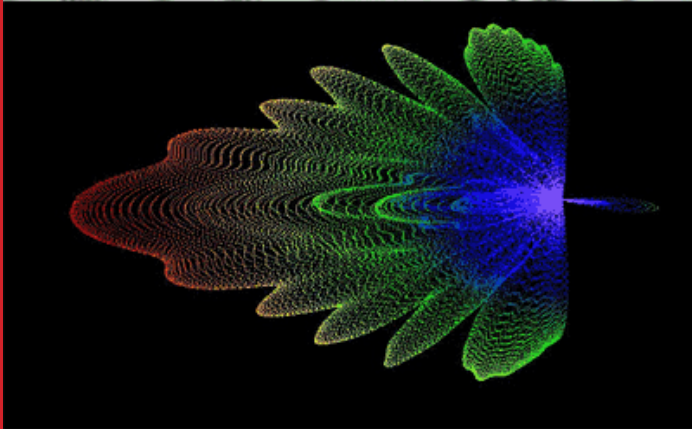


# STEATITE

COMPUTING - POWER - COMMUNICATIONS

A Solid State Group Company



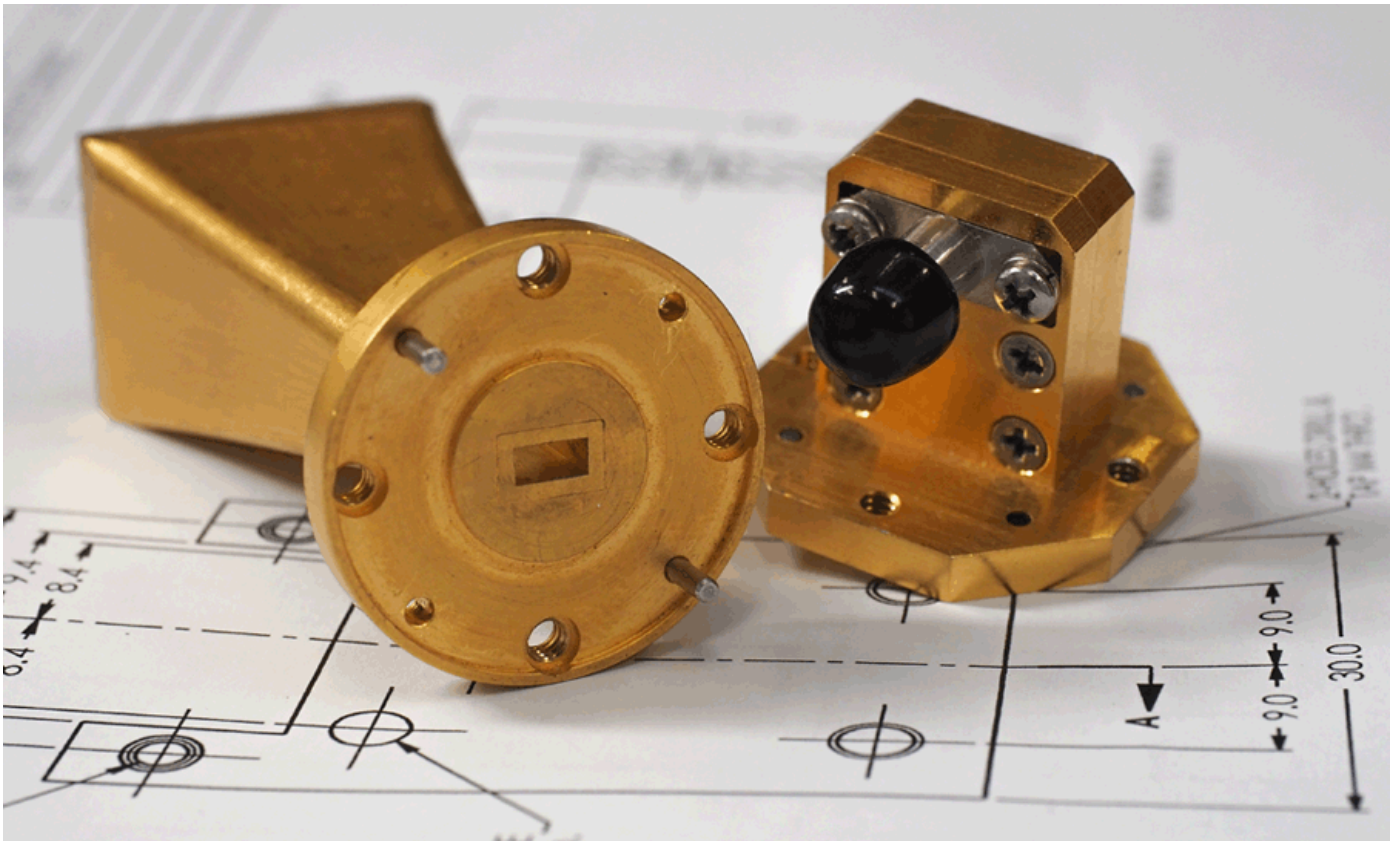
## Products & Services

### Brochure 2017 - 2018

#### Microwave Antennas, Subsystems and Consultancy

Ultra Wideband Antennas for  
Electronic Warfare

Hi Reliability Antennas for  
Test and Measurement



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.



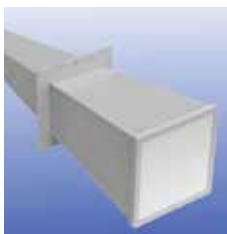
## ULTRA WIDEBAND DOUBLE RIDGED HORN ANTENNAS

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

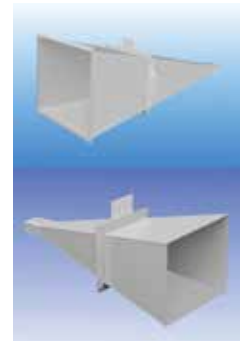
High gain, larger aperture horn antennas for high and medium power applications with bandwidths less than an octave.



## FORD MOTOR COMPANY RECOGNISED

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 | 0 to -14    | Rx Only        | <3.0:1         | Vertical     | N         |
| 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, 0.17 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

The list below is not exhaustive and different connector options may be available.

| Frequency (GHz) | WG / WR   | Catalogue No.         | Gain (dBi)   | Power c.w. (W) | VSWR (Typical) | Connector |
|-----------------|-----------|-----------------------|--------------|----------------|----------------|-----------|
| 0.17 to 4.0     | --        | QWH-SL0.17-4-A-SG     | 3.6 to 15.9  | 1400           | <1.5:1         | 7:16 DIN  |
| 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 1.6     | --        | QWH-SL-0.4-1.6-N-SG-R | 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      |
| 0.8 to 18.0     | 5 / 770   | QWH-SL-0.8-18-N-SG    | 2.8 to 18.0  | 500            | <2.0:1         | 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 18.0*   | --        | 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-DL-2-18-S-SG      | 3.9 to 15.9  | 40             | <3.0:1         | x2 SMA    |
| 2.0 to 18.0     | --        | QWH-SL-2-18-S-SG-R    | 5.0 to 12.0  | 20             | <2.5:1         | SMA       |
| 2.0 to 18.0     | --        | QWH-SL-2-18-N-HG-R    | 10.0 to 22.0 | 20             | <2.5:1         | SMA       |
| 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    | 10.0 to 22.0 | 40             | <2.5:1         | x2 N      |
| 2.0 to 18.0*    | --        | QWH-DL-2-18-S-HG-R    | 10.0 to 22.0 | 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      | WRD250    | 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     | 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      | WRD350    | QWH-SL-4-8-F-HG       | 18.0 to 20.0 | 2000           | <1.3:1         | WRD350    |
| 4.9 to 7.1      | 13 / 159  | QSH-SL-5-7-S-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     | WRD650    | 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     | WRD750    | 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 | 20             | <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      |
| 110.0 to 170.0  | WR6.5     | QSH-SL-110-170-F-20   | 25.0 to 27.0 | 50             | <1.15:1        | WG F      |
| 140.0 to 220.0  | WR5.1     | QSH-SL-140-220-F-20   | 25.0 to 27.0 | 50             | <1.2:1         | WG F      |
| 170.0 to 260.0  | WR4.3     | QSH-SL-170-260-F-20   | 25.0 to 27.0 | 20             | <1.25:1        | WG F      |
| 220.0 to 330.0  | WR3.4     | QSH-SL-220-330-F-20   | 25.0 to 27.0 | 10             | <1.3:1         | WG F      |
| 260.0 to 400.0  | WR2.8     | QSH-SL-260-400-F-20   | 25.0 to 27.0 | 5              | <1.35:1        | WG F      |
| 330.0 to 500.0  | WR2.2     | QSH-SL-330-500-F-20   | 25.0 to 27.0 | 5              | <1.4:1         | WG F      |

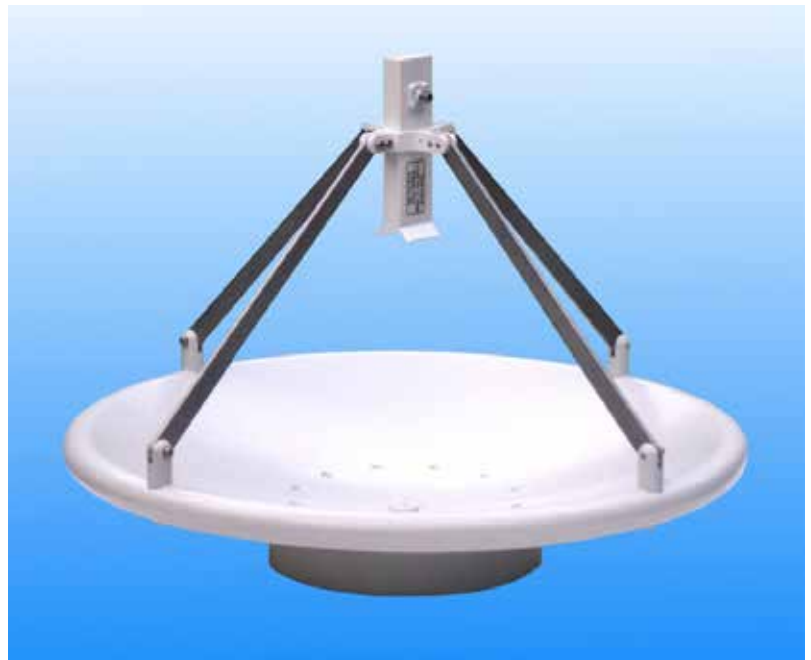
\*DL = Dual Linear.

## 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.

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        | 40              |
| 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         | 40              |
| 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          | 20              |
| 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-T4A-337 & QWF-DL-2-18-S-R | 20 to 39   | 1 to 11         | 40              |
| 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     | 20              |
| 7.5-18          | QSR-900-A-337 & QWF-SL-7.5-18-N-R | 33 to 39   | 2 to 3.5        | 400             |

## 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 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) | 40              |
| 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 Prime Focus Reflectors:

| Diameter (mm) | Catalogue No.                      | Gain (dBi) | Beamwidth (3dB) | Power c. w. (W) |
|---------------|------------------------------------|------------|-----------------|-----------------|
| 1400          | QSR-1400-A-546 & QWF-SL-0.5-2-N    | 14 to 24   | 6 to 35         | 400             |
| 3000          | QSR-3000-A-1207 & QWF-SL-0.5-2-N-R | 20.8 to 30 | 5.8 to 13.3     | 400             |

\*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        | <b>QPA-SL-0.4-1-A-SG</b> · 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        | <b>QPA-SL-1-1.6-A-SG</b> · 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      | <b>QPA-SL-1.5-2.6-A-SG</b> · 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        | <b>QSH-SL-2.6-4-C-SG-R</b> · 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          | <b>QSH-SL-4-6-N-22-R</b> · 3000 V/m at 1 metre with an input power of 2.3 kW    | 21.2 to 22.4     | <1.5:1         | 5kW            | N                     |
| 6 to 8          | <b>QSH-SL-6-8-N-22</b> · 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         | <b>QSH-SL-8-12-F-23</b> · 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)<br>UBR100 |
| 12 to 18        | <b>QSH-SL-12-18-F-23</b> · 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   | -6.5 to 1.4 dBiL | 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         |

Left-hand circular polarisation also available.

## ABOUT OUR SINUOUS ANTENNAS

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

Steatite's family of sinuous 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 sinuous 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 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.

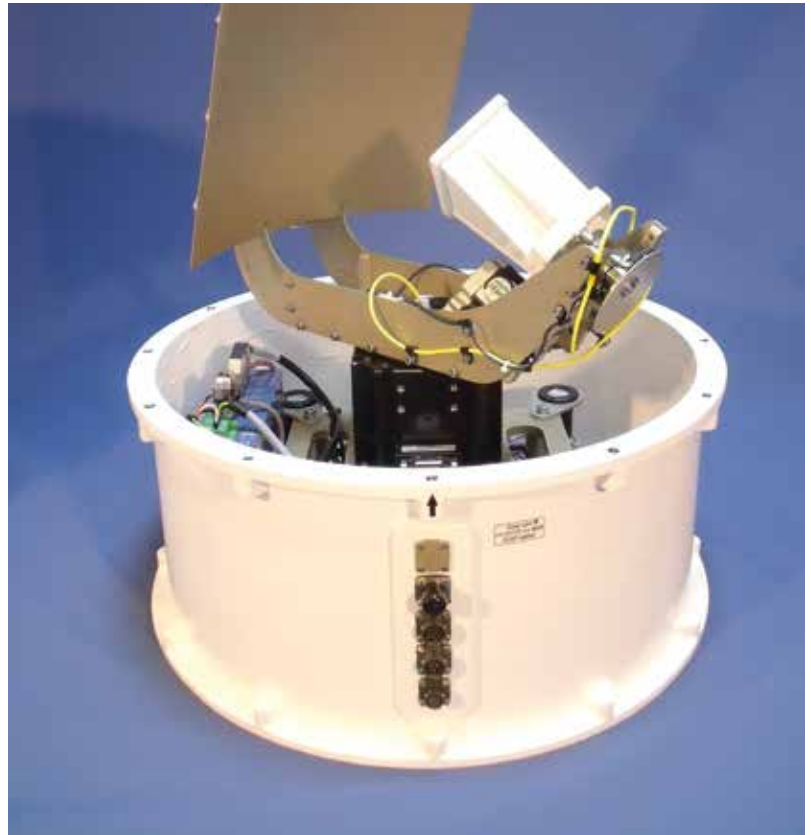
The Company uses a mixture of design and analysis tools for its mechanical design including SolidWorks®, Cosmos and FEA. Steatite designs and manufactures subsystems by integrating combinations of wideband antennas using custom mounting structures, mounted to COTS and custom designed multi-axis all weather 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<br>Catalogue No:<br>QEL-ST-0.5-18-N-SG-R | 1 to 18<br>Catalogue No:<br>QEL-ST-1-18-S-HG-R | 2 to 18<br>Catalogue No:<br>QEL-ST-2-18-N-SG-R |
|-----------------------------|--|--|--|
| <b>Gain (dBi)</b>           | -2 to 22.1 - DF & -2.4 to 6.4 - Omni               | 10 to 23                                       | 13 to 24                                       |
| <b>Antenna Type</b>         | Reflector and Omni-directional                     | Cylindrical paraboloid                         | Cylindrical paraboloid                         |
| <b>Polarisation</b>         | Horizontal, Vertical or +/- 45°                    | Horizontal, Vertical or +/- 45°                | Horizontal, Vertical or +/- 45°                |
| <b>Azimuth beamwidth°</b>   | 3.3 to 87  | 3 to 33  | 4 to 30  |
| <b>Elevation beamwidth°</b> | 15.3 to 81 - DF & 11 to 102 - Omni                 | 42 to 20                                       | 20 to 35                                       |
| <b>Angular resolution°</b>  | <0.1   | <0.1   | <0.1   |
| <b>VSWR (Typical)</b>       | <2.5:1 - DF & <3.6:1 - Omni                        | <2:1   | <2.5:1   |
| <b>Rotational Velocity</b>  | 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.

**Radar absorbent materials:** Steatite has in-house expertise and applies state-of-the-art theory to the design of "optimal" RAM including electric and magnetic fields.

**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.

**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.

## 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.



## DUAL LINEARLY POLARISED ANTENNAS

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



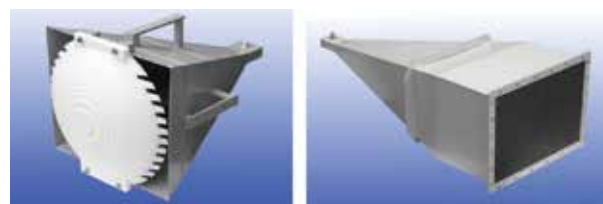
## HOG HORN / DIAGONAL HORN ANTENNAS

Hog horns can be useful compact and rigid alternatives for standard pyramidal horns. Diagonal horns can be used to give very low sidelobes.



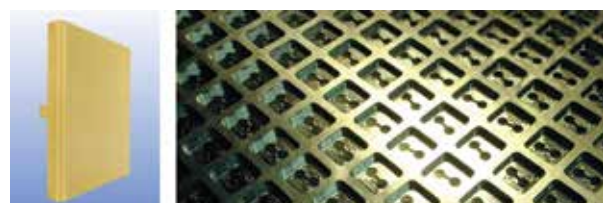
## LENSED HORN ANTENNAS

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



## SLOT ARRAY ANTENNAS

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



**Steatite Antennas  
Croft Business Park  
Leominster  
Herefordshire  
HR6 0QF**

**Tel: +44 (0)1568 617920**

**[www.steatite.co.uk](http://www.steatite.co.uk)**

**Email: [sales.antennas@steatite.co.uk](mailto:sales.antennas@steatite.co.uk)**

**We have distributors available  
worldwide - please see our website  
for full details.**

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COMPUTING - POWER - COMMUNICATIONS  
A Solid State Group Company