



University of Ruhuna  
Wellamadama  
Matara

13.01.2022

The Manager,  
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**Invitation for Bids (IFB)**

**Contract: Supply, Delivery and Installation of Audio Visual Equipment for Faculty of Management & Finance, University of Ruhuna**

**IFB No - AHEAD/RA2/ELTA-ELSE/RUH/MGT/GOODS/2022/NS-179**

The Chairman, Department Procurement Committee on behalf of the University of Ruhuna invites sealed bid from you for **Supply, Delivery and Installation of Audio Visual Equipment for Faculty of Management & Finance, University of Ruhuna** indicated in the annexed bid document.

01. Bidding will be conducted through National Shopping method of procurement.
02. You may obtain further information if any from the **Deputy Director- Procurement (AHEAD Project)** Supplies Branch, University of Ruhuna, Wellamadama, Matara: (T.P 041- 2227027/ Fax No. 041 – 2227027)
03. Bids must be delivered by mail in sealed envelopes addressed to **Director/OTS, AHEAD Project-OTS Office, University of Ruhuna, Wellamadama, Matara** before **02.00 p.m. on January 27, 2022**. Late bids will be rejected.
04. This contract is subject to,
  - I. Providing of performance security of 10% of the total contract price in accordance with the format attached and issued with this in favor of the **Vice Chancellor**, University of Ruhuna.
  - II. Entering in to the formal agreement with the University of Ruhuna.

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Deputy Director/ Procurement-OTS,  
AHEAD Operation,  
University of Ruhuna,  
Wellamadama,  
Matara

**Mr. R. C. Ketipearachchi**  
Deputy Director - Procurement  
Operations Technical Secretariat  
AHEAD Project  
University of Ruhuna  
Wellamadama, Matara



**UNIVERSITY OF RUHUNA**

**PROCUREMENT OF GOODS UNDER  
NATIONAL SHOPPING PROCEDURES**

**INVITATION FOR QUOTATIONS  
FOR**

**Supply, Delivery, Installation, Commissioning and Testing of  
Audio Visual Equipment for  
Faculty of Management & Finance, University of Ruhuna**

**IFB No: AHEAD/RA2/ELTA-ELSE/RUH/MGT/GOODS/2022/NS-179**

**Mr. R. C. Ketiparachchi  
Deputy Director - Procurement  
Operations Technical Secretariat  
AHEAD Project  
University of Ruhuna  
Wellamadama, Matara**

## Section I. Instructions to Vendors (ITV)

<b>A: General</b>	
<b>1. Scope of Bid</b>	1.1 The Purchaser named in the Data Sheet invites you to submit a quotation for the supply of Goods as specified in Section III Schedule of Requirements.
<b>B: Contents of Documents</b>	
<b>2. Contents of Documents</b>	2.1 The documents consist of the Sections indicated below. <ul style="list-style-type: none"> <li>• Section I. Instructions to Vendors (ITV)</li> <li>• Section II. Data Sheet</li> <li>• Section III. Schedule of Requirements</li> <li>• Section IV. Technical Specifications &amp; Compliance with Specifications with price schedule</li> <li>• Section V. Quotation submission Form(s)</li> </ul>
<b>C: Preparation of Quotation</b>	
<b>3. Documents Comprising your Quotation</b>	3.1 The Quotation shall comprise the following: <ol style="list-style-type: none"> <li>(a) Quotation Submission Form and the Price Schedules;</li> <li>(b) Technical Specifications &amp; Compliance with Specifications</li> </ol>
<b>4. Quotation Submission Form and Price Schedules</b>	4.1 The vendor shall submit the Quotation Submission Form using the form furnished in Section V. This form must be completed without any alterations to its format, and no substitutes shall be accepted. All blank spaces shall be filled in with the information requested.  4.2 <b>Alternative offers shall not be considered. The vendors are advised not to quote different options for the same item but furnish the most competitive among the options available to the bidder.</b>
<b>5. Prices and Discounts</b>	5.1 Unless specifically stated in Data Sheet, all items must be priced separately in the Price Schedules.  5.2 The price to be quoted in the Quotation Submission Form shall be the total price of the Quotation, including any discounts offered.

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	<p>5.3 The applicable VAT shall be indicated separately.</p> <p>5.4 Prices quoted by the vendor shall be fixed during the vendor's performance of the Contract and not subject to variation on any account. A Quotation submitted with adjustable price shall be treated as nonresponsive and may be rejected.</p>
<b>6. Currency</b>	6.1 The vendors shall quote only in Sri Lanka Rupees.
<b>7. Documents to Establish the Conformity of the Goods</b>	<p>7.1 The vendor shall furnish as part of its quotation the documentary evidence that the Goods conform to the technical specifications and standards specified in Section IV, "Technical Specifications &amp; Compliance with Specifications".</p> <p>7.2 The documentary evidence may be in the form of literature, drawings or data, and shall consist of a detailed item by item description of the essential technical and performance characteristics of the Goods, demonstrating substantial responsiveness of the Goods to the technical specifications, and if applicable, a statement of deviations and exceptions to the provisions of the Technical Specifications given.</p> <p>7.3 If stated in the Data Sheet the vendor shall submit a certificate from the manufacturer to demonstrate that it has been duly authorized by the manufacturer or producer of the Goods to supply these Goods in Sri Lanka.</p>
<b>8. Period of Validity of quotation</b>	8.1 Quotations shall remain valid for the period of <b>sixty (60)</b> days after the quotation submission deadline date.
<b>9. Format and Signing of Quotation</b>	9.1 The quotation shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the vendor.
<b>D: Submission and Opening of Quotation</b>	
<b>10. Submission of Quotation</b>	<p>10.1 Vendors may submit their quotations by Registered post in sealed envelopes addressed to the Purchaser and bear the specific identification of the quotation number.</p> <p>10.2 If the quotation is not sealed and marked as required, the Purchaser will assume no responsibility for the misplacement or premature opening of the quotation.</p>
<b>11. Deadline for Submission of Quotation</b>	11.1 Quotation must be received by the Purchaser at the address set out in Section II, "Data Sheet", and not later than the date and time as specified in the Data Sheet.

**Mr. R. C. Ketipearachchi**  
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<b>12. Late Quotations</b>	12.1 The Purchaser shall reject any quotation that arrives after the deadline for submission of quotations, in accordance with ITV Clause 11.1 above.
<b>13. Opening of Quotations</b>	13.1 The Purchaser shall conduct the opening of quotation in public at the address, date and time specified in the Data Sheet. 13.2 A representative of the bidders may be present and mark his attendance.
<b>E: Evaluation and Comparison of Quotations</b>	
<b>14. Clarifications</b>	14.1 To assist in the examination, evaluation and comparison of the quotations, the Purchaser may, at its discretion, ask any vendor for a clarification of his quotation. Any clarification submitted by a vendor in respect to his quotation which is not in response to a request by the Purchaser shall not be considered. 14.2 The Purchaser's request for clarification and the response shall be in writing.
<b>15. Responsiveness of Quotations</b>	15.1 The Purchaser will determine the responsiveness of the quotation to the documents based on the contents of the quotation received. 15.2 If a quotation is evaluated as not substantially responsive to the documents issued, it may be rejected by the Purchaser.
<b>16. Evaluation of quotations</b>	16.1 The Purchaser shall evaluate each quotation that has been determined, to be substantially responsive. 16.2 To evaluate a quotation, the Purchaser may consider the following: (a) the Price as quoted; (b) price adjustment for correction of arithmetical errors; (c) price adjustment due to discounts offered. 16.3 The Purchaser's evaluation of a quotation may require the consideration of other factors, in addition to the Price quoted if stated in Section II, Data Sheet. These factors may be related to the characteristics, performance, and terms and conditions of purchase of the Goods.

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<b>17. Purchaser's Right to Accept any Quotation, and to Reject any or all Quotations</b>	17.1 The Purchaser reserves the right to accept or reject any quotation, and to annul the process and reject all quotations at any time prior to acceptance, without thereby incurring any liability to bidders.
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<b>F: Award of Contract</b>	
<b>18. Acceptance of the Quotation</b>	18.1 The Purchaser will accept the quotation of the vendor whose offer has been determined to be the lowest evaluated bid and is substantially responsive to the documents issued.
<b>19. Notification of acceptance</b>	19.1 Prior to the expiration of the period of validity of quotation, the Purchaser will notify the successful vendor, in writing, that his quotation has been accepted.
<b>20. Signing of Contract</b>	20.1 Within (14) days after notification, the Purchaser shall complete the Agreement, and in form the successful Bidder have to sign it. 20.2 Within fourteen (14) days of receipt of such information, the successful Bidder shall sign the Agreement.
<b>21. Performance Security.</b>	21.1 Within fourteen (14) days of the receipt of notification of award from the Purchaser, the successful Bidder is required furnish the Performance Security in accordance with the CC, using for that purpose the Performance Security Form included in Section VII contract forms, The Employer shall promptly notify the name of the winning Bidder to each unsuccessful Bidder and discharge the Bid Security of the unsuccessful bidders. 21.2 Failure of the successful Bidder to submit the above mentioned Performance Security or sign the contract shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid Security or execution of the Bid-Securing Declaration. In that event the Purchaser may award the Contract to the next lowest evaluated Bidder, whose offer is substantially responsive and is determined by the purchaser to be qualified to perform the contract satisfactorily.

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Operations Technical Secretariat  
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## Section II: Data Sheet

ITV Clause Reference	
1.1	The Purchaser is: <b>Vice Chancellor</b> Address : University of Ruhuna, Wellamadama Matara.
5.1	If the bidder is allowed to quote for lesser number of items than the total number of items specified, indicate the details.
7.3	Manufacturer's Authorization is required.
11.1	Address for submission of quotations is <b>Director/ OTS, AHEAD Project, University of Ruhuna, Wellamadama, Matara.</b> Deadline for submission of quotations is at 2.00 P.M. on <b>January 27, 2022</b>
13	The Quotations shall be opened at the following address: <b>AHEAD PROJECT, OTS-Office, University of Ruhuna, Wellamadama, Matara.</b>
16	Other factors that will be considered for evaluation are (List and describe the methodology):
<b>Additional Clause</b>	
17. Payment	Payment shall be made within eight weeks after receiving the invoice and other required documents to the Office for each item supplied.
19. Liquidated Damages	The supplier should deliver the items within the delivery period stipulated in the schedule of requirements. The supplier should make payment to the purchaser for <b>each week of delay in delivery, at the rate of 0.5% of the contract sum per each week of delay, up to a maximum of 10% of the contract sum.</b>
21. Performance Security	The supplier should forward performance security of 10% of the total contract price. This should be issued in favor the Vice Chancellor, university of Ruhuna, valid for a required period (which include the warranty period) from date of acceptance of the order. (Format is Attached )

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## Section III: Schedule of Requirements

Note:

1. Bidders a) Quote for all items.

2. All the items are evaluating as one package. The quotations which are not submitted as one package will be rejected.

Item No.	Brief Description of the Goods	Specification and Requirements	Quantity	Delivery Period	Bidder's offered Delivery Date
01	Digital Video Recorder	Annexure I	1	2 Weeks	
02	Camera Mount Condenser Microphone	Annexure II	2	2 Weeks	
03	Portable Audio recorder	Annexure III	1	2 Weeks	
04	Wireless Omni Lavalier Mic. System	Annexure IV	2	2 Weeks	
05	Plug – On Transmitter for Dynamic Mics.	Annexure V	2	2 Weeks	
06	Head mic with Cardioid Capsule for Wireless Systems	Annexure VI	4	2 Weeks	
07	Cardioid Handheld Dynamic Mic	Annexure VII	4	2 Weeks	
08	Camera – Mount Wireless Combo Mic	Annexure VIII	2	2 Weeks	
09	Active Antenna Splitter with DC Power	Annexure IX	2	2 Weeks	

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 Operations Technical Secretariat  
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10	Antenna Booster	Annexure X	2	2 Weeks	
11	Omnidirectional UHF Antenna	Annexure XI	2	2 Weeks	
12	PTZ Video Camera	Annexure XII	1	2 Weeks	
13	PTZ Camera Control Unit	Annexure XIII	01	2 Weeks	

**Place of Delivery:** Faculty of Management & Finance, University of Ruhuna, Wellamadama, Matara.

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Deputy Director - Procurement  
Operations Technical Secretariat  
AHEAD Project  
University of Ruhuna  
Wellamadama, Matara

## Section V

# Quotation Submission Form

[The Vendor shall fill in this Form in accordance with the instructions indicated. No alterations to its format shall be permitted and no substitutions will be accepted.]

Date:

To:.....

[insert complete name of Purchaser]

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the document issued;
- (b) We offer to supply in conformity with the documents issued and in accordance with the Delivery Schedules specified in the Schedule of Requirements, the following Goods [insert a brief description of the Goods];
- (c) The total price of our quotation including any discounts offered is: [insert the total quoted price in words and in figures];
- (d) Our quotation shall be valid for the period of time specified in ITV Sub-Clause 8.1, from the date fixed for the quotation submission deadline in accordance with ITV Sub-Clause 11.1, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (e) We understand that this quotation, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us.
- (f) We understand that you are not bound to accept the lowest evaluated quotation or any other quotation that you may receive.

Signed:.....

[insert signature of Person whose name and capacity are shown]

Name: .....

[insert complete name of person signing the Bid Submission Form]

Dated:

**Mr. R. C. Ketipearachchi**  
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Operations Technical Secretariat  
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## PRICE SCHEDULE –IV

**Contract: Supply, Delivery, Installation, Commissioning and Testing of Audio Visual Equipment for Faculty of Management & Finance, University of Ruhuna.**

**IFB No – AHEAD/RA2/ELTA-ELSE/RUH/MGT/GOODS/2022/NS-179**

Item No.	Description	Qty.	Unit Rate. (Without VAT) (Rs. & Cents)	VAT (Rs. & Cents)	Total Amount (With VAT) (Rs. & Cents)
01	Digital Video Recorder	1			
02	Camera Mount Condenser Microphone	2			
03	Portable Audio recorder	1			
04	Wireless Omni Lavalier Mic. System	2			
05	Plug – On Transmitter for Dynamic Mics.	2			
06	Head mic with Cardioid Capsule for Wireless Systems	4			
07	Cardioid Handheld Dynamic Mic	4			
08	Camera – Mount Wireless Combo Mic	2			
09	Active Antenna Splitter with DC Power	2			
10	Antenna Booster	2			

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 Deputy Director - Procurement  
 Operations Technical Services  
 AHEAD Project  
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11	Omnidirectional UHF Antenna	2		
12	PTZ Video Camera	1		
13	PTZ Camera Control Unit	1		

We agree to supply and delivery the above goods in accordance with the technical specifications for a total contract price of Rupees ..... (amount in figures) ( ..... amount in words) within the period specified in the Invitation for Quotations.

We also confirm that the warrantee/guarantee specified shall apply to the offered goods.

.....  
**Signature of the Bidder** ..... **Name of the Bidder** ..... **Date** .....

**Mr. R. C. Ketippearachchi**  
**Deputy Director - Procurement**  
**Operations Technical Secretariat**  
**AHEAD Project**  
**University of Ruhuna**  
**Wellamadama, Matara**

## 1) Technical Specifications for Digital Video Recorder – 01 NOS

Technical Specification		Bidder Response	
		Yes/No	Remarks
Make			
Model			
Country of Origin			
Country of Manufacture			
Video Input	SDI(3G/HD/SD) x1		
Video Output	HDMI(Type A) x1 SDI(3G/HD/SD) x2		
Loop Through	Should support loop throughout in SDI input		
Input Video Formats	720p50/720p59.94/720p60/1080i50/1080i59.94/1080p59.94/1080p50/1080p25		
Audio Inputs	Balanced mini XLR x 2		
Audio Outputs	Balanced mini XLR x 2		
Embedded Audio	SDI: 8-Channel HDMI: 8-Channel		
Video Recording Bit Rate	MPEG2 HD: 35/ 50/ 65/ 120Mbps 4:2:2 1920x1080/1280x720 MPEG2 SD: 15/ 30/ 50Mbps 4:2:2 720x480/720x576		
Audio Recording Format	Uncompressed 48KHz, 24-bit PCM		
Recording Media	2.5" Removable HDD/ SSD x 1		
Recording File System	NTFS		
Recording File Format	MOV, MXF		
Time Code	Should support time codes in and out		
Genlock	Should support both Black Burst & Tri-level with loop thru		
Data Protection	Content should be saved up to last second before a power failure happened		
Working Temperature/Humidity	0 °C ~ 40 °C		
Power	Compatible with 230V AC		

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Operations Technical Secretariat  
AHEAD Project  
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Vendor Qualification	The organization who bid for the tender should be an authorized service provider of quoted product line for at least More than 5 year and an authorized letter from principals to certify these should be attached.		
Warranty period	All-inclusive minimum 2 years comprehensive warranty is required		
Number of services	Please specify number of free services carried out per year during the period of warranty		
Warranty Agreement	A suitable replacement should be provided if repairing time for any breakdown period exceeds 72 hours during warranty.		
Condition of service agreement and fee after warranty	Please specify		
Availability of spare parts for minimum five years	Please specify		
Operational environmental conditions	Should function without any defect under the costal climate conditions prevailing in the university environment.		

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**2) Technical Specifications for Camera Mount Condenser Microphone – Nos. 02**

Technical Specification		Bidder Response	
		Yes/No	Remarks
Make			
Model			
Country of Origin			
Country of Manufacture			
Microphone Element	Condenser		
Polar Pattern	Cardioid		
Frequency Range	Stereo: 80 Hz to 20 kHz Mono: 70 Hz to 20 kHz		
Sensitivity	Stereo: Should not be higher less -32 dBV/pa Monaural: Should not be higher less -36 dBV/pa		
SNR	Should Not Be less than 70 dB		
Dynamic Range	100 dB, 1 kHz at Max SPL or more		
Phantom Power	DC 40 V to 52 V		
Output	XLR(Male)		
Vendor Qualification	The organization who bid for the tender should be an authorized service provider of quoted product line for more than 5 years and an authorized letter from principals to certify these should be attached.		
Warranty period	All-inclusive minimum 2 years comprehensive warranty is required		
Number of services	Please specify number of free services carried out per year during the period of warranty		
Warranty Agreement	A suitable replacement should be provided if repairing time for any breakdown period exceeds 72 hours during warranty.		
Condition of service agreement and fee after warranty	Please specify		
Availability of spare parts for minimum five years	Please specify		
Operational environmental conditions	Should function without any defect under the costal climate conditions prevailing in the university environment.		

## 3) Technical Specifications for Portable Audio Recorder - 01 NOS

Technical Specification	Bidder Response	
	Yes/No	Remarks
Make		
Model		
Country of Origin		
Country of Manufacture		
Inputs (Analog Audio)	2 x Combo XLR-1/4" TRS Balanced 1 x 3.5 mm TRS Unbalanced	
Inputs (Digital Audio)	1 x 3.5 mm AES3, AES/EBU, (S/PDIF)	
Outputs (Analog Audio)	3.5mm Stereo (Line Out) 3.5mm Stereo (Headphone Out) Built-in Speaker	
Control (I/O)	USB2.0 - Micro Type B 2.5mmTRS	
Recording Media	SD, SDHC, SDXC	
Recording formats	WAV: 44.1kHz/48kHz MP3: 44.1kHz/48kHz	
Bit Depth	16/24 bit	
Bit Rates	128 - 320kbps	
Signal Processing	Limiter, Auto gain	
Recording channels	2 channels (stereo)	
Display	Monochrome LCD (Backlit)	
Phantom Power	DC 24 V to 48 V (All Inputs)	
Power Options	Built-in lithium-ion rechargeable battery (3,950mAh) 2 x AA Batteries USB Power	
Working Temperature/Humidity	0 °C ~ 40 °C	

Mr. R. C. Ketippearachchi  
Deputy Director - Procurement  
Operations Technical Secretariat  
AHEAD Project  
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Wellisodama, Matara

Vendor Qualification	The organization who bid for the tender should be an authorized service provider of quoted product line for more than 5 years and an authorized letter from principals to certify these should be attached.		
Warranty period	All-inclusive minimum 2 years comprehensive warranty is required		
Number of services	Please specify number of free services carried out per year during the period of warranty		
Warranty Agreement	A suitable replacement should be provided if repairing time for any breakdown period exceeds 72 hours during warranty.		
Condition of service agreement and fee after warranty	Please specify		
Availability of spare parts for minimum five years	Please specify		
Operational environmental conditions	Should function without any defect under the costal climate conditions prevailing in the university environment.		

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**04) Technical Specifications for Wireless Omni Lavalier Microphone System (19" Rack Mount kit) - 02 NOS**

Technical Specification		Bidder Response	
		Yes/No	Remarks
Make			
Model			
Country of Origin			
Country of Manufacture			
<b>Wireless Receiver</b>			
Modulation Mode	Frequency Modulation (Wideband FM)		
Frequency range	A1: 470 to 516 MHz		
Nominal deviation	±24 kHz		
RF sensitivity	< 2.5 µV for 52 dBA eff S/N		
Squelch	low: 5 dBµV middle: 15 dBµV high: 25 dBµV		
THD, total harmonic distortion	≤ 0.9 %		
Antenna connector	2 BNC sockets		
Equalizer	Preset 1: Flat Preset 2: Low Cut (-3 dB at 180 Hz) Preset 3: Low Cut/High Boost (-3 dB at 180 Hz, +6 dB at 10 kHz) Preset 4: High Boost (+6 dB at 10 kHz)		
Current consumption	300 mA		
Dimensions	190 x 212 x 43 mm		
Weight	Approx. 980 g		
Temperature Range	-10 °C to +55 °C		
Audio output	6.3 mm jack socket (unbalanced): +12 dBu XLR socket (balanced): +18 dBu		
Receiver Principle	True diversity		
Signal-to-noise ratio	≥ 110 dBA		
Intermodulation attenuation	Typically, ≥ 65 dB		
Blocking	≥ 70 dB		
Switching bandwidth	up to 42 MHz		
Peak deviation	±48 kHz		

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Receiving frequency	Max. 1680 receiving frequencies, adjustable in 25 kHz steps 20 frequency banks, each with up to 12 factory-preset channels, no intermodulation 1 frequency bank with up to 12 programmable channels		
Power	Please specify		
<b>Body Pack Transmitter</b>			
RF output power	30 mW		
Switching bandwidth	up to 42 MHz		
Signal-to-noise ratio	≥ 110 dBA		
THD, total harmonic distortion	≤ 0.9 %		
Companor	HDX		
Input impedance	40 kΩ, unbalanced / 1 MΩ		
Current consumption	at nominal voltage: typ. 180 mA with transmitter switched off: ≤ 25 μA		
Power supply	2 AA batteries, 1.5 V or BA 2015 accupack		
Powering	3 V battery / 2.4 V rechargeable batter		
Operating time	Typically, 8 h		
Nominal deviation	±24 kHz		
Peak deviation	±48 kHz		
Max. Input voltage	3 V <sub>eff</sub>		
Transmission frequency	Max. 1680 transmitting frequencies, adjustable in 25 kHz steps 20 frequency banks, each with up to 12 factory-preset channels, no intermodulation 1 frequency bank with up to 12 programmable channels		
AF frequency response	Mic: 80 - 18,000, Hz Line: 25 - 18,000 Hz		
Temperature Range	-10 °C to +55 °C		
Frequency stability	≤ ±15 ppm		
<b>Lavalier Condenser Microphone</b>			
Transducer principle	pre-polarized condenser microphone		
Frequency response	50 to 18,000 Hz (ME 2-II)		
Output	4 Pin Locking Connector		
Cable Length	Minimum 1 m and maximum 1.6 m.		
Max. sound pressure level	130 dB		
Pick-up pattern	omni-directional		

Sensitivity in free field, no load (1kHz)	20 mV/Pa		
Equivalent noise level	36 dB		
Accessories	19" Rack mount kit for stationary evolution wireless receiver.		
in the Box	true diversity receiver bodypack transmitter clip-on microphone (ew 100 G4-ME2 set only) clip-on microphone (ew 100 G4-ME4 set only) rackmount set power supply 2 AA batteries 2 rod antennas RJ 10 cable		
Vendor Qualification	The organization who bid for the tender should be an authorized service provider of quoted product line for at least More than 5 year and an authorized letter from principals to certify these should be attached.		
Warranty period	All-inclusive minimum 2 years comprehensive warranty is required		
Number of services	Please specify number of free services carried out per year during the period of warranty		
Warranty Agreement	A suitable replacement should be provided if repairing time for any breakdown period exceeds 72 hours during warranty.		
Condition of service agreement and fee after warranty	3 years		
Availability of spare parts for minimum five years	Please specify		
Operational environmental conditions	Should function without any defect under the costal climate conditions prevailing in the university environment.		

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05) Technical Specifications for Plug-On Transmitter for Dynamic Microphones - 02 NOS

Technical Specification		Bidder Response	
		(Yes/No)	Remarks
Make			
Model			
Country of Origin			
Country of Manufacture			
<b>Plug-On Transmitter</b>			
Frequency range	A1: 470 to 516 MHz)		
Switching bandwidth	up to 42 MHz		
Modulation	Wideband FM		
RF output power	30 mW		
Signal-to-noise ratio	≥ 110 dBA		
THD, total harmonic distortion	≤ 0.9 %		
Compondor	HDX		
Input impedance	68 kΩ, unbalanced		
Current consumption	at nominal voltage: typ. 180 mA with transmitter switched off: ≤ 25 μA		
Power supply	AA batteries, 1.5 V or BA 2015 accupack		
Powering	3 V battery / 2.4 V rechargeable battery		
Operating time	Typically 8 h		
Nominal deviation	Please specify		
Peak deviation	Please specify		
Max. Input voltage	Please specify		
Transmission frequency	Max. 1680 transmitting frequencies, adjustable in 25 kHz steps 20 frequency banks, each with up to 12 factory-preset channels, no intermodulation 1 frequency bank with up to 12 programmable channels		
AF frequency response	80 - 18,000 Hz		
Temperature Range	- -10 °C to +55 °C		
Frequency stability	≤ ±15 ppm		
in the Box	plug-on transmitter 2 AA batteries		

Vendor Qualification	The organization who bid for the tender should be an authorized service provider of quoted product line for more than 5 years and an authorized letter from principals to certify these should be attached.		
Warranty period	All-inclusive minimum 2 years comprehensive warranty is required		
Number of services	Please specify number of free services carried out per year during the period of warranty		
Warranty Agreement	A suitable replacement should be provided if repairing time for any breakdown period exceeds 72 hours during warranty.		
Condition of service agreement and fee after warranty	Please specify		
Availability of spare parts for minimum five years	Please specify		
Operational environmental conditions	Should function without any defect under the costal climate conditions prevailing in the university environment.		

**Mr. R. C. Ketipearachchi**  
 Deputy Director - Procurement  
 Operations Technical Secretariat  
 AHEAD Project  
 University of Ruhuna  
 Wellamadama, Matara

**06) Technical Specifications Head mic with Cardioid Capsule for Wireless Systems - 04 NOS**

Technical Specification		Bidder Response	
		(Yes/No)	Remarks
Make			
Model			
Country of Origin			
Country of Manufacture			
Transducer principle	pre-polarized condenser microphone		
Sensitivity	1.6 mV/Pa		
Sound pressure level	150 dB SPL		
Pick-up pattern	cardioid		
Frequency response	50 to 18,000 Hz		
Connector	Please specify		
Cable length	Please specify		
Temperature range	10 °C to +55 °C		
Vendor Qualification	The organization who bid for the tender should be an authorized service provider of quoted product line for more than 5 years and an authorized letter from principals to certify these should be attached.		
Warranty period	All-inclusive minimum 2 years comprehensive warranty is required		
Number of services	Please specify number of free services carried out per year during the period of warranty		
Warranty Agreement	A suitable replacement should be provided if repairing time for any breakdown period exceeds 72 hours during warranty.		
Condition of service agreement and fee after warranty	Please specify		
Availability of spare parts for minimum five years	Please specify		
Operational environmental conditions	Should function without any defect under the costal climate conditions prevailing in the university environment.		

## 07) Technical Specifications for Cardioid Handheld Dynamic Microphone - 04 NOS

Technical Specification		Bidder Response	
		Yes/No	Remarks
Make			
Model			
Country of Origin			
Country of Manufacture			
Frequency response	40 - 16000 Hz		
Nominal impedance	350 $\Omega$		
Sensitivity in free field, no load (1kHz)	2,7 mV/Pa		
Min. terminating impedance	1000 $\Omega$		
Dimensions	$\emptyset$ 48 x 180 mm		
Weight	Please specify		
Weight w/o cable	Please specify		
Connector	XLR-3		
in the Box	1 Dynamic Microphone 1 microphone clip 1 pouch		
Accessories	Popp protection & Microphone Cable (10 M)		
Vendor Qualification	The organization who bid for the tender should be an authorized service provider of quoted product line for more than 5years and an authorized letter from principals to certify these should be attached.		
Warranty period	All-inclusive minimum 2 years comprehensive warranty is required		
Number of services	Please specify number of free services carried out per year during the period of warranty		
Warranty Agreement	A suitable replacement should be provided if repairing time for any breakdown period exceeds 72 hours during warranty.		
Condition of service agreement and fee after warranty	Please specify		
Availability of spare parts for minimum five years	Please specify		
Operational environmental conditions	Should function without any defect under the costal climate conditions prevailing in the university environment.		

Mr. R. C. Ketippearacheni  
Deputy Director - Procurement  
Operations Technical Secretary  
AHEAD Project  
University of Ruhuna  
Malimada

**08) Technical Specifications for Camera-Mount Wireless Combo Microphone System - 02 NOS**

Technical Specification		Bidder Response	
		(Yes/No)	Remarks
Make			
Model			
Country of Origin			
Country of Manufacture			
<b>Wireless Receiver</b>			
Modulation Mode	Frequency Modulation (Wideband FM)		
Frequency range	A: 516 - 558 MHz		
Nominal deviation	±24 kHz		
RF sensitivity	< 1.6 µV for 52 dBA eff S/N		
Squelch	low: 5 dBµV middle: 15 dBµV high: 25 dBµV		
Compandor	HDX		
THD, total harmonic distortion	≤ 0.9 %		
Adjacent channel rejection	≥ 65 dB		
Current consumption	Please specify		
Dimensions	Please specify		
Weight	Please specify		
Temperature Range	Please specify		
Audio output	Please specify		
Receiver Principle	Adaptive diversity		
Signal-to-noise ratio	≥ 110 dBA		
Switching bandwidth	up to 42 MHz		
Peak deviation	±48 kHz		
Receiving frequency	Max. 1680 receiving frequencies, adjustable in 25 kHz steps 20 frequency banks, each with up to 12 factory-preset channels, no intermodulation 1 frequency bank with up to 12 programmable channels		
Powering	3 V battery / 2.4 V rechargeable battery		
Power supply	AA batteries, 1.5 V or BA 2015 accupack		

<b>Body Pack Transmitter</b>			
RF output power	30 mW		
Modulation	Wideband FM		
Switching bandwidth	up to 42 MHz		
Signal-to-noise ratio	≥ 110 dBA		
THD, total harmonic distortion	≤ 0.9 %		
Compondor	HDX		
Input impedance	40 kΩ, unbalanced / 1 MΩ		
Current consumption	at nominal voltage: typ. 180 mA with transmitter switched off: ≤ 25 μA		
Power supply	AA batteries, 1.5 V or BA 2015 accupack		
Powering	3 V battery / 2.4 V rechargeable batter		
Operating time	Typically 8 h		
Nominal deviation	Please specify		
Peak deviation	Please specify		
Max. Input voltage	3 V <sub>eff</sub>		
Transmission frequency	Max. 1680 transmitting frequencies, adjustable in 25 kHz steps 20 frequency banks, each with up to 12 factory-preset channels, no intermodulation 1 frequency bank with up to 12 programmable channels		
AF frequency response	Mic: 80 - 18,000 Hz Line: 25 - 18,000 Hz		
Dimensions	Approx. 82 x 64 x 24 mm		
Temperature Range	Please specify		
Weight	Please specify		
Frequency stability	≤ ±15 ppm		
<b>Lavalier Condenser Microphone</b>			
Transducer principle	pre-polarized condenser microphone		
Frequency response	50 to 18,000 Hz		
Output	3.5 mm jack		
Cable Length	approx. 1.60 m		
Sensitivity in free field, no load (1kHz)	20 mV/Pa		
Pick-up pattern	omni-directional		
Equivalent noise level	36 dB		

Mr. R. C. Ketippearachchi  
Deputy Director - Procurement  
Operations Technical Secretariat  
AHEAD Project  
University of Ruhuna  
Maldam, Matara

**Mr. R. C. Kottippearachchi**  
**Deputy Director - Procurement**  
**Operations Technical Secretariat**  
**AHEAD Project**  
**University of Ruhuna**  
**Wellamadama, Matara**

in the Box	camera receiver bodypack transmitter plug-on transmitter clip-on microphone 6 AA batteries CA 2 camera adapter CL 1 3.5 mm jack cable CL 100 XLR to 3.5 mm jack adapter cable		
Vendor Qualification	The organization who bid for the tender should be an authorized service provider of quoted product line for more than 5years and an authorized letter from principals to certify these should be attached.		
Warranty period	All-inclusive minimum 2 years comprehensive warranty is required		
Number of services	Please specify number of free services carried out per year during the period of warranty		
Warranty Agreement	A suitable replacement should be provided if repairing time for any breakdown period exceeds 72 hours during warranty.		
Condition of service agreement and fee after warranty	Please specify		
Availability of spare parts for minimum five years	Please specify		
Operational environmental conditions	Should function without any defect under the costal climate conditions prevailing in the university environment.		

**09) Technical Specifications for Active Antenna Splitter with DC Power Distribution and NT 1-1  
Power Supply - 02 NOS**

Technical Specification		Bidder Response	
		Yes/No	Remarks
Make			
Model			
Country of Origin			
Country of Manufacture			
Impedance	50 $\Omega$		
Frequency range	470-870 MHz (UHF), 1785-1800 MHz (1G8)		
Antenna connector	BNC		
Power consumption	max. 2.0 A with connected receivers and boosters		
Power supply	13,8 V DC (with NT 1-1 mains unit)		
Operating relative humidity	Please specify		
Storage temperature	Please specify		
Operating temperature	Please specify		
Dimensions	Please specify		
Weight	Please specify		
in the Box	splitter 8x BNC cable 50cm 1-1 power supply		
Vendor Qualification	The organization who bid for the tender should be an authorized service provider of quoted product line for more than 5years and an authorized letter from principals to certify these should be attached.		
Warranty period	All-inclusive minimum 2 years comprehensive warranty is required		
Number of services	Please specify number of free services carried out per year during the period of warranty		
Warranty Agreement	A suitable replacement should be provided if repairing time for any breakdown period exceeds 72 hours during warranty.		
Condition of service agreement and fee after warranty	Please specify		
Availability of spare parts for minimum five years	Please specify		
Operational environmental conditions	Should function without any defect under the costal climate conditions prevailing in the university environment.		

**Mr. R. G. Ketipearachchi**  
 Deputy Director - Procurement  
 Operations Technical Secretariat  
 AHEAD Project  
 University of Ruhuna  
 Malamadama, Matara

**10) Technical Specifications for Antenna Booster - 02 NOS**

Technical Specification		Bidder Response	
		(Yes/No)	Remarks
Make			
Model			
Country of Origin			
Country of Manufacture			
Gain	approx. 12 dB		
Frequency range	+: 470-558 MHz		
Power supply	via antenna cable from ASA or EM		
Connector	BNC		
Dimensions	Please specify		
Weight	Please specify		
Vendor Qualification	The organization who bid for the tender should be an authorized service provider of quoted product line for more than 5years and an authorized letter from principals to certify these should be attached.		
Warranty period	All-inclusive minimum 2 years comprehensive warranty is required		
Number of services	Please specify number of free services carried out per year during the period of warranty		
Warranty Agreement	A suitable replacement should be provided if repairing time for any breakdown period exceeds 72 hours during warranty.		
Condition of service agreement and fee after warranty	Please specify		
Availability of spare parts for minimum five years	Please specify		
Operational environmental conditions	Should function without any defect under the costal climate conditions prevailing in the university environment.		

## 11) Technical Specifications for Omnidirectional UHF Antenna - 02 NOS

Technical Specification		Bidder Response	
		Yes/No	Remarks
Make			
Model			
Country of Origin			
Country of Manufacture			
Impedance	50 Ohm		
Frequency range	450 - 960 MHz		
Connector	BNC		
Pick-up pattern	omni-directional		
Apex angle (horizontal)	360°		
Deviation from circular radiation	< 3 dB		
Gain	0 dB		
input power	10 WDC		
input resistance	ax. $\geq 1 M\Omega$		
Ambient temperature	-20 °C - +80 °C		
Relative air humidity	max. 95% at 40 °C (non-condensing)		
Dimensions	Please specify		
Weight	(with booster) approx. 150 g		
Mounting connection	5/8" thread / adaptor to 3/8"		
Accessories	BNC/BNC co-axial cable. Antenna cable with 50 ohms impedance. 15m		
Vendor Qualification	The organization who bid for the tender should be an authorized service provider of quoted product line for more than 5 years and an authorized letter from principals to certify these should be attached.		
Warranty period	All-inclusive minimum 2 years comprehensive warranty is required		

Mr. R. C. Ketipearachchi  
Deputy Director - Procurement  
Operations Technical Secretariat  
AHEAD Project  
University of Ruhuna  
Mallamadama, Matara

Mr. R. C. Ketippearachchi  
Deputy Director - Procurement  
Operations Technical Secretariat  
AHEAD Project  
University of Ruhuna  
Wellamadama, Matara

Number of services	Please specify number of free services carried out per year during the period of warranty		
Warranty Agreement	A suitable replacement should be provided if repairing time for any breakdown period exceeds 72 hours during warranty.		
Condition of service agreement and fee after warranty	Please specify		
Availability of spare parts for minimum five years	Please specify		
Operational environmental conditions	Should function without any defect under the costal climate conditions prevailing in the university environment.		

## 12) Technical Specifications for PTZ Video Camera – 01 NOS

Technical Specification		Bidder Response	
		Yes/No	Remarks
Make			
Model			
Country of Origin			
Country of Manufacture			
Video Output	Should have at least 2 video outputs HDMI x1, SDI x1		
Video Formats	720p50Hz/720p59.94Hz/720p60Hz/1080i50Hz/1080i59.94Hz/1080p59.94Hz/1080p50Hz/1080p25Hz		
Control Protocols & Standards	DVIP, VISCA via RS-232C/RS-422 or Industry Standard. Please specify		
Image Sensor	Progressive scan CMOS sensor		
Zoom Ratio	Should support optical zooming no less than 30x		
Field of View	Should not be less than 50° wide end		
Pixels	2 Mega pixels or higher		
Illumination	Color: 0.4 lx or higher B/W: 0.03 lx or higher		
Focus	Should support both automatic and manual focusing		
Pan/Tilt Range	Panning: Should not be less than 270° Tilting: Should not be less than +90°		
Pan/Tilt Speed	Should not be less than 150° per second		
Camera Control	IR remote controller		
Tally LED	Built-in tally LED		
Iris Control	Should support both automatic and manual controlling		
White Balance	Should support both automatic and manual white balancing		
Gain Control	Should support both automatic and manual gain controlling		
Special features	Digital noise reduction IR control		

Mr. R. C. Ketipearachchi  
Deputy Director - Procurement  
Operations Technical Secretariat  
AHEAD Project  
University of Ruhuna  
Mallamadama, Matara

Working Temperature/ Humidity	0 °C ~ 40 °C		
Power	Compatible with 230V AC		
Vendor Qualification	The organization who bid for the tender should be an authorized service provider of quoted product line for more than 5 years and an authorized letter from principals to certify these should be attached.		
Warranty period	All-inclusive minimum 2 years comprehensive warranty is required		
Number of services	Please specify number of free services carried out per year during the period of warranty		
Warranty Agreement	A suitable replacement should be provided if repairing time for any breakdown period exceeds 72 hours during warranty.		
Condition of service agreement and fee after warranty	Please specify		
Availability of spare parts for minimum five years	Please specify		
Operational environmental conditions	Should function without any defect under the costal climate conditions prevailing in the university environment.		

### 13) Technical Specifications for PTZ Camera Control Unit – 01 NOS

Technical Specification		Bidder Response	
		Yes/No	Remarks
Make			
Model			
Country of Origin			
Country of Manufacture			
Maximum Camera Control	Controller should be able to control at least 4 cameras.		
Preset Positions	There should be at least 4 presets for 1 camera.		
Control Protocol	VISCA		
Special features	Joystick (Pan/Tilt/Zoom) Focus (Auto/Manual) Gain Control Iris (Auto/Manual) Motion Speed Control (at least 3 presets)		
Camera Connectivity	Point-to-Point (Cat6)		
Working Temperature/Humidity	0 °C ~ 40 °C		
Power	Compatible with 230V AC		
Vendor Qualification	The organization who bid for the tender should be an authorized service provider of quoted product line for at least More than 5 year and an authorized letter from principals to certify these should be attached.		
Warranty period	All-inclusive minimum 2 years comprehensive warranty is required		
Number of services	Please specify number of free services carried out per year during the period of warranty		
Warranty Agreement	A suitable replacement should be provided if repairing time for any breakdown period exceeds 72 hours during warranty.		
Condition of service agreement and fee after warranty	Please specify		
Availability of spare parts for minimum five years	Please specify		
Operational environmental conditions	Should function without any defect under the costal climate conditions prevailing in the university environment.		