



International Civil Aviation Organization

COM CO-ORDINATION MEETING

People's Republic of China, Japan, Mongolia and Russian Federation



Shanghai, People's Republic of China, 18 – 20 October 2011

Agenda Item 2: Review the current implementation and operation status of AFS communication between States and discuss alternate routing arrangement for Fukuoka-Moscow circuit

GROUND DATA TRANSMISSION CIRCUIT KHABAROVSK - BEIJING

(Presented by Russian Federation)

SUMMARY

This paper presents a proposal for establishment of a landline 64 Kbps data circuit between Khabarovsk and Beijing in order to support alternate AFTN routing between Moscow and Fukuoka as well as to meet requirements of ATS Direct Speech Circuits between China and Russian Federation.

1. INTRODUCTION

1.1 The ICAO Asia/Pacific Regional Office has disseminated a notice regarding convening a Regional Co-ordination Meeting on Communications in Shanghai, China, in October 2011, with participation of China, Japan, Mongolia and Russia. Among the issues to be considered at the meeting is the issue of upgrading performances on throughput and reliability of the existing Khabarovsk-Beijing circuit of the AFTN network, in order to provide alternative routing in the event of failure of Moscow-Fukuoka circuit.

2. DISCUSSION

2.1 The Moscow-Fukuoka 64 Kbps data circuit was implemented into operation in January 2009, and provides, until now, good quality and reliability in performing the exchange of information between the AFTN Centres of Russia and Japan. The throughput of the circuit in both the input and the output has rather large reserve for traffic increase. (Attachment 1 – Hourly circuit load of traffic). As of 1 April 2011, due to closing of the Fukuoka-Khabarovsk circuit, the alternative routing was expected to be performed on the Khabarovsk-Beijing circuit. The throughput of the circuit between Beijing and Khabarovsk provides transmission of information being transferred over bypass, without delay, however, the circuit's characteristics of reliability require upgrading. (Attachment 2 – Circuit failures). In order to provide a more reliable exchange of information between the AFTN centres of Russia, China and Japan, we propose to organize Khabarovsk-Beijing ground-ground 64 Kbps data circuit (refer to the attached diagram in Attachment 3).

2.2 The exchange of AFTN messages in such a circuit can be performed over the 9.6 Kbps sub-channel, which would provide good traffic throughput in support of traffic between Khabarovsk and Beijing as well as between Moscow and Fukuoka (in the events of using this circuit as an alternate routing for the Moscow-Fukuoka circuit and v.v.). The data transmission circuit would be connected to the AFTN centres with the standard RS-232 interface in the asynchronous mode.

2.3 In order to optimize the technical facilities during interworking of ATM Services between the Far Eastern Region of Russia and China, the proposed circuit can be organized together with inclusion into it of the direct speech circuit between the controllers staff of Khabarovsk and Harbin (in the same way, or in addition to the existing satellite circuit), as well as the staff of Khabarovsk and Shenyang. At the same time, the Russian side would not object should the Chinese side agree on organizing a separate digital circuit solely for speech purposes for interworking. The proposed schematic solution allows realization, in the 64 Kbps circuit, of 1 data transmission (AFTN) and up to 5 or 6 speech circuits with the usage of G.729A or G.723.1 codecs. More elaborate technical consideration of the connection of the circuit may be made by the technical staff of the communication centres of Khabarovsk and Beijing.

3. ACTION BY THE MEETING

3.1 The meeting is invited

- to discuss and comment the information, and
- to decide about the way of upgrading the UHHH-ZBBB circuit.

Moscow-Fukuoka

09.02.2010

Time	Rx Msg	Tx Msg	Rx %	Tx %
1	174	10	1,49	0,08
2	134	10	1,09	0,05
3	221	11	1,64	0,08
4	210	16	1,27	0,11
5	153	15	1,05	0,14
6	156	13	1,16	0,1
7	175	34	1,4	0,36
8	125	19	0,98	0,14
9	141	14	1,27	0,18
10	186	35	1,29	0,24
11	128	35	1,13	0,37
12	137	25	1,27	0,25
13	189	24	1,68	0,21
14	192	29	1,66	0,25
15	210	31	2,22	0,33
16	206	39	1,74	0,33
17	189	33	1,32	0,28
18	206	34	1,64	0,31
19	165	24	1,36	0,19
20	211	12	1,42	0,06
21	137	17	0,98	0,14
22	144	14	1,02	0,1
23	165	14	0,96	0,04
24	175	14	1,39	0,08

Time	Rx Msg	Tx Msg	Rx %	Tx %
1	155	24	1,38	0,23
2	187	11	1,67	0,1
3	184	29	1,54	0,2
4	143	12	0,94	0,13
5	154	31	1,17	0,28
6	212	30	1,93	0,24
7	148	26	1,12	0,26
8	193	18	1,41	0,09
9	180	27	1,98	0,24
10	121	30	0,96	0,26
11	156	29	1,23	0,28
12	119	35	1,12	0,35
13	152	40	1,76	0,44
14	199	22	2,13	0,22
15	281	28	2,73	0,28
16	296	42	2,73	0,46
17	210	30	1,8	0,25
18	254	22	2,08	0,08
19	183	26	1,79	0,23
20	224	18	1,65	0,2
21	161	27	1,13	0,21
22	171	17	1,43	0,12
23	169	20	1,46	0,17
24	173	11	1,46	0,04

Time	Rx Msg	Tx Msg	Rx %	Tx %
1	181	17	2,26	0,16
2	171	13	1,9	0,07
3	157	20	1,73	0,2
4	185	42	1,86	0,5
5	129	37	1,48	0,7
6	194	36	1,98	0,36
7	201	72	2,26	0,65
8	170	59	2,2	0,9
9	146	41	2,08	0,53
10	171	45	1,98	0,49
11	156	41	2,37	0,53
12	188	63	1,89	1,03
13	234	71	3,07	0,91
14	228	59	3	0,64
15	269	31	3,88	0,44
16	241	30	2,93	0,37
17	240	55	2,77	0,51
18	273	41	2,84	0,52
19	213	77	2,31	1,49
20	178	33	1,95	0,49
21	313	48	3,39	0,86
22	203	19	1,83	0,15
23	143	26	1,42	0,19
24	203	26	2,5	0,26

Failures on Khabarovsk -Beijing satellite circuit
(01.06.2011-01.10.2011)

№	Date	Time	Duration	Reason
1	24.06.11	08:10-10:00	1:50	Problems with satellite station .
2	25.06.11	02:55-11:20	8:25	Problems with satellite station.
3	25.06.11- 26.06.11	22:00-02:00	4:00	Problems with satellite station.
4	26.06.11	23:00-23:56	0:56	Work on satellite circuit.
5	12.08.11	19:45-20:31	0:46	Planned work on satellite circuit.
6	16.08.11- 17.08.11	23:05-01:50	1:45	Problems with satellite station.
7	17.08.11- 18.08.11	20:28-01:00	2:32	Problems with sputnik station.
8	18.08.11	03:20-14:35	11:15	Problems with satellite station.
		Total	31:29	

Diagram of digital circuit 64 Kbps Khabarovsk - Beijing

