Figure 6a.
Band Edge Compliance - Low

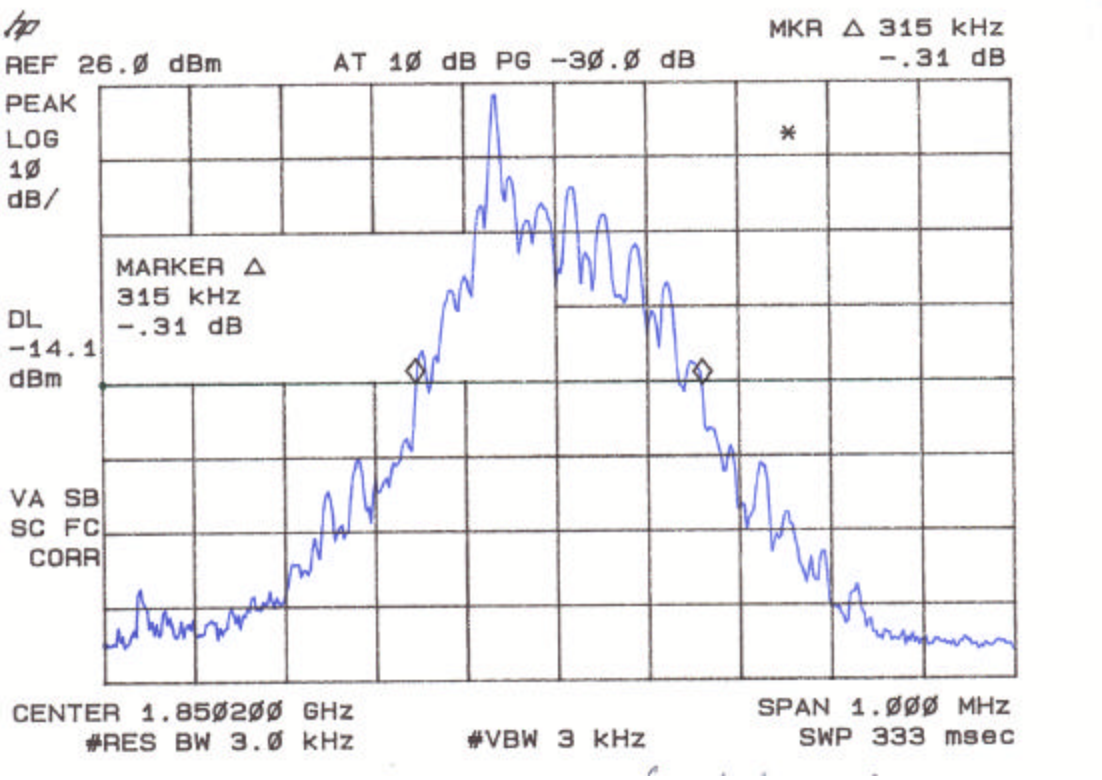


Figure 6b.
Band Edge Compliance - Middle

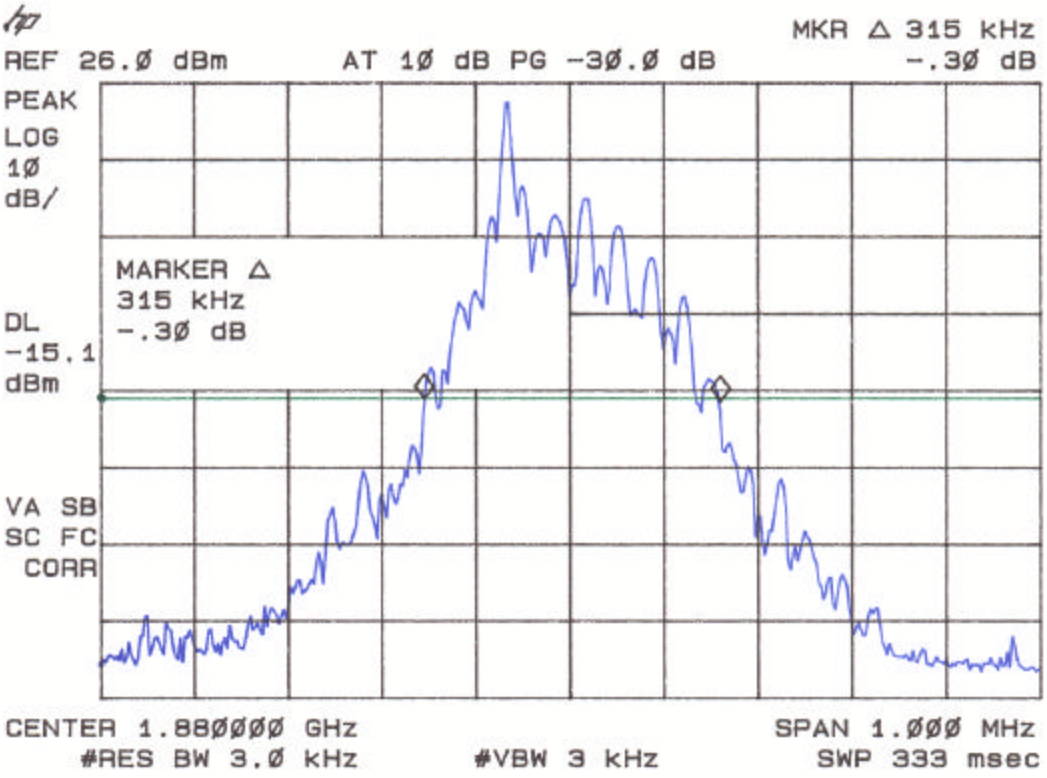
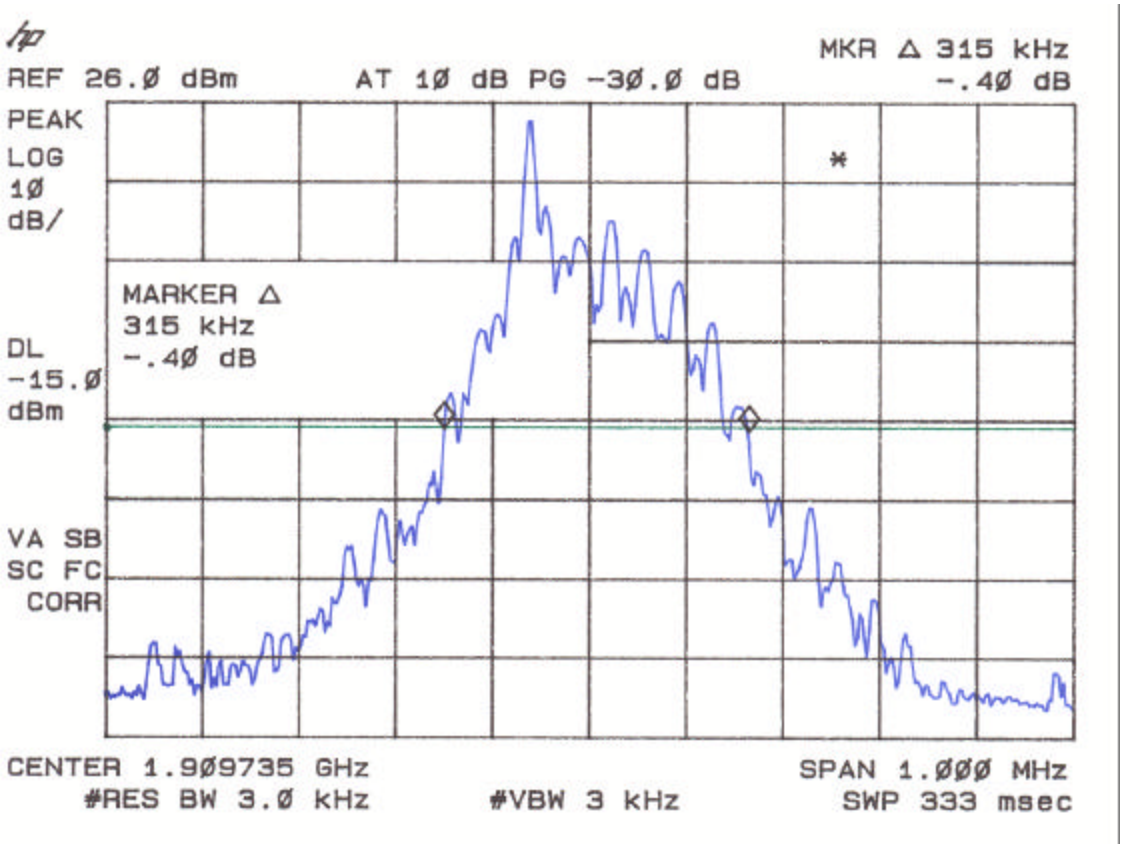


Figure 6c.
Band Edge Compliance - High



2.10 Spurious Emissions at Antenna Terminals (FCC Section 2.1051)

Spurious emissions appearing at the antenna terminals were measured with a spectrum analyzer by connecting the spectrum analyzer directly via a short cable to the antenna output terminals or across the antenna leads on the PCB as specified by the manufacturer. Results are shown in Figures 7a - 7x.

Protection of the radio-navigation-satellite service. Mobile earth stations operating in the 1610-1626.5 MHz band shall limit out-of- band emissions in the 1574.397-1576.443 MHz band so as not to exceed an e.i.r.p. density level of -70 dB (W/MHz) averaged over any 20 ms period. The e.i.r.p. of any discrete spurious emission (i.e., bandwidth less than 600 Hz) in the 1574.397-1576.443 MHz band shall not exceed -80 dBW.

FCC Minimum Standard (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.

Figure 7a.
Spurious Emissions at Antenna Terminals

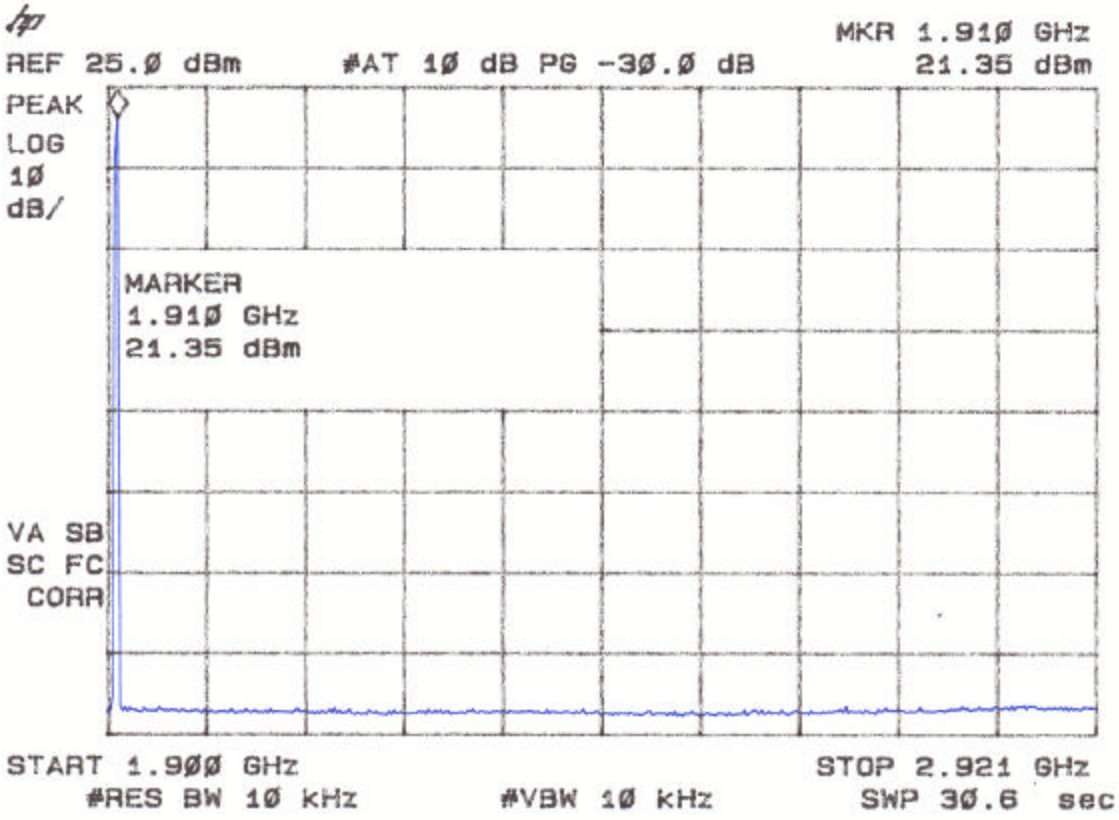


Figure 7b.
Spurious Emissions at Antenna Terminals

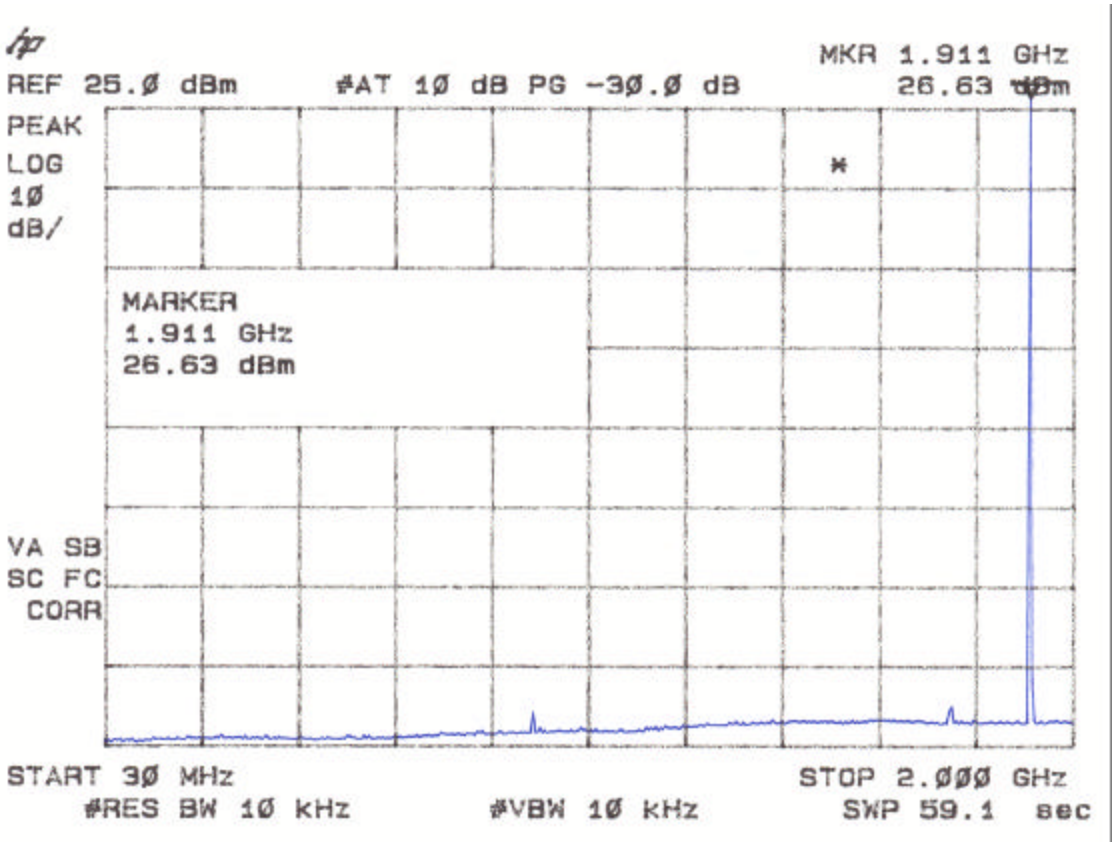


Figure 7c.
Spurious Emissions at Antenna Terminals

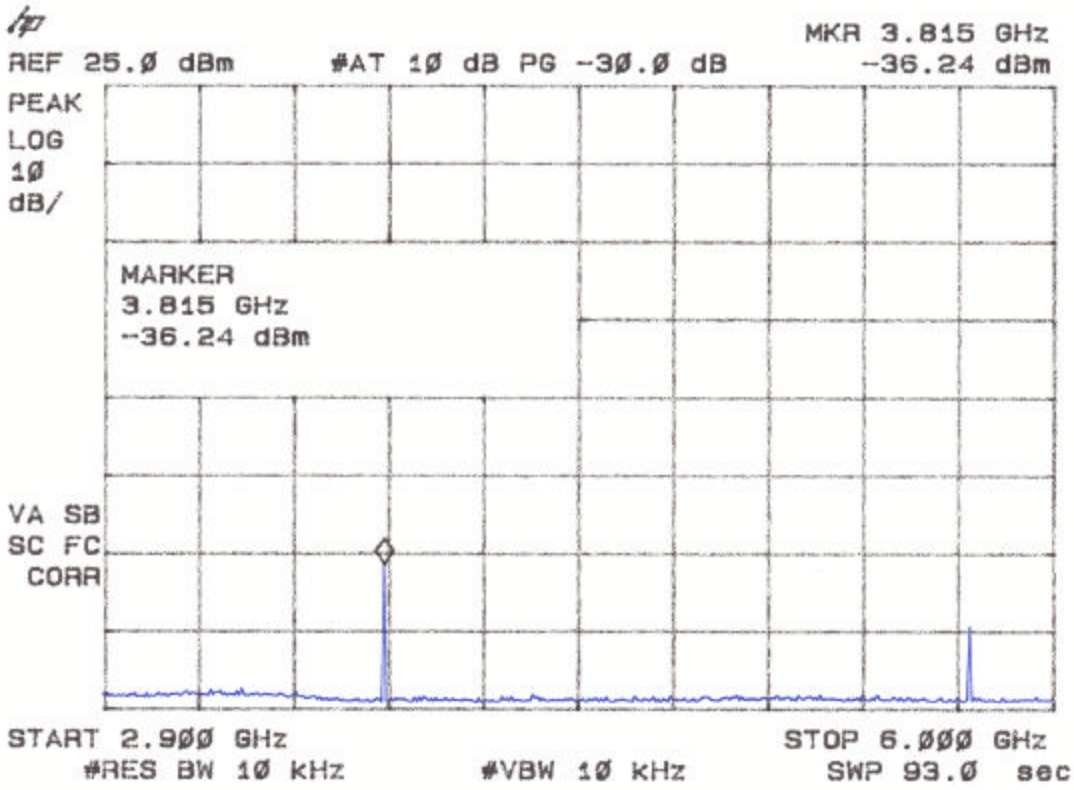


Figure 7d.
Spurious Emissions at Antenna Terminals

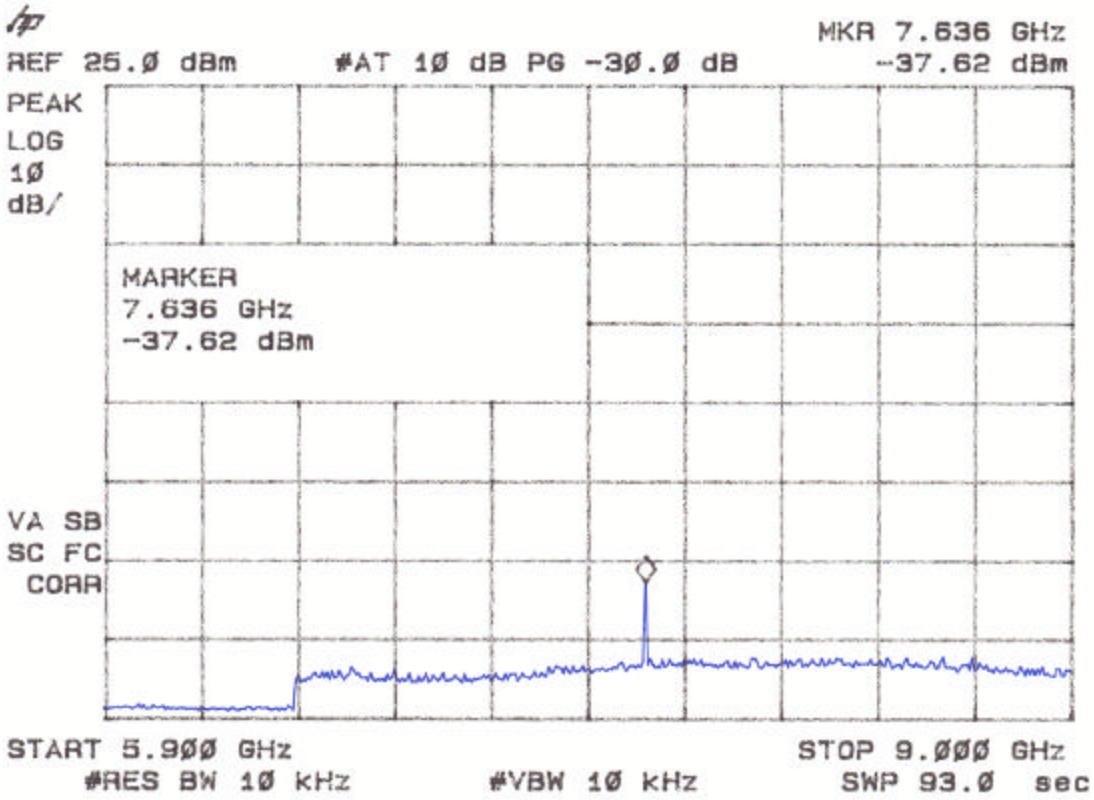


Figure 7e.
Spurious Emissions at Antenna Terminals

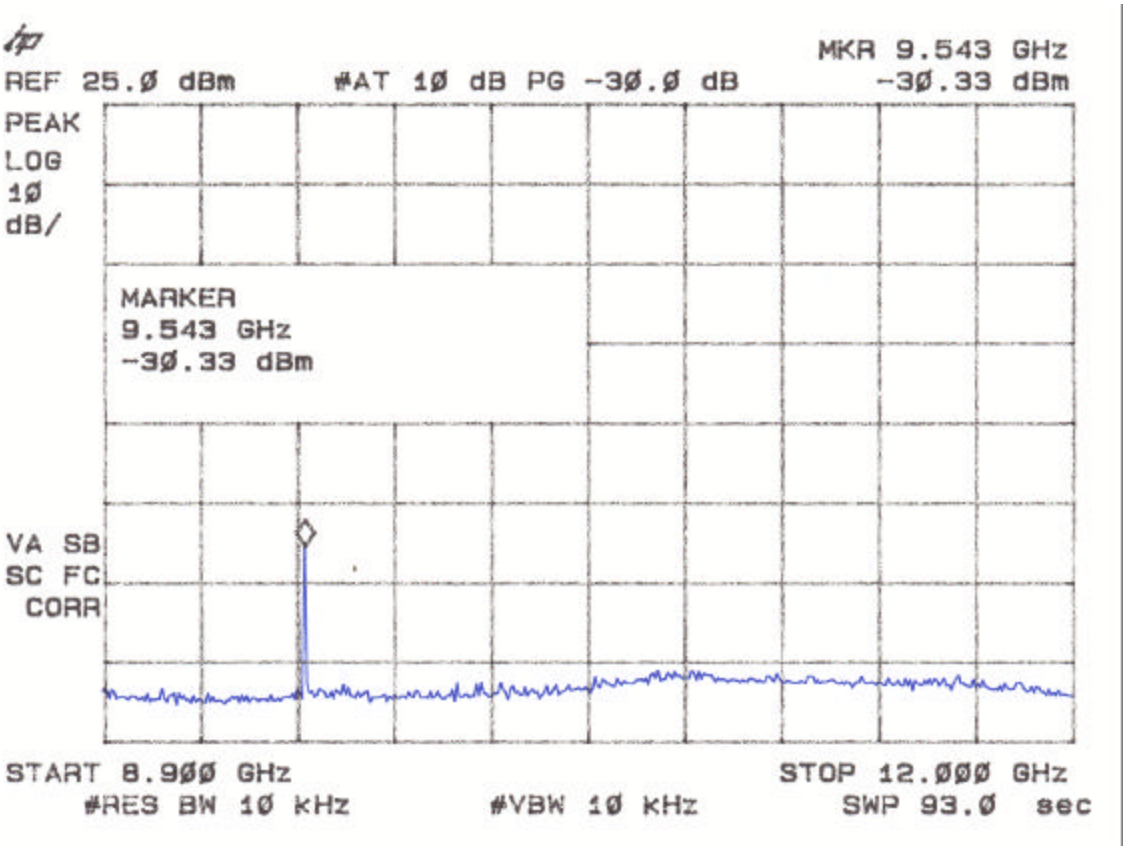


Figure 7f.
Spurious Emissions at Antenna Terminals

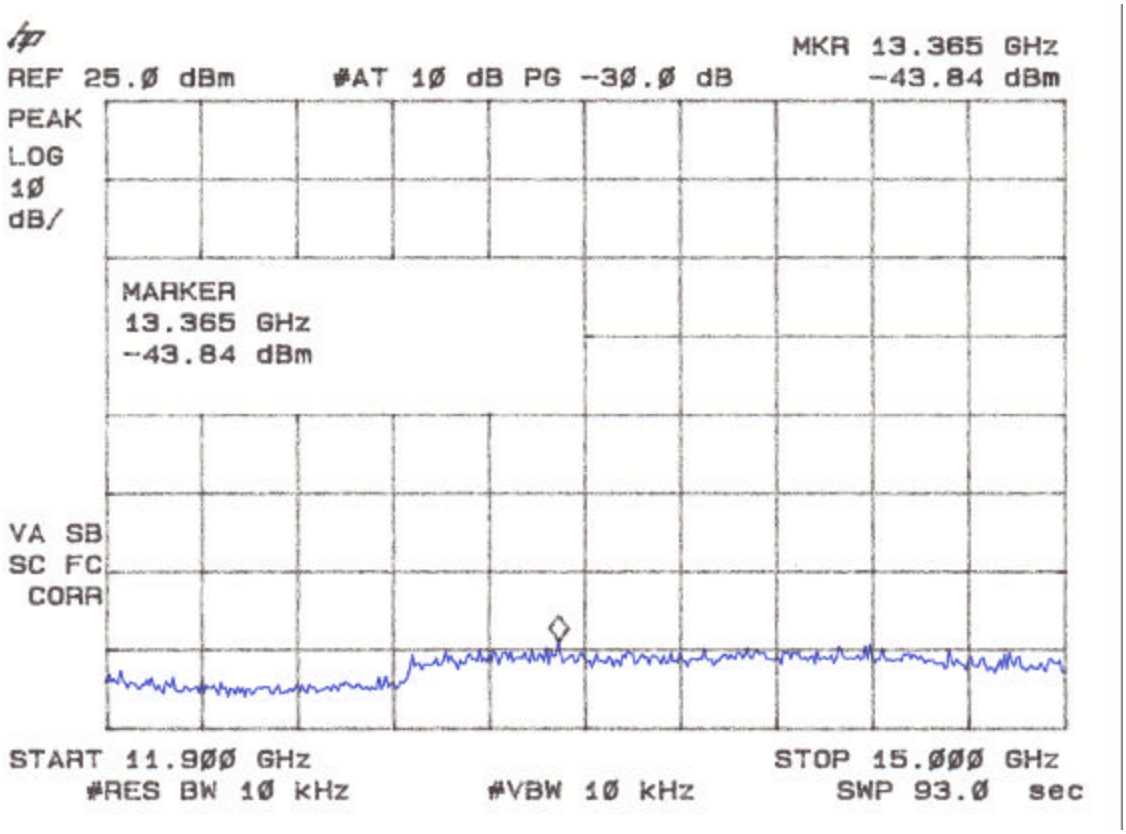


Figure 7g.
Spurious Emissions at Antenna Terminals

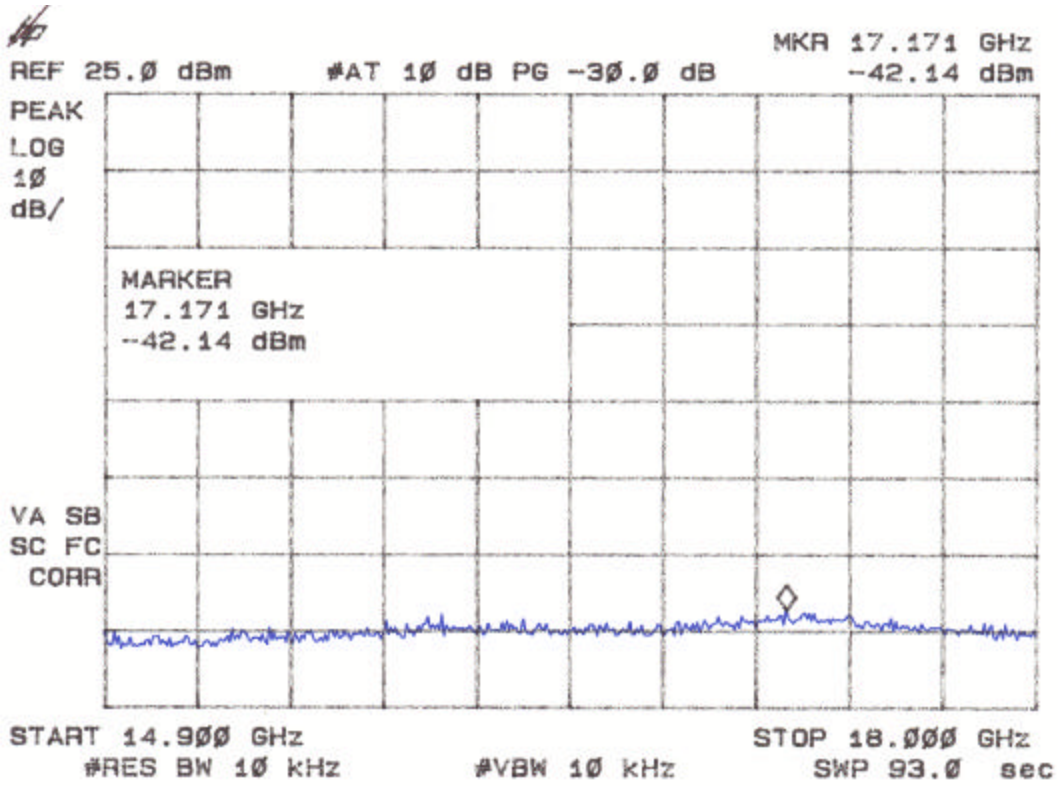


Figure 7h.
Spurious Emissions at Antenna Terminals

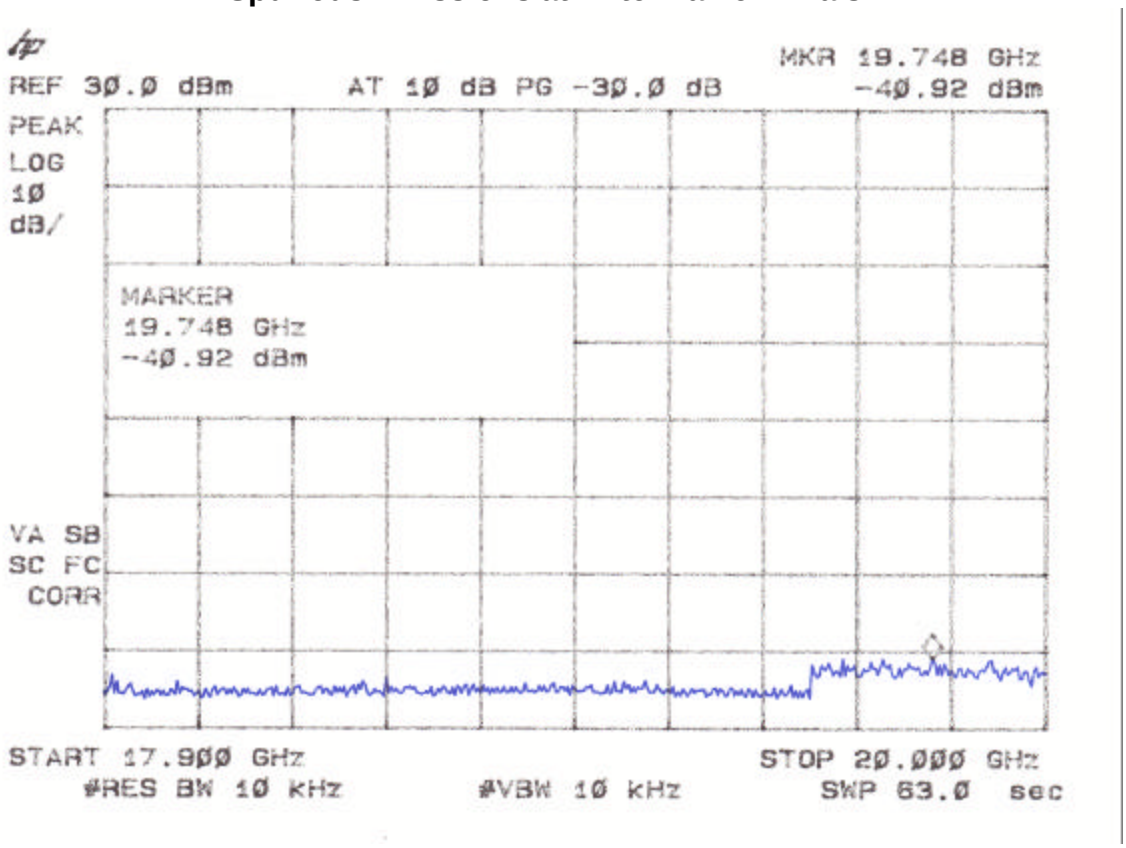


Figure 7i.
Spurious Emissions at Antenna Terminals

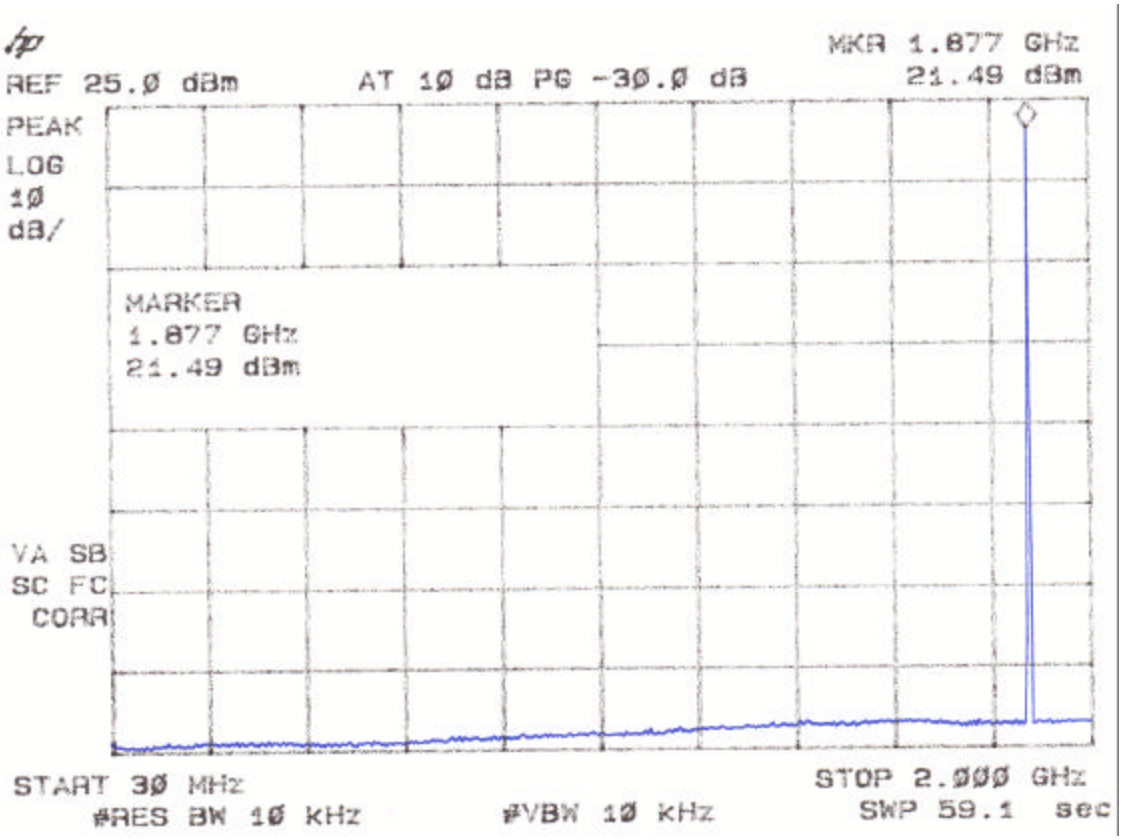


Figure 7j.
Spurious Emissions at Antenna Terminals

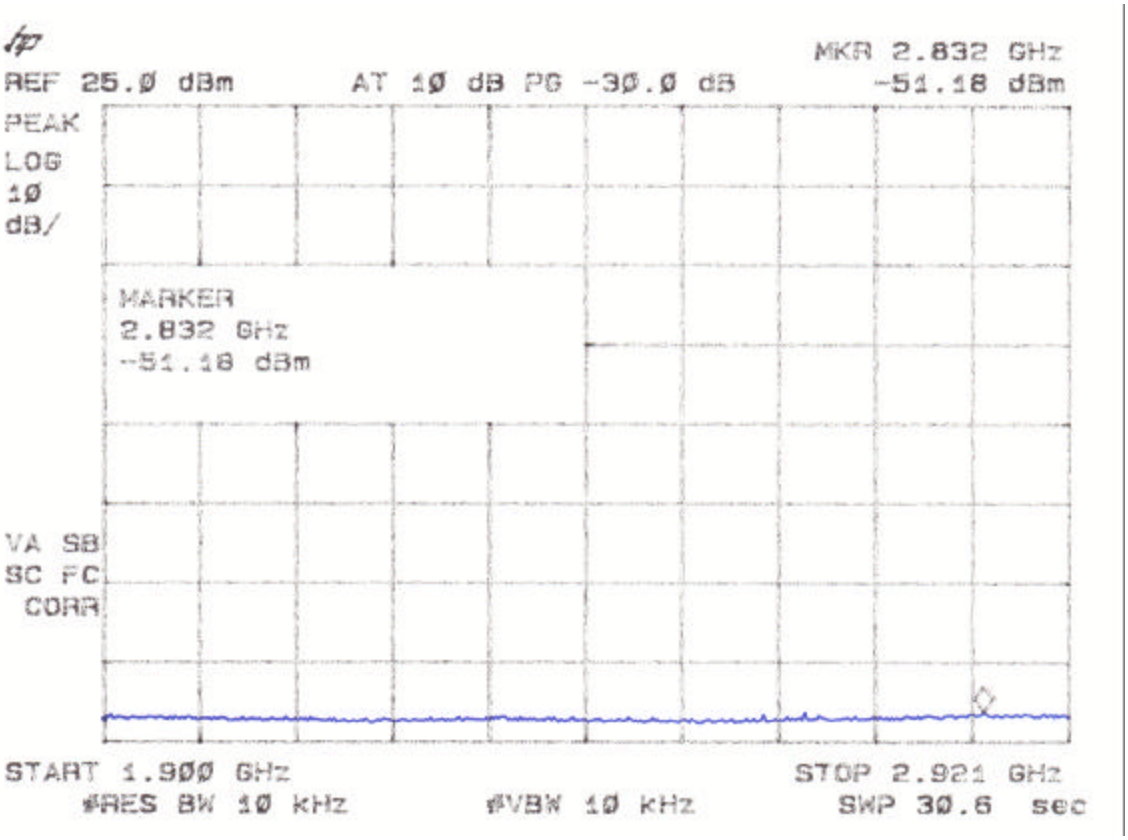


Figure 7k.
Spurious Emissions at Antenna Terminals

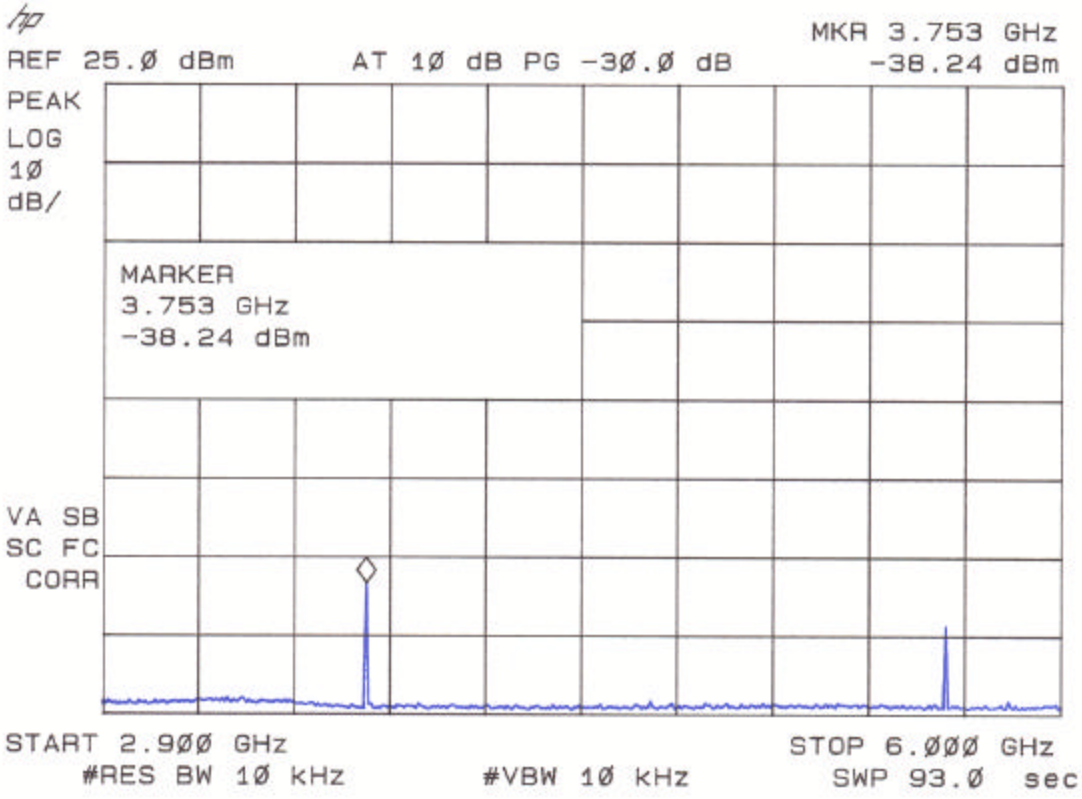


Figure 7l.
Spurious Emissions at Antenna Terminals

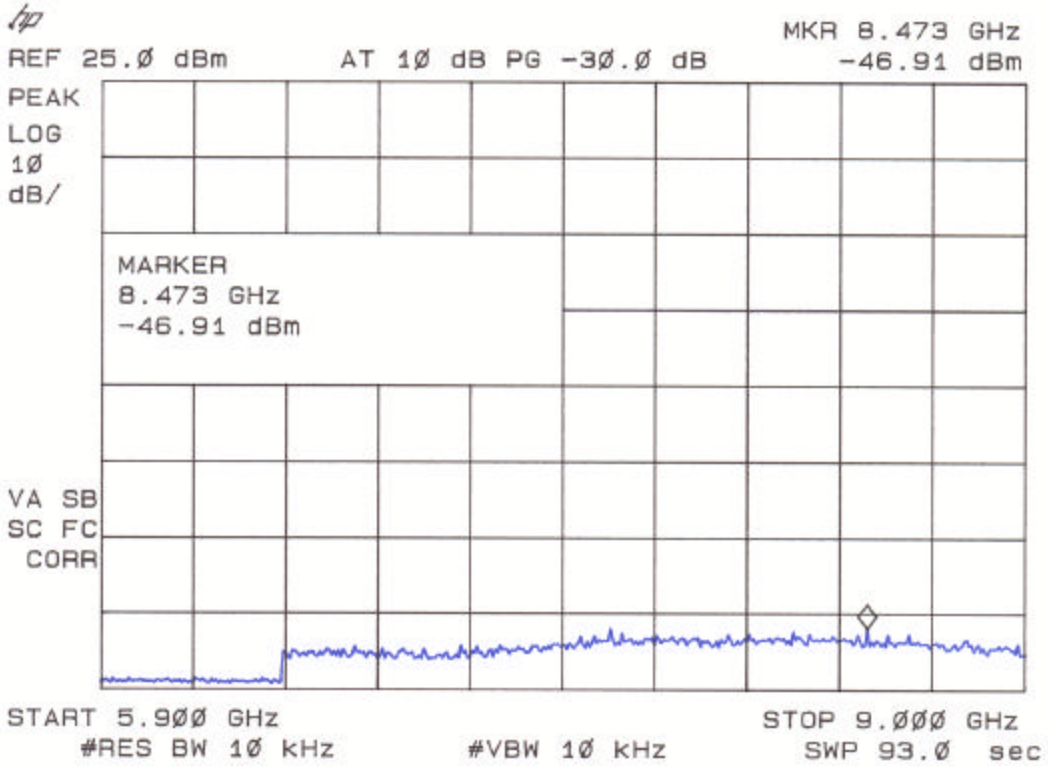


Figure 7m.
Spurious Emissions at Antenna Terminals

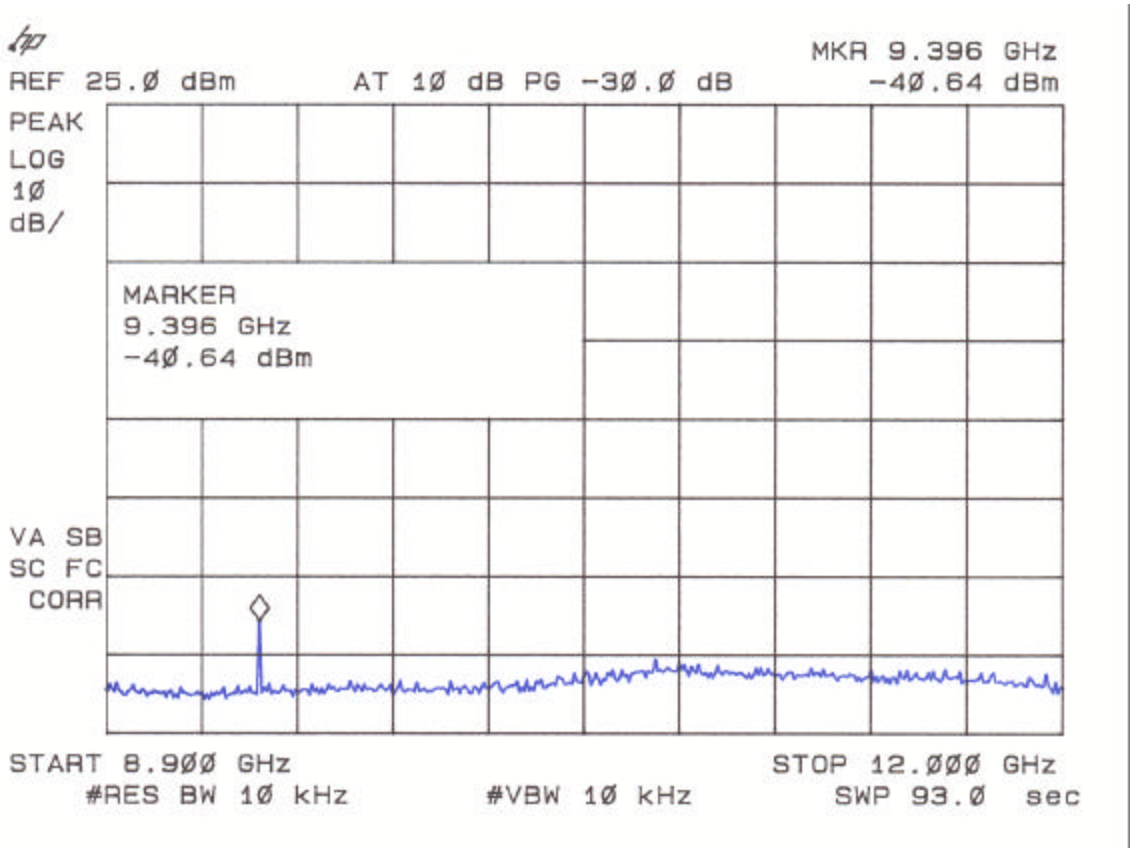


Figure 7n.
Spurious Emissions at Antenna Terminals

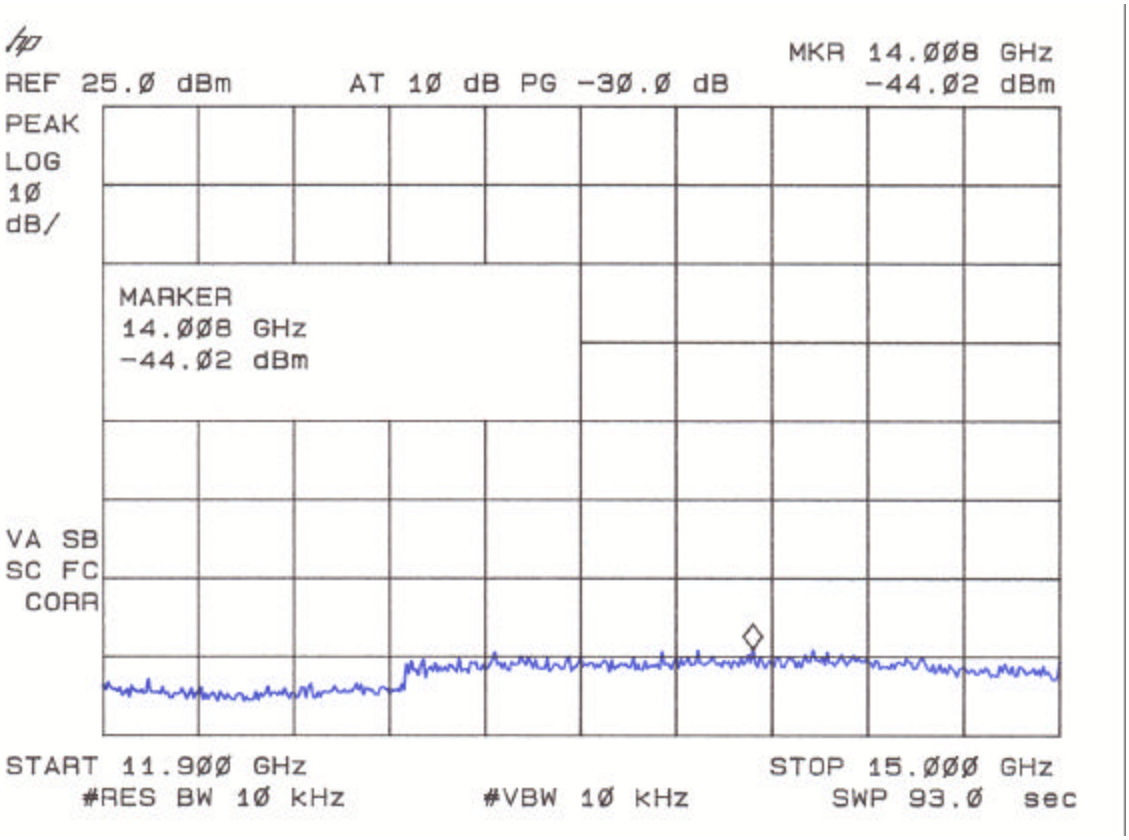


Figure 7o.
Spurious Emissions at Antenna Terminals

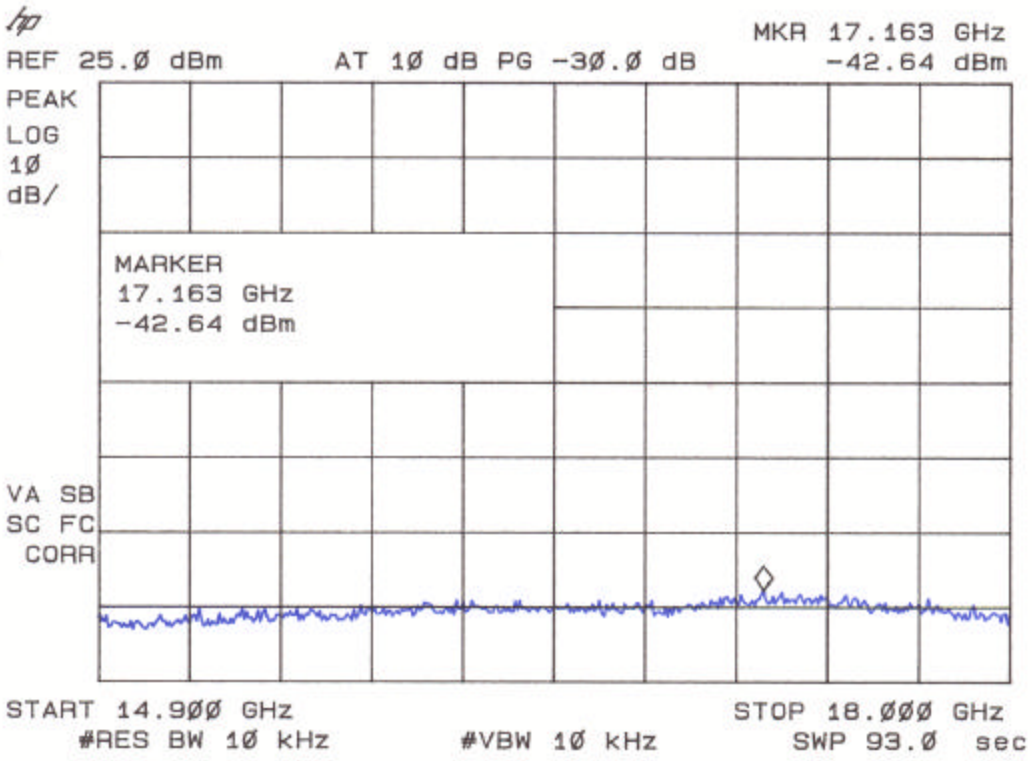


Figure 7p.
Spurious Emissions at Antenna Terminals

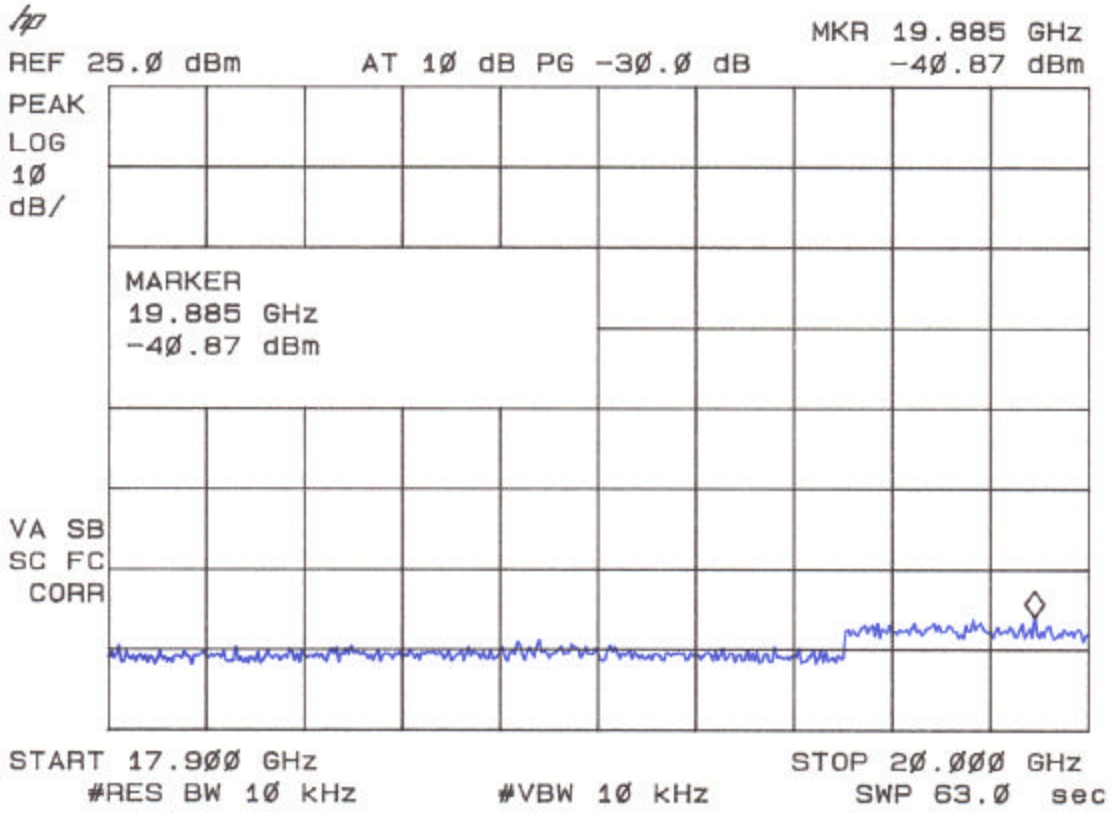


Figure 7q.
Spurious Emissions at Antenna Terminals

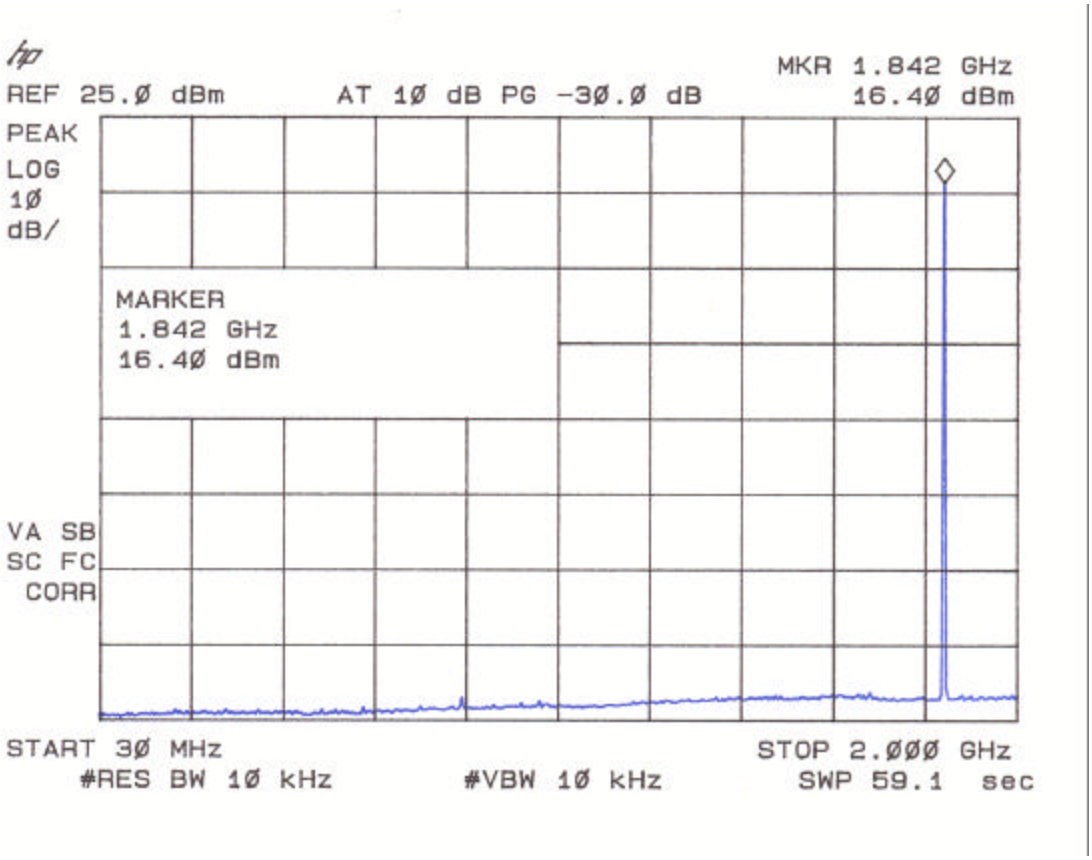


Figure 7r.
Spurious Emissions at Antenna Terminals

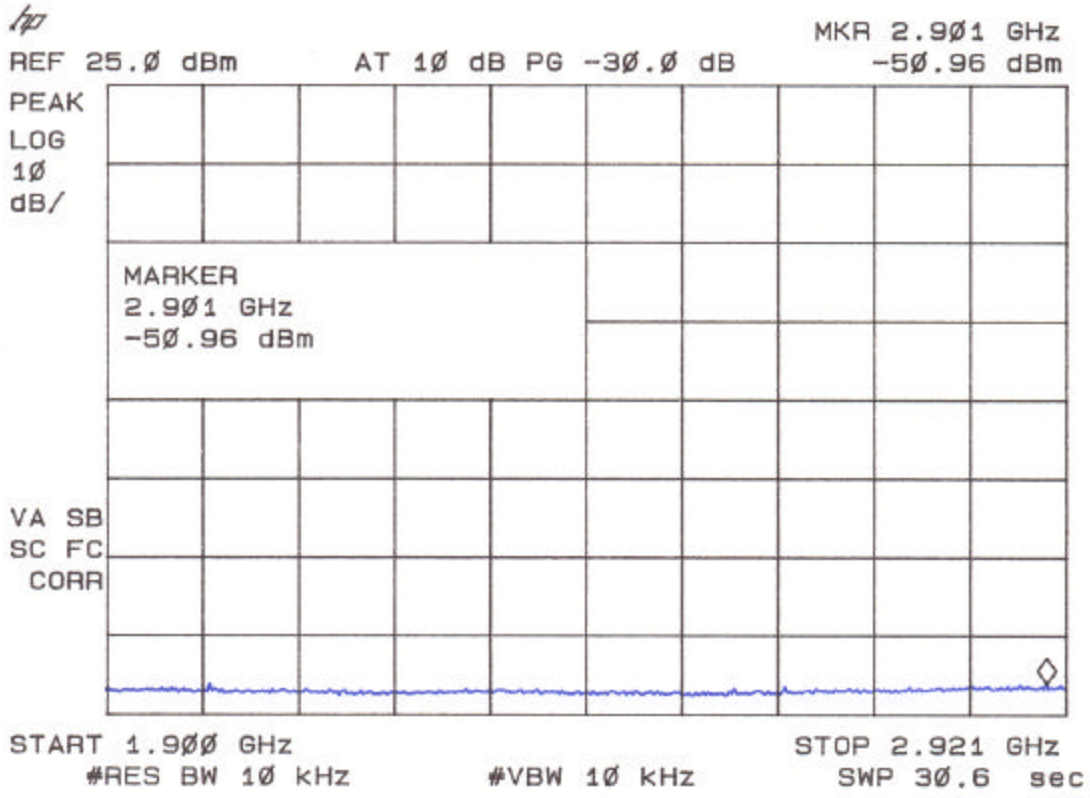


Figure 7s.
Spurious Emissions at Antenna Terminals

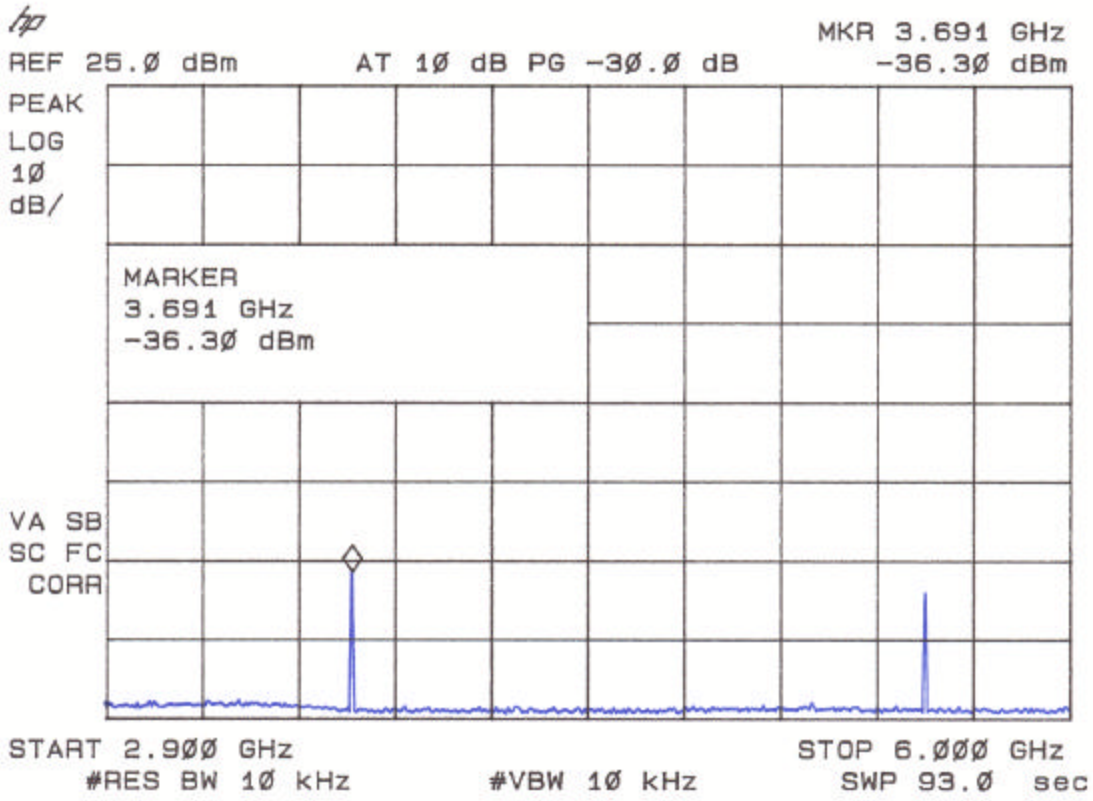


Figure 7t.
Spurious Emissions at Antenna Terminals

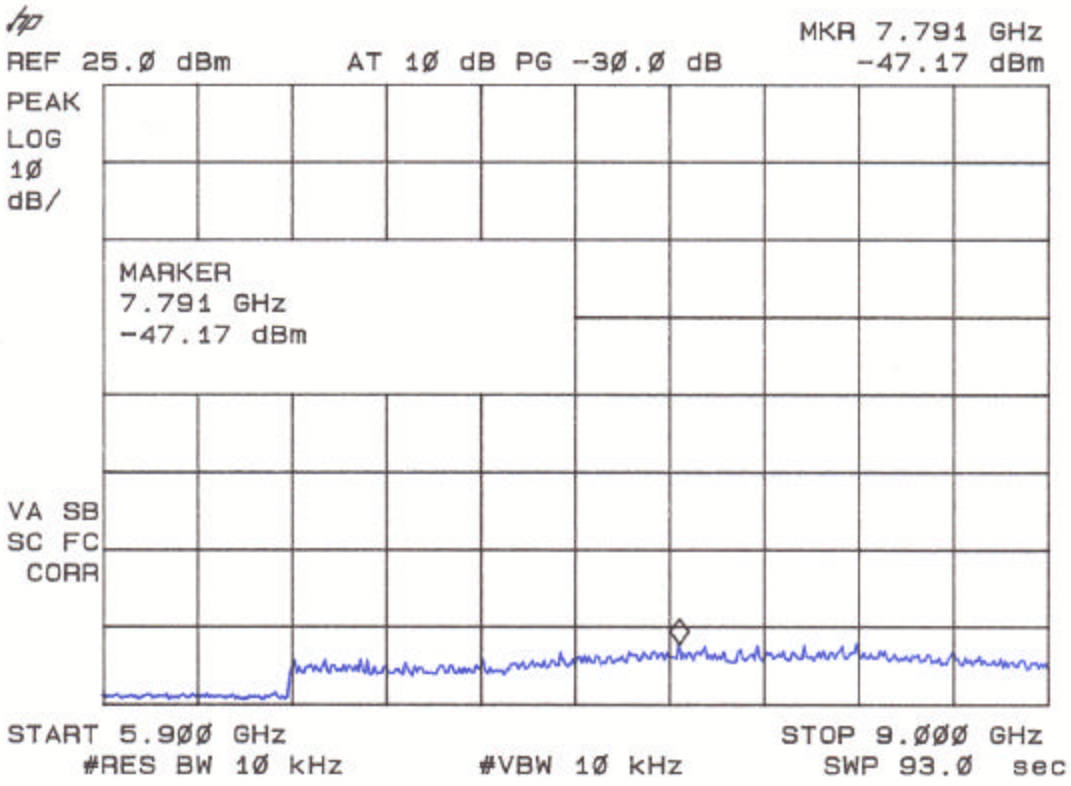


Figure 7u.
Spurious Emissions at Antenna Terminals

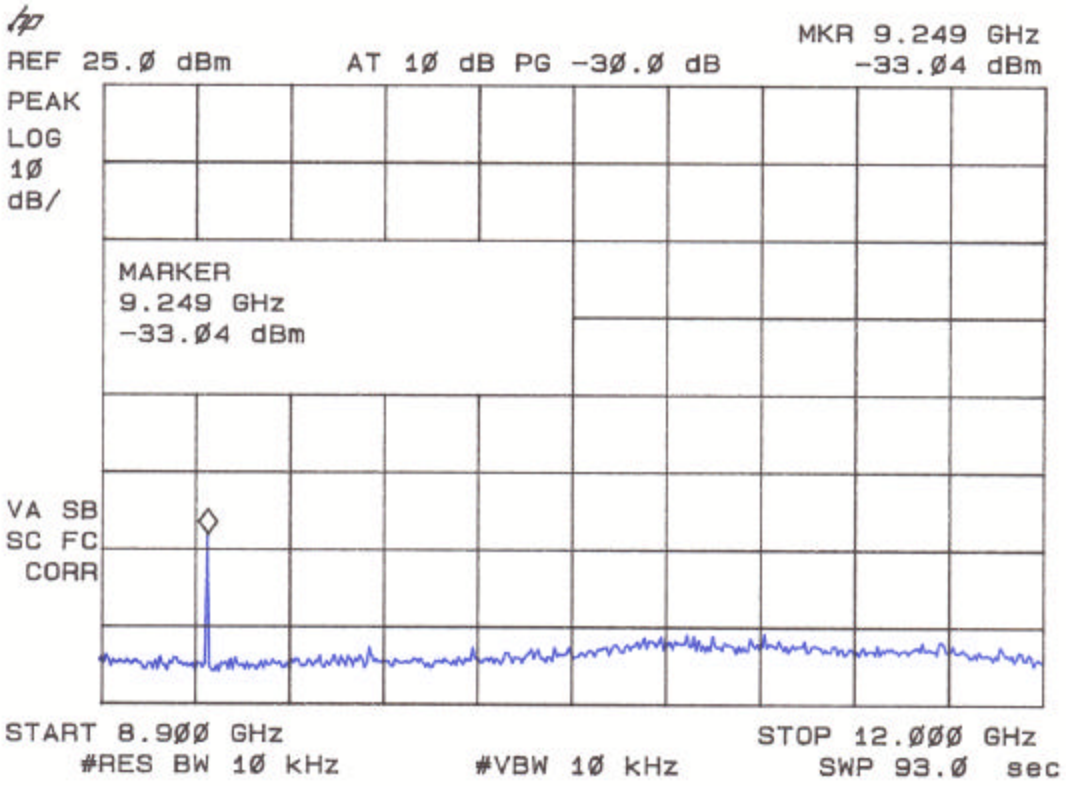


Figure 7v.
Spurious Emissions at Antenna Terminals

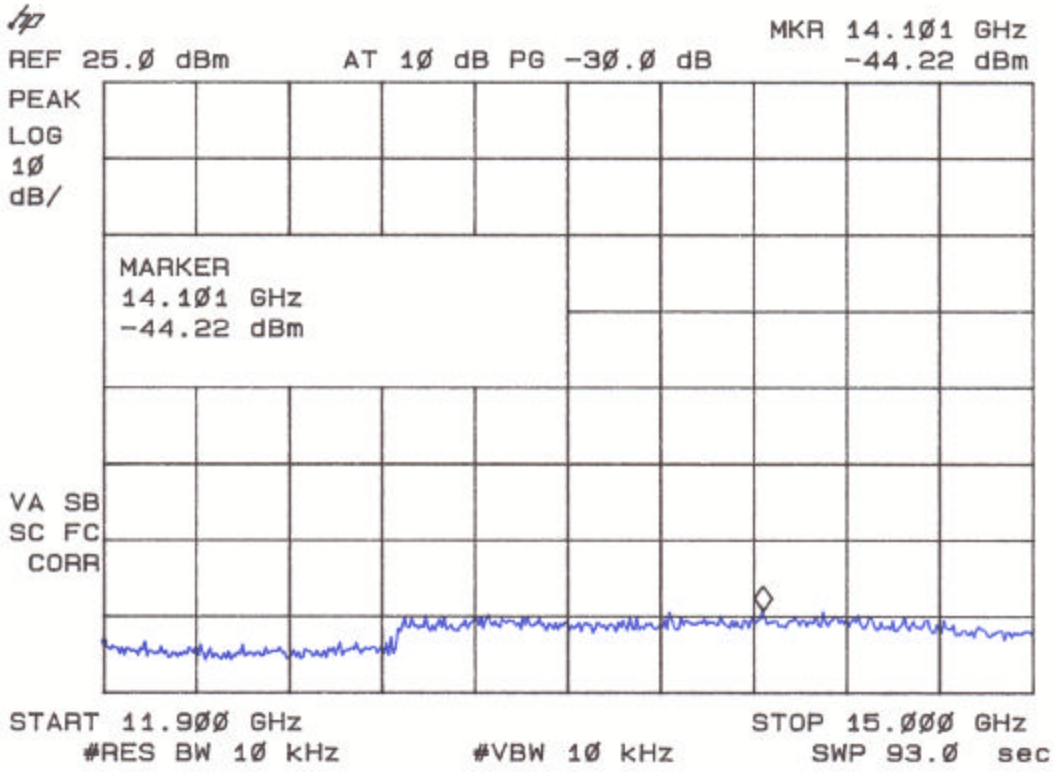


Figure 7w.
Spurious Emissions at Antenna Terminals

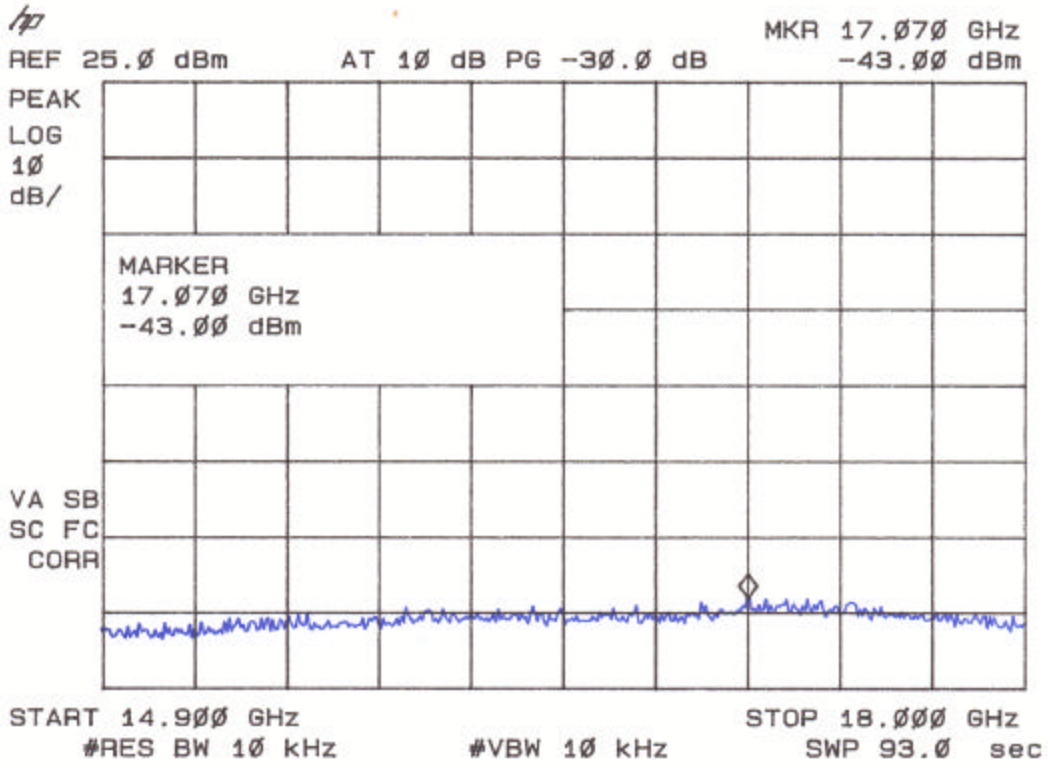
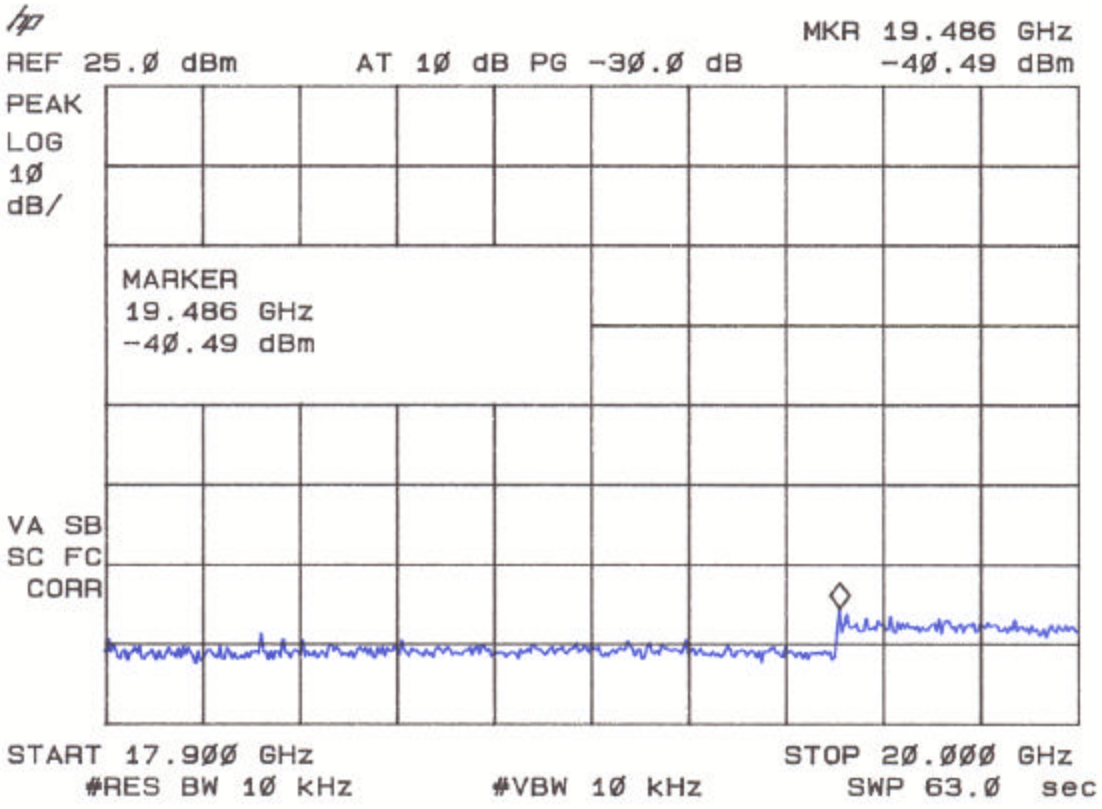


Figure 7x.
Spurious Emissions at Antenna Terminals



2.11 Field Strength of Spurious Radiation (FCC Section 2.1053)

Spurious emissions were evaluated from 30 MHz to 19.1 GHz at an EUT to antenna distance of 1 or 3 meters. The EUT was tested with an external power source and modulated by its own internal sources. A low, middle and high channel were tested. The EUT was placed on an open area test site and the spurious emissions tested as stipulated by EIT/TIA-603: 1992 section 2.2.12. Measurements for 30 to 1000 MHz were made with the analyzer's bandwidth set to 120 kHz. Measurements above 1 GHz were made with the analyzer's bandwidth set to 1 MHz. The worse case results are shown in Table 8.

FCC Minimum Standard (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.

FIELD STRENGTH OF SPURIOUS RADIATION

Limit: -13 dBm.

TABLE 8

Low Channel

Frequency (MHz)	Measured Emissions (dBm)	Signal Generator Power to Substitution Antenna (dBm)	Cable Loss (dB)	Antenna Gain over Isotropic Radiator (dBi)	Result (dBm)
3700.25	-47.05	-39.77	4.51	10.3	-33.98
5550.38	-55.45	-42.48	5.58	10.8	-37.26

Middle Channel

Frequency (MHz)	Measured Emissions (dBm)	Signal Generator Power to Substitution Antenna (dBm)	Cable Loss (dB)	Antenna Gain over Isotropic Radiator (dBi)	Result (dBm)
3760.00	-49.46	-40.90	4.74	10.2	-35.44
5639.75	-52.00	-39.01	5.44	10.7	-33.75

High Channel

Frequency (MHz)	Measured Emissions (dBm)	Signal Generator Power to Substitution Antenna (dBm)	Cable Loss (dB)	Antenna Gain over Isotropic Radiator (dBi)	Result (dBm)
3819.40	-44.38	-35.05	4.54	10.0	-29.59
5729.18	-52.69	-40.23	5.08	11.2	-34.11

Note: Data sampled from Amoi A90 Cell Phone

SAMPLE CALCULATION:

Result (dBm) = Signal Generator Power to Substitution Antenna (dBm) – Cable Loss (dB) + Antenna Gain over Isotropic Radiator (dBi)

Test Date: November 6, 2003

Tester Signature:  **Name: David Blethen**

2.12 Frequency Stability (FCC Section 2.1055 and 24.235)

The frequency tolerance of the carrier signal was measured by while ambient temperature was varied from -30 to 50 degrees centigrade. The frequency tolerance was verified at 10 degree increments. Additionally, the supply voltage was varied at the minimum and the nominal value.

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

FCC Minimum Standard

None

FCC Certification
Cellphone
Frequency Stability vs. Temperature

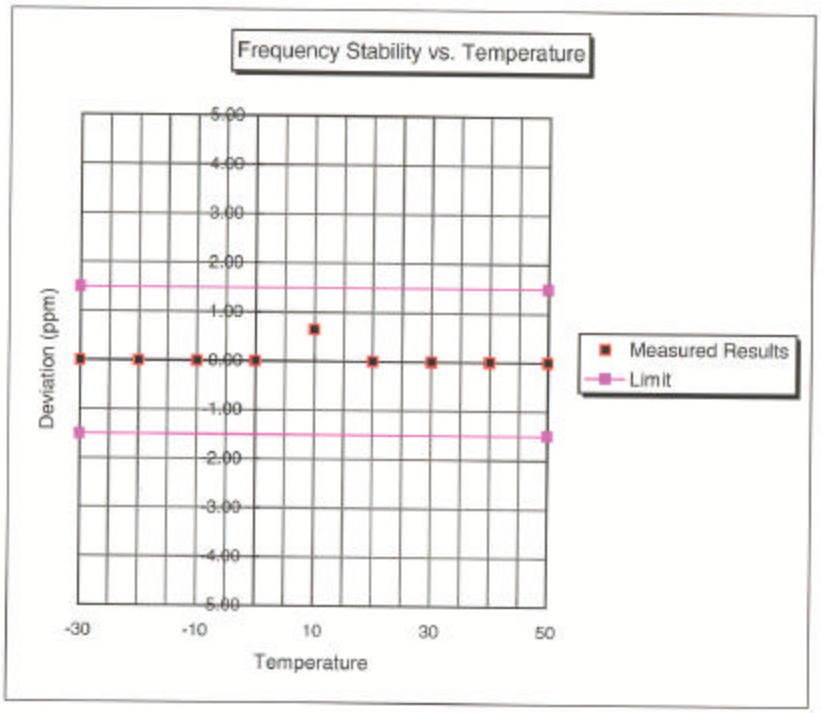
Test Results Reviewed By:

David Blethen

Temperature (degrees C)	Measured Frequency (MHz)	Deviation (ppm)
-30	1850.131300	0.00
-20	1850.131300	0.00
-10	1850.131300	0.00
0	1850.131300	0.00
10	1850.132500	0.65
20	1850.131300	0.00
30	1850.131300	0.00
40	1850.131300	0.00
50	1850.131300	0.00

Ref TX Frequency was: 1850.131300 MHz

Maximum Deviation = N/A



FCC Certification
Cellphone
Frequency Stability vs. Voltage

Test Results Reviewed By:

David Blethen

Voltage (V DC)	Measured Frequency (MHz)	Deviation (ppm)
4	1850.1313	0.0
3.3	1850.1325	0.6

Actual TX Frequency was: 1850.131 MHz

Maximum Deviation = N/A