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Malakoff, 18 February 2016

EUROCAE WG-98 Plenary # 7 / RTCA SC-229 Plenary # 6- Meeting Minutes
“Aircraft Emergency Locator Transmitters (ELTs)”

Date	Tuesday 15 th through Thursday 17 th December 2015
Place	Paris, France
Venue	ICAO Paris Regional Office, 3 bis Villa Emile Bergerat, Neuilly sur Seine
Hosted	ICAO

Present:

Name	1st name	Company
Anderson	Richard	Boeing Commercial Airplanes
Audouze	Xavier	EASA
Barton	Mike	OACI
Bouhet	Alain	OROLIA
Burrows	Adrian	AAIB
Cazoulat	Fabienne	DGAC
Cresp	Claude	ELTA
Colin	Michel	VR2C
Dessaline	Assata	FAA
Greaves	Matthew	Cranfield University
Green	Charisse	FAA
Hoffman	Chris	ACR Electronics, Inc.
Horiot	Christophe	AIRBUS
Khalil	Fadl	The Boeing company
Koubeissi	Majed	Cobham
Le Bon	Dominique	Air France
Lelaie	Claude	Airbus
Mazzuca	Lisa	NASA
Ortenzio	Aaron	U.S. CoastGuard
Pack	Tom	ACR Electronics, Inc.
Parfitt	Christopher	FAA

Plantin de Hugues	Philippe	BEA
Saint-Pierre	Dany	Cospas-Sarsat
Smith	Greg	NTSB
Speraza	Eric	VR2C
Stimson	Chad	NASA
Taylor	Stuart	Techtest Ltd
Theodorakos	George	NASA
Thiedeman	Edwin	U.S. CoastGuard
Weed	Mike	L3Com
Weiss	Jennifer	Flight Data System
Von Groote	Anna	EUROCAE

Present using WebEx:

Lemon	Dan	NOAA
Klee	Lloyd	NZ Aviation Safety
Newman	Bernie	Astronautics Corporation of America

Apologies:

Reed	Dan	Fedex
Politis	Elias	NRC
Bitterli	Daniel	Dassault
Chadli	Mohammed	BEA
Sparks	Dale	JT1 Aerospace Corp.
Winum	Philippe	Sierra Echo
Hiner	Eric	DME Corporation
Curran	Dave	Team Airborne Data Services

Day 1 – Tuesday 15th December 2015 (9:30 AM – 5 PM)

Welcome/Introductions/Administrative Remarks

Tom welcomed everyone to Paris for the RTCA SC-229 and EUROCAE WG-98 meetings. He introduced Celso Figueiredo(ICAO host).

Celso provided the group with some administrative arrangements and gave a presentation about ICAO. He discussed the structure for the ICAO team and gave an overview of the air navigation regions which ICAO cover explaining the mix of cultures. He described the 7 ICAO offices situated around the world and areas of responsibility highlighting the different complexities that they have in Europe, working with different groups of air control, explaining that they have to co-operate with many organisations to ensure information is shared demonstrating the importance of ICAO.

Questions – no questions

Tom Introduced Charisse Green (DFO)to officially open the meeting.

Charisse 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: 22nd September 2015 and that attendance is open to the interested public.

Charisse read a statement on behalf of Hal Moses(RTCA) to discuss the changes to RTCA regarding membership that will take effect from the 1st January 2016.

Questions - No questions.

Tom introduced Anna who thanked Charisse for opening the meeting. Anna discussed the EUROCAE IPR and membership policies explaining that all members need to be a member of RTCA or EUROCAE. She announced that the EUROCAE symposium will be commencing on 28-29th April in Vienna. She invited WG leadership to come along to the event and discussed that there would be opportunities for trade stands if companies were interested.

Tom asked for round table introductions.

Agenda overview and approval

Tom reviewed the agenda from the onscreen presentation:

Day 1

Welcome/Introductions/Administrative Remarks

Agenda Overview and approval

Minutes Joint Meeting #5 meeting review and approval

Review Action Items from Joint Meeting #5 Meeting

Briefing of ICAO and COSPAS-SARSAT activities

Other Industry coordination and presentations

Resolution of open consultation / MASPS comments

Working Group meetings

Day 2

WG-1 – MASPS

WG-2 – Crash Safety

WG-4 – Plenary Group

Day 3

WG-5 – Combined Standard Review – Plenary Group

WG Status Reports

Action item review

Future meeting plans and dates

Industry coordination and presentations (if any)

Other Business

Questions - No questions.

Minutes Washington meeting review and approval

Stuart gave an update of the minutes produced from the Washington meeting explaining a request from Xavier to update the ETSO adoption time on page 6 to be changed from 6 months to 6-12 months along with a couple of other minor text changes. Stuart announced that the updated minutes would be posted on the webpage.

Tom considered the Minutes to be approved.

Review Action Items from DC

Tom reviewed the action items (below) and their status.

ACTION NUMBER	ACTIONNEE	ACTION	STATUS
ACTION 1	GROUP MEMBERS	To read ED62a & DO204a and to complete Philippe's spreadsheet for recommended changes	Closed
ACTION 2	TOM	To add Cospas Sarsat schedule to timeline	OPEN
ACTION 3	DANY	Provide update of the schedule to tom following JC-29 if possible.	OPEN
ACTION 4	GROUP MEMBERS	Action group members to read the document and provide feedback.	Closed
ACTION 5	CHARISSE	To look at existing standards used in TSOs to see if it is acceptable to adopt for ED62a/DO204a.	OPEN
ACTION 6	SOPHIE	To set up WebEx and organise a specialist from SC159 do provide an overview of the current GNSS specifications	OPEN
ACTION 7	PHILIPPE	Took action to resend the spreadsheet to the group.	Closed
ACTION 8	GROUP MEMBERS	To continue to send comments on suggested changes to the documents for debate.	Closed

Tom announced that with respect to action item 1, we had received many comments that need to be reviewed and considered the action closed although if anyone wanted to make further comments to do so.

Action item 2 – Tom proposed that item 2 will remain open.

Action Item 3 – Tom announced that Dany would give an update during his presentation later that day.

Action Item 4 – It was agreed that this item was a duplicate of item 1 and could therefore be closed.

Action Item 5 – Charisse said that she had provided the information and the action item was considered closed.

Action Item 6 – As Sophie was no longer with RTCA, Anna agreed to take over the action with Hal.

Action 7 – Philippe sent out the spreadsheet and the item was considered closed.

Action 8 – Was considered closed.

Briefing of ICAO and COSPAS-SARSAT activities

Mike Barton gave an update of ICAO SARPS that was used for the last Cospas-Sarsat meeting. The automatic deployable flight recorders remain the same from the original concept that will include an ELT.

He said that there were minimal changes but one significant change would be that there is no longer an option to activate the device from the ground anymore.

Mike announced that the draft went to the president of the commission the previous week and they should get consent to distribute the document soon. The GADSS document will reopen for discussion and amendment.

Questions

George had a question – discussing the 6 nautical mile radius based on a position update every minute. He asked if he could get a copy of these analyses from Philippe.

[ACTION]Philippe took action to send analysis to George.

George – discussed section 2.6 asking about deactivation from ground.

Philippe said that there is a plan for ICAO to write a manual (Doc10054) that will explain the means to recover flight data information. He said it would be written on behalf of the ICAO secretariat.

George asked who will be in the working group writing the manual.

Mike said that it will be from a GADSS steering committee trying to work out what needs to be done and who will be doing it. The steering group will be formed within the next few weeks. He said that the problems they are facing are that they have never written SARPS like this before. Due to the identified importance they are at the stage of the high level of the SARPS but there is still a lot of work to be completed.

Fadl asked if this proposal had already been adopted or is it to be proposed. Secondly was there a plan to remove one of the ELTs if an ELT is installed in an ADFDR. Mike said if you are using an ELT in an ADFR you do not need another fixed ELT.

Dany asked for clarification on section 2.7 talking about the requirement for ELT's, he asked if we are talking about future ELTs or existing ELTS? Mike said he believes that it was written around second generation beacon technology.

Chris H asked a question regarding the deactivation from ground, does he think it was an oversight by removing the activation from the ground, does he think it will be removed? Mike said that he thinks it will stay but suggested that this would be part of the work over the next 6 months in providing guidance material.

Alain ask if a risk analysis had been carried out by ICAO to remove any ELTS. Mike said they are stuck with the philosophy that where you have an ultimate tracking device you will be able to remove the one ELT but he doesn't believe that a risk assessment had been completed.

Chris P discussed the manual that had to be written and asked if the manual would be pushed through the same scrutiny as the previous letter. Mike answered that the SARPS as it stands made reference to an appendix that wasn't there. These appendixes do have to be filled in. He announced that in the past it referred to attachment xx. This is now the manual Doc10054. Mike said that he couldn't comment on the scrutiny but it will be written by a technical working group not the secretariat.

Tom asked that if a plane has an ADFR, one ELT can be taken off the plane, if an ADFR has availability to do distress track, and can you take the other ELT off too? Mike answered no, not as its written you will still need an ELT on the plane (either fixed or portable).

George said that he is confused about the deactivation from the ground and that it isn't precluded that you can't actually activate from the ground.

He asked if Mike could take action from the group to inform members when the expert working groups will be scheduled.

[ACTION] Mike to inform group members when relevant groups are meeting.

There were general discussions about power requirements and duration of transmissions compared with ED-112A and ED-62A and Philippe suggested that we need consistency between the two documents. Tom said we should look to see if we need a separate section for ADFR as a separate type or is it addressed from the hierarchy of standards from the TSO/ETSO only? He asked if Charisse and Xavier could look at this and report back.

[ACTION] Charisse and Xavier to investigate if we need a separate section for ADFRs.

Cospas-Sarsat update

Dany gave an update on Cospas-Sarsat activities with a presentation describing how things have moved on from the last 3 months.

He reminded the group that this is still a busy time for Cospas-Sarsat, with the development of the MEOSAR System, the development of the future Second Generation beacons and assessing the capability to locate ELTs triggered in flight.

He gave an update on the MEOSAR space and ground segments and discussed the D&E report that has been approved by the council and described the next stages.

Dany provided an update from the 29th Joint Committee meeting, in September 2015, where they had a record number of people to review 233 input documents. He discussed updates to CS documents to include new MEOLUT specifications.

He discussed the SWG's that will continue through 2016 with the addition of a new group to look at triggered in flight.

He described future meetings and task groups and future plans for 2016.

Questions - Tom asked if there was a published timeline as to when Cospas-Sarsat will have certified beacons on the market. Dany said that there is currently an action to update the current timeline.

Dany gave a second presentation discussing news from the JC to start a new correspondence group regarding triggered in-flight ELT's (T-ELT).

He discussed the background regarding the ICAO GADSS concept and the need to provide a solution as this concept is new to the Cospas-Sarsat system.

The CWG is currently made up of 36 participants worldwide from industry and ICAO and they have already had a couple of conference calls.

He discussed the objectives to look at the GADSS tracking requirements and conduct an assessment on the ability of 1st and 2nd generation beacons being able to be tracked and compliant by the end of 2018.

The CWG will be responsible for proposing relevant changes to Cospas Sarsat documents as required and conduct trials.

He discussed timelines and that they have a lot of work to do with the aim to develop changes to C/S T.001 and T.018 by January 2016 amongst developing changes to data distribution to support T-ELT.

Questions –

George said that one item came up was environmental requirements for a triggered in-flight ELT. Where would they be specified, this group, Cospas-Sarsat documents? Does this group think we would specify the environmental specifications?

The other question was that to meet the ICAO regulations the airframe manufacturers need approximately two years to implement, but if we are replacing one ELT with one triggered in flight ELT, so there wouldn't be any additional infrastructure needed, would the two year implementation time be reduced?

Tom discussed the second question and that Fadl said it would take approximately two years or more due to certification and installation. Boeing discussed the issue and said that the answer would be 'no' as there would still be changes to the infrastructure as there would be additional requirements. Airbus also agreed that it would take two years or more.

Tom discussed the first question regarding the environmental as it will depend where the beacons are installed and temperatures will differ. Xavier said up until now it was covered by ED-62 and temperature in the Cospas-Sarsat documents as standard. If we are looking at different categories like those specified in ED-112A, whichever category is chosen should continue to be in ED-62/DO-204.

Dany said the difficulty is that Cospas-Sarsat have to guarantee the operational performance for the temperature ranges and they only have two classes at this moment in time. He suggested that if we go out of these temperature ranges we should have a new class for Cospas-Sarsat to guarantee the operational use.

Chris said standard environmental performance specifications should remain in ED62/DO204 where temperature specifications should be in both Cospas-Sarsat and ED62/DO204 but we need to identify the primary source.

Xavier said that the top level should be defined by the manufacturer and tested in accordance with that.

Chris said that from a beacon manufacturers perspective we should have a standard temperature range to work to. One additional category should fix this.

Dany proposed that if they take the current non-operating temperatures of the beacon (currently not monitored by Cospas-Sarsat) and make them operational temperature ranges it should solve our environmental issues.

Tom said that we are effectively creating a new class.

The group adjourned for lunch.

Presentation about MH17

Adrian Burrows provided a presentation from the Dutch report of the MH17 investigation discussing what happened to the ELT.

Adrian gave a brief history of flight from Schiphol to Kuala Lumpur, being an aircraft full of passengers.

His presentation demonstrated the facts looking at the tracking of the plane and the overall timeline of events.

He discussed that there were a number of mixed nationalities on board providing a breakdown of passengers from each of the countries.

He said that the cause of the crash was from a surface to air missile and that the UKs involvement was to download the FDR and CVR at the AAIB with the Dutch authorities.

He discussed the conclusion made and that the aviation parties involved did not adequately recognise the risk of the armed conflict in the eastern part of Ukraine to overflying civil aviation.

He said that recommendations were split into 3 levels. The first was directed to ICAO to look at Timely closure or restriction of the use of airspace, Providing information to third parties as quickly as possible in the event of an armed conflict with possible risks for civil aviation and such coordination between civil and military air navigation service providers during an armed conflict that the state can fulfil its responsibility for the safety of civil aviation in the airspace.

The second level Addressed to ICAO / ICAO Member States / IATA, to ensure that operators cannot take it for granted that airspace above a conflict zone is safe and should therefore gather information about conflict zones more actively, also share this information with one another as much as possible.

The third level is for the operators to ensure they have publication of clear information to potential passengers about flight routes over conflict zones and making the operator accountable for that information.

For ELTs he described that there was a fixed ELT triggered in flight and demonstrated a table with the station reception times from a number of countries.

Questions

Dany – said some of the data was analysed by the secretariat and there were 3 phases of transmission, one while the aircraft was still in flight which then stoooped and restarted from the ground which lasted for several hours and then stopped. Then 1-2 days after that it restarted again. Dany didn't see any pictures of the ELT on the ground as that ELT had a backup antenna and the primary antenna could have been broken on impact. Dany said that from the ground the GEO satellites didn't detect it which could be as it was using the secondary antenna which wasn't strong enough to hit the GEO satellite.

He said that the ELT worked as expected for that particular incident. Tom asked Adrian where the actual ELT is at this moment. Adrian said that it is with the DSB and that the AAIB weren't really involved with the beacon.

Chris discussed the activations from MEOSAR, asking if they were accurate. Was there location? Dany said at the time there weren't that many satellites, yes it was detected by LEO but due to the lack of satellites the location wasn't that accurate.

WG 1 &2 status and week's plan

Tom asked working group chairs if they could give an update to what they hoped to achieve during the week.

WG-1 – Philippe announced that the open consultation was started following the last meeting, he had comments to review and they have to provide written answers to the people who made the comments. They plan to complete by noon on Wednesday to give to EUROCAE to publish.

WG-2 – Chad announced that they will give a presentation with Justin calling in discussing the data from the crash tests with a summary of the installations and tests. He said that the rest of the time will be reviewing the mops to hand over suggestions to WG-5. They also need to look at draft MOPS for installation.

WG meetings

WG 1 and 2 meetings (rest of the day from 2PM)

Day 2 – Wednesday 16th September 2015 (9 AM – 5 PM)

WG 1,2 and 4 meetings (morning session)

Day 2 – Wednesday 16th September 2015 Plenary (3 PM)

Plenary session gathered to hear a presentation from Jeff Densmore to discuss RTCA SC235.

Jeff discussed the work of SC-235 for non-rechargeable lithium batteries, discussing their TORs and responsible personnel.

He discussed group members from around the world and the scope of the group that has split into three subgroups with the objective of updating DO227.

He demonstrated a slide covering their timeline with the target of delivering the document by September 2016.

Questions

Tom asked if the FAA special conditions will be incorporated directly into the up issue of DO227 so the special conditions go away. Jeff answered that that would be the intent and it is in their objectives.

Tom discussed crash survivability and fire tests and asked if their group is looking at external effects that might overheat lithium batteries? Jeff said there is still a lot of debate on that and that they have to agree on how they define thermal runaway. The testing requirements haven't yet been established but the objective is that thermal runaway is contained.

Jeff said if anyone is interested in joining the group to send him an email.

WG1 & WG4 continued for the rest of the day.

Day 3 – Thursday 17th September 2015

WG-4 reconvened as a plenary session. 9AM – 12:30.

Day 3 – Thursday 17th September 2015 Plenary (1:30 PM)

Tom welcomed everyone back to the plenary session.

He reviewed some of the work that had started for WG-5 that had been carried out by Alain comparing ED62 and DO204 documents and continued to discuss the various changes that they have reviewed during their last two WebEx meetings.

Charisse asked WG chairs to be aware of the timelines and that we have to complete the document by September. She asked members to make an evaluation on timescales.

Tom announced WG Chairs to give working group updates.

WG reports

Presentation from Chair of WG-1

Philippe gave an update from WG-1, working on comments received during the open consultation that they were able to solve all comments and he had agreed to send the finalised comments to the group. He said that the work that they have achieved has now been completed and will not meet anymore. He will send the document to EUROCAE in January who will approve and send to the council for publication before end of February. In such case the next amendment of Annex 6 which will be published in November will reference ED-237.

Presentation from Chair of WG 2

Chad summarised the work that had been completed during the week revisiting their schedule, looking at issues and became aware that they will need to extend their one hour monthly meetings to two hours to improve efficiency.

They reviewed test data from the crash tests during the summer, and then they discussed the mops, looking at installation. He discussed on open action regarding fire and flame as there is a difference in the DO160 standard. Jamie black took the question and they have responded that Cat A will be the category rated for ELTs.

They discussed system installation for ELTs looking at fire resistance. The question came up about verification. Looking at how requirements are being followed discovering that there are no official requirements for verification.

They discussed automatic activation looking at the response curve. They discussed if they need to make changes and how they will be verified.

Chad is going to coordinate the comments made during the week and collaborate a document.

WG-3 Report

Ed gave an update as chair of WG-3, looking at homing and intelligent transmissions for Cospas-Sarsat.

They have presented several papers for JC29 and he described their planned activities starting in January.

Further develop T.018, pursuing 121.5MHz homing trials and also look at intelligent transmission scheduling for second generation beacons. They are also looking at battery life for second generation beacons.

Xavier asked regarding the transmission schedule, will there be one standard for all types of ELT or for one which would be triggered in flight. Ed said that there will be one standard but what will be different between ELTs, EPIRBs and PLBs is the rotating field. The priority may be different for an EPIRB against ELT.

Dany said until Cospas-Sarsat hasn't ruled out coming up with a specific sequence what with the new requirement from ICAO.

Presentation from Chair of WG 4

Chris announced that WG4 had met to discuss GNSS requirements going back to look at the decision that was made in September suggesting that all second generation beacons should be mandated to have a NAV input as they cannot remember why this conclusion was met.

They had a discussion about the standards and what GNSS should comply with. Boeing are helping us pick out a subset of those requirements.

This morning they had a discussion about the interface with the aircraft (Arinc, discrete).

They discussed operational lifetime and temperature looking at a decision that -55 degrees could be ok but we need to look at other temperatures.

Finally discussing time of operation, 24 hours or split between in-flight and crash etc. They have taken an action to look at different scenarios.

Future meeting plans and dates

Tom reviewed future meeting dates.

They have been looking at possible conflicts with Cospas-Sarsat meetings, RTCM IMO etc. Philippe announced that they proposed 15th-17th March in Washington DC.

Then 6-8th September in Europe and asked for any volunteers to host. Xavier volunteered to enquire if EASA could host in Cologne.

The last date of 2016 was proposed for 13-15th December was discussed to be held in the USA.

ACTION ITEMS

Stuart gave an overview of the action items from the week.

Other business

Xavier wanted to make everyone aware that the open commission has published the paper for distress flight tracking and he will and he will send a copy to the group when available.

Mike wanted to advise that Annex 6 adoption will be considered on 16th February. It won't become effective until July. Philippe said that our document will have to be published for 15th February.

No other business

Adjourn

Tom asked if there were any other questions.

Tom thanked Celso for hosting the meeting at ICAO.

Dany asked if there would be a summary of this meeting presented to the Cospas-Sarsat meeting.

Tom said that he currently has no plans.

Tom thanked Stuart, Charisse, Philippe and group leaders for their work.

He also thanked everyone for attending.

Meeting closed 15:00

List of Actions

ACTION NUMBER	ACTIONNEE	ACTION	STATUS
ACTION 1	TOM	To add Cospas Sarsat schedule to timeline	OPEN (Carried Over)
ACTION 2	ANNA/HAL	To set up WebEx and organise a specialist from SC159 to provide an overview of the current GNSS specifications	OPEN (Carried Over)
ACTION 3	PHILIPPE	To send a copy of the report regarding the rationale for the 6 nautical mile/ 1 min update. To George.	OPEN
ACTION 4	MIKE	To inform members when the ICAO expert working groups will be scheduled	OPEN
ACTION 5	XAVIER /CHARISSE	To investigate if we need an ADFR as a separate type of beacon within the specifications.	OPEN
ACTION 6	WG4 (CHRIS)	To provide justification for the reasons behind making GNSS mandatory	OPEN
ACTION 7	ALL	(From WG4) to look at the interface between the ELT and aircraft and provide feedback (looking at stand-alone or use information from aircraft). Philippe will prepare a document	OPEN