

Annex C
COMPLIANCE MATRIX
FOR THE
TACTICAL VOICE BRIDGE

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1 General

1.1 This annex is only applicable to Bidders who submit a bid which includes at least one substitute and/or alternate product. Bidders who submit a bid with no substitute and/or alternate product do not have to complete the Compliance Matrix included in this annex.

1.2 The proposal must fully demonstrate compliance with the mandatory requirements stated in the solicitation. Canada requires that a completed Compliance Matrix be included in the proposal. The matrix must explicitly address all the requirements applicable to all substitute and alternatives part of the submission, on a paragraph-by-paragraph basis. The response to each paragraph must be a compliance statement ("Compliant" or "Non-Compliant").

1.3 The Bidder must also provide with the matrix all documents to support Canada's verification of the technical requirements as detailed in the Compliance Matrix, column "Information to Bidder", for the Compliant statements.

2 Definitions and Acronyms

2.1 Acronyms

Amp	Ampere
AC	Alternating Current
°C	Celsius
BIT	Built-In Test
CADPAT	Canadian Disruptive Pattern
CLA	Cigarette Lighter Adapter
cm	Centimetre(s)
DC	Direct Current
ESD	Electrostatic Discharge
GHz	Gigahertz
HBM	Human Body Model
HMS	Handheld, Manpack and Small Form Fit
Hz	Hertz
kHz	Kilohertz
MHz	Megahertz
mm	Millimetre(s)
m/s	Metre(s) per second
MRR	Multi Role Radio
MTBF	Mean Time Between Failures
NEMA	National Electrical Manufacturers Association

PTT	Push-To-Talk
RFP	Request For Proposal
SINGGARS	Single Channel Ground and Airborne Radio System
TVB	Tactical Voice Bridge
US	United States
V	Volt(s)
VAC	Volt(s) of alternating current

2.2 Terminology and Definitions

SINGGARS radios	A generic description describing United States (US) audio interfaces which broadly conform to being "compatible with the H-250 handset". Compatibility includes Harris AN/PRC-152 and 152A, AN-PRC-117F and G, RF-330E-TR, RT-1523, RT-1694, Thales AN/PRC-148, AN/PRC-154, General Dynamics AN/PRC-155, and Persistent Systems MPU3.
PR4G products	A generic description of radios and systems including Thales PR4G F@stnet product family (TRC 9xxx), HF 3000 Skyf@st, and SOTAS/SOTASIP product family.
Bowman radios	A generic description of the UK audio interface developed in the 1950s by PYE and since used on UK Bowman radios, Clansman UK/PRC and UK/VRC radios, UK Larkspur radio sets, UK Racal Cougar PRM and SRM radios, UK Scimitar radios, Thales Panther radios, Australian Raven PTR and Wagtail tactical radios, and the Canadian TCCCS radios.

2.3 Applicable Documents

Table C-1 Standards and Reference Documents

Document Identifier	Title
[FED-STD-595C1]	FED-STD-595C, Federal Standard, Colors used in Government Procurement, 16 January 2008, including Change Notice 1 dated 31 July 2008.
[MIL-STD-461G]	MIL-STD-461G, Department of Defense Interface Standard – Requirements for the Control of Electromagnetic Interference Characteristics of Subsystems and Equipment, 11 December 2015.
[MIL-STD-810G1]	MIL-STD-810G, Department of Defense Test Method Standard, Environmental Engineering Considerations and Laboratory Tests, 31 October 2008, with Change 1 dated 15 April 2014.
[MIL-STD-1686C]	MIL-STD-1686C, Department of Defense Standard Practice, Electrostatic Discharge Control Program for Protection of Electrical and Electronic Parts, Assemblies and Equipment (Excluding Electrically Initiated Explosive Devices), 25 October 1995.

3 Compliance Matrix

The Compliance Matrix provided in this annex is to assist the Bidders in preparing for the Technical Bid evaluation activities, completing their response, and demonstrating their compliance to the technical requirements of the Request For Proposal (RFP).

4 Technical Bid Evaluation Procedure

4.1 A bid must meet all mandatory technical evaluation criteria to be declared responsive. In the case where a mandatory item cannot be or is not complied with, the proposal will receive no further consideration.

4.2 Each Mandatory requirement will be independently evaluated by the evaluation team.

5 Technical Bid Mandatory Requirements Compliance Matrix

5.1 To assist Bidders in completing their response, this annex provides a Compliance Matrix for the Mandatory requirements, Table C-2 for the mandatory requirements of Annex A of the RFP.

5.2 The Compliance Matrix has the following columns:

INFORMATION PROVIDED WITH THE RFP:

- a. **ID:** a unique identifier within the Tactical Voice Bridge (TVB) RFP. IDs do not necessarily have successive numbers.
- b. **Item:** the Item number(s) used in Annex A, for which the specific requirement statement is applicable.
- c. **Requirement Statement:** the text of the Mandatory requirement statement.
- d. **Information to Bidder:** additional information that the Bidder must use to prove compliancy. It will be used by Canada to evaluate the Bidder's response.

INFORMATION THE BIDDER MUST PROVIDE:

- e. **Bidder's Compliance:** the Bidder must specify that its proposal is compliant or non-compliant to the Mandatory requirements. The Bidder must describe its compliance by using the words "COMPLIANT" or "NON-COMPLIANT". The aforementioned compliance terms have the following meanings:
 - (1) COMPLIANT indicates that the Bidder claims that the proposed solution complies totally with the Mandatory requirement.
 - (2) NON-COMPLIANT indicates that the Bidder cannot claim that the proposed solution meets the Mandatory technical requirement. It automatically makes a Bidder's proposal non-compliant.
- f. **Bidder's Reference:** the Bidder must provide a reference to the document which contains the required information to support and prove compliancy to the requirement. As a minimum, the Bidder must provide references to the documents identified in column "Information to Bidder". Other supporting documentation or certification may be used as part of the Bidder's response. All of the referenced documentation must be included with

the proposal. References to web pages are forbidden. The Bidder's proposal must be complete by itself.

Table C-2 Mandatory Requirements Compliance Matrix

ID	Item	Requirement Statement	Information to Bidder	Bidder's Compliance	Bidder's Reference
TVB-001	TVB Functional Requirements				
TVB-002	1 to 8	<p>The TVB must relay voice between any 2 connected radios from the list below using the provided cables, without user adjustment to the TVB configuration.</p> <ul style="list-style-type: none"> a. SINCGARS radios, b. SEM 70, 80, and 90, Thales SEM 93, and Rohde & Schwarz M3TR family, c. Thales PR4G products, d. Bowman radios, e. Selex SRT 633 SINCGARS radio variant, f. Kongsberg Multi Role Radio (MRR), and g. MESIT Defence RF 2050. 	<p>The Bidder must prove the TVB can meet this requirement for any 2 radios from the specified list. Certified test reports must be provided for every combination of radios.</p> <p>Canada will use the Bid Sample to connect selected radios to the TVB, and verify the voice quality between the 2 radios without user adjustment to the TVB configuration.</p>		
TVB-003	1, 9	<p>The TVB must permit a user to adjust the TVB parameters to improve the quality of the voice relay between 2 radios.</p>	<p>The Bidder must identify the mechanism for a user to adjust the TVB parameters, including access and pre-requisites (e.g. computer and software), and identification of the parameters with their respective effects and value range.</p> <p>Canada will use the Bid Sample to modify the TVB parameters as documented, and verify the effects on the voice quality between 2 radios.</p>		

ID	Item	Requirement Statement	Information to Bidder	Bidder's Compliance	Bidder's Reference
TVB-004	1 to 8	The TVB must permit the transmission and monitoring of voice over connected radios from a connected handset.	<p>The Bidder must identify handsets compatible with the TVB which meet this requirement.</p> <p>Canada will connect an in-service H-250 handset and 2 radios to the Bid Sample TVB and verify that the handset and its Push-to-Talk (PTT) can be successfully used for voice transmission and monitoring.</p>		
TVB-005	1	The TVB must provide an audio connector compatible with a H-250 handset.	<p>The Bidder must identify handsets compatible with the TVB.</p> <p>Canada will connect an in-service H-250 handset and 2 radios to the Bid Sample TVB and verify that the handset and its PTT can be successfully used for voice communication.</p>		
TVB-006	1	The TVB must provide a control that is continuously available to adjust the audio output volume of the TVB.	<p>The Bidder must illustrate the location of the audio output volume control on the TVB and describe its functions.</p> <p>Canada will verify that the Bid Sample TVB includes a functional audio output volume control which is continuously available to the user (e.g. rotary knob). The control will be used to lower and raise the audio output volume during TVB verification.</p>		
TVB-007	1	The TVB must provide a control that is continuously available to apply and remove power to the TVB.	<p>The Bidder must illustrate the location of the power control on the TVB and describe its functions.</p> <p>Canada will verify that the Bid Sample TVB includes a functional power control which is continuously available to the user (e.g. on/off switch). The control will be used to apply and remove power to the TVB.</p>		
TVB-008	1, 12	The TVB must include connectors only on the top and bottom faces of the TVB chassis when installed in its pouch. Connectors must be accessible for cable attachment when the TVB is in its pouch.	<p>The Bidder must provide diagrams of the TVB in its pouch with and without cables attached to each TVB connector. The diagrams must clearly show the location of connectors.</p> <p>Canada will use the Bid Sample to install the TVB in its pouch, verify the location of the TVB connectors, and verify the supplied cables can be installed and removed from the TVB in this configuration.</p>		

ID	Item	Requirement Statement	Information to Bidder	Bidder's Compliance	Bidder's Reference
TVB-009	1, 12	The TVB user must be able to access and handle the TVB controls when the TVB is installed in its pouch (e.g. power on/off, volume level control).	The Bidder must provide diagrams of the TVB in its pouch with and without cables attached to each TVB connector. The diagrams must clearly show the location of the various controls (e.g. power on/off, volume level control). Canada will use the Bid Sample to install the TVB in its pouch, attach the supplied cables, and verify the user can apply and remove power, and adjust the volume level, while the TVB is in this configuration.		
TVB-010	Size, Weight and Power				
TVB-011	1	The TVB must be limited to 120 mm in width, 115 mm in height, and 35 mm in depth.	The Bidder must provide the physical dimensions (width, depth and height) of the TVB, with diagrams and pictures. Canada will measure the width, depth and height of the Bid Sample TVB, and verify the physical dimensions meet the specified limit.		
TVB-012	1	The TVB without its battery set must have a maximum weight of 325 grams.	The Bidder must provide the weight of the TVB, without its battery set. Canada will weigh the Bid Sample TVB and verify it meets the specified limit.		
TVB-013	2 to 8, 9	The length of each cable provided with the TVB must be at least 125 cm.	The Bidder must provide the length of each cable provided with the TVB. Canada will measure the length of each cable provided with the Bid Sample TVB and verify it meets the specified limit.		
TVB-014	1	The TVB must include a commercially available and replaceable battery set to power the TVB.	The Bidder must identify the type and quantity of batteries required to power the TVB, and the battery replacement mechanism. Canada will verify that the Bid Sample TVB battery set can power the TVB. Canada will remove and re-install the TVB the battery set. Canada will verify that the TVB battery set is commercially available (e.g. AA, AAA).		
TVB-015	1	A single fully charged battery set must power the TVB for at least 24 continuous hours of normal operation.	The Bidder must prove a single TVB battery set meets the requirement, i.e. no battery replacement allowed.		

ID	Item	Requirement Statement	Information to Bidder	Bidder's Compliance	Bidder's Reference
TVB-016	1, 9	The TVB must operate normally from an alternating current (AC) power source with a voltage range of 100 to 240 VAC and a frequency range of 50 to 60 Hz. The TVB must include a NEMA 1-15P or 5-15P AC plug which fits into a standard Canadian AC power source (i.e. wall socket).	The Bidder must prove the TVB can be powered from the specified AC power source. Canada will power the Bid Sample TVB from a Canadian AC power source (i.e. wall socket) and verify operation.		
TVB-017	1, 9	The TVB must operate normally from a 12V direct current (DC) power source. The TVB must include a Cigarette Lighter Adapter (CLA) plug which fits into a standard Canadian vehicle.	The Bidder must prove the TVB can be powered from the specified DC power source. Canada will power the Bid Sample TVB from a standard Canadian vehicle Cigarette Lighter connector and verify operation.		
TVB-018	Bags and Pouch				
TVB-019	1, 12	The TVB Pouch must be able to securely carry the TVB.	The Bidder must provide documentation which shows the TVB Pouch can securely carry the TVB, with diagrams and pictures. Canada will install the TVB in the TVB Pouch as documented in the Bidder's proposal and verify that the TVB can be securely carried (e.g. walk, run, and crawl).		
TVB-020	1, 12	The TVB Pouch loaded with the TVB in the Operations State, must include the necessary straps and fastenings to securely mount on the soldier's back.	The Bidder must provide documentation which shows that the TVB Pouch loaded with the TVB can be securely mounted on the soldier's back, with diagrams and pictures. Canada will install the TVB in the TVB Pouch as documented in the Bidder's proposal and verify that the TVB in its Operations State can be securely mounted on the soldier's back and securely carried (e.g. walk, run, and crawl).		

ID	Item	Requirement Statement	Information to Bidder	Bidder's Compliance	Bidder's Reference
TVB-021	2 to 8, 10	The TVB Ancillaries Bag must be able to securely carry up to 10 TVB Radio Interface Leads (cables).	<p>The Bidder must provide documentation which shows the TVB Ancillaries Bag can securely carry up to 10 TVB Radio Interface Leads (cables), with diagrams and pictures.</p> <p>Canada will install 10 TVB Radio Interface Leads in the TVB Ancillaries Bag as documented in the Bidder's proposal and verify that the TVB Radio Interface Leads can be securely carried (e.g. walk, run).</p>		
TVB-022	9, 11	The TVB Power Ancillaries Bag must be able to securely carry all cables and adapters required to power the TVB from the specified external power sources.	<p>The Bidder must provide documentation which shows the TVB Power Ancillaries Bag can securely carry all cables and adapters required to power the TVB from the specified external power sources, with diagrams and pictures.</p> <p>Canada will install all cables and adapters required to power the TVB from the specified external power sources in the TVB Power Ancillaries Bag as documented in the Bidder's proposal and verify that the TVB power ancillaries can be securely carried (e.g. walk, run).</p>		
TVB-023	Non-Functional Requirements				
TVB-024	1	The TVB must have a predicted Mean Time Between Failures (MTBF) greater than 23000 hours of operation at 25°C.	The Bidder must prove that the MTBF of the TVB is greater than 23000 hours of operation at 25°C.		
TVB-025	1	The TVB must perform a Built-in-Test (BIT) upon applying power.	The Bidder must prove that the TVB performs a BIT upon applying power.		
TVB-026	1	The TVB user must be able to install and replace the TVB battery set without the use of tools.	<p>The Bidder must provide instructions for the installation and replacement of the TVB battery set.</p> <p>Canada will use instructions provided to install and replace the battery set to a Bid Sample TVB and verify that no tools are required.</p>		
TVB-027	1 to 9	The TVB user must be able to connect and disconnect cables on the TVB and on the specified radios without the use of tools.	<p>The Bidder must provide instructions for the connection and replacement of the cables on the TVB and the specified radios.</p> <p>Canada will use instructions provided to connect and disconnect cables to a Bid Sample TVB and the specified radios and verify that no tools are required.</p>		

ID	Item	Requirement Statement	Information to Bidder	Bidder's Compliance	Bidder's Reference
TVB-028	1	The exterior surface of the TVB must be coloured as non-reflective flat green or black (e.g. FED-STD-595C1 Black Camo #37030, Green 383 Camo #34094).	The Bidder must identify the exterior colour, finish and coating (e.g. colour code and properties) of the TVB. Canada will verify that the exterior color of the Bid Sample TVB is green or black, and that its finish and coating is non-reflective flat.		
TVB-029	2 to 9	The exterior surface of each cable and power adapter must be coloured as non-reflective flat black, grey, or green.	The Bidder must identify the colour, finish and coating of the TVB cables and power adapters. Canada will verify that the colour of the Bid Sample TVB cables and power adapters are black, grey, or green, and that their finish and coating is non-reflective flat.		
TVB-030	10 to 12	The exterior surface of the TVB pouch and ancillary bags must be predominantly coloured green (e.g. army green, camouflage green, CADPAT).	The Bidder must identify the exterior colour(s) of the TVB pouch and ancillary bags. Canada will verify that exterior surfaces of the Bid Sample TVB pouch and ancillary bags are predominantly coloured green or have a camouflage pattern with the colour green as the predominant colour.		
TVB-031	Environmental Conditions				
TVB-032	1	High Temperature - Storage: The TVB must operate normally following exposure to a high storage temperature of +71°C when tested in accordance with MIL-STD-810G1, Method 501.6, Procedure I, or equivalent test method.	The Bidder must provide a test report proving the requirement in accordance with MIL-STD-810G1 or equivalent. If not using MIL-STD-810G1, the test report must be accompanied with a comparison table of the methodology used against MIL-STD-810G1.		
TVB-033	1	High Temperature - Operation: The TVB must operate normally during and after exposure to a high temperature of +60°C when tested in accordance with MIL-STD-810G1, Method 501.6, Procedure II, or equivalent test method.	The Bidder must provide a test report proving the requirement in accordance with MIL-STD-810G1 or equivalent. If not using MIL-STD-810G1, the test report must be accompanied with a comparison table of the methodology used against MIL-STD-810G1.		

ID	Item	Requirement Statement	Information to Bidder	Bidder's Compliance	Bidder's Reference
TVB-034	1	Low Temperature - Storage: The TVB must operate normally following exposure to a low storage temperature of -51°C when tested in accordance with MIL-STD-810G1, Method 502.6, Procedure I, or equivalent test method.	The Bidder must provide a test report proving the requirement in accordance with MIL-STD-810G1 or equivalent. If not using MIL-STD-810G1, the test report must be accompanied with a comparison table of the methodology used against MIL-STD-810G1.		
TVB-035	1	Low Temperature - Operation: The TVB must operate normally during and after exposure to a low temperature of -25°C when tested in accordance with MIL-STD-810G1, Method 502.6, Procedure II, or equivalent test method.	The Bidder must provide a test report proving the requirement in accordance with MIL-STD-810G1 or equivalent. If not using MIL-STD-810G1, the test report must be accompanied with a comparison table of the methodology used against MIL-STD-810G1.		
TVB-036	1	Blowing Rain: The TVB must operate normally during and after a 30 minute exposure to 1.7 mm of rain per minute blowing at 18 metres per second (m/s) when tested in accordance with MIL-STD-810G1, Method 506.6, Procedure I, or equivalent test method.	The Bidder must provide a test report proving the requirement in accordance with MIL-STD-810G1 or equivalent. If not using MIL-STD-810G1, the test report must be accompanied with a comparison table of the methodology used against MIL-STD-810G1.		
TVB-037	1	Immersion: The TVB must operate normally following water immersion of one metre when tested in accordance with MIL-STD 810G1, Method 512.6, Procedure I, or equivalent test method.	The Bidder must provide a test report proving the requirement in accordance with MIL-STD-810G1 or equivalent. If not using MIL-STD-810G1, the test report must be accompanied with a comparison table of the methodology used against MIL-STD-810G1.		

ID	Item	Requirement Statement	Information to Bidder	Bidder's Compliance	Bidder's Reference
TVB-038	1	Shock - Transit Drop: The unpackaged TVB must operate normally following 26 drops of 122 cm in height on a 5 cm plywood backed by concrete when tested in accordance with MIL-STD-810G1, Method 516.7, Procedure IV, Table 516.7-VII, or equivalent test method.	The Bidder must provide a test report proving the requirement in accordance with MIL-STD-810G1 or equivalent. If not using MIL-STD-810G1, the test report must be accompanied with a comparison table of the methodology used against MIL-STD-810G1.		
TVB-039	Electromagnetic Interference and Compatibility				
TVB-040	1 to 8	The TVB must operate normally and withstand RF signals coupled onto the associated cabling in accordance with MIL-STD-461G test procedure CS114 (Conducted Susceptibility, bulk cable injection, 10 kHz to 200 MHz), or equivalent.	The Bidder must provide a test report proving the requirement in accordance with MIL-STD-461G or equivalent. If not using MIL-STD-461G the test report must be accompanied with a comparison table of the methodology used against MIL-STD-461G.		
TVB-041	1 to 8	The TVB must operate normally and withstand RF signals coupled onto the associated cabling in accordance with MIL-STD-461G test procedure CS115 (Conducted Susceptibility, bulk cable injection, 30 Nanosecond duration 5 Amps Peak Pulse, 30Hz), or equivalent.	The Bidder must provide a test report proving the requirement in accordance with MIL-STD-461G or equivalent. If not using MIL-STD-461G the test report must be accompanied with a comparison table of the methodology used against MIL-STD-461G.		

ID	Item	Requirement Statement	Information to Bidder	Bidder's Compliance	Bidder's Reference
TVB-042	1 to 8	The TVB must operate normally and withstand damped sinusoidal transients coupled onto the associated cables and power leads in accordance with MIL-STD-461G test procedure CS116 (Conducted Susceptibility, damped sinusoidal transients, cables and power leads, 10 kHz to 100 MHz), or equivalent.	The Bidder must provide a test report proving the requirement in accordance with MIL-STD-461G or equivalent. If not using MIL-STD-461G the test report must be accompanied with a comparison table of the methodology used against MIL-STD-461G.		
TVB-043	1 to 8	The TVB with its supplied cabling must operate normally and withstand electric fields in accordance with MIL-STD-461G test procedure RS103 (Radiated Susceptibility, electric field, 2 MHz–18 GHz) for Army Ground applications, or equivalent, as limited to an upper frequency limit of 10 GHz for Army applications.	The Bidder must provide a test report proving the requirement in accordance with MIL-STD-461G or equivalent. If not using MIL-STD-461G the test report must be accompanied with a comparison table of the methodology used against MIL-STD-461G.		
TVB-044	Electrostatic Discharge				
TVB-045	1	The TVB must meet Electrostatic Discharge (ESD) Human Body Model (HBM) requirements for 2000-3999 Volts as per MIL-STD-1686C, ESD HBM class 2 (2000-3999V), or equivalent.	The Bidder must provide a test report proving the requirement in accordance with MIL-STD-1686C or equivalent. If not using MIL-STD-1686C, the test report must be accompanied with a comparison table of the methodology used against MIL-STD-1686C.		

Filename: OTT_LSTL-#4728723-v1-W8476-185733_-
_ANNEX_C_EN_Matrix_
Directory: \\IMG-LSL-PV03059\ALAIN.M\$\Home\Documents
Template: C:\Users\alain.m\AppData\Roaming\Microsoft\Templates\Normal.
Dotm
Title: STATEMENT OF WORK
Subject:
Author: Yves Simoneau
Keywords:
Comments:
Creation Date: 02/10/2017 8:59:00 AM
Change Number: 5
Last Saved On: 02/10/2017 9:53:00 AM
Last Saved By: Tadvalkar.pm
Total Editing Time: 6 Minutes
Last Printed On: 09/11/2017 3:03:00 PM
As of Last Complete Printing
Number of Pages: 15
Number of Words: 3,645 (approx.)
Number of Characters: 20,777 (approx.)