QUAD-RIDGE MICROWAVE COMPONENTS

DATA SHEET No. T401 1 OF 2

- **BROAD BAND**
- **POLARIZATION DIVERSITY**
- **HIGH POWER**

Quad-ridge transmission line combines the broad frequency band of double ridge waveguide with the ability to transmit two independent, orthogonal, linearly polarized signals. The quad-ridge can also be transformed into an antenna such as a quad-ridge horn while preserving the same characteristics.

These attractive features make quad-ridge waveguide well suited for combining and radiating high power, broadband signals with polarization diversity. A few examples will show the versatility of quad-ridge:

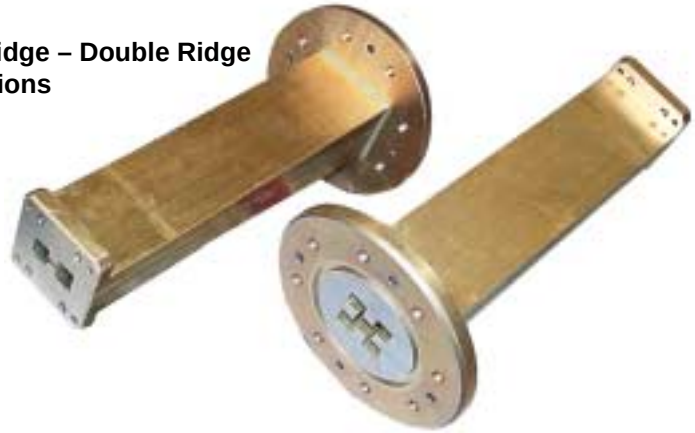
1- In the simplest single-feed configuration, a double-ridge input is connected, at 45°, to a quad-ridge horn containing an internal 90° phase-shifter. The result is a circularly polarized broadband, high power signal. Data sheet B115 contains several models (1030 to 1145) of such horn antennas that come with either double ridge or coaxial input.

2- In a dual-feed configuration, both linear signals are independently fed through 2 double-ridge waveguides or 2 coaxial connectors, making a dual-linear feed that provides coverage for vertical, horizontal, slant 45° and any other polarization. A good example of this scheme is C390-205.

3- In a variation of the dual-feed configuration, both inputs to the quad-ridge are equal in amplitude and phase-shifted by ±90° such as obtained with a hybrid divider. The result is a right or left circularly polarized combined signal which can then be radiated using a quad-ridge horn antenna.

4- In a more complex configuration, the R637Q-62 combiner shown has not just 2 but 4 inputs. It uses a pair of double-ridge magic tees to combine 2 horizontal plus 2 vertical signals for a total of 4 high-power signals into the common quad-ridge waveguide. Polarization could be any combination of linear to circular depending on the amplitude and phase relation of the 4 inputs.

Quad-ridge – Double Ridge Transitions



Quad-ridge Dual Polarized Couplers

4:1 Quad-ridge combiner

Data subject to change without notice

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QUAD-RIDGE HORN ANTENNA

RQ series antenna R397Q

- **BROAD BAND**
- **LOW VSWR**
- **HIGH POWER**
- **LIGHT WEIGHT**

DESCRIPTION

MEC's RQ Series Antenna is a high power broadband conical horn antenna which covers both X and Ku-band frequencies. The antenna is a quad-ridge design which is capable of supporting dual orthogonal polarizations simultaneously. It can produce any sense of polarizations such as V, H, RHCP, LHCP, or slant-linear, if the antenna is fed by a quad-ridge orthomode feed (MEC RQ series) with proper amplitudes and phase. The unit has a pressure sealed protective radome cover and can be pressurized to increase the power handling capability.

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