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EUROCAE Paper. EUR 52-17 / WG98-22

EUROCAE WG-98 Plenary # 10/ RTCA SC-229Plenary # 9- Meeting Minutes
"Aircraft Emergency Locator Transmitters (ELTs)"

Date	**Tuesday 13th through Friday 16th December 2016**
Place	**Fort Lauderdale, U.S.A.**
Venue	**Riverside Hotel–620 Las Olas Boulevard, Fort Lauderdale –U.S.A.**
Hosted	**ACR Electronics Inc.** **5757 Ravenswood Road, Fort Lauderdale, FL 33312, U.S.A.**

Present:

Name	1st name	Company
Anderson	Richard	Boeing Commercial Airplanes
Audouze	Xavier	EASA
Bekanich	Joseph	InFlightLabs
Bouhet	Alain	McMurdo
Cresp	Claude	ELTA
Densmore	Jeff	Radiant Power Corp.
Feith	Greg	InFlightLabs
Fisher	John	FAA
Fuhrmann	David	Air Force RCC
Foster	Anthony	NASA
Green	Charisse	FAA
Hoffman	Chris	ACR Electronics, Inc.
Horiot	Christophe	Airbus
Khalil	Fadl	The Boeing company
Lemon	Dan	NOAA
McCurry	Chris	Radiant Power Corp.
Morrison	Rebecca	RTCA
Ortenzio	Aaron	U.S. CoastGuard
Pack	Tom	ACR Electronics, Inc.
Plantin de Hugues	Philippe	BEA
Politis	Elias	NRC
Reich	Jesse	NOAA

Saint-Pierre	Dany	Cospas-Sarsat
Senol	Ahmet	Airbus
Smith	Greg	NTSB
Stimson	Chad	NASA
Taylor	Stuart	Techtest Ltd
Theodorakos	George	NASA
Thiedeman	Edwin	U.S. CoastGuard
Waggener	Bill	L3-Com
Weed	Mike	L3-Com
Maholm	Chris	Dayton Granger
Stanlovic	Dan	ACR
Haas	George	GCH Eng

Present using WebEx:

Chip	Chip	FAA
Black	Jamie	FAA
Blocj-Hansen	Craig	TCCA
Chism	Linda	Alaska Airlines
Biell	Mark	Airbus
Martin	Pauline	Thales Alenia

Apologies:

Bitterli	Daniel	Dassault
Dutruc	Hervé	Airbus Helicopters
Martin	Pauline	ThalèsAlenia Space
Mazzuca	Lisa	NASA
Von Groote	Anna	EUROCAE
Bitterli	Daniel	Dassault

Day 1 – Tuesday 13th December (9 am – 5 pm)

1. **Welcome/Introductions/Administrative Remarks**

Tom welcomed everyone to USAthe RTCA SC-229 and EUROCAE WG-98 meetings.

He introduced Charisse who announced that In accordance with the Federal Advisory Committee Act, the Advisory Committee meeting is open to the public. Notice of the meeting was published in the Federal Register on: 24th October2016 and that attendance is open to the interested public.

Full Document can be found on the webspace [INTRO_DFO_Slides_12_13_16.pdf]

Rebecca gave a statement for RTCA policiesregarding proprietary references and patentable technology and copyright material required to comply with RTCA. Members were asked to review the policy from the onscreen presentation.

Full Document can be found on the webspace [Proprietary Ref Policy-2015 FINAL.pdf]

Rebecca asked everyone to sign the register and to agree to abide with RTCA policy

Questions - No questions.

Tom discussed logistics and asked for round table introductions

2.   Agenda overview and approval

Tom reviewed the agenda from the onscreen presentation:

Day 1

Welcome/Introductions/Administrative Remarks

FAA DFO and EUROCAE
Agenda Overview and approval

Minutes Lorient Joint Meeting #8 meeting review and approval

Review Action Items from Lorient Joint Meeting #8 Meeting

Briefing of ICAO, COSPAS-SARSAT

ICAO GADSS-AG activities: Mike Barton
Cospas-Sarsat Update on last week Council Meeting, MESOSAR Updates,
T.018 Update, ELT(DT) Update: Dany St Pierre,
Update on T.021 plan: Tony
Cospas-Sarsat T-ELT Correspondence Working Group: Chris Hoffman
SC-225 Updates on Lithium Batteries: Jeff Densmore

Other Industry coordination and presentations

White paper RLS: Pauline Martin, Thalès

Discussions

Day 2

Working Groups meetings

Day 3

Morning

Working Groups Meetings

Afternoon

WG Status Reports
Action item review
Future meeting plans and dates (Review of June 2017 JM#11 dates)
Industry coordination and presentations (if any)
Other Business

Day 4

Morning

Visit of the site and interactive presentations of ACR Electronics Inc.

Questions -

Tonyasked for clarification if it was the intention to stay as a plenary or continue as two working groups as discussed during the last meeting. Tom announced that it was intended to split into two groups for this meeting and continue as a plenary for future meetings as the work of the two groups looking at specific parts of the specification needs to be completed first.

3. **Lorientmeeting Minuets review and approval**

Stuart gave an update of the minutes produced from the Lorient meeting and stated that they were currently posted in draft form on the web space. Stuart asked Greg if he was happy with the part relevant to him

Greg suggested some minor typing corrections which were amended.

Tom considered the Minutes to be approved.

4. **Review Action Items from Paris meeting**

Tom reviewed the action items and their status. Most of the actions were to be discussed during the week and it was agreed to review open actions on the final day.

5. **COSPAS-SARSAT UPDATE ON LAST WEB COUNCIL MEETING, MESOSAR UPDATES**

Dany provided an overview of the work carried out in 2016 looking at the development of the MEOSAR System,the development of the future Second Generation beacons and the development of an ELT-DT capability (triggered-in-flight ELTs).

Dany also discussed news from the JC that would affect the WG and discussed the revised timeline and various task groups that have been set up.

Dany also gave an overview of what can be expected in 2017.

6. **Other Industry coordination and presentations**

White paper RLS: Pauline Martin, Thalès

Pauline Martin from Thales/Alenia Aerospace gave a presentation regarding a white paper they have produced for the ICAO Recommendation. She prepared the paper following the last meeting in Lorient to answer the questions from the last meetings.

White Paper can be found on the workspace [White paper Galileo Return Link Service_V9.pdf]

Questions

Tom – if the beacon can be activated it means the GNSS has to be on. How do you implement this in the demo? She recommends that it is a second GNSS receiver in the beacon with Antenna which is on all the time the beacon is armed.

Fadl asked if the power comes from the battery of the ELT or a different source. She said that they recommend that it is powered by battery and aircraft supply.

Chris asked who is responsible for turning the beacon off, i.e. maintenance crew or pilot etc. Pauline confirmed that the pilot will switch to arm and off as and when applicable. Pauline then confirmed that this would be automatic. Xavier sees issues regarding power but also the criteria to arm function that we need to look at for distress tracking.

Xavier asked how they will know the ID of the aircraft. Pauline confirmed that the ELT will have to be registered and this will be a new service.

Dany said that the T-ELT group have just started work and have held to telecom meetings so far. Chris said that the group was being chaired by Fabio but Mike Reese has taken over from Canada. He said they are trying to progress and focus on operation

documents on Cospas-Sarsat but also alot of work required to test the standards. Chris saidif anyone is interested they should join the group.

SC-225 Updates on Lithium Batteries

Jeff Densmore gave an update to SC-235 discussing the Scope, Deliverables and due dates and latest news. The new document is due for release in June.

IN-FLIGHT LABS PRESENTATION

Greg Feith demonstrated a video providing an update into their Smart ELT and how they can remotely trigger an ELT from ground and that they have added remote triggering and been able to program parameters into their box. The video demonstrated the updates they have carried out adding capabilities.

Questions

How many parameters?They can set any that are defined, i.e. single engine at 60 degree banks etc.

George- are all the ground links are through iridium? Is it autonomous? Is there a type approvedELT in the box. No it will be used with anyELT, Autonomous and through Iridium.

7. WG 2 to 5 Status and weeks plan

Tom discussed that the aim for the week would be to split into two groups, the first group looking at chapter 1, completing their work.

Group 2 which Philippe was leading in Lorient would continue from 4.2.3 where they finished last time.

The group adjourned for the day.

Day 2 – Wednesday 14thDecember(9:00 AM – 5 PM)

Plenary convened first thing as Rebecca wanted to explain that there is an issue with the scheduled June meeting as RTCA have their annual symposium, Other dates were discussed and it was agreed that these could be confirmed on day 3.

WG Meetings Convened for the rest of the day.

Day 3 – Thursday 15thDecember(9:00 AM – 5 PM)

Plenary session reconvened with Alain's presentation on HELIOS looking at the work they have achieved into Fast moving ELT using 406 MHz by a modified ELT to transmit a burst within 5 seconds after activation, to have a shorter repetition period and to update the encoded location at every burst.

Full presentation can be found on the webspace [HELIOS - Fast Moving testing - Eurocae-RTCA Meeting - Dec 2016.pdf]

Questions – Xavier Asked if they have plans to carry out this test at higher speed in an aircraft. Alain discussed the constraints that they have in getting approvals to carry out such testing on a larger aircraft.

There were discussions about location accuracy for a ELT-DT and is there a need for an accuracy specification? Cospas-Sarsat have asked ICAO and there is a whole range of accuracies. Philippe said that it should have the same accuracy as a standard ELT.

ARINC

Philippe discussed the white paper that he prepared at the last meeting and the feedback they have received back from ARINC.

He announced that the next SAI Subcommittee meeting will be held February 14-16, 2017 in Coral Gables, Florida. This would be the desired venue for presentation and discussion of second generation ELT. Presentation to the SAI Subcommittee via web conference / phone call is certainly possible.

Philippe said that he hasn't answered them but was going to ask if Tom could attend with him joining through Webex and to explain why we have made this request so they will have all of the information to create their working group.

Chris asked how long the ARINC process would take. Elias said that there will be a public announcement to call for participation and they get discussed then but timelines will vary depending on complexity.

Greg said there are two things that we need to figure out. If we use ARINC and secondly we need to look at others. That could be something else and it's for ELT manufacturers to review if they need something else.

[Action Philippe to send the white paper to the group to see if it can be improved over webexto generate some discussion]

8.   RTCA FRAC PRESENTATION

Rebecca gave a presentation on how the FRAC process works, and the steps involved, timeline discussing our FRAC plenary on 9/7/2017 to PMC in March 2018.

The FRAC presentation has now been posted on the webspace [SC-229 - FRAC Process.pdf]

Rebecca also apologised for the error in the calling notice stating that this meeting was being held at Washington. Rebecca set up a meeting room at RTCA Headquarters but it wasn't used as members were aware that the meeting was held in Florida.

9.   WGS' REPORTS

Philippe gave an update from the 2nd working group continuing to work on chapters 6 and 7. They didn't remove anything from the document but still have proposals highlighted for the two chapters. They only have a couple of issues that require complete discussion with the group. Philippe took the actions to remove all of the 'shall' to replace with 'should'. He said the next stage is to have a plenary to approve all of the changes at the next meeting and clean the document.
At the previous meeting they had actions and one of them was to allocate Blake and Stuart to come up with a proposal regarding deployable ELTs. At 11:30 Joe from DRS and Stuart will demonstrate the proposal.Philippe asked everyone to review for the next meeting and suggested we hold a plenary session and dedicate the majority of time to carry out this review. If small working groups are required to look at in particular issues that can also take place.

Xavier asked for clarification as to how this will happen. Philippe said that he has the master document and each paragraph will be discussed one by one.

10. RTCA FRAC PRESENTATION

Stuart and Joe gave a presentation on their proposal for the update of the document regarding deployable beacons.

Joe described their discussions with Stuart regarding ED-112A and it was felt that the table in ED-62 covers the types of ED-62 and we should have a link to ED-112A. Basically this should be referenced in the document

They discussed a recommendation for insertion into our document.

The recommendation can be found on the webspace [ELT-AD recommendation WG-98 SC-2229.docx]

Philippe asked the group if they felt this is the best way to carry out this work and there was general consensus.

11. ACTION ITEM REVIEW

Philippe Reviewed the Action Items and the following statuses were updated

Plenary Actions

ACTION NUMBER	ACTIONNEE	ACTION	STATUS
ACTION 1	PHILIPPE	TO POST THE LATEST VERSION OF ED-62REVB WORKING FOR REVIEW	Open
ACTION 2	GROUP MEMBERS	TO MAKE COMMENTS ON THE ABOVE PAPER	Continuous Action
ACTION 3	GROUP MEMBERS	TO REVIEW THE WORK OF WG2 FROM THE WEB SPACE	Continuous Action
ACTION 4	CLAUDE LELAIE	CHECK CS/FAR DOCUMENTS 23, 25 27 AND 29 CHECKING PARAGRAPH NUMBERS REGARDING TEXT CHANGE TO SECTION 2.4 (OPERATION OF CONTROLS)	Done PPH to send to the group
~~ACTION 5~~	~~RICHARD ANDERSON~~	~~ACTION TO COMPLETE THE PARAGRAPH 6.1.11.6~~	~~Closed~~
~~ACTION 6~~	~~STUART TAYLOR~~	~~STUART TO PROVIDE FEEDBACK ON 4.4.1.1 'ADD ALTERNATIVE G LEVELS APPROPRIATE FOR ROTOR CRAFT TO BE ALLOWED 6.14G (REF CAA SPEC 16)'~~	~~Sent to Philippe Closed~~
~~ACTION 7~~	~~MARK~~	~~CONFIRM THAT AN AD AND AD (FDR) HAVE BUOYANCY REQUIREMENTS AND DO THEY MATCH THE CURRENT DEFINITIONS.~~	~~Closed~~
~~ACTION 8~~	~~ED~~	~~CLEARLY DEFINE GNSS: INTERNAL, INTEGRAL, EXTERNAL. CLARIFY DEFINITION OF EXTERNAL GNSS WITH RESPECT TO DT; WITH RESPECT TO EXTERNAL IS IT AIRCRAFT INPUT ONLY OR POSSIBLE CELL PHONE?~~	~~Discussed after Lorient (Closed)~~

ACTION 9	WG4	~~QUESTION OF GNSS PERFORMANCE FOR ELT: C/S, RTCM,? AF, AP, AD, S ARE STATIC SCENARIOS, DT MORE DYNAMIC.~~	~~Closed~~
~~ACTION 10~~	~~MIKE BARTON~~	~~CLARIFY ICAO REQUIREMENT FOR AUTONOMOUS OPERATION AND HOW IT APPLIES TO EXTERNAL GNSS AS LONG AS IT IS AVAILABLE.~~	~~Closed~~
~~ACTION 11~~	~~TOM PACK~~	~~ELT POWER SOURCE, FOR INTEGRAL DT SYSTEM?~~	~~Closed~~
~~ACTION 12~~	~~ICAO~~	~~FOR EACH CAPABILITY IN CHART, THERE NEEDS TO BE REQUIREMENTS.~~	~~Closed~~
~~ACTION 13~~	~~STUART TAYLOR~~	~~CONFIRM ELT AD ACTIVATION AND DEPLOYMENT REQUIREMENTS WITH MFGS: HR SMITH, DRS~~	~~Closed~~
~~ACTION 14~~	~~REBECCA MORRISON~~	~~DEFINE MANDATORY, PROHIBITED, OPTIONAL , N/A~~	~~Closed~~
~~ACTION 15~~	~~PLENARY ISSUE: WG1~~	~~PLENARY QUESTION: WHAT HAPPENS WHEN AIRCRAFT POWER AND/OR ELT COMMUNICATION IS LOST?~~	~~Closed in WG2~~
~~ACTION 16~~	~~PLENARY~~	~~HOW DOES THE ELT KNOW WHEN IT IS DT ARMED.~~	~~Closed~~
ACTION 17	MIKE BARTON	CLARIFY ICAO REQUIREMENT FOR ELT ADFDR DEPLOYMENT VS. ACTIVATION PHILIPPE HAS NOW TAKEN THE OPTION	OPEN

It was discussed that leaders and volunteers for small WGs would be required for proposing text on the various following issues :

- improve AD requirement *Blake, Stuart, Ahmet*

- address ADFR ELT requirement*Blake, Stuart, Ahmet*

- internal GNSS requirements for all types of ELT Especially for DT type where the acquisition time while in unusual and evolving attitude is important,*Chris, EASA, Chip and Charisse,…*

- 121.5 Homing modifications (current requirements sufficient?) *Ed, Dan and same small group working on the 2nd generation homing*

- 406 Homing (requiring type 1 and/or 2) *Ed, George and same small group working on the 2nd generation homing*

ELT DT issues
- address ELT DT, among other, in the environmental part of the standard, where now the ELT is supposed to be alive instead of standby during tests (acceptance criteria need revision)*Philippe, Xavier, OEM and ELT manufacturers and volunteers*

- installation requirements for ELT DT,*Philippe, OEM and ELT manufacturers and volunteers*

- define the functional interface requirements to the ELT DT (e.g. ARINC/Analog/digital) to include, output from triggering logic, how ELT (DT) is armed, activated, deactivated, and to trigger when Distress Tracking activation logic is disabled. *Greg, Philippe Alain Bouhet, Claude Cresp, Christophe Horiot, Fadl, Xavier*

- Installation instructions regarding autonomous power of external GNSS for ELT(DT)

End ELT DT issues

- Rechargeable non-lithium batteries, including potential criteria to trigger an alert when depleted, criteria to determine low capacity,*Open for discussion*

- RLS indication*Chris HELIOS and GRICAS Xavier*

- Other RLS feature *Group in Fort Lauderdale agreed that there is no other RLS feature*

- Cancellation cockpit control for manual activations*George Xavier Chris Christophe*

- Xavier's proposal: Installation instructions regarding autonomous power of external GNSS for ELT(DT)*WG TBD*

- Xavier's proposal: Combination of alerts for combined types (cancellation vs crash shock)*WG TBD*

- Xavier's proposal: Integrate ELT unit/system discussion results*WG TBD*

12. FUTURE MEETING PLANS AND DATES

Tom reviewed the Millstones. He announced that the next meeting will be hosted by EASA. Xavier asked if we need to add an extra day and it was agreed that the meetings are extended to add the 17th as well. Calling notice will be issued shortly.

The following meetings were approved

WG-98/SC-229 JM# 10: Koln	14 to 17 March 2017
WG-98/SC-229 JM# 11: Washington	06 to 08 June 2017
WG-98/SC-229 JM# 12: Paris	5 to 7 September 2017 Draft for OC/FRAC
WG-98/SC-229 JM# 13: Washington	12 to 14 December 2017 Last meeting

13. OTHER BUSINESS

No other Business

14. ADJOURN

Philippe thanked Tom and ACR for hosting us and Rebecca, Stuart, everyone on WebEx and group members for attending.

15. List of Actions

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ACTION 4	Philippe	Put CLAUDE'S PROPOSAL ON THE WEBSPACE REGARDING HIS ACTION TO CHECK CS/FAR DOCUMENTS 23, 25 27 AND 29 CHECKING PARAGRAPH NUMBERS REGARDING TEXT CHANGE TO SECTION 2.4 (OPERATION OF CONTROLS)	OPEN
ACTION 5	MIKE BARTON	CLARIFY ICAO REQUIREMENT FOR ELT ADFDR DEPLOYMENT VS. ACTIVATION PHILIPPE HAS NOW TAKEN THE OPTION	OPEN
ACTION 6	PHILIPPE	TO SEND THE ARINC WHITE PAPER TO THE GROUP TO SEE IF IT CAN BE IMPROVED OVER WEBEX TO GENERATE SOME DISCUSSION	OPEN