

January 13, 2016

To the FCC Office of Engineering and Technology

Informal Objections to Google application for Experimental License –
File No. 0747-EX-PL-2015

I ask you to deny Google's application for experimental license #0747-EX-PL-2015

The public is prevented from having meaningful input into this process. These experimental approvals at the FCC, approved by engineers, not independent medical professionals or scientists, without public hearings, without seeking public comment or testimony, and under the political pressure of an industry-dominated agency, happen outside the view of most Americans. Their only input is through casting informal objections over the industry-guarded wall of the FCC and hoping someone takes notice inside.

We in the public are the subject of experiments, with no informed consent. FCC rules are so permissive that it is difficult to know what they prevent, especially when pulses or RF packets of information are involved. For instance and by comparison, 4 bullets are fired in 6 minutes and time averaged as to force of impact, and then this is extrapolated to 24/7 exposure of bullets being fired. I can't imagine any sane person saying, "I feel safe living in this bullet-populated environment because the guidelines say there's no harmful impact that I would endure." Would FCC engineers be willing to test out that sort of real world comparison of their time-averaging scheme?

It's also obvious that very few FCC engineers are willing to admit having left a pot on the stove over a low burner and forgotten it for 15, 20, 30, 45 minutes, only to find the pot, which previously hadn't even gotten warm, was now boiled dry, the food burned black, and the pot red-hot and creating a fire hazard. If they had, this criminal and hysterically ridiculous 6-minute exposure rule would be laughed out of the room. It was only invented under immense political pressure to create a guideline that permits anything the military and the industry want to create. It reminds me of the plight of the Syrians, with ISIS oil tankers, supply trucks, and arms traveling back and forth constantly through the Turkish border with no restrictions. Unfortunately, the American public doesn't have a Russian Air Force to protect it.

Many environmental impacts will result from Google's deployment. It is frightening to think that Google lacks such common sense as to deploy their project and think that it will have no effect. It is even more frightening to realize that the public has very little power to prevent it.

Objections:

It's difficult to be completely specific on impacts, when the platform is unknown.

If Google uses balloons, then events will include:

- Crashes endangering life and property
- Crashes onto motorways – streets and highways – with pounds of equipment and large balloons. When that happens, there will be mayhem, damage, and deaths.

- Transmitters continuing to broadcast after a crash, creating high, immediately injurious levels of RF for people and wildlife
- Crashes in waterways and the ocean, creating plastic debris. Some of this will never be recovered.

Despite advertising perfectly controlled descents, Google engineers have told the public that they lose control over these balloons. There are no laboratory ideal conditions in reality. The danger to the public will be substantial. The public can be assured that these balloons will have many problems and probably cause deaths.

- Physical interference with airplane travel – “dodge ball” with a plane full of people
- Uncontrolled descending equipment-laden balloons crashing onto airplanes
- Balloons being sucked into engines
- RF interference with FAA NexGen GPS or radar systems – balloons will be above airline routes, between planes and satellites
- RF interference with plane functioning such as the cell phone that caused vital aircraft systems to malfunction
- RF radiation affecting pilots, crew, and passengers
- Crashes without any knowledge or response from Google, such as the crash in South Africa - the omniscience of connectivity doesn't exist.
- Crashes onto power lines. This has happened at least once already and is completely unacceptable. Blackouts to the grid cause impacts to public safety that cannot be mitigated. And if the blackout in a region caused problems with nuclear power plants, the impacts would be beyond calculating.

Drones will have many of the same problems. Remote-controlled hobby planes routinely crash when they encounter interference; the pilot has no control of the rudder on his radio. This is similar to what utility companies discovered when they moved from their PowerPoint presentations and sims to real life -- Smart Meters and their network often don't work under real world conditions. The animations of drones (or balloons) all doing what they're supposed to, in sync with controllers, is nothing but the pure fantasy of cartoon worlds. Approval of this and other experimental projects brings liability on the FCC because these problems are easily forecasted.

And what of hacking? These are wireless. Drones or balloons, the controls can be altered by those who are skilled. Drones have a greater capacity for harm if hijacked. That could be horrifying.

Interference will occur on many levels. In addition to interference with airplanes, there could also be interference with medical devices and implants in people, security systems, a whole host of electronics and communication devices, and hospital monitoring equipment. People with metal implants could experience hotspots, just as with other sources of wireless radiation. There will be issues of reflection; if 600 MHz is used for part of Google's system, allowing greater penetration into buildings, automobiles, and planes, passengers of planes could be exposed to considerable reflection factors. “Fried in the sky” might be a new slogan.

The impact of these space-based systems, individually and together, on aviation ultimately affect the economy. When planes start crashing, it will take all the powers of spin doctors in Washington to keep the public in the dark. Would they blame that on terrorism, too?

RF emissions from Google's system are not reassuring when 0.000000000001 microW/cm² caused genetic alteration in e coli bacteria in a 1996 study. That's 1/ten-trillionth microW per cm². In answer to whether there is a safe level of exposure to microwave radiation, particularly pulsed, the answer is probably "no." Yet, the FCC continues to push an engineering-based thermal-only model which has always ignored biology.

It's embarrassing as an American when foreign organizations such as the Austrian Medical Association propose preliminary "normal" levels of exposure 10,000,000 times lower than U.S. FCC "safe" guidelines. The Austrian Medical Association did not even say their proposed levels were safe, only more protective. And they set very abnormal and unsafe levels of RF exposure 10,000 times beneath FCC guidelines' so-called "safe" levels. Are FCC levels safe or easy?

On a practical level, I regularly deal with the fall-out from FCC guidelines. I know people who formerly had homes and careers and participated in society. Now, since the wireless revolution, they suffer cardiac, neurological, and immune impacts, some of them life-threatening, and often excruciating pain. Many are now homeless, destitute, and with nowhere safe to go. These already impacted individuals are terrified at the possibility of Google, SpaceX and other systems being deployed and how they will be affected. The high frequencies in Google's application also have more power and may actually break DNA bonds, rather than cause DNA damage by other mechanisms.

These space internet schemes will provide agony and increased struggle for growing numbers of people in the U.S. The environmental impacts to all species will be great. Eagles were suffering seizures and dying several years ago. Biologists were at a loss to understand, but it wasn't mysterious to those who know or have experienced the neurological effects of microwave radiation. Either military or industry experimentation easily explains this suffering.

With current cancer estimates being 1 out of 2 people getting cancer, and 1 in 5 children having mental disorders, and rates of autism that are approaching 1 in 50 children, we are in a health crisis.

The research has been clear for years on the impacts. Attached are a number of documents including the 1973 paper by the Canadian National Research Council "Electromagnetic Pollution by Microwave Radiation: A Potential Threat to Human Health."

The US falls further and further behind the rest of the world in addressing this issue, with its conspicuous lack of safeguards of any kind. In contrast, other countries have repeatedly taken action.

The surveillance issue is another serious consideration. I have never given my permission for Google to conduct surveillance over my community. Yet it does, every day. The frequencies Google

is experimenting are used for DHS-style scanning. They can look through objects. The possibilities for scanning populated areas and providing detailed interior modeling may be endless. That would be illegal. Google's insistence on secrecy, while stripping the public of their privacy, does not engender any confidence in their purposes. The public has no protection from the overt or covert uses by Google and other companies in concert with the federal government. These space-based systems become just another assault on an increasingly ill public.

Finally, there is the occupation of the commons above us -- the sky that belongs to everyone being filled with commercial and hazardous enterprises and junk. That is a crime against the earth and every creature on earth.

There are too many considerations to allow this application to proceed. The informal objection by GUARDS is absolutely right: "Global wireless access, with all its serious safety problems, is an unacceptable hazard." The public "benefits" from being able to stream NetFlix anywhere, in contrast to the many serious and harmful impacts, make the cost/benefit quite simple.

Deny this project as having unacceptable public safety impacts.

Sincerely,

Nina Beety
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