December 29, 2015

Via E-mail and U.S. Mail
bruce.jacobs@fcc.gov
rashmi.doshi@fcc.gov

Bruce Jacobs, Chief
Spectrum Enforcement Division
Enforcement Bureau
Federal Communications Commission
445-12th Street, S.W.
Washington, D.C. 20554

Dr. Rashmi Doshi, Chief
Laboratory Division
Office of Engineering and Technology
Federal Communications Commission
7435 Oakland Mills Rd
Columbia MD 21046-1609

Re: Complaint of Violation of Part 18 Marketing Regulations
By Wal-Mart Stores, Inc. with Respect to RF Lighting Devices.

Dear Mr. Jacobs and Dr. Doshi:

This office represents ARRL, the national association for Amateur Radio, formally known as the American Radio Relay League, Incorporated. The purpose of this letter and the attached evidentiary document entitled "*FCC Part 18 Marketing Violations by Wal-Mart Stores, Inc.*" (the Report) prepared by ARRL Laboratory Staff member Mike Gruber is to request on behalf of ARRL that the Commission investigate and commence an enforcement proceeding with respect to Walmart's marketing and retail sale of radio frequency (RF) lighting devices in the United States. ARRL purports to show that the hardware and home improvement chain is, in at least one store located in Connecticut (and by inference in other stores nationwide) marketing and selling to consumers (by retail sale) non-consumer, Part 18 RF lighting devices which are *not* intended for residential deployment, to consumers who have specifically noted their intention to deploy the devices in residential applications.

As is noted in the attached Report, there are within the Part 18 ISM rules [See Sections18.305(c) and 18.307(c)] two classes of Conducted and Radiated Emissions limits for RF lighting devices such as CFLs and Electronic Fluorescent Light Ballasts. One is for consumer equipment (defined at Section 18.107 as that category of ISM equipment which is used or intended to be used by the general public in a residential environment, notwithstanding its use in other areas). The other is for non-consumer equipment (which of necessity is intended for non-residential applications). These classes of limits are vastly different. For example, the conducted emission limits for Amateur Radio allocations below 30 megahertz are 22 dB different as between consumer and non-consumer applications. Section 18.213(d) states that "manufacturers of RF lighting devices must provide an advisory statement, either on the product packaging or with other user documentation, similar to the following: This product may cause interference to radio equipment and should not be installed near maritime safety communications equipment or other critical navigation or communication equipment operating between 0.45-30 MHz."

ARRL has received numerous complaints from amateur radio operators of significant noise in the Medium (MF) and High Frequency (HF) bands between 1.8 MHz and 30 MHz from "grow lights" and other Part 15 and Part 18 RF lighting devices. These devices are easily capable of emitting RF noise sufficient to preclude Amateur Radio MF and HF communications (and as well AM Broadcast station reception) throughout entire communities (and at distances of up to ½ mile from the device). ARRL has, as is noted in the attached Report, conducted studies in several states, including California, Massachusetts and Connecticut and has discovered an alarming number of instances of retail sale of electronic lighting ballasts, in which non-consumer-rated ballasts were mixed in with consumer ballasts and other consumer products and available for retail sale without guidance as to the proper deployment of them. Furthermore, the display signage in many cases did not mention or adequately address FCC Part 18 requirements as they pertain to interference in a residential environment. In most of the stores surveyed, unsuspecting consumers have no way of knowing the significance of consumer vs. non-consumer ballasts. In some cases, "commercial" grade ballasts, with their associated non-consumer emissions limits, appeared to be a merely heavier duty or longer lasting version of the same product. The display signage typically used implies, therefore, that commercial ballasts are also a product upgrade for home use. It typically does not include or mention the applicable FCC requirements or the radio interference potential of the device.

Although Part 18 rules describe limits for consumer and non-consumer RF Lighting Devices, many ballasts are labeled only as either "Part 18A" or "18B". This nomenclature is clearly an adaptation from Part 15A and 15B, which pertains to commercial/industrial and residential digital devices, respectively. Part 18 does not include an A or B designation for RF lighting devices and the labelling is not at all helpful to consumers and, as used, has no regulatory connotation at all.

In the one case of actual purchases of an RF Lighting device at retail from a Walmart store, the purchaser specifically asked about residential deployment of non-consumer RF lighting ballasts. The device was actually purchased in each case cited. It is readily apparent that Walmart (and, in ARRL's experience, other similar hardware retail sellers including Home Depot and Lowe's have the same marketing practices) is actively and knowingly engaged on a daily basis in selling non-consumer, commercial RF lighting products to Walmart customers for residential deployment. If this activity is left unchecked, the Commission will continue to note a deterioration in ambient noise levels and preclusive interfering signals for both AM Broadcasters and Amateur Radio licensees in the entirety of the High Frequency bands.

ARRL respectfully requests that all non-consumer devices be removed from retail sale and marketing at Walmart, absent a more appropriate and informational marketing program. Those non-consumer devices that have been sold to consumers for residential installation should be tracked and recalled.

Given the foregoing, on behalf of the more than 730,000 licensed radio amateurs in the United States who have a significant interest in avoiding interference in residential environments from RF lighting devices which were never intended to be deployed in a residential environment, ARRL respectfully requests that your offices take the appropriate action with respect to Walmart and other similar chains of retail sales of these devices without delay.

Should any additional information be called for, please contact the undersigned, General Counsel for ARRL, the national association for Amateur Radio. Thank you very much for your consideration of this request.

Sincerely,

Christopher D. Imlay
General Counsel, ARRL

Attachment

Copy to: Karen Roberts, Executive Vice President and General Counsel for Wal-Mart Stores, Inc. 702 SW 8th Street Bentonville, AR 72716-8611 Karen.Roberts@wal-mart.com (via U.S. Mail and e-mail)

FCC Part 18 Marketing Violations by Wal-Mart Stores, Inc.

By Mike Gruber, ARRL Laboratory Staff

October 20, 2015

Introduction

Non-electronic ballasts, which once dominated the fluorescent light market, operated under FCC Rule Part 15 as incidental radiators. Today they have been phased out in favor of newer electronic ballasts which, along with CFL bulbs, operate under Rule Part 18 as "RF Lighting Devices." In this case, FCC considers these devices to be converting RF energy above 9 kHz directly into light, i.e., another form of energy. For this reason, the Commission classifies an electronic ballast as an ISM device.

Part 18 Limits for RF Lighting Devices

As shown by Appendix A, Part 18 has two sets of limits for RF Lighting Devices. Specifically, there is a separate set of limits for consumer vs. non-consumer lighting devices. The emissions limits are considerably lower for consumer rated devices. As an example, the conducted emissions limits for all present ham bands below 30 MHz are 22 dB less for consumer rated devices. It should also be noted that these are the only devices that should be used for a home or residential applications. Per § 18.107 (g), consumer ISM equipment is to be "*used or intended to be used by the general public in a residential environment, notwithstanding use in other areas.*"

Although non-consumer devices might be suitable for commercial and industrial environments, ARRL is now receiving numerous reports of actual cases in which commercial RF lighting devices are causing harmful interference in residential areas.

Illegal Marketing by Walmart of Part 18 RF Lighting Devices

A recent survey of fluorescent light ballasts on sale at a nearby Walmart store showed an alarming number of non-consumer rated ballasts mixed with or on display adjacent to consumer products. Furthermore, there is no display signage at the store to address or mention FCC Part 18 requirements as they pertain to interference in a residential environment. Unsuspecting consumers have no way of knowing the difference in interference potential of consumer vs. non-consumer ballasts. Most consumers would simply assume that any product available at a consumer retail store like Walmart would be suitable for residential consumer use.

As will be seen in the photos of Figure 1, there was no store signage that addressed or mentioned the applicable FCC requirements. Figure 4 shows the only product labeling available at the time of purchase. This is the only mention of or reference to Part 18 rules that would be available to the Walmart customer at the time of purchase. Even if the customer read the label, which is in small print, it would clearly not be reasonable to expect him or her to know or understand its meaning or significance.

Note: Although Part 18 only describes limits for consumer and non-consumer RF Lighting Devices, many ballasts are only labeled as either Part 18A or 18B. This nomenclature is clearly an adaptation from Part 15A and 15B, which pertains to commercial/industrial and residential digital devices, respectively. Part 18 rules, however, do not include an A or B designation for RF

lighting devices and therefore the nomenclature has no regulatory or informational meaning at all.

<u>Figure 1A</u> – The store display as viewed by a customer walking down the aisle. The ballasts are on the bottom shelf. There is no signage to provide customers with guidance in ballast selection. Furthermore, there is no mention of the FCC rules, FCC Rule Part 18, or the potential of these devices to cause radio interference.

<u>Figure 1B</u> – Ballasts as viewed from the center of the isle.

Figure 1C – Ballast display.

Figure 1D – Ballasts as seen while looking down.

See Appendix B for pertinent definitions and rules in Part 18, particularly with regard to the marketing and sale of non-consumer devices to consumers. Additional information in Appendix C is taken from Part 2 of the FCC rules. Appendix D is for reference purposes only. It contains some of the equivalent rules with regard to Part 15A (non-consumer) and Part 15B (consumer) digital devices.

Walmart's Marketing and Sale of a Non-Consumer RF Lighting Device for Residential Purposes

This case highlights the actual marketing and sale of a commercial ballast by Walmart to a residential user. Furthermore, the non-consumer or "commercial" product was actually purchased after consulting with a sales associate. Specifically, the customer asked the Walmart sales associate about the use of a commercial Part 18 non-consumer rated ballast in a residential environment.

The Investigation and Sale of a Non-Consumer Device at a Nearby Walmart

On September 24, 2015, Ms. Lori Kosior purchased a non-consumer rated General Electric GE232MAX ballast from a Walmart located at the following address:

Walmart
3164 Berlin Turnpike
Newington, CT 06111
Tel: (860) 667-7657

Before selecting the ballast, Ms. Kosior reports that she asked the sales associate for assistance. She pointed out that it was labelled as a "non-consumer" device and asked if she could use it in the basement of her home. The Walmart associate then asked if the ballast was a "light bulb."

Once Ms. Kosior explained that it was a ballast and not a light bulb, the associate told her that she needed to speak to a person in the lighting department. That person, however, was at lunch. It was approximately 2 pm and Ms. Kosior didn't want to wait. Ms. Kosior then thanked the associate and paid for this device using a Master Card at the store's check out.

This non-consumer item was in not flagged during check-out. After paying for it, Ms. Kosior simply walked out of the store with it. See Figures 4 and 5 for photos.

Figure 2 – Close-up of ballasts on display at a Walmart in Newington, CT. Although a few ballasts were initially in the wrong box, three different types of ballasts are included. On the right in a broken box are non-consumer ballasts for fixtures with two T8 bulbs. These ballasts are labeled Part 18A. In the center box are ballasts for T12 bulbs. These ballasts can be either a consumer or non-consumer device, depending on voltage. See Figure 3 for additional details. In the far left box are non-consumer ballasts for two T8 bulbs – probably the most common application for ballasts in a residence. See Figure 4 for close-up of label on this device.

Figure 3 – Close-up of T12 ballasts in the center box shown in Figure 2. As can be seen in this photo, this ballast is labeled FCC Part 18 "Class A" (277V) and FCC Part 18 "Class B" (120V). It can be either a consumer or non-consumer device, depending on the voltage.

<u>Figure 4</u> – Close-up of label on a ballast from the left hand box depicted in Figure 2. This ballast is clearly labeled FCC Part 18, Non-Consumer. As such, it should not be marketed or sold to consumers for residential purposes. This is also the same ballast depicted in Figure 5 and purchased by Ms. Kosior. It is important to note that the label makes no mention of what the FCC Part 18 citation might signify to the consumer, and there is no reference to the potential for radio interference. The consumer would have no way of knowing that a commercial device should not be used in a residential environment.

<u>Figure 5</u> – This is the non-consumer ballast purchased by Ms. Kosior at the Walmart store in Newington, CT. A copy of the actual sales receipt is included.

The particular ballast purchased by Ms. Kosior was mixed in with consumer and non-consumer "commercial" ballasts. Other than what is shown in Figure 4, there is no additional store signage or product labeling for the consumer. Ms. Kosior was clearly not properly informed about the requirements of Part 18 or the additional interference potential when using this device at the time of purchase. While the device label does include a statement "FCC Part 18, Non-Consumer," it is in small print and the purchaser has no way of knowing what this means. There is no mention – anywhere – of radio interference or a warning against using it in a home environment. It would be unreasonable to expect the typical customer to understand the significance of the label.

Once home, Ms. Kosior opened the box and found an instruction sheet inside. This documentation included the following warning:

WARNING: PLEASE READ THE FOLLOWING NOTICE BEFORE INSTALLING "CLASS A" ELECTRONIC FLOURESCENT LIGHT BALLASTS!

This equipment has been tested and found to comply with FCC 47 CFR Part 18, Non-Consumer RFI/EMI ("Class A") limits. This Ballast should only be installed in a commercial environment. Do not install this ballast in a residential environment.

Also at the bottom of the sheet is the following statement:

FOR COMMERCIAL USE ONLY. NOT FOR RESIDENTIAL (CONSUMER) USE

FCC 47 CFR Part 18, Non-Consumer Rated Product.

Since neither statement specifically mentions radio equipment, maritime safety, communications equipment or critical navigation equipment, it should probably also be noted that these statements deviate considerably from the required warning per Part 18. See FCC rule § 18.213, particularly paragraph (d), which is as follows:

"(d) Manufacturers of RF lighting devices must provide an advisory statement, either on the product packaging or with other user documentation, similar to the following: This product may cause interference to radio equipment and should not be installed near maritime safety communications equipment or other critical navigation or communication equipment operating between 0.45-30 MHz. Variations of this language are permitted provided all the points of the statement are addressed and may be presented in any legible font or text style

Since the ballasts in this particular store were all packaged in plastic, it is not known which, if any, came with an instruction sheet having the proper FCC advisory statement as required by § 18.213 (d).

Conclusion & Recommendations

Clearly Walmart's marketing and sale of non-consumer ballasts is not adequate to ensure compliance with FCC Part 18 requirements. This was demonstrated by the case described in this report, which includes the purchase of non-consumer ballasts after clearly telling store personnel

that a product was needed for residential use. Furthermore, there was no store signage or sales associate available at the time that could properly guide Ms. Kosior at the time of this purchase. The only labeling that she could see without opening the box is undoubtedly meaningless to most customers that would purchase such a device at a department store like Walmart. Even if a customer read the small print on this label, he or she should not be expected to know the significance of consumer vs. non-consumer ratings based solely on this vague and ambiguous reference.

Walmart is not only selling and marketing commercial devices to consumers, their sales staff is not knowledgeable or simply not available to properly advise its customers. It is, therefore, recommended that Walmart be reported to the FCC for the illegal and misleading marketing of Part 18 non-consumer lighting devices.

Since Walmart is primarily a consumer retail department store, it arguably should not be selling any non-consumer devices. However, should Walmart choose to continue to do so, some specific marketing recommendations would be as follows:

1) Non-consumer (Commercial) and consumer (Residential) products should be marketed from two different locations, with a clear separation between them.
2) Add clear and obvious display signage stating that commercial devices should not be used in a residential environments. Reference should be made to FCC Part 18 rules and the increased potential for commercial devices to cause radio interference if used in a residential environment.
3) Purchasers of commercial devices should be required to provide a valid contractor's number at the time of purchase.
4) Walmart should sell only Part 18 non-consumer lighting devices that:

a. Are clearly labeled as such and visible at the time of purchase. A suggested notice might include:
"CAUTION: This is an FCC Part 18 Class A device and may cause harmful interference to radio communications. It should not be used in a home or residential environment. Any interference to authorized radio services caused by this device in a residential environment must be corrected by the user at his or her expense."
b. Include the proper and complete FCC warning per § 18.107 (g).

List of Appendices

1) Appendix A - Part 18 Emissions limits for RF Lighting Devices (Including Electronic Fluorescent Light Ballasts)

2) Appendix B - Part 18 - Pertinent Definitions and Rules

3) Appendix C - Part 2 - Pertinent Definitions and Rules

4) Appendix D - Part 15 - Pertinent Definitions and Rules

Appendix A

Part 18 Emissions limits for RF Lighting Devices (Including Electronic Fluorescent Light Ballasts)

Table 1A - Part 18 Conducted Emissions Limits (For RF Lighting Devices, such as CFLs and Electronic Fluorescent Light Ballasts)

Frequency (MHz)	Maximum RF line voltage measured with a 50 uH/50 ohm LISN (uV)	Conducted limit (dBµV)
Consumer equipment:		
0.45 to 2.51	250	48
2.51 to 3.0	3,000	70
3.0 to 30	250	48
Non-consumer equipment:		
0.45 to 1.6	1,000	60
1.6 to 30	3,000	70

(d) If testing with a quasi-peak detector demonstrates that the equipment complies with the average

Table 1B - Part 18 Radiated Emissions Limits for RF lighting devices

Frequency (MHz)	Field strength limit at 30 meters (µV/m)
Non-consumer equipment:	
30-88	30
88-216	50
216-1000	70
Consumer equipment:	
30-88	10
88-216	15
216-1000	20

Appendix B

Part 18 - Pertinent Definitions and Rules

§ 18.107 Definitions.

(a) *Radio frequency (RF) energy.* Electromagnetic energy at any frequency in the radio spectrum from 9 kHz to 3 THz (3,000 GHz).

(b) *Harmful interference.* 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 this chapter.

(c) *Industrial, scientific, and medical (ISM) equipment.* Equipment or appliances designed to generate and use locally RF energy for industrial, scientific, medical, domestic or similar purposes, excluding applications in the field of telecommunication. Typical ISM applications are the production of physical, biological, or chemical effects such as heating, ionization of gases, mechanical vibrations, hair removal and acceleration of charged particles.

(g) *Consumer ISM equipment.* A category of ISM equipment used or intended to be used by the general public in a residential environment, notwithstanding use in other areas. Examples are domestic microwave ovens, jewelry cleaners for home use, ultrasonic humidifiers.

(i) *Marketing.* As used in this part, marketing shall include sale or lease, offer for sale or lease, advertising for sale or lease, the import or shipment or other distribution for the purpose of sale or lease or offer for sale or lease. See subpart I of part 2 of this chapter.

NOTE: In the foregoing, sale (or lease) shall mean sale (or lease) to the user or a vendor who in turn sells (or leases) to the user. Sale shall not be construed to apply to devices sold to a second party for manufacture or fabrication into a device which is subsequently sold (or leased) to the user.

§ 18.203 Equipment authorization.

(a)) Consumer ISM equipment, unless otherwise specified, must be authorized under either the Declaration of Conformity or certification procedure prior to use or marketing. An application for certification shall be filed with the Commission on an FCC Form 731, pursuant to the relevant sections in part 2, subpart J of this chapter and shall also be accompanied by:

(1) A description of measurement facilities pursuant to § 2.948, or reference to such information already on file with the Commission.

(2) A technical report pursuant to §§ 18.207 and 18.311.

(b) Consumer ultrasonic equipment generating less than 500 watts and operating below 90 kHz, and non-consumer ISM equipment shall be subject to verification, in accordance with the relevant sections of part 2, subpart J of this chapter.

§ 18.213 Information to the user.

Information on the following matters shall be provided to the user in the instruction manual or on the packaging if an instruction manual is not provided for any type of ISM equipment:

(a) The interference potential of the device or system

(b) Maintenance of the system

(c)) Simple measures that can be taken by the user to correct interference.

(d) Manufacturers of RF lighting devices must provide an advisory statement, either on the product packaging or with other user documentation, similar to the following: This product may cause interference to radio equipment and should not be installed near maritime safety communications equipment or other critical navigation or communication equipment operating between 0.45-30 MHz. Variations of this language are permitted provided all the points of the statement are addressed and may be presented in any legible font or text style.

Appendix C

Part 2 - Pertinent Definitions and Rules

§ 2.1 Terms and definitions.

Interference. The effect of unwanted energy due to one or a combination of emissions, radiations, or inductions upon reception in a radiocommunication system, manifested by any performance degradation, misinterpretation, or loss of information which could be extracted in the absence of such unwanted energy. (RR)

§ 2.801 Radiofrequency device defined.

As used in this part, a radiofrequency device is any device which in its operation is capable of emitting radiofrequency energy by radiation, conduction, or other means. Radiofrequency devices include, but are not limited to:

(c) The industrial, scientific, and medical equipment described in part 18 of this chapter.

(d) Any part or component thereof which in use emits radiofrequency energy by radiation, conduction, or other means.

§ 2.909 Responsible party.

The following parties are responsible for the compliance of radio frequency equipment with the applicable standards:

(a) In the case of equipment which requires the issuance by the Commission of a grant of equipment authorization, the party to whom that grant of authorization is issued (the grantee) If the radio frequency equipment is modified by any party other than the grantee and that party is not working under the authorization of the grantee pursuant to § 2.929(b), the party performing the modification is responsible for compliance of the product with the applicable administrative and technical provisions in this chapter.

(b) In the case of equipment subject to authorization under the verification procedure, the manufacturer or, in the case of imported equipment, the importer. If subsequent to manufacture and importation, the radio frequency equipment is modified by any party not working under the authority of the responsible party, the party performing the modification becomes the new responsible party.

(c) In the case of equipment subject to authorization under the Declaration of Conformity procedure:

(1) The manufacturer or, if the equipment is assembled from individual component parts and the resulting system is subject to authorization under a Declaration of Conformity, the assembler.

(2) If the equipment, by itself, is subject to a Declaration of Conformity and that equipment is imported, the importer.

(3) Retailers or original equipment manufacturers may enter into an agreement with the responsible party designated in paragraph (c)(1) or (c)(2) of this section to assume the responsibilities to ensure compliance of equipment and become the new responsible party.

(4) If the radio frequency equipment is modified by any party not working under the authority of the responsible party, the party performing the modifications, if located within the U.S., or the importer, if the equipment is imported subsequent to the modifications, becomes the new responsible party.

(d) If, because of modifications performed subsequent to authorization, a new party becomes responsible for ensuring that a product complies with the technical standards and the new party does not obtain a new equipment authorization, the equipment shall be labelled, following the specifications in § 2.925(d), with the following: "This product has been modified by [insert name, address and telephone number of the party performing the modifications]."

[54 FR 17712, Apr. 25, 1989, as amended at 61 FR 31045, June 19, 1996; 62 FR 10470, Mar. 7, 1997; 62 FR 41880, Aug. 4, 1997]

Appendix D

Part 15 - Pertinent Definitions and Rules

§ 15.105 Information to the user.

(a) For a Class A digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

(b) For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help.

(c) The provisions of paragraphs (a) and (b) of this section do not apply to digital devices exempted from the technical standards under the provisions of § 15.103.

(d) For systems incorporating several digital devices, the statement shown in paragraph (a) or (b) of this section needs to be contained only in the instruction manual for the main control unit.

(e) In cases where the manual is provided only in a form other than paper, such as on a computer disk or over the Internet, the information required by this section may be included in the manual in that alternative form, provided the user can reasonably be expected to have the capability to access information in that form.

[54 FR 17714, Apr. 25, 1989, as amended at 68 FR 68546, Dec. 9, 2003]