6712-01

FEDERAL COMMUNICATIONS COMMISSION

PS Docket No. 11-15; FCC 12-53

Utilizing Rapidly Deployable Aerial Communications Architecture in Response to an Emergency

AGENCY: Federal Communications Commission.

ACTION: Notice of inquiry.

SUMMARY: In this document, the Commission seeks comment on the role of deployable aerial communications architecture (DACA) in facilitating emergency response by rapidly restoring communications capabilities in the immediate aftermath of a catastrophic event. The Notice of Inquiry explores the technologies that are or will be available, including innovative DACA technologies that are still in development. It also examines technical and operational issues associated with the use of DACA technologies, including interference and coordination issues, that must be addressed to enable their use, in order to increase the capabilities of emergency responders and provide the public with connectivity when it is needed the most.

DATES: Comments are due on or before **July 25, 2012** and reply comments are due on or before **August 14, 2012.**

ADDRESSES: Comments and reply comments may be filed using: (1) the Commission's Electronic Comment Filing System (ECFS), (2) the Federal Government's eRulemaking Portal, or (3) by filing paper copies.

Comments and reply comments may be filed electronically using the Internet by accessing the ECFS: http://fjallfoss.fcc.gov/ecfs2/ or the Federal eRulemaking Portal: http://www.regulations.gov.

Parties who choose to file by paper can submit filings by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission. All hand-delivered or messenger-delivered paper filings for the Commission's Secretary must be delivered to FCC Headquarters at 445 12th Street, S.W., Room TW-A325, Washington, DC 20554. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes must be disposed of before entering the building.

Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743. U.S. Postal Service first-class, Express, and Priority mail must be addressed to 445 12th Street, S.W., Washington DC 20554. Parties who choose to file by paper must file an original and four copies of each filing.

Parties wishing to file materials with a claim of confidentiality should follow the procedures set forth in § 0.459 of the Commission's rules. Confidential submissions may not be filed via ECFS but rather should be filed with the Secretary's Office following the procedures set forth in 47 CFR 0.459. Redacted versions of confidential submissions may be filed via ECFS.

FOR FURTHER INFORMATION CONTACT: Jennifer Manner, Federal Communications Commission, Public Safety and Homeland Security Bureau, at (202) - 418 – 3619.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's Notice of Inquiry (NOI or Notice) in PS Docket No. 11-15, FCC 12-53, adopted and released on May 24, 2012. The complete text of this document is available for inspection and copying during normal business hours in the FCC Reference Information Center, Portals II, 445 12th Street, SW., Room CY-A257, Washington, DC 20554. This document may also be purchased from the

Commission's duplicating contractor Best Copy and Printing, Inc., Portals II, 445 12th Street, SW., Room CY-B402, Washington, DC 20554, telephone (800) 378-3160 or (202) 488-5300, facsimile (202) 488-5563, or via e-mail at fcc@bcpiweb.com. It is also available on the Commission's Web site at http://transition.fcc.gov/Daily_Releases/Daily_Business/2012/db0524/FCC-12-53A1.pdf. To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

Synopsis of the Notice of Inquiry

This Notice of Inquiry further examines the potential for DACA technologies to provide communications when terrestrial communications infrastructures are disrupted or disabled due to a catastrophic event. To that end we seek comment on the role of DACA, the communication service architecture and various DACA platform technologies that are currently available or in development, and the scope of their use in the aftermath of a catastrophic event, as well as how to best coordinate operations and spectrum availability and authorization matters. We also seek comment on system performance of DACA technologies to include coverage, capacity, interference, power consumption, and the interoperability of DACA technologies with existing communications services and infrastructure, among other issues.

A. DACA Technologies

Several promising DACA technology platforms that could be deployed shortly after a disaster to support communications without requiring deployment of any special user devices include unmanned aerial vehicles, weather balloons, and suitcase based systems. Additional DACA technologies also can provide critical communications as either a standalone aerial

platform or an add-on payload. We seek comment on the ability of various DACA technologies to deliver critical communications immediately after a catastrophic event. We also seek comment on each DACA technology's ability to support existing communication services and devices. Are there other technological solutions similar to DACA that are ground based that would be equally adept at restoring commercial and public safety communications to an area?

We seek comment on DACA technologies used within the U.S. Armed Forces. For instance, what DACA technologies are the United States military currently using and in what situations are they used? What lessons can we learn from the military's use of these technologies? Are there relevant differences between military use and civilian use that should be taken into account?

We seek comment on the availability and cost of DACA technology platforms. For instance, are these technologies commercially available today? What are the capital costs of DACA platforms, either as standalone aerial systems, add-on technologies, or alternative ground based solutions? What are the operational costs of these platforms?

We seek comment on the capabilities of each DACA technology to support commercial and public safety communications services. We note that other participants in the DACA workshop addressed the cost-effectiveness of unmanned aerial vehicles, weather balloons, and high altitude platforms. How does the cost compare for each system?

AT&T and AeroVironment have stated that weight may be a limiting factor in how many communications payloads DACA technology can support at a time. We seek comment on this observation.

We also seek comment on whether DACA technologies are being used in other countries. What has been the experience with these technologies abroad?

B. Scope of DACA Usage and Coordination of Operations

We seek comment on the appropriate emergency response coordination necessary to successfully deploy DACA solutions in the aftermath of a catastrophic event to establish emergency communications. For instance, how can an Incident Command System make use of DACA solutions?

We also seek comment on real-time coordination during emergency response efforts when using DACA solutions. For instance, should any agency of the federal government, or a combination of agencies, be responsible for coordinating the deployment and use of DACA technologies and solutions during emergencies?

We next seek comment on ensuring that DACA usage complies with the regulations and operational constraints of the U.S. national airspace system. How should DACA system usage be coordinated with other government agencies that have a role with regard to emergency response and air traffic control, in particular the Federal Aviation Administration (FAA)?

AT&T states that DACA technologies should only be utilized as a last resort, where other existing terrestrial options for restoring service are inadequate to address the circumstances, to avoid impeding the restoration efforts that carriers typically bring to bear in these types of emergency situations. We seek comment on this approach.

We seek comment on appropriate protocols or procedures to coordinate both civilian and military emergency response activities involving the use of DACA solutions. More specifically, we request comment on how to resolve critical issues that will straddle jurisdictional lines, such as determining priorities between military and commercial use of DACA systems, and deciding whether to establish guidelines for the use of DACA technologies to promote interoperability.

We seek comment on how the control over and operation of DACA transmitters would fit into the current framework of the Communications Act and our rules, and how the regulatory

authority of other agencies (*e.g.*, NTIA) will play into their operations.

We next seek more specific comment on the range of authorization mechanisms that may be appropriate for various circumstances in which DACA solutions may be deployed. To the extent DACA operations are conducted by FCC licensees, what type of adjustments would need to be made in our rules? To the extent that third parties own and operate DACA solutions that operate over spectrum allocated for Non-Federal use, we seek comment on how their operations should be authorized.

C. System Performance

1. Coverage

We seek comment on how to delineate the affected area for which a DACA solution is deployed. We seek comment on how to best achieve as much coverage of an affected area as possible. One possibility is to deploy DACA platforms in stages, and at multiple altitudes, to quickly serve and restore communications. We seek comment on this approach. We also seek comment on the ability of DACA technologies to provide geographic coverage over all geographies and terrains.

2. Frequency Planning and Minimizing the Potential for Harmful Interference

We seek comment on the frequency bands that are most suitable for DACA use. On which frequency bands should DACA technologies be permitted to operate? Would use of DACA on certain bands interfere with public safety or other services? If so, in which bands and what solutions are available to minimize interference?

AT&T suggests that some of its interference concerns can be minimized if DACA technologies do not employ the commercial frequency bands and instead are limited to those bands used for unlicensed operations and other non-cellular-based technologies. We seek

comment on this observation.

We seek comment on whether the Commission should authorize a third party to develop and maintain frequency assignments and or a database(s) to manage the use of DACA solutions to limit the interference potential among and between DACA and terrestrial uses. Comsearch suggests that "a centralized database approach offers several merits including: standardized data structures and format, efficiency in data provisioning, ease of maintenance, high accuracy and reliability, and streamlined interaction." We seek comment on this "centralized database" approach.

To ensure that frequency reuse does not cause interference, wireless providers must ensure that they coordinate the transmitters in their network and coordinate with providers operating in adjacent markets on the same frequencies. We seek comment on whether similar procedures should be adopted for DACA technologies and, if so, what they should include.

Moreover, other than allocating dedicated spectrum for the use of DACA technologies, are there methods to ensure that frequency reuse does not cause interference or to minimize any such interference?

Several comments raised the concern that the use of DACA technologies during emergencies could overlap with the restoration of terrestrial services, potentially creating interference. We seek comment on ways to avoid this problem.

We also seek comment on DACA signal propagation.

We also seek comment on directional antennas and any other products that can help to mitigate or reduce interference.

AT&T suggests that the use of tethered aerostats, *i.e.*, aerostats tethered to the ground, would minimize interference concerns and propagate a more predictable signal, especially if

equipped with stabilizers to minimize movement of the aerostat that accompanies the use of DACA technology. We seek comment on the suitability of tethered platforms.

3. Interoperability

Interoperability is a central requirement of emergency response communications between multiple disciplines and agencies. If DACA technologies are used for emergency communications, it is critical to ensure that they preserve interoperability for emergency responders. How can existing public safety network services be accessed using DACA solutions while preserving interoperability?

C. Prioritization of Service and Access

DACA systems may have limitations in terms of the aggregate volume of traffic that can be supported by an aerial platform, due to factors such as the size, weight, and power of DACA technologies. Such limitations may create a need to examine priorities among the various communications services that DACA systems might help restore. We seek comment on the issue of prioritizing certain communications services immediately following a catastrophic event.

D. International Considerations

We recognize that radio transmissions, including from DACA transmitters, do not recognize political boundaries. Could DACA technologies operate in a way that would comply with the signal strength limits set forth in these agreements? If DACA technologies are unable to comply with technical criteria detailed in existing agreements with Canada and Mexico, we seek comment on what types of agreement would need to be reached with each country to permit DACA operations along the border.

E. CONCLUSION

1. Ensuring that communications are available immediately following a catastrophic event is critical to emergency response. DACA brings the promise of a new tool that can be

rapidly deployed and utilized when terrestrial infrastructure is not available, potentially facilitating the use of day-to-day commercial and public safety devices. This capability could save lives. We intend for the record generated by this proceeding to provide the opportunity for a thorough discussion of DACA technologies and solutions that address system performance, service prioritization, and governance issues.

Accordingly, it is ordered that, pursuant to sections 1, 4(i), 4(j), 4(o), 7(b), 301, 316 and 403 of the Communications Act of 1934, 47 U.S.C. 151, 154(i)-(j) & (o), 157(b), 301, 316 and 403, and § 1.430 of the Commission's rules, 47 CFR 1.430, this Notice of Inquiry is adopted.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch,
Secretary.

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