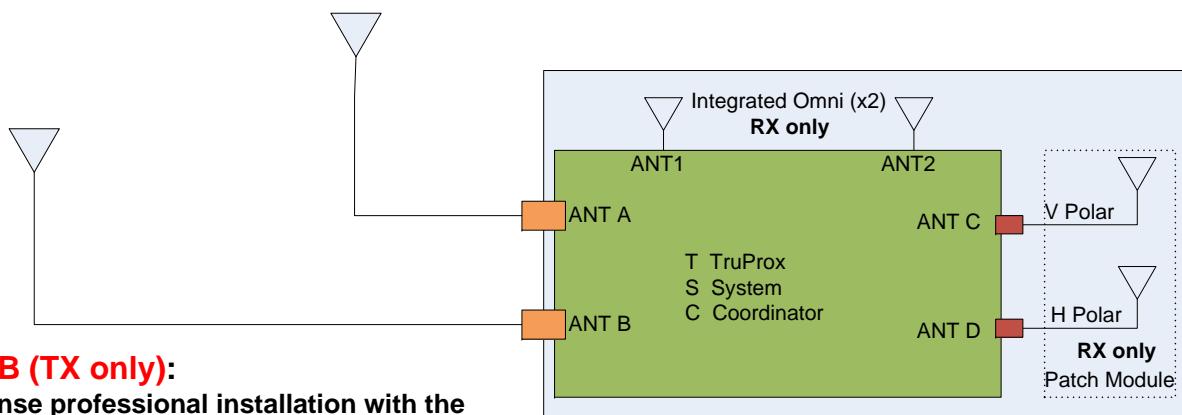


# Antenna Technical Description

Product Name: Beacon  
Model No: BE1000  
P/N: PX-7100-0002-00  
HW Build: P2  
FCC ID: X9S-BE1000

## ANT A (RX only):

Various directional antennas if needed for network:  
Teletronics P/N:15-537 (15dBi; 20 degree beam width)



## ANT B (TX only):

Proxense professional installation with the following antennas only:

CushCraft: S2403BH (3.0 dBd, 5.15 dBi)  
L-Com: HG2403CU (3.0 dBi)

■ SMA

■ MMCX



# Rufa 2.4 GHz SMD Antenna

Part No. 3030A5839 / 3030A5887

Product Specification

## 1 Features

- Designed for 2.4 GHz applications: Bluetooth®, Wi-Fi® (802.11b/g), ZigBee®, etc.
- Easy to integrate
- Low profile design for use with no ground beneath the antenna
- High efficiency
- Light weight
- Intended for SMD mounting
- Supplied in tape on reel

## 2 Description

Rufa is intended for use with all 2.4 GHz applications. The antenna uses a ground plane in order to radiate efficiently, but this ground plane must not extend underneath the antenna itself.

The antenna is available in two versions with the feed locations on the right or left hand side of the antenna.

## 3 Applications

- Mobile phones
- PDAs
- PNDs
- Headsets
- PMPs / MP3s
- Laptops
- PC-Cards
- Sensors



Integrated Antenna and RF Solutions

Rufa 2.4 GHz SMD Antenna  
Part No. 3030A5839 / 3030A5887

## 4 Part numbers

Rufa Left: 3030A5839-01

- A5839  
YYWW

Rufa Right: 3030A5887-01

- antenova®  
A5887  
YYWW ●

## 5 General data

Product name	Rufa 2.4 GHz
Part Number	3030A5839-01 (Left) 3030A5887-01 (Right)
Frequency	2.4 – 2.5 GHz
Polarization	Linear
Operating temperature	-40 °C to +85 °C
Impedance with matching	50 Ω
Weight	0.1 g
Antenna type	SMD
Dimensions	12.8 x 3.9 x 1.1 [mm]

## 6 Electrical characteristics

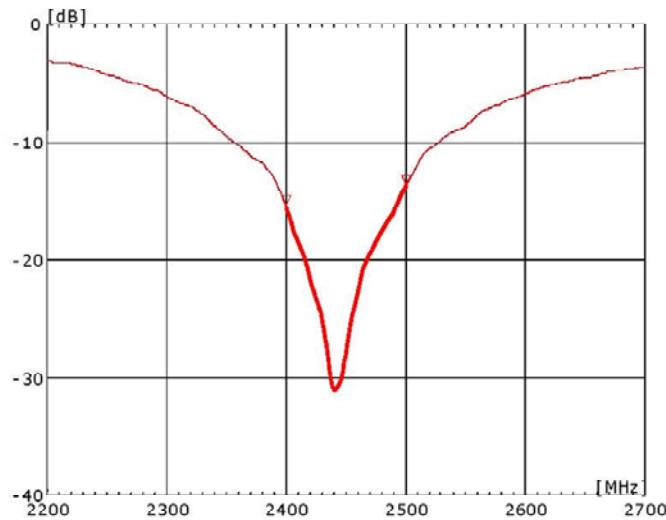
	Typical performance	Conditions
Peak gain	2.1 dBi	
Average gain	-1.2 dBi	All data measured on Antenova's reference boards, part numbers AN-1-0543-1 and AN-1-0556-1
Average efficiency	75%	
Maximum Return Loss	-11 dB	Data given for the 2.4 – 2.5 GHz frequency range
Maximum VSWR	1.8:1	

Integrated Antenna and RF Solutions

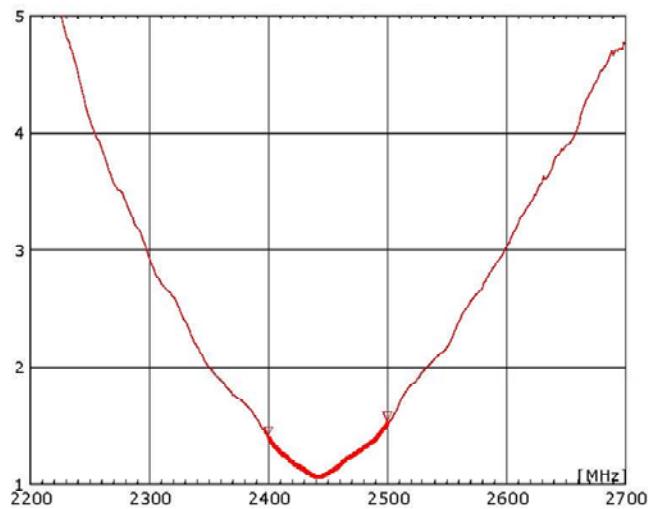
Rufa 2.4 GHz SMD Antenna  
Part No. 3030A5839 / 3030A5887

## 7 Electrical performance

### 7-1 Return Loss



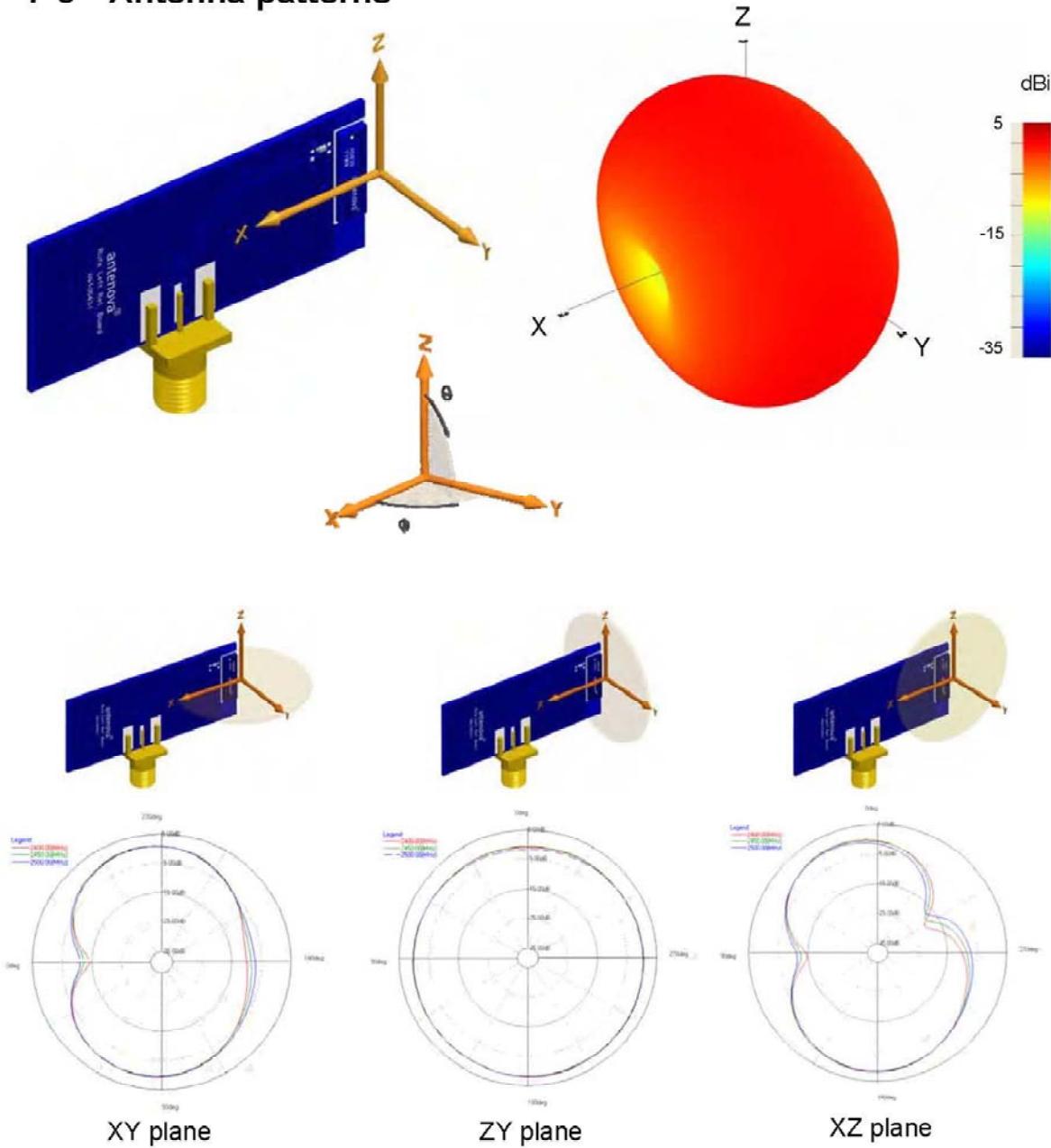
### 7-2 VSWR



Integrated Antenna and RF Solutions

Rufa 2.4 GHz SMD Antenna  
Part No. 3030A5839 / 3030A5887

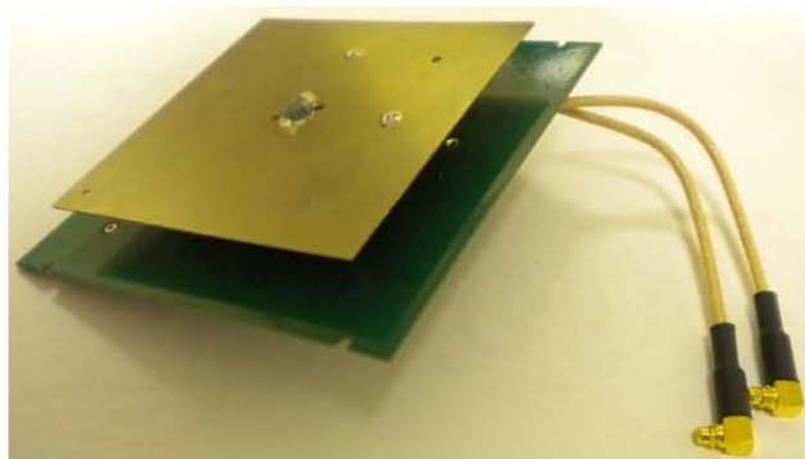
## 7-3 Antenna patterns



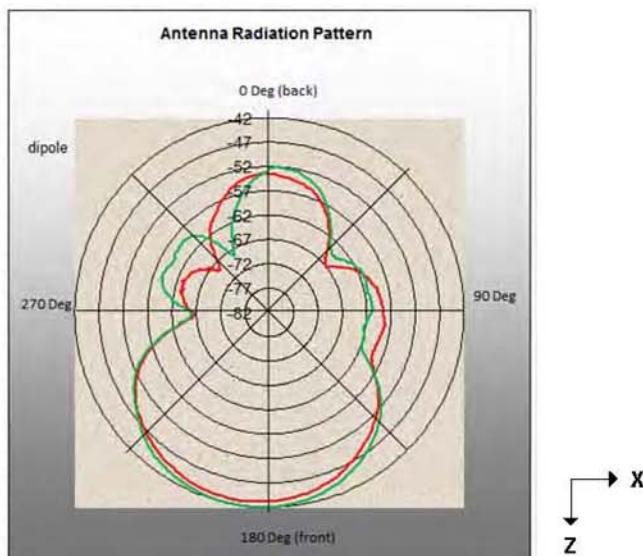
Patterns show combined polarisations  
measured on reference board AN-1-0556-1

Integrated Antenna and RF Solutions

## Patch Antenna Electrical Specifications

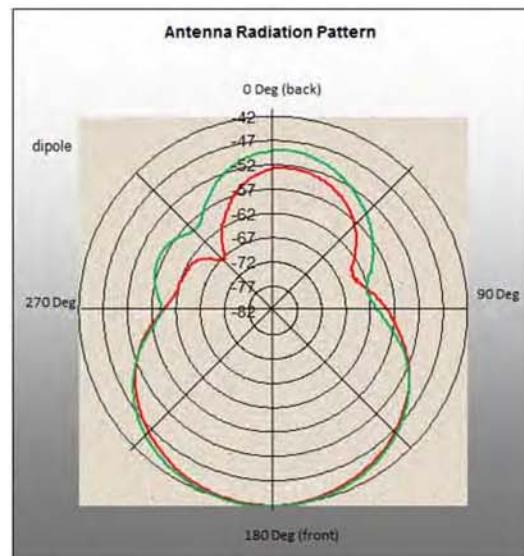


**Frequency:** 2400 – 2500MHz  
**Impedance:** 50 Ohm



**Antenna Polarization: Horizontal**

**Frequency (MHz):** 2450 MHz  
**Calibration** 0 dBi = -50.50 dBm  
Peak gain vert (dBi) 7.58  
Peak gain Horz (dBi) 8.63



**Antenna Polarization: Vertical**

**Frequency (MHz):** 2450 MHz  
**Calibration** 0 dBi = -49.70 dBm  
Peak gain vert (dBi) 7.89  
Peak gain Horz (dBi) 8.06

## PRODUCT DATA SHEET

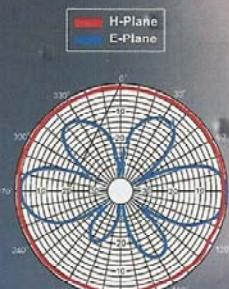
COMMUNICATIONS ANTENNAS



**CUSHCRAFT**  
CORPORATION

### DATA TRANSMISSION OMNIS

- Polycarbonate enclosures
- Available with ceiling mounts
- Plated copper laminated radiator
- Weatherproof designs with UltraLink® pigtail
- Broadband performance
- DC grounded
- Omnidirectional performance



### Special Purpose Omnidirectional Antennas

Cushcraft Corporation recently introduced two more ISM band data transmission omnidirectional antennas, the S2403BH and the S2403BP. Both antennas provide for transmission and reception of linearly polarized signals in the 2400-2500 MHz frequency band. These antennas consists of a series fed, two element dipole array providing a nominal 3 dBd gain with a nominal 360 by 30 degrees half power beamwidth. Each antenna has a VSWR of 1.5:1 maximum on 50 ohms impedance. The enclosure is constructed of a durable polycarbonate. The S2403BP measures 1 inch in diameter, 11.5 inches in height and weighs 4 ounces. The S2403BH measures 1 inch in diameter, 11.5 inches in height and weighs 2 ounces. The antenna is an excellent choice for superior RF coverage in warehouses, auditoriums, shopping malls, industrial complexes and more. Standard models of the antennas are white in color. Installation options include a pole mount or suspended ceiling mount.

### DATA OMNI SPECIFICATION CHART

Model	Freq. MHz	Gain dBi	Bandwidth 1.5:1 MHz	-3dB bmwidth E-Plane	Height In (cm)	Weight lb (kg)	W/sur Area ft <sup>2</sup> (m <sup>2</sup> )	W/survival mph (kph)	Power (Watts)	Enclosure Material	Mount Style	Mast Dia in (cm)
S5703BP5SMF	5725-5875	3	150	38°	7 (17.8)	0.3 (0.14)	.06 (.006)	125 (200)	20	Polycarbonate	Tube end	2 (5.1)
S5703BH7SMF	5725-5875	3	150	38°	7 (17.8)	0.2 (0.1)	.06 (.006)	125(200)	20	Polycarbonate	Ceiling	N/A
S5153BP5SMF	5150-5350	3	200	38°	7 (17.8)	0.2 (0.1)	.06 (.006)	125(200)	20	Polycarbonate	Tube end	2 (5.1)
S5153BH7SMF	5150-5350	3	200	38°	7 (17.8)	0.2 (0.1)	.06 (.006)	125(200)	20	Polycarbonate	Ceiling	N/A
S2403BH12NF	2400-2500	3	100	38°	11-1/2 (29.2)	0.31 (0.14)	0.08 (0.007)	125 (200)	50	Polycarbonate	Ceiling	N/A
S2403BP12NF	2400-2500	3	100	38°	11-1/2 (29.2)	0.41 (0.18)	0.08 (0.007)	125 (200)	50	Polycarbonate	Tube end	2 (5.1)
S2400BH12NF	2400-2500	0	100	75°	9 (22.9)	0.29 (0.13)	0.122 (0.011)	125 (200)	50	Polycarbonate	Ceiling	N/A

HyperLink Wireless 2.4 GHz Compact 3 dBi  
Ceiling Mount Omnidirectional Wireless  
LAN Antenna

Model: HG2403CU



#### Features

- Superior performance
- Compact size, only 2.5" long
- Compatible with wireless hotspot applications
- Easy to mount

#### Description

##### Superior Performance

This very compact high performance 2.4GHz ceiling-mount omnidirectional WiFi antenna provides broad coverage and 3 dBi gain. It is ideally suited for IEEE 802.11b and 802.11g wireless LANs, Bluetooth®, public wireless hotspot applications and other in-building applications where wide coverage is desired.

#### Applications

This antenna is only 2.5" long and features an aesthetic white ABS plastic radome. It is typically ceiling-mounted through a single hole in a standard suspended ceiling tile using the included mounting hardware. Because of its near-invisible design this RF antenna is ideal for use in office environments and public buildings where durability and aesthetics are important.

#### Specifications

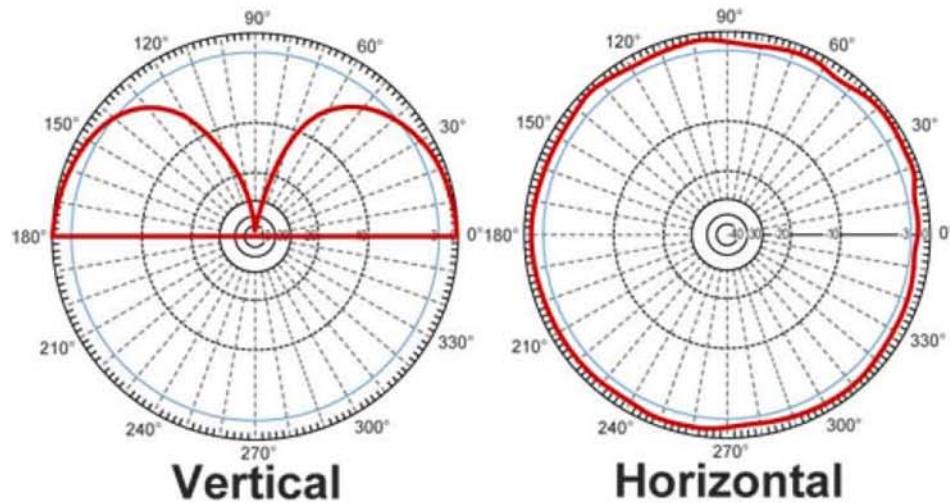
##### Electrical Specifications

Frequency	2400-2500 MHz
Gain	3 dBi
Impedance	50 Ohm
VSWR	< 1.5:1 avg.

##### Mechanical Specifications

Weight	< 0.25 lbs. (0.11 kg)
Length	2.6" (66.04 mm)
Finish	White
Connector	Integral N Type Female
Mounting	Through Ceiling Tile
Operating Temperature	-40° C to 85° C (-40° F to 185° F)
Polarization	Vertical

## Antenna Gain Pattern



Vertical

Horizontal