

FOR CARES MEMBERS ONLY! DO NOT SHARE PUBLICLY!

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Private video of the 2015 presentation available here:

<https://www.youtube.com/watch?v=hHQ4L9V0QXM>

All about the brand-new

CARES Repeater

And how to use it!



Marcel Stieber, AI6MS

CARES Technical Repeater Manager

W6TDM License Trustee

Assistant Emergency Coordinator



CUPERTINO

Cupertino Amateur Radio Emergency Services – April 2nd, 2019

Meeting Abstract

- Repeater Basics
- The Old Repeater
- The New Repeater
 - Specs
 - Photos
 - Operation
 - Usage (Codes and Access)

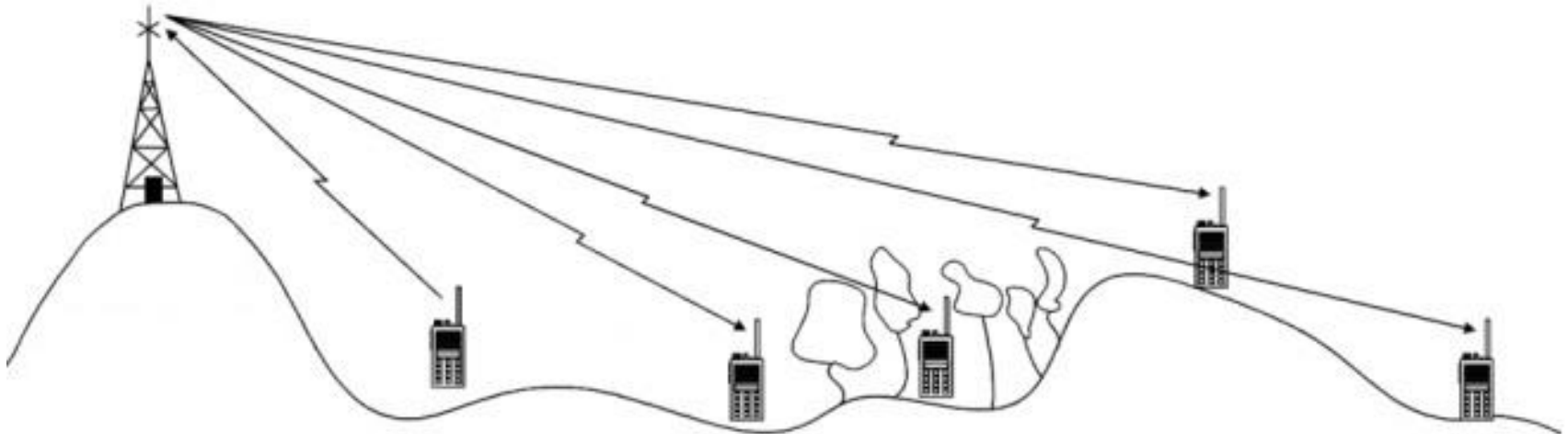
This is a bi-directional QSO...

***So please ask
questions!***



What is a repeater?

- A good radio at a good site with good coverage
- Receives on one frequency and re-transmits on the other
 - Everyone listens on the output frequency
 - Users transmit onto the input frequency
 - No direct radio-to-radio communications



Repeaters

- Pros:
 - Can hear everyone
 - Complete coverage
 - Lower power portables
 - Better battery life
 - Better reception/range
- Cons:
 - More Infrastructure
 - Radio Programming

Simplex

- Pros:
 - SIMPLE
 - No Infrastructure
 - Incredibly Reliable
 - Simple programming
- Cons:
 - May need to “Relay”
 - More training required
 - Incomplete coverage
 - Higher power portables

CARES and Repeaters

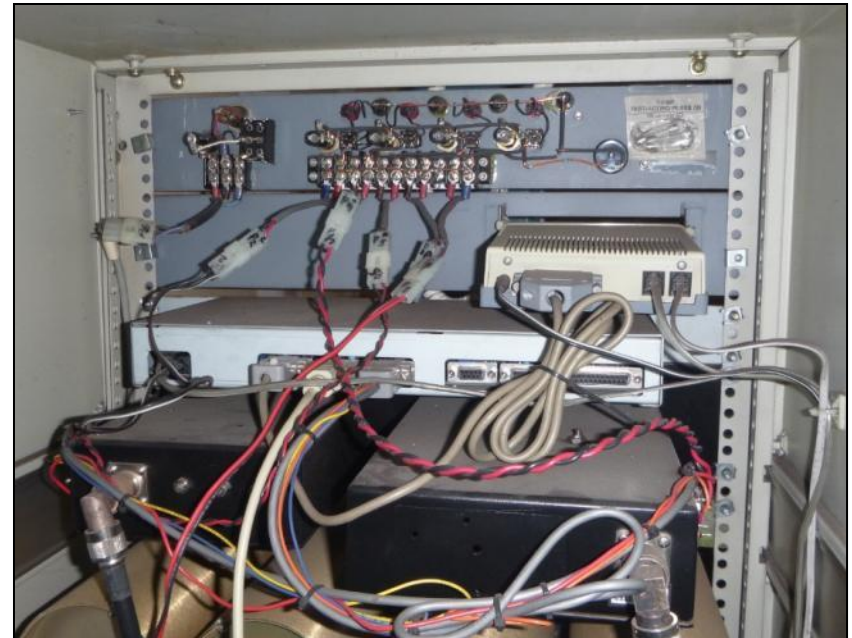
- **TAC1 – SIMPLEX** – 147.570MHz, 151.4Hz PL
- **TAC2 – SIMPLEX** – 146.460MHz, 151.4Hz PL
- **TAC3 – REPEATER** – 440.150MHz (+) 100.0Hz PL

- Weekly Nets are run SIMPLEX*
 - Great practice! Great skills to have and use!
 - *Though we now usually link TAC1 and TAC3 on Tues
- There are very few times that we use repeaters...

So let's add this to our skill set!

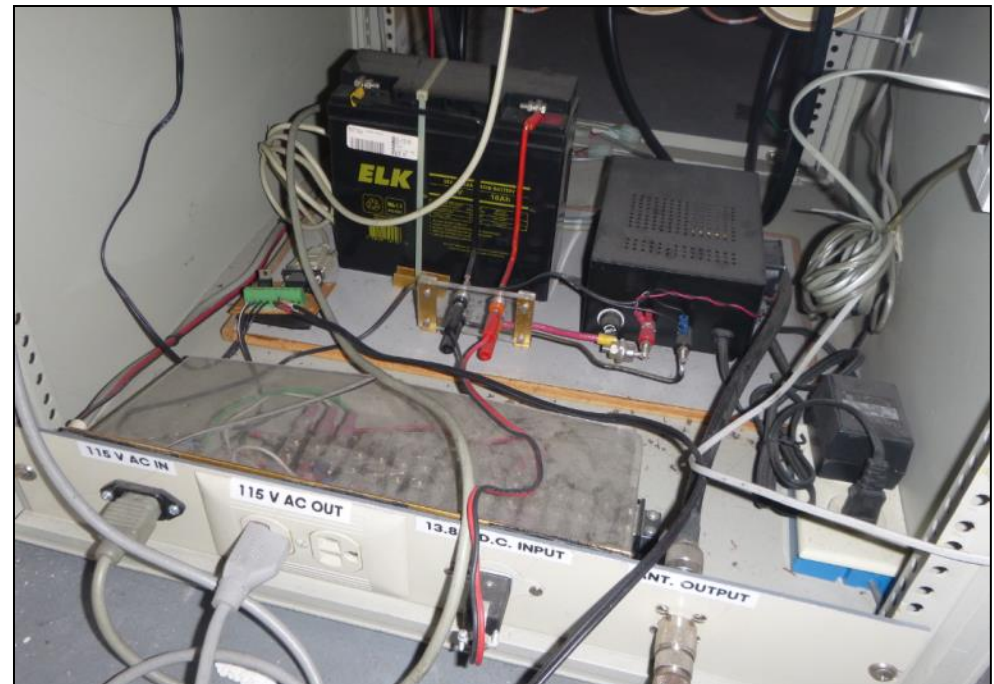
Old CARES Repeater (W6TDM)

- Inherited from Tandem Radio Amateurs Club (TRAC)
 - *Now part of Hewlett Packard Silicon Valley Radio Club (HPSVRC)*



Old CARES Repeater (W6TDM)

- Low-power (4 Watts), old
- Small battery backup (17Ahr)
- Failing repeater controller
- Rebuilt by Vince K6TEN(sk) and team in 2005-2006



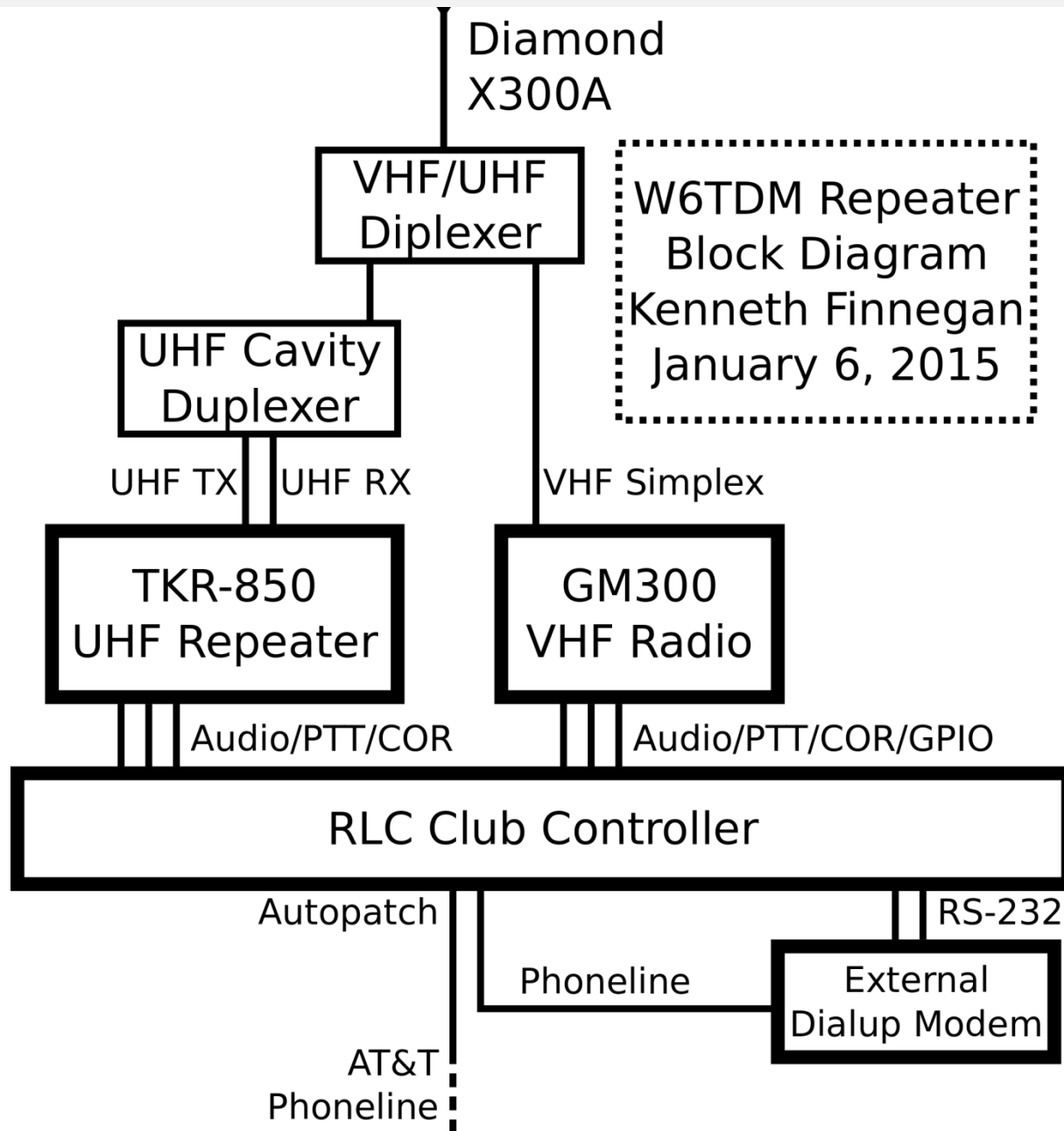
New CARES Repeater (W6TDM)

- Higher-power (15W)
- New UHF Repeater Radio
 - (Kenwood TKR-850)
- New Repeater Controller
 - (RLC-Club)
- New DC Power System
 - (108Ahr battery backup)
- Added new VHF Link Radio
 - (Motorola GM300)
- New Antenna
 - (Dual-band Diamond X300A)



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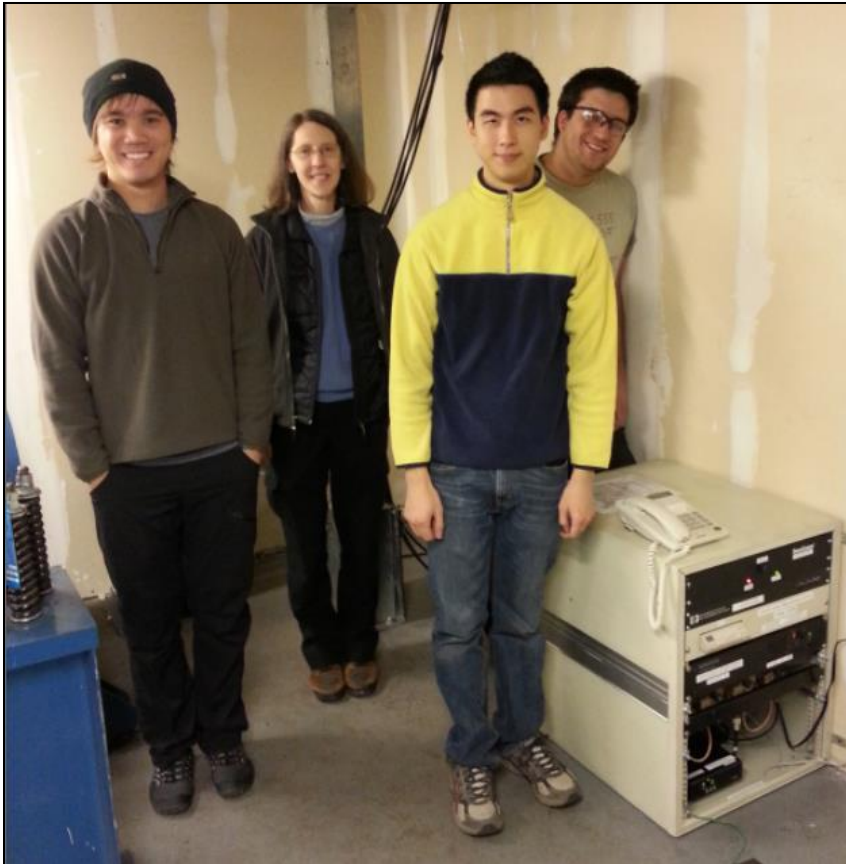


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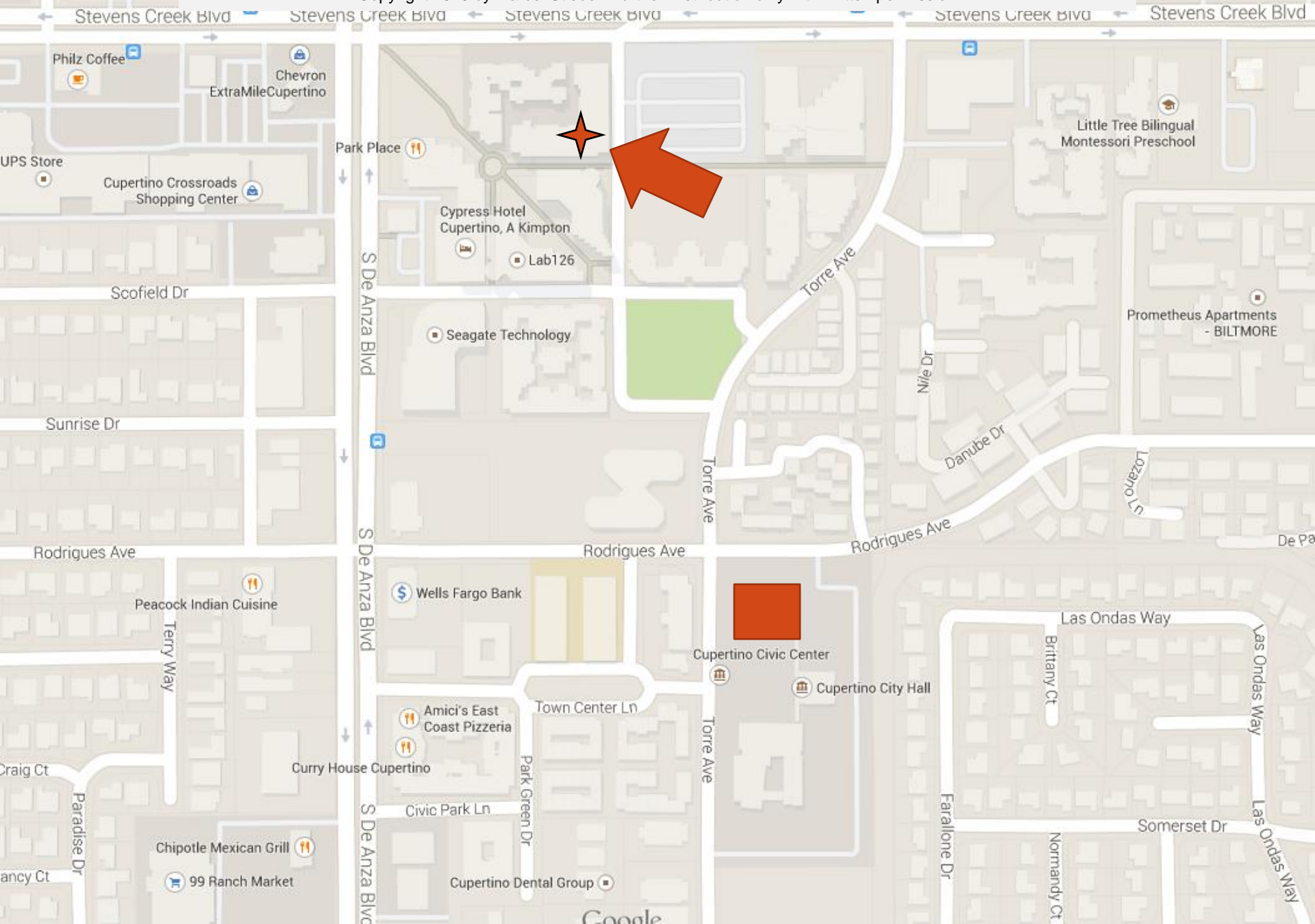
New CARES Repeater (W6TDM)

- Installed November 16, 2014
 - Thanks to Judy, Jim, Tom, Tony, Hella, Kenneth E, Kenneth F, John, and Ryan!



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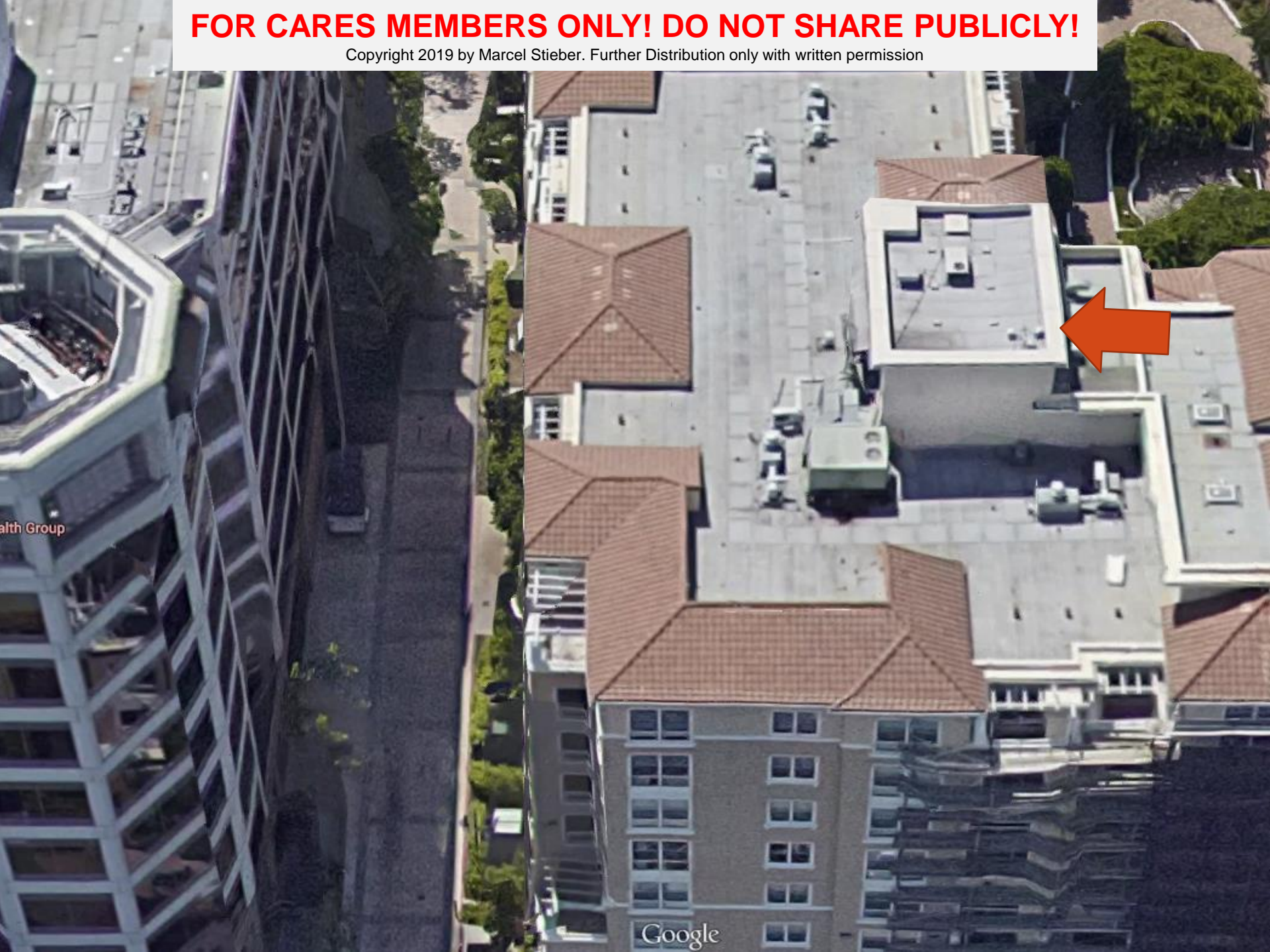
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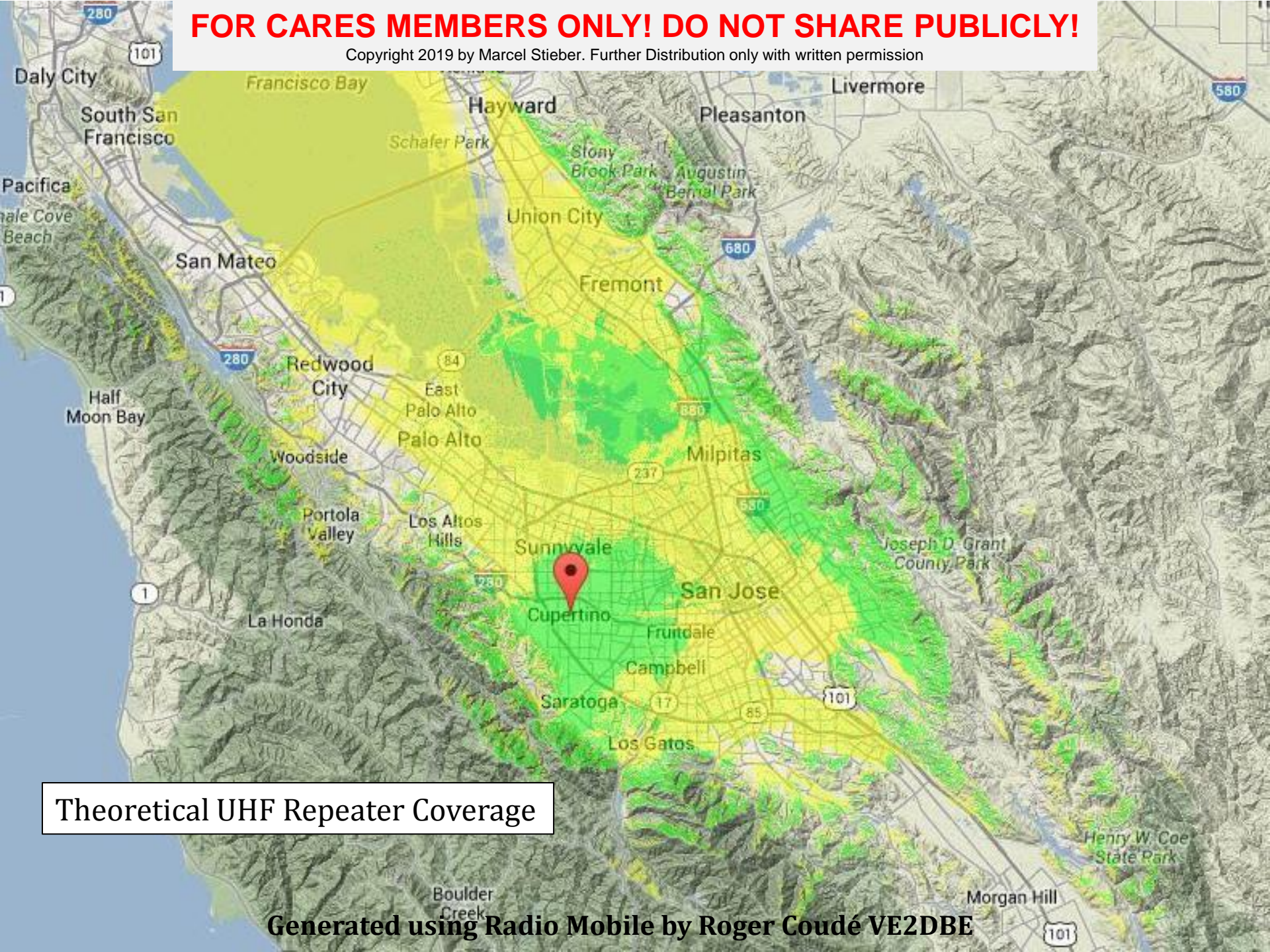


Health Group

Google

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Theoretical UHF Repeater Coverage

Generated using Radio Mobile by Roger Coudé VE2DBE

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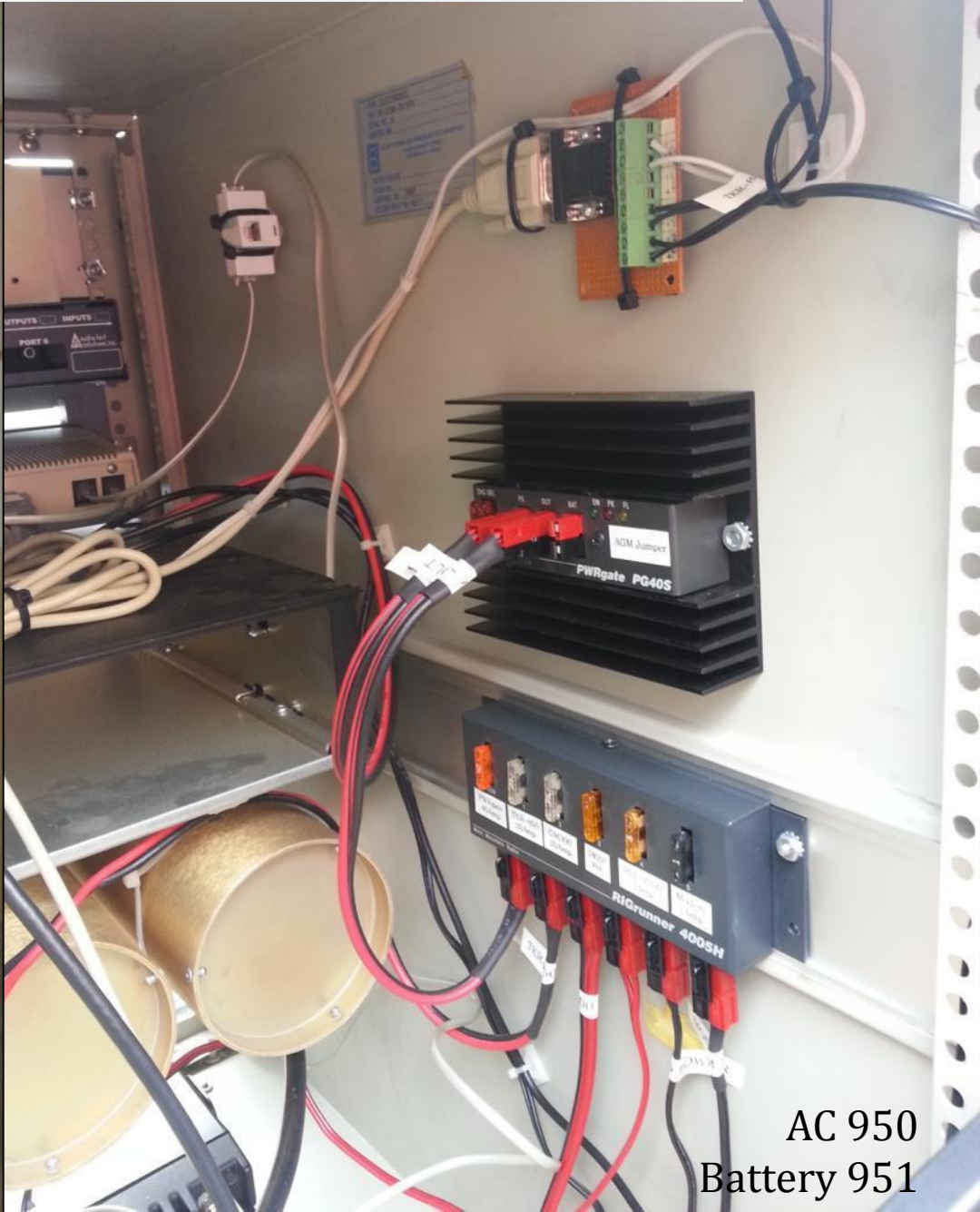
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AC 950
Battery 951

Let's get on the air!

- Please set your radios to TAC3
 - 440.150MHz, +5Mhz Offset, TX/RX PL 100.0Hz



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Repeater Control Codes for Members!

CARES W6TDM Repeater - 440.150MHz(+)100.0PL

*1 - Time
*2 - Date
*4 - Repeater Temp
*5 - Link Radio Temp
*6 - Outside Temp
*7 - System Voltage
*9 - Full Status Rundown

*99 - Site Normal
*91 - Site Reset

*411 - Repeater ID
*412 - CARES Info
*413 - Morse ID

*11 - Enable Repeater
*10 - Disable Repeater

Autopatch - (408) 973-0139
*28# + 11 digit # - Dial autopatch
*82 - Answer reverse patch
- Hang up autopatch

*21 - Connect Link Radio
*20 - Disconnect Link Radio
*22 - Query link state
*23 - 1 hour link-off timer

*500 - Recall link channel
*501 - Set TAC1 147.570, PL151.4
*502 - Set TAC2 146.460, PL151.4
*503 - Set to: 147.495, PL151.4
*504 - Set to: 146.520, PL151.4
*505 - Set TAC5 147.585, PL151.4
*506 - Set to: 145.790, PL127.3
*507 - Set to: 146.535, PL127.3

Always ID before AND after entering any control codes!

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Controlling the Repeater

1. ALWAYS ID FIRST!
 - “AI6MS Controlling”
2. Enter your commands using DMTF
 - “*1”
3. ID again when finished
 - “AI6MS”

Remind and help each other to ID!

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How to use the Autopatch

1. ALWAYS ID FIRST!
 - “AI6MS Controlling”
2. Enter your commands using DMTF
 - “*28#” + 11 digit phone number
3. Have conversation
 - Repeater is keyed up 100%
 - 3 minute max
4. Hang up
 - “#”
5. ID again when finished
 - “AI6MS”

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A word about the VHF Link Radio

1. ALWAYS ID FIRST!
 - “AI6MS Controlling”
2. Ensure the link radio is disconnected
 - “*22”
3. Set your desired channel
 - “*501”
4. Connect the link radio
 - “*21”
5. Have conversation
6. Disconnect the link radio
 - “AI6MS Controlling” + “*20”
7. ID again when finished
 - “AI6MS”

Be courteous!
It's like a high-power remote base!

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narcc

1007 West College Avenue #144 Santa Rosa CA 95401-5046

Northern Amateur Relay Council
of California

<http://www.narcc.org/>

Certificate of Coordination

Station Callsign: **W6TDM**

TX Frequency: 440.1500
Transmitter Access: 100.0
Site Name: Cupertino Montebello
Site County: Santa Clara

Latitude: 37° 19' 20"
Longitude: 122° 1' 50"
Site Elevation: 350' MSL
Antenna Gain: 9 db

Expiration: **December 6, 2020**

Cupertino ARES
Marcel Stieber AI6MS

Compliance with FCC Part 97 rules mandatory

Questions - Comments - Discussion

- Feel free to use the repeater ANYTIME!
 - I am frequently monitoring and happy to help, teach, and talk!



References

- <http://www.walkie-talkie-hire.co.uk/images/Radio-repeater-operation.jpg>
- <http://www.delcoares.org/AREScolorlogo%20copy.jpg>
- http://img1.wikia.nocookie.net/_cb20090106020912/sanfrancisco/images/0/01/Cupertino_city_seal.png
- <https://www.google.com/maps/@37.322825,-122.0321096,3a,75y,135.21h,90.38t/data=!3m4!1e1!3m2!1sZvOq4gBw4vD3pfakfxUVyQ!2e0>
- Radio Mobile Software by Roger Coudé VE2DBE:
<http://www.cplus.org/rmw/english1.html>