# ADDENDUM TO POWERWAVE TECHNOLOGIES TEST REPORT FC05-013

**FOR THE**

**REMOTE RADIO HEAD, RH340000/100**

**FCC PART 22, PART 15 SUBPART B SECTIONS 15.107 AND 15.109 CLASS B & RSS-131**

**COMPLIANCE**

**DATE OF ISSUE: APRIL 5, 2005**

**PREPARED FOR:**

Powerwave Technologies
1801 E. St. Andrew Place
Santa Ana, CA 92705

P.O. No.: 102216
W.O. No.: 83357

**PREPARED BY:**

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

Date of test: March 7-10, 2005

**Report No.: FC05-013A**

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## TABLE OF CONTENTS

Administrative Information ....3
FCC to Canada Standard Correlation Matrix....4
Conditions for Compliance....4
Approvals....4
Equipment Under Test (EUT) Description....5
Equipment Under Test....5
Peripheral Devices....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 15.107 – AC Conducted Emissions....7
FCC 15.109 – Radiated Emissions....13
FCC 2.1033(c)(14)/2.1046/22.913 - RF Power Output....18
FCC 2.1033(c)(14)/2.1047(b) - Audio Frequency Response....20
FCC 2.1033(c)(14)/2.1047(b) - Modulation Limiting Response....20
FCC 2.1033(c)(14)/2.1049(i)/Part 22/RSS-131 - Occupied Bandwidth....20
FCC 2.1033(c)(14)/2.1051/22.917 - Spurious Emissions at Antenna Terminal....28
FCC 2.1033(c)(14)/2.1053/22.917 - Field Strength of Spurious Radiation....72
FCC 2.1051/2.1053/Part 22 – Band Edge....74
FCC 2.1051/Part 22 – Intermodulation Attenuation....89
FCC Part 22 – Input Plots....106
FCC Part 22 – Output Plots....128

## ADMINISTRATIVE INFORMATION

| | |
|---|---|
| **DATE OF TEST:** | March 7-10, 2005 |
| **DATE OF RECEIPT:** | March 7, 2005 |
| **FREQUENCY RANGE TESTED:** | 150 kHz-20 GHz |
| **MANUFACTURER:** | Powerwave Technologies<br>1801 E. St. Andrew Place<br>Santa Ana, CA 92705 |
| **REPRESENTATIVE:** | Jeffrey Dale |
| **TEST LOCATION:** | CKC Laboratories, Inc.<br>5046 Sierra Pines Drive<br>Mariposa, CA 95338 |
| **TEST METHOD:** | ANSI C63.4 (2001), FCC Part 22, ETIA/EIA 603, RS-212 and RSS-131 |
| **PURPOSE OF TEST:** | To demonstrate the compliance of the Remote Radio Head, RH340000/100 with the requirements for FCC Part 22, Part 15 Subpart B Sections 15.107 and 15.109 Class B and RSS-131 devices. **Addendum A** is to add plots to the spurious conducted emissions data. |

## FCC TO CANADA STANDARD CORRELATION MATRIX

| Canadian Standard | Canadian Section | FCC Standard | FCC Section | Test Description |
|---|---|---|---|---|
| RSS-131 | 5.4 | N/A | N/A | External Controls |
| RSS-131 | 5.5 | 47 CFR | 1.1307 | RF Exposure |
| RSS-131 | 6.1 | N/A | N/A | Passband Gain and Bandwidth |
| RSS-131 | 6.2 | 47 CFR | 22.913 | RF Power Output |
| RSS-131 | 6.3 | TIA/EIA | 603 | Non-Linearity (Intermodulation Attenuation) |
| RSS-131 | 6.4 | 47 CFR | 22.917 | Spurious Emissions Limitations |
| RSS-131 | 6.5 | N/A | N/A | Frequency Stability (Band Translators) |

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

**APPROVALS**

Steve Behm, Director of Engineering Services

**QUALITY ASSURANCE:**

Joyce Walker, Quality Assurance Administrative Manager

**TEST PERSONNEL:**

Randy Clark, EMC Engineer

## EQUIPMENT UNDER TEST (EUT) DESCRIPTION

The customer declares the EUT tested by CKC Laboratories was representative of a production unit. The EUT is a dual band remote radio head with multichannel capability and may otherwise be classified as a repeater/extender.

## EQUIPMENT UNDER TEST

**Remote Radio Head**
Manuf: Powerwave Technologies
Model: RH340000/100
Serial: 42129
FCC ID: pending

## PERIPHERAL DEVICES

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

**RF to Fiber Module**
Manuf: Powerwave Technologies
Model: Optical Converter
Serial: 42101

**Pre-Amplifier**
Manuf: Mini-Circuits
Model: ZHL-1042J
Serial: H0327965-021

**Power Sensor**
Manuf: HP
Model: 8481A
Serial: US37297854

**Power Meter**
Manuf: Agilent
Model: E4419B
Serial: GB40202125

**Signal Generator (2 each)**
Manuf: Agilent
Model: E4433B
Serial: US40052296 & US40051692

**Directional Coupler**
Manuf: HP
Model: 778D
Serial: 18807

**Preamp**
Manuf: HP
Model: 83017A
Serial: 000009002

**Combiner**
Manuf: Narda
Model: 4322-2
Serial: NA

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

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

**FCC 2.1033 (c)(4) TYPE OF EMISSIONS**
GXW, G7W, DXW, F9W, F8W & F1D

**FCC 2.1033 (c)(5) FREQUENCY RANGE**
869-894 MHz (This product also operates at 1930-1990 MHz. See test report FC05-007 for data in that frequency range.)

**FCC 2.1033 (c)(6) OPERATING POWER**
2.7 Watts

**FCC 2.1033 (c)(7) MAXIMUM POWER RATING**
500 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**
AMPS – Data, AMPS – Voice, GSM, EDGE, TDMA/NADC, CDMA & WCDMA

## FCC 15.107 – AC CONDUCTED EMISSIONS

| ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE | | | |
|---|---|---|---|
| TEST | BEGINNING FREQUENCY | ENDING FREQUENCY | BANDWIDTH SETTING |
| CONDUCTED EMISSIONS | 150 kHz | 30 MHz | 9 kHz |

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

Customer: **Powerwave**
Specification: **FCC 15.107(a) Class B - AVE**
Work Order #: **83357** Date: 03/10/2005
Test Type: **Conducted Emissions** Time: 15:45:37
Equipment: **Remote Radio Head** Sequence#: 47
Manufacturer: Powerwave Technologies Tested By: Randal Clark
Model: RH340000/100 120V 60Hz
S/N: 42129

***Test Equipment*:**

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|---|---|---|---|---|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| 150kHz HP Filter TTE | G7754 | 04/20/2004 | 04/20/2006 | 02608 |
| LISN, 8028-50-TS-24-BNC | 8379276, 280 | 06/05/2003 | 06/05/2005 | 1248 & 1249 |

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

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| Remote Radio Head* | Powerwave Technologies | RH340000/100 | 42129 |

***Support Devices:***

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| RF to Fiber Module | Powerwave Technologies | Optical Converter | 42101 |
| Signal Generator | Agilent | E4433B | US40051692 |

***Test Conditions / Notes:***

EUT is a dual band remote radio head with multichannel capability and may otherwise be classified as a repeater/extender. Support equipment is used to convert RF from signal generator to fiber for input to the EUT. The RF output port of the EUT is terminated in a shielded 50 ohm load. Frequency Range Investigated: 150kHz to 30 MHz. Temperature: 28ºC, Relative Humidity: 53%.

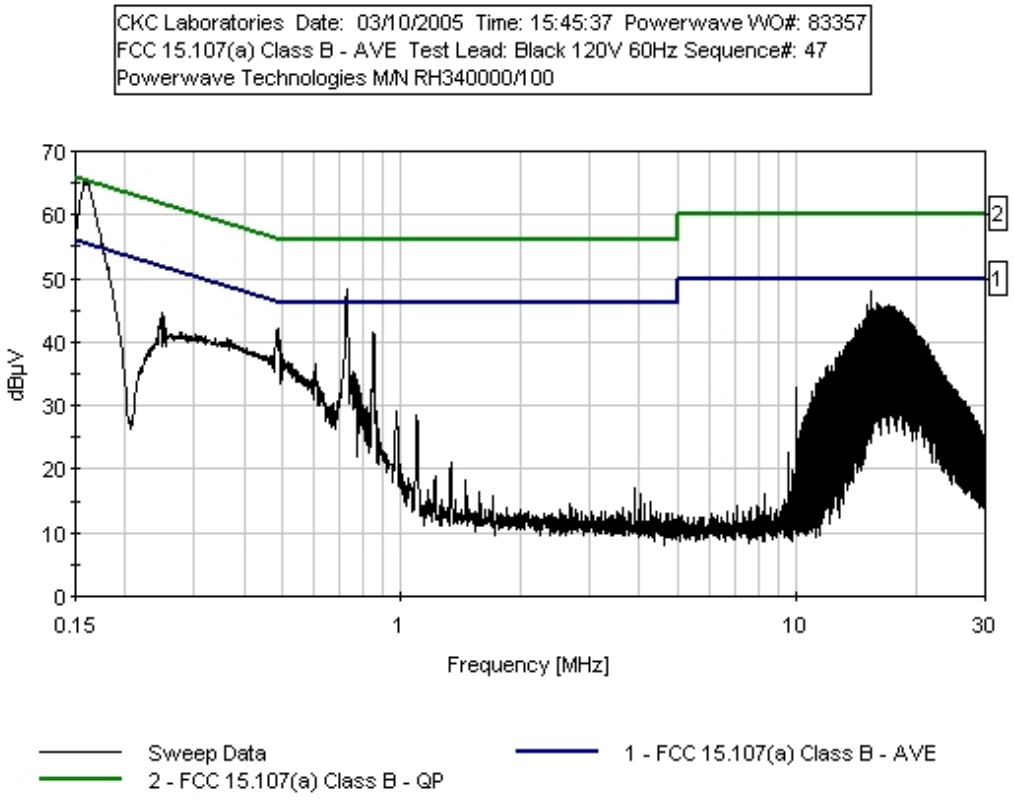
***Transducer Legend:***

| | |
|---|---|
| T1=Cable - Internal + cab | T2=LISN Insertion Loss s/n280 |
| T3=HP Filter AN02608 | |

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

| # | Freq MHz | Rdng dBµV | T1 dB | T2 dB | T3 dB | dB | Dist Table | Corr dBµV | Spec dBµV | Margin dB | Polar Ant |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 729.180k | 45.2 | +0.1 | +0.2 | +0.3 | | +0.0 | 45.8 | 46.0 | -0.2 | Black |
| | Ave | | | | | | | | | | |
| ^ | 728.856k | 47.6 | +0.1 | +0.2 | +0.3 | | +0.0 | 48.2 | 46.0 | +2.2 | Black |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 16.051M | 45.2 | +0.4 | +0.4 | +0.1 | +0.0 | 46.1 | 50.0 | -3.9 | Black |
| 4 | 487.424k | 41.5 | +0.1 | +0.3 | +0.2 | +0.0 | 42.1 | 46.2 | -4.1 | Black |
| 5 | 15.931M | 44.9 | +0.4 | +0.4 | +0.1 | +0.0 | 45.8 | 50.0 | -4.2 | Black |
| 6 | 15.130M | 44.8 | +0.4 | +0.4 | +0.1 | +0.0 | 45.7 | 50.0 | -4.3 | Black |
| 7 | 16.171M | 44.8 | +0.4 | +0.4 | +0.1 | +0.0 | 45.7 | 50.0 | -4.3 | Black |
| 8 | 17.022M | 44.8 | +0.4 | +0.4 | +0.1 | +0.0 | 45.7 | 50.0 | -4.3 | Black |
| 9 | 16.421M | 44.7 | +0.4 | +0.4 | +0.1 | +0.0 | 45.6 | 50.0 | -4.4 | Black |
| 10 | 17.512M | 44.5 | +0.5 | +0.4 | +0.2 | +0.0 | 45.6 | 50.0 | -4.4 | Black |
| 11 | 16.291M | 44.6 | +0.4 | +0.4 | +0.1 | +0.0 | 45.5 | 50.0 | -4.5 | Black |
| 12 | 16.782M | 44.6 | +0.4 | +0.4 | +0.1 | +0.0 | 45.5 | 50.0 | -4.5 | Black |
| 13 | 16.902M | 44.6 | +0.4 | +0.4 | +0.1 | +0.0 | 45.5 | 50.0 | -4.5 | Black |
| 14 | 17.272M | 44.6 | +0.4 | +0.4 | +0.1 | +0.0 | 45.5 | 50.0 | -4.5 | Black |
| 15 Ave | 15.440M | 43.0 | +0.4 | +0.4 | +0.1 | +0.0 | 43.9 | 50.0 | -6.1 | Black |
| ^ | 15.440M | 47.1 | +0.4 | +0.4 | +0.1 | +0.0 | 48.0 | 50.0 | -2.0 | Black |
| 17 Ave | 152.696k | 23.6 | +0.1 | +0.3 | +2.4 | +0.0 | 26.4 | 55.9 | -29.5 | Black |
| ^ | 152.700k | 63.1 | +0.1 | +0.3 | +2.4 | +0.0 | 65.9 | 55.9 | +10.0 | Black |


CKC Laboratories Date: 03/10/2005 Time: 15:45:37 Powerwave WO#: 83357
FCC 15.107(a) Class B - AVE Test Lead: Black 120V 60Hz Sequence#: 47
Powerwave Technologies M/N RH340000/100
70
60
50
40
30
20
10
0
dBµV
0.15
1
10
30
Frequency [MHz]
2
1
Sweep Data
2 - FCC 15.107(a) Class B - QP
1 - FCC 15.107(a) Class B - AVE

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

| | | | |
|---|---|---|---|
| Customer: | **Powerwave** | | |
| Specification: | **FCC 15.107(a) Class B - AVE** | | |
| Work Order #: | **83357** | Date: | 03/10/2005 |
| Test Type: | **Conducted Emissions** | Time: | 15:55:16 |
| Equipment: | **Remote Radio Head** | Sequence#: | 48 |
| Manufacturer: | Powerwave Technologies | Tested By: | Randal Clark |
| Model: | RH340000/100 | | 120V 60Hz |
| S/N: | 42129 | | |

***Test Equipment*:**

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|---|---|---|---|---|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| 150kHz HP Filter TTE | G7754 | 04/20/2004 | 04/20/2006 | 02608 |
| LISN, 8028-50-TS-24-BNC | 8379276, 280 | 06/05/2003 | 06/05/2005 | 1248 & 1249 |

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

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| Remote Radio Head* | Powerwave Technologies | RH340000/100 | 42129 |

***Support Devices:***

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| RF to Fiber Module | Powerwave Technologies | Optical Converter | 42101 |
| Signal Generator | Agilent | E4433B | US40051692 |

***Test Conditions / Notes:***

EUT is a dual band remote radio head with multichannel capability and may otherwise be classified as a repeater/extender. Support equipment is used to convert RF from signal generator to fiber for input to the EUT. The RF output port of the EUT is terminated in a shielded 50 ohm load. Frequency Range Investigated: 150kHz to 30 MHz. Temperature: 28ºC, Relative Humidity: 53%.

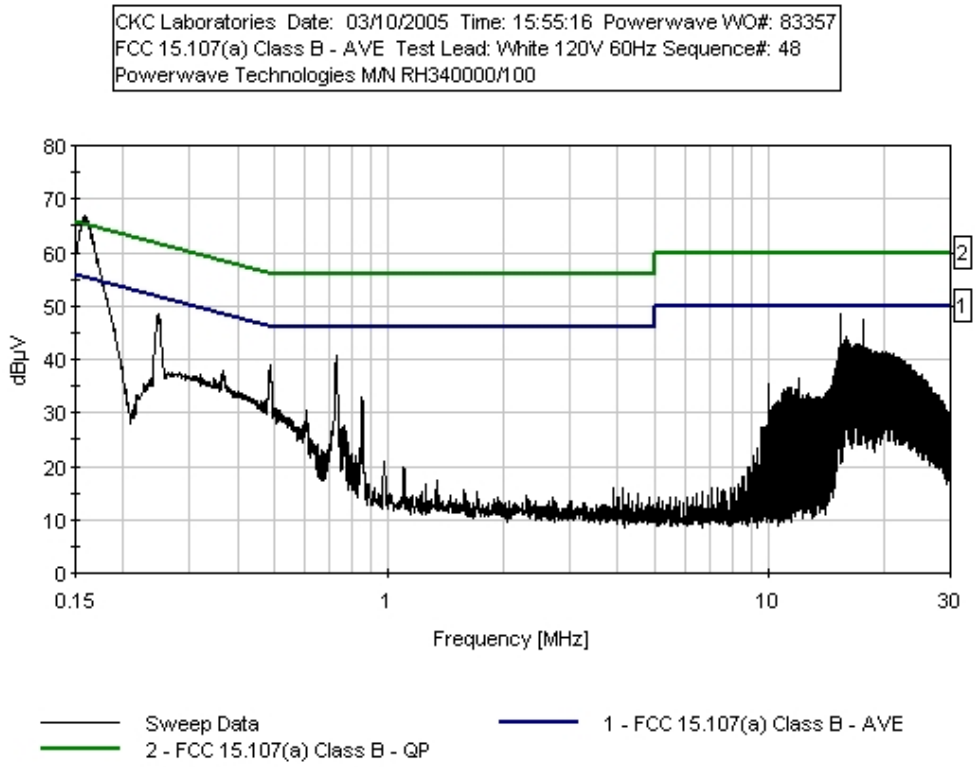
***Transducer Legend:***

T1=Cable - Internal + cab T2=LISN Insertion Loss s/n276
T3=HP Filter AN02608

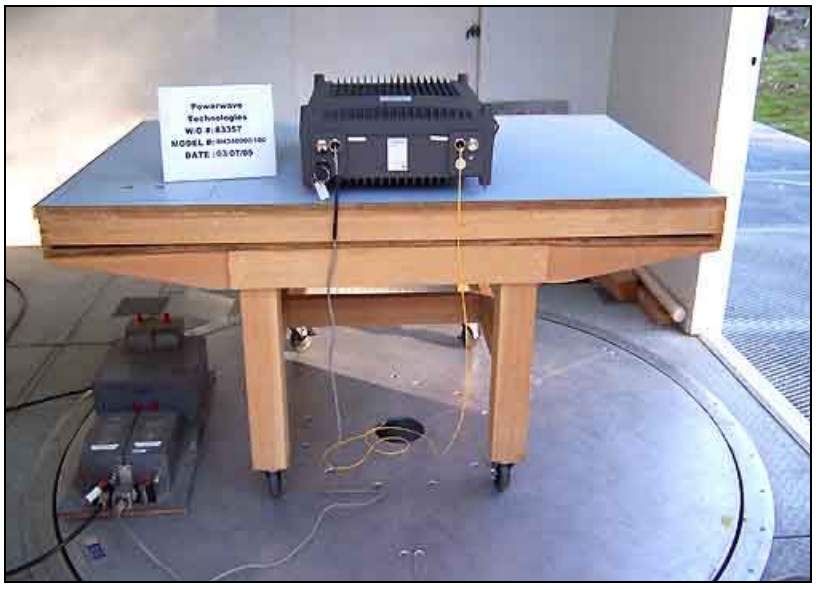
***Measurement Data:*** Reading listed by margin. Test Lead: White

| # | Freq MHz | Rdng dBµV | T1 dB | T2 dB | T3 dB | dB | Dist Table | Corr dBµV | Spec dBµV | Margin dB | Polar Ant |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 728.129k | 40.0 | +0.1 | +0.3 | +0.3 | | +0.0 | 40.7 | 46.0 | -5.3 | White |
| 2 | 16.051M | 43.2 | +0.4 | +0.4 | +0.1 | | +0.0 | 44.1 | 50.0 | -5.9 | White |
| 3 | 243.090k Ave | 44.9 | +0.1 | +0.4 | +0.3 | | +0.0 | 45.7 | 52.0 | -6.3 | White |
| ^ | 243.090k | 47.8 | +0.1 | +0.4 | +0.3 | | +0.0 | 48.6 | 51.8 | -3.2 | White |
| 5 | 15.811M | 42.8 | +0.4 | +0.4 | +0.1 | | +0.0 | 43.7 | 50.0 | -6.3 | White |
| 6 | 15.931M | 42.6 | +0.4 | +0.4 | +0.1 | | +0.0 | 43.5 | 50.0 | -6.5 | White |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 16.171M | 42.5 | +0.4 | +0.4 | +0.1 | +0.0 | 43.4 | 50.0 | -6.6 | White |
| 8 | 17.022M | 42.1 | +0.4 | +0.4 | +0.1 | +0.0 | 43.0 | 50.0 | -7.0 | White |
| 9 | 16.902M | 42.0 | +0.4 | +0.4 | +0.1 | +0.0 | 42.9 | 50.0 | -7.1 | White |
| 10 | 487.424k | 38.5 | +0.1 | +0.3 | +0.2 | +0.0 | 39.1 | 46.2 | -7.1 | White |
| 11 | 15.690M | 41.9 | +0.4 | +0.4 | +0.1 | +0.0 | 42.8 | 50.0 | -7.2 | White |
| 12 | 16.291M | 41.8 | +0.4 | +0.4 | +0.1 | +0.0 | 42.7 | 50.0 | -7.3 | White |
| 13 | 17.272M | 41.8 | +0.4 | +0.4 | +0.1 | +0.0 | 42.7 | 50.0 | -7.3 | White |
| 14 Ave | 15.443M | 40.5 | +0.4 | +0.4 | +0.1 | +0.0 | 41.4 | 50.0 | -8.6 | White |
| ^ | 15.443M | 47.5 | +0.4 | +0.4 | +0.1 | +0.0 | 48.4 | 50.0 | -1.6 | White |
| 16 Ave | 17.602M | 36.0 | +0.5 | +0.4 | +0.2 | +0.0 | 37.1 | 50.0 | -12.9 | White |
| ^ | 17.602M | 46.3 | +0.5 | +0.4 | +0.2 | +0.0 | 47.4 | 50.0 | -2.6 | White |
| 18 Ave | 152.090k | 32.6 | +0.1 | +0.4 | +2.5 | +0.0 | 35.6 | 55.9 | -20.3 | White |
| ^ | 152.090k | 64.7 | +0.1 | +0.4 | +2.5 | +0.0 | 67.7 | 55.9 | +11.8 | White |




## PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS



Mains Conducted Emissions - Front View

## FCC 15.109 – RADIATED EMISSIONS

| ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE | | | |
|---|---|---|---|
| TEST | BEGINNING FREQUENCY | ENDING FREQUENCY | BANDWIDTH SETTING |
| RADIATED EMISSIONS | 30 MHz | 1000 MHz | 120 kHz |

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

Customer: **Powerwave**
Specification: **15.109 CLASS B**
Work Order #: **83357** Date: 03/10/2005
Test Type: **Maximized Emissions** Time: 14:40:56
Equipment: **Remote Radio Head** Sequence#: 45
Manufacturer: Powerwave Technologies Tested By: Randal Clark
Model: RH340000/100
S/N: 42129

***Test Equipment*:**

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|---|---|---|---|---|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Chase CBL6111C Bilog | 2456 | 06/26/2003 | 06/26/2005 | 01991 |
| EMCO 3115 Horn Antenna | 9006-3413 | 04/15/2003 | 04/25/2005 | 327 |
| ARA MWH-1826/B Horn Antenna | 1005 | 11/05/2004 | 11/05/2006 | 02046 |
| HP 8449B Preamp | 3008A00301 | 12/14/2004 | 12/14/2006 | 2010 |
| HP 8447D Preamp | 2727A05444 | 07/18/2004 | 07/18/2006 | 00062 |
| Cable, Andrews Hardline HF-005-20 | NA | 06/03/2003 | 06/03/2005 | P04275 |
| Cable, WL Gore 2' | 149047 | 04/10/2003 | 04/10/2005 | P01527 |

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

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| Remote Radio Head* | Powerwave Technologies | RH340000/100 | 42129 |

***Support Devices:***

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| RF to Fiber Module | Powerwave Technologies | Optical Converter | 42101 |
| Pre-amplifier | Mini-Circuits | ZHL-1042J | H0327965-021 |
| Signal Generator | Agilent | E4433B | US40051692 |

***Test Conditions / Notes:***

EUT is a dual band remote radio head with multichannel capability and may otherwise be classified as a repeater/extender. EUT operates on 869-894 MHz and 1930-1990 MHz. Support equipment is used to convert RF from signal generator to fiber for input to the EUT. The RF output port of the EUT is terminated in a shielded 50 ohm load. EUT does not demodulate the input signal. Frequency Range Investigated: 30 - 1000 MHz. Temperature: 28ºC, Relative Humidity: 53%.

***Transducer Legend:***

| | |
|---|---|
| T1=Amp - S/N 604 | T2=Bilog Site D |
| T3=Cable - 10 Meter | T4=Cable HF P01527 |

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

| # | Freq MHz | Rdng dBµV | T1 dB | T2 dB | T3 dB | T4 dB | Dist Table | Corr dBµV/m | Spec dBµV/m | Margin dB | Polar Ant |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 879.853M | 35.7 | -27.5 | +22.5 | +7.9 | | +0.0 332 | 38.6 | 46.0 | -7.4 | Verti 100 |
| 2 | 879.889M | 34.0 | -27.5 | +22.5 | +7.9 | +0.0 | +0.0 274 | 36.9 | 46.0 | -9.1 | Verti 100 |
| 3 | 232.014M | 48.2 | -26.5 | +10.8 | +3.5 | | +0.0 116 | 36.0 | 46.0 | -10.0 | Verti 100 |
| 4 | 240.014M | 46.6 | -26.5 | +11.3 | +3.5 | | +0.0 240 | 34.9 | 46.0 | -11.1 | Verti 100 |
| 5 | 240.085M | 45.7 | -26.5 | +11.3 | +3.5 | +0.0 | +0.0 194 | 34.0 | 46.0 | -12.0 | Verti 100 |
| 6 | 232.070M | 45.9 | -26.5 | +10.8 | +3.5 | | +0.0 200 | 33.7 | 46.0 | -12.3 | Horiz 146 |
| 7 | 232.070M | 45.9 | -26.5 | +10.8 | +3.5 | +0.0 | +0.0 200 | 33.7 | 46.0 | -12.3 | Horiz 146 |
| 8 | 264.085M | 43.8 | -26.5 | +12.2 | +3.7 | | +0.0 | 33.2 | 46.0 | -12.8 | Verti 100 |
| 9 | 256.066M | 42.1 | -26.5 | +12.1 | +3.7 | | +0.0 | 31.4 | 46.0 | -14.6 | Verti 100 |
| 10 | 240.070M | 42.4 | -26.5 | +11.3 | +3.5 | | +0.0 260 | 30.7 | 46.0 | -15.3 | Horiz 146 |
| 11 | 200.076M | 43.0 | -26.7 | +8.3 | +3.3 | | +0.0 208 | 27.9 | 43.5 | -15.6 | Verti 100 |
| 12 | 192.014M | 42.9 | -26.7 | +8.3 | +3.2 | | +0.0 357 | 27.7 | 43.5 | -15.8 | Verti 100 |
| 13 | 216.014M | 43.8 | -26.6 | +9.6 | +3.4 | | +0.0 174 | 30.2 | 46.0 | -15.8 | Verti 100 |
| 14 | 184.053M | 42.6 | -26.8 | +8.2 | +3.1 | +0.0 | +0.0 215 | 27.1 | 43.5 | -16.4 | Verti 100 |
| 15 | 208.100M | 41.3 | -26.6 | +9.0 | +3.3 | | +0.0 | 27.0 | 43.5 | -16.5 | Verti 100 |
| 16 | 256.068M | 40.2 | -26.5 | +12.1 | +3.7 | | +0.0 | 29.5 | 46.0 | -16.5 | Horiz 153 |
| 17 | 224.014M | 42.1 | -26.5 | +10.2 | +3.4 | | +0.0 299 | 29.2 | 46.0 | -16.8 | Verti 100 |
| 18 | 224.076M | 42.1 | -26.5 | +10.2 | +3.4 | +0.0 | +0.0 200 | 29.2 | 46.0 | -16.8 | Verti 100 |
| 19 | 224.060M | 42.0 | -26.5 | +10.2 | +3.4 | | +0.0 188 | 29.1 | 46.0 | -16.9 | Horiz 146 |
| 20 | 248.085M | 40.0 | -26.5 | +11.9 | +3.6 | +0.0 | +0.0 360 | 29.0 | 46.0 | -17.0 | Verti 100 |
| 21 | 187.200M | 41.5 | -26.7 | +8.2 | +3.2 | | +0.0 | 26.2 | 43.5 | -17.3 | Verti 100 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 22 | 248.022M | 39.5 | -26.5 | +11.9 | +3.6 | | +0.0<br>157 | 28.5 | 46.0 | -17.5 | Verti<br>100 |
| 23 | 248.070M | 38.9 | -26.5 | +11.9 | +3.6 | | +0.0<br>161 | 27.9 | 46.0 | -18.1 | Horiz<br>146 |
| 24 | 236.800M | 39.3 | -26.5 | +11.1 | +3.5 | | +0.0 | 27.4 | 46.0 | -18.6 | Verti<br>100 |
| 25 | 160.058M | 38.6 | -26.9 | +10.1 | +2.9 | | +0.0<br>142 | 24.7 | 43.5 | -18.8 | Verti<br>100 |
| 26 | 160.058M | 38.6 | -26.9 | +10.1 | +2.9 | +0.0 | +0.0<br>142 | 24.7 | 43.5 | -18.8 | Verti<br>100 |
| 27 | 625.000M | 29.4 | -27.9 | +19.4 | +6.2 | | +0.0 | 27.1 | 46.0 | -18.9 | Verti<br>100 |
| 28 | 254.500M | 37.9 | -26.5 | +12.1 | +3.6 | | +0.0 | 27.1 | 46.0 | -18.9 | Verti<br>100 |
| 29 | 250.070M | 37.8 | -26.5 | +12.0 | +3.6 | | +0.0 | 26.9 | 46.0 | -19.1 | Verti<br>100 |
| 30 | 272.085M | 37.0 | -26.5 | +12.4 | +3.8 | | +0.0<br>194 | 26.7 | 46.0 | -19.3 | Verti<br>100 |
| 31 | 168.000M | 38.2 | -26.9 | +9.2 | +2.9 | | +0.0 | 23.4 | 43.5 | -20.1 | Verti<br>100 |
| 32 | 238.650M | 37.7 | -26.5 | +11.2 | +3.5 | +0.0 | +0.0<br>360 | 25.9 | 46.0 | -20.1 | Verti<br>100 |
| 33 | 328.110M | 34.5 | -26.7 | +13.6 | +4.3 | | +0.0<br>360 | 25.7 | 46.0 | -20.3 | Verti<br>100 |
| 34 | 176.053M | 38.5 | -26.8 | +8.4 | +3.0 | | +0.0<br>200 | 23.1 | 43.5 | -20.4 | Verti<br>100 |
| 35 | 234.410M | 37.6 | -26.5 | +10.9 | +3.5 | | +0.0<br>360 | 25.5 | 46.0 | -20.5 | Verti<br>100 |
| 36 | 246.070M | 36.7 | -26.5 | +11.7 | +3.6 | | +0.0<br>360 | 25.5 | 46.0 | -20.5 | Verti<br>100 |
| 37 | 216.060M | 39.1 | -26.6 | +9.6 | +3.4 | | +0.0<br>294 | 25.5 | 46.0 | -20.5 | Horiz<br>153 |
| 38 | 257.530M | 35.6 | -26.5 | +12.1 | +3.7 | | +0.0 | 24.9 | 46.0 | -21.1 | Verti<br>100 |
| 39 | 120.000M | 35.9 | -27.2 | +10.9 | +2.5 | | +0.0 | 22.1 | 43.5 | -21.4 | Verti<br>100 |
| 40 | 264.072M | 35.0 | -26.5 | +12.2 | +3.7 | | +0.0<br>156 | 24.4 | 46.0 | -21.6 | Horiz<br>146 |
| 41 | 144.000M | 35.4 | -27.0 | +10.7 | +2.7 | | +0.0<br>336 | 21.8 | 43.5 | -21.7 | Verti<br>100 |
| 42 | 262.410M | 34.8 | -26.5 | +12.2 | +3.7 | | +0.0 | 24.2 | 46.0 | -21.8 | Verti<br>100 |
| 43 | 296.087M | 33.7 | -26.5 | +12.7 | +4.1 | | +0.0 | 24.0 | 46.0 | -22.0 | Verti<br>100 |
| 44 | 160.008M | 35.0 | -26.9 | +10.1 | +2.9 | | +0.0<br>2 | 21.1 | 43.5 | -22.4 | Horiz<br>153 |
| 45 | 80.000M | 35.4 | -27.2 | +6.7 | +2.0 | | +0.0<br>350 | 16.9 | 40.0 | -23.1 | Verti<br>100 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 46 | 160.058M | 34.2 | -26.9 | +10.1 | +2.9 | +0.0 | 20.3 | 43.5 | -23.2 | Verti 100 |
| 47 | 320.084M | 30.7 | -26.6 | +13.4 | +4.3 | +0.0 360 | 21.8 | 46.0 | -24.2 | Verti 100 |
| 48 | 296.084M | 29.8 | -26.5 | +12.7 | +4.1 | +0.0 186 | 20.1 | 46.0 | -25.9 | Horiz 146 |
| 49 | 384.104M | 27.2 | -27.1 | +15.0 | +4.9 | +0.0 247 | 20.0 | 46.0 | -26.0 | Verti 100 |
| 50 | 360.110M | 27.2 | -26.9 | +14.5 | +4.6 | +0.0 | 19.4 | 46.0 | -26.6 | Verti 100 |
| 51 | 280.084M | 28.7 | -26.5 | +12.5 | +3.9 | +0.0 100 | 18.6 | 46.0 | -27.4 | Horiz 146 |
| 52 | 272.072M | 27.6 | -26.5 | +12.4 | +3.8 | +0.0 241 | 17.3 | 46.0 | -28.7 | Horiz 146 |
| 53 | 217.712M | 30.3 | -26.6 | +9.7 | +3.4 | +0.0 360 | 16.8 | 46.0 | -29.2 | Horiz 153 |
| 54 | 288.084M | 26.5 | -26.5 | +12.6 | +4.0 | +0.0 340 | 16.6 | 46.0 | -29.4 | Horiz 146 |

## PHOTOGRAPH SHOWING RADIATED EMISSIONS

Radiated Emissions - Front View

Radiated Emissions - Back View

## FCC 2.1033(c)(14)/2.1046/22.913 RF POWER OUTPUT

**§22.913 Effective radiated power limits**.
The effective radiated power (ERP) of transmitters in the Cellular Radiotelephone Service must not exceed the limits in this section.

(a) Maximum ERP. The effective radiated power (ERP) of base transmitters and cellular repeaters must not exceed 500 Watts. The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

The power output of the equipment is measured at the RF output terminals using a power meter. The input signal to the EUT is tuned such that the output power remains constant across the entire 869-894 MHz frequency range.

| Radio Service | Emissions Designator | Single Channel Output Power (Watts) | Aggregate Multi-channel Output Power (Watts) |
|---|---|---|---|
| GSM | GXW | 2.70 | 1.00 |
| EDGE | G7W | 2.10 | 1.00 |
| TDMA/NADC | DXW | 2.30 | 1.00 |
| CDMA | F9W | 1.00 | 1.00 |
| WCDMA | F9W | 1.00 | 1.00 |
| AMPS – Voice | F8W | 2.70 | 1.00 |
| AMPS – Data | F1D | 2.70 | 1.00 |

This equipment is sold as fixed base station amplifier / extender equipment.

**Test equipment**

| Description | Asset # | Manufacturer | Model # | Serial # | Cal Date | Cal Due |
|---|---|---|---|---|---|---|
| Attenuator | P01623 | JFW | 50FHC-014-20 | | 5/9/03 | 5/8/05 |
| Power Meter | 2189 | HP | 437B | 2912U01300 | 1/17/05 | 1/17/07 |
| Power Sensor | 02392 | HP | 8482A | 2652A16108 | 1/17/05 | 1/17/07 |

## PHOTOGRAPH SHOWING DIRECT CONNECT TEST SETUP

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

**Not applicable to this unit.**

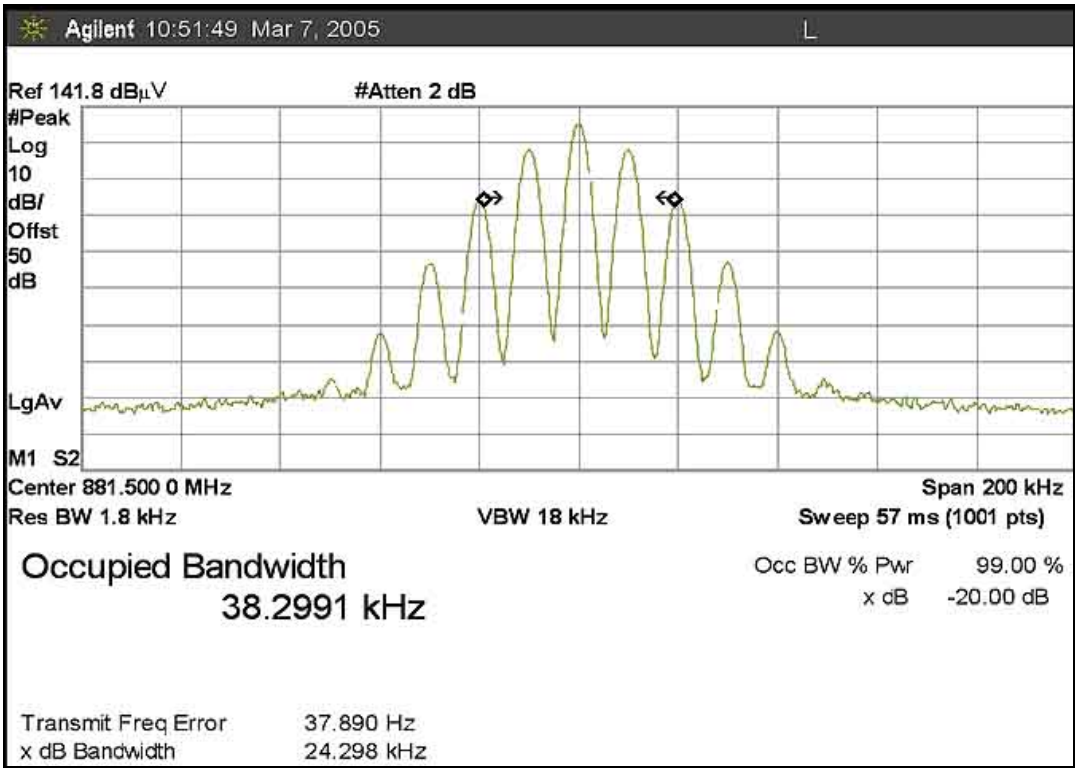
## FCC 2.1033(c)(14)/2.1047(b) MODULATION CHARACTERISTICS– Modulation Limiting Response

**Not applicable to this unit.**

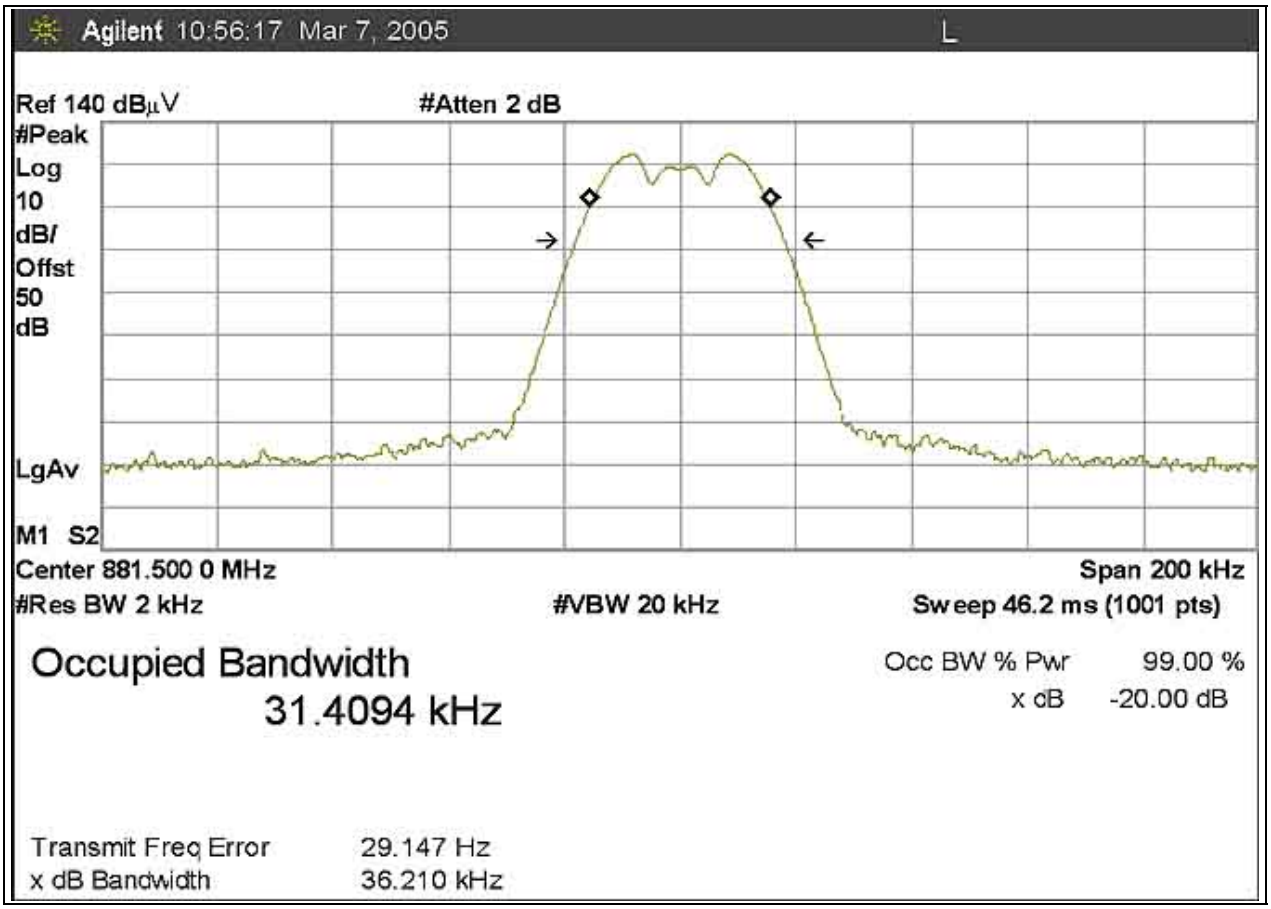
## FCC 2.1033(c)(14)/2.1049(i)/PART 22/RSS-131- OCCUPIED BANDWIDTH -

**Test Conditions:** EUT is a dual band remote radio head with multichannel capability and may otherwise be classified as a repeater/extender. EUT operates on 869-894 MHz and 1930-1990 MHz. Support equipment is used to convert RF from signal generator to fiber for input to the EUT. Power output is monitored using customer support equipment. EUT does not demodulate the input signal. Temperature: 28ºC, Relative Humidity: 53%.

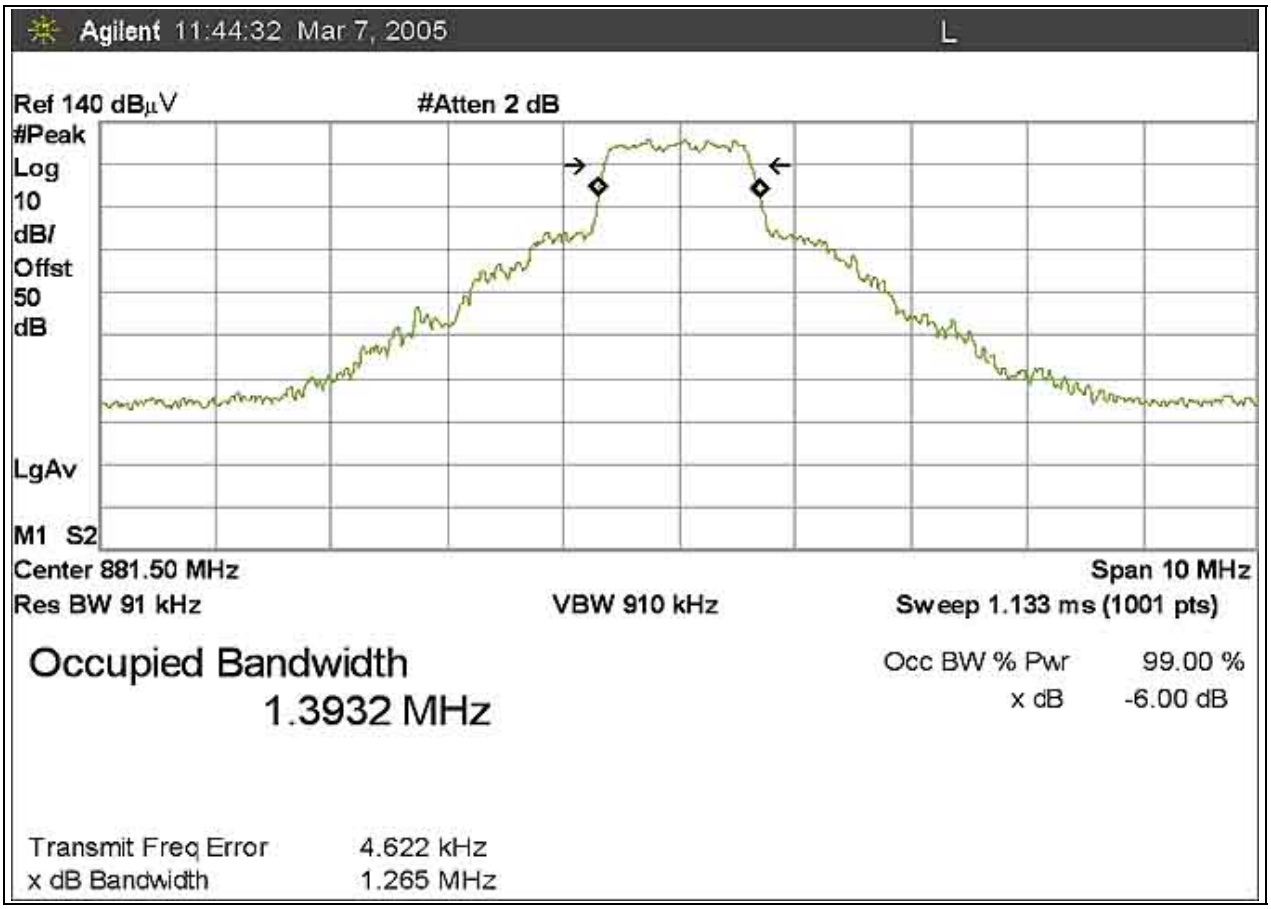
**FCC PART 22/RSS-131- OCCUPIED BANDWIDTH - AMPS-DATA MID CHANNEL**



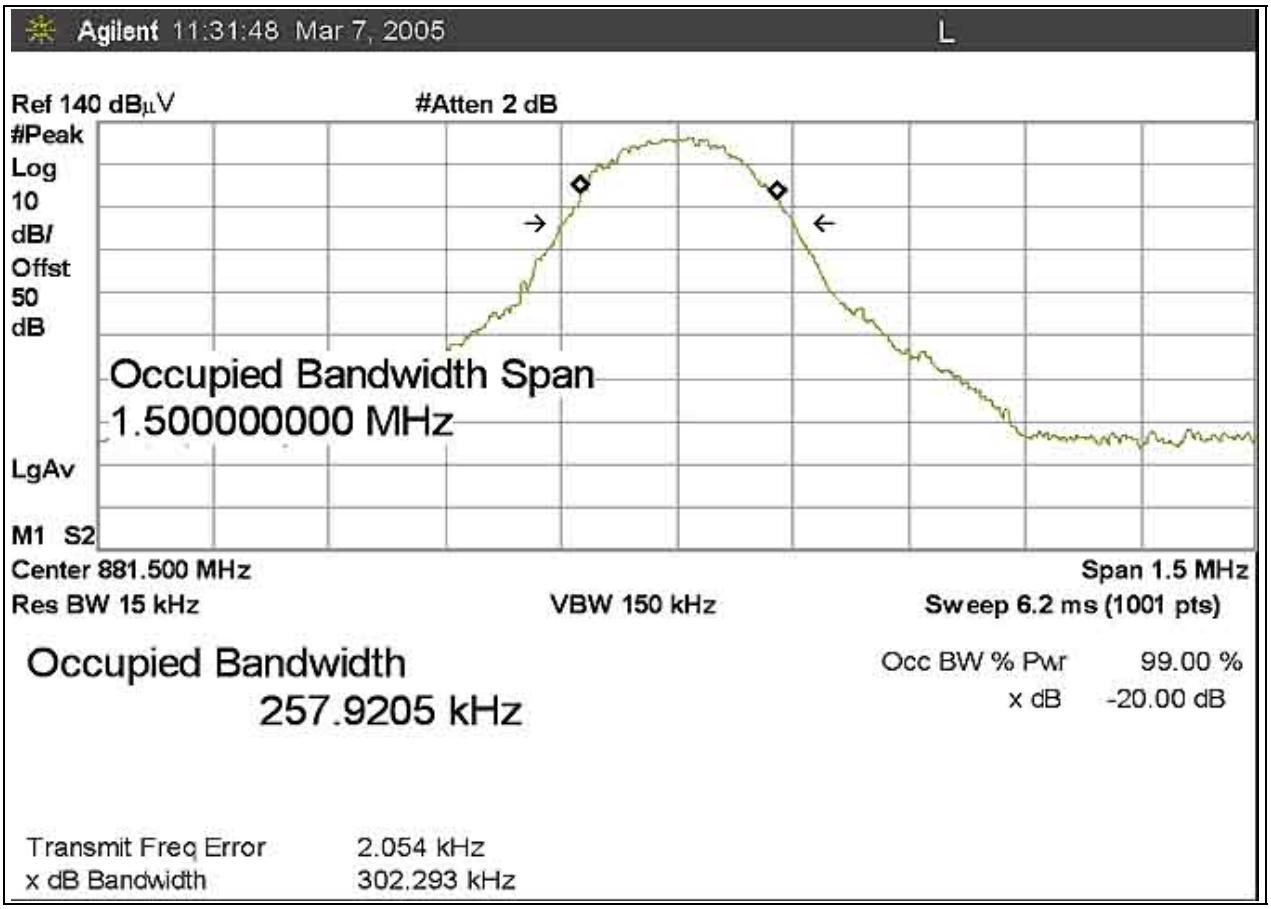
## FCC PART 22/RSS-131 OCCUPIED BANDWIDTH - AMPS-VOICE MID CHANNEL



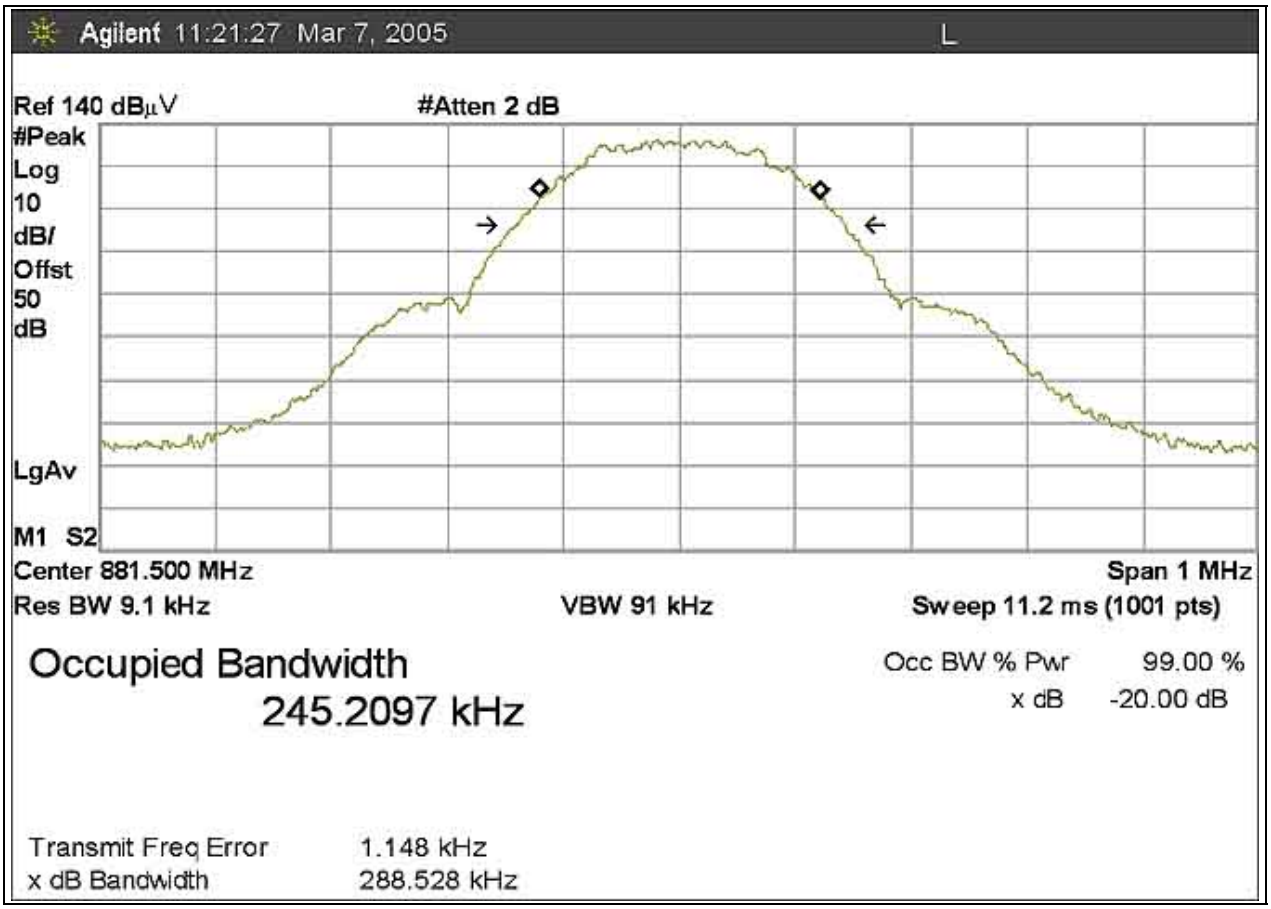
## FCC PART 22/RSS-131 OCCUPIED BANDWIDTH - CDMA MID CHANNEL



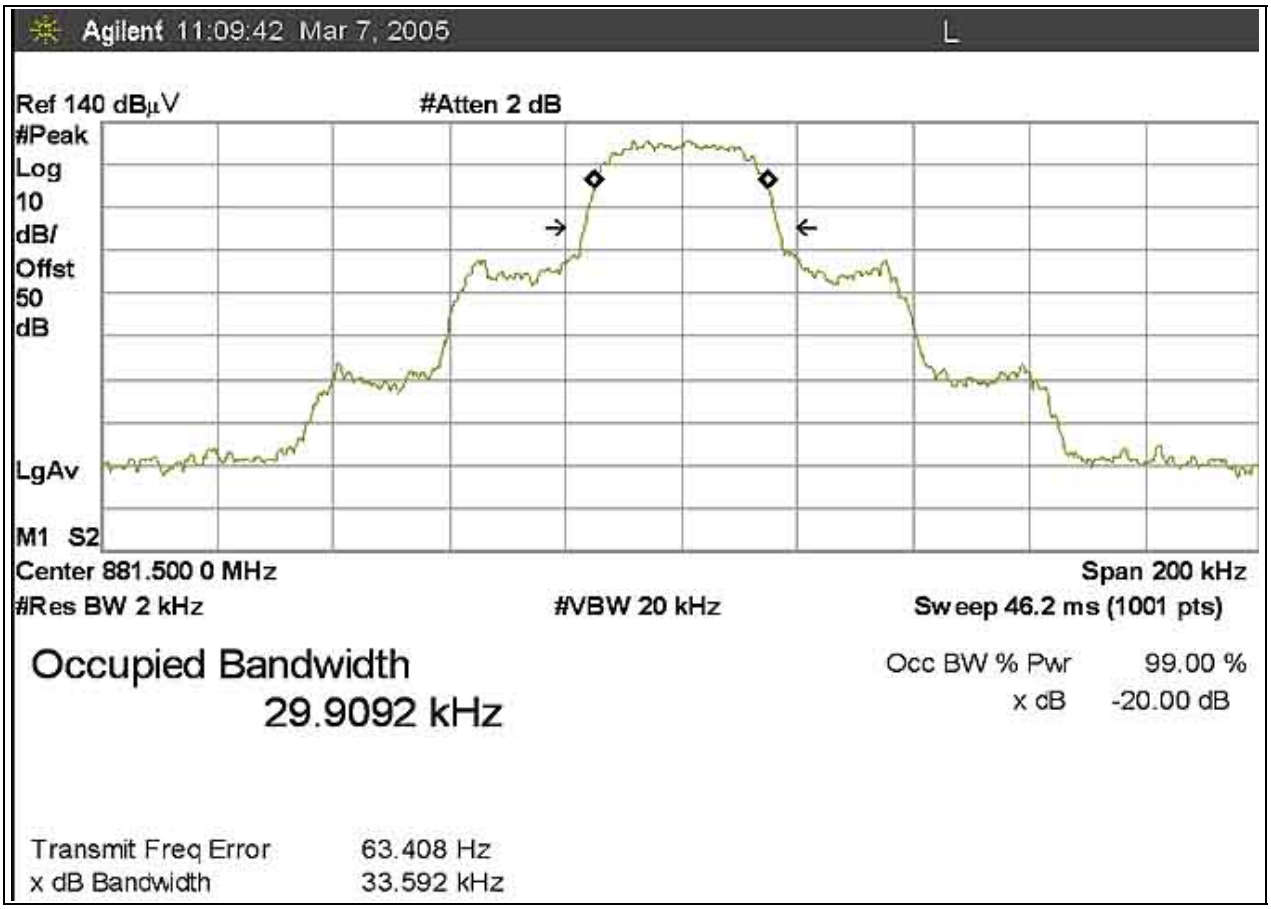
## FCC PART 22/RSS-131 OCCUPIED BANDWIDTH - EDGE MID CHANNEL



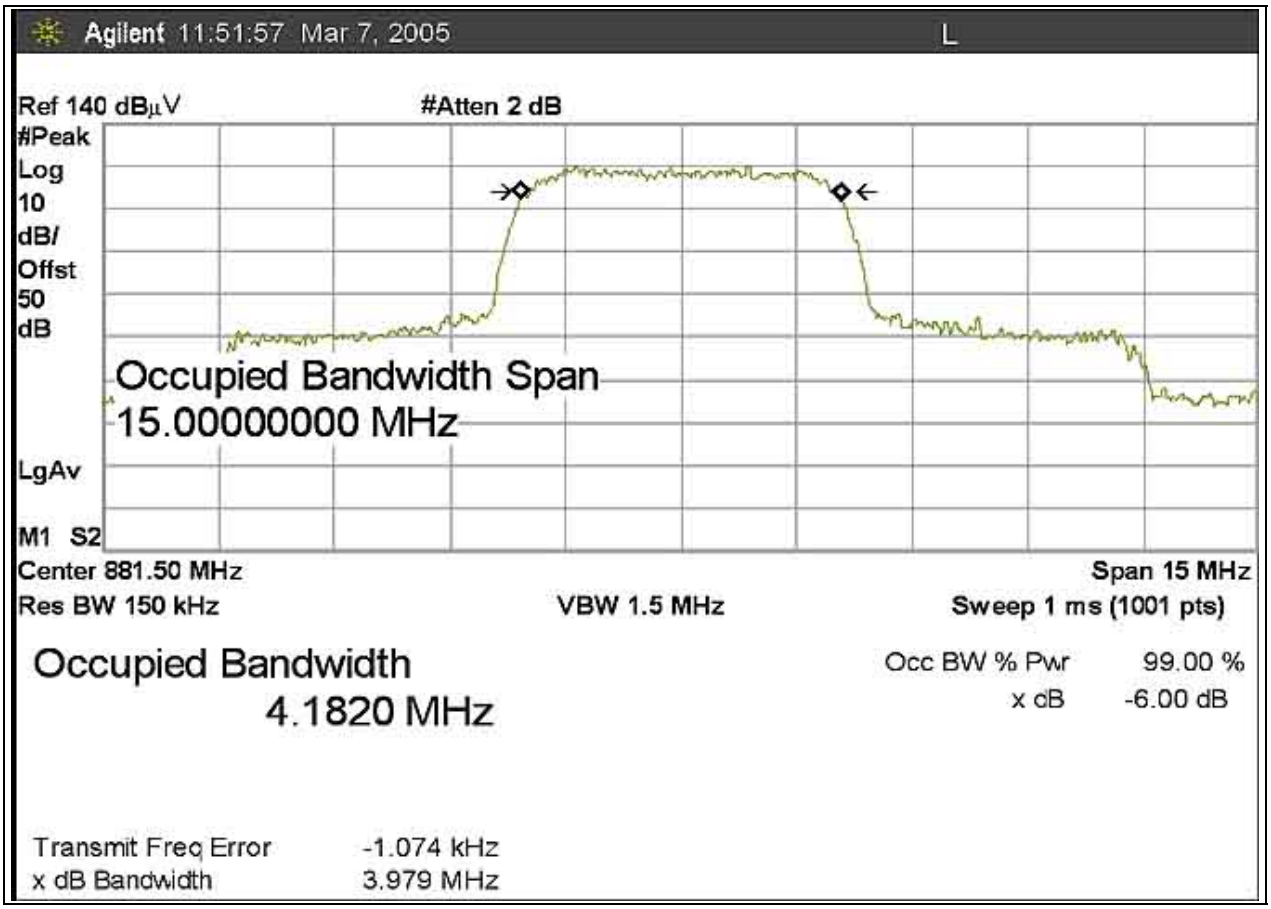
## FCC PART 22/RSS-131 OCCUPIED BANDWIDTH - GSM MID CHANNEL



## FCC PART 22/RSS-131 OCCUPIED BANDWIDTH - NADC MID CHANNEL



## FCC PART 22/RSS-131 OCCUPIED BANDWIDTH - WCDMA MID CHANNEL



***Test Equipment*:**

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|---|---|---|---|---|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Cable, Andrews Hardline | NA | 06/04/2003 | 06/04/2005 | P00740 |
| Attenuator 14dB, JFW 50FHC-014-20 | | 05/09/2003 | 05/09/2005 | P01623 |
| Attenuator PE7004-6 | | 09/29/2004 | 09/29/2006 | P02226 |

## PHOTOGRAPH SHOWING DIRECT CONNECT TEST SETUP

# FCC 2.1033(c)(14)/2.1051/22.917 - SPURIOUS EMISSIONS AT ANTENNA TERMINAL

| ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE | | | |
|---|---|---|---|
| TEST | BEGINNING FREQUENCY | ENDING FREQUENCY | BANDWIDTH SETTING |
| RADIATED EMISSIONS | 30 MHz | 1000 MHz | 100 kHz |
| RADIATED EMISSIONS | 1000 MHz | 20 GHz | 1 MHz |

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

Customer: **Powerwave**
Specification: **FCC 22.917**
Work Order #: **83357** Date: 03/08/2005
Test Type: **Antenna Terminals Conducted Emissions** Time: 10:41:49
Equipment: **Remote Radio Head** Sequence#: 16
Manufacturer: Powerwave Technologies Tested By: Randal Clark
Model: RH340000/100 120V 60Hz
S/N: 42129

***Test Equipment*:**

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|---|---|---|---|---|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Cable, Andrews Hardline | NA | 06/04/2003 | 06/04/2005 | P00740 |
| Attenuator 14dB, JFW 50FHC-014-20 | | 05/09/2003 | 05/09/2005 | P01623 |
| Attenuator PE7004-6 | | 09/29/2004 | 09/29/2006 | P02226 |

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

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| Remote Radio Head* | Powerwave Technologies | RH340000/100 | 42129 |

***Support Devices:***

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| RF to Fiber Module | Powerwave Technologies | Optical Converter | 42101 |
| Pre-amplifier | Mini-Circuits | ZHL-1042J | H0327965-021 |
| Power Sensor | HP | 8481A | US37297854 |
| Power Meter | Agilent | E4419B | GB40202125 |
| Signal Generator | Agilent | E4433B | US40052296 |

***Test Conditions / Notes:***

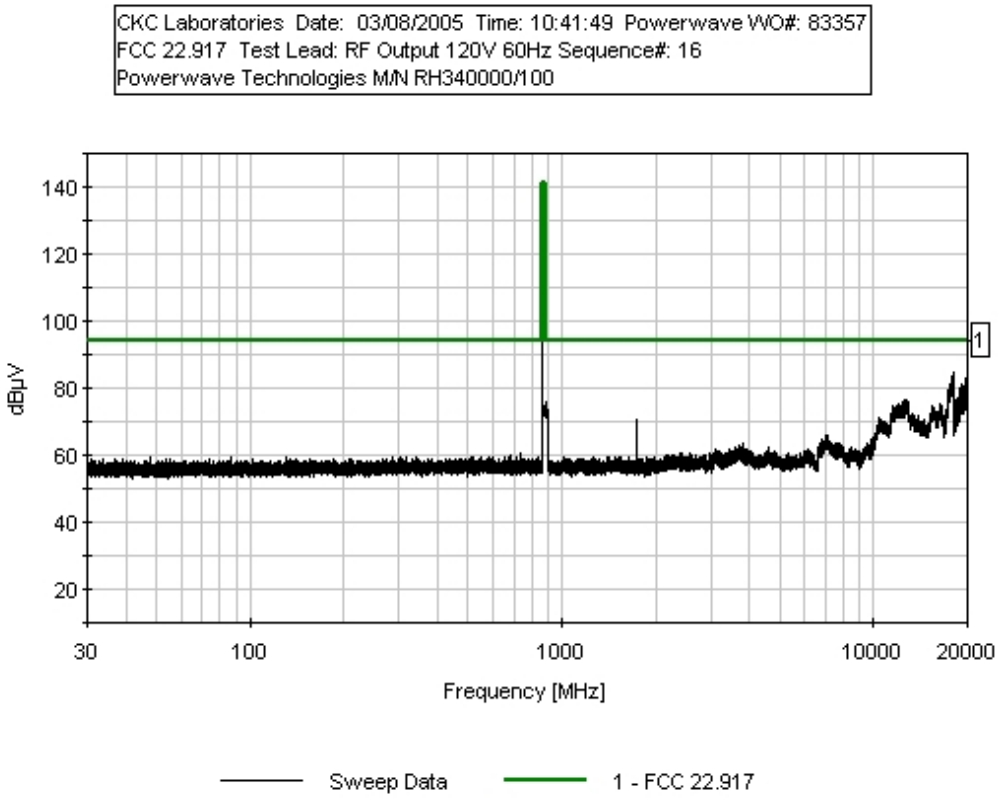
EUT is a dual band remote radio head with multichannel capability and may otherwise be classified as a repeater/extender. EUT operates on 869-894 MHz and 1930-1990 MHz. Support equipment is used to convert RF from signal generator to fiber for input to the EUT. Power output is monitored using customer support equipment. EUT does not demodulate the input signal. Frequency Range Investigated: 30MHz - 20GHz. Temperature: 28ºC, Relative Humidity: 53%. Radio Standard: AMPS-Data. Test Frequency: Low Channel. **No EUT emissions detected within 20dB of the limit.**

***Transducer Legend:***

| | |
|---|---|
| T1=Pad 14dB AN P01623 | T2=6dB P02226 Attenuator |

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

| # | Freq MHz | Rdng dBµV | T1 dB | T2 dB | dB | dB | Dist Table | Corr dBµV | Spec dBµV | Margin dB | Polar Ant |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 869.100M | 120.7 | +14.2 | +6.1 | | | +0.0 | 141.0 | 141.0 Carrier | +0.0 | RF Ou |
| 2 | 1738.200M | 51.2 | +14.3 | +6.0 | | | +0.0 | 71.5 | 94.0 | -22.5 | RF Ou |
| 3 | 2607.300M | 42.2 | +14.2 | +6.0 | | | +0.0 | 62.4 | 94.0 | -31.6 | RF Ou |
| 4 | 6952.800M | 42.6 | +13.4 | +6.1 | | | +0.0 | 62.1 | 94.0 | -31.9 | RF Ou |
| 5 | 6083.700M | 40.4 | +13.3 | +6.4 | | | +0.0 | 60.1 | 94.0 | -33.9 | RF Ou |
| 6 | 4345.500M | 38.6 | +14.0 | +6.1 | | | +0.0 | 58.7 | 94.0 | -35.3 | RF Ou |
| 7 | 3476.400M | 38.3 | +14.1 | +6.1 | | | +0.0 | 58.5 | 94.0 | -35.5 | RF Ou |
| 8 | 5214.600M | 37.7 | +14.0 | +6.2 | | | +0.0 | 57.9 | 94.0 | -36.1 | RF Ou |



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

| | | | |
|---|---|---|---|
| Customer: | **Powerwave** | | |
| Specification: | **FCC 22.917** | | |
| Work Order #: | **83357** | Date: | 03/08/2005 |
| Test Type: | **Antenna Terminals Conducted Emissions** | Time: | 10:46:18 |
| Equipment: | **Remote Radio Head** | Sequence#: | 17 |
| Manufacturer: | Powerwave Technologies | Tested By: | Randal Clark |
| Model: | RH340000/100 | | 120V 60Hz |
| S/N: | 42129 | | |

***Test Equipment*:**

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|---|---|---|---|---|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Cable, Andrews Hardline | NA | 06/04/2003 | 06/04/2005 | P00740 |
| Attenuator 14dB, JFW 50FHC-014-20 | | 05/09/2003 | 05/09/2005 | P01623 |
| Attenuator PE7004-6 | | 09/29/2004 | 09/29/2006 | P02226 |

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

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| Remote Radio Head* | Powerwave Technologies | RH340000/100 | 42129 |

***Support Devices:***

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| RF to Fiber Module | Powerwave Technologies | Optical Converter | 42101 |
| Pre-amplifier | Mini-Circuits | ZHL-1042J | H0327965-021 |
| Power Sensor | HP | 8481A | US37297854 |
| Power Meter | Agilent | E4419B | GB40202125 |
| Signal Generator | Agilent | E4433B | US40052296 |

***Test Conditions / Notes:***

EUT is a dual band remote radio head with multichannel capability and may otherwise be classified as a repeater/extender. EUT operates on 869-894 MHz and 1930-1990 MHz. Support equipment is used to convert RF from signal generator to fiber for input to the EUT. Power output is monitored using customer support equipment. EUT does not demodulate the input signal. Frequency Range Investigated: 30MHz - 20GHz. Temperature: 28ºC, Relative Humidity: 53%. Radio Standard: AMPS-Data. Test Frequency: Mid Channel. **No EUT emissions detected within 20dB of the limit.**

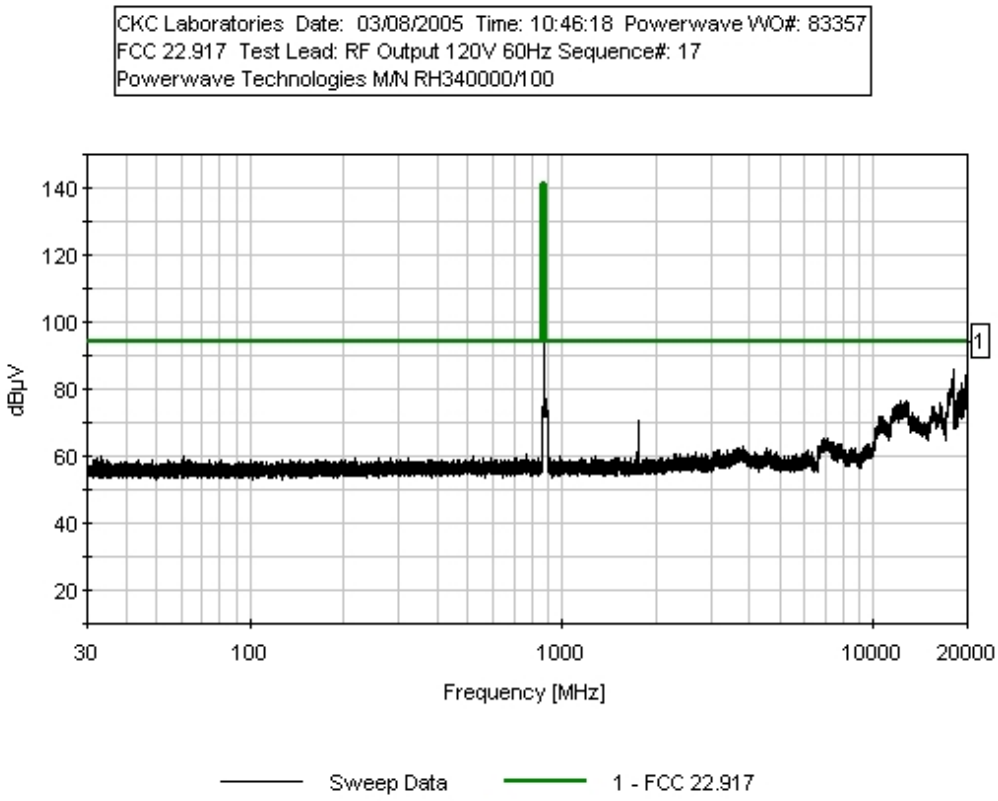
***Transducer Legend:***

| | |
|---|---|
| T1=Pad 14dB AN P01623 | T2=6dB P02226 Attenuator |

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

| # | Freq MHz | Rdng dBµV | T1 dB | T2 dB | dB | dB | Dist Table | Corr dBµV | Spec dBµV | Margin dB | Polar Ant |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 881.500M | 120.7 | +14.2 | +6.1 | | | +0.0 | 141.0 | 141.0 Carrier | +0.0 | RF Ou |
| 2 | 1763.000M | 50.8 | +14.3 | +6.0 | | | +0.0 | 71.1 | 94.0 | -22.9 | RF Ou |
| 3 | 7052.000M | 43.6 | +13.2 | +6.1 | | | +0.0 | 62.9 | 94.0 | -31.1 | RF Ou |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4 | 6170.500M | 40.1 | +13.3 | +6.4 | +0.0 | 59.8 | 94.0 | -34.2 | RF Ou |
| 5 | 2644.500M | 38.8 | +14.2 | +6.0 | +0.0 | 59.0 | 94.0 | -35.0 | RF Ou |
| 6 | 3526.000M | 38.3 | +14.2 | +6.1 | +0.0 | 58.6 | 94.0 | -35.4 | RF Ou |
| 7 | 4407.500M | 38.4 | +14.0 | +6.1 | +0.0 | 58.5 | 94.0 | -35.5 | RF Ou |
| 8 | 5289.000M | 37.6 | +13.8 | +6.2 | +0.0 | 57.6 | 94.0 | -36.4 | RF Ou |



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

| | | | |
|---|---|---|---|
| Customer: | **Powerwave** | | |
| Specification: | **FCC 22.917** | | |
| Work Order #: | **83357** | Date: | 03/08/2005 |
| Test Type: | **Antenna Terminals Conducted Emissions** | Time: | 10:55:08 |
| Equipment: | **Remote Radio Head** | Sequence#: | 18 |
| Manufacturer: | Powerwave Technologies | Tested By: | Randal Clark |
| Model: | RH340000/100 | | 120V 60Hz |
| S/N: | 42129 | | |

***Test Equipment*:**

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|---|---|---|---|---|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Cable, Andrews Hardline | NA | 06/04/2003 | 06/04/2005 | P00740 |
| Attenuator 14dB, JFW 50FHC-014-20 | | 05/09/2003 | 05/09/2005 | P01623 |
| Attenuator PE7004-6 | | 09/29/2004 | 09/29/2006 | P02226 |

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

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| Remote Radio Head* | Powerwave Technologies | RH340000/100 | 42129 |

***Support Devices:***

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| RF to Fiber Module | Powerwave Technologies | Optical Converter | 42101 |
| Pre-amplifier | Mini-Circuits | ZHL-1042J | H0327965-021 |
| Power Sensor | HP | 8481A | US37297854 |
| Power Meter | Agilent | E4419B | GB40202125 |
| Signal Generator | Agilent | E4433B | US40052296 |

***Test Conditions / Notes:***

EUT is a dual band remote radio head with multichannel capability and may otherwise be classified as a repeater/extender. EUT operates on 869-894 MHz and 1930-1990 MHz. Support equipment is used to convert RF from signal generator to fiber for input to the EUT. Power output is monitored using customer support equipment. EUT does not demodulate the input signal. Frequency Range Investigated: 30MHz - 20GHz. Temperature: 28ºC, Relative Humidity: 53%. Radio Standard: AMPS-Data. Test Frequency: High Channel. **No EUT emissions detected within 20dB of the limit.**

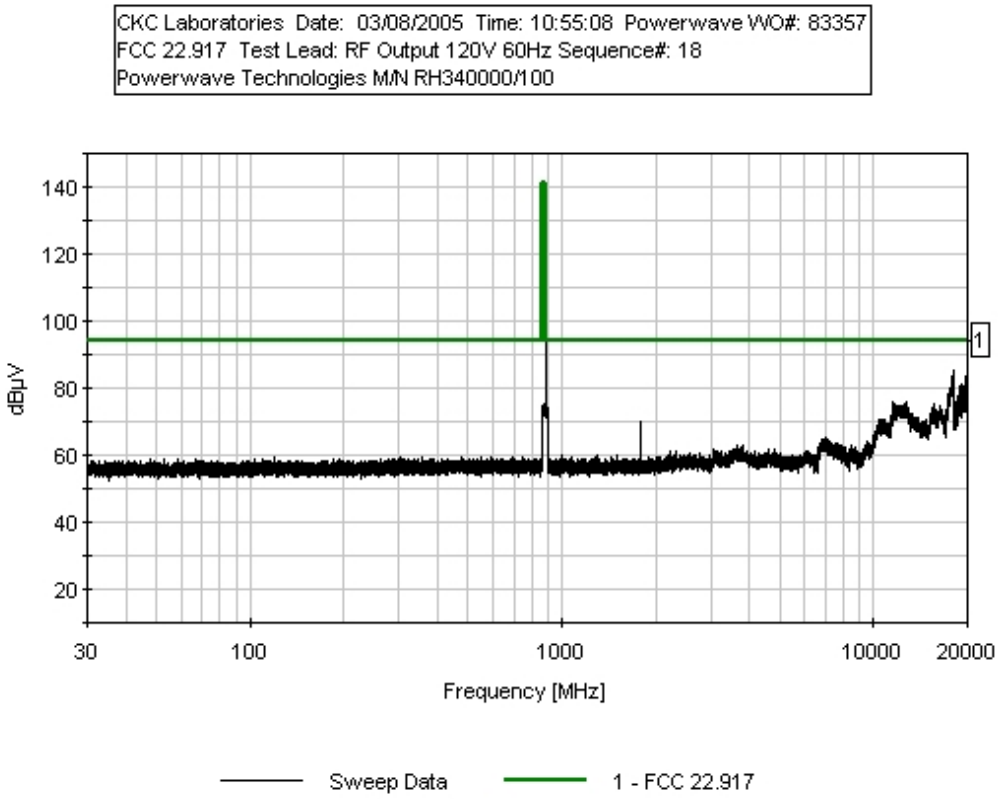
***Transducer Legend:***

| | |
|---|---|
| T1=Pad 14dB AN P01623 | T2=6dB P02226 Attenuator |

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

| # | Freq MHz | Rdng dBµV | T1 dB | T2 dB | dB | dB | Dist Table | Corr dBµV | Spec dBµV | Margin dB | Polar Ant |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 893.900M | 115.2 | +14.2 | +6.1 | | | +0.0 | 135.5 | 141.0 Carrier | -5.5 | RF Ou |
| 2 | 1787.790M | 50.8 | +14.3 | +6.0 | | | +0.0 | 71.1 | 94.0 | -22.9 | RF Ou |
| 3 | 7151.206M | 45.0 | +13.1 | +6.2 | | | +0.0 | 64.3 | 94.0 | -29.7 | RF Ou |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4 | 2681.676M | 41.4 | +14.3 | +6.0 | +0.0 | 61.7 | 94.0 | -32.3 | RF Ou |
| 5 | 6257.300M | 40.2 | +13.3 | +6.3 | +0.0 | 59.8 | 94.0 | -34.2 | RF Ou |
| 6 | 3575.582M | 39.2 | +14.2 | +6.0 | +0.0 | 59.4 | 94.0 | -34.6 | RF Ou |
| 7 | 5363.394M | 39.1 | +13.6 | +6.2 | +0.0 | 58.9 | 94.0 | -35.1 | RF Ou |
| 8 | 4469.488M | 37.6 | +14.2 | +6.1 | +0.0 | 57.9 | 94.0 | -36.1 | RF Ou |



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

| | | | |
|---|---|---|---|
| Customer: | **Powerwave** | | |
| Specification: | **FCC 22.917** | | |
| Work Order #: | **83357** | Date: | 03/08/2005 |
| Test Type: | **Antenna Terminals Conducted Emissions** | Time: | 10:35:26 |
| Equipment: | **Remote Radio Head** | Sequence#: | 15 |
| Manufacturer: | Powerwave Technologies | Tested By: | Randal Clark |
| Model: | RH340000/100 | | 120V 60Hz |
| S/N: | 42129 | | |

***Test Equipment*:**

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|---|---|---|---|---|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Cable, Andrews Hardline | NA | 06/04/2003 | 06/04/2005 | P00740 |
| Attenuator 14dB, JFW 50FHC-014-20 | | 05/09/2003 | 05/09/2005 | P01623 |
| Attenuator PE7004-6 | | 09/29/2004 | 09/29/2006 | P02226 |

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

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| Remote Radio Head* | Powerwave Technologies | RH340000/100 | 42129 |

***Support Devices:***

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| RF to Fiber Module | Powerwave Technologies | Optical Converter | 42101 |
| Pre-amplifier | Mini-Circuits | ZHL-1042J | H0327965-021 |
| Power Sensor | HP | 8481A | US37297854 |
| Power Meter | Agilent | E4419B | GB40202125 |
| Signal Generator | Agilent | E4433B | US40052296 |

***Test Conditions / Notes:***

EUT is a dual band remote radio head with multichannel capability and may otherwise be classified as a repeater/extender. EUT operates on 869-894 MHz and 1930-1990 MHz. Support equipment is used to convert RF from signal generator to fiber for input to the EUT. Power output is monitored using customer support equipment. EUT does not demodulate the input signal. Frequency Range Investigated: 30MHz - 20GHz. Temperature: 28ºC, Relative Humidity: 53%. Radio Standard: AMPS-Voice. Test Frequency: Low Channel. **No EUT emissions detected within 20dB of the limit.**

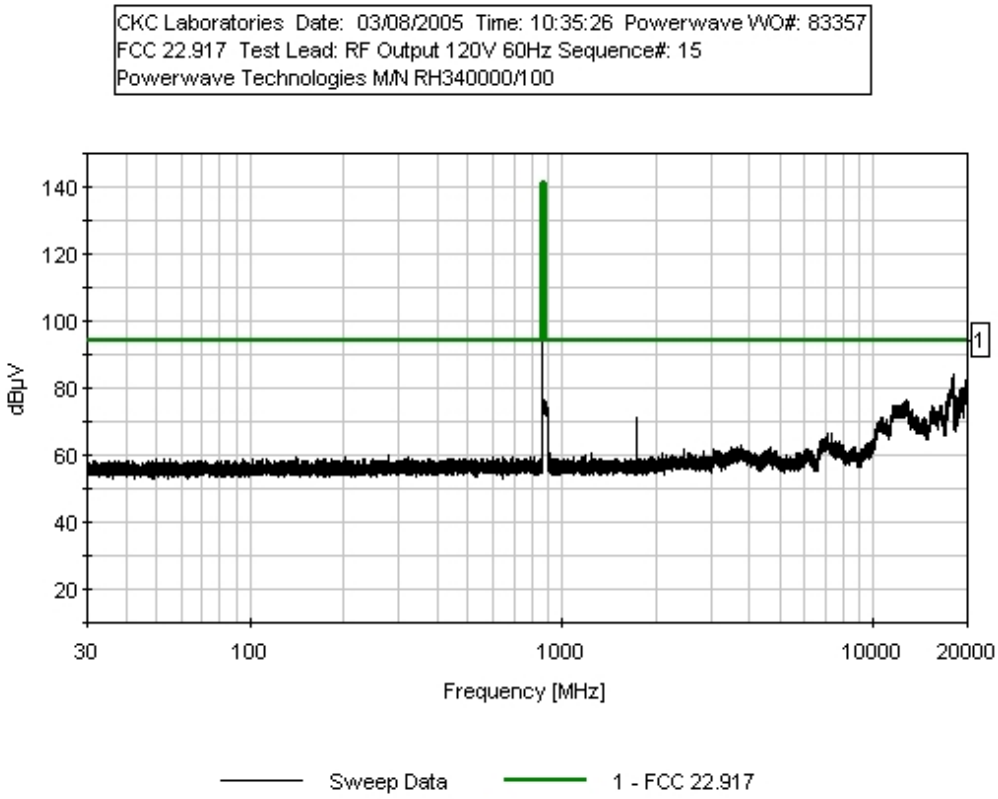
***Transducer Legend:***

| | |
|---|---|
| T1=Pad 14dB AN P01623 | T2=6dB P02226 Attenuator |

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

| # | Freq MHz | Rdng dBµV | T1 dB | T2 dB | dB | dB | Dist Table | Corr dBµV | Spec dBµV | Margin dB | Polar Ant |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 869.100M | 120.7 | +14.2 | +6.1 | | | +0.0 | 141.0 | 141.0 Carrier | +0.0 | RF Ou |
| 2 | 1738.166M | 50.9 | +14.3 | +6.0 | | | +0.0 | 71.2 | 94.0 | -22.8 | RF Ou |
| 3 | 6946.766M | 42.9 | +13.4 | +6.1 | | | +0.0 | 62.4 | 94.0 | -31.6 | RF Ou |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4 | 3474.366M | 39.9 | +14.1 | +6.1 | +0.0 | 60.1 | 94.0 | -33.9 | RF Ou |
| 5 | 5210.566M | 39.2 | +14.0 | +6.2 | +0.0 | 59.4 | 94.0 | -34.6 | RF Ou |
| 6 | 6078.666M | 39.3 | +13.3 | +6.4 | +0.0 | 59.0 | 94.0 | -35.0 | RF Ou |
| 7 | 4342.466M | 37.6 | +14.0 | +6.1 | +0.0 | 57.7 | 94.0 | -36.3 | RF Ou |
| 8 | 2606.266M | 37.1 | +14.2 | +6.0 | +0.0 | 57.3 | 94.0 | -36.7 | RF Ou |



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

| | | | |
|---|---|---|---|
| Customer: | **Powerwave** | | |
| Specification: | **FCC 22.917** | | |
| Work Order #: | **83357** | Date: | 03/08/2005 |
| Test Type: | **Antenna Terminals Conducted Emissions** | Time: | 10:23:20 |
| Equipment: | **Remote Radio Head** | Sequence#: | 14 |
| Manufacturer: | Powerwave Technologies | Tested By: | Randal Clark |
| Model: | RH340000/100 | | 120V 60Hz |
| S/N: | 42129 | | |

***Test Equipment*:**

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|---|---|---|---|---|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Cable, Andrews Hardline | NA | 06/04/2003 | 06/04/2005 | P00740 |
| Attenuator 14dB, JFW 50FHC-014-20 | | 05/09/2003 | 05/09/2005 | P01623 |
| Attenuator PE7004-6 | | 09/29/2004 | 09/29/2006 | P02226 |

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

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| Remote Radio Head* | Powerwave Technologies | RH340000/100 | 42129 |

***Support Devices:***

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| RF to Fiber Module | Powerwave Technologies | Optical Converter | 42101 |
| Pre-amplifier | Mini-Circuits | ZHL-1042J | H0327965-021 |
| Power Sensor | HP | 8481A | US37297854 |
| Power Meter | Agilent | E4419B | GB40202125 |
| Signal Generator | Agilent | E4433B | US40052296 |

***Test Conditions / Notes:***

EUT is a dual band remote radio head with multichannel capability and may otherwise be classified as a repeater/extender. EUT operates on 869-894 MHz and 1930-1990 MHz. Support equipment is used to convert RF from signal generator to fiber for input to the EUT. Power output is monitored using customer support equipment. EUT does not demodulate the input signal. Frequency Range Investigated: 30MHz - 20GHz. Temperature: 28ºC, Relative Humidity: 53%. Radio Standard: AMPS-Voice. Test Frequency: Mid Channel. **No EUT emissions detected within 20dB of the limit.**

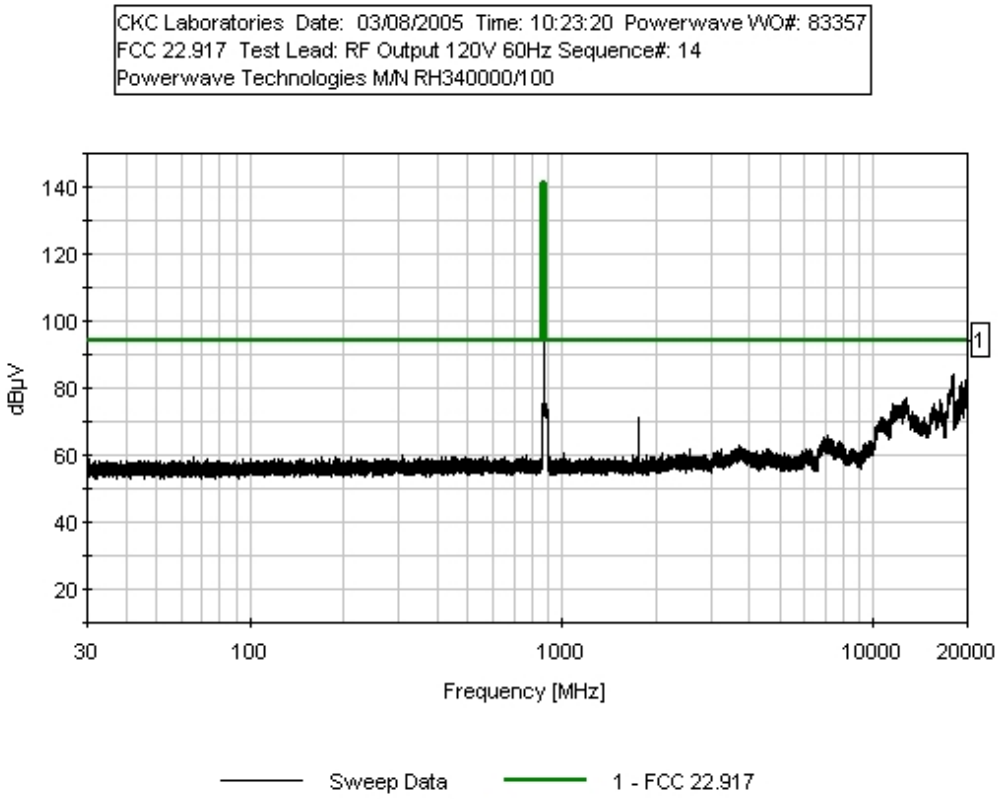
***Transducer Legend:***

| | |
|---|---|
| T1=Pad 14dB AN P01623 | T2=6dB P02226 Attenuator |

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

| # | Freq MHz | Rdng dBµV | T1 dB | T2 dB | dB | dB | Dist Table | Corr dBµV | Spec dBµV | Margin dB | Polar Ant |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 881.500M | 120.7 | +14.2 | +6.1 | | | +0.0 | 141.0 | 141.0 Carrier | +0.0 | RF Ou |
| 2 | 1763.000M | 51.0 | +14.3 | +6.0 | | | +0.0 | 71.3 | 94.0 | -22.7 | RF Ou |
| 3 | 7052.000M | 43.9 | +13.2 | +6.1 | | | +0.0 | 63.2 | 94.0 | -30.8 | RF Ou |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4 | 6170.500M | 40.2 | +13.3 | +6.4 | +0.0 | 59.9 | 94.0 | -34.1 | RF Ou |
| 5 | 3526.000M | 39.6 | +14.2 | +6.1 | +0.0 | 59.9 | 94.0 | -34.1 | RF Ou |
| 6 | 4407.500M | 39.3 | +14.0 | +6.1 | +0.0 | 59.4 | 94.0 | -34.6 | RF Ou |
| 7 | 2644.500M | 39.2 | +14.2 | +6.0 | +0.0 | 59.4 | 94.0 | -34.6 | RF Ou |
| 8 | 5289.000M | 38.5 | +13.8 | +6.2 | +0.0 | 58.5 | 94.0 | -35.5 | RF Ou |



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

| | | | |
|---|---|---|---|
| Customer: | **Powerwave** | | |
| Specification: | **FCC 22.917** | | |
| Work Order #: | **83357** | Date: | 03/08/2005 |
| Test Type: | **Antenna Terminals Conducted Emissions** | Time: | 10:15:24 |
| Equipment: | **Remote Radio Head** | Sequence#: | 13 |
| Manufacturer: | Powerwave Technologies | Tested By: | Randal Clark |
| Model: | RH340000/100 | | 120V 60Hz |
| S/N: | 42129 | | |

***Test Equipment*:**

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|---|---|---|---|---|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Cable, Andrews Hardline | NA | 06/04/2003 | 06/04/2005 | P00740 |
| Attenuator 14dB, JFW 50FHC-014-20 | | 05/09/2003 | 05/09/2005 | P01623 |
| Attenuator PE7004-6 | | 09/29/2004 | 09/29/2006 | P02226 |

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

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| Remote Radio Head* | Powerwave Technologies | RH340000/100 | 42129 |

***Support Devices:***

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| RF to Fiber Module | Powerwave Technologies | Optical Converter | 42101 |
| Pre-amplifier | Mini-Circuits | ZHL-1042J | H0327965-021 |
| Power Sensor | HP | 8481A | US37297854 |
| Power Meter | Agilent | E4419B | GB40202125 |
| Signal Generator | Agilent | E4433B | US40052296 |

***Test Conditions / Notes:***

EUT is a dual band remote radio head with multichannel capability and may otherwise be classified as a repeater/extender. EUT operates on 869-894 MHz and 1930-1990 MHz. Support equipment is used to convert RF from signal generator to fiber for input to the EUT. Power output is monitored using customer support equipment. EUT does not demodulate the input signal. Frequency Range Investigated: 30MHz - 20GHz. Temperature: 28ºC, Relative Humidity: 53%. Radio Standard: AMPS-Voice. Test Frequency: High Channel. **No EUT emissions detected within 20dB of the limit.**

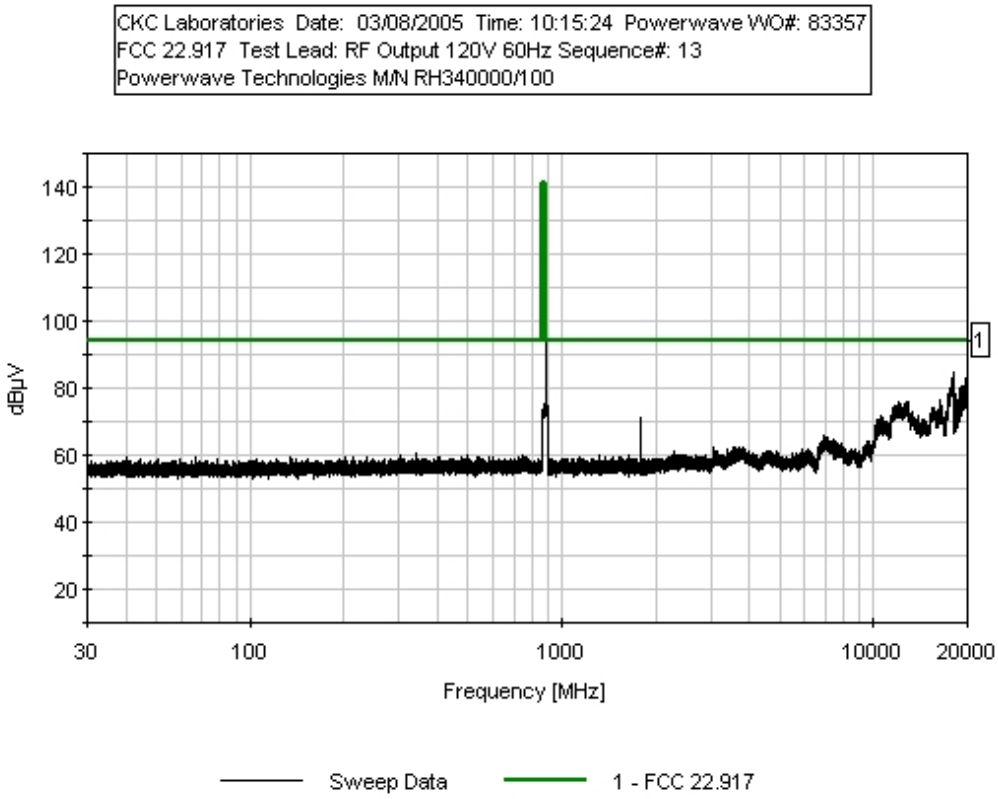
***Transducer Legend:***

| | |
|---|---|
| T1=Pad 14dB AN P01623 | T2=6dB P02226 Attenuator |

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

| # | Freq MHz | Rdng dBµV | T1 dB | T2 dB | dB | dB | Dist Table | Corr dBµV | Spec dBµV | Margin dB | Polar Ant |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 893.900M | 114.5 | +14.2 | +6.1 | | | +0.0 | 134.8 | 141.0 Carrier | -6.2 | RF Ou |
| 2 | 1787.798M | 51.1 | +14.3 | +6.0 | | | +0.0 | 71.4 | 94.0 | -22.6 | RF Ou |
| 3 | 2681.698M | 41.6 | +14.3 | +6.0 | | | +0.0 | 61.9 | 94.0 | -32.1 | RF Ou |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4 | 5363.398M | 40.3 | +13.6 | +6.2 | +0.0 | 60.1 | 94.0 | -33.9 | RF Ou |
| 5 | 4469.498M | 39.5 | +14.2 | +6.1 | +0.0 | 59.8 | 94.0 | -34.2 | RF Ou |
| 6 | 3575.598M | 39.4 | +14.2 | +6.0 | +0.0 | 59.6 | 94.0 | -34.4 | RF Ou |
| 7 | 6257.298M | 39.3 | +13.3 | +6.3 | +0.0 | 58.9 | 94.0 | -35.1 | RF Ou |



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

| | | | |
|---|---|---|---|
| Customer: | **Powerwave** | | |
| Specification: | **FCC 22.917** | | |
| Work Order #: | **83357** | Date: | 03/08/2005 |
| Test Type: | **Antenna Terminals Conducted Emissions** | Time: | 11:43:13 |
| Equipment: | **Remote Radio Head** | Sequence#: | 21 |
| Manufacturer: | Powerwave Technologies | Tested By: | Randal Clark |
| Model: | RH340000/100 | | 120V 60Hz |
| S/N: | 42129 | | |

***Test Equipment*:**

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|---|---|---|---|---|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Cable, Andrews Hardline | NA | 06/04/2003 | 06/04/2005 | P00740 |
| Attenuator 14dB, JFW 50FHC-014-20 | | 05/09/2003 | 05/09/2005 | P01623 |
| Attenuator PE7004-6 | | 09/29/2004 | 09/29/2006 | P02226 |

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

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| Remote Radio Head* | Powerwave Technologies | RH340000/100 | 42129 |

***Support Devices:***

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| RF to Fiber Module | Powerwave Technologies | Optical Converter | 42101 |
| Pre-amplifier | Mini-Circuits | ZHL-1042J | H0327965-021 |
| Power Sensor | HP | 8481A | US37297854 |
| Power Meter | Agilent | E4419B | GB40202125 |
| Signal Generator | Agilent | E4433B | US40052296 |

***Test Conditions / Notes:***

EUT is a dual band remote radio head with multichannel capability and may otherwise be classified as a repeater/extender. EUT operates on 869-894 MHz and 1930-1990 MHz. Support equipment is used to convert RF from signal generator to fiber for input to the EUT. Power output is monitored using customer support equipment. EUT does not demodulate the input signal. Frequency Range Investigated: 30MHz - 20GHz. Temperature: 28ºC, Relative Humidity: 53%. Radio Standard: CDMA. Test Frequency: Low Channel. **No EUT emissions detected within 20dB of the limit above 1GHz.**

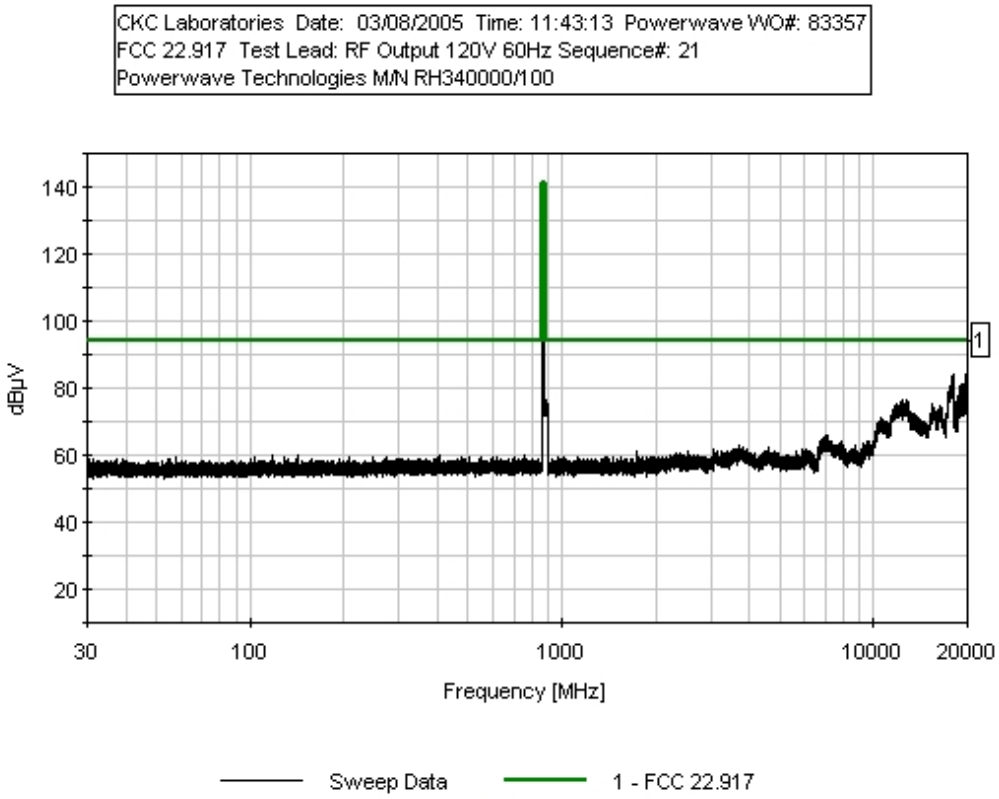
***Transducer Legend:***

| | |
|---|---|
| T1=Pad 14dB AN P01623 | T2=6dB P02226 Attenuator |

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

| # | Freq MHz | Rdng dBµV | T1 dB | T2 dB | dB | dB | Dist Table | Corr dBµV | Spec dBµV | Margin dB | Polar Ant |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 869.000M Ave | 68.8 | +14.2 | +6.1 | | | +0.0 | 89.1 | 94.0 | -4.9 | RF Ou |
| 2 | 870.250M | 113.5 | +14.2 | +6.1 | | | +0.0 | 133.8 | 141.0 Carrier | -7.2 | RF Ou |
| 3 | 1740.570M | 43.9 | +14.3 | +6.0 | | | +0.0 | 64.2 | 94.0 | -29.8 | RF Ou |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4 | 3480.430M | 40.4 | +14.1 | +6.1 | +0.0 | 60.6 | 94.0 | -33.4 | RF Ou |
| 5 | 2610.500M | 38.0 | +14.2 | +6.0 | +0.0 | 58.2 | 94.0 | -35.8 | RF Ou |
| 6 | 4350.360M | 37.7 | +14.0 | +6.1 | +0.0 | 57.8 | 94.0 | -36.2 | RF Ou |
| 7 | 6090.220M | 38.0 | +13.3 | +6.4 | +0.0 | 57.7 | 94.0 | -36.3 | RF Ou |
| 8 | 5220.290M | 36.8 | +13.9 | +6.2 | +0.0 | 56.9 | 94.0 | -37.1 | RF Ou |



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

| | | | |
|---|---|---|---|
| Customer: | **Powerwave** | | |
| Specification: | **FCC 22.917** | | |
| Work Order #: | **83357** | Date: | 03/08/2005 |
| Test Type: | **Antenna Terminals Conducted Emissions** | Time: | 11:22:28 |
| Equipment: | **Remote Radio Head** | Sequence#: | 19 |
| Manufacturer: | Powerwave Technologies | Tested By: | Randal Clark |
| Model: | RH340000/100 | | 120V 60Hz |
| S/N: | 42129 | | |

***Test Equipment*:**

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|---|---|---|---|---|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Cable, Andrews Hardline | NA | 06/04/2003 | 06/04/2005 | P00740 |
| Attenuator 14dB, JFW 50FHC-014-20 | | 05/09/2003 | 05/09/2005 | P01623 |
| Attenuator PE7004-6 | | 09/29/2004 | 09/29/2006 | P02226 |

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

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| Remote Radio Head* | Powerwave Technologies | RH340000/100 | 42129 |

***Support Devices:***

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| RF to Fiber Module | Powerwave Technologies | Optical Converter | 42101 |
| Pre-amplifier | Mini-Circuits | ZHL-1042J | H0327965-021 |
| Power Sensor | HP | 8481A | US37297854 |
| Power Meter | Agilent | E4419B | GB40202125 |
| Signal Generator | Agilent | E4433B | US40052296 |

***Test Conditions / Notes:***

EUT is a dual band remote radio head with multichannel capability and may otherwise be classified as a repeater/extender. EUT operates on 869-894 MHz and 1930-1990 MHz. Support equipment is used to convert RF from signal generator to fiber for input to the EUT. Power output is monitored using customer support equipment. EUT does not demodulate the input signal. Frequency Range Investigated: 30MHz - 20GHz. Temperature: 28ºC, Relative Humidity: 53%. Radio Standard: CDMA. Test Frequency: Mid Channel. **No EUT emissions detected within 20dB of the limit.**

***Transducer Legend:***

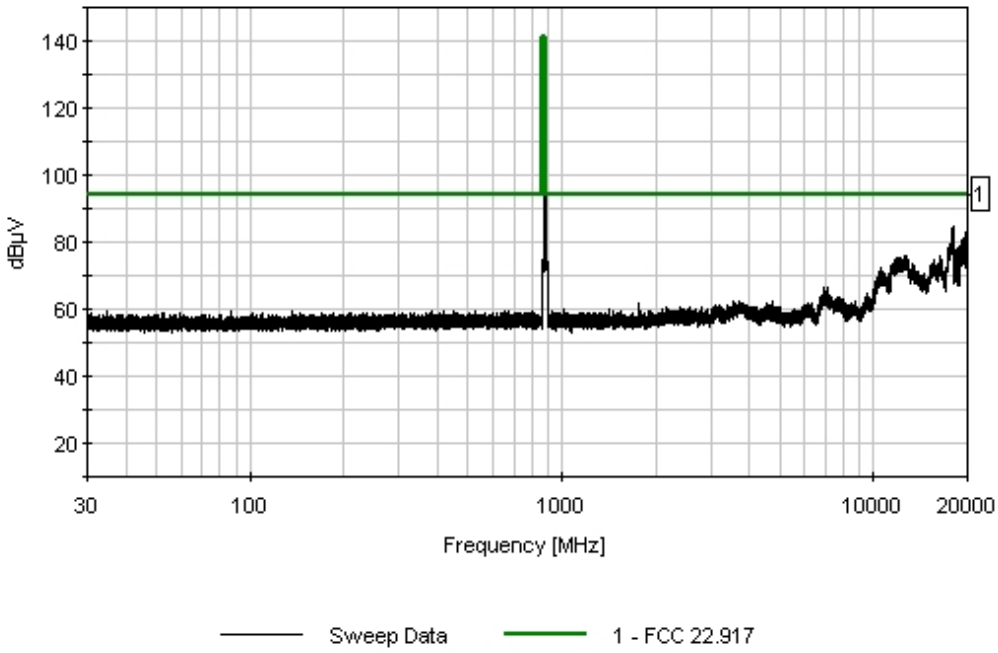
| | |
|---|---|
| T1=Pad 14dB AN P01623 | T2=6dB P02226 Attenuator |

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

| # | Freq MHz | Rdng dBµV | T1 dB | T2 dB | dB | dB | Dist Table | Corr dBµV | Spec dBµV | Margin dB | Polar Ant |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 881.500M | 113.0 | +14.2 | +6.1 | | | +0.0 | 133.3 | 141.0 Carrier | -7.7 | RF Ou |
| 2 | 1763.000M | 44.3 | +14.3 | +6.0 | | | +0.0 | 64.6 | 94.0 | -29.4 | RF Ou |
| 3 | 2644.500M | 38.9 | +14.2 | +6.0 | | | +0.0 | 59.1 | 94.0 | -34.9 | RF Ou |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4 | 4407.500M | 38.2 | +14.0 | +6.1 | +0.0 | 58.3 | 94.0 | -35.7 | RF Ou |
| 5 | 3526.000M | 38.0 | +14.2 | +6.1 | +0.0 | 58.3 | 94.0 | -35.7 | RF Ou |
| 6 | 5289.000M | 38.0 | +13.8 | +6.2 | +0.0 | 58.0 | 94.0 | -36.0 | RF Ou |
| 7 | 6170.500M | 37.5 | +13.3 | +6.4 | +0.0 | 57.2 | 94.0 | -36.8 | RF Ou |

CKC Laboratories Date: 03/08/2005 Time: 11:22:28 Powerwave WO#: 83357
FCC 22.917 Test Lead: RF Output 120V 60Hz Sequence#: 19
Powerwave Technologies M/N RH340000/100



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

| | | | |
|---|---|---|---|
| Customer: | **Powerwave** | | |
| Specification: | **FCC 22.917** | | |
| Work Order #: | **83357** | Date: | 03/08/2005 |
| Test Type: | **Antenna Terminals Conducted Emissions** | Time: | 11:34:07 |
| Equipment: | **Remote Radio Head** | Sequence#: | 20 |
| Manufacturer: | Powerwave Technologies | Tested By: | Randal Clark |
| Model: | RH340000/100 | | 120V 60Hz |
| S/N: | 42129 | | |

***Test Equipment*:**

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|---|---|---|---|---|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Cable, Andrews Hardline | NA | 06/04/2003 | 06/04/2005 | P00740 |
| Attenuator 14dB, JFW 50FHC-014-20 | | 05/09/2003 | 05/09/2005 | P01623 |
| Attenuator PE7004-6 | | 09/29/2004 | 09/29/2006 | P02226 |

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

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| Remote Radio Head* | Powerwave Technologies | RH340000/100 | 42129 |

***Support Devices:***

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| RF to Fiber Module | Powerwave Technologies | Optical Converter | 42101 |
| Pre-amplifier | Mini-Circuits | ZHL-1042J | H0327965-021 |
| Power Sensor | HP | 8481A | US37297854 |
| Power Meter | Agilent | E4419B | GB40202125 |
| Signal Generator | Agilent | E4433B | US40052296 |

***Test Conditions / Notes:***

EUT is a dual band remote radio head with multichannel capability and may otherwise be classified as a repeater/extender. EUT operates on 869-894 MHz and 1930-1990 MHz. Support equipment is used to convert RF from signal generator to fiber for input to the EUT. Power output is monitored using customer support equipment. EUT does not demodulate the input signal. Frequency Range Investigated: 30MHz - 20GHz. Temperature: 28ºC, Relative Humidity: 53%. Radio Standard: CDMA. Test Frequency: High Channel. **No EUT emissions detected within 20dB of the limit above 1GHz.**

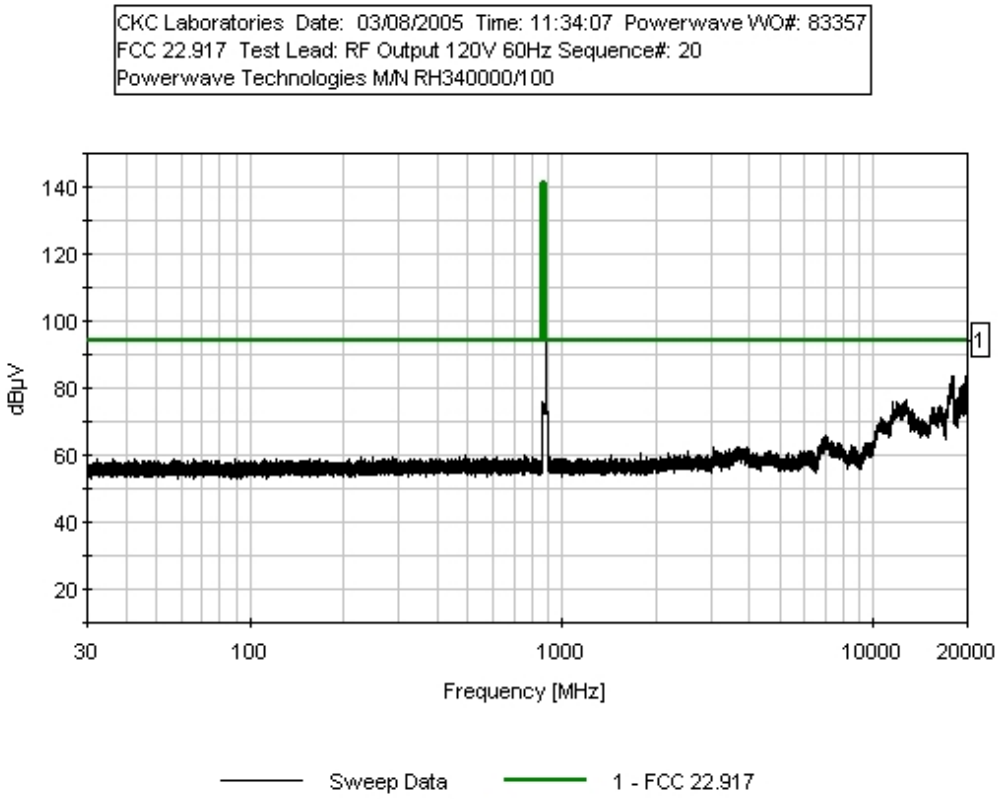
***Transducer Legend:***

| | |
|---|---|
| T1=Pad 14dB AN P01623 | T2=6dB P02226 Attenuator |

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

| # | Freq MHz | Rdng dBµV | T1 dB | T2 dB | dB | dB | Dist Table | Corr dBµV | Spec dBµV | Margin dB | Polar Ant |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 894.000M Ave | 68.1 | +14.2 | +6.1 | | | +0.0 | 88.4 | 94.0 | -5.6 | RF Ou |
| 2 | 892.750M | 113.1 | +14.2 | +6.1 | | | +0.0 | 133.4 | 141.0 Carrier | -7.6 | RF Ou |
| 3 | 1785.680M | 43.8 | +14.3 | +6.0 | | | +0.0 | 64.1 | 94.0 | -29.9 | RF Ou |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4 | 3572.280M | 39.6 | +14.2 | +6.0 | +0.0 | 59.8 | 94.0 | -34.2 | RF Ou |
| 5 | 6252.180M | 40.0 | +13.3 | +6.3 | +0.0 | 59.6 | 94.0 | -34.4 | RF Ou |
| 6 | 2678.980M | 38.3 | +14.3 | +6.0 | +0.0 | 58.6 | 94.0 | -35.4 | RF Ou |
| 7 | 4465.580M | 37.9 | +14.2 | +6.1 | +0.0 | 58.2 | 94.0 | -35.8 | RF Ou |
| 8 | 5358.880M | 37.3 | +13.6 | +6.2 | +0.0 | 57.1 | 94.0 | -36.9 | RF Ou |



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

| | | | |
|---|---|---|---|
| Customer: | **Powerwave** | | |
| Specification: | **FCC 22.917** | | |
| Work Order #: | **83357** | Date: | 03/08/2005 |
| Test Type: | **Antenna Terminals Conducted Emissions** | Time: | 09:38:42 |
| Equipment: | **Remote Radio Head** | Sequence#: | 9 |
| Manufacturer: | Powerwave Technologies | Tested By: | Randal Clark |
| Model: | RH340000/100 | | 120V 60Hz |
| S/N: | 42129 | | |

***Test Equipment*:**

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|---|---|---|---|---|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Cable, Andrews Hardline | NA | 06/04/2003 | 06/04/2005 | P00740 |
| Attenuator 14dB, JFW 50FHC-014-20 | | 05/09/2003 | 05/09/2005 | P01623 |
| Attenuator PE7004-6 | | 09/29/2004 | 09/29/2006 | P02226 |

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

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| Remote Radio Head* | Powerwave Technologies | RH340000/100 | 42129 |

***Support Devices:***

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| RF to Fiber Module | Powerwave Technologies | Optical Converter | 42101 |
| Pre-amplifier | Mini-Circuits | ZHL-1042J | H0327965-021 |
| Power Sensor | HP | 8481A | US37297854 |
| Power Meter | Agilent | E4419B | GB40202125 |
| Signal Generator | Agilent | E4433B | US40052296 |

***Test Conditions / Notes:***

EUT is a dual band remote radio head with multichannel capability and may otherwise be classified as a repeater/extender. EUT operates on 869-894 MHz and 1930-1990 MHz. Support equipment is used to convert RF from signal generator to fiber for input to the EUT. Power output is monitored using customer support equipment. EUT does not demodulate the input signal. Frequency Range Investigated: 30MHz - 20GHz. Temperature: 28ºC, Relative Humidity: 53%. Radio Standard: EDGE. Test Frequency: Low Channel. **No EUT emissions detected within 20dB of the limit.**

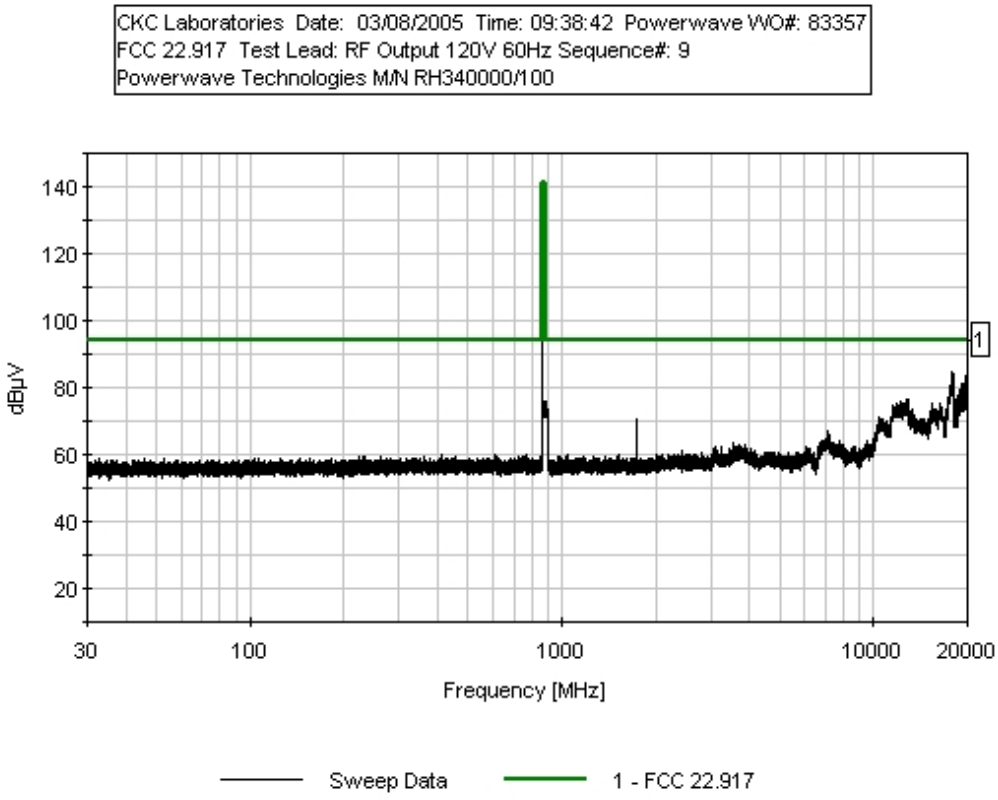
***Transducer Legend:***

| | |
|---|---|
| T1=Pad 14dB AN P01623 | T2=6dB P02226 Attenuator |

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

| # | Freq MHz | Rdng dBµV | T1 dB | T2 dB | dB | dB | Dist Table | Corr dBµV | Spec dBµV | Margin dB | Polar Ant |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 869.500M | 121.0 | +14.2 | +6.1 | | | +0.0 | 141.3 | 141.3 Carrier | +0.0 | RF Ou |
| 2 | 1739.011M | 52.7 | +14.3 | +6.0 | | | +0.0 | 73.0 | 94.0 | -21.0 | RF Ou |
| 3 | 2608.511M | 42.9 | +14.2 | +6.0 | | | +0.0 | 63.1 | 94.0 | -30.9 | RF Ou |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4 | 3478.011M | 39.8 | +14.1 | +6.1 | +0.0 | 60.0 | 94.0 | -34.0 | RF Ou |
| 5 | 5217.011M | 39.4 | +14.0 | +6.2 | +0.0 | 59.6 | 94.0 | -34.4 | RF Ou |
| 6 | 6086.511M | 39.8 | +13.3 | +6.4 | +0.0 | 59.5 | 94.0 | -34.5 | RF Ou |
| 7 | 4347.511M | 37.5 | +14.0 | +6.1 | +0.0 | 57.6 | 94.0 | -36.4 | RF Ou |



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

| | | | |
|---|---|---|---|
| Customer: | **Powerwave** | | |
| Specification: | **FCC 22.917** | | |
| Work Order #: | **83357** | Date: | 03/08/2005 |
| Test Type: | **Antenna Terminals Conducted Emissions** | Time: | 09:32:40 |
| Equipment: | **Remote Radio Head** | Sequence#: | 8 |
| Manufacturer: | Powerwave Technologies | Tested By: | Randal Clark |
| Model: | RH340000/100 | | 120V 60Hz |
| S/N: | 42129 | | |

***Test Equipment*:**

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|---|---|---|---|---|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Cable, Andrews Hardline | NA | 06/04/2003 | 06/04/2005 | P00740 |
| Attenuator 14dB, JFW 50FHC-014-20 | | 05/09/2003 | 05/09/2005 | P01623 |
| Attenuator PE7004-6 | | 09/29/2004 | 09/29/2006 | P02226 |

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

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| Remote Radio Head* | Powerwave Technologies | RH340000/100 | 42129 |

***Support Devices:***

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| RF to Fiber Module | Powerwave Technologies | Optical Converter | 42101 |
| Pre-amplifier | Mini-Circuits | ZHL-1042J | H0327965-021 |
| Power Sensor | HP | 8481A | US37297854 |
| Power Meter | Agilent | E4419B | GB40202125 |
| Signal Generator | Agilent | E4433B | US40052296 |

***Test Conditions / Notes:***

EUT is a dual band remote radio head with multichannel capability and may otherwise be classified as a repeater/extender. EUT operates on 869-894 MHz and 1930-1990 MHz. Support equipment is used to convert RF from signal generator to fiber for input to the EUT. Power output is monitored using customer support equipment. EUT does not demodulate the input signal. Frequency Range Investigated: 30MHz - 20GHz. Temperature: 28ºC, Relative Humidity: 53%. Radio Standard: EDGE. Test Frequency: Mid Channel. **No EUT emissions detected within 20dB of the limit.**

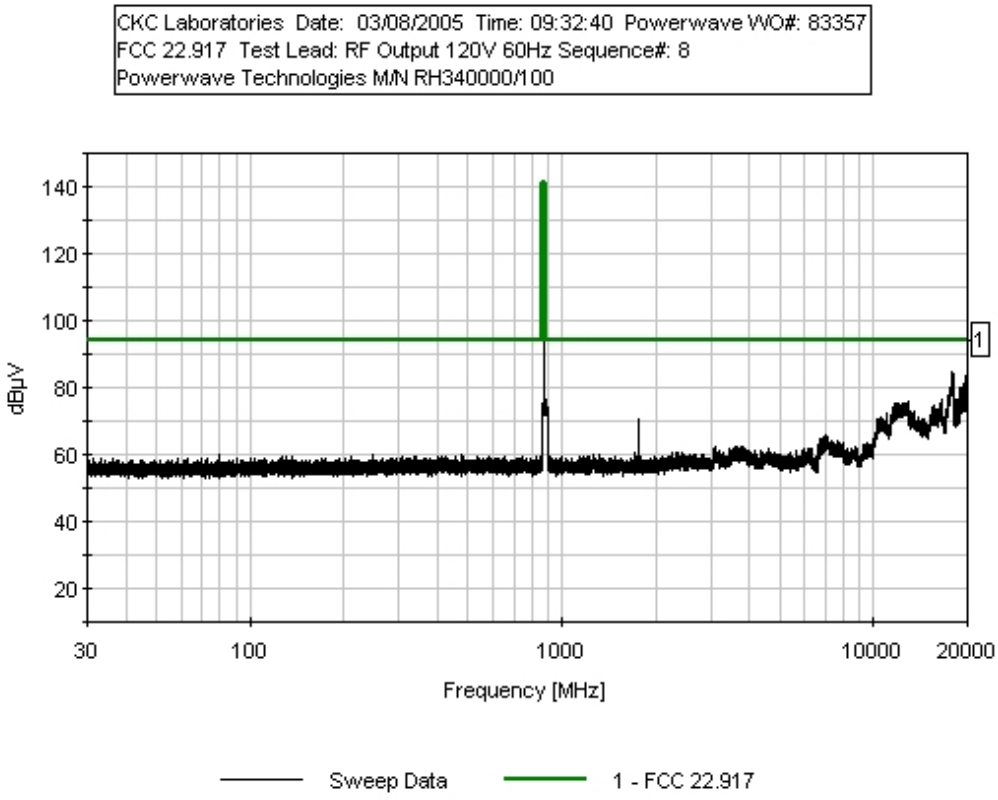
***Transducer Legend:***

| | |
|---|---|
| T1=Pad 14dB AN P01623 | T2=6dB P02226 Attenuator |

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

| # | Freq MHz | Rdng dBµV | T1 dB | T2 dB | dB | dB | Dist Table | Corr dBµV | Spec dBµV | Margin dB | Polar Ant |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 881.500M | 121.5 | +14.2 | +6.1 | | | +0.0 | 141.8 | 141.8 Carrier | +0.0 | RF Ou |
| 2 | 1762.990M | 52.4 | +14.3 | +6.0 | | | +0.0 | 72.7 | 94.0 | -21.3 | RF Ou |
| 3 | 2644.508M | 39.2 | +14.2 | +6.0 | | | +0.0 | 59.4 | 94.0 | -34.6 | RF Ou |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4 | 4407.508M | 39.1 | +14.0 | +6.1 | +0.0 | 59.2 | 94.0 | -34.8 | RF Ou |
| 5 | 6170.508M | 38.7 | +13.3 | +6.4 | +0.0 | 58.4 | 94.0 | -35.6 | RF Ou |
| 6 | 3526.008M | 38.0 | +14.2 | +6.1 | +0.0 | 58.3 | 94.0 | -35.7 | RF Ou |
| 7 | 5289.008M | 37.5 | +13.8 | +6.2 | +0.0 | 57.5 | 94.0 | -36.5 | RF Ou |



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

| | | | |
|---|---|---|---|
| Customer: | **Powerwave** | | |
| Specification: | **FCC 22.917** | | |
| Work Order #: | **83357** | Date: | 03/08/2005 |
| Test Type: | **Antenna Terminals Conducted Emissions** | Time: | 09:28:11 |
| Equipment: | **Remote Radio Head** | Sequence#: | 7 |
| Manufacturer: | Powerwave Technologies | Tested By: | Randal Clark |
| Model: | RH340000/100 | | 120V 60Hz |
| S/N: | 42129 | | |

***Test Equipment*:**

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|---|---|---|---|---|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Cable, Andrews Hardline | NA | 06/04/2003 | 06/04/2005 | P00740 |
| Attenuator 14dB, JFW 50FHC-014-20 | | 05/09/2003 | 05/09/2005 | P01623 |
| Attenuator PE7004-6 | | 09/29/2004 | 09/29/2006 | P02226 |

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

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| Remote Radio Head* | Powerwave Technologies | RH340000/100 | 42129 |

***Support Devices:***

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| RF to Fiber Module | Powerwave Technologies | Optical Converter | 42101 |
| Pre-amplifier | Mini-Circuits | ZHL-1042J | H0327965-021 |
| Power Sensor | HP | 8481A | US37297854 |
| Power Meter | Agilent | E4419B | GB40202125 |
| Signal Generator | Agilent | E4433B | US40052296 |

***Test Conditions / Notes:***

EUT is a dual band remote radio head with multichannel capability and may otherwise be classified as a repeater/extender. EUT operates on 869-894 MHz and 1930-1990 MHz. Support equipment is used to convert RF from signal generator to fiber for input to the EUT. Power output is monitored using customer support equipment. EUT does not demodulate the input signal. Frequency Range Investigated: 30MHz - 20GHz. Temperature: 28ºC, Relative Humidity: 53%. Radio Standard: EDGE. Test Frequency: High Channel. **No EUT emissions detected within 20dB of the limit.**

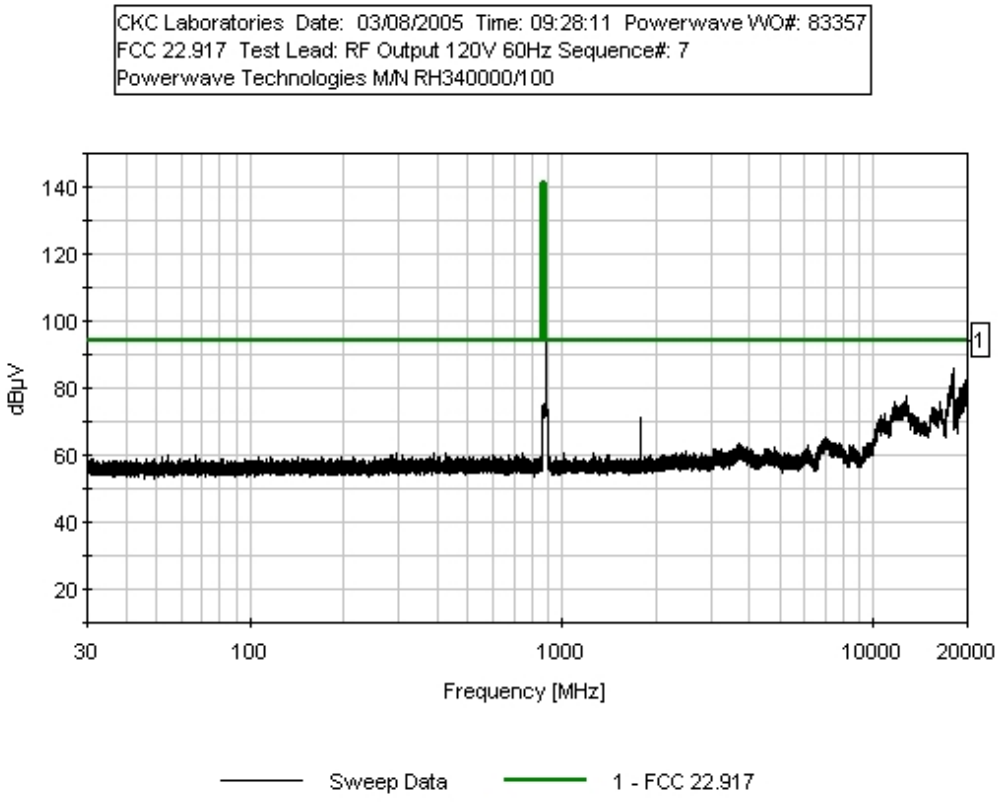
***Transducer Legend:***

| | |
|---|---|
| T1=Pad 14dB AN P01623 | T2=6dB P02226 Attenuator |

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

| # | Freq MHz | Rdng dBµV | T1 dB | T2 dB | dB | dB | Dist Table | Corr dBµV | Spec dBµV | Margin dB | Polar Ant |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 893.500M | 120.0 | +14.2 | +6.1 | | | +0.0 | 140.3 | 141.0 Carrier | -0.7 | RF Ou |
| 2 | 1787.024M | 47.9 | +14.3 | +6.0 | | | +0.0 | 68.2 | 94.0 | -25.8 | RF Ou |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3 | 10722.140 M | 32.4 | +22.6 | +6.2 | +0.0 | 61.2 | 94.0 | -32.8 | RF Ou |
| 4 | 8935.120M | 34.9 | +12.3 | +6.2 | +0.0 | 53.4 | 94.0 | -40.6 | RF Ou |
| 5 | 3574.048M | 32.7 | +14.2 | +6.0 | +0.0 | 52.9 | 94.0 | -41.1 | RF Ou |
| 6 | 5361.072M | 31.4 | +13.6 | +6.2 | +0.0 | 51.2 | 94.0 | -42.8 | RF Ou |



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

| | | | |
|---|---|---|---|
| Customer: | **Powerwave** | | |
| Specification: | **FCC 22.917** | | |
| Work Order #: | **83357** | Date: | 03/07/2005 |
| Test Type: | **Antenna Terminals Conducted Emissions** | Time: | 16:48:46 |
| Equipment: | **Remote Radio Head** | Sequence#: | 4 |
| Manufacturer: | Powerwave Technologies | Tested By: | Randal Clark |
| Model: | RH340000/100 | | 120V 60Hz |
| S/N: | 42129 | | |

***Test Equipment*:**

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|---|---|---|---|---|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Cable, Andrews Hardline | NA | 06/04/2003 | 06/04/2005 | P00740 |
| Attenuator 14dB, JFW 50FHC-014-20 | | 05/09/2003 | 05/09/2005 | P01623 |
| Attenuator PE7004-6 | | 09/29/2004 | 09/29/2006 | P02226 |

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

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| Remote Radio Head* | Powerwave Technologies | RH340000/100 | 42129 |

***Support Devices:***

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| RF to Fiber Module | Powerwave Technologies | Optical Converter | 42101 |
| Pre-amplifier | Mini-Circuits | ZHL-1042J | H0327965-021 |
| Power Sensor | HP | 8481A | US37297854 |
| Power Meter | Agilent | E4419B | GB40202125 |
| Signal Generator | Agilent | E4433B | US40052296 |

***Test Conditions / Notes:***

EUT is a dual band remote radio head with multichannel capability and may otherwise be classified as a repeater/extender. EUT operates on 869-894 MHz and 1930-1990 MHz. Support equipment is used to convert RF from signal generator to fiber for input to the EUT. Power output is monitored using customer support equipment. EUT does not demodulate the input signal. Frequency Range Investigated: 30MHz - 20GHz. Temperature: 28ºC, Relative Humidity: 53%. Radio Standard: GSM. Test Frequency: Low Channel. **No EUT emissions detected within 20dB of the limit.**

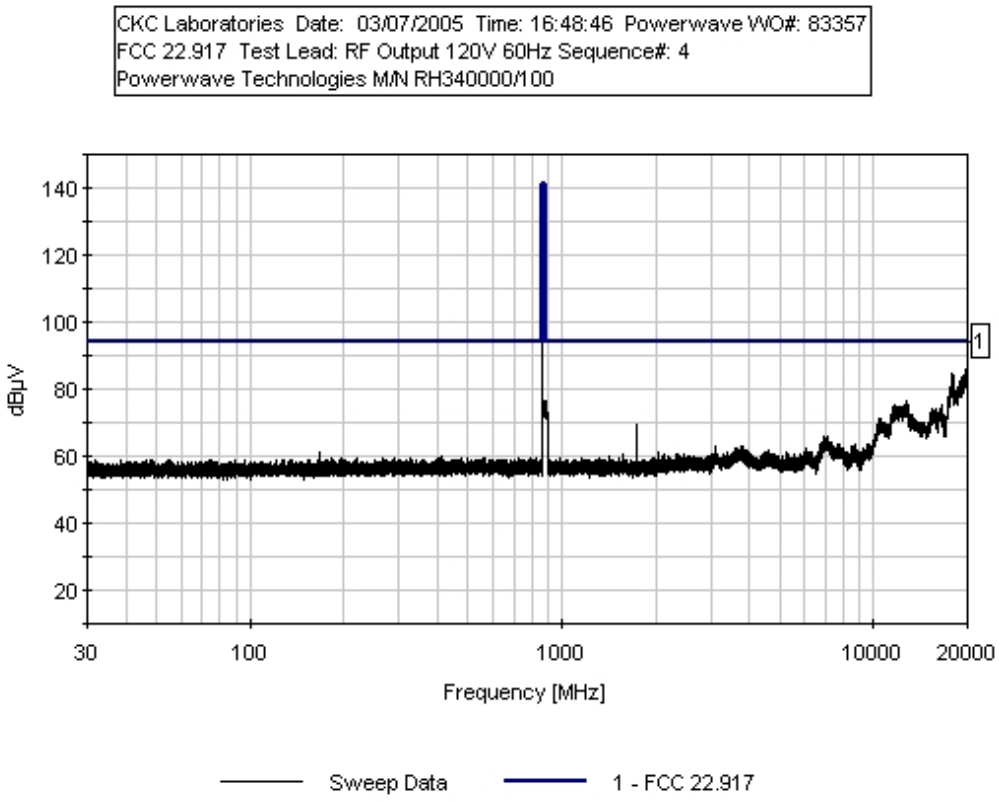
***Transducer Legend:***

| | |
|---|---|
| T1=6dB P02226 Attenuator | T2=Pad 14dB AN P01623 |

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

| # | Freq MHz | Rdng dBµV | T1 dB | T2 dB | dB | dB | Dist Table | Corr dBµV | Spec dBµV | Margin dB | Polar Ant |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 869.500M | 120.6 | +6.1 | +14.2 | | | +0.0 | 140.9 | 141.0 Carrier | -0.1 | RF Ou |
| 2 | 19925.940M | 47.0 | +0.0 | +41.4 | | | +0.0 | 88.4 | 94.0 | -5.6 | RF Ou |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3 | 17317.680M | 46.8 | +6.0 | +24.5 | +0.0 | 77.3 | 94.0 | -16.7 | RF Ou |
| 4 | 15282.980M | 47.8 | +5.9 | +20.1 | +0.0 | 73.8 | 94.0 | -20.2 | RF Ou |
| 5 | 13397.530M | 47.2 | +6.0 | +19.3 | +0.0 | 72.5 | 94.0 | -21.5 | RF Ou |
| 6 | 1739.128M | 51.0 | +6.0 | +14.3 | +0.0 | 71.3 | 94.0 | -22.7 | RF Ou |
| 7 | 13476.080M | 46.5 | +6.1 | +18.5 | +0.0 | 71.1 | 94.0 | -22.9 | RF Ou |
| 8 | 13600.330M | 46.9 | +6.2 | +17.9 | +0.0 | 71.0 | 94.0 | -23.0 | RF Ou |
| 9 | 13740.120M | 47.1 | +6.2 | +17.3 | +0.0 | 70.6 | 94.0 | -23.4 | RF Ou |
| 10 | 14185.380M | 47.2 | +6.1 | +16.9 | +0.0 | 70.2 | 94.0 | -23.8 | RF Ou |
| 11 | 13905.800M | 47.4 | +6.2 | +16.6 | +0.0 | 70.2 | 94.0 | -23.8 | RF Ou |
| 12 | 13967.930M | 47.5 | +6.2 | +16.3 | +0.0 | 70.0 | 94.0 | -24.0 | RF Ou |
| 13 | 14133.600M | 47.1 | +6.1 | +16.7 | +0.0 | 69.9 | 94.0 | -24.1 | RF Ou |
| 14 | 14045.590M | 46.9 | +6.2 | +16.4 | +0.0 | 69.5 | 94.0 | -24.5 | RF Ou |
| 15 | 6892.960M | 46.2 | +6.1 | +13.5 | +0.0 | 65.8 | 94.0 | -28.2 | RF Ou |
| 16 | 6902.722M | 46.0 | +6.1 | +13.5 | +0.0 | 65.6 | 94.0 | -28.4 | RF Ou |
| 17 | 7084.860M | 46.2 | +6.2 | +13.2 | +0.0 | 65.6 | 94.0 | -28.4 | RF Ou |
| 18 | 6973.000M | 46.0 | +6.1 | +13.4 | +0.0 | 65.5 | 94.0 | -28.5 | RF Ou |
| 19 | 2608.728M | 42.8 | +6.0 | +14.2 | +0.0 | 63.0 | 94.0 | -31.0 | RF Ou |
| 20 | 873.549M | 56.3 | +6.1 | +14.2 | +0.0 | 76.6 | 141.0 | -64.4 | RF Ou |
| 21 | 884.819M | 56.1 | +6.1 | +14.2 | +0.0 | 76.4 | 141.0 | -64.6 | RF Ou |


CKC Laboratories Date: 03/07/2005 Time: 16:48:46 Powerwave WO#: 83357
FCC 22.917 Test Lead: RF Output 120V 60Hz Sequence#: 4
Powerwave Technologies M/N RH340000/100
140
120
100
80
60
40
20
dBµV
1
30
100
1000
10000
20000
Frequency [MHz]
Sweep Data
1 - FCC 22.917

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

| | | | |
|---|---|---|---|
| Customer: | **Powerwave** | | |
| Specification: | **FCC 22.917** | | |
| Work Order #: | **83357** | Date: | 03/08/2005 |
| Test Type: | **Antenna Terminals Conducted Emissions** | Time: | 09:04:01 |
| Equipment: | **Remote Radio Head** | Sequence#: | 5 |
| Manufacturer: | Powerwave Technologies | Tested By: | Randal Clark |
| Model: | RH340000/100 | | 120V 60Hz |
| S/N: | 42129 | | |

***Test Equipment*:**

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|---|---|---|---|---|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Cable, Andrews Hardline | NA | 06/04/2003 | 06/04/2005 | P00740 |
| Attenuator 14dB, JFW 50FHC-014-20 | | 05/09/2003 | 05/09/2005 | P01623 |
| Attenuator PE7004-6 | | 09/29/2004 | 09/29/2006 | P02226 |

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

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| Remote Radio Head* | Powerwave Technologies | RH340000/100 | 42129 |

***Support Devices:***

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| RF to Fiber Module | Powerwave Technologies | Optical Converter | 42101 |
| Pre-amplifier | Mini-Circuits | ZHL-1042J | H0327965-021 |
| Power Sensor | HP | 8481A | US37297854 |
| Power Meter | Agilent | E4419B | GB40202125 |
| Signal Generator | Agilent | E4433B | US40052296 |

***Test Conditions / Notes:***

EUT is a dual band remote radio head with multichannel capability and may otherwise be classified as a repeater/extender. EUT operates on 869-894 MHz and 1930-1990 MHz. Support equipment is used to convert RF from signal generator to fiber for input to the EUT. Power output is monitored using customer support equipment. EUT does not demodulate the input signal. Frequency Range Investigated: 30MHz - 20GHz. Temperature: 28ºC, Relative Humidity: 53%. Radio Standard: GSM. Test Frequency: Mid Channel. **No EUT emissions detected within 20dB of the limit.**

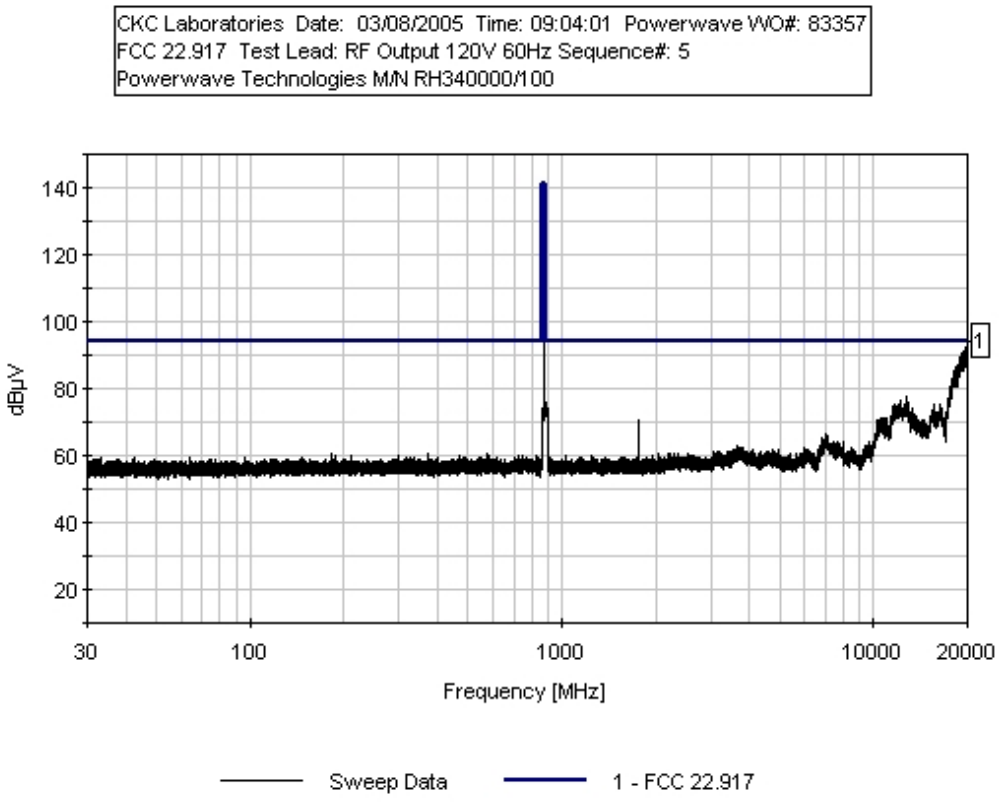
***Transducer Legend:***

| | |
|---|---|
| T1=Pad 14dB AN P01623 | T2=6dB P02226 Attenuator |

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

| # | Freq MHz | Rdng dBµV | T1 dB | T2 dB | dB | dB | Dist Table | Corr dBµV | Spec dBµV | Margin dB | Polar Ant |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 881.500M | 120.4 | +14.2 | +6.1 | | | +0.0 | 140.7 | 141.0 Carrier | -0.3 | RF Ou |
| 2 | 18808.000M | 45.8 | +37.5 | +6.3 | | | +0.0 | 89.6 | 94.0 | -4.4 | RF Ou |
| 3 | 17986.430M | 43.0 | +34.6 | +6.3 | | | +0.0 | 83.9 | 94.0 | -10.1 | RF Ou |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4 | 17968.330M | 42.7 | +34.4 | +6.3 | +0.0 | 83.4 | 94.0 | -10.6 | RF Ou |
| 5 | 17909.520M | 43.3 | +33.5 | +6.3 | +0.0 | 83.1 | 94.0 | -10.9 | RF Ou |
| 6 | 17923.090M | 42.9 | +33.7 | +6.3 | +0.0 | 82.9 | 94.0 | -11.1 | RF Ou |
| 7 | 18000.000M | 41.8 | +34.8 | +6.3 | +0.0 | 82.9 | 94.0 | -11.1 | RF Ou |
| 8 | 17859.760M | 43.2 | +32.9 | +6.3 | +0.0 | 82.4 | 94.0 | -11.6 | RF Ou |
| 9 | 17850.710M | 43.2 | +32.7 | +6.3 | +0.0 | 82.2 | 94.0 | -11.8 | RF Ou |
| 10 | 17810.000M | 43.1 | +32.2 | +6.2 | +0.0 | 81.5 | 94.0 | -12.5 | RF Ou |
| 11 | 1762.874M | 50.9 | +14.3 | +6.0 | +0.0 | 71.2 | 94.0 | -22.8 | RF Ou |



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

| | | | |
|---|---|---|---|
| Customer: | **Powerwave** | | |
| Specification: | **FCC 22.917** | | |
| Work Order #: | **83357** | Date: | 03/08/2005 |
| Test Type: | **Antenna Terminals Conducted Emissions** | Time: | 09:13:56 |
| Equipment: | **Remote Radio Head** | Sequence#: | 6 |
| Manufacturer: | Powerwave Technologies | Tested By: | Randal Clark |
| Model: | RH340000/100 | | 120V 60Hz |
| S/N: | 42129 | | |

***Test Equipment*:**

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|---|---|---|---|---|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Cable, Andrews Hardline | NA | 06/04/2003 | 06/04/2005 | P00740 |
| Attenuator 14dB, JFW 50FHC-014-20 | | 05/09/2003 | 05/09/2005 | P01623 |
| Attenuator PE7004-6 | | 09/29/2004 | 09/29/2006 | P02226 |

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

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| Remote Radio Head* | Powerwave Technologies | RH340000/100 | 42129 |

***Support Devices:***

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| RF to Fiber Module | Powerwave Technologies | Optical Converter | 42101 |
| Pre-amplifier | Mini-Circuits | ZHL-1042J | H0327965-021 |
| Power Sensor | HP | 8481A | US37297854 |
| Power Meter | Agilent | E4419B | GB40202125 |
| Signal Generator | Agilent | E4433B | US40052296 |

***Test Conditions / Notes:***

EUT is a dual band remote radio head with multichannel capability and may otherwise be classified as a repeater/extender. EUT operates on 869-894 MHz and 1930-1990 MHz. Support equipment is used to convert RF from signal generator to fiber for input to the EUT. Power output is monitored using customer support equipment. EUT does not demodulate the input signal. Frequency Range Investigated: 30MHz - 20GHz. Temperature: 28ºC, Relative Humidity: 53%. Radio Standard: GSM. Test Frequency: High Channel. **No EUT emissions detected within 20dB of the limit.**

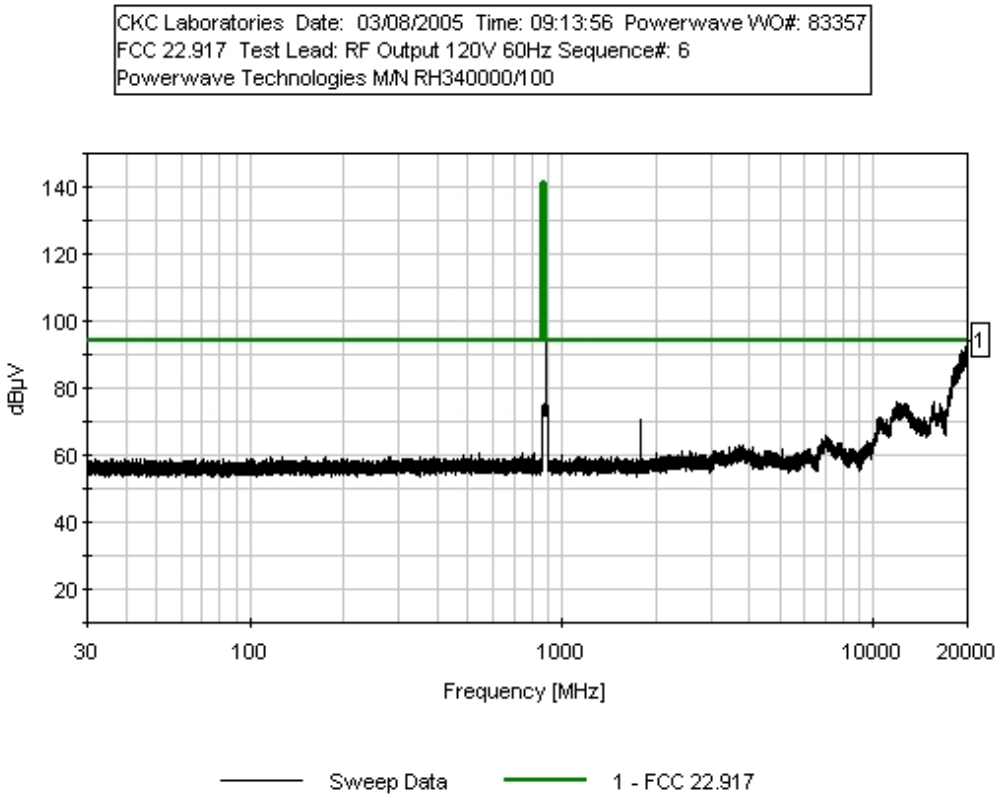
***Transducer Legend:***

| | |
|---|---|
| T1=Pad 14dB AN P01623 | T2=6dB P02226 Attenuator |

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

| # | Freq MHz | Rdng dBµV | T1 dB | T2 dB | dB | dB | Dist Table | Corr dBµV | Spec dBµV | Margin dB | Polar Ant |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 893.500M | 120.8 | +14.2 | +6.1 | | | +0.0 | 141.1 | 141.1 Carrier | +0.0 | RF Ou |
| 2 | 1786.866M | 50.8 | +14.3 | +6.0 | | | +0.0 | 71.1 | 94.0 | -22.9 | RF Ou |
| 3 | 2680.644M | 42.0 | +14.3 | +6.0 | | | +0.0 | 62.3 | 94.0 | -31.7 | RF Ou |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4 | 3574.014M | 40.6 | +14.2 | +6.0 | +0.0 | 60.8 | 94.0 | -33.2 | RF Ou |
| 5 | 4467.514M | 38.4 | +14.2 | +6.1 | +0.0 | 58.7 | 94.0 | -35.3 | RF Ou |
| 6 | 5361.014M | 37.8 | +13.6 | +6.2 | +0.0 | 57.6 | 94.0 | -36.4 | RF Ou |



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

| | | | |
|---|---|---|---|
| Customer: | **Powerwave** | | |
| Specification: | **FCC 22.917** | | |
| Work Order #: | **83357** | Date: | 03/08/2005 |
| Test Type: | **Antenna Terminals Conducted Emissions** | Time: | 09:53:02 |
| Equipment: | **Remote Radio Head** | Sequence#: | 10 |
| Manufacturer: | Powerwave Technologies | Tested By: | Randal Clark |
| Model: | RH340000/100 | | 120V 60Hz |
| S/N: | 42129 | | |

***Test Equipment*:**

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|---|---|---|---|---|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Cable, Andrews Hardline | NA | 06/04/2003 | 06/04/2005 | P00740 |
| Attenuator 14dB, JFW 50FHC-014-20 | | 05/09/2003 | 05/09/2005 | P01623 |
| Attenuator PE7004-6 | | 09/29/2004 | 09/29/2006 | P02226 |

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

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| Remote Radio Head* | Powerwave Technologies | RH340000/100 | 42129 |

***Support Devices:***

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| RF to Fiber Module | Powerwave Technologies | Optical Converter | 42101 |
| Pre-amplifier | Mini-Circuits | ZHL-1042J | H0327965-021 |
| Power Sensor | HP | 8481A | US37297854 |
| Power Meter | Agilent | E4419B | GB40202125 |
| Signal Generator | Agilent | E4433B | US40052296 |

***Test Conditions / Notes:***

EUT is a dual band remote radio head with multichannel capability and may otherwise be classified as a repeater/extender. EUT operates on 869-894 MHz and 1930-1990 MHz. Support equipment is used to convert RF from signal generator to fiber for input to the EUT. Power output is monitored using customer support equipment. EUT does not demodulate the input signal. Frequency Range Investigated: 30MHz - 20GHz. Temperature: 28ºC, Relative Humidity: 53%. Radio Standard: NADC. Test Frequency: Low Channel. **No EUT emissions detected within 20dB of the limit.**

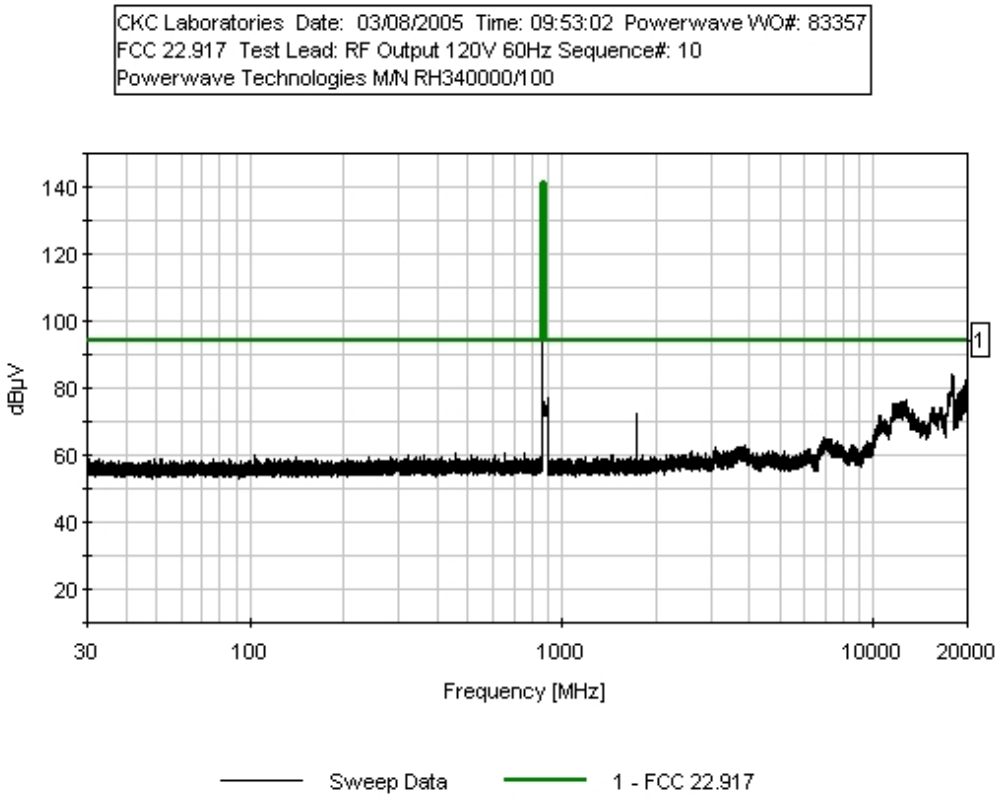
***Transducer Legend:***

| | |
|---|---|
| T1=Pad 14dB AN P01623 | T2=6dB P02226 Attenuator |

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

| # | Freq MHz | Rdng dBµV | T1 dB | T2 dB | dB | dB | Dist Table | Corr dBµV | Spec dBµV | Margin dB | Polar Ant |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 869.100M | 120.7 | +14.2 | +6.1 | | | +0.0 | 141.0 | 141.0 | +0.0 | RF Ou |
| 2 | 1738.195M | 52.6 | +14.3 | +6.0 | | | +0.0 | 72.9 | 94.0 | -21.1 | RF Ou |
| 3 | 2607.295M | 40.6 | +14.2 | +6.0 | | | +0.0 | 60.8 | 94.0 | -33.2 | RF Ou |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4 | 3476.395M | 37.9 | +14.1 | +6.1 | +0.0 | 58.1 | 94.0 | -35.9 | RF Ou |
| 5 | 4345.495M | 37.3 | +14.0 | +6.1 | +0.0 | 57.4 | 94.0 | -36.6 | RF Ou |
| 6 | 5214.595M | 34.8 | +14.0 | +6.2 | +0.0 | 55.0 | 94.0 | -39.0 | RF Ou |



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

| | | | |
|---|---|---|---|
| Customer: | **Powerwave** | | |
| Specification: | **FCC 22.917** | | |
| Work Order #: | **83357** | Date: | 03/08/2005 |
| Test Type: | **Antenna Terminals Conducted Emissions** | Time: | 09:59:29 |
| Equipment: | **Remote Radio Head** | Sequence#: | 11 |
| Manufacturer: | Powerwave Technologies | Tested By: | Randal Clark |
| Model: | RH340000/100 | | 120V 60Hz |
| S/N: | 42129 | | |

***Test Equipment*:**

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|---|---|---|---|---|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Cable, Andrews Hardline | NA | 06/04/2003 | 06/04/2005 | P00740 |
| Attenuator 14dB, JFW 50FHC-014-20 | | 05/09/2003 | 05/09/2005 | P01623 |
| Attenuator PE7004-6 | | 09/29/2004 | 09/29/2006 | P02226 |

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

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| Remote Radio Head* | Powerwave Technologies | RH340000/100 | 42129 |

***Support Devices:***

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| RF to Fiber Module | Powerwave Technologies | Optical Converter | 42101 |
| Pre-amplifier | Mini-Circuits | ZHL-1042J | H0327965-021 |
| Power Sensor | HP | 8481A | US37297854 |
| Power Meter | Agilent | E4419B | GB40202125 |
| Signal Generator | Agilent | E4433B | US40052296 |

***Test Conditions / Notes:***

EUT is a dual band remote radio head with multichannel capability and may otherwise be classified as a repeater/extender. EUT operates on 869-894 MHz and 1930-1990 MHz. Support equipment is used to convert RF from signal generator to fiber for input to the EUT. Power output is monitored using customer support equipment. EUT does not demodulate the input signal. Frequency Range Investigated: 30MHz - 20GHz. Temperature: 28ºC, Relative Humidity: 53%. Radio Standard: NADC. Test Frequency: Mid Channel. **No EUT emissions detected within 20dB of the limit.**

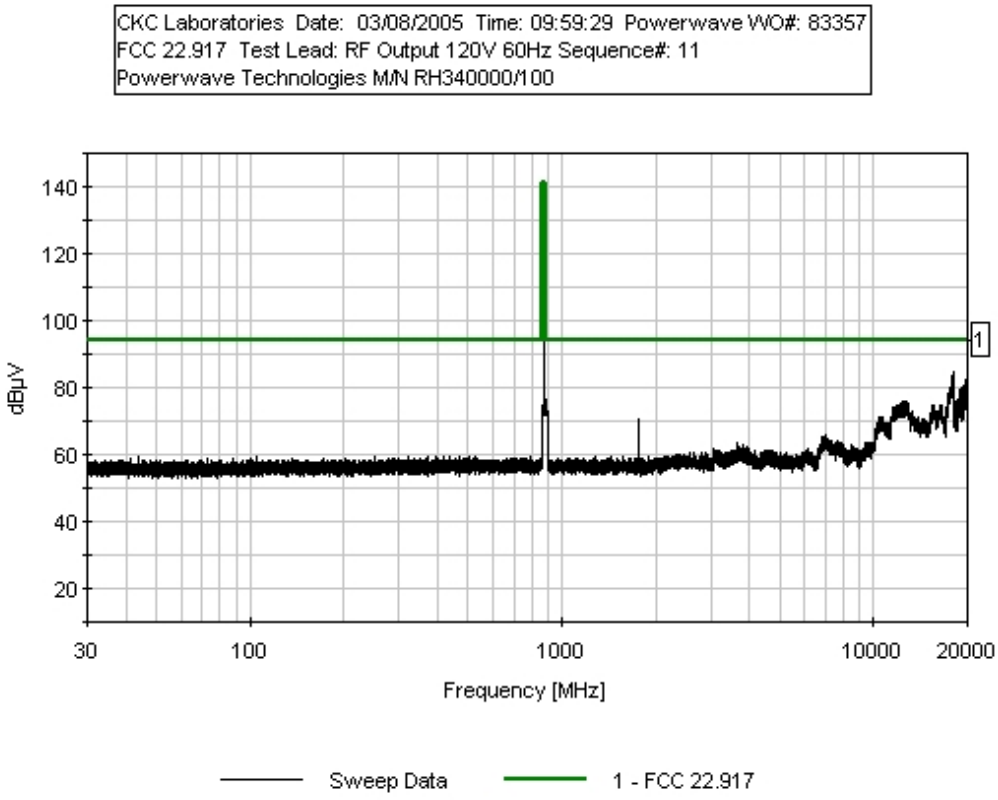
***Transducer Legend:***

| | |
|---|---|
| T1=Pad 14dB AN P01623 | T2=6dB P02226 Attenuator |

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

| # | Freq MHz | Rdng dBµV | T1 dB | T2 dB | dB | dB | Dist Table | Corr dBµV | Spec dBµV | Margin dB | Polar Ant |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 881.500M | 120.9 | +14.2 | +6.1 | | | +0.0 | 141.2 | 141.2 Carrier | +0.0 | RF Ou |
| 2 | 1762.989M | 52.4 | +14.3 | +6.0 | | | +0.0 | 72.7 | 94.0 | -21.3 | RF Ou |
| 3 | 2644.489M | 41.9 | +14.2 | +6.0 | | | +0.0 | 62.1 | 94.0 | -31.9 | RF Ou |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4 | 5288.984M | 40.2 | +13.8 | +6.2 | +0.0 | 60.2 | 94.0 | -33.8 | RF Ou |
| 5 | 3525.987M | 39.5 | +14.2 | +6.1 | +0.0 | 59.8 | 94.0 | -34.2 | RF Ou |
| 6 | 6170.483M | 38.2 | +13.3 | +6.4 | +0.0 | 57.9 | 94.0 | -36.1 | RF Ou |
| 7 | 4407.486M | 36.8 | +14.0 | +6.1 | +0.0 | 56.9 | 94.0 | -37.1 | RF Ou |



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

| | | | |
|---|---|---|---|
| Customer: | **Powerwave** | | |
| Specification: | **FCC 22.917** | | |
| Work Order #: | **83357** | Date: | 03/08/2005 |
| Test Type: | **Antenna Terminals Conducted Emissions** | Time: | 10:06:16 |
| Equipment: | **Remote Radio Head** | Sequence#: | 12 |
| Manufacturer: | Powerwave Technologies | Tested By: | Randal Clark |
| Model: | RH340000/100 | | 120V 60Hz |
| S/N: | 42129 | | |

***Test Equipment*:**

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|---|---|---|---|---|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Cable, Andrews Hardline | NA | 06/04/2003 | 06/04/2005 | P00740 |
| Attenuator 14dB, JFW 50FHC-014-20 | | 05/09/2003 | 05/09/2005 | P01623 |
| Attenuator PE7004-6 | | 09/29/2004 | 09/29/2006 | P02226 |

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

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| Remote Radio Head* | Powerwave Technologies | RH340000/100 | 42129 |

***Support Devices:***

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| RF to Fiber Module | Powerwave Technologies | Optical Converter | 42101 |
| Pre-amplifier | Mini-Circuits | ZHL-1042J | H0327965-021 |
| Power Sensor | HP | 8481A | US37297854 |
| Power Meter | Agilent | E4419B | GB40202125 |
| Signal Generator | Agilent | E4433B | US40052296 |

***Test Conditions / Notes:***

EUT is a dual band remote radio head with multichannel capability and may otherwise be classified as a repeater/extender. EUT operates on 869-894 MHz and 1930-1990 MHz. Support equipment is used to convert RF from signal generator to fiber for input to the EUT. Power output is monitored using customer support equipment. EUT does not demodulate the input signal. Frequency Range Investigated: 30MHz - 20GHz. Temperature: 28ºC, Relative Humidity: 53%. Radio Standard: NADC. Test Frequency: High Channel. **No EUT emissions detected within 20dB of the limit.**

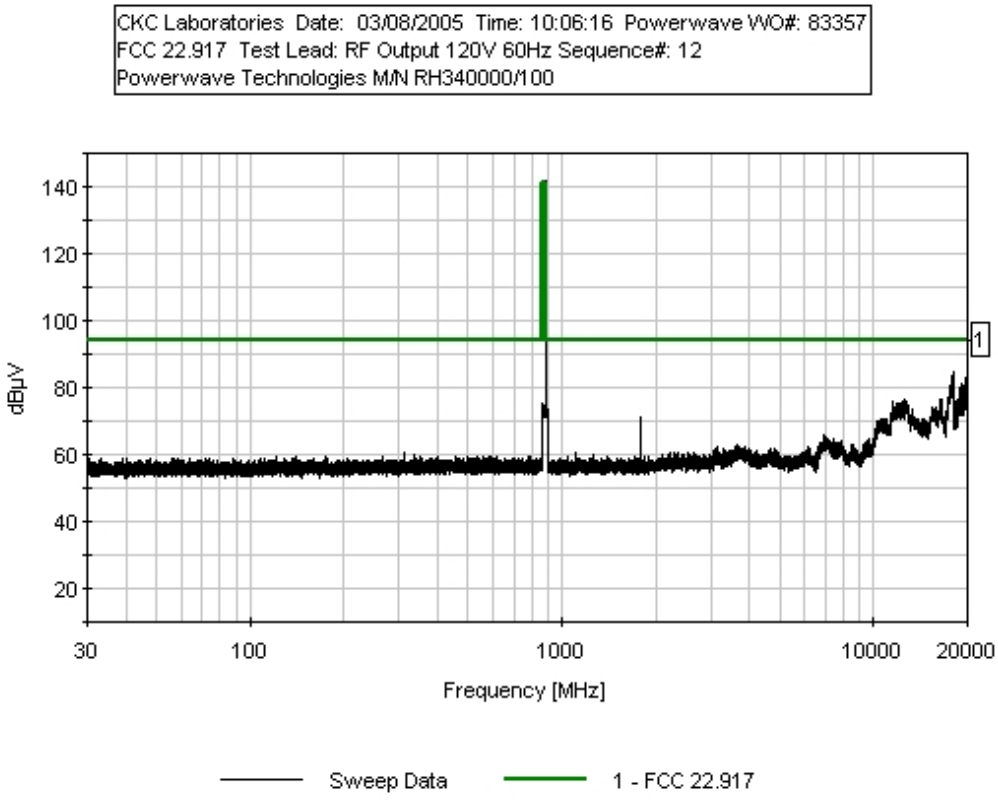
***Transducer Legend:***

| | |
|---|---|
| T1=Pad 14dB AN P01623 | T2=6dB P02226 Attenuator |

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

| # | Freq MHz | Rdng dBµV | T1 dB | T2 dB | dB | dB | Dist Table | Corr dBµV | Spec dBµV | Margin dB | Polar Ant |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 893.900M | 121.3 | +14.2 | +6.1 | | | +0.0 | 141.6 | 141.6 Carrier | +0.0 | RF Ou |
| 2 | 1787.805M | 51.9 | +14.3 | +6.0 | | | +0.0 | 72.2 | 94.0 | -21.8 | RF Ou |
| 3 | 2681.681M | 42.9 | +14.3 | +6.0 | | | +0.0 | 63.2 | 94.0 | -30.8 | RF Ou |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4 | 3575.577M | 40.3 | +14.2 | +6.0 | +0.0 | 60.5 | 94.0 | -33.5 | RF Ou |
| 5 | 6257.267M | 40.0 | +13.3 | +6.3 | +0.0 | 59.6 | 94.0 | -34.4 | RF Ou |
| 6 | 4469.474M | 39.2 | +14.2 | +6.1 | +0.0 | 59.5 | 94.0 | -34.5 | RF Ou |
| 7 | 5363.370M | 39.2 | +13.6 | +6.2 | +0.0 | 59.0 | 94.0 | -35.0 | RF Ou |



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

| | | | |
|---|---|---|---|
| Customer: | **Powerwave** | | |
| Specification: | **FCC 22.917** | | |
| Work Order #: | **83357** | Date: | 03/08/2005 |
| Test Type: | **Antenna Terminals Conducted Emissions** | Time: | 13:17:36 |
| Equipment: | **Remote Radio Head** | Sequence#: | 22 |
| Manufacturer: | Powerwave Technologies | Tested By: | Randal Clark |
| Model: | RH340000/100 | | 120V 60Hz |
| S/N: | 42129 | | |

***Test Equipment*:**

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|---|---|---|---|---|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Cable, Andrews Hardline | NA | 06/04/2003 | 06/04/2005 | P00740 |
| Attenuator 14dB, JFW 50FHC-014-20 | | 05/09/2003 | 05/09/2005 | P01623 |
| Attenuator PE7004-6 | | 09/29/2004 | 09/29/2006 | P02226 |

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

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| Remote Radio Head* | Powerwave Technologies | RH340000/100 | 42129 |

***Support Devices:***

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| RF to Fiber Module | Powerwave Technologies | Optical Converter | 42101 |
| Pre-amplifier | Mini-Circuits | ZHL-1042J | H0327965-021 |
| Power Sensor | HP | 8481A | US37297854 |
| Power Meter | Agilent | E4419B | GB40202125 |
| Signal Generator | Agilent | E4433B | US40052296 |

***Test Conditions / Notes:***

EUT is a dual band remote radio head with multichannel capability and may otherwise be classified as a repeater/extender. EUT operates on 869-894 MHz and 1930-1990 MHz. Support equipment is used to convert RF from signal generator to fiber for input to the EUT. Power output is monitored using customer support equipment. EUT does not demodulate the input signal. Frequency Range Investigated: 30MHz - 20GHz. Temperature: 28ºC, Relative Humidity: 53%. Radio Standard: WCDMA. Test Frequency: Low Channel. **No EUT emissions detected within 20dB of the limit above 1GHz.**

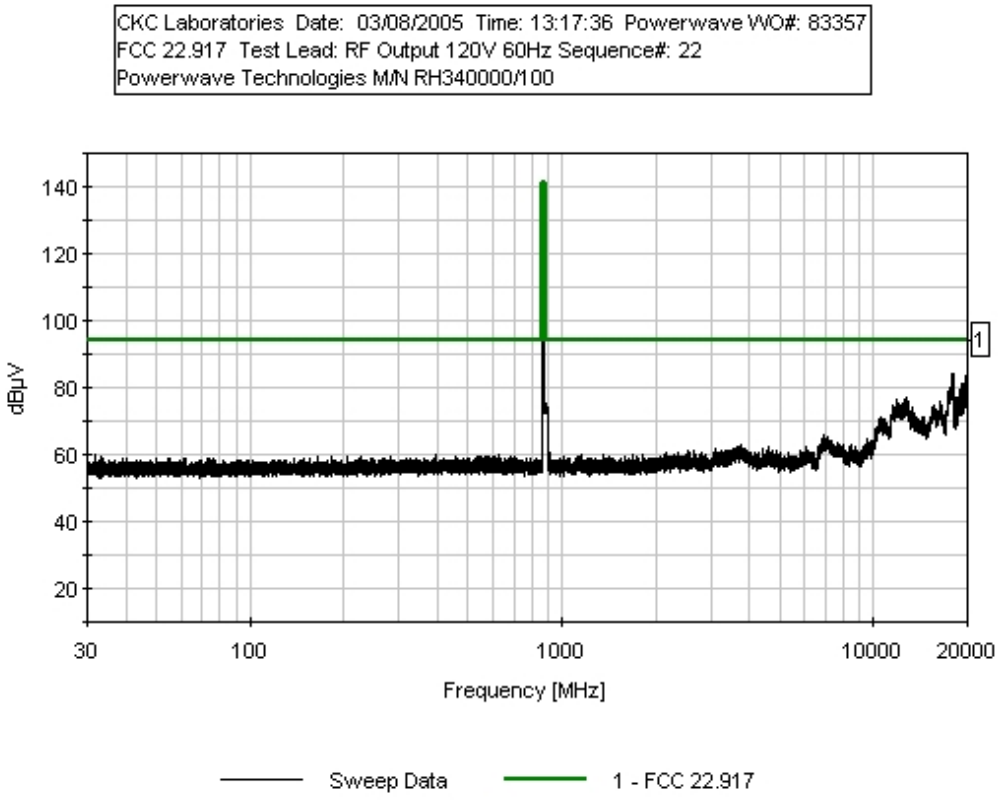
***Transducer Legend:***

| | |
|---|---|
| T1=Pad 14dB AN P01623 | T2=6dB P02226 Attenuator |

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

| # | Freq MHz | Rdng dBµV | T1 dB | T2 dB | dB | dB | Dist Table | Corr dBµV | Spec dBµV | Margin dB | Polar Ant |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 869.000M | 69.3 | +14.2 | +6.1 | | | +0.0 | 89.6 | 94.0 | -4.4 | RF Ou |
| 2 | 873.000M | 108.7 | +14.2 | +6.1 | | | +0.0 | 129.0 | 141.0 Carrier | -12.0 | RF Ou |
| 3 | 1746.160M | 39.7 | +14.3 | +6.0 | | | +0.0 | 60.0 | 94.0 | -34.0 | RF Ou |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4 | 2619.240M | 38.4 | +14.2 | +6.0 | +0.0 | 58.6 | 94.0 | -35.4 | RF Ou |
| 5 | 3492.320M | 37.9 | +14.2 | +6.1 | +0.0 | 58.2 | 94.0 | -35.8 | RF Ou |
| 6 | 4365.400M | 36.2 | +14.0 | +6.1 | +0.0 | 56.3 | 94.0 | -37.7 | RF Ou |
| 7 | 5238.480M | 35.9 | +13.9 | +6.2 | +0.0 | 56.0 | 94.0 | -38.0 | RF Ou |



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

| | | | |
|---|---|---|---|
| Customer: | **Powerwave** | | |
| Specification: | **FCC 22.917** | | |
| Work Order #: | **83357** | Date: | 03/08/2005 |
| Test Type: | **Antenna Terminals Conducted Emissions** | Time: | 13:40:21 |
| Equipment: | **Remote Radio Head** | Sequence#: | 23 |
| Manufacturer: | Powerwave Technologies | Tested By: | Randal Clark |
| Model: | RH340000/100 | | 120V 60Hz |
| S/N: | 42129 | | |

***Test Equipment*:**

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|---|---|---|---|---|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Cable, Andrews Hardline | NA | 06/04/2003 | 06/04/2005 | P00740 |
| Attenuator 14dB, JFW 50FHC-014-20 | | 05/09/2003 | 05/09/2005 | P01623 |
| Attenuator PE7004-6 | | 09/29/2004 | 09/29/2006 | P02226 |

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

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| Remote Radio Head* | Powerwave Technologies | RH340000/100 | 42129 |

***Support Devices:***

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| RF to Fiber Module | Powerwave Technologies | Optical Converter | 42101 |
| Pre-amplifier | Mini-Circuits | ZHL-1042J | H0327965-021 |
| Power Sensor | HP | 8481A | US37297854 |
| Power Meter | Agilent | E4419B | GB40202125 |
| Signal Generator | Agilent | E4433B | US40052296 |

***Test Conditions / Notes:***

EUT is a dual band remote radio head with multichannel capability and may otherwise be classified as a repeater/extender. EUT operates on 869-894 MHz and 1930-1990 MHz. Support equipment is used to convert RF from signal generator to fiber for input to the EUT. Power output is monitored using customer support equipment. EUT does not demodulate the input signal. Frequency Range Investigated: 30MHz - 20GHz. Temperature: 28ºC, Relative Humidity: 53%. Radio Standard: WCDMA. Test Frequency: Mid Channel. **No EUT emissions detected within 20dB of the limit above 1GHz.**

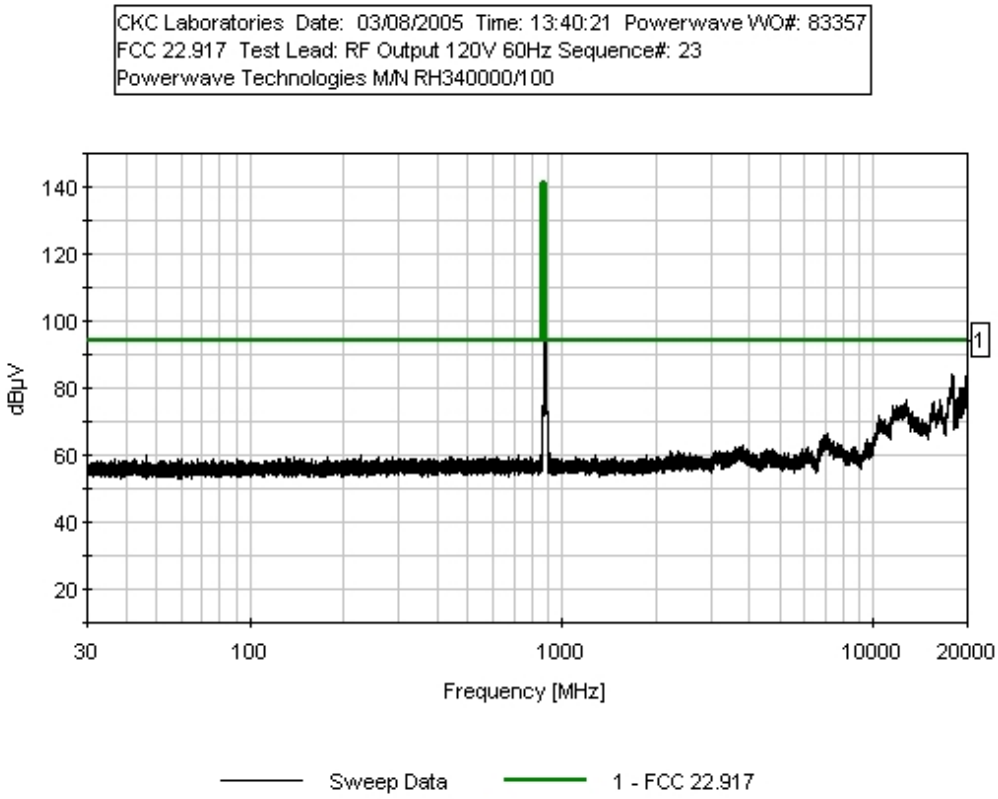
***Transducer Legend:***

| | |
|---|---|
| T1=Pad 14dB AN P01623 | T2=6dB P02226 Attenuator |

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

| # | Freq MHz | Rdng dBµV | T1 dB | T2 dB | dB | dB | Dist Table | Corr dBµV | Spec dBµV | Margin dB | Polar Ant |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 881.500M | 109.5 | +14.2 | +6.1 | | | +0.0 | 129.8 | 141.0 Carrier | -11.2 | RF Ou |
| 2 | 7052.000M | 43.9 | +13.2 | +6.1 | | | +0.0 | 63.2 | 94.0 | -30.8 | RF Ou |
| 3 | 6170.500M | 40.8 | +13.3 | +6.4 | | | +0.0 | 60.5 | 94.0 | -33.5 | RF Ou |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4 | 1763.000M | 39.5 | +14.3 | +6.0 | +0.0 | 59.8 | 94.0 | -34.2 | RF Ou |
| 5 | 2644.500M | 39.2 | +14.2 | +6.0 | +0.0 | 59.4 | 94.0 | -34.6 | RF Ou |
| 6 | 3526.000M | 37.9 | +14.2 | +6.1 | +0.0 | 58.2 | 94.0 | -35.8 | RF Ou |
| 7 | 5289.000M | 38.1 | +13.8 | +6.2 | +0.0 | 58.1 | 94.0 | -35.9 | RF Ou |
| 8 | 4407.500M | 37.8 | +14.0 | +6.1 | +0.0 | 57.9 | 94.0 | -36.1 | RF Ou |



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

| | | | |
|---|---|---|---|
| Customer: | **Powerwave** | | |
| Specification: | **FCC 22.917** | | |
| Work Order #: | **83357** | Date: | 03/08/2005 |
| Test Type: | **Antenna Terminals Conducted Emissions** | Time: | 13:54:56 |
| Equipment: | **Remote Radio Head** | Sequence#: | 24 |
| Manufacturer: | Powerwave Technologies | Tested By: | Randal Clark |
| Model: | RH340000/100 | | 120V 60Hz |
| S/N: | 42129 | | |

***Test Equipment*:**

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|---|---|---|---|---|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Cable, Andrews Hardline | NA | 06/04/2003 | 06/04/2005 | P00740 |
| Attenuator 14dB, JFW 50FHC-014-20 | | 05/09/2003 | 05/09/2005 | P01623 |
| Attenuator PE7004-6 | | 09/29/2004 | 09/29/2006 | P02226 |

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

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| Remote Radio Head* | Powerwave Technologies | RH340000/100 | 42129 |

***Support Devices:***

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| RF to Fiber Module | Powerwave Technologies | Optical Converter | 42101 |
| Pre-amplifier | Mini-Circuits | ZHL-1042J | H0327965-021 |
| Power Sensor | HP | 8481A | US37297854 |
| Power Meter | Agilent | E4419B | GB40202125 |
| Signal Generator | Agilent | E4433B | US40052296 |

***Test Conditions / Notes:***

EUT is a dual band remote radio head with multichannel capability and may otherwise be classified as a repeater/extender. EUT operates on 869-894 MHz and 1930-1990 MHz. Support equipment is used to convert RF from signal generator to fiber for input to the EUT. Power output is monitored using customer support equipment. EUT does not demodulate the input signal. Frequency Range Investigated: 30MHz - 20GHz. Temperature: 28ºC, Relative Humidity: 53%. Radio Standard: WCDMA. Test Frequency: Mid Channel. **No EUT emissions detected within 20dB of the limit above 1GHz.**

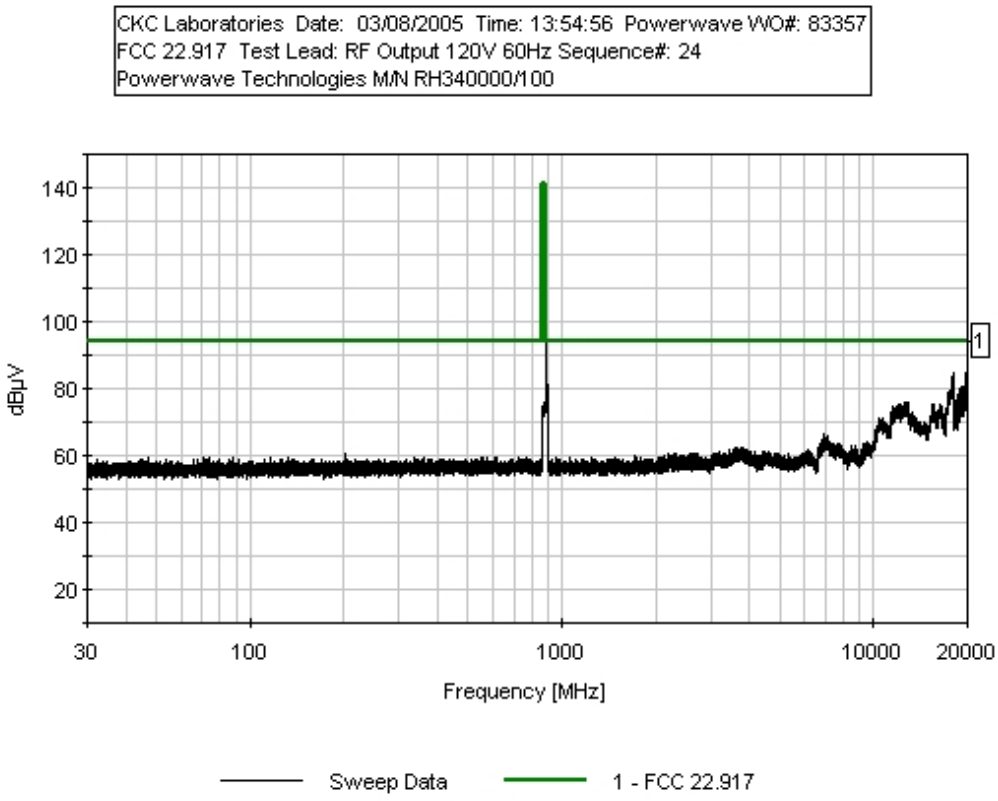
***Transducer Legend:***

| | |
|---|---|
| T1=Pad 14dB AN P01623 | T2=6dB P02226 Attenuator |

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

| # | Freq MHz | Rdng dBµV | T1 dB | T2 dB | dB | dB | Dist Table | Corr dBµV | Spec dBµV | Margin dB | Polar Ant |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 894.000M | 69.7 | +14.2 | +6.1 | | | +0.0 | 90.0 | 94.0 | -4.0 | RF Ou |
| 2 | 890.000M | 108.7 | +14.2 | +6.1 | | | +0.0 | 129.0 | 141.0 Carrier | -12.0 | RF Ou |
| 3 | 1780.000M | 40.5 | +14.3 | +6.0 | | | +0.0 | 60.8 | 94.0 | -33.2 | RF Ou |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4 | 6230.000M | 39.5 | +13.3 | +6.3 | +0.0 | 59.1 | 94.0 | -34.9 | RF Ou |
| 5 | 3560.000M | 38.8 | +14.2 | +6.1 | +0.0 | 59.1 | 94.0 | -34.9 | RF Ou |
| 6 | 4450.000M | 37.9 | +14.2 | +6.1 | +0.0 | 58.2 | 94.0 | -35.8 | RF Ou |
| 7 | 5340.000M | 37.7 | +13.6 | +6.2 | +0.0 | 57.5 | 94.0 | -36.5 | RF Ou |
| 8 | 2670.000M | 34.7 | +14.3 | +6.0 | +0.0 | 55.0 | 94.0 | -39.0 | RF Ou |



## PHOTOGRAPH SHOWING DIRECT CONNECT TEST SETUP

## FCC 2.1033(c)(14)/2.1053/22.917 - FIELD STRENGTH OF SPURIOUS RADIATION

| ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE | | | |
|---|---|---|---|
| TEST | BEGINNING FREQUENCY | ENDING FREQUENCY | BANDWIDTH SETTING |
| RADIATED EMISSIONS | 30 MHz | 1000 MHz | 100 kHz |
| RADIATED EMISSIONS | 1000 MHz | 20 GHz | 1 MHz |

Test Location: CKC Laboratories •5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)
Customer: **Powerwave**
Specification: **FCC 22.917**
Work Order #: **83357** Date: 03/10/2005
Test Type: **Maximized Emissions** Time: 14:22:48
Equipment: **Remote Radio Head** Sequence#: 43
Manufacturer: Powerwave Technologies Tested By: Randal Clark
Model: RH340000/100
S/N: 42129

***Test Equipment*:**

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|---|---|---|---|---|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Chase CBL6111C Bilog | 2456 | 06/26/2003 | 06/26/2005 | 01991 |
| EMCO 3115 Horn Antenna | 9006-3413 | 04/15/2003 | 04/25/2005 | 327 |
| ARA MWH-1826/B Horn Antenna | 1005 | 11/05/2004 | 11/05/2006 | 02046 |
| HP 8447D Preamp | 2727A05444 | 07/18/2004 | 07/18/2006 | 00062 |
| HP 8449B Preamp | 3008A00301 | 12/14/2004 | 12/14/2006 | 2010 |
| Cable, Andrews Hardline HF-005-20 | NA | 06/03/2003 | 06/03/2005 | P04275 |

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

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| Remote Radio Head* | Powerwave Technologies | RH340000/100 | 42129 |

***Support Devices:***

| Function | Manufacturer | Model # | S/N |
|---|---|---|---|
| RF to Fiber Module | Powerwave Technologies | Optical Converter | 42101 |
| Pre-amplifier | Mini-Circuits | ZHL-1042J | H0327965-021 |
| Signal Generator | Agilent | E4433B | US40051692 |

***Test Conditions / Notes:***

EUT is a dual band remote radio head with multichannel capability and may otherwise be classified as a repeater/extender. EUT operates on 869-894 MHz and 1930-1990 MHz. Support equipment is used to convert RF from signal generator to fiber for input to the EUT. The RF output port of the EUT is terminated in a shielded 50 ohm load. EUT does not demodulate the input signal. Frequency Range Investigated: 30 MHz - 20 GHz. Temperature: 28ºC Relative Humidity: 53%. Test data represents the worst case of all modulation types. Test data includes emissions from low, middle and high channels. **No EUT signals detected within 20 dB of the limit.**

***Transducer Legend:***

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

| # | Freq | Rdng | | | | | Dist | Corr | Spec | Margin | Polar |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBµV | dB | dB | dB | dB | Table | dBµV | dBµV | dB | Ant |

## PHOTOGRAPH SHOWING RADIATED EMISSIONS

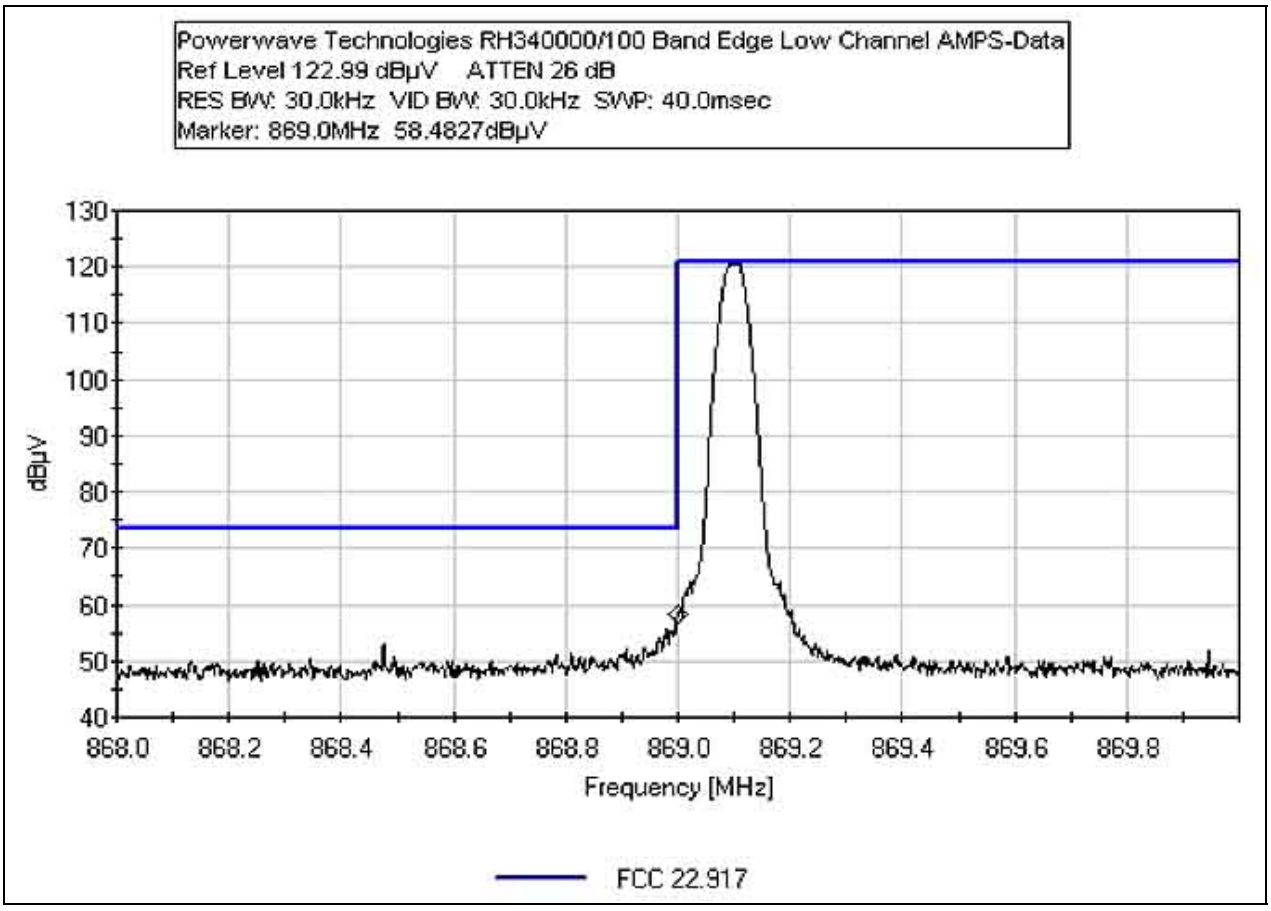
Radiated Emissions - Front View

Radiated Emissions - Back View

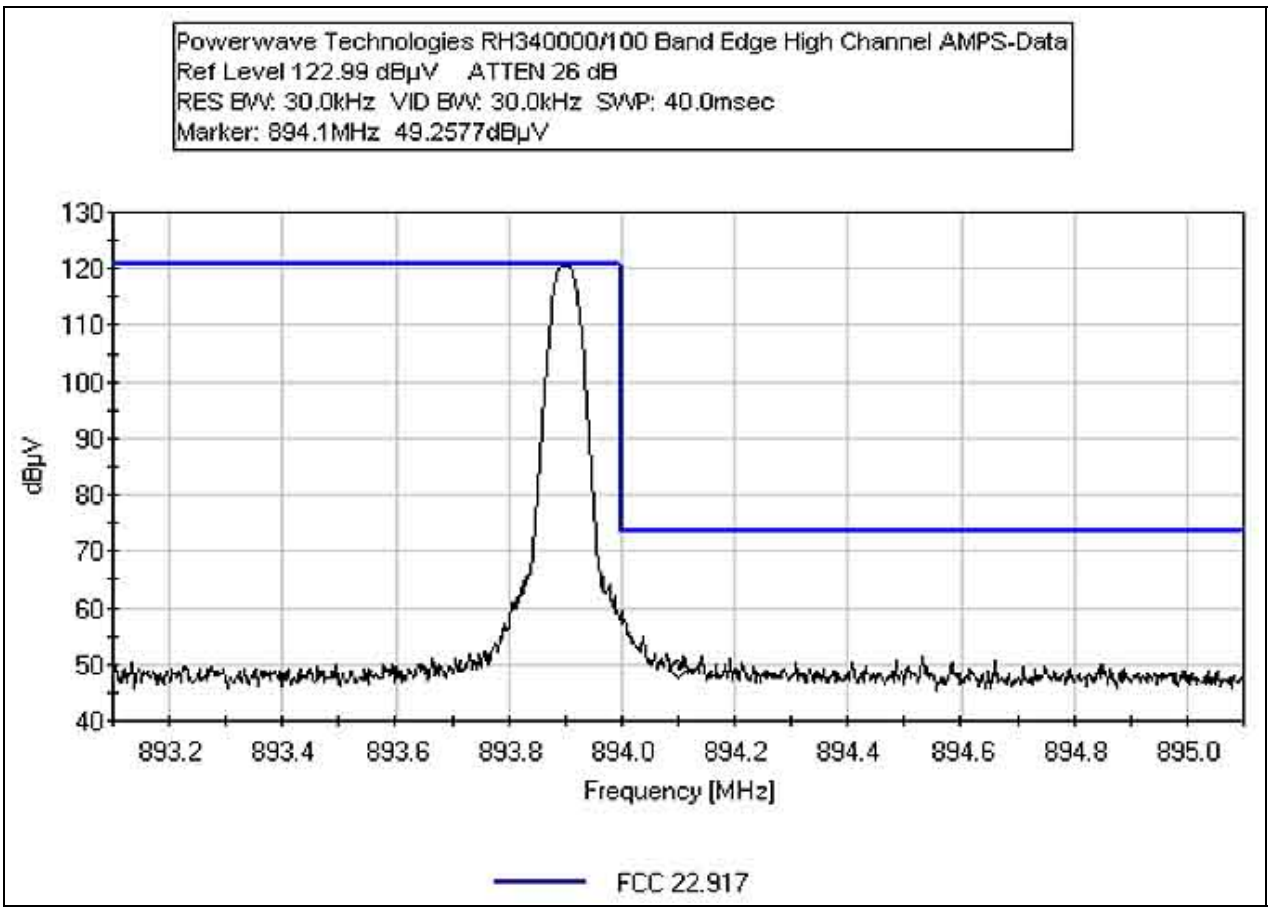
**FCC 2.1051/2.1053/PART 22- BAND EDGE**

**Test Conditions:** EUT is a dual band remote radio head with multichannel capability and may otherwise be classified as a repeater/extender. EUT operates on 869-894 MHz and 1930-1990 MHz. Support equipment is used to convert RF from signal generator to fiber for input to the EUT. Power output is monitored using customer support equipment. EUT does not demodulate the input signal. Frequency Range Investigated: 30MHz - 20GHz. Temperature: 28ºC, Relative Humidity: 53%.

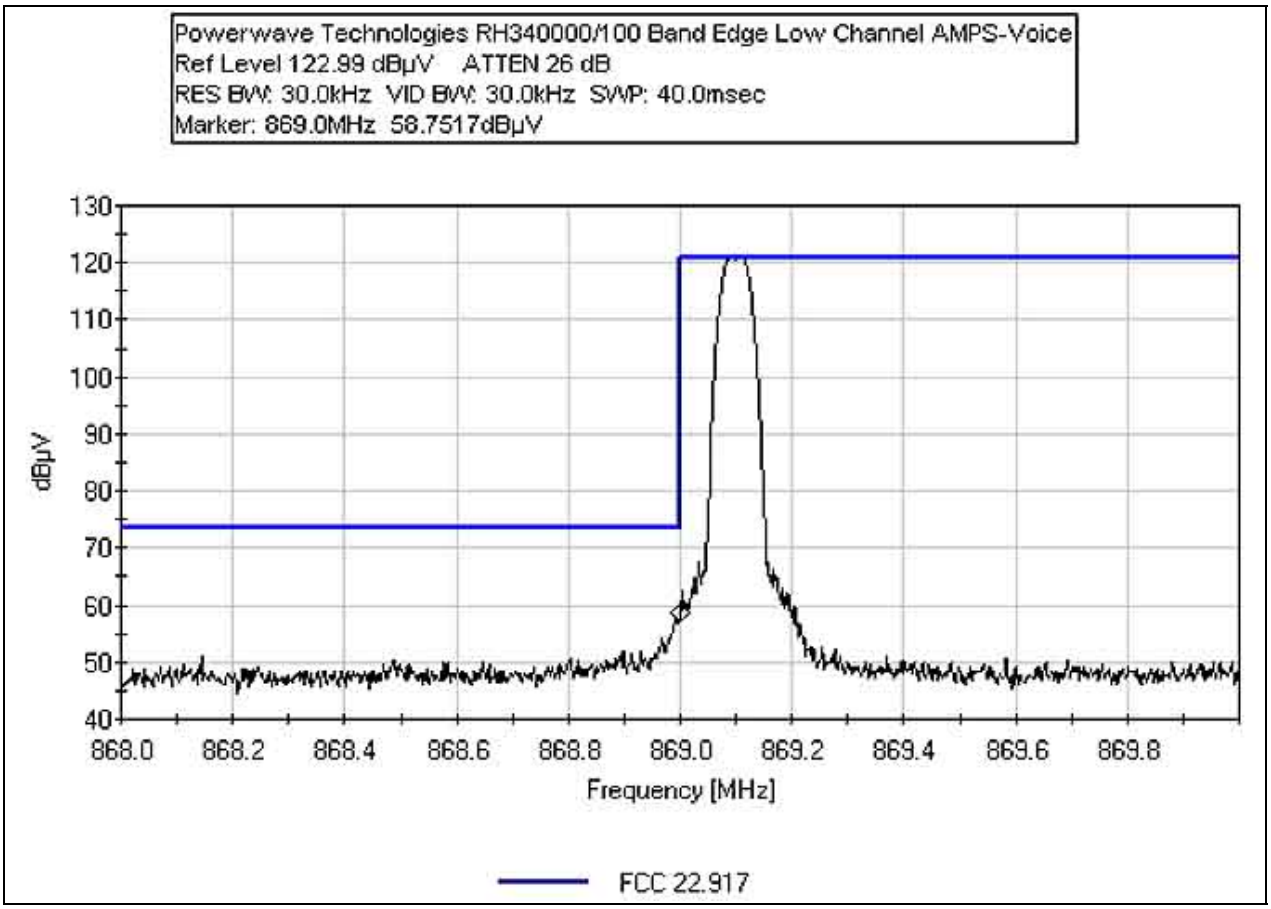
**FCC PART 22 BAND EDGE - AMPS-DATA LOW CHANNEL**



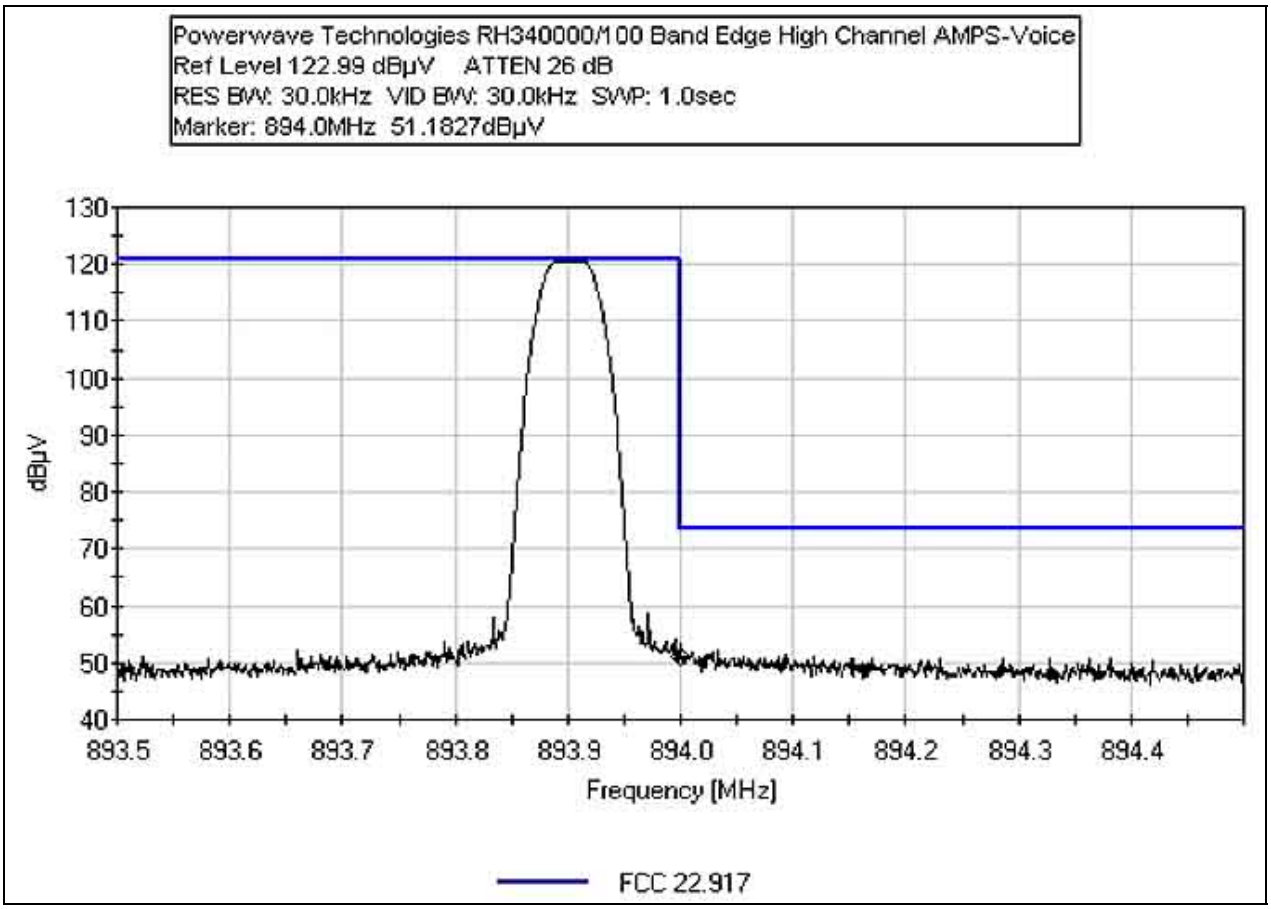
## FCC PART 22 BAND EDGE - AMPS-DATA HIGH CHANNEL



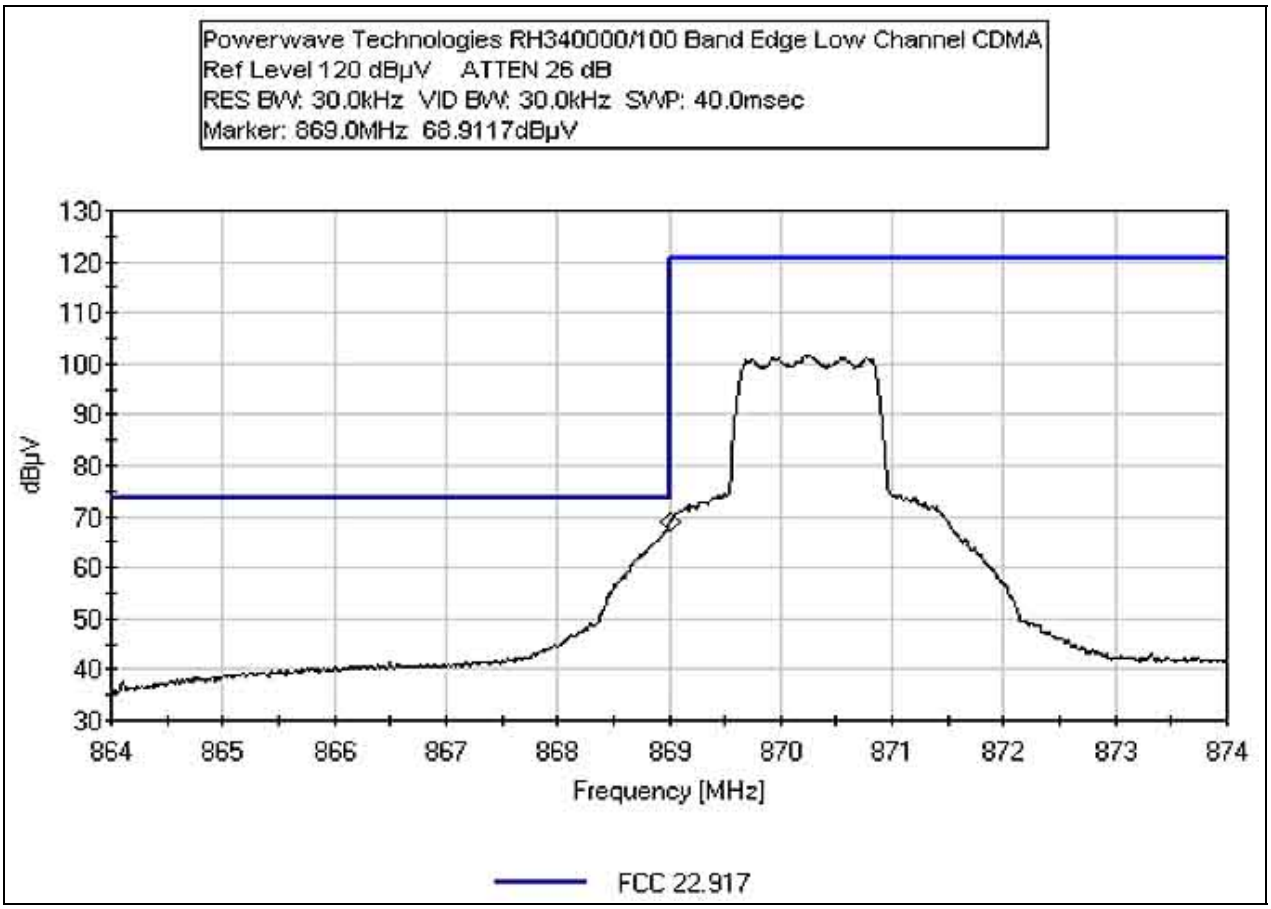
## FCC PART 22 BAND EDGE - AMPS-V LOW CHANNEL



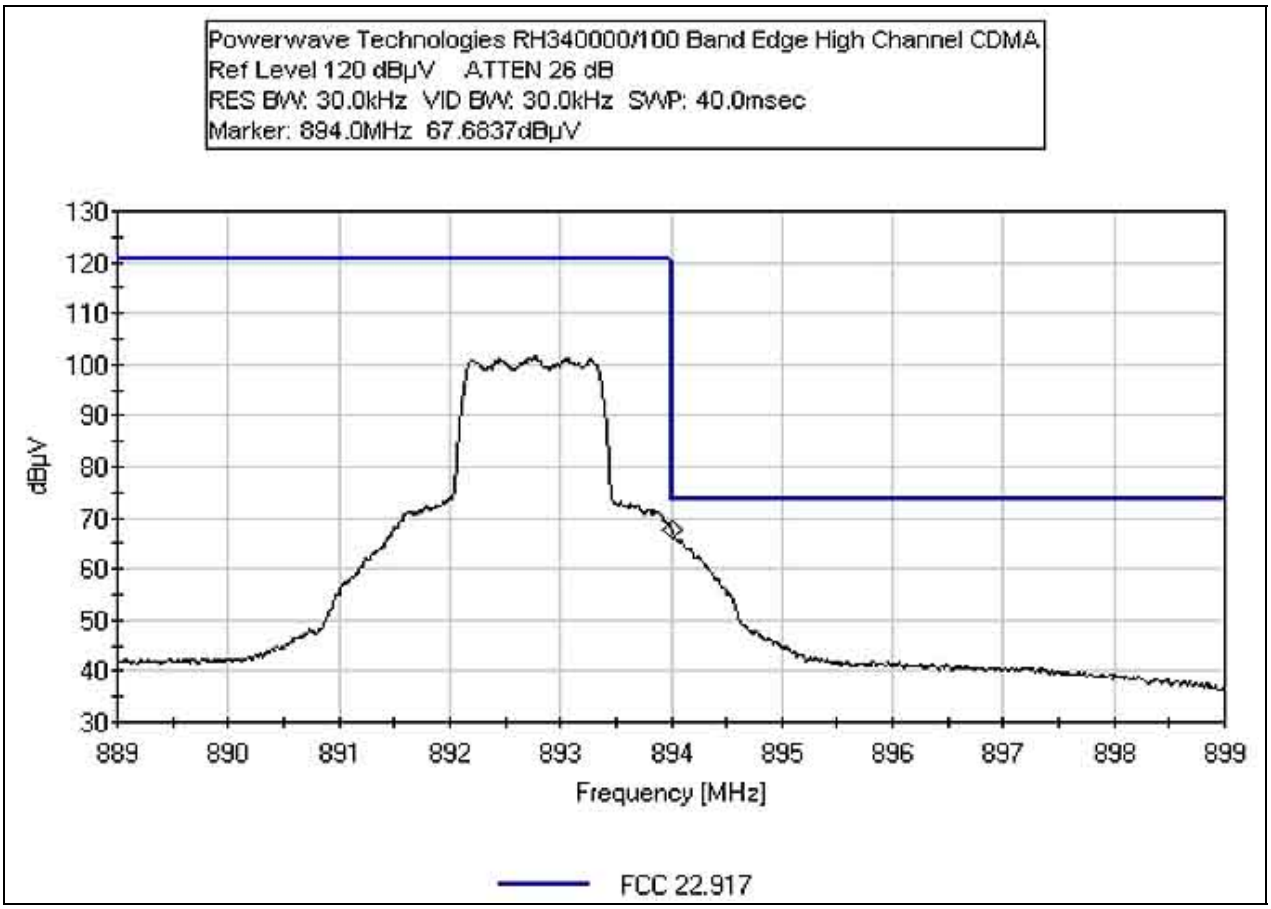
## FCC PART 22 BAND EDGE - AMPS-VOICE HIGH CHANNEL



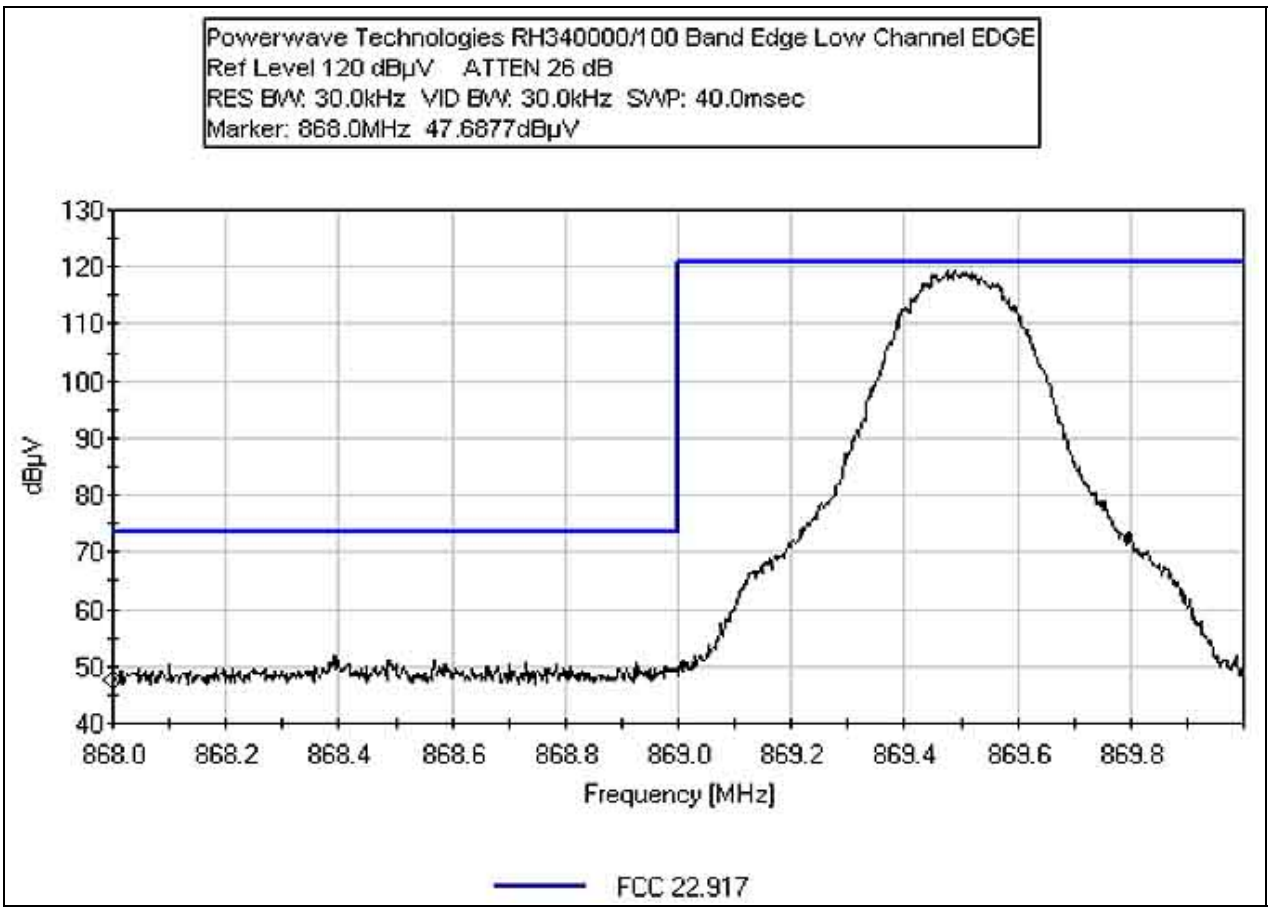
## FCC PART 22 BAND EDGE - CDMA LOW CHANNEL



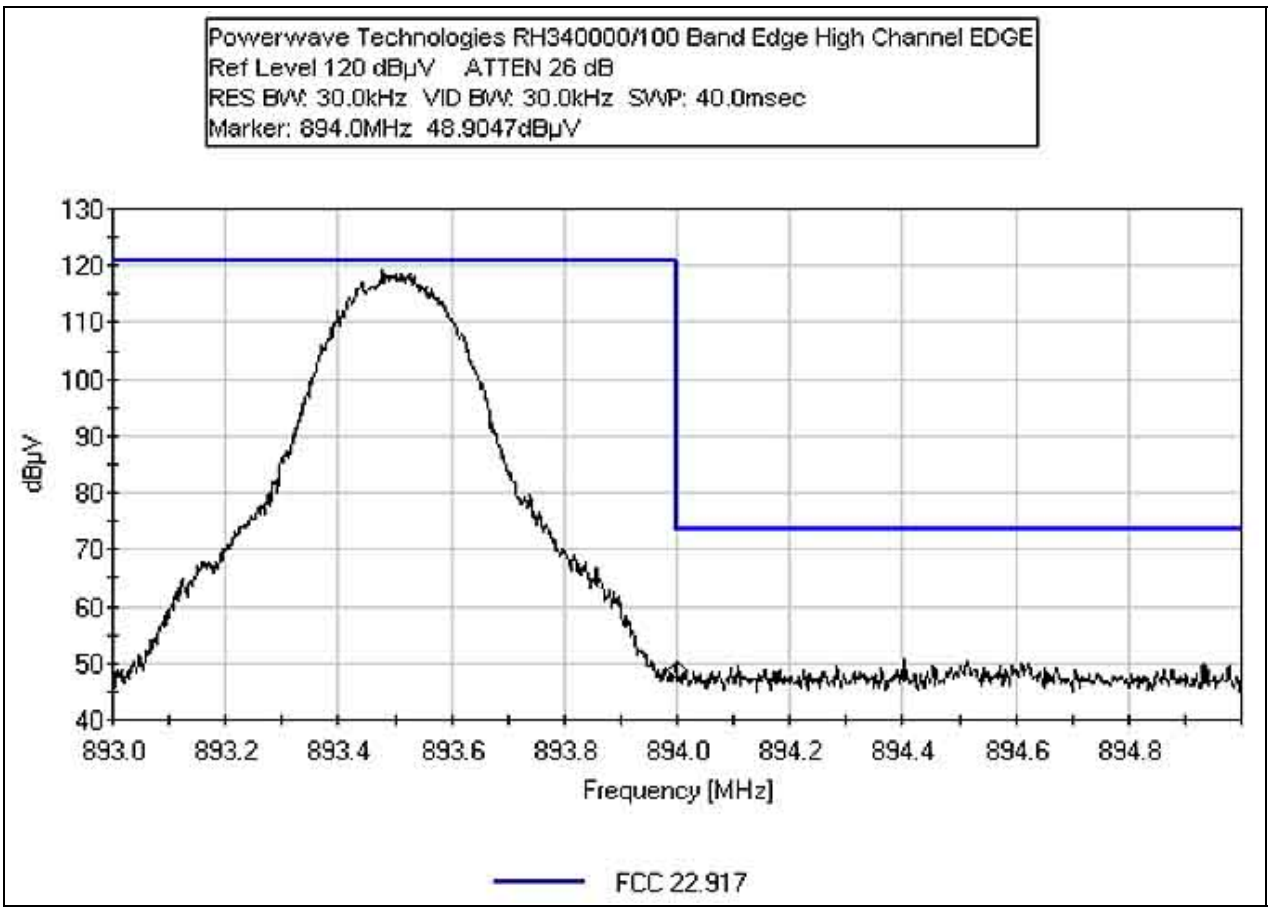
## FCC PART 22 BAND EDGE - CDMA HIGH CHANNEL



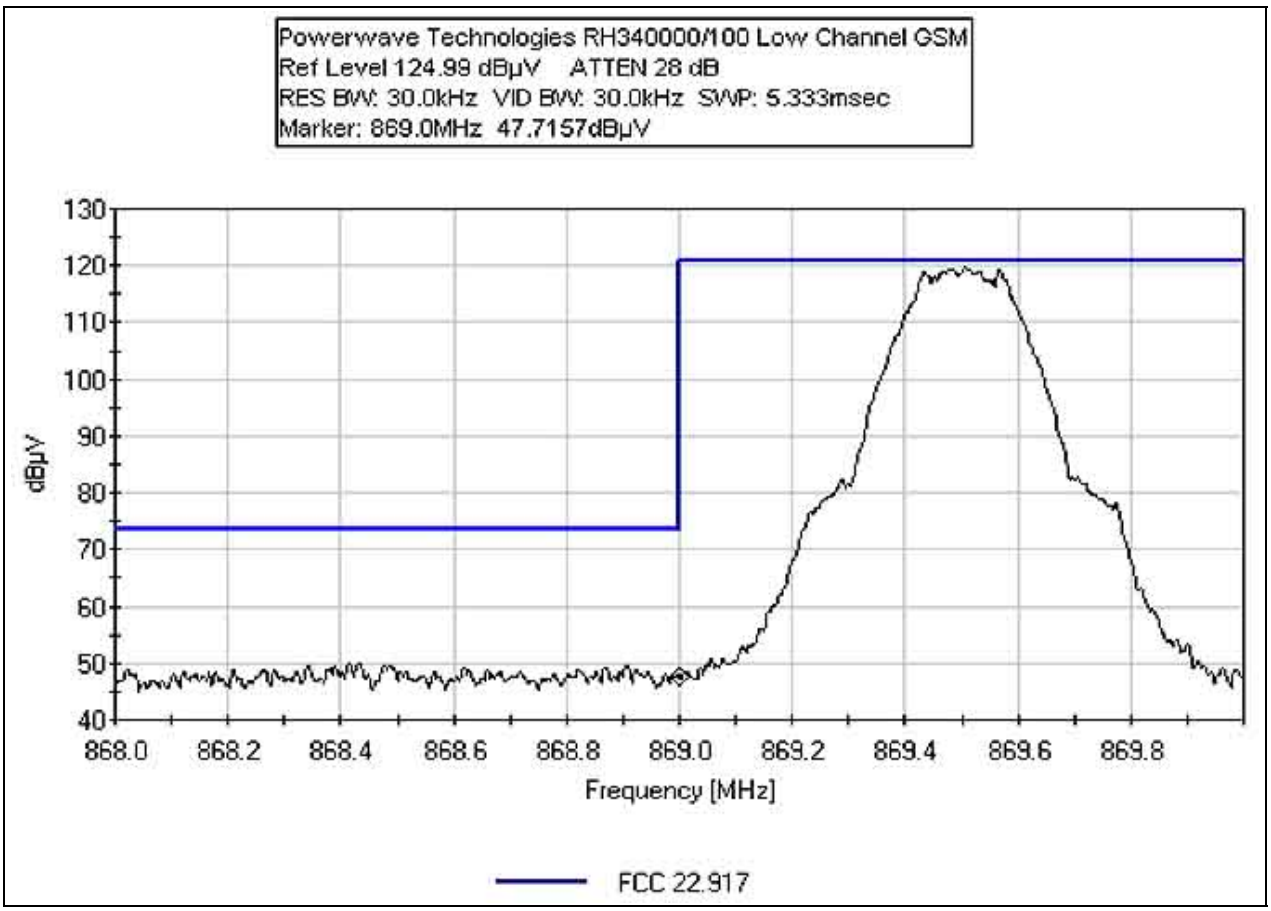
## FCC PART 22 BAND EDGE - EDGE LOW CHANNEL



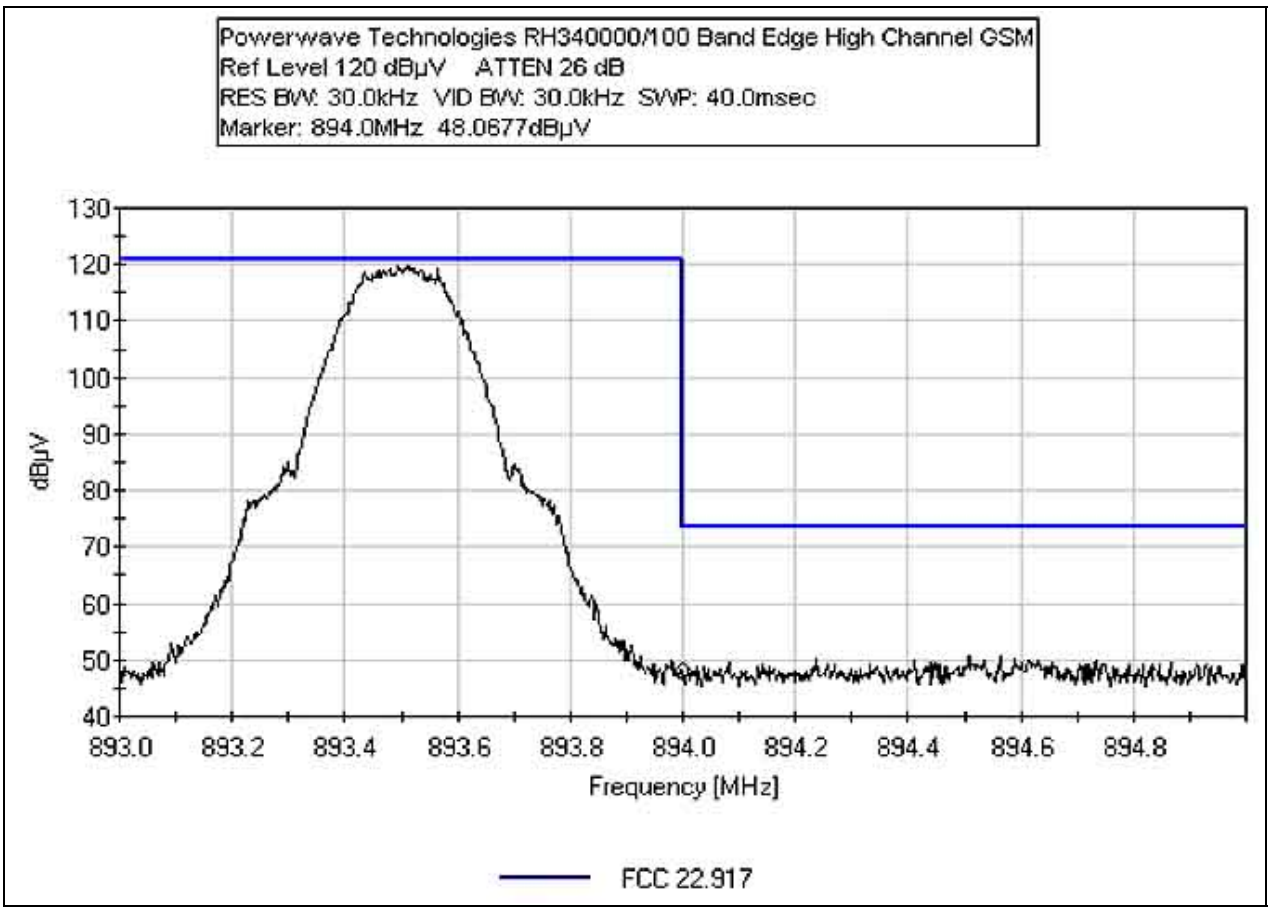
## FCC PART 22 BAND EDGE - EDGE HIGH CHANNEL



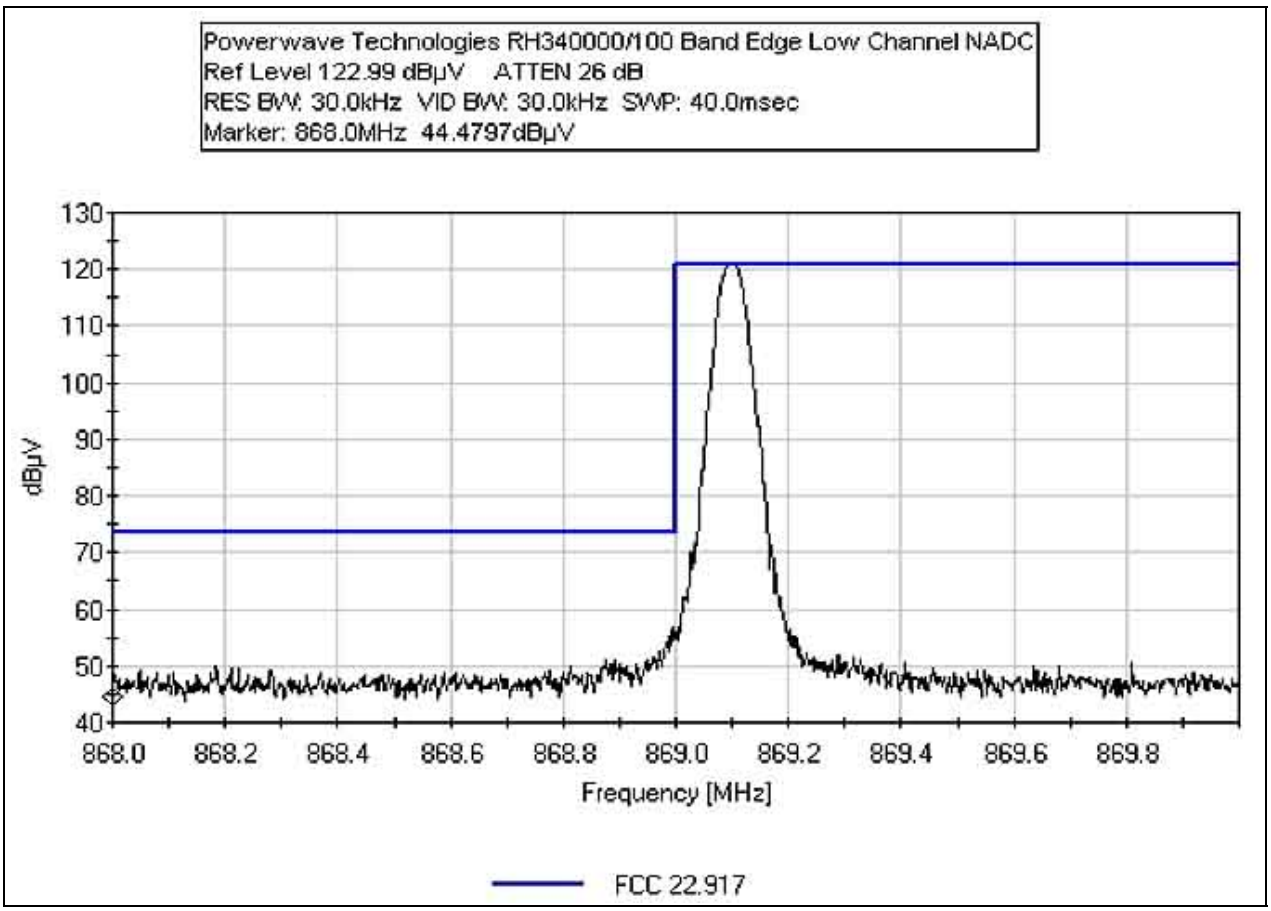
## FCC PART 22 BAND EDGE - GSM LOW CHANNEL



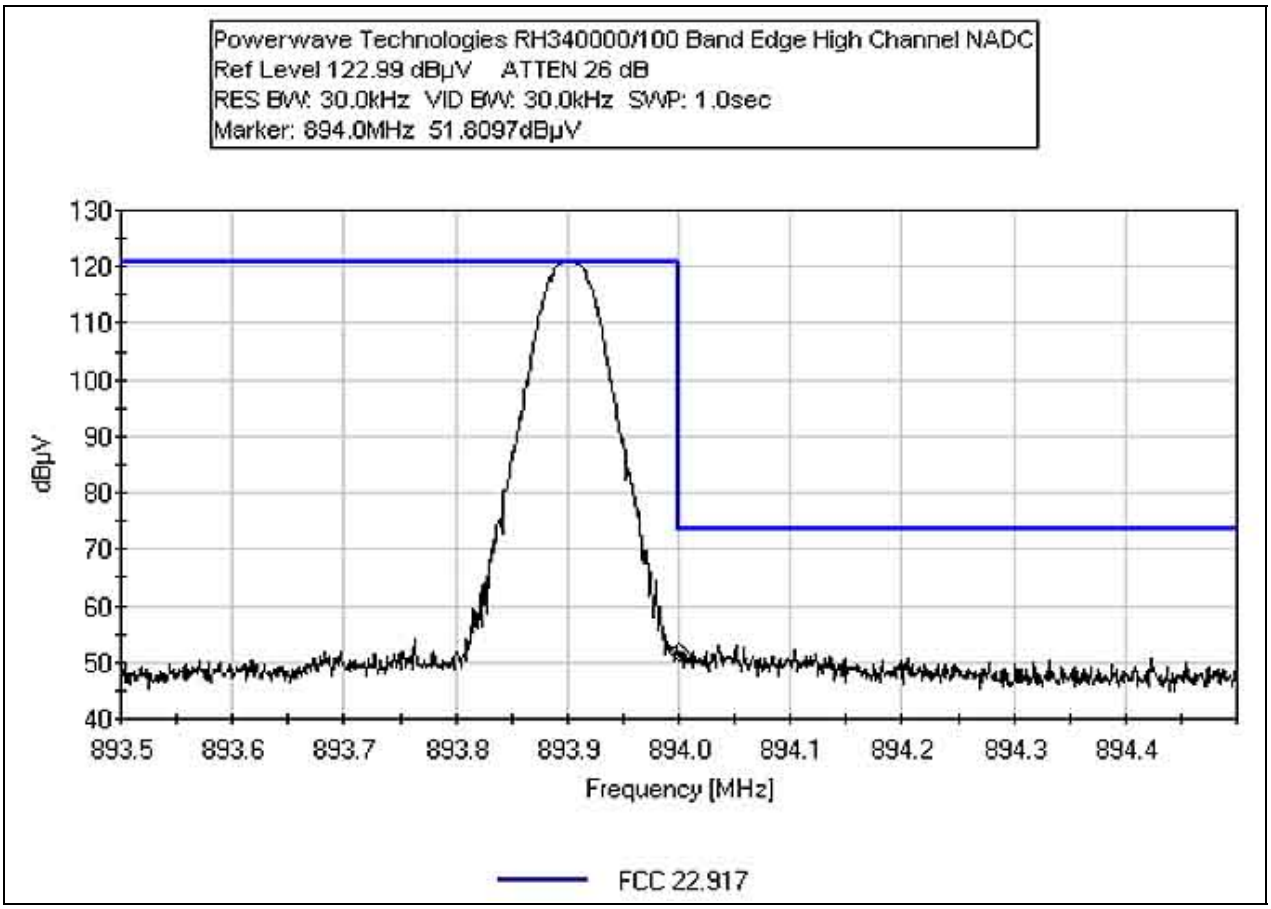
## FCC PART 22 BAND EDGE - GSM HIGH CHANNEL



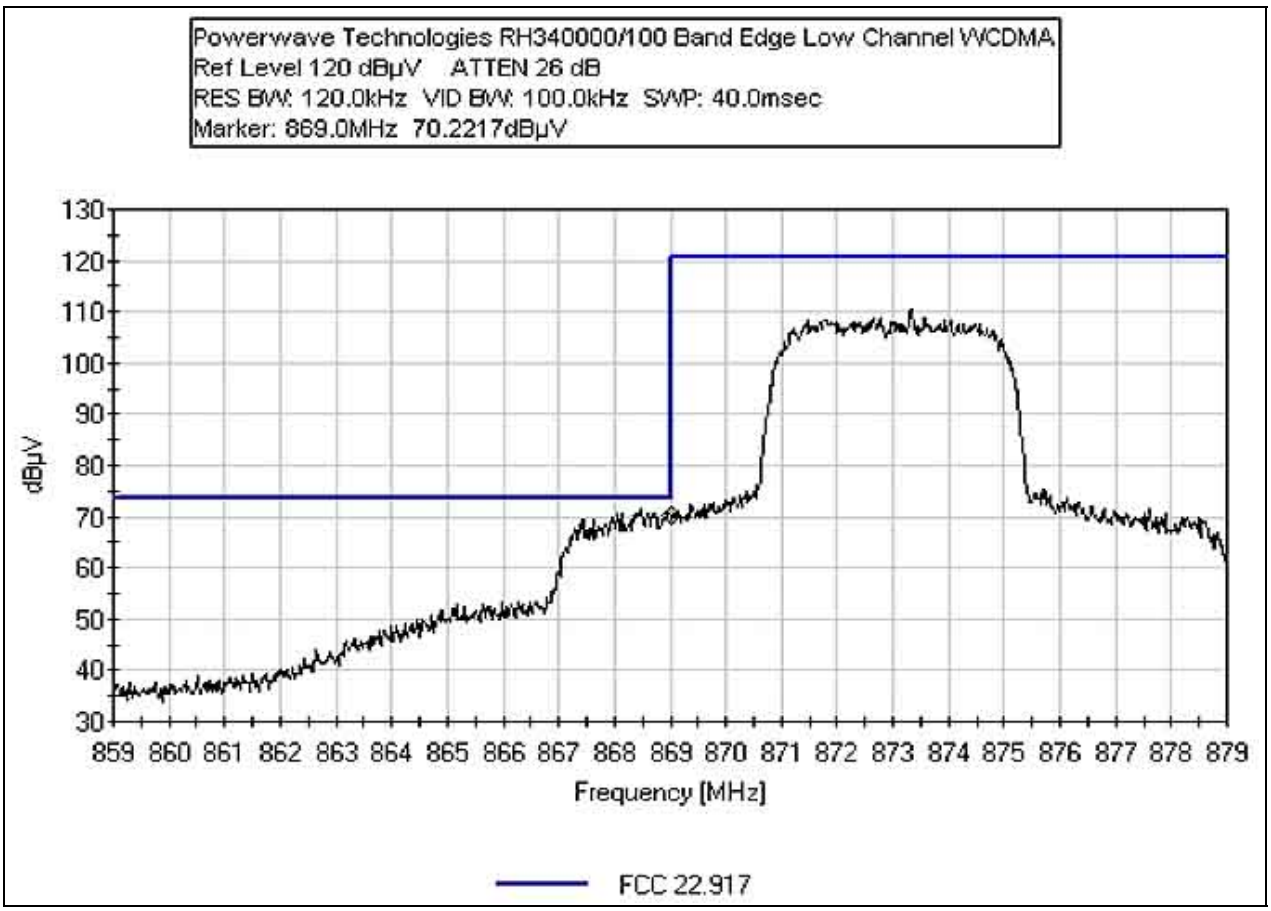
## FCC PART 22 BAND EDGE - NADC LOW CHANNEL



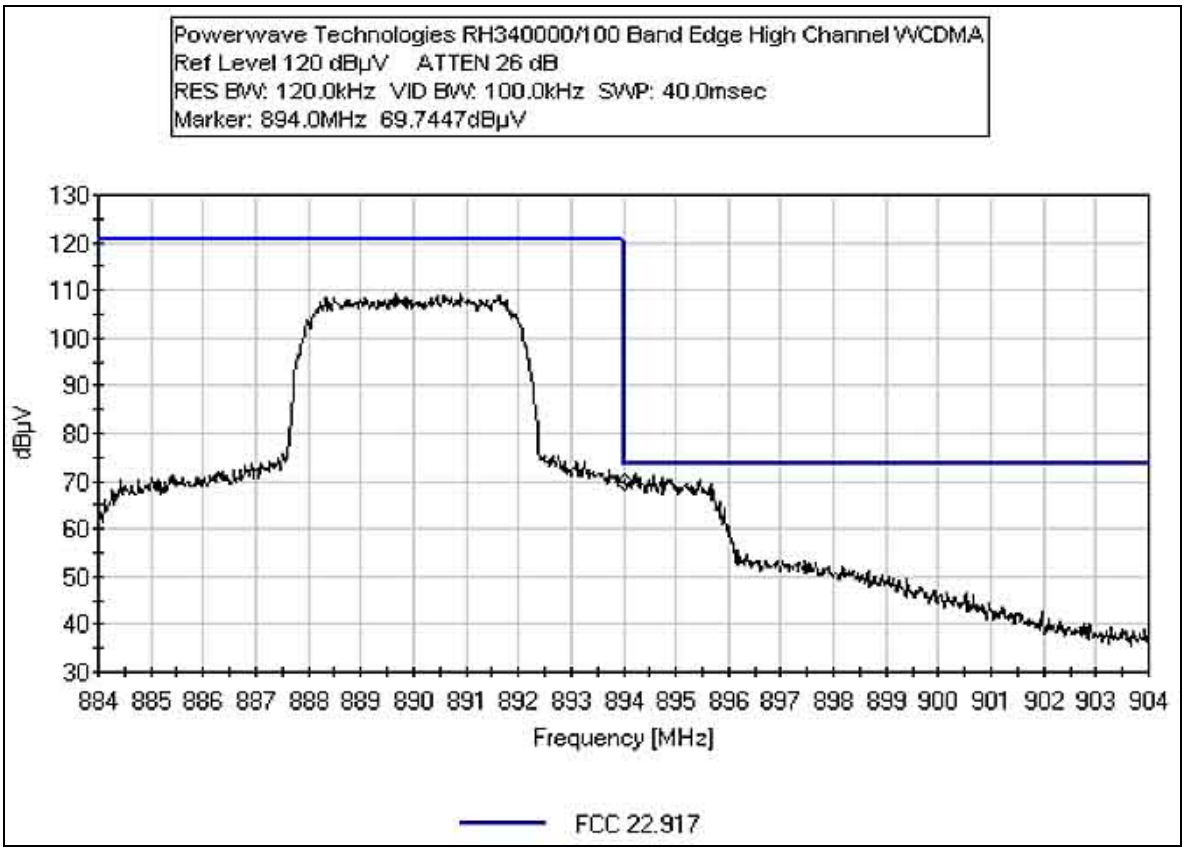
## FCC PART 22 BAND EDGE - NADC HIGH CHANNEL



## FCC PART 22 BAND EDGE - WCDMA LOW CHANNEL



## FCC PART 22 BAND EDGE - WCDMA HIGH CHANNEL



***Test Equipment*:**

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|---|---|---|---|---|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Cable, Andrews Hardline | NA | 06/04/2003 | 06/04/2005 | P00740 |
| Attenuator 14dB, JFW 50FHC-014-20 | | 05/09/2003 | 05/09/2005 | P01623 |
| Attenuator PE7004-6 | | 09/29/2004 | 09/29/2006 | P02226 |

## PHOTOGRAPH SHOWING DIRECT CONNECT TEST SETUP