



Prediction of Maximum Permissible Exposure

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{PG}{4 \pi R^2}$$

where: S = power density

P = power input to the antenna

G = directional power gain of the antenna relative to an isotropic radiator

R = distance to the center of radiation of the antenna

	GSM 850	GSM1900	ZigBee
Max. peak output power at antenna terminal(dBm):	31.50	28.60	22.95
Max. peak output power at antenna terminal(mW):	1412.863	724.937	197.015
Antenna gain for prediction(dBi):	2.98	8.4	4
Maximum antenna gain(numeric):	1.9860949	6.91831	2.5
Duty Cycle(%):	100	100	100
Prediction distance(cm):	25	25	25
Prediction frequency(MHz):	824	1850	2400
Limit for uncontrolled exposure(mw/cm ²):	0.55	1.00	1.00
$S(\text{mw/cm}^2) = :$	0.36	0.64	0.0630

Scenario 1 - GSM850 + ZigBee $S_{\text{TOTAL}}(\text{mw/cm}^2) = :$ 0.42

Scenario 2 - GSM1900 + ZigBee $S_{\text{TOTAL}}(\text{mw/cm}^2) = :$ 0.70

NOTE: RF Power output is conducted power taken from FCC grants (QIPTC63 for GSM modem and S2ZRTC2400 for ZigBee). Antenna gain is taken from Z3294 antenna data sheet.

IN-BUILDING ANTENNAS

Fixed Mount Multi-Band Omnidirectional Antenna



MAXRAD

Technical Data

General Specifications:
Bottom fed multi-band antenna for use on metallic ground planes
Maximum Power:
10 watts
VSWR:
< 1.5 (Wi-Fi) < 1.67 (AMPS, PCS)
Nominal Impedance:
50 ohms
Polarization:
Linear, vertical
Radome Material:
UV stable plastic
Cable:
Two 3 ft Pro-Flex Plus 195
Connector:
Male SMA (AMPS/PCS) Reverse Polarity SMA (WiFi)
Mount Method:
Through hole 15/16 dia (0.94) 7/8-14 UNF plastic Hex-nut

Fixed Mount Multi-Band Omnidirectional Antenna NEW

This antenna provides multi-band omnidirectional coverage for fixed applications operating in AMPS, PCS and Wi-Fi frequencies. Featuring a durable, very low profile radome and integral stud mount base for through hole installations, this antenna is ideal for vending machine, meter reading and other data tracking applications requiring a discrete antenna solution. The antenna is terminated with two 3-foot low loss cables.

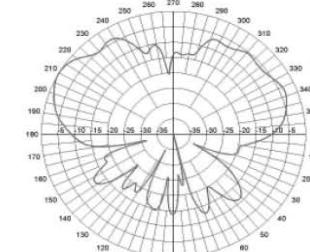
Antenna Electrical Specifications

Model	Frequency Range	Horizontal Beamwidth	Vertical Beamwidth	Peak Gain
Z3294	824-896 MHz, 1850-1990 MHz, 2.4-2485 MHz	360° 360° 360°	40° 25° 24°	2.9 dBi 8.4 dBi 4 dBi

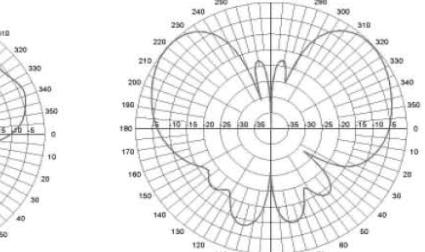
Mechanical Specifications

Model	Dimensions	Weight (Mass)
Z3294	4.4" x 1.5" (11.18 x 4.06 cm)	0.40 lb (0.18 kg)

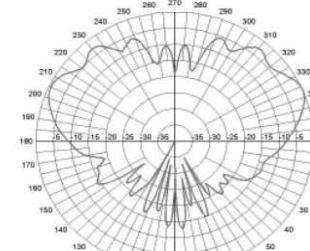
Patterns



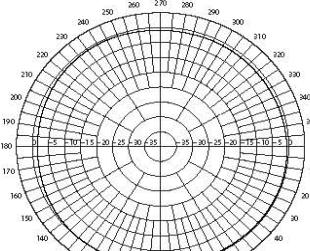
PCS Elevation Cut



AMPS Elevation Cut



ISM Elevation Cut



Azimuth Plane Radiation Pattern