

EXHIBIT A

Form 442 Question 7: Experimentation Description

HySky Communications, LLC (“HySky”) is authorized, on WPKU683, to operate a nationwide two-way short, low-speed data messaging, locating, telemetry, and monitoring system using high frequency (“HF”) spectrum. HySky assesses channel occupancy prior to HF transmissions and uses one-way terrestrial channels – such as leased subcarriers of FM broadcast stations – as a forward link to communicate to an HF transmitter that a channel is clear. HySky requests an Experimental Authorization to operate at variance from its existing authorization in order to experiment with the use of satellite channels to provide the forward link in its two-way data messaging system. Because of satellite latency and other satellite signal processing delays, HySky’s use of a satellite rather than an FM subcarrier to communicate to an HF transmitter that a channel is clear will require that the authorized valid duration of channel occupancy assessments for WPKU683 increase from 10 seconds to 30 seconds. In order to mitigate any impact on other users, HySky is willing, as a condition to the grant of the requested Experimental Authorization, to exponentially reduce accumulated transmissions by the system on each HF channel – from the authorized one percent (36 seconds) in each hour in each geographical area to one-tenth of one percent (3.6 seconds) in each hour in each geographical area.

HySky is currently operating pursuant to an Experimental Special Temporary Authorization (File No. 0212-EX-ST-2008) allowing HySky to operate using the identical operating parameters requested in this application. The Experimental STA expires on November 27, 2008 and HySky has not yet completed its experimentation with satellite transmissions. HySky is requesting an Experimental Authorization in order to continue the experiments begun

under the STA.¹ Significantly, HySky has not received or been notified of a single complaint by primary users of the HF channels throughout the term of the STA.

Grant of this Experimental Authorization will serve the public interest by encouraging the more effective and efficient use of the radiofrequency spectrum and by speeding the evolution of HySky's system into a wireless solution for emergency management response, local public safety communications, border monitoring, and critical infrastructure protection.

I. HySky's Authorization

HySky's two-way short-data communications system is authorized to use 954 channels (with a bandwidth of 3 kHz each) in the HF range (3 MHz to 24 MHz) as the response path from HySky's mobile and fixed units.² HySky's system operates at low power throughout the continental United States and is designed not to impair the operations of other HF users. The authorized carrier frequencies exclude certain carrier frequencies that the National Telecommunications and Information Administration ("NTIA") and the Federal Emergency

¹ HySky will continue to operate in accordance with the terms and conditions of its temporary authority (File No. 0212-EX-ST-2008) pending disposition of this application, as permitted by Section 5.61(b) of the Commission's rules, 47 C.F.R. § 5.61(b).

² HySky became the licensee of WPKU683 on December 10, 2007, and timely filed a notice of consummation on December 14, 2007. The Commission had previously given public notice on April 11, 2007 of its approval of the assignment of the authorization for WPKU683 from Equitas, LLC to HySky and the Commission granted an extension of time to consummate the assignment on September 28, 2007. For a history of WPKU683's licensing conditions, see *Order*, DA 97-1451 (Wireless Tel. Bur. and Office of Eng'g & Tech. Jul. 10, 1997); *Order*, DA 97-1710 (Wireless Tel. Bur. Aug. 11, 1997); *Order*, DA 02-545 (Wireless Tel. Bur. Mar. 7, 2002) [*"2002 Modification Order"*]; *Errata*, DA 02-1486 (Wireless Tel. Bur. Jun. 26, 2002).

Management Agency (“FEMA”) have concluded might interfere with short-wave broadcasting and other Federal uses.³

The licensed system uses one-way terrestrial channels, such as FM subcarriers, for the forward link to the mobile and fixed units. The outbound and inbound messages are processed through a network operations center located in Georgia (or through a back-up network operations center in Florida).

HySky’s system is subject to special conditions, including limits on the duration of transmissions, limits on geographic channel occupancy, limits on directivity of HF transmit antennas, limits on daily average power density, and limits on daily transmitted energy. HySky’s system is also required to comply with special equipment requirements. Only HF transmitters that have received a grant of certification based on technical specifications set forth in the license for transmitter power output, carrier frequency stability, emission type, and emission mask may be used.

HySky’s system is subject to severe occupancy limits. Accumulated transmissions by the system on each HF channel are not allowed to exceed one percent (36 seconds) in each hour in each geographical area in the contiguous United States bounded by each 5 degrees of latitude (beginning at 49° North Latitude and proceeding Southward) and each 5 degrees of longitude (beginning at 70° West Longitude and proceeding Westward).

HySky monitors HF channel occupancy by other users through at least six of eight diverse receive sites located in the states of New York, Florida, Illinois, Minnesota, Texas,

³ See 2002 Modification Order at ¶¶ 6-7.

Colorado, California, and Washington.⁴ These receive sites are built for reliability, with back-up generators capable of operating the receive sites in the event of power loss. After the network operations center determines, through these receive sites, that an authorized HF channel is clear, it communicates (by FM subcarrier or other one-way terrestrial link) to a remote unit that the remote unit may transmit on the clear HF channel. Under the terms of WPKU683's authorization, these channel occupancy assessments are valid for 10 seconds and then must be repeated.

II. HySky's Experiment

HySky has been experimenting, and wants to continue to experiment, with using geostationary satellites instead of FM subcarriers to provide the forward link to HySky's remote units. There are many places in the United States outside the range of existing FM subcarrier transmissions – and it is in many of these places that HySky's HF response system could be the most valuable. Geostationary satellites could give HySky a forward link that is truly available throughout the continental United States. Significantly, HySky's system is designed to provide messaging, locating, telemetry, and monitoring in situations where mounting a small satellite antenna, similar to those used commonly on modern cars, poses no difficulties – for example, on first-responder vehicles, adjacent to pipelines, and on national borders.⁵ A satellite DARS licensee proposes to provide the satellite capacity for this experiment.

⁴ The number of monitoring stations used by HySky complies with the license requirement that it use a minimum of six diverse receive sites.

⁵ Moreover, with the Commission's encouragement, FM subcarriers are now used extensively for data communications in applications where a satellite receive antenna would be impossible to use.

The authorization for WPKU683 does not require HySky to use FM subcarriers or otherwise specify how HySky should operate its forward link. But the authorization's requirement that HF channel occupancy assessments be valid for no longer than 10 seconds makes it impossible to use existing low-cost commercial satellites for this purpose. The communication between the network operations center and individual remote units that a channel is clear happens nearly instantaneously when made via FM subcarriers. Under these circumstances, HySky is able operate its system with channel occupancy assessments that are valid for only ten seconds.

However, geostationary satellite transmissions are subject to latency. In addition, existing satellite DARS digital signal processing technology may result in additional delay. If HySky's experiments show that using satellite for the forward link is technically feasible, HySky contemplates working with commercial satellite providers to make adjustments to reduce satellite signal processing delays.

Previously, the Office of Engineering and Technology granted a Special Temporary Authorization for HySky to increase the duration of the validity of WPKU683's channel occupancy assessments from 10 seconds to 30 seconds. HySky requests that the OET now grant an Experimental Authorization allowing HySky to continue using a channel occupancy assessment with a valid duration of 30 seconds. HySky recognizes (just as it did in its STA application) that this change from the authorized operating parameters of WPKU683 increases the likelihood that another user of a channel that has been deemed clear might transmit on that channel at the same time as HySky's remote unit. Significantly, however, HySky is not proposing to increase the duration of transmissions. So even though a channel occupancy assessment is currently valid for 10 seconds, HySky's remote units do not transmit for the entire

10 seconds on a channel. The duration of each HF transmission is limited by the authorization for WPKU683 to 4 seconds and the average duration is not contemplated under the license to regularly exceed 2 seconds.

HySky proposes to offset this slightly increased risk that one of its remote units will transmit on a channel when another user has begun transmitting on the same channel. Instead of accumulated transmissions by the system on each HF channel not exceeding one percent (36 seconds) in each hour in each 5 degrees of latitude and 5 degrees of longitude geographical area (as described in WPKU683's authorization), while operating under the requested Experimental Authorization HySky will limit its accumulated transmissions by the system on each HF channel to one-tenth of one percent (3.6 seconds) in each hour in each such geographical area. That is an exponential reduction in HySky's authorized use of the spectrum and will greatly reduce the chance that HySky's experiments will conflict with existing users.

Moreover, because of the license's limits on HF transmitter radiated power and its requirement that HySky use a pseudo-noise digital modulation, the consequences of HySky transmitting at the same time as another user would not be detrimental to that user. If another user began transmissions on an HF channel then being used by HySky, the other user would experience only a simple burst of noise – the same as a distant lightning strike.

HySky will not offer any commercial service under the requested Experimental Authorization. Rather, HySky will merely continue conducting experiments to see if satellites provide more comprehensive and efficient coverage for HySky's forward link than FM subcarriers. When HySky completes its experiments, if it determines that satellite radio technology is feasible, HySky will seek modification of its authorization for WPKU683 and then surrender its Experimental Authorization.

III. The Progress of HySky's Satellite Transmission Experiments

HySky has made good progress in its experiments with satellite technology, but the experiments have taken longer than anticipated by HySky at the time it sought an STA. HySky integrated the DARS satellite system software and receiving modules into HySky's legacy transceivers. This required considerable adaptation because HySky's legacy transceivers use older processing technology. HySky and a DARS operator then began tests, first in Florida and then in North Carolina. The initial tests focused on optimizing the satellite data stream and linking the network operations centers of HySky and the DARS operator. Now HySky is experimenting more generally with satellite transmissions for its forward link. HySky has run into difficulties with managing satellite and system delays, training the transceiver to allow sufficient time for the issued message to be acknowledged, partitioning clear-and-propagating frequencies, and adjusting the hardware configuration to temporarily select particular bands within the propagating range. HySky wants to address these issues but will need an Experimental Authorization in order to do so, because the STA expires on November 27, 2008. In addition, the DARS operator is developing a special chip that will lower delay, and HySky will want to test that chip under the parameters of the proposed Experimental Authorization.

IV. The Public Interest Will Be Served by Granting HySky's STA Request

HySky's short-data messaging, locating, telemetry, and monitoring system may provide a unique wireless solution for emergency management response, local public safety communications, border monitoring, and critical infrastructure protection. The ability of HF transmissions to propagate over long distances means that HySky's system could be the best

choice for applications located far from existing terrestrial wireless communications systems. Whether for public safety organizations responding to a natural disaster “off the grid” or for monitoring our nation’s borders and critical infrastructure like pipelines, oil wells, and power transmission facilities in locations far from human population, HySky’s system may be able to provide an exceptional fixed and mobile data communications service. HySky’s system could be ideal for local and Federal first-responders and security agencies. But in order to realize these public interest benefits, HySky must develop a forward link that is truly nationwide, reliable, and impervious to attack.

The public interest will also be served by grant of an Experimental Authorization because it will allow HySky to study new uses for satellite communication technology and it will promote the more efficient use of the FM subcarrier frequencies.

Existing other users of HySky’s authorized HF channels will not be harmed by the grant of this request. While there would be a slightly greater chance that another user will transmit on a channel that HySky’s network operations center has declared to be clear, that risk is more than offset by HySky’s drastic reduction in the aggregate amount of transmissions under an Experimental Authorization to no more than 3.6 seconds per hour per specified geographical area. HySky has not received any complaints (and has not been notified by the FCC of any complaints) in connection with its operations under the STA using a duration of 30 seconds for channel occupancy assessment.

Conclusion

For the foregoing reasons, HySky Communications, LLC requests that the Office of Engineering and Technology grant this request for an Experimental Authorization and that WPKU683 be authorized to operate with the parameters set forth herein.