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The ERITECH Dynasphere Is Not An ESE

Over 15 years ago, ERICO developed the System 3000, a proprietary lightning protection (LP) system based on the Collection Volume Method (CVM) of protection. The success of the System 3000 (over 15,000 installations) has led to contempt by a number of our competitors because they do not want to understand the real advances made through research and development in both product and LP design. Our competition resorts to misrepresenting facts to engineers and academics and we must continuously educate the LP design community that the Dynasphere air terminal is not an ESE.

The Dynasphere air terminal is a key component to the ERITECH System 3000. The Dynasphere air terminal provides a preferred attachment point for lightning discharges which could otherwise strike and damage an unprotected structure and/or its contents. The "radius of coverage" or attractive radius of each Dynasphere is calculated in accordance with the CVM. The CVM design or calculation method is a more technically advanced design than either the Rolling Sphere Method (RSM) - used in NFPA780 and AS1768, or ESE - used in NFC17-102. The CVM takes into account the specific location of installation - height above ground, other geometric structures in close proximity (ie. competing features), electrical field intensification of these points, as well as the peak current of the lightning downleader (of which the RSM is solely based) - in order to calculate a protection radius. Hence each S3000 Dynasphere air terminal "radius of coverage" may be different, even though they are installed on the same plane above ground. The key reasons the Dynasphere is not an ESE include:

- 1. The ERITECH System 3000 air terminal is not an ESE by definition of NFC17-102**
- 2. The Dynasphere air terminal is UL certified (to UL96), further emphasizing compliance to accepted lightning current exposure.**
- 3. In the application of the CVM, the Dynasphere is treated like a conventional rod (using only its physical height), with one exception - we use the physical radius of the Dynasphere in the leader inception calculations rather than the critical radius. We justify this on the basis of the Dynasphere's blunt, corona-minimizing geometry. Further, taking a conservative approach, we do not even implement the advantage of the rapid e-field increase above the terminal which occurs when the terminal triggers.**

ERICO is involved in the lightning protection code committees and industry leaders in many countries around the world and hence acknowledges the diverse protection methods that exist. Therefore ERICO wishes to encourage a climate of greater mutual cooperation between standard setting bodies, the scientific community and academic researchers, and those commercial enterprises within industry that are prepared to invest in their own research in an attempt to better serve the industry for which they are chartered.