I. INTRODUCTION

This measurement report is submitted in support of an Application for Certification in accordance with Part 2, Subpart J and Part 15, Subpart B (effective 6/23/89) of the Federal Communications Commission's Rules and Regulations.

The equipment under test (EUT) is a ***superregenerative*** receiver which decodes commands from a separate handheld transmitter. This receiver operates at a fixed frequency within the band from 49.82 to 49.90 MHz and is powered by one 8.0 volt battery. The EUT is identified as the Wild Sting Receiver (FCC ID:AEK970549R). Operation under the transition provisions of Paragraph 15.37 is not requested for this device. The measurements contained in this report demonstrate compliance with the limitations in effect since 6/23/89.

II. INFORMATION REQUIRED FOR CERTIFICATION

	Paragraph(s)	
(1)	2.1033(a)	This application for certification is filed on FCC Form 731 with all questions answered. An application fee of $350 is attached.
	2.1033(b)(1)	The full name and mailing address of the manufacturer of the device and applicant for certification is: Taiyo Kogyo Co., Ltd. No. 1-23-17, Higashiyotsugi Katsushika-ku, Tokyo Japan

(2) The FCC Identifier of the device is AEK970549R.

(3) A copy of the installation and operating instructions to be furnished to the user, or a draft copy of such instructions, is included in the exhibits section of this application.

(4) This device is a superregenerative receiver powered by one 8.0 volt battery. It is designed to operate on a fixed frequency in the band 49.82 to 49.90 MHz.

(5) A block diagram of the device is included in the exhibits section of this application. Schematics are also provided in the exhibits section of this application. No IFs are involved.

(6) A report of measurements is included with this report.

(7) Photographs of this device showing its general appearance, the FCC Label and its placement are included in the exhibits section of this application.

(8) This equipment is a stand-alone unit. No peripherals or accessories are involved.

(9) Certification under the transition provisions of Paragraph 15.37 is not being requested for this device.

(10) N/A.

III. GENERAL TEST CONDITIONS AND PROCEDURES

Measurement procedures were used as outlined in MP-1, as specified in Part 15.31, except as noted herein. The open field tests were performed on a three-meter range maintained by Carl T. Jones Corporation at the Springfield facility. Complete description and measurement data for the site have been placed on file with the Commission. Carl T. Jones Corporation is listed by the FCC as a facility available to do measurement work for others on a contract basis. Prior to open-field testing, the equipment was placed in a shielded enclosure and scanned at a distance of 1 meter to determine its emission characteristics.

IV. RADIATED EMISSION MEASUREMENTS

The receiver was assembled on a rotatable wooden test stand approximately one meter in height. The receiver's antenna was fully extended. Because of the superregenerative nature of the receiver, an unmodulated RFf signal was transmitted to it during testing in order to insure proper functionality. The emission spectrum was examined from 30 MHz to 1000 MHz using a Hewlett-Packard 8568B spectrum analyzer and Compliance Design "Roberts" tuned dipole antennas.

At each emission frequency, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to determine the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarizations. The spectrum analyzer's 6 dB bandwidth was set to 100 kHz. The analyzer was operated in the CISPR quasi-peak detection mode for measurements of all emissions less than 1000 MHz. No post-detector video filters were used. The EUT was investigated in three orthogonal planes. There were no detectable emissions observed during the EUT's initial scan.

Test Results: Because there were no detectable emissions observed during the 1-meter inital scan, the EUT was not taken to the open-area-test-site. The EUT complied with the FCC Limits.

Note: ***SEE ENCLOSED INITIAL FREQUENCY SCAN SPECTRAL PLOTS.***

Five spectral plots are included. The spectral plots are:

1. CW carrier on, EUT on (RBW = 10kHz)
2. CW carrier on, EUT on (RBW = 300Hz)
3. Spectrum at 2 f_o, CW carrier on, EUT on (RBW = 100kHz)
4. Spectrum at 3 f_o, CW carrier on, EUT on (RBW = 100kHz)
5. Spectrum through 10 f_o, CW carrier on, EUT on (RBW = 100kHz)

The actual field intensity in decibels above one microvolt per meter (dBμV/m) is determine by algebraically adding the measured level in dBμV, the antenna factor (dB), and the cable loss (dB) at the appropriate frequency.

$$FI_a\ (dB\mu V/m) = FI_m\ (dB\mu V) + AF\ (dB) + CL\ (dB)$$

FI_a = Actual Field Intensity
FI_m = Measured Field Intensity
AF = Antenna Factor
CL = Cable Loss

As a sample calculation, assume a particular device emits a signal with a frequency of 49.96 MHz. The received signal level is measured as 4.0 dBμV. The total attenuation factor (antenna factor plus cable loss) for 49.96 MHz is 4.7 dB. The actual radiated field is calculated as follows:

$$4\ dB\mu V + 4.6 = 8.6\ dB\mu V/m$$

In no case did the radiated emissions exceed the limits specified in Paragraph 15.109(a) of the Commission's Rules.

V. POWER LINE CONDUCTED EMISSIONS MEASUREMENTS

Measurements of the power line conducted emissions were not performed since the EUT has no means for connection to the public utility power grid.

TABLE 1
FIELD STRENGTH
RADIATED EMISSIONS DATA SHEET

EMISSION FREQUENCY (MHZ)	ANTENNA POLARITY (H,V)	EMISSION LEVEL (dBuV)	ANTENNA FACTOR AND CABLE LOSS (dB)	EMISSION LEVEL (dBuV/m)	FCC LIMIT (3 METERS) (dBuV/m)

Note: Since no detectable emissions were observed during the 1 meter scan, the EUT was not taken to the open-area-test-site. See attached spectral plots.

CLIENT: TAIYO KOGYO
FCC ID: AEK970549R
MODEL: WILD STING
TEST DATE: 06/30/98
TEST ENGINEER: Michael A. Nicolay

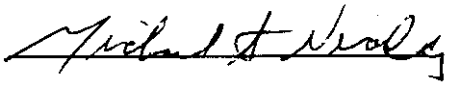
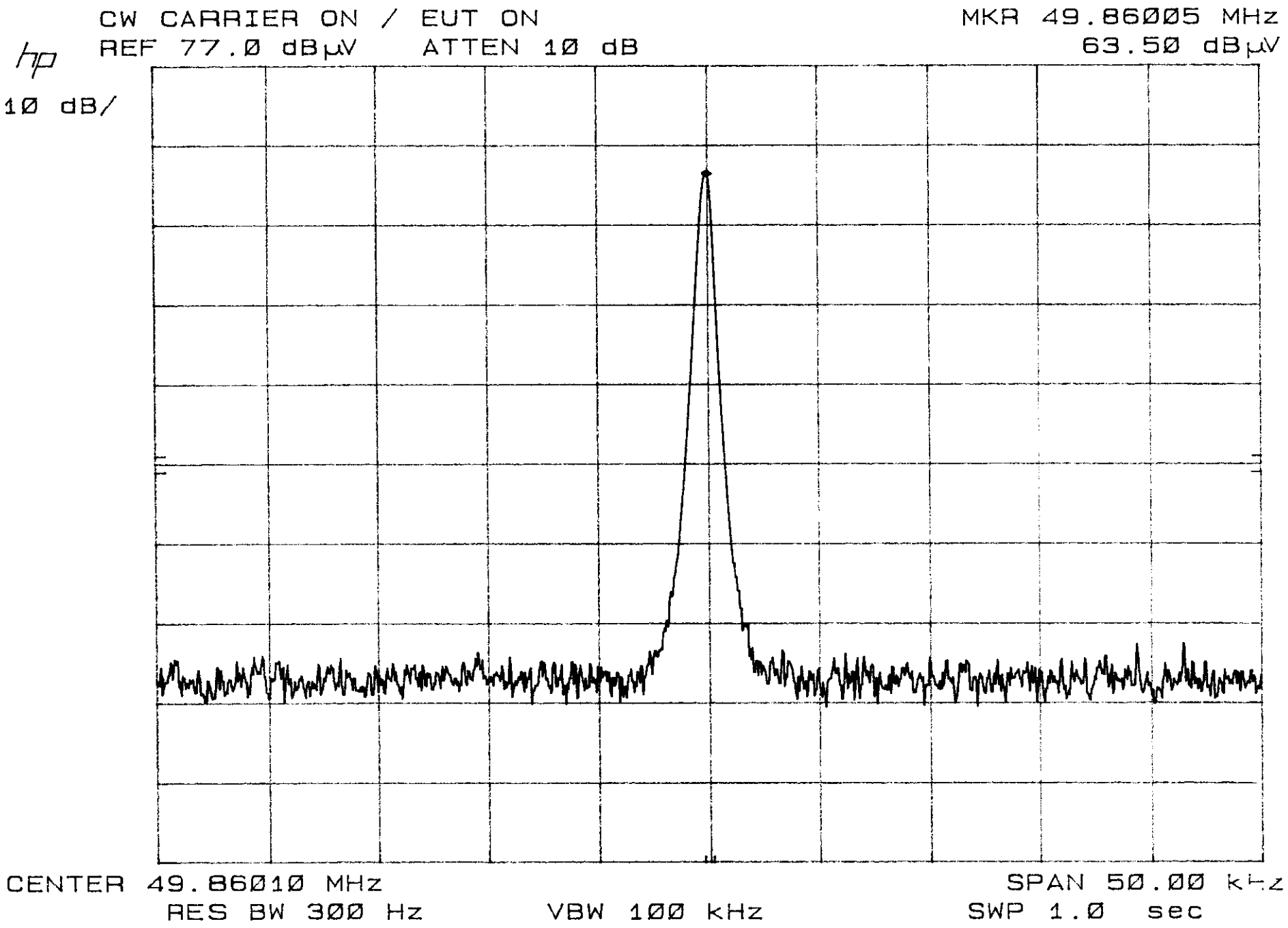
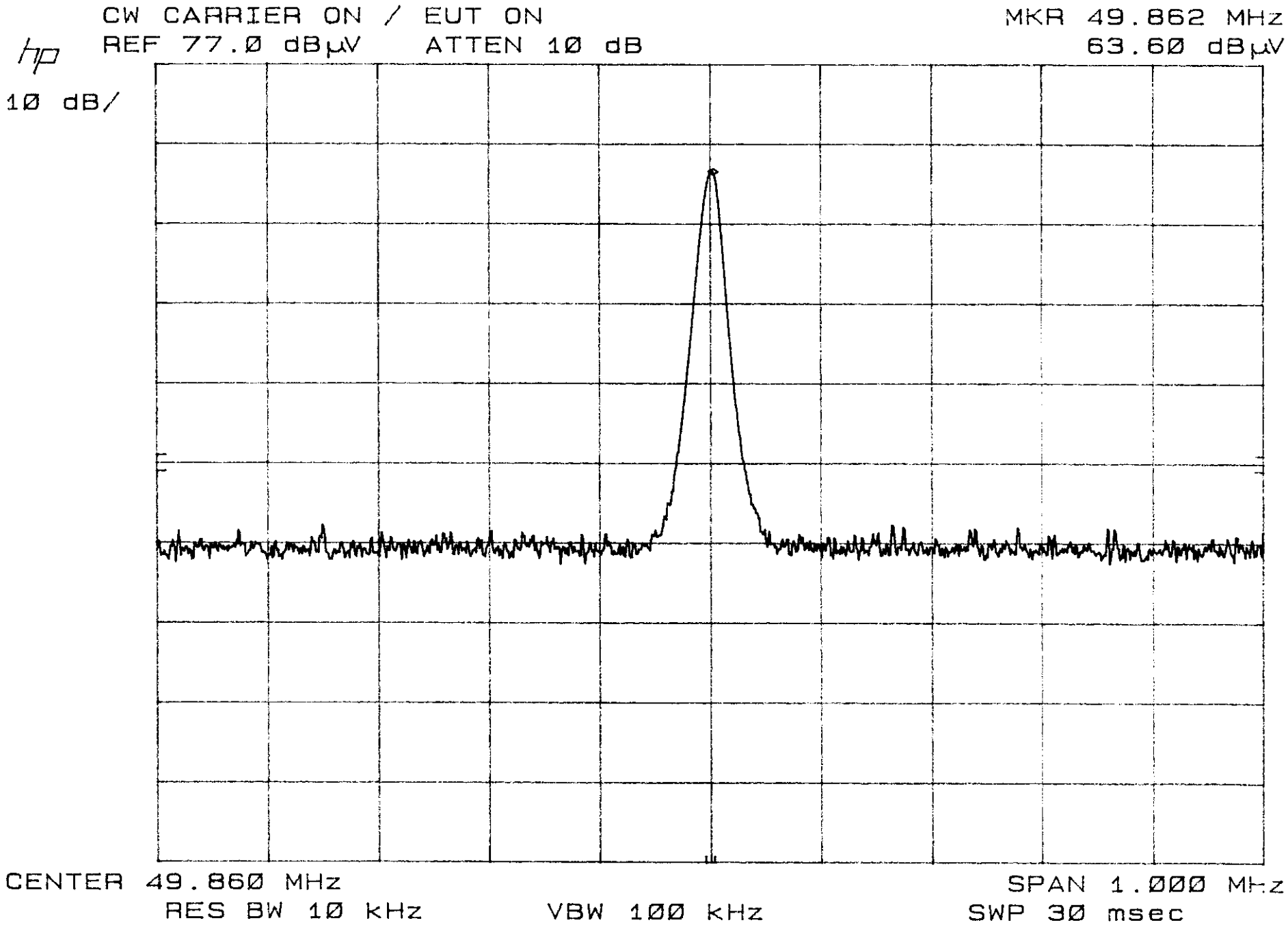
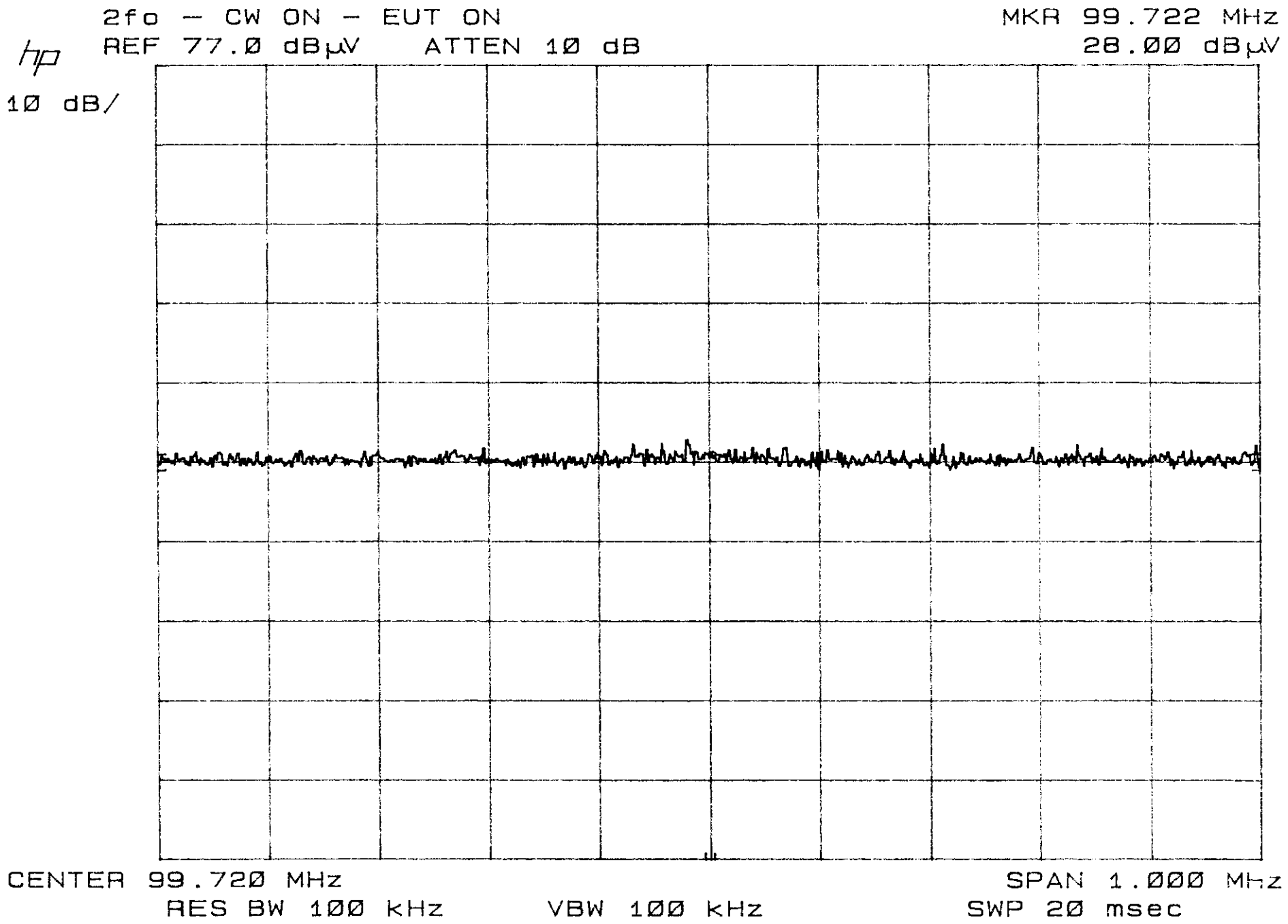
SIGNATURE: 

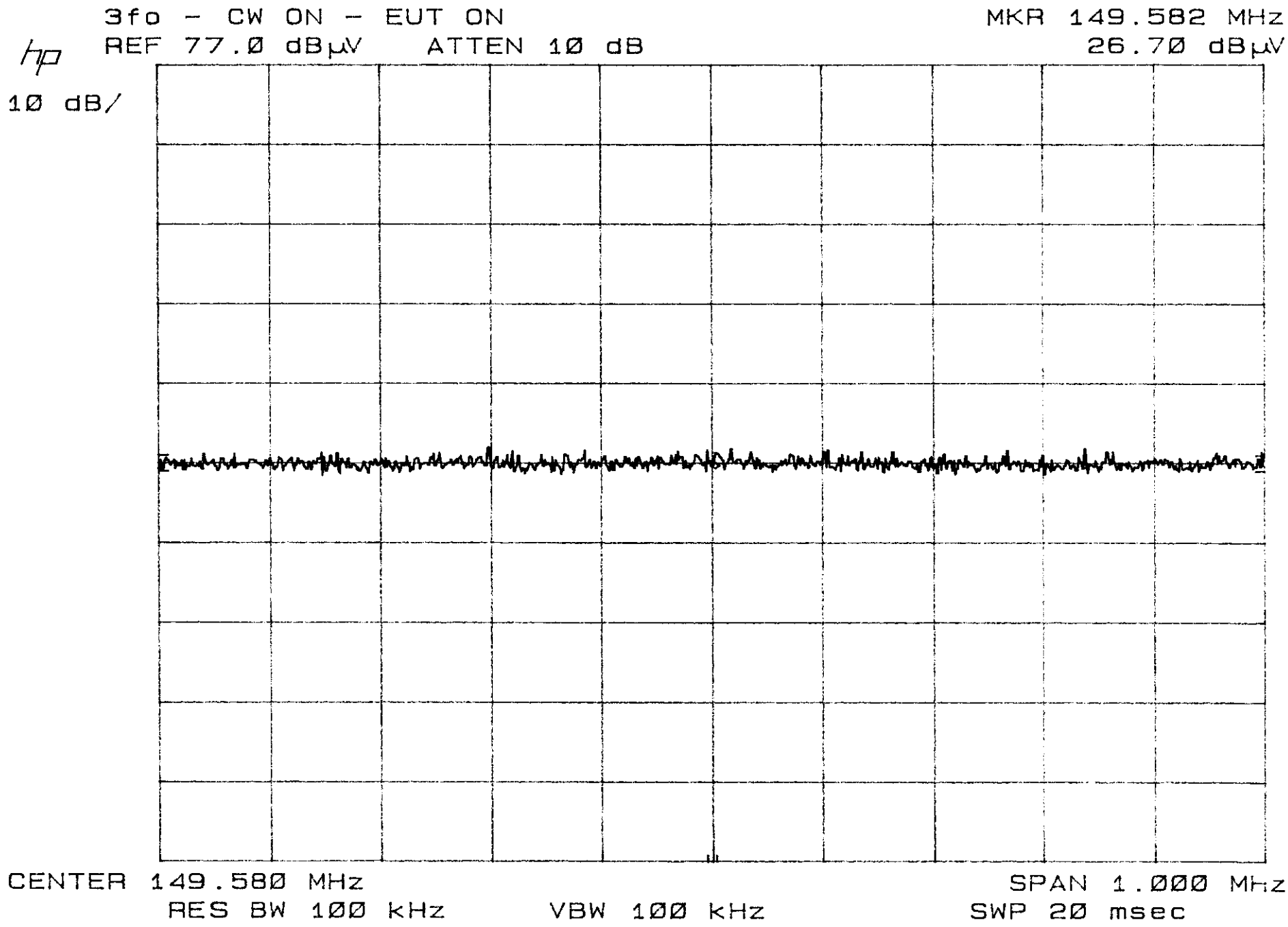
EXHIBIT 2
PHOTOGRAPHS

EXHIBIT 5
SPECTRAL PLOTS


CW CARRIER ON / EUT ON
MKR 49.86005 MHz
REF 77.0 dBµV
ATTEN 10 dB
63.50 dBµV
10 dB/
CENTER 49.86010 MHz
SPAN 50.00 kHz
RES BW 300 Hz
VBW 100 kHz
SWP 1.0 sec


CW CARRIER ON / EUT ON
MKR 49.862 MHz
REF 77.0 dBµV
ATTEN 10 dB
63.60 dBµV
10 dB/
CENTER 49.860 MHz
SPAN 1.000 MHz
RES BW 10 kHz
VBW 100 kHz
SWP 30 msec


2fo — CW ON — EUT ON
MKR 99.722 MHz
REF 77.0 dBµV
ATTEN 10 dB
28.00 dBµV
10 dB/
CENTER 99.720 MHz
SPAN 1.000 MHz
RES BW 100 kHz
VBW 100 kHz
SWP 20 msec


3fo - CW ON - EUT ON
MKR 149.582 MHz
REF 77.0 dBµV
ATTEN 10 dB
26.70 dBµV
10 dB/
CENTER 149.580 MHz
SPAN 1.000 MHz
RES BW 100 kHz
VBW 100 kHz
SWP 20 msec

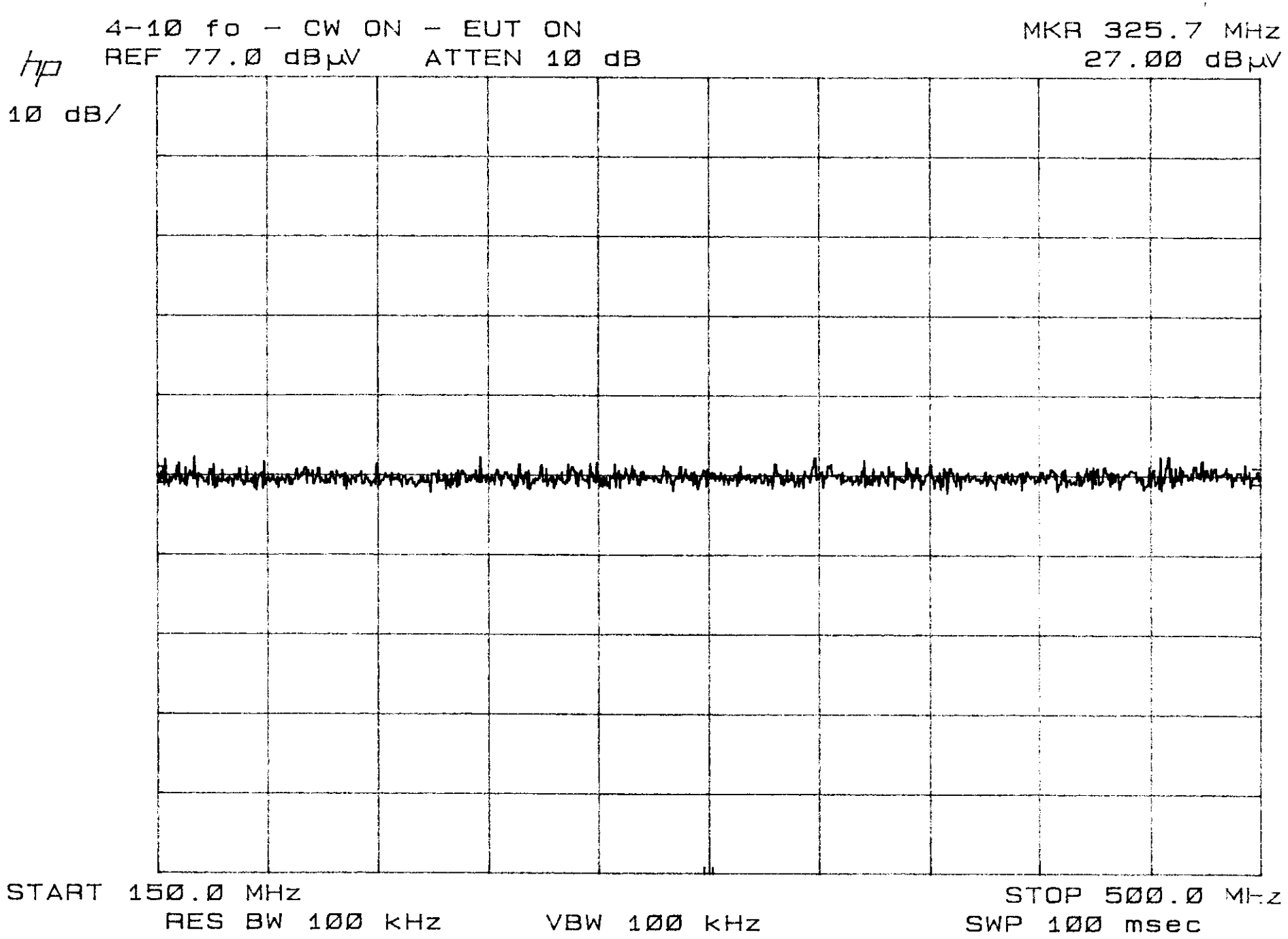

4-10 fo - CW ON - EUT ON
MKR 325.7 MHz
REF 77.0 dBµV
ATTEN 10 dB
27.00 dBµV
10 dB/
START 150.0 MHz
STOP 500.0 MHz
RES BW 100 kHz
VBW 100 kHz
SWP 100 msec

EXHIBIT 6
TEST EQUIPMENT USED FOR FCC COMPLIANCE TESTING
BY CARL T. JONES CORPORATION

MANUFACTURER	DEVICE	MODEL NUMBER	QUANTITY
Hewlett Packard	Spectrum Analyzer	8568B	1
Hewlett Packard	Quasi-Peak Adapter	8565OA	1
Hewlett Packard	Spectrum Analyzer	141 T	1
Hewlett Packard	RF Section	8555A	1
Hewlett Packard	RF Section	8553B	1
Hewlett Packard	IF Section	8552A	1
Tektronix	Spectrum Analyzer	7L13	1
Electro-Metrics	Spectrum Analyzer	ESA-1000	2
Hewlett Packard	Frequency Counter	5245L	1
Hewlett Packard	Frequency Converter	5253B	1
Hewlett Packard	Pre-Amplifier	8447E	2
Hewlett Packard	Signal Generator	8656B	2
Hewlett Packard	Signal Generator	606B	1
Boonton Electronics	Signal Generator	102B	1
Boonton Electronics	Power Meter	42B	1
Tektronix	Oscilloscope	475	1
Marconi Instruments	AM/FM Modulation Meter	TF2300	1
Compliance Design	20 MHz-1000 MHz AntennasRoberts		[tm]1 Set
Solar Electronics	50 Microhenry LISN	8028-50-TS-24-BNC	1
Solar Electronics	50 Microhenry LISN	8012-50-R-24-BNC	2