



INTEROPERABILITY STANDARDS FOR VOIP ATM COMPONENTS

VOLUME 1: RADIO

CHANGE 1

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Change 1 to ED-137/1C

May 2020

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FOREWORD

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3. The findings of EUROCAE are resolved after discussion amongst Members of EUROCAE through their appropriate committees.
4. This document complements ED-137/1C INTEROPERABILITY STANDARDS FOR VOIP ATM COMPONENTS VOLUME 1: RADIO (April 2017).
The document has been updated to provide further clarifications on the implementation of specific facilities.
As compared with the previous version, the main changes can be found in the Change Summary chapter.
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CHAPTER 1

CHANGE SUMMARY

Change 1 to ED-137/1C is summarized as follows:

Description of change	Affected chapters, paragraphs
Changed all references from RFC 2327 to RFC 4566	Chapter 3.6
Deleted outdated references	Chapter 3.3.5
Subscribe request should be sent out of dialog	Chapter 3.3.6.1
Changed all references from RFC 3265 to RFC 6665	Chapter 3.3, 3.3.6.1, 3.3.6.2, 3.4, 3.5, 3.5.1, 3.5.2 and 3.6.1.1
Removed the restriction that only the listed SIP request header fields are allowed.	Chapter 3.5.1
Added Recv-Info UA request header field and the SIP INFO request in Table 3	Chapter 3.5.1
Added Recv-Info UA response header field and deleted Priority and Subject UA response header fields in Table 4"	Chapter 3.5.2
Added clarification to the negotiation of the WG67-Version header field	Chapter 3.5.2.6
Added clarification to the linked session related SDP parameters	Chapter 3.6.1.14 and 3.6.1.15
Added mandatory SIP INVITE header field for VCS supporting the selcal functionality	Chapter 3.8.1.6
Changed all references from RFC 4655 to RFC 4566	Chapter 3.8.1.7
Changed the format to the reason header value for Invalid Multicast values and added a new reason header value for not supporting any of the requested WG67 versions (cause=2016)	Chapter 3.8.5.2
Changed requirements for the ptt-id values	Chapter 5.5.5 and 5.5.7
Update of the references	ANNEX A

CHAPTER 2

CHANGE DETAILS

2.1 CHAPTER 3.3 SUPPORTED REQUESTS

1 [SIP] SIP Supported requests

The following requests methods **SHALL** be supported for both UACs and UASs in a VCS and a radio that support SIP:

TABLE 1 – SUPPORTED SIP REQUESTS

Method	User Agent VCS		User Agent GRS	
	Sending	Receiving	Sending	Receiving
INVITE	m	o	-	m
ACK	m	o	-	m
CANCEL	m	o	-	m
BYE	m	m	m	m
REGISTER	o	-	o	-
INFO	o	o	o	o
SUBSCRIBE	m	o	o	m
NOTIFY	o	m	m	o
UPDATE	m	m	x	o
OPTIONS	o	o	o	o
REFER	o	m	-	o
MESSAGE	o	o	-	o
PUBLISH	o	o	o	o
PRACK	o	o	o	o

“m”: mandatory; “o”: optional; “x”: prohibited; “-”: not applicable

The requirements of RFC 3261 [12], RFC 3262 [13] , RFC 3265 **6665** [15], RFC 3311 [16] and RFC 3515 [20] **SHALL** apply with modifications as specified in the following sub-clauses.

2.2 CHAPTER 3.3.5 REGISTER

The REGISTER request message **MAY** be sent by the User Agent at the VCS or GRS endpoints to a REGISTRAR server in order to notify the SIP network of its Normal and Current contact addresses. A registrar server acts as the front end to the location service for a domain, reading and writing mappings based on the contents of REGISTER request messages. This location service is then typically consulted by a proxy server that is responsible for routing requests for that domain.

As all SIP session requests are initiated from the User Agent at the VCS endpoint there is only a need to employ the location service towards GRS endpoints and it will not therefore be used towards VCS endpoints. Typical use of the REGISTRAR server will therefore be used to ensure GRS endpoints are present on the SIP network and also to enable SIP session establishment requests to be routed to a different User Agent at a GRS endpoint (e.g. Switch-over from Main to Stand-by Radio).

If a registration between a SIP UA and a SIP server (SIP proxy, SIP registrar) is accomplished, the (authentication) process **SHALL** be made in accordance with section 10 of RFC 3261 [12], and section 2 of RFC 3265 [15] **SUPPORTED RESPONSES**.

2.3 CHAPTER 3.3.6.1 SUBSCRIBE

The SUBSCRIBE method is used to request current state and state updates from a remote node. The Request URI of a SUBSCRIBE request, contains enough information to route the request to the appropriate entity (e.g. radio or radio gateway equipment). It **SHALL** include exactly one "Event" header indicating the event being subscribed. The "Event" header **SHALL** contain the token **"WG67KEY-IN"** which is indicating the type of state for which a subscription is being requested.

If subscription between SIP User Agents (e.g. VCS and Transceiver, or Transmitter, or Receiver endpoints) is accomplished, the process **SHALL** be made in accordance with RFC 3265 6665 [15]. The SUBSCRIBE request **SHOULD** be sent outside of a dialog.

2.4

CHAPTER 3.3.6.2 NOTIFY

NOTIFY messages are sent to inform subscribers of the current state and changes in state to which the subscriber has a subscription. As in SUBSCRIBE requests, the NOTIFY "Event" header **SHALL** contain "WG67KEY-IN" as single event package name for which a notification is being generated. The "Content-type" header **SHALL** contain: text/plain.

The GRS Receiver, Transceiver or Transmitter endpoint **SHALL** notify all subscribed User Agents whenever a User Agent at a VCS endpoint either establishes or disconnects a SIP session to the User Agent at the GRS endpoint. A complete list of bindings between ptt-id and SIP URIs **SHALL** be provided when a ptt-id has been assigned, otherwise the list **SHALL** indicate SIP URIs without the ptt-id. (That means each time a SIP session on the radio is established, re-established or cleared it shall trigger a notification, containing the list of all current binding sessions with ptt-id bindings if they exist).

If subscription between SIP UA (e.g. at VCS and GRS Transceiver/Transmitter endpoints) is made, the process **SHALL** be implemented according to RFC 3265 6665 [15].

2.5

CHAPTER 3.4 SUPPORTED RESPONSES

3 [SIP] SIP Supported response

SIP user agents **SHALL** support the reception of 1xx Provisional Responses, Successful Response 200, Redirection 302, 4xx Request Failure Responses, 5xx Server Error Responses and 6xx Global Failure Responses

TABLE 2 – SUPPORTED SIP RESPONSES

Response	User Agent VCS		User Agent GRS	
	Sending	Receiving	Sending	Receiving
100 – Trying	o	m	m	m
180 – Ringing	-	m	o	-
181 – Call Is Being Forwarded	-	m	x	-
182 – Queued	-	m	x	-
183 – Session Progress	-	m	o	-
200 – Ok	m	m	m	m
202 – Accepted	o	m	o	m
400 – Bad Request	o	m	m	o
404 – Not Found	m	m	m	m
405 – 408, 410, 413, 414	o	m	m	o
415 – Unsupported Media Type	o	m	m	o
416 – Unsupported URI Scheme	o	m	m	o
420, 421, 423		m	o	m
422 – Session Interval Too Small	m	m	m	m
480 – Temporarily Unavailable	o	m	m	o
481 – 485, 487, 489	o	m	o	-
486 – Busy Here	o	m	m	o
488 – Not Acceptable Here	m	m	m	m
491 – Request Pending	o	m	m	o
493 – Undecipherable	o	m	m	o
501 – Request Not Supported	o	m	m	o
502 – 505, 513	o	m	o	o
603 – Decline	m	m	m	m
604, 606	o	m	o	m

"m": mandatory; "o": optional; "x": prohibited; "-": not applicable

The requirements of RFC 3261 [12] and RFC 3265 **6665** [15] **SHALL** apply with modifications as specified in the following sub-clauses.

2.6

CHAPTER 3.5 SUPPORTED HEADER FIELDS

The requirements of RFC 3261 [12], RFC 3265 **6665** [15], RFC 3311 [16] and RFC 3515 [22] **SHALL** apply with modifications as specified in the following sub-clauses.

As indicated in RFC 3261 [12], header field values and parameter values **SHALL** be case-insensitive.

Table 3 and Table 4 compile and summarize the minimum set of header fields that **SHALL** be supported in requests and responses.

NOTE: According to the indicated RFCs, all the mandatory header fields appear as mandatory in the tables (Table 3 and Table 4). Besides, Content-Length, Priority and Subject header fields (indicated as optional in the RFCs) appear here as mandatory for specific requests; this is indicated by an 'm' in bold face type.

2.7

CHAPTER 3.5.1 USER AGENT REQUEST HEADERS

Request headers apply only to SIP requests. They are used to provide additional information to the Server regarding the request itself or regarding the client.

SIP User Agents in an IP AGVN **SHALL** be capable of sending and receiving the SIP request header fields indicated in Table 3. SIP Proxy Servers in an IP AGVN **SHALL** be capable of receiving the SIP request header fields indicated in Table 3. Header fields not included in Table 3 **SHALL NOT** be sent.

TABLE 3 – SIP UA REQUEST HEADER FIELDS

UA Request Header Field	Requests											
	ACK	BYE	CAN	INV	MES	NOT	OPT	REF	REG	SUB	UPD	INF
Allow	---	o	---	o	o	o	o	o	o	o	o	---
Allow-Events (RFC 3265 6665 [15])	o	o	---	o	---	o	o	---	o	o	---	---
Authorization	o	o	o	o	o	o	o	o	o	o	o	o
Call-ID	m	m	m	m	m	m	m	m	m	m	m	m
Contact	o	---	---	m	---	m	o	m	o	m	m	o
Content-Length	m	m	m	m	m	m	o	m	m	m	m	m
Content-Type	*	*	---	*	*	*	*	*	*	*	*	*
Cseq	m	m	m	m	m	m	m	m	m	m	m	m
Date	o	o	o	o	o	o	o	o	o	o	o	o
Event (RFC 3265 6665 [15])	---	---	---	---	---	m	---	---	---	m	---	---
Expires	---	---	---	o	o	---	---	o	o	o	---	o
From	m	m	m	m	m	m	m	m	m	m	m	m
In-Reply-to	---	---	---	o	o	---	---	---	---	---	---	---
Join (RFC 3911 [28])	---	---	---	o	---	---	---	---	---	---	---	---
Max-Forwards	m	m	m	m	m	m	m	m	m	m	m	m
MIME-Version	o	o	---	o	---	o	o	o	o	o	o	---
Priority	---	---	---	m	o	---	---	---	---	o	---	o
Proxy-Authorization	o	o	---	o	o	o	o	o	o	o	o	o
Proxy-Require	---	o	---	o	o	o	o	o	o	o	o	o
Record-Route	o	o	o	o	---	o	o	o	---	o	o	o
Reason	---	o	o	---	---	---	o	---	---	---	---	---
Refer-To (RFC 3515 [20])	---	---	---	---	---	---	---	o	---	---	---	---
Recv-Info (RFC 6086)	---	---	---	o	---	---	---	---	---	---	---	---
Replaces (RFC 3891 [27])	---	---	---	o	---	---	---	---	---	---	---	---
Reply-to	---	---	---	o	o	---	---	---	---	---	---	---
Require	---	c	---	c	c	o	c	c	c	o	c	---
Route	c	c	c	c	o	c	c	c	c	c	c	c