FCC ID: NUWØ5ØCEKO8

Prepared for:

CI WIRELESS INC.
1211 Ira E. Woods Avenue
Grapevine, Texas 76051

By:

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1601 FM 1460, Suite B
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Submitted to:

Federal Communications Commission
Equipment Approval Services
P.O. Box 358315
Pittsburgh, Pennsylvania 15251-3315

June 1999

FCC Application for Certification of an Intentional Radiator

CI WIRELESS INC.
EkoCell
800 MHz Cellular Band 50 Watt Repeater
(Transmitter Portion)

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Appendices

Certificate of Compliance

Applicant:	CI Wireless Inc.
Applicant's Address:	1211 Ira E. Woods Avenue Grapevine, Texas 76051
Model:	800 MHz Cellular Band 50 Watt Repeater
Serial Number:	H919005/M919009
Project Number:	00002-10
Test Dates:	June 7, 8, 9 and 10, 1999

I, Jeffrey A. Lenk, for Professional Testing (EMI), Inc., being familiar with the FCC rules and test procedures have reviewed the test setup, measurement data and this report. I believe them to be true and accurate. The **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** was tested and found to be in compliance with FCC Part 22 for Intentional Radiators.

_____

Jeffrey A. Lenk
President

1.0 Equipment Under Test (EUT) Description

The **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** is a 50 watt 800 MHz Cellular Band Repeater System. This system enhances the coverage of a cellular system by adding base station capability to traditional poor cellular coverage areas (i.e. subways, shopping malls, convention centers). The system has a set of automatic setup features, enabling the repeater to be installed & configured by one person. Automatic system monitoring is present to monitor system health & report/record any EUT problems. **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** supports CDMA, TDMA and AMPS communications in the U.S. cellular band.

The EkoCell system is comprised of two components: a Hub unit and a Remote unit. The Hub is installed at a cellular base station while the remote unit is installed at the desired transmit/receive location and attached to an antenna assembly. The two pieces are connected by two fiber optic links (one for transmit, one for receive). Due to the low loss of the fiber link, the Remote is usually not installed at the same location as the Hub unit.

The **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** is intended for professional installation only in the type of environments described above. This device is intended for operation under the requirements of Part 22 (Subpart H). Specific test requirements include the following:

47 CFR 2.1049	Occupied Bandwidth
47 CFR 22.913	Effective Radiated Power (ERP)
47 CFR 22.917 (b) & (e)	Out of Band Emissions - Radiated
47 CFR 22.917 (b) & (e)	Out of Band Emissions - Conducted
47 CFR 1.1310	Radiofrequency Radiation Exposure Limits

The **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** was tested in the transmit mode of operation for GSM, TDMA and CDMA modes of operation. This unit does not possess frequency shifting components and does not re-modulate or re-key the signal. Based on the lack of frequency shifting or re-keying/re-modulation circuitry, the following tests were not performed:

47 CFR 2.1055(a) & 47 CFR 22.905	Frequency Stability vs. Temperature
47 CFR 2.1055(d)(1) & 47 CFR 22.905	Frequency Stability vs. AC Power
47 CFR 22.915	Modulation Requirements

The system tested consisted of the following:

Manufacturer & Model	**Serial #**	**FCC ID #**	**Description**
CI Wireless, Inc., Eko-8H0R-DB0000	H919005	NUW050CEK08	800M/1900M MHz Hub Unit
CI Wireless, Inc., Eko-8M0CR-DAC000	M919009	NUW050CEK08	800 MHz Cellular Band Remote Unit
Multimode Fiber Optic Cables (10 Ft.) (2 ea.)	N/A	N/A	Hub/Remote Interconnect cables

System Peripherals:

Bird Model 8073-1	542	N/A	50 ohm Load

Cables and Cords:
Unshielded Power Cord (6 Ft.) (2 ea.)
RG-223 Coaxial Cable (1 M) (2 ea.)

The two models for the system components tested are:

Hub Unit: Eko-8H0R-DB0000
Remote Unit: Eko-8M0CR-DAC000

The test covered under this report address all subseries of these models. The base model designators for the components of this system are Model Eko-8HXR-XXXXXX for the Hub unit and Model Eko-8MXCR-XXXXXX for the Remote Units. An index of the sub-model designations for the **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** is shown in Appendix A. The two particular models used for this test were loaded with all active circuit options available, providing a worst case configuration for emissions testing. The options sub-model options available for this product have no impact of the strength, bandwidth or spurious output of the intended transmission signal.

The equipment within this report was tested to verify its compliance with FCC Rule Parts 2, and 22, for Intentional Radiators. A separate verification report pursuant to Part 15, Subpart B has been prepared for the **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** as a Digital Device and as a receiver.

2.0 Occupied Bandwidth Measurements

Measurements were made on the **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** to determine the occupied bandwidth in accordance with Part 2.1049.

2.1 Test Procedure

All measurements were performed in a controlled laboratory environment. The occupied bandwidth of the **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** was measured using a Hewlett Packard HP 8566 Spectrum Analyzer with a test signal provided to the EUT from a Rhode-Schwartz signal generator. Occupied bandwidth plots were made for the test generator by itself to use as a comparison for possible spectral regrowth.

Occupied bandwidth was plotted for each of the data types (AMPS, CDMA and TDMA). The shape of the occupied bandwidth was checked for each of the three channels for each modulation type. No change was detected versus channel for each modulation type. The occupied bandwidth was measured based on the emission width 26 dB below the peak emission level.

2.2 Test Criteria

Section 2.989 requires that the occupied bandwidth for Type Accepted units be measured and reported as part of the device filing.

2.3 Test Results

Data for occupied bandwidth testing is located in Appendix B of this report. Data for the occupied bandwidth of the generator by itself is also contained in this appendix. The widest bandwidths for each of the modulation types used by the **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** are listed below.

Service Type	Reference Frequency	Occupied Bandwidth
AMPS(GSM)	881.0 MHz	29.0 kHz
TDMA (NADC)	881.0 MHz	34.26 kHz
CDMA	881.0 MHz	1.440 MHz

No variation was seen between the emission bandwidth of the EUT and the generator.

3.0 Effective Radiated Power (ERP) Measurements

Measurements were made on the **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** to verify compliance with the maximum effective radiated power (ERP) requirements of §22.913.

ERP measurements were made at the Professional Testing "Open Field" Site 1, located in Marble Falls, Texas, to determine the radio noise radiated from the EUT. A “Description of Measurement Facilities” has been submitted to the FCC and approved pursuant to Section 2.948 of CFR 47 of the FCC rules.

3.1 Test Procedure

The EUT was placed on a non-conductive table 0.8 meters above the ground plane. The table was centered on a motorized turntable which allows 360 degree rotation. A measurement antenna was positioned at a distance of 3 meters as measured from the closest point of the EUT. The radiated emissions were maximized by configuring the EUT, by rotating the EUT, and by raising and lowering the antenna from 1 to 4 meters.

A Spectrum Analyzer with peak detection was used to find the maximums of the radiated emissions during the variability testing. All final measurements were taken using a Quasi-Peak Adapter with a measurement bandwidth of 120 kHz.

ERP testing of the **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** was performed at 3 channel settings for AMPS, CDMA and TDMA transmission modes.

3.2 Test Criteria

Section 22.913 requires that the effective radiated power of repeaters shall be no greater than 500 watts. Since the EUT does not include an antenna, a typical antenna (a whip type antenna) was attached to the EUT and used for the ERP measurements. This process was also used for the spurious emission measurements. ERP testing was performed by measuring the maximum electric

field from the **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** and translating this level to ERP using the following formula:

ERP = {(E*r)^2}/(30)

Where:

E = Electric Field in v/m

r = distance from the measurement antenna to the EUT in meters

This formula was obtained from the Industry Canada document, 'Guidelines for Measurement of Radio Frequency Fields at Frequencies from 10 kHz to 300 GHz, Document Reference NIR-E, dated January 1994'.

3.3 Test Results

Measurements were performed utilizing a spectrum analyzer IF/video bandwidth of 3 kHz/10 kHz. For final measurements, the frequency span was set for 3 MHz and was centered on the peak of the output signal.

Data for ERP testing is located in Appendix C of this report **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** met the §22.913 ERP requirements.

4.0 Out of Band Emissions - Radiated

Radiated emissions measurements were made to determine out of band radiated noise produced by the **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** in accordance with Section 22.917(b) and (e).

Radiated emissions measurements were made at the Professional Testing "Open Field" Site 1, located in Marble Falls, Texas, to determine the radio noise radiated from the EUT. A "Description of Measurement Facilities" has been submitted to the FCC and approved pursuant to Section 2.948 of CFR 47 of the FCC rules.

4.1 Test Procedure

The EUT was placed on a non-conductive table 0.8 meters above the ground plane. The table was centered on a motorized turntable which allows 360 degree rotation. A measurement antenna was positioned at a distance of 3 meters as measured from the closest point of the EUT. For measurements above 1 GHz, the antenna distance was decreased to 1 meter. The radiated emissions were maximized by configuring the EUT, by rotating the EUT, and by raising and lowering the antenna from 1 to 4 meters.

The Spectrum Analyzer was used to find the maximums of the conducted emissions during the testing. All final measurements were made using a peak measurement method. The final measurements provided were determined by using the following formula:

Corrected Level = Recorded Level - Pre-Amp Gain + Antenna Factor + Cable Loss

Measurement of the fundamental signal was performed with a sample antenna attached to the EUT. Measurement of spurious radiated emissions was performed with a shielded load attached to the device (no antenna). The **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** does not include an antenna as part of the EUT, so the interest regarding spurious for this device is case radiation. A test signal was provided to the EUT from a Rhode-Schwartz signal generator.

4.2 Test Criteria

For this EUT, the data obtained for the occupied bandwidth tests indicated that the emissions from the **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** were due to the generator, not the EUT (no spectral regrowth observed). In order to evaluate the EUT versus the out of band emission criteria of §22.917, a representative emission mask based on F3D/F3E emissions with an audio filter was selected. For emissions beyond the immediate area of the intended emission, the attenuation required by §22.917 does not vary (43 + 10 log(P)) versus emission type. Based on this criteria, transmitter related emissions for the **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** shall be reduced by the following amount with respect to the level of the fundamental:

Frequency offset versus the fundamental (kHz)	Attenuation versus the fundamental (dB)
20 to 45	26
45 to $2f_c$	60 or 43 + 10 log(P)
$2f_c$ to $10f_c$	43 + 10 log(P)

Based on the figures obtained from the occupied bandwidth tests, the peak power of this unit is 50 watts, which translates the 43 +10 log(P) term to a minimum attenuation of -60 dB.

4.3 Test Results

The **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** was tested for radiated spurious emissions at three channel settings for AMPS, CDMA & TDMA transmission modes. The signals were fully modulated for all tests. The test frequencies used for each modulation type are listed below. The primary difference between upper and lower frequencies for the modulation types involves the guard bands typically used for each type of traffic.

Radiated emission data sheets are contained in Appendix D of this report. The **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** met the §22.917(b) and (e) radiated emission requirements.

Service Type	Test Channel	Test Frequency (MHz)
AMPS	Lower	870.0
AMPS	Middle	881.0

AMPS	Upper	893.0
CDMA	Lower	870.0
CDMA	Middle	881.0
CDMA	Upper	893.0
TDMA	Lower	870.0
TDMA	Middle	881.0
TDMA	Upper	893.0

5.0 Out of Band Emissions - Conducted

Conducted emissions measurements were made to determine out of band conducted antenna noise produced by the **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** transmitter in accordance with Section 22.917(b) and (e).

Conducted emissions measurements were made at Professional Testing's Round Rock, Texas laboratory. All measurements were made in an environmentally controlled setting.

5.1 Test Procedure

The conducted spurious emissions of the **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** was measured using a Hewlett Packard HP 8566 Spectrum Analyzer with a test signal provided to the EUT from a Rhode-Schwartz signal generator.

The Spectrum Analyzer was used to find the maximums of the conducted emissions during the testing. All final measurements were made using a peak measurement method. The final measurements provided were determined by using the following formula:

Corrected Level = Recorded Level - Pre-Amp Gain + Antenna Factor + Cable Loss

5.2 Test Criteria

For this EUT, the data obtained for the occupied bandwidth tests indicated that the emissions from the **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** were due to the generator, not the EUT (no spectral regrowth observed). In order to evaluate the EUT versus the out of band emission criteria of §22.917, a representative emission mask based on F3D/F3E emissions with an audio filter was selected. For emissions beyond the immediate area of the intended emission, the attenuation required by §22.917 does not vary (43 + 10 log(P)) versus emission type. Based on this criteria, transmitter related emissions for the **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** shall be reduced by the following amount with respect to the level of the fundamental:

Frequency offset versus the fundamental (kHz)	Attenuation versus the fundamental (dB)
20 to 45	26

45 to $2f_c$	60 or 43 + 10 log(P)
$2f_c$ to $10f_c$	43 + 10 log(P)

Based on the figures obtained from the occupied bandwidth tests, the peak power of this unit is 50 watts, which translates the 43 +10 log(P) term to a minimum attenuation of -60 dB.

5.3 Test Results

The **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** was tested for conducted spurious emissions at three channel settings for AMPS, CDMA & TDMA transmission modes The test frequencies used for each modulation type are listed below. The primary differences between upper and lower frequencies were the guard bands used for each type of modulation.

Service Type	Test Channel	Test Frequency (MHz)
AMPS	Lower	870.0
AMPS	Middle	881.0
AMPS	Upper	893.0
CDMA	Lower	870.0
CDMA	Middle	881.0
CDMA	Upper	893.0
TDMA	Lower	870.0
TDMA	Middle	881.0
TDMA	Upper	893.0

Conducted emission data sheets are contained in Appendix E of this report. The **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** met the §22.917(b) and (e) conducted emission requirements.

6.0 Radiofrequency Radiation Exposure Evaluation

An evaluation was performed to provide data regarding the **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** with respect to the Radiofrequency Radiation Exposure requirements of 47 CFR 1.1310.

6.1 Evaluation Procedure

The primary method of controlling radio frequency radiation exposure from the **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** will be the responsibility of the installer of the equipment. The device is to be professionally installed by personnel trained and familiar with installation and configuration of wireless systems. The installer is responsible for antenna selection, site selection and final site configuration. Final compliance with Commission RF exposure regulations for this type of site is the responsibility of the installer and is addressed under separate OET documents.

This device is not marketed outside the wireless communications community. In order to install this system properly, the maximum output power versus the frequency range should be reported in

the User's Manual for the device such that this issue can be addressed when the installation site of this device is designed.

6.2 Evaluation Results

The output power level for the **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** is reported in the User's Manual as being 50 watts. In addition, the frequency range for this device is reported as being 869.0 to 894.0 MHz. Based on this information, the **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** meets the necessary requirements regarding RF exposure.

7.0 Three Signal Intermodulation Test

The **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** is intended to handle multiple channels, then three signal intermodulation tests are required for each emission kind. This test is a single test using three emission types of the same kind (i.e. three CDMA signals on three separate CDMA channels). The intent of this test is to determine if intermodulation products generated by multiple carriers will generate products which are over the conducted spurious emission limits. While this test is not documented in the Rules, it is a requirement for multiple channel equipment. The test configuration of this test should be:

(1) Configure 3 signal sources using the same modulation type to provide a multiple channel signal to the device. The recommended channel settings are:

(a) One channel at the lowest allowed frequency in the band
(b) One channel at the highest allowed frequency in the band
(c) One channel at either the 3rd lowest or 3rd highest channel setting. This will provide a 1 channel guard band from the end channel.

The total power for combined output signal should be maximized to the power rating of the EUT. All input channel settings should be equal.

(2) Measure (or plot) all intermodulation products inside and outside the allowed channel band. All intermodulation products must meet the 43 + 10 log (P) requirement for spurious emissions. This figure should come out to a maximum intermod (or spur) level of -13 dBm. Most measurements of the intermod levels are made using a peak method, however, fully accurate measurements of the intermod levels should be made using the following detection methods:

Modulation Type	Detector/Measurement Method
AMPS	**Peak**
TDMA (NADC)	Average
CDMA	Average

Repeat this test for all modulation types which the EUT will be licensed/authorized for.

ALTERNATE METHOD:

Due to the difficulty in providing three identical fully modulated signals, a method using two intermodulation sources (rather than 3) is allowed. The test was configured in the following manner:

(1) Set one carrier to either the highest or lowest allowed channel in the band.
(2) Set the second carrier two channels away from the first channel (this will either be the 3rd highest or lowest in the band, again providing a one channel guard band).
(3) Configure the output power for the signals such that the total output power is at the maximum rating of the EUT. Also, verify that the input levels for all signals are equal.
(4) Measure (or plot) all intermodulation products inside and outside the allowed channel band. All intermodulation products must meet the 43 + 10 log (P) requirement for spurious emissions. This figure came out to a maximum intermod (or spur) level of -13 dBm. Most measurements of the intermod levels are made using a peak method, however, fully accurate measurements of the intermod levels were made using the following detection methods:

Modulation Type	Detector/Measurement Method
AMPS	**Peak**
TDMA (NADC)	Average
CDMA	Average

(5) Repeat this test for all modulation types which the EUT will be licensed/authorized for.

The two channel method was used for this test. Plots of the data for this test are shown in the Appendix F.

8.0 Form 731 Information

The following information is provided for inclusion in the FCC Form 731 for the **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater.**

8.1 Emission Designator

Bandwidth:

The **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** does not possess any circuitry which remodulates or changes the bandwidth of the signal that it receives and repeats. The only potential issue that can arise in this type of product regarding bandwidth is spectral regrowth immediately around the primary emission. This is due to the design and power handling capability of the amplifier.

The data contained in the occupied bandwidth test data does not indicate any spectral regrowth. Based on this information, the bandwidth of emissions from the **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** would be that of the signal received by the repeater. Since the EUT does not contribute or modify the emission bandwidth, a bandwidth designator will not be

included in the overall emission designators for the product. This procedure follows that used during Type Acceptance of the initial CI Wireless Repeater (FCC ID: NUWØØ3EKO19).

Emission Designator::

As with the emission bandwidth, the emission type emitted by the **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** are depended on the service that it operates with. Due to the intended installation of the system, the RF output signals of the **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** are complaint with the AMPS, TDMA and CDMA protocol requirements. This output emission designators (based on Party 2.201) for these services are:

Service Type	Emission Description	Emission Designator
CDMA	(1) Modulation Type: Frequency Modulation (2) Nature of Modulating Signal: Composite Signal with one or more channels containing digital data & one or more channels containing analog data (3) Type of data being transmitted can be a combination of digital, voice, telegraphy, television, or facsimile	F9W
AMPS (GSM)	(1) Modulation Type: Phase Modulation (2) Nature of Modulating Signal: Case not covered (combination may not match that addressed in the available selections) (3) Type of data being transmitted can be a combination of digital, voice, telegraphy, television, or facsimile	GXW
TDMA (NADC)	(1) Modulation Type: Main carrier is angle modulated in a simultaneous or preset sequence. (2) Nature of Modulating Signal: Case not covered (combination may not match that addressed in the available selections) (3) Type of data being transmitted can be a combination of digital, voice, telegraphy, television, or facsimile	DXW

Based on the bandwidth and emission type discussions, the emission designators used for the FCC Form 731 are:

AMPS(GSM) Mode

GXW - All data modes and types

CDMA Mode

F9W - All data modes and types

TDMA(NADC) Mode

DXW - All data modes and types

8.2 Output Power

In the conducted power tests, the highest power attained for each of the power settings was 47.00 dBm (50 watts). This level was achieved at each of the 3 test frequencies for each of the 3 modulation types. Since the system automatically controls the maximum output power, this level should be constant for all single carrier operations.

Due to the operating features of the EUT, this is the maximum composite power available from the device. Therefore, the power rating requested for the grant for the **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** is:

50 watts

8.3 Output Power Ratings for Multi-Channel Operation

The total composite power for this device is 50 watts. The EUT has a power regulation system which will reduce the total individual channel power for the carriers to provide a constant 50 watt composite power regardless of the number of carriers. The worst peak power level is single channel operation, which results in a peak output power of 50 watts (composite power divided by 1). As channels are added to the EUT, the individual channel power is based on the composite power divided by the number of channels. For this reason, the individual channel powers used in the intermod test was 25 watts output per channel (4/2 = 2).

8.4 Frequency Band of Operation

The **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** is rated to be used through the entire 800 MHz cellular (base station) communication band. Based on this requirement, the transmission range of the **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** is:

869.0 to 894.0 MHz

8.5 Grant Notes

The only exceptions or notes that would normally be listed for this device are:

(1) The center frequency of the emissions for the CDMA should not be less than 1.25 MHz from the band edge (standard guard band).
(2) The power listed in the grant is the composite power for the device for all carriers.

9.0 Modifications

The **CI Wireless Inc., 800 MHz Cellular Band 50 Watt Repeater** was modified during the performance of the test by installing ferrite 83-10-Y850-1000 and ferrite 83-10-Y379-1000 on the DC line of the remote unit to meet the unintended radiated and conducted emission requirement.

10.0 List of Test Equipment

A list of the test equipment utilized to perform the conducted and radiated emission measurements is given below. The date of calibration is given for each.

Device	Description	Date Last Calibrated	Calibration Due
HP 8596E	Spectrum Analyzer	10/9/98	10/9/99
HP 8566B	Spectrum Analyzer	10/30/98	10/30/99
HP 85650A	Quasi Peak Adapter	10/30/98	10/30/99
MITEQ AFS4-00101800-40-10P-N	Preamplifier	05/10/99	05/10/00
EMCO 3108	Biconical Antenna	07/22/98	07/22/99
EMCO 3146	Log Periodic Antenna	07/22/98	07/22/99
EMCO 3115	Double Ridged Horn Antenna	05/10/99	05/10/00
Rohde-Schwartz Model SMI 03E	RF Generator S/N DE23670	11/3/98	11/3/99
Rohde-Schwartz Model SMI 03E	RF Generator S/N DE22176	1/30/98	1/30/00
HP 436A	Power Meter	01/25/99	01/25/00
HP 8482H	Power Meter Head	01/25/99	01/25/00
Mini-Circuits ZAPD-2	RF Splitter	CNR	CNR

CNR = Calibration Not Required

Appendix A Sub-Model Index Data

800 Hub **Example:** Eko-8HEB0-0AC000

Eko-8H X X X - X X X X X X

Option Designators (Include only equipped options)
Combiner 0 2 4
Wave Division Multiplex Option
Heater Option (N/A for Hub)
Crossband Coupler Option(1.9 and 800)
AC Power Option (DC Standard)
Duplexer Option

Standard Nomenclature
Reserved
B-Both
C- Cellular
S - Trunking/Cellular
Expansion Configured Hub Unit
H - Hub Unit Only 1.9 GHz, Non-Expandable

Microcell (Remote) **Examples:** Eko-8M0C0-DAC000
Eko-8M0S0-DAC000

Eko-8M X X X - X X X X X X

Option Designators (Include only equipped options)
Combiner 0 2 4 (N/A)
Wave Division Multiplex
Heater Option
Crossband Coupler Option
AC Power - Standard
Duplexer - Standard

Standard Nomenclature

Reserved

C - Cellular
S - Trunking/ESMR
Expansion or Slave Unit*
M - Standard Power Microcell Unit
R - Microcell Unit, 1900 MHz, 8 watt
* Slave Unit is equipped to interconnect with Eko-1.9M which includes the Eko-M-X option

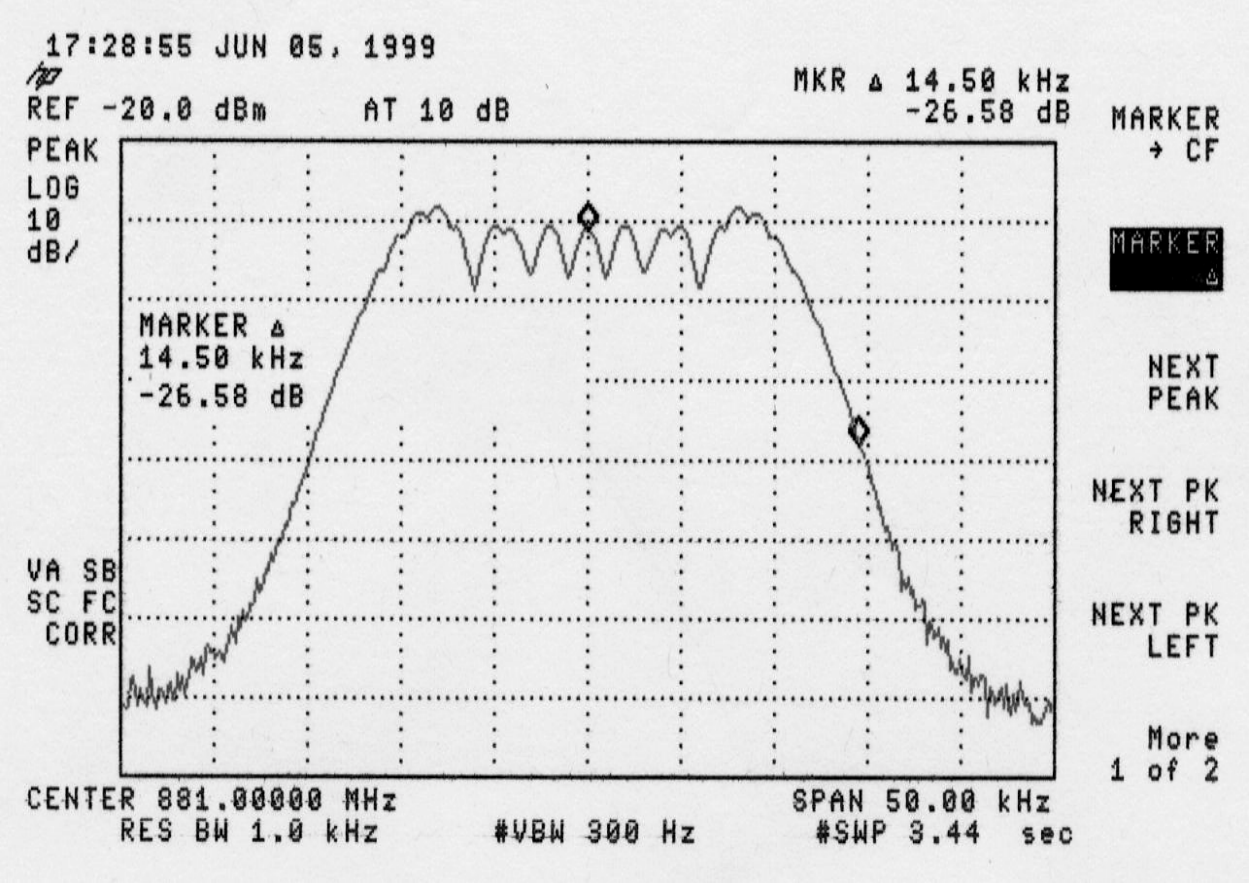
For the 1900 MHz unit, the 8 shown in these descriptions is replaced by 1.9

Appendix B Occupied Bandwidth Test Data

Occupied Bandwidth Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009 PROJECT #: 00002-10
DATE: June 9, 1999 MODE: AMPS
CONFIGURATION: EUT



COMMENT #1: Channel Setting = Middle

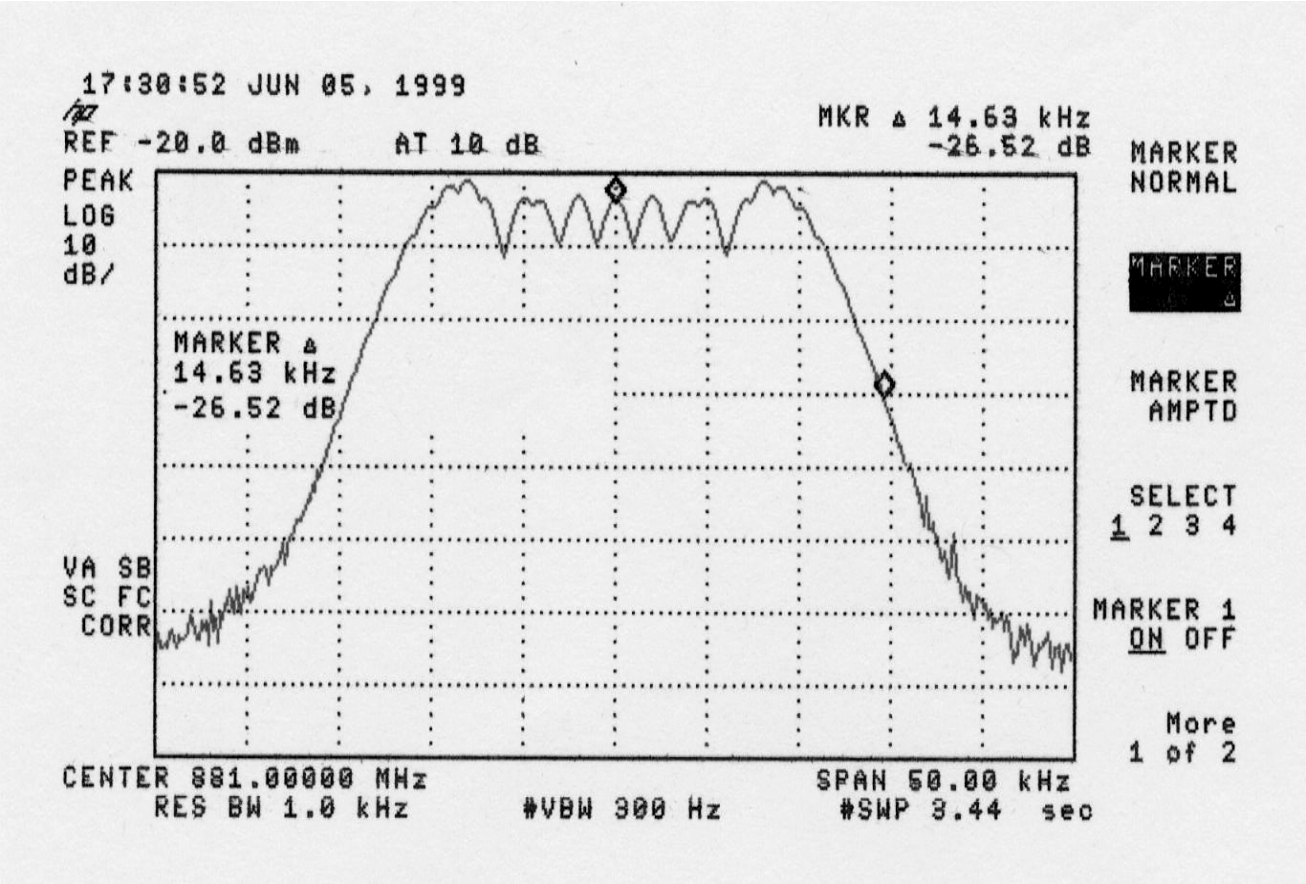
COMMENT #2: 26 dB Bandwidth = 29.0 kHz

TEST ENGINEER:_____ **APPROVED BY**: _____
Larry Zhou **Jeffrey A. Lenk**

Occupied Bandwidth Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009 PROJECT #: 00002-10
DATE: June 9, 1999 MODE: AMPS
CONFIGURATION: Generator Only



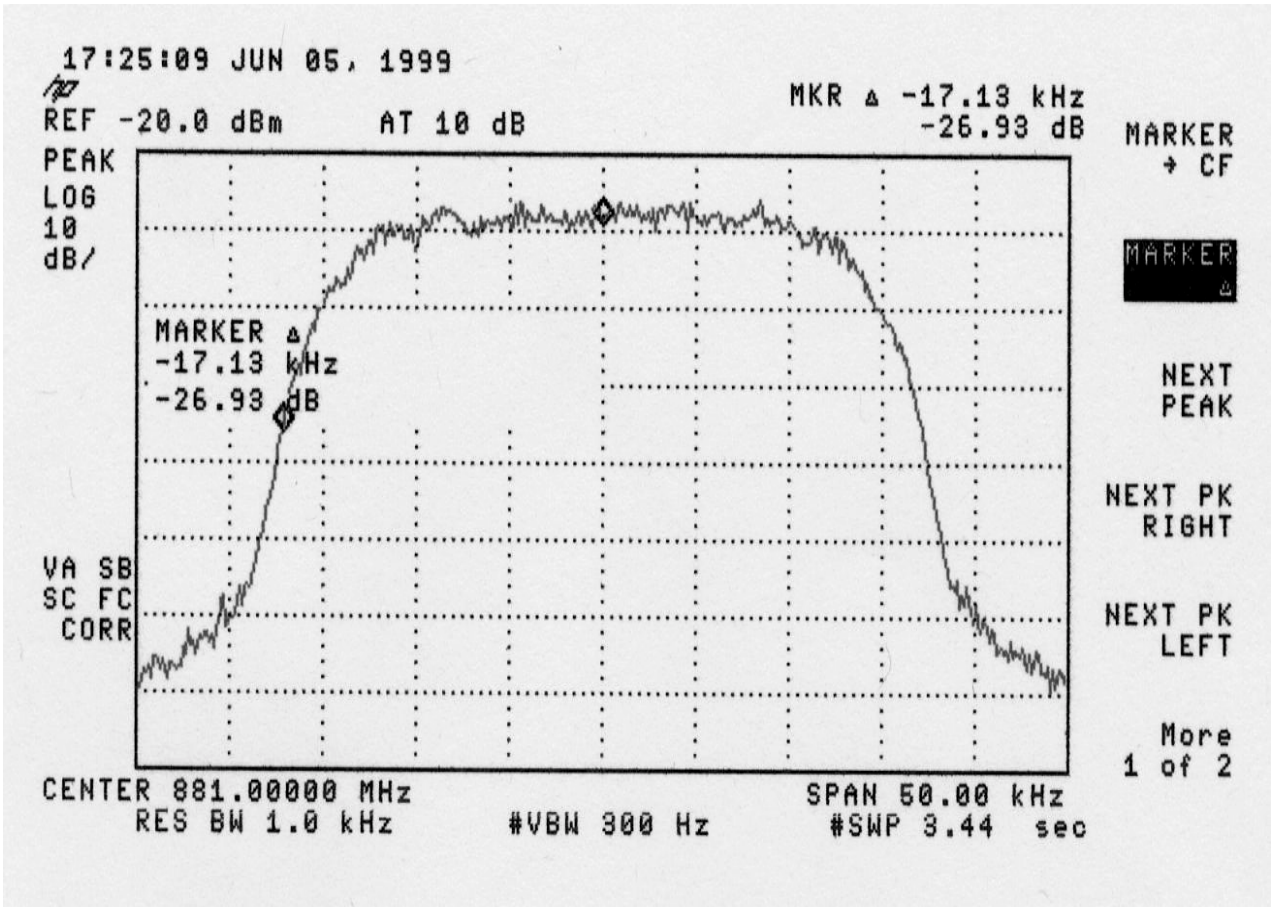
COMMENT #1: Channel Setting = Middle

COMMENT #2: 26 dB Bandwidth = 29.26 kHz

TEST ENGINEER:_____ **APPROVED BY**: _____
Larry Zhou **Jeffrey A. Lenk**

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009 PROJECT #: 00002-10
DATE: June 9, 1999 MODE: TDMA
CONFIGURATION: EUT



COMMENT #1: Channel Setting = Middle

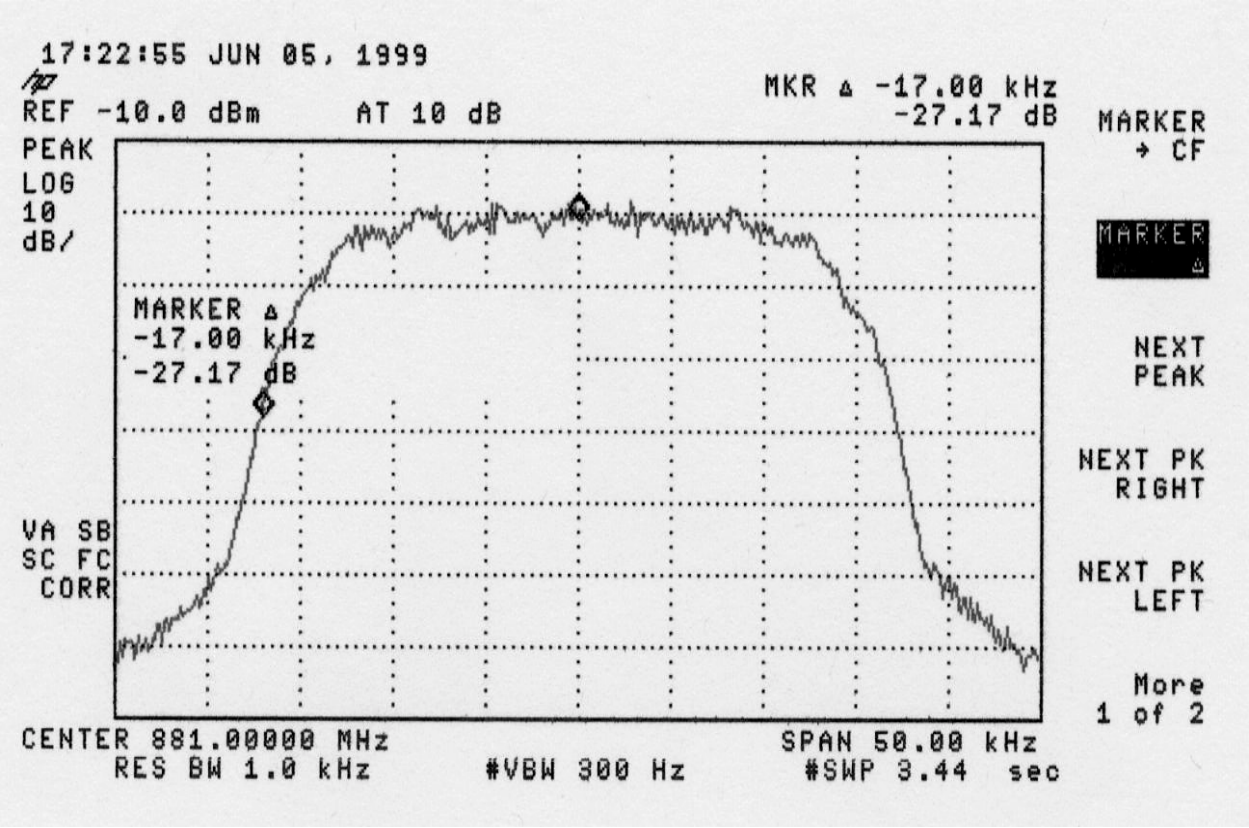
COMMENT #2: 26 dB Bandwidth = 34.26 kHz

TEST ENGINEER:_____ **APPROVED BY**: _____
Larry Zhou **Jeffrey A. Lenk**

Occupied Bandwidth Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009 PROJECT #: 00002-10
DATE: June 9, 1999 MODE: TDMA
CONFIGURATION: Generator Only



COMMENT #1: Channel Setting = Middle

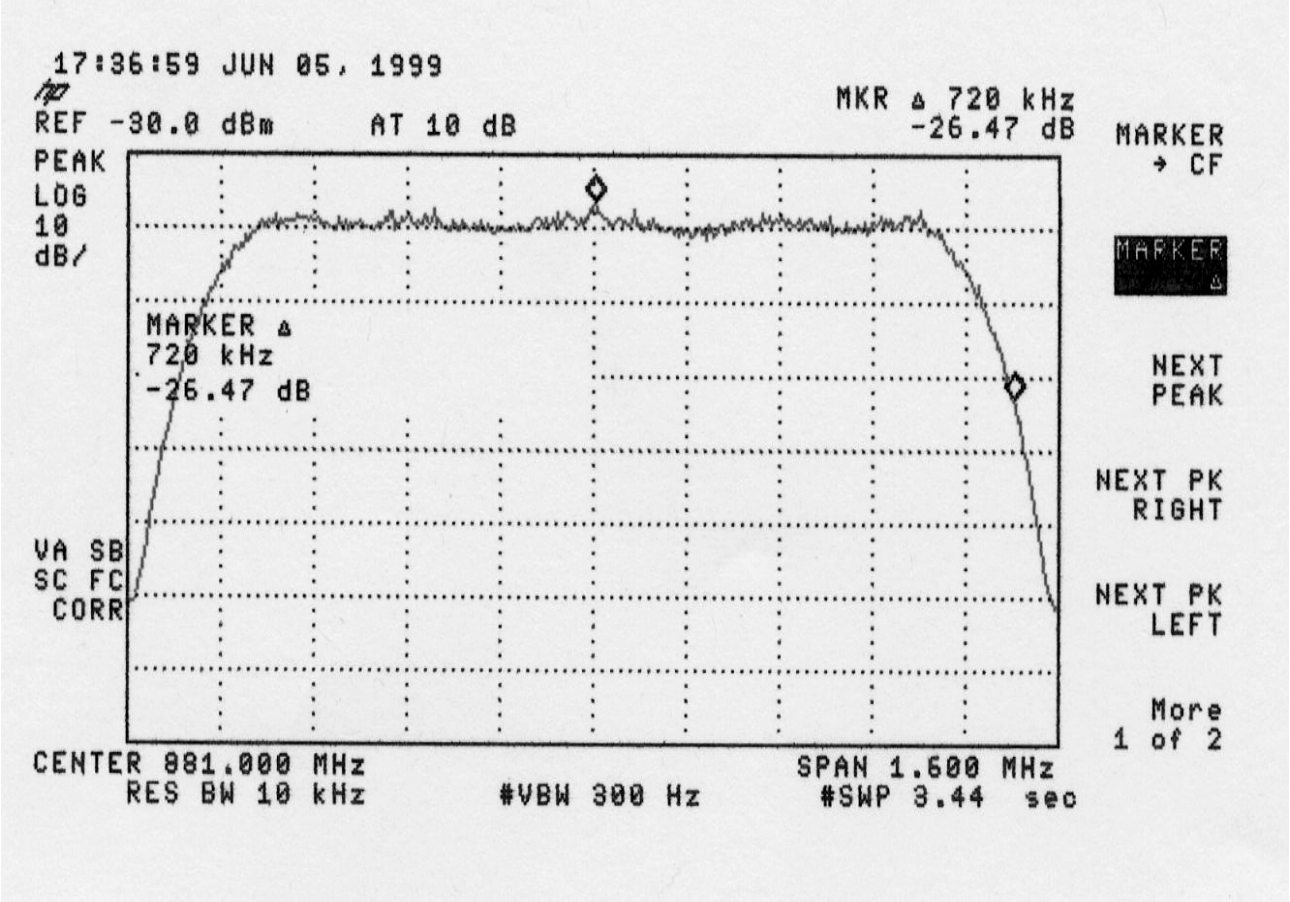
COMMENT #2: 26 dB Bandwidth = 34.00 kHz

TEST ENGINEER:_____ **APPROVED BY**: _____
Larry Zhou **Jeffrey A. Lenk**

Occupied Bandwidth Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009 PROJECT #: 00002-10
DATE: June 9, 1999 MODE: CDMA
CONFIGURATION: EUT



COMMENT #1: Channel Setting = Middle

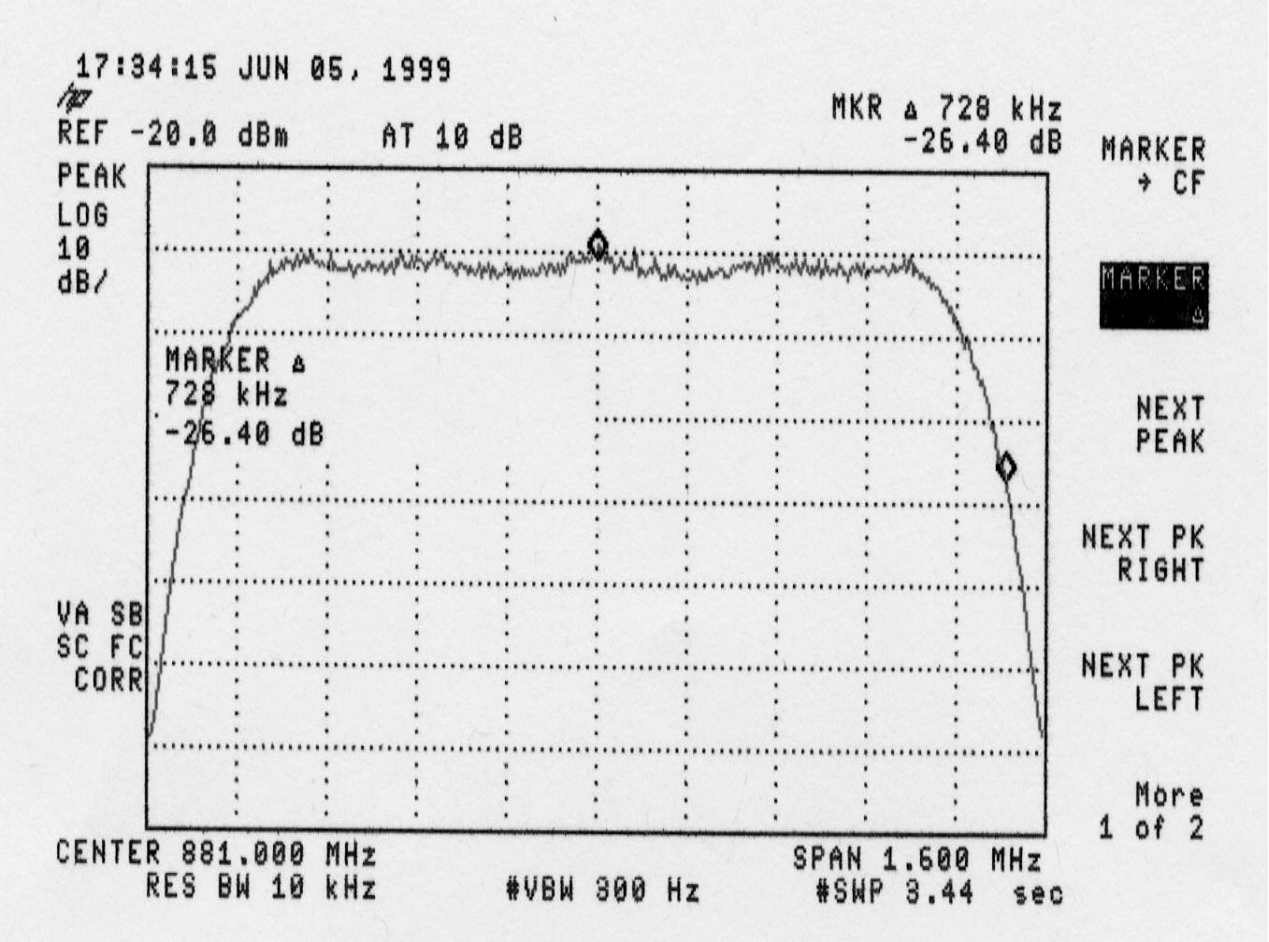
COMMENT #2: 26 dB Bandwidth = 1.44 MHz

TEST ENGINEER:_____ **APPROVED BY**: _____
Larry Zhou **Jeffrey A. Lenk**

Occupied Bandwidth Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009 PROJECT #: 00002-10
DATE: June 9, 1999 MODE: CDMA
CONFIGURATION: Generator Only



COMMENT #1: Channel Setting = Middle

COMMENT #2: 26 dB Bandwidth = 1.456 MHz

TEST ENGINEER:_____ **APPROVED BY**: _____
Larry Zhou **Jeffrey A. Lenk**

Appendix C

Effective Radiated Power Test Data

Effective Radiated Power Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H911005/M919009 PROJECT #: 00002-10
DATE: June 9, 1999

AMPS Mode

Freq. (MHz)	Recorded Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBuV/m)	Level ERP (watts)	Limit (watts)	Margin (watts)
870.00	113.30	22.50	6.40	142.20	49.788	500.00	-450.21
881.00	113.00	22.60	6.40	142.00	47.547	500.00	-452.45
893.00	113.00	22.70	6.50	142.20	49.788	500.00	-450.21

CDMA Mode

Freq. (MHz)	Recorded Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBuV/m)	Level ERP (watts)	Limit (watts)	Margin (watts)
870.00	113.20	22.50	6.40	142.10	48.654	500.00	-451.35
881.00	112.70	22.60	6.40	141.70	44.373	500.00	-455.63
893.00	112.70	22.70	6.50	141.90	46.464	500.00	-453.54

TDMA Mode

Freq. (MHz)	Recorded Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBuV/m)	Level ERP (watts)	Limit (watts)	Margin (watts)
870.00	113.30	22.50	6.40	142.20	49.788	500.00	-450.21
881.00	112.90	22.60	6.40	141.90	46.464	500.00	-453.54
893.00	113.00	22.70	6.50	142.20	49.788	500.00	-450.21

COMMENT #1: Worst Case Height (All modulations): 1.0 meters

COMMENT #2: Worst case emission direction for all measurements was 180 degrees.

TEST ENGINEER:_____ **APPROVED BY**: _____
Larry Zhou **Jeffrey A. Lenk**

Appendix D

Out of Band Emissions (Radiated) Test Data

Out of Band Emission - Radiated Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009 PROJECT #: 00002-10
DATE: June 9, 1999 POLARIZATION: Vertical
MODE: AMPS (GSM)

Freq. (MHz)	EUT Direction (Deg)	Recorded Level (dBuV)	Cable Loss (dB)	Antenna Factor (dBuV/m)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
870.000	101.0	113.30	6.4	22.5	142.2	Ref	Ref
870.020	101.0	50.10	6.4	22.5	79.0	116.2	-37.2
870.045	101.0	50.20	6.4	22.5	79.1	82.2	-3.1
1740.000	101.0	21.30	4.5	25.7	51.5	91.7	-40.2
2610.00	101.0	18.50	3.3	29.2	51.0	91.7	-40.7
3480.00	101.0	19.50	6.0	31.5	57.0	91.7	-34.7
4350.00	101.0	17.70	6.1	33.2	57.0	91.7	-34.7
5220.00	101.0	17.50	6.8	34.2	58.5	91.7	-33.2
6090.00	101.0	19.60	8.7	35.7	64.0	91.7	-27.7
6960.00	101.0	19.20	9.5	35.7	64.4	91.7	-27.3
7830.00	101.0	20.70	9.4	36.1	66.2	91.7	-25.5
8700.00	101.0	19.40	10.4	36.4	66.2	91.7	-25.5

COMMENT #1: Channel = Low Setting, 870.00 MHz

COMMENT #2: Measurements < 1 GHz made at 3 meters. Measurements made > 1 GHz made at 1 meter. No EUT emissions detected from > 1 MHz from the fundamental.

COMMENT #3: Worst case emissions were for EUT antenna in vertical position. Data is presented for this configuration.

COMMENT #4: BW decreased to 300 Hz for measurements within 100 kHz of the fundamental Measurements close to the fundamental were made based on attenuation from the peak signal level measured using a delta marker function on a single plot (not a separate measurement procedure).

TEST ENGINEER:_____ **APPROVED BY**: _____
Larry Zhou **Jeffrey A. Lenk**

Out of Band Emission - Radiated Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919005 PROJECT #: 00002-10
DATE: June 9, 1999 POLARIZATION: Horizontal
MODE: AMPS (GSM)

Freq. (MHz)	EUT Direction (Deg)	Recorded Level (dBuV)	Cable Loss (dB)	Antenna Factor (dBuV/m)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
870.000	15.0	99.70	6.4	22.5	128.6	Ref	Ref
870.020	15.0	37.80	6.4	22.5	66.7	102.6	-35.9
870.045	15.0	37.20	6.4	22.5	66.1	68.6	-2.5
1740.000	15.0	18.30	4.5	25.7	48.5	78.1	-29.6
2610.00	15.0	19.40	3.3	29.2	51.9	78.1	-26.2
3480.00	15.0	17.20	6.0	31.5	54.7	78.1	-23.4
4350.00	15.0	18.40	6.1	33.2	57.7	78.1	-20.4
5220.00	15.0	18.90	6.8	34.2	59.9	78.1	-18.2
6090.00	15.0	19.90	8.7	35.7	64.3	78.1	-13.8
6960.00	15.0	20.00	9.5	35.7	65.2	78.1	-12.9
7830.00	15.0	19.40	9.4	36.1	64.9	78.1	-13.2
8700.00	15.0	17.90	10.4	36.4	64.7	78.1	-13.4

COMMENT #1: Channel = Low Setting, 870.00 MHz

COMMENT #2: Measurements < 1 GHz made at 3 meters. Measurements made > 1 GHz made at 1 meter. No EUT emissions detected from > 1 MHz from the fundamental.

COMMENT #3: Worst case emissions were for EUT antenna in vertical position. Data is presented for this configuration.

COMMENT #4: BW decreased to 300 Hz for measurements within 100 kHz of the fundamental Measurements close to the fundamental were made based on attenuation from the peak signal level measured using a delta marker function on a single plot (not a separate measurement procedure).

TEST ENGINEER:_____ **APPROVED BY**: _____
Larry Zhou **Jeffrey A. Lenk**

Out of Band Emission - Radiated Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009 PROJECT #: 00002-10
DATE: June 9, 1999 POLARIZATION: Vertical
MODE: AMPS (GSM)

Freq. (MHz)	EUT Direction (Deg)	Recorded Level (dBuV)	Cable Loss (dB)	Antenna Factor (dBuV/m)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
881.000	0.0	113.00	6.4	22.6	142.0	Ref	Ref
881.020	0.0	52.50	6.4	22.6	81.5	118.0	-36.5
881.045	0.0	51.60	6.4	22.6	80.6	82.0	-1.4
1762.000	0.0	22.60	4.5	25.7	52.8	91.5	-38.7
2643.00	0.0	18.00	3.3	29.2	50.5	91.5	-41.0
3524.00	0.0	6.90	6.0	31.5	44.4	91.5	-47.1
4405.00	0.0	17.30	6.1	33.2	56.6	91.5	-34.9
5286.00	0.0	17.00	6.8	34.2	58.0	91.5	-33.5
6167.00	0.0	19.00	8.7	35.7	63.4	91.5	-28.1
7048.00	0.0	18.50	9.5	35.7	63.7	91.5	-27.8
7929.00	0.0	19.40	9.4	36.1	64.9	91.5	-26.6
8810.00	0.0	20.00	10.4	36.4	66.8	91.5	-24.7

COMMENT #1: Channel = Middle Setting, 881.00 MHz

COMMENT #2: Measurements < 1 GHz made at 3 meters. Measurements made > 1 GHz made at 1 meter. No EUT emissions detected from > 1 MHz from the fundamental.

COMMENT #3: Worst case emissions were for EUT antenna in vertical position. Data is presented for this configuration.

COMMENT #4: BW decreased to 300 Hz for measurements within 100 kHz of the fundamental Measurements close to the fundamental were made based on attenuation from the peak signal level measured using a delta marker function on a single plot (not a separate measurement procedure).

TEST ENGINEER:_____ **APPROVED BY**: _____
Larry Zhou **Jeffrey A. Lenk**

Out of Band Emission - Radiated Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919005 PROJECT #: 00002-10
DATE: June 9, 1999 POLARIZATION: Horizontal
MODE: AMPS (GSM)

Freq. (MHz)	EUT Direction (Deg)	Recorded Level (dBuV)	Cable Loss (dB)	Antenna Factor (dBuV/m)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
881.000	0.0	103.10	6.4	22.6	132.1	Ref	Ref
881.020	0.0	41.80	6.4	22.6	70.8	106.1	-35.3
881.045	0.0	40.60	6.4	22.6	69.6	72.1	-2.5
1762.000	0.0	21.00	4.5	25.7	51.2	81.6	-30.4
2643.00	0.0	18.80	3.3	29.2	51.3	81.6	-30.3
3524.00	0.0	17.70	6.0	31.5	55.2	81.6	-26.4
4405.00	0.0	17.20	6.1	33.2	56.5	81.6	-25.1
5286.00	0.0	17.00	6.8	34.2	58.0	81.6	-23.6
6167.00	0.0	19.80	8.7	35.7	64.2	81.6	-17.4
7048.00	0.0	19.20	9.5	35.7	64.4	81.6	-17.2
7929.00	0.0	19.50	9.4	36.1	65.0	81.6	-16.6
8810.00	0.0	18.90	10.4	36.4	65.7	81.6	-15.9

COMMENT #1: Channel = Middle Setting, 881.00 MHz

COMMENT #2: Measurements < 1 GHz made at 3 meters. Measurements made > 1 GHz made at 1 meter. No EUT emissions detected from > 1 MHz from the fundamental.

COMMENT #3: Worst case emissions were for EUT antenna in vertical position. Data is presented for this configuration.

COMMENT #4: BW decreased to 300 Hz for measurements within 100 kHz of the fundamental Measurements close to the fundamental were made based on attenuation from the peak signal level measured using a delta marker function on a single plot (not a separate measurement procedure).

TEST ENGINEER:_____ **APPROVED BY**: _____
Larry Zhou **Jeffrey A. Lenk**

Out of Band Emission - Radiated Data Sheet

800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009 PROJECT #: 00002-10
DATE: June 9, 1999 POLARIZATION: Vertical
MODE: AMPS (GSM)

Freq. (MHz)	EUT Direction (Deg)	Recorded Level (dBuV)	Cable Loss (dB)	Antenna Factor (dBuV/m)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
893.000	0.0	113.00	6.5	22.7	142.2	Ref	Ref
893.020	0.0	56.20	6.5	22.7	85.4	116.2	-30.8
893.045	0.0	52.10	6.5	22.7	81.3	82.2	-0.9
1786.000	0.0	19.20	4.5	25.7	49.4	91.7	-42.3
2679.00	0.0	17.30	3.3	29.2	49.8	91.7	-41.9
3572.00	0.0	17.20	6.0	31.5	54.7	91.7	-37.0
4465.00	0.0	18.00	6.1	33.2	57.3	91.7	-34.4
5358.00	0.0	17.90	6.8	34.2	58.9	91.7	-32.8
6251.00	0.0	18.20	8.7	35.7	62.6	91.7	-29.1
7144.00	0.0	19.70	9.5	35.7	64.9	91.7	-26.8
8037.00	0.0	18.40	9.4	36.1	63.9	91.7	-27.8
8930.00	0.0	19.30	10.4	36.4	66.1	91.7	-25.6

COMMENT #1: Channel = High Setting, 893.00 MHz

COMMENT #2: Measurements < 1 GHz made at 3 meters. Measurements made > 1 GHz made at 1 meter. No EUT emissions detected from > 1 MHz from the fundamental.

COMMENT #3: Worst case emissions were for EUT antenna in vertical position. Data is presented for this configuration.

COMMENT #4: BW decreased to 300 Hz for measurements within 100 kHz of the fundamental Measurements close to the fundamental were made based on attenuation from the peak signal level measured using a delta marker function on a single plot (not a separate measurement procedure).

TEST ENGINEER:_____ **APPROVED BY**: _____
Larry Zhou **Jeffrey A. Lenk**

Out of Band Emission - Radiated Data Sheet

SERIAL #: H919005/M919005 PROJECT #: 00002-10
DATE: June 9, 1999 POLARIZATION: Horizontal
MODE: AMPS (GSM)

Freq. (MHz)	EUT Direction (Deg)	Recorded Level (dBuV)	Cable Loss (dB)	Antenna Factor (dBuV/m)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
893.000	17.0	102.10	6.5	22.7	131.3	Ref	Ref
893.020	17.0	42.50	6.5	22.7	71.7	105.3	-33.6
893.045	17.0	38.20	6.5	22.7	67.4	71.3	-3.9
1786.000	17.0	17.90	4.5	25.7	48.1	80.8	-32.7
2679.00	17.0	18.30	3.3	29.2	50.8	80.8	-30.0
3572.00	17.0	18.00	6.0	31.5	55.5	80.8	-25.3
4465.00	17.0	18.60	6.1	33.2	57.9	80.8	-22.9
5358.00	17.0	19.40	6.8	34.2	60.4	80.8	-20.4
6251.00	17.0	18.70	8.7	35.7	63.1	80.8	-17.7
7144.00	17.0	19.10	9.5	35.7	64.3	80.8	-16.5
8037.00	17.0	18.50	9.4	36.1	64.0	80.8	-16.8
8930.00	17.0	18.50	10.4	36.4	65.3	80.8	-15.5

COMMENT #1: Channel = High Setting, 893.00 MHz

COMMENT #2: Measurements < 1 GHz made at 3 meters. Measurements made > 1 GHz made at 1 meter. No EUT emissions detected from > 1 MHz from the fundamental.

COMMENT #3: Worst case emissions were for EUT antenna in vertical position. Data is presented for this configuration.

COMMENT #4: BW decreased to 300 Hz for measurements within 100 kHz of the fundamental Measurements close to the fundamental were made based on attenuation from the peak signal level measured using a delta marker function on a single plot (not a separate measurement procedure).

TEST ENGINEER:_____ **APPROVED BY**: _____
Larry Zhou **Jeffrey A. Lenk**

Out of Band Emission - Radiated Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009 PROJECT #: 00002-10
DATE: June 9, 1999 POLARIZATION: Vertical
MODE: CDMA

Freq. (MHz)	EUT Direction (Deg)	Recorded Level (dBuV)	Cable Loss (dB)	Antenna Factor (dBuV/m)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
870.000	75.0	113.20	6.4	22.5	142.1	Ref	Ref
1740.000	75.0	17.50	4.5	25.7	47.7	91.6	-43.9
2610.00	75.0	8.30	3.3	29.2	40.8	91.6	-50.8
3480.00	75.0	7.90	6.0	31.5	45.4	91.6	-46.2
4350.00	75.0	8.50	6.1	33.2	47.8	91.6	-43.8
5220.00	75.0	8.60	6.8	34.2	49.6	91.6	-42.0
6090.00	75.0	10.10	8.7	35.7	54.5	91.6	-37.1
6960.00	75.0	10.90	9.5	35.7	56.1	91.6	-35.5
7830.00	75.0	10.10	9.4	36.1	55.6	91.6	-36.0
8700.00	75.0	10.60	10.4	36.4	57.4	91.6	-34.2

COMMENT #1: Channel = Low Setting, 870.00 MHz

COMMENT #2: Measurements < 1 GHz made at 3 meters. Measurements made > 1 GHz made at 1 meter. No EUT emissions detected from > 1 MHz from the fundamental.

COMMENT #3: Worst case emissions were for EUT antenna in vertical position. Data is presented for this configuration.

TEST ENGINEER:_____ **APPROVED BY**: _____
Larry Zhou **Jeffrey A. Lenk**

Out of Band Emission - Radiated Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009 PROJECT #: 00002-10

DATE: June 9, 1999 POLARIZATION: Horizontal
MODE: CDMA

Freq. (MHz)	EUT Direction (Deg)	Recorded Level (dBuV)	Cable Loss (dB)	Antenna Factor (dBuV/m)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
870.000	32.0	98.80	6.4	22.5	127.7	Ref	Ref
1740.000	32.0	14.90	4.5	25.7	45.1	77.2	-32.1
2610.00	32.0	8.00	3.3	29.2	40.5	77.2	-36.7
3480.00	32.0	7.80	6.0	31.5	45.3	77.2	-31.9
4350.00	32.0	8.70	6.1	33.2	48.0	77.2	-29.2
5220.00	32.0	8.40	6.8	34.2	49.4	77.2	-27.8
6090.00	32.0	8.30	8.7	35.7	52.7	77.2	-24.5
6960.00	32.0	10.30	9.5	35.7	55.5	77.2	-21.7
7830.00	32.0	11.10	9.4	36.1	56.6	77.2	-20.6
8700.00	32.0	9.80	10.4	36.4	56.6	77.2	-20.6

COMMENT #1: Channel = Low Setting, 870.00 MHz

COMMENT #2: Measurements < 1 GHz made at 3 meters. Measurements made > 1 GHz made at 1 meter. No EUT emissions detected from > 1 MHz from the fundamental.

COMMENT #3: Worst case emissions were for EUT antenna in vertical position. Data is presented for this configuration.

TEST ENGINEER:_____ **APPROVED BY**: _____
Larry Zhou **Jeffrey A. Lenk**

Out of Band Emission - Radiated Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009 PROJECT #: 00002-10
DATE: June 9, 1999 POLARIZATION: Vertical

MODE: CDMA

Freq. (MHz)	EUT Direction (Deg)	Recorded Level (dBuV)	Cable Loss (dB)	Antenna Factor (dBuV/m)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
881.000	0.0	112.70	6.4	22.6	141.7	Ref	Ref
1762.000	0.0	8.00	4.5	25.7	38.2	91.2	-53.0
2643.00	0.0	8.40	3.3	29.2	40.9	91.2	-50.3
3524.00	0.0	8.80	6.0	31.5	46.3	91.2	-44.9
4405.00	0.0	8.40	6.1	33.2	47.7	91.2	-43.5
5286.00	0.0	8.30	6.8	34.2	49.3	91.2	-41.9
6167.00	0.0	10.10	8.7	35.7	54.5	91.2	-36.7
7048.00	0.0	11.00	9.5	35.7	56.2	91.2	-35.0
7929.00	0.0	9.40	9.4	36.1	54.9	91.2	-36.3
8810.00	0.0	9.80	10.4	36.4	56.6	91.2	-34.6

COMMENT #1: Channel = Middle Setting, 881.00 MHz

COMMENT #2: Measurements < 1 GHz made at 3 meters. Measurements made > 1 GHz made at 1 meter. No EUT emissions detected from > 1 MHz from the fundamental.

COMMENT #3: Worst case emissions were for EUT antenna in vertical position. Data is presented for this configuration.

TEST ENGINEER:_____ **APPROVED BY**: _____

Larry Zhou **Jeffrey A. Lenk**

Out of Band Emission - Radiated Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009 PROJECT #: 00002-10
DATE: June 9, 1999 POLARIZATION: Horizontal
MODE: CDMA

Freq. (MHz)	EUT Direction (Deg)	Recorded Level (dBuV)	Cable Loss (dB)	Antenna Factor (dBuV/m)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
881.000	75.0	105.80	6.4	22.6	134.8	Ref	Ref
1762.000	75.0	9.60	4.5	25.7	39.8	84.3	-44.5
2643.00	75.0	8.50	3.3	29.2	41.0	84.3	-43.3
3524.00	75.0	8.60	6.0	31.5	46.1	84.3	-38.2
4405.00	75.0	8.30	6.1	33.2	47.6	84.3	-36.7
5286.00	75.0	8.90	6.8	34.2	49.9	84.3	-34.4
6167.00	75.0	10.30	8.7	35.7	54.7	84.3	-29.6
7048.00	75.0	10.50	9.5	35.7	55.7	84.3	-28.6
7929.00	75.0	9.60	9.4	36.1	55.1	84.3	-29.2
8810.00	75.0	10.20	10.4	36.4	57.0	84.3	-27.3

COMMENT #1: Channel = Middle Setting, 881.00 MHz

COMMENT #2: Measurements < 1 GHz made at 3 meters. Measurements made > 1 GHz made at 1 meter. No EUT emissions detected from > 1 MHz from the fundamental.

COMMENT #3: Worst case emissions were for EUT antenna in vertical position. Data is presented for this configuration.

TEST ENGINEER:_____ **APPROVED BY**: _____

Larry Zhou **Jeffrey A. Lenk**

Out of Band Emission - Radiated Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009 PROJECT #: 00002-10
DATE: June 9, 1999 POLARIZATION: Vertical
MODE: CDMA

Freq. (MHz)	EUT Direction (Deg)	Recorded Level (dBuV)	Cable Loss (dB)	Antenna Factor (dBuV/m)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
893.000	0.0	112.70	6.5	22.7	141.9	Ref	Ref
1786.000	0.0	12.40	4.5	25.7	42.6	91.4	-48.8
2679.00	0.0	8.40	3.3	29.2	40.9	91.4	-50.5
3572.00	0.0	8.70	6.0	31.5	46.2	91.4	-45.2
4465.00	0.0	8.30	6.1	33.2	47.6	91.4	-43.8
5358.00	0.0	8.40	6.8	34.2	49.4	91.4	-42.0
6251.00	0.0	10.70	8.7	35.7	55.1	91.4	-36.3
7144.00	0.0	9.80	9.5	35.7	55.0	91.4	-36.4
8037.00	0.0	9.20	9.4	36.1	54.7	91.4	-36.7
8930.00	0.0	9.00	10.4	36.4	55.8	91.4	-35.6

COMMENT #1: Channel = High Setting, 893.00 MHz

COMMENT #2: Measurements < 1 GHz made at 3 meters. Measurements made > 1 GHz made at 1 meter. No EUT emissions detected from > 1 MHz from the fundamental.

COMMENT #3: Worst case emissions were for EUT antenna in vertical position. Data is presented for this configuration.

TEST ENGINEER:_____ **APPROVED BY**: _____

Larry Zhou **Jeffrey A. Lenk**

Out of Band Emission - Radiated Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009 PROJECT #: 00002-10
DATE: June 9, 1999 POLARIZATION: Horizontal
MODE: CDMA

Freq. (MHz)	EUT Direction (Deg)	Recorded Level (dBuV)	Cable Loss (dB)	Antenna Factor (dBuV/m)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
893.000	0.0	99.90	6.5	22.7	129.1	Ref	Ref
1786.000	0.0	10.80	4.5	25.7	41.0	78.6	-37.6
2679.00	0.0	8.70	3.3	29.2	41.2	78.6	-37.4
3572.00	0.0	8.00	6.0	31.5	45.5	78.6	-33.1
4465.00	0.0	8.90	6.1	33.2	48.2	78.6	-30.4
5358.00	0.0	8.90	6.8	34.2	49.9	78.6	-28.7
6251.00	0.0	10.50	8.7	35.7	54.9	78.6	-23.7
7144.00	0.0	10.60	9.5	35.7	55.8	78.6	-22.8
8037.00	0.0	9.60	9.4	36.1	55.1	78.6	-23.5
8930.00	0.0	9.10	10.4	36.4	55.9	78.6	-22.7

COMMENT #1: Channel = High Setting, 893.00 MHz

COMMENT #2: Measurements < 1 GHz made at 3 meters. Measurements made > 1 GHz made at 1 meter. No EUT emissions detected from > 1 MHz from the fundamental.

COMMENT #3: Worst case emissions were for EUT antenna in vertical position. Data is presented for this configuration.

TEST ENGINEER:_____ **APPROVED BY**: _____

Larry Zhou **Jeffrey A. Lenk**

Out of Band Emission - Radiated Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009 PROJECT #: 00002-10
DATE: June 9, 1999 POLARIZATION: Vertical
MODE: TDMA (NADC)

Freq. (MHz)	EUT Direction (Deg)	Recorded Level (dBuV)	Cable Loss (dB)	Antenna Factor (dBuV/m)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
870.000	92.0	113.30	6.4	22.5	142.2	Ref	Ref
1740.000	92.0	25.00	4.5	25.7	55.2	91.7	-36.5
2610.00	92.0	8.50	3.3	29.2	41.0	91.7	-50.7
3480.00	92.0	8.20	6.0	31.5	45.7	91.7	-46.0
4350.00	92.0	7.70	6.1	33.2	47.0	91.7	-44.7
5220.00	92.0	7.60	6.8	34.2	48.6	91.7	-43.1
6090.00	92.0	10.50	8.7	35.7	54.9	91.7	-36.8
6960.00	92.0	9.60	9.5	35.7	54.8	91.7	-36.9
7830.00	92.0	10.00	9.4	36.1	55.5	91.7	-36.2
8700.00	92.0	9.80	10.4	36.4	56.6	91.7	-35.1

COMMENT #1: Channel = Low Setting, 870.00 MHz

COMMENT #2: Measurements < 1 GHz made at 3 meters. Measurements made > 1 GHz made at 1 meter. No EUT emissions detected from > 1 MHz from the fundamental.

COMMENT #3: Worst case emissions were for EUT antenna in vertical position. Data is presented for this configuration.

TEST ENGINEER:_____ **APPROVED BY**: _____

Larry Zhou **Jeffrey A. Lenk**

Out of Band Emission - Radiated Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009 PROJECT #: 00002-10
DATE: June 9, 1999 POLARIZATION: Horizontal
MODE: TDMA (NADC)

Freq. (MHz)	EUT Direction (Deg)	Recorded Level (dBuV)	Cable Loss (dB)	Antenna Factor (dBuV/m)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
870.000	7.0	100.40	6.4	22.5	129.3	Ref	Ref
1740.000	190.0	9.50	4.5	25.7	39.7	78.8	-39.1
2610.00	190.0	7.00	3.3	29.2	39.5	78.8	-39.3
3480.00	190.0	7.30	6.0	31.5	44.8	78.8	-34.0
4350.00	190.0	7.70	6.1	33.2	47.0	78.8	-31.8
5220.00	190.0	10.20	6.8	34.2	51.2	78.8	-27.6
6090.00	190.0	9.70	8.7	35.7	54.1	78.8	-24.7
6960.00	190.0	9.80	9.5	35.7	55.0	78.8	-23.8
7830.00	190.0	9.00	9.4	36.1	54.5	78.8	-24.3
8700.00	190.0	8.70	10.4	36.4	55.5	78.8	-23.3

COMMENT #1: Channel = Low Setting, 870.00 MHz

COMMENT #2: Measurements < 1 GHz made at 3 meters. Measurements made > 1 GHz made at 1 meter. No EUT emissions detected from > 1 MHz from the fundamental.

COMMENT #3: Worst case emissions were for EUT antenna in vertical position. Data is presented for this configuration.

TEST ENGINEER:_____ **APPROVED BY**: _____

Larry Zhou **Jeffrey A. Lenk**

Out of Band Emission - Radiated Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009 PROJECT #: 00002-10
DATE: June 9, 1999 POLARIZATION: Vertical
MODE: TDMA (NADC)

Freq. (MHz)	EUT Direction (Deg)	Recorded Level (dBuV)	Cable Loss (dB)	Antenna Factor (dBuV/m)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
881.000	93.0	112.90	6.4	22.6	141.9	Ref	Ref
1762.000	93.0	24.30	4.5	25.7	54.5	91.4	-36.9
2643.00	93.0	20.90	3.3	29.2	53.4	91.4	-38.0
3524.00	93.0	17.80	6.0	31.5	55.3	91.4	-36.1
4405.00	93.0	17.90	6.1	33.2	57.2	91.4	-34.2
5286.00	93.0	17.60	6.8	34.2	58.6	91.4	-32.8
6167.00	93.0	20.00	8.7	35.7	64.4	91.4	-27.0
7048.00	93.0	19.70	9.5	35.7	64.9	91.4	-26.5
7929.00	93.0	18.50	9.4	36.1	64.0	91.4	-27.4
8810.00	93.0	19.50	10.4	36.4	66.3	91.4	-25.1

COMMENT #1: Channel = Middle Setting, 881.00 MHz

COMMENT #2: Measurements < 1 GHz made at 3 meters. Measurements made > 1 GHz made at 1 meter. No EUT emissions detected from > 1 MHz from the fundamental.

COMMENT #3: Worst case emissions were for EUT antenna in vertical position. Data is presented for this configuration.

TEST ENGINEER:_____ **APPROVED BY**: _____

Larry Zhou **Jeffrey A. Lenk**

Out of Band Emission - Radiated Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009 PROJECT #: 00002-10
DATE: June 9, 1999 POLARIZATION: Horizontal
MODE: TDMA (NADC)

Freq. (MHz)	EUT Direction (Deg)	Recorded Level (dBuV)	Cable Loss (dB)	Antenna Factor (dBuV/m)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
881.000	20.0	105.00	6.4	22.6	134.0	Ref	Ref
1762.000	20.0	21.10	4.5	25.7	51.3	83.5	-32.2
2643.00	20.0	18.20	3.3	29.2	50.7	83.5	-32.8
3524.00	20.0	17.30	6.0	31.5	54.8	83.5	-28.7
4405.00	20.0	18.40	6.1	33.2	57.7	83.5	-25.8
5286.00	20.0	20.20	6.8	34.2	61.2	83.5	-22.3
6167.00	20.0	18.40	8.7	35.7	62.8	83.5	-20.7
7048.00	20.0	18.80	9.5	35.7	64.0	83.5	-19.5
7929.00	20.0	19.70	9.4	36.1	65.2	83.5	-18.3
8810.00	20.0	19.50	10.4	36.4	66.3	83.5	-17.2

COMMENT #1: Channel = Middle Setting, 881.00 MHz

COMMENT #2: Measurements < 1 GHz made at 3 meters. Measurements made > 1 GHz made at 1 meter. No EUT emissions detected from > 1 MHz from the fundamental.

COMMENT #3: Worst case emissions were for EUT antenna in vertical position. Data is presented for this configuration.

TEST ENGINEER:_____ **APPROVED BY**: _____

Larry Zhou **Jeffrey A. Lenk**

Out of Band Emission - Radiated Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009 PROJECT #: 00002-10
DATE: June 9, 1999 POLARIZATION: Vertical
MODE: TDMA (NADC)

Freq. (MHz)	EUT Direction (Deg)	Recorded Level (dBuV)	Cable Loss (dB)	Antenna Factor (dBuV/m)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
893.000	0.0	113.00	6.5	22.7	142.2	Ref	Ref
1786.000	0.0	19.70	4.5	25.7	49.9	91.7	-41.8
2679.00	0.0	18.10	3.3	29.2	50.6	91.7	-41.1
3572.00	0.0	19.00	6.0	31.5	56.5	91.7	-35.2
4465.00	0.0	18.20	6.1	33.2	57.5	91.7	-34.2
5358.00	0.0	18.30	6.8	34.2	59.3	91.7	-32.4
6251.00	0.0	17.60	8.7	35.7	62.0	91.7	-29.7
7144.00	0.0	19.90	9.5	35.7	65.1	91.7	-26.6
8037.00	0.0	19.30	9.4	36.1	64.8	91.7	-26.9
8930.00	0.0	20.40	10.4	36.4	67.2	91.7	-24.5

COMMENT #1: Channel = High Setting, 893.00 MHz

COMMENT #2: Measurements < 1 GHz made at 3 meters. Measurements made > 1 GHz made at 1 meter. No EUT emissions detected from > 1 MHz from the fundamental.

COMMENT #3: Worst case emissions were for EUT antenna in vertical position. Data is presented for this configuration.

TEST ENGINEER:_____ **APPROVED BY**: _____

Larry Zhou **Jeffrey A. Lenk**

Out of Band Emission - Radiated Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009 PROJECT #: 00002-10
DATE: June 9, 1999 POLARIZATION: Horizontal
MODE: TDMA (NADC)

Freq. (MHz)	EUT Direction (Deg)	Recorded Level (dBuV)	Cable Loss (dB)	Antenna Factor (dBuV/m)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
893.000	15.0	108.00	6.5	22.7	137.2	Ref	Ref
1786.000	15.0	22.30	4.5	25.7	52.5	86.7	-34.2
2679.00	15.0	17.40	3.3	29.2	49.9	86.7	-36.8
3572.00	15.0	18.00	6.0	31.5	55.5	86.7	-31.2
4465.00	15.0	17.20	6.1	33.2	56.5	86.7	-30.2
5358.00	15.0	16.80	6.8	34.2	57.8	86.7	-28.9
6251.00	15.0	19.80	8.7	35.7	64.2	86.7	-22.5
7144.00	15.0	18.70	9.5	35.7	63.9	86.7	-22.8
8037.00	15.0	19.30	9.4	36.1	64.8	86.7	-21.9
8930.00	15.0	19.50	10.4	36.4	66.3	86.7	-20.4

COMMENT #1: Channel = High Setting, 893.00 MHz

COMMENT #2: Measurements < 1 GHz made at 3 meters. Measurements made > 1 GHz made at 1 meter. No EUT emissions detected from > 1 MHz from the fundamental.

COMMENT #3: Worst case emissions were for EUT antenna in vertical position. Data is presented for this configuration.

TEST ENGINEER:_____ **APPROVED BY**: _____

Larry Zhou **Jeffrey A. Lenk**

Appendix E

Out of Band Emissions (Conducted) Test Data

Out of Band Emission - Conducted Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009 PROJECT #: 00002-10
DATE: Jun 10, 1999 MODE: AMPS(GSM)

Freq. (MHz)	Recorded Level (dBm)	Cable Loss (dB)	Corrected Level (dBm)	Limit (dBm)	Margin (dB)
870.000	46.00	1.0	47.0	Ref	Ref
870.020	-12.90	1.0	-11.9	21.0	-32.9
870.045	-15.60	1.0	-14.6	-13.0	-1.6
1740.000	-18.40	1.0	-17.4	-13.0	-4.4
2610.00	-17.90	1.0	-16.9	-13.0	-3.9
3480.00	-19.50	1.0	-18.5	-13.0	-5.5
4350.00	-19.10	1.0	-18.1	-13.0	-5.1
5220.00	-20.70	1.0	-19.7	-13.0	-6.7
6090.00	-19.50	1.0	-18.5	-13.0	-5.5
6960.00	-21.90	1.0	-20.9	-13.0	-7.9
7830.00	-21.00	1.0	-20.0	-13.0	-7.0
8700.00	-22.00	1.0	-21.0	-13.0	-8.0

COMMENT #1: Channel = Lowest Setting, 870.00 MHz

COMMENT #2: Recorded Level adjusted to compensate for 60 dB attenuator installed in signal path prior to taking reading.

TEST ENGINEER:_____ **APPROVED BY**: _____
Larry Zhou **Jeffrey A. Lenk**

Out of Band Emission - Conducted Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009 PROJECT #: 00002-10
DATE: Jun 10, 1999 MODE: AMPS(GSM)

Freq. (MHz)	Recorded Level (dBm)	Cable Loss (dB)	Corrected Level (dBm)	Limit (dBm)	Margin (dB)
881.000	46.00	1.0	47.0	Ref	Ref
881.020	-11.60	1.0	-10.6	21.0	-31.6
881.045	-14.40	1.0	-13.4	-13.0	-0.4
1762.000	-18.10	1.0	-17.1	-13.0	-4.1
2643.00	-18.30	1.0	-17.3	-13.0	-4.3
3524.00	-19.20	1.0	-18.2	-13.0	-5.2
4405.00	-19.50	1.0	-18.5	-13.0	-5.5
5286.00	-19.70	1.0	-18.7	-13.0	-5.7
6167.00	-19.60	1.0	-18.6	-13.0	-5.6
7048.00	-22.40	1.0	-21.4	-13.0	-8.4
7929.00	-20.70	1.0	-19.7	-13.0	-6.7
8810.00	-21.20	1.0	-20.2	-13.0	-7.2

COMMENT #1: Channel = Middle Setting, 881.00 MHz

COMMENT #2: Recorded Level adjusted to compensate for 60 dB attenuator installed in signal path prior to taking reading.

TEST ENGINEER:_____ **APPROVED BY**: _____
Larry Zhou **Jeffrey A. Lenk**

Out of Band Emission - Conducted Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009 PROJECT #: 00002-10
DATE: Jun 10, 1999 MODE: AMPS(GSM)

Freq. (MHz)	Recorded Level (dBm)	Cable Loss (dB)	Corrected Level (dBm)	Limit (dBm)	Margin (dB)
893.000	46.00	1.0	47.0	Ref	Ref
893.020	-13.70	1.0	-12.7	21.0	-33.7
893.045	-15.90	1.0	-14.9	-13.0	-1.9
1786.000	-18.00	1.0	-17.0	-13.0	-4.0
2679.00	-17.20	1.0	-16.2	-13.0	-3.2
3572.00	-19.30	1.0	-18.3	-13.0	-5.3
4465.00	-19.70	1.0	-18.7	-13.0	-5.7
5358.00	-19.50	1.0	-18.5	-13.0	-5.5
6251.00	-19.40	1.0	-18.4	-13.0	-5.4
7144.00	-21.90	1.0	-20.9	-13.0	-7.9
8037.00	-20.70	1.0	-19.7	-13.0	-6.7
8930.00	-21.30	1.0	-20.3	-13.0	-7.3

COMMENT #1: Channel = High Setting, 893.00 MHz

COMMENT #2: Recorded Level adjusted to compensate for 60 dB attenuator installed in signal path prior to taking reading.

TEST ENGINEER:_____ **APPROVED BY**: _____
Larry Zhou **Jeffrey A. Lenk**

Out of Band Emission - Conducted Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009 PROJECT #: 00002-10
DATE: Jun 10, 1999 MODE: CDMA

Freq. (MHz)	Recorded Level (dBm)	Cable Loss (dB)	Corrected Level (dBm)	Limit (dBm)	Margin (dB)
870.000	46.00	1.0	47.0	Ref	Ref
1740.000	-19.90	1.0	-18.9	-13.0	-5.9
2610.00	-18.50	1.0	-17.5	-13.0	-4.5
3480.00	-18.90	1.0	-17.9	-13.0	-4.9
4350.00	-19.20	1.0	-18.2	-13.0	-5.2
5220.00	-19.30	1.0	-18.3	-13.0	-5.3
6090.00	-18.90	1.0	-17.9	-13.0	-4.9
6960.00	-22.50	1.0	-21.5	-13.0	-8.5
7830.00	-21.70	1.0	-20.7	-13.0	-7.7
8700.00	-21.80	1.0	-20.8	-13.0	-7.8

COMMENT #1: Channel = Lowest Setting, 870.00 MHz

COMMENT #2: Recorded Level adjusted to compensate for 60 dB attenuator installed in signal path prior to taking reading.

TEST ENGINEER:_____ **APPROVED BY**: _____
Larry Zhou **Jeffrey A. Lenk**

Out of Band Emission - Conducted Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009 PROJECT #: 00002-10
DATE: Jun 10, 1999 MODE: CDMA

Freq. (MHz)	Recorded Level (dBm)	Cable Loss (dB)	Corrected Level (dBm)	Limit (dBm)	Margin (dB)
881.000	46.00	1.0	47.0	Ref	Ref
1762.000	-19.20	1.0	-18.2	-13.0	-5.2
2643.00	-19.00	1.0	-18.0	-13.0	-5.0
3524.00	-19.20	1.0	-18.2	-13.0	-5.2
4405.00	-19.50	1.0	-18.5	-13.0	-5.5
5286.00	-19.70	1.0	-18.7	-13.0	-5.7
6167.00	-19.60	1.0	-18.6	-13.0	-5.6
7048.00	-22.80	1.0	-21.8	-13.0	-8.8
7929.00	-21.30	1.0	-20.3	-13.0	-7.3
8810.00	-21.50	1.0	-20.5	-13.0	-7.5

COMMENT #1: Channel = Middle Setting, 881.00 MHz

COMMENT #2: Recorded Level adjusted to compensate for 60 dB attenuator installed in signal path prior to taking reading.

TEST ENGINEER:_____ **APPROVED BY**: _____
Larry Zhou **Jeffrey A. Lenk**

Out of Band Emission - Conducted Data Sheet

800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009 PROJECT #: 00002-10
DATE: Jun 10, 1999 MODE: CDMA

Freq. (MHz)	Recorded Level (dBm)	Cable Loss (dB)	Corrected Level (dBm)	Limit (dBm)	Margin (dB)
893.000	46.00	1.0	47.0	Ref	Ref
1786.000	-19.30	1.0	-18.3	-13.0	-5.3
2679.00	-18.90	1.0	-17.9	-13.0	-4.9
3572.00	-19.30	1.0	-18.3	-13.0	-5.3
4465.00	-18.80	1.0	-17.8	-13.0	-4.8
5358.00	-19.70	1.0	-18.7	-13.0	-5.7
6251.00	-19.70	1.0	-18.7	-13.0	-5.7
7144.00	-22.70	1.0	-21.7	-13.0	-8.7
8037.00	-21.00	1.0	-20.0	-13.0	-7.0
8930.00	-21.70	1.0	-20.7	-13.0	-7.7

COMMENT #1: Channel = Highest Setting, 893.00 MHz

COMMENT #2: Recorded Level adjusted to compensate for 60 dB attenuator installed in signal path prior to taking reading.

TEST ENGINEER:_____ **APPROVED BY**: _____
Larry Zhou **Jeffrey A. Lenk**

Out of Band Emission - Conducted Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009 PROJECT #: 00002-10
DATE: Jun 10, 1999 MODE: TDMA

Freq. (MHz)	Recorded Level (dBm)	Cable Loss (dB)	Corrected Level (dBm)	Limit (dBm)	Margin (dB)
870.000	45.90	1.0	46.9	Ref	Ref
1740.000	-18.40	1.0	-17.4	-13.1	-4.3
2610.00	-18.30	1.0	-17.3	-13.1	-4.2
3480.00	-19.70	1.0	-18.7	-13.1	-5.6
4350.00	-19.30	1.0	-18.3	-13.1	-5.2
5220.00	-19.70	1.0	-18.7	-13.1	-5.6
6090.00	-18.90	1.0	-17.9	-13.1	-4.8
6960.00	-22.80	1.0	-21.8	-13.1	-8.7
7830.00	-20.80	1.0	-19.8	-13.1	-6.7
8700.00	-21.30	1.0	-20.3	-13.1	-7.2

COMMENT #1: Channel = Lowest Setting, 870.00 MHz

COMMENT #2: Recorded Level adjusted to compensate for 60 dB attenuator installed in signal path prior to taking reading.

TEST ENGINEER:_____ **APPROVED BY**: _____
Larry Zhou **Jeffrey A. Lenk**

Out of Band Emission - Conducted Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009 PROJECT #: 00002-10

DATE: Jun 10, 1999 MODE: TDMA

Freq. (MHz)	Recorded Level (dBm)	Cable Loss (dB)	Corrected Level (dBm)	Limit (dBm)	Margin (dB)
881.000	46.20	1.0	47.2	Ref	Ref
1762.000	-18.30	1.0	-17.3	-12.8	-4.5
2643.00	-17.90	1.0	-16.9	-12.8	-4.1
3524.00	-19.10	1.0	-18.1	-12.8	-5.3
4405.00	-19.30	1.0	-18.3	-12.8	-5.5
5286.00	-19.50	1.0	-18.5	-12.8	-5.7
6167.00	-19.20	1.0	-18.2	-12.8	-5.4
7048.00	-22.70	1.0	-21.7	-12.8	-8.9
7929.00	-20.70	1.0	-19.7	-12.8	-6.9
8810.00	-21.70	1.0	-20.7	-12.8	-7.9

COMMENT #1: Channel = Middle Setting, 881.00 MHz

COMMENT #2: Recorded Level adjusted to compensate for 60 dB attenuator installed in signal path prior to taking reading.

TEST ENGINEER:_____ **APPROVED BY**: _____

Larry Zhou **Jeffrey A. Lenk**

Out of Band Emission - Conducted Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009 PROJECT #: 00002-10
DATE: Jun 10, 1999 MODE: TDMA

Freq. (MHz)	Recorded Level (dBm)	Cable Loss (dB)	Corrected Level (dBm)	Limit (dBm)	Margin (dB)
893.000	46.00	1.0	47.0	Ref	Ref
1786.000	-18.20	1.0	-17.2	-13.0	-4.2
2679.00	-17.70	1.0	-16.7	-13.0	-3.7
3572.00	-19.20	1.0	-18.2	-13.0	-5.2
4465.00	-19.20	1.0	-18.2	-13.0	-5.2
5358.00	-18.50	1.0	-17.5	-13.0	-4.5
6251.00	-19.90	1.0	-18.9	-13.0	-5.9
7144.00	-22.80	1.0	-21.8	-13.0	-8.8
8037.00	-20.30	1.0	-19.3	-13.0	-6.3
8930.00	-22.00	1.0	-21.0	-13.0	-8.0

COMMENT #1: Channel = High Setting, 893.00 MHz

COMMENT #2: Recorded Level adjusted to compensate for 60 dB attenuator installed in signal path prior to taking reading.

TEST ENGINEER:_____ **APPROVED BY**: _____

Larry Zhou **Jeffrey A. Lenk**

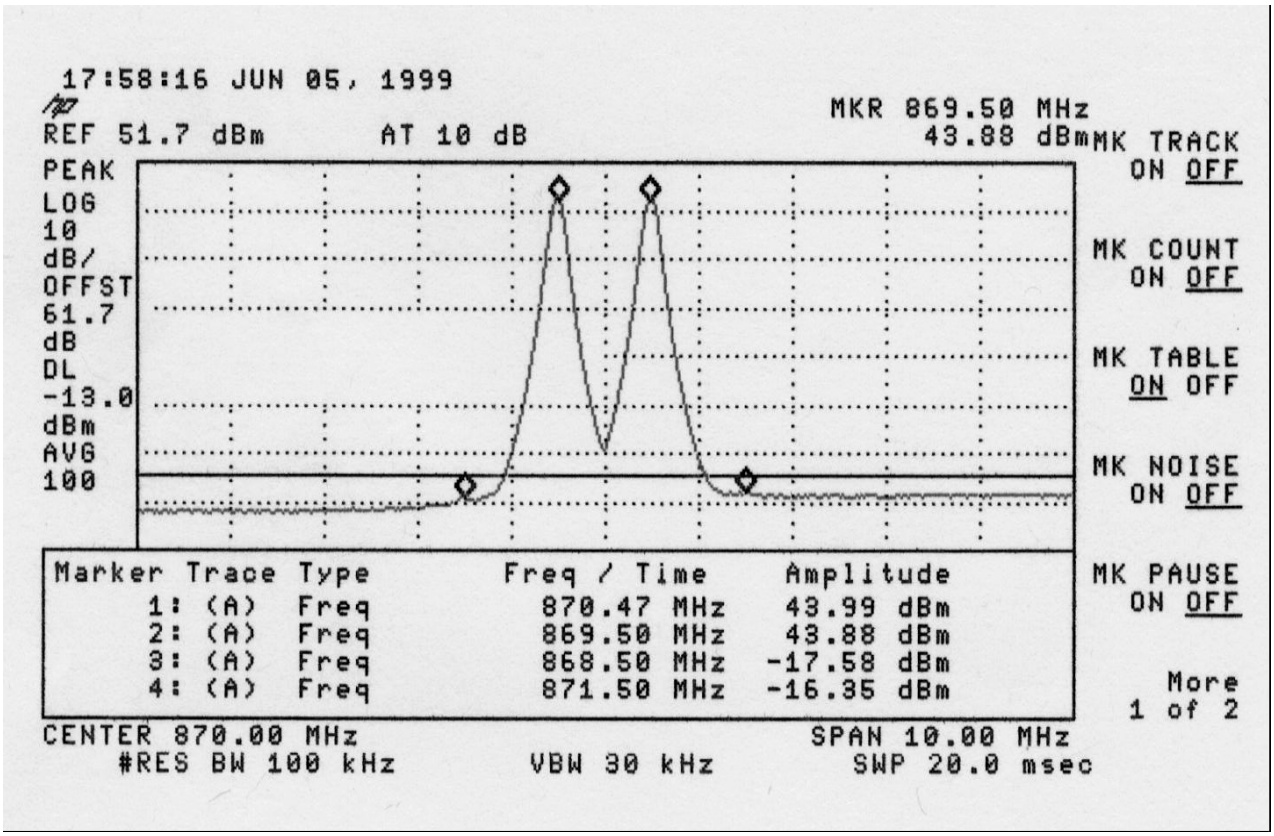
Appendix F Intermodulation Product Data Sheets

Intermodulation Product Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009
DATE: Jun 10, 1999
DETECTOR FUNCTION: Peak

MODE: AMPS
LINE MEASURED: Antenna
PROJECT #: 00002-10



COMMENT #1: Display Line Set to Limit of -13 dBm

COMMENT #2: Cellular A Band

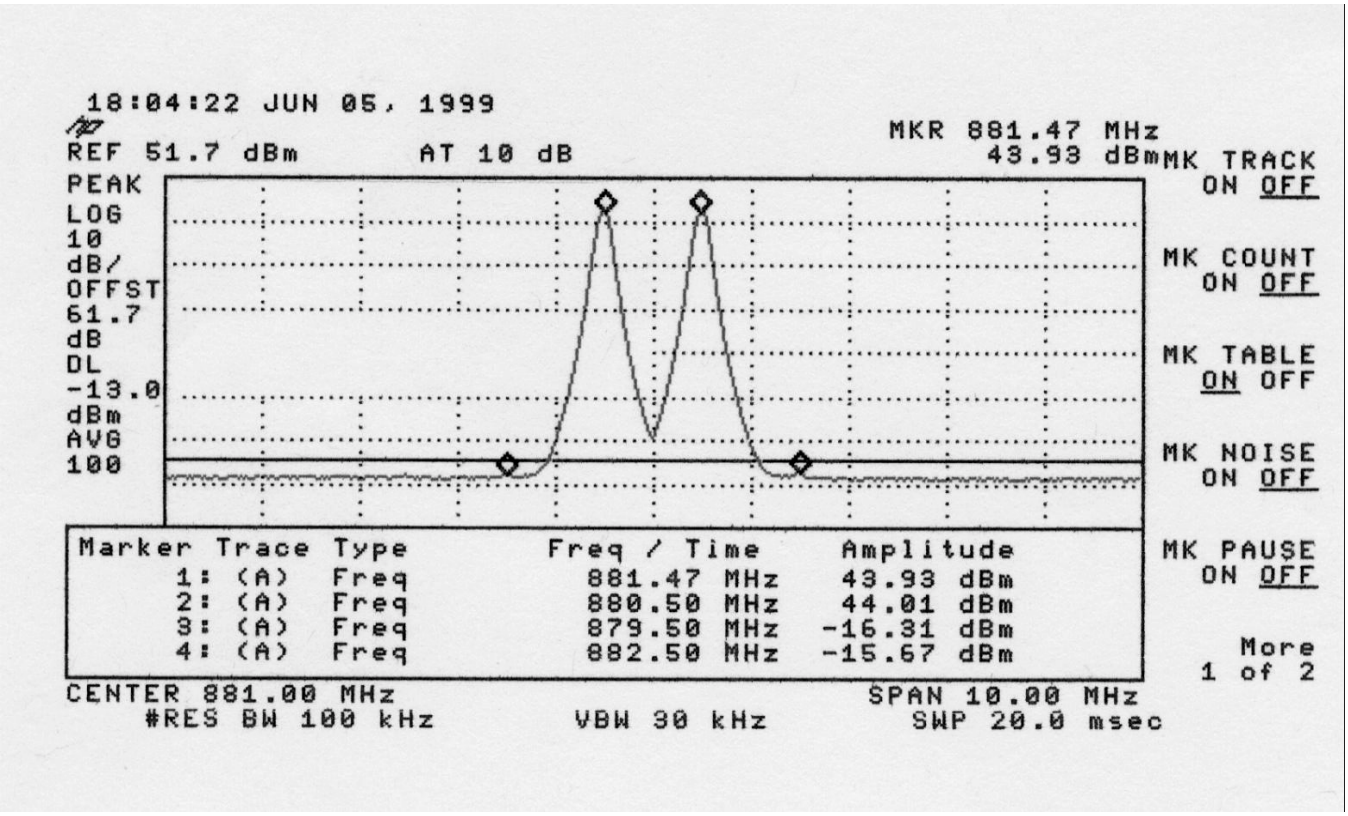
TEST ENGINEER:_____ **APPROVED BY**: _____
Larry Zhou **Jeffrey A. Lenk**

Intermodulation Product Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009
DATE: Jun 10, 1999
DETECTOR FUNCTION: Peak

MODE: AMPS
LINE MEASURED: Antenna
PROJECT #: 00002-10



COMMENT #1: Display Line Set to Limit of -13 dBm

COMMENT #2: Cellular B Band

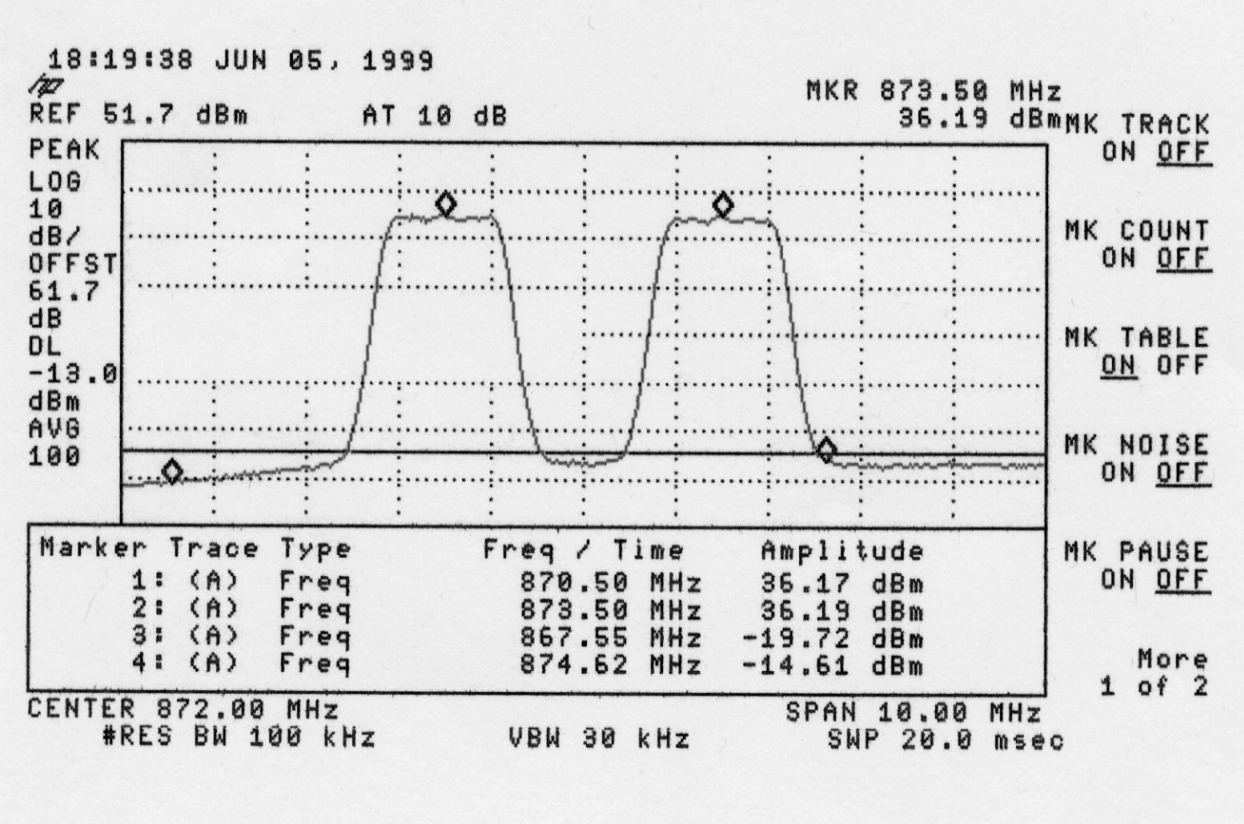
TEST ENGINEER:_____ **APPROVED BY**: _____
Larry Zhou **Jeffrey A. Lenk**

Intermodulation Product Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009
DATE: Jun 10, 1999
DETECTOR FUNCTION: Average

MODE: CDMA
LINE MEASURED: Antenna
PROJECT #: 00002-10



COMMENT #1: Display Line Set to Limit of -13 dBm

COMMENT #2: Cellular A Band

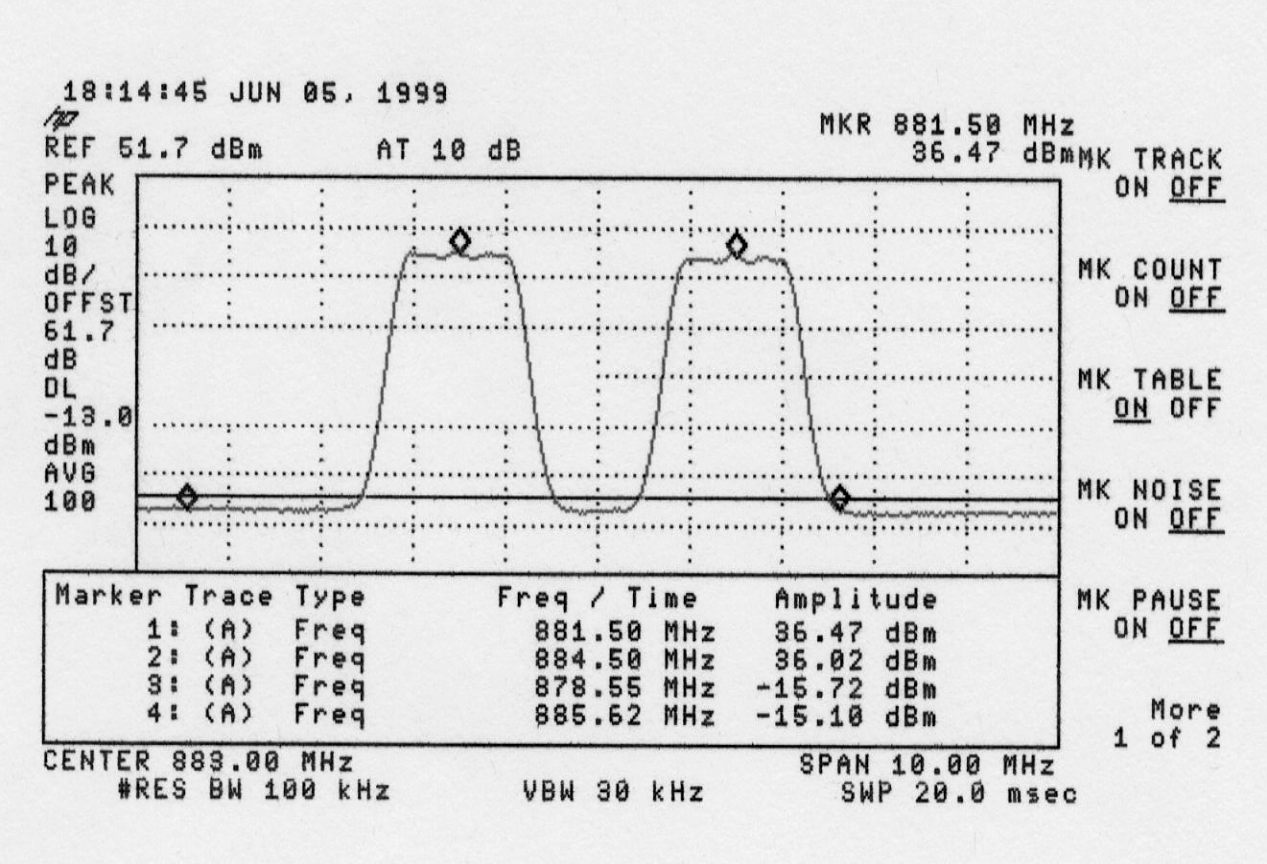
TEST ENGINEER:_____ **APPROVED BY**: _____
Larry Zhou **Jeffrey A. Lenk**

Intermodulation Product Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009
DATE: Jun 10, 1999
DETECTOR FUNCTION: Average

MODE: CDMA
LINE MEASURED: Antenna
PROJECT #: 00002-10



COMMENT #1: Display Line Set to Limit of -13 dBm

COMMENT #2: Cellular B Band

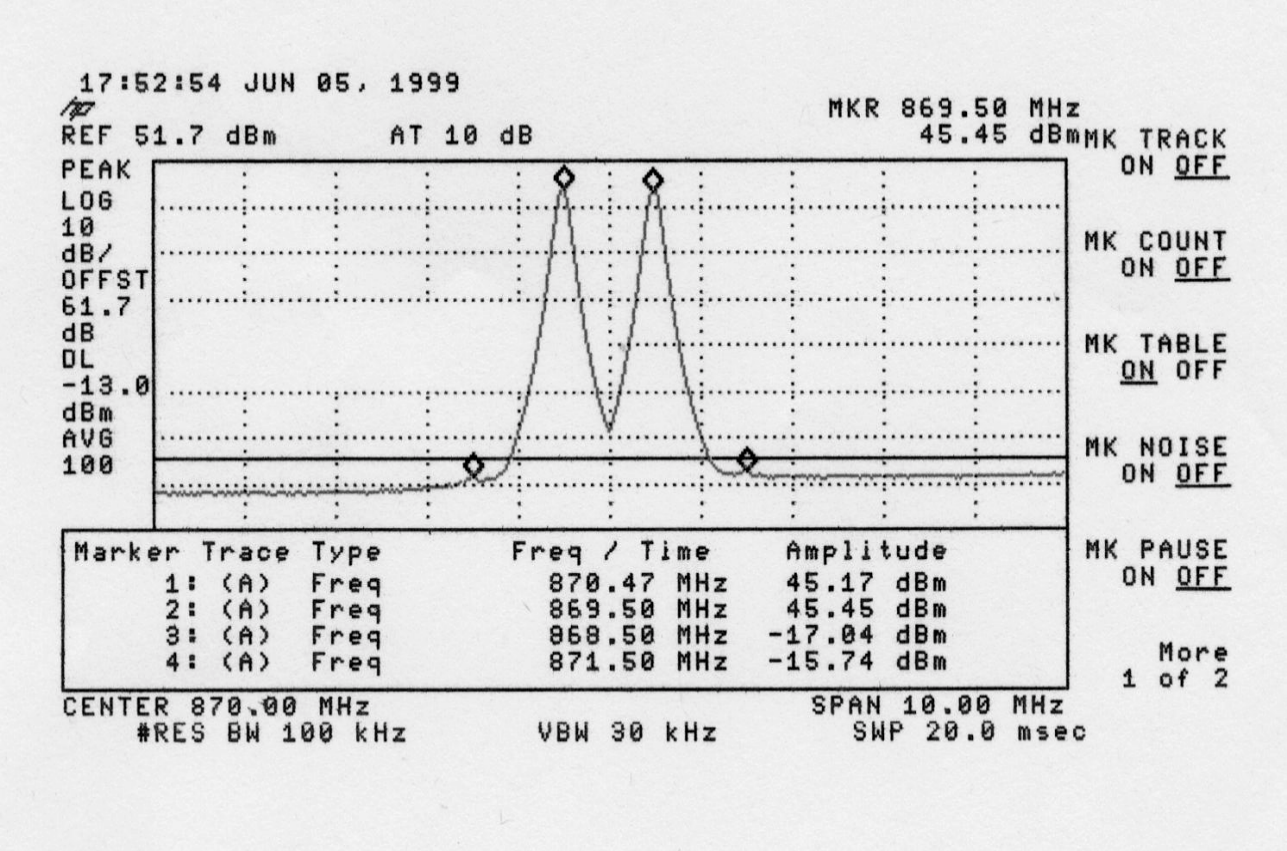
TEST ENGINEER:_____ **APPROVED BY**: _____
Larry Zhou **Jeffrey A. Lenk**

Intermodulation Product Data Sheet

800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009
DATE: Jun 10, 1999
DETECTOR FUNCTION: Average

MODE: TDMA
LINE MEASURED: Antenna
PROJECT #: 00002-10



COMMENT #1: Display Line Set to Limit of -13 dBm

COMMENT #2: Cellular A Band

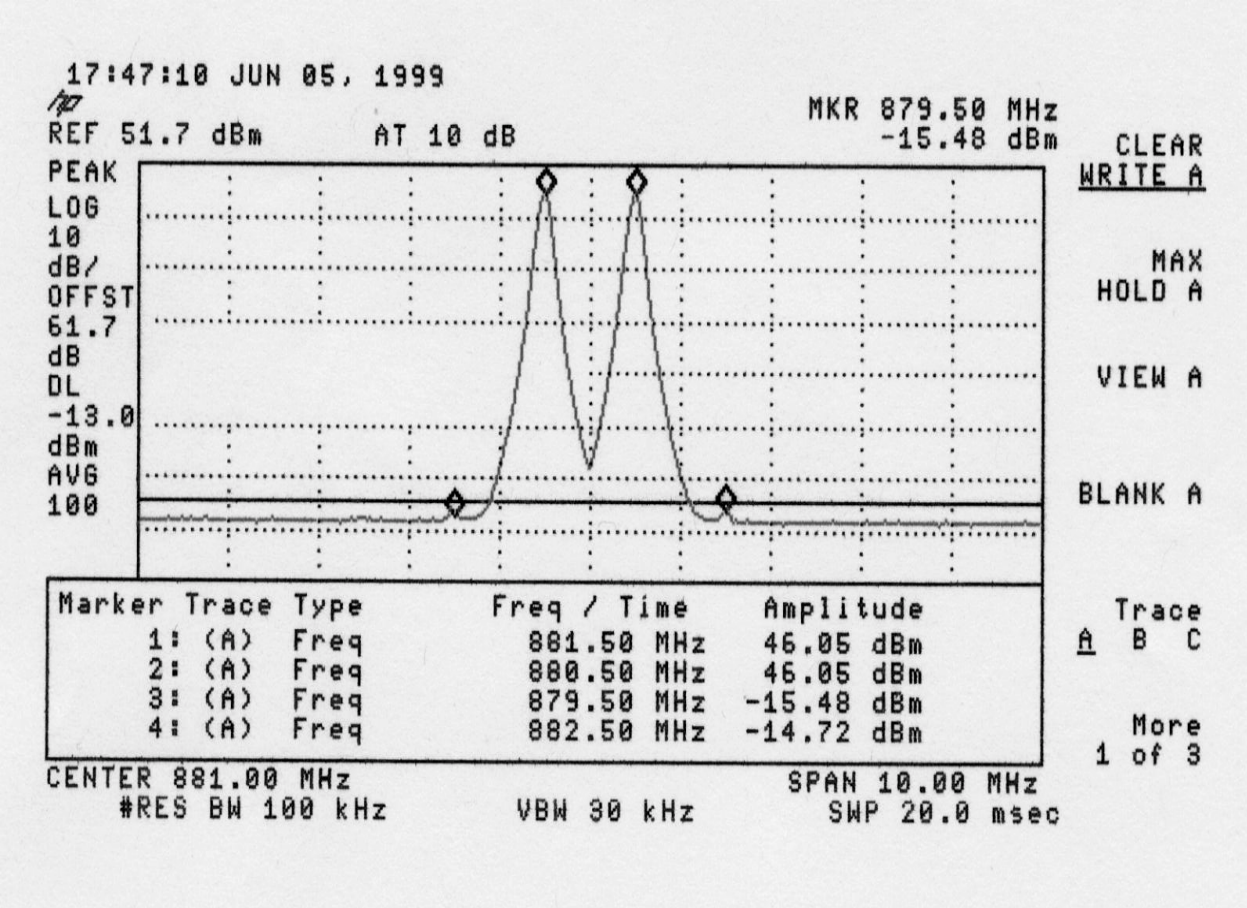
TEST ENGINEER:_____ **APPROVED BY**: _____
Larry Zhou **Jeffrey A. Lenk**

Intermodulation Product Data Sheet

CI Wireless Inc.
800 MHz Cellular Band 50 Watt Repeater

SERIAL #: H919005/M919009
DATE: Jun 10, 1999
DETECTOR FUNCTION: Average

MODE: TDMA
LINE MEASURED: Antenna
PROJECT #: 00002-10



COMMENT #1: Display Line Set to Limit of -13 dBm

COMMENT #2: Cellular B Band

TEST ENGINEER:_____ **APPROVED BY**: _____
Larry Zhou **Jeffrey A. Lenk**