

Narrative Statement

- a) The complete program of research and experimentation proposed including description of equipment and theory of operation.

Andrew Solutions a CommScope Company is currently in the process of developing a wide variety of base station antennas for use in a number of different telecommunications applications. The antennas under development include, but are not limited to, a comprehensive range of base station antennas incorporating state of the art reflector shaping techniques and which cover a number of different frequency bands of operation.

Equipment to be used at Andrew Solutions a CommScope Company is based around conventional, but state of the art, outdoor far field test range facilities. In order to optimize the dynamic range of the systems to allow >80 dB front-to-back ratio measurements, the test sites are configured with a directional receiving antenna located close to the ground. At a specific distance away from the receiving antenna, there is a mounting facility where an antenna under test can be installed and then rotated in the principle plane connecting the receiving antenna and the antenna under test. A frequency generator is connected to an antenna under test and a receiving system is connected to the directional antenna located close to the ground. A control system synchronizes the recording of the received signal level as a function of rotation angle. A variety of computerized software is used to post-process the recorded antenna radiation patterns. Such software permits the display of the radiation pattern in a variety of standard formats, overlaying of patterns and required specifications, overlaying of patterns together with those previously recorded, etc.

- b) The specific objectives to be accomplished

The objectives of the experimental license are to develop, measure and verify the performance of Andrew Solutions a CommScope Company's range of base station antennas for use in a great number of wireless applications. A conventional, yet state of the art, antenna test range facility is required in order to conduct advanced experimental development (in many cases we have found that no suitable theoretical predictions exist), validate antenna performance and

demonstrate reliable and repeatable production antenna performance to a wide customer base.

- c) How the program of experimentation has a reasonable promise of contribution to the development, extension, expansion or utilization of the radio art or is along lines not already investigated.

Andrew Solutions a CommScope Company is at the forefront of antenna engineering development and manufacturing expertise in the world. Antenna developments within Andrew Corporation are present on many fronts that push forward the state of the art. Recent spectrum expansions to Ka-Band require extensive test and development activities to provide satellite operators with compliant and reliable earth based antenna products. Development of multi-band antennas enable end user operational versatility previously not possible. Features like these ultimately permit service providers to offer improved performance and expanded services to a variety of commercial and governmental customer bases.