

Exhibit A- Description of Frequency Use

This paper supplements a request to the U.S. Federal Communications Commission (FCC) for frequencies in the government operated S-Band (2200-2400 MHz) and C-Band (4800-4950) frequency ranges. The purpose of the frequency requests is to support a demonstration of the RT-1944A/U radio, a new version of the RT-1944/U radio currently used by the U.S. Navy and other entities.

It is the desire of RSS to use the frequencies at demonstrations in 2014 and 2015.

RSS has filled out Form 442 as the request for the frequencies. RSS was advised by the FCC to fill out Form 442 instead of a Special Temporary Authorization (STA) for this temporary license. This document has been submitted as an attachment to the Form 442 request.

The demonstrations will be conducted in support of contract **N00024-14-C-4088**, "LCS and Remote Mission Modules," issued by the US Naval Sea Systems Command, POC: Pedro Munoz : (850) 234-4616, pedro.munoz@navy.mil. It will test the ability of the RT-1944A/U prototype to communicate in an aerial relay configuration between a fixed location and a surface vehicle. The goal is to demonstrate a 30 nmi data link at a user data rate of 80 mbps from the surface vehicle through the relay to the fixed site.

Radiating Sites

The demonstrations will be conducted in an area near Cape Canaveral, FL as depicted in Figure 1. They will contain three sites: 1) A Fixed Site with a directional antenna at a hotel on or near the 10th floor (100 feet height), 2) A surface vessel (Mobile Asset 1) operating on the Atlantic ocean with an omni-directional antenna, and 3) an aircraft (Mobile Asset 2) operating in a position located on a direct line between the hotel and the surface vessel at a nominal 1000' height with 2 directional antennas.

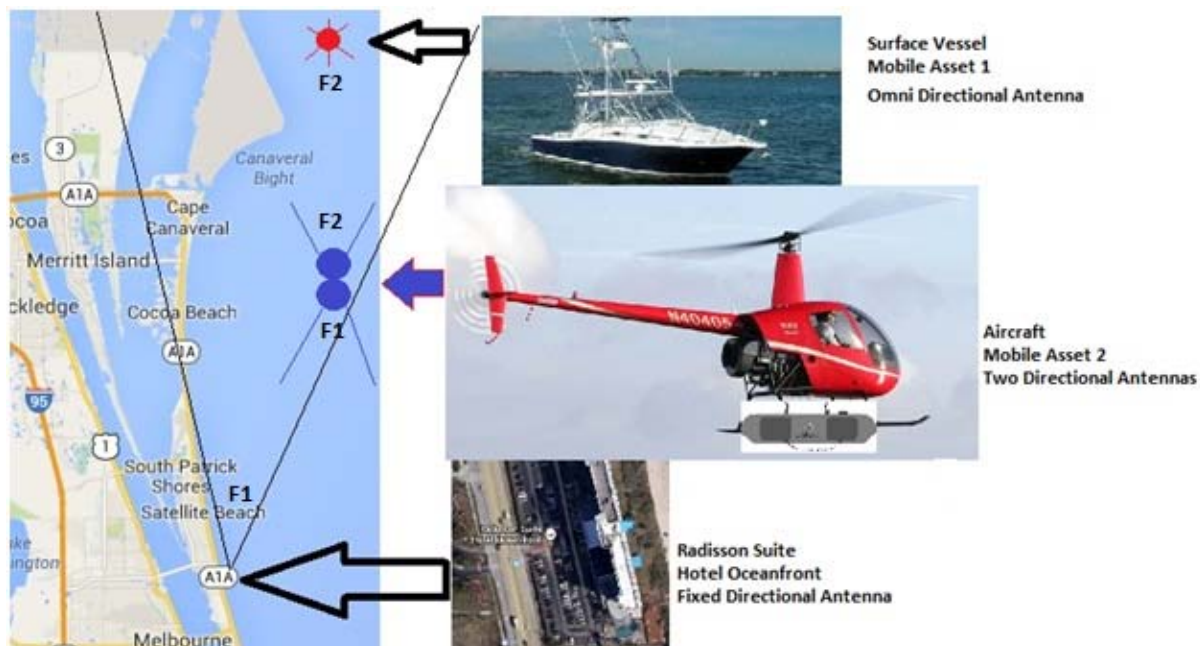


Figure 1, Operating Area

RF Links

The demonstrations will use 2 frequencies at a time, each occupying 40 MHz of bandwidth. One frequency will be used to communicate between the Fixed Site (aka hotel) and Mobile Asset 2 (aka aircraft). The second frequency will be used to communicate between Mobile Asset 2 (aka aircraft) and Mobile Asset 1 (aka surface vessel).

The RT-1944A/U uses the 802.11n RF waveform with data encapsulation customized for long distance communications.

The demonstrations will be conducted in the S-Band frequency range (2200-2400 MHz) for some tests and the C-Band frequency range (4800-4950 MHz) for other tests. RSS is requesting three frequencies in each band of operation. Since these frequencies are used for government purposes, RSS is requesting an extra frequency in each band to allow scheduling work-arounds for situations when other government agencies might require the assigned frequencies on specific dates.

Frequency Requests (all sites):

RSS has requested the following frequencies at all sites. The RT-1944/U has a frequency accuracy of 20PPM (.002%). All frequency emissions are type "D7W" and use 802.11n RF modulation with 40 MHz of Necessary Bandwidth. RSS has submitted our calculations for the spectrum in Attachment 2, "DD Form 1494 for RT-1944A/U".

S-Band CH 1: Low=2200 MHz, High=2240 MHz, Center Frequency=2220 MHz

S-Band CH 2: Low=2250 MHz, High=2290 MHz, Center Frequency =2270 MHz

S-Band CH 3: Low=2350 MHz, High=2390 MHz, Center Frequency =2370 MHz

C-Band CH 1: Low=4800 MHz, High=4840 MHz, Center Frequency =4820 MHz,

C-Band CH 2: Low=4850 MHz, High=4890 MHz, Center Frequency =4870 MHz

C-Band CH 3: Low=4950 MHz, High=4990 MHz, Center Frequency =4970 MHz

RF Equipment Strings

There are four RT-1944A/U equipment strings that are used during the demonstration. Each string contains an RT-1944A/U, power supplies, a bi-directional amplifier, cables and an associated antenna. The Fixed Site (hotel) and Mobile Asset 1 (surface vessel) will have one string each. Mobile Asset 2 (the aircraft) contains two equipment strings in a portable "POD" configuration for relay purposes; this is an active relay.

Site 1, Fixed Antenna (Hotel)

Site 1 is a fixed site with one radio at the Radisson Melbourne on the Atlantic Ocean in Melbourne, FL. Its GPS coordinates are 28° 08' 09"N latitude 080° 34' 48"W longitude.

Site 1 Antenna- The directional Antenna will be a Harris Model 3209029-101 antenna. The antenna will be pointed at 5 degrees north (Azimuth) and 0 degrees level (elevation). This is a dual band antenna.

The S-Band (2200-2400 MHz) characteristics are a 16.0 dBi gain, a 60 degree horizontal beamwidth and a 15 degree vertical beamwidth. The C-Band (4800-4950 MHz) characteristics are 14.7 dBi gain, a 60 degree horizontal beamwidth and a 15 degree vertical beamwidth.

Site 1 average RF Power @ S-Band Frequencies = 10 W (40 dBm), EIRP= 398 W (56 dBm).

Site 1 average RF Power @ C-Band Frequencies = 4 W (36 dBm), EIRP=158 W (52 dBm).

FCC Question 5 antenna mounting: The Antenna will be mounted using a standard pole mount with the antenna electrically steered to 0 degrees elevation when mounted this way.



Figure 2- Site 1 Antenna mounting

Site 2, Mobile Asset 1

Site 2 is a small boat with one RF equipment string.

Its operational area is defined by the GPS coordinates 28° 24' 31" North Latitude, 080°34' 54" West Longitude with an operational radius of 20 nmi (37 Km).

Site 2 Antenna- The antenna will be a RSS Model 224015-005A antenna for S-Band (2200-2400 MHz) operation; a Model 224015-003A for C-Band operation. Both antennas have 6 dBi of gain, a 360 degree (omni-directional) azimuth pattern and 20 degrees of vertical beamwidth. The antenna is mounted at a nominal 22' (6.7m) height above sea level.

Site 2 average RF Power @ S-Band Frequencies = 10 W (40 dBm), EIRP= 40 W (46 dBm)

Site 2 average RF Power @ C-Band Frequencies = 4 W (36 dBm), EIRP=16 W (42 dBm)

FCC Question 5 antenna mounting: The antenna will be mounted with standard boat mounting hardware in a vertical configuration as shown below:



Figure 3- Boat Antenna mounting

Site 3, Mobile Asset 2

Site 3 is an aircraft that carries a Pod with 2 radio strings (including 2 antennas) that function as an active relay.

Its operational area is defined by the GPS coordinates 28° 24' 31" North Latitude, 080° 34' 54" West Longitude with an operational radius of 20 nmi (37 Km).

Site 3 Antennas- This site contains 2 directional antennas on a mobile platform. Both antennas will either be S-Band or C-Band antennas for a specific test. One of the two antenna used on each mission will be positioned to point due north (towards the boat)and the other antenna will be positioned to point due south (towards the hotel).

The S-Band antennas will be Direct Beam Inc. Model dBi-16-28eIX23az-S; it has 16.5 dB of gain, a horizontal beamwidth of 23° and a vertical beamwidth of 28°. The C-Band antennas will be Direct Beam Inc. Model dBi-16-28eIX23az-C; it has 16.5 dB of gain, and a horizontal beamwidth of 23° and a vertical beamwidth of 28°.

Site 3 average RF Power @ S-Band Frequencies = 10 W (40 dBm), EIRP= 446 W (56.5 dBm)

Site 3 average RF Power @ C-Band Frequencies = 4 W (36 dBm), EIRP=177 W (52.5 dBm)

FCC Question 5 Antenna Mounting: The POD will contain 2 antennas with one antenna mounted on each side of the pod as shown in the Figure below:

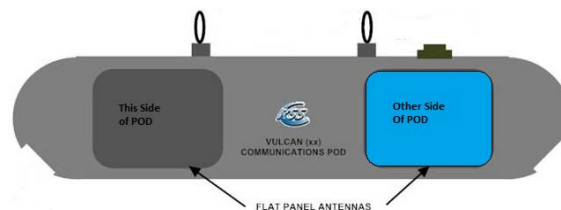


Figure 4, Antenna Mounting on POD