CONTRIBUTION OF MICHELE SERVALLI TO THE DRAFT OF THE DECREE 117/2018 LAW (Obligation for Anti-Abandonment devices)

Hello, my name is Michele Servalli and I am the co-inventor and founder of Remmy CarBabyAlert, the first anti-abandonment device available in the world since 2013, when nobody seemed interested in this topic. My colleague Carlo Donati and I decided not wait any longer, having found a solution to a problem that was underestimated by everyone. We therefore decided to implement our solution, and in just 4/5 months we made available on the market the first device that warns car drivers of the presence of a child on board when arriving at destination and turning off the engine.

Thanks to Remmy, since 2013, thousands of children travel safer; unfortunately, however, only those children who have attentive parents who are aware of not being infallible and for this reason have done something concrete: they have decided to rely on the only solution that was actually available to avert a tragedy in the unfortunate event that they were victims of a False Memory (or Black Out, or even in more technical terms, Dissociative Amnesia)

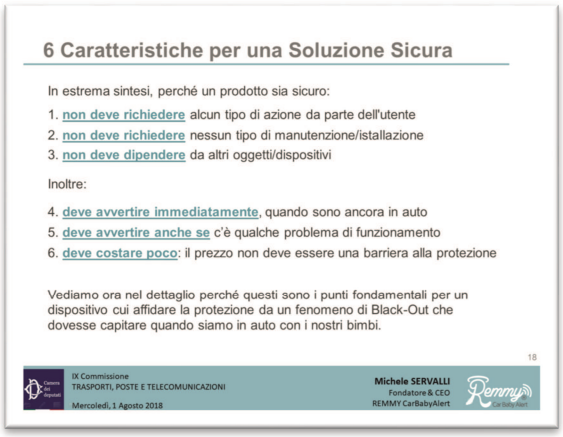
Since 2013 we have therefore carried out informative campaigns to make people understand the scope of the phenomenon and the fact that it could happen to anyone, even the most attentive and loving parent. For us it has become a real mission, beyond the purely business-related aspect and since then I have been working on this topic full-time.

For this reason I am very happy that we are quickly approaching July 1st, day when, Law 117/2018, which will protect all children in Italy, will come into force; to note that the first device in the world is Italian, as is the first law in the world that makes this protection device mandatory. Is it a coincidence?

I am also proud of the fact that, in substance, all the indications I provided when I was called to Parliament in August 2018 to give my contribution as an "expert on the subject" in one of the first sessions of the IX Transport Commission when they started talking about the law, have been taken into account. In particular, the six fundamental points that according to our experience the device must have in order to be safe, reliable and effective have been taken up almost literally.

*** 6 Features for a Safe Solution**

1. it must not require any type of action from the user
2. it must not require any kind of maintenance / installation
3. it must not depend on other objects / devices
4. it must warn immediately when we are still in the car
5. it must warn even if there is a malfunction
6. the cost must be accessible: the price must not be a barrier to protection



At this link you can see the summary of my speech (in Italian) on August 1, 2018 in the Transportation Commission http://remmy.it/news/713

Now, as already reported, I would like to make some considerations with respect to the technical build and functional characteristics indicated by the draft of the Decree, and in general on some aspects of the draft.

In particular

Article 1 (definitions)

b) car seat reminder device: an alarm device, consisting of one or more interconnected components, whose main function is to prevent the abandonment of children, under the age of four years, in vehicles of categories M1, N1, N2 and N3 and which is activated in the event of the driver being removed from the vehicle;

The fact that the device is activated in the event of the driver leaving is not a solution that prevents abandonment: if the driver has left the vehicle, the abandonment has already occurred! For this reason we strongly support the fact that the warning must take place **immediately**, when the driver is still in the car. It might seem like semantics, but it is the actual point of the issue.
It was one of the first aspects we evaluated in 2013 during Remmy's design phase; in particular we thought of a key ring that sounded when it lost an RFID connection with a pressure sensor that detected the presence of the child; we excluded it because if the alarm sounds when the driver leaves the car, several things could happen for which the user might not hear the alarm (he has already put the keys in his pocket and may not hear the alarm, there are noises outside that cover the alarm - for example if an ambulance or a police car is passing by with sirens blaring - also, this solution would need a battery to work and ... batteries have a "defect" ... they run out; and if the user does not change it promptly... For these and other reasons we decided that to be safe, the device should immediately notify when the user is still inside the car.

Annex A - 1. FUNCTIONAL SPECIFICATIONS

a) The car seat reminder device shall signal the abandonment, by the driver of the vehicle, of a child, under four years of age, in the vehicle in which they are being transported

We would have preferred that the normative refer to children up to 5 years of age, because the statistics of the cases that occurred in the world speak of an average of 2.3 years but in the Gaussian there have been several cases with children between 4 and 5 years. But be warned, it is not that the blackout phenomenon (or false memory) that causes the involuntary abandonment cannot happen if the child is more than 5 years old, but simply because an older child can do something if it happens. For the record, there have been some cases, unfortunately, with children aged 8/10 and even one with a child of 13 years; but these are cases in which the child's disability prevented him from doing anything to save himself.

b) The device must be capable of being automatically activated every time that it is used, without further action being taken by the driver

We fully agree with this, no "conscious" activity should be required by the driver in order for the protection to be activated; any activity, even if minimal, under certain conditions could be omitted and therefore result in the child being unprotected.

c) The device must provide the driver with a confirmation signal at the time of activation

We also agree on this point as we have argued in the transport commission; we would like to add that the user does not have to do anything to make sure everything is under control; he must not carry out checks of any kind, otherwise it would end up as the previous point.

d) When the device detects the need to sound an alarm signal, the latter must be sufficient to draw the driver's attention in good time, by means of appropriate visual and acoustic or visual and haptic signals, perceptible within or outside of the vehicle

As previously stated, we have always indicated that the device should warn the driver of the child's presence **immediately**, when he is still in the car; the term "*in good time*" just does not cut it, and I think it is appropriate that a more specific term be selected.
Furthermore, we believe that signalling outside the vehicle is of little use because it is not very effective: an experiment has shown that only 1 out of 3 people, if they see a child alone in a car, do something about it; moreover, an external signal could easily be interpreted as a burglar alarm and nobody would do anything about it.

e) The car seat reminder device shall be capable of activating the communication system specified in point 2(f) below

see my reply at point 2, letter (f)

Annex A - 2. TECHNICAL BUILD SPECIFICATIONS

a) Car seat reminder devices must comply with the relevant Community harmonised legislation on product safety and in particular, with the relevant requirements laid down in the type-approval rules relating to electromagnetic compatibility

nothing to add

b) The car seat reminder devices referred to in Article 3(1)(c) of this Decree must bear the required CE marking

nothing to add

c) The device must be based on electronic systems with logic of use or that use appropriate sensors;

In my opinion it would be more correct to talk about electromechanical systems rather than electronic systems; as is required by the regulations governing the safety and protection systems of heavy machinery used in industry to protect workers in potentially dangerous situations; an electronic system does not provide the same safety guarantees as an electromechanical system

d) when interacting with the vehicle or its restraint system, the device shall not, in any way, alter its type-approval characteristics;

When in 2013 Carlo and I decided to take matters into our now hands and throw ourselves hear and soul on this project, one of the first things we worried about was: *"will the sensor that detects the presence of the child have an effect on the structure and safety of the seat where it should be inserted?"*. For this

reason we contacted two organisations that deal with crash-tests for the approval of child seats and the engineers replied: *"for the weight and mass of the sensor you have designed, there is no problem with the homologation of the seat! Just note it in the periodic crash tests that car seat manufacturers have to make every 2000/2500 pieces produced to confirm their certification"*.
In January 2019, to have some concrete data, we still carried out crash tests on three types of baby car seats, of different brands, with and without our sensor and the results confirm in substance what the engineers had told us, that a pressure sensor like ours does not alter the homologation characteristics. Having said that, I still consider it useful that this aspect is made explicit in the Decree, perhaps by adopting the solution indicated to us by the crash-test engineers (insertion of devices in production control crash-tests) to avoid unnecessary costs (of further crash-tests), costs which would inevitably fall on the people who have to equip themselves with an anti-abandon device.

e) If battery powered, the device shall be able to signal to the driver that there are low levels of charge remaining

I think it appropriate that the device should not be powered by battery: this would generate a maintenance activity by the user, albeit minimal (recharging the device or replacing the batteries). It is worth remembering that one of the main factors that determines the duration of any type of battery is the operating conditions, such as the temperature of the environment in which the battery operates. And in a car, in the summer, the heat can reach 80 degrees Celsius (176° F), unless the car is always kept in closed places.

f) car seat reminder devices must be equipped with an automatic communication system for sending messages or calls via mobile wireless communication networks to at least three different phone numbers;

This is the part of the draft that most puzzled me, even if in line with one of the 6 characteristics that I had indicated in the Transport Commission for a device to be safe reliable and effective (point 3: the device must not depend on other objects / devices).
The reason for my perplexity is very simple: on the one hand it is true that this requirement solves the problems that can arise from Wi-Fi or Bluetooth connection with other devices (which could disconnect, be out of battery, be left in the car or simply one may not know how to use them - and not everyone has a smartphone!); on the other hand it is equally true that if the device itself is to automatically send SMS or make an emergency call, this implies that the device must necessarily be equipped with a GSM module and a physical or electronic SIM.
This generates a series of technical and economic implications that have probably been underestimated. From the economic standpoint, the need for a SIM implies a significant increase in the production costs of the device which must necessarily be added to the cost of the product itself; in addition to these costs, the user must necessarily activate one or more contracts with mobile communications carrier networks; contracts that will have to remain active until the end of the fourth year (with an increase in costs estimated at around 50/70 euros per year).
From a technical point of view, on the other hand, I want to emphasise that the presence within the anti-abandon device of an integrated system that automatically sends an SMS, or makes a call, does not imply that the system is safer and more reliable: just think of the dozens of situations that can happen where the system is not effective. As an example: lack of coverage of the mobile network, no guarantee that the message or the call will be read or heard

quickly by the recipient, inability to do something concrete on the part of who receives the message (for example, how would the recipient of the message find out the position of the child? For this to happen the device would also need a GPS module which would further increase costs of the device). Last but not least, while it will be easy for the police to verify that the device complies with the standards to be established, verification and control that the SIM is active and functioning will be difficult to carry out.
This is why my proposal is to modify the text in point (f) from "Anti-abandon devices must be equipped with ..." in "Anti-abandon devices can be equipped with ...", leaving device manufacturers, but above all the actual users, the possibility to choose between a device that sends messages, or not, thus choosing to accept the costs and without reducing the level of security.

In conclusion I want to reiterate my joy at the mere fact that soon all the children will travel safely thanks to the battle supported by the unfortunate father of Piacenza who lost his 2-year-old son after being a victim of Dissociative Amnesia, thanks to the multitude of bills presented by dozens of Senators and thanks to the determination of Minister Toninelli who strongly wanted this law.

Proud of having been able to give my small contribution, I trust in the judgement of the Ministry in revising and modifying first of all the point **2.f** (and consequently the point **1.e**) but also the points **1.a**, **2.c**, **2.d** and **2.e**.

Thanks for the attention

Bologna, 14 Aprile 2019

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