



COM11.1 — Voice over Internet Protocol (VoIP) in En-Route

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This Implementation Objective aims at an efficient use of Voice over Internet Protocol (VoIP) by harmonised and coordinated implementation for ground/ground and ground part of ground/air aeronautical communications, ensuring network benefits from VoIP implementation.

The initiative covers inter-centre (encompassing all type of ATM Units) voice communication and the links with the ground radio stations. COM11.1 is applicable to 'En-Route' and 'Network' Operating Environments. Inter-centre voice communications not yet migrated to VoIP are currently performed via analogue and digital circuits.

This legacy ATM voice services will soon no longer be supported by the European telecommunication service providers, making the use of new technology necessary. At present and in order to follow the evolution of the communication technologies, ATM-VoIP is the global standard (ICAO DOC 9896 ed2, based on EUROCAE ED137) for ground telephony and ground segment of the Air-Ground voice. ATM-VoIP industrial standard (EUROCAE ED-137) is maintained and evolved over time to ensure that voice communication requirements are met. Transition towards VoIP is bringing interoperability.

Cross-border aspects need to be addressed appropriately within the network perspective. VoIP in ATM constitutes an essential part of Network Operational Excellence Programme WST13.5 – IP Services and VoIP.

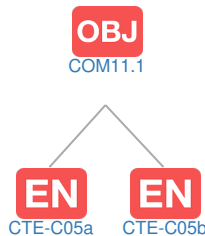
This project aims at an efficient use of Voice over Internet Protocol by harmonised and coordinated implementation for ground/ground and ground part of ground/air aeronautical communications, ensuring network benefits from VoIP implementation.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

| | |
|---------------------|---------------------------------|
| Edition | 2022 |
| Stakeholders | Air Navigation Service Provider |
| Type | SESAR |
| Scope | ECAC+ |
| Status | Active |

Context

Related Elements

















Applicability Area(s) and Timescales

Applicability Area: All ECAC States except: Luxembourg. Plus: Israel, Morocco

| Timescales | From | By | Applicable to |
|--------------------------------|------------|------------|--------------------|
| Initial operational capability | 01-01-2013 | - | Applicability Area |
| Full operational capability | - | 31-12-2021 | Applicability Area |

Links to ATM Master Plan Level 2

EN Enablers

| Code | Title | IOC | Related Elements |
|----------|---|-----|--|
| CTE-C05a | VoIP for ground telephony | - |        |
| CTE-C05b | Digital Voice / VoIP for ground segment of Air-Ground voice | - |        |

SOL Links to SESAR Solutions

| Code | Title | Program | Related Elements |
|-----------------|-------|---------|------------------|
| No record found | | | |

PCP Links to PCP ATM Sub-Functionalities

| Code | Title | Related Elements |
|-----------------|-------|------------------|
| No record found | | |

 ICAO Block Modules: No associated data

References

Applicable legislation

None

Applicable ICAO Annexes and other references

Covers ICAO Global Plan Initiative GP-22

Deployment Programme 2022

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Operating Environments

En-Route

Network

Expected Performance Benefits

| | |
|-------------------------------|--|
| Safety | Maintained or improved by providing enhanced signalisation functions. Improved by providing a more resilient infrastructure. |
| Capacity | Maintained or improved by providing enhanced signalisation functions. |
| Operational efficiency | - |
| Cost efficiency | Reduced costs by enabling flexible and dynamic use of ANSP resources, leading to long term savings. |
| Environment | - |
| Security | - |

Stakeholder Lines of Action

| Code | Title | From | By | Related Enablers |
|-------|---|------------|------------|------------------|
| ASP01 | Develop safety assessment for the changes | 01-01-2012 | 31-12-2021 | |
| ASP03 | Upgrade and put into service Voice Communication Systems to support VoIP inter-centre telephony | 01-01-2013 | 31-12-2021 | EN |
| ASP04 | Upgrade and put into service Voice Communication Systems to support VoIP links to the ground radio stations | 01-01-2013 | 31-12-2021 | EN |

Supporting Material

| Title | Related SLoAs |
|---|---------------|
| EC - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 - (OJ L 62, 8.03.2017, p. 1) - COMMISSION IMPLEMENTING REGULATION (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 03/2017 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R0373&from=EN | ASP01 |
| EUROCAE - ED-136 - Voice over Internet Protocol (VoIP) Air Traffic Management (ATM) System Operational and Technical Requirements 02/2009 https://eshop.eurocae.net/eurocae-documents-and-reports | ASP03, ASP04 |
| EUROCAE - ED-137/1C - Interoperability Standards for VoIP ATM Components - Volume 1: Radio 04/2017 https://eshop.eurocae.net/eurocae-documents-and-reports | ASP04 |
| EUROCAE - ED-137/1C Change 1 - Interoperability Standards for VoIP ATM Components - Volume 1: Radio 05/2020 https://eshop.eurocae.net/eurocae-documents-and-reports | ASP04 |
| EUROCAE - ED-137/2C - Interoperability Standards for VoIP ATM Components - Volume 2: Telephone 03/2019 https://eshop.eurocae.net/eurocae-documents-and-reports | ASP03 |
| EUROCAE - ED-137/2C Addenda 1 to 8 - Interoperability Standards for VoIP ATM Components - Volume 2 Addenda: Telephone 03/2019 https://eshop.eurocae.net/eurocae-documents-and-reports | ASP03 |
| EUROCAE - ED-137/2C Change 1 - Interoperability Standards for VoIP ATM Components - Volume 2: Telephone 05/2020 https://eshop.eurocae.net/eurocae-documents-and-reports | ASP03 |
| EUROCAE - ED-137/4C - Interoperability Standards for VoIP ATM Components - Volume 4: Recording 03/2019 https://eshop.eurocae.net/eurocae-documents-and-reports | ASP03, ASP04 |
| EUROCAE - ED-137/5C - Interoperability Standards for VoIP ATM Components - Volume 5: Supervision 03/2019 https://eshop.eurocae.net/eurocae-documents-and-reports | ASP03, ASP04 |
| EUROCAE - ED-138 - Network Requirements and Performances for Voice over Internet Protocol (VoIP) Air Traffic Management (ATM) Systems - Part 2 Network Design Guideline 02/2009 https://eshop.eurocae.net/eurocae-documents-and-reports | ASP03, ASP04 |
| EUROCONTROL - EAM 4 - ESARR 4 - Risk Assessment and Mitigation in ATM - Edition 1.0 / 04/2001 https://www.eurocontrol.int/publication/esarr-4-risk-assessment-and-mitigation-atm | ASP01 |
| EUROCONTROL - GUID-137 - EUROCONTROL Guidelines on conformity assessment for the interoperability Regulation of the single European sky - Edition 3.0 / 02/2012 https://www.eurocontrol.int/publication/eurocontrol-guidelines-conformity-assessment-interoperability-regulation-single | ASP03, ASP04 |
| EUROCONTROL - SIP v ATS-QSIG Gateway Interworking Test Specification - Edition 2 / 12/2013 https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents | ASP03 |

| Title | Related SLoAs |
|--|-----------------|
| EUROCONTROL - SIP v ATS-R2 Gateway Interworking Test Specification - Edition 2 / 12/2013 https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents | ASP03 |
| EUROCONTROL - VOTER 4.0.x Test Description - VOL 5 - Interoperability - Edition 3.1 / 12/2021 https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents | ASP03, ASP04 |
| EUROCONTROL - VOTER 4.0.x Test Description - VOL 6 - Performance for GRS-VCS Interfaces - Edition 3.1 / 01/2020 https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents | ASP03, ASP04 |
| EUROCONTROL - VOTER 4.0.x Test Description - VOL 7 - Supervision - Edition 3.2 / 01/2020 https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents | ASP03, ASP04 |
| EUROCONTROL - VOTER 4.1.x Test Description - VOL 2 - VCS Radio Interface - Edition 3.7 / 10/2021 https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents | ASP04 |
| EUROCONTROL - VOTER 4.1.x Test Description - VOL 3 - VCS Telephone Interface - Edition 3.9 / 10/2021 https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents | ASP03, ASP04 |
| EUROCONTROL - VOTER 4.1.x Test Description - VOL 4 - Recorder Interface - Edition 3.6 / 12/2014 https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents | ASP03, ASP04 |
| EUROCONTROL - VOTER 4.1.x Test Description -VOL 1- GRS Radio Interface - Edition 3.9 / 10/2021 https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents | ASP04 |
| EUROCONTROL - VOTER Test Tool - version 4.x.x (ED-137C) - | ASP03, ASP04 |
| EUROCONTROL - VoIP in ATM Cross-Reference Matrix for ED-137C – VOTER 4.x.x 12/2021 https://ost.eurocontrol.int/sites/VOTE/Shared Documents/Reference Documents | ASP03, ASP04 |
| ICAO - Doc 9896 - Manual for the ATN using IPS Standards and Protocols - Edition 2.0 / 2015 https://store1.icao.int/ | ASP03, ASP04 |

Consultation & Approval

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|--|--------------------------|
| Working Arrangement in charge | CNS / COM SG |
| Outline description approved in | 02/2009 |
| Latest objective review at expert level | 12/2018 |
| Commitment Decision Body | Provisional Council (PC) |
| Objective approved/endorsed in | 08/2011 |
| Latest change to objective approved/endorsed in | 06/2019 |