HARRIS CORPORATION
EXPERIMENTAL STA APPLICATION
FILE NO. 0358-EX-ST-2011
May 2011

DESCRIPTION OF EXPERIMENT

Consolidated Response to Questions 4 and 5.

Harris Corporation ("Harris") hereby requests experimental Special Temporary Authority ("STA") to test the transmission and reception of voice and data within the L-band frequency range of 1.3GHz to 1.4GHz at various distances and locations. Stationary and mobile tests will be performed to transmit voice and data in both urban and rural settings Tests will use up to a 5m ground mounted transmitter and mobile receivers to replicate in theater tactical communication operation. This testing will support but will not be limited to US government contracts M67854-10-D-7000 and GS02T09CJA0510.

The testing will utilize the Harris AN/PRC 117G Wideband Tactical Radio for transmission, in conjunction with the following antennas:

RF-3165 Multiband Dismount Antenna
RF-3187 Multiband Vehicular Antenna

Because the equipment is technically incapable of providing station identification, Harris respectfully requests a waiver of the station identification provisions of Section 5.115 of the Commission's rules, 47 C.F.R. § 5.115.

All network traffic will be simulated traffic only, solely for evaluation purposes and not for the purpose of providing network data communications services to user stations.

Harris submits that a grant of an experimental STA is necessary and in the public interest because it will facilitate developmental improvements to equipment used by US Military forces abroad.

The **stop buzzer contact** for this project is Neil Dempsey at Harris, tel: (585) 242-3407, mobile: (585) 451-9915, e-mail: ndempsey@harris.com

Antenna Sketch for L-Band License Request

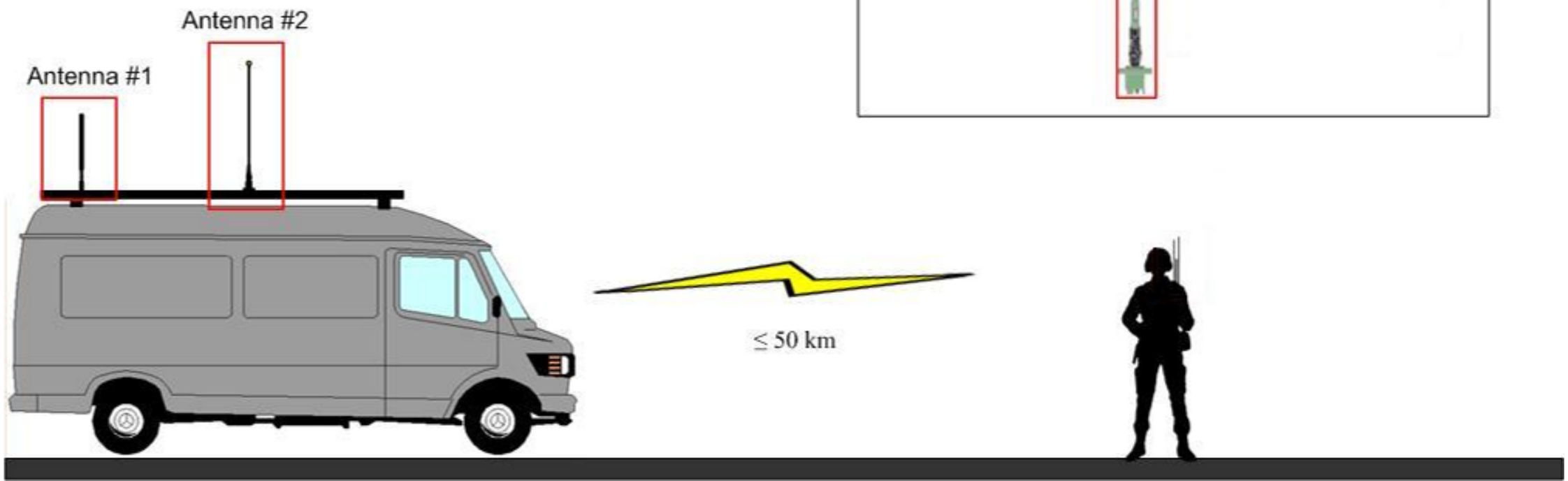
Fixed and Mobile Stations

For the purpose of this experiment, a fixed station is defined as a stationary test van and a mobile station is defined as either a test van or a person on foot that is moving. Depending upon asset availability and testing parameters, stations will consist of a mix of vehicles persons on foot. Total quantity of stations will not exceed 10.

Antennas to be used during testing

Antenna #1: RF-3165-AT122

Antenna #2: RF-3187



HARRIS®

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AN/PRC-117G(V)1(C)

TYPE-1 WIDEBAND MULTIBAND MULTIMISSION RADIO WITH INTERNAL SAASM GPS

NSA CERTIFIED

A revolutionary CNR-sized radio with US/NATO standardized waveforms and wideband data capabilities

The Falcon III® AN/PRC-117G(V)1(C) manpack is a software defined tactical radio that provides breakthrough wideband data performance and interoperability with fielded waveforms. This single channel radio covers 30 MHz to 2 GHz and is 30% smaller and 35% lighter than currently fielded multiband manpack radios. The radio operates off a single standard battery, further reducing the weight of a dismounted radio yet maintaining peak transmit power of 10 watts VHF and 20 watts UHF.

The AN/PRC-117G features a JTEL-certified Software Communications Architecture (SCA) operating environment, providing the optimal transition to software-defined radio technology. The AN/PRC-117G provides SINCGARS, Havequick II, VHF/UHF AM and FM, DAMA, 181B Dedicated Channel TACSAT, High Performance Waveform (HPW), and the Harris Advanced Networking Wideband Waveform (ANW2). The ROVER L-Band receive waveform and APCO P25 are also available as options. Future planned software upgrades include IW, MUOS, SATURN, and SRW waveforms (subject to NSA approval).

AN/PRC-117G networking capabilities can be enhanced using the RF-7800B series of Broadband Area Global Network (BGAN) terminals. The RF-7800B BGAN terminals provide satellite-based wideband beyond-line-of-sight (BLOS) communications. When combined with the AN/PRC-117G, the system provides automatic and secure range extension, connection to out-of-range networks, and entry into the Internet or remote private networks.

Secured by the Harris Sierra™ II software programmable encryption module, the AN/PRC-117G is certified to carry up to US Top Secret voice and data traffic. The Sierra II, designed to maximize battery life in battery-powered radios, supports all JTRS COMSEC and TRANSEC requirements. The radio supports HAIPE® in-line encryption for secure network connectivity. Numerous legacy encryption modes are also supported, including KY-57/VINSON, ANDVT/KYV-5, KG-84C, and keyfill modes of DS-101 and DS-102.

The AN/PRC-117G stores multiple mission fill files, extending the time between reconfigurations. It also includes an embedded SAASM GPS receiver to display local position and provide automatic position reporting for situational awareness on the battlefield. Three separate antenna connections allow efficient and flexible use of antennas. The AN/PRC-117G(V)1(C) includes the R/T, manuals, H-250 handset, radio programming application, and programming cable.

Specifications for the AN/PRC-117G(V)1(C)

General

RT Nomenclature	RT-1949(P)(C)
Frequency Range	30 MHz-2 GHz Narrowband (NB): VHF Low: 30-90 MHz VHF High: 90-225 MHz UHF Low: 225-512 MHz SATCOM UHF Low: 243-270 MHz and 292-318 MHz Wideband (WB): UHF: 225 MHz-2 GHz
Channel Spacing	NB: 5 kHz, 6.25 kHz, 8.33 kHz, 12.5 kHz, 25 kHz SATCOM: 5 kHz, 25 kHz WB: 500 kHz, 1.2 MHz, 2.5 MHz, 5 MHz
Net Presets	100
Data Interfaces	Ethernet, RS-232/RS-422, USB Synchronous and Asynchronous
Control Interfaces	Ethernet, RS-232, RS-422, USB
Management Tool	Windows-based Radio Programming Application
Software Environment	JTEL Certified SCA 2.2
Integrated GPS	SAASM
Frequency Stability	0.5 ppm
Frequency Tuning	10 Hz from 30 MHz-512 MHz 100 Hz from 513 MHz-2 GHz
Remote Control	RS-232 ASCII based

Modes and Waveforms

Narrowband Waveforms	AM/FM, VHF/UHF LOS SINCGARS Havequick I and II APCO 25 (optional)
Wideband Waveforms	ANW2 ROVER III L-Band Receive (optional)
UHF SATCOM Waveforms	MIL-STD-188-181B Dedicated Channel MIL-STD-188-182A, 183A DAMA HPW
Voice and Data Modes	Simplex or Half-duplex MIL-STD-188-113 CVSD STANAG 4198 LPC-10e STANAG 4591 MELPe
Data Modes	Synchronous Data (300, 600, 1200, 2400, 12k, 16k bps) SINCGARS ECCM (VHF Low band/1200, 2400, 4800, 9600) Wideband FSK Cipher Text Digital Data (16 Kbps; KY-57) Narrowband Cipher Text Digital Data (2.4 Kbps; ANDVT/KYV-5) KG-84C Havequick I/II ECCM (16 Kbps; KY-57 UHF band only)

Security

Encryption	Sierra™ II Based Type-1
Encryption Modes	KY-57, KYV-5, KG-84, HAIPE®, AES
Key Fill Device Compatibility	AN/CYZ-10 DTD, KOI-18, KYK-13, KYX-15, MX-18290, AN/PYQ-10, KIK-20
Key Storage	Up to 300
Mission Fill Device Compatibility	Windows-based Communications Planning Application

Power

Power Input	19-34 VDC
Power Consumption	65 W max
Battery Types	BA-5590/U, BA-5390/U, BB-590/U, BB-390/U, BB-2590/U

Physical and Environmental

Size (no handles)	7.4 W x 3.7 H x 8.8 D in. (without battery) 7.4 W x 3.7 H x 13.5 D in. (with battery)
Weight	8 lbs. (without battery) 12 lbs. (with battery)
Shock/Vibration	MIL-STD-810F for tracked vehicles, wheeled vehicles, shipboard
Immersion	1 meter
Color	CARC Green 383

Transmitter

Power Output	NB: 10 W SATCOM: 20 W WB: 20 W peak/5 W average
Antenna Outputs	NB: 30 MHz-512 MHz SATCOM: 243 MHz-318 MHz WB: 225 MHz-2 GHz
Harmonic Suppression	Greater than 50 dBc

Receiver

Narrowband Sensitivity (for 10 dB SINAD)	LOS FM 30-512 MHz: -118 dBm LOS AM 90-512 MHz: -110 dBm with 70% Modulation TACSAT FM 243-270 MHz: -120 dBm
Adjacent Channel Rejection	60 dB referenced to 10 dB SINAD (50 kHz channel) VHF: 60 dB (50 kHz off channel) UHF: 50 dB (50 kHz off channel)

Accessories Included with AN/PRC-117G

10075-1399	H-250 Handset
RF-6650M	Communications Planning Application (CPA)
12043-0750-A006	USB Programming Cable
Manuals	Operation Manual, Reference Guide, SINCGARS Pocket Guide, ANW2 Pocket Guide

Optional Accessories

RF-300M-DK001	Dismount Antenna Kit
RF-300M-VK001	Vehicular Antenna Kit
RF-300M-UK001	L-Band Rover Receiver Kit
RF-7800M-V150	50W Vehicular Amplifier Adapter
RF-7800M-V120	20W Vehicular Amplifier Adapter
RF-3071-AT232	GPS Antenna Kit (L1/L2 Band)
12043-2710-A006	PPP Data Cable
12043-2730-A006	Data and Remote Control Cable
12043-2740	Digital Retransmission Cable
12043-2760-A006	Ethernet Cable
RF-5910-PS005	Battery Eliminator
RF-7800B-DU024	BGAN Land Portable Antenna System
RF-7800B-VU104	BGAN Land Mobile Antenna System

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RF Communications | 1680 University Ave. | Rochester, NY USA 14610 | 585.244.5830 | www.harris.com

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