MPE TEST REPORT

The product

Equipment Under Test	: V.E.D.R (Video Event Data Recorder)
Model Number	: ECO VEDR
Product Series	: OCTOBOX 4V VEDR
Report Number	: HA150316-MPE
Issue Date	: 23-OCT-2015
Test Result	: Compliance

is produced by

OCTOCAM S.R.L.

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BSMI Registration No.: SL2-IN-E-0023, SL2-A1-E-0023, SL2-IS-E-0023, SL2-R1-E-0023, SL2-R2-E-0023, SL2-L1-E-0023

FCC Designation No.: TW1071
TAF Accreditation No.: 1163
VCCI Registration No.: R-2156, C-2329, T-219

Contents

Test Result Certification

Applicant	: OCTOCAM S.R.L.
Address of Applicant	: Via Lamaro, 51 00173 ROMA, ITALY
Manufacturer	: OCTOCAM S.R.L.
Address of Manufacturer	: Via Lamaro, 51 00173 ROMA, ITALY
Trade Name	: OCTOCAM
Equipment Under Test	: V.E.D.R (Video Event Data Recorder)
Model Number	: ECO VEDR
Product Series	: OCTOBOX 4V VEDR
FCC ID	: 2AE36-ECOVEDR
Filing Type	: Certification
Sample Received Date	: 06-OCT-2015
Test Standard	:

☒ 47 CFR § 2.1091; 47 CFR § 1.1310; ANSI/ IEEE Std.C95.1-1992

Deviations from standard test methods & any other specifications : NONE

Remark:

1. This report details the results of the test carried out on one sample.
2. This report applies to the above sample only and shall not be reproduced in part without written approval of HongAn Technology Co., Ltd..

Documented by: Kay Wang — **Kay Wang/ ADM. Dept Staff** — 2015-10-23

Tested by: Kidd Liao — **Kidd Liao / ENG. Dept. Staff** — 2015-10-20

Approved by: Peter Chin — **Date:** **Peter Chin / Section Manager** — 2015-10-23

1 General Description

1.1 Description of EUT

<table>
<tr><td>Equipment Under Test</td><td>:</td><td>V.E.D.R (Video Event Data Recorder)</td></tr>
<tr><td>Model Number of EUT</td><td>:</td><td>ECO VEDR</td></tr>
<tr><td>Product Series</td><td>:</td><td>OCTOBOX 4V VEDR</td></tr>
<tr><td>Power Supply</td><td>:</td><td>DC input 3V
DC 12V (from Vehicle)</td></tr>
<tr><td>Frequency Range</td><td>:</td><td>802.11 b/ g/ n(HT 20M) : 2412~2462 MHz
802.11n(HT 40M) : 2422~2452 MHz</td></tr>
<tr><td>Number of Channels</td><td>:</td><td>11 Channels</td></tr>
<tr><td>Carrier Frequency of Each Channel</td><td>:</td><td>
<table>
<tr><td>Ch.</td><td>Fre. (MHz)</td><td>Ch.</td><td>Fre. (MHz)</td><td>Ch.</td><td>Fre. (MHz)</td><td>Ch.</td><td>Fre. (MHz)</td><td>Ch.</td><td>Fre. (MHz)</td></tr>
<tr><td>01</td><td>2412</td><td>02</td><td>2417</td><td>03</td><td>2422</td><td>04</td><td>2427</td><td>05</td><td>2432</td></tr>
<tr><td>06</td><td>2437</td><td>07</td><td>2442</td><td>08</td><td>2447</td><td>09</td><td>2452</td><td>10</td><td>2457</td></tr>
<tr><td>11</td><td>2462</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>Antenna Specification</td><td>:</td><td>PCB Antenna/ Gain: 1 dBi</td></tr>
<tr><td>Modulation Technique</td><td>:</td><td>802.11b : DSSS (Type: CCK, DQPSK, DBPSK)
802.11g : OFDM
802.11n : OFDM (Type: 64QAM, 16QAM, QPSK, BPSK)</td></tr>
<tr><td>Transmit Data Rate</td><td>:</td><td>802.11b : 11/5.5/2/1 Mbps
802.11g : 54/48/36/24/18/12/9/6 Mbps
802.11n : MSC 0/1/2/3/4/5/6/7</td></tr>
<tr><td>Specification</td><td>:</td><td>Dimensions： 105 mm (L) X 75 mm (W) X 54 mm (H)
Weight：140g
Function：The EUT is a Vehicle Video Recorder using WIFI to make data transmission.
※For more detail specification, please refer to the User Manual.</td></tr>
</table>

2 Human Exposure Assessment

2.1 Limit

Due to the design and installation of this product, it is not possible to conduct SAR evaluation. This is because client either manufactures or supplies the antenna(s) that will be used in the installation of this product. Therefore, this product will be evaluated as a mobile device per 47 CFR § 1.1310 titled “Radiofrequency radiation exposure limits”. Generally referred to as MPE limits.

In 47 CFR § 2.1091, paragraph (b) defines a mobile device as “a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 cm is normally maintained between the transmitter’s radiating structure(s) and the body of the user or nearby persons. “This product is intended to be installed into a vehicle such that the unit is physically secured at one location. In the installation guide supplied with the product.

Client has made the following statement: “IMPORTANT: To meet the FCC’s RF Exposure Guidelines, the antenna should be installed so there is at least 20 cm of separation between the body of the user and nearby persons and the antenna”. Based on the installation of the transceiver and the antenna, the transmitters radiating structure is more than 20 cm from the user. Thus, this product is a “mobile device” as defined in section § 2.1091 paragraph (b).

Exposure evaluation
Equation from page 18 of OET Bulletin 65, Edition 97-01 $S = \frac{PG}{4\pi R^2}$ Where S: power density P: power input to the antenna G: power gain of the antenna in the direction of interest relative to an isotropic radiator R: distance to the center of radiation of the antenna.

2.2 Test Result

Pass

Please refer to the next page for detailed information.

Maximum Output Power:

Temperature : 29.6℃ Humidity : 39%

Test Date : 20-Oct-2015 Tested by : Kidd Liao

Test Mode : 802.11 b

Test Channel	Frequency (MHz)	Test Result		Worst Case
		(dBm)	(W)	
01	2412	2.26	0.001682	☒
06	2437	1.60	0.001445	☐
11	2462	2.02	0.001592	☐

Test Mode : 802.11 g

Test Channel	Frequency (MHz)	Test Result		Worst Case
		(dBm)	(W)	
01	2412	-4.31	0.000370	☐
06	2437	-3.81	0.000415	☐
11	2462	-3.75	0.000421	☒

Test Mode : 802.11 n HT(20)

Test Channel	Frequency (MHz)	Test Result		Worst Case
		(dBm)	(W)	
01	2412	-3.50	0.000446	☐
06	2437	-4.52	0.000353	☐
11	2462	-3.46	0.000450	☒

Test Mode : 802.11n HT(40)

Test Channel	Frequency (MHz)	Test Result		Worst Case
		(dBm)	(W)	
03	2422	-6.53	0.000222	☐
06	2437	-5.29	0.000295	☒
09	2452	-5.93	0.000255	☐

MPE Value:

Test mode ： 802.11 b

Test Channel	Frequency (MHz)	Output power (mW)	Antenna Gain (dBi)	Antenna Gain (numeric)	MPE (mW/cm^2)	Limit (mW/cm^2)
01	2412	1.682	1	1.258925	0.000421266	1.0
06	2437	1.445	1	1.258925	0.000361908	1.0
11	2462	1.592	1	1.258925	0.000398725	1.0

MPE= $(P*G)/4\pi(R)^2$

Test mode ： 802.11 g

Test Channel	Frequency (MHz)	Output power (mW)	Antenna Gain (dBi)	Antenna Gain (numeric)	MPE (mW/cm^2)	Limit (mW/cm^2)
01	2412	0.37	1	1.258925	0.000092668	1.0
06	2437	0.415	1	1.258925	0.000103939	1.0
11	2462	0.421	1	1.258925	0.000105442	1.0

MPE= $(P*G)/4\pi(R)^2$

Test mode ： 802.11 n HT(20)

Test Channel	Frequency (MHz)	Output power (mW)	Antenna Gain (dBi)	Antenna Gain (numeric)	MPE (mW/cm^2)	Limit (mW/cm^2)
01	2412	0.446	1	1.258925	0.000111703	1.0
06	2437	0.353	1	1.258925	0.0000884107	1.0
11	2462	0.450	1	1.258925	0.000112705	1.0

MPE= $(P*G)/4\pi(R)^2$

Test mode ： 802.11 n HT(40)

Test Channel	Frequency (MHz)	Output power (mW)	Antenna Gain (dBi)	Antenna Gain (numeric)	MPE (mW/cm^2)	Limit (mW/cm^2)
03	2422	0.222	1	1.258925	0.000055601	1.0
06	2437	0.295	1	1.258925	0.0000738843	1.0
09	2452	0.255	1	1.258925	0.0000638661	1.0

MPE= $(P*G)/4\pi(R)^2$