EMC Measurement / Technical Report

FCC Test Specification	:	Certification for FCC Part 15, Subpart C Intentional Radiator
Manufacturer	:	Ericsson, Inc.
Equipment Under Test	:	PC Cordless Phone System
		Model No. CG 2400
Test Report No.	:	FR1104
Purchase Order No.	:	55381

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EMC Measurement / Technical Report
Document No.FR1104
From
Garwood Laboratories, Inc.
World Compliance Division

Test for
Ericsson, Inc.
PC Cordless Phone System
Model No. CG 2400

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MEASUREMENT / TECHNICAL REPORT SUMMARY

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Type of Authorization	Certification for an Intentional Radiator (Frequency Hopping Spread Spectrum)
Applicable FCC Rules	Prepared in accordance with the requirements of FCC Rules and Regulations as listed in 47 CFR Ch.1 Parts 0 to 19 (10-1-98 Edition). The following subparts are applicable to the results in this test report: Part 15, Subpart C – Intentional Radiators § 15.247 Operation within the bands 902-928 MHz, 2400–2483.5MHz and 5725-5850MHz § 15.201 Equipment authorization requirement § 15.203 Antenna requirement § 15.207 Conducted limits § 15.209 Radiated emission limits; general requirements Part 2, Subpart J – Equipment Authorization Procedures Certification Sections
Equipment Under Test	PC Cordless Phone System Model No. CG 2400
Summary Test Results	The EUT complied with all the applicable FCC rules, as listed above.

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1. General Information

1.1 Product Description

Equipment Under Test: PC Cordless Phone System
Model No. CG 2400

Description of the EUT: The Ericsson CG 2400 PC Cordless Phone System is a combination of hardware and software that can be used to control and route incoming communications (phone, fax, and email) and simplify outgoing communications through such features as voice-activated dialing. The main components are:

1. Base Station (Model No. DA 202) – The base station connects the public telephone service to a PC and interfaces between the phone lines, the PC and the handset. The base station is connected to a PC via the Universal Serial Bus (USB).
2. Handset (Model No. DG 200) – The handset works like a cordless phone from which calls can be received and originated. The handset functions as an access device, via the base station, to the services provided by the PC.
3. Software – Windows based applications are provided for the user to access services from the PC.

Description of the RF circuitry:
The RF circuitry design and operation is similar for both the handset and the base station of the CG 2400 system. The operating frequency is 2400 – 2480 MHz. The typical output power is limited to +24dBm, worst case, this could go up to +25dBm (radiated at the antenna). Both the handset and the base station have omni-directional antennas, which are permanently attached and can not be replaced by the user. The base station has two antennas, which are used to implement diversity (only one is active at any time). The handset will never transmit on more than 2 slots per frame (each 10ms frame consists of 24 slots), and the Base Station could in theory be active on all 12 transmit slots (i.e. 50%). The frequency hopping concept we defined for this system, hops (pseudo-) randomly through 75 1MHz bands in the 80MHz wide ISM band. Each frame the system hops to a new frequency and in average, all 75 bands are used equally.

1.2 Related Submittal(s)/ Grant(s)

Peripherals tested with the EUT, which contain FCC ID numbers can be located in the table in Section 3.6 of this report**.**

1.3 Tested System Details

The Tested System was configured with all typical peripherals (or terminations) and operated to generate maximum emissions during the test. Refer to Section 3.5 for the Test Configuration and Section 3.6 the table lists all the details for Tested System components and cabling information. FCC ID numbers are included if available for a tested system component.

1.4 Test Methodology

Conducted emissions tests were performed according to the general provisions of ANSI C63.4-1992 (American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz).

The Equipment Under Test (EUT) was setup in a shielded enclosure to perform the conducted emissions measurements in a typical installation configuration. The EUT was powered from the 50µH/50Ω Line Impedance Stabilization Networks (LISN). The LISN's unused connections were terminated with a 50-ohm load. The amplitude level (dBµV) of the emissions were maximized by varying the modes of operation of the EUT and its cables. The frequency range of 150 kHz to 30 MHz was measured with the receiver in peak detection. The peak measurements within 5 dB of the specification limits were re-measured with the receiver in either quasi-peak or average detection as required.

The test for unwanted emissions was performed according to the general provisions of ANSI C63.4-1992 (American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz).

The EUT was setup on a non-conductive table, 1.0 x 1.5m, in the Open Area Test Site. The test for unwanted emissions was performed at an EUT to receiving antenna distance of 3 meters. Rotating the turntable 360 degrees and varying the antenna height from 1 to 4 meters maximized the radiated emissions. The field strength of the fundamental frequency and harmonics, up to the 10th harmonic, were measured utilizing a Double Ridge Guide Horn antenna, and a Gain Horn antenna. Measurements were made in both, vertical and horizontal antenna polarization.

All other tests were performed following the general guidance in §15.31 of the FCC rules, following the Guidance on Measurement for Direct Sequence Spread Spectrum Systems and using good engineering practice.

1.5 Test Facility

The open area test site (OATS) and measurement facilities used to collect the test data are located at Garwood Laboratories, Inc. World Compliance Division test facility in Placentia, CA. This facility has been fully described in a report submitted to the FCC and accepted in a letter dated 29 January 1999 (31040/SIT 1300F2) registration #90681.

The test facility is also recognized and accredited from following accreditation organizations:

Acemark Europe, Ltd.	Laboratory Number: 0007	Dated: 03/17/97
	ISO Guide 25, EN45001, and relevant parts of ISO 9002	
Industry Canada	Reference: IC 3298	Dated: 03/11/99
I^2T (*Interference Tech International*)	Certificate Number: 99-051 CE Mark for European Country	Dated: 05/05/99
NVLAP (*NIST)*	NVLAP Lab Code: 200119-0 CISPR, FCC, AUSTEL	Effective Through 12/31/99
VCCI	Registration #'s C574, C575, C576, R561	Effective Through 02/04/00

(Voluntary Control Council for Interference by Information Technology Equipment)

2. Product Labeling

2.1 FCC ID Label

All devices authorized under the certification procedures are required to display an identification label showing the FCC Identifier (FCC ID) under which they are authorized.

FCC ID: OP6HRCU10102

2.2 Location of Label on the EUT

The label shall be located in a conspicuous place on the device consistent with the requirements of Section §15.19 of FCC CFR 47.

Location of the Label on the EUT – continued-

2.3 Information to user

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

(a) For a Class A digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

(b) For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna.
-Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-Consult the dealer or an experienced radio/ TV technician for help.

3. System Test Configuration

3.1 Justification

The EUT was used in a system configured for testing in a typical fashion, as a customer would normally use it.

3.2 EUT Exercise Software/Equipment

The following operating mode was used to exercise the functions of the EUT.

- PSTN to Handset
  To generate traffic on both PSTN lines and over the air interface, a handset to handset call is made going through the PSTN lines. The set-up requires having to separate PSTN extension lines plugged into the base station. Then using one handset, dial the extension of the line plugged into port 2 (the system will always choose port 1 first when making an outgoing call). This will cause the other handset to ring. Once the second handset is taken off-hook, the set-up is completed.

- Base Station to PC:
  To generate traffic on the USB, a cable must be attached to the PC. The UWA_test.exe application must be started which will make a menu bar appear on the screen. Under the Test1 menu, select "Loopback...". This will make a new window appear. In this window select "Host Loopback" under the loopback type section and press start. In the Loopback result area, there are two fields for counters. Incrementing numbers should appear in both windows (on the lower of the two fields in takes an extra 5 seconds) and continue to count until either the stop button in this window is pressed, or the USB cable is removed (or the base station is powered down). These counters represent packet traffic on the USB.

3.3 Special Accessories

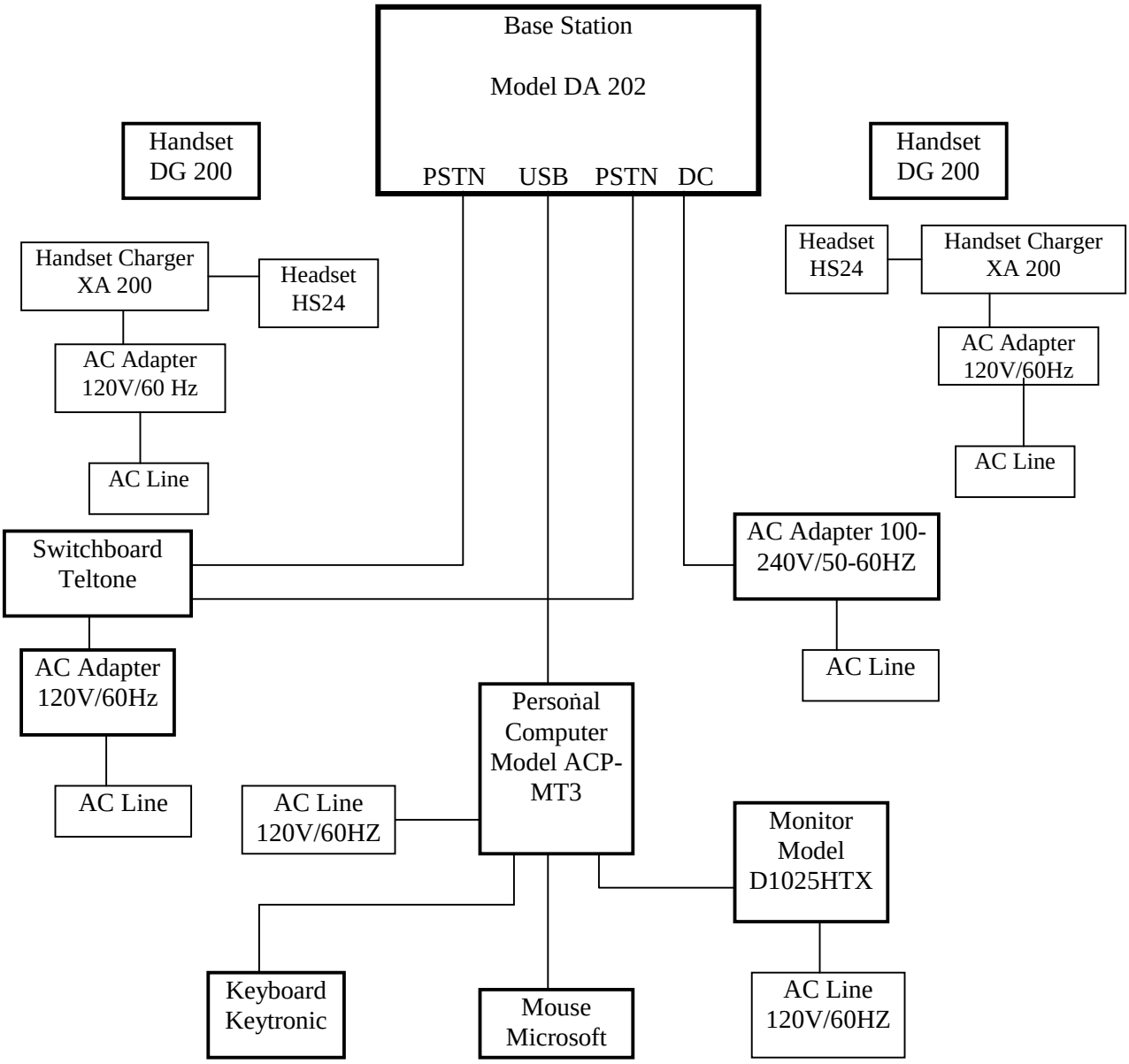
The EUT requires no special accessories to comply with the limits.

3.4 Equipment Modifications

No modifications were made to achieve the required specification limits.

3.5 Configuration of Tested System

The Base Station was connected to the switchboard by two 30-foot. un-shielded PSTN cables. The Base Station was also connected to the PC by a 15foot shielded USB cable.



3.6 Details of Tested System

The following table lists all of the components of the tested system. FCC ID numbers are included if available for a tested system component. Refer to the table following Tested System Details for cabling information.

Item No.	***Manufacturer***	***Description***	***Identification Numbers***
1	Ericsson	Base Station	Model No: DA202 Serial No.:360000004000458 FCC ID: Not Available
2	Ericsson	Base Station (AC Adapter)	Model No: BMLU 101001/X Serial No.: Not available FCC ID: Not Available
3	Ericssson	Handset	Model No: DG200 Serial No.:0000000010486 FCC ID: Not Available
4	Ericsson	Handset (Charger)	Model No: DPYNB 10122 Serial No.: Not available FCC ID: Not Available
5	Ericsson	Handset (AC Adapter)	Model No: BMLU101002 Serial No.: Not Available FCC ID: Not Available
6	Ericsson	Handset (2)	Model No: DG200 Serial No.:0000000000300 FCC ID: Not Available
7	Atlantic Computer Products, Inc.	Computer	Model No: ACP-MT3 Serial No.:21903 FCC ID: FLHACT-PT
8	Dell	Video Display	Model No: D1025HTX Serial No.:8079899 FCC ID: D1025HTX
9	Keytronic	Keyboard	Model No: 03601QLPS2-C Serial No.: J974108508 FCC ID: CIGE03600W
10	Teltone Co.	Telephone Line Simulator	Model No: TLS-3B-01-250-00198-02 Serial No.: 70812 FCC ID: Not Available
11	Microsoft	Mouse	Model No: 93633 Serial No.: 01462937 FCC ID: C3KKMP1

The following table lists all of the cabling details for the tested system. Refer to 3.5 configuration of tested system.

Cabling of The Tested System					
Item No.	***Description***	***Length (m)***	***Type Shielded-S Unshielded-US***	***Connected From***	***Connected To***
A	USB Cable	4.6	S	Base Station	Computer
B	(2) PSTN Cable RJ11 Connector Both Ends	9.1	US	Base Station	Telephone Line Simulator
C	Power Cord	1.8	S	Computer	AC Source
D	Power Cord	1.8	S	Video Display	AC Source

4. BLOCK DIAGRAM(S) OF EUT

Please refer to the Attachment section of this report for a Block Diagram of the EUT.

5. PHOTOS: TEST SETUP AND EUT CONSTRUCTION

Radiated Emissions Test Setup (Front View)

Radiated Emissions Test Setup (Rear View)

Conducted Emissions Test Setup (Front View)

Conducted Emissions Test Setup (Rear View)

Handset DG 200 (Front View)

Handset DG 200 (Rear View)

Handset DG 200 with Front Enclosure Removed

Handset DG 200 PCB Side 1 and 2

Base Station DA 202

Base Station DA 202 with Front Enclosure Removed

Base Station DA 202 PCB Side 1

Base Station DA 202 PCB Side 2

6. Test Data

6.1 Conducted Emissions Limits

FCC Part 15, Subpart C, §15.207	
Frequency Range (MHz)	***Class B Limit (dBμV)***
0.45 to 1.705	48
1.705 to 30.0	48

6.2 Conducted Emissions Results

The conducted emissions test was not performed and does not apply to the Handset, since the Handset derives its operating voltage from a rechargeable battery. However, A conducted emissions test was performed on the Handset Charger.

The initial step in collecting data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the data page, and these signals are then quasi-peaked if necessary. Spectrum analyzer plots and additional tabulated data are included in Appendix B. The following data lists the significant emission frequencies and measured levels measured from the EUT. See Appendix B for supplemental test data sheets.

Conducted Emission Test Results for:
Handset Charger Model No. DPYNB 10122
with AC Adapter BMLU 101002 (OEM ACI World Model BMKNB 101)

Sensor Location	***Frequency Band (MHz)***	***Measured* (dBμV)***	***Delta To Limit (dBμV)***
Line	0.4673	38.3	-9.7
	0.4853	37.0	-11.0
	0.6537	26.5	-21.5
	0.6374	26.3	-21.7
	0.6455	26.3	-21.7
	0.6620	26.1	-21.9
Neutral	0.4557	34.3	-13.7
	0.4634	34.3	-13.7
	0.5367	24.5	-23.5
	0.5574	20.8	-27.2
	0.5837	17.1	-30.9
	0.5936	15.9	-32.1

* All readings are peak with specified CISPR bandwidth unless stated otherwise.

The conducted emission test was performed on the Base Station. The Base Station derives its operating voltage from an AC Adapter Model BMLU 101001/X.

The initial step in collecting data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the data page, and these signals are then quasi-peaked if necessary. Spectrum analyzer plots and additional tabulated data are included in Appendix B. The following data lists the significant emission frequencies and measured levels measured from the EUT. See Appendix B for supplemental test data sheets.

Conducted Emission Test Results for:
Base Station Model No. DA202
with AC Adapter BMLU 101001/X (OEM ACI World Part No. EPA-101M-05)

Sensor Location	***Frequency Band (MHz)***	***Measured* (dBμV)***	***Delta To Limit (dBμV)***
Line	0.5435	43.0	-5.0
	0.4693	41.2	-6.8
	0.4752	41.2	-6.8
	0.4595	41.1	-6.9
	0.5212	40.8	-7.2
	0.5322	40.6	-7.4
Neutral	0.5644	44.1	-3.9
	0.5597	43.9	-4.1
	0.5367	43.4	-4.6
	0.4557	42.7	-5.3
	0.5481	42.7	-5.3
	0.7169	42.7	-5.3

* All readings are peak with specified CISPR bandwidth unless stated otherwise.

6.3 Occupied Bandwidth

Test Requirement §15.247 (a) (1) (ii):
Frequency hopping systems operating in the 2400-2483.5 MHz band should use at least 75 hopping frequencies. The maximum 20dB bandwidth of the hopping channel is 1 MHz. The average time of occupancy on any frequency should not be greater than 0.4 seconds within a 30-second period.

Test Results:
Handset Model No. DG200
The EUT complied with the Occupied Bandwidth requirement. Measurements were made with the spectrum analyzer's resolution bandwidth (RBW) equal to 100kHz. Measurements were made at 2400, 2440, and 2448 MHz. A detailed plot of the worst case test result is enclosed in Appendix B

Base Station Model No. DA202
The EUT complied with the Occupied Bandwidth requirement. Measurements were made with the spectrum analyzer's resolution bandwidth (RBW) equal to 100kHz. Measurements were made at 2400, 2440, and 2448 MHz. A detailed plot of the worst case test result is enclosed in Appendix B

6.4 Power Output

Test Requirement §15.247 (b) (1):
The maximum peak output power of a frequency hopping system operating in the 2400 – 2483.5 MHz band is 1 Watt.

Test Result:
A power output measurement was made on the EUT. A direct connection between the antenna port of the EUT and the spectrum analyzer was made through suitable attenuation. The connection was made with a short length of rigid coaxial cable of which the signal loss was known.

Handset Model No. DG200
The conducted RF power measurement for the handset was +20.30dBm or 107mW. The following formula was used to convert the dBm measurement into Watts (W).

P (mW) = Anti Log (dBm/10)

The EUT complied with the power output requirement. Measurements were made at 2400, 2440, and 2448 MHz. A detailed plot of the worst case test result is enclosed in Appendix B

Base Station Model No. (DA202)
The conducted RF power measurement for the Base Station, antenna port 00, was +24.30 dBm or 309mW. The conducted RF power measurement for the Base Station, antenna port 01, was +24.30dBm or 269mW. The following formula was used to convert the dBm measurement into Watts (W).

P (mW) = Anti Log (dBm/10)

The EUT complied with the power output requirement. Measurements were made at 2400, 2440, and 2448 MHz. A detailed plot of the worst case test result is enclosed in Appendix B

6.5 Spurious Emissions

Test Requirement §15.247 (c):

(1) All harmonics/spurs must be at least 20dB down from the highest emission level within the authorized band as measured with a 100kHz RBW, based on either a RF conducted or a radiated measurement.

(2) A radiated emission test applies to harmonics/spurs that fall in the restricted bands as listed in §15.205(a). The maximum permitted average field strength is listed in §15.209 (a).

Test Results:

EUT: PC Cordless Phone System, Model No. CG2400
Test Requirement: Field Strength of Spurious Emissions from Intentional Radiators
(Reference: FCC PT.15, Subpart C, §15.247 (c))
Fundamental Frequency tuned at: 2400 – 2480 MHz
Measurement Test Distance: 3 meters
FCC Limit: (1)For harmonics/spurs that fall in the restricted bands as listed in §15.205(a) the limit is 54dBµV/m.
(2) All other harmonics/spurs must be at least 20 dB down from the highest emission level within the authorized band.

Antenna Polarity (V or H)	Frequency (GHz)	S.A. Reading (dBµV) Peak	Avg	Correction Factor (dB)	Corrected Peak Reading (dBµV/m)	Corrected Average Reading (dBµV/m)	Peak Reading (dBc)	Avg Reading Delta to Limit (1)
V	2.4 - 2.48	89.3	-	30.9	120.2*	-	0	-
H	2.4 – 2.48	87.2	-	30.9	118.1	-	-	-
V	4.8 – 4.96	66.7	35.7	4.08	70.78	39.78	-49.42	-14.22
H	4.8 – 4.96	65.6	35.3	4.08	69.68	39.38	-50.52	-14.62
V	7.2 – 7.44	59.0	37.5	8.81	67.81	46.31	-52.39	-7.69
H	7.2 – 7.44	60.2	36.9	8.81	69.01	45.71	-51.19	-8.29
V	9.6 – 9.92	51.4	36.1	11.49	62.89	47.59	-57.31	-6.41
H	9.6 – 9.92	51.2	36.0	11.49	62.69	47.49	-57.51	-6.51
V	12.0 – 12.40	48.3	34.3	13.73	62.03	48.03	-58.17	-5.97
H	12.0 – 12.40	48.1	34.2	13.73	61.83	47.93	-58.37	-6.07
V	14.40 – 14.88	NDS	NDS	-	NDS	NDS	-	-
H	14.40 – 14.88	NDS	NDS	-	NDS	NDS	-	-
V	16.80 – 17.36	NDS	NDS	-	NDS	NDS	-	-
H	16.80 – 17.36	NDS	NDS	-	NDS	NDS	-	-
V	19.20 – 19.84	NDS	NDS	-	NDS	NDS	-	-
H	19.20 – 19.84	NDS	NDS	-	NDS	NDS	-	-
V	21.60 – 22.32	NDS	NDS	-	NDS	NDS	-	-
H	21.60 – 22.32	NDS	NDS	-	NDS	NDS	-	-
V	24.00 – 24.80	NDS	NDS	-	NDS	NDS	-	-
H	24.00 – 24.80	NDS	NDS	-	NDS	NDS	-	-

- All readings are peak with the specified bandwidth unless otherwise stated.
- Average emission measurements were employed. For measurements above 1GHz the RBW was set to 1MHz and the VBW was set to 10Hz.

6.6 Radiated Emissions Limits

FCC Part 15, Subpart C, §15.209 Radiated Emissions Limits	
Frequency Range (MHz)	***3 Meter Test Limit (dBμV/m)***
30 to 88	40.0
88 to 216	43.5
216 to 960	46.0
above 960	54.0

6.7 Radiated Emissions Results

The following data lists the significant emission frequencies, measured levels, correction factor (includes cable, preamplifier and antenna corrections), the corrected reading, plus the limit.

EUT: PC Cordless Phone System Model No. CG 2400

Frequency (MHz)	***Polarity (V/H)***	***Detection Mode***	***Receiver* Reading (dBμV)***	***Correction Factor (dB)***	***Corrected Reading (dBμV/m)***	***3 Meter Limit (dBμV/m)***
899.803	V	Quasi-Peak	35.5	7.1	42.6	46.0
543.921	V	Quasi-Peak	41.0	0.5	41.5	46.0
339.944	V	Quasi-Peak	45.0	-4.6	40.4	46.0
38.099	V	Quasi-Peak	41.5	-7.2	34.3	40.0
509.915	V	Quasi-Peak	40.5	-0.5	40.0	46.0
441.925	V	Quasi-Peak	49.0	-2.1	39.7	46.0

* All readings are peak with specified CISPR bandwidth, unless stated otherwise.

APPENDIX A - TEST EQUIPMENT USED

The absolute performance calibration of equipment requiring calibration is performed on an as needed basis in accordance with ANSI/NCSL Z540-1-1994, which supersedes MIL-STD 45662A. However, calibration periods do not exceed one (1) year. The test equipment is capable of making measurements within tolerances of at least +/- 2dB amplitude and +/- 2% frequency deviation. Equipment certifications showing traceability to NIST (National Institute of Standards and Technology) are maintained on file at Garwood Laboratories, Inc. offices in Placentia CA. All equipment is checked and verified for proper operation before and after each series of tests.

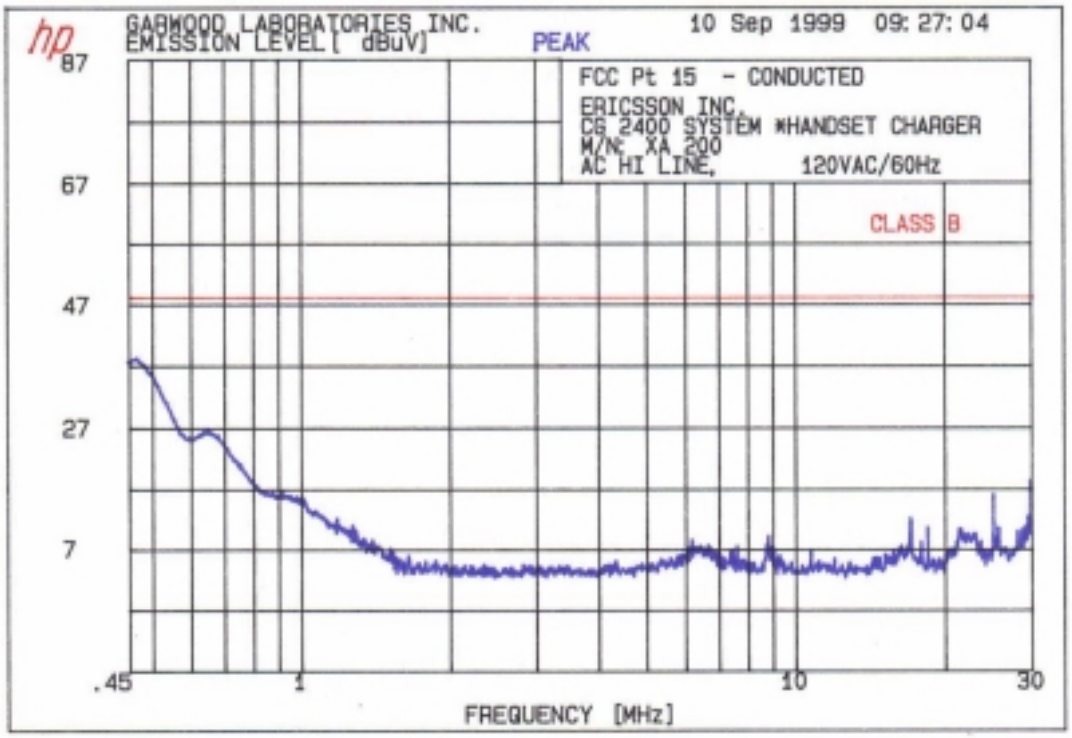
A.1 Specific Equipment Used

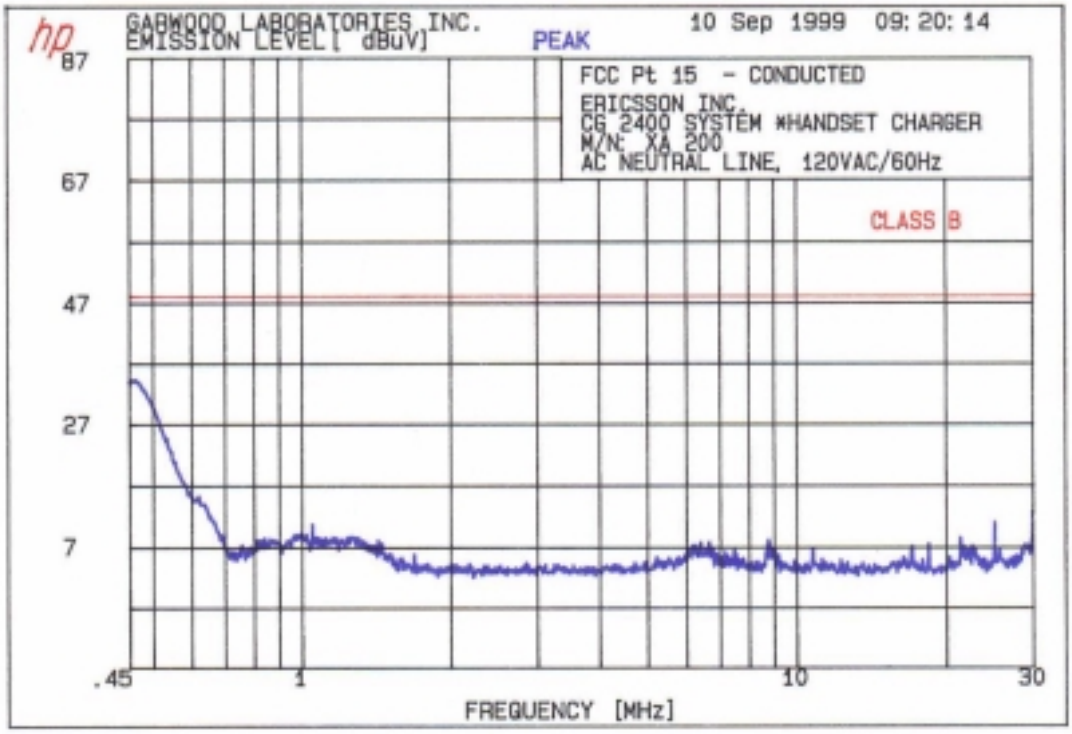
Test Instrument	*Mfg. / Model No.*	*Asset No.*	*Cal. Due Date*
Radiated Emission Test			
EMI Receiver System	Hewlett Packard	System 3	10/14/99
RF Coax Cable	Times Microwave / LMR 600	20180	03/05/00
BiLog Antenna	Chase / CBL6111A	20062	07/09/00
Pre-Amplifier	ISCI / RFPA/Z FL-2000	20007	03/05/00
Preamplifier (Above 1000MHz)	Hewlett Packard / 8449B	20003	10/14/99
Double Ridge Guide Horn Antenna	Emco / 3115	20056	01/27/00
Gain Horn Antenna	Emco / 3160-09	20012	08/19/00
High Pass Filter	Lorch Microwave/ 4HP7-3500-SRM-SR29971	Z1	06/30/00
Conducted Emission Test			
EMI Receiver System	Hewlett Packard	System 1	11/25/99
RF Coax Cable	Pasternack / RG 223	20170	03/05/00
Line Impedance Stabilization Network	ISCI/3PH-20A	20071	03/16/00

APPENDIX B – SUPPLEMENTAL TEST DATA

Test Type	***Basic Standard***	***Details***	***Data Format***	***Page No.***
Conducted Emissions	FCC Pt.15 Subpart C §15.207	Handset Charger	Plotted	B1
Conducted Emissions	FCC Pt.15 Subpart C §15.207	Base Station	Plotted	B2
Radiated Emissions	FCC Pt.15 Subpart C §15.209	PC Cordless Phone System Model No. CG 2400	Tabulated	B3
Occupied Bandwidth	FCC Pt.15 Subpart C §15.247	Handset (Worst Case) 2.44GHz	Plotted	B4
Occupied Bandwidth	FCC Pt.15 Subpart C §15.247	Base Station (Worst Case) 2.40GHz Antenna Port 00	Plotted	B5
Occupied Bandwidth	FCC Pt.15 Subpart C §15.247	Base Station (Worst Case) 2.44GHz Antenna Port 01	Plotted	B6
Power Output	FCC Pt.15 Subpart C §15.247	Base Station (Worst Case) 2.44GHz Antenna Port 00	Plotted	B7
Power Output	FCC Pt.15 Subpart C §15.247	Base Station (Worst Case) 2.40GHz Antenna Port 01	Plotted	B8
Power Output	FCC Pt.15 Subpart C §15.247	Handset (Worst Case) 2.44GHz	Plotted	B9

B1


hp
GARWOOD LABORATORIES INC.
EMISSION LEVEL [dBuV]
PEAK
10 Sep 1999 09:27:04
FCC Pt 15 - CONDUCTED
ERICSSON INC.
CG 2400 SYSTEM *HANDSET CHARGER
M/N: XA 200
AC HI LINE, 120VAC/60Hz
CLASS B
87
67
47
27
7
.45
1
10
30
FREQUENCY [MHz]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GARWOOD LABORATORIES INC.
EMISSION LEVEL [dBuV]
PEAK
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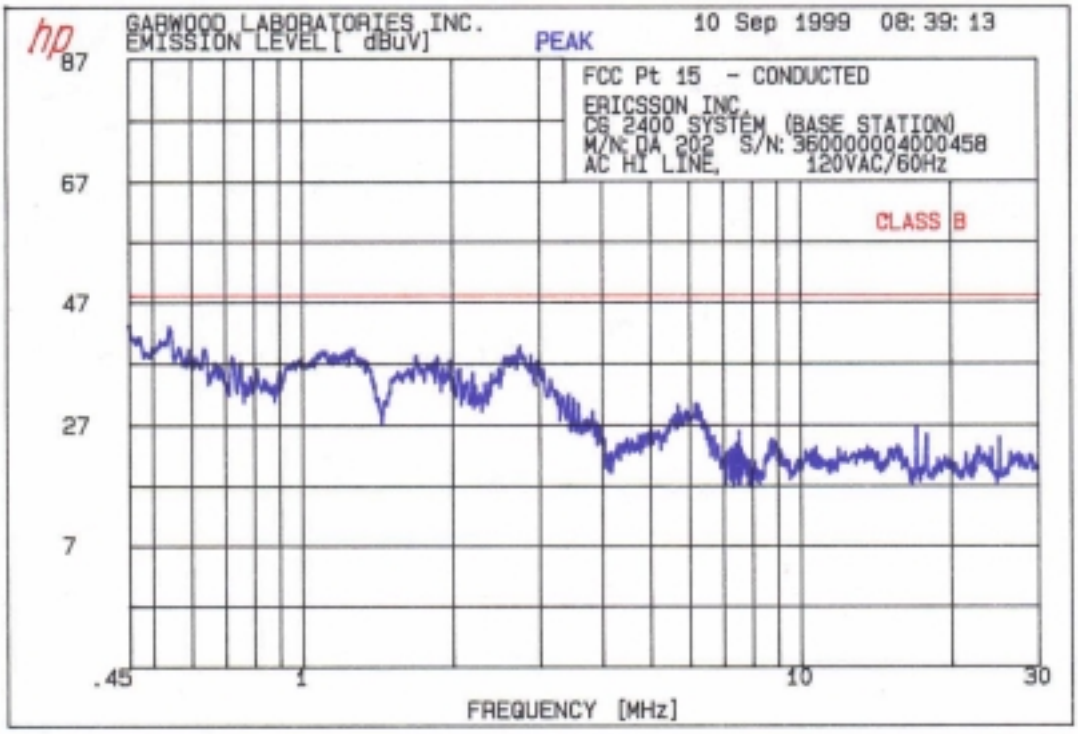
FCC Pt 15 - CONDUCTED
ERICSSON INC.
CG 2400 SYSTEM *HANDSET CHARGER
M/N: XA 200
AC NEUTRAL LINE, 120VAC/60Hz
CLASS B
87
67
47
27
7
.45
1
10
30
FREQUENCY [MHz]

B2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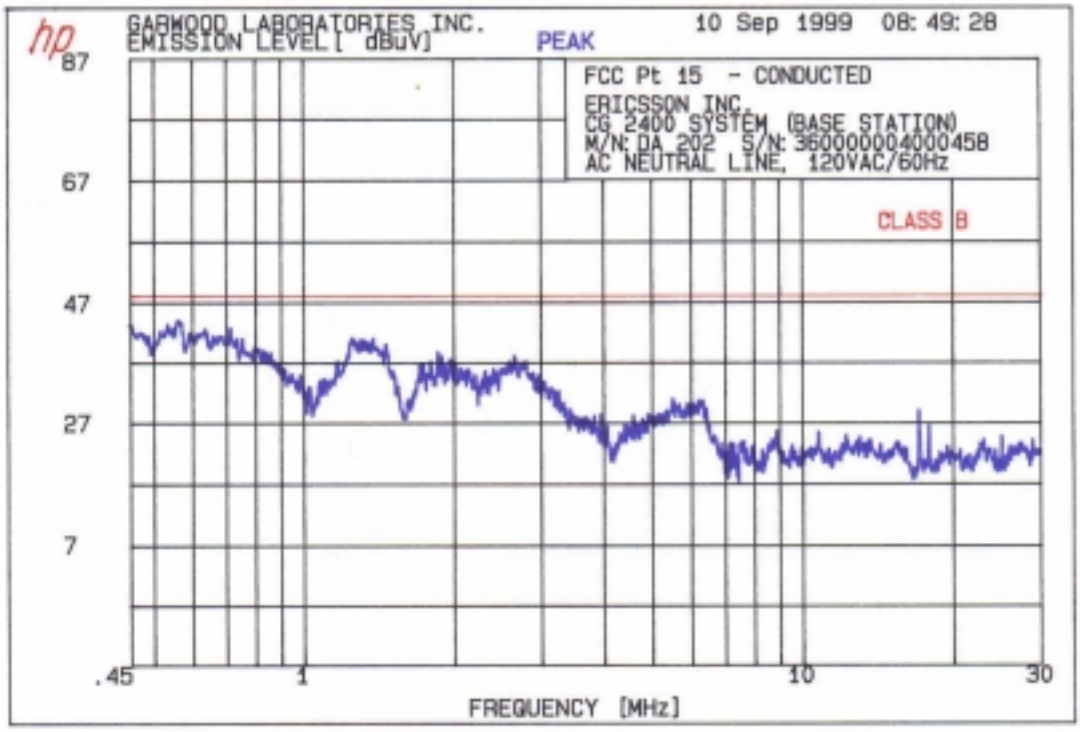
GARWOOD LABORATORIES INC.
EMISSION LEVEL [dBuV]
PEAK
10 Sep 1999 08: 39: 13
FCC Pt 15 - CONDUCTED
ERICSSON INC.
CG 2400 SYSTEM (BASE STATION)
M/N: DA 202 S/N: 360000004000458
AC HI LINE, 120VAC/60Hz
CLASS B
87
67
47
27
7
.45
1
10
30
FREQUENCY [MHz]


hp
GARWOOD LABORATORIES INC.
EMISSION LEVEL [dBuV]
PEAK
10 Sep 1999 08: 49: 28
FCC Pt 15 - CONDUCTED
ERICSSON INC.
CG 2400 SYSTEM (BASE STATION)
M/N: DA 202 S/N: 360000004000458
AC NEUTRAL LINE, 120VAC/60Hz
CLASS B
87
67
47
27
7
.45
1
10
30
FREQUENCY [MHz]

B3

GARWOOD LABORATORIES INC.
EMI TEST DATA

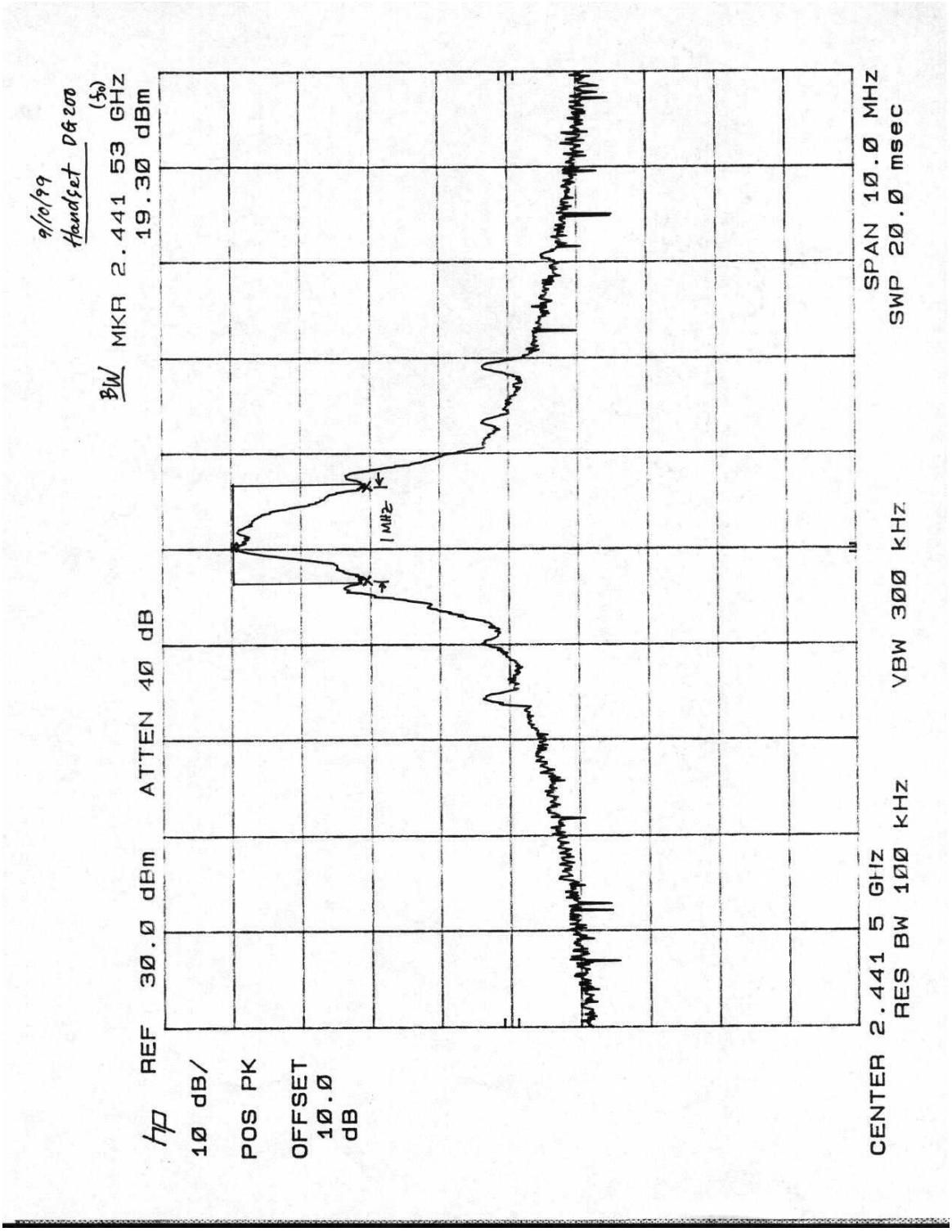
DATE: 09/09/99 TEST NO.: 1
TITLE OF TEST: FCC PART 15 CLASS B - RADIATED EMISSIONS
CUSTOMER: ERICSSON INC.
EUT DESCRIPTION: CG 2400 SYSTEM (BASE STATION, HANDSETS AND CHARGER)
MODEL NO.: DA 202 & DG 200 & XA 200 SERIAL NO.: N/A
TEST MODE: TRANSMIT/RECEIVE (TALKING)
SENSOR LOCATION: 3 METERS SENSOR POL.: VERTICAL/HORIZONTAL
FREQUENCY RANGE: 30-1000 MHz
TEST PERFORMED BY: ERIC H. NGUYEN TEMP. 93F HUM. 40%
TEST RESULTS: COMPLIED
TEST CONDITIONS: CHARGER POWERED WITH 120VAC/60Hz. AUDIO GENERATOR USED TO ENSURE THAT THE HANDSETS ARE FUNCTIONING PROPERLY.

PRODUCT EMISSIONS

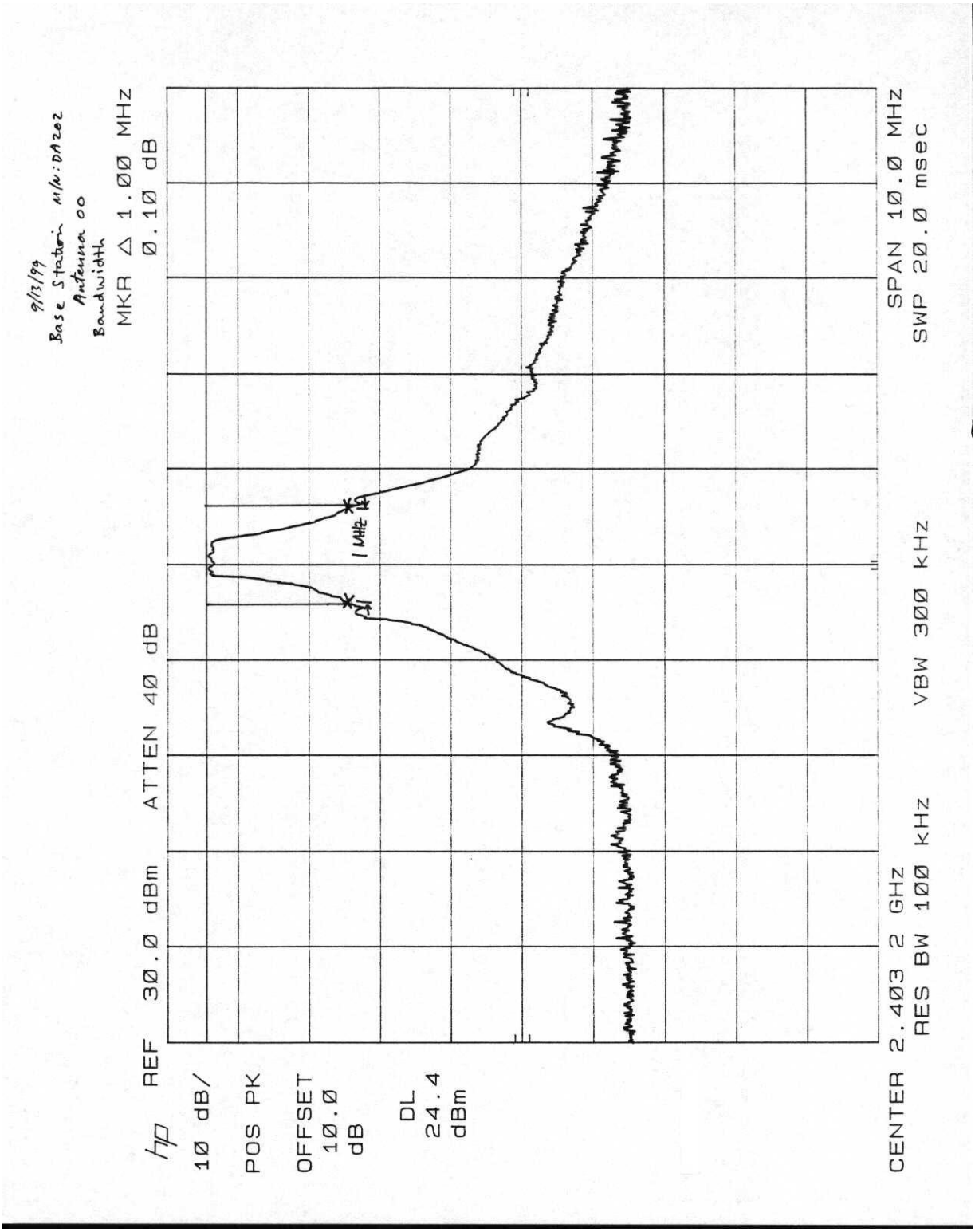
FCC PART 15 CLASS B @ 3 METERS Data File: FINAL 9 Sep 1999 17:03

No	EMISSION FREQUENCY MHz	SPEC LIMIT dBuV/m	MEASUREMENTS ABS	dLIM dB	MODE	POL	SITE HGT cm	AZM deg	CORR FACTOR dB	COMMENTS
1	33.939	40.0	32.1	-7.9	QP	V	95	1	-4.4	
2	38.099	40.0	34.3	-5.7	QP	V	95	1	-7.2	
3	42.700	40.0	31.9	-8.1	PK	V	95	1	-9.9	
4	46.920	40.0	33.3	-6.7	PK	V	95	1	-11.8	
5	51.722	40.0	28.2	-11.8	PK	H	95	1	-13.7	
6	60.677	40.0	33.3	-6.7	PK	V	95	1	-15.9	
7	65.524	40.0	31.2	-8.8	PK	V	95	1	-16.1	
8	71.986	40.0	29.4	-10.6	PK	V	95	1	-15.6	
9	83.993	40.0	29.8	-10.2	PK	H	95	1	-13.4	
10	85.978	40.0	31.3	-8.7	PK	V	95	1	-13.3	
11	110.562	43.5	34.0	-9.5	PK	V	95	1	-10.6	
12	135.993	43.5	32.5	-11.0	PK	H	95	1	-9.4	
13	165.893	43.5	25.7	-17.8	PK	V	95	1	-10.1	
14	169.968	43.5	33.3	-10.2	PK	H	95	1	-10.4	
15	189.030	43.5	36.7	-6.8	PK	V	95	1	-11.5	
16	203.973	43.5	35.1	-8.4	PK	V	95	1	-11.5	
17	271.95	46.0	37.6	-8.4	PK	V	95	1	-8.2	
18	305.98	46.0	33.5	-12.5	QP	H	95	1	-6.4	
19	325.35	46.0	34.9	-11.1	PK	V	95	1	-5.7	
20	331.76	46.0	33.9	-12.1	PK	V	95	1	-5.3	
21	339.944	46.0	40.4	-5.6	QP	V	95	1	-4.6	
22	349.655	46.0	36.4	-9.6	PK	V	95	1	-3.9	
23	363.066	46.0	35.6	-10.4	QP	V	95	1	-3.9	
24	369.056	46.0	35.7	-10.3	QP	V	95	1	-3.9	
25	407.923	46.0	38.4	-7.6	QP	V	95	1	-2.6	
26	441.925	46.0	39.7	-6.3	QP	V	95	1	-2.1	
27	509.915	46.0	40.0	-6.0	QP	V	95	1	-0.5	
28	543.921	46.0	41.5	-4.5	QP	V	95	1	0.5	
29	581.68	46.0	32.6	-13.4	PK	V	95	1	0.7	
30	599.893	46.0	39.0	-7.0	QP	V	95	1	1.6	
31	611.926	46.0	30.6	-15.4	QP	V	95	1	1.7	
32	718.48	46.0	33.2	-12.8	PK	V	95	1	4.3	
33	899.803	46.0	42.6	-3.4	QP	V	95	1	7.1	

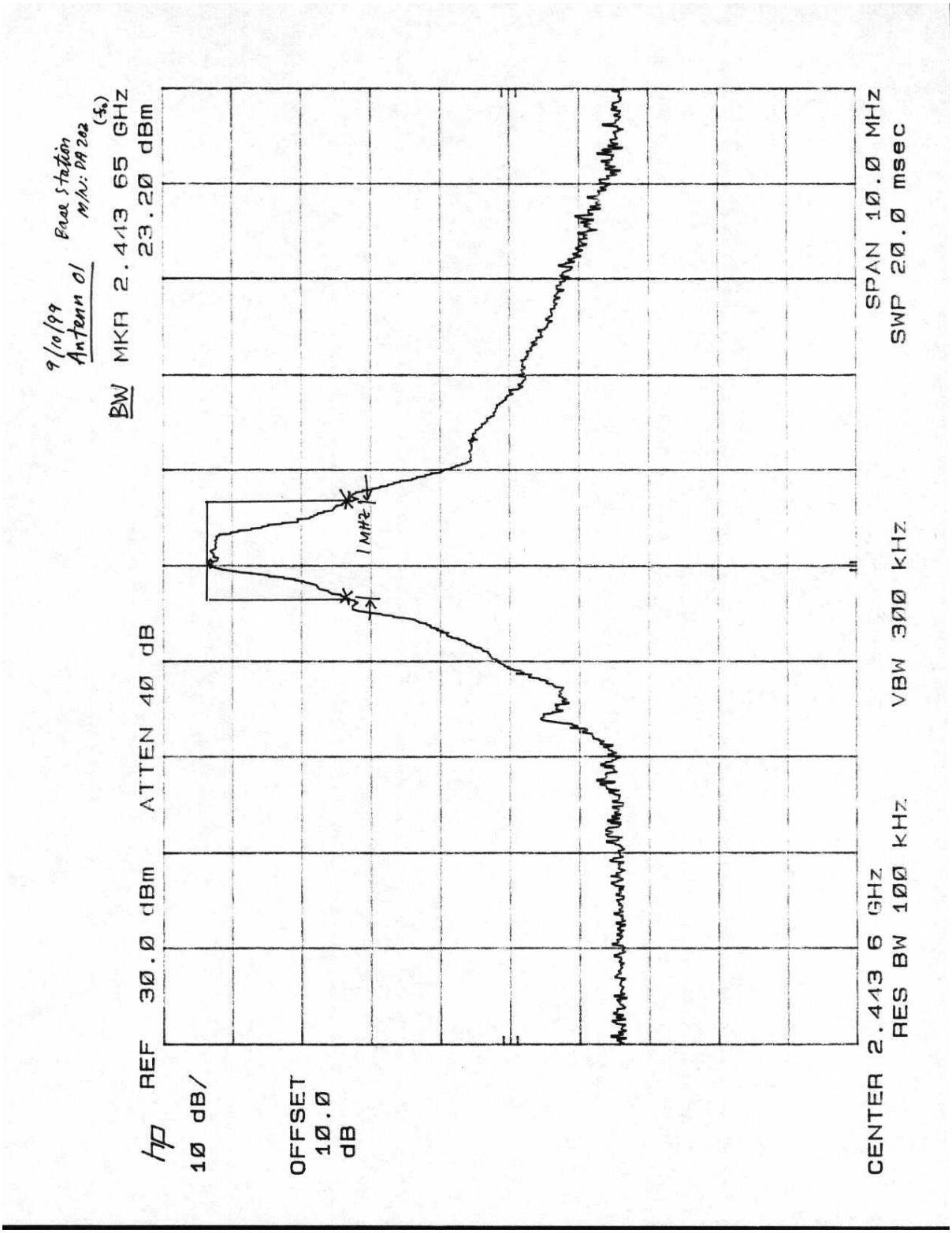
B4


9/10/99
Handset DG200
(So)
BW
MKR 2.441 53 GHz
19.30 dBm
hp
REF 30.0 dBm
ATTEN 40 dB
10 dB/
POS PK
OFFSET
10.0
dB
2MHz
CENTER 2.441 5 GHz
RES BW 100 kHz
VBW 300 kHz
SPAN 10.0 MHz
SWP 20.0 msec

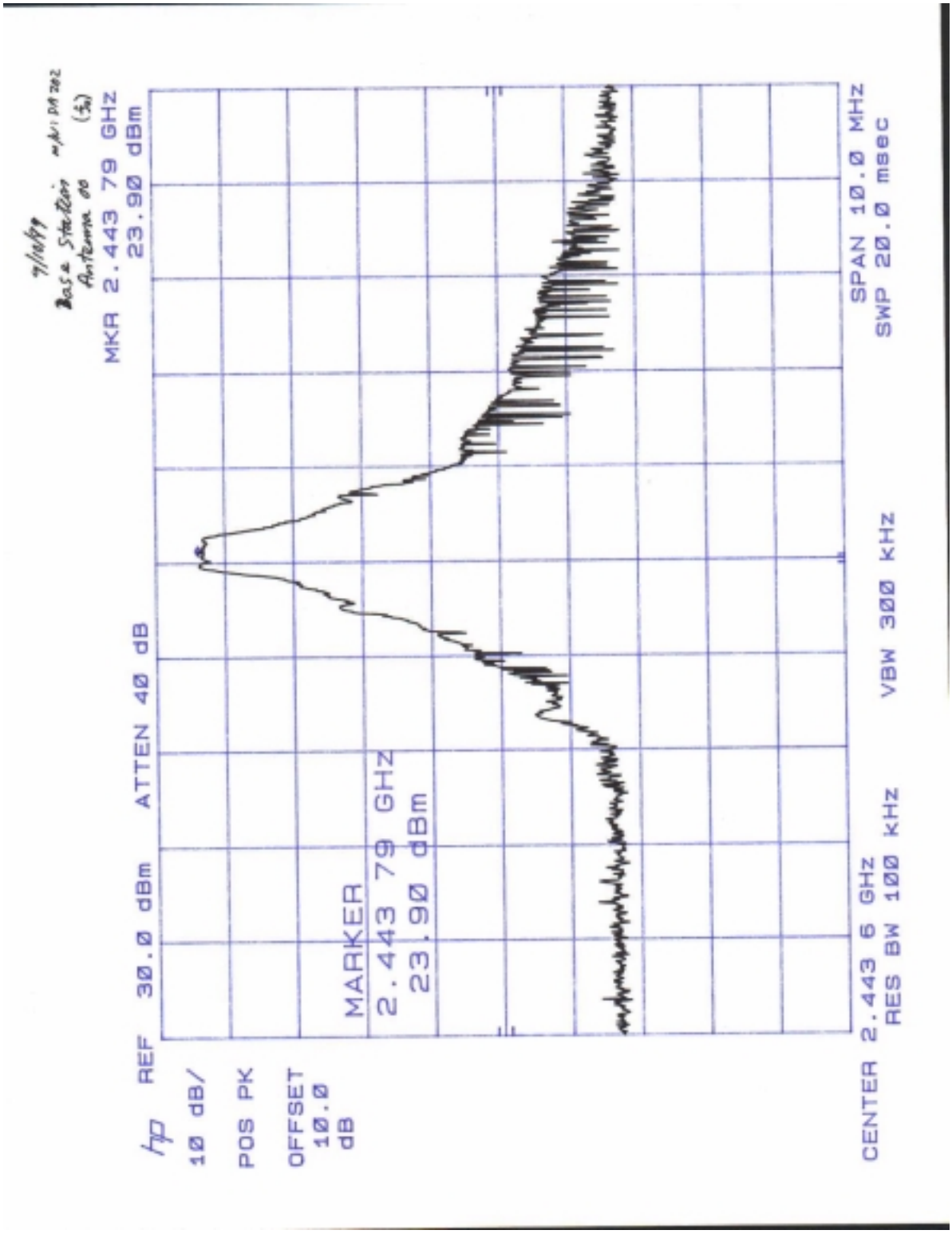
B5


9/13/99
Base Station m/n: DA202
Antenna oo
Bandwidth
MKR Δ 1.00 MHz
0.10 dB
REF 30.0 dBm
ATTEN 40 dB
10 dB/
POS PK
OFFSET
10.0
dB
DL
24.4
dBm
1 MHz
CENTER 2.403 2 GHz
RES BW 100 kHz
VBW 300 kHz
SPAN 10.0 MHz
SWP 20.0 msec

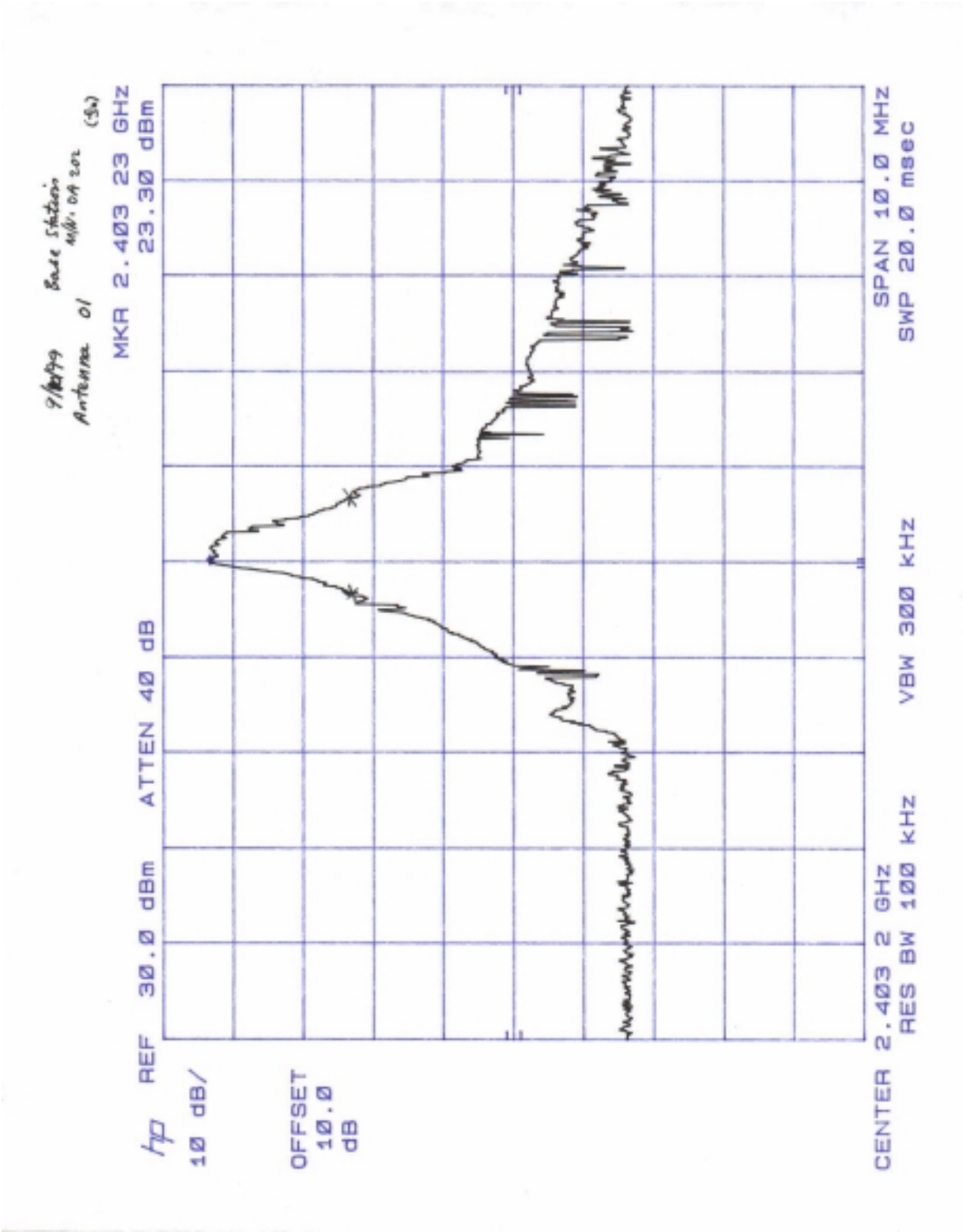
B6


9/10/99
Antenn 01
Base Station
M/N: DA 202
(f0)
BW MKR 2.443 65 GHz
23.20 dBm
REF 30.0 dBm ATTEN 40 dB
10 dB/
OFFSET
10.0
dB
1 MHz
CENTER 2.443 6 GHz
RES BW 100 kHz
VBW 300 kHz
SPAN 10.0 MHz
SWP 20.0 msec

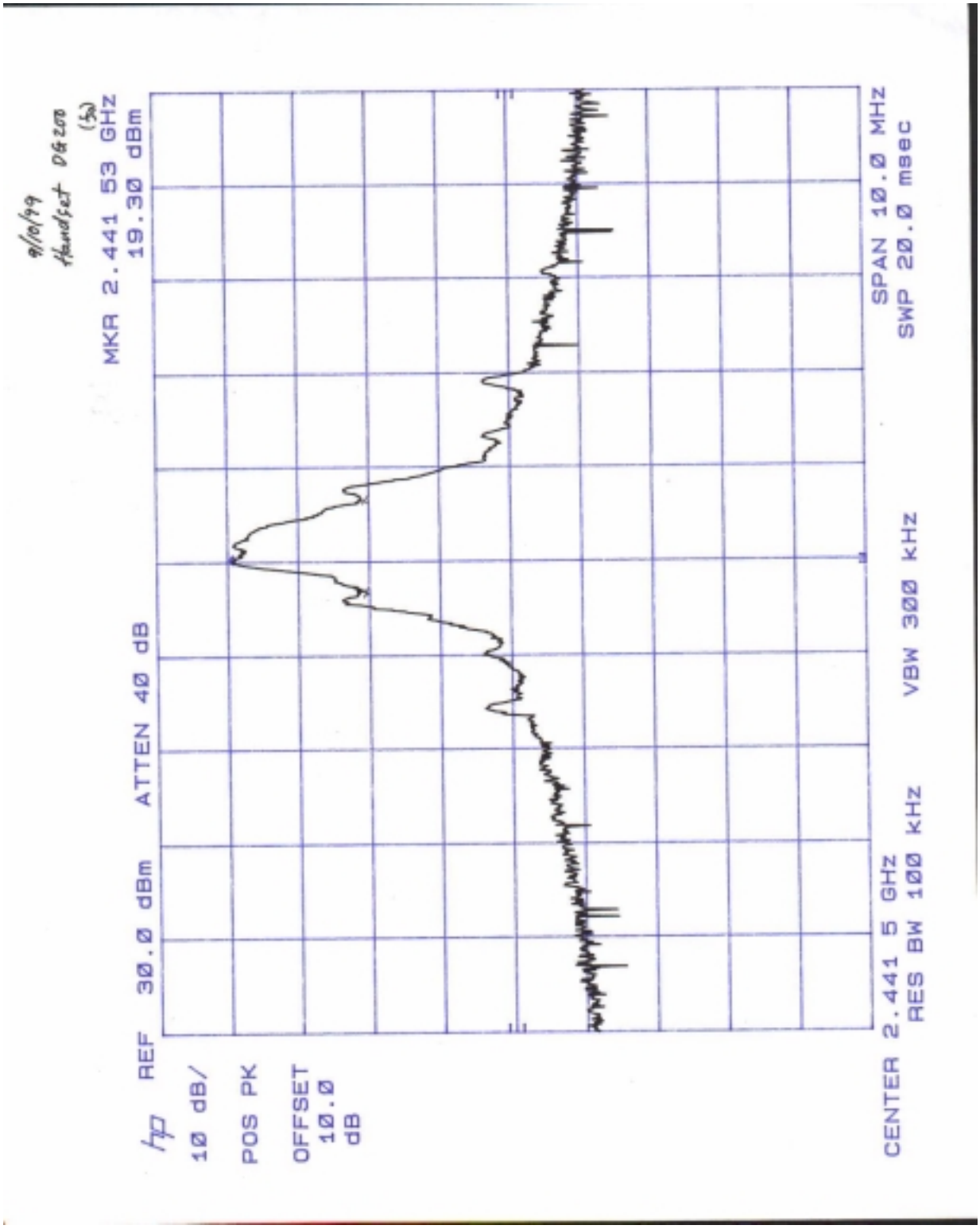
B7


hp
REF 30.0 dBm
ATTEN 40 dB
10 dB/
POS PK
OFFSET
10.0
dB
MKR 2.443 79 GHz
23.90 dBm
MARKER
2.443 79 GHz
23.90 dBm
CENTER 2.443 6 GHz
RES BW 100 kHz
VBW 300 kHz
SPAN 10.0 MHz
SWP 20.0 msec

B8


REF 30.0 dBm
ATTEN 40 dB
10 dB/
OFFSET
10.0
dB
MKR 2.403 23 GHz
23.30 dBm
CENTER 2.403 2 GHz
RES BW 100 kHz
VBW 300 kHz
SPAN 10.0 MHz
SWP 20.0 msec

B9


9/10/99
Handset DG200
(5a)
MKR 2.441 53 GHz
19.30 dBm
REF 30.0 dBm
ATTEN 40 dB
10 dB/
POS PK
OFFSET
10.0
dB
SPAN 10.0 MHz
SWP 20.0 msec
VBW 300 kHz
CENTER 2.441 5 GHz
RES BW 100 kHz

ATTACHMENTS

INDEX OF ATTACHMENTS

Description of Contents	***Page No.***
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Circuit Schematics – Base Station	Exhibit 2
Block Diagram – Base Station	Exhibit 3
Users Manual (10 Easy Steps to Quick Install)	Exhibit 4