



SELCAL Code Pool Expansion Status

AFC Winter 2016 - Albuquerque

The Current Limitation



- The ICAO SELCAL register is oversubscribed
 - Current 16-tone SELCAL standard is limited to 10,290 codes
 - SELCAL register holds over 35,000 assignments
 - Oversubscription is resulting in up to 6 aircraft responding to the same code
 - Over 250 known duplicate call occurrences recorded in 12 months by worldwide ANSPs
- The demand for SELCAL is still growing
 - ASRI issues approximately 2,500 per year
 - 13% year-on-year growth
 - Problem will continue to increase without action

Industry Solution



- ASRI working with SELCAL avionics vendors, manufacturers, and the FAA developed a SELCAL code pool expansion solution
- The solution expands the SELCAL system to 32 tones
 - The update would create 215,760 unique codes
- ASRI immediately began working with the various standards organizations (ICAO, RTCA, and AEEC) to move the proposed solution forward

ICAO Communications Panel



- The ASRI staff provided the proposed solution to the ICAO Working Group Maintenance (WG-M) committee for consideration
- ICAO WG-M agreed with the ASRI proposed SELCAL code pool expansion
 - The proposed date of implementation for ANSP ground station implementation based on survey feedback was September 2016
- The ICAO Communications Panel Meeting 1 was held in December 2014 in Montreal, Canada. Boeing/Airbus submitted a working paper with concerns that were addressed by ASRI at the meeting except for the completion of testing of avionics for backward compatibility. IATA also expressed concern about testing.
- It was concluded that testing for backward compatibility was required so the SELCAL code pool expansion proposal was deferred until the next ICAO approval cycle commencing in 2016.

ICAO Communications Panel



- The ICAO Communications Panel Meeting 2 was held September 28 through October 2, 2015 in Montreal, Canada.
- ASRI submitted a working paper that provided the status of avionics backward compatibility testing to date consisting of theoretical analysis, bench testing, and flight testing.
- The CP/2 participants were invited to:
 - note the successful SELCAL avionics backward compatibility testing and analysis conducted to date as outlined , and
 - continue to support the proposed SELCAL code pool expansion, with an expected approval process for incorporation into the ICAO SARPS commencing at CP/3 in 2016.

ICAO Communications Panel



- The ICAO Communications Panel Meeting 3 is scheduled for October 2016, 2015 in Montreal, Canada.
- ASRI will submit a working paper that will provide the results of all backward compatibility testing conducted under the guidance of RTCA SC-232.

AEEC SELCAL Working Group



- The AEEC Executive Committee unanimously voted to approve the SELCAL Code Pool Expansion APIM at the AEEC General Session meeting held April 14-17, 2014
- American Airlines volunteered Robert Holcomb as chairman and Paul Prisaznuk was the AEEC secretary to support the SELCAL working group (WG)
- The AEEC Executive Committee unanimously approved the 714A document at the AEEC Mid-term meeting held September 23-24, 2015 in Seattle, WA

RTCA SC-232 Meetings



- The ASRI staff attended the RTCA Program Management Committee (PMC) meeting on June 17, 2014 in Washington, DC
 - The PMC committee approved the proposed ASRI Terms of Reference (TORs) and formed Special Committee (SC) 232 to develop a new Minimum Operational Performance Standard (MOPS) for the SELCAL system
- SC-232 held six meetings in total to develop the SELCAL MOPS
- SC-232 held its final meeting in January 2016 in Washington, DC at RTCA Headquarters
 - Primary objective was to disposition comments received on the draft MOPS document
 - Review the status of avionics testing for backward compatibility

RTCA SC-232 Meetings



- The bench testing conducted on avionics associated with both Airbus and Boeing fleet aircraft avionics indicated that all the tested legacy avionics are fully backwards compatible with the proposed SELCAL code pool expansion.
- Airbus completed a flight test campaign in December 2015 to verify backward compatibility with A320/A350 aircraft. The results of the testing indicate backwards compatibility.
- Free Flight Systems conducted bench testing with the assistance of AvtechTee and their avionics were backward compatible.
- Honeywell and Rockwell Collins did not conduct avionics testing but did advise the SC-232 committee to proceed with the SELCAL code pool expansion.

RTCA SC-232 Meetings



- A theoretical analysis of intermodulation products when the new 16 tones are incorporated into the existing SELCAL system was completed. The committee concluded to provide guidance to ASRI in the MOPS concerning early assignment of SELCAL codes in order to reduce the probability of false triggering.
- Guidance was also provided to the FAA and the airlines on the impact on their respective ground systems that currently support SELCAL codes.
- The MOPS document will be presented to the RTCA Program Management Committee for final approval on March 17, 2016.



Questions?