



IP MOBILENET TEST REPORT
FOR THE
MOBILE STATION DATA RADIO, M32150-25
FCC PART 90
COMPLIANCE

DATE OF ISSUE: DECEMBER 17, 2003

PREPARED FOR:

IP Mobilenet
16842 Von Karman Avenue
Irvine, CA 92606

P.O. No.: 003041-00
W.O. No.: 81579

PREPARED BY:

Mary Ellen Clayton
CKC Laboratories, Inc.
5473A Clouds Rest
Mariposa, CA 95338

Date of test: November 24 –
December 16, 2003

Report No.: FC03-075

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TABLE OF CONTENTS

Administrative Information.....	3
Summary of Results.....	4
Conditions for Compliance	4
Approvals	4
Equipment Under Test (EUT) Description.....	5
Equipment Under Test.....	5
Peripheral Devices.....	5
Measurement Uncertainty.....	5
Temperature and Humidity During Testing.....	6
FCC 2.1033(c)(3) User's Manual.....	6
FCC 2.1033(c)(4) Type of Emissions	6
FCC 2.1033(c)(5) Frequency Range	6
FCC 2.1033(c)(6) Operating Power.....	6
FCC 2.1033(c)(7) Maximum Power Rating.....	6
FCC 2.1033(c)(8) DC Voltages	6
FCC 2.1033(c)(9) Tune-Up Procedure.....	6
FCC 2.1033(c)(10) Schematics and Circuitry Description.....	6
FCC 2.1033(c)(11) Label and Placement.....	6
FCC 2.1033(c)(12) Submittal Photos.....	6
FCC 2.1033(c)(13) Modulation Information.....	6
FCC 2.1033(c)(14)/2.1046/90.205 - RF Power Output	7
FCC 2.1033(c)(14)/2.1047(b) - Audio Frequency Response.....	8
FCC 2.1033(c)(14)/2.1047(b) - Modulation Limiting Response	8
FCC 2.1033(c)(14)/2.1049(i)/90.209 - Occupied Bandwidth.....	9
FCC 90.210(c) - Emissions Mask	12
FCC 2.1033(c)(14)/2.1051/90.210 - Spurious Emissions at Antenna Terminal.....	16
FCC 2.1033(c)(14)/2.1053/90.210 - Field Strength of Spurious Radiation.....	21
FCC 2.1033(c)(14)/2.1055/90.213- Frequency Stability.....	24
FCC 2.1091 - MPE Calculations.....	26
FCC 90.214 - Transient Frequency Behavior	27

ADMINISTRATIVE INFORMATION

DATE OF TEST: November 24 – December 16, 2003

DATE OF RECEIPT: November 24, 2003

PURPOSE OF TEST: To demonstrate the compliance of the Mobile Station Data Radio, M32150-25 with the requirements for FCC Part 90 devices.

TEST METHOD: FCC Part 90

FREQUENCY RANGE TESTED: 5 MHz - 2000 MHz

MANUFACTURER: IP Mobilenet
16842 Von Karman Avenue
Irvine, CA 92606

REPRESENTATIVE: Jim Lukes

TEST LOCATION: CKC Laboratories, Inc.
5473A Clouds Rest
Mariposa, CA 95338

SUMMARY OF RESULTS

As received, the IP Mobilenet Mobile Station Data Radio, M32150-25 was found to be fully compliant with the following standards and specifications:

United States

➤ FCC Part 90

CONDITIONS FOR COMPLIANCE

No modifications to the EUT were necessary to comply.

APPROVALS

Steve Behm, Director of Engineering Services

QUALITY ASSURANCE:

A handwritten signature in black ink, appearing to read "Joyce Walker".

Joyce Walker, Quality Assurance Administrative Manager

TEST PERSONNEL:

A handwritten signature in black ink, appearing to read "Randy Clark".

Randy Clark, EMC Engineer

A handwritten signature in black ink, appearing to read "Mike Wilkinson".

Mike Wilkinson, Lab Manager

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

The EUT tested by CKC Laboratories was a production unit

EQUIPMENT UNDER TEST

Mobile Station Data Radio

Manuf: IP Mobilenet
Model: M32150-25
Serial: 03412839
FCC ID: MI7-M32150-25 (pending)

PERIPHERAL DEVICES

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

Laptop Computer

Manuf: Compaq
Model: 1456VQLIN
Serial: 1V96CLS8W8PV
FCC ID: DoC

Mouse

Manuf: Microsoft
Model: 93633
Serial: 02608451
FCC ID: DoC

Laptop Power Supply

Manuf: Go Forward Enterprise Corp.
Model: NT24-1S1220
Serial: NA
FCC ID: NA

Power Supply

Manuf: Samlex America
Model: SEC 1223
Serial: 03061-2G04-00695
FCC ID: NA

MEASUREMENT UNCERTAINTY

TEST	HIGHEST UNCERTAINTY
Radiated Emissions	+/- 2.94 dB
Conducted Emissions	+/- 1.56 dB

Note: Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k=2. Statements of compliance are based on the nominal values only.

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

151 MHz & 157 MHz.

FCC 2.1033 (c)(6) OPERATING POWER

60 Watts.

FCC 2.1033 (c)(7) MAXIMUM POWER RATING

Subject to secondary licensing.

FCC 2.1033 (c)(8) DC VOLTAGES

13.8V

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

Frequency (MHz)	RF Power Output (Watts)
151	59.9
157	58.5

EUT is a data radio for mobile use in the VHF frequency range. Equipment is DC powered by support power supply. Support laptop is used for configuration and testing purposes only. Output of antenna port is fed through suitable external attenuation to a power meter.

Temperature: 20°C

Humidity: 30%

Test Equipment

Description	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Attenuator, 40dB		Pasternack	PE7021-40		10/20/03	10/19/05
Power Meter	00613	HP	435B	2702A16632	8/12/02	8/11/04
Power Sensor	02392	HP	8482A	2652A16108	1/31/03	1/30/05

DIRECT CONNECT SETUP



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

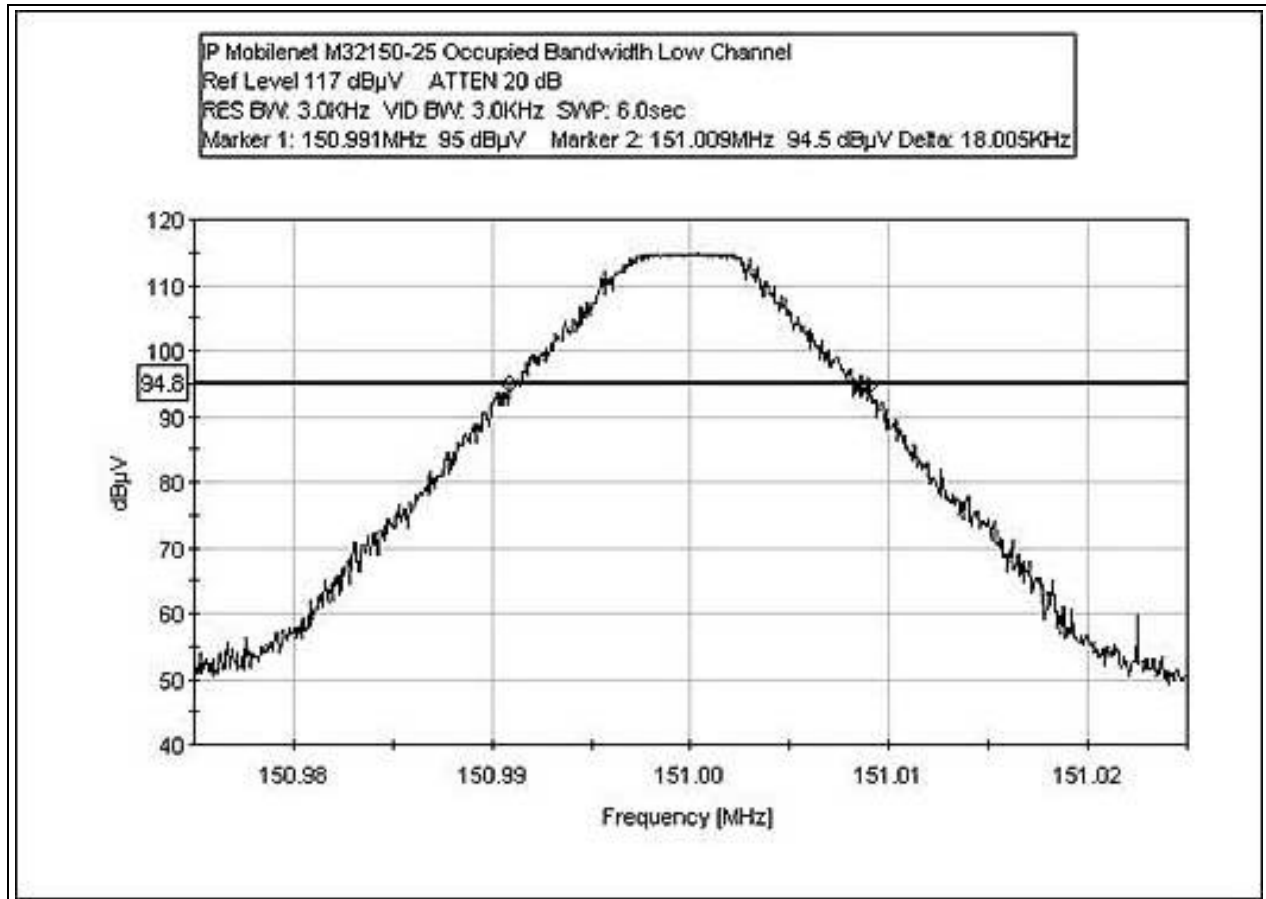
Not applicable to this unit.

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

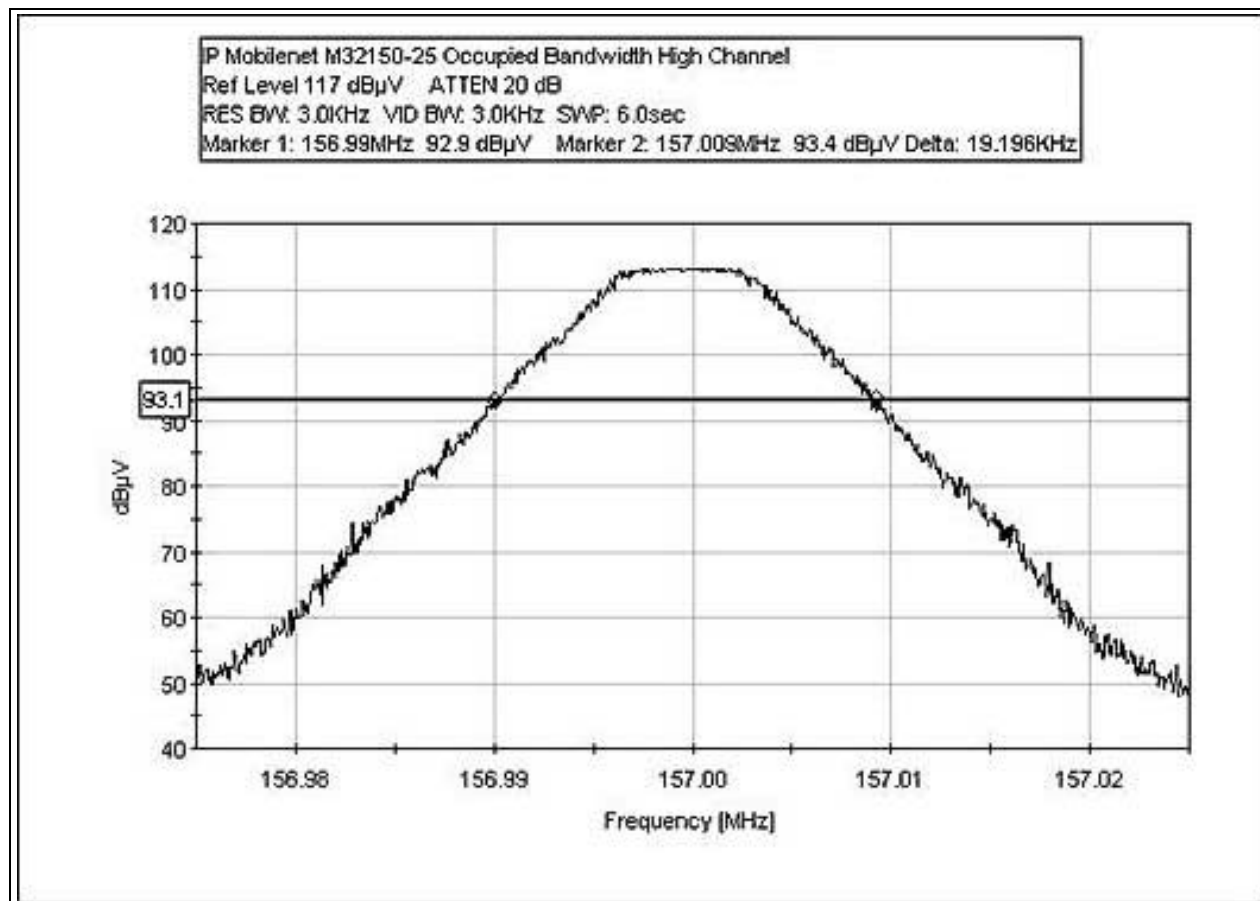
Not applicable to this unit.

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

Test Conditions: EUT is a data radio for mobile use in the VHF frequency range. Equipment is DC powered by support power supply. Support laptop is used for configuration and testing purposes only. Output of antenna port is fed through suitable external attenuation to a spectrum analyzer. Temperature: 20°C, Humidity: 30%. Frequency Range Investigated: Carrier.



FCC 90.209 OCCUPIED BANDWIDTH HIGH



Test Equipment:

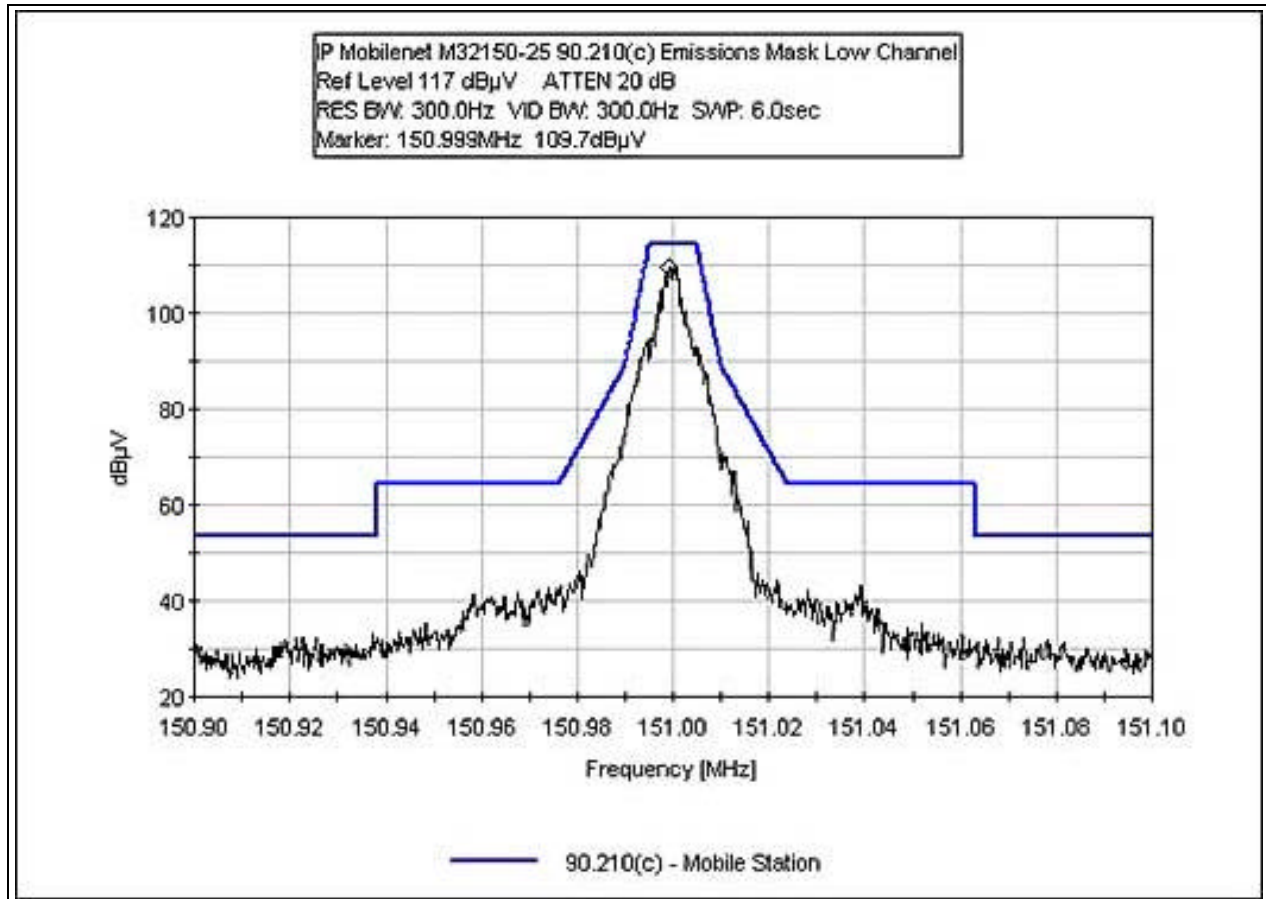
Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2004	00490
HP 8566B SA Display	2403A08241	02/26/2003	02/26/2004	00489
HP 85650A QPA	2811A01267	02/26/2003	02/26/2004	00478
Attenuator, PE7021-40	NA	10/20/2003	10/20/2004	

DIRECT CONNECT SETUP

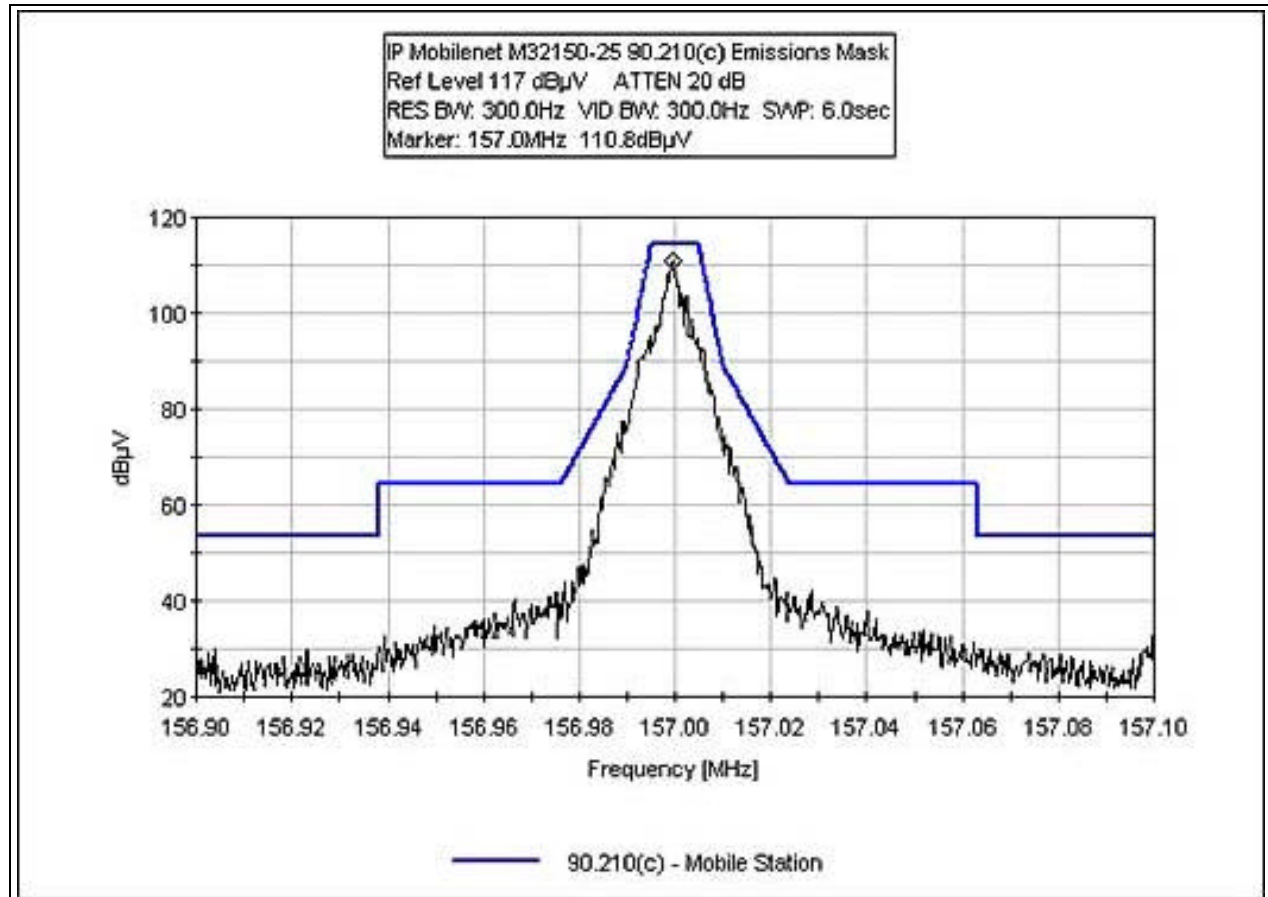


FCC 90.210(c) EMISSIONS MASK LOW

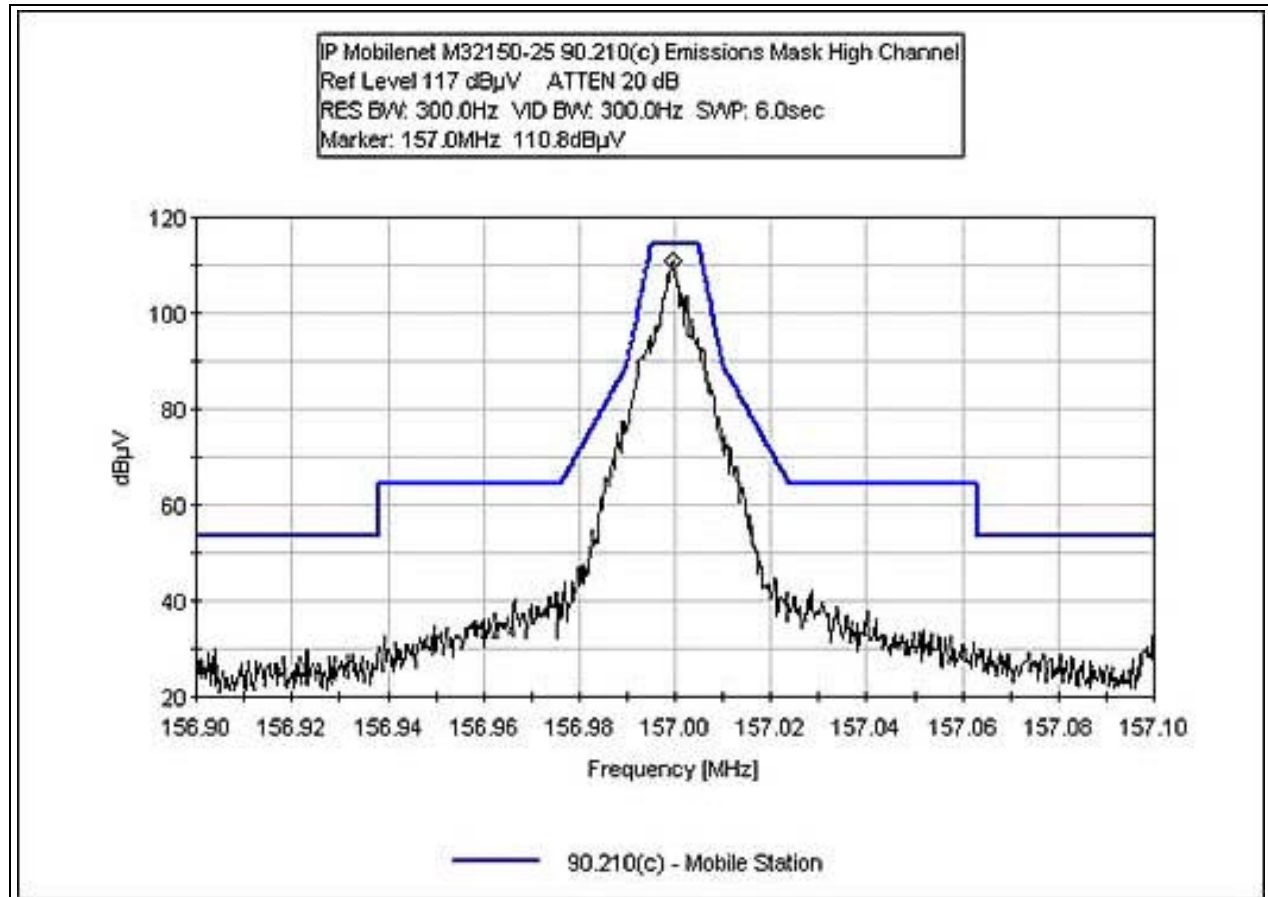
Test Conditions: EUT is a data radio for mobile use in the VHF frequency range. Equipment is DC powered by support power supply. Support laptop is used for configuration and testing purposes only. Output of antenna port is fed through suitable external attenuation to a spectrum analyzer. Temperature: 20°C, Humidity: 30%. Frequency Range Investigated: Carrier.



FCC 90.210(c) EMISSIONS MASK



FCC 90.210(c) EMISSIONS MASK HIGH



Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2004	00490
HP 8566B SA Display	2403A08241	02/26/2003	02/26/2004	00489
HP 85650A QPA	2811A01267	02/26/2003	02/26/2004	00478
Attenuator, PE7021-40	NA	10/20/2003	10/20/2004	

DIRECT CONNECT SETUP



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

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **IP Mobilenet**
 Specification: **90.210(c) - Mobile Station**
 Work Order #: **81579** Date: 11/26/2003
 Test Type: **Antenna Terminals Conducted Emissions** Time: 08:34:53
 Equipment: **Mobile Station Data Radio** Sequence#: 2
 Manufacturer: IP Mobilenet Tested By: Randal Clark
 Model: M32150-25 13.8 VDC
 S/N: 03412839

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2004	00490
HP 8566B SA Display	2403A08241	02/26/2003	02/26/2004	00489
HP 85650A QPA	2811A01267	02/26/2003	02/26/2004	00478
Attenuator, PE7021-40	NA	10/20/2003	10/20/2004	

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Mobile Station Data Radio*	IP Mobilenet	M32150-25	03412839

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop Computer	Compaq	1456VQLIN	1V96CLS8W8PV
Mouse	Microsoft	93633	02608451
Laptop Power Supply	Go Forward Enterprise Corp.	NT24-1S1220	NA
Power Supply	Samlex America	SEC 1223	03061-2G04-00695

Test Conditions / Notes:

EUT is a data radio for mobile use in the VHF frequency range. Equipment is DC powered by support power supply. Support laptop is used for configuration and testing purposes only. Output of antenna port is fed through suitable external attenuation to a spectrum analyzer. Transmit Frequency: 150 MHz. Temperature: 20°C, Humidity: 30%. Frequency Range Investigated: 5 MHz to 2000 MHz. Measurement Bandwidth Settings: 10 MHz to 1000 MHz - RBW=VBW=10kHz, 1000 MHz to 2000 MHz - RBW=VBW=1MHz.

Transducer Legend:

T1=Pad 40dB Atten

Measurement Data: Reading listed by margin. Test Lead: RF Output

#	Freq MHz	Rdng dBμV	T1 dB	dB	dB	dB	Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	151.000M	114.2	+40.6				+0.0	154.8	154.8	+0.0	RF Ou
									Carrier		
2	453.001M	51.0	+40.6				+0.0	91.6	94.0	-2.4	RF Ou
	Ave										
^	453.001M	53.4	+40.6				+0.0	94.0	94.0	+0.0	RF Ou
4	150.906M	47.0	+40.6				+0.0	87.6	94.0	-6.4	RF Ou

5	150.710M	46.6	+40.6	+0.0	87.2	94.0	-6.8	RF Ou
6	1856.041M	45.5	+40.8	+0.0	86.3	94.0	-7.7	RF Ou
7	151.322M	45.3	+40.6	+0.0	85.9	94.0	-8.1	RF Ou
8	1343.962M	45.1	+40.8	+0.0	85.9	94.0	-8.1	RF Ou
9	1781.382M	44.5	+40.8	+0.0	85.3	94.0	-8.7	RF Ou
10	157.100M	43.9	+40.6	+0.0	84.5	94.0	-9.5	RF Ou
11	604.009M	39.9	+40.7	+0.0	80.6	94.0	-13.4	RF Ou
12	603.941M	39.5	+40.7	+0.0	80.2	94.0	-13.8	RF Ou
13	151.220M	38.7	+40.6	+0.0	79.3	94.0	-14.7	RF Ou
14	302.002M	38.6	+40.6	+0.0	79.2	94.0	-14.8	RF Ou
15	150.406M	37.4	+40.6	+0.0	78.0	94.0	-16.0	RF Ou
16	151.630M	35.7	+40.6	+0.0	76.3	94.0	-17.7	RF Ou
17	302.181M	35.6	+40.6	+0.0	76.2	94.0	-17.8	RF Ou
18	754.999M	33.0	+40.7	+0.0	73.7	94.0	-20.3	RF Ou
19	905.996M	32.7	+40.7	+0.0	73.4	94.0	-20.6	RF Ou
20	108.201M	30.9	+40.6	+0.0	71.5	94.0	-22.5	RF Ou
21	199.120M	30.7	+40.6	+0.0	71.3	94.0	-22.7	RF Ou
22	906.122M	30.6	+40.7	+0.0	71.3	94.0	-22.7	RF Ou
23	121.284M	30.6	+40.6	+0.0	71.2	94.0	-22.8	RF Ou
24	149.618M	30.2	+40.6	+0.0	70.8	94.0	-23.2	RF Ou
25	613.379M	30.1	+40.7	+0.0	70.8	94.0	-23.2	RF Ou
26	944.560M	29.9	+40.7	+0.0	70.6	94.0	-23.4	RF Ou
27	90.425M	29.8	+40.6	+0.0	70.4	94.0	-23.6	RF Ou
28	964.096M	29.5	+40.7	+0.0	70.2	94.0	-23.8	RF Ou
29	983.738M	29.5	+40.7	+0.0	70.2	94.0	-23.8	RF Ou

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **IP Mobilenet**

Specification: **90.210(c) - Mobile Station**

Work Order #: **81579**

Date: 11/24/2003

Test Type: **Antenna Terminals Conducted**

Time: 14:45:53

Emissions

Equipment: **Mobile Station Data Radio**

Sequence#: 3

Manufacturer: IP Mobilenet

Tested By: Randal Clark

Model: M32150-25

13.8 VDC

S/N: 03412839

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2004	00490
HP 8566B SA Display	2403A08241	02/26/2003	02/26/2004	00489
HP 85650A QPA	2811A01267	02/26/2003	02/26/2004	00478
Attenuator, PE7021-40	NA	10/20/2003	10/20/2004	

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Mobile Station Data Radio*	IP Mobilenet	M32150-25	03412839

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop Computer	Compaq	1456VQLIN	1V96CLS8W8PV
Mouse	Microsoft	93633	02608451
Laptop Power Supply	Go Forward Enterprise Corp.	NT24-1S1220	NA
Power Supply	Samlex America	SEC 1223	03061-2G04-00695

Test Conditions / Notes:

EUT is a data radio for mobile use in the VHF frequency range. Equipment is DC powered by support power supply. Support laptop is used for configuration and testing purposes only. Output of antenna port is fed through suitable external attenuation to a spectrum analyzer. Transmit Frequency: 157 MHz. Temperature: 20°C, Humidity: 30%. Frequency Range Investigated: 5 MHz to 2000 MHz. Plot Bandwidth Settings: 10MHz to 2000MHz - RBW=VBW=1kHz. Measurement Bandwidth Settings: 10 MHz to 1000 MHz - RBW=VBW=10kHz, 1000 MHz to 2000 MHz - RBW=VBW=1MHz.

Transducer Legend:

T1=Pad 40dB Atten

Measurement Data:

Reading listed by margin.

Test Lead: RF Output

#	Freq MHz	Rdng dBμV	T1 dB				Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	157.000M	113.4	+40.6				+0.0	154.0	154.8	-0.8	RF Ou
									Carrier		
2	470.999M	47.6	+40.6				+0.0	88.2	94.0	-5.8	RF Ou
	Ave										
^	470.999M	50.6	+40.6				+0.0	91.2	94.0	-2.8	RF Ou
4	314.000M	46.7	+40.6				+0.0	87.3	94.0	-6.7	RF Ou
	Ave										
^	314.000M	54.1	+40.6				+0.0	94.7	94.0	+0.7	RF Ou

6	157.103M	46.4	+40.6	+0.0	87.0	94.0	-7.0	RF Ou
7	1703.618M	45.7	+40.7	+0.0	86.4	94.0	-7.6	RF Ou
8	1283.201M	45.0	+40.8	+0.0	85.8	94.0	-8.2	RF Ou
9	156.901M	45.2	+40.6	+0.0	85.8	94.0	-8.2	RF Ou
10	1948.484M	44.7	+40.8	+0.0	85.5	94.0	-8.5	RF Ou
11	156.700M	44.5	+40.6	+0.0	85.1	94.0	-8.9	RF Ou
12	157.303M	44.3	+40.6	+0.0	84.9	94.0	-9.1	RF Ou
13	157.602M	36.9	+40.6	+0.0	77.5	94.0	-16.5	RF Ou
14	156.400M	36.8	+40.6	+0.0	77.4	94.0	-16.6	RF Ou
15	146.373M	33.1	+40.6	+0.0	73.7	94.0	-20.3	RF Ou
16	785.013M	32.7	+40.7	+0.0	73.4	94.0	-20.6	RF Ou
17	147.315M	31.0	+40.6	+0.0	71.6	94.0	-22.4	RF Ou
18	941.988M	30.8	+40.7	+0.0	71.5	94.0	-22.5	RF Ou
19	234.194M	30.3	+40.6	+0.0	70.9	94.0	-23.1	RF Ou
20	69.504M	30.0	+40.6	+0.0	70.6	94.0	-23.4	RF Ou
21	116.098M	30.0	+40.6	+0.0	70.6	94.0	-23.4	RF Ou
22	116.622M	29.9	+40.6	+0.0	70.5	94.0	-23.5	RF Ou
23	752.576M	29.7	+40.7	+0.0	70.4	94.0	-23.6	RF Ou
24	76.984M	29.8	+40.6	+0.0	70.4	94.0	-23.6	RF Ou
25	18.841M	29.7	+40.6	+0.0	70.3	94.0	-23.7	RF Ou
26	105.762M	29.7	+40.6	+0.0	70.3	94.0	-23.7	RF Ou
27	523.426M	29.7	+40.6	+0.0	70.3	94.0	-23.7	RF Ou
28	90.576M	29.6	+40.6	+0.0	70.2	94.0	-23.8	RF Ou

DIRECT CONNECT SETUP



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

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **IP Mobilenet**

Specification: **FCC 90.210**

Work Order #: **81580**

Date: 12/01/2003

Test Type: **Maximized Emissions**

Time: 11:20:08

Equipment: **Mobile Station Data Radio**

Sequence#: 4

Manufacturer: IP Mobilenet

Tested By: Mike Wilkinson

Model: M32150-25

S/N: 03412839

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Mobile Station Data Radio*	IP Mobilenet	M32150-25	03412839

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop Computer	Compaq	1456VQLIN	1V96CLS8W8PV
Mouse	Microsoft	93633	02608451
Laptop Power Supply	Go Forward Enterprise Corp.	NT24-1S1220	NA
Power Supply	Samlex America	SEC 1223	03061-2G04-00695

Test Conditions / Notes:

EUT is a data radio for mobile use in the VHF frequency range. Equipment is DC powered by support power supply. Support laptop is used for configuration and testing purposes only. Output of antenna port is terminated with 50 Ohm termination through a 40 dB attenuator. Transmit Frequency 151 MHz & 157 MHz. Temperature: 21.3°C Humidity: 35%. Frequency Range Investigated: 5 MHz to 2000 MHz. Measurement Bandwidth Settings: 10 MHz to 1000 MHz - RBW=VBW=10kHz 1000 MHz to 2000 MHz - RBW=VBW=1MHz. **No EUT emissions detected within 20dB of the limit.**

Transducer Legend:

--

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB μ V	dB	dB	dB	dB	Dist Table	Corr dB μ V	Spec dB μ V	Margin dB	Polar Ant
---	-------------	--------------------	----	----	----	----	---------------	--------------------	--------------------	--------------	--------------

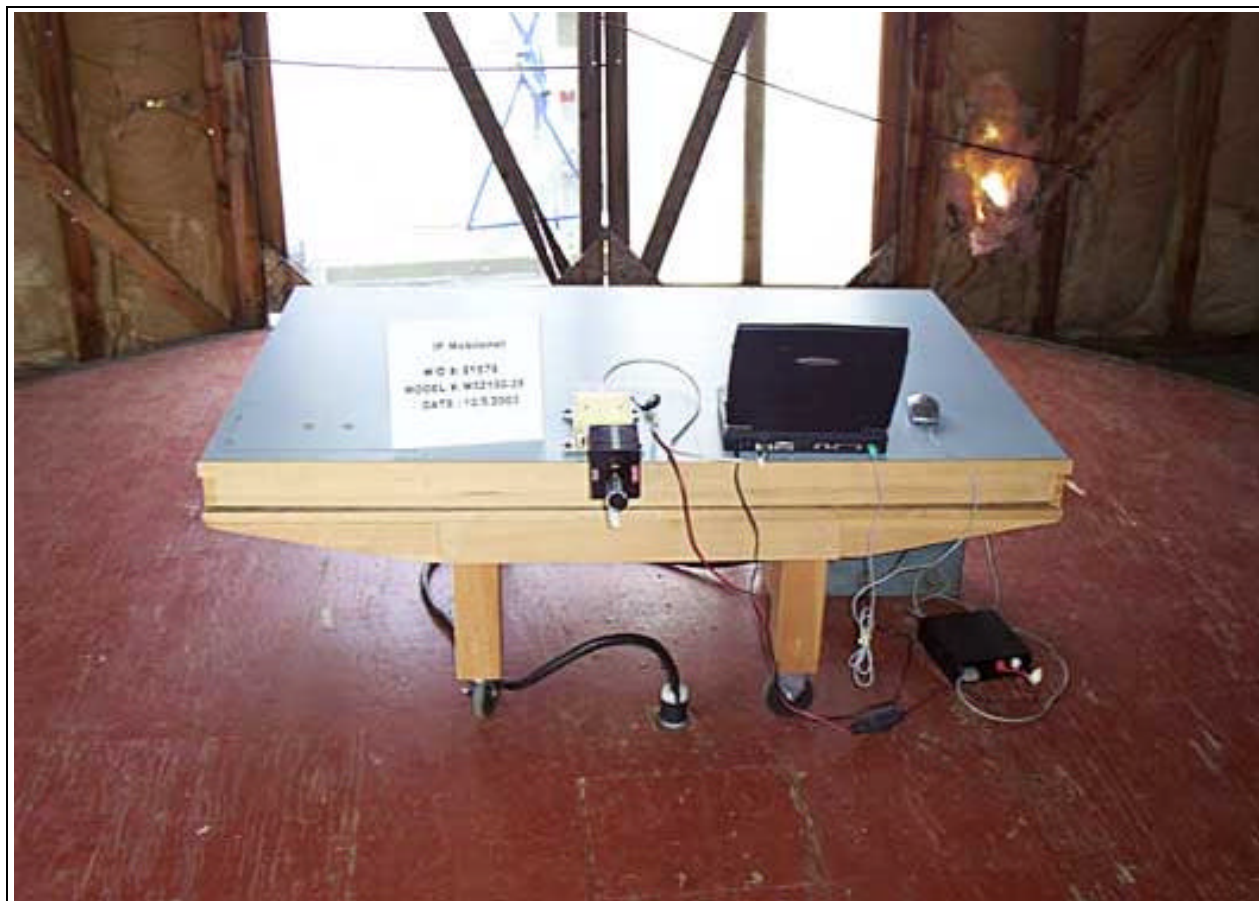
Test Equipment

<i>Description</i>	<i>Asset #</i>	<i>Manufacturer</i>	<i>Model #</i>	<i>Serial #</i>	<i>Cal Date</i>	<i>Cal Due</i>
Antenna, Biconilog	01991	Chase	CBL6111C	2456	12/13/02	12/12/04
Antenna, Loop	00226	EMCO	6502	1074	5/21/03	5/20/05
Antenna, Horn 1-18 GHz	00326	EMCO	3115	3413	4/25/03	4/25/05
Preamp	02010	HP	8449B	3008A00301	10/18/02	10/17/04
Preamp	00099	HP	8447D	1937A02604	3/7/03	3/6/04
Spectrum Analyzer 100Hz - 22.5GHz	00490	HP	8566B	2209A01404	2/26/03	2/26/04
Spectrum Analyzer Display	00489	HP	8566B	2403A08241	2/26/03	2/26/04
Spectrum Analyzer QP Adapter	00478	HP	85650A	2811A01267	2/26/03	2/26/04
50 Ohm Termination	P04243	JFW	50T-022	N/A	5/9/03	5/9/05
Attenuator, 40dB		Pasternack	PE7021-40		10/20/03	10/19/05

PHOTOGRAPH SHOWING RADIATED EMISSIONS



PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Back View

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

Customer: IP Mobilenet
 WO#: 81579
 Date: 05-Dec-03
 Test Engineer: Mike Wilkinson

Device Model #: M32150-25
 Operating Voltage: 13.8 VDC
 Frequency Limit: 5 PPM

Temperature Variations

Channel Frequency:		Channel 1 (MHz)	Dev. (MHz)	Channel 2 (MHz)	Dev. (MHz)
		151		157	
Temp (C)	Voltage				
-30	13.8	150.99963	0.00037	156.99975	0.00025
-20	13.8	150.99976	0.00024	156.99981	0.00019
-10	13.8	150.99990	0.00010	157.00010	0.00010
0	13.8	151.00036	0.00036	157.00036	0.00036
10	13.8	151.00036	0.00036	157.00036	0.00036
20	13.8	151.00036	0.00036	157.00030	0.00030
30	13.8	151.00036	0.00036	157.00036	0.00036
40	13.8	151.00036	0.00036	157.00036	0.00036
50	13.8	151.00036	0.00036	157.00036	0.00036

Voltage Variations ($\pm 15\%$)

20	11.7	151.00039	0.00039	157.00028	0.00028
20	13.8	151.00041	0.00041	157.00030	0.00030
20	15.9	151.00043	0.00043	157.00031	0.00031
Max Deviation (MHz)			0.00043	0.00036	
Max Deviation (PPM)			2.84768	2.29299	
			PASS	PASS	

Note: EUT settings were changed as follows:

*Txsync*time=2000, was 20

*Txtail*time=50, was 5

*Txquiet*time=50, 10

Test Equipment

<i>Description</i>	<i>Asset #</i>	<i>Manufacturer</i>	<i>Model #</i>	<i>Serial #</i>	<i>Cal Date</i>	<i>Cal Due</i>
Digital Multimeter	01241	Radio Shack	22-183	NA	NR	NR
Spectrum Analyzer 100Hz - 22.5GHz	00490	HP	8566B	2209A01404	2/26/03	2/26/04
Spectrum Analyzer Display	00489	HP	8566B	2403A08241	2/26/03	2/26/04
Spectrum Analyzer QP Adapter	00478	HP	85650A	2811A01267	2/26/03	2/26/04
Temp Chamber	01879	Thermotron	S-1.2 MiniMax	11899	1/31/03	1/31/04
Thermometer	02242	Omega	HH-26K	T-202884	8/15/03	8/14/05
Power Supply, DC	00765	Sorensen	DCR-60-30B	176	7/8/03	7/7/05
Attenuator, 40dB		Pasternack	PE7021-40		10/20/03	10/19/05

NR = Not Required

FCC 90.213 FREQUENCY STABILITY



FCC 2.1091 – MPE CALCULATIONS

Calculations prepared for:

IP Mobilenet

Calculations prepared by:

Mike Wilkinson

CKC Laboratories, Inc.

5473A Clouds Rest Road

Mariposa, CA 95338

Model Number: M32150-25

Fundamental Operating Frequency: 151-157 MHz

Maximum Rated Output Power: 59.9 Watts

Measured Output Power: 59.9 Watts

MPE Limit in accordance with 1.1310(b): Limits for general population/uncontrolled exposure

$$\text{MPE Limit} = 0.2 \text{ (mW/cm}^2\text{)}$$

EIRP (mW)	Distance (meters)	Power Density (mW/cm ²)	Result
59900.00	1.54	0.2	Pass

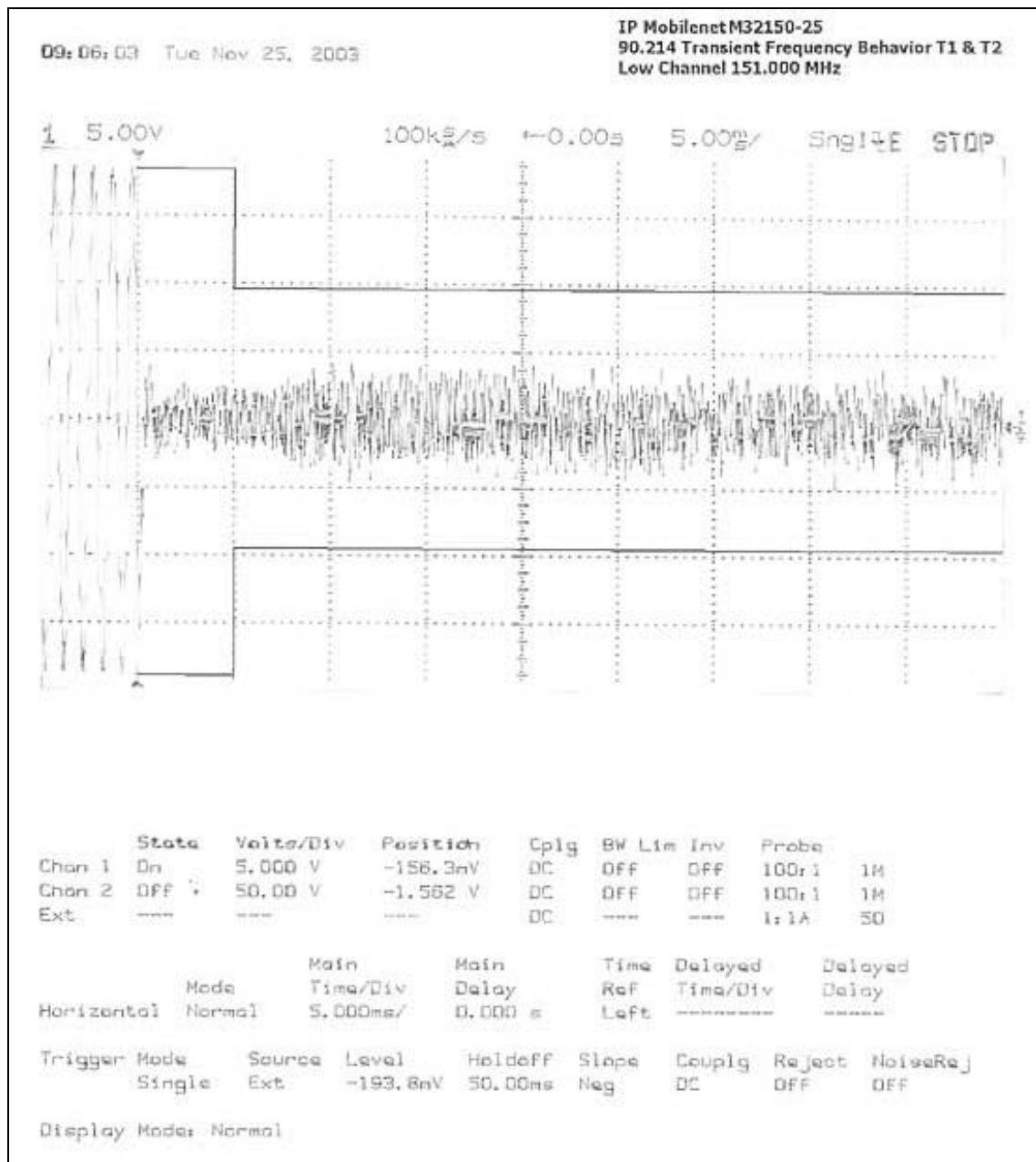
$$\text{PowerDensity(mW / cm}^2\text{)} = \frac{\text{EIRP}}{4\pi d^2} \quad \text{Given: EIRP in mW and d in cm}$$

Note: Antennae are not sold with this equipment; EIRP is listed assuming a 0dBi gain antenna.

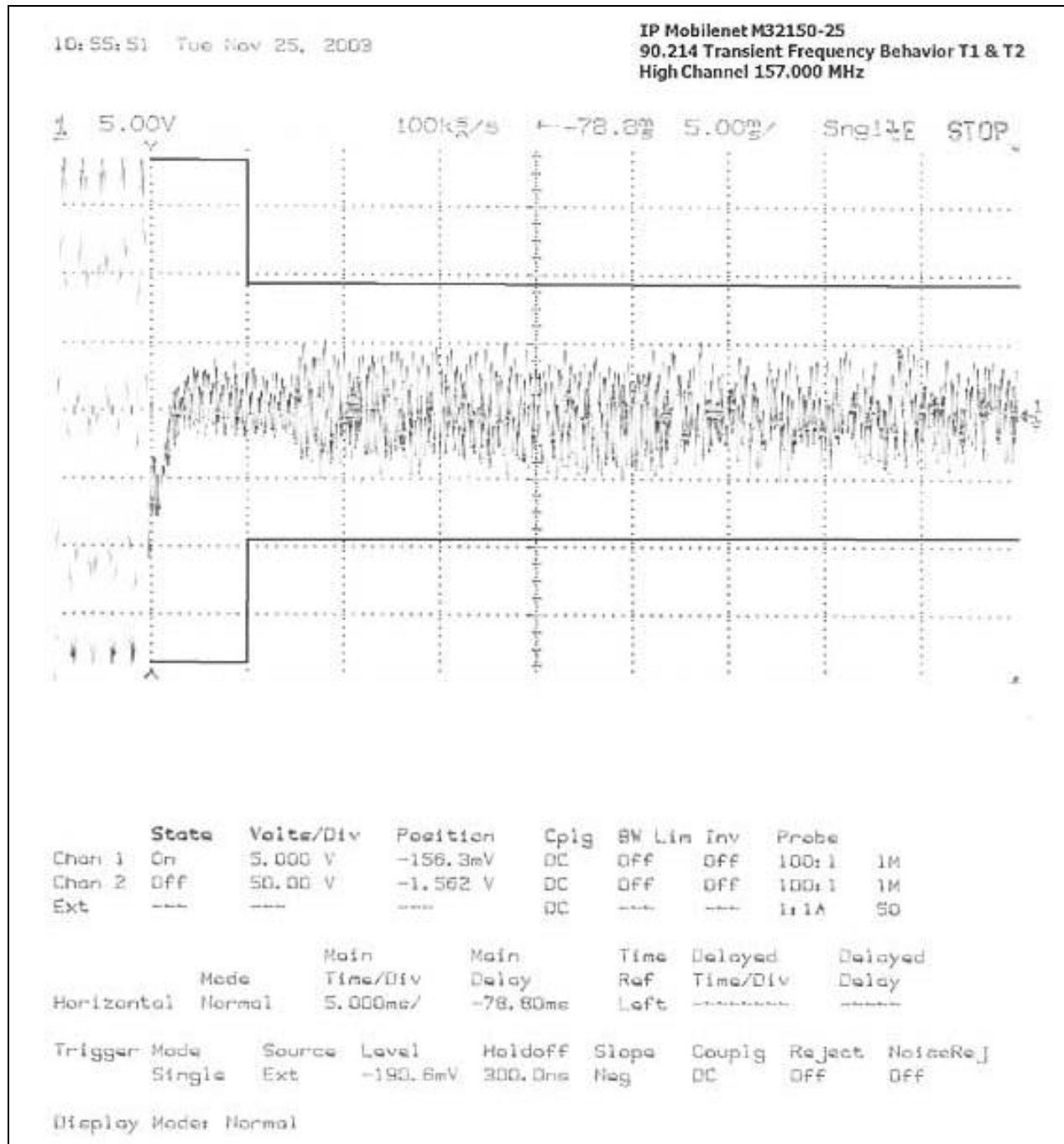
As can be seen from the MPE results, this device passes the limits specified in 1.1310 at a distance of 1.54 meters and at a output power of 59.9 watts assuming a 0dBi gain antenna. Users and installers must be provided with appropriate antenna installation instructions and transmitter operating conditions, including antenna co-location requirements of §1.1307(b)(3), for satisfying RF exposure compliance.

FCC 90.214 TRANSIENT FREQUENCY BEHAVIOR T1 151 MHz

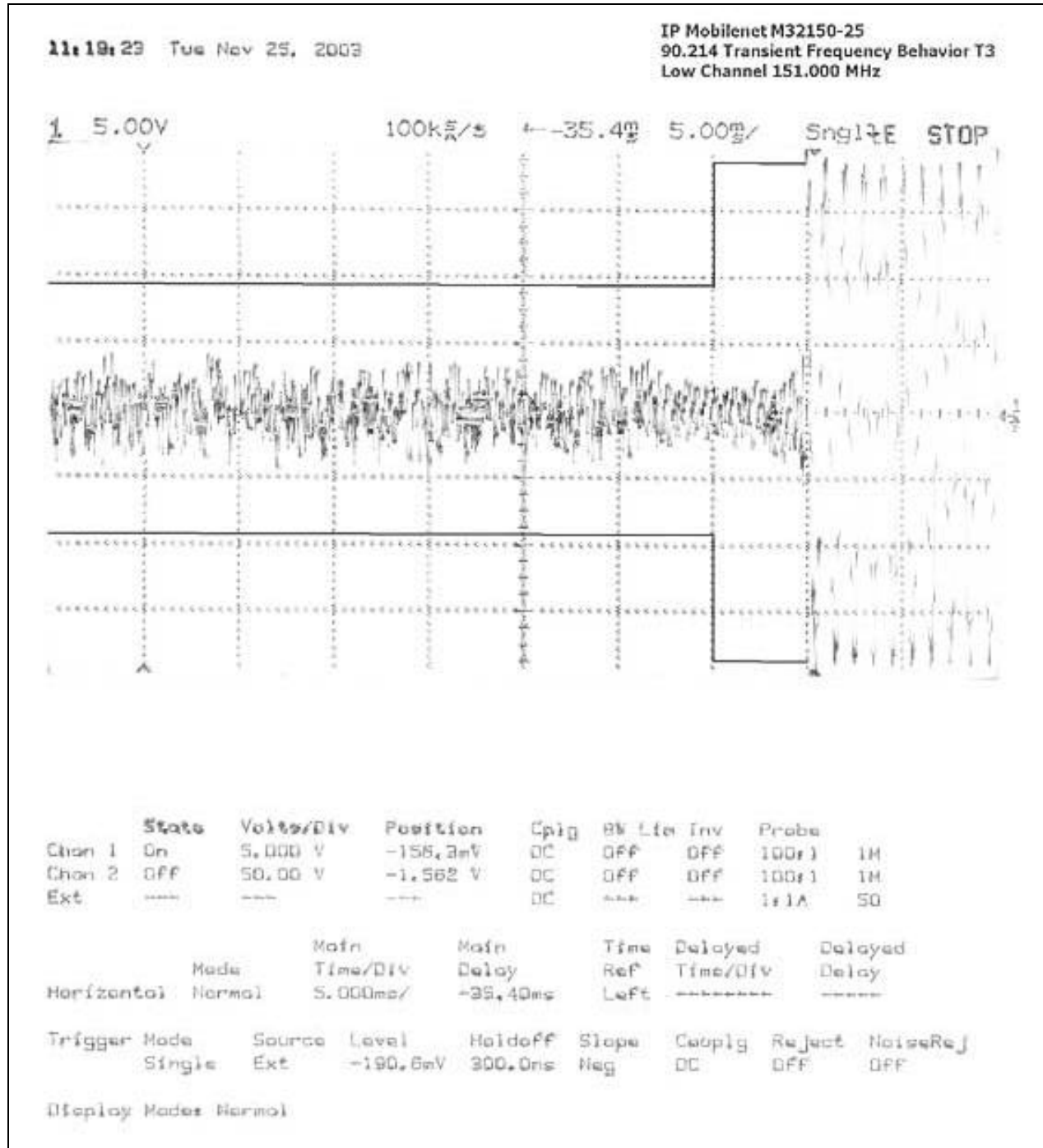
Test Conditions: EUT is a data radio for mobile use in the VHF frequency range. Equipment is DC powered by support power supply. Support laptop is used for configuration and testing purposes only. Test setup in accordance with TIA/EIA 603 with trigger modification: RF output port is fed through suitable external attenuation to a combiner with a signal generator. Output of combiner is fed through a demodulator. The modulation output is fed to an oscilloscope. The external trigger is fed from the X channel input to the oscilloscope.



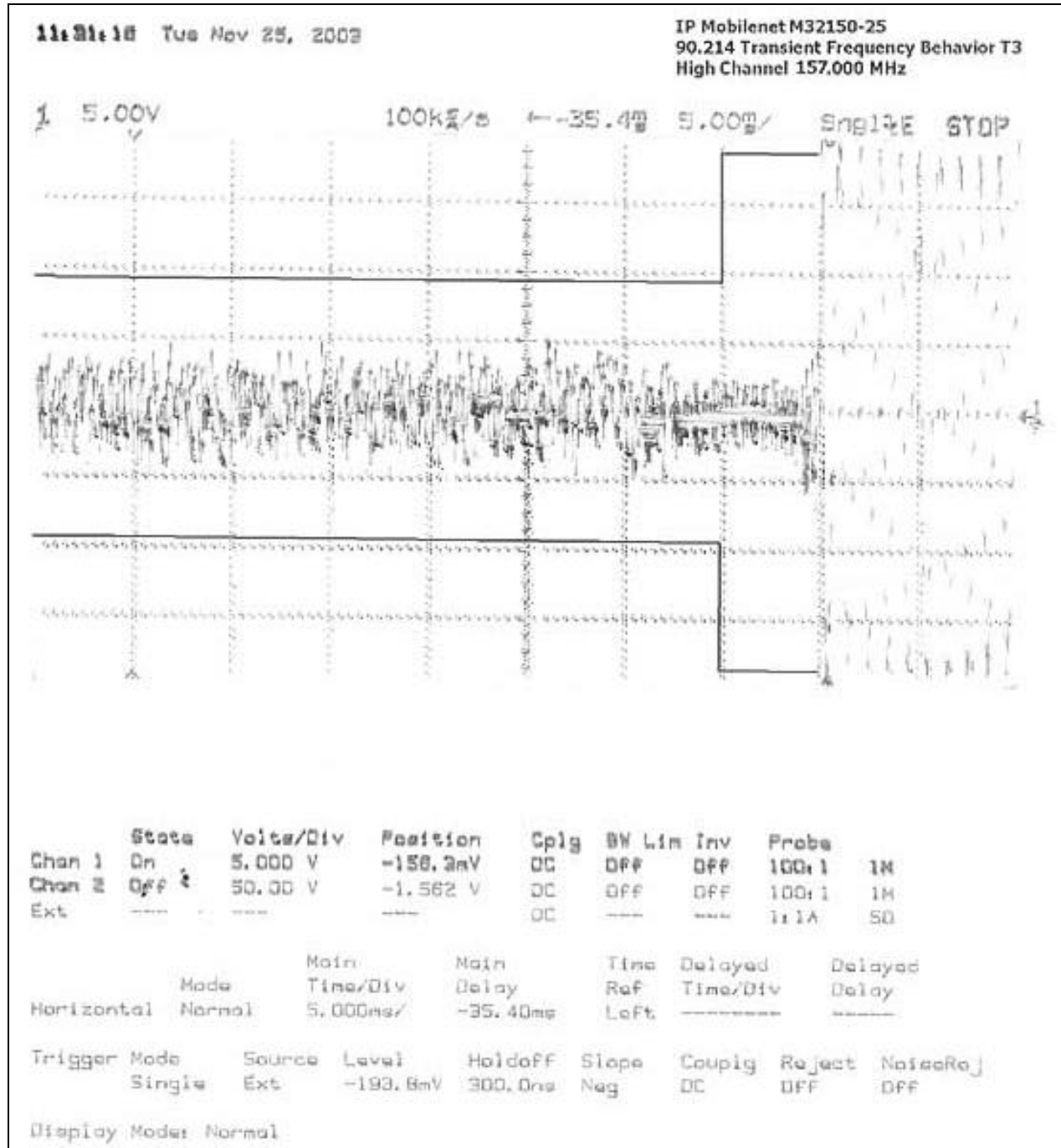
FCC 90.214 T1 157 MHz



FCC 90.214 T3 151 MHz



FCC 90.214 T3 157 MHz



Test Equipment

<i>Description</i>	<i>Asset #</i>	<i>Manufacturer</i>	<i>Model #</i>	<i>Serial #</i>	<i>Cal Date</i>	<i>Cal Due</i>
Analyzer, Modulation	02072	HP	8901A	2751A05181	11/27/02	11/26/04
Oscilloscope	02313	HP	84615B	US373340347	1/2/03	1/2/04
Power Meter	00613	HP	435B	2702A16632	8/12/02	8/11/04
Power Sensor	02392	HP	8482A	2652A16108	1/31/03	1/30/05
Generator, Signal	01469	HP	8673C	2822A00551	9/13/02	9/12/04

FCC 90.214 TRANSIENT FREQUENCY BEHAVIOR

