SUPERIOR COURT

(Class Action Division)

CANADA
PROVINCE OF QUEBEC
DISTRICT OF MONTREAL

N° : 500-06-000760-153

DATE : June 26, 2018

PRESIDING: THE HONOURABLE GARY D.D. MORRISON, J.S.C.

MARCEL DURAND
EVELYN MAHON
MYLES MAHON

Applicants

v.

ATTORNEY GENERAL OF QUEBEC
ATTORNEY GENERAL OF CANADA
ROYAL SOCIETY OF CANADA
AIR CANADA
THE CITY OF SAINTE-ANNE-DES-LACS
SOCIÉTÉ DE TRANSPORT DE MONTRÉAL
HYDRO-QUÉBEC
COMMUNICATIONS MEGA-STAT INC. (ROGERS)
BCE INC. (BELL)
VIDEOTRON
TELUS
VIRGIN MOBILE CANADA
KOODO
FIDO SOLUTIONS INC.
SILICON LABORATORIES CANADA INC.
GENERAL ELECTRIC CANADA
SONY OF CANADA LTD.

JM2455

SONY CORP.
SIEMENS CANADA LTD.
TESLA MOTORS CANADA U.L.C.
GENERAL MOTORS OF CANADA COMPANY
FCA CANADA INC.
VOLKSWAGEN CANADA
APPLE CANADA INC.
IBM CANADA LTD.
TOSHIBA INTERNATIONAL CORPORATION
XEROX CANADA INC.
PANASONIC CANADA
ESIT CANADA ENTERPRISE SERVICES CO.
CISCO SYSTEMS
TEXAS INSTRUMENTS CANADA
HITACHI DATA SYSTEMS INC.
LENOVO (CANADA) INC.
LG ELECTRONICS CANADA INC.
ERICSSON CANADA INC.
PHILIPS ELECTRONICS LTD.
SAMSUNG ELECTRONICS CANADA
MICROSOFT CANADA
FACEBOOK CANADA LTD.
ARRIS CANADA
WHIRLPOOL CANADA LP
LEDVANCE LTD.
LUXURY HOTELS INTERNATIONAL OF CANADA, ULC
THE TDL GROUP CORP.
GOOGLE CANADA CORPORATION

Respondents

JUDGMENT
(Applicants' Demand Seeking Authorization)

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[1] Applicants seek authorization to institute a class action on behalf of persons, flora, fauna, pets and animals relating to electromagnetic field ("EMF") pollution, which Respondents[1] oppose.

1- CONTEXT

[2] Applicant Marcel Durand ("Durand") first filed his application for authorization in September 2015. The initial proceeding was 12 pages in length.

[3] The most recent version of the Application is a Re-Re-Re-Re-Amended version dated November 23, 2017, which is 62 pages in length, and names 40 Respondents. The number of exhibits filed exceeds 100, a great many of which are technical and scientific in nature.

[4] Through case management, and to avoid a "moving target", the Court crystallized the Application to be used for the authorization Hearing, being the one dated November 23rd, 2017 (the "Application").

[5] However, during the authorization Hearing, conducted over an unusually lengthy duration of four (4) days, the Applicants presented another two separate demands to re-amend for a 5th time their proceeding and to file additional exhibits, primarily additional technical studies and reports. The first such proposed amendment would have modified a minimum of 50 paragraphs and would have lengthened the Application by fifty percent (50%), for a total of 94 pages. The Court refused such amendments as well as the filing of 22 additional exhibits, as appears from the court record. The second demand repeated elements refused in the first. That demand was also refused.

[6] That said, the Court did accept an oral demand to modify the description of the class[2]. That recently amended version will be analysed in the present judgment.

[7] Before even addressing the four criteria stipulated in Article 575 C.C.P., it is important to revisit the procedural requirements set forth in Article 574 C.C.P.

2- THE AUTHORIZATION PROCESS

[8] Article 574 C.C.P. reads as follows:

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1 Certain Respondents have been named in the proceeding but have not filed a Response: Royal Society of Canada, Silicon Laboratories Canada Inc., Sony Corp., Tesla Motors Canada U.L.C., Samsung Electronics Canada, Facebook Canada Ltd., Arris Canada and The TDL Group Corp.

2 Being the written version submitted on May 9, 2018, at 14h50, as opposed to a prior version submitted at 14h10.

Prior authorization of the court is required for a person to institute a class action.

The application for authorization must state the facts on which it is based and the nature of the class action, and describe the class on whose behalf the person intends to act. It must be served on the person against whom the person intends to institute the class action, with at least 30 days' notice of the presentation date.

An application for authorization may only be contested orally, and the court may allow relevant evidence to be submitted.

Une personne ne peut exercer l'action collective qu'avec l'autorisation préalable du tribunal.

La demande d'autorisation indique les faits qui y donnent ouverture et la nature de l'action et décrit le groupe pour le compte duquel la personne entend agir. Elle est signifiée, avec un avis d'au moins 30 jours de la date de sa présentation, à celui contre qui elle entend exercer l'action collective.

La demande d'autorisation ne peut être contestée qu'oralement et le tribunal peut permettre la présentation d'une preuve appropriée.

[9] That Article reminds us of a number of critical components of the authorization process.

[10] Firstly, the application must state the "facts" on which it is based. Such facts are essential to the authorization criteria at Article 575 (2), given that they must appear to justify the conclusions sought.

[11] Secondly, the application must state the nature of the class action. The Court will address that issue momentarily. Suffice it to say that the nature of the proposed class action is critical to the criteria which the Court must apply.

[12] Thirdly, the application must describe the class. Understandably, if you do not have an identifiable class, you cannot really have a class action. People must be able to understand whether or not they qualify as a class member. That too will be analyzed separately.

[13] Fourthly, it must be served within a 30-day delay prior to presentation on the person against whom the class action would be instituted. In the present matter, service has been an issue for the Applicants.

[14] Fifthly, an application may only be contested orally by the Respondents.

[15] Sixthly, it takes the Court's authorization to allow relevant evidence to be submitted. This issue has been the subject of case law as to whether such authorization is required for applicants as well as respondents, or only for the latter. In the present matter, there ended up being very little debate between the parties as to the

production of evidence notwithstanding the rather large quantity of exhibits filed, and their nature.

[16] Ultimately, the control of proof and the limitation to oral contestation are intended to avoid lengthy debate during the authorization phase, such a debate being more appropriate at the merits stage. By limiting such debate, not only is the result intended to be more in keeping with the filtering process envisaged at this stage, but it is also intended to promote a more rapid treatment of the authorization; that is the theoretical objective. Unfortunately, rapidity has not generally been the hallmark of the authorization phase, although serious attempts have been and continue to be taken in that regard. In the present matter, more than two and one-half years passed between the filing of the initial application and the authorization Hearing. Nothing rapid about that. The Court would add that this delay is not really attributable to the Respondents.

(i) The Nature of the Proposed Class Action as described by Applicants

[17] At paragraph 8 of the Application[3], the nature of the proposed recourse is described as an "*action in damages and an injunction against Respondents* (...)".

[18] In the conclusions of the Application[4], what is sought as a class action is described somewhat differently:

> *An action in damages and injunctive relief against the Respondents Attorney General of Quebec and the other Respondents seeking damages for the cumulative effect of EMF pollution to Quebecers;*

[19] Although this description of the nature of the proposed class action appears to only envisage Quebecers, the class definition is not actually as restrictive. This will be addressed later herein.

[20] In order to fully appreciate the nature of the proposed action, a reading of the 18 pages of proposed common questions[5] can be insightful. So too the conclusions sought.

[21] The actual conclusions sought are actually different at page 38 of the Application than they are at page 60. With a view to being more complete, the Court will refer to the former.

[22] Insofar as the payment of damages is concerned, Applicants seek collective recovery of the following:

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3 Page 37.
4 Page 42, top paragraph.
5 Pages 42 to 60.

- $100,000 in damages per person on average, adjusted per each sub-class[6];
- $13,000 per person for "*moral, exemplary and Charter damages*", also adjusted per sub-class;
- $175,000, on average, in "*moral, exemplary and Charter damages*", for "*all farmers whose livestock are exposed*" to certain levels of stray voltage "*from the ground*";
- Hydro-Quebec to "*immediately*" pay the Applicants Myles and Evelyn Mahon the sum of $43,797.26 and "*to cover the other expenses of* (sic) *the Mahons have incurred and as set out herein*", and Bell Canada to "*immediately*" pay them $664.90.

[23] It is important to note that the condemnation they seek against all eventual defendants is "*jointly and severally solidarily and in solidum*", and this for cumulative effects.

[24] As for the injunctive relief sought, those are as follows:

- Order the proposed Defendants to cease producing, emitting or distributing, or otherwise exposing class members to EMF that cumulatively exceeds the limits proposed by the Applicants, which they call the "Threshold Exposure Standard" or the "European Standard" ("Applicants' Threshold")[7];
- Order immediately that the recommendations of the Canadian House of Commons Standing Committee[8] be implemented;
- Order the Governments of Quebec and Canada, Sainte-Anne-des-Lacs and other Quebec Municipal governments[9] to adopt the Applicants' Threshold EMF levels;
- Order that the precautionary principle be applied to the legislation, regulation, monitoring, abatement and remediation of cumulative EMF pollution in Quebec;
- Order immediately the production by all proposed Defendants of, amongst other things, data and studies relating to EMF levels that could be useful in the calculation of EMF exposure for humans, flora and fauna, and absent previously available data, to collect and produce such data;

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6 No sub-classes have been suggested by Applicants or debated by the parties at this stage.

7 During a Hearing held November 2, 2017, Applicants admitted that the expression « European Standard » did not signify that it was a standard applicable throughout Europe but rather that it was simply their way of describing their own proposed threshold.

8 Exhibit R-26.

9 It should be noted that apart from Sainte-Anne-des-Lacs, no other municipalities are named respondents.

- Order immediately the proposed Defendants to "*pay for, put in place, operate and provide weekly reporting to the public of medical monitoring facilities where meaningful data is collected on the effects of EMF on humans and fauna and flora and farm animals that have been negatively impacted by the EMF pollution alleged herein*";

- Order proposed Defendants to remediate the environment where fauna and flora have been negatively impacted by EMF pollution so that they return in the same number and same location as they were prior to EMF pollution.

[25] In addition, Applicants seek a declaration by the Court that the Respondents, including the governments, have contravened certain provisions of the *Environment Quality Act*[10] (the "EQA") and the *Charter of Human Rights and Freedoms*[11] (the "Charter").

[26] It is also useful to take into account a number of the eighteen pages of alleged common questions in order to further comprehend the actual nature of the proposed class action.

[27] For example, in keeping with their oral argument, Applicants look to establish that the Quebec and federal governments are "*imbedded*" with industry and have been intentionally covering up and hiding information from the public using false science to do so, while wilfully and intentionally causing prejudice to the Quebec population, its flora and fauna, children, pregnant women and the EMF hypersensitive.[12]

[28] Moreover, Applicants raise the question as to whether Quebecers have the right "*to opt out of the « smart meter »*", and if the use of such meters can be imposed, what damages they are owed for having to accept same.[13]

[29] In the Court's view, the true nature of the proceeding goes far beyond the Applicants' short description. The Court will address that at length later in the present judgment.

(ii) The Class Description

[30] Having authorized the modification of the class description during the authorization Hearing, the Court will only focus on that version and not on the various versions that existed previously.

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10 CQLR, c. Q-2.
11 CQLR, c. C-12.
12 Paragraph 5, DD (i) to (iv).
13 Paragraph 5, OO and PP.

[31] The current class definition forming part[14] of paragraphs 1 and 5 SS, as well as the conclusion at page 42 of the Application, should now read as follows:

> *Petitioners Marcel Durand, Evelyn and Myles Mahon wish to institute a class action on behalf of the natural persons forming part of the class hereinafter described, of which the Petitioners are members:*
>
> *All persons who reside, work, study in any part of the Province of Quebec, as well as flora, fauna, pets and animals who are or have been exposed cumulatively in places of residence, work, or study to excessive levels of EMF such as from:*
>
> 1. *living, studying or working within 500m of a significant emission source which includes cellular base stations (towers), High tension power transmission lines (greater than 300 kV or substations and significant transformation/distribution infrastructures);*
>
> 2. *living, studying or working within buildings immediately adjacent (sharing a floor, a wall, or a ceiling) to uncontrolled sources of EMF (such as WiFi or smart meters);*
>
> 3. *living, studying or working within 50m of Metro or electric rail infrastructures (transformers, substations, electrified rails or power conduits for rolling stock);*
>
> 4. *ongoing exposure to carried or purchased anthropogenic, non-ionizing EMF emitting consumer products that are unfit for use, have latent defects or lack necessary warnings or instructions for safe use; or*
>
> 5. *exposure to other significant cumulative sources of anthropogenic microwave or radio emissions from any one or any combination of the listed electromagnetic field (EMF) sources which can be meaningfully assessed (via a relevant methodology) to exceed Petitioners' proposed Threshold Standard.*
>
> *Wherein the above-listed emissions create a risk likely to adversely affect life, health, safety, welfare or comfort of humans or likely to cause damage to flora and fauna. This includes Quebecers who suffer moral, physical, psychological and/or genetic damages as a result said EMF pollution. The approximately 3% of Quebecers who suffered symptoms of Electrohypersensitivity (including Neurological, Cardiac, Respiratory, Dermatological and Ophthalmological symptoms) as per Exhibit R-23, p 62. Or in the case of non-hypersensitive individuals, those who suffer acute or chronic illnesses including genetic disorders, Cancers, reproductive dysfunction, Cardiac disease, and psychological illness (Including addictiveness).*

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[14] The remaining portions of paragraph 1 remain intact, including the Applicants' threshold charts and additional allegations pertaining to « *cumulative effects* » and « *electromagnetic hash* ».

Declared Threshold Exposure Standard for General Population in Uncontrolled Environments				
Radiation Type	Band	Threshold Value	Units	
Power Density	Radio Frequency 3 kHz – 300 GHz	0.1	$\mu W/cm^2$	microWatts per square centimeter
Magnetic Field	Low Frequency 3 Hz – 30 kHz	1	mG	milliGauss
Electric Field	Low Frequency 3 Hz – 30 kHz	0.6	V/m	Volts per meter

References: Council of Europe Resolution 1815; 2007 Bioinitiative Report

Declared Threshold Exposure Standard for Sensitive Individuals* or Sleeping Environments				
Radiation Type	Band	Threshold Value	Units	
Power Density	Radio Frequency 3 kHz – 300 GHz	0.01	$\mu W/cm^2$	microWatts per square centimeter
Magnetic Field	Low Frequency 3 Hz – 30 kHz	0.3	mG	milliGauss
Electric Field	Low Frequency 3 Hz – 30 kHz	0.2	V/m	Volts per meter

References: Council of Europe Resolution 1815; 2007 Bioinitiative Report

**Sensitive Individuals include EHS, young children and pregnant women*

The term "cumulative effects" is meant in the largest sense of the word, including exposures over time as well as exposures from multiple and varied EMF sources. It refers to the entire gamut of damages caused by EMF and its raison d'être.

Electromagnetic hash (persistent, ubiquitous and significant EMF) represents a significant concern throughout Québec, including remotely-populated zones. Anthropogenic EMF is measurable throughout Quebec attributable to technologies and infrastructures ranging from the low frequency power distribution grid through to high frequency mobile telecommunications networks. Not isolated systems, EMF from one system may couple onto an adjacent network compounding health effects, particularly for

> *electro-sensitive individuals. Systems producing EMF include power distribution lines (residential 240V through to 735 kV transmission lines), wirelessly networked computer systems in industry, institutions and business including public spaces like shopping centres; ubiquitous smart meters with highly pulsed microwave transmissions; widespread communication networks (WiFi, NAN, WAN) including dedicated emergency and security service digital communications networks; transportation support communications (civil and military radar, maritime installations, air traffic infrastructure, etc.); and kilohertz-ballast-excited lighting fixtures.*

"Who" is included in the class?

[32] Firstly, the putative class purports to include all persons, including minors, who "*reside, work, study*" in Quebec.

[33] It is not clear what time factor is involved. Would the class include only those who are working or studying in Quebec at the moment of authorization, or would it carry forward to the time of judgment on the merits. What happens if they cease to work or study after authorization but before a judgment on the merits? No clarifications have been provided.

[34] It is also not clear how long someone has to work or study in Quebec. Is one day enough?...one week?...one month? If someone attends a course for three days, do they qualify?

[35] These are questions that putative class members might need to ask in order to know whether they are members and whether they wish to remain as such.

[36] The questions in this regard become even more complicated given that it is a "cumulative effect" law suit that is envisaged. For example, if a person were to work in Quebec for six months and was to be considered a class member, would his claim be limited to only cumulative effects that may have taken place in Quebec during those months? What of the cumulative effects to which he was exposed for the duration of his life?

[37] The Court specifically asked Applicants' counsel for clarifications regarding these issues. After a few attempts to clarify, counsel then advised that Applicants would simply leave the wording as is. That response provides little comfort to the Court as to the seriousness of the effort.

[38] That said, clearly the intent of adding "*work, study*" in addition to being a resident is not intended to limit the putative class to only Quebecers. Obviously the objective is to include non-Quebecers. This was confirmed orally during the Hearing.

[39] Yet, in the same definition, when addressing the issue of damages, there are two references to Quebecers which seem to exclude non-Quebecers. This uncertainty is reinforced in various other references in the Application, including at paragraph 13 C. where it alleges the following:

> *Petitioners as well as the members of the class which they represent, all reside in the Province of Quebec.*

[40] As well, and as mentioned above, even the nature of the claim as described in the first paragraph at page 42 of the Application refers to the object of the proposed recourse as being in relation to "EMF pollution to Quebecers".

[41] Such obvious confusion is certainly not helpful. Once against, it will be difficult for people to know if they are members. And there is more.

[42] The Applicants also seek to include "*flora, fauna, pets and animals*" as actual class members. In response to a question from the Court, Applicants confirmed that this is indeed the objective although no case law supports their pretention.

[43] To start with, this extremely broad conceptual description of class membership is contradictory to what is indicated in the paragraph immediately preceding the modified class definition, which states that the proposed class action is to be on behalf of "*natural persons*".

[44] In any event, Article 571 C.C.P. stipulates who can be class members. It reads as follows:

A class action is a procedural means enabling a person who is a member of a class of persons to sue, without a mandate, on behalf of all the members of the class and to represent the class.	*L'action collective est le moyen de procédure qui permet à une personne d'agir en demande, sans mandat, pour le compte de tous les membres d'un groupe dont elle fait partie et de le représenter.*
In addition to natural persons, legal persons established for a private interest, partnerships and associations or other groups not endowed with juridical personality may be members of the class.	*Outre une personne physique, une personne morale de droit privé, une société ou une association ou un autre groupement sans personnalité juridique peut être membre du groupe.*
A legal person established for a private interest, a partnership or an association or another group not endowed with juridical personality may, even without being a member of a class, ask to	*Une personne morale de droit privé, une société ou une association ou un autre groupement sans personnalité juridique peut, même sans être membre d'un groupe, demander à représenter celui-ci si l'administrateur, l'associé ou le*

> *represent the class if the director, partner or member designated by that entity is a member of the class on behalf of which the entity is seeking to institute a class action, and the designee's interest is related to the purposes for which the entity was constituted.*
>
> *membre désigné par cette entité est membre du groupe pour le compte duquel celle-ci entend exercer une action collective et si l'intérêt de la personne ainsi désignée est lié aux objets pour lesquels l'entité a été constituée.*

[45] Clearly natural persons, legal persons, partnerships and associations can be members. So too "other groups not endowed with judicial personality", as for example a club that is defined but unincorporated. But such "groups" do not, in the Court's view, include a group of flowers, trees, pets or animals. To the Court's knowledge, nothing supports Applicants' position in this regard.

[46] That is not to say that there exist no possible legal recourses pertaining to a healthy environment. As argued by Applicants, Article 46.1 of the Quebec Charter gives every person a right to live in a healthful environment in which biodiversity is preserved. That right belongs to persons, however, not to plants or animals.

[47] The *Sustainable Development Act*[15] also includes biodiversity as part of a healthy life in harmony with nature, but it too covers such right from the perspective of the quality of life for humans.

[48] Without either diminishing the importance of such legislation or attempting to define all recourses which may flow therefrom, in the Court's view that legislation does not grant status as class members to flora, fauna, pets or animals.

[49] Nor does Article 898.1 C.C.Q., which is argued by Applicants. That article stipulates as follows:

> *Animals are not things. They are sentient beings and have biological needs.*
>
> *In addition to the provisions of special Acts which protect animals, the provisions of this Code and of any other Act concerning property nonetheless apply to animals.*

[50] In other words, animals are not "things" but they can still be "property" and they can still be killed for commercial profit and transferred by successions. That is not indicative of being qualified to be a class member.

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[15] CQLR, c. D-8.1.1, art. 6.

[51] As well, it is worth stating that since Applicants plead that flora, fauna, pets and animals are class members, what is being proposed is not a claim by an individual in the name of such things. Accordingly, the Court need not determine an issue of standing in this regard as regards Applicants.

"What" is included?

[52] What qualifiers are envisaged by the class definition?

[53] Class members would be those who "*are or have been*", without any stated time factor, "*exposed cumulatively* (...) *to excessive levels of EMF*". [16]

[54] In other words, exposure must be to "*excessive levels*" of EMF, which can result from cumulative and varied sources over an undefined period of time. At page 7 of the Application, which is part of the class definition, a further definition is given for "*cumulative effects*", which:

> (...) *is meant in the largest sense of the word, including exposures over time as well as exposures from multiple and varied EMF sources. It refers to the entire gamut of damages caused by EMF and its raison d'être.*

[55] How would potential class members know if they are or have been exposed to such "*excessive levels of EMF*"? Frankly, in most cases, they would not.

[56] To start with, EMF pollution is not for the most part seen, heard[17], tasted or felt. It is not measurable without special equipment. The Court will address that issue later.

[57] The most recent class definition now offers some instances where a putative class member is alleged to be potentially exposed to excessive levels of EMF while resident, working or studying. Those physical places, of which there are three, are expressed as being located:

1. within 500 metres of a significant emission source which includes cellular base stations (towers) and high tension power transmission lines (greater than 300 kV or substations and significant transformation / distribution infrastructures);

2. within buildings immediately adjacent (sharing a floor, a wall, or a ceiling) to uncontrolled sources of EMF (such as WiFi or smart meters);

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[16] Even though not clearly stated in the class definition, Applicants argue that they are only referring to non-ionizing EMF. If the Court were to authorize the class action, that detail could be added to the class definition.

[17] Applicants the Mahons allege that a Hydro-Quebec transformer station close to their home gave rise to noise.

3. within 50 metres of Metro or electric rail infrastructures (transformers, substations, electrified rails or power conduits for rolling stock).

[58] But exposure is not limited to only those specific places. In addition to those three sources, there are two other sources included in the definition, not related to specific places and yet, just as relevant and important:

4. "*ongoing exposure to carried or purchased anthropogenic, non-ionizing EMF emitting consumer products that are unfit for use, have latent defects or lack necessary warnings or instructions for safe use; or*"

5. *"exposure to other significant cumulative sources of anthropogenic microwave or radio emissions from any one or any combination of the listed electromagnetic field (EMF) sources which can be meaningfully assessed (via a relevant methodology) to exceed Petitioners' proposed Threshold Standard*".

[59] What are the sources of EMF which are at the central core of the proposed class action? As regards sources 1, 2 and 3, at paragraph 1, page 7 of the Application, Applicants identify what they consider as some of the "*systems*" producing EMF:

> (...) *power distribution lines (residential 240V through to 735 kV transmission lines), wirelessly networked computer systems in industry, institutions and business including public spaces like shopping centres; ubiquitous smart meters with highly pulsed microwave transmissions; widespread communication networks (WiFi, NAN, WAN) including dedicated emergency and security service digital communications networks; transportation support communications (civil and military radar, maritime installations, air traffic infrastructure, etc.); and kilohertz-ballast-excited lighting fixtures.*

[60] Some of those systems may come within sources 1 to 3, whereas others would only be covered by either source 4 or 5.

[61] As regards source 4, one must keep in mind that what Applicants are really saying is that the consumer products can be functioning perfectly well but are nevertheless emitting EMF pollution. The user could be totally unaware of any functional problem. The terminology used with regard to source 4 is more akin to legal conclusions, which the Court could only determine on the merits. In this regard, the definition is circuitous.

[62] As for the type of alleged EMF emitting products which are envisaged in source 4, as well as partly in source 5, a list would be far too long to repeat here. The Court has prepared a list which is attached hereto as Annex "A", forming part of the present judgment. The products listed therein are some of those identified in the Application

and certain exhibits. Reading the list will be of assistance in understanding the broad type of products envisaged by the proposed class action.

[63] As further regards source 5, the Court considers that very few class members have any hope of understanding what it means and how it would apply to them. Nor was it explained at the authorization Hearing.

[64] What the Court understands from the wording in source 5 is that the cumulative effects of EMF pollution, whether from one of the sources or from a combination of sources, can be measured and assessed by using the Applicants' own methodology, developed by their experts[18], and further that the "*excessive levels*" of EMF can be identified by using the Applicants' Threshold. That Threshold is stated in the tables forming part of paragraph 1 of the Application. It forms part of the class definition.

[65] And whether or not the tables actually form part of the class definition, the stipulated criteria of exposure to "*excessive levels*" of EMF would require the Court to determine that the Applicants' Threshold levels apply and not the existing levels adopted or recognized in Quebec, Canada and almost everywhere else in the world. A final judgment would need decide what levels constitute excessive exposure.

[66] Plus, all the putative members, and their personal environments, would need be analyzed to determine their class membership, using a methodology developed by Applicants' experts, which the Court has not and cannot approve at this stage.

[67] In that sense, the definition of the class is for the most part circuitous.

[68] In other words, how does the average putative class member know whether he or she qualifies as a member without having had an assessment through a "*relevant methodology*", the results of which are then to be compared to a variety of values proposed by Applicants and which vary depending on whether you are in uncontrolled environments, in sleeping environments or are a child, a pregnant woman or electromagnetic sensitive person? If as a result of that process one's personal cumulative exposure exceeds Applicants' Threshold values, one might be qualified as a member of the class because of "*excessive exposure*" according to Applicants, but that could not ultimately be known or determined until the final judgment.

[69] What is that methodology? In order to understand the Applicants' proposed methodology, and its impact on the proposed class action proceeding, a summary thereof would be useful, even at the authorization phase, since the public would need to know if they are class members.

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[18] Exhibit R-18.

[70] The proposed methodology appears to have been created by Applicants' experts at Full Spectrum Methods.[19] For each person, their objective is to create an exposure profile. This involves assessing each individual's duration of occupancy in their private home/apartment, differentiating between sleeping areas and waking areas, in private vehicles, in occupational space, whether work or study, and in public space. In all these places, measurements of controlled and uncontrolled sources would need be made.

[71] Their methodology provides four potential methods of assessment for each site. Those include a detailed on-site survey, a private virtual survey based on computational methods, a public virtual survey or, for areas like neighbourhoods, a statistical modeling approach.

[72] Such assessments would supposedly provide a person's level of personal exposure to EMF.

[73] But in order to determine what level of EMF is being produced by a given product, so as to understand the various Respondents' contribution to a person's overall lifestyle exposure, it would apparently be necessary to conduct distinct exercises at a person's various exposure sites or by mapping and tabulation methods. With those readings in hand, various calculations and ratios would then need be made to attribute emission contributions to each source. An example of this approach can be seen in an assessment of the Mahons' property.[20]

[74] It is not clear that this methodology has ever been used before, but the Court need not decide at this stage whether the methodology is credible and should be applied.

[75] That said, the Court cannot ignore the complexity involved in order to conclude whether a person would actually qualify as a class member.

[76] The above methodology would provide exposure levels. But more would be required.

[77] Then those levels would need be compared to the appropriate acceptable levels, which itself would be a debate before the Court, the Applicants seeking to set aside existing levels and replace them with their own Threshold levels. That would be decided on the merits of the case. Only once that is decided, and not before, can one conclude whether a person's exposure levels exceed the acceptable standards and are accordingly "excessive".

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19 Exhibit R-18, p. 11 *et seq.*

20 Exhibit R-13 DD.

[78] All of this is in addition to establishing a causality between such levels and alleged damages, whether moral, comfort, physical, psychological or economic. More will be said as to causality later in the present judgment.

[79] One would imagine that some similar process would need be done in order to determine whether animals, pets, plants and flora are exposed to excessive EMF levels.

[80] And for the purposes of clarification, Applicants deny that all Quebecers would be class members. All the more reason therefore to focus on how difficult it would be for persons to know whether or not they qualify as a class member.

[81] Now, ask yourself the question: Would I qualify as a class member?

[82] It would be a rare person indeed who would be able to knowingly answer that question were the Court to authorize the proposed class action.

[83] An additional comment is warranted. One would be fully entitled to question whether such a complex analysis simply to determine class membership could ever be considered as respecting the rule of proportionality.

"Where" must the EMF exposure occur?

[84] The class definition states that the members are those who are or have been exposed cumulatively "*in places of residence, work, or study*". In other words, it is not enough to actually reside, work or study in Quebec, but EMF exposure must take place in such places. Transient exposure would not be included, such that exposure which takes place other than in such places would not be relevant, would not qualify someone as a class member and should not be considered for analysis purposes.

[85] The wording used for sources 1, 2 and 3, as described above, would appear to confirm the critical importance of being exposed at the residence where one lives or in places where one works or studies.

[86] Limiting class members to those exposed in only those locations was introduced for the first time at the authorization Hearing. Such a limit did not previously exist. This last minute limitation is somewhat surprising as Applicant Durand claims he suffered damages as a result of cumulative EMF exposure from sources which are not alleged to be related to his place of residence, work or study, such as in automobiles, restaurants and hotels providing WiFi access and the Montreal subway (STM Metro).

[87] Similarly, Applicants have named Air Canada as a proposed Defendant, principally for EMF emissions to which it exposes customers and passengers[21], which

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[21] Application, para. 5 U, page 23.

are also not alleged to occur at their place of residence, work or study. Perhaps certain Air Canada employees could be envisaged as class members, although they are not necessarily customers and passengers.

[88] The same could be said as regards many other Respondents, such as General Motors of Canada[22], Luxury Hotels International of Canada[23], Restaurant Brands International (3G Capital)[24], Starbucks[25], STM[26], the TDL Group Corp.[27] and Volkswagen Canada[28], with respect to which the putative members who reside, work or study in their locations or products would be much more limited and would not appear to include Applicants.

[89] Limiting the group as they recently have would also likely impact the qualification of the Applicants to act as designated representatives in relation to employees of companies when neither Applicant is a known employee of any of the proposed Respondents. In the Court's view, the foregoing is a serious, if not fatal, problem for Applicants; one of many.

"When" is the EMF exposure to occur or have occurred?

[90] As mentioned above, the class definition adds no insight as to when the exposure is to have occurred, or the damages for that matter. The definition is too vague in that regard.

[91] Although many of the EMF-emitting products mentioned in the proceeding only came into consumer markets relatively recently, others are certainly less so, as for example electricity. That said, however, almost all have been in existence for over three years.

[92] In that sense, a potential class member would not be obliged to take into account any temporal factors in determining his or her qualification as a member, which could seriously give rise to prescription issues. The Court does not consider it necessary to address further the matter of prescription given its other conclusions.

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22 *Ibid.*, page 26.
23 *Ibid.*, page 28.
24 *Ibid.*, page 30.
25 *Ibid.*, page 32.
26 *Ibid.*, page 32.
27 *Ibid.*, page 33.
28 *Ibid.*, page 33.

[93] **EMF exposure is said to "cause" what?**

[94] The class definition states that the emissions above Applicants' Threshold levels create a "*risk likely to adversely affect life, health, safety, welfare or comfort of humans*" or "*likely to cause damage to flora and fauna*".

[95] In other words, excessive EMF emissions would need not actually cause such adverse affects or damages. They would only need make the risk thereof likely. Oddly, the definition then states that "*This includes Quebecers who suffer moral, physical, psychological and/or genetic damages as a result said* (sic) *EMF pollution*". Accordingly, some members will only suffer moral damages, others physical and psychological, while still others genetic damage. That list of illnesses is presented as non-exclusive ("*including*").

[96] Such a wide range of possibilities would lead one to inquire as to whether every Quebecer is included in the class, which Applicants themselves deny. In that case, how would anyone be unable to understand whether they suffer any of the stated damages as a result of EMF exposure. This difficulty will be addressed herein later.

[97] And there is more.

[98] Applicants then attempt to insert into the class definition further elements pertaining to damages.

[99] Applicants limit to approximately 3% of Quebecers those who suffer "*symptoms of electrohypersensitivity*" as per Exhibit R-23, p. 62, which includes neurological, cardiac, respiratory, dermatological and ophthalmological symptoms.

[100] Firstly, in this regard, the definition of the class includes a reference to an exhibit, which would need be publicized to and understood by putative class members, which creates a risk of further confusion.

[101] Secondly, the alleged symptoms of "*electrohypersensitivity*", which itself is not defined, range from skin issues and tinnitus (alleged to be suffered by the Mahons) to cardiac and neurological illnesses. How would anyone know that their tinnitus, skin problems, heart disease or neurological illness results from exposure to EMF? Would a person with physical discomfort or with acne need decide whether or not to withdraw from the class action given the vagueness of the definition, relying solely on his or her discomfort or skin condition?

[102] Confusing matters still further, the definition distinguishes between hypersensitive and non-hypersensitive individuals. The latter however, include those who suffer some very serious illnesses, including genetic disorders, cancers,

reproductive dysfunction, cardiac disease and psychological illness "including addictiveness".

[103] The distinction made by the Applicants simply risks creating even more confusion.

[104] How can any putative class member know that any of the wide-spectrum of stated illnesses results from exposure to EMF let alone "*excessive exposure*"?

[105] Plus, according to the definition "addiction" is one of the psychological diseases, thereby creating a separate cause of action based on whether a member is "addicted" to an EMF-emitting product, which of course the Court would need determine at trial if the action were to be authorized.

[106] Frankly, the wide range of damages identified in the definition of the class is such that it would have almost no meaning for most people other than being a source of serious confusion as to whether they qualify as class members.

Conclusion as to the class definition

[107] Clearly there are serious issues resulting from Applicants' proposed class definition, and this after almost three years since the institution of the proceedings and numerous amendments, particularly the modification of the class definition during the authorization Hearing.

[108] The most recently modified definition is not sufficiently clear and, even more importantly, is both subjective and circuitous in nature, dependant on the outcome of the litigation, which is fatal in the circumstances. In many ways, it is incomprehensible to the average reasonable person. It creates a state of confusion as to class membership.

[109] The Supreme Court of Canada has established a number of essential criteria regarding the critical importance of a clear class definition. In the seminal decision of *Western Canadian Shopping Centres*[29], at paragraph 38, the Court stated the following:

> *While there are differences between the tests, four conditions emerge as necessary to a class action. First, the class must be capable of clear definition. Class definition is critical because it identifies the individuals entitled to notice, entitled to relief (if relief is awarded), and bound by the judgment. It is essential, therefore, that the class be defined clearly at the outset of the litigation. The definition should state objective criteria by which members of the class can be identified. While the criteria should bear a rational relationship to the common issues asserted by all class members, the criteria should not depend on the outcome of the litigation. It is not necessary that every class member be named*

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[29] *Western Canadian Shopping Centres Inc* v. *Dutton*, [2001] 2 SCR 534.

> *or known. It is necessary, however, that any particular person's claim to membership in the class be determinable by stated, objective criteria.*

[110] Moreover, in order to assess a putative class member's membership, the Court reminds us of the importance of ensuring that "*the class is defined sufficiently narrowly*".[30]

[111] The Quebec Court of Appeal, in the matter of *George* v. *Québec (Procureur général)*[31], confirms these principles in the following manner :

> *De ces arrêts se dégagent les enseignements applicables à la définition du groupe dans le cadre d'une demande d'autorisation pour exercer un recours collectif :*
>
> 1. *La définition du groupe doit être fondée sur des critères objectifs;*
> 2. *Les critères doivent s'appuyer sur un fondement rationnel;*
> 3. *La définition du groupe ne doit être ni circulaire ni imprécise;*
> 4. *La définition du groupe ne doit pas s'appuyer sur un ou des critères qui dépendent de l'issue du recours collectif au fond.*

[112] It is accordingly the Applicants who must provide a class definition that is sufficiently clear and not unnecessarily broad and value so as to enable putative class members to know their situation. Problems with the definition can lead to the rejection of the proposed class action.[32]

[113] As well, it is not the Court's role to completely re-cast and re-define the class action. No doubt, in certain cases, the Court can contribute to providing certain clarification and modifying certain elements, but in the Court's view, this does not mean that it is duty bound to set aside the Applicants' definition and replace it with an entirely different one. To do so in this case would be to alter the inherent nature of the proposed class action so as to essentially create an entirely new action; that is not the Court's role.

[114] The Court is of the view that the authorization should also be refused due to the problematic and circuitous class action definition. But that is not the only reason. There are more.

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30 *Hollick* v. *Toronto (City)*, [2001] 3 RCS 158.

31 2006 QCCA 1204, para. 40; similarly *Lallier* v. *Volkswagen Canada Inc.*, 2007 QCCA 920 and *Del Guidice* v. *Honda Canada Inc.*, 2007 QCCA 922.

32 *Citizens for a Quality of Life v. Aéroports de Montréal*, 2007 QCCA 1274.

3- THE APPLICABLE CRITERIA OF ARTICLE 575 C.C.P.

[115] Article 575 C.C.P. reads as follows:

The court authorizes the class action and appoints the class member it designates as representative plaintiff if it is of the opinion that	*Le tribunal autorise l'exercice de l'action collective et attribue le statut de représentant au membre qu'il désigne s'il est d'avis que:*
(1) the claims of the members of the class raise identical, similar or related issues of law or fact;	*1° les demandes des membres soulèvent des questions de droit ou de fait identiques, similaires ou connexes;*
(2) the facts alleged appear to justify the conclusions sought;	*2° les faits allégués paraissent justifier les conclusions recherchées;*
(3) the composition of the class makes it difficult or impracticable to apply the rules for mandates to take part in judicial proceedings on behalf of others or for consolidation of proceedings; and	*3° la composition du groupe rend difficile ou peu pratique l'application des règles sur le mandat d'ester en justice pour le compte d'autrui ou sur la jonction d'instance;*
(4) the class member appointed as representative plaintiff is in a position to properly represent the class members.	*4° le membre auquel il entend attribuer le statut de représentant est en mesure d'assurer une représentation adéquate des membres.*

[116] Accordingly, the Court has judicial discretion to determine whether the four stipulated criteria are met. But if the Court concludes that they are, it must then authorize the class action and appoint the member who will act as the designated representative.

[117] In performing the analysis of these criteria, the Court is to avoid determining the merits of the proposed action. The authorization phase is only intended to act as a filter, and this for the purposes of preventing cases going forward that are not "arguable".[33] In other words, the Court is to filter out cases that are not arguable, defensible, justifiable or supportable, or which are frivolous, untenable or clearly unfounded.[34]

[118] And notwithstanding the overriding importance of the principle of proportionality, it has been determined that it does not constitute a fifth (5th) criteria. Accordingly, the

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33 *Infineon Technologies AG* v. *Option consommateurs*, [2013] 3 SCR 600, para. 65.
34 *Fortier* v. *Meubles Léon ltée*, 2014 QCCA 195, para. 70.

authorization judge is to assess, where appropriate, the principle of proportionality in the analysis of the criteria.[35]

[119] As confirmed through prior case law, the objective of class actions generally is to facilitate access to justice for class members so as to avoid each of them having to bring their own separate action. Therefore, the proposed class action must actually constitute an action at law, such that the putative member who seeks to be the designated representative is required to demonstrate that he or she has an arguable action. The questions of law or fact raised in that particular action must essentially be "*identical, similar or related*" to those of all the other putative class members. Even one such question has been held to suffice.

[120] But what a putative member seeking an authorization cannot do is to transform a potential action at law into a commission of inquiry or an academic or scientific forum. That is not the essence of an action at law, and it is no more acceptable by reason of the fact that it involves a class action.

[121] In the present matter, the court is of the view that that is precisely what the class action has been structured to be, a commission of inquiry and an academic and scientific forum. That is what they essentially seek to have authorized.

[122] Petitioner Durand has from early on in the process had serious difficulty in crystallizing his proceedings. His counsel has informed the Court that the case must be amended on an on-going basis, "*as science advances*" on issues relating to EMF. He acknowledges that describing the cumulative effects of EMF is difficult, made more complex by the fact that it is "*an emerging science*". With this new science, as it progresses, Applicants have and will continue to "*back that into*" the class action.

[123] Not only are Petitioners using a proposed class action as the vehicle to determine the science, they ask the Court to conclude that the various levels of government are intentionally using "*false*" science to justify their support of those who emit EMF. The governments, they allege, are "*embedded*" with the emitters, a term they use to "*avoid being accused of libel*" when saying they are "*in bed together*" to intentionally harm vulnerable people, like children and pregnant women. In other words, they claim that there is a conspiracy at the highest levels that needs to be unmasked.

[124] In addition, not only do they ask the Court to determine that their science is the true science, but they argue that the Court should also determine that existing regulatory standards are too low, that Applicants' Threshold levels should be implemented and to that end, the Court should order the governments of Quebec and

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35 *Vivendi Canada Inc* v. *Dell'Aniello*, [2014] 1 SCR 3, para. 66.

Canada to regulate new specific EMF standards set by Applicants at levels not yet adopted by any other country in the world.

[125] So that this public debate would include almost all emitters of non-ionizing EMF, Applicants have selected not only respondents from the municipal, provincial and federal governments, but also a few representatives from a wide variety of industries.

[126] In other words, this is not a class action against a given industry, where the industry players manufacture similar product or share common business practices. The Applicants' proposed class action is based on a type of pollution, one which taken cumulatively is alleged to cause some form of damage, from purely moral damages to physical discomfort, from headaches or tinnitus to cancer, from psychological to genetic damage, or which damages plants and animals.

[127] It would be similar to instituting a class action based on the cumulative effects of noise pollution on humans, animals and plants, involving every known source of noise, from a clock ticking on a wall to a truck on the road, to a construction site, to jets flying overhead, without necessarily limiting it to any specific location in Quebec, noise type or damage type; all this while at the same time asking the Court to set aside the existing noise pollution standards and replacing them with much stricter ones that no other country has ever adopted and forcing all levels of government to adopt them.

[128] Other examples can be identified, such as air pollution by any and all suspended particles or aerosols howsoever caused, as opposed to, for example, a separate class action only in relation to smoking or another in relation to asbestos. Another example would be water pollution of all types and by any means, from manufacturing plants to boats, plastic product manufacturers and distributors, as well as any entity contributing to acid rain that ends up polluting water. In addition, to complete the analogy for both of these examples, the demand would also be to totally replace existing standards with new ones which do not apply in any other country in the world.

[129] It is no wonder that in the present case Applicants have had such difficulty crystallizing their proceeding, including defining the class. The monster they are creating is indeed difficult to handle.

[130] One might be tempted to think, as mentioned above, that it would be possible to re-define the claim and class definition and somehow reduce the claim from a commission of inquiry and an exercise in both scientific debunking and in regulatory power, but quite frankly that is not what the Applicants want. They are not looking to reduce anything. They keep trying to grow it. They must live with what they have created.

[131] In the Courts' view, the proposed class action represents a poorly-disguised attempt to hijack the class action process in order to conduct a form of commission of inquiry, both scientific and political in nature, with a view to imposing the scientific views of the Applicants and their experts, not only on the Quebec Government, but also on the Royal Society of Canada and the Canadian Government, thereby affecting all Canadians, and not just class members.

[132] All of this would involve circumventing the legislative power and Article 81 C.C.P., so as to have the Superior Court of Quebec conduct its own policy debate, determine the regulatory levels which need be adopted and then order the Canadian and the Quebec governments to implement same. The Superior Court does not possess such regulatory powers.[36]

[133] What Applicants truly seek to accomplish does not constitute an arguable action in the context of class action law, nor does it respect the proper administration of justice or the principle of proportionality.

[134] The courts have already recognized the risk of allowing parties to move beyond the judicial arena into that of public inquiry commissions.[37]

[135] In the matter of *Jacques* v. *Pétroles Therrien Inc.*, Justice Dominique Bélanger, then of the Superior Court, after citing Justice Paul-Arthur Gendreau of the Quebec Court of Appeal in the *Novopharm* matter[38], refused an amendment stating the following:[39]

> *[58] Permettre l'amendement demandé aurait pour effet de transformer un recours bien défini en une vaste commission d'enquête impliquant plusieurs centaines de stations-service et autant de représentants.*
>
> *[59] Ce n'est pas le rôle d'un juge de la Cour supérieure, en matière de recours collectif, que d'enquêter sur la problématique soumise.*
>
> (...)
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> *[61] Une saine administration de la justice requiert que la Cour supérieure, siégeant en matière de recours collectifs, n'agisse pas comme une commission d'enquête eu égard à la problématique soulevée. L'amendement demandé va, de l'avis du Tribunal, à l'encontre de l'intérêt de la justice.*

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36 *WestJet* v. *Chabot*, 2016 QCCA 584, paras. 23-24.
37 *Option Consommateurs* v. *Novopharm Ltd.*, 2008 QCCA 949, para. 50.
38 *Ibid.*
39 *Jacques* v. *Pétroles Therrien Inc.*, 2009 QCCS 1862, paras. 58-59 and 61.

[136] A similar warning against converting the Superior Court into a commission of inquiry, within the framework of class actions, was made by Justice Carl Lachance in the matter of *Roux.*[40]

[137] For this reason alone, and even more so given the proposed regulatory power grab, the authorization should be refused. But once again there is more.

3.1 Article 575 (2): An arguable case

[138] The issue at hand is whether the facts alleged appear to justify the conclusions sought. As mentioned above, that essentially requires the Applicants to demonstrate a "*prima facie*" or "arguable" case.

[139] For that purpose, the Applicants benefit from a presumption that, at this stage, the facts alleged are true, such that the Applicants' burden is one of demonstration and not one of proof on the balance of probabilities.[41]

[140] That said, however, the allegations of fact need be sufficiently precise as to support the legal syllogism being advanced by applicants. Vague, general and imprecise allegations are generally entirely insufficient.[42]

[141] Moreover, only "facts" are presumed to be true. Opinions, legal argument and conclusions, inferences, insinuations, unverified hypothesis, hearsay, vague and imprecise impressions, mere speculation and suspicions do not receive the benefit of a presumption of truth and are to be assessed or ignored by the authorization judge[43] in conformity with his or her discretion. For the most part, they are insufficient.

[142] So, how do these issues apply to the legal syllogism being argued by Applicants in this matter?

[143] In fact, Applicants plead four syllogisms as regards the cumulative effects of EMF. They raised these for the first time at the authorization Hearing:

1. the duty to warn, regulate and not market inherently dangerous products;

2. neighbourhood annoyance;

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40 *Roux* v. *Commission scolaire des Rives du Saguenay*, 2012 QCCS 6299, para. 25.

41 *Infineon Technologies AG* v. *Option consommateurs*, [2013] 3 RCS 600.

42 *Toure* v. *Brault & Martineau Inc.,* 2014 QCCA 1577, paras. 38-39; *Harmegnies* v. *Toyota Canada Inc.*, 2008 QCCA 380, para. 44; *Charles* v. *Boiron Canada Inc.,* 2016 QCCA 1716, para. 43.

43 *Option Consommateurs* v. *Bell Mobilité*, 2008 QCCA 2201, para. 38; *Harmegnies*, *ibid*, para. 43; *Boiron Canada Inc.*, *ibid*; *Durand* v. *Dermatech*, 2009 QCCS 3874, para. 93.

3. statutory prohibitions; and

4. interference with Charter rights.

(1) The duty to warn, regulate and not market inherently dangerous products:

[144] In this regard, Applicants raise the statutory provisions of the *Canada Consumer Product Safety Act*[44] and the Quebec *Environmental Quality Act*[45], *Consumer Protection Act*[46] and Civil Code.

[145] Without really distinguishing between all the myriad of products captured by their proposed action, the Applicants argue that the EMF emitting products are dangerous, contain latent defects, are unfit for the purposes intended, fail to provide warnings as to their dangers, fraudulently misinform and mislead the public regarding their dangers and fail to provide safer-use practices.

[146] They add that some of the products are addictive, similar to "*if not worse*" than tobacco products and video lottery terminals.

[147] Moreover, Applicants argue that governments are not respecting their respective duties to regulate EMF.

[148] How do the individual claims of the putative designated representatives fit into this rather broad description of a syllogism, or rather portion of a syllogism, since there must also be some form of resulting damages and causality.

a) <u>The Durand Claim</u>

[149] Mr. Durand is a sixty-five year old, who lives in Sainte-Anne-des-Lacs. He suffers from chronic leukemia. He has a workshop located within 10 metres of a high-tension Hydro-Quebec distribution line and within 494 metres from a mobile cellular base station tower, on which Bell, Rogers and Fido have transmitters, and from a municipal radio receiver behind the municipality's city hall.

[150] Within 100 metres of his family home there are six "smart meters" for measuring electricity consumption. Inside his home there are phone lines, a computer, a modem, a printer, lighting with incandescent light bulbs, a toaster, a refrigerator, a television and a videocassette recorder.

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44 S.C. 2010, c. 21.
45 CQLR, c. Q-2.
46 CQLR, c. P-40.1.

[151] The installation of both the mobile cellular base station and the "smart meters" is relatively recent, the former around the end of 2015 and the latter at some point in time around the end of 2013 or in 2014.[47]

[152] Mr. Durand claims to have suffered "*numerous and varied*" damages as a result of "*cumulative EMF exposure*" created by "*various machines*", Hydro and telephone lines and towers, modem and router equipment, electronic ballast lighting, as well as by WiFi access in automobiles, restaurants and hotels, by the Montreal subway, as well as "*by other electric, transmission, and electronic sources*".

[153] Before even addressing what the alleged damages are, two comments are deserving of mention.

[154] Firstly, as mentioned previously, since the proposed class action is limited to cumulative exposure in "*places of residence, work, or study*", the Court should not take into account, as regards Mr. Durand, any potential exposure to EMF for WiFi access in automobiles, restaurants or hotels, or for any EMF exposure in the Montreal subway or caused by any other source then in his place of residence or work. In this regard, there is no factual basis for the Court to consider any place other than his family home or workshop.

[155] Secondly, the identification of "*various machines*" and "*other... sources*" are far too vague and imprecise to be of any assistance in evaluating the legal syllogism as it applies to Mr. Durand.

[156] What are the damages he claims to have suffered as a result of the cumulative effects of EMF? They are as follows:[48]

(i) physical discomfort;

(ii) general feeling of fatigue, inability to work as he used to, inability to heal properly, susceptibility to infection;

(iii) substantial interference with his ability to work and carry out normal activities, including the inability to sleep and the inability to make a modest living;

(iv) substantial interference and deprived ability to sleep restfully, or at all, caused him to be "*extremely tired in ill-health, diagnosed with chronic lymphocytic leukemia*", and not alert in his work;

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47 Exhibits R-1A, R-1B, R-1C and R-2 to R-6.

48 Application, para. 2J.

(v) necessary to make adjustments, including a Faraday cage, shielding the house and finding alternate sleeping accommodations;

(vi) psychological and physical stress, decreased productivity, ill-health, sadness and stress;

(vii) substantial inconvenience, and loss of use of his workshop for over eight (8) years;

(viii) fear and anxiety;

(ix) flora and fauna on his property have been adversely impacted, including trees on his property having been burned, killed or damaged by EMF, trees on his neighbours property "*burst into flames and burned*" as a result of Hydro Quebec power lines and, further, Canada geese, wasps and deer are "*less evident, if at all*" on his property; and

(x) "smart meter" emissions will cause further health damage.

[157] It is important to clarify that Applicant Durand does not allege that his leukemia was actually caused by EMF pollution. The chart notes of his doctor at the Segal Cancer Center[49], which Mr. Durand filed, do not make that connection either.

[158] That said, all that we have at this stage is Mr. Durand's personal opinion, speculation, inferences and suspicions as to the cause of his own present physical, psychological and other problems.

[159] Even though his allegations of physical and psychological problems are factual and are deemed to be true for authorization purposes, that presumption does not apply to the causal link between same and EMF exposure.

[160] In order to support his personal opinion, the Applicants have filed a large quantity of scientific papers, reports and documents pertaining to potential health risks associated with EMF.

[161] The problem is that the Court is unable to connect much of that data to the specifics of Mr. Durand's alleged case.

[162] For example, his alleged physical and psychological damages provide no indication as to when any and all of them began to appear. Did they begin prior to the installation of the "smart meters" and the mobile tower?

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[49] Exhibit R-7.

[163] That is an important factual element in this matter. The facts demonstrate, as already mentioned, that the "smart meters" were only reinstalled at some point around the end of 2013 and the cellular tower around the summer of 2015. As will be discussed later, the Applicants' own proof demonstrates that many damages occurred even before the installation of the "smart meters".

[164] It certainly appears that it was as a result of those specific installations that the proposed class action originally came into being. This can be seen from Exhibit R-15, which contains the names of some 1,211 individuals who signed a class action support forum primarily identifying the cell tower and "smart meters". The authorization proceedings were initially filed in or around August 2015, at which time the cell tower had "*just recently*" been installed.

[165] The Court cannot determine for authorization purposes whether there is any possible factual connection between the alleged damages and the "smart meters" and cell tower given the vagueness and imprecision of the proceedings.

[166] The analysis would need be made taking into consideration the fact that EMF is even emitted from natural sources, such as the sun, earth and humans themselves.[50] In other words, a wide variety of potential sources would need be considered before concluding as to a specific source or combination thereof.

[167] In the Court's view, the facts pertaining to the first syllogism on which Mr. Durand's claim is based are so vague and imprecise, and comprised mostly of personal opinion and speculation, that his claim fails to constitute an arguable case in that regard.

[168] Applicants ask at the Hearing a question as to how anyone can deny that there is a link between the use of cellphones and brain tumours. But in this case, that is a purely scientific debate as neither Applicant professes to have suffered brain tumours, or any other form of damage, from the use of cell phones.

[169] Similar problems continue with respect to flora and fauna. Although Mr. Durand alleges that a neighbour's tree simply "*burst into flames and burned*" as a result of the presence of power lines, which gives rise to a somewhat biblical image, he admitted through counsel at the Hearing that the tree had actually come into physical contact with a Hydro electrical line. The Court is unable, therefore, to presume as fact that this was the result of EMF pollution as alleged.

[170] As for other trees on his property having been burned, killed or damaged, no details are provided as to when, how many, whether any came into contact with Hydro wires or were hit by lightning, and so forth. One cannot reasonably conclude there

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[50] Affidavit, Cotts, p. 2-4, paras. 7-11; Exhibit R-65, Safety Code 6, p. 1.

exists an "arguable" case that these events were caused by any EMF sources. Which ones? Certainly not the "smart meters" installed around the same time as the filing of the class action application, or the cellular tower one or two years before. It is at this point mere speculation.

[171] The same holds true for the allegation that Canada geese, wasps and deer are "*less evident, if at all*". What does that really mean? It is at best a bald, vague and imprecise assertion, with little in the way of facts to support the claim.

b) The Mahons' claim

[172] Little mention is made of the Mahons in the Application for authorization. They were identified as petitioners and putative representatives rather late in the authorization process; they signed an Affidavit for the November 23, 2017 version of the Application.

[173] At paragraph 5 RR of the Application[51], part of their claim is described. In March of 2015, Hydro Québec is said to have relocated a transformer installation bank to within 70 metres of the Mahon residence. They claim that immediately after the transformer bank entered service, they began suffering a variety of health symptoms "*ranging through headaches, pressure and pain in the ears, nausea, insomnia, tinnitus, tingling in the chest among others which severely degraded their quality of life and employment of their property*".

[174] The Mahons sought to have Hydro-Québec move the transformer bank. It only agreed to do so in March 2017 because the Mahons agreed to pay to relocate the equipment. In all, they paid $50,363.23 for the relocation, of which an amount was paid to Bell Canada to move telephone lines during the process.

[175] One of the proposed conclusions of the class action is to "*Immediately Order*" Hydro-Quebec to repay the Mahons $43,797.26 and Bell Canada to repay $664.90.

[176] The Application adds that "*it is currently estimated that over 1000 Quebecers were similarly forced to pay Hydro-Québec to correct Hydro-Québec errors and omissions*".

[177] What does this have to do with EMF, one might reasonably ask.

[178] Numerous exhibits[52] have been filed by the Mahons, including Affidavits and more than 40 exhibits.

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51 Page 36.

52 Exhibits R-13 (1) to R-13 (4) and R-13A to R-13Z a to R-13Z p, and R-13AA to R-13EE.

[179] They claim that the health issues they experienced with the transformer station were only when they were in their home. *"When we leave our house, we feel fine. So there is a problem at our home"*.

[180] Moreover, their documentation demonstrates that once the transformer bank was relocated, all their health system abated, although minor tinnitus is said to have since returned.[53]

[181] The Mahons' expert at The Planetary Association for Clean Energy Inc.[54] identified two sources of noise, one from total harmonic distortion in the power lines and another from an interaction in radio-frequency microwave emissions to and from their "smart meter".

[182] Is that really part of the EMF class action?

[183] The Mahon's physical issues on which their claim is based would not appear to be related to the "smart meters". Their documents include a letter from Hydro-Québec[55] to whom they admitted that their discomfort was experienced even before the installation of their new smart meter. This is proof made by the Applicants themselves for the authorization phase. They do not deny that factual assertion. Accordingly, the relationship to EMF is not sufficiently clear to be arguable.

[184] Moreover, the bald assertion that 1,000 people could sue Hydro-Quebec for errors and omissions is not only made without any identified factual basis but, more importantly, any connection to the proposed EMF class action, if any there is, would need be guessed because it is not even specifically alleged. In any event, it is all too vague and highly speculative to conclude that such errors and omissions relate to EMF. It is not a fact that the Court should consider as true.

[185] In the Court's view, the Mahons have failed to demonstrate an arguable case in relation to alleged dangerous EMF emitting products within the context of the proposed class action.

(2) Neighbour Annoyance Syllogism:

[186] The essence of this syllogism is that certain EMF emitters are located within close geographic proximity to the residences of putative class members, such that the strict liability regime of Article 976 C.C.Q. would apply, irrespective of statutory compliance issues.

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53 Exhibit R-13D, p. 10.
54 Now seemingly part of Full Spectrum Measures.
55 Exhibits R-13Q and R-13 (2) the Mahons' Detailed Affidavit, para. 42, dated November 15, 2016.

[187] Although Article 976 C.C.Q. has been recognized as a strict liability regime, it covers annoyances that are essentially beyond the normal and acceptable limits of tolerance. Any claimant must establish that such is the case. In the context of a class action authorization application, an arguable case to that effect need be demonstrated.

[188] The legal position regarding neighbour annoyances exceeding a limit of tolerance is still a fact-driven claim. In other words, it would require that tolerance levels be surpassed by products or devices which emit EMF. The Court has already reviewed above the allegations dealing with those same products. Neither of the Applicants has made an arguable case in that regard.

[189] Applicants argue that electricity is dangerous and has long been recognized as such in case law. But that is not an EMF pollution issue and is of no assistance to the authorization of the proposed EMF pollution class action.

[190] For the reasons expressed above, the Court is of the view that both Applicants have failed to satisfy that burden of demonstration as to an arguable case in this regard.

(3) The Prohibition Syllogism:

[191] Essentially, this argument is based on statutory prohibitions against the marketing and sale of dangerous devices that constitute a risk to health and adversely affect humans or damage flora and fauna, including those that emit harmful non-ionizing radiation. Applicants make no distinction between all the products identified in Annex "A" other than to plead, as mentioned, that electricity is dangerous by its nature.

[192] This legal argument mostly involves the same statutes as are relied upon in the first syllogism described above, in addition to the *Radiation Emitting Devices Act.*[56]

[193] In the Court's view, these statutory provisions are simply a source of statutory requirements included in the first syllogism, and since a class action is not merely an academic debate the Applicants must demonstrate an arguable case in relation to same. The Court has already concluded that they have not.

(4) The Charters Syllogism:

[194] Applicants rely primarily on the Quebec Charter (Art. 1 and 46.1), the EQA (Art. 19.1 and 20), the *Canadian Charter of Rights and Freedoms*[57] (Art. 7) and Article 898.1 C.C.Q. to argue that every person has a right to life and personal security, as well as to live in a healthy environment, in which biodiversity is preserved, and one in which animals are not to be harmed.

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[56] R.S.C., 1985, c. R-1.
[57] Constitution Act, 1982.

[195] They argue, as well, that independent punitive damages can be awarded even without the need to establish compensatory damages, and this to enforce a deterrent effect both on wrong-doers and other members of society.

[196] These arguments raise a number of issues requiring comment.

[197] The preservation of biodiversity in the context of Article 46.1 of the Quebec Charter is not absolute. It is limited to "*the extent and according to the standards provided by law*".

[198] Yet, Applicants attack those standards, claiming they result from the bad faith of the Quebec and Canadian governments who are "*imbedded*" with the other Respondents. That is Applicants' conundrum. As mentioned above, the factual allegations in regard to bad faith are insufficient and certainly do not make for an arguable case. As for which standards should apply, that is for the merits.

[199] In any event, this issue raises, as do certain others, the matter of immunity for both the Canadian and Quebec governments.

[200] In this regard, Applicants plead that it is premature at the authorization phase to conclude as to a State's immunity defence. They cite in support thereof Justice Guy Gagnon of the Quebec Court of Appeal in the matter of *Carrier* v. *Quebec (Procureur general)*.[58]

[201] However, that position is not absolute either. As Justice Gagnon states:[59]

> *[37]* (...). *À moins de convenir que la demande à sa face même est frivole, manifestement vouée à l'échec ou encore que les allégations de faits sont insuffisantes ou qu'il soit « incontestable » que le droit invoqué est mal fondé, il me paraît, outre ces circonstances, qu'il n'est pas souhaitable en début d'analyse de décider de la valeur absolue d'un tel moyen de défense.*

[202] The Court understands from that statement that the issue of State immunity at the authorization stage of a class action is to be determined on a case by case basis within the context of the alleged liability of the State.

[203] What is that purported liability in the present matter?

[204] Applicants, as previously stated, argue that the provincial and federal governments are imbedded with the Respondents, in other words fully supporting them without question, and are willingly and knowingly failing to properly regulate EMF

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58 2011 QCCA 1231, para. 37.
59 *Ibid.*

emissions, allowing pregnant women and children to be injured, and this by intentionally relying on false science.

[205] That represents an extremely serious allegation. On what "facts" is that based? The Court inquired. According to Applicants, in California it took a legal proceeding to require that State government to disclose certain information pertaining to the safer use of certain electronic equipment[60] and, as well, in 1997 a Motorola internal memo in the United States contained mention of not divulging information on an internet game.

[206] With respect, such allegations in the context of the present matter, even when treated as true, do not constitute an arguable case against the governments of Canada and Quebec. Nor do the Affidavits filed by Applicants, which also criticize the United Nations and call governments liars.

[207] In the Court's view, those affidavits do not constitute "facts" to be taken as true. They are filled with personal opinion, insinuation and speculation. It is not because the governments have not concluded regarding scientific issues in the same way as Applicants' experts and others have that they are liars, acting in bad faith and participating willingly in a conspiracy. One should remember that Applicants admit that no other country has adopted standards at the level they are demanding.

[208] Simply alleging "*bath faith*" is not a factual allegation into itself. It is a legal conclusion. One arrives at such a conclusion through the analysis of the facts. Those facts need be alleged.[61] Applicants have failed to allege facts that could give rise to such a conclusion.

[209] Accordingly, the Court concludes that the Applicants have failed to demonstrate an arguable case regarding the bad faith or even the negligence of the Canadian and Quebec governments' crown servants and employees. From a legal perspective, the absence of facts regarding the so-called fault of the federal and provincial governments renders the allegations frivolous. They resemble more a political slogan than an allegation at law. As structured, the claim is not arguable, whereas the defence of immunity appears that it could be.

[210] Under such circumstances, how can Applicants reasonably advance the position that there is an independent arguable claim for punitive damages against the governments?

[211] And there is still more to be addressed regarding the fourth syllogism.

[212] What of the claims regarding flora, fauna and animals?

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60 Exhibit R-20G and R-50.

61 *Bouchard* v. *Agropur Coopérative*, 2004 CanLII 56942 (QC CS), paras. 120 and 148.

[213] As already mentioned, Mr. Durand's allegations in this regard are insufficient to constitute an arguable case. As for the Mahons, there are no allegations relating to same. They do not appear to have any animals or pets, and certainly there is no allegation to the effect that they have livestock or that, if they did, such livestock suffered from stray voltage.

[214] During the Hearing, their lawyer argued that they had once seen a cow hit by lightning, which made them sensitive to an animal's pain. That does not an arguable claim make for the purposes of authorizing a class action based on EMF pollution.

[215] Moreover, how do Applicants go from there to claiming on average $175,000 for all farmers whose livestock are exposed to stray voltage in excess of [62] one volt? Which farmers? Are there any actually located in Quebec? What factual elements are alleged regarding even a single Quebec farmer who lost livestock due to stray voltage? It is certainly not said to be the Applicants. And what connection is there between stray voltage and EMF pollution? There is no factual basis alleged for such a claim by either Mr. Durand or the Mahons and as a result, it is not arguable. It is worth repeating, a class action is not a scientific forum or an academic debate.

(5) Causality of Damages:

[216] As alluded to earlier in the present judgment, Applicants proposed methodology requires excessively detailed assessments of each of the potential class members' exposure levels to EMF. But, at the risk of repetition, there is no methodology provided for establishing the causality of damages.

[217] In part, not all EMF emitters are sued, so how would one exclude their potential contributions? How would one exclude transient EMF exposure taking place other than at one's place of residence, work or study?

[218] More importantly, how will the Court determine if any part or all of the extremely wide range of "damages" has been caused by EMF pollution? For example, a person reads from a tablet and has a television, a cell phone and a microwave. If that person's EMF exposure exceeds the appropriate standards determined at trial, will the Court be able to conclude that his headaches are caused by EMF? Are other sources of EMF emissions to be excluded, such as time spent in the Montreal subway? Are other totally non-EMF related causes of headaches to be excluded? Would the facts really be sufficient for a presumption?

[219] In the same vein, how is a person to understand at this stage whether he suffers damages from alleged excessive EMF exposure and, therefore, can be a class

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[62] Application, para. 9, page 38.

member? Is a person's discomfort caused by it? His headaches? His tinnitus? His depression? His cancer?

[220] In other words, for each and every class member, these questions will need be asked, even up front, in order to determine class membership. Yet, the Applicants provide no explanation or methodology to answer such questions. Causality is a critical component of the legal syllogism pleaded by Applicants, yet it is not sufficiently addressed by Applicants.

[221] This is not as clear a presumption-of-causality scenario as a smoker of forty years with lung cancer or a person living in close proximity to a 24-hour construction site who has difficulty sleeping.

[222] Just as with the other elements mentioned above, potential class members will for the most part not know if they have suffered damages caused by EMF and accordingly, whether they are class members. That is a risk that flows from backing evolving science into a class action.

[223] And even if the Court limits these questions to only the Applicants' personal claims for the authorization phase, their own claims in this regard are not arguable, and this for the reasons expressed above.

[224] Before concluding, the Court considers it appropriate to raise again the fact that Applicants seek a condemnation of all the putative defendants "*jointly and severally solidarily and in solidum*" for what are allegedly cumulative effects. That could lead to potentially absurd results, where the manufacturer of a baby monitor could be severally liable for, by way of mere example and without suggesting it is possible, a cancer allegedly caused by "smart meters", as well as a variety of other allegedly grave and serious damages suffered by the members of the class.

(6) Conclusion:

[225] In conclusion, the Court is of the view that Applicants have failed to demonstrate a *prima facie* arguable case, the facts alleged not appearing to justify the conclusions sought.

[226] Without limiting the generality of that conclusion, and by way of another example, neither Applicant has an arguable claim against many of the Respondents because, as mentioned earlier, neither have either alleged that they are employees of such companies or that exposure in relation to them occurs in their place of residence, work or study.

[227] Considering the fatal deficiencies regarding the definition of the class and, as well, that what is proposed is tantamount to a commission of inquiry, the Court

considers it superfluous to assess any further elements pertaining to Article 575 (2) C.C.P.

[228] Nor will the Court address the matter of the 18 pages of common questions, which reflect many of the issues and problems mentioned above. Those questions fall with the rest of the claim.

[229] Moreover, although a number of Respondents over the course of the four-day Hearing referred to various Affidavits with a view to demonstrating an absence of fault, the Court, in this particular matter, considers it unnecessary to analyse same at this stage.

[230] Notwithstanding the foregoing, the Court considers it important to make certain comments regarding Article 575 (4) C.C.P.

3.2 Article 575 (4) C.C.P.

[231] Had the Court intended to authorize the class action, it would not have appointed either Mr. Durand or the Mahons as designated representatives, at least not without having reconvened the parties to discuss certain go-forward issues.

[232] Applicants themselves have stated how the proposed class action might well be the largest one ever to be undertaken. That might well have been the case. Conducting such an action would require an experienced professional team.

[233] What is painfully obvious, and this since early in the process, is that the case is far too demanding and far too large to be handled by an individual class lawyer from a one-man firm, who does not even appear to have a full-time secretary or assistant.

[234] From the outset, the Court has made suggestions that Applicants' lawyer should seek all the support and assistance required. That does not appear to have been done.

[235] Prior judgments and Hearing Minutes in this file contain numerous references relevant to these comments. One need only refer to the "Context" section of the present judgment to understand some of the difficulties encountered by Applicants in managing this matter.

[236] The fact that the proceedings are not financed by the Quebec Class Action Fund, does not by itself mean that class counsel could not make the appropriate arrangements to share the work load with other counsel and perhaps even paralegals and full-time secretaries or assistants. An unwillingness, or perhaps an inability to do so, could be viewed as truly worrisome.

[237] The situation would need have changed were the class action to have moved forward, not only for the proper administration of justice, but in the best interest of class members.

[238] There being no need, the Court will not add further comments.

FOR THESE REASONS, THE COURT:

DISMISSES the application in authorization of a class action, with costs.

Gary D.D. Morrison, J.S.C.

Mtre. Charles O'Brien

Mtre. Rima Kayssi
Mtre. Denise Robillard
Bernard, Roy (Justice-Québec)

Mtre. Nathalie Drouin
Mtre. Joshua Wilner
Ministry of Justice Canada

Mtre. Jean-Olivier Tremblay
Mtre. William Moran
Celluci Ganesan Fraser

Mtre. Pierre Bienvenu
Mtre. Vincent Rochette
Norton Rose Fulbright Canada

Mtre. Noah Boudreau
Fasken Martineau Dumoulin

Mtre. Joanne Côté
Prévost Fortin D'Aoust

Mtre. Sébastien C. Caron
Mtre. Bernard Amyot
LCM Avocats Inc.

Mtre. Laurent Nahmiash
Mtre. Neil S. Rabinovitch
Mtre. Matthew Fleming
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Mtre. Kristian Brabander
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Mtre. Catherine Martin
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Mtre. Joëlle Boisvert
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Mtre. Sylvie Rodrigue
Mtre. Matthew Angelus
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Mtre. Francesca Maria Taddeo
Mtre. Stéphane Pitre
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Mtre. Claude Mikhail
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Mtre. Laurence Gauthier
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Mtre. Pascale Dionne-Bourassa
Mtre. Ranjan K. Agarwal
D3B Avocats

Dates of Hearing : May 8, 9, 10 and 11, 2018

ANNEX « A »

(Non-Exhaustive List of Alleged EMF Emitting Products and Systems)

- Smart meters
- Phone lines
- DECT cordless phones
- Computers, laptops, note books
- Calculators
- Modems
- Scanners
- Printers / photocopiers and presses
- Fax machines
- Lighting (incandescent light bulbs)
- Tablets
- Toasters
- Batteries
- Projectors
- Digital and analog televisions, smart televisions and television transmissions
- Monitors
- Videocassette recorders
- WiFi (in homes, schools, hotels, restaurants, coffee shops, commercial aircraft, airports, automobiles, shopping centres, the Montreal subway, the Bell Center, residences, various car dealerships and service centers, other WiFi hot spots)
- Mobile telephones, cellphones, smart phones
- Cellular base stations
- Montreal subway (STM metro) infrastructures
- Hydro and telephone lines and towers
- Generators
- Power distribution lines (from residential to transmission)
- Servers
- Wireless networked computer systems
- Highly pulsed microwave transmissions
- Communication networks (WiFi, NAN, WAN) including dedicated emergency and security service digital communications networks
- Transportation support communications systems (civil and military, maritime, air traffic infrastructure, etc.)
- Dishwasher
- Microwave oven
- Inductive cook top
- Baby monitors
- Children's plug-in toys
- Electric breast pumps
- Epilators
- Thermostats
- Electric trimmers
- Hair dryers
- Refrigerators
- Electric shavers
- Electric tooth brushes
- Alarm clocks
- Air flossers
- Airplane in-flight entertainment systems
- Airline global distribution systems
- Coffee makers
- Expresso machines
- Intelligent watches, Google watch
- Apple car play
- X-Box
- Air Pods
- Video games
- VR headsets
- Headphones
- Self-driving cars
- Cell phone air charging
- Siri, Home Pods, Watson
- Cloud-based services and wireless data transmission services
- Enterprise storage
- Satellite transmissions
- Digital services
- Network hardware
- Internet of Things
- Firewall backdoor
- Antennas
- Digital imaging devices, cameras
- Microprocessors
- Semiconductors
- Chipsets
- Scientific instruments
- Electronic test equipment
- Applications

• Electric cars and vehicles • Vehicle power, traction and auxiliary systems as indicated by vehicle survey • Automobile data collection and survey devices • In-car Bluetooth • Automobile audio and entertainment systems • MRIs, X-ray and other medical imaging machines • Laboratory diagnostics • IT in healthcare industry • Every device that plugs in • Every product in the General Electric catalog • Healthcare products and equipment • Passenger and freight transportation equipment and systems, rolling stock, including trains and light rail systems; electric rail infrastructures • Aviation and stationary power equipment, including gas turbine engines and generators • Lighting systems and equipment • WiFi router systems • Home speakers • Nest labs • Sensors • Security alarm systems • Aircraft lighting, power and cockpit displays, communications equipment and flight management systems • Variety of Hydro-Quebec systems and equipment	• Console gaming systems • AI cloud computing • RF-band switching power circuits for LED devices • TV interface modules • Bathroom exhaust fan and light • Kitchen exhaust fan • Utility service panel • Air conditioning blower, heater element and compressor • Heating and ventilation equipment • Radiant baseboard heater • Electric fans • Video conferring applications • Security equipment • Household and kitchen appliances • Security and fire safety technologies • Building automation • Rail automation and electrification systems • Road traffic technology • Photovoltaic cells