



180 Admiral Cochrane Dr., Suite 300
Annapolis, Maryland
21401-7435



30 October 2015

MINUTES OF THE AFC FALL MEETING 2015 6-7 October 2015, Montreal, Canada

1. OPENING REMARKS AND INTRODUCTIONS

Terry Gambill (PHI), AFC Chairman, convened the Aeronautical Frequency Committee (AFC) meeting on 6 October 2015 at the Embassy Suites Hotel, Montreal, Canada.

All members introduced themselves to the group.

Attendees:

Vytas Cerniauskas (ASA Alternate) – Vice Chairman	Jeff Monroe (ASA)
Chris Collings (Harris)	Vic Nagowski (ASRI)
Joe Cramer (Boeing)	Holly Rees (ASRI)
Bob Dick (FFT Alternate/ACG Systems)	Andrew Roy (ASRI) – Executive Secretary
Terry Gambill (PHI) – Chairman	John Seybold (Harris)
Michael Hinojosa (ASRI)	Tim Totten (UPS)
Kris Hutchison (ASRI)	Tom Wainscott (FDX)
Zbig Jasiukajc (SITA)	Chris Wheatley (ASRI)
Steve Ledger (Rockwell Collins/ARINC)	Neal Young (SWA)

Apologies:

Ken Adams (DAL)	Tim Pawlowitz (FAA)
Tom Davis (DAL)	Tim Payne (DAL)
Rich Farr (AAL)	Barry Pilkington (FDX)
Michael Francis (NATA)	Mike Richards (AAL)
Mark Hagan (UPS)	Dave Robinson (ERA)
Terry Horn (SITA)	Brian Romine (USA/AAL)
Pete Incaini (UAL)	Joe Williamson (JBU)
John Monto (Rockwell Collins/ARINC)	David York (HAI)

The current AFC membership, associate members and observers' status was reviewed by Andrew Roy (ASRI). Nine voting members in attendance were accounted for should a vote be required. He also mentioned that an associate IATA member should be attending the next meeting. Andrew asked that AFC meeting attendees not to distribute the AFC meeting information outside the AFC membership. A new vice-chair would be elected at the meeting tomorrow.

2. APPROVAL OF THE AGENDA

The agenda was reviewed and approved

3. APPROVAL OF THE SPRING 2015 MEETING MINUTES

Andrew Roy (ASRI) – The AFC Executive Secretary introduced the minutes from the Spring 2015 AFC meeting and the group conducted a page-by-page review.

Page 8 had a typo that will be corrected.

A motion to approve the minutes was provided by Kris Hutchison (ASRI) and seconded by Neal Young (SWA). Terry announced that the minutes were approved as modified.

4. STANDING REPORT OF RELATED ACTIVITIES

A) International Telecommunications Union-Radiocommunications (ITU-R) Activities

(i) Study Group 5 (WP5A and 5B)

Kris Hutchison (ASRI) briefed on the WP 5B and WP 5A meeting in Bucharest in July 2015. The meeting was the last WP 5B meeting before WRC-15, and therefore attempted to complete the ITU-R reports for Global Flight Tracking (GFT), ADS-B over satellite, and use of fixed satellites for UAS. However, the meeting was not very productive, and instead further entrenched opposing positions on all three issues.

Other topics of note include the WP 5B subgroup dealing with miscellaneous topics external to WP 5B, chaired by Andrew Roy. Several secondary systems continue to develop in the ITU-T and ITU-R Study Group 1 that may adversely affect aviation systems, including wireless power transfer, and broadband over power lines. WP 5B sent several liaison statements opposing any system that would affect aviation HF, VHF, and UHF systems.

(ii) US FCC Preparation Groups for WRC-15

Kris Hutchison (ASRI) provided a report on the US Preparatory Group for WRC-15. A delegation has been established. Ongoing work included:

- The Federal Advisory Committee for the FCC is primarily complete with some additional meetings being scheduled dealing with the satellite issues.
- IMT is interested in additional spectrum in various bands below 6 GHz.
- Satellite advocates are focused on the band 3400-4200 MHz.
- The WRC-15 will be very political in nature and is scheduled for November 2015.

Kris Hutchison (ASRI) noted that he will be on the US delegation at WRC-15.

(iii) Global Flight Tracking (GFT)

Kris Hutchison (ASRI) provided a brief summary of GFT's progress at this time. He noted that several administrations and companies are strongly supporting the ADS-B over satellite as the primary method of GFT. ICAO also supports a suitable satellite allocation for the system, but the language is subject to interpretation given the views opposing the system. This has occurred for a number of reasons, including concerns about the accuracy of the studies given the short time to peer review the data, setting a precedent for a last minute WRC agenda item, appearance that aviation is capitalizing on the MAH370 accident, and competing satellite companies'/military users of the same spectrum.

Joe Cramer (Boeing) also noted that the GFT has some problems from the manufacturers' perspective, with concerns that IFF operations may be limited by the ADS-B satellite receiver claiming protection from their emissions. Additionally, other options were being considered including a possible black box data recorder ejection mechanism, but these concepts may create additional hazards to aircraft.

B) International Civil Aviation Organization (ICAO) Aeronautical Communications Panel (ACP) Activities Report

(i) Working Group F (WG-F)/Frequency Spectrum Management Panel (FSMP).

Andrew Roy (ASRI) provided a brief update on ICAO WG-F, which has now been given panel status, and is now called the Frequency Spectrum Management Panel (FSMP). ASRI will be a panel member, and Andrew Roy was elected as Vice-Chairman of the meeting. The next meeting will focus on the new panels' direction and work environment for the next WRC study cycle. Although the ICAO WRC-15 position has been finalized, it is expected that some agenda items for the conference will be discussed given that other administrations are still finalizing their own positions. It was noted that IATA has encouraged airlines to attend the meeting in the IATA delegation to support commercial interests at ICAO.

Agenda items relevant to ICAO included:

- Opinions on WRC-15 agenda items – GFT and 1.5 (UAS);
- Black box upload systems;
- 5 GHz band planning;
- AeroMACS; and
- Aviation spectrum planning.

The next meetings of FSMP are scheduled for February 2016 and September 2016 in Montreal.

(ii) Working Group M (SELCAL).

A presentation was provided by Vic Nagowski (ASRI consultant) on WG-M and other committees related to the selective calling (SELCAL) code pool expansion.

The ICAO Communications Panel Meeting 2 was held September 28 through October 1, 2015 in Montreal, Canada. ASRI submitted a working paper on the status of avionics backward compatibility testing to date consisting of theoretical analysis, bench testing and flight testing. A theoretical analysis on intermodulation products was completed, and it was concluded that ASRI would not implement approximately 5000 tone pairs as a precaution. Bench testing conducted on avionics associated with Airbus and Boeing aircraft to date indicate that the legacy avionics are fully backward compatible with the proposed SELCAL code pool expansion. Airbus plans to conduct flight testing in October 2015.

The AEEC SELCAL working group held its final meeting on July 7, 2015 in Washington, DC. They reviewed and completed the draft SELCAL standard (ARINC 714A). The AEEC Executive Committee unanimously approved the 714A document at the AEEC Mid-term meeting held September 23-24, 2015.

The RTCA SC-232 held its fourth meeting July 8-9, 2015 in Washington, DC. The draft MOPS was reviewed with updates, and the avionics backward compatibility testing results were reviewed. The next two meetings of SC-232 are scheduled for November 10-11, 2015 and January 26-27, 2016 in Washington, DC. RTCA will circulate the draft MOPS and commence the Final Review and Comment (FRAC) process after the November meeting. The January meeting will disposition comments received

on the document. The MOPS document will be presented to the RTCA Program Management Committee for final approval in March 2016.

(iii) Working Group S (WG-S).

A presentation was provided by Vic Nagowski (ASRI consultant) on the ICAO WG-S and the AEEC AeroMACS Working Group.

ICAO WG-S is an ICAO sponsored initiative to develop standards for the AeroMACS system. The WG-S objectives include the development of the System and Recommended Practices (SARPs) standard, the Technical Manual (TM), and coordination with other committees as necessary. The SARPs has been completed and the TM is expected to be complete by end of 2016. The next WG-S meeting is scheduled for December 8-10, 2015 in Montreal, Canada.

The AEEC formed an AeroMACS Working Group (WG) which is tasked with defining an airborne radio suitable for installation in all types of aircraft. A draft ARINC Project Paper 766 (AeroMACS Transceiver and Aircraft Installation Standards) has been prepared by Honeywell and Selex. The goal of the WG is to develop a mature draft of ARINC 766 by the end of 2016. The first meeting of the AeroMACS WG is scheduled for November 12-13, 2016.

(iv) European Frequency Management Group (FMG).

A presentation was provided by Chris Wheatley (ASRI) on the FMG.

The FMG is responsible for developing recommendations for the ICAO European Air Navigation Planning Group (EANPG) on issues related to aviation spectrum management and frequencies. The committee normally meets twice a year.

The last meeting of the FMG was 9 – 11 September 2015, in Paris, France. ASRI staff did support this meeting. Topics relevant to US aviation included:

- ACARS leaving 136 band;
- ENAV Italy datalink stations;
- VDL Mode 4 channel reserved in lower COM band; and
- New VDL assignment.

The FMG has asked that all ACARS stations be removed from the 136 MHz band by the end of 2016. ENAV has developed their own type of ground station which incorporates both the VDLM2 service for both Rockwell Collins/ARINC and SITA using the same radio and antenna. The VDL Mode 4 system has no operational stations, though proposals to try and introduce channel plan using 113.250 MHz across Europe is experiencing difficulties with GBAS systems in the same band. Datalink service providers in Europe are seeking dedicated VDL frequencies across Europe to assure their services better. The FMG has agreed to temporarily assign frequency 136.875 MHz for shared enroute VDLM2 use for both Rockwell Collins/ARINC and SITA. The final decision on the VDLM2 frequency channel planning is expected in the 3rd quarter of 2016, once the SESAR study into future VDL requirements is complete.

The next meetings of the FMG are scheduled for December 2015 (dedicated VDLM2 meeting) and September 2016 in Paris, France.

(v) Aeronautical Communications Panel (ACP).

Vic Nagowski (ASRI consultant) provided a report on the Communications Panel.

The meeting of the second ACP meeting was held September 28 through October 1, 2015 in Montreal, Canada. The primary focus of the meeting was organizing job cards which define work programs that are associated with the various working groups (WG-M, WG-S, WG-I, and WG-T) within the C/P. Modifications to job cards will need to be approved by the air navigation commission. The other emphasis of the meeting, which is being promoted by ICAO management, is making sure that the panels (Operations and Data Link) are scheduling joint meetings in order to develop improved standards.

C) FAA REPORT

(i) FAA DataComm Program

Chris Collings, Harris, on behalf of the FAA DataComm office, provided an overview of the FAA Data Communications program which will provide data communications between the cockpit and controllers to replace some of the current voice communications.

Harris is leading the Data Communication Integrated Services (DCIS) team partners with the FAA to deliver data communication network services (DCNS), data communications integration and test, avionics equipage incentives, operations support, and engineering services.

The DCNS update:

- Service establishment progressing well with Rockwell Collins/ARINC and SITA
- Supported FAA integration and test activities in Atlantic City, NJ
- Delivered Service to 3 FAA key sites (SLC, IAH, HOU) in 2015
- Surveyed all 56 Departure Clearance (DCL) airports.

The program has completed Initial Operational Capability (IOC) for tower services at 3 key sites, is preparing for tower service implementation waterfall in 2016, and proceeding with enroute service development and planning for advanced services. A chart providing the acquisition program baseline milestones was briefed and a chart with the tower service deployment dates (2016 – 2019) was presented. Work is continuing to solidify the enroute data communication service definition and the enroute operational demonstrations are on-going.

(ii) ADS-B Implementation Progress and Future intentions (Terrestrial and SATCOM).

The FAA did not attend the meeting so no report was provided.

(iii) FAA's AeroMACS Deployment Update.

The FAA did not attend the meeting so no report was provided.

5. REPORT ON OTHER REGULATORY AND TECHNICAL ORGANIZATIONAL UPDATES

A) AEEC Data Link Users Forum

Vic Nagowski (ASRI consultant) provided a presentation on the last meeting of the AEEC Data Link Users Forum (DLUF).

The DLUF holds two meetings each year with one in the US and one in Europe, and are normally hosted by a participant organization. The last DLUF meeting was held on September 15-16, 2015 in Toulouse,

France hosted by Airbus. The primary subjects of discussion were the status of the European Laboratory for Structural Assessment (ELSA) consortium work and the status of the CPDLC Operations in Europe data link services implementation rule (DLS IR). Concerns were expressed about when the results of the consortium work would be completed and officially announced.

Other items of interest included:

- European Commission DLS IR aircraft exemption status;
- CPDLC Europe performance;
- VDL multi-frequency implementation in Europe;
- A350 Media Independent Aircraft Messaging (MIAM) implementation status;
- Other CAA CPDLC program status;
- Satellite provider updates; and
- Service provider responses to key issues.

The next DLUF meeting is scheduled for February 2-3, 2016 in Miami, Florida hosted by Rockwell Collins IMS (ARINC). An airline only roundtable meeting is scheduled for the morning of February 4, 2016 to review the previous meeting results and identify items for discussion at the next DLUF meeting. A workshop is scheduled for the afternoon of February 1, 2016 to further investigate the implementation of the MIAM functionality.

B) LightSquared

Andrew Roy (ASRI) provided a presentation on LightSquared.

LightSquared (LS) is continuing to struggle after the FCC delays and is seeking bankruptcy exit on \$1.7bn of debt. The legal case between Harbinger and existing shareholders is continuing. There is also a power struggle between shareholders. Harbinger attempted to sue GPS IC for \$1.9bn claiming GPS manufacturers were 'not forthcoming' on GPS receiver performance. A judge rejected most claims on 5 February 2015 but left open the negligent misrepresentation and constructive fraud. Harbinger is also suing US government for FCC actions and not living up to their part of the agreement.

The DOT will be conducting an assessment of GPS adjacent band compatibility. This effort was initiated after NTIA and FCC discussions following the LS process. The intent is to provide a framework to define the processes and assumptions for development of GPS spectrum protection criteria on behalf of GPS civil users. A DOT test setup will use a test chamber to generate simulated GPS satellites and interference sources, assessing when the 1 dB C/N protection criteria is exceeded. A test plan has been generated.

The DOT timeline is the following:

- Final test plan released: November 6, 2015
- NDA execution with GPS manufacturers: December 1, 2015
- Finalize list of GPS receivers to be tested: January 16, 2016
- Test procedure presentation (workshop): Late 2015 or Early 2016
- Workshop: Late 2015 or Early 2016
- GPS/GNSS receiver testing: March 2016

LS is proposing its own test plan which focuses on Key Performance Indicators (KPIs) for devices, i.e. define the acceptable level of interference when a device goes outside of its specified level of accuracy. They plan to increase interference until the KPI is affected and will then define the interference limit for each device, including certified aviation devices. Roberson and Associates are working on LS' behalf and will not be part of DOT plan. They have no support from GPS manufacturers and will go ahead anyway.

A detailed comparison of the DOT test plan and the LS test plan were provided. The DOT test plan comments deadline is 9 October. The FCC process is ongoing. The AFC should prepare to file with the FCC to counter the LS claims on GPS performance, challenge the KPI metric as not being an appropriate metric, and support the DOT test plan. Andrew solicited support from the airlines to support a filing of comments to the FCC. Andrew accepted an action item to circulate a briefing package that the airlines could use to brief their management to obtain support on this subject.

C) FCC harm Claim Thresholds for Receivers

Andrew Roy (ASRI) provided a presentation on the FCC Receiver Standards Proposal.

Andrew provided an update on the initiative from the FCC's Technical Advisory Council (TAC). A white paper distributed in 2013 suggested a harm claim threshold process for receivers. The AFC commented on the impracticalities for aviation. A chart was provided that highlighted some of the concerns with this effort.

A draft whitepaper due at the 9 December meeting is supposed to provide principles for assessing new frequency band allocations. Draft interference principles include interference which is due to characteristics of both the transmitters and the receivers.

D) FCC Regulatory Fee Increase

Andrew Roy (ASRI) briefed on the FCC attempted to increase the regulatory fee from \$300 to \$350 for a 10-year license. The fee is split into per year charge over 10 years and does not include application fee of \$130. The proposed raise was in addition to previous year increase which raised the fee from \$150 to \$300. The ASRI filing reduced the proposed \$350 fee down to \$200. Andrew thanked the airlines for their support of the filing.

E) FCC Enforcement Office Changes

Kris Hutchison (ASRI) provided a report on the FCC Enforcement Office Changes.

The FCC recently adopted a plan to save funding by closing field offices in Anchorage, Buffalo, Detroit, Houston, Kansas City, Norfolk, Philadelphia, San Diego, San Juan, Puerto Rico, Seattle, and Tampa. The remaining field offices would be in Atlanta, Boston, Chicago, Columbia (MD), Dallas, Denver, Honolulu, Los Angeles, Miami, New York City, and San Francisco. There would tiger teams assigned to complete remote work as required.

6. GUEST PRESENTATION: ICAO WRC-15 POSITION AND UPDATE

Loftur Jonasson, ICAO FSMP Secretary, provided a presentation on Aviation Frequency Spectrum and the ITU World Radiocommunications Conferences (WRC).

Loftur provide some background information on aeronautical spectrum management, ITU-R radio regulations, general overview of the ITU WRCs, ICAO WRC preparations, ICAO spectrum strategy, key WRC-15 agenda items, ICAO items of interest, and the ICAO WRC-15 position on key agenda items related to aviation spectrum.

The ICAO items of interest concerning aviation spectrum at the WRC-15 include:

- Agenda Items 1.5: To consider the use of frequency bands allocated to the fixed-satellite service not subject to Appendices 30, 30A and 30B for the control and non-payload communications of

unmanned aircraft systems (UAS) in non-segregated airspaces, in accordance with Resolution 153 (WRC-12);

- Agenda Item 1.17: To consider possible spectrum requirements and regulatory actions, including appropriate aeronautical allocations, to support wireless avionics intra-communications (WAIC), in accordance with Resolution 423 (WRC-12); and
- Agenda Item 9.1.5: Consideration of technical and regulatory actions in order to support existing and future operation of fixed-satellite service earth stations within the band 3400 – 4200 MHz, as an aid to the safe operation of aircraft and reliable distribution of meteorological information in some countries in Region 1 (Resolution 154 (WRC-12))
- Global Flight Tracking (as per ITU PP-14 decision): Consideration of Global Flight Tracking, including, if appropriate, and consistent with ITU practices, various aspects of the matter, taking into account ITU-R studies.

Direct Threats to Aviation Spectrum (main Agenda Items):

- Agenda Item 1.1: To consider additional spectrum allocations to the mobile service on a primary basis and identification of additional frequency bands for International Mobile Telecommunications (IMT) and related regulatory provisions, to facilitate the development of terrestrial mobile broadband applications, in accordance with Resolution 233 (WRC-12);
- Agenda Item 1.5: To consider the use of frequency bands allocated to the fixed-satellite service not subject to Appendices 30, 30A and 30B for the control and non-payload communications of unmanned aircraft systems (UAS) in non-segregated airspaces, in accordance with Resolution 153 (WRC-12); and
- Agenda Item 1.12: To consider an extension of the current worldwide allocation to the Earth exploration-satellite (active) service in the frequency band 9300 – 9900 MHz by up to 600 MHz within the frequency bands 8700 – 9300 MHz and/or 9900 – 10500 MHz, in accordance with Resolution 651 (WRC-12).

ICAO position on agenda item 1.1:

- To oppose any new allocation to the mobile service for IMT in or adjacent to:
 - frequency bands allocated to aeronautical safety services (ARNS, AM(R)S, AMS(R)S);
 - frequency bands allocated to RNSS and used for aeronautical safety applications;
 - frequency bands used by fixed satellite service (FSS) systems for aeronautical purposes as part of the ground infrastructure for transmission of aeronautical and meteorological information or for AMS(R)S feeder links;
 - unless it has been demonstrated through agreed studies that there will be no impact on aeronautical services.
- Due to the potential for serious impact to aeronautical radar systems, global and/or regional allocations to the mobile service for IMT, and/or identification for IMT, should be opposed in any portion of the potential candidate frequency bands/ranges 1 350 - 1 400 MHz and 2 700 - 2 900 MHz. Allocations/identifications on a country/multi-country basis should be contingent on successful completion of coordination with countries within several hundred kilometers of the IMT proponent country's border.
- Any new allocations to the mobile service for IMT, and/or identification for IMT, in frequency bands/ranges near that used by radio altimeters (4 200 - 4 400 MHz) should be contingent on successful completion of studies to demonstrate that IMT operations will not cause harmful interference to the operation of radio altimeters.

ICAO position on agenda item 1.5:

- Includes a detailed set of conditions, required as-a-minimum, to ensure that safety of life concerns is sufficiently addressed, in order to make any consideration of FSS spectrum possible for UAS CNPC links;

- To ensure that in order to support the use of FSS systems for UAS CNPC links in non-segregated airspace, the technical and regulatory actions identified by studies under Resolution 153 (WRC-12) be consistent with the above Recommendations, and satisfy the following conditions:
 - That the technical and regulatory actions be limited to the case of UAS using satellites, as studied, and not set a precedent that puts other aeronautical safety services at risk.
 - That all frequency bands which carry aeronautical safety communications be clearly identified in the ITU Radio Regulations.
 - That the assignments and use of the relevant frequency bands be consistent with article 4.10 of the ITU Radio Regulations which recognizes that safety services require special measures to ensure their freedom from harmful interference.

ICAO position on agenda item on GFT:

- To support consideration of all possible options for support of ICAO global flight tracking as supported by studies. This should include:
 - A new provision in the Earth-to-space direction only for an AMS(R)S allocation at 1 090 MHz for the satellite reception of existing aircraft ADS-B signals that operate in accordance with recognized international aeronautical standards under the condition that it not constrain existing aeronautical safety systems; and
 - A future Conference (WRC-19) agenda item to address evolving GFT requirements.

7. SYSTEMS STATUS

A) Data Link Systems (RC/SITA)

Steve Ledger (Rockwell Collins/ARINC) provided a verbal presentation on the RC/ARINC datalink networks.

The Rockwell Collins/ARINC VHF ground system in the America's in August 2015 processed about 70M messages. The traffic has increased by about 12% from this same time last year. The VHF uplink message success rate for ACARS is 98.8% and for VDL/AOA it is 97.8%. Approximately 66% of the aircraft are equipped with VDLM2 avionics. The VDLM2 traffic is approximately 33% of the total VHF traffic.

The Inmarsat satellite service has approximately 6000 aircraft equipped. The uplink delivery success is at 99.2 % and the average block delivery time is 8 seconds roundtrip. The Iridium satellite system uplink message delivery success rate is about 96.4%. The average uplink message delivery time is approximately 26 seconds.

Steve provided a presentation that was provided at the last Data Link Users Forum. Coverage maps were provided for North America and Europe. Rockwell Collins/ARINC is implementing a VDLM2 enroute frequency in Europe. The expansion of VDLM2 coverage into other countries is dependent on agreements with the respective Air Navigation Service Providers (ANSPs). It has taken since 2011 to implement 10 ANSPs. There are more than 10 ANSPs (some with multiple ACCs) for which Rockwell Collins/ARINC needs to implement ATN/VDL services. There are just over 2 years until the mandate deadline in February 2018.

VDLM2 radio frequency (RF) congestion is being experienced during most hours in the busy European airspace. The need for multiple VDLM2 frequencies and an optimized RF environment are two key recommendations for improving the system performance. There is an urgent need for immediate actions to deploy additional VDLM2 frequencies.

Zbig Jasiukajc (SITA) provided a presentation on the SITA data link networks.

Zbig provided a chart that illustrated the SITA ground stations installations comparing June 2014 through October 2015 for the USA, rest of America, Asia, Europe/Middle East/Africa, and operated by ANSPs for the ACARS (POA) and VDL ground systems.

The SITAOnAir POA frequency migration for the enroute frequency (136.650 MHz to 129.350 MHz) in the USA was completed on September 14, 2015. There were 30 ground stations impacted and the transition took about 30 minutes with minimal service impact.

The SITAOnAir POA terminal frequency migration (136.575 MHz to 131.650 MHz) is planned for October 14, 2015. The expected duration is 30 minutes with minimal service impact.

The SITAOnAir POA base frequency migration (136.850 MHz to 131.725 MHz) will involve over 300 ground stations. The migration is scheduled for January through June 2017. The plan in January 2017 has a configuration of dual frequency coverage with most stations on 131.725 MHz and about 50 ground stations on 136.850 MHz to cover specific regions of North America. The 50 ground stations will have converted to 131.725 MHz in June 2017. The avionics manufacturers plan to release special world coverage map databases.

B) Radio Station Inspection Programs (ASRI).

Michael Hinojosa (ASRI) gave a short briefing on the status of the 2015 ASRI radio station inspection program. Thus far there were 713 inspections completed in 2015. Inspections currently in progress are in Arkansas, Missouri, and Pennsylvania. The goal for 2015 is 1000 inspections.

Some problems identified during the inspections include additional radios found on frequencies that were not included on the station license and radios licensed that are not being used and need to be decommissioned.

C) Station RFI Issues (ASRI).

Michael Hinojosa (ASRI) gave a presentation on all RFI incidents since the Spring 2015 AFC meeting. ASRI acknowledged the outstanding help received from the FAA ATC Spectrum Engineering Services office, the FCC, the airlines involved, Rockwell Collins/ARINC, and ACG Systems in the resolution of the RFI problems.

Problems identified at PHL, SMF, FEX, MBS, and Foley, Alabama airports were investigated and corrected. Interference issues are still open at OMA.

D) Spectrum Monitoring Results (ASRI).

Michael Hinojosa (ASRI) provided a presentation on the Spectrum Monitoring Capability.

The LS Telecom Observer is a portable unit that monitors the entire frequency spectrum capturing everything all the time and storing the data for instant decision making or later analysis. The parameters such as range of frequencies to monitor, time to monitor, start and end times, can be programmed by the operator. ASRI plans to use the monitor at larger US airports to collect statistics on the VHF band usage and issues.

The monitor capabilities include the ability to:

- Continuously monitoring the entire AES spectrum;

- Filter specific frequencies or bandwidth;
- Triangulate rouge transmissions;
- Remotely access data at home office; and
- Demodulate, listen and record transmissions.

Data collected at ORD showed frequencies 130.100 and 130.350 MHz were being used but were not licensed. Further investigation will be required.

8. EXISTING BUSINESS

A) Oil Platform GS Inspection method (ASRI)

Michael Hinojosa (ASRI) and Chris Wheatley (ASRI) will be attending the next HSAC meeting later this month and will continue discussions on oil platform ground station inspections.

B) VDLM2 Deployment Plan for Data Comm. (ASRI/RC/SITA/HARRIS)

Andrew Roy (ASRI) provided a presentation on the VDLM2 Deployment Plan.

ASRI has worked with both CSPs, Harris and the FAA to develop a proposal for adoption by the AFC to assign new VDLM2 channels while minimizing the impact on existing users.

ASRI is planning for a 4 phase process from initiation on July 1, 2014:

- Reorganize lower band AES voice users;
- Migrate affected voice users from the upper AES band;
- Migrate upper band ACARS networks; and
 - Secondary ACARS networks
 - SITA ACARS base frequency
- Assign VDLM2 frequencies in the upper AES band.

The VDL channel plan was refined from AFC VDLM2 planning completed in 2010. The revised plan allowed for dedicated ground and enroute frequencies for each CSP. The plan provides the best available spectral/physical separation. Charts illustrating the proposed VDLM2 channel plan and the current timelines were provided.

The VDLM2 spectral group meeting reviewed the draft proposal for new VDLM2 justification which is based on 95% percentile latency requirement using historical trends. It calls for extrapolating the monthly 95% latency values out 18 months using the last 12 months or the last 6 months. A new channel can be requested if the projection exceeds 7.5 seconds over 18 months. As part of the process, the increase in channel utilization commensurate with throughput growth and the verification of growth in data throughput must be verified.

The FAA suggested new proposal for the lower 136 MHz VDLM2 band plan which included guidance on the FAA clearance process. This proposal would require the moving of ASRI voice users to lower 136 MHz band. ASRI and Harris are reviewing the proposal for technical and operational reasons, and will report back at the next AFC meeting.

C) AFC Documentation review for 2014/2015 (ASRI)

Andrew Roy (ASRI) gave a short briefing on the status of the AFC Documentation Review.

Andrew stated that the plan will be to review the AFC documentation over the next two years. The changes will be coordinated with AFC members and outside work will be required. The AFC manual approval is targeted for Q2 2016 while other documentation will then be updated during 2016. ASRI has proposed that updates will be brought to the AFC to be reviewed and vote on if required. Changes to ASRI documentation will require approval from the ASRI BoD to finalize.

The following areas of the AFC manual are being reviewed and will be updated:

(i) Administrative Updates

Issues being reviewed included the review period of the document, cleaning up language, clarifying membership categories, voting and approval methods, primary and alternate member definitions, and a definition update.

(ii) VDLM2 Channel Plan

The VDLM2 channel plan needs to be updated to reflect the recent discussions at the AFC meetings concerning the suggest modifications to the plan.

(iii) Justification Process for Additional VDLM2 Channels

The current justification criteria are not clear and usable. It has been suggest simplifying the justification based on landings and takeoffs. In addition, draft recommendations from the VDLM2 spectral group should be considered and reviewed by ASRI, the CSPs, Harris and the FAA.

(iv) Co-channel Separation Criteria

Review of the current co-channel separation criteria to seek greater efficiencies and verify how current station classes are used.

(v) Radio Emission Profiles

The AFC manual does not provide any radio emissions profiles to be used for co-site assignment coordination.

D) AFC WRC-15 Policy and Position Review

Andrew Roy (ASRI) provided a presentation on the WRC-15 position for the AFC, summarizing the report previously sent out to the membership.

The WRC-15 is scheduled for 2-27 November 2015, in Geneva, Switzerland. ASRI will be sending two representatives (Kris Hutchison on the US Delegation, and Andrew Roy as the independent ASRI Sector member). There are 15 agenda items relevant to the AFC. The items have been prioritized into high (1.1 (IMT) and GFT) and important items which include item 1.4 (Amateur HF), item 1.5 (UAS), item 1.7 (AeroMACS), and item 1.17 (WAIC).

Agenda item 1.1 proposes new allocations for IMT shared with existing users between 400 MHz to 6 GHz. Potential aviation systems affected include PSRs (1.3-1.35 and 2.7-2.9 GHz) and adjacent bands to the radio altimeter (4.2-4.4 GHz) band. The AFC Position is opposed to changes that will affect aviation spectrum.

There are possible options to support GFT using ADS-B over satellite, by modifying the existing ADS-B allocation at 1090 MHz. The process is creating some opposition and concerns due to its late introduction in the WRC process, and the lack of approved studies to verify operation. The AFC position supports necessary allocation but must show compatibility with existing ARNS systems and ITU-R procedures and add no changes to the aircraft equipment. The reliability of the system is appropriate for an AMS(R)S allocation.

Agenda item 1.4 proposes new amateur allocation in the 5 MHz range adjacent to the aero HF allocation. Studies have not fully considered the aero HF systems and opposition is expected from other countries using the same frequency range. The AFC position will seek a minimum of 20 kHz of separation.

Agenda item 1.5 proposes the use of FSS for UAS command links. The remote and oceanic control requirements need to be considered. This item is expected to be very political and work remains unfinished. The AFC position is to support UAS operations over satellite with a preference for an AMS(R)S allocation.

Agenda item 1.7 proposes FSS in 5091-5150 MHz increasing allowable interference from AeroMACS. The existing AeroMACS plans are unlikely to interfere with satellites, but an increased interference margin would eliminate almost all restrictions on deployment. The AFC position is to support FSS allocation for increase in AeroMACS interference level.

Agenda item 1.17 is a new concept for an internal wireless network on an aircraft. Both Boeing and Airbus support the system concept to reuse existing aviation spectrum in the radio altimeter band. The AFC position is to support the WAIC systems with the caveat that the radio altimeter spectrum must have priority.

9. NEW BUSINESS

A) Selection of new AFC Vice-Chairman (Secretary)

Terry Gambill (PHI) nominated Jeff Monroe (ASA) as AFC Vice-Chairman for 2016. It was seconded by Neal Young (SWA). A vote was taken and he was unanimously approved by the AFC members.

10. MEETING SUMMARY (SECRETARY)

A) Action Items from the Meeting

Andrew Roy (ASRI) reviewed the open action items from the meeting:

- LightSquared briefing sheet for AFC membership – ASRI
- Notify senior management of potential LightSquared filing support – All AFC membership

B) AFC Topics for the Attention of the ASRI Board of Directors

The following items will be briefed to the ASRI Board of Directors meeting following this AFC meeting:

- VDLM2 Spectrum Planning
- ACARS Migration
- FCC Regulatory fees
- Spectrum congestion and monitoring
- AFC Documentation review
- WRC-15 position
- LightSquared

- New AFC Chairmen

11. LOCATION OF NEXT MEETINGS. (SECRETARY)

The Winter 2016 AFC meeting is scheduled for 1-2 March 2016 in Albuquerque, NM.

The Spring 2016 AFC meeting is tentatively scheduled for 7-8 June 2016 in Portland, OR

12. ANY OTHER BUSINESS.

A) Company updates and closing remarks. (AFC Roundtable)

- Kris Hutchison (ASRI) mentioned an issue with the FAA and NASA concerning a request for a frequency to support the Soviet Soyuz Space Station on frequency 130.167 MHz.
- Andrew Roy (ASRI) offered a special thanks to Terry Gambill (PHI) for chairing the AFC meetings in 2015, and welcomed Vytas Cerniauskas as the new AFC Chairman for 2016.

13. ADJOURNMENT (CHAIRMAN)

The meeting was adjourned by the Chairman at 1120 on 7 October 2015.

Andrew Roy
Executive Secretary

Attachments posted to AFC Members Area (Material is numbered as per agenda item)