ADDENDUM TO IP MOBILENET TEST REPORT FC03-064C

FOR THE

MOBILE STATION DATA RADIO, M-800-25

FCC PART 90 AND RSS-119

COMPLIANCE

DATE OF ISSUE: MAY 23, 2006

PREPARED FOR:

IP MobileNet
16842 Von Karman Avenue
Irvine, CA 92606

W.O. No.: 81225

PREPARED BY:

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

Date of test: February 24 - March 6, 2006

Report No.: FC03-064D

TABLE OF CONTENTS

ADMINISTRATIVE INFORMATION

DATE OF TEST:	February 24 - March 6, 2006
DATE OF RECEIPT:	February 24, 2006
FREQUENCY RANGE TESTED:	1 MHz - 9 GHz
MANUFACTURER:	IP MobileNet 16842 Von Karman Avenue Irvine, CA 92606
REPRESENTATIVE:	Kim Patel
TEST LOCATION:	CKC Laboratories, Inc. 110 Olinda Place Brea, CA 92823
TEST METHOD:	FCC Part 90
PURPOSE OF TEST:	To demonstrate the compliance of the Mobile Station, M-800-25 with the requirements for FCC Part 90 devices. **Addendum A** is to revise the output power on page 6, add the bandwidth limitations calculation on page 8 and revise the emissions mask calculations on page 12. **Addendum B** is to demonstrate the compliance of the Mobile Station Data Radio, M-800-25 with the requirements for FCC Part 90 and RSS-119 devices with new testing to extend the frequency range from 821 MHz - 824 MHz. **Addendum C** is to add the frequency stability data table. **Addendum D** is to to revise the emissions designator and remove an incorrect antenna conducted emissions plot.

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 Station Data Radio
Manuf: IP MobileNet
Model: M-800-25
Serial: 06038000
FCC ID:

PERIPHERAL DEVICES

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

PS/2 Mouse
Manuf: Microsoft Corporation
Model: X03-68761
Serial: NA

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

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

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

DC Power Supply
Manuf: Samlex America
Model: SEC 1223
Serial: 03061-0D01-0632

AC to DC Power Adapter
Manuf: Dell Corporation
Model: AA20031
Serial: CN-09364U-1629-1BT-0CX0

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
20K0F1D

FCC 2.1033 (c)(5) FREQUENCY RANGE
806 MHz - 824 MHz.

FCC 2.1033 (c)(6) OPERATING POWER
20 Watts.

FCC 2.1033 (c)(7) MAXIMUM POWER RATING
100 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
FSK

FCC 2.1033(c)(14)/2.1046/90.205 - RF POWER OUTPUT

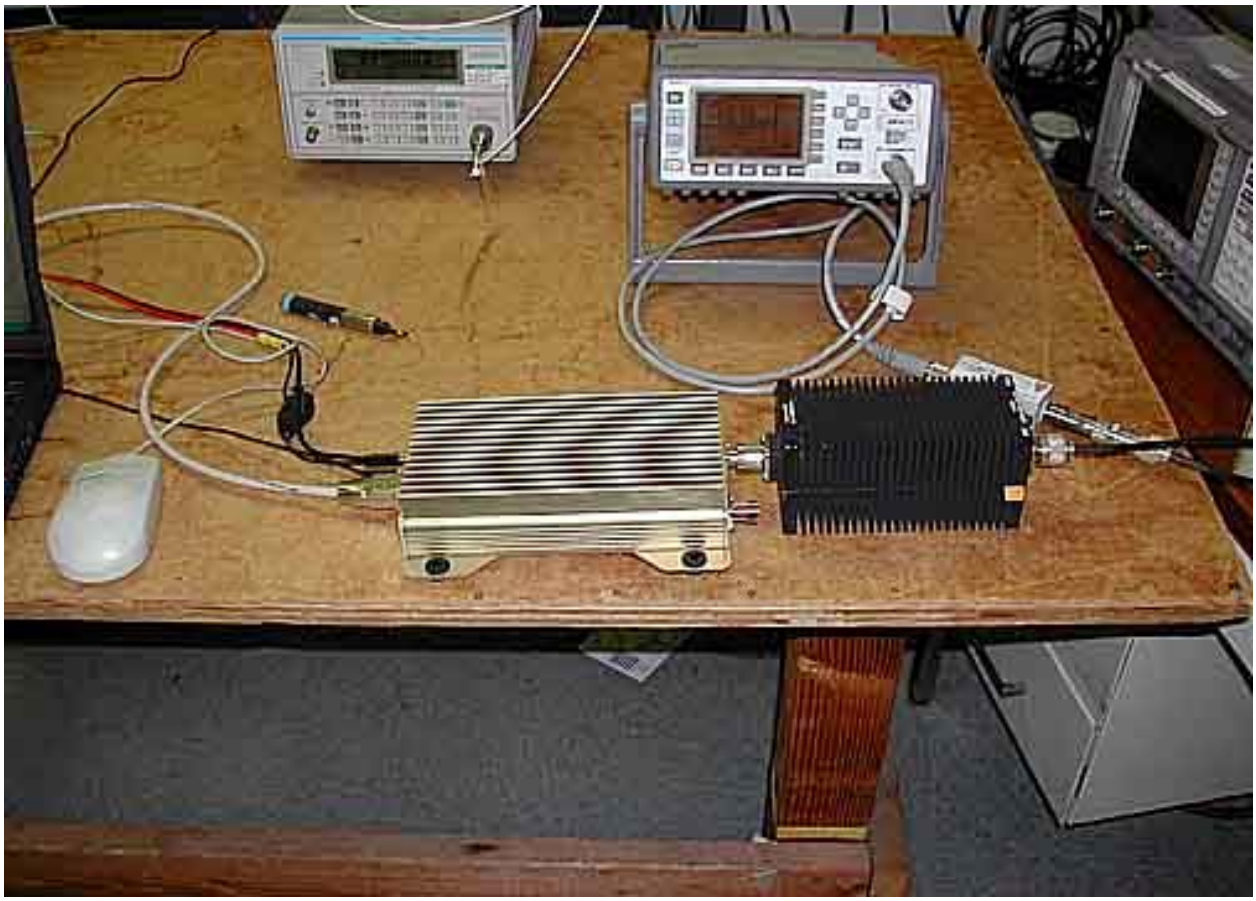
Test Conditions: The EUT was connected to a laptop computer via its RS232 port. The laptop computer was used to command the EUT to transmit continuously and what frequency to transmit at. Also connected to the EUT was an external DC power supply set at 13.8VDC, and an external GPS antenna. Connected to the EUT output was a high power RF attenuator and a coaxial cable. The coaxial cable was connected to the RF power sensor of the RF power meter. The RF power meter was used to measure the EUT RF power. Bandwidth settings: SA RES BW=1MHz, SA VID BW=1MHz, QPA BW=120kHz.

Frequency (MHz)	RF Power Output (Watts)
821	20.0
824	20.0

FCC 90.205 RF Power Output

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
RF Power meter	02778	HP	EPM-41A	GB37170458	012706	012708
Power Sensor	02777	Agilent	E4412A	MY41499662	012706	012708
Spectrum Analyzer	02472	HP	8568B	2928A04874	100804	100806
Spectrum Analyzer Display Section	02472	HP	85662A	3001A18430	100804	100806
QP Adapter	01437	HP	85650A	3303A01884	100804	100806

PHOTOGRAPH SHOWING RF POWER OUTPUT



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

Not applicable to this unit.

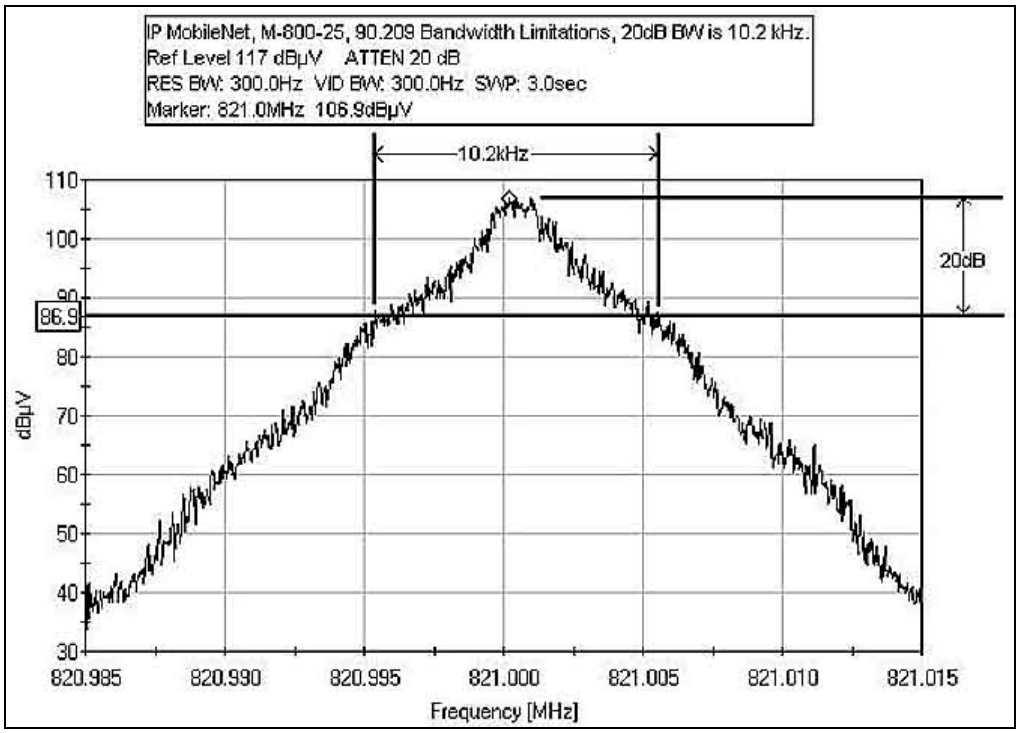
FCC 2.1033(c)(14)/2.1047(b) MODULATION CHARACTERISTICS– Modulation Limiting Response

Not applicable to this unit.

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

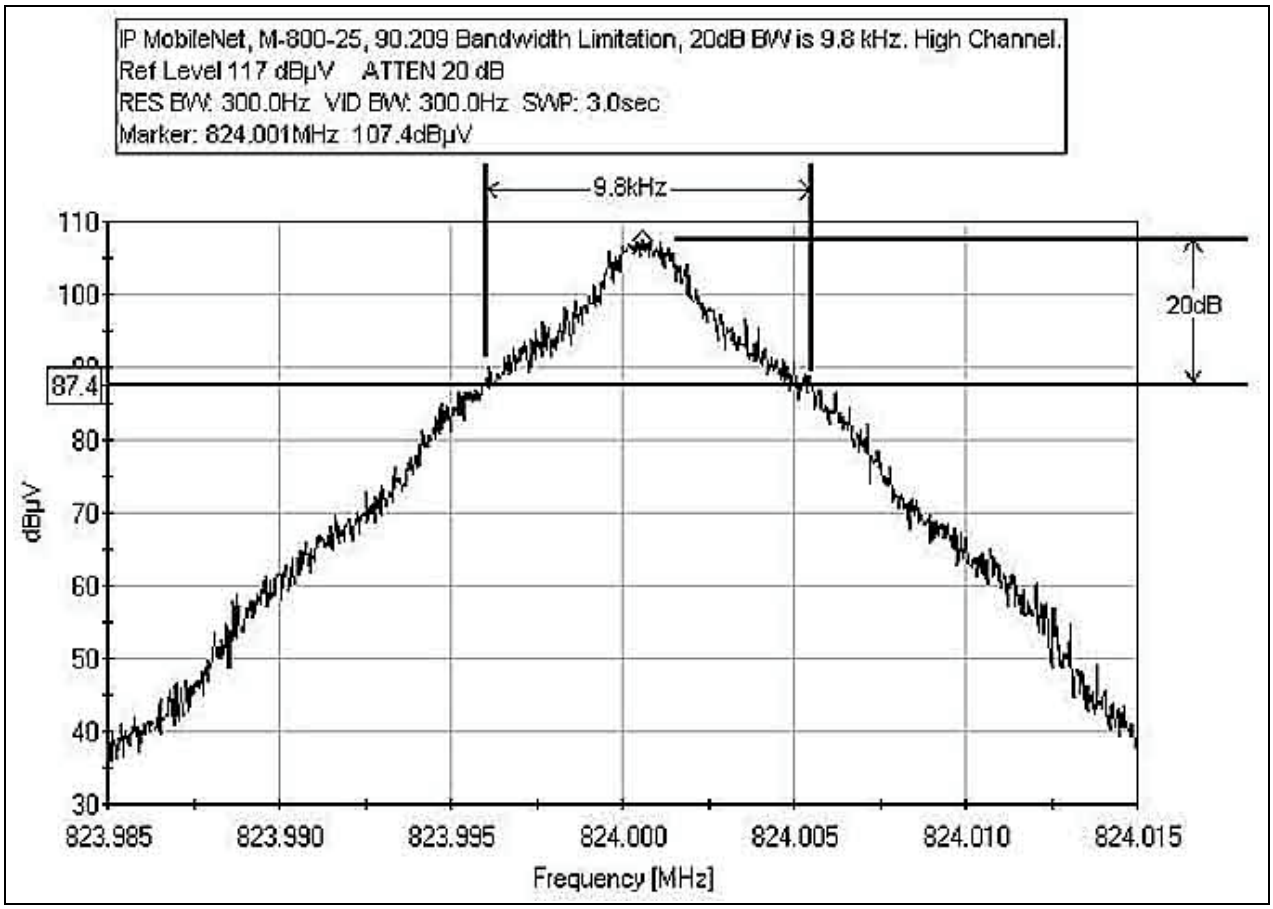
Test Conditions: The EUT was connected to a laptop computer via its RS232 port. The laptop computer was used to command the EUT to transmit continuously and what frequency to transmit at. Also connected to the EUT was an external DC power supply set at 13.8VDC, and an external GPS antenna. Connected to the EUT output was a high power RF attenuator and a coaxial cable. The coaxial cable was connected to the spectrum analyzer, which was used to measure the EUT bandwidth. Bandwidth settings: RES BW=300Hz, VID BW=300Hz.

FCC 90.209 - 20dB BANDWIDTH 821 MHz



Necessary bandwidth calculation is Bn=2D+2M Where
Bn = Necessary Bandwidth
D (peak deviation) = 2.2kHz
M (Max modulation frequency) = 7.8kHz
2D+2M = 20kHz

FCC 90.209 - 20dB BANDWIDTH 824 MHz



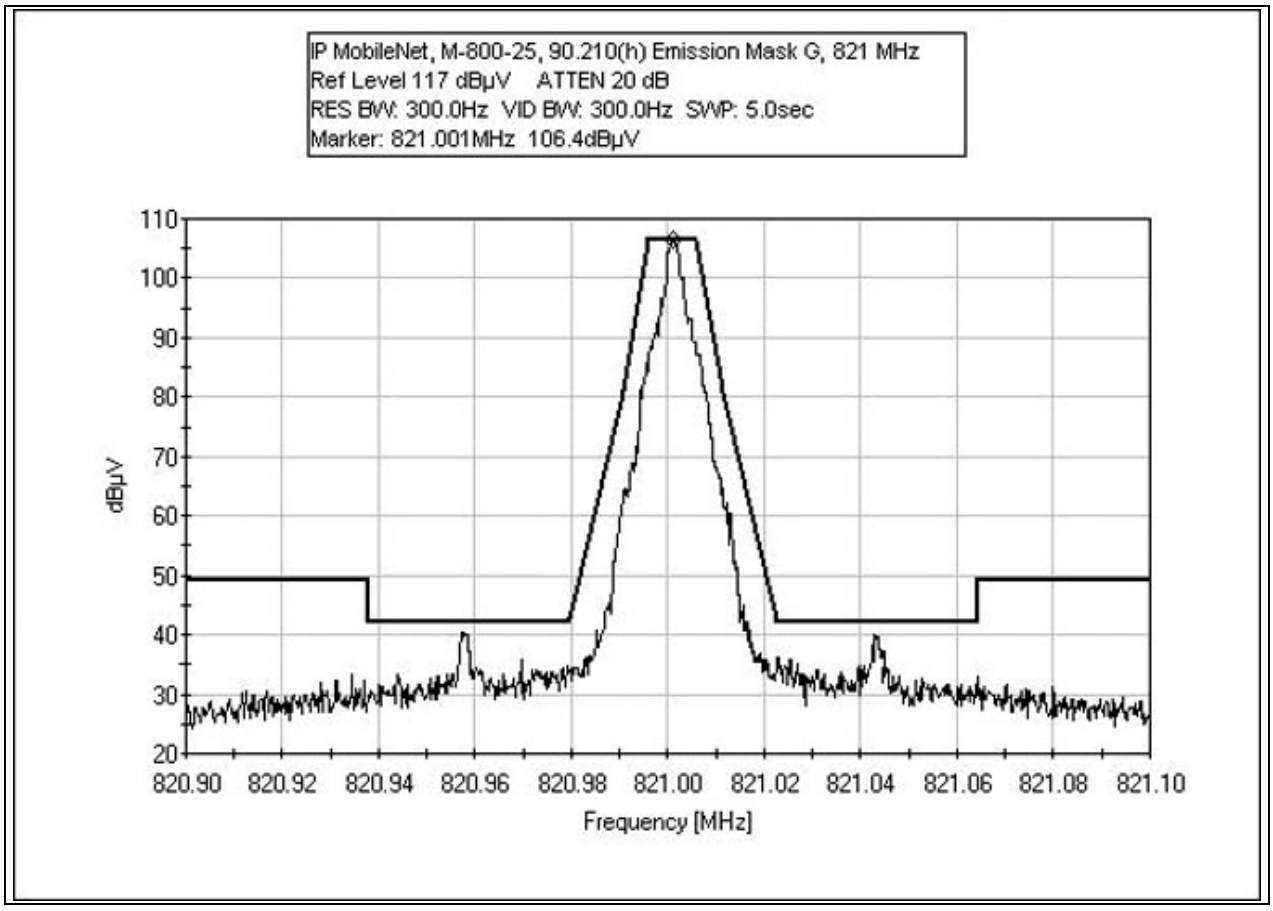
FCC 90.209 Bandwidth Limitations

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
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

PHOTOGRAPH SHOWING BANDWIDTH LIMITATIONS

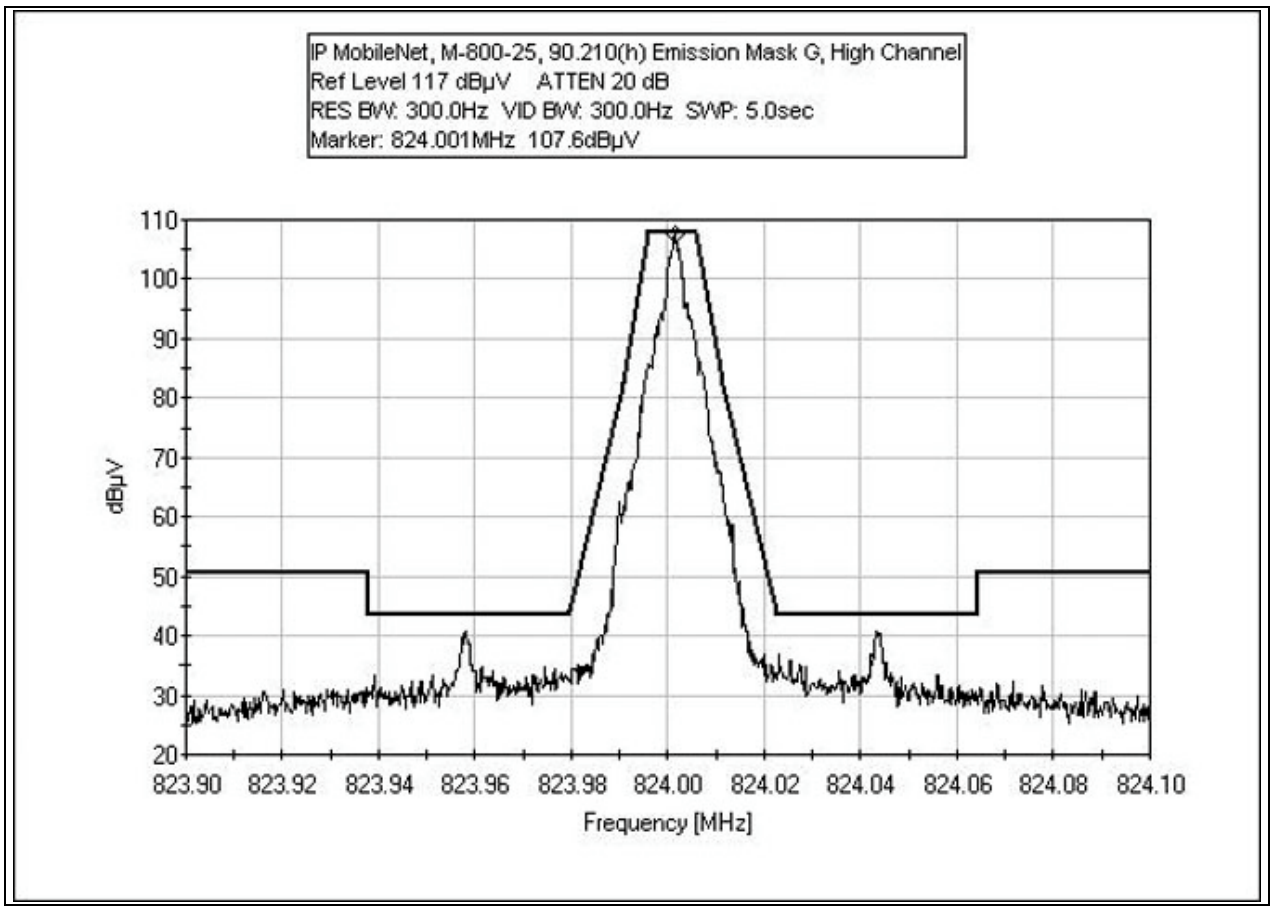
FCC 90.210(h) EMISSIONS MASK MID CHANNEL G

Test Conditions: The EUT was connected to a laptop computer via its RS232 port. The laptop computer was used to command the EUT to transmit continuously and what frequency to transmit at. Also connected to the EUT was an external DC power supply set at 13.8VDC, and an external GPS antenna. Connected to the EUT output was a high power RF attenuator and a coaxial cable. The coaxial cable was connected to the spectrum analyzer, which was used to measure the EUT emission mask. Bandwidth settings: RES BW=300Hz, VID BW=300Hz.



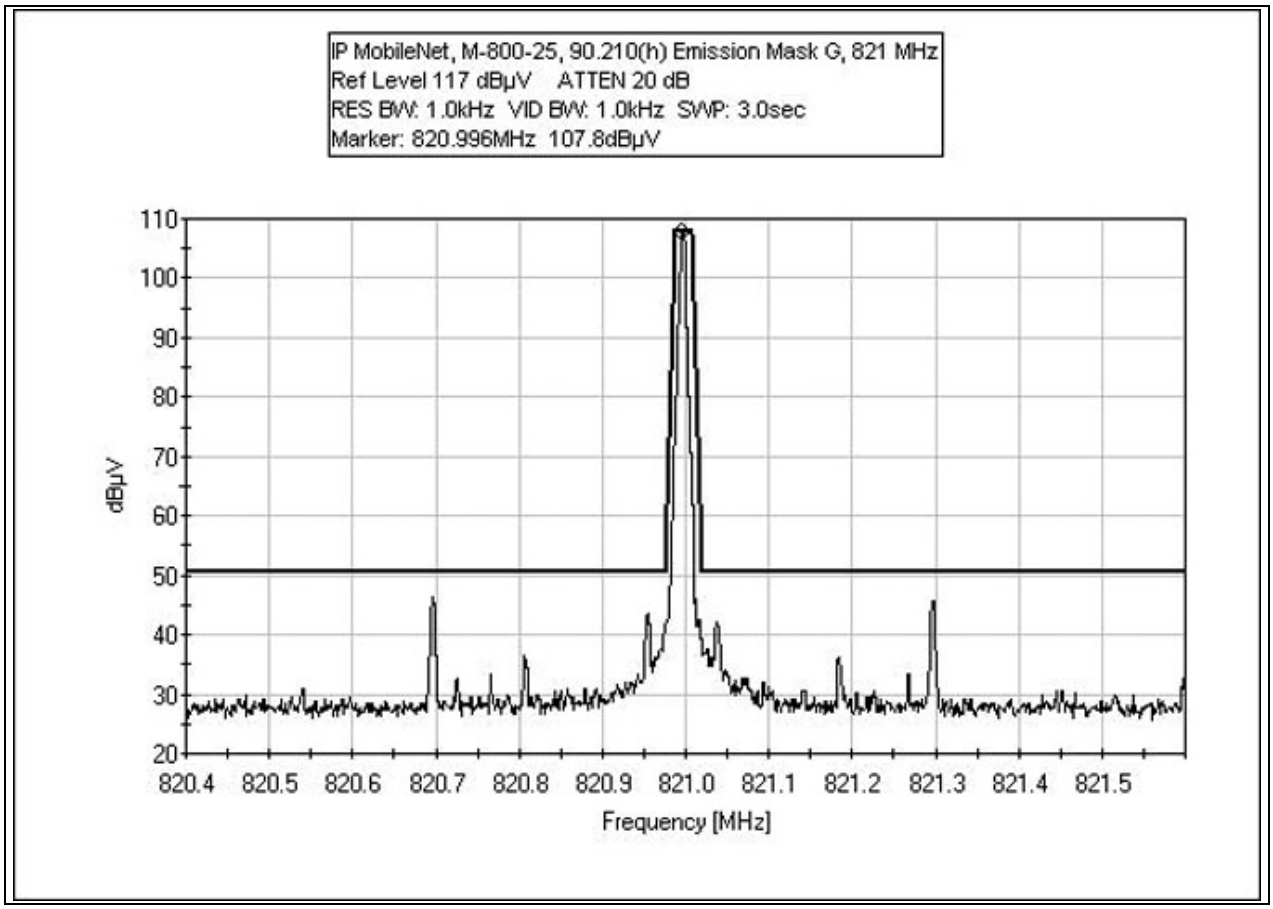
FCC 90.210(h) EMISSIONS MASK HIGH CHANNEL G

Bandwidth settings: RES BW=300Hz, VID BW=300Hz.



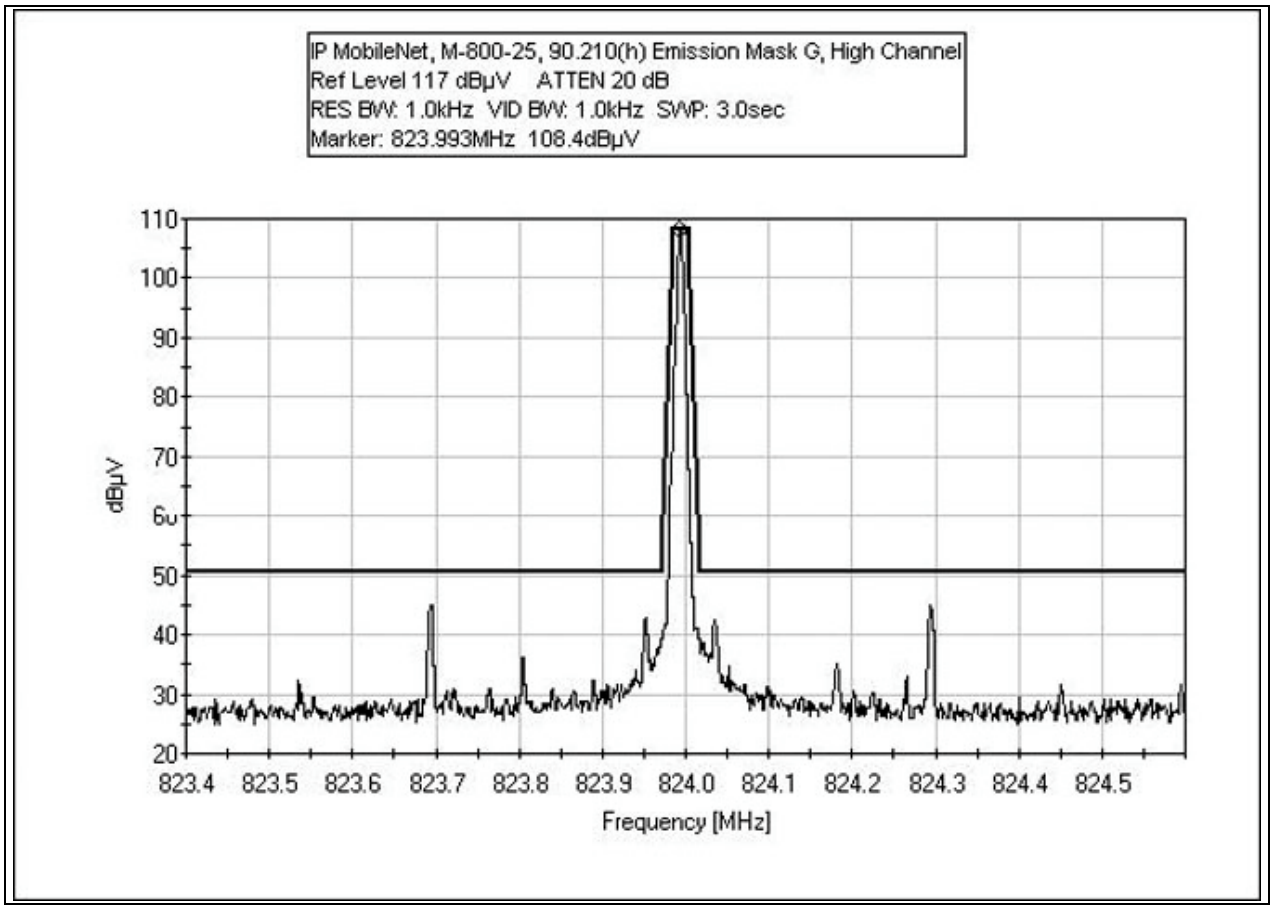
FCC 90.210(h) EMISSIONS MASK BIG SPAN MID CHANNEL

Bandwidth settings: RES BW=1kHz, VID BW=1kHz.



FCC 90.210(h) EMISSIONS MASK BIG SPAN HIGH CHANNEL

Bandwidth settings: RES BW=1kHz, VID BW=1kHz.



FCC 90.210(g) Occupied Bandwidth/Emission Mask

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
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

PHOTOGRAPH SHOWING EMISSIONS MASK

FCC 2.1033(c)(14)/2.1051/90.210 - SPURIOUS EMISSIONS AT ANTENNA TERMINAL

Test Location: CKC Laboratories, Inc. •110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **IP MobileNet**
Specification: **FCC 90.210(g) Antenna Spurious Emission**
Work Order #: **81225** Date: 2/27/2006
Test Type: **Antenna Terminals** Time: 13:48:54
Equipment: **Mobile Station Data Radio** Sequence#: 1
Manufacturer: IP MobileNet Tested By: Stuart Yamamoto
Model: M-800-25
S/N: 06038000

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

Function	Manufacturer	Model #	S/N
Mobile Station Data Radio*	IP MobileNet	M-800-25	06038000

Support Devices:

Function	Manufacturer	Model #	S/N
PS/2 Mouse	Microsoft Corporation	X03-68761	
High Power Termination	JFW	50FH-040-100-2N	
GPS Antenna	San Jose Navigation, Inc.	SM-25	2569790
DC Power Supply	Samlex America	SEC 1223	03061-0D01-0632
Laptop Computer	Dell Corporation	PP02L Inspiron I2500	5TZ6611
AC to DC Power Adapter	Dell Corporation	AA20031	CN-09364U-1629-1BT-0CX0

Test Conditions / Notes:

The equipment under test (EUT) is a data radio for mobile use operating in the frequency range of 806-824 MHz. The EUT is DC powered by support power supply. A support laptop is used for configuration and testing purposes only. The antenna port is connected to a high power termination then is fed to a spectrum analyzer input. Frequency scanned, 1 MHz to 9 GHz. Data represents EUT fundamental transmitting 20.0 watts at both 821 and 824 MHz. Temperature: 21°C, Humidity: 35%, Pressure: 100kPa. Frequency Range 9kHz-150kHz SA RES BW=3kHz, SA VID BW=3kHz, QPA BW=200Hz; 150kHz-30MHz SA RES BW=100kHz, SA VID BW=100kHz, QPA BW=9kHz; 30MHz-1000MHz SA RES BW=1MHz, SA VID BW=1MHz, QPA BW=120kHz; 1000MHz-10000MHz SA RES BW=1MHz, SA VID BW=1MHz.

Transducer Legend:

T1=1-40 GHz Cable_122306	T2=HPF_AN02116_1.5GHz_062707

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	5747.009M	86.3	+2.1	+1.1			+0.0	89.5	94.0	-4.5	None
2	1648.002M	87.0	+1.1	+0.6			+0.0	88.7	94.0	-5.3	None
3	1642.005M	86.6	+1.1	+0.6			+0.0	88.3	94.0	-5.7	None

4	5768.020M	83.6	+2.1	+1.1		+0.0	86.8	94.0	-7.2	None
5	865.550M	84.2	+0.8	+0.0		+0.0	85.0	94.0	-9.0	None
6	868.552M	81.6	+0.8			+0.0	82.4	94.0	-11.6	None
7	872.150M	80.6	+0.8	+0.0		+0.0	81.4	94.0	-12.6	None
8	8210.004M	77.9	+2.7	+0.7		+0.0	81.3	94.0	-12.7	None
9	779.464M	80.3	+0.8			+0.0	81.1	94.0	-12.9	None
10	8240.005M	77.6	+2.7	+0.7		+0.0	81.0	94.0	-13.0	None
11	875.600M	79.7	+0.8			+0.0	80.5	94.0	-13.5	None
12	776.425M	79.6	+0.8	+0.0		+0.0	80.4	94.0	-13.6	None
13	769.800M	79.1	+0.8	+0.0		+0.0	79.9	94.0	-14.1	None
14	772.398M	78.8	+0.8			+0.0	79.6	94.0	-14.4	None
15	913.078M	78.4	+0.8			+0.0	79.2	94.0	-14.8	None
16	734.934M	78.3	+0.7			+0.0	79.0	94.0	-15.0	None
17	3284.007M	76.8	+1.6	+0.6		+0.0	79.0	94.0	-15.0	None
18	3295.992M	75.6	+1.6	+0.6		+0.0	77.8	94.0	-16.2	None
19	690.375M	76.3	+0.7			+0.0	77.0	94.0	-17.0	None
20	957.625M	75.7	+0.8			+0.0	76.5	94.0	-17.5	None
21	720.800M	75.4	+0.7			+0.0	76.1	94.0	-17.9	None
22	4104.987M	73.4	+1.8	+0.8		+0.0	76.0	94.0	-18.0	None
23	875.915M	75.0	+0.8			+0.0	75.8	94.0	-18.2	None
24	2471.998M	73.4	+1.4	+0.7		+0.0	75.5	94.0	-18.5	None
25	875.623M	74.6	+0.8			+0.0	75.4	94.0	-18.6	None
26	2463.007M	73.2	+1.4	+0.6		+0.0	75.2	94.0	-18.8	None
27	6568.007M	70.8	+2.3	+1.0		+0.0	74.1	94.0	-19.9	None

28	4925.986M	70.9	+2.0	+1.0		+0.0	73.9	94.0	-20.1	None
29	4119.992M	70.8	+1.8	+0.8		+0.0	73.4	94.0	-20.6	None
30	6591.986M	69.6	+2.3	+1.0		+0.0	72.9	94.0	-21.1	None
31	7389.005M	69.6	+2.5	+0.8		+0.0	72.9	94.0	-21.1	None
32	4943.973M	69.1	+2.0	+1.0		+0.0	72.1	94.0	-21.9	None
33	7415.986M	68.0	+2.5	+0.8		+0.0	71.3	94.0	-22.7	None
34	813.289M	70.1	+0.8			+0.0	70.9	94.0	-23.1	None

FCC 90.210(g) Spurious Emissions Antenna Terminal

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
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
Spectrum Analyzer	02467	Agilent	E7405A	US40240225	032205	032207
1.5 GHz HPF	02116	HP	84300-80037	3643A00027	062705	062707
24" SMA Cable (White)	P05183	Pasterneck	NA	1-40GHz_white	122304	122306
24" SMA Cable (White)	P05455	Pasterneck	NA	1-40GHz_white	011706	011708

PHOTOGRAPH SHOWING DIRECT CONNECT TEST SETUP

FCC 2.1033(c)(14)/2.1053/90.210 - FIELD STRENGTH OF SPURIOUS RADIATION

Test Location: CKC Laboratories, Inc. •110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer:	**IP MobileNet**		
Specification:	**FCC 90.210(g) Radiated Spurious Emission**		
Work Order #:	**81225**	Date:	2/27/2006
Test Type:	**Antenna Terminals**	Time:	11:27:27
Equipment:	**Mobile Station Data Radio**	Sequence#:	2
Manufacturer:	IP MobileNet	Tested By:	Stuart Yamamoto
Model:	M-800-25		
S/N:	06038000		

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

Function	Manufacturer	Model #	S/N
Mobile Station Data Radio*	IP MobileNet	M-800-25	06038000

Support Devices:

Function	Manufacturer	Model #	S/N
PS/2 Mouse	Microsoft Corporation	X03-68761	
High Power Termination	JFW	50FH-040-100-2N	
GPS Antenna	San Jose Navigation, Inc.	SM-25	2569790
Laptop Computer	Dell Corporation	PP02L Inspiron I2500	5TZ6611
AC to DC Power Adapter	Dell Corporation	AA20031	CN-09364U-1629-1BT-0CX0
DC Power Supply	HP	6652A	3235A00835

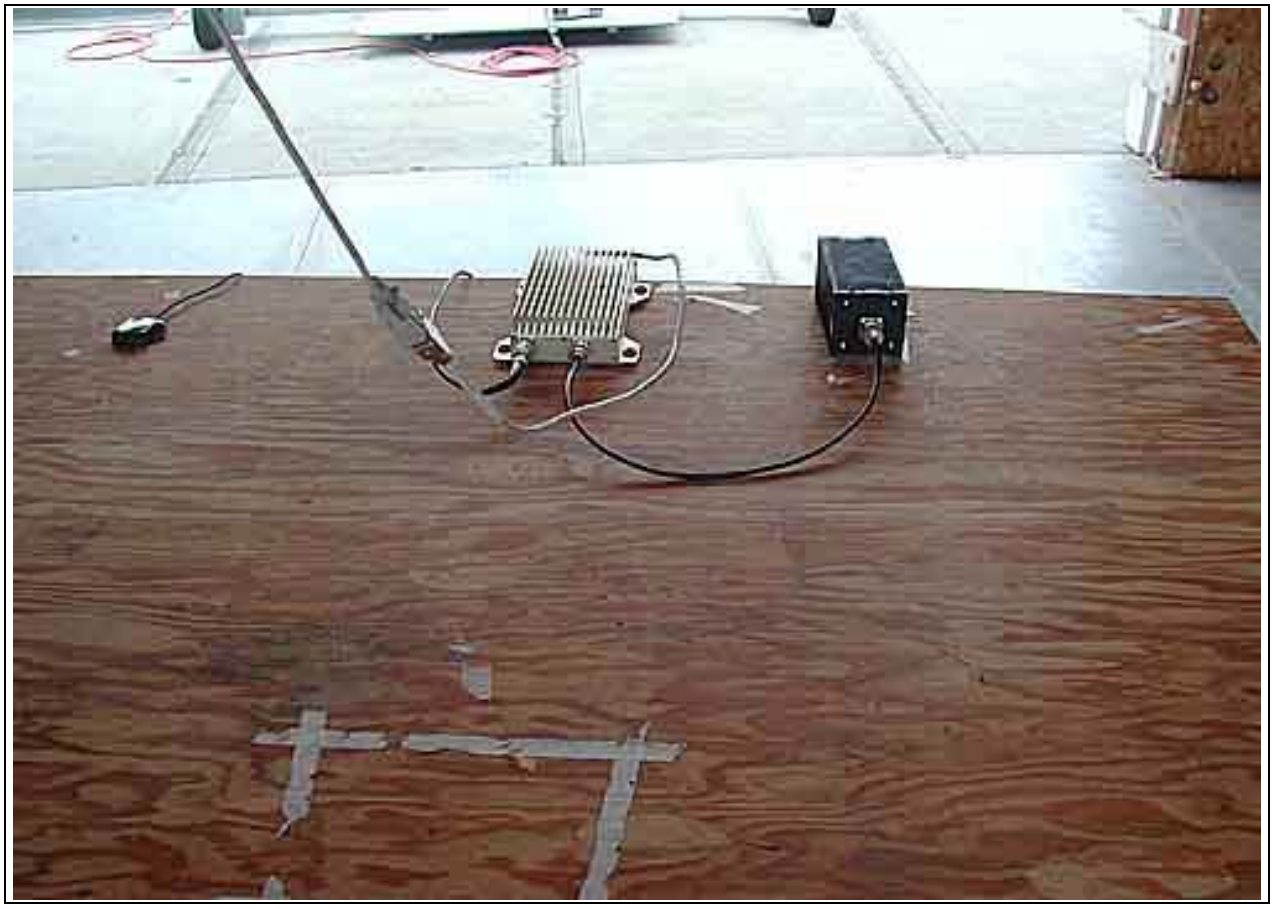
Test Conditions / Notes:

The equipment under test (EUT) is a data radio for mobile use operating in the frequency range of 806-824 MHz. The EUT is DC powered by support power supply. A support laptop is used for configuration and testing purposes only and is connected to the EUT via the DB-9 serial port. The antenna port is connected to a high power termination. All other ports of the EUT have representative cables connected to them. Frequency scanned and maximized, 1 MHz to 9 GHz. Data represents EUT fundamental transmitting 20.0 watts at 821 and 824 MHz. Temperature: 21°C, Humidity: 35%, Pressure: 100kPa. Frequency Range 9kHz-150kHz SA RES BW=3kHz, SA VID BW=3kHz, QPA BW=200Hz; 150kHz-30MHz SA RES BW=100kHz, SA VID BW=100kHz, QPA BW=9kHz; 30MHz-1000MHz SA RES BW=1MHz, SA VID BW=1MHz, QPA BW=120kHz; 1000MHz-10000MHz SA RES BW=1MHz, SA VID BW=1MHz. **No EUT emissions detected within 20dB of the limit within the frequency range 1 MHz to 1000 MHz.**

FCC 90.210(g) Spurious Emissions OATS

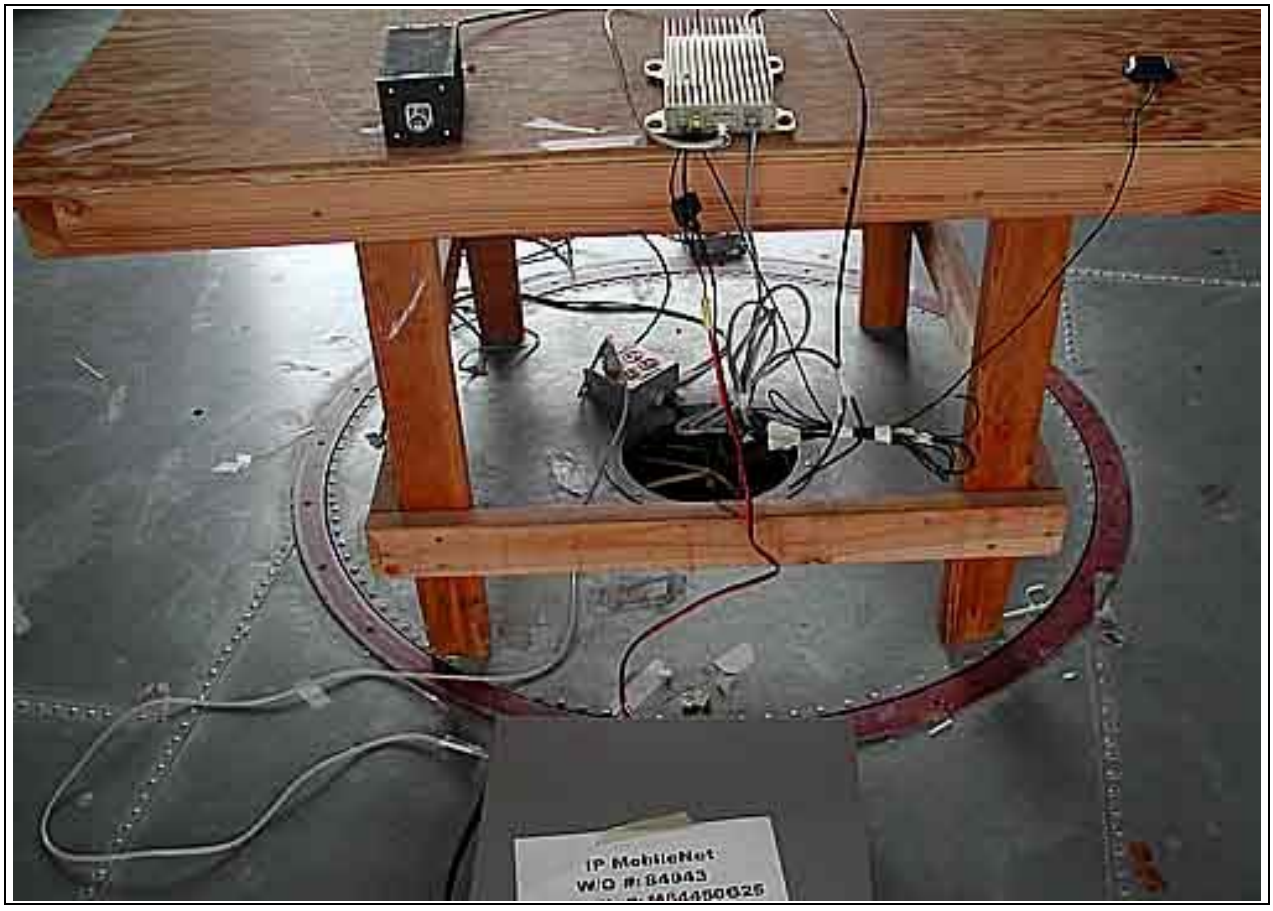
Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer RF Section	02462	HP	8568B	2928A04874	100804	100806
Spectrum Analyzer Display Section	02472	HP	85662A	3001A18430	100804	100806
QP Adapter	01437	HP	85650A	3303A01884	100804	100806
Spectrum Analyzer	02467	Agilent	E7405A	US40240225	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
1.5 GHz HPF	02116	HP	84300-80037	3643A00027	062705	062707
Magnetic Loop Antenna	00314	Emco	6502	2014	072804	072806
24” SMA Cable (White)	P5183	Pasterneck	NA	1-40GHz_white	122304	122306

PHOTOGRAPH SHOWING RADIATED EMISSIONS



90.210 OATS Front

PHOTOGRAPH SHOWING RADIATED EMISSIONS



90.210 OATS Back

FCC 2.1033(c)(14)/2.1055/90.213- FREQUENCY STABILITY

Test Conditions: The EUT was located stand alone inside the temperature chamber. All other equipment connected to the EUT was external to the temperature chamber. The EUT was connected to a laptop computer via its RS232 port. The laptop computer was used to command the EUT to transmit continuously and what frequency to transmit at. Also connected to the EUT was an external DC power supply set at 13.8VDC, and an external GPS antenna. Connected to the EUT output was a high power RF attenuator and a coaxial cable. The coaxial cable was connected to the spectrum analyzer, which was used to measure the EUT frequency. Bandwidth settings: RES BW=1000Hz, VID BW=10Hz.

Customer: IP Mobilenet
WO#: 81225
Date: 2-Mar-06
Test Engineer: S. Yamamoto

Device Model #: M-800-25
Operating Voltage: 13.8 **VDC**
Frequency Limit: 2.5 **PPM**

Temperature Variations

Channel Frequency:		Dev. (MHz)	Channel 0 (MHz) 820.999303	Dev. (MHz)	Channel 1 (MHz) 823.999307	Dev. (MHz)
Temp (C)	Voltage					
-30	13.8		820.997588	0.00172	823.997597	0.00171
-20	13.8		820.998510	0.00079	823.998590	0.00072
-10	13.8		820.998598	0.00071	823.998671	0.00064
0	13.8		820.998811	0.00049	823.998870	0.00044
10	13.8		820.998998	0.00031	823.999038	0.00027
20	13.8		820.999303	0.00000	823.999307	0.00000
30	13.8		820.999000	0.00030	823.999302	0.00001
40	13.8		820.999305	0.00000	823.999358	0.00005
50	13.8		820.999290	0.00001	823.999340	0.00003

Voltage Variations (±15%)

20	11.7		820.999318	0.00001	823.999321	0.00001
20	13.8		820.999303	0.00000	823.999307	0.00000
20	15.9		820.999311	0.00001	823.999317	0.00001

Max Deviation (MHz)				**0.00172**		**0.00171**
Max Deviation (PPM)				**2.08892**		**2.07524**
				PASS		**PASS**

Max Deviation (MHz)				**0.00172**		**0.00171**
Max Deviation (%)				**0.00000**		**0.00000**
				PASS		**PASS**

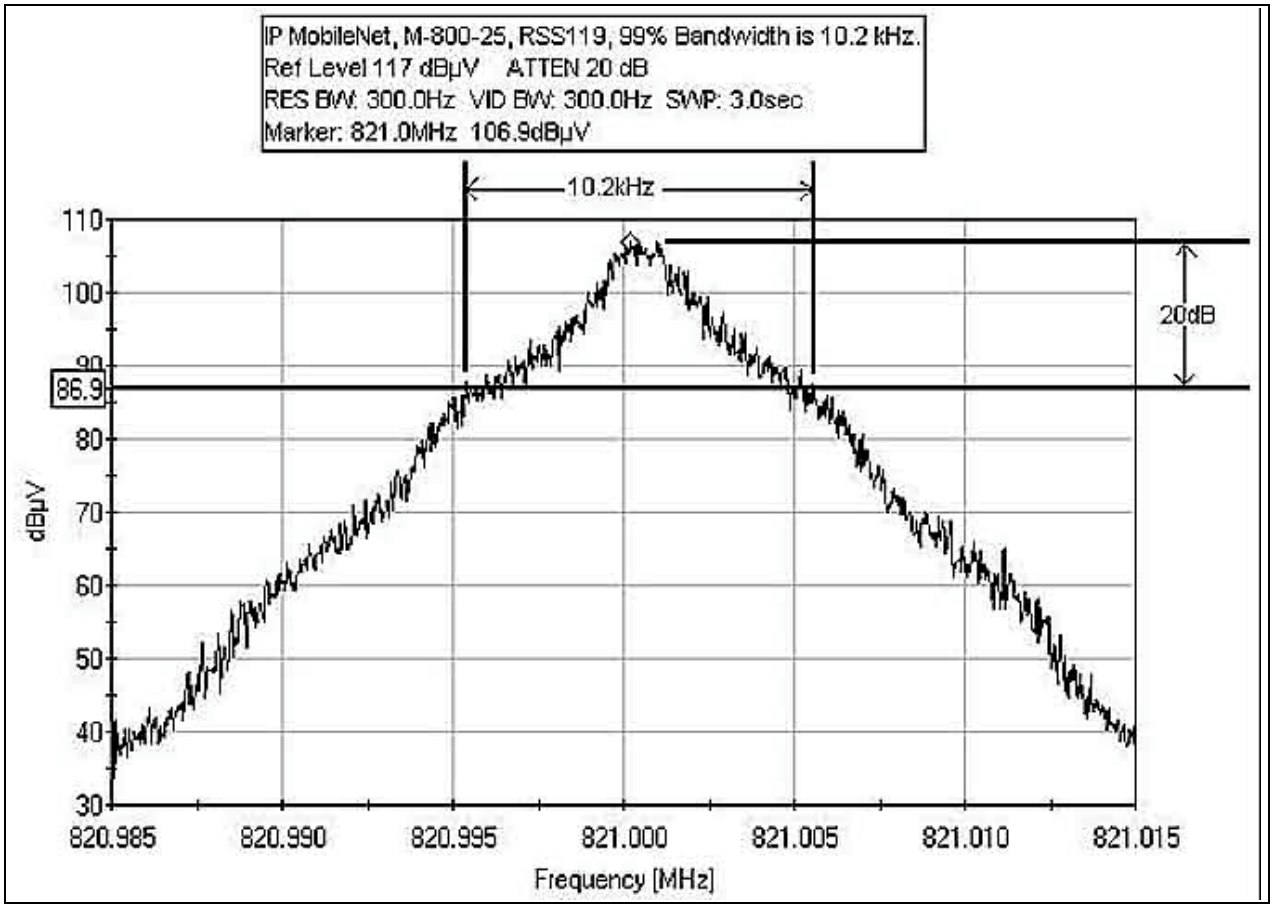
FCC 90.213 Frequency Stability

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer RF Section	00042	HP	8568B	2415A00481	061804	061806
Spectrum Analyzer Display Section	00043	HP	85662A	2403A07316	061804	061806
Quasi Peak Adapter	00090	HP	85650A	2043A00231	061804	061806
Temperature Chamber	01878	Thermotron	S1.2 Mini Max	(none)	071904	071906

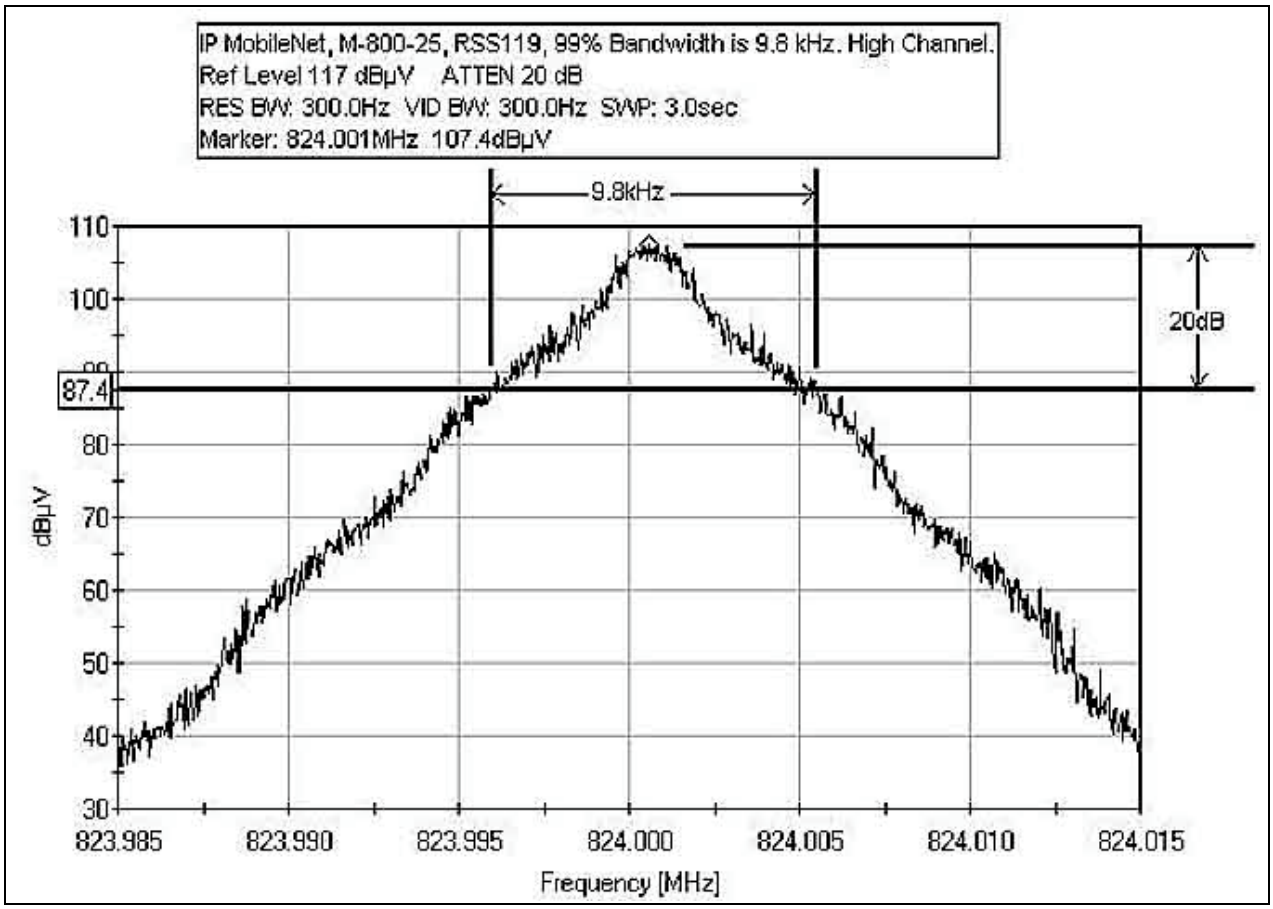
PHOTOGRAPH SHOWING FREQUENCY STABILITY

RSS-119 - 99% BANDWIDTH 821 MHz

Test Conditions: The EUT was connected to a laptop computer via its RS232 port. The laptop computer was used to command the EUT to transmit continuously and what frequency to transmit at. Also connected to the EUT was an external DC power supply set at 13.8VDC, and an external GPS antenna. Connected to the EUT output was a high power RF attenuator and a coaxial cable. The coaxial cable was connected to the spectrum analyzer which was used to measure the EUT bandwidth.



RSS-119 - 99% BANDWIDTH 824 MHz



RSS119 99% Bandwidth

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
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

RSS-119 - 99% BANDWIDTH