ADDENDUM TO IP MOBILENET TEST REPORT FC04-066C

FOR THE

MOBILE DATA RADIO, M64700-50

FCC PART 90

COMPLIANCE

DATE OF ISSUE: FEBRUARY 28, 2006

PREPARED FOR:

IP MobileNet
16842 Von Karman Avenue
Irvine, CA 92606

P.O. No.: 004333-00
W.O. No.: 84359

PREPARED BY:

Mary Ellen Clayton
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

Date of test: October 25 - November 1, 2005

Report No.: FC04-066D

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ADMINISTRATIVE INFORMATION

DATE OF TEST:	October 25 - November 1, 2005
DATE OF RECEIPT:	October 25, 2005
FREQUENCY RANGE TESTED:	5 MHz-9 GHz
MANUFACTURER:	IP MobileNet 16842 Von Karman Avenue Irvine, CA 92606
REPRESENTATIVE:	Eric Tanner
TEST LOCATION:	CKC Laboratories, Inc. 110 Olinda Place Brea, CA 92621
TEST METHOD:	FCC Part 90, ANSI/TIA/EIA-603-B (2002)
PURPOSE OF TEST:	To demonstrate the compliance of the 700/800 Mobile Radio, M64700G25 with the requirements for FCC Part 90 devices. **Addendum A** is to add 90.543(e) data. **Addendum B** is to add 90.543 data with new testing on April 15, 2005. **Addendum C** is to demonstrate the compliance of the Mobile Data Radio, M64700-50 with the requirements for FCC Part 90 devices with new testing to extend the operating bandwidth of the unit from 25 to 50kHz. **Addendum D** is to revise the emissions designator with no new testing.

CONDITIONS FOR COMPLIANCE
No modifications to the EUT were necessary to comply.

APPROVALS

Steve Behm, Director of Engineering Services

QUALITY ASSURANCE:	**TEST PERSONNEL:**
Joyce Walker, Quality Assurance Administrative Manager	Stuart Yamamoto, EMC Engineer

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

The customer declares the EUT tested by CKC Laboratories was representative of a production unit.

EQUIPMENT UNDER TEST

Mobile Data Radio

Manuf:	IP MobileNet
Model:	M64700-50
Serial:	05135030
FCC ID:	MI7-M64700G-25

PERIPHERAL DEVICES

The EUT was tested with the following peripheral device(s):

DC Power Supply

Manuf:	HP
Model:	6652A
Serial:	3235A-00835

Laptop Computer

Manuf:	Dell Corporation
Model:	PP02L Inspiron I2500
Serial:	5TZ6611

GPS Antenna

Manuf:	San Jose Navigation, Inc.
Model:	SM-25
Serial:	2569790

High Power Termination

Manuf:	JFW
Model:	50FH-040-100-2N
Serial:	NA

TEMPERATURE AND HUMIDITY DURING TESTING
The temperature during testing was within +15°C and + 35°C.
The relative humidity was between 20% and 75%.

FCC 2.1033(c)(3) USER'S MANUAL
The necessary information is contained in a separate document.

FCC 2.1033 (c)(4) TYPE OF EMISSIONS
27K3F1D

FCC 2.1033 (c)(5) FREQUENCY RANGE
794 MHz – 806 MHz.

FCC 2.1033 (c)(6) OPERATING POWER
25 Watts

FCC 2.1033 (c)(7) MAXIMUM POWER RATING
30 Watts

FCC 2.1033 (c)(8) DC VOLTAGES
The necessary information is contained in a separate document.

FCC 2.1033 (c)(9) TUNE-UP PROCEDURE
The necessary information is contained in a separate document.

FCC 2.1033(c)(10) SCHEMATICS AND CIRCUITRY DESCRIPTION
The necessary information is contained in a separate document.

FCC 2.1033(c)(11) LABEL AND PLACEMENT
The necessary information is contained in a separate document.

FCC 2.1033(c)(12) SUBMITTAL PHOTOS
The necessary information is contained in a separate document.

FCC 2.1033 (c)(13) MODULATION INFORMATION
Frequency

FCC 2.1033(c)(14)/2.1046/90.541(b) - RF POWER OUTPUT

FCC 90.541(b) Transmitter RF Power Output

The transmitter output power of mobile and control transmitters must not exceed 30 Watts (ERP).

EUT Test Conditions: The EUT was connected to a laptop computer via the ethernet port and an unshielded cat. 5E cable. The laptop computer was used to command the EUT to begin transmitting or stop transmitting as well as to change the EUT from channel to channel. Also connected to the EUT was a GPS antenna. This GPS antenna was placed outside the room so that it had no obstructions to the sky. A separate DC power supply was used to provide 13.8 VDC 10A to the EUT. On the output of the EUT was place a high power termination/attenuator which went to either a power meter or spectrum analyzer to measure the RF Output Power. The EUT was set to output the rated power of 25 watts. The EUT was tested transmitting on its low (794 MHz), middle (800 MHz), and high (806 MHz) channels.

Measured Values from the EUT:

Low Channel (794 MHz). Measured value was 25.0 Watts (ERP).
Middle Channel (800 MHz). Measured value was 25.0 Watts (ERP).
High Channel (806 MHz). Measured value was 25.0 Watts (ERP).

Test Equipment

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
RF Power meter	02082	HP	435B	2445A11881	061704	061706
Power Sensor	02036	HP	8482A	1551A01004	061804	061806
Spectrum Analyzer	02672	Agilent	E4446A	US44300438	011405	011407
High Power Attenuator	N/A	JFW	50FH-040-100-2N	(none)	NCR*1	NCR*1

Note: *1-Check of the attenuator insertion loss was performed just prior to this test at the discrete frequencies used (794MHz, 800MHz, and 806MHz).

FCC 90.541(b) RF Power Photograph

FCC 2.1033(c)(14)/2.1047(a) - MODULATION CHARACTERISTICS - AUDIO FREQUENCY RESPONSE

Not applicable to this unit.

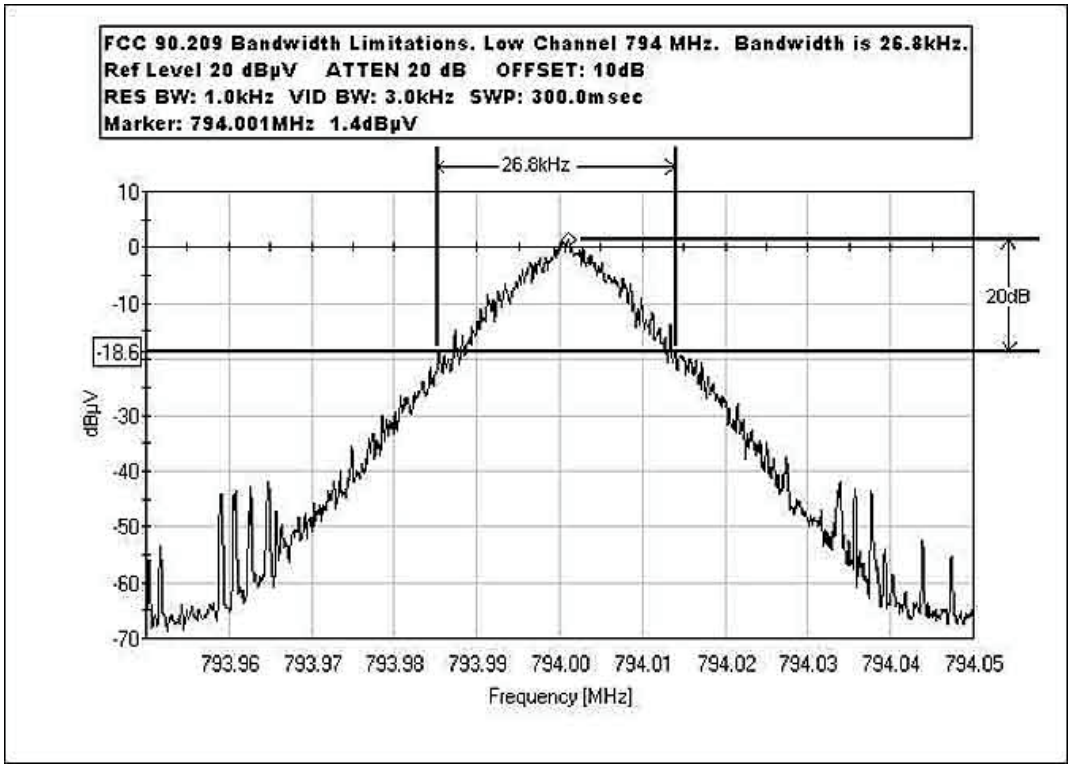
FCC 2.1033(c)(14)/2.1047(b) MODULATION CHARACTERISTICS– Modulation Limiting Response

Not applicable to this unit.

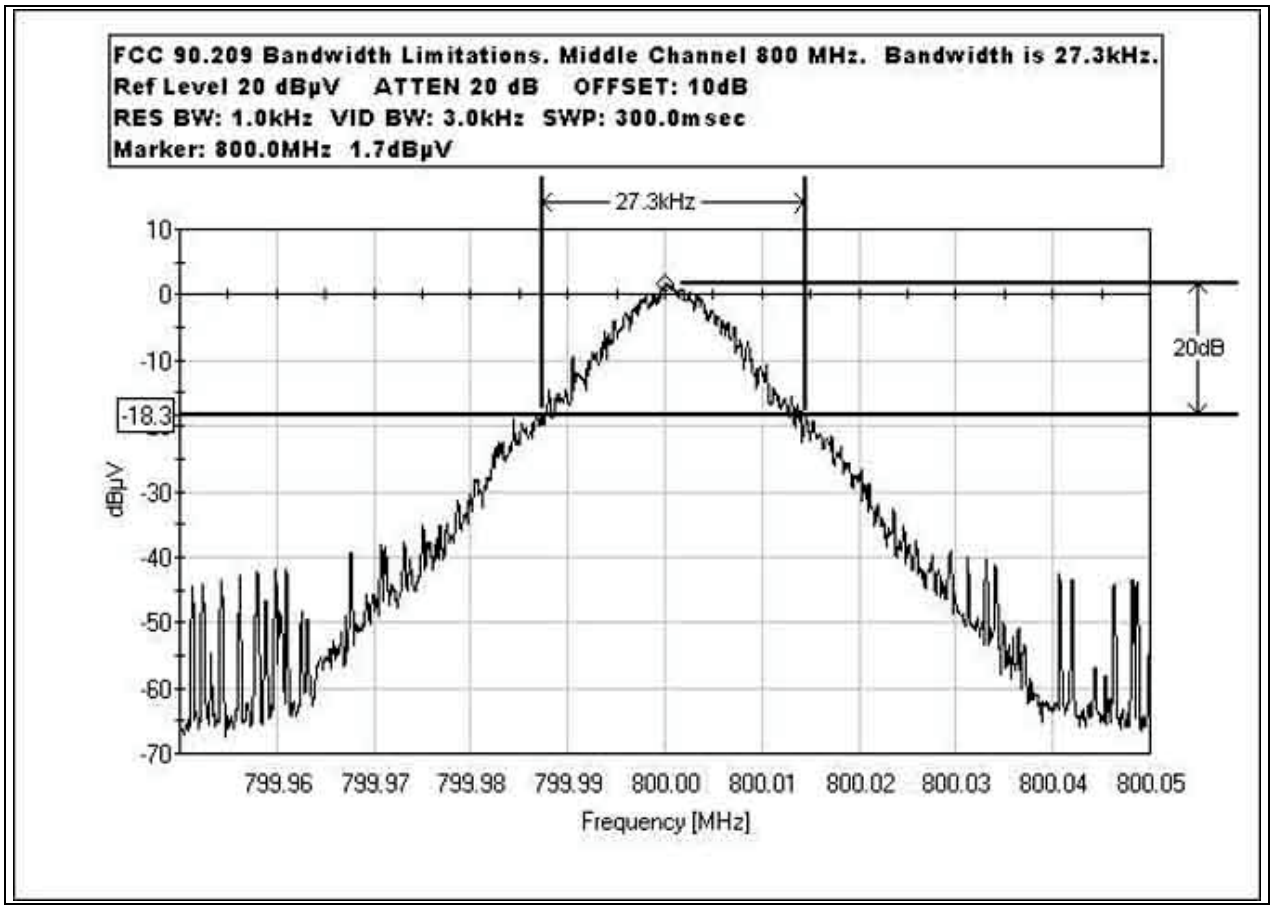
FCC 2.1033(c)(14)/2.1049(i)/90.209- OCCUPIED BANDWIDTH

Test Conditions: The EUT's ethernet port was connected to a laptop computer via an unshielded cat 5E cable. The laptop computer was used to command the EUT to begin transmitting or stop transmitting as well as to change the EUT from channel to channel utilizing the ethernet port. Also connected to the EUT was a GPS antenna. This GPS antenna was placed outside the room so that it had no obstructions to the sky. A separate DC power supply was used to provide the EUT with 13.8 Vdc/10A. On the RF output of the EUT was placed a high power attenuator and a coaxial cable connected to a spectrum analyzer to measure the EUT output bandwidth.

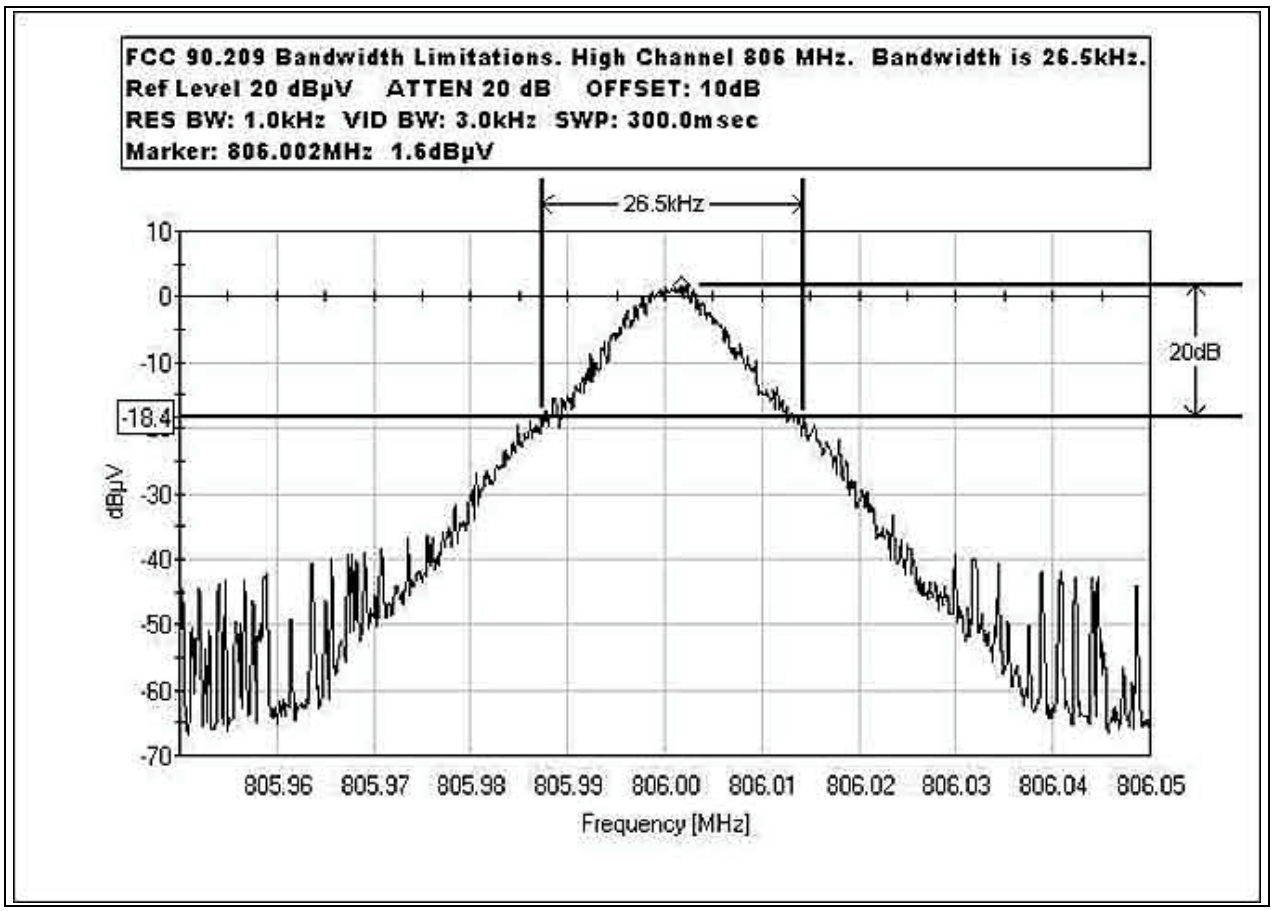
FCC 90.209 BANDWIDTH LIMITATIONS LOW CHANNEL 794 MHz



FCC 90.209 BANDWIDTH LIMITATIONS MIDDLE CHANNEL 800 MHz



FCC 90.209 BANDWIDTH LIMITATIONS HIGH CHANNEL 806 MHz



Test Equipment

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer RF Section	00989A	HP	8568A	2049A01287	040805	040807
Spectrum Analyzer Display Section	00034	HP	85662A	2349A06091	040805	040807
Quasi Peak Adapter	00200	HP	85650A	2043A00221	040805	040807

FCC 90.209

FCC 2.1033(c)(14)/2.1055/90.539- FREQUENCY STABILITY

Test Conditions: The EUT is placed in the temperature chamber. RF signal is monitored from the antenna port. A spectrum analyzer is employed to measure the frequency stability of the EUT.

Customer: IP MobileNet
WO#: 84359
Date: 10/28 - 11/01/2005
Test Engineer: S. Yamamoto

Device Model #: M64700-50
Operating Voltage: 13.8 **Vdc**

Frequency Limit: 2.5 **ppm** 5 **ppm** 2.5 **ppm**

Temperature Variations

Channel Frequency:		Channel 1 (MHz) 794.000000000	Dev (ppm)	Channel 2 (MHz) 800.000000000	Dev (ppm)	Channel 3 (MHz) 806.000000	Dev (ppm)
Temp (C)	Voltage						
-30	13.8	794.000342000	0.430730	800.000421000	0.526250	806.000394	0.488834
-20	13.8	794.000260000	0.327456	800.000072000	0.090000	806.000120	0.148883
-10	13.8	794.000058000	0.073048	800.000222000	0.277500	806.000249	0.308933
0	13.8	794.000164000	0.206549	800.000094000	0.117500	806.000090000	0.111663
10	13.8	793.999881000	-0.149874	800.000001000	0.001250	806.000061000	0.075682
20	13.8	794.000121000	0.152393	800.000101000	0.126250	806.000090	0.111663
30	13.8	794.000028000	0.035264	800.000000000	0.000000	806.000001000	0.001241
40	13.8	793.999845000	-0.195214	799.999849000	-0.188750	805.999862000	-0.171216
50	13.8	793.999859000	-0.177582	799.999826000	-0.217500	805.999762000	-0.295285

Voltage Variations (±15%)

Temp (C)	Voltage	Channel 1 (MHz)	Dev. (ppm)	Channel 2 (MHz)	Dev. (ppm)	Channel 3 (MHz)	Dev. (ppm)
20	11.7	794.000128000	0.161209	800.000111000	0.138750	806.000082	0.101737
20	13.8	794.000121000	0.152393	800.000101000	0.126250	806.000090	0.111663
20	15.9	794.000120000	0.151133	800.000118000	0.147500	806.000071	0.088089

Max Deviation (ppm)	**+**	**0.43073**		+	**0.52625**	+	**0.48883**
Max Deviation (ppm)	**-**	**0.19521**		**-**	**0.21750**	**-**	**0.29529**
		PASS			**PASS**		**PASS**

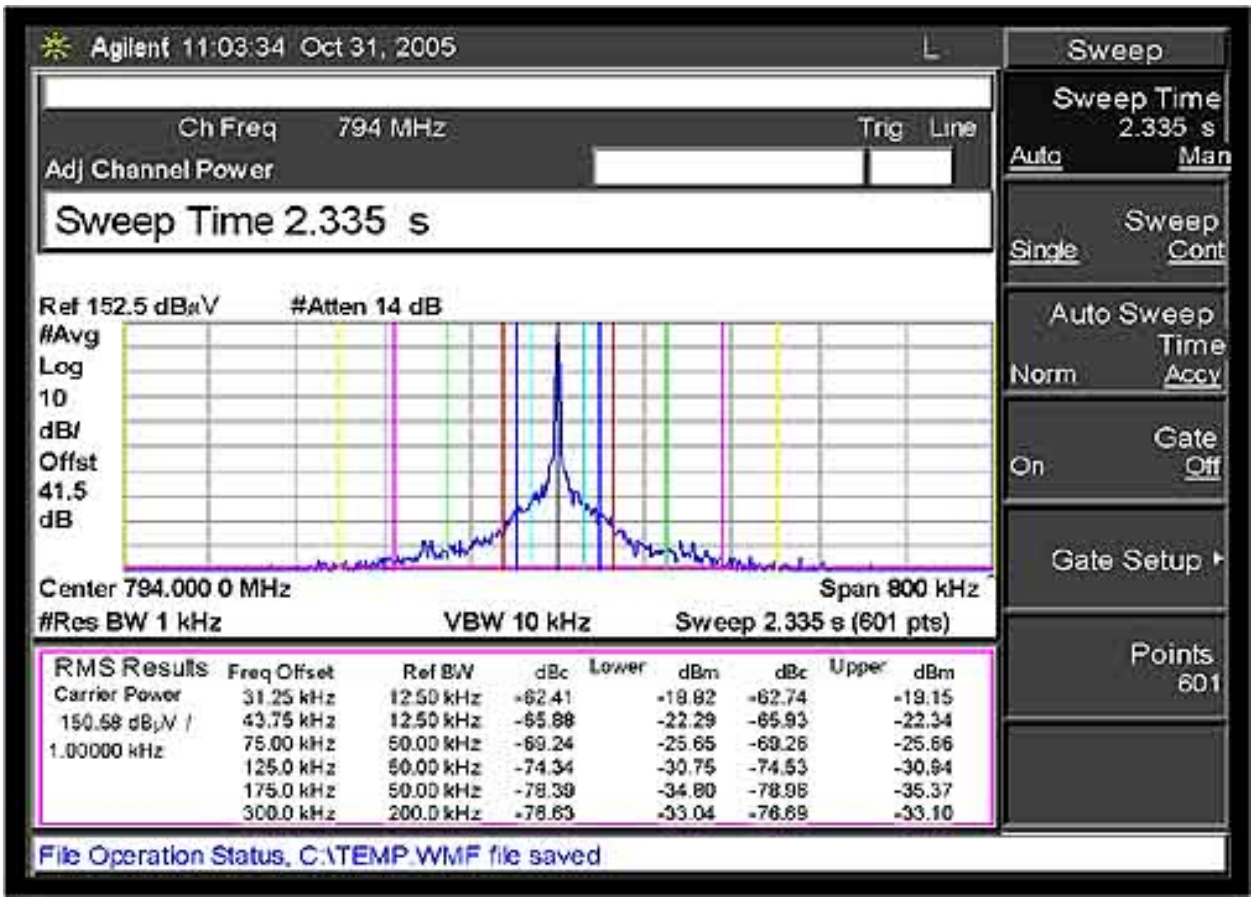
Test Equipment

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer RF Section	00989A	HP	8568A	2049A01287	040805	040807
Spectrum Analyzer Display Section	00034	HP	85662A	2349A06091	040805	040807
Quasi Peak Adapter	00200	HP	85650A	2043A00221	040805	040807
Spectrum Analyzer RF Section	02462	HP	8568B	2928A04874	100804	100806
Spectrum Analyzer Display Section	02472	HP	85662A	3001A18430	100804	100806
QP Adapter	01437	HP	85650A	3303A01884	100804	100806
Temperature Chamber	01878	Thermotron	S1.2 Mini Max	(none)	071904	071906
Digital Multimeter	01830	Fluke	45	6949042	012405	012406

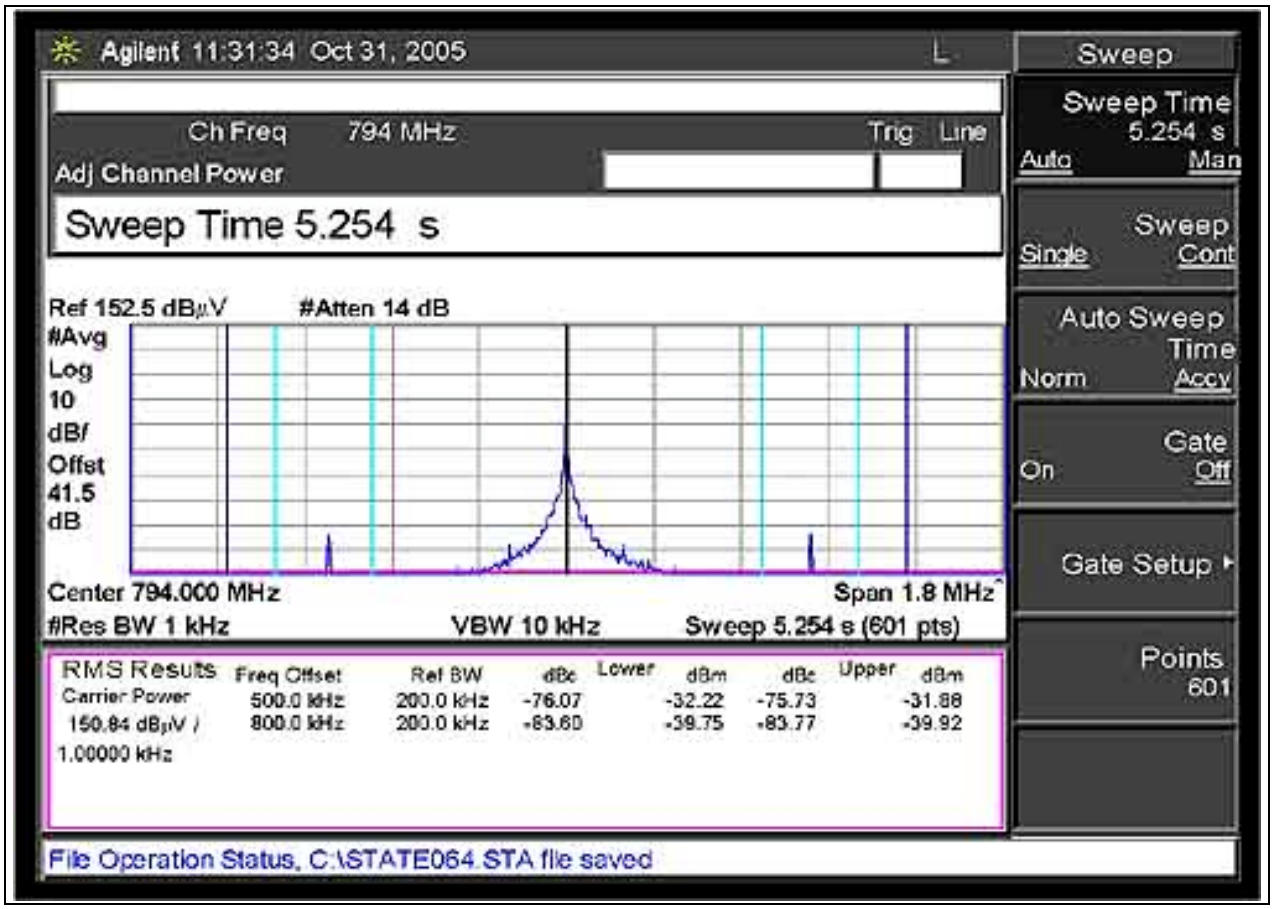
FCC 90.539

FCC 90.543(a) ADJACENT CHANNEL POWER LOW CHANNEL PLOT 1

Test Conditions: The EUT's ethernet port was connected to a laptop computer via an unshielded cat 5E cable. The laptop computer was used to command the EUT to begin transmitting or stop transmitting as well as to change the EUT from channel to channel utilizing the ethernet port. Also connected to the EUT was a GPS antenna. This GPS antenna was placed outside the room so that it had no obstructions to the sky. A separate DC power supply was used to provide the EUT with 13.8 VDC/10A. On the RF output of the EUT was placed a high power attenuator and a coaxial cable connected to the spectrum analyzer to measure the ACCP.

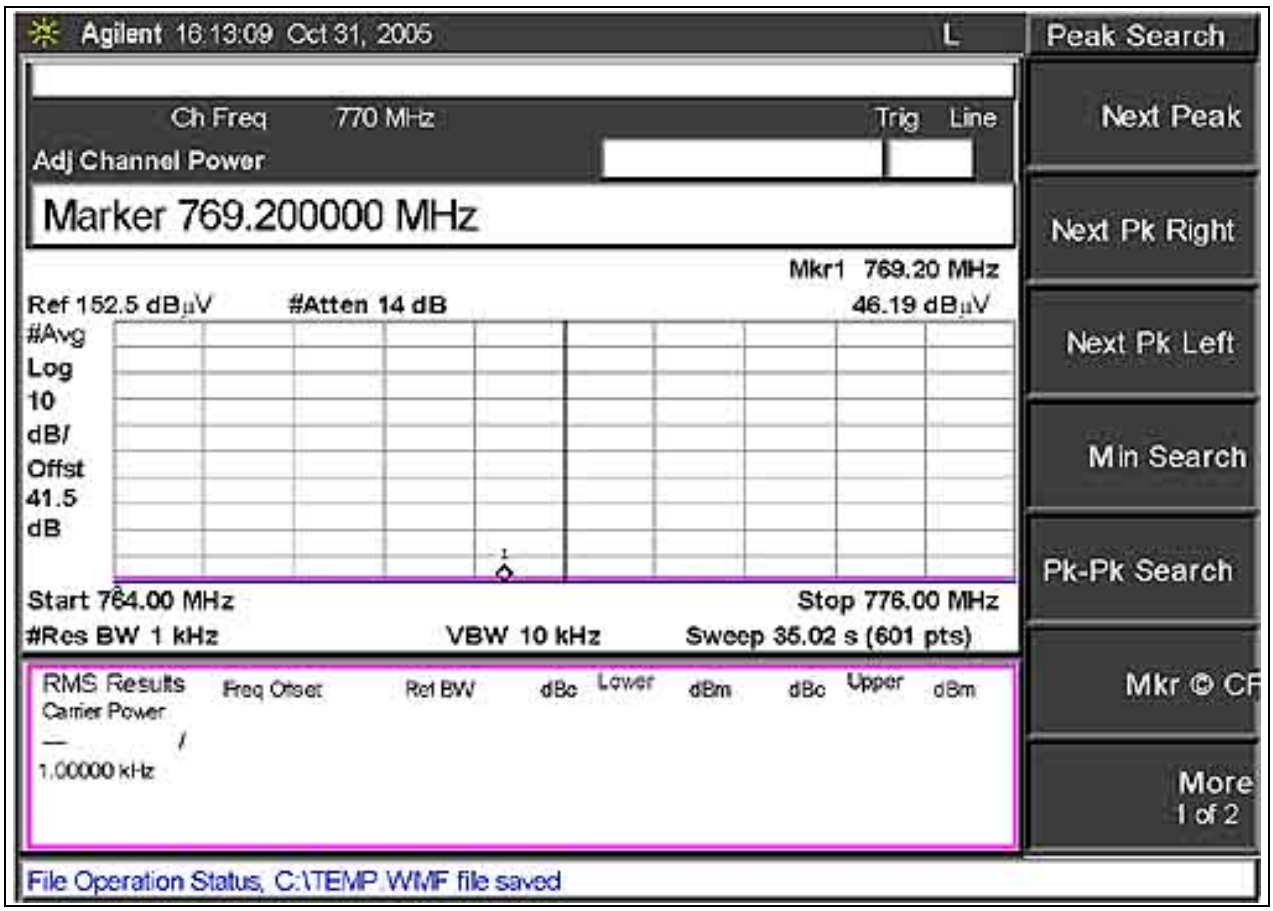


FCC 90.543(a) ADJACENT CHANNEL POWER LOW CHANNEL PLOT 2

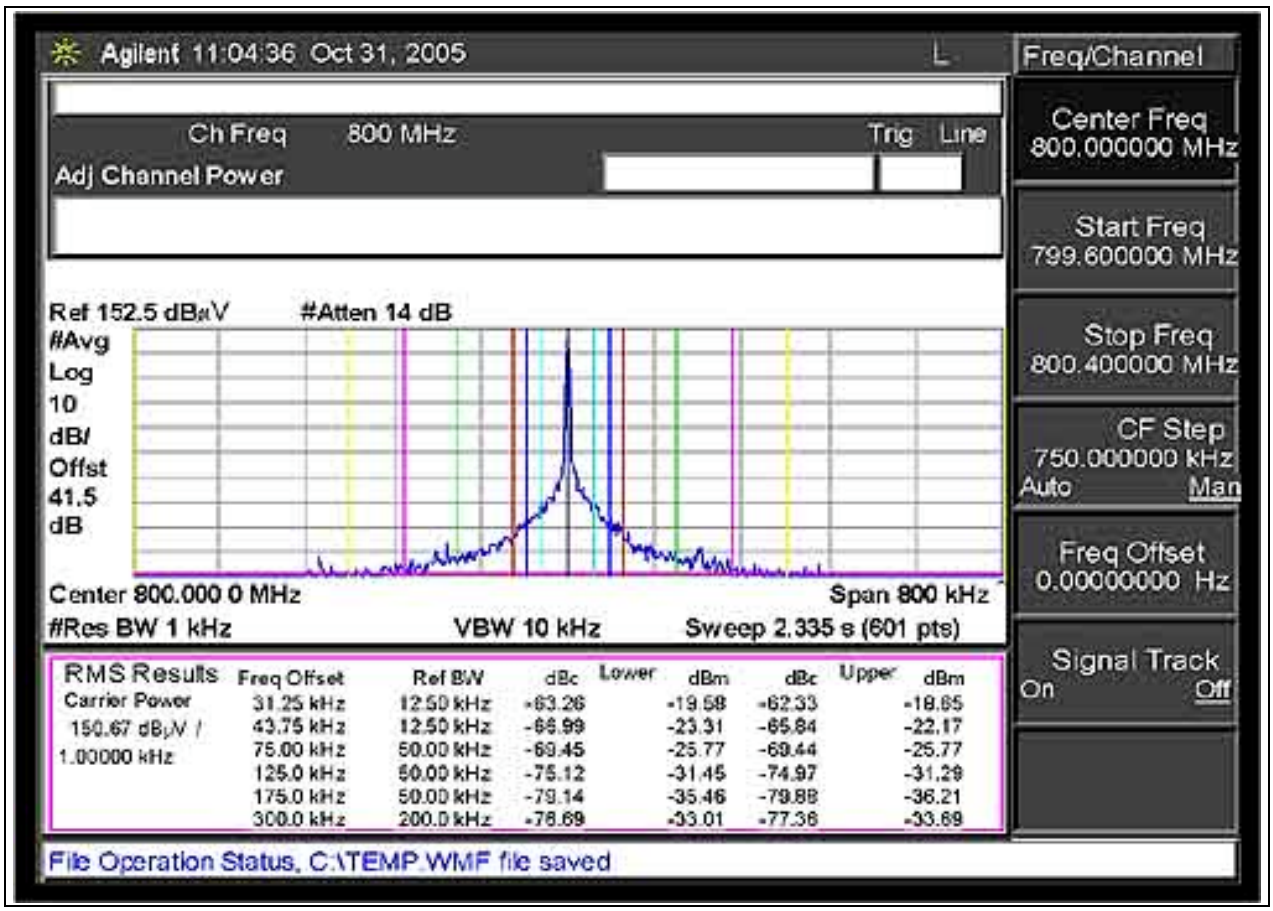


FCC 90.543(a) ADJACENT CHANNEL POWER LOW CHANNEL PLOT 3

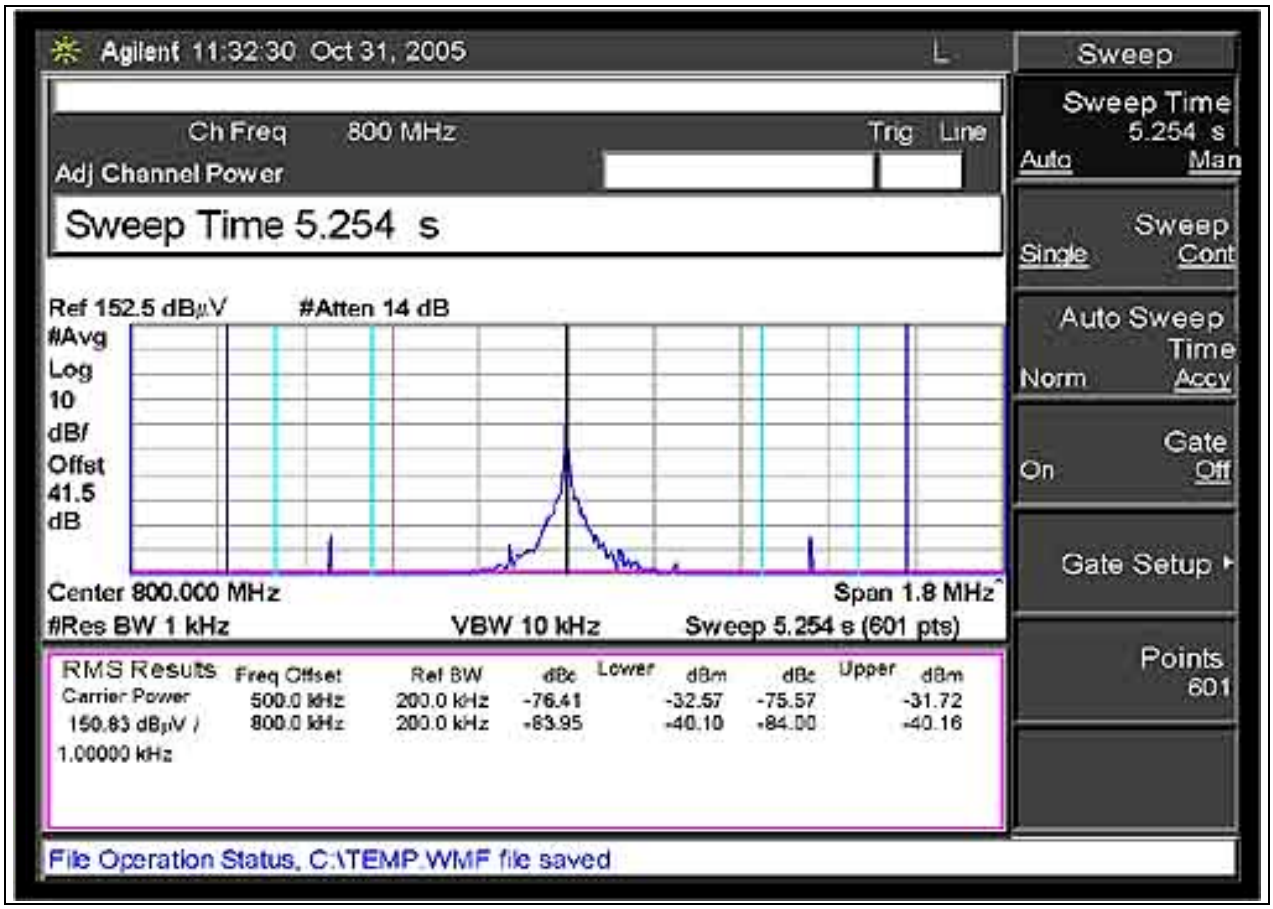
FCC 90.543(a) ADJACENT CHANNEL POWER LOW CHANNEL PLOT 4



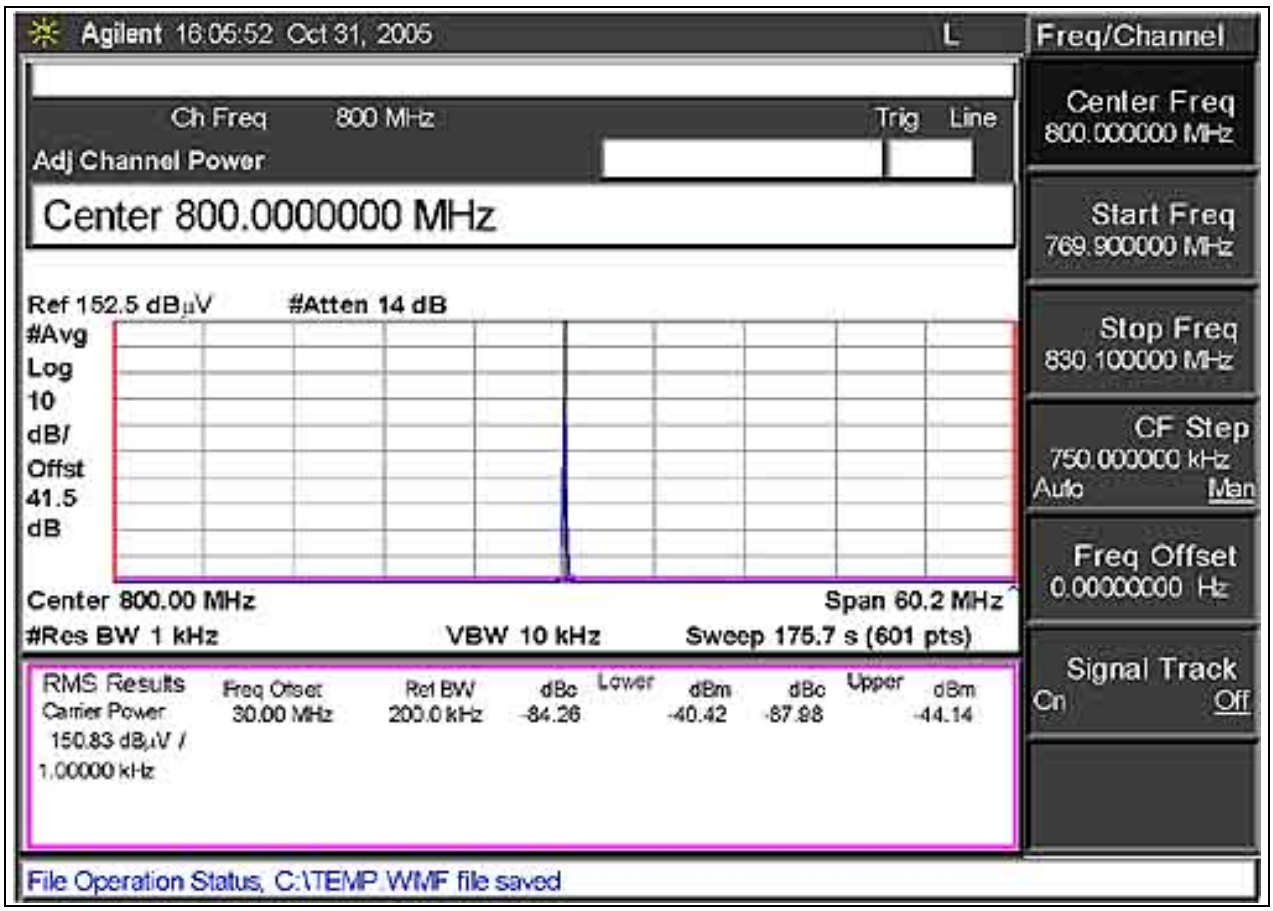
FCC 90.543(a) ADJACENT CHANNEL POWER MIDDLE CHANNEL PLOT 1



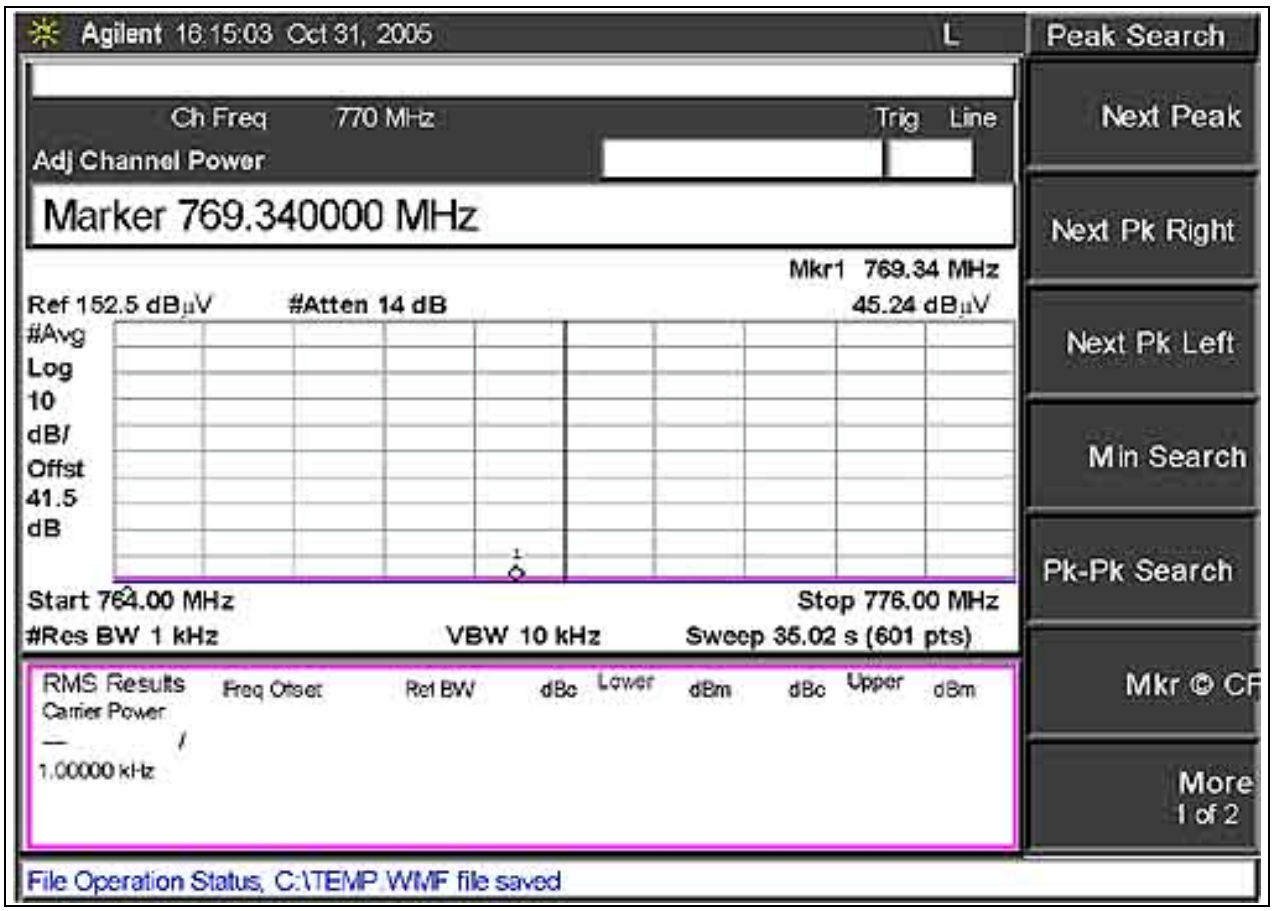
FCC 90.543(a) ADJACENT CHANNEL POWER MIDDLE CHANNEL PLOT 2



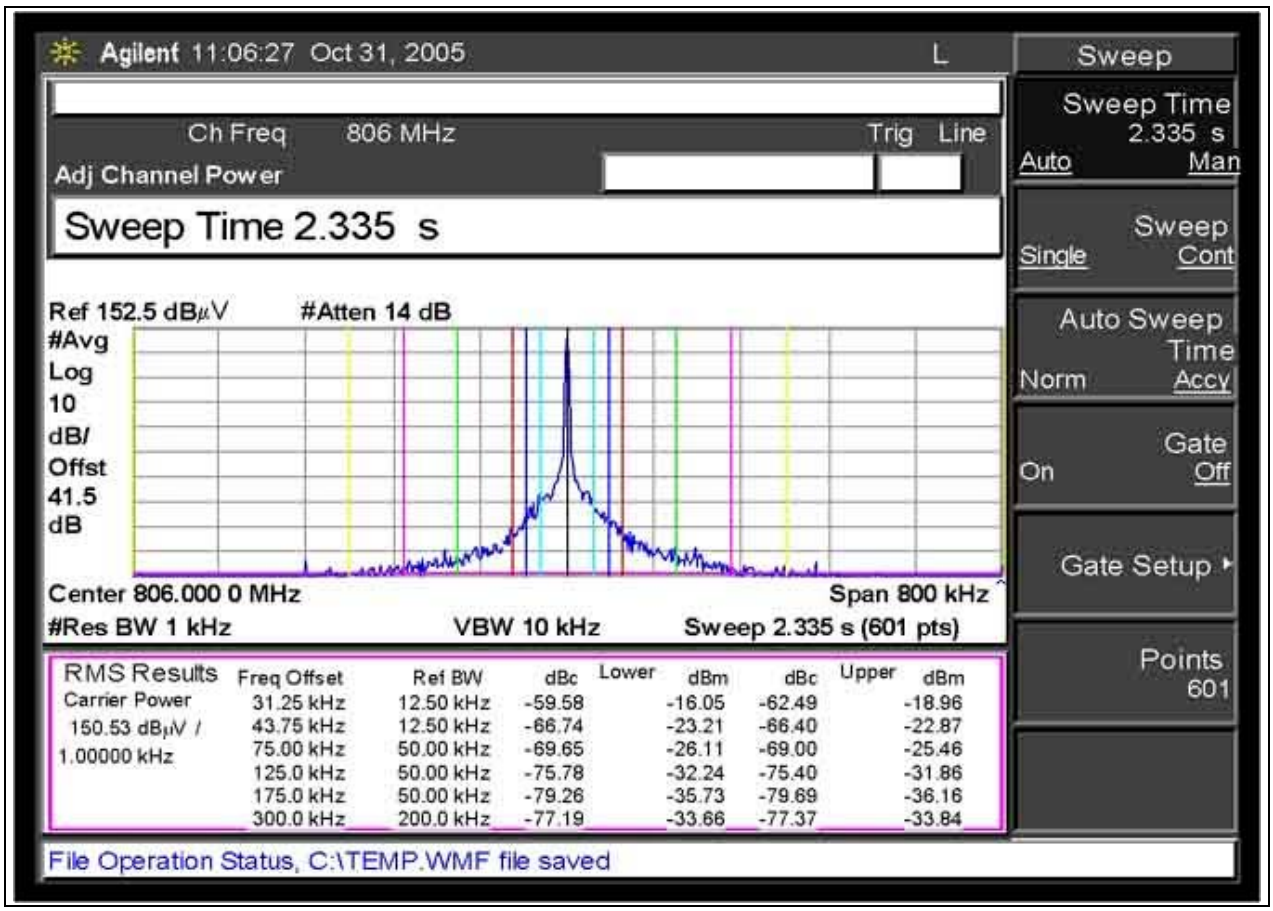
FCC 90.543(a) ADJACENT CHANNEL POWER MIDDLE CHANNEL PLOT 3



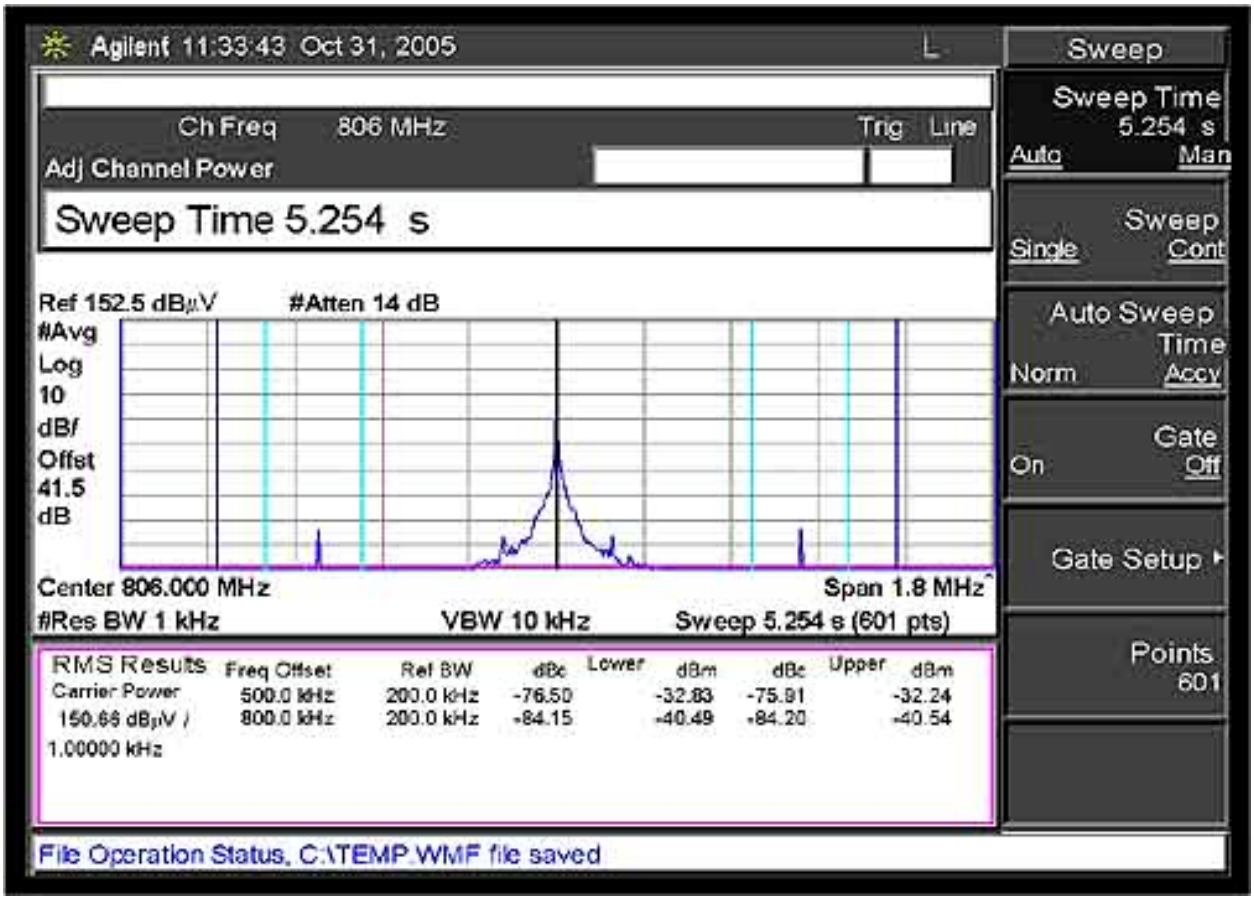
FCC 90.543(a) ADJACENT CHANNEL POWER MIDDLE CHANNEL PLOT 4



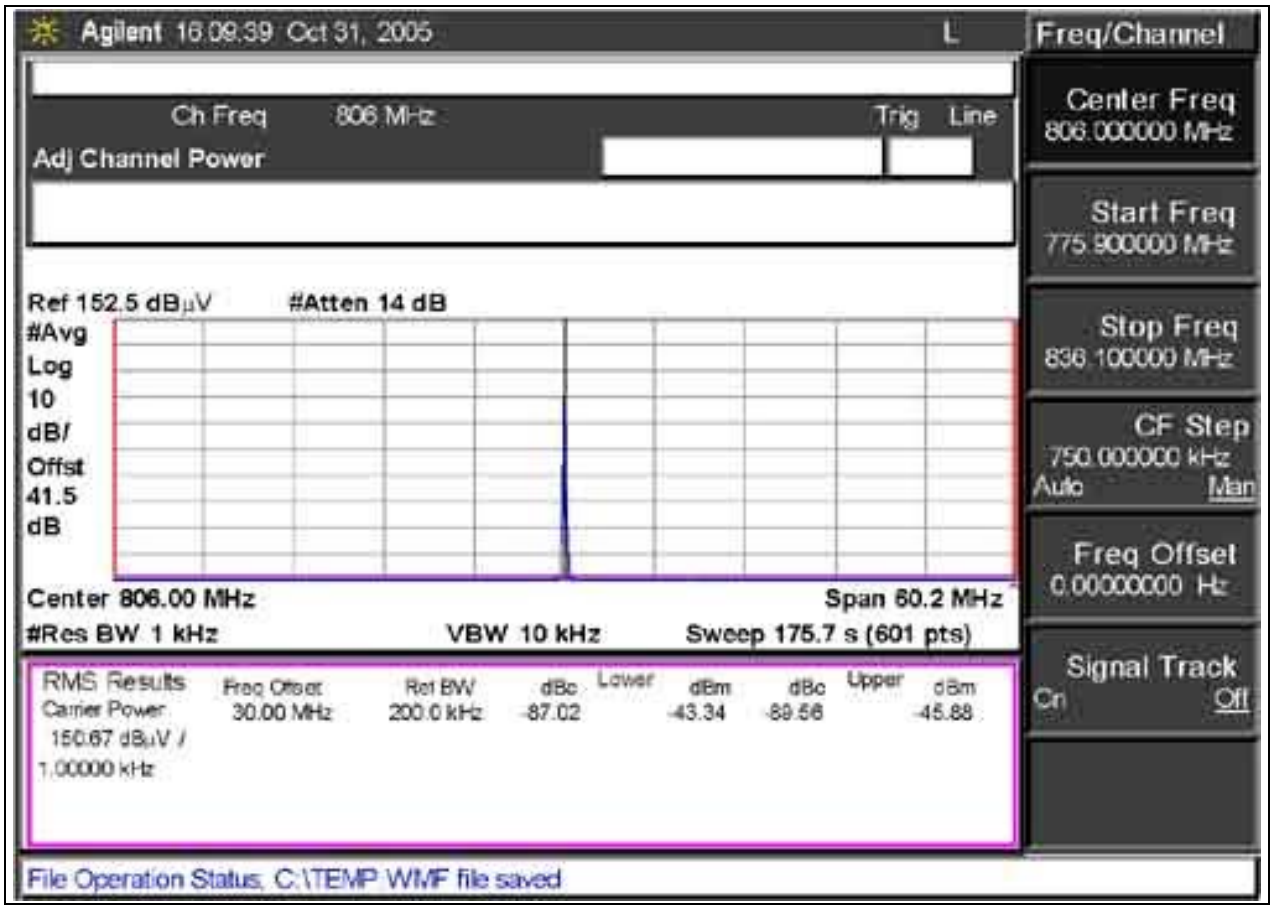
FCC 90.543(a) ADJACENT CHANNEL POWER HIGH CHANNEL PLOT 1



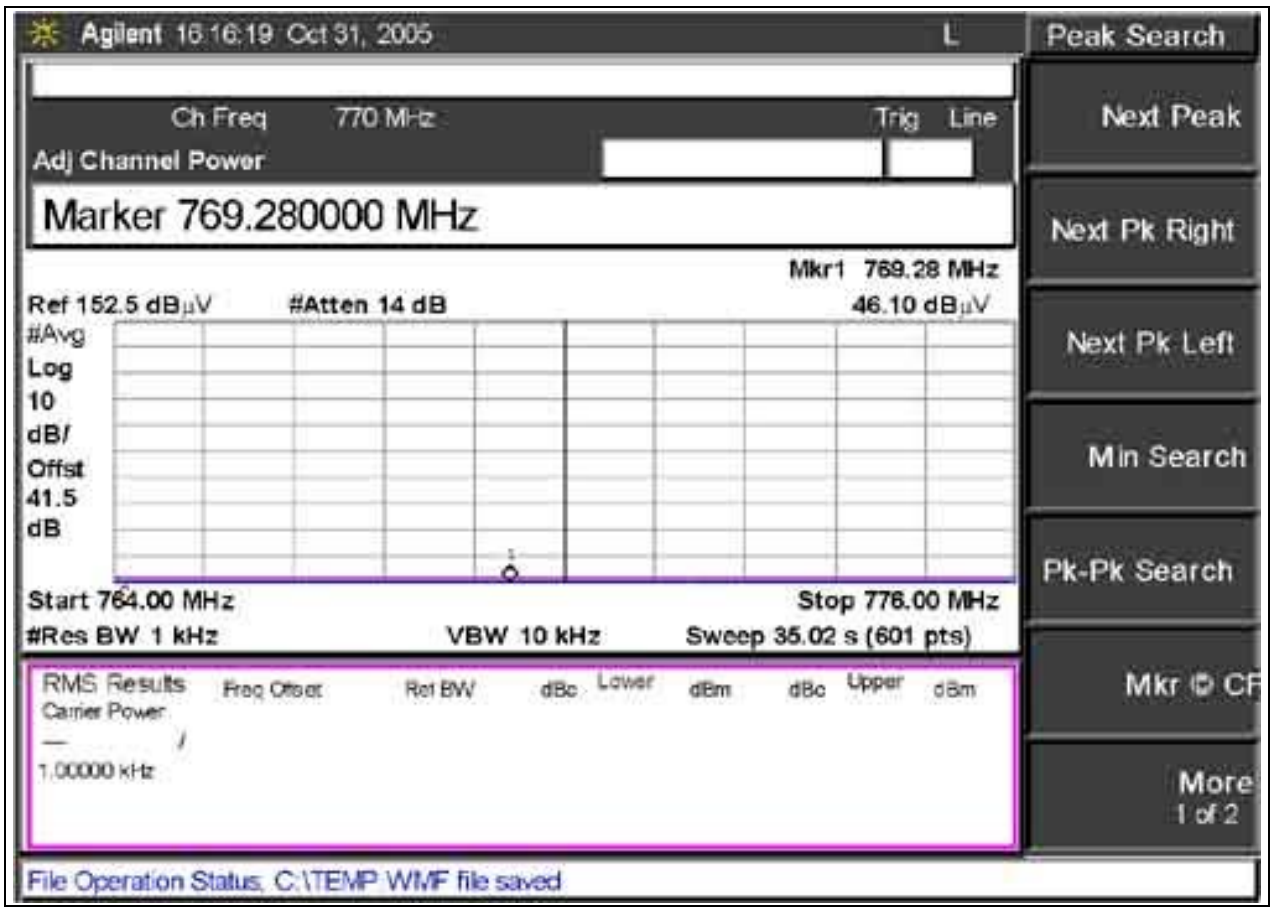
FCC 90.543(a) ADJACENT CHANNEL POWER HIGH CHANNEL PLOT 2



FCC 90.543(a) ADJACENT CHANNEL POWER HIGH CHANNEL PLOT 3



FCC 90.543(a) ADJACENT CHANNEL POWER HIGH CHANNEL PLOT 4



Test Equipment

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer	02672	Agilent	E4446A	US44300438	011405	011407

FCC 90.543(a)

FCC 2.1033(c)(14)/2.1051/90.543(c) - SPURIOUS EMISSIONS AT ANTENNA TERMINAL

Test Location: CKC Laboratories Inc. •180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer:	**IP MobileNet**		
Specification:	**FCC 90.543(c) Antenna Conducted Spurious Emission**		
Work Order #:	**84359**	Date:	10/27/2005
Test Type:	**Maximized Emissions**	Time:	13:35:03
Equipment:	**Mobile Data Radio**	Sequence#:	1
Manufacturer:	IP MobileNet	Tested By:	Stuart Yamamoto
Model:	M64700-50		
S/N:	05135030		

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Mobile Data Radio*	IP MobileNet	M64700-50	05135030

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	HP	6652A	3235A-00835
Laptop Computer	Dell Corporation	PP02L Inspiron I2500	5TZ6611
GPS Antenna	San Jose Navigation, Inc.	SM-25	2569790
High Power Termination	JFW	50FH-040-100-2N	(none)

Test Conditions / Notes:

The EUT and its support equipment are located adjacent to each other on the table top. Connected to the EUT RX1/TX port is one high powered attenuator and then a coaxial cable to the spectrum analyzer. Connected to the EUT serial port is an unterminated shielded serial cable. Connected to the EUT Rx2 port is a terminated shielded coaxial cable. Connect to the EUT GPS port is a standard GPS antenna with 5 meter long coaxial cable. The EUT ethernet port is connected to the laptop computer using an unshielded cat. 5E cable. Power to the EUT is supplied by an external DC Power supply. The laptop computer is used to check the status of the EUT as well as send commands to have it transmit continuously. Voltage to the EUT is 13.8 VDC. Temperature: 22°C, Humidity: 51%, Pressure: 100kPa. Frequency 5MHz - 30MHz RBW=9kHz, VBW=9kHz; 30MHz - 1000MHz RBW=120kHz, VBW=120kHz; 1000MHz - 9000MHz RBW=1MHz, VBW=1MHz. Frequency range scanned and maximized, 5 MHz to 9000 MHz. This data sheet is for the EUT transmitting at rated power (25 Watts) on Low (794 MHz), Mid (800 MHz), and High (806 MHz) channels.

Transducer Legend:

T1=1-40 GHz Cable_020807

Measurement Data: Reading listed by margin. Test Distance: None

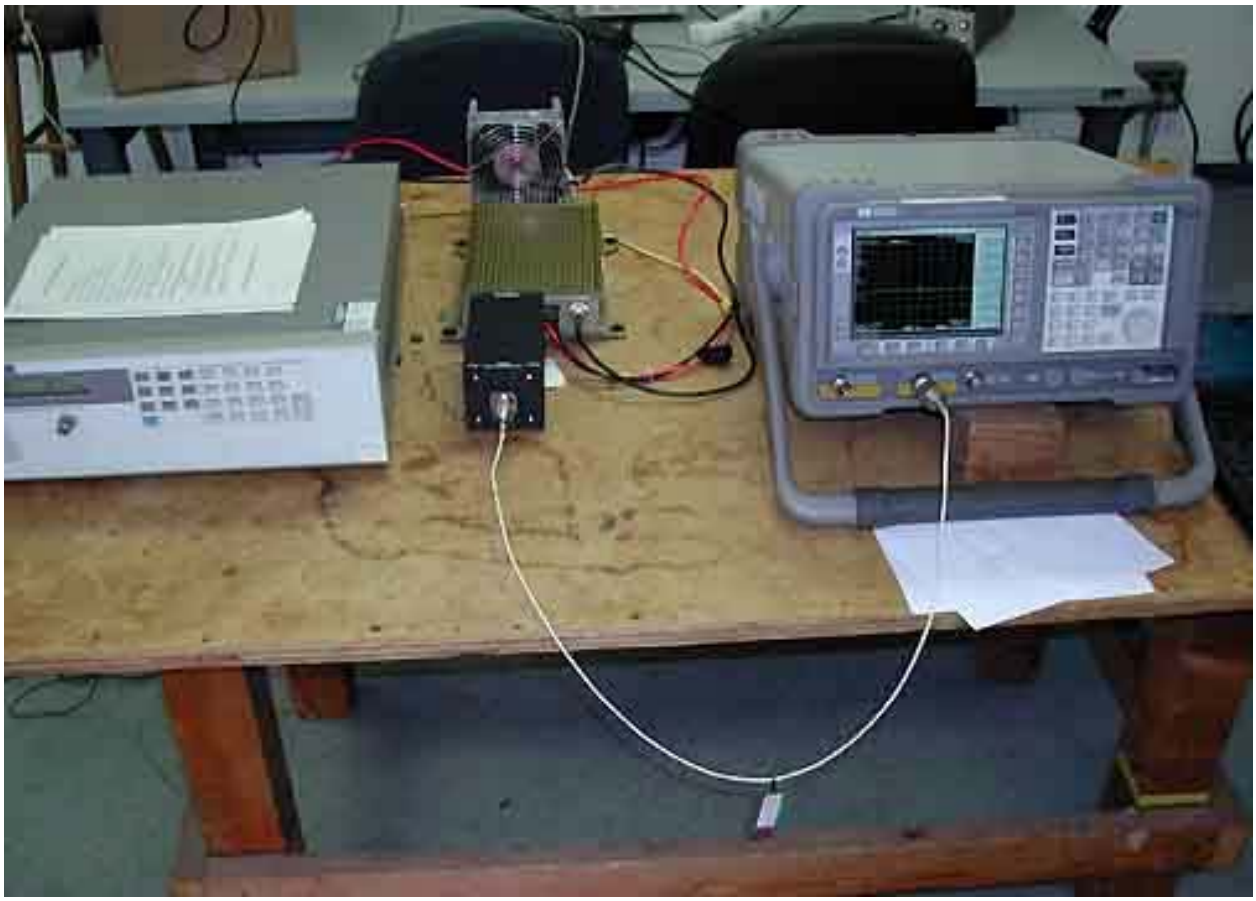
#	Freq MHz	Rdng dBµV	T1 dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	2400.000M	86.0	+1.0				+0.0	87.0	94.0	-7.0	None
2	2382.000M	84.9	+1.0				+0.0	85.9	94.0	-8.1	None
3	1600.000M	85.1	+0.8				+0.0	85.9	94.0	-8.1	None
4	1588.000M	83.5	+0.8				+0.0	84.3	94.0	-9.7	None

5	2418.000M	83.2	+1.0		+0.0	84.2	94.0	-9.8	None
6	1612.000M	83.1	+0.8		+0.0	83.9	94.0	-10.1	None
7	795.300M	79.9	+0.6		+0.0	80.5	94.0	-13.5	None
8	783.300M	79.9	+0.6		+0.0	80.5	94.0	-13.5	None
9	789.300M	79.6	+0.6		+0.0	80.2	94.0	-13.8	None
10	3200.000M	74.7	+1.2		+0.0	75.9	94.0	-18.1	None
11	3176.000M	74.0	+1.2		+0.0	75.2	94.0	-18.8	None
12	3224.000M	73.9	+1.2		+0.0	75.1	94.0	-18.9	None

Test Equipment

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer	02467	Agilent	E7405A	US40240225	032205	032207
Spectrum Analyzer RF Section	00989A	HP	8568A	2049A01287	040805	040807
Spectrum Analyzer Display Section	00034	HP	85662A	2349A06091	040805	040807
Quasi Peak Adapter	00200	HP	85650A	2043A00221	040805	040807
SMA Cable (White)	P05204	Pasterneck	NA	1-40GHz_white	020805	020807

FCC 90.543(c) ANTENNA CONDUCTED



FCC 2.1033(c)(14)/2.1053/90.543(c) - FIELD STRENGTH OF SPURIOUS RADIATION

Test Location: CKC Laboratories Inc. •180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer:	**IP MobileNet**		
Specification:	**FCC 90.543(c) Radiated Spurious Emission**		
Work Order #:	**84359**	Date:	10/27/2005
Test Type:	**Maximized Emissions**	Time:	16:11:35
Equipment:	**Mobile Data Radio**	Sequence#:	2
Manufacturer:	IP MobileNet	Tested By:	Stuart Yamamoto
Model:	M64700-50		
S/N:	05135030		

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Mobile Data Radio*	IP MobileNet	M64700-50	05135030

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	HP	6652A	3235A-00835
Laptop Computer	Dell Corporation	PP02L Inspiron I2500	5TZ6611
GPS Antenna	San Jose Navigation, Inc.	SM-25	2569790
High Power Termination	JFW	50FH-040-100-2N	(none)

Test Conditions / Notes:

The EUT and its support equipment are located adjacent to each other on the table top. Connected to the EUT RX1/TX port is a coaxial cable terminated into high powered load. Connected to the EUT serial port is an unterminated shielded serial cable. Connected to the EUT Rx2 port is a terminated shielded coaxial cable. Connect to the EUT GPS port is a standard GPS antenna with 5 meter long coaxial cable. The EUT ethernet port is connected to the laptop computer using an unshielded cat. 5E cable. Power to the EUT is supplied by an external DC Power supply. The laptop computer is used to check the status of the EUT as well as send commands to have it transmit continuously. Voltage to the EUT is 13.8 VDC. Temperature: 19°C, Humidity: 47%, Pressure: 100kPa. Frequency 5MHz - 30MHz RBW=9kHz, VBW=9kHz; 30MHz - 1000MHz RBW=120kHz, VBW=120kHz; 1000MHz - 9000MHz RBW=1MHz, VBW=1MHz. Frequency range scanned and maximized, 5 MHz to 9000 MHz. This data sheet is for the EUT transmitting at rated power (25 Watts) on Low (794 MHz), Mid (800 MHz), and High (806 MHz) channels.

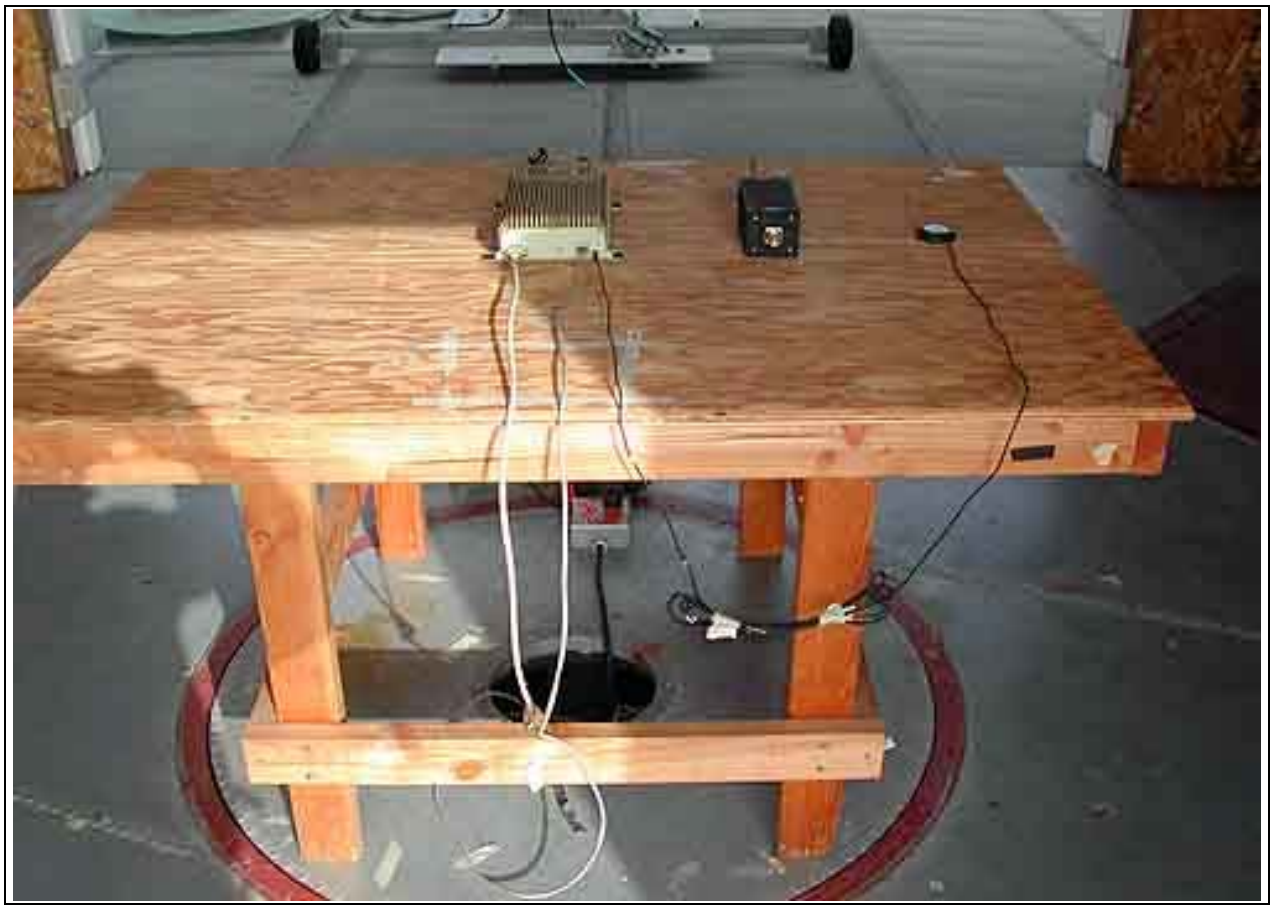
Operating Frequency: 794 MHz - 806 MHz
Channels: Low, Mid and High
Highest Measured Output Power: 43.98 ERP(dBm)= 25 ERP(Watts)
Distance: 3 meters
Limit: 43+10Log(P) 56.98 dBc

Freq. (MHz)	Reference Level (dBm)	Antenna Polarity (H/V)	dBc
2,418.00	-22.6	Vert	66.58
3,970.00	-23.4	Vert	67.38
2,382.00	-23.8	Horiz	67.78
2,382.00	-24	Vert	67.98
2,400.00	-24.3	Vert	68.28
4,030.00	-25.1	Vert	69.08
1,588.00	-25.4	Vert	69.38
1,588.00	-25.4	Horiz	69.38
2,418.00	-26.4	Horiz	70.38
4,000.00	-26.6	Vert	70.58
7,146.00	-26.9	Horiz	70.88
1,600.00	-27.1	Horiz	71.08
1,600.00	-27.3	Vert	71.28
7,146.00	-27.4	Vert	71.38
2,400.00	-28.9	Horiz	72.88
5,558.00	-29.1	Horiz	73.08
1,612.00	-29.1	Vert	73.08
5,558.00	-29.7	Vert	73.68
4,000.00	-30.7	Horiz	74.68
3,970.00	-30.9	Horiz	74.88
4,030.00	-31.4	Horiz	75.38
4,764.00	-31.9	Horiz	75.88
5,642.00	-32	Vert	75.98
1,612.00	-32.3	Horiz	76.28
5,600.00	-32.8	Vert	76.78
5,600.00	-33.8	Horiz	77.78
4,836.00	-35.3	Horiz	79.28

Test Equipment

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer RF Section	00989A	HP	8568A	2049A01287	040805	040807
Spectrum Analyzer Display Section	00034	HP	85662A	2349A06091	040805	040807
Quasi Peak Adapter	00200	HP	85650A	2043A00221	040805	040807
Spectrum Analyzer	02467	Agilent	E7405A	US40240225	032205	032207
Bilog Antenna	00851	Schaffner-Chase EMC	CBL6111C	2629	031604	031606
Antenna cable (10 meter site D)	NA	Andrew	LDF1-50	Cable#17	100204	100206
Antenna cable from bulkhead to antenna	N/A	Pasternack	RG-214/U	Cable #33	040105	040106
Preamp to SA Cable (3 feet)	NA	Pasternack	E100316-I	Cable #22	080904	080906
Pre-amp	00010	HP	8447D	2727A05392	070204	070206
Antenna cable (Heliax)	NA	Andrew	LDF1-50	Cable#19	092805	092807
Horn Antenna	01646	EMCO	3115	9603-4683	072204	072206
Microwave Pre-amp	00787	HP	83017A	3123A00282	052705	052707
Magnetic Loop Antenna	00314	Emco	6502	2014	072804	072806
SMA Cable (White)	P05204	Pasterneck	NA	1-40GHz_white	020805	020807

PHOTOGRAPH SHOWING RADIATED EMISSIONS



PHOTOGRAPH SHOWING RADIATED EMISSIONS