CKC LABORATORIES, INC. Testing the Future

ACCREDITED
Certicate Numbers
803.01, 803.02, 803.05, 803.06
EMC

ADDENDUM TO IP MOBILENET TEST REPORT FC03-062B

FOR THE

BASE STATION FOR MOBILE DATA SYSTEM, B-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.: 81196

PREPARED BY:

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

Date of test: February 28 - March 6, 2006

Report No.: FC03-062C

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ADMINISTRATIVE INFORMATION

DATE OF TEST:	February 28 - March 6, 2006
DATE OF RECEIPT:	February 28, 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, ANSI/TIA/EIA-603-B (2002), RSS-119 and RSS GEN
PURPOSE OF TEST:	To demonstrate the compliance of the Base Station, B-800-255 with the requirements for FCC Part 90 devices. **Addendum A** is to revise the operating power on page 6 and to add bandwidth limitation calculations on page 8. **Addendum B** is to demonstrate the compliance of the Base Station for Mobile Data System, B-800-25 with the requirements for FCC Part 90 and RSS-119 devices with new testing to extend the frequency range from 866 MHz to 869 MHz. **Addendum C** is 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

Base Station for Mobile Data System
Manuf: IP MobileNet
Model: B-800-25
Serial: 06038040
FCC ID: MI7-IPB800

PERIPHERAL DEVICES

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

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

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

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

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

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

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%.

CC 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
851-869 MHz.

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

FCC 2.1033 (c)(7) MAXIMUM POWER RATING
Subject to secondary licensing.

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

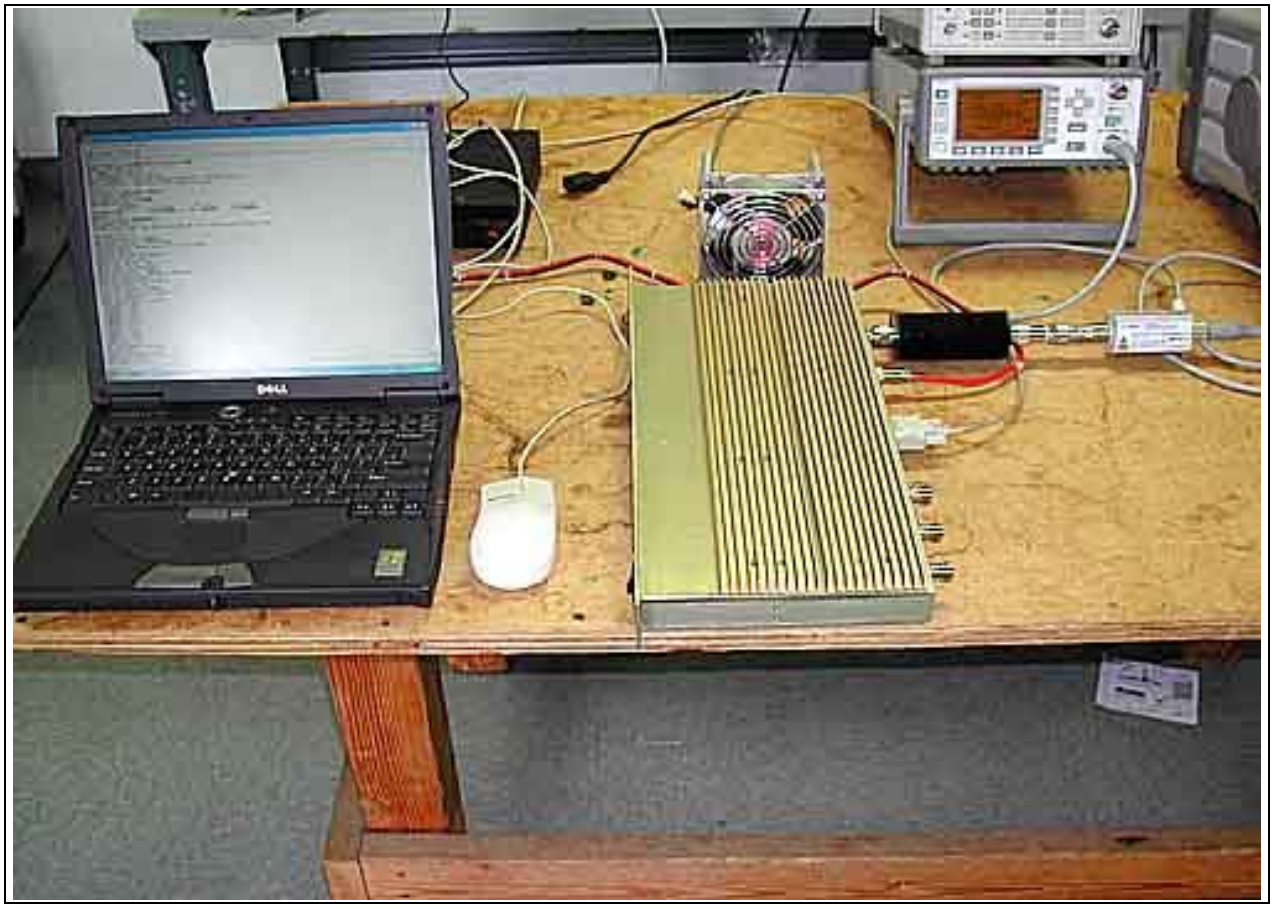
Test Conditions: : The EUT was connected to a laptop computer via its RS232 port. The laptop computer was used to command the EUT to transmit continuously and what frequency to transmit at. Also connected to the EUT was an external DC power supply set at 13.8VDC. Connected to the EUT output was a high power RF attenuator, low power RF attenuator, and 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)
866	21.9
869	20.9

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.

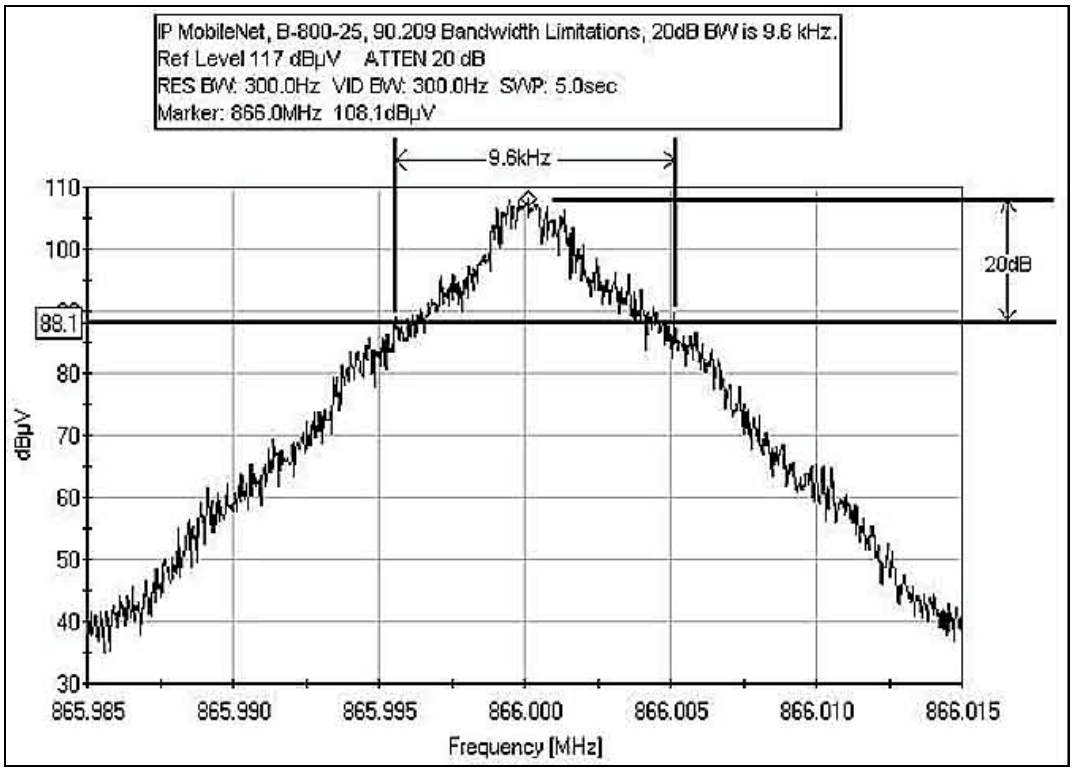
FCC 2.1033(c)(14)/2.1047(b) MODULATION CHARACTERISTICS– Modulation Limiting Response

Not applicable to this unit.

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

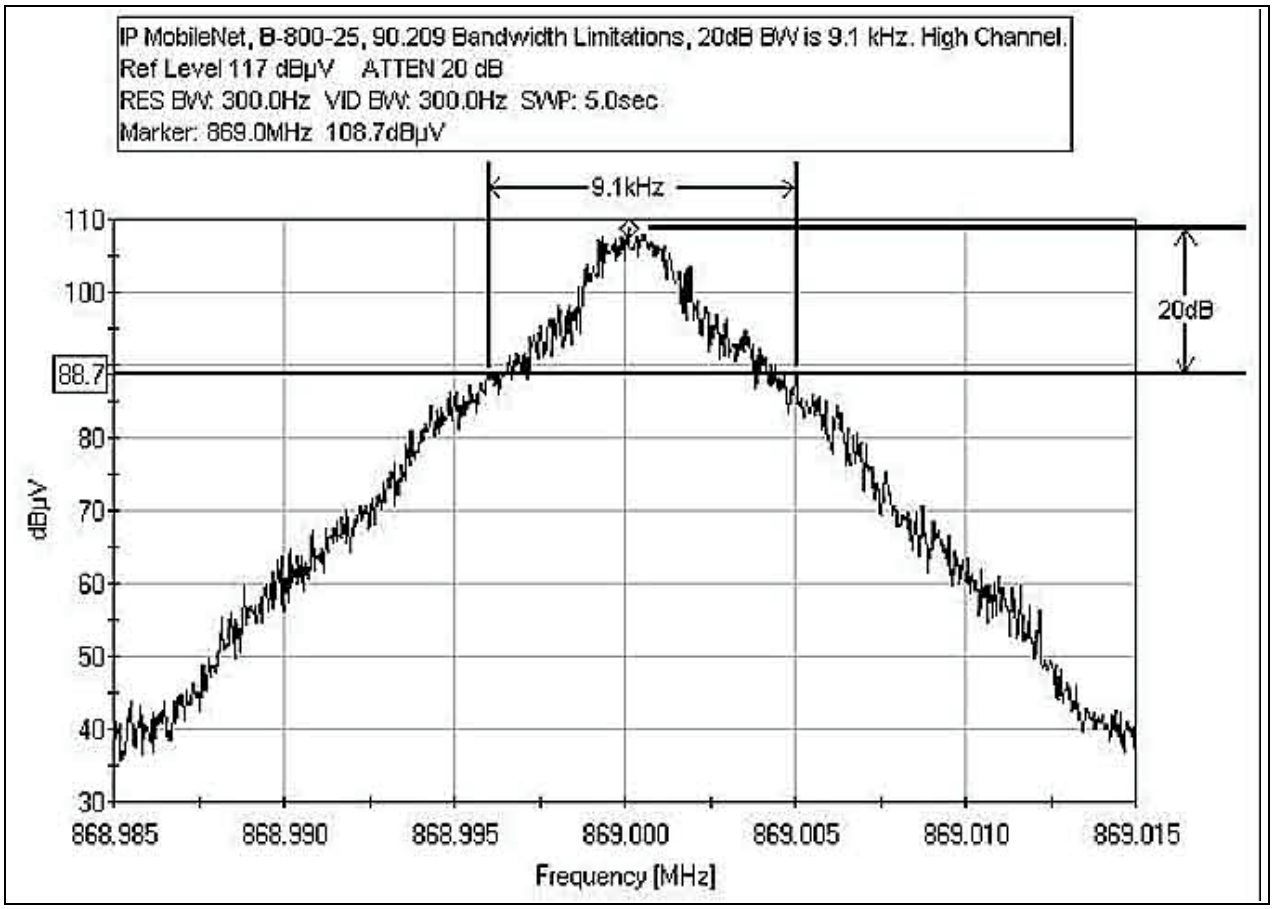
Test Conditions: The EUT was connected to a laptop computer via its RS232 port. The laptop computer was used to command the EUT to transmit continuously and what frequency to transmit at. Also connected to the EUT was an external DC power supply set at 13.8VDC. Connected to the EUT output was a high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

FCC 90.209 20dB BANDWIDTH 866 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 869 MHz



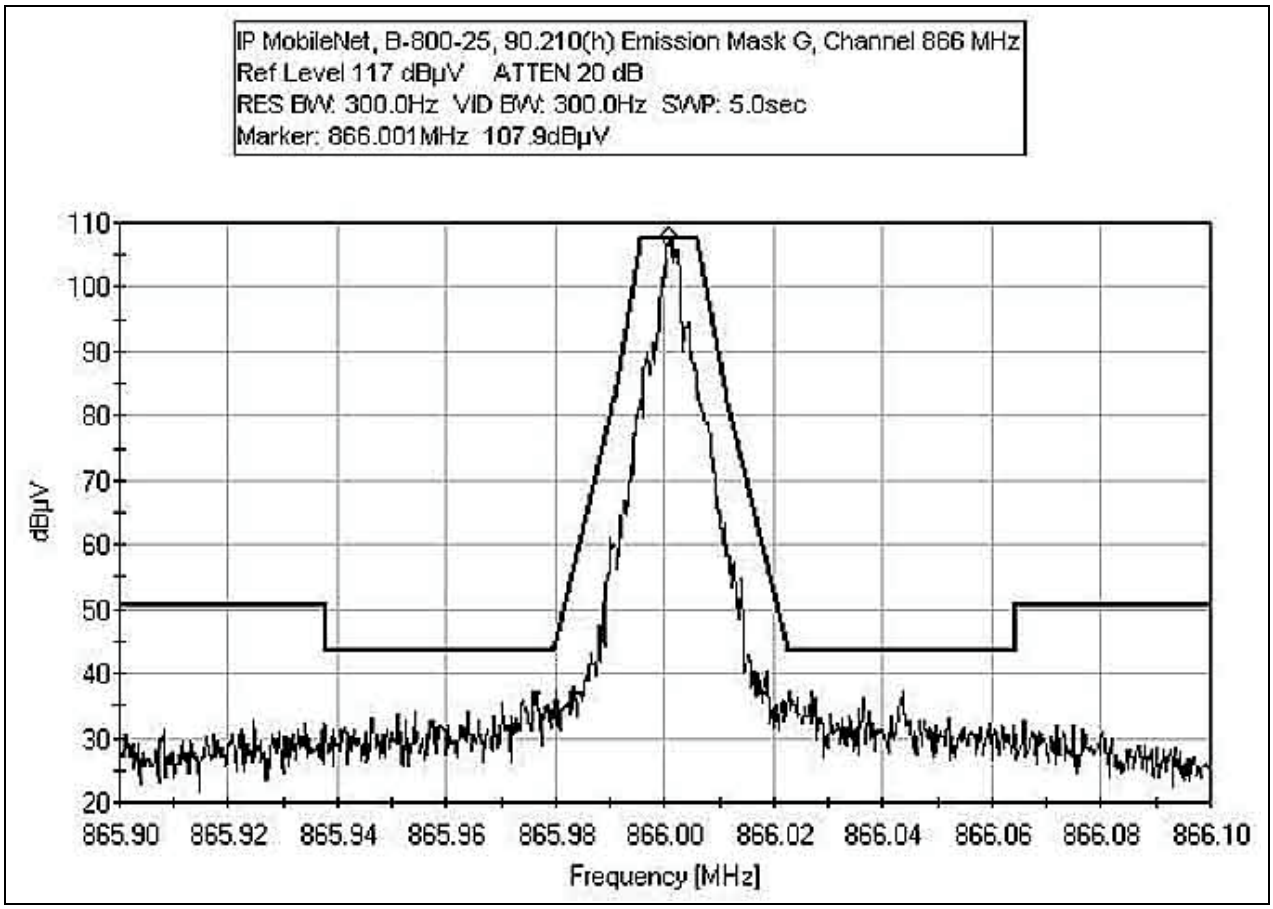
FCC 90.209 Bandwidth Limitations

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

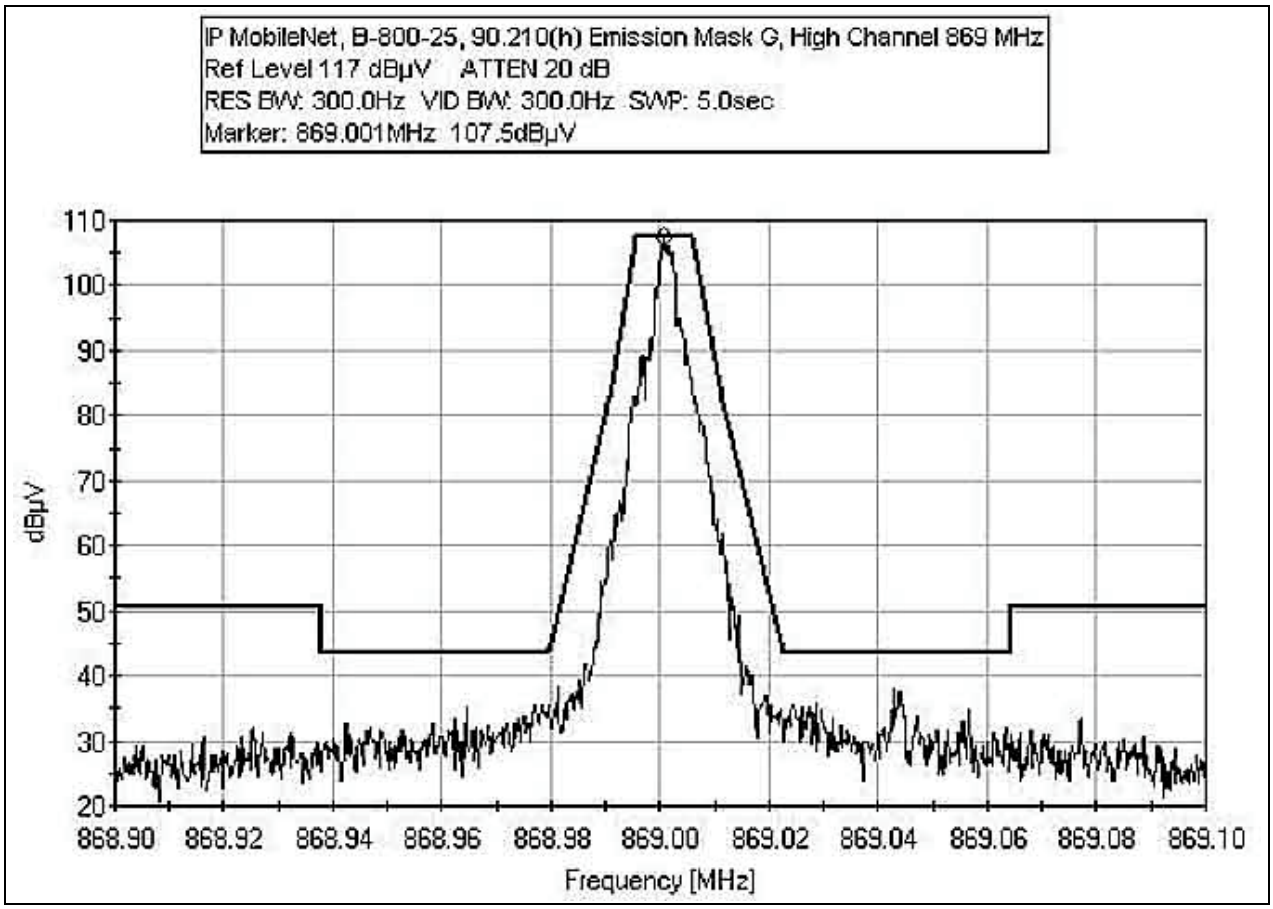
PHOTOGRAPH SHOWING BANDWIDTH LIMITATIONS

FCC 90.210(g) EMISSIONS MASK SMALL SPAN 866 MHz

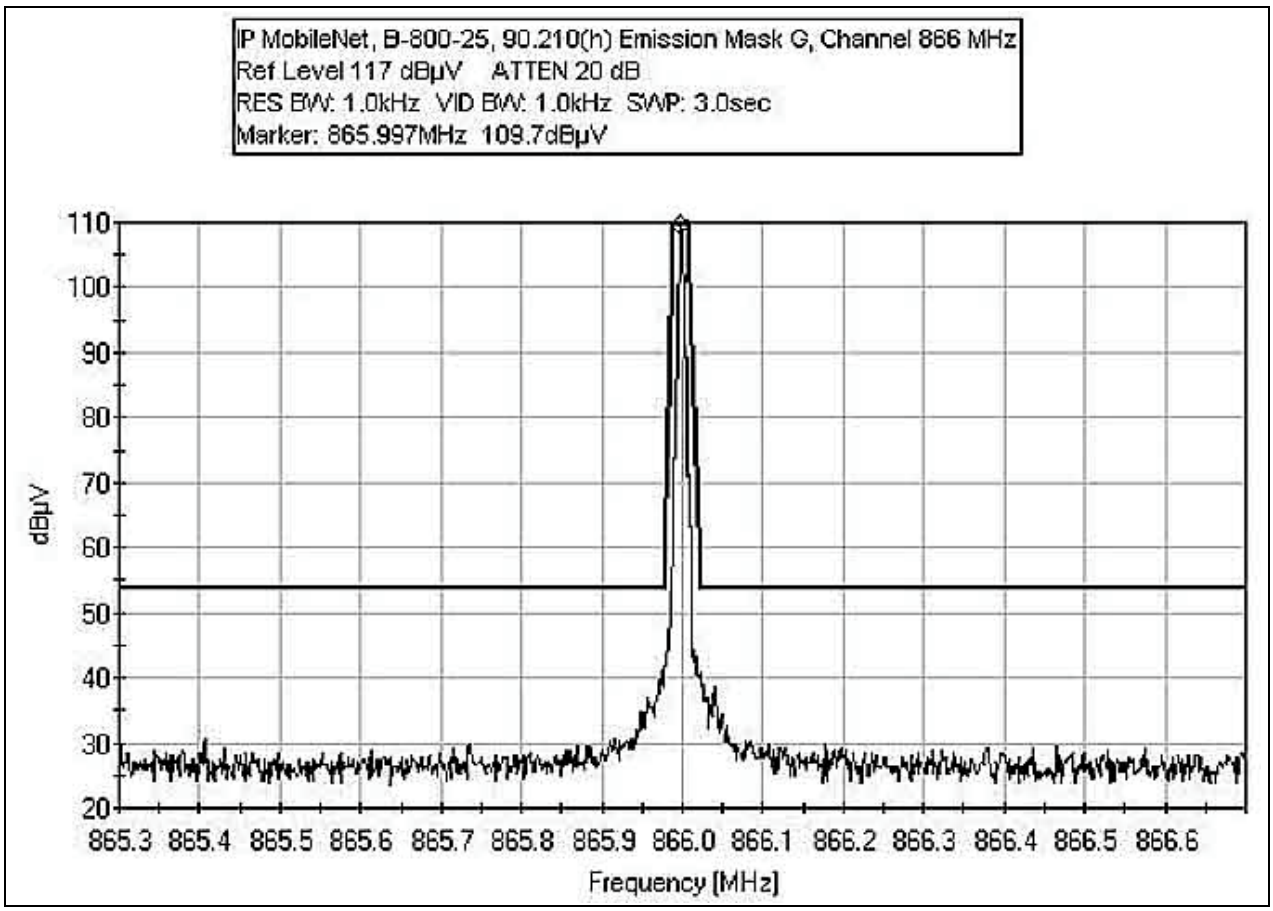
Test Conditions: The EUT was connected to a laptop computer via its RS232 port. The laptop computer was used to command the EUT to transmit continuously and what frequency to transmit at. Also connected to the EUT was an external DC power supply set at 13.8VDC. Connected to the EUT output was a high power RF attenuator, low power RF attenuator, and a low loss RF coaxial cable terminated into a spectrum analyzer. The spectrum analyzer was used to measure the EUT emission mask. SA RES BW=300Hz, SA VID BW=300Hz for small span plot. SA RES BW=1kHz, SA VID BW=1kHz for large span plot.



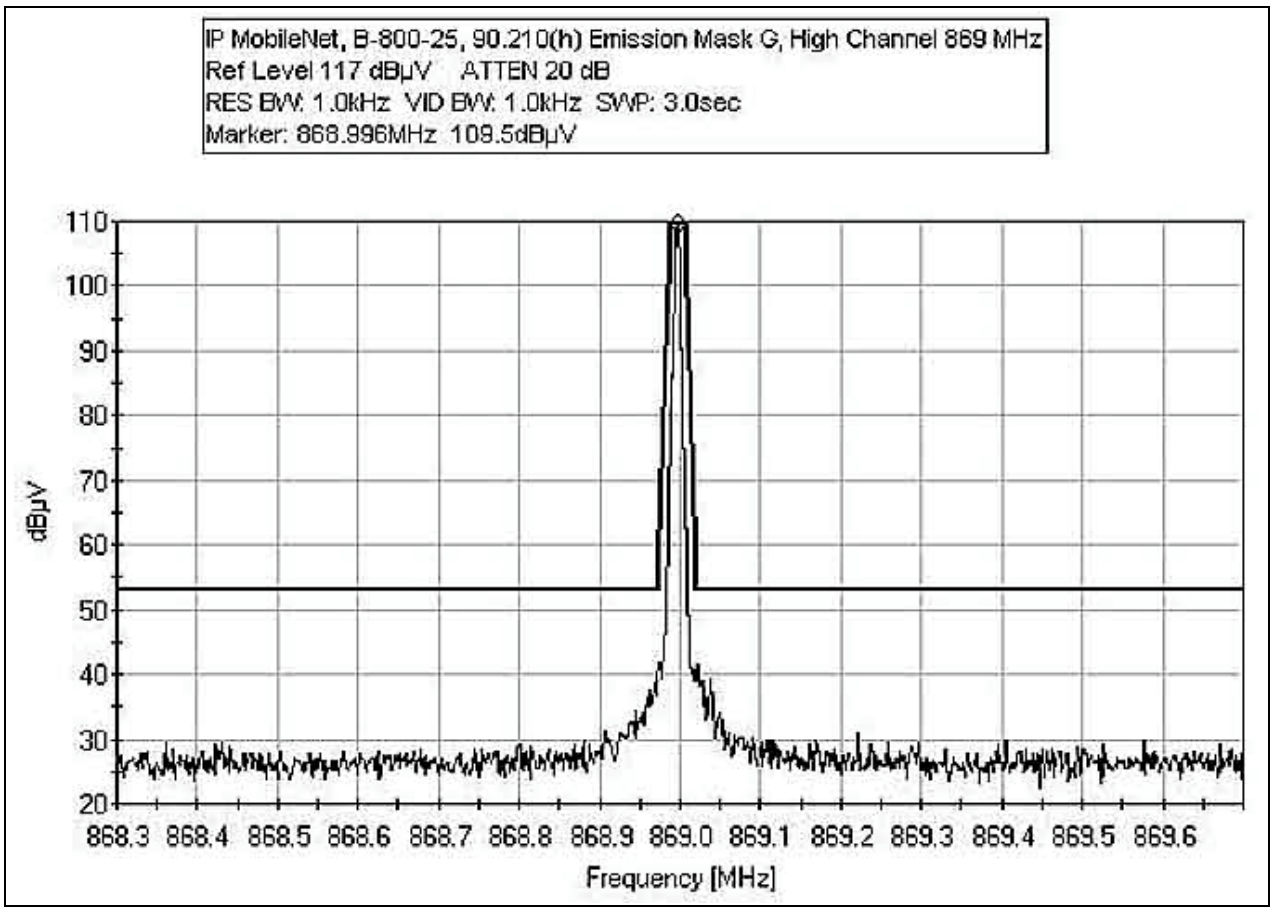
FCC 90.210(g) EMISSIONS MASK SMALL SPAN 869 MHz



FCC 90.210(g) EMISSIONS MASK BIG SPAN 866 MHz



FCC 90.210(g) EMISSIONS MASK BIG SPAN 869 MHz



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 #: **81196** Date: 3/3/2006
Test Type: **Antenna Terminals** Time: 14:09:22
Equipment: **Base Station for Mobile Data System** Sequence#: 1
Manufacturer: IP MobileNet Tested By: Stuart Yamamoto
Model: B-800-25
S/N: 06038040

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

Function	Manufacturer	Model #	S/N
Base Station for Mobile Data System*	IP MobileNet	B-800-25	06038040

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 base station for mobile data system use operating in the frequency range of 851-869 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 21.9 watts at 866 MHz and 20.9 watts at 869 MHz. Temperature: 21°C, Humidity: 44%, Pressure: 100kPa. Frequency Range 9kHz-150kHz SA RES BW=3000Hz, SA VID BW=3000Hz, QPA BW=200Hz; 150kHz-30MHz SA RES BW=100kHz, SA VID BW=100kHz, QPA BW=9kHz; 30MHz-1000MHz SA RES BW=1000kHz, SA VID BW=1000kHz, QPA BW=120kHz; 1000MHz-10000MHz SA RES BW=1MHz, SA VID BW=1MHz.

Transducer Legend:

T1=HPF_AN02116_1.5GHz_062707 T2=CABLE ANP5455
T3=Attenuators P05279 and 01578

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	2607.002M	53.5	+0.6	+0.7	+36.2		+0.0	91.0	94.0	-3.0	None
2	2598.002M	53.7	+0.6	+0.7	+36.0		+0.0	91.0	94.0	-3.0	None
3	4345.002M	49.6	+0.7	+0.9	+37.7		+0.0	88.9	94.0	-5.1	None

4	6083.002M	48.8	+0.7	+1.0	+37.9	+0.0	88.4	94.0	-5.6	None
5	4330.002M	48.3	+0.7	+0.9	+37.7	+0.0	87.6	94.0	-6.4	None
6	6062.002M	48.2	+0.7	+1.0	+37.5	+0.0	87.4	94.0	-6.6	None
7	5214.002M	47.1	+1.3	+1.0	+36.9	+0.0	86.3	94.0	-7.7	None
8	1738.002M	45.4	+0.6	+0.5	+39.6	+0.0	86.1	94.0	-7.9	None
9	3464.002M	47.1	+0.6	+0.8	+37.6	+0.0	86.1	94.0	-7.9	None
10	1732.002M	44.6	+0.6	+0.5	+39.5	+0.0	85.2	94.0	-8.8	None
11	3476.002M	45.4	+0.6	+0.8	+37.7	+0.0	84.5	94.0	-9.5	None
12	6952.002M	46.9	+0.6	+1.1	+35.5	+0.0	84.1	94.0	-9.9	None
13	5196.002M	43.7	+1.3	+1.0	+36.7	+0.0	82.7	94.0	-11.3	None
14	7794.002M	46.8	+0.5	+1.2	+34.0	+0.0	82.5	94.0	-11.5	None
15	6928.002M	45.3	+0.6	+1.1	+35.5	+0.0	82.5	94.0	-11.5	None
16	7821.002M	46.2	+0.5	+1.2	+33.8	+0.0	81.7	94.0	-12.3	None
17	8660.003M	55.1	+0.5	+1.3	+20.5	+0.0	77.4	94.0	-16.6	None
18	8690.003M	49.6	+0.5	+1.3	+20.4	+0.0	71.8	94.0	-22.2	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 #:	**81196**	Date:	3/3/2006
Test Type:	**Maximized Emissions**	Time:	10:37:37
Equipment:	**Base Station for Mobile Data System**	Sequence#:	2
Manufacturer:	IP MobileNet	Tested By:	Stuart Yamamoto
Model:	B-800-25		
S/N:	06038040		

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

Function	Manufacturer	Model #	S/N
Base Station for Mobile Data System*	IP MobileNet	B-800-25	06038040

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 base station for mobile data system use operating in the frequency range of 851-869 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. All EUT ports have connected to them a cable of their respective type. Frequency scanned, 1 MHz to 9 GHz. Data represents EUT fundamental transmitting 21.9 watts at 866 MHz and 20.9 watts at 869 MHz. Temperature: 21°C, Humidity: 44%, Pressure: 100kPa. Frequency Range 9kHz-50kHz SA RES BW=3000Hz, SA VID BW=3000Hz, QPA BW=200Hz; 150kHz-30MHz SA RES BW=100kHz, SA VID BW=100kHz, QPA BW=9kHz; 30MHz-1000MHz SA RES BW=1000kHz, SA VID BW=1000kHz, QPA BW=120kHz; 1000MHz-10000MHz SA RES BW=1MHz, SA VID BW=1MHz.

Operating Frequency: 866 MHz - 869 MHz
Channels: Low and High
Highest Measured Output Power: 43.40 ERP(dBm)= 21.9 ERP(Watts)
Distance: 3 meters
Limit: 43+10Log(P) 56.40 dBc

Freq. (MHz)	Reference Level (dBm)	Antenna Polarity (H/V)	dBc
7,820.97	-29.4	Vert	72.80
7,794.11	-30.7	Vert	74.10
2,606.93	-31.8	Vert	75.20
6,083.04	-32.6	Vert	76.00
5,213.97	-33	Vert	76.40
6,062.06	-33.5	Vert	76.90
7,820.95	-33.8	Horiz	77.20
8,690.03	-35.7	Horiz	79.10
8,689.94	-35.8	Vert	79.20
7,793.94	-35.9	Horiz	79.30
2,598.03	-35.9	Vert	79.30
2,597.99	-36	Horiz	79.40
8,659.96	-36.1	Vert	79.50
8,660.08	-36.7	Horiz	80.10
2,607.04	-37	Horiz	80.40
6,952.08	-37	Vert	80.40
5,196.08	-37.3	Vert	80.70
6,928.16	-38.7	Vert	82.10
5,214.00	-40	Horiz	83.40
6,927.95	-40.3	Horiz	83.70
6,952.01	-40.3	Horiz	83.70
4,344.93	-40.9	Vert	84.30
3,476.09	-41.1	Vert	84.50
3,464.03	-41.4	Vert	84.80
6,062.04	-41.9	Horiz	85.30
4,329.99	-42.3	Vert	85.70
6,082.90	-42.7	Horiz	86.10
5,196.09	-43.6	Horiz	87.00
3,464.05	-44.7	Horiz	88.10
3,475.90	-45.3	Horiz	88.70
4,345.00	-46.2	Horiz	89.60
4,330.00	-46.4	Horiz	89.80
1,737.94	-52.2	Vert	95.60
1,731.91	-53.4	Horiz	96.80
1,732.03	-53.8	Vert	97.20
1,738.08	-53.9	Horiz	97.30

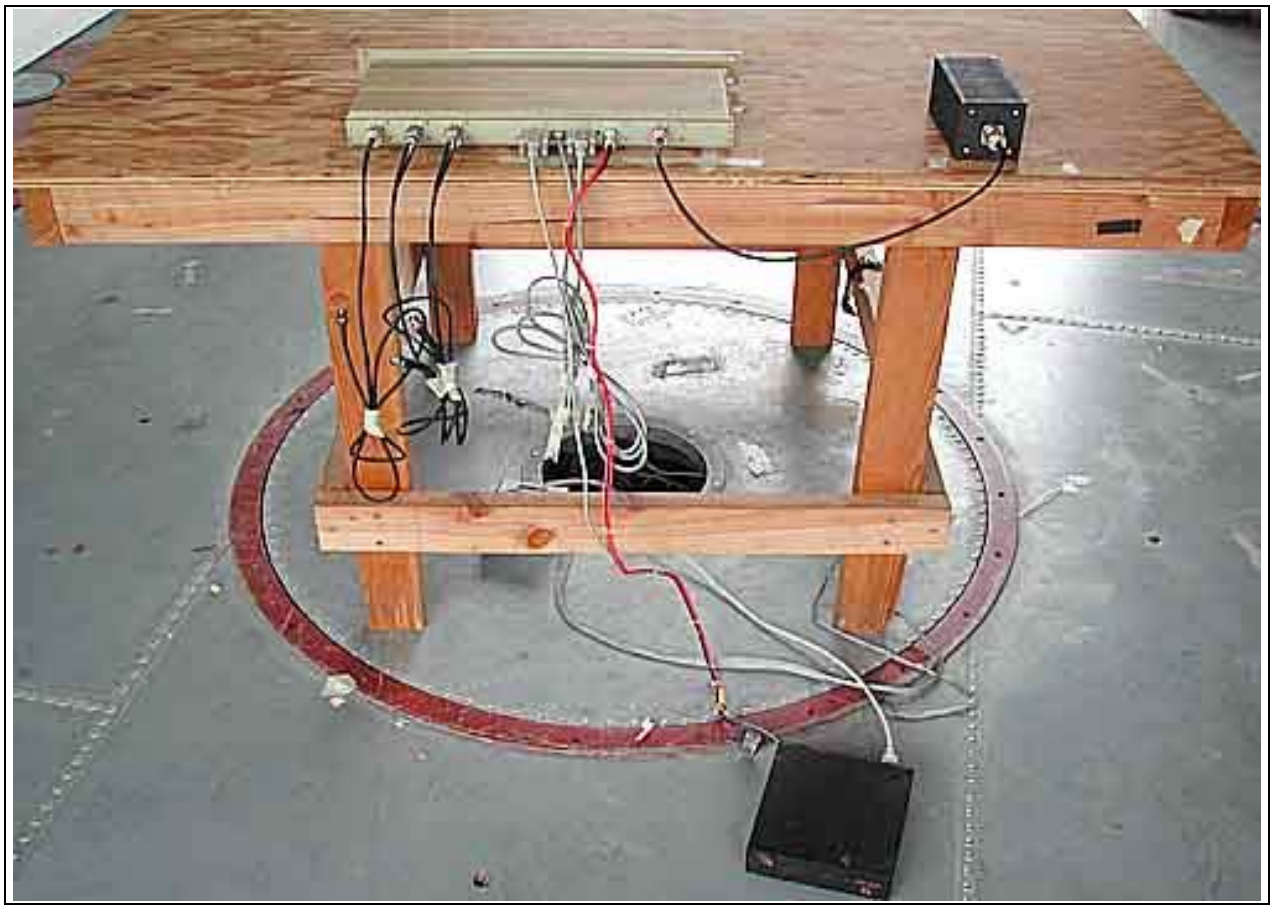
FCC 90.210(g) Spurious Emissions OATS

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's RS232 port was connected to a remotely located laptop computer via a shielded RS232 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. A remotely located DC power supply was used to provide the EUT with 13.8 VDC. Connected to the RF output of the EUT were a high power attenuator, low power attenuator, and a coaxial cable that was connected to the spectrum analyzer to measure the EUT frequency. Bandwidth settings: SA RES BW=1kHz, SA VID BW=10Hz.

Customer: IP Mobilenet
WO#: 81196
Date: 3/3/06 - 3/6/06
Test Engineer: S. Yamamoto

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

Temperature Variations

		Channel 0 (MHz)	Dev. (MHz)	Channel 1 (MHz)	Dev. (MHz)
Channel Frequency:		**866.000074**		**869.000030**	
Temp (C)	Voltage				
-30	13.8	866.000900	0.00083	869.000918	0.00089
-20	13.8	866.001218	0.00114	869.001192	0.00116
-10	13.8	866.001002	0.00093	869.001010	0.00098
0	13.8	866.000706	0.00063	869.000704	0.00067
10	13.8	866.000404	0.00033	869.000400	0.00037
20	13.8	866.000074	0.00000	869.000030	0.00000
30	13.8	866.000102	0.00003	869.000074	0.00004
40	13.8	866.000156	0.00008	869.000182	0.00015
50	13.8	866.000168	0.00009	869.000250	0.00022

Voltage Variations (±15%)

20	11.7	866.000104	0.00003	869.000060	0.00003
20	13.8	866.000074	0.00000	869.000030	0.00000
20	15.9	866.000104	0.00003	869.000066	0.00004

Max Deviation (MHz)	**0.00114**		**0.00116**
Max Deviation (PPM)	**1.32102**		**1.33717**
	PASS		**PASS**

FCC 90.213 Frequency Stability

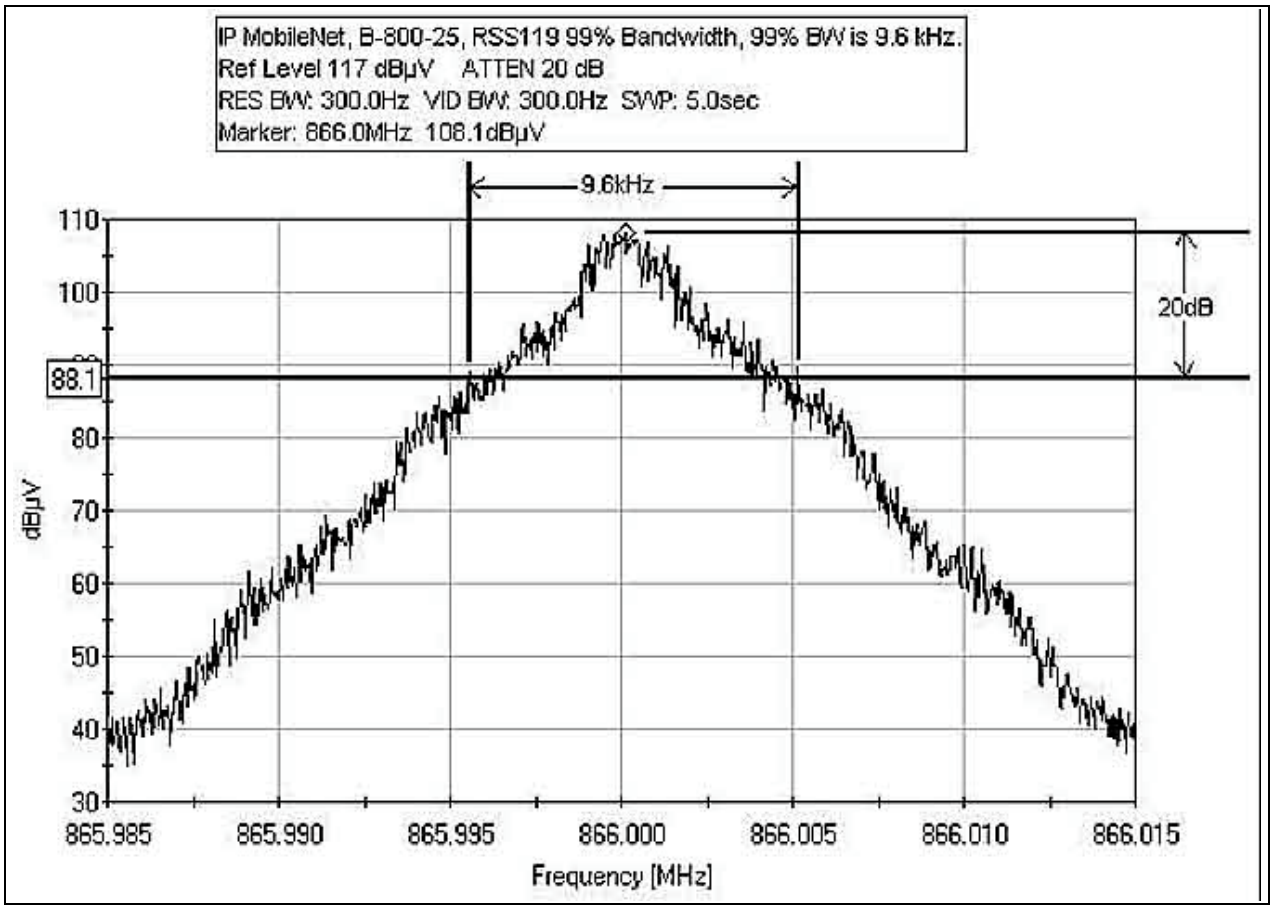
Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer RF Section	00042	HP	8568B	2415A00481	061804	061806
Spectrum Analyzer Display Section	00043	HP	85662A	2403A07316	061804	061806
Quasi Peak Adapter	00090	HP	85650A	2043A00231	061804	061806
Temperature Chamber	01878	Thermotron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

PHOTOGRAPH SHOWING FREQUENCY STABILITY

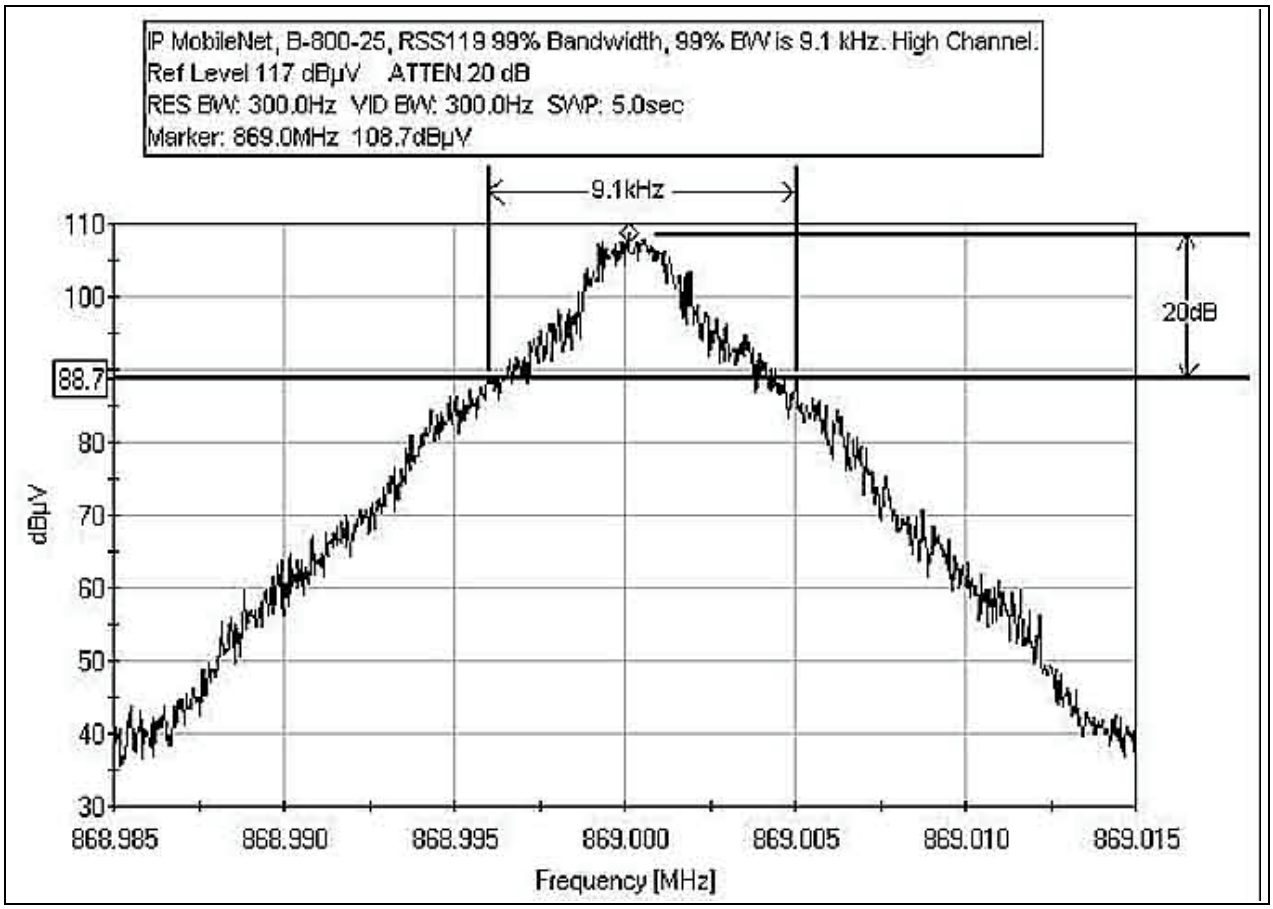
90.213

RSS-119 99% BANDWIDTH 866 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. Connected to the EUT output was a high power RF attenuator, low power RF attenuator, and a low loss RF coaxial cable terminated into a spectrum analyzer. The spectrum analyzer was used to measure the EUT bandwidth. Bandwidth settings: SA RES BW=300Hz, SA VID BW=300Hz.



RSS-119 99% BANDWIDTH 869 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

PHOTOGRAPH SHOWING RSS-119 99% BANDWIDTH