

value that does not accurately reflect the interference potential because the average could include blanking intervals between signal bursts that would be excluded from an average calculated over a shorter time interval. We also decline to allow trained operators to use equipment which operates with a 10 dB higher power than currently permitted, as requested by Enalasys. Such equipment would have a higher potential for interference to other services, and it is unlikely that even a trained operator would have sufficient information to determine whether harmful interference would occur in a particular location. We decline to broaden the criteria under which more rapid duty cycles are permitted as requested by JCI, or to allow setup transmissions longer than 5 seconds as requested by Interlogix. JCI and Interlogix have not shown why the existing limits are inadequate for the situations it identified. Finally, we decline to change our requirement for a device to cease transmission within five seconds after being activated automatically or after release of a control that manually activates it, and we decline to specify the five second time as excluding the "off" time between pulses. This requirement to cease transmissions within five seconds prevents continuous transmissions which could result in interference to other devices.

14. As recommended by Interlogix and Ademco, we will permit remote control devices to transmit for a maximum of two seconds per hour, instead of the current one second, for polling the integrity of transmitters used in security or safety applications. The number of individual transmissions will not be limited, provided the total transmission time does not exceed two seconds per hour. This change will allow for increased reliability in alarm systems by permitting systems checks to be performed at more frequent intervals. Any increased interference potential as a result of this change is negligible because polling transmissions will still only be permitted for less than one tenth of one percent of the time.

Radio Frequency Identification Systems

15. Radio frequency identification (RFID) systems use radio signals to track and identify items such as shipping containers and merchandise in stores. A system typically consists of a tag mounted on the item to be identified, and a transmitter/receiver unit that interrogates the tag and receives identification data back from the tag. The tag may be a self-powered transmitter, or it may receive power

from the interrogating transmitter. RFID systems can operate in a number of frequency bands under part 15. Part 15 currently permits the operation of intentional radiators, including RFID systems, in the 13.553–13.567 MHz band at a field strength limit of 10,000 $\mu\text{V}/\text{m}$ at 30 meters. Emissions outside this band must comply with the radiated emission limits in § 15.209, which specifies a limit of 30 $\mu\text{V}/\text{m}$ at 30 meters for emissions in the 1.705–30 MHz band.

16. In the *NPRM*, the Commission proposed to modify the part 15 limits for operation in the 13.553–13.567 MHz band and the adjacent 13.110–13.553 MHz and 13.567–14.010 MHz bands, as requested by National Council for Information Technology Standardization Technical Committee B10 (NCITS B10), to allow the development of RFID tags capable of operating uniformly in the United States, Europe and Australia. Specifically, the Commission proposed to increase the maximum field strength within the 13.553–13.567 MHz band from 10,000 $\mu\text{V}/\text{m}$ to 15,848 $\mu\text{V}/\text{m}$ at a distance of 30 meters, to increase the maximum field strength permitted in the 13.410–13.553 MHz and 13.567–13.710 MHz bands from 30 to 334 $\mu\text{V}/\text{m}$ at 30 meters, and to increase the maximum field strength permitted in the 13.110–13.410 MHz and 13.710–14.010 MHz bands from 30 to 106 $\mu\text{V}/\text{m}$ at 30 meters. These are the limits developed by the European Telecommunications Standards Institute (ETSI) for low power devices operating in these bands. The Commission further proposed to allow devices operating in the 13.110–14.010 MHz band to place emissions other than spurious emissions into the 13.36–13.41 MHz restricted band because that band is used at only one radio astronomy site in Florida and NTIA has no objection to allowing emissions from RFID devices in this restricted band. In addition, the Commission proposed to allow powered RFID tags and readers to be approved together and labeled with a single FCC identification number.

17. CEA, Chester Piotrowski, DataBrokers, Inc. (DataBrokers), Gap, Inc., MagTek, Inc., Motorola, NCITS B10, Philips Semiconductor (Philips), the Telecommunications Industry Association (TIA), and Texas Instruments (TI) support the proposed changes, stating they will allow increased range for RFID tags, permit the development of new types of devices, and harmonize the United States regulations with those of other countries. TI states that this rule change would simplify the design and

manufacturing of RFID products and allow lower costs due to worldwide commonality of standards. Both TI and Philips state that the proposed changes would allow higher security, data transfer rates and read range performance in RFID applications. HID Corporation believes the proposed emission limits are not likely to cause interference to other services and will benefit the public by permitting devices with better performance. It believes that the 13.36–13.41 MHz band should be removed from the list of restricted bands to permit sidebands from devices at 13.553–13.567 MHz to fall in that frequency range.

18. Cubic Corporation (Cubic) states it does not support the proposed changes for RFID tags unless a quantitative analysis is provided to show that new systems will not interfere with existing RFID systems in the band. It states that the petition was premised on the idea that RFID tags would not be self-powered, but new self-powered devices are being developed that will increase the noise floor in the band. Both Cubic and Nikolaus E. Leggett state that part 15 devices should not be permitted to operate in the 13.36–13.41 MHz radio astronomy band because that would make it unusable for radio astronomy. TI responds that Cubic has not shown that operation of RFID tags under the proposed parameters would cause interference to other part 15 RFID tags, and that the emissions from RFID tags would be too low to cause interference to radio astronomy. NTIA states that it has no objection to operation of RFID devices in the 13.110–14.010 MHz band, which includes the 13.36–13.41 MHz restricted band, at the emission levels proposed in the *NPRM*.

19. We are adopting the changes proposed in the *NPRM* to increase the maximum field strength permitted in the 13.553–13.567 MHz band from 10,000 to 15,848 $\mu\text{V}/\text{m}$ at 30 meters, to increase the maximum field strength permitted in the 13.410–13.553 MHz and 13.567–13.710 MHz bands from 30 to 334 $\mu\text{V}/\text{m}$ at 30 meters, and to increase the maximum field strength permitted in the 13.110–13.410 MHz and 13.710–14.010 MHz bands from 30 to 106 $\mu\text{V}/\text{m}$ at 30 meters. In addition, we will permit emissions other than spurious emissions in the restricted band at 13.36–13.41 MHz. These changes will allow for improved operation of RFID tags in the 13.56 MHz band without adverse consequences to other devices, and will allow for the development of RFID tags that can work in both the United States and other countries. As proposed in the *NPRM*, we also will allow powered RFID tags to be