Digi-Wave 400 Wireless Communication & Assistive Listening System

A. Furnish and install a digital spread-spectrum (DSS), simultaneous two-way wireless communication & assistive listening system for various scenarios such as guided tours, language interpretation, intercom or hearing assistance. The wireless assistive listening system (ALS) shall be capable of broadcasting via 2.4 GHz ISM band simultaneously on 15 channels to an unlimited number of listeners. The system shall be capable of transmitting radio signals by rapidly changing the carrier frequency (frequency-hopping) in order to avoid interference and to provide a secure method of communication. The system shall consist of at least one portable transceiver and various combinations of portable transceivers and receivers. The system shall be backward-compatible with manufacturer's predecessor models.

A1. Transceiver

The portable transmitter unit shall be capable of transmitting and receiving audio simultaneously on the 2.4 GHz ISM band. The device shall provide a 3.5 mm TRRS CTIA headphone jack that accepts a headset microphone or a microphone. The device shall provide a built-in microphone that shall be automatically disabled when headphone jack is engaged. The device shall have volume control buttons to adjust the headset's volume. The device shall incorporate further control buttons for setup and operation and a corresponding OLED display that indicates setup menu, operating mode, channel, time, battery status and signal strength. The device shall have a talk button to activate the built-in or external microphone and to broadcast the audio signal to other transceivers and receivers with a transmission range of up to 900 ft (274 m). The unit shall employ an 87-bit encryption for audio transmission with the ability of adding another 128+87-bit encryption layer that requires an encryption pin to be entered on the receiving devices. The device shall have a signal-to-noise ratio of 73dB (A-weighted) and shall have an audio frequency response of 100 Hz – 7.2 kHz, -3 dB in intercom mode and 100 Hz – 11.5 kHz in all other modes. The device shall have a THC (total harmonic distortion) of less than 0.1% @ 1 kHz. The device shall operate up to 16 hours with a built-in rechargeable Lithium-polymer battery and shall have a battery-saving sleep mode. The approximate battery charging time shall be 5 hours. The device shall provide a USB-C port for use with an USB charger as well as two charging contacts for use with a multi-slot charger. The device shall have the option of being lanyard worn.

A2. Receivers

The portable receiver units shall be capable of receiving audio that is broadcasted from transceiver units on the 2.4 GHz ISM band. The devices shall provide a 3.5 mm TRRS headphone jack that allows to connect a headset. The devices shall have volume control buttons to adjust the headset's volume. The devices shall incorporate further control buttons to access the setup menu, to power the device on and off, to select the channel and to enter the encryption PIN if necessary. The devices shall have an OLED display that indicates setup menu, operating mode, channel, time, battery status and signal strength.

a) Receiver with rechargeable Lithium-polymer Battery
The device shall have a signal-to-noise ratio of 73dB (A-weighted) and shall have an audio frequency response of 100 Hz – 7.2 kHz, -3 dB in intercom mode and 100 Hz – 11.5 kHz in other modes. The device shall have a THC (total harmonic distortion) of less than 0.1% @ 1 kHz. The device shall operate up to 32 hours with a built-in rechargeable Lithium-polymer battery and shall have a battery-saving sleep mode. The approximate battery charging time shall be 5 hours. The device shall provide a USB-C port for use with an USB charger as well as two charging contacts for use with a multi-slot charger. The device shall have the option of being lanyard worn.

b) Receiver with disposable Alkaline Batteries
The device shall have a signal-to-noise ratio of 74dB (A-weighted) and shall have an audio frequency response of 100 Hz – 7.3 kHz, -3 dB in intercom mode and 100 Hz – 11.2 kHz in other

modes. The device shall have a THC (total harmonic distortion) of less than 0.1% @ 1 kHz. The device shall operate up to 30 hours with 2 disposable AAA Alkaline batteries and shall have a battery-saving sleep mode. The device shall have the option of being lanyard worn.

A3. Operating Modes

a) Tour Operating Mode
When in tour mode, the system shall allow up to 2 people with transceiver master units to lead an unlimited group of people with receiver or transceiver units. The system shall be capable of setting the receivers to only listen to the leader(s) of the group. Alternatively, the tour mode allows up to 6 listeners with a transceiver unit to speak. The tour mode shall allow the master unit(s) to mute the microphones of the group.

b) Intercom Operating Mode
When in intercom mode, the system shall allow up to 6 people to talk to and hear one another simultaneously. When a 7th person desires to speak by pushing the talk button the system shall deactivate the talk button of the first person that turned their microphone on. The system shall continue the first-in-first-out order each time a person pushes their talk button who is not part of the speaking group.

c) Interpretation Mode
When in interpretation mode, the system shall allow to transmit audio from the main speaker with a transceiver unit to up to 14 interpreters with a transceiver unit. The interpreters shall be able to listen to the main speaker and broadcast their audio in different languages on channels 1-14 to an unlimited number of receiver units.

d) Hearing Assistance Mode
When in hearing assistance mode, the system shall amplify the spoken communication between users to allow the user to hear more clearly.

Williams AV, LLC products are specified.

B. Furnish and install the following:

1. Williams AV DLT 400 Digi-Wave 400 Digital Transceiver with rechargeable Lithium-polymer battery (Qty: 1ea.)
2. Williams AV DLR 400 RCH Digi-Wave 400 Digital Receiver with rechargeable Lithium-polymer battery (Qty: 1ea.)
3. Williams AV DLR 400 ALK Digi-Wave 400 Digital Receiver with disposable Alkaline batteries (Qty: 1ea.)
4. Williams AV DW ACC PAC4 Digi-Wave Single-unit power supply with USB-C cable for DLT 400 and DLR 400 (Qty: 1ea or as needed)
5. Williams AV DW CCS 061 Silicone skins with lanyard and wrist strap for DLR 400 ALK (Qty: 1ea. or as needed)
6. Williams AV DW CCS 061 Silicone skins with lanyard and wrist strap for DLT 400 and DLR 400 RCH (Qty: 1ea. or as needed)
7. Williams AV BAT 010-2 Two AAA Alkaline batteries for DLR 400 ALK (Qty: 1ea. or as needed)

8. Williams AV CHG 404 DW 4-Slot Charger for DLT 400 and DLR 400 RCH (Qty: 1ea. or as needed)
9. Williams AV CHG 408 DW 8-Slot Charger for DLT 400 and DLR 400 RCH (Qty: 1ea. or as needed)
10. Williams AV CHG 412 12-Slot Charger for DLT 400 and DLR 400 RCH (Qty: 1ea. or as needed)
11. Williams AV MIC 120 Rear-wear, unidirectional microphone for DLT 400 (Qty: 1ea. or as needed)
12. Williams AV MIC 144 Single headset microphone for DLT 400 (Qty: 1ea. or as needed)
13. Williams AV MIC 145 Dual headset microphone for DLT 400 (Qty: 1ea. or as needed)
14. Williams AV MIC 154 Cardioid lapel clip microphone for DLT 400 (Qty: 1ea. or as needed)
15. Williams AV MIC 157 Single-muff headset microphone for DLT 400 (Qty: 1ea. or as needed)
16. Williams AV MIC 158 Dual-muff headset microphone for DLT 400 (Qty: 1ea. or as needed)
17. Williams AV MIC 168 Heavy-duty, dual-muff headset microphone for DLT 400 (Qty: 1ea. or as needed)
18. Williams AV MIC 188 Dual-muff, hard-hat headset microphone for DLT 400 (Qty: 1ea. or as needed)
19. Williams AV MIC 190 Mini lapel clip omnidirectional microphone for DLT 400 (Qty: 1ea. or as needed)
20. Williams AV MIC 400 Unidirectional headband microphone for DLT 400 (Qty: 1ea. or as needed)
21. Williams AV EAR 022 Surround earphone for DLR 400 RCH and DLR 400 ALK (Qty: 1ea. or as needed)
22. Williams AV EAR 042 Dual, in-ear, isolation earphones for DLR 400 RCH and DLR 400 ALK (Qty: 1ea. or as needed)
23. Williams AV HED 021 Folding mono headphones for DLR 400 RCH and DLR 400 ALK (Qty: 1ea. or as needed)
24. Williams AV HED 026 Rear-wear mono headphones for DLR 400 RCH and DLR 400 ALK (Qty: 1ea. or as needed)
25. Williams AV HED 040 Hearing-protector, dual-muff stereo headphones for DLR 400 RCH and DLR 400 ALK (Qty: 1ea. or as needed)
26. Williams AV NKL 001 Neckloop 18” mono for use with hearing aids or cochlear implants for DLR 400 RCH and DLR 400 ALK (Qty: 1ea. or as needed)

Contact Williams AV for a quote:
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A&E Specs are available in Microsoft Word format. Call Williams AV.