EMC Bayswater Pty Ltd
18/88 Merrindale Drive Croydon South, Victoria, 3136, Australia
Telephone: +61 3 9761 5888
Facsimile: +61 3 8761 6547
Email: sales@emcbayswater.com.au
ABN: 49 112 221 333

EMC COMPLIANCE REPORT
In accordance with:
CISPR 14-1: 2020

Gallagher Group Ltd

eS1 Cellular

eShepherd Neckband

REPORT: E2401-1729-2 Rev1
DATE: April, 2025

Accreditation Number: 18553
Accredited for compliance with ISO/IEC 17025 - Testing

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing and calibration reports. This document may not be reproduced except in full without approval from EMC Bayswater, with the exception of the certificate on page 2.

Certificate of Compliance

EMC Bayswater Test Report: E2401-1729-2 Rev1
Issue Date: April, 2025

Product:	eShepherd Neckband
Model:	eS1 Cellular
Part No:	G04081
Serial:	2350119059
Variant:	G040811

The above-listed model with part no. G04081 was tested by EMC Bayswater Pty Ltd as a representative sample and the results and conclusions within this report do not necessarily reflect compliance for other variants. Please refer to section 5 of this report for variant information and the customer variant declaration.

Customer Details:
Mr. Hayden Goble
Gallagher Group Ltd
181 Kahikatea Drive, Melville,
Hamilton 3206
New Zealand

Phone No: +64 800 731 500
e-mail: Hayden.goble@gallagher.com

Test Specification:
CISPR 14-1: 2020
Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus. Part 1: Emission

Results Summary:

Radiated Disturbance	***Complied***
Mains Terminal Disturbance Voltage	***Not applicable[1]***
Load Terminal Disturbance Voltage	***Not applicable[1]***
Discontinuous Disturbances	***Not applicable[1]***
Disturbance Power	***Not applicable[1]***

[1]The EUT is a battery powered device and does not connect to an AC mains supply

Test Date(s): 15th of January, 2024

Test House (Issued By):
EMC Bayswater Pty Ltd
18/88 Merrindale Drive
Croydon South
Victoria 3136
Australia

Phone No: +61 3 9761 5888 e-mail: sales@emcbayswater.com.au
Fax No: +61 3 8761 6547 Web: www.emcbayswater.com.au

The Gallagher Group Ltd, eS1 Cellular, eShepherd Neckband, complied with the applicable requirements of CISPR 14-1: 2020.

Prepared by:	Tested by:	Approved by:	
Hon Sang Kong (EMC Test Engineer)	Adnan Zaman (EMC Test Engineer)	Neville Liyanapatabendige (Manager)	09/04/2025 16:14 Date

Accreditation number: 18553. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports. This document may not be reproduced except in full without approval from EMC Bayswater, with the exception of the certificate on page 2.

EMC Compliance Report
for
Gallagher Group Ltd

Contents

Accreditation number: 18553. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports. This document may not be reproduced except in full without approval from EMC Bayswater, with the exception of the certificate on page 2.

1. Introduction

Electromagnetic compatibility (EMC) tests were performed on a Gallagher Group Ltd, eS1 Cellular, eShepherd Neckband in accordance with the requirements of CISPR 14-1: 2020.

2. Test Report Revision History

ISSUE	DATE	Description	AUTHORISED BY
E2401-1729-2	05-04-2024	Original	Neville Liyanapatabendige (Manager)
E2401-1729-2 Rev1	09-04-2025	Customer requested to include G040811 variant.	Neville Liyanapatabendige (Manager)

3. Report Information

EMC Bayswater Pty Ltd reports apply only to the specific samples tested under the stated test conditions. All samples tested were in good operating condition throughout the entire test program unless otherwise stated. EMC Bayswater Pty Ltd does not in any way guarantee the later performance of the product/equipment. It is the manufacturer's responsibility to ensure that additional production units of the tested model are manufactured with identical electrical and mechanical components. EMC Bayswater Pty Ltd shall have no liability for any deductions, inference or generalisations drawn by the clients or others from EMC Bayswater Pty Ltd issued reports. This report shall not be used to claim, constitute or imply product endorsement by EMC Bayswater Pty Ltd. This report shall not be reproduced except in full (with the exception of the certificate on page 2) without the written approval of EMC Bayswater Pty Ltd. This document may be altered or revised by EMC Bayswater Pty Ltd personnel only, and shall be noted in the revision section of the document. Any alteration of this document not carried out by EMC Bayswater Pty Ltd shall nullify the document.

4. Summary of Results

Test	Result
Radiated Disturbance (Horizontal Antenna Polarisation)	Complied with quasi-peak limit by 14.1dB
	Complied with peak limit by 30.1dB
	Complied with average limit by 23.3dB
Radiated Disturbance (Vertical Antenna Polarisation)	Complied with quasi-peak limit by 12.1dB
	Complied with peak limit by 33.7dB
	Complied with average limit by 24.3dB

Table 1: Results Summary

Accreditation number: 18553. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports. This document may not be reproduced except in full without approval from EMC Bayswater, with the exception of the certificate on page 2.

5. Product Sample, Configuration & Modifications

5.1. Product Sample Details

The EUT (Equipment Under Test), as supplied by the client, is described as follows:

Product:	eShepherd Neckband	
Model No:	eS1 Cellular	
Part No:	G04081	
Serial No:	2350119059	
Variant:	G040811*	
	**The customer (Gallagher Group Ltd) declared testing of one model as a worst case representative sample and declared that to be the model with part no. G04081 (refer to Appendix D of this report for the customer declaration of worst-case variant used for testing). Please note other than the unit(s) listed as a) "Product" and b) "Model", no other products/models or variant(s) were tested.*	
Firmware:	6.x.xxx	
Software:	N/A	
Power Specifications:	Battery Powered LiFePO4, 3.2V, 12000mAH	
Dimensions:	210mm (L) x 90mm (W) x 350mm (H)	
Weight:	2.7 kg / 5.9lbs (including chains)	
EUT Type:	Tested as table-top	
Transmitter details:	Description:	RF TXRX MODULE CELL/NAV 5G SMD
	Type:	SARA-R510s-01B
	Frequencies:	600MHz, 700MHz, 750MHz, 800MHz, 850MHz, 900MHz, 1.7GHz, 1.8GHz, 1.9GHz, 2.1GHz
	Max power:	23dBm
	Antenna:	PCB type antenna
	FCC ID:	XPYUBX19KM01
	IC:	8595A-UBX19KM01

(Customer supplied product information)

(Refer to photographs in Appendix B for views of the EUT)

5.2. Product description

The EUT (Equipment Under Test) has been described by the customer as follows:

"Neckband is located around the neck of a farm animal, typically beef cattle. It determines its location by GPS/GNSS and compares it to programmed 'virtual fences'. If the animal attempts to cross a virtual fence the product first issues an audible warning. If the animal continues moving in the wrong direction the product applies an aversive electrical stimulus (series of HV pulses). It periodically transmits status via cellular network and receives an acknowledgement and optional additional information."

(Customer supplied product description information)

The highest frequency generated or used in the device or on which the device operates or tunes as specified by the customer is 1.575GHz. Highest frequency, excluding the transmitter, is 24MHz.

Accreditation number: 18553. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports. This document may not be reproduced except in full without approval from EMC Bayswater, with the exception of the certificate on page 2.

5.3. Support Equipment

Support Equipment 1:	Description:	Laptop
	Manufacturer:	DELL
	Model No:	Latitude 7420
	Serial No:	Not stated
Support Equipment 2:	Description:	Power supply
	Manufacturer:	TENMA
	Model No:	72-10480
	Serial No:	202108070789
Support Equipment 3:	Description:	1k Ohms Resistive Load
	Manufacturer:	NA
	Model No:	NA
	Serial No:	NA

5.4. Product operating modes

"The animal is near a virtual fence, and the product remains active, monitors position and animal movement, and applies audio and aversive stimulus pulses as required. The product transmits status through cellular network to our backend at >10min intervals (programmed time slots) typically every 10 minutes. The backend sends an acknowledgement and optionally additional information such as new virtual fence information or operating parameters."

(Customer supplied product operating mode information)

5.5. Product operating mode for testing

Refer to section 5.4.

5.6. Configuration

The EUT was either configured by the customer or configured using the customer's instructions:

"Product was put into receive-only mode. A repeating sequence of audio and pulse events at approx. 2 second intervals represented accelerated normal operation for purpose of measurement position scanning (turntable etc). Product would continuously try to acquire GPS fix and solar charge is simulated by connecting power supply to solar inputs via wire.

The product does not normally have any cable connections. For testing a serial cable was connected from the product to a PC running a control program (Bandchat). The cable was fitted with numerous ferrites close to the product so as not to affect measurements."

(Customer supplied product configuration information)

Accreditation number: 18553. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports. This document may not be reproduced except in full without approval from EMC Bayswater, with the exception of the certificate on page 2.

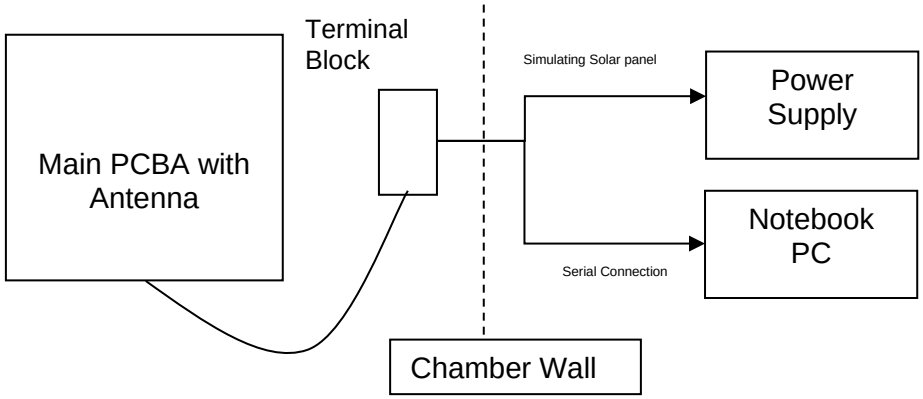


Figure 1: Customer supplied block diagram of EUT test configuration.

Port	Cable type	Cable Brand	Cable Model	Length	Termination
Serial debug port (for test access only, not part of normal configuration)	Short 3-wire non shielded patch cable from PCB to outside of product.	Generic	Ribbon cable	50mm	2x8 pin 1.27mm pitch header
(As above)	DC extension cable from above patch cable to power supply simulating Solar input.	Generic	Shielded multi-core	9m	Power supply
	Serial extension cable from above patch cable to control PC – fitted with multiple ferrites				USB-to-Serial adapter at PC end

Table 2: List of ports and associated cables/terminations used for testing.

5.7. Modifications

EMC Bayswater Pty Ltd did not modify the EUT.

6. Test Facility & Equipment

6.1. Test Facility

Radiated Disturbance measurements were taken in the indoor Open Area Test Site (iOATS) facility at EMC Bayswater Pty Ltd, located at 18/88 Merrindale Drive, Croydon South, Victoria, 3136, Australia.

6.2. Test Equipment

Refer to Appendix A for the measurement instrument list.

7. Referenced Standards

CISPR 14-1: 2020
Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus. Part 1: Emission

Accreditation number: 18553. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports. This document may not be reproduced except in full without approval from EMC Bayswater, with the exception of the certificate on page 2.

CISPR 16-1-4: 2010 + A1: 2012
Specification for radio disturbance and immunity measuring apparatus and methods Part 1.4: Radio disturbance and immunity measuring apparatus - Ancillary equipment - Radiated disturbances.

8. Referenced Documents

None.

Accreditation number: 18553. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports. This document may not be reproduced except in full without approval from EMC Bayswater, with the exception of the certificate on page 2.

9. Radiated Disturbances (Radiated Emissions)

9.1. Test Procedure

Radiated Emissions were measured 3 metres away from the EUT in the iOATS (indoor Open Area Test Site) facility, which is a CISPR 16-1-4 compliant semi-anechoic chamber with ground plane. The EUT was placed on a non-conductive support, at a height of 0.8m above the ground plane.

In the frequency range of 30MHz to 1GHz, a Biconilog antenna was used. For both horizontal and vertical antenna polarizations, the peak detector was set to MAX-HOLD and the range selected continuously scanned. The measuring antenna was positioned at 4 different fixed height positions and the turntable slowly rotated. The peak preview measurements were performed with a resolution bandwidth of 120 kHz and a video bandwidth of 300 kHz. Peak emissions that exceeded the limit or were close to the applicable limit were investigated further. The frequency of each emissions was then accurately determined. Each emission of interest was then in-turn maximised by using the turntable to rotate the EUT through 360 degrees and varying the height of the antenna between 1 and 4 metres to find the worst-case emission arrangement. Quasi peak measurements were then performed using a measuring time of no less than 15 seconds. The final quasi-peak measurements were performed using a receiver bandwidth of 6dB and a resolution bandwidth of 120 kHz.

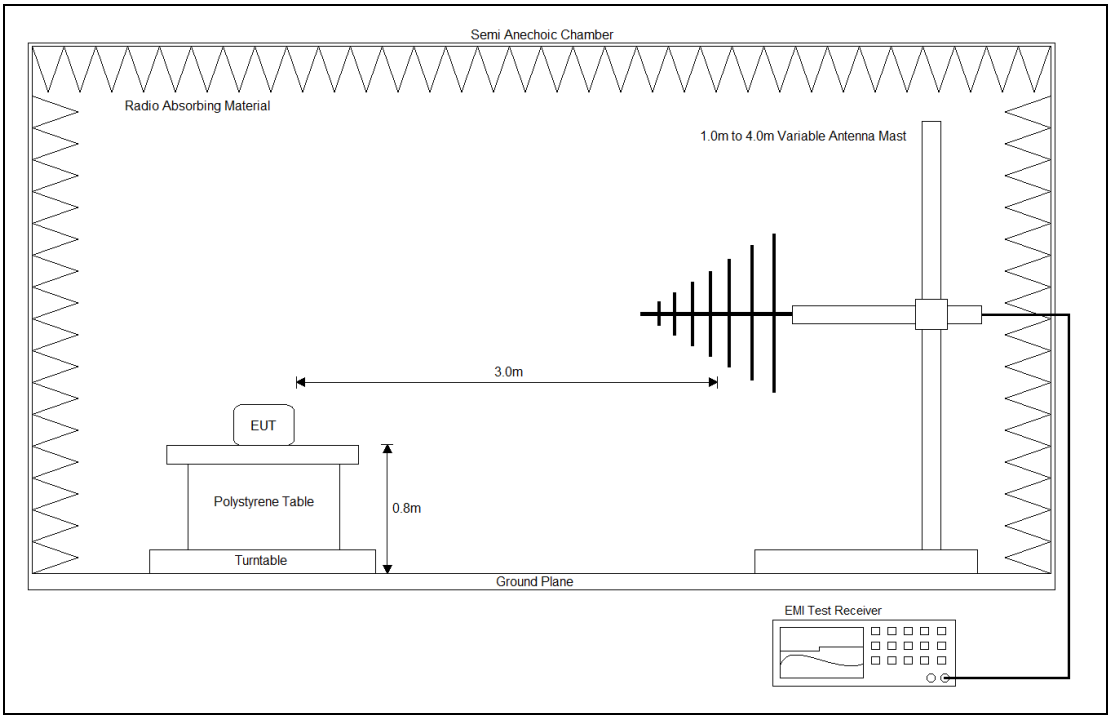


Figure 2: Test setup – 30MHz to 1GHz

Accreditation number: 18553. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports. This document may not be reproduced except in full without approval from EMC Bayswater, with the exception of the certificate on page 2.

In the frequency range 1GHz to 6GHz a Horn antenna was used and an area of 3m x 3m was covered between the antenna and the EUT using RF absorbing material with a rated attenuation more than 20dB over the frequency range. The height of the horn antenna was varied when required in accordance with CISPR 16-2-3, section 7.6.6 requirements depending upon the EUT dimensions to ensure illumination of the EUT and the turntable slowly rotated to maximise the emissions. For both horizontal and vertical antenna polarizations, the Peak and Average preview measurements were performed with a resolution bandwidth of 1MHz and a video bandwidth of 3MHz. Peak and average emissions that exceeded the applicable limit or were close to the applicable limit were investigated further. Each emission of interest was then in-turn maximised by using the turntable to rotate the EUT through 360 degrees and the antenna height varied (if applicable) to find the worst-case emission arrangement. Peak and CISPR Average measurements were then performed using a measuring time of no less than 15 seconds. The final peak and CISPR Average measurements were performed using a receiver bandwidth of 6dB and a resolution bandwidth of 1MHz.

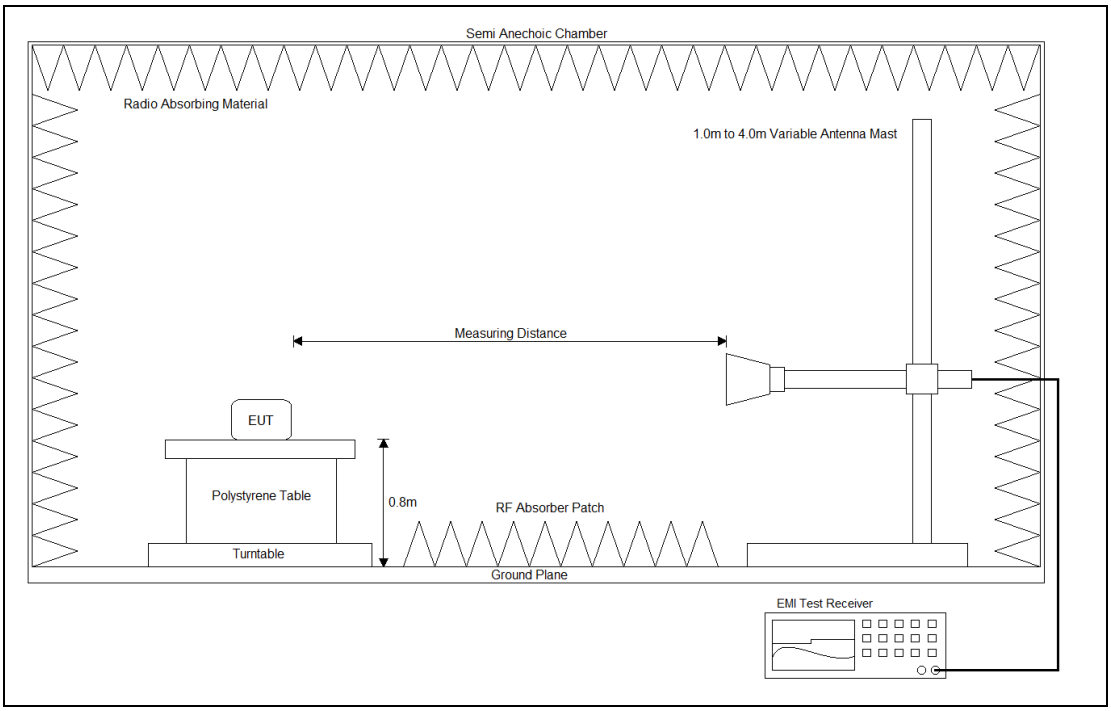


Figure 3: Radiated emissions test setup – 1GHz to 6GHz

Frequency (GHz)	Antenna θ3dB Beamwidth	Measuring Distance (m)	Illumination (m) known as w*
1 to 2	55.00	3	3.12
2 to 4	50.00	3	2.80
4 to 6	34.00	3	1.83

*Table 3: The dimension of the line tangent to the EUT formed by θ3dB beamwidth of the measuring antenna at the measurement distance d (EUT illumination) as per *CISPR 16-2-3, section 7.6.6.*

Accreditation number: 18553. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports. This document may not be reproduced except in full without approval from EMC Bayswater, with the exception of the certificate on page 2.

Plots of the accumulated measurement data for both horizontal and vertical antenna polarizations, including all transducer and other measuring system correction factors were produced using commercially available compliant software (as listed in the test equipment list of this report).

(Refer to photographs 1 to 3 in Appendix B for views of the test configuration)

9.2. Limits

The EUT shall meet the limits in the following table.

Frequency Range (MHz)	Limits (dBµV/m)
	Quasi-Peak
30 to 230	40
230 to 1000	47
NOTE The lower limit shall apply at the transition frequency.	

Table 4: Limits for Radiated Disturbance at a measuring distance of 3 m. (30MHz to 1GHz)

Frequency Range (MHz)	Limits (dBµV/m)	
	Peak	Average
1000 to 3000	70	50
3000 to 6000	74	54
NOTE The lower limit shall apply at the transition frequency.		

Table 5: Limits for Radiated Emissions at a measuring distance of 3m (1GHz to 6GHz)

9.3. Test Results

Radiated Disturbance measurements are tabulated below. Quasi-peak measurements were performed at spot frequencies where the peak emission was close to, or exceeded the applicable limit line. For above 1GHz measurements, Peak or CISPR Average measurements were performed at spot frequencies where the peak or average emission was close to, or exceeded the applicable limit line.

(Refer to graphs 1 to 4 in Appendix C)

Frequency (MHz)	Result Quasi-peak (dBµV/m)	Limit Quasi-peak (dBµV/m)	Delta limit (dB)
31.116	25.8	40.0	-14.2
36.742	21.0	40.0	-19.0
144.072	17.8	40.0	-22.2
803.478	31.1	47.0	-15.9
891.166	31.8	47.0	-15.2
977.011	32.9	47.0	**-14.1***

**Worst-case emission*

Table 6: Radiated Disturbance - Horizontal Antenna Polarisation - 30MHz to 1GHz

Accreditation number: 18553. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports. This document may not be reproduced except in full without approval from EMC Bayswater, with the exception of the certificate on page 2.

Peak Measurements				Average Measurements			
Frequency (MHz)	**Result (dBµV/m)**	**Limit (dBµV/m)**	**Delta Limit (dB)**	**Frequency (MHz)**	**Result (dBµV/m)**	**Limit (dBµV/m)**	**Delta Limit (dB)**
1495.820	34.4	70.0	-35.6	2023.620	22.3	50.0	-27.7
2648.920	38.0	70.0	-32.0	2672.580	24.2	50.0	-25.8
5833.440	43.9	74.0	**-30.1***	5929.440	30.7	54.0	**-23.3***

**Worst-case emissions*

Table 7: Radiated Emissions – Horizontal Antenna Polarisation (1GHz to 6GHz)

Frequency (MHz)	Result Quasi-peak (dBµV/m)	Limit Quasi-peak (dBµV/m)	Delta limit (dB)
31.455	25.6	40.0	-14.4
38.245	27.4	40.0	-12.6
39.021	27.9	40.0	**-12.1***
39.797	26.0	40.0	-14.0
45.666	17.6	40.0	-22.4
729.904	29.8	47.0	-17.2
872.930	31.7	47.0	-15.3

**Worst-case emissions*

Table 8: Radiated Emissions – Vertical Antenna Polarisation (30MHz to 1GHz)

Peak Measurements				Average Measurements			
Frequency (MHz)	**Result (dBµV/m)**	**Limit (dBµV/m)**	**Delta Limit (dB)**	**Frequency (MHz)**	**Result (dBµV/m)**	**Limit (dBµV/m)**	**Delta Limit (dB)**
1985.660	36.2	70.0	-33.8	2688.960	24.0	50.0	-26.0
2366.560	36.3	70.0	**-33.7***	2980.940	25.1	50.0	-24.9
3032.420	38.7	74.0	-35.3	5020.080	29.7	54.0	**-24.3***

**Worst-case emissions*

Table 9: Radiated Emissions – Vertical Antenna Polarisation – 1GHz to 6GHz

The measurement uncertainty was calculated at:

Measurement frequency range	Calculated measurement uncertainty
30MHz to 1GHz	±4.65dB
1GHz to 6GHz	±4.83dB
6GHz to 10GHz	±4.49dB

The reported uncertainty is an expanded uncertainty calculated using a coverage factor of *k=2* which gives a level of confidence of approximately 95%. 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.

Accreditation number: 18553. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports. This document may not be reproduced except in full without approval from EMC Bayswater, with the exception of the certificate on page 2.

Climatic Conditions	
Temperature:	22.2 to 22.8ºC
Humidity:	55 to 56%
Atmospheric pressure:	1017.2 to 1020.4hPa

Table 10: Climatic conditions

Calculation: The above results are based upon the following calculation:

$$E = V_{QP/PK/AV} + AF - G_{Amp} + L_C$$

Where:

E	=	E-field in dBμV/m
$V_{QP/PK/AV}$	=	Measured Voltage (Quasi Peak, Peak or Average) in dBμV
AF	=	Antenna Factor in dB(/m)
L_C	=	Cable and attenuator Loss in dB
G_{Amp}	=	Pre Amplifier Voltage Gain in dB

Example calculation:

$E = V_{QP} + AF - G_{Amp} + L_C$
$E = 30dB\mu V + 12dB/m - 0dB + 2.3dB$
$E = 44.3\ dB\mu V/m$

Notes: Radiated Disturbance measurements were below the specified quasi-peak limit.

The highest internal source of an EUT is defined as the highest frequency generated or used within the EUT or on which the EUT operates or tunes.

If the highest frequency of the internal sources of the EUT is above 1GHz, the measurement shall be made up to 5 times the highest frequency or 6GHz, whichever is less.

The highest frequency of the EUT as specified by the customer is 1.575GHz as such measurements up to 6GHz were taken.

Assessment: The EUT complied with the Radiated Disturbance requirements of CISPR 14-1: 2020.

10. Conclusion

The Gallagher Group Ltd, eS1 Cellular, eShepherd Neckband complied with the applicable requirements of CISPR 14-1: 2020.

Accreditation number: 18553. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports. This document may not be reproduced except in full without approval from EMC Bayswater, with the exception of the certificate on page 2.

Appendix A – Test Equipment

Inv	Equipment	Make	Model No	Serial No	Calibration	
					Due Date	Type
Radiated Disturbances - 30MHz to 1000MHz						
1217	ANALYSER, EMI Receiver	Rohde & Schwarz	ESU40	100182	Jun-24	E
0932	CONTROLLER, Position	Sunol Sciences	SC104V-3	081006-1	N/A	V
0933	TURNTABLE	Sunol Sciences	SM46C	081006-2	N/A	V
0934	MAST, Antenna	Sunol Sciences	TLT2	081006-5	N/A	V
0935	ANTENNA, Biconilog	Sunol Sciences	JB5	A071106	May-25	E
0718	ATTENUATOR, 6dB	JFW	50FPE-006	-	Jan-25	I
0989	CABLE, Coax, Sucoflex 104A	Huber+Suhner	44454/4A	C357	Jan-25	I
1145	CABLE, Coax, Sucoflex 104PA	Huber + Suhner	84279564	MY056/4PA	Jan-25	I
1155	HYGROMETER, Temp, Humidity	DigiTech	QM7312	-	Jul-25	I
0666	ENCLOSURE, Semi-Anechoic #1	RFI Industries	S800 iOATS	1229	Aug-25	I
SW007	EMC Measurement Software	Rohde & Schwarz	EMC 32	Version 8.53.0	N/A	N/A
Radiated Disturbances – 1GHz to 6GHz						
1217	ANALYSER, EMI Receiver	Rohde & Schwarz	ESU40	100182	Jun-24	E
0932	CONTROLLER, Position	Sunol Sciences	SC104V-3	081006-1	N/A	V
0933	TURNTABLE	Sunol Sciences	SM46C	081006-2	N/A	V
0934	MAST, Antenna	Sunol Sciences	TLT2	081006-5	N/A	V
0633	ANTENNA, Double Ridge Horn	EMCO	3115	9712-5369	Aug-24	I
0989	CABLE, Coax, Sucoflex 104A	Huber+Suhner	44454/4A	C357	Jan-25	I
1145	CABLE, Coax, Sucoflex 104PA	Huber + Suhner	84279564	MY056/4PA	Jan-25	I
1238	CABLE, Coax, Sucoflex 126 E	Huber + Suhner	10422876	8000495/126E	Jan-25	I
1155	HYGROMETER, Temp, Humidity	DigiTech	QM7312	-	Jul-25	I
0666	ENCLOSURE, Semi-Anechoic #1	RFI Industries	S800 iOATS	1229	Aug-25	I
SW007	EMC Measurement Software	Rohde & Schwarz	EMC 32	Version 8.53.0	N/A	N/A

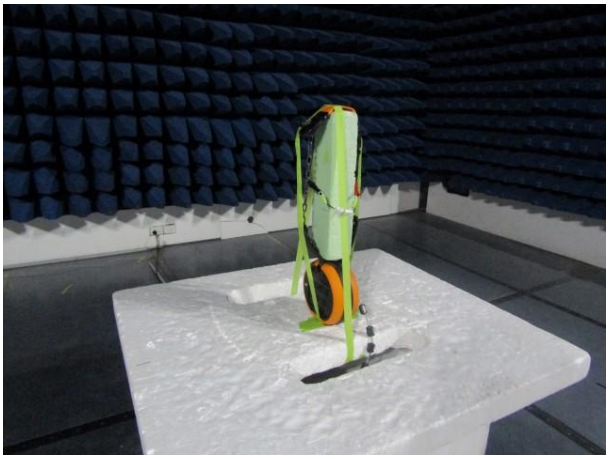
V: Verification of operation against an internal reference
I: Internal calibration against a traceable standard
E: External calibration by a NATA or MRA equivalent endorsed facility
N/A: Not Applicable

Accreditation number: 18553. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports. This document may not be reproduced except in full without approval from EMC Bayswater, with the exception of the certificate on page 2.

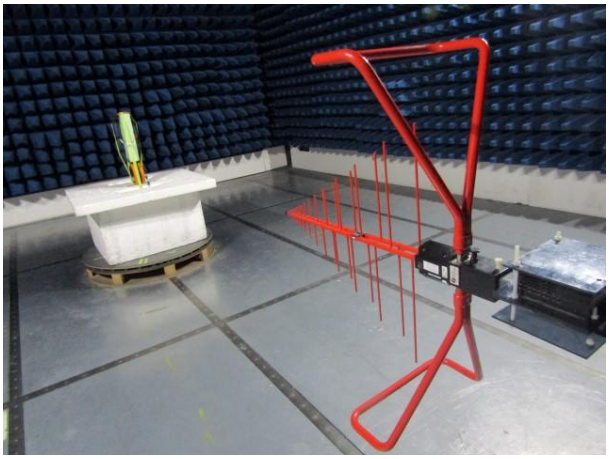
Appendix B – Photographs

Number	Photograph Description
1	Radiated Emissions – Test configuration
2	Radiated Emissions – Test configuration – 30MHz to 1GHz
3	Radiated Emissions – Test configuration – 1GHz to 6GHz
4	EUT – External views
5	
6	
7	
8	
9	
10	
11	
12	
13	EUT – Internal views
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	Support Equipment – 1k Ohms Resistive Load
31	Support Equipment – Laptop
32	
33	Support Equipment – Power Supply
34	

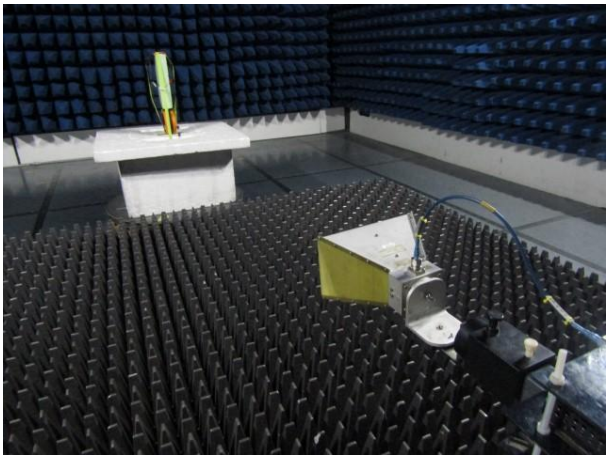
Accreditation number: 18553. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports. This document may not be reproduced except in full without approval from EMC Bayswater, with the exception of the certificate on page 2.



Photograph 1



Photograph 2



Photograph 3

Photograph 4

Photograph 5

Photograph 6

Accreditation number: 18553. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports. This document may not be reproduced except in full without approval from EMC Bayswater, with the exception of the certificate on page 2.

Photograph 7

Photograph 8

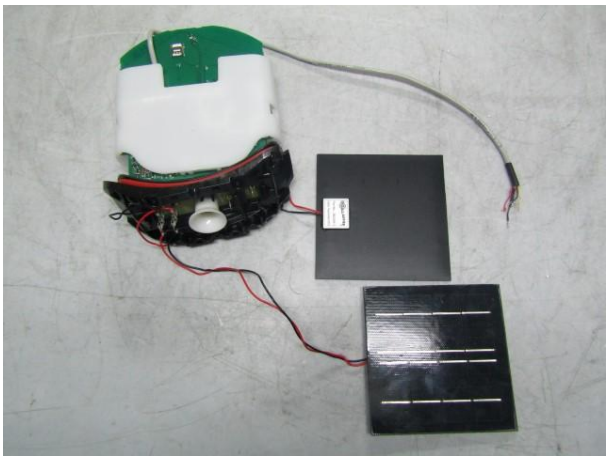
Photograph 9

Photograph 10

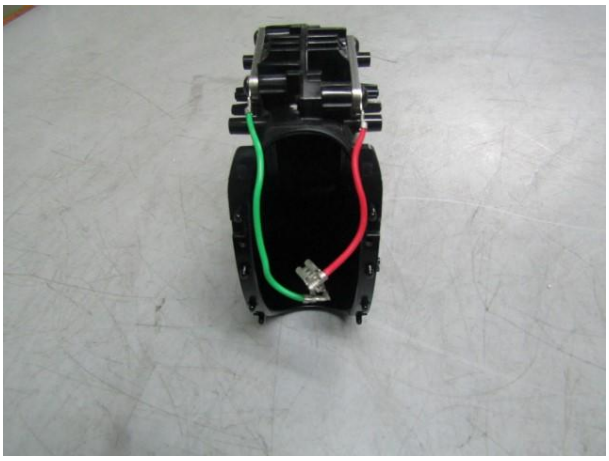
Photograph 11

Photograph 12

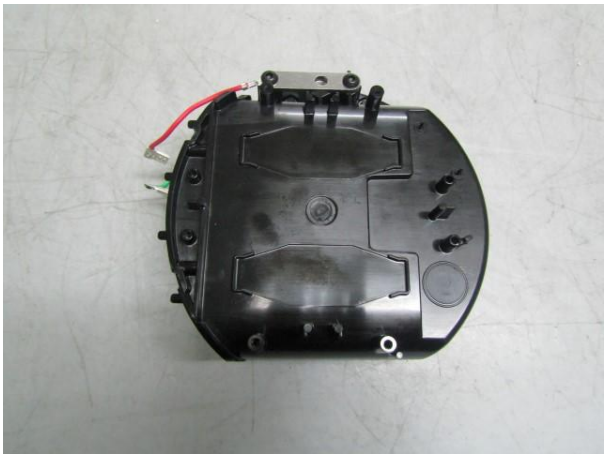
Accreditation number: 18553. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports. This document may not be reproduced except in full without approval from EMC Bayswater, with the exception of the certificate on page 2.



Photograph 13



Photograph 14



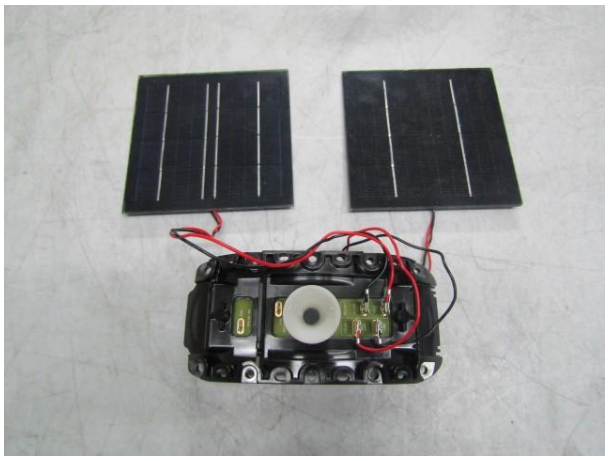
Photograph 15

Photograph 16

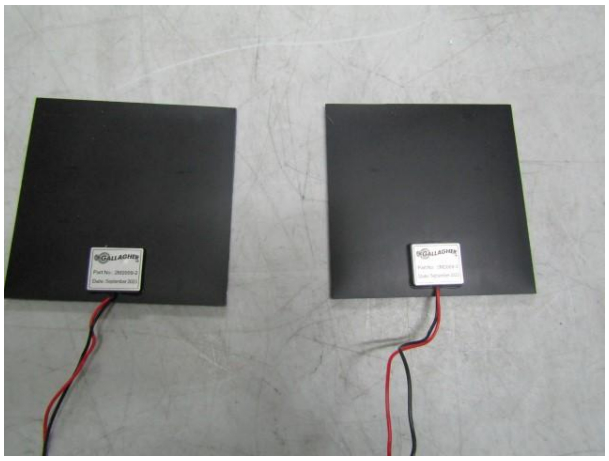
Photograph 17

Photograph 18

Accreditation number: 18553. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports. This document may not be reproduced except in full without approval from EMC Bayswater, with the exception of the certificate on page 2.



Photograph 19

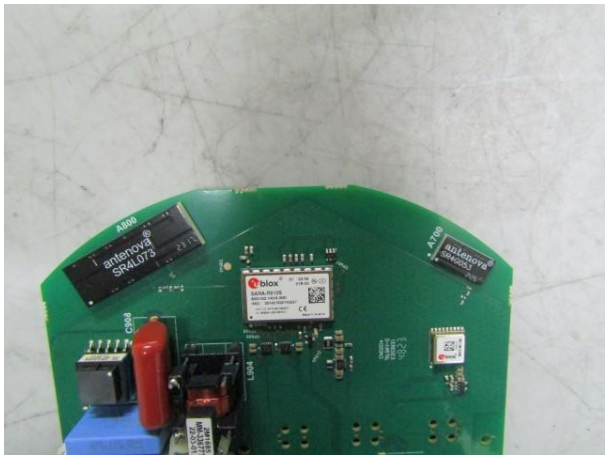


Photograph 20

Photograph 21

Photograph 22

Photograph 23

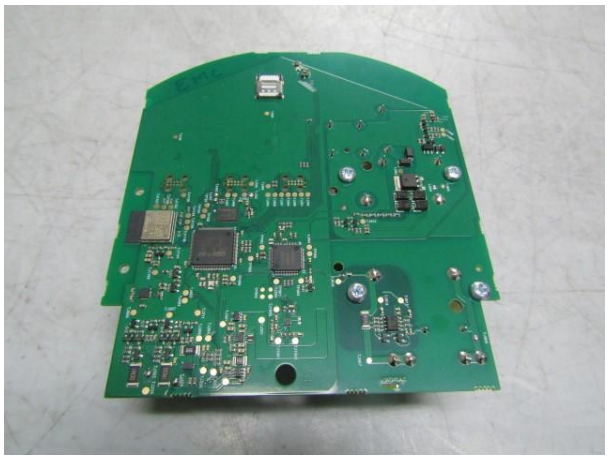


Photograph 24

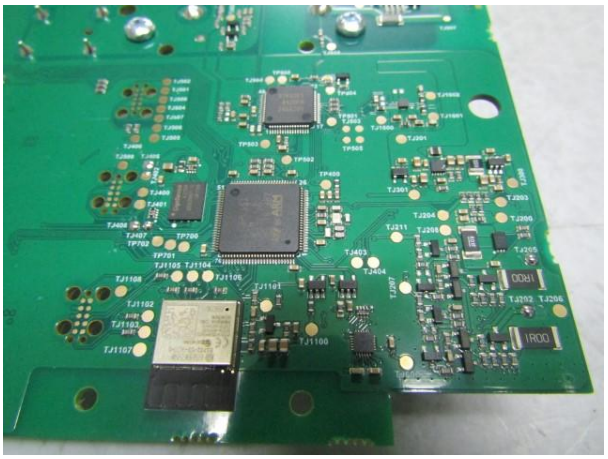
Accreditation number: 18553. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports. This document may not be reproduced except in full without approval from EMC Bayswater, with the exception of the certificate on page 2.

Photograph 25

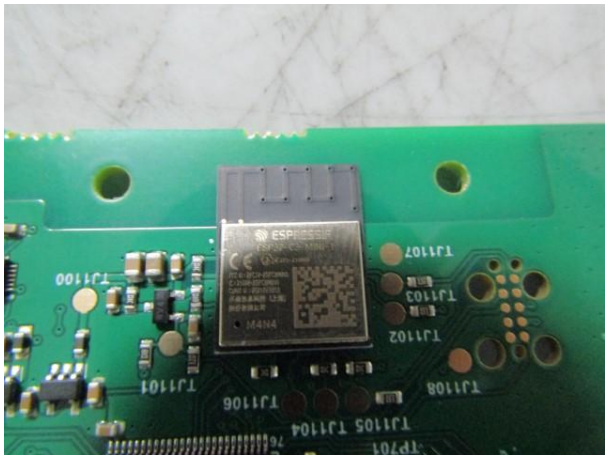
Photograph 26



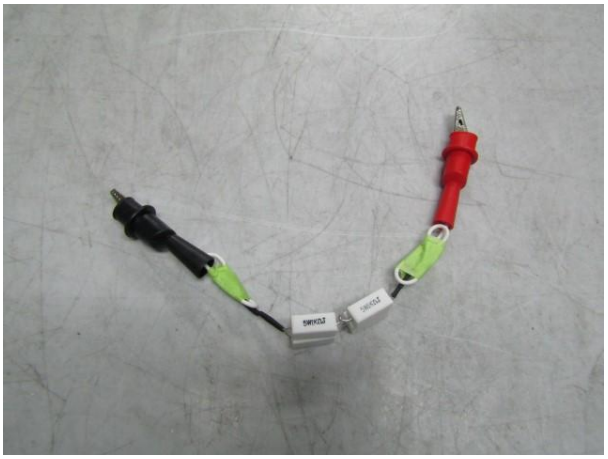
Photograph 27



Photograph 28

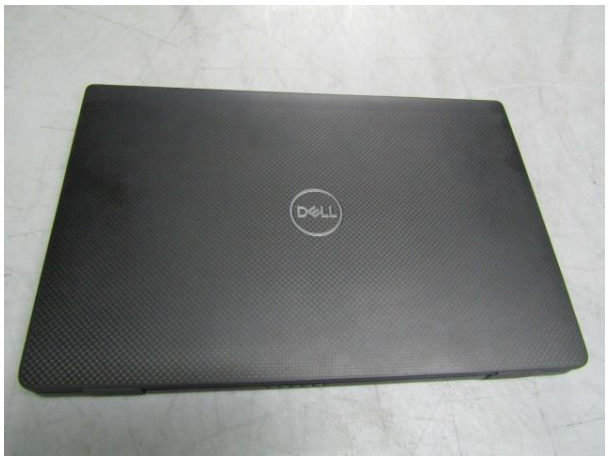


Photograph 29



Photograph 30

Accreditation number: 18553. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports. This document may not be reproduced except in full without approval from EMC Bayswater, with the exception of the certificate on page 2.



Photograph 31

Photograph 32

Photograph 33

Photograph 34

Accreditation number: 18553. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports. This document may not be reproduced except in full without approval from EMC Bayswater, with the exception of the certificate on page 2.

Appendix C – Measurement Graphs

No.	Test	Graph Description
1	Radiated Disturbances	Horizontal Antenna Polarisation – 30MHz to 1000MHz
2		Horizontal Antenna Polarisation – 1GHz to 6GHz
3		Vertical Antenna Polarisation – 30MHz to 1000MHz
4		Vertical Antenna Polarisation – 1GHz to 6GHz

Accreditation number: 18553. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports. This document may not be reproduced except in full without approval from EMC Bayswater, with the exception of the certificate on page 2.

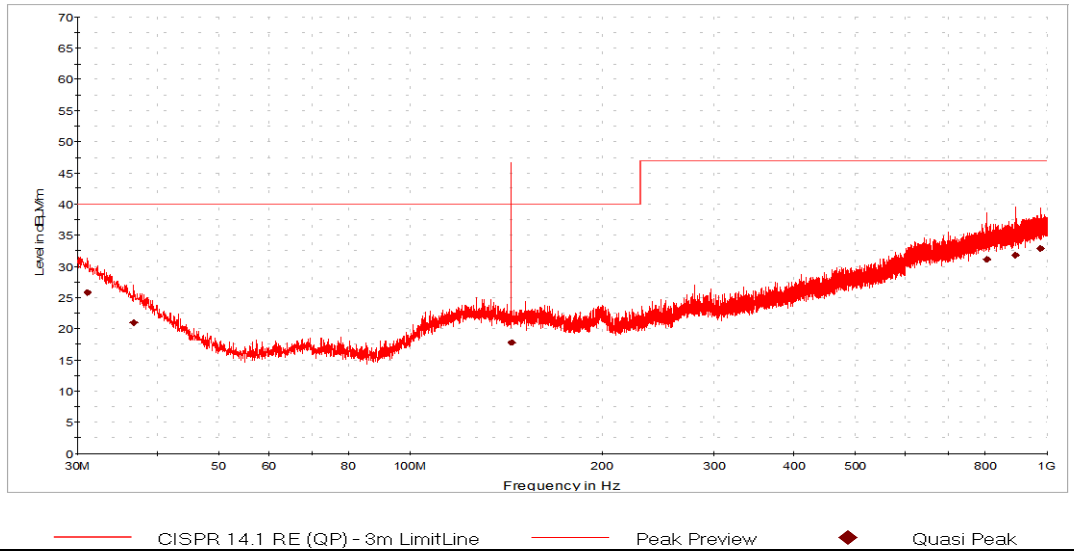
EMC Bayswater Pty. Ltd.

CISPR 14-1: 2020 – Radiated Disturbances

Gallagher Group Ltd - eS1 Cellular - eShepherd Neckband

Horizontal Antenna Polarity – 30MHz to 1GHz

Job Number: E2401-1729-2 Rev1
Test Engineer: AZ



Not to be reproduced without the approval of EMC Bayswater Pty Ltd, Phone (03) 9761-5888 Fax (03) 8761-6547

Graph 1

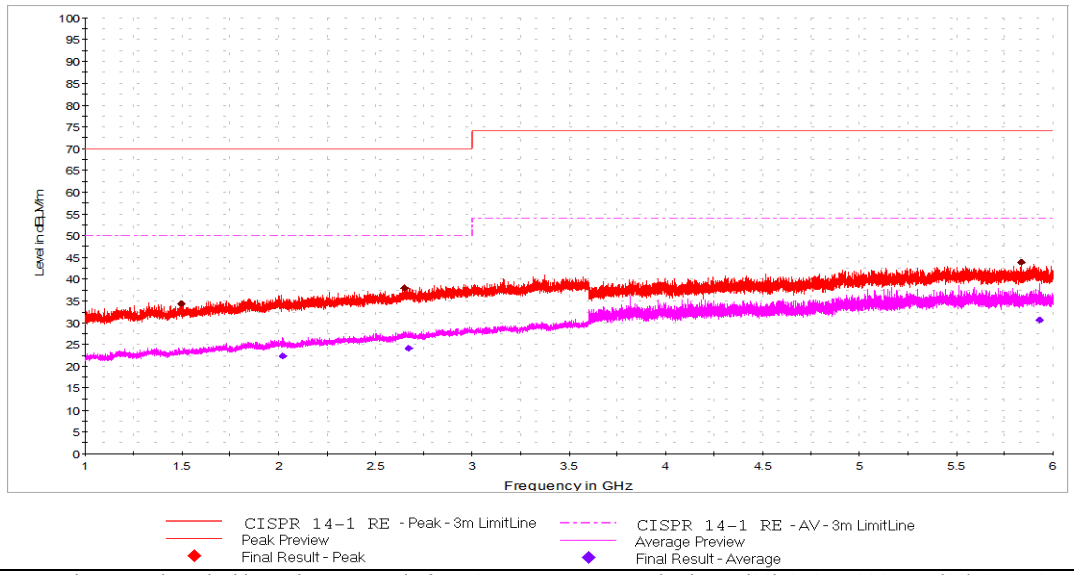
EMC Bayswater Pty. Ltd.

CISPR 14-1: 2020 - Radiated Emissions

Gallagher Group Ltd - eS1 Cellular

Horizontal Antenna Polarisation – 1GHz to 6GHz

Job Number: E2401-1729-2 Rev1
Test Engineer: AZ



Not to be reproduced without the approval of EMC Bayswater Pty Ltd, Phone (03) 9761-5888 Fax (03) 8761-6547

Graph 2

Accreditation number: 18553. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports. This document may not be reproduced except in full without approval from EMC Bayswater, with the exception of the certificate on page 2.

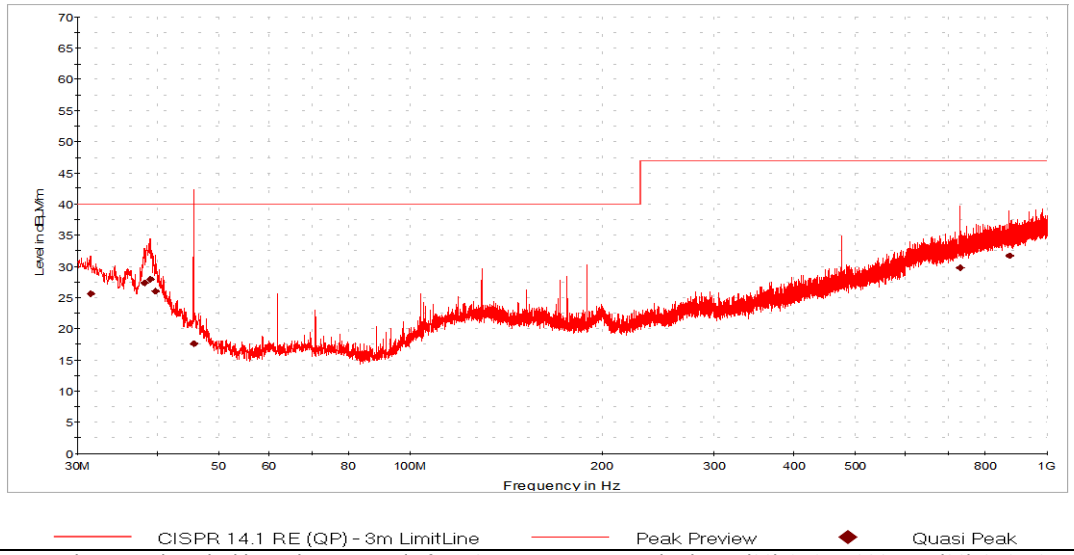
EMC Bayswater Pty. Ltd.

CISPR 14-1: 2020 – Radiated Disturbance

Gallagher Group Ltd - eS1 Cellular - eShepherd Neckband

Vertical Antenna Polarity – 30MHz to 1GHz

Job Number:	E2401-1729-2 Rev1
Test Engineer:	AZ



Not to be reproduced without the approval of EMC Bayswater Pty Ltd, Phone (03) 9761-5888 Fax (03) 8761-6547

Graph 3

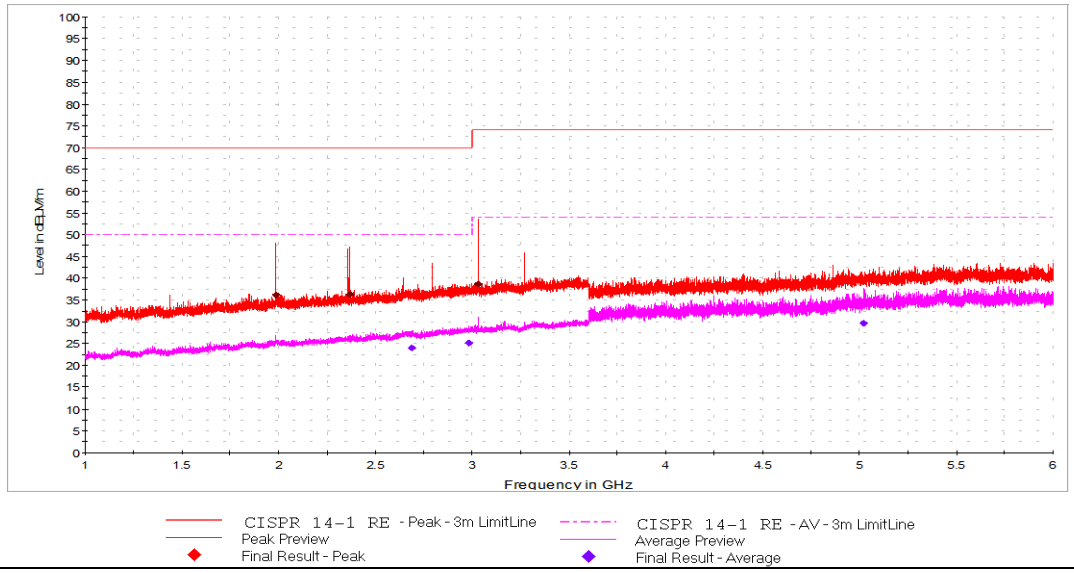
EMC Bayswater Pty. Ltd.

CISPR 14-1: 2020 - Radiated Emissions

Gallagher Group Ltd - eS1 Cellular

Vertical Antenna Polarisation – 1GHz to 6GHz

Job Number:	E2401-1729-2 Rev1
Test Engineer:	AZ



Not to be reproduced without the approval of EMC Bayswater Pty Ltd, Phone (03) 9761-5888 Fax (03) 8761-6547

Graph 4

Accreditation number: 18553. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports. This document may not be reproduced except in full without approval from EMC Bayswater, with the exception of the certificate on page 2.

Appendix D – Customer Declaration of Product Variant

Docusign Envelope ID: 7D6D13A0-8B76-4E6D-BD91-BD5D6AE39A32

Gallagher Group Ltd
181 Kahikatea Drive
Hamilton 3206
New Zealand
T +64 7 838 9800
F +64 7 838 9801
www.gallagher.com
IRDN 024 824 357

Date: 12th February 2025

Declaration of Product Variations

We Gallagher Group Ltd
of 181 Kahikatea Drive, Melville, Hamilton 3206, New Zealand

hereby declare that:

Equipment eShepherd Neckband

Model number G04081

to be the worst case variant used for EMC testing of a product range consisting of other variants along with the justification declared in the table below. Gallagher Group Ltd accepts all responsibility for any adverse effects with respect to the EMC performance of the variant products listed in the table with regards to the performance observed whilst testing the declared worst case model.

Model tested	Variants models	Justification
G04081	G040811	G040811 uses different network provider SIM card in the product with exact same hardware as G04081

Signed by:
Hayden Goble
3F954F68E3A34C9...

Signed by: .....
Name: Hayden Goble
Position: Head of eShepherd
Date signed: 12th February 2025

Accreditation number: 18553. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports. This document may not be reproduced except in full without approval from EMC Bayswater, with the exception of the certificate on page 2.