

FCC PART 22 & PART 24 TYPE APPROVAL EMI MEASUREMENT AND TEST REPORT

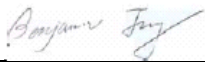

For

AXESSTEL, INC.

6305 Lusk Blvd.
San Diego, CA 92121

FCC ID: PH7VZ1-3DWCB

2003-08-15

This Report Concerns: <input checked="" type="checkbox"/> Original Report	Equipment Type: Cellular Phone
Test Engineer: Benjamin Jin / 	
Report No.: R0307291	
Test Date: 2003-08-02	
Reviewed By: Ling Zhang / 	
Prepared By: Bay Area Compliance Laboratory Corporation 230 Commercial Street Sunnyvale, CA 94085 Tel: (408) 732-9162 Fax: (408) 732 9164	

Note: This test report is specially limited to the above client company and the product model only. It may not be duplicated without prior written consent of Bay Area Compliance Laboratory Corporation. This report **must not** be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.

TABLE OF CONTENTS

1 - GENERAL INFORMATION.....3

1.1 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)3

1.2 OBJECTIVE3

1.3 RELATED SUBMITTAL(S)/GRANT(S)3

1.4 TEST METHODOLOGY3

1.5 TEST FACILITY4

1.6 TEST EQUIPMENT LIST5

2 - SYSTEM TEST CONFIGURATION.....6

2.1 JUSTIFICATION6

2.2 BLOCK DIAGRAM.....6

2.3 EQUIPMENT MODIFICATIONS6

2.4 TEST SETUP BLOCK DIAGRAM6

3 - SUMMARY OF TEST RESULTS.....7

4 – CONDUCTED OUTPUT POWER.....8

4.1 APPLICABLE STANDARD8

4.2 TEST PROCEDURE8

4.3 TEST EQUIPMENT8

4.4 TEST RESULTS8

5 - OCCUPIED BANDWIDTH14

5.1 APPLICABLE STANDARD14

5.2 TEST PROCEDURE14

5.3 TEST EQUIPMENT14

5.4 TEST RESULTS14

6 - MODULATION CHARACTERISTIC22

6.1 APPLICABLE STANDARD22

6.2 TEST PROCEDURE22

6.3 TEST EQUIPMENT22

6.4 TEST RESULTS22

7 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS28

7.1 TEST PROCEDURE28

7.2 TEST PROCEDURE28

7.3 TEST EQUIPMENT28

7.4 TEST RESULTS28

8 - RADIATED SPURIOUS EMISSION.....35

8.1 TEST PROCEDURE35

8.2 TEST PROCEDURE35

8.3 TEST EQUIPMENT35

8.4 TEST RESULT35

9 - FREQUENCY STABILITY38

9.1 APPLICABLE STANDARD38

9.2 TEST PROCEDURE38

9.3 TEST EQUIPMENT38

9.4 TEST RESULTS39

10 – CONDUCTED EMISSIONS40

11 – BAND EDGE TEST41

11.1 APPLICABLE STANDARDS.....41

11.2 TEST PROCEDURE41

11.3 TEST EQUIPMENT41

11.4 PLOTS OF OUT-OF-BAND-EDGE EMISSIONS AT ANTENNA TERMINAL.....41

1 - GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

The *Axesstel, Inc.*'s product, FCC ID:PH7VZ1-3DWCB or the "EUT" as referred to in this report is a hybrid cordless/cellular phone. The EUT measures approximately 2.2"L x 0.9"W x 6.25"H.

** The test data gathered is from typical production samples provided by the manufacturer.*

1.2 Objective

This type approval report is prepared on behalf of *Axesstel, Inc.* in accordance with Part 2, Subpart J, Part 15, Subparts A and B, and Part 22 Subpart H, of the Federal Communication Commissions rules.

It is also prepared in accordance with Part 2, Subpart J, Part 15, Subparts A and B, and Part 24 Subpart E, of the Federal Communication Commissions rules.

The objective of the manufacturer is to demonstrate compliance with FCC rules for output power, modulation characteristic, occupied bandwidth, spurious emission at antenna terminal, band edge, conducted and radiated margin.

1.3 Related Submittal(s)/Grant(s)

No Related Submittals

1.4 Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2, Sub-part J as well as the following parts:

Part 15 Subpart B – Unintentional Radiators
Part 22 Subpart H - Public Mobile Services
Part 24 - Personal Communications Services

Applicable Standards: TIA EIA 137-A, TIA EIA 98-C, ANSI 63.4-1992, 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, 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-1298 and R-1234. 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: 1998, and AS/NZS 3548: Electromagnetic Interference - Limits and Methods of Measurement of Information Technology Equipment test methods under NVLAP Lab Code 200167.

1.6 Test Equipment List

Manufacturer	Description	Model	Serial Number	Cal. Due Date
HP	Spectrum Analyzer	8568B	2517A01610	2003-10-30
HP	Spectrum Analyzer	8593A	29190A00242	2004-05-01
HP	Amplifier	8447E	1937A01054	2004-05-01
HP	Quasi-Peak Adapter	85650A	2521A00718	2004-05-01
Com-Power	Biconical Antenna	AB-100	14012	2004-05-01
Com-Power	LISN	LI-200	12005	2004-03-28
Com-Power	LISN	LI-200	12008	2004-03-28
Com-Power	Log Periodic Antenna	AL-100	16091	2004-05-01
Com-Power	Log Periodic Antenna	AB-900	15049	2004-05-01
Rohde & Schwarz	EMI Test Receiver	ESPI	1147 8007 07	2003-12-03
Agilent	Spectrum Analyzer (9KHz – 40GHz)	8564E	08303	2004-08-01
Agilent	Spectrum Analyzer (9KHz – 50GHz)	8565EC	06042	2004-05-03
HP	Amplifier (1-26.5GHz)	8449B	3147A00400	2004-03-14
A.H.System	Horn Antenna (700MHz-18GHz)	SAS-200/571	261	2004-05-31

* **Statement of Traceability:** Bay Area Compliance Laboratory Corp. certifies that all calibration has been performed using suitable standards traceable to the NATIONAL INSTITUTE of STANDARDS and TECHNOLOGY (NIST).

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.

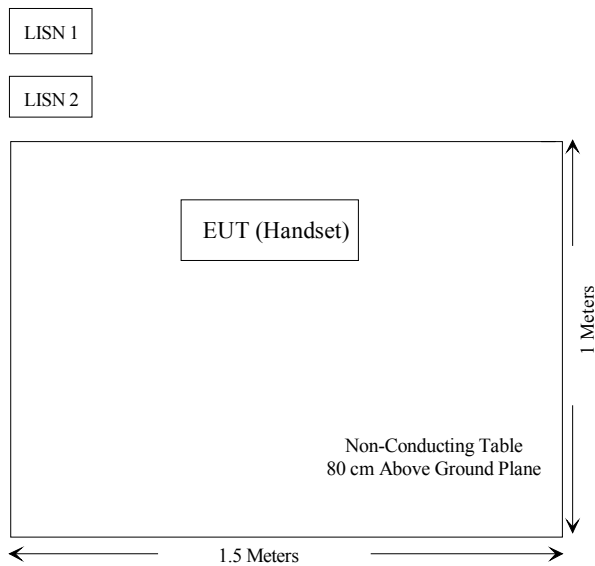
2.2 Block Diagram

Please refer to Exhibit D.

2.3 Equipment Modifications

No modifications were necessary for the EUT to comply with the applicable limits and requirements.

2.4 Test Setup Block Diagram



3 - SUMMARY OF TEST RESULTS

FCC RULE	DESCRIPTION OF TEST	RESULT
§ 2.1046, § 22.913 (a), § 24.232 (b)	RF power output	Compliant
2.1047, 22.915 (a)	Modulation Characteristics	Compliant
§ 2.1049 § 22.917 § 24.238	Emission, Occupied Bandwidth	Compliant
§ 2.1051, § 22.917 § 24.238(a)	Spurious emissions at antenna terminals	Compliant
§ 2.1053, § 22.917 § 24.238 (a)	Radiated Spurious Emission	Compliant
§ 2.1055 (a) § 2.1055 (d) § 22.355 § 24.235	Frequency stability vs. temperature Frequency stability vs. voltage	Compliant
§ 2.1093 § 24.52	Radio frequency radiation exposure evaluation Portable Device	Compliant
§ 15.109	Radiated Emission Limit (Digital Portion)	Compliant
§ 15.205	Antenna Requirement	Compliant
§2.1049 §24.238	Band Edge Test	Compliant

4 – CONDUCTED OUTPUT POWER

4.1 Applicable Standard

According to FCC §2.1046 and §22.913 (a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts. According to FCC § 24.232(b), EIRP peak power for mobile/portable stations are limited to 2 watts.

4.2 Test Procedure

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

4.3 Test Equipment

Hewlett Packard HP8564E Spectrum Analyzer, Calibration Due Date: 2004-08-01.

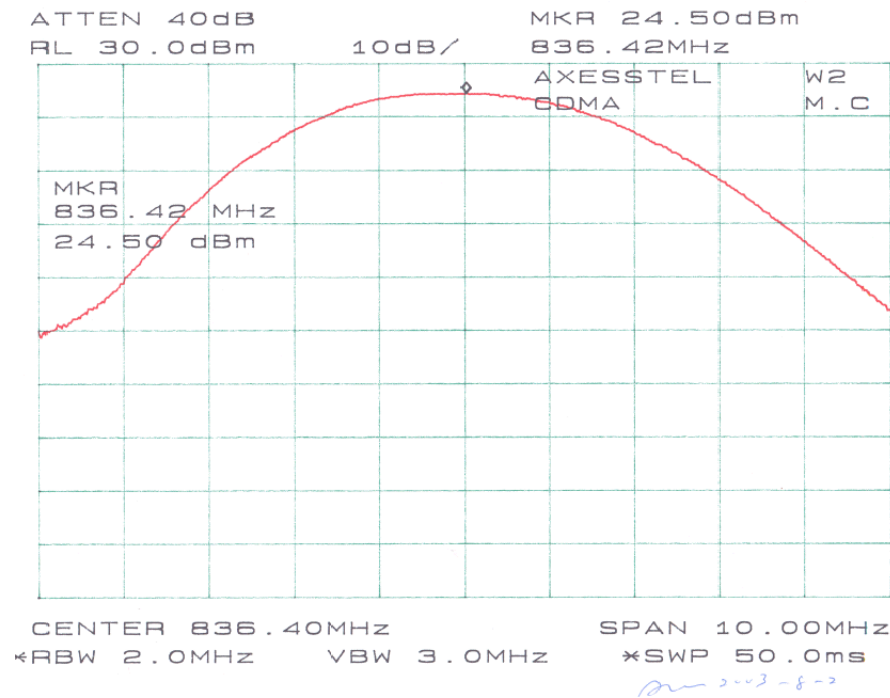
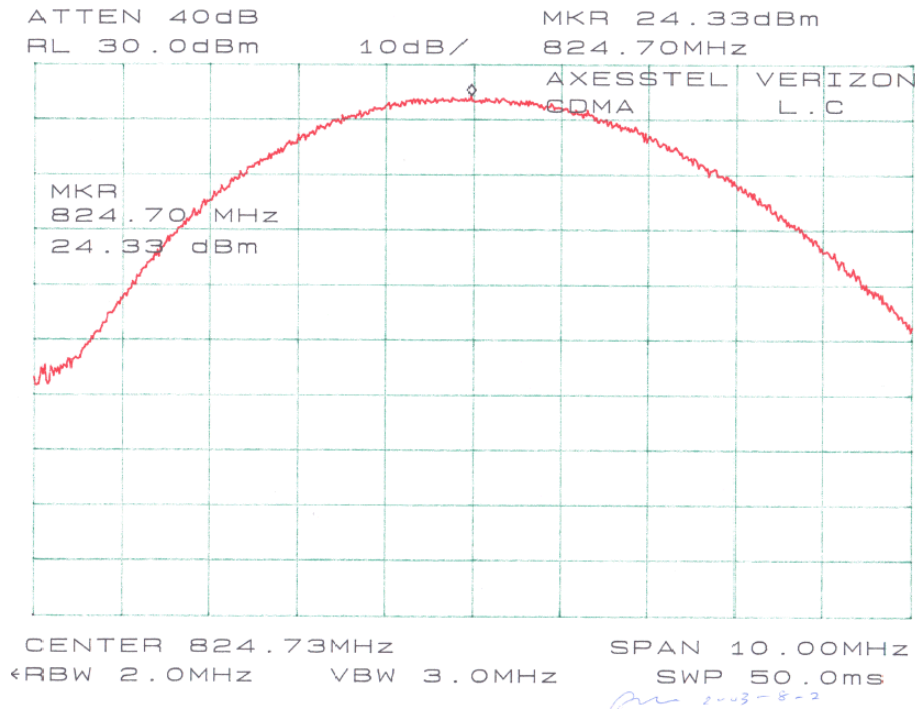
Hewlett Packard HP 7470A Plotter, Calibration not required.

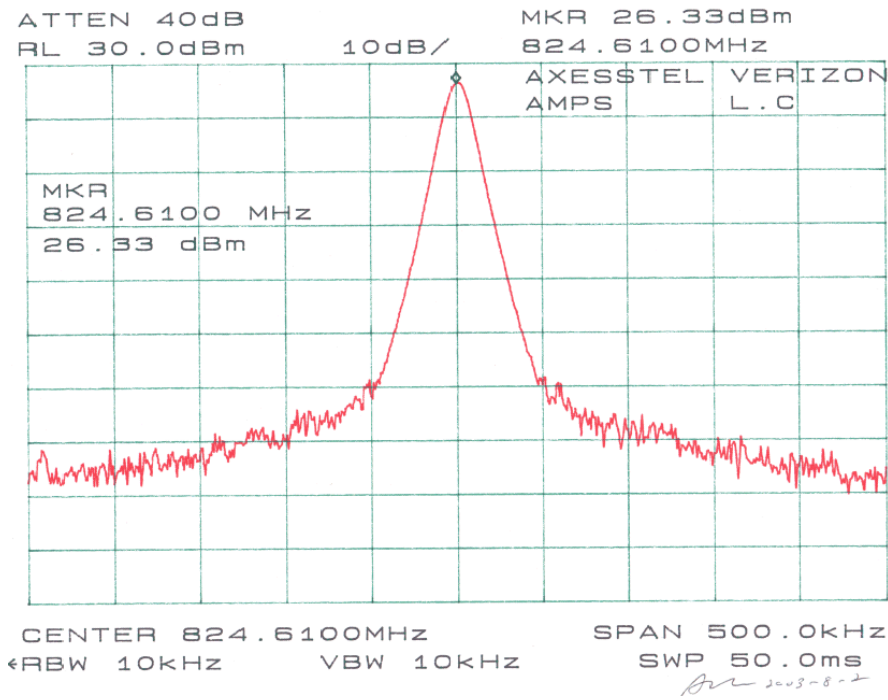
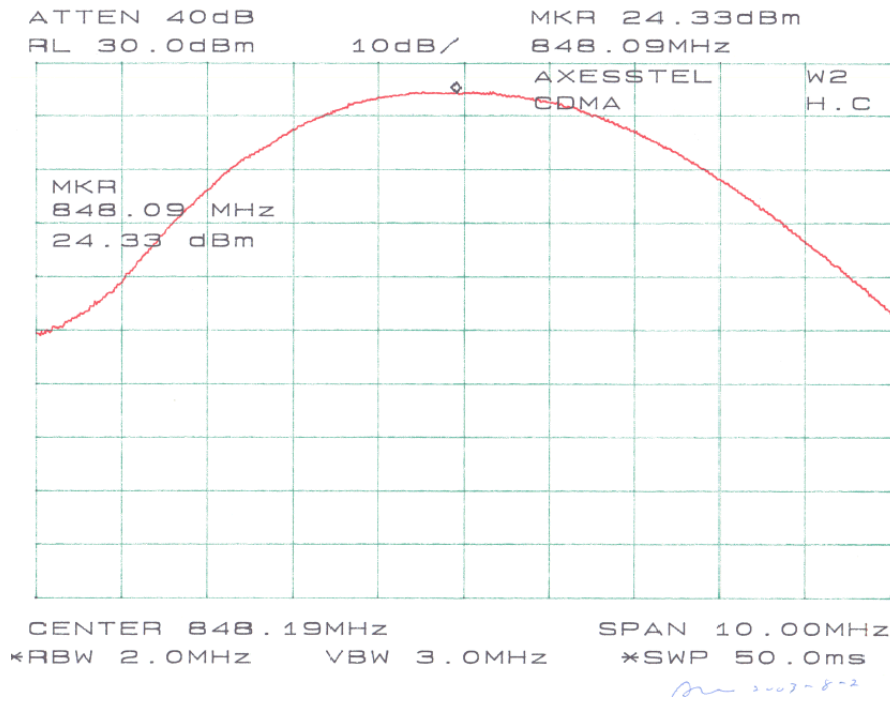
A.H. Systems SAS200 Horn Antenna, Calibration Due Date: 2004-05-31

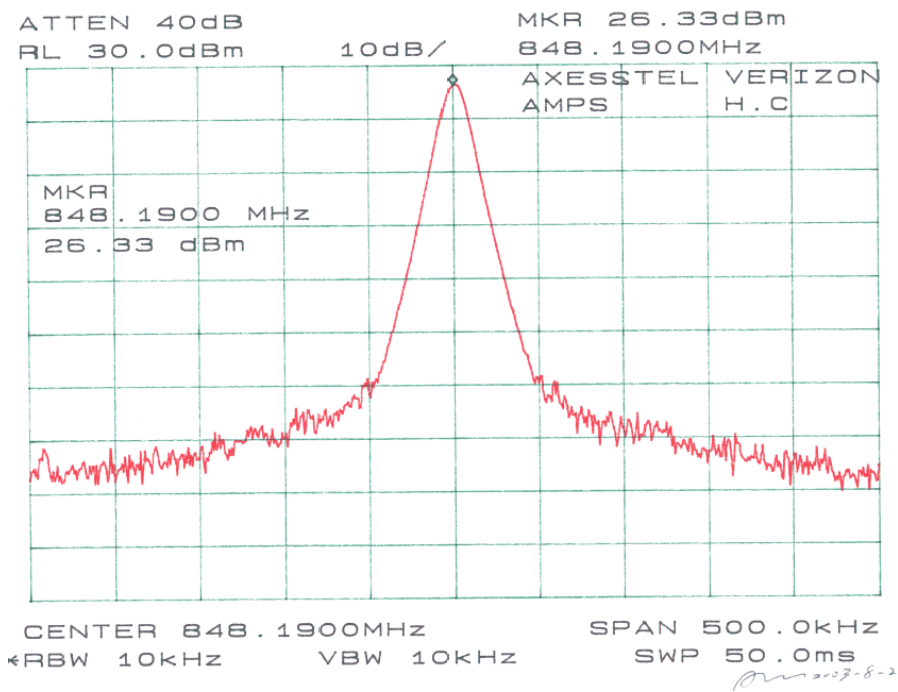
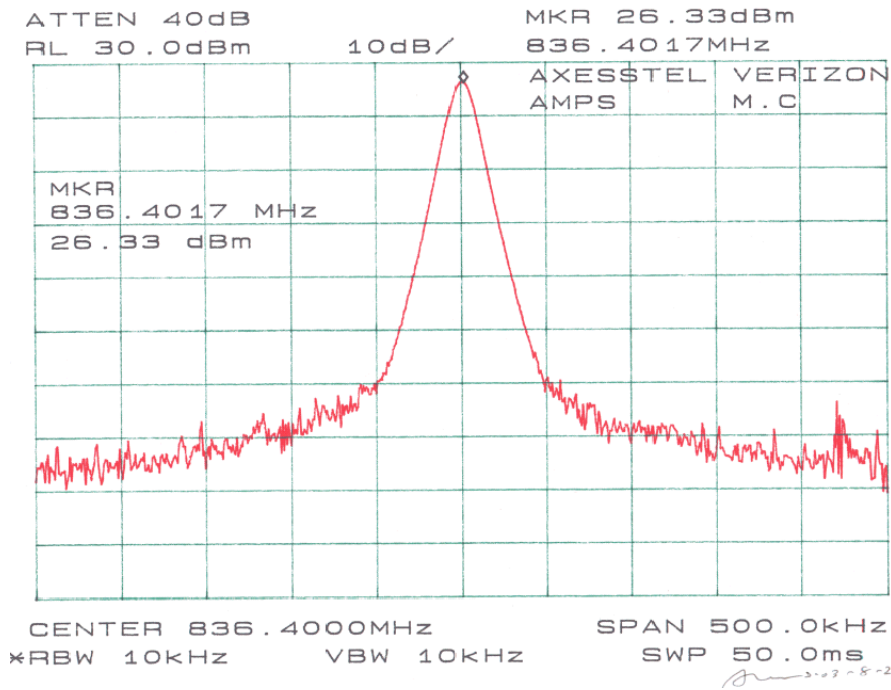
Com-Power AB-100 Dipole Antenna, Calibration Due Date: 2003-09-05

4.4 Test Results

Modulation Type	Channel	Output Power in dBm	Output Power in W	Limit (W)	
PMS	CDMA	Low	24.33	0.27	7
		Middle	24.50	0.28	7
		High	24.33	0.27	7
	AMPS	Low	26.33	0.43	7
		Middle	26.33	0.43	7
		High	26.33	0.43	7
PCS-CDMA	Low	24.33	0.27	2	
	Middle	24.50	0.28	2	
	High	24.33	0.27	2	







5 - OCCUPIED BANDWIDTH

5.1 Applicable Standard

Requirements: CFR 47, Section 2.1049, Section 22.905, and Section 22.911. All channels have a bandwidth of 40kHz and are designed by their center frequencies in MegaHertz.

According to FCC §2.1049 and §24.238 (b), the emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26dB below the transmitter power.

5.2 Test Procedure

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

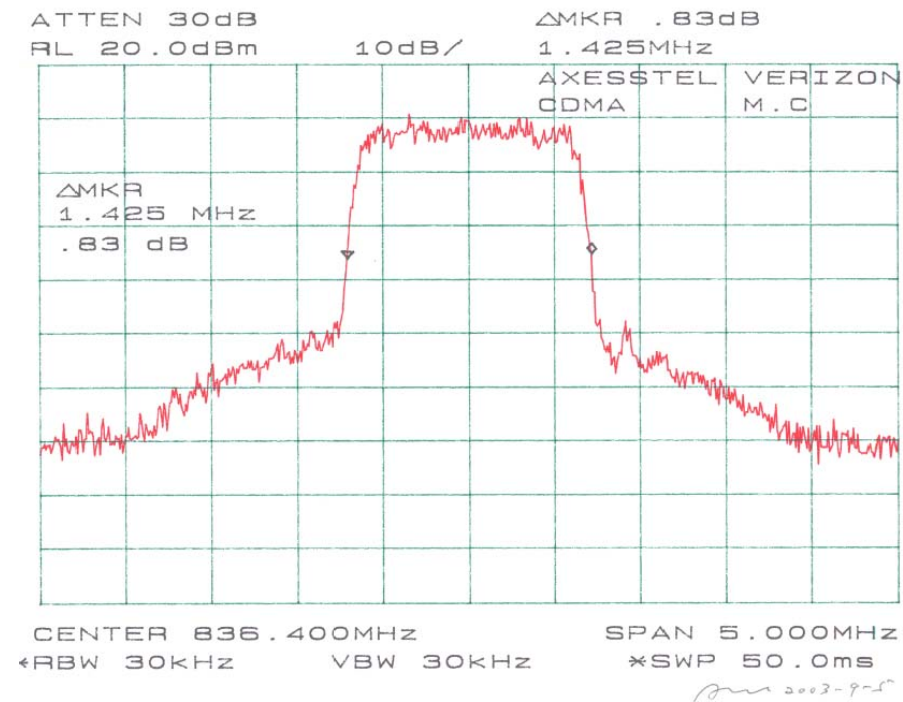
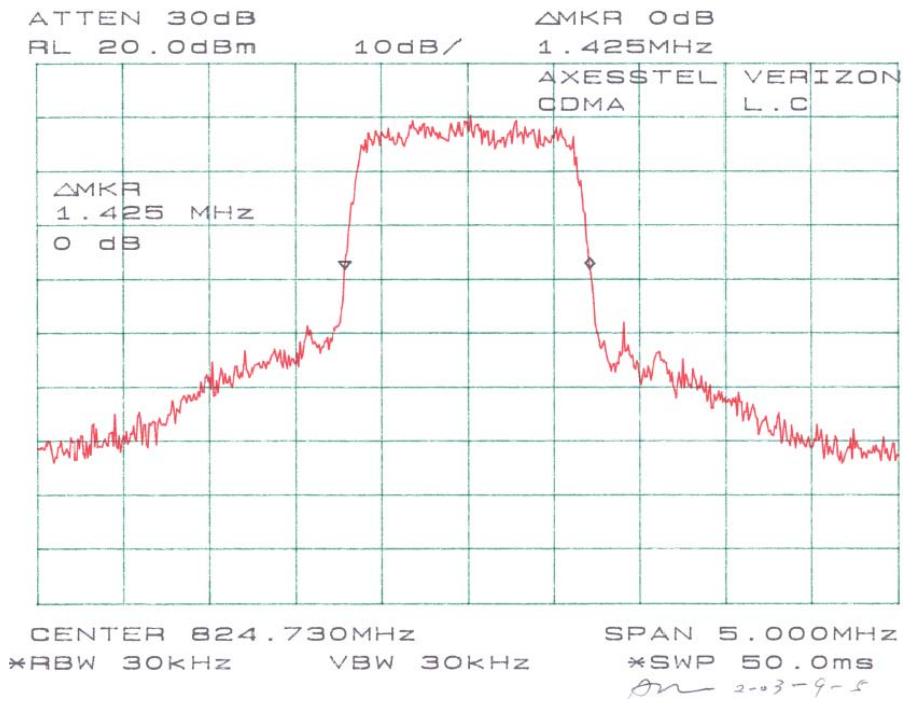
The resolution bandwidth of the spectrum analyzer was set at 30 KHz and the spectrum was recorded.

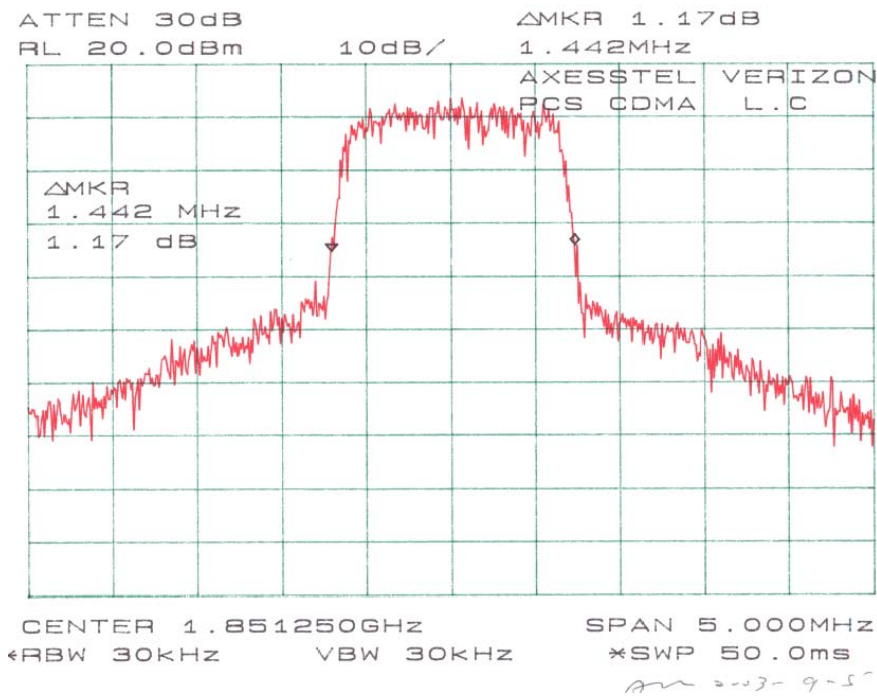
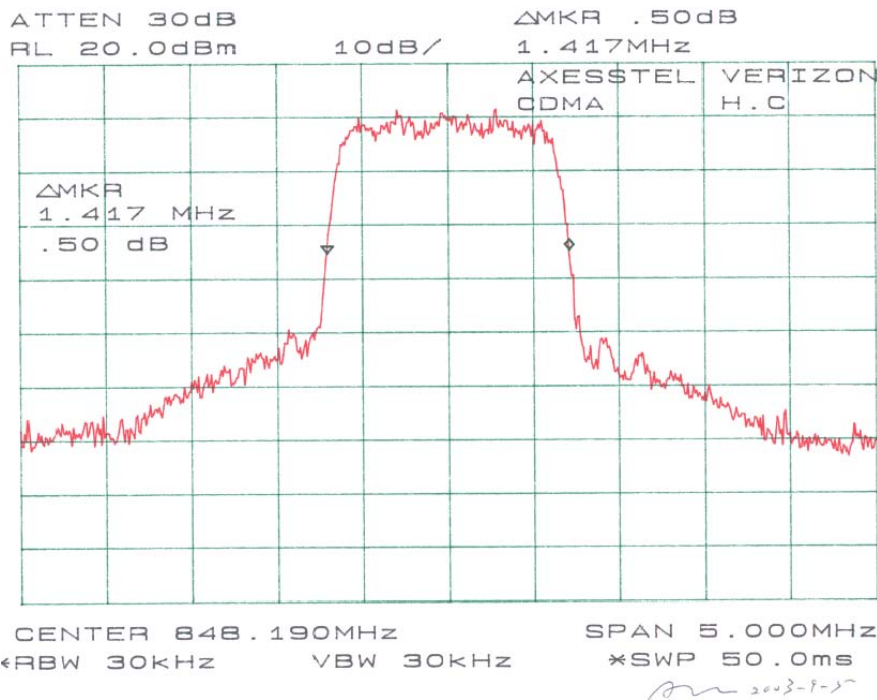
5.3 Test Equipment

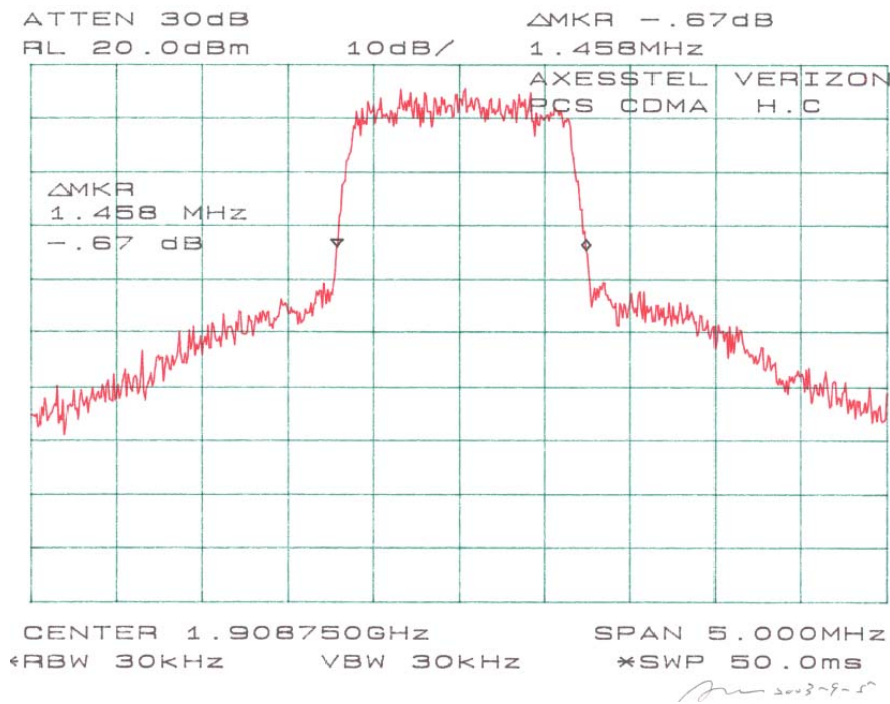
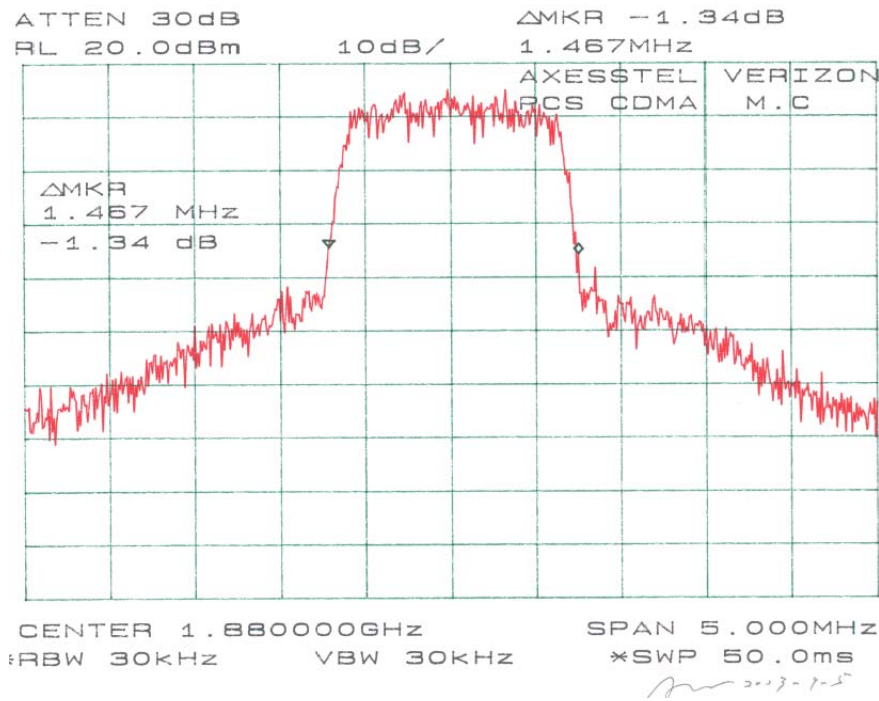
Hewlett Packard HP8566B Spectrum Analyzer
Hewlett Packard HP 7470A Plotter

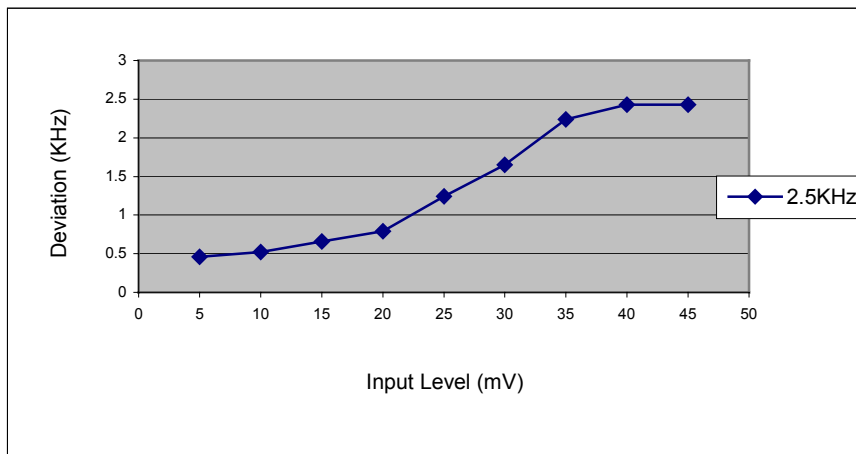
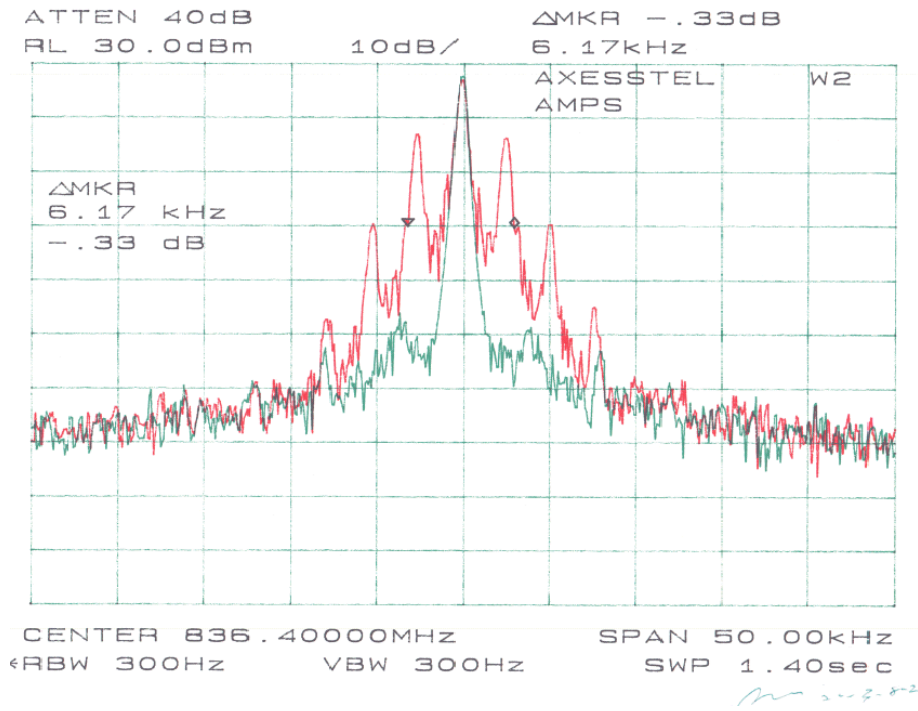
5.4 Test Results

Please refer to the hereinafter plots.









Plots of 99% Occupied Bandwidth

