Datasheet

Iridium Short Burst Data (SBD) Vortex Series

SBD Vortex Series of antennas

The SBD series of Dielectrix antennas from Taoglas are highly resilient, ruggedized Iridium band antennas designed for hand-held and other products where size and performance are critical.

These antennas have high discrimination against multi-path (reflected) signals and are resilient to RF and electrical noise. They are balanced and isolated from platform ground, ensuring resilience to common-mode noise, and are unaffected by nearfield object de-tuning. The antenna also supports Satelles STL (Satellite Time and Location) services, used for GPS back-up.

Dielectrix antennas deliver high performance that belies their small size, due to the patent-protected use of specialized dielectric core material. The antenna is available with an overmoulded protective radome, or as a bare antenna that customers can design their own radomes for or integrate directly into products.

iridium® connected

Key Features

Tuned to Iridium frequency: 1,616 - 1,626 MHz

- Intrinsic band-pass filter response, tightly tuned to Iridium frequency band – immune to out of band interference
- Typical gain @ zenith: 2 dBic applications
- RHCP polarization with up to above 15dB co-to-cross polarization discrimination - exceptional rejection of multi-path (reflected) signals
- Cardioid radiation pattern - optimal reception of signals from low elevation satellites, and when antenna is in a dynamic application (e.g. maritime, airborne and vehicle applications)
- Balanced antenna – immune to common-mode noise (e.g. vehicle chassis ground fluctuations due to in-car compute and electric drive-train noise)
- Over-moulded variants provide IP67 environmental protection ideal for external mount in harsh environments
- Robust – withstands shock and vibration
- Wide operating temperature range (-40 to +85 degC)

Applications

Taoglas Iridium SBD Antennas are ideally suited for Iridium Voice and SBD applications in which resilience and compact form factor are essential.

- Defence/security/CNI/first responder
- Asset tracking and fleet vehicle tracking
- Internet of Things
- Personal safety devices
- Handheld and wearable devices
- UAS and UAVs
- Industrial / oil and gas / mining
- AgTech.

Key Dielectrix Features

- Smallest Iridium antenna - just L 37 mm x ø 13.5 mm (with UFL connector)
- Negligible detuning due to objects in close proximity
- Low SAR, ability to place antennas close together without any cross talk affects / cross coupling effects

Datasheet

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Electrical Specifications

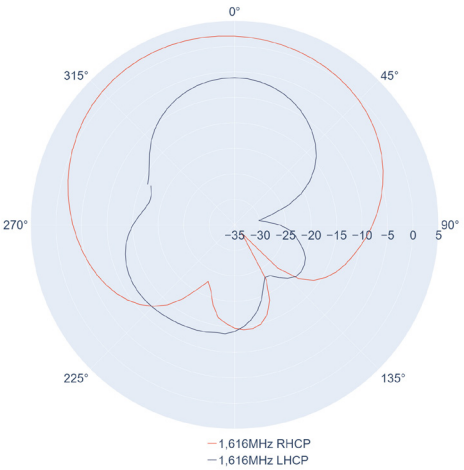
	Min	Typical	Max	Units
Frequency	1616	1621 (mid-band)	1627	MHz
Polarisation	RHCP			
Antenna element peak gain		2		dBic
Efficiency		>60%		Total Spherical
Bandwidth (3db)	11			MHz
Axial Ratio			>3	dB
Co-to-cross pole discrim @ zenith			>15	dBic
VSWR (max)		2:1		
Impedance		50		Ohms
Operating temp range	-40		+85	C

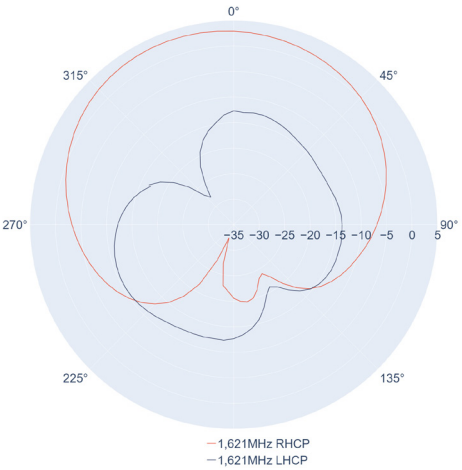
Mechanical Specifications

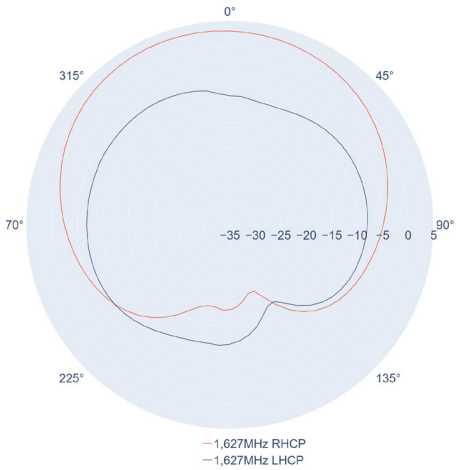
	Min	Typical	Max	Units
Dimensions SMA NOM	L 41.5 x ø 14			mm
Dimensions SMA OM		L50.5 x ø 19		mm
Weight SMA NOM	22			grams
Weight SMA OM	28			grams
IP Rating (Over-moulded)		67		IP
Additional Sealing (Over-moulded)				O-ring

Radiation Patterns

Realised Gain Plot (measured at centre frequency)







	Phase Center Offset			Phase Center Variation		
	Min	Mean	Max	Min	Mean	Max
TGDC16010-SA00, x	0.3	0.3	0.4	0.2	0.2	0.2
TGDC16010-SA00, y	-0.7	-0.5	-0.5	-	-	-
TGDC16410-SA00, x	0.8	0.9	0.9	0.1	0.1	0.2
TGDC16410-SA00, y	-0.6	-0.5	-0.2	-	-	-

Datasheet

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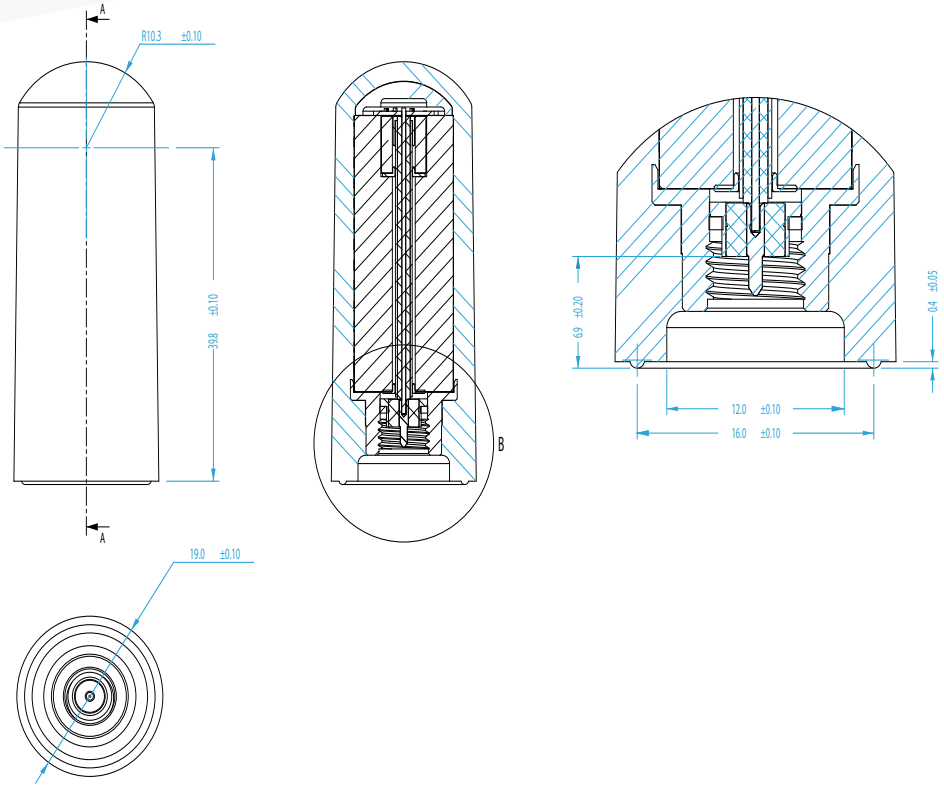
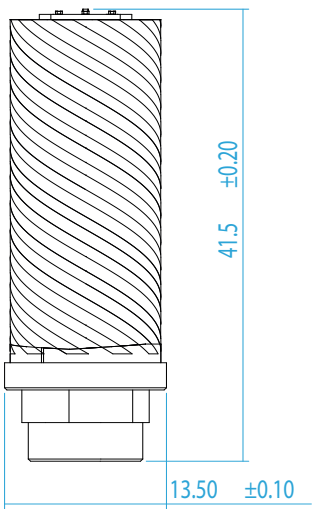
Part number	Antenna	Connector	Dimensions mm	Weight g
TGDC16410-SA00 	Passive Encapsulated with skirt, plastic radome Rated: IP67	SMA Male	L 50.5 x ø 19	28g
TGDC16010-SA00 	Passive Embedded	SMA Male	L 41.5 x ø 14	22g

TGDC16410-SA00



TGDC16010-SA00



dielectrix™

Antenna technology provides unrivaled efficiency per unit volume.

Taoglas provides custom tuning services to optimise and tune antenna performance when integrated into customers enclosure.

Application Notes for Embedded Antennas

Taoglas off-the-shelf embedded antennas are optimized for free space testing, allowing designers to evaluate antenna fitment and performance in initial free space environments before finalizing the design.
Antennas may experience detuning when placed within any tightly packed enclosure. The proximity of the enclosure to the antenna affects the degree of detuning, which should be thoroughly tested to ensure acceptable performance for the intended application.

Customer-Specific Part

To address detuning and create a Customer-Specific Part, follow one of these approaches:

- **Provide a .STEP file of the enclosure with material properties included:** Our engineers will perform a simulation, evaluate retune and manufacture a new antenna part.
- **Send your physical enclosure:** Our engineers will perform the far-field anechoic chamber measurements, evaluate, retune and manufacture a new antenna part.

For antenna tuning services, please contact Taoglas to discuss your specific requirements.