

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Towerstream Corporation	)	File No.: EB-FIELDSCR-12-00004486
	)	File No.: EB-FIELDNER-12-00004796
Middletown, Rhode Island	)	NAL/Acct. No.: 201332600006
	)	FRN: 0015467749
	)	

**NOTICE OF APPARENT LIABILITY FOR FORFEITURE AND ORDER**

**Adopted: August 5, 2013**

**Released: August 6, 2013**

By the Commission:

**I. INTRODUCTION**

1. This case involves repeated interference to the Federal Aviation Administration's (FAA) Terminal Doppler Weather Radar (TDWR) systems, which the FAA uses to detect wind shear and other weather conditions near airports. Interference to these systems is unacceptable and potentially life threatening. Nevertheless, despite multiple warnings and prior enforcement actions, Towerstream Corporation (Towerstream) has continued to generate such interference via its Unlicensed National Information Infrastructure (U-NII) transmission systems in New York and Florida. In this Notice of Apparent Liability for Forfeiture and Order (NAL), we therefore find that Towerstream operated radio transmitters without a license and caused harmful interference, in apparent willful and repeated violation of Sections 301 and 333 of the Communications Act of 1934, as amended (Act).<sup>1</sup> We conclude that Towerstream is apparently liable for a forfeiture in the amount of two hundred and two thousand dollars (\$202,000). In addition, we direct Towerstream to submit, no later than thirty (30) calendar days from the release date of this NAL, a statement signed under penalty of perjury that it is currently in compliance with the Commission's U-NII rules and directives.

**II. BACKGROUND**

**A. Unlicensed National Information Infrastructure Systems**

2. Section 301 of the Act states that no person shall use or operate any apparatus for the transmission of energy or communications or signals by radio within the United States, except under and in accordance with the Act and with a license granted under the provisions of the Act.<sup>2</sup> Part 15 of the Rules, however, allows devices employing relatively low-level radiofrequency (RF) signals to operate without individual licenses, as long as their operation causes no harmful interference to licensed services and the

<sup>1</sup> 47 U.S.C. §§ 301, 333. We note that the Commission's authorization of Part 15 radio transmitters as "unlicensed" devices does not extend to devices that are not operated in accordance with Part 15 regulations, and that such operations must be licensed (or otherwise be exempted from licensing despite such non-compliance). See 47 C.F.R. § 15.1(b).

<sup>2</sup> 47 U.S.C. § 301.

devices do not generate emissions or field strength levels greater than a specified limit.<sup>3</sup> In the event a Part 15 device causes harmful interference, the operator must cease operations upon notification by a Commission representative, and such operations shall not resume until the interference can be resolved.<sup>4</sup>

3. In 2003, the Commission allocated additional spectrum for unlicensed use in the 5 GHz band and established the Unlicensed National Information Infrastructure (U-NII) service to facilitate the deployment of competitive wireless broadband services.<sup>5</sup> Since then, U-NII devices have played a significant role in meeting the demand for wireless broadband services, particularly by providing wireless local area networking and broadband access.<sup>6</sup> U-NII providers are authorized to operate radio transmitters in the 5.15-5.35 GHz, 5.47-5.725 GHz, and 5.725-5.825 GHz bands on an unlicensed basis, but must comply with technical rules specific to U-NII devices to prevent interference.<sup>7</sup> Moreover, as described above, as Part 15 devices, U-NII operators must cease operations upon notification of harmful interference and not resume operations until the interference can be resolved.<sup>8</sup> Any operation of a U-NII device that is inconsistent with the Part 15 Rules requires a license pursuant to Section 301 of the Act.<sup>9</sup>

4. In addition, such unlicensed operations could violate Section 333 of the Act.<sup>10</sup> That provision states that “[n]o person shall willfully or maliciously interfere with or cause interference to any radio communications of any station licensed or authorized by or under this chapter or operated by the United States Government.”<sup>11</sup> According to the legislative history for Section 333, willful and malicious interference includes such activities as “intentional jamming, deliberate transmission on top of the transmissions of authorized users already using specific frequencies in order to obstruct their communications, repeated interruptions, and the use and transmission of whistles, tapes, records, or other types of noisemaking devices to interfere with the communications or radio signals of other stations.”<sup>12</sup>

5. The Commission recently has dealt with a number of situations in which U-NII devices have caused interference to Terminal Doppler Weather Radar (TDWR) systems.<sup>13</sup> TDWR systems operate in the 5.6-5.65 GHz band at 45 major airports in the contiguous United States and Puerto Rico

---

<sup>3</sup> *Revision of Part 15 of the Rules Regarding the Operation of Radio Frequency Devices Without an Individual License*, First Report and Order, 4 FCC Rcd 3493 (1989). *See also* 47 C.F.R. §15.5(b), (c).

<sup>4</sup> 47 C.F.R. § 15.5(c).

<sup>5</sup> *See Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band*, Report and Order, 18 FCC Rcd 24484 (2003).

<sup>6</sup> *See Revision of Part 15 of the Commission’s Rules to Permit Unlicensed National Information Infrastructure Devices in the 5 GHz Band*, Notice of Proposed Rulemaking, 28 FCC Rcd 1769, 1774, para. 15 (2013).

<sup>7</sup> *See* 47 C.F.R. § 15.407.

<sup>8</sup> 47 C.F.R. § 15.5(c). *See also* 47 C.F.R. § 15.3(m) (defining harmful interference as “any emission radiation, or induction that endangers the functioning of radio navigation service or of other safety services or seriously degrades, obstructs or repeatedly interrupts a radiocommunications service operating in accordance with this chapter”).

<sup>9</sup> *See* 47 C.F.R. § 15.1(b); 47 U.S.C. § 301.

<sup>10</sup> 47 U.S.C. § 333.

<sup>11</sup> *Id.*

<sup>12</sup> H.R. Rep. No. 101-316, at 8 (1989).

<sup>13</sup> *See, e.g., Directlink, LLC*, Notice of Apparent Liability for Forfeiture and Order, 28 FCC Rcd 37 (Enf. Bur. 2013); *Skybeam Acquisition Corporation*, Notice of Apparent Liability for Forfeiture and Order, 27 FCC Rcd 11337 (Enf. Bur. 2012); *Argos Net, Inc.*, Notice of Apparent Liability for Forfeiture and Order, 27 FCC Rcd 2786 (Enf. Bur. 2012); *VPNet, Inc.*, Notice of Apparent Liability for Forfeiture and Order, 27 FCC Rcd 2879 (Enf. Bur. 2012).

and assist air traffic controllers in detecting low-altitude wind shear that can pose a risk to aircraft.<sup>14</sup> Cognizant of the need to avoid interference to the FAA's TDWR installations, the Commission requires that U-NII devices operating in the 5.25-5.35 GHz and 5.47-5.725 GHz bands have Dynamic Frequency Selection (DFS) radar detection functionality, which allows them to detect the presence of radar systems and avoid co-channel operations with radar systems.<sup>15</sup> Nevertheless, Enforcement Bureau Field Offices continue to encounter instances of interference to TDWR systems caused by U-NII devices located in close proximity to TDWR installations.<sup>16</sup> Such interference poses a clear hazard to air traffic safety and requires aggressive enforcement.

## B. Towerstream's History of Interference

6. According to its website, Towerstream provides "advanced, high-speed Internet access to businesses in 12 markets, including New York City, Boston, Los Angeles, Chicago, the San Francisco Bay Area, Miami, Seattle, Dallas/Fort Worth, Philadelphia, Nashville, Las Vegas/Reno and the greater Providence area where the Company is based."<sup>17</sup> "The company owns, operates, and leases Wi-Fi and Small Cell rooftop tower locations to cellular phone operators, tower, Internet and cable companies and hosts a variety of customers on its network."<sup>18</sup>

7. In 2009, the Enforcement Bureau began receiving complaints from FAA TDWR systems about interference caused by U-NII devices. Several of those early investigations of harmful interference to TDWR systems involved Towerstream's U-NII devices. On June 29, 2009, agents from the Enforcement Bureau's New York Field Office found that Towerstream operated transmitters on or adjacent to 5.647 GHz from the Empire State Building that caused interference to the TDWR system serving John F. Kennedy International Airport (JFK TDWR). That same day, agents orally informed Towerstream of its unauthorized operations and interference and advised the company not to operate in the 5.59-5.677 GHz band<sup>19</sup> from the Empire State Building to avoid interference to the TDWRs serving JFK and Newark Liberty International Airport. On July 22, 2009, the New York Office followed up with Towerstream by issuing a Notification of Harmful Interference informing it that its operations on 5.647

---

<sup>14</sup> MIT Lincoln Laboratories, *available at* <http://www.ll.mit.edu/mission/aviation/faawxsystems/tdwr.html> (last visited Jan. 26, 2011).

<sup>15</sup> *See* 47 C.F.R. § 15.407(h)(2). *See also* 47 C.F.R. § 15.403(s) (defining U-NII devices as "[i]ntentional radiators operating in the frequency bands 5.15-5.35 GHz and 5.470-5.825 GHz that use wideband digital modulation techniques and provide a wide array of high data rate mobile and fixed communications for individuals, businesses, and institutions."). *See also* Memorandum from Julius Knapp, Chief, Office of Engineering and Technology, FCC, and P. Michele Ellison, Chief, Enforcement Bureau, FCC, to Manufacturers and Operators of Unlicensed 5 GHz Outdoor Network Equipment Re: Elimination of Interference to Terminal Doppler Weather Radar (TDWR) (dated July 27, 2010), *available at* <http://transition.fcc.gov/eb/uniitdwr.pdf> (last visited April 27, 2013) (*OET/EB Memo*).

<sup>16</sup> *See OET/EB Memo* at 1 ("equipment that met the FCC's certification standards nonetheless caused interference, due to a variety of factors . . ."). *See also* *Directlink, LLC*, Notice of Apparent Liability for Forfeiture and Order, 28 FCC Rcd 37 (Enf. Bur. 2013); *Skybeam Acquisition Corporation*, Notice of Apparent Liability for Forfeiture and Order, 27 FCC Rcd 11337 (Enf. Bur. 2012); *Argos Net, Inc.*, Notice of Apparent Liability for Forfeiture and Order, 27 FCC Rcd 2786 (Enf. Bur. 2012); *VPNet, Inc.*, Notice of Apparent Liability for Forfeiture and Order, 27 FCC Rcd 2879 (Enf. Bur. 2012).

<sup>17</sup> Towerstream Investor Relations Homepage, *available at* <http://ir.towerstream.com/> (last visited April 27, 2013).

<sup>18</sup> "Towerstream Reports Fourth Quarter and Year End 2012 Results," Press Release (March 18, 2013), *available at* <http://ir.towerstream.com/releasedetail.cfm?ReleaseID=749233> (last visited April 27, 2013).

<sup>19</sup> Industry engineers typically refer to transmissions in the 5 GHz band in MHz, but for purposes of this document, we will reference GHz throughout.

GHz were causing harmful interference and must cease until the interference to the JFK TDWR could be resolved.<sup>20</sup>

8. On September 17, 2009, the Chicago Office of the Enforcement Bureau determined that Towerstream's U-NII devices at the AON Center in Chicago were the source of interference to the TDWR systems serving Midway and O'Hare Airports. The Chicago Office issued an oral warning to Towerstream the next day and the interference to Midway and O'Hare Airports ceased after the company retuned its equipment.<sup>21</sup>

9. On September 21, 2009, agents from the Enforcement Bureau's Miami Field Office determined that Towerstream's U-NII devices at the Wachovia Financial Center (currently Southeast Financial Center) in Miami, Florida were causing interference to the TDWR system serving Miami International Airport (Miami TDWR). Agents from the Miami Office spoke to Towerstream via telephone and in person and notified the company of the interference. On September 22, 2009, agents from the Miami Office provided Towerstream with the frequencies of the TDWRs serving the Miami and Fort Lauderdale-Hollywood International Airports and warned the company that to avoid future interference, it must ensure that the band edges of its U-NII signals were at least 25 MHz away from each of the TDWR's center frequencies.

10. On October 29, 2009, agents from the Miami Office observed that Towerstream's transmitters operating on U-NII frequencies from 121 Alhambra Plaza in Coral Gables, Florida were causing interference to the TDWR installation serving the Fort Lauderdale-Hollywood International Airport (Fort Lauderdale TDWR). Several days later, an agent from the Miami Office informed Towerstream of its unauthorized operations and the interference. Towerstream later replied that it had "stayed away from [5.56-5.67 GHz] center channels as agreed."<sup>22</sup>

11. Given that agents from the Commission's Field Offices determined four times in 2009 that Towerstream caused interference to TDWR installations, and issued verbal and/or written warnings, on November 9, 2009, the Enforcement Bureau issued a Letter of Inquiry to the company seeking information on its internal procedures to prevent future interference to TDWR systems.<sup>23</sup> In response, Towerstream stated that "[a]t the request of FAA engineers and FCC field agents, Towerstream retuned its equipment to cease transmitting on certain specified frequencies in the New York, Chicago, Miami and Ft. Lauderdale markets."<sup>24</sup> Towerstream correctly listed the operating frequencies for the TDWRs serving Chicago, New York, and Miami<sup>25</sup> and stated that it would "configure its monitoring system to send Towerstream instantaneous alerts of frequency changes in all markets in which TDWRs exist, which will then be reviewed by a Towerstream engineer. When such automated frequency changes appear to

---

<sup>20</sup> *Towerstream Corporation*, Notification of Harmful Interference (July 22, 2009) (on file in EB-09-NY-0218).

<sup>21</sup> See File No. EB-09-CG-0165 (on file in EB-FIELDNER-12-00004796).

<sup>22</sup> Email from Michael Micheletti, Engineering Manager, Towerstream Corporation, to Steven DeSena, Resident Agent, Miami Office, South Central Region, Enforcement Bureau (Nov. 13, 2009, 9:54 AM EST) (on file in EB-09-MA-0178).

<sup>23</sup> Letter from G. Michael Moffitt, Regional Director, Northeast Region, Enforcement Bureau, to Towerstream Corporation (Nov. 9, 2009).

<sup>24</sup> Letter from Donald L. Herman, Jr., Counsel for Towerstream Corporation, to G. Michael Moffitt, Regional Director, Northeast Region, Enforcement Bureau at 3 (Dec. 21, 2009) (*LOI Response*).

<sup>25</sup> Although agents from the Miami Office told Towerstream about the interference it was causing to the Fort Lauderdale TDWR in October 2009, the company did not reference the Fort Lauderdale TDWR and stated it did not "know the operating frequencies of the TDWRs in any other markets in which it operates." *LOI Response* at 3.

pose interference concerns, Towerstream will dispatch engineers to manually modify the frequency.”<sup>26</sup> Satisfied that Towerstream’s pledge to avoid the frequencies adjacent to the TDWR systems and to implement procedures to retune its frequencies should interference occur would be sufficient to prevent future interference and lacking any evidence of current interference to TDWR systems, the Enforcement Bureau closed the Towerstream investigations conducted by the New York and Miami Offices.

12. Based on the experience gained in resolving the interference caused by Towerstream, on July 27, 2010, the Office of Engineering and Technology (OET) and the Enforcement Bureau issued a joint Memorandum summarizing steps that should be taken immediately by all U-NII operators to eliminate interference to TDWR systems operating in the 5.6-5.65 GHz band.<sup>27</sup> Most notably, U-NII operators operating transmitters within 35 km or line-of-sight of TDWRs were urged to operate at least 30 MHz away from TDWR operational frequencies.<sup>28</sup>

13. At Towerstream’s request, OET staff met with the company on February 10, 2011 to discuss implementation of the *OET/EB Memo’s* guidelines. Following that meeting, Towerstream outlined steps that it “has taken and will continue to take to ensure its 5.4 GHz Band operations do not cause interference to the FAA TDWR.”<sup>29</sup> Specifically, Towerstream stated that it

has taken it upon itself to self-police 105 megahertz of spectrum within the 5.4 GHz band to protect spectrum being used by TDWRs. By establishing a spectrum buffer around TDWRs, Towerstream can ensure that its operations in the markets will not cause these radars unintended interference. Towerstream has also entered the locations and parameters of the TDWRs in a company-wide engineering database to ensure that modification, new installations and system upgrades will not interfere with TDWR operations.<sup>30</sup>

As discussed below, however, Towerstream’s failure to avoid frequencies adjacent to TDWR frequencies resulted in additional interference to the JFK, Miami, and Fort Lauderdale TDWRs, which form the basis for the instant enforcement action.

### C. Current Violations

#### i. The Empire State Building Devices

14. The JFK TDWR operates on a center frequency of 5.647 GHz. The Empire State Building is 19.93 km from, and within line-of-sight of, the JFK TDWR. On August 7, 2012, in response to complaints of interference to the JFK TDWR, agents from the New York Office determined that three of Towerstream’s U-NII devices were operating on the frequency bands of 5.657-5.693, 5.669-5.692, 5.667-5.69, and 5.65-5.679 GHz from atop the Empire State Building and were the sources of the interference to the JFK TDWR. That same day, agents from the New York Office met with Towerstream at the Empire State Building to discuss the interference problem. Towerstream admitted that it owned all three of the U-NII devices and that it operated them (collectively the New York U-NII devices) on the above-listed frequency ranges from the building. The agents provided Towerstream with a copy of the

---

<sup>26</sup> *Id.*

<sup>27</sup> See *OET/EB Memo*.

<sup>28</sup> *Id.* at 2.

<sup>29</sup> Letter from Arthur Giftakis, Vice President of Engineering and Network Operations, Towerstream Corporation, to Julius Knapp, Chief, Office of Engineering & Technology at 1 (*Letter to OET*).

<sup>30</sup> *Id.*

*OET/EB Memo* and again instructed it to implement a spectrum buffer around the JFK TDWR frequencies at the Empire State Building.

15. Subsequently, the New York Office reiterated its verbal warning with a written warning of Unlicensed Operation and Notice of Harmful Interference,<sup>31</sup> stating that Towerstream's operation on August 7, 2012, of the New York U-NII devices on or adjacent to 5.647 GHz atop the Empire State Building was causing harmful interference to the JFK TDWR and that operations must not resume until the interference could be resolved. Towerstream subsequently responded to the Notice verbally, stating that it would ensure that a spectrum buffer remained in place around the JFK TDWR frequencies at the Empire State Building.<sup>32</sup> The FAA later confirmed that the interference to the JFK TDWR had ceased.<sup>33</sup>

## ii. The Miami Four Seasons Devices

### a. The Fort Lauderdale Interference

16. The Fort Lauderdale TDWR operates on a center frequency of 5.645 GHz. The Four Seasons Building, located at 1435 Brickell Avenue, Miami, Florida, is located within line-of-sight of the Fort Lauderdale TDWR. On September 13, 2012, in response to complaints of interference to the Fort Lauderdale TDWR, agents from the Miami Office, using hand-held direction finding equipment, determined that two of Towerstream's U-NII devices were operating on the frequency bands of 5.635-5.655 GHz and 5.655-5.675 GHz from atop the Four Seasons Building (collectively the Miami U-NII devices). The agents determined that these devices were causing interference to the Fort Lauderdale TDWR. An agent from the Miami Office contacted Towerstream via telephone, informed the company about the interference, and requested a list of its current operating frequencies. Towerstream provided lists, verbally via telephone, and by email, of the operating frequencies at the Four Seasons Building, which included center frequencies of 4.965 GHz, 5.645 GHz, and 5.665 GHz.<sup>34</sup> Towerstream verbally agreed to implement a spectrum buffer around the Fort Lauderdale and Miami TDWR frequencies in close proximity to the Fort Lauderdale and Miami TDWRs. On September 19, 2012, Towerstream provided an agent from the Miami Office a list of the "new" center frequencies at the building, which did not include 5.645 GHz and 5.665 GHz, but which continued to list an operating frequency of 4.965 GHz.<sup>35</sup> The agent received information that the interference to the Fort Lauderdale TDWR ceased on September 18, 2012, after Towerstream had changed frequencies.

17. Subsequently, the Miami Office reiterated its verbal warning with a written Notification of Harmful Interference, stating that the company's operations on the center frequencies 5.645 GHz and 5.665 GHz from atop the Four Seasons Building in Miami on September 13, 2012, caused harmful

---

<sup>31</sup> *Towerstream Corporation*, Warning of Unlicensed Operation and Notice of Harmful Interference (Oct. 18, 2012) (on file in EB-FIELDNER-12-00004796).

<sup>32</sup> Towerstream responded verbally to the notice on February 20, 2013.

<sup>33</sup> The FAA provided final confirmation that all interference had ceased on February 20, 2013.

<sup>34</sup> See Email from Michael Connors, Director of Network Operations, Towerstream Corporation, to Steven DeSena, Resident Agent, Miami Office, South Central Region, Enforcement Bureau (Sept. 18, 2012, 10:34 AM EST) (on file in EB-FIELDSCR-00004486). The interfering U-NII devices operated at 5.645 GHz and 5.665 GHz, not 4.965 GHz. As noted below, however, a non-U-NII broadband transceiver operated by Towerstream at its Four Seasons location did use 4.965 GHz. Because this Part 15 device is not permitted to use that frequency, its operation violated Section 301 and this forms the basis for the unauthorized operation violation described in Paragraph 25, below.

<sup>35</sup> See Email from Michael Connors, Director of Network Operations, Towerstream Corporation, to Steven DeSena, Resident Agent, Miami Office, South Central Region, Enforcement Bureau (Sept. 19, 2012, 4:20 PM EST) (on file in EB-FIELDSCR-00004486).

interference to the Fort Lauderdale TDWR and must not resume until the interference could be resolved.<sup>36</sup> In response, Towerstream stated that it “has insufficient information that its operations were the cause of the harmful interference experienced by the FLL [Fort Lauderdale] TDWR . . . ,” but nevertheless “ceased operations on, and will not resume operations on, the [5.545 GHz, 5.645 GHz, and 5.665 GHz] bands.”<sup>37</sup> “Additionally, while Towerstream has long had a 30 megahertz guard band in place to protect the Miami International Airport TDWR which is within 35 kilometers of the Four Seasons, Towerstream has now added a 30 megahertz guard band to protect FLL TDWR operations as well. Towerstream did not previously believe that such a guard band would be necessary for the FLL TDWR operations, as the FLL TDWR is more than 35 kilometers from the Four Seasons.”<sup>38</sup>

### b. The Miami Interference

18. The Miami TDWR operates on a center frequency of 5.605 GHz. The Four Seasons Building is located within 30 km of and within line-of-sight of the Miami TDWR. On October 2, 2012, in response to complaints of interference to the Miami TDWR, agents from the Miami Office observed that one of Towerstream’s U-NII devices atop the Four Seasons Building was operating on the frequency band of 5.575-5.595 GHz. The agents, using hand-held direction finding equipment, determined that this device was causing interference to the Miami TDWR. The agents observed that the interference to the Miami TDWR ceased on October 10, 2012, when Towerstream voluntarily stopped operating on this frequency band.

19. In addition, on October 2, 2012, and November 8, 2012, agents from the Miami Office determined that one of Towerstream’s broadband wireless transceivers atop the Four Seasons Building was operating on the center frequency 4.965 GHz, thus confirming information previously provided by Towerstream regarding its operational frequencies.<sup>39</sup> Part 15 operations are strictly prohibited in the 4.5-5.15 GHz band.<sup>40</sup> Subsequently, an agent from the Miami Office left a voice message for Towerstream, inquiring whether it has a license to operate on 4.965 GHz from this location.<sup>41</sup> While, to date, we have no record of receiving any response from the company, according to Commission records, Towerstream does not hold an authorization to operate on 4.965 GHz from this location.

## III. DISCUSSION

20. Section 503(b) of the Act provides that any person who willfully or repeatedly fails to comply substantially with the terms and conditions of any license, or willfully or repeatedly fails to comply with any of the provisions of the Act or of any rule, regulation, or order issued by the Commission thereunder, shall be liable for a forfeiture penalty.<sup>42</sup> Section 312(f)(1) of the Act defines “willful” as the “conscious and deliberate commission or omission of [any] act, irrespective of any intent to violate” the law.<sup>43</sup> The legislative history to Section 312(f)(1) of the Act clarifies that this definition of

<sup>36</sup> *Towerstream Corporation*, Notification of Harmful Interference (Oct. 11, 2012) (on file in EB-FIELDSCR-12-00004486).

<sup>37</sup> Letter from Donald L. Herman, Jr., Counsel to Towerstream Corporation, to Steven DeSena, Resident Agent, Miami Office, South Central Region, Enforcement Bureau at 2 (Nov. 8, 2012) (on file in EB-11-TP-0065).

<sup>38</sup> *Id.*

<sup>39</sup> See *supra* notes 34-35. Devices cannot operate in this frequency band on an unlicensed basis under Part 15; operations in this band require a formal FCC license.

<sup>40</sup> See 47 C.F.R. § 15.205(a).

<sup>41</sup> The agent from the Miami Office called Towerstream on November 9, 2012.

<sup>42</sup> 47 U.S.C. § 503(b).

<sup>43</sup> 47 U.S.C. § 312(f)(1).

willful applies to both Sections 312 and 503(b) of the Act,<sup>44</sup> and the Commission has so interpreted the term in the Section 503(b) context.<sup>45</sup> The Commission may also assess a forfeiture for violations that are merely repeated, and not willful.<sup>46</sup> The term “repeated” means the commission or omission of such act more than once or for more than one day.<sup>47</sup>

## A. Unlicensed Operations

### i. Failure to Operate Part 15 Devices Consistently with Part 15 Requirements

21. As discussed above, Part 15 provides authorization for the operation of unlicensed devices (including the U-NII devices at issue here) only if such operation is consistent with the Part 15 Rules. Operation of a U-NII device in a manner inconsistent with Part 15 requirements violates the licensing requirement of Section 301 of the Act<sup>48</sup> and Section 15.1(b) of the Commission’s Rules,<sup>49</sup> absent some other authorization like an individual FCC license or a license authorized by rule pursuant to Section 307(e). The operation of a Part 15 U-NII device is conditioned upon not causing harmful interference, and should interference occur, operations must cease upon notification by a Commission representative and must not resume until the interference is resolved.<sup>50</sup> Resumption of operations prior to resolving the interference violates Part 15 of the Rules, vitiates the Part 15 authorization to operate and, without some other authorization, thus violates, *inter alia*, the licensing requirements of the Act and the rules.

22. Towerstream was aware of the operating frequencies for the JFK, Miami, and Fort Lauderdale TDWRs<sup>51</sup> and that operations within 30 MHz of the TDWR operating frequencies within line-of-sight of the airports could cause harmful interference to those TDWR systems.<sup>52</sup> The record shows that Commission personnel repeatedly notified Towerstream in 2009 that its operation of U-NII devices

---

<sup>44</sup> H.R. Rep. No. 97-765, 97<sup>th</sup> Cong. 2d Sess. 51 (1982) (“This provision [inserted in Section 312] defines the terms ‘willful’ and ‘repeated’ for purposes of section 312, and for any other relevant section of the act (e.g., Section 503) . . . . As defined[,] . . . ‘willful’ means that the licensee knew that he was doing the act in question, regardless of whether there was an intent to violate the law. ‘Repeated’ means more than once, or where the act is continuous, for more than one day. Whether an act is considered to be ‘continuous’ would depend upon the circumstances in each case. The definitions are intended primarily to clarify the language in Sections 312 and 503, and are consistent with the Commission’s application of those terms . . .”).

<sup>45</sup> See, e.g., *Southern California Broadcasting Co.*, Memorandum Opinion and Order, 6 FCC Rcd 4387, 4388 (1991), *recons. denied*, 7 FCC Rcd 3454 (1992).

<sup>46</sup> See, e.g., *Callais Cablevision, Inc.*, Notice of Apparent Liability for Monetary Forfeiture, 16 FCC Rcd 1359, 1362, para. 10 (2001) (*Callais Cablevision, Inc. NAL*) (proposing a forfeiture for, *inter alia*, a cable television operator’s repeated signal leakage).

<sup>47</sup> Section 312(f)(2) of the Act, 47 U.S.C. § 312(f)(2), which also applies to violations for which forfeitures are assessed under Section 503(b) of the Act, provides that “[t]he term ‘repeated’, when used with reference to the commission or omission of any act, means the commission or omission of such act more than once or, if such commission or omission is continuous, for more than one day.” See *Callais Cablevision, Inc. NAL*, 16 FCC Rcd at 1362.

<sup>48</sup> 47 U.S.C. § 301.

<sup>49</sup> 47 C.F.R. § 15.1(b).

<sup>50</sup> See 47 C.F.R. § 15.5(b), (c).

<sup>51</sup> See *LOI Response*, *supra* note 24. In addition, all TDWR operating frequencies were published in the *OET/EB Memo*. *OET/EB Memo* at 3-4.

<sup>52</sup> See *Letter to OET*, *supra* note 29.

caused harmful interference to the JFK, Miami, and Fort Lauderdale TDWRs systems and directed the company to cease operations pending resolution of the interference.<sup>53</sup>

23. Towerstream again operated U-NII devices on frequencies that caused harmful interference to local TDWR systems on at least three days from two separate locations. Specifically, on August 7, 2012, Towerstream operated the three New York U-NII devices and caused harmful interference to the JFK TDWR.<sup>54</sup> On September 13, 2012, Towerstream operated the two Miami U-NII devices and caused harmful interference to the Fort Lauderdale TDWR.<sup>55</sup> On October 2, 2012, Towerstream operated a third U-NII device in Miami and caused harmful interference to the Miami TDWR.<sup>56</sup>

24. Because Towerstream caused harmful interference to TDWR systems after being directed to cease operations, its operations were inconsistent with Part 15 requirements and required a license. Commission records show that Towerstream does not hold any authorizations to operate radio transmitters from the Empire State Building in New York City or the Four Seasons Building in Miami. Thus, based on the evidence before us, we find that Towerstream apparently willfully and repeatedly violated Section 301 of the Act by operating Part 15 U-NII devices in a manner inconsistent with Part 15 Rules and without a license.

#### **ii. Unauthorized Operation of Broadband Wireless Transceiver**

25. As described above, on October 2 and November 8, 2012, agents from the Miami Office determined that Towerstream operated a broadband wireless transceiver on the center frequency of 4.965 GHz from atop the Four Seasons Building.<sup>57</sup> According to Commission records, Towerstream does not hold an FCC license to operate on this frequency at this location. Moreover, neither the Commission's Part 15 rules, nor any other FCC rule or authorization, permits the operation of unlicensed devices on this frequency. Accordingly, based on the evidence before us, we find that Towerstream apparently willfully and repeatedly violated Section 301 of the Act by operating a radio transmitter without a license.

#### **B. Willful Interference with U.S. Government Communications**

26. As described above, Section 333 of the Act prohibits the willful or malicious interference with any radio communications operated by the United States Government.<sup>58</sup> In 2009, Commission staff explicitly warned Towerstream that its operations in particular locations were causing harmful interference to local TDWR systems operated by the FAA and instructed it to avoid specific frequency bands at those locations.<sup>59</sup> Towerstream acknowledged receipt of these warnings and stated it would avoid the "specified frequencies in the New York, Chicago, Miami and Ft. Lauderdale markets."<sup>60</sup> Moreover, on July 27, 2010, the Commission instructed all U-NII operators to take additional precautions

---

<sup>53</sup> Towerstream was notified via writing of the interference on July 22, 2009, and November 9, 2009, and verbally on June 29, 2009, September 18, 2009, September 29, 2009, and October 30, 2009. *See supra* paras. 7-11.

<sup>54</sup> *See supra* para. 14.

<sup>55</sup> *See supra* para. 16.

<sup>56</sup> *See supra* para. 18.

<sup>57</sup> *See supra* para. 19.

<sup>58</sup> 47 U.S.C. § 333.

<sup>59</sup> *See supra* note 53.

<sup>60</sup> *See LOI Response, supra* note 24. *See also supra* notes 29, 32, 35 and *supra* para. 17 (Towerstream agreeing to avoid frequencies around TDWR frequencies).

when operating within 35 km or line-of-sight of TDWRs;<sup>61</sup> specifically, the Commission urged operators to operate at least 30 MHz away from TDWR operational frequencies. In 2011, Towerstream committed to complying with the Commission's suggested precautions and confirmed that it had implemented spectrum buffers around TDWR frequencies.<sup>62</sup>

27. Despite its commitment to avoid frequencies around TDWR frequencies in order to prevent interference to TDWR systems, Towerstream operated the New York U-NII devices on August 7, 2012, on frequency bands within 30 MHz of and within line-of-sight of the JFK TDWR, and caused harmful interference to the JFK TDWR. Similarly, Towerstream operated the Miami U-NII devices on September 13, 2012, on frequency bands within 30 MHz of and within line-of-sight of the Fort Lauderdale TDWR, and caused harmful interference to the Fort Lauderdale TDWR. Finally, on October 2, 2012, Towerstream operated another Part 15 U-NII device from the Four Seasons Building on frequencies within 30 MHz of and within line-of-sight of the Miami TDWR, and caused harmful interference to the Miami TDWR. Because Towerstream was aware that operations in the frequency band of 5.590-5.677 GHz from the Empire State Building and 5.575-5.675 GHz from the Four Seasons Building could cause, and had previously caused, harmful interference to TDWR systems, the subsequent interference that occurred as a result of Towerstream's knowing operation of its U-NII devices on these frequencies was willful and therefore violated Section 333. Moreover, Towerstream repeatedly violated Section 333 – with willful acts of interference to the JFK, Miami, and Fort Lauderdale TDWRs. Thus, based on the evidence before us, we find Towerstream apparently willfully and repeatedly violated Section 333.

### C. Proposed Forfeiture

28. Section 503(b) of the Act provides that any person who willfully or repeatedly fails to comply substantially with the terms and conditions of any license, or willfully or repeatedly fails to comply with any of the provisions of the Act or of any rule, regulation, or order issued by the Commission thereunder, shall be liable for a forfeiture penalty.<sup>63</sup> Pursuant to the Commission's *Forfeiture Policy Statement* and Section 1.80 of the Rules, the base forfeiture amounts for (1) operation without an instrument of authorization is \$10,000, and (2) interference to authorized communications is \$7,000.<sup>64</sup> The Commission retains the discretion, however, to issue a higher or lower forfeiture than provided in the *Forfeiture Policy Statement* or to apply alternative or additional sanctions as permitted by the statute.<sup>65</sup> For operating without authorization and for causing interference, the Communications Act authorizes monetary forfeitures of up to \$16,000 for *each* violation.<sup>66</sup>

---

<sup>61</sup> See *OET/EB Memo*, *supra* note 15. The Enforcement Bureau further publicized these additional precautions in an Enforcement Advisory issued on September 27, 2012. See *Enforcement Bureau Takes Action to Prevent Interference to FAA-Operated Terminal Doppler Weather Radars Critical to Flight Safety*, Enforcement Advisory, 27 FCC Rcd 10800 (Enf. Bur. 2012).

<sup>62</sup> See *Letter to OET*, *supra* note 29.

<sup>63</sup> 47 U.S.C. § 503(b).

<sup>64</sup> *The Commission's Forfeiture Policy Statement and Amendment of Section 1.80 of the Rules to Incorporate the Forfeiture Guidelines*, Report and Order, 12 FCC Rcd 17087 (1997) (*Forfeiture Policy Statement*), *recons. denied*, 15 FCC Rcd 303 (1999); 47 C.F.R. § 1.80.

<sup>65</sup> See 47 C.F.R. § 1.80(b)(8), Note to para. (b)(5) ("The Commission and its staff retain the discretion to issue a higher or lower forfeiture than provided in the guidelines, to issue no forfeiture at all, or to apply alternative or additional sanctions as permitted by the statute . . .").

<sup>66</sup> See 47 U.S.C. § 503; 47 C.F.R. § 1.80(b)(7). These amounts are subject to further adjustment for inflation and the forfeiture amount applicable to any violation will be determined based on the statutory amount designated at the time of the violation. See 47 C.F.R. § 1.80(b)(9).

29. Consistent with this approach, we find that Towerstream apparently committed thirteen violations of the Act and our Rules. These thirteen distinct violations involve the use of seven different devices (three U-NII devices in New York, three U-NII devices in Miami, and a broadband wireless transceiver in Miami); the six U-NII devices each apparently caused interference to authorized communications.<sup>67</sup> In assessing the appropriate monetary penalty for this misconduct, we must take into account the statutory factors set forth in Section 503(b)(2)(E) of the Act, which include the nature, circumstances, extent, and gravity of the violations, and with respect to the violator, the degree of culpability, any history of prior offenses, ability to pay, and other such matters as justice may require.<sup>68</sup> Towerstream ignored specific instructions from Commission agents to avoid particular frequency bands when operating from the Empire State and Four Seasons Buildings and violated its own written and verbal commitments to employ a 30 MHz guard band around TDWR frequencies. Towerstream's U-NII operations posed a serious public safety hazard by interfering with FAA TDWR systems serving three airports and did not cease upon notification by a federal agent. We find Towerstream's blatant disregard for Commission authority and the consequent harm to public safety to be particularly egregious, warranting an upward adjustment of the base forfeiture amounts.

30. Therefore, for the combined twelve unlawful operation and interference violations, we will propose the maximum forfeiture authorized by statute, or \$16,000 per violation,<sup>69</sup> yielding a \$192,000 proposed forfeiture. In addition, for operating the unlicensed wireless broadband transceiver in Miami, we propose the base forfeiture amount of \$10,000, which is consistent with our precedent<sup>70</sup> and reflects the fact that the operation of this device did not cause interference to a TDWR system.

31. Applying the *Forfeiture Policy Statement*, Section 1.80 of the Rules, and the statutory factors to the instant case, we conclude that Towerstream is apparently liable for a total forfeiture in the amount of \$202,000, consisting of the following elements: \$106,000 for seven unlicensed operation violations and \$96,000 for six incidents of interfering with TDWR systems. As discussed above, the forfeitures reflect upward adjustments based on the public safety impact of the interference, Towerstream's prior history of causing interference to radio communications operated by the United States Government, and the seriousness of the violations.

---

<sup>67</sup> The Commission has previously calculated forfeitures for interference violations on a per-transmitter basis. See 47 U.S.C. §§ 301, 333. See also *The Supply Room, Inc.*, Notice of Apparent Liability for Forfeiture and Order, 28 FCC Rcd 4981 (2013) (*Supply Room NAL*) (proposing forfeitures for violating Sections 301, 302(b), and 333 on a per-device basis); *Taylor Oilfield Manufacturing, Inc.*, Notice of Apparent Liability for Forfeiture and Order, 28 FCC Rcd 4972 (2013) (*Taylor Oilfield NAL*) (proposing forfeitures for violating Sections 301, 302(b), and 333 on a per-device basis); *Argos Net, Inc.* Notice of Apparent Liability for Forfeiture and Order, 27 FCC Rcd 2786 (Enf. Bur. 2012) (proposing forfeiture for violation of Section 301 on a per-transmitter basis).

<sup>68</sup> 47 U.S.C. § 503(b)(2)(E).

<sup>69</sup> 47 C.F.R. § 1.80(b)(7). See *Supply Room NAL*, 28 FCC Rcd 4981 (2013) (imposing the statutory maximum per violation for violations of Sections 301 and 333 using unlicensed signal jamming devices that caused interference); *Taylor Oilfield Manufacturing, Inc.*, 28 FCC Rcd 4972 (2013) (imposing the statutory maximum per violation for operating unlicensed signal jamming devices that caused interference); *St. George Cable, Inc.*, Notice of Apparent Liability for Forfeiture and Order, 27 FCC Rcd 11447 (2012) (imposing the statutory maximum per violation for cable signal leakage in excess of the cumulative leakage index). Because Towerstream operated unlicensed devices that caused actual interference, the statutory maximum forfeiture for each violation is appropriate.

<sup>70</sup> See, e.g., *General Communications, Inc.*, Notice of Apparent Liability for Forfeiture, 28 FCC Rcd 3079 (Enf. Bur. 2013); *Jared A. Bruegman*, Notice of Apparent Liability for Forfeiture, 28 FCC Rcd 1327 (Enf. Bur. 2013); *Glen Rubash*, Notice of Apparent Liability for Forfeiture, 27 FCC Rcd 15044 (Enf. Bur. 2012).

#### D. Reporting Requirement and Conclusion

32. Finally, we direct Towerstream to submit a written statement, pursuant to Section 1.16 of the Rules,<sup>71</sup> signed under penalty of perjury that the company has (1) implemented a 30 MHz guard band around TDWR center frequencies for all U-NII devices located at the Empire State Building and the Four Seasons Building; and (2) implemented a 30 MHz guard band around TDWR center frequencies for all locations within 35 km or line-of-sight of a TDWR system. This statement must be provided to the Miami Office at the address listed in paragraph 35 within thirty (30) calendar days after the release date of this NAL.

#### IV. ORDERING CLAUSES

33. Accordingly, **IT IS ORDERED** that, pursuant to Section 503(b) of the Communications Act of 1934, as amended, and Section 1.80 of the Commission's rules, Towerstream Corporation is hereby **NOTIFIED** of this **APPARENT LIABILITY FOR A FORFEITURE** in the amount of two hundred and two thousand dollars (\$202,000) for willfully and repeatedly violating Sections 301 and 333 of the Act.<sup>72</sup>

34. **IT IS FURTHER ORDERED** that, pursuant to Section 1.80 of the Commission's rules, within thirty (30) calendar days of the release date of this Notice of Apparent Liability for Forfeiture and Order, Towerstream Corporation **SHALL PAY** the full amount of the proposed forfeiture or **SHALL FILE** a written statement seeking reduction or cancellation of the proposed forfeiture.

35. **IT IS FURTHER ORDERED** that Towerstream Corporation **SHALL SUBMIT** a statement as described in paragraph 32 to the Miami Office within thirty (30) calendar days of the release date of this Notice of Apparent Liability for Forfeiture and Order. The statement must be mailed to Federal Communications Commission, Enforcement Bureau, South Central Region, Miami Office, P.O. Box 520617, Miami, FL 33152-0617. Towerstream Corporation shall also e-mail the written statement to [SCR-Response@fcc.gov](mailto:SCR-Response@fcc.gov).

36. Payment of the forfeiture must be made by check or similar instrument, wire transfer, or credit card, and must include the NAL/Account number and FRN referenced above. Towerstream Corporation shall send electronic notification of payment to [SCR-Response@fcc.gov](mailto:SCR-Response@fcc.gov) on the date said payment is made. Regardless of the form of payment, a completed FCC Form 159 (Remittance Advice) must be submitted.<sup>73</sup> When completing the FCC Form 159, enter the Account Number in block number 23A (call sign/other ID) and enter the letters "FORF" in block number 24A (payment type code). Below are additional instructions you should follow based on the form of payment you select:

- Payment by check or money order must be made payable to the order of the Federal Communications Commission. Such payments (along with the completed Form 159) must be mailed to Federal Communications Commission, P.O. Box 979088, St. Louis, MO 63197-9000, or sent via overnight mail to U.S. Bank – Government Lockbox #979088, SL-MO-C2-GL, 1005 Convention Plaza, St. Louis, MO 63101.
- Payment by wire transfer must be made to ABA Number 021030004, receiving bank TREAS/NYC, and Account Number 27000001. To complete the wire transfer and ensure

---

<sup>71</sup> 47 C.F.R. § 1.16.

<sup>72</sup> 47 U.S.C. §§ 301, 333, 503(b); 47 C.F.R. § 1.80.

<sup>73</sup> An FCC Form 159 and detailed instructions for completing the form may be obtained at <http://www.fcc.gov/Forms/Form159/159.pdf>.

appropriate crediting of the wired funds, a completed Form 159 must be faxed to U.S. Bank at (314) 418-4232 on the same business day the wire transfer is initiated.

- Payment by credit card must be made by providing the required credit card information on FCC Form 159 and signing and dating the Form 159 to authorize the credit card payment. The completed Form 159 must then be mailed to Federal Communications Commission, P.O. Box 979088, St. Louis, MO 63197-9000, or sent via overnight mail to U.S. Bank – Government Lockbox #979088, SL-MO-C2-GL, 1005 Convention Plaza, St. Louis, MO 63101.

37. Any request for making full payment over time under an installment plan should be sent to: Chief Financial Officer—Financial Operations, Federal Communications Commission, 445 12th Street, S.W., Room 1-A625, Washington, D.C. 20554.<sup>74</sup> If you have questions regarding payment procedures, please contact the Financial Operations Group Help Desk by phone, 1-877-480-3201, or by e-mail, ARINQUIRIES@fcc.gov.

38. The written statement seeking reduction or cancellation of the proposed forfeiture, if any, must include a detailed factual statement supported by appropriate documentation and affidavits pursuant to Sections 1.16 and 1.80(f)(3) of the Rules.<sup>75</sup> The written statement must be mailed to Federal Communications Commission, Enforcement Bureau, South Central Region, Miami Office, P.O. Box 520617, Miami, FL 33152-0617 and include the NAL/Acct. No. referenced in the caption. Towerstream Corporation also shall email the written response to SCR-Response@fcc.gov.

39. The Commission will not consider reducing or canceling a forfeiture in response to a claim of inability to pay unless the petitioner submits: (1) federal tax returns for the most recent three-year period; (2) financial statements prepared according to generally accepted accounting principles (GAAP); or (3) some other reliable and objective documentation that accurately reflects the petitioner's current financial status. Any claim of inability to pay must specifically identify the basis for the claim by reference to the financial documentation submitted.

40. **IT IS FURTHER ORDERED** that a copy of this Notice of Apparent Liability for Forfeiture and Order shall be sent by both Certified Mail, Return Receipt Requested, and First Class Mail, to Towerstream Corporation at 55 Hammarlund Way Tech II Plaza, Middletown, RI 02842 and to its counsel, Donald L. Herman, Jr., at Law Offices of Bennet & Bennet, PLLC, 4350 East West Highway, Suite 201, Bethesda, MD 20814.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch  
Secretary

---

<sup>74</sup> See 47 C.F.R. § 1.1914.

<sup>75</sup> 47 C.F.R. §§ 1.16, 1.80(f)(3).