

## **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.

## 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**

<b>Government Contract No</b>	<b>Agency</b>	<b>Title</b>	<b>POC</b>	<b>phone</b>
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