REQUEST FOR QUOTATION (THIS IS NOT AN ORDER)	THIS RFQ [X] IS [ ] IS NOT A SMALL BUSINESS SET-ASIDE	PAGE 1 OF 5 PAGES

1. REQUEST NO.	2. DATE ISSUED	3. REQUISITION/PURCHASE REQUEST NO.	4. CERT. FOR NAT. DEF. UNDER BDSA REG. 2 AND/OR DMS REG. 1	RATING
BBG50-Q-15-0915MD	09/16/2015	T001-15-IQ-00082		

5a. ISSUED BY	6. DELIVER BY (Date)
Broadcasting Board of Governors, 330 Independence Ave., S.W. Washington, DC	02/15/2016

5b. FOR INFORMATION CALL (NO COLLECT CALLS)			7. DELIVERY
NAME	TELEPHONE NUMBER		[X] FOB DESTINATION [ ] OTHER (See Schedule)
	AREA CODE	NUMBER	9. DESTINATION
Malita M. Dyson (e-mail: mdyson@bbg.gov)	(202)	382-7204	a. NAME OF CONSIGNEE
8. TO:			Daniel Maxwell

a. NAME	b. COMPANY	b. STREET ADDRESS
All Prospective Offerors		330 Independence Ave., S.W.
c. STREET ADDRESS		c. CITY
		Washington
d. CITY	e. STATE / f. ZIP CODE	d. STATE / e. ZIP CODE
		DC / 20237

10. PLEASE FURNISH QUOTATIONS TO THE ISSUING OFFICE IN BLOCK 5a ON OR BEFORE CLOSE OF BUSINESS (Date)	IMPORTANT: This is a request for information and quotations furnished are not offers. If you are unable to quote, please so indicate on this form and return it to the address in Block 5a. This request does not commit the Government to pay any costs incurred in the preparation of the submission of this quotation or to contract for supplies or service. Supplies are of domestic origin unless otherwise indicated by quoter. Any representations and/or certifications attached to this Request for Quotation must be completed by the quoter.
09/26/15 4:00P	

11. SCHEDULE (Include applicable Federal, State and local taxes)

ITEM NO. (a)	SUPPLIES/ SERVICES (b)	QUANTITY (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)
1	The Broadcasting Board of Governors (BBG) Broadcast Technologies Division has a requirement for the development of software to allow reception of high frequency (HF) transmissions that are currently being broadcast by BBG. This will allow non-technical listeners to receive digital content of HF. See the attached Scope of Work. All responsible sources may submit a response which, if timely received, will be considered by the Agency. Submit responses to Contract Specialist Malita Dyson via email at mdyson@bbg.gov by the due date indicated in Block #10 of this Request for Quotation (RFQ).	1	SV		

12. DISCOUNT FOR PROMPT PAYMENT	a. 10 CALENDAR DAYS (%)	b. 20 CALENDAR DAYS (%)	c. 30 CALENDAR DAYS (%)	d. CALENDAR DAYS NUMBER	d. CALENDAR DAYS PERCENTAGE

NOTE: Additional provisions and representations [ ] are [ ] are not attached.

13. NAME AND ADDRESS OF QUOTER	14. SIGNATURE OF PERSON AUTHORIZED TO SIGN QUOTATION	15. DATE OF QUOTATION
a. NAME OF QUOTER		
b. STREET ADDRESS	16. SIGNER	
	a. NAME (Type or print)	b. TELEPHONE AREA CODE
c. COUNTY		
d. CITY / e. STATE / f. ZIP CODE	c. TITLE (Type or print)	NUMBER

Statement of Work

Software Application for Decoding Digital Data in an Audio Signal

1. Purpose

BBG has a requirement for a software application for decoding digital data in an analog audio signal. This software will be paid for by the BBG and distributed free of charge around the world for its shortwave listening community. To prevent misinformation about what the software is actually doing, BBG intends to release the source code to the public, when requested. The BBG is presently airing test programs via shortwave from Greenville, North Carolina. Further information may be found at http://voaradiogram.net This procurement is for the development and delivery of a user friendly software application that can be used by non-technical listeners to decode these transmissions.

2. Description of Work to be Performed

The contractor shall develop a software application to decode the specified digital transmissions. The software shall be capable of operating on multiple operating systems and shall be user friendly (for a non-technical person) to install and operate. The software will provide real time decoding on the screen and save the received data as digital files for later retrieval.

2.1 Operating System

The software shall be capable of running on Windows (XP and newer) and Android (4.1 and newer) operating systems.

2.2 Audio Coupling

The audio shall be ingested by connecting the earphone jack or other audio output of a shortwave receiver to the audio input of the computer. The ability to acoustically couple to the receiver by way of any built in microphone ("acoustic coupling") shall also be supported.

2.3 Installation

The software shall be easily installed by the end user. Ideally, the end user will not need administrator privileges in install the software.

2.4 Help Files

The software will include help files to assist the end user in operation.

2.5 Operation

The software will operate with a minimum of user required settings or intervention. It must be usable by a non-technical user.

3. Specifications

3.1 ANALOG SIGNAL CHARACTERISTICS:

1. Baseband audio: 100Hz to 3KHz
    a. The analog signal is contained within the audio baseband up to around 5 kHz or the limit of the shortwave receiver's demodulated audio output. The shortwave broadcast will be standard Amplitude Modulation (AM).
2. Contains industry standard codecs: MFSK32, MFSK16, (reference 3.3.5.d below)…:
    a. The baseband audio stream or file contains digital information embedded within as data described by codecs such as MFSK32 or MFSK16.
3. Contains markers or metadata to describe the codec being used such as the Reed Solomon Identifier (RSID).
4. Information flows through a narrow bandwidth in the audio band and as a result the digital codecs are limited by audio bandwidth and quality.

3.2 TIME REQUIREMENTS:

1. Real Time decoding:
    a. The digital data found in the demodulated audio should be displayed in real time through either on screen visualization or "busy indicators" in case the entire file needs to come across.
2. On Demand decoding:
    a. The audio file may also be opened from the end user's computer or other storage medium to decode and view the digital data at a future date in time with the option to run in the silent mode, storing all data to a directory on the host device.

3.3 SOFTWARE REQUIREMENTS:

1. Minimal User Interface:
    a. The application should be simple to use with minimal user technical knowledge or setup. It should be intuitive and visually appealing.
    b. Touch friendly for use with a mobile platform such as a tablet, smartphone, or notebook.
2. Ease of Use:
    a. The application should be easy to start, end, and save sessions.
3. "Plug and Play":
    a. The application should be ready to work upon initial start.
    b. The application should be set up to use default hardware settings of the host platform.
        i. Line In or microphone input.
        ii. User default document locations
        iii. User security conditions generally accepted by users worldwide (not security policies nor needing administrative privileges).
4. Globalization:

a. The application should employ globalization in several global languages such as English, Mandarin, Korean, etc. The UTF-8 character set shall be used.

5. Functionality:
    a. Display:
        i. Display data as it is received with continuous vertical scrolling down the page until the end of transmission. MFSK images shall be supported as well.
        ii. For advanced users, or for debugging the app, the contractor *may* include a digital waterfall display showing the received spectrum that is viewable from a secondary screen. This provides visual feedback for the quality of the data received.
    b. Robust error correction:
        i. The software application should be robust enough to handle marginal signals containing noise and should utilize error correction such as Reed Solomon error correction and filtering as appropriate.
        ii. The application must be robust enough that it enables non-real time second or third pass analysis to improve on filtering and post-processing. If the signal is too noisy, a notification is posted to indicate status with options present to the user for retrying then or retrying after the transmission is complete.
    c. Data Cache and Storage:
        i. If possible, data should be cached locally in case of power failure.
        ii. User may save the session from beginning to end or current point in time.
    d. Codec switching automatic:
        i. The BBG has selected the MFSK16, MFSK32, MFSK64, MFSK128, Olivia 32-2000 and Olivia 64-2000 modes for use in this software. The codec used during the transmission may be displayed with visual indicators to the user if they prefer but must not require interaction. The application switches automatically to the transmitted codec and center frequency based on metadata, such as the Reed Solomon Identifier, RSID, received in advance of the block of audio.
    e. End result may be saved as a HTML page and links in the same folder or text file, depending on the material being transmitted.
    f. Codec upgradable:
        i. Codecs used in the application will need to be modularized and upgradable.
        ii. The application will contain notifications when new codecs are available and the user presented with a link to install the plugins using something like modern web browsers use for plugins.
    g. Application easily updateable:
        i. The application should be installed and upgraded either over the internet or through a file in local storage.
        ii. The application download and upgrade should not require administrative privileges.

4. Warranty and Support

4.1 The contractor shall provide to the Government for a period of one year after receipt of the final deliverables, at no additional cost, "bug fixes" and corrections for programming errors. During this one year period, the contractor shall also supply up to 40 hours of product technical support to the Government.

5. Deliverables

5.1 Initial concept and graphical user interface (GUI) design

The contractor shall provide to the Government a description of the initial concept design including a description of the concept of operation, flow charts, proposed supported platforms, development language, and at least a mockup of the GUI. The Government shall have at least ten business days to comment on the proposed designs.

5.2 Beta test version

When initial coding is complete and functional, the contractor shall supply the Government with a working version of the software for evaluation and comment. The Government shall have at least thirty business days to evaluate the operation of the software and to provide comments.

5.3 Final Deliverable

Upon completion, the contractor shall provide working software and distribution packages, including installation and help files, for all supported platforms, written documentation of the installation and operation of the software, and complete source code for all versions. ALL DELIVERABLES, INCLUDING SOURCE CODE, BECOME THE PROPERTY OF THE GOVERNMENT AND MAY BE PUBLICLY RELEASED, AT THE DISCRETION OF THE GOVERNMENT. THE CONTRACTOR RETAINS NO PROPRIETARY RIGHTS TO THE MATERIAL PRODUCED UNDER THIS CONTRACT.

5.4 Transmission of Deliverables

All deliverables shall be submitted to:

Daniel Maxwell
Broadcasting Board of Governors
330 Independence Ave. SW, Room #4077C
Washington, DC 20237

5.5 Period of Performance

To begin no later than September 30, 2015 to February 15, 2016.