

**PACIFIC AVIATION INVESTMENT PROGRAM**  
**TONGA AVIATION INVESTMENT PROJECT**  
**AIR TRAFFIC CONTROL (ATC) EQUIPMENT FOR FUA'AMOTU INTERNATIONAL AIRPORT**  
**CONTRACT REF: TAL/ICBG/A-A42.2**

23<sup>rd</sup> January 2019

**CLARIFICATION NO.5 TO THE BIDDING DOCUMENTS**

The PAIP TFSU would like to issue the following clarification in response to questions asked by bidders in relation to the above named tender. The questions and answers are provided below:

Questions	Answers
1. What type of HF antennas are currently in operation	broadband
2. Can you provide existing polar diagrams for the current HF antennas	Unavailable can get this from the Manufacturer (Jotron)
3. Can you provide existing coverage plots for the current VHF radios	Refer to the Manufacturer (Jotron)
4. Can you provide a point of contact for GECL for the AGL control panel	Lorenzo Ramirez <a href="mailto:lorenzo@geciweb.com">lorenzo@geciweb.com</a>
5. Can you provide manufacturer details, make and model for the AWOS displays	All Weather, Inc. 1165 National Drive Sacramento, CA 95834 Tel.: (916) 928-1000 Fax: (916) 928-1165 -3000-001 Rev. C
6. Can you provide technical details of the existing Indra ADS-B system	ADS-B VISUAL RADAR 3000
7. Please confirm that the "agreed number of people" from the Purchaser organisation to attend each FAT is two?	Confirmed
8. Please confirm that "Flight Strip Printing System" is now out of scope.	Confirmed
9. Please confirm that there will be an NTP address that we can synchronize equipment to. The receiver shall feed a Network Time Protocol (NTP) server from which the time data will be available. The output of the server shall be connected to the ATC operational CAT6 network via a managed switch. The NTP server will, therefore, need to have an IP address specified by TAL.	The IP address designated for the tower will have to be obtained from the service provider.
10. Under normal power supply conditions RF output capability to the antenna system shall	Out of the HF Radio

<p>be a minimum of 500W PEP. Please define "to the antenna system", is this minimum 500W at the HF radio output or a minimum 500 watts is required at connection of the feeder cable to the HF antenna?</p>	
<p>11. In tender documents Section 7 Scope of Supply LOT 4 – New Tower Equipment; 7.4 Aeronautical Beacon, it is not specified if the Aeronautical Beacon should be high or medium intensity. Could you please clarify?</p>	<p>Medium</p>
<p>12. Can we receive information on the existing Operational Network Topology and Configuration (IP-Addresses, Subnets etc)</p>	<p>There are no subnets nor is there a designated IP address for the Tower.</p>
<p>13. Is there any electrical distribution boards located in Equipment Room (AC or DC), Electrical Room and up in the new VCR (AC or DC)?</p>	<p>The electrical distribution boards locations are described on Drawing E 208 which would be useful to the tenderers as it shows the connection for their UPS that have been allowed for. (refer to Electrical drawings)</p>
<p>14. Are there any Grounding/Earth points in Equipment Room and VCR?</p>	<p>No</p>
<p>15. What is the number of available conduits, ducts and cable space in: (including cable tray and conduit size and what each conduit or space is reserved for e.g. data, electrical, RF)</p> <ul style="list-style-type: none"> <li>a Overhead cable tray at ground level</li> <li>b Building Riser conduits</li> <li>c VCR to roof conduits</li> </ul>	<ul style="list-style-type: none"> <li>a) Drawing C105 shows the route for the 300mm wide ceiling run cable tray from the equipment room to the Tower Service duct/Riser, which will be installed by FCC (Fletcher Construction Company).</li> <li>b) The final service layout for the Tower Riser is being finalised with FCC at present but is intended to provide a clear route for the Avionics cables up the riser to level 15 and into the level 16 under floor space with the raised floor as shown on drawing S407.</li> <li>c) The roof ducts are shown on drawing S409, the final details will be agreed with FCC</li> </ul>
<p>16. Is the supplier required to procure new VHF antenna for main VHF system and Emergency VHF system?</p>	<p>Yes</p>
<p>17. In the pre bid meeting, it was noted that some fibre trenching between the New Tower and the Old Tower is being completed as part of the Tower Build project. Can you please confirm what fibre trenching is being completed as part of the Tower Build project and what is to be delivered as part of this ATC Equipment tender (A.A42.2)</p>	<p>The Trenching and laying of the Fibre optic cable from the existing to the new tower will be carried out by FCC. The ATC construction contract will install a 24 core fibre optic cable between the existing tower and the new equipment room for avionics use.</p>

<p>18. Please provide details on how physical access is gained to the tower roof area? This is not showing in the drawings.</p>	<p>There will be an access hatch in the roof adjacent to the sink in the VCR, a removable ladder will be provided to gain access. The roof will have a perimeter rail and walk boards for maintenance access.</p>
<p>19. What provision is there to run cables from the tower roof down to the top of the cable riser coming from the base of the tower? This is not shown in the drawings.</p>	<p>There are cable ducts provided from the roof into the ceiling void as indicated on drawing S409 under the ATC contract. The VCR floor is raised flooring enabling services from the tower service riser to spread out. We would foresee and cabling/ducting running down the steel support columns and/or the window mullion steels so as not to obstruct the visibility from the VCR. This would need to be installed as part of the avionics contract.</p>
<p>20. Is there a termination point for power to supply the Aerodrome Beacon, to be located on the cab roof? Please confirm the location, as this is not shown in the drawings.</p>	<p>The obstruction lights and their associated distribution board are allowed for in the ATC tower contract and are shown on drawing E 204. The intention would be to run the cables into the ceiling/roof void to the roof edge duct (as above drawing S409). The lights would be wired direct to the distribution board within the VCR room.</p>
<p>21. Is it permitted for all VHF transmitter to share one antenna and all VHF receivers to share another antenna? For example: All transmitter for frequencies 118.5, 121.5 &amp; 121.9 are all coupled to one antenna and receivers for frequencies 118.5, 121.5 &amp; 121.9 are all coupled to another camera.</p>	<p>Depend on the System</p>
<p>22. Can you provide information on the mounting systems available for the following:</p> <ol style="list-style-type: none"> <li>1. Aerodrome Beacon</li> <li>2. VHF antennas</li> <li>3. ADS-B antenna</li> </ol>	<p>The aero drome beacon/obstruction light is being provided and installed as part of the ATC contract. Antennas can be fitted to the perimeter railing to the roof. Any other type of fixing would be required to be approved by TAL to ensure that it did not compromise the VCR roof integrity and its warranty.</p>
<p>23. The following items are listed under 3.19.4.1 as requiring FAT:</p> <ol style="list-style-type: none"> <li>1. VHF Base Station equipment</li> <li>2. HF transceiver system</li> <li>3. Flight Strip Printing System</li> <li>4. Remote Control and Monitoring System</li> <li>5. Crash Alarm</li> </ol> <p>Can you please respond to the following:</p> <ol style="list-style-type: none"> <li>1. "Flight Strip Printing System" – is not a deliverable for this tender. Please confirm this can be removed from FAT.</li> <li>2. "Remote Control and Monitoring System" – please confirm this comprises</li> </ol>	<ol style="list-style-type: none"> <li>1. "Flight Strip Printing System is excluded</li> <li>2. a) Yes a. Communication Remote Access and Control included</li> </ol>

<p>of the following two components:</p> <ul style="list-style-type: none"><li>a. Communication Remote Access and Control (VCS)</li><li>b. Communications System Monitors</li></ul>	<p>b) Communications system monitors included</p>
<p>24. Please provide an updated list (at 3.19.4.1) of components to be covered under the FAT. Please provide the list for each LOT (1-4) as per the tender specification.</p>	<p>List of all equipment supplied</p>