Comment Template for: Draft Profile of Responsible Use of Positioning, Navigation, and Timing

Please submit responses to: pnt-eo@list.nist.gov by November 23, 2020

Comment #	Organization Name	Submitted By (Name/Email)	Page #	Line #	Section	Comment (Include rationale for comment)	Suggested Change	Type of Comment (General/Editorial/Technical)
1	OST-R	Karen Van Dyke karen.vandyke@dot.gov				Distinction between a Cybersecurity Profile and PNT Profile is not clear in the document starting with the title of the document.	Use terminology consistent with EO 13905 is recommended. In EO 13905, "PNT profile means a description of the responsible use of PNT services—aligned to standards, guidelines, and sector-specific requirements—selected for a particular system to address the potential disruption or manipulation of PNT services." EO 13905 doesn't mention "cybersecurity" a single time.	General
2	FAA	Sean Memmen/ sean.p-ctr.memmen@faa.gov				Overall, it appears the PNT Profile is mainly focuses on time (understandable give its origins). Agree with the concept of time being the most weighted constituent, but the Profile does not capture what is need to for Positioning nor Navigation (and its various variables). Example: RA-3 (Threats, both internal and external, are identified and documented.) The profile discusses how clocks are imperfect but not mention how position calculations are imperfect and the need to identify and document that fact in a GPS receiver or an Inertial Navigation Unit (IRU).	Authors should provide definitions of Positioning and Navigation, review the various Subcategories and not only apply T but update to include P &N impacts to Applicability to PNT.	Editorial
3	DOT/OST-R	Karen Van Dyke (karen.vandyke@dot.gov)	ii	96	Abstract	Statement is that the primary focus of this profile is "cybersecurity as it relates to U.S. critical infrastructure".	It seems that the primary focus of the profile should be "PNT" with a subset focusec on cybersecurity.	General
4	DOT/OST-R	Karen Van Dyke (karen.vandyke@dot.gov)	ii	98	Abstract	Is it the expectation that SSAs will take a broader view of disruption or manipulation of PNT services beyond cybersecurity?	Reference to text that is included on pg. 22 of the Profile document should be included in the Abstract. This text acknowledges susceptibility of PNT to natural or man-made disruption (including cyber threats).	General

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5	DOT/OST-R	Karen Van Dyke (karen.vandyke@dot.gov)	1	230	1	PNT profile and Cybersecurity profile are used interchangeably.	Would be helpful to provide clarity on the PNT profile.	General
6	DOT/OST-R	Joshua.Arnold@dot.gov	1	233	1.1	This is not the purpose stated in EO13905 Section 1. Purpose or Section 4(a). Implementation	Use terminology consistent with EO 13905. In EO 13905, "PNT profile means a description of the responsible use of PNT services—aligned to standards, guidelines, and sector-specific requirements—selected for a particular system to address the potential disruption or manipulation of PNT services."	General
7	MITRE/FAA	Chris Hegarty (chegarty@mitre.org)	1	254	1.2	Acronym "GNSS" is used before being defined.	Define all acronyms upon first usage.	Editorial
8	DOT/OST-R	Joshua.Arnold@dot.gov	1	257	1.2	Change velocity be "navigation" for consistency		Editorial
9	MITRE/FAA	Chris Hegarty (chegarty@mitre.org)	1	259	1.2	As directed by the EO, the Profile should not just address loss of PNT data but also manipulation.	Change "...evaluate the impact should the loss of PNT data be realized..." to "...evaluate the impact should the disruption or manipulation of PNT data be realized..." for consistency with EO 13905.	Technical
10	DOT/OST-R	Joshua.Arnold@dot.gov	1	261	1.2	No mention of reliability or efficient functioning from EO13905	Reference to text that is included on pg. 22 of the Profile document should be included in this section. This text acknowledges susceptibility of PNT to natural or man-made disruption (including cyber threats).	General
11	MITRE/FAA	Chris Hegarty (chegarty@mitre.org)	2	271	1.2	Acronym "GPS" is used before being defined.	Define all acronyms upon first usage.	Editorial

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12	AJM-32/NAVTAC	leo.eldredge@tetratech.com	2	271	1.2	The scope of the profile "This PNT Profile is limited to the user segment only." is problematic. How can all of the cyber security protection responibiliites be placed solely on the User Segment? Protection of the service may requrie changes for all three segments to add authenticaiton, encryption, etc. The tradeoffs must be made between the segments as needed to provide the best value solution.	Explain how allocations of cyber security requirements are allocated between the segments to mitigate various threats and who manages the space and control segment cyber security responsibilities.	Technical
13	DOT/OST-R	Karen Van Dyke (karen.vandyke@dot.gov)	2	286	1.3	No SSA mention, not everyone this applies to would have adopted the Cyber Security Framework	Reference to text that is included on pg. 22 of the Profile document should be included in this section. This text acknowledges susceptibility of PNT to natural or man-made disruption (including cyber threats).	General
14	DOT/OST-R	Karen Van Dyke (karen.vandyke@dot.gov)	4	303	2	Is the intent that SSAs could customize the profile to be broader than cybersecurity? There is no mention of cybersecurity in this section.	This would be helpful to customize to account for other risks to PNT in addition to cybersecurity.	General
15	FAA ACG B4	David Nelthropp	4	303	2	multi-step process to costomize PNT Profile not clearly defined.	Add process flow diagram and context to clarify PNT profile customization process	General
16	DOT/OST-R	Karen Van Dyke karen.vandyke@dot.gov	5	318/330	3.1	PNT risk management is not specific to cybersecurity.	Utilize excellent write-up included on pg. 22 to describe additional risks to PNT that need to be addressed.	General
17	FAA	Sean Memmen/ sean.p-ctr.memmen@faa.gov	5	318	3.1	End users do not have a complete understanding of the current and evolving threats to PNT components and the systems and/or applications they support. With this unknown, it's challenging for an organization to determine the likelihood of a PNT event happening. Therefore, the profile should be used with the concept of "it will happen" and determine the impact to supported system and/or application.	Modify "To manage risk, organizations should understand the likelihood that an event will occur as well as its potential impacts." to read "Organizations should approach PNT vulnerabilities and this profile from the point of view of "it will happen" and understand how an event will impact system and/or application and the potential impacts to their mission or operation."	Editorial

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18	DOT/OST-R	Karen Van Dyke karen.vandyke@dot.gov	6	364	3.2	Wouldn't the Core apply to other PNT disruptive events in addition to cybersecurity?	Recommend broadening the Core beyond cybersecurity to address other PNT risks.	General
19	FAA	Noah Rosen/noah.rosen@faa.gov	8	392	3.2	Supply Chain Risk Management category is described, but Asset Management is shown in the figure	Change the "Supply Chain Risk Management" text to "Asset Management"	Editorial
20	MITRE/FAA	Chris Hegarty (chegarty@mitre.org)	8	401	3.2	"section" in "section 3.2" should be capitalized for consistency with section references in the rest of the document.	Change "section 3.2" to "Section 3.2"	Editorial
21	DOT/OST-R	Karen Van Dyke karen.vandyke@dot.gov	12	440	3.2	Distinction between Cybersecurity Profile and PNT Profile is not clear in the document starting with the title.	Use terminology consistent with EO 13905. In EO 13905, "PNT profile means a description of the responsible use of PNT services—aligned to standards, guidelines, and sector-specific requirements—selected for a particular system to address the potential disruption or manipulation of PNT services." EO 13905 doesn't mention "cybersecurity" a single time.	General
22	FAA	Noah Rosen/noah.rosen@faa.gov	14	Table 3	AM-1	Amongst the extensive narrative on calibration, the main focus of the asset management of physical devices is made less clear.	Move the paragraph starting with "The physical inventory should include artifacts.." to the second paragraph. Architecture and wiring diagrams should be particularly emphasized as significant tools to understand PNT-related assets.	General
23	DOT/OST-R	Joshua.Arnold@dot.gov	14	457	Table 3	Some of these standards have to be purchased for access, is there a way to get publicly available sections from the relevant text?		General
24	Zeta/FAA	Karl Shallberg (shallberg-karl@zai.com)	14/15	457	Table 3	The extensive discussion on calibration detracts from the main goal of identifying the devices being used. The level of calibration discussed may not be relevant to a number of user/applications depending on their timing requirements.	Consider moving up the point on using installed antennas to locate PNT receivers. Also consider a similar caveat on the calibration paragraphs recognizing "that different users and applications may have different requirements" such that much of this calibration discussion might not be relevant.	Editorial

25	MITRE/FAA	Chris Hegarty (chegarty@mitre.org)	18	457	Table 3	In last row of Table 3 on p. 18, the sentence "Incorporate…" has grammar issues.	Delete "where" from this sentence.	Editorial
26	FAA	Noah Rosen/noah.rosen@faa.gov	18	Table 3	AM-4	Sentence unclear. "Incorporate a configuration management tool that locates where all PNT antennas."	Remove the word "where"	Editorial
27	MITRE/FAA	Chris Hegarty (chegarty@mitre.org)	19	458	Table 3	In last row of Table 3 on p. 19, guidance is provided to identify a PNT architecture for resources that require varying levels of PNT data integrity. This guidance is insufficient and focuses solely on "accuracy and associated statistical confidence parameters". False detection of "manipulation" can result in reduced availability and continuity of PNT.	Suggest adding a reference to the FRP 2019 in this row, and expanding the guidance provided. Users should be advised that increasing PNT data integrity can diminish other PNT performance characteristics such as availability and continuity. Identification of a suitable PNT architecture should include consideration of more than just data integrity and accuracy (and "associated statistical confidence parameters"). It must also consider availability, continuity, integrity, etc. Some of these tradeoffs are noted later in the document but should also be addressed here.	Technical
28	DOT/OST-R	Karen Van Dyke karen.vandyke@dot.gov	22			This table provides a good description of the PNT risks that need to be addressed.	This text should be included across the document to ensure the PNT profile will apply a risk management approach across all areas of concern.	General
29	Zeta/FAA	Karl Shallberg (shallberg-karl@zai.com)	26	485	table 6	The inclusion of environmental conditions such as multipath, scintillation, foliage…seem somewhat out of place with a section focused on periodic threat/risk assessments. These items seem better suited to a siting analysis or equipment selection in the first place.	Suggest environmental conditions be changed to "environmental or configuration changes (e.g. new antenna installations that may introduce RF interference, obstructions that may block signal reception such as air handlers, temperature…..)"	Technical
30	DOT/OST-R	Karen Van Dyke karen.vandyke@dot.gov	27		RA-5	Last line - PNT "outage" should be "disruption and/or manipulation"		Editorial
31	DOT/OST-R	Karen Van Dyke karen.vandyke@dot.gov	35		DS-4	"complementary" should be used instead of "complimentary"		Editorial

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32	DOT/OST-R	Karen Van Dyke karen.vandyke@dot.gov	40	537		Sentence starting with "In the context of this profile.." seems incomplete.		Editorial
33	DOT/OST-R	Karen Van Dyke karen.vandyke@dot.gov	64	694	Reference	This is a DOT document, not an NCO document	As a more general comment on the Reference section, it appears there are a number of documents posted on gps.gov that are attributed to the NCO that are not actually NCO documents - should be reviewed.	Editorial
34	DOT/OST-R	Karen Van Dyke karen.vandyke@dot.gov	70	907	Reference	Refer to the text before the title of the Volpe report as either Volpe Center (2001) or John A. Volpe National Transportation Systems Center (2001)		Editorial
35	DOT/OST-R	Karen Van Dyke karen.vandyke@dot.gov	72			Definition of PNT Profile should be consistent with EO 13905	Use terminology consistent with EO 13905 is recommended. In EO 13905, "PNT profile means a description of the responsible use of PNT services—aligned to standards, guidelines, and sector-specific requirements—selected for a particular system to address the potential disruption or manipulation of PNT services." EO 13905 doesn't mention "cybersecurity" a single time	General
36	FAA	Noah Rosen/noah.rosen@faa.gov	76	1042	App. B	GPS is maintained by the US Space Force	Change "Air Force" to "Space Force"	Editorial