Comment Form: ANSI UASSC Standardization Roadmap V1.0

Email completed forms to **uassc@ansi.org by COB October 29, 2018.**

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Commenter Organization *	Commenter Name*	Section/ Subsection* (include page, line #)	Figure/ Table/ (e.g. Table 1)	Type of comment*[1]	Comment* (be specific)	Proposed change* (provide specific input to ensure proper consideration)	For ANSI Staff use only (DO NOT FILL IN)
ATIS UAV Group	Iain Sharp	Section 4.1 3GPP (Page 46)		ge	It is proposed to update the information on 3GPP activities to reflect the current status. The original study on remote identification of UAVs has been approved and given a specification number. In-progress work items have been approved based on updated text. Further it is proposed to add a reference to an ATIS report giving more details on the status.	Change "Published Documents" to: 3GPP 22.825 "Study on Remote Identification of Unmanned Aerial Systems" (V16.0.0, Release 16) Link: http://www.3gpp.org/ftp//Specs/archive/22_series/22.825/22825-g00.zip Change "In-Development Documents" to: SP-180771 Work Item "Remote Identification of Unmanned Aerial Systems" (ID-UAS) (http://3gpp.org/ftp/tsg_sa/TSG_SA/TSGS_81/Docs/SP-180771.zip) SP-180909 Work Item "Enhanced LTE Support for Aerial Vehicles" (ES-UAVs) (http://3gpp.org/ftp/tsg_sa/TSG_SA/TSGS_81/Docs/SP-180909.zip) Estimated completion date for these items is 2019/2020. More information on 3GPP's work on UAVs can be obtained from ATIS White Paper ATIS-I-0000069 "Support for UAV Communications in 3GPP Cellular Standards" (October 2018) (https://access.atis.org/apps/group_public/download.php/42855/ATIS-I-0000069.pdf)	

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ATIS UAV Group	Iain Sharp	Section 5.1 Alliance for Telecommunications Industry Solutions (ATIS) (Page 63, line 23)		ge	Update the section to reflect current status of work.	Replace the 2nd paragraph (starting "Expanding upon…" and including 2 bullets) with: "The group's second publication "Support for UAV Communications in 3GPP Cellular Standards" (https://access.atis.org/apps/group_public/download.php/42855/ATIS-I-0000069.pdf), released October 2018, helps a broad audience including UAV operators and regulatory bodies, understand the features of the 3GPP standard that supports UAVs. The aim is to help bridge different silos of expertise by providing a common understanding of the capabilities of 3GPP standardized technology. The group will promote cooperation among ATIS members to ensure North American regional requirements for UAVs are reflected in 3GPP standards. The group is currently working on a further report entitled "Use of UAVs for Restoring Communications in Emergency Situations" that will provide guidance on preparing for the deployment of UAVs following damage to communications infrastructure — an increasingly important application of UAV technology."	
ATIS UAV Group	Iain Sharp	Section 6.4.1 Command and Control		ge	There are two aspects to the C2 link: 1) Requirements for the C2 link performance	Under "In Development Standards and Related Documents" add a row: Item: 3GPP Study Item Enhancements for UAVs	

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		(C2) Link (Page 93)			2) Technical solutions in communications standards to deliver these requirements. The introductory text in this section appears to cover both points, but the specific contents only relates to the first point (requirements). It is proposed to add information on technical solutions, particularly for cellular networks, and groups working on these.	(FS_EAV) Discussion: The study item will study the Key Performance Indicators (KPIs) needed to support UAV operations, including the C2 interface, using mobile cellular networks. The study will consider what can be supported in LTE and 5G New Radio (NR). ATIS member companies will contribute any North American regional requirements to 3GPP. Status: Approved 3GPP study item in Release 17. Add a new Gap: Technical support for C2/C3 link performance requirements in telecommunications standards. The telecommunications industry has already taken a number of steps to develop standards, particularly in 3GPP, to prepare networks for UAV applications. However, it is expected that fully addressing all KPIs of the C2/C3 link will require further standardization activities. Collaboration between UAS industry and communications industry is required to ensure feasibility of implementation. R&D Needed: Yes Recommendation: Advance existing work in 3GPP and ensure C2/C3 requirements are communicated to that group.	

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						Priority: High	
						Organizations: 3GPP, ATIS	
ATIS UAV Group	Iain Sharp	Section 6.4.3 Detect and Avoid (DAA) Systems (Page 102, line 19)		ge	Work in 3GPP on "UAV Identification" includes aspects of using mobile cellular networks to support "detect and avoid" behavior. It is proposed to add this information.	Under "In-Development Standards" add: 3GPP "Remote Identification of Unmanned Aerial Systems (ID_UAS)" – Release 16 Add "3GPP" as an organization in GAP A8.	
ATIS UAV Group	Iain Sharp	Section 7.8 Remote ID and Tracking (Pages 159-160)		ge	Since this text was drafted, there has been progress on work in ATIS and 3GPP. It is proposed to update the text to reflect this.	After "ATIS White Paper – Unmanned Aerial Vehicles (UAVs) Initiative…" add "ATIS White Paper – Support for UAV Communications in 3GPP Cellular Standards" (Link https://access.atis.org/apps/group_public/download.php/42855/ATIS-I-0000069.pdf) Remove the reference to this report in the "In Development Standards and Related Materials" section. Amend the description of 3GPP Release 16 to insert the text between asterisks below: "3GPP Release 16 - Feasibility Study and Work Item on Remote Identification of Unmanned Aerial Systems. Ubiquitous coverage, high reliability and QoS, robust security, and seamless mobility are critical factors to supporting UAS C2 functions.	

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						3GPP SA1 has completed a feasibility study with potential requirements and use cases for remote identification and the services which can be offered based on remote identification. ***A normative work item to implement these requirements has been approved.*** The next steps in 3GPP are to complete requirements and protocol specifications to support remote identification of UAS (including direct broadcast with or without the presence of a cellular network) and to provide UTM support over a cellular network. The ongoing 3GPP specification work is applicable to both 4G and 5G systems.	

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