NORTHWEST EMC

Timecode Systems Ltd.

SyncBac Pro

FCC 2.1093:2016

902 - 928 MHz Transceiver

Report # RIGA0010.3

NVLAP TESTING

NVLAP Lab Code: 200630-0

CERTIFICATE OF EVALUATION

NORTHWEST EMC
2014-12-10

Last Date of Evaluation: August 24, 2016
Timecode Systems Ltd.
Model: SyncBac Pro

Radio Equipment Evaluation

Standards

Specification	Method
FCC 2.1093:2016	FCC 447498 D01 General RF Exposure Guidance v06

Results

Method Clause	Test Description	Applied	Results	Comments
4.3.1	Standalone SAR Test Exclusion	Yes	Pass	

Deviations From Test Standards

None

Approved By:

Rod Munro, Operations Manager

Product compliance is the responsibility of the client; therefore, the Evaluations and equipment modes of operation represented in this report were agreed upon by the client, prior to Evaluationing. The results of this Evaluation pertain only to the sample(s) Evaluationed. The specific description is noted in each of the individual sections of the Evaluation report supporting this certificate of Evaluation. This report reflects only those Evaluations from the referenced standards shown in the certificate of Evaluation. It does not include inspection or verification of labels, identification, marking or user information.

REVISION HISTORY

NORTHWEST EMC
REV 2014.10.14

Revision Number	Description	Date	Page Number
00	None		

ACCREDITATIONS AND AUTHORIZATIONS

REV 2016.7.25

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

ISED - Recognized by Innovation, Science and Economic Development Canada as a Certification Body (CB). Certification chambers and Open Area Test Sites are filed with ISED.

European Union

European Commission – Validated by the European Commission 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.

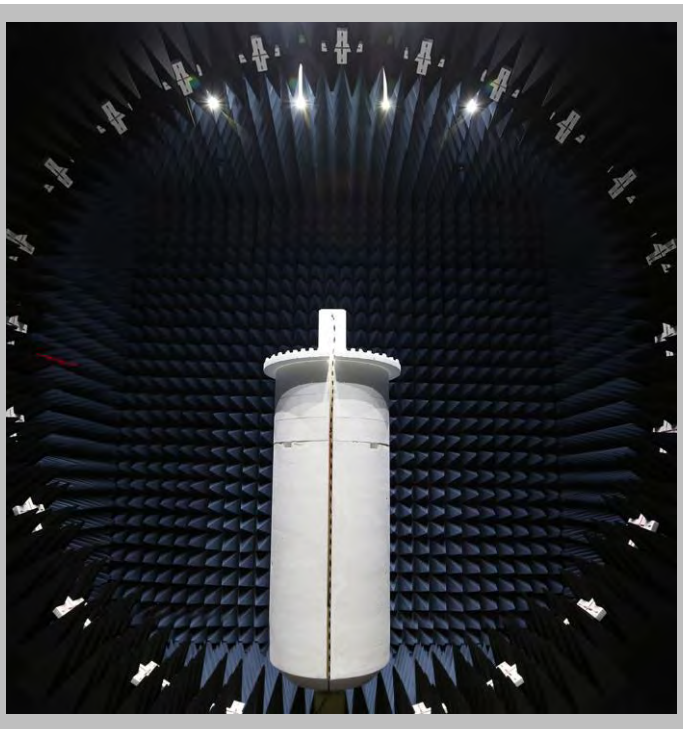
SCOPE

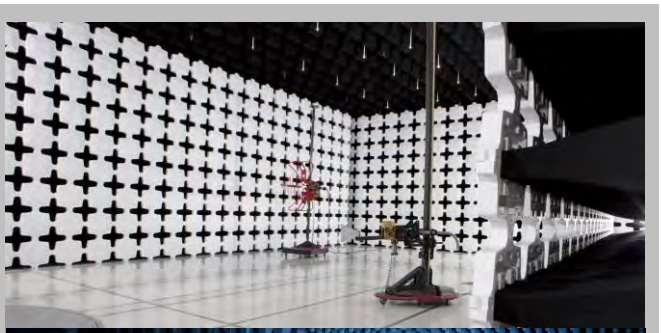
For details on the Scopes of our Accreditations, please visit:
http://www.nwemc.com/accreditations/
http://gsi.nist.gov/global/docs/cabs/designations.html

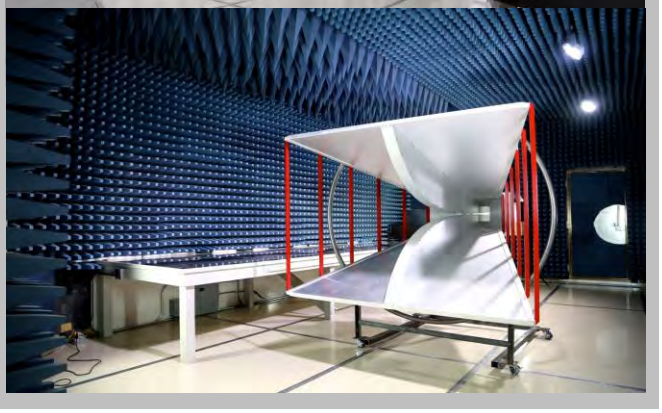
FACILITIES

NORTHWEST EMC
REV 2016.7.25

California	Minnesota	New York	Oregon	Texas	Washington
Labs OC01-13 41 Tesla Irvine, CA 92618 (949) 861-8918	Labs MN01-08, MN10 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	Labs NY01-04 4939 Jordan Rd. Elbridge, NY 13060 (315) 554-8214	Labs EV01-12 22975 NW Evergreen Pkwy Hillsboro, OR 97124 (503) 844-4066	Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	Labs NC01-05 19201 120th Ave NE Bothell, WA 98011 (425)984-6600
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
Innovation, Science and Economic Development 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/RRA, MIC, MOC, NCC, OFCA					
US0158	US0175	N/A	US0017	US0191	US0157







PRODUCT DESCRIPTION

2014-12-10

Client and Equipment Under Evaluation (EUT) Information

Company Name:	Timecode Systems Ltd.
Address:	3950 Fairview Industrial Dr SE #100
City, State, Zip:	Salem, OR 97302
Evaluation Requested By:	Mark Bielman
Model:	SyncBac Pro
First Date of Evaluation:	August 24, 2016

Information Provided by the Party Requesting the Evaluation

Functional Description of the EUT:
GoPro camera accessory using a 902 - 928 MHz FHSS radio to time sync video from multiple cameras

Objective:
To demonstrate compliance with FCC requirements for RF exposure for 2.1093 portable devices for operation in the 902 - 928 MHz Band.

SAR TEST EXCLUSION

NORTHWEST EMC
EXRPT.2016.08.12

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(a)

"For 100 MHz to 6 GHz and test separation distances ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR,
where

- *f(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 b 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 4.1f) is applied to determine SAR test exclusion."

METHOD OF EVALUATION

The dwell time section of RIGA0010.1 provides the data for a single channel. The operational description provides the actual channels that are used:

> "The device limits communication to 65 "data" channels spaced 100kHz apart in the range 915.8MHz to 922.20MHz, and 14 "control" channels covering two subsets of 915.05 to 915.65 MHz (control channels 1 through 7) and 918.05 to 918.65 MHz (channels 8 through 14). The system limits actual usage of the "data" channels to 57. The skipped channels are set according to the selected "control" channel. Only one "control" channel can be active at any given time, and the active "control" channel is included in the hopping table, making a total of 58 active hopping channels."

Two modes of operation: data and control.

Data mode (57 channels):

2.968 ms pulse width, 21.12 pulses every 20 s, total dwell time of 62.68 ms every 20 s on a single channel.
The total dwell time in 20 s for the entire band in data mode = 62.68 ms X 57 channels = 3.572 s

Control Mode (1 channel):

29.537 pulse width, 20 pulses every 20 s, total dwell time of 590.7ms every 20 s.
The total dwell time in 20 s for the entire band in control mode = 590.7ms X 1 channels = 590.7ms

SAR TEST EXCLUSION

EXRPT.2016.08.12

The duty cycle for the system taking into account both modes:

(3.572 s + 0.5907 s) / 20 s = 0.208

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

The result of the calculation is below the exclusion threshold; therefore the unit is excluded from SAR evaluation and deemed compliant with FCC RF exposure requirements.

Radio	Transmit Frequency (MHz)	Measured Conducted Output Power (mW)	Duty Cycle	Minimum Separation Distance (mm)	Exclusion Threshold	Limit	Compliant
FHSS - Internal	915.8	50.2	0.208	5	1.998	3.0	Yes

Radio	Transmit Frequency (MHz)	Measured Conducted Output Power (mW)	Duty Cycle	Minimum Separation Distance (mm)	Exclusion Threshold	Limit	Compliant
FHSS - External	915.05	53.0	0.208	5	2.109	3.0	Yes