmitter power between 3 W and 50 W.

Ship Station: ±10 ppm.



2.3.8 Test Location and Test Equipment Used

This test was carried out in Beacons & NavE Laboratory and RF Laboratory 2

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
Power Supply	Hewlett Packard	6282A	0132	-	TU
Programmable Power Supply	Iso-tech	IPS 2010	2435	-	O/P Mon
Hygrometer	Rotronic	I-1000	2784	12	10-Oct-2025
Attenuator (20dB, 10W)	Aeroflex / Weinschel	23-20-34	3160	12	11-Oct-2025
Rubidium Frequency Standard	Symmetricon	8040C	3490	12	16-Dec-2025
GPSDR Frequency Standard	Spectracom	SecueSync 1200-0408-0601	4393	6	17-Sep-2026
Digital Multimeter	Iso-tech	IDM93N	4435	12	06-Mar-2027
PXA Signal Analyser	Keysight Technologies	N9030A	4653	12	27-May-2027
EXA Signal Analyser	Keysight Technologies	N9010B	4969	24	7-Feb-2026
Cable (18GHz)	Rosenburger	LU7-071-2000	5107	12	13-Apr-2027
Load Short open	Rohde & Schwarz	FSH-Z29	5400	12	21-Oct-2025
Thermo-Hygro-Barometer	PCE Instruments	PCE-THB-40	5604	12	05-Feb-2027
Climatic Chamber	Weiss Technik	TempEvent T/180/40/3	5894	-	O/P Mon
Coaxial Fixed Attenuator DC-18GHz 5W 10dB	RF-Lambda	RFS5G18B10SMP	6181	12	19-Aug-2026
Portable Network Analyser	Rohde & Schwarz	ZVH4	6250	12	21-Oct-2025
Cable N to N 1m	Junkosha	MWX221-01000NMSN/B	6776	12	22-Apr-2026
1m N type Cable	Junkosha	MWX221-01000NMSNMS/B	6930	12	11-Dec-2026
1m N type Cable	Junkosha	MWX221-01000NMSNMS/B	6933	12	11-Dec-2026
Multimeter	Fluke	117	6998	12	13-Mar-2026
Attenuator	Weinschel	WA7 0102 30db	7230	12	30-Jan-2027
Electronic Calibration Module 300kHz to 9GHz	Agilent Technologies	85092-60010	7254	12	08-May-2027
Network Analyser 300kHz - 8.5 GHz	Agilent Technologies	E5071B	7259	12	29-Apr-2027

Table 9

TU - Traceability Unscheduled
O/P Mon – Output Monitored using calibrated equipment

2.4 Spurious Emissions at Antenna Terminals

2.4.1 Specification Reference

FCC 47 CFR Part 80, Clause 80.211
FCC 47 CFR Part 2, Clause 2.1051
ISED RSS-182, Clause 5.9.
ISED RSS-GEN, Clause 6.13

2.4.2 Equipment Under Test and Modification State

S200, S/N: TA000019 - Modification State 1

2.4.3 Date of Test

24-June-2025 and 02-July-2025

2.4.4 Test Method

Configuration 1 – AIS

For emissions where the frequency is removed less than 250% of the authorized bandwidth measurements were performed conducted as follows:

The EUT was connected to a spectrum analyser via a cable and attenuator. The path loss between the EUT and analyser was calibrated using a network analyser and entered in to the spectrum analyser as a reference level offset. The reference level for the mask was established with an RBW approximately 2 or 3 times the emission bandwidth. The RBW was then reduced to at least 1% of the emission bandwidth, with a VBW of 3 times RBW.

For emissions where the frequency is removed more than 250% of the authorized bandwidth measurements were performed both conducted and radiated as follows:

Conducted: A signal generator sweeping through the frequency ranges and spectrum analyser was used to measure the path loss and the worst case was entered as a reference level offset in to the spectrum analyser. The EUT was connected to a spectrum analyser via an attenuator and cable. The spectrum analyser was configured with an RBW of 30 kHz with the trace set to max hold using a peak detector.

2.4.5 Environmental Conditions

Ambient Temperature	20.6 - 21.9 °C
Relative Humidity	52.8 – 68.3 %

2.4.6 Test Setup Diagram

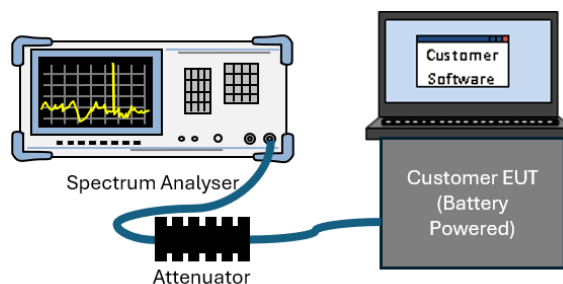


Figure 6



2.4.7 Test Results

Configuration 1 - AIS

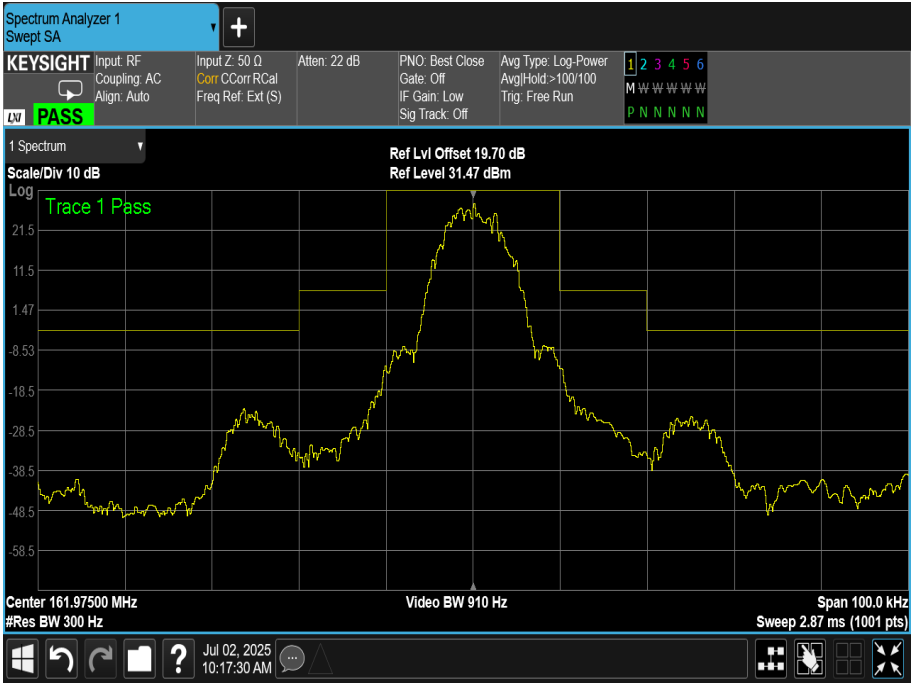


Figure 7 - 161.975 MHz - Transmitter Spectrum Mask

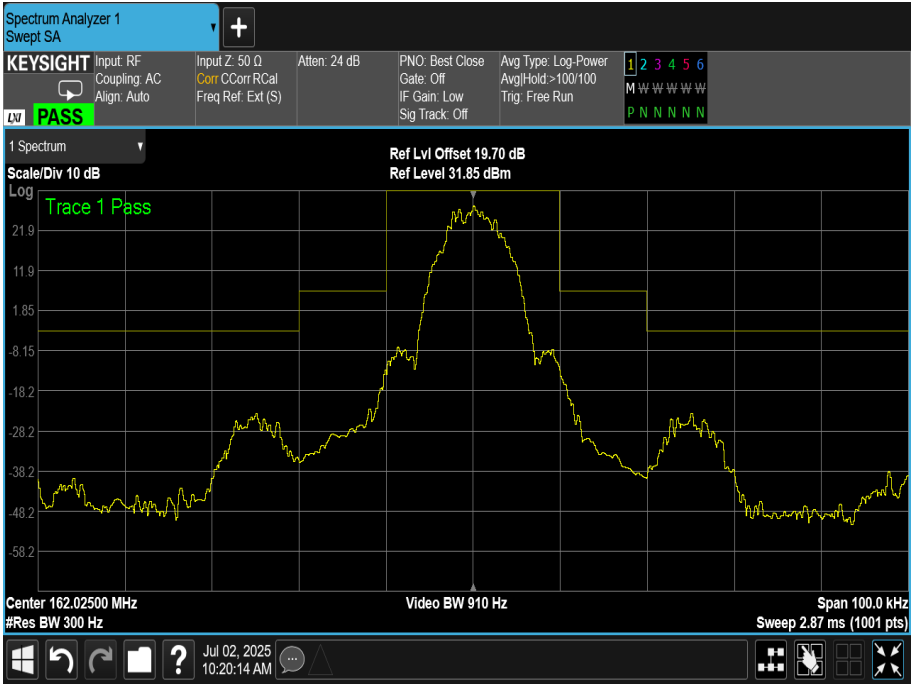


Figure 8 - 162.025 MHz - Transmitter Spectrum Mask

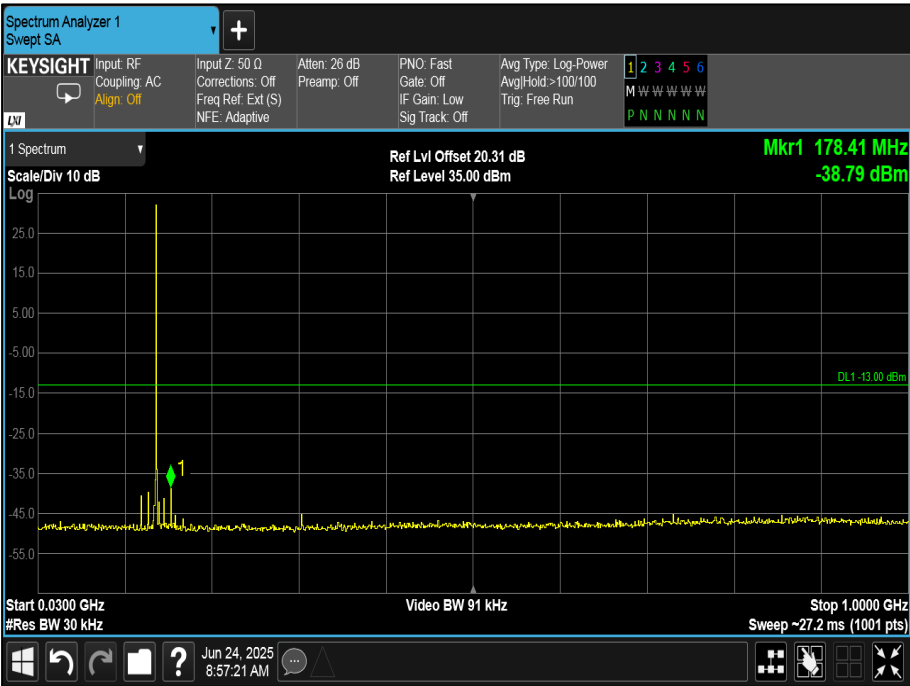


Figure 9 - 161.975 MHz - 30 MHz to 1 GHz

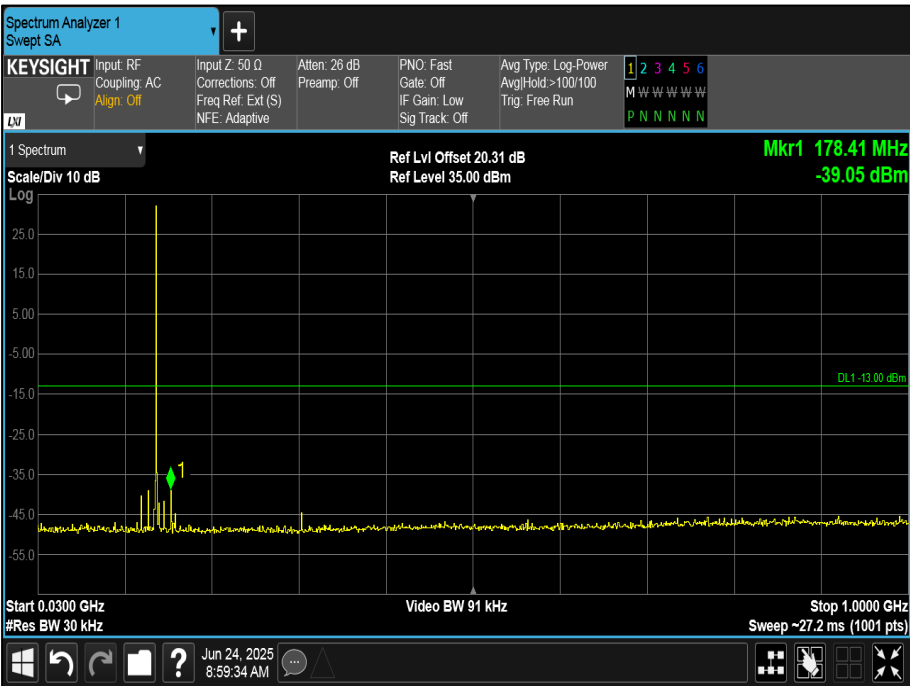


Figure 10 - 162.025 MHz - 30 MHz to 1 GHz

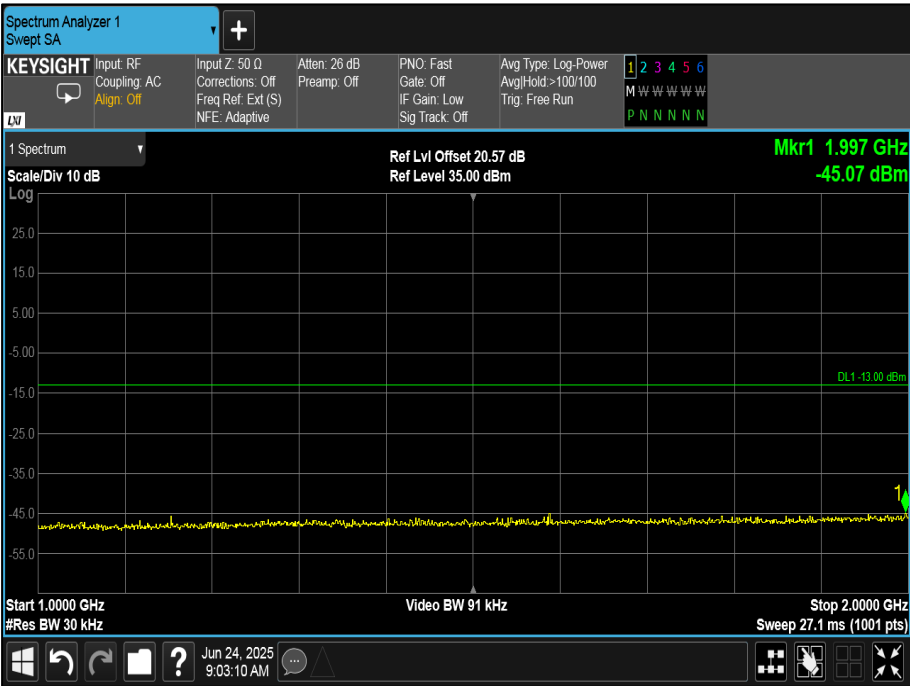


Figure 11 - 161.975 MHz - 1 GHz to 2 GHz

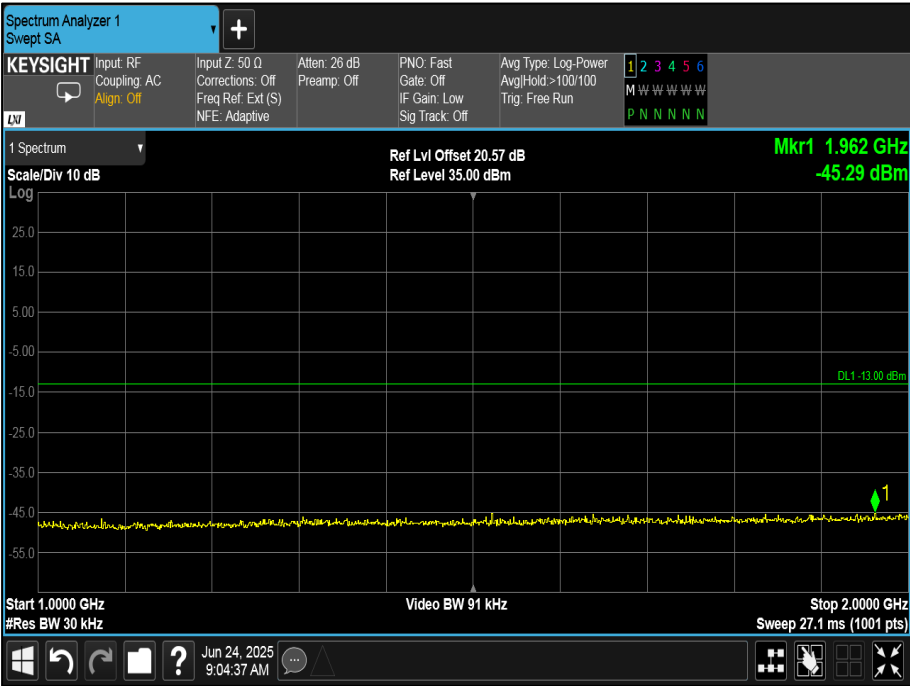


Figure 12 - 162.025 MHz - 1 GHz to 2 GHz



FCC 47 CFR Part 80, Limit Clause 80.211

Within 250% of the Authorised Bandwidth:

On any frequency removed from the assigned frequency by more than 50 percent up to and including 100 percent of the authorized bandwidth: At least 25 dB;

On any frequency removed from the assigned frequency by more than 100 percent up to and including 250 percent of the authorized bandwidth: At least 35 dB

More than 250% of the Authorised Bandwidth:

On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43 plus $10\log_{10}$ (mean power in watts) dB.

ISED RSS-182, Limit Clause 5.9.1

At least 25 dB, measured with a bandwidth of 300 Hz, on any frequency removed from the carrier frequency by more than 50%, but not more than 100% of the authorized bandwidth;

At least 35 dB, measured with a bandwidth of 300 Hz, on any frequency removed from the carrier frequency by more than 100%, but not more than 250% of the authorized bandwidth; and

At least $43 + 10 \log_{10} p$ (W) dB, measured with a bandwidth of 30 kHz, on any frequency removed from the carrier frequency by more than 250% of the authorized bandwidth.

2.4.8 Test Location and Test Equipment Used

This test was carried out in Beacons and NavE Laboratory.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
Hygrometer	Rotronic	I-1000	2784	12	10-Oct-2025
Hygrometer	Rotronic	I-1000	2829	12	18-Jun-2026
Attenuator (20dB, 10W)	Aeroflex / Weinschel	23-20-34	3160	12	11-Oct-2025
Rubidium Frequency Standard	Symmetricon	8040C	3490	12	16-Dec-2025
Vector Signal Generator	Rohde & Schwarz	SMBV100A	4886	36	30-Nov-2026
EXA Signal Analyser	Keysight Technologies	N9010B	4969	24	7-Feb-2026
Load Short open	Rohde & Schwarz	FSH-Z29	5400	12	21-Oct-2025
Portable Network Analyser	Rohde & Schwarz	ZVH4	6250	12	21-Oct-2025
MXA Signal Analyser	Keysight Technologies	N9020B	6755	12	24-Feb-2026
Cable N to N 1m	Junkosha	MWX221-01000NMSN/B	6776	12	22-Apr-2026

Table 10



2.5 Radiated Spurious Emissions

2.5.1 Specification Reference

FCC 47 CFR Part 80, Clause 80.211
FCC 47 CFR Part 2, Clause 2.1053
ISED RSS-182, Clause 5.9
ISED RSS-GEN, Clause 6.13.

2.5.2 Equipment Under Test and Modification State

Pathfinder AIS, S/N: TA000016 – Modification State 0

2.5.3 Date of Test

16-July-2025

2.5.4 Test Method

Configuration 1 – AIS

A preliminary profile of the Radiated Spurious Emissions was obtained up to the 10th 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.

Testing was performed in accordance with ANSI C63.26, Clause 5.5.

Prescans and final measurements were performed using the direct field strength method.

Field strength measurements were performed and then converted to Equivalent Power Measurements in accordance with ANSI C63.26, Clause 5.2.7 equation c)

Example calculation:

$E \text{ (dBuV/m)} + 20\log(d) - 104.8 = \text{EIRP (dBm)}$ where (d) is the measurement distance.
 $82.2 \text{ (dBuV/m)} + 20\log(3) - 104.8 = \text{EIRP (dBm)}$ $-13.0 = \text{EIRP (dBm)}$



2.5.5 Example Test Setup Diagram

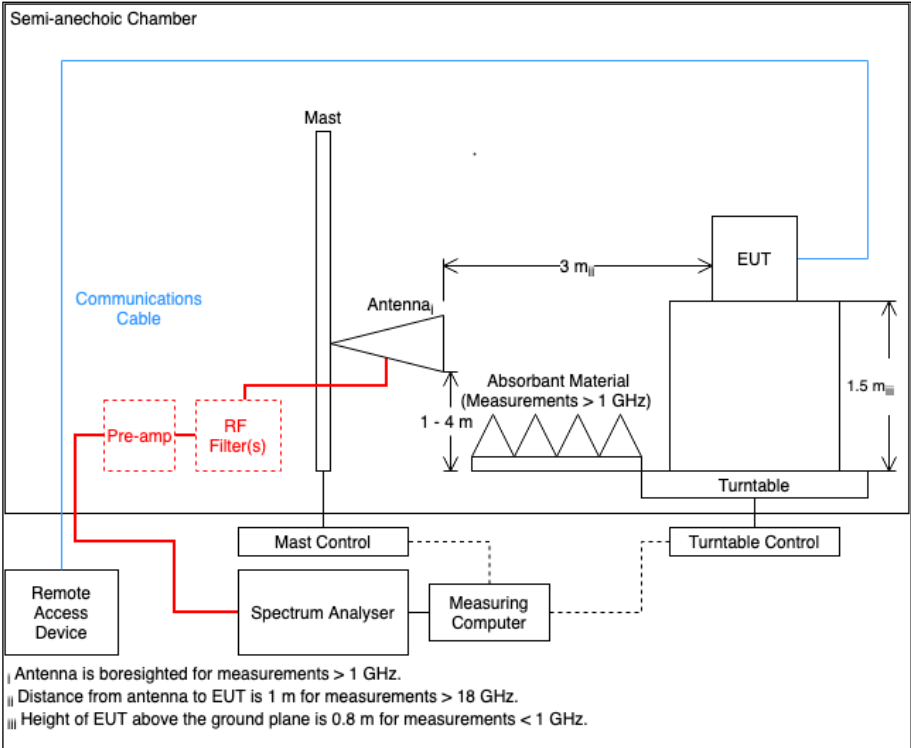


Figure 13

2.5.6 Environmental Conditions

Ambient Temperature 21.6 °C
Relative Humidity 40.9 %

2.5.7 Test Results

Configuration 1 - AIS

Frequency (MHz)	Level (dBm)
809.875	-19.2
809.873	-20.9

Table 11 - 161.975 MHz - Emissions Results

No other emissions were detected within 10 dB of the limit.

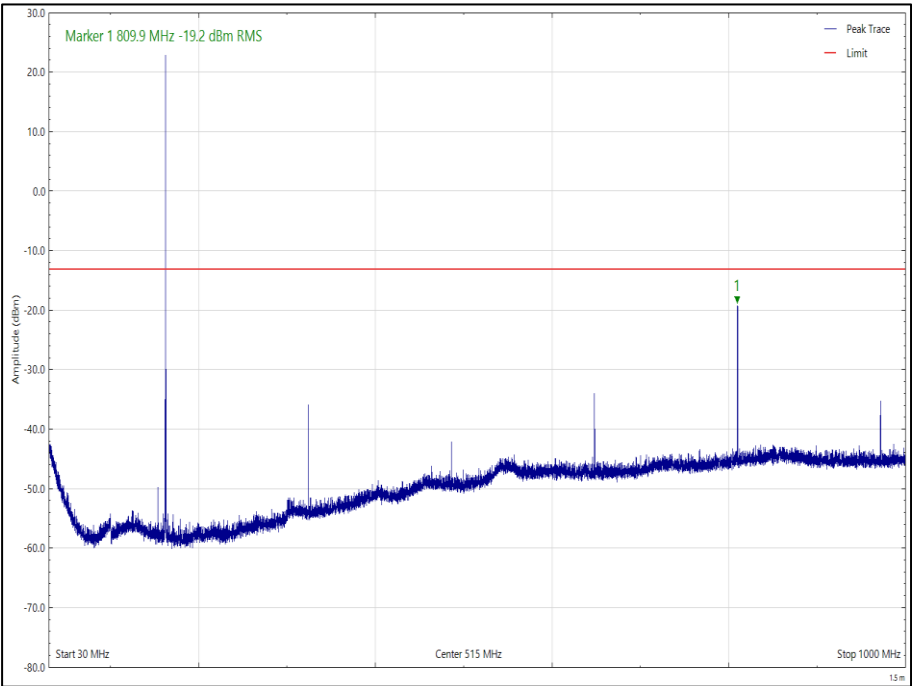


Figure 14 - 161.975 MHz - 30 MHz to 1 GHz Horizontal X

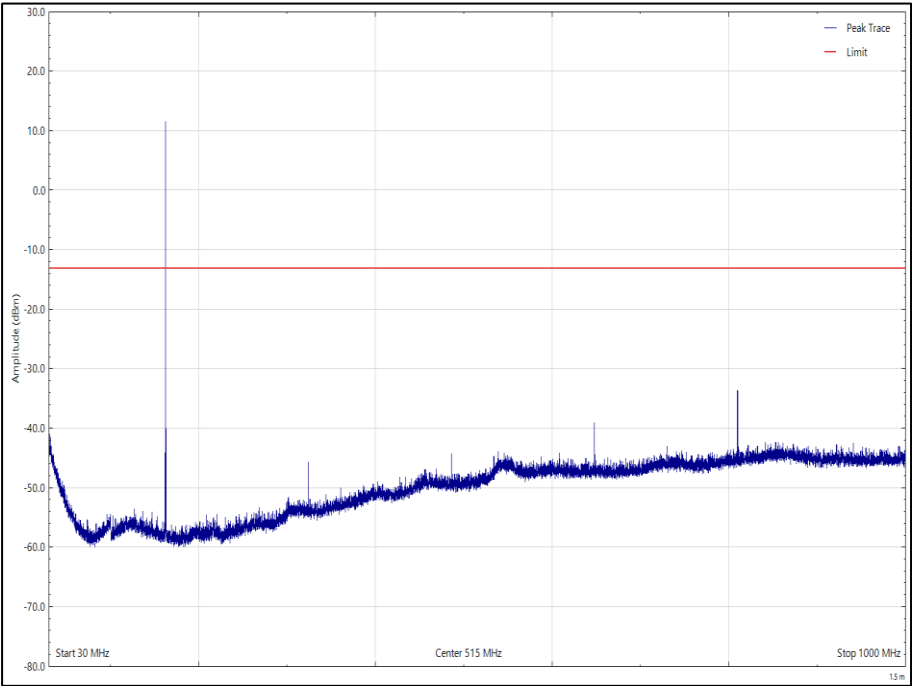


Figure 15 - 161.975 MHz - 30 MHz to 1 GHz Vertical X

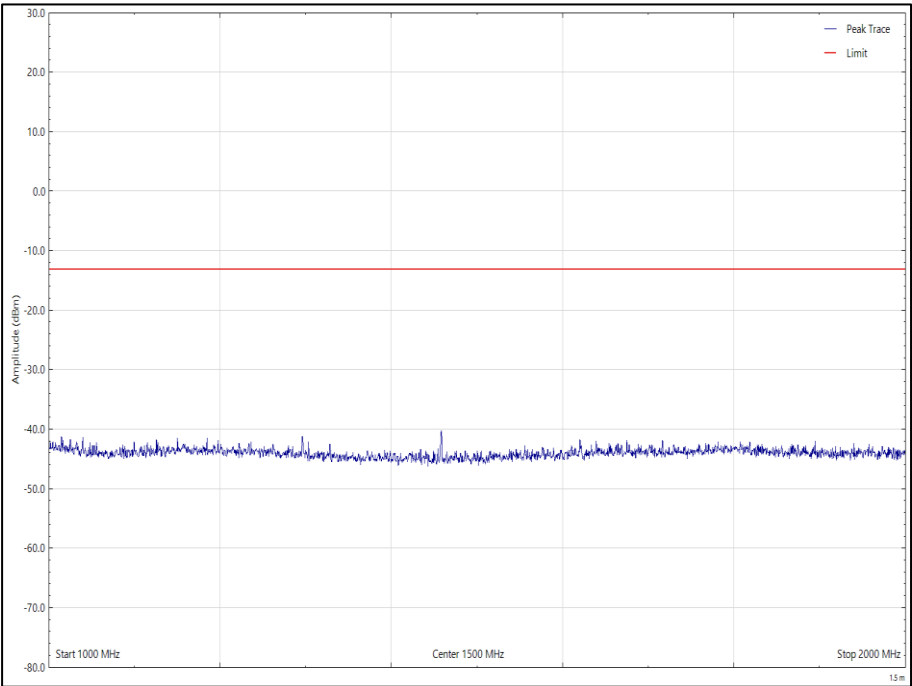


Figure 16 - 161.975 MHz - 1 GHz to 2 GHz Horizontal X

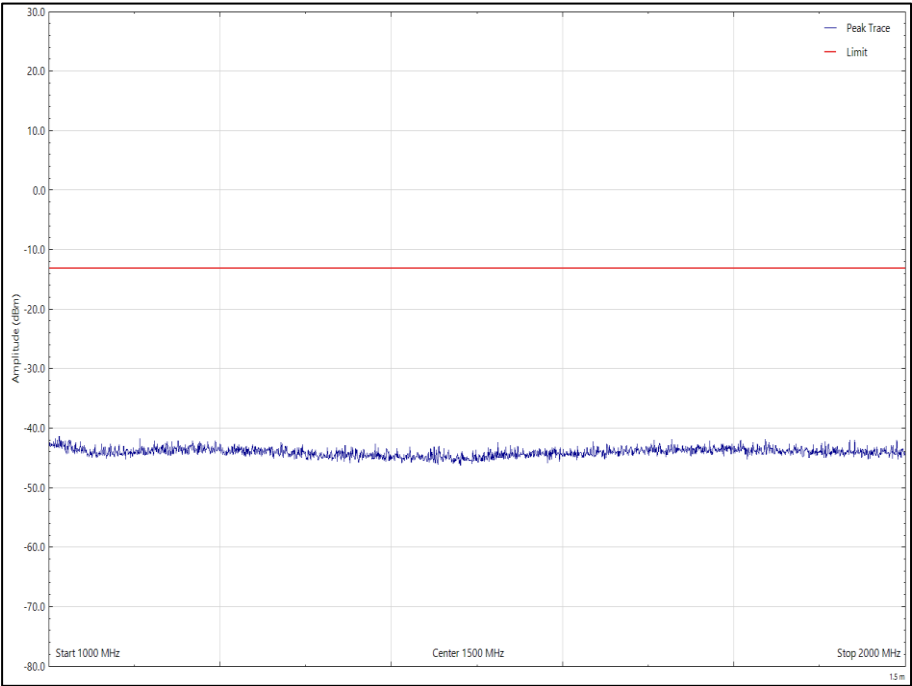


Figure 17 - 161.975 MHz - 1 GHz to 2 GHz Vertical X

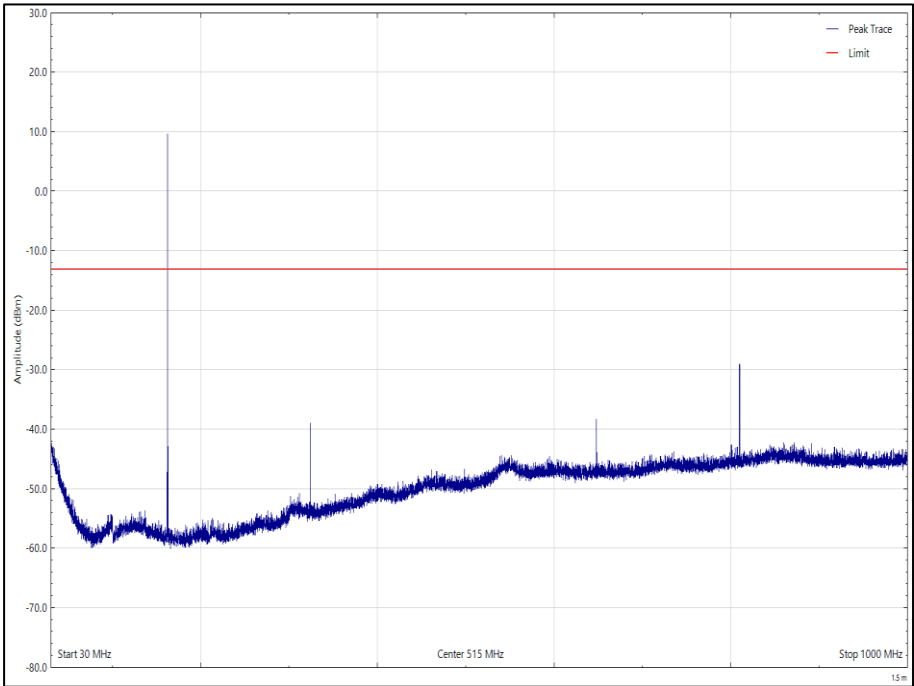


Figure 18 - 161.975 MHz - 30 MHz to 1 GHz Horizontal Y

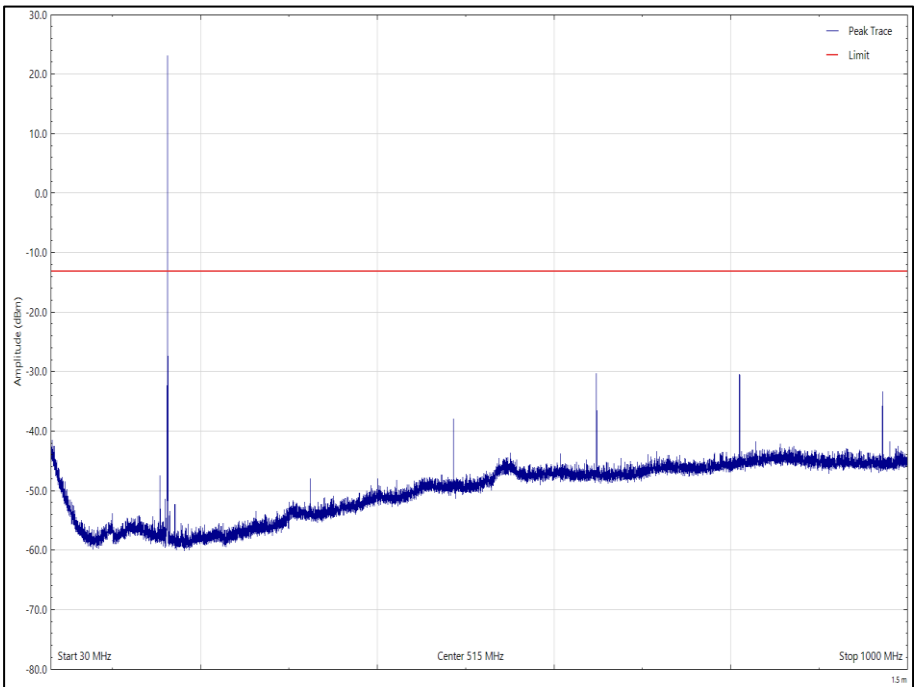


Figure 19 - 161.975 MHz - 30 MHz to 1 GHz Vertical Y

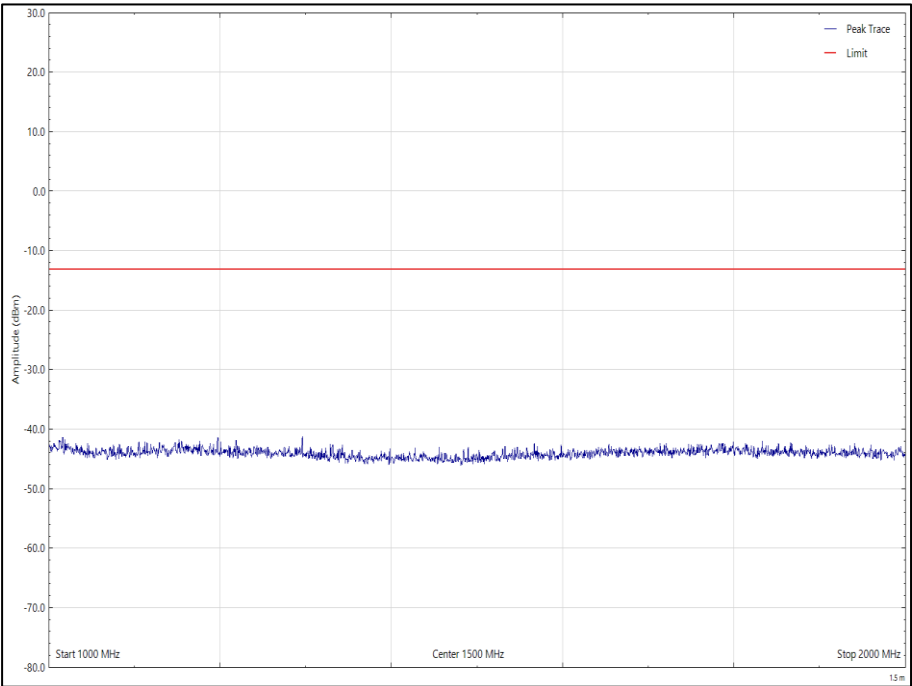


Figure 20 - 161.975 MHz - 1 GHz to 2 GHz Horizontal Y

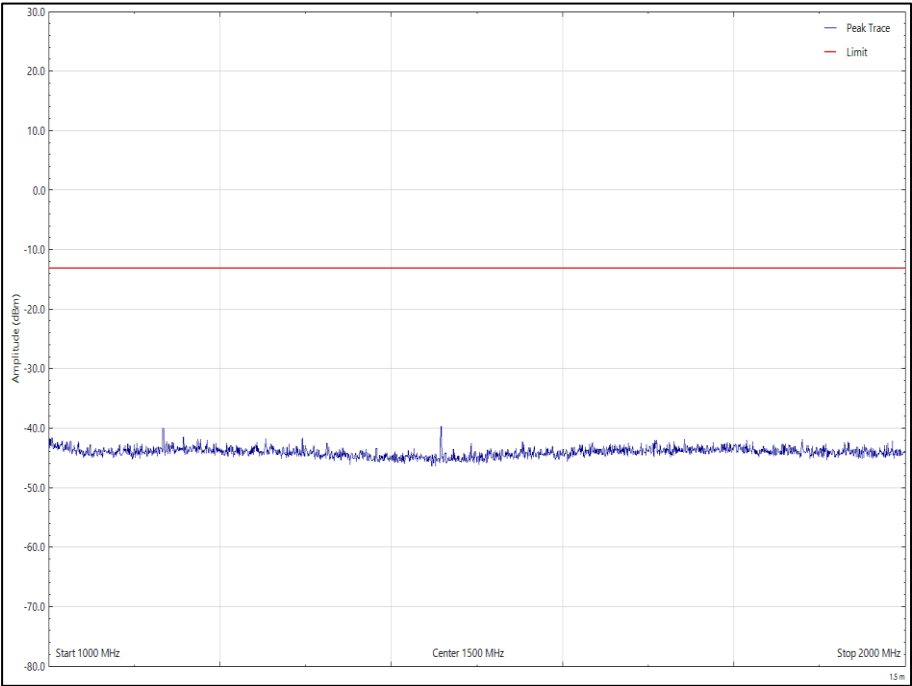


Figure 21 - 161.975 MHz - 1 GHz to 2 GHz Vertical Y

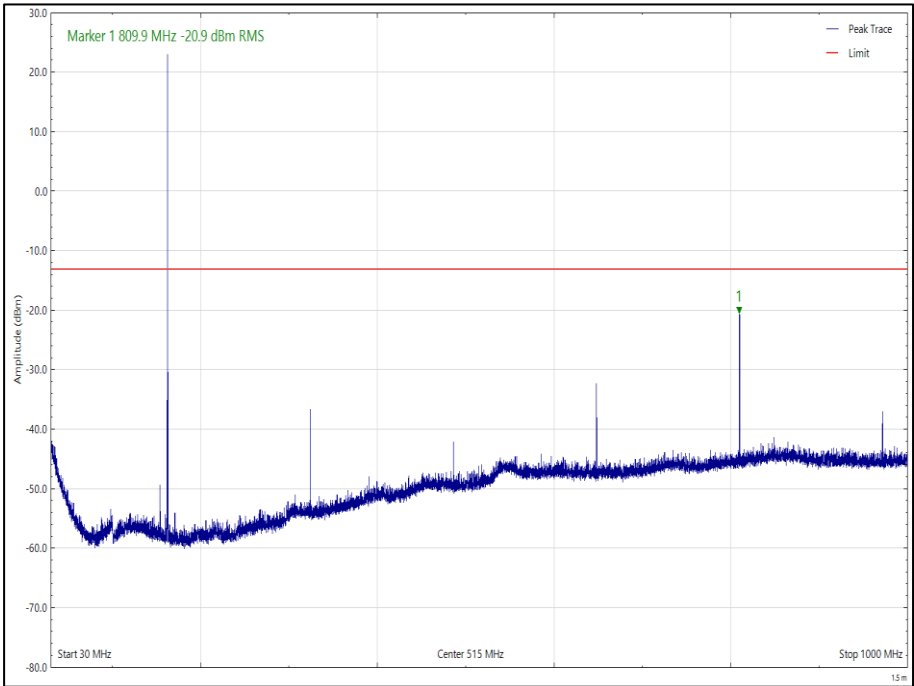


Figure 22 - 161.975 MHz - 30 MHz to 1 GHz Horizontal Z

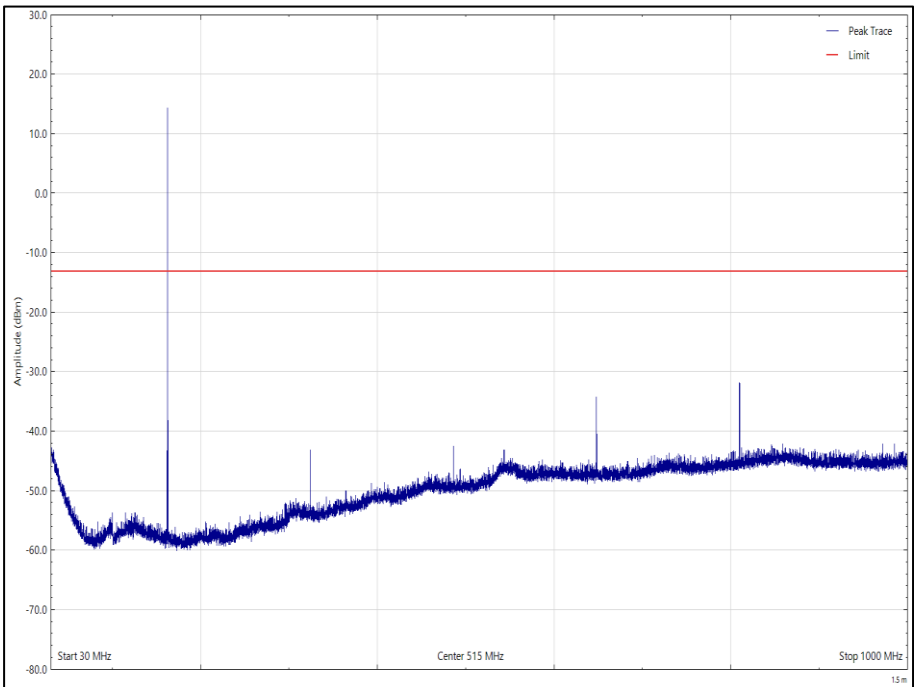


Figure 23 - 161.975 MHz - 30 MHz to 1 GHz Vertical Z

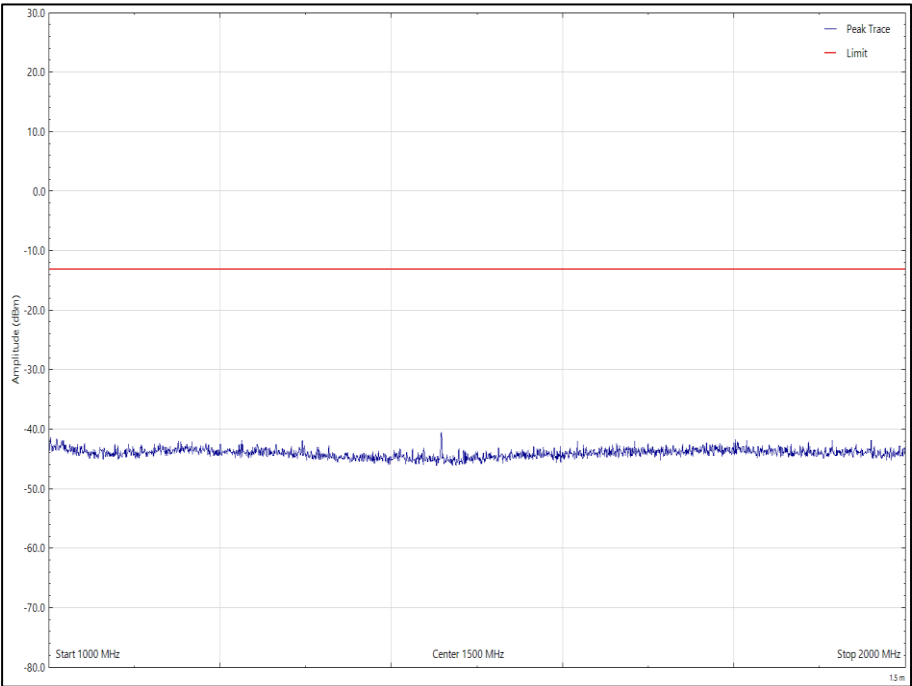


Figure 24 - 161.975 MHz - 1 GHz to 2 GHz Horizontal Z

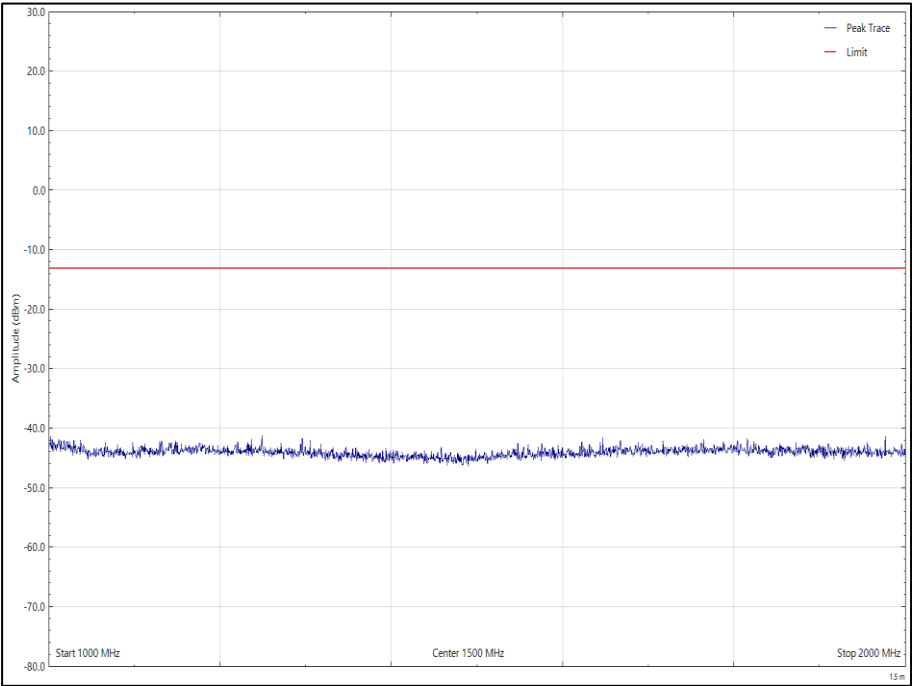


Figure 25 - 161.975 MHz - 1 GHz to 2 GHz Vertical Z



Frequency (MHz)	Level (dBm)
810.122	-18.88
810.123	-20.85

Table 12 - 162.025 MHz - Emissions Results

No other emissions were detected within 10 dB of the limit.

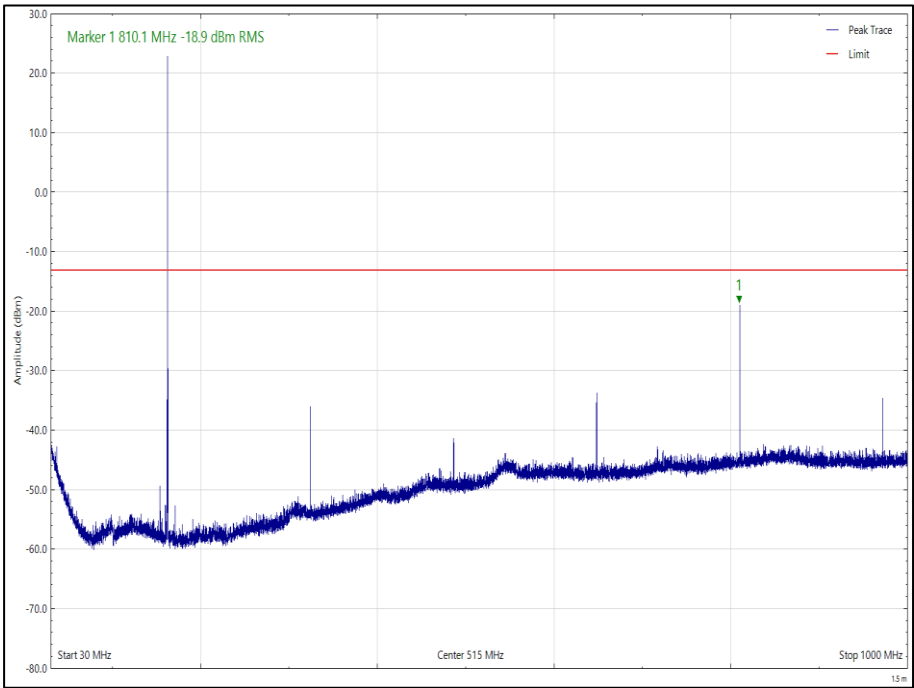


Figure 26 - 162.025 MHz - 30 MHz to 1 GHz Horizontal X

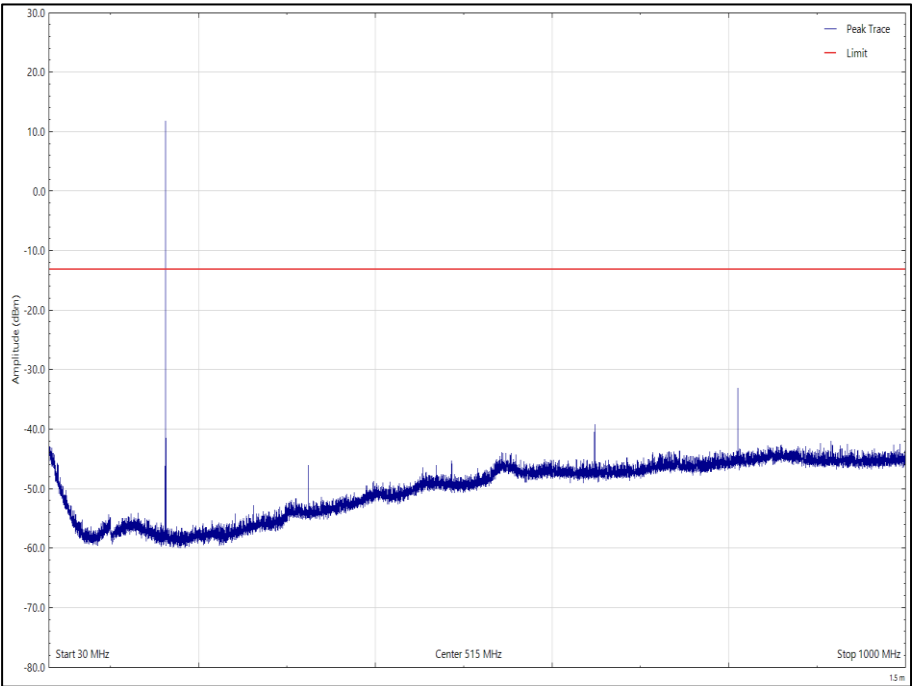


Figure 27 - 162.025 MHz - 30 MHz to 1 GHz Vertical X

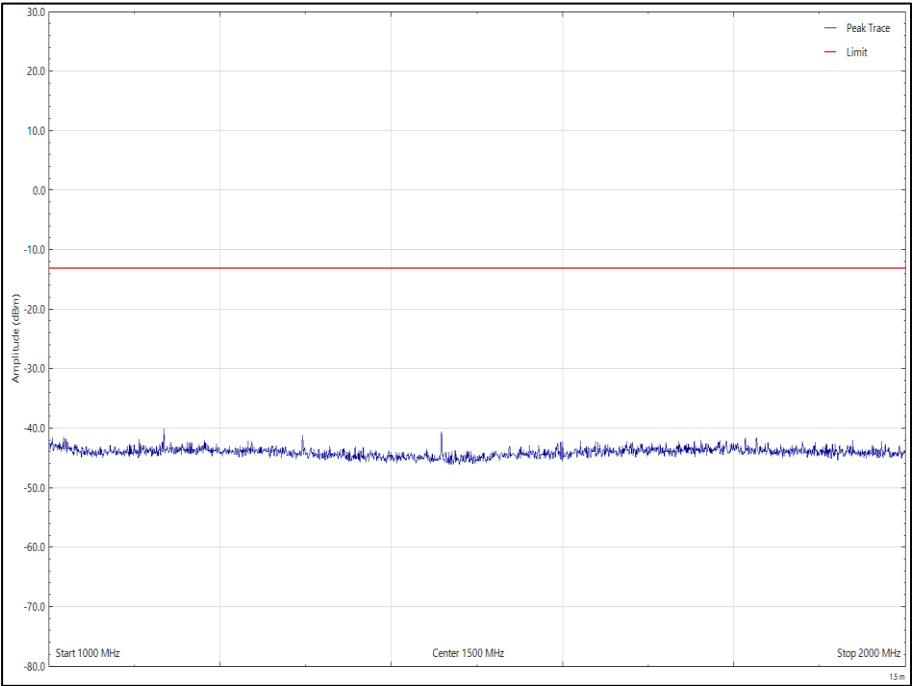


Figure 28 - 162.025 MHz - 1 GHz to 2 GHz Horizontal X

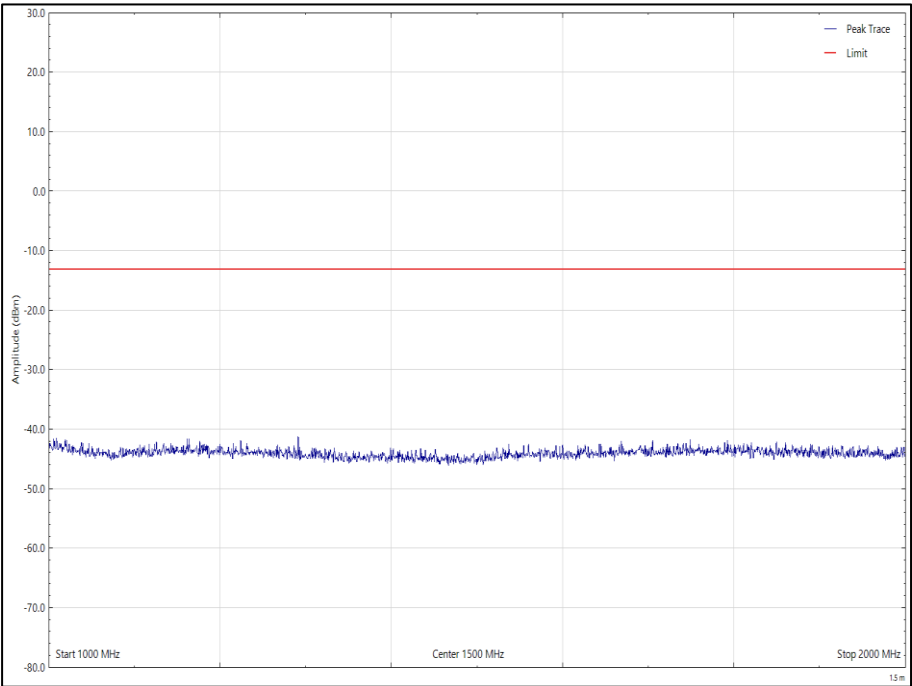


Figure 29 - 162.025 MHz - 1 GHz to 2 GHz Vertical X

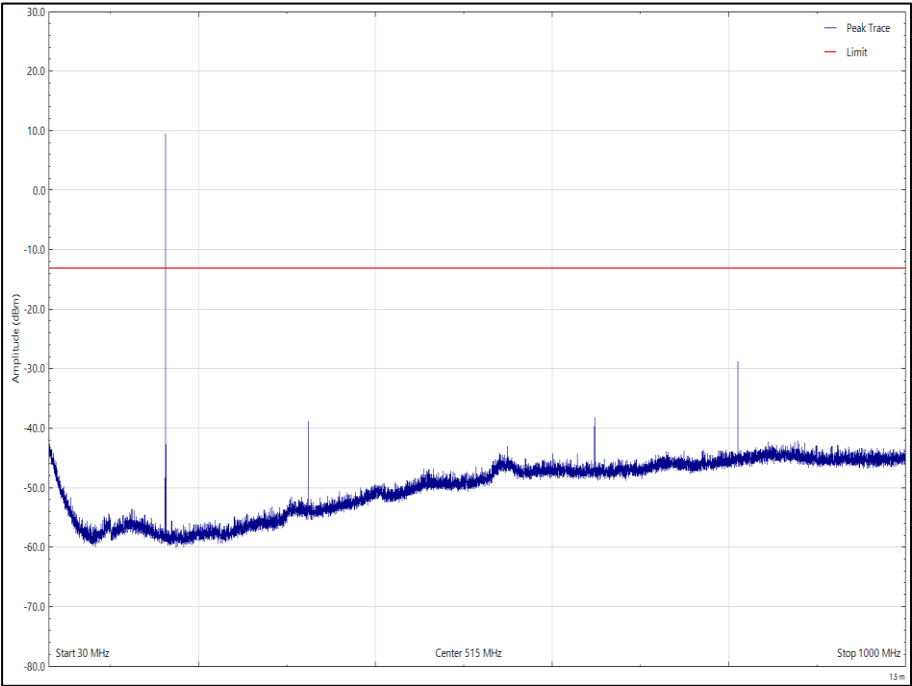


Figure 30 - 162.025 MHz - 30 MHz to 1 GHz Horizontal Y

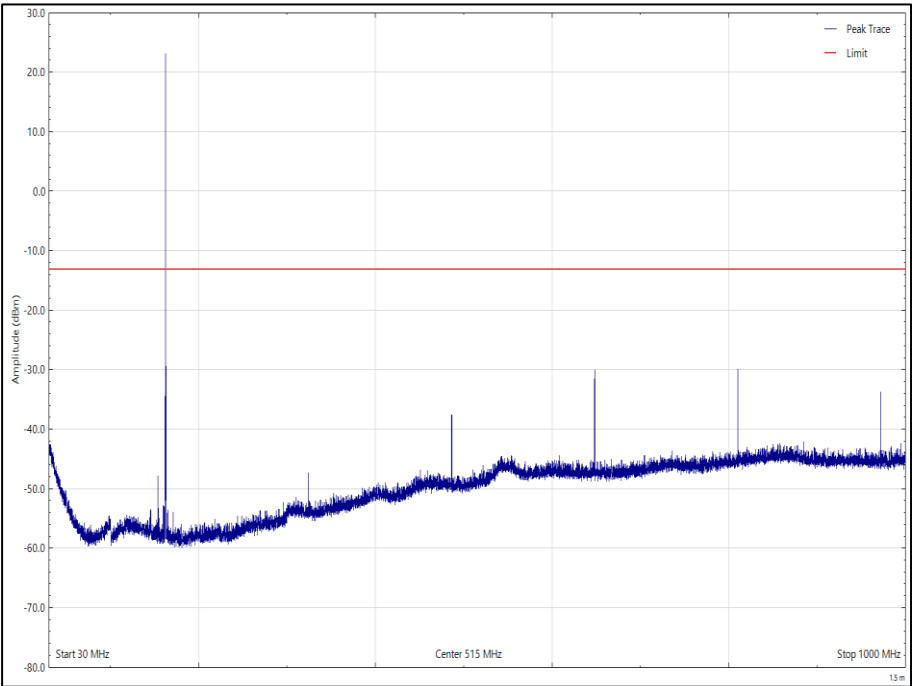


Figure 31 - 162.025 MHz - 30 MHz to 1 GHz Vertical Y

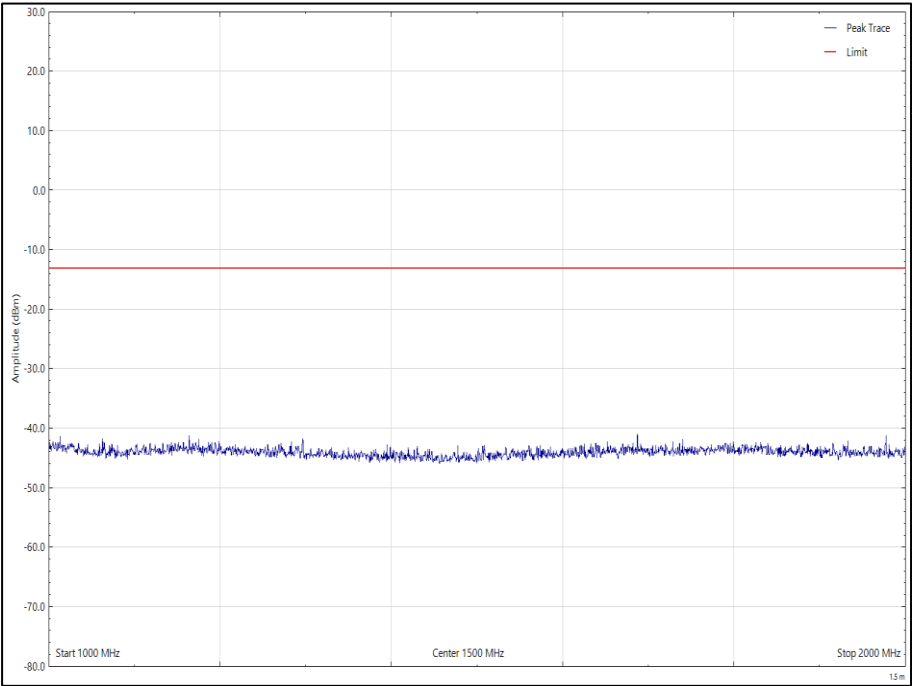


Figure 32 - 162.025 MHz - 1 GHz to 2 GHz Horizontal Y

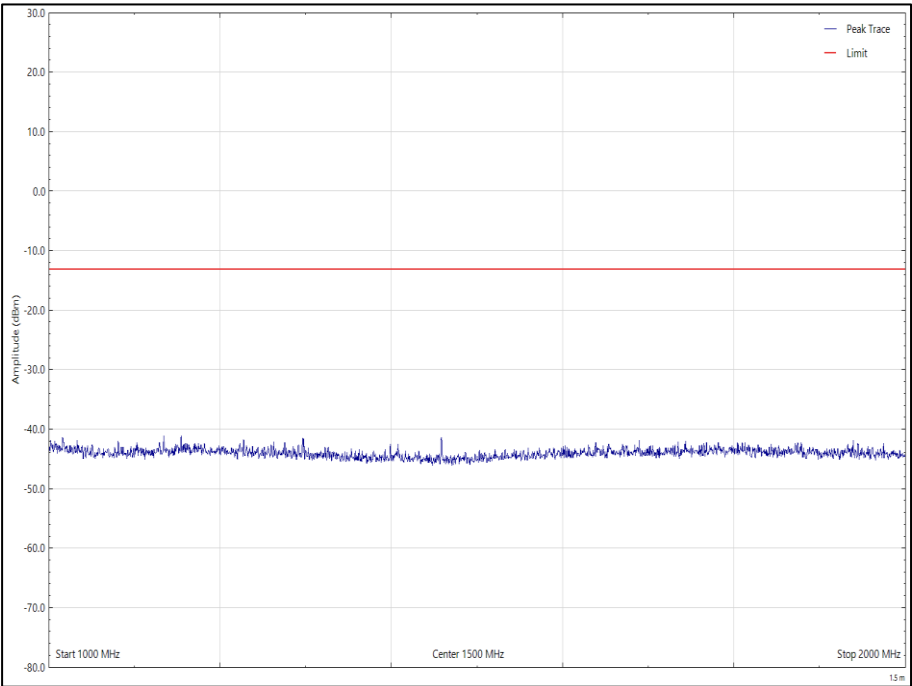


Figure 33 - 162.025 MHz - 1 GHz to 2 GHz Vertical Y

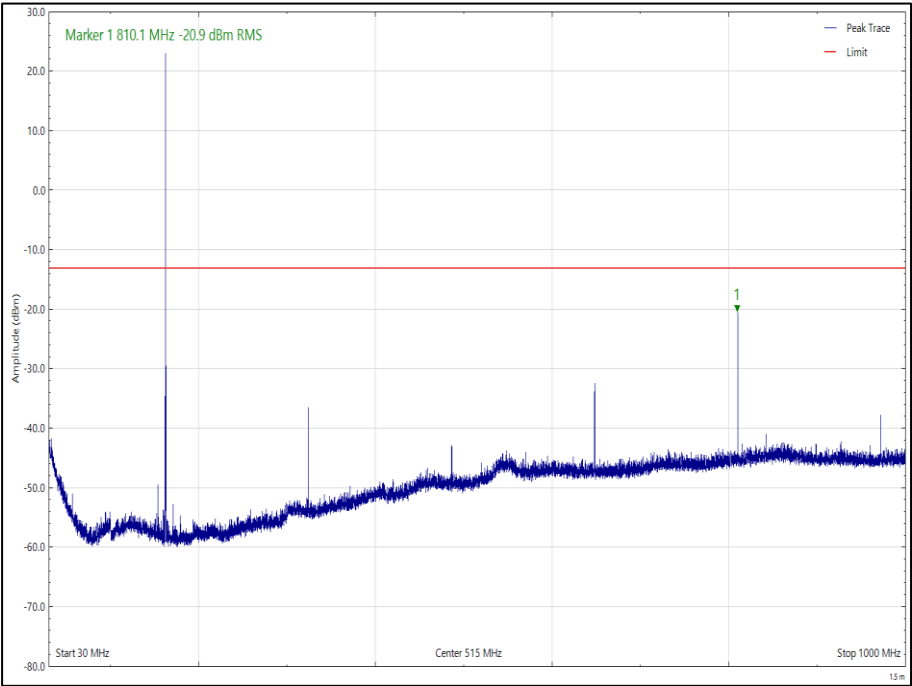


Figure 34 - 162.025 MHz - 30 MHz to 1 GHz Horizontal Z

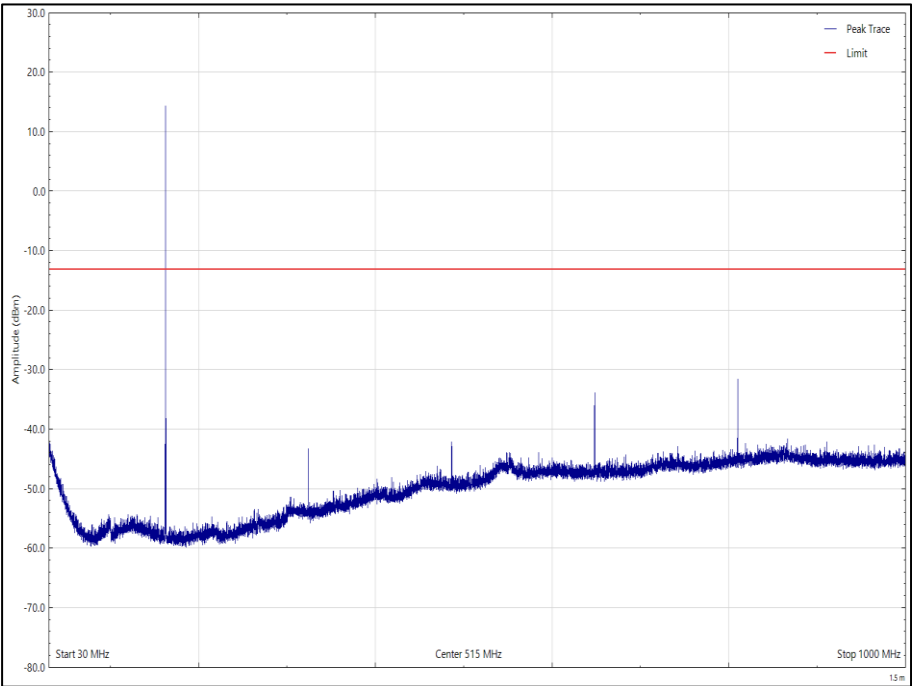


Figure 35 - 162.025 MHz - 30 MHz to 1 GHz Vertical Z

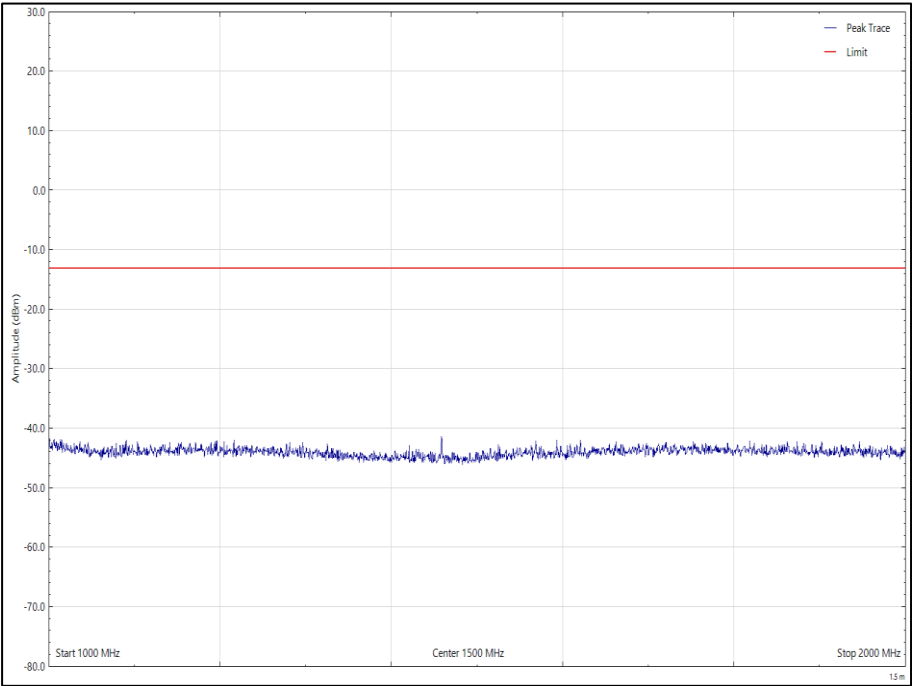


Figure 36 - 162.025 MHz - 1 GHz to 2 GHz Horizontal Z

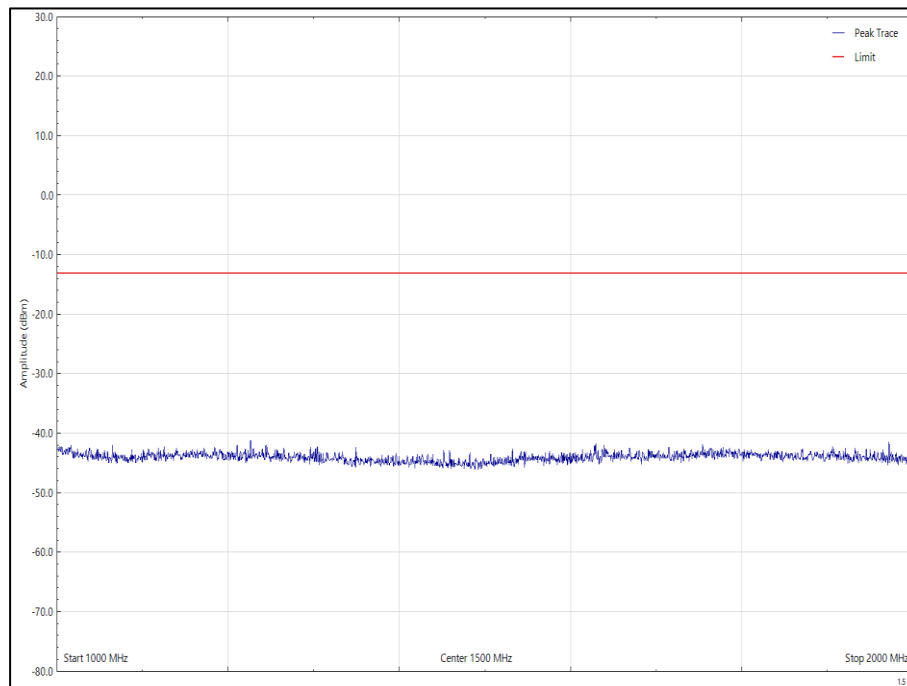


Figure 37 - 162.025 MHz - 1 GHz to 2 GHz Vertical Z

FCC 47 CFR Part 80, Limit Clause 80.211

More than 250% of the Authorised Bandwidth:

On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43 plus $10\log_{10}$ (mean power in watts) dB.

ISED RSS-182, Limit Clause 5.9.1

At least $43 + 10 \log_{10} p$ (W) dB, measured with a bandwidth of 30 kHz, on any frequency removed from the carrier frequency by more than 250% of the authorized bandwidth.



2.5.8 Test Location and Test Equipment Used

This test was carried out in EMC Chamber 5.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
Antenna (Bilog with attenuator, 30 MHz to 3 GHz)	Schaffner	CBL6143	287	24	29-Aug-2026
3m Semi-Anechoic Chamber	Rainford	RF Chamber 5	1545	36	23-Apr-2027
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
High Pass Filter	Mini-Circuits	NHP-300	1640	12	20-Jun-2026
Hygrometer	Rotronic	Hygropalm 0	3028	12	12-Aug-2025
Mast Controller	Maturo GmbH	NCD	4810	-	TU
Tilt Antenna Mast	Maturo GmbH	TAM 4.0-P	4811	-	TU
Antenna (DRG, 1 GHz to 10.5 GHz)	Schwarzbeck	BBHA9120B	4848	12	5-Jul-2026
Emissions Software	TUV SUD	EmX V3.5.3 V.	5125	-	N/A - Software
EMI Test Receiver	Rohde & Schwarz	ESW44	5527	12	26-Jul-2025
2m Coaxial Cable Assy	Junkosha	MWX221-02000AMSAMS/A	6357	12	13-May-2026
Cable Assy 8m (N to N) 18GHz	Junkosha	MWX221-08000NMSNMS/B	7050	12	1-Jun-2026

Table 13

TU - Traceability Unscheduled

2.6 Modulation Requirements

2.6.1 Specification Reference

FCC 47 CFR Part 80, Clause 80.213
FCC 47 CFR Part 2, Clause 2.1047
ISED RSS-182, Clause 5.4.

2.6.2 Equipment Under Test and Modification State

S200, S/N: TA000019 - Modification State 1

2.6.3 Date of Test

23-June-2025

2.6.4 Test Method

Configuration 1 - AIS

The test was applied in accordance with the test method requirements of FCC CFR 47 Part 80.213 (d).

The EUT was transmitting at maximum power, modulated by the standard AIS test signals using either PRS, 01010101 or 00001111 packet payloads. The EUT was connected to a spectrum analyser via a cable and attenuator, using the FM demodulation function of the spectrum analyser, the peak frequency deviation was observed and shown in the plots on the following pages.

2.6.5 Environmental Conditions

Ambient Temperature	21.2 °C
Relative Humidity	53.6 %

2.6.6 Test Setup Diagram

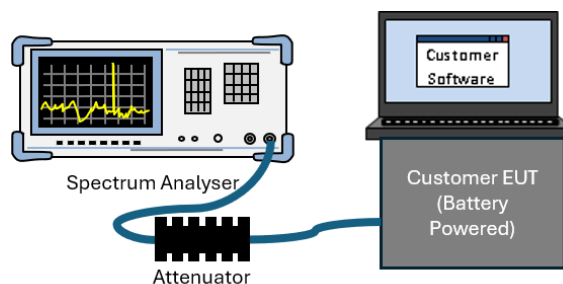


Figure 38



2.6.7 Test Results

Configuration 1 - AIS

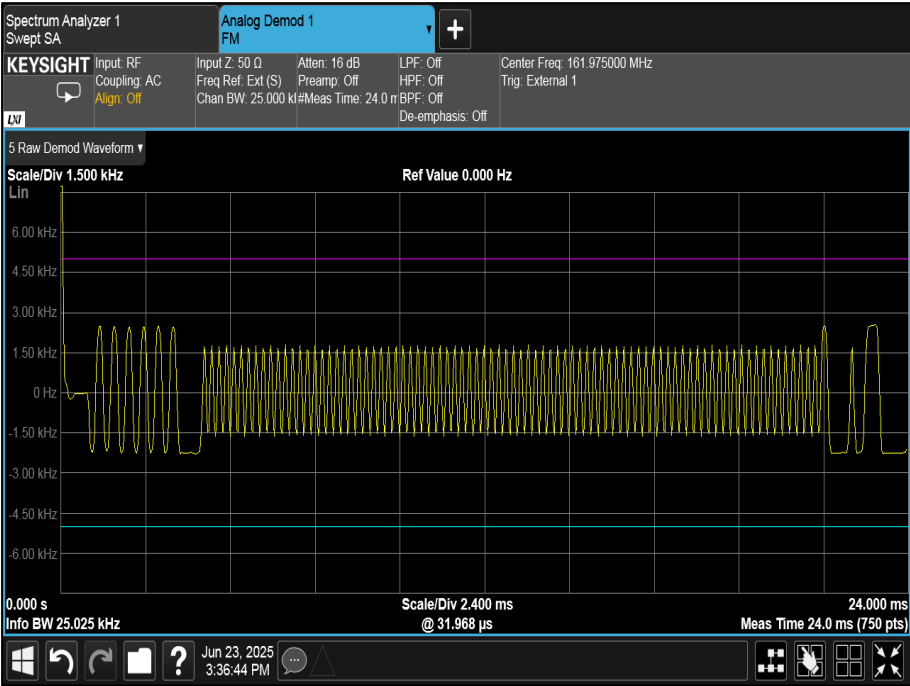


Figure 39 - 161.975 MHz - 01010101

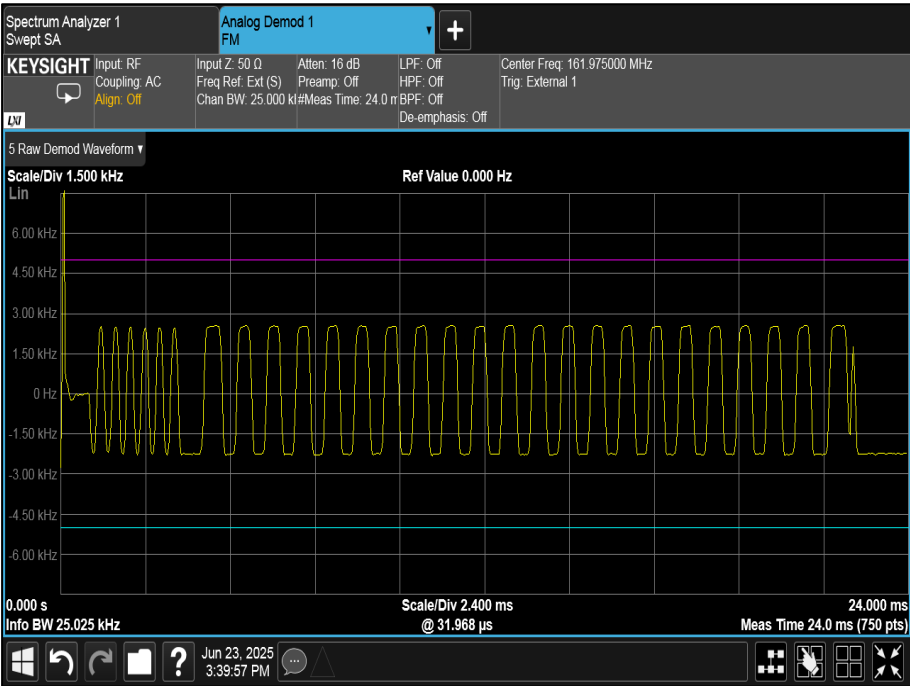


Figure 40- 161.975 MHz - 00001111

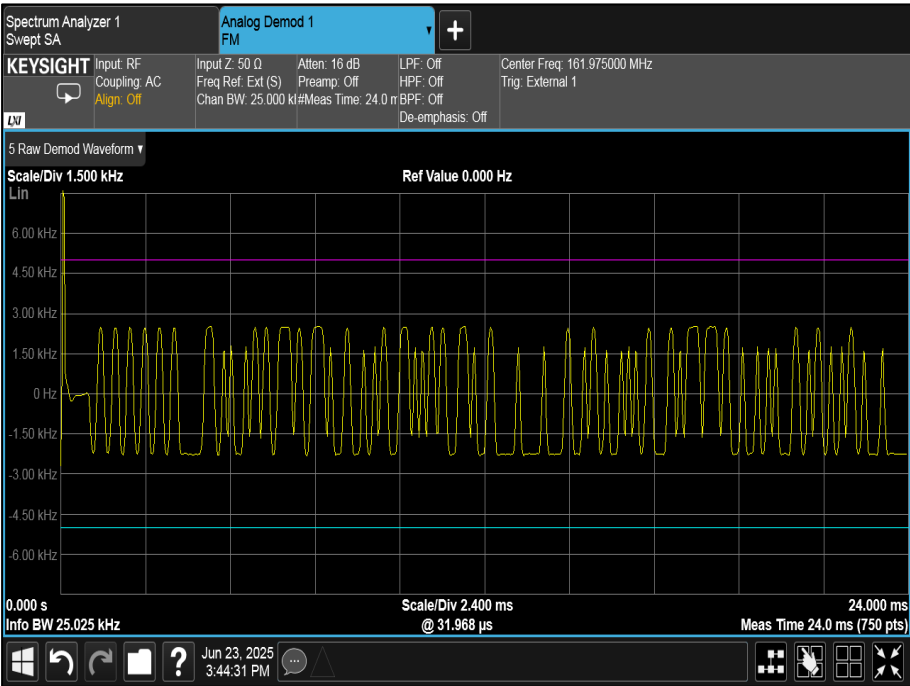


Figure 41- 161.975 MHz - PRBS

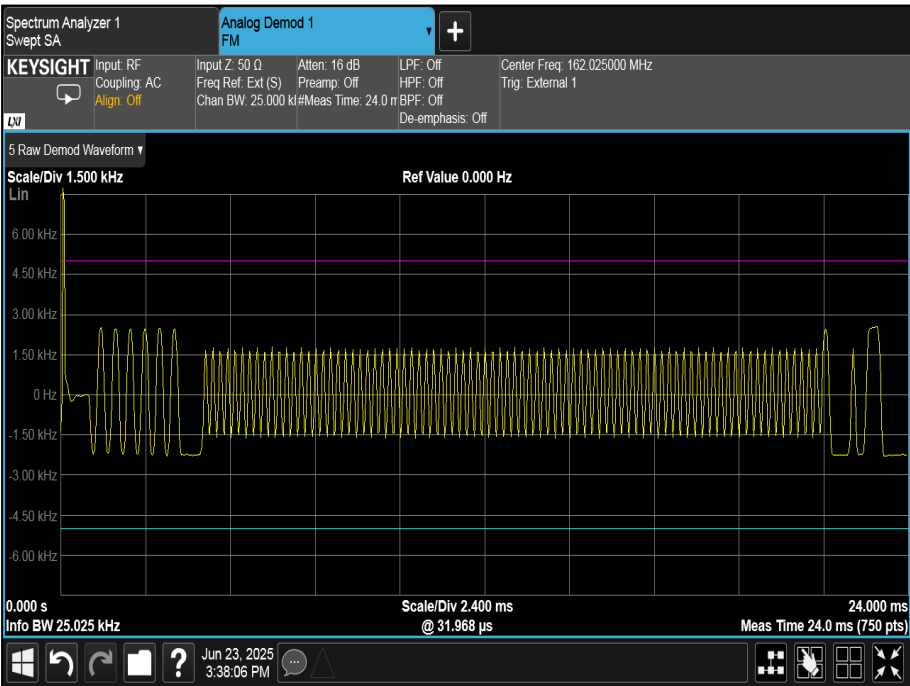


Figure 42 - 162.025 MHz - 01010101

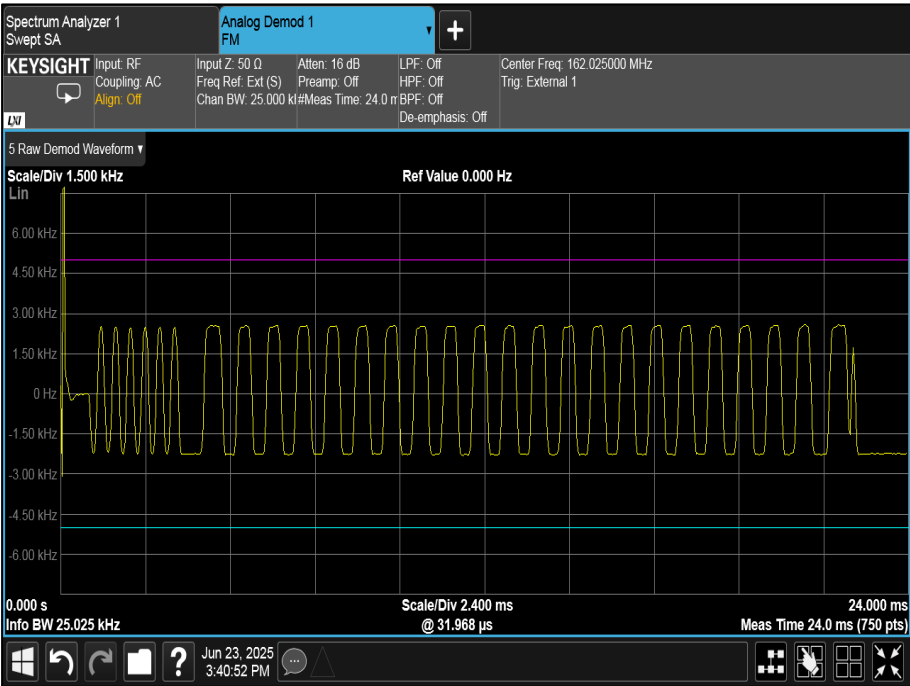


Figure 43- 162.025 MHz - 00001111

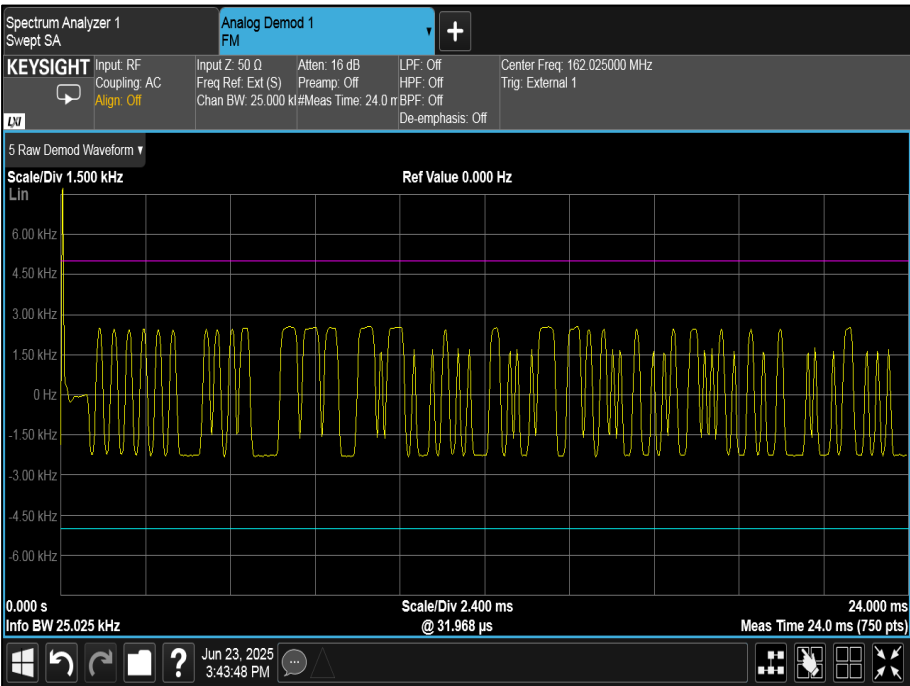


Figure 44- 162.025 MHz - PRBS



FCC 47 CFR Part 80, Limit Clause 80.213(d)

Ship and coast station transmitters operating in the 156–162 MHz and 216–220 bands must be capable of proper operation with a frequency deviation that does not exceed ± 5 kHz when using any emission authorized by § 80.207

ISED RSS-182, Limit Clause 5.4

VHF radiocommunication shall employ G3E or F3E modulation for voice communication and G2B for DSC signals.

Maritime VHF transceivers shall have the following characteristics:

the channel spacing shall be 25 kHz or 12.5 kHz (see section 5.2);

1. FM with a pre-emphasis of 6 dB/octave or PM shall be used;
2. the frequency deviation corresponding to 100% modulation shall approach 5 kHz as nearly as practicable and the frequency deviation shall not exceed ± 5 kHz;
3. the audio-frequency band shall be 3000 Hz;
4. the authorized channel bandwidth for voice shall be 16 kHz; and
5. the authorized channel bandwidth for data shall be 20 kHz.

The VHF radio transceivers shall be equipped with an automatic timing device that deactivates the transmitter and reverts the transceiver to the receive mode after an uninterrupted transmission period of five minutes, plus or minus 10%. Furthermore, these transceivers shall have a device that indicates when the automatic timer has deactivated the transmitter.

Radio equipment that has channel spacing of less than 25 kHz or that uses modulation techniques other than PM/FM will be permitted in Canada provided the equipment shall:

1. have a mode to inter-operate with the current IMO-standard FM channels of 16 kHz authorized bandwidth; and
2. operate on frequencies that comply with the frequency plan specified in RBR-2.

2.6.8 Test Location and Test Equipment Used

This test was carried out in Beacons and NavE Laboratory.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
Hygrometer	Rotronic	I-1000	2784	12	10-Oct-2025
Attenuator (20dB, 10W)	Aeroflex / Weinschel	23-20-34	3160	12	11-Oct-2025
Rubidium Frequency Standard	Symmetricon	8040C	3490	12	16-Dec-2025
EXA Signal Analyser	Keysight Technologies	N9010B	4969	24	7-Feb-2026
Load Short open	Rohde & Schwarz	FSH-Z29	5400	12	21-Oct-2025
Portable Network Analyser	Rohde & Schwarz	ZVH4	6250	12	21-Oct-2025
Cable N to N 1m	Junkosha	MWX221-01000NMSN/B	6776	12	22-Apr-2026

Table 14

2.7 Transmitter Power

2.7.1 Specification Reference

FCC 47 CFR Part 80, Clause 80.215
FCC 47 CFR Part 2, 2.1046
ISED RSS-182, Clause 5.6.
ISED RSS-GEN, Clause 6.12

2.7.2 Equipment Under Test and Modification State

S200, S/N: TA000019 - Modification State 1

2.7.3 Date of Test

23-June-2025

2.7.4 Test Method

Configuration 1 - AIS

The test was applied in accordance with the test method requirements of Industry Canada RSS-GEN Clause 6.12 and Industry Canada RSS-182 Clause 5.1.2.

2.7.5 Environmental Conditions

Ambient Temperature 21.5 °C
Relative Humidity 53.4 %

2.7.6 Test Setup Diagram

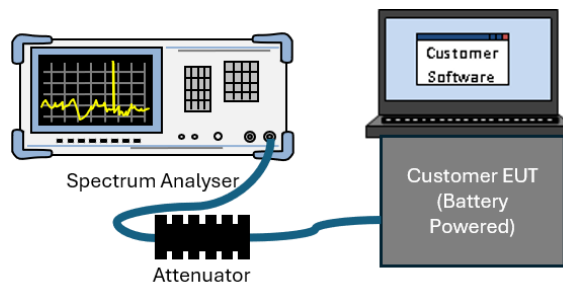


Figure 45

2.7.7 Test Results

Configuration 1 - AIS

161.975 MHz		162.025 MHz	
Result (dBm)	Result (W)	Result (dBm)	Result (W)
31.55	1.429	31.57	1.435

Table 15 - Transmitter Power

FCC 47 CFR Part 80, Limit Clause 80.215(c)(e)

Ship station frequencies above 27500 kHz. The maximum power must not exceed the values listed below:



1. Ships Stations: 156 to 162 MHz - 25 W
2. Marine Utility Stations: 156 to 162 MHz - 10 W

ISED RSS-182, Limit Clause 5.6

The output power for equipment certified under RSS-182 shall not exceed the limits specified in the table below:

Radio Equipment Type	Maximum Power
Coast Station	50 W
Ship Stations	25 W
Shipborne hand-held portable transmitter	6 W

Table 16 - Power Limits Table (RSS-182)

Ship station transmitters shall have power control features implemented to reduce the carrier power to 1 W or less for use at short ranges, except for DSC equipment operating on the 156.525 MHz (channel 70) frequency, for which the power reduction facility is optional.

Survival two-way radiotelephones should have a minimum equivalent isotropically radiated power (e.i.r.p.) of 0.25 W.

2.7.8 Test Location and Test Equipment Used

This test was carried out in Beacons and NavE Laboratory.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
Hygrometer	Rotronic	I-1000	2784	12	10-Oct-2025
Attenuator (20dB, 10W)	Aeroflex / Weinschel	23-20-34	3160	12	11-Oct-2025
Rubidium Frequency Standard	Symmetricon	8040C	3490	12	16-Dec-2025
EXA Signal Analyser	Keysight Technologies	N9010B	4969	24	7-Feb-2026
Load Short open	Rohde & Schwarz	FSH-Z29	5400	12	21-Oct-2025
Portable Network Analyser	Rohde & Schwarz	ZVH4	6250	12	21-Oct-2025
Cable N to N 1m	Junkosha	MWX221-01000NMSN/B	6776	12	22-Apr-2026

Table 17



3 Test Equipment Information

3.1 General Test Equipment Used

No general test equipment was used during testing. All applicable test equipment is listed in the test detail sections.

3.2 Customer Support Equipment

No customer supplied test equipment was used during testing.



4 Incident Reports

No incidents reports were raised.



5 Measurement Uncertainty

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

Test Name	Measurement Uncertainty
Bandwidths	± 58.05 Hz
Transmitter Frequency Tolerances	± 11 Hz
Spurious Emissions at Antenna Terminals	± 3.45 dB
Radiated Spurious Emissions	30 MHz to 1 GHz: ± 5.2 dB 1 GHz to 18 GHz: ± 6.3 dB
Modulation Requirements	-
Transmitter Power	± 3.2 dB

Table 18

Measurement Uncertainty Decision Rule

Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115:2021, Clause 4.4.3 (Procedure 2). 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.



ANNEX A

Test Results from TÜV SÜD Document 75959389 Report 02



Radiated Power

Specification Reference

IEC 61097-14, Clause 7.4

Equipment Under Test and Modification State

Pathfinder AIS, S/N: TA000016 - Modification State 0

Date of Test

09 May 2025

Test Method

This test was performed in accordance with IEC 61097-14 clause 7.4.2.

Note: The measuring distance of 10m restricted the elevation search to approximately 20°, whereas the specification requirement is 30°. The specification states a minimum limit of 500mW at an elevation that returns the maximum power level. As the measurements made at 5.7° elevation meet the specification requirements, the test is considered Pass.

Environmental Conditions

Ambient Temperature 23.0°C
Relative Humidity 30.0%

Test Results

Measurements made at an elevation of 5.7° and at 10m from the EUT.

Azimuth°	Radiated Power (mW)
0	769.43
90	685.75
180	639.98
270	685.75

Table 19

NOTE: 639.98mW is equivalent to 28.06dBm.

IEC 61097-14, Limit Clause 7.4.3

The radiated power shall be at least 27 dBm (500 mW).



Test Location and Test Equipment Used

This test was carried out at TÜV Straubing.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
TRILOG Broadband Antenna	Schwarzbeck Mess-Elektronik	VULB 9163	19669	36	31-Oct-2026
Semi anechoic room	Albatross Projects GmbH	Cabin no. 8	19917	24	31-Aug-2026
EMI test receiver	Rohde & Schwarz GmbH & Co. KG	ESW26	28268	12	30-Jun-2025

Table 20



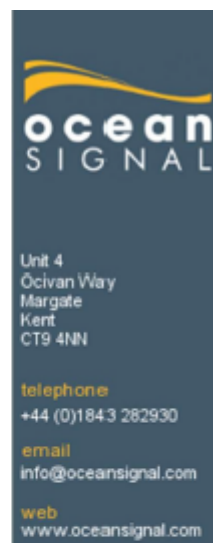
ANNEX B

Manufacturer Declaration



TUV SUD BABT UNLIMITED (TCB)
Octagon House,
Segensworth Road,
Fareham,
Hampshire,
PO15 5RL
United Kingdom

03 August 2026



Dear Sir/Madam,

The ACR Group hereby respectfully apply for FCC Type Approval through TUV SUD BABT UNLIMITED as a TCB Scheme for the following AIS Search and Rescue Transmitter (SART) products:

- Ocean Signal safeSEA S200 SART
- ACR Electronics Pathfinder™ AIS SART

These products contain transmitters and are for use in an emergency situation. Following activation, the SARTs will continually transmit AIS Message 1 (Position) and AIS Message 14 (Status), to alert nearby vessels and/or search and rescue services of an emergency situation and to aid rescue.

The SARTs comply with the requirements of IMO Resolution MSC.246(83), IEC Standards 61097-14:2010 and 60945:2005 including correction 1:2008, and ITU recommendations ITU-R M.1371-5:2014.

The Transmitter frequency of the products detailed above complies with the appendix 18 channels for AIS 1 and AIS 2, channels 75 and 76. There is no provision for the user to change these frequencies. This demonstrates compliance with FCC 47 part 80.203.

ACR Electronics Inc. and Ocean Signal Ltd. are under the same ownership of the ACR Group. The Design Authority for the above named SART products is Ocean Signal Ltd. in the UK. Both variants are manufactured by Ocean Signal Ltd., in Margate, UK using the same manufacturing process and test equipment.

Thanking you in advance for your prompt attention to this application.

Yours Faithfully
Signed on behalf of the ACR Group

Simon Nolan
Chief technical Officer, Ocean Signal Ltd.

Please Note: The ACR Group is a collection of companies including ACR Electronics Inc. and Ocean Signal Ltd.

Registration No
6627101

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