International Civil Aviation Organization
Sixth MEVA II / REDDIG Coordinationa Meeting
(MR/6)
Lima, Peru, 7 - 8 May 2008

Agenda Item 2: MEVA II REDDIG Technical and Administrative Management Analysis

CONTINGENCY SATELLITE PLAN

(Presented by REDDIG Administration)

SUMMARY

This working paper provides information related to Contingency Satellite Plan for MEVA II and REDDIG networks.

Reference
- Fifth MEVAII/REDDIG Coordination Meeting Report (Mexico City, October 3-5, 2007)
- Document "Full Service Agreements PanAmSat"

1. Background

1.1 In Fifth MEVAII /REDDIG (MR/5) Coordination Meeting held from 3-5 October 2007, in Mexico City, the Meeting recommended a contingency satellite plan for VSAT MEVA II and REDDIG networks to be set up with the purpose to guarantee permanent communication service that is provided through interconnections; and adopted Conclusion MR 5/2 *Establishment of a Coordinated Satellite Contingency for the MEVA II and REDDIG VSAT Networks.*

1.2 Likewise, in the Meeting, REDDIG Administration pointed out the importance have in consideration contractual terms with the satellite segment supplier, since these will be the base line and would influence directly in the development of a contingency satellite plan in technical and economic aspects.

2. Analysis

Revision of current Agreement with PanAmSat (now Intelsat)

2.1 Following the recommendation indicated, REDDIG Administration reviewed contractual terms of agreement with PanAmSat, enterprise supplier of REDDIG network satellite segment, concerning failures in their satellite service. As a reference, it is informed that PanAmSat has been purchased by Intelsat since 2006.

2.2 In the agreement, there are specific clauses to apply for cases of Confirmed Failure in the transponder, as well as Replacement of Satellite and/or of Communications Load processed through it. Following please find the above mentioned clauses with their respective translation.

2.2.1 Point *2.2 Confirmed Failure - Service Attachment (Transponder Segment Services)* PanAmSat can, but will not be required nor obliged to, use certain redundant equipments as substitute for a service transponder or to provide service to clients using another transponder which fulfills the specifications of the service.

2.2.2 Point *5.0 Replacement of Satellite and/or Communications Payload - Service Attachment* PanAmSat may replace the Satellite or one of its Communications Load for another Satellite (Substitute Satellite) in same orbit position or in another, to which Substitute Satellite could be authorized to be situated. In such circumstance, provided that there is substitute capacity available, essentially comparable with the Substitute Satellite, PanAmSat will provide the client with such capacity and the agreement will go ahead with the new service instead of the original for the rest of the hired period.

2.2.3 As **Appendix** to this working paper, it is enclosed a copy of summary of PanAmSat Full Service Agreement document with ICAO, to be used by space segment referred to the service.

Satellite Contingency Plan

2.3 Based in paragraphs mentioned above, the following satellite general contingency plan is being presented:

a) Revision of new agreement with Intelsat (to be renewed) and verification of clauses inclusion in case of transponder failure and satellite total failure. Maturity date of agreement is December 31, 2008.

b) In case of transponder confirmed failure, Intelsat should be contacted for the application of the corresponding clause.

c) In case of satellite total failure, Intelsat should be contacted for the application of corresponding clause.

d) In case satellite capacity is not guaranteed for none of the situations indicated in points b) and c), the hiring of satellite capacity in other different satellite that fulfills with main current specifications, should be assessed. In this case, the most important element will be to have capacity in reserve.

e) General technical considerations in case of satellite change, in application of corresponding contractual clause or in case of a new hiring of different satellite.

- Re-addressing of all antennas to new satellite.
- Modification of NCC data base of Linkway system (satellite configuration parameters, carriers frequencies, output modems for each station, all stations bootfiles, etc.)
- Power re-adjustment of SSPA of all stations with new data base.

- Recharge of new bootfiles in all stations.

- "Line-up" of all stations.

f) In case of satellite change, in order to continue with communications services which will be provided through interconnections, MEVA II network services should be reset in same satellite, and compatible transponder, in which REDDIG would provide services.

Replacement of Satellite IS-1R for Satellite IS-14

2.4 The Meeting is informed that according to information provided by INTELSAT, a new satellite designated as Intelsat 14 (IS-14) is scheduled to be launched in second quarter of 2009 and will replace the present satellite IS-1R (formerly denominated PAS-1R) where MEVA II and REDDIG networks are operating their services. Satellite IS-14 will fill the same orbit position, 45W as IS-1R.

2.5 The scheduled date that Intelsat has to transfer communications payload of IS-1R to IS-14 is October of 2009.

3. Suggested action

3.1 The Meeting is invited to:

a) Take notes of provided information;

b) Analyze and assess the proposed plan.

****

APPENDIX

ATTACHMENT 2

SERVICE ATTACHMENT
(TRANSPONDER SEGMENT SERVICES)

Satellite Information	
Satellite:	PAS 1R
Planned Orbital Location:	45° WL
Uplink Beam/Band:	US/Latin America Copolar C-Band
Downlink Beam/Band:	US/Latin America Copolar C-Band
Nominal Transponder Bandwidth:	36 MHz
Frequency Translation:	2225 MHz

1.0 GENERAL. This "Service Attachment" sets forth additional terms and conditions regarding the Transponder Segment Service (as defined in the Service Order), as well as information regarding the Satellite which provides such service. Unless otherwise specified in the Service Order, that portion of the Service Transponder which comprises Customer's Service shall be power and bandwidth limited, consisting of a Transponder segment, equivalent to the amount of bandwidth specified in the Service Order and associated power on the Service Transponder (a "Transponder Segment"). In the event PanAmSat approves any Customer request to increase power whereby Customer's Service becomes power limited (i.e., the proportion of power exceeds the proportion of bandwidth allocated), then PanAmSat shall increase the Service Fee to reflect such increase in power. Unless otherwise expressly defined herein, defined terms shall have the meanings ascribed to them in the Agreement and in the Satellite Information above.

2.0 CONFIRMED OUTAGES AND FAILURES.

2.1 Confirmed Outages. If, after the Service Start Date, the Transponder Segment Service fails to meet the Service Specifications for a continuing and uninterrupted period of one (1) hour, the Transponder Segment Service shall, subject to the Master Service Agreement and PanAmSat's confirmation, be deemed to have suffered a "Confirmed Outage" entitling Customer to Outage Credits, as defined in the Master Service Agreement. All determinations as to Confirmed Outages shall be made on an individual Transponder Segment by Transponder Segment basis.

2.2 Confirmed Failures. If, after the Service Start Date, the Transponder Segment Service fails to meet the Service Specifications for: (a) a cumulative period of ten (10) hours during any consecutive 30-day period, or (b) any period of time following a catastrophic event under circumstances that make it clearly ascertainable that a failure described in clause (a) will occur, the Transponder Segment Service shall, subject to the Master Service Agreement and PanAmSat's confirmation, be deemed to have suffered a "Confirmed Failure." All determinations as to Confirmed Failures shall be made on an individual Transponder Segment by Transponder Segment basis. In the event of a Confirmed Failure of the Transponder Segment Service, PanAmSat may, but shall not be required to, (x) employ certain redundant equipment units on the Satellite ("Spare Equipment"), as a substitute for a Service Transponder or (y) provide Service to Customer using another Transponder which meets the Service Specifications.

3.0 CARRIER TRANSMISSION PARAMETERS AND FREQUENCY ASSIGNMENTS.

3.1 Reference Parameters. All Customer Transmission Plans, and any subsequent revisions thereto, must be approved by PanAmSat in accordance with the Agreement in order to minimize interference between co-frequency transponders and to reduce interference to and from adjacent satellite networks. Unless otherwise specified in the Service Order and the Transmission Parameters attached thereto, the reference parameters set forth below and in Table 2 for the applicable information rate promised shall be controlling. Table 2 lists the reference transmission parameters for the digital carrier types described therein based on the following:

(a) QPSK modulation with Rate 1/2 FEC is assumed for all carrier sizes;
(b) for bit rates lower than 1.544 Mbps, the use of sequential decoding is assumed;
(c) the occupied bandwidth is assumed to be 1.12 times the symbol rate;
(d) the allocated bandwidth is assumed to be 1.40 times the symbol rate, rounded up to the nearest multiple of 25 kHz; and
(e) the carrier spacing is a multiple of 25 kHz.

3.2 Transmission Alternatives. Carrier sizes other than those listed in Table 2 may be permitted, subject to prior review and approval by PanAmSat and additional service charges may also apply. For example, when large earth stations are employed, an increase in transponder capacity may be achieved by the use of Rate 3/4 FEC rather than Rate 1/2. BPSK modulation may also be employed, in conjunction with either Rate 3/4 or Rate 1/2 FEC.

3.3 Frequency Assignment. PANAMSAT reserves the right to assign and/or reassign Customer's space segment allocation (and its other customer's space segment allocations) within the Service Transponder or to other Transponders within the applicable Uplink and/or Downlink Beam of the Satellite in order to minimize mutual interference between adjacent satellites, to ensure compliance with applicable coordination agreements with other networks, and/or to permit efficient loading of the Satellite. Except in emergency circumstances, PANAMSAT shall notify Customer of any changes to its initial allocation as soon as reasonably practicable prior to such change and shall use reasonable efforts to minimize disruption to Customer's Service during any such change.

4.0 SATELLITE PERFORMANCE CHARACTERISTICS. The Satellite is positioned at the Planned Orbital Location set forth in the Satellite Information. Each Transponder in the Downlink Beam shall have a Nominal Transponder Bandwidth as specified in the Satellite Information using the frequencies and polarizations shown in Table 1 below. The communication system translates uplink transmissions by a net frequency subtraction of the Frequency Translation value set forth in the Satellite Information.

5.0 REPLACEMENT OF SATELLITE AND/OR COMMUNICATIONS PAYLOAD. During the Service Term, PanAmSat may replace the Satellite or one of its communications payloads (e.g. Ku or C-band) with another satellite (a "Replacement Satellite") at the same orbital location or at such other orbital location to which such Replacement Satellite may be authorized by the FCC to be located. In such circumstances, provided there is available substantially comparable substitute capacity on the Replacement Satellite, PanAmSat shall provide such capacity to Customer (the "Replacement Transponder Segment Service") and this Agreement shall continue with such Replacement Transponder Segment Service in