Voice Communication Control System Specification

For

CWP Tungmahamek

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1. INTRODUCTION

This document provides a functional and technical specification which sets out the requirements of Aeronautical Radio of Thailand Ltd. (AEROTHAI) in the Kingdom of Thailand for Voice Communication Control System (VCCS) of TMCS (Thailand Modernization CNS/ATM Systems). The VCCS shall consist of 17 working positions and 4 Server modules which shall be installed to support future position expansion of VCCS MOPS and Fallback systems at Tungmahamek. These 17 working positions shall completely be interfaced and fully operate with VCCS MOPS and Fallback central equipment and the existing working positions under the processing of central equipment.

2. WORKING POSITION

2.1 General

2.1.1 The working position shall consist of at least touch screen panel, foot push to talk (PTT) switch, loudspeakers, headset/handset access and headset/handset.

2.1.2 All the working positions shall be able to interface all radio lines and telephone lines.

2.1.3 Each working position shall be able to communicate with another working position by selecting a button on the panel and be directly connected to the predetermined working position (Intercom).

2.1.4 The Tenderer shall provide Short Time (or Term) Recording function on the panel for each working position.

2.1.5 The Short Time (or Term) Recording function shall have a minimum duration of at least 60 minutes (60 minutes Radio and Telephone) for each working position.

2.1.6 According to ICAO ANNEX11, each VCCS workstation facility should be equipped with ambient noise recording facility, capable of retaining the information recorded during at least the last twenty-four hours of operation.

2.2 Touch Screen

2.2.1 The touch screen size shall not be less than 12.1 inches TFT-display with a resolution of at least 800x600 pixels associated with a touch-input device (TID).

2.2.2 The touch screen shall be a single unit with its own processor included and not require any external personal computer hardware.

2.2.3 Each access facility of touch screen shall consist of a button with facility label.

2.2.4 The touch screen shall be supported with a telephone button group (for G/G communications) and a radio button group (for A/G communications).

2.2.5 The touch screen shall give the status of radio channels and telephone lines, i.e. "busy state" , "call in" etc.

2.2.6 The telephone button group shall be integrated to some extent general control functions like conference, hold, etc.

2.2.7 To establish a dialled telephone connection, a dial pad shall be available.

2.2.8 The touch screen shall enable access to at least 8 radio frequencies simultaneous for transmission and reception by way of loudspeaker or headset/handset or both.

2.2.9 The frequency allocated to a radio channel shall be indicated with 6 digits plus decimal points (e.g. "119.075") or any other letter indicating the station symbol.

2.2.10 The RX button and TX button of radio frequency shall be provided.

2.2.11 The RX button shall be associated with each frequency assigned to the touch screen of working position.

2.2.12 By selecting the RX button on the radio button touch screen, the allocated radio channel shall be activated for the reception.

2.2.13 The TX button shall be associated with each frequency assigned to the touch screen of working position.

2.2.14 By selecting the TX button on the radio button touch screen, the allocated radio channel shall be selectable for the transmission.

2.2.15 Telephone communication access shall be activated via the telephone button.

2.2.16 Telephone button shall consist of Direct Access telephone button (DA) and Indirect Access telephone button (IA) functions.

2.2.17 Function button shall be separately provided from the Telephone button such as hold, conference, etc.

2.3 Headset/Handset

2.3.1 Both radio and telephone communications shall be operated via headsets or handsets.

2.3.2 The headset/handset accesses shall be provided by the Tenderer.

2.3.3 Socket pins assignment of the headsets or handsets at the working positions shall be provided at a minimum for microphone, ear-cap and PTT switch. One panel shall be 2 connectors for Controller and Instructor.

2.3.4 The instructor facility shall override both microphone and PTT of the controller.

2.3.5 The controller and the instructor ear-cap shall be permitted independent volume adjustment.

2.3.6 With the volume control in minimum position, the audio level shall be adjustable remain sufficient for monitoring purpose.

2.3.7 17 headsets and 17 handsets with handset holders shall be provided.

2.4. Loudspeakers

2.4.1 There shall be 2 loudspeakers on each working position, one for radio and the other one for telephone.

2.4.2 The loudspeaker audio level shall be adjustable by the volume control.

2.4.3 With the volume control in a minimum position, the audio level shall be adjustable remain sufficient for monitoring purpose.

2.5. Radio Part

2.5.1 The select or deselect any radio frequency shall be accessed via radio button assigned to the working position for transmission and/or reception.

2.5.2 The presence of a received voice signal from the receivers shall be indicated (Squelch Indication).

2.5.3 The main and standby channels of radio transmitter shall be interlocked that only one of the channels will transmit at a time even though both channels have been inadvertently selected by the controller.

2.5.4 The radio transmission shall be activated when the operator push the PTT switch (Headset PTT switch or Handset PTT switch or Foot PTT switch).

2.5.5 When more than one radio channels are selected, the operator shall be able to transmit in the same time on all these channels by only pushing the PTT switch.

2.5.6 The radio shall provide the automatic muting the receiver when the transmitter is transmitting.

2.5.7 The radio frequency monitor shall enable any working position to monitor all radio traffic on channels that are available at the working position, even if they have been selected at other working positions.

2.5.8 The system shall be capable of interfacing with the digital transmission E1 format and VoIP

2.5.9 The VCCS shall provide Receiver Voting function (Best Signal Selection), which will automatically select a receiver with the best quality of signal within a group of minimum 6 receivers. And each signal shall be adjustable delay time up to 1,000 ms.

2.5.10 The best quality of signal will be selected by the evaluation of signal-to-noise ratio for analog and E1/VOIP.

2.5.11 While the Receiver Voting function is in operation the operators may manually select a receiver of their choice.

2.5.12 The VCCS shall provide Automatic Transmitter Selection function when it is working together with Receiver Voting function.

2.5.13 While the Automatic Transmitter Selection function is in operation the operators may switch to manual selection whenever needed.

2.6 Telephone Part

2.6.1 When selecting a single DA, a connection shall be established to a predetermined destination.

2.6.2 The identity of the IA caller shall be displayed on the panel.

2.6.3 After establishing a DA and IA connection and prior to the acceptance of the call by the called terminal, a ring-back tone shall be sent to the calling user.

2.6.4 The Hold function shall be available for both DA and IA. (This function will enable a user to have more than one incoming or outgoing call set up simultaneously from a working position, but will only allow one call to be connected to the headset/handset at any one time.)

2.6.5 The Conference function shall be available for both DA and IA. (This function will enable a user to interconnect a number of working positions and/or lines of varying types, allowing full speech facilities to all connected parties. There will be a Conference button available, and it will be possible to initiate a conference independent of whether the first call is incoming or outgoing.)

2.6.6 The Transfer function shall be available for both DA and IA. (This function will enable any call made or received at a working position to be manually redirected to any other party.)

2.6.7 All incoming call of the telephone lines shall be disable/enable to announce by means of signaling tone from a buzzer.

2.6.8 It shall be able to switch off the signaling tone, but a visual indication "buzzer off" on the allocated button is necessary.

2.6.9 It shall be possible to make adjustable the signaling tone level.

3. POWER SUPPLY

3.1 The working position and server modules shall be able to interface with the existing power supply at the VCCS workstations and the central equipment.

3.2 The input power has two sources, AC/AC or AC/DC or DC/DC power. In the event of a power source failure, all the working positions shall automatically switch over to another power source without any interruption to the operation of the VCCS systems.

4. Location

4.1 The locations of working positions are as follow :

(a) 14 working positions shall be installed in BACC/BAPC room on 8th Floor of the Sixty Years Building.

(b) 3 positions shall be installed in AMC room on 3th Floor of the Sixty Years Building.

(c) 4 Server modules shall be installed at the central equipment of VCCS MOPS and Fallback which are located at 2nd and 8th floor of the Sixty Years Building.

5. SYSTEM INTERCONNECTION

5.1 Interconnections between the working positions and the VCCS central equipment, as well as between the VCCS central equipment shall be provided.

5.2 The input/output of any received/transmitted voice signal from/to incoming/outgoing working position of both telephone and radio communication shall be available for recording to the provided voice recorder (Position Record)

5.3 The position ambient noise shall be available for recording on the provided voice recorder (Ambient Record)

5.4 All cables on item 5.1 and other accessories/tools using to connect recorded signal on item 5.2 and 5.3 to the voice recorder shall be provided by the Tenderer.

6. ENVIRONMENTAL CONDITIONS

6.1 The VCCS equipment shall be able to operate in a controlled environment of approximately 10-40 °C and relative humidity of up to 70%.

7. INITIAL SPARE CARDS (OR MODULES)

7.1 The Tenderer shall provide initial spare parts for at least 10% of each type of cards/modules of the system.

7.2 If 10% of the initial spare parts are less than 1 unit, the Tenderer shall round up such initial spare parts to 1 unit.

7.3 The Tenderer shall propose itemized lists of the initial spare parts including the quantity suggested for each spare part against the total quantity of each in use in the system in accordance with the following format ONLY.

Initial Spare Parts					
Item No	Description	Part Number	Vendor	Qty in use	Qty as Spare