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Title	Technical and operational requirements for remote tower operations
NPA Number	NPA 2015-04

UK CAA (European.Affairs@caa.co.uk) has placed **36** unique comments on this NPA:

Cmt#	Segment description	Page	Comment	Attachments
139	(General Comments)	0	<p>Page No: General</p> <p>Paragraph No: General</p> <p>Comment: NPA 2015-04 section 3 contains valuable and readily understood text concerning means of compliance and guidance material applicable to the technical (rather than institutional and personnel) aspects of the introduction of remote towers. UK CAA believes that stakeholders unfamiliar with the content of NPA 2015-04 may not in the future be aware of the guidance relating to technical aspects of remote tower implementation contained within it. The loss of this material would therefore be significant; it needs to be retained at Agency level for use by Member States and industry stakeholders alike pending any future remote tower-related rulemaking activity.</p> <p>The Agency's intentions regarding the retention/preservation of this material following closure of the NPA are not clear – clarification is therefore requested, and the Agency is invited to indicate the means by which the material can be retained. For example, are Community Standards to be developed?</p> <p>Justification: There is a need to preserve the material applicable to the technical (rather than institutional and personnel) aspects of the introduction of remote towers contained within NPA 2015-04.</p>	
140	2. Explanatory Note — 2.2. Overview of the issues to be addressed — 2.2.4. System aspects	7	<p>Page No: 7 of 61</p> <p>Paragraph No: 2.2.4</p> <p>Comment: Paragraph 2.2.4 refers to 'the respective standards'. It is unclear what these are – if they are the Minimum Aviation System Performance Specifications (MASPS) referred to later in the paragraph, it is unclear who will own these 'standards' and what their legal status will be.</p> <p>Justification: Clarification.</p>	
141	2. Explanatory Note — 2.2. Overview of the issues to be addressed — 2.2.5. Abnormal situations and contingency procedures	7 - 8	<p>Page No: 7 of 61</p> <p>Paragraph No: 2.2.5</p> <p>Comment: The UK CAA believes that failed communications and reduced/nil visual reference are not new risks, rather they are risks in a new context. It is recommended that current operations should ensure provision for both communications failures and low visibility procedures in both 'conventional' and remote tower scenarios.</p> <p>Justification: To provide better explanation of potential remote</p>	

			tower operational risks.	
142	2. Explanatory Note — 2.2. Overview of the issues to be addressed — 2.2.6. Transition plan	8	<p>Page No: 8 of 61</p> <p>Paragraph No: 2.2.6</p> <p>Comment: The UK CAA believes this paragraph is too prescriptive. The availability of the existing control tower building during the transition and post-transition period is a matter for agreement on a project-by-project basis. There needs to be a transition plan. The availability of existing control tower building may or may not be a part of that. If the control tower building ceases to be available early in the transition, the risks this poses need addressing like any other as part of the project.</p> <p>It is suggested that it would be sufficient to indicate that a transition plan acceptable to the service provider and the competent authority is agreed as part of the project.</p> <p>Justification: Less prescriptive text could cover all transition plans regardless of the individual circumstances of the project.</p>	
143	2. Explanatory Note — 2.2. Overview of the issues to be addressed — 2.2.9. Airspace user aspects	11 - 12	<p>Page No: 11 of 61</p> <p>Paragraph No: 2.2.9</p> <p>Comment: It is believed that the potential need for aircraft to have lights on for some systems should not be required as this is contrary to the objective stated at 2.3. If the visual capability is such that lights are required then it is not a suitable technical standard. Regardless, the lighting capability of aircraft during daytime may be such that this is unlikely to add any benefit.</p> <p>Justification: To set correct expectations and realistic measures.</p> <p>Proposed Text: Delete reference to assessment of the need for aircraft to have lights on.</p>	
144	2. Explanatory Note — 2.2. Overview of the issues to be addressed — 2.2.11. Regulatory framework analysis	12	<p>Page No: 12 of 61</p> <p>Paragraph No: 2.2.11</p> <p>Comment: It is stated that implementation shall comply with ICAO regulations. ICAO compliance is a State obligation for those elements of ICAO SARPs and PANS that have not been transposed into EU law. Furthermore, ICAO SARPs and PANS may be inappropriate, inadequate or require contextualisation for the remote tower concept. Therefore, the statement made is considered inappropriate. Instead it would be helpful if a fundamental aspect of the NPA was to identify all relevant ICAO content (SARP and PANS) to ensure that it was appropriate for remote towers, and where necessary provide guidance on application and any potential variation that might be required.</p> <p>Justification: Appropriate contextualisation</p> <p>Proposed Text: Replace with:</p> <p>'...shall comply with EU regulations. ICAO requirements should be complied with as far as possible subject to State differences.'</p>	
145	2. Explanatory Note — 2.3.	13	<p>Page No: 13</p>	

	Objectives		<p>Paragraph No: 2.3</p> <p>Comment: The first sub-paragraph states:</p> <p><i>'This proposal forms the first phase of the work for single mode of operation and is based on research, development and validation activities conducted so far within the SESAR project.'</i></p> <p>Therefore, this NPA appears to facilitate only single mode of operation of remote tower (as per the definition proposed). Agency clarity in this regard is requested.</p> <p>Justification: Clarification required.</p>	
146	2. Explanatory Note — 2.4. Summary of the Regulatory Impact Assessment (RIA) of the options	13 - 14	<p>Page No: 13 of 61</p> <p>Paragraph No: 2.4</p> <p>Comment: Option 1 suggests the material in NPA section 3 will be preserved post-NPA but it is not made clear what the 'vehicle' will be. The Agency is invited to clarify its plans for the preservation and future application of this material following the end of the NPA's consultation period. UK CAA's general comment on retention of NPA 2015-04 content relating to technical aspects of remote tower implementation also refers.</p> <p>Justification: Clarification.</p>	
147	2. Explanatory Note — 2.4. Summary of the Regulatory Impact Assessment (RIA) of the options	13 - 14	<p>Page No: 13 of 61</p> <p>Paragraph No: 2.4</p> <p>Comment: Whilst the UK CAA welcomes the proposed guidance material contained within NPA 2015-04 section 3, given EUROCAE-100's ongoing work regarding technical standards, it is not clear why the Agency has elected to proceed with the NPA at this point in time, rather than wait for the conclusion of EUROCAE-100's work so that EUROCAE-100 outcomes could be included. The Agency is invited to clarify why the current course of action has been taken, rather than wait for EUROCAE-100 to conclude its work.</p> <p>Justification: Clarification.</p>	
148	3. Proposed guidance on the implementation of the remote tower concept — 3.1. Definitions	15	<p>Page No: 15 of 61</p> <p>Paragraph No: 3.1</p> <p>Comment: It is suggested that the creation of new definitions in AMC or GM is inappropriate and that it would be more suitable to include them in the covering regulation.</p> <p>Justification: The definitions would appear to have no legal standing if they are not included in the regulatory material.</p>	
149	3. Proposed guidance on the implementation of the remote tower concept — 3.1. Definitions	15	<p>Page No: 15 of 61</p> <p>Paragraph No: 3.1</p> <p>Comment: The concept of defining a "conventional tower" seems unnecessary. A Control Tower should be considered to be a "conventional tower" unless it is a remote tower. There is reference in the document to the conventional tower being the "local tower". This is not defined.</p>	

			<p>In addition, definitions for 'Remote Tower Centre' and 'Remote Tower Module' are considered necessary.</p> <p>Justification: Clarity.</p> <p>Proposed Text:</p> <p>"Remote Tower Centre' means a unit established to provide aerodrome control services for aerodromes under its jurisdiction by means of aerodrome remote tower facilities."</p> <p>"Remote Tower Module' means an aerodrome remote tower facility at a remote tower centre."</p>	
150	3. Proposed guidance on the implementation of the remote tower concept — 3.2. Safety assessment of the changes to the functional system — 3.2.1. Identification of the change	15 - 17	<p>Page No: 15 of 61</p> <p>Paragraph No: 3.2</p> <p>Comment: It is suggested that the collation of all of the aspects of safety assessment that must be completed into a Goal Structured Notation depiction should be included as this would significantly assist in user understanding of the scope and aspects of the complete safety argument. This would then allow localised additions/changes as necessary, and evidences to meet the goals to be provided.</p> <p>Justification: Supports simplifying and easing the safety assurance process and ensures complete coverage of safety assurance.</p>	
151	3. Proposed guidance on the implementation of the remote tower concept — 3.2. Safety assessment of the changes to the functional system — 3.2.1. Identification of the change	15 - 17	<p>Page No: 15 of 61</p> <p>Paragraph No: 3.2.1</p> <p>Comment: The value in identifying and defining Basic and Enhanced Equipage is questioned. The impression given in the NPA is that individual remote tower projects will fall neatly into one or the other. In practice, each is likely to be somewhere on a spectrum of solutions, rather than one or the other.</p> <p>Justification: The value of the proposed text is questioned.</p>	
152	3. Proposed guidance on the implementation of the remote tower concept — 3.2. Safety assessment of the changes to the functional system — 3.2.2. Safety assessment methodology — 3.2.2.3. Safety criteria	19	<p>Page No: 19 of 61</p> <p>Paragraph No: 3.2.2.3</p> <p>Comment: 'Skill projection': higher levels of competence at the remote tower can be seen as beneficial because their skill can be deployed to point of delivery and be better than local abilities. As such it is considered to be an important safety driver, and should therefore be included</p> <p>Justification: To ensure this major safety benefit is not overlooked.</p> <p>Proposed Text: Amend to read:</p> <p>'Keeping in mind that the main driver for the implementation of the remote tower concept is related to cost savings, the safety criteria to be applied should ensure that the level of safety after the introduction of the remote tower concept is at least not reduced (and to the greatest possible degree enhanced) with respect to the current operations based on a local (conventional) tower.'</p>	
153	3. Proposed	19 -	<p>Page No: 20 of 61</p>	

	guidance on the implementation of the remote tower concept — 3.2. Safety assessment of the changes to the functional system — 3.2.2. Safety assessment methodology — 3.2.2.5. Assessment of the hazards' effects	20	<p>Paragraph No: 3.2.2.5</p> <p>Comment: The wording '... management of flights during darkness conditions...' is considered to be an inadequate way of referring to reduced light or night. In addition, prevailing meteorological conditions during the day can reduce lighting levels to such an extent that imagery presentation within a remote tower may be diminished.</p> <p>Justification: Clarity and appropriateness.</p> <p>Proposed Text: Amend to read: '...management of flights in reduced light (e.g. twilight) and at night ...'</p>	
155	3. Proposed guidance on the implementation of the remote tower concept — 3.2. Safety assessment of the changes to the functional system — 3.2.2. Safety assessment methodology — 3.2.2.5. Assessment of the hazards' effects	19 - 20	<p>Page No: 20 of 61</p> <p>Paragraph No: 3.2.2.5</p> <p>Comment: The text appears to imply that the remote tower is only related to remote aerodromes with very low volumes of traffic requiring only a single ATCO (ADV or ADI) or AFISO and contingency tower provision. It is unclear if this implication is intended or correct.</p> <p>Justification: Clarification.</p>	
156	3. Proposed guidance on the implementation of the remote tower concept — 3.2. Safety assessment of the changes to the functional system — 3.2.2. Safety assessment methodology — 3.2.2.6. Determination of the safety objectives and safety requirements	21 - 22	<p>Page No: 22 of 61</p> <p>Paragraph No: 3.2.2.6</p> <p>Comment: The paragraph at the top of page 22 makes reference to Commission Regulation (EU) 482/2008 which is correct as it is still in force but will be withdrawn when the ATM IR is issued. It will be necessary for EASA to remove all reference to Commission Regulation (EU) 482/2008 when the ATM IR enters law.</p> <p>Justification: Need for appropriate cross-references.</p>	
157	3. Proposed guidance on the implementation of the remote tower concept — 3.2. Safety assessment of the changes to the functional system — 3.2.3. Operational context — 3.2.3.1. Traffic density	23	<p>Page No: 23 of 61</p> <p>Paragraph No: 3.2.3.1</p> <p>Comment: The statement regarding traffic density '(... low density is defined as being mostly a single movement, rarely exceeding two simultaneous movements)' seems to create the dividing line between basic and enhanced equipage. It is unclear whether this is the intention of the text.</p> <p>Justification: Clarification.</p>	
158	3. Proposed	23	<p>Page No: 23 of 61</p>	

	guidance on the implementation of the remote tower concept — 3.2. Safety assessment of the changes to the functional system — 3.2.3. Operational context — 3.2.3.5. Aerodrome infrastructure and surroundings (physical orography)		<p>Paragraph No: 3.2.3.5.</p> <p>Comment: The UK CAA welcomes the proposed guidance material but notes that little mention is made of data transmission requirements, and no mention is made regarding the broadband capacity and speed requirements/specifications associated with remote towers. Limited broadband capabilities in geographically remote areas/marginal communities may preclude the application of the remote tower concept in the very areas that could most benefit from them. Requirements for data transmission/broadband requirements associated with remote towers should also be considered.</p> <p>Justification: Clarification.</p>	
159	3. Proposed guidance on the implementation of the remote tower concept — 3.2. Safety assessment of the changes to the functional system — 3.2.5. System/equipment aspects — 3.2.5.2. Human-computer interaction functions — Visual presentation	26 - 28	<p>Page No: 29 of 61</p> <p>Paragraph No: 3.2.5.2</p> <p>Comment: Reference is made to Annex 11 requirements concerning binocular functionality. Despite searching, no reference to such a requirement can be found in Annex 11. If there is an ICAO requirement on this subject, it is questioned whether electronic binocular function is adequate for compliance or does the guidance anticipate the need to file a Difference.</p> <p>Justification: Clarification and appropriate referencing.</p>	
161	3. Proposed guidance on the implementation of the remote tower concept — 3.2. Safety assessment of the changes to the functional system — 3.2.5. System/equipment aspects — 3.2.5.2. Human-computer interaction functions — Voice/data communication	29 - 30	<p>Page No: 30 of 61</p> <p>Paragraph No: Ground-ground voice/data communications</p> <p>Comment: It is recommended that the text should also refer to UHF voice communications and the ability to cross link.</p> <p>Justification: Completeness of text.</p>	
160	3. Proposed guidance on the implementation of the remote tower concept — 3.2. Safety assessment of the changes to the functional system — 3.2.5. System/equipment aspects —	30 - 31	<p>Page No: 30 of 61</p> <p>Paragraph No: Visual Communication</p> <p>Comment: The NPA seems to give significant priority to signal lamp availability. It is unclear whether this is the intent of the wording as the remote operation of signal lamps may cause some difficulty, it is also unclear whether signalling lamps can be controlled remotely.</p> <p>Justification: Clarification.</p>	

	3.2.5.2. Human-computer interaction functions — Visual communication		
162	3. Proposed guidance on the implementation of the remote tower concept — 3.2. Safety assessment of the changes to the functional system — 3.2.6. Siting aspects	33	<p>Page No: 33 of 61</p> <p>Paragraph No: 3.2.6</p> <p>Comment: The NPA states that the term 'The vicinity of an aerodrome' is defined in Chapter 1 of ICAO Doc 4444 as 'aircraft in, entering or leaving an aerodrome traffic circuit'. This is not strictly correct. Doc 4444 states that 'an aircraft is in the vicinity of an aerodrome when it is in, entering or leaving an aerodrome traffic circuit' in defining the term for 'Aerodrome traffic'. Therefore Doc 4444 is providing guidance but does not offer a definition of the term. It is recommended the text is amended to make it more appropriate.</p> <p>Justification: Appropriateness and clarity.</p>
163	3. Proposed guidance on the implementation of the remote tower concept — 3.2. Safety assessment of the changes to the functional system — 3.2.10. Abnormal situations and contingency procedures	36 - 37	<p>Page No: 37 of 61</p> <p>Paragraph No: 3.2.10</p> <p>Comment: The 3rd sub-paragraph states:</p> <p><i>".. the remote tower shall enable, as in current operations, the detection of unexpected flights in the area of responsibility where ATS are being provided"</i></p> <p>Where an existing ATS function is TWR/APP only, the means for achieving this are limited. The most common means of identifying unexpected aircraft is through a surveillance function available to the Approach or Centre Sector. The requirement for the Remote Tower should be no greater than this.</p> <p>Justification: The additional requirement is not justified.</p>
164	3. Proposed guidance on the implementation of the remote tower concept — 3.2. Safety assessment of the changes to the functional system — 3.2.11. Transition plan	37 - 39	<p>Page No: 37 of 61</p> <p>Paragraph No: 3.2.11</p> <p>Comment: The UK CAA believes this paragraph is too prescriptive. The availability of the existing control tower building during the transition and post transition period is a matter for agreement on a project-by-project basis. There needs to be a transition plan. The availability of existing control tower building may or may not be a part of that. If the control tower building ceases to be available early in the transition, the risks this poses need addressing like any other as part of the project.</p> <p>It is suggested it would be sufficient to indicate that a transition plan acceptable to the service provider and the competent authority is agreed as part of the project.</p> <p>Justification: Less prescriptive text could cover all transition plans regardless of individual circumstances of the project</p>
165	3. Proposed guidance on the	40	<p>Page No: 40 of 61</p>

	implementation of the remote tower concept — 3.3. Aerodrome-related aspects — 3.3.1. Certification and approval — 3.3.1.2. Aerodrome manual		<p>Paragraph No: 3.3.1.2</p> <p>Comment: The inclusion of pyrotechnic signals raises the question by the UK CAA as to whether there is a way to remotely control munitions.</p> <p>Justification: Clarification.</p>	
166	3. Proposed guidance on the implementation of the remote tower concept — 3.3. Aerodrome-related aspects — 3.3.2. Operational aspects — 3.3.2.4. Remote provision of ATS — Management of the change — Aerodrome operator	41 - 43	<p>Page No: 41 of 61</p> <p>Paragraph No: 3.3.2.4</p> <p>Comment: Guidance on maintaining a day- to-day operational relationship between the ATS management (of the remote tower) and aerodrome management team should be included. Also information on the effect on ATCO awareness and knowledge of the aerodrome when remotely located is required, which should connect with the contents of GM2 ATCO D 080(b).</p> <p>Justification: Appropriate guidance material is needed to assist implementation.</p>	
167	3. Proposed guidance on the implementation of the remote tower concept — 3.3. Aerodrome-related aspects — 3.3.2. Operational aspects — 3.3.2.5. Power supply at aerodromes	43	<p>Page No: 43 of 61</p> <p>Paragraph No: 3.3.2.5</p> <p>Comment: It is recommended that the length of time secondary power should be available should be included</p> <p>Justification: Appropriate guidance material to assist implementation</p>	
168	3. Proposed guidance on the implementation of the remote tower concept — 3.3. Aerodrome-related aspects — 3.3.2. Operational aspects — 3.3.2.6. Cameras at aerodromes	43	<p>Page No: 43 of 61</p> <p>Paragraph No: 3.3.2.6</p> <p>Comment: It is unclear why a distinction is being made in the case of de-icing activities. All areas on the aerodrome that provide for aircraft operations should be visible to the ATS provider.</p> <p>Justification: Clarity.</p>	
169	3. Proposed guidance on the implementation of the remote tower concept — 3.4. Possible impacts on airspace users	44	<p>Page No: 44 of 61</p> <p>Paragraph No: 3.4</p> <p>Comment: It is not understood how requiring users to request permission to land is mitigation to being unable to maintain adequate visual surveillance, unless what is really meant is that ATC instruct the aircraft to land</p> <p>Justification: Clarity.</p>	
170	3. Proposed guidance on the implementation	44	<p>Page No: 44 of 61</p>	

	of the remote tower concept — 3.4. Possible impacts on airspace users		<p>Paragraph No: 3.4</p> <p>Comment: The availability of SSR data in the Remote Tower should not in itself dictate, or be dictated by, the establishment of a TMZ. If a TMZ is established, this should be in response to an identified risk for which the TMZ is determined to be the solution.</p> <p>Justification: Clarity and appropriateness of proposed text.</p>	
171	3. Proposed guidance on the implementation of the remote tower concept — 3.5. AIP	44	<p>Page No: 44 of 61</p> <p>Paragraph No: 3.5</p> <p>Comment: The reference to potential AIP change is appropriate. However, what is missing is a common text (including suggested place within an aerodrome's AD entry) stating that a remote tower is in place, and a common means of depicting the location of the signalling lamp.</p> <p>Justification: Appropriate guidance material to assist implementation</p>	
172	4. Draft Acceptable Means of Compliance and Guidance Material to Commission Regulation (EU) 2015/340 (Draft EASA Decision)	45 - 47	<p>Page No: 45 of 61</p> <p>Paragraph No: AMC1 ATCO.B.020(a)</p> <p>Comment: The CAA suggests use of the word 'develop' to be more appropriate in this context than 'constitute'.</p> <p>Justification: Use Of English.</p> <p>Proposed Text: Consider changing the word 'constitute' to 'develop'.</p>	
173	4. Draft Acceptable Means of Compliance and Guidance Material to Commission Regulation (EU) 2015/340 (Draft EASA Decision)	45 - 47	<p>Page No: 45 of 61</p> <p>Paragraph No: GM1 ATCO.D.055(a)</p> <p>Comment: A Remote Tower Centre (RTC) could conceivably house multiple remote tower facilities. It is therefore questioned whether it is legitimate to view such a facility as one Air Traffic Control unit</p> <p>Justification: Clarification.</p>	
174	4. Draft Acceptable Means of Compliance and Guidance Material to Commission Regulation (EU) 2015/340 (Draft EASA Decision)	45 - 47	<p>Page No: 45 of 61</p> <p>Paragraph No: GM3 ATCO.D.060(c)</p> <p>Comment: 'Remote Tower Module' is incorrectly abbreviated to 'RMT'.</p> <p>Justification: Incorrect abbreviation.</p> <p>Proposed Text: Amend to read: '...Remote Tower Module (RTM)...'</p>	
175	6. Appendices — 6.1. Appendix 1: Human performance aspects	50 - 51	<p>Page No: 50 onwards</p> <p>Paragraph No: Appendices 1-4</p> <p>Comment: The appendices are introduced in a non-sequential manner in Section 3. If they are to be used in conjunction with the material in Section 3 then they warrant renumbering to facilitate sequential introduction.</p>	

Justification: To provide clarity and user friendliness.