

CASE REPORT - EB-07-PA-401

Run Date: 8/19/2009

Start 1/10/2008		Susp. 3/30/2008		Status: CLOSED HQ		SolDate:		S		Agent:	
COMPLAINANT						SUBJECT					
Name:											
Company:											
Address:											
City:				ST:		City:				ST:	
Geo:			Zip:			Geo:			Zip:		
Phone:				Aux:		Phone:				Aux:	
Email:											
P_Address:											
Notes:											
CGeo:		Safety		Non-Safety		:SGeo		None		:Special	
Freq:		Complt		YES		:Freq				:Local	
Call: K3CX		IX		YES		:Call				:Master	
Method: PHONE		Confide		YES		- 0:FRN				:ASR	
Entity: Individual - Licensee		Cong.		NO		Individual - NonLicen		:Entity		:Lat.	
To: 097 - Amateur		InfoTrs		NO		999 - Other		:From		:Long	
						:Utility				:XCityS	
Interference to Amateur Communications from broadband noise from DC to 5 MHz in [REDACTED]											

WORK EVENTS

EventDate	Agent	Event Type	WeUtility
1/10/2008	[REDACTED]	COMPLAINT_R	
<p>Prob. Resolution: On January 10, 2008, [REDACTED] received a message from [REDACTED] of Service Electric Cable in [REDACTED] that a contact of his is experiencing harmful interference from broadband noise and needs the FCC assistance in identifying the source. [REDACTED] contacted the complainant, [REDACTED], who is a licensed amateur. He alleged that he is experiencing harmful interference to his shortwave radio communications at his residence. He said he observes broadband noise from DC to 5 MHz with spikes spaced every 8 kHz. He believes he traced the interference to a house owned by [REDACTED] and located at [REDACTED]. [REDACTED] conducted some on/off tests of circuit breakers and electronic devices inside the residence where the suspected sources was located. The tests had not effect on the interference. [REDACTED] then contacted [REDACTED] of First Energy /GPU 610-858-8864. First Energy removed the electric meter from the suspects residence and they said the interference continued. They also by passed the meter with jumpers and First Energy said it had not effect. However, these tests were not done in the presence of the complainant. When the complainant returned home that day the interference was gone and was off the air for about 4 days. After that the interference returned and had not ceased since. The residence where the source is located is about 1/2 miles from the complainant's residence. The interference has been occurring for months. [REDACTED] informed the complainant that someone will arrange for an investigation soon.</p>			

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1/30/2008 INVESTIGATION invos invinview

Prob. Resolution: On January 30, 2008, [REDACTED] conducted an investigation at the subject's residence. [REDACTED] along with the complainant [REDACTED] walked around the subject's residence using the FIM-41. The agent observed that the highest field strength reading was emanating from the garage/shop located behind the subject's house. [REDACTED] and [REDACTED] opened each breaker and found that it lead to another panel and opening each of those breakers lead to the receptacles on the rear wall of the garage/shop. After unplugging the equipment one by one the source of interference was determined to be a variable speed control for a drill press. The variable speed control appeared to have been radiating energy back onto the power line and re-radiated as RF. The subject and complainant agreed that the drill press will remain unplugged unless it is being used. Below is information for the manufacturer of the variable speed control.

Ellis Manufacturing Company Inc
107 W. Railroad Street
PO Box 930219
Verona, WI 53593-0219
800-383-5547

1/31/2008 CLOSED CloseResolveByFCC

Prob. Resolution:

RULE VIOLATIONS

ANT
1/R

BW 2.4k SFT 0
ANT 1/R

AGC-MID

12 41 BW 3.0k SFT 0
ANT 1/R

METER
Pa



P.AMP
OFF

VFO LSB FIL2

ATT
OFF

3.800.00

DUAL-W

VFO LSB FIL1

AGC
MID

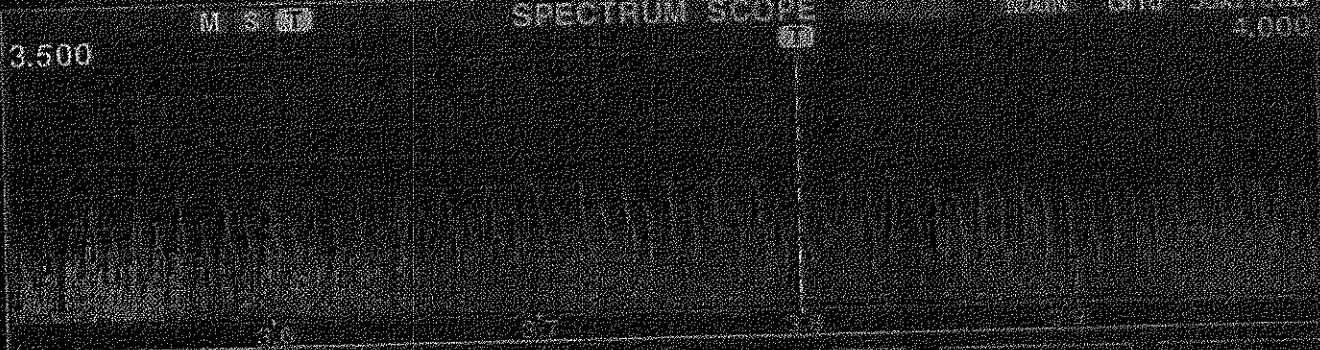
3.500

M S

SPECTRUM SCOPE

MAIN Grid 50N/10dB
1,000

COMP
OFF
WIDE



VSC
OFF

ATT

MARKER

HOLD

CENT/FIX

MAINSUB

SET

[REDACTED]

From: [REDACTED]
Sent: Thursday, January 31, 2008 1:00 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: FW: [REDACTED] Noise issue solved!

You are quite welcome. All appreciation should go to [REDACTED] of our office. Even though [REDACTED] has been with us for about 1 year, he is a good engineer and an asset to the FCC.

Dave

From: [REDACTED]
Sent: Thu 1/31/2008 10:06 AM
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: [REDACTED] Noise issue solved!

Very interesting [REDACTED] and this information helps all of us!!

From: [REDACTED]
Sent: Wednesday, January 30, 2008 11:55 PM
To: [REDACTED]
Subject: [REDACTED] Noise issue solved!

To All,

A happy day for [REDACTED] as the noise that has been destroying my receive on 75/160 Mtr bands has been found and silenced! As many of you know I have been searching for the source for the past 5 months and had narrowed it down to a neighbors house/shop about a mile NE of my QTH but could not identify what in his shop was generating this noise every 8 Kc from the AM broadcast band to above 7 Mhz. All of my test equipment was swamped with signal when I would enter any of his buildings that had AC in it. Every AC line was screaming with RF including the service drop from the pole, the electric meter, ect. Now what really made this interesting was that the noise was still heard on my portable Yachtboy receiver when I opened the 200 amp main breaker feeding his shop! After exhausting all other resources I made contact with [REDACTED] of the FCC and explained the whole issue to him. [REDACTED] assigned a case number and put me on the list for their next visit to the Reading area. The FCC's Engineer that came to the site today was [REDACTED]. We began to walk the site down as Kevin took accurate signal strength reading at each building and power panel. When we arrived at the panel with the highest reading I opened the main breaker and the noise dropped a considerable amount and within 5 to 7 seconds dropped to zero! We then opened each breaker and found it lead us to another panel and opening those breakers lead us to the receptacles on the rear wall of the shop. As we checked and unplugged each item I saw the last item along the rear wall was a Drill Press with an electronic variable

2/1/2008

speed control! Yes this was the source! I unplugged it and the signal strength dropped and slowly went away! I have attached a photo of the speed control.

Now this begs the question why didn't I have the same result when I opened the main breaker while I was listening with my Yachtboy 2 months ago? The only answer I have is that the signal was so strong at that panel my receiver's signal strength meter was pinned with the antenna fully collapsed, so when the breaker was opened it took 5-7 seconds for the signal to go away completely. I was concerned about shutting down the whole shop the first time I opened the main breaker so I did a quick off and right back on test. [REDACTED] signal strength meter which was designed for signals "UP TO" 5Mhz was much more sensitive to the change the second the breaker opened, I never saw the change in strength on the Yachtboy. I am assuming the 5-7 seconds for complete shut down was due to a cap in the speed control or motor circuit that had to drain to zero.

When I was researching the possible sources of noise I came across this comment in a review of a HF amp with a step start circuit:

"My second issue deals with the Slow Start circuit. The Slow Start circuit works the way it is intended to work. It utilizes a Motorola TDA1085C standard triac based motor control circuit. In fact, if you look up the TDA1085C application notes, you will essentially see the identical circuit. HOWEVER, unless you have a good LC line filter, which the DX-1d does NOT, you will get triac switching spikes radiated back on your power line which will re-radiate as RF. Unfortunately, I was able to hear this loud and clear on 160m, especially around 1.910 MHz, and no, using the noise blanker on my rig is NOT a solution. To solve the problem, I purchased a commercial line filter from Corcom (at my expense) and installed it in my 240V line. Problem solved."

Looking up the app notes for the TDA1085C I found it's primary use was for speed control of small HP motors....like the one on the drill press! So that's the story, my neighbor has agreed to only plug the drill press in when he needs to drill a hole and will unplug it when he is finished. Tonight was the first time in 5 months I could tune across 80 and actually hear the weak ones!

I owe a huge "Thank You" to [REDACTED] and [REDACTED] of the FCC for getting to the bottom of this. So, I can actually say that a man from the government came to my house today and he really was here to help me!!

[REDACTED]

[REDACTED]

[REDACTED]

5th month

[REDACTED] Service Electronic
called us on Coolin's behalf

1/10/08 - DC

up to Smith
sprites & KAT spaced
IX by Amstar SW

1/10 mile. ~~away~~
competition Business - towards 200 man off - did not
go away. Air jumps on motor - But IX was gone
4 days after test - IX copy Brit into AC lines