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Stuart: Info: Others

As I understand my RTCA SC-186, WG-6 writing assignments, I am to provide the WG with my recommendations for additional "category" codes for the existing DO-242 section # 2.1.2.1.3 that pertain to the broadcasting of position and identification information from moving and stationary obstacles in and around airports. This action item is in response to IP # 06.

I wish to expand the scope of my assignment to also include the broadcast of the position of any significant, UNCHARTED obstacle and significant tethered obstacles FOR ALL PHASES OF FLIGHT.

By way of background, DO-242 paragraph # 2.1.2.1.3 currently lists a total of 24 ADS-B "categories" of which several are carried as "reserved" for future use / growth.

I believe that submittal of Ken Staub's IP # 04 on additional aircraft sizes may affect items 1-12. However, the impact of his IP is outside the scope of this e-mail.

Notwithstanding, the specific item at issue for IP # 6, is Sub-item # 22, as follows:

"22. Fixed ground or tethered obstruction."

This single ADS-B category is incorrect as written, and way too limiting.

In my opinion, both the ADS-B and TIS-B message sets should address a much broader set of obstacle "categories" and should use the term obstacles, not obstructions. These new ADS-B / TIS-B categories, once agreed to in principle by WG-6, should be harmonized with the draft RTCA SC-193 document, "User Requirements for Terrain and Obstacle Data", that will be reviewed for final comments, prior to full committee approval this coming September. (This will be a joint RTCA / EUROCAE document when published). I propose that WG-6 agree on this draft text at our August meeting, and I will present our findings to SC-193, WG-2, for their review and comment at their upcoming September meeting.

For starters, I would urge WG-6 and SC-193 to both embrace a common definition of the term "obstacles". In the above referenced SC-193

document, the term "significant obstacle" is defined (reference ICAO Annex 4) as follows:

"Any natural terrain feature or man-made fixed object, permanent or temporary, which has vertical significance in relation to adjacent and surrounding features and which is considered a potential hazard to the safe passage of aircraft in the type of operation for which the individual chart series is designed."

"Chart" in the above definition, will obviously need to be changed (by ICAO) to now include the electronic depictions of aeronautical charts on a multifunction display / CDTI.

The following is a phase-of-flight interpretation of what is meant by an aeronautical chart as used in Annex 4. For the purposes of Annex 4, flight segments are divided into the following phases:

Phase 1 -- Taxi from aircraft stand to take-off point

Phase 2 -- Take-off and climb to en-route ATS route structure

Phase 3 -- En-route ATS route structure

Phase 4 -- Descent to approach

Phase 5 -- Approach to land and missed approach

Phase 6 -- Landing and taxi to aircraft stand.

I propose that in our WG-6 definitions, each type of electronic chart / CDTI depiction, provide information relevant to only SIGNIFICANT uncharted obstacles as defined by the above phase-of-flight interpretation. This is in keeping with published ICAO guidance that each type of (electronic) chart shall provide information appropriate to the phase of flight, to ensure the safe and expeditious operation of the aircraft.

Given the above, I suggest that WG-6 create several new classes of obstacle "category sets" suitable for ADS-B / TIS-B transmission and electronic overlay depiction. (The details of what these symbols ought to look like are outside the scope of our work, but ought to be addressed as part of the

new symbology effort underway by SAE G-10).

Consequently, the proposed replacement text for the existing sub-item # 22, above, is as follows:

1. Significant fixed UNCHARTED obstacles. Significant obstacles that fall within the following three specified sub-groupings:

- Point obstacle. Example: A 2,000 foot AGL HDTV tower under construction that has yet to be charted.
- Cluster obstacle. Example: A "cluster" of wind electrical generating towers that have yet to be incorporated into a VFR sectional chart.
- Barrier obstacle. Example: A ski slope under construction.

Issues: To conserve precious bandwidth, there will need to be a schema to ensure that these ADS-B / TIS-B position reports are discontinued once the relevant obstacle(s) are charted. Additionally, there will need to be suitable preciseness in the ADS-B / TIS-B position report so as not to create a "double image" with the same obstacle once it is charted and contained in a published, onboard obstacle data base.

2. Significant "moving" obstacles. (Obviously, uncharted)

- Point obstacle. Example: A floating oil rig. Precise latitude and longitude not available for charting purposes. Another example: A ship in the instrument arrival corridor for an airport (such as BOS).
- Cluster obstacle. Example: TBD
- Barrier obstacle. Example: High-line logging operations where a tethered wire is hung across a mountain valley, with both ends attached to towers at either end, and where one or both towers move on tracks. (Note: Historical point of interest, this is how the concrete for Boulder Dam was poured in the 1930's).

3. Tethered balloons. These balloons are used for various purposes, and are raised or lowered at various times during the day. Some tethered balloons "fly" as high as 15,000 feet AGL, and pose a significant safety hazard.

Perhaps extracts of the above text, along with a description of these several applicable message set elements, could be the basis of new text for inclusion in the existing section # 2.1.2.1.3?

Comments?

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