

RADIO TEST REPORT

Report No.: M2405010-5 v2

TESTED FOR:

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ISSUED BY:

EMC Technologies Pty. Ltd.

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Product Name: HR0 Handheld Reader

Model: G03307

PCB No: 2M4829-2

PCB Assy No: 2A0881-1

FCC ID: M5VG03307

IC: 7369A-G03307

Test Date(s): 20 October 2025

Issue Date: 30 March 2026

Standard: **FCC Part 15, Subpart C**

ISED RSS-210, Issue 11

Result: *The test sample, under the condition and operating mode described in this test report, complies with the standard/s listed above.*

Test Engineers:

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Authorized Signatory:

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Revision History

Version	Issue Date	Reason / Comments
1	5 November 2025	Initial issue
2	30 March 2026	Updated sections 1.3, 2.2, 3.3.1 and 3.3.5 - results summary, clarify test configuration, and radiated emission result presentation in response to customer request

General Remarks

EMC Technologies Pty Ltd hereby certify that the device(s) described herein were tested as described in this report and that the data included is that which was obtained during such testing.

EMC Technologies Pty Ltd reports apply only to the specific samples tested under stated test conditions. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. EMC Technologies Pty Ltd shall have no liability for any deductions, inferences or generalisations drawn by the customer or others from EMC Technologies Pty Ltd issued reports. This report shall not be used to claim, constitute, or imply product endorsement by EMC Technologies Pty Ltd.

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1 Project Overview

1.1 Test Facility

Measurements were performed at the following location:

- ☒ Melbourne Laboratory 176 Harrick Road, Keilor Park, VIC 3042, Australia
- ☐ Sydney Laboratory Unit 3, 87 Station Road, Seven Hills, NSW 2147, Australia

EMC Technologies Pty. Ltd. is a NATA accredited to ISO 17025 for both testing and calibration and ISO 17020 for Inspection. – **Accreditation Number 5292.**

Country	Assessment Body	Lab Code / Member No.
Australia	NATA	Accreditation Number: 5292 Site Number: 5285
Europe	European Union	Notified Body Number: 0819
USA	FCC	Designation Number: AU0001
Canada	ISED Canada	CAB Identifier Number: AU0001
Japan	VCCI	Company Number: 785
Taiwan	BSMI	Lab Code SL2-IN-E-5001R

1.2 Standards Applied

FCC PART 15, SUBPART C, SECTION 15.209

Radiated emission limits; general requirements

FCC PART 15, SUBPART C, SECTION 15.207

Conducted limits

ISED RSS-210, Issue 11

Licence-Exempt Radio Apparatus: Category I Equipment

ANSI C63.10 - 2020

American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

1.3 Results Summary

The test sample was provided by the customer. All results herein apply only to the test sample.

Sec.	Description	FCC	ISED	Results
3.1	Antenna Requirement	§15.203	RSS-Gen 6.8	Complied
3.2	Conducted Limits	§15.207	RSS-Gen 8.8	Not Applicable*
3.3	Fundamental field strength	§15.209	RSS-210 8.2 RSS-Gen 8.9	Complied
	Radiated emission limits; General requirements	§15.209	RSS-210 8.3 RSS-Gen 8.9	Complied
3.4	Occupied Bandwidth – 99%	§15.215(c)	RSS-Gen 6.7	Complied

*Note: The EUT is powered by an internal rechargeable battery. The transmitter cannot operate while the battery is being charged, and there is no direct connection to the AC mains during transmitter operation. Therefore, conducted emission testing on AC power lines is not applicable.

1.4 Measurement Uncertainty

EMC Technologies has evaluated the equipment, and the methods used to perform the EMC testing. The estimated measurement uncertainties for the various tests shown within this report are as follows:

EMC Testing	Range	Value
Conducted Emission		
• Mains Port	9kHz to 30 MHz	± 3.2 dB
Radiated Emission	9 kHz to 30 MHz	± 4.1 dB
	30 MHz to 300 MHz	± 5.1 dB
	300 MHz to 1000 MHz	± 4.7 dB
	1 GHz to 18 GHz	± 4.6 dB
Peak Output Power		± 1.5 dB

The above expanded uncertainties are based on standard uncertainties multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

Application of measurement uncertainty for this report:

The referenced uncertainty standard specifies that determination of compliance shall be based on measurements without taking into account measurement uncertainty. However, the measurement uncertainty shall appear in the test report.

1.5 Test Equipment

Measurement instrumentation and transducers were calibrated in accordance with the applicable standards by a NATA accredited laboratory or the National Measurement Institute (NMI).

Conducted Emission						
Manufacturer	Model	Serial No.	Asset No.	Description	Cal. Date	Cal. Due
Huber+Suhner	Sucoflex 118	800175/118	C-537	RF Cable	04/06/2025	04/06/2026
Huber+Suhner	Sucoflex 106	501215/6P	C-484	RF Cable	27/11/2024	27/11/2025
Rojone	RG223/U	42681_1	C-591	RF Cable	23/02/2025	23/02/2026
Teseq	NNB 51	47439	L-077	LISN	27/08/2025	27/08/2026
Rohde & Schwarz	ESCI	101306	R-028	EMC Receiver	20/03/2025	20/03/2026

Radiated Emission						
Manufacturer	Model	Serial No.	Asset No.	Description	Cal. Date	Cal. Due
Frankonia	SAC-10-2	-	R-139	Room 12 10m SAC	20/03/2024	20/03/2027
Rohde & Schwarz	ESW26	101306	R-143	EMI Receiver	05/08/2025	05/08/2026
EMCO	6502	2021	A-310	Active Loop Antenna	19/09/2024	19/09/2026
SunAR	JB1	A061917	A-434	Broadband Hybrid Antenna	25/04/2025	25/04/2027
EMCO	3115	9501-4398	A-406	Horn Antenna	10/01/2025	10/01/2028
ETS-Lindgren	3160-09	66032	A-307	Horn Antenna	18/01/2024	18/01/2027
ETS-Lindgren	3160-10	64179	A-306	Horn Antenna	18/01/2024	18/01/2027
-	P1to10mSR	-	C422	RF Cable	25/09/2025	25/09/2026
Huber+Suhner	Sucoflex 106P	501211/6P	C-477	RF Cable	29/10/2025	10/01/2026
Huber+Suhner	Sucoflex 106P	3109/6P	C-407	RF Cable	25/09/2025	25/09/2026
HP	8447F	3113A07375	P-159	Pre-Amp	10/01/2025	10/01/2026
EDS	SG18-B3015	1	A-288	Pre-Amp	27/11/2024	27/11/2025

2 Equipment Under Test

2.1 EUT Details

(EUT details are supplied by the customer)

EUT Transmitter Details	
Radio Module/Chip Manufacturer:	Gallagher Group Ltd.
Radio Module/Chip Model:	N/A
Type:	RFID
Operating Band/Frequency:	134.2 kHz
Number of Channel:	1
Modulation:	AM (Amplitude Modulation)
Antenna Manufacturer:	Gallagher Group Ltd.
Antenna Assy No:	2A99375 (ANTENNA RFID TUNED 68UH HR0)
Ferrite:	8A1135 (FERRITE ROD)
Bobbin:	8A1136
Antenna Type:	Ferrite rod (Inductive coil)
Antenna Maximum Gain:	N/A

EUT Host Details	
Product Name:	HR0 Handheld Reader
Model:	G03307
PCB No:	2M4829-2 (Main board)
PCB Assy No:	2A0881-1 (Main board)
FW Version:	0-03-011
Sample No / Identification:	251111222
Power Rating:	3.2V 6Ah 19.2Wh LiFePO4 battery IFM32700 (P/N: 2M1964-2)
	AC/DC Adapter:
	SHENZHEN FUJIA APPLIANCE CO., LTD
	Model: FJ-SW1260901000DN (P/N: 2M1966)
	Input: 100-240VAC ~ 50/60Hz 0.4A Max
	Output: 9VDC 1.0A, 9.0W
Operating Ambient Temperature:	-20°C to 50°C
Description:	The Gallagher HR0 EID tag reader is a portable Bluetooth enabled animal tag reader operating with a fundamental frequency of 134.2kHz and is capable of reading HDX (Half Duplex) and FDX-B (Full Duplex) ISO compliant EID tags. It captures the tag number of individual animals and sends the information over Bluetooth to a compatible device or app.

2.2 Test Configuration

The testing was performed with the EUT's 134.2 kHz transmitter configured to operate in continuous transmission mode. The EUT was powered by its internal battery, which was fully charged prior to testing.

Test Mode	Description
1	Beeping sound from the reader indicating continuous tag reading (134.2 kHz)

2.3 Modifications

No modifications were required to achieve compliance.

2.4 Additions to, Deviations and Exclusions from the Method/Standard

No additions to, deviations or exclusions from the method/standard were performed.

2.5 Reference Document

No.	Document Title	Issue No.
1	GGL HR0 EMC Compliance Testing - October 2025	-

3 Evaluation of Test Results

3.1 §15.203/ RSS-Gen 6.8 - Antenna Requirement

The transmitter employs an integral inductive coil antenna that is permanently attached and not user replaceable. Therefore, the equipment complies with the antenna requirement of §15.203.

Antenna Manufacturer: Gallagher Group Ltd

Antenna Assy No: 2A99375 (ANTENNA RFID TUNED 68UH HR0)

Ferrite: 8A1135 (FERRITE ROD)

Bobbin: 8A1136

Antenna Type: Ferrite rod (Inductive coil)

Antenna Maximum Gain: N/A

3.2 §15.207/ RSS-Gen 8.8 - Conducted Limits

The reader is powered from a rechargeable 3.2V LiFePO4 battery which is charged from a 9Vdc mains power adaptor. The reader does not read tags when the charger is connected. Therefore, AC power line conducted emission test of transmitter is not applicable.

AC/DC Adapter details (for informative purposes only):

Manufacturer:	SHENZHEN FUJIA APPLIANCE CO., LTD
Model:	FJ-SW1260901000DN (P/N: 2M1966)
Input:	100-240VAC ~ 50/60Hz 0.4A Max
Output:	9VDC 1.0A, 9.0W

3.2.1 Test Procedure

The EMI Receiver was operated under program control using the Max-Hold function and automatic frequency scanning, measurement, and data logging techniques. The specified 0.15 MHz to 30 MHz frequency range was sub-divided into sub-ranges to ensure that all short duration peaks were captured.

The various operating modes of the system were investigated. For each of the sub-ranges, the EMI receiver was set to continuous scan with the Peak detector set to Max-Hold mode. The Quasi-Peak and Average detector were used to measure the most significant emission peaks identified during the scan.

Calculation of voltage level

The voltage levels were automatically measured in software and compared to the test limit. The method of calculation was as follows:

$$V_{emi} = V_{rx} + L$$

Where: V_{emi} = The Measured EMI voltage in dBμV to be compared to the limit.

V_{rx} = The Voltage in dBμV read directly at the EMI receiver.

L = The insertion loss in dB of the LISN, cables and transient Limiter

3.2.2 Limits

The limit applied was in accordance with the conducted limits defined in §15.207.

3.2.3 Results – 150kHz to 30 MHz

The EUT is powered by an internal rechargeable battery. The transmitter cannot operate while the battery is being charged, and there is no direct connection to the AC mains during transmitter operation. Therefore, conducted emission testing on AC power lines is not applicable.

3.3 §15.209/ RSS-Gen 8.9 - Radiated Emission Limits; General Requirements

The provisions of the §15.205 restricted bands of operation and §15.209 radiated emissions limits have been met.

3.3.1 Test Procedure

The spurious emissions measurements were performed in a semi-anechoic chamber compliant with ANSI C63.4: 2014.

The test frequency range was sub-divided into smaller bands with the defined resolution bandwidths to permit reliable display and identification of emissions.

Frequency range [MHz]	Measurement Bandwidth [kHz]	Measurement Distance [m]	Antenna
0.009 – 0.15	0.2	10	0.6 metre Loop antenna
0.15 – 30	9	10	
30 – 1000	120	10	Biconilog antenna

Radiated emission measurements were performed at a test distance of 10 meters. The EUT was placed on a non-conductive table 0.8 m above the ground plane and configured in its typical operating mode.

The EUT was tested in three orientations. Only worst-case results are presented in this report.

From 9 kHz to 30 MHz:

The loop antenna was placed 1 m above the ground reference plane. The EUT was rotated 360° for each of the three orthogonal loop antenna orientations (perpendicular, parallel, and with the plane of the loop parallel to the ground) to determine the maximum field strength. Only the worst-case emissions results are presented in this report.

From 30 MHz to 1000 MHz:

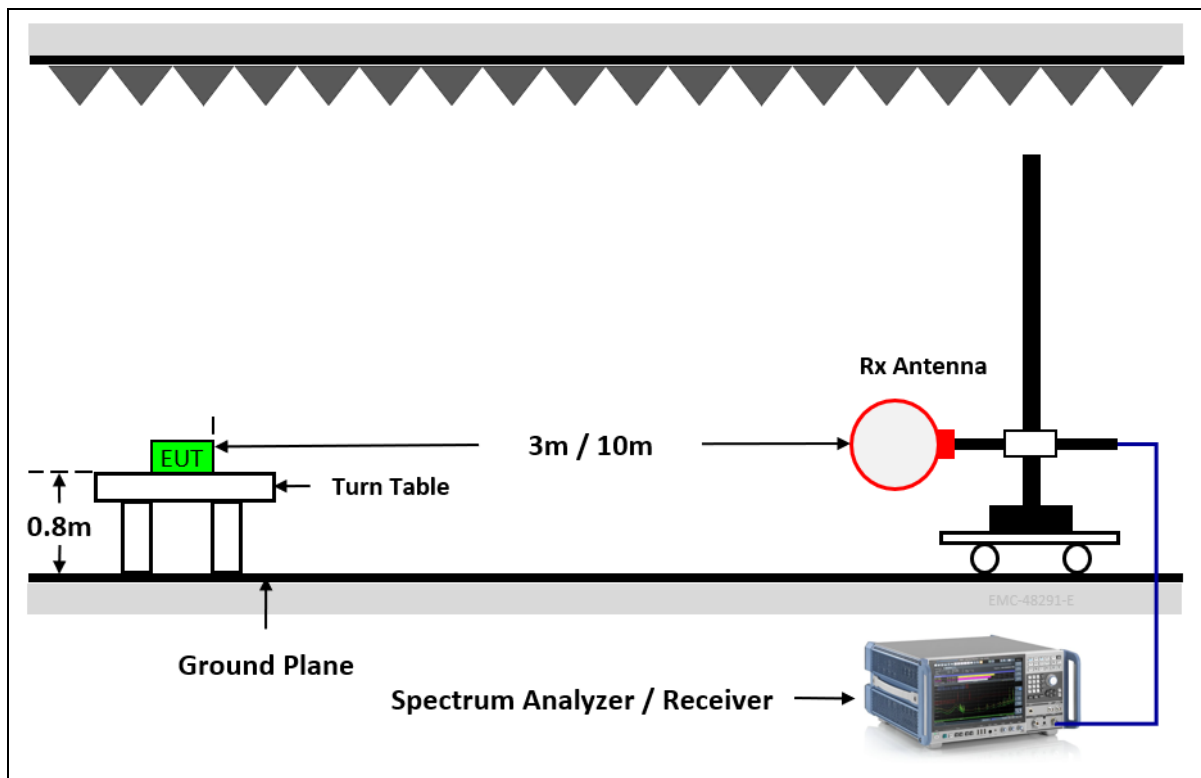
Prior to final measurements, a preliminary scan was performed to determine the emission spectrum of the EUT. During the scan, the EUT was slowly rotated while the measuring receiver was set to peak detector and max hold to identify all significant emission frequencies. This was performed for at least two antenna heights.

For each emission observed, the EUT was rotated 360° and the receive antenna height was varied from 1 m to 4 m to locate the orientation and height producing the maximum field strength. Measurements were taken for both horizontal and vertical antenna polarization.

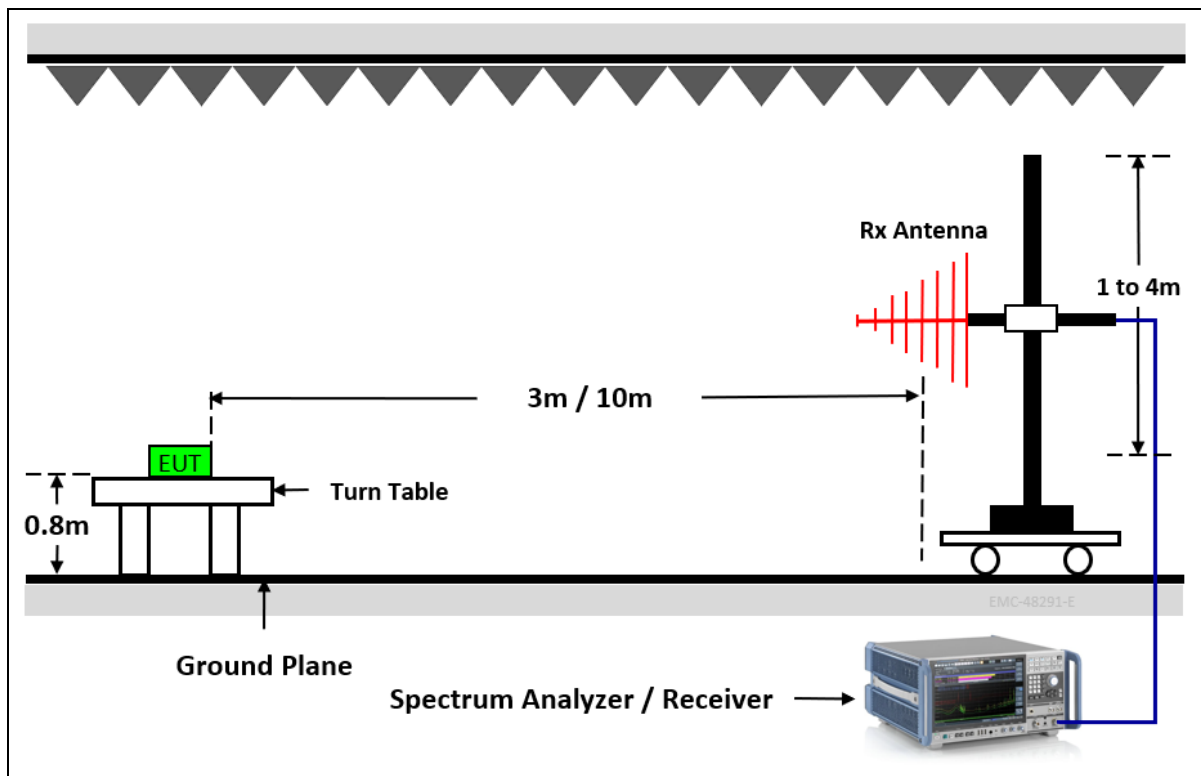
All measured results were corrected for antenna factors, cable losses, and preamplifier gain to calculate the final field strength values.

3.3.2 Test Setup

9 kHz to 30 MHz:



30 - 1000 MHz:



3.3.3 Evaluation of field strength

Field strengths were calculated automatically by the software using pre-stored calibration data. The method of calculation is shown below:

$$E = V + AF - G + L$$

Where: E = Radiated Field Strength in dB μ V/m

V = EMI Receiver Voltage in dB μ V

AF = Antenna Factor in dB/m (stored as a data array)

G = Preamplifier Gain in dB (stored as a data array)

L = Cable loss in dB (stored as a data array of Insertion Loss versus frequency)

3.3.4 Limits

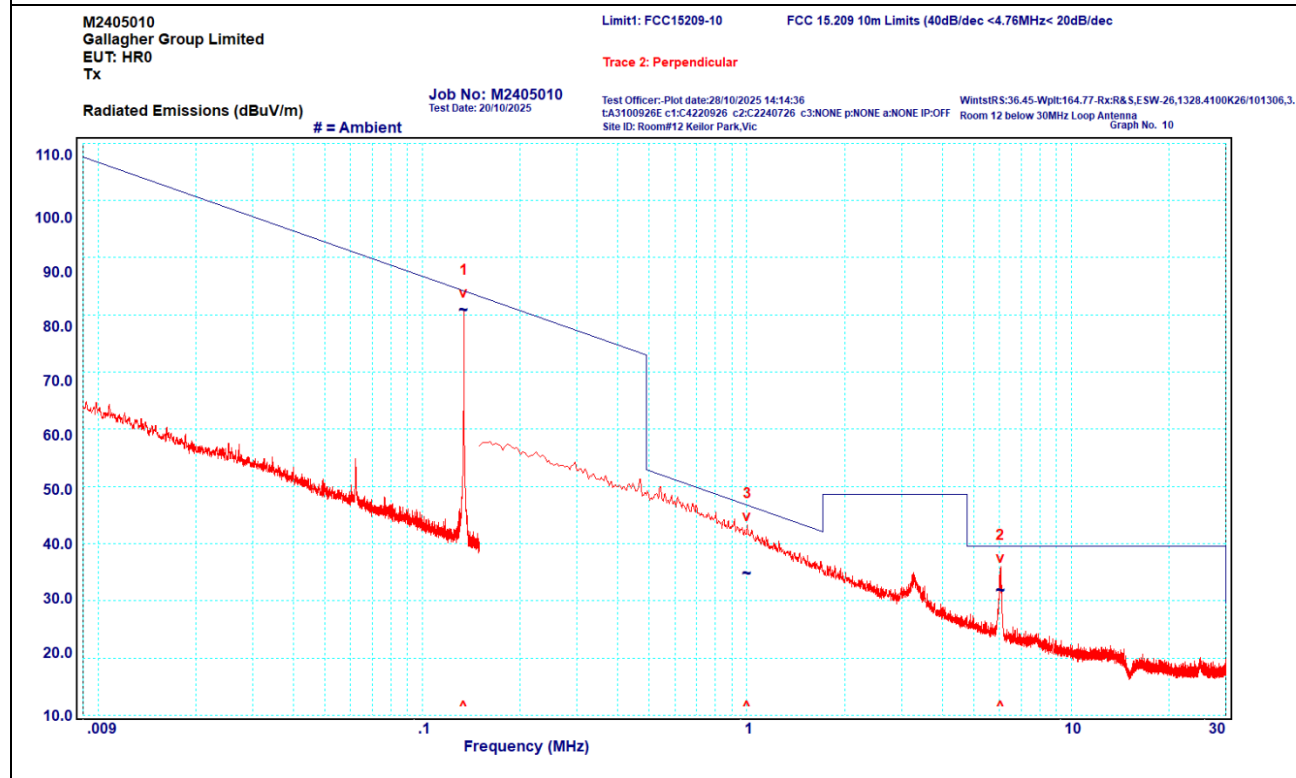
The limit applied is in accordance with the spurious emissions limit defined in §15.209 Radiated emissions limit; general requirements.

Frequency range [MHz]	Detector	Limit [μ V/m]	Limit [dB μ V/m]	Limit Distance [m]
0.009 – 0.490	Quasi-Peak	2400/F[kHz]	48.5 – 13.8	300
0.490 – 1.705	Quasi-Peak	24000/F[kHz]	13.8 – 1.4	30
1.705 – 30	Quasi-Peak	30	29.5	30
30 – 88	Quasi-Peak	100	40	3
88 – 216	Quasi-Peak	150	43.5	3
216 – 960	Quasi-Peak	200	46	3
960 – 1000	Quasi-Peak	500	54	3
>1000	Average	500	54	3

Note: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9 – 90 kHz, 110 – 490 kHz and above 1000 MHz. Radiated emissions limits in these three bands are based on measurements employing an average detector.

3.3.5 Fundamental and Transmitter Spurious Emissions - 9 kHz to 30 MHz

Operating Mode:	Mode 1	Test Date:	20/10/2025
Power Input:	3.2VDC (Internal)	Temperature:	19 °C
Measurement Distance:	10 m	Humidity:	48 %
Test Standard:	FCC 15.209/RSS-210		



Peak	Frequency [MHz]	Polarisation	Measurement Level [dBuV/m]	Detector	Level extrapolated to limit distance [dBuV/m]	Limit distance [meters]	Limit [dBuV/m]	Margin [dB]
1	0.1342*	Perpendicular	81.3	Pk	22.24**	300	25.1	-2.86
2	6.046	Perpendicular	32.3	QP	13.22**	30	29.54	-16.32
3	1.001	Perpendicular	35.2	QP	16.12**	30	27.6	-11.48

Comment:

*134.2 kHz is the fundamental frequency. The peak emission result satisfied the average limit of 25.1 dBuV/m at 300m.

**Measurement level is extrapolated to limit distance according to 15.31(f).

Sample Calculation:

134.2 kHz, $81.32 - 40 \cdot \log(300/10) = 81.32 - 59.08 = 22.24$ dBuV/m (-29.26 dBuA/m) at 300m

Limit: 25.1 dBuV/m (-26.4 dBuA/m) at 300m

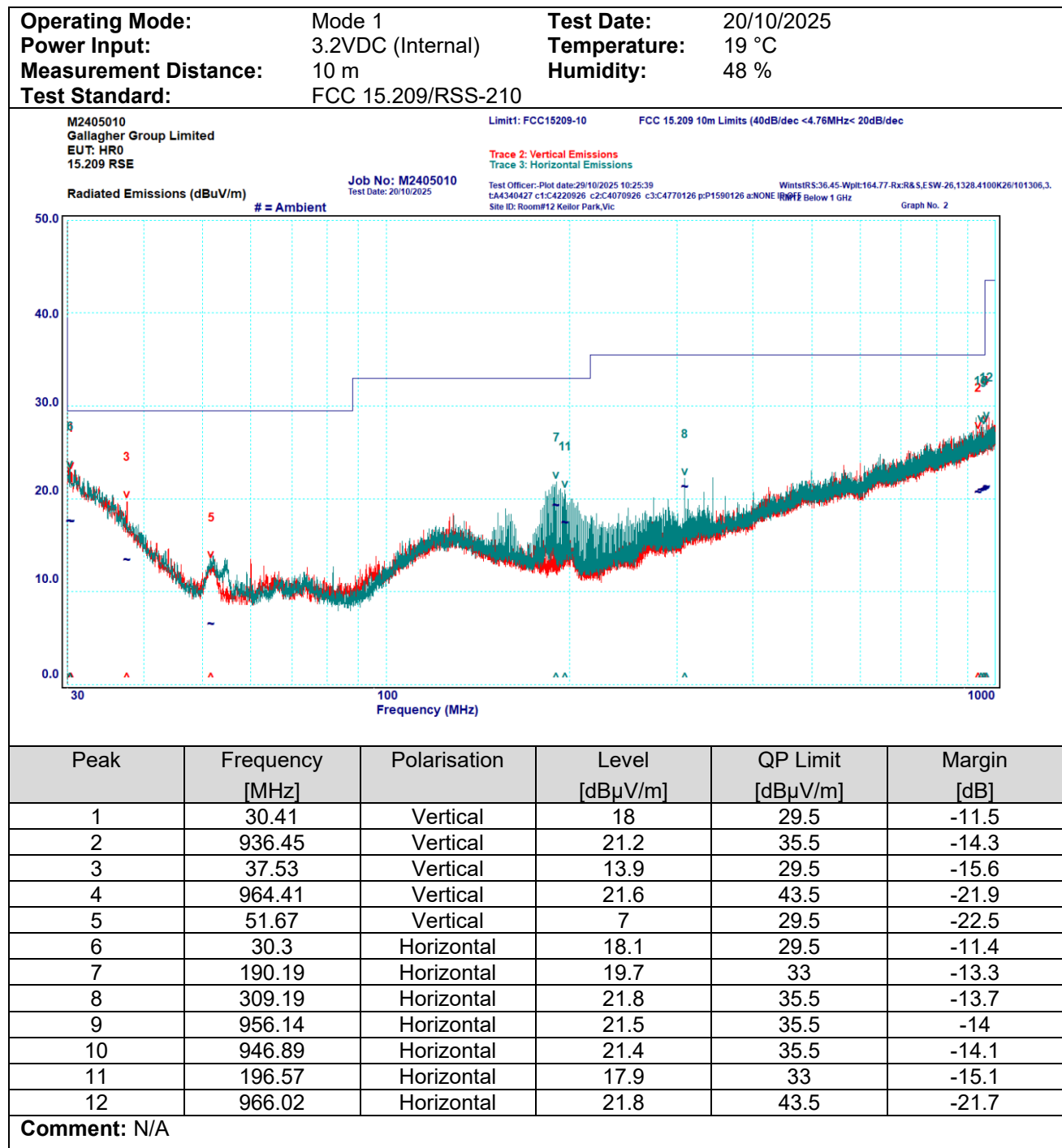
6.046 MHz, $32.3 - 40 \cdot \log(30/10) = 32.3 - 19.08 = 13.22$ dBuV/m (-38.28 dBuA/m) at 30m

Limit: 29.54 dBuV/m (-21.96 dBuA/m) at 30m

1.001 MHz, $35.2 - 40 \cdot \log(30/10) = 35.2 - 19.08 = 16.12$ dBuV/m (-35.38 dBuA/m) at 30m

Limit: 27.6 dBuV/m (-23.9 dBuA/m) at 30m

3.3.6 Transmitter Spurious Emissions - 30 MHz to 1000 MHz



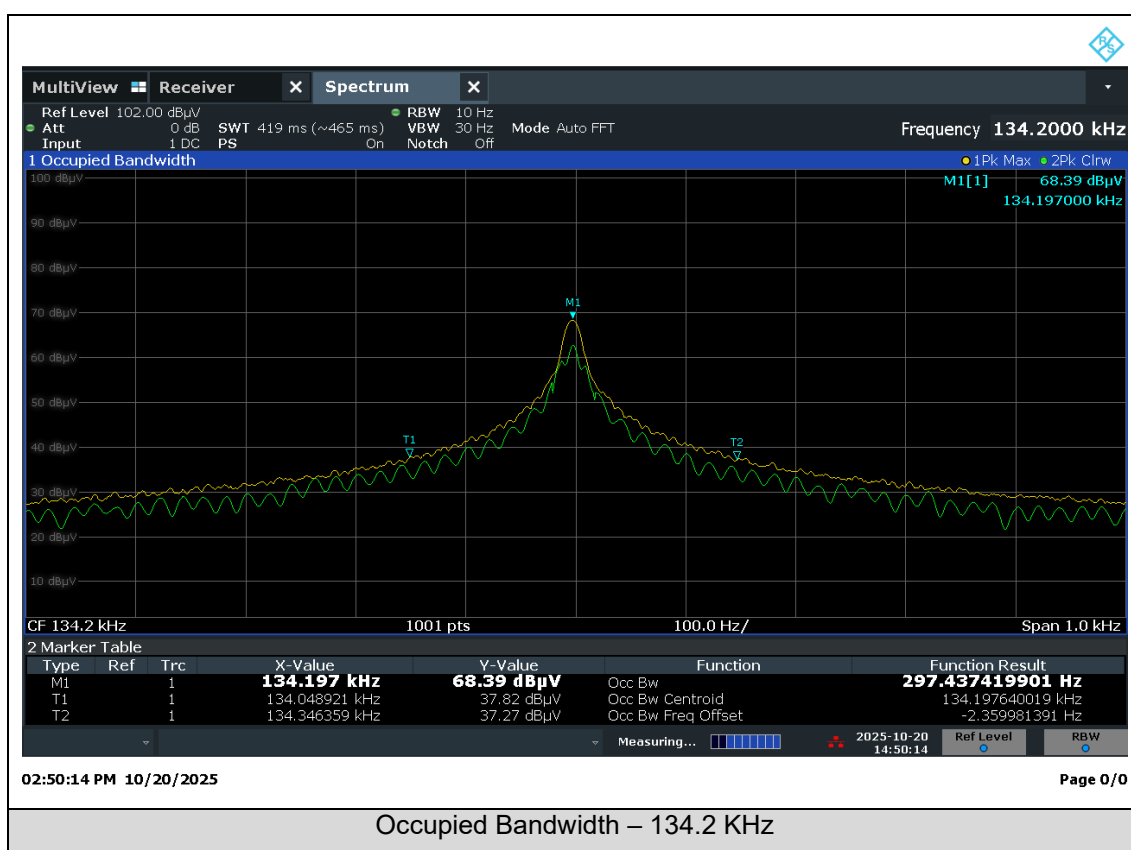
3.4 §15.215(c)/ RSS-Gen 6.7 - Occupied Bandwidth

3.4.1 Test Procedure

The 99% emission bandwidth of the total transmitted power of the fundamental emission was measured in accordance with ANSI C63.10: 2020 clause 6.9.

3.4.2 Results

Frequency [kHz]	99% Bandwidth [kHz]	Lower Frequency [kHz]	Upper Frequency [kHz]	Result
134.2	0.297437	134.048921	134.346359	Complied



-- End of Report --