



PUBLIC NOTICE

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FCC ENFORCEMENT ADVISORY

ENFORCEMENT BUREAU TAKES ACTIONS TO COUNTER INTERFERENCE TO FAA TERMINAL DOPPLER WEATHER RADAR STATION

The Enforcement Bureau recently took several actions against companies for operating devices that caused interference to the terminal doppler weather radar station operated by the Federal Aviation Administration (FAA) in San Juan, Puerto Rico, collectively proposing almost \$100,000 in fines.¹ The FAA uses terminal doppler weather radar, operating in the 5.60 – 5.65 GHz band, to warn pilots of hazardous weather conditions that could affect—or even threaten—aircraft arriving at, or departing from, airports in the continental United States and in Puerto Rico.²

Enforcement Bureau investigations revealed that outdoor wireless devices—particularly those operated by wireless Internet service providers or “WISPs” to provide point-to-point broadband connectivity—caused much of the interference. The devices were located near, or in the line of site of, the FAA’s terminal doppler weather radar station. In most cases, the devices were configured by the user or installer to operate in a manner inconsistent with the Commission’s part 15 rules, which govern radio transmitters, ranging from WiFi hotspots to garage door

¹ *Broadband Telecommunications Network, Corp. (d/b/a Integra Wireless), San Juan, Puerto Rico*, Notice of Apparent Liability for Forfeiture and Order, DA 19-802 (EB 2019) (proposing a \$25,000 forfeiture); *CA Solutions, Inc., Caguas, Puerto Rico (d/b/a Boom Net) and Boom Net, LLC, Caguas, Puerto Rico (d/b/a Boom Net)*, Notice of Apparent Liability for Forfeiture and Order, DA 19-801 (EB 2019) (proposing a \$25,000 forfeiture); *Caribbean Network Solutions, Inc., Bayamon, Puerto Rico*, Notice of Apparent Liability for Forfeiture and Order, DA 19-433 (EB 2019) (proposing a \$20,000 forfeiture); *WinPR, Inc., San Juan, Puerto Rico*, Notice of Apparent Liability for Forfeiture and Order, DA 19-803 (EB 2019) (proposing a \$25,000 forfeiture).

² Although the recent sanctions focused on the San Juan, Puerto Rico, terminal doppler weather radar station, the Enforcement Bureau has previously sanctioned device operators that have caused interference to terminal doppler weather radar stations in other parts of the country. *See, e.g., Towerstream Corporation, Middletown, Rhode Island*, Notice of Apparent Liability for Forfeiture and Order, 28 FCC Rcd 11604 (2013), *terminated in* Order, 31 FCC Rcd 8530 (EB 2016); *Directlink, LLC, Parker, Colorado*, Notice of Apparent Liability for Forfeiture, 29 FCC Rcd 1809 (EB 2014), *forfeiture ordered*, Forfeiture Order, 29 FCC Rcd 1809 (EB 2014), *recons granted in part* 30 FCC Rcd 2222 (EB 2015); *Rapidweave, LLC, Saratoga Springs, Utah*, Notice of Apparent Liability for Forfeiture and Order, 26 FCC Rcd 10678 (EB 2011), *forfeiture ordered*, Forfeiture Order, 29 FCC Rcd 1109 (EB 2014).

openers, that the Commission allows to be operated without an individual license.³ The Enforcement Bureau continues to investigate interference to terminal doppler weather radar stations and will take appropriate enforcement action, as necessary.

What do the rules require?

Operators, manufacturers, and marketers of Unlicensed National Information Infrastructure (U-NII) devices capable of operating in the 5.25 GHz – 5.35 GHz and 5.47 GHz – 5.725 GHz bands are cautioned that only devices certified under part 15, subpart E of the Commission’s rules may be operated as U-NII devices. For U-NII devices operating as a master device (i.e., controlling the configuration of other U-NII devices) and operating in the 5.25 GHz – 5.35 GHz and 5.47 GHz – 5.725 GHz bands, Dynamic Frequency Selection radar detection must be enabled.⁴

Dynamic Frequency Selection is a feature that enables U-NII devices and government radar stations to share the same spectrum. When a U-NII device has Dynamic Frequency Selection enabled, the device first monitors available spectrum for radar signals. Then, if the device detects a radar signal, it selects a new channel and/or flags the occupied channel as unavailable.⁵ Thus, for example, when a U-NII device with Dynamic Frequency Selection enabled detects the FAA’s terminal doppler weather radar station in San Juan, Puerto Rico, operating on 5.610 GHz, the U-NII device will not use channels that overlap with that frequency. Conversely, however, when operators take steps to disable Dynamic Frequency Selection (such as by setting the device to operate with a country code other than the United States),⁶ the U-NII device does not perform this pre-check for radar signals and, as a result, may operate in a manner that interferes with nearby FAA radar stations.

Operators are cautioned that using an uncertified U-NII device, or using a certified U-NII device in a manner inconsistent with its equipment certification, violates the Commission’s part 15 rules and may result in interference to radio communications services critical to public safety. An operator may not modify the radio frequency capabilities of a device to (i) defeat or disable Dynamic Frequency Selection, or (ii) enable the device to operate in a manner inconsistent with the radio frequency parameters included in its certification.

Operators are also cautioned that federal law prohibits willful or malicious interference to authorized radio communications.⁷ Any operation of the U-NII device must not cause harmful interference to authorized radio communications, and if harmful interference occurs—even if the device in use was properly certified and configured—operation of the U-NII device must cease

³ 47 CFR §§ 15.1, *et seq.*

⁴ *See* 47 CFR §§ 15.401–15.407.

⁵ *See Revision of Parts 2 and 15 of the Commission’s Rules to Permit Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band*, Report and Order, 18 FCC Rcd 24484, 24495 (2003).

⁶ Many U-NII device manufacturers use the country code setting as a means of automatically configuring a device to operate with the parameters applicable to that country. Thus, setting the United States country code during the initial setup of a U-NII device is often a simple way to enable Dynamic Frequency Selection.

⁷ *See* 47 U.S.C. § 333.

immediately and must not resume until the condition causing the interference has been corrected.⁸

Manufacturers of U-NII equipment for the 5 GHz bands are also reminded of their obligation to implement radio security measures to protect against third-party software modification of the radio frequency parameters that would cause the device to operate in a manner inconsistent with the device's equipment authorization or the Commission's rules.⁹

What Should U-NII Operators Do to Comply?

Operators of U-NII devices must ensure certified devices are installed, configured, and operated in accordance with the Commission's rules. Proper operation of U-NII devices is particularly important when they are situated near terminal doppler weather radar stations and especially in the context of U-NII devices operated outdoors by wireless Internet service providers. U-NII device operators are responsible for following the manufacturer's configuration instructions to ensure that Dynamic Frequency Selection is enabled, when required. For many devices, Dynamic Frequency Selection is automatically enabled when the operator sets the U.S. country code when initially configuring the device.

Operators of U-NII devices under the Commission's part 15 rules must not only refrain from causing interference but also must accept interference from licensed devices, including terminal doppler weather radar stations. When avoiding or mitigating interference to other stations, operators of U-NII devices are cautioned that the devices must be operated within applicable technical parameters, including center frequency and power limitations.

What Should Manufacturers and Retailers (Both On-Line and Physical Stores) Do to Comply?

Manufacturers must ensure that U-NII devices capable of operating in the 5.25 GHz – 5.35 GHz and 5.47 GHz – 5.725 GHz bands employ Dynamic Frequency Selection and must not have software configurations that allow users to disable the feature.¹⁰ The Commission also requires manufacturers of part 15 devices (including U-NII devices) to remind their customers to ensure that such devices are properly configured and used in an authorized manner and that they do not

⁸ See 47 CFR § 15.5. Harmful interference is defined as “[a]ny emission, radiation or induction that endangers the functioning of a radio navigation service or of other safety services or seriously degrades, obstructs or repeatedly interrupts a radiocommunications service” 47 CFR § 15.3(m).

⁹ 47 CFR § 15.407(i) (“[a]ll U-NII devices must contain security features to protect against modification of software by unauthorized parties.”). See *Software Security Requirements for U-NII Devices*, Publication No. 594280 D02, FCC, Office of Engineering and Technology, Laboratory Division (Nov. 12, 2015), available at https://apps.fcc.gov/kdb/GetAttachment.html?id=zXtrctoj6zH7oNEOO6De6g%3D%3D&desc=594280%20D02%20U-NII%20Device%20Security%20v01r03&tracking_number=39498 (“the Commission required . . . device software that controls the RF parameters that ensure compliance with the Commission's technical rules for preventing harmful interference must be secured. The purpose . . . is to prevent modifications to the software that could, for example, . . . enable tuning to unauthorized frequencies, increased power above authorized levels, etc. The rule is not intended to prevent or inhibit modification of any other software or firmware in the device, such as software modifications to improve performance, configure RF networks or improve cybersecurity.”).

¹⁰ 47 CFR § 15.407(i); see *supra* note 9.

cause harmful interference.¹¹ Moreover, retailers may only market equipment that complies with the Commission's rules.¹²

What are the Penalties that Apply?

Any entity or person that is operating, manufacturing, or marketing U-NII devices in a manner inconsistent with the Communications Act or the part 15 rules may be subject to penalties, including but not limited to substantial monetary fines.

Need More Information?

For questions regarding the information in this Advisory, email field@fcc.gov. For general information regarding U-NII devices and terminal doppler weather radar systems, please visit <https://www.fcc.gov/general/u-nii-and-tdwr-interference-enforcement>. For additional information regarding equipment authorizations, visit the FCC website at <https://www.fcc.gov/engineering-technology/laboratory-division/general/equipment-authorization>, or review the Office of Engineering and Technology's Knowledge Database at <https://apps.fcc.gov/oetcf/kdb/index.cfm>. To file a complaint regarding noncompliant U-NII devices, visit <https://consumercomplaints.fcc.gov>. Media inquiries should be directed to Will Wiquist at (202) 418-0509 or will.wiquist@fcc.gov.

To request materials in accessible formats for people with disabilities (Braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at (202) 418-0530 (voice), (202) 418-0432 (TTY). You may also contact the Enforcement Bureau on its TTY line at (202) 418-1148 for further information about this Enforcement Advisory, or the FCC on its TTY line at 1-888-TELL-FCC (1-888-835-5322) for further information about the equipment marketing rules.

¹¹ See 47 CFR §§ 15.19(a)(3), 15.21.

¹² See 47 CFR § 2.803.