



A PROPOSAL TO IMPROVE SAFETY AND THE PRODUCTIVITY OF CFPFC MEMBER BURN ACTIVITIES

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THE PROPOSAL

Instead of Members obtaining their own costly FCC licenses ...

Why not provide them with the low cost use of the Association's "umbrella" license?

One that could be shared and used Statewide for temporary burns and burn training?

THIS PRESENTATION WILL REVIEW:

THE PRIMARY REASONS FOR THE PROPOSAL

WHAT AN FCC LICENSE WILL INCLUDE?

WHAT IS ITS COST?

HOW THE USERS CAN BE COORDINATED?

WHAT COULD MAKE UP A TYPICAL BURN COMMUNICATIONS SYSTEM?

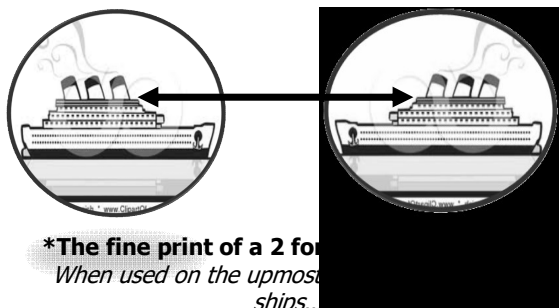
COMPUTER SIMULATION OF HANDHELD-TO-HANDHELD COMMUNICATION: FLAT TERRAIN, LIGHT VEGETATION & CLEAR CHANNEL

- 1] Frequency range: ----- VHF high-band
- 2] Transmitter power: ----- 5 watts
- 3] Gain of transmitter antenna: ----- 0 dB
- 4] Loss of transmitter antenna line: ----- 0 dB
- 5] Gain of receiver antenna: ----- 0 dB
- 6] Loss of receiver antenna line: ----- 0 dB
- 7] Noise degradation loss factor is: ----- 2 dB
- 8] EIA SINAD sensitivity of receiver: ----- .25 uv.
- 9] Operating frequency: ----- 155 MHz
- 10] Transmitter antenna height (agl): ----- 5 ft.
- 11] Receiver antenna height (agl): ----- 5 ft.
- 12] Transmitter-site elevation (asl): ----- 10 ft.
- 13] Average elevation (asl): ----- 10 ft.

The predicted range for
90% probability of communication* is 1.5 miles

*The 90 percent probability range is where you will be able to communicate from 90% of the locations within the range 90% of the time.

GET UP TO A 20 MILE RANGE!!!*

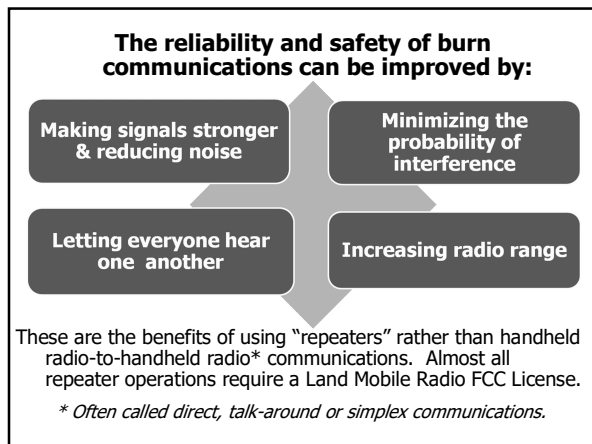


100 FEET ABOVE SALT WATER!

Increasing Range and Reliability by Increasing the Height of the Antenna and Using a \$40 Replacement

FEET ANTENNA HEIGHT	RANGE - MILES	
	HORIZON	90% RANGE
5	6.3	1.5
10	7.6	2.5
15	8.6	3.1
20	9.5	3.6
25	10.2	4
30	10.9	4.4

RULE OF THUMB: IF YOU DOUBLE THE ANTENNA HEIGHT, THE RANGE INCREASES BY ABOUT 41%.
So with a 40 ft high antenna, the range would be about 5.1 miles (3.6x1.41).



Not Rocket Science...

From the early days of the slide rule and the nomograph, range could be estimated.

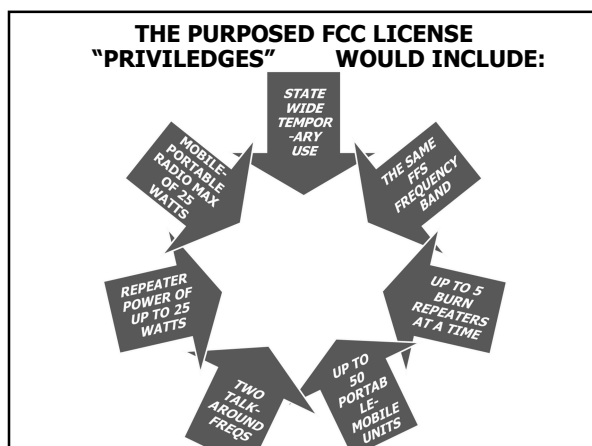
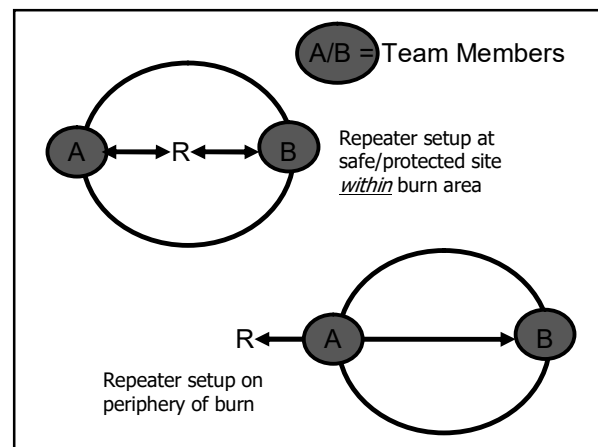
Although this Motorola graphical tool was geared to determine much longer range communications, it was possible to crudely estimate a low power transmitter's range. The red line indicates that a five watt transmitter, with its antenna at 30 ft, and a frequency close to the Forestry 150 MHz band has a rough range of about 5 miles.

The nomograph shows scales for Transmitter Power (5, 10, 25, 50, 100 Watts), Freq. / Band (50, 150, 450 MHz), Antenna Height (feet) (10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 120, 150, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1200, 1500, 2000, 3000, 4000, 5000, 6000, 7000, 8000, 9000, 10000), and Distance in Miles (0.5, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100). A red line is drawn from 5 Watts on the power scale to 30 feet on the antenna height scale, and then down to 5 miles on the distance scale.

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FCC LICENSE COST AND OTHER PREREQUISITES

COST \$650 TO \$700* PER FREQUENCY PAIR IF YOU QUALIFY FOR COORDINATION IN THE PUBLIC SAFETY "POOL"

PROOF OF NON-PROFIT (501C3) STATUS

FFS LETTER STATING THE LICENSE WILL BENEFIT THE STATE AND BURN SAFETY.

*Includes the Frequency Coordination specialist fees and Car-Comm's work in completing and processing the application.

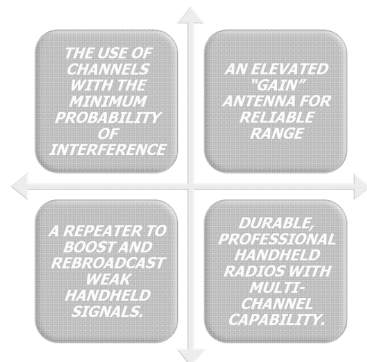
THE CRITICAL NEED FOR CFPFC COORDINATION... SAFETY!

*If two users of the same
repeater or direct frequencies
are in close proximity,
interference and REDUCED SAFETY
can occur.*

COORDINATION CAN BE ACHIEVED

- **ONLINE CALENDAR:** One suggestion is a CFPFC WEBPAGE be used to coordinate reservations. That would help make sure there is no interference between Members using the licensed frequencies on the same date within "X" miles of one another.
- **TRAINING PROGRAM:** Members could be offered a workshop on how to:
 - a) Use the CFPFC online reservation system.
 - b) Research online whether other entities in their intended burn area are licensed for the CFPFC channels.
 - c) Operate and setup portable repeater systems as well as the effective use of their handheld radios.

THE MAKE UP OF A TYPICAL BURN COMMUNICATIONS SYSTEM:



IF THERE ARE ANY QUESTIONS,
THE GURU WILL TRY TO ANSWER.
BUT BE FOREWARNED...
FREQUENTLY THE ANSWER IS:

