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 PART 15 SUB PART C

LOW POWER TRANSMITTER

TEST REPORT

APPLICANT	VERICHIP CORP.
	13551 COMMERCE PARKWAY SUITE 100
	RICHMOND BRITISH COLUMBIA V6V 2L1 CANADA
TEL	800-667-9689
FCC ID:	HE7VACR
MODEL NUMBER	VACR
PRODUCT DESCRIPTION	VeriGuard Access Control Reader
DATE SAMPLE RECEIVED	4/24/2006
DATE TESTED	4/24/2006
TESTED BY	Joseph Scoglio
APPROVED BY	Mario de Aranzeta
TIMCO REPORT NO.	229AUT6
TEST RESULTS	☒ PASS ☐ FAIL

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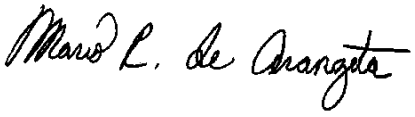
STATEMENT OF COMPLIANCE

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 complies with the appropriate standards. No modifications were made to the equipment during testing in order to demonstrate compliance with these 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.

Authorized by: Mario de Aranzeta



Signature:

Function: Engineer

Date: May 3, 2006

Tested by: Joseph Scoglio

Signature: on file

Date: April 24, 2006

GENERAL INFORMATION

EUT SPECIFICATION

The test results relate only to the items tested.		
FCC ID	HE7VACR	
IC Label	2877A-VACR	
Model Number	VACR	
Serial Number	N/A	
Product Description	VeriGuard Access Control Reader	
Operating Frequency	Under 1705 kHz	
EUT Power	*Primary Power*	110Vac/50Hz
	Secondary Power	N/A
Test Item	☐ Prototype	
	☒ Pre-Production	
	☐ Production	
Type of Equipment	☐ Fixed	
	☐ Mobile	
	☒ Portable	
Antenna	N/A	
Antenna Connector	N/A	

MODIFICATION TO THE DUT

No modification was made to the DUT during testing.

TEST CONDITION

Normal temperature and humidity

TEST EXERCISE (e.g software description, test signal, etc.)

The EUT was set in continuous transmit mode of operation.

TEST STANDARDS

ANSI C63.4 - 2003

TEST 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
Blue Tower Quasi-Peak Adapter	HP	85650A	2811A01279	CAL 4/13/05	4/13/07
Blue Tower RF Preselector	HP	85685A	2926A00983	CAL 9/5/05	9/5/07
Blue Tower Spectrum Analyzer	HP	8568B	2928A04729 2848A18049	CAL 4/13/05	4/13/07
LISN	Electro-Metrics	ANS-25/2	2604	CAL 8/27/04	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
Passive Loop Antenna	EMC Test Systems	EMCO 6512	9706-1211	CHAR 7/10/04	7/10/06

TEST PROCEDURES

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.4-2003 using a HEWLETT PACKARD 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. The ambient temperature of the UUT was 77°F with a humidity of 62%.

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 = FS
33 20 dBuV + 10.36 dB = 30.36 dBuV/m @ 3m

OCCUPIED BANDWIDTH: 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. The horizontal scale is set to 5 kHz per division.

ANSI C63.4-2003 Section 8.2.1 MEASUREMENT PROCEDURES: 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 unit was measured at TIMCO ENGINEERING, INC. located at 849 N.W. State Road 45 Newberry, Florida 32669.

RADIATION INTERFERENCE

RULES PART NO.: 15.109(a) and 15.209

REQUIREMENTS: Carrier frequency will not exceed 2400/f (kHz) at 300 meters. Out-of-band emissions shall not exceed the level of the fundamental.

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

All measurements below 30 MHz were taken using an EMC Test Systems Passive Loop Antenna.

TEST PROCEDURE: The procedure used was ANSI C63.4-2003 Section 8.2. 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 unit was measured at TIMCO ENGINEERING, INC. located at 849 N.W. State Road 45 Newberry, Florida 32669.

TEST DATA:

Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity V/H	Coax Loss dB	Correction Factor dB	Field Strength dBuV/m	Margin dB
0.13	30.9	H	0	64.74	95.64	9.66

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

TEST RESULT: The DUT showed compliance with FCC rules.

RADIATED SPURIOUS EMISSIONS

RULES PART NO.: 15.109(a) - Class B Digital Device

REQUIREMENTS:

Frequency (MHz)	Limits (dBµV/m measured @ 3 meters)
30 – 88	40.0
80 – 216	43.5
216 – 960	46.0
Above 960	54.0

TEST PROCEDURE: ANSI STANDARD C63.4-2003. The spectrum was scanned from 30 to 1000 MHz and the emissions shown below were found. The unit was measured at Timco Engineering Inc. 849 N.W. State Road 45, Newberry, FL 32669.

TEST DATA:

Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity V/H	Coax Loss dB	Correction Factor dB	Field Strength dBuV/m	Margin dB
31.90	12.1	H	0.41	13.15	25.66	14.34
31.90	16.7	V	0.41	11.68	28.79	11.21
40.00	6.1	H	0.45	11.40	17.95	22.05
40.00	11.3	V	0.45	9.70	21.45	18.55
46.80	10.4	H	0.48	11.20	22.08	17.92
46.80	19.2	V	0.48	10.46	30.14	9.86
60.00	11.9	H	0.53	11.10	23.53	16.47
60.00	19.1	V	0.53	11.50	31.13	8.87
89.70	24.2	H	0.62	8.14	32.96	10.54
89.70	24.4	V	0.62	9.40	34.42	9.08
132.90	16.4	V	0.68	13.17	30.25	13.25
132.90	16.9	H	0.68	13.10	30.68	12.82
140.00	11.0	H	0.69	13.10	24.79	18.71
140.00	11.2	V	0.69	12.80	24.69	18.81
229.00	12.5	H	0.96	11.50	24.96	21.04
229.00	14.8	V	0.96	11.20	26.96	19.04
240.00	13.2	H	0.98	12.00	26.18	19.82
240.00	13.4	V	0.98	11.90	26.28	19.72
398.30	20.1	V	1.20	15.68	36.98	9.02
398.30	23.5	H	1.20	16.05	40.75	5.25
471.90	11.2	H	1.27	17.30	29.77	16.23
471.90	15.8	V	1.27	17.14	34.21	11.79
664.50	12.1	V	1.66	20.34	34.10	11.90
664.50	13.1	H	1.66	20.48	35.24	10.76
930.10	9.6	H	2.00	23.50	35.10	10.90
930.10	14.2	V	2.00	22.70	38.90	7.10

OCCUPIED BANDWIDTH

RULES PART NO.: 15.209

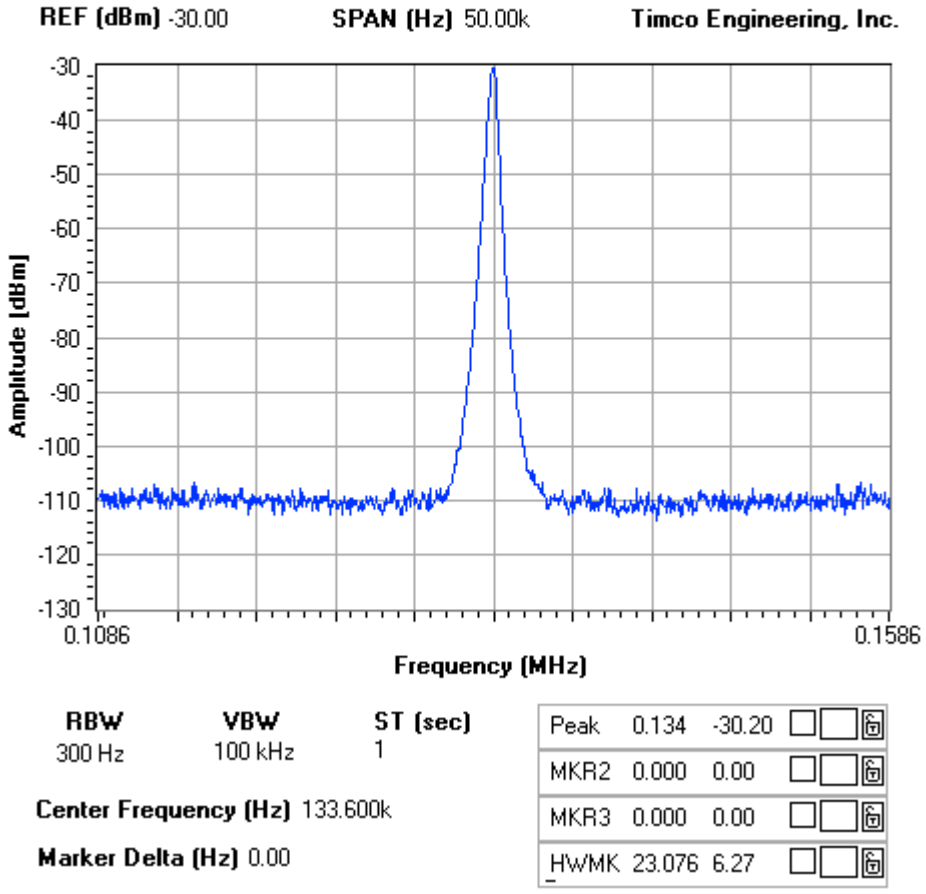
REQUIREMENTS: The field strength of any emissions appearing between the band edges and up to 10 kHz above and below the band edges shall be attenuated at least 26 dB below the level of the un-modulated carrier or to the general limits of 15.209, whichever permits the higher emission levels.

METHOD OF MEASUREMENT: 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. The horizontal scale is set to 5 kHz per division.

TEST DATA: The graph on the following page represents the emissions taken for the device.

Occupied Bandwidth Plot

NOTES:
229aut6 occupied bandwidth



POWER LINE CONDUCTED INTERFERENCE

RULES PART NO.: 15.207

REQUIREMENTS:

Frequency (MHz)	Limits (dBµV/m measured @ 3 meters)
30 – 88	40.0
80 – 216	43.5
216 – 960	46.0
Above 960	54.0

TEST PROCEDURE: ANSI STANDARD C63.4-2003. The spectrum was scanned from 0.15 to 30 MHz.

TEST DATA: The attached graphs represent the emissions read for power line conducted for this device.

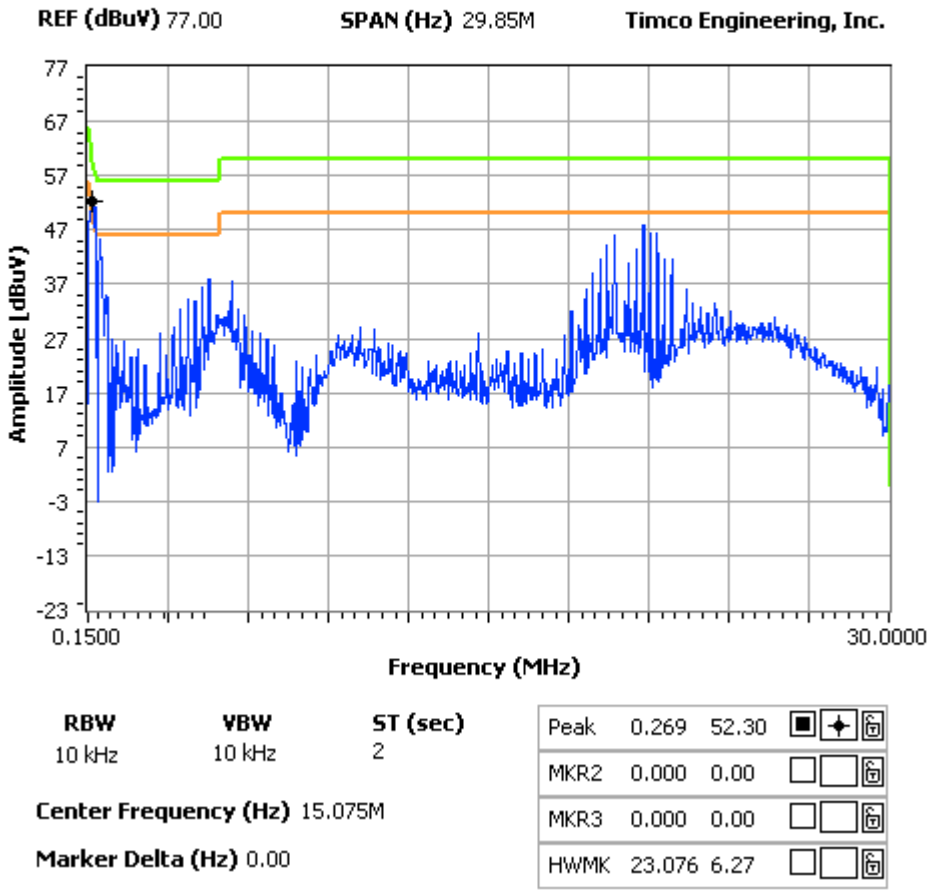
TEST RESULTS Both lines observed the requirements.

Power Line Conducted Emissions – Line 1 Peak Limits

NOTES:

229yut6 ac line conducted line 1 box #2

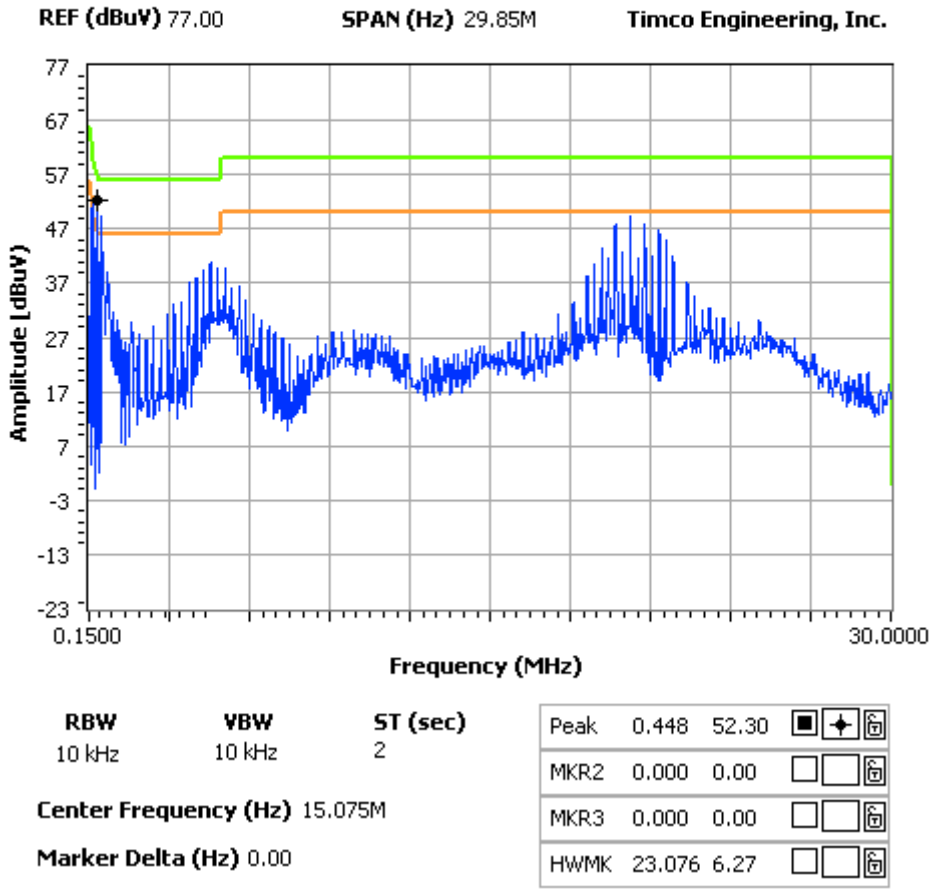
FCC 15.107 Mask Class B



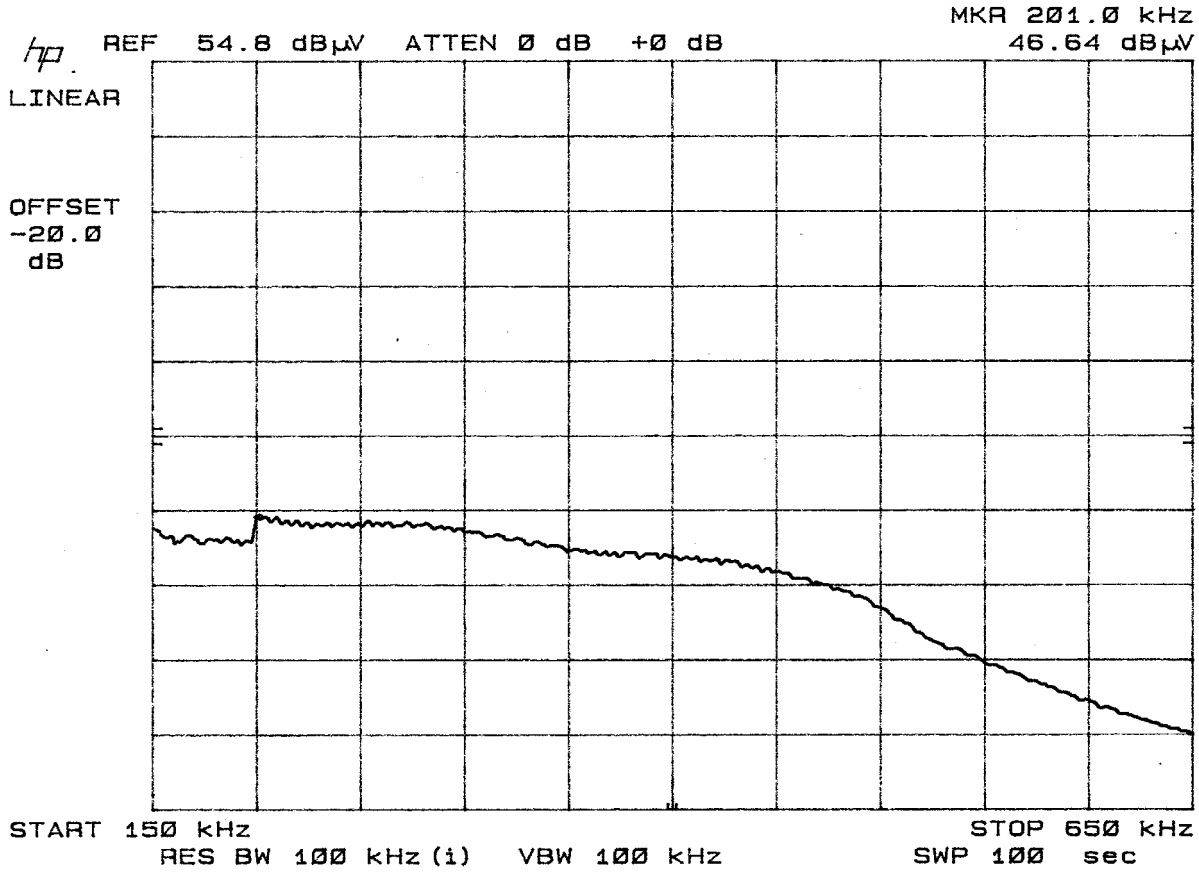
NOTES:

229yut6 ac line conducted line 2 box #2

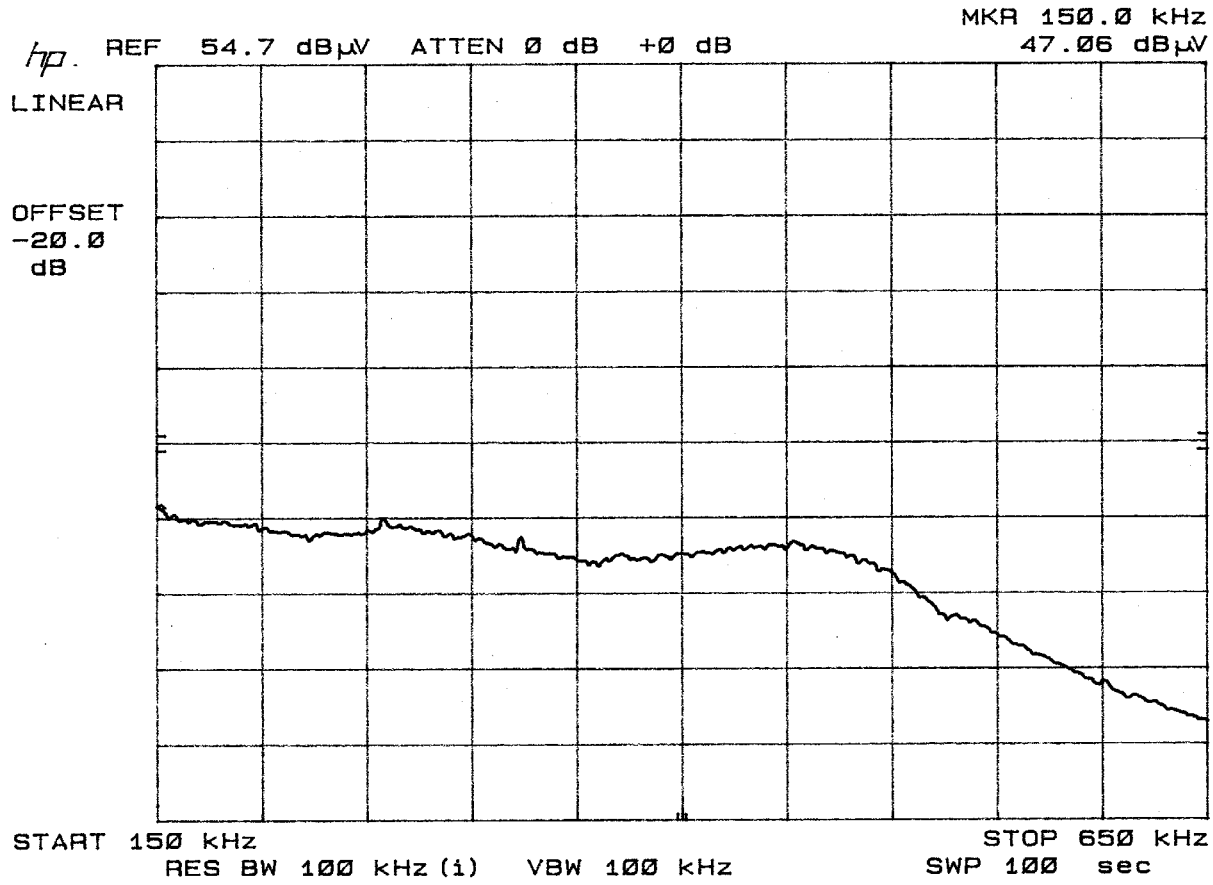
FCC 15.107 Mask Class B



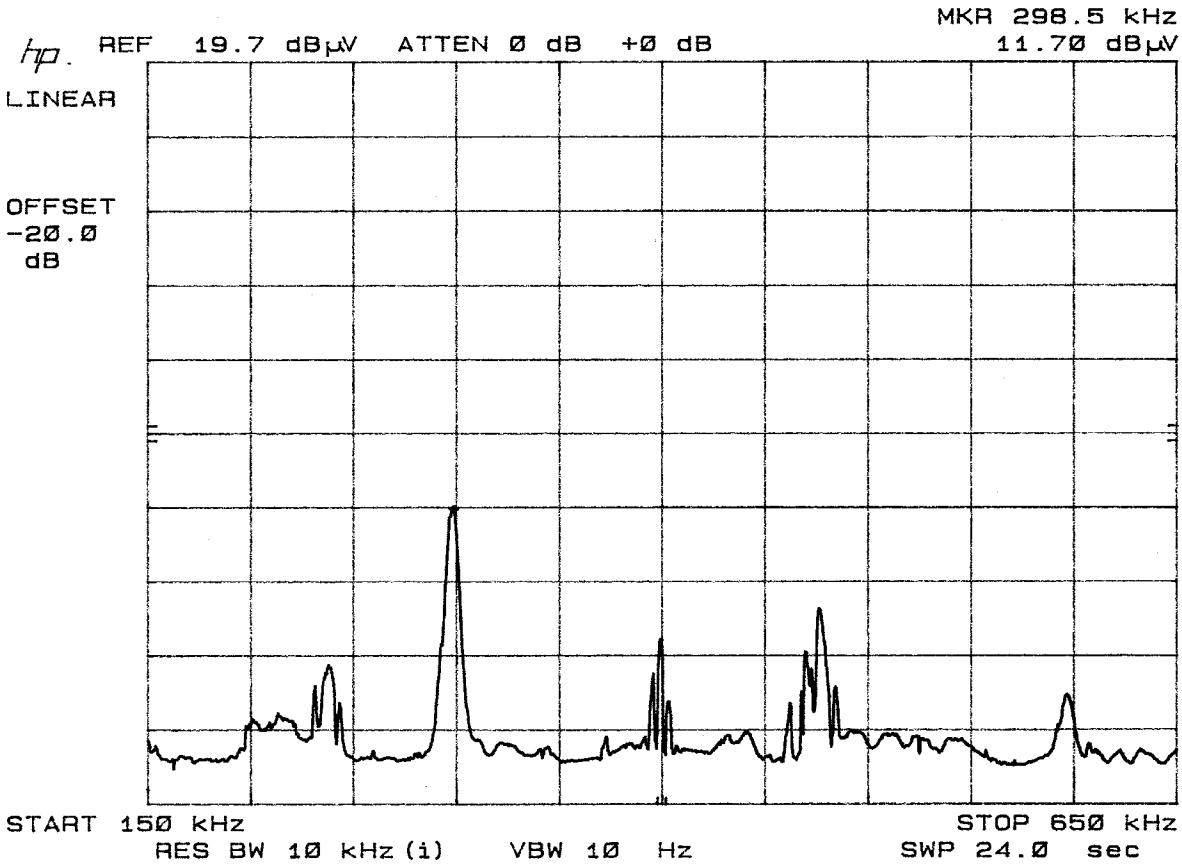
Power Line Conducted Emissions – Line 1 Quasi Peak Limits



Power Line Conducted Emissions – Line 2 Quasi Peak Limits



Power Line Conducted Emissions – Line 1 Average Limits



Power Line Conducted Emissions – Line 2 Average Limits