

Report No.: SEWM2307000288RG02

Rev.: 01

Page: 1 of 7

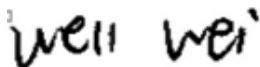
TEST REPORT

Application No.: SEWM2307000288RG
Applicant: ALPS Electric Ireland Ltd
Address of Applicant: Clara Road, Millstreet Town, County Cork P51 XC56, Ireland
Manufacturer: ALPS Electric Ireland Ltd
Address of Manufacturer: Clara Road, Millstreet Town, County Cork P51 XC56, Ireland
EUT Description: Asset Tracker
Model No.: Lykaner N5
Trade Mark: Lykaner N5
FCC ID: 2AT4V-LYKANER-N5
Standards: 47 CFR Part 2.1091
 FCC KDB 447498 D01 v06
Date of Receipt: 2023/07/23
Date of Issue: 2023/09/08

Test Result:	PASS*
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* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Well Wei
 Wireless Laboratory Manager



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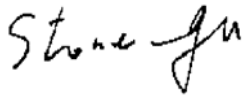
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1 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2023/09/08		Original

Prepared By		 <hr/> (Nick Hu) / Test Engineer
Checked By		 <hr/> (Stone Gu) / Reviewer



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2 General Information

2.1 Client Information

Applicant:	ALPS Electric Ireland Ltd
Address of Applicant:	Clara Road, Millstreet Town, County Cork P51 XC56, Ireland
Manufacturer:	ALPS Electric Ireland Ltd
Address of Manufacturer:	Clara Road, Millstreet Town, County Cork P51 XC56, Ireland

2.2 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• **A2LA (Certificate No. 6336.01)**

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 6336.01.

• **Innovation, Science and Economic Development Canada**

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0120.

IC#: 27594.

• **FCC –Designation Number: CN1312**

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. has been recognized as an accredited testing laboratory.

Designation Number: CN1312.

Test Firm Registration Number: 717327



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2.3 General Description of EUT

EUT Description:	Asset Tracker			
Model No.:	Lykaner N5			
Trade Mark:	Lykaner N5			
Hardware Version:	1AD-MA00068A			
Software Version:	v22.3.0			
Power Supply:	3.6V			
Antenna Type:	<input type="checkbox"/> External, <input checked="" type="checkbox"/> Integrated			
Antenna Gain:	LTE NB1 Band 2:	3.1dBi	LTE NB1 Band 4:	3.1dBi
	LTE NB1 Band 5:	2.5dBi	LTE NB1 Band 12:	2.5dBi
	LTE NB1 Band 13:	2.5dBi	LTE NB1 Band 17:	2.5dBi
	LTE NB1 Band 25:	3.1dBi	LTE NB1 Band 66:	3.1dBi
	LTE NB1 Band 71:	2.5dBi	LTE NB1 Band 85:	2.5dBi
	Note: The antenna gain are derived from the gain information report provided by the manufacturer.			
Remark:	As above information is provided and confirmed by the applicant. SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.			



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3 RF Exposure Evaluation

3.1 RF Exposure Compliance Requirement

3.1.1 Limits

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f ²)	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	f/300	6
1500-100,000	/	/	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

F=frequency in MHz

*=Plane-wave equivalent power density

RF exposure compliance will need to be determined with respect to 1.1307(c) and (d) of the FCC rules. The emissions should be within the limits at 300kHz in Table 1 of 1.1310(use the 300kHz limits for 150kHz:614V/m,1.63A/m).

Friis Formula

Friis transmission formula: $Pd = (Pout * G) / (4 * \pi * R^2)$

Where

Pd = power density in mW/cm²

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

Pd is the limit of MPE, 1 mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.



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3.1.2 Test Procedure

Software provided by client enabled the EUT to transmit data at lowest, middle and highest channel individually

3.1.3 EUT RF Exposure Evaluation

Output Power Into Antenna & RF Exposure Evaluation Distance:

This confirmed that the device comply with MPE limit.

Operating Band	Frequency (MHz)	Antenna Gain (dBi)	Max Conducted Power (dBm)	EIRP(ERP) (dBm)	EIRP(ERP) Limit (dBm)	Power Density at R = 20 cm (mW/cm ²)	Limit (mW/cm ²)	conclusion
LTE NB1 Band 2	1850.1	3.10	25.00	28.10	33.00	0.1284	1.0000	Pass
LTE NB1 Band 4	1710.1	3.10	25.00	28.10	30.00	0.1284	1.0000	Pass
LTE NB1 Band 5	824.1	2.50	25.00	25.35	38.45	0.1119	0.5494	Pass
LTE NB1 Band 12	699.1	2.50	25.00	25.35	34.77	0.1119	0.4661	Pass
LTE NB1 Band 13	777.1	2.50	25.00	25.35	34.77	0.1119	0.5181	Pass
LTE NB1 Band 17	704.1	2.50	25.00	25.35	34.77	0.1119	0.4694	Pass
LTE NB1 Band 25	1850.1	3.10	25.00	28.10	33.00	0.1284	1.0000	Pass
LTE NB1 Band 66	1710.1	3.10	25.00	28.10	30.00	0.1284	1.0000	Pass
LTE NB1 Band 71	663.1	2.50	25.00	25.35	34.77	0.1119	0.4421	Pass
LTE NB1 Band 85	698.1	2.50	25.00	25.35	34.77	0.1119	0.4654	Pass

---End of Report---



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