

## **Herding Cats, or unifying a local group with a mission, using a structured simplex exercise.**

In four parts

### Part 1 Overview

This exercise illustrates what can be done when the repeater is down. It will show you how to figure out which stations can talk to one another when the repeater is down.

Why the phrase “Herding Cats”?

Getting everyone in a very diverse group of individuals like us hams, to totally agree upon anything is almost impossible. It is like trying to herd cats, there is always one that will go astray.

This exercise has everyone in a group focused on a single task at hand and no one has an opportunity to go astray. As a result all simplex contact possibilities within the group are discovered.

As you can see in figure 1, our members are scattered all over the county that has lots of hills, valleys and a few mountains between each member. Those blue lines are creeks, streams and rivers running in the valleys.

All of us normally interact with each other and hold a weekly net with a round table using a repeater on Glassy Mountain. The Emergency Operation Center also has access to all of us through the duplex feature of the repeater

Figure 2 shows how Pickens County Communication group members can interact with one another and the Emergency Operations Center over the repeater on Glassy Mountain at 1800 feet.

But what can be done if the repeater is down?

The exercise and the data analysis to follow will demonstrate a surprising simplex capability on a single agreed-upon frequency.

In our case it was 147.540MHz.

With the repeater down during an incident, the Emergency Operation Center (EOC) antenna at 1200 feet, shown in figure 3, is now the main goal for Simplex communication by our group. Duplex talks are no longer possible. The exercise to be discussed achieved that goal and even revealed multiple relay routes to the EOC and a very large amount of peer to peer possibilities. All using simplex on a single frequency.

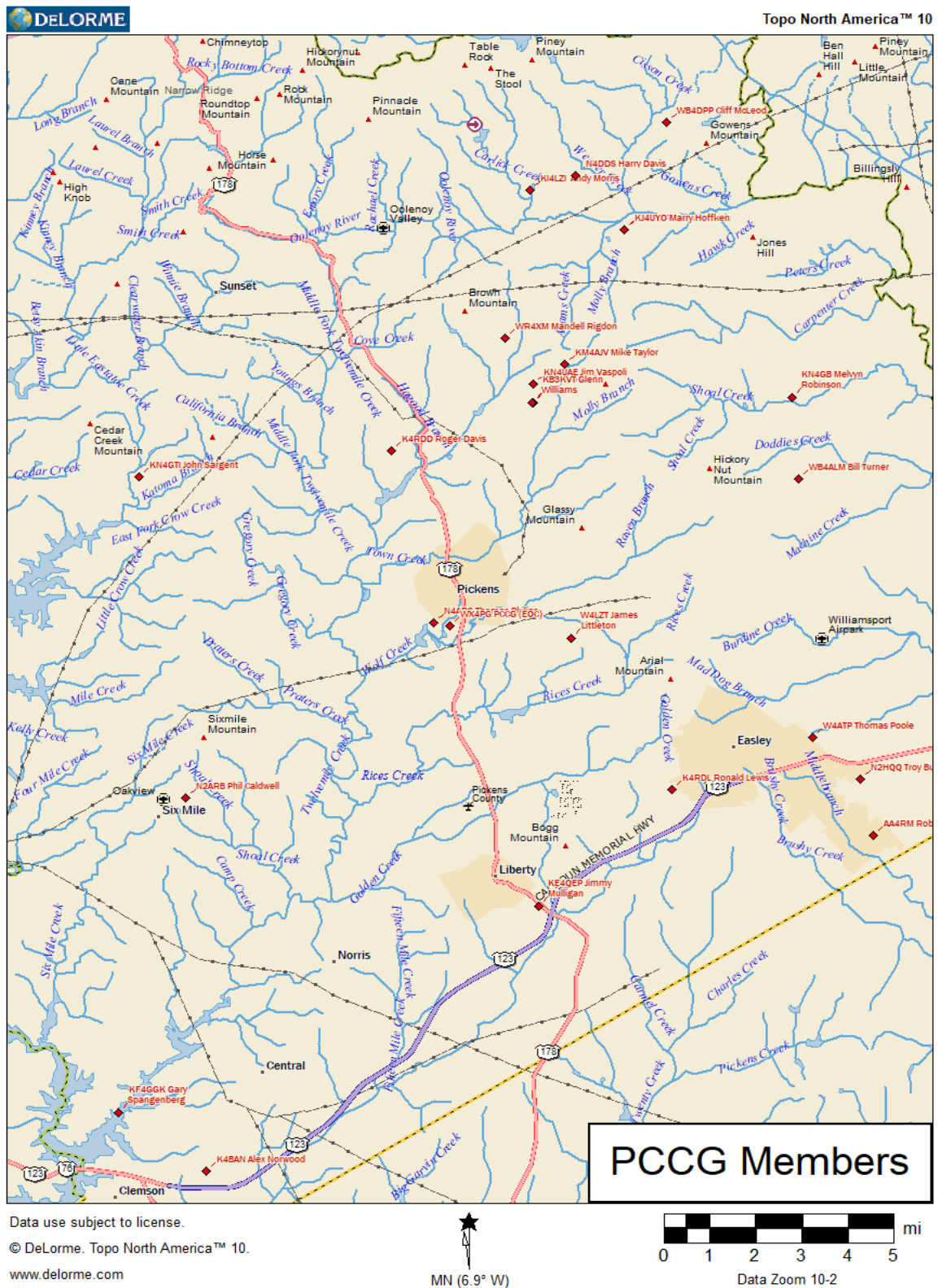


Figure 1, Location of Pickens County Communication Group Members







Figure 3, EOC Antenna at 1200 feet

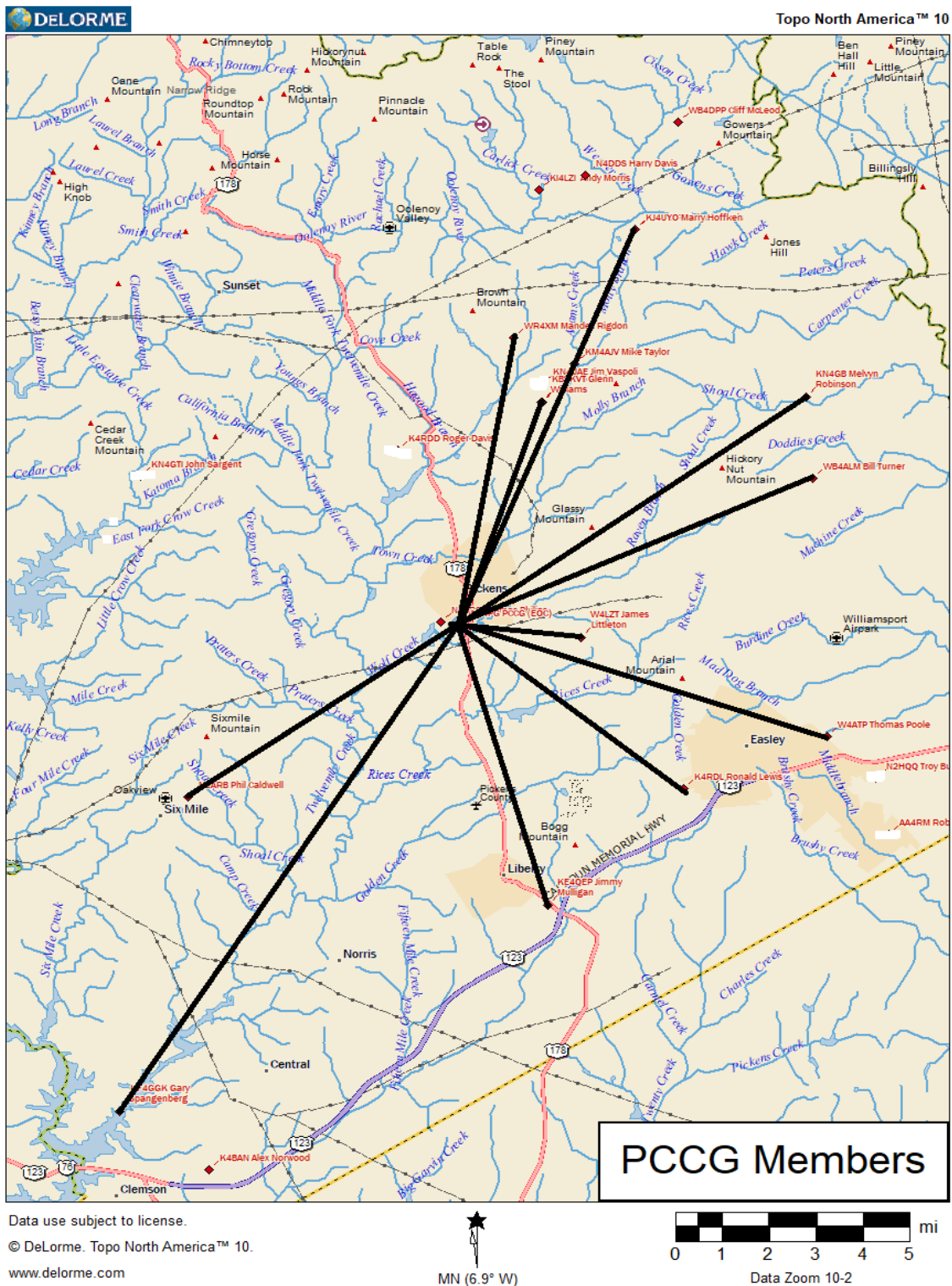


Figure4. Exercise proven EOC Simplex communication with PCCG.

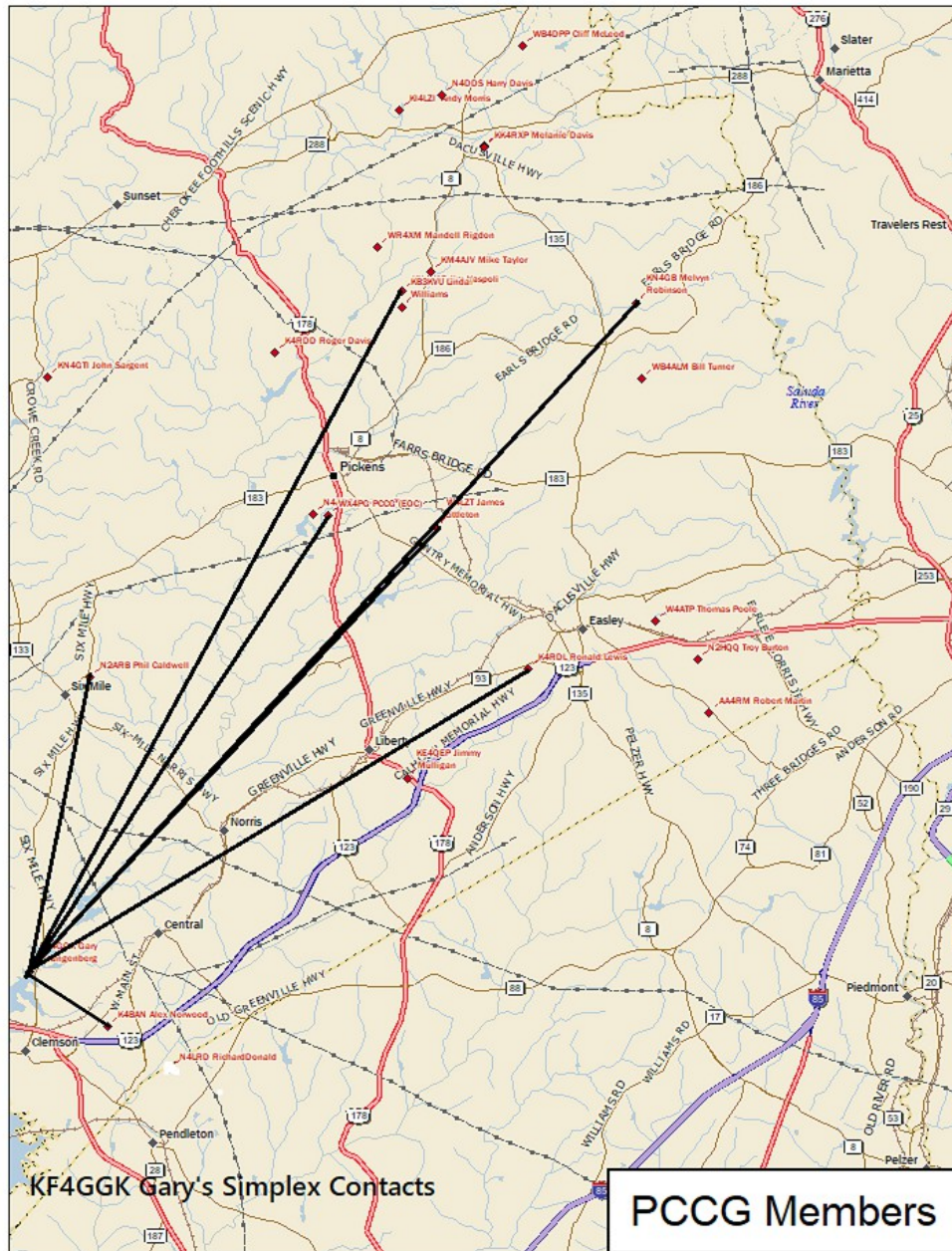


Figure 5. Single station (KF4GGK) Simplex contact possibilities.



But what about those not so lucky for direct communication with the EOC? Taking Andy as an example, the exercise determined that he actually has seven choices for a relay station to get through to the EOC, fig.6. There are only six lines because one location is shared by a husband and wife team with two call letters. All of this is derived from the simplex matrix constructed from this exercise. We could even place all communication paths for all members between each other and the EOC on the map, but it would turn into a piece of modern artwork. So it is better to consult the derived simplex matrix for any desired capability

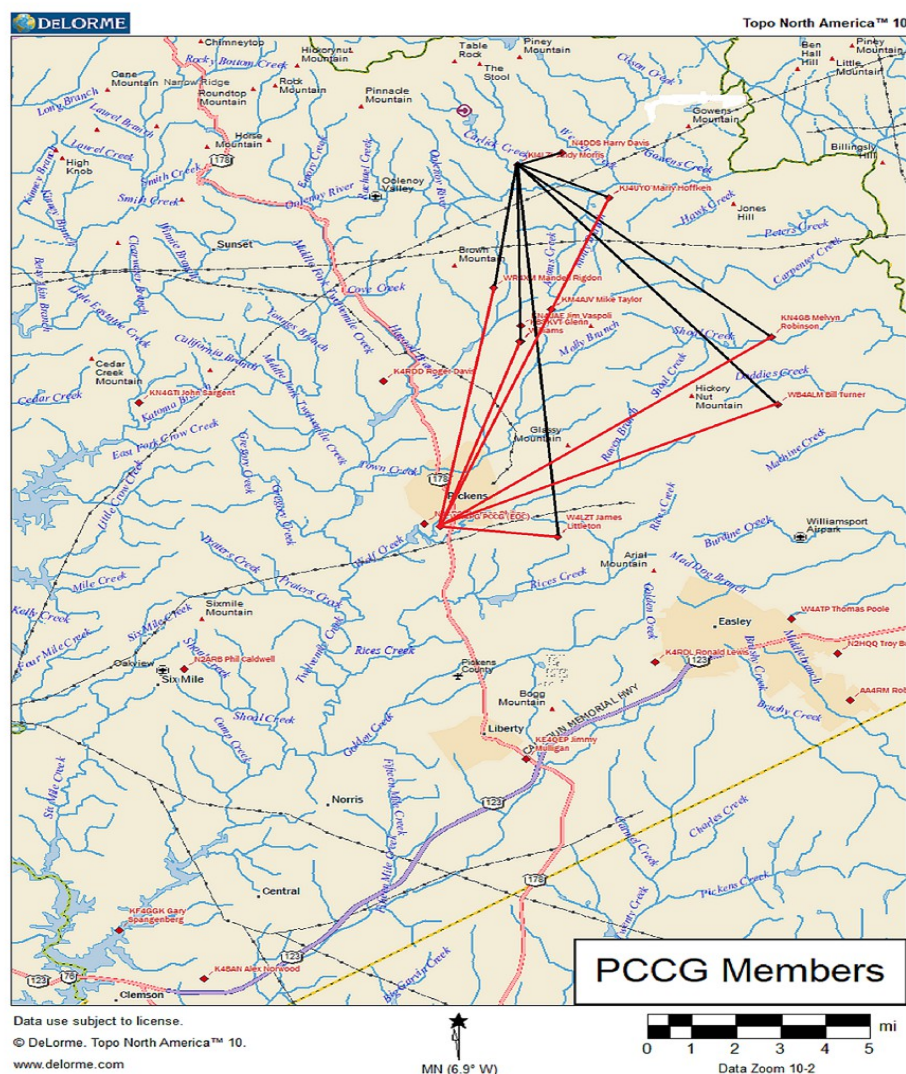


Figure 6, All relay possibilities to reach the EPC for Andy.

It took a few dedicated people to make the exercise a success, fig,7.  
Back in 2021 at the Stone Mountain Hamfest near Atlanta the exercise concept came to fruition. Alex Norwood K4BAN visited us in our motor-home and over freshly brewed coffee we got into a lively discussion. The result was the foundation of the exercise. A schedule defined one minute interval time based transmission sequence by all participants. The following year we held this Simplex exercise in January with great success with the talented help of Tomas Poole W4ATP. Ann Smith KO4HYC wrote a nice article about her club's experience using this exercise later that year. It appears in the andersonradioclub.com, Newsletter tab.

*Many Thanks to:*

*Denise Kwiatek Emergency Management Director*

*Mandell Rigdon Pickens County Communications Coordinator, Requested a Simplex Exercise*

*WR4XM*

*Alex Norwood Table time slot contributor*

*K4BAN*

*Glenn Williams Matrix proof reader*

*KB3KVT*

*Thomas Poole Emergency Coordinator, On-Line & Real Time ICS Simplex Exercise Conductor*

*W4ATP*

*Ann Smith "Repeater down? Use Simplex Amateur Radio" August-September andesonradioclub.com, Newsletter*

Figure 7. Key exercise personel



## Part 2, The exercise

So how do we start this exercise?

First, we collect all the participating member's call letters in alphabetical order on a list. The coordinating EOC station appears in the beginning and end for opening and closure. See figure 8.

Second, a time slot for transmission of one minute is assigned to each participant along with the date, starting time and frequency used by all.

Third, the list is distributed to each participant with the data collector's address at the bottom.

Pickens County Communications Group Simplex exercise		
January 11/2022, Starting time 07:00pm, Freq.147.540MHz		
Cell Phone	Call Letter & Name	Received
Time Slot	Repeat for 1 minute	(check off)
07:00-01	WX4PG PCCG (EOC)	
07:01-02	K4BAN Alex Norwood	
07:02-03	K4RDD Roger Davis	
07:03-04	K4RDL Ronald Lewis	
07:04-05	KB3KVT Glenn Williams	
07:05-06	KB3KVU Linda Williams	
07:06-07	KE4QEP Jimmy Mulligan	
07:07-08	KF4GGK Gary Spangenberg	
07:08-09	KI4LZI Andy Morris	

Figure 8. Table of all Participants

Figure 9 was my generated long list.

The timing can be done via the website time.gov, a cell phone, or an atomic clock. All feature at least one second accuracy. The cell phone may not have an indicator for seconds, so an eagle eye is

required.

The person on the air should talk the entire minute because the listeners have their squelch turned off, and nothing is worse than the very loud rushing noise when a carrier is absent.

JH1001.1

Pickens County Communications Group Simplex exercise			
January 11/2022, Starting time 07:00pm, Freq.147.540MHz			
<b>Cell Phone</b>	<b>Call Letter &amp; Name</b>	<b>Received</b>	
<b>Time Slot</b>	<b>Repeat for 1 minute</b>	<b>(check off)</b>	
07:00-01	WX4PG PCCG (EOC)		
07:01-02	K4BAN Alex Norwood		
07:02-03	K4RDD Roger Davis		
07:03-04	K4RDL Ronald Lewis		
07:04-05	KB3KVT Glenn Williams		
07:05-06	KB3KVU Linda Williams		
07:06-07	KE4QEP Jimmy Mulligan		
07:07-08	KF4GGK Gary Spangenberg		
07:08-09	KI4LZI Andy Morris		
07:09-10	KJ4UYO Marry Hoffken		
07:10-11	KK4RXP Melanie Davis		
07:11-12	KM4AJV Mike Taylor		
07:12-13	KN4GB Melvyn Robinson		
07:13-14	KN4GTI John Sargent		
07:14-15	KN4UAE Jim Vaspoli		
07:15-16	KO4MZ Eric Sloan		
07:16-17	N2ARB Phil Caldwell		
07:17-18	N2HQQ Troy Burton		
07:18-19	N4ARS Thomas Philips		
07:19-20	N4DDS Harry Davis		
07:20-21	N4LRD RichardDonald		
07:21-22	W4ATP Thomas Poole		
07:22-23	WB4LZT James Littleton		
07:23-24	WB4ALM Bill Turner		
07:24-25	WB4DPP Cliff McLeod		
07:25-26	WR4XM Mandell Rigdon		
07:26-27	KY4EF Barry Millsapes		
07:27-28	KN4SWB Matthew Littleton		
07:28-29	WX4PG PCCG (EOC)		
Mail received Call Letters to <a href="mailto:garyspang@att.net">garyspang@att.net</a> for compilation.			

Figure 9. The long PCCG time slot list I send to everyone.

As the exercise progresses, each listener simply places a check mark next to the station that is heard clearly enough to be understood. Illustrated in fig 10. For simplicity, signal reports are to be avoided. The listener must make the intelligibility decision, and not leave it up to the data collector that never heard his radio.

During your time slot a simple note should be entered.

Shown here is the phrase “This is me”.

Do not be tempted to transmit when you hear nothing, it will confuse all listeners that can hear you and make the time slot invalid

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January 11/2022, Starting time 07:00pm, Freq.147.540MHz		
Cell Phone	Call Letter & Name	Received
Time Slot	Repeat for 1 minute	(check off)
07:00-01	WX4PG PCCG (EOC)	✓
07:01-02	K4BAN Alex Norwood	This is me
07:02-03	K4RDD Roger Davis	✓
07:03-04	K4RDL Ronald Lewis	✓
07:04-05	KB3KVT Glenn Williams	
07:05-06	KB3KVU Linda Williams	✓
07:06-07	KE4QEP Jimmy Mulligan	✓
07:07-08	KF4GGK Gary Spangenberg	✓
07:08-09	KI4LZI Andy Morris	

Figure 10. Partial Reception Report by a Participant.



### Part 3. Data collection and placing it on a Matrix

The data collector now has the most time consuming task of constructing and filling in a table now called a matrix.

The number of returned reception reports will determine the number of columns and rows needed plus two for adding call letters around all outer edges again in alphabetical order. See fig. 11.

In the case shown here, we have 5 participants. They are listed on the row and column as is customary for displaying two possibilities.

The letters ABC and EOC are replaced with your actual call letters.

The diagonal that is common to both the row and column contains the first name of the call letter owner.

Notice the symmetry about the diagonal.

	Station <b>A</b>	Station <b>B</b>	Station <b>C</b>	station <b>D</b>	EOC Station	
Station <b>A</b>	First Name					
Station <b>B</b>		First Name				
Station <b>C</b>			First Name			
Station <b>D</b>				First Name		
EOC Station					First Name	

Figure 11. Matrix formation

Because of this symmetry, each data point is entered twice. Once above and once below the diagonal as in fig.12. In the case shown C has heard B or B has heard C or they heard each other at

different time slots. Forgetting this dual entry is the most frequent error while filling in the matrix.



	Station <b>A</b>	Station <b>B</b>	Station <b>C</b>	station <b>D</b>	EOC Station	
Station <b>A</b>	First Name					
Station <b>B</b>		First Name				
Station <b>C</b>			First Name			
Station <b>D</b>				First Name		
EOC Station					First Name	

Figure 12. Double entry for every data point.

Because of this symmetry, It is possible to make interpretations top to bottom or bottom to top, as well as left to right or right to left.

To avoid visual tracking errors, the right column is also labeled with the call letters as well as the bottom row shown in fig. 13.

	Station <b>A</b>	Station <b>B</b>	Station <b>C</b>	station <b>D</b>	EOC Station	
Station <b>A</b>	First Name					Station <b>A</b>
Station <b>B</b>		First Name				Station <b>B</b>
Station <b>C</b>			First Name			Station <b>C</b>
Station <b>D</b>				First Name		Station <b>D</b>
EOC Station					(Operator Name)	EOC Station
	Station <b>A</b>	Station <b>B</b>	Station <b>C</b>	Station <b>D</b>	EOC Station	

Figure 13. Symmetrical axis labeling for better readability  
 Figure 14 is the final appearance of the matrix. All stations capable of Simplex communication are identified.

	Station <b>A</b>	Station <b>B</b>	Station <b>C</b>	station <b>D</b>	EOC Station	
Station <b>A</b>	First Name	<b>SIMPLEX</b>				Station <b>A</b>
Station <b>B</b>	<b>SIMPLEX</b>	First Name				Station <b>B</b>
Station <b>C</b>			First Name		<b>SIMPLEX</b>	Station <b>C</b>
Station <b>D</b>				First Name		Station <b>D</b>
EOC Station			<b>SIMPLEX</b>		(Operator Name)	EOC Station
	Station <b>A</b>	Station <b>B</b>	Station <b>C</b>	Station <b>D</b>	EOC Station	

Figure 14. The final filled in appearance of the matrix.

Figure 15 was the final result of our exercise.  
 Our matrix was very large at 21 by 21 squares. The center diagonal contains the first name of the call letter owner. Other variations are possible as long as the matrix retains its diagonal symmetry for quick discovery of any needed relay station.  
 I had to look at 441 lines on 21 tables, and did it twice to catch any errors along with two other persons proof-reading the matrix for any inconsistencies and omissions.  
 This is a major time consuming activity and should be left to someone able to focus on a repetitive task without being distracted easily.



	KN4S WB	KY4EP	K4BAN	K4RDL	KBKVT	KBKVVU	KZ4QEP	KF4GGK	KL4LZ I	KJ4UY O	KN4GB	KO4MZ	N2ARB	N4DD6	W4ATP	WB4LZT	WB4ALM	WR4X M	WX4PG	
KN4S WB	<u>MATTHEW</u>	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	KN4SWB
KY4EP	SIMPLEX	<u>BARRY</u>	SIMPLEX					SIMPLEX					SIMPLEX			SIMPLEX				KY4EP
K4BAN		SIMPLEX	<u>ALEX</u>					SIMPLEX								SIMPLEX				K4BAN
K4RDL	SIMPLEX			<u>RONALD</u>	SIMPLEX	SIMPLEX		SIMPLEX		SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX			SIMPLEX	K4RDL
KBKVT	SIMPLEX			SIMPLEX	<u>GLENN</u>			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	KBKVT
KBKVVU	SIMPLEX			SIMPLEX		<u>LINDA</u>			SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	KBKVVU
KZ4QEP	SIMPLEX						<u>JIMMY</u>								SIMPLEX	SIMPLEX			SIMPLEX	KZ4QEP
KF4GGK	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX			<u>GARY</u>			SIMPLEX	SIMPLEX	SIMPLEX			SIMPLEX			SIMPLEX	KF4GGK
KL4LZ I					SIMPLEX	SIMPLEX			<u>ANDY</u>	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX		KL4LZ I
KJ4UY O	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX			SIMPLEX	<u>MARRY</u>	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	KJ4UY O
KN4GB	SIMPLEX				SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	<u>MELVYN</u>	SIMPLEX		SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	KN4GB
KO4MZ	SIMPLEX			SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	<u>ERIC</u>		SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX	KO4MZ
N2ARB	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX		SIMPLEX			<u>PHIL</u>			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	N2ARB
N4DD6	SIMPLEX			SIMPLEX	SIMPLEX				SIMPLEX	SIMPLEX	SIMPLEX			<u>HARRY</u>		SIMPLEX	SIMPLEX	SIMPLEX		N4DD6
W4ATP	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX					SIMPLEX				<u>THOMAS</u>	SIMPLEX		SIMPLEX	W4ATP
WB4LZT	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	<u>JAMES</u>	SIMPLEX	SIMPLEX	SIMPLEX	WB4LZT
WB4ALM	SIMPLEX				SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX		SIMPLEX	<u>BILL</u>	SIMPLEX	SIMPLEX	WB4ALM
WR4X M					SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	<u>Mandel</u>	SIMPLEX	WR4X M
WX4PG	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX		SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	<u>EOC</u>	<u>WX4PG</u>
	KN4S WB	KY4EP	K4BAN	K4RDL	KBKVT	KBKVVU	KZ4QEP	KF4GGK	KL4LZ I	KJ4UY O	KN4GB	KO4MZ	N2ARB	N4DD6	W4ATP	WB4LZT	WB4ALM	WR4X M	WX4PG	

Figure 15. The final Matrix of our exercise.

### Part3. Data and Matrix interpretation

The first item of interest is of course who can communicate with the EOC?  
By traveling either up or to the left, all stations that have simplex capability with the EOC have the word simplex written in their vertical or horizontal box shown in fig. 16.

	KN4S WB	KY4EF	K4BAN	K4RDL	KBJKYT	KBJKYU	KZ4QEP	KF4GGK	KL4LZ I	KJ4UY O	KN4GB	KO4MZ	N2ARB	N4DD6	W4ATP	WB4LZT	WB4ALM	WR4X M	WX4PG	
KN4S WB	<u>MATTHEW</u>	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	KN4SWB
KY4EF	SIMPLEX	<u>BARRY</u>	SIMPLEX					SIMPLEX					SIMPLEX			SIMPLEX				KY4EF
K4BAN		SIMPLEX	<u>ALEX</u>					SIMPLEX								SIMPLEX				K4BAN
K4RDL	SIMPLEX			<u>RONALD</u>	SIMPLEX	SIMPLEX		SIMPLEX		SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX			SIMPLEX	K4RDL
KBJKYT	SIMPLEX			SIMPLEX	<u>GLENN</u>			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	KBJKYT
KBJKYU	SIMPLEX			SIMPLEX		<u>LINDA</u>			SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	KBJKYU
KZ4QEP	SIMPLEX						<u>JIMMY</u>								SIMPLEX	SIMPLEX			SIMPLEX	KZ4QEP
KF4GGK	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX			<u>GARY</u>			SIMPLEX	SIMPLEX	SIMPLEX			SIMPLEX			SIMPLEX	KF4GGK
KL4LZ I					SIMPLEX	SIMPLEX			<u>ANDY</u>	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX		KL4LZ I
KJ4UY O	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX			SIMPLEX	<u>MARV</u>	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	KJ4UY O
KN4GB	SIMPLEX				SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX		<u>MELVYN</u>	SIMPLEX		SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	KN4GB
KO4MZ	SIMPLEX			SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX	<u>ERIC</u>			SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX	KO4MZ
N2ARB	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX		SIMPLEX			<u>PHIL</u>			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	N2ARB
N4DD6	SIMPLEX			SIMPLEX	SIMPLEX				SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		<u>HARRY</u>		SIMPLEX	SIMPLEX	SIMPLEX		N4DD6
W4ATP	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX					SIMPLEX				<u>THOMAS</u>	SIMPLEX		SIMPLEX	W4ATP
WB4LZT	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX	<u>JAMES</u>	SIMPLEX	SIMPLEX	SIMPLEX	WB4LZT
WB4ALM	SIMPLEX				SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX		SIMPLEX	<u>BILL</u>	SIMPLEX	SIMPLEX	WB4ALM
WR4XM					SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	<u>Mandel</u>	SIMPLEX		WR4XM
WX4PG	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	<u>EOC</u>	WX4PG
	KN4S WB	KY4EF	K4BAN	K4RDL	KBJKYT	KBJKYU	KZ4QEP	KF4GGK	KL4LZ I	KJ4UY O	KN4GB	KO4MZ	N2ARB	N4DD6	W4ATP	WB4LZT	WB4ALM	WR4X M	WX4PG	

Figure 16. Finding all stations with Simplex capability with the EOC.

Just as shown previously, any Simplex cell encountered in the EOC row or

column signifies a communication capability with a station and is marked green in fig. 17. This two axis duplication of entries results in easier interpretation by making it immaterial if we go left and right or up and down. The result will always be the same.

	KN4S WB	KY4EP	K4BAN	K4RDL	KB3KVT	KB3KVU	KZ4QEP	KF4GGK	KJ4LZ I	KJ4UY O	KN4GB	KO4M1	N1ARB	N4DD6	W4ATP	WB4LZT	WB4ALM	WR4X M	WX4PG	
KN4S WB	<u>MATTHEW</u>	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	KN4SWB
KY4EP	SIMPLEX	<u>BARRY</u>	SIMPLEX					SIMPLEX					SIMPLEX			SIMPLEX				KY4EP
K4BAN		SIMPLEX	<u>ALEX</u>					SIMPLEX								SIMPLEX				K4BAN
K4RDL	SIMPLEX			<u>RONALD</u>	SIMPLEX	SIMPLEX		SIMPLEX		SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX			SIMPLEX	K4RDL
KB3KVT	SIMPLEX			SIMPLEX	<u>GLENN</u>			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	KB3KVT
KB3KVU	SIMPLEX			SIMPLEX		<u>LINDA</u>			SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	KB3KVU
KZ4QEP	SIMPLEX						<u>JIMMY</u>								SIMPLEX	SIMPLEX			SIMPLEX	KZ4QEP
KF4GGK	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX			<u>GARY</u>			SIMPLEX	SIMPLEX	SIMPLEX			SIMPLEX			SIMPLEX	KF4GGK
KJ4LZ I					SIMPLEX	SIMPLEX			<u>ANDY</u>	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX		KJ4LZ I
KJ4UY O	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX			SIMPLEX	<u>MARRY</u>	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	KJ4UY O
KN4GB	SIMPLEX				SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	<u>MELVYN</u>			SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	KN4GB
KO4M1	SIMPLEX			SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	<u>ERIC</u>		SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX	KO4M1
N1ARB	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX		SIMPLEX			<u>PHIL</u>			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	N1ARB
N4DD6	SIMPLEX			SIMPLEX	SIMPLEX				SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		<u>HARRY</u>		SIMPLEX	SIMPLEX	SIMPLEX		N4DD6
W4ATP	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX					SIMPLEX				<u>THOMAS</u>	SIMPLEX			SIMPLEX	W4ATP
WB4LZT	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	<u>JAMES</u>	SIMPLEX	SIMPLEX	SIMPLEX	WB4LZT
WB4ALM	SIMPLEX				SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX		SIMPLEX	<u>BILL</u>	SIMPLEX	SIMPLEX	WB4ALM
WR4X M					SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	<u>MICHAEL</u>	SIMPLEX	WR4X M
WX4PG	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	<u>EOC</u>	WX4PG
KN4S WB		KY4EP	K4BAN	K4RDL	KB3KVT	KB3KVU	KZ4QEP	KF4GGK	KJ4LZ I	KJ4UY O	KN4GB	KO4M1	N1ARB	N4DD6	W4ATP	WB4LZT	WB4ALM	WR4X M	WX4PG	

Figure 17. All possible Simplex station contacts by the EOC marked in green.

From the green Simplex station list a communication pattern can be placed on a map shown in fig. 18. This is easily comprehended by anyone. It also looks great.

It is now obvious that most members have EOC communication capability..



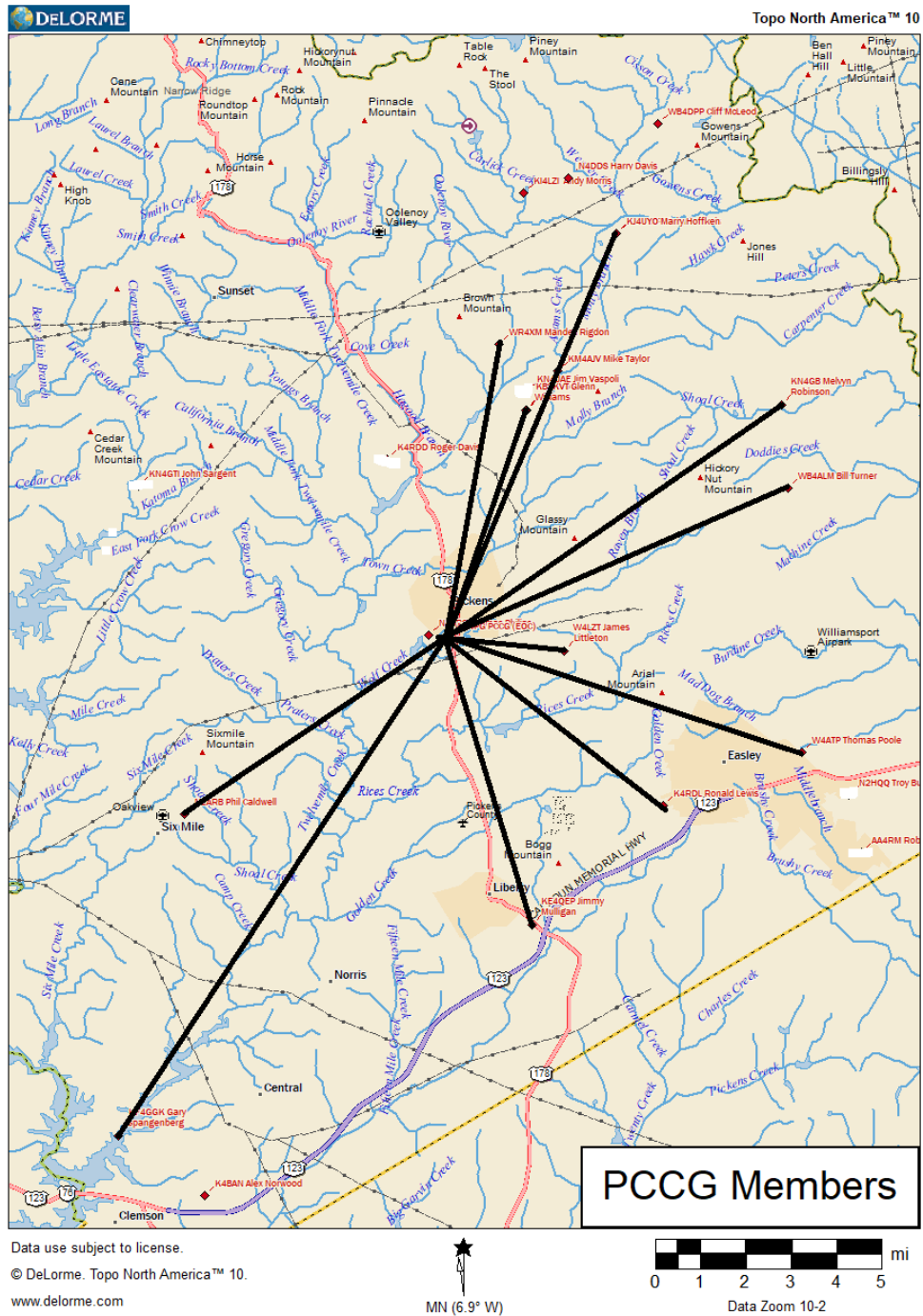


Figure 18. Simplex communication pattern for the EOC.

This approach can be used for any other participant. Who can I get for sure on simplex?

Let's take Gary KF4GGK shown on fig. 19, as an example.

We can either go horizontally or vertically in the KF4GGK row or column and encounter simplex marked boxes.

From these simplex boxes all the other simplex stations that Gary can talk to are found.

	<u>KN4WB</u>	<u>KY4EF</u>	<u>K4BAN</u>	<u>K4RDL</u>	<u>KB3KVT</u>	<u>KZ4QEP</u>	<u>KF4GGK</u>	<u>KJ4LZ I</u>	<u>KJ4UY 0</u>	<u>KN4GB</u>	<u>KO4M2</u>	<u>N1ARB</u>	<u>N4DDS</u>	<u>W4ATP</u>	<u>WB4LZT</u>	<u>WB4ALM</u>	<u>WR4XM</u>	<u>WX4PG</u>	
<u>KN4WB</u>	<u>MATTHEW</u>	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	→	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	<u>KN4WB</u>
<u>KY4EF</u>	SIMPLEX	<u>BARRY</u>	SIMPLEX				SIMPLEX	→				SIMPLEX			SIMPLEX				<u>KY4EF</u>
<u>K4BAN</u>		SIMPLEX	<u>ALEX</u>				SIMPLEX	→							SIMPLEX				<u>K4BAN</u>
<u>K4RDL</u>	SIMPLEX			<u>RONALD</u>	SIMPLEX	SIMPLEX	SIMPLEX	→	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX				<u>K4RDL</u>
<u>KB3KVT</u>	SIMPLEX			SIMPLEX	<u>GLENN</u>		SIMPLEX	→	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	<u>KB3KVT</u>
<u>KB3KVU</u>	SIMPLEX			SIMPLEX		<u>LINDA</u>		SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	<u>KB3KVU</u>
<u>KZ4QEP</u>	↑	↑	↑	↑	↑		<u>JIMMY</u>			↑	↑	↑		SIMPLEX	↑			↑	<u>KZ4QEP</u>
<u>KF4GGK</u>	↑	↑	↑	↑	↑		<u>GARY</u>			↑	↑	↑			SIMPLEX			↑	<u>KF4GGK</u>
<u>KJ4LZ I</u>				SIMPLEX	SIMPLEX			<u>ANDY</u>	SIMPLEX	SIMPLEX			SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX		<u>KJ4LZ I</u>
<u>KJ4UY 0</u>	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	<u>MARRY</u>	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	<u>KJ4UY 0</u>
<u>KN4GB</u>	SIMPLEX			SIMPLEX	SIMPLEX		SIMPLEX	→	SIMPLEX	<u>MELVYN</u>	SIMPLEX		SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	<u>KN4GB</u>
<u>KO4M2</u>	SIMPLEX			SIMPLEX	SIMPLEX		SIMPLEX	→	SIMPLEX		<u>ERIC</u>		SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX	<u>KO4M2</u>
<u>N1ARB</u>	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	→	SIMPLEX			<u>PHIL</u>			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	<u>N1ARB</u>
<u>N4DDS</u>	SIMPLEX			SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX			<u>HARRY</u>		SIMPLEX	SIMPLEX	SIMPLEX		<u>N4DDS</u>
<u>W4ATP</u>	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX				SIMPLEX				<u>THOMAS</u>	SIMPLEX			SIMPLEX	<u>W4ATP</u>
<u>WB4LZT</u>	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	→	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	<u>JAMES</u>	SIMPLEX	SIMPLEX	SIMPLEX	<u>WB4LZT</u>
<u>WB4ALM</u>	SIMPLEX			SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX		SIMPLEX		<u>BILL</u>	SIMPLEX	SIMPLEX	<u>WB4ALM</u>
<u>WR4XM</u>				SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX	<u>MICHAEL</u>	SIMPLEX	<u>WR4XM</u>
<u>WX4PG</u>	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	→	SIMPLEX	SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	<u>FOC</u>	<u>WX4PG</u>
<u>KN4WB</u>	<u>KY4EF</u>	<u>K4BAN</u>	<u>K4RDL</u>	<u>KB3KVT</u>	<u>KB3KVU</u>	<u>KZ4QEP</u>	<u>KF4GGK</u>	<u>KJ4LZ I</u>	<u>KJ4UY 0</u>	<u>KN4GB</u>	<u>KO4M2</u>	<u>N1ARB</u>	<u>N4DDS</u>	<u>W4ATP</u>	<u>WB4LZT</u>	<u>WB4ALM</u>	<u>WR4XM</u>	<u>WX4PG</u>	

Figure 19 Gary's KF4GGK Simplex contacts with other PCCG members

In Fig. 20 all simplex stations are marked in green to illustrate the process.

Again we can use either the horizontally marked stations or the vertically marked stations. They are both the same.

	KN4S WB	KY4EP	K4BAN	K4RDL	KB3KVT	KB3KVU	KZ4QEP	KF4GGK	KL4LZ I	KJ4UY O	KN4GB	KO4M2	N2ARB	N4DD6	W4ATP	WB4LZT	WB4ALM	WR4X M	WX4PG	
KN4S WB	<u>MAITH EW</u>	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	KN4SW B
KY4EP	SIMPLEX	<u>BARRY</u>	SIMPLEX					SIMPLEX					SIMPLEX			SIMPLEX				KY4EP
K4BAN		SIMPLEX	<u>ALEX</u>					SIMPLEX								SIMPLEX				K4BAN
K4RDL	SIMPLEX			<u>RONALD</u>	SIMPLEX	SIMPLEX		SIMPLEX		SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX			SIMPLEX	K4RDL
KB3KVT	SIMPLEX			SIMPLEX	<u>GLENN</u>			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	KB3KVT
KB3KVU	SIMPLEX			SIMPLEX		<u>LINDA</u>			SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	KB3KVU
KZ4QEP	SIMPLEX						<u>JIMMY</u>								SIMPLEX	SIMPLEX			SIMPLEX	KZ4QEP
KF4GGK	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX			<u>GARY</u>			SIMPLEX	SIMPLEX	SIMPLEX			SIMPLEX			SIMPLEX	KF4GGK
KL4LZ I					SIMPLEX	SIMPLEX			<u>ANDY</u>	SIMPLEX	SIMPLEX			SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX		KL4LZ I
KJ4UY O	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX			SIMPLEX	<u>MARRY</u>	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	KJ4UY O
KN4GB	SIMPLEX			SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX		<u>MELVIN</u>	SIMPLEX		SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	KN4GB
KO4M2	SIMPLEX			SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX			<u>ERIC</u>		SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX	KO4M2
N2ARB	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX		SIMPLEX			<u>PHIL</u>			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	N2ARB
N4DD6	SIMPLEX			SIMPLEX	SIMPLEX				SIMPLEX	SIMPLEX	SIMPLEX			<u>HARRY</u>		SIMPLEX	SIMPLEX	SIMPLEX		N4DD6
W4ATP	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX					SIMPLEX				<u>THOMAS</u>	SIMPLEX		SIMPLEX	W4ATP
WB4LZT	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX		<u>JAMES</u>	SIMPLEX	SIMPLEX	WB4LZT
WB4ALM	SIMPLEX				SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX		SIMPLEX	<u>BILL</u>	SIMPLEX	SIMPLEX	WB4ALM
WR4X M					SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	<u>Maddell</u>	SIMPLEX	WR4X M
WX4PG	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	<u>EOC</u>	WX4PG
	KN4S WB	KY4EP	K4BAN	K4RDL	KB3KVT	KB3KVU	KZ4QEP	KF4GGK	KL4LZ I	KJ4UY O	KN4GB	KO4M2	N2ARB	N4DD6	W4ATP	WB4LZT	WB4ALM	WR4X M	WX4PG	



Figure 20 All PCCG simplex stations available to Gary KF4G GK

And again the communication pattern for KF4GGK can be constructed as shown in Fig. 21

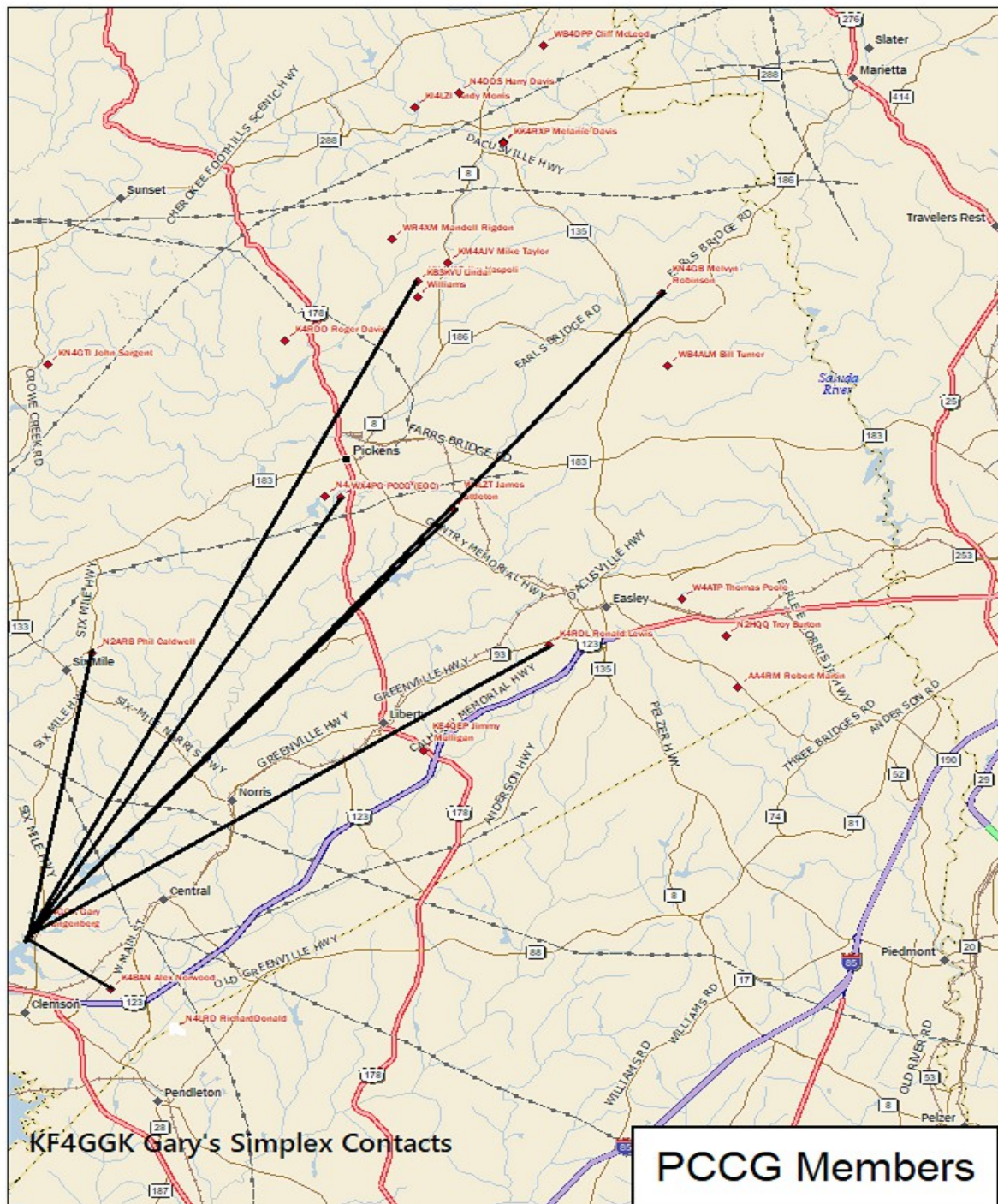


Figure 21 Gary's Simplex communication pattern with PCCG members.

What about the lonely person that has no link to the EOC?

Going down the column in Fig. 22 for KI4LZI lots of SIMPLEX cells are seen, but none for the EOC

Let us stop at the first simplex block and go to the right to find the station that can relay to the EOC. In this case it is KB3KVT.

	KN4S WB	KY4EF	K4BAN	K4RDL	KB3KVT	KB3KVU	KZ4QEP	KF4GGK	KI4LZI	KJ4UY O	KN4GB	KO4MZ	N2ARB	N4DDS	W4ATP	WB4LZI	WB4ALM	WR4X M	WX4PG	
KN4S WB	MATTHEW	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	KN4SWB
KY4EF	SIMPLEX	BARRY	SIMPLEX					SIMPLEX					SIMPLEX			SIMPLEX				KY4EF
K4BAN		SIMPLEX	ALEX					SIMPLEX								SIMPLEX				K4BAN
K4RDL	SIMPLEX			RONALD	SIMPLEX	SIMPLEX		SIMPLEX		SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX			SIMPLEX	K4RDL
KB3KVT	SIMPLEX			SIMPLEX	GLENN			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	KB3KVT
KB3KVU	SIMPLEX			SIMPLEX		LINDA			SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	KB3KVU
KZ4QEP	SIMPLEX						JIMMY								SIMPLEX	SIMPLEX			SIMPLEX	KZ4QEP
KF4GGK	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX			GARY			SIMPLEX	SIMPLEX	SIMPLEX			SIMPLEX			SIMPLEX	KF4GGK
KI4LZI					SIMPLEX	SIMPLEX			ANDY	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX		KI4LZI
KJ4UY O	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX			SIMPLEX	MARRY	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	KJ4UY O
KN4GB	SIMPLEX				SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	MELVIN			SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	KN4GB
KO4MZ	SIMPLEX			SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	ERIC		SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX	KO4MZ
N2ARB	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX		SIMPLEX			PHIL			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	N2ARB
N4DDS	SIMPLEX			SIMPLEX	SIMPLEX				SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		HARRY		SIMPLEX	SIMPLEX	SIMPLEX		N4DDS
W4ATP	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX				SIMPLEX				THOMAS	SIMPLEX			SIMPLEX	W4ATP
WB4LZI	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX	JAMES	SIMPLEX	SIMPLEX	SIMPLEX	WB4LZI
WB4ALM	SIMPLEX				SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX		SIMPLEX	BILL	SIMPLEX	SIMPLEX	WB4ALM
WR4XM					SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	MARSHALL	SIMPLEX		WR4XM
WX4PG	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	EOC	WX4PG
	KN4S WB	KY4EF	K4BAN	K4RDL	KB3KVT	KB3KVU	KZ4QEP	KF4GGK	KI4LZI	KJ4UY O	KN4GB	KO4MZ	N2ARB	N4DDS	W4ATP	WB4LZI	WB4ALM	WR4X M	WX4PG	



Figure 22 Finding a relay station KB3KVT for KI4LZI Andy  
 This time let us come from the bottom to the third simplex block as shown in Fig. 23. Then we go to the right and find out that WB4LZT is the relay station to the EOC.

	KN4S WB	KY4EF	K4BAN	K4RDL	KB3KVT	KB3KVU	KZ4QEP	KF4GGK	KI4LZI I	KJ4UY O	KN4GB	KO4MIZ	N1ARB	N4DDS	W4ATP	WB4LZT	WB4ALM	WR4X M	WX4PG	
KN4S WB	<u>MATTHEW</u>	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	KN4SWB
KY4EF	SIMPLEX	<u>BARRY</u>	SIMPLEX					SIMPLEX					SIMPLEX			SIMPLEX				KY4EF
K4BAN		SIMPLEX	<u>ALEX</u>					SIMPLEX								SIMPLEX				K4BAN
K4RDL	SIMPLEX			<u>RONALD</u>	SIMPLEX	SIMPLEX		SIMPLEX		SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX			SIMPLEX	K4RDL
KB3KVT	SIMPLEX			SIMPLEX	<u>GLENN</u>			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	KB3KVT
KB3KVU	SIMPLEX			SIMPLEX		<u>LINDA</u>			SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	KB3KVU
KZ4QEP	SIMPLEX						<u>JUDY</u>								SIMPLEX	SIMPLEX				KZ4QEP
KF4GGK	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX			<u>GARY</u>			SIMPLEX	SIMPLEX	SIMPLEX			SIMPLEX			SIMPLEX	KF4GGK
KI4LZI I					SIMPLEX	SIMPLEX			<u>ANDY</u>	SIMPLEX	SIMPLEX			SIMPLEX		SIMPLEX	SIMPLEX			KI4LZI I
KJ4UY O	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX			SIMPLEX	<u>MARRY</u>	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	KJ4UY O
KN4GB	SIMPLEX				SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX		<u>MELVYN</u>	SIMPLEX		SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	KN4GB
KO4MIZ	SIMPLEX			SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX		<u>ERIC</u>		SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX	KO4MIZ
N1ARB	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX		SIMPLEX			<u>PHIL</u>			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	N1ARB
N4DDS	SIMPLEX			SIMPLEX	SIMPLEX				SIMPLEX	SIMPLEX	SIMPLEX			<u>HARRY</u>		SIMPLEX	SIMPLEX			N4DDS
W4ATP	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX				SIMPLEX				<u>THOMAS</u>	SIMPLEX			SIMPLEX	W4ATP
WB4LZT	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX		SIMPLEX	SIMPLEX		<u>JAMES</u>				WB4LZT
WB4ALM	SIMPLEX				SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX		SIMPLEX	<u>BILL</u>	SIMPLEX	SIMPLEX	WB4ALM
WR4XM					SIMPLEX	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	<u>Mourell</u>	SIMPLEX		WR4XM
WX4PG	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX		SIMPLEX		SIMPLEX	SIMPLEX			<u>EOC</u>	WX4PG
KN4S WB		KY4EF	K4BAN	K4RDL	KB3KVT	KB3KVU	KZ4QEP	KF4GGK	KI4LZI I	KJ4UY O	KN4GB	KO4MIZ	N1ARB	N4DDS	W4ATP	WB4LZT	WB4ALM	WR4X M	WX4PG	

Figure 23 Another relay station WB4LZT found for KI4LZI Andy

Fortunately each row now identified by SIMPLEX contains a potential relay station. Going to the right in Fig. 24 all stations with EOC contact are identified in green. These are now potentially all the relay stations for KI4LZI.

Do note that N4DDS is a viable simplex contact, but it does not have any contact with the EOC, illustrated by an empty cell on the right.

	KN4S WB	KY4EF	K4BAN	K4RDL	KB3KVT	KB3KVU	KE4QEP	KF4GGK	KI4LZ I	KJ4UY O	KN4GB	KO4M1	N2ARB	N4DDS	W4ATP	WB4LZT	WB4ALM	WR4X M	WX4PG	
KN4S WB	<u>MATTH EW</u>	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	KN4SW B
KY4EF	SIMPLEX	<u>BARRY</u>	SIMPLEX					SIMPLEX					SIMPLEX			SIMPLEX				KY4EF
K4BAN		SIMPLEX	<u>ALEX</u>					SIMPLEX								SIMPLEX				K4BAN
K4RDL	SIMPLEX			<u>RONALD</u>	SIMPLEX	SIMPLEX		SIMPLEX		SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX			SIMPLEX	K4RDL
KB3KVT	SIMPLEX			SIMPLEX	<u>GLENN</u>			SIMPLEX	<u>SIMPLEX</u>	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	<u>SIMPLEX</u>	<u>SIMPLEX</u>	KB3KV T
KB3KVU	SIMPLEX			SIMPLEX		<u>LINDA</u>			<u>SIMPLEX</u>	SIMPLEX	SIMPLEX		SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	<u>SIMPLEX</u>	<u>SIMPLEX</u>	KB3KV U
KE4QEP	SIMPLEX						<u>JIMMY</u>								SIMPLEX	SIMPLEX			SIMPLEX	KE4QEP
KF4GGK	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX			<u>GARY</u>			SIMPLEX	SIMPLEX	SIMPLEX			SIMPLEX			SIMPLEX	KF4GGK
KI4LZ I					SIMPLEX	SIMPLEX			<u>ANDY</u>	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX		KI4LZ I
KJ4UY O	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX			<u>SIMPLEX</u>	<u>MARRY</u>	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	<u>SIMPLEX</u>	KJ4UY O
KN4GB	SIMPLEX				SIMPLEX	SIMPLEX		SIMPLEX	<u>SIMPLEX</u>	SIMPLEX	<u>MELVYN</u>	SIMPLEX		SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	<u>SIMPLEX</u>	KN4GB
KO4M1	SIMPLEX			SIMPLEX	SIMPLEX			SIMPLEX	<u>SIMPLEX</u>	SIMPLEX	SIMPLEX	<u>ERIC</u>		SIMPLEX	SIMPLEX			SIMPLEX	<u>SIMPLEX</u>	KO4M1
N2ARB	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX		SIMPLEX			<u>PHIL</u>			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	N2ARB
N4DDS	SIMPLEX			SIMPLEX	SIMPLEX				<u>SIMPLEX</u>	SIMPLEX	SIMPLEX	SIMPLEX		<u>HARRY</u>		SIMPLEX	SIMPLEX	SIMPLEX		N4DDS
W4ATP	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX					SIMPLEX				<u>THOMAS</u>	SIMPLEX		SIMPLEX	W4ATP
WB4LZT	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	<u>SIMPLEX</u>	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	<u>JAMES</u>	SIMPLEX	SIMPLEX	<u>SIMPLEX</u>	WB4LZ T
WB4ALM	SIMPLEX				SIMPLEX	SIMPLEX			<u>SIMPLEX</u>	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX		SIMPLEX	<u>BILL</u>	SIMPLEX	<u>SIMPLEX</u>	WB4AL M
WR4X M					SIMPLEX	SIMPLEX			<u>SIMPLEX</u>	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	<u>Mandel</u>	<u>SIMPLEX</u>	WR4X M
WX4PG	SIMPLEX			SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX		SIMPLEX	SIMPLEX	SIMPLEX	SIMPLEX	<u>EOC</u>	<u>WX4P G</u>
	KN4S WB	KY4EF	K4BAN	K4RDL	KB3KVT	KB3KVU	KE4QEP	KF4GGK	KI4LZ I	KJ4UY O	KN4GB	KO4M1	N2ARB	N4DDS	W4ATP	WB4LZT	WB4ALM	WR4X M	WX4PG	

Figure 24 All potential relay stations for KI4LZI



This shows in Fig. 25, someone not so lucky for direct communication with the EOC?

We took Andy as an example, the exercise determined that he actually has seven choices for a relay station to get through to the EOC.

All of this is derived from the simplex matrix constructed from this exercise. We could even place all communication paths for all members between each other and the EOC on the map, but it would turn into a piece of modern artwork.

So it is better to consult the derived simplex matrix for any desired capability

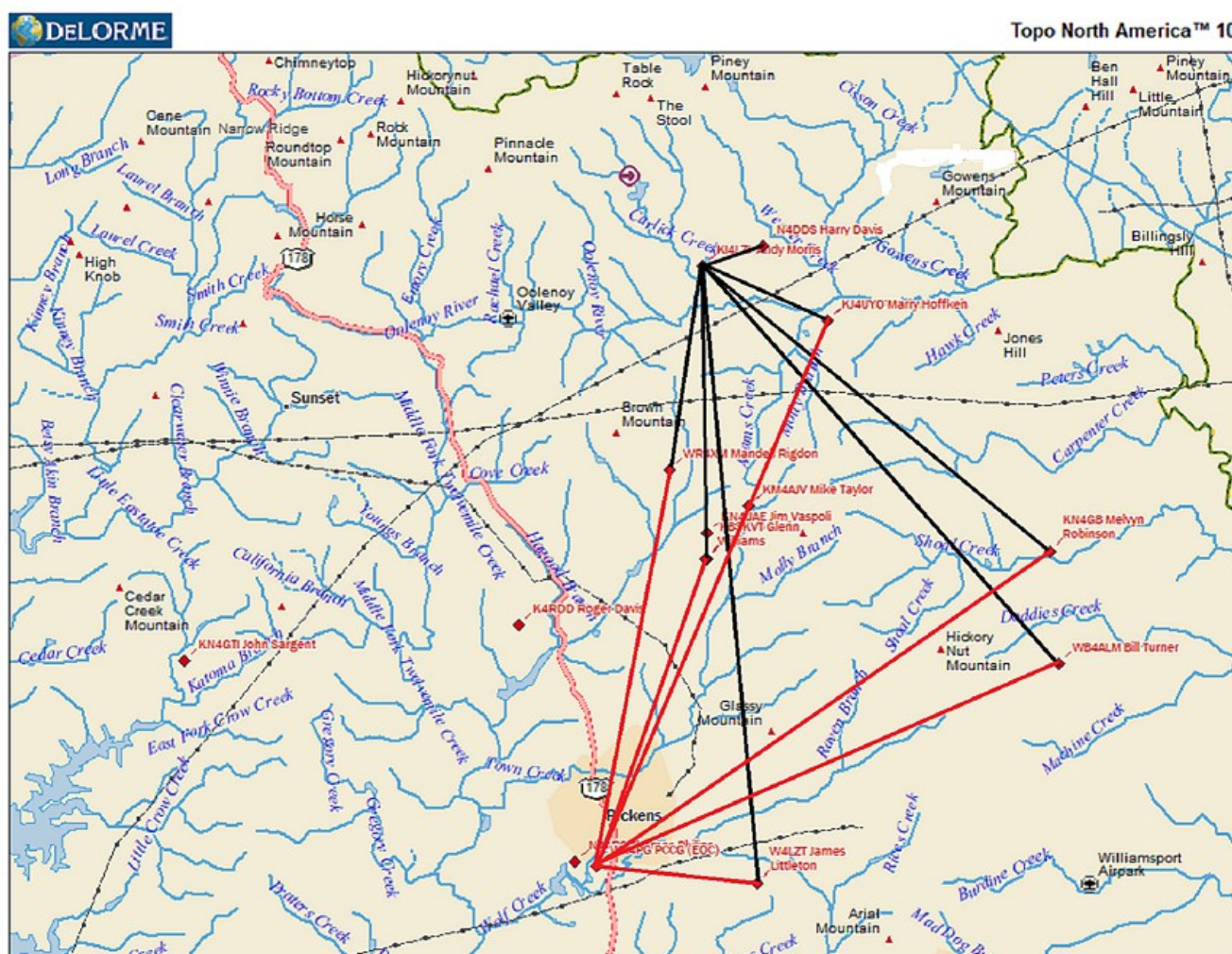
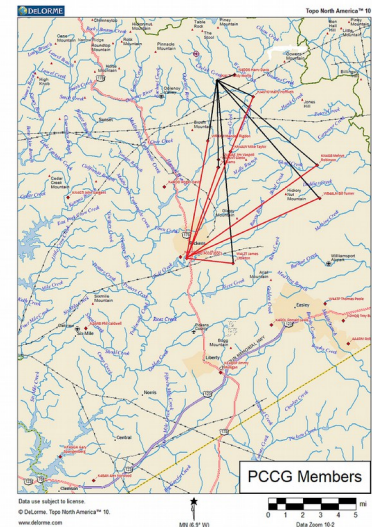
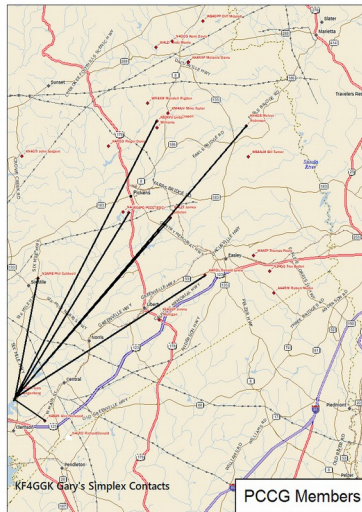
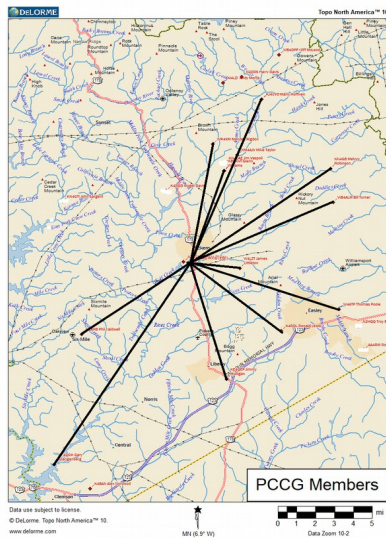


Figure 25 Complete relay communication pattern to the EOC for KI4LZI

## Part 4 Summary



As you have seen Illustrated, a simple sequentially time based exercise can lead to a Simplex Interoperability Matrix that solves the daunting task of who can talk to whom and how to establish relay routing when the repeater is down.

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