

**Internal distribution code:**

- (A) [ - ] Publication in OJ
- (B) [ - ] To Chairmen and Members
- (C) [ - ] To Chairmen
- (D) [ X ] No distribution

**Datasheet for the decision  
of 20 April 2017**

**Case Number:** T 1117/13 - 3.2.03

**Application Number:** 02722267.8

**Publication Number:** 1365882

**IPC:** F28F21/08, B32B15/01,  
C22C21/00, B23K35/02

**Language of the proceedings:** EN

**Title of invention:**

A charge air cooler prepared from a high temperature aluminum alloy brazing sheet material

**Patent Proprietor:**

Constellium Neuf-Brisach

**Opponents:**

Aleris Rolled Products Germany GmbH  
Hydro Aluminium Deutschland GmbH

**Headword:**

**Relevant legal provisions:**

EPC Art. 87(1), 87(4), 54, 56

**Keyword:**

Priority - basis in priority document (no)

Novelty - (yes)

Inventive step - (no)

**Decisions cited:**

G 0002/98

**Catchword:**



**Beschwerdekammern**  
**Boards of Appeal**  
**Chambres de recours**

European Patent Office  
D-80298 MUNICH  
GERMANY  
Tel. +49 (0) 89 2399-0  
Fax +49 (0) 89 2399-4465

Case Number: T 1117/13 - 3.2.03

**D E C I S I O N**  
**of Technical Board of Appeal 3.2.03**  
**of 20 April 2017**

**Appellant:** Aleris Rolled Products Germany GmbH  
(Opponent 1) Carl-Spaeter-Strasse 10  
56070 Koblenz (DE)

**Representative:** Müller Schupfner & Partner  
Patent- und Rechtsanwaltspartnerschaft mbB  
Bavariaring 11  
80336 München (DE)

**Appellant:** Hydro Aluminium Deutschland GmbH  
(Opponent 2) Ettore-Bugatti-Strasse 6-14  
51149 Koeln (DE)

**Representative:** Cohausz & Florack  
Patent- & Rechtsanwälte  
Partnerschaftsgesellschaft mbB  
Bleichstraße 14  
40211 Düsseldorf (DE)

**Respondent:** Constellium Neuf-Brisach  
(Patent Proprietor) Zip Rhénane Nord  
RD 52  
68600 Biesheim (FR)

**Representative:** Constellium - Propriété Industrielle  
C-TEC Constellium Technology Center  
Propriété Industrielle  
Parc Economique Centr'Alp  
725, rue Aristide Bergès  
CS10027  
38341 Voreppe (FR)

**Decision under appeal:** **Interlocutory decision of the Opposition**  
**Division of the European Patent Office posted on**

1 March 2013 concerning maintenance of the  
European Patent No. 1365882 in amended form.

**Composition of the Board:**

<b>Chairman</b>	G. Ashley
<b>Members:</b>	C. Donnelly
	M.-B. Tardo-Dino

## **Summary of Facts and Submissions**

- I. The appeal lies from the decision of the opposition division to maintain European Patent No. 1 365 882 in amended form based on the auxiliary request as filed during the oral proceedings.
- II. Opponents I and II (hereinafter: Appellants I and II) filed notices of appeal against this decision in due form and time.

In support of their cases the appellants cited, amongst others, the following documents:

D1: Goodrich, H., Connor, Z., and Murty, G.: "Aging Response and Elevated Temperature Strengthening in Brazing Sheet Core Alloys of 3xxx Series Aluminum", SAE Technical Paper 2001-01-1725, May 2001;  
D4A: JP 63 186847 A;  
D4B translation of JP-A-63 186847;  
D6: US 4 673 551 A;  
D8: US 5 857 266 A;  
D9: US 5 863 669 A;  
D10: WO 99/55925 A1;  
D12: EP 0 326 337 A1;  
D13: EP 0 823 305 A2.

The patent claims priority from the following documents:

P1: US 60/272457;  
P2: US 60/290028;  
P3: US 60/323076;  
P4: US 60/347001.

- III. In a communication pursuant to Article 15(1) RPBA, the Board informed the parties of its provisional opinion. In particular, the Board indicated that it considered D8 to be very relevant and a promising starting point for assessing inventive step.
- IV. Oral proceedings were held on 20 April 2017. At the end of the debate the parties confirmed the following requests:

Appellants 1 and 2 requested that the decision under appeal be set aside and the patent revoked.

The patent proprietor (hereinafter: the "respondent") requested that the appeals be dismissed or that the patent be maintained according to the set of claims of auxiliary request 1 filed during the oral proceedings or auxiliary request 2 filed with the letter of 20 March 2017.

- V. Claim 1 in the version the opposition division considered could be maintained (main request) reads as follows:

"A charge air cooler prepared from an aluminium alloy brazing sheet material comprising a core alloy and a clad brazing alloy, characterised in that the core alloy of said material comprises (in weight %):

Si<0.2 Fe<0.2 Mn: 1.3-1.7 Mg: 0.4-0.8 Cu: 0.3-0.7  
Ti<0.1

and at least one element from the group consisting of Cr (0.05-0.20%), Sc (0.05-0.20%), V (0.05-0.20%), Zr (0.05-0.20%), Hf (0.05-0.20%), Ni (0.20-1%), balance aluminum and unavoidable impurities."

Claim 1 of the auxiliary request submitted during the oral proceedings before the board reads:

"Use of a charge air cooler at temperatures over 177°C for period from 10 to 2500 h, said charge air cooler being prepared from an aluminium alloy brazing sheet material comprising a core alloy and a clad brazing alloy, wherein the core alloy of said material comprises (in weight %):

Si<0.2 Fe<0.2 Mn: 1.3-1.7 Mg: 0.4-0.8 Cu: 0.3-0.7  
Ti<0.1

and at least one element from the group consisting of Cr (0.05-0.20%), Sc (0.05-0.20%), V (0.05-0.20%), Zr (0.05-0.20%), Hf (0.05-0.20%), Ni (0.20-1%), balance aluminum and unavoidable impurities."

Claim 1 according to auxiliary request 2 filed with letter of 20 March 2017 reads:

"A charge air cooler consisting of an air-to-air heat exchanger prepared from an aluminium alloy brazing sheet material comprising a core alloy and a clad brazing alloy, wherein the core alloy of said material comprises (in weight %):

Si<0.2 Fe<0.2 Mn: 1.3-1.7 Mg: 0.4-0.8 Cu: 0.3-0.7  
Ti<0.1

and at least one element from the group consisting of Cr (0.05-0.20%), Sc (0.05-0.20%), V (0.05-0.20%), Zr (0.05-0.20%), Hf (0.05-0.20%), Ni (0.20-1%), balance aluminum and unavoidable impurities."

VI. The arguments of the parties relevant to the decision are summarised below:

Appellants

*(a) Validity of the priority*

According to G2/98 the concept of the same invention has to be narrowly or strictly interpreted. Further, the description of the earlier application must be considered as a whole. The first priority application (P1) concerns a technical paper published at VTMS May 2001. This paper does not disclose the claimed alloy ranges and in particular is silent about the addition of any of the elements Cr, Sc, V, Hf or Ni.

The alloy disclosed in (P2) mandatorily contains the elements Si, Fe and Ti, whereas these elements are only optional in the patent. Further, the ranges of Si, Fe, Cu and Ti are only disclosed in an embodiment together with 0.1 to 0.3wt.% Mg and 0.8 to 1.3wt.% Mn (see page 7, last line, and page 8, first line of P2).

Furthermore, the Mn-range and the Mg-range given in P2 are different. The third priority document (P3) does not disclose any specific alloy compositions. The fourth priority application (P4) discloses in the Table on page 9 a Mg-content in the core alloy of 0.4 to 0.7 wt%. Thus, the upper limit of 0.8% is not disclosed. Further, P4 discloses a Cu content of 0.4 to 0.7 wt%. Thus, the lower limit claimed of 0.3 wt.% is not disclosed.

Therefore, the skilled person cannot derive the subject-matter of claim 1 of the patent directly and unambiguously from the earlier application. Consequently, the patent in dispute is not entitled to



any of the priorities claimed and has an effective filing date of 1 March 2002. Document D1 is therefore to be considered as prior art.

(b) Main request, Novelty, D8 (AA3005)

The subject-matter of claim 1 of the respondent's main request lacks novelty in view of D4A, D6 D8, D9, D10, D12 and D13.

In particular, D8 explicitly discloses that alloy AA3005 is used in the manufacture of charge air coolers. Furthermore, the ranges of the elements making up AA3005 given in Table 1 of D8 overlap with those of the alloy specified in claim 1. The skilled person would seriously contemplate using a composition within the overlapping ranges especially the maximum Cr value of 0.1% as well as the maximum Cu value of 0.3%.

c) Main request, Inventive step, D8 (AA3005) in combination with D1

The subject-matter of claim 1 in any case lacks an inventive step in view of a combination of D8 with D1. The respondent's argument that D1 and D8 are not relevant is untenable since D8 explicitly concerns improving aluminium alloys used in the manufacture of air-to-air charge air coolers operating at elevated temperatures. Similarly D1 concerns ageing response and elevated temperature strengthening in brazing sheet core alloys of 3xxx series aluminium for use in heat exchangers.

D1 indicates that Cu plays an important role in improving strength and ageing characteristics of AA3XXX alloys at elevated temperatures and suggests a Cu

content of at least 0.33% preferably more. Therefore, the skilled person starting out from the alloy composition for AA3005 given in Table 1 of D8 would ensure that the Cu content was at least 0.3% and would not require an inventive step to go above this value in view of the teachings of D1. Also, a value of 0.1%Cr max is also given in Table 1 for AA3005. Therefore, in view of the fact that the effects of Cr on grain structure are well known, it would not require an inventive step to specify that at least 0.05%Cr was comprised in the alloy composition since there is no reason for the skilled person not to seek to benefit from the addition of Cr to the alloy.

(d) Auxiliary requests

The mere use of a non-inventive charge air cooler in the conditions for which it is explicitly designed does not require an inventive step. D8 also explicitly discloses air-to-air charge air coolers. Therefore, the subject-matter of claim 1 of auxiliary requests 1 and 2 does not involve an inventive step.

*Respondent*

*(a) Validity of priority*

The second priority application P2 is the most relevant since it discloses the claimed composition clearly and unambiguously to the skilled person. In particular, the skilled person would know that the Si and Fe contents are not essential to the invention since it is generally known that a low Si content (0.03 to 0.07 wt. % in P2) guarantees corrosion resistance and that the low Fe content is that of an impurity and not a deliberate limitation to 0.2 wt.%. The Mn content of

1.4 to 2.0 wt.% of P2 has been refined to 1.3 to 1.7%, but the effect associated with the presence of dispersives is the same - thus, the invention is the same. In view of this, the priority date of 11 May 2001 is valid.

Consequently, D1 does not form part of the prior art.

(b) Main request, Novelty, D8 (AA3005)

Only D8 discloses and discusses the development and use of certain aluminium alloys for the manufacture of charge air coolers, all the other documents cited by the appellants refer to heat-exchangers in general which are not subject to the same extreme operating conditions.

However, D8 does not disclose that alloy AA3005 is used in charge air coolers. Further, the Cu value of 0.3%max specified in Table 1 of D8 for the AA3005 alloy only touches on the lower limit of the range specified in claim 1 for Cu. Since the skilled person would not seriously contemplate using this value, novelty is any case given for this reason alone.

(c) Main request, Inventive step D8 (AA3005) in combination with D1

Since the AA3005 is not disclosed in D8 as being used in charge air coolers, the skilled person would not consider it to be relevant prior art or a suitable starting out point to tackle the problem of improving charge air cooler strength and performance at elevated temperatures over 177°C. Moreover, since D8 already proposes several alloys as a solution to this problem there is no reason for the skilled person to start

again from AA3005 and seek alternative compositions. Such an approach would only be possible with the benefit of hindsight.

Even if the skilled person did decide to consider AA3005 as relevant, there is no reason why he should select a Cu content of 0.3% or higher since this is specified as being the maximum permissible in Table 1 of D8 and the examples given in D8 of the suggested alloys all specify a lower value.

(d) Auxiliary requests

D8 does not disclose the use of charge air coolers at the operating conditions claimed which are particularly demanding.

## **Reasons for the Decision**

1. Validity of priority
  - 1.1 According to G2/98 (see "Reasons" paragraph 9) a narrow or strict interpretation of the concept of "the same invention" equating it to the same subject-matter" referred to in Article 87(4) EPC is necessary to ensure a proper exercise of priority rights in full conformity inter alia with the principle of equal treatment of the applicant and third parties and legal certainty and with the requirement of consistency with regard to the assessment of novelty and inventive step.

- 1.2 In particular, G2/98 specifically mentions (see "Reasons" paragraph 8.4) that, regarding the choice of sub-ranges from broader ranges of numerical values- in respect of the subject-matter disclosed in a first application whose priority is claimed, the criteria applied by the EPO with a view to assessing novelty of selection inventions over the prior art must be considered carefully when assessing whether the claim is in respect of the same invention as the priority application within the meaning of Article 87 (1) EPC.
  
- 1.3 Appellant I is correct in indicating that the first priority application (P1) does not disclose the claimed alloy ranges and does not mention the addition of any of the elements Cr, Sc, V, Hf or Ni. The third priority document (P3) does not disclose any specific alloy compositions. The fourth priority application (P4) discloses in the Table on page 9 a Mg-content in the core alloy of 0.4 to 0.7 wt%. Thus, the upper limit of 0.8% is not disclosed in P4. Further, P4 discloses a Cu content of 0.4 to 0.7 wt.%. Thus, the lower limit claimed of 0.3 wt.% is also not disclosed.
  
- 1.4 Therefore, as the respondent has stated, the second priority application P2 is the most relevant one for assessing the validity of the priority claimed.
  
- 1.5 The comparison table between P2 and the patent (see below) submitted by the respondent shows that there are significant differences in the compositions of the alloy disclosed in the second priority document P2 and those disclosed in the patent.

	Si	Fe	Mn	Mg	Cu	Ti	Cr,Sc,V, Zr,Hf	Ni
<b>EP</b>	<0.2	<0.2	1.3-1.7	0.4-0.8	0.3-0.7	<0.1	0.05-0.20	0.2-1.0
<b>Prio. 2</b>	0.03-0.07 (voir P.7)	0.08-0.5	1.4-2.0 (P.7 L.4)	0.3-0.75 (P.7-L.4)	0.35-0.75	0.03-0.13	0.05-0.20 (P.8)	0.2-1.0 (P.7-L.11)

1.6 As indicated by appellant I, the alloy disclosed in P2 mandatorily contains the elements Si, Fe and Ti, whereas the content of these elements in the alloy composition of the patent can be zero i.e. they are only optional; this alone renders the subject-matter of the patent different to that of the priority document. From the table it is also clear that the Mn content upper limit has been reduced, whilst the lower limit has been set below the original range. On the other hand, the Mg-content range has been shifted upwards.

1.7 Therefore, the requirement of G2/98 that priority can be acknowledged in accordance with Article 88 EPC, only if the skilled person can derive the subject-matter of the claim directly and unambiguously, using common general knowledge, from the previous application as a whole, is not met, since, on reading the priority document, it is not directly and unambiguously derivable that Si, Fe and Ti could be considered as optional alloying elements. Consequently, the priority has not been validly claimed.

2. Main request, Novelty, Article 54 EPC

2.1 Appellant 1 submitted that the subject-matter of claim 1 as maintained lacks novelty in view of D4, D6 D8, D9, D10, D12 and D13. Appellant 2 argued that claim 1 lacks novelty with respect to D10.

- 2.2 Of these documents, only D8 and D13 explicitly mention charge air coolers or intercoolers. However, the references in D13 to an "intercooler" (see page 2, lines 8 and 14) cannot be considered as a direct and unambiguous disclosure of a charge air cooler, since the intercooler of an air-conditioning unit, rather than a charge air cooler, could also be meant. Therefore, D8 is considered to be the most relevant document since it undoubtedly concerns charge air-coolers operating at high temperatures in excess of 177°C (see column 3, lines 26 to 29).
- 2.3 D8 takes as its starting out point the alloys AA3003, AA3005, 3190 and MD356 as specified in Table 1 (reproduced below).

TABLE I

Alloy	Mn [wt %]	Mg [wt %]	Cu [wt %]	Si [wt %]	Fe [wt %]	Cr [wt %]	Zn [wt %]	Ti [wt %]
AA3003	1.0-1.5	0.1 max	0.05-0.20	0.6 max	0.7 max	—	0.1 max	—
AA3005	1.0-1.5	0.20-0.60	0.3 max	0.6 max	0.7 max	0.1 max	0.25 max	0.1 max
3190	1.0-1.5	0.3-0.7	0.3 max	0.4 max	0.4 max	—	—	—
MD356	0.8-1.3	0.4-0.6	0.30-0.55	0.25 max	0.4 max	—	0.1 max	0.11-0.20

TABLE 1 of D8

- 2.4 D8 states at column 2, lines 6 to 8 that: "In heat exchanger and radiator construction, the alloys AA3003, AA3005, MD 356 and 3190 are the core alloys currently used;". As the respondent has pointed out, D8 also states at column 2, lines 34 to 38 that "The 2nd and 3rd generation aluminium alloys, such as the proprietary MD356 and 3190 alloys are limited to

temperatures of 177°C, as are the AA3003 and AA3005 alloys on which they are based."

2.5 D8 continues by indicating that this temperature limitation seriously restricts the potential benefits of turbocharging systems, however, this does not mean to say that these alloys are not used in charge air coolers. Indeed, the contrary is the case, since D8 sets out to solve the problem of finding a replacement alloy for the poor performing ones used in charge air coolers at that time i.e. in the board's opinion, those in Table 1, including AA3005.

2.6 However, none of the alloys specified in Table 1 takes away the novelty of claim 1 since none of compositions except AA3005 comprises at least one element from the group consisting of Cr (0.05-0.20%), Sc (0.05-0.20%), V (0.05-0.20%), Zr (0.05-0.20%), Hf (0.05-0.20%), Ni (0.20-1%). As regards AA3005, Cr and Cu are optional in that only a maximum amount of 0.1% and 0.3% respectively are specified, with the latter being a point contact with the lower limit for Cu range of claim 1. However, no specific examples are given of alloys that would clearly teach the skilled person to work within the claimed ranges. Hence, the alloy of claim 1 is considered to be new over the definition of AA3005 given in D8.

2.7 D8 also discloses the following alloy composition ranges:

(i) Al, 0.7-1.6% Mn, 0.8-2.0% Mg, 0.05-0.5% Cu (see column 4, lines 5 to 6); or



(ii) Al, 0.9-1.2% Mg, 0.9-1.3% Mn, 0.05-0.25% Cu (see column 4, lines 23 to 24); and cites specific examples consisting essentially of

2.8 (i) Al with 1.1% Mn, 1.1% Mg and 0.15%Cu which are suitable for operating temperatures of about 232°C (see D8, column 3, lines 34 to 46) and

(ii) Al, 1.1% Mn, 1.1% Mg, 0.2% Cu, 0.2% Si, 0.5% Fe (see column 4, lines 34 to 37, "Alloy A", Example 1).

However, none of these alloys are specified to comprise at least one element from the group consisting of Cr (0.05-0.20%), Sc (0.05-0.20%), V (0.05-0.20%), Zr (0.05-0.20%), Hf (0.05-0.20%), Ni (0.20-1%).

2.9 Thus, the subject-matter of claim 1 is new when compared with the disclosure of D8.

3. Inventive step, D8 (AA3005) in combination with D1, Article 56 EPC

3.1 D8 is the closest prior art and a promising starting point since it is the only available document explicitly concerned with tackling the problems encountered by charge air cooler devices operating at elevated temperatures and, in particular, with developing suitable alloys, which are not subject to over ageing during sustained high temperature operation above 177°C, for use in their manufacture. The respondent is correct in pointing out that D8 already proposes several alloy compositions as a solution to this problem. However, in the light of other relevant prior art, this would not deter the skilled person from taking the same starting out point as D8, namely the

known standard alloy compositions, in order to pursue alternative solutions.

- 3.2 In particular, as reasoned above when assessing novelty, the AA3005 alloy disclosed in D8 is used for charge air coolers and exhibits largely overlapping ranges with those claimed, except for a point contact at 0.3% for Cu.
- 3.3 According to Table 1 the AA3005 alloy may comprise 0.1%max Cr. Since it is generally known that Cr is added to aluminium to control grain structure as well as to reduce stress corrosion susceptibility, which are always desirable properties, the skilled person seeking to improve high temperature strength and performance would not need to exercise an inventive step in order to select a Cr content above 0.05% up to the maximum Cr content permissible in D8 of 0.1%. Therefore, the requirement in claim 1 for there being at least one element from the group consisting of Cr (0.05-0.20%), Sc (0.05-0.20%), V (0.05-0.20%), Zr (0.05-0.20%), Hf (0.05-0.20%), Ni(0.20-1%) would be obvious to the skilled person in view of D8 alone.
- 3.4 Faced with the problem improving high temperature charge air cooler performance the skilled person would have consulted D1 which, as its title suggests, concerns ageing response and elevated temperature strengthening in brazing sheet core alloys of 3XXX series aluminium.
- 3.5 Given the title of D1, the skilled person would understand that its teachings are relevant to improving alloys such as the AA3005 specified in D8 for use at elevated temperatures and long exposure times of heat

exchangers (see D1 "Results and Discussion", paragraph 4, first sentence).

3.6 D1 reports on the test results and properties of the following experimental alloys:

**TABLE 1. Braze Sheet Core Alloy Compositions**

<b>Mat- erial *</b>	<b>Gau- ge, mm</b>	<b>Si, wt %</b>	<b>Fe, wt %</b>	<b>Cu, wt %</b>	<b>Mn, wt %</b>	<b>Mg, wt %</b>	<b>Clad Side</b>
A	0.32	0.07	0.17	0.50	1.45	0.09	1
B	0.32	0.08	0.20	0.33	1.15	0.25	1
C	0.32	0.08	0.20	0.53	1.05	0.25	1
D	0.32	0.08	0.20	0.33	1.10	0.50	2
E	0.50	0.08	0.20	0.33	1.10	0.50	2

- All in H24 temper

TABLE 1 of D1

3.7 D1 reaches the conclusion that "the increase in yield strength at peak age is retained to higher test temperatures as the Mg content increases" (see "Conclusion"). However, D1 also notes that the "ageing responses of materials A, B and C appear to originate from the variations in their Cu content besides Mg (see "Results and Discussion" paragraph 3).

3.8 Thus, the skilled person learns from D1 that an increase in yield strength at elevated temperatures can be obtained by increasing the Mg and Cu contents. Therefore, starting out from a standard AA3005 alloy as disclosed in Table 1 of D8, D1 gives the skilled person

a direct suggestion to work within the upper end of the Mg content range of 0.2 - 0.6% and maximise the Cu content to at least 0.3%, thereby ending up in the claimed ranges.

- 3.9 It is common knowledge that Mn is the principal addition characterising the AA3xxx series of aluminium alloy since it increases strength through solution strengthening which is retained at elevated temperatures. Therefore, the skilled person when seeking to improve high temperature strength (see point 3.4 above) would not require any inventive skill to work at the top end of the range of Mn in Table 1 specified for AA3005.
- 3.10 Further, as argued by the appellant when discussing the validity of the priority, the maximum Si content for AA3005 of 0.6% shown in Table 1 of D8 would be understood by the skilled person as simply being a specification of low Si content commensurate with this class of alloy. Therefore, choosing a value of Si less than 0.2% within the given range of up to 0.6%max would not require any inventive skill. Similarly, since the Fe content is essentially an impurity, it would be obvious for the skilled person to keep its level at the lower end of the given range of 0.6%max by specifying 0.2%max.
- 3.11 Therefore in the quest for improving the high temperature properties of a charge air cooler, when combining the teachings of D8 and D1, the skilled person would be led to an alloy falling within the ranges of claim 1 without the need to exercise any inventive skill. Therefore, claim 1 according to the main request does not meet the requirements of Article 56 EPC.

4. First auxiliary request.

4.1 Since the charge air cooler according to claim 1 is intended for sustained operation at elevated temperatures over 177°C, its use in just such conditions also would not require an inventive step (Art. 56 EPC).

5. Second auxiliary request

5.1 The subject-matter of claim 1 according to the second auxiliary request only differs from that of claim of the main request in that it specifies:

"A charge air cooler consisting of an air-to-air heat exchanger....."

5.2 However, since the charge air coolers disclosed in D8 are also air-to-air type heat exchangers (see D8, column 1, lines 46 to 51), this amendment does not make any inventive contribution. Therefore, the subject-matter of claim 1 according to the second auxiliary request also does not involve an inventive step (Art. 56 EPC).

## Order

### For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairman:



C. Spira

G. Ashley

Decision electronically authenticated