4.7 RF POWER EXPOSURE EVALUATION TEST

4.7.1 LIMIT

According to the requirement of IEEE C95.1 and FCC OET Bulletin 65.

Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength(E) (V/m)	Magnetic Field Strength(H) (A/m)	Power density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength(E) (V/m)	Magnetic Field Strength(H) (A/m)	Power density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz *Plane-wave equivalent power density

NOTE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

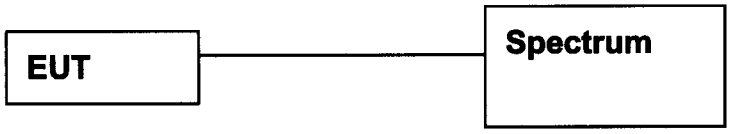
4.7.2 TEST EQUIPMENT

The following test equipment was used during the test:

EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DUE DATE OF CAL. & CAL. CENTER
SPECTRUM	9kHz-7GHz	ROHDE & SCHWARZ	FSP7/ 839511/010	MAR. 2003 R & S
POWER METER	N/A	HP	435A/ 1810A08277	NOV. 2002 ETC
POWER SENSOR	DC-18GHz 0.3• W-100mW 50• •	HP	8481A	NOV. 2002 ETC

NOTE: The calibration interval of the above test equipment is one year and the calibrations are traceable to NML/ROC and NIST/USA.

4.7.3 TEST SET-UP



The EUT was connected to the spectrum through a 50• •RF cable.

4.7.4 TEST PROCEDURE

1. The EUT was operating in transmitter mode and could be controlled its channel. The power meter read power value.
2. The EUT uses an sleeve diploe antenna and the antenna gain is 2dBi declared by manufacturer.
3. As discussed in OET Bulletin 65, calculations can be made to predict RF field strength and power density levels around typical RF sources. For example, in the case of a non-directional antenna, a prediction for power density in the far-field of the antenna can be made by use of the general Equations (1) or (2) below [for conversion to electric or magnetic field strength see Equation (3) above]. These equations are generally accurate in the far-field of an antenna but will over-predict power density in the near field, where it could be used for making a" worst case" or conservative prediction.

$$S=PG/4\bullet\pi R^2 \qquad \text{(Eq.1)}$$

$$S=EIRP/4\bullet\pi R^2 \qquad \text{(Eq. 2)}$$

$$S=E^2/3770=37.7H^2 \qquad \text{(Eq. 3)}$$

where: S = power density (mW/cm2)

E = electric field strength (V/m)

H = magnetic field strength (A/m)

S = power density (in appropriate units, e.g. mW/cm^2)

P = power input to the antenna (in appropriate units, e.g., mW)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator (dBi)

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

where: EIRP = equivalent (or effective) isotropically radiated power

4.7.5 EUT OPERATING CONDITION

Same as section 4.1.5 of this report.

4.7.6 RESULT

Temperature:	23°C	Humidity:	65%RH
Spectrum Detector:	PK.	Tested by:	James Lee
Result:	Pass	Configuration :	1

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF Output Power to antenna (dBm)(e.i.r.p.)	Result calculated when nearby person (cm)	Limit when nearby person (cm)
1	2412	21.66	3.42	20
6	2437	20.57	3.01	20
11	2462	19.9	2.79	20

Temperature:	25°C	Humidity:	60%RH
Spectrum Detector:	PK.	Tested by	James Lee
Result:	Pass	Configuration :	2

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF Output Power to antenna (dBm)(e.i.r.p.)	Result calculated when nearby person (cm)	Limit when nearby person (cm)
1	2412	22.5	3.76	20
6	2437	22.8	3.89	20
11	2462	20.7	3.06	20