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NextGen Implementation Means New Avionics Paradigms

The RTCA Task Force on NextGen Mid-Term Implementation has begun work on formulating recommendations and plans for implementing the Next Generation Air Transportation (NextGen) system. The development of the NextGen system is an important issue to the aircraft avionics industry because advanced avionics are part of what makes the current vision for NextGen possible.

NextGen will directly affect the users and manufacturers of aviation avionics; thus, it is important for the AEA and other industry leaders to provide input into the direction for the NextGen implementation.

The AEA is a member of the RTCA NextGen Task Force, which is laboring to bring together industry and government in an effort to timely and effectively implement the operational capabilities of NextGen. The Air Traffic Management Advisory Committee (ATMAC) requested the RTCA form such a task force to bring together operationally focused aviation experts to address the challenges associated with implementing NextGen.

The essential premise of the NextGen system is that the current U.S. aviation system has served the nation well since the 1950s, but it is inherently limited in its ability to grow and adapt — and it is reaching those limits. In a time when boats and cars routinely use GPS sys-

tems, aircraft in the U.S. are still guided by World War II-era radar.

The four basis tenets of NextGen are:

- Coping with the increased demand for air transportation.
- Improving current levels of safety and security.
- Minimizing environmental impacts.
- Ensuring the overall changes to the National Airspace System are economically viable.

The FAA and the industry widely recognized all aspects of the aircraft operational community must have a role in shaping NextGen progress if NextGen is to be truly effective.

The major stated purpose of the NextGen Task Force is to forge consensus on the NextGen operational improvements for the timeframe up until 2018, with actual progress made in approximately three-year metrics. Rather than flipping a switch in 2018, and suddenly reaping the benefits of NextGen, the goal of this continual progress forward is to see the benefits of NextGen accrue over time, thus benefitting those who equip and making a more lucrative business case for early adoption of the equipment that will support maximum privileges in a NextGen environment.

The task force is polling the industry to identify the present level of avionics equipage and to find a way to maximize the benefits of this present level, while

simultaneously looking at the benefits of new technologies and the most reasonable steps to reach higher levels of equipage.

Additionally, the task force is looking to get firm commitments from both government and industry to enable NextGen to be viable and beneficial for everyone in the industry. After all, operators do not want to spend money to equip for NextGen if they do not believe the FAA is going to follow through on implementing the technology.

Currently, the task force has been split into two working groups, with smaller subgroups within each. Work Group One is the Operational Capabilities working group, and Work Group Two is the Business Strategies working group. The AEA is an active part of Work Group Two.

These two working groups have a joint subgroup tasked with determining and defining the present levels of equipage, as well as looking into what new and expanded processes can be used, and determining what capabilities exist but for which they are not currently being trained.

Work Group One is tasked primarily with developing strategies and means for the maximization of NextGen benefits. This includes determining which NextGen benefits would be most beneficial for which metropolitan areas, thus

enabling implementation to focus on areas where users will see the most benefits from the system.

Work Group Two is in charge of coming up with business risk mitigation strategies and other ways to encourage equipage. Work Group Two specifically called for input from those who deal in or purchase avionics.

Because NextGen is attempting to move from the idea of “first come, first served” to the idea of “best equipped, best served,” it is vital for the task force to develop business strategies to encourage equipage and allow operators to reap benefits from NextGen.

Ideally, for every capability to be implemented, there will be an operator who will sign on to immediately equip for this capability. Additionally, the task force has recognized the business case might be different for each operator and will need to be individually tailored.

Participants have suggested Work Group Two look into some other issues, including the need to support incremental change. Under the doctrine of incremental change, aircraft owners can build up their systems one unit at a time and should be able to obtain additional airspace privileges by simply changing the avionics units one unit at a time.

This provides the potential to be able to build upon one sort of certification to obtain other certifications without having to start from scratch — which makes it more reasonable for operators to frequently seek out upgrades, rather than waiting until the owner has enough money for an entire avionics suite before seeking out an upgrade.

The task force is open to using past studies and findings to aid in its

work and upon which to build. So far, proposals for documents to reference so far include the Joint Planning and Development Office’s Aircraft Working Group’s “NextGen Avionics Roadmap Version 1.0,” as well as a MITRE database on current levels of equipage.

The task force is hosting plenary meetings, which are open to the public, approximately every three to four weeks until mid-June. The AEA has been and will remain active in this process.

The task force is scheduled to give the ATMAC an update on task force progress on May 27. Additionally, the work groups and subgroups will continue to meet on a regular basis, with the stated goal of the task force leadership documenting the interim task force results, conclusions and recommendations for presentation to the ATMAC by June 30, 2009. The final conclusions and recommendations are scheduled to be presented to the ATMAC by Aug. 31, 2009.

For more information about the RTCA NextGen Task Force’s goals, as well as overviews of the past plenary meetings and links to the terms of reference, visit www.rtca.org, under the sidebar link for “NextGen Task Force.” □