



Products & Services Brochure 2015-16

STEATITE

Microwave Antennas, Subsystems and Consultancy

- Ultra Wideband Antennas for
Electronic Warfare and Signal Intelligence
- High Reliability Antennas for
Test and Measurement

Technical Sales and Distribution

RF Signal Solutions and Components



RF-Signals...
...generating
...modifying
...distributing
...amplifying
...transmitting

Industrial Electronics GmbH
 RF and Microwave Division
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At the forefront of antenna design and manufacture since 1973, the Company excels in the research, design and manufacture of ultra wideband microwave antennas, subsystems and associated microwave components. It provides a flexible and responsive service utilising in-house microwave engineering expertise to successfully satisfy challenging commercial and defence antenna projects.

PRODUCTS

With more than 40 years of microwave engineering, design and manufacturing expertise of single, dual linear and circularly polarised receive and transmit antennas, Steatite has a proven capability to provide a wide range of high quality COTS ultra wideband antenna products operating within the range 0.01 and 500 GHz generally not matched elsewhere. Bespoke designs or modifications are regularly accommodated and form part of the Company's extensive offering.

SUBSYSTEMS

In-house microwave antenna design and engineering capabilities, backed by antenna testing facilities provide a comprehensive all weather antenna and subsystem solution to many demanding land, sea and airborne applications typically from 0.5 to 40 GHz.

CONSULTANCY

Steatite regularly undertakes antenna related research, design and manufacture for military and civil clients including development studies, prototyping and technical concept studies. Technical consultancy and in-service support form part of its regular portfolio of activities. The Company has many years' experience of providing innovative customised, ultra wideband antennas and subsystems to the global defence, surveillance and sensor markets.

CAPABILITIES

The Company uses leading commercial electromagnetic design software CST Microwave® along with dedicated in-house algorithms, enabling it to analyse and optimise a wide range of antenna and microwave component designs. Whilst mechanically, a mixture of design and analysis tools including SolidWorks®, Cosmos and FEA are used. The Company has formal quality accreditation to ISO 9001:2008.

ELECTRONIC WARFARE AND SIGINT

Ultra wideband antennas typically within the range 0.01 to 40 GHz supplied as COTS items or custom antenna subsystems are ideally suited to meet the challenging demands of land, sea and airborne platforms.

Applications include: ELINT & COMINT Systems, EW and radar threat simulators, antennas used in Electronics Counter Measures (ECM), Radar Warning Receivers (RWR), Spectrum Management Antenna Arrays, and IED Jamming Systems.

A wide range of polarisations are offered including, single, dual polar, circular and dual circular. Steatite provides antennas and subsystems with shaped patterns, including directional, omni-directional, sectoral phase matching antenna arrays and high power antenna solutions for EW and radar simulation.



WIDEBAND HORN ANTENNAS

Wideband-octave and multi-octave horn antennas are provided including rectangular, conical, multimode, sectoral; double / quad ridged, and dual polarised. Typically applications include direction finding and ECM.



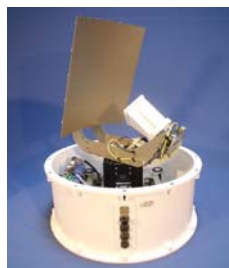
ULTRA WIDEBAND OMNI-DIRECTIONAL ANTENNAS

Highly efficient vertical and slant polarised antennas are available, with azimuth ripple typically $< \pm 1$ dB on horizon. Suitable for EW, SIGINT, direction finding and spectrum management applications.



SPINNING DF ANTENNAS

0.5 to 18 GHz direction finding and omni-directional high performance spinning antenna subsystems. Typically used for ELINT applications, the antennas are mounted on high speed rotating direct-drive positioners with complex scan control and housed in RF-transparent, low-loss radomes.



SINUOUS ANTENNAS

Simultaneously handle signals of any two orthogonal linear polarisations and simultaneous left and right handed circular polarisations dependent on antenna design. This provides intercept opportunities for a wide range of arbitrarily polarised signals, also giving a wide bandwidth and broad beamwidth.



ULTRA WIDEBAND REFLECTOR ANTENNAS

High gain and low sidelobes with low VSWR levels, for receive and transmit applications including ELINT, direction finding, electronic warfare and radar threat emitters, meteorological sensors and point-to-point military microwave communication systems.



CAVITY BACKED SPIRAL ANTENNAS

Providing broad constant beamwidth with low squint, smooth radiation patterns and purity of circular polarisation. Amplitude and / or phase matching is available. Typical airborne and ground based applications include 360° direction finding, spectrum management, radar warning receivers and electronic warfare support measures.



TEST AND MEASUREMENT

Waveguide COTS antennas 0.4 to 40 GHz and bespoke antenna solutions for precision measurement applications including EMC radiated and immunity testing.

Providing antennas that allow multi-octave frequency sweeps with a single unit, whilst "High Gain antennas" offer low side lobes and consistent performance. The demand for high field strengths is catered for by a suite of HiRF antennas that produce high field strengths.

A unique focussing arrangement of the antennas means it is possible to produce fields of 3000 V / m using 3kW amplifiers, resulting in reduced system costs.



HiRF ANTENNAS

A family of specialised high power HiRF antennas which cover the frequency range 0.4 - 18 GHz. These are capable of reaching ultra-high field strengths in the near field.



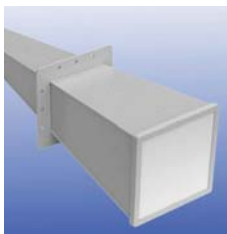
ULTRA WIDEBAND DOUBLE RIDGED HORN ANTENNAS

Double ridged horn antennas for ultra wide band performance over many octaves. Suitable for a range of high and medium power applications.



WIDEBAND HIGH GAIN HORN ANTENNAS

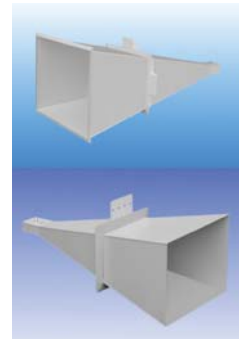
High gain, larger aperture horn antennas for high and medium power applications with bandwidths less than an octave.



FORD MOTOR COMPANY RECOGNIZED

Two of Steatite's horn antennas have been found to be acceptable when performing EMC testing to E MC-CS-2009. They facilitate the generation of 600 V/m with <500 watts forward power.

QSH-1.1-1.7-N-20 (QSH6B20WA)
QSH-2.2-3.3-N-20 (QSH9AB20WA)



PYRAMIDAL STANDARD GAIN HORN ANTENNAS

Designed for applications for precise gain requirements. Typically 10dBi to 20dBi.



ABOUT OUR OMNIDIRECTIONAL ANTENNAS

Steatite's COTS and custom designed Omnidirectional antennas provide wide bandwidth between the range 0.01 to 40 GHz.

Vertical and slant polarised antennas are available and suitable for EW, SIGINT, Direction Finding and Spectrum Management applications. As with other Steatite products, bespoke designs or modifications may be accommodated.



TYPICAL SPECIFICATIONS

Frequency (GHz)	Catalogue No.	Gain (dBi)	Power c.w. (W)	VSWR (Typical)	Polarisation	Connector
0.01 to 1	QOM-SL-0.01-1-N-SG-R	-14 to 0	Rx Only	<3.0:1	Vertical	N
0.5 to 18	QOM-ST-0.5-18-S-SG-R	-2.4 to 6.4	Rx Only	<3.0:1	Slant	SMA
0.8 to 40	QOM-SL-0.8-40-K-SG-L	-2.2 to 6.9	40	<3.2:1	Vertical	K
0.9 to 20	QOM-SL-0.9-20-S-SG-R	0 to 6.3	40	<3.2:1	Vertical	SMA
2 to 18	QOM-SL-2-18-S-SG-R	0.2 to 7.8	40	<2.5:1	Vertical	SMA
2 to 18	QOM-ST-2-18-S-SG-R	-4.3 to 8.4	50	<2.5:1	Slant	SMA
26 to 40	QOM-SL-26-40-K-SG-R	2 to 4	10	<2.0:1	Vertical	K

ABOUT OUR HORN ANTENNAS

Steatite provides a wide range of COTS and custom designed, standard gain and wideband horn antennas, 0.4 to 500 GHz, with typical gain values from 10 to 20 dBi. Higher gain horn antennas are also available typically >20 dBi.

A variety of COTS and custom designed wideband-octave and multi-octave horn antennas are provided including rectangular, conical, multimode, sectoral, double & quad ridged, and dual polarised. Horn antennas can be adapted to meet customer specific requirements, for example waveguide-flanged and high power transition versions are available.

The list below is not exhaustive and different connector versions are available. Applications include EW, SIGINT, Test & Measurement including EMC immunity and HiRF testing. As with other Steatite products, bespoke designs or modifications may be accommodated.



TYPICAL SPECIFICATIONS

Frequency (GHz)	WG / WR	Catalogue No.	Gain (dBi)	Power c.w. (W)	VSWR (Typical)	Connector
0.37 to 0.47	00 / 2300	QSH-SL-0.37-0.47-N-10	9.4 to 11.5	500	<1.6:1	N
0.40 to 1.0		QWH-SL-0.4-1-N-SG	12.5 to 14.5	500	<1.7:1	N
0.50 to 0.75	2 / 1500	QSH-SL-0.5-0.75-N-15	12.5 to 15.5	400	<1.5:1	N
0.50 to 2.0		QWH-SL-0.5-2-N-SG	7.4 to 14.5	250	<1.8:1	N
0.60 to 1.0	3 / 1150	QSH-SL-0.6-1-N-10	7.7 to 12.2	400	<1.5:1	N
0.75 to 1.1	4 / 975	QSH-SL-0.7-1.1-N-15	13.6 to 17.1	400	<1.6:1	N
0.80 to 4.0*		QWH-DL-0.8-4-N-SG-L	7.2 to 13.5	40	2.3:1	x2 N
0.90 to 1.4	5 / 770	QSH-SL-0.9-1.4-N-20	18.0 to 22.0	400	<1.6:1	N
0.90 to 18*		QWH-DL-0.9-18-S-SG-R	0.3 to 13.3	40	<2.5:1	x2 SMA
1.0 to 4.2		QWH-SL-1-4.2-A-HG	13.6 to 18.4	1200	<2.0:1	7:16
1.0 to 8.0		QWH-SL-1-8-B-SG	6.0 to 17.0	1500	<1.4:1	7/8
1.0 to 18.0		QWH-SL-1-18-S-SG-R	1.3 to 12.8	40	<2.0:1	SMA
1.1 to 1.7	6 / 650	QSH-SL-1.1-1.7-N-20	18.8 to 21.7	300	<1.4:1	N

*DL = Dual Linear

Frequency (GHz)	WG / WR	Catalogue No.	Gain (dBi)	Power c.w. (W)	VSWR (Typical)	Connector
1.4 to 2.2	7 / 510	QSH-SL-1.4-2.2-A-20	18.0 to 20.5	1800	<1.3:1	7/16
1.7 to 2.6	8 / 430	QSH-SL-1.7-2.6-A-20	18.4 to 21.8	1800	<1.3:1	7/16
2.0 to 4.0		QWH-SL-2-4-C-SG-R	16.4 to 18.1	750	<1.6:1	SC
2.0 to 8.0		QWH-SL-2-8-N-SG-R	10.9 to 14.3	500	<1.5:1	N
2.0 to 18.0		QWH-SL-2-18-N-SG-R	5.0 to 12.0	50	<2.5:1	N
2.0 to 18.0		QWH-SL-2-18-N-HG-R	10.0 to 22.0	80	<2.5:1	N
2.0 to 18.0*		QWH-DL-2-18-N-SG-R	7.0 to 19.2	40	<2.5:1	x2 N
2.0 to 18.0*		QWH-DL-2-18-S-HG-R	10.0 to 21.0	40	<2.5:1	x2 SMA
2.2 to 3.3	9A / 340	QSH-SL-2.2-3.3-N-20	18.6 to 21.6	200	<1.4:1	N
2.5 to 7.5		QWH-SL-2.5-7.5-F-SG-R	10.0 to 14.0	2000	<1.3:1	WRD250
2.6 to 4.0	10 / 284	QSH-SL-2.6-4-N-20-R	18.0 to 21.0	200	<1.4:1	N
3.3 to 5.0	11A / 229	QSH-SL-3-5-N-15	14.8 to 17.8	180	<1.4:1	N
3.9 to 5.9	12 / 187	QSH-SL-4-6-N-20	18.0 to 21.0	200	<1.6:1	N
4.0 to 8.0		QWH-SL-4-8-F-HG	16.2 to 19.0	2000	<1.3:1	WRD350
4.9 to 7.1	13 / 159	QSH-SL-5-7-5-20	18.0 to 21.0	60	<1.4:1	SMA
5.8 to 8.2	14 / 137	QSH-SL-6-8-S-20-R	18.0 to 21.0	50	<1.6:1	SMA
6.5 to 18.0		QWH-SL-6.5-18-F-HG-CS	9.6 to 17.1	4000	<1.3:1	WRD650
7.0 to 10.0	15 / 112	QSH-SL-7-10-S-20-R	18.0 to 21.0	50	<1.4:1	SMA
7.5 to 18.0		QWH-SL-7.5-18-F-20	19.0 to 21.0	2000	<1.3:1	WRD750
8.2 to 12.4	16 / 90	QSH-SL-8-12-N-20	18.2 to 21.5	100	<1.3:1	N
10.0 to 15.0	17 / 75	QSH-SL-10-15-N-20	18.3 to 21.5	100	<1.4:1	N
12.4 to 18.0	18 / 62	QSH-SL-12-18-F-20	18.0 to 21.0	1400	<1.15:1	UBR140
15.0 to 22.0	19 / 51	QSH-SL-15-22-S-20-R	17.0 to 21.0	20	<1.6:1	SMA
18.0 to 26.5	20 / 42	QSH-SL-18-26-S-20-R	18.0 to 20.9	20	<1.4:1	SMA
18.0 to 40.0		QWH-SL-18-40-K-SG	12.3 to 14.8	20	<1.7:1	K
18.0 to 40.0*		QWH-DL-18-40-K-SG-R	12.0 to 16.9	20	<2.5:1	x2 K
22.0 to 33.0	21 / 34	QSH-SL-22-33-K-20-R	18.0 to 21.0	40	<1.4:1	K
26.5 to 40.0	22 / 28	QSH-SL-26.5-40-K-20	18.0 to 21.0	20	<1.2:1	K
33.0 to 50.0	23 / 22	QSH-SL-33-50-V-20	18.0 to 21.0	5	<1.4:1	V
40.0 to 60.0	24 / 19	QSH-SL-40-60-V-20	18.0 to 21.0	10	<1.6:1	V
50.0 to 75.0	25 / 15	QSH-SL-50-75-V-20	18.0 to 21.0	5	<1.6:1	V
60.0 to 90.0	26 / 12	QSH-SL-60-90-F-20	20.0 to 22.0	200	<1.2:1	WG F
75.0 to 110.0	27 / 10	QSH-SL-75-110-F-20	20.0 to 22.0	200	<1.2:1	WG F
90.0 to 140.0	28 / 8	QSH-SL-90-140-F-20	20.0 to 22.0	100	<1.2:1	WG F
140.0 to 170.0	WR6.5	QSH-SL-140-170-F-20	25.0 to 27.0	50	<1.15:1	WG F
180.0 to 220.0	WR5.1	QSH-SL-180-220-F-20	25.0 to 27.0	50	<1.2:1	WG F
215.0 to 260.0	WR4.3	QSH-SL-215-260-F-20	25.0 to 27.0	20	<1.25:1	WG F
275.0 to 330.0	WR3.4	QSH-SL-275-330-F-20	25.0 to 27.0	10	<1.3:1	WG F
330.0 to 400.0	WR2.8	QSH-SL-330-400-F-20	25.0 to 27.0	5	<1.35:1	WG F
415.0 to 500.0	WR2.2	QSH-SL-415-500-F-20	25.0 to 27.0	5	<1.4:1	WG F

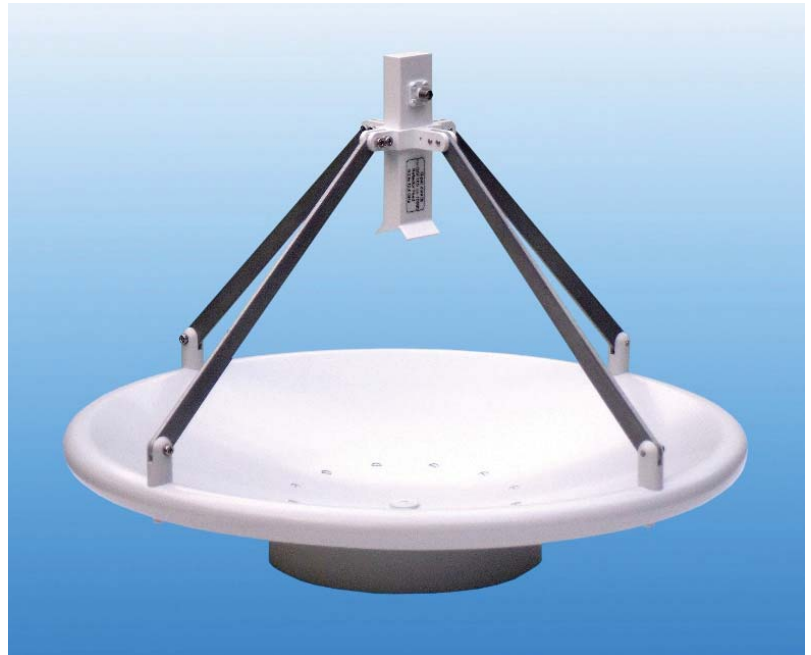
*DL = Dual Linear

ABOUT OUR REFLECTOR ANTENNAS

Steatite provides a wide range of COTS and custom designed prime focus, offset, solid, and segmented reflector/feed antenna combinations. Steatite reflector antennas provide high gain and low sidelobes with low VSWR levels, for receive and transmit applications including ELINT, EW, Direction Finding, Threat Emitters, Meteorological Sensors and Communication Systems.

COTS and custom designed linear, circular polarised and dual polar feeds are available either with SMA, N, K type and waveguide flanges.

Additional offset and prime focus reflector/feed combinations can be supplied. As with other Steatite products, bespoke designs or modifications may be accommodated.



TYPICAL SPECIFICATIONS

340mm Prime Focus Reflectors (152mm focal length)

Frequency (GHz)	Catalogue No.	Gain (dBi)	Beamwidth (3dB)	Power c. w. (W)
8-12	QSR-340-A-152 & QSF-SL-8-12-S	26.3 to 30.9	4.4 to 7.5	40
6.5-18	QSR-340-A-152 & QWF-SL-6.5-18-N-R	24 to 29.7	3.5 to 9	400
6.5-18*	QSR-340-A-152 & QWF-DL-6.5-18-S-R	24 to 29.7	3.5 to 9	400
7.5-18	QSR-340-A-152 & QWF-SL-7.5-18-F-R	26 to 33.2	3 to 7	500
12-18	QSR-340-A-152 & QSF-SL-12-18-S	30.5 to 33.4	3.5 to 4.5	20
18-26	QSR-340-A-152 & QSF-SL-18-26-S	33 to 36.8	2 to 3	20
18-40	QSR-340-A-152 & QWF-SL-18-40-K-R	32.9 to 39.5	1.5 to 3	30
18-40*	QSR-340-A-152 & QWF-DL-18-40-K-R	33 to 39	1.4 to 3.2	20
26-40	QSR-340-A-152 & QSF-SL-26-40-F	36.8 to 40.5	1.5 to 2.1	5000

600mm Prime Focus Reflectors (228mm focal length)

Frequency (GHz)	Catalogue No.	Gain (dBi)	Beamwidth (3dB)	Power c. w. (W)
2-8	QSR-600-A-228 & QWF-SL-2-8-N-R	22.3 to 31.9	3 to 11	400
6-8	QSR-600-A-228 & QSF-SL-6-8-N-R	27.5 to 30.5	4 to 5.5	50
8-12	QSR-600-A-228 & QSF-SL-8-12-S-R	31.5 to 35.4	2.5 to 3.5	40
2-18	QSR-600-A-228 & QWF-SL-2-18-S-R	18 to 31.4	4 to 16	20
2-18*	QSR-600-A-228 & QWF-DL-2-18-S-R	18 to 36	2 to 18	20
6.5-18	QSR-600-A-228 & QWF-SL-6.5-18-N-R	28 to 38.5	2 to 5	400
7.5-18	QSR-600-A-228 & QWF-SL-7.5-18-N-R	31.2 to 38	2 to 3.9	400

*DL = Dual Linear

600mm Prime Focus Reflectors (228mm focal length) continued:

Frequency (GHz)	Catalogue No.	Gain (dBi)	Beamwidth (3dB)	Power c. w. (W)
18-40	QSR-600-A-228 & QWF-SL-18-40-K	38.5 to 43.6	1 to 2	40
18-40*	QSR-600-A-228 & QWF-DL-18-40-K-R	37 to 41.8	1.2 to 1.8	40

900mm Prime Focus Reflectors (337mm focal length):

Frequency (GHz)	Catalogue No.	Gain (dBi)	Beamwidth (3dB)	Power c. w. (W)
2-8	QSR-900-A-337 & QWF-SL-2-8-N-R	22 to 31.2	2.7 to 10.4	400
2-18*	QSR-900-A-337 & QWF-DL-2-18-S-R	21 to 31.4	1.5 to 10.5	20
6.5-18	QSR-900-A-337 & QWF-SL-6.5-18-N-R	32.4 to 40	1.5 to 3	400
18-40	QSR-900-A-337 & QWF-SL-18-40-K	41 to 47	0.75 to 1.5	40
7.5-18	QSR-900-A-337 & QWF-SL-7.5-18-N-R	33 to 39	2 to 3.5	40

1200mm Prime Focus Reflectors (457mm focal length):

Frequency (GHz)	Catalogue No.	Gain (dBi)	Beamwidth (3dB)	Power c. w. (W)
2-8	QSR-1200-A-457 & QWF-SL-2-8-N-R	25.5 to 34.7	2.5 to 8	400
8-12	QSR-1200-A-457 & QSF-SL-8-12-S-R	37 to 41	1.4 to 2	40
2-18	QSR-1200-A-457 & QWF-SL-2-18-S-R	24.5 to 38	2 to 9	20
2-18*	QSR-1200-A-755 & QWF-DL-2-18-S-R	25 to 41.5	1 to 7.5	40
6.5-18	QSR-1200-A-457 & QWF-SL-6.5-18-N-R	35.3 to 41.8	1.5 to 2.5	400
7.5-18	QSR-1200-A-457 & QWF-SL-7.5-18-N-R	37 to 44	1 to 2.2	400
18-40*	QSR-1200-A-457 & QWF-DL-18-40-K-R	44 to 48.7	0.5 to 1	40

1800mm Prime Focus Reflectors (755mm focal length):

Frequency (GHz)	Catalogue No.	Gain (dBi)	Beamwidth (3dB)	Power c. w. (W)
1-2	QSR-1800-A-755 & QWF-SL-1-2-N	22.5 to 28.7	6 to 11	500
2-8	QSR-1800-A-755 & QWF-SL-2-8-N-R	37.2 to 40.9	1.5 to 4	400
6-8	QSR-1800-A-755 & QSF-SL-6-8-N-R	38.3 to 40.6	1.4 to 1.7	50
2-18*	QSR-1800-A-755 & QWF-DL-2-18-S-R	28 to 42	0.7 to 6	40

700mm Offset Reflectors:

Focus Type	Frequency (GHz)	Catalogue No.	Gain (dBi)	Beamwidth (3dB)	Power c. w. (W)
Offset*	0.9-18	QSR700-A-OST & QWH-DL-0.9-18-S-SG-R	17.5 to 34.5	1.5 to 34 (Az) 1.5 to 27 (El)	40
Offset*	2-18	QSR700-A-OST & QWH-DL-2-18-S-SG-R	16.7 to 38.2	2 to 13.2 (Az) 1.9 to 1.5 (El)	20
Prime	2-8	QSR-700-A-337 & QWF-SL-2-8-N-R	20.2 to 29.5	3 to 13	500
Prime	6.5-18	QSR-700-A-337 & QWF-SL-6.5-18-N-R	30.5 to 37.8	2 to 4	400

0.5-2GHz Reflectors:

Diameter (mm)	Catalogue No.	Gain (dBi)	Beamwidth (3dB)	Power c. w. (W)
1400 (P)	QSR-1400-A-546 & QWF-SL-0.5-2-N	14 to 24.2	6 to 35	400
3000 (P)	QSR-3000-A-1207 & QWF-SL-0.5-2-N-R	20.8 to 30	5.8 to 13.3	400
1200 (O)	QSR-1200-A-OST & QSF-SL-0.5-2-A	12.5 to 25	8.7 to 47 (EL) 8.7 to 30 (AZ)	600

(P) = Prime Focus (O) = Offset Reflector

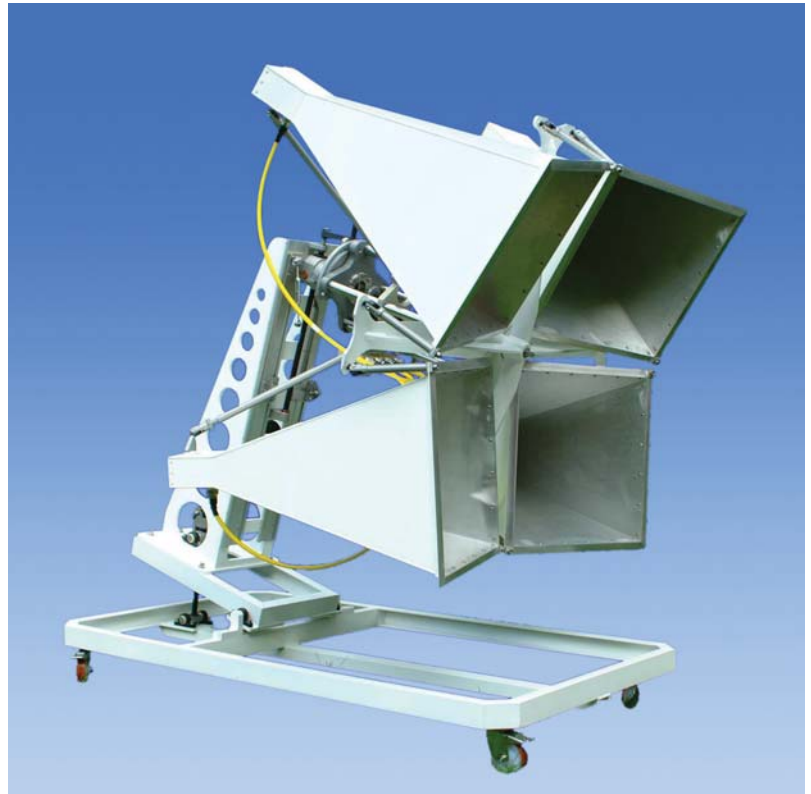
*DL = Dual Linear

ABOUT OUR HiRF ANTENNAS

Steatite's family of eight antennas covering the frequency range 0.4 - 18 GHz are capable of reaching ultra-high field strengths in the near field, that are not attainable using traditional systems. Steatite uses antenna arrays, lenses and extended gain antennas to achieve this performance.

Steatite HiRF antennas are able to focus RF energy at short distances from the aperture. 3 kV / m at one metre can be achieved in free field tests with 3 dB spot sizes 150mm or greater. Focussing is achieved by using dielectric lenses or by dividing the aperture up into four cophased smaller horn antennas.

Various mounting options are available ranging from fixed-mount to variable geometry. As with other Steatite products, bespoke designs or modifications may be accommodated.



TYPICAL SPECIFICATIONS

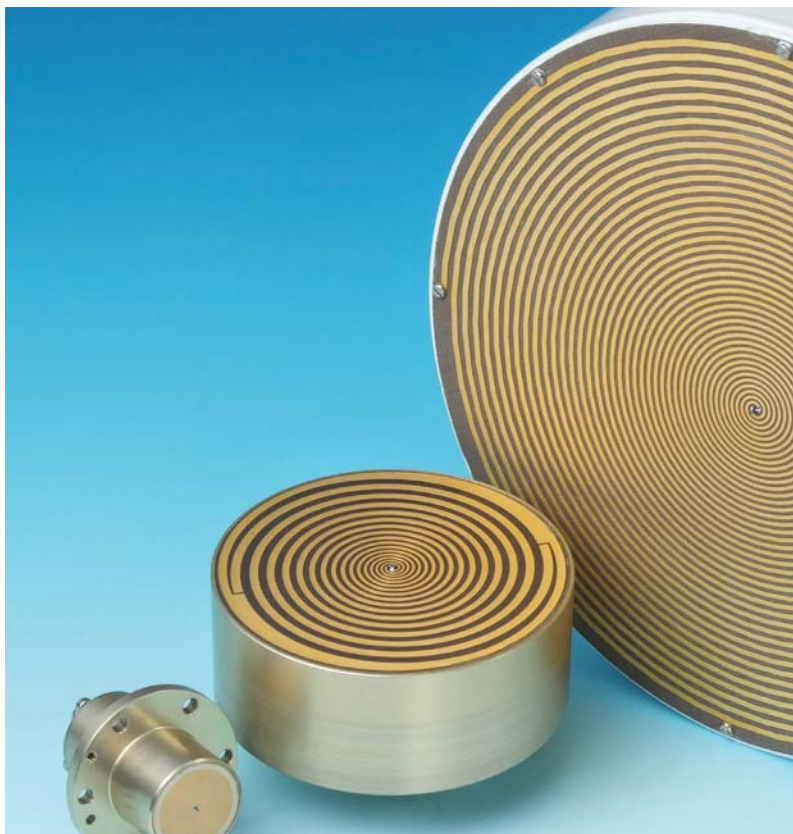
Frequency (GHz)	Catalogue No. / Description	Gain at 1m (dBi)	VSWR (Typical)	Peak Power (W)	Connector
0.4 to 1	QPA-SL-0.4-1-A-SG · 700 V/m at 1 metre with an input power of 1.1 kW	11.5 to 15.5	<1.7:1	13kW	7:16 DIN
1 to 1.6	QPA-SL-1-1.6-A-SG · 3,000 V/m at 1 metre with an input power of 3.8 kW	18.9 to 20.6	<1.5:1	13kW	7:16 DIN
1.5 to 2.6	QPA-SL-1.5-2.6-A-SG · 3,000 V/m at 1 metre with an input power of 2.8 kW	20.3 to 22.0	<1.5:1	13kW	7:16 DIN
2.6 to 4	QSH-SL-2.6-4-C-SG-R · 3000 V/m at 1 metre with an input power of 2.85 kW	20.0 to 20.9	<1.5:1	13kW	SC
4 to 6	QSH-SL-4-6-N-22-R · 3000 V/m at 1 metre with an input power of 2.3 kW	21.1 to 22.4	<1.5:1	5kW	N
6 to 8	QSH-SL-6-8-N-22 · 3000 V/m at 1 metre with an input power of 2.0 kW	21.4 to 22.5	<1.5:1	5kW	N
8 to 12	QSH-SL-8-12-F-23 · 3000 V/m at 1 metre with an input power of 2.5 kW	20.5 to 23.4	<1.15:1	10kW	WG16 (WR90) UBR100
12 to 18	QSH-SL-12-18-F-22 · 3000 V/m at 1 metre with an input power of 2.1 kW	21.6 to 23.2	<1.5:1	10kW	WG18 (WR62)

ABOUT OUR SPIRAL ANTENNAS

Steatite's COTS cavity-backed spiral antennas cover the frequency range from 0.5 to 42 GHz and provide wideband performance with left or right hand circular polarisation.

The performance of the Steatite spiral antennas provides broad beamwidth with low squint, smooth radiation patterns and purity of circular polarisation. Typical airborne and ground based applications include 360° Direction Finding, Spectrum Management, RWR and ESM.

Steatite provides custom designed spiral antennas and if required, integrate lensed radomes to improve performance.



TYPICAL SPECIFICATIONS

Frequency (GHz)	Catalogue No.	Gain (dBiC)	Beamwidth° (3dB)	VSWR (Typical)	Power c.w. (W)	Connector
0.5 to 8	QSP-RC-0.5-8-S-SG	-3.5 to 4.4	48 to 139	<1.4:1	2	SMA
0.5 to 22	QSP-RC-0.5-22-S-SG	0 to 5	60 to 115	<1.5:1	2	SMA
1 to 18	QSP-RC-1-18-S-SG-R	0 to 7	20 to 112	<2.5:1	2	SMA
2 to 18	QSP-RC-2-18-S-SG-R	1.3 to 5.3	53 to 142	<2.5:1	1	SMA
18 to 42	QSP-RC-18-42-K-SG	1 to 4.2	47 to 94	<2.5:1	2	K
18 to 42	QSP-RC-18-42-K-SG-L	2.2 to 6.2	30 to 80	<2.5:1	2	K

ABOUT OUR SINUOUS ANTENNAS

Steatite supplies COTS and custom designed Dual Linear and Dual Circular Polarised, sinuuous antennas for Direction Finding, ELINT, RWR and ESM airborne, sea and ground based applications.

Steatite's family of sinuuous antennas simultaneously handle signals of any two orthogonal linear polarisations, and in some cases, simultaneous left and right handed circular polarisations. This provides intercept opportunities for a wide range of arbitrarily polarised signals, from devices also giving a wide bandwidth and broad beamwidth.

The sinuuous antennas can also be used as feeds for reflector antennas where they give the advantage of a stable phase centre across the frequency band. As with other Steatite products, bespoke designs or modifications may be accommodated.






TYPICAL SPECIFICATIONS

Frequency (GHz)	Catalogue Number	Polarisation	Power c.w.(W)	VSWR (Typical)	Gain (dBi)	Beamwidth (3dB)	Isolation (dB)
0.2 to 2	QSI-DL-0.2-2-S-SG	Dual Linear	10	<3.0:1	-4.2 to 3.6	91.6 to 69°	>35
0.4 to 2	QSI-DL-0.4-2-N-SG-R	Dual Linear	2	<3.6:1	1.3 to 6.4	62 to 48°	>34
0.5 to 3	QSI-DL-0.5-3-S-SG-R	Dual Linear	2	<2:1	-0.2 to 5.8	56 to 96°	>40
0.7 to 4	QSI-DL-0.7-4-S-SG	Dual Linear	10	<2.6:1	0 to 4.1	55 to 94°	>34
2 to 18	QSI-DL-2-18-S-SG	Dual Linear	1	<3.2:1	-3.8 to 4.4	64 to 109°	>32
2 to 24	QSI-DL-2-24-S-SG	Dual Linear	2	<3:1	-8 to 3	145 to 60°	>30
0.5 to 4	QSI-DC-0.5-4-S-SG-R	Dual Circular	2	<1.5:1	-6 to 6 dBiC	62 to 102°	
0.7 to 4	QSI-DC-0.7-4-S-SG	Dual Circular	2	<1.4:1	-1 to 2.2 dBiC	102 to 56°	
2 to 18	QSI-DC-2-18-S-SG-L	Dual Circular	2	<2:1	5.2 to 2.6 dBiC	42.6 to 95°	

ABOUT OUR WAVEGUIDE ADAPTERS

The Company is able to provide its own manufactured range of COTS waveguide adapters. Available as standalone devices for use with waveguide components or integrated with antennas. In addition other waveguide adapters supporting Steatite's antenna offering can be sourced from proven third party suppliers.



	Catalogue Number	Description	Available with the following antennas
	QST-18-40-K	WRD180 Waveguide to Coax adapter fitted with K type connector with a minimum of loss, enabling millimetre wave test and measurement. VSWR typically: <1.6:1 and power handling 10W c.w.	QWH-SL-18-40-F-SG QWH-SL-18-40-F-HG QWH-SL-18-40-F-HG-R QWF-SL-18-40-F
	QST-6.5-18-N	WRD650 high power double ridged waveguide to coaxial adapters. Ideal for interfacing high power TWTs and antennas. Power handling 500W c.w. across the band. VSWR <1.6:1	QWH-SL-6.5-18-F-HG QWH-SL-6.5-18-F-HG-R QWF-SL-6.5-18-F-R QWF-SL-6.5-18-F
	QST-7.5-18-N	WRD750 high power double ridged waveguide to coaxial adapters. Ideal for interfacing high power TWTs and antennas. Power handling 500W c.w. across the band. VSWR <1.6:1	QWH-SL-7.5-18-F-HG QWH-SL-7.5-18-F-SG QWF-SL-7.5-18-F-R

ABOUT OUR ANTENNA TRIPODS

The Company provides a range of high quality antenna tripods and customised antenna mounts. Steatite supplied tripods are suitable for mounting low and medium weight antennas ideal for EMC applications and military grade heavy duty tripods uses for mounting tactical antennas.

Optional extras for this range include:

Footplate and pin sets

Foot sets including rubber foot, spike foot and ground anchor kits

Carry bags / cases

Antenna mounting plates and mounting frames



Catalogue Number	Description	Typical Payload
QTP-A	Mounting low and medium weight antennas in EMC and RF/Microwave test environments. Wooden / aluminium construction.	12 kg
QTP-B	+/- 90° pan and tilt tripod with 2D panoramic head mounting low and medium weight antennas in EMC and RF/Microwave test environments. Wooden / aluminium construction.	5 kg
QTP-C	A robust medium duty design suitable for mounting medium weight antennas including reflector antennas and able to be used in military environment. Aluminium construction.	25 kg
QTP-D	Medium duty lightweight man portable tripod providing a robust stable platform. Different foot types available as accessories. Aluminium construction.	50 kg
QTP-E	Highly stable man portable and torsionally stiff tripod for high accuracy and rotating payloads. Aluminium construction.	50 kg
QTP-F	Heavy duty tripod providing stability and torsional stiffness of payloads up to 250 Kg. Aluminium construction.	250 kg
QTP-G	Ultra lightweight robust man portable tripod. Providing a stable platform for a wide range of antennas. Designed for ease and speed of deployment. Glass fibre and aluminium construction.	25 kg

ABOUT OUR ANTENNA POSITIONERS

Steatite provides high performance all weather COTS and customer designed antenna positioner products which can be integrated with the Company's wide choice of antennas and custom antenna subsystem solutions satisfying many demanding land, sea and airborne applications; EW & Radar Simulators, Meteorological Radar Sensors, Satellite Monitoring, ELINT, COMINT and Spectrum Management Systems.



Catalogue Number	Description
QPO-S-A-C-E-190	A dual axis, heavy duty, high-powered servo positioning platform. Provides accurate control and positioning of radar, communications, antennas and optical sensor payloads in applications demanding a high level of positioning accuracy.
QPO-A-C-E-170	A high performance, compact, dual axis, servo positioning platform. It has been developed primarily for carrying an extensive range of optical sensors and antennas.
QPO-S-A-C	Single axis rotator that can be used for land and maritime applications. It can incorporate a range of antennas and communication devices fitted with a mass of up to 50kg.
QPO-S-A-C-E-140	A Pan & Tilt Head (PTH) antenna positioner, small, lightweight, dual axis platform, particularly suitable for Unmanned Ground Vehicles (UGVs), Remote and Security Vehicles.



ABOUT OUR SUBSYSTEMS

In-house microwave antenna design and engineering capability backed by antenna testing facilities, provides a comprehensive all weather antenna and subsystem solution to many demanding land, sea and airborne applications; EW & radar simulators, meteorological radar sensors, satellite monitoring, ELINT, COMINT and spectrum management systems.

Steatite uses leading commercial EM design software from CST Microwave® along with dedicated in-house algorithms, enabling it to analyse and optimise a wide range of microwave antenna, and subsystem designs.

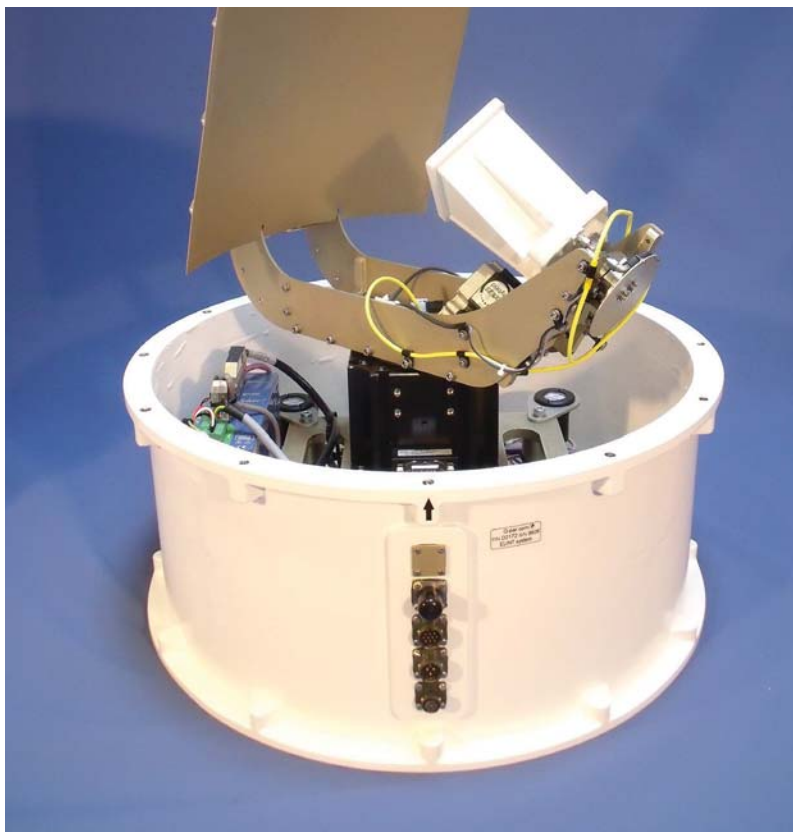
The Company uses a mixture of design and analysis tools for its mechanical design including SolidWorks®, Cosmos and FEA. Steatite designs and manufactures subsystems by integrating combinations of wideband antennas using custom mounting structures, mounted to COTS and custom designed multi-axis all weather positioners, housed in custom designed RF transparent radomes up to 40 GHz.



ABOUT OUR SPINNING DF ANTENNAS

Steatite provides COTS and custom designed 0.5 to 18 GHz direction finding and omnidirectional high performance spinning antenna subsystems.

The antennas are mounted on high speed rotating direct drive positioners with complex scan control and housed in RF-transparent, low-loss radomes. Cylindrical paraboloid reflectors are used, which provide a narrow azimuth beamwidth with broad elevation coverage.



TYPICAL SPECIFICATIONS

Frequency (GHz)	0.5 to 18 Catalogue No: QEL-ST-0.5-18-N-SG-R	1 to 18 Catalogue No: QEL-ST-1-18-S-HG-R	2 to 18 Catalogue No: QEL-ST-2-18-N-SG-R
Gain (dBi)	-2 to 22.1 - DF & -2.4 to 6.4 - Omni	10 to 23	13 to 24
Antenna Type	Reflector and Omni-directional	Cylindrical paraboloid	Cylindrical paraboloid
Polarisation	Slant linear 45°	Slant linear 45°	Slant linear 45°
Azimuth beamwidth°	3.3 to 87	3 to 33	4 to 30
Elevation beamwidth°	15.3 to 81 - DF & 11 to 102 - Omni	42 to 20	20 to 35
Angular resolution°	<0.1	<0.1	<0.1
VSWR (Typical)	<2.5:1 - DF & <3.6:1 - Omni	<2:1	<2.5:1
Rotational Velocity	200 rpm max	200 rpm max	200 rpm max

WHAT STEATITE OFFERS

Steatite provides microwave antenna consultancy in fields ranging from analysis of complex antenna subsystems to detailed studies of industrial processes. A team of highly qualified microwave, electronic and mechanical engineers are capable of solving a wide range of antenna related technical challenges.

Frequency Selective Surfaces (FSS):

The Company has in-house software tools for the design of FSS and experience in the manufacture of FSS radomes and sub-reflectors (singly and doubly curved). This experience also extends to the design of circuit analogue materials and frequency selective radar absorbers and salisbury screens.

Radar absorbent materials:

Steatite has in-house expertise and applies state-of-the-art theory to the design of "optimal" (minimum thickness for a given level of performance) RAM. This includes the use of both electric and magnetic materials.

Stealth technology:

Steatite has in-house expertise in the design of low radar cross-section antennas and in methods to reduce the radar cross-section of vehicle sub-structures. This includes shaping radar absorbent materials, rough surface and inhomogeneous scattering.

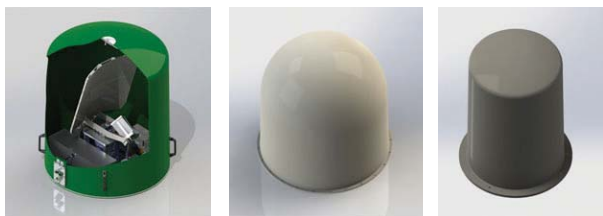
Materials analysis and measurement:

Theoretical studies into the microwave properties of single and multi-layer dielectric structures are carried out for such purposes as microwave windows, radomes and structural components. The dielectric properties of materials can also be measured.



ANTENNA RADOMES

Custom design and manufacture of wideband low-loss radomes up to 40 GHz.



MONOPULSE ANTENNAS

Used to precisely identify the direction of a radio signal. They consist of four closely spaced identical antennas whose outputs feed a device called a comparator.



GAUSSIAN BEAM ANTENNAS

A stable, narrow uniform beam that does not change with frequency when testing for material properties at microwave frequencies.



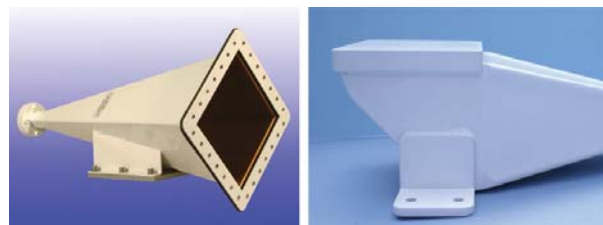
DUAL LINEARLY POLARISED ANTENNAS

A number of antenna packages such as sinuous, quad ridged horn and reflector / feed combinations.



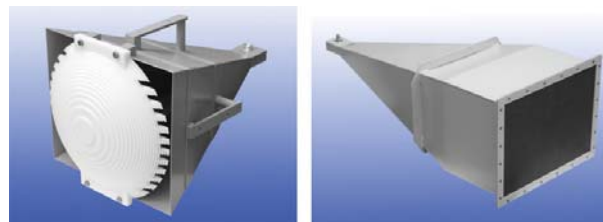
HOG HORN / DIAGONAL HORN ANTENNAS

Hog horns can be useful compact and rigid alternatives for sectoral horns and standard pyramidal horns.



LENSED HORN ANTENNAS

Improved gain figure, ideal for materials testing where a high field strength is achievable over the desired spot size.



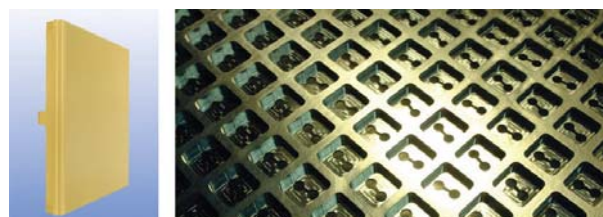
LUNEBERG ANTENNAS

Spherical multi-layered lens antennas which are capable of focusing microwave radio communications from any direction.



SLOT ARRAY ANTENNAS

The design and manufacture of both linear and planar waveguide slot array antennas.



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