

FCC Workshop on Rapidly Deployable Aerial Communications Architecture (DACA)

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Implementation Issues

- Wireless providers share the Commission's goal of quickly restoring communications to protect life and property when disaster strikes.
- Any aerial deployment must involve prior coordination.
- Deploying an aerial base station creates geographic- and frequency-adjacent interference concerns because of density of low power sites used in cellularized architecture.
 - Even more pronounced where only a portion of the terrestrial wireless system is experiencing an outage in a disaster area.
- Any decision to incorporate CMRS spectrum into an aerial deployment must be at the express authorization of the relevant licensee.
- Any sort of aerial deployment would necessitate a complete re-evaluation of the Commission's rules for out-of-band emissions and intermodulation interference.

Implementation Issues (cont'd)

- Any assessment of whether to include CMRS spectrum must address feasibility.
 - Whether aerial transmissions create interference to elements of the cellularized architecture that remain in service;
 - Whether interference can be eliminated or mitigated;
 - Whether an aerial approach would provide adequate capacity for users of CMRS service; and
 - Whether resources committed to coordinating and deploying an aerial technology following a disaster would be better dedicated to restoring the terrestrial wireless infrastructure and expanding capacity (cost/benefit).
- DACA deployments must not hamper first responders' and consumers' communications and wireless providers' ability to maintain or restore commercial service promptly in a disaster area.

Coordination Concerns

- Coordinating deployment and guaranteeing the DACA system will not affect parts of terrestrial systems in operation is a significant engineering challenge.
- Requires real-time coordination in addition to prior coordination.
- Prior coordination alone would not take into consideration *ad hoc* rule waivers, requests for special temporary authority, and other changes to network parameters.



Industry Responses to Disasters

- In past disasters, industry has responded with significant resources to restore networks.
- In addition to changes in the operating parameters of current infrastructure, industry participants can bring in mobile solutions to respond.
- Deploying COWs and COLTs, gives carriers the ability to carefully control location, power levels, and frequencies.



Industry Responses to Disasters

- Past experience has shown that most areas do not suffer from a complete service outage. Therefore, most areas in the wake of a natural disaster can be expected to have some sort of infrastructure that could be adversely affected by interference from the DACA.
- However, if DACA interference issues plague the entire network, this would divert resources to restoring otherwise functioning pieces of the network.
- Deploying a DACA solution at significant power levels could cause interference to sites falling within a 1200-2800 square mile footprint.

Additional Concerns

- There needs to be some discussion of what type of services the Commission hopes to restore.
- Depending on the services the Commission hopes to deliver, DACA platforms may need to integrate their downlinks with wireless carriers' networks.
- 9-1-1: Would aerial infrastructure adequately serve 9-1-1 requirements? For instance, will it be able to complete the calls to the appropriate PSAP and could it relay accurate location information?

Final Note

Industry participants recognize the need for quick and effective restoration of the wireless networks in the wake of major disasters, as such, the wireless industry remains committed to working towards viable solutions with Public Safety, federal, state and local agencies, and commercial partners.