



International Civil Aviation Organization

Future Air Navigation Systems Interoperability Team-Asia (FIT-ASIA)

Bangkok, Thailand, 27 August 2012

Agenda Item 2: Central Reporting Agency Report

CENTRAL REPORTING AGENCY REPORT

(Prepared by the Central Reporting Agency, presented by ICAO)

SUMMARY

This paper presents a summary of the results of investigations undertaken by the Central Reporting Agency for the problem reports received since the last report.

1. INTRODUCTION

1.1 The Central Reporting Agency (CRA) has continued to process data link PRs received from operators and air navigation service providers (ANSPs) in the Bay of Bengal region. The CRA Problem Report analysis is a service provided by Boeing, under contract with IATA, to support data link operations in the Bay of Bengal Region.

1.2 The Boeing team responsible for providing the CRA service also provides the similar Data Link Monitoring Agency (DLMA) service in other regions, including the North Atlantic and CRA service in the South Pacific, allowing lessons learned in one region to be shared with others.

2. DISCUSSION

2.1 Since the last report, the CRA has processed sixteen reports submitted from stakeholders (ANSPs and operators) regarding data link issues in the bay of Bengal region.

2.2 There were several problems reported that dealt with intermittent ground connections with one ANSPs connection to the ACARS network. These problems are not associated with air/ground communication issues that could be analyzed by the CRA. The CRA encourages ANSPs experiencing ACARS network connection issues work directly with their service provider to identify and implement any corrective actions required.

2.3 Several “unable to connect” reports were received by an operator. Analysis showed that in all cases the ANSP rejected the logon request due to the logon information in the downlink request (i.e. flight number, tail number) did not match the data in the filed flight plan. Typically these logon rejections are a caused by the flight crew not entering the flight number exactly as is entered in the filed flight plan. Operators should remind their flight crews to enter the flight number exactly as is entered in the filed flight plan as described in the GOLD.

2.4 There were also several PRs filed by ANSPs indicating that messages could not be delivered to several different aircraft types. Analysis showed that in all cases the aircraft lost the SATCOM connection for a period of time. Per the procedures outlined in section five of the GOLD (crew procedures) the flight crews should notify ATC when the SATCOM connection is unavailable

2.5 One ANSP reported two problems indicating receipt of duplicate ADS-C reports for the same waypoint. In both cases there were waypoints in the route that were in close proximity to each other. The ADS application reports Lat / Long position data and not waypoint names in waypoint change event contracts. In both cases the ADS-C application did report different positions when the waypoints were sequenced. Some ground automation systems use a filter to match Lat / Long information received in the ADS-C downlinks to named waypoints. ANSPs should review the distance value used in position filters to ensure the distance value used does not cause ADS-C waypoint change events received in close proximity to one another to be displayed as duplicate ADS reports from the aircraft.

2.6 There were some reports of SATCOM working “intermittently”. CRA analysis correlated these reports of intermittent SATCOM operation with outage reports received from the Communication Service Providers. All ANSPs in the region should ensure they are receiving planned maintenance or outage reports from their Communication Service Providers.

2.7 Attachment A to this report provides a presentation of Problem Reports received and a description of the CRA analysis.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) Note the information contained in this paper and attached presentation; and
- b) Ensure the ANSPs, operators and others involved in data link operations continue to provide problem reports of any anomalies that they might experience. Prompt and full reporting of such events in the format provided in the GOLD to the CRA will allow any deficiencies to be identified and rectified.

.....

PR 1-25 ACFT WAS CONNECTED TO ADS/CPDLC BUT ADS DEMAND AND CPDLC MSG WERE CONTINUOUSLY GIVING ERROR INDICATING NON DELIVERY OF MSG

- Flight CPA 018
- The aircraft lost comm with the VHF with MAA at 19:52
- SATCOM was not available.
- The aircraft reconnected in VHF with KDT at 21:12 and the data link was back to normal.

Once the aircraft flew out of VHF coverage of the MAA VHF ground station data link was lost due to no SATCOM link. Per GOLD procedures the flight crew should have notified ATC that SATCOM was not available and they were switching to HF voice control

PR 2-5 SITA LINK FAILURE

PR 2-12 SITA LINK FAILURE

PR 2-29 SITA LINK FAILURE

PR 3-4 SITA LINK FAILURE

PR 5-16-1 SITA LINK FAILURE FM 1300 TO 2040

PR 5-16-2 SITA LINK FAILURE FM 0735 TO 0755

Several problem reports indicated there were ground connection issues with the SITA network. All these reports came from the same ATSU. Suggest the ATSU work with SITA to identify the source of these connection problems.

PR 4-19 UNABLE TO LOGON WITH VABF ON CPDLC

- Flight UAE 501
- The ground responded to the LOGON request with error code 4 – Could not match flight ID/position to flight plan.

The ATC ground system automatically checks the flight number and tail number in the filed flight plan against the flight number and tail number included in the logon request from the airplane. If they do not match the ground automation will not establish a CPDLC connection. This may be a problem with how the flight plans are being filed or the flight crew could have been adding or deleting leading zeros. The airplane data indicated that the flight number and tail number in the CPDLC downlink message matched the flight number and tail number in the ACARS message header.

PR 5-6 ADS REPORT SAY NO TCAS. PILOT ON VHF REPORTED THAT TCAS WORKING NORMAL

- Flight SIA 391
- ADS Report indicated TCAS Available
- ADS Report indicated Navigation System Redundancy was NOT REDUNDANT (i.e., one source)
- Suspect ground indication of TCAS was in error (i.e., using the Navigation System Redundancy bit)

The log data showed that TCAS was available but the navigation redundancy bit was set to single source in stead of dual source indicating a degradation in navigation capability. This could be an encoding bug in the ground automation system which indicated no TCAS in stead of degraded navigation capability.

PR 5-11 WAYPOINT CHANGE ALADO RECEIVED AT 17:23:57. BUT ONE MORE WAYPOINT CHANGE FOR ALADO RECEIVED AT 17:26:40

- Flight KLM 810
- The first waypoint sequence report was at ALADO at 17:23:57 with the next waypoint at N1121.3E09147.8.
- The second waypoint sequence report at 17:26:40 was due to the change to the next waypoint at N1151.6E09117.8.

The aircraft sequenced ALADO and sent a waypoint change report. Shortly after sequencing ALADO the crew modified the route which made N1151.6E09117.8 the next waypoint. The N1151.6E09117.8 waypoint was sequenced three minutes after ALADO. Suggest checking the ground automation to ensure the filter used to correlate ADS lat long data to named waypoints is not too large. If the filter is too large ADS downlinks in close proximity could be shown as duplicate waypoint change reports.

PR-5-14 UNABLE TO LOGON WITH MUMBAI ON CPDLC

- Flight UAE 357
- The ground responded to the LOGON request with error code 4 – Could not match flight ID/position to flight plan.

The ATC ground system automatically checks the flight number and tail number in the filed flight plan against the flight number and tail number included in the logon request from the airplane. If they do not match the ground automation will not establish a CPDLC connection. This may be a problem with how the flight plans are being filed or the flight crew could have been adding or deleting leading zeros. The airplane data indicated that the flight number and tail number in the CPDLC downlink message matched the flight number and tail number in the ACARS message header.

PR 5-15 UNABLE TO CONNECT WITH WMFC

- Flight UAE 347
- The flight crew logged on to VOMM first then disconnected
- The flight crew then logged on to WMFC.
- Before CPDLC connection with WMFC could be established, VOMM re-connected CPDLC with the aircraft and became the active center.

The flight crew logged onto the incorrect ATC facility and then disconnected the CPDLC connection. Then the flight crew sent a logon request to the next ATSU however before they could establish a connection the previous center's ground automation re-established a connection which inhibited the connection with next center. Suggest running some bench tests to identify any handoff automation issues.

PR 5-22 NO CPDLC contact with VABF

- Flight UAE 502
- The ground responded to the LOGON request with error code 4 – Could not match flight ID/position to flight plan

The ATC ground system automatically checks the flight number and tail number in the filed flight plan against the flight number and tail number included in the logon request from the airplane. If they do not match the ground automation will not establish a CPDLC connection. This may be a problem with how the flight plans are being filed or the flight crew could have been adding or deleting leading zeros. The airplane data indicated that the flight number and tail number in the CPDLC downlink message matched the flight number and tail number in the ACARS message header.

PR 6-1 SITA unable to deliver message to aircraft

- Flight RJA 182
- Aircraft lost VHF after 4:51
- No SATCOM

Once the aircraft flew out of VHF coverage data link was lost due to no SATCOM link. Per GOLD procedures the flight crew should have notified ATC that SATCOM was not available and they were switching to HF voice control. ATSU's should check the filed flight plan to ensure the aircraft has satcom installed.

PR 6-2 SITA unable to deliver message to Aircraft

- Flight QFA 6
- All uplink messages were delivered to the aircraft successfully

The log data in the previous PRs reporting unable to deliver messages to aircraft showed no messages being delivered. However the log data for this PR showed that messages were in fact being delivered to aircraft. May be a ground automation Problem or it may be a problem with the SITA network.

PR 6-11-1 ALK455 WAS CONNECTED TO ADS/CPDLC.BUT NO ADS/CPDLC MESSAGE RECEIVED AFTER 1250.ERROR MESSAGE RECEIVED FOR DEMAND CONTRACT

- Flight ALK 455
- The last report was at 12:49 via SATCOM POR1
- The aircraft re-established VHF at 14:11

The aircraft sent a message over SATCOM at 12:49. Data link was reestablished on VHF 72 minutes later. Most likely be due to a failure of the satcom system. Per GOLD procedures the flight crew should have notified ATC that SATCOM was not available and they were switching to HF voice control

PR 6-11-2 ADS CONNECTION INTERMITTENT

- Flight UAE 347
- SATCOM link was working intermittently from 14:00 to 14:18

The log data showed that SATCOM was working intermittently for a short period of time. No other issues were shown in the log data. It was difficult to determine from the problem report if this was the only period of intermittent operations observed by the ATSU. Ensure the ATSUs in the region are receiving outage notifications.

PR 6-11-3 ADS CONNECTION INTERMITTENT

- Flight MAS 194
- ADS request uplinks were delivered and responded to

The log data showed that the airplane correctly responded to the ADS uplink request. There were also exchanges of CPDLC messages during the same time period regarding weather deviations. Ensure the ATSUs in the region are receiving outage notifications.

PR 6-18 CONNECTED TO CPDLC. BUT UNABLE TO CONNECT ADS

- Flight UAE 391
- ADS contracts were not issued from the ground
- CPDLC connections were established every time

This ATSU would normally issue two ADS contracts and then the CPDLC connection. In this case the log data did not show any ADS contracts being sent to the aircraft.

PR 6-22 ALK455 WAS MAINTAINING FL400. BUT ADS TRACK SHOWS FL380 (PLANNED LEVEL). EVEN AFTER GIVING DEMAND CONTRACT THE TRACK WAS NOT UPDATED

- Flight ALK 423
- Lost SATCOM after 12:49 at N11 39.0 E92 44.6 on SATCOM POR1.
- No ADS report until 14:11 after re-established VHF with CMB

The aircraft lost SATCOM for about an hour. When data link was reestablished with VHF ground station CMB, some of the buffered ADS messages were sent. Per GOLD procedures the flight crew should have notified ATC that SATCOM was not available and they were switching to HF voice control

PR 6-22 WAYPOINT CHANGE RECEIVED AT 124412 FOR POSITION DUBTA. BUT AIRCRAFT WAS ABOUT 11NM TO DUBTA.DEMAND CONTRACT GIVEN.AIRCRAFT POSITION STILL SHORT OF DUBTA. AT 124641 ANOTHER WAY POINT REPORT RECEIVED FOR DUBTA

- Flight SIA 423
- The waypoint change report at 12:44 was at N7-56.5E91-25.1.
- Per the same report, N7-49.4E91-40.6 (DUBTA) would be sequenced next in 2 minutes 26 seconds.
- The waypoint change report at 12:46:26 was at N7-49.3E91-40.8 which is at DUBTA

This is a similar PR to 5-11. Suggest checking the ground automation to ensure the filter used to correlate ADS lat long data to named waypoints is not too large. If the filter is too large ADS downlinks in close proximity could be shown as duplicate waypoint change reports. Suggest a coordinated bench test to see if waypoints in close proximity are being shown as the same position due to ground automation filtering.