CFR 47 Part 2, 22, and 24 Test Report

Test Report Number: 02-RF-0020.001 Amendment A

Terminal device: FCC ID: GMLNPM-8, Model 3590, HW: 4.0, SW: 4.0
(Detailed information is listed in section 4 of the original test report).

Originator:	Randy Leenerts
Function:	TCC - Dallas - EMC
Version/Status:	1.0 Approved
Location:	TCC Directories
Date:	March 26, 2002

Change History:

Version	*Date*	*Status*	*Handled By*	*Comments*
0.1	March 25, 2002	Draft	Randy Leenerts	In Process
0.2	March 25, 2002	Draft	Elizabeth Parish	Updated
0.3	March 26, 2002	Proposal	Elizabeth Parish	Submit for Review
1.0	March 26, 2002	Approved	Alan Ewing	Approved

Testing laboratory:
Test & Certification Center (TCC) Dallas
Nokia Mobile Phones, Inc
6021 Connection Drive
Irving, Texas 75039
U.S.A.
Tel. 972-894-5000
Fax. 972-894-4988

Client:
Nokia Mobile Phones, Inc.
Model 3590, FCC ID: GMLNPM-8
6021 Connection Drive
Irving, Texas 75039
U.S.A.
Tel. 972-894-5000
Fax. 972-894-4988

Date and signatures: **March 26, 2002**

For the contents:

Randy Leenerts

Randy Leenerts, EMC Engineer
Technical Review

(Deputy)

Alan C. Ewing, General Manager
Manager Review

TABLE OF CONTENTS

1. GENERAL

1.1 Quality System

The quality system in place for TCC-Dallas conforms to ISO/IEC 17025 and has been audited to the standard by A2LA (American Association of Laboratory Accreditation). The appendix of the original report contains the scope of accreditation for A2LA. TCC – Dallas has also been audited using the ISO 9000 Quality System, as part of Nokia Mobile Phones, Inc., by ABS (American Bureau of Shipping) Quality Evaluations Inc.

TCC-Dallas is a recognized laboratory with the Federal Communications Commission in filing applications for Certification under Parts 15 and 18, Registration Number 100060, and Industry Canada, Registration Number IC 661.

1.2 List of General Information Required for Certification

This list is in accordance with FCC Rules and Regulations, CFR 47, Part 2, and to 22H, 24E, Confidentiality.

1.2.1 Sub-part 2.1033(c)(4)

Type of Emission: 256KGXW

1.2.2 Sub-part 2.1033(c)(6)

Power Rating, Watts: 1.5w EDRP Cellular GSM
1.1w EIRP PCS GSM

☐ Switchable ☒ Variable ☐ N/A

FCC Grant Note: BC- The output power is continuously variable from the value listed in this entry to 5%-10% of the value listed.

1.2.3 Sub-part 2.1033(c)(7)

Maximum Power Rating, Watts: 1.5w

1.3 Objective

The objective of this test report amendment is to supplement or amend information provided in the original test report, Test Report No. 02-RF-0020.001.

The following information is comments/questions from American Telecommunications Certification Body, Inc. (ATCB) and responses to those comments/questions.

1.) Please remember to always provide an FRN on each Application.

The FRN is 0004-2963-23. This question is always the 1st question on the FCC Website upon completing their 731 Form. We did not see this question on the 731 Form provided by ATCB, therefore we missed providing this information.

2.) Please provide further details on the RF Power Radiated test. It appears that simple measurements of field strength mathematically converted to EDRP or EIRP were performed. Please note the FCC currently accepts only the antenna substitution method. It is unclear how your results were obtained.

Amended. Refer to Section 1.2.2, 1.2.3, and Section 6 of this Amendment Report.

3.) FYI: It would be helpful if Conducted RF Pout was available on all three channels in both bands.

Information has been taken into consideration.

4.) Occupied Bandwidth Plots in Section 7 do not show RBW or VBW. In addition, it is unknown how reference levels on these spectrum plots were obtained. Please review.

Amended. Refer to Section 7 of this Amendment Report.

5.) Emissions in Rx Critical Bands do not indicate measurement bandwidths.

Amended. Refer to Section 8 of this Amendment Report.

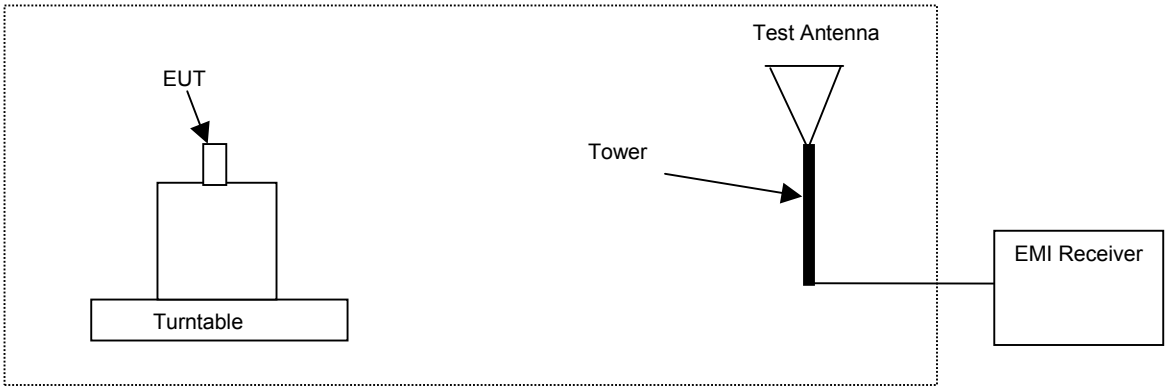
6.) Please provide justification for requested emission designator.

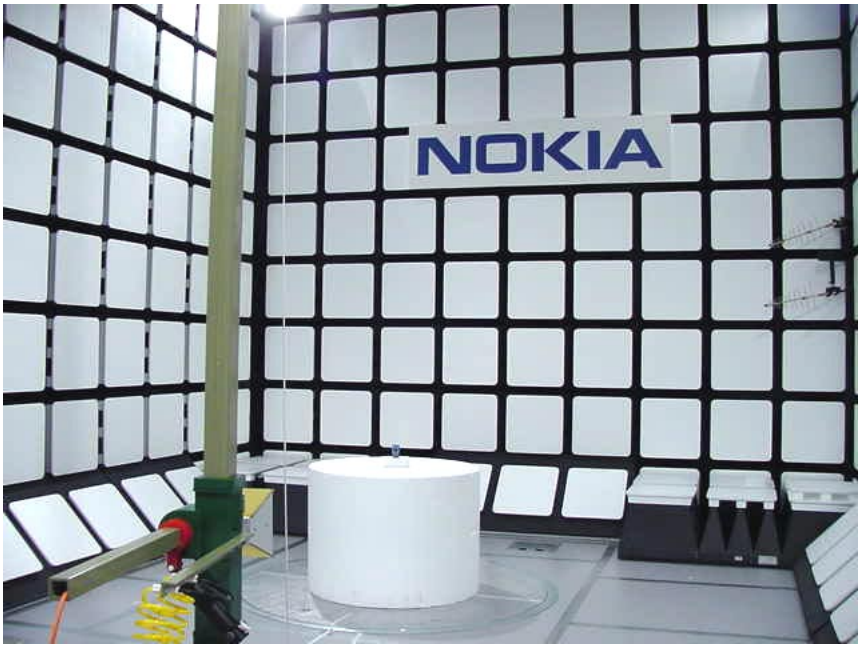
Amended. Refer to Section 1.2.1 and 7 of this Amendment Report.

6. RF POWER OUTPUT (RADIATED)

Specification: FCC Part 22.913(a), 24.232(b)(c)

6.1 Setup





Test method is according to ANSI/TIA/EIA 603A.

6.2 Pass/Fail Criteria

Band	FCC Limit (dBm)
Cellular	38.5 (EDRP)
PCS	33.0 (EIRP)

6.3 Detailed Test Results

Test Technician / Engineer	Michael Sundstrom / Ismail Mohamud	
Date of Measurement	25 March 2002	
Temperature / Humidity	24°C	47%RH
Test Result	Model 3590 with IMEI#001004/50/048146/1 complies with FCC Part 22.913 and Part 24.232	

Cellular Band Test Data

Channel #	EDRP Peak (dBm)
Low Ch#128 824.04MHz	30.1
Mid Ch#190 836.6MHz	31.1
High Ch#251 848.8MHz	31.8

PCS Band Test Data

Channel #	EIRP Peak (dBm)
Low Ch#512 1850.2MHz	28.5
Mid Ch#661 1880MHz	30.3
High Ch#810 1909.8MHz	30.5

6.4 Measurement Uncertainty

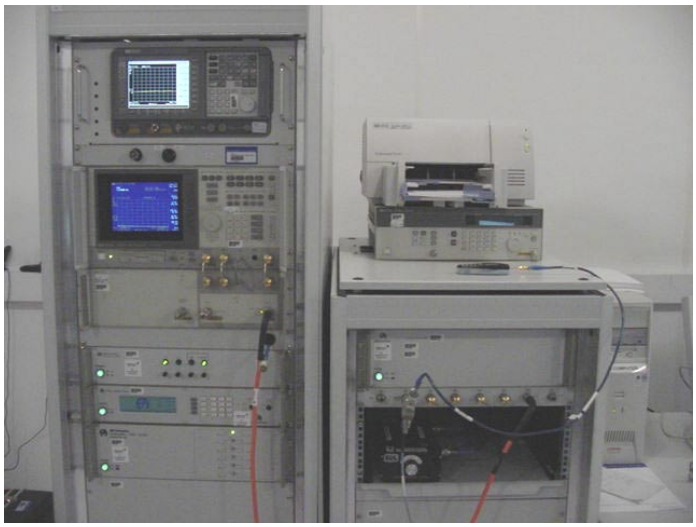
The measurement uncertainty for this test is +/- 2.4dB for 800 to 2000 MHz.

7. OCCUPIED BANDWIDTH (TRANSMITTER CONDUCTED MEASUREMENTS)

Specification: FCC Part 2.1049(c)(1), 24.238(a)(b)

7.1 Setup

Testing was performed with the EUT connected to a 6dB attenuator, 6dB splitter, filter bank and then to the EMI receiver. The base station simulator was connected to the other port of the splitter to establish a call.



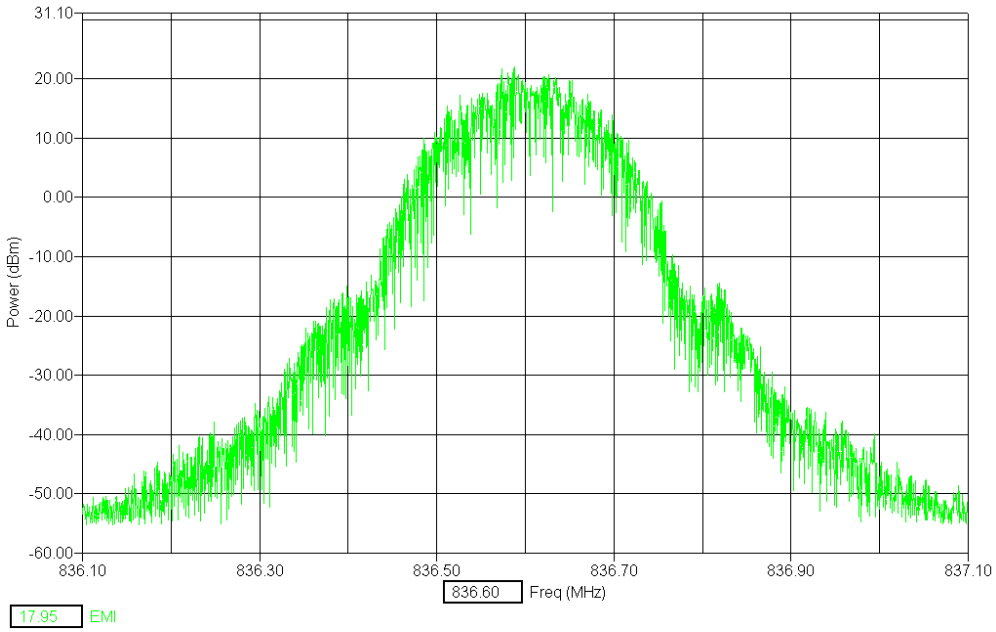
7.2 Pass/Fail Criteria

Band	Frequency Range (MHz)	FCC Limits (dBm)
Cellular 800 Low Channel	< 824	-13
Cellular 800 High Channel	> 849	-13
PCS 1900 Low Channel	< 1850	-13
PCS 1900 High Channel	> 1910	-13

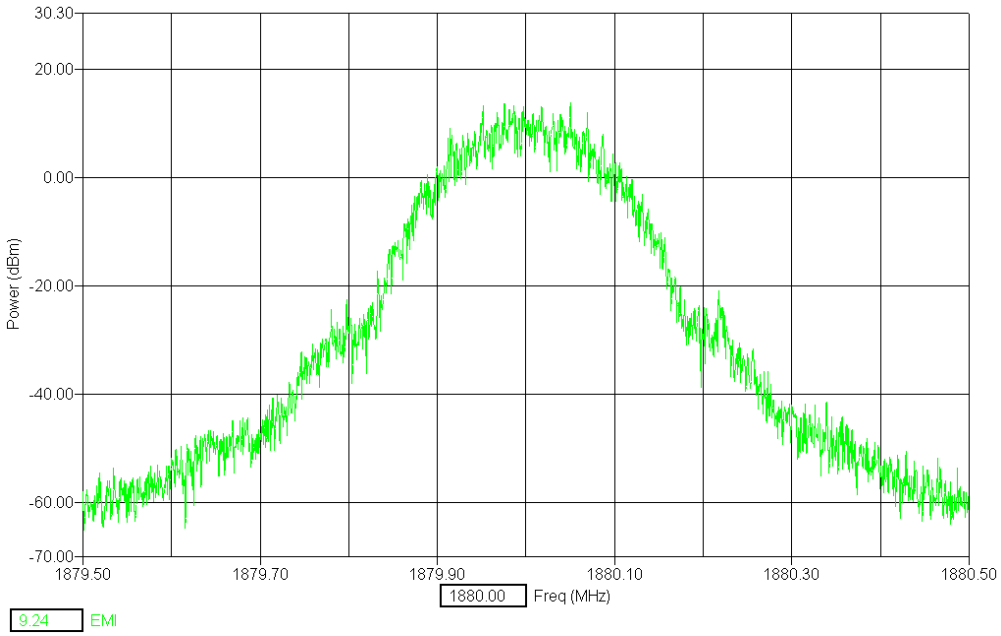
7.3 Detailed Test Results

Test Technician / Engineer	Mark Severson	
Date of Measurement	Jan 29, 2002	
Temperature / Humidity	22°C	52%RH
Test Result	3590 IMEI 001004/50/048149/5 FCC ID: GMLNPM-8 at max power setting, complies with FCC Part 2.1049(c)(1), 24.238(a)(b)	

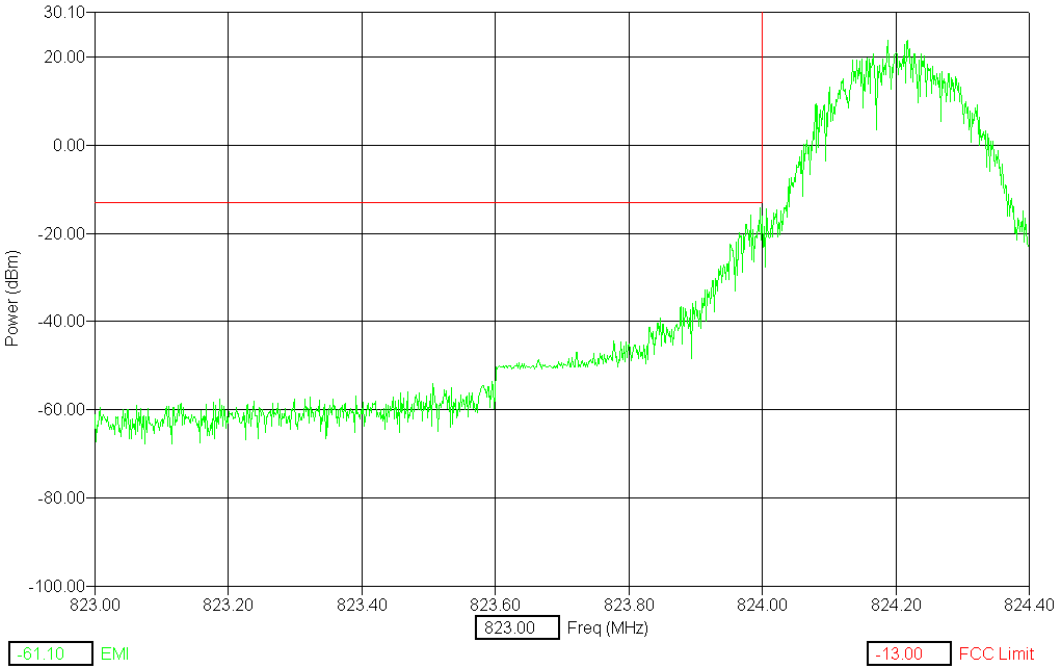
Cellular Band, GSM 800, Channel 190; RBW / VBW = 3kHz

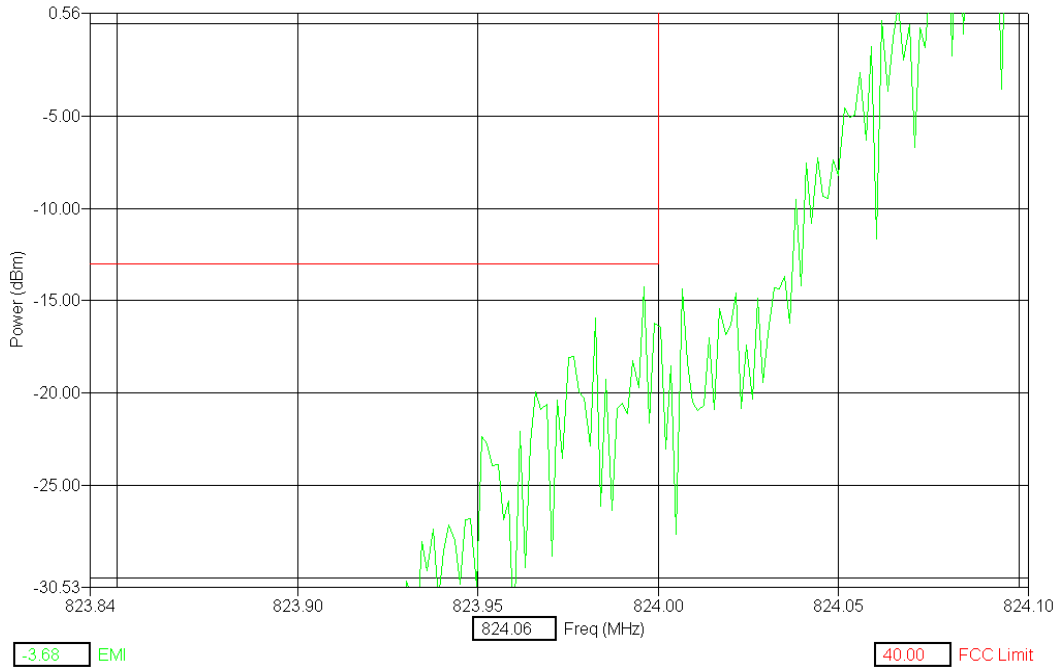


PCS Band, GSM 1900, Channel 661; RBW / VBW = 3kHz

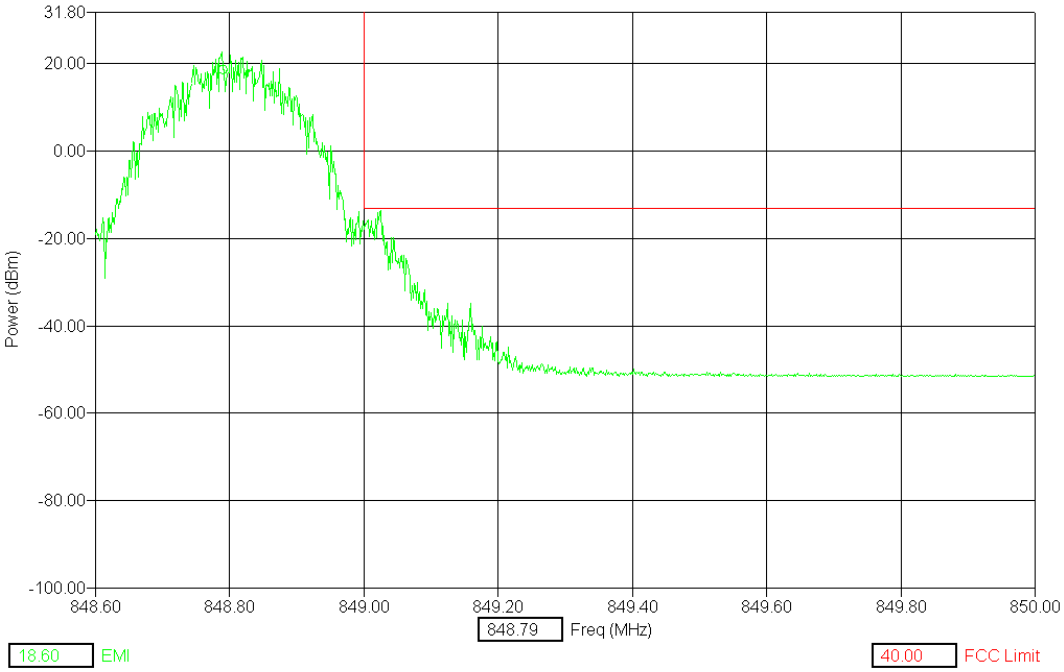


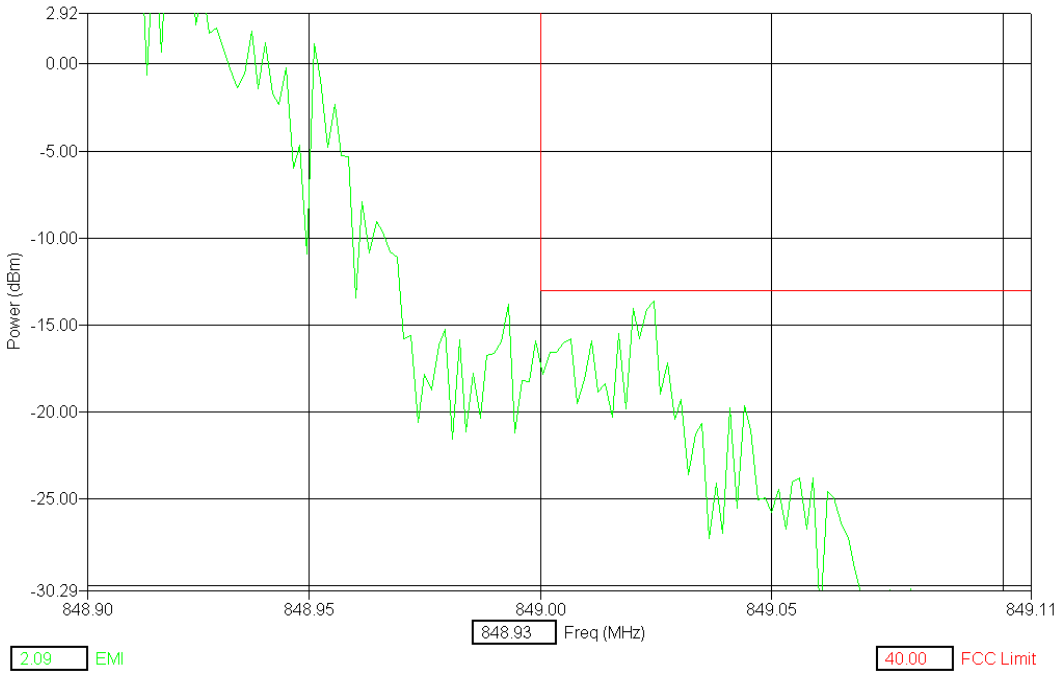
Cellular Band, GSM 800, Channel 128; RBW / VBW = 3kHz



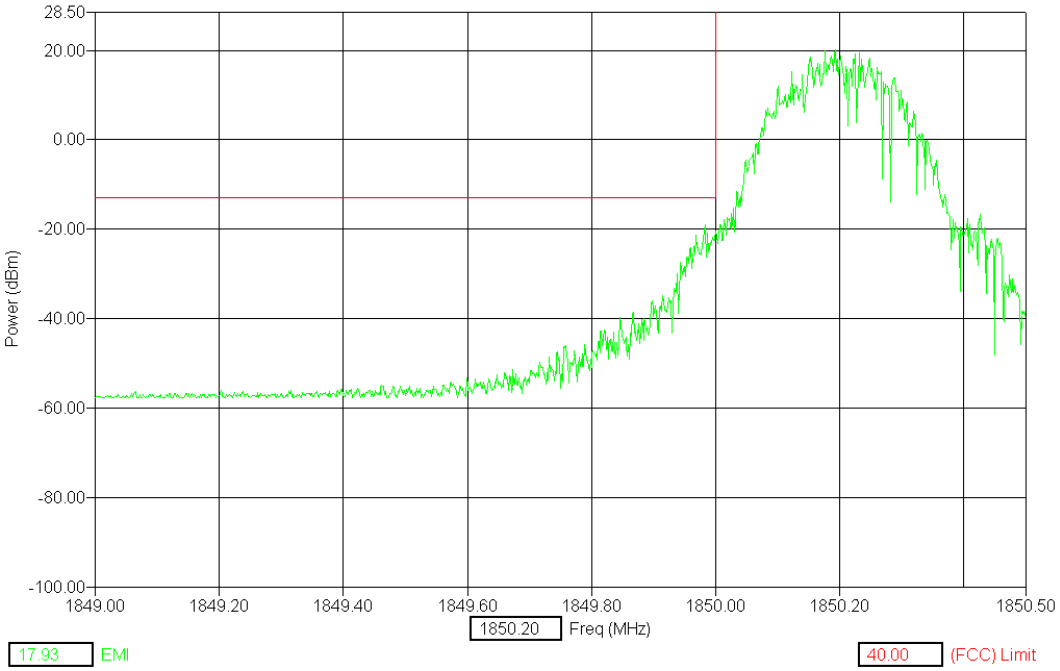


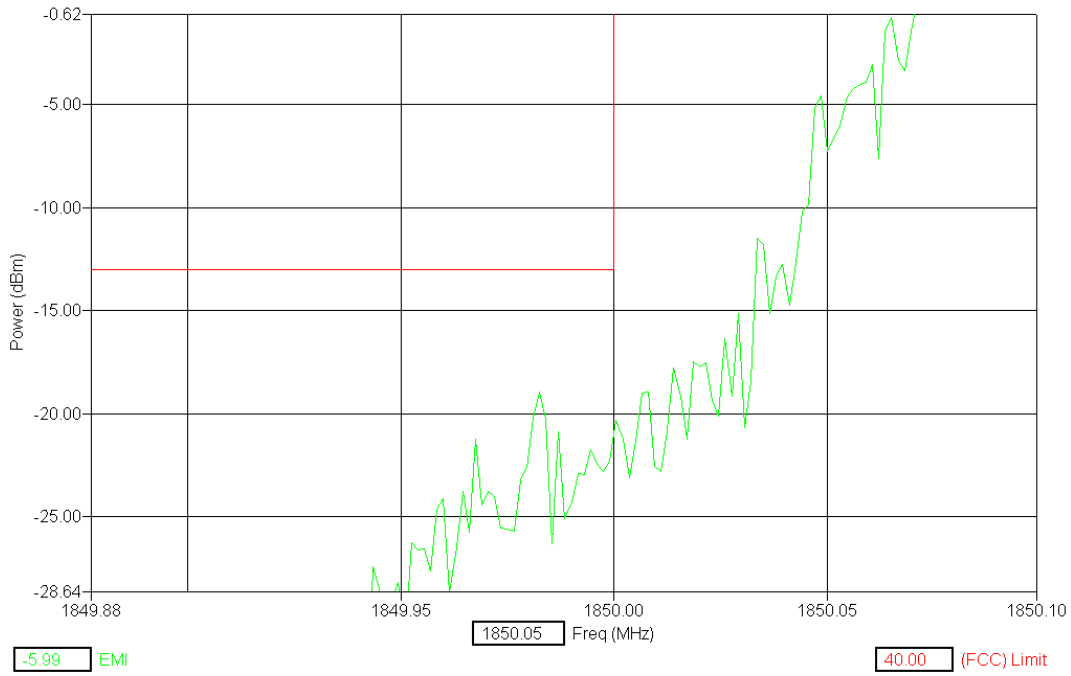
Cellular Band, GSM 800, Channel 251; RBW / VBW = 3kHz



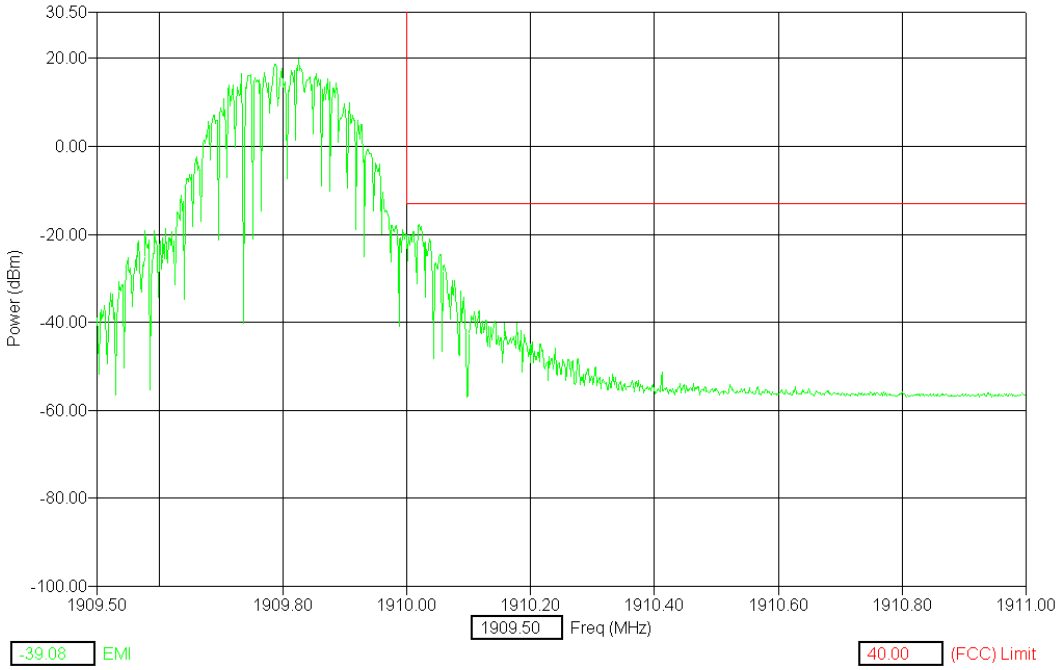


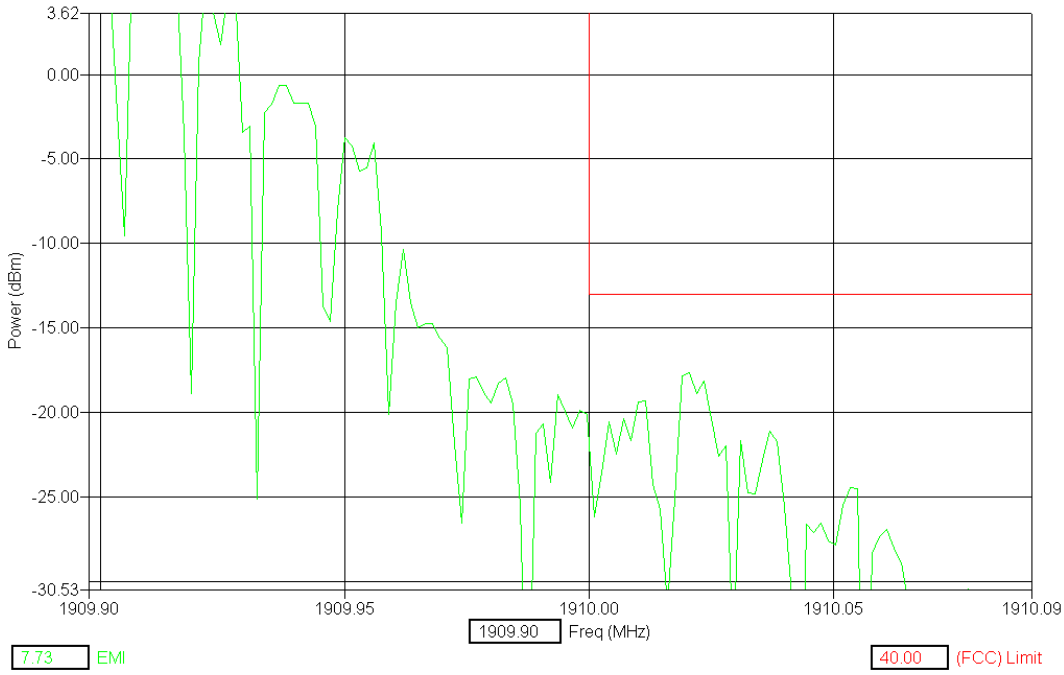
PCS Band, GSM 1900, Channel 512; RBW / VBW = 3kHz





PCS Band. GSM 1900, Channel 810; RBW / VBW = 3kHz





7.4 Measurement Uncertainty

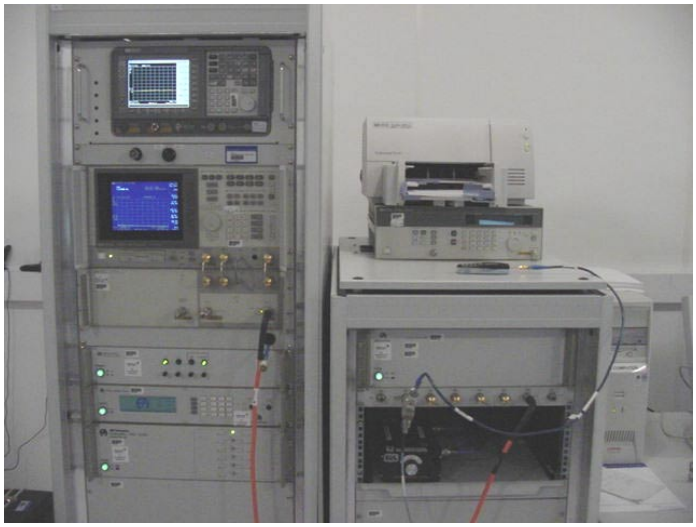
The measurement uncertainty for this test is +/- 3.7dB for 100kHz - 1000MHz and +/- 5.3dB for 1 - 20GHz.

8. EMISSIONS IN RECEIVER CRITICAL BAND

Specification: FCC Part 22.917(f)

8.1 Setup

Testing was performed with the EUT connected to a 6dB attenuator, 6dB splitter, filter bank and then to the EMI receiver. The base station simulator was connected to the other port of the splitter to establish a call. Filters were introduced to reduce or eliminate spurious emission, which could be generated internally in the EMI receiver.



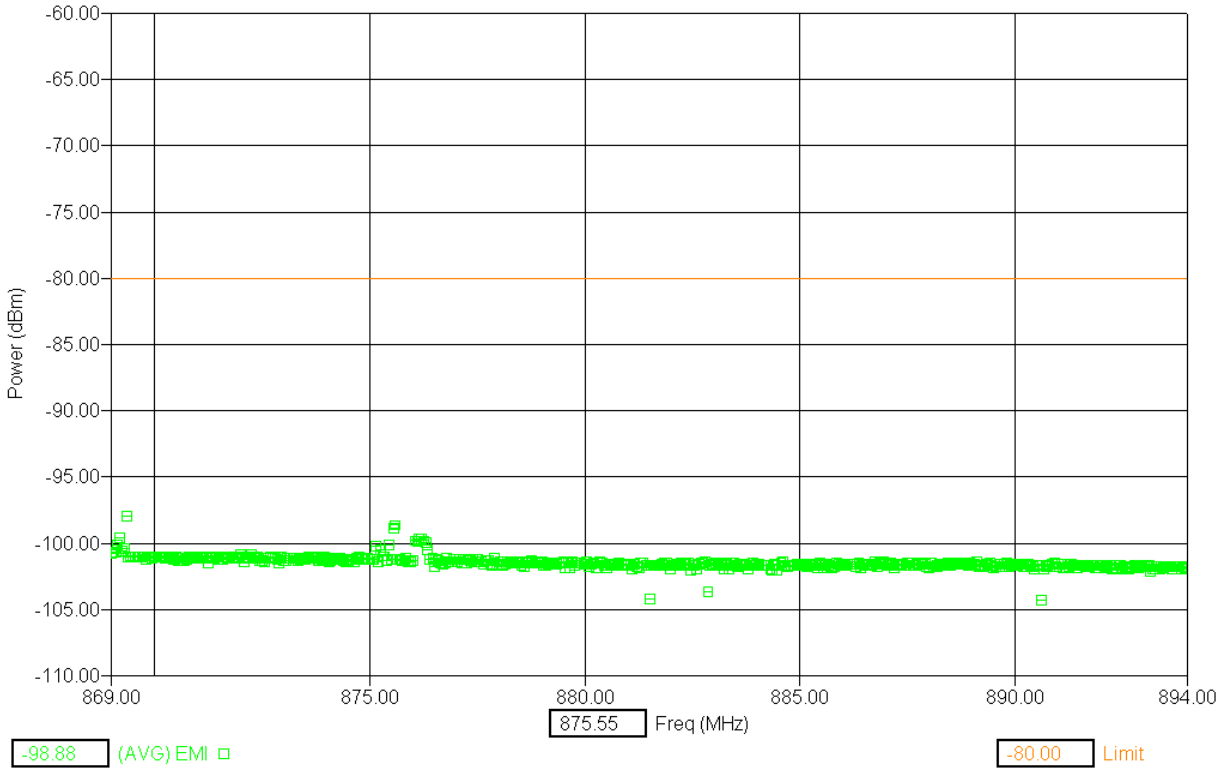
8.2 Pass/Fail Criteria

Band	Frequency Range (MHz)	FCC Limits (dBm)
Cellular	869 - 894	-80

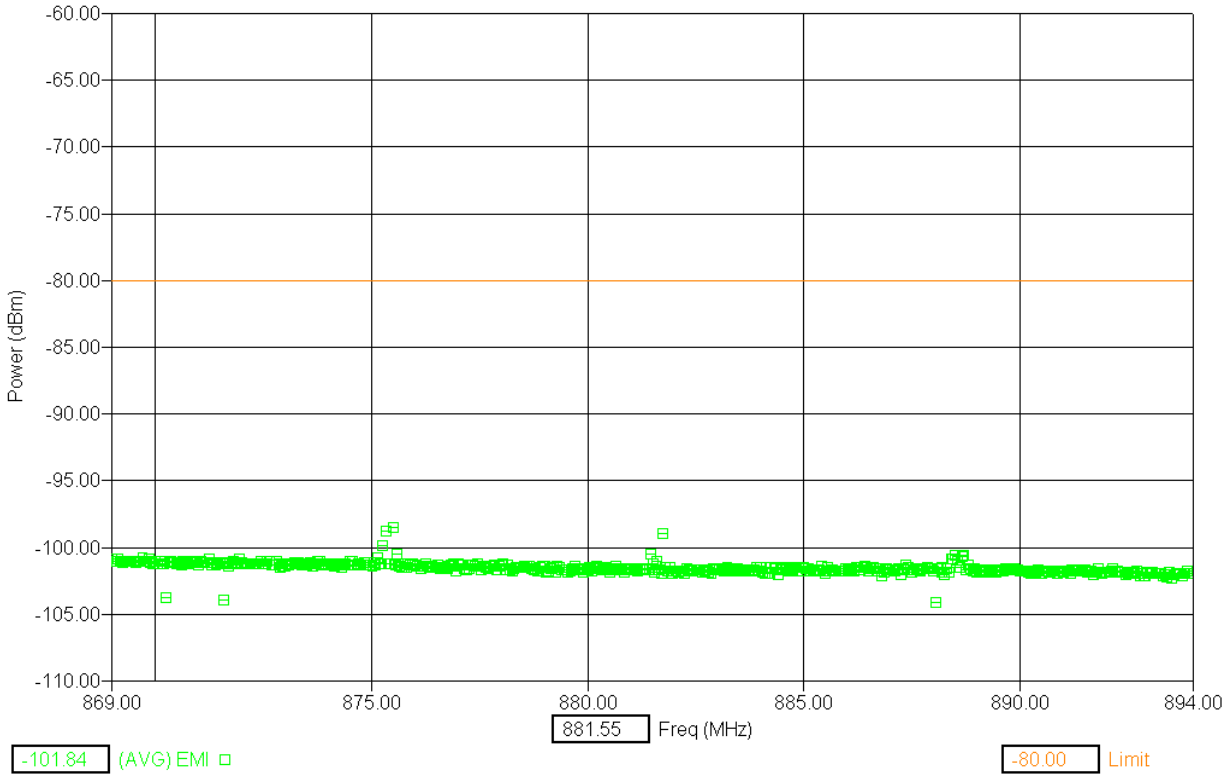
8.3 Detailed Test Results

Test Technician / Engineer	Mark Severson	
Date of Measurement	Jan 29, 2002	
Temperature / Humidity	22 °C	52%RH
Test Result	3590 IMEI 001004/50/048149/5 FCC ID: GMLNPM-8 at max power setting, complies with FCC Part 22.917(f)	

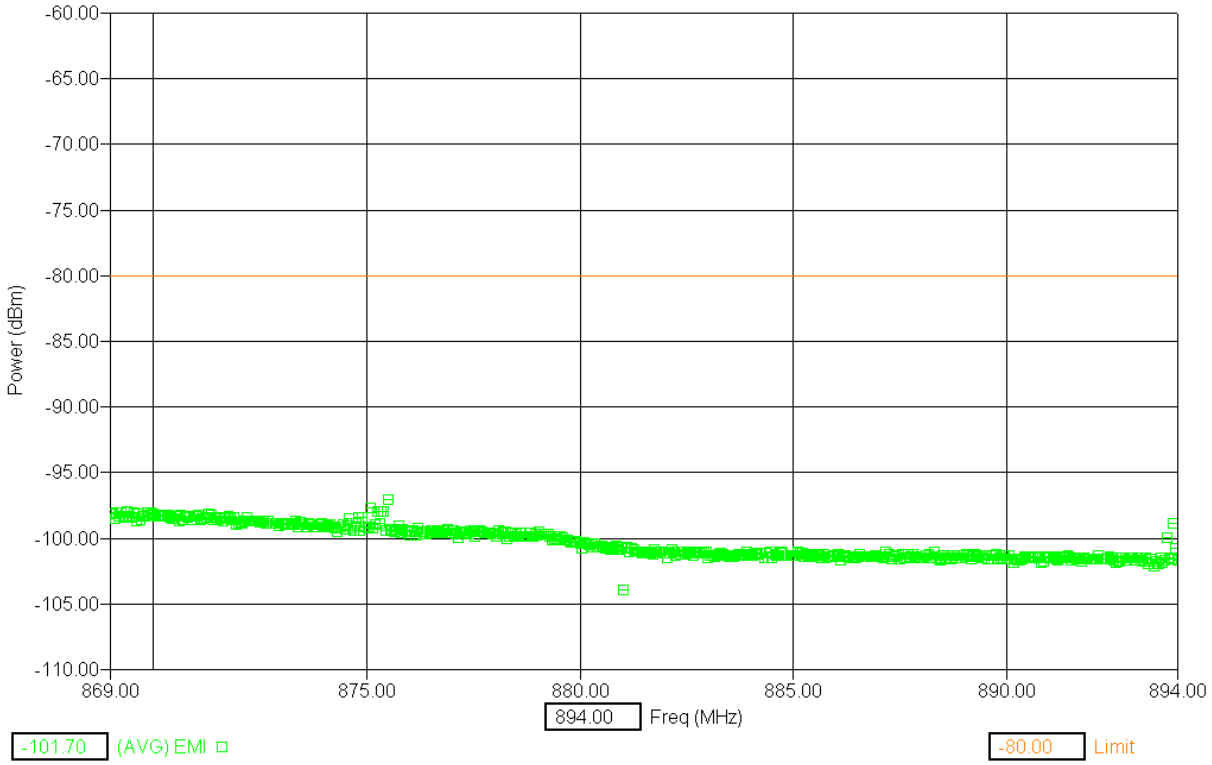
Cellular Band, GSM 800, Channel 128; RBW / VBW = 30kHz



Cellular Band, GSM 800, Channel 190; RBW / VBW = 30kHz



Cellular Band, GSM 800, Channel 251; RBW / VBW = 30kHz



8.4 Measurement Uncertainty

The measurement uncertainty for this test is +/- 3.7dB for 100kHz - 1000MHz.