



FCC CFR47 CERTIFICATION

PART 22H and 24E

TEST REPORT

FOR

**800MHZ CELLULAR (AMPS/CDMA/TDMA) /
1900MHZ PCS (EDGE/GSM/CDMA/TDMA)
IN BUILDING REPEATER RAU WITH CAT5 EXTENDER, UNS-EX170-1**

MODEL: NUS-819RAU-1

FCC ID: NOONUS-819RAU-1

REPORT NUMBER: 02U1315-2

ISSUE DATE: JULY 01, 2002

Prepared for
**LGC WIRELESS INC.
2540 JUNCTION AVENUE
SAN JOSE, CA 95134**

Prepared by
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TABLE OF CONTENT

1. TEST RESULT CERTIFICATION	3
2. EUT DESCRIPTION	4
3. TEST METHODOLOGY	4
4. TEST FACILITY	4
5. ACCREDITATION AND LISTING	4
6. MEASURING INSTRUMENT CALIBRATION.....	4
7. APPLICABLE RULES AND BRIEF TEST RESULT	5
8. TEST SETUP, PROCEDURE AND RESULT	8
8.1. SECTION 2.1046: RF POWER OUTPUT.....	8
8.2. SECTION 2.1047: MODULATION CHARACTERISTICS	9
8.3. SECTION 2.1049: OCCUPIED BANDWIDTH.....	9
8.4. SECTION 2.1051: SPURIOUS EMISSION AT ANTENNA TERMINAL	10
8.5. SECTION 2.1053: FIELD STRENGTH OF SPURIOUS RADIATION.....	11
8.6. SECTION 2.1055: FREQUENCY STABILITY	18
8.7. RADIATED EMISSION: PART 15.209.....	20
9. ATTACHMENT	20
9.1. EUT SETUP PHOTOS.....	20
9.2. EUT PHOTOGRAPHS	23
9.3. INSTALLATION AND SERVICE MANUAL	27
9.4. SCHEMATIC, PART LISTS AND BLOCK DIAGRAM	28
9.5. PROPOSED FCC ID LABEL FORMAT	29
9.6. MEASUREMENT RESULT PLOTS	30

1. TEST RESULT CERTIFICATION

COMPANY NAME: LGC WIRELESS INC.
2540 JUNCTION AVENUE
SAN JOSE, CA 95134-1902

CONTACT PERSON: JOHN DORSEY / COMPLIANCE ENGINEER

TELEPHONE NO: (408) 952-2431

EUT DESCRIPTION: 800MHZ CELLULAR (AMPS/TDMA/CDMA) / 1900MHZ PCS
(EDGE/GSM/CDMA/TDMA) IN BUILDING REPEATER RAU WITH
CAT5 EXTENDER

MODEM NAME: UNS-819RAU-1

DATE TESTED: JULY 01, 2002

TYPE OF EQUIPMENT	INTENTIONAL RADIATOR
EQUIPMENT TYPE	1850-1910 MHz paired with 1930-1990 MHz (24) , and 824 – 849MHz paired with 869 – 894MHz (22) Repeater.
MEASUREMENT PROCEDURE	ANSI 63.4 / 1992, TIA/EIA 603
PROCEDURE	CERTIFICATION
FCC RULE	CFR 47 PART 22 Subpart H and 24 Subpart E

Compliance Certification Services, Inc. tested the above equipment for compliance with the requirement set forth in CFR 47, PART 22 Subpart H-Cellular Radiotelephone Service and 24 Subpart E-Broadband PCS. The equipment in the configuration described in this report, shows the measured emission levels emanating from the equipment do not exceed the specified limit.

Note : This document reports conditions under which testing was conducted and results of tests performed. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification Services will constitute fraud and shall nullify the document.

Test By:



THU CHAN
SENIOR EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

Released For CCS By:



STEVE CHENG
EMC DEPARTMENT MANAGER
COMPLIANCE CERTIFICATION SERVICES

2. EUT DESCRIPTION

This product is designed for in-building venues (including multi-tenant office buildings, enterprise campuses, transportation hubs such as airports and subway stations, shopping malls and convention centers) to improve cellular/PCS signal strength and availability by extending the coverage of either a macro cell site or dedicated base station.

The RF signal is fed into the system from either an outdoor cell site or dedicated base station, converted from RF to optical to electrical signals through the system, and ultimately converted back to RF and transmitted by the antenna unit. Conversely, RF signals from mobile handsets are converted by the system to electrical and then to optical signals, and ultimately back to RF and returned to the macro cell site or dedicated base station.

3. TEST METHODOLOGY

Both conducted and radiated testing were performed according to the procedures documented on chapter 13 of ANSI C63.4 and FCC CFR 47 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055 and 2.1057.

4. TEST FACILITY

The open area test sites and conducted measurement facilities used to collect the radiated data are located at 561F Monterey Road, Morgan Hill, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

5. ACCREDITATION AND LISTING

The test facilities used to perform radiated and conducted emissions tests are accredited by National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code: 200065-0 to perform Electromagnetic Interference tests according to FCC PART 15 AND CISPR 22 requirements. No part of this report may be used to claim or imply product endorsement by NVLAP or any agency of the US Government. In addition, the test facilities are listed with Federal Communications Commission (reference no: 31040/SIT (1300B3) and 31040/SIT (1300F2))

6. MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

7. APPLICABLE RULES AND BRIEF TEST RESULT

§22.913 & 24.232- POWER LIMIT

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

24.232(a): Maximum Peak output power for base station transmitters should not exceed 100 Watts conducted and 1640W EIRP if antenna height up to 300 meters for Base Station, 2W EIRP for Mobile / Portable.

Spec limit: As specified above.

Test result:

<i>Modulation</i>	<i>Max Output Power (dBm)</i>	<i>Max Output Power (mW)</i>
<i>CDMA 800MHz</i>	<i>17.78</i>	<i>59.98</i>
<i>CW (Un-Modulation) 800MHz</i>	<i>17.80</i>	<i>60.26</i>
<i>CDMA 1900MHz</i>	<i>16.67</i>	<i>46.45</i>
<i>CW (Un-Modulation) 1900MHz</i>	<i>16.83</i>	<i>48.19</i>

TYPE OF EMISSION

(F9W) CDMA 800MHz, (F9W) CDMA 1900MHz, (DXW) TDMA 1900MHz

§22.355 & 24.235- FREQUENCY STABILITY

The frequency stability shall be sufficient to ensure that the fundamental emission stays within ± 1.5 ppm

Spec limit: As stated above.

Test result: N/A, Class II Permission Change Only.

Since this EUT already complied with the rule previously.

§22.917 & 24.238- EMISSION LIMITS

22.917(e): Out-of-band emissions. The mean power of emissions must be attenuated below the mean power of the un-modulated carrier (P) on any frequency twice or more than twice the fundamental frequency by:

at least $43 + 10 \log P$ dB (-13dBm)

22.917(f): Mobile emissions in base frequency range. The mean power of any emissions appearing in the base station frequency range from cellular mobile transmitter operated must be attenuated to a level not to exceed -80dBm at the transmit antenna connector.

24.238(a): The magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under conditions specified in the instruction manual and/or alignment procedure, shall not be less than $43+10 \log$ (mean output power in watts) dBc below the mean power output outside a licensee's frequency block (-13dBm).

24.238(b) & (c);

- (1) Compliance with the out-of-band emissions requirement is based on test being performed with 1MHz analyzer RES BW.
- (2) At block edges, RES BW may be adjusted to a level at least as large as 1% of emission bandwidth. The emissions bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. For the EUT this is at least:

AMPS:

$0.01 * 40.00 \text{ KHz} = 400 \text{ Hz}$. A RES BW of 1 KHz was used for measuring at the block edges.

CDMA:

$0.01 * 1.455 \text{ MHz} = 14.55 \text{ KHz}$. A RES BW of 30 KHz was used for measuring at the block edges.

TDMA:

$0.01 * 33.38 \text{ KHz} = 333.8 \text{ Hz}$. A RES BW of 1 KHz was used for measuring at the block edges.

Spec limit: As stated above.

Test result: N/A, Class II Permission Change Only.

Since this EUT already complied with the rule previously.

§2.1057- SPECTRUM RANGE TO BE INVESTIGATED

Lowest radio frequency signal generated in the equipment, without going below 9 kHz, up to at least the frequency shown below:

(1) If the equipment operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

(2) If the equipment operates at or above 10 GHz and below 30 GHz:
to the fifth harmonic of the highest fundamental frequency or to 100 GHz, whichever is lower.

(3) If the equipment operates at or above 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 200 GHz, whichever is lower.

(b) Particular attention should be paid to harmonics and sub-harmonics of the carrier frequency as well as to those frequencies removed from the carrier by multiples of the oscillator frequency.

Radiation at the frequencies of multiplier stages should also be checked.

(c) The amplitude of spurious emissions, which are attenuated more than 20 dB below the permissible value, need not be reported.

(d) Unless otherwise specified, measurements above 40 GHz shall be performed using a minimum resolution bandwidth of 1 MHz.

Spec limit: Frequency investigation range from 15M to tenth harmonic (i.e. 20 GHz).

§PART 15 RADIATED EMISSION

NOT APPLICABLE. The accompany digital port is designed for using in set up only, not for daily operation and after set up no cable will be attached to this port.

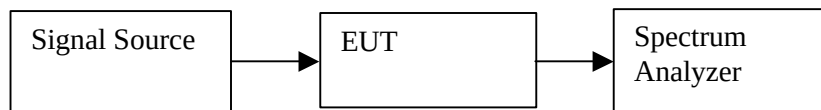
8. TEST SETUP, PROCEDURE AND RESULT

8.1. SECTION 2.1046: RF POWER OUTPUT

INSTRUMENTS LIST

EQUIPMENT	MANUFACTURE	MODEL NO.	CAL. DUE DATE
Signal Generator	Rohde & Schwarz	SMIQ 03	5/25/02
EMI Receiver	HP	8593EM	6/20/02

TEST SETUP



TEST PROCEDURE

The EUT was set to maximum output power (maximum gain). RF output power was measured with Spectrum Analyzer.

RESULT

Measured with Spectrum Analyzer. Set the power amplifier to the maximum output gain.

Test result:

<i>Modulation</i>	<i>Max Output Power (dBm)</i>	<i>Max Output Power (mW)</i>
<i>CDMA 800MHz</i>	<i>17.78</i>	<i>59.98</i>
<i>CW (Un-Modulation) 800MHz</i>	<i>17.80</i>	<i>60.26</i>
<i>CDMA 1900MHz</i>	<i>16.67</i>	<i>46.45</i>
<i>CW (Un-Modulation) 1900MHz</i>	<i>16.83</i>	<i>48.19</i>

8.2. SECTION 2.1047: MODULATION CHARACTERISTICS

(NOT APPLICABLE TO THIS REPEATER, THE EUT DOESN'T HAVE A FREQUENCY TRANSLATOR OR MODULATOR INSIDE OF EUT. THE EUT IS AN AMPLIFIER TYPE REPEATER.)

8.3. SECTION 2.1049: OCCUPIED BANDWIDTH

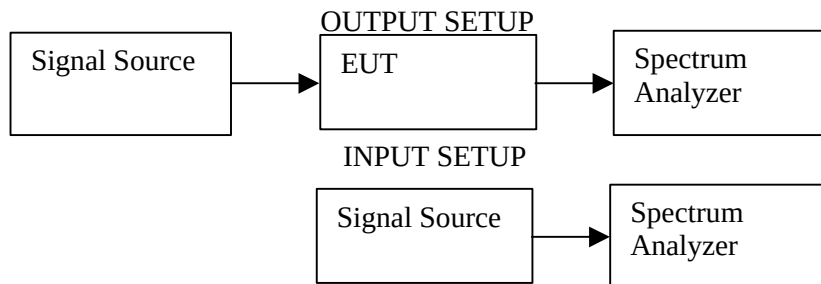
SECTION 2.1049(i)

Transmitters designed for other types of modulation – when modulated by an appropriate signal of sufficient amplitude to be representative of the type of service in which used. A description of the input signal should be supplied.

INSTRUMENTS LIST

EQUIPMENT	MANUFACTURE	MODEL NO.	CAL. DUE DATE
Signal Generator	Rohde & Schwarz	SMIQ 03	5/25/02
EMI Receiver	HP	8593EM	6/20/02

TEST SETUP



TEST PROCEDURE

The EUT's occupied bandwidth output plot is compared with the input source plot to check that no distortion is created when the input signal is amplified by the EUT. Identical bandwidths, spans and center frequencies are used for both plots. Reference levels and attenuation are adjusted.

RESULT

N/A, Class II Permission Change Only.

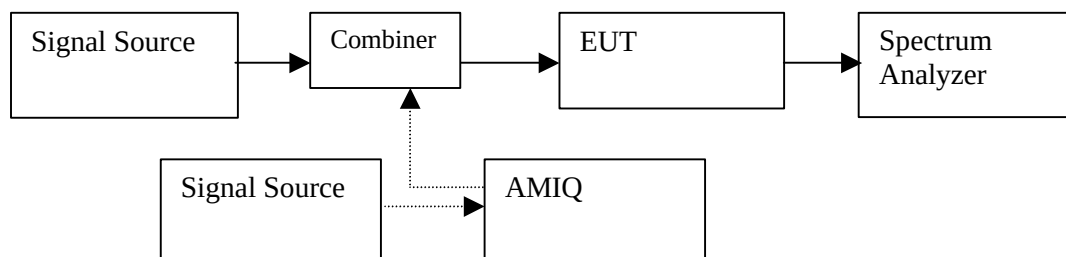
Since this EUT already complied with the rule previously.

8.4. SECTION 2.1051: SPURIOUS EMISSION AT ANTENNA TERMINAL

INSTRUMENTS LIST

EQUIPMENT	MANUFACTURE	MODEL NO.	CAL. DUE DATE
Signal Generator	Rohde & Schwarz	SMIQ 03	5/25/02
EMI Receiver	HP	8593EM	6/20/02
AMIQ	HP	E4432B-1E5-H9	7/28/02

TEST SETUP



TEST PROCEDURE

- 1) RF signal or three balanced signals (intermodulation measurement) were applied to the RF input. One set as close as possible to the bottom of the block edge and one set as close as possible to the top of the block edge. Set the RES BW to 1% of the emission bandwidth to show compliance with the -13dBm limit, in the 1 MHz bands immediately outside and adjacent to the top and bottom edges of the frequency block.
- 2) For the Out-of-Band measurements a 1 MHz RES BW was used to scan from 15 MHz to $10 \times f_o$ of the fundamental carrier for all frequency block. A display line was placed at -13dBm to show compliance for spurious, harmonics, and intermodulation emissions.
- 3) 24.318(b) and also outside of which all emissions are attenuated at least 26 dB below the transmitter power.
- 4) 22.917(f); Mobile emissions in base frequency range. The mean power of any emissions appearing in the base station frequency range from cellular mobile transmitter operated must be attenuated to a level not to exceed -80dBm at the transmit antenna connector.

RESULT

Complies, ***Please refer to the plots section 9.6 Measurement Result Plots.***

8.5. SECTION 2.1053: FIELD STRENGTH OF SPURIOUS RADIATION

INSTRUMENTS LIST

EQUIPMENT	MANUFACTURE	MODEL NO.	CAL. DUE DATE
Spectrum Analyzer	HP	8593EM	6/20/02
Amplifier	MITEQ	NSP2600-44	4/26/03
Signal Generator	Rohde & Schwarz	SMIQ 03	5/25/02
Bicon Antenna	Eaton	94455-1	3/30/03
LP Antenna	EMCO	3146	3/30/03
Tune Dipole	Compliance Design	Robert	5/5/03
Tx Horn Antenna	EMCO	3115	1/31/03
Rx Horn Antenna	EMCO	3115	1/31/03
HPF	MICROLAB	FH-1800H	N/A
HPF	MICROLAB	FH-2400H	N/A
50 ohm terminator	SHX	TF-5	N/A

Detector Function Setting of Test Receiver

Frequency Range (MHz)	Detector Function	Resolution Bandwidth	Video Bandwidth
Above 1000	☒ Peak ☐ Average	☒ 1 MHz ☐ 1 MHz	☒ 1 MHz ☐ 10 Hz

TEST SETUP

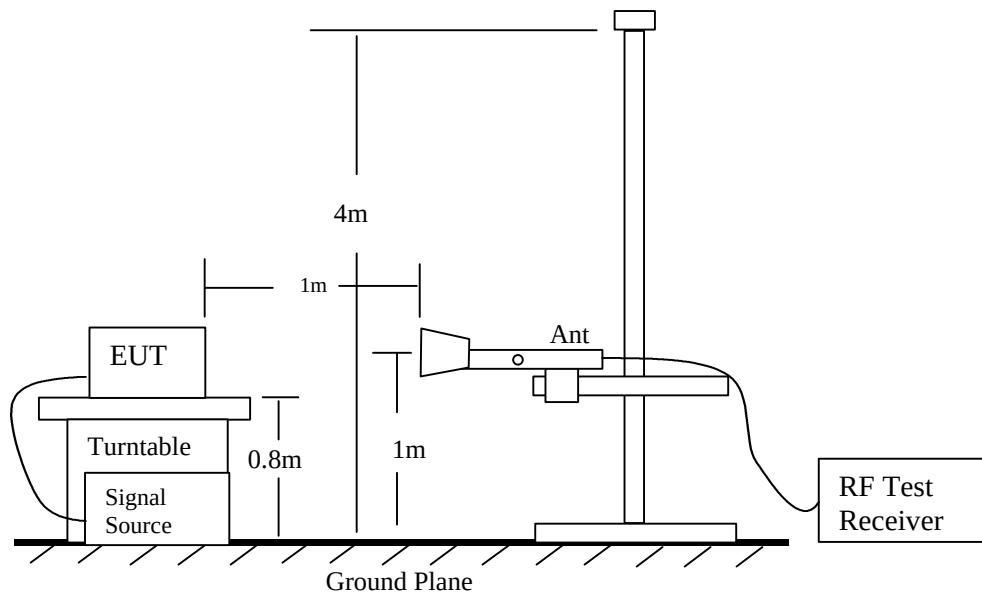


Fig 1: Radiated Emission Measurement

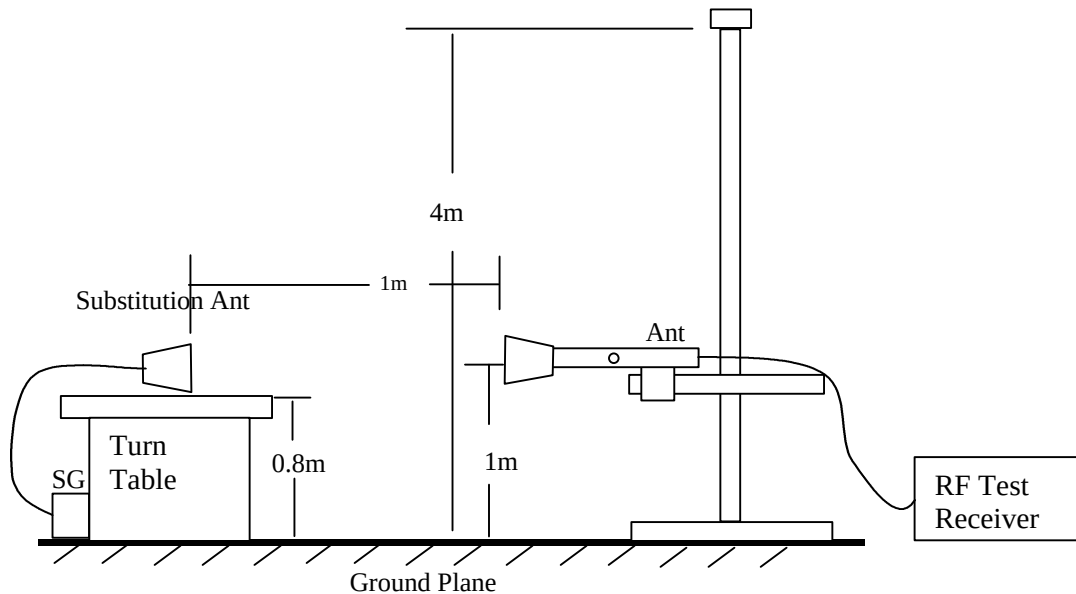


Fig 2: Radiated Emission – Substitution Method set-up

TEST PROCEDURE

- 1). On a test site, the EUT shall be placed on a turntable, and in the position closest to the normal use as declared by the user.
- 2). The test antenna shall be oriented initially for vertical polarization located 1m from the EUT to correspond to the frequency of the transmitter.
- 3). The output of the test antenna shall be connected to the measuring receiver and either a peak or average detector was used for the measurement as indicated on the report. The detector selection is based on how close the emission level was approaching the limit.
- 4). The transmitter shall be switched on, if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.
- 5). The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.
- 6). The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
- 7). The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.
- 8). The maximum signal level detected by the measuring receiver shall be noted.
- 9). The transmitter shall be replaced by a substitution antenna.
- 10). The substitution antenna shall be oriented for vertical polarization.
- 11). The substitution antenna shall be connected to a calibrated signal generator.

- 12). If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
- 13). The test antenna shall be raised and lowered through the specified range of the height to ensure that the maximum signal is received.
- 14). The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuation setting of the measuring receiver.
- 15). The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.
- 16). The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.
- 17). The measure of the effective radiated power is the larger of the two levels recorded, at the input to the substitution antenna, corrected for the gain of the substitution antenna if necessary.

RESULT

No non-compliance noted, as shown below

7/1/02 FCC Measurement Compliance Certification Services, Morgan Hill Open Field Site Test Engr: Thu Chan Project #: 02U1315-2 Company: LGC Wireless Inc EUT Descrip.: 800MHz Cellular EUT M/N: InterReach Unison Test Target: FCC 22 Mode Oper: Downlink, Low / Mid / High									
Frequency	SA reading	SG reading	CL	Gain	Gain	ERP	Limit	Margin	Notes
(GHz)	(dBuV)	(dBm)	(dB)	(dBi)	(dBd)	(dBm)	(dBm)	(dB)	
Spurious Emissions									
Lo Channel:									
1.74	45.00	-72.00	1.10	8.10	5.95	-67.15	-13.00	-54.15	V
2.61	43.00	-69.00	1.32	9.00	6.85	-63.47	-13.00	-50.47	V (Noise Floor)
3.48	43.00	-67.00	1.54	8.90	6.75	-61.79	-13.00	-48.79	V (Noise Floor)
4.35	43.00	-66.00	1.79	9.50	7.35	-60.44	-13.00	-47.44	V (Noise Floor)
5.22	43.00	-65.00	2.01	9.90	7.75	-59.26	-13.00	-46.26	V (Noise Floor)
6.09	43.00	-65.00	2.22	10.40	8.25	-58.97	-13.00	-45.97	V (Noise Floor)
6.96	43.00	-65.00	2.37	10.60	8.45	-58.92	-13.00	-45.92	V (Noise Floor)
7.83	44.00	-64.00	2.52	10.30	8.15	-58.37	-13.00	-45.37	V (Noise Floor)
8.70	45.00	-64.00	2.67	10.50	8.35	-58.32	-13.00	-45.32	V (Noise Floor)
1.74	44.50	-71.00	1.10	8.10	5.95	-66.15	-13.00	-53.15	H
2.61	43.00	-69.00	1.32	9.00	6.85	-63.47	-13.00	-50.47	H (Noise Floor)
3.48	43.00	-67.00	1.54	8.90	6.75	-61.79	-13.00	-48.79	H (Noise Floor)
4.35	43.00	-66.00	1.79	9.50	7.35	-60.44	-13.00	-47.44	H (Noise Floor)
5.22	43.00	-65.00	2.01	9.90	7.75	-59.26	-13.00	-46.26	H (Noise Floor)
6.09	43.00	-65.00	2.22	10.40	8.25	-58.97	-13.00	-45.97	H (Noise Floor)
6.96	43.00	-65.00	2.37	10.60	8.45	-58.92	-13.00	-45.92	H (Noise Floor)
7.83	44.00	-64.00	2.52	10.30	8.15	-58.37	-13.00	-45.37	H (Noise Floor)
8.70	45.00	-64.00	2.67	10.50	8.35	-58.32	-13.00	-45.32	H (Noise Floor)
Mid Channel									
1.76	45.00	-72.00	1.11	8.20	6.05	-67.06	-13.00	-54.06	V
1.76	44.50	-71.00	1.11	8.20	6.05	-66.06	-13.00	-53.06	H
2.64	43.00	-69.00	1.33	9.00	6.85	-63.48	-13.00	-50.48	V (Noise Floor)
3.53	43.00	-67.00	1.56	8.90	6.75	-61.81	-13.00	-48.81	V (Noise Floor)
High Channel									
1.79	45.00	-72.00	1.11	8.20	6.05	-67.06	-13.00	-54.06	V
1.79	44.50	-71.00	1.11	8.20	6.05	-66.06	-13.00	-53.06	H
2.68	43.00	-69.00	1.34	9.00	6.85	-63.49	-13.00	-50.49	V (Noise Floor)
3.57	43.00	-67.00	1.57	8.90	6.75	-61.82	-13.00	-48.82	V (Noise Floor)
Note: Completed scan from 30MHz to 10 GHz.									
EPR = SG reading - CL + Gain (dBd)									
Gain (dBd) = Gain (dBi) - 2.15									
Margin = EPR - Limit									
SA: Spectrum Analyzer, HP 8593EM, S/N: 3710A00205 SG: Signal Generator, HP 83732B, S/N: US34490599 TX Antenna: Dipole, Compliance Design, Roberts, S/N: 11 Horn, EMCO 3115, S/N: 6717									
CL: cable loss (5ft), FLEXCO Pre-Amp: Miteq NSP2600 -44, S/N: 646456 RX Antenna: Bicon, Eston 94455-1, S/N: 1214 LP, EMCO 3146, S/N: 3163 Horn, EMCO 3115, S/N: 6739									

7/1/02 FCC Measurement									
Compliance Certification Services, Morgan Hill Open Field Site									
Test Engr:	Thu Chan								
Project #:	02U1315-2								
Company:	LGC Wireless Inc								
EUT Descr.:	800MHz Cellular								
EUT M/N:	InterReach Unison								
Test Target:	FCC 22								
Mode Oper:	Uplink, Low / Mid / High								
Frequency (GHz)	SA reading (dBuV)	SG reading (dBm)	CL (dB)	Gain (dBi)	Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Spurious Emissions									
Lo Channel:									
1.65	44.00	-73.00	1.10	8.10	5.95	-68.15	-13.00	-55.15	V
2.48	43.00	-69.00	1.32	9.00	6.85	-63.47	-13.00	-50.47	V (Noise Floor)
3.30	43.00	-67.00	1.54	8.90	6.75	-61.79	-13.00	-48.79	V (Noise Floor)
4.13	43.00	-66.00	1.79	9.50	7.35	-60.44	-13.00	-47.44	V (Noise Floor)
4.95	43.00	-65.00	2.01	9.90	7.75	-59.26	-13.00	-46.26	V (Noise Floor)
5.78	43.00	-65.00	2.22	10.40	8.25	-58.97	-13.00	-45.97	V (Noise Floor)
6.60	43.00	-65.00	2.37	10.60	8.45	-58.92	-13.00	-45.92	V (Noise Floor)
7.43	44.00	-64.00	2.52	10.30	8.15	-58.37	-13.00	-45.37	V (Noise Floor)
8.25	45.00	-64.00	2.67	10.50	8.35	-58.32	-13.00	-45.32	V (Noise Floor)
1.65	43.50	-73.50	1.10	8.10	5.95	-68.65	-13.00	-55.65	H
2.48	43.00	-69.00	1.32	9.00	6.85	-63.47	-13.00	-50.47	H (Noise Floor)
3.30	43.00	-67.00	1.54	8.90	6.75	-61.79	-13.00	-48.79	H (Noise Floor)
4.13	43.00	-66.00	1.79	9.50	7.35	-60.44	-13.00	-47.44	H (Noise Floor)
4.95	43.00	-65.00	2.01	9.90	7.75	-59.26	-13.00	-46.26	H (Noise Floor)
5.78	43.00	-65.00	2.22	10.40	8.25	-58.97	-13.00	-45.97	H (Noise Floor)
6.60	43.00	-65.00	2.37	10.60	8.45	-58.92	-13.00	-45.92	H (Noise Floor)
7.43	44.00	-64.00	2.52	10.30	8.15	-58.37	-13.00	-45.37	H (Noise Floor)
8.25	45.00	-64.00	2.67	10.50	8.35	-58.32	-13.00	-45.32	H (Noise Floor)
Mid Channel									
1.67	44.00	-73.00	1.11	8.20	6.05	-68.06	-13.00	-55.06	V
1.67	43.50	-73.50	1.11	8.20	6.05	-68.56	-13.00	-55.56	H
2.51	43.00	-69.00	1.33	9.00	6.85	-63.48	-13.00	-50.48	V (Noise Floor)
3.35	43.00	-67.00	1.56	8.90	6.75	-61.81	-13.00	-48.81	V (Noise Floor)
High Channel									
1.70	44.00	-73.00	1.11	8.20	6.05	-68.06	-13.00	-55.06	V
1.70	43.50	-73.50	1.11	8.20	6.05	-68.56	-13.00	-55.56	H
2.54	43.00	-69.00	1.34	9.00	6.85	-63.49	-13.00	-50.49	V (Noise Floor)
3.39	43.00	-67.00	1.57	8.90	6.75	-61.82	-13.00	-48.82	V (Noise Floor)
Note: Completed scan from 30MHz to 10 GHz.									
EPR = SG reading - CL + Gain (dBd)									
Gain (dBd) = Gain (dBi) - 2.15									
Margin = EPR - Limit									
SA: Spectrum Analyzer, HP 8593EM, S/N: 3710A00205 CL: cable loss (5ft), FLEXCO									
SG: Signal Generator, HP 83732B, S/N: US34490599 Pre-Amp: Miteq NSP2600 -44, S/N: 646456									
TX Antenna: Dipole, Compliance Design, Roberts, S/N: 11 RX Antenna: Bicon, Eston 94455-1, S/N: 1214									
Horn, EMCO 3115, S/N: 6717 LP, EMCO 3146, S/N: 3163									
Horn, EMCO 3115, S/N: 6739									

7/1/02 FCC Measurement									
Compliance Certification Services, Morgan Hill Open Field Site									
Test Engr: Thu Chan Project #: 02U1315-2 Company: LGC Wireless Inc EUT Descrip.: 1900MHz PCS EUT M/N: InterReach Unison Test Target: FCC 24 Mode Oper: Downlink, Low / Mid / High									
Frequency	SA reading	SG reading	CL	Gain	Gain	EIRP	Limit	Margin	Notes
(GHz)	(dBuV)	(dBm)	(dB)	(dBi)	(dBd)	(dBm)	(dBm)	(dB)	
Spurious Emissions									
Lo Channel:									
3.86	46.00	-68.00	1.66	8.90	0.00	-60.76	-13.00	-47.76	V
5.79	43.00	-65.00	2.15	10.30	0.00	-56.85	-13.00	-43.85	V (Noise Floor)
7.73	45.00	-64.00	2.50	10.30	0.00	-56.20	-13.00	-43.20	V (Noise Floor)
9.66	45.00	-63.00	2.84	10.10	0.00	-55.74	-13.00	-42.74	V (Noise Floor)
11.59	45.00	-59.00	3.10	12.00	0.00	-50.10	-13.00	-37.10	V (Noise Floor)
13.52	48.00	-56.00	3.42	11.90	0.00	-47.52	-13.00	-34.52	V (Noise Floor)
15.45	48.00	-53.00	3.79	15.10	0.00	-41.69	-13.00	-28.69	V (Noise Floor)
17.38	50.00	-50.00	4.18	10.00	0.00	-44.18	-13.00	-31.18	V (Noise Floor)
3.86	45.00	-69.00	1.66	8.90	0.00	-61.76	-13.00	-48.76	H
5.79	43.00	-65.00	2.15	10.30	0.00	-56.85	-13.00	-43.85	H (Noise Floor)
7.73	45.00	-64.00	2.50	10.30	0.00	-56.20	-13.00	-43.20	H (Noise Floor)
9.66	45.00	-63.00	2.84	10.10	0.00	-55.74	-13.00	-42.74	H (Noise Floor)
11.59	45.00	-59.00	3.10	12.00	0.00	-50.10	-13.00	-37.10	H (Noise Floor)
13.52	47.00	-56.00	3.42	11.90	0.00	-47.52	-13.00	-34.52	H (Noise Floor)
15.45	48.00	-53.00	3.79	15.10	0.00	-41.69	-13.00	-28.69	H (Noise Floor)
17.38	49.00	-50.00	4.18	10.00	0.00	-44.18	-13.00	-31.18	H (Noise Floor)
Mid Channel									
3.92	46.00	-68.00	1.11	8.20	0.00	-60.91	-13.00	-47.91	V
3.92	45.00	-69.00	1.11	8.20	0.00	-61.91	-13.00	-48.91	H
5.88	43.00	-65.00	1.33	9.00	0.00	-57.33	-13.00	-44.33	V (Noise Floor)
7.84	45.00	-64.00	1.56	8.90	0.00	-56.66	-13.00	-43.66	V (Noise Floor)
High Channel									
3.98	46.00	-68.00	1.11	8.20	0.00	-60.91	-13.00	-47.91	V
3.98	45.00	-69.00	1.11	8.20	0.00	-61.91	-13.00	-48.91	H
5.97	43.00	-65.00	1.34	9.00	0.00	-57.34	-13.00	-44.34	V (Noise Floor)
7.96	43.00	-64.00	1.57	8.90	0.00	-56.67	-13.00	-43.67	V (Noise Floor)
Note: Completed scan from 30MHz to 20 GHz.									
EIRP = SG reading - CL + Gain (dBi) Margin = EIRP - Limit									
SA: Spectrum Analyzer, HP 8593EM, S/N: 3710A00205 CL: cable loss (5ft), FLEXCO SG: Signal Generator, HP 83732B, S/N: US34490599 Pre-Amp: Miteq NSP2600 -44, S/N: 646456 TX Antenna: Dipole, Compliance Design, Roberts, S/N: 111 RX Antenna: Bicon, Eston 94455-1, S/N: 1214 Horn, EMCO 3115, S/N: 6717 LP, EMCO 3146, S/N: 3163 Horn, EMCO 3115, S/N: 6739									

7/1/02 FCC Measurement Compliance Certification Services, Morgan Hill Open Field Site Test Engr: Thu Chan Project #: 02U1315-2 Company: LGC Wireless Inc EUT Descr.: 1900MHz PCS EUT M/N: InterReach Unison Test Target: FCC 24 Mode Oper: Uplink, Low / Mid / High									
Frequency	SA reading	SG reading	CL	Gain	Gain	EIRP	Limit	Margin	Notes
(GHz)	(dBuV)	(dBm)	(dB)	(dBi)	(dBd)	(dBm)	(dBm)	(dB)	
Spurious Emissions									
Lo Channel:									
3.70	42.50	-67.50	1.66	8.90	0.00	-60.26	-13.00	-47.26	V
5.55	43.00	-65.00	2.15	10.30	0.00	-56.85	-13.00	-43.85	V (Noise Floor)
7.41	45.00	-64.00	2.50	10.30	0.00	-56.20	-13.00	-43.20	V (Noise Floor)
9.26	45.00	-63.00	2.84	10.10	0.00	-55.74	-13.00	-42.74	V (Noise Floor)
11.11	45.00	-59.00	3.10	12.00	0.00	-50.10	-13.00	-37.10	V (Noise Floor)
12.96	48.00	-56.00	3.42	11.90	0.00	-47.52	-13.00	-34.52	V (Noise Floor)
14.81	48.00	-53.00	3.79	15.10	0.00	-41.69	-13.00	-28.69	V (Noise Floor)
16.66	50.00	-50.00	4.18	10.00	0.00	-44.18	-13.00	-31.18	V (Noise Floor)
3.70	42.00	-68.00	1.66	8.90	0.00	-60.76	-13.00	-47.76	H
5.55	43.00	-65.00	2.15	10.30	0.00	-56.85	-13.00	-43.85	H (Noise Floor)
7.41	45.00	-64.00	2.50	10.30	0.00	-56.20	-13.00	-43.20	H (Noise Floor)
9.26	45.00	-63.00	2.84	10.10	0.00	-55.74	-13.00	-42.74	H (Noise Floor)
11.11	45.00	-59.00	3.10	12.00	0.00	-50.10	-13.00	-37.10	H (Noise Floor)
12.96	47.00	-56.00	3.42	11.90	0.00	-47.52	-13.00	-34.52	H (Noise Floor)
14.81	48.00	-53.00	3.79	15.10	0.00	-41.69	-13.00	-28.69	H (Noise Floor)
16.66	49.00	-50.00	4.18	10.00	0.00	-44.18	-13.00	-31.18	H (Noise Floor)
Mid Channel									
3.76	42.50	-67.50	1.11	8.20	0.00	-60.41	-13.00	-47.41	V
3.76	42.00	-68.00	1.11	8.20	0.00	-60.91	-13.00	-47.91	H
5.64	43.00	-65.00	1.33	9.00	0.00	-57.33	-13.00	-44.33	V (Noise Floor)
7.52	45.00	-64.00	1.56	8.90	0.00	-56.66	-13.00	-43.66	V (Noise Floor)
High Channel									
3.82	42.50	-67.50	1.11	8.20	0.00	-60.41	-13.00	-47.41	V
3.82	42.00	-68.00	1.11	8.20	0.00	-60.91	-13.00	-47.91	H
5.73	43.00	-65.00	1.34	9.00	0.00	-57.34	-13.00	-44.34	V (Noise Floor)
7.64	45.00	-64.00	1.57	8.90	0.00	-56.67	-13.00	-43.67	V (Noise Floor)
Note: Completed scan from 30MHz to 20 GHz.									
EIRP = SG reading - CL + Gain (dBd)									
Margin = EIRP - Limit									
SA: Spectrum Analyzer, HP 8593EM, S/N: 3710A00205 CL: cable loss (5ft), FLEXCO SG: Signal Generator, HP 83732B, S/N: US34490599 Pre-Amp: Miteq NSP2600 -44, S/N: 646456 TX Antenna: Dipole, Compliance Design, Roberts, S/N: 111 RX Antenna: Bicon, Eston 94455-1, S/N: 1214 Horn, EMCO 3115, S/N: 6717 LP, EMCO 3146, S/N: 3163 Horn, EMCO 3115, S/N: 6739									

8.6 SECTION 2.1055: FREQUENCY STABILITY

INSTRUMENTS LIST

EQUIPMENT	MANUFACTURE	MODEL NO.	CAL. DUE DATE
Signal Generator	Rohde & Schwarz	SMIQ 03	05/25/02
EMI Receiver	HP	8593EM	6/20/02
Environmental Chamber	Thermotron	SE 600-10-10	4/26/03

Detector Function Setting of Test Receiver

Frequency Range (MHz)	Detector Function	Resolution Bandwidth	Video Bandwidth
Above 1000	Peak	300 Hz	300 Hz

TEST SETUP

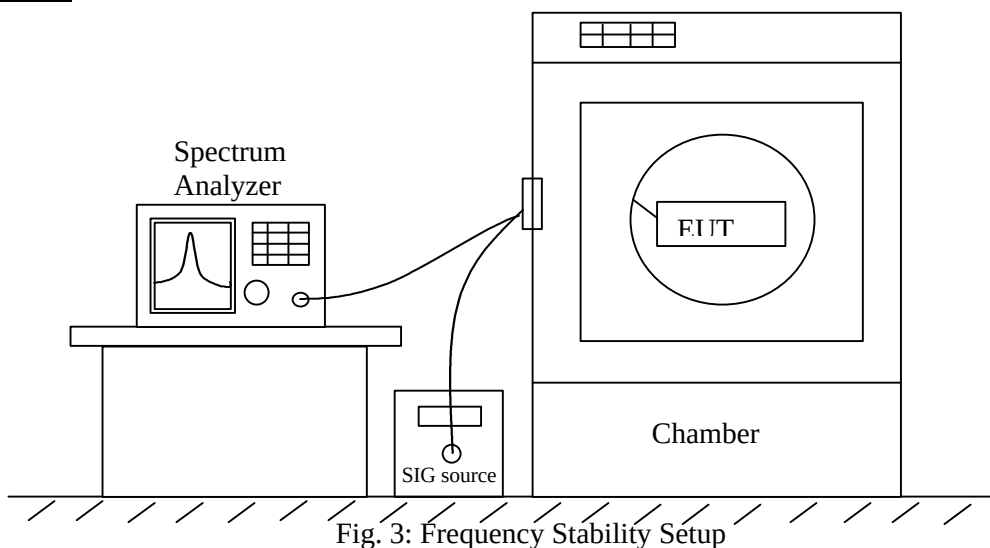


Fig. 3: Frequency Stability Setup

TEST PROCEDURE

• Frequency stability versus environmental temperature

- 1). Setup the configuration per figure 6 for frequencies measurement inside the environmental chamber. Set the temperature of the chamber to 25°C. Set SA Resolution Bandwidth low enough to obtain the desired frequency resolution and measure the EUT 25°C operating frequency as reference frequency.
- 2). Turn EUT off and set Chamber temperature to -30°C.
- 3). Allow sufficient time (approximately 20 to 30 minus after chamber reach the assigned temperature) for EUT to stabilize. Turn on EUT and measure the EUT operating frequency. Turn off EUT after the measurement.
- 4). Repeat step 3 with a 10°C increased per stage until the highest temperature of +50°C reached, record all measured frequencies on each temperature step.

- **Frequency stability versus AC input voltage**

- 1). Setup the configuration per figure 6 and set chamber temperature to 25°C. Use a variable AC power supply to power the EUT and set AC output voltage to EUT nominal input AC voltage. Set SA Resolution Bandwidth low enough to obtain the desired frequency resolution and measure the EUT 25°C operating frequency as reference frequency.
- 2). Slowly reduce the EUT input voltage to specified extreme voltage variation ($\pm 15\%$) and record the maximum frequency change.

RESULT

N/A, Class II Permission Change Only.

Since this EUT already complied with the rule previously.

8.7 RADIATED EMISSION: part 15.209

NOT APPLICABLE. The accompany digital port is designed for using in set up only, not for daily operation, and after the set up no cable will be attached to this port.

9. ATTACHMENT

9.1. EUT SETUP PHOTOS



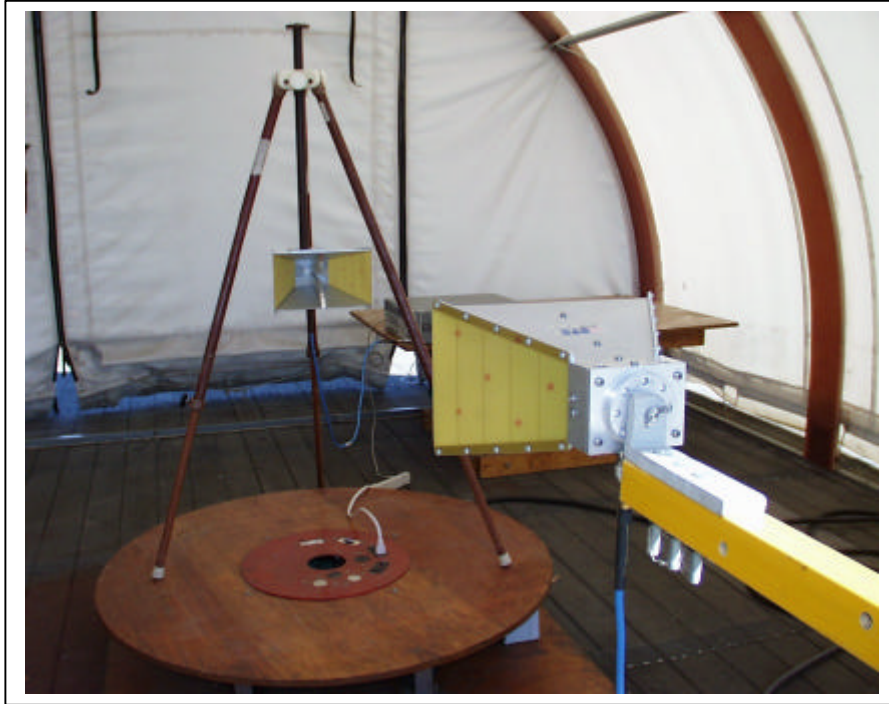
CONDUCTED MEASUREMENT



HARMONIC & SPURIOUS MEASUREMENTS (BELOW 1GHz)

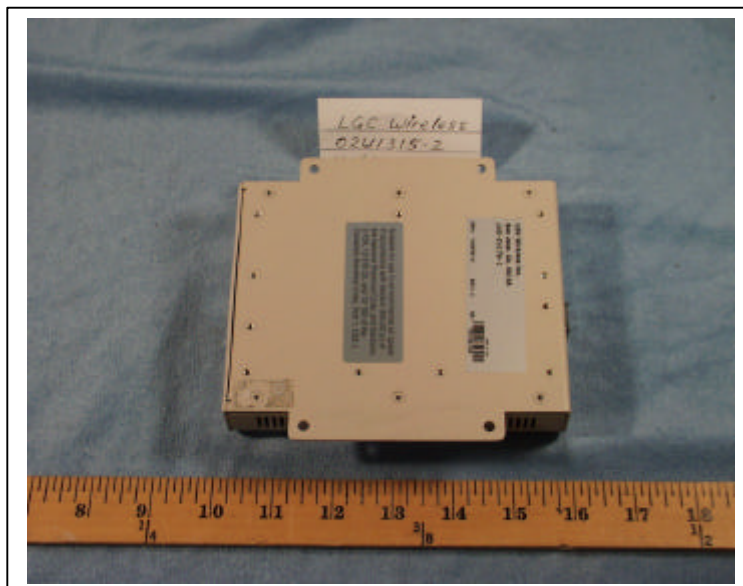


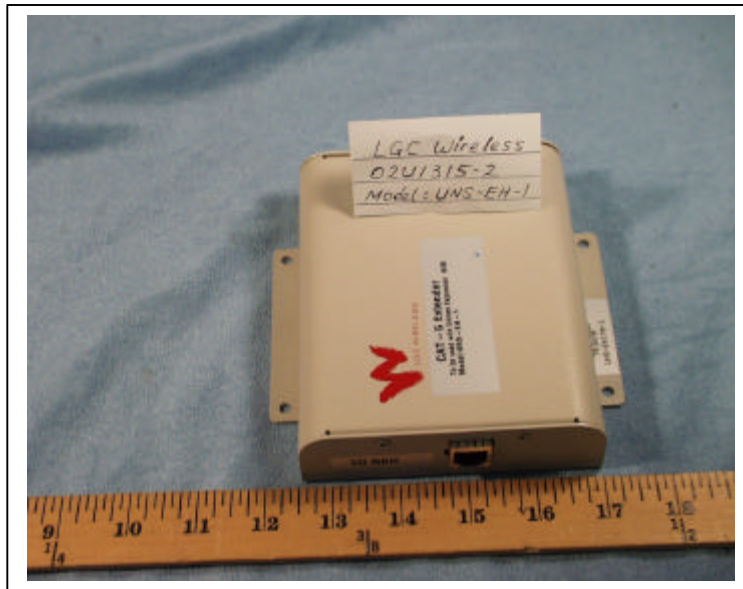
HARMONIC & SPURIOUS MEASUREMENTS (ABOVE 1GHz)

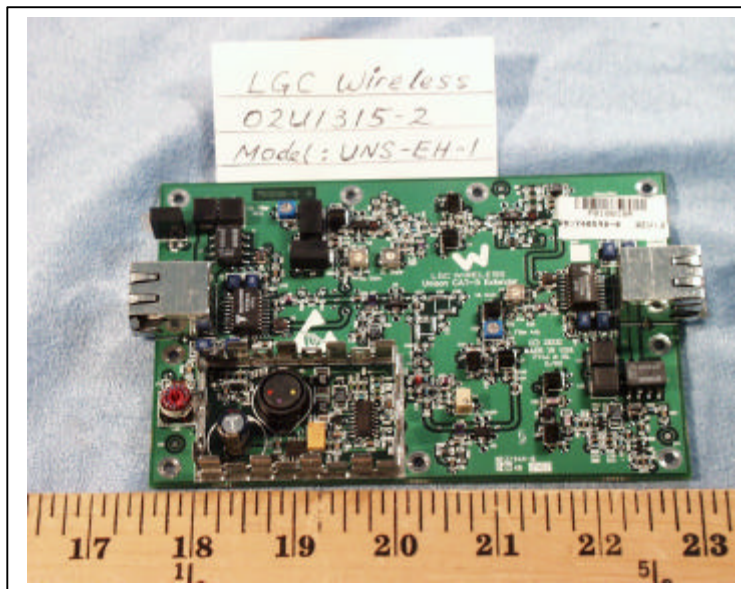
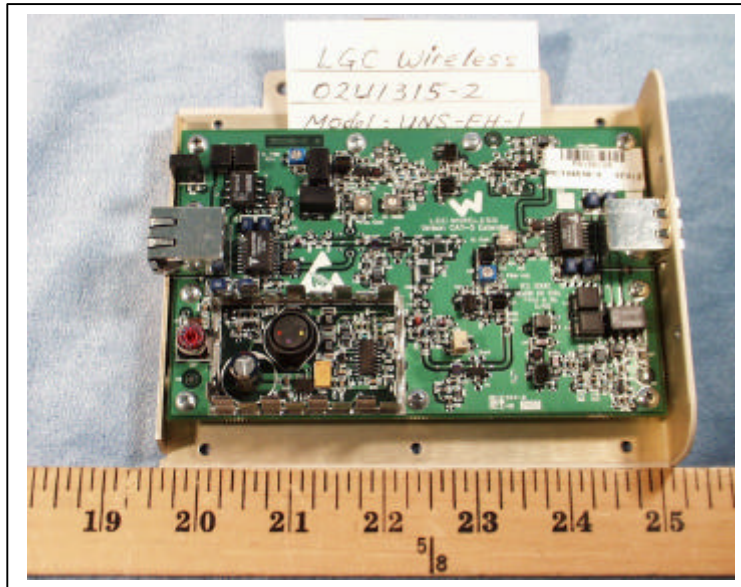


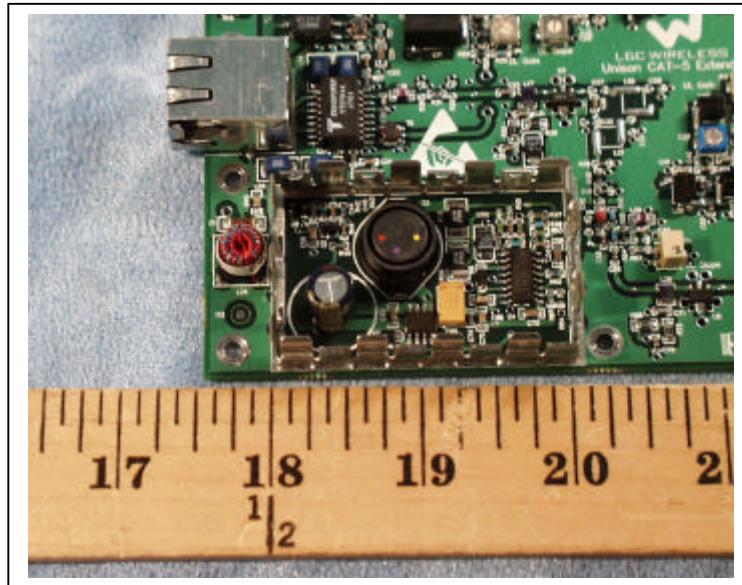
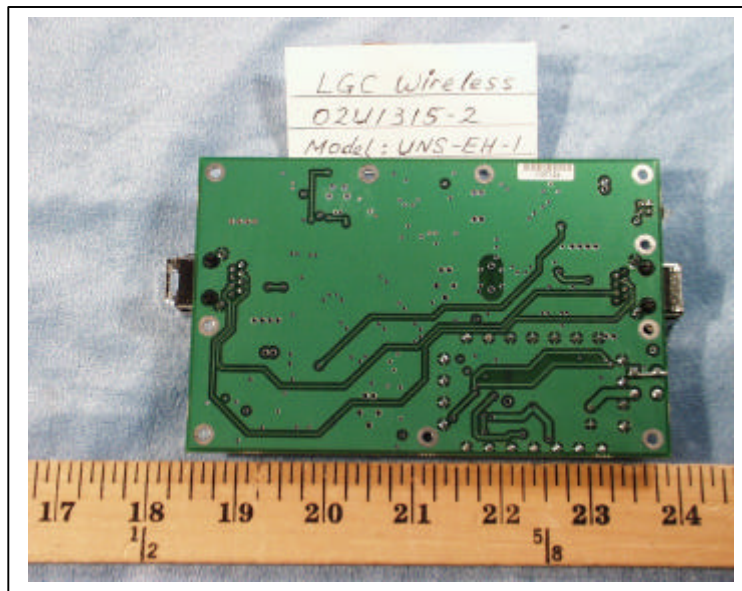
SUBSTITUTION MEASUREMENTS

9.2 EUT PHOTOGRAPHS









9.3 INSTALLATION AND SERVICE MANUAL

9.4 SCHEMATIC, PART LISTS AND BLOCK DIAGRAM

9.5 PROPOSED FCC ID LABEL FORMAT

9.6 MEASUREMENT RESULT PLOTS

RESULT

The following table indicates the plot number associated with the Block Edges, Intermodulation, Out-of-Band and Low, Mid, High Channels emissions plots. All measurements are in peak detector mode.

800 MHz CDMA DOWNLINK (869 – 894 MHz) (20m CAT5 cable from EUT to RAU)		
Plot #	Description	Frequency Range (MHz)
1	Low Channel Output Power	870.25
2	Mid Channel Output Power	881.5
3	High Channel Output Power	892.75
4	Low Channel Edge	865.5 to 870.5
5	Low Channel Out-Of-Band	15 to 2900
6	Low Channel Out-Of-Band	2900 to 10000
7	Mid Channel Out-Of-Band	15 to 2900
8	Mid Channel Out-Of-Band	2900 to 10000
9	High Channel Edge	822.5 to 895.5
10	High Channel Out-Of-Band	15 to 2900
11	High Channel Out-Of-Band	2900 to 10000

800 MHz CDMA DOWNLINK INTER-MODULATION (869 – 894 MHz) (20m CAT5 cable from EUT to RAU)		
Plot #	Description	Frequency Range (MHz)
12	Inter-modulation	Zoom In-Band
13	Inter-modulation	Zoom Out
14	Inter-modulation Out-Of-Band	15 to 2900
15	Inter-modulation Out-Of-Band	2900 to 20000

800 MHz CDMA UPLINK (824 – 849 MHz) (20m CAT5 cable from EUT to RAU)		
Plot #	Description	Frequency Range (MHz)
16	Low Channel Output Power	825.25
17	Mid Channel Output Power	836.5
18	High Channel Output Power	847.75
19	Low Channel Edge	820.525 to 825.525
20	Low Channel Out-Of-Band	15 to 2900
21	Low Channel Out-Of-Band	2900 to 10000
22	Mid Channel Out-Of-Band	15 to 2900
23	Mid Channel Out-Of-Band	2900 to 10000
24	High Channel Edge	847.5 to 852.5
25	High Channel Out-Of-Band	15 to 2900
26	High Channel Out-Of-Band	2900 to 10000

800 MHz CDMA UPLINK INTER-MODULATION (824 – 849 MHz) (20m CAT5 cable from EUT to RAU)		
Plot #	Description	Frequency Range (MHz)
27	Inter-modulation	Zoom In-Band
28	Inter-modulation	Zoom Out
29	Inter-modulation Out-Of-Band	15 to 2900
30	Inter-modulation Out-Of-Band	2900 to 20000

800 MHz CDMA DOWNLINK (869 – 894 MHz) (80m CAT5 cable from EUT to RAU)		
Plot #	Description	Frequency Range (MHz)
31	Low Channel Output Power	870.25
32	Mid Channel Output Power	881.5
33	High Channel Output Power	892.75
34	Low Channel Edge	865.5 to 870.5
35	Low Channel Out-Of-Band	15 to 2900
36	Low Channel Out-Of-Band	2900 to 10000
37	Mid Channel Out-Of-Band	15 to 2900
38	Mid Channel Out-Of-Band	2900 to 10000
39	High Channel Edge	822.5 to 895.5
40	High Channel Out-Of-Band	15 to 2900
41	High Channel Out-Of-Band	2900 to 10000

800 MHz CDMA DOWNLINK INTER-MODULATION (869 – 894 MHz) (80m CAT5 cable from EUT to RAU)		
Plot #	Description	Frequency Range (MHz)
42	Inter-modulation	Zoom In-Band
43	Inter-modulation	Zoom Out
44	Inter-modulation Out-Of-Band	15 to 2900
45	Inter-modulation Out-Of-Band	2900 to 20000

800 MHz CDMA UPLINK (824 – 849 MHz) (80m CAT5 cable from EUT to RAU)		
Plot #	Description	Frequency Range (MHz)
46	Low Channel Output Power	825.25
47	Mid Channel Output Power	836.5
48	High Channel Output Power	847.75
49	Low Channel Edge	820.525 to 825.525
50	Low Channel Out-Of-Band	15 to 2900
51	Low Channel Out-Of-Band	2900 to 10000
52	Mid Channel Out-Of-Band	15 to 2900
53	Mid Channel Out-Of-Band	2900 to 10000
54	High Channel Edge	847.5 to 852.5
55	High Channel Out-Of-Band	15 to 2900
56	High Channel Out-Of-Band	2900 to 10000

800 MHz CDMA UPLINK INTER-MODULATION (824 – 849 MHz) (80m CAT5 cable from EUT to RAU)		
Plot #	Description	Frequency Range (MHz)
57	Inter-modulation	Zoom In-Band
58	Inter-modulation	Zoom Out
59	Inter-modulation Out-Of-Band	15 to 2900
60	Inter-modulation Out-Of-Band	2900 to 20000

800 MHz CW (Un-Modulation) DOWNLINK (869 – 894 MHz) (20m CAT5 cable from EUT to RAU)		
Plot #	Description	Frequency Range (MHz)
61	Low Channel Output Power	870.25
62	Mid Channel Output Power	881.5
63	High Channel Output Power	892.75
64	Low Channel Edge	865.5 to 870.5
65	Low Channel Out-Of-Band	15 to 2900
66	Low Channel Out-Of-Band	2900 to 10000
67	Mid Channel Out-Of-Band	15 to 2900
68	Mid Channel Out-Of-Band	2900 to 10000
69	High Channel Edge	822.5 to 895.5
70	High Channel Out-Of-Band	15 to 2900
71	High Channel Out-Of-Band	2900 to 10000

800 MHz AMPS DOWNLINK INTER-MODULATION (869 – 894 MHz) (20m CAT5 cable from EUT to RAU)		
Plot #	Description	Frequency Range (MHz)
72	Inter-modulation	Zoom In-Band
73	Inter-modulation	Zoom Out
74	Inter-modulation Out-Of-Band	15 to 2900
75	Inter-modulation Out-Of-Band	2900 to 20000

800 MHz CW (Un-Modulation) UPLINK (824 – 849 MHz) (20m CAT5 cable from EUT to RAU)		
Plot #	Description	Frequency Range (MHz)
76	Low Channel Output Power	825.25
77	Mid Channel Output Power	836.5
78	High Channel Output Power	847.75
79	Low Channel Edge	820.525 to 825.525
80	Low Channel Out-Of-Band	15 to 2900
81	Low Channel Out-Of-Band	2900 to 10000
82	Mid Channel Out-Of-Band	15 to 2900
83	Mid Channel Out-Of-Band	2900 to 10000
84	High Channel Edge	847.5 to 852.5
85	High Channel Out-Of-Band	15 to 2900
86	High Channel Out-Of-Band	2900 to 10000

800 MHz AMPS UPLINK INTER-MODULATION (824 – 849 MHz) (20m CAT5 cable from EUT to RAU)		
Plot #	Description	Frequency Range (MHz)
87	Inter-modulation	Zoom In-Band
88	Inter-modulation	Zoom Out
89	Inter-modulation Out-Of-Band	15 to 2900
90	Inter-modulation Out-Of-Band	2900 to 20000

800 MHz CW (Un-Modulation) DOWNLINK (869 – 894 MHz) (80m CAT5 cable from EUT to RAU)		
Plot #	Description	Frequency Range (MHz)
91	Low Channel Output Power	870.25
92	Mid Channel Output Power	881.5
93	High Channel Output Power	892.75
94	Low Channel Edge	865.5 to 870.5
95	Low Channel Out-Of-Band	15 to 2900
96	Low Channel Out-Of-Band	2900 to 10000
97	Mid Channel Out-Of-Band	15 to 2900
98	Mid Channel Out-Of-Band	2900 to 10000
99	High Channel Edge	822.5 to 895.5
100	High Channel Out-Of-Band	15 to 2900
101	High Channel Out-Of-Band	2900 to 10000

800 MHz AMPS DOWNLINK INTER-MODULATION (869 – 894 MHz) (80m CAT5 cable from EUT to RAU)		
Plot #	Description	Frequency Range (MHz)
102	Inter-modulation	Zoom In-Band
103	Inter-modulation	Zoom Out
104	Inter-modulation Out-Of-Band	15 to 2900
105	Inter-modulation Out-Of-Band	2900 to 20000

800 MHz CW (Un-Modulation) UPLINK (824 – 849 MHz) (80m CAT5 cable from EUT to RAU)		
Plot #	Description	Frequency Range (MHz)
106	Low Channel Output Power	825.25
107	Mid Channel Output Power	836.5
108	High Channel Output Power	847.75
109	Low Channel Edge	820.525 to 825.525
110	Low Channel Out-Of-Band	15 to 2900
111	Low Channel Out-Of-Band	2900 to 10000
112	Mid Channel Out-Of-Band	15 to 2900
113	Mid Channel Out-Of-Band	2900 to 10000
114	High Channel Edge	847.5 to 852.5
115	High Channel Out-Of-Band	15 to 2900
116	High Channel Out-Of-Band	2900 to 10000

800 MHz AMPS UPLINK INTER-MODULATION (824 – 849 MHz) (80m CAT5 cable from EUT to RAU)		
Plot #	Description	Frequency Range (MHz)
117	Inter-modulation	Zoom In-Band
118	Inter-modulation	Zoom Out
119	Inter-modulation Out-Of-Band	15 to 2900
120	Inter-modulation Out-Of-Band	2900 to 20000

1900 MHz CDMA DOWNLINK BANDS A – F (1930 – 1990) (20m CAT5 cable from EUT to RAU)		
Plot #	Description	Frequency Range (MHz)
121	Low Channel Output Power	1931.25
122	Mid Channel Output Power	1960
123	High Channel Output Power	1988.75
124	Low Channel Edge	1926.6 to 1931.6
125	Low Channel Out-Of-Band	15 to 2000
126	Low Channel Out-Of-Band	2000 to 20000
127	Mid Channel Out-Of-Band	15 to 2000
128	Mid Channel Out-Of-Band	2000 to 20000
129	High Channel Edge	1988.5 to 1993.5
130	High Channel Out-Of-Band	15 to 2500
131	High Channel Out-Of-Band	2500 to 20000

1900 MHz CDMA DOWNLINK INTER-MODULATION BANDS A – F (1930 – 1990) (20m CAT5 cable from EUT to RAU)		
Plot #	Description	Frequency Range (MHz)
132	Low Channel Inter-modulation	Zoom In
133	Low Channel Inter-modulation	Zoom Out
134	Low Channel Inter-modulation Out-Of-Band	15 to 2500
135	Low Channel Inter-modulation Out-Of-Band	2500 to 20000
136	Mid Channel Inter-modulation	Zoom In
137	Mid Channel Inter-modulation	Zoom Out
138	Mid Channel Inter-modulation Out-Of-Band	15 to 2500
139	Mid Channel Inter-modulation Out-Of-Band	2500 to 20000
140	High Channel Inter-modulation	Zoom In
141	High Channel Inter-modulation	Zoom Out
142	High Channel Inter-modulation Out-Of-Band	15 to 2500
143	High Channel Inter-modulation Out-Of-Band	2500 to 20000

1900 MHz CDMA UPLINK BANDS A – F (1850 – 1910) (20m CAT5 cable from EUT to RAU)		
Plot #	Description	Frequency Range (MHz)
144	Low Channel Output Power	1851.25
145	Mid Channel Output Power	1880
146	High Channel Output Power	1908.75
147	Low Channel Edge	1846.5 to 1851.5
148	Low Channel Out-Of-Band	15 to 2500
149	Low Channel Out-Of-Band	2500 to 20000
150	Mid Channel Out-Of-Band	15 to 2500
151	Mid Channel Out-Of-Band	2500 to 20000
152	High Channel Edge	1907.5 to 1912.5
153	High Channel Out-Of-Band	15 to 2500
154	High Channel Out-Of-Band	2500 to 20000

1900 MHz CDMA UPLINK INTER-MODULATION BANDS A – F (1850 – 1910) (20m CAT5 cable from EUT to RAU)		
155	Low Channel Inter-modulation	Zoom In
156	Low Channel Inter-modulation	Zoom Out
157	Low Channel Inter-modulation Out-Of-Band	15 to 2900
158	Low Channel Inter-modulation Out-Of-Band	2900 to 20000
159	Mid Channel Inter-modulation	Zoom In
160	Mid Channel Inter-modulation	Zoom Out
161	Mid Channel Inter-modulation Out-Of-Band	15 to 2900
162	Mid Channel Inter-modulation Out-Of-Band	2900 to 20000
163	High Channel Inter-modulation	Zoom In
164	High Channel Inter-modulation	Zoom Out
165	High Channel Inter-modulation Out-Of-Band	15 to 2900
166	High Channel Inter-modulation Out-Of-Band	2900 to 20000

1900 MHz CDMA DOWNLINK BANDS A – F (1930 – 1990) (80m CAT5 cable from EUT to RAU)		
Plot #	Description	Frequency Range (MHz)
167	Low Channel Output Power	1931.25
168	Mid Channel Output Power	1960
169	High Channel Output Power	1988.75
170	Low Channel Edge	1926.6 to 1931.6
171	Low Channel Out-Of-Band	15 to 250
172	Low Channel Out-Of-Band	250 to 20000
173	Mid Channel Out-Of-Band	15 to 250
174	Mid Channel Out-Of-Band	2500to 20000
175	High Channel Edge	1988.5 to 1993.5
176	High Channel Out-Of-Band	15 to 2500
177	High Channel Out-Of-Band	2500 to 20000

1900 MHz CDMA DOWNLINK INTER-MODULATION BANDS A – F (1930 – 1990) (80m CAT5 cable from EUT to RAU)		
178	Low Channel Inter-modulation	Zoom In
179	Low Channel Inter-modulation	Zoom Out
180	Low Channel Inter-modulation Out-Of-Band	15 to 2500
181	Low Channel Inter-modulation Out-Of-Band	2500 to 20000
182	Mid Channel Inter-modulation	Zoom In
183	Mid Channel Inter-modulation	Zoom Out
184	Mid Channel Inter-modulation Out-Of-Band	15 to 2500
185	Mid Channel Inter-modulation Out-Of-Band	2500 to 20000
186	High Channel Inter-modulation	Zoom In
187	High Channel Inter-modulation	Zoom Out
188	High Channel Inter-modulation Out-Of-Band	15 to 2500
189	High Channel Inter-modulation Out-Of-Band	2500 to 20000

1900 MHz CDMA UPLINK BANDS A – F (1850 – 1910) (80m CAT5 cable from EUT to RAU)		
Plot #	Description	Frequency Range (MHz)
190	Low Channel Output Power	1851.25
191	Mid Channel Output Power	1880
192	High Channel Output Power	1908.75
193	Low Channel Edge	1846.5 to 1851.5
194	Low Channel Out-Of-Band	15 to 2500
195	Low Channel Out-Of-Band	2500 to 20000
196	Mid Channel Out-Of-Band	15 to 2500
197	Mid Channel Out-Of-Band	2500 to 20000
198	High Channel Edge	1907.5 to 1912.5
199	High Channel Out-Of-Band	15 to 2500
200	High Channel Out-Of-Band	2500 to 20000

1900 MHz CDMA UPLINK INTER-MODULATION BANDS A – F (1850 – 1910) (80m CAT5 cable from EUT to RAU)		
201	Low Channel Inter-modulation	Zoom In
202	Low Channel Inter-modulation	Zoom Out
203	Low Channel Inter-modulation Out-Of-Band	15 to 2900
204	Low Channel Inter-modulation Out-Of-Band	2900 to 20000
205	Mid Channel Inter-modulation	Zoom In
206	Mid Channel Inter-modulation	Zoom Out
207	Mid Channel Inter-modulation Out-Of-Band	15 to 2900
208	Mid Channel Inter-modulation Out-Of-Band	2900 to 20000
209	High Channel Inter-modulation	Zoom In
210	High Channel Inter-modulation	Zoom Out
211	High Channel Inter-modulation Out-Of-Band	15 to 2900
212	High Channel Inter-modulation Out-Of-Band	2900 to 20000

1900 MHz CW (Un-Modulation) DOWNLINK BANDS A – F (1930 – 1990) (20m CAT5 cable from EUT to RAU)		
Plot #	Description	Frequency Range (MHz)
213	Low Channel Output Power	1931.25
214	Mid Channel Output Power	1960
215	High Channel Output Power	1988.75
216	Low Channel Edge	1926.6 to 1931.6
217	Low Channel Out-Of-Band	15 to 2000
218	Low Channel Out-Of-Band	2000 to 20000
219	Mid Channel Out-Of-Band	15 to 2000
220	Mid Channel Out-Of-Band	2000 to 20000
221	High Channel Edge	1988.5 to 1993.5
222	High Channel Out-Of-Band	15 to 2500
223	High Channel Out-Of-Band	2500 to 20000

1900 MHz TDMA DOWNLINK INTER-MODULATION BANDS A – F (1930 – 1990) (20m CAT5 cable from EUT to RAU)		
Plot #	Description	Frequency Range (MHz)
224	Low Channel Inter-modulation	Zoom In
225	Low Channel Inter-modulation	Zoom Out
226	Low Channel Inter-modulation Out-Of-Band	15 to 2500
227	Bottom Channel Inter-modulation Out-Of-Band	2500 to 20000
228	Mid Channel Inter-modulation	Zoom In
229	Mid Channel Inter-modulation	Zoom Out
230	Mid Channel Inter-modulation Out-Of-Band	15 to 2500
231	Mid Channel Inter-modulation Out-Of-Band	2500 to 20000
232	High Channel Inter-modulation	Zoom In
233	High Channel Inter-modulation	Zoom Out
234	High Channel Inter-modulation Out-Of-Band	15 to 2500
235	High Channel Inter-modulation Out-Of-Band	2500 to 20000

1900 MHz CW (Un-Modulation) UPLINK BANDS A – F (1850 – 1910) (20m CAT5 cable from EUT to RAU)		
Plot #	Description	Frequency Range (MHz)
236	Low Channel Output Power	1851.25
237	Mid Channel Output Power	1880
238	High Channel Output Power	1908.75
239	Low Channel Edge	1846.5 to 1851.5
240	Low Channel Out-Of-Band	15 to 2500
241	Low Channel Out-Of-Band	2500 to 20000
242	Mid Channel Out-Of-Band	15 to 2500
243	Mid Channel Out-Of-Band	2500 to 20000
244	High Channel Edge	1907.5 to 1912.5
245	High Channel Out-Of-Band	15 to 2500
246	High Channel Out-Of-Band	2500 to 20000

1900 MHz TDMA UPLINK INTER-MODULATION BANDS A – F (1850 – 1910) (20m CAT5 cable from EUT to RAU)		
247	Low Channel Inter-modulation	Zoom In
248	Low Channel Inter-modulation	Zoom Out
249	Low Channel Inter-modulation Out-Of-Band	15 to 2900
250	Low Channel Inter-modulation Out-Of-Band	2900 to 20000
251	Mid Channel Inter-modulation	Zoom In
252	Mid Channel Inter-modulation	Zoom Out
253	Mid Channel Inter-modulation Out-Of-Band	15 to 2900
254	Mid Channel Inter-modulation Out-Of-Band	2900 to 20000
255	High Channel Inter-modulation	Zoom In
256	High Channel Inter-modulation	Zoom Out
1257	High Channel Inter-modulation Out-Of-Band	15 to 2900
258	High Channel Inter-modulation Out-Of-Band	2900 to 20000

1900 MHz CW (Un-Modulation) DOWNLINK BANDS A – F (1930 – 1990) (80m CAT5 cable from EUT to RAU)		
Plot #	Description	Frequency Range (MHz)
259	Low Channel Output Power	1931.25
260	Mid Channel Output Power	1960
261	High Channel Output Power	1988.75
262	Low Channel Edge	1926.6 to 1931.6
263	Low Channel Out-Of-Band	15 to 250
264	Low Channel Out-Of-Band	250 to 20000
265	Mid Channel Out-Of-Band	15 to 250
266	Mid Channel Out-Of-Band	2500 to 20000
267	High Channel Edge	1988.5 to 1993.5
268	High Channel Out-Of-Band	15 to 2500
269	High Channel Out-Of-Band	2500 to 20000

1900 MHz TDMA DOWNLINK INTER-MODULATION BANDS A – F (1930 – 1990) (80m CAT5 cable from EUT to RAU)		
270	Low Channel Inter-modulation	Zoom In
271	Low Channel Inter-modulation	Zoom Out
272	Low Channel Inter-modulation Out-Of-Band	15 to 2500
273	Low Channel Inter-modulation Out-Of-Band	2500 to 20000
274	Mid Channel Inter-modulation	Zoom In
275	Mid Channel Inter-modulation	Zoom Out
276	Mid Channel Inter-modulation Out-Of-Band	15 to 2500
277	Mid Channel Inter-modulation Out-Of-Band	2500 to 20000
278	High Channel Inter-modulation	Zoom In
279	High Channel Inter-modulation	Zoom Out
280	High Channel Inter-modulation Out-Of-Band	15 to 2500
281	High Channel Inter-modulation Out-Of-Band	2500 to 20000

1900 MHz CW (Un-Modulation) UPLINK BANDS A – F (1850 – 1910) (80m CAT5 cable from EUT to RAU)		
Plot #	Description	Frequency Range (MHz)
282	Low Channel Output Power	1851.25
283	Mid Channel Output Power	1880
284	High Channel Output Power	1908.75
285	Low Channel Edge	1846.5 to 1851.5
286	Low Channel Out-Of-Band	15 to 2500
287	Low Channel Out-Of-Band	2500 to 20000
288	Mid Channel Out-Of-Band	15 to 2500
289	Mid Channel Out-Of-Band	2500 to 20000
290	High Channel Edge	1907.5 to 1912.5
291	High Channel Out-Of-Band	15 to 2500
292	High Channel Out-Of-Band	2500 to 20000

1900 MHz TDMA UPLINK INTER-MODULATION BANDS A – F (1850 – 1910) (80m CAT5 cable from EUT to RAU)		
293	Low Channel Inter-modulation	Zoom In
294	Low Channel Inter-modulation	Zoom Out
295	Low Channel Inter-modulation Out-Of-Band	15 to 2900
296	Low Channel Inter-modulation Out-Of-Band	2900 to 20000
297	Mid Channel Inter-modulation	Zoom In
298	Mid Channel Inter-modulation	Zoom Out
299	Mid Channel Inter-modulation Out-Of-Band	15 to 2900
300	Mid Channel Inter-modulation Out-Of-Band	2900 to 20000
301	High Channel Inter-modulation	Zoom In
302	High Channel Inter-modulation	Zoom Out
303	High Channel Inter-modulation Out-Of-Band	15 to 2900
304	High Channel Inter-modulation Out-Of-Band	2900 to 20000

END OF REPORT