TRC® Since1985
Training Research Co., Ltd.
No. 2, Lane 194, Huan-Ho St., Hsi-Chih, Taipei Hsien 221, Taiwan, R.O.C.
TEL: 886-2-26935155 FAX: 886-2-26934440

Measurement of MPE

Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Filed Strength (H) (A/m)	Power Density (S) (mW/cm2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
(A) Limits for Occupational/Controlled Exposure				
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
(B) Limits for General Population/Uncontrolled Exposure				
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

According to **OET BULLETIN 56 Fourth Edition/August 1999**,
Equation for Predicting RF Fields:

$$S = \frac{P\ G}{4\pi R^2} = \frac{53.70\ x\ 1.151}{4\pi (20)^2} = \mathbf{0.01405\ mW/cm^2}$$

Where: S = power density (in appropriate units, e.g. mW/cm2)

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

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

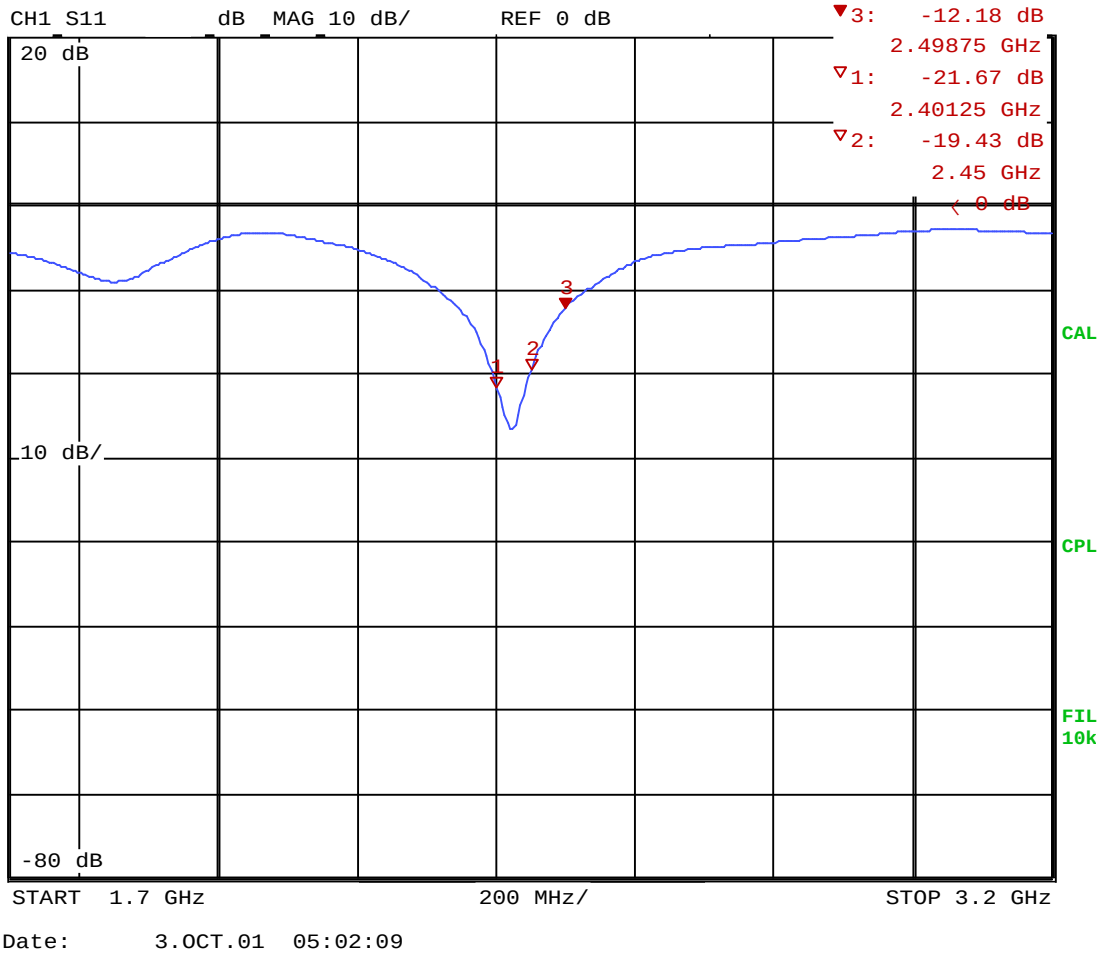
The Numeric gain G of antenna with a gain specified in dB is determined by:

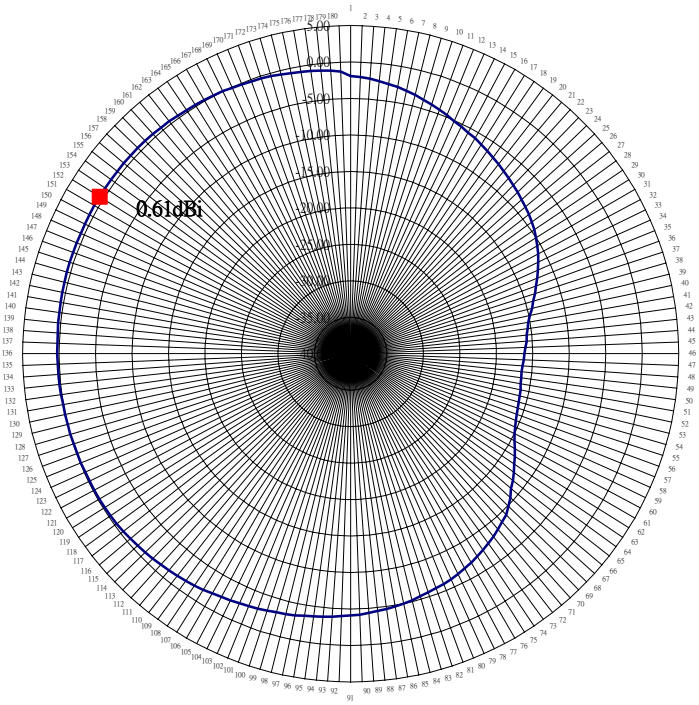
$G = \text{Log}^{-1}$ (dB antenna gain/10)

$G = \text{Log}^{-1}$ (1.19/10) = 1.315

AP PCB dipole antenna(horizontal)：

Frequency (MHz)	H-plane Max (dBi)	E-plane Max (dBi)	S11 return loss (dB)
2400	0.61	0.43	19.43
2450	0.55	1.19	21.67
2500	0.00	0.10	12.18





ANTENNA

TEST DATE:2001/10/08

TEST FREQUENCY:2400MHz

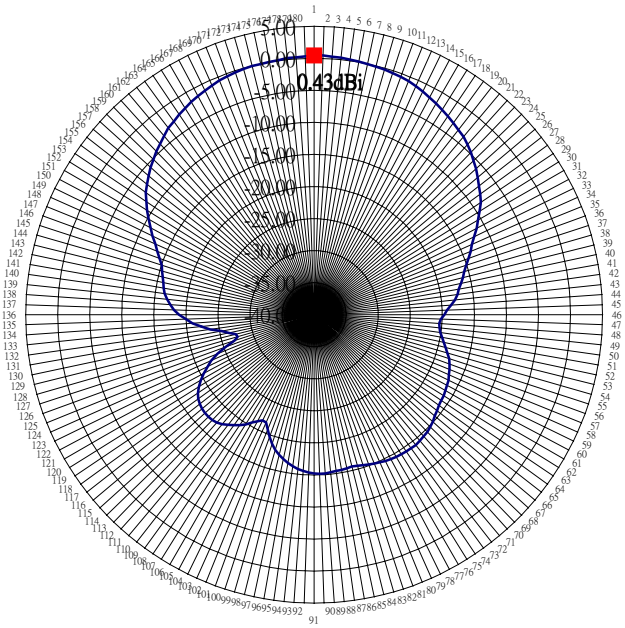
TEST POLARIZATION:VERTICAL
(H-PLANE)
TEST ANTENNA: HORN ANTENNA

TEST STEP DEGREE: 2 DEGREE

TEST CHAMBER: RF CHAMBER

TEST PERSONNEL:JAMES

MAX GAIN : 0.61dBi
MIN GAIN :-16.41dBi
AVE GAIN : -5.04dBi



ANTENNA

TEST DATE:2001/10/08

TEST FREQUENCY:2400MHz

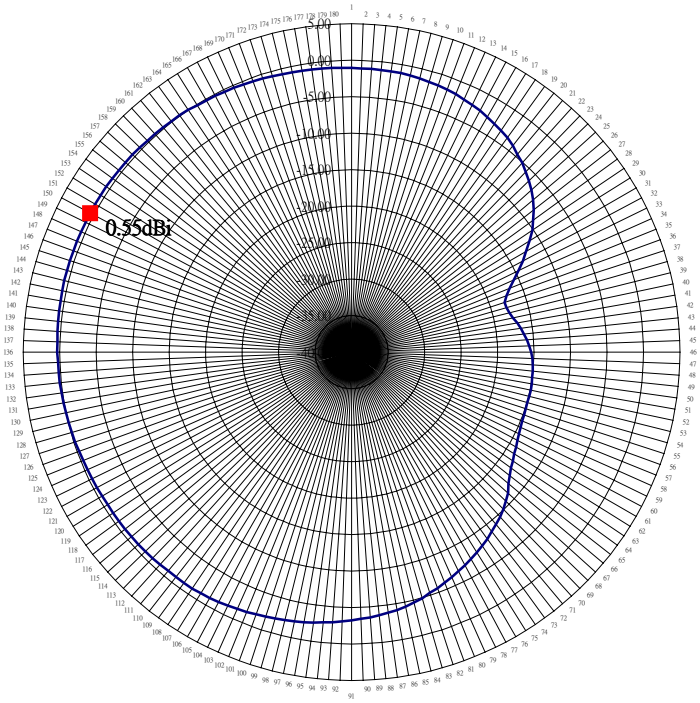
TEST
POLARIZATION:HORIZONTAL
(E-PLANE)
TEST ANTENNA: HORN ANTENNA

TEST STEP DEGREE: 2 DEGREE

TEST CHAMBER: RF CHAMBER

TEST PERSONNEL:JAMES

MAX GAIN :0.43dBi
MIN GAIN :-27.56dBi
AVE GAIN : -12.56dBi



ANTENNA

TEST DATE:2001/10/08

TEST FREQUENCY:2450MHz

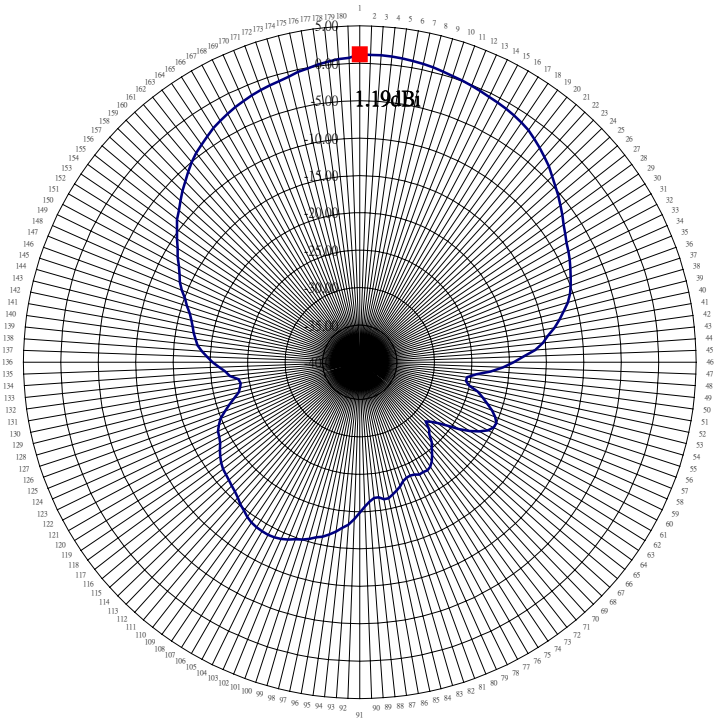
TEST POLARIZATION:VERTICAL
(H-PLANE)
TEST ANTENNA: HORN ANTENNA

TEST STEP DEGREE: 2 DEGREE

TEST CHAMBER: RF CHAMBER

TEST PERSONNEL:JAMES

MAX GAIN : 0.55dBi
MIN GAIN :-17.96dBi
AVE GAIN : -4.79dBi



ANTENNA

TEST DATE:2001/10/08

TEST FREQUENCY:2450MHz

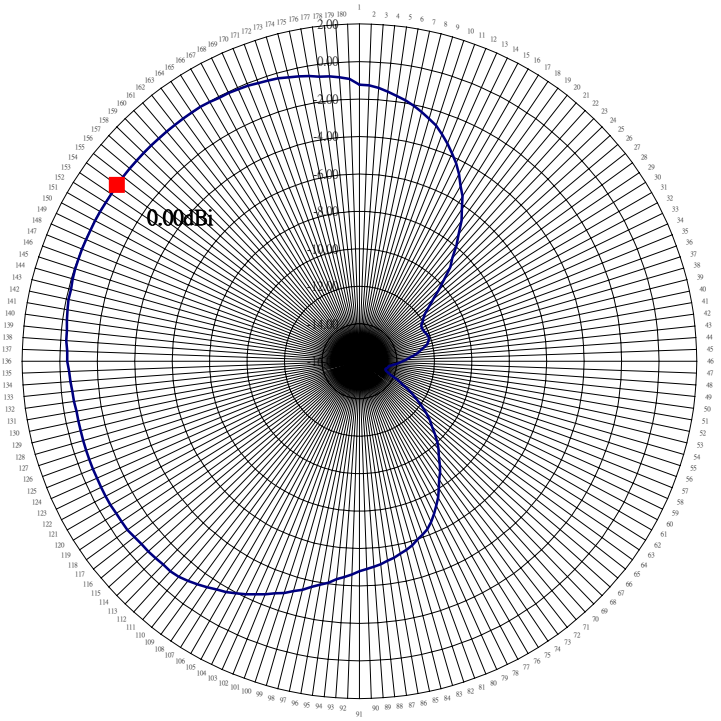
TEST POLARIZATION:HORIZONTAL
(E-PLANE)
TEST ANTENNA: HORN ANTENNA

TEST STEP DEGREE: 2 DEGREE

TEST CHAMBER: RF CHAMBER

TEST PERSONNEL:JAMES

MAX GAIN :1.19dBi
MIN GAIN :-28.14dBi
AVE GAIN : -13.54dBi



ANTENNA

TEST DATE:2001/10/08

TEST FREQUENCY:2500MHz

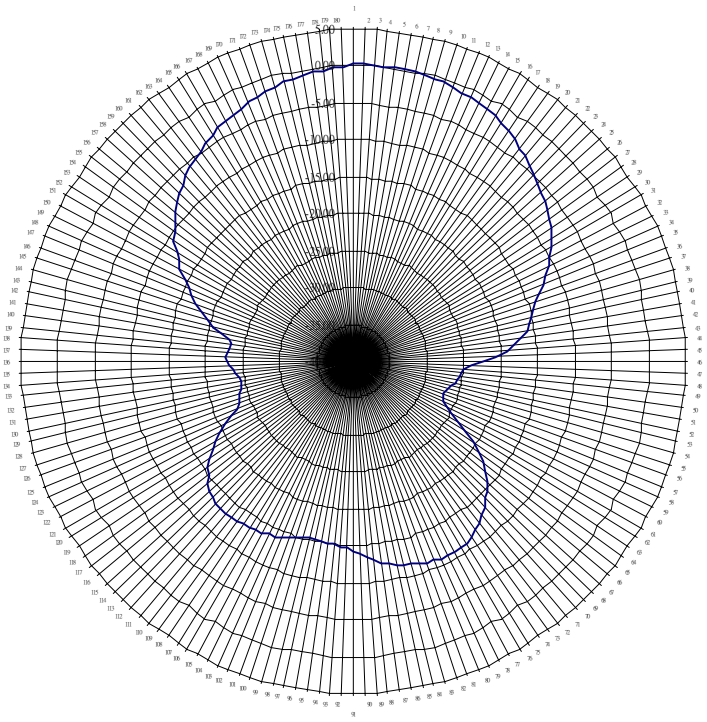
TEST POLARIZATION:VERTICAL
(H-PLANE)
TEST ANTENNA: HORN ANTENNA

TEST STEP DEGREE: 2 DEGREE

TEST CHAMBER: RF CHAMBER

TEST PERSONNEL:JAMES

MAX GAIN : 0dBi
MIN GAIN :-14.55dBi
AVE GAIN : -5.02dBi



ANTENNA

TEST DATE:2001/10/08

TEST FREQUENCY:2500MHz

TEST POLARIZATION:HORIZONTAL
(E-PLANE)
TEST ANTENNA: HORN ANTENNA

TEST STEP DEGREE: 2 DEGREE

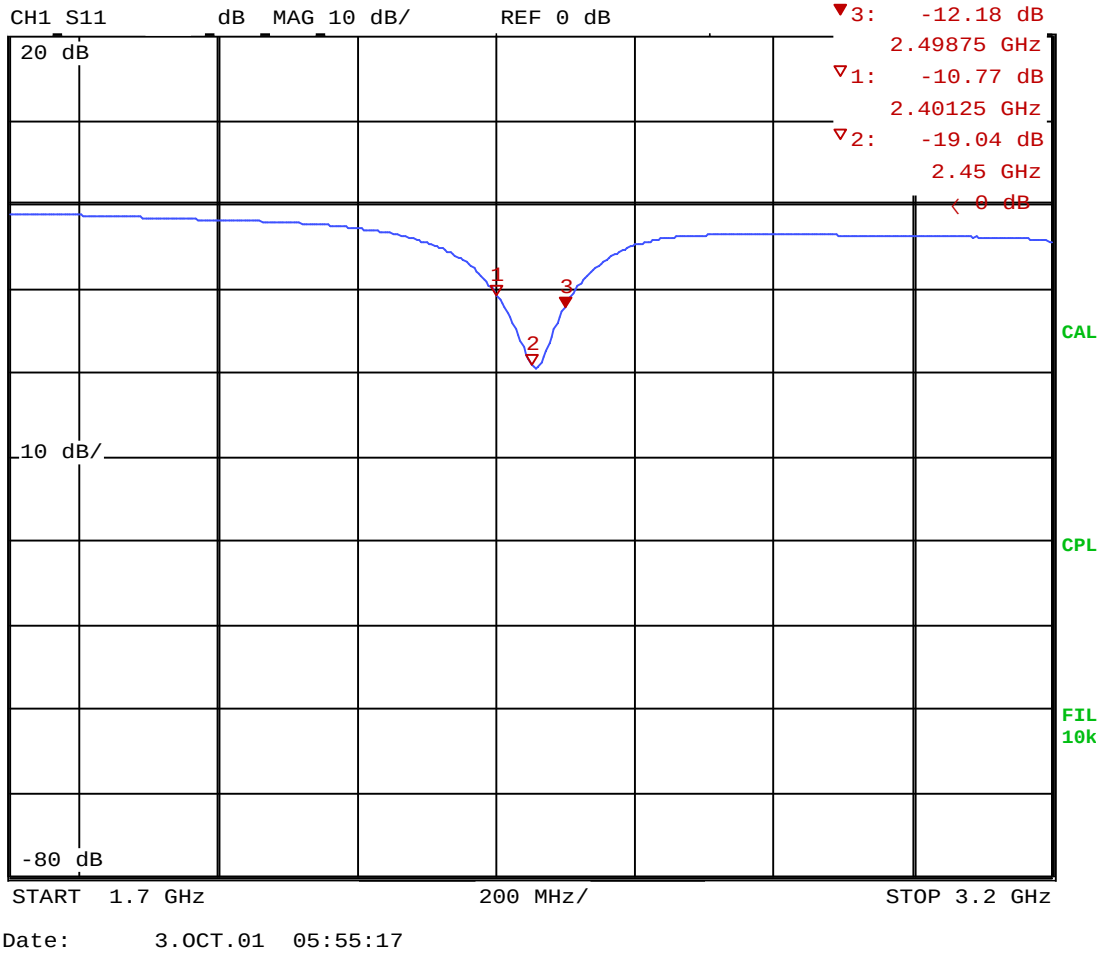
TEST CHAMBER: RF CHAMBER

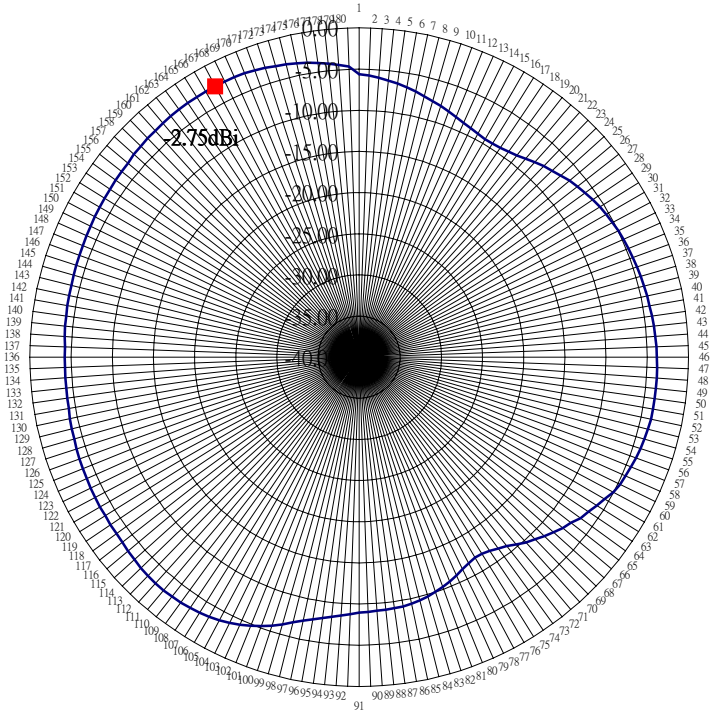
TEST PERSONNEL:JAMES

MAX GAIN :0.1dBi
MIN GAIN :-27.15dBi
AVE GAIN : -12.93dBi

AP PCB dipole antenna(vertical)：

Frequency (MHz)	H-plane Max (dBi)	E-plane Max (dBi)	S11 return loss (dB)
2400	-2.75	0.1	10.77
2450	-0.66	0.38	19.04
2500	-2.44	0.5	12.18





ANTENNA

TEST DATE:2001/10/08

TEST FREQUENCY:2400MHz

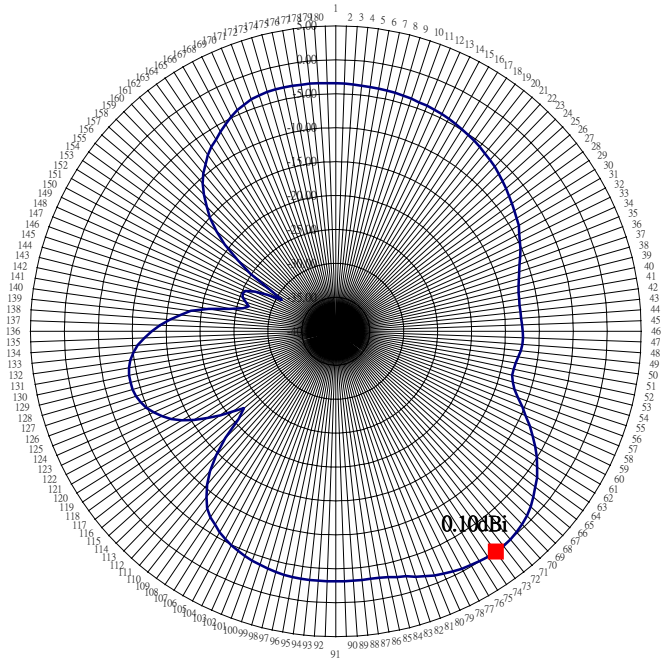
TEST POLARIZATION:VERTICAL
(H-PLANE)
TEST ANTENNA: HORN ANTENNA

TEST STEP DEGREE: 2 DEGREE

TEST CHAMBER: RF CHAMBER

TEST PERSONNEL:JAMES

MAX GAIN : -2.75dBi
MIN GAIN :-11.89dBi
AVE GAIN : -5.57dBi



ANTENNA

TEST DATE:2001/10/08

TEST FREQUENCY:2400MHz

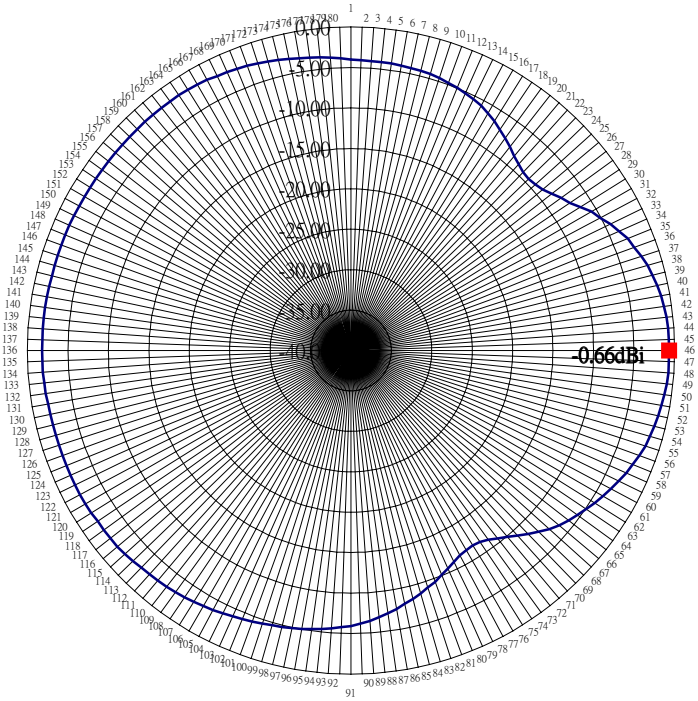
TEST
POLARIZATION:HORIZONTAL
(E-PLANE)
TEST ANTENNA: HORN ANTENNA

TEST STEP DEGREE: 2 DEGREE

TEST CHAMBER: RF CHAMBER

TEST PERSONNEL:JAMES

MAX GAIN :0.1dBi
MIN GAIN :-30.83dBi
AVE GAIN : -8.92dBi



ANTENNA

TEST DATE:2001/10/08

TEST FREQUENCY:2450MHz

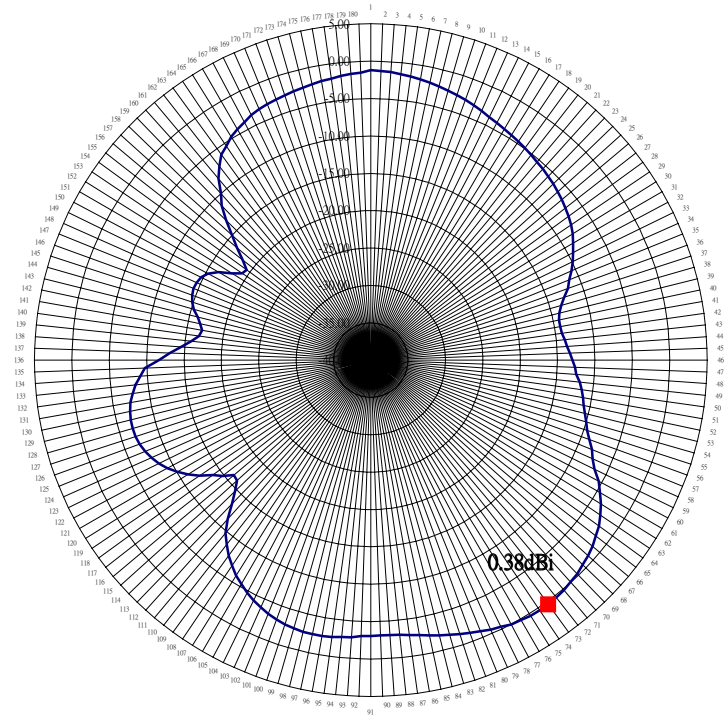
TEST POLARIZATION:VERTICAL
(H-PLANE)
TEST ANTENNA: HORN ANTENNA

TEST STEP DEGREE: 2 DEGREE

TEST CHAMBER: RF CHAMBER

TEST PERSONNEL:JAMES

MAX GAIN : -0.66dBi
MIN GAIN :-11.58dBi
AVE GAIN : -4.13dBi



ANTENNA

TEST DATE:2001/10/08

TEST FREQUENCY:2450MHz

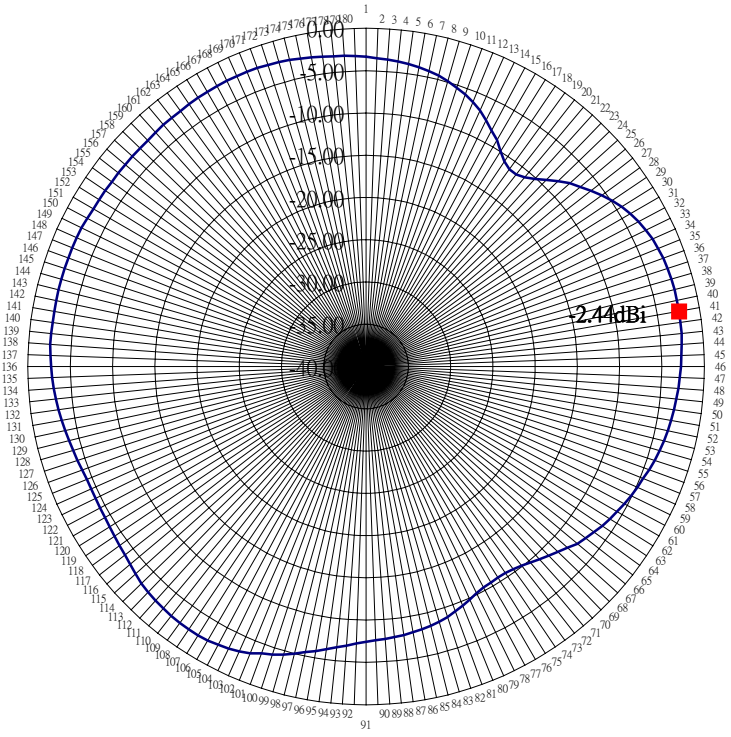
TEST POLARIZATION:HORIZONTAL
(E-PLANE)
TEST ANTENNA: HORN ANTENNA

TEST STEP DEGREE: 2 DEGREE

TEST CHAMBER: RF CHAMBER

TEST PERSONNEL:JAMES

MAX GAIN :0.38dBi
MIN GAIN :-19.43dBi
AVE GAIN : -7.19dBi



ANTENNA

TEST DATE:2001/10/08

TEST FREQUENCY:2500MHz

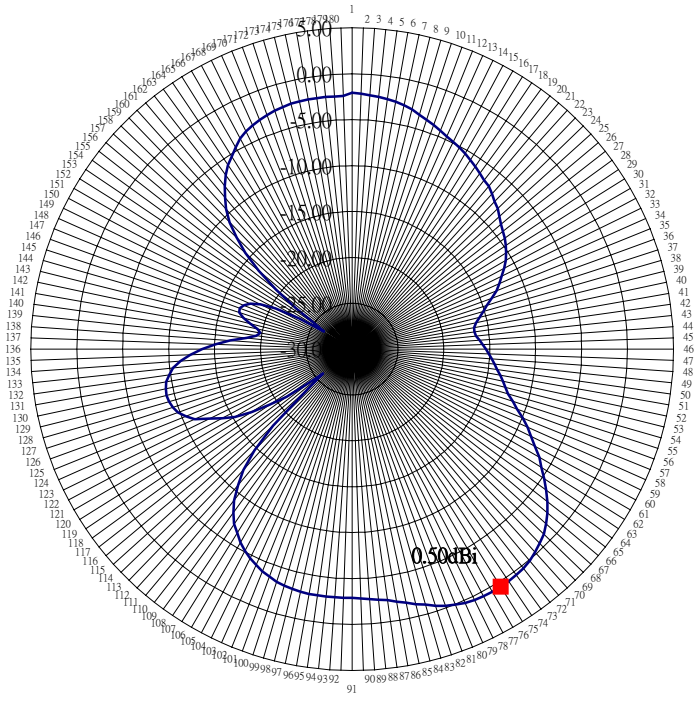
TEST POLARIZATION:VERTICAL
(H-PLANE)
TEST ANTENNA: HORN ANTENNA

TEST STEP DEGREE: 2 DEGREE

TEST CHAMBER: RF CHAMBER

TEST PERSONNEL:JAMES

MAX GAIN : -2.44dBi
MIN GAIN :-11.20dBi
AVE GAIN : -4.79dBi



ANTENNA

TEST DATE:2001/10/08

TEST FREQUENCY:2500MHz

TEST POLARIZATION:HORIZONTAL
(E-PLANE)
TEST ANTENNA: HORN ANTENNA

TEST STEP DEGREE: 2 DEGREE

TEST CHAMBER: RF CHAMBER

TEST PERSONNEL:JAMES

MAX GAIN :0.5dBi
MIN GAIN :-26.36dBi
AVE GAIN : -8.73dBi