

NORTHWEST EMC

Timecode Systems Ltd.

SyncBac Pro

FCC 2.1093:2016

902 - 928 MHz Transceiver

Report # RIGA0010.3



NVLAP Lab Code: 200630-0

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CERTIFICATE OF EVALUATION

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 Evaluation. The results of this Evaluation pertain only to the sample(s) Evaluation. 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

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.

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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.

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

Korea

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Japan

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

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SCOPE

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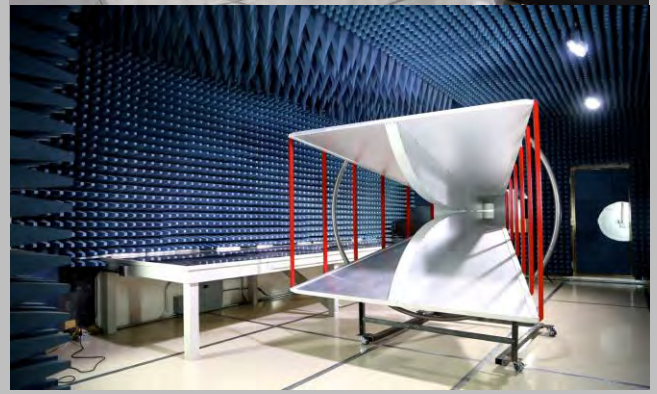
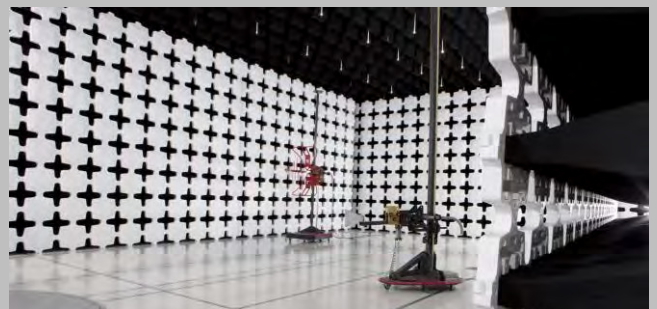
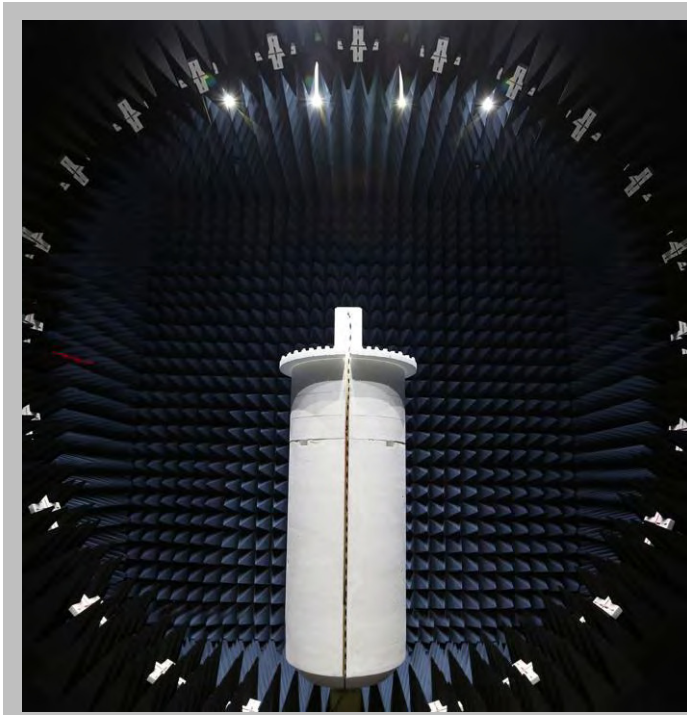
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FACILITIES



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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
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/RRR, MIC, MOC, NCC, OFCA					
US0158	US0175	N/A	US0017	US0191	US0157



PRODUCT DESCRIPTION

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

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:

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

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

$$(3.572 \text{ s} + 0.5907 \text{ s}) / 20 \text{ s} = 0.208$$

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