



**EUROPEAN
ANTENNAS**



Application Notes 4.4 to 5.0 GHz

C-BAND ANTENNAS FOR
FIXED AND MOBILE
MILITARY AND SECURITY
DATA LINKS
WIRELESS LAN
TELEMETRY
VIDEO AND VOICE LINKS

Antennas in the 4.4-5.0GHz band

Experienced in the development of antennas within this band, European Antennas has developed a standard range of directional, sector and omni antennas for defence and security applications. Many countries have adopted this frequency range as a 'Government only' band and are using it for high data rate point-to-point or point to multi-point applications. The restrictive use of this band for government applications affords a greater level of security than using frequencies which are designated for civil applications.

Commercially available radio systems based on WLAN and WiMAX (2.4GHz, 3.5GHz or 5.8GHz) technologies can be up or down-converted to this defence-designated band enabling systems to be developed rapidly. It is then only necessary to provide antennas that cover the applicable band to make a cost-effective system.

Future Developments

Based in a single location and with a highly qualified engineering team, European Antennas plans the expansion of this range to meet customer requirements for features such as dual polarity for diversity and wide azimuth beamwidth sector antennas.

Directional and Sector Antennas

Directional antennas – from single patch with 7dBi gain to slim panel antennas with 26dBi gain.

Sector panels have 60° azimuth coverage in single and multiple arrays with circular or linear polarisation. Single sector antennas have slim, discreet construction whilst multi-sector antennas are contained in a single cylindrical radome.

Omni-Directional Antennas

Low to medium gain collinear vertically polarised omni antennas function to full specification over the whole band, whereas higher gain omnis cover designated parts of the band.

Circular polarised omni antennas are used for a variety of specialist applications including being mounted on vehicles, helicopters and UAVs for ground to air communications.

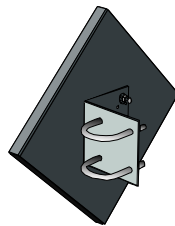
COTS Designs

Since this band has dual-use, European Antennas has used rugged but commercial technology in the design of all products that have robust construction with aluminium housings and glass fibre radomes. The panels and sectors are extremely slim for a discreet appearance. Most are available in white, tan, olive green or black. Full radiation pattern documentation is available for all antennas.



Multi-sector antenna with 5 high gain sectors and overhead coverage

MSA6-16-46L/879



Directional flat panel antenna with 20dBi gain, 14° by 14° radiation pattern and vertical polarisation

FPA20-47V/1162



High gain, directional flat panel antenna with vertical polarisation, 26dBi gain and 6° by 6° focused radiation pattern

FPA26-47V/1157

Code	Model	Frequency GHz	Gain dBi	Beamwidth Azimuth°	Elevation°	Polarisation	Dimensions mm
Directional Antennas*							
LPA7-47R-TNC/1182	Low Profile	4.40 - 5.00	7	65	65	Right Circular	10x84Ø
LPA7-47R/542	Low Profile	4.40 - 5.00	7	75	75	Right Circular	10x84Ø
FPA18-48R/751	Flat Panel	4.60 - 5.00	17	20	20	Right Circular	201x20x10
FPA20-47R-TNC/1183	Flat Panel	4.40 - 5.00	19.5	14	14	Right Circular	265x265x22
FPA20-47V/1162	Flat Panel	4.40 - 5.00	20	14	14	Vertical	265x265x22
FPA20-47V/1323 tan	Flat Panel	4.40 - 5.00	20	14	14	Vertical	265x265x22
FPA21-10-47V/1153	Flat Panel	4.40 - 4.85	20	10	19	Vertical	386x216x10
FPA21-10A-47R/591	Flat Panel	4.40 - 4.85	21	10	20	Right Circular	386x256x10
FPA26-47V/1157 green	Flat Panel	4.40 - 5.00	26	6	5.5	Vertical	600x600x24
FPA26-47V/1322 tan	Flat Panel	4.40 - 5.00	26	6	6	Vertical	600x600x24
SA14-60-47R/1165	Sector	4.40 - 5.00	14.5	60	9	Right Circular	408x76x9
SA15-60-47V/1419	Sector	4.40 - 5.00	15	65	12	Vertical	470x106x23
MSA6-16-46L/879	Multi-Sector	4.40 - 4.80	15	70-60	8.4-55	Left Circular	527x158Ø

Omni-directional Antennas*

EVD2-4700/1174	Omni, rugged	4.40 - 5.00	2	360	80	Vertical	120x29Ø
SVD2-4460-SM90/478	Omni, slim	4.40 - 4.48	2	360	80	Vertical	75x4Ø
SVD2-4460/477	Omni, slim	4.40 - 4.48	2	360	80	Vertical	70x9Ø
VOA6-47/914	Omni	4.40 - 5.00	6	360	23	Vertical	224x31Ø
VOA8-47/1170	Omni	4.40 - 5.00	8	360	17	Vertical	375x70Ø
LCO6-4600-D1/908	Omni	4.40 - 4.80	6.5	360	22	Left Circular	342x109Ø
LCO6-4600-D2/918	Omni	4.40 - 4.80	6.5	360	22	Left Circular	234x102Ø
LCO6-4600/875	Omni	4.40 - 4.80	6.5	360	22	Left Circular	221x190Ø
VOA9-45/1161	Omni	4.30 - 4.80	9	360	11	Vertical	550x32Ø

*Request datasheet for full technical information

VOA9-45/1161

Flat panel antenna with 21dBiC gain and circular polarisation

FPA21-10A-47R/591



60° slim panel sector antenna with 14.5dBiC gain and circular polarisation

SA14-60-47R/1165



Due to increased requirements in US defence for this frequency band, two high gain flat panel COTS antennas of the 'one-foot' and 'two-foot' USA style, each just 1 inch (25mm) thick, have been developed. They have well defined, low sidelobe patterns for defence and homeland security applications for point-to-point single-hop data links and as the subscriber in point-to-multi-point systems.



FPA26-47V/1322



FPA20-47V/1323

Low profile antenna with 7dBi gain

LPA7-47R/542



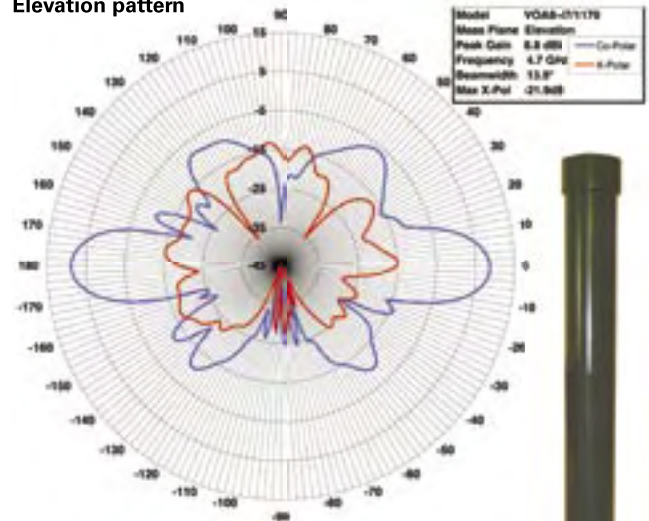
Vehicle mount omni antenna with 6dBi gain, for fixed or mobile Wireless LAN

VOA6-47/914

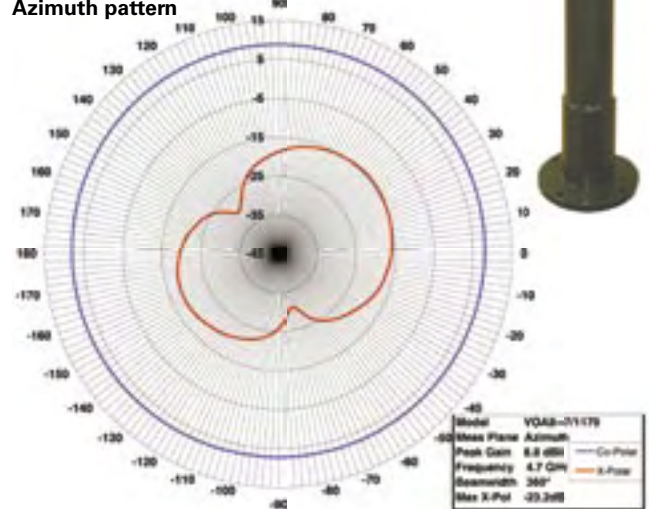


Radiation pattern data is available for all antennas. These are examples of patterns for our high gain - 8dBi - vertically polarised omni antenna VOA8-47/1170.

Elevation pattern



Azimuth pattern



Rugged omni antenna

EVD2-1700/1174



For more information and a quotation, please complete the following and

FAX +44 (0)1638 731999, or EMAIL sales@european-antennas.co.uk

Name*	Gain* (dBi/dBiC)		
Company*	Polarisation*		
Email*	Azimuth HPBW (°)		
Telephone*	Elevation HPBW (°)		
Country of origin*	VSWR (maximum)		
Date*	Mounting requirements		
Project *	Cross Polar/Axial Ratio (dB)		
Market* (please circle) Civil Security Military Satellite	Electrical tilt (°)		
Quantity*	Radiation pattern envelope (Regulatory Compliance)		
Time scale*	Front to back ratio (dB)		
Antenna type* (eg sector, direction, omni)	Interport isolation (dB)		
Frequency range* (GHz)	Connector type/location		
*Essential data	Antenna environment		
Constraints	Dimensions (mm)	Power rating (W) including cyclic loading	Mass (Kg)
Additional notes			

Spherical Near Field Test Facility

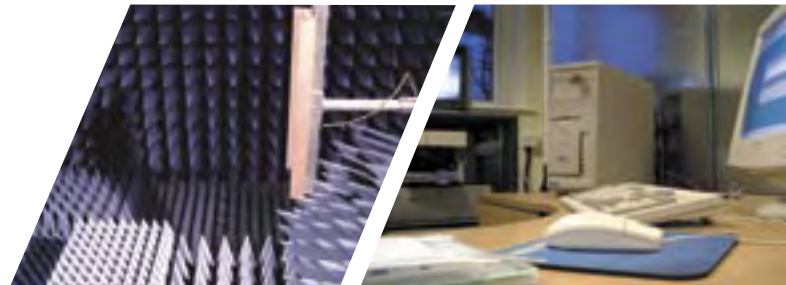
Our spherical near field test facility provides enhanced technical support.

Radiation pattern data verifies antenna specifications and ensures compliance with stringent radiation pattern envelopes.

The far field radiation pattern can be calculated in any direction, in any polarisation, circular or linear, at any angle.

Operating range is up to 40GHz.

Gain measurements are traceable to international standards.



L-Band	NATO 40.00 - 60.00 GHz, IEEE 0.390 - 1.550 GHz
S-band	2.000 - 4.000 GHz
C-band	NATO 0.500 - 1.000 GHz, IEEE 4.000 - 8.000 GHz
X-band	8.000 - 12.000 GHz
Ku-band	11.00 - 15.000 GHz
K-band	NATO 20.00 - 40.00 GHz, IEEE 12.00 - 93.00 GHz
Ka-band	18.00 - 40.00 GHz



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Issue 1, 2007-04
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