

CASE REPORT - EB-07-DV-194

Run Date: 2/4/2008

Start Date: 4/25/2007		ClosedDate: 6/1/2007		Status: CLOSED		Region: RF		Office: DV	
HQ#: [REDACTED]		Suspense Date: 5/31/2007		Complainant: [REDACTED] J [REDACTED]					
Case Agent: [REDACTED]		Response Time: 1 DAY(S)		Subject: Renee Smith Renee Smith					

COMPLAINANT	Geo:	Geo	SUBJECT
Name/F-L: [REDACTED]	Freq: 18.0000	18.0000	Name/F-L: RENE SMITH
Company: [REDACTED]	Call: [REDACTED]	[REDACTED]	Company: RENE SMITH
Address: [REDACTED]	Method: EMAIL	- - 0	Address: [REDACTED]
City: [REDACTED] ST: [REDACTED]	Entity: ARRL	Consumer	City: Northglenn ST: CO
Pri Phone: [REDACTED] Zip: [REDACTED]	To: 097 - Amateur	015 - Part 15 - Ot	Pri Phone: [REDACTED] Zip: [REDACTED]
Fax/Aux: [REDACTED]	Safety: Non-Safety	[REDACTED]	Fax/Aux: [REDACTED]
Email: [REDACTED]	Complt: YES	[REDACTED]	Email: [REDACTED]
Phys. Add.: [REDACTED]	IX: NO	[REDACTED]	Phys. Add.: [REDACTED]
	Confid: NO	[REDACTED]	
	Cong: NO	[REDACTED]	
	InfoTrs: NO	[REDACTED]	
		ASR	
		Lat	
		Lng	
		Northglenn XCit	
		CO XState	

Complainant Notes	Subject Notes
Amateur having IX [REDACTED] [REDACTED] ARRL Technical coordinator [REDACTED] [REDACTED]	

Case Summary:

amateur ix to 24/7 signal affected 15-23 MHz

CASE REPORT - EB-07-DV-194 - CASE DETAILS

Run Date: 2/4/2008

WORK EVENTS

EventDate	Agent	Event Type	WeUtility
4/25/2007	[REDACTED]	COMPLAINT_R	
Prob.Resolution: Open case for IX complaint			
4/26/2007	[REDACTED]	ON SCENE	
Prob.Resolution: [REDACTED] on scene and confirm SUBJ location as that where IX coming from. Tried to contact residence but no one home.			
4/27/2007	[REDACTED]	UPDATE	
Prob.Resolution: Scheduled 700 am appt Mon 4/30/07 to locate IX. Source found to be a switching power supply for subject's Suni scooter. Emissions were noted from 3 to 20 MHz.			
4/30/2007	[REDACTED]	IX RESOLVED	
Prob.Resolution: Mon 4/30/07 7:00 am mdt [REDACTED] on scene identify switching power supply for Suni Scooter. Bought at Mile High Flea Market Aug 2006 for daughter. [REDACTED] will ck Flea Market for other Suni switching power supplies and see if this case is anomaly with one power supply or a manufacturing problem with all power supply units.			
5/2/2007	[REDACTED]	ON SCENE	
Prob.Resolution: [REDACTED] and [REDACTED] to Flea Market to test Suni power supplies [REDACTED] supply [REDACTED] write up on our findings. No problem with other factory units, so figure is anomaly with Amateur IX case.			
5/3/2007	[REDACTED]	UPDATE	
Prob.Resolution: [REDACTED] send draft Citation to [REDACTED]			
5/3/2007	[REDACTED]	UPDATE	
Prob.Resolution: Reviewed citation & made minor edits. Fwd to [REDACTED] for review.			
5/10/2007	[REDACTED]	UPDATE	
Prob.Resolution: Item included on HQ list.			
5/15/2007	[REDACTED]	UPDATE	
Prob.Resolution: Received approved copy from [REDACTED]. Saved onto F with C# and date, and forwarded to [REDACTED] for review so that it may go out on 5-16-07. Discussed with [REDACTED] weekly items. Investigation at MHFM found that the vendor no longer has any PS's of the same model (has other models of same make). Will see if we can obtain more info on vendors of the power supply and find another of the same make/model to test. If so, will open this under another case #.			

CASE REPORT - EB-07-DV-194 - CASE DETAILS

Run Date: 2/4/2008

5/17/2007	ENFORCEMENT	Issued:Citation
Prob.Resolution: 15.5(b) : IX from Scooter power supply to amateur band;		
6/1/2007	CLOSED	CloseSanctions
Prob.Resolution: No response received (not required). Case Closed.		

RULES VIOLATED

Event Date	Enf.Action Type	Sanction Type	Rule Violation	Viol. Date	Document Num.	\$ Amount	Brief Notes
5/17/2007	Issued	Citation	15.5(b)	5/16/2007	C20073280004		IX from Scooter power supply to amate

SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY
<p><input checked="" type="checkbox"/> Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.</p> <p><input checked="" type="checkbox"/> Print your name and address on the reverse so that we can return the card to you.</p> <p><input checked="" type="checkbox"/> Attach this card to the back of the mailpiece, or on the front if space permits.</p>	<p>A. Signature <input type="checkbox"/> Agent <input type="checkbox"/> Addressee</p> <p>B. Received by (Printed Name) C. Date of Delivery</p>
<p>1. Article Addressed to: CIT/07-194/5RS</p> <p>Renee Smith ██████████ Northglenn, CO ██████████</p>	<p>RECEIVED</p> <p>MAY 18 2007</p> <p>Is delivery address different from item 1? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No. Yes, enter delivery address below: <input type="checkbox"/> No</p> <p>3. Service type: CC / Denver Office <input checked="" type="checkbox"/> Certified Mail <input type="checkbox"/> Express Mail <input type="checkbox"/> Registered <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> Insured Mail <input type="checkbox"/> C.O.D.</p> <p>4. Restricted Delivery? (Extra Fee) <input type="checkbox"/> Yes</p>
<p>2. Article Number (Transfer from service label)</p>	<p>7002 0460 0003 7794 0973</p>
<p>PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540</p>	

Federal Communications Commission

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

In the Matter of)	
)	File No.: EB-07-DV-194
Renee Smith)	
)	Citation No.: C20073280004
Northglenn, Colorado)	

CITATION

Released: May 16, 2007

By the District Director, Denver District Office, Western Region, Enforcement Bureau:

1. This is an Official Citation issued pursuant to Section 503(b)(5) of the Communications Act of 1934, as amended ("Act"),¹ to Renee Smith for violation of Section 15.5(b) of the Commission's Rules ("Rules").²

2. On April 25, 2007, the Enforcement Bureau's Denver Office received a complaint that a signal was interfering with Amateur Radio operations, in the band from 3 to 20 MHz, in the area of Northglenn, CO. On April 26, 2007, agents from the Denver Office investigated the complaint and located the interfering signal emanating from a single family residence occupied by Smith. Further investigation on April 30, 2007, revealed that the source of the interfering signal was a switching power supply, a Part 15 device,³ for a "Sunl" electric scooter located at Smith's residence.

3. Section 15.5(b) of the Rules states "[o]peration of an intentional, unintentional, or incidental radiator is subject to the conditions that no harmful interference is caused..."⁴

4. Violations of the Act or the Commission's Rules may subject the violator to substantial monetary forfeitures,⁵ seizure of equipment through *in rem* forfeiture action, and criminal sanctions, including imprisonment.⁶

5. Smith may request an interview at the closest FCC Office, which is Federal Communications Commission, 215 South Wadsworth Boulevard, Suite 303, Lakewood,

¹ 47 U.S.C. § 503(b)(5).

² 47 C.F.R. § 15.5(b).

³ 47 C.F.R. § 15.1 *et seq.*

⁴ 47 C.F.R. § 15.5(b).

⁵ 47 C.F.R. § 1.80(b)(3).

⁶ 47 U.S.C. §§ 401, 501, 503, 510.

Federal Communications Commission

Colorado, 80226.⁷ You may contact this office by telephone, (303) 231-5212, to schedule this interview, which must take place within 14 days of this Citation. Smith 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. Please reference file number EB-07-DV-194 when corresponding with the Commission.

6. Any statement or information provided by you may be used by the Commission to determine if further enforcement action is required.⁸ Any knowingly or willfully false statement made in reply to this Citation is punishable by fine or imprisonment.⁹

7. **IT IS ORDERED** that copies of this Citation shall be sent by First Class U.S. Mail and Certified Mail, Return Receipt Requested to Renee Smith at her address of record.

FEDERAL COMMUNICATIONS COMMISSION



Nikki P. Shears
District Director, Denver District Office
Western Region
Enforcement Bureau

⁷ 47 U.S.C. § 503(b)(5).

⁸ See Privacy Act of 1974, 5 U.S.C. § 552a(e)(3).

⁹ See 18 U.S.C. § 1001 *et seq.*

01/05/1995

DATASET LIST

07:54:21

DATASET.006	01/06/2007	08:43:31
DATASET.005	01/04/2007	18:06:06
DATASET.004	12/27/2006	12:36:56
DATASET.003	12/27/2006	12:36:24
DATASET.002	12/27/2006	12:33:43
DATASET.001	12/27/2006	12:33:25
DATASET.000	12/27/2006	12:26:34
DATASET.011	01/04/1995	04:46:23
DATASET.010	01/04/1995	04:46:18
DATASET.009	01/04/1995	04:46:02
DATASET.008	01/04/1995	04:45:16
DATASET.007	01/04/1995	04:44:58

DELETE
ALL

DELETE

EXIT

RECALL

LIST->
PRINTER

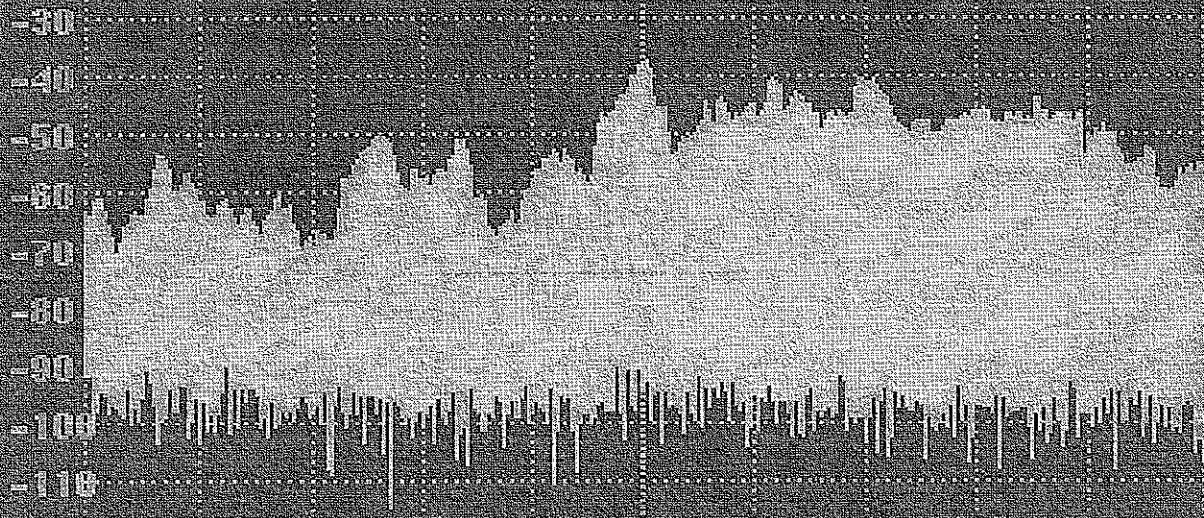
North glenn IX

all dataset.007-011
at Mike High
Flea market
Verbal 5/2/07

Detect: Auto Pk
Ref: -20 dBm
Att: 0 dB

Trig: Free
Trace: C1/Wr

RBW: 300 kHz
UBW: 300 kHz
SWT: 100 ms



Center: 18 MHz

Span: 30 MHz

DATASET: 007

EXIT

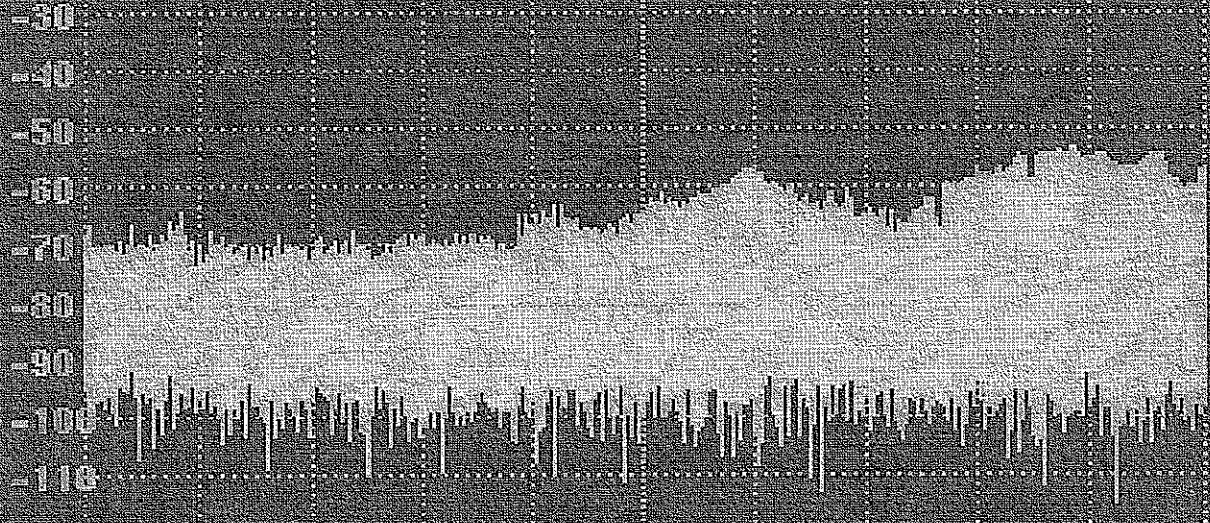
ACTIVATE

SCREEN->
PRINTER

Detect: Auto Pk
Ref: -20 dBm
Att: 0 dB

Trig: Free
Trace: Cl/Wr

RBW: 300 kHz
UBW: 300 kHz
SWT: 100 ms



Center: 18 MHz

Span: 30 MHz

DATA SET 000

EXIT

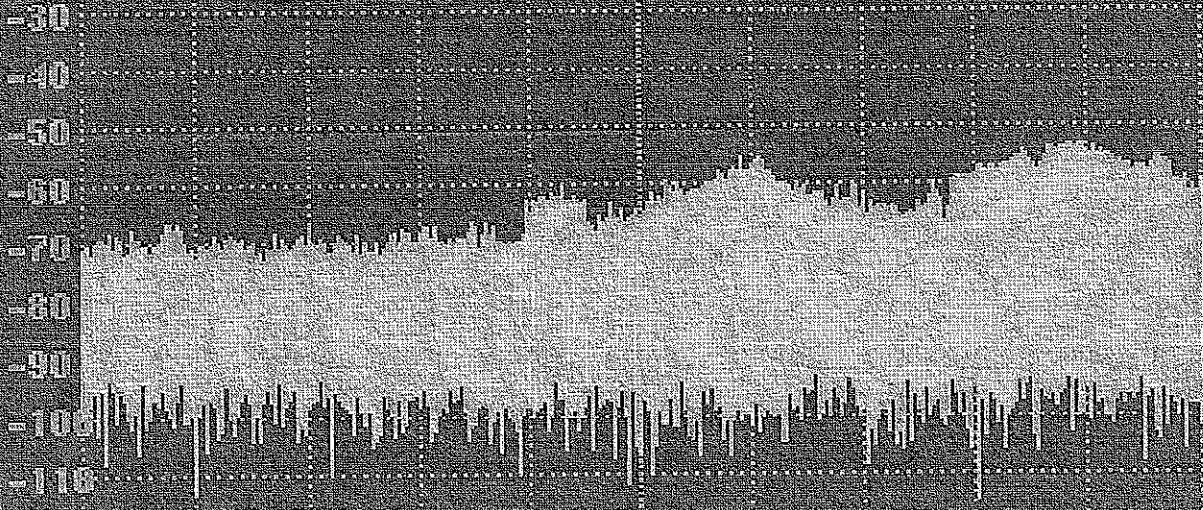
ACTIVATE

SCREEN->
PRINTER

Detect: Auto Pk
Ref: -20 dBm
Att: 0 dB

Trig: Free
Trace: Cl/Wr

RBW: 300 kHz
UBW: 300 kHz
SWT: 100 ms



Center: 18 MHz

Span: 30 MHz

0.000000000

EXIT

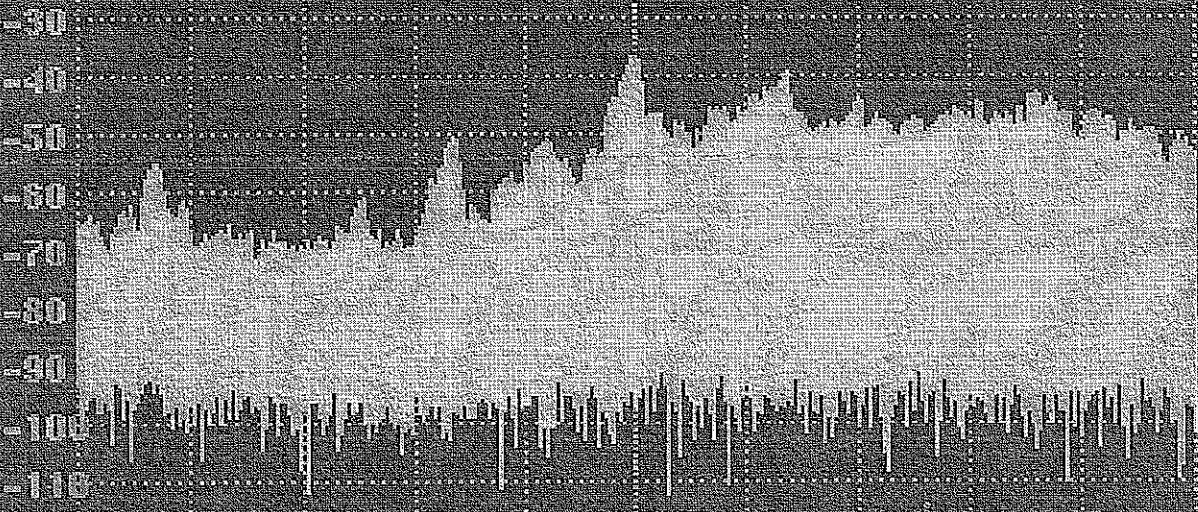
ACTIVATE

SCREEN->
PRINTER

Detect: Auto Pk
Ref: -20 dBm
Att: 0 dB

Trig: Free
Trace: Cl/Wr

RBW: 300 kHz
VBW: 300 kHz
SWT: 100 ms



Center: 18 MHz

Span: 30 MHz

LOG RSET 1010

EXIT

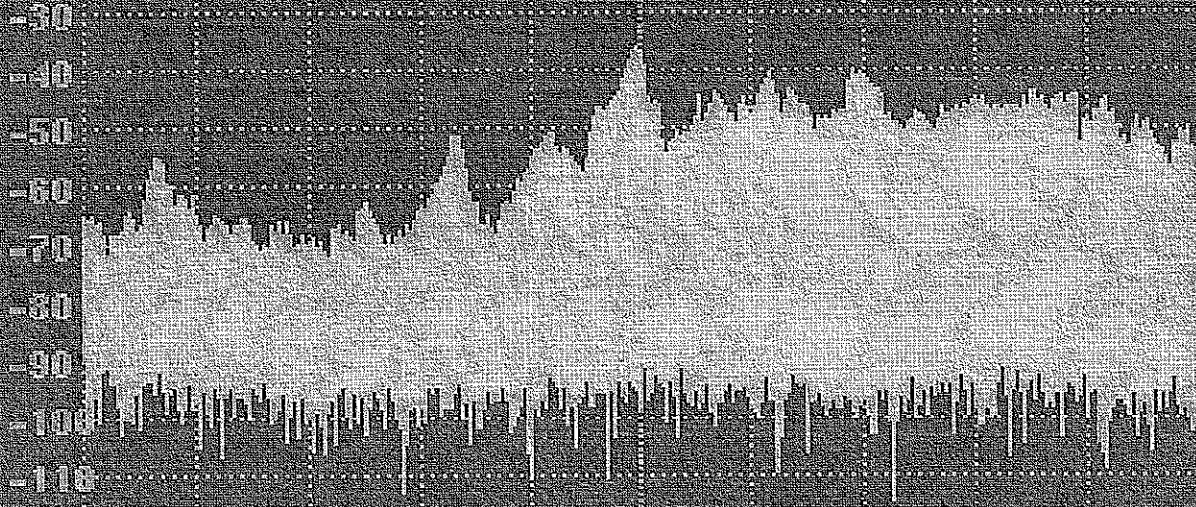
ACTIVATE

SCREEN->
PRINTER

Detect: Auto Pk
Ref: -20 dBm
Att: 0 dB

Trig: Free
Trace: Cl/Wr

RBW: 300 kHz
VBW: 300 kHz
SWT: 100 ms



Center: 18 MHz

Span: 30 MHz

DATA SET 011

EXIT

ACTIVATE

SCREEN->
PRINTER

used
S1407
TUMJ

Summary Re. Case # EB-07-DV-194

Complainant: ARRL Section Manager on behalf of amateurs IX on
Original Subject: Renee Smith, operator of Power Supply
Secondary Subject: [REDACTED], Vendor of Sunl Scooters
Subject Matter: Broadband IX to Amateurs / 15-21 MHz, in Northglenn, Colorado

Power Supply for Sunl Scooter at Ms. Smith's home was identified as the original source of ix. Ms. Smith advised the agents that she purchased the "Sunl" electric scooter at the Mile High Flea Market ("MHFM") in August 2006 for her daughter. Recently, the battery went bad (due to power supply problem?). Denver agents opted to investigate the Sunl reseller at MHFM to see if Ms. Smith's switching power supply was an anomaly or if there was a manufacturing problem.

On Wednesday, May 2, 2007, at approximately 11:00 a.m., MDT, [REDACTED] visited a "Sunl" reseller at MHFM at I-76 and 88th Avenue in Henderson, Colorado. The dealer, [REDACTED] worked out of space L-16. [REDACTED] had many other manufactured ATV's, scooters, etc., in his exhibit space.

A test of the "Sunl" electric scooter and its associated switching power supply (not same power supply as Northglenn) was conducted with the R&S Spectrum Analyzer and AOR-8200 scanner. RF emissions from approximately 15 to 23 MHz appeared, but the signal could only be heard up to 20 feet away, not like the 1/2 block plus in Northglenn.

Note 1: It is not uncommon for manufacturers to purchase different power supplies from various manufacturers over time, with each make/model exhibiting different peculiarities. Switching power supplies are known for RF emissions, but typically are localized within a 10-20 feet area like that observed at MHFM.

Note 2: There is another "Sunl" reseller at MHFM who was not present today. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

wed 5/2/07 mile high Glen
market ~~Red Xie~~

~~St. Nicholas~~



v6 1/2
w/ok

Row 6-16

11/02/07

cell



w/ok

Battery was bad

[REDACTED]

From: [REDACTED]
Sent: Monday, April 30, 2007 10:09 AM
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: Radio Interference - Northglenn

[REDACTED]

IX problem taken care of. It was a bad switching power supply for a consumer device. If IX returns, please let us know.

[REDACTED]

700w - 74TA on 4/20/07

Intellect Charger (Special Use
For Electric
100V)

Make Wagui Electric

Any work

switching Power Supply

input power = 100W

output 24V DC

input AC 90V - 130V

Sun Scooter

Big Battery Box

by rider,
needs

Flea Market

beside

4 wheelers



Home

Online Retailers

Dealer Inquiry

Help

Contact

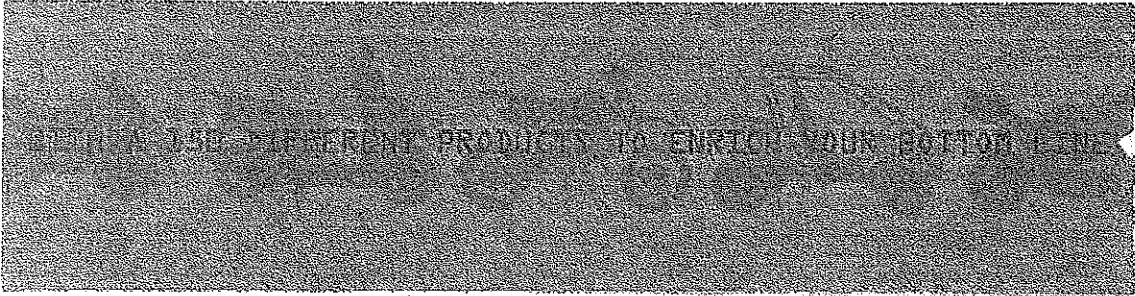
Customer

SUNL

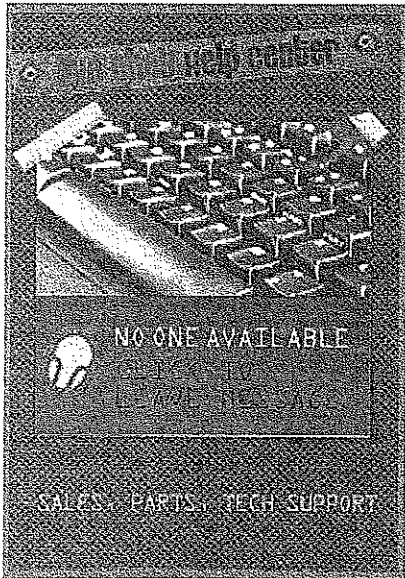
motorcycle

ATV

scooter



Site Search:



Live chat by Live Person

DEALER INQUIRY

* - Denotes a required field.

* COMPANY NAME : _____

* CONTACT FIRST NAME : _____

* CONTACT LAST NAME : _____

* ADDRESS : _____

* CITY, STATE, ZIP : _____

States

* CONTACT PHONE NUMBER : _____ - _____ - _____

FAX NUMBER : _____ - _____ - _____

* EMAIL ADDRESS : _____

WEBSITE : _____

* OWNERSHIP : CORPORATION

PARTNERSHIP

PROPRIETORSHIP

* NATURE OF BUSINESS : RETAIL

WHOLESALE



Home

Online Retailers

Dealer Inquiry

Help

Contact

Customer

motorcycle

atv

scooter

Site Search:

Select

PARTS

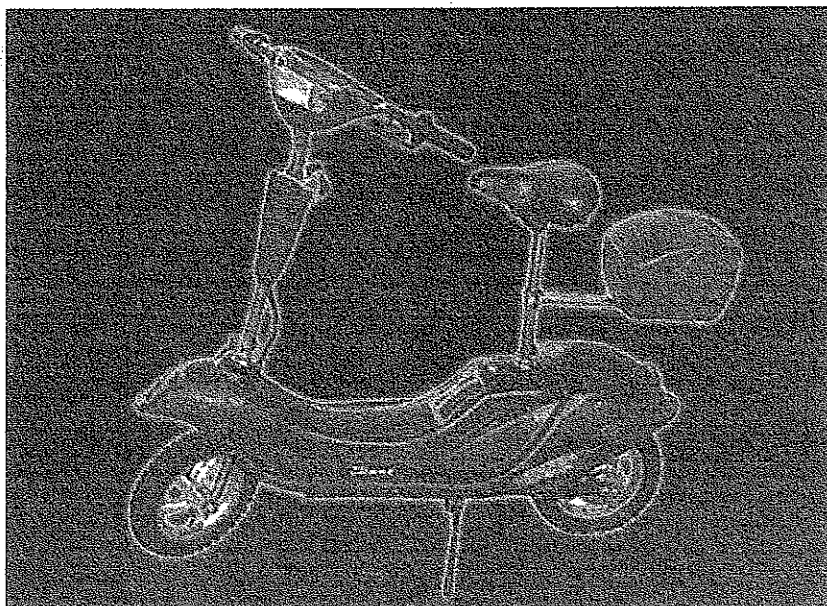
TECHNICAL SUPPORT

WARRANTY & RETURNS

Zip:

60212

▶ View all authorized dealers



SLE-380

Colors:

Ca

Specifications:

[REDACTED]

From: [REDACTED]
Sent: Friday, April 27, 2007 8:20 AM
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: Radio Interference - Northglenn

[REDACTED]

We located the IX yesterday and confirmed the address. We have an appointment with the tenants on Monday, so will identify the specific source device at that time and resolve the IX.

Have a great weekend and the amateurs did a good job locating the residence radiating the IX!

[REDACTED]

-----Original Message-----

From: [REDACTED]
Sent: Friday, April 27, 2007 8:11 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: Re: Radio Interference - Northglenn

[REDACTED]
This is great! Thanks for the help.

[REDACTED]
[REDACTED]
[REDACTED]
Technical Coordinator
ARRL Colorado Section
[REDACTED]

-----Original Message-----

From: [REDACTED]
Sent: Thursday, April 26, 2007 6:21 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: Radio Interference - Northglenn

[REDACTED]
The interference is 24/7. Thanks for your attention to this issue.

Regards,
[REDACTED]

Thu - 4/26/07

125 PM

15-22 max
across bar

50-70 kHz VLF primary

~~_____~~

metro vending specializzeil company

945 W. 101 Place

CO, CO 80260 OLC

vending
machine

~~_____~~

Hubbard Zyras Rentals

2-3 dogs
2-3 kids

house
owner

usually 2 cars

200 PM

Wint Edgar
925

~~_____~~

200 PM

James 32

140 PM

C

~~_____~~

11/20

~~_____~~

parents 60
kids 30

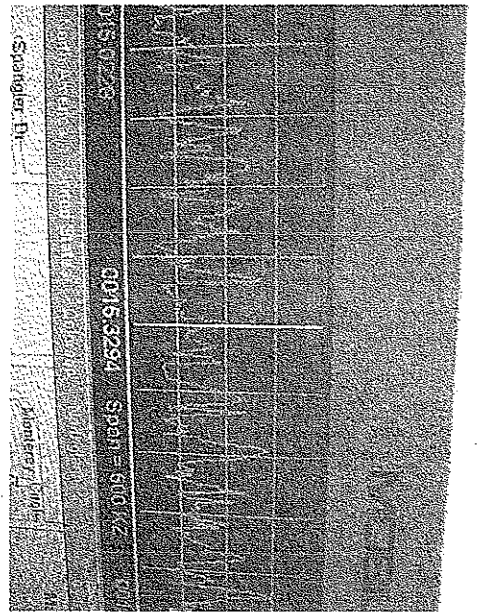
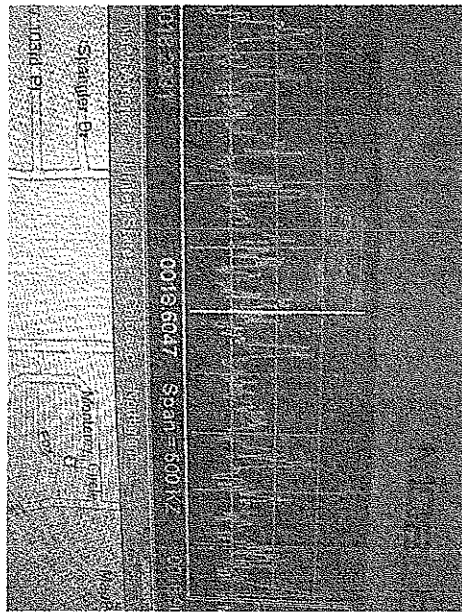
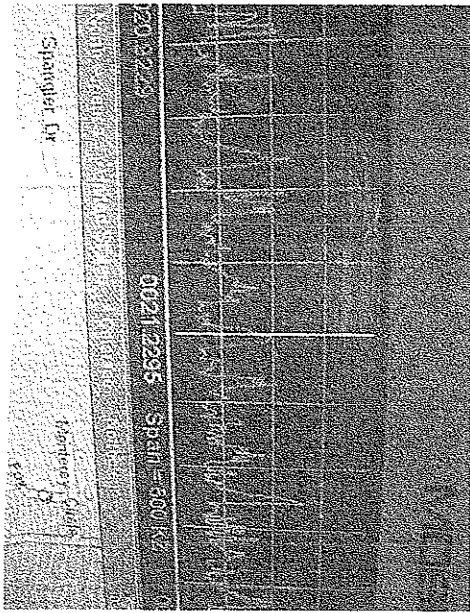
142 PM

~~_____~~

left camp
254 AM
met by
m: 1160

700 CFI
350 W. 113th and Green Mountain
1607
9/06

NG, CO



Northglenn, CO 1A

THN 04 26 07

wl 1TAF

MOOFL

Northglenn

EB 07 20 194

THN 4/26/07

TRU/WL

14277 777

Thy 4/26/07

200 F6

wL/TRY

~~XXXXXXXXXX~~
~~XXXXXXXXXX~~

Green Card

~~XXXXXXXXXX~~

1:42pm talk to

the neighbor, confirm
about wire that guard
the dog.

Went the front and
back yard to confirm
the signal source

-----Original Message-----

From: [REDACTED]

Sent: Thursday, April 26, 2007 9:19 AM

To: [REDACTED]

Cc: [REDACTED]

Subject: RE: Radio Interference - Northglenn

[REDACTED]

Thank you for this IX report. Do you know if the IX is up 24/7 or some other cyclic rate? The information attached does not indicate times. We can check out this matter next week.

[REDACTED]

date into FCC - Dave,

-----Original Message-----

From: [REDACTED]
Sent: Wednesday, April 25, 2007 7:42 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: Radio Interference - Northglenn

[REDACTED]
I have received a report of interference to a licensed amateur radio operator [REDACTED], most likely from some kind of consumer electronic device. The interference extends from 3 to 20 MHz, at roughly 50kHz spacing. [REDACTED] and a few ham friends have used a directional loop to track the source of the interference to a particular house. Their method and data seems very credible to me (details attached below).

[REDACTED] is reluctant to contact the resident of the house about this issue.

I wonder if you could verify the source of the interference and contact the resident, if appropriate.

The address of the noise source is [REDACTED]

If you'd prefer a different course of action or want to discuss this, please give me a call on my mobile phone at [REDACTED].

Regards,

[REDACTED]
[REDACTED].com
Technical Coordinator
ARRL Colorado Section
[REDACTED]

-----Original Message-----

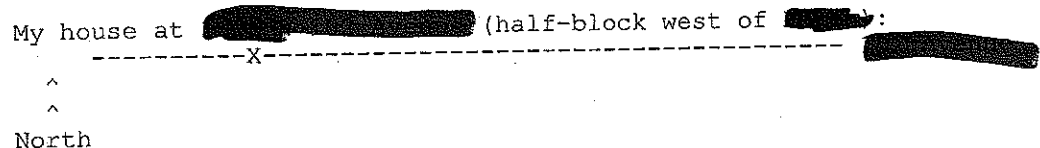
From: [REDACTED]
Sent: Monday, April 23, 2007 7:45 PM
To: [REDACTED]
Subject: Noise Problem

Hi [REDACTED]

[REDACTED] ([REDACTED]) said that he would be willing to send you a summary, which would include information about the directional receiving loop that he built and that we used to locate the house from which the noise seems to be emanating. [REDACTED] is planning to include, in his email, a digital photo of the antenna and equipment that we used.

The address of the house that we suspect is [REDACTED]

Here is a simple diagram of the locations of my house and the suspected house:



The suspected house is on the north side of [REDACTED], which is the street immediately south of my street. My house is on the south side of [REDACTED]

Using my KLM KT-34M2 Yagi, on 14 MHz, the strongest signal is with the Yagi pointed to the south and east. A null, off the side of the Yagi, is obtained with either side pointed to the south and east.

[REDACTED] directional receiving loop, for around 14 MHz, was adapted from the 28-MHz version described in Chapter 14 of The ARRL Antenna Handbook. (Gary will provide the page number and the publication date). This loop shows a null when a signal is perpendicular to the plane of the loop (broadside) and a peak when the signal is in the plane of the loop (off the edges).

Using [REDACTED] directional receiving loop, his Kenwood R-1000 receiver in AM mode (running from a 12-volt battery), we proceeded as follows:

1. In my back yard, the null and peak readings indicated that the direction was along a line running northwest to southeast, consistent with the results using the Yagi.
2. While driving east from my house, on my street [REDACTED], with [REDACTED] holding the loop out the car window, we maintained a peak reading by turning the loop in a clockwise direction (viewed from the top of the loop). When we were directly north of the suspected house, the null and peak readings were along a line running north to south.
3. While on [REDACTED] Street (runs north and south at the east end of [REDACTED] and [REDACTED]), the null and peak readings were along a line running from east to west.
4. While driving west on [REDACTED] we maintained a peak reading by turning the loop in a clockwise direction. The null and peak readings seemed to be along a line passing through the suspected house.
6. We got out of the car and walked along the sidewalk, walking both west and east of the suspected house. As we walked, we noted that the loop would always show the peak and null readings when we pointed the antenna, appropriately (broadside for null and off the ends for peaks), toward the suspected house.
7. The readings were quite sharp, enough that we suspect the noise to be emanating from the west side of the house.

The strongest readings were obtained while standing on the sidewalk in front of the suspected house. Moving farther away from the suspected house, the readings were always lower in strength. On my street, to the north, the readings were lower in strength than they were while standing in front of the suspected house.

I managed to record the noise, but I can't create a MP3 version of the audio file. It is too large to send in uncompressed format (24 MB), such as WAV. However, I converted it to a popular compressed format known as Ogg Vorbis. I attached that version, which is only about 1.9 MB in size. Hopefully, you can play Ogg Vorbis audio files.

The recording was made around 5.1 MHz. I tuned up and down, to demonstrate the periodicity of the noise. Peaks occur about every 50 KHz, over the range of 3 MHz to about 22 MHz. It is strongest in the 3 MHz to 8 MHz range and falls off gradually with increasing frequency. By 22 MHz, it is barely noticeable.

I hope that this information is helpful, [REDACTED]

Thanks,
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

Email # 2 of 2.
[REDACTED]

-----Original Message-----

From: [REDACTED]
Sent: Monday, April 23, 2007 9:55 AM
To: [REDACTED]
Cc: [REDACTED]

Subject: Interference at W7IUN QTH localized to residential source

Dear [REDACTED]

I am a friend of [REDACTED] and was at his QTH visiting about three weeks ago when he indicated that quite severe broad spectrum interference has plagued his amateur radio operation for quite some time.

He mentioned that he had exhausted all possibilities of same emanating from his own home. It sounded rather like it could be from a switch mode power supply, having a 60 Hz component riding on warbly carriers at approx 60 KHz intervals from 3 through 20 MHz, at about S-9 or even more if I recall correctly.

This motivated both [REDACTED] and another ham friend, [REDACTED] plus myself to research radio direction finding techniques. We took plans from the 2000 ARRL Antenna Handbook and over a few weeks fabricated the shielded resonant loop as seen in attached pix, scaling it from plans for a 10M loop to 20M. Also attached is the schematic.

The device has very directional properties with a sharp null quite symmetrically perpendicular to the plane of the loop. I tested it at 14.2 MHz using a Heath Kit HD-1250 Solid State Dip Meter as a known target, and observed very surprising accuracy and sensitivity when using it with a Kenwood R-1000 receiver.

Armed with this antenna and receiver powered by a 12 volt battery, we drove around [REDACTED] neighborhood on Thursday the 19th of April about 7:00 MDT last week, and in the order of five minutes or less had localized the source of this interference to a house somewhat east and on the north side of the street immediately south of that of [REDACTED] house. The signal pegged the S meter as we walked down the sidewalk in front of this house, and with 20 dB of input attenuation we then noted that it seemed to radiate from the west end of the home in question. We were reluctant to walk up to the house brandishing this alien looking apparatus, and especially to confront the owner/ resident(s).

[REDACTED] asked me if I would be willing to assist by providing details of our research, of which I am more than glad to do. He has the address of the house and other particulars.

Best regards and thanks,
[REDACTED]