

Cobham Antenna Systems

Microwave Antennas

COBHAM

Specialist Antenna Design and Manufacture
Antennas for Thuraya Satellite/GPS/GSM

The most important thing we build is trust



Directional Antennas on Satellite in Orbit



Hemi Omni Antennas for GPS on Vehicles



Directional Antennas for GPS data links



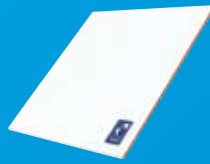
Hemi Omni Antennas for Meteorological Data



Thuraya Satellite/GPS/GSM

Antennas - Low Profile and Hemi Omni

FPA17-1.6L/1426



LPA7-1.6L-GPS/1459



FPA15-1.6L/1535



FPA7-1.6RL-GSM/2019



Antenna Developments

Cobham Antenna Systems, Microwave Antennas has developed a range of Thuraya satellite antennas with integrated GPS and GSM. Low profile and hemi omni antennas can be used with all Thuraya satellite telephone docking units and the Thuraya module SM2500. There are two categories; those which require a d.c. Voltage in order to power an integral GPS amplifier and those with a passive GPS antenna which does not require a drive voltage.

Hemi Omni antennas for vehicles, fixed or magnetic mount

Hemi omni models have wide angle coverage. They are used for low angle regions (less than 45° elevation), but can also be used in other regions. If one antenna is needed for all applications and regions, the HOA antennas are the best option.

HOA2-159L-GPS/1486 with ACTIVE GPS antenna, connectors on base

HOA2-159L-GPS/1548 with ACTIVE GPS antenna, connectors on side, magnetic mount option

HOA2-159L-GPS/1577 with PASSIVE GPS antenna, connectors on side, magnetic mount option

HOA2-1.6L/1404
2.5m cable to SMA(M) connector

Directional narrow band satellite ground GSM antenna

Passive vehicle antenna for high elevation. Suitable for tracking and

mobile applications, this antenna has low profile for discreet appearance.

FPA7-1.6RL-GSM/2019



Directional remote antenna, fixed installation, for Thuraya IP

FPA17-1.6L/1426

High gain directional antenna for use with Thuraya IP unit for high data rate uplink for data streaming via satellite and GPS.

Housing includes integral, active GPS. Antenna kit includes 10m cable for remote fixed installation.



Satellite/GPS/GSM integrated antennas for use with Thuraya satphone docking units and SM2500 module

- The choice of products provides versatility for excellent connectivity within the entire Thuraya coverage area.
- For use with land mobile and fixed installations.
- Proven use with all Thuraya satellite telephones and the SM2500 module.
- Integral active GPS antenna for fast data acquisition and ease of installation.
- Rugged, light weight, fully sealed.
- Hemi Omni and Directional antennas with integral GSM coverage

Directional panel antenna for use on vehicle

FPA8-1.6RL/1563

PASSIVE GPS directional antenna, with two N(M) connectors on base.

Higher gain but narrower angles. When used for mobile ground-based applications, use should be restricted to regions where the elevation to the satellite is greater than 45° - see coverage map.



Fixed land installations for data applications such as SCADA

LPA7-1.6L-GPS/1459

PASSIVE Satellite antenna with ACTIVE GPS antenna, two N(F) connectors on base

For fixed installations this antenna can be pointed at the correct azimuth and elevation angles so that peak gain is directed towards the satellite. It can be located anywhere within the satellite footprint. By directing the antenna the cable attenuation for



the satellite port can be up to 7dB.

The smallest panel antenna that can be used to operate the ThurayaIP unit at its maximum data rate.

FPA15-1.6L/1535

ThurayaIP unit shown with high gain antenna to provide 384kbit uplink for data streaming. Contains active GPS antenna.

It is supplied with stand and interface cables.

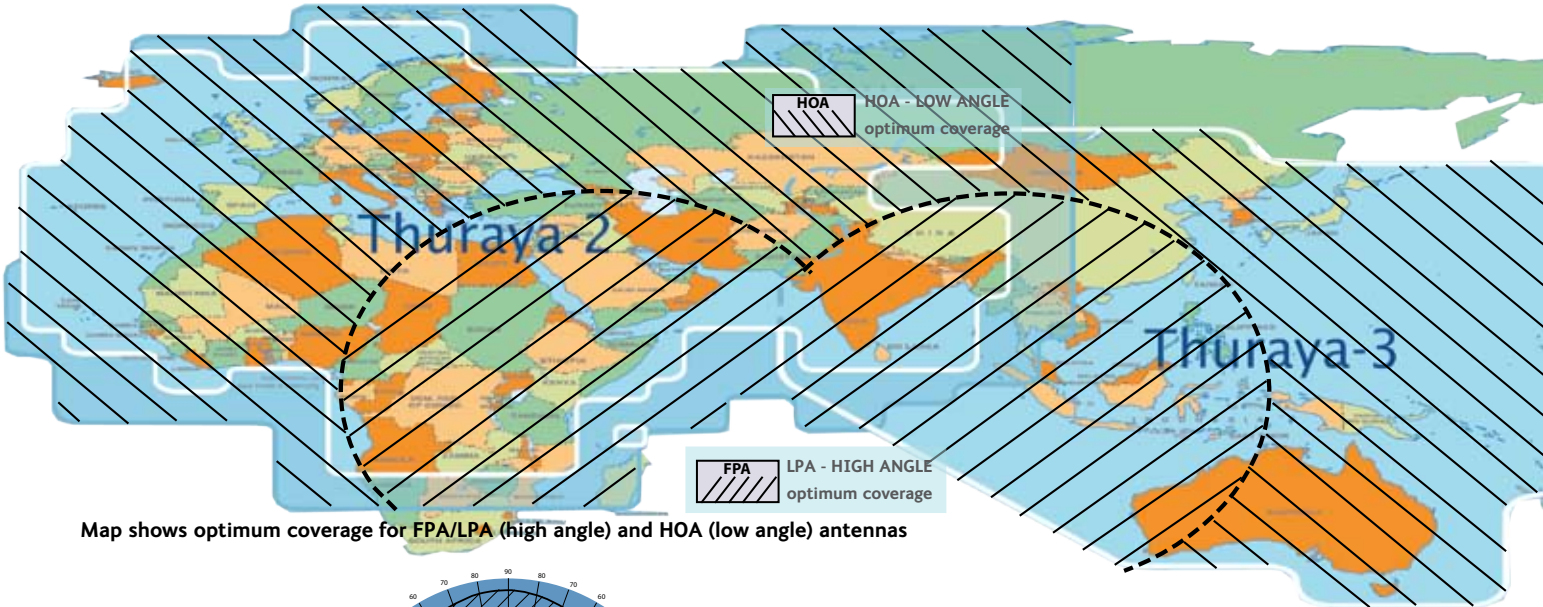


HOA2-159L-GPS/1486

HOA2-159L-GPS/1548

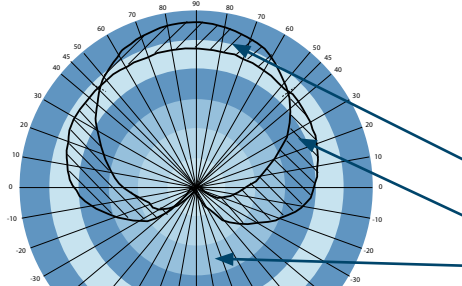
HOA2-1.6L-GPS-GSM/1977




HOA2-159L-GPS/1577





Map shows optimum coverage for FPA/LPA (high angle) and HOA (low angle) antennas

Elevation patterns of FPA/LPA (high angle) and HOA (low angle) antennas



Coverage area/ Elevation Angle	Antenna Type	Recommended Cable Attenuation from antenna to docking unit, or SM2500 module
Above 45° 	FPA Low profile antenna	<3dB
45° 	Either antenna	<2dB
Below 45° 	HOA Hemi omni antenna	<1dB

SPECIFICATIONS

Model	Frequency GHz	Gain dBi	Beamwidth az° el°	Polarisation	Dimensions mm	Connector/Cable	Photo
DIRECTIONAL, High Angle Antennas: 							
LPA7-1.6L-GPS/1459	1.52 - 1.56, 1.62-1.66,	7	70 70	Left Circular	37x132 Ø	N(F) x 2	▲
GPS	1.56 - 1.59	32	77 74	Right Circular			
FPA15-1.6L-GPS/1535	1.52 - 1.66	>15	22 32	Left Circular	427x317x12	SMB(M) 0.2m cable SMA(M) 0.2m cable	▲
GPS							
LPA7-1.6L/1405	1.52 - 1.66	6.3	71.6 72.5	Left Circular	22x133 Ø	SMA(M) 2.5m cable	▲
FPA7-1.6RL-GSM/2019	1.52 - 1.66	7	70 70	Left Circular	75x133 Ø	N(F) x3	▲
GPS			77 74	Right Circular			
GSM				Vertical			
FPA8-1.6RL/1563	1.525 - 1.6605	7	67 65	Dual Circular	22x132 Ø	N(F) x2	▲
FPA17-1.6L/1426	1.525 - 1.6605	15	22 22	Left Circular	500x500x12	Sat N(F) TNC(F)	▲
GPS							▲
Hemi Omni, Low Angle Antennas: 							
HOA2-1.6L/1404	1.52 - 1.66	3	360 150	Left Circular	103x100 Ø	SMA(M) 2.5m cable	▲
HOA2-1.6L-GPS-GSM/1977	1.525 - 1.6605	2 to 4	360 163	Left Circular	107x110 Ø	TNC(F) x3	▲
Integral GSM	0.88 - 2.175						
Integral GPS		2					
HOA2-159L-GPS/1486	1.525 - 1.6605	2.4	360 163	Left Circular	107x110 Ø	TNC(F) x2	▲
GPS	1.56 - 1.59		360 160				
HOA2-159L-GPS/1577	1.52 - 1.66	2	360 150	Left Circular	127x78 Ø	TNC(F) x2	▲
GPS	1.56 - 1.59						
HOA2-159L-GPS/1548	1.52 - 1.66	2 to 4	360 160	Left Circular			
GPS	1.56 - 1.59		360 160	Right Circular	127x78 Ø	TNC(F) x2	▲

Cable Types for Satellite and GPS

Antennas HOA2-159L-GPS/1486, HOA2-159L-GPS/1548 and LPA7-1.6L-GPS/1459: the distance that the satellite antenna can be away from the docking unit or radio module is determined by attenuation limits. Examples of cables used for satellite (not GPS), and their attenuation at 1.5GHz, are shown below. The GPS antenna contains an amplifier powered by 5 volts (current 20mA) through coax connector. The interface cable for GPS can have up to 10dB attenuation to allow for low cost cable.

Losses for connectors should be accounted for when calculating maximum cable lengths. Antennas FPA8-1.6RL/1563 and HOA2-159L-GPS1577 incorporate a passive GPS antenna so no d.c. Voltage is required. The use of passive GPS antennas should be restricted to situations where total cable loss on GPS connection does not exceed 4dB. Consult European Antennas if increased attenuation is needed.

Typical cables for different antennas and locations (Times Microwave LMR series or equivalent)

Cable type mm	Diameter dB/m	Attenuation metres	HOA Max Cable Length metres	--- Max Cable Length metres	FPA Max Cable Length
LMR100A	2.3	1.0	1	2	3
LMR195	5	0.48	2	4	6
LMR240	6	0.33	3	6	9
LMR300	7.5	0.27	4	8	12
LMR400	10	0.17	6	12	18

BROCHURES



2012 Catalogue



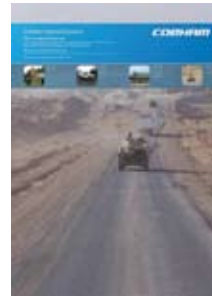
Total Capability



Antenna Testing



Ground Control



Electronic Warfare



Body Worn



Link16



IED Countermeasures



WiMAX and LTE



Unmanned Systems



C-Band



Radar Systems

Cobham Antenna Systems

M: Cobham Antenna Systems, Lambda House
Cheveley, Newmarket, Suffolk CB8 9RG, UK
T: +44 (0)1638 732177
F: +44 (0)1638 731999
E: newmarket.sales@cobham.com

Chelton Limited trading as Cobham Antenna Systems

Cobham Antenna Systems: Technical Notes For Thuraya Antennas, Issue 4 2012-08
©Chelton Limited

Chelton Limited has a policy of continuous development and stress that the information provided is a guide only and does not constitute an offer or contract or part thereof.

Whilst every effort is made to ensure the accuracy of the information contained in this brochure, no responsibility can be accepted for any errors or omissions.
All photography is copyright and is used with thanks to the respective owners.

