849 NW STATE ROAD 45
NEWBERRY, FL 32669 USA
PH: 888.472.2424 OR 352.472.5500
FAX: 352.472.2030
EMAIL: TEI@TIMCOENGR.COM
HTTP://WWW.TIMCOENGR.COM

FCC TYPE APPROVAL TEST REPORT

COMPOSITE DEVICE UNDER

PART 15.209

APPLICANT	Verichip Corporation
ADDRESS	13551 Commerce Parkway Suite 100
	Richmond, British Columbia V6V 2L1 Canada
FCC ID	HE7PTR
MODEL NUMBER	PTR
PRODUCT DESCRIPTION	RFID Tag Reader, 307 kHz
DATE SAMPLE RECEIVED	March 8, 2006
DATE TESTED	March 17, 2006
TESTED BY	Joe Scoglio
APPROVED BY	Mario R. de Aranzeta C.E.T.
TIMCO REPORT NO.	493AUT6TestReport
TEST RESULTS	☒ PASS ☐ FAIL

TABLE OF CONTENTS

GENERAL INFORMATION

EUT Specification

The test results relate only to the items tested.		
FCC ID	HE7PTR	
Model Number	PTR	
Serial Number	N/A	
Product Description	RFID Tag Reader, Composite Device	
Operating Frequency	307 kHz	
EUT Power	*Primary Power*	110VAC/60HZ
	Secondary Power	N/A
Test Item	☒ Prototype	
	☐ Pre-Production	
	☐ Production	
Type of Equipment	☐ Fixed	
	☒ Mobile	
	☐ Portable	

Test standards
FCC Part 15, Subparts B and C, IC RSS-213 & ICES-003, ANSI C63.17 - 1998 (or 2005 Draft where applicable) & ANSI C63.4 – 2003

Modification to the DUT
No modification was made to the DUT during testing.

Test exercise (e.g software description, test signal, etc.)
The EUT was set in continuous transmit mode of operation.

Test Facility
All tests are carried out at Timco Engineering Inc. at the address of 849 NW State Road 45 Newberry, FL 32669.

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
Biconnical Antenna	Eaton	94455-1	1057	CAL 12/12/05	12/12/07
Biconnical Antenna	Eaton	94455-1	1096	CAL 8/17/04	8/17/06
Biconnical Antenna	Electro-Metrics	BIA-25	1171	CAL 4/29/05	4/29/07
Analyzer Tan Tower Preamplifier	HP	8449B-H02	3008A00372	CAL 12/8/05	12/8/07
Analyzer Tan Tower Quasi-Peak Adapter	HP	85650A	3303A01690	CAL 12/8/05	12/8/07
Analyzer Tan Tower RF Preselector	HP	85685A	3221A01400	CAL 12/7/05	12/7/07
Analyzer Tan Tower Spectrum Analyzer	HP	8566B Opt 462	3138A07786 3144A20661	CAL 12/7/05	12/7/07
LISN	Electro-Metrics	ANS-25/2	2604	CAL 8/27/04	8/27/06
LISN	Electro-Metrics	EM-7820	2682	CAL 4/28/05	4/28/07
Log-Periodic Antenna	Eaton	96005	1243	CAL 12/14/05	12/14/07
Active Loop Antenna	ETS-Lindgren	6502	00062529	CAL 3/30/06	3/30/08

TEST PROCEDURE

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.4-2003 using a HEWLETT PACKARD spectrum analyzer with a preselector. The bandwidth 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. The ambient temperature of the UUT was 98.3°F with a humidity of 40%.

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 Preselector was accounted for in the Spectrum Analyzer Meter Reading.

Example:
Freq (MHz) METER READING + ACF = FS
33 20 dBuV + 10.36 dB = 30.36 dBuV/m @ 3m

ANSI STANDARD C63.4-2003 10.1.7 MEASUREMENT PROCEDURES: The UUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The UUT was placed in the center of the table. The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to 10th harmonic of the fundamental.

Peak readings were taken in three (3) orthogonal planes and the highest readings were converted to average readings based on the duration of "ON" time.

When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

POWER LINE CONDUCTED INTERFERENCE

Rules part no.: 15.107(a)

Requirements:

Part 15.107 (a)		
Emission Frequency (MHz)	FCC Conducted Limit (dBµV)	
	Quasi-peak (QP)	Average (AV)
0.15 – 0.5	66 to 56 *	56 to 46 *
0.5 – 5	56	46
5 – 30	60	50
* Decreases with the logarithm of the frequency.		

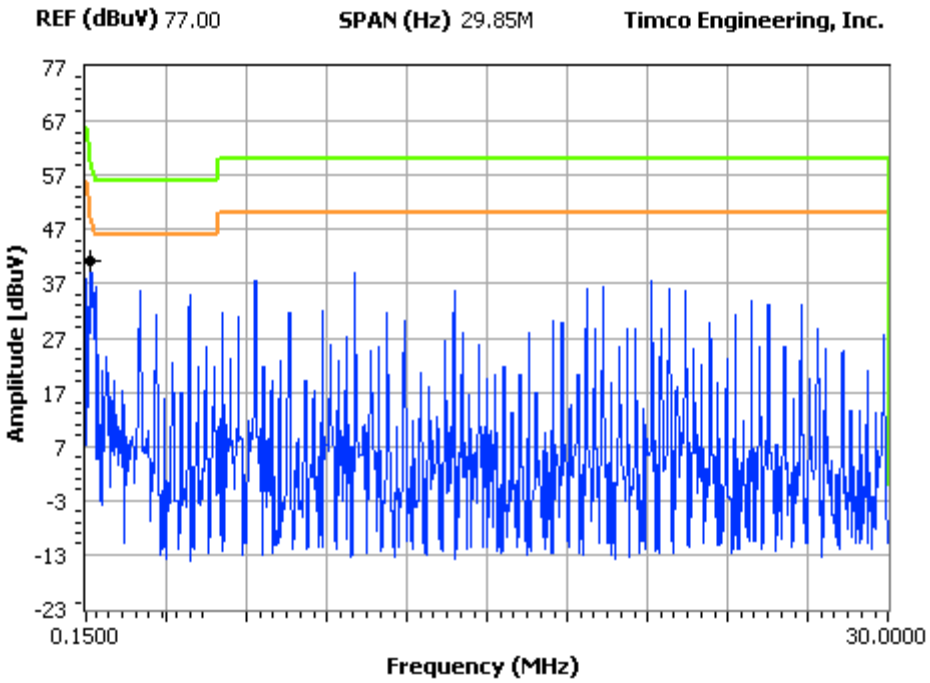
Test procedure: The procedure used was ANSI STANDARD C63.4-2003 using 50uH LISN. Both lines were observed with the UUT transmitting. The bandwidth of the spectrum analyzer was 10 kHz with an appropriate sweep speed. The spectrum was scanned from .15 to 30 MHz.

Test data: Please refer to the following plots

NOTES:

493cut6 ac line conducted line 1

FCC 15.107 Mask Class B



RBW	VBW	ST (sec)
10 kHz	10 kHz	2

Center Frequency (Hz) 15.075M

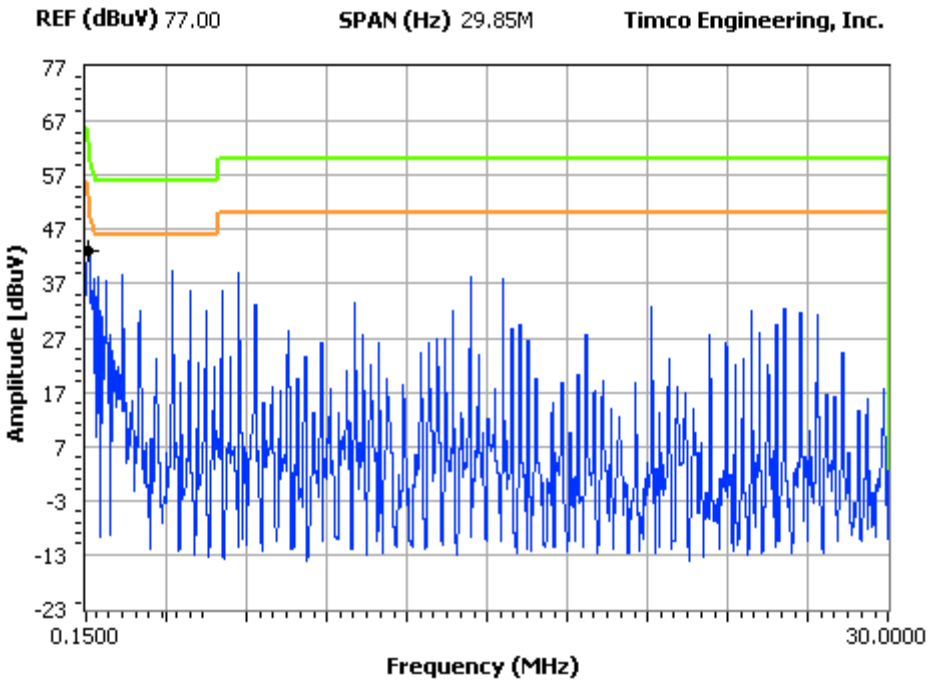
Marker Delta (Hz) 0.00

Peak	0.269	41.20
MKR2	0.000	0.00
MKR3	0.000	0.00
HWMK	23.076	6.27

NOTES:

493cut6 ac line conducted line 2

FCC 15.107 Mask Class B



RBW	VBW	ST (sec)
10 kHz	10 kHz	2

Center Frequency (Hz) 15.075M

Marker Delta (Hz) 0.00

Peak	0.240	43.10
MKR2	0.000	0.00
MKR3	0.000	0.00
HWMK	23.076	6.27

RADIATION INTERFERENCE

Rules part no.: 15.109(a) and 15.209

Requirements: **C**arrier frequency will not exceed 97.86 @ 3 meters. Out-of-band emissions shall not exceed the level of the fundamental.

Frequency Range	Limits
9 to 490 kHz	2400/F (kHz) uV/m @ 300 Meters
490 to 1705 kHz	24000/F (kHz) uV/m @ 30 Meters
490 to 1705 kHz	68.33 dBuV/m @ 3 Meters
1705 to 30 MHz	29.54 dBuV/M @ 30 Meters
30 to 88 MHz	40.00 dBuV/M @ 3 Meters
88 to 216 MHz	43.50 dBuV/M
216 to 960 MHz	46.02 dBuV/M
ABOVE 960 MHz	54.00 dBuV/M

Test procedure: The procedure used was ANSI C63.4-2003 Section 8.2. The EUT was placed on a non-conducting table 80 cm above the ground plane with the EUT located in the center of the table. With the antenna vertical a preliminary scan was done at 1 meters distance, the EUT was moved to a 3.0-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 EUT was measured in three (3) orthogonal planes.

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 EUT was measured in three (3) orthogonal planes.

Test data: as hereinafter

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
0.3	0.31	36.1	V	0	56.95	93.05	4.81
0.3	0.92	8.5	V	0	48.75	57.25	11.08

Note: Emissions attenuated more than 20 dB below the permissible value are not reported

Sample Calculation: FSdBuV/m = MR (dBuV) + ACFdB

OCCUPIED BANDWIDTH

Rules part no.: 15.209

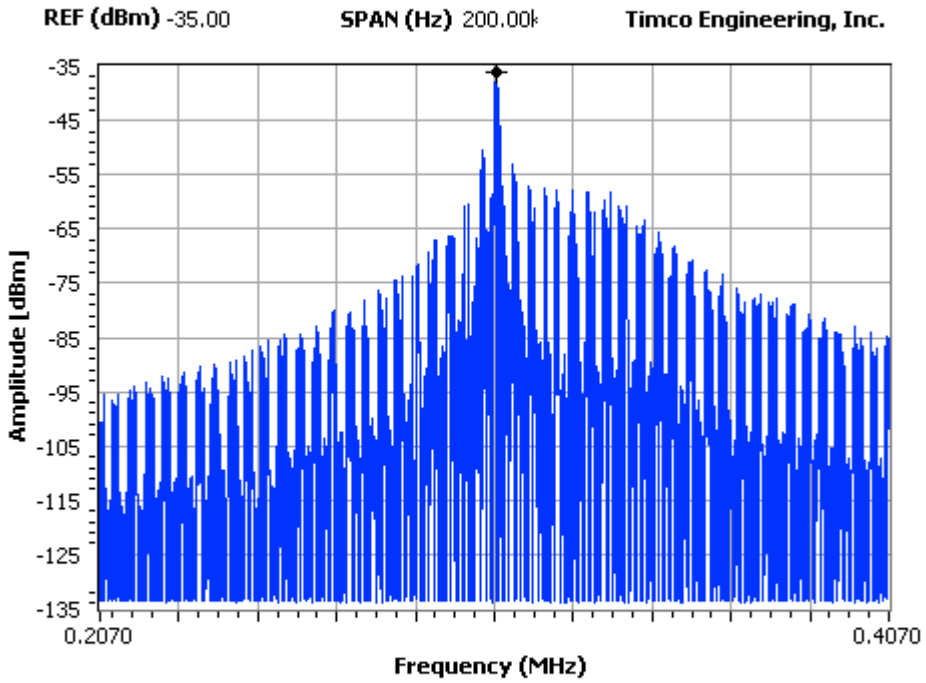
Requirements: The field strength of any emissions appearing between the band edges and up to 10 kHz above and below the band edges shall be attenuated at least 26 dB below the level of the un-modulated carrier or to the general limits of 15.209, whichever permits the higher emission levels.

Test procedure: A small sample of the transmitter output was fed into the spectrum analyzer and the above photo was taken. The vertical scale is set to -10 dBm per division.

Test data: please refer to the following plot(s)

NOTES:

493aut6 occupied bandwidth



RBW	VBW	ST (sec)
300 Hz	100 kHz	15

Center Frequency (Hz) 307.000k

Marker Delta (Hz) 0.00

Peak	0.307	-36.00
MKR2	0.000	0.00
MKR3	0.000	0.00
HWMK	23.076	6.27