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AFC Aeronautical Frequency Committee

17 April 2014

MINUTES OF THE AFC WINTER MEETING 2014
11-12 February 2014, Charleston SC

1. OPENING REMARKS AND INTRODUCTIONS

Tim Totten (UPS), AFC Vice Chairman, convened the Aeronautical Frequency Committee (AFC) meeting on 11 February 2014 at the DoubleTree Hotel and Suites in Charleston, South Carolina.

All members introduced themselves to the group.

Attendees:

Vytas Cerniauskas (FFT)
Chris Collings (Harris)
Joe Cramer (Boeing)
Bob Dick (ASA)
Terry Gambill (PHI)
Michael Hinojosa (ASRI)
Kris Hutchison (ASRI)
Zbig Jasiukajc (SITA)
Steve Ledger (ARINC)
Vic Nagowski (ASRI)
Tim Pawlowitz, (FAA)
Barry Pilkinton (FDX)
Holly Rees (ASRI)
Mike Richards (AAL)
Andrew Roy (ASRI) – Executive Secretary
John Seybold (Harris)
Tim Totten (UPS) - Vice Chairman
Chris Wheatley (ASRI)
Joe Williamson (JBU)

Apologies:

Paul Anderson (DAL)
Rich Farr (AAL)
Michael Francis (NATA)
Mark Hagan (UPS)
Pete Incaini (UAL)
Chris Kelly (UAL)
John Monto (ARINC)
Tim Payne (DAL)
Dave Robinson (ERA)
Brian Romine (USA)
Bill Stine (NBAA)
Pete Talbot (HSAC) - Chairman
Tom Wainscott (FDX)
Frank Watts (SITA)
David York (HAI)
Neal Young (SWA)

Kris Hutchison (ASRI) provided some kind words in remembrance of Barbara D'Amato, retired IATA representative and an active AFC participant who recently passed away on 16 January 2014.

Barry Pilkinton of Federal Express was introduced as the alternate member for Tom Wainscott. ASRI received a formal letter from Federal Express nominating Barry as an alternate for Tom. A motion was made by Vytas Cerniauskas (FFT) to approve Barry's nomination, and the members voted unanimously to carry the motion.

The retirements of Paul Anderson (DAL) and Bill Stine (NBAA) were announced. The ASRI staff held a luncheon meeting with Bill and provided him with the Life Time Membership award in January 2014 in Washington DC. Bob Ireland (A4A) was announced as the replacement for Joe White (A4A) who retired at the end of 2013.

The current AFC membership and observers status (**Attachment 1**) was reviewed. Andrew Roy (ASRI) solicited suggestions concerning new AFC membership.

2. APPROVAL OF THE AGENDA

The agenda was reviewed and approved without comments.

3. APPROVAL OF THE FALL 2013 MEETING MINUTES

Tim Totten (UPS) – Vice Chairman introduced the minutes from the Fall 2013 AFC meeting and the group conducted a page-by-page review.

Under Section 4, FAA Report, AeroMACS Implementation Status, third paragraph, modify the following from "5051 MHz " to "5150 MHz".

Kris Hutchison (ASRI) made a motion to approve the minutes as modified and it was seconded by Joe Cramer (Boeing). The committee unanimously approved the minutes as modified.

4. REPORT OF RELATED ACTIVITIES

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

(i) Working Party 5B (WP 5B)

Kris Hutchison (ASRI) and Andrew Roy (ASRI) provided the report on the last meeting of WP 5B held in Geneva 18-29 November 2013. The committee is primarily working on preparations for the WRC-15 meeting developing sharing criteria. They are also looking for additional broadband spectrum. UAVs spectrum issues, safety margins (6 dB), consolidating the radar recommendations regarding performance and protection criteria within the various L/S/C radar bands, and broadband over power lines are also being addressed by the committee. The next meeting is scheduled for the last two weeks of May 2014.

Joe Cramer (Boeing) provided a report on the WAIC system sharing spectrum in the radio altimeter band.

(ii) Joint Task Group 4-5-6-7 (JTG)

Andrew Roy (ASRI) provided a presentation on the JTG (**Attachment 2**). The JTG is studying potential sharing of new IMT (International Mobile Telecommunications) services with existing radio services between 410 MHz and 6 GHz. Six meetings over 3 years were planned to provide studies and possible recommendations. The fourth meeting was held in October 2013 with sharing studies to be completed by the fifth meeting scheduled for February 2014 in Geneva. The final recommendations are expected in July 2014.

Four potential threats to commercial aviation have been identified. Services that are directly affected include the 1300-1500 MHz long-range enroute ATC radar and the 2700-2900 MHz primary surveillance radar. The possible adjacent band issues include the 406.1 MHz COPSAS SARSAT from IMT services in the 410-430 MHz frequency band and the radio altimeters operating at 4200-4400 MHz from IMT services in the 3400-4200 MHz and 4400-4500 MHz frequency bands.

(iii) US Preparation Groups for WRC-2015

Kris Hutchison provided a report on the US Preparatory Group for WRC-15. The FCC Informal Working Group (IWG) held its 5th meeting on January 27, 2014. Various draft proposals are being considered including a continuous reference time scale based on an atomic measurement, regulatory provisions enabling AIS spectrum allocation to support the maritime group, additional spectrum allocations to support 4G, HF band considerations for amateur radio operators, command and control for UAS systems, AeroMACS spectrum and various other draft proposals.

More meetings are scheduled for this year and early 2015 prior to the WRC-15 (November 2015) meeting to complete the US position on the various outstanding proposals being considered.

B) ICAO Aeronautical Communications Panel (ACP) Activities Report

(i) Working Group F (WG-F).

A presentation (**Attachment 3**) was provided by Andrew Roy (ASRI) on WG-F. The last WG-F meeting was held in September 2013 in Nairobi, Kenya. Topics discussed included: ADS-B over satellite for oceanic routes, Unmanned Air Systems (UAS) spectrum for command and control, WAIC system compatibility, VSAT protection for African ATM backhaul networks, and the aeronautical safety margin for ITU-R studies.

The next meeting is scheduled for March 2014. Topics ASRI intends to present on include: FCC harm claim threshold work for receivers, impact of whitespace systems on aviation systems and radio altimeters sharing study with adjacent IMT systems. Andrew solicited other topics from the AFC members to be considered at the next WG-F meeting.

(ii) Working Group M (WG-M).

A presentation (**Attachment 4**) was provided by Vic Nagowski (ASRI Contractor) on WG-M. It detailed the progress of the SELCAL code pool expansion to add 16 new tones to the existing 16 tones. The current system limitations were covered and the industry solution derived by the avionics and airframe manufacturers was highlighted.

ASRI stated that the new solution was designed to be backwards compatible with all existing SELCAL avionics and stressed that no existing equipment modifications would be required. The step-by-step approval process for ICAO was explained as follows:

- ACP Working Group of the Whole via correspondence (late 2013 or early 2014)
- Preliminary review by the Air Navigation Commission (ANC) (Spring 2014)
- ICAO ACP Working Group of the Whole scheduled for July 21-23, 2014
- Final review by the ANC (Fall 2014)
- Adoption by the ICAO Council (February 2015)
- Letters to States informing them of changes (March 2015)
- Applicability date (November 2015)
- Implementation (September 2016)

ASRI has held meetings and teleconferences with members of the AEEC Executive Committee to obtain their support for the SELCAL Code Pool Expansion ARINC Project Initiation/Maintenance (APIM) moving forward through the AEEC process. ASRI staff was successful at obtaining approval at the AEEC Systems Architecture and Interface (SAI) Subcommittee in early February 2014 in having the APIM move forward to the AEEC General Session to be considered for approval. Thus far ASRI has received support from the following: AAL, SWA, UAL, UPS, USA, FDX, TAP Portugal, and Airbus. A special thanks to all AFC airlines that supported this ASRI initiative.

With support from the avionics vendors and manufacturers, ASRI has completed an update to ARINC Characteristics 714-6 (MARK 3 Airborne SELCAL System). Once the AEEC has begun its work, RTCA will be requested to re-institute Special Committee 83 (SC-83) to update DO-93 (Minimum Performance Standards for Airborne Selective Calling Equipment). The FAA is supporting ASRI with this effort.

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

A presentation (**Attachment 5**) was provided by Vic Nagowski (ASRI Contractor) on WG-S.

A brief definition of the AeroMACS system was provided. 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 completion schedule for the SARPs is March 2014 and the TM by the end of 2015.

WG-S held two meetings in 2013. The work accomplished by the committee at its last meeting included development of a draft SARPs and TM for review. The ICAO approval process is dependent on Eurocontrol/SESAR validation of AeroMACS SARPs. Approval is expected at the ICAO Working Group of the Whole (WG-W) meeting scheduled for July 21-23, 2014.

WG-S is using teleconferences to track progress of work and the next meeting of WG-S is scheduled for June 16-18, 2014 in Montreal, Canada.

The AEEC SAI Subcommittee meeting last week agreed to move the AeroMACS APIM forward for consideration at the AEEC General Session. RTCA SC-223 has completed its work program and EUROCAE WG-82 is continuing with the development of a Minimum Aviation System Performance Standard (MASPS) and a ground equipment Minimum Operational Performance Standard (MOPS).

(iv) AFC AeroMACS Special Working Group (SWG) Update

A presentation (**Attachment 6**) was provided by Andrew Roy (ASRI) on the progress of the AFC AeroMACS SWG.

The members of the SWG include representatives from SWA, UPS, USA, ARINC/RC, SITA, and ASRI. The objectives of the SWG include development of a concept of use, defining the management of the AeroMACS system for US commercial carriers (Draft by February 2014 and final by April 2014), and development and submission of an FCC petition on a frequency management framework in the US that supports the concept documentation (June 2014).

The envisioned use of the SWG deliverables include enabling commercial US aviation to clarify the purpose and role that the AeroMACS system will fulfill in the US, providing a direction for AFC membership's future development of the AeroMACS system in international and national forums, and submitting an FCC petition that will provide the Commission with an industry-wide consensus on the deployment model and the management of the AeroMACS allocated spectrum.

The outstanding SWG issues include applications, rate of adoption, and network operators. Andrew solicited inputs from the AFC members on the outstanding issues. Additional teleconferences are being planned to track progress of the SWG work.

(v) European Frequency Management Group (FMG).

A presentation (**Attachment 7**) was provided by Andrew Roy (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 last FMG meeting was held in December 2013 in Brussels. Topics relevant to US aviation included VDLM2 frequency planning and utilization, UAS, 8.33 kHz channel assignments, and GNSS interference. A chart was provided that illustrated the European VDLM2 deployment plan and the European plan to share VDLM2 frequencies in Europe. The frequencies 136.725 MHz and 136.875 MHz will be the shared on-ground frequencies and the shared enroute frequencies will be 136.825 MHz and the common signaling channel on 136.975 MHz.

The next meeting is scheduled for June 2014. ASRI staff plans to brief the USA VDLM2 plan. Future FMG meeting considerations include: the high VDLM2 channel utilization levels now being observed over core Europe, the concern with the current end-to-end performance of CPDLC on the edge of desired levels, and defining a clear agreement from ACSPs and ANSPs to

work multi-frequency issues as soon as possible. Andrew solicited inputs from the AFC members on the future considerations.

C) FAA REPORT

A presentation (**Attachment 8**) was provided by Tim Pawlowitz (FAA) that covered all FAA items: FAA Data Comm Program, ADS-B Implementation, Authorization of PEDs on Aircraft, and AeroMACS. Tim replaced Bob Frazier (FAA) as the FAA observer to the AFC.

(i) FAA DataComm Program

Tim provided a Data Comm overview; the operational benefits that can be expected, a services strategy roadmap, a program overview of segment 1 phases, and a waterfall schedule for deployment.

The Data Comm program will be using ARINC and SITA networks to provide the air/ground data link. Harris Corporation will manage the SITA network within the CONUS while ARINC will continue to manage their own network. Harris has contracted with SITA to procure the SITA equipment in the US and plans to implement a control center to support such equipment. Site surveys have been completed at the 3 key sites (SLC, IAH, and HOU), and testing has been performed at the test environment location in Atlantic City and trials at Newark and Memphis are in progress

The tower services will be implemented in the timeframe 2015-2024 with no additional spectrum requirements anticipated other than the Common Signaling Channel (CSC). For enroute services in the timeframe 2017-2024, it is anticipated that additional spectrum will be required. The initial MITRE modeling indicated that 6-9 additional frequencies would eventually be needed; however these estimates are being refined by the FAA as they were judged to be too high. Harris is in the process of defining a simulation to determine spectrum requirements and expects to have results early this year. Informal conversations with Harris, SITA and ARINC have resulted in not needing to request additional frequencies from the FAA at this time. The FAA recommends that a priority/preemption scheme be built into the network to prioritize the delivery of messages.

(ii) ADS-B Implementation (Terrestrial and SATCOM).

Tim Pawlowitz (FAA) provided a presentation of the ADS-B implementation. He provided an explanation of the various components that make up the ADS-B system. He stated that aircraft flying in most US controlled airspace will be required to be equipped with ADS-B out by the year 2020. The presentation highlighted the number of ADS-B stations implemented to date and the number of aircraft by airline and general aviation supporting the service.

(iii) Status of FAA PEDS Aviation Rulemaking Committee (ARC).

Tim Pawlowitz (FAA) provided a presentation on the status of the FAA PEDS aviation rulemaking committee.

The FAA published a Notice of Policy with a request for comments on the rules governing the passenger use of PEDS on aircraft in August 2012. In January 2013, a PED'S ARC was established to review/address comments. The ARC was an FAA/Industry collaboration that made recommendations to the FAA. The ARC provided a 222 page report in October 2013 and concluded its work.

The ARC report provided 29 recommendations for PEDS but did not cover voice communications. The recommendations of the report included:

- New aircraft be PEDS certified;
- A path be provided for existing aircraft to certify that they meet RTCA DO-307; and
- Recommends that AC 91-21.1B be updated to provide a process by which operators can use PED's.

At this time what formal actions the FAA is taking in response to the ARC's recommendations are not known.

The FCC released a Notice of Proposed Rulemaking (NPRM) on December 13, 2013 on PED use in aircraft. Tim highlighted the key points from the NPRM. While the ARC report was limited to non-voice applications, the FCC NPRM was not. Currently the FAA does not intend to respond with comments to the NPRM.

The FAA is trying to get a better understanding of the spectrum requirements for testing/certifying aircraft to allow the use PEDS. The FCC is supposed to be issuing a Public Notice sometime soon providing guidance on obtaining experimental authorizations for testing PED compatibility with aircraft. The FAA Spectrum Office is awaiting more information before adopting a formal position.

(iv) AeroMACS Implementation Status.

A presentation was provided by Tim Pawlowitz (FAA) on the AeroMACS spectrum related updates.

The FAA explained that at WRC-07, the U.S. supported and the Conference approved an allocation of the band 5091-5150 MHz to the AM(R)S for airport surface applications. NTIA incorporated into the U.S. table of allocations a federal allocation for AM(R)S and associated fixed services. The FCC has not yet incorporated a non-federal allocation.

The NTIA has proposed that footnote 5.444B, which allocates the band 5091-5150 MHz to the AM(R)S from the Radio Regulations of the ITU-R be adopted and adapted as a US footnote, but it will not implement the footnote until the FCC adopts it. NTIA has sent a letter to the FCC for a rulemaking. Additionally, NTIA has sent a separate letter to the FCC for inclusion of a Fixed Services (FS) allocation in the band 5091-5150 MHz. The FCC has not yet established an allocation for AeroMACS. Once an allocation for non-federal use of 5091-5150 MHz for AM(R)S and FS is complete, industry will need to initiate a rulemaking to update Part 87 so manufacturers have something to certify AeroMACS equipment against. Non-federal users can influence the FCC through the FCC rulemaking process to help ensure the success of

AeroMACS. At the time of the meeting, the FAA had 14 airports with AeroMACS frequency assignments.

Once defined by RTCA and the ICAO SARPs, the FAA intends to go through the IRAC process to add the channel plan to the NTIA Manual of Regulations and Procedures for Federal Radio Frequency Management. Once the modified NTIA manual is approved, the FAA will work with NTIA to have the FCC adopt the same channel plan for the non-federal users. NTIA has proposed that the footnote 5.444B from the Radio Regulations of the ITU-R be adopted as a US footnote, but it will not implement it until it formalized by the FCC. Non-government use of the system is dependent on completion of the FCC WRC-07 rulemaking and updating of Part 87.

Once completed, an airport could have a government system, a commercial system, or a combined system. However, it is still unknown if FAA security will allow the system to carry both kinds of traffic. The decision is TBD and part of the FAA acquisition strategy decision.

D) FCC Updates

Andrew Roy (ASRI) provided an update (**Attachment 9**) on all FCC items

(i) FCC Order & Authorization on LightSquared.

LightSquared is struggling after the FCC delays and proceeding through bankruptcy proceedings on $1.7bn of debt. A competitor (Dish) has acquired $1bn of debt and Harbinger is attempting to sue GPS IC for $1.9bn. Harbinger claims that GPS manufacturers were 'not forthcoming' on GPS receiver performance. Bankruptcy court proceedings are ongoing.

(ii) Receiver Standards.

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. A chart was provided that highlighted some of the concern.

The FCC will be implementing a pilot multi-stakeholder group investigating certain bands in the 3.4-3.6 GHz range. A test is scheduled over the next year and the results will then be reviewed. The results could potentially be applied to other frequency bands of interest. ASRI staff will continue to monitor and report on the status of this effort.

(iii) PEDs on Aircraft

Kris Hutchison (ASRI) provided a report on PEDs on aircraft.

The FCC NPRM, WT Docket No. 13-301, was released on December 13, 2013 requesting industry comments on PEDs on aircraft. There is industry concern with cell phone usage on aircraft. Some airlines do not support cell phone operations while other airlines want to support their customer base with cell phone usage. ASRI has been coordinating with A4A on this matter. Comments are due on Friday February 14, 2014 and ASRI plans to submit comments independent of A4A.

5. EXTERNAL PRESENTATIONS

A Boeing Charleston factory visit was scheduled for the afternoon of February 12, 2014.

6. SYSTEMS STATUS

A) Data Link Systems (Harris, ARINC & SITA)

Chris Collings of Harris provided a presentation (**Attachment 10**) on the FAA Data Comm Program.

The FAA Data Comm program will provide data communications between the cockpit and controllers to replace some current voice communications. Some applications include safety-of-flight air traffic control (ATC) clearances, instructions, traffic flow management, flight crew requests and reports. The system will provides direct link between ground automation and flight deck avionics. This transformational program is critical to the success of the NextGen operations.

The operational benefits that can be expected from this program include: increased controller productivity leading to increased capacity, enabling NextGen services (e.g., enhanced re-routes, trajectory operations), reduced communication errors, improving controller and pilot efficiency thru automated information exchange, and reducing the impact of ground delay programs.

The FAA's strategy is to incrementally deploy services implementing basic services at airport towers initially, leveraging existing equipage (FANS 1/A+), leveraging existing air-ground networks (ARINC & SITA), and providing a ground system infrastructure for future services (i.e., en route) with the initial deployment. Several program phases have been defined including initial departure clearance (DCL) tower service (Segment 1 Phase 1), initial en route services and follow-on en route services (Segment 1 Phase 2), and advanced trajectory services (Segment 2).

Harris leads the Data Communications Integrated Services (DCIS) team partners with the FAA to deliver data communication network services, data communication integration and test, avionics equipage, benefits, metrics, outreach, and engineering services.
The Data Communications Network Services (DCNS) is a contract between Harris and FAA to provide air-ground network connectivity for the Data Comm program. Harris has subcontracts with ARINC and SITA to utilize shared air-ground VDL Mode 2 links. The DCNS provides air-ground Air Traffic Services connectivity to all airspace users. Service establishment is progressing well with ARINC & SITA on schedule to deliver capability for integration & test, and conducting site surveys and providing necessary upgrades as required. Key sites preparations at SLC, HOU, and IAH are on track for the 2015 IOC dates.

The DCNS spectrum plan calls for ARINC and SITA to continue to operate their VHF services just like today. VHF spectrum will continue to be a shared resource between AOC and ATC services. VDL Mode 2 spectrum will continue to be allocated from the upper portion of the Aeronautical En Route Service (AES) allocated by ASRI. Additional spectrum from the FAA portion of the upper band will be made available when ASRI channel bandwidth capacity has been exhausted and a demonstrated need for additional capacity is justified for additional spectrum.

Harris is prime contractor with FAA on DCIS/DCNS. The DCIS/DCNS contract gave Harris flexibility to use multiple business models with ARINC and SITA:

- The Harris and ARINC agreement is a traditional service agreement.
- The Harris and SITA agreement outsources the US VHF infrastructure operation to Harris.
- Harris will be providing network connectivity, monitoring, maintenance, and operation of all SITA US VHF assets including remote stations and central processing for VDL Mode 2 service.
- SITA will provide service to airlines with Harris operating the infrastructure tightly integrated with the existing SITA systems. Harris will deliver ATC Data Comm messages to FAA Data Comm system.
- SITA is the owner of record for the VHF stations with Harris providing support.

Harris is responsible for managing the contract funding set aside for assisting airlines with avionics equipage. Thus far greater than 80% of the FAA's equipage objective has been met with commitments from 6 airlines. First equipped aircraft under the program are expected in March 2014.

The tower departure clearance (DCL) trials at Memphis and Newark using Data Comm Trials Automation Platform (DTAP) are underway, with objective to validate requirements and operational training / procedures. The trials will reduce the risk on the production system technical characteristics and operational issues including avionics interoperability. The airlines involved in the trials include FDX, UPS, UAL, BAW, DLH, and SAS.

Steve Ledger of ARINC/Rockwell Collins provided a presentation (**Attachment 11**) on the ARINC GLOBALink News and Status Report.

Steve provided some insight into the Rockwell Collins acquisition of ARINC. A Rockwell Collins management overview was provided. The Rockwell Collins and ARINC combination creates a customer and shareholder value by addressing currently unmet needs for integrated end-to-end solutions. The goal is to continue to focus on quality and customer satisfaction.

The status of the long range communications media (Inmarsat, Iridium, and HFDL) was provided. Inmarsat is continuing to offer Classic Aero services over the I-3 and I-4 satellite networks. A message success rate of 99.1% and ACARS block transit time of 8 seconds are being achieved. Aero-H and Aero-I services end-of-life is scheduled to coincide with the I-3 satellite decommissioning. Available services over the I-4 satellites include Classic Aero (ACARS, cabin, and voice) and SwiftBroadband.

The GLOBALink/HF data link service continues to grow. There has been a 7.5% increase in equipped aircraft (2137), a 5.0% increase in total message traffic, and 12 new airline customers (Total equals 82). The Honeywell HFDR (2007) software upgrade is highly recommended for greatly improved performance in all fleet types.

The Iridium satellite service is complementary to ARINC's GLOBALink media. This service provides global coverage using the LEO satellite constellation. The next generation constellation is being prepared for deployment starting in 2015 and completed in 2017. GLOBALink Iridium statistics for December 2013 have an uplink message success rate of 95.9%, an average block

transit time of 25.2 seconds, and support nearly 400 air transport aircraft and 450 business aviation users. A chart comparing the Inmarsat and Iridium services was presented.

The GLOBALink VHF network statistics were provided. They are currently supporting 206 customerswith 1131 (1023 Sites/119 Countries) classic ground stations, 515 (466 Sites/31 Countries) VDLM2 ground stations, a 2013 uplink message success rate was 98.6% for Plain Old ACARS (POA) and a 98.5% for ACARS Over AVLC (AOA), and a VDL block end-to-end transit average of 1.9 seconds. The major growth areas include Eastern Europe, Asia, and Africa. Various coverage maps were also provided.

The ARINC Qualification Program (AQP) came into question by the US government during the Rockwell Collins acquisition process of ARINC. So the AQP process and procedures have been modified and more information is available at the Rockwell Collins/ARINC website.
Zbig Jasiukajc (SITA) provided an update on the SITA data link networks.

SITA continues to operate their data link system worldwide with 1439 ground stations, with 474 in the United States, installing 30 new ground stations since the last AFC meeting, 2 of which are in the US.

The operation of the stations is transferring to more ATC providers around the world with data link supporting more ATC data link communications. SITA currently has seven ATC partners that own and operate the ground stations. SITA is supporting more VDLM2 multi-frequency testing. Inmarsat ground earth stations have been recently upgraded without the airlines noticing any operations anomalies. The user can expect improved service performance and reliability.

B) Voice Systems VHF and HF Contacts (ARINC).

Michael Hinojosa (ASRI) provided the ARINC air/ground voice service summary (**Attachment 12**) highlighting the number of domestic and international voice contacts ARINC handled through January 2014.

C) Radio Station Inspection Programs (ASRI).

Michael Hinojosa (ASRI) gave a short briefing on the status of the 2013 ASRI Radio Station Inspection program (**Attachment 13)**. There were 1085 radio station inspections completed in 2013 achieving the goal of 1000 station inspections. Inspections currently in progress for early 2014 are in Maryland, North Carolina, and Virginia. The goal for 2014 is 1000 inspections. Some problems identified during the inspections include additional radios found on frequencies that were not included on the station license, radios licensed that are not being used and need to be decommissioned, transmitters not marked with the licensed frequency, and customers operating on frequencies for which they are not licensed.

D) Station RFI Issues (ASRI).

Michael Hinojosa (ASRI) gave a presentation on all RFI incidents since the Fall 2013 meeting (**Attachment 14**). ASRI acknowledged the outstanding help received from the FAA ATC Spectrum Engineering Services office, the FCC, the airlines involved, ARINC, and ACG in the resolution of the RFI problems.

Problems identified at CMH and FLL were investigated and corrected. Interference issues are still open at DTW, IWA, and ORD. There were a total of 13 RFI incidents in 2013.

7. EXISTING BUSINESS

A) Aircraft VDLM2 Low-Power Proposal.

Zbig Jasiukajc (SITA) provided an update on the possibility of using the Eurocontrol RF evaluation simulation to compare low power versus high power operations in an attempt to provide some quantitative data to support the low-power proposal. He explained that SITA resources have been working higher priority assignments and this issue has not yet been addressed.

B) VDLM2 Deployment Plan for Data Comm.

Andrew Roy (ASRI) provided a presentation (**Attachment 15**) on the VDLM2 Deployment Plan for Data Comm.

ASRI has a four stage plan for implementation:

- Clear - Reorganize lower AOC band to ensure capacity for migration plan;
- Migrate Voice - Migrate voice assignments between 136.525-136.950 MHz to the lower AOC band;
- Migrate ACARS - Migrate ACARS assignments between 136.525-136.950 MHz to the lower AOC band; and
- Assign - Assign VDLM2 frequencies to upper AOC band.

ASRI has currently initiated phase 1 which involves clearing several channels in the lower AOC band. Phase 2 is currently being planned with affected customers. Phase 3 and 4 will be coordinated with data link service providers and the Data Comm contractor.

A meeting was held with ARINC, SITA and Harris to review, confirm plans and implementation timelines for the ACARS migration process, consider the selection of operator frequencies, and review the frequency assignment timeline. The testing support timelines at select sites were also considered. The Harris channeling loading simulation work results should assist with the decision process for this effort.

Zbig Jasiukajc (SITA) made a suggestion of leaving the current SITA ACARS frequency (136.850 MHz) assignment in the upper band without relocating it to the lower band. This suggestion will be considered at a future meeting.

C) ASRI Board of Directors requests AFC conduct a study on future aviation spectrum requirements.

The ASRI BOD requested that ASRI conduct a study to determine future aviation spectrum requirements over the next 20 years. Andrew Roy (ASRI) provided an update (**Attachment 16**) on a plan for moving forward to complete this tasking.

The structure was divided into current systems, short-term systems, and long-term systems. Examples of systems for each grouping were provided. The current progress was also provided and the AFC members were asked to investigate future spectrum requirements in the respective areas to support an interim update for the next AFC and future ASRI BoD meetings.

The current progress included ARINC predictions for data link usage with a 70/30 split for ACARS and VDLM2. ACARS growth is predicted to grow at a 5% rate over the next 3 years and VDLM2 growth will be at 7% and accelerating. ASRI will continue to solicit information and investigate future technology estimates. An action item for the AFC members is to investigate future spectrum requirements in their respective areas. ASRI plans to combine work efforts with IATA and ICAO where applicable.

8. NEW BUSINESS

A) ASRI Ground Station Activity Reports (GSARS)/Frequency Congestion.

Chris Wheatley (ASRI) provided a presentation (**Attachment 17**) on ASRI GSARS/Frequency Congestion.

It is AFC policy to submit an annual report noting the number of station contacts annually. These reports allow ASRI, as licensee of ground station, to gauge activity of the ground stations. Both GSARS reporting and ground station inspections ensure that the user is in compliance with FCC rules and regulations. The GSARS reports also assist ASRI frequency management with spectrum allocation decisions. The GSARS reporting is completed via the ASRI website.

Currently only about 10% of ground stations operators comply with the ASRI GSARS reporting requirement. Congestion in Northeastern Region of the US has created the need to know which frequencies are active. The GSARS reporting could assist ASRI with finding the best available frequency assignment. A map illustrating the channel assignments in the northeast was provided.

Using ORD in December 2013 as an example for identifying available frequencies, co-channel frequency separation has been significantly reduced due to number of current operators. The migration of voice users from the upper 136 band may put additional demand on lower band spectrum. It was also noted that one in four frequencies are not available due to Canadian use of the frequencies.

The airline consolidation has created some airlines to have multiple frequency assignments at the same airport. As per the AFC manual, when a merger occurs, ASRI will be requesting frequency justification from resulting airline merger. The justification is based upon the AFC busiest 15 minute blocks.

B) ASRI AFC Manual Update.

Michael Hinojosa (ASRI) mentioned that the current AFC manual is dated 2012. ASRI plans to update the manual this year in areas dealing with areas like VDLM2 support and better defining the formula dealing with frequency justification. Other areas in the manual will also be addressed like dealing with lifetime memberships, previous chairman, and general housekeeping. ASRI will also be looking for suggestions from AFC members on improving the manual.

C) New Amateur HF Allocation in 5250-5450 kHz.

Andrew Roy (ASRI) provided a report on the ITU Item 1.4 working on the new amateur HF allocation in the 5250-5450 kHz band. There were concerns expressed since the neighboring band 5450-5480 kHz is used for HF aeronautical control. In working with the amateurs at the ITU meeting last November the question was raised as to how far away should they be from other stations and is there separation criteria. Further investigation into the ITU regulations revealed that there was no protection criteria defined for HF ground stations. Further work will be required to define a recommendation.

D) AOC Communication Methods.

Tim Totten (UPS) provided a report on AOC Communication Methods. The airlines are doing various communications media and applications and airlines do not always want to share such information. Tim suggested that possibly in conjunction with the survey that ASRI will be conducting on 8.33 kHz voice and VDLM2 equipage, that ASRI could retrieve some airline information on their AOC communication methods. Tim offered to work with ASRI to help define the questions for the survey.

E) 2014 Review of 8.33kHz/VDLM2 Equipage and Requirements.

Andrew Roy (ASRI) provided a presentation **(Attachment 18)** on an ASRI initiative to determine the airline equipage with 8.33 kHz voice and VDLM2 data link.

The survey will assess US aviation's current equipage for 8.33 kHz voice radio capability and VDLM2 data link capability. All US based airlines will receive a formal survey request in March 2014 using an online survey tool. Results will be anonymous and presented at a future AFC meeting.

The questions to be considered will include airline fleet size, number of aircraft capable of supporting 8.33 kHz voice, number of aircraft supporting VHF Digital Link Mode 2 (VDLM2) data link, future plans for new aircraft, aircraft avionics upgrades, and aircraft retirements.

The previous survey was completed in December 2006. A total of 18 airlines participated in the survey. There were 5059 aircraft included in results. There were 41% (2096/5059) of the aircraft capable of supporting 8.33 kHz voice operation and there were 20% (1022/5059) of the aircraft capable of supporting VDLM2 data link.

F) SELCAL Tone Transmission Performance.

Andrew Roy (ASRI) provided a report on SELCAL tone transmission performance.

There is a Boeing engineer that expressed concern with how the SELCAL system works in real life. Questions raised include the transmitters/receivers performing within the specifications, does the HF propagation affect operations, and is there anything else at the system level that could be affecting performance. Two aspects have come forward: 1) actual receiver capability or receive tone quality as received at the aircraft, and 2) the SELCAL tones are being generated at

the dispatch point versus being generated at the actual transmitter. There are various transmission methods are being used between the dispatch point and the transmitters using different audio codecs. More work needs to be completed and ASRI will provide a report at the next AFC meeting.

G) New IATA Spectrum Management Role.

Kris Hutchison (ASRI) reported that an AFC IATA member is needed and asked the airlines to consider any possible support in obtaining IATA AFC participation would be appreciated. An ASRI formal letter was sent to IATA requesting a new AFC member.

9. AFC ROUND-TABLE FOR COMPANY UPDATES AND FUTURE WORK

(i) Joe Williamson (JBU) suggested that ASRI consider inviting an FBO organization association to the AFC membership. The secreatary requiested that Jet Blue provide a point of contact to be introduced to rather than cold calling the organization.
(ii) Joe Cramer (Boeing) acknowledged that the Boeing plant tour was still scheduled for this afternoon independent of the flight cancellations due to the weather.
(iii) Terry Gambill (PHI) acknowledged a good AFC meeting and a great dinner on Tuesday.
(iv) Zbig Jasiukajc (SITA) mentioned their work supporting the FAA Data Comm program and ATN deployment in Europe.
(v) Tim Pawlowitz (FAA) thanked ASRI for dinner.

10. ISSUES FOR THE ASRI BOARD OF DIRECTORS

Following the Winter 2014 meeting, the AFC wished to bring to the ASRI Board of Directors' attention the following list of items (**Attachment 19**):

(i) VDLM2 Equipage
(ii) VDLM2 Channel Plan
(iii) 8.33 KHz Equipment Upgrades
(iv) AeroMACS
(v) ADS-B Status
(vi) Iridium ADS-B Upgrade
(vii) SELCAL Code Expansion
(viii) Spectrum User Fees
(ix) LightSquared Issues
(x) Aviation Spectrum Requirements Survey
(xi) WRC-15 Agenda Items

11. ANY OTHER BUSINESS

A) Selection of a New Vice Chairman

Andrew Roy (ASRI) advised the AFC members that Pete Talbot (Bristow) will not be able to fulfill his obligation to the AFC as its new chairman for 2014. Tim Totten (UPS), AFC Vice-Chairman will be the new AFC Chairman for 2014.

The committee then solicited nominations for a replacement AFC Vice-Chairman in 2014. Terry Gambill (PHI) nominated himself as the new AFC Vice-Chairman for 2014. Kris Hutchison (ASRI) seconded the motion to consider Terry Gambill (PHI) for the new AFC Vice-Chairman post. A vote was taken and unanimously approved.

12. FUTURE MEETINGS

The Spring 2014 AFC meeting was confirmed for 10-11 June 2014 in Vancouver, Canada.

The Fall 2014 AFC meeting was provisionally scheduled for 7-8 October 2014 in New Orleans, Louisiana.

13. ADJOURNMENT

The meeting was adjourned by the Vice-Chairman at 11:35 AM, 12 February 2014.

Andrew Roy
Executive Secretary

Attachments posted to ASRI Website