

GOVERNMENT OF THE DISTRICT OF COLUMBIA
OFFICE OF THE CHIEF TECHNOLOGY OFFICER

Suzanne J. Peck
Chief Technology Officer

August 20, 2004

SEP 7 2004



Federal Communications Commission

Experimental Licensing Branch
MS 1300E1

445 12th Street, S.W.
Washington, DC 20554

Re. Experimental Radio Station Construction Permit And License
Call Sign WD2XHO
First Progress Report

Dear Madam/Sir:

Pursuant to the special conditions included in the grant of the experimental radio station and construction permit and license for WD2XHO (FCC File 0042-EX-ML-2004), please find attached the first Progress Report of this experiment.

Should any clarification be necessary, please do not hesitate to contact Guy Jouannelle at 202-727-7796.

Sincerely

Robert LeGrande, II
Deputy Chief Technology Officer

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The Office of the Chief Technology Officer of the District of Columbia (OCTO)

FIRST PROGRESS REPORT ON

**THE CONSTRUCTION AND OPERATION OF ITS EXPERIMENTAL WIRELESS
ACCELERATED RESPONDERS NETWORK (WARN)**

Experimental Radio Station License - Call Sign WD2XHO

Background

The District of Columbia has recently completed an analysis of its public safety wireless data network deployment options and has determined that the spectrum and technologies on which they are based do not fulfill the pressing need of first responders today, much less the increasingly complex environment envisioned for the near future. Applications that could be deployed in the near term to improve public safety are not realistic options because there is insufficient bandwidth available and also because they are not economically viable. The use of video images to relay critical information between first-responders in the field, and the use of other technology for similar purposes simply cannot be deployed with the current allocation of public safety wireless spectrum and associated technologies.

In order to demonstrate that affordable technologies exist today to support the critical public safety applications, the District has decided to deploy a wide area (within Washington DC city limits) broadband (1.5Mbps per user) wireless data network that will serve as a pilot for next generation of public safety applications. The intent is to specify technology and features that best suit public safety applications requirements. To this end, the District has filed for an experimental license in January 2004. The FCC has granted this experimental license (Call sign WD2XHO) in February 2004. As the experiment will use the 700 MHz upper band, an additional outcome of the experiments will be an evaluation of the impact of interference received from/created into TV stations broadcasting in this band.

Experimental license scope

The experimental license granted by the FCC in February 2004 reflected the following network specifications.

The pilot system coverage objective is the whole District. Ten sites the District is currently operating for its Public Safety voice network will be used. Each pilot site will use 3 sectorized antennas. The pilot network will be operational for twelve months, currently planned from September 2004 to September 2005.

Initially the District was willing to deploy up-to two overlapping technologies/vendors for the pilot network. The intent was to compare two possible technologies for this network: (1xEV-DO and Flash OFDM have been identified in the license filing), and select the most performing one. For each technology, 200 cards or modems will be distributed to users.

Each of those technologies requires 2x1.25 MHz bandwidth. Each site will use the same frequencies.

The WD2XHO construction permit authorized base stations to operate over the range of frequencies of 800.65 MHz to 804 MHz (Downlink), and the mobile units to operate over the range of frequencies from 752.65 MHz to 756 MHz (Uplink). Those frequencies are within TV Channels 69 for downlink and 61 for uplink. A letter of consent was obtained from Maryland Public TV that operates a station located in Frederick, MD, on channel 62, adjacent to the uplink frequencies.

The experimental license was granted on the conditions that:

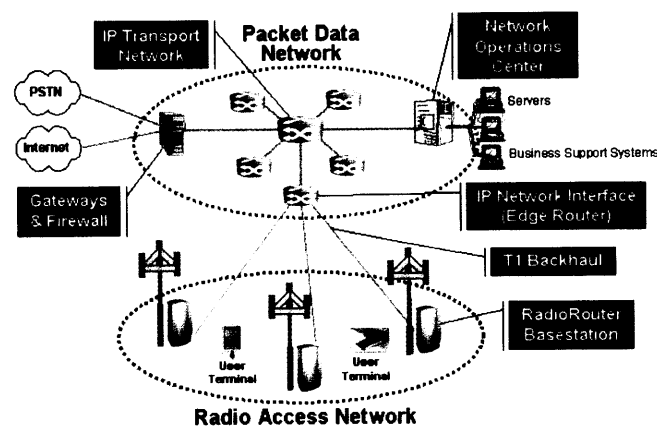
- The license is on a secondary basis
- Prior coordination is required with the Society of Broadcast Engineers (done in February 2004)
- Testing would be confined within the borders of the District of Columbia,
- Progress reports will be filed every 6 months from the date of the grant. This document is the first progress report.

Project Status

Technology Selection

Unfortunately, because of financial constraints, the District had to limit the first phase of the pilot deployment to one technology, and to postpone the deployment of a second technology to a later phase. The selected technology is Flash-OFDM and is provided by a joint effort of Motorola and Flarion Technologies.

The figure below describes the Flash OFDM network architecture. It consists in ten radio-routers, an IP network interface and a network operations center. Mobile IP is supported.



Two paired 1.25 MHz channels are required to deploy the pilot network. Custom PCMCIA cards will be designed to operate at the upper 700MHz spectrum and will be available to users for the duration of the pilot.

Experiment License Amendment

After the experimental license was granted, the District of Columbia learned that the Flarion equipment to be used in the experimental network will be available sooner if the uplink and downlink frequencies were swapped e.g. if the base stations operate in the lower range of frequencies from 752.65 MHz to 756 MHz range, and the mobile units operate in the upper range of frequencies from 800.65MHz to 804MHz. The alternatives the District then faced were:

- At least 4 months project delay if Flarion complied to the frequencies specifications of the RFP,
- Less than a month delay if Flarion swapped Uplink and Downlink frequencies.

The District selected the second option. OCTO filed on July 8 an experimental license modification allowing for the Uplink-Downlink frequency swap.

FCC granted this license modification on August 9. Added special conditions to the license modification grant includes network operations subject to prior coordination with Maryland Public TV to ensure that no harmful interference is caused to its television operations.

Network Construction

The deployment of the sites has been completed on schedule:

- On all sites three additional antennas and six transmission lines have been engineered and constructed. The deployed three sectored antennas configuration uses cross-pole, single radome antennas to provide diversity.
- All the sites have been interconnected through the District of Columbia fiber network to the central node of the network. This nodal site includes in particular an Accounting Authentication and Authorization server, manages users mobility, and gives the users access to the District Wide Area Network and the Internet
- At all sites, the equipment has been installed and commissioned.

As of August 20, the system is in an optimization phase, before a formal acceptance test that will occur in September.

Next milestones

The system is currently in an optimization phase. This optimization phase includes measurements of interference created into potential Maryland Public TV viewers' equipment. The analysis of those measurements will be shared in the next progress report.

The network formal acceptance test will occur in September. Technical performance of the network in terms of coverage, throughput and latency will be evaluated. The results of this evaluation will be shared in the next progress report.

After this evaluation, cards will be distributed to first responders and the applications will be rolled out.