FCC Part 90 Test Report
for
Communication Network Interface, Inc.
on the
Radio Packet Modem
Model: CNI-803D
FCC ID: N79CNI-803D

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Lab Code 200201-0

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9.2 Test Equipment ..... **Error! Bookmark not defined.**
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10.1 Test Procedure ..... **Error! Bookmark not defined.**

10.2 Test Equipment ..... **Error! Bookmark not defined.**
10.3 Test Results ..... **Error! Bookmark not defined.**

11.0 Transient Frequency Behavior, FCC §90.214 ..... Error! Bookmark not defined.
11.1 Test Procedure ..... **Error! Bookmark not defined.**
11.2 Test Results ..... **Error! Bookmark not defined.**

12.0 RF Exposure ..... Error! Bookmark not defined.
12.1 Maximum Permissible Exposure Limits, FCC 1.1310 **Error! Bookmark not defined.**
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12.3 Field Strength Calculations ..... **Error! Bookmark not defined.**
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13.0 List of Test Equipment ..... Error! Bookmark not defined.

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1.0 Summary of Tests

FCC ID: N79CNI-803D
Model No.: CNI-803D

FCC RULE	DESCRIPTION OF TEST	RESULTS
2.1046	RF Power Output	Passed
90.205	Effective Radiated Power	Passed
2.1049, 90.209(b)(5), 90.210	Occupied Bandwidth, Bandwidth Limitation, Emission Masks	Passed
2.1051	Spurious Emissions at Antenna Terminals	Passed
2.1053, 15.109	Field Strength of Spurious Radiation	Passed
15.107	Line Conducted Emissions	Passed
2.1055	Frequency Stability vs. Temperature	Passed
2.1055	Frequency Stability vs. Voltage	Passed
2.1091	Radiated Exposure	Pass
90.214	Transient Frequency Behavior	N/A

Test Engineer: Xi-Ming Yang Date: December 18, 2000

Xi-Ming Yang

David Chernomordik

EMC Site Manager: Date: December 19, 2000

David Chernomordik, Ph.D.
EMC Site Manager

2.0 General Description

2.1 Product Description

The CNI-803D is a radio packet modem module with a frequency rqnge of 806 to 821 MHz.

A production version of the sample was received on December 2, 2000 in good condition.

Overview of Radio Packet Modem

Applicant	Communication Network Interface, Inc.
Trade Name & Model No.	CNI / CNI-803D
FCC Identifier	N79CNI-803D
Use of Product	Digital Data Communication (Two-Way Pager)
Type of Transmission	4FSK
Bit Rate	19200 bps
Max. Allowed Deviation	5.6 kHz
Range of RF Output	2W
The dc voltage applied to and current into the several elements of the final RF amplifying device	Voltage: 3V Current: 1A
Frequency Range	806 - 821 MHz
Max. Number of Channels	
Antenna(e) & Gain	Hnakook WHIP antenna, 0dBi
Detachable Antenna?	[ ] Yes [X] No
Receiver L.O. Frequency	975-981 MHz
External Input	[ ] Audio [X] Digital Data

2.2 Related Submittal(s) Grants

None.

2.3 Test Facility

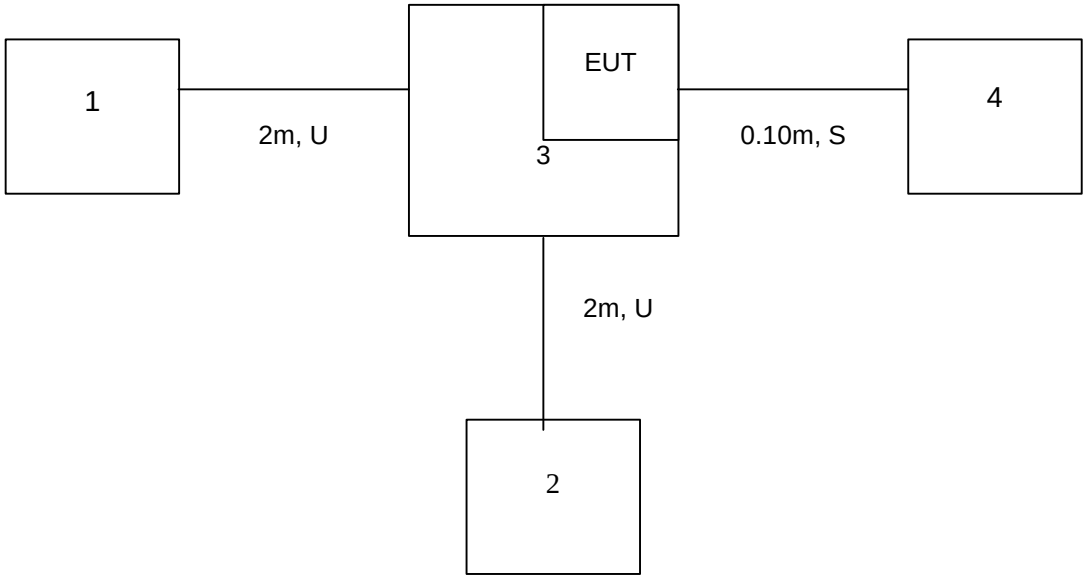
The open area test site and conducted measurement facility used to collect the radiated data is site 2. This test facility and site measurement data have been fully placed on file with the FCC and NVLAP accredited.

3.0 System Test Configuration

3.1 Support Equipment

Item #	Description	Manufacturer	Model No.	Serial No.
1	Notebook Computer	Samsung	5750	3762918K400001
2	Power Supply	HP	E3631A	N/A
3	Test Board	CNI	RPM 803	N/A
4	Antenna		N/A	N/A

3.2 Block Diagram of Test Setup



***** = EUT ****** = No ferrites on video cable	**S** = Shielded; **F** = With Ferrite **U** = Unshielded

4.0 RF Power Output

4.1 Test Procedure

The transmitter output was connected to a calibrated coaxial attenuator, the other end of which was connected to a spectrum analyzer. The resolution bandwidth and the video bandwidth of the spectrum analyzer were set up to 3 MHz and 7 MHz respectively. The attenuator was included in spectrum analyzer OFFSET function.

Transmitter output was read off the spectrum analyzer in dBm.

4.2 Test Equipment

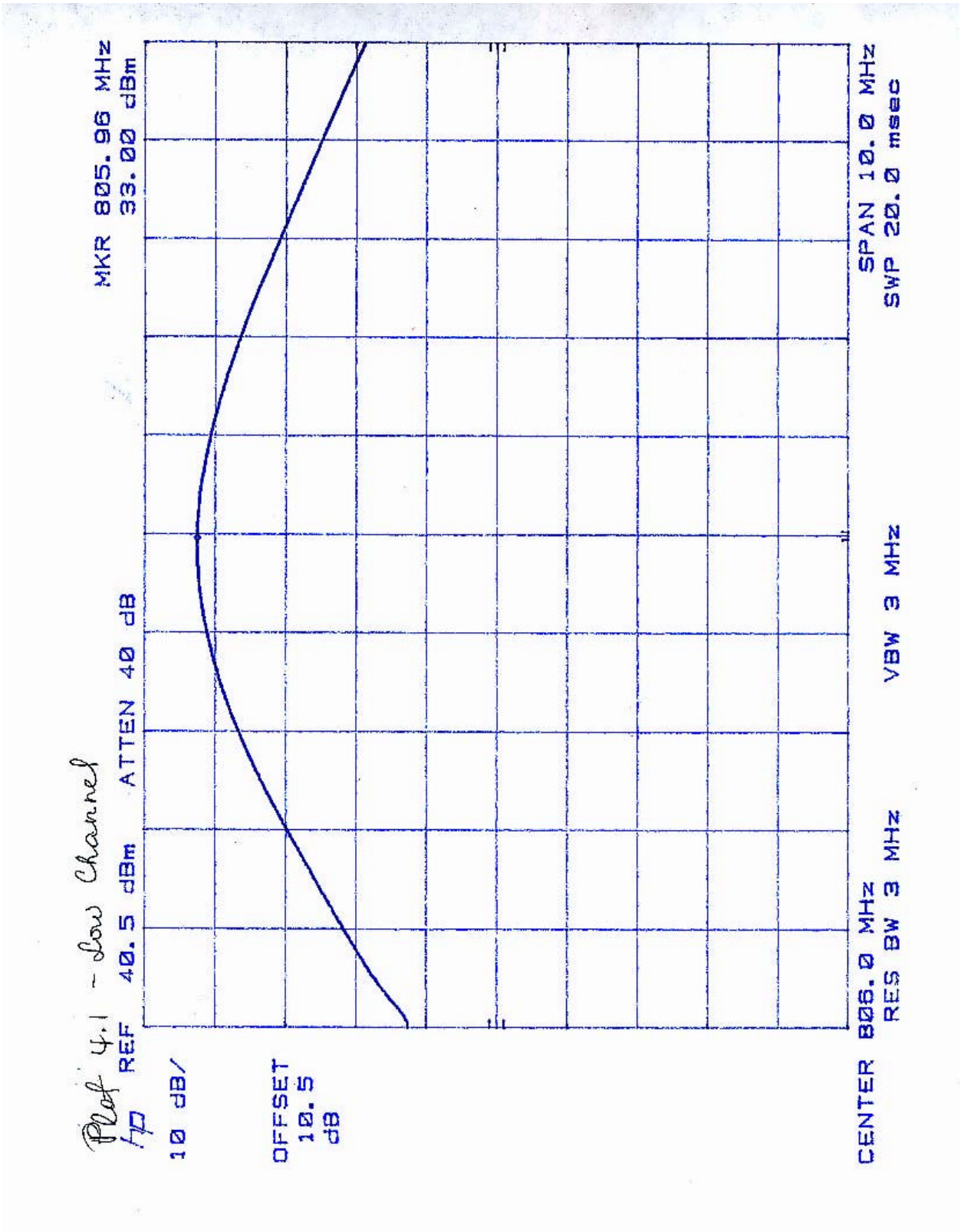
Hewlett Packard 8481A Power Sensor, 435B Power Meter
Hewlett Packard HP8566B Spectrum Analyzer, 100 Hz - 22 GHz
Tektronix 2782 Spectrum Analyzer, 100 Hz - 40 GHz

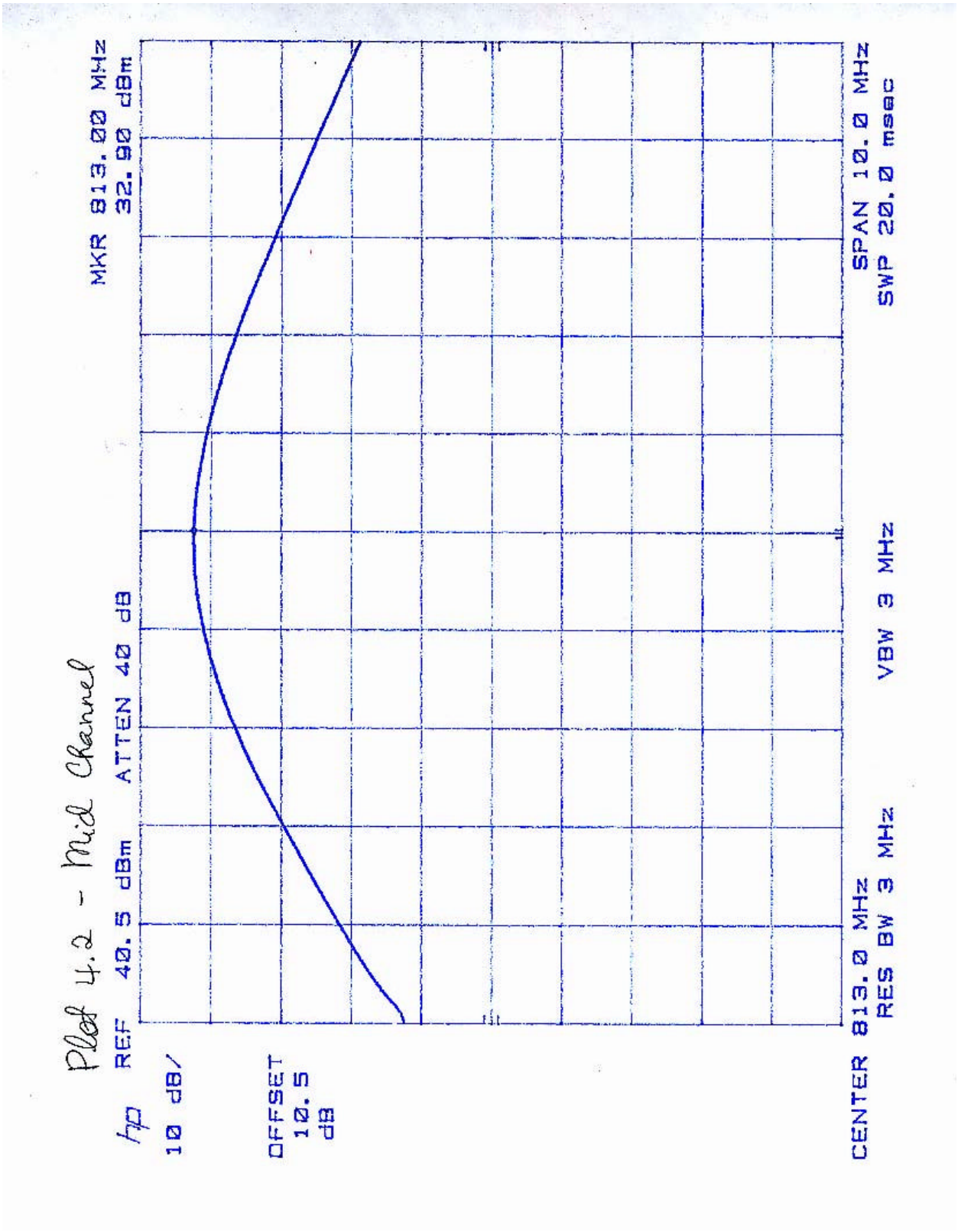
4.3 Test Results

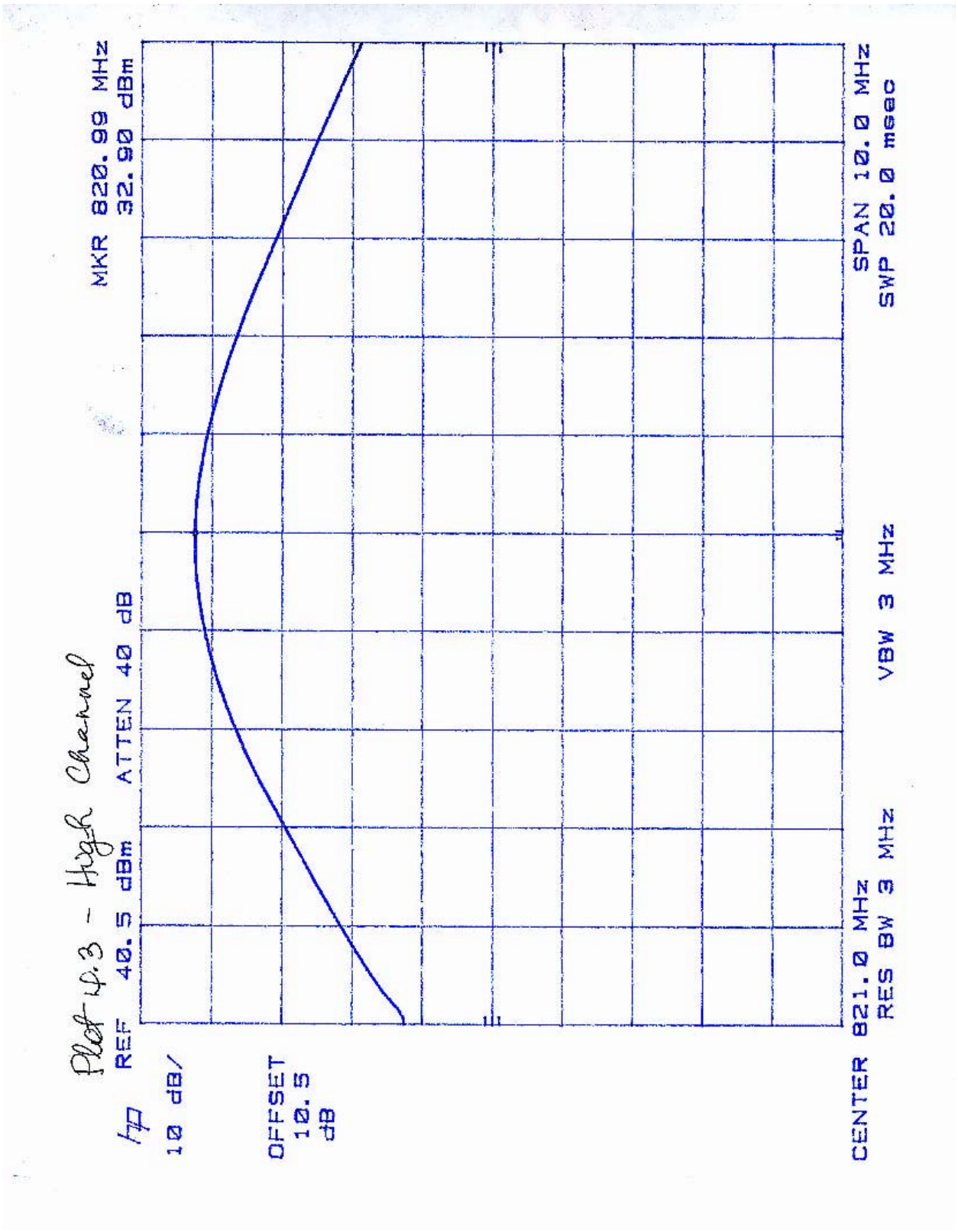
Refer to the attached plots.

Plot Number	Description
4.1	Low Channel
4.2	Middle Channel
4.3	High Channel

Results	Passed


Plot 4.1 - Low Channel
MKR 805.96 MHz
33.00 dBm
SPAN 10.0 MHz
SWP 20.0 msec
REF 40.5 dBm
ATTEN 40 dB
VBW 3 MHz
10 dB/
OFFSET
10.5
dB
CENTER 806.0 MHz
RES BW 3 MHz


Plot 4.2 - Mid Channel
hp
REF 40.5 dBm
10 dB/
ATTEN 40 dB
OFFSET
10.5
dB
MKR 813.00 MHz
32.90 dBm
CENTER 813.0 MHz
RES BW 3 MHz
VBW 3 MHz
SPAN 10.0 MHz
SWP 20.0 msec


Plot 4.3 - High Channel
MKR 820.99 MHz
32.90 dBm
SPAN 10.0 MHz
SWP 20.0 msec
REF 40.5 dBm
ATTEN 40 dB
VBW 3 MHz
10 dB/
OFFSET
10.5
dB
CENTER 821.0 MHz
RES BW 3 MHz

5.0 Occupied Bandwidth, Bandwidth Limitation, Emission Masks

FCC §2.1049, 90.209(B)(5), 90.210

5.1 Test Procedure

The antenna was disconnected from the transmitter and the short cable was connected to the transmitter RF output.

The RF output was connected to the input of the spectrum analyzer through sufficient attenuation.

The resolution bandwidth of the spectrum analyzer was set up at least 10 times higher then the authorized bandwidth of the transmitter. The spectrum analyzer reading was recorded and plotted. This reading is used as a reference for emission mask measurements.

The resolution bandwidth of the spectrum analyzer was set up to 100 Hz and the spectrum of the transmitting signal was recorded. This spectrum was compared to the required emission mask.

The emission designator was defined as 16K0F7W, where 16 kHz is the Necessary Bandwidth (B), defined as follows:

B = 2 (19200/8 + 5600) = 16 kHz

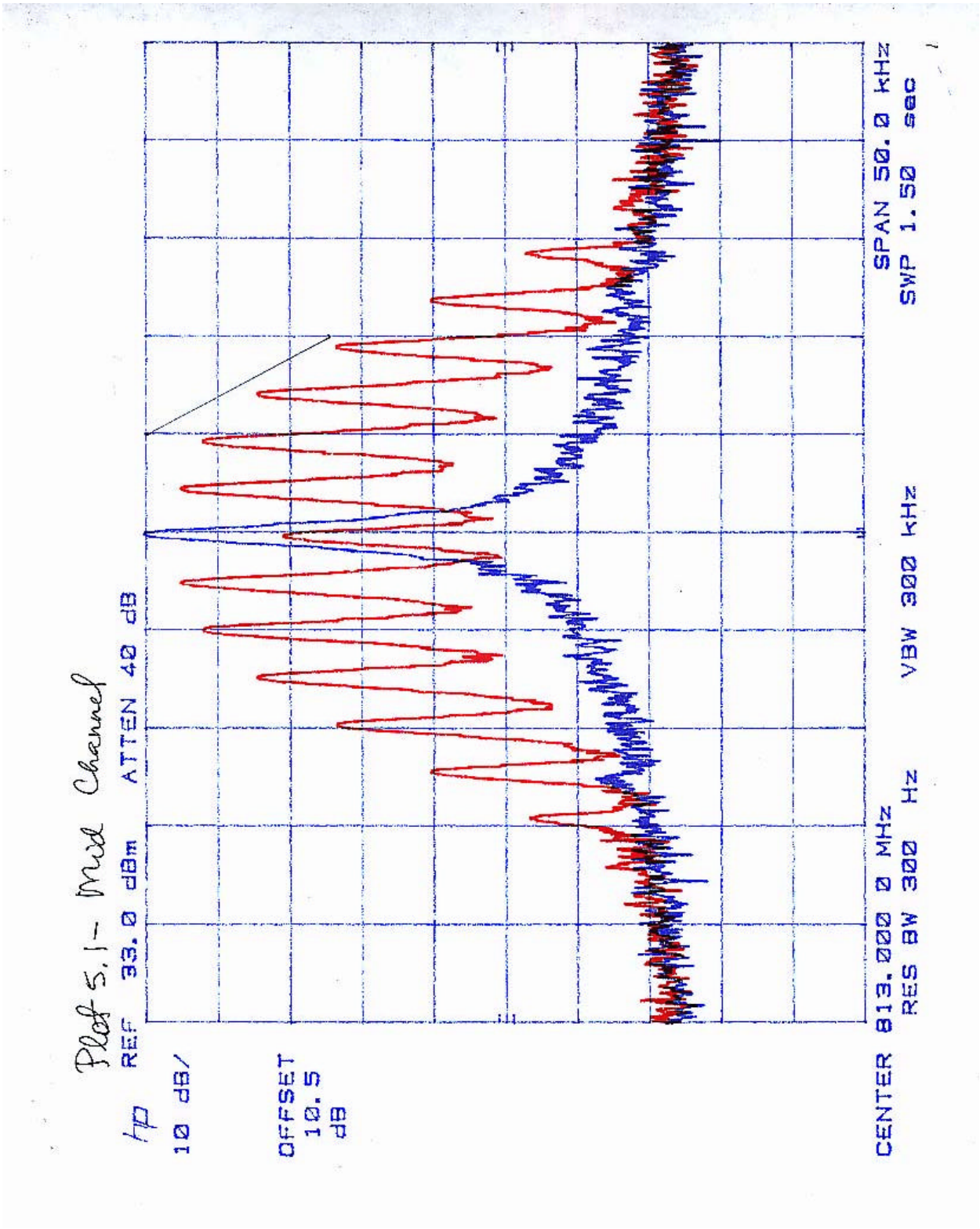
5.2 Test Equipment

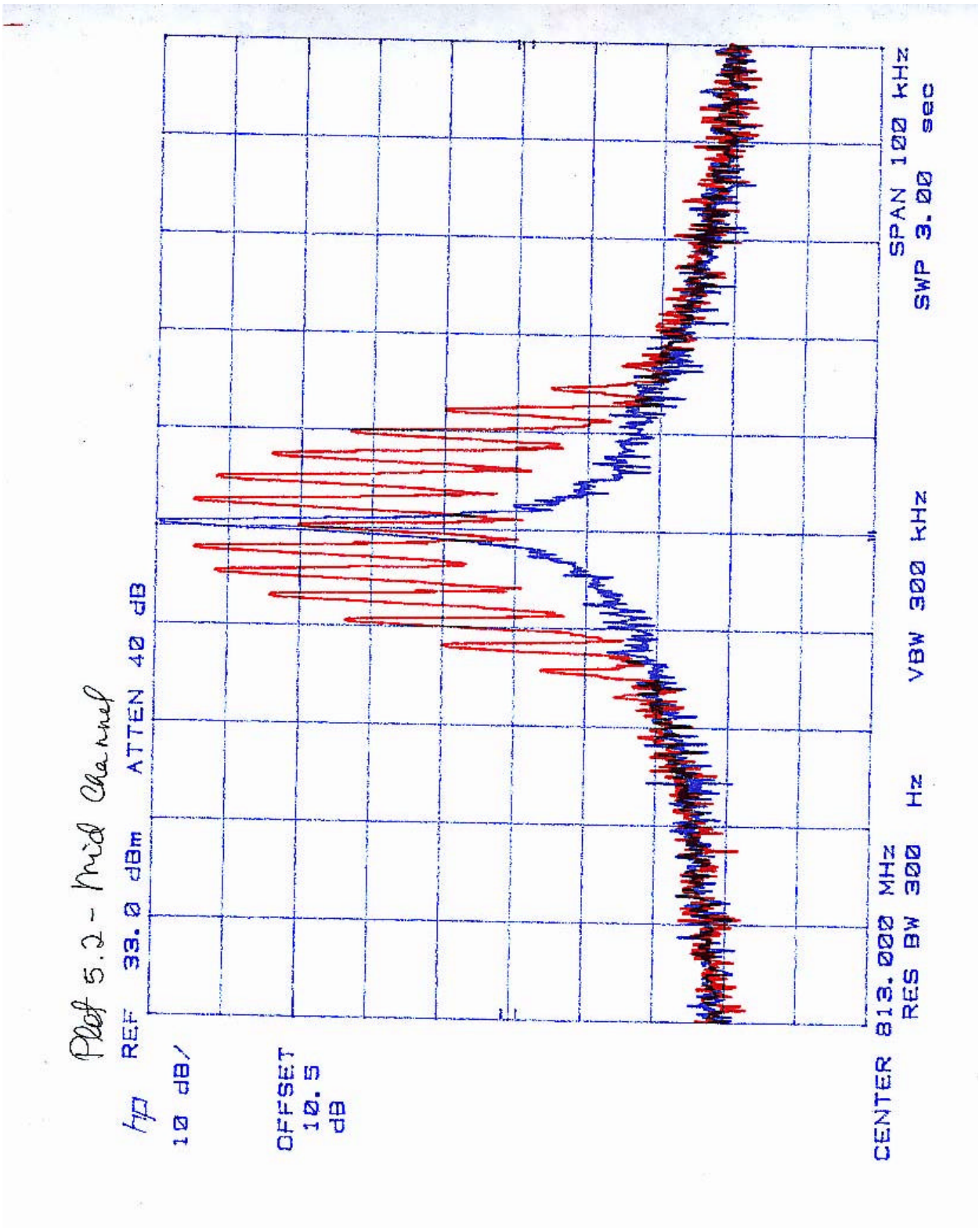
Hewlett Packard 8481A Power Sensor, 435B Power Meter
Hewlett Packard HP8566B Spectrum Analyzer, 100 Hz - 22 GHz
Tektronix 2782 Spectrum Analyzer, 100 Hz - 40 GHz

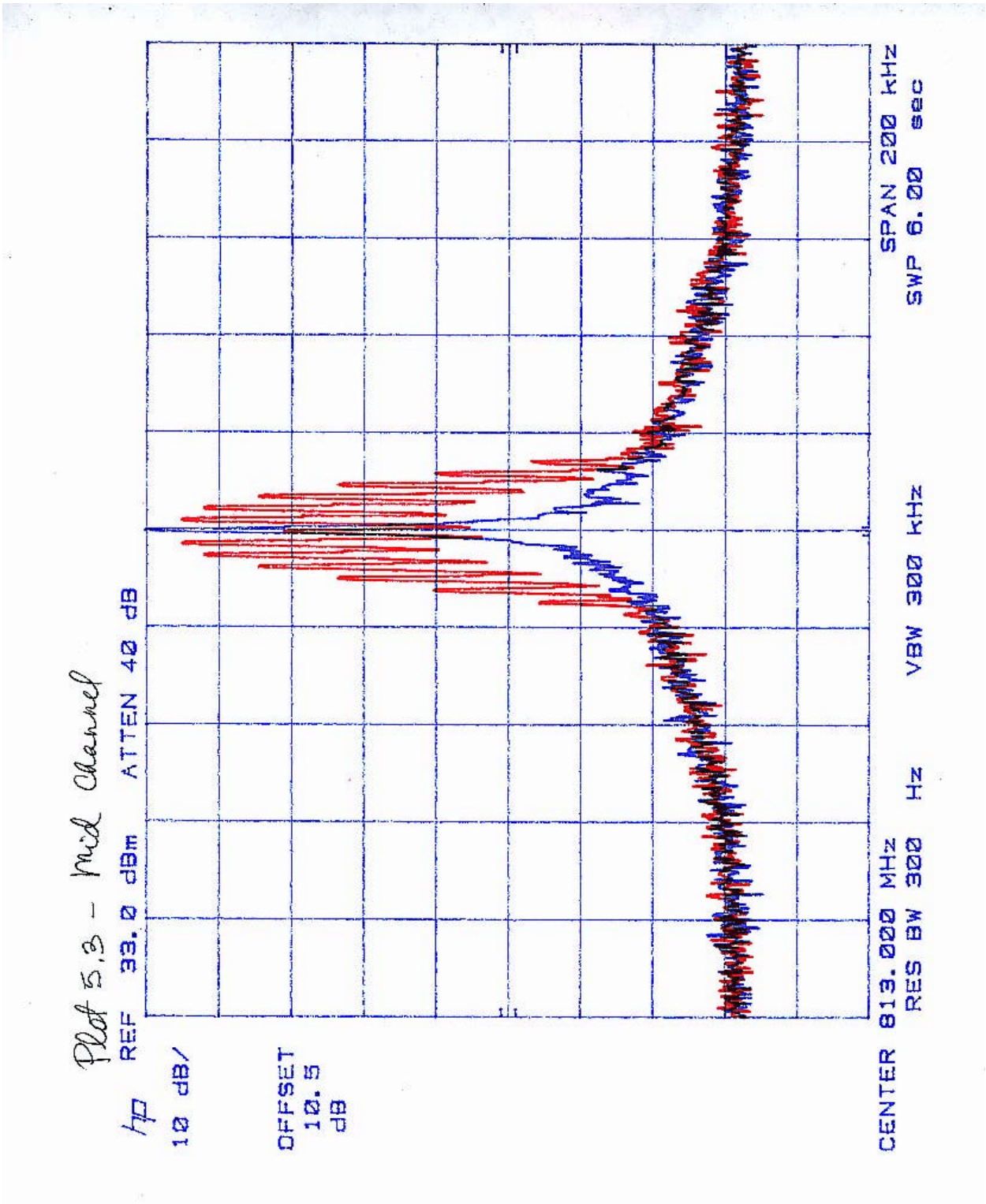
5.3 Test Results

Plot Number	Description
5.1	Modulated (00.11.00,11…) 50 kHz Span
5.2	Modulated (00.11.00.11…) 100 kHz Span
5.3	Modulated (00.11.00.11…) 200 kHz Span

Results	**Passed**


Plot 5.1 - Mid Channel
hp
REF 33.0 dBm
ATTEN 40 dB
10 dB/
OFFSET
10.5
dB
CENTER 913.000 0 MHz
RES BW 300 Hz
VBW 300 kHz
SPAN 50.0 kHz
SWP 1.50 sec


Plot 5.2 - Mid Channel
REF 33.0 dBm ATTEN 40 dB
10 dB/
OFFSET 10.5 dB
CENTER 813.000 MHz
RES BW 300 Hz VBW 300 kHz
SPAN 100 kHz SWP 3.00 sec


Plot 5.3 - Mid Channel
REF 33.0 dBm
ATTEN 40 dB
10 dB/
OFFSET 10.5 dB
CENTER 813.000 MHz
RES BW 300 Hz
VBW 300 kHz
SPAN 200 kHz
SWP 6.00 sec