



OrthAlign, Inc.

Lantern Refresh Surgical Assistant (LSA)

FCC 15.247:2026

Wi-Fi 802.11 b/g/n SISO Radio

Report: ORTH0042.2 Rev. 02, Issue Date: July 6, 2026



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CERTIFICATE OF TEST

Last Date of Test: May 1, 2026
OrthAlign
EUT: Lantern Refresh Surgical Assistant (LSA)

Radio Equipment Testing

Standards

Specification	Method
FCC 15.247:2026	ANSI C63.10:2020 Cor.1:2023

Guidance

FCC KDB 558074 v05r02:2019

Results

Test Description	Result	Specification Section(s)	Method Section(s)	Comments
Powerline Conducted Emissions	N/A	15.207	6.2	Not required for a battery powered EUT.
Duty Cycle	Pass	KDB 558074 -6.0	11.6	
DTS and Occupied Bandwidth	Pass	15.247(a)(2), KDB 558074 -8.2, -2.1	11.8.2, 6.9.3	
Output Power	Pass	15.247(b)(3), KDB 558074 -8.3.2	11.9.2.2.4	
Equivalent Isotropic Radiated Power (EIRP)	Pass	15.247(b)(3), KDB 558074 -8.3.2	11.9.2.2.4	
Power Spectral Density	Pass	15.247(e), KDB 558074 -8.4	11.10.5	
Band Edge Compliance	Pass	15.247(d), KDB 558074 -8.5	11.11	
Spurious Conducted Emissions	N/A	15.247(d), KDB 558074 -8.5	11.11	See data.
Radiated Band Edge	Pass	15.247(d), KDB 558074 -8.6, 8.7	11.12.1, 11.12.3.1, 6.5	
Spurious Radiated Emissions	Pass	15.247(d), KDB 558074 -8.6, 8.7	11.12.1, 11.12.3.1, 6.4, 6.5, 6.6	

Deviations From Test Standards

None

Approved By:



Johnny Candelas, Operations Manager
 Signed for and on behalf of Element

Product compliance is the responsibility of the client; therefore, the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test. This report reflects only those tests from the referenced standards shown in the certificate of test. It does not include inspection or verification of labels, identification, marking or user information. As indicated in the Statement of Work sent with the quotation, Element's standard process is to always use the latest published version of the test methods even when earlier versions are cited in the test specification. Issuance of a purchase order was de facto acceptance of this approach. Otherwise, the client would have advised Element in writing of the specific version of the test methods they wanted applied to the subject testing.

REVISION HISTORY

Revision Number	Description	Date (yyyy-mm-dd)	Page Number
01	Corrected SN on Data Sheet Headers	2026-06-12	32, 44, 54, 64, 74, 84
	Changed Title to more clearly explain the Duty Cycle Mode	2026-06-17	14-30
	Added Duty Cycle for Band Edges	2026-06-17	31-42
02	Remove Duty Cycle for Band Edges	2026-06-25	31-42
02	Remove Operational Duty Cycle to Duty Cycle	2026-06-25	14-30
02	Change limits lines for SRE to 15.209 limits	2026-06-25	127, 129, 131, 133

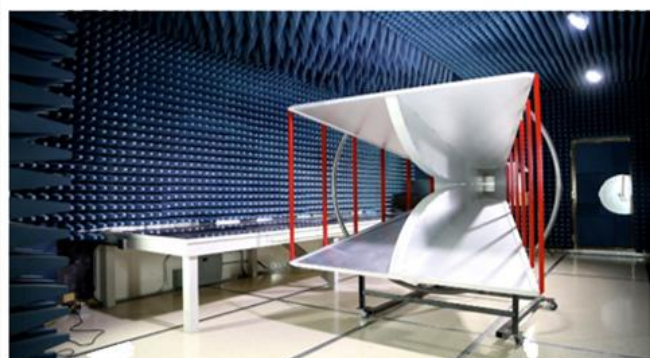
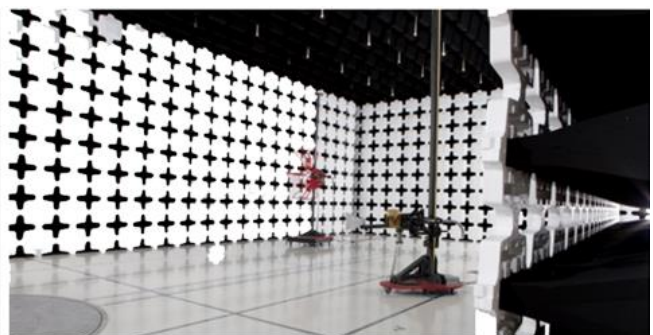
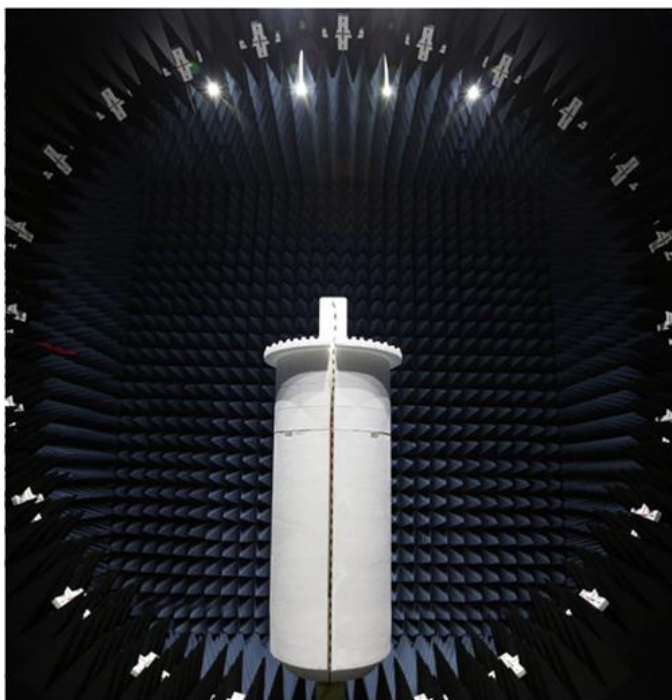
FACILITIES

Testing was performed at the following location(s)

	Location	Labs ⁽¹⁾	Address	A2LA ⁽²⁾	ISED ⁽³⁾	BSMI ⁽⁴⁾	VCCI ⁽⁵⁾	CAB	FDA ⁽⁶⁾
☒	California	OC01-17	41 Tesla Irvine, CA 92618 (949) 861-8918	3310.04	2834B	SL2-IN-E-1154R	A-0029	US0158	TL-55
☐	Minnesota	MN01-11	9349 W Broadway Ave. Brooklyn Park, MN 55445 (612) 638-5136	3310.05	2834E	SL2-IN-E-1152R	A-0109	US0175	TL-57
☐	Oregon	EV01-12	6775 NE Evergreen Pkwy #400 Hillsboro, OR 97124 (503) 844-4066	3310.02	2834D	SL2-IN-E-1017	A-0108	US0017	TL-56
☐	Washington	NC01-05	19201 120th Ave NE Bothell, WA 98011 (425) 984-6600	3310.06	2834F	SL2-IN-E-1153R	A-0110	US0157	TL-67
☐	Offsite	N/A	See Product Description	N/A	N/A	N/A	N/A	N/A	N/A

See data sheets for specific labs

- (1) The lab designations denote individual rooms within each location. (OC01, OC02, OC03, etc.)
- (2) A2LA Certificate No.
- (3) ISED Company No.
- (4) BSMI No.
- (5) VCCI Site Filing No.
- (6) FDA ASCA No.



MEASUREMENT UNCERTAINTY

Measurement Uncertainty

When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. Measurement uncertainty is a statistical expression of measurement error qualified by a probability distribution.

A measurement uncertainty estimation reported is based on statistical analysis that was performed by the laboratory. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty ($k=2$) can be found in the table below. A lab specific value may also be found in the applicable test description section. Our measurement data meets or exceeds the measurement uncertainty requirements of the applicable specification; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for estimating measurement uncertainty are based upon ETSI TR 100 028 (or CISPR 16-4-2 as applicable) and are available upon request.

The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

Various Measurements

Test	All Labs (+/-)
Frequency Accuracy (%)	0.0007
Amplitude Accuracy (dB)	1.2
Conducted Power (dB)	1.2
Radiated Power via Substitution (dB)	0.7
Temperature (degrees C)	0.7
Humidity (% RH)	2.5
Voltage (AC) (%)	1
Voltage (DC) (%)	0.7
Near-field Measurement of E-Field (dB)	1.89
Near-field Measurement of H-Field (dB)	2.65

Field Strength Measurements (dB)

Range	OC07 (+/-)
9kHz-30MHz	1.8
30MHz-1GHz 3m	4.7
1GHz-6GHz	5.1
6GHz-40GHz	5.1
40GHz-220GHz	4.9

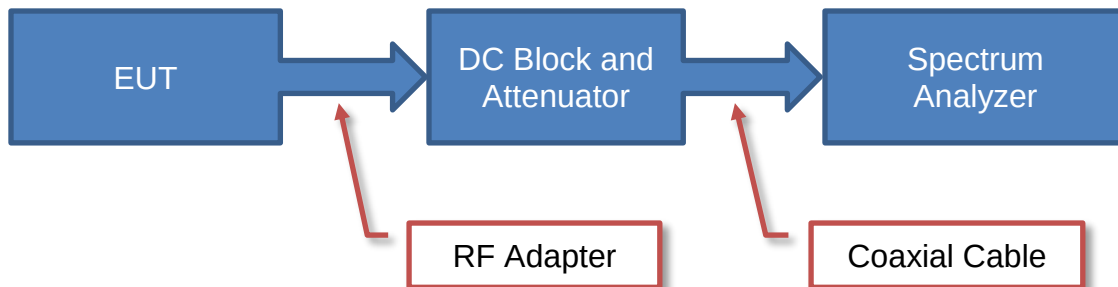
TEST SETUP BLOCK DIAGRAMS

Measurement Bandwidths

Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
0.01 - 0.15	1.0	0.2	0.2
0.15 - 30.0	10.0	9.0	9.0
30.0 - 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0

Unless otherwise stated, measurements were made using the bandwidths and detectors specified. No video filter was used.

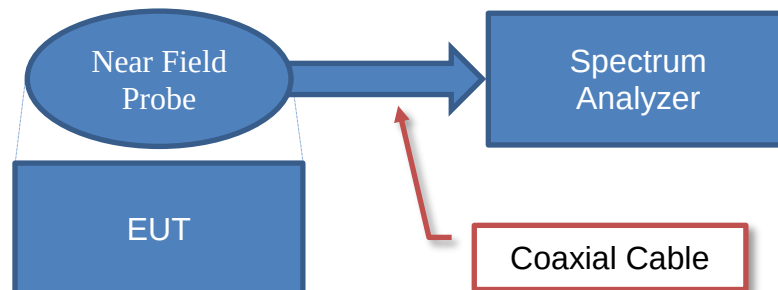
Antenna Port Conducted Measurements



Sample Calculation (logarithmic units)

Measured Value		Measured Level		Reference Level Offset
71.2	=	42.6	+	28.6

Near Field Test Fixture Measurements

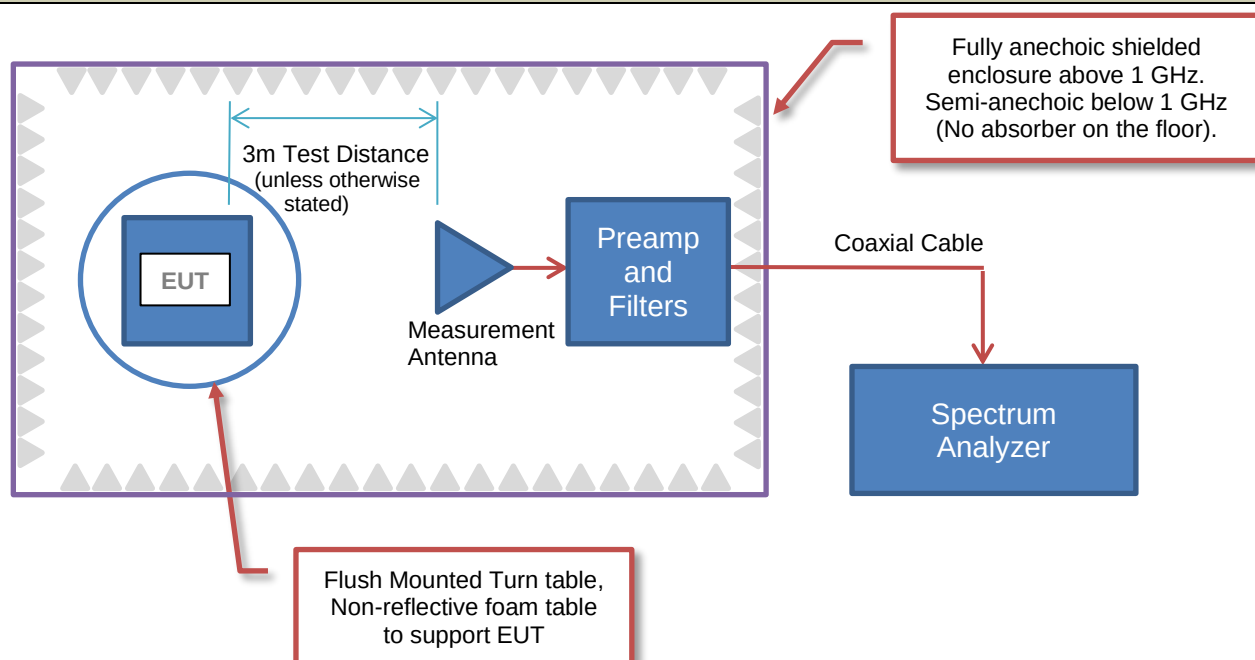


Sample Calculation (logarithmic units)

Measured Value		Measured Level		Reference Level Offset
71.2	=	42.6	+	28.6

TEST SETUP BLOCK DIAGRAMS

Emissions Measurements



Sample Calculation (logarithmic units)

Radiated Emissions:

Measured Level (Amplitude)	Factor			Distance Adjustment Factor	External Attenuation	Field Strength
	Antenna Factor	Cable Factor	Amplifier Gain			
42.6	28.6	3.1	40.8	0.0	0.0	33.5

Conducted Emissions:

Measured Level (Amplitude)	Factor		External Attenuation	Adjusted Level
	Transducer Factor	Cable Factor		
26.7	0.3	0.1	20.0	47.1

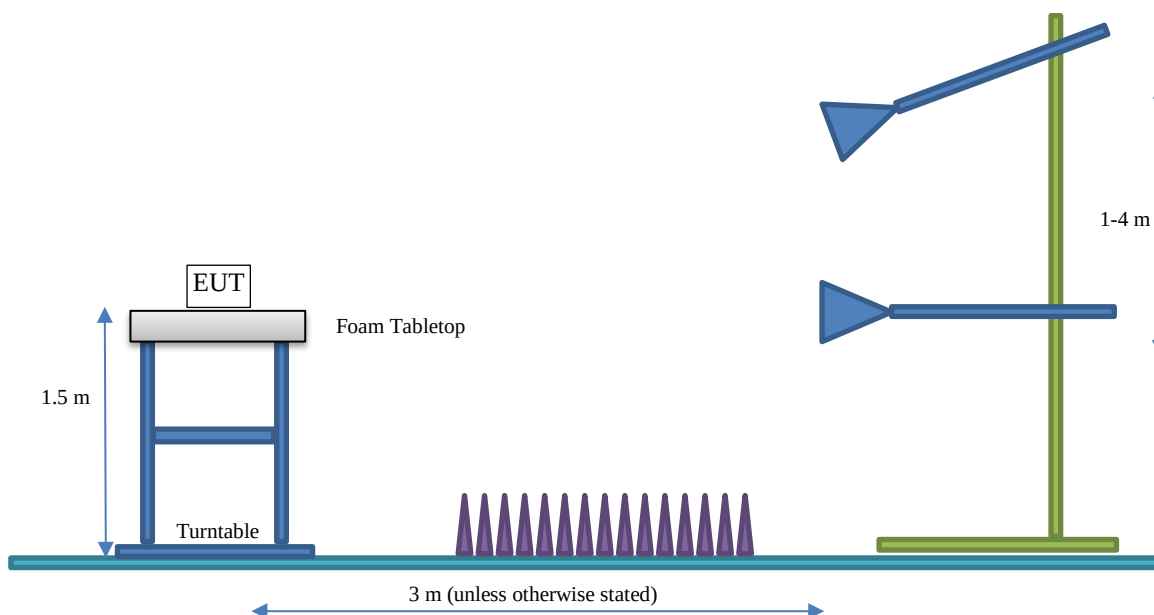
Radiated Power (ERP/EIRP) – Substitution Method:

Measured Level into Substitution Antenna (Amplitude dBm)	Substitution Antenna Factor (dBi)	EIRP to ERP (if applicable)	Measured power (dBm ERP/EIRP)
10.0	6.0	2.15	13.9/16.0

TEST SETUP BLOCK DIAGRAMS

Bore Sighting (>1GHz)

The diameter of the illumination area is the dimension of the line tangent to the EUT formed by 3 dB beamwidth of the measurement antenna at the measurement distance. At a 3 meter test distance, the diameter of the illumination area was 3.8 meters at 1 GHz and greater than 2.1 meters up to 6 GHz. Above 1 GHz, when required by the measurement standard, the antenna is pointed for both azimuth and elevation to maintain the receive antenna within the cone of radiation from the EUT. The specified measurement detectors were used for comparison of the emissions to the peak and average specification limits.



PRODUCT DESCRIPTION



Client and Equipment under Test (EUT) Information

Company Name:	OrthAlign
Address:	153 Technology Drive, Suite 100
City, State, Zip:	Irvine, CA 92618
Test Requested By:	Larry Varnado
EUT:	Lantern Refresh Surgical Assistant (LSA)
First Date of Test:	April 29, 2026
Last Date of Test:	May 1, 2026
Receipt Date of Samples:	April 29, 2026
Equipment Design Stage:	Production
Equipment Condition:	No Damage
Purchase Authorization:	Verified

Information Provided by the Party Requesting the Test

Functional Description of the EUT:

Simple and efficient joint technology for total hip, total knee, revision knee, and partial knee replacements.

Testing Objective:

To demonstrate compliance of the Wi-Fi 802.11 b/g/n SISO radio under FCC 15.247 for operation in the 2.4 GHz band.

POWER SETTINGS AND ANTENNAS



The power settings, antenna gain value(s) and cable loss (if applicable) used for the testing contained in this report were provided by the customer and will affect the validity of the results. Element assumes no responsibility for the accuracy of this information. The power settings below reflect the maximum power that the EUT is allowed to transmit at during normal operation.

ANTENNA GAIN (dBi)

Type	Provided by:	Frequency Range (MHz)	Gain (dBi)
FPC Antenna	Pulse/Larsen Antennas	2400 - 2500	4

The EUT was tested using the power settings provided by the manufacturer which were based upon:

- ☒ Test software settings Software / firmware used for testing: QCAQMSL – QLIB V6.1.174.QPHONEMS
☐ Rated power settings

SETTINGS FOR ALL TESTS IN THIS REPORT

Modulation Types / Data Rates	Type	Channel	Frequency (MHz)	Power Setting (dBm)
1 Mbps - DBPSK 11 Mbps - CCK 6 Mbps – BPSK (OFDM) 36 Mbps – 16-QAM (OFDM) 54 Mbps – 64-QAM (OFDM) MCS0 -- BPSK MCS7 – 64-QAM	DTS	1	2412	14
		6	2437	14
		11	2462	14

Modulation Types / Data Rates	Type	Channel	Frequency (MHz)	Power Setting (dBm)
MCS0 -- BPSK MCS7 – 64-QAM	DTS	3	2422	14
		6	2437	14
		9	2452	14

CONFIGURATIONS



Configuration ORTH0042-1

Software/Firmware Running During Test	
Description	Version
QCAQMSL	QLIB V6.1.174.QPHONEMS

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Lantern Refresh Surgical Assistant (LSA)	OrthAlign, Inc.	502000-03	2528001

Peripherals in Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Laptop	Dell	M4800	JPC1J72
Ethernet to USB Adapter	SMDYS	N/A	N/A

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Ethernet	No	1 meter	No	Laptop	Ethernet to USB Adapter
USB	No	10 cm	No	Lantern Refresh Surgical Assistant (LSA)	Ethernet to USB Adapter

Configuration ORTH0042-2

Software/Firmware Running During Test	
Description	Version
QCAQMSL	QLIB V6.1.174.QPHONEMS

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Lantern Refresh Surgical Assistant (LSA)	OrthAlign, Inc.	502000-03	2528001

Peripherals in Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Laptop	Dell	M4800	JPC1J72
Ethernet to USB Adapter	SMDYS	N/A	N/A

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Ethernet	No	1 meter	No	Laptop	Ethernet to USB Adapter
USB	No	10 cm	No	Lantern Refresh Surgical Assistant (LSA)	Ethernet to USB Adapter

MODIFICATIONS

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	2026-04-29	Spurious Radiated Emissions	Tested as delivered to test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
2	2026-04-30	Band Edge Compliance	Tested as delivered to test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
3	2026-04-30	Spurious Conducted Emissions	Tested as delivered to test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
4	2026-04-30	DTS and Occupied Bandwidth	Tested as delivered to test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
5	2026-04-30	Duty Cycle	Tested as delivered to test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
6	2026-04-30	Equivalent Isotropic Radiated Power (EIRP)	Tested as delivered to test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
7	2026-04-30	Output Power	Tested as delivered to test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
8	2026-04-30	Power Spectral Density	Tested as delivered to test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
9	2026-05-01	Radiated Band Edge	Tested as delivered to test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.