

FORM 442 FILE NO. 0087-EX-PL-2004
ATTACHMENT: HARRIS RESPONSE TO FAA ASR-100 QUESTIONS

Ref: R.J. Balanga e-mail to Bruce Williams, FAA/ASO dated 5/26/04

Q1. What types of testing will be done?

How will the testing be done and what type of service volume are they looking for? Harris should provide a more comprehensive testing plan than what is attached to the License application.

A1. Harris is currently developing at its own expense a digital communications architecture capable of supporting Air/Ground Communications using either legacy DSB-AM or digital VDL Mode 3. We have cooperative agreements with Rockwell Collins Aviation and Avidyne Corporation, which are both developing multimode avionics that support DSB-AM and VDL Mode 3. These avionics developments are partially supported by FAA AND-360. In order to ensure interoperability between the Harris and avionics equipments, we plan to perform tests that require a licensed air link which is the subject of this experimental frequency application. Initial testing will use the link to connect our laboratory facilities with those of Rockwell Collins and Avidyne, all of which are located within a 10-mile radius in Melbourne, Florida. This testing will thoroughly exercise the air-ground VDL Mode 3 protocols for both voice and data link under VDL Mode 3. We also plan to do limited flight testing with certified avionics for experimental voice and data link communication using VDL Mode 3 within a 50-nmi radius of Melbourne International Airport (MLB). We request two experimental 25 kHz frequency assignments in order to support this work. A separate but related internal Harris research project is aimed at evaluating the suitability of Voice over Internet Protocol (VOIP) for future air-ground communications. VOIP is evolving as a key technology for future voice switching systems. We request one experimental 25 kHz frequency assignment in order to support this project, which will encompass communications between Harris laboratory facilities and mobile avionics receivers. Only DSB-AM modulation will be used on this air link; the service volume will be limited to 50 nmi.

Q2. The Experimental License filed with the FCC states a testing period of 36 months, this cannot be done at this time due to frequency congestion in the air-ground frequency band. Could they live with a shorter testing time-frame? And, if so...how long?

A2. Harris anticipates being able to accomplish most of its testing objectives within a 24-month period. We would, of course, appreciate the opportunity of applying for an extension of the license at the end of that period if needed, subject to approval by the FCC and FAA.

Q3. Is Harris performing these tests in conjunction with the FAA? If so, which Program Office are they coordinating with?

A3. The VDL Mode 3 infrastructure development was funded by FAA AND-360 under a Next Generation Air-Ground Communications (NEXCOM) Program Rapid Preliminary Design Effort (RPDE) contract which began in February 2003 and was terminated for convenience of the Government in March 2004. Harris is continuing informal coordination with AND-360 on the ongoing internal development and test programs.

Q4. What is the General Dynamics CM-400 radio? Can Harris provide any additional information and specifications on the equipment?

A4. The CM-400 is a Commercial Off-the-Shelf (COTS) ground-based Air Traffic Control (ATC) Transmitter/Receiver that is in the FAA inventory of DSB-AM equipment. Data sheets for the CM-400 family are available at the Web site: <http://www.gd-decisionsystems.com/radioproducts>.

Q4. Harris has asked for the entire air-ground frequency band to perform their testing. Can they perform their tests on a limited number of frequencies? If so...how many are they requesting?

A4. As explained in A1. above, Harris requests a total of three 25 kHz frequencies in the air-ground band to support our work. Two of these frequencies will be used for VDL Mode 3 modulation: we note that in the past the FCC and FAA have restricted experimental licenses for this type of modulation to the 136.0 – 137.0 MHz segment of the band. The third frequency requested will be used only for DSB-AM modulation, and so could be anywhere in the air-ground band that does not create a local interference problem. As soon as the FAA identifies suitable frequency assignments for these uses, Harris will amend its License application to request those specific frequencies.

Q5. The emission designators listed on the e-mail, as well as, the Experimental License are not correct. Harris would need to provide a modification to the License application and provide the FAA with the corrected emission designators for the equipment.

A5. According to RTCA DO-224A, the MASPS for VHF Digital Link, Section 3.3.1.2.4, the emission designator for VDL Mode 3 is 14K0G7WET. We believe that the emission designator for ATC VHF DSB-AM is 6K00A3EJN, based on the instructions of the NTIA Manual, para. 9.8.2. We would appreciate FAA confirmation or correction of these values, after which we will update the License application accordingly.

