



# CNES Presentation for ESA Alert Workshop

*ESA Alert Workshop*

*CNES report*

*05 February 2009, ESTEC*

1. CNES alert system and ESA alerts management process
2. Difficulties and solutions with an Alert System
3. Lessons learned with the ESA Alert System
4. Suggestion and Perspectives

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## 1.1. History

- 1996 : **Creation** of the 3E CNES-Industry Alert system (TAS, TSA, Astrium, CNES)
  - To share knowledge, anomalies & investigations workload
  - To achieve consensual understanding, perimeter & recommendations
- 1998 : ESA Alert System, and **CNES Registration** (alert focal point)
- 1999 : CNES presentation for ESA Alert Workshop
- 2004 (December) : Creation of the **Internal** 3E CNES Alert System
  - To formalise & improve the internal process
  - To prepare the CNES-Industry Alert meetings
- 2006 (February) : **Dissolution** of the 3E CNES-Industry Alerts system
  - Unbalanced contributions
  - Convergence slowness
  - CNES independence, autonomy and own interest questioned
  - CNES work load to manage the Working Group
  - Low risk to miss an unknown alert (based on Lessons learned)
- 2006 : Creation of the **External** 3E CNES Alert System
- 2007 : First external diffusion and tool improvement ...

## 1.2. CNES Alert System Process (1/2)

- Limited to 3E parts
- 2 categories : ALERT & INFORMATION (e.g. obsolescence, company name change, design rule, export classification)
- Inputs : Projects anomalies, all the 3E ESA Alerts, available GIDEP, JAXA, R&D, ESCC (including non conformances), Arianespace, Astrium, TAS
- Systematic formal internal meetings : 1/month
- Membership : All the 3E Parts Projects Support, 3E experts if necessary, Head of Qualification Section (as Chairman)
- Outputs :
  - Decision to move an internal 3E incident to an official CNES Alert
    - Generic (multi Projects potentially)
    - Critical
    - Mature recommendations
  - Publication of CNES alerts (Published on the private website) for the “benefit” of 1 to 30 CNES projects
  - Internal MoM

10% of inputs are actually declared as CNES alerts

## 1.2. CNES Alert System Process (2/2)

- Automatic notification by e-mail sent to the mailing list (official 30 internal/ 70 external subscribers i.e about 34 companies) including :
  - ESA, Astrium, TAS, JAXA, SME, French Laboratories , ALTER, Arianespace, etc.
- Supported by an internal data base tool (see next slides for illustration)
- Investigations by family experts
- Contacts with manufacturers or ESA or users, etc
- 1 to 30 CNES projects impacted / Alert

➤ **[http://biancaweb.cnes.fr/Standard\\_CNES\\_prive/AnomaliesEE.htm](http://biancaweb.cnes.fr/Standard_CNES_prive/AnomaliesEE.htm)**

## 1.3. Private web site (for registered members only) :

NEWS - Microsoft Internet Explorer fourni par IE6 SP1 - Aut v3.1 - NT/W2k/WXP

Fichier Edition Affichage Favoris Outils ?

Précédente Recherche Favoris Média

Adresse [http://biancaweb.cnes.fr/Standard\\_CNES\\_privé/AnomaliesEEE.htm](http://biancaweb.cnes.fr/Standard_CNES_privé/AnomaliesEEE.htm)

copernic Recherche Web Recherche PC: Courriels

Accueil / Home

### CNES EEE Alerts & Informations

*Files are in the private domain - For access fill in registration form and send it back by e-mail*

Please find hereafter the CNES EEE Alerts List (Last Update: **07/07/2008**)

Type	Reference	Manufacturer	Component	Ed. 1	Ed. 2	Ed. 3
ANOMALIE	1119 <b>Update!</b>	All manufacturers	Erbium doped fibers			
ANOMALIE	1121	Data Device Corporation	BU-63825xx BU-63925xx, BU-61582xx, BU-61583xx, BU-65621F0, SP'ACE, SP'ACE II			
ANOMALIE	1109	MICROPAC	Optocoupler 66183 extended to all optoisolators			
ANOMALIE	1106	CDI MSC Lawrence	1N5822 & US			
ANOMALIE	1105	VISHAY THIN FILM	RM Thin Film (E/H)			
INFORMATION	1104	ITT Cannon	All			
ANOMALIE	1098	INTERNATIONAL RECTIFIER	Miscellaneous Parts			
INFORMATION	1086	VISHAY	RNC90			
ANOMALIE	1082	HONEYWELL	HX6228TENC, HX6228, HLX6228			
ANOMALIE	1081	All Manufacturers	All families and grades except ESCC parts			
ANOMALIE	1080	ACTEL	Familles RTSX-SU et RTSX-S			

Terminé

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# 1. CNES alert system and ESA alerts management process

## 1.4. Internal CNES 3E Alert committee Tool (1/2) :

Bianca - Base d'InformAtIoN Composants et Assemblages (Version 6.00) - [Commissions incidents]

Fichier Composants Travaux Projets Incidents/Alertes Fabricants Actions Standard CNES Documents Multipartenariat Assistant requêtes

Fenêtre ?

**Fermer le volet de recherche** RAZ selection Actualiser Actualisation automatique

Commissions entre le : [ ] et le [ ]

Commission N° : [ ]

Commentaires : [ ]

Présents : [ ]

N° incident : [ ] Statut : [ ]

Fabricant : [ ]

Famille : [ ]

Composant : [ ]

N° Commission	Date commission	Commentaires	Liste présen
41	01/12/2008	Nouvelles alertes E	Olivier PERA
40	06/11/2008	Intervention de JP.	Corinne AIC
39	03/10/2008	Invités : Jean-Paul	Corinne AIC
38	01/09/2008	Nouvel Incident sur	Denis STAN
37	07/07/2008	FI1123 : clos en sé	Denis STAN
36	09/06/2008	Toutes les FI ou FA	Denis STAN
35	15/05/2008	Les incidents 1059,	François VA
34	07/04/2008	Commentaires comi	Corinne AIC
33	03/03/2008	Cloture :	Corinne AIC
32	04/02/2008	FI1113: participati	Corinne AIC
31	10/12/2007	Invités : Ph BAVIEF	Denis STAN
30	12/11/2007	Inviter P. Bavière à	François VA
29	01/10/2007	Agenda de la Comm	Corinne AIC
28	10/09/2007	-----	Denis STAN
27	05/07/2007	28 - 10/09 Denis S1	Olivier PERA
26	18/06/2007	Prochaines commiss	Corinne AIC
25	16/04/2007	Agenda:	Myriam COU
24	05/03/2007	1- AGENDA	Corinne AIC
23	05/02/2007	Interventions de FI	Corinne AIC
22	15/01/2007	1. ANOMALIES A C	Corinne AIC
21	04/12/2006	Incidents Microspir	Corinne AIC
20	09/11/2006	Inviter Philippe Bav	Nicolas ANDI
19	02/10/2006	- Nouvel incident su	Vivian Berna
18	11/09/2006	Lors de cette comm	Corinne AIC

**Fiche commission** Liste Incidents Dossier commission

N° commission : 41

Date commission : 01/12/2008

Rédacteur : Olivier PERAT

Présents : Olivier PERAT;Corinne AICARDI;Denis STANDAROVSKI;Myriam COURNET;Nicolas ANDUZE;Philippe LAY;Tomislav BUKOVAC;David DANGLA;Jean-Paul BUSSENOT

Commentaires Conclusion

être envisagée après investigations

Cloture d'incident

L'incident 1103 est déclaré clos.

Obsolescence :

L'incident 1013 est déclaré obsolète

Agenda Commission 42 :

la commission 42 devra avoir a l'ordre du jour les points suivants :

- 1- anomalie MAXIM
- 2- anomalie MAXWELL
- 3- anomalie microsemi
- 4- anomalies relais

Prochaines commissions :

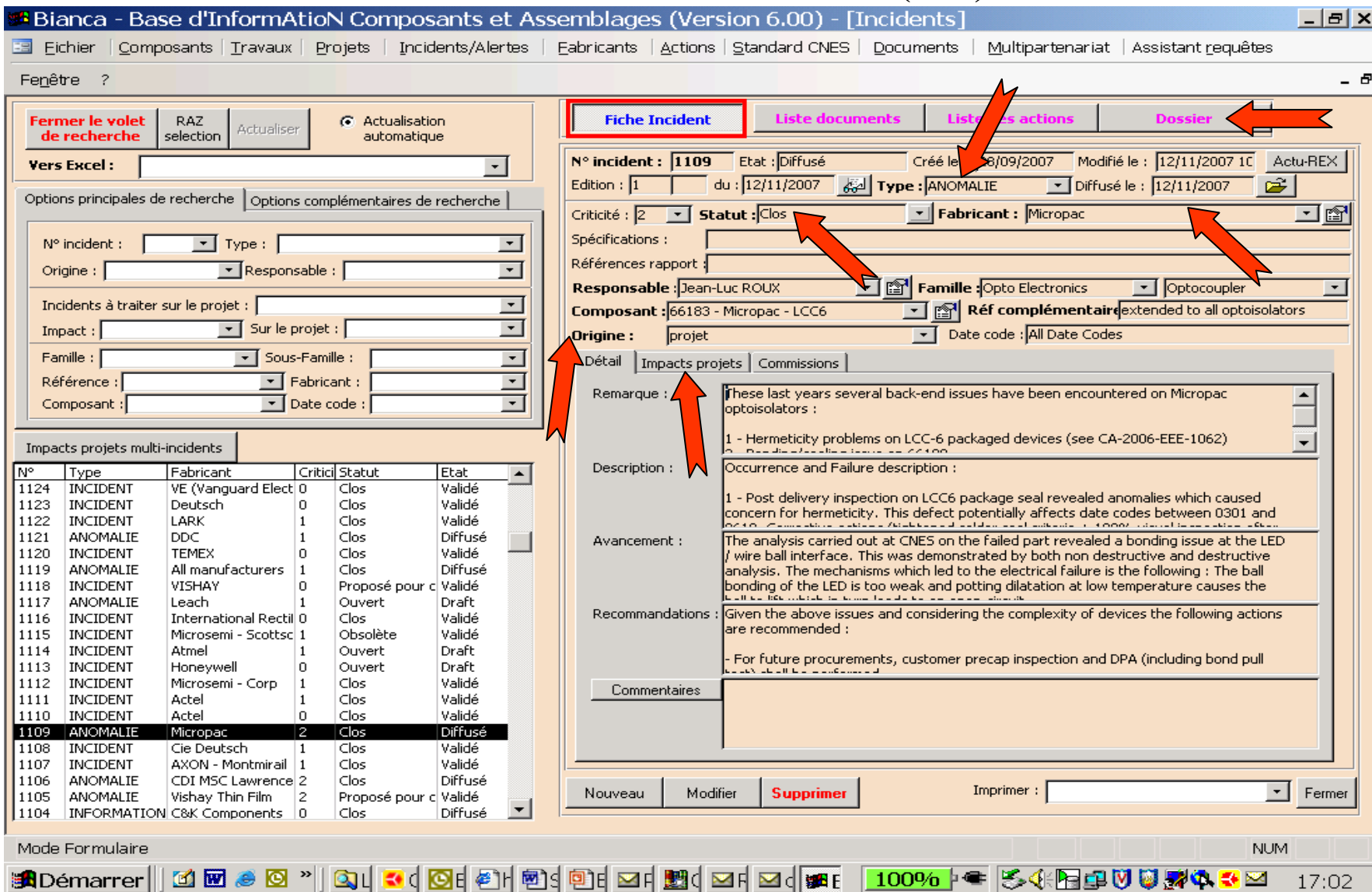
- 42 - 12/01/2009 : M. Cournet
- 43 - 02/02/2009 : F. Vacher
- 44 - 02/03/2009 : D. Standarovski
- 45 - 06/04/2009 : T. Bukovac
- 46 - 11/05/2009 : N. Anduze
- 47 - 08/06/2009 : C. Aicardi

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Mode Formulaire NUM

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## 1.4. Internal CNES 3E Alert committee Tool (2/2) :



**Bianca - Base d'InformAtion Composants et Assemblages (Version 6.00) - [Incidents]**

Fichier Composants Travaux Projets Incidents/Alertes Fabricants Actions Standard CNES Documents Multipartenariat Assistant requêtes

Fenêtre ?

Actualisation automatique

Vers Excel :

Options principales de recherche Options complémentaires de recherche

N° incident : [ ] Type : [ ]  
 Origine : [ ] Responsable : [ ]  
 Incidents à traiter sur le projet : [ ]  
 Impact : [ ] Sur le projet : [ ]  
 Famille : [ ] Sous-Famille : [ ]  
 Référence : [ ] Fabricant : [ ]  
 Composant : [ ] Date code : [ ]

Impacts projets multi-incidents

N°	Type	Fabricant	Critic	Statut	Etat
1124	INCIDENT	VE (Vanguard Elect	0	Clos	Validé
1123	INCIDENT	Deutsch	0	Clos	Validé
1122	INCIDENT	LARK	1	Clos	Validé
1121	ANOMALIE	DDC	1	Clos	Diffusé
1120	INCIDENT	TEMEX	0	Clos	Validé
1119	ANOMALIE	All manufacturers	1	Clos	Diffusé
1118	INCIDENT	VISHAY	0	Proposé pour c	Validé
1117	ANOMALIE	Leach	1	Ouvert	Draft
1116	INCIDENT	International Rectil	0	Clos	Validé
1115	INCIDENT	Microsemi - Scottsc	1	Obsolète	Validé
1114	INCIDENT	Atmel	1	Ouvert	Draft
1113	INCIDENT	Honeywell	0	Ouvert	Draft
1112	INCIDENT	Microsemi - Corp	1	Clos	Validé
1111	INCIDENT	Actel	1	Clos	Validé
1110	INCIDENT	Actel	0	Clos	Validé
1109	ANOMALIE	Micropac	2	Clos	Diffusé
1108	INCIDENT	Cie Deutsch	1	Clos	Validé
1107	INCIDENT	AXON - Montmirail	1	Clos	Validé
1106	ANOMALIE	CDI MSC Lawrence	2	Clos	Diffusé
1105	ANOMALIE	Vishay Thin Film	2	Proposé pour c	Validé
1104	INFORMATION	C&K Components	0	Clos	Diffusé

**Fiche Incident** Liste documents Liste des actions Dossier

N° incident : 1109 Etat : Diffusé Créé le : 08/09/2007 Modifié le : 12/11/2007 IC Actu-REX  
 Edition : 1 du : 12/11/2007 Type : ANOMALIE Diffusé le : 12/11/2007  
 Criticité : 2 Statut : Clos Fabricant : Micropac  
 Spécifications :  
 Références rapport :  
 Responsable : Jean-Luc ROUX Famille : Opto Electronics Optocoupler  
 Composant : 66183 - Micropac - LCC6 Réf complémentaire : extended to all optoisolators  
 Origine : projet Date code : All Date Codes

Détail Impacts projets Commissions

Remarque : These last years several back-end issues have been encountered on Micropac optoisolators :

Description : Occurrence and Failure description :  
 1 - Hermeticity problems on LCC-6 packaged devices (see CA-2006-EEE-1062)  
 2 - Bonding failure on LCC-6 packaged devices (see CA-2006-EEE-1062)

Avancement : The analysis carried out at CNES on the failed part revealed a bonding issue at the LED / wire ball interface. This was demonstrated by both non destructive and destructive analysis. The mechanisms which led to the electrical failure is the following : The ball bonding of the LED is too weak and potting dilatation at low temperature causes the ball bonding to be too weak to support strain.

Recommandations : Given the above issues and considering the complexity of devices the following actions are recommended :  
 - For future procurements, customer precap inspection and DPA (including bond pull test) shall be implemented.

Commentaires

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Mode Formulaire NUM

# 1. CNES alert system and ESA alerts management process

## 1.5. Differences with the ESA Alert System :

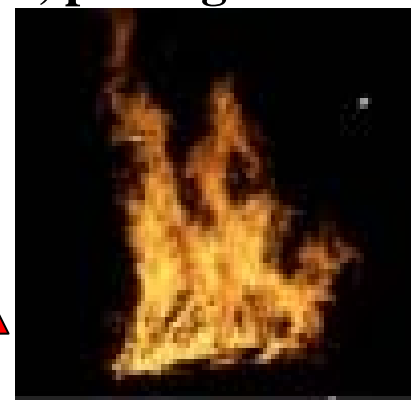
Item	CNES	ESA
Objective	Similar	
Responsibility	Similar	
Perimeter	Limited to 3 <sup>E</sup>	MCP, software, 3E, equipment
Categories	ALERT, INFORMATION	ALERT
Topics	Includes in practice concerns on quality, design	Quality, safety, test methods
Criteria	Generic (Potentially Multi projects), critical	within spec
Process	1 committee meeting/month systematically	-Preliminary Alert Info (PAI) -Feedback Form -Manufacturer reply
Tool		-PAI -Feedback process
Diffusion	Automatic notification message to registered members	
Registered members	People involved in CNES Projects	-Larger (European) list -A unique focal point / company
Content	Open/Close status	Manufacturer contact point
+/-	-Not always in English language -The tool doesn't include the past CNES-Industry Alerts -Seen as a customer Alert System	International legitimacy

## 2.1. Typical expected content :

- Issue, reference and *Status (open, close)*
- *Domain (design, quality, obsolescence ...)*
- *Type (information, anomaly)*
- **Family, Type, Procurement Specifications, manufacturer, package**
- **Description, origin, progress**
- **Perimeter** (e.g. : date-code)
- **Reference documents (e.g. : failure report)**
- *Manufacturer answer*
- **Contacts**
- **Recommendations**

-Already mounted parts  
-Parts in stock  
-New procurement  
-New designs

« As built » list is needed




**2.2. Typical sources :** ESA Alert system, CNES anomalies (3E), NASA, GIDEP, manufacturer errata sheet

### 2.3. Difficulties & solutions

#### 1. Objective :

- For an Agency : Balance between Manufacturer agency help, contractor agency support and Projects Quality Assurance objectives
- An alert shall be decided with care
- CNES “solution” : 3E Alert committee (that is collegial decision) with both 3E Project support & Family experts

#### 2. Contractual requirement :

- See ECSS-Q-ST-60 clauses 4.5.3 : (see slide 11) 
- The management of an alert is heavy for a Project
- CNES “solution” : CNES adds CNES alerts


#### 3. Legitimacy :

- CNES “solution” : Try to achieve a relevant technical rational

#### 4. Retroactivity :

- Yes
- CNES “solution” : manage Alerts validity and obsolescence particularly for old date-codes wrt to relifing maximum rules (10 years)

#### 5. Legacy concern wrt negative advertising (manufacturer, contractor), harmful effect:

- See 1.
- CNES “solutions” : “Specific warning for each Alert restricted to CNES usage only (see slide 12); Members registered for the Private website & diffusion mailing subscribing 

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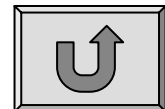
### Extract from ECSS-Q-ST-60

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#### 4.5.3 Alerts

- a. The supplier shall take into account all received alerts from **international alert systems**, from **manufacturers** or sent by the **customer** and shall validate that there are no alerts on the proposed parts with respect to the batch information (including date-code).
- b. If alerts become available **at a later stage**, the supplier shall analyse the alerts, analyse the project risk and propose an action plan for customer approval.
- c. The supplier shall initiate and distribute within the project notifications for all major problems arising on EEE parts during procurement, incoming inspection or during all levels of equipment manufacturing or testing, which are of general concern.

For Class 1 only



CNES forward for each CNES alert :

“The information contained herein is presented **for guidance** of employees of French National Space Agency, "Centre National d'Etudes Spatiales" (CNES). It may be altered, revised or rescinded due to subsequent developments or additional investigation or test results. These changes will be communicated through a revision of this CNES EEE Alert sheet. Notice is hereby given that this document is **distributed by CNES to industrial contractors involved in CNES Projects** and is not intended to be passed to or used by third parties. The recommendations which are proposed **cannot take the place of each specific Project dispositions**. It is understood to be only advisory in nature. Neither CNES nor any person acting on behalf of CNES assumes any liability resulting from the use or the information contained herein. **These information should not be interpreted and used to discredit a manufacturer or a product.**”

### 2.3. Difficulties & solutions (continued)

#### 6. Thematic perimeter :

- Quality, reliability as a minimum
- Question for obsolescence, design rules
- CNES “solution” : INFORMATION notifications

#### 7. Harmonization :

- Coherence with other Systems (technical rational as a minimum)
- CNES “solutions” : bilateral discussions (to be improved)

#### 8. Publication :

- Sensitive, critical & difficult compromise : quick but not mature / consolidated but too late !
- CNES “solutions” : see 1., limit Alerts production, do not solve specific Manufacturers or Projects concerns & discussions through alerts Publications

#### 9. Perimeter :

- The more precise the perimeter the better it is !, could be a production period (date-code), a biased electrical or operating condition, an environmental condition (temperature), a technology, a package, a quality level, a process step (assembly, test, dedicated plant)

#### 10. Recommendations :

- Mandatory !
- CNES “solution” (to be improved) :
  - Check their feasibility (pragmatism)
  - Try to distinguish the different situations (selection, design, procurement, storage, mounted)
  - Try to suggest different recommendations depending on the Risk objective (tailoring)

➤ The following comments shall be read in line with “difficulties & solutions with an alert system”, here after 4 examples **only for illustration** and not to blame the ESA Alert system :

- Question 1 : Some alerts could be **Informative**, e.g. EA-2008-EEE-12-A On hold activities from Cirep due to a fire problem; EA-2008-EEE-11-A Closure of NICOSOFRA)
- Question 2 : Some perimeters need to be **reduced** e.g. EA-2008-EEE-05-A Destructive single event effects in GaAs MESFET and power GaAs
- Question 3 : Some Alerts publication questionable or with criticity level to be harmonized with the stringency of the recommendations, e.g. EA-2008-EEE-04-A Vishay Sfernice RNC90 resistors with pure tin finish
- Question 4 : What about the validity of very old Alerts (> 10 years) ?

☺ Useful

☺ Limited quantity per year

☺ Publication delay reduced

☺ Website Tool user-friendly, simple & efficient

## 4. Suggestion and Perspectives

- Suggestions :
  - The web site should propose a table in pdf or Word form with the list of the alerts (with some minimum summary and relevant data)
  - Give the possibility to have some other sub- coordinators in the same company (for redundancy reason)
  - Management of the validity / Obsolescence of an alert, confirm the old alerts
- Question / debate :
  - Website should refer to other Alert systems (Meta site)
  - PAI transparency (access, status, schedule)
  - Harmonisation, cooperation (3E ESA Alerts delegated in the ESCC ?)
  - Open / close Alert status
  - Access to GIDEP, NASA, JAXA, other European NSA alerts, advisory, notification, etc.
  - The recommendations should systematically address and differently the following situations : New design, parts already mounted, parts in stock.
  - The recommendations (when possible) should give directions for tailoring because the application of a stringent recommendation (e.g. change the part) is not always possible or with prohibitive cost/delay impacts).