

Extra cost options are available for high power operation, additional null fill with high gain models, and field adjustable electrical downtilt using Celwave-supplied external cable harnesses.

Contact your Celwave Applications Engineer for a discussion of your application and how a Penetrator could maximize your system effectiveness.

NOTES ON LIGHTNING PROTECTION

Celwave's line of lightning protection products affords reasonable protection against equipment failure due to lightning strikes when properly utilized. No single lightning protection device should be viewed as providing complete defense against lightning. Your lightning protection strategy needs to be a fundamental consideration in the planning and design of your communications facility, including tower grounding, bonding cable runs to the tower and cable bridge to the shelter, grounding of cable entrance bulkheads to internal overhead cable runways and the isolation of equipment cabinets from the lightning path.

The Celwave PD395 and PD593 Lightning Arrestors are rugged 50 OHm coaxial bulkhead feed-through devices featuring internal circular knife-edge discharge spark gaps for conducting lightning's heavy currents safely to ground before they reach your equipment cabinets. The spark gaps "fire" from between 500 to 2,000 volts, allowing use with high power communications transmitters while discharging low level atmospheric static build-ups that are well below the high voltage potentials of an actual lightning strike.

The PD477 Cable Clamp is a complete stainless steel assembly including hardware for the grounding of 1/2 and 7/8 inch coaxial cables using up to No. 6 ground wire. Refer to manufacturer's data sheets for the minimum number of ground points required per length of coaxial cable installed on a tower.

INTERMODULATION

Clarity, quality and reliability of signal are the most important requirements to system operators of wireless communications. Of greatest concern in compromising the "quality of signal" is the creation of spurious responses and specifically a phenomenon known as intermodulation (IM). Intermodulation distortion can cause unreliability in wireless communications and consequently, a loss in revenue. At Celwave, our antenna products adhere to good engineering practice in product design, material selection and manufacturing techniques which guarantees their conformance to the industry's highest expectations and standards.

Our production testing utilizes two frequency synthesizers. Each of these units has eight separate output ports and they are fully programmable for all cellular channels. Following the frequency synthesizer units, each of the 16 channels of output signal is amplified, combined and fed to the antenna under test inside the anechoic chamber. The anechoic chamber is 8'x12'x24' and can accommodate antennas up to 20' long. A spectrum analyzer is used to measure 3rd and 5th order intermodulation products. This testing is accomplished using a Hewlett Packard (HP) system controller computer. A hard copy of the test results can be generated for any antenna tested. Since much of our system is composed of actual cell site hardware, this provides a more "real world" IM test.

