

NORTHWEST EMC

Doughty Design

ReadiBand4

FCC 2.1093:2015

Report # DOTY0009.1



NVLAP Lab Code: 200629-0

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CERTIFICATE OF EVALUATION

Last Date of Test: October 26, 2015
Doughty Design
Model: Readiband4

Radio Equipment Evaluation

Standards

Specification	Method
FCC 2.1093:2015	447498 D01 General RF Exposure Guidance v06

Results

Method Clause	Description	Applied	Results	Comments
4.3	General SAR test reduction and exclusion guidance	Yes	Pass	

Deviations From Standards

None

Approved By:



Don Facteau, IS Manager

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.

REVISION HISTORY

Revision Number		Description	Date	Page Number
00		None		

ACCREDITATIONS AND AUTHORIZATIONS

United States

FCC - Designated by the FCC as a Telecommunications Certification Body (TCB). Certification chambers, Open Area Test Sites, and conducted measurement facilities are listed with the FCC.

A2LA - Accredited by A2LA to ISO / IEC 17065 as a product certifier. This allows Northwest EMC to certify transmitters to FCC and IC specifications.

NVLAP - Each laboratory is accredited by NVLAP to ISO 17025

Canada

IC - Recognized by Industry Canada as a Certification Body (CB). Certification chambers and Open Area Test Sites are filed with IC.

European Union

European Commission – Validated by the European Commission as a Conformity Assessment Body (CAB) under the EMC directive and as a Notified Body under the R&TTE Directive.

Australia/New Zealand

ACMA - Recognized by ACMA as a CAB for the acceptance of test data.

Korea

MSIP / RRA - Recognized by KCC's RRA as a CAB for the acceptance of test data.

Japan

VCCI - Associate Member of the VCCI. Conducted and radiated measurement facilities are registered.

Taiwan

BSMI – Recognized by BSMI as a CAB for the acceptance of test data.

NCC - Recognized by NCC as a CAB for the acceptance of test data.

Singapore

IDA – Recognized by IDA as a CAB for the acceptance of test data.

Israel

MOC – Recognized by MOC as a CAB for the acceptance of test data.

Hong Kong

OFCA – Recognized by OFCA as a CAB for the acceptance of test data.

Vietnam

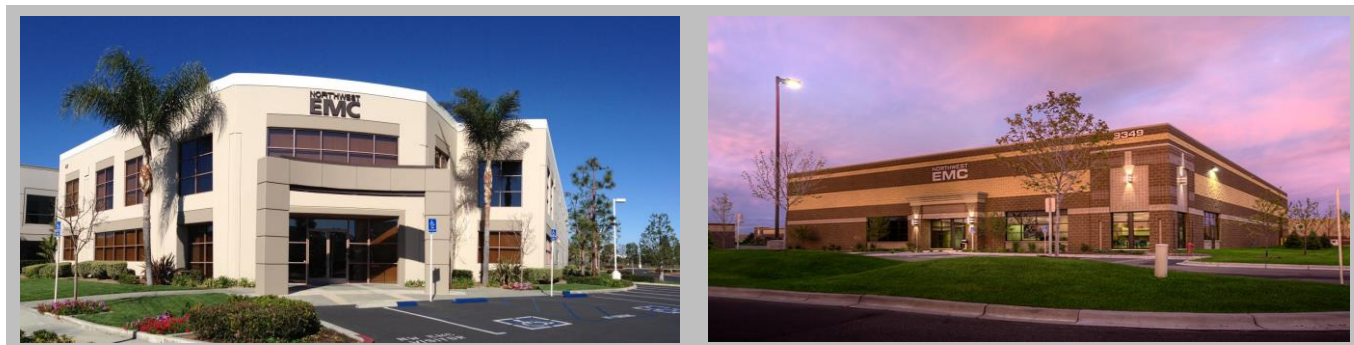
MIC – Recognized by MIC as a CAB for the acceptance of test data.

SCOPE

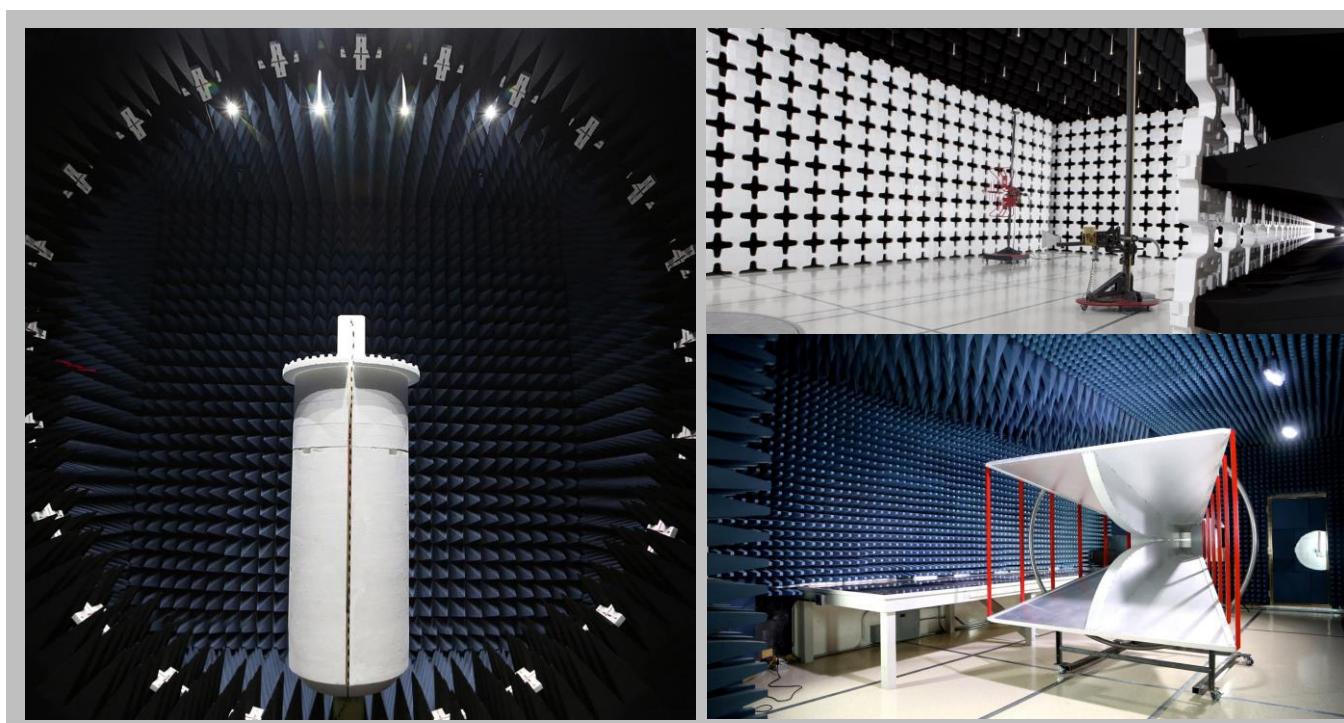
For details on the Scopes of our Accreditations, please visit:

<http://www.nwemc.com/accreditations/>
<http://gsi.nist.gov/global/docs/cabs/designations.html>

FACILITIES



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NVLAP					
NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200881-0	NVLAP Lab Code: 200761-0	NVLAP Lab Code: 200630-0	NVLAP Lab Code:201049-0	NVLAP Lab Code: 200629-0
Industry Canada					
2834B-1, 2834B-3	2834E-1	N/A	2834D-1, 2834D-2	2834G-1	2834F-1
BSMI					
SL2-IN-E-1154R	SL2-IN-E-1152R	N/A	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R
VCCI					
A-0029	A-0109	N/A	A-0108	A-0201	A-0110
Recognized Phase I CAB for ACMA, BSMI, IDA, KCC/RRR, MIC, MOC, NCC, OFCA					
US0158	US0175	N/A	US0017	US0191	US0157



PRODUCT DESCRIPTION

Client and Equipment Under Evaluation (EUT) Information

Company Name:	Doughty Design
Address:	7344 31st Ave SW
City, State, Zip:	Seattle, WA 98126
Test Requested By:	Chris Doughty
Model:	ReadiBand4
Evaluation Date:	October 26, 2015

Information Provided by the Party Requesting the Evaluation

Functional Description of the EUT:
Body worn sensor system with BLE radio and USB.
Objective:
To demonstrate compliance with FCC requirements for RF exposure for 2.1093 portable devices.

SAR TEST EXCLUSION

OVERVIEW

The device is excluded from SAR evaluation and therefore deemed compliant with FCC RF exposure requirements as described below:

COMPLIANCE WITH FCC KDB 447498 D01 General RF Exposure Guidance v06

KDB 447498 D01 General RF Exposure Guidance v06, Section 4.3.1

"The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$$\frac{[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}]}{\leq 3.0}$$

for 1-g SAR and ≤ 7.5 for 10-g extremity SAR,

where

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz*
- Power and distance are rounded to the nearest mW and mm before calculation*
- The result is rounded to one decimal place for comparison*
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below*

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 5) in section 4.1 is applied to determine SAR test exclusion."

METHOD OF EVALUATION

The SAR Test Exclusion Threshold is summarized in the following table:

The device has a maximum output power of 1.24 mW at 2402 MHz. The closest spacing of the antenna to the user's torso is 5 mm. The table below shows the results of the calculation. The value of 0.384 is well below the exclusion threshold of 3.0, therefore the unit is excluded from SAR evaluation and deemed compliant with FCC RF exposure requirements.

Output Power (mW)	Test Separation (mm)	Transmit Frequency (GHz)	Exclusion Threshold	Specification
1.24	5	2.402	0.384	≤ 3.0