

**FCC PART 24 TYPE APPROVAL
EMI MEASUREMENT AND TEST REPORT
FOR
CELLULAR SPECIALTIES, INC.**

670 N. Commercial St.
Manchester NH 03101

FCC ID: NVRCSI110-02

February 4, 2000

This Report Concerns: <input checked="" type="checkbox"/> Original Report	Equipment Type: Amplifier
Test Engineer: John Chan	
Test Date: January 24, 2000	
Reviewed By: John Y. Chan – Engineering Manager	
Prepared By: Bay Area Compliance Laboratory Corporation 230 Commercial Street, Suite 2 Sunnyvale, CA 94086 (408) 732-9162	

Note: This report 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 OBJECTIVE 3
- 1.3 RELATED SUBMITTAL(S)/GRANT(S) 3
- 1.4 TEST METHODOLOGY..... 3
- 1.5 TEST FACILITY 4
- 1.6 TEST EQUIPMENT LIST 4
- 1.7 EQUIPMENT UNDER TEST (EUT)..... 5
- 1.8 SUPPORT EQUIPMENT 5
- 1.9 EUT CONFIGURATION DETAILS AND LIST 5
- 1.10 EXTERNAL I/O CABLING..... 5

2 - SYSTEM TEST CONFIGURATION..... 6

- 2.1 JUSTIFICATION 6
- 2.2 BLOCK DIAGRAM 6
- 2.3 TEST SETUP BLOCK DIAGRAM 7
- 2.4 EQUIPMENT MODIFICATIONS 8

7 – EUT PHOTOGRAPHS 9

- 7.1 EUT: FRONT VIEW 9
- 7.2 EUT: REAR VIEW 10
- 7.3 AC-DC POWER ADAPTER FRONT VIEW..... 11
- 7.4 AC-DC POWER ADAPTER REAR VIEW 12

APPENDIX A – AGENCY AUTHORIZATION LETTER..... 13

1 - GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

The *Cellular Specialties, Inc.*, FCC ID *NVRCSI110-02 (AMPLIFIER)* or the "EUT" as referred to in this report is a device using in enclosed structures where sufficient signal from local cell sites to operate cell phones was unavailable within the building. The device is connected to an external antenna, usually on the roof, and to one or more internal antennas placed strategically throughout the area where phone service is desired. The EUT measures 4.0" L x 3.5" W x 1.0" H.

1.2 Objective

This type approval report is prepared on behalf of *Cellular Specialties, Inc.* 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, 20 dB bandwidth, occupied bandwidth, spurious emission at antenna terminal, two-tone test, conducted and radiated margin.

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 sites 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 sites 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.

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
Cellular Specialties, Inc.	Amplifier	110 PCS	None	NVRCSI110-02

1.8 Support Equipment

Manufacturer	Description	Model	Serial Number	FCC ID
Rohde & Schwarz	Signal Generator	SMIQ03B	1125.5555.03	Doc
Rohde & Schwarz	I/Q Modulation Generator	AMIQ	1110.2003.02	Doc

1.9 EUT Configuration Details and List

NOT APPLICABLE

1.10 External I/O Cabling

Cable Description	Length (M)	Port/From	To
Shielded BNC Cable	2.0	Rohde & Schwarz	EUT

2 - SYSTEM TEST CONFIGURATION

2.1 Justification

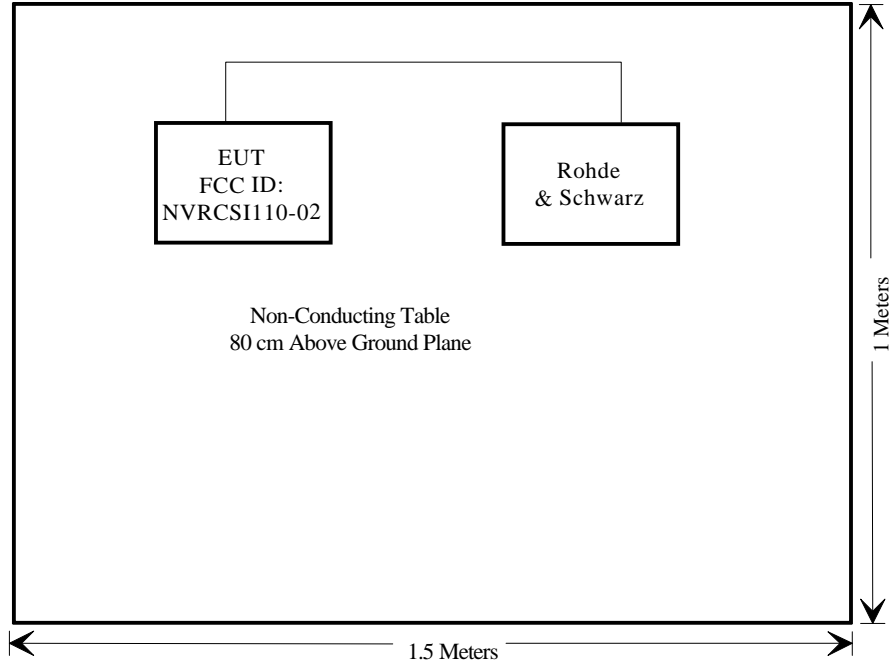
The EUT was configured for testing in a typical fashion (as normally used in a typical application).

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

2.2 Block Diagram

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

2.3 Test Setup Block Diagram



2.4 Equipment Modifications

No modifications were necessary for the EUT to comply.

7 – EUT PHOTOGRAPHS

7.1 EUT: Front View



7.2 EUT: Rear View



7.3 AC-DC Power Adapter Front View



7.4 AC-DC Power Adapter Rear View



Appendix A – AGENCY AUTHORIZATION LETTER



Cellular Specialties 670 N. Commercial St. Manchester NH 03101
Ph: 603-626-6677 Fax: 603-626-6042

17 January 2000

FEDERAL COMMUNICATIONS COMMISSIONS
Authorization and Evaluation Division
7435 Oakland Mills Road
Columbia, MD 21046

Subject: Agent Authorization

To whom it may concern:

Cellular Specialties, Inc. hereby authorizes Bay Area Compliance Laboratory Corporation to act on its behalf in all matters relating to application for equipment authorization, including the signing of all documents relating to these matters. All acts carried out by Bay Area Compliance Laboratory Corporation on our behalf shall have the same effect as our own action.

Sincerely,

A handwritten signature in cursive script, appearing to read "Fred Goodrich".

Fred Goodrich, President
Cellular Specialties, Inc.