Voice Communication Control System Specification

For

Suvarnabhumi Airport

Table of Contents

1. INTRODUCTION.....3
2. GENERAL.....3
3. WORKING POSITION.....3
3.1 General.....3
3.2 Touch Screen.....4
3.3 Headset/Handset.....4
3.4 Loudspeakers.....5
4. VCCS CENTRAL EQUIPMENT.....5
4.1 Radio Part.....5
4.2 Telephone Part.....6
4.3 Power Supply.....7
5. SYSTEM INTERCONNECTION.....7
6. TECHNICAL CONTROL UNIT (TCU) 7
7. VOICE RECORDING.....9
8. SYSTEM CAPACITY.....9
9. ENVIRONMENTAL CONDITIONS.....10
10. TECHNICAL MANUAL.....10
11. TRAINING.....10
12. INITIAL SPARE CARDS (or MODULES).....10

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) to be installed at Suvarnabhumi Airport.

2. **GENERAL**

2.1 A computer-based VCCS shall be required for controlling (switching) and interfacing the intra-facility, and inter-facility voice communications used in the ATC operation (Detail as per Appendix 1: Suvarnabhumi Airport VCCS simplify diagram).

2.2 The voice communications employed in the Air Traffic Control comprise the air-to-ground VHF and UHF radio telephony as well as telephone communications. The VCCS central equipment shall be functionally separated into different modules.

2.3 The design shall allow the expansion of the system capacity by addition of units or modules.

2.4 The VCCS architecture shall be capable that there are a sufficient number of simultaneous voice paths to carry the maximum offered voice traffic.

3. WORKING POSITION

3.1 General

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

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

3.1.3 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).

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

3.1.5 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.

3.1.6 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.

3.2 Touch Screen

3.2.1 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).

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

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

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

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

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

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

3.2.8 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.

3.2.9 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.

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

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

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

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

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

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

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

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

3.3 Headset/Handset

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

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

3.3.3 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.

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

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

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

3.3.7 26 headsets and 26 handsets with handset holders shall be provided.

3.4. Loudspeakers

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

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

4. VCCS CENTRAL EQUIPMENT

4.1. Radio Part

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

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

4.1.3 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.

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

4.1.5 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.

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

4.1.7 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.

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

4.1.9 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 upto 1,000 ms.

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

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

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

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

4.1.14 Faulty module(s) shall be immediately identified by the alarm indicator.

4.1.15 For safety reasons at maximum 2 radio channels shall be connected to one radio line interface module.

4.2 Telephone Part

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

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

4.2.3 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.

4.2.4 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.)

4.2.5 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.)

4.2.6 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.)

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

4.2.8 Faulty module(s) shall be immediately identified by the alarm indicator.

4.2.9 The system shall be capable of interfacing with the VoIP (Voice over IP) telephony system and shall be connected to existing telephone via VoIP.

4.2.10 For safety reasons at maximum 2 telephone lines shall be connected to one telephone module.

4.3 Power Supply

4.3.1 Power supply of the central racks is fed from 3 sources, 2 AC and 1 DC.

4.3.2 A duplicated power supply shall be offered which will interface with a 210 – 230 Vac 50 - 60 Hz (ac power).

4.3.3 Each unit of the duplicated power supply shall have the capacity to feed the complete system.

4.3.4 The dc power system shall be provided by the tenderer with the capacity of at least 4 hours for both the VCCS central equipment and working positions.

4.3.5 In the event of both ac power failures, all the systems shall automatically switch over to a dc power supply without any interruption to the operation of the systems.

4.3.6 The input power of VCCS workstation facilities such as TED panel and interfacing communication equipments in Operation Rooms have two sources, AC/AC or AC/DC or DC/DC power. In the event of a power source failure, all the systems will automatically switch over to another power source without any interruption to the operation of the systems. The DC input power system has the capacity to feed all of VCCS workstation facilities for a minimum of 4 hours without any interruption to the operation of the systems.

5. SYSTEM INTERCONNECTION

5.1 The VCCS central equipment shall directly be interfaced with a main distribution frame : MDF (to be provided by Tenderer) where all necessary communications, as specified on Paragraph 4.1 and 4.2, are connected.

5.2 Lightning protection shall be provided for all radio and telephone lines at the MDF.

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

5.4 The Tenderer shall be required to connect existing radio and telephone lines to the proposed systems and such connection be performed at a time advised by AEROTHAI.

6. TECHNICAL CONTROL UNIT (TCU)

6.1 The TCU shall be used for monitoring and configuration of the VCCS central equipment.

6.2 The TCU shall be installed with the VCCS central equipment in equipment rooms.

6.3 The TCU shall be at least equipped with a display, a keyboard, a mouse, a loading device, a color laser printer and software.

6.4 The TCU shall be equipped statistical package data for recorded traffic load on individual controller positions, telephone lines, radio channels.

6.5 The TCU software shall include facilities to record an event logging.

6.6 The TCU software shall be possible to extract the activity and event logging from the system in a suitable industry standard format without any way affecting the operational service.

6.7 All configuration data in the VCCS central equipment and TCU shall not disappear when the VCCS central equipment was turn off.

6.8 When the TCU application program is started up, the operator shall enter his/her login name and a password.

6.9 For security reason, the capability shall be provided for assigning difference access rights and level of access to the system and its database, based on the required function of the authorized.

6.10 The access right functions shall support the creation/update/modification of the access code for new or existing users.

6.11 Reconfiguration of the assigned radio channels for each working position shall be possible from the TCU.

6.12 Reconfiguration of the assigned frequency for a radio channel shall be possible from the TCU.

6.13 Reconfiguration of the assigned telephone channels for each working position shall be possible from the TCU.

6.14 Reconfiguration of telephone button assignments shall be possible from the TCU.

6.15 Reconfiguration of the telephone numbers of lines shall be possible from the TCU.

6.16 Reconfiguration for the adding/deleting for new working positions shall be possible from the TCU (Not exceed maximum capacity).

6.17 To make an online reconfiguration, different configurations shall be pre-programmed and called up from the TCU by way of menus.

6.18 The TCU shall raise an alarm, when malfunction of VCCS is detected.

6.19 If a malfunction of the VCCS is detected, an alarm shall be activated in both visual and audible on the TCU.

6.20 The failure message shall particularly contain at least type of failures, time of failures and equipment involved.

6.21 The VCCS equipment shall be accompanied with all VCCS licence software CDs.

7. VOICE RECORDING

7.1 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)

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

7.3 Telephone/radio interfaces shall be available for recording by the provided voice recorder (Channels/Lines Record)

7.4 All cables and other accessories/tools using to connect recorded signal on item 7.1 7.2 and 7.3 to the voice recorder shall be provided by the tenderer.

8. SYSTEM CAPACITY

8.1 The total requirements of working positions shall be 26 positions (26 working positions which shall completely interfaced and fully operate with at least 50 existing working positions, 290 radio channels, 200 telephone channels, 100 E1 radio channels, 100 IP radio channels) as specified in the Appendix 2-3.

8.2 The specification of the 26 positions is for the new Approach room which shall be installed on 3rd floor of the Contingency building.

8.3 All 26 positions shall be completely interfaced and fully operate with:

(a) 18 existing positions in the Control Tower room on T7 floor.

(b) 7 existing positions on T5A of the Control Tower

(c) 3 existing Maintenance which shall be relocated from the present location to the 4th floor of the Contingency building.

8.4 The telephone channels interface/module shall be capable to interface with:

(a) 29 channels of 2-Wire voice call interface/module;

(b) 5 channels of 2-Wire telephone set interface/module;

(c) 166 channels of 2-Wire PSTN and PABX interface/module. as specified in Appendix 4.

8.5 The capacity of 4-Wire analog radio channels interface/module shall be at least 290 channels as specified in Appendix 5.

8.6 The capacity of E1 radio channels interface/module shall be at least 100 channels as specified in Appendix 6.

8.8 The capacity of VoIP radio channels interface/module shall be at least 100 channels as specified in Appendix 7.

9. ENVIRONMENTAL CONDITIONS

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

10. TECHNICAL MANUAL

10.1 The VCCS shall be accompanied by technical manuals. (1 set of hard copy and 1 set of soft copy)

10.2 The technical manuals shall include details of installation, operation and maintenance instructions.

11. TRAINING

11.1 The factory training shall be provided in order to train AEROTHAI's engineers on the following capabilities:

(a) To install the System, operate, maintain and diagnose the fault parts down to card (or module) level;

(b) To maintain, update and operate the operational software according to the requirements stated in this specifications;

(c) To utilize the support computer program facility in order to operate, maintain and configure the VCCS;

(d) To operate the ATC Functions.

11.2 The instruction and language used in training documentation shall be English.

11.3 The Tenderer shall arrange the factory training for at least 10 working days for at least 5 (Five) AEROTHAI's engineers at the factory.

11.4 The cost of travel and accommodation for the AEROTHAI's staff will be borne by AEROTHAI.

11.5 The Tenderer shall arrange on-the-job training for at least 5 days for AEROTHAI's engineers and ATC Operators who will operate the system.

11.6 The AEROTHAI engineers shall participate in the hardware and software installation.

12. INITIAL SPARE CARDS (OR MODULES)

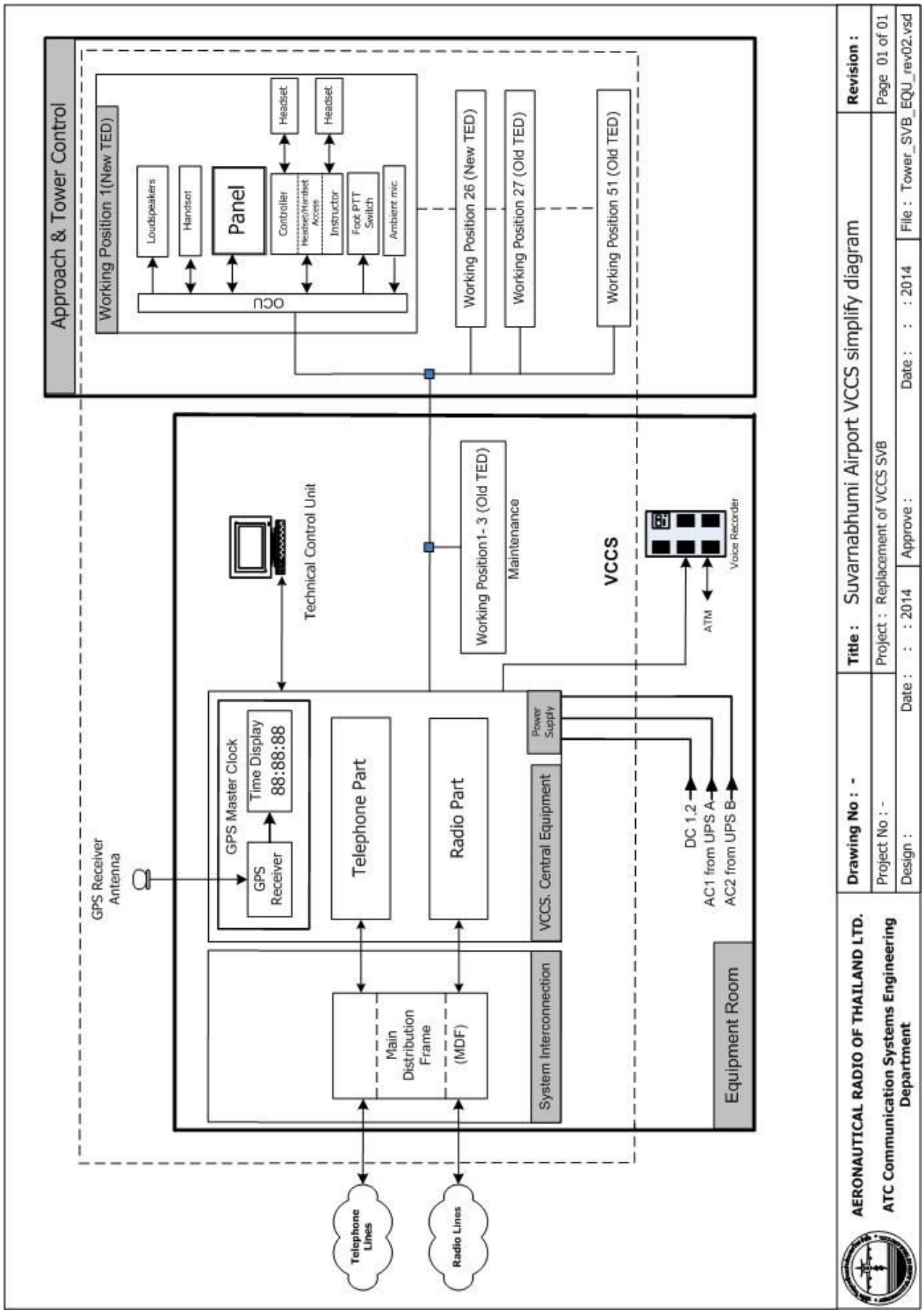
12.1 The Tenderer shall provide initial spare parts for at least 10% of each type of cards/modules of the system.

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

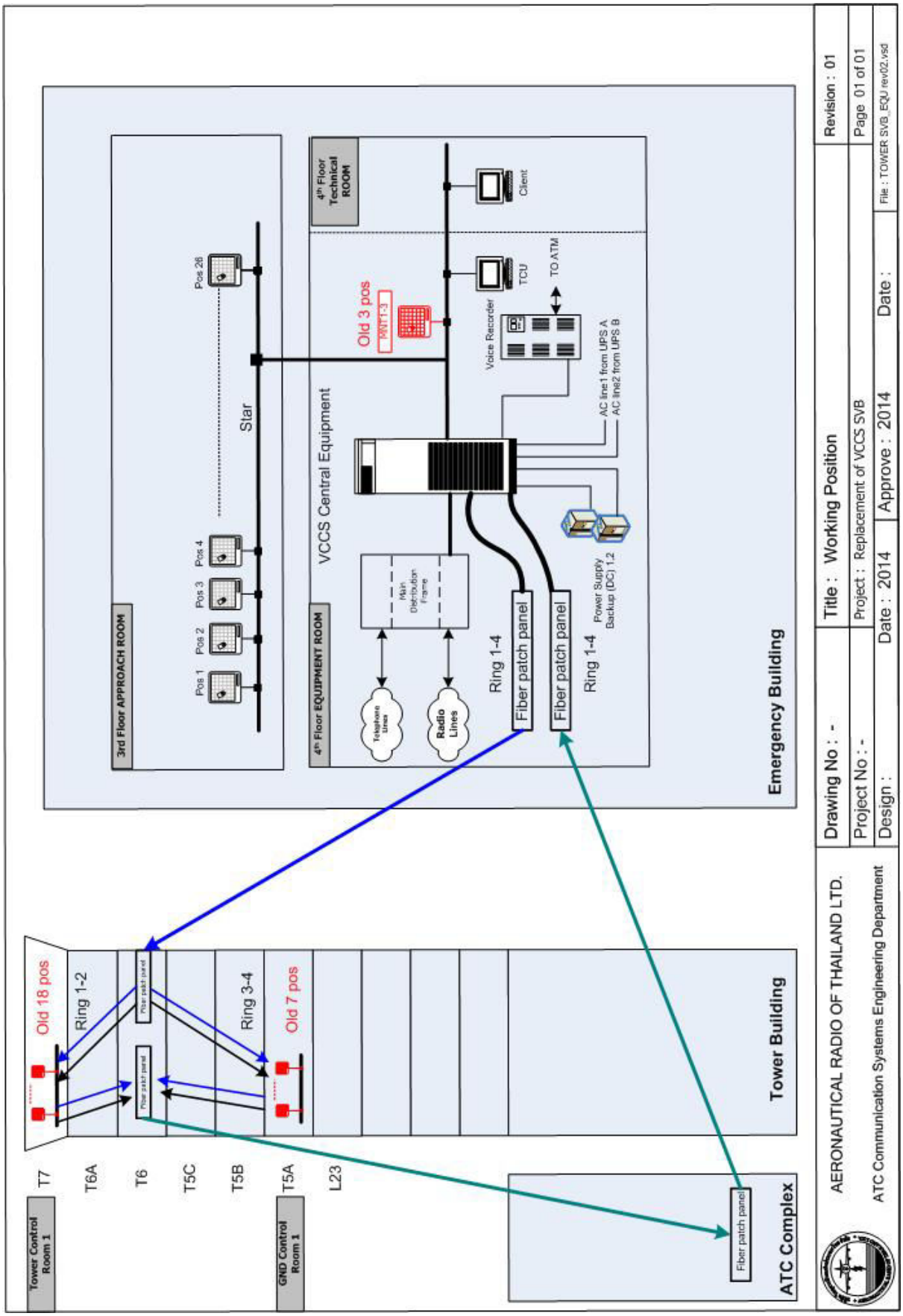
12.3 The Tenderer shall propose itemized lists of the initial spare parts including the quantity suggested for each spare part against the total quantity of each in use in the system in accordance with the following format ONLY.

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

APPENDIX 1 : VCCS Simplify Diagram



APPENDIX 2 : Working Positions Diagram



APPENDIX 3 : Suvarnabhumi Position Capacity

POSITION	NAME	OPERATION	Remark
1	LCL1	Tower T7	Old OCU/Touchscreen 12.1"
2	ASL1	Tower T7	Old OCU/Touchscreen 12.1"
3	LCL2	Tower T7	Old OCU/Touchscreen 12.1"
4	ASL2	Tower T7	Old OCU/Touchscreen 12.1"
5	LCL3	Tower T7	Old OCU/Touchscreen 12.1"
6	ASL3	Tower T7	Old OCU/Touchscreen 12.1"
7	GND1	Tower T7	Old OCU/Touchscreen 12.1"
8	ASG1	Tower T7	Old OCU/Touchscreen 12.1"
9	GND2	Tower T7	Old OCU/Touchscreen 12.1"
10	ASG2	Tower T7	Old OCU/Touchscreen 12.1"
11	GND3	Tower T7	Old OCU/Touchscreen 12.1"
12	ASG3	Tower T7	Old OCU/Touchscreen 12.1"
13	GND4	Tower T7	Old OCU/Touchscreen 12.1"
14	ASG4	Tower T7	Old OCU/Touchscreen 12.1"
15	TC1	Tower T7	Old OCU/Touchscreen 12.1"
16	TC2	Tower T7	Old OCU/Touchscreen 12.1"
17	TM	Tower T7	Old OCU/Touchscreen 12.1"
18	OPSUP	Tower T7	Old OCU/Touchscreen 12.1"
19	CDC1	Tower 5A	Old OCU/Touchscreen 10.4"
20	ADC1	Tower 5A	Old OCU/Touchscreen 10.4"
21	CDC2	Tower 5A	Old OCU/Touchscreen 10.4"
22	ADC2	Tower 5A	Old OCU/Touchscreen 10.4"
23	CDC3	Tower 5A	Old OCU/Touchscreen 10.4"
24	ADC3	Tower 5A	Old OCU/Touchscreen 10.4"
25	T-FDO1	Tower 5A	Old OCU/Touchscreen 10.4"
26	EC1	Approach	New Equipment
27	PC1	Approach	New Equipment
28	EC2	Approach	New Equipment
29	PC2	Approach	New Equipment
30	EC3	Approach	New Equipment
31	PC3	Approach	New Equipment
32	EC4	Approach	New Equipment
33	PC4	Approach	New Equipment
34	EC5	Approach	New Equipment
35	PC5	Approach	New Equipment
36	EC6	Approach	New Equipment
37	PC6	Approach	New Equipment
38	EC7	Approach	New Equipment
39	PC7	Approach	New Equipment
40	EC8	Approach	New Equipment
41	PC8	Approach	New Equipment

42	EC9	Approach	New Equipment
43	PC9	Approach	New Equipment
44	EC10	Approach	New Equipment
45	PC10	Approach	New Equipment
46	AMAN1	Approach	New Equipment
47	AMAN2	Approach	New Equipment
48	FDO1	Approach	New Equipment
49	FDO2	Approach	New Equipment
50	OPSUP1	Approach	New Equipment
51	OPSUP2	Approach	New Equipment
52	MTN1	MAINTENANCE	Old OCU/Touchscreen 10.4"
53	MTN2	MAINTENANCE	Old OCU/Touchscreen 10.4"
54	MTN3	MAINTENANCE	Old OCU/Touchscreen 10.4"

APPENDIX 4 : Suvarnabhumi Telephone Channels Capacity

No.	Working Positions	Connect to	Type	Signaling		Remark
				Call In	Call Out	
1	SUP	WATCH CE	2-Wire	Loop-In/DTMF	Ring-Out	Telephone Set Interface
2	SUP	WATCH SE	2-Wire	Loop-In/DTMF	Ring-Out	Telephone Set Interface
3	SUP	WATCH NE	2-Wire	Loop-In/DTMF	Ring-Out	Telephone Set Interface
4	APP_E1	4N	2-Wire	Voice	Voice	Voice Call Interface
5	APP_E1	6N	2-Wire	Voice	Voice	Voice Call Interface
6	APP_E1	1S	2-Wire	Voice	Voice	Voice Call Interface
7	APP_E1	5S	2-Wire	Voice	Voice	Voice Call Interface
8	APP_E2	4N	2-Wire	Voice	Voice	Voice Call Interface
9	APP_E2	6N	2-Wire	Voice	Voice	Voice Call Interface
10	APP_E2	1S	2-Wire	Voice	Voice	Voice Call Interface
11	APP_E2	5S	2-Wire	Voice	Voice	Voice Call Interface
12	APP_S	4N	2-Wire	Voice	Voice	Voice Call Interface
13	APP_S	1S	2-Wire	Voice	Voice	Voice Call Interface
14	APP_S	5S	2-Wire	Voice	Voice	Voice Call Interface
15	APP_W	3N	2-Wire	Voice	Voice	Voice Call Interface
16	APP_W	4N	2-Wire	Voice	Voice	Voice Call Interface
17	APP_W	1S	2-Wire	Voice	Voice	Voice Call Interface
18	APP_N	3N	2-Wire	Voice	Voice	Voice Call Interface
19	APP_N	4N	2-Wire	Voice	Voice	Voice Call Interface
20	APP_N	6N	2-Wire	Voice	Voice	Voice Call Interface
21	APP_DEP	LCL	2-Wire	Voice	Voice	Voice Call Interface
22	ASS_DEP	ASL	2-Wire	Voice	Voice	Voice Call Interface
23	TD	FMC1	2-Wire	Voice	Voice	Voice Call Interface
24	TD	FMC2	2-Wire	Voice	Voice	Voice Call Interface
25	OPSUP1	FMC1	2-Wire	Voice	Voice	Voice Call Interface
26	OPSUP1	FMC2	2-Wire	Voice	Voice	Voice Call Interface
27	OPSUP2	FMC1	2-Wire	Voice	Voice	Voice Call Interface
28	OPSUP2	FMC2	2-Wire	Voice	Voice	Voice Call Interface
29	FDO APP	3N	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
30	FDO APP	4N	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
31	FDO APP	6N	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
32	FDO APP	1S	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
33	FDO APP	5S	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
34	FDO APP	FMC1	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
35	FDO APP	FMC2	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
36	FDO TWR	3N	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
37	FDO TWR	4N	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
38	FDO TWR	6N	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
39	FDO TWR	1S	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
40	FDO TWR	5S	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface

41	ASS_E	4N	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
42	ASS_E	6N	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
43	ASS_E	1S	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
44	ASS_E	5S	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
45	ASS_E	ASL	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
46	ASS_S	4N	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
47	ASS_S	6N	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
48	ASS_S	1S	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
49	ASS_S	5S	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
50	ASS_S	ASL	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
51	ASS_W	4N	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
52	ASS_W	6N	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
53	ASS_W	1S	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
54	ASS_W	5S	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
55	ASS_W	ASL	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
56	ASS_N	4N	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
57	ASS_N	6N	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
58	ASS_N	1S	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
59	ASS_N	5S	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
60	ASS_DEP	ASL	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
61	APP_DEP	LCL DM	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
62	ASS_DEP	LCL DM	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
63	TCO	ASL	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
64	TCO	CDC	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
65	TCO	ADC	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
66	OPSUP	ASL	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
67	OPSUP	DM OPSUP	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
68	APPROACH	Dachochai	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
69	APPROACH	Dressy Lady	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
70	APPROACH	Kokatiem	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
71	APPROACH	Saphanak	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
72	APPROACH	Oscar1	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
73	APPROACH	Oscar2	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
74	APPROACH	FOCAL	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
75	APPROACH	BGS	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
76	APPROACH	Kampengsean	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
77	APPROACH	Utapao	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
78	APPROACH	Takhli	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
79	APPROACH	Huahin	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
80	APPROACH	Korat	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
81	APPROACH	BAC	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
82	APPROACH	AOCC	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
83	APPROACH	MET_OBS	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
84	APPROACH	MET_Office	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface

85	APPROACH	Apron East	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
86	APPROACH	Apron West	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
87	APPROACH	AIS	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
88	APPROACH	FCP	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
89	APPROACH	FIRE	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
90	APPROACH	PCK	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
91	APPROACH	TRAT	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
92	APPROACH	TEL 3621	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
93	APPROACH	TEL 3622	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
94	APPROACH	02-134-0198	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
95	APPROACH	02-134-0199	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
96	TOWER	TEL 3610	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
97	TOWER	TEL 3611	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
98	TOWER	TEL 3612	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
99	TOWER	TEL 3613	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
100	TOWER	02-134-0182	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
101	APP_E1	TOT Backup	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
102	APP_E2	TOT Backup	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
103	APP_S	TOT Backup	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
104	APP_W	TOT Backup	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
105	APP_N	TOT Backup	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
106	ARR1	TOT Backup	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
107	ARR2	TOT Backup	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
108	DAR	TOT Backup	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
109	DDP	TOT Backup	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
110	DSB	TOT Backup	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
111	VHC	TOT Backup	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
112	ALL	SPARE 1	2-Wire	Loop-In/DTMF	Ring-Out	Telephone Set Interface
113	ALL	SPARE 2	2-Wire	Loop-In/DTMF	Ring-Out	Telephone Set Interface
114	ALL	SPARE 1	2-Wire	Voice	Voice	Voice Call Interface
115	ALL	SPARE 2	2-Wire	Voice	Voice	Voice Call Interface
116	ALL	SPARE 3	2-Wire	Voice	Voice	Voice Call Interface
117	ALL	SPARE 4	2-Wire	Voice	Voice	Voice Call Interface
118	ALL	SPARE 1	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
119	ALL	SPARE 2	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
120	ALL	SPARE 3	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
121	Sector 1	DM1	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
122	Sector 1	BUT_APP	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
123	Sector 1	HHN_APP	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
124	Sector 1	KPS	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
125	Sector 1	OSCAR	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
126	Sector 1	PHN	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
127	Sector 1/1	YGN	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
128	Sector 1/1	BGS	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface

129	Sector 2	DM2	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
130	Sector 2	DSY	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
131	Sector 2	KRT_APP	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
132	Sector 2	PHN	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
133	Sector 2	VTN_S	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
134	Sector 3	DM3	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
135	Sector 3	HHN_APP	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
136	Sector 3	BUT_APP	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
137	Sector 3	KUL3_SAT	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
138	Sector 3	PHN	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
139	Sector 4	CMA_APP (F/R)	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
140	Sector 4	DM4	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
141	Sector 4	PSL_APP	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
142	Sector 4	Focal	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
143	Sector 4	KPS_Radar	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
144	Sector 4	TL	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
145	Sector 4	YGN4	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
146	Sector 4/1	DM4/1	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
147	Sector 4/1	KPS_Radar	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
148	Sector 4/1	TL	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
149	Sector 4/1	YGN4	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
150	Sector 5	HTY_APP (F/R)	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
151	Sector 5	KBI_APP	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
152	Sector 5	PUT_APP (F/R)	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
153	Sector 5	BGS_SRT2	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
154	Sector 5	SWALLOW	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
155	Sector 5	KUL_5-1_DDN	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
156	Sector 5	KUL_5-4_DDN	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
157	Sector 5	KUL5_SAT	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
158	Sector 5	YGN5	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
159	Sector 6	KBI_APP	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
160	Sector 6	HTY_APP (F/R)	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
161	Sector 6	PUT_APP (F/R)	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
162	Sector 6	PUT_APP (DDN)	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
163	Sector 6	BGS	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
164	Sector 6	SWALLOW	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
165	Sector 6	OSCAR_S6	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
166	Sector 6	KUL_6-1_DDN	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
167	Sector 6	KUL_6-5_DDN	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
168	Sector 6	KUL6_SAT	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
169	Sector 6	YGN5	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
170	Sector 7	CMA_APP (F/R)	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
171	Sector 7	PSL_APP	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
172	Sector 7	BHM	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface

173	Sector 7	Focal	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
174	Sector 7	FAN	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
175	Sector 7	VTN_N	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
176	Sector 7	YGN7	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
177	Sector 8	BHM	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
178	Sector 8	PNH	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
179	Sector 8	VTN_S	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
180	KKN Sector	Tel. 2005	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
181	KKN Sector	Tel. 8611	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
182	KKN Sector	Tel. 9611	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
183	KKN Sector	Tel. 02-287-3181	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
184	UBL Sector	Tel. 2006	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
185	UBL Sector	Tel. 8612	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
186	UBL Sector	Tel. 9612	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
187	UBL Sector	Tel. 02-286-0095	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
188	SMU Sector	Tel. 2003	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
189	SMU Sector	Tel. 8613	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
190	SMU Sector	Tel. 9613	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
191	SMU Sector	Tel. 02-286-0199	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
192	CTR Sector	Tel. 2008	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
193	CTR Sector	Tel. 8614	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
194	CTR Sector	Tel. 9614	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
195	STN Sector	Tel. 02-286-0224	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
196	STN Sector	Tel. 20xx	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
197	STN Sector	Tel. 86xx	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
198	STN Sector	Tel. 96xx	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
199	STN Sector	Tel. 02-286-xxx	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface
200	STN Sector	Tel. 02-286-xxx	2-Wire	Ring-In	Loop-Out/DTMF	PSTN & PABX Interface

APPENDIX 5 : Suvarnabhumi Radio Channels Capacity (Analog)

Channel	Working Position	Frequency (MHz)	Connect to
1	GND1	121.65	Local Main
2	GND1	121.65	Local Stby
3	GND1	275.8	Local Main
4	GND1	275.8	Local Stby
5	GND1	VHF BU	Local Main
6	GND2	121.75	Local Main
7	GND2	121.75	Local Stby
8	GND2	UHF	Local Main
9	GND2	UHF	Local Stby
10	GND2	VHF BU	Local Main
11	GND3	121.95	Local Main
12	GND3	121.95	Local Stby
13	GND3	UHF	Local Main
14	GND3	UHF	Local Stby
15	GND3	VHF BU	Local Main
16	GND4	122.55	Local Main
17	GND4	122.55	Local Stby
18	GND4	UHF	Local Main
19	GND4	UHF	Local Stby
20	GND4	VHF BU	Local Main
21	LCL1	118.2	Local Main
22	LCL1	118.2	Local Stby
23	LCL1	274.5	Local Main
24	LCL1	274.5	Local Stby
25	LCL1	VHF BU	Local Main
26	LCL2	119	Local Main
27	LCL2	119	Local Stby
28	LCL2	UHF	Local Main
29	LCL2	UHF	Local Stby
30	LCL2	VHF BU	Local Main
31	LCL3	118.7	Local Main
32	LCL3	118.7	Local Stby
33	LCL3	UHF	Local Main
34	LCL3	UHF	Local Stby
35	LCL3	VHF BU	Local Main
36	LCL4	VHF	Local Main
37	LCL4	VHF	Local Stby
38	LCL4	UHF	Local Main
39	LCL4	UHF	Local Stby
40	LCL4	VHF BU	Local Main
41	APE1	119.1	Local Main

42	APE1	119.1	Local Stby
43	APE1	UHF	Local Main
44	APE1	UHF	Local Stby
45	APE1	VHF BU	Local Main
46	APE2	122.35	Local Main
47	APE2	122.35	Local Stby
48	APE2	UHF	Local Main
49	APE2	UHF	Local Stby
50	APE2	VHF BU	Local Main
51	APE3	122.35	Local Main
52	APE3	122.35	Local Stby
53	APE3	UHF	Local Main
54	APE3	UHF	Local Stby
55	APE3	VHF BU	Local Main
56	APN	121.7	Local Main
57	APN	121.7	Local Stby
58	APN	UHF	Local Main
59	APN	UHF	Local Stby
60	APN	VHF BU	Local Main
61	APS	124.35	Local Main
62	APS	124.35	Local Stby
63	APS	262.5	Local Main
64	APS	262.5	Local Stby
65	APS	VHF BU	Local Main
66	APW	125.2	Local Main
67	APW	125.2	Local Stby
68	APW	UHF	Local Main
69	APW	UHF	Local Stby
70	APW	VHF BU	Local Main
71	APD	119.4	Local Main
72	APD	119.4	Local Stby
73	APD	UHF	Local Main
74	APD	UHF	Local Stby
75	APD	VHF BU	Local Main
76	ARR1	121.1	Local Main
77	ARR1	121.1	Local Stby
78	ARR1	UHF	Local Main
79	ARR1	UHF	Local Stby
80	ARR1	VHF BU	Local Main
81	ARR2	126.3	Local Main
82	ARR2	126.3	Local Stby
83	ARR2	UHF	Local Main
84	ARR2	UHF	Local Stby
85	ARR2	VHF BU	Local Main

86	DAR	125.5	Local Main
87	DAR	125.5	Local Stby
88	DAR	UHF	Local Main
89	DAR	UHF	Local Stby
90	DAR	VHF BU	Local Main
91	DDP	VHF	Local Main
92	DDP	VHF	Local Stby
93	DDP	UHF	Local Main
94	DDP	UHF	Local Stby
95	DDP	VHF BU	Local Main
96	DSB	119.25	Local Main
97	DSB	119.25	Local Stby
98	DSB	UHF	Local Main
99	DSB	UHF	Local Stby
100	DSB	VHF BU	Local Main
101	TCO	119.25	Local Main
102	TCO	119.25	Local Stby
103	TCO	UHF	Local Main
104	TCO	UHF	Local Stby
105	TCO	VHF BU	Local Main
106	F/C	132.05	Local Main
107	EMERG	121.5	Local Main
108	EMERG	121.5	Local Stby
109	EMERG	243	Local Main
110	EMERG	243	Local Stby
111	CDC1	120.8	Local Main
112	CDC1	120.8	Local Stby
113	CDC2	133.8	Local Main
114	CDC2	133.8	Local Stby
115	CDC3	135.8	Local Main
116	CDC3	135.8	Local Stby
117	CDC4	128.7	Local Main
118	CDC4	128.7	Local Stby
119	CDC5	128.95	Local Main
120	CDC5	128.95	Local Stby
121	CDC6	133.4	Local Main
122	CDC6	133.4	Local Stby
123	TWR SP	118.4	Local Main
124	ALL	124.5	Local Main
125	ALL	132.5	Local Main
126	ALL	119.45	Local Main
127	ALL	133	Local Main
128	ALL	118.75	Local Main
129	ALL	122.55	Local Main

130	ALL	133.4	Local Main
131	SECTOR 1	120.5	Local Main
132	SECTOR 1	120.5	Local Stby
133	SECTOR 1	120.5	KMN RCAG
134	SECTOR 1	120.5	KMN RCAG
135	SECTOR 1	120.5	HHN RCAG
136	SECTOR 1	256.6	Local Main
137	SECTOR 1	256.6	KMN RCAG
138	SECTOR 1/1	122.45	CPN RCAG
139	SECTOR 1/1	122.45	CPN RCAG
140	SECTOR 1/1	122.45	SMU RCAG
141	SECTOR 2	133.1	Local Main
142	SECTOR 2	133.1	Local Stby
143	SECTOR 2	133.1	KKN RCAG
144	SECTOR 2	133.1	KKN RCAG
145	SECTOR 2	133.1	UBL RCAG
146	SECTOR 2	133.1	UBL RCAG
147	SECTOR 2	133.1	KRT RCAG
148	SECTOR 2	133.1	KRT RCAG
149	SECTOR 2	133.1	BRM RCAG
150	SECTOR 2	285.3	Local Main
151	SECTOR 2	285.3	KKN RCAG
152	SECTOR 2	285.3	KKN RCAG
153	SECTOR 2	285.3	UBL RCAG
154	SECTOR 2	285.3	UBL RCAG
155	SECTOR 2	285.3	KRT RCAG
156	SECTOR 2	285.3	KRT RCAG
157	SECTOR 3	135.5	Local Main
158	SECTOR 3	135.5	Local Stby
159	SECTOR 3	135.5	KMN RCAG
160	SECTOR 3	135.5	KMN RCAG
161	SECTOR 3	135.5	TRAT RCAG
162	SECTOR 3	285.5	Local Main
163	SECTOR 3	285.5	KMN RCAG
164	SECTOR 4	128.1	Local Main
165	SECTOR 4	128.1	Local Stby
166	SECTOR 4	128.1	NSW RCAG
167	SECTOR 4	128.1	NSW RCAG
168	SECTOR 4	128.1	PSL RCAG
169	SECTOR 4	128.1	KKN RCAG
170	SECTOR 4	128.1	KKN RCAG
171	SECTOR 4	263.8	Local Main
172	SECTOR 4	263.8	NSW RCAG
173	SECTOR 4	263.8	KKN RCAG

174	SECTOR 4/1	122.05	Local Main
175	SECTOR 4/1	122.05	Local Stby
176	SECTOR 4/1	122.05	KAN (RTAF) RCAG
177	SECTOR 4/1	122.05	KAN (RTAF) RCAG
178	SECTOR 4/1	122.05	KAN (TOT) RCAG
179	SECTOR 5	125.7	SMU RCAG
180	SECTOR 5	125.7	SMU RCAG
181	SECTOR 5	125.7	CPN RCAG
182	SECTOR 5	125.7	PUT RCAG
183	SECTOR 5	125.7	PUT RCAG
184	SECTOR 5	268.5	SMU RCAG
185	SECTOR 5	268.5	PUT RCAG
186	SECTOR 5	121.5	Emergency SMU RCAG
187	SECTOR 5/1	133.9	PUT RCAG
188	SECTOR 5/1	133.9	PUT RCAG
189	SECTOR 6	123.95	SMU RCAG
190	SECTOR 6	123.95	SMU RCAG
191	SECTOR 6	123.95	NKS RCAG
192	SECTOR 6	123.95	HTY RCAG
193	SECTOR 6	123.95	HTY RCAG
194	SECTOR 6	265.9	SMU RCAG
195	SECTOR 6	265.9	HTY RCAG
196	SECTOR 6	121.5	Emergency SMU RCAG
197	SECTOR 7/1	124.5	INT RCAG
198	SECTOR 7/1	124.5	INT RCAG
199	SECTOR 7/1	124.5	LPN RCAG
200	SECTOR 7/1	124.5	PSL RCAG
201	SECTOR 7	126.5	UDN RCAG
202	SECTOR 7	126.5	UDN RCAG
203	SECTOR 7	126.5	LOY RCAG
204	SECTOR 7	246.5	INT RCAG
205	SECTOR 7	246.5	UDN RCAG
206	SECTOR 7	121.5	Emergency INT RCAG
207	SECTOR 7	121.5	Emergency UDN RCAG
208	SECTOR 8	133.9	KKN RCAG
209	SECTOR 8	133.9	KKN RCAG
210	SECTOR 8	133.9	UBL RCAG
211	SECTOR 8	133.9	UBL RCAG
212	SECTOR 8	133.9	ROI RCAG
213	SECTOR 8	268.5	KKN RCAG
214	SECTOR 8	268.5	UBL RCAG
215	SECTOR 8	121.5	Emergency UBL RCAG
216	SB CDC_S1	120.8	CDC SB Main
217	SB CDC_S1	120.8	CDC SB Stby

218	SB CDC_S2	133.8	CDC SB Main
219	SB CDC_S2	133.8	CDC SB Stby
220	SB CDC_S3	135.8	CDC SB Main
221	SB CDC_S3	135.8	CDC SB Stby
222	SB CDC_S4	128.7	CDC SB Main
223	SB CDC_S4	128.7	CDC SB Stby
224	KKN APP	123.4	KKN APP RCAG
225	KKN APP	123.4	KKN APP RCAG
226	KKN APP	240.0	KKN APP RCAG
227	KKN APP	240.0	KKN APP RCAG
228	KKN APP	123.35	SKN APP RCAG
229	KKN APP	123.35	SKN APP RCAG
230	KKN APP	284.0	SKN APP RCAG
231	KKN APP	284.0	SKN APP RCAG
232	KKN APP	126.2	UDN APP RCAG
233	KKN APP	126.2	UDN APP RCAG
234	KKN APP	268.5	UDN APP RCAG
235	KKN APP	268.5	UDN APP RCAG
236	KKN APP	122.55	LOY APP RCAG
237	KKN APP	122.55	LOY APP RCAG
238	KKN APP	240.0	LOY APP RCAG
239	KKN APP	240.0	LOY APP RCAG
240	UBL APP	123.5	UBL APP RCAG
241	UBL APP	123.5	UBL APP RCAG
242	UBL APP	257.8	UBL APP RCAG
243	UBL APP	257.8	UBL APP RCAG
244	UBL APP	125.4	ROT APP RCAG
245	UBL APP	125.4	ROT APP RCAG
246	UBL APP	123.6	KRT APP RCAG
247	UBL APP	123.6	KRT APP RCAG
248	UBL APP	UHF	KRT APP RCAG
249	UBL APP	UHF	KRT APP RCAG
250	UBL APP	119.45	BRM APP RCAG
251	UBL APP	119.45	BRM APP RCAG
252	SMU APP	129.6	SMU APP RCAG (Airport)
253	SMU APP	305.4	SMU APP RCAG (Airport)
254	SMU APP	129.6	SMU APP RCAG (Khaophom)
255	SMU APP	129.6	SMU APP RCAG (Khaophom)
256	SMU APP	305.4	SMU APP RCAG (Khaophom)
257	SMU APP	305.4	SMU APP RCAG (Khaophom)
258	SMU APP	119.75	NKS APP RCAG
259	SMU APP	119.75	NKS APP RCAG
260	SMU APP	UHF	NKS APP RCAG
261	SMU APP	UHF	NKS APP RCAG

262	SMU APP	123.35	STN APP RCAG
263	SMU APP	123.35	STN APP RCAG
264	SMU APP	240.0	STN APP RCAG
265	SMU APP	240.0	STN APP RCAG
266	SMU APP	118.6	TRAT APP RCAG
267	SMU APP	118.6	TRAT APP RCAG
268	CTR APP	120.05	CTR APP RCAG
269	CTR APP	120.05	CTR APP RCAG
270	CTR APP	257.8	CTR APP RCAG
271	CTR APP	257.8	CTR APP RCAG
272	CTR APP	120.25	NAN APP RCAG
273	CTR APP	120.25	NAN APP RCAG
274	CTR APP	120.1	PAE APP RCAG
275	CTR APP	120.1	PAE APP RCAG
276	CTR APP	126.7	PCB APP RCAG
277	CTR APP	126.7	PCB APP RCAG
278	ALL	VHF Spare1	Local
279	ALL	VHF Spare2	Local
280	ALL	VHF Spare3	Local
281	ALL	VHF Spare4	Local
282	ALL	VHF Spare5	Local
283	ALL	VHF Spare6	Local
284	ALL	VHF Spare7	Local
285	ALL	VHF Spare8	Local
286	ALL	VHF Spare9	Local
287	ALL	VHF Spare10	Local
288	ALL	VHF Spare11	Local
289	ALL	VHF Spare12	Local
290	ALL	VHF Spare13	Local

APPENDIX 6 : Suvarnabhumi Radio Channels Capacity (E1)

Channel	Working Position	Frequency (MHz)	Connect to
1	GND1	121.65	Local Main
2	GND1	121.65	Local Stby
3	GND1	VHF BU	Local Main
4	GND2	121.75	Local Main
5	GND2	121.75	Local Stby
6	GND2	VHF BU	Local Main
7	GND3	121.95	Local Main
8	GND3	121.95	Local Stby
9	GND3	VHF BU	Local Main
10	GND4	122.55	Local Main
11	GND4	122.55	Local Stby
12	GND4	VHF BU	Local Main
13	LCL1	118.2	Local Main
14	LCL1	118.2	Local Stby
15	LCL1	VHF BU	Local Main
16	LCL2	119	Local Main
17	LCL2	119	Local Stby
18	LCL2	VHF BU	Local Main
19	LCL3	118.7	Local Main
20	LCL3	118.7	Local Stby
21	LCL3	VHF BU	Local Main
22	LCL4	VHF	Local Main
23	LCL4	VHF	Local Stby
24	LCL4	VHF BU	Local Main
25	APE1	119.1	Local Main
26	APE1	119.1	Local Stby
27	APE1	VHF BU	Local Main
28	APE2	122.35	Local Main
29	APE2	122.35	Local Stby
30	APE2	VHF BU	Local Main
31	APE3	122.35	Local Main
32	APE3	122.35	Local Stby
33	APE3	VHF BU	Local Main
34	APN	121.7	Local Main
35	APN	121.7	Local Stby
36	APN	VHF BU	Local Main
37	APS	124.35	Local Main
38	APS	124.35	Local Stby
39	APS	VHF BU	Local Main
40	APW	125.2	Local Main
41	APW	125.2	Local Stby

42	APW	VHF BU	Local Main
43	APD	119.4	Local Main
44	APD	119.4	Local Stby
45	APD	VHF BU	Local Main
46	ARR1	121.1	Local Main
47	ARR1	121.1	Local Stby
48	ARR1	VHF BU	Local Main
49	ARR2	126.3	Local Main
50	ARR2	126.3	Local Stby
51	ARR2	VHF BU	Local Main
52	DAR	125.5	Local Main
53	DAR	125.5	Local Stby
54	DAR	VHF BU	Local Main
55	DDP	VHF	Local Main
56	DDP	VHF	Local Stby
57	DDP	VHF BU	Local Main
58	DSB	119.25	Local Main
59	DSB	119.25	Local Stby
60	DSB	VHF BU	Local Main
61	TCO	119.25	Local Main
62	TCO	119.25	Local Stby
63	TCO	VHF BU	Local Main
64	F/C	132.05	Local Main
65	EMERG	121.5	Local Main
66	EMERG	121.5	Local Stby
67	CDC1	120.8	Local Main
68	CDC1	120.8	Local Stby
69	CDC2	133.8	Local Main
70	CDC2	133.8	Local Stby
71	CDC3	135.8	Local Main
72	CDC3	135.8	Local Stby
73	CDC4	128.7	Local Main
74	CDC4	128.7	Local Stby
75	CDC5	128.95	Local Main
76	CDC5	128.95	Local Stby
77	CDC6	133.4	Local Main
78	CDC6	133.4	Local Stby
79	TWR SP	118.4	Local Main
80	ALL	124.5	Local Main
81	ALL	132.5	Local Main
82	ALL	119.45	Local Main
83	ALL	133	Local Main
84	ALL	118.75	Local Main
85	ALL	122.55	Local Main

86	ALL	133.4	Local Main
87	Spare1	VHF	Local
88	Spare2	VHF	Local
89	Spare3	VHF	Local
90	Spare4	VHF	Local
91	Spare5	VHF	Local
92	Spare6	VHF	Local
93	Spare7	VHF	Local
94	Spare8	VHF	Local
95	Spare9	VHF	Local
96	Spare10	VHF	Local
97	Spare11	VHF	Local
98	Spare12	VHF	Local
99	Spare13	VHF	Local
100	Spare14	VHF	Local

APPENDIX 7 : Suvarnabhumi Radio Channels Capacity (VoIP)

Channel	Working Position	Frequency (MHz)	Connect to
1	GND1	121.65	Local Main
2	GND1	121.65	Local Stby
3	GND1	VHF BU	Local Main
4	GND2	121.75	Local Main
5	GND2	121.75	Local Stby
6	GND2	VHF BU	Local Main
7	GND3	121.95	Local Main
8	GND3	121.95	Local Stby
9	GND3	VHF BU	Local Main
10	GND4	122.55	Local Main
11	GND4	122.55	Local Stby
12	GND4	VHF BU	Local Main
13	LCL1	118.2	Local Main
14	LCL1	118.2	Local Stby
15	LCL1	VHF BU	Local Main
16	LCL2	119	Local Main
17	LCL2	119	Local Stby
18	LCL2	VHF BU	Local Main
19	LCL3	118.7	Local Main
20	LCL3	118.7	Local Stby
21	LCL3	VHF BU	Local Main
22	LCL4	VHF	Local Main
23	LCL4	VHF	Local Stby
24	LCL4	VHF BU	Local Main
25	APE1	119.1	Local Main
26	APE1	119.1	Local Stby
27	APE1	VHF BU	Local Main
28	APE2	122.35	Local Main
29	APE2	122.35	Local Stby
30	APE2	VHF BU	Local Main
31	APE3	122.35	Local Main
32	APE3	122.35	Local Stby
33	APE3	VHF BU	Local Main
34	APN	121.7	Local Main
35	APN	121.7	Local Stby
36	APN	VHF BU	Local Main
37	APS	124.35	Local Main
38	APS	124.35	Local Stby
39	APS	VHF BU	Local Main
40	APW	125.2	Local Main
41	APW	125.2	Local Stby

42	APW	VHF BU	Local Main
43	APD	119.4	Local Main
44	APD	119.4	Local Stby
45	APD	VHF BU	Local Main
46	ARR1	121.1	Local Main
47	ARR1	121.1	Local Stby
48	ARR1	VHF BU	Local Main
49	ARR2	126.3	Local Main
50	ARR2	126.3	Local Stby
51	ARR2	VHF BU	Local Main
52	DAR	125.5	Local Main
53	DAR	125.5	Local Stby
54	DAR	VHF BU	Local Main
55	DDP	VHF	Local Main
56	DDP	VHF	Local Stby
57	DDP	VHF BU	Local Main
58	DSB	119.25	Local Main
59	DSB	119.25	Local Stby
60	DSB	VHF BU	Local Main
61	TCO	119.25	Local Main
62	TCO	119.25	Local Stby
63	TCO	VHF BU	Local Main
64	F/C	132.05	Local Main
65	EMERG	121.5	Local Main
66	EMERG	121.5	Local Stby
67	CDC1	120.8	Local Main
68	CDC1	120.8	Local Stby
69	CDC2	133.8	Local Main
70	CDC2	133.8	Local Stby
71	CDC3	135.8	Local Main
72	CDC3	135.8	Local Stby
73	CDC4	128.7	Local Main
74	CDC4	128.7	Local Stby
75	CDC5	128.95	Local Main
76	CDC5	128.95	Local Stby
77	CDC6	133.4	Local Main
78	CDC6	133.4	Local Stby
79	TWR SP	118.4	Local Main
80	ALL	124.5	Local Main
81	ALL	132.5	Local Main
82	ALL	119.45	Local Main
83	ALL	133	Local Main
84	ALL	118.75	Local Main
85	ALL	122.55	Local Main

86	ALL	133.4	Local Main
87	Spare1	VHF	Local
88	Spare2	VHF	Local
89	Spare3	VHF	Local
90	Spare4	VHF	Local
91	Spare5	VHF	Local
92	Spare6	VHF	Local
93	Spare7	VHF	Local
94	Spare8	VHF	Local
95	Spare9	VHF	Local
96	Spare10	VHF	Local
97	Spare11	VHF	Local
98	Spare12	VHF	Local
99	Spare13	VHF	Local
100	Spare14	VHF	Local