Health, Social Services and Housing Sub-Panel
Telephone Mast Review

MONDAY, 26th FEBRUARY 2007

Panel:
Deputy A. Breckon of St. Saviour (Chairman)
Deputy C.H. Egré of St. Peter
Senator B.E. Shenton
Connétable M.K. Jackson of St. Brelade

Witnesses:
Dr. G. Carlo (Chairman, Non Profit Science and Public Policy Institute)

Deputy A. Breckon of St. Saviour (Chairman):

Welcome, ladies and gentlemen, and especially welcome to Dr. George Carlo joining us this evening. He is doing a bit of globetrotting but he was able to stop in at Jersey, and thanks also to the Jersey Mast Group as well for organising this. Can I just go through the process of tonight's meeting. It is a public hearing and a public hearing is different to a public meeting in that a hearing is for us to ask the questions and the witnesses to answer. The normal thing on that is fairly strict. However, in discussion with colleagues what we have decided to do is that we will have the public hearing and then we will adjourn that formal process and then we will open to questions from the floor to the witness to give people here the opportunity to ask questions that we might not have done. So there will be 2 processes; one will be the formal one, which is the public hearing which is for our benefit but all of it will be recorded. So if anybody does like to ask a question when we come to it if you would like to say who you are for benefit of the tape. The proceedings will be recorded. There will be transcripts of that done fairly quickly, in the next 3 or 4 days. As a courtesy it will be sent to Dr. Carlo first and he will have about 4 or 5 days then in which to look at them. If there is any inaccuracies he will have the opportunity to correct them - he is not on trial for anything, he is here to hopefully inform the process - and then after that they will be a matter of public record. So that is really the process. Just to add to that, this sub-panel was set up - my name is Alan Breckon and I am the Chairman of

the Health, Social Security and Housing Scrutiny Panel, which is a bit of a long title – and this Sub-Panel was set up under that and we have done a lot of background work in December 2006 and we formally convened shortly after that in December 2006, January 2007. The other members of the panel are Senator Ben Shenton and Deputy Collin Egré, who is also the vice-chairman. We have apologies tonight from the Constable of St. Brelade, Mike Jackson, who is at another meeting and hopes to get here and join us before we end. Just for his benefit, and I have given this to Dr. Carlo, our terms of reference for this scrutiny review on telephone masts are: "The sub-panel will consider the concerns of the public relating to perceived health implications as a result of the increase in applications for mobile phone mast installations following the recent expansion of the mobile telephony market. In undertaking this review the sub-panel will have regard to the advice provided by the Health Protection Department, international standards and best practice in respect of health precautions, health concerns raised by the public and reporting its findings and recommendations to the States." Can I add to that we have had a tremendous number of submissions from the public, including authoritative papers from other people. We have got about 6 bundles, this is one of the smallest ones, so we have a considerable weight of information from all over the world and just add thanks to everybody for that. I would say that at some time in the very near future we will be calling a close to that because we cannot come to conclusions if we are still getting things. But I have said to Dr. Carlo tonight if there is something he refers to in a paper or an authority from somewhere else then we will be willing to receive that because tonight is not the cut off point it is part of a process and we are hoping to report in the next 6 weeks hopefully. Can I just ask Deputy Collin Egré - we do have a formal process for hearings - to remind the witness what that process is. There should be a copy in front of you.

Deputy C.H. Egré of St. Peter:

Excuse the formality at this stage but it is something that we have to do. So I read, it says: "The proceedings of the panel are covered by parliamentary privilege through Article 34 of the States of Jersey (Jersey) Law 2005 and the States of Jersey Powers, Privileges and Immunities (Scrutiny Panels, PAC and PPC) Jersey Regulations 2006. Witnesses are protected from being sued or prosecuted for anything said during hearings unless they say something that they know to be untrue. This protection is

given to witnesses to ensure that they can speak freely and openly to the panel when giving evidence without fear of legal action although the immunity should obviously not be abused by making unsubstantiated statements about third parties who have no right of reply. The panel would like you to bear this in mind when answering the questions." As you have already been told the proceedings are being recorded so if we can try and speak up in the microphone so we can get a good recording. Thank you.

Deputy A. Breckon:

Could I begin, Dr. Carlo, by asking you to introduce yourself and just tell us a bit about your background and inform us that way, perhaps, and that will be the start of the process.

Dr. G. Carlo (Chairman, Non Profit Science and Public Policy Institute):

Okay, my name is Dr. George Carlo, I am presently the Chairman of the Non Profit Science and Public Policy Institute based in Washington DC and have held that position since 1992 when the Science and Public Policy Institute was established. I have training in medical science, pathology, epidemiology and law and have served on the medical faculties of the State University of New York, Buffalo, the University of Arkansas and the George Washington University in Washington DC. I have been in the medical faculty in one of those universities over the past 25 years. The most relevant experience of mine with regard to the mobile phone mast question goes back to 1993 when, in the United States, there were questions raised about whether or not mobile phones were a cause of brain cancer. At that time the Congress of the United States held open hearings and the outcome of those hearings was that cell phones -- at the time, there were 15 million people in the United States using cell phones and about 40 million people around the world. Cell phones had been exempted from pre-market testing. In other words, normally a device such as a mobile phone or cell phone that is a consumer device that emits radiation would go through a process of pre-marketing testing where there would be a series of *in vitro* and *in vivo* studies done prior to marketing so that predictions of risk to the population that might use them could be made. However, cell phones were exempted from that based on the input from the mobile phone industry in 1984. That input was based on science that was present in the public domain at the time that indicated that the only health effect

that could follow from microwave exposure had to do with heating of biological tissue, and that because cell phones operated at very, very low power they would not be able to heat tissue and therefore they should be excluded from this onerous process of pre-market testing. That was known as the low power exclusion. By 1993 it had become clear that there were at least questions being raised in the public domain through this hearing process, and because there was no pre-market testing there were no relevant data with which to address those concerns or those questions. Following the public hearing the Senators took serious issue with both the Food and Drug Administration, who was the agency of record responsible for these radiation emitting devices, as well as with the mobile phone industry itself. Both of them were put on the spot by the Congress and the mobile phone industry stepped up and said: "Well, you know, we will put forward money for research to fill those data gaps so long as the FDA (Food and Drug Administration) does not regulate us until the research is completed. So that deal was struck between the Food and Drug Administration, the Congress and the mobile phone industry and they ultimately put 28.5 million dollars into a fund and I was the person given the responsibility of overseeing and conducting that research. So between 1993 and 1999, with more than 200 doctors and scientists from around the world participating, the Harvard School of Public Health involved in peer review and more than 56 studies conducted, we ran what still remains the largest programme ever conducted in the world on the dangers of mobile telephony and wireless communications in general. The results of that work appear in 3 books that I have either written or co-written. The first book is "Cell phones: Invisible Hazards in the Wireless Age", that book is now available in 6 or 7 languages. I would be happy to provide copies for everyone on the committee, signed if you would like. **[Laughter]** There are also 2 other volumes, one of them called "Mobile Phones and Health: State of the Science 1" and "Mobile Phones and Health: State of the Science 2". Those 2 are hard cover volumes published by Kluwer Academic Press, they have all of the peer review papers from that work. Those 2 volumes unfortunately I -- they are very expensive, they are 170 dollars a piece. I do not have any extras but if you go to our website, which is www.safewireless.org there is a pathway there to obtain those books and they are in libraries around the world so you might be able to borrow them. The important thing about that is that all of the work done with the 28.5 million dollars reported in those 3 volumes and at the end of that programme our position was that -- you know, we read the same literature that everyone else did and we thought

that the only mechanism of harm was heating. When we finished our work we found that indeed there were non thermal effects that we had observed and the degree of rigour with which we conducted this work was unprecedented. Every study that was done under the programme was duplicated in at least 2 laboratories. Protocols were peer reviewed before they went into the field, preliminary data were peer reviewed before they were interpreted and final reports were peer reviewed at the end of the process. So we made sure that the degree of scientific rigour was above reproach and, you know, I have to be honest, the reason we did that is that most of the money - in fact all of the money - for the programme came from the industry. We were concerned that people would feel that when we found nothing, because we did not expect to find anything unusual, that people would say that the industry simply bought the result. So we made sure that we had every "t" crossed and every "i" dotted. A formal Interagency Government Working Group was put in place that involved the Food and Drug Administration, the National Institutes of Health, the Environmental Protection Agency, the Occupational Safety and Health Administration, the Federal Communications Commission and a few others. That committee participated in every step of the research. They were involved in peer review and the entire process. So when we came to the conclusion at the end that we had non thermal effects this was not to be taken lightly. What we identified in the first instance was the presence of genetic damage in human blood cells exposed to radiation from cell phones. We also had data that confirmed that there were cellular dysfunctions, including leakage in the blood brain barrier. Most surprising was we found near tripling in the risk of rare neuroepithelial tumours, rare brain tumours, in people who use cell phones when compared to people who did not use cell phones. It was almost a tripling in risk. It was a significant increase in risk and those tumours were statistically significant in that they were correlated to the side of the head where the people reported using the phone. This was very important because at the time all of our science suggested that the danger zone, if you will, was within 4 or 5 inches of the antenna from the cell phone. So that if you had the cell phone up against your head here and you develop a tumour over here (opposite side of head) it was too far away for the radiation from the cell phone to be relevant so that that laterality correlation was extremely important and we found that. So we went to the industry and said: "You know, we do not know what all of this means but it certainly raises red flags and it would be prudent at this point to let the public know what we identified here and to give the public the

opportunity to take precautionary steps if they would like." I made these recommendations in a letter to all of the phone companies that had participated in the process and my "Cell phones: Invisible Hazards in the Wireless Age" book is a reproduction of that letter. It is to -- the first person on the list was C Michael Armstrong from AT&T. He happened to be alphabetically the first one. So when we sent that letter and it got the media attention he received a bunch of calls from people. He finally called me and he said: "Who the hell are you and why did I get this letter?" But, anyway, what ended up happening is that based on that letter we made clear recommendations and the industry decided that they did not want to go public with the findings. They decided that they did not want to issue this public information so we decided to do it on our own. When that happened things got a little conflicting between myself and the industry. I do write about that in the Invisible Hazards book. The outcome of that was that in 1997 I was sued by a woman who had developed a brain tumour and she sued the industry for 80 million dollars. She sued me for 80 million dollars because I was running the programme and the basis for the lawsuit was that we had not disclosed the dangers of cell phones to the public. After we went public with our findings in 1999 and 2000 that lawsuit which had become a class action in the State of Illinois was very active and the industry was using me as a defence. Simply saying: "How can you say we are not giving you information when the guy who did the work is out there talking to everybody about the hazards?" So, based on that the plaintiffs came to us and offered a settlement and the way the settlement worked was this: we had 1.2 million dollars left on our insurance policy and we gave the plaintiff's lawyers the 1.25 million and then they gave us back 250,000 dollars to set up a post-market surveillance registry. This was done under the supervision of the court and this was one of the big gaps that had not been filled. We had done quite a bit of work in terms of filling the pre-market testing gaps but the industry would not follow the recommendation to do post-market surveillance. Post-market surveillance, in simple terms, is keeping track of the health effects and the health concerns among people who use mobile phones. Over the course of time, you know, it is easy for people with vested interests to say: "Well, you know, we have not seen any increases in brain cancer or other health effects therefore they must not be there." Of course that is very easy when nobody is counting. We felt that this registry was important. We put that registry in place and the new data that I have been talking about are based on medical reports and reports from doctors who are

participating with us in the registry so that what we have here are now data based on clinical observations, based on what happens when doctors have patients come in with symptoms that are unusual and the doctors will try one thing to see if it helps and if that does not help they will try something else and if that does not help they will try something else. In this process we have a very important database because sometimes the best way to confirm that you have a cause and effect relationship is to be able to eliminate the effect with some type of intervention. So based on that registry and the good input from the doctors involved we have been able to elucidate the mechanism of harm that is operating at the cellular membrane tissue level and, based on that, which is the type of data that should have been generated in pre-market testing, we are able to understand how these wide variety of symptoms among people in our registry come about. We have a very clear medical understanding now and based on that we have a great deal of concern about what the future holds, especially since we have an unprecedented situation in terms of the human population exposure here. It took about 20 years for us to have a billion people using cell phones and that mark was hit in 2004. It took about 18 months for the second billion and when I checked this morning we were at more than 2.4 billion so we are well on our way to the third within this calendar year. That is an unprecedented amount of exposure to dangerous radio waves and this gives us serious pause as we look to the future and what our purpose is in the Safe Wireless Initiative is to try to identify the safest way forward for communities like yours. We are not opposed to technology at all but it is important to understand that there are safe ways to deploy technology and dangerous ways to deploy technology and we have made it our business and our life's work, if you will, to identify the safest way forward and to share that with whoever is willing to listen.

Deputy A. Breckon:

Can I ask you a question about your data gathering? How robust would it be in a community where people get symptoms and diseases anyway, is there any way of separating out what may be normal ailments to what might be perceived or to be related to technology?

Dr. G. Carlo:

Yes, that is a big problem because you have obviously -- the types of conditions that we are looking at are conditions that occur in every day life. When you look at the list of symptoms they range from unexplained anxiety to headaches to difficulty focussing, to learning problems to fibromyalgia or arthritic type symptoms. These are symptoms that most people would recognise that they themselves have had. So the challenge for us and what we have done with clinicians is to develop an intake questionnaire that we call the SWEEP (Safe Wireless Electro-sensitivity Evaluation Profile). That is used by doctors as they intake data from patients and it allows the doctor to immediately know whether this person is at high risk based on electromagnet radiation exposure or not. If they are in a high risk area there is a certain way you work the patient and if they are not in a high risk area then you look elsewhere. In the epidemiological studies that have been going on around the world which are, you know, after the fact studies, epidemiology is a very poor way to predict future risk but in the epidemiology studies you control for that statistically. Control for confounding and co-variables. So it is important, as you point out, to always understand the difference between what is there as background and what is attributable to the exposure. We also go one step further with the epidemiology and we conduct what we call attributable risk epidemic curve analysis. We have done those and I will give you some of the data based on brain cancer and eye cancer. This is based on published literature, only published literature, peer reviewed published literature. Incidentally, in the epidemiology literature right now published, there are more than 300 statistical significant findings showing excess risk between mobile phones and brain cancer. More than 300 are present in the existing peer review literature for everybody to see.

Deputy A. Breckon:

Would you express an opinion which has been said to us that perhaps the technology is not very old so therefore trends in exactly what is happening is not robust enough at the moment? Would you express a view on that?

Dr. G. Carlo:

Yes. Again, the epidemiology, in what the industry is fond of calling your weight of evidence calculation or weight of evidence -- it is really wrong. It is irrelevant. Epidemiology is an after the fact exercise. I am trained in epidemiology, I am a

member of the American College of Epidemiology. Nobody knows better than me the shortcomings of the science and this is not the branch of science that is used efficiently to predict future risk. It simply is not. Epidemiology unfortunately is a science where you count bodies and by the time the studies are done you have information that is relevant to technology that was present 10 years ago. The only value in the epidemiology is to give us a baseline for what we might be looking to forward, so I fully reject this concept that the epidemiology is relevant to future risk; it is not, completely not. I do not know how stronger I can say that. It is the wrong science at the wrong time. The only way to predict future risk is to understand the mechanism of harm, which is what we have tried to continue to do through the 28.5 million dollar programme and now through our Safe Wireless Initiative. With that understanding, we are able to look to the future and help you make decisions. You are going to make a decision today that is going to have an impact on your grandchildren and their children. You need to be right and I would like to help you along those lines.

The Deputy of St. Peter:

We have taken evidence from a very broad church of people and we have also been relying on standards that have been set by the World Health Organisation, our own Health Protection Agency and ICNIRP (International Commission on Non-Ionizing Radiation Protection), which I now understand. What are your views on those limits that are set in relation to the sort of work you have been doing?

Dr. G. Carlo:

Irrelevant. The ICNIRP standards -- the first thing is this is high technology we are talking about. Every 6 months the technology changes, it evolves, so that the old days are 3 or 4 years ago. The ICNIRP guidelines are 1998, and in this particular area, that is ancient history. The ICNIRP guidelines are also based on thermal mechanism data based on heating. I will explain to you in a minute what the mechanism is of harm that we understand. The heating mechanism with regard to information-carrying radio waves is probably totally irrelevant to the situation we have today. If the industry has its way in terms of loosening the field intensity guidelines, which they are lobbying for around the world, then I think we will have a heating mechanism to worry about. As the SARs (Specific Energy Absorption Rate) get up into the 20 to 25

watts per kilogram area, then we have a heating mechanism, but that is on top of the biological mechanism that we are so concerned with now. I think that you are making a huge mistake if you rely on ICNIRP; I think you are making a huge mistake if you rely on old science and I think you are making a huge mistake if you do not bring the medical community into your decision-making. Our view is that this is a medical problem now. We have patients in many countries now who have these very frank membrane sensitivity symptoms. Membrane Sensitivity Syndrome has been around for about 25 years. Originally, this type of condition was the result of high chemical exposures; we used to call it chemical sensitivity. Now we have identified the same type of condition in patients who are exposed to various types of electromagnetic radiation. It is a medical problem. People who have membrane sensitivity syndrome have internal bleeding. They can be in a room where somebody puts on a cell phone and they will end up having an immediate reaction, they will go home and they will bleed and in their stool they will have blood. This condition is very debilitating. It sounds easy when you talk about headaches and not being able to sleep and this and that, but this is very debilitating. It prevents these people from being able to work, they cannot earn a living, they have difficult relationships with their children, their spouses give up on them. There is a very high rate of divorce in people who have Membrane Sensitivity Syndrome. It is a very, very serious medical problem and I would recommend to you strongly that before you make any decisions you bring your medical practitioners in and give them the opportunity to understand what we are saying about the mechanism, give them the opportunity to see the clinical data from around the world, and I think they will be able to help you out.

Deputy A. Breckon:

Would you like to comment on if that is more related to actual mobile phones or emissions from masts?

Dr. G. Carlo:

Well, if you would not mind, let me talk to you a little bit about the mechanism and then we can tie back into it. All electromagnetic radiation in the electromagnetic spectrum is not created equal. We have done work that identifies at least 3 effect windows that are very unique. One effect window is what you have from the extremely low-frequency electromagnetic field, the power line frequency, if you will.

What happens at that part of the electromagnetic spectrum is that the magnetic field is dominant. In an electromagnetic field, you always have, travelling perpendicularly, a magnetic field and an electric field. What happens is that the magnetic field produces an electric field and the electric field produces a magnetic field and then the magnetic field produces an electric field. That is why it radiates, because it is a self-propagating system. But at the low end of the electromagnetic spectrum, the magnetic field is predominant. When you have an ELF (Extremely Low Frequency) field that is pushed by a high amount of power, you are able to have a direct magnetic impact on the local physiology of cells and tissues. We know that that mechanism involves disrupting what we call gap-junction communication between cells. I do not need to go into all of that, but the fact is that we understand how it works. It is a direct magnetic effect and because magnetic fields have been around since the beginning, we, as human beings, have developed compensatory mechanisms, so that there is a threshold. There is a degree of magnetic field that we can sustain without having an adverse effect to it. The fact that we are not floating around in here and there is gravity holding us down is a magnetic field and our bodies know how to compensate. So unless you have a very high amount of power pushing that magnetic field, as you would have underneath a power line, for example, you do not cross the threshold for this direct magnetic effect. That is the ELF window. At the other end of the spectrum, we have the ionising radiation window and at the high end of the spectrum, with ionising radiation, the electric field is so predominant that you have extremely high energy. Those electromagnetic waves up in the ionising range - and they come from sunlight and lightning and a bunch of natural sources as well - break apart chemical bonds. Because that damage is so determinative or severe, we believe that, at least in terms of clinical manifestations, there is also a threshold. That means there is a safe level. That means you can have 3 or 4 x-rays in your life; you can have dental x-rays and not worry about having tumours. In between, you have the radio frequency radiation window; that is the third window. What we have learned is this: a raw microwave signal - in other words, 1,900 megahertz - is oscillating at 1,900 million cycles per second. To put that in context with your heart, your heart beats at 2 hertz, 2 cycles per second. So a raw microwave is beating at 1,900 million cycles per second. That is too fast for your body to pick up; your body simply does not recognise it. The only time your body recognises it is if you put 100 watts of power behind that signal and then you can heat tissue and you can heat meat like you would

in a microwave oven. So when you put high power behind a microwave, you cause heating. Now, because the raw microwave is invisible, it is not a problem. However, with wireless communication, we carry information and we have to be able to have that information deciphered at the other end of a phone call so that when you talk on the phone you want somebody to hear you talking; you do not want them to hear nothing. In order for that to happen, the information has to be packeted and it is bundled in packets based on amplitude modulation. The other thing that happens is that for the phone companies to be able to make money, they have to have multiple people able to talk on one frequency band at the same time. So for that to happen, you have breaks in the modulation to make room for new calls to come in. That is either going to be code domain breaks or time domain breaks, so that what you have is a circumstance where a packet of data moves and then it stops and then it moves and then it stops because of this multiple access. When that happens, it forms a secondary wave. The best analogy we have been able to come up with for a secondary wave is the old clothesline, which would be on a pulley. That clothesline with no clothes on is like the raw microwave signal, the 1,900 megahertz carrier signal, for example. But then when you put clothes on the clothesline, that is the equivalent of these data packets and when you move the clothes through space on the clothesline, they wave back and forth: the secondary wave. That wave is what we call the information-carrying radio wave. That wave that is formed by the packeting of information oscillates in the hertz range. In the hertz range, the body can recognise it. Here is what happens. At the level of the cell membrane -- and this is whether it is a brain cell or a blood cell or a nerve cell or a liver cell or a bone cell or a skin cell. There are protein receptors and protein receptors are on the cell membrane and their job is to keep track of what is going on in the environment around the cell. You have chemical receptors and you have vibrational receptors. The vibrational receptors are able to pick up radio signals that oscillate in the hertz to kilohertz range. As the information-carrying radio wave comes in the vicinity of the cell, the vibrational protein recognises it. Within milliseconds it recognises. But because ‘in the beginning; there were no information-carrying radio waves - they are not natural, they are completely manmade - the body interprets the information-carrying radio wave as a foreign invader. When that interpretation happens that this is a foreign invader, a message goes inside the cell that says: “We are under siege; we need to protect ourselves.” The first thing that happens is that the active transport channels, which

are the places where nutrients go in and waste product come out, begin to close down. It is like closing the doors in a castle. As the active transport channels begin to close down, you have a circumstance where nutrients that are in the river between the cells are not able to get into the cell. When nutrients cannot get into the cell, the cell becomes nutrient and energy deficient. When the cell becomes energy deficient, it is not able to communicate with surrounding cells, so that you have a disruption in what we call intercellular communication. If you think about it, when cells are working together - are talking to each other and working together - you have a tissue. When tissues are talking together and working together, you have an organ. When an organ is talking together and working together, you have an organism like a human. So when you disrupt intercellular communication, you are disrupting a fundamental physiological process. What happens is that intercellular communication is disrupted. Messages between cells cannot be sent because the cell does not have enough energy to do that. At the same time, because these active transport channels have closed down, waste product builds up inside the cell. When waste product builds up inside the cell, you have a very high concentration of highly reactive molecules called free radicals. Free radicals, like the free radicals in the 1960s, love a party. Inside the cell, the party is going on at the mitochondria, which is where all of the respiratory functioning of the cell takes place. The free radicals, preferentially, will go to the mitochondria and disrupt the functioning of the mitochondria. In disrupting the functioning of the mitochondria, you create cellular dysfunction, meaning that the cell is not able to do its job properly. That is why, for example, if you have a cell whose job is keeping the blood-brain barrier closed and that cell is now dysfunctioning, the blood-brain barrier opens. Indeed, we and others have seen leakage in the blood-brain barrier as an effect. The other thing that happens is that the free radicals interfere with DNA (Deoxyribonucleic Acid) repair inside the cell. We know this because several studies now from around the world have shown the formation of micronuclei following exposure to these information-carrying radio waves. A micronucleus is a piece of DNA that functions well enough to form a membrane around itself, but it has no other purpose. As long as it stays inside the cell it is okay, but what happens is that when the cell is disrupted at the mitochondria level, it goes through a process that we call apoptosis. Apoptosis is programmed cell death. The cell actually commits suicide to make room for another cell to come in. This happens on a regular basis. Every 6 months or so you turn over all of your cells because of apoptosis. When

apoptosis happens, the cell membrane disintegrates and whatever is in the inside of the cell goes into the space between the cells and the micronuclei go into the space in between the cells. Under normal circumstances, a message would be sent to the immune system saying: "We have micronucleus here. Send some macrophages so we can get rid of it." The problem is it is not a normal situation because the intercellular communication has been disrupted and the message to the immune system does not get there. So now you have a micronucleus that is a piece of wild DNA that is sitting in a nutrient-rich environment and it is free to clone and proliferate. That is the mechanism for the development of a tumour. If you look at the biological cellular mechanism, we have a basis now to explain the diversity of symptoms that we see in the people in our registry. We have a paper coming out in about 6 weeks, where we have looked at 350 severely autistic children. What we have found there is there is a link between the information-carrying radio waves and the higher incidence of autism in the past 5 to 8 years.

The Deputy of St. Peter:

Can I just press you on this term you are using, information-carrying radio waves, because it would appear that Marconi has an awful lot to answer for. This packaging of messages via radio waves has been around for an awfully long time. I assume that is the way we package material that comes in via our televisions and our radios. What effect does that have on the human population in comparison to what we are talking about now, specifically mobile phones?

Dr. G. Carlo:

Very good question. Back in the real old days, when we had TV and radio as the main source of information-carrying radio waves, you'd have an antenna up on top of a mountain sending a signal to an antenna up on top of a house, then it was hardwired to your TV. Humans were really not in the pathway of information-carrying radio waves. What happened with the cell phone is that we brought those information-carrying radio waves to the street and that is what the big difference is.

The Deputy of St. Peter:

Can I clarify the point. When we talk about current messaging, the way you described a television aerial pushing up a quite high power from the main aerial, we,

as human beings, are exposed to exactly those same radio packages as the aerial is. The aerial is the facilitator to bring it down and convert it so that we can use it, so we are being exposed to those radio waves, a bit like we are being exposed to radio waves from masts from a mobile phone system. But the difference that has been described to us is the fact that the television mast might be pushing out 23 kilowatts, as opposed to a radio mast which is putting out up to 100 watts.

Dr. G. Carlo:

The thing that is erroneous in that logic - and I know it is not your logic; someone gave it to you - is that the intensity of the field really has very little to do with triggering this mechanism, and that is the problem with the ICNIRP guidelines. In fact, I can let you know that we are in the process of putting together a group that will do the same thing as ICNIRP, but with a group of doctors, not a group of engineers and physicists, so that we will be able to make recommendations for groups like yours, with medical input. What you have is that the idea that the field intensity and heating is the operating mechanism leads you astray, because we know that this is a biologic mechanism and the most important thing about the mechanism is that there is no threshold. You can have one radio wave trigger one receptor and now you have this protective series of events happening in one cell. The difference between being symptomatic and not being symptomatic has to do with the individual, how robust the individual is and how strong the individual is in terms of being able to counter this insult. We have great concerns about children and we have great concerns about Wi-Fi in schools. The reason is because information-carrying radio waves in young children -- they are much more susceptible from a physiological point of view. Their cells are differentiating more than they are growing.

The Deputy of St. Peter:

Just as an element of what you are saying, it has been discussed with us and suggested that within a child up to the age of 2 these mechanisms are very important, but beyond the age of 2 they are not as relevant.

Dr. G. Carlo:

Let me ask you a question. In fact, I will use myself as an example. I look at a picture of myself when I am 2 and I look at picture of myself when I am 9 and I look

at a picture of myself when I am 18. They are very, very different. What that means is that there is differentiation happening and when you have differentiation happening, you have vulnerable cell membranes. Whoever told you that does not know what they are talking about.

The Deputy of St. Peter:

Again, talking about the way the radio communication has developed in the modern world, we will take one step away from the mobile phone. Prior to the mobile phone, lots and lots of people, certainly in the States, were using the walk-around phone, which is wireless technology, but it is not mobile and it is not cellular phone. What work was done in the States at the point when people were starting to develop the walk-around phone?

Dr. G. Carlo:

The walk-around phone was not studied way back in the 1980s. No work was done. There was no pre-market testing and that is what the big problem is. I will tell you that one of the reasons why our group is really not on the cell phone industry Christmas card list is because what we have elucidated here in the way of this pre-market testing database would have rendered cell phones not being able to go into commerce. There is no way, with the database we have, that any regulatory authority would allow this type of device into commerce. You had a very difficult political situation where the industry are not in a position of being able to accept any argument other then the no-effect argument. The other thing that is compounded here is that in the United States now there are 7 class action lawsuits active against the cell phone industry, the mobile phone industry. To put that into context, it was one class action that brought down the asbestos industry and it was one class action that put the silicone breast implant industry into bankruptcy. There are 7 active class actions. In 2005, 5 of those cases went to the Supreme Court of the United States. The industry was trying to get those cases dismissed; the Supreme Court said that these cases needed to go forward. There are more than a dozen active personal injury cases, brain cancer cases, present against the industry and those cases are in various stages of development. None of them have reached the evidence-gathering stage yet, but the interesting thing is that in 2002, 2003, 2004, the insurance industry began excluding health-risk claims in the product liability coverages for the cell phone industry. By

2004 they were completely self-insured, so the industry does not have insurance to cover any losses they might have in the litigation. Anything that they do which is a safety intervention, or any admission of the possibility of a problem is, in legal terms, what we would call a tacit admission of guilt. It would be used to underscore their liability. In short, the industry is not a credible source of information for you because they have very serious problems on the liability side and you can understand why they have to take a certain type of position.

The Deputy of St. Peter:

It is an interesting point that you have made. You have been talking about the way that industry is not going to accept that something is wrong within its own industry and you have talked about the health management of the problem associated with radio waves. One of the problems that we are getting is that it would appear, in Europe at any rate, is that a lot of the information that the health people are putting out is based on the science from the engineers and the technocrats, if you like, which is a different science to what you are telling us, which is medical science. Is that where you perceive to be the main difference?

Dr. G. Carlo:

Yes, and I think it is very accurate. Again, when you look at the technocrats, as you call them - the government agencies and the industry working together, and these folks are very commingled - you have a situation where historically government agencies are 6 to 10 years late in intervening in public health. It is sort of unrealistic to think that these government agencies - the technocrats, the government standard-setting agencies - are able to be on top of the latest science. I read your report. 1998 science, that is not even in the game any more, and that is what the ICNIRP guidelines are based on. In that context, it is fine. If they are 6 to 10 years behind, that is fine, but we do not have 6 to 10 years when we are looking at 3 billion people being exposed every day. You asked me the question, Deputy Breckon about is it mostly cell phones. In the old days, 2001, yes it was mainly cell phones. It is not mainly cell phones now. We used to be able to distinguish the amount of information-carrying radio waves in the near field around a cell phone from the far field, which is after the near field all the way to the mast. You cannot do that any more. The concentration of information-carrying radio waves in most major cities makes it impossible to

distinguish between the near field and the far field. Our concern is that the background level of information-carrying radio waves is getting so high so rapidly. Why it is so high so rapidly? The first thing is you have coming on 3 billion people pretty soon using cell phones. Keep this in mind: if I am here and I turn my cell phone on and the base station is behind you, the signal goes through you. It goes through you. If everybody in the room lit up their cell phone at the same time, you are contributing to a very high ambient level of radio waves in this room. With whole communities going Wi-Fi and Wi-Max and Wi-crazy, the background level is reaching a very dangerous level because there is no threshold for these biological effects. That is why, when we move into what do we do about it, what can we medically do, what can we do as a society, what can you do as a committee, we like to look at things in terms of the public health paradigm. The public health paradigm helps us prevent disease. We have 3 types of preventative intervention. Primary intervention deals with the exposure - lessens the exposure. Secondary intervention deals with the symptoms and lessens the symptoms, the impact of exposure. Tertiary intervention is rehabilitation to repair the damage that has been done. Luckily, in the past 3 or 4 years, there have been technologies developed that afford primary, secondary and tertiary intervention. With that being the case, when we talk about health risks and we talk about people who are suffering from Membrane Sensitivity Syndrome, it is unnecessary, because there are technologies that can be used to make the deployment of the wireless technology safer - the telecommunications technology. In your case, and this is a recommendation that I have given to others in the States and many people are taking it on, your telecommunications infrastructure here can be safely deployed if you use primarily a fibre optic spine where you maximise signals going through fibre optic cable and minimise wireless transmissions. Where you have the wireless transmissions that are necessary, you add a preventive technology called noise field. Noise field technology was developed by the military. The military, historically, has been very concerned about stray radio waves. The reason is because if you have an intercontinental ballistic missile and you want to fire it across the water and then you press the button and it explodes while it is over there and does not explode here, that signal is a radio signal. When you are carrying these bombs and missiles on a ship, if you have stray radio signals that could detonate munitions accidentally, then you have problem. So in the 1970s what they began doing was taking these communications personnel on ships and airplanes and putting them in

lead-encased cubicles to stop the stray radio waves. In effect, they were putting these guys in microwave ovens; many of them got sick. The US (United States) military, the Russian military, the Israeli military, the British military and the French military all began working on intervention technologies that could protect the communications personnel while still protecting other soldiers. One of the technologies that came out of this was the noise field technology. The noise field technology is very simple. What happens is you have the generation of a low-power magnetic field and that low-power magnetic field attaches to the information-carrying radio wave. The combination of those 2 waves looks chaotic or incoherent to the sensor protein on the cell membrane and the cell membrane does not recognise it so it does not trigger those protective responses. So when you have a transmission node, for example, and a distributed antenna system - that is a fibre optic spine - and you have a node that is transmitting at one to 2 watts, you can put a noise field generator on that so that anybody who comes into the vicinity of the near field of that transmitter will be protected by the noise field. But that requires changing the way you are going to deploy the telecommunications technology from primarily wireless to primarily fibre optic. The interesting thing is that in the Western World, by the middle 1990s, we were well on the way to having a fibre optic infrastructure. We were doing it all over the world and in the middle to late 1990s our governments got the idea that they could make a lot of money by auctioning off this spectrum - earning money by auctioning it off. In the United States, for example, they got about 50 billion dollars in one auction. The problem was that nobody had the cash, so a deal was made where they gave 10 per cent down to the FCC (Federal Communications Commission) and the FCC carried the mortgage for the rest. The deal was that you could pay us off over the next 20 years with revenues coming from the sale of the minutes. So now you have the FCC and the mobile phone industry - and here in the UK (United Kingdom) the same situation and in Germany the same situation - where now the government agency and the industry both had a vested interest in rapid deployment of the technology. It was much quicker to put a tower up on top of a school than it would be to run fibre optic cable either above ground or below ground. I do not know what the situation is here in Jersey, maybe you do not have fibre optic at all, but in many places around the world you have 75 per cent fibre optic spine available. Here is the thing about fibre optics: fibre optics, from an efficiency point of view is far superior to wireless - far superior. You are able to move thousands of times more data. It moves at near the

speed of light versus the speed of sound. You do not have to worry about dropping signal, so from an efficiency and technology advancement point of view, fibre optic is really the way to go. So when you talk about what you are going to do here, fibre optic spine, point of transmission noise field, point of use interventions - there are also noise field applications for the point of use on your laptops or other wireless devices. Coupled with that, you need to educate your doctors so that you have doctors who understand what these symptoms are and how to diagnose and separate out those that are due to information-carrying radio wave exposure and those who are not; it is very important to be able to do that. If you put those pieces together, you will have the safest deployment possible of your telecommunications infrastructure and your grandchildren and their children will thank you, because it is available.

Senator B.E. Shenton:

One of the problems that we have, and I think it is fair to say, is that the Environment Minister, our Health Minister and our Economic Development Minister do not believe there is a problem with phones and phone masts. It is very difficult to find, if you look throughout the world, to find any government that considers that there is a serious problem. Do you know of any governments? People take comfort from the fact that no one else is doing it, so why should we.

Dr. G. Carlo:

That is an unfortunate reality and you are absolutely right. As I said, governments are 6 to 10 years behind. That is the reality and you can look it up in history. If you are going to rely on what the other guys are doing, you are going to be 6 to 10 years behind the 8-ball. The problem here is we have never had this type of exposure scenario before. I would not want to be making that kind of decision on my watch; I am scared to death of this problem. This is a medical problem now; this is not something that might be a medical problem later. Unfortunately, your fellows are wrong. There is a problem now. This ruse that has been perpetrated by the wireless industry - and I have said this publicly before, so I am not violating anything here - is they simply spin the data through the media. We have examples where press releases come out from the industry about a new study that has been released and it is completely inconsistent with what is in the study. A lot of the news media around the world run with the press release and then later on when somebody reads the study

they say: “Hey, wait a minute. This thing says that after 10 years we had a statistically significant increase. What is going on here?” The data that I quoted earlier: there are more than 300 statistically significant increases in the published peer review literature now from cell phones - now. So you should have your guys go back and look it up, because if they are going to be on the side of saying: “Look, there is nothing out there showing there is a problem” they have 300 things they have to explain, and that is important. The other thing is that, as I mentioned, we are doing these epidemic curves. These are attributable risk calculations. Based on the data that is now in the publish peer-review literature - in the world, not Jersey - we are estimating somewhere between 40,000 and 50,000 new cases of brain and eye cancer every year beginning in 2006 directly attributable to mobile phones - not attributable to anything else; directly attributable to mobile phones. We expect that by 2010 that number is going to be about 400,000. This is a very serious problem and this is based on projections from published peer-review data. What drives those numbers are 2 billion, 3 billion people exposed.

Deputy A. Breckon:

In your own experience, are there any people who are particularly vulnerable?

Dr. G. Carlo:

It is interesting, the very young and the very old are particularly vulnerable. As I mentioned, we are extremely concerned about children. We are recommending that no one under 12 should use a mobile phone, even with protection, because even though we have these types of interventions that can stop the cell membrane reaction and restore intercellular communication and repair cell membrane damage, why do we want a 10 year-old kid to have cell membrane damage that has to be repaired? Why do we want that? It makes no sense. Give these kids a chance at the outset. Everybody who uses phones - cell phones, deck phones, Wi-Fi - anyone who uses those devices needs intervention; there is no question about it. The thing that we have identified here, this mechanism with these children with autism, what is happening in general there is they have the heavy metal build up because of their vaccines, they are exposed to the information-carrying radio waves, the active transport channels close down and heavy metals like mercury get caught inside the cell. The heavy metals disrupt the talking between messenger RNA (Ribonucleic acid) and DNA and you

now have an environmentally induced genetic change that appears in the daughter cells. This is serious and this is happening. If you do the same exposure scenario in an older person, you have symptoms that look like Alzheimer's disease.

The Deputy of St. Peter:

Taking on board everything you have said, and it has been very informative, we are still left with the pragmatic problem that exists in Jersey: the fact that there are a huge number of people - several in this audience, and I have one sitting in front of me here - who have mobile phones. If you look at schools, you will see the majority of the children have mobile phones. We have a problem with an expanding market in Jersey. We can only expand so far because we only have a set amount of population, so the fact that we have 3 companies who are trying to sell mobile phones - unless you are going to buy a mobile phone from each company, which I do not think anyone is going to do - we are almost at saturation level now. We do have a problem with masts. From a technical point of view, and we can move that across to a medical point of view as well, some of the things that we have been told is that it is far better to have a whole number of smaller masts than it is to have bigger masts. What are your views on that from your own perspective?

Dr. G. Carlo:

I agree with that, so long as the larger number of smaller masts are generating at the one to 2 watt level and so long as every one of them has a noise field generator attached so that you are able to have this distributed antenna system. Of course, it has to have a fibre optic spine. You do not want masts talking to each other, you do not want nodes talking to each other; you want that information to be fibre optically transferred.

The Deputy of St. Peter:

That is the ideal, I agree, but with the situation we are in at the moment, we do not have that infrastructure in place so we do have the cellular phone aerial networks. So it goes back to, in a bad case scenario, which is worse?

Dr. G. Carlo:

What I would do is I would caveat that and say if you are able to go back to these characters who are coming in here with the technology and say: "Look, we need a transition within the next 5 years to a fibre optic spine. We need a plan that shows how you are going to move to fibre optic spine and in the interim we are willing to be reasonable about how you make that transition." But when you have a fibre optic spine and distributed nodes, there are no masts; there are no big masts on top of schools or any of that.

The Deputy of St. Peter:

How does that equate to these, because the problem would appear to be still with these, because you may have produced the infrastructure that will move the information around through the various cells via fibre optic units?

Dr. G. Carlo:

With those, what you have are 2 things. The first is that if that phone has to move 200 yards to the closest node, you have a very small near field plume and that can be handled with a point of use intervention. If it has to move miles, it cannot really always be handled.

The Deputy of St. Peter:

Just to clarify it in my mind, what we are looking at is a technological change within the design of the phone.

Dr. G. Carlo:

There are various aspects of it. Right now, there are 2 noise field technologies that are available for mobile phones. One of them is an active noise field and the other one is a passive noise field. The active noise field requires a source of power and the only way to deploy it right now is as part of the battery, as part of the power source of the cell phone, but it is available. The passive noise field is a nanotechnology polymer that is a 30 dollar add-on that can be put on to any wireless device. The problem with the passive noise field is that it consumes itself. It is triggered by the electromagnetic field itself. It goes through a systematic degradation and that is where the low energy field is formed and that has to be replaced about every 18 to 24 months, but it is a 25 to 30 dollar add on. There are also these subtle energy

intervention products that restore intercellular communication. There are a number of them out there: sympathetic resonance, energy resonance, magnetic therapy, QRSs (Quantronic Resonance Therapy), diodes, all of these are restorative of disruptive intercellular communication. They work on the symptoms. You always need a primary, though, like the noise field, whenever you have a secondary. But these are the types of things that if you ever get to the point where you are talking about the transition to the safe deployment, this is really an educational process that you begin in the schools and through your Health Department and you can really protect people. Like I said at the beginning, any suffering is unnecessary because we have the technological ability to prevent all of it. It is just a matter of leaders demanding it.

Deputy A. Breckon:

You discussed earlier about medical reports and clinical conditions. In your experience is that more related to mobile phones, or is a percentage of it, would you say, attributable to telephone masts as well?

Dr. G. Carlo:

When we first set the registry up in 2002, in the first 6 months we had a million people come to the website. 90 per cent of complaints were people using the mobile phones and they talked about brain tumours and eye tumours. In the last 18 months, 90 per cent are people who do not use mobile phones; they are people who are just exposed in Starbucks or something. They have hot spots in there where you can get on to Wi-Fi. We have people in hotels with Wi-Fi and in airports with Wi-Fi and living next to masts, so that 90 per cent of the complaints now are from people who are not using mobile phones and that is what is very alarming to us. This is not a population-based study, these are self-selected people. These are people who come into the registry because they believe they are being harmed. There are some of them who have an axe to grind, but the key point here is when you talk to their doctors, the doctors can sort it out.

Deputy A. Breckon:

When some of that has been tested - and an opinion has been given to us that some of their testing was done on a blind or double blind basis. The blind was that it was a false signal like a placebo where somebody is given chalk or some medicine. They

said that under some laboratory conditions they tested people where nothing happened when they looked for a reaction, and then something did. Sometimes the people conducting the tests were not aware which was real and which was not. Could you comment on that?

Dr. G. Carlo:

Those types of placebo effects, if you will, occur. That is why it is very important -- in our database system and our clinical system we do our best to teach the doctors how to sort it out. I have done a lot of testing myself with people who are electro-sensitive and sometimes they can pick it up and sometimes they cannot. It depends on the frequencies that are being transmitted. Some people are sensitive to some types of frequencies and some are sensitive to others. That is why, when you have those types of laboratory-controlled areas, you have to be very precise in terms of the frequencies you are transmitting with. There are devices that are available where you can measure it. What is interesting is that when you get into the more sophisticated devices you can see what is being transmitted. Here is another caution for you, and we have several examples of this now. Whatever you do, you need to have post-deployment, active-monitoring policing. You have to go to those base stations and independently measure what is coming out of them because we have had many instances now where you have an antenna that is allowed by law to transmit at 100 watts and we have seen them up to 900 to 1,000 watts. You can turn the thing up; nobody is looking. The other thing is an instance in Austria that we have looked into where there is a constant 8.3 hertz signal coming out of a series of base stations near Salzburg - a constant 8.3 signal that is not licensed. That 8.3 signal has information-carrying radio waves on it and it is constant, which means that everybody within the vicinity are being exposed to these information-carrying radio waves that are able to trigger these biological responses. Nobody knew about it until a group of doctors were doing an actual study and they were looking at the readings and saying: “Where is this coming from? This is not in any of the licences.” So you have to watch out for that and you need to have an active policing. The same thing with the phones. This is an interesting thing. In the States and in the continent here as well, the industry is out there convincing everybody the best place to watch a movie is on your phone, the best place to watch a sporting event is on your phone, the best place to do everything is on your phone. When you are doing all of these information exchanges on the phone,

you need more power. The fact is that at 0.6 watts of transmission power it is not enough to allow you to watch a movie, so what is happening is that there are excursions going up into 4 or 5 times the standard and nobody is looking because when they approve the phone they are given a prototype. Okay, this phone has passed, fine. Then what happens is the phone has programming that allows it to excursion. When you get up into 20 to 25 watts per kilogram, you are getting close to heating, so when you get too close to heating you have another mechanism to worry about on top of the biological mechanism. Interestingly, in the United States, there is a group called the IEEE (Institute of Electrical and Electronics Engineers). You have that over here too; it is a bunch of industry guys. They make recommendations like ICNIRP. So, what has happened in the US is they want to raise the 1.6 watts per kilogram to 16 watts per kilogram. But the problem is that there are people like us who are watching them, so they do not want to go through the process where there are public hearings on changing that standard, because we would have the same discussion in front of the cameras in the US and they do not want that. So, what they have done is they have figured out a way to a "technical adjustment" that would avoid the process of going through a public hearing. That technical adjustment is that instead of averaging for the SAR, the standard, over one gram of tissue, they average over 10 grams of tissue. If you average over 10 grams of tissue, effectively you are raising the standard, or the allowable limit, by 10, so now you get up to 16. But we have their playbook, so they are not going to get away with that. The other thing that is important is that as the technologies change, the game changes. There was a study that came out a couple of months ago from Denmark, a Danish epidemiological study, and this was hailed as the last nail in the coffin, there are no problems. Your guys must have read it, the guys who think there is no problem. I will send you a critique of that so you can give it to them. But what ended up happening was that that study was only relevant to phones that were used between 1985 and 1995, those big old brick things. They are not even in use any more. So when you rely on epidemiological studies, you are always going to be a dollar short and a day late. It is just the worst way for you to be trying to protect your people. I keep going back to the fact that there is a safer way forward.

Deputy A. Breckon:

What I should have said at the start, just before we close the formal hearing and go into a public meeting, there is an opportunity for anything you would like to say that might inform us on our terms of reference. If you like to just view that in a moment, because we do appreciate your time and effort and the way that you have been candid in what you have said, but there may be something that you would wish to add that would inform our deliberations.

Dr. G. Carlo:

I think some of these we have already covered in large part. The advice provided by your Health Protection Department - that is a piece of data that is important, but that is not the only data. You have to have clinical information and clinical input, because when you have an emerging health threat, it is always, always, always the clinicians who see it first. There has never been a health threat that has ever been identified by anybody in the government, never been a health threat that has been identified first by an epidemiological study, ever, in history. It is always the doctors. So if you do not have the clinical input, you are selling yourself short. Hopefully, I have helped with that, but I think you need to talk to your Jersey doctors. Again, I would be more than happy to come back and have a session with them, if that is something that would be useful, to explain the mechanisms. We also have very useful diagnostic and therapeutic techniques now where you can help these people. It is a combination of Eastern medicine and Western medicine and it is very different stuff. It involves aggressive detox and some things that are not the standard medical procedures, but they are available and your folks here in Jersey should be afforded that benefit. Again, the international standards and best practice: this ICNIRP is a Tin Lizzie. I do not know how you can rely on those, especially in light of what we know about the mechanism. I think that if I were in your shoes, probably what I would do is get a group of doctors together and have them give you some advice and we would be happy to help. I will give you a little war story. I have been, in the past 7 days, on all kinds of television shows and radio shows and newspaper interviews and the whole bit since I have been in the UK and Ireland and here, and what is very interesting is I can tell what reporters have been "inoculated" by the industry. Of course, they all have the same 4 or 5 points. In fact, one guy even showed me the stack of studies that they sent. He said: "Is there anything good in here?" I said: "No, do not even buy it." That is how sophisticated the industry spin machine is. I have been on shows in the

past week with at least 3 different “experts” from the other side all saying the same thing. You know: “The ICNIRP standards.” It is the playbook. Do not let them dupe you; we are in a different situation. Again, in terms of the terms of reference, what you want to do is recommend the safest way forward so that you have the benefit of the technology without the risk; it is pretty straightforward, and that can be done.

The Deputy of St. Peter:

Just to clarify one point there. You said: “Without the risk.” We all are aware that risk will never be zero, so there will always be a risk. The exercise is to mitigate that risk to an acceptable level.

Dr. G. Carlo:

Absolutely, and that is what we are talking about in terms of this safe way forward with preventive interventions. What it boils down to is that somebody is going to have to tell the industry guys: “Okay, this is the way we are going to do it here. We are happy to have you, but you have to do it our way.” They have the money; they can do it.

Deputy A. Breckon:

One of the problem we have, of course, is we are following on from what others have done. We have Ministers with various responsibilities and if there are any failings there then that is something we are looking at and perhaps we make recommendations. Something I said to you earlier was that perhaps as a group, when we make report and recommendations, then we are not in being any more, so we would appreciate some contacts, because it could well be that the people you work with and the experience you have could be called on in future to report regularly to somebody here, but with medical links as well as the technical links.

Dr. G. Carlo:

We are happy to do that. In fact, we are in the process of setting up a Safe Wireless Initiative in the UK, a Safe Wireless Initiative in Ireland and if a Safe Wireless Initiative in Jersey is something you are interested in, we would be happy to help you out.

Deputy A. Breckon:

We would appreciate that contact, because tonight is not the end of a process, it is part of a process. We have gathered lots and lots of information and as I said to you earlier, if there is anything that you think will be useful, we do have that contact, we would appreciate anything else as soon as you possibly could, because it is hard to draw conclusions without the full weight of whatever you may give, and we have still got things coming in. But we are going to have to call that to a close fairly shortly because otherwise we could go on for a long time and we are not resourced to do that. So what I would like to do now is just to call this formal part of the hearing to a close and then give the opportunity to our guests. But before I do that, I would like to thank you very much indeed for your time and effort and, as you say, you have been jotting around the UK and Ireland, we do appreciate you being here tonight, and we also appreciate the efforts of the Phone Mast Group in arranging this, because this has been very useful for us and illuminating. The difficulty we had is that we could not invite the world and his wife or husband here, so a number of names were put forward in our offices. There has been no, I should say, no political influence over who came, they have looked and they have done that and they have looked at some of the research papers and with recommendations of a number of people, and I cannot think why you were not on that list, but again, you were, but it was a case of who was available and who was not. There were some people we contacted who we just could not get within a 3-month window even, so we do really appreciate that. What I would like to do now is call the hearing to a close and then it is open to our guests here tonight to ask any questions of you, if you are comfortable with that.

Dr. G. Carlo:

Yes, I am fine, sure.

Deputy A. Breckon:

Okay. Thank you. So that is officially the hearing part of it closed and then it is open to the -- and just for the benefit of the tape, we will continue to record this and tonight's proceedings and the piece following on will be open to that and then you will get that courtesy.

Female Speaker:

Can I ask, please, your recommendation on intervention devices? When do you find that effective?

Dr. G. Carlo:

Okay. For me, that is a difficult question, because I do not endorse any products. I do not endorse any companies. I do not advertise for anybody. So I am sorry. I can talk to you about the technologies, I mean in the Safe Wireless Initiative we make it our job to sort through what works and what does not. There are 100 products out there, you know, 95 of them do not work, and I can tell you that the technologies that we have scrutinised that work in terms of primary intervention are the active noise field and the passive noise field; those are the only 2 technologies that we have been able to develop a comfort level with in terms of primary intervention, which means that the primary intervention stops the cell membrane recognition mechanism from occurring so that you do not have cell membrane damage following the exposure. In terms of secondary interventions, those are restorative to disrupted intercellular communication, work on the symptoms, always, always, always need to be with a primary. Always have to have a primary and a secondary together. Those that we are comfortable with, there is a technology called an energy resonance technology; there is another technology called a sympathetic resonance technology; both of those act on restoring microtubial based intercellular communication. There are magneto therapies; QRS therapy, these also are more magnetic restoration technologies, they act at the gap junction level, you know, it is not important for everybody, but when you go talk to your doctor, he will like to know that some of them are microtubial and some of them are gap junction. There are diodes that are somewhat effective and that is also a sort of the subtle energy. In terms of the tertiary interventions, which are restorative, and again, the tertiary interventions always should be in the presence of a primary and a secondary, so you have a primary, a secondary and then you bring in the tertiary and any antioxidant therapy, supplements or whatever, anything that helps to scavenge free radicals is going to be useful, but there are a couple of very specific technologies that are aimed at restoring cell membrane damage, and that is really what you want to do. So I guess, as I said, I cannot give it all to you, because it would be a violation of our non-profit independence, but if you do Google on “passive noise field”, “energy resonance”, “cell membrane restoratives”, that kind of thing, you will

find them. Again, what we want to do is put bundles together for doctors, so that when you go to your doctor he will be able to put you in the right direction as well.

Female Speaker:

Do not hold your breath on that because a lot of doctors do not believe there is a problem when there is a problem, so I think you may come up against a barrier there.

Dr. G. Carlo:

To be fair to our colleagues in the clinical arena, this information that I have shared with you is probably 2 to 3 years old. We have about 6 papers for medical journals that are in various stages of development; so that most of this has not been out there in the clinical literature, circulating widely. We certainly do all we can with newsletters and whatever, so do not be too hard on them.

Female Speaker:

Can you get it into the Lancet?

Dr. G. Carlo:

We have a paper targeted to the Lancet on the mechanism, and we have a number of other papers on the Membrane Sensitivity Syndrome. I do not know if anyone here has electro-sensitivity or the Membrane Sensitivity Syndrome, but the way that works is that when your cell membranes are triggered with this closing of the active transport channels, the messenger RNA picks that information up and passes it on to the daughter cell, so that it really is an environmentally induced genetic change, very similar to what you have with alcoholism, for example. With an alcoholic, when you take the alcohol away, the alcoholic will get the shakes, and then when you give him a drink the shakes will go away. Well, the reason the shakes go away is because the metabolites of alcohol provide an artificial restoration of his intercellular communication, so that things get back going. But, the damage is still being done, and that is why, with electro-sensitives, you have this information being passed on in daughter cells that says that they are under siege more than they are under siege. The good news about that is that because that is an environmentally induced genetic change, it is an epigenetic change that caused the problem, it also is reversible. So that if you have electro-sensitive patients or people who are electro-sensitive and you

are able to take away the information-carrying radio wave exposure and then put them through detox and then other series of therapeutics, you can fix their cell membranes and get them back to normal, and that is good news. Again, that is why it is really a shame that there are people who say: "Look, you know, this is in your head, it is not real." I mean I have had many consults with doctors in the States who, you know, the scenario goes like this: "Thanks for the consult. I want to talk about a patient, Mrs. Smith, she has been a patient of mine for 10 years, we have always got on well, she is just one of my best patients, but I think this time she has just lost her mind." Of course then we talk through the mechanism, he says: "Okay, now I get it. She has not lost her mind." I mean that is absolutely a shame. I mean I was appalled the other day in Parliament where a public health official was talking about these symptoms being psychosomatic, how can you do that with a patient? I just cannot see it.

Mr. C. Davey:

We have had a mobile phone array here in Jersey for, what, 10 years, and it has been extraordinarily adequate. Is there any useful purpose, and in fact is it not harmful, to have a secondary array and a tertiary array as these new firms come rolling in?

Dr. G. Carlo:

That is an important point, because if you bring in - and this is something I do not know if your guys are talking about it - but when you bring in the new system, you have got to tear down the old one. You cannot simply keep adding layer upon layer of information-carrying radio waves. I think that while the system that you have here has been adequate in terms of coverage and whatever, we do have a very different scenario now, because of this high concentration of information-carrying radio waves, so that it is not a matter of simply keeping the status quo and everything is going to be fine, the status quo is creating risk for you, so that you are really in a situation where this transition to a safer infrastructure is absolutely necessary, and I do not believe it is a choice that it might be better if we do or not, I think this is a necessity.

Deputy A. Breckon:

One of the issues, just to give you the background on that, was we had a single operator and then we have now got a competition regulatory authority and what they have done is they have licensed -- there are 4 spectrum licenses, which come through

via the UK, and 3 are active. We have got a second operator, who have nearly got Island coverage, because we have difficult -- we have granite and valleys and things like that, so there is a proliferation of phone masts, and we have the third operator now who are building up a base of masts. The other thing is that there is a planning issue in that they must comply, but we do not have any monitoring, so there are some issues there. That is just generally --

Dr. G. Carlo:

One of the things, in your circumstances, going on in the US now, is that you have sort of a third party come in and build out the infrastructure and then they rent the space, if you will, to the carriers. Do you have that situation here?

Deputy A. Breckon:

No, we have a sharing system, but it does not really work because there are not many big trellis masts and there is some technology problems in multi-use of that, so what the Planning Minister has gone for is the telegraph pole disguised, but they are only single operator, and there is some feature things on the skyline as well with some of the issues as well, so it has not all been sorted out yet. There are some planning issues.

The Deputy of St. Peter:

Three operators, 3 masts.

Dr. G. Carlo:

Yes, and that is what is difficult. When you move into a fibre optic spine, it is not all that much more expensive, by the way, than building the masts, it really is not. It is much more efficient. Those noise field, active noise field on the nodes, for example, is maybe 300 to 500 bucks a node, I mean you are not talking about major expense, so you might want to really think about making some demands. They are not going to go away, they want to make money.

Deputy A. Breckon:

It could have been a condition of license, but it was not.

Mr. N. Taylor:

Nigel Taylor. My question relates to people at risk, higher risk, such as young people and the elderly and people with mental disabilities. Three years ago I suffered serious head injury and I wonder if people that suffered head injuries or brain injuries could be classified as high risk, and if they are, whether or not they would be aware of electro-sensitivity syndrome and other related effects of exposure and ill health due to the signals, because I suffer to a great deal from neuralgia and migraine and I think in a sense I suffer from ESS (electro-sensitivity syndrome), I do not know.

Dr. G. Carlo:

Well, whenever you have your physiology compromised you are more susceptible to a lot of things. The thing that is so unique about the information-carrying radio wave problem is that this is an overlay risk. It affects your systems, it affects the nervous system; the endocrine system; the immune system, and it lowers the efficiency of all of them. So when you have a pre-existing condition, a pre-existing injury, as you do, it is entirely possible that your ability to compensate is going to be compromised, you will be at higher risk of the Membrane Sensitivity Syndrome. But there is another point I want to make, and that is that in California there have been 2 cases that were successful where 2 brain cancer patients who used cell phones in their job were successful in recovering under Workers' Comp for the tumour. Part of the basis in one of the cases was a pre-existing susceptibility. Now, you probably had not heard about that from your other witnesses.

Deputy A. Breckon:

Did they pay without admitting liability?

Dr. G. Carlo:

In the Workers' Comp system it is an administrative system, so that in all cases it is a cash settlement of one type or the other, so there are 2 cases that are precedent, I think about that, using your cell phone in your job, get a brain tumour, you get paid by the State. Not just once, but twice last year. So there are a number of legal precedents that are operating and if you look at that, you have all these lawsuits going on that have not been able to be thrown out of court, and the industry has tried, so those things are going forward, there is some merit there. You also have the insurance

companies saying: “Hey, we are out of here.” Even for your deep skeptics within your administrative system, I mean those are questions that even the most severe skeptic might have to take a second look at.

Mr. N. Taylor:

I would just like to conclude my question. Then, therefore, do you think people that suffer as I do, how are we, or people with more serious head injuries, how would they determine, or their doctors determine that they are suffering damage from the radio waves?

Dr. G. Carlo:

This SWEEP intake, for example, that would be something that we would encourage your doctor to put you through and that will be able to put him on a path that takes into account the electromagnetic radiation, all 3 windows, and how that might be impacting on your prognosis, wellness.

Mr. N. Taylor:

Also, do you think there is a safe maximum exposure time to signals, or is it more due to intensity?

Dr. G. Carlo:

It has nothing to do with intensity. The intensity of the field is not the issue. The only thing that the intensity of the field does, it has an impact on the concentration of the information-carrying radio waves. Wherever you have information that is being transmitted wirelessly, you have the ability to trigger those protective responses and that is dangerous, there is no threshold, and that is why everybody who uses the technology needs intervention to stop the biological response.

Ms. J. Banks:

Hello, Dr. Carlo, my name is Jo Banks. I do not know if you can help us with something that was said at a previous meeting, which I personally did not understand. Someone basically said that if you had one telecommunication company provider and there were, say for example, 100 calls, okay, the effects of the electromagnetic fields or the electromagnetic radiation would not be any greater if you had 4

telecommunication providers and there was still only 100 calls. They were basically saying that in Jersey there was a finite number of callers and they were trying to get across that whether we had one provider or 4 providers, it did not change the rates of the emissions from the base stations, did not make us any more at risk by having 4 than one. Now, I did not understand that, because I thought that sounded daft. But I do not know what you know, so can you explain whether that was accurate or not?

Dr. G. Carlo:

Well, it all depends on whether or not they are sharing the antennas.

Ms. J. Banks:

No, they are not.

Dr. G. Carlo:

Well, if they are not sharing, it is a little bit sleight of hand, because every system needs to have its own connectivity ability, so you really cannot do that. See, the other thing that happens, when there is a phone call, at the beginning of the call, there are a whole bunch of connections that have to be made at the beginning of the call, so that within the first 25 or 30 seconds of a call you have very high intensity, probably excursioning into thermal ranges at the beginning of a call, and then after those connections are made the power level goes down, the intensity of the field goes down, not to protect you but to save the battery, and so that what you have is a weird circumstance where in terms of the amount of intensity of field, and intensity of field is only relevant in terms of the concentration of information-carrying radio waves, you cannot tell the difference between one 10-minute phone call and 10 one-minute phone calls, because the intensity of the field is determined by how much power is necessary to make those initial connections, and how much power necessary is determined by where you are relative to a base station when you make the call. So whenever you hear information that generalises, you know, this many phone calls is the same as X and Y, to try to give you some balance, it is simply oversimplification.

Female Speaker:

That is not what they were saying, though, they were saying that the mast only transmits when a phone asks it to transmit. So what is happening, they were saying that the masts are inactive until someone dials their phone.

Dr. G. Carlo:

This is, again, got to watch my guidelines here, but what you have is that those masts are communicating with phones constantly, all the time, to figure out where they are, where they move, there is information being transmitted all the time. This example we had in Austria with this 8.3-hertz signal that was a constant signal and nobody even knew about, and the bottom line on all of this is that the industry around the world pretty much have been self-policing for 20 years. They have run amok in most countries, there are no safety standards relative to any of these emissions. There are guidelines, there are emission guidelines, which is what ICNIRP will say is an emission guideline, but there are no safety standards. In the United States we have no safety standards. So there is a lot of waffle room in there and unless, through your proceeding, you make as a condition of the contract that there is going to have to be independent monitoring and whatever, you simply cannot trust what is going on; you cannot trust what is being told to you.

Female Speaker:

Hello. I can ensure, in my own house, that I reduce the amount of electromagnetic stress in terms of I have got a phone that I can plug in, it is not a wireless phone, I cannot have a mobile phone, I can change my wiring in my house so that I have not got electric currents going right underneath my bed at night when I sleep and for my children, okay, I can do that, but what I cannot do is change where my children go to school if there is a bloody great mast there. I could give my children one of these little magnetic shields, which might help, I do not know for sure, but I think you should think really carefully that we all survived as children growing up without mobile phones. I doubt very much that they are suddenly going to go out of fashion, but they can do all these things now, do we really need to watch a film on a mobile phone? What about talking to people rather than wireless technology through emails. I know it is not going to go away, but if there is a way through fibre optics that you could just stop. In Jersey you have got a great opportunity, it might not be being done in England, but we could be leaders, we could be doing something different. Maybe

some of the doctors do not know because maybe they have not been affected or they have not had a chance because a lot of the GPs are dealing with other things on a day by day basis, but what about thalidomide, what about asbestos, are we going to go: "Whoops", in 5 years' time: "We should have known." Now, in Jersey we have the finance industry, the phone industry itself makes a lot of money, and I am not saying it is going to go away, that would be naïve of us to say that, but as an Island, could we not just look into other ways of reducing the risks to children, to our grandchildren, in the same way as once upon a time climate change was just a thing that people in brown sandals laughed about in the 1970s, but now it is happening and global warming, the seas are rising, it is going to happen. But we could just reduce the amount of electromagnetic stress in Jersey. I know for one you would not want to have massive great phone masts in your house. Can I just say, I do not think it takes rocket scientists to realise that when you are on your phone, either on a digital walk around phone or on a mobile, it gets hot, does it not, it burns your ear and you are like: "Can you just put that phone down?" So there are things you can do in your own home, great, but what I cannot do is change what you decide to do for my own children and my own grandchildren's future in terms of where you put these masts and could we just look into other options, rather than dotting them all around the place?

Deputy A. Breckon:

What we have done, of course, is that from a planning point of view, there was a 6 week embargo when the Planning Minister did not grant any permissions and within that time there was a certain amount of commercial pressure to say that: "You have done it for others, then you must do it for us", and that was relaxed I think in 6th January. But since then, what the Planning Minister has said, every permit that has been issued since then, there has been a 12-month conditional permit, pending the outcome of this scrutiny review. He had to do that really because of legal reasons in that he could not stop them, but what he said is, if there is anything in the findings that go through to the Ministers for Planning, Health and Economic Development, who have responsibility for competition, therefore they could put something in the permits for the operators monitoring about levels and all sorts of things, which has not been done by the competition regulator, it has been done in Guernsey, but not here, and they do monitoring in Guernsey that they do not do here. So there are a number of

issues that you have touched on there that I am sure we will pick up in the final outcome and deliberations. One of the things I was discussing earlier is, as a scrutiny sub-panel, we are not there for ever more, so what we may be able to do in the recommendations is to give jobs to others to do in the future, in that, for example, where the masts are is not a matter of public record. What the outputs are is not on the public record. They are not independently monitored, like you say, the trade have done a lot of this stuff themselves, so I think what is flowing from this is the sort of thing that gives comfort. The other thing, the States themselves, that is the government of Jersey, rent out sites, which means they get income from that. Now, the thing that you have touched on there that worries is the liability, the public liability in the future. Now, whose is that? We are asking questions and some of the issues that you have raised are being addressed. What we can do, though, we have come to this as a scrutiny panel without any responsibility for the industry, we are just looking at what others have done or have not done, here and internationally, what people are doing. So it is not going to be, I kid you not, it is not going to be easy to make rhyme nor reason of all this and that is why we appreciate the good counsel of people like yourself and others who have been able to do that in the submissions we have heard. But the sort of things that you have touched on there, we will certainly be addressing. The other reverse side of that is people have said, to an extent, that they want some competition. Now, that perhaps could have been done in another way if we had stricter regulation on a single operator rather than having others, but then the phone company is up for sale anyway, so what will happen from that, so 3 could become 2 could become one, I do not know. But again, it is something that we could express an opinion about and the things that you are saying there have been expressed before and have been taken onboard, because people do have a concern, not just for themselves, but like you expressed before, with grandchildren and children, because they could be the innocents in that. People said: “We want competition”, but what do we have to do to get competition and nobody explained what that would be. Now, whether it is because this thing has appeared because it looks ugly or because it has got an effect on people, that was never a consideration when the competition came into the telephone market, and that is something that I think that we could address in our outcome. I do not know if there is anything you want to add to that?

Dr. G. Carlo:

I think that you have a couple of things. First is that the liability issue is huge. You will have illnesses; you will have illnesses based on what you already have; fact. In the asbestos situation, the peak deaths from asbestos will not occur until 2020, the year 2020, so this is the kind of situation that you are dealing with so that as these conditions, these medical conditions, begin to become evident in your population, who is responsible? Is it the industry? Is it you? The government? Those are important questions that have to be asked now, because there is no doubt that within 3 years you will have clusters of conditions among groups of people in your community, based on what has already occurred. So that liability question is serious and that should be one of the foremost questions that you put to the industry as they come in here. I would highly recommend that you do that and make sure that there is proper insurance or there is something, because otherwise it is going to come back on the people who made the decisions. You have political constraints, legal constraints; there is only so much you can do. At the end of the day, you do not really have the ability to be completely right.

The Deputy of St. Peter:

Expressing a personal point of view, what you have been saying, we all have a social responsibility in what is going on in our Island and in the world. Now, market forces, we are all exposed to people who are telling us what is good for us and telling us that looking at a film on a mobile phone is good for us. I think that is absolute rubbish, because I like to look at a film when I can see it, so it is not hurting my eyes. But there is an acceptability through marketing that is some of us do not have these things we are somehow failures. Now, we all have that responsibility to make sure that we take control of some of the things that are going on in our lives, because we are losing it.

Female Speaker:

We need to have some commonsense to know that those things are ridiculous, a little bit of reason and commonsense.

Male Speaker:

Have you got any recommendations to the sub-panel that there should be a like safe distance like to the site of the mast, because I live about 10 to 12 feet away from this mast with 2 young children, so have you got any recommendations?

Dr. G. Carlo:

Yes. That is too close.

Male Speaker:

How can I do something about it?

Dr. G. Carlo:

I mean, you know, you really do have, as I said, the circumstances that you have now, you are exposing people to information-carrying radio waves; there are cell membrane responses being triggered right now. When you are in the vicinity of -- the near field of a mast, the concentration of those radio waves are far too high for safety. It is unfortunate, but we have had, in the United States now, a number of people who have the same situation, there is a mast next door and you have your house here and people are beginning to look at criminal trespass actions. This has nothing to do with the telecommunications laws; this has to do with my property rights. This is my property and in the United States you own 200 feet up, higher than 200 feet you do not own, but when I turn my phone on and it says T-mobile, now I know that T-mobile is trespassing and with this information in terms of the mechanism and the medical risk, it is akin to -- you know, it is one thing to come on your property and trespass, it is another thing to come on your property and punch you in the nose, and criminal trespass is punching somebody in the nose, and that is exactly what these are doing.

Senator B.E. Shenton:

The industry have told us that you are safer if you are closer to a mast, because the beam is pushed outwards and in fact the Health Minister stated that he would have no concerns having masts on hospitals or schools. Can you just clarify that position?

Dr. G. Carlo:

I know you did not believe that. I mean, I am telling you that is crazy. That is crazy. When you are closer to the mast you are within the range of the near field and I will tell you we have instance after instance where the industry will lead you to believe that you have this umbrella affect coming out from the mast; it is absolute hogwash, because the masts have directionality, in other words they have to send the beam in a certain direction to achieve the coverage that they want to achieve and if you are in that line it does not matter where you are and the only argument that makes any sense there is if you are hanging on to the bottom of the mast. So this is not logical, I am sorry, it is crazy and they keep feeding this stuff to you guys and you do not have a basis to say: "Look, hold on here, where are the data showing that that is the case?"

Mr. Newman:

My name is Mr. Newman. This is the first time I have come to a meeting about telephone masts or radiation and it has frightened me, what I have heard today, and as I am tackling this on a different scenario and that is drivers that use them, and it is the only thing that has been proven to kill people right now, people driving and using mobile phones has killed pedestrians and thousands of people, I know it is a huge problem in America, and when you mention the lawsuits, would that threaten the whole industry in any way? Could that bring it down? Could that end the whole use of mobile phones?

Dr. G. Carlo:

No, and I will tell you why. What will happen is that the industry will lose a couple of these lawsuits, whether they are related to accidental death from driving or whether they are related to brain tumours. They have no insurance. Once they lose the first or the second, they will go to the government for a bail out. The government will give it to them; the reason is because in the United States about 30 per cent of all of the retirement fund investments are tied to telecommunications stock.

Male Speaker:

The government have got a vested interest, have they not?

Dr. G. Carlo:

Yes. So, as a society we cannot afford for the telecommunications industry to go down, they know it, and that is why they have this unbelievable institutional arrogance.

Male Speaker:
It is such a huge industry, is it not?

Dr. G. Carlo:
Yes.

Female Speaker:
We live directly under a mast, it is the original operator's from the Island, and they have their emissions, without any public announcement, went over from 2G to 3G and they also have Tetra masts on the top. We have a family live there; we live and work there so we are bathed in these emissions the whole time. We have a 9-month old granddaughter and there are a lot of other properties around us. I have to say; I probably have great call to concern.

Dr. G. Carlo:
Yes. And again, this is, you know, I was on a radio show the other day and they said: "Well, are you scaremongering?" The fact of the matter is, is no. I am scared to death for you, for me, and we have a window of opportunity where preventive intervention will work and it starts here and it starts with you becoming empowered yourself, but this is potentially the most serious public health threat we have ever faced.

Female Speaker:
Is there a lot of difference between the Tetra, I do not know much about it, however you would put it, which is attached to the same mast as used for mobile phones; are we at greater risk because of that?

Dr. G. Carlo:

Well, it is additive. Again, the formula is easy, information-carrying radio waves, the more there are, the worse it is, and when you add Tetra to your regular wireless, you are adding more.

Deputy A. Breckon:

Is there anyone who has not asked a question who would like to ask a question?

Male Speaker:

I have learned a lot, I have never been to a meeting about this issue before publicly and I work in a school, so I am directly concerned and I remember our computer technician explaining to us a long time ago that it would be better to do the fibre optic cables as opposed to the Wi-Fi area, and luckily we have that in the school I work in. A lot of doom and gloom, a lot of parallels with the tobacco industry. I can see it probably going the same way. Are there any big players out there in the telecoms industry who have an ounce of ethical conscience?

Dr. G. Carlo:

Well, you know it is the tobacco industry again, it is the same public relations firms, it is the same law firms, it is more of the same. The same connection to government, all of that. If you look on the industry side of things you have somebody over here, in this part of the world, who could be important as a leader, and that is Richard Branson. The reason is that when we went public in 1999 with our findings, there was a big thing on ABC News 20/20 that focussed on our work and our findings and Richard Branson was on that show with me and at the time he had lost a friend to a brain tumour and he was all about talking on the headset and all of that. Somebody of that ilk and of that financial power and with that financial wherewithal, could be a tremendous help. In terms of the industry side, there needs to be someone like that who steps up.

Male Speaker:

I am in touch with Mr. Branson on this issue and he is the only one to listen out of all of them

Dr. G. Carlo:

I have been trying to get a phone conversation with him. If you are talking to him, tell him to give me a call.

Deputy A. Breckon:
Anybody else who has not asked a question?

Female Speaker:
Can you just tell me exactly how far away from the base station do you think I should be living?

Dr. G. Carlo:
Okay. It is an impossible question, and the reason is because you have to know what direction the signals are going in; you have to know how large the plume is.

Female Speaker:
They have said it is going to be 360 degrees, which I would imagine means that they are going to be transmitting a signal all around from it.

Dr. G. Carlo:
Right, an omni-directional, and some of them are, most of them are not. You can do the math, at 0.6 watts in a cell phone generates about an 8 to 9 inch plume, then you ramp that up to 100 watts and now you are up to a couple of hundred feet where you have a high concentration plume in an omni-directional antenna. But the difficulty is that you have directionality, so that if you are pointing all that signal in one direction, it can go out 4, 5, 600 feet and then there are excursions on top of that.

Female Speaker:
So we have got to get real technical knowledge about exactly where this beam is going to be facing.

Dr. G. Carlo:
Right and there are, on our website, for example, I am not trying to point you to the website, but on our website we have these devices that you can pick up, re-sell them for cost, we do not make a lot of money on them, that can do the measurements and

figure out what you are doing there, and the other thing is, in your homes, there are things called resonant cavities that occur and I do not know if any of you drove here in a car and use your cell phone in the car, your car is a resonant cavity, and a resonant cavity is a place where these information-carrying radio waves get trapped. They cannot get out. We have instance after instance where there are resonant cavities in schools because schools are made of construction that is sort of cheap construction, so there is a lot of metal in the walls and what happens is it provides this cavity and in a resonant cavity you have very, very high repetitive exposures, and that is one of our big concerns in terms of Wi-Fi in schools, because certainly a Wi-Fi is an information-carrying radio wave system, but you also have construction that is prone to become resonant cavity generators.

Male Speaker:
Like an airliner.

Dr. G. Carlo:
Yes, an airliner at the end of a flight when everybody turns on their cell phone. If you could have a vision of what is going on in the air, it is frightening, it really is.

Male Speaker:
Would that also apply to ferroconcrete surfaces, this resonance?

Dr. G. Carlo:
It depends on the makeup of metal in the concrete.

Male Speaker:
I find sometimes amplified sounds, music for example; it seems to carry much better in a ferroconcrete structure than bricks.

The Deputy of St. Peter:
Just on a technical point to clarify things that have been said, if we are looking at the transmissions that come from an aerial, we have a lobe that goes out, the actual power source at the aerial head does reduce so that the power at 600 feet will be a lot less

than the power at the aerial, and it reduces at the square of the distance, so the power levels do drop quite considerable. This is not in defence, this is a technical point.

Male Speaker:

What about the overlapping, 300 masts? Are you aware of that, 300 masts are being put up?

Dr. G. Carlo:

That is what the proposal is here, yes.

Male Speaker:

You understand, 300 masts on 56 square miles. What do you say to that?

Dr. G. Carlo:

What the problem is there is that if you had a fibre optic spine and you had 300 nodes transmitting at one to 2 watts with noise field protection, it is the best technology that is available, but you do not have that. They are adding 300 masts on top of what is already in existence. Whether or not they are going to turn the other ones off, you do not know. You know what you are talking about in the proposal to me looks like a serious overlay problem.

Deputy A. Breckon:

Is there anybody who has not asked a question would like to ask a question?

Female Speaker:

I wanted to say, from this, where does Wi-Fi in the schools stand? What happens? Does the scrutiny panel review go in and make a recommendation to them, or how does that work?

Deputy A. Breckon:

Well, it is something we are aware of and obviously we are in touch with Education. Education, Sport and Culture rent out some of their land for phone masts, so we are aware of what they are doing, and we have got some information from them, and that is one of the things that we have asked them for information about.

Female Speaker:

Actually Wi-Fi rather than the base stations?

Deputy A. Breckon:

Yes, we are, it is an area that we are looking at as well.

Dr. G. Carlo:

Can I make another comment related to the schools? We did a risk assessment over the past few months in a school in a community called Rancho Santa Fe, which is north of San Diego in California, it happens to be the wealthiest community in America. The people who live in Rancho Santa Fe are movie stars and professional athletes and musicians and all of that, and they have an elementary school there, one school, and of course in this school you have the leaders of the world to come, and that is the perception. Now, next to the school is a fire hall with a huge mast on it with 8 or 9 antennas, you really cannot even count them accurately without instrumentation. So, in the risk assessment we decided to take a look at and do measurements around the school and we found extremely high levels of information-carrying radio waves in the elementary school, in the playground, on the monkey bars, on the basketball court, all throughout the school yard. In California, they are really tuned into performance of these schools, you know, got to be the number one school. Well, this particular school was the number one school for 20 years, through 2002. The proliferation of these masts occurred between 2000 and now. In 2003 the school dropped from number one to number 7. In 2005 it dropped from number 7 to number 9 in terms of the performance of the children. When you look at the mechanism, which is disrupted intercellular communication, that explains Attention Deficit Disorder, difficulty focussing, learning problems. The other thing that you would look for are behavioural problems in the school. So that is something that you might want to take a look at, is the performance of the students in areas near where you have these base stations and also the amount of disciplinary problems that they have. Because all of that is consistent with early signs of disrupted intercellular communication.

Deputy A. Breckon:

Anybody else has not asked a question? Anybody that has asked a question would like to ask another question for the final question?

Ms. J. Simpson:

I am Jane Simpson and I work in a metal building where the powers that be have chosen to use Wi-Fi instead of fibre optic or any form of electrical connection for their servers and there are about 200 people in there and first of all it scares me because they have also put 2 masts on top of the building as well, and I am just wondering if it is possible, first of all, for you to put it on record your thoughts on the use of Wi-Fi instead of wires or fibre optic within business where there are a lot of employees, or even if there are a few employees.

Dr. G. Carlo:

Well, fibre optic is better. It is more efficient, it is better technology and it is safer. In a situation with structure, with metal, so that you have a high risk of forming resonant cavities within various parts of the office building, that is not good. At the very least, all of the point of use devices should have some type of protection the company should pay for. Again, you know, this is why we are so concerned, because the tide is going in the other direction. People are all excited about Wi-Fi; they are all excited about giving phones to 8-year old kids, and the industry will tell you that: "Well, you give a cell phone to an 8-year old kid, he is going to be safer." Where are the parents? I mean you should be able to keep track of an 8-year old, right? In all of this, consumers just sort of go and they grab on to the flow, so I am happy to be on the record with it, if you go to our website, safewireless.org, you will be able to download a whole bunch of papers and bring them in to the boss, tell him about the California workers comp, because this is where employers are going to have problems, because they are requiring people to work in environments that we now consider to be dangerous.

Deputy A. Breckon:

Well, thanks for that. I would like to close the meeting and thank Dr. George Carlo sincerely indeed for his time and effort tonight in sharing his experience with us and to the Jersey Phone Mast Group for organising this at fairly short notice, and also to everybody who has attended tonight. I did say, at the start of that, we have had a

number of public hearings and public meetings and the thing I hope you will believe is that your opinion and what we are doing will make a difference because it is about this, because I think at the start of this, people, the general public, felt they were being ignored and where there was concerns, the people in authority - I do not include myself in that - were ignoring that and hopefully we are addressing some of those issues. We are in the process of closing down the receipt of evidence, because we have to, we would give you the courtesy if there is anything that you think should be brought to our attention, if you could do that in the next 4 or 5 days or so. I know you are on the way back, that would really be appreciated, because we do wish to follow up on your organisation and the things that you have touched on tonight, because I think it will be of benefit because, as I said before, we are not here for ever more, but the fact is, the government will be, so perhaps we could put things in place, recommendations for others to follow through and I think perhaps the things you have said tonight could perhaps give that some direction. So we would really appreciate that. Again, I just close and I thank everybody and have a safe journey home, and thank our guest tonight. Thank you very much.

Dr. G. Carlo:
Thank you.