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FCC PART 15.209 LOW POWER UNLICENSED INTENTIONAL RADIATOR TEST REPORT

Applicant	VERICHIP CORP.
Address	13551 COMMERCE PARKWAY SUITE 100 RICHMOND BRITISH COLUMBIA V6V 2L1 CANADA
FCC ID	HE7VH2R
Model Number	VH2R
Product Description	135 kHz Handheld Transmitter
Date Sample Received	9/18/2006
Date Tested	9/21/2006
Tested By	Richard Block
Approved By	Mario de Aranzeta
Report Number	2643AUT6TestRepot
Test Results	☒ PASS ☐ FAIL

**THE ATTACHED REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL
WITHOUT THE WRITTEN APPROVAL OF TIMCO ENGINEERING, INC.**



Certificate # 0955-01

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STATEMENT OF COMPLIANCE



Certificate #0955-01

This equipment has been tested in accordance with the standards identified in the referenced test report. To the best of my knowledge and belief, these tests were performed using the measurement procedures described in this report and demonstrate that the equipment does comply with the appropriate standards.

I attest that the necessary measurements were made by me or under my supervision, at TIMCO ENGINEERING, INC. located at 849 N.W. State Road 45, Newberry, Florida 32669 USA.

Authorized by: Mario de Aranzeta



Signature:

Function: Engineer

Date: 9/25/2006

Tested by: Richard Block

Signature: on file

Date: 9/21/2006

GENERAL INFORMATION

Disclaimer	The test results relate only to the items tested.
Applicable Standards	FCC CFR 47, Pt 15.209, ANSI C63.4-2003
Digital Portion	In compliant with Pt15.109, Pt 15.107 requirements
Test Facility	Timco Engineering Inc 849 NW State Road 45 Newberry, FL 32669 USA.
Laboratory Condition	Temperature: 26°C, Humidity: 50%
Modification to DUT	None
Test Exercise	The DUT was placed in continuous transmit mode of operation
Supporting Equipment	Dell Laptop Model # PP07L, Verichip Bluetooth adapter

DUT Description	135 kHz Handheld Transmitter		
FCC ID	HE7VH2R		
IC Label	2877A-VH2R		
Model Number	VH2R		
Serial Number	N/A		
Trade Name	Verichip H2 Reader		
Operating Frequency	135 kHz		
No. of Channels	1		
Max. Output Power	N/A		
Modulation	None		
DUT Power Source	☐ 110-120Vac/50- 60Hz		
	☐ DC Power		
	☒ Battery Operated Exclusively		
Test Item	☐ Prototype	☒ Pre-Production	☐ Production
Type of Equipment	☐ Fixed	☐ Mobile	☒ Portable
Antenna Specification	N/A		

EMC EQUIPMENT LIST

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
3/10-Meter OATS	TEI	N/A	N/A	Listed 3/27/04	3/26/07
3-Meter OATS	TEI	N/A	N/A	Listed 1/11/06	1/10/09
Antenna: Biconnical	Eaton	94455-1	1057	CAL 12/12/05	12/12/07
Antenna: Biconnical	Electro-Metrics	BIA-25	1171	CAL 4/29/05	4/29/07
Analyzer Blue Tower Quasi-Peak Adapter	HP	85650A	2811A01279	CAL 4/13/05	4/13/07
Analyzer Blue Tower RF Preselector	HP	85685A	2926A00983	CAL 9/5/05	9/5/07
Analyzer Blue Tower Spectrum Analyzer	HP	8568B	2928A04729 2848A18049	CAL 4/13/05	4/13/07
LISN	Electro-Metrics	ANS-25/2	2604	CAL 8/27/06	8/27/08
LISN	Electro-Metrics	EM-7820	2682	CAL 4/28/05	4/28/07
Antenna: Log-Periodic	Eaton	96005	1243	CAL 12/14/05	12/14/07
Antenna: Passive Loop	EMC Test Systems	EMCO 6512	9706-1211	CAL 4/27/06	4/27/08

TEST PROCEDURES

Power Line Conducted Interference: The procedure used was ANSI STANDARD C63.4-2003 using a 50uH LISN. The spectrum was scanned from .15 to 30 MHz. The bandwidth of the spectrum analyzer was 10 kHz with an appropriate sweep speed.

Radiation Interference: The test procedure used was ANSI STANDARD C63.4-2003 using an Agilent spectrum analyzer with a pre-selector. In the frequency range 10 kHz to 30 MHz the RBW was 10 kHz and from 30-1000 MHz the RBW of the spectrum analyzer was 100 kHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was 100 kHz and the video bandwidth was 300 kHz.

Occupied Bandwidth: The measurements were made with the spectrum analyzer's resolution bandwidth (RBW) = 100kHz and the video bandwidth (VBW) = 3 MHz and the span set as shown on plot.

Formula Of Conversion Factors: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB. The gain of the Pre-selector was accounted for in the Spectrum Analyzer Meter Reading.

Example:

Freq (MHz)	Meter Reading	+ ACF	+CL	= FS
33	20 dBuV	+ 10.36 dB/m	+0.40 dB	=30.76 dBuV/m @ 3m

ANSI C63.4-2003 Section 8.2.1 Measurement Procedures: The DUT was placed on a non-conducting table 80 cm above the ground plane with the DUT located in the center of the table. With the antenna vertical a preliminary scan was done at 1 meters distance, the DUT was moved to a 10.0-meter distance and the antenna height varied and also placed in a horizontal position. The frequency was scanned from 9.0 kHz to 1.0 GHz. When an emission was found, the table was rotated to produce the maximum signal strength. The DUT was measured in three (3) orthogonal planes.

RADIATION INTERFERENCE

Rules Part No.: 15.209

Requirements: Out-of-band emissions shall not exceed the level of the fundamental.

Frequency	Limits
9 to 490 kHz	2400/F (kHz) μ V/m measured @ 300 meters
490 to 1705 kHz	24000/F (kHz) μ V/m measured @ 30 meters
1705 kHz to 30 MHz	29.54 dB μ V/m measured @ 30 meters
30 – 88 MHz	40.0 dB μ V/m measured @ 3 meters
80 – 216 MHz	43.5 dB μ V/m measured @ 3 meters
216 – 960 MHz	46.0 dB μ V/m measured @ 3 meters
Above 960 MHz	54.0 dB μ V/m measured @ 3 meters

Test Data:

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity V/H	Coax Loss dB	Correction Factor dB	Field Strength dBuV/m	Margin dB
0.1	0.13	71.6	H	0.5	10.93	83.03	1.03
0.1	0.27	45.7	H	0.5	10.90	57.10	26.96

Fundamental Limit:

$2400/134 = 17.9 \text{ uV/m @ 300 meters} = 20 \log(17.9) \text{ dBuV/m} = 25.06$

40 dB/ decade correction factor on the distance

65.06 dBuV/m @ 30 meters

84.06 dBuV/m @ 10 meters

OCCUPIED BANDWIDTH

Rules Part No.: FCC Part 2.1049

Requirements: The field strength of any emissions appearing between the band edges below the level of the un-modulated carrier or to the general limits of 15.209, whichever permits the higher emission levels.

Test Data: The DUT emits a CW signal. No plot required.

POWER LINE CONDUCTED INTERFERENCE

Rules Part No.: Part 15.207 Class B

Requirements:

Frequency (MHz)	Quasi Peak Limits (dBuV)	Average Limits (dBuV)
0.15 – 0.5	66 – 56	56 – 46
0.5 – 5.0	56	46
5.0 – 30	60	50

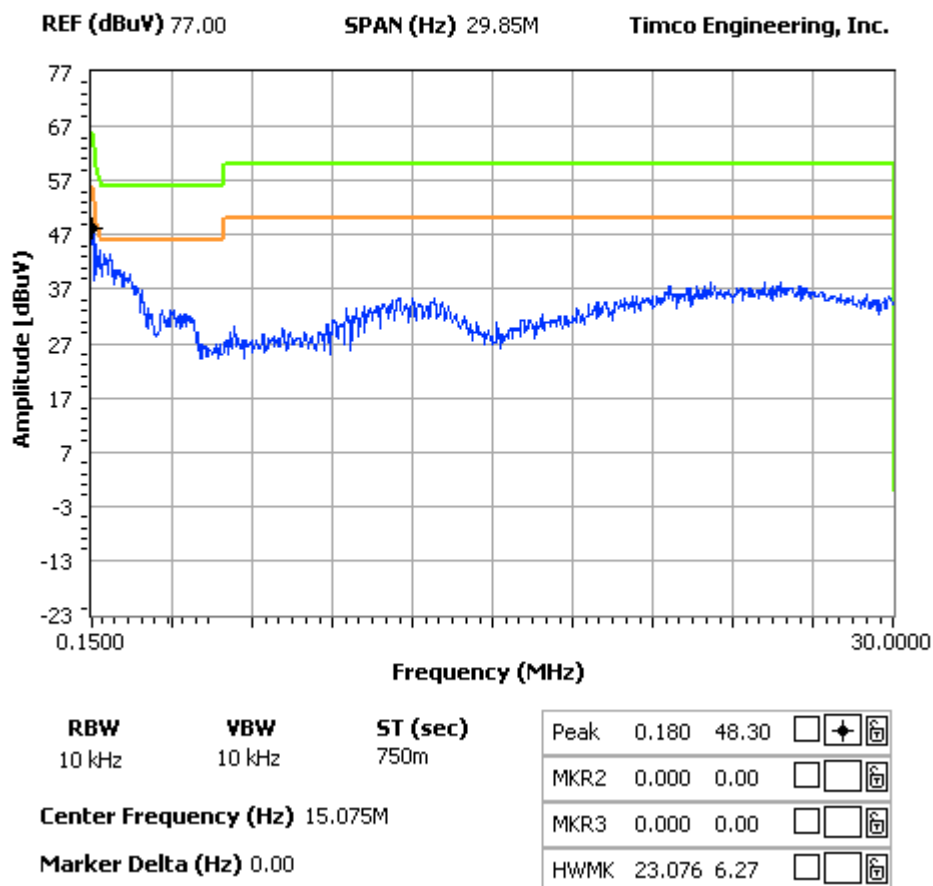
Test Data: The attached plots represent the power line conducted emissions. Both sides of the line were observed.

POWERLINE CONDUCTED EMISSIONS – LINE 1

NOTES:

POWER LINE CONDUCTED -- LINE 1
VERICHIP CORP. -- FCC ID: HE7 VH2R

FCC 15.107 Mask Class B



Applicant: Verichip Corp.

FCC ID: HE7VH2R

Report: V:\V\VERICHIP\2643AUT6\2643AUT6TestReport.doc

POWERLINE CONDUCTED EMISSIONS – LINE 2

NOTES:

POWER LINE CONDUCTED -- LINE 2
VERICHIP CORP. -- FCC ID: HE7 VH2R

FCC 15.107 Mask Class B

