Deutscher Akkreditierungs Rat DAR Reg. No. DAT-P-051/95-10a

ACCREDITED EMC/SAFETY

IPWIRELESS, INC. ADDENDUM TO FC01-043A

FOR THE

NODE B BASE STATION, MODEL AJ

FCC PART 21 SUBPART K &
FCC PART 15 SUBPART B SECTIONS 15.107 & 15.109 CLASS A

COMPLIANCE

DATE OF ISSUE: JULY 11, 2001

PREPARED FOR:

IPWireless, Inc.
1250 Bayhill Drive Suite 113
San Bruno, CA 94066

P.O. No.: US2001/0257
W.O. No.: 76266

PREPARED BY:

Joyce Walker
CKC Laboratories, Inc.
5473A Clouds Rest
Mariposa, CA 95338

Date of test: March 13 - May 10, 2001

Report No.: FC01-043B

TABLE OF CONTENTS

ADMINISTRATIVE INFORMATION

DATE OF TEST:	March 13 - May 10, 2001
DATE OF RECEIPT:	March 13, 2001
PURPOSE OF TEST:	To demonstrate the compliance of the Node B Base Station, Model AJ with the requirements for FCC Part 21 Subpart K and FCC Part 15 Subpart B Sections 15.107 and 15.109 Class A devices. Addendum A is to update the Canadian plot. Addendum B is to clarify the frequency range tested for Part 15.109 and to correct Class B references to Class A.
TEST METHOD:	ANSI C63.4 1992
MANUFACTURER:	IPWireless, Inc. 1250 Bayhill Drive Suite 113 San Bruno, CA 94066
REPRESENTATIVE:	Roger Quayle
TEST LOCATION:	CKC Laboratories, Inc. 1653 Los Viboras Road Hollister, CA 95023 1100 Fulton Place Fremont, CA 94539

SUMMARY OF RESULTS

As received, the IPWireless, Inc. Node B Base Station, Model AJ was found to be fully compliant with the following standards and specifications:

United States

- FCC Part 15 Subpart B Section 15.107 and 15.109 Class A
- FCC Part 21 Subpart K
- FCC Part 74 Subpart I, using FCC Part 21 Subpart K
- ANSI C63.4 (1992) method

Canada

RSS-193 using:

- FCC Part 15 Subpart B Section 15.107 and 15.109 Class A
- FCC Part 21 Subpart K
- FCC Part 74 Subpart I, using FCC Part 21 Subpart K
- ANSI C63.4 (1992) method

The results in this report apply only to the items tested, as identified herein.

MODIFICATIONS REQUIRED FOR COMPLIANCE

None.

APPROVALS

QUALITY ASSURANCE:

Dennis Ward, Quality Manager

Christine Nicklas, EMC/Lab Manager

TEST PERSONNEL:

Art Rice, Test Engineer

Conan T. Boyle, EMC Engineer

Sarbjit Shelopal, EMC Engineer

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

The EUT tested by CKC Laboratories was a production unit. Node B broadband wireless base statation.

EQUIPMENT UNDER TEST

Base Station
Manuf: IP Wireless
Model: AJ
Serial: 015
FCC ID: PKTNODEBAJ (Pending)

Power Supply, 48VDC
Manuf: Lamda Electronics, Inc.
Model: LFS-45A 48
Serial: 92R027767
FCC ID: DoC

PERIPHERAL DEVICES

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

Notebook PC
Manuf: Toshiba
Model: PA1273U
Serial: 98060506A
FCC ID: DoC

AC Adapter
Manuf: Toshiba
Model: PA2450U
Serial: 0295362
FCC ID: DoC

Ethernet Hub
Manuf: Netgear
Model: DS104
Serial: DS14H11504830
FCC ID: DoC

TEMPERATURE AND HUMIDITY DURING TESTING

The temperature during testing was within +15°C and + 35°C.
The relative humidity was between 20% and 75%.

2.1033(c)(3) USER'S MANUAL

The necessary information is contained in a separate document.

2.1033(c)(4) TYPE OF EMISSIONS

The emission is QPSK using a 12 MHz radio channel, consequently the emission designator is 12M0G7D.

2.1033(c)(5) FREQUENCY RANGE

The device operates in the frequency range of 2.500 GHz to 2.686 GHz.

2.1033(c)(6) OPERATING POWER

This unit has a maximum PA output rating at the antenna connector of +34 dBm. This power may be divided into up to 16 orthogonal codes. This output power may be adjusted downwards by up to 6 dB per code per timeslot depending on the radio link to the subscriber terminal. In any event the +34 dBm composite power limit is enforced.

2.1033(c)(7) MAXIMUM POWER RATING

The maximum EIRP power limit for a "main station" or "high power booster station" is defined in 47CFR21.904 (a) and 47CFR74.935 (a) as;

33 dBW + 10 LOG (BW/6) dBW EIRP, where BW is the bandwidth of the signal in MHz.

As the Model AJ transmits a 12 MHz bandwidth signal, the limit becomes;

33 dBW + 10 LOG (12/6) dBW, which reduces to 33 dBW + 3 = 36 dBW EIRP

The actual EIRP of an IPWireless Model AJ will depend on the antenna used and the cable losses between the antenna and the transmitter. Assuming a typical 90 degree sector antenna with a gain of 17 dBi, and no cable or other line losses, the EIRP of the Model AJ would be;

+34 dBm + 17 dBi = 51 dBm EIRP, or +21 dBW EIRP

Clearly the Model AJ is well below the +36 dBW limit.

2.1033(c)(8) DC VOLTAGES

The necessary information is contained in a separate confidential document.

2.1033(c)(9) TUNE-UP PROCEDURE

This device does not have any tune up procedure, as it is configured at the factory to operate within the stated frequency and power limits used in the equipment certification process.

2.1033(c)(10) SCHEMATICS AND CIRCUITRY DESCRIPTION

The necessary information is contained in a separate confidential document.

2.1033(c)(11) LABEL AND PLACEMENT

The necessary information is contained in a separate document.

2.1033(c)(12) SUBMITTAL PHOTOS

The necessary information is contained in a separate document.

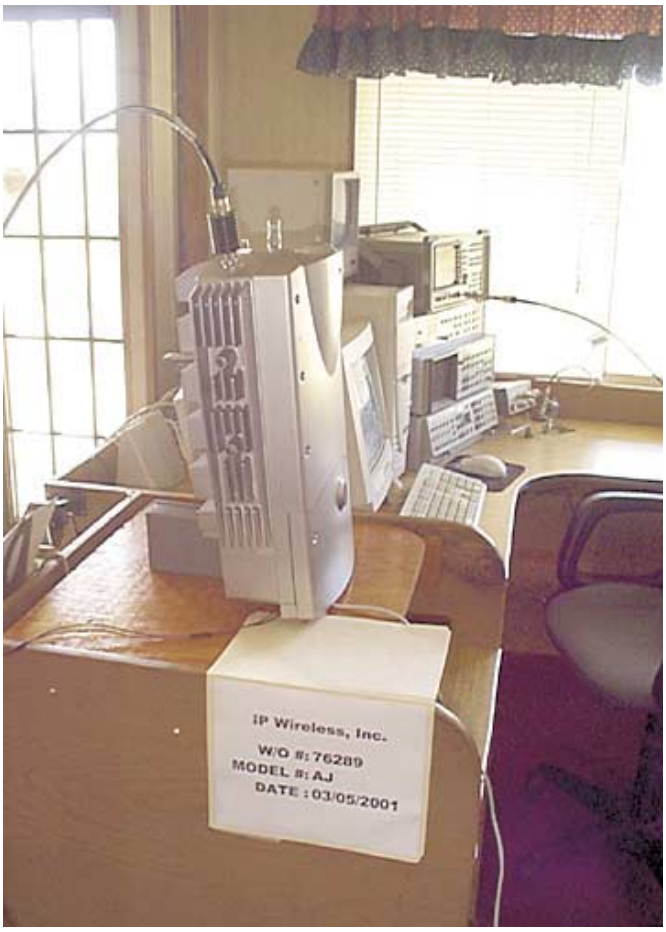
2.1033(c)(13) MODULATION INFORMATION

The necessary information is contained in a separate confidential document.

2.1033(c)(14)/2.1046/21.904(e) - RF POWER OUTPUT & 2.1033(c)(14)/2.1049(i)//21.908(d) - OCCUPIED BANDWIDTH

Test Conditions:

The HP-8564E Spectrum Analyzer was connected directly to the transmitter antenna terminal with an Andrews Heliax shielded cable. The HP-8564E was placed into Channel Power Measurement mode, the measurement bandwidth function was set to 7.68MHz, which is the chip rate of the device. The power measurement was also performed using the occupied bandwidth of 8.33MHz and there was less than 0.2dB difference between using the chip rate versus the occupied bandwidth; therefore the chip rate was used. An automated measurement was taken and the channel power value for each channel tested was recorded.



Direct Connect Set-up Photo

Emissions Mask FCC 21.908(d) & Occupied Bandwidth

Model: AJ **S/N: 15** 4-May-01

Test Equipment:

Asset No.	Description	Model	Cal Date	Cal Due
0	Cable, HF	ghz#5	5/9/00	5/9/01
1401	Spectrum Analyzer	HP-8564E	12/12/01	12/12/01

Channel **2506** MHz

Power measured in 12MHz			**Power normalized to 6MHz band**	
Ch Pwr	**33.53** dBm	**3.53** dBW	**0.53** dBw	
Pwr (30k)	**6.16** dBm		Occupied BW	**8.333MHz**

TX Atten = 10dB	(-3MHz)	(-250kHz)	Band edge	Center Ch	Band Edge	(+250kHz)	(+3MHz)
	2497	**2499.75**	**2500**	**2506**	**2512**	**2512.25**	**2515**
Measured Value in 30kHz (dBm)	**-58.17**	**-53.17**	**-48.97**		**-52.97**	**-53.47**	**-57.47**
Calculated dBc limit from Channel Power	**-60**	**-40**	**-25**		**-25**	**-40**	**-60**
LIMIT [Pwr - Calculated dBc] (dBm)	**-53.84**	**-33.84**	**-18.84**		**-18.84**	**-33.84**	**-53.84**
MARGIN	**-4.33**	**-19.33**	**-30.13**		**-34.13**	**-19.63**	**-3.63**
Pass/Fail	**Pass**	**Pass**	**Pass**		**Pass**	**Pass**	**Pass**

Channel **2596** MHz

Power measured in 12MHz			**Power normalized to 6MHz band**	
Ch Pwr	**34.73** dBm	**4.73** dBW	**1.73** dBw	
Pwr (30k)	**7** dBm		Occupied BW	**8.233MHz**

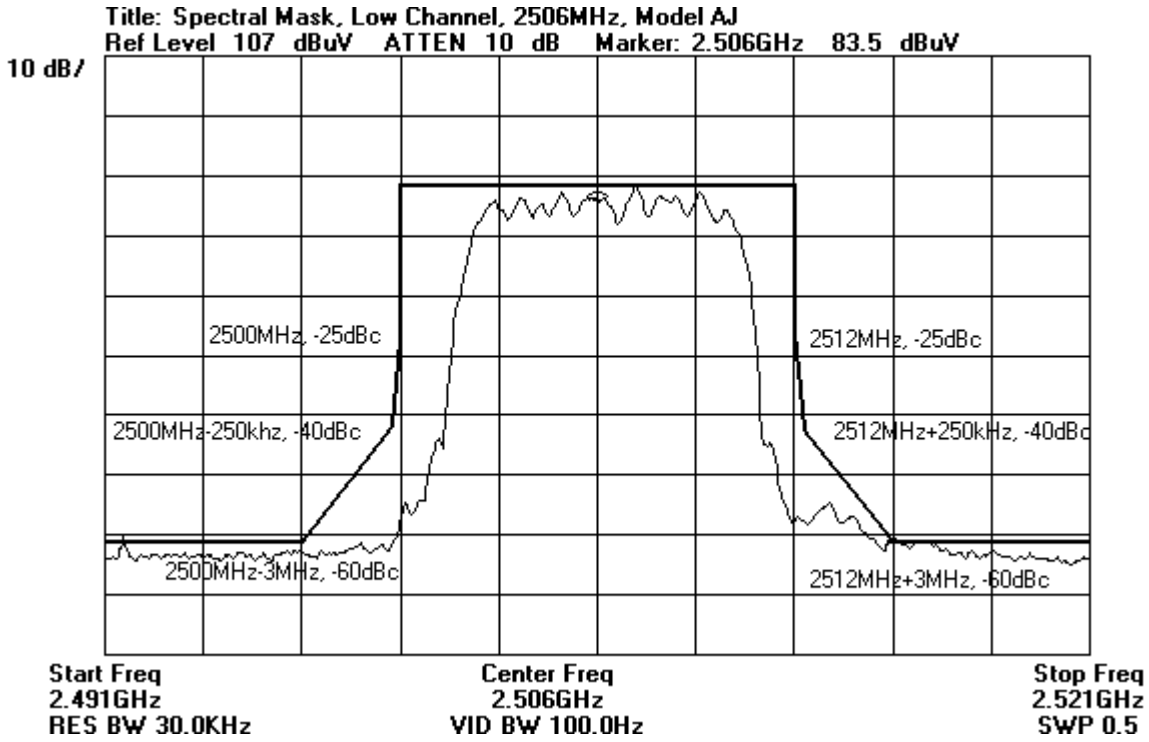
TX Atten = 8dB	(-3MHz)	(-250kHz)	Band edge	Center Ch	Band Edge	(+250kHz)	(+3MHz)
	2587	**2589.75**	**2590**	**2596**	**2602**	**2602.25**	**2605**
Measured Value in 30kHz (dBm)	**-58.50**	**-52.67**	**-48.67**		**-56.00**	**-56.17**	**-58.17**
Calculated dBc limit from Channel Power	**-60**	**-40**	**-25**		**-25**	**-40**	**-60**
LIMIT [Pwr - Calculated dBc] (dBm)	**-53.00**	**-33.00**	**-18.00**		**-18.00**	**-33.00**	**-53.00**
MARGIN	**-5.50**	**-19.67**	**-30.67**		**-38.00**	**-23.17**	**-5.17**
Pass/Fail	**Pass**	**Pass**	**Pass**		**Pass**	**Pass**	**Pass**

Channel **2680** MHz

Power measured in 12MHz			**Power normalized to 6MHz band**	
Ch Pwr	**34.13** dBm	**4.13** dBW	**1.13** dBw	
Pwr (30k)	**6.5** dBm		Occupied BW	**8.267MHz**

TX Atten = 6	(-3MHz)	(-250kHz)	Band edge	Center Ch	Band Edge	(+250kHz)	(+3MHz)
	2671	**2673.75**	**2674**	**2680**	**2686**	**2686.25**	**2689**
Measured Value in	**-58.50**	**-53.00**	**-48.67**		**-55.34**	**-57.00**	**-58.00**
Calculated dBc limit	**-60**	**-40**	**-25**		**-25**	**-40**	**-60**
Calculated dBc] (dBm)	**-53.5**	**-33.5**	**-18.5**		**-18.5**	**-33.5**	**-53.5**
MARGIN	**-5.00**	**-19.50**	**-30.17**		**-36.84**	**-23.50**	**-4.50**
Pass/Fail	**Pass**	**Pass**	**Pass**		**Pass**	**Pass**	**Pass**

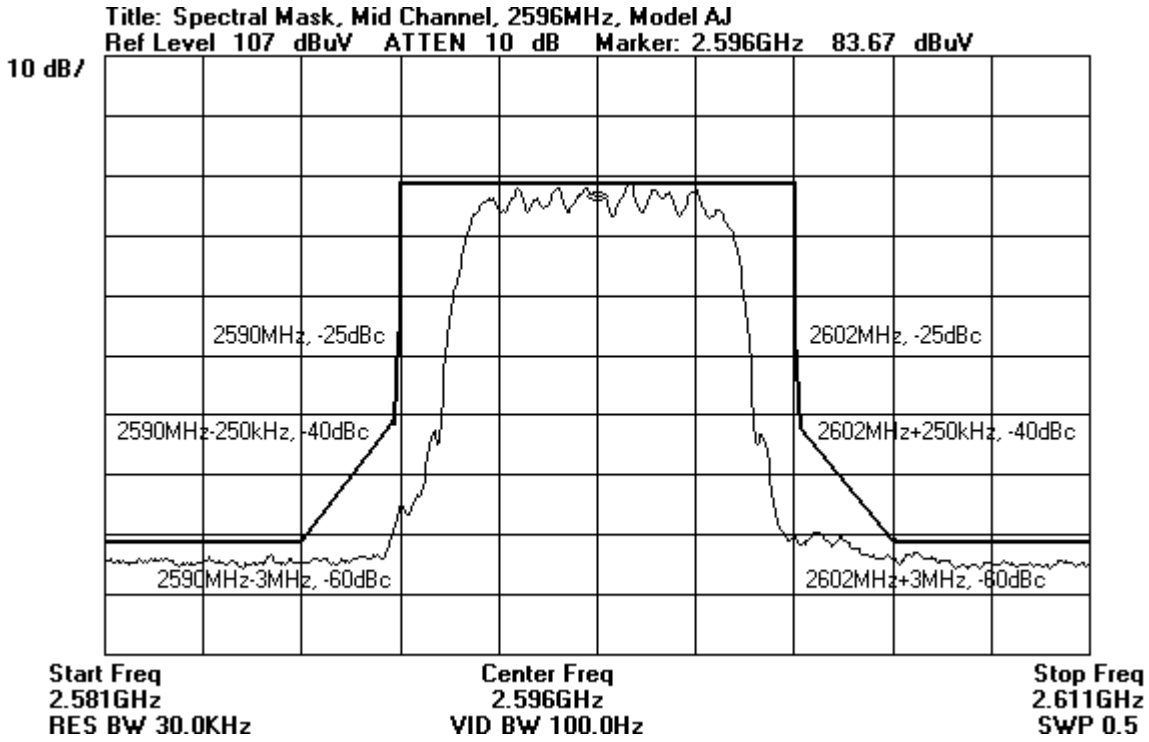
SPECTRAL PLOTS



Low Channel

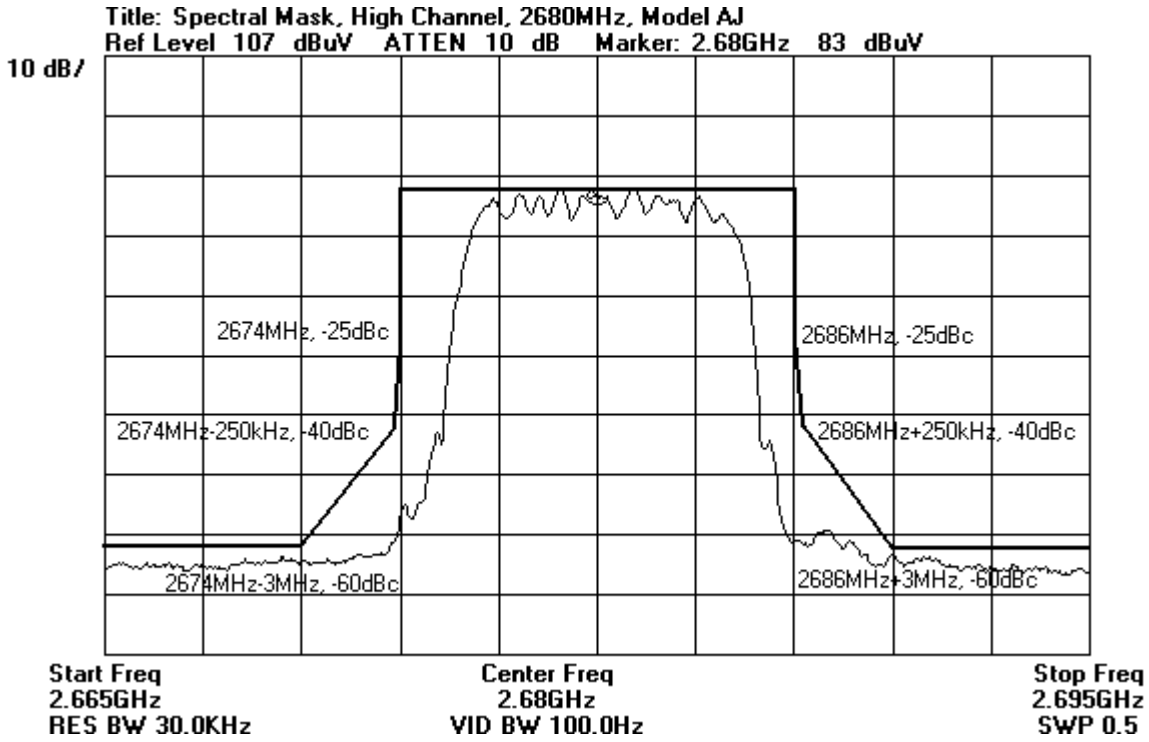
Note: The small point showing slightly above the mask line on the lower left side of the plot is an ambient spike.

SPECTRAL PLOT



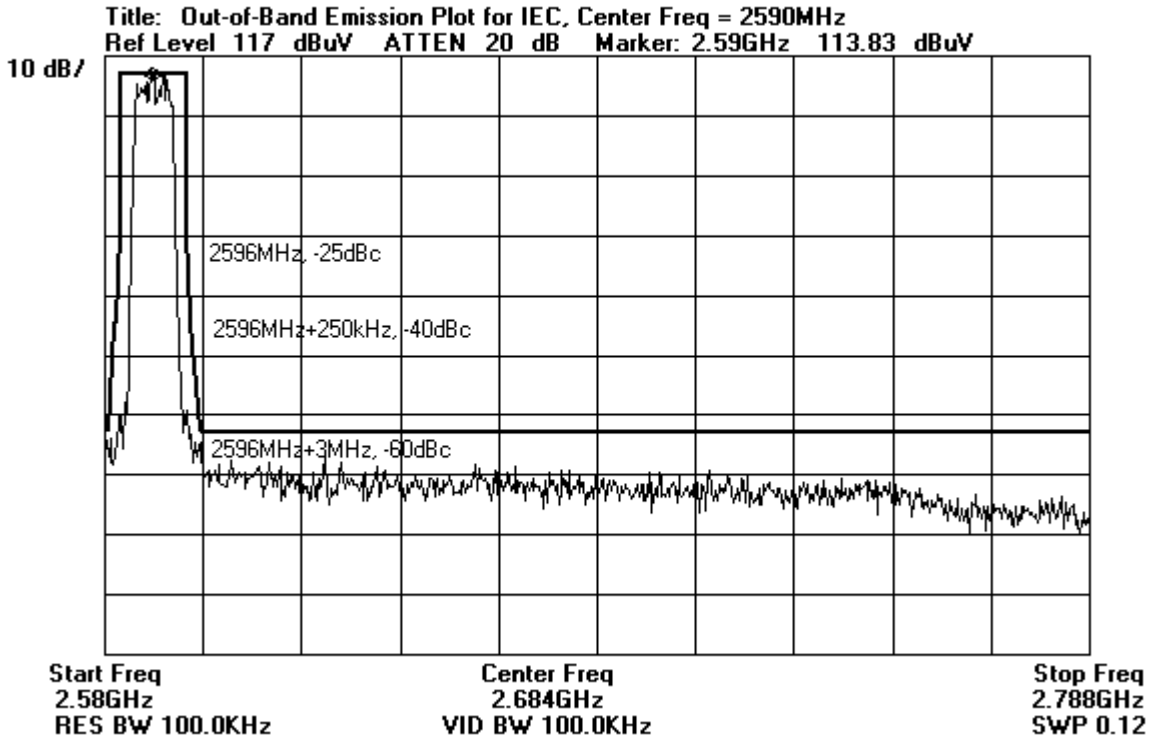
Middle Channel

SPECTRAL PLOT



High Channel

SPECTRAL PLOT



RSS-193 (Canada) Specific Frequency Compliance

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

Not applicable to this unit.

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

Not applicable to this unit.

2.1033(c)(14)/2.1051/21.908(d) - SPURIOUS EMISSIONS AT ANTENNA TERMINAL

Test Location: CKC Laboratories, Inc. • 1653 Los Viboras Rd., Site A • Hollister, Ca 95023 • (831) 637-0485

Customer: **IPWireless, Inc.**
Specification: **FCC Part 21.908(d) Low Chan**
Work Order #: **76289** Date: 5/8/2001
Test Type: **Spurious Emissions** Time: 13:13:44
Equipment: **Base Station** Sequence#: 19
Manufacturer: IP Wireless Tested By: Conan T. Boyle
Model: AJ
S/N: 015

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8564E Spec. An.	01984	12/12/2000	12/12/2001	1406
Cable, HF	ghz#5	05/09/2000	05/09/2001	0

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

Function	Manufacturer	Model #	S/N
Base Station*	IP Wireless	AJ	015
Power Supply, 48vdc	Lamda Electronics, Inc.	LFS-45A 48	92R027767

Support Devices:

Function	Manufacturer	Model #	S/N
Notebook PC	Toshiba	PA1273U	98060506A
AC Adapter	Toshiba	PA2450U	0295362
Ethernet Hub	Netgear	DS104	DS14H11504830

Test Conditions / Notes:

The EUT is a Base Station placed on a wooden table. The EUT is connected to a notebook PC via a Cat 5e Ethernet cable and hub and is powered by an AC adapter. The EUT is operating at 2.506GHz (low channel) and the continuously transmitting RF output is directly connected to the spectrum analyzer RF input port. Test is Spurious Emissions at Antenna Terminals (Transmit Mode). Frequency range tested: 1 MHz- 27 GHz.

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

#	Freq MHz	Rdng dBµV	GHz C dB	dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	2491.400M Ave	60.7	+1.4				+0.0	62.1	64.7	-2.6	Vert
^	2491.400M	65.9	+1.4				+0.0	67.3	64.7	+2.6	Vert
3	2624.191M	41.3	+1.5				+0.0	42.8	64.7	-21.9	Vert
4	17452.000M	32.2	+9.0				+0.0	41.2	64.7	-23.5	Vert
5	15036.000M	34.2	+6.8				+0.0	41.0	64.7	-23.7	Vert
6	10024.000M	32.3	+7.1				+0.0	39.4	64.7	-25.3	Vert

7	2557.806M Ave	36.8	+1.4	+0.0	38.2	64.7	-26.6	Vert
^	2557.806M	42.0	+1.4	+0.0	43.4	64.7	-21.3	Vert
9	7518.000M	33.2	+4.7	+0.0	37.9	64.7	-26.8	Vert
10	12530.000M	32.3	+5.3	+0.0	37.6	64.7	-27.1	Vert
11	5011.984M	31.3	+4.8	+0.0	36.1	64.7	-28.6	Vert

Test Location: CKC Laboratories, Inc. • 1653 Los Viboras Rd., Site A • Hollister, Ca 95023 • (831) 637-0485

Customer: **IPWireless, Inc.**
Specification: **FCC Part 21.908(d) Mid Chan**
Work Order #: **76289** Date: 5/8/2001
Test Type: **Spurious Emissions** Time: 13:01:20
Equipment: **Base Station** Sequence#: 20
Manufacturer: IP Wireless Tested By: Conan T. Boyle
Model: AJ
S/N: 015

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8564E Spec. An.	01984	12/12/2000	12/12/2001	1406
Cable, HF	ghz#5	05/09/2000	05/09/2001	0

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

Function	Manufacturer	Model #	S/N
Base Station*	IP Wireless	AJ	015
Power Supply, 48vdc	Lamda Electronics, Inc.	LFS-45A 48	92R027767

Support Devices:

Function	Manufacturer	Model #	S/N
Notebook PC	Toshiba	PA1273U	98060506A
AC Adapter	Toshiba	PA2450U	0295362
Ethernet Hub	Netgear	DS104	DS14H11504830

Test Conditions / Notes:

The EUT is a Base Station placed on a wooden table. The EUT is connected to a notebook PC via a Cat 5e Ethernet cable and hub and is powered by an AC adapter. The EUT is operating at 2.596GHz (mid channel) and the continuously transmitting RF output is directly connected to the spectrum analyzer RF input port. Test is Spurious Emissions at Antenna Terminals (Transmit Mode). Frequency range tested: 1 MHz- 27 GHz.

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

#	Freq MHz	Rdng dBµV	GHz C dB	dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	2562.213M Ave	55.8	+1.4				+0.0	57.2	64.7	-7.5	Vert
^	2562.213M	65.2	+1.4				+0.0	66.6	64.7	+1.9	Vert
3	2666.203M	40.8	+1.5				+0.0	42.3	64.7	-22.4	Vert
4	18172.000 M	33.3	+8.6				+0.0	41.9	64.7	-22.8	Vert
5	10384.000 M	33.3	+8.3				+0.0	41.6	64.7	-23.1	Vert

6	15576.000 M	33.5	+7.0	+0.0	40.5	64.7	-24.2	Vert
7	12980.000 M	31.0	+6.7	+0.0	37.7	64.7	-27.0	Vert
8	7788.000M	32.3	+4.4	+0.0	36.7	64.7	-28.0	Vert
9	5192.000M	31.5	+4.6	+0.0	36.1	64.7	-28.6	Vert

Test Location: CKC Laboratories, Inc. • 1653 Los Viboras Rd., Site A • Hollister, Ca 95023 • (831) 637-0485

Customer: **IPWireless, Inc.**
Specification: **FCC Part 21.908(d) Hi Chan**
Work Order #: **76289** Date: 5/8/2001
Test Type: **Spurious Emissions** Time: 12:56:48
Equipment: **Base Station** Sequence#: 21
Manufacturer: IP Wireless Tested By: Conan T. Boyle
Model: AJ
S/N: 015

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8564E Spec. An.	01984	12/12/2000	12/12/2001	1406
Cable, HF	ghz#5	05/09/2000	05/09/2001	0

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

Function	Manufacturer	Model #	S/N
Base Station*	IP Wireless	AJ	015
Power Supply, 48vdc	Lamda Electronics, Inc.	LFS-45A 48	92R027767

Support Devices:

Function	Manufacturer	Model #	S/N
Notebook PC	Toshiba	PA1273U	98060506A
AC Adapter	Toshiba	PA2450U	0295362
Ethernet Hub	Netgear	DS104	DS14H11504830

Test Conditions / Notes:

The EUT is a Base Station placed on a wooden table. The EUT is connected to a notebook PC via a Cat 5e Ethernet cable and hub and is powered by an AC adapter. The EUT is operating at 2.680GHz (high channel) and the continuously transmitting RF output is directly connected to the spectrum analyzer RF input port. Test is Spurious Emissions at Antenna Terminals (Transmit Mode). Frequency range tested: 1 MHz- 27 GHz.

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

#	Freq MHz	Rdng dBµV	GHz C dB	dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	2500.017M Ave	53.2	+1.4				+0.0	54.6	64.7	-10.1	Vert
^	2500.017M	62.6	+1.4				+0.0	64.0	64.7	-0.7	Vert
3	16080.000M	32.8	+7.7				+0.0	40.5	64.7	-24.2	Vert
4	10720.000M	31.5	+7.8				+0.0	39.3	64.7	-25.4	Vert
5	13400.000M	33.2	+5.8				+0.0	39.0	64.7	-25.7	Vert
6	8040.000M	33.0	+4.3				+0.0	37.3	64.7	-27.4	Vert
7	5360.000M	32.8	+4.4				+0.0	37.2	64.7	-27.5	Vert
8	18760.000M	32.2	+0.0				+0.0	32.2	64.7	-32.5	Vert

Test Location: CKC Laboratories, Inc. • 1653 Los Viboras Rd., Site A • Hollister, Ca 95023 • (831) 637-0485

Customer: **IPWireless, Inc.**
Specification: **FCC Part 21.908(d) Mid Chan in Receiver Mode**
Work Order #: **76289** Date: 5/8/2001
Test Type: **Spurious Emissions** Time: 13:27:45
Equipment: **Base Station** Sequence#: 5
Manufacturer: IP Wireless Tested By: Conan T. Boyle
Model: AJ
S/N: 015

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8564E Spec. An.	01984	12/12/2000	12/12/2001	1406
Cable, HF	ghz#5	05/09/2000	05/09/2001	0

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

Function	Manufacturer	Model #	S/N
Base Station*	IP Wireless	AJ	015
Power Supply, 48vdc	Lamda Electronics, Inc.	LFS-45A 48	92R027767

Support Devices:

Function	Manufacturer	Model #	S/N
Notebook PC	Toshiba	PA1273U	98060506A
AC Adapter	Toshiba	PA2450U	0295362
Ethernet Hub	Netgear	DS104	DS14H11504830

Test Conditions / Notes:

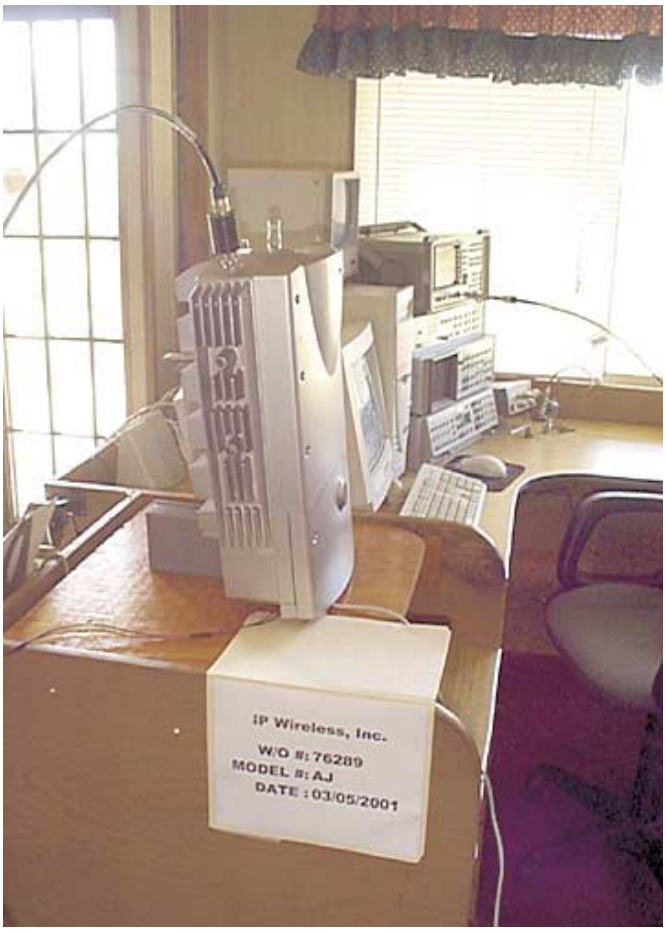
The EUT is a Base Station placed on a wooden table. The EUT is connected to a notebook PC via a Cat 5e Ethernet cable and is powered by an AC adapter. The EUT is operating at 2.596GHz (mid channel) and the EUT is in receive mode with the spectrum analyzer cable connected to the EUT RF receive port. Test is Spurious Emissions at Antenna Terminals (Receive Mode). Frequency range tested: 1 MHz- 27 GHz.

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

#	Freq MHz	Rdng dBµV	GHz C dB	dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	10384.000M	32.3	+8.3				+0.0	40.6	64.7	-24.1	Vert
2	12980.000M	33.3	+6.7				+0.0	40.0	64.7	-24.7	Vert
3	15576.000M	33.0	+7.0				+0.0	40.0	64.7	-24.7	Vert
4	7788.000M	31.3	+4.4				+0.0	35.7	64.7	-29.0	Vert
5	2596.000M	33.7	+1.5				+0.0	35.2	64.7	-29.5	Vert
6	5192.000M	30.5	+4.6				+0.0	35.1	64.7	-29.6	Vert

VIDEO BANDWIDTH AND RESOLUTION BANDWIDTH SETTINGS:

Frequency Range	Signal Analyzer VBW & RBW Setting
1 MHz – 30 MHz	9 kHz
30 MHz – 1000 MHz	120 kHz
1 GHz – 27 GHz	1MHz



Direct Connect Set-up Photo

2.1033(c)(14)/2.1053/21.908(d) - FIELD STRENGTH OF SPURIOUS RADIATION

Test Location: CKC Laboratories, Inc. • 1653 Los Viboras Rd., Site A • Hollister, Ca 95023 • (831) 637-0485

Customer: **IPWireless, Inc.**
Specification: **FCC Part 21.908(d) Low Chan**
Work Order #: **76289** Date: 5/8/2001
Test Type: **Spurious Emissions** Time: 19:23:21
Equipment: **Base Station** Sequence#: 28
Manufacturer: IP Wireless Tested By: Conan T. Boyle
Model: AJ
S/N: 015

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8564E Spec. An.	01984	12/12/2000	12/12/2001	1406
Cable, 2 ft Andrews FSJ1P-50A-4A	hol-hf-002-01	09/29/2000	09/29/2001	0
Preamp, HP83017A	3123A00283	05/09/2000	05/09/2001	785
Cable,100 ft Andrews FSJ1P-50A-4A	hol-hf-100-09	09/29/2000	09/29/2001	0
Cable, HF	ghz#5	05/09/2000	05/09/2001	0
Horn Ant, 18-26.5GHz	942126-003	02/02/2000	02/02/2001	1413
Horn Ant, 26.5-40GHz	951559-008	02/02/2000	02/02/2001	1414
Horn Ant, 1-18GHz	9901-5655	10/20/2000	10/20/2001	2157
Cable, HF	ghz#5	05/09/2000	05/09/2001	0

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

Function	Manufacturer	Model #	S/N
Base Station*	IP Wireless	AJ	015
Power Supply, 48vdc	Lamda Electronics, Inc.	LFS-45A 48	92R027767

Support Devices:

Function	Manufacturer	Model #	S/N
Notebook PC	Toshiba	PA1273U	98060506A
AC Adapter	Toshiba	PA2450U	0295362
Ethernet Hub	Netgear	DS104	DS14H11504830

Test Conditions / Notes:

The EUT is a Base Station placed on a wooden table. The EUT is connected to a notebook PC via a Cat 5e Ethernet cable and hub and is powered by a 48vdc external power supply. The EUT is operating at 2.506GHz (low channel) and is continuously transmitting. Test is for Field Strength of Spurious Emissions (Transmit Mode). Frequency range tested: 1 MHz- 27 GHz.

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	GHz C Amp_2 dB	Hol-h dB	hol-h dB	Horn dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	1061.070M	64.7	+1.2 -41.3	+0.2	+6.2	+23.2	+0.0	54.2	64.7	-10.5	Vert
2	7518.000M	34.3	+4.7 -40.2	+1.0	+17.1	+35.7	+0.0	52.6	64.7	-12.1	Vert
3	10024.000M	26.8	+7.1 -38.5	+0.7	+17.6	+38.1	+0.0	51.8	64.7	-12.9	Vert

4	1962.928M	49.3	+1.8 -38.0	+0.2	+9.6	+26.3	+0.0	49.2	64.7	-15.5	Horiz
5	2537.239M	48.0	+1.4 -37.6	+0.2	+10.5	+26.1	+0.0	48.6	64.7	-16.1	Vert
6	1963.000M	47.3	+1.8 -38.0	+0.2	+9.6	+26.3	+0.0	47.2	64.7	-17.5	Vert
7	2501.253M	45.7	+1.4 -37.6	+0.2	+10.5	+25.8	+0.0	46.0	64.7	-18.7	Vert
8	2513.246M	43.7	+1.4 -37.6	+0.2	+10.5	+25.9	+0.0	44.1	64.7	-20.6	Vert
9	5012.000M	35.2	+4.8 -40.7	+0.3	+14.6	+27.6	+0.0	41.8	64.7	-22.9	Vert

Test Location: CKC Laboratories, Inc. • 1653 Los Viboras Rd., Site A • Hollister, Ca 95023 • (831) 637-0485

Customer: **IPWireless, Inc.**
Specification: **FCC Part 21.908(d) Mid Chan**
Work Order #: **76289** Date: 5/8/2001
Test Type: **Spurious Emissions** Time: 19:13:11
Equipment: **Base Station** Sequence#: 29
Manufacturer: IP Wireless Tested By: Conan T. Boyle
Model: AJ
S/N: 015

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8564E Spec. An.	01984	12/12/2000	12/12/2001	1406
Preamp, HP83017A	3123A00283	05/09/2000	05/09/2001	785
Cable, 2 ft Andrews FSJ1P-50A-4A	hol-hf-002-01	09/29/2000	09/29/2001	0
Cable,100 ft Andrews FSJ1P-50A-4A	hol-hf-100-09	09/29/2000	09/29/2001	0
Cable, HF	ghz#5	05/09/2000	05/09/2001	0
Horn Ant, 1-18GHz	9901-5655	10/20/2000	10/20/2001	2157
Horn Ant, 18-26.5GHz	942126-003	02/02/2000	02/02/2001	1413
Horn Ant, 26.5-40GHz	951559-008	02/02/2000	02/02/2001	1414

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

Function	Manufacturer	Model #	S/N
Base Station*	IP Wireless	AJ	015
Power Supply, 48vdc	Lamda Electronics, Inc.	LFS-45A 48	92R027767

Support Devices:

Function	Manufacturer	Model #	S/N
Notebook PC	Toshiba	PA1273U	98060506A
AC Adapter	Toshiba	PA2450U	0295362
Ethernet Hub	Netgear	DS104	DS14H11504830

Test Conditions / Notes:

The EUT is a Base Station placed on a wooden table. The EUT is connected to a notebook PC via a Cat 5e Ethernet cable and hub and is powered by a 48vdc external power supply. The EUT is operating at 2.596GHz (mid channel) and is continuously transmitting. Test is for Field Strength of Spurious Emissions (Transmit Mode). Frequency range tested: 1 MHz- 27 GHz.

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	GHz C Amp_2 dB	hol-h dB	hol-h dB	Horn dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	10384.000 M	23.0	+8.3 -38.2	+0.5	+19.8	+38.6	+0.0	52.0	64.7	-12.7	Vert
2	7788.000M	31.5	+4.4 -39.7	+0.7	+15.7	+35.9	+0.0	48.5	64.7	-16.2	Vert
3	1962.414M	48.5	+1.8 -38.0	+0.2	+9.6	+26.3	+0.0	48.4	64.7	-16.3	Vert
4	2537.667M	47.7	+1.4 -37.6	+0.2	+10.5	+26.1	+0.0	48.3	64.7	-16.4	Vert

5	2513.259M	46.7	+1.4 -37.6	+0.2	+10.5	+25.9	+0.0	47.1	64.7	-17.6	Vert
6	2525.243M	46.3	+1.4 -37.6	+0.2	+10.5	+26.0	+0.0	46.8	64.7	-17.9	Vert
7	2501.333M	46.3	+1.4 -37.6	+0.2	+10.5	+25.8	+0.0	46.6	64.7	-18.1	Vert
8	2171.106M	45.2	+1.7 -39.2	+0.2	+9.9	+26.1	+0.0	43.9	64.7	-20.8	Vert
9	5192.000M	31.7	+4.6 -38.6	+0.5	+14.4	+28.4	+0.0	41.0	64.7	-23.7	Vert
10	1061.100M	51.5	+1.2 -41.3	+0.2	+6.2	+23.2	+0.0	41.0	64.7	-23.7	Vert

Test Location: CKC Laboratories, Inc. • 1653 Los Viboras Rd., Site A • Hollister, Ca 95023 • (831) 637-0485

Customer: **IPWireless, Inc.**
Specification: **FCC Part 21.908(d) Hi Chan**
Work Order #: **76289** Date: 5/8/2001
Test Type: **Spurious Emissions** Time: 19:48:10
Equipment: **Base Station** Sequence#: 30
Manufacturer: IP Wireless Tested By: Conan T. Boyle
Model: AJ
S/N: 015

***Test equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8564E Spec. An.	01984	12/12/2000	12/12/2001	1406
Preamp, HP83017A	3123A00283	05/09/2000	05/09/2001	785
Cable, 2 ft Andrews FSJ1P-50A-4A	hol-hf-002-01	09/29/2000	09/29/2001	0
Cable,100 ft Andrews FSJ1P-50A-4A	hol-hf-100-09	09/29/2000	09/29/2001	0
Cable, HF	ghz#5	05/09/2000	05/09/2001	0
Horn Ant, 1-18GHz	9901-5655	10/20/2000	10/20/2001	2157
Horn Ant, 18-26.5GHz	942126-003	02/02/2000	02/02/2001	1413
Horn Ant, 26.5-40GHz	951559-008	02/02/2000	02/02/2001	1414

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

Function	Manufacturer	Model #	S/N
Base Station*	IP Wireless	AJ	015
Power Supply, 48vdc	Lamda Electronics, Inc.	LFS-45A 48	92R027767

Support Devices:

Function	Manufacturer	Model #	S/N
Notebook PC	Toshiba	PA1273U	98060506A
AC Adapter	Toshiba	PA2450U	0295362
Ethernet Hub	Netgear	DS104	DS14H11504830

Test Conditions / Notes:

The EUT is a Base Station placed on a wooden table. The EUT is connected to a notebook PC via a Cat 5e Ethernet cable and hub and is powered by a 48vdc external power supply. The EUT is operating at 2.680GHz (high channel) and is continuously transmitting. Test is for Field Strength of Spurious Emissions (Transmit Mode). Frequency range tested: 1 MHz- 27 GHz.

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	GHz C hol-h dB	Amp_2 dB	hol-h dB	Horn dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	10720.000M	26.8	+7.8 +17.2	-39.3	+0.9	+38.4	+0.0	51.8	64.7	-12.9	Vert
2	1963.065M	50.0	+1.8 +9.6	-38.0	+0.2	+26.3	+0.0	49.9	64.7	-14.8	Vert
3	8040.000M	31.3	+4.3 +14.8	-38.7	+0.5	+36.1	+0.0	48.3	64.7	-16.4	Vert
4	2304.436M	46.5	+1.5 +0.0	+0.0	+0.0	+0.0	+0.0	48.0	64.7	-16.7	Horiz
5	1112.500M	40.8	+1.3 +0.0	+0.0	+0.0	+0.0	+0.0	42.1	64.7	-22.6	Horiz

6	5360.000M	31.5	+4.4 +14.3	-38.8	+0.7	+29.1	+0.0	41.2	64.7	-23.5	Vert
7	1250.833M	38.7	+1.4 +0.0	+0.0	+0.0	+0.0	+0.0	40.1	64.7	-24.6	Vert
8	1240.000M	38.5	+1.4 +0.0	+0.0	+0.0	+0.0	+0.0	39.9	64.7	-24.8	Vert
9	1090.833M	37.7	+1.3 +0.0	+0.0	+0.0	+0.0	+0.0	39.0	64.7	-25.7	Vert
10	1230.000M	37.5	+1.4 +0.0	+0.0	+0.0	+0.0	+0.0	38.9	64.7	-25.8	Vert
11	1061.022M	49.3	+1.2 +6.2	-41.3	+0.2	+23.2	+0.0	38.8	64.7	-25.9	Vert
12	1240.000M	37.3	+1.4 +0.0	+0.0	+0.0	+0.0	+0.0	38.7	64.7	-26.0	Horiz

VIDEO BANDWIDTH AND RESOLUTION BANDWIDTH SETTINGS:

Frequency Range	Signal Analyzer VBW & RBW Setting
1MHz – 30 MHz	9 kHz
30 MHz – 1000 MHz	120 kHz
1 GHz – 27 GHz	1MHz

Radiated Emissions - Front View

Radiated Emissions - Back View

2.1033(c)(14)/2.1055/21.101 - FREQUENCY STABILITY

Voltage Fluctuation vs. Frequency

Model AJ
Serial No. 015

Test Date: 5/8/01
Location: Hollister, Site D

Test Equipment:

Description	Model	Cal Date	Cal Due	Asset No.
Cable, HF	ghz#5	5/9/00	5/9/01	0
Spectrum Analyzer	HP-8564E	12/12/01	12/12/01	1401
AC Transformer	Powerstat 126	NCR	NCR	435
True RMS DVM	Fluke 87	11/9/00	11/9/01	1477

Test Conditions:

The device was placed in continous transmit mode and an Andrews Heliax shielded RF cable was connected directly to the Transmit port connector of the device and the other end to the HP-8564E spectrum analyzer RF input port. The device power supply was plugged into a variable AC transformer and a Digital Voltmeter monitored the AC input voltage to the device power supply. The voltage was varied from 85% to 115% of the nominal value of 120vac. The fundamental frequency was monitored on the spectrum analyzer.

Temp: 20-deg
Centigrade

Results:

Channel - Freq. (MHz)	102vac	120vac	138vac
Low - 2506	2506.001150	2506.001150	2506.001150
Mid - 2596	2596.001200	2596.001200	2596.001200
High - 2680	2680.001250	2680.001250	2680.001250

FCC Part 2.1055
Temperature Variation vs. Frequency

Model AJ
Serial No. 015

Test Date: 3/22/01
Location: Fremont, Ca

Test Equipment:

Description	Model	Cal Date	Cal Due	Asset No.
Cable, HF	GHhz#5	5/9/00	5/9/01	0
Spectrum Analyzer	HP-8596E	5/19/00	5/19/01	783

Test Conditions:

The device was placed in continous transmit mode and an Andrews Heliax shielded RF cable was connected directly to the Transmit port connector of the device and the other end to the HP-8596E spectrum analyzer RF input port. The device power supply was plugged into 120V AC. The temperature was varied in 10 degree steps from -20 degrees celcius to +50 degrees celcius. The fundamental frequency was monitored on the spectrum analyzer.

Results:

Channel - Freq.	Temperature in Celsius							
(MHz)	-20	-10	0	10	20	30	40	50
Low - 2506	2506.001	2506.002	2506.001	2506.001	2506.001	2506.002	2506.001	2506.002
Mid - 2596	2596.000	2596.001	2596.001	2596.001	2596.001	2596.001	2596.000	2596.001
High - 2680	2680.001	2680.000	2680.001	2680.001	2680.001	2680.002	2680.001	2680.001

Test Setup Photo

Close-up

Over-view

15.107 – AC CONDUCTED EMISSIONS

Test Location: CKC Laboratories, Inc. • 1653 Los Viboras Rd., Site A • Hollister, Ca 95023 • (831) 637-0485

Customer: **IPWireless, Inc.**
Specification: **FCC Part 15.107 Class A**
Work Order #: **76289** Date: 03/15/2001
Test Type: **Conducted Emissions** Time: 17:01:58
Equipment: **Base Station** Sequence#: 31
Manufacturer: IP Wireless Tested By: Conan T. Boyle
Model: AJ
S/N: 015

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 85650A QP Adaptor	2430A00541	04/09/2000	04/09/2001	0
HP 85662A Display	2112A02174	04/09/2000	04/09/2001	0
HP 85680A S. A.	2049A01408	04/09/2000	04/09/2001	0
LISN, Solar 8028-50-TS-24-BNC	910490	09/13/2000	09/13/2001	737
LISN, Solar 8028-50-TS-24-BNC	910489	09/13/2000	09/13/2001	736
Conducted Cable	condcabl-ha00	03/01/2001	03/01/2002	0

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

Function	Manufacturer	Model #	S/N
Base Station*	IP Wireless	AJ	015
Power Supply, 48vdc	Lamda Electronics, Inc.	LFS-45A 48	92R027767

Support Devices:

Function	Manufacturer	Model #	S/N
Notebook PC	Toshiba	PA1273U	98060506A
AC Adapter	Toshiba	PA2450U	0295362
Ethernet Hub	Netgear	DS104	DS14H11504830

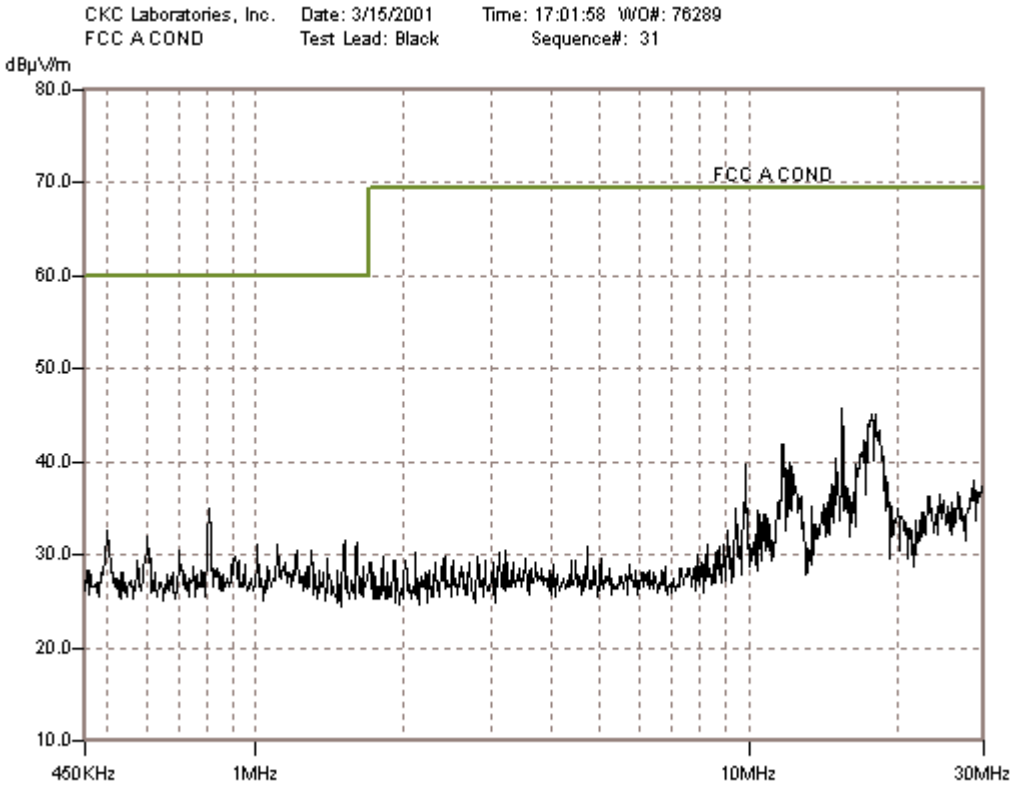
Test Conditions / Notes:

The EUT is a Base Station placed on a wooden table. The EUT is connected to a notebook PC via a Cat 5e Ethernet cable and hub and receives 48vdc power from an external power supply. The EUT is operating in Receive Mode. A 50-ohm dummy load is attached to the transmit RF output port. Test is 15.107, Conducted Emissions, Black Lead at 120v, 60Hz. Frequency range tested: 450 kHz – 30 MHz.

Measurement Data: Reading listed by margin. Test Lead: Black

#	Freq MHz	Rdng dBµV	Site dB	LISNl dB	dB	LISNZ dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	15.521M	44.3	+0.7	+0.3		+0.4	+0.0	45.7	69.5	-23.8	Black
2	17.715M	43.6	+0.6	+0.4		+0.6	+0.0	45.2	69.5	-24.3	Black
3	18.105M	43.3	+0.6	+0.4		+0.7	+0.0	45.0	69.5	-24.5	Black
4	17.618M	42.8	+0.6	+0.4		+0.6	+0.0	44.4	69.5	-25.1	Black
5	18.446M	41.7	+0.6	+0.4		+0.7	+0.0	43.4	69.5	-26.1	Black
6	17.228M	40.8	+0.6	+0.3		+0.6	+0.0	42.3	69.5	-27.2	Black

7	11.719M	40.7	+0.3	+0.3	+0.0	41.8	69.5	-27.7	Black
		+0.5							
8	18.641M	39.6	+0.4	+0.7	+0.0	41.4	69.5	-28.1	Black
		+0.7							
9	17.033M	39.5	+0.3	+0.6	+0.0	41.0	69.5	-28.5	Black
		+0.6							
10	15.083M	39.0	+0.3	+0.4	+0.0	40.4	69.5	-29.1	Black
		+0.7							
11	12.158M	38.9	+0.3	+0.3	+0.0	40.0	69.5	-29.5	Black
		+0.5							
12	16.594M	38.3	+0.3	+0.5	+0.0	39.7	69.5	-29.8	Black
		+0.6							
13	9.902M	38.7	+0.3	+0.2	+0.0	39.7	69.5	-29.8	Black
		+0.5							
14	12.255M	38.4	+0.3	+0.3	+0.0	39.5	69.5	-30.0	Black
		+0.5							
15	11.865M	38.1	+0.3	+0.3	+0.0	39.2	69.5	-30.3	Black
		+0.5							
16	12.060M	37.9	+0.3	+0.3	+0.0	39.0	69.5	-30.5	Black
		+0.5							
17	19.031M	36.6	+0.4	+0.7	+0.0	38.4	69.5	-31.1	Black
		+0.7							
18	28.781M	35.4	+0.5	+1.3	+0.0	38.0	69.5	-31.5	Black
		+0.8							
19	11.963M	36.9	+0.3	+0.3	+0.0	38.0	69.5	-31.5	Black
		+0.5							
20	14.790M	36.2	+0.3	+0.4	+0.0	37.6	69.5	-31.9	Black
		+0.7							
21	29.805M	34.6	+0.5	+1.4	+0.0	37.3	69.5	-32.2	Black
		+0.8							
22	15.716M	35.8	+0.3	+0.5	+0.0	37.3	69.5	-32.2	Black
		+0.7							
23	12.450M	36.2	+0.3	+0.3	+0.0	37.3	69.5	-32.2	Black
		+0.5							
24	16.009M	35.7	+0.3	+0.5	+0.0	37.2	69.5	-32.3	Black
		+0.7							
25	28.391M	34.5	+0.5	+1.3	+0.0	37.1	69.5	-32.4	Black
		+0.8							
26	28.976M	34.4	+0.5	+1.3	+0.0	37.0	69.5	-32.5	Black
		+0.8							
27	16.301M	35.3	+0.3	+0.5	+0.0	36.8	69.5	-32.7	Black
		+0.7							
28	26.588M	34.3	+0.5	+1.2	+0.0	36.7	69.5	-32.8	Black
		+0.7							
29	14.693M	35.2	+0.3	+0.4	+0.0	36.5	69.5	-33.0	Black
		+0.6							
30	24.443M	34.1	+0.5	+1.1	+0.0	36.4	69.5	-33.1	Black
		+0.7							


CKC Laboratories, Inc.
Date: 3/15/2001
Time: 17:01:58
W/O#: 76289
FCC A COND
Test Lead: Black
Sequence#: 31
dBµV/m
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
FCC A COND
450KHz
1MHz
10MHz
30MHz

Test Location: CKC Laboratories, Inc. • 1653 Los Viboras Rd., Site A • Hollister, Ca 95023 • (831) 637-0485

Customer: **IPWireless, Inc.**
Specification: **FCC Part 15.107 Class A**
Work Order #: **76289** Date: 03/15/2001
Test Type: **Conducted Emissions** Time: 17:05:21
Equipment: **Base Station** Sequence#: 32
Manufacturer: IP Wireless Tested By: Conan T. Boyle
Model: AJ
S/N: 015

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 85650A QP Adaptor	2430A00541	04/09/2000	04/09/2001	0
HP 85662A Display	2112A02174	04/09/2000	04/09/2001	0
HP 85680A S. A.	2049A01408	04/09/2000	04/09/2001	0
LISN, Solar 8028-50-TS-24-BNC	910490	09/13/2000	09/13/2001	737
LISN, Solar 8028-50-TS-24-BNC	910489	09/13/2000	09/13/2001	736
Conducted Cable	condcabl-ha00	03/01/2001	03/01/2002	0

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

Function	Manufacturer	Model #	S/N
Base Station*	IP Wireless	AJ	015
Power Supply, 48vdc	Lamda Electronics, Inc.	LFS-45A 48	92R027767

Support Devices:

Function	Manufacturer	Model #	S/N
Notebook PC	Toshiba	PA1273U	98060506A
AC Adapter	Toshiba	PA2450U	0295362
Ethernet Hub	Netgear	DS104	DS14H11504830

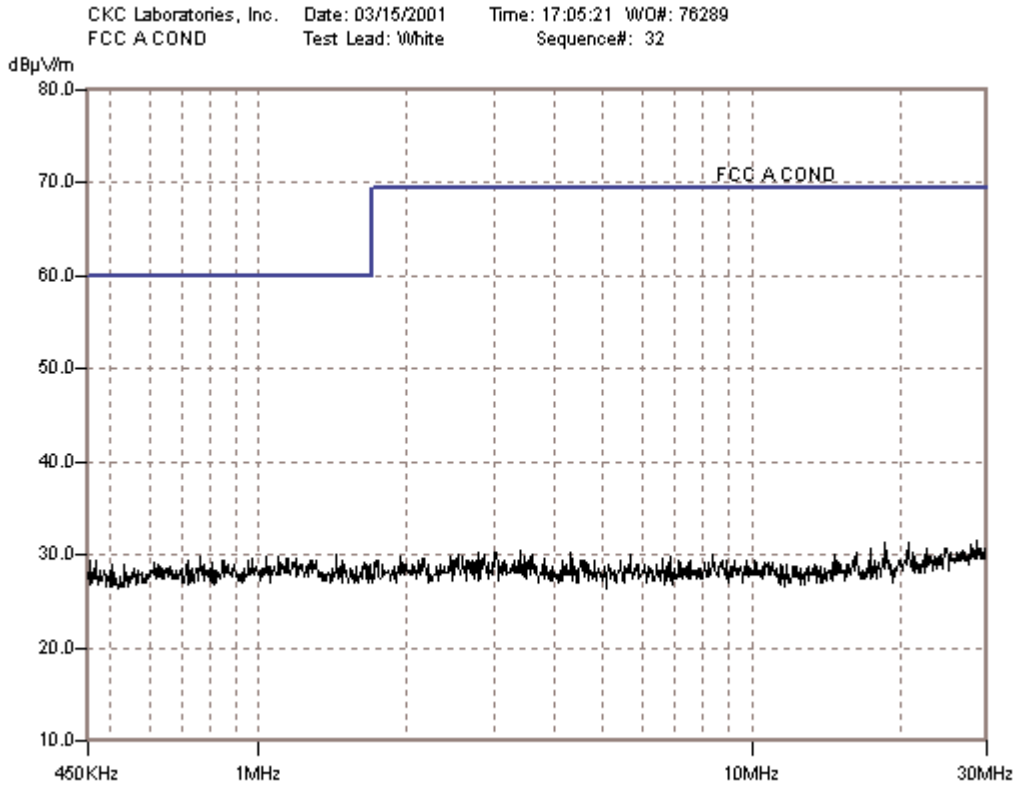
Test Conditions / Notes:

The EUT is a Base Station placed on a wooden table. The EUT is connected to a notebook PC via a Cat 5e Ethernet cable and hub and receives power from an external 48vdc power supply. The EUT is operating in Receive Mode. A 50-ohm dummy load is attached to the transmit RF output port. Test is 15.107, Conducted Emissions, Black Lead at 120v, 60Hz. Frequency range tested: 450 kHz – 30 MHz.

Measurement Data: Reading listed by margin. Test Lead: White

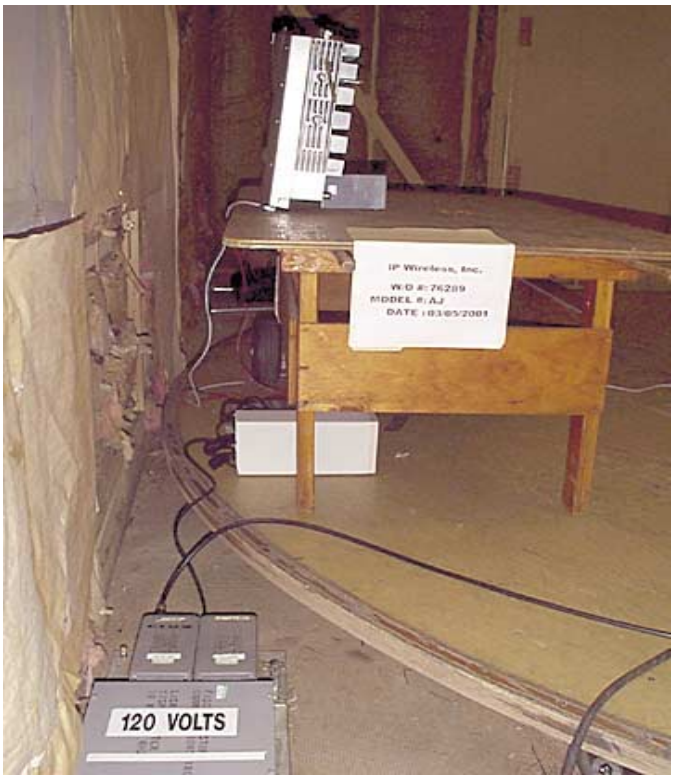
#	Freq MHz	Rdng dBµV	LISNl Site dB	dB	LISNZ dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	1.441M	29.8	+0.4 +0.3		-0.4		+0.0	30.1	60.0	-29.9	White
2	28.635M	28.8	+0.4 +0.8		+1.6		+0.0	31.6	69.5	-37.9	White
3	20.835M	29.6	+0.3 +0.7		+0.8		+0.0	31.4	69.5	-38.1	White
4	18.690M	29.7	+0.3 +0.7		+0.7		+0.0	31.4	69.5	-38.1	White
5	27.855M	28.5	+0.4 +0.8		+1.5		+0.0	31.2	69.5	-38.3	White
6	29.805M	27.9	+0.4 +0.8		+1.7		+0.0	30.8	69.5	-38.7	White
7	24.589M	28.4	+0.4 +0.7		+1.2		+0.0	30.7	69.5	-38.8	White

8	29.318M	27.8	+0.4 +0.8	+1.6	+0.0	30.6	69.5	-38.9	White
9	28.830M	27.8	+0.4 +0.8	+1.6	+0.0	30.6	69.5	-38.9	White
10	28.196M	27.9	+0.4 +0.8	+1.5	+0.0	30.6	69.5	-38.9	White
11	22.785M	28.5	+0.4 +0.7	+1.0	+0.0	30.6	69.5	-38.9	White
12	17.423M	29.1	+0.3 +0.6	+0.6	+0.0	30.6	69.5	-38.9	White
13	18.885M	28.8	+0.3 +0.7	+0.7	+0.0	30.5	69.5	-39.0	White
14	26.783M	27.9	+0.4 +0.7	+1.4	+0.0	30.4	69.5	-39.1	White
15	3.405M	30.0	+0.3 +0.3	-0.2	+0.0	30.4	69.5	-39.1	White
16	26.100M	27.9	+0.4 +0.7	+1.3	+0.0	30.3	69.5	-39.2	White
17	25.418M	28.0	+0.4 +0.7	+1.2	+0.0	30.3	69.5	-39.2	White
18	21.323M	28.5	+0.3 +0.7	+0.8	+0.0	30.3	69.5	-39.2	White
19	3.035M	29.9	+0.3 +0.3	-0.2	+0.0	30.3	69.5	-39.2	White
20	3.005M	29.9	+0.3 +0.3	-0.2	+0.0	30.3	69.5	-39.2	White
21	2.790M	29.9	+0.3 +0.3	-0.2	+0.0	30.3	69.5	-39.2	White
22	27.124M	27.7	+0.4 +0.7	+1.4	+0.0	30.2	69.5	-39.3	White
23	26.539M	27.7	+0.4 +0.7	+1.4	+0.0	30.2	69.5	-39.3	White
24	16.301M	28.7	+0.2 +0.7	+0.6	+0.0	30.2	69.5	-39.3	White
25	4.305M	29.8	+0.2 +0.3	-0.1	+0.0	30.2	69.5	-39.3	White
26	26.393M	27.7	+0.4 +0.7	+1.3	+0.0	30.1	69.5	-39.4	White
27	2.540M	29.8	+0.3 +0.3	-0.3	+0.0	30.1	69.5	-39.4	White
28	5.670M	29.5	+0.2 +0.4	-0.1	+0.0	30.0	69.5	-39.5	White
29	3.578M	29.6	+0.3 +0.3	-0.2	+0.0	30.0	69.5	-39.5	White
30	2.862M	29.6	+0.3 +0.3	-0.2	+0.0	30.0	69.5	-39.5	White


CKC Laboratories, Inc.
Date: 03/15/2001
Time: 17:05:21
WO#: 76289
FCC A COND
Test Lead: White
Sequence#: 32
dBµV/m
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
FCC A COND
450KHz
1MHz
10MHz
30MHz

VIDEO BANDWIDTH AND RESOLUTION BANDWIDTH SETTINGS:

Frequency Range	Signal Analyzer VBW & RBW Setting
450 kHz – 30 MHz	9 kHz



Conducted Emissions - Side View


Conducted Emissions - Front View

15.109 – RADIATED EMISSIONS

Test Location: CKC Laboratories, Inc. • 1653 Los Viboras Rd., Site A • Hollister, Ca 95023 • (831) 637-0485

Customer: **IPWireless, Inc.**
Specification: **FCC Part 15.109 Class A**
Work Order #: **76289** Date: 5/10/2001
Test Type: **Radiated Scan** Time: 15:20:59
Equipment: **Base Station** Sequence#: 34
Manufacturer: IP Wireless Tested By: Conan T. Boyle
Model: AJ
S/N: 015

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Cable, 3m	cabl 3m Hol A 01	01/04/2001	01/04/2002	0
Loop Ant, Emco 6502	2078	08/17/2000	08/17/2001	432
HP-8567A	2541A00127	03/23/2001	03/23/2002	2053
HP-85662A	2542A10733	03/23/2001	03/23/2002	2052
HP 85650A QP Adaptor	2043A00286	04/10/2001	04/10/2002	445
Bicon Ant	9205-1522	10/30/2000	10/30/2001	503
Log Periodic, A.H. SAS200/510	318	05/22/2000	05/22/2001	0

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

Function	Manufacturer	Model #	S/N
Base Station*	IP Wireless	AJ	015
Power Supply, 48vdc	Lamda		

Support Devices:

Function	Manufacturer	Model #	S/N
Notebook PC	Toshiba	PA1273U	98060506A
AC Adapter	Toshiba	PA2450U	0295362
Hub	Netgear		

Test Conditions / Notes:

The EUT is a Base Station. The EUT is connected to a notebook PC via a Cat 5e Ethernet cable and hub. The EUT is operating in Receive Mode. A 50-ohm dummy load is attached to the transmit RF output port. The EUT is set to receive mode, full operation, frequency set to 2596MHz (mid channel).
Frequency range tested: 1 MHz –15 GHz.

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	Bicon Mag L dB	Log31 dB	cabl dB	8447F dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	959.432M	46.2	+0.0 +0.0	+24.6	+5.1	-27.2	-10.0	38.7	46.4	-7.7	Horiz
2	959.432M	45.0	+0.0 +0.0	+24.6	+5.1	-27.2	-10.0	37.5	46.4	-8.9	Vert
3	69.102M	56.7	+7.3 +0.0	+0.0	+1.1	-26.8	-10.0	28.3	39.1	-10.8	Horiz
4	368.643M	50.9	+0.0 +0.0	+18.2	+2.9	-26.6	-10.0	35.4	46.4	-11.0	Vert
5	250.007M	49.5	+18.4 +0.0	+0.0	+2.2	-26.0	-10.0	34.1	46.4	-12.3	Horiz

6	34.634M	46.4	+16.5 +0.0	+0.0	+0.7	-26.8	-10.0	26.8	39.1	-12.3	Vert
7	69.276M	54.6	+7.3 +0.0	+0.0	+1.1	-26.8	-10.0	26.2	39.1	-12.9	Horiz
8	84.943M	53.8	+7.7 +0.0	+0.0	+1.3	-26.8	-10.0	26.0	39.1	-13.1	Horiz
9	30.615M	44.0	+18.0 +0.0	+0.0	+0.7	-26.8	-10.0	25.9	39.1	-13.2	Vert
10	333.361M	45.7	+0.0 +0.0	+20.9	+2.7	-26.3	-10.0	33.0	46.4	-13.4	Vert
11	491.544M	49.2	+0.0 +0.0	+17.5	+3.4	-27.6	-10.0	32.5	46.4	-13.9	Vert
12	66.298M	53.0	+7.8 +0.0	+0.0	+1.1	-26.7	-10.0	25.2	39.1	-13.9	Horiz

VIDEO BANDWIDTH AND RESOLUTION BANDWIDTH SETTINGS:

Frequency Range	Signal Analyzer VBW & RBW Setting
1 MHz – 30 MHz	9 kHz
30 MHz – 1000 MHz	120 kHz

Radiated Emissions - Front View

Radiated Emissions - Back View