

FCC Issues Two *Citations* in Longstanding Power Line Noise Case

The Federal Communication Commission's Dallas Field Office issued *Citations* on July 25 to two utilities in a longstanding power line noise case in Lubbock, Texas. Bryan Edwards, W5KFT, of Lubbock, first reported the interference concerning the two involved utilities, Lubbock Power & Light ([LP&L](#)) and [Xcel Energy](#), as early as 1994. The record shows that the FCC Dallas Field Office clarified the FCC rules with regard to power line noise for LP&L as early as 1998, and issued three letters to LP&L in 2003 and 2004. Xcel Energy was first issued an FCC letter in 2004.

Mike Gruber, W1MG, of the ARRL's RFI Desk, took the opportunity to visit the site while visiting Lubbock on vacation in September 2005. His findings and [subsequent report](#) concluded there was a severe and widespread power line noise problem in the area; the FCC conducted a field investigation later that same month. Despite repeated complaints to the City of Lubbock, the utility companies and the FCC, the problem continued with little or no action from either utility. Robert Darling of the FCC conducted a second field investigation in late May of this year.

Edwards said dealing with LP&L and Xcel is like "night and day. Xcel has been most cooperative and most helpful. Every time I have called, they have responded with an engineer or a service team to check out and try to resolve some of the problems. All my dealings with LP&L have, from the very beginning, been almost adversarial."

Edwards said in the past 15 years, he has dealt with "three mayors, three city managers, two city attorneys and four heads of Lubbock Power & Light, as well as other LP&L employees too numerous to even think about mentioning. I have literally thousands of pages of paperwork, many times that more in promises, attended numerous meetings and it all has resulted in zero results. That's why I finally went to the FCC," regarding the power line noise.

According to Gruber, power line noise continues to be the single most reported noise source to the ARRL. "Some cases have dragged on for more than a decade with little or no resolution, and FCC enforcement is crucial in these cases," he said.

Only [one other case](#), in Lakeland, Florida, had resulted in a *Citation* from the FCC before the Lubbock cases. Although the Florida *Citation* was issued on May 16, 2006, the noise remains ongoing, according to J. C. Flynn, W4FGC, the complainant in the case.

Florida

In the Florida case, [Lakeland Electric](#) was notified via the *Citation* that they were in violation of Section 15.5 of the FCC's Rules regarding the general conditions for operating incidental radiators. According to the *Citation*, "On March 28, 2006, two agents from the Commission's Tampa Office of the Enforcement Bureau were dispatched in regards to a complaint of interference to amateur radio frequencies in Lakeland, Florida. The Agents identified Lakeland Electric's utility poles number LE106273, LE106272 and LE106268 which were acting as incidental radiation devices [[47 CFR § 15.3\(n\)](#)], emitting radio frequency energy to the extent that it caused harmful interference to an authorized radio service."

The *Citation* warned Lakeland Electric that they were "hereby notified that operation of these utility poles was causing interference to a licensed service, such that the service was seriously degraded, in violation of [Section 15.5\(b\)](#) of the Rules," and that they could request an interview at the closest FCC office, which is in Tampa. "Lakeland Electric may also submit a written statement to the above address within 14 days of the date of this *Citation*. Any written statements should specify what actions have been taken to correct the violation outlined above," the *Citation* said, and that violations "of the Act or the Rules may subject the violator to substantial monetary forfeitures."

Lubbock

The *Citations* to the Lubbock utilities went a few steps further. They said that due to an investigation conducted by the FCC's Dallas office on May 22-25, 2007, they found that both LP&L and Xcel "caused harmful interference to the reception of amateur communications to amateur licensee W5KFT in Lubbock, Texas," and that "Section 15.209 sets the general radiated emission limits for intentional radiators. The limit for the band 30 to 88 MHz is 100 micro-volts per meter measured at 3 meters [[47 CFR § 15.209](#)]. The attached list of strong electrical arcing points appears to exceed the value allowed even for intentional radiators." The list, attached to each *Citation*, included 44 separate "strong electrical arcing points" that were found near Edwards' home.

The FCC directed both LP&L and Xcel, pursuant to the Commission's Rules, to provide documents and information within 10 days of their respective *Citations*. "Because the source of harmful interference is emanating from more than one power company and past attempts have not resolved the problem, you must submit a written plan describing the planned resolution of this case," including LP&L's coordination with Xcel Energy, and Xcel's coordination with LP&L, according to the *Citations*.

Also, each company is "directed to provide a report every sixty (60) days, of work completed to resolve the interference until your distribution system is in compliance."

Each Lubbock utility was warned that "[v]iolations of the Act or the Commission's Rules may subject the violator to substantial monetary forfeitures, [47 CFR § 1.80(b)(3)] seizure of equipment through *in rem* forfeiture action, and criminal sanctions, including imprisonment [47 USC §§ [401](#), [501](#), [503](#), [510](#)]." *In rem* is a civil forfeiture proceeding as opposed to a criminal forfeiture proceeding.

As in the Florida case, both LP&L and Xcel were told they could request an interview with the FCC, which must take place within 14 days of the *Citation*. They were also told they could submit a written statement within 14 days that would "specify what actions have been taken to correct the violations outlined above."

LP&L and Xcel Respond to FCC

In its undated [Response](#) to the FCC's *Citation*, LP&L stated that it "does not admit to and specifically denies any violation of the [Communications] Act [of 1934] or any rule pertaining thereto," but "in order to comply with the...Citation, the City of Lubbock files this response."

The *Response*, signed by the City of Lubbock's City Attorney, clarifies that LP&L is Lubbock's municipally owned electric utility, while Xcel is an investor-owned utility: "Over ninety (90%) of Lubbock Power & Light's service territory is in direct competition with Xcel Energy. Furthermore, each electric utility operates and maintains its own distinct transmission and distribution system."

The *Response* said that "representatives from the City of Lubbock and Lubbock Power & Light corrected some areas that were causing a noticeable level of radio interference during this investigation, including but not limited to an area identified at the intersection of 66th Street and Memphis Avenue," two blocks from Edwards' home. "At this meeting general parameters regarding procedures that will be followed in investigating and resolving harmful interference to the reception of amateur communications (hereinafter referred to as 'RFI issues') including those alleged to interfere with amateur licensee W5KFT were discussed and agreed upon."

As a result of the *Citations* issued by the FCC, LP&L's *Response* stated that representatives from "Lubbock Power & Light met with Paul Leonard, P.E., Area Engineer with Xcel Energy to discuss the alleged findings regarding harmful interference to the reception of amateur communications by amateur licensee W5KFT in Lubbock, Texas."

At this meeting, both LP&L and Xcel developed a [flow chart](#) that "clearly outlines the steps to be followed by both electric utilities in the investigation and resolving of RFI issues. The flow chart also outlines the steps to be followed in coordinating efforts in the event it is determined that both LP&L and Xcel Energy have RFI issues at a given location. The flow chart also gives the steps in the follow-up and documentation of the efforts being made by each electric utility in trying to arrive at the solution(s) of the alleged RFI issues," and "The information gathered in following the procedures outlined in [the flow chart] will form the basis of information presented in reports to the Federal Communications Commission in the future including any reports made in compliance to the above referenced *Citation*."

In the *Response*, the City of Lubbock agreed to "attempt to coordinate efforts with Xcel Energy in resolving harmful interference to the reception of amateur communications including those alleged to interfere with amateur licensee W5KFT, and where applicable, doing follow-ups with complainants to evaluate the effectiveness of the efforts being made to resolve RFI issues."

Xcel's [Response](#), submitted via their attorney, pointed out that the *Citation* acknowledges "that the source of harmful interference to amateur licensee W5KFT is emanating from more than one power company." Xcel also alleges that it "has been working with amateur W5KFT for a number of years in an effort to identify the source of, and a possible resolution for, the harmful interference he is experiencing. Xcel Energy has a good working relationship with the licensee

and has coordinated with him on numerous occasions in attempting to resolve his interference problems."

In addition to Xcel's claims of working with Edwards, they also note in their *Response* "that it has worked with technical representatives of the American Radio Relay League...and has brought in a technician...with significant experience in radiofrequency interference ('RFI') who concluded that the likely cause of the interference is a source other than the electric power system."

Xcel said the flow chart that was developed between LP&L and Xcel "is intended to memorialize the plan to be followed by the companies on the flow of information and division of responsibilities for corrective action."

In their *Response*, Xcel promised "to continue to search for any problems with its electrical system that could be the cause of RFI to amateur licensee W5KFT. To this end, Xcel Energy has developed a more formalized agreement with Lubbock Power & Light on responding to interference complaints, including the ongoing assessment of RFI to W5KFT," and "the two utility companies have been working cooperatively to investigate and, to the extent possible, resolve RFI issues with their respective power systems, and have a renewed commitment to do so in an efficient and timely manner."

Xcel goes on to assure the FCC that it will "retain an outside technical consultant to provide an unbiased assessment of whether the harmful interference to W5KFT is attributable to Xcel Energy's power system and if so, what corrective measures would be required."

Edwards reported that on Thursday, August 30, he received a phone call from Paul Leonard, head of Xcel Energy in West Texas. Edwards said he was told that Xcel has contracted with Mike Martin, K3RFI, to come out to Lubbock in October to work on the line noise. "Leonard said they tried to get LP&L to participate with them and Mike, but they refused to do so," Edwards said.

Martin owns and operates RFI Services, a firm dedicated exclusively to RFI locating and training. He has been locating interference sources for more than 25 years, solving an average of 500 complaints a year, according to the ARRL Lab. Martin has also given power line interference workshops at ARRL Headquarters.

ARRL RFI Engineers Respond

Gruber reacted positively to the *Citations*: "I am encouraged by the depth and extent of the Lubbock citations. The two involved utilities are both being directed to provide written plans for resolution, including coordination with each other. Perhaps more importantly, they are being required to provide a written report every 60 days that describes work completed. It appears the FCC is serious about bringing closure to this matter. The laundry list of 44 'strong electrical arcing points noted near Amateur licensee's residence' suggests the FCC conducted a very thorough investigation in this matter. This could have been easily avoided had the involved utilities properly addressed this issue years ago."

Gruber continued: "I can appreciate the effort Xcel Energy made to resolve this problem. They made a lot more of an effort than LP&L did, including blinking a part of their system, pulling power meters and bringing an RFI investigator from Denver. Their RFI investigators, however, lacked proper equipment and training."

ARRL Lab Manager Ed Hare, W1RFI, said, "I am pleased to see the FCC taking a strong enforcement step in this case. It has gone on for a long time, and this *Citation* should serve to finally get things resolved. It is unfortunate that some of the power line cases the ARRL is handling can't be resolved without the FCC taking formal action, but I expect that electric utilities across the country will now take notice of this case. Every opportunity -- and then some -- was given to both utilities to resolve this without FCC help, but as can be seen in the *Responses* the utilities just sent to the FCC, some of the finger pointing that led to this *Citation* still continues."

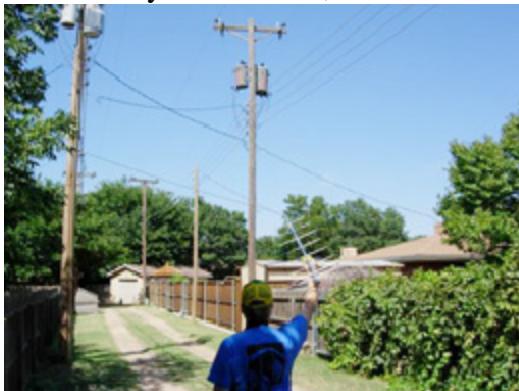
Hare also notes that the FCC identified 44 separate noise sources near the complainant. "This shows that it is in utility companies' best interests to resolve interference complaints in a reasonable and timely fashion. In this case, the FCC indicated that the entire system appears to be noisy, with noise levels above the FCC limits for intentional unlicensed transmitters. What could have been addressed by correcting a handful of noise sources now has the FCC looking at the entire system. This is an example of how utilities should not respond to customer complaints about radio and television interference."

Most power line noise sources in fact can be located quickly and economically, Gruber said; many utilities in fact handle power line noise complaints as a matter of routine maintenance. "All it takes is a properly trained RFI investigator with modern noise locating equipment. By using noise signature techniques, the utilities would have had only to address those sources actually contributing to the problem. Now they are given a citation with a laundry list of 44 problem areas, something that could have easily been avoided. The message to utilities here is clear. Don't ignore power line noise complaints! Don't make the FCC get involved!"

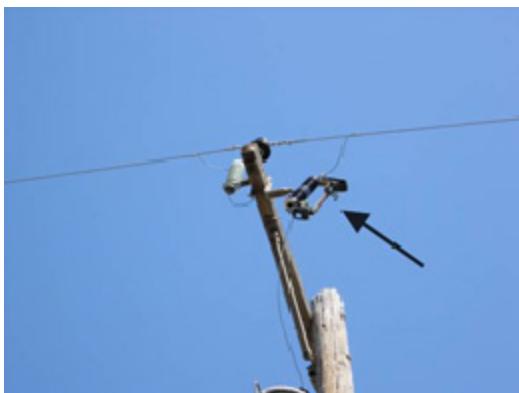
All photos courtesy of the ARRL Lab.



The noise source, identified by Hutton to be from an LP&L pole, is directly behind the home of Bryan Edwards, W5KFT.



ARRL RFI Engineer Mike Gruber, W1MG, locates another noise source at 6508 Oxford on a pole maintained by Xcel. This noise source had a noise signature that clearly matched a component of the interference at Edwards' home.



By using the ultrasonic pinpointer, Gruber was able to determine that the actual source of the noise emanating from the pole at 6508 Oxford was in the vicinity of the fuse hardware shown by the arrow.



This pole, maintained by LP&L, just two streets away from Edwards' home, is a significant source of harmful interference coming from this general area, according to Gruber. This source also has a signature that clearly matched a component of the interference from Edwards' home. The actual source of the noise is in the area of the insulator on the left side (field phase) of the cross arm. An adjacent property owner reports she is unable to listen to radio broadcasts as a result of interference.



This photo of an LP&L pole shows a general lack of maintenance and upkeep. Gruber said it was "typical of several" seen during his investigation. This pole is within about .05 miles of Edwards' home.



Taken only three months after Gruber's investigation, this LP&L pole shows vegetation growing across the top arm.