



KYLE PITSOR

Vice President, Government Relations

October 14, 2014

Submitted online at: <https://apps.fcc.gov/oetcf/kdb/reports/PublishedDocumentList.cfm>

Mr. Rashmi Doshi
Federal Communications Commission
Director, Office of Engineering and Technology
Laboratory Division
445 12th Street SW
Washington, DC 20554

NEMA Comments to FCC Document 640677 D01, Draft Laboratory Division Publications Report

Dear Mr. Doshi,

The National Electrical Manufacturers Association (NEMA) appreciates the opportunity to provide the attached comments on the FCC's Draft Testing Guidance for Radiated Emissions Testing of Lighting Products. These comments are submitted on behalf of NEMA Lighting Systems Division member companies.

As you may know, NEMA is the association of electrical equipment and medical imaging manufacturers, founded in 1926 and headquartered in Arlington, Virginia. Its 400-plus member companies manufacture a diverse set of products including power transmission and distribution equipment, lighting systems, factory automation and control systems, and medical diagnostic imaging systems. The U.S. electroindustry accounts for more than 7,000 manufacturing facilities, nearly 400,000 workers, and over \$100 billion in total U.S. shipments.

Please find our detailed comments below. We look forward to working with you further on this important effort. If you have any questions on these comments, please contact Alex Boesenberg of NEMA at 703-841-3268 or alex.boesenberg@nema.org.

Sincerely,

A handwritten signature in dark ink that reads "Kyle Pitsor". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Kyle Pitsor
Vice President, Government Relations

NEMA Comments to FCC Document 640677 D01
Draft Laboratory Division Publications Report

NEMA appreciates the invitation from earlier this year for representatives of the Lighting Industry to meet at the FCC Washington DC headquarters for discussions pertaining to the testing and operation of lighting products with respect to Title 47 CFR Parts 15 and 18. We appreciate the trust placed in us by the FCC staff at the end of the meeting as we pledged to enter into joint industry discussions with Verizon and other representatives of the telecommunications industry to attempt to understand incidents in the field related to interference and find appropriate solutions. These discussions are still ongoing, and ties of cooperation and communication between our industries are being formed. While we appreciate the FCC's interest in clarifying testing requirements as soon as possible, we recommend that the FCC allow our joint working group to reach conclusions and deliver the resulting recommendations to the FCC before issuing final guidance.

As a general comment, the draft guidance proposes a very expensive requirement for certain general service lighting products that are a key part of national energy efficiency policy, and the proposal does not appear to be aimed at the real problem, as we heard it at our meeting this past Spring, and as described to us by Verizon in our industry meetings.

In response to the specific issues raised or being alluded to in the draft document, we offer the following remarks in no particular order.

1. It is difficult for us to reply to the draft guidance because the FCC has not provided technical details to illustrate the issues they are trying to address. At the April meeting with industry, the FCC noted field reports involving lighting products, but has not responded to our requests for details on specific technical issues regarding them. We understand that the FCC's reporting model might not lend itself to technical details, and the primary concern is eliminating interference as soon as humanly possible, but to preemptively solve a technical issue it must first be accurately identified.
2. As stated in the proposed clarification, RF Lighting Devices have had a very good record of not causing interference to authorized radio services since the early 1980s and to the current day. Lighting manufacturers and the FCC have a common objective of avoiding interference since lighting customers and end users do not wish to be involved in complaints regarding interference situations. Accordingly, the industry has a long history of cooperating with the FCC and participating in rulemaking activities related to establishing the requirements for RF Lighting Devices, some of which are cited by the OET in its document.
3. We are challenged in replying to the draft guidance additionally because in the draft the FCC discusses LED products in both the context of them being Unintentional Radiators and as being Digital Devices. The key difference between these two classifications is that Digital Devices may be tested under Class A or Class B requirements depending on their intended application (which most NEMA members are doing today), while Unintentional Radiators can only be tested to Class B requirements. We ask the FCC to clarify this position for our (and your) understanding.

4. We also agree with the current emissions testing situation as described by OET. Quoting from the current OET document:

"The Part 18 rules specify both AC power line conducted emissions limits below 30 MHz and radiated emissions limits above 30 MHz (See §§ 18.307(c) and 18.305(c), respectively) Earlier generations of RF lighting products used operating frequencies below 3 MHz and rarely produced significant emissions above 30 MHz. Therefore, radiated emissions measurements were not routinely required. (See §18.309)"

Thus, today for most RF Lighting Devices §18.309 obviates the need to meet radiated limits, and, up until now, this has seemed to be reasonable in that instances of interference, especially from Part 18 RF lighting devices, as acknowledged by the OET, have been extremely small, especially given the hundreds of millions of devices in the field.

5. In the draft guidance document at page 2 the FCC mentions and specifically calls out interference caused by LED advertising signage and stadium displays, but then appears to leave those products out of the increased testing requirements, focusing instead on general service LED lamps and ballasts in general service fluorescent lamp products. This proposal is inconsistent with our discussions with representatives of Verizon who informed our working group that there were only 4 incidents in 2013 and four so far in 2014 involving general service lighting products, none of which appear to be Solid State Lighting products. In fact, the bulk of their reported field incidents are related to the aforementioned LED signage and displays, products that are outside of NEMA's product scope. These are not general purpose lighting products to which the proposed additional testing burden is directed. It does not make sense to ignore the small rate of incidents in general service lighting and overlook a much larger number of incidents occurring in another sector. According to NEMA internal market data from the past five calendar years, the installed base for linear fluorescent ballasts and high intensity discharge ballasts, the two types of product that have been involved in field reports, is on the order of 472 million units. Most of these products last between 10 and 20 years, so the installed base is MUCH larger. Assuming other wireless carriers have experienced similar incidents, this amounts to an incident rate of a few dozen installations among many millions, an extremely low number, and it is not indicative of a systemic problem. We ask the FCC to consider this very important fact as it re-examines its draft guidance.
6. Regarding manufacturer assistance in field incidents, NEMA members have noted to NEMA staff their very supportive assistance with field incidents whenever they have been informed by a carrier or by FCC. Furthermore, we have begun putting together a list of technical points of contact at manufacturers' offices to provide to the wireless industry, so as to involve technicians who can address problems more thoroughly and in a way that is expected to provide better technical feedback as to the root causes. The current reporting process does not reliably gather technical information that can be used to predict and reduce field interference, as we note above. Regardless, the very low number of field problems involving general purpose lighting would seem to suggest that current testing practices and the current field correction process are working. This system is not broken.

7. It is difficult for the lighting industry to comment on how future incidents might be avoided more effectively, when we do not understand the difference between normal, unavoidable background noise levels versus “harmful interference”. Clauses 15.5 and 18.111 in the FCC regulations both direct that the emissions of incidental radiators shall not cause any “harmful interference” to licensed spectrum holders. FCC Part 2.1 defines Harmful Interference as “Interference which endangers the functioning of a radionavigation service or of other safety services or seriously degrades, obstructs, or repeatedly interrupts a radiocommunication service operating in accordance with [the ITU] Radio Regulations.” These requirements are vague and the subject draft guidance does not offer any additional clarification of exactly what constitutes “harmful interference” in terms of the products involved. Parts 15 and 18 and the FCC’s draft guidance focus on incidental radiators, without adequately explaining what kind of immunity or resistance to interference is reasonably expected of the licensee’s equipment. In today’s highly electrified and electronic world, there will always be some level of background noise. It would then seem fair for the FCC to define and establish thresholds for noise floor, to level the playing field and increase fairness. We are not suggesting that spectrum licensees have to accept high levels of interference, merely that unintentional, minor radiation not immediately be labeled harmful without due process.
8. It should be also noted that the US DOE is actively promoting the adoption of SSL technology and has projected a rapid penetration of such products including a demise of the traditional Part 18 Lighting Devices such as CFLs, fluorescent electronic ballasts, and HID electronic ballasts. We understand this inevitable proliferation concerns the FCC and is the cause of this review. As we stated in our April 25, 2014 meeting with FCC, the NEMA lighting industry supports helping the Commission in publishing guidance and reviewing their regulation as necessary. Additionally, Industry Canada has initiated a regulations review to address SSL products, and the lighting industry is interested in aligning these efforts as much as possible.
9. NEMA has not been able to gather adequate technical information regarding field interference issues with other carriers as yet, and as noted above the FCC has not provided any. Besides the need for detailed technical summaries of incidents, another aspect not yet explored is if there are ways to mitigate interference through wireless communications protocols and system design. If certain carriers do not have as many incidents in the field, but other do, this begs an investigation by a joint industry panel, or by the FCC, to identify possible interference mitigation methods that could be employed by all. While some designs and protocols might be proprietary, this should not be assumed. If nothing else, the FCC should be interested in this from the aspect of increasing the robustness of emergency communications channels.
10. As we note above, additional investigation and assessment of which types of interferences are at issue; we have learned recently concerns expressed by the wireless communications industry in the frequency range of 700MHz - 1000 MHz. It is not immediately clear to us if the existing and proposed FCC part 15 and part 18 radiated emissions limits will offer sufficient protection against any type of interference in this range. These limits pre-date cell phone communications commoditization. A scientific investigation of the maximum radiated permissible emissions, and the minimum cell phone operation immunity limits is needed. For cell phone immunity standards, a good starting point is to evaluate IEC standards IEC 61000-4-31 and IEC 61000-4-39. The

FCC's study and analysis should be completed and made available for public review and comment before changing the existing rules to maximize the cost benefit to society. In the meanwhile, the existing reporting and correction system can serve to address field incidents.

11. Regarding emergency communications spectrum, NEMA wonders if the old regulations regarding interference should be reexamined in light of the numerous communications pathways and technologies that have come into widespread use since the regulations were established. The multiple redundancies of modern communications paths, WiFi, cable and fiber optic internet, wireless telephone, radio and others imply that fierce defense of a single pathway is no longer critical. It is arguably out of scope of this immediate issue, but we encourage the FCC to consider this in other business.
12. The implied goal of the draft guidance is to reduce interference problems in the field and proposes to do so by increasing the testing requirements on the subject products. While we do not disagree that sometimes increased testing requirements are the appropriate path to solve incidents of conflict, the lack of technical substantiation in this case calls into question whether the proposal will actually result in any marked improvement in the field. It has come to our attention that some NEMA members have done *selective* testing on their products in recent years very similar to the draft proposal. Those products in question did not exceed the emissions thresholds. This further calls into question whether the proposed increased testing requirements will result in any noticeable change in the field, other than an increase in testing costs which will be passed to the consumers of these products.
13. Given this situation, and given the common lighting industry and FCC objectives of minimizing potential interference as this SSL new technology rapidly penetrates into the field, and given the fact that it is most advantageous to allocate limited lighting industry resources where the most benefit will be achieved, we have the following recommendations related to the original OET goal of clarifying requirements for RF Lighting Devices:
 - We reaffirm the long accepted responsibility that regardless of the RF Lighting technology embodied in a lighting product, be it traditional Part 18 lighting devices, diminishing over time, or Part 15 lighting devices, manufacturers must and will always need to respond to and address any interference complaint. We are certain that the FCC will agree with our contention that the industry has proven responsive in this regard, and we plan to maintain this tradition. In addition we will work to educate new entrants into the SSL area as to their obligations as well, via white papers and industry interactions via professional activities, including, but not limited to, IES committees and symposia.
 - We propose that rather than dilute the efforts of the industry, that traditional Part 18 RF Lighting devices not be required to meet additional radiated limits at this time.
 - We propose that the FCC wait to establish additional emissions testing requirements for SSL products until our joint-industry working group to assess SSL product interference and testing requirements is concluded and we deliver our findings and recommendations to the FCC.

In conclusion:

The proposed testing guidance unfairly and substantially increases testing burden on a single industry without proving that the increased testing will in fact solve the problem. The proposal is not directed at products that the carriers have told us is their most serious problem. The draft guidance could likely result in no improvement in reducing the few field incidents relative to general service lighting products and only increase significantly the cost of and hinder the adoption of these energy-efficient lighting products.

Given these serious concerns about the draft guidance and the breadth of the proposal directed at products that present no serious or statistically significant interference problem, while ignoring products that the carriers report to us is their principal concern, NEMA has an important legal question. It appears to us that the guidance is really an amendment of 47 CFR §15.33 and 47 CFR §18.309, and we must necessarily inquire why this is not a proceeding pursuant to Notice and Comment rulemaking under the Administrative Procedure Act (APA). As the draft guidance indicates at page 2, “earlier generations of RF lighting products rarely produced significant emissions above 30 MHz. Therefore, radiated emissions measurements were not routinely required (See §18.309).” As we point out above in item 5, for general service lighting products within the NEMA scope this is still the case today: general service lighting products rarely produce significant emissions above 30MHz. Nothing has really changed. If the FCC believes it is necessary to continue with its draft proposal that radically changes the regulatory requirements applicable to general service lighting products, which requirements are certain to impose a significant regulatory burden without achieving comparable benefits, NEMA submits that a rulemaking to amend the rules under the APA is required. This will also allow the FCC to evaluate cumulative regulatory burden in view of the significant testing burden these products face under Department of Energy regulations and/or EPA’s Energy Star requirements. See Executive Order 13563, 76 FR 3281 (January 21, 2011).¹

We are very happy to collaborate with the FCC on this important subject. We suggest the FCC investigate and gather data to support the proposed changes, and in the meantime allow the joint industry working group to continue their own investigations and discussions. Following the publication of better data regarding interference incidents and the conclusion of discussions between industries, stakeholders should then come back to the FCC to collaborate on a more effective and fair solution. In the meanwhile, the joint industry working group is establishing technical contact lists and communications relationships to improve the accuracy and effectiveness of field incident reporting and resolution. This alone should improve field conditions.

¹ EO 13563 requires an agency (1) propose or adopt a regulation only upon a reasoned determination that its benefits justify its costs (recognizing that some benefits and costs are difficult to quantify); (2) tailor regulations to impose the least burden on society, consistent with obtaining regulatory objectives, taking into account, among other things, and to the extent practicable, the costs of cumulative regulations; (3) select, in choosing among alternative regulatory approaches, those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity); (4) to the extent feasible, specify performance objectives, rather than specifying the behavior or manner of compliance that regulated entities must adopt; and (5) identify and assess available alternatives to direct regulation, including providing economic incentives to encourage the desired behavior, such as user fees or marketable permits, or providing information upon which choices can be made by the public.