

10 Sep 2015

**MINUTES OF THE AFC SPRING MEETING 2015
 16-17 June 2015, Anchorage, Alaska**

1. OPENING REMARKS AND INTRODUCTIONS

The Aeronautical Frequency Committee (AFC) Chairman, Mr. Terry Gambill (PHI), convened the AFC Spring 2015 meeting on 16 June 2015 at the Hilton Hotel, Anchorage, Alaska. All members introduced themselves to the group:

Attendees:

Vytas Cerniauskas (ASA Alternate/FFT)	Tim Payne (DAL)
Chris Collings (Harris)	Barry Pilkinton (FDX)
Bob Dick (ACG Systems)	Tim Pawlowitz (FAA)
Terry Gambill (PHI) - Chairman	Brian Romine (USA/AAL)
Kevin Heffernan (DAL Proxy)	Andrew Roy (ASRI) – Executive Secretary
Michael Hinojosa (ASRI)	John Seybold (Harris)
Terry Horn (SITA)	Lorena Carvajal (FAA)
Kris Hutchison (ASRI)	Tom Wainscott (FDX)
Andy Johnson (UAL)	Zbig Jasiukajc (SITA)
Joe Cramer (Boeing)	John Monto (Rockwell Collins/ARINC)

Apologies:

Joseph James (Harris)	Jeff Monroe (ASA)
Tom Davis (DAL)	Joe Williamson (JBU)
Rich Farr (AAL)	Mike Richards (AAL)
Michael Francis (NATA)	Dave Robinson (ERA)
Mark Hagan (UPS)	Neal Young (SWA)
Pete Incaini (UAL)	Tim Totten (UPS)
David York (HAI)	Steve Leger (RC)

The current AFC membership, associate members and observers' status was reviewed by Andrew Roy (ASRI). Voting and proxy members in attendance were accounted for, with a Quorum of 11 voting members in attendance. He also noted that other prospective members are always being considered for future membership, and the membership was encouraged to nominate suitable organizations.

Before beginning the meeting, Andrew requested that all AFC members respect the ownership of the information being presented, and seek permission from the respective authors before distributing outside the AFC. He also noted that all presentations would be available on the AFC website, numbered according the agenda item they were presented with.

2. APPROVAL OF THE AGENDA

The agenda was reviewed and approved as discussed.

3. APPROVAL OF THE AFC WINTER 2015 MEETING MINUTES

Terry Gambill (PHI) – The AFC Chairman introduced the minutes from the Winter 2015 AFC meeting and the group conducted a page-by-page review.

After the review, Terry announced that the minutes were approved as modified.

4. REPORT OF RELATED ACTIVITIES

A. ITU-R Activities Report – ASRI

i. Study Group 5 (WP5A and 5B)

Kris Hutchison (ASRI) briefed on the last WP 5B meeting in Geneva in May 2015. The meeting was an extraordinary meeting specially convened to work on Global Flight Tracking (GFT) and ADS-B over satellite given the introduction of a new GFT agenda item at the end of 2014. The meeting was not very productive in working towards the required ITU-R reports it needed to produce, but it did clear a large amount of discussion on the process to develop the reports in such a short timeframe. The next normal WP 5B and WP 5A meeting are scheduled for July 2015 in Bucharest, Romania. It is the last WP 5B meeting before the WRC-15, and GFT, ADS-B over satellite, and UAS control over satellite are expected to dominate the proceedings given the need to complete the required studies in time.

ii. CPM Meeting

Kris Hutchison (ASRI) briefed on the Conference Preparatory Meeting (CPM) was held in March 2015, producing the template text that will be used for the WRC-15 for all agenda items (although it is not usually followed at the conference). The meeting's controversial issues were predictably UAS, GFT and mobile broadband, which produced very little the CPM text to recommend given the conflicting views. Other aeronautical issues such as 5 MHz HF and WAIC were comparatively easy. ASRI noted that it would publish the finalized CPM report on the AFC website for further information, and a WRC-15 guide was being produced for the AFC at the next meeting.

iii. US FCC preparation groups for WRC-15

The US WRC-15 process has now entered into what is known as delegation mode, where individuals participating have to agree to be on the US delegation before participating in the meetings. Kris Hutchison (ASRI) noted that he will be on the US delegation at WRC-15.

iv. Global flight tracking

Noting the heated WP 5B meeting previously mentioned, 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 global flight tracking. 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 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 possible black box data recorder ejection mechanisms, but these concepts actually created new hazards to aircraft.

Tim Pawlowitz (FAA) stated that the FAA had seen congestion on the 1030/1090 MHz frequency bands, and that the FAA was investigating options to test emissions.

B. ICAO ACP Activities Report - ASRI

i. WG-F

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). The next meeting is due to be held in Montreal on the 24-28 Oct, and 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.

ii. WG-M (SELCAL)

Andrew Roy (ASRI) gave a brief update on the SELCAL 32-tone expansion work, stating that both RTCA and AEEC standards' groups had reached final drafts, and were both expected to complete the work before the end of 2015. The next joint RTCA/AEEC meeting is planned for 7-9 July, at RTCA in Washington DC.

iii. WG-S (AeroMACS)

Andrew Roy (ASRI) updated the AFC on ICAO's WG-S and its progress towards the AeroMACS technical manual to help guide users with deployment and operating methods. The FCC has also recently ruled that the AeroMACS allocation was approved for the 5091-5150 MHz frequency band, and that the 5000-5030 MHz band was also available for frequency assignment within the USA subject to protections for the navigation systems operating in the same band. The allocation ruling will now enable the writing of the FCC Part 87 service rules

for AeroMACS, which the FCC has advised that industry will need to initiate. ASRI has also been told by the WiMAX forum that several airports are very interested in using AeroMACS for surface applications, and are looking to develop some experimental licenses for the system by the end 2015. ASRI has expressed concerns previously that these applications may use up all of the spectrum for non-safety applications, and therefore not leave any capacity for airline usage when eventually required in the future. ASRI will continue to communicate with the WiMAX forum to ensure the AFC are updated on the AeroMACS work.

iv. European FMG

Andrew Roy (ASRI) reported that the Euro FMG had not met since the last AFC meeting, however a working group had been held in Europe to potentially re-plan the VDLM2 channel plan for the area. A revised channel plan for 5 VDLM2 channel (1x shared, 2x SITA, and 2x RC) was proposed as an outcome. It will be for the Euro FMG and the ICAO Euro Air Navigation Planning Group (EANPG) to approve such a change within the next 12 months.

C. FAA Report - FAA/Harris

i. FAA DataComm program

Tim Pawlowitz (FAA) gave short briefing on the FAA Spectrum Offices' work on DataComm and VDLM2. He noted that the spectrum office wished to ensure maximum spectral efficiency for the VDLM2 networks, and for any assignments to be made in accordance with the FCC rules. The spectrum office will continue to support the AFC's work with VDLM2.

Chris Collings (Harris) provided an update on the DataComm project implementation, noting the current towers services deployment progress, and the expected date for enroute services to begin. Of specific note was the enroute service trials expected to take place in Kansas City this summer, with an update to the AFC at its next meeting. He also noted that foreign carrier certification was being discussed with the major foreign airlines. Domestic equipage of aircraft was progressing very well, and it is expected that nearly 2500 aircraft will be DataComm compliant in the near future, well beyond the 1900 aircraft target. Noting the large number of ACARS aircraft that are FANS 1/A capable, the DataComm Implementation Team (DCIT) had created a group to investigate if enroute services were viable given current ACARS network performance. The CSPs noted that they believed ACARS was not capable of meeting the latency requirements of DataComm in all the required scenarios.

ii. ADS-B implementation progress and future intentions (terrestrial and SATCOM)

No further updates on the ADS-B implementation were available at the time of the meeting.

iii. Authorization of cellphones on aircraft

No further updates on the cellphone on aircraft authorization were available at the time of the meeting.

iv. FAA's AeroMACS deployment update

No further updates on the FAA's AeroMACS implementation were available at the time of the meeting.

5. REPORT OF OTHER REGULATORY AND TECHNICAL ORGANIZATIONAL UPDATES

A. LightSquared

Andrew Roy (ASRI) gave an update on LightSquared current work with the FCC and DoT for authorization to operate a cellular system in spectrum adjacent to the GPS band. The LightSquared bankruptcy plan approved in early 2015 set certain conditions for the capital being provided, including an end of 2015 deadline to move forward in some manner with the use of the spectrum adjacent to the GPS band.

ASRI has noticed a large increase in FCC Ex Parte notices from LightSquared, with the simultaneous review of GPS interference limits being investigated by the DoT. Therefore, the end of 2015 has the potential to be a busy period for the GPS industry and its supporters. Should LightSquared not be successful, there is a possibility that a larger wireless company may buy LightSquared and its spectrum. As a result, ASRI notified the AFC that additional filings on the FCC and DoT proceedings may be required in Q4 2015.

B. AEEC datalink users' forum

No updates have been released from the DLUF since the last AFC. Andrew Roy (ASRI) noted that the next meeting is scheduled for the 16-17 September, 2015 in Toulouse, France.

C. FCC harm claim thresholds for receivers

Andrew Roy (ASRI) gave a brief update on the FCC's development of the harm claim threshold concept, intended to include receivers in the spectrum management process through defined interference thresholds. A new whitepaper is predicted to be ready by the Dec 2015 meeting for a more practical assessment of how to implement such a concept. Outstanding questions include who should perform the analysis, how to characterize all receivers in the same service to a suitable level, and managing the sharing of potentially proprietary information.

D. FCC regulatory fee increase

Andrew Roy (ASRI) briefed the FCC proposal to increase the aviation ground license regulatory fee by 17% increase from last year, or \$50 per license. This is in addition to the 100% increase last year which added \$150 to each license. The new proposals would bring the total FCC fees for each new license or renewal to \$480 per 10 yr license. ASRI noted that the FCC proposal is projecting a \$161,000 budget, but ASRI estimates that they will actually receive over \$500,400 from the current fee structure without any increase. ASRI asked all AFC members to add their signature block to the draft ASRI filing opposing the increase. Filing deadline is 22 June 2015.

6. GUEST PRESENTATION: FLIGHT TRACKING CAPABILITIES - GLOBALSTAR

Skip Nelson from GlobalStar gave a presentation on one of the many flight tracking solutions available from different providers. The GlobalStar solution is an ADS-B Link Augmentation System, best characterized as an ADS-B “Peripheral Device”. It meets or exceeds all current industry standards for ADS-B, and can also provide message transmission, Flight Data Recorder information, and airborne meteorological information.

7. SYSTEM STATUS

A. Data link systems - RC/SITA

Zbig Jasiukajc (SITA) provided an update on SITA’s current datalink network, stating that they had seen a lot of growth outside the USA, particularly the Middle East and Brazil. He indicated that the A380 was producing a large amount of data at the hub locations, and therefore SITA was busy ensuring suitable capacity to meet current and future growth. He also noted that it was not just the larger and newer aircraft that were generating the large number of messages, but also regional aircraft with their high number of turnarounds. An example given was a regional Embraer aircraft almost being equivalent to an A380 for total message traffic over a full day.

B. Radio station inspection programs – ASRI

Mike Hinojosa (ASRI) gave an update on the RSIP of ASRI licensed ground stations. He noted that 446 inspections had been completed so far this year, with a goal of 1,000 for 2015. He did note that several issues had been found:

- Radios licensed, but not being used and should be decommissioned.
- Additional radios found on frequencies that were not included on the station license.
- Transmitters not marked.
- Unlicensed frequencies being used.
- Unlicensed radios found that nobody knows who they belong to.

C. Station RFI issues – ASRI

Mike Hinojosa (ASRI) provided a series of updates on current and recent RFI incidents. He also thanked the FAA, the airlines, and the service providers for their support in dealing with RFI in a prompt manner.

8. EXISTING BUSINESS

A. VDLM2 deployment plan for DataComm - ASRI/RC/SITA/HARRIS

Andrew Roy (ASRI) provided a summary of the VDLM2 implementation plan to ensure suitable channel capacity for DataComm. He noted that both phase 1 and 2 (reorganization and migration of certain voice users) had been completed ready for ACARS migration (phase 3) and VDLM2 multi-channel assignment (phase 4).

Terry Horn (SITA) gave an update on the migration of SITA’s secondary ACARS networks on 136.575 and 136.650 MHz. He stated that SITA’s current worldwide work to expand capacity for existing traffic was making it difficult to gather suitable resources to meet the Q3 2015 timeline to migrate the networks, and that a Q2 2016 timeline would be more appropriate. John Monto (RC) noted that the Q3 2015 timeline voted on at the last AFC was to allow RC to deploy their first dedicated VDLM2 network, and relieve congestion on the CSC. A 9-month delay

would most likely result in unacceptable congestion on the RC network and the CSC, and therefore the need for a Q3 2015 migration. Both ASRI and Harris commented that a 9-month delay may not be feasible, and requested SITA seek alternative options that may bring the date forward. SITA agreed to review options, and asked RC to provide details of which locations VDLM2 congestion was expected in order to prioritize sites for migration. ASRI agreed to act as a coordinator between the CSPs as required to ensure proper lines of communication, though it also encouraged informal communication between the CSPs to ensure a better understanding of the situation from both sides. The Executive Secretary noted that once an agreement was reached between RC and SITA on a migration timeline, a new AFC vote would need to be held in order to formally overturn the previous decision.

John Monto (RC) gave a brief update on the RC ACARS migration from 136.800, noting that RC expects all stations to be migrated by the end of 2015. An update on progress will be given at the next AFC.

Lastly, Zbig Jasiukajc (SITA) gave a presentation on SITA's ACARS base frequency, and possible options to mitigate the need to move it from 136.850 to 131.725 MHz currently being considered in the VDLM2 implementation plan for 136 MHz band. He stated that a reduction in power for VDLM2 GS servicing on the ground traffic by 6 dB, and also swapping the enroute (136.750 MHz) and ground frequencies (136.800 MHz) in the current plan would reduce the potential for co-site interference with the 136.850 MHz ACARS frequency, and therefore not require it to be migrated. In so proposing the reorganization of the plan, it would also require the RC GSs on 136.650 MHz to also reduce power by 6 dB. The proposal created a lot of discussion and questions between the AFC membership, with some members seeing benefit of keeping SITA on 136.850 MHz. However, RC and other AFC members did note some serious concerns with the plan, including that a 6 dB reduction in power would require a new coverage mapping of all sites, and that such a reduction had not be planned with the existing GS deployment sites. Furthermore, the swapping of SITA's ground and enroute would also require a similar swap for RC's frequencies, and therefore cause co-site interference to the remaining voice users in the 136 MHz plan. Given the discussion a formal vote was called for by RC, proposing that SITA migrate its ACARS 136.850 MHz network to 131.725 by Q3 2017. The proposal was seconded by ASRI, and voted in favor by 7 to 1, with 3 AFC members abstaining.

Following the vote, ASRI did note the following points to clarify the conditions of the move:

- The 131.725 MHz frequency is available for migration with immediate effect.
- SITA and RC to provide updates to every AFC meeting on progress, with the Q3 2017 deadline subject to VDLM2 deployment requirements as they develop towards that date.
- No other ACARS GSs will be licensed on 136.850 MHz, with the exception of SITA, provided they are separated a minimum of 1 mile from an airport boundary and other VDLM2 stations.
- SITA will need to coordinate with airlines and airframe manufacturers on ACARS frequency changes, to consolidate and minimize any costs for the changes.
- Both CSPs are responsible for ACARS interference mitigation and resolution with incumbent voice users when migrating to the lower AOC band.

B. AFC documentation review for 2014/2015 - ASRI

Andrew Roy (ASRI) gave an update on the AFC manual review process, and the current Rev C draft that was being developed. He stated the intent was to update the AFC documentation to reflect new technologies, while simplifying legacy text that may be outdated or irreverent now. Current areas being reviewed included:

- General administrative clean up
 - Simplify and update text
 - Correct any errors
- Co-frequency separation table review
 - Consider options for more efficient separation criteria
 - Incorporate new aircraft types
- Additional VDLM2 channel justification
 - Work from spectral sub-group will be incorporated
- ACARS channel justification
 - Predictive mechanism adapted from VDLM2 work
- Emission profiles used to make co-site assignments
 - Voice 25k/8.33k, VDLM2, ACARS

He then went on to review the current voice channel justification formula in the AFC, noting some potentially subjective terminology that may cause confusion. Seeking opinions from the AFC membership, it was revealed that the formula is generally not used, but those who do have found it to be approximately accurate with some assumptions being made. Andrew agreed to review the equation for the next meeting, with agreement from some of the attending airlines that they could provide some suitable data to verify any changes.

9. NEW BUSINESS

A. De-icing frequency policies - All Airlines

Mike Hinojosa (ASRI) briefed on the current status of deicing frequencies in use across the USA. He stated that ASRI had assigned 263 de-icing frequencies assigned to 30 different airports in the 2014/2015 season, and that this was significantly more than anticipated. ASRI had also noted that use of deicing frequencies is inconsistent between airports and airlines, with some using only a few, and others requiring multiple (up to 17 for one site). In providing views on the reasons for the differences, no consistent approach between the airlines could be found to develop a new policy. Therefore ASRI agreed to take the opinions provided, and try to investigate further options for a policy on de-icing frequencies.

B. Oil platform GS inspection method – ASRI

Mike Hinojosa (ASRI) noted that ASRI intends to review the process for GSs deployed on oil platforms in the Gulf of Mexico at a future AFC. Discussion have started with Mr. Pete Talbot to develop an approach that is effective and economical for all platforms on a regular basis. The AFC will be briefed once the feasibility has been discussed with HSAC.

C. WRC-15 policy initial review

Andrew Roy (ASRI) gave a presentation on the WRC-15 preparation leading up to November. He noted that a full AFC plan for the conference would be published at the next AFC, and he

also hoped that ICAO and IATA will be in attendance to brief their respective positions on WRC-15.

In summarizing WRC-15, he stated that over 20 agenda items were proposing new or modified allocations in the ITU-R Radio Regulations. ASRI will be attending the conference to represent the views of the AFC, though as only 2 personnel from ASRI are available, agenda items relevant to aviation will need to be prioritized. At this time, 5 agenda items have a high priority and were summarized as follows:

- 1.1 – IMT (Mobile Broadband)
 - New IMT allocations between 400 MHz and 6 GHz
 - Aviation targeted in radar bands and some supporting systems
- GFT - Global Flight Tracking
 - ADS- B over satellite being considered
 - Possible new agenda item for WRC-19 may follow
- 1.4 - Amateur HF allocation at 5 MHz
 - Adjacent to aero HF allocation used for HF DL
- 1.5 - Satellite use for UAVs
 - Seeking to use FSS for remote or oceanic control
- 1.17 - Wireless avionics intra communications (WAIC)
 - Onboard wireless network to replace wiring systems
 - Proposed to use radio altimeter band

Given the above list, it seemed likely that 1.1 and GFT would take priority amongst the five.

10. MEETING SUMMARY - EXECUTIVE SECRETARY

A. Action items from the meeting

The Executive Secretary provided a summary of the meeting action points, noting the following:

- RC to provide a list of key sites to SITA to consider for ACARS migration of 136.650 and 136.575 MHz.
- SITA to coordinate with RC a suitable timeline of the above migration.
- ASRI to review de-icing policy options.
- ASRI to provide WRC-15 plan for AFC at next meeting.

B. AFC Topics for the attention of the ASRI Board of Directors

The Executive Secretary provided a summary of topics discussed at the meeting, to be brief to the ASRI board of Directors at its next meeting.

11. LOCATIONS OF NEXT MEETINGS- EXECUTIVE SECRETARY

A. Fall 2015 meeting (6-7 Oct 2015) - Montreal, Canada

The Executive Secretary confirmed the next AFC meeting date was the 6-7 Oct 2015, in Montreal, Canada. The agenda, meeting venue, and accommodation details would be disseminated closer to the date.

B. Choose location for Winter 2016 Meeting (Feb/Mar 2016)

After a discussion period, the committee voted to provisional schedule the Winter 2016 meeting in Albuquerque, NM on the 1-2 March 2016. The date and location will be confirmed at the next AFC.

12. ANY OTHER BUSINESS - CHAIRMAN

A. Company updates and closing remarks - AFC Roundtable

The attendees thanked ASRI for hosting the meeting and the provided the AFC meal.

13. ADJOURNMENT - CHAIRMAN

The meeting was adjourned at 1215 hours on the 17 June 2015.