

EMFSA's response to Associate Professor Olle Johansson's interpretation of our survey report:

Dear Prof Olle,

We would have appreciated the following:

- The application of a proper background investigation to this matter before responding.
- Professional courtesy (considering our long standing cordial relationship) and discussing the matter with EMFSA before putting fingers to keyboard.

Instead you have responded to a document the content, purpose and the underlying message of which you clearly do not understand.

The school's newsletter was released at a time when we were still bound by the confidentiality clause in our report as follows:

"COPYRIGHT © 2020 EMFSA, ALL RIGHTS RESERVED

The contents of this document and any associated photographs, audio or video recordings are for the express purpose of enabling the client to make informed decisions regarding non-ionizing radiation levels within a specified environment. The information below is confidential and may not be revealed to third parties by EMFSA or the client without the express permission of the other party"

As such we have no choice but to respond.

Associate Professor Olle Johansson

Dear (concerned parent)

Thank you very much for sending me the ... School EMF SA report. I have read it, as well as the official Newsletter signed by the Principal. Below I have summarized my impressions and comments.

I hereby start with the School's Newsletter dated December 1, 2020:

In it, Principal Mr ... points to that they employed "*...the company recommended to us by the same parent, EMFSA, to inform us whether our wireless environment was indeed safe for our boys and staff.*"

Not Correct, you should have rather checked with us or read the report properly.

Our Report describes the request from the school as follows:

"Due to expressed concerns by some parents, The school contacted EMFSA with a request to evaluate the radiofrequency radiation levels in certain classrooms."

It does not ask EMFSA to do anything other than measure and report.

Having been assured during our very first contact with the school that a wired option had been tried and had failed, the school explained then and recently re-confirmed its policy to us as follows:

“Feasibility study for a wired equivalent.

We did that ourselves and because of the nature of the wifi and the number of devices, it was not feasible – besides the fact that the anytime, anywhere nature of mobile learning really does lend itself to WiFi.”

So Prof Olle, seeing as you did not ask, how were you to know that we were contracted to simply measure and to advise on how to maintain lowest possible levels, **not to endorse** the wireless method or to **prove** that any level of non-native radiation is safe or otherwise?

You were obviously misinformed.

However, by measuring technical values and levels of electromagnetic fields and high-frequency signals, nothing can be said about safety.

At no time do we state that the radiation levels at the school are safe.

We avoid the term “safe technology” as it can lead to misconceptions for concerned members of the public.

Our motto is “The Safer Use of Technology”.

By you stating that “nothing was said about safety”, surprisingly you either missed, misunderstood or have ignored the significance of the inclusion of Europaem 2016 Table 3.

This table, when interpreted correctly, is all about safety and was included precisely because the European Academy of Environmental Medicine has taken the trouble to differentiate between the different modulation technologies and which lists Wi-Fi modulation as the least safe of all.

We, as scientists, still do not exactly know what biophysical characteristics of electromagnetic fields and high-frequency signals that relates to safety.

The scientific community is split between those who are funded by the industry and those who struggle to obtain private funding. This is how the tobacco industry was able to stave off the inevitable public smoking ban for 40yrs.

The only thing we can say is that only the natural background is - by definition - safe. (Compared to the currently allowed exposure levels for children in South Africa, the natural background is approx. 1,000,000,000,000,000 times lower.)

We assume that your source for this quote is the ICNIRP standards, but note:

1. In South Africa there are no legal limits as regards to radiofrequency emissions.
2. There is no national EMF monitoring system.
3. Industry made it clear that it will self regulate using an honor code system but will not allow external review and/or auditing. This was illustrated in the study, of which Mr J C Lech is the first author:

“CONSTRUCTING AN EMF RADIATION HYGEIA FRAMEWORK AND MODEL TO DEMONSTRATE A PUBLIC INTEREST OVERRIDE”

Furthermore, by comparing other schools using similar wireless systems, and at similar exposure levels, they found "*that School use similar wireless systems, and at similar exposure levels*". Nothing more. No information was achieved about health impacts or biological effects.

Correct. We **repeat**, total safety and biological effects were **not the purpose** of the survey.

In such situations we can only look for ways to make an existing system less harmful [ALARA]. Having been told that the school had investigated a wired system and it was **NOT** an option, as previously stated, we, **as instructed**, only measured to see if the access points were individually adjustable [as described by the school] and the ALARA principle was being applied to each and every access point, hence a detailed description of the current system **as requested up front by EMFSA was the first matter addressed in our report.**

Had a **full survey** been requested, or the school responded to the **final paragraph of our report**, we would have been in a position to further address health matters relating to electromagnetic radiation, including and over and above the Wi-Fi issue.

The Independent Schools Association of Southern Africa (ISASA) was also consulted to see if there was any reason for concern from their side "*which there wasn't*". This is very odd, since ISASA does not mention - as far as I can judge - at any point adverse health and/or biological effects of artificial electromagnetic fields, such as from tablets, cell phone systems, WiFi, laptops, and more. In short, ISASA does not deal with such fields at all, so Bishops' decision to turn to them is more than enigmatic. To me this fact sounds less than reassuring had I been a concerned mother or father of a child in such a school. **This exercise by the school was pointless.**

ISASA will follow the ICNIRP guidelines.

As far as awareness is concerned: EMFSA contributed by taking stands at 2 environmental health congresses, presenting to audiences of over 200 people and, also by invitation, presented at the annual Congress of South African Association of Physicists in Medicine and Biology, [SAAPMB].

We have recently successfully challenged a high profile electrical engineer's misguided idea of what happens to telecommunications radiation as it penetrates a wall and also asked the IEEE to remove a paragraph from one of its scientific papers which tried to present a 60w 5G antenna as being as safe as a 60w incandescent lamp.

Our website, newsletters and social media pages speak for themselves.

The report from EMF SA on the use of wi-fi in classrooms was thus commissioned by the school to inform them of any possible harmful effects regarding the use of wi-fi on their campus.

Not True, all non-native radiation at any level has the potential for harm and individual susceptibility also plays a role. **AGAIN - We were commissioned to measure and advise on possible ways of minimizing the existing Wi-Fi radiation levels, nothing more, nothing less!**

We found that there was no in-house monitoring of radiation levels, therefore the only way to successfully minimize radiation at the time was to blindly adjust the output of the access points.

As we were able to demonstrate, radiation output control of the system at the time was a very hit-and-miss process. Therefore we advised the school to purchase the Acoustimeter AM 11 for the purpose of monitoring the RFR environment.

This report stated clearly that **the school** systems were in line with the rest of the world, in line with legislation and in line with the ALARA (As Low As Reasonably Achievable) principle.

The total power of the access points / desktop devices combination is adjusted to absolute minimum while maintaining connectivity and EMFSA was assured that the access points to each classroom were only switched on when needed.

This is what ALARA is about. ALARA is necessarily implemented when a client decides that a wired alternative is not a consideration, as was the case at the school.

We quote from the publication - Building Science and Radiofrequency Radiation titled "What makes Smart and Healthy Buildings".

"The goal is to achieve RFR exposures that are ALARA, As Low As Reasonably Achievable."

This is the pragmatic approach by realists as was the purpose of the survey.

This should have been patently obvious.

With all due respect, if the rest of the world use similar systems as **the school**, if they are in line with legislation, and in line with the ALARA principle (**which is not at all applicable to children**), do not say a single word about whether the current electromagnetic field/signal exposure situation at the school is safe for children and adults, or not.

Table 3 of the Europaem Document, as per our report, indicates exposure limits exposure for children who are included in its "sensitive populations" column. The advice in Table 3 is a target at which to aim for but very difficult to achieve in reality.

Table 3 of the Europaem 2016 document was included to point out that Wi-Fi is the most biologically aggressive of all the pulse modulated communications radiation.

It should not, in our opinion, require only a technical mind to understand the different technologies listed. Even the untrained eye can see that certain technologies present a different health risk level than others according to the authors of the publication.

For those who are so opposed to the ALARA Principle, consider the alternative - ignoring the ALARA Principle. What would the result have been in this case? The school would not have been any the wiser without a meter to keep an eye on their RFR environment. The school would not have been able to turn the Wi-Fi systems down to minimum connectivity levels. So in real life one has to decide, depending on the circumstances of each individual case, and the practicalities, how to obtain the lowest RFR levels.

It is stated in the (school's Newsletter) that "*The networks, as can be seen from the report, are totally compliant with all legislation and so do not seem to pose any greater risk to our children than that they are exposed to on an everyday basis in their homes or when outside.*" This statement misses the obvious, namely that the exposures in their homes, in their family cars, and when outside, from all types of

wearable wireless gadgets and their infrastructure installations, are equally dangerous as those in the school, and very well may accumulate over time as has been shown for DNA damages.

We fully agree, for every accusative finger pointing forwards there are always three pointing back! Our Policy is "First get your own home in order" and we ask: "how many people in receipt of and in agreement with your critical remarks have actually put their own homes and places of work in order?"

The school survey was a special case and certainly not the way we normally conduct our surveys. This is well known by all our clients and those who felt the need to comment on our report. Our normal practice, and which we would have preferred, would have been to do a **full survey** by including all other types of radiation to which the children are most likely exposed, for example low frequency electric and magnetic fields generated by sources such as power & lighting circuits and electrical appliances and the overall light environment as recommended by the Europaem 2016 (and one of the subjects of James Lech's research). We would have, in addition, investigated High Frequency Voltage Transients, as well as the incoming radiation into the different classrooms.

Again, the school only requested the measurement of the Wi-Fi in certain classrooms.

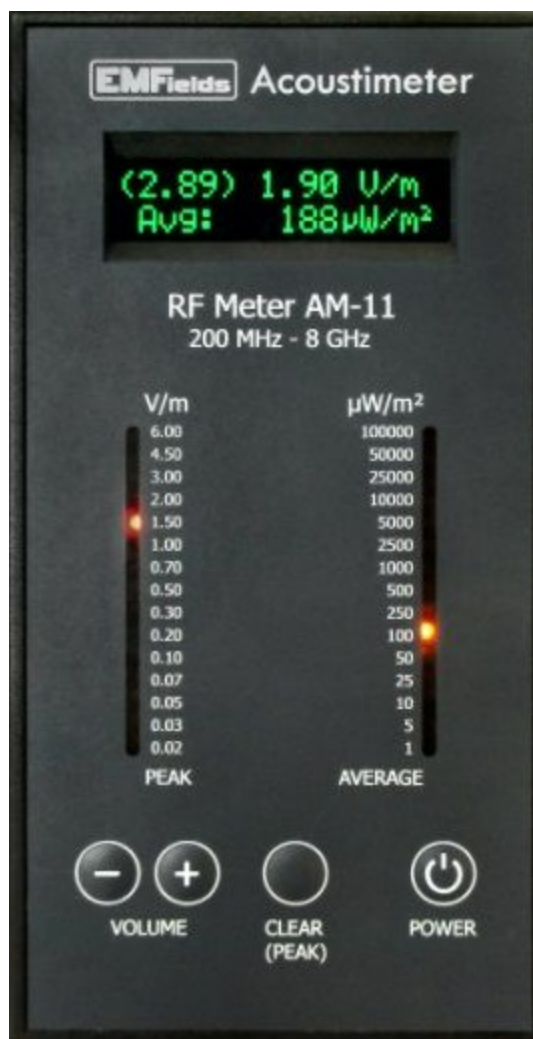
Finally, it is said that "*We have not only acquired a device that will help us measure any emissions as part of a set protocol in future but also trained two of our staff to use the device to ensure that we do not compromise the safety of our boys in any way.*" To monitor technical readings from a technical system do not, in any way, reveal any information regarding biological or health risks.

Your remark about monitoring is in contradiction to the Europaem Document and the Bioinitiative Report.

For the latter, 'slightly' more sophisticated set-ups and reflections, as well as another type of staff, must be applied and hired, respectively.

In our report, in the last paragraph, we discuss the way forward. This would have covered all your concerns and would not have cost the earth. You seem to completely ignore that last paragraph which is a great pity as the school, parents and children would have benefitted so much.

Let's get technical



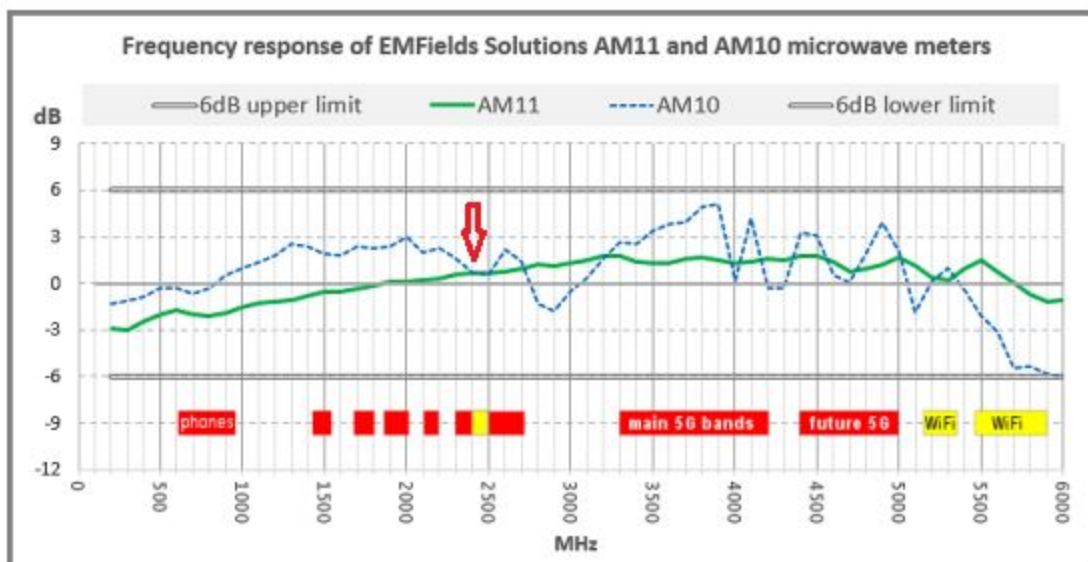
The school has, in our opinion, purchased the best and most suitable meter with an accuracy of only +/- one dB at the Wi-Fi frequency of 2.4 GHz.

Compare this with the information below from the operating manual of a spectrum analyzer.

This column presents a weighted average of all possible frequencies between 900MHz and 2.4GHz, still giving you an accuracy of approximately +/-4dB. That is still significantly better than the inherent inaccuracy of various rudimentary instruments for field strength measurement available from third parties.

While other meters of its type likely cannot come close to the accuracy of the AM11 meter it compares very favourably with the above spectrum analyzer specifications.

Furthermore, it is unlikely that more sophisticated measuring instruments would have altered the core message of the report in any way.



For more information about the Acoustimeter AM11, please see our December 2020 Newsletter <https://mailchi.mp/f16ab9c2b832/emf-news-introducing-the-am11>

In our opinion, having this meter at their disposal is infinitely better for the school than not having the meter at all. It should be a necessary purchase for all schools, offices and workplaces.

In summary, the entire (School) Newsletter is what we in Sweden would call "blå dunster" (Eng. "(pull the) wool over somebody's eyes"), and must be met with the strongest criticism. To try to sell 'snake oil' to concerned parents instead of protecting their children full time, is not a moral-ethical stance of an informed democracy. To conclude that any parent with a child in this particular school must sense a complete disappointment is a classical English understatement.

If Principal ... finds scientific reasons to counter my arguments, I warmly welcome them.

The school did exactly the same as those who wrote their opinions on our report, by cherry picking and selecting to achieve an objective.

Scientific high ground and pragmatic solutions are rarely a match.

The school, its public statements and newsletter will be addressed in our concluding remarks which will also contain radiation safety measures for parents that none of those commenting, including yourself, thought to mention.

For the actual report, it is just a technical measurement of the physical parameters attached to a wireless environment.

Exactly! That was all it was meant to be but with added vital information and recommendations that you have missed or not seen fit to address.

As we have explained, we reported as requested and what we were directed and allowed to measure by the school management. Our report was not intended to be a final comment but was to be part of what we expected to be an ongoing process. This process was cut short by the reaction and aftermath to which you are a party and to which we have been obliged to reluctantly issue a fact based response.

By using a more standardized set-up and employing spectrum analysis, stratified measurements, and monitoring over longer time, a lot more detailed descriptions could have been made, but it would still not produce the answer to the simple question "Are all these fields and signals safe for my child?". Society needs answers and solutions from scientists, not just more questions. Hence the recommendations in the final paragraph of our report.

(It is a little bit like weighing a gun, looking at its colours, its length, and more, and not realizing that the danger lies in the impact velocity of a "bullet", and those cartridges are still left in their cardboard box, in a locked drawer, and not even brought into the equation - what terrible conclusions one then could arrive at!)

A more sophisticated and extremely expensive and time consuming monitoring method of evaluation would have reached a similar general conclusion.

We always keep in mind that a high percentage of our customers do not have a technical or scientific background.

However, we appreciate your gun analogy as it can also be applied to non-ionizing radiation survey critics. People who do not understand how it works but think they do are most likely to shoot themselves in the foot.

As very importantly pointed out by Mrs. Cecelia Doucette, Director at the Massachusetts for Safe Technology, it is crucial that the school monitors and employ both the peak and the average values, and that they use the former to compare and correlate with the current scientific observations as summarized in the [Biointiative Report Color Charts](#). I suggest that all the parents atschool get access to it, and that they decide in unison what kind of exposures, effects, and risks they want to subject their children to, as well as the school staff, and themselves, to.

We in turn suggest that as far as your criticism of our method of measuring is concerned, we offer you the following advice from Alasdair Philips of Powerwatch UK, the designer and manufacturer of the instrument we used to measure, the EMFields Acoustimeter, which takes into account the peak measurements when computing the average.

Alasdair Philips explains-

Peak and Average Measurements.

From the EMFields instructions for the AM11 meter purchased by the school.

"The Average reading is a true mathematical time-averaged rolling average of thousands of samples, updated 3 times each second. This gives the correct reading for DECT and WiFi and is much lower (DECT average power is about 0.01 of the DECT pulse power) than many other instruments which use the highest peak reading and then translate that into an equivalent average power.

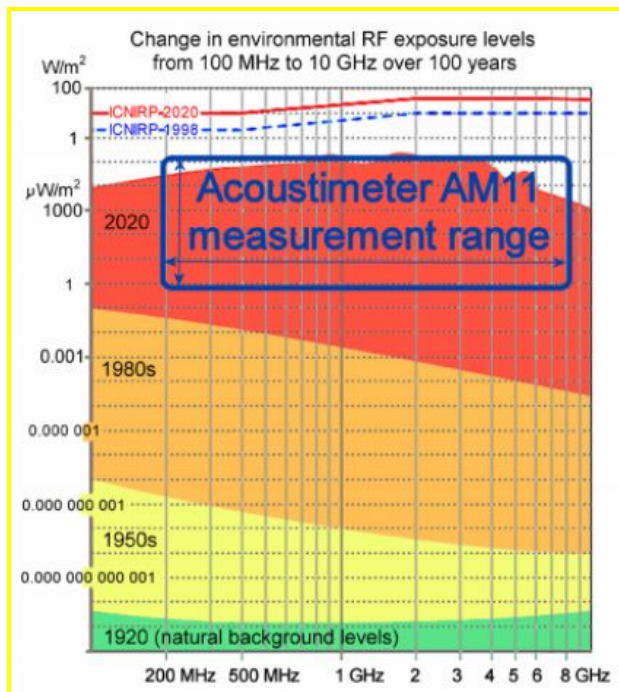
That is not correct as power is measured as total energy used/delivered per second and not the energy in a short pulse of say 10 milliseconds followed by a 990 ms gap. It is important that we understand this as most international standards are based on true average power (actually usually averaged over 6 minutes!)"

We differ with you on that matter as we did with you several years ago during our email conversation about the merits or otherwise of the ALARA Principle v the Precautionary Principle. You may recall your comment which ended the discussion: ***"I can see why you would apply the ALARA Principle".***

It is in fact the pragmatic realistic approach rather than the idealistic as is clearly illustrated by the graph below.

The graph shows that for the whole industrialized world to comply with **your opinion** of safe levels, we would need to **wind the clock back 100 years.**

As you can see from the graph, much has changed over this period, there is virtually no escape.



This chart is **easy to understand for first time readers** of such technically based discussions. It clearly indicates that the average radiation levels within the most common frequencies in use today [200MHz - 8GHz] are extremely high, in fact the 2020 average environmental exposure of 1000 microwatts per metre squared is higher than readings taken in the school even when the Wi-Fi is on. Regulatory bodies have in fact recently increased the recommended limits [see ICNIRP 2020 at the top of the graph.

The image below more than proves the information in the graph. Even just stepping outside your home in this particular suburb subjects one to ten times the 2020 average shown on the graph, and is

considered by many as extremely dangerous for children and adults alike, yet primary school children pass under this tower to get into the school in the background that is dominated by the tower.



The average radiation level shown on the meter above is +- 10 000 μW/m²

In the report, WiFi is indicated to be the most aggressive biologically, so it must also be taken into considering.

You are contradicting your own earlier comment ***“ nothing was said about safety.”***

Luckily enough, all of the wireless information can be sent via shielded fibre, preferably fibre optics, the latter actually being faster, safer from a data security point of view, and with a better technical deliverance quality, and far less maintenance issues at hand. (Just remember that wired is not the same as EMF-free. You need to measure each installation, each gadget, each cable, if needed - shield them, and check again, measure, perhaps shield more, check again, and so forth. A much quicker way is to do as we used to: remove everything, make the children turn towards the black-board, and listen to the teacher.)

Unfortunately we do not live in a perfect world. It is unlikely that any of our critics have been on site so comments such as this are in our opinion superfluous padding.

I am very impressed, finally, that the School went to this length to at least monitor the technical exposures, [as advised by EMFSA] and I believe the school can make a huge bench-mark by proving a shielded, hard-wired situation, and from there go even further by demanding removal of all ambient fields and signals from surrounding base stations/cell towers/small cells applications. (Always remember that the information content delivered through a cable is identical to the one delivered through air, so no pedagogic loss.) The school could then become a haven, as famous as the Bible's, breaking completely unforeseen and new ground, all for the benefit of your children and their future. The rings on the water of such an action plan would swell against the mental shores of every country, including up far North in Sweden at the Polar Circle.

Prof Olle, you are in effect unconsciously repeating our offer in the very last paragraph of our report which has been ignored in all responses, especially yours. You may recall that we recently conducted a three way Zoom meeting with yourself and our colleague James Lech in which we discussed his latest research.

In that final paragraph we advise the school to consult with us and him **in further reducing the EMF exposure** and, amongst other recommendations, improving the **light** environment.

The final paragraph of the Report

“Broader issues regarding the electro-magnetic radiation spectrum”

We recommend that the school further consults with us and our associate Mr James Lech in order to provide solutions to address the general EMF and light environment to improve the well being of the students in accordance with the latest and ongoing research which Mr Lech is conducting in Holland supported by the Dutch and South African Governments. We suggest an initial webinar consultation with Mr Lech, details on request”.

Mr Lech is a doctoral candidate, multidisciplinary researcher, first author of a South African government commissioned study on the topic, and recipient of numerous international and local awards.

Q. How would this proposal have benefitted the staff, learners and parents?

A better overall understanding of the EMF issue, healthier lifestyles, improved academic and sport performance, plus inclusion in a proposed Netflix series. (The series is an add-on value to a research agreement with various countries). The series will be filming the implementation of this agreement in the interest of scientific communications and development of policy and legislation.

However, it is now unlikely that the school management and the parents / children will be able to avail themselves of the opportunities offered in that final paragraph, which for some reason **all** critical commentators have ignored?

I strongly urge everyone to once again read my previous detailed letter, sent to Bishops School on October 6, 2020. **In essence, my core suggestion is - if the children's health is a genuine consideration - to always turn to wired and shielded installations. Better be safe than sorry.**

Unfortunately from our experience, one has to be very patient and understanding when dealing with schools. Most schools prefer to deal with the EMF issue in their own way and are adverse to a “bull in a china shop approach”. Once a confrontational situation arises, a point of no return is a risk. It is really a pity that this happened in this case as we were proposing an ongoing process.

We offered for the school and the concerned parent to arrange a webinar, for the parents and staff, free of charge, to discuss EMF environments in schools. This was ignored. Again, a pity as a great opportunity was missed.

It has been an honour to advise you on this most important matter and to read these two documents, the Newsletter and the EMF SA report, and if I can be of any more service to you, dear Mrs... and to the school, do not hesitate to call on me again.

Yours sincerely

Olle Johansson, professor, retired from the Karolinska Institute, and the Royal Institute of Technology, both in Stockholm, Sweden

In conclusion.

We believe that much of your letter may have been written differently had you done EMFSA the professional courtesy of a discussion before putting fingers to keyboard. We could have given you some guidance as to the reality of the situation rather than you making educated guesses / misinterpretations based on information from 3rd parties.

In our opinion:

Having received the report headed up by a confidentiality clause, you failed to:

- Contact us to discuss the (by then) very public survey content.
- Recognise the importance of Table 3 of the Europaem 2016 as a differentiator of radiation types.
- Recognise the “elephant in the room” The pragmatic solution!
- Recognise the importance of what was intended as part of an ongoing process as is obvious by the final paragraph of the report.
- Offer any constructive advice or any specific practical solution as to the specific detail of the school involved.
- Raise other important radiation issues parents need to know which are applicable to the situation and which we will deal with later in our summing up.

Your involvement in this matter was in our opinion unnecessary and added to the already divisive situation. You were obviously not informed that both the school and concerned parents had the opportunity to settle their differences as recommended by EMFSA, but for reasons known only to themselves, neither acted upon it.

You were included in an email to over 200 people where the author made negative comments about EMFSA. In our opinion, you had the opportunity to put the record straight and to refer to our long time cordial relationship. You did not, your silence speaks for itself.

Nevertheless, you do not have to be concerned. We will not remove the post that we created for you in order to raise funds for your research [which has been on our website for over a year]. We are including the link in case anyone reading this would like to contribute.

<https://www.emfsa.co.za/news/fundraiser-to-support-associate-professor-olle-johanssons-ongoing-research/>

Respectfully Yours,

Dave & Wilma Miles, EMFSA

Next up - Cecilia Doucette.



“For the Safer Use of Technology”

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