

## Experimental STA Request

Harris CapRock Communications, Inc. (“Harris CapRock”) respectfully requests experimental special temporary authority (“STA”) to operate earth station onboard vessel (“ESV”) terminals (Intellian Model v240M) in the C-band and Ku-band for sea trials on a Panamanian-registered cruise ship, the Carnival Victory, currently based in Miami, Florida. Harris CapRock seeks an experimental STA for a period of up to six (6) months, commencing on or about August 1, 2015, to test terminal transmissions in the 5.925-6.425 GHz band and the 14.0-14.5 GHz band.

The requested authority is related to the experimental STA requested by Harris CapRock to test its ST5000-2.4 terminal in C-band and Ku-band frequencies on the Bahamian-registered Carnival Sunshine cruise ship.<sup>1</sup> Specifically, at the request of the customer cruise line, Harris CapRock seeks authority to evaluate performance of the v240M terminal against its ST5000-2.4 terminal by conducting a series of similar and potentially simultaneous evaluation exercises using both antennas with the Harris CapRock maritime satellite network. Although it is not clear that the requested authority is required (due to some uncertainty as to whether the Commission may authorize experimental operations on a foreign-registered vessel under its Part 5 rules), Harris CapRock files this request for testing of the v240M terminal on a Panamanian-registered ship out of an abundance of caution.

**Discussion.** Harris CapRock is testing the subject multiband earth station terminal to communicate with a C-band and Ku-band geostationary satellite orbit (“GSO”) fixed-satellite service (“FSS”) satellite. The Commission has previously authorized the v240M ESV for commercial maritime use<sup>2</sup> and Harris CapRock certifies that it will operate the terminal on a limited, intermittent basis within the parameters of that approval. Grant of the requested authority will allow Harris CapRock to further develop and demonstrate the commercial viability of its ST5000-2.4 by comparing it to the v240M model in real-world

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<sup>1</sup> See File No. 0734-EX-ST-2015.

<sup>2</sup> See File No. SES-MOD-20131108-00955 (Call Sign: KA313).

<sup>3</sup> Harris CapRock SES-MOD-20131108-00955 (Call Sign: KA313) to communicate with the IS-701 satellite from certain South Florida locations for testing and demonstration purposes. (See File No. 0734-EX-

maritime conditions.

Exhibit A contains relevant information relating to the earth station technical parameters, antenna performance, radiation hazard and general antenna specifications. Grant of the requested authority will serve the public interest by allowing Harris CapRock to continue develop and demonstrate the capabilities of its new terminal, greatly benefitting government and commercial maritime customers. Moreover, the proposed experimental operations will be conducted on an unprotected non-interference basis and will otherwise comply with Part 5 of the FCC Rules.

**Sea Trials.** Harris CapRock seeks to test the new ESV terminals in the C-band and Ku-band on the Carnival “Victory” cruise ship, which will be ported in Miami, Florida. During testing, the Victory cruise ship will serve routes in the Caribbean but will only sail to and dock in foreign territories. (*See* Exhibit B for Carnival Victory Port List). The v240M terminals will be added to the vessel’s satellite communications suite for purposes of test performance in C-band and Ku-band frequencies in real-world conditions. Harris CapRock will test the terminals in the C- and Ku-band with the U.S.-licensed IS-701 satellite.<sup>3</sup> Harris CapRock certifies that the v240M terminal will communicate with IS-701 in accordance with the authorized parameters of that FCC-licensed satellite.

Harris CapRock has completed coordination of potentially available C-band frequencies at Miami, Florida (*see* Annex 4), will avoid operating in other C-band frequencies where necessary and is in the process of coordinating relevant routes and frequencies that could potentially affect U.S.-licensed fixed service operations. Harris CapRock will ensure that its proposed operations will avoid interference to other co-frequency systems and services, and will otherwise comply with Commission policies embodied in its C-band ESV rules.<sup>4</sup>

Harris CapRock’s coordination efforts will ensure that no interference will be caused by intermittent C-band test operations and the absence of co-frequency operations in relevant Ku-band frequencies will prevent interference from experimental operations

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<sup>3</sup> Harris CapRock was recently granted authority to communicate with the IS-701 satellite from certain South Florida locations for testing and demonstration purposes. (*See* File No. 0734-EX-ST-2015).

<sup>4</sup> *See, e.g.*, 47 C.F.R. §25.221-222; *see* Annex 2 – Declaration of Conformity.

of the v240M in those bands. In both bands, consistent with the Commission's Part 5 rules, Harris CapRock agrees to accept all interference from other authorized spectrum users and will immediately suspend operations in the event of interference to other systems and services. In addition, Harris CapRock acknowledges and accepts the conditions of operation set forth in its prior C-band ESV experimental authority<sup>5</sup> and similar Ku-band ESV authority.<sup>6</sup>

Finally, Harris CapRock notes that there is some uncertainty whether Commission authority under Part 5 of the rules is necessary to conduct the contemplated testing on the Panamanian-registered Carnival Victory. The Commission's *ESV Order* recognizes Section 306 of the Communications Act, providing that "the Commission does not have the authority to license radio stations, such as ESVs, on vessels registered by foreign administrations (foreign-registered vessels)."<sup>7</sup> Although the *ESV Order* further suggests that ESV terminals on foreign-registered vessels communicating with U.S.-licensed ESV hubs are subject to the same rights and restrictions as U.S.-licensed ESVs,<sup>8</sup> the discussion was in the context of requirements of the Commission's Part 25 rules and not the Part 5 rules. Regardless of whether the Commission can formally authorize experimental operations onboard foreign-registered vessels under its Part 5 rules, Harris CapRock requests the subject STA under the policies espoused in the *ESV Order* and will comply with applicable Part 5 rules and policies.

**Stop Buzzer Contact and Other Information.** The Harris CapRock point of contact with the authority to suspend immediately the proposed v240M terminal operations is:

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<sup>5</sup> See File No. 0363-EX-ST-2011.

<sup>6</sup> See File No. SES-MFS-20120801-00710 (Call Sign: E100015).

<sup>7</sup> See Procedures to Govern the Use of Satellite Earth Stations on Board Vessels in the 5925-6425 MHz/3700-4200 MHz Bands and 14.0-14.5 GHz/11.7-12.2 GHz Bands, *Report and Order* (IB Docket No. 02-10, rel. Jan. 6, 2005) at ¶ 122 ("*ESV Order*").

<sup>8</sup> See, *id.*, at ¶ 126.

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The secondary point of contact for the proposed experimental operations is:

Harris CapRock Network Control Center  
Managed Network Services 24x7 support  
4400 S. Sam Houston Pkwy, E.  
Houston, Texas 77046  
Office: (832) 668-2775  
Fax: (713) 987-2894  
Email Address: [hcc-hou-csc@harris.com](mailto:hcc-hou-csc@harris.com)

The following Exhibit A contain additional technical information relating to the proposed experimental operations:

- v240M Description and Technical Characteristics;
- Annex 1 – Antenna Performance Plots (demonstrating compliance with the off-axis EIRP spectral density mask, including co-pol and cross-pol);
- Annex 2 – Declaration of Conformity;
- Annex 3 – Radiation Hazard Study for C-band operations<sup>9</sup> (Harris CapRock will follow standard industry procedures to mitigate potential radiation hazards to personnel in controlled environments. The terminals do not transmit in uncontrolled areas at Harris CapRock test facilities); and
- Annex 4 – C-band Coordination Report, Miami, Florida.

**Expedited Processing.** Harris CapRock respectfully requests expedited processing of this experimental STA request. Harris CapRock requests that the experimental STA be granted for an approximately six (6) month period commencing on or about August 1, 2015. As discussed, the identical earth stations have been previously reviewed and approved by the Commission for commercial maritime purposes and Harris CapRock's proposed testing will be more limited in nature. Grant of STA authority subject to

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<sup>9</sup> Harris CapRock certifies that its operations at Ku-band are similar to Commission-licensed antennas of the same size and that it will employ established mitigation techniques to ensure that the RF levels remain well within the parameters established in the Commission's Rules.

appropriate coordination in bands shared with the terrestrial fixed service will enable near-term grant of this request.

**Conclusion.** The requested experimental STA will allow Harris CapRock to continue preparation for the commercial deployment of its ST5000-2.4 terminal by testing it against the v240M terminal. Moreover, grant of the requested authority will not result in harmful interference to or require protection from other authorized spectrum users. Accordingly, the proposed operations are consistent with Part 5 of the FCC's rules and would strongly serve the public interest.