U.S. TECH

A TRADITION IN TESTING SERVICES

FCC Part 24, Certification Application
of the
Connexcel
Model: Amoi A90 Cell Phone

Issue Date: December 4, 2003
UST Project No.: 03-0321

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SECTION 1

GENERAL INFORMATION

GENERAL INFORMATION

1.1 Product Description

The Equipment Under Test is the Connexcel Amoi A90 Cell Phone. The Amoi A90 Cell Phone operates in the 1850.2 – 1909.8 MHz range. It has two modes of operation: PCS GSM(Voice) and PCS GPRS(Data). The EUT incorporates a stubby antenna, operates from a clam shell configuration, and is provided with an earplug/mike cable and 2 Ni mH battery types one for extended service (950 mAh) and one for normal use (550 mAh). The EUT contains two screen displays. The internal display has a resolution of 128 x 160. The external screen has a resolution of 80 x 48.

The EUT has a 500 phone number memory and contains 40 polyphonic ring tones. Additional Ringtones are downloadable from the carrier. The EUT provides 10 tool menus, and 5 amusement menus, each with various functions.

Accessories available include buttons, travel charger and desktop charger. .

For the purpose of this test the EUT was placed at high, middle, and low channel on a constant TX mode of operation.

1.2 Related Submittal(s)/Grant(s)

The EUT is subject to the following authorizations:

a) Certification as a transceiver as specified by Part 24.

The information contained in this report is presented for the Part 24 Certification authorization(s) for the EUT.

SECTION 2

TEST AND MEASUREMENTS

TEST AND MEASUREMENTS

2.1 Configuration of Tested System

Prepared in accordance with the requirements of the FCC Rules and Regulations Part 2 & 24. All measurements are peak unless stated otherwise. The video filter associated with the spectrum analyzer was off throughout the evaluation process. Interconnecting cables were manipulated as necessary to maximize emissions. A block diagram of the tested system is shown in Figure 1. Test configuration photographs for spurious emissions are shown in Figure 2.

The sample used for testing was received by U.S. Technologies on October 2, 2003 in good condition.

2.2 Test Facility

Testing was performed at US Tech's measurement facility at 3505 Francis Circle, Alpharetta, GA.This site has been fully described and registered by the FCC under Registration Number 91037. Additionally, this site has also been fully described and submitted to Industry Canada (IC), and has been approved under file IC2982.

2.3 Test Equipment

Table 2 describes test equipment used to evaluate this product.

2.4 Modifications

No modifications were made by US Tech to bring the EUT into compliance with FCC Part 24 limits for the transmitter portion of the EUT.

FIGURE 1

TEST CONFIGURATION

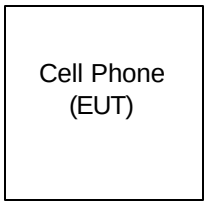


FIGURE 2a

Photographs for Spurious Emissions EUT Standing

FIGURE 2b

Photographs for Spurious Emissions EUT standing (Cont.)

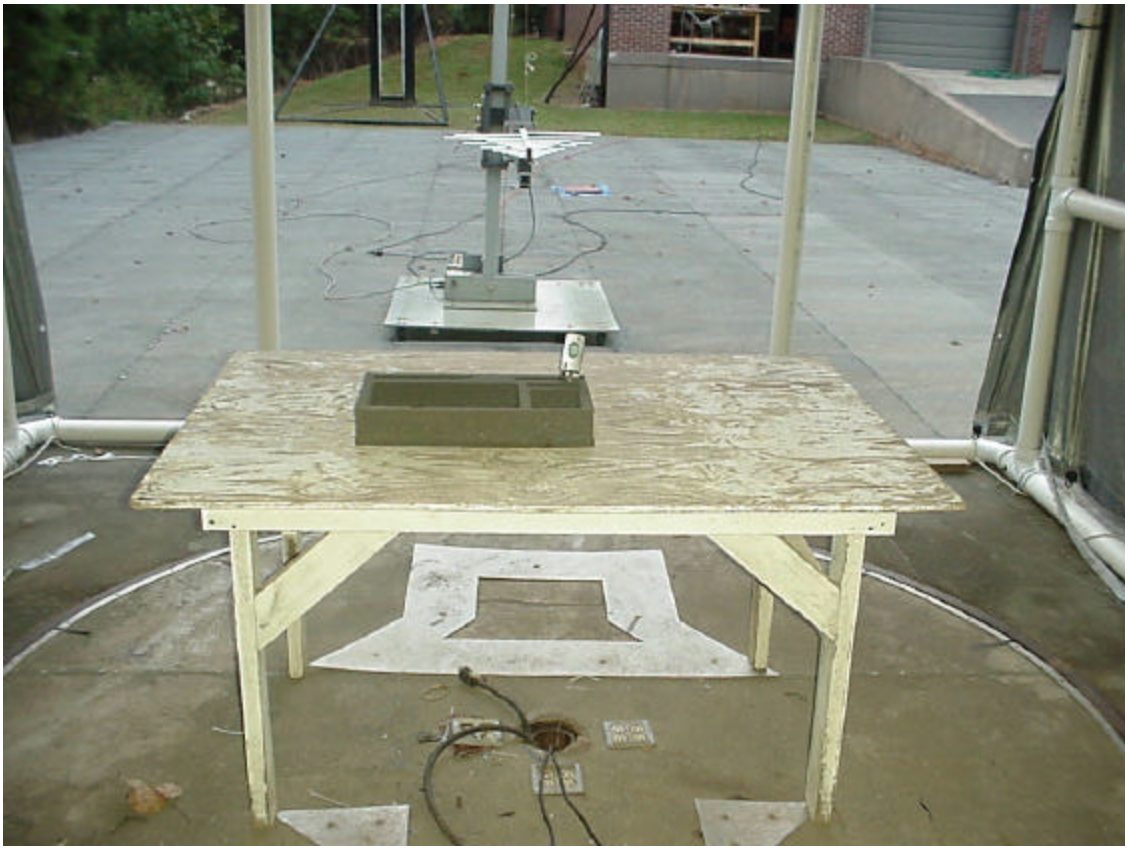


FIGURE 2c

Photographs for Spurious Emissions EUT Lying Down

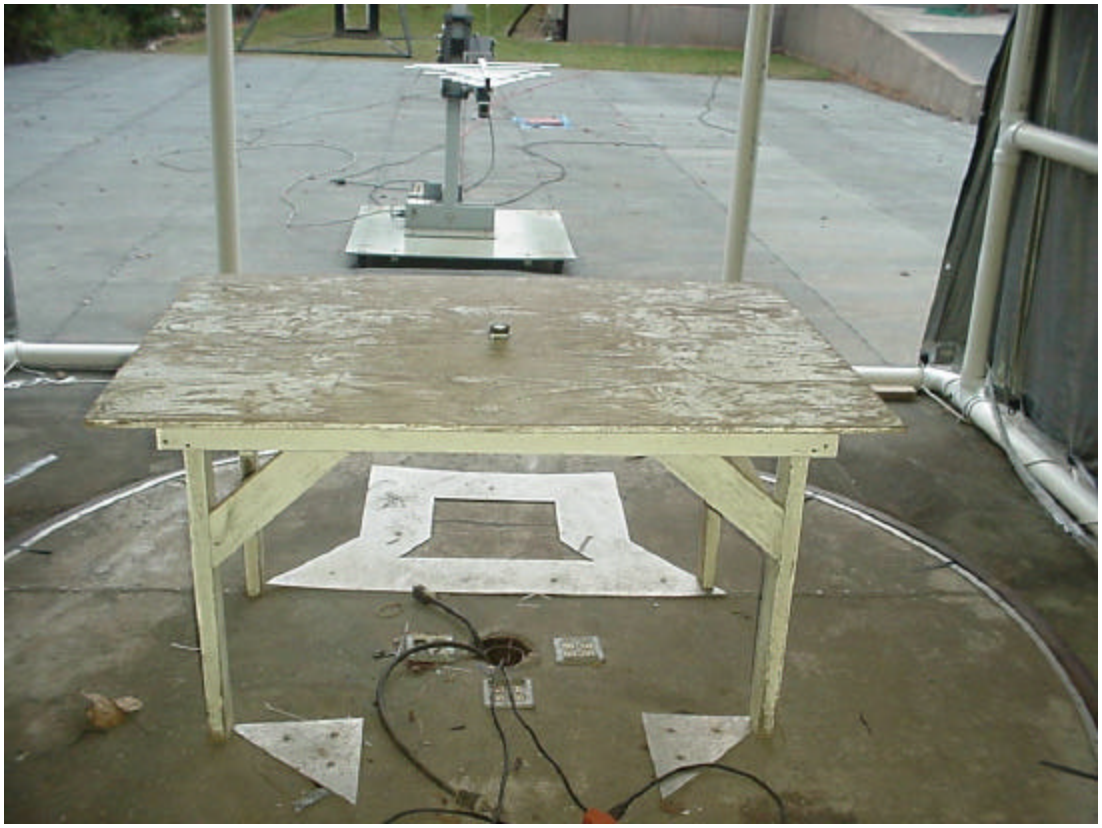


FIGURE 2d

Photographs for Spurious Emissions EUT Lying Down (Cont.)

FIGURE 2e

Photographs for Spurious Emissions EUT Side View

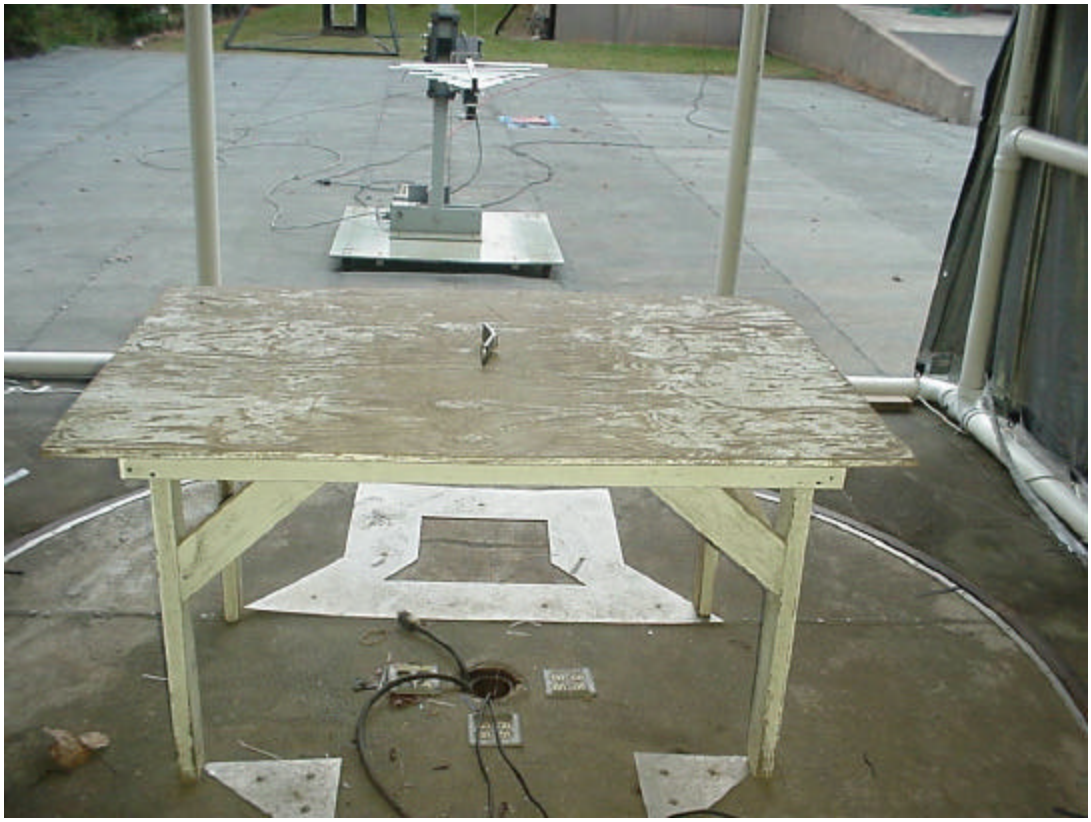


FIGURE 2f

Photographs for Spurious Emissions EUT Side View (Cont.)

TABLE 1

EUT and Peripherals

PERIPHERAL MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID:	CABLES P/D
Transmitter Connexcel, L.L.C. (EUT)	Amoi A90 Cell Phone	None	None	None

TABLE 2
TEST INSTRUMENTS

EQUIPMENT	MODEL NUMBER	MANUFACTURER	SERIAL NUMBER	DATE OF LAST CALIBRATION
SPECTRUM ANALYZER	8593E	HEWLETT-PACKARD	3205A00124	1/16/03
HORN ANTENNA	3115	EMCO	9107-3723	07/11/03
HORN ANTENNA	3115	EMCO	2060	10/6/03
SIGNAL GENERATOR	83620B	HEWLETT-PACKARD	3614A00103	6/19/03
RF PREAMP	8449B	HEWLETT-PACKARD	3008A00480	5/30/03
LOG PERIODIC ANTENNA	3146	EMCO	3236	12/17/02
CALCULATION PROGRAM	N/A	N/A	Ver. 6.0	N/A

2.5 Antenna Description

2.6 Conducted RF Power Output (FCC Section 2.1046)

In bands shared coequally with terrestrial radio communications services, the equivalent isotropically radiated power transmitted in any direction towards the horizon by an earth station operating in frequency bands between 1 and 15 GHz, shall not exceed the limits below.

For angles of elevation of the horizon greater than 5 degrees there shall be no restriction as to the equivalent isotropically radiated power transmitted by an earth station towards the horizon.

TABLE 3
CONDUCTED RF POWER OUTPUT

Frequency of Fundamental (MHz)	Measurement (dBm)	Measurement (Watt)
1850.08	28.74	0.748
1879.88	27.91	0.618
1909.71	28.02	0.634

Test Date: November 5, 2003

Tester Signature: _____ **Name: David Blethen**

Figure 3a.
Conducted RF Power Output

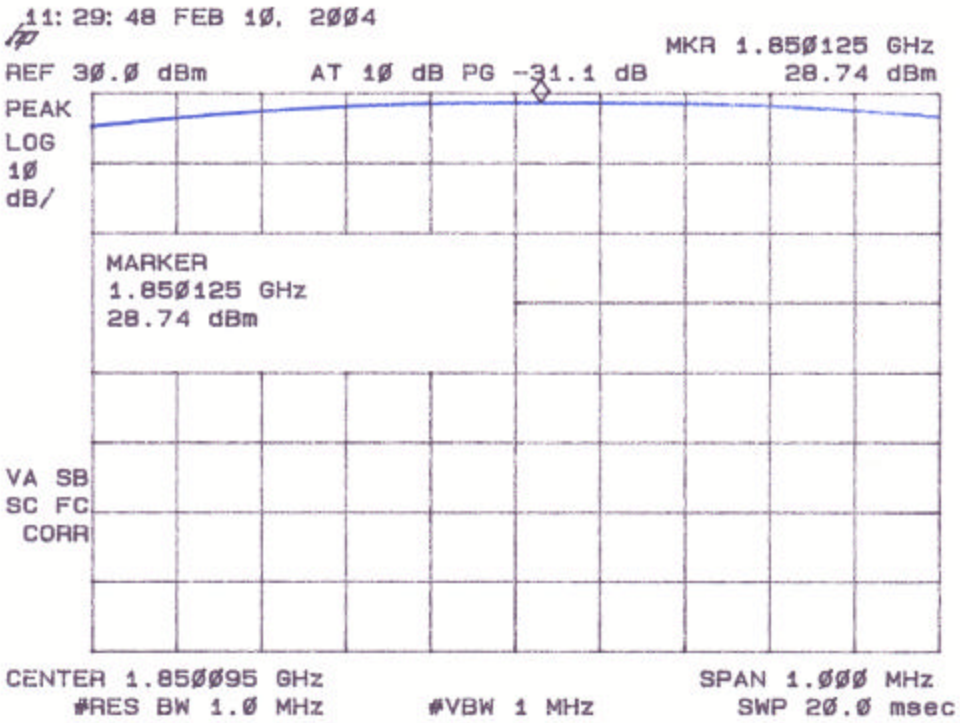


Figure 3b.
Conducted RF Power Output

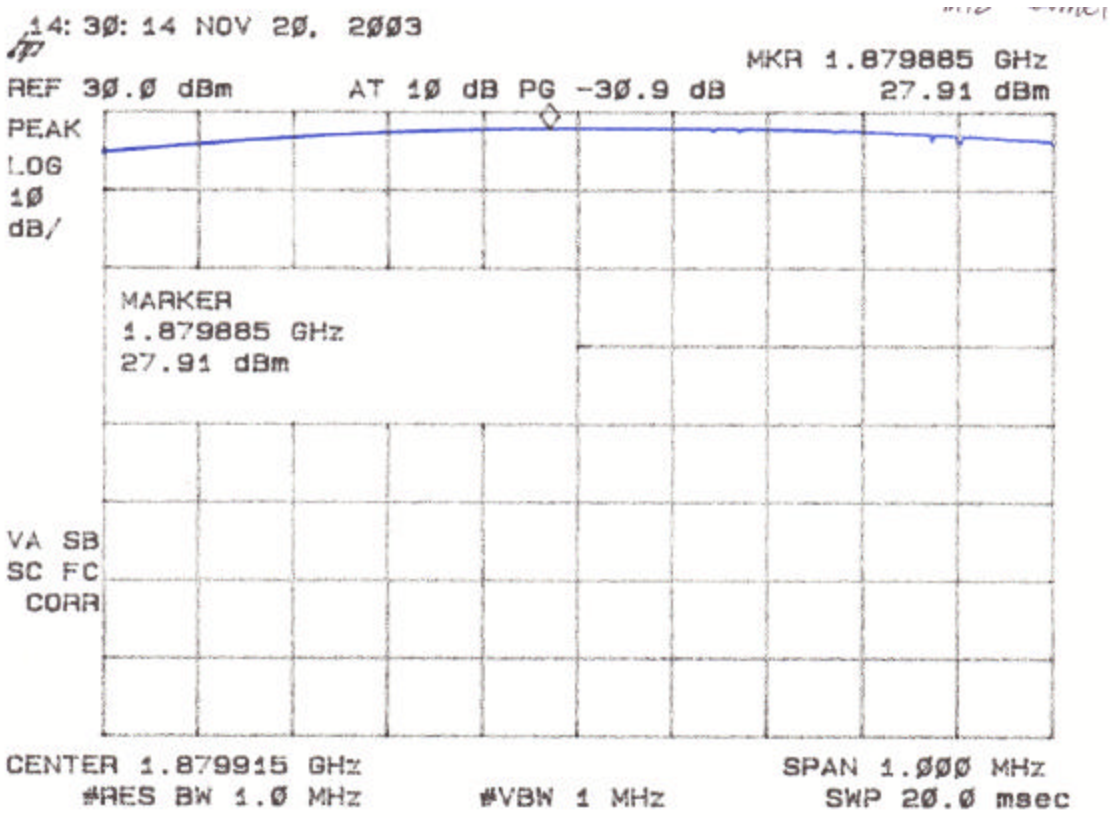
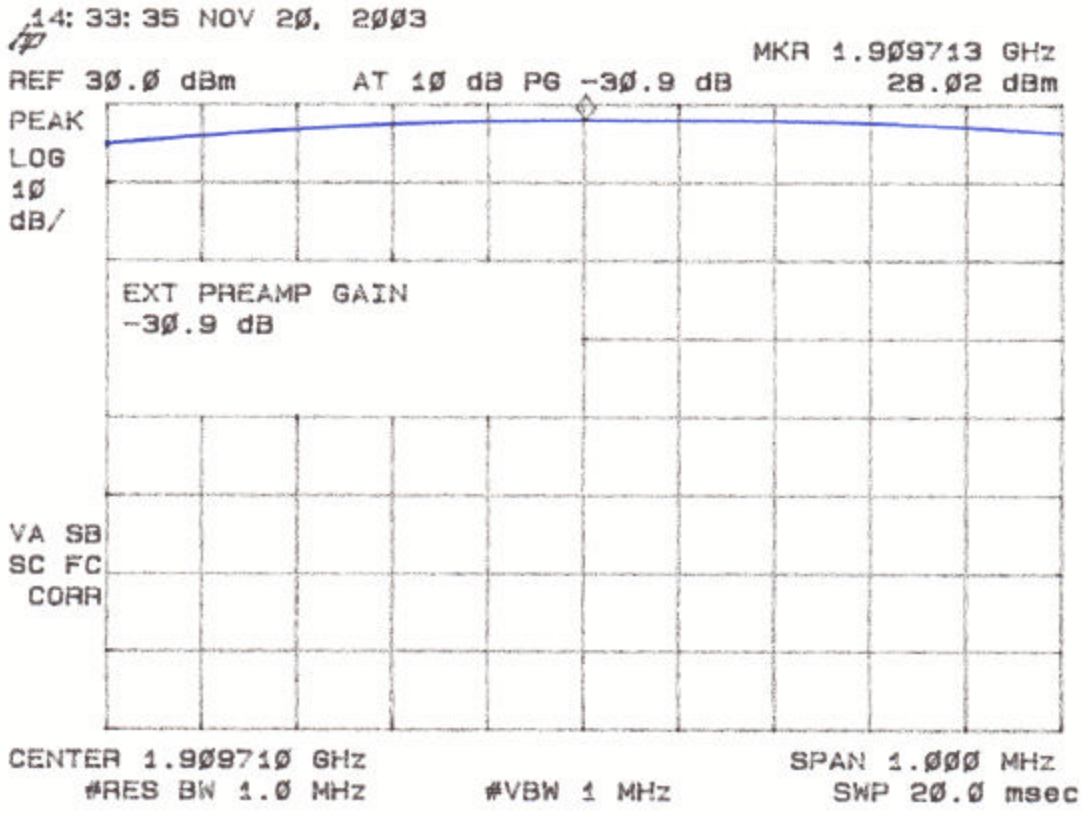


Figure 3c.
Conducted RF Power Output



2.7 Radiated RF Output Power (FCC Section 24.232)

Mobile / portable stations are limited to 2 watts e.i.r.p. peak power and the equipment must employ means to limit the power to the minimum necessary for successful communication.

The EUT was configured as shown in the following block diagram in Figure 1 and photographs shown in Section 3 of this report. The sample was tested per CFR 47 part 24, part 2, ANSI C63.4-1992 and RSS-133.

The power emissions coming from the unit were maximized by turning the non-conductive table on which the EUT was placed at 360 degrees and by raising and lowering the antenna from 1 to 4 meters in height. The power level from the EUT was then recorded. The EUT was then replaced by a substituting antenna fed with power from a signal generator and read by the spectrum analyzer. The reading on the analyzer and the amplitude on the signal generator were both recorded as well.

TABLE 4
RADIATED RF POWER OUTPUT

EUT Channel	EUT Power (dBm)	Sub. TX Power (dBm)	Sub. RX Power (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	Output power (dBm)	Output power (W)
512	-10.00	5.2	-29.93	8.8	2.82	31.11	1.291
661	-11.82	3.7	-31.90	8.8	2.8	29.76	0.946
810	-12.31	3.3	32.39	8.8	2.73	29.45	0.881

EIRP (W) = [**antilog (Sub. TX(dBm) + EUT Power (dBm) – Sub. RX(dBm) + Antenna Gain (Substitution Antenna, dBi) – Cable Loss (dB) / 10]/1000**
1000

Test Date: November 11, 2003

Tester Signature: _____ **Name: David Blethen**

Figure 4a.
Radiated RF Power Output

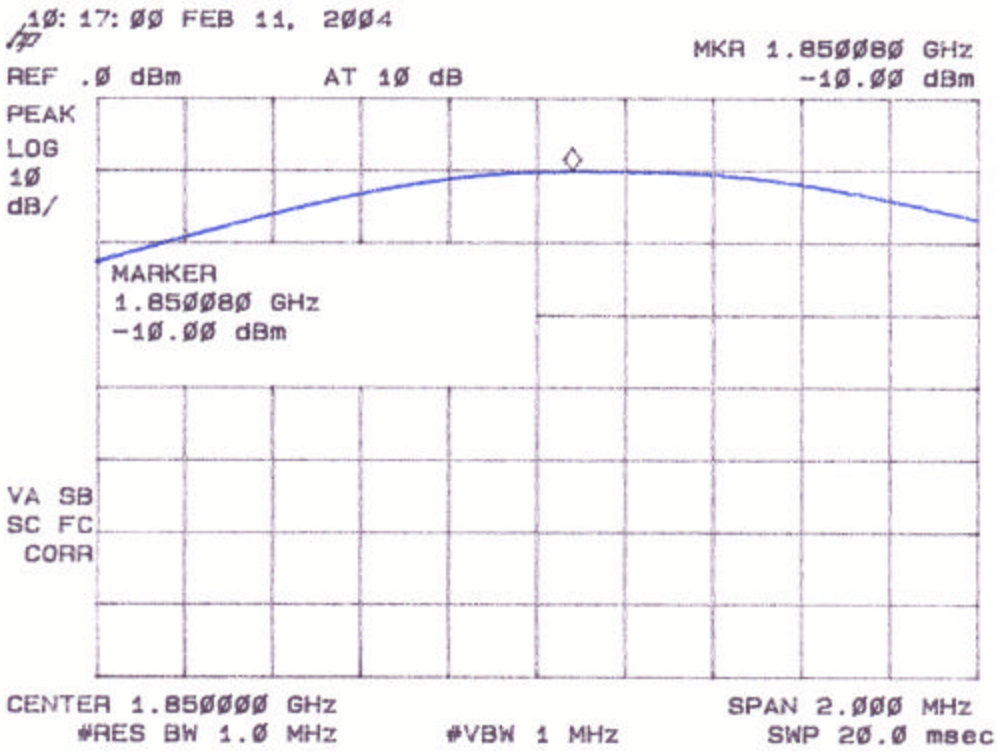


Figure 4b.
Radiated RF Power Output

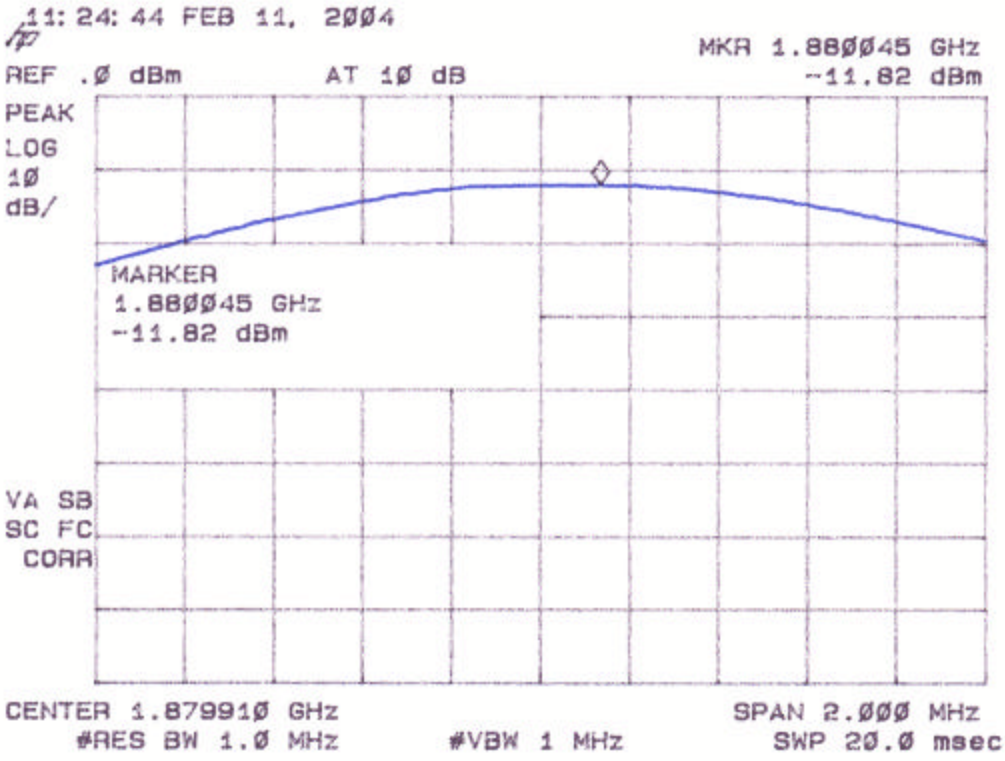
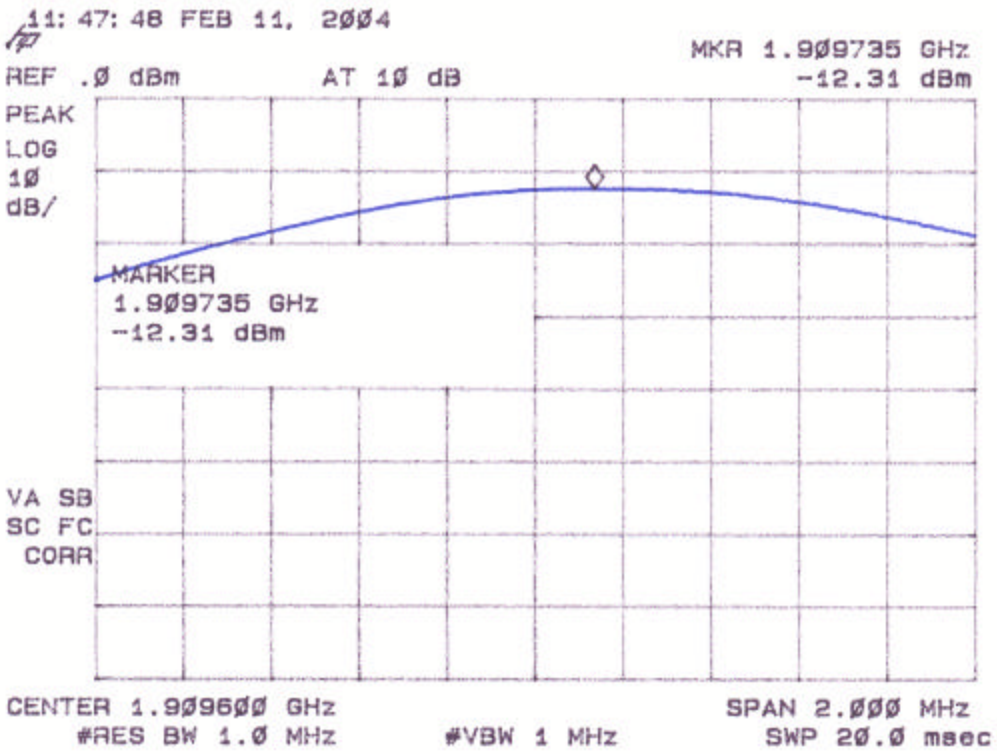


Figure 4c.
Radiated RF Power Output



2.8 Band-Edge Compliance (FCC Section 24.238)

On any frequency outside a licensee's frequency block, the power of any transmission shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB.

TABLE 5
BAND-EDGE COMPLIANCE

Frequency (MHz)	Level (dBm)	Limit (dBm)
< 1850	-23.48	-13
< 1910	-24.96	-13

Test Date: November 5, 2003

Tester Signature: _____ **Name:** **David Blethen**

Figure 5a.
Band Edge Compliance - Low

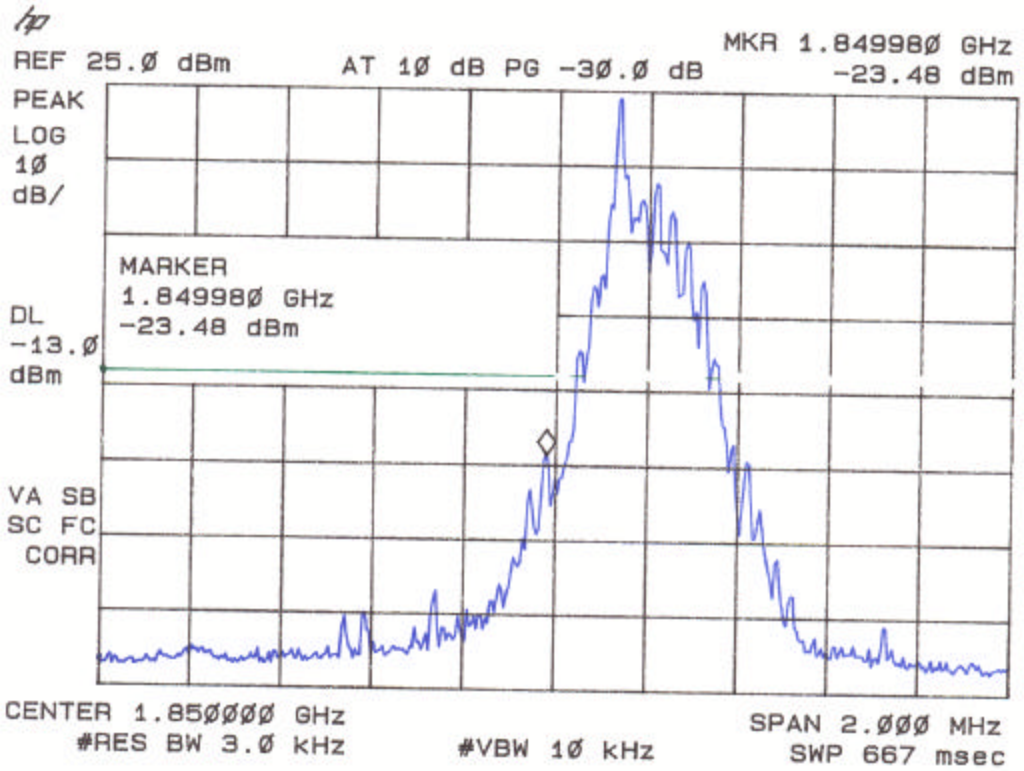
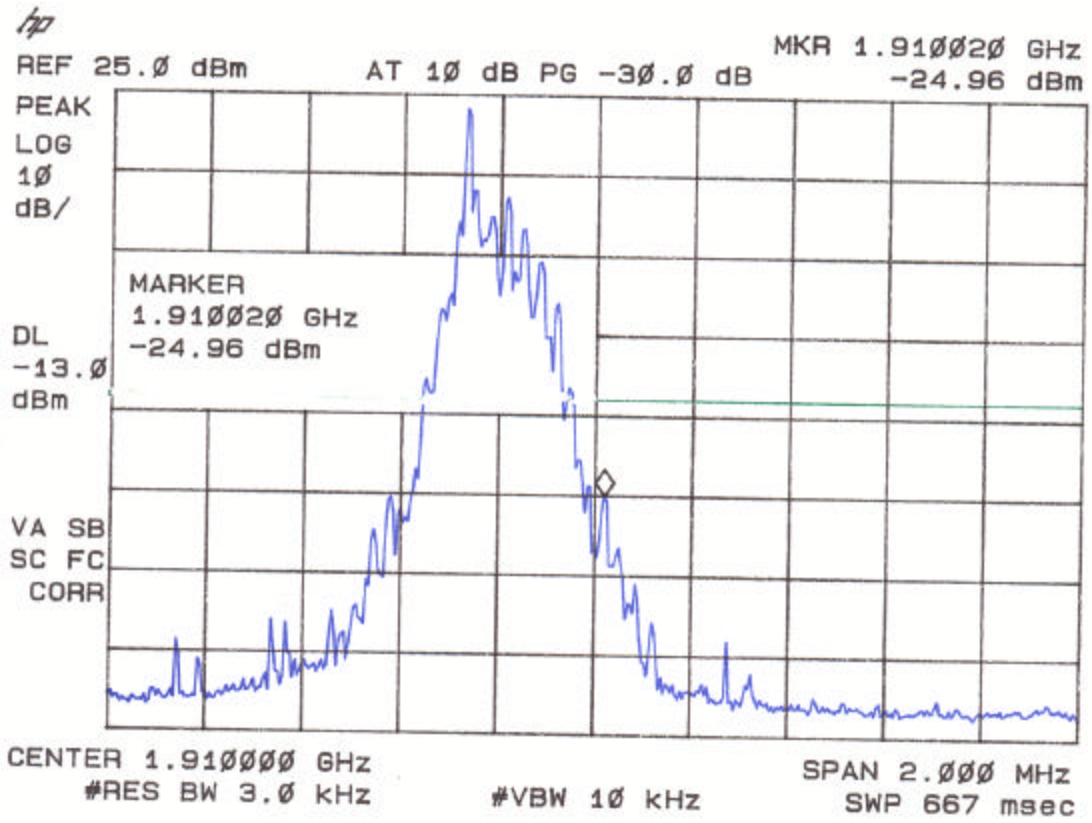


Figure 5b.
Band Edge Compliance - High



2.9 Occupied Bandwidth (FCC Section 2.1049)

EUT was modulated by its own internal sources. Low, Middle and High Channels were tested. The bandwidth of the fundamental was measured using a spectrum analyzer. The results are shown in Figure 6a through Figure 6c. Long sweep times were applied near to the fundamental to ensure a good signal was obtained.