APPLICANT: PARKERVISION INC.

FCC ID: JFE-D2D00001

TABLE OF CONTENTS FOR A DIRECT SEQUENCE SPREAD SPECTRUM

TEST REPORT CONTAINING:

EXHIBIT ATTACHMENTS:

SEPTEMBER 4, 2003

Federal Communications Commission
Authorization and Evaluation Division
7435 Oakland Mills Road
Columbia, MD 21046

SUBJECT: PARKERVISION INC.

FCC ID: JFE-D2D00001

To Whom It May Concern:

The attached application is for a direct sequence spread spectrum PCMIA card with an integrated antenna. This card complies to the 802.11 specifications and operates in the 2412-2462 MHz band.

Should you have any questions or require any further information with regards to this, please feel free to contact me.

Sincerely,

Mario R. de Aranzeta C.E.T.

MRD/sh
Encl.

EMC Equipment List

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
3-Meter OATS	TEI	N/A	N/A	Listed 1/13/03	1/13/06
Biconnical Antenna	Eaton	94455-1	1057	CAL 3/18/03	3/18/05
Biconnical Antenna	Eaton	94455-1	1096	CAL 10/1/01	10/1/03
Double-Ridged Horn Antenna	Electro-Metrics	RGA-180	2319	CAL 2/17/03	2/17/05
LISN	Electro-Metrics	ANS-25/2	2604	CAL 10/9/01	10/9/03
LISN	Electro-Metrics	EM-7820	2682	CAL 3/12/03	3/12/05
Log-Periodic Antenna	Eaton	96005	1243	CAL 5/8/03	5/8/05
Log-Periodic Antenna	Electro-Metrics	EM-6950	632	CHAR 10/15/01	10/15/03
Log-Periodic Antenna	Electro-Metrics	LPA-25	1122	CAL 10/2/01	10/2/03
Log-Periodic Antenna	Electro-Metrics	LPA-30	409	CAL 3/4/03	3/4/05
Peak Power Meter	HP	8900C	2131A00545	CAL 7/2/03	7/2/05
Power Meter	HP	432A	1141A07655	CAL 4/15/03	4/15/05
Silver Tower Preamplifier	HP	8449B	3008A01075	CHAR 1/28/02	1/28/04
Silver Tower Quasi-Peak Adapter	HP	85650A	3303A01844	CAL 10/14/02	10/14/04
Silver Tower RF Preselector	HP	85685A	2620A00294	CAL 10/14/02	10/14/04
Silver Tower Spectrum Analyzer	HP	8566B Opt 462	3552A22064 3638A08608	CAL 10/14/02	10/14/04
Tan Tower Preamplifier	HP	8449B-H02	3008A00372	CHAR 3/4/01	3/4/03
Tan Tower Quasi-Peak Adapter	HP	85650A	3303A01690	CAL 8/31/01	8/31/03
Tan Tower RF Preselector	HP	85685A	3221A01400	CAL 8/31/01	8/31/03
Tan Tower Spectrum Analyzer	HP	8566B Opt 462	3138A07786 3144A20661	CAL 8/31/01	8/31/03
Harmonic Mixer	HP	11970K	3003A04991	N/A	N/A
HORN	SYSTRON DONNOR	DBE-520-20	N/A	N/A	N/A

TEST PROCEDURE

GENERAL: This report shall NOT be reproduced except in full without the written approval of TIMCO ENGINEERING, INC. Shielded interface cables were used in all cases except for cables connecting to the telephone line and the power cords. A test program was run which simulated a normal data transmission on a network.

POWER LINE CONDUCTED INTERFERENCE: The procedure used was ANSI STANDARD C63.4-1992 using a 50uH LISN. Both lines were observed with the UUT transmitting. The bandwidth of the spectrum analyzer was 10kHz with an appropriate sweep speed. The ambient temperature of the UUT was 76°F with a humidity of 55%.

BANDWIDTH 6.0dB: The measurements were made with the spectrum analyzer's resolution bandwidth (RBW)=1.0MHz and the video bandwidth (VBW) =3.0MHz and the span set as shown on plot.

POWER OUTPUT: The RF power output was measured at the antenna feed point using a peak power meter.

ANTENNA CONDUCTED EMISSIONS: The RBW = 100 kHz, VBW = 300 kHz and the span set to 10.0 MHz and the spectrum was scanned from 30MHz to the 10^{th} Harmonic of the fundamental. Above 1.0 GHz the resolution bandwidth was 1.0 MHz and the VBW = 3.0 MHz and the span to 50 MHz.

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.4-1992 using a HEWLETT PACKARD spectrum analyzer with a pre-selector. The bandwidth (RBW) of the spectrum analyzer was 100kHz up to 1GHz and 1.0MHz above 1GHz with an appropriate sweep speed. The VBW above 1.0GHz was = 3.0MHz. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The ambient temperature of the UUT was 53°F with a humidity of 17%.

APPLICANT: PARKERVISION INC.

FCC ID: JFE-D2D00001

NAME OF TEST: 6.0dB BANDWIDTH

RULES PART NO.: 15.247(a)(2)

REQUIREMENTS: The 6.0dB bandwidth must be greater than 500 kHz.

MEASUREMENT: See plot on next page.

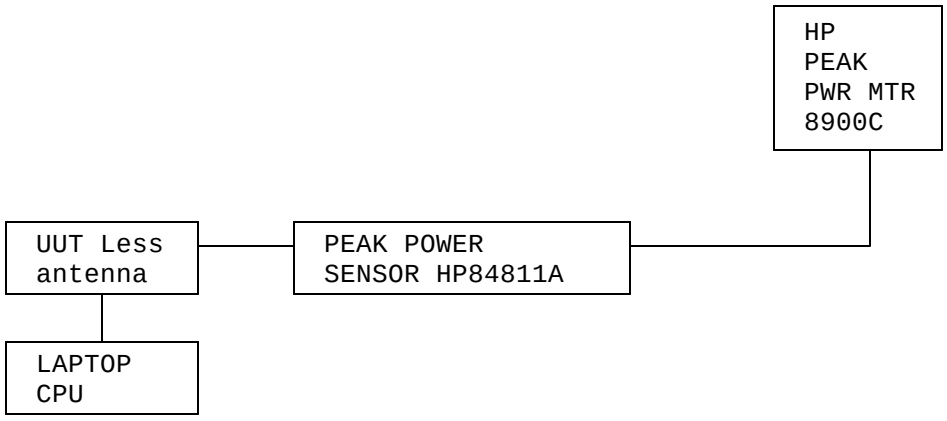
MEASUREMENT DATA: See plot

NAME OF TEST: POWER OUTPUT

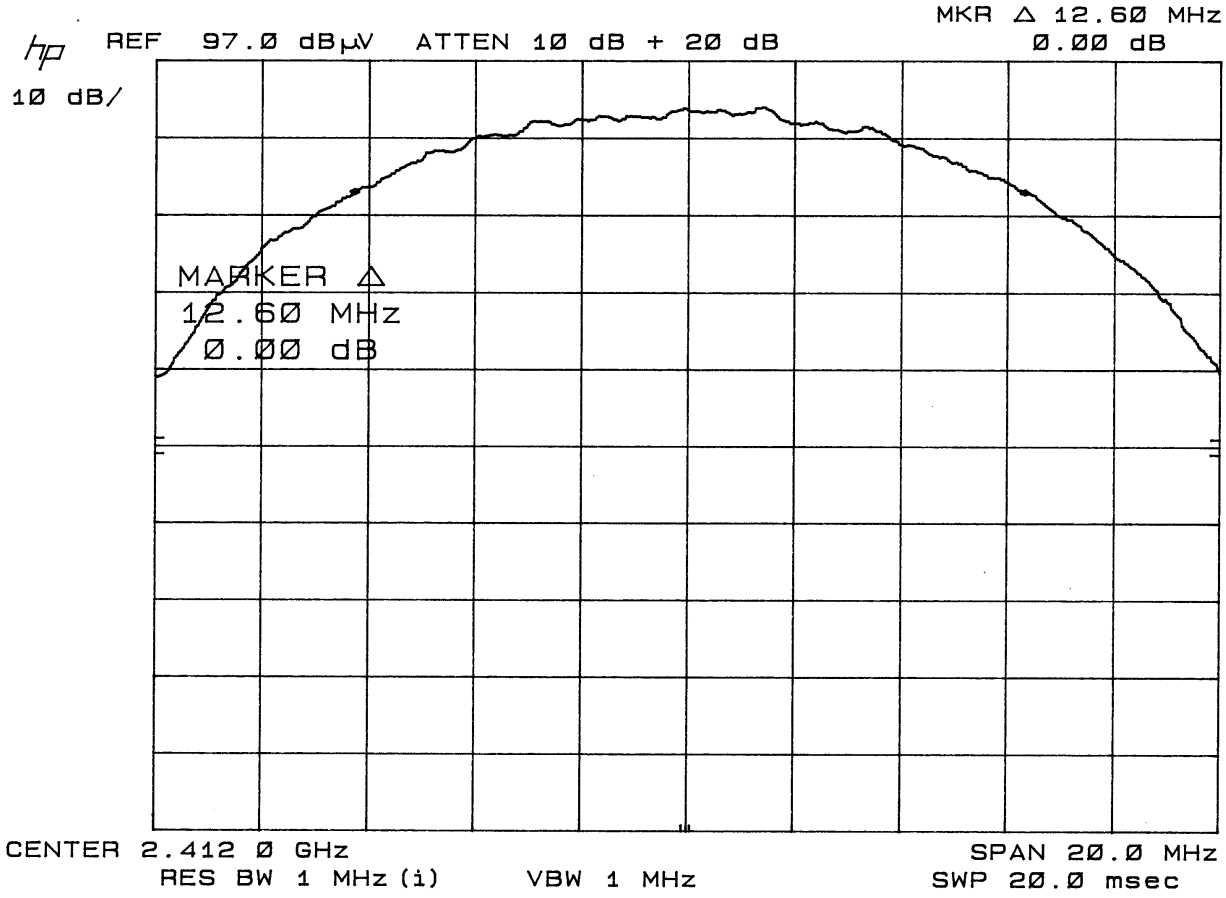
RULES PART NO.: 15.247(b) 1.0Watt or +30dBm

MEASUREMENT: 21.2 dBm at 2412 MHz

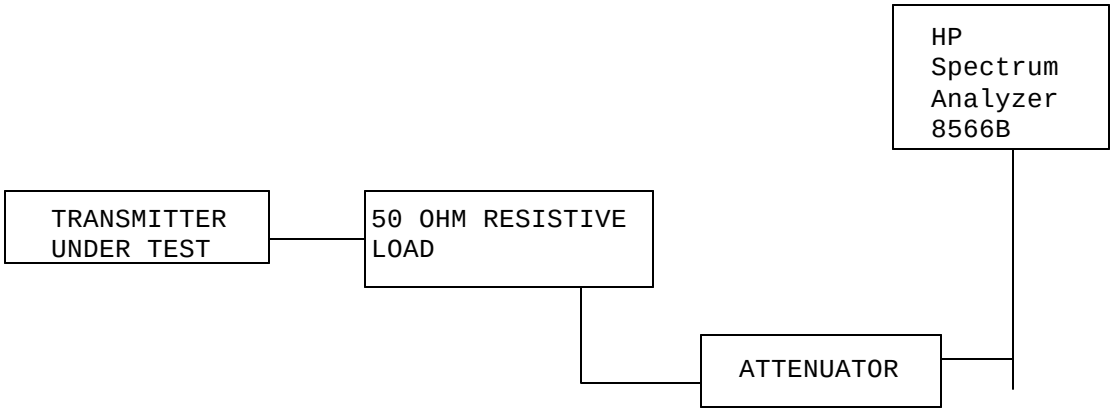
15.247(c) Method of Measuring RF Power output: The Peak power Sensor was connected in place of the antenna. Measurements were made on 3 channels and the highest is reported above.



6 dB BANDWIDTH PLOT



15.247(c) Method of Measuring RF Conducted Spurious Emissions



NAME OF TEST: SPURIOUS EMISSIONS AT ANTENNA TERMINALS

REQUIREMENTS: Emissions must be at least 20dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.

EMISSION FREQUENCY ___MHz___	dB BELOW CARRIER _____
2412	0
804	57
2327	61.9
3220	73.6
4830	74.9
2435	0
812	55.9
2318	61.94
4874	70.94
5688	76.1
2462	0
820	54.6
4102	67.9
5745	73.6
7385	69.1
10,665	73
12,306	61.2
13,951	69.9

NOTE: THE SPECTRUM WAS SCANNED TO THE TENTH HARMONIC.

15.247(c), 15.205 &15.209(b) Field_strength_of_spurious_emissions:

REQUIREMENTS:

FIELD STRENGTH	FIELD STRENGTH	S15.209
of Fundamental:	of Harmonics	30 - 88 MHz 40 dBuV/m @3M
902-928MHz		88 -216 MHz 43.5
2.4-2.4835GHz		216 -960 MHz 46
127.38dBuV/m @3m	54 dBuV/m @3m	ABOVE 960 MHz 54dBuV/m

EMISSIONS RADIATED OUTSIDE OF THE SPECIFIED FREQUENCY BANDS, EXCEPT FOR HARMONICS, SHALL BE ATTENUATED BY AT LEAST 50 dB BELOW THE LEVEL OF THE FUNDAMENTAL OR TO THE GENERAL RADIATED EMISSION LIMITS IN 15.209, WHICHEVER IS THE LESSER ATTENUATION.

REQUIREMENTS: Emissions that fall in the restricted bands (15.205) must be less than 54 dBuV/m otherwise the spurious and harmonics must be attenuated by at least 20dB.

TEST DATA: Peak Emissions

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity	Coax Loss dB	Correction Factor dB	Field Strength dBuV/m
2,412.0	803.00	27.9	H	4.01	24.06	55.97
2,412.0	803.00	32.6	V	4.01	22.68	59.29
2,412.0	1,608.00	20.2	V	2.59	27.29	50.08
2,412.0	1,608.00	22.9	H	2.59	27.27	52.76
2,412.0	2,412.00	70.8	H	3.33	29.26	103.39
2,412.0	2,412.00	79.7	V	3.33	29.28	112.31
2,412.0	3,216.00	17.8	V	4.02	30.93	52.75
2,412.0	3,216.00	18.5	H	4.02	30.98	53.50
2,412.0	4,019.00	13.3	H	4.83	33.10	51.23
2,412.0	4,019.00	15.0	V	4.83	32.90	52.73
2,412.0	4,824.00	13.4	H	5.95	34.14	53.49
2,412.0	4,824.00	15.9	V	5.95	34.04	55.89
2,412.0	7,237.00	10.0	V	7.05	36.75	53.80
2,437.0	4,874.00	15.0	H	6.02	34.30	55.32
2,437.0	4,874.00	19.0	V	6.02	34.20	59.22
2,462.0	821.00	37.0	H	4.04	24.68	65.72
2,462.0	821.00	37.0	H	4.04	24.68	65.72
2,462.0	1,641.00	18.4	H	2.62	27.38	48.40
2,462.0	1,641.00	14.4	V	2.62	27.38	44.40
2,462.0	2,462.00	70.5	H	3.37	29.34	103.21
2,462.0	2,462.00	78.8	V	3.37	29.35	111.52
2,462.0	2,485.50	18.7	V	3.39	29.38	51.49
2,462.0	2,485.50	29.4	V	3.39	29.38	62.17
2,462.0	3,282.00	16.8	H	4.08	31.06	51.94
2,462.0	3,282.00	22.1	V	4.08	31.06	57.24
2,462.0	4,103.00	15.1	H	4.94	33.10	53.14
2,462.0	4,103.00	18.3	V	4.94	32.92	56.16
2,462.0	4,924.00	13.4	H	6.09	34.46	53.95
2,462.0	4,924.00	17.6	V	6.09	34.36	58.05

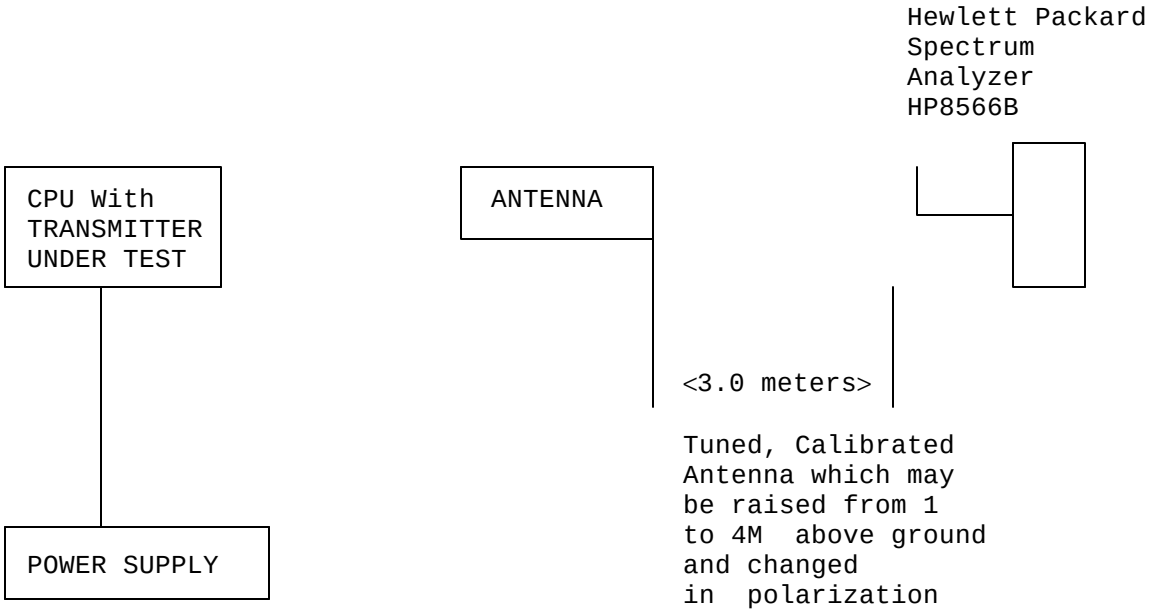
TEST DATA: Average Emissions

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity	Coax Loss dB	Correction Factor dB	Field Strength dBuV/m
2,462.0	2,485.50	12.8	H	3.39	29.38	45.57
2,462.0	3,282.00	16.8	H	4.08	31.12	52.00
2,462.0	4,103.00	7.2	V	4.94	33.10	45.24
2,462.0	4,924.00	8.6	V	6.09	34.36	49.05
2,412.0	4,824.00	11.9	V	5.95	34.14	51.99
2,437.0	4,874.00	10.1	V	6.02	34.20	50.32

NOTE: The spectrum was scanned to the tenth harmonic. Measurements were made on at least 3 channels.

METHOD OF MEASUREMENT: The procedure used was ANSI STANDARD C63.4-1992 & the FCC/OET Guidance on Measurements for Direct Sequence Spread Spectrum Systems – Public Notice 54797 Dated July 12, 1995. Measurements were made at the open field test site of TIMCO ENGINEERING INC. located at 849 N.W. State Road 45, Newberry, FL 32669.

Method of Measuring Radiated Spurious Emissions



Equipment placed 80cm above ground on a rotatable platform.

APPLICANT: PARKERVISION INC.

FCC ID: JFE-D2D00001

NAME OF TEST: POWER LINE CONDUCTED INTERFERENCE

RULES PART NO.: 15.107

REQUIREMENTS:

	QUASI-PEAK	**AVERAGE**
.15 – 0.5 MHz	66-56 dBuV	56-46 dBuV
0.5 – 5.0	56	46
5.0 – 30.	60	50

TEST PROCEDURE: ANSI STANDARD C63.4-1992. The spectrum was scanned from .15 to 30 MHz.

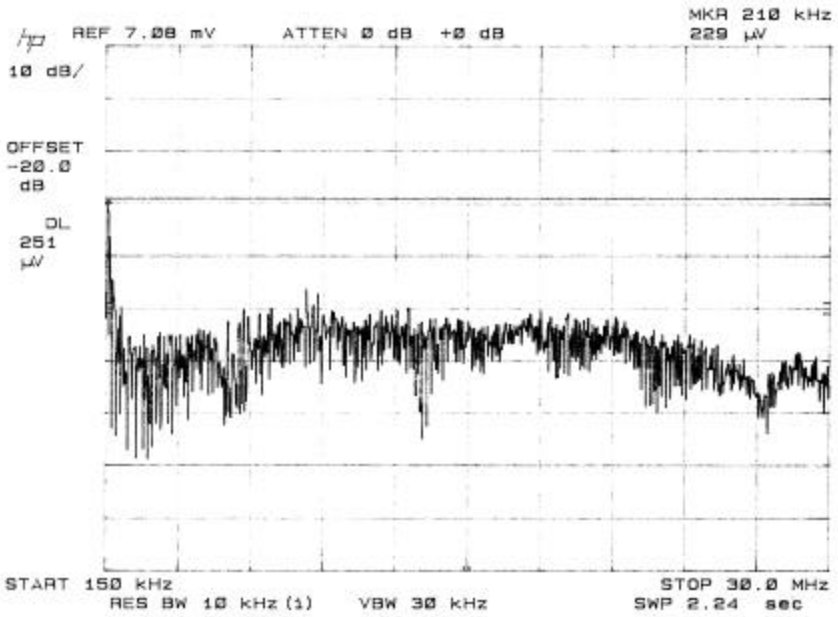
TEST DATA:

THE FOLLOWING GRAPHS REPRESENT THE EMISSIONS READ FOR POWERLINE CONDUCTED FOR THIS DEVICE.

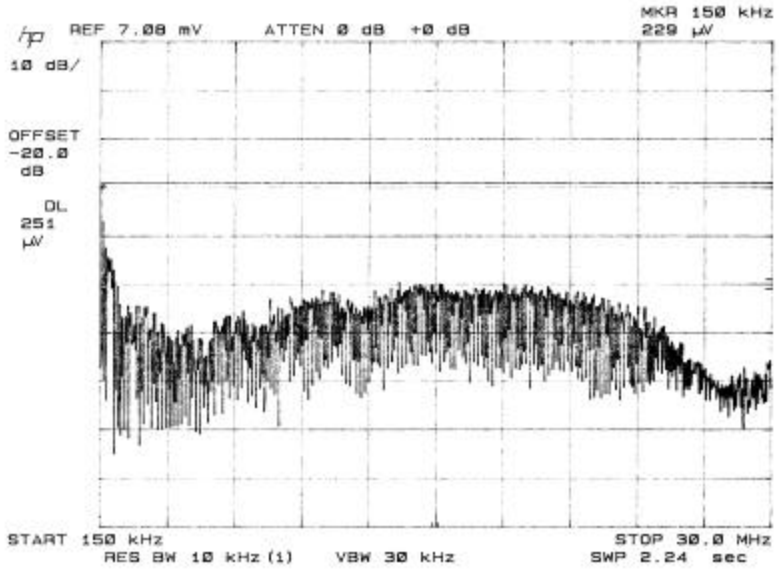
TEST RESULTS: Both lines were observed. The measurements indicate that the unit DOES appear to meet the FCC requirements for this class of equipment.

PERFORMED BY: JOSEPH SCOGLIO **DATE: SEPTEMBER 19, 2003**

LINE 1


REF 7.08 mV
ATTEN 0 dB +0 dB
MKR 210 kHz
229 µV
10 dB/
OFFSET
-20.0
dB
DL
251
µV
START 150 kHz
RES BW 10 kHz (1)
VBW 30 kHz
STOP 30.0 MHz
SWP 2.24 sec

LINE 2


REF 7.08 mV
ATTEN 0 dB +0 dB
MKR 150 kHz
229 µV
10 dB/
OFFSET
-20.0
dB
DL
251
µV
START 150 kHz
RES BW 10 kHz (1)
VBW 30 kHz
STOP 30.0 MHz
SWP 2.24 sec

APPLICANT: PARKERVISION INC.

FCC ID: JFE-D2D00001

NAME OF TEST: RADIATED SPURIOUS EMISSIONS INTO ADJACENT RESTRICTED BAND

REQUIREMENTS: Emissions that fall in the restricted bands (15.205). These emissions must be less than or equal to 500 uV/m (54 dBuV/m).

TEST PROCEDURE: An in band field strength measurement of the fundamental Emission using the RBW and detector function required by C63.4-2000 and FCC Rules. The procedure was repeated with an average detector and a plot made. The calculated field strength in the adjacent restricted band is presented below.

Average			Average		
CHANNEL 1			CHANNEL 11		
FREQUENCY:	2389.99 MHz		FREQUENCY:	2483.66 MHz	
- 1.78	dBuV	from plot	- 1.28	dBuV	from plot
+29.22	dB	ACF	+29.37	dB	ACF
+ 3.31	dB	Coax Loss	+ 3.39	dB	Coax Loss
+20.00	dB	Attn. Pad	+20.00	dB	Attn. Pad
+50.75 dbuV			+51.48 dBuV		

Peak			Peak		
CHANNEL 1			CHANNEL 11		
FREQUENCY:	2390.06 MHz		FREQUENCY:	2485.48 MHz	
+ 9.4	dBuV	from plot	+ 9.4	dBuV	from plot
+29.22	dB	ACF	+29.37	dB	ACF
+ 3.31	dB	Coax Loss	+ 3.39	dB	Coax Loss
+20.00	dB	Attn. Pad	+20.00	dB	Attn. Pad
+61.93 dbuV			+62.16	dBuV	

APPLICANT: PARKERVISION INC.

FCC ID: JFE-D2D00001

NAME OF TEST: POWER SPECTRAL DENSITY

RULES PART NO.: 15.247(d)

REQUIREMENTS: The peak level measured must be no greater than +8.0dBm.

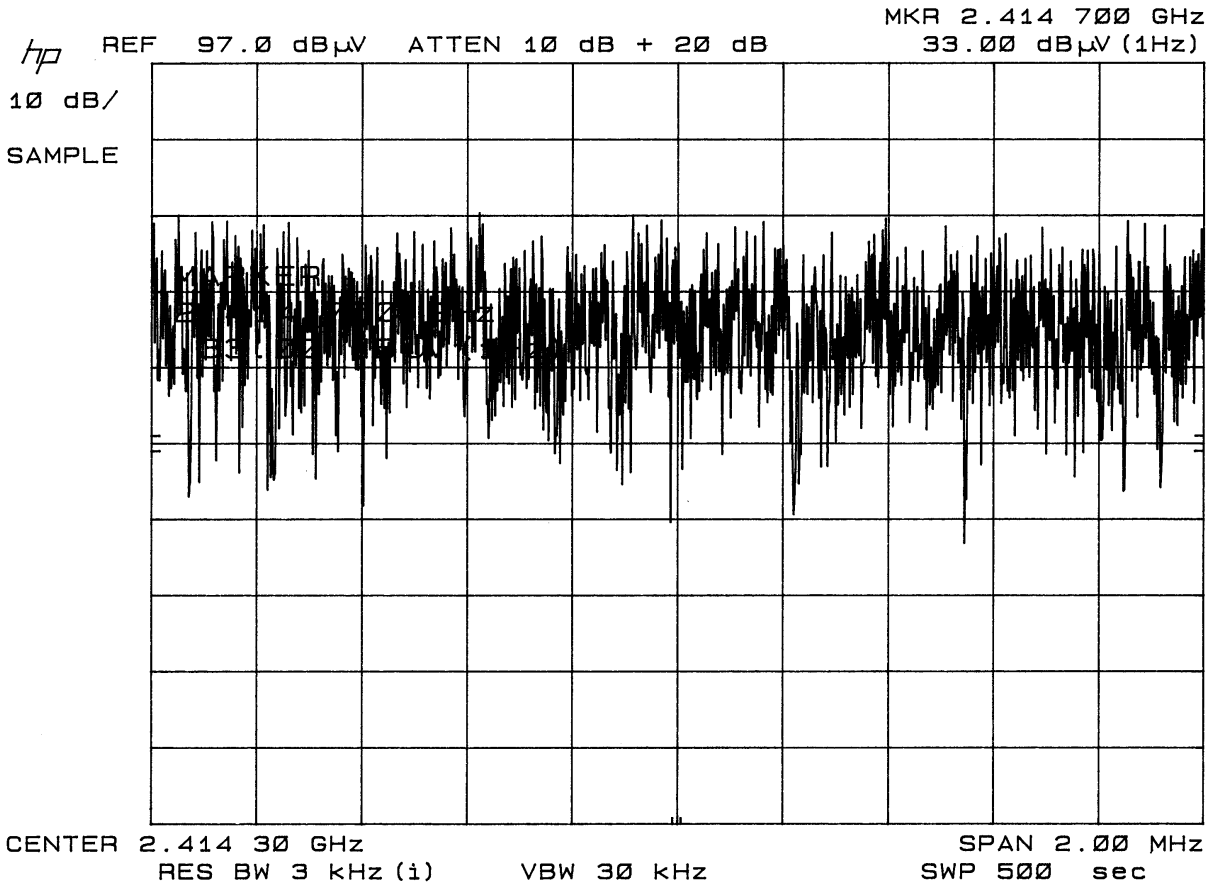
DATA: THE PLOT IS SHOWN IN EXHIBITS #8.

The level at 2432.94 MHz was 33.00 dBuV.

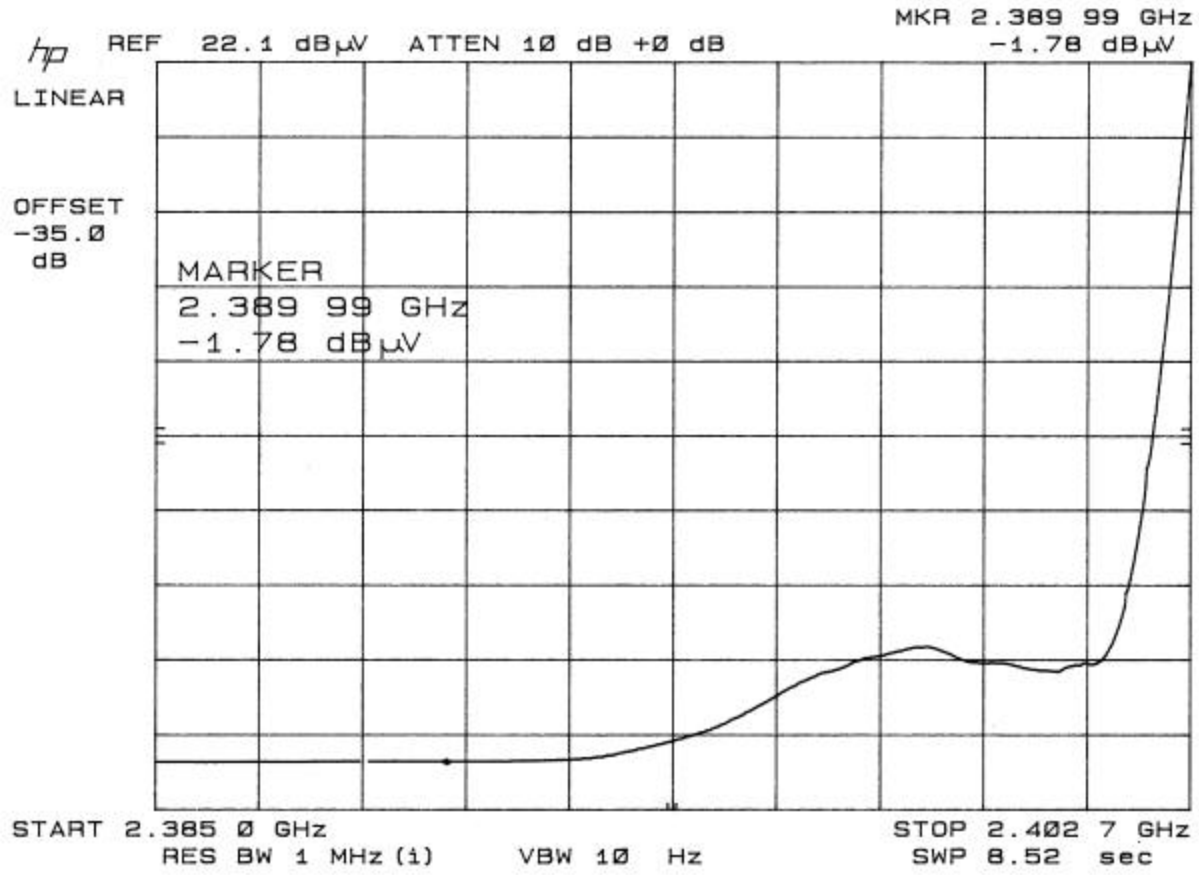
```
 33.00
+20 dB      Attn.
+35 dB      Correction Factor
___________
 88 dBuV
-107
___________
-19 dBm
```

NOTE: Measurements were made on 3 channels and the worst case is presented above.

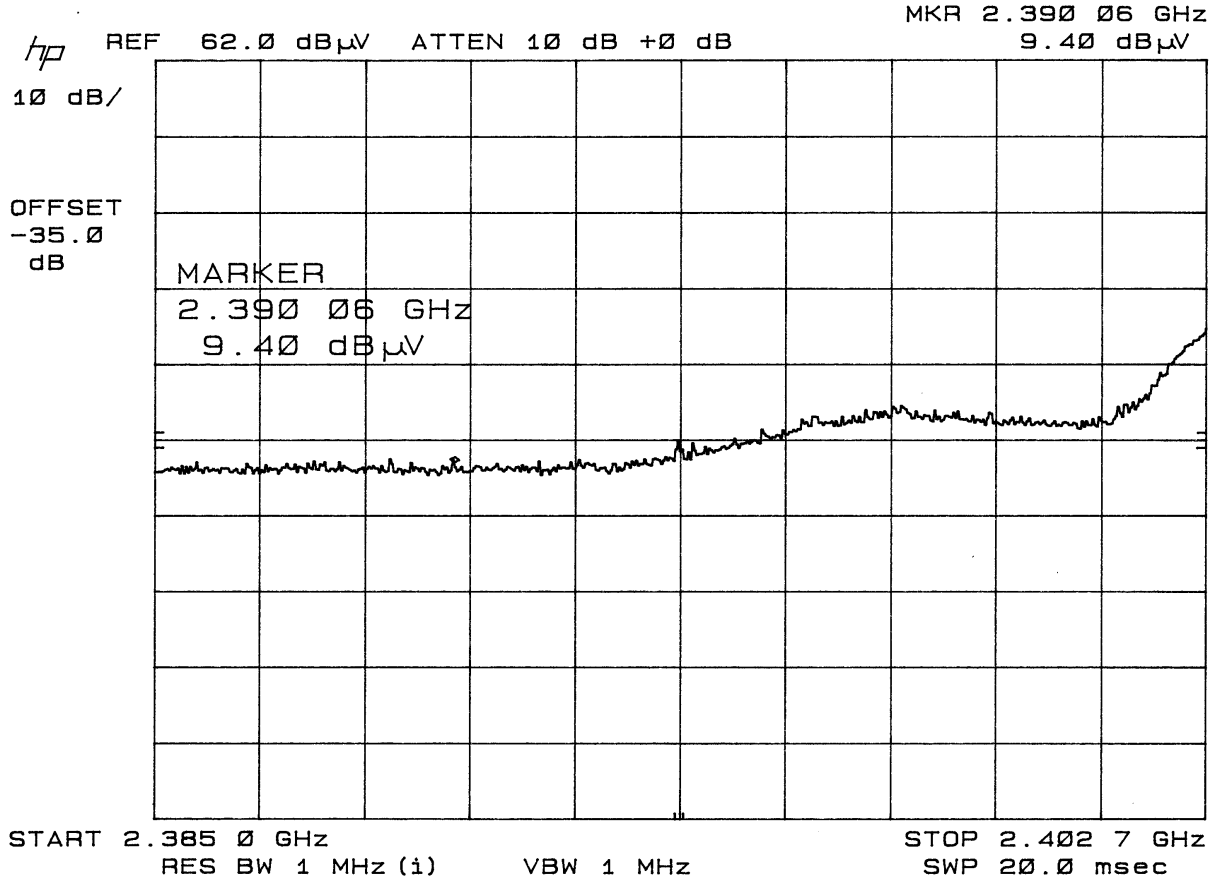
POWER SPECTRAL DENSITY PLOT



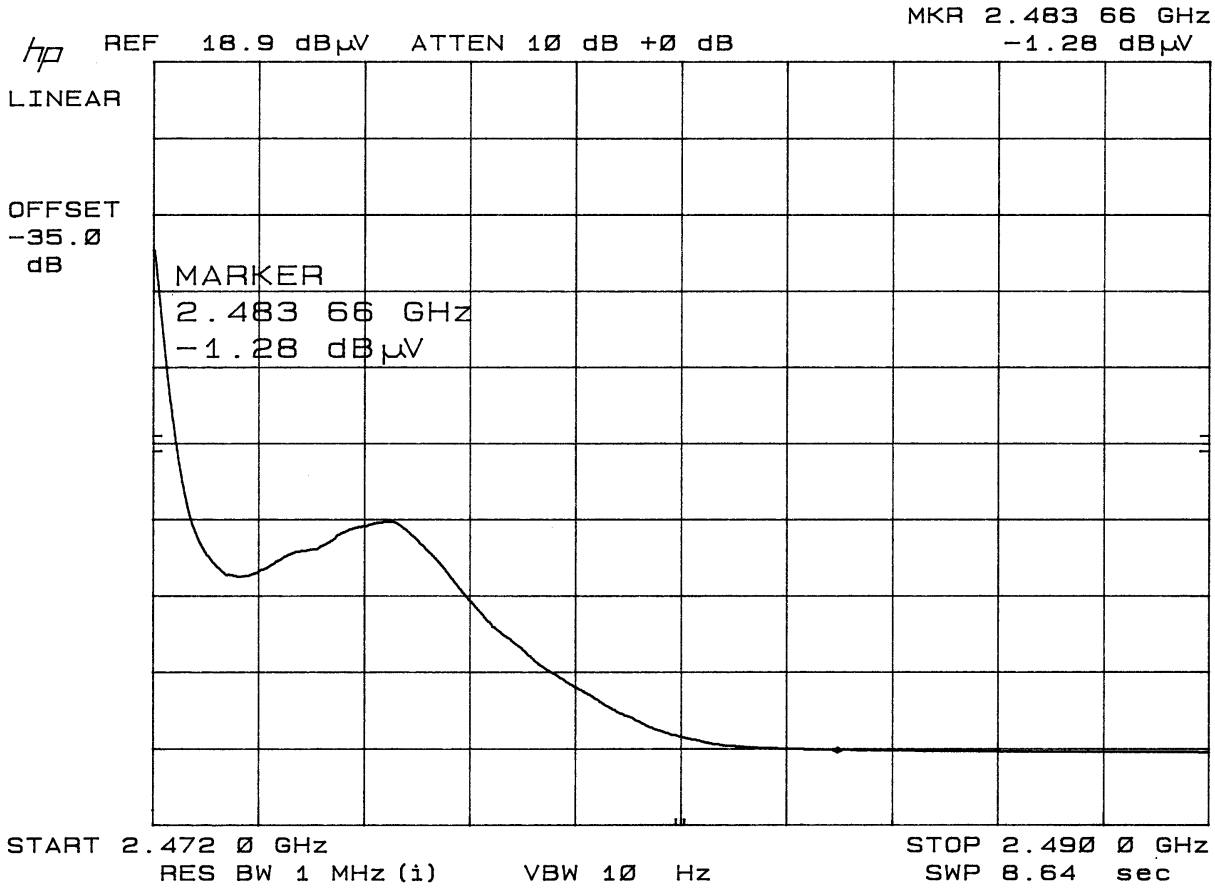
BAND EDGE PLOT 1
CHANNEL 1
AVERAGE



BAND EDGE PLOT 2
CHANNEL 1
PEAK



BAND EDGE PLOT 3
CHANNEL 11
AVERAGE



BAND EDGE PLOT 4
CHANNEL 11
PEAK