



Test Report: 4W36014

Applicant: G-Wave, Inc.
15 Ron's Edge Road
Springfield, New Jersey
07081, USA

**Equipment Under Test:
(EUT)** BDA-CELLB-2/2W-80-OCA

FCC ID: Q8KCELLB2W80CA

In Accordance With: FCC Part 22, Subpart H

Tested By: Nemko Canada Inc.
303 River Road, R.R. 5
Ottawa, Ontario K1V 1H2

Authorized By: 
Sim Jagpal , General Manager

Date: 21 February 2005

Total Number of Pages: 35

Table of Contents

Section 1.	Summary of Test Results	3
Section 2.	General Equipment Specification.....	5
Section 3.	RF Power Output.....	7
Section 4.	Occupied Bandwidth	8
Section 5.	Spurious Emissions at Antenna Terminals	15
Section 6.	Field Strength of Spurious Emissions	26
Section 7	Out of Band Rejection.....	30
Section 8.	Block Diagrams	33
Section 9.	Test Equipment List	35

EQUIPMENT: BDA-CELLB-2/2W-80-OCA

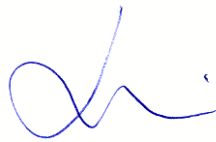
Section 1. Summary of Test Results

General

All measurements are traceable to national standards.

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 22, Subpart H.

THIS TEST REPORT RELATES ONLY TO THE ITEM(S) TESTED.



TESTED BY: _____
Xu Jin Wireless Specialist

DATE: 21 February 2005

Nemko Canada Inc. authorizes the above named company to reproduce this report provided it is reproduced in its entirety and for use by the company's employees only.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Nemko Canada Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

This report applies only to the items tested.

EQUIPMENT: BDA-CELLB-2/2W-80-OCA

Summary Of Test Data

Name Of Test	Para. No.	Result
RF Power Output	2.1046	Complied
Audio Frequency Response	2.1047	NA(1)
Audio Low-Pass Filter Response	2.1047	NA(1)
Modulation Limiting	2.1047	NA(1)
Occupied Bandwidth	2.1049	Complied
Spurious Emissions at Antenna Terminals	2.1051	Complied
Field Strength of Spurious Emissions	2.1053	Complied
Frequency Stability	2.1055	NA(2)
Transient Frequency Behavior	—	NA(3)

N/A's: 1 – The EUT has no modulation or audio capability
 2 – The EUT has no frequency conversion capability
 3 – The EUT is not a PTT device

Indoor Temperature: 23°C
 Humidity: 23%

Outdoor Temperature: 7°C
 Humidity: 27%

.

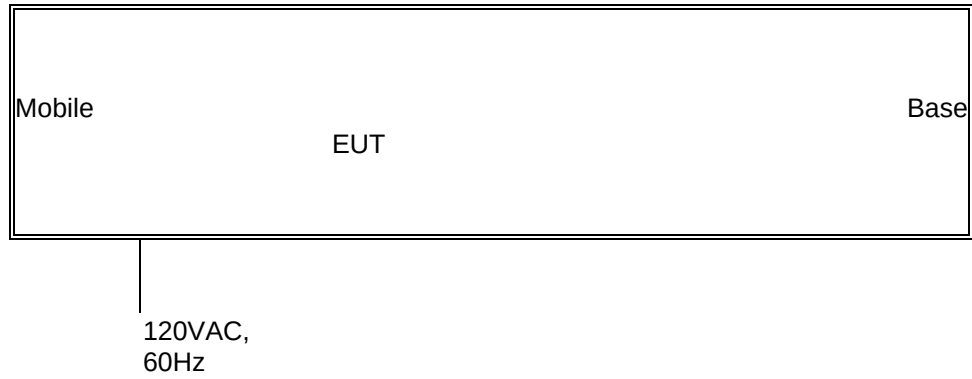
EQUIPMENT: BDA-CELLB-2/2W-80-OCA

Section 2. General Equipment Specification

Manufacturer:	G-Wave Inc,
Model No.:	BDA-CELLB-2/2W-80-OCA
Serial No.:	04121001
Date Received In Laboratory:	Jan 4, 2005
Nemko Identification No.:	1
Supply Voltage:	120VAC, 60Hz
Frequency Range:	Uplink: 835-849 MHz Downlink: 880-894 MHz
RF Output Power (Rated)	Uplink: 26.0 dBm Downlink: 26.0 dBm
Emission Designator:	DXW, F9W, F8W

EQUIPMENT: BDA-CELLB-2/2W-80-OCA

Block Diagram



Section 3. RF Power Output

Para. No.: 2.1046

Test Performed By: Xu Jin	Date of Test: Feb 15, 2005
---------------------------	----------------------------

Minimum Standard: 22.913(a)

Test Results: Complied

Measurement Data: See Attached Graphs. The maximum RF output power is within ± 1 dB of the manufacturer's rating.

UpLink

Channel Frequency (MHz)	Measured Power (dBm)	Rated Power (dBm)
835	25.81	26
842	26.79	26
849	25.80	26

DownLink

Channel Frequency (MHz)	Measured Power (dBm)	Rated Power (dBm)
880	25.81	26
887	25.90	26
894	25.08	26

EQUIPMENT: BDA-CELLB-2/2W-80-OCA

Section 4. Occupied Bandwidth

Para. No.: 2.1049

Test Performed By: Xu Jin	Date of Test: Feb 14, 2005
----------------------------------	-----------------------------------

Minimum Standard: 22.917, Input vs Output

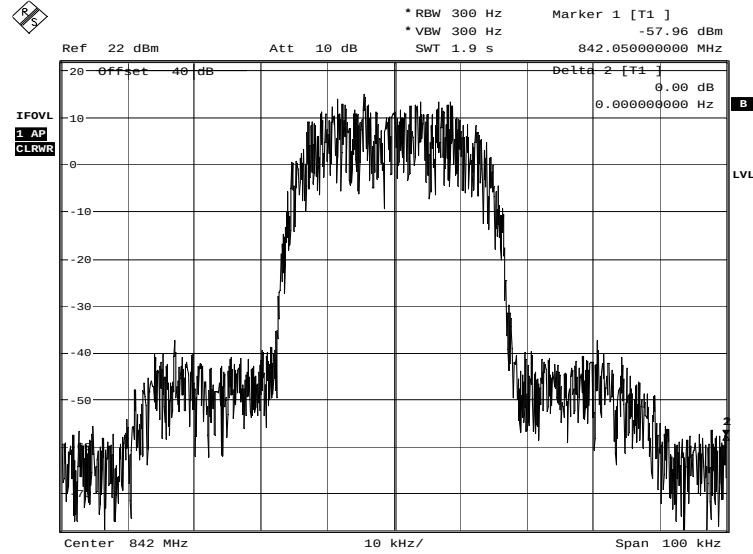
Test Results: Complied

Measurement Data: See Attached Graphs

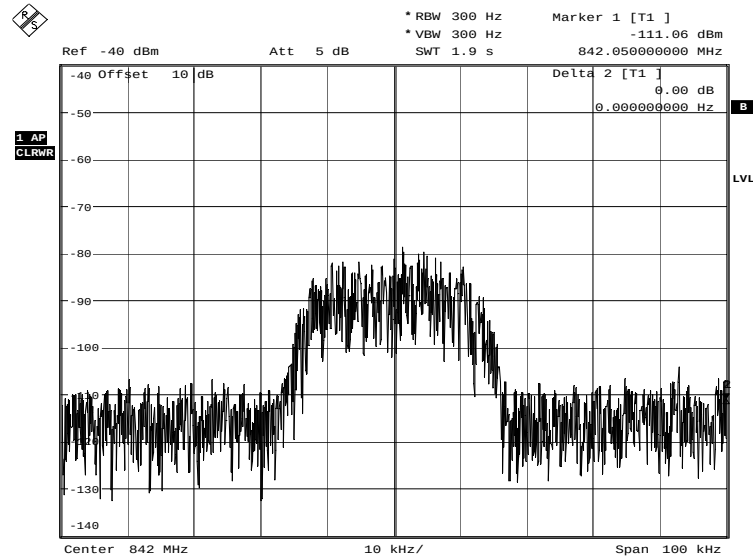
The occupied bandwidth was measured by comparison of input to the output signal. This was done in order to determine if there was any degradation to the output signal due to the amplification through the repeater.

EQUIPMENT: BDA-CELLB-2/2W-80-OCA

UL_ TDMA



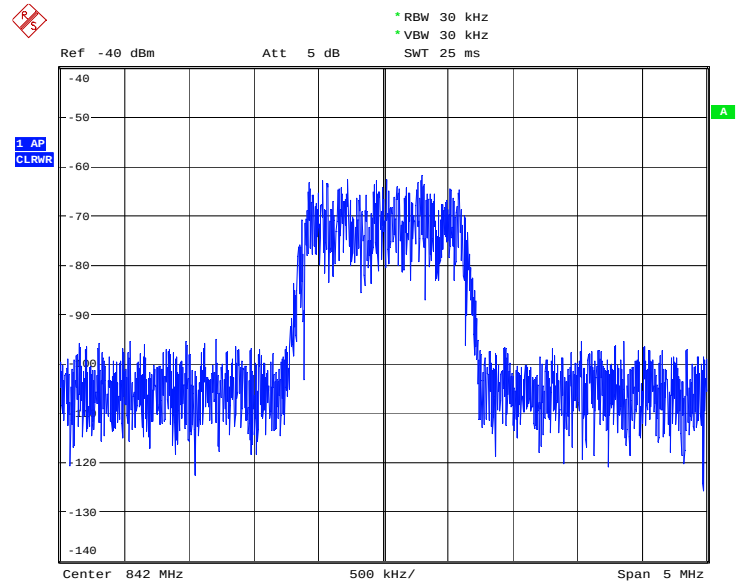
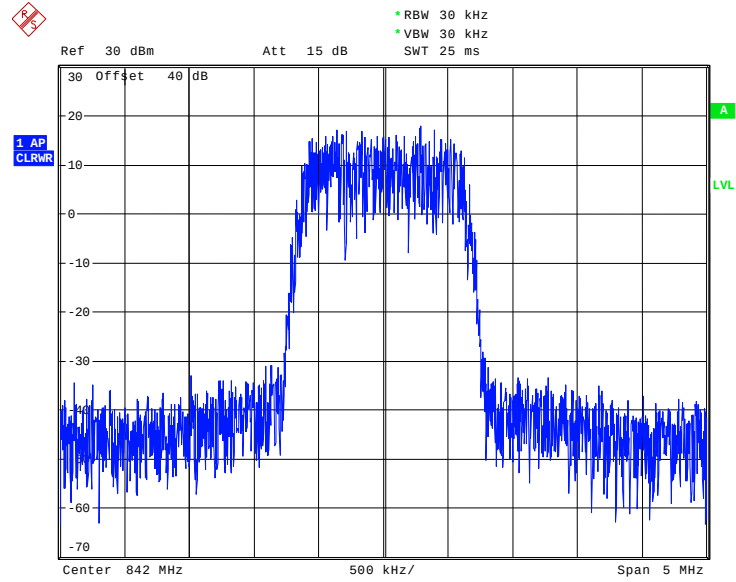
UL IS-136 O/P
Date: 15.FEB.2005 15:54:38



UL IS-136 I/P
Date: 15.FEB.2005 15:58:48

EQUIPMENT: BDA-CELLB-2/2W-80-OCA

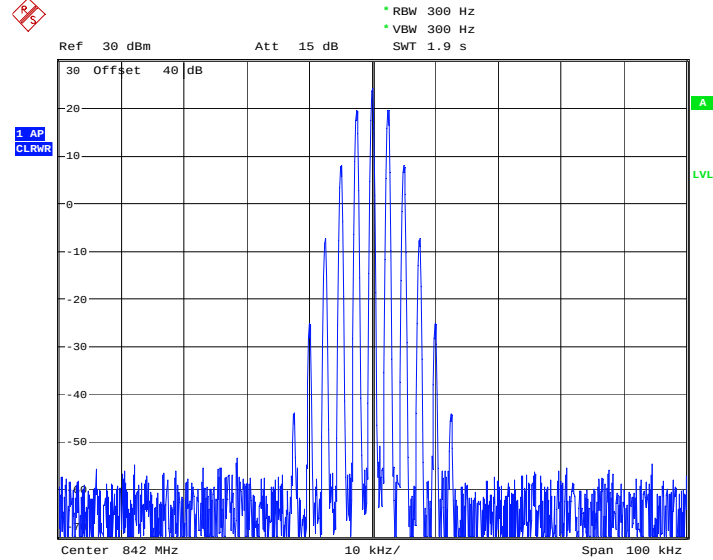
UL-CDMA



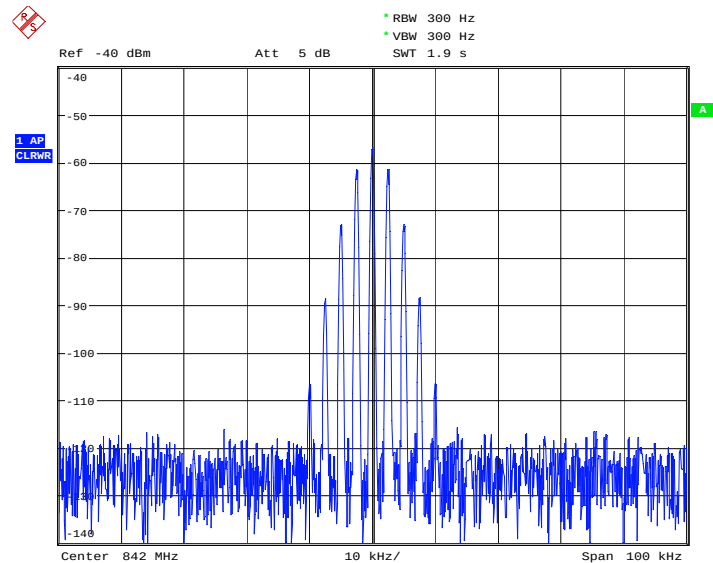
UL IS-95 I/P
Date: 14.FEB.2005 09:09:05

EQUIPMENT: BDA-CELLB-2/2W-80-OCA

UL_AMPS



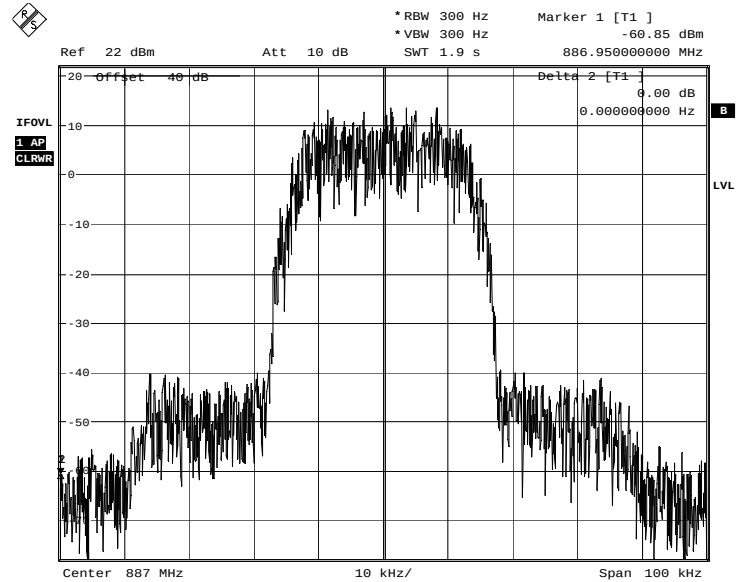
UL_AMPS O/P
Date: 14.FEB.2005 09:18:46



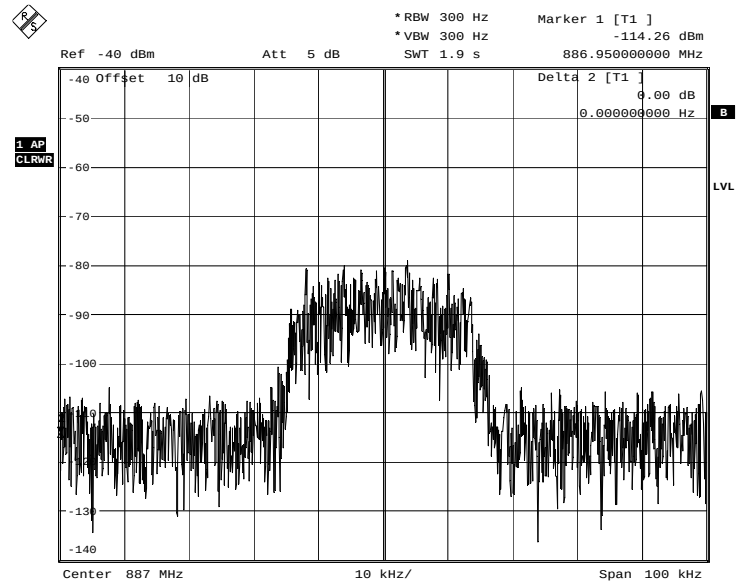
UL_AMPS I/P
Date: 14.FEB.2005 09:15:36

EQUIPMENT: BDA-CELLB-2/2W-80-OCA

DL_TDMA



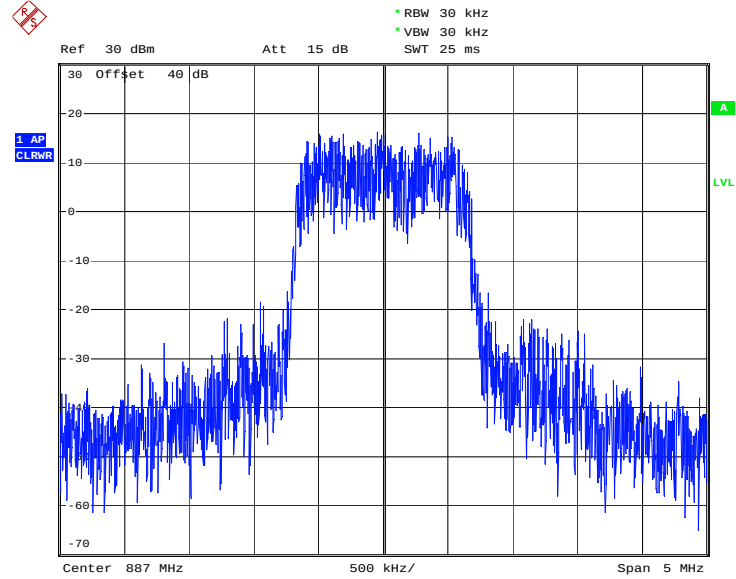
DL IS-136 O/P
Date: 15.FEB.2005 15:52:33



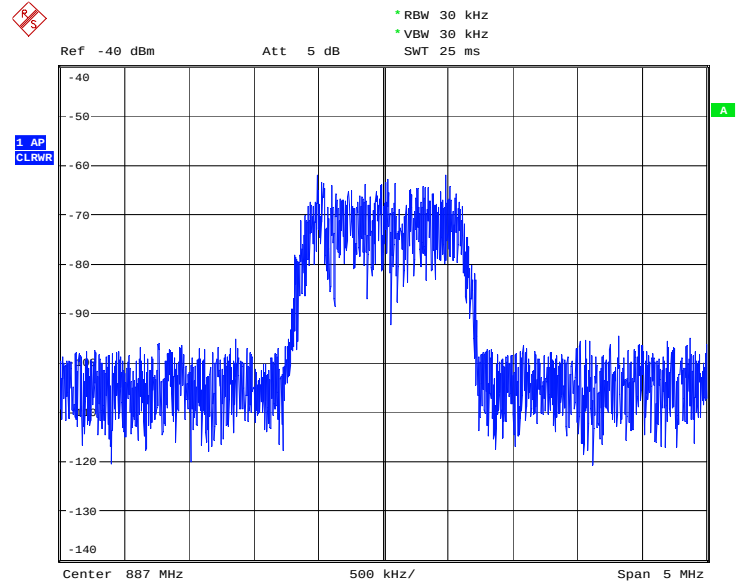
DL IS-136 I/P
Date: 15.FEB.2005 15:59:43

EQUIPMENT: BDA-CELLB-2/2W-80-OCA

DL_CDMA



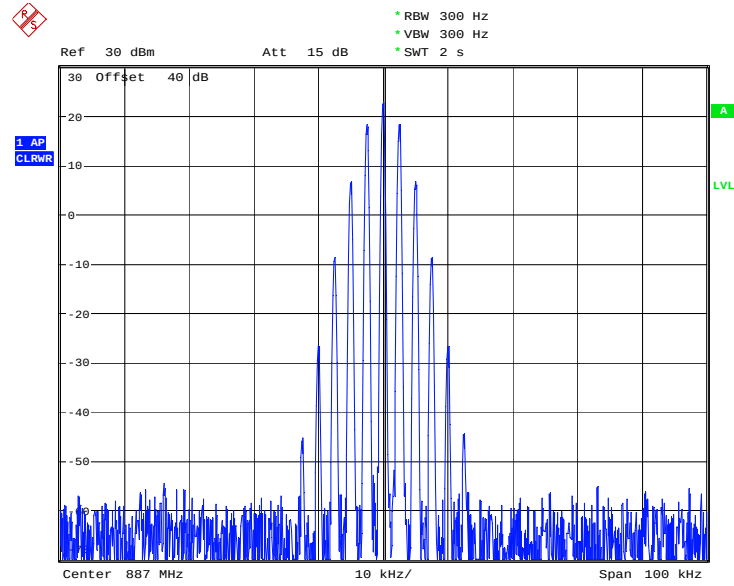
DL IS-95 O/P
Date: 14.FEB.2005 09:42:02



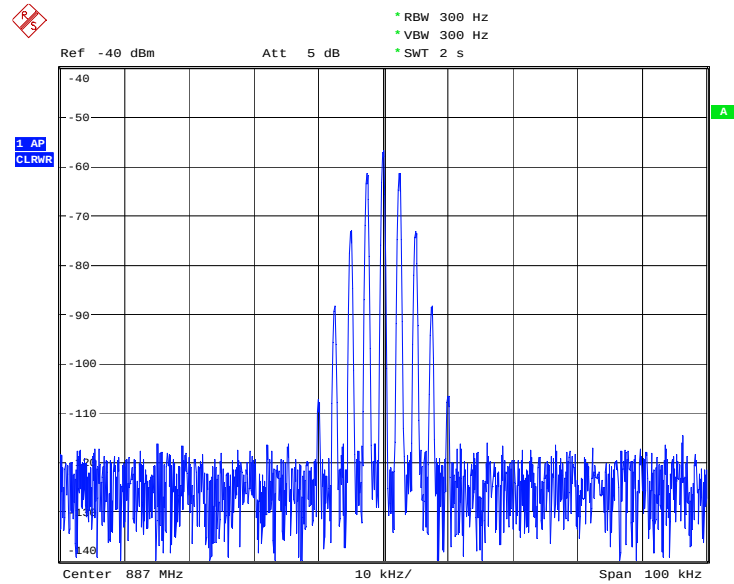
DL IS-95 I/P
Date: 14.FEB.2005 09:32:08

EQUIPMENT: BDA-CELLB-2/2W-80-OCA

DL_AMPS



DL_AMPS O/P
Date: 14.FEB.2005 09:48:54



DL_AMPS I/P
Date: 14.FEB.2005 09:46:25

Section 5. Spurious Emissions at Antenna Terminals

Para. No.: 2.1051

Test Performed By: Xu Jin	Date of Test: Feb 14, 2005
----------------------------------	-----------------------------------

Minimum Standard: 22.917(a): -13dBm

Test Results: Complied

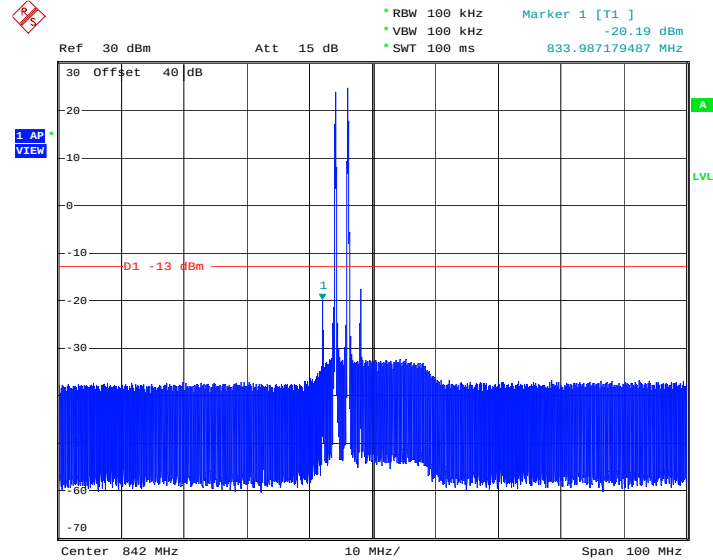
Measurement Data: See attached graphs

The EUT was searched in both UL and DL directions. The worst case results have been included.

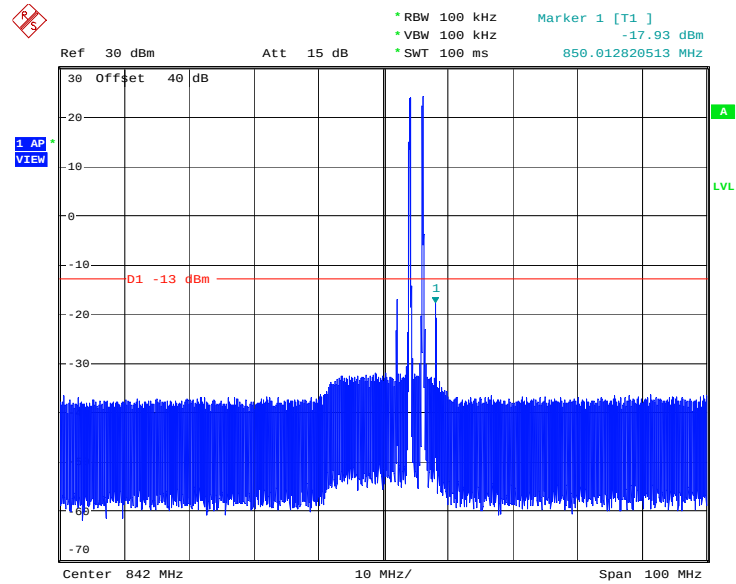
All emissions were measured using signal substitution relative to a half wave dipole antenna and were reported as ERP.

EQUIPMENT: BDA-CELLB-2/2W-80-OCA

UL_TDMA



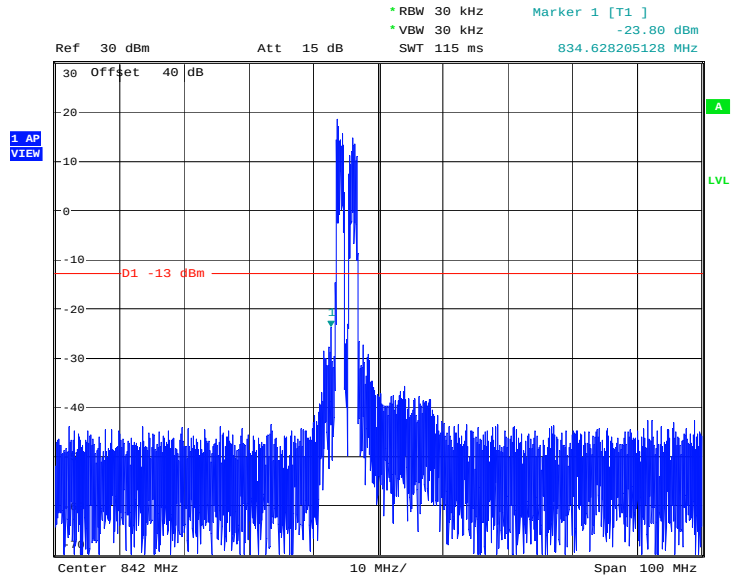
UL IS-136 O/P 25.73dBm
Date: 14.FEB.2005 14:39:53



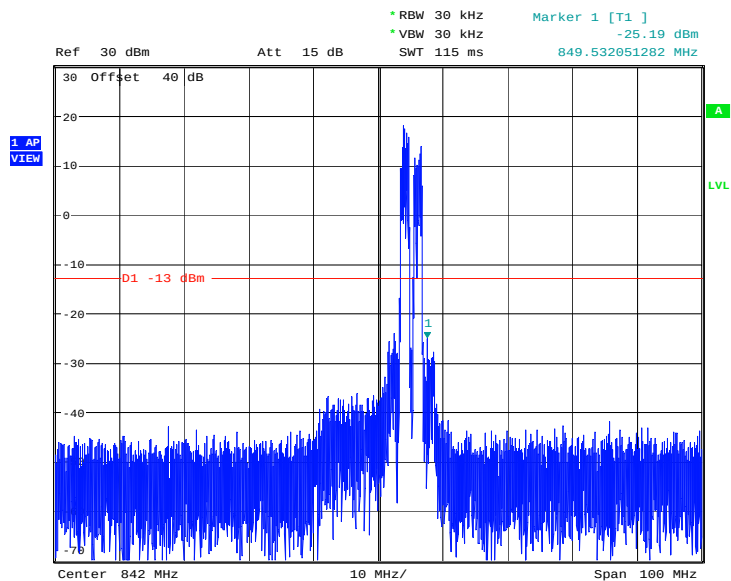
UL IS-136 O/P 25.73dBm
Date: 14.FEB.2005 14:37:34

EQUIPMENT: BDA-CELLB-2/2W-80-OCA

UL_CDMA



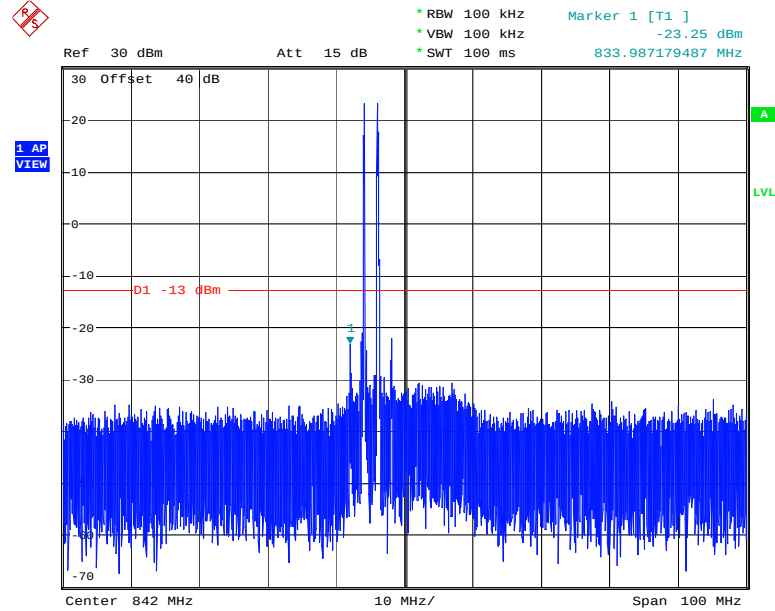
UL IS-95 O/P 25.99dBm
Date: 18.FEB.2005 15:43:26



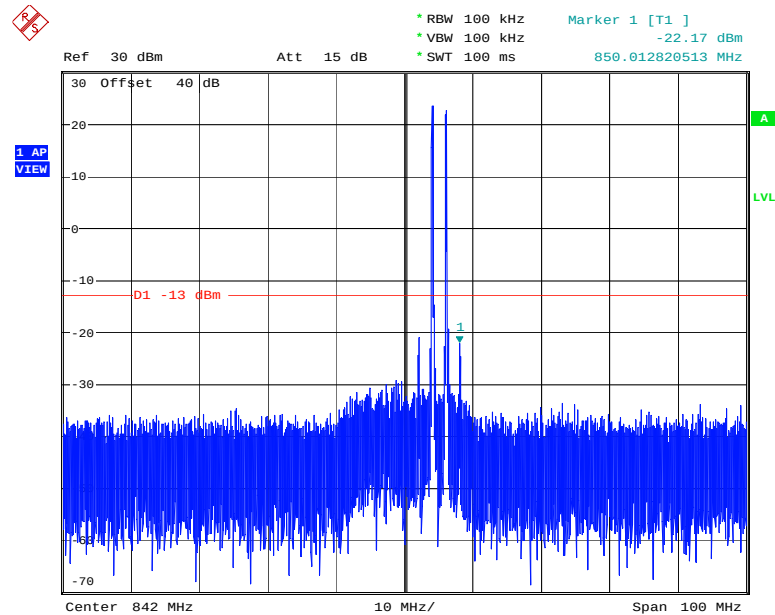
UL IS-95 O/P 25.99dBm
Date: 18.FEB.2005 15:44:52

EQUIPMENT: BDA-CELLB-2/2W-80-OCA

UL_AMPS



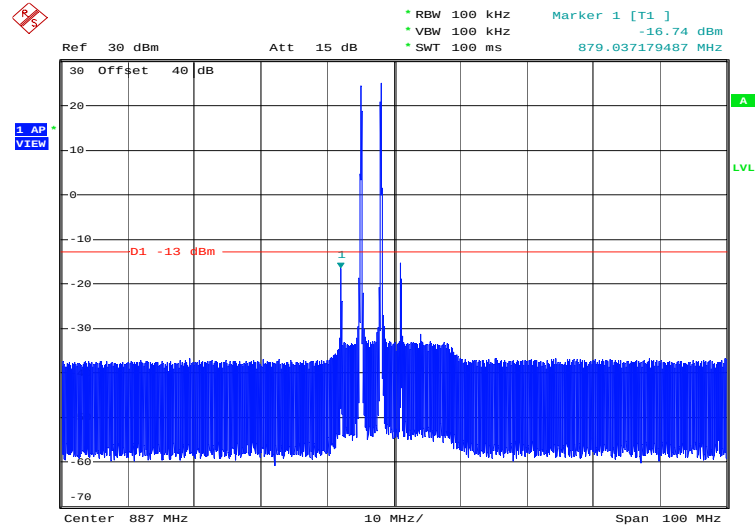
UL_AMPS O/P 26.00dBm
Date: 14.FEB.2005 14:24:57



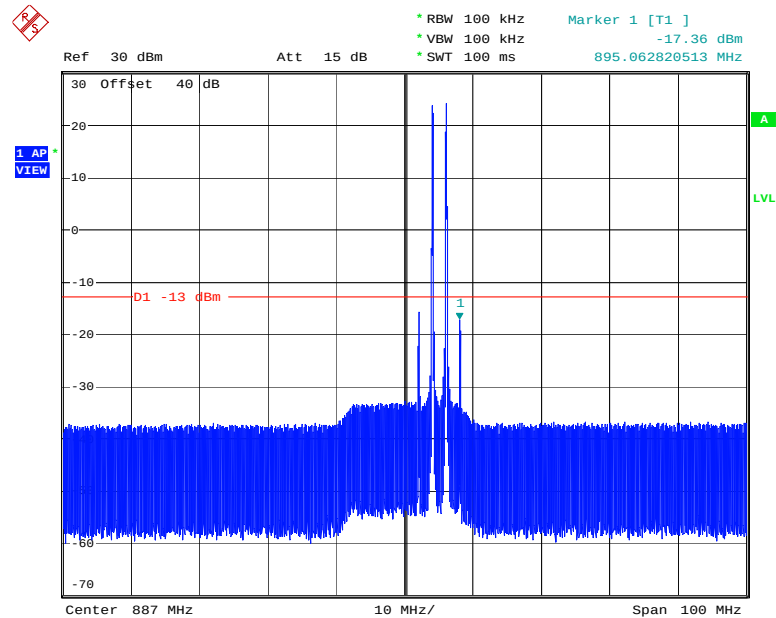
UL_AMPS O/P 26.00dBm
Date: 14.FEB.2005 14:26:37

EQUIPMENT: BDA-CELLB-2/2W-80-OCA

DL_TDMA



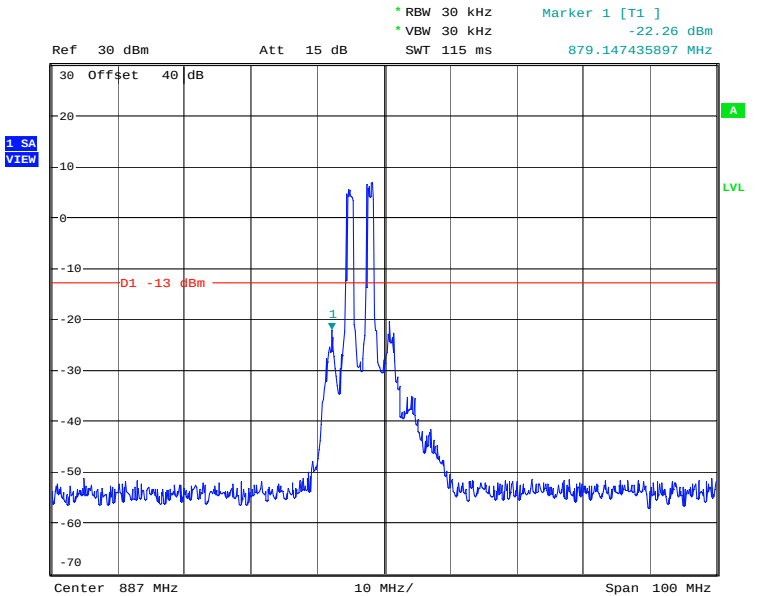
DL IS-136 O/P 25.80dBm
Date: 14.FEB.2005 13:58:35



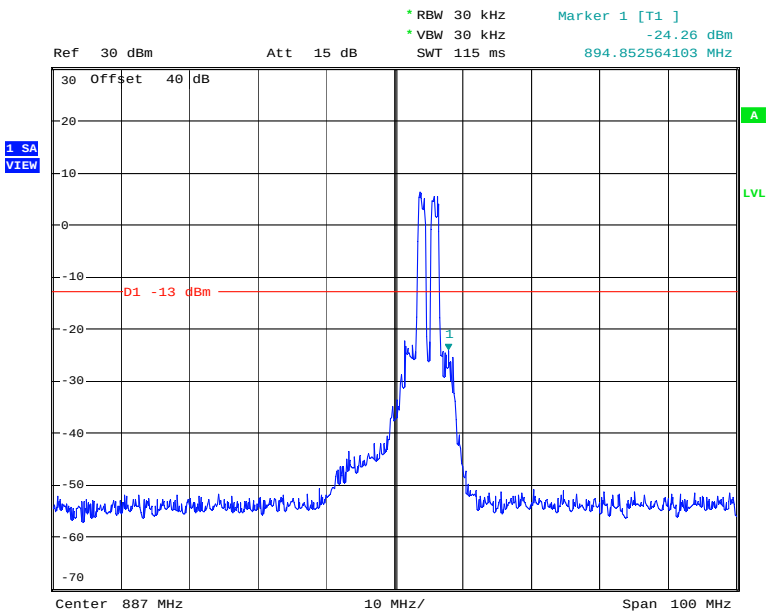
DL IS-136 O/P 25.80dBm
Date: 14.FEB.2005 13:57:12

EQUIPMENT: BDA-CELLB-2/2W-80-OCA

DL_CDMA



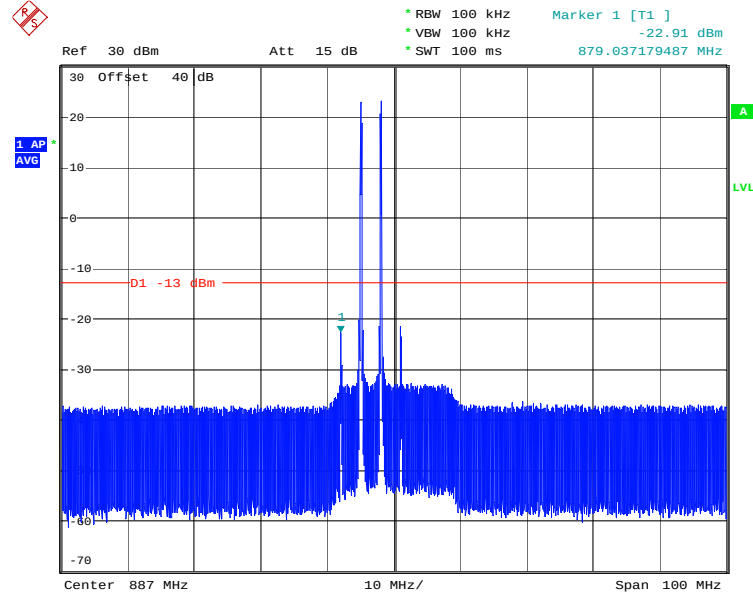
DL IS-95 O/P 25.68dBm
Date: 18.FEB.2005 16:06:53



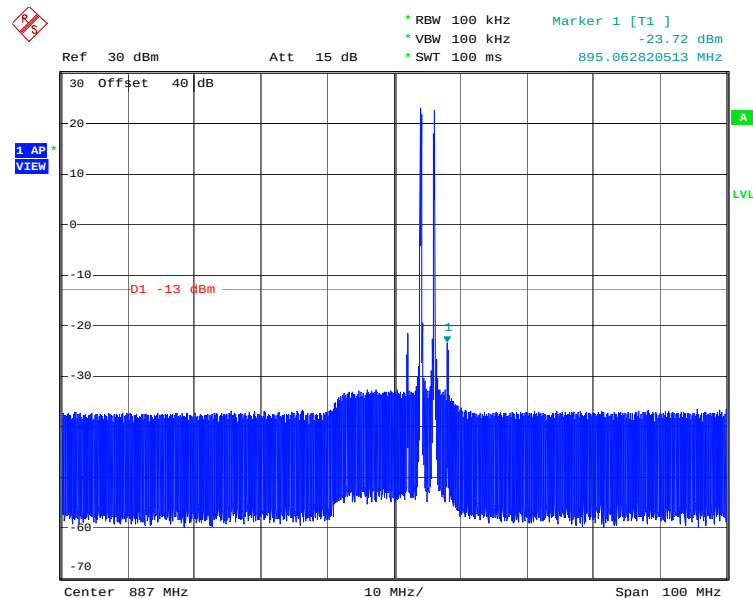
DL IS-95 O/P 25.68dBm
Date: 18.FEB.2005 16:22:24

EQUIPMENT: BDA-CELLB-2/2W-80-OCA

DL_AMPS



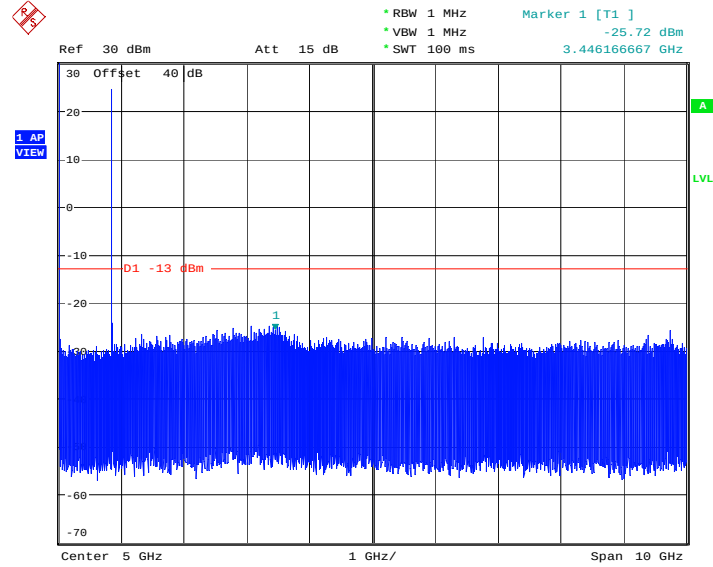
DL_AMPS O/P 25.98dBm
Date: 14.FEB.2005 14:09:15



DL_AMPS O/P 25.98dBm
Date: 14.FEB.2005 14:10:51

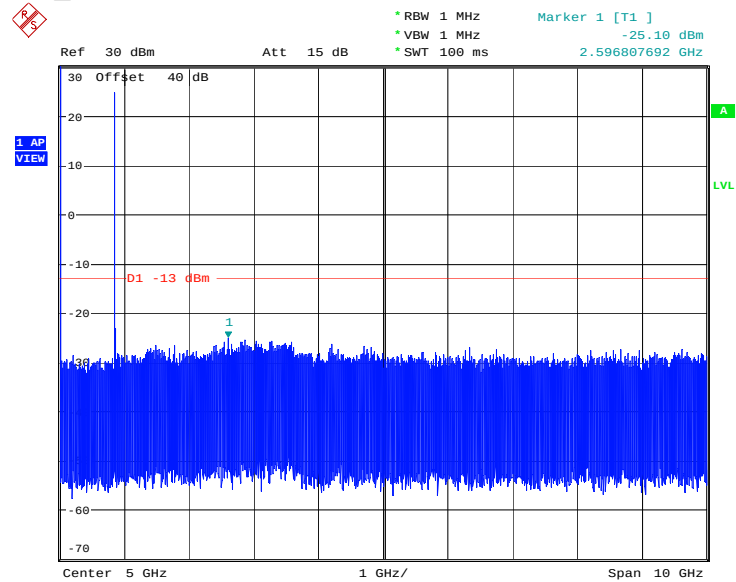
EQUIPMENT: BDA-CELLB-2/2W-80-OCA

UL_TDMA



UL IS-136 O/P 25.73dBm
Date: 14.FEB.2005 14:41:03

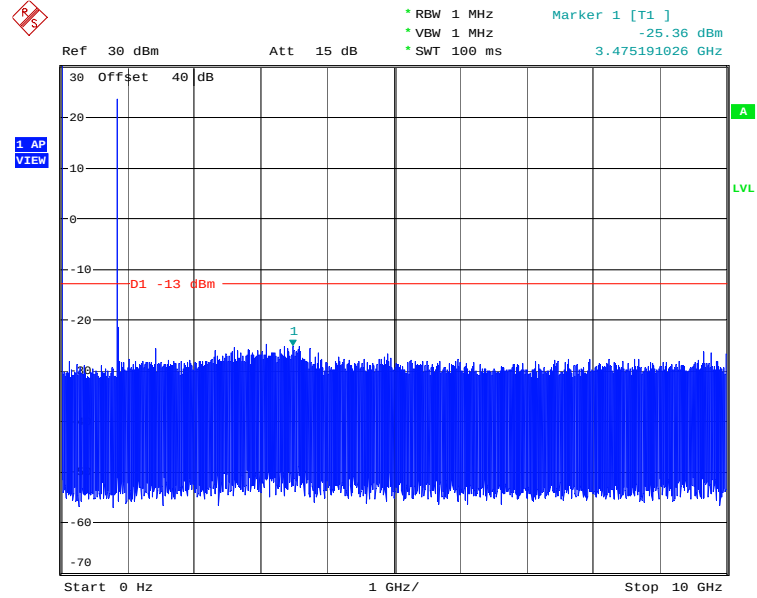
UL_CDMA



UL IS-95 O/P 25.99dBm
Date: 14.FEB.2005 14:47:03

EQUIPMENT: BDA-CELLB-2/2W-80-OCA

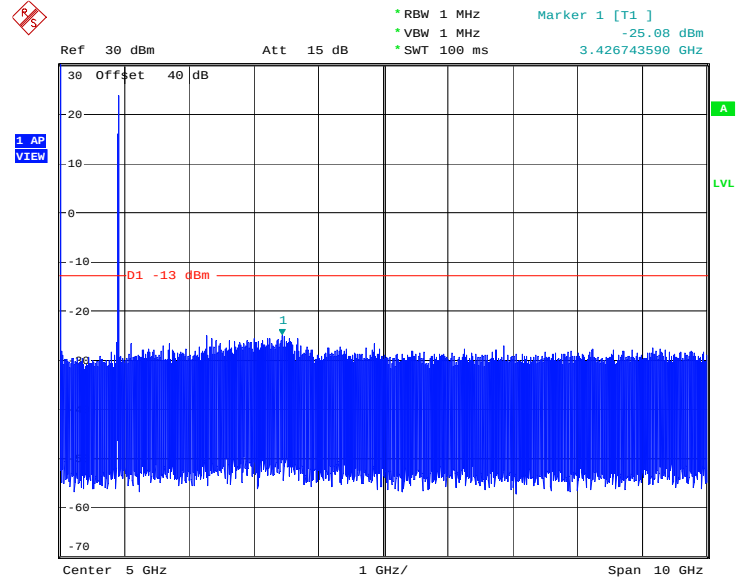
UL_AMPS



UL_AMPS O/P 26.00dBm
Date: 14.FEB.2005 14:23:24

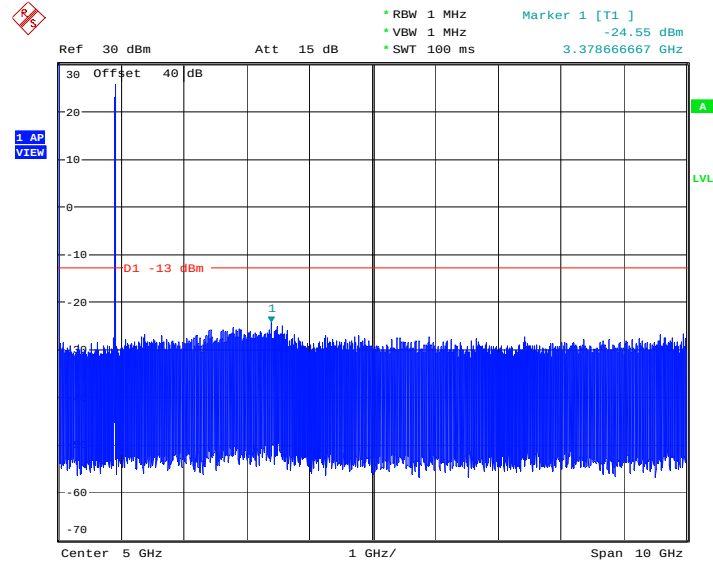
EQUIPMENT: BDA-CELLB-2/2W-80-OCA

DL_TDMA



DL IS-136 O/P 25.80dBm
Date: 14.FEB.2005 13:53:54

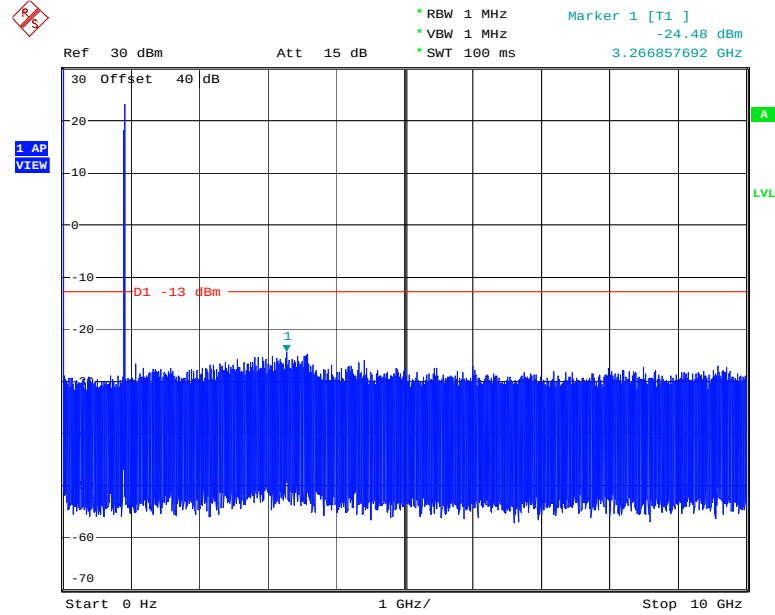
DL_CDMA



DL IS-95 O/P 25.68dBm
Date: 14.FEB.2005 13:51:48

EQUIPMENT: BDA-CELLB-2/2W-80-OCA

DL_AMPS



DL_AMPS O/P 25.98dBm
Date: 14.FEB.2005 14:15:14

Section 6. Field Strength of Spurious Emissions

Para. No.: 2.1053

Test Performed By: Xu Jin	Date of Test: Feb 17, 2005
----------------------------------	-----------------------------------

Minimum Standard: 22.917(e): -13dBm

Test Results: Complied

Measurement Data: See attached plots and chart.

The EUT was searched from 30MHz to the 8GHz and in both UL and DL directions. The worst case results have been included.

All emissions were measured using signal substitution relative to a half wave dipole antenna and were reported as ERP.

EQUIPMENT: BDA-CELLB-2/2W-80-OCA

Radiated Emission Test Data:

Test Date: Feb 17, 2005								
Engineer's Name: Xu Jin								
Temperature (C°): Indoor: 23, Outdoor: 7						Humidity %: Indoor: 23 , Outdoor: 27		
Tested as per Table Top								
Test Distance (meters): 3						Range: 1		
Freq. (MHz)	Ant.	Pol. V/H	RCVD Signal (dBμV)	Sig Sub. Factor (dB)	Signal Substitution Power (dBm)	Limit (dBm)	Margin (dB)	Detector
30.9	BC	V	28.2	-85.8	-57.6	-13	44.6	Peak
69.8	BC	V	20.6	-88.8	-68.2	-13	55.2	Peak
121.2	BC	V	24.1	-84.3	-60.2	-13	47.2	Peak
Note 1: Antenna Legend: BC = Biconical, BL = Bilog, LP = Log-Periodic, Horn = Horn, ED = EMCO Dipole								
Note 2: Detector Legend: Q-Peak = 120 kHz RBW, Average = 1.0 MHz RBW								

EQUIPMENT: BDA-CELLB-2/2W-80-OCA

Radiated Emission Setup Photos:

Front



EQUIPMENT: BDA-CELLB-2/2W-80-OCA

Back



Section 7. Out of Band Rejection

Para. No.: EAB/RF-2-11-04

Test Performed By: Xu Jin	Date of Test: Feb 15, 2005
----------------------------------	-----------------------------------

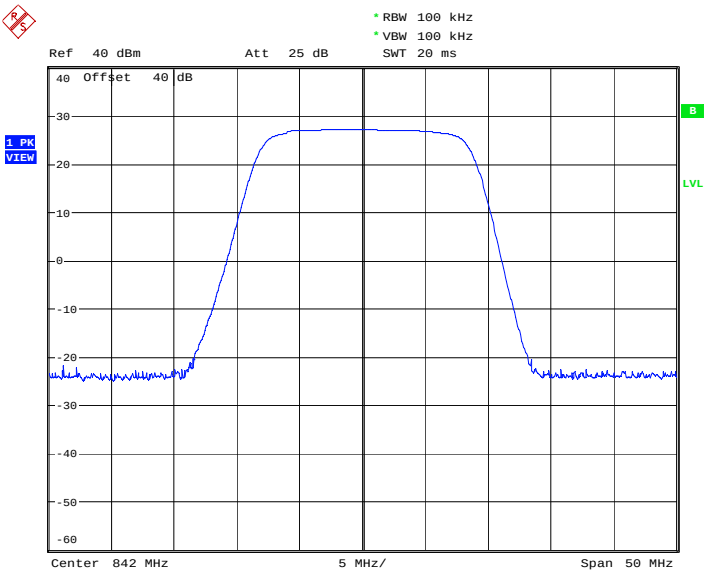
Minimum Standard: -20dBm

Test Results: Complies

Measurement Data: See attached plots.

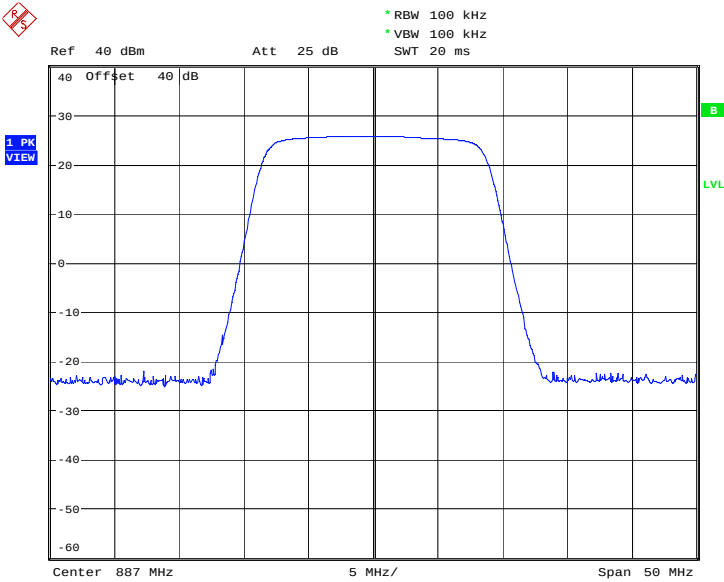
EQUIPMENT: BDA-CELLB-2/2W-80-OCA

UpLink



UL
Date: 15.FEB.2005 12:31:18

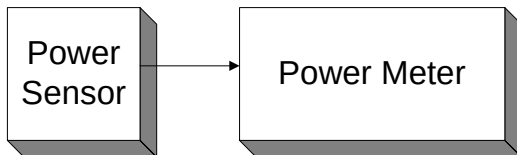
DownLink



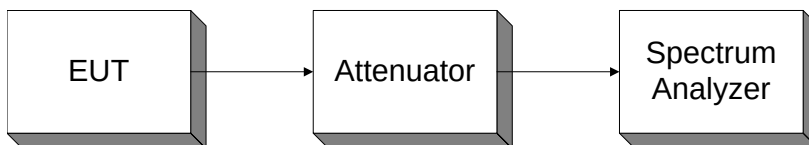
DL
Date: 15.FEB.2005 12:43:34

Section 8. Block Diagrams

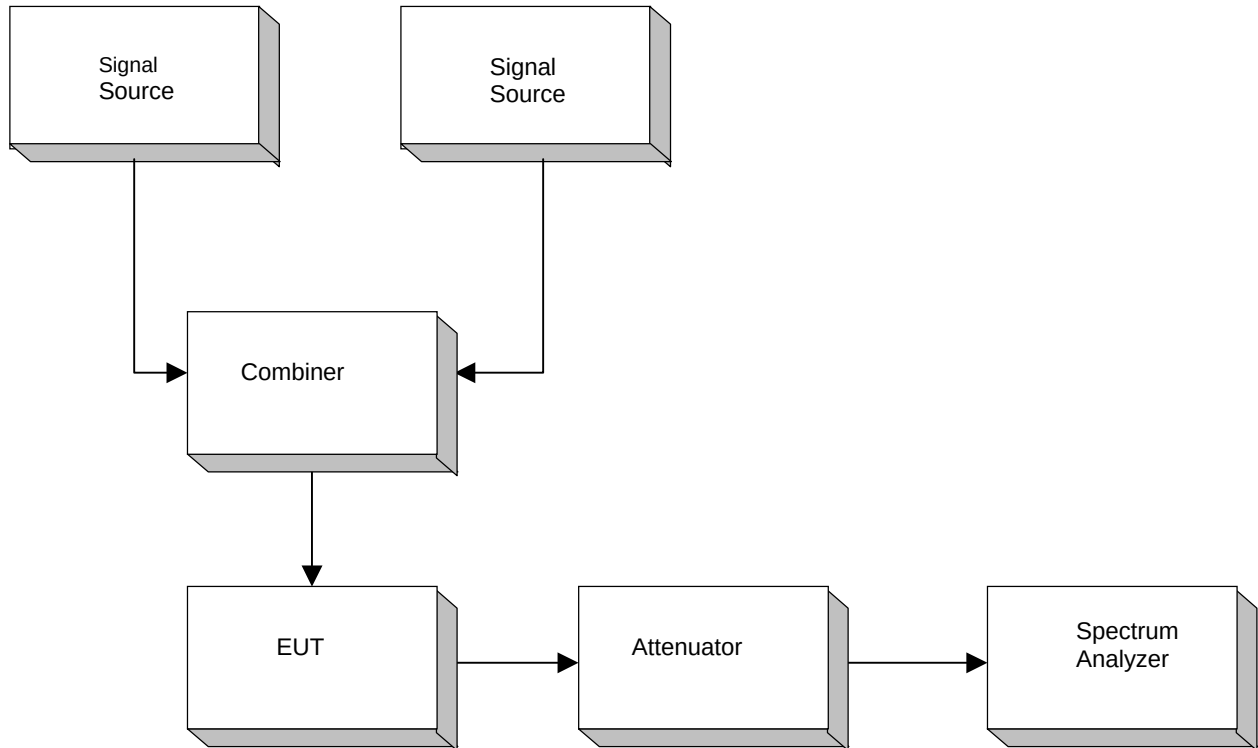
Para. No. 2.1046 - R.F. Power Output



Para. No. 2.1049 - Occupied Bandwidth

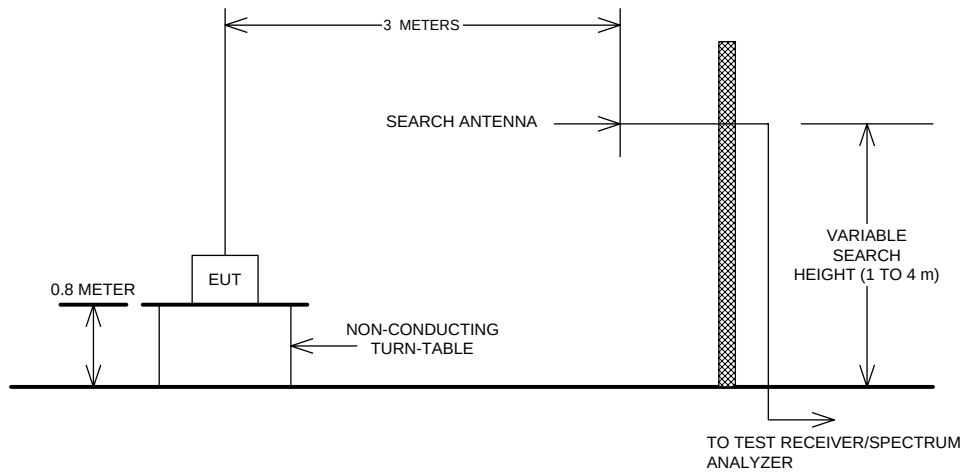


Para. No. 2.1051 - Spurious Emissions at Antenna Terminals



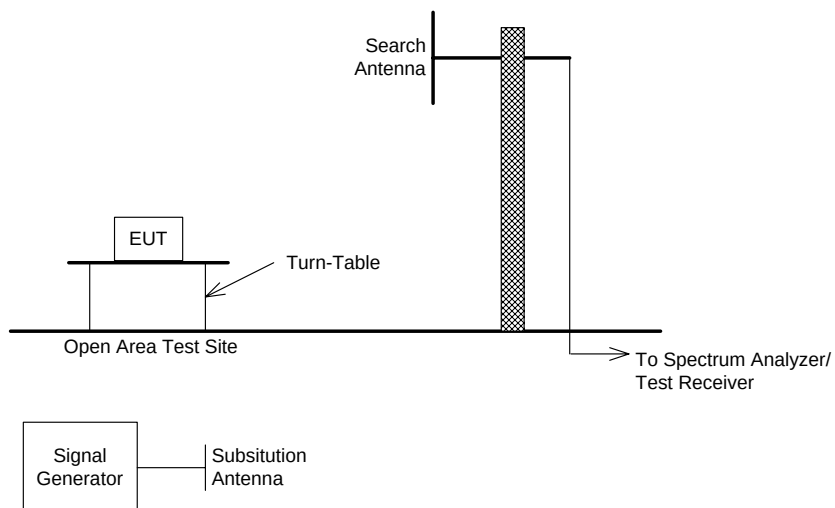
EQUIPMENT: BDA-CELLB-2/2W-80-OCA

Para. No. 2.1053 - Field Strength of Spurious Radiation



TIA/EIA 603

Effective Radiated Power
Spurious Emissions



EQUIPMENT: BDA-CELLB-2/2W-80-OCA

Section 9. Test Equipment List

CAL Cycle	Equipment	Manufacturer	Model No.	Asset/Serial No.	Last Cal.	Next Cal.
1 Year	Spectrum Analyzer	Hewlett-Packard	8564E	3943A01798	Dec 22/04	Dec 22/05
1 Year	Spectrum Analyzer	Rohde & Schwarz	FSU	FA001877	May 26/04	May 26/05
1 Year	Horn Antenna #2	EMCO	3115	FA000825	Dec. 10/04	Dec. 10/05
1 Year	Biconical Antenna #1	EMCO	3109	FA000805	April 23/04	April 23/05
1 Year	Log Periodic Antenna #1	EMCO	LPA-25	FA000477	Aug 26/04	Aug. 26/05
1 Year	1.0 – 2.0 GHz Amplifier	JCA	12-400	FA001498	June. 18/04	June. 18/05
1 Year	2.0 – 4.0 GHz Amplifier	JCA	24-600	FA001496	June. 18/04	June. 18/05
1 Year	4.0 – 8.0 GHz Amplifier	JCA	48-600	FA001497	June. 18/04	June. 18/05
3 Year	Signal Generator	Rohde & Schwarz	SMIQ03	FA001091	April 20/04	Sept. 25/05
1 Year	Signal Generator	Rohde & Schwarz	SMIQ06B	FA001878	May 18/04	May 18/05
1 Year	Signal Generator	Rohde & Schwarz	SMR40	FA001879	June 18/2004	June 18/2005
1 Year	Power Meter	Hewlett-Packard	E4418B	FA001413	May 25/04	May 25/05
1 Year	Power Sensor	Hewlett-Packard	8487A	Fa001908	Mar 11/04	Mar 11/05
COU	Attn	Narda.	769-20	FA001349	COU	COU
COU	Attn	Narda	776B-20	FA001153	COU	COU
Note: N/A = Not Applicable, NCR = No Cal Required, COU = CAL On Use, OUT = Out For CAL/Repair						