

FCC PART 15 Subpart C
EMI MEASUREMENT AND TEST REPORT
FOR
LG ELECTRONICS, INC.

LG Kangseo B/D, 36 Munlae-Dong, 6-Ga,
Youngdungpo-Gu, Seoul, 150-096, Korea

FCC ID: BEJGT-8310C

October 27, 2000

This Report Concerns: ☒ Original Report	Equipment Type: Digital Spread Spectrum Cordless Phone – Household Appliances
Test Engineer: Hien Pham	
Test Date: October 12, 2000	
Reviewed By: John Y. Chan – Engineering Manager	
Prepared By: Bay Area Compliance Laboratory Corporation 230 Commercial Street, Suite 2 Sunnyvale, CA 94086 Tel: (408) 732-9162 Fax: (408) 732-9164	

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1 - GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

The *LG Electronics, Inc.*, FCC ID *BEJGT-8310C* or the "EUT" as referred to in this report is a Digital Spread Spectrum Cordless Phone which has 20 channel possible in the 904-926 MHz Bandwidth, and the transmission range up to 1 Km in open sight (longer range than analog 900MHz cordless phone).

The EUT was composed of two parts: one is the handset which measures 9" L x 2.125" W x 1.675" H, the other is the base which measures 7" L x 5.5" W x 2.25" H.

1.2 Objective

This type approval report is prepared on behalf of *LG Electronics, Inc.*, in accordance with Part 2, Subpart J, Part 15, Subparts A and B of the Federal Communication Commissions rules.

The objective of the manufacturer is to demonstrate compliance with FCC rules for Output Power, 6 dB Bandwidth, Power Density, Band Edge, Spurious Emission, Processing Gain, Antenna Gain, and Conducted and Radiated Emission.

1.3 Related Submittal(s)/Grant(s)

No Related Submittals

1.4 Test Methodology

All measurements contained in this report were conducted with 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. All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratory, Corp. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

1.5 Test Facility

The **Open Area Test Site** used by Bay Area Compliance Laboratory Corporation to collect radiated and conducted emission measurement data is located in the back parking lot of the building at 230 Commercial Street, Suite 2, Sunnyvale, California, USA.

Test site at Bay Area Compliance Laboratory Corporation has been fully described in reports submitted to the Federal Communication Commission (FCC) and Voluntary Control Council for Interference (VCCI). The details of these reports has been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 11 and December 10, 1997 and Article 8 of the VCCI regulations on December 25, 1997. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-1992.

The Federal Communications Commission and Voluntary Control Council for Interference has the reports on file and is listed under FCC file 31040/SIT 1300F2 and VCCI Registration No.: C-674 and R-657. The test site has been approved by the FCC and VCCI for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratory Corporation is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (NVLAP). The scope of the accreditation covers the FCC Method - 47 CFR Part 15 - Digital Devices, IEC/CISPR 22: 1993, and AS/NZS 3548: Electromagnetic Interference - Limits and Methods of Measurement of Information Technology Equipment test methods under NVLAP Lab Code 200167-0.

1.6 Test Equipment List

Manufacturer	Description	Model	Serial Number	Cal. Due Data
HP	Spectrum Analyzer	8566B	2610A02165	12/6/00
HP	Spectrum Analyzer	8593B	2919A00242	12/20/00
HP	Amplifier	8349B	2644A02662	12/20/00
HP	Quasi-Peak Adapter	85650A	917059	12/6/00
HP	Amplifier	8447E	1937A01046	12/6/00
A.H. System	Horn Antenna	SAS0200/571	261	12/27/00
Com-Power	Log Periodic Antenna	AL-100	16005	11/2/00
Com-Power	Biconical Antenna	AB-100	14012	11/2/00
Solar Electronics	LISN	8012-50-R-24-BNC	968447	12/28/00
Com-Power	LISN	LI-200	12208	12/20/00
Com-Power	LISN	LI-200	12005	12/20/00
BACL	Data Entry Software	DES1	0001	12/20/00
Rohde & Schwarz	Signal Generator	SMIQ03B	1125.5555.03	7/10/2002
Rohde & Schwarz	I/Q Modulation Generator	AMIQ	1110.2003.02	8/10/2002

1.7 Equipment Under Test (EUT)

Manufacturer	Description	Model	Serial Number	FCC ID
LG Electronics, Inc.	Handset	GT-8310C	None	BEJGT-8310C
LG Electronics, Inc.	Base	GT-8310C	None	BEJGT-8310C

1.8 EUT Configuration Details and List

NOT APPLICABLE

1.9 External I/O Cabling

For Base:

Cable Description	Length (M)	Port/From	To
Non-Shielded Phone Cable	2.0	RJ11 Port/EUT	Line1 RJ11 Port/ Telephone Simulator

2 - SYSTEM TEST CONFIGURATION

2.1 Justification

The EUT was configured for testing in a typical fashion (as normally used in a typical application).

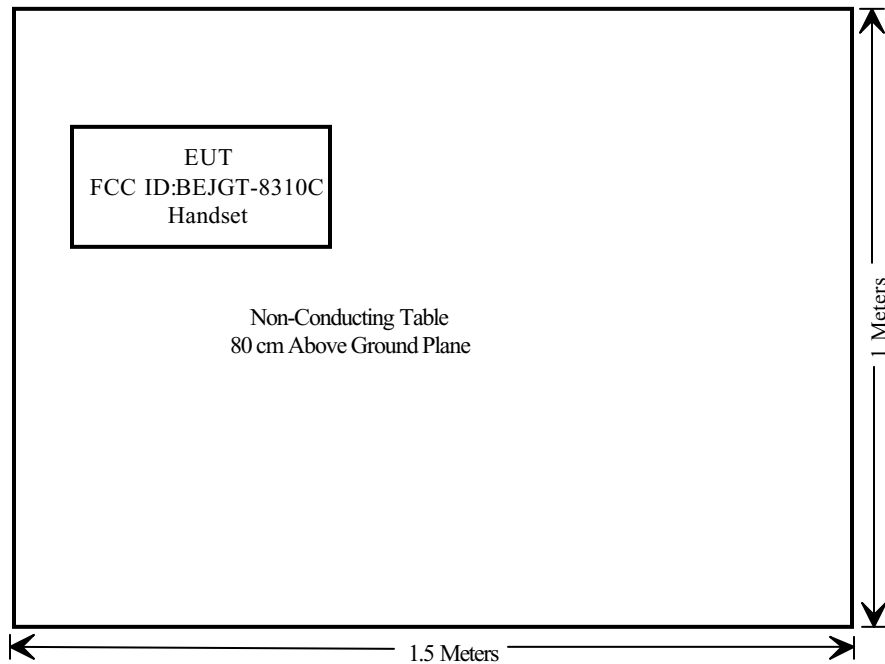
The final qualification test was performed with the EUT operating at normal mode.

2.2 Block Diagram

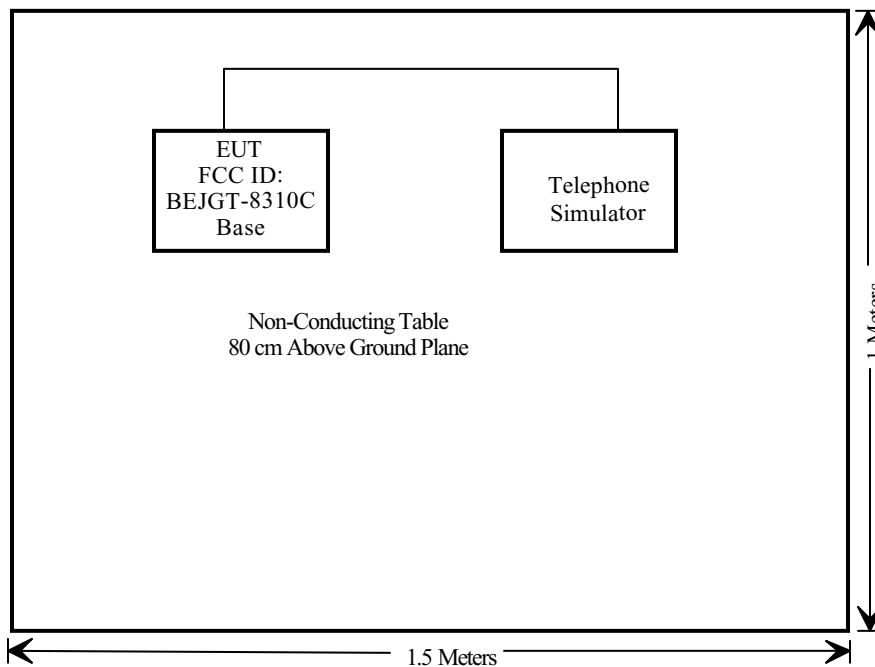
Appendix B contains a copy of the EUT's block diagram as reference.

2.3 Test Setup Block Diagram

For Handset:



For Base:



2.4 Equipment Modifications

No modifications were necessary for the EUT to comply.

3.0 Summary of Test Results

FCC RULE	DESCRIPTION OF TEST	RESULT
15.247 (b)	Peak Output Power	Pass
15.247 (a) (2)	6dB Bandwidth	Pass
15.247 (2) (d)	Power Density	Pass
15.247 (2) (c)	Band Edges Testing	Pass
15.247 (2) (c)	Spurious Emission	Pass
15.247, 15.205	Field Strength of Spurious Radiation	Pass
15.207	Conduction Emission	Pass
15.247 (e)	Processing Gain	Pass

3.1.0 Peak Output Power

Requirements: FCC Part 15.247 (b)

3.1.1 Test Procedure

The antenna was removed and SMA connector was connected to the transmitter output. The transmitter output was connected to a calibrated coaxial attenuator (50 Ohm), the other end of which was connected to a spectrum analyzer. Transmitter output was read off the spectrum analyzer in dBm. The power output at the transmitter was determined by adding the value of the attenuator to the spectrum analyzer reading.

The test was performed at three frequencies (low, middle, and high channels) and on all power levels that can be setup on the transmitter.

3.1.2 Test equipment

Hewlett Packard HP8566B Spectrum Analyzer
Hewlett Packard HP 7470A Plotter

3.1.3 Test Results

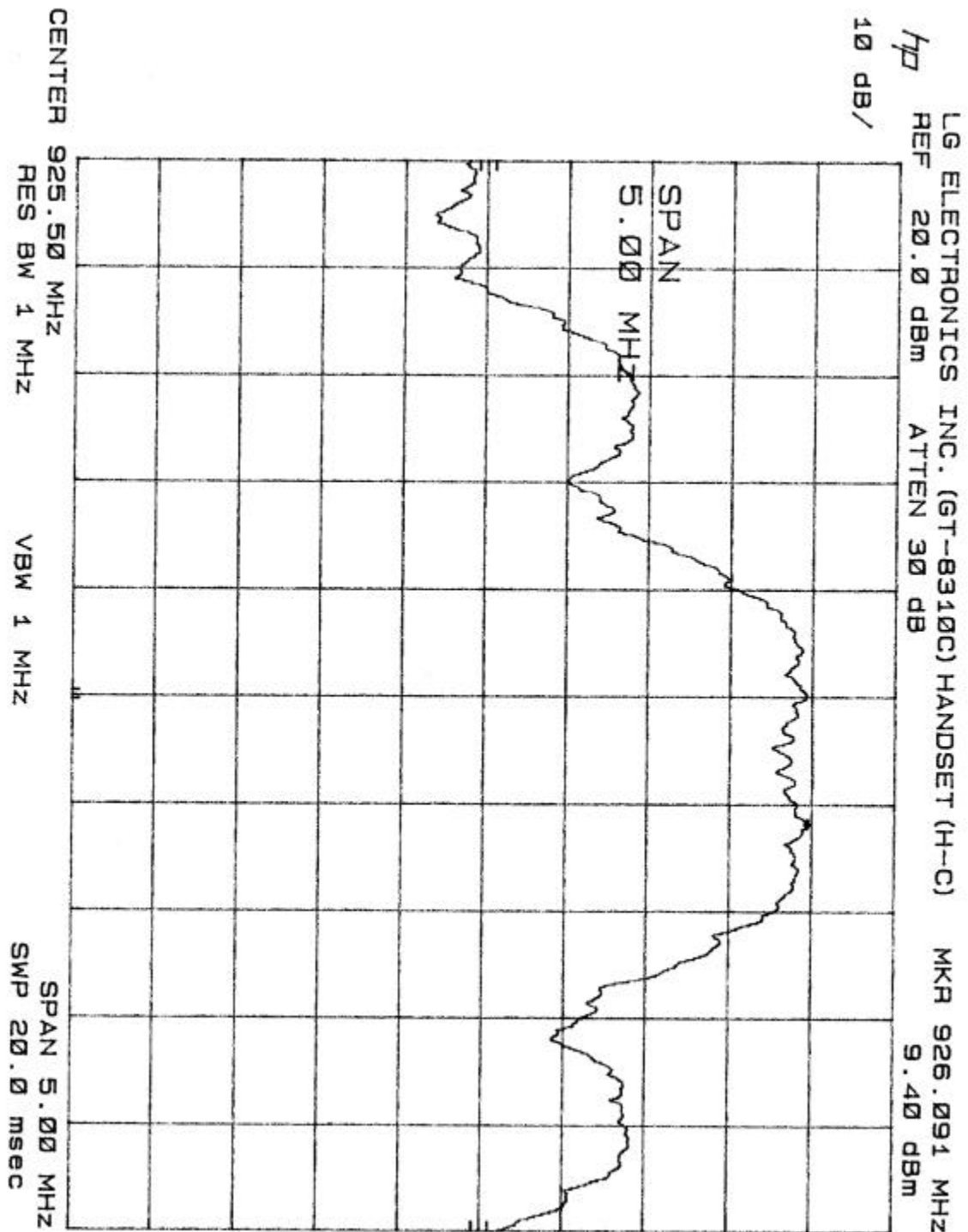
Refer to the attached to the following plots:

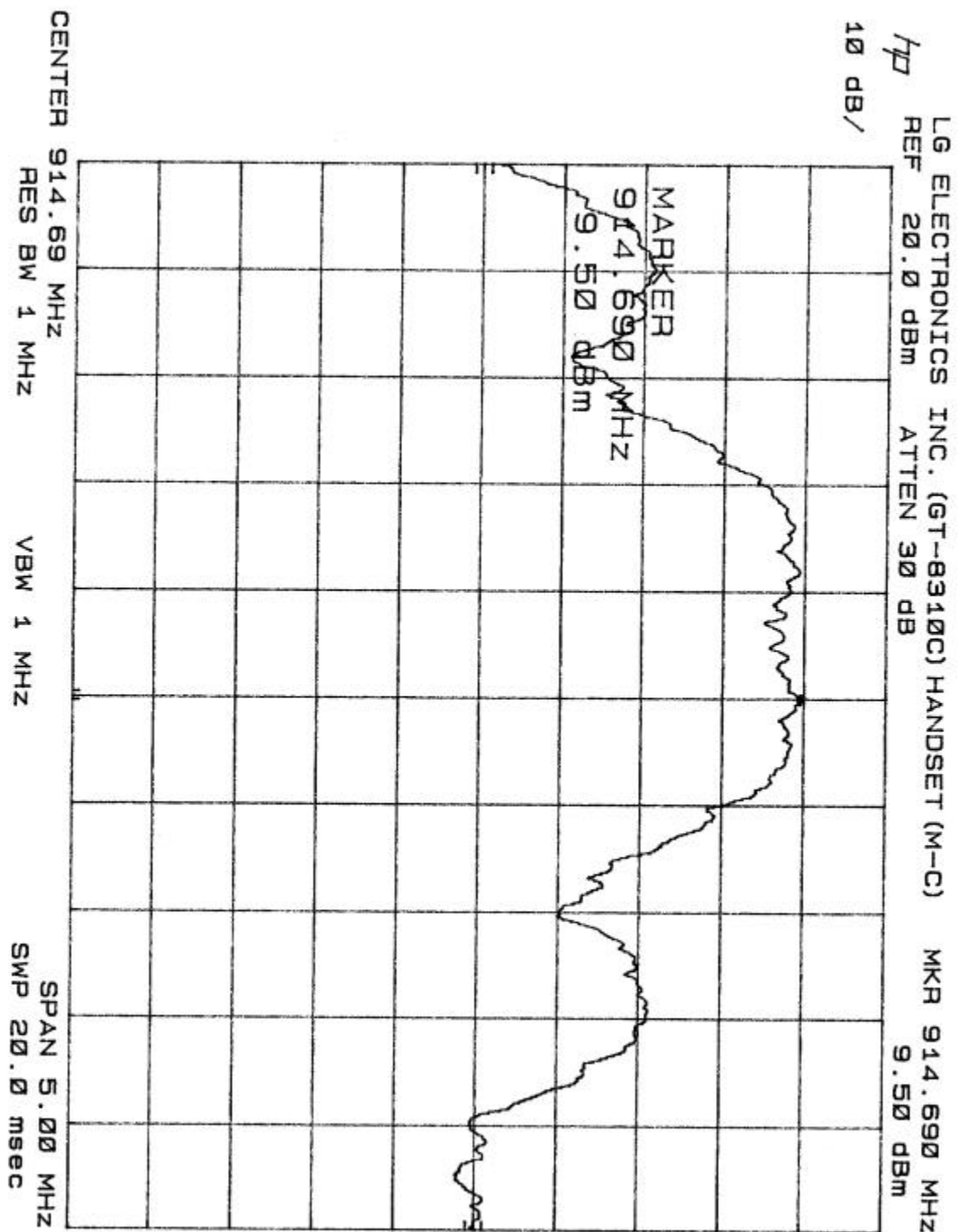
BASE

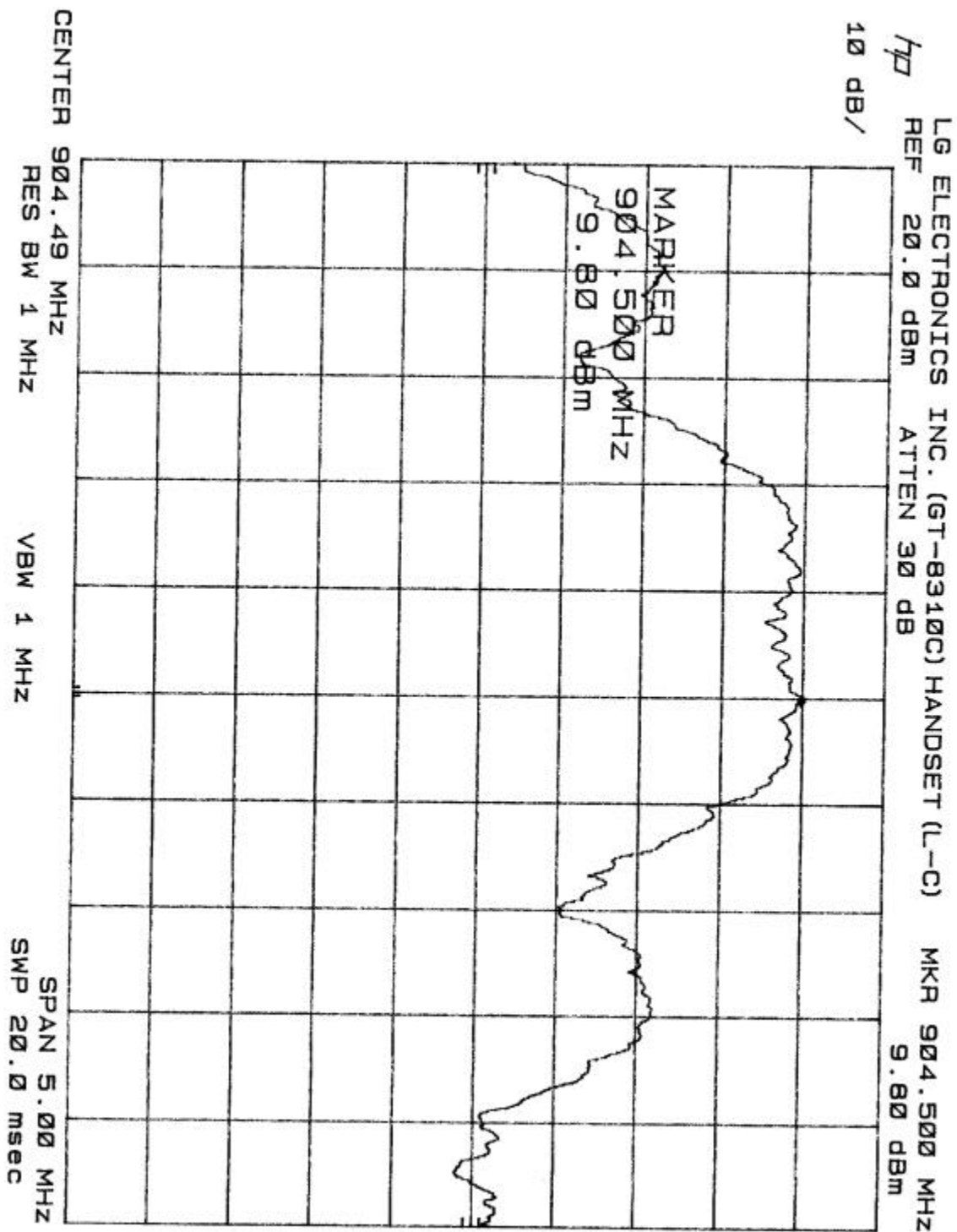
Peak Output Power	
High Channel	Page 14
Middle Channel	Page 15
Low Channel	Page 16

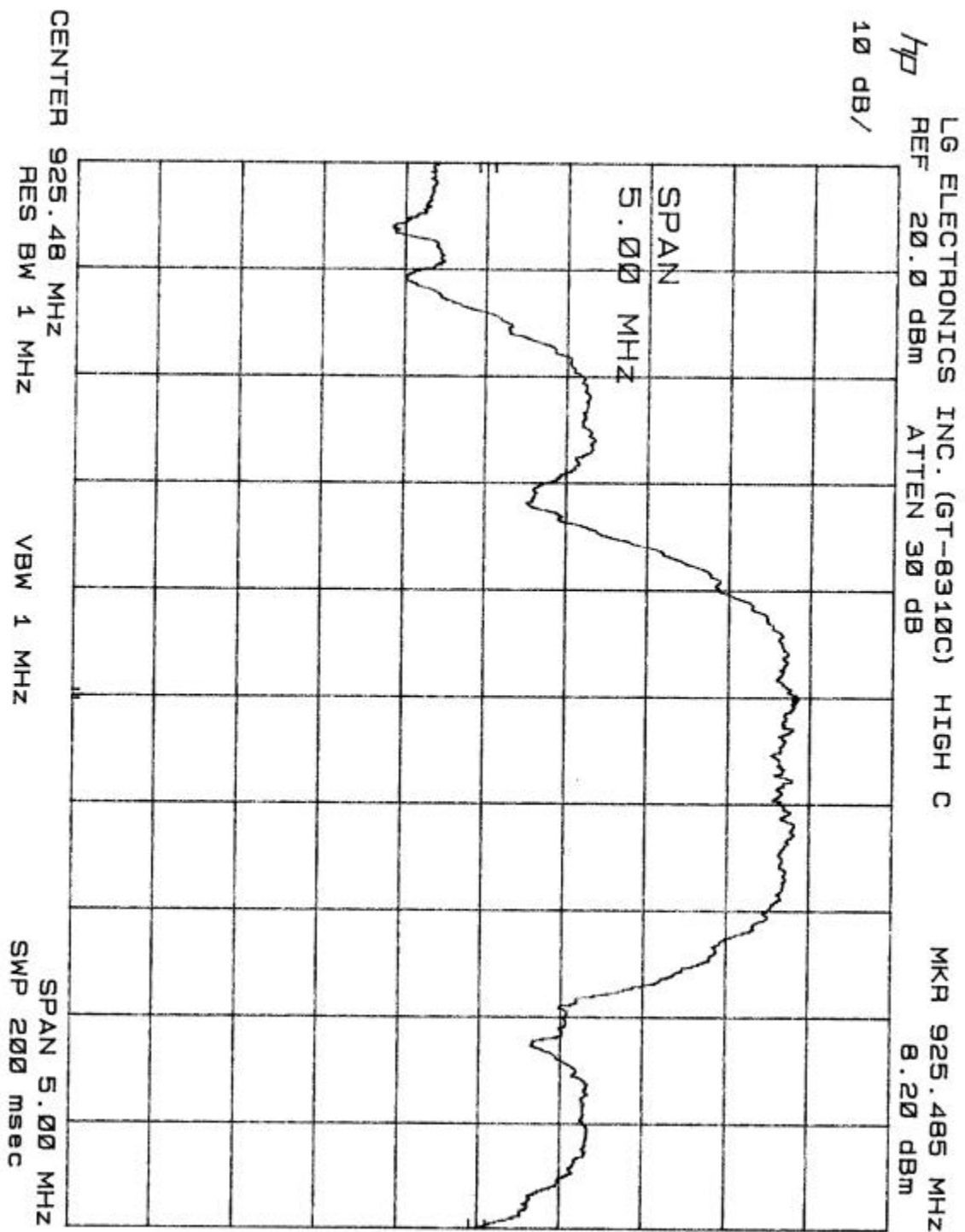
HANDSET

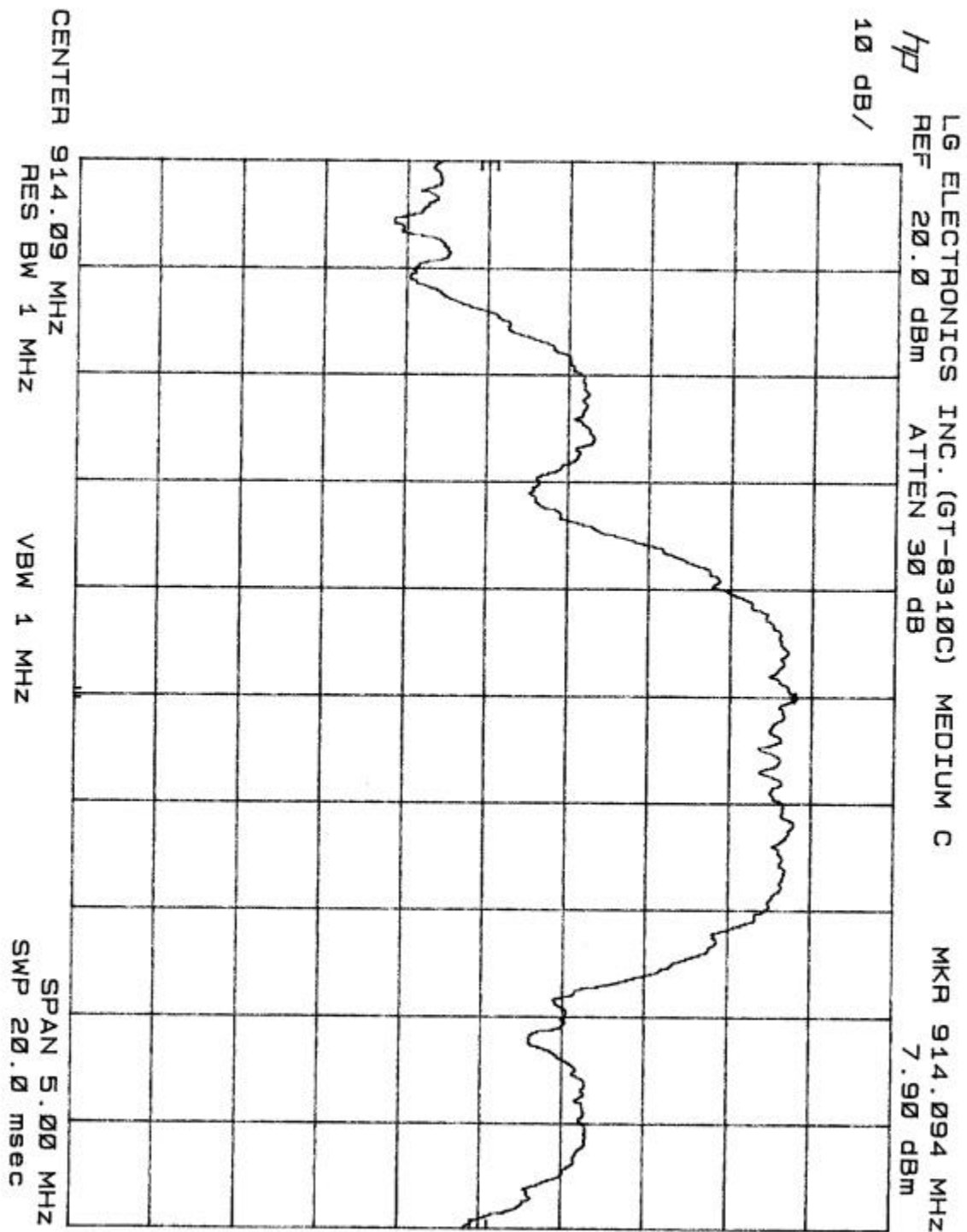
Peak Output Power	
High Channel	Page 11
Middle Channel	Page 12
Low Channel	Page 13

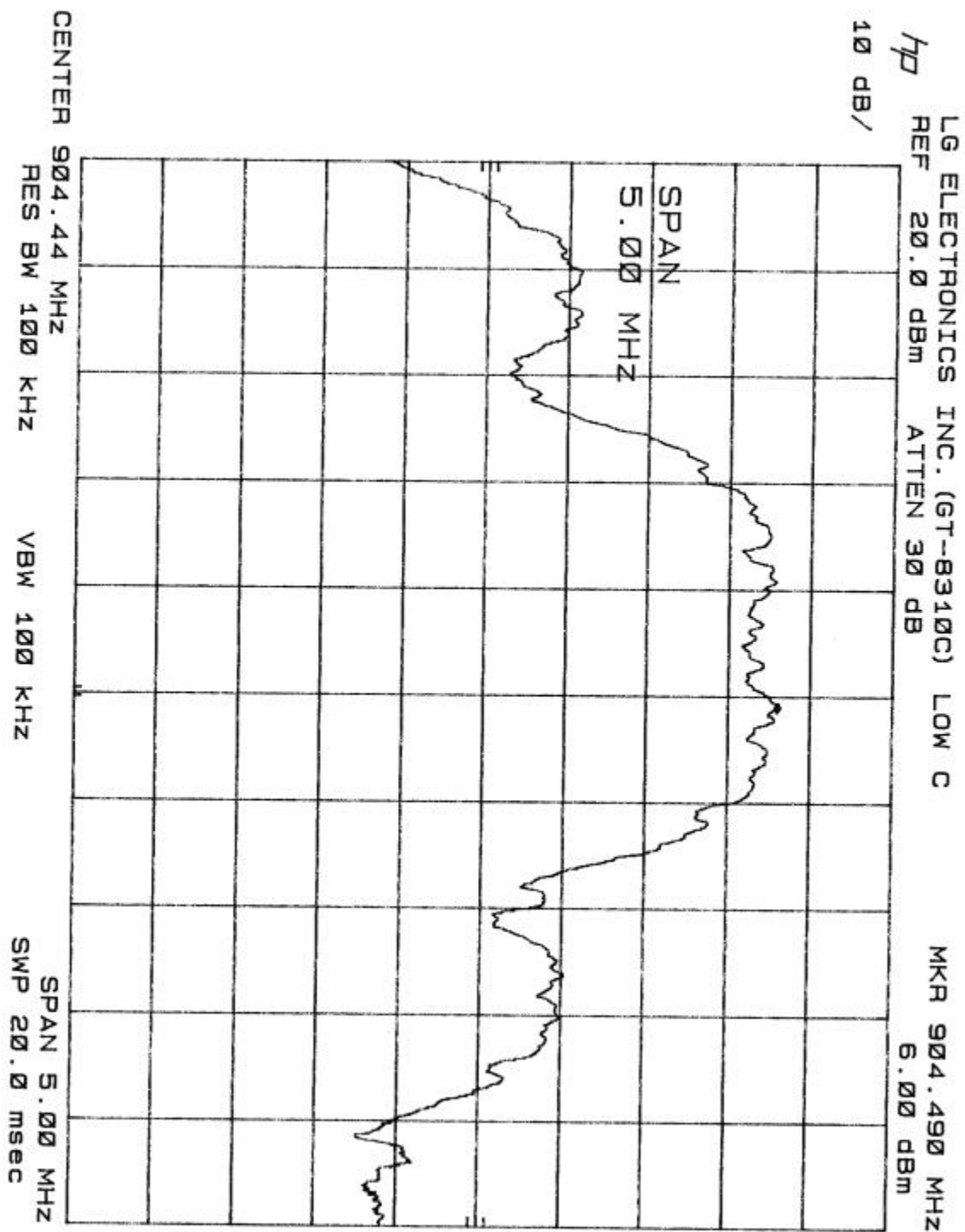












3.2.0 6dB Bandwidth

Requirement: FCC 15.247 (a)(2), the 6 dB Bandwidth shall not be less than 500 kHz.

3.2.1 Test Procedure

The antenna was removed and SMA connector was connected to the transmitter output. The transmitter output was connected to a calibrated coaxial attenuator (50 Ohm), the other end of which was connected to a spectrum analyzer with the VBW > RBW. Transmitter output was read off the spectrum analyzer in dBm. The power output at the transmitter was determined by adding the value of the attenuator to the spectrum analyzer reading.

The test was performed at three frequencies (low, middle, and high channels) and on all power levels that can be setup on the transmitter.

3.2.2 Test Equipment

Hewlett Packard HP8566B Spectrum Analyzer
Hewlett Packard HP 7470A Plotter

3.2.3 Test Results:

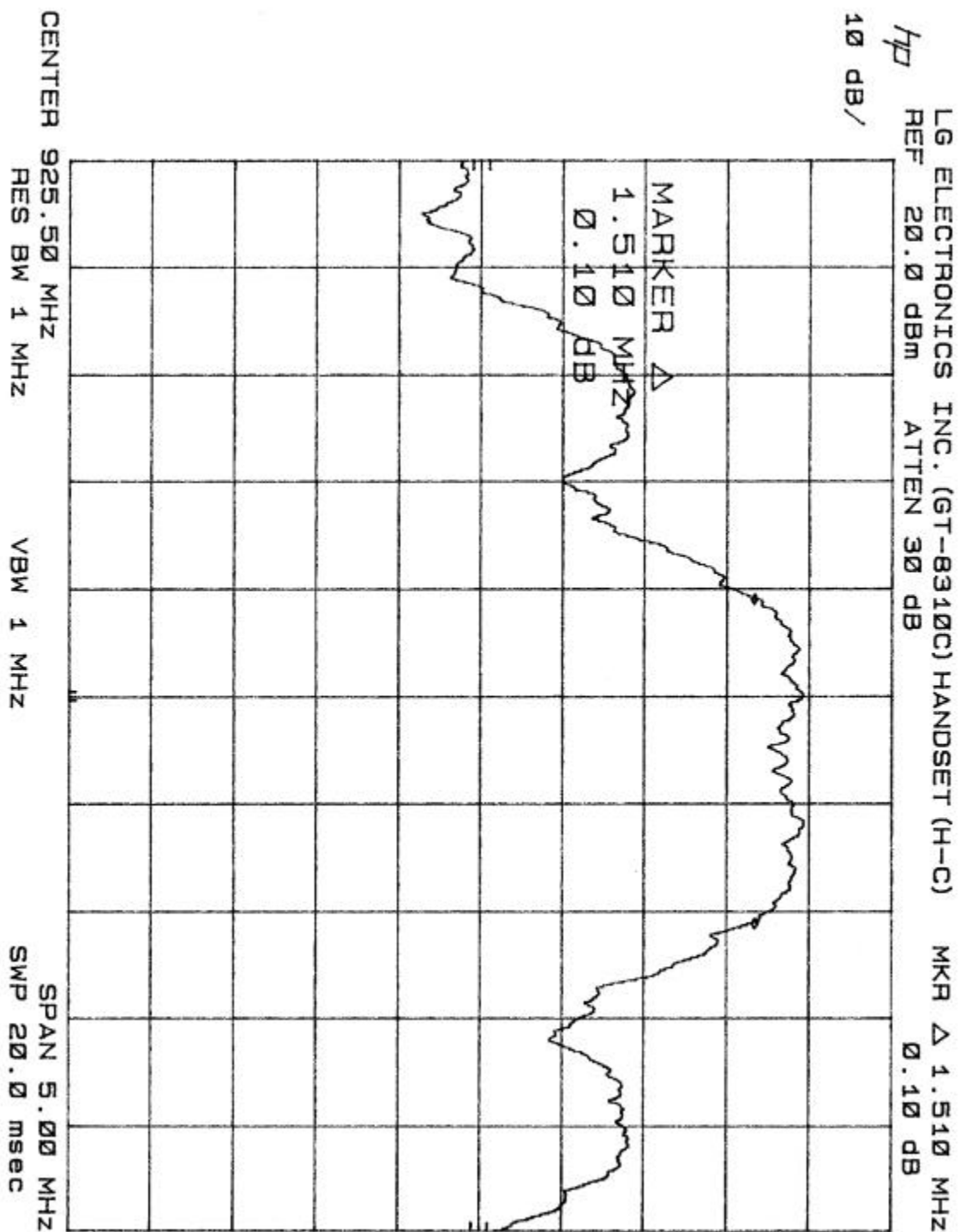
Included are plots of 6dB bandwidth for low, middle and high channel

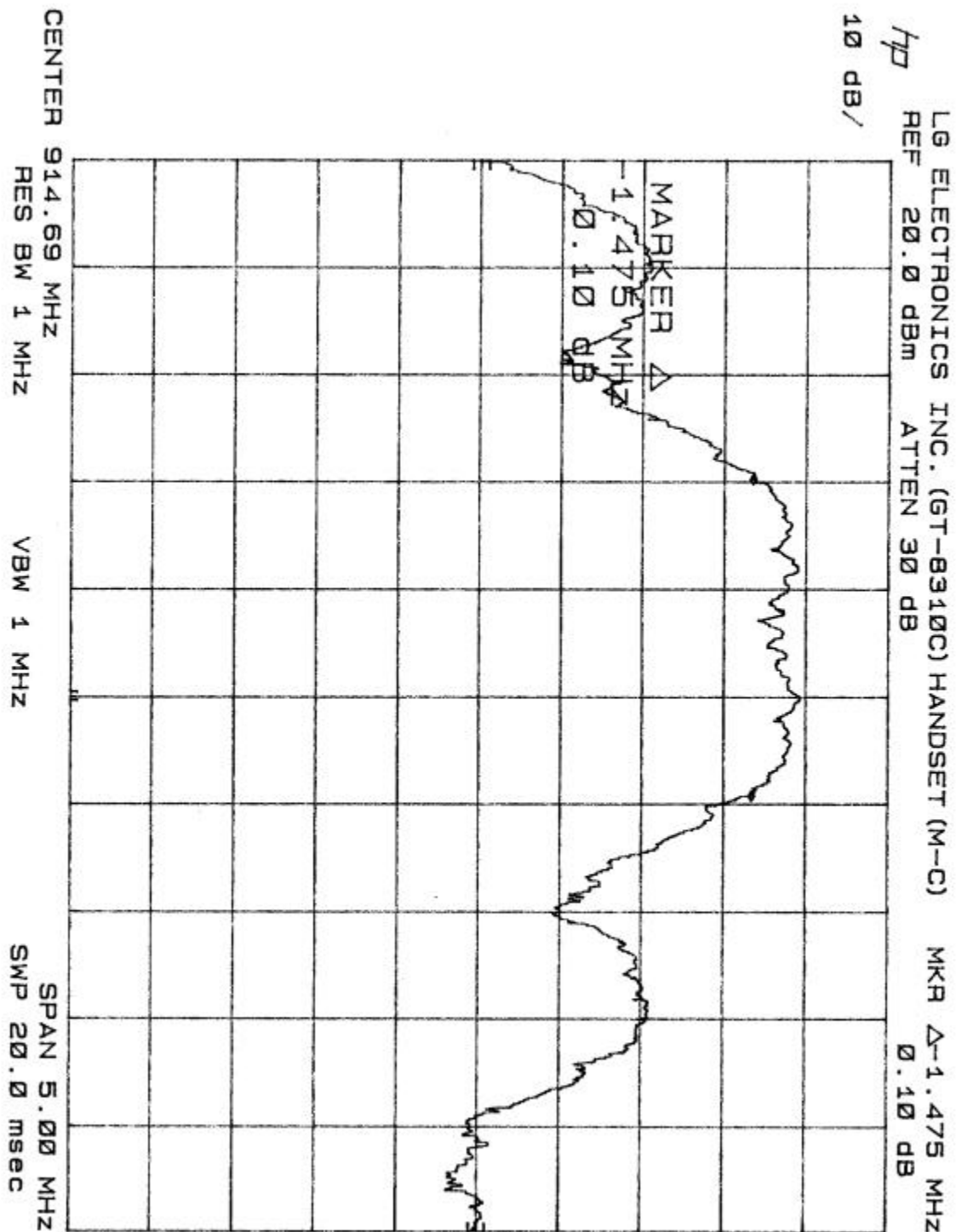
BASE

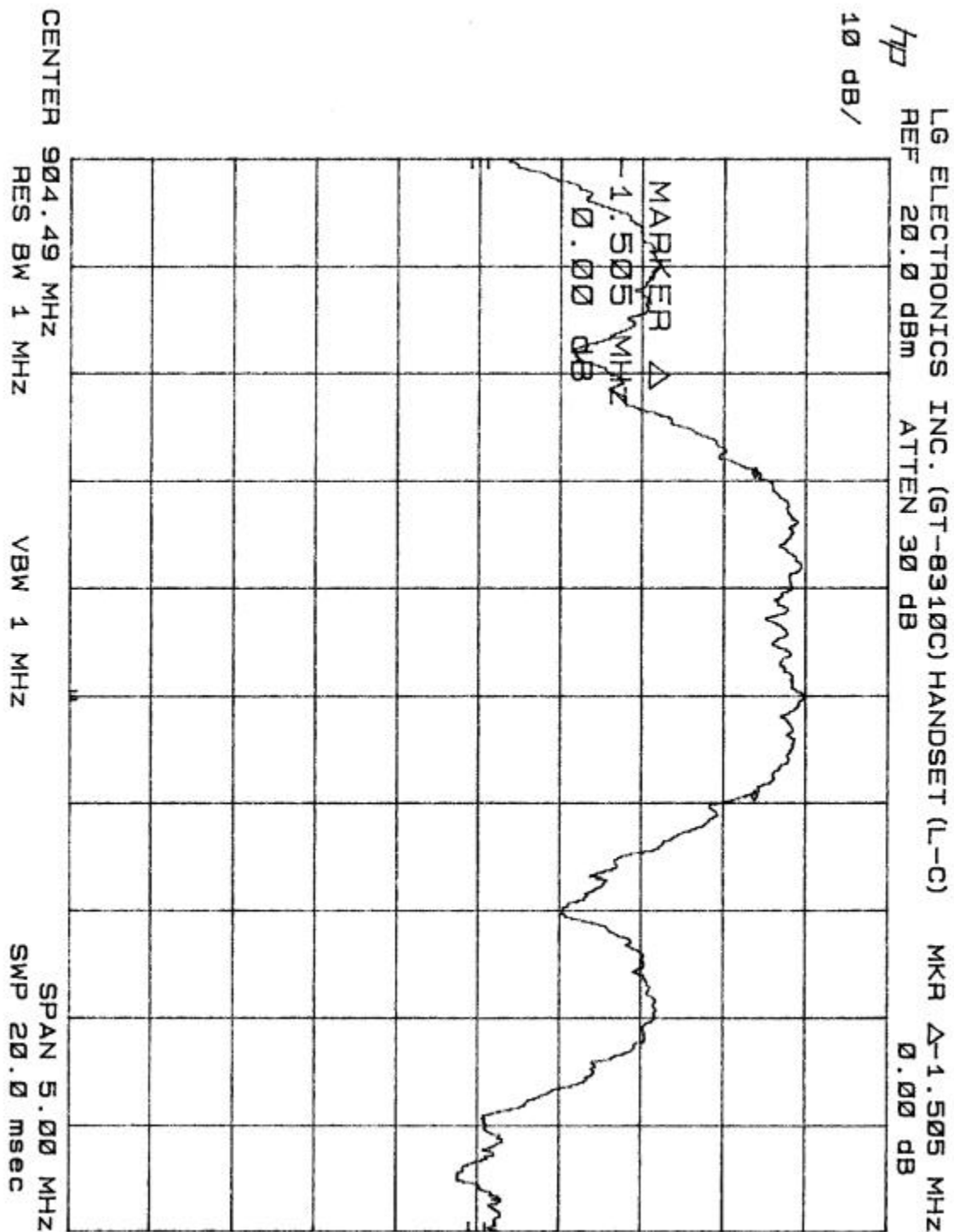
6dB bandwidth	
High Channel	Page 21
Middle Channel	Page 22
Low Channel	Page 23

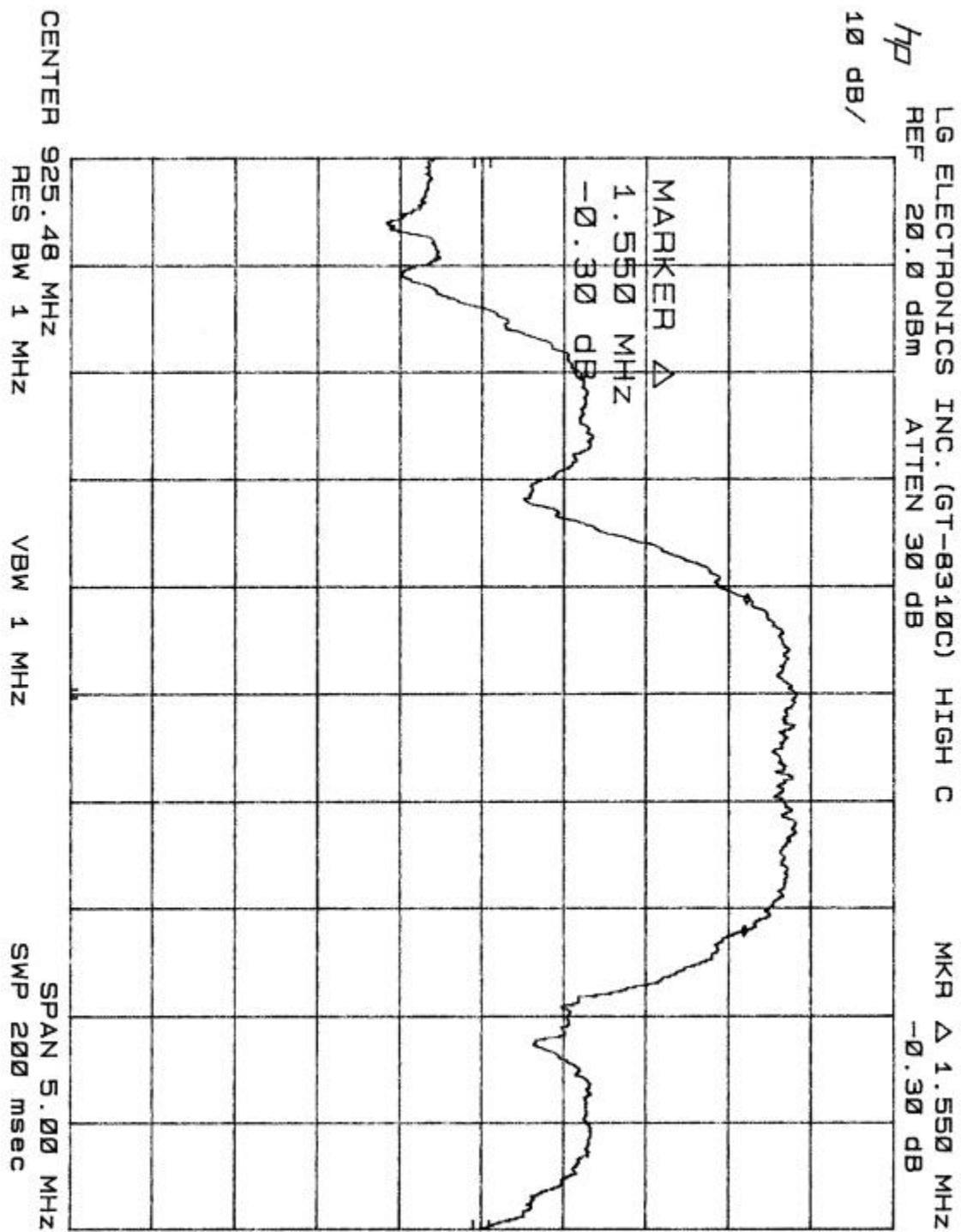
HANDSET

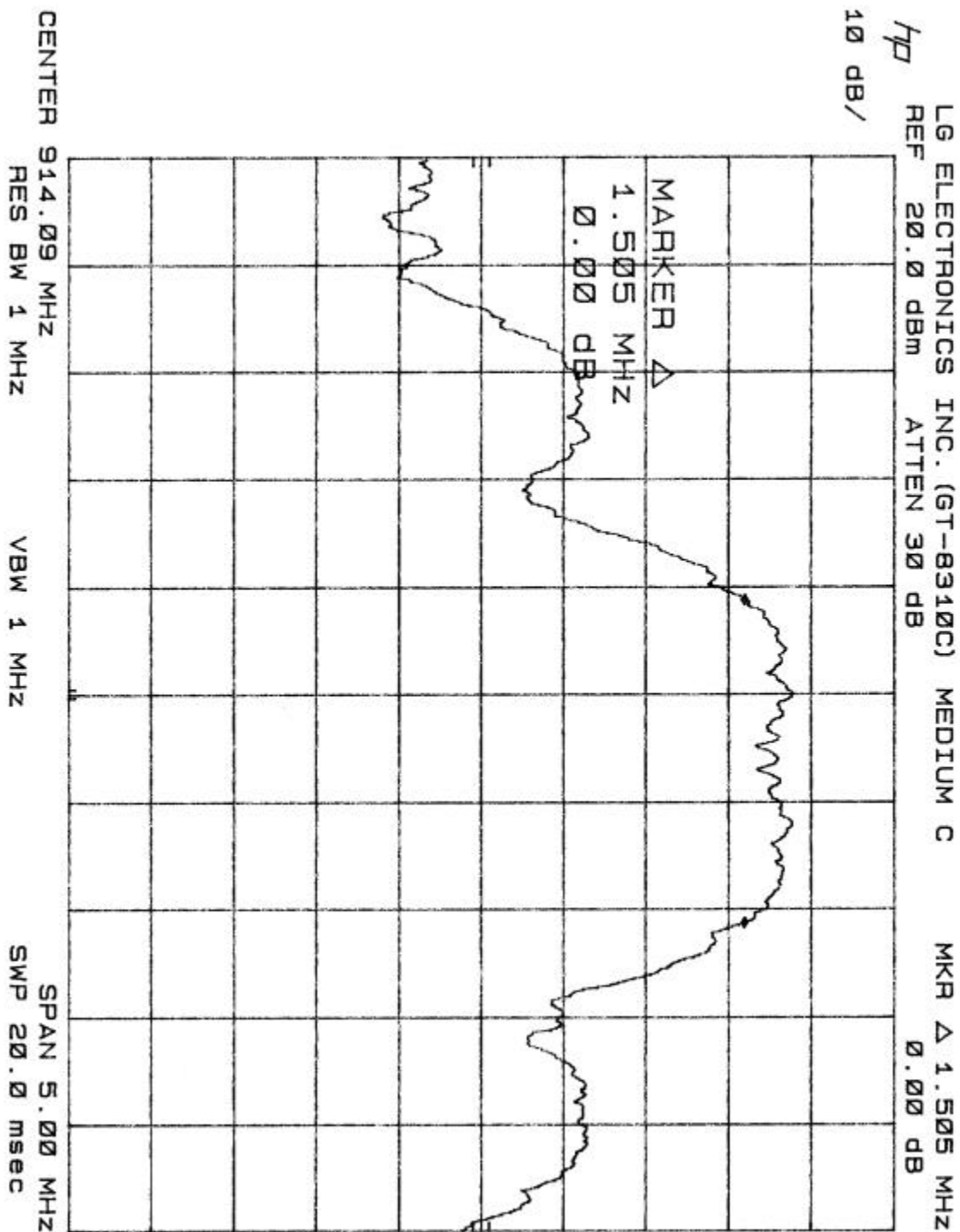
6dB bandwidth	
High Channel	Page 18
Middle Channel	Page 19
Low Channel	Page 20

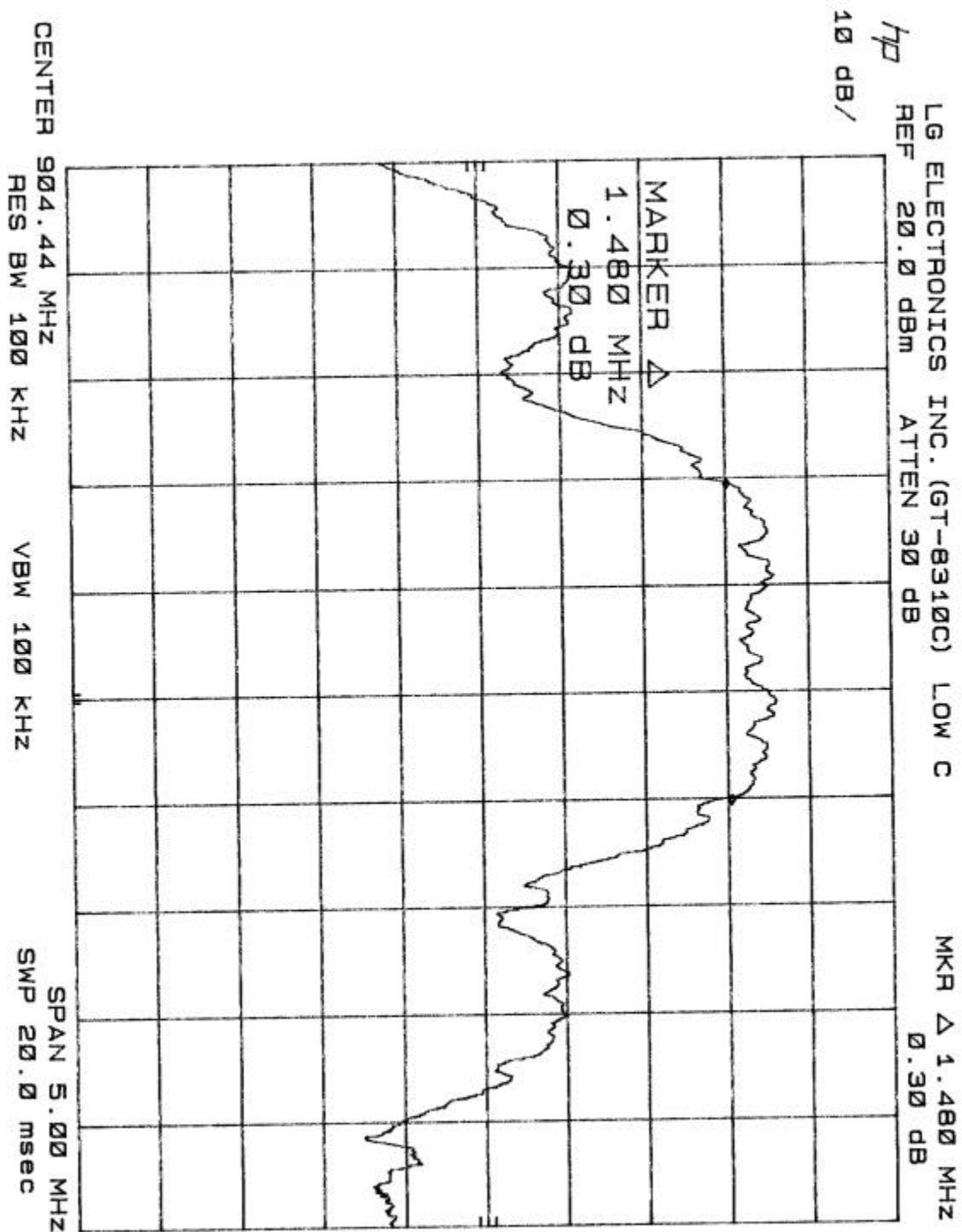












3.3.0 Power Density

Requirements: FCC 15.247 (2) (d), the transmitted power density averaged over any 1 second interval shall not be greater than 8 dBm in any 3 kHz bandwidth within these bands.

3.3.1 Test Procedure

The antenna was removed and SMA connector was connected to the transmitter output. The transmitter output was connected to a calibrated coaxial attenuator (50 Ohm), the other end of which was connected to a spectrum analyzer with the RBW set to 3kHz and VBW > RBW. The start and stop frequencies of the Spectrum Analyzer should be set according to the maximum emission frequency range seen from the 6 dB bandwidth test. The sweep time of the spectrum analyzer should be set to the value that allows to observe each 3 kHz interval for at least 1 second.

The test was performed at three frequencies (low, middle, and high channels) and on all power levels that can be setup on the transmitter.

3.3.2 Test Equipment

Hewlett Packard HP8566B Spectrum Analyzer
Hewlett Packard HP 7470A Plotter

3.3.3 Test Results

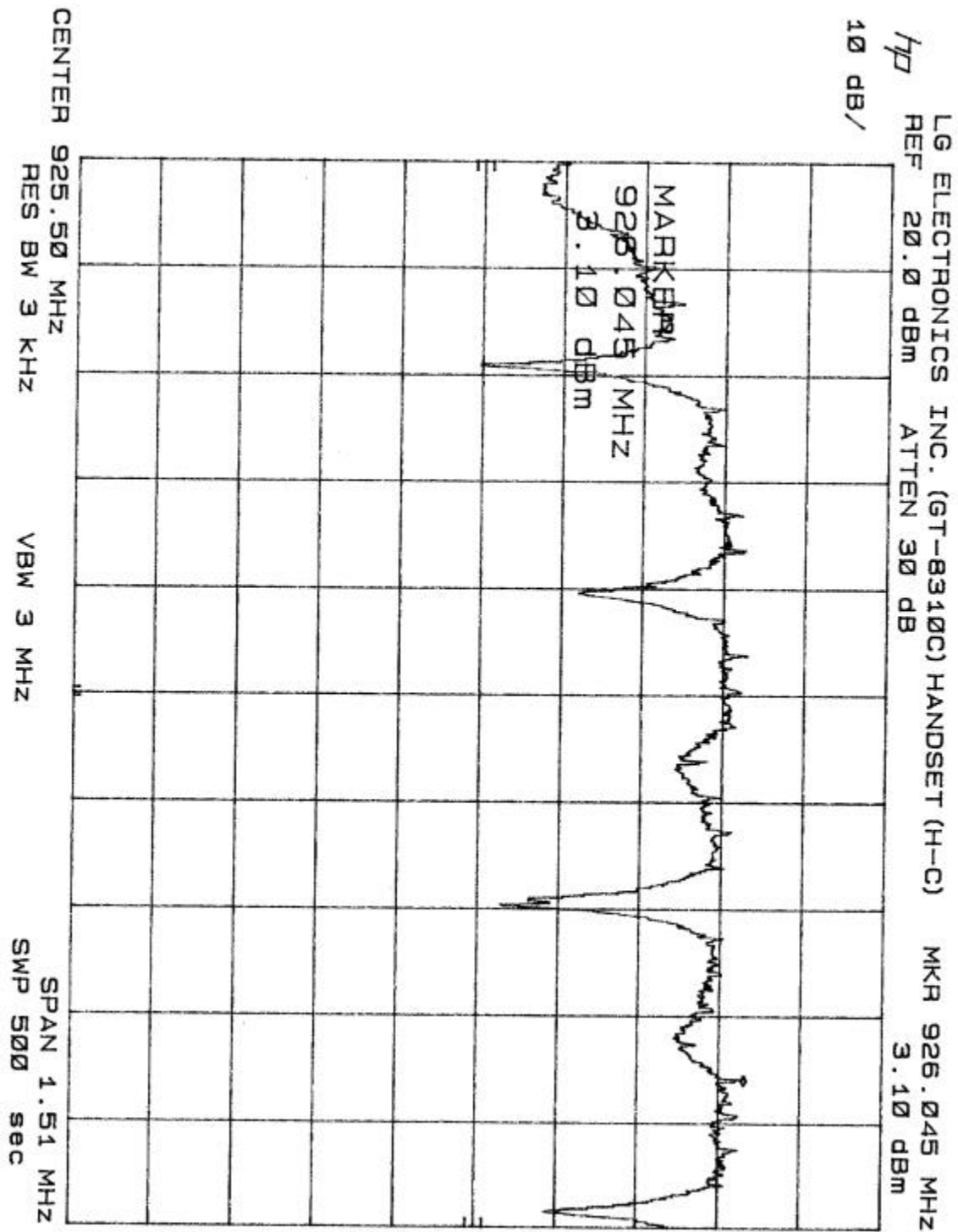
Refer to the attached Plots

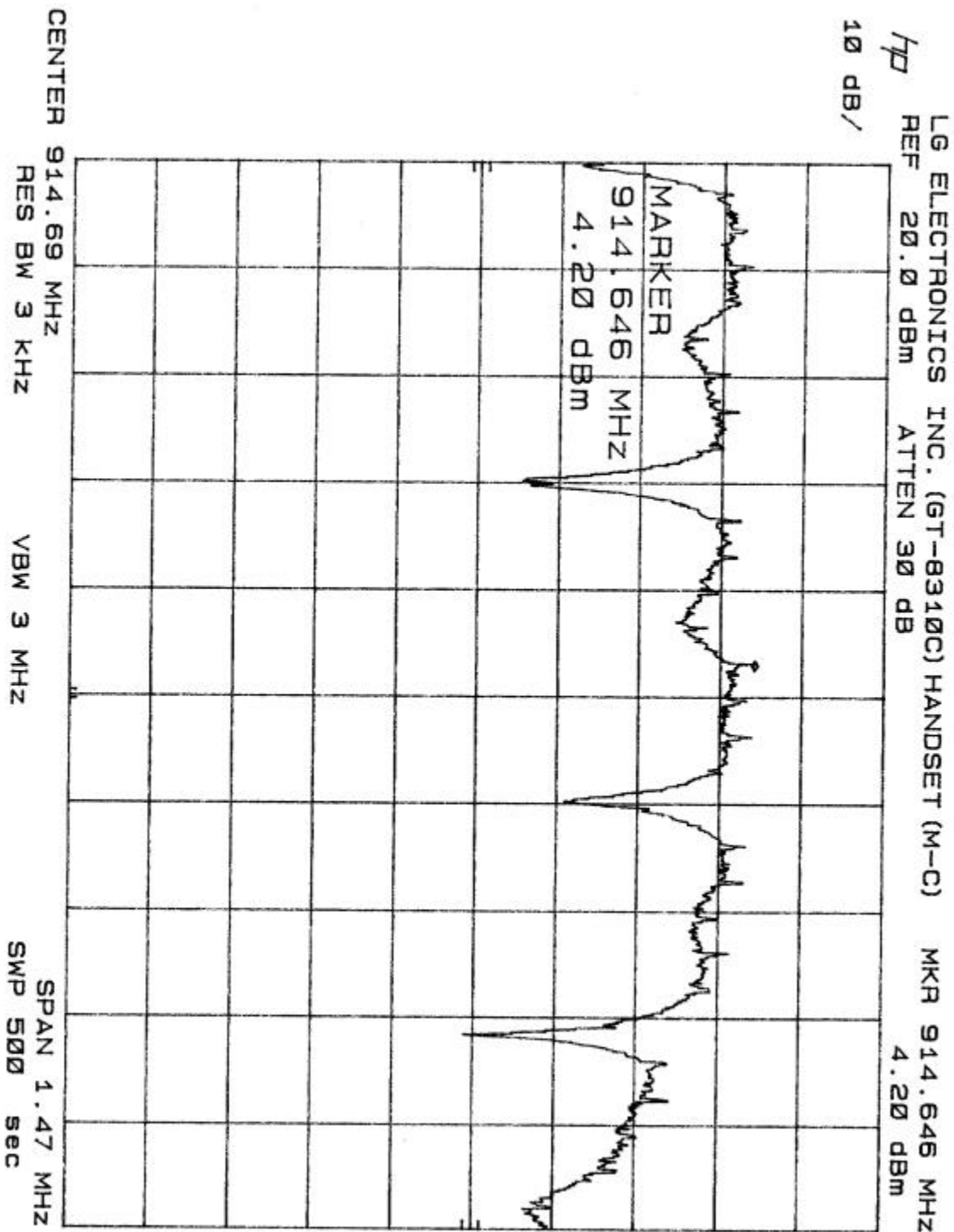
BASE

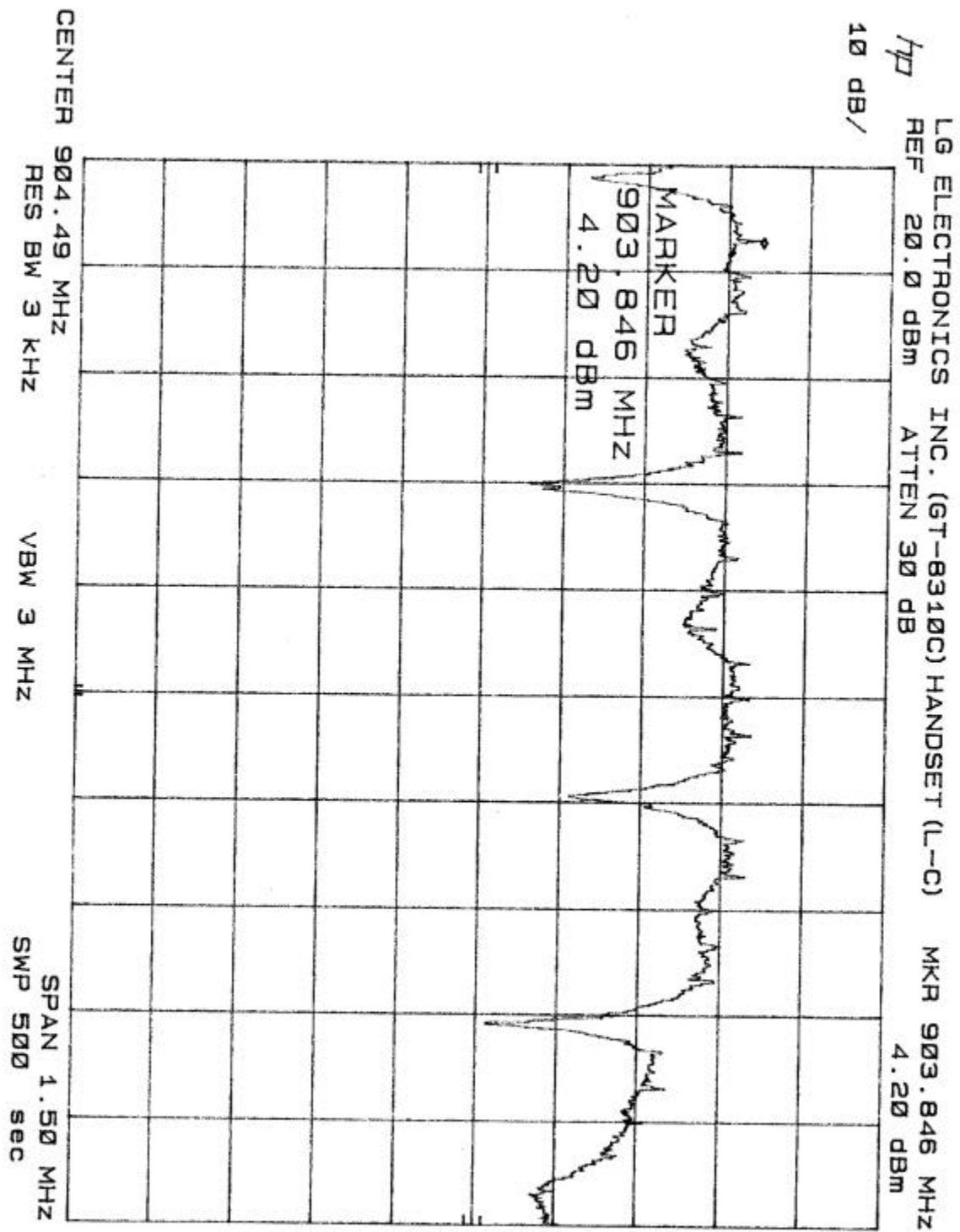
Power Density	
High Channel	Page 28
Middle Channel	Page 29
Low Channel	Page 30

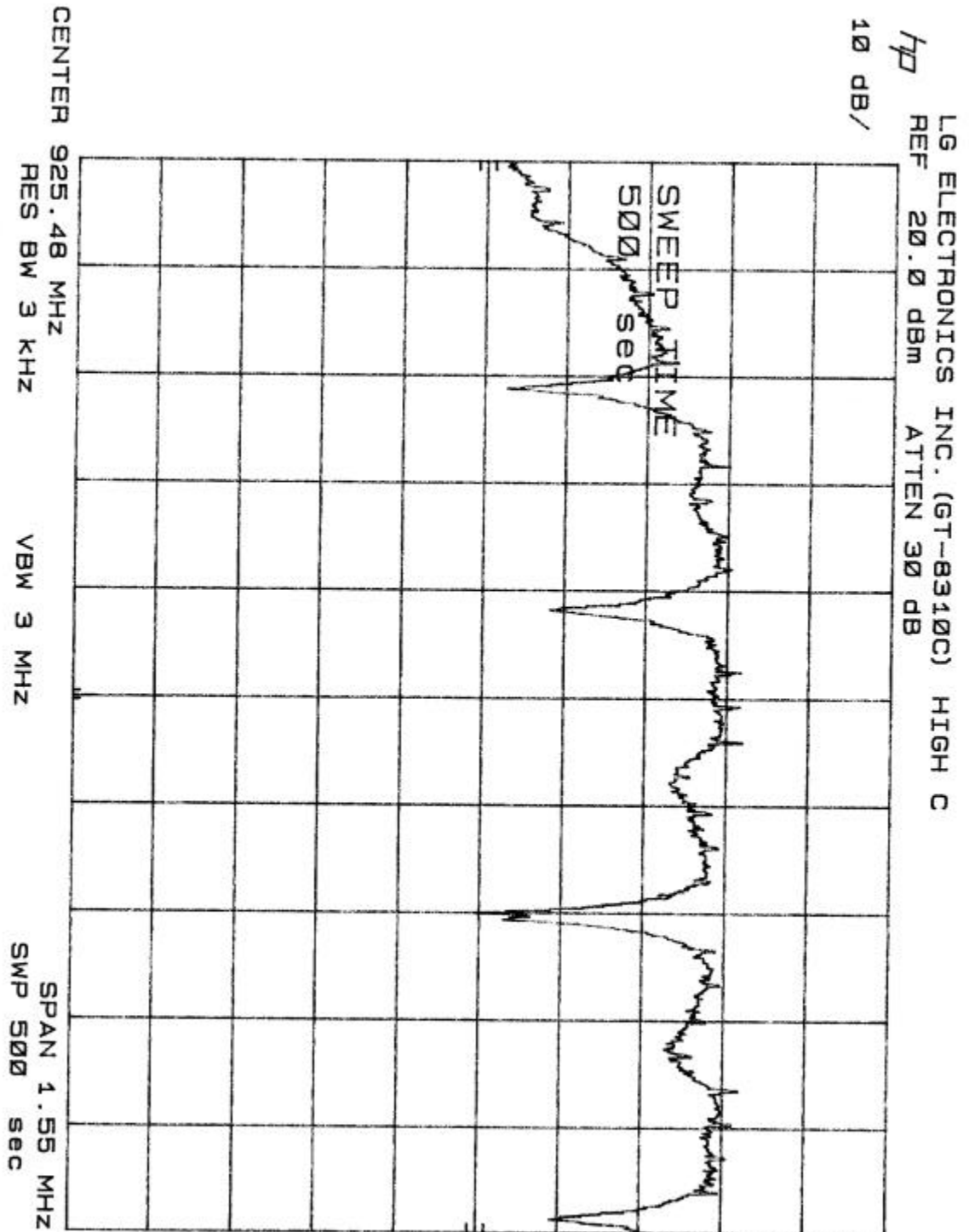
HANDSET

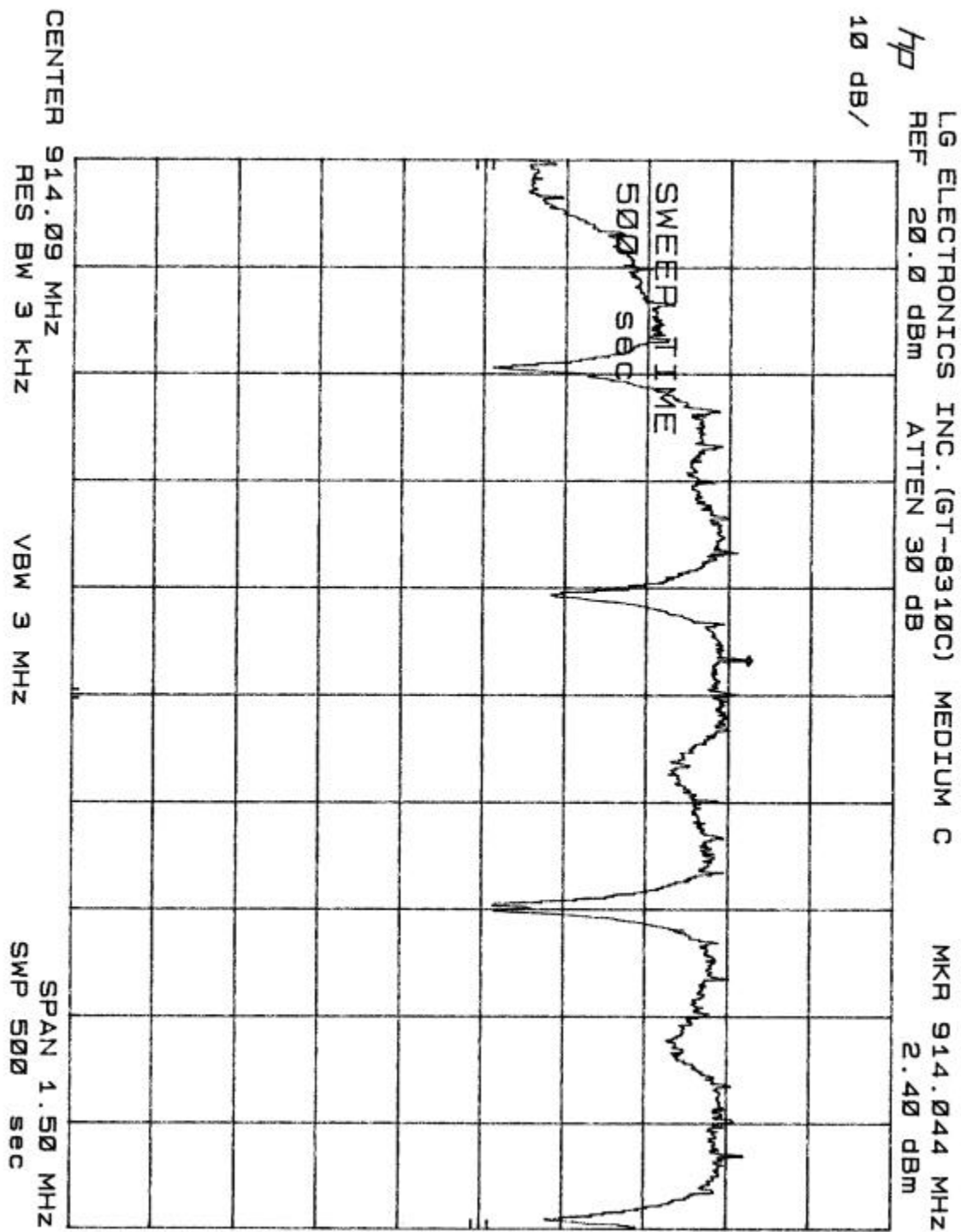
Power Density	
High Channel	Page 25
Middle Channel	Page 26
Low Channel	Page 27

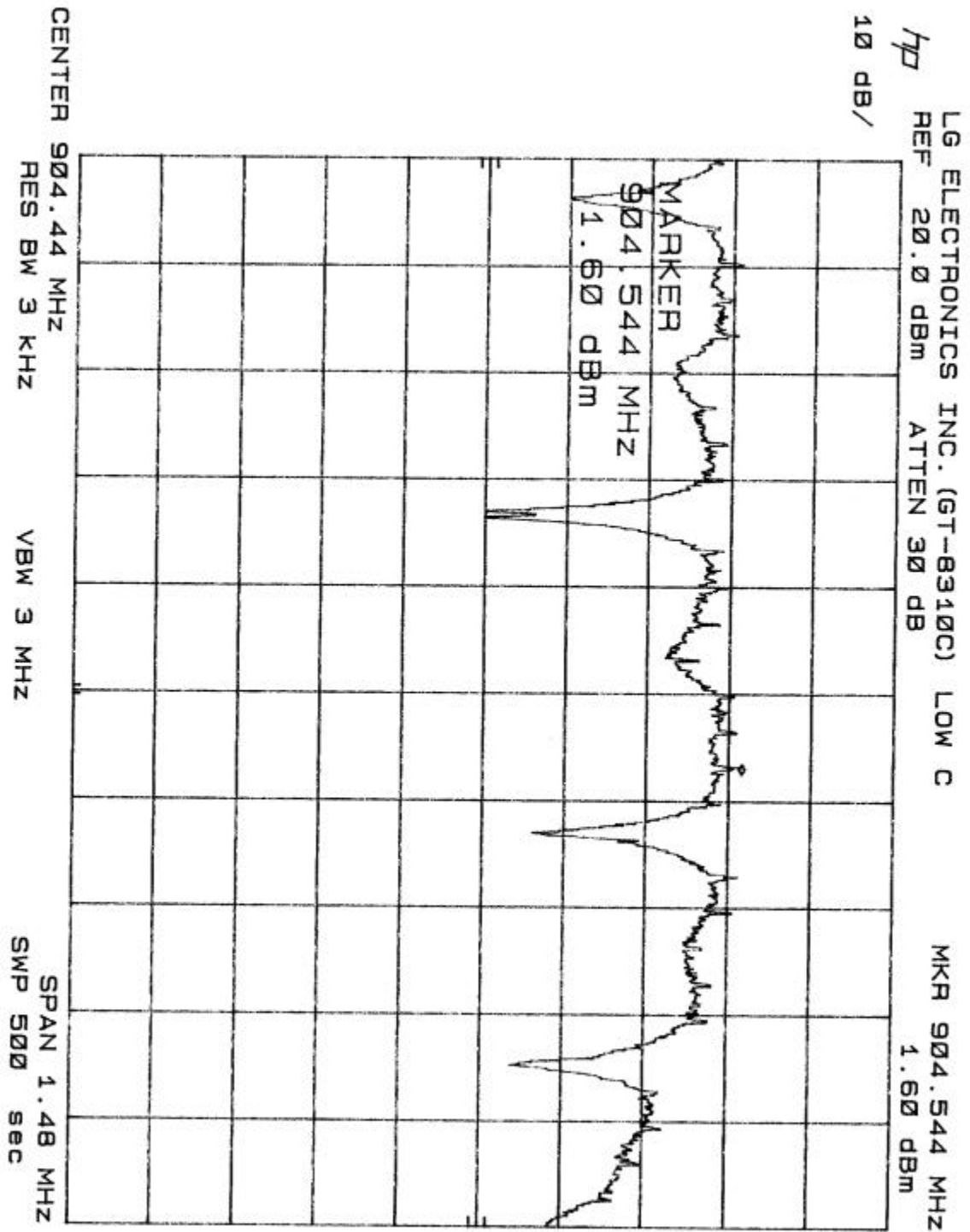












3.4.0 Band Edges Testing

Requirements : FCC 15.247 (2) ©, the emission power at the START and STOP frequencies shall be at least 20 dB below than the peak of the EUT's emission inside the operation band.

3.4.1 Test Procedure

The antenna was removed and SMA connector was connected to the transmitter output. The transmitter output was connected to a calibrated coaxial attenuator (50 Ohm), the other end of which was connected to a spectrum analyzer with the START and STOP frequencies set to the operation band. Transmitter output was read off the spectrum analyzer in dBm. The power output at the transmitter was determined by adding the value of the attenuator to the spectrum analyzer reading.

The test was performed at three frequencies (low, middle, and high channels) and on all power levels that can be setup on the transmitter.

3.4.2 Test Equipment

HP 8566B Spectrum Analyzer
HP 7470A Plotter

3.4.3 Test Results

Refer to the attached plots.

BASE

Band Edge	
High Channel	Page 35
Middle Channel	Page 36
Low Channel	Page 37

HANDSET

Band Edge	
High Channel	Page 32
Middle Channel	Page 33
Low Channel	Page 34

