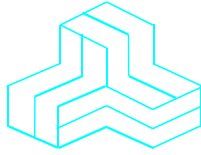


ENGINEERING TEST REPORT



Spot
Model: VS100
FCC ID: ZP-VS100

Applicant:

PediaVision Holdings LLC
P.O. Box 953007
Lake Mary, FL 32795
USA

In Accordance With

Federal Communications Commission (FCC)
Part 15, Subpart C, Section 15.247
Digital Modulation Systems (DTS) Operating in 2412 - 2462 MHz Band

UltraTech's File No.: NUR-008F15C247C2PC

This Test report is Issued under the Authority of
Tri M. Luu
Vice President of Engineering
UltraTech Group of Labs

Date: November 23, 2011

Report Prepared by: Dan Huynh

Tested by: Mr. Hung Trinh

Issued Date: November 23, 2011

Test Dates: May 12, 2011

- *The results in this Test Report apply only to the sample(s) tested, and the sample tested is randomly selected.*
- *This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government.*

UltraTech

3000 Bristol Circle, Oakville, Ontario, Canada, L6H 6G4
Tel.: (905) 829-1570 Fax.: (905) 829-8050
Website: www.ultratech-labs.com, Email: vic@ultratech-labs.com, Email: tri@ultratech-labs.com

FCC

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NvLap Lab Code 200093-0



SL2-IN-E-1119R



Korea KCC-RRL
CA2049

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EXHIBIT 1. INTRODUCTION

1.1. SCOPE

Reference:	FCC Part 15, Subpart C, Section 15.247
Title:	Code of Federal Regulations (CFR), Title 47 – Telecommunication, Part 15
Purpose of Test:	Class II Permissive Change filing for operation in 802.11b/g modes in portable application.
Test Procedures:	American National Standards Institute ANSI C63.10 - American National Standard for Testing Unlicensed Wireless Devices
Environmental Classification:	[x] Commercial, industrial or business environment [] Residential environment

1.2. RELATED SUBMITTAL(S)/GRANT(S)

None.

1.3. NORMATIVE REFERENCES

Publication	Year	Title
47 CFR Parts 0-19	2010	Code of Federal Regulations (CFR), Title 47 – Telecommunication
ANSI C63.10	2009	American National Standard for Testing Unlicensed Wireless Devices
ANSI C63.4	2003	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
CISPR 22 & EN 55022	2008-09, Edition 6.0 2006	Information Technology Equipment - Radio Disturbance Characteristics - Limits and Methods of Measurement
CISPR 16-1-1 +A1 +A2	2006 2006 2007	Specification for radio disturbance and immunity measuring apparatus and methods. Part 1-1: Measuring Apparatus
CISPR 16-1-2 +A1 +A2	2003 2004 2006	Specification for radio disturbance and immunity measuring apparatus and methods. Part 1-2: Conducted disturbances
KDB Publication No. 558074	2005	Guidance on Measurements for Digital Transmission Systems (47 CFR 15.247)

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3000 Bristol Circle, Oakville, Ontario, Canada L6H 6G4
Tel. #: 905-829-1570, Fax. #: 905-829-8050, Email: vic@ultratech-labs.com, Website: <http://www.ultratech-labs.com>

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November 23, 2011

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EXHIBIT 2. PERFORMANCE ASSESSMENT

2.1. CLIENT INFORMATION

APPLICANT	
Name:	PediaVision Holdings LLC
Address:	P.O. Box 953007 Lake Mary, FL 32795 USA
Contact Person:	Mr. Ian Cristan Phone #: 888-514-7338 Fax #: 407-641-9444 Email Address: ian.cristan@pediavision.com

MANUFACTURER	
Name:	Mack Molding Company
Address:	608 Warm Brook Road Arlington, VT 05250 USA
Contact Person:	Ms. Wanda Knowles Phone #: 802-375-0525 Fax #: n/a Email Address: wanda.knowles@mack.com

2.2. EQUIPMENT UNDER TEST (EUT) INFORMATION

The following information (with the exception of the Date of Receipt) has been supplied by the applicant.

Brand Name:	PediaVision Holdings LLC
Product Name:	Spot
Model Name or Number:	VS100
Serial Number:	Test Sample
Type of Equipment:	Digital Transmission System
Input Power Supply Type:	11.1 V Lithium-Ion battery pack or 15 VDC from external AC/DC adapter
Primary User Functions of EUT:	Vision pre-scanning for people

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2.3. EUT'S TECHNICAL SPECIFICATIONS

TRANSMITTER	
Equipment Type:	Portable
Intended Operating Environment:	Commercial, industrial or business environment
Power Supply Requirement:	12VDC
RF Output Power Rating:	802.11b: 0.03342 W 802.11g: 0.001928 W
Operating Frequency Range:	2412 to 2462 MHz
RF Output Impedance:	50 Ω
Duty Cycle:	Continuous
Antenna Connector Type:	Integral

2.4. ANTENNA DESCRIPTION

Manufacturer:	Wistron NeWeb Corp.
Type:	S-Dual band ANT With Cable ϕ 1.37mm(Black) L=100mm I-PEX Connector
Model:	81.XS215.001
Frequency Range:	2.4Ghz – 2.5Ghz/5.15Ghz-5.85Ghz
Impedance:	50 Ω
Gain:	2 dBi (typical)

2.5. LIST OF EUT'S PORTS

Port Number	EUT's Port Description	Number of Identical Ports	Connector Type	Cable Type (Shielded/Non-shielded)
1	Service port for software updates via USB stick	1	USB	No cable allowed
2	DC IN	1	DC Jack	Non-shielded

2.6. ANCILLARY EQUIPMENT

The EUT was tested while connected to the following representative configuration of ancillary equipment necessary to exercise the ports during tests:

Ancillary Equipment # 1	
Description:	AC/DC Power Adapter
Brand name:	Elpac Power System
Model Name or Number:	MW4015F
Serial Number:	006533
Connected to EUT's Port:	DC jack

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EXHIBIT 3. EUT OPERATING CONDITIONS AND CONFIGURATIONS DURING TESTS

3.1. CLIMATE TEST CONDITIONS

The climate conditions of the test environment are as follows:

Temperature:	21°C
Humidity:	51%
Pressure:	102 kPa
Power Input Source:	15VDC from supplied external AC power supply

3.2. OPERATIONAL TEST CONDITIONS & ARRANGEMENT FOR TESTS

Operating Modes:	Each of lowest, middle and highest channel frequencies transmits continuously for emissions measurements.
Special Test Software & Hardware:	Special software provided by the applicant was installed to allow the EUT to operate at each channel frequency continuously. For example, the transmitter will be operated at each of lowest, middle and highest frequencies individually continuously during testing.
Transmitter Test Antenna:	The EUT is tested with the antenna fitted in a manner typical of normal intended use.

Transmitter Test Signals	
Frequency Band(s):	2412 – 2462 MHz
Frequency(ies) Tested: (Near lowest, near middle & near highest frequencies in the frequency range of operation.)	2412, 2437, 2462 MHz
RF Power Output: (measured maximum output power at antenna terminals)	15.24 dBm (33.42 mW) Peak conducted power
Normal Test Modulation:	OFDM and CCK
Modulating Signal Source:	Internal

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EXHIBIT 4. SUMMARY OF TEST RESULTS

4.1. LOCATION OF TESTS

All of the measurements described in this report were performed at Ultratech Group of Labs located in the city of Oakville, Province of Ontario, Canada.

- AC Power Line Conducted Emissions were performed in UltraTech's shielded room, 24'(L) by 16'(W) by 8'(H).
- Radiated Emissions were performed at the Ultratech's 3-10 TDK Semi-Anechoic Chamber situated in the Town of Oakville, province of Ontario. This test site been calibrated in accordance with ANSI C63.4, and found to be in compliance with the requirements of Sec. 2.948 of the FCC Rules. The descriptions and site measurement data of the Oakville 3-10 TDK Semi-Anechoic Chamber has been filed with FCC office (FCC File No.: 91038) and Industry Canada office (Industry Canada File No.: 2049A-3). Expiry Date: 2014-04-04.

4.2. APPLICABILITY & SUMMARY OF EMC EMISSION TEST RESULTS

FCC Section(s)	Test Requirements	Compliance (Yes/No)
15.207(a)	Power Line Conducted Emissions	See note
15.247(a)(2)	6 dB Bandwidth	See note
15.247(b)(3)	Peak Conducted Output Power - DTS	Yes
15.247(d)	Band-Edge and RF Conducted Spurious Emissions at the Transmitter Antenna Terminal	See note
15.247(d), 15.209 & 15.205	Transmitter Spurious Radiated Emissions	See note
15.247(e), (f)	Power Spectral Density	See note
15.247(i), 1.1307, 1.1310, 2.1091 & 2.1093	RF Exposure	Yes
NOTE: Tests are not required for this Class II Permissive Change.		

4.3. MODIFICATIONS INCORPORATED IN THE EUT FOR COMPLIANCE PURPOSES

None.

EXHIBIT 5. MEASUREMENTS, EXAMINATIONS & TEST DATA FOR EMC EMISSIONS

5.1. TEST PROCEDURES

This section contains test results only. Details of test methods and procedures can be found in ANSI C63.10 and KDB Publication No. 558074: Guidance on Measurements for Digital Transmission Systems.

5.2. MEASUREMENT UNCERTAINTIES

The measurement uncertainties stated were calculated in accordance with the requirements of CISPR 16-4-2 @ IEC:2003 and JCGM 100:2008 (GUM 1995) – Guide to the Expression of Uncertainty in Measurement. Please refer to Exhibit 7 for Measurement Uncertainties.

5.3. MEASUREMENT EQUIPMENT USED

The measurement equipment used complied with the requirements of the Standards referenced in the Methods & Procedures ANSI C63.4 and CISPR 16-1-1.

5.4. ESSENTIAL/PRIMARY FUNCTIONS AS DECLARED BY THE MANUFACTURER

Vision pre-scanning for people.

5.5. PEAK CONDUCTED OUTPUT POWER - DTS [§ 15.247(b)(3)]

5.5.1. Limit(s)

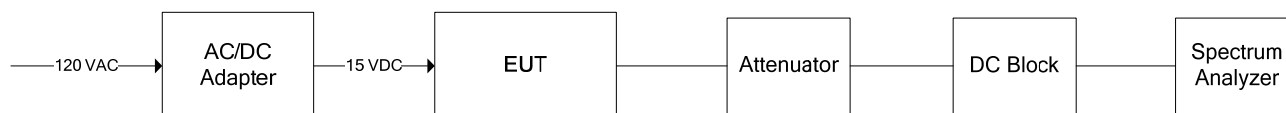
§ 15.247(b)(3): For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the *maximum conducted output power* is the highest total transmit power occurring in any mode.

§15.247(b)(4): The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

5.5.2. Method of Measurements & Test Arrangement

ANSI C63.10, Section 6.10.2.

5.5.3. Test Arrangement

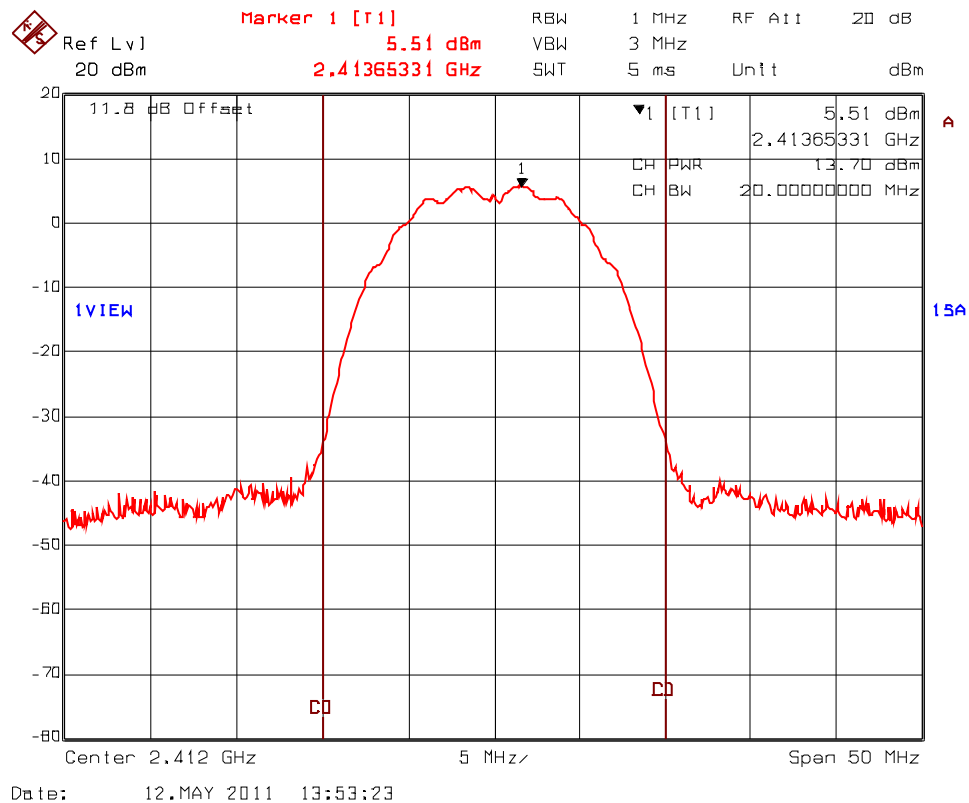


5.5.4. Test Data

Frequency (MHz)	Max. Power (dBm)	Max. Power (mW)	Limit (mW)
2412	13.70	23.44	1000
2437	14.68	29.37	1000
2462	15.24	33.42	1000

See the following plots for detailed test results.

Plot 5.5.4.1. Conducted Power, 2412 MHz



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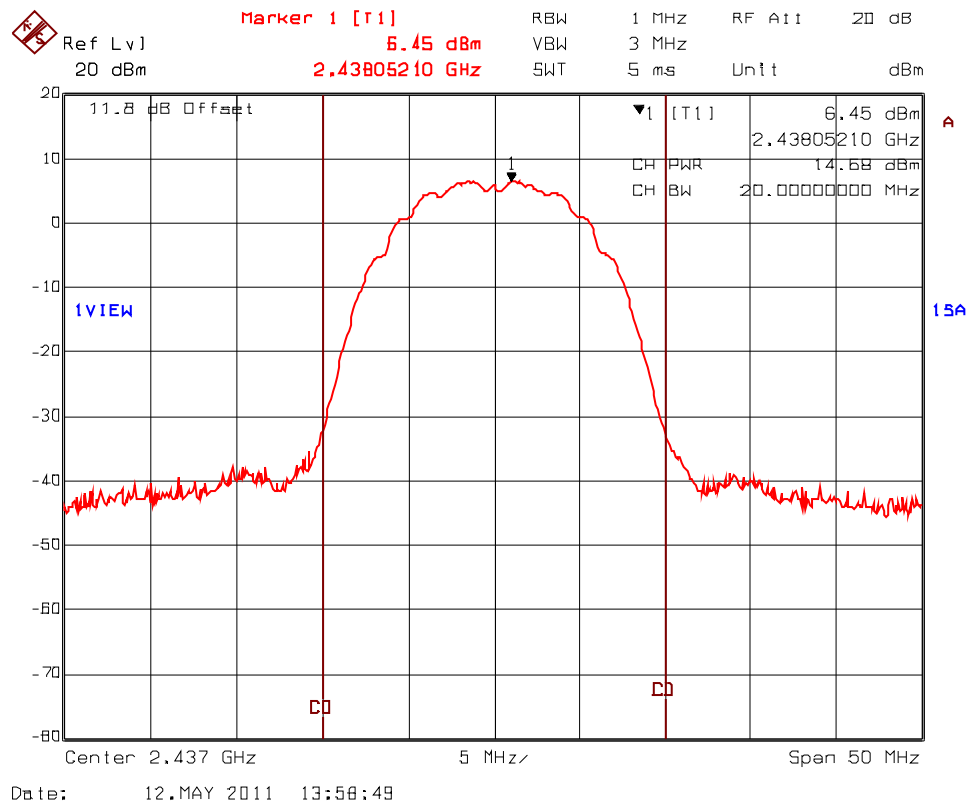
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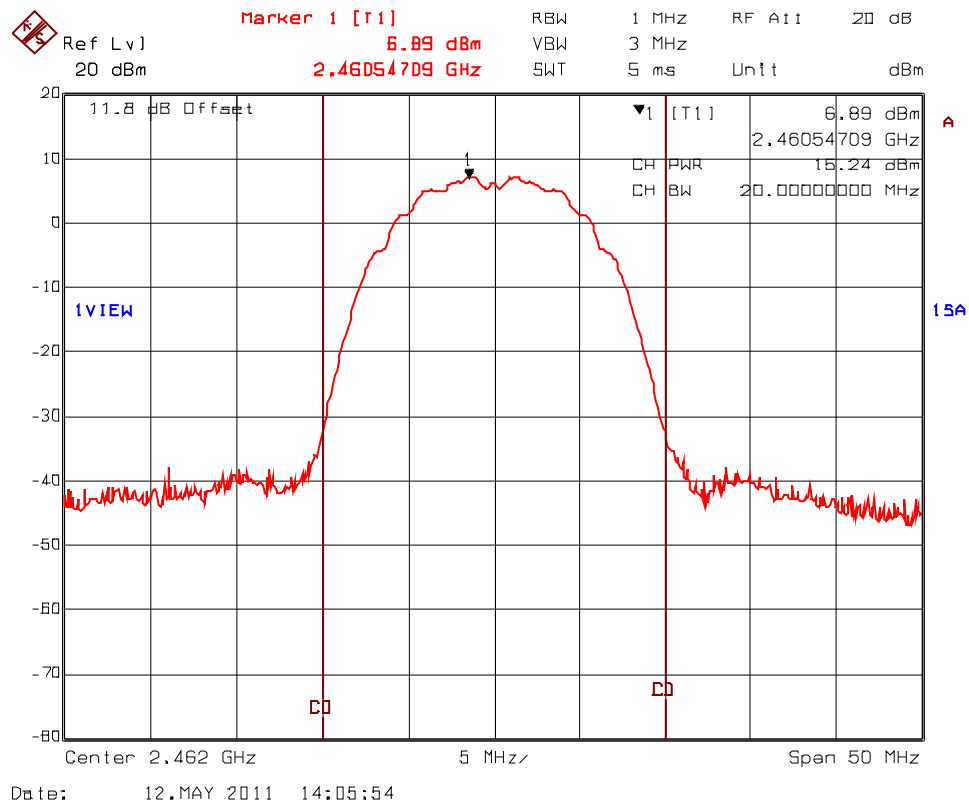
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Plot 5.5.4.2. Conducted Power, 2437 MHz



Plot 5.5.4.3. Conducted Power, 2462 MHz



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EXHIBIT 6. TEST EQUIPMENT LIST

Test Instruments	Manufacturer	Model No.	Serial No.	Frequency Range	Cal. Due Date
Spectrum Analyzer	Rohde & Schwarz	FSEK20/B4/B2	834157/005	9 kHz – 40 GHz	18 Jul 2012
Attenuator	Narda	4768-10	-	DC – 40 GHz	Cal. on use
DC-Block	Hewlett Packard	11742A	12460	0.045-26.5 GHz	Cal. on use

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EXHIBIT 7. MEASUREMENT UNCERTAINTY

The measurement uncertainties stated were calculated in accordance with the requirements of CISPR 16-4-2 @ IEC:2003 and JCGM 100:2008 (GUM 1995) – Guide to the Expression of Uncertainty in Measurement.

7.1. LINE CONDUCTED EMISSION MEASUREMENT UNCERTAINTY

	Line Conducted Emission Measurement Uncertainty (150 kHz – 30 MHz):	Measured	Limit
u_c	Combined standard uncertainty: $u_c(y) = \sqrt{\sum_{i=1}^m u_i^2(y)}$	± 1.57	± 1.8
U	Expanded uncertainty U: $U = 2u_c(y)$	± 3.14	± 3.6

7.2. RADIATED EMISSION MEASUREMENT UNCERTAINTY

	Radiated Emission Measurement Uncertainty @ 3m, Horizontal (30-1000 MHz):	Measured	Limit
u_c	Combined standard uncertainty: $u_c(y) = \sqrt{\sum_{i=1}^m u_i^2(y)}$	± 2.15	± 2.6
U	Expanded uncertainty U: $U = 2u_c(y)$	± 4.30	± 5.2

	Radiated Emission Measurement Uncertainty @ 3m, Vertical (30-1000 MHz):	Measured	Limit
u_c	Combined standard uncertainty: $u_c(y) = \sqrt{\sum_{i=1}^m u_i^2(y)}$	± 2.39	± 2.6
U	Expanded uncertainty U: $U = 2u_c(y)$	± 4.78	± 5.2

	Radiated Emission Measurement Uncertainty @ 3 m, Horizontal & Vertical (1 – 18 GHz):	Measured	Limit
u_c	Combined standard uncertainty: $u_c(y) = \sqrt{\sum_{i=1}^m u_i^2(y)}$	± 1.87	Under consideration
U	Expanded uncertainty U: $U = 2u_c(y)$	± 3.75	Under consideration

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