A Brief on Equipments of ChengDu ACC

Technical Support Center

SW-ATMB

3/3/2014

Main Equipments in Cheng Du ACC

- 1、**ATC System**
- 2、**VCSS**
- 3、VHF
- 4、VRP
- 5、Network and Communication
- 6、Power Supply Facilities

ADS/CPDLC

Weather Radar

FDD

SIPDS

EM VCSS

FDD

SDD

SDD

Bkp VCSS
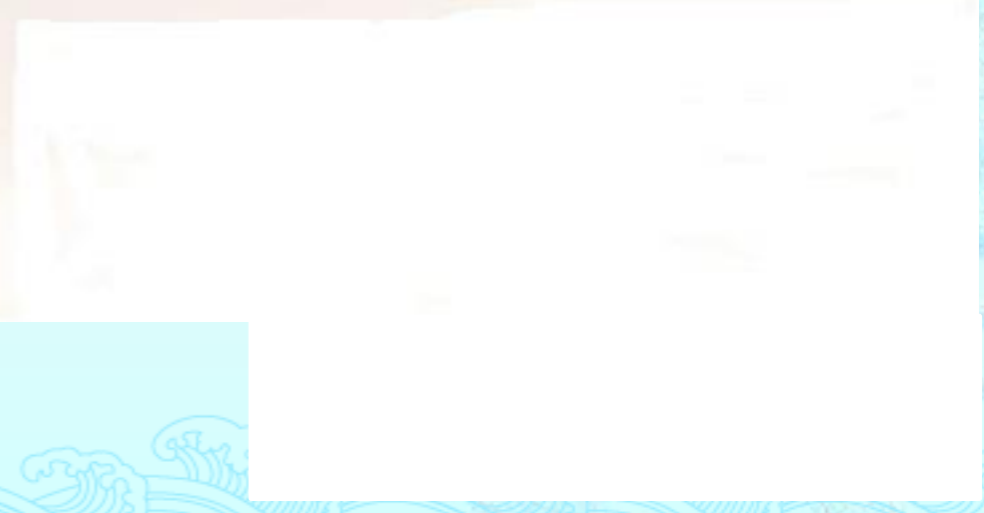
Main VCSS

Main VCSS

ATC System

- **Aircon 2000 Main Operational System (Indra)**
- Aircon 2000 Simulation and Training System (Indra)
- Aircon 2000Test and Verifying System (Indra)
- **Airnet Backup Operational System (2nd Institute, CAAC)**
- Airnet Test and Verifying System (2nd Institute, CAAC)

Main function of Aircon 2000

ACC ：

- Surveillance Data Distribution
- Surveillance Data Procession
  （RDCU+SDP）
- Flight Data Procession （FDP)
- Safety Nets Processing （SNET）
- Data Link Server （DLS）
- Recording and Playback Facilities （DRF）
- System Data Output Processing （DOP）

APP ：

- Surveillance Data Distribution
- Surveillance Data Procession
  （RDCU+SDP+SNET）
- Recording and Playback Facilities （DRF）
- System Data Output Processing （DOP）

Aircon 2000 Working Positions

ACC：

- General Operational Supervisor ×1
- Operational Supervisor ×4
- Executive Positions×20
- Military Coordination Position ×2
- Flight Data Operator Position ×2
- Search & Rescue Position ×1
- Control & Monitoring Display (CMD) Position ×2

APP：

- Operational Supervisor ×1
- Executive Positions×5
- Control & Monitoring Display (CMD) Position ×1

TWR：
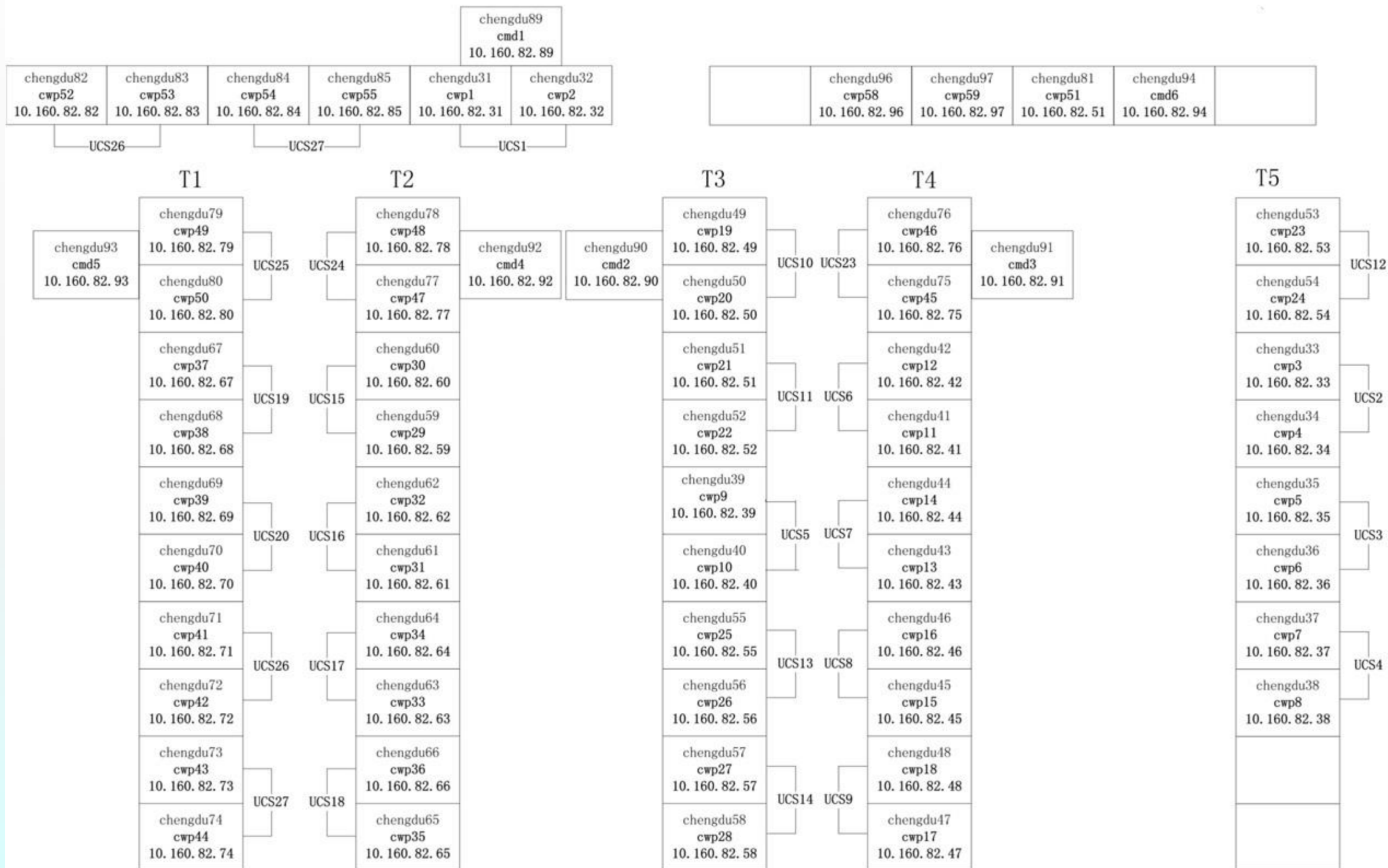
- Executive Positions × 1
- TWR Executive Positions×3
- Ground Position× 2
- Departure Clearance Position × 1

Aircon 2000 Input Data

- **ACC**：
  - Radar（Current:24 Max:32）
  - ADS-B（Current:5 Max:32）
  - AFTN
  - QNH
  - Parking Bay Information
  - GRIB
  - ADS-C/CPDLC/DCL
  - GPS

- **APP**：
  - Radar（Current:8 Max:12）
  - ADS-B（Current:5 Max:8）
  - QNH

ACC Controller Positions Locatioan

chengdu89 cmd1 10.160.82.89

chengdu82 cwp52 10.160.82.82	chengdu83 cwp53 10.160.82.83	chengdu84 cwp54 10.160.82.84	chengdu85 cwp55 10.160.82.85	chengdu31 cwp1 10.160.82.31	chengdu32 cwp2 10.160.82.32

UCS26   UCS27   UCS1

chengdu96 cwp58 10.160.82.96	chengdu97 cwp59 10.160.82.97	chengdu81 cwp51 10.160.82.51	chengdu94 cmd6 10.160.82.94

T1

chengdu93 cmd5 10.160.82.93

chengdu79 cwp49 10.160.82.79   UCS25
chengdu80 cwp50 10.160.82.80

chengdu67 cwp37 10.160.82.67   UCS19
chengdu68 cwp38 10.160.82.68

chengdu69 cwp39 10.160.82.69   UCS20
chengdu70 cwp40 10.160.82.70

chengdu71 cwp41 10.160.82.71   UCS26
chengdu72 cwp42 10.160.82.72

chengdu73 cwp43 10.160.82.73   UCS27
chengdu74 cwp44 10.160.82.74

T2

chengdu78 cwp48 10.160.82.78   UCS24
chengdu77 cwp47 10.160.82.77

chengdu60 cwp30 10.160.82.60   UCS15
chengdu59 cwp29 10.160.82.59

chengdu62 cwp32 10.160.82.62   UCS16
chengdu61 cwp31 10.160.82.61

chengdu64 cwp34 10.160.82.64   UCS17
chengdu63 cwp33 10.160.82.63

chengdu66 cwp36 10.160.82.66   UCS18
chengdu65 cwp35 10.160.82.65

chengdu92 cmd4 10.160.82.92	chengdu90 cmd2 10.160.82.90

T3

chengdu49 cwp19 10.160.82.49   UCS10
chengdu50 cwp20 10.160.82.50

chengdu51 cwp21 10.160.82.51   UCS11
chengdu52 cwp22 10.160.82.52

chengdu39 cwp9 10.160.82.39   UCS5
chengdu40 cwp10 10.160.82.40

chengdu55 cwp25 10.160.82.55   UCS13
chengdu56 cwp26 10.160.82.56

chengdu57 cwp27 10.160.82.57   UCS14
chengdu58 cwp28 10.160.82.58

T4

chengdu76 cwp46 10.160.82.76   UCS23
chengdu75 cwp45 10.160.82.75

chengdu42 cwp12 10.160.82.42   UCS6
chengdu41 cwp11 10.160.82.41

chengdu44 cwp14 10.160.82.44   UCS7
chengdu43 cwp13 10.160.82.43

chengdu46 cwp16 10.160.82.46   UCS8
chengdu45 cwp15 10.160.82.45

chengdu48 cwp18 10.160.82.48   UCS9
chengdu47 cwp17 10.160.82.47

chengdu91 cmd3 10.160.82.91

T5

chengdu53 cwp23 10.160.82.53   UCS12
chengdu54 cwp24 10.160.82.54

chengdu33 cwp3 10.160.82.33   UCS2
chengdu34 cwp4 10.160.82.34

chengdu35 cwp5 10.160.82.35   UCS3
chengdu36 cwp6 10.160.82.36

chengdu37 cwp7 10.160.82.37   UCS4
chengdu38 cwp8 10.160.82.38

Aircon 2000 Working Mode

◈   In normal mode, All positions receive information from ACC servers;

◈   In case ACC servers fail, or the network between ACC and APP is broken, APP and TWR positions could be switched to local mode to provide basic service,such as system tracks, warning/alerts, Mini Flight plan and printing strip paper etc.

Airnet backup ATC System

◈   Airnet backup ATC system has the similar function and MMI with Aircon2000 main ATC system, inputting same information, sharing Monitor, Mouse, Keyboard and printer with main ATC system

◈   To synchronize internal data with main ATC system, Airnet backup ATC system receives real-time system tracks, flight data, essential data from Aircon2000 main ATC system, that will make the backup ATC system be ready for controllers at any moment.

Voice Communication Switch System (VCSS)

◈ There are 4 ICS 200/60 VCS systems in Chengdu ACC, manufactured by SCHMID TELECOM Switzerland:

➢ Main VCS system

➢ Backup VCS system

➢ Emergency VCS system

➢ Training VCS system

Scale of VCSS

	Operator Position	Radio interface	PSTN interface	Network interfaces （MFC/QSIG /E1）
Main VCS System	63	210	128	24/12/4
Backup VCS System	30	210	128	24/12/4
Emergency VCS System	24	40	0	0
Training VCS System	26	0	0	0

Usage of VCSS

- 4 operator positions provided to every single control sector:

- 1 Main VCSS operator position used for air control

- 1 Main VCSS operator position used for telephone communication with connected ATCs or sectors, and monitoring the air control at same time

- 1 Backup VCSS operator position provides all the radio and telephone accesses which Main VCSS provided, for backup in case the Main VCSS failure.

- 1 Emergency VCSS operator position provides radio accesses to all 22 VHF remote sites, for emergency cases like Main or Backup VCSS failure.

VHF Remote Sites

◈ Chengdu ACC accessing 22 VHF remote sites for Ground-Air radio communication of the Control Area of Chengdu ACC(including Chengdu, Chongqing, Kunming and Guiyang Control Area)

◈ These VHF remotes sites provide continuous radio signal coverage for all the routes in Chengdu ACC control area above altitude 6600m, and for most of the routes provide double or tripple radio coverage.

◈ Every sector in Chengdu ACC control area has 2 or above remote sites providing radio coverge, in case part of the remote site failure, groud-air radio communication have no interruption

VHF Voice Best Signal Selection(BSS)

- There are 32 BSS devices in Chengdu ACC

- Each provides best selected VHF voice signal from different remote sites demodulated in one frequency

- In additional the SCHMID VCSS also provides BSS facility.

FA16 Multiplexer AND VANGUARD Multiplexer

FA16 Multiplexer manufactured by H3C give us ground connections from Chengdu ACC to remote sites, for most remote sites, there are 2 different routes provided by different telecom provider.

VANGUARD Multiplexer manufactured by MOTOROLA give us satellite connections from Chengdu ACC to remote sites

VRP

Chengdu ACC VRP system is provided by WiseSoft Company of Si Chuan University. Its recording capability is:

Radar/ADS-B Channels: 96
Voice Channels: 448

Work Shifts

- Five technicians each day(24 hours)
- One of them, Chief Technician , is in ACC Hall.