# New Mexico Amateur Radio Frequency Coordination Committee NMFCC

# What is this Forum about?

- New Mexico Amateur Radio VHF/UHF
   Repeater Frequency Coordination
- Target Audience = Repeater owners,
   Prospective repeater owners, and <u>ALL</u>
   <u>Amateur radio operators</u>
- Who is the NMFCC?
- Why do we need coordination?

## What is the NMFCC?

- The NMFCC is a group of volunteers that maintain a database of repeater and link frequencies to help prevent interference between stations
- Provide planning for efficient use of the spectrum in the future

## Who is the NMFCC?

The NMFCC is recognized by the Federal Communications Commission Part [97.201(C); 97.205 (C)] as the official source of information regarding the coordination status for amateur stations in repeater and auxiliary operation within the State of New Mexico

# Who is the NMFCC?

- Originally started as the NM
   Cooperative Interference Committee,
   the NMFCC now consists of three
   coordinators representing the northern,
   central, and southern parts of NM
- One coordinator also serves as secretary and database manager

# What we DO

- Coordinate repeaters and links
- Maintain the master database
  - (Process new applications, update existing data, remove no longer in use, etc)
- Share "Verified & Published" data to the web and with adjacent state coordinators.

# Coordinator Qualifications

What qualifications are required to be a frequency coordinator in New Mexico?

# Coordinator Qualifications



Neil Addis, W7FED, Secretary & Database manager, and Central NM coordinator

Mike Olson, KB6JYF, Southern NM

Brian Williams, NB5R, Northern NM

Keith Hayes, KC5KH, Webmaster

Neil Addis, W7FED, Secretary & database manager, and Central NM coordinator <a href="https://www.qrz.com/db/w7fed">https://www.qrz.com/db/w7fed</a>

Neil earned his amateur radio license (WN5JXY) in 1972, learning morse code on an old paper tape code generator at Ft. Bliss, TX (building #649). He is currently licensed as W7FED and resides in Albuquerque, New Mexico.

His electronics career started in the early '70s with MSD ignition in El Paso, Texas, as employee #10, earning 95 cents an hour. His career included working with the U.S. Border Patrol, EG&G WASC, Boeing Defense & Space, Dell Computer, EF Johnson, and finally retiring in 2020 from Motorola Solutions as a Senior Systems Technologist in the Federal division. In 2012, he was awarded the prestigious Motorola "Galvin Masters Support Professional" for exemplary technical support to the U.S. Federal Government.

### Brian Williams, NB<sub>5</sub>R, Northern NM

https://www.grz.com/db/nb5r

Originally licensed in 1983 as KA5PWX in Wichita Falls, TX. Was active as Skywarn spotter with Wichita ARS, then Tarrant County RACES in Ft. Worth until moving to Taos, New Mexico around 1993. No storms there, so I joined Taos Search & Rescue and the Civil Air Patrol. Later became a SAR Field Coordinator for the NM State Police (DPS), working up to Type II Incident Commander before moving to South Texas early in 2004. Was a member of Hill Country REACT, S. Texas DX & Contest Club, Guadalupe Valley ARC. Former ARES DEC for S.TX District 12. Spent a couple years in Jackson, MS, designing military antenna systems while dodging tornadoes and hurricanes. Spent 4 years in NE Ohio, shoveled lots of snow..

Glad to be back home in Taos, New Mexico as of 2013. Active member of the Taos ARC and ARES DEC for Taos County.

### Mike Olson, KB6JYF, Southern NM

https://www.qrz.com/db/kb6jyf

Hello from Far West Texas. El Paso has been my home since exiting the Army in 1998. Originally licensed in 1984 my love of RF has been VHF and UHF repeaters. As a young ham in Sacramento I was part of the Sacramento Radio Club that had a repeater on 145.230. This is where I got my first taste of how a repeater can extend you signals beyond a 1 watt HT and open the world to you. As my interested grew many hams in the radio industry introduced me to voting, linking, simulcast and transmitter combining. I was hooked.

I am the Southern New Mexico Frequency Coordinator for all things ham radio. In my professional career I have been the Spectrum Manager for the Fort Bliss Army installation. This experience has helped me understand the balance it takes to operate lots of different RF emitting devices in a small geographical area (1.1 million acres) with minimal interference. Frequency reuse is key.

Please drop in and say hello on the T.R.A.S.H. radio network on our many different inputs, RF, Allstar, DMR and Echo link.

Keith Hayes, KC5KH, Webmaster

https://www.grz.com/db/kc5kh

Keith is currently licensed as KC5KH and resides in Albuquerque, NM

# **Past Coordinators**

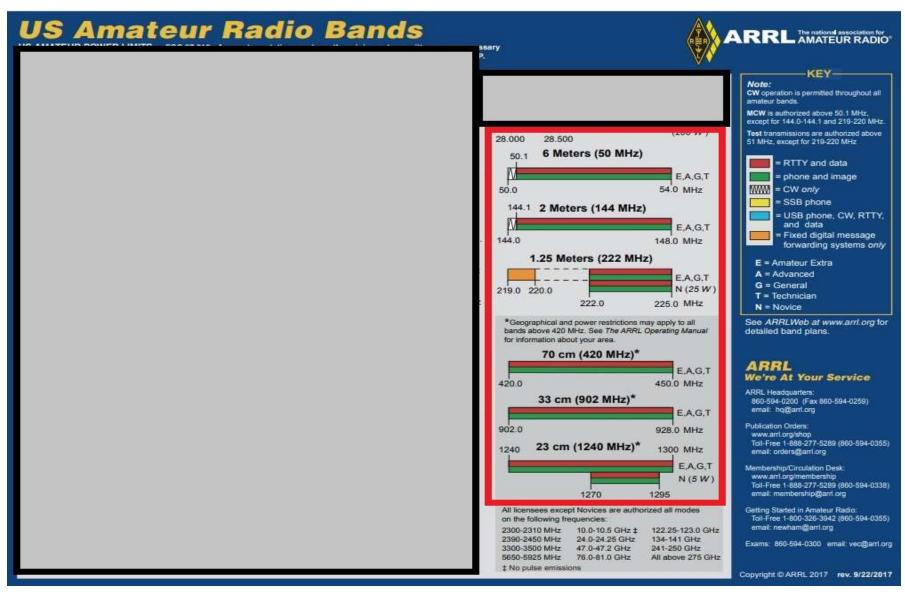
 Bill Kauffman, W5YEJ (20+ years of service to NMFCC and the amateur radio community!)

### Applause!

- Bob Fugate, W8GY
- Tom Ellis, K5TEE
- Paul Choc, WA5IHL; John Choc, WB5EZO
- Eddie Johnston, N5OBZ

## WHY we Coordinate

(Finite spectrum!)



# WHY we Coordinate



## WHY we Coordinate – cont'd

- Coordination Means Cooperation!
- https://www.ecfr.gov/current/title-47/section-97.205

### §97.205 Repeater station.

(c) Where the transmissions of a repeater cause harmful interference to another repeater, the two station licensees are equally and fully responsible for resolving the interference unless the operation of one station is recommended by a frequency coordinator and the operation of the other station is not. In that case, the licensee of the non-coordinated repeater has primary responsibility to resolve the interference.

## What we DON'T do

### **Enforce Rules**

- Coordinate APRS (consult the ARRL bandplan)
- Coordinate Packet
- Coordinate low power MMDVM "hotspots"
- Coordinate simplex channels
- Coordinate anything above 2300 Mhz
- Charge fees or request funding

# The NM Database

### as of Sept 2024

- Open Office Calc
- 60+ columns
- ~667 line entries (repeaters & links)
- 188 VHF repeaters
- 386 70cm repeaters & links
- 13 1.25 cm repeaters
- 7 900 & 1200 MHz repeaters
- 5 6M repeaters

# Maintaining the database

- PLEASE let us know if ANY of the following changes:
- Frequency or frequencies of operation
- Change of EMISSION
- Transmitter site location
- Receiver site location or locations
- Increase of Effective Radiated Power above coordinated levels
- Increase of antenna elevation above the coordinated elevation of antenna
- Change of radiation pattern of antenna if the ERP in any direction will be increased 3db above coordinated levels
- System Owner or Trustee
- Repeater Callsign, email address, etc.

# The NMFCC Web Site

- https://www.qsl.net/nmfcc
  - → Maintained by KC5KH
  - → Hosting offered as a free service by QSL.NET
- Coordination forms & tools for using the forms (HAAT, ERP calculators)
- Repeater listings of all "verified & published" coordinated repeaters in NM
- Pending and <u>Recently Approved</u> Repeaters
- Chirp and ICS217A import files

# The NMFCC Web Site





### New Mexico Frequency Coordination Committee

Secretary and Database Manager Neil Addis W7FED

### Northern New Mexico Coordinator

Brian Williams NB5R nb5r@yahoo.com

### **Central New Mexico Coordinator**

Neil Addis W7FED

w7fed@protonmail.com

#### Southern New Mexico Coordinator

Mike Olson KB6JYF kb6jyf@gmail.com

### Site Index

Annual Repeater Verification Requirement

**NM Public Repeater Listings** 

**NMFCC Policy and Forms** 

Tools for ERP HAAT Grid-Square

#### Resources

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Amateur Radio by QSL.net.
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### New Mexico Amateur Radio Frequency Coordination Committee

www.qsl.net/nmfcc/

"Coordination means Cooperation"

Repeater Owners...see NOTICE on ANNUAL VERIFICATION REQUIREMENT

### **NM Public Repeater Listings**

Database updated Aug 22 2024

For changes not yet shown in these band lists see Pending or Recently Approved Repeaters

52MHz (6 meter)

144MHz (2 meter)

222MHz (1.25 meter)

440MHz (70 cm)

902 and 1240 MHz

2300MHz or Higher Information

All bands

All Bands - Digital Mode Repeaters

Pending or Recently Approved Repeaters

Chirp and ICS217A import files

Repeaters not shown in the regular Public Listings since they have not completed Annual

Verification Requirement

All bands Unverified Repeaters



# The NMFCC Web





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### **Pending or Recently Approved Repeaters**

**Return to Repeaters Index** 

### Additions/deletions/revisions submitted to NMFCC coordinators since Aug 22 2024

CORRECTED items shown in the main listings. Other changes will be shown in the main repeater listings at the next full database update during 2024 or 2025.

OUTPUT	INPUT	ACCESS	LOCATION	MODE	NOTES/STATUS	USE	CALL	SPONSOR	REGION
1248.60	1248.60		Farminton (Bluffs)	DSTAR	Approved-Operational 08/30/2024		KF5VBF	San Juan Co OEM	North West

### The following changes were incorporated into the data between Dec 28 2023 and Aug 22 2024

	OUTPUT	INPUT	ACCESS	LOCATION	MODE	NOTES/STATUS	USE	CALL	SPONSOR	REGION
	443.150	448.150	CC1	T or C	DMR	Approved-Operational (Standalone) 07/17/2024	OPEN	WR7HLN	MPRG	South Central
ŀ	444.300	449.300	CC1	Chama (Rabbit Pk)	DMR	Approved-Operational 06/24/2024	OPEN	WR7HLN	MPRG	North Central
	147.300	147.900	100.0	Farmington	FM	CANCELLED Never on air. 05/22/2024	OPEN	KG5RGN	KG5RGN	North West
	442.275	447-275	107.2	Milan	FM	Approved-Operational 07/17/2024	OPEN	K <sub>5</sub> HLH	K5HLH	West Central
	147.320	147.920	146.2	Roswell (Comanche Pk)	FM	Approved-Operational (owner chg) 02/19/2024	OPEN	W5ZU	PVARC	South East
	443.425	448.425	100.0	Los Lunas (Tome)	FUSION FM	Approved-Operational 08/02/2024	OPEN	KJ5DZQ	VCARA	Central
	145.250	144.650	88.5	Lordsburg (Jacks PK)	FM	DELETED - Not in service 02/22/2024	CLOSED	WB5QHS	JPARA	South West
	444.225	449.225	141.3	White Rock	FM	Approved-Operational 06/17/2024	OPEN	W7FED	T.R.A.S.H.	North Central
L	444.350	449.350	123.0	Albuquerque (West Mesa)	NFM	Approved-Operational 07/02/2024	OPEN	W5OMU	W5OMU	Albuquerque
	444.950	449.950	151.4	Grants (Microwave Ridge)	FM	Approved-Operational 07/30/2024	OPEN	KE5FYL	Cibola County ARC	West Central
	145.390	144.790	127.3	Grants (Microwave Ridge)	FM	Approved-Operational 07/30/2024	OPEN	KE5FYL	Cibola County ARC	West Central
	442.925	447.925	131.8	Carlsbad	FM	Approved-Operational 08/15/2024	OPEN	W7FED	T.R.A.S.H.	South East
	223.940	222.340		Las Cruces	FM	Approved-Operational 08/19/2024	OPEN	WD8AJJ	WD8AJJ	South Central

	Labels and Abbreviations used in the tables:
MODE	Repeater operating mode
	ATV - Amateur television, analog.
	DATV - Amateur television, digital.
	DMR - Digital Mobile Radio (TDMA technology).
	DSTAR - Digital Smart Technologies for Amateur Radio. DD=data, DV=digital voice.
	EM Apple EM consisten

## **Coordinator Resources**

- ARRL band plans
- Topo Maps (Topo USA)
- Google Earth
- FCC web pages for part 97 Rules, ASR, coordinate conversions, on-line resources (QRZ, repeaterbook, etc).
- Radio Mobile Propagation Simulation software by Roger Coudé VE2DBE
- NM Repeater owners email reflector (google groups)
- Adjacent state coordinator web sites (AZ, CO, OK, TX, UT).
- And most importantly!

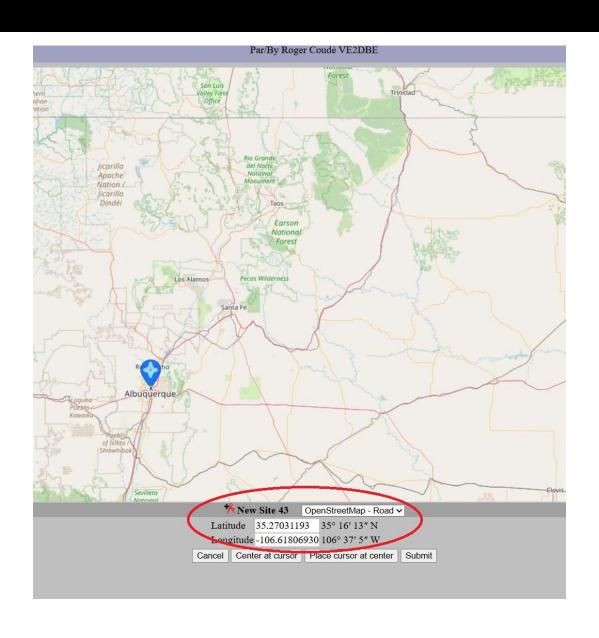
### FEEDBACK FROM LOCAL AMATEURS!

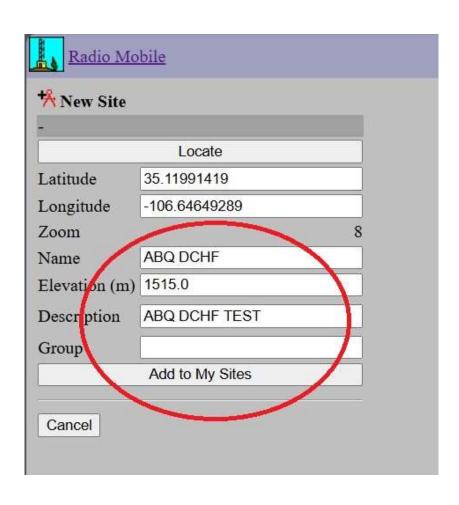
- Radio Mobile Propagation Simulation software by Roger Coudé VE2DBE
- https://www.ve2dbe.com/english1.html



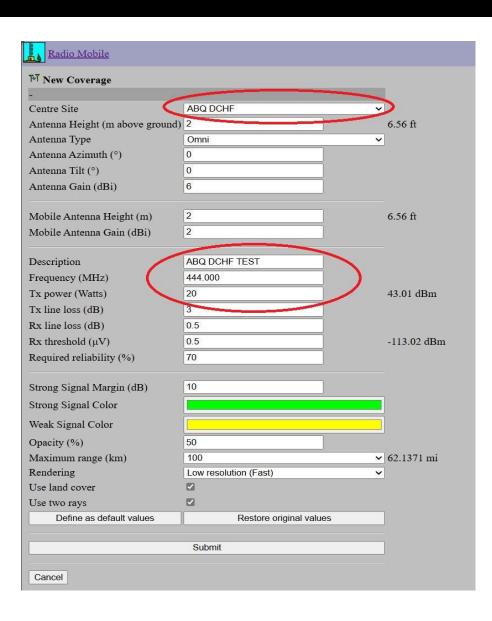


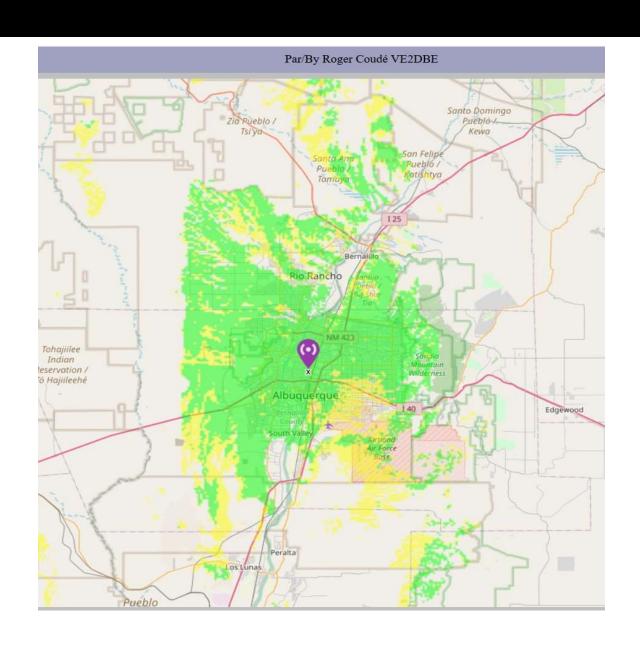








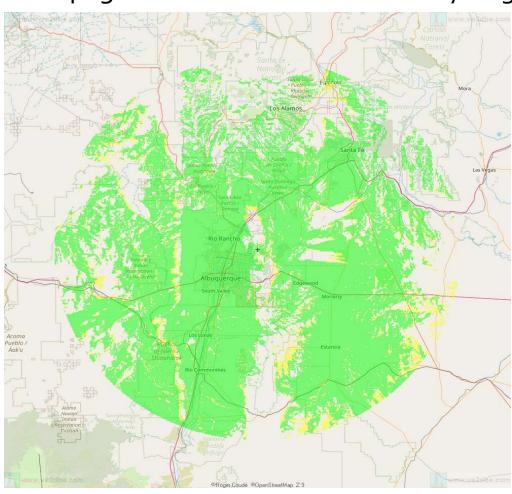




Radio Mobile Online Coverage report					
Description	WR7HLN 927.300				
Frequency	927.3 MHz				
Base Name	WR7HLN 927.300				
Latitude	35.21642600 °				
Longitude	-106.45192300 °				
Latitude	35° 12' 59.13"N				
Longitude	106° 27' 06.92"W				
QRA	DM65SF				
UTM (WGS84)	13S E367855 N3898010				
Elevation	3251 m				
Base Antenna Height	31 m				
Base Antenna Gain	8.0 dBi				
Base Antenna Type	omni				
Base Antenna Azimuth	0 °				
Base Antenna Tilt	0 °				
Mobile Antenna Height	2.0 m				
Mobile Antenna Gain	2.0 dBi				
Tx Power	50.00000 W				
Tx Line Loss	3.0 dB				
Rx Line Loss	0.5 dB				
Rx Threshold	0.500 μV (-113.0 dBm)				
Required Reliability	70%				
Strong signal margin	10.0 dB				
Weak signal field	21.5 dBμV/m				
Strong signal field	31.5 dBμV/m				
Weak signal covered area	$20699 \text{ km}^2$				
Strong signal covered area	18518 km <sup>2</sup>				
Weak signal population reached	861145 pop				
Strong signal population reached	842974 pop				
Landcover used	Yes				
Two rays method used	Yes				
User ID	w7fed				
Radio coverage ID	RM211C0236D2E0_0				
Generated on	7/27/2023 2:28:36 PM				

## Coordinator Resources - VE2DBE

Radio Mobile Propagation Simulation software by Roger Coudé VE2DBE



### FAQ's

### Steps to start the coordination process

- Download and <u>READ</u> the NMFCC Policy and Procedures document!
- 2. CHOOSE an available transmit and receive frequency pair
- 3. LISTEN to both frequencies for possible activity
- \*\*\*IMPORTANT\*\*\* The frequency may already be coordinated and unpublished!
- 1. Go to the NMFCC web site and download FORM 1, fill it out, sign, scan, and email to the appropriate NM coordinator

## NMFCC FORM 1

#### **NEW MEXICO FREQUENCY COORDINATION FORM 1**

For Amateur Radio Stations at Fixed Sites in Auxiliary or Repeater Operation

Use this form for new applications or to update technical data for frequencies already coordinated. This form should include information about all receivers and transmitters operated by one trustee at one specific fixed site in the state of NM. This includes all repeater and auxiliary operations at the site. If more than one receiver and one transmitter are in operation at this site, statch enough Supplementary Data Sheets (Form 2) to cover all equipment and frequencies. The receive and transmit frequencies isled on each sheet (either this form or Supplementary Data Sheets) should be grouped in logical pairs based on the application checked for that sheet. For instance, repeater input formation application product (for remote receiver sites) form logical pairing of frequencies. If split site operations are involved, a separate Form 1 (and Form 2, if needed) should be completed for each site. Fill out the forms completely. Incomplete forms will require the coordinator to obtain the missing information and will cause delays in approval. The trustee should not make any financial commitment that might be affected by the failure of the Committee to approve the application. Applications are considered on a first-come, first-served basis; there may be other applications for the frequencies you are requesting. No frequencies will be considered coordinated without a server approved appropriate application from the first product application from

on a first-come, first-served basis; there may be other applications for the frequencies you are requesting. No frequencies will be considered coordinated without a signed, approved application form on file with the Secretary Send the completed application and #10 SASE to: Nell Addis, W7FED, 8401 Disney PL NE, Albuquerque NM 87122-2789 This is a New Application\_\_\_ or Update\_\_\_ Or email to w7fed@protonmail.com in .pdf format L. INFORMATION ABOUT THE TRUSTEE: Home Phone Address email City\_ State ZIP II. INFORMATION ABOUT THE OWNER/SPONSOR: Name/Organization \_\_\_\_\_ Point of Contact Home Phone email III. SITE DATA: The following site data applies to the frequencies listed on this sheet and all attached Supplementary Data Sheets (Form 2). Town/City \_\_\_\_\_ Elevation (ASL, ft) \_\_\_\_\_ HAAT (ft) \_\_\_\_ Latitude Elevation is at the base of the tower. For Lat/Lon please use WGS-84 datum. See Height Above Average Terrain calculator to determine HAAT. Site Power is: Commercial Solar Wind Emergency Power is: (Solar, Wind, Gen, Battery, etc) IV. For the receive/transmit frequencies listed below, check the one description that best describes how these frequencies are used: Common Site Full Duplex Repeater \_\_\_\_ Control Receiver input Transmitter end of a split repeater site Operation of a Remote Base \_\_\_\_ Remote/auxiliary input receiver site for a repeater \_\_\_\_ Receiver end of a split repeater site Linking of a repeater at this site to another fixed site \_\_\_; Linked frequency V. Information about the Transmitter at this site: Emission Antenna Height above ground, in feet, at center of vertical axis Repeater Call Antenna Polarization (V, H) Antenna Pattern (Omni, Directional) Antenna Bearing Gain (dBd) Output Power (W) at TX terminals Effective Radiated Power (ERP) VI. Information about the Receiver at this site: CC/DCS/DSQ/NAC/RAN VII. NOTES AND SPECIAL FEATURES: Check all that apply. Open System \_\_\_ Remote Base \_\_\_ Linked or cross band system \_\_ RACES Affiliated \_\_\_\_ ARE5 affiliated \_\_\_\_ Weather net/weather usage \_\_\_\_ Portable system \_\_ MODE: FM Wide FM NARROW D Star DV D Star DD DMR Fusion P25-1 P25-2 NXDN ATV DATV VIII. Link information (for Point-to-Point Applications): All transmitters and protected receivers must be coordinated, except Remote Bases. Location of other end of link: Call Other end previously coordinated (Y/N): \_\_\_\_ (Previously coordinated Hub sites do not need to be re-submitted.) IX. For Remote Base applications: Frequency of Remote Base \_\_\_ Output power (W) Note that Remote Base frequencies are not to be considered as coordinated but noted for database and Directory use only. Trustee's Signature \_\_ FOR NMFCC USE ONLY APPROVED \_\_\_\_ NOT APPROVED \_\_\_ REASON \_\_\_

Date\_\_\_

NMFCC Form 1, Revised Jan 1 2016. Previous versions obsolete.

## Whats NEW!

 NMFCC now uses "Spiceworks Cloud HELPDESK Ticketing software"

https://www.spiceworks.com/free-cloud-help-desk-software

- ALL coordination tasks generate a ticket #
- Every ticket action sends an email to ticket owner (and all participants) for tracking
- 3. Can attach files (i.e. FORM1, FORM2, Signed forms, coverage plot, etc)
- 4. It's FREE!

# What's COMING (2023-2024)!

- On-line FILLABLE FORMS (no need to print, fill out, scan, mail or email)
- On-line REPEATER STATUS VERIFICATION
   QUESTIONNAIRE
- \*Owners will be required to <u>VERIFY OPERATING STATUS</u>

  <u>YEARLY</u> or coordination will be moved to PENDING RELEASE

  OF COORDINATION link on the NMFCC web page
- \*Repeater frequency will be de-coordinated and available for re-issue if not verified after 24 months.
- Links will be posted on the NMFCC website

# **General Questions**





https://www.qsl.net/w7fed



Neil W7FED left, Mike KB6JYF right

### TRASHMASTER (ver 2.0)

Neil Addis W7FED

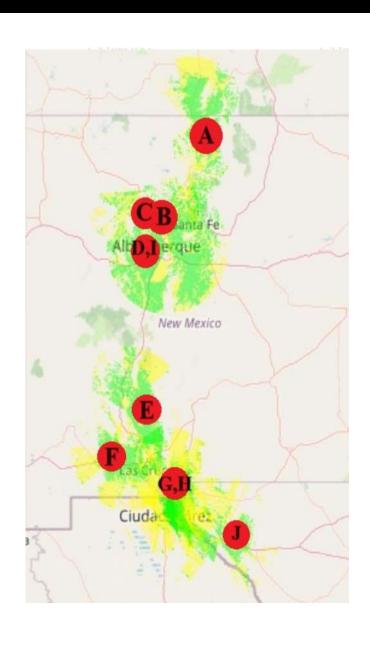
### Site Index

TRASH RADIO Repeater Listings

TRASH RADIO Pictures

TRASH RADIO Policy and Forms

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Version: Wed Aug 21 10:16:20 2024



### T.R.A.S.H. REPEATER LIST

(as of 07/27/2024)

NODE	LOCATION	SITE	OUTPUT	PL	CALLSIGN	STATUS	MAP REFERENCE
271845	TAOS, NM	SAN ANTONIO MTN	443.050+	123.0	W7FED	OPERATIONAL	A
270511	WHITE ROCK, NM	@KC2SHO QTH	444.225+	141.3	KC2SHO	OPERATIONAL	В
274233	N. CENTRAL NM	EUREKA MESA	443.075+	100.0	KBoPMY	OPERATIONAL	C
270518	ALBUQUERQUE	SANDIA CREST	442.600+	100.0	W7FED	OPERATIONAL	D
270516	ALBUQUERQUE	N.E. HEIGHTS	442.400 S	NAC 293	W7FED P25	OPERATIONAL	D
270517	TorC	CABALLO MTN	447.850-	131.8	W7FED	OPERATIONAL	E
27421	SOUTHWEST NM	MAGDALENA PK	440.050+	173.8	W7FED	OPERATIONAL	F
270515	EL PASO, TX	MT FRANKLIN	445.875-	114.8	W7FED	OPERATIONAL	G
27081	EL PASO, TX	@KB6JYF QTH	443.850 +	77.0	KB6JYF	OPERATIONAL	G
270512	EL PASO, TX	AIRPORT	146.960-	162.2	W7FED	OPERATIONAL	H
271846	EL PASO, TX	MT FRANKLIN	147.100+	162.2	W7FED	OPERATIONAL	H
274237	EL PASO, TX	TBD - TESTING	147.440 S	192.8	W7FED	SOON	
274231	W. TEXAS	QUITTMAN MTN	440.200+	141.3	W7FED	OPERATIONAL	J
271847	RUIDOSO, NM	RUIDOSO, NM	442.375+	162.2	W7FED	SOON	3
271848	VAN HORN, TX	VAN HORN, TX	442.000+	88.5	W7FED	SOON	
274230	ROSWELL	@N5IMJ QTH	443.050+	100.0	W7FED	SOON	-
52252	SELAH, WA	@KO7W QTH	443.275+	88.5	KO7W	OPERATIONAL	SOON
274235	ALBUQUERQUE	N.E. HEIGHTS	442.675+	156.7	W7FED	OPERATIONAL	I
270513	CARLSBAD, NM	CARLSBAD	442.925+	131.8	W7FED	SOON	SOON
	110-24-	U:	The sales	Att.	110-11-	95F	110-32

### T.R.A.S.H. Allstar "HUB" LIST

Incoming Allstar connections allowed as long as the node you are using is NOT connected to other nodes!

(Please connect to a "hub' rather than an RF node#, use the nearest hub to your location)

#### ALL HUBS ARE LINKED FULL-TIME

MAIN HUB	WESTERN HUB	EASTERN HUB	INTERSTELLAR HUB	NORTHERN HUB
27080	271840	55769	55770	274240
El Paso, TX area	West of El Paso	East of El Paso	ECHOLINK, SPACE, etc	Albuquerque & North NM
OPERATIONAL	OPERATIONAL	OPERATIONAL	OPERATIONAL	OPERATIONAL

### Other ways to connect to the T.R.A.S.H. system:

Echolink connections should connect to # 375562 W7FED-R

APCO P25 connections = 442.400 Simplex NAC 293 (ABQ area only)

MotoTrbo (DMR) connections = Use Brandmeister "GROUP CALL" 3153397

Click HERE to listen to TG 3153397 (click PLAYER on the top right after it opens)

#### "SKYWARN"

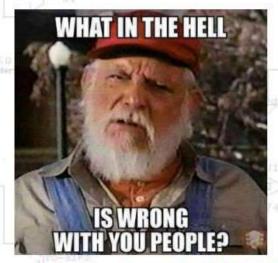
now linked to selected T.R.A.S.H. repeaters as a public service You will hear the "NBC" tone when alerts and warnings come from the NWS

If you hear an alert or warning, please tune to your local weather radio or TV channel for details

T.R.A.S.H. NWS SkywarnPlus alerts are now "regionalized" and alert only for the counties near the repeater

Many have asked, what does T.R.A.S.H. stand for?, well, now you know!

This Represents A Serious Hobby!



For additional information contact Neil W7FED, or Mike KB6JYF
(We're good on QRZ)



https://www.qsl.net/w7fed