

Justification

SwRI is an independent, not-for-profit, applied engineering and development organization devoted to technology development and transfer. Business is conducted with industry and government (U.S. and other friendly nations) on a worldwide basis. Approximately 50% of the Institute's business is for the U.S Government. SwRI has been involved in direction finding (DF) research and development since 1951. Direction finders are receive-only devices utilizing the energy of passing electromagnetic waves to determine their direction of arrival. Direction finding systems can then be used to determine the direction to an emitter. The original DF research and development has expanded to include, among other things, the interception and recognition of a large number of standard and special signals. SwRI must transmit signals to test the systems and do this in real-world environment. The systems are designed to process planar wavefronts in the far-field of the transmit source. The transmitter must thus be located at a significant distance from the receiver and, therefore, real-world conditions cannot be simulated by testing in an anechoic chamber of any realistic size. Typical testing of systems at SwRI is very intermittent. SwRI typically transmits for only a few seconds to one or two minutes for a given test frequency and is always at a low power level (< 10 watts input to antenna). Extremely rarely there might be a need to transmit for several hours, especially in the HF frequency range when HF skywaves reflected off the ionosphere change significantly over time and day/night transition. Once the test is complete there can be a period of several months before some other system is ready for testing. Because the systems are used to acquire and DF on any frequency that occurs in its contractually specified operating frequency range, a large number of test frequencies is required. Indeed, the very frequencies that are in common use are the ones most often of interest to our customers.

Request authorization for a five-year license.

Equipment Description

| <u>Manufacturer</u> | <u>Description</u> | <u>Model Number</u> | <u>No. of Units</u> |
|---------------------|--------------------|---------------------|---------------------|
| AEL | Antenna | APN1696 | 2 |
| EMCO | Antenna | 3106 | 1 |
| EMCO | Antenna | 3115 | 1 |
| EM Systems | Antenna | 10-127438 | 1 |
| Tecom | Antenna | 813355-1 | 1 |
| Amplifier Research | Amplifier | AT4002A | 1 |
| Amplifier Research | Amplifier | 10W1000 | 2 |
| Amplifier Research | Amplifier | 5W1000 | 1 |
| Agilent | Signal Gen. | 8656B | 1 |
| Agilent | Signal Gen. | 8648D | 1 |

List of Government Prime and Sub Contracts Requiring use of FCC Licenses

| Government Contract No | Agency | Title | POC | phone |
|-------------------------------|---|---------------------------|----------------|-------------------|
| H98230-05-G-0013 | Maryland Procurement Office | AF-225 VHF/UHF DF Antenna | Nelson Ortiz | 301-688-0735 |
| N65236-04-D-7856 | SPAWAR-Charleston | MTP-3 System | Greg Cromer | 843-218-4944 |
| N65236-04-D-7856 | SPAWAR-Charleston | Sit Awareness Program | Frank Smyth | 843-218-5868 |
| N65236-05-D-714100013 | SPAWAR-Charleston | AS-141/142 Ant | Jim Reyburn | 843-218-5423 |
| H98230-07-C-0822 | Maryland Procurement Office/Lockheed-Martin | C-12 Array Manifold | Nelson Ortiz | 301-688-0735 |
| N65236-07-D-5880 | USSOCOM/Sierra Nevada Corp | Athena Spiral 1 | Sal Strano | 813-839-3794 |
| N65236-04-D-7856 | SPAWAR-Charleston | Engineering/Tech Services | Greg Cromer | 843-218-4944 |
| N65236-07-C-7294 | SPAWAR-Charleston/Northrup Grummon | DF System Eval | Mike Niermann | |
| H9823008C0751 | Maryland Procurement Office | Mapslayer | Carl Robinson | 301-688-1766 |
| N6833507C0411 | U.S. Coast Guard/Argon | AS-141 | Joe Babb | 703-828-2112 |
| N6523605D7862 | Maryland Procurement Office/SAIC | AF-225 VHF/UHF DF Antenna | Tony Szwest | 843-414-4300 |
| N6523605D71410014 | SPAWAR-Charleston | AS-141/142 Ant | Jim Reyburn | 843-218-5423 |
| 06D80080019 | U.S. Navy | UAV Engineering Support | Phil Bailes | 301-688-4058 |
| H9222209C0012 | USSOCOM | FLASHLIGHT | Dixie Bankston | 813-281-0560 x304 |
| H9823009C0665 | Maryland Procurement Office | Maptrace TTO 2009-003 | Carl Robinson | 301-688-1766 |