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EMF Safety Network (Network) appreciates this chance to participate in the proposed rule making: National Highway Traffic Safety Administration NHTSA-2016-0126.

Network was founded in 2009, and is a coalition of business and property owners, and utility customers. We provide public education on health, environmental, and safety impacts associated with electromagnetic fields (EMFs) including wireless radiation (RFR) and offer resources in support of public policy change. We have participated in formal proceedings on utility smart meters at the California Public Utilities Commission (CPUC) since 2010.¹ We thank you for taking the RFR public health concerns of the proposed vehicle-to-vehicle (V2V) technology seriously.

Network strongly opposes mandating V2V in cars and light trucks. All roadway corridors will have significant increases in RFR exposure from V2V and supporting infrastructure. V2V poses increased safety hazards from RFR exposure to drivers, passengers, people in homes who live along roadways, cyclists, and pedestrians. Increased RFR exposure from V2V threatens nature, trees, birds, bees and other insects. Vulnerable populations such as children, seniors, people with electromagnetic hypersensitivity (EHS), and people with medical implants are at greater risk of harm. Assertions of RFR harm are based in peer reviewed published science.

The stated purpose of the V2V deployment is to improve driving safety by warning drivers of imminent crash risks in time to avoid them and pave the way for self-driving cars. The V2V technology planned is omni-directional, allowed to transmit up to approximately 2 watts of power output at 10 MHz and 5.9 GHz with a range of 300

¹ EMF Safety Network website: <http://emfsafetynetwork.org/>

meters, or three football fields in length, every 100 milliseconds, or 10 pulses a second. The proximity of the transmitter to the driver and passengers is unknown, but could be in the range of inches to a few feet away from people in the car.

NHTSA's assertion that “no scientific evidence establishes a causal link between wireless device use and cancer or other illnesses” is inaccurate. A causal connection cannot be ruled out, and a growing body of science links RFR to harm, enough to warrant the application of safety precautions.

- In 2011, RFR was classified as a possible (2b) carcinogen by the International Agency for Research on Cancer at the World Health Organization.² The stated reason for the 2b classification is *“A positive association has been observed between exposure to the agent and cancer for which a causal interpretation is considered by the working group to be credible, but chance, bias or confounding could not be ruled out with reasonable confidence.”*
- In 2016 The National Toxicology Program published a 25 million dollar study which is one of the largest and most comprehensive studies on RFR and cancer. A causal effect is credible between RFR and two types of cancers, glioma, a brain tumor, and schwannoma, a tumor in the heart. The summary includes, *“Given the widespread global usage of mobile communications among users of all ages, even a very small increase in the incidence of disease resulting from exposure to RFR could have broad implications for public health.”*³
- The BioInitiative Report 2012 prepared by 29 authors from ten countries, reviewed 2000 studies and conclude, *“EMF and RFR are preventable toxic exposures. We have the knowledge and means to save global populations from multi-generational adverse health consequences by reducing both ELF and RFR exposures. Proactive and*

² http://www.iarc.fr/en/media-centre/pr/2011/pdfs/pr208_E.pdf

³ <http://ntp.niehs.nih.gov/results/areas/cellphones/index.html>

immediate measures to reduce unnecessary EMF exposures will lower disease burden and rates of premature death."⁴

- The International EMF Scientist Appeal: 224 scientists have signed the International EMF Scientist Appeal. Scientists call for Protection from Non-ionizing Electromagnetic Field Exposure: *"We are scientists engaged in the study of biological and health effects of non-ionizing electromagnetic fields (EMF). Based upon peer-reviewed, published research, we have serious concerns regarding the ubiquitous and increasing exposure to EMF generated by electric and wireless devices. These include—but are not limited to—radiofrequency radiation (RFR) emitting devices, such as cellular and cordless phones and their base stations, Wi-Fi, broadcast antennas, smart meters, and baby monitors as well as electric devices and infra-structures used in the delivery of electricity that generate extremely-low frequency electromagnetic field (ELF EMF)."*⁵

NHTSA's assertion that there's no scientific basis to link EHS symptoms to EMF exposure is false.

- Microwave frequency electromagnetic fields (EMFs) produce widespread neuropsychiatric effects including depression⁶ *"In summary, then, the mechanism of action of microwave EMFs, the role of the VGCCs in the brain, the impact of non-thermal EMFs on the brain, extensive epidemiological studies performed over the past 50 years, and five criteria testing for causality, all collectively show that various non-thermal microwave EMF exposures produce diverse neuropsychiatric effects."* Health effects listed included sleeping problems, headache, fatigue, concentration and memory changes, dizziness, irritability, anxiety, nausea, and EEG changes.

⁴ <http://www.bioinitiative.org/>

⁵ <https://www.emfscientist.org/>

⁶ <http://www.sciencedirect.com/science/article/pii/S0891061815000599>

- Symptoms After Exposure to Smart Meter Radiation⁷: Ronald Powell Ph,D evaluated two reviews of smart meter health impacts side by side. He compares EMF Safety Network Survey results (USA 2011) to an Australian peer reviewed study by Dr. Frederica Lamech (AUS 2014). The top symptoms reported from exposure to utility RFR smart meters in both reviews include symptoms listed by Dr. Martin Pall in the above referenced study: sleeping problems, headache, fatigue, concentration/memory loss, anxiety, tinnitus, heart palpitations, and more.
- Electromagnetic hypersensitivity: evidence for a novel neurological syndrome.⁸ *“In a double-blinded EMF provocation procedure specifically designed to minimize unintentional sensory cues, the subject developed temporal pain, headache, muscle twitching, and skipped heartbeats within 100 s after initiation of EMF exposure...”* *“The subject demonstrated statistically reliable somatic reactions in response to exposure to subliminal EMFs under conditions that reasonably excluded a causative role for psychological processes.”* *“CONCLUSION: EMF hypersensitivity can occur as a bona fide environmentally inducible neurological syndrome.”*
- EUROPAEM EMF Guideline 2016 for the prevention, diagnosis and treatment of EMF-related health problems and illnesses.⁹ *“This EMF Guideline gives an overview of the current knowledge regarding EMF-related health risks and provides recommendations for the diagnosis, treatment and accessibility measures of EHS to improve and restore individual health outcomes as well as for the development of strategies for prevention.”*
- **The NHTSA’s assertion that The National Environmental Policy Act does not apply is false.** V2V will have significant impact on the quality of the human

⁷ <http://emfsafetynetwork.org/wp-content/uploads/2015/03/Symptoms-after-Exposure-to-Smart-Meter-Radiation.pdf>

⁸ <https://www.ncbi.nlm.nih.gov/pubmed/21793784>

⁹ <https://www.ncbi.nlm.nih.gov/pubmed/27454111>

environment, including harmfulness of RFR on nature.

- The US Department of the Interior states wireless radiation threatens birds, and they criticize the FCC's radiation safety guidelines stating, "*the electromagnetic radiation standards used by the Federal Communications Commission (FCC) continue to be based on thermal heating, a criterion now nearly 30 years out of date and inapplicable today.*" Two hundred forty one bird species are at mortality risk from both tower collisions and from exposure to the radiation towers emit. This includes birds that are endangered or threatened, Birds of Conservation Concern, migratory birds, and eagles. Studies of radiation impacts on wild birds documented nest abandonment, plumage deterioration and death. Birds studied included House Sparrows, White Storks, Collared Doves, and other species. Studies in laboratories of chick embryos documented heart attacks and death.¹⁰
- Scientists in Germany studied tree damage in relation to RFR from 2006-2015. They monitored, observed and photographed unusual or unexplainable tree damage, and measured the RFR the trees were exposed to. "*The aim of this study was to verify whether there is a connection between unusual (generally unilateral) tree damage and radiofrequency exposure.*" They found significant differences between the damaged side of a tree facing a phone mast and the opposite side, as well as differences between the exposed side of damaged trees and all other groups of trees in both sides. They found no tree damage in low radiation areas. The scientists concluded, "*Statistical analysis demonstrated that electromagnetic radiation from mobile phone masts is harmful for trees.*"¹¹
- Studies show insects are harmed by RFR: Food collection and response to pheromones in an ant species exposed to electromagnetic radiation found exposure to

¹⁰ U.S. Department of Interior letter and background: http://www.ntia.doc.gov/files/ntia/us_doi_comments.pdf

¹¹ <https://www.ncbi.nlm.nih.gov/pubmed/27552133?dopt=Abstract#>

radiation caused colony deterioration and affected social insects' behavior and physiology.¹² Oxidative and genotoxic effects of 900 MHz electromagnetic fields in the earthworm concluded radiation caused genotoxic effects and DNA damage in earthworms.¹³

- Mobile Phone Induced Honey Bee Worker Piping. The study abstract states, “*The worldwide maintenance of the honeybee has major ecological, economic, and political implications.*” Cell phone RFR was tested for potential effects on honeybee behavior. Handsets were placed in the close vicinity of honeybees and the sound made by the bees was recorded and analyzed. The information revealed that active cell phone handsets induced the bees worker piping signal. “*In natural conditions, worker piping either announces the swarming process of the bee colony or is a signal of a disturbed bee colony.*”

The NHTSA’s assertion that V2V will not have a disproportionate effect on children, and therefore Order 13045, “Protection of Children from Environmental Health and Safety Risks” does not apply is false.

- In 2013 the American Academy of Pediatrics an organization of 60,000 primary care pediatricians, pediatric medical sub-specialists, and pediatric surgical specialists wrote to the FCC, “*Children are not little adults and are disproportionately impacted by all environmental exposures, including cell phone radiation. Current FCC standards do not account for the unique vulnerability and use patterns specific to pregnant women and children. It is essential that any new standard for cell phones or other wireless devices be based on protecting the youngest and most vulnerable populations to ensure they are safeguarded throughout their lifetimes.*”¹⁴

¹² <https://www.ncbi.nlm.nih.gov/pubmed/23320633>

¹³ <https://www.ncbi.nlm.nih.gov/pubmed/?term=23352129>

¹⁴ <https://ecfsapi.fcc.gov/file/7520941318.pdf>

- Bioinitiative 2012 conclusions¹⁵ warn that scientific evidence shows children are more vulnerable to RFR effects, including the risk of autism. *They state, “There is good evidence to suggest that many toxic exposures to the fetus and very young child have especially detrimental consequences depending on when they occur during critical phases of growth and development (time windows of critical development), where such exposures may lay the seeds of health harm that develops even decades later.”*
- See also Sage and Associates FCC filing for in-depth review of the science, including RFR effects on children.¹⁶

The NHTSA’s assertion that consumer education by the Federal Government and vehicle manufacturers may help to alleviate RFR concerns is unlikely to help with public acceptance. We anticipate the public backlash to a mandated V2V technology will be comparable to the backlash against the smart meter deployment, which resulted in the customers right to not have a smart meter on their homes in many US states, through state legislation or Public Utility Commission rulings. Multiple lawsuits have been filed against smart meters with many of the cases still pending.

V2V technology is essentially radar in every car. Many people are aware that lawsuits have been filed by police officers over radar guns and cancer. This report by the LA Times states, “Radar Guns May Beam Danger to Officers: Law enforcement: Cancer in police personnel has prompted lawsuits, changes in training and cautionary note from FDA.”¹⁷

AM Best, an insurance rating company, is warning about financial risks for emerging technologies, including RFR. They compare the US property/casualty industry asbestos losses at \$85 billion and warn that losses from emerging technologies could be extremely

¹⁵ <http://www.bioinitiative.org/conclusions/>

¹⁶ <https://ecfsapi.fcc.gov/file/7520940054.pdf>

¹⁷ http://articles.latimes.com/1992-01-13/local/me-229_1_traffic-radar-guns

significant.¹⁸

The Federal Communications Commission (FCC) is not a health agency and they cannot be relied on to serve the public health interest.

- In 2013 EMF Safety Network submitted comments on FCC proceedings 13-84 and 03-137 asking for biologically based safety guidelines for RFR exposure. These proceedings remain incomplete by the FCC. The FCC has not updated its wireless exposure guidelines since 1996. Meanwhile there has been an explosion of wireless devices in homes across America, and forced deployment of radiation on the general population. Until these proceedings are completed, no federal agency should proceed to roll out mandates for such pervasive, involuntary programs like 5G millimeter wave deployment, Internet of Things, Smart Cities. and V2V technology.
- The federal government has taken sole responsibility for the radiation safety of personal wireless service deployment,¹⁹ however, no federal agency is acting responsibly, or taking accountability for protecting the public and the environment from the health effects of RFR exposure.
- The FCC is strongly criticized by investigative journalist Norm Alster in a report published by Harvard University. Captured agency: How the Federal Communications Commission is dominated by the industries it presumably regulates.²⁰ Alster calls on the FCC to acknowledge there may be wireless health risks, to back off wi-fi promotion, to acknowledge children and pregnant women may be more vulnerable and more. He writes, *“Personally, I don’t believe that just because something can be done it should heedlessly be allowed. Murder, rape and Ponzi schemes are all doable but*

¹⁸ AM Best: Emerging Technologies Pose Significant Risks with Possible Long Tail Losses <http://www.ambest.com/directories/bestconnect/EmergingRisks.pdf>

¹⁹ 47 U.S.C. § 332(c)(7); 47 C.F.R. 1.1307(b) and 1.1310, which are based on perceived harm of overheating of human tissues by RF radiation.

²⁰ <http://bit.ly/FCCcaptured>

subject to prohibition and regulation. Government regulators have the responsibility to examine the consequences of new technologies and act to at least contain some of the worst. Beyond legislators and regulators, public outrage and the courts can also play a role but these can be muffled indefinitely by misinformation and bullying.”

EHS and the Americans with Disabilities Act (ADA)

In order to maintain and protect their health, people who have EHS practice prudent avoidance of EMFs, a practice the State of California and the Federal Government recognize and encourage.²¹ This encouragement to reduce EMF exposures is not solely for the benefit of people with EHS, but for all people to who want to protect their health.

Network has received thousands of complaints from utility customers since the smart meters and related infrastructure have been deployed. Although some people were aware, others were unaware of EHS prior to the installation of smart meters, and some have become EHS as a result of smart meter exposure. *Most people never suspected that a utility meter could cause physical suffering! Similarly, most people would not suspect a safety feature in a car, like V2V technology could cause physical suffering!*

A person with EHS could be considered to have a disability under ADA law if the impairment substantially limits one or more major life activities. In California, the ADA long has been treated as a floor rather than a ceiling of protection. For example, the Government Code at Section 12926.1 states: *(a) The law of this state in the area of disabilities provides protections independent from those in the federal Americans with Disabilities Act of 1990 (P.L. 101-336). Although the federal act provides a floor of protection, this state's law has always, even prior to passage of the federal act, afforded additional protections. (c) In addition, the Legislature has determined that the definitions of "physical disability" and "mental disability" under the law of this state require a "limitation" upon a major life activity, but do not require, as does the federal Americans*

²¹ California Electric and Magnetic Fields Program [Short Factsheet on EMF](http://ehib.org/cehtp/cehtp.org/emf/shortfactsheet.pdf) 1999 pp.3,4

with Disabilities Act of 1990, a "substantial limitation." This distinction is intended to result in broader coverage under the law of California than under that federal act.

The V2V system presents ADA issues related to public access as ADA Title III²² prohibits discrimination by public places and commercial facilities. The V2V system will add significant increased RFR exposure to the environment within 300 meters of roads, parking lots, sidewalks, hospitals, schools, stores, public transportation, parks, government offices, etc. will all be affected by the V2V deployment and present severe mobility limitations on people with EHS.

In conclusion, we appreciate the goal of NHTSA to make driving safer. However we believe V2V technology will not make driving safer, but will make driving more harmful to people and the environment, create mobility access barriers, and should be stopped.

Respectfully submitted on April 12, 2017:

/s/ _____

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²² "Title III covers businesses and nonprofit service providers that are public accommodations, privately operated entities offering certain types of courses and examinations, privately operated transportation, and commercial facilities." A Guide to Disability Rights <http://www.ada.gov/cguide.htm#anchor62335>