Minutes of the 2nd Stakeholder meeting
Review of fan regulation

Date: Thursday 2015-01-22
Place: Centre Borschette, Brussels
The list of attendants is attached as a table at the end of the document.

Introduction

Mr René Kemna (RK, VHK, chair), opens the meeting for the Review of the fan regulation
Structure of this meeting will follow the Discussion document published on the Fan review website.

Article 1.

Article 1.1 (scope and implicit responsibility of fan buyers and producers for conformity, etc.).
There is no opposition by stakeholders, except on the 'default stator' option (in case of an 'unknown' stator) on the 2nd slide, proposed by the study team.

Contributions on the discussion on the 'default stator' came from Sham Morten-Gabr (Multi-Wing), Geoff Lockwood (EVIA), Marcos Gonzalez (EC), the chair and –further on in the meeting—Anthony Breen (Nuaire, also convenor of CEN TC156 WG17). Apparently this subject has a long history of previous discussions in the standardisation working group (WG17). The main issue is the definition of the boundary of the 'stator', where reportedly there has been a positive vote on how to tackle the issue with one opposing vote from Sham Morten-Gabr. The majority vote is that some form of stator (defined in the standard) shall always be present in the conformity test, that it shall not be a simple orifice wall plate, but that it shall be the relevant part of before and after the rotor (e.g. including bell-mouth, inlet vanes, diffusor). Furthermore, as confirmed by Marcos Gonzalez (EC), it is possible that –even if such a stator form is not actually delivered by the fan supplier—the stator form can be prescribed and if the fan user deviates from that stator form than the DoC (Document of Confirmity)/CE-mark is not valid, i.e. the fan user becomes a 'fan producer' and should do his/her own testing. The chair states that if we do not come up with a clear, unambiguous, mandatory solution though the standard, we have to stick with 'not final assembly'. So he hopes it can be solved.

[Note: the draft standard ('work item') with the definition of the fan/stator boundary is not yet available. The study team will follow-up and include the issue in the 2nd interim-report]

Article 1.2 and 1.3 (exemptions etc.)

Conrad Brunner (ECOS) proposes to replace the statement: "the regulation shall not apply to…" by: "The efficiency requirements shall not apply to…." These are two distinct things, if the efficiency requirements do not apply to this long list, the efficiency and other characteristics still have to be stated in some way, so you know what they are. If you say the regulation shall apply, you will not have information on any of the products. And the market surveillance has to ask itself with each product if it is in or out of the scope. I suggest to limit the exclusion list to just the efficiency requirements.

Geoff Lockwood (EVIA) agrees with Conrad Brunner.

Carlos Lopes (Sweden) adds that this is the standard text also used in other Regulations.

Dario Brivio (EUROVENT) agrees to extend scope as far as possible and get information on efficiency and other parameters. However, for some of the new exemptions included in this discussion document show that some parts of industry are not able to come up with the nominal requested data on their fans.

Els Baert (Daikin) agrees that we need to provide information on the efficiency of end products, but does not want to give information on components in these end-products.

Mihai Scumpieru (Mitsubishi) states that exempted products are mentioned clearly in legislation. Supports Daikin, it makes no sense for us to provide data/ information on components as the fan manufacturers already provide that on their websites.

Georg Mager (EUROVENT)
We do not want to exclude cooling towers we would narrow it down to fans used for evaporative heat transfer. The efficiency of a cooling tower is not driven by the efficiency of the fan, predominantly it is driven by mixing air and water. Evaporative cooling equipment targets should be set in a different way if they were a separate class.
There is a misconception what a stator is in a cooling tower, people generally think this is the fan coil and in some products this is very visual but anything behind the fan coil including water distribution and heat transfer has a major influence on the fan performance.
Default tests will not help the cooling tower industry much, it could be very misleading. We do not support Multi-Wing, as default testing does not measure / represent efficiency of the fan employed in an actual product. We would like to see an exclusion of those products that are basically driven by the evaporation of water, because that is the key element that determines the energy efficiency.

The chair replies that an exclusion has been proposed for extraction fans operating in relative humidity environments of 90% of more. This would include all extraction fans included in evaporative cooling towers. It does not include centrifugal fans that are on the push side of the cooling tower. Here there is also clearly a physical parameter and reason why to exclude them.
If we cannot solve the problem whether specific fans are excluded or not, then we have to go back to not final assembly and stick with what we have. We have tried to make a step forward by proposing this but at this moment there have not been any proposals from the industry on this issue. If you do not come up with data, standards, proposals then we might have to agree that you do not want to make this extra step.

Georg Mager (EUROVENT) adds that the intention is to improve Regulation, but we do not want to see the wrong parameters to calculate efficiency of a product. There is the willingness of the industry to support this, but it seems to him that this would be outside the scope of the fan regulation. It would include other parameters, other design issues. A stator is more than just what is around a fan.

Conrad Brunner (ECOS) agrees with Georg Mayer on the level of physics to calculate efficiency but does not agree with the exemption. He proposes a specific Annex for evaporative cooling equipment, with fan, motor and entire system cooling tower efficiency. If not in this Regulation (revised) then there should come a specific Regulation for these types of products.

The chair informs that there have been preparatory studies and discussions on LOT 21 that deals with dry and wet air conditioning systems. How that will pan out in terms of possible measures is currently unknown, but we should not try to duplicate discussions on wet cooling towers (part of LOT 21) here. This is still a discussion on only the fans.

Geoff Lockwood (EVIA) explains that the measurement standard has defined boundaries what is included in the scope of the product. Also cooling towers have been discussed and have been given boundary conditions what is in the scope of the product.
When talking about evaporative cooling we talk about moving air with moisture in it, but in the end it is still moving air from point a to point b similar to all the other products inside the scope.

Georg Mager (EUROVENT) does not agree with Geoff Lockwood, the fan efficiency is not the efficiency of a cooling tower. There is where we go wrong, the thing what we want to achieve is the use of better electrical power, more use of more efficient products. A special section for cooling towers is needed.

Sander Venema (Howden) asks Eurovent what is the difference between your arguments for cooling towers and dry cooling like ACC and air cooled heat exchanger, because he thinks most of your arguments are also valid for those types of applications.

Georg Mager (EUROVENT) if you want correlation between fan efficiency and heat transfer efficiency it is much more direct in the sense of heat transfer- heat exchanger. It is pretty much related to the velocity of air that is in contact with the heat transfer surface, but in evaporative cooling that is not the case. If you have the water flow going in one direction and the air flow in the other, you might have a fantastic aerodynamic model but it is a poor cooling device. Air cooled heat transfer equipment has almost a direct proportionality between fan efficiency and heat transfer and that is exactly where the evaporative cooling is different.

Charles Halstead (Halifax) thinks the levels of dust loading are way out. If the Commission is determined to minimise the number of fans and increase the efficiency it is going to outlaw anything but backward inclined fans. Backward inclined fans are not able to deal with dust loadings mentioned in the discussion document. These dust loadings should be lowered by a factor of 10.

The chair asks Mr. Halstead to give in writing why these figures are not possible. Does he say that the levels are always impossible or only in combination with these efficiency levels?

Charles Halstead (Halifax) states that with these efficiency levels you are driving forward into minimising the number of fan groups. So there is not going to be a sub-group for backward inclined fans, forward curved fans or what so ever. The only way to meet the efficiency is with a shallow backward curved and these are not suitable with the dust loading that mentioned. What is suggested is not compatible.

The chair asks to come forward with data, examples, cases where you show that this is impossible to do or to solve at these efficiency levels and we will report on this to EC and Member States (up to them to make the decision). Without that information it will be difficult to make the case.

Dario Brivio (Eurovent) goes back to the proposal of a standardised configuration. For example a manufacturer of ventilation equipment needs to fit his product into a tight constraint space. A suitable fan like an axial fan can be interesting and fully compliant, but compliant in a configuration consisting of a diffuser and a flow straightener. The fan as it is does not fit inside the available space, the solution is to change the impeller and the motor, fit them inside a different case (much shorter without the diffuser and straightener). The fan complies in the configuration how it is tested and when it is built it fits within the available space. Does it comply with the efficiency requirements? We do not know, but we got the compliance stated in a standard configuration.
I thought the idea of removing not-final assembly was the solution to prevent rating fans to nominal configurations which has nothing to do with what is build and delivered to the final user. This

solution might solve some critical cases, I understand this is a possible attempt for extreme cases, but with risk of opening up a big loophole for much more common and frequent cases.

Takahiro Oki (Daikin) raises the issue fans integrated into products that are already covered by other Ecodesign measures. Ecodesign measures are normally set after sufficient preparatory studies on the possible impacts of such a regulation on products. Now we are talking about fans and looking at previous reports, on which the current regulation is based, I do not see detailed analysis on impacts of fans on the final product. We have got other Ecodesign regulations, LOT 6, LOT 21 as you mentioned, in which we analysed all possible options for improvement of efficiency level of these product. In which we also analysed the possibility of improving the fans, this is one of the options but not the best option to improve the efficiency of an end-product. So I propose to avoid double regulation and stick with end product regulation.

The chair answers that this regulation comes on top of a final product regulation, which has been a conscious decision by the Commissions and Member States when the current Fan regulation was approved. And there seem to be no new arguments brought forward since the time that decision was taken. Both regulated and unregulated products [under Ecodesign] are in the scope, amongst others to avoid loopholes. Note that there are many unregulated products using fans – the Ecodesign Impact Accounting comes to roughly half when counting Lot 21 as 'regulated'—and the Commission does not have the intention to regulate all [*at the level of end-products*].
'Double regulation' has a nice ring to it, but currently many products have –e.g. for safety reasons—a triple, quadruple, etc. regulation. For instance the electricity cable has to be in conformity and when it has a CE marking that only makes it easier for the manufacturer to use that cable without having to test it: It can simply state in a DoC that he/she uses a CE-marked cable and that's it. So why do you have a problem with a CE fan or motor but not with this cable and many other components? You do not have to give all details, just have the DoC on file. There is nothing new or strange that is discussed here. And CE marking is there to make things easy.

Els Baert (Daikin) points out that the legal context changed over time, so basing your reasoning on decisions taking in the past has to be revisited. We understood from our design team that it is very difficult for market surveillance purposes to get a fan out of an end-product and if they manage to get it out it is almost impossible to test the fan under the same conditions as it was tested in order to comply with the final product regulation.
"Furthermore, I want to state clearly that up to today there has been no data showing that this is viable except for Ecodesign LOTs that are applicable to one product. So far they have not showed that we have to go into detail to modify the fans and I think they are covered today. And we have efficient products on the market and we do our best to be compliant. I find it not necessary to further regulate on component level, because it increases costs and might not improve the efficiency of our product.
Another issue is on spare parts, I agree we should be given more time, but 5 year is not enough. You need to take into consideration the lifetime of a product and the malfunctions that could happen in that time. And that can only be done when the product is mature in the market. We promote to exempt the spare parts as spare parts represent just 1% for our product range, this will most likely be the case for the whole industry."

Conrad Brunner (ECOS) assures everybody that this issue has been discussed already before 2009 when the current regulation was made. The points raised today are basically the same as then. He agrees with the chair to make the wording more precise. The point is when you manufacture a fan you do not know in which end product it goes into. We do not deal with black boxes, all the components are transparent (built in the regulation in 2009) and they need to have some specific requirements.

Marcos Gonzalez-Alverez (European Commission Policy officer) answers that it is the duty of the Commission to look into the market and get all the data on the market when working together with a consultant on a preparatory study and we have to solve the difficult questions that have also been addressed here today (i.e. how to test impellers/ fans when you do not know where they are going to be used in).
Not dealing with fans incorporated into products does not work, this discussion took place already in 2007 and the final result is what we have today on the table. Maybe we now have more experience on Market Surveillance and on other topics, so maybe the final decision is going to be different, but I do not know what is going to happen. We will have this political discussion, but we need all data that is available to be put on the table in order for consultants and Member States to analyse the technical, environmental and other aspects.
I will ask VHK to look into fans integrated into other products to look at the impacts on the industry, on manufacturers of these fans, on the users and what can be done. But for this purpose we need to continue taking into account the fans integrated into other products.
Asking for a full exemption of spare parts is too much as fans will be available on the market for ever and might cause a huge loophole.

Jonna Byskata (Carrier/ UTC) adds that the RoHS Directive has no limit on exemption of spare parts and the lifetime is important for the integrated product.

Andrea Voigt (EPEE) states that the spare parts discussion and fans integrated into products took place already in the previous meeting. We handed in a strong joint industry paper, with a big coalition, defending our view and is available on the study website.
A possible solution for spare parts could be to label them as spare parts to prevent misuse.

The chair clarifies that the 5 years of spare parts come on top of the Regulation. You know in 2016 for instance which products will be forbidden in 2020 so you have 9 years the time to change the product instead of just 5 years.

Tanya Nimalasuriya (Océ Technologies) asks how to deal with failing component after 5 years? Do we need to remove our printer from the market?

The chair answers that you know 9 years before which fans will be available on the market which gives you enough time to modify your products.

Tanya Fermi (Sodeca) states that their problem with delivering spare parts is the electric motor. The length of the new motors might not fit in the old space, this might also occur with new fans in the future and we just have limited space to fit it all. It might be cheaper for me to sell a new product then modifying the old one with new parts that needed to be fitted.

Volkmar Uebele (CECED/ BSH) states that multi-purpose fans used in several appliances will not change in dimension and interfaces as they are multi-purpose fans.
“Talking about fans included in appliances they follow the performance needs and energy efficiency needs of the product itself and it differs in which product they are used in. So this might be a possibility to exclude these fans on the name tag of a product with special purposes.
We are dealing in several regulations with different demands for manufacturers to make their products more long lasting, or just to guaranty they are long lasting. The expectation is therefore longer than the 5 year period proposed. In the discussion on the regulation for displays there is a demand for 10 years now. I think it is not a good idea to tell the customer that he cannot get a replacement part by telling him it is forbidden. I propose to exclude spare parts completely.”

The chair replies that some regulations do not have spare part exemptions. We have 2 years in the current regulation and we propose 5 in the future but you want indefinite.

Article 2.

Karsten Witt (Witt & Sohn) explains that 30 years ago a jet fan was an axial fan with some silencers on it. We fortunately moved far away from that. Jet fans nowadays are optimised to work far from the maximum efficiency point. As you use the actual regulation as it is today it measures an actual fan, but you will find the best jet fans is the one that produces the most thrust (N/kW) will have lower efficiency then a standard actual fan. We need a specific measurement or requirement or tool to classify high efficiency jet fans. Which is different from actual fans otherwise you end up going backwards again and promoting jet fans that have a bad performance in the way they are operated.

Conrad Brunner (ECOS) asks if in article 2.1 on fan definitions it is correct that you could change from input base to output base? If this is the case I am in favour of changing from input to output conditions and be able to have a fan definition in real testing conditions.
Industry proposed to set the lower limit to 20W output power as smaller fans are used and sold in larger volumes.
Furthermore, technological independent standards should not be based on axial, centrifugal etc. specific. It should all merge to one energy efficiency flow line of which the customer can see what the best to use for his application is. We should have a fan that has a flow and pressure and not base it on which type of fan it is and stick with the types as is done nowadays.

Neil Jones (European AMCA) answers to Conrad Brunner's statement that the industry does not sell fans based on the direction of the air flow or change of direction in airflow but based on the application. So it is based what do you need high or low pressure, high or low volume flow in that particular application.

Geoff Lockwood (EVIA) adds that the categories are used in for instance the motor and pump regulations. They use also different values per type, so I think you will never have 1 standard 1 limit for all fans. If we strive for that we will have one product that is used incorrectly in applications and you will not get carbon reductions. To generate carbon reductions we need to push the boundaries of these four types up by all means.

Erik Nolting (OCE) states that fans have specific properties and it is not possible to have one set of criteria that covers all these properties. The air power might be used as a limit in the regulation.

Carlos Lopes (Sweden) explains that having the power input as scope might be a good way to establish the range. For example a bad fan which consumes a lot of energy but a low output might not be covered, but if you have a very efficient fan with very high output, with low consumption should have to comply with a lot of things. If we define the range as input we have a kind of inherent way of pushing for efficiency.
In the discussion document I did not see a proposal for fans going below 125 W and that is something we would like to have for the consultation forum. The alternative exists so we need to have a good picture of the market, efficiency and savings potential in order to discuss it. Fans with a power input <125W have been analysed briefly in the second working plan and a significant saving potential has been defined there.

The chair adds that just one manufacturer supplied data on < 125W fans. This is a complex group which is used in a wide range of applications. Discussions will become even more difficult in this

group with even many more different applications, for instance with products ranging from fan in life saving equipment in hospitals compared to fans in computers.

Mihai Scumpieru (Mitsubishi) agrees with EVIA, we need to keep all the types of fans that are available. You give design options to the manufacturers, which could generate so much more reduction in energy consumption, energy efficiency and production of CO_2.

Mikael Lönnberg (Systemair) states that the definition of VSD, taken from the draft of the ventilation unit regulation, has been changed in the final version, better to use the new definition.

The chair answers to look into the new definition. If the voltage controllers are not excluded that is certainly not what he would propose here.

Charles Halstead (Halifax) states that we cannot have the new definition because then the VSD is not used to control the flow rate but instead controls the pressure.

Conrad Brunner (ECOS) states that he did not mean that you abolish certain types of fans, but I wanted to migrate the efficiencies to a narrower band and not to give certain types of geometrical airflow a huge advantage over others.
Concerning the small motors you are dealing with motor/ fan composites that have efficiencies lower below 10% and there are millions of them in Europe. In this meeting we are talking about efficiencies in the range of 40-70%, so I am curious how much energy these small fans consume.

Anthony Breen (Nuaire) explains that EN ISO 5801 defines fan efficiencies and is not just air power it is air power over electrical power. This is how it should stay and just input power. Fan efficiency in BEP is always air power over electrical power.

Geoff Lockwood (EVIA) states that if you swap air and input power around and use the same targets there is no difference. The environment needs to gain from swapping from input to output power.

The chair states that 125 W input equals air power of 50 W. Using output would be consistent with the other Regulations. He thinks the issue has been discussed enough.
Sham Morten-Gabr (Multi-Wing) brings up the point that low and high pressure applications might not benefit from looking at BEP as they operate away from this point and put more constraints on the environment and give more energy consumption.

The chair clarifies that we are dealing with something that is already out there. We have to take in what we can in this limited time. But we have not gotten any other proposals from industry to use air power, input power or something else.

Markus Mayer (Rosenberg Ventilatoren) asks if jet fans can be included like this without an impact assessment?

Marcos Gonzalez-Alverez (European Commission Policy officer) answers that for this review we need an impact assessment, so when jet fans are included in the scope they will be in the impact assessment that will follow after the Consultation Forum etc.

The chair adds that this analysis takes time and will not be in the second interim report.

Article 3.

Conrad Brunner (ECOS) asks if we are talking about percentages or percentage points or like in motors percentage losses?

The chair answers that we are talking of a percentage of the limit values. To clarify things factors (e.g. 0,95 instead of saying 5% reduction) will be proposed in the new proposal as this question has been raised by multiple stakeholders.

Geoff Lockwood (EVIA)
EVIA requested 10% correction for dual use fans not a factor 0.9; and also a 10% reduction for any axial reversible fans. Fans which have both will get a 0,9*0,9 correction factor.

The chair asks to remind us why to use reversible if it is not for fire reasons?

Karsten Witt (Witt & Sohn) clarifies that these fans are used to empty tanks, before people are allowed in. Reversible is not only for smoke but can also be for gasses, odours and for other ventilation matters, cooling etc.
We need at least 10% reduction because this is the amount you lose already with larger tip clearance, symmetrical wings/blades, guide vanes structures and straighteners of the flow.

Dario Brivio (Eurovent) explains that they tried through Eurovents members to find out what would be a reasonable target. “We were surprised how far the requirements and proposals from the members differed from each other. Eurovent does not have fixed figures yet on this issue, but we are starting to understand why the numbers are deviating so much from each other. In reality the efficiency loss of ATEX fans is different for different fan types, where axial fans are probably suffering the most. Moreover, the efficiency loss is different between different ATEX fan categories. Category 1 fans, which are designed to withstand a kind of explosion inside, clearly suffer the most when compared to anything similar that has no ATEX specific design requirements. Other categories may have progressively less demanding design changes and this is why the overall picture is more difficult to get up.
Part of the confusion is that we read the proposal as 10% points.”

The chair states that the timeline is tight and stakeholders have around 2 weeks to comment on and come with new data on ATEX and other topics.

Sham Morten-Gabr (Multi-Wing) explains that Multi-Wing delivers to a wide range of producers of reversible fans. Producers of wood driers use truly reversible fans. And our experience is that with stage 2 we can help deliver them compliance issues, but with any increase they will not be able to dry any wood anymore in Europe.

Charles Halstead (Halifax) states that the overall efficiency is the combination of fan efficiency and motor efficiency. He asks why we need ATEX figures or proposals for targets when we do not even know what the motor regulation is going to do with ATEX motors.

The chair agrees that it depends also on what will be decided in the motor regulation. The current draft has no allowances for ATEX.

Neil Jones (European AMCA) agrees with Mr. Halstead that we need to wait and see what happens in the motor regulation. The efficiency of an ATEX fan is related to the running clearance between the impeller and the stator. Running clearances are defined in harmonised EN standards for ATEX fans.

10% is a figure to begin to work with. The standard is being revised and it is difficult to come up at this moment with a sensible factor. In the harmonised standard it stresses that the running clearances are critical for safety and we cannot go around that. Or we stay as we are and take the easy way out.

Karsten Witt (Witt & Sohn)
Industry supports ATEX fans being regulated but we need more information as testing is harder than for normal fans. We have to go more into detail for applications of explosion proof fans before putting a figure on it.

Anthony Breen (Nuaire) hopes that when ATEX fans are regulated not the same will happen as for categories B+D dual purpose smoke fans who had to increase their efficiency by 13% from 2013 to 2015.

The chair asks if all ATEX fans are tested with a small explosion? The room stays quiet. Furthermore, he stresses the importance of data, documentation on these fans as we need to base our proposals on data/ figures. At this moment it is still an open end article.

Annex I

Alain Guedel (CETIAT) agrees that 'stagnation pressure' should not be used as it is confusing.

Karsten Witt (Witt & Sohn) states that the 10325 Pa limit is wrong and should be 101325 Pa.

Erik Nolting (OCE) states "Do not go into a correction factor for DC because then you should also correct e.g. for the power factor. You open up a new world for all kind of losses until you are at the fan.
A lot of fans in our industry work at 100 Hz and not 50 or 60 Hz which are discussed here and that would add to the number of losses.

The chair clarifies that this factor is used as consistency, e.g. also the lighting regulation corrects for power supply losses. BTW: Drive losses are included and if 100 Hz is a common conversion we should think about it.

Erik Nolting (OCE) proposes not to include DC correction factor in the Regulation.

Chair states that up till now DC losses are never included. They always measure 12 or 24 Volts and act like 24V is if it is something you get for free. It comes from a power supply somewhere, so in a 'level playing field' for comparison between AC and DC fans there should be a correction.

Uwe Sigloch (Ebm-Papst) states not all DC comes from a transmission from AC to DC. Very often we find it in new technologies like photovoltaic batteries and these might be negatively affected on the development of these technologies. If it is guaranteed that it is coming through power losing transformer process then the factor is good, because it really gives an indication about the ratio air out and electricity in. We do not have only such kind of applications.

The chair states that in the lighting industry not every 12V halogen bulb needs a transformer; it could also come from solar or some other way. Nevertheless, in lighting we have the correction factor, because in by far most cases the power source is not solar.

Charles Halstead (Halifax) asks if the part load compensation factor can be increased to encourage people to use VSDs, because 4% seems little when you take into account drive losses are already around 2%.

The chair replies that the factor is made for compensation of real losses, not as a bonus. A recent Danish report looked at the real losses of VSD. Around 125W the losses were significantly more than 4%, above 300W the 4% is generous.

Conrad Brunner (ECOS) states clearly that we need to base this compensation on physics, as VHK tried to do, not on what we think should be a bonus.

The chair explains that in the end only the Commission and the regulatory committee can decide how to deal with VSD.

Marcos Gonzalez-Alverez (European Commission Policy officer) also states that we can talk about bonuses but it needs to be based on physical facts to deal with losses on full load operation. Pumps and circulators are more standard in their work areas, so they were able to develop different test points and different views for testing the circulator. This is not yet done for fans and it will take years to develop on how to test on part load.

ANNEX II

Charles Halstead (Halifax) wonders what the science is behind motor to fan efficiency? How can you say here is your motor efficiency here is your ventilation unit efficiency and the fan efficiency is in between? [Reacting to diagram showing all three]

The chair adds that the current regulation deals with FMEG (Fan and Motor Efficiency Grades]: Fan efficiency times motor efficiency equals total efficiency. We do recognise and take into account the fan laws. We tried to make a proper line between points and not a steeper line between a few points.

Conrad Brunner (ECOS) agrees that impeller efficiency times motor efficiency equals fan efficiency. Above 200kW the motor efficiency is kept flat because there the efficiency is 96/97% and the tolerance did not allow with the testing method to go much above. When the IEC standard was revised the 200 point was moved to 375 and there was a little slope between 200 and 375, then it was decided that for regulative purposes not to reappraise this segment with higher values then we had before. Therefore, the physics in the motors is that above 200kW there is a very little increase and is close to what you can deal with in testing.
The fans have a different curve and can reach higher efficiency.

The chair explained that cross-flow fan efficiencies cannot be reached in real life and the 21% is way too high, maybe maximum 13%.

Marcos Gonzalez-Alverez (European Commission Policy officer) agrees that we need to correct the mistake of cross-flow fans. When 21% efficiency is not achievable we need to define the highest efficiency that can be achieved.

Conrad Brunner (ECOS) explains that these products are used because of their size, geometry and their low efficiency is accepted. They are used under specific conditions that is why we cannot eliminate them.

Marcos Gonzalez-Alverez (European Commission Policy officer) answers that if is justified that cross-flow fans are needed for room air-conditioning in terms of noise, comfort etc. and you might need a special category. But if you need a special category that category needs to be in line with what makes sense because if you identify that something is not working we need to fix it.

Claus Händel (EVIA) adds that he thinks that very big cross-flow fans (in harvesters) can reach these values but has no details. He can life with what is written in the discussion document.

The chair agrees that they have unique characteristics but it is no use to have a level that cannot be reached.

Paul Wenden (TCF Europe) asks how many ventilation units go up to 500kW? He adds that the line should represent product and not some hypothetical situation?

The chair answers that there are not that many, e.g. ventilation units in airports, certain processes, etc. could go up to 200 kW. But it does not make much difference for the diagram: from 200 kW onwards the line is straight.

ANNEX III

Karsten Witt (Witt & Sohn) is glad that the problem of fans below 1kW has been solved, but the problem for him, as producer of larger industrial fans, exists above 1kW where the study team has gone a bit to the extreme. In reality, the difference between a 1kW fan and a 1MW fan is only 3-4%.There is of course an influence of size on fans similar to motors. Between motors of 10kW-1MW range an efficiency difference of 2-3% can be seen. The curves overreach when passing the 10 kW. Secondly we have the ISO 12759 which has industry consensus and this standard is the basis for fan testing almost worldwide (Americans have something similar with ASME and China recently adopted this standard). So I do not see a physical and certainly not political reason why suddenly in Europe we move away from something that is just introduced worldwide.
Thirdly you use the ventilation market especially in the low range and you have a large number of medium sized manufacturers around in Europe. They make fans between 1-100kW and with the slopes you are proposing you are guaranteeing the decline in number of these companies. In Britain I am certain the first five companies will go under if you force those slopes on them, because they cannot make a fan for 100kW different then a fan of 10kW; they use the same design and they scale it up and down. They do not have the resources; they do not have the engineers available to develop these types of fans that you are asking for. So it would be political suicide for any politician who supports that, because it is not based on physics. 1-3% increase is fine but anything above that is too much.

Geoff Lockwood (EVIA) underlines what Karsten Witt said, the proposed slopes would have a to big impact on the industry. “Regarding access to data, we have data at EVIA and we drew our lines on that data. The big concern related to data is passing this data on, because we believe it will not be looked at sensibly, e.g. with indicative benchmarks as they are and you could actually use them. As they are flawed it would be dangerous to use. With people saying they want one limit for all fans and they saw some of the data, one might think it would be possible. What you as consultant and the Commission are not accepting is that there is a huge diversity in fans. Different types, different speeds. You cannot have one number, you have to have a range of numbers, so you are trying to pigeonhole an industry that cannot be pigeonholed. We have data and we have drawn lines at EVIA, that pivots around 1kW and it is challenging for the industry, but it will not put the industry out of business, like your limits. I strongly recommend you look at the EVIA lines.

Comparison to ventilation units I sat through some of these meetings and it is not a perfect regulation, as always we compromise and those lines in the ventilation units are compromised.

Another issue are the range hoods. Why do range hoods have such a low efficiency (8%)?

Forward curved fans must remain as they are a good technical solution they are compact and have good acoustic environmental benefits. Some of the SME companies' just manufacture forward curved fans; do you want these companies to go bust?

Please look at the EVIA data, it is a pragmatic solution, it simplifies it to one slope it works towards bringing them together. Do not increase backward curved fans as they are already at their limits. If you push forward axial and forward curves you are getting close to where you want to be."

Mihai Scumpieru (Mitsubishi) agrees with EVIA to remove forward curved fans would be suicidal and will have a huge impact on the airco, heat pump refrigeration and ventilation industry. The advantage of forward curved fans is acoustics and the other thing is the size.
To reach the same acoustic level, a backward curved fan needs to be two times the size of a forward curved fan. This causes less choice for the consumer, as fan types will disappear for specific use inside houses, ducted ventilation etc. This is the same story as for the cross-flow fans, why would you delete them as there is a clear market and need for the consumer. With increasing energy efficiency by using backward curved fans you will lose in resource efficiency when you ban forward curved fans.

Sander Venema (Howden) confirms that the limits are very challenging maybe even not achievable especially for the bigger diameter fans. "Low noise fans will be the first to fall out with these requirements. That means that our clients have to select the standard fans, because they have also noise requirements especially from local governments. They need to install silencers and change the duty point of the application. In the end that will consume more power compared to using a little bit less efficient low noise fan. So we believe when putting the requirements too strict it will be counterproductive towards the aim and that is saving energy."

The chair states that Howden has in its brochure axial fans with 89% efficiency, so these efficiency levels can be reached. We are talking about multi-MW fans used for flue gas of power plants.

Sander Venema (Howden) states that that was probably not an actual cooling fan, but maybe one of the other Howden products. 89% is new to him.

Bram Soenen (Belgium) supports VHK, as there is no or limited data available to the study the writers we have to make something out of things we have. The comparison to compressors was made and I know for that study we have good data. The only question would then be if the measurement for compressors resembles the measurement at BEP. That is maybe not 100% the same and what type of fan they would represent the most. This is something we could use to set requirements. I would like to express my support for that approach.

Mikael Lönnberg (Systemair) likes to point out that forward curved fans are an important fan type. Some can be replaced by backward curved fans but most of them are used in products that placed in a room or ceiling which has size restrictions and makes it impossible to fit a backward curved fan. Change in size will influence the pressure level and when run on low pressure we are far off of the BEP and this will impact the energy consumption big time. So small effect on the energy use and big impact on the industry.

Tanya Nimalasuriya (OCE) confirms that forward curved fans are small, compact and very quiet.

Conrad Brunner (ECOS) states that the language used by Mr. Witt about political suicide was a bit beside the point. We are talking about market transformation and what we have seen since this first fan regulation has been published we can see a huge step in market transformation. The major jump industry has made in the last couple of years that they now have and publish efficiencies. That means that the awareness of efficiencies of product is now in the open. Now of course there is a next step, what happens after TIER 2. I understand the chair that if industry is not volunteering to supply data about their best products it is back to physics or using comparing processes. I support the approach of VHK due to the lack of cooperation of industry. I propose that we go back to delivering good data to the consultants and then re-discus the slopes. The curves will eventually merge and the challenge is with which technology we can reach which efficiency. This is usually not physics, mostly economy, sometimes sound and sometimes size. We should make this transformation in the market step by step based on the evidence you as an industry provide.

Dario Brivio (Eurovent) states that Eurovent reacted very quickly with their position paper on the discussion document. “We started from the point that the existing ISO standard defining reference curves should be kept as input. The reason why is that this same standard is going to be used one way or another outside Europe, so we should use this standard as much as we can so that efficiency can be more easily comparable inside and outside Europe.

On the other side it is true that the original curves were drawn with a sample of the available products, where actually we stretched the limit of the required efficiency very much to the technological limit at that time and beyond. You are right saying that industry is claiming any new requirement should not increase the minimum power corner of the curves. In principle changing the slope might be a wise idea if an increase has to be accepted to try and restrict the changes at the lower end of the power scale and be more demanding in the middle part of the power range.
It is absolutely true that it is extremely difficult to collect data which provides a clear picture of where existing products are placed.

On the other side it is also true that the proposed curves are a bit overoptimistic. In the high power range and middle power range and on a large part of the power range I would say. A deeper effort should be made to crosscheck these proposals against the available data, because this is one step forward which in principle is wise, but we have to be sure it is not a step too far.

All industry associations are against the idea that forward curved fans should not be threated separately from backward curved fans, because they still have a different acoustical behaviour, a different physical size when optimised for a given duty and forcing the industry to backward curved fans will lead to compromised solutions were improperly sized fans are squeezed into applications for which they were never designed. This misuse will lead to more energy consumption then there is saved with more efficient fans.

Eurovent and EVIA might have to take a combination of both position papers as a more acceptable solution.

It is not advisable to delete forward curved fans and keep the levels for cross-flow fans as they are.”

Karsten Witt (Witt & Sohn) states that Ecodesign should not specifically hurt SMEs. “We as a small company do not have the possibility to redesign, both time and resource wise. So market transformation should not be that only large companies with large volumes can make the requirements. You make comparisons between the fan industry and compressor industry. Our products are used in a huge range of applications and uses that cannot be compared with the other industries that are being discussed also.

89% efficiency can only be reached in rare situations, with specific blade angle etc. It is wrong to state that anybody can reach that kind of efficiencies.

Some of the curves are going even higher than the benchmarks you have found. Benchmark values for over 100kW are wrong and the curve goes beyond that so these values cannot be reached .

The fact that there are so many people in this room and that so many people have been writing and having meeting shows that the industry is willing to cooperate and interested. Data collection costs resources."

Sham Morten-Gabr (Multi-Wing) appreciates the effort to raise the targets but agrees that it is not feasible. "I would like to comment on the background study section 4.3.3.3 table 9 shows that there is a trade-off choice between peak efficiency and using actual operating conditions. One of the advantages with using the currently used approach is to push towards higher efficiency product. I agree that this has been done: As can be seen 50% of the technologies is gone and the products comply, but the question is how much of the market do you want to be left over.
The other approach mentioned is written that the determination to collect data is lacking in order to base the analysis on real operating conditions."
Furthermore he states that 4 pole motor have highest efficiency but is not always the best solution to use in combination with a VSD.

Carlos Lopes (Sweden) explains that at the end of the day the Ecodesign committee will vote on the proposal that the Commission is going to represent. It will start by the consultation forum were we will discuss the preliminary proposal and after the final decision. Therefore it is very important that you are participating and that you come with data.
When there is no data then there is the risk that Member States take wrong decisions. "Member States want to be ambitious especially when it comes to ventilation, because we go for more mechanical ventilation with tighter houses with less heating needs. Due to this increase in ventilation we will ask for an increase in efficiency for everything that is related to ventilation.

What do we discuss in regulatory committee meetings, do we discuss the matrix or the formulas? No, because the ones voting are not technically skilled enough. But we are going to discuss the level of requirements. For the level of requirements we have to get some kind of confidence, we need to have a preparatory study and to understand from the explanatory notes, which the Commission are handing out to the members, that the levels of requirements are possible but also that we want to be ambitious. So, for that it is very important that you provide data. We will look at what is technically possible we will look at what is acceptable for costs for the consumer and the society and also at the impact on industry.

My experience is that it is difficult to get data, because usually efficiency is not published and it is not published in a way that it is easy to reproduce. Sometimes data in catalogues might be overoptimistic, because the point was not to use them for Ecodesign requirements and manufacturers did not know we would have Market Surveillance.
It is important that you work with the consultant, that you provide data so we can come to a good decision, otherwise we base our decision on products and analysis done by ourselves. We buy and test products ourselves in Sweden and do market assessment and base our decision on that, but this might not be the case for every member state."

Charles Halstead (Halifax) agrees with Mr. Witt. "Looking on the slides and data presented 80% of the data is driven by the ventilation industry, I understand they are so massive and have a big say, but there are other industries that use fans. Ventilation fans tend to have high volume flow and low pressure, they tend to be low speeds and you can use efficient designs. There is a whole industry out

there that uses combustion air fans. They use fans for fluidised beds, they use fans in burners also a lot of other things. A lot of these require low flows and relatively high pressures and these are difficult to make in order to get the same efficiencies as you get out of very wide high volume fans. These regulations take no account of different volume/ pressure ratios. We have got one 'brush', based on ventilation, which every fan has to meet. If you set requirements that are not achievable for these fans (forward curved, radial fans etc.) you rule them out.
In order to get a BEP you need with high pressure and low volume, a backward curved might not be the best solution and you would be better off with a radial fan.
We cannot develop efficient fans with adding electronics like motors or redesign with other or more materials.

The chair asks if backwards curved fans are asked to be more efficient than forward curved, will buyers not go to forward curved fans?
Charles answers no they will not. People will not use a forward curved fan when a backward curved is better.

Marcos Gonzalez-Alverez (European Commission Policy officer) thanks all participants, thanks the member states as they normally are not participating in stakeholder meetings. Furthermore, he explains that the Commission does not want to put SMEs out of business. We have to calculate the impact on the SMEs and this will take place in the impact assessment phase.
Basing our regulation on ISO standard is good, unless there is a very good reason not to go for the curves in the ISO standard, I think we should be proposing that.
We as European Commission proposed to VHK to come up with stringent proposal and I think we have achieved that.
Keeping forward curved fans is only possible with justified functionality of consumers, so base your argumentation and data on that.
I hear that you are proposing to keep the stringency for the lower category fans, while for the larger fans you are more concerned. After this meeting we will keep on working on the proposals and we will go to a consultation forum.

Erik Nolting (Océ Technologies) states that forward or backward curved has nothing to do with better speed control, they can both be controlled in a perfect way especially when you use DC.

The chair explains that from experts we find that forward curved fans are more critical when it comes to the impeller versus the stator, the tolerances are much more critical. Stagnation is most likely for any speed below 40% of nominal.

Rob Vandenboer (Agoria) confirms in relation to the backward and forward curved fan applications that our entire industry uses forward curved fans. The main reason is acoustics and compact design. So it is very important that that is considered correctly. Supporting the point of view of Howden that for large axial fans, also for acoustical reasons, sound levels were very good but efficiency was another story. We have to see that energy efficiency does not causes serious acoustical issues as these products are used in highly populated areas.

The chair states that a proposal for noise correction can be discussed. "I know it is short notice but we are also legally obliged to present a report to the Commission at the end of March."

Sander Venema (Howden) states that they are prepared to share data.

Markus Mayer (Rosenberg) comes back to the ventilation units. "In our opinion it is a historical mistake to not include box and rooftop fans in the fan regulation as the ventilation units industry does not care for these types of fans. Fans are just a component for them."

Karsten Witt (Witt & Sohn) mentions --about jet fans-- that the presented is new to him. We should have more time to analyse the proposed slopes. He proposes to use N/kW as efficiency approach and not volume and pressure approach, because you are measuring something different. America uses a factor instead of number or we can go to an A, B, and C category ranking for jet fans in order to have a better classification of N/kW compared to fan efficiency.

Conrad Brunner (ECOS) states that the issue raised by Mr. Hallstead is correct. The underlying motor depending op run on 2, 4, 6 or 8 pole changes its efficiency considerable above 10kW it is around 1%. In general 4 pole motors are the most efficient, 8 pole motors the least. Going down to 1 kW the differences are already around plus or minus 2%, going even over to 0.1 kW the difference is even 6 or 7%. This therefore has to be somehow taken into consideration when you make your curves especially in the lower part (below 1kW).

The chair agrees that this is correct but it is not evident how to deal with it.

Geoff Lockwood (EVIA) explains that they have looked a long time to put in the speed and this process is really quick and we could not yet find a way to do so. We have come up with a sensible way of what the industry can achieve and the environment wins. After that we as an industry can look at a next step forward, taking into consideration speed.

Klaus Händel (EVIA) states that component regulation should not restrict downstream users, which are developing their products in their optimised way.
We cannot automatically finalise top level runners which are only optimised for one single option to reach the legal target and not the target of the industry demanding.

Rob Vandenboer (Agoria) agrees with this statement and this is exactly the problem in the cooling tower industry that focussing on one component influences the end-product 'big time'.

Jürgen Albig (Ziehl-Abegg) adds a few remarks, taking the axial fans as an example. "When looking at the definition we do not have one single axial fan, we have a van axial, tube axial and we have a propeller prop axial fan. And now we discuss industrial fans 89% efficiency that could be achievable with a very small air gap, but most of the business is the OEM market.
And when mixing all these classes, a propeller fan which is mostly a 8 or 10 pole fan because it is working outside in public areas, is completely different compared to an axial industrial fan, with a 2 or 4 pole motor and guide vanes optimised. So there are really differences in the band of the achievable efficiencies in the class of axial fans.
Leave the slopes for centrifugal as they are.
With 4-5 kW you need to reach a very high efficiency of the impeller. The best efficiency of an impeller that is currently on the market for ventilation business is between73 and 75% static efficiency. We come with calculations of >10kW close to 80%. If this proposal for backward curved centrifugal fans still remains we are not talking about ventilation units anymore, because then we have no fans to supply starting at 4-5kW and above, the same will happen with axial fans especially for the mass market. I agree with Mr. Lockwood we are at the limits of our industry not talking about industrial fans."

Madorell Costa Roger (Soler&Palau) agrees with Mr. Albig. "When axial fans are manufactured, usually we use an impeller that with the same blade can achieve different efficiencies with different pitch angles. The maximum efficiency is for a complete pitch angle but by changing the pitch angle than the maximum achievable performance is reduced.

Charles Halstead (Halifax) finds it hard to believe the consultants cannot find efficiency figures. In our industry, fans are designed for a specific volume and pressure and everybody is going to say what power it is going to absorb, so you have got the efficiency. Secondly, we have got this standard and we want to drive more and more efficient fans, but we need to break it down into some segments. Trying to write a fan efficiency standard for what everybody in this room thinks is their product, is just not practical.

Annex IV

Mikael Lönnberg (Systemair) states that it makes sense that the VSD does not have to be included in the motor. "OK: when it is an EC motor it is included, but the regulation does not state that you only can use EC motors. You still can use an AC motor with frequency drive. It is not practical to build in a VSD in a motor and the Regulation for ventilation units also states that the drive can be delivered separate. One other reason is that the fan manufacturer might not be delivering the drive; that might be another supplier and it can be that they also have already a frequency drive. Sometimes one frequency drive is used for multiple units.

Conrad Brunner (ECOS) add that we have the same problem in the motor regulation, where you can have an IE 3 or an IE 2 with VSD, which is a Market Surveillance nightmare. They can only sell a motor that has like a marriage certificate that are sold together with the VSD. We can see three components within fans (1 motor, 2 VSD and 3 fan) and if you have not got them all, you cannot check them. It is also no use in having extra costs for a VSD and not using it as it is almost as expensive as a motor.

The chair asks why not lower the declared efficiency instead of talking about a bonus?

Karsten Witt (Witt & Sohn) states that the customer wants a fan and this should not be regulated. With larger fans we always have a stand-alone frequency converter, so I think there should not be given any particular bonus to anything. If you make a fan 2% less efficient and you get a bonus for using a VSD that makes no sense at all when the fan complies then. You consume more energy. For ventilation units it might make sense.

Uwe Sigloch (Ebm-Papst) states that the wording is not correct, there is no VSD bonus. It makes the fan efficiencies comparable: It brings it back to the same level which is motor electric input versus flow output. It helps fans that have integrated electronics to make them comparable and not to punish them. It should be named a VSD compensation factor. It has nothing to do with later on use of speed controllability. The application should tell if it makes sense to use a VSD or not, it should not be in the regulation of the fan. We find this cascading philosophy in the ventilation units: There it makes sense to do speed control and you will find fans that fulfil a certain efficiency in the ventilation units regulation. There you will find also a factor or bonus for speed controlled use.

Erik Nolting (Océ Technologies) adds that when you put a fan in a system it has a certain efficiency, if you lower the speed, the efficiency of the fan stays the same. On one system line you have a constant efficiency. So only the motor efficiency is at stake when you have a VSD.

Umberto Di Barbora (Luvata Italy) states they are final users of fans particularly they use axial fans in the range of 10W-15kW.
Especially the last two years they experienced the fan regulation and the real effect on their business. "As an example we were promoting low noise solutions. In Europe the criteria are first the noise, then air flow, then performance and then other things. Noise requirements are 35dB at 10m when looking at for instance supermarkets in highly populated areas. Looking at Brussels you do not want a fan motor creating a lot of noise. What happened is that we proposed 12 pole motors to our

clients, explaining that this was the best solution for power absorption and final performance of an air cooled condenser, liquid cooler an chiller; all machines that are using axial fans. We found that 12 pole motors disappeared from the market. Using a 4 pole motor that does not meet the noise requirements are inside the directive and can be used. The only solution was to create a very bad fan motor, reducing the speed and going down below the ErP limit. We were forced to redesign completely the structure of our product, introducing full bell mouths, rings stator to meet the ErP limits, introducing costs, introducing different constructions, reducing the warehouse capability etc. You need more data from the market to include in your formulas and improve your formulas in order to better understand the industry and work on better efficiency.

The chair states that we take all these comments into account and report them to the Commission.

ANNEX Benchmarks

Geoff Lockwood (EVIA) comments that the Radgen study set benchmarks in 2007, some efficiencies are only for the impeller and the proposed benchmarks are wrong so we would like to see them excluded. The data Radgen collected was before the ISO standard 12759. The small fan manufacturers tend to have electric motors and fan packages and give the separate and overall efficiency, when people ask us to give efficiencies we give the fan efficiency, a fan without the motor.

Karsten Witt (Witt & Sohn) states that they give shaft power.

Charles Halstead (Halifax) states that manufacturers give fan efficiency (impeller/ shaft power) instead of overall efficiency. Benchmark should not be made up on indicative figures.

The chair clarifies that fact finding is not a democratic process, where the more manufacturers are for deleting the benchmark the Commission will delete it. Data are based on best catalogue data.

Conrad Brunner (ECOS) comments on this issue that a complex model was made in preparatory study by Fraunhofer, to take into account all the elements that form the efficiency namely the motor and the fan and some other components. There was no misconception about that at all. At that time it was not really sure whether the efficiency should be for the impeller only or for the motor/impeller combination. A benchmark is something like a BNAT so that means all components are on their maximum level.

Marcos Gonzalez-Alverez (European Commission Policy officer) explains that all Ecodesign regulations have an Annex with benchmark values, the intention of the benchmark is reflecting what is the best products in the market at the time of approval of the regulation. These benchmarks are mentioned in the Energy Efficiency Directive and they are important for public authorities for green public procurement. It is important to get the benchmarks right, because when Member States are buying products they should aim for the benchmark.
It is not possible to have a benchmark annex of 10 pages, with a benchmark for each application of a fan and specific types in that application. We have to be careful with the wording of the annex and we have to identify what are the best products on the market, functioning under the average conditions that are in the market. What I hear here is that you are not happy with the current values of the benchmark and therefore I ask the industry to come with a proposal for the benchmark values. We will check your proposal then with data we can get from catalogues or reliable data that we can get from any source and this will be the basis for making a review on the annex of benchmarks.

Paul Wenden (TCF Europe) asks whether on the slide it states minimum efficiency levels should this be maximum? If it says 79% is this the minimum or maximum fan efficiency?

The chair explains that benchmark already means best available, naming on the slide can be a typo.

Paul Wenden (TCF Europe) states they make a fan of 89% that comes in the 500 kW range and will cost 500.000 dollar. It will costs a lot to test and not possible to be tested by most of the manufacturers that are today here. When you look at the motor data that supports the motor regulation, 55% of the motors are below 4kW and only 12% of motors are above 70kW. We are aiming at achieving levels that are not making a big difference to carbon saving.
When it comes to data, if catalogue data cannot be trusted, we have to with ISO 9000, why not 3rd party certification?

The chair asks the industry to come up with future benchmark levels. Slides on 2014 benchmarks should be disregarded.

AOB

Testing costs.

The chair asks what testing costs are for fans, for ventilation products where fans are included etc.

Karsten Witt (Witt & Sohn) explains that testing a 10 kW does not cost 50.000 euro that might only be the case for fire testing.

Charles Halstead (Halifax) states that fan manufactures test a 10 kW fan for 3000 euro, test houses charge more.

Market surveillance
Sham Morten-Gabr (Multi-Wing) states that the Danish Energy Agency tested 4 models in 2013 and 5 models in 2014.

The chair states that having market surveillance is very important for setting strict requirements.

Neil Jones (European AMCA) explains that the Hungarian Market Surveillance did not understand what needed to comply. “They looked at a manufacturer who produced his own fan and put it in his own ventilation unit. They tested a ventilation unit and checked it with the fan regulation. This caused the product to fail the requirements. The response was that the manufacturer did not test the fan as they do not sell the fan separately, so why do we need to test it according the fan regulation? If we need to test those also manufacturers have double test costs.”

Chloe Fayole (ECOS) asks till when written comments can be send in?
How does the legislative process look like further? Report in March and then Consultation forum?

The chair explains that given our own very strict deadlines the deadline for comments is 15 February.

Marcos Gonzalez-Alverez (European Commission Policy officer) explains that no later than 4 years after publication we need to present a revision report to the Consultation Forum and this will be in April this year. “We did not inform the consultation forum yet, so I do not have the exact date. Most probably this will take place beginning of April. This means that VHK needs to receive the comments well in advance in order to finish the report. We need to present the reports and working documents at least 1 month before the consultation forum meeting this means that we are talking about mid-March to send invitations and reports and Working Documents to Member States.

Bram Soenen (Belgium) has a question to the Commission and the manufacturers: “For other reviews on the motors and a new LOT on the compressors there has been, during the consultation forum, some discussion on having a different way of doing verification by Market Surveillance authorities and having conformity assessments (3rd party certification) for certain categories of products which are more difficult to test to have a third party certification, instead of self-declaration.

Marcos Gonzalez-Alverez (European Commission Policy officer) replies that this issue was raised in the consultation forum on electric motors and will be analysed as one of the points in the Impact Assessment.

The chair thanks everybody for coming and participating and closes the meeting.

List of participants

First name	Surname	Company / organisation name
Rob	Vandenboer	Agoria
Walter Giuseppe	Pennati	Assoclima / Anima
Dorian	FOURMENTIN	ATLANTIC CLIMATISATION ET VENTILATION
Jonna	Byskata	Carrier/UTC
Volkmar	Uebele	CECED
matteo	rambaldi	CECED
Alain	Guedel	CETIAT / Eurovent
Takahiro	Oki	Daikin Europe
Griet	Monteyne	Daikin Europe NV
Els	Baert	Daikin Europe nv
Uwe	Sigloch	ebm-papst/EUROVENT
Conrad	Brunner	ECOS
Chloé	Fayole	ECOS
Fanny	Rateau	EHI - Association of the European Heating Industry
ENRICO	CRIPPA	ELCO E TRADE
Matteo	Boschetti	Elco e-trade srl
Hannah	Herscheid	EPEE
Andrea	Voigt	EPEE
Danilo	Colombo	Euro Motors Italia/Assoclima
Neil	Jones	European Air Movement and Control Association
Marcos	Gonzalez-Alvarez	European Commission
Geoffrey	Lockwood	European Ventilation Industry Association
Felix	Van Eyken	Eurovent
Morten	Schmelzer	Eurovent
Kristof	Vervloesem	Eurovent PG9 Cooling towers
Patrick	Heremans	Eurovent PG9 Cooling Towers
Georg	Mager	Eurovent PG9 Cooling Towers
Claus	Händel	EVIA - European ventilation Industry Association
Denis	Bonvillain	EVIA - European ventilation Industry Association
Bram	Soenen	Federal environmental product policy
Daniel	Hinchliffe	Federal Institute for Materials Research and Testing (BAM Germany)
Kenichi	Ichihara	Fujitsu General Euro GmbH
Charles	Halstead	Halifax Fan
Harry	Keller	Helios Ventilatoren
Sander	Venema	Howden Netherlands B.V.
Peter	Holkers	Howden Netherlands B.V.
Umberto	Di Barbora	Luvata Italy Srl
Norbert	Wieczorek	Miele & Cie. KG
Hidekazu	Tani	Mitsubishi Electric
Mihai	Scumpieru	Mitsubishi Electric Europe

Sham Morten	Gabr	Multi-Wing
Johannes	Anschütz	Nicotra Gebhardt
Dario	Brivio	Nicotra Gebhardt SpA / Eurovent
Anthony	Breen	Nuaire ltd
Tanya	Nimalasuriya	Océ Technologies BV
Erik	Nolting	Océ-Technologies B.V.
Satoshi	Kohno	orientalmotor
Piotr	Stęchły	Proficool FANS
Yingan	Xia	punker GmbH
Markus	Mayer	Rosenberg Ventilatoren
Carlo Alberto	Chiarelli	RPM spa / EUROVENT
FABIO	GIOVAGNONI	SABIANA S.P.A.
Josep	Surroca	SODECA
Fermí	Tanyà	SODECA
Roger	Madorell Costa	Soler&Palau
Alberto	Pirovano	Soler&Palau
Carlos	Lopes	Swedish Energy Agency
Pablo	Varela	Systemair
Mikael	Lönnberg	Systemair AB
Paul	Wenden	TCF Europe
Thomas	Damm	VDMA e. V.
Rene	Kemna	VHK
Roy	van den Boorn	VHK
Raymond	van As	Vostermans Ventilation BV
Merlin	Slots	Vostermans Ventilation BV
Karsten	Witt	Witt & Sohn AG
Ian	Crum	Woodcock & Wilson Ltd
Rick	Bruins	Zehnder Group Nederland
Jürgen	Albig	Ziehl-Abegg SE