



INTERNATIONAL CIVIL AVIATION ORGANIZATION

COM CO-ORDINATION MEETING
(People's Republic of China and Pakistan)
7 – 9 May 2015, Beijing, China



Agenda Item 3: Discuss on the remedial options and develop action plan including milestones

SOLUTIONS FOR COMMUNICATIONS BETWEEN CHINA AND PAKISTAN

(Presented by China)

SUMMARY

This presentation presents proposed solutions for communications between China and Pakistan via satellite circuit and implementation plan.

1. BACKGROUND

1.1 According to CNS SG/18 meeting in July 2014, air traffic transfer incidents reported between Lahore and Urumqi Area Control Centers (ACCs) in 2010 was brought to the notice of China and Pakistan. These mistakes were initially found attributable to the unsatisfactory performance of ATS Direct Speech Circuit provided between the ACCs of China and Pakistan.

1.2 Since then, we began to carry out relevant investigate the current operating status and actions.

1.3 According to the investigation, we made a technical proposal via satellite circuit to promote the communications between China and Pakistan. Related equipment test were completed in the Lab based on the use of practical application.

2. INTRODUCTION

2.1 Situation of communications between China and Pakistan.

a) The ATS direct communication operating via IDD between Urumqi and Lahore is not stable and the voice quality is poor.

b) In Pakistan, GT-PURPA segment of air route is covered with very high frequency signal blind area. Lahore ACC establishes air-ground communication with aircraft via high frequency. The effect of high frequency communication is poor.

c) China and Pakistan's transfer of control point is PURPA. W112 and B215 are the main airways which go through PURPA.

3. DISCUSSION

3.1 Proposed Solutions for communications between China and Pakistan via satellite circuit

The proposed solutions include two parts:

Solutions for ATS direct communications via satellite circuit

a) It is suggested that IP-based satellite communication terminal device shall be used in the solutions. There should be built a VSAT ground station in Lahore ACCs. Accordingly, the Urumqi VSAT station should be added some device. Then the ATS direct communication will be realized via satellite circuit between Urumqi and Lahore.

Solutions for VHF coverage around boundary between China and Pakistan

b) It is suggested that a VHF radio and satellite communication terminal device shall be used in the solutions. There should be built a VHF remote radio station and a VSAT ground station in GT-PURPA air route, Pakistan. Then the VHF signal will be transferred to Lahore ACCs through satellite link.

3.2 We will provide some equipment for Pakistan.

3.3 We make a schedule for the proposed project to guarantee the project smoothly.

3.4 Other issues

Site survey

a) We will send engineers to Pakistan for site survey. We hope that the accommodation for Chinese engineers will be provided by Pakistan.

Installation and commissioning

b) There will have several engineers from China to Pakistan who will help equipment installation and commissioning. We hope that the accommodation for Chinese engineers will be provided by Pakistan.

Training

c) In the process of equipment installation and commissioning, we will provide site equipment training for Pakistani engineers, Pakistan shall determine the number of training engineers and be responsible for accommodation.

Maintenance

d) Pakistan will be responsible for operation and maintenance, and China will provide remote technical support by network, phone, or e-mail, etc.

4. ACTIONS BY THE MEETING

4.1 The meeting is invited to:

- a) discuss and confirm the solutions and implementation plan, improve communications capability between China and Pakistan; and
- b) discuss any relevant matters (installation, training, maintenance, etc.) as appropriate.

Appendix A – Equipment list for Pakistan

Appendix B – Agreed milestones for the proposed project

Appendix A

EQUIPMENT LIST FOR PAKISTAN

Lahore ACC VSAT station				
No	Name	Description	Quantity	remarks
1	C-band (2.4meter) ring focus antenna		1	
2	C-Band BUC (10W)	Type N interface	1	
3	C-Band LNB	Type N interface	1	
4	attenuator	Type BNC interface	2	
5	Comtech CDM570L IP Satellite modem		1	
6	1 to 4 power splitter	L-BAND\ Type N interface	1	
7	CNG1000 voice gateway		1	
8	IP-based Phone		1	
9	router		1	
10	Ethernet switch	8 port	1	
11	cabinet		1	
VHF remote radio station				
No.	Name	Description	Quantity	remarks
1	VHF radio	Including radio/filter/antenna/remote controller	4	127.500MHz(master,stand-by) 132.550MHz 121.500MHz
2	C-band (2.4meter) ring focus antenna		1	
3	C-Band BUC (10W)	Type N interface	1	
4	C-Band LNB	Type N interface	1	
5	attenuator	Type BNC interface	2	
6	Comtech CDM570L IP Satellite modem		1	
7	1 to 4 power splitter	L-BAND\ Type N interface	1	
8	router		1	
9	Ethernet switch	8 port	1	
10	cabinet		1	

AGREED MILESTONES FOR THE PROPOSED PROJECT

1.1 Equipment delivery(China)

Item	Starting Time	Execution Time(Days)	Finish Time
Site Survey	2015/5/11	90	2015/8/10
Purchase Equipment	2015/6/1	90	2015/9/30
Equipment Acceptance	2015/10/1	15	2015/10/15
Equipment transportation(for Pakistan)	2015/10/16	30	2015/11/15

1.2 Equipment installation environment preparation(Pakistan)

Item	Starting Time	Execution Time(Days)	Finish Time	Remarks
Preparation for outdoor equipment installation	2015/8/11	30	2015/9/10	antenna foundation construction, outdoor line pipe, lightning protection and grounding, power supply
Preparation for indoor equipment installation	2015/9/11	30	2015/10/10	temperature and humidity ,power supply, cable tray,grounding

1.3 Equipment installation and engineering (China and Pakistan)

1.3.1 For Lahore ACC

Item	Starting Time	Execution Time(Days)	Finish Time
Equipment Installation(including outdoor device and indoor device)	2015/11/16	2	2015/11/17
Equipment Training	2015/11/18	3	2015/11/20
System Commissioning	2015/11/20	10	2015/11/30
Operation Trial	2015/12/1	30	2015/12/31
Sign communication agreement	2016/1/1	1	2016/1/1

1.3.2 For VHF remote radio station

The implementation date is determined according to the preparation of the VHF remote radio station.