THE REPEATER

Newsletter of the North Shore Emergency Association

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FCC GMRS DATA

Total Active GMRS Licenses = 67,501
Total Active GMRS in Illinois = 1,892
Number Issued in March = 2,909
Number March in Illinois = 86

NSEA DATA

Regular Voting Members = 15
Probationary Members = 1
Auxiliary Members = 15
Out-of-Area Members = 8
Applicants = 1
Affiliated GMRS Users on Roster = 58
Added on Systems - Last 3 Months = 13
Added on Systems - Last 30 Days = 8

FOR REPEATERS PERMISSION

Click this link:
https://nsea.com/Contact.html

FOR FCC RULES

Click this link:
https://www.ecfr.gov/cgi-bin/text-idx?SID=b7b411dcef7e2b190049b5ebfc58be1c&tpl=/ecfrbrowse/Title47/47cfr95_main_02.tpl

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TRAINING FOR GMRS OPERATORS

At recent meetings NSEA members have been discussing training for GMRS operators who wish to engage in public service with their radios. Two areas which immediately come to mind are *Skywarn* weather spotting and communications in disasters. NSEA has experience in both areas, but times have evolved.

WEATHER SPOTTING

Personal use radio involvement in weather spotting goes back to the early 60's on 27 MHz CB (Class D). The original weather net was called the Weather Auxiliary Re-

FCC CERTIFICATION OF GMRS RADIOS

Section 95.335 of the FCC Rules and Regulations requires that all transmitters operated "in any Personal Radio Service" must utilize "a certified transmitter, that is, a transmitter of a type which has obtained a grant of equipment certification for that service". Further, the Rule also provides "Use of a transmitter that is not FCC-certified voids the user's authority to operate that station. *See* sections 302(a), (b), and (e) of the Communications Act (47 U.S.C. 302(a), (b), and (e))." Prior FCC approval of Land Mobile 2-way radio transmitters has been mandatory for decades, and was previously called *Type Acceptance*.

In the old days (before GMRS licensing was restricted to just individual persons in 1988) Land Mobile radio equipment manufacturers sold GMRS radios to businesses and public safety entities. These were the same radio models that were being used in Business Band, Taxi Radio, Local Government, etc. Equipment was *Type Accepted* for **all** the various UHF radios services, including "commercial" (Part 90) and GMRS (Part 95A). [The original name of GMRS was Class A Citizens' Radio Service, at first Part 19 of the FCC Rules, later Part 95A].

All this changed when we finally succeeded in getting the FCC to end licensing business and "commercial" entities in GMRS. When their business/commercial customers no longer could license in GMRS, manufacturers started omitting GMRS in their *Type Acceptance* applications.

According to the FCC website, equipment certification is carried out by its Office of Engineering and Technology (OET). Their "Equipment Authorization Search" Page reveals some interesting facts. Records go back to 1991, and, since then, 1,253 *Type Acceptances/Equipment Certifications* have issued under SubPart A of the Part 95 Rules.

After pending more than 7 years, the new GMRS Rules finally went into effect on September 28, 2017. GMRS is now governed by SubPart E of Part 95. But, interestingly enough, OET continued issuing *Equipment Certifications* under 95A up to November 15th 2018. While 13 of these were for modification of older grants, 12 were for *New Equipment*!

As you might remember, under the new rules radios up to 2 watts now do **not** require a license, so there is little incentive to obtain any new *equipment certifications* for low power gear. FCC equipment certification requires lengthy and extensive laboratory testing, and is expensive. The appearance of cheaper Chinese made radios, such as Baofeng, that were **not** FCC certified is not hard to understand.

The dilemma for licensed GMRS users buying equipment is that, even though low power hand-helds that are 2 watts and under do not require a license, if they are used by a licensed operator they must be *certified*.

SOME GOOD NEWS

While no new *equipment certifications* under the new Rules (95E) were issued immediately after September 17, 2017, more recently there has been some activity.

porting Network (WARN), and had over 600 stations in Wisconsin, Illinois, and Indiana. NSEA started using GMRS for weather spotting in the early 70's and even sponsored an official Weather Bureau training session for GMRS spotters at the Morton Grove American Legion.

Today, training is much more organized and formalized. Periodic retraining is mandatory and is available on-line at:

https://www.weather.gov/oun/skywarn-spotter.

NSEA urges all interested GMRS operators to get trained and certified for *Skywarn* weather spotting.

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TRAINING FOR GMRS OPERATORS IN DISASTERS

For many years NSEA was involved with communications in disaster situations through the Mid-America Chapter of the American Red Cross. A few of our members even served as Communications Chairmen of various levels of the Mid-America ARC. Over the years, NSEA has carried out various projects, such as the Evanston 4th of July Celebrations and Fireworks, the Chicago Marathon Doctors, Medical and Ambulance Nets, and the M/S Tour de Farms Bike-a-thons. We have gained invaluable experience and have developed our own internal radio procedure. And our involvement with the Red Cross Disaster Service provided experience communicating in small disaster scenarios.

FOR NSEA RADIO PROCEDURE
Click here:
https://nsea.com/Radio%20Procedure.pdf

But, to be truly prepared for the future, we need to become FEMA certified. This is important for many reasons, not the least of which is so we will be fully compatible with other communicators from around the country. And government certification gives immediate credibility as a trained, qualified and experienced operator.

FEMA offers an entire curriculum of courses for on-line study at home. Some of the introductory courses include:

IS-100.c - Introduction to the Incident Command System (ICS);

Starting in November of 2018, and through December, 2019, there have been 26 new equipment *certifications* under Part 95E. Not surprisingly, these are all Chinese companies, such as TYT Electronics Co., Ltd, Shenzhen Wisdom Science and Technology Co., Ltd., Shenzhen Retevis Technology Co., Ltd., Shenzhen Zhognuoneng Technology Co., Ltd., and BTECH (which is BaoFengTech!) All these new Chinese radios are apparently ***narrow band***, except the Baofeng.

The Baofeng *certifications* are ***wide band***, and for a 43/4 watt mobile, and were issued on March 20, 2019. The full FCC ID is 2AGND50X1G. 2AGND is the manufacturer code (either 3 or 5 characters), and 50X1G is the model code.

This is the new GMRS-50X1 super cheap mobile ($180). More on this in another article. BaoFeng is the only one of the 26 companies with an address in the United States, it's in Arlington, SD. They emphasize that their radios are designed here, are factory warranty serviced here and the Manual was written here.

Some recent radios purportedly *certified* for GMRS don't show up in webpage 95E searches. An example is the Midland MXT400, 40 watt mobile. I spoke to Midland [(816) 241 – 8500] and obtained the FCC *certification* number found on that model, which is MMAMXT400. [Cheryl at Customer Service.] (MMA is the manufacturer code for Midland.) I finally found this under 95A. It turns out this was issued back on Sept. 1st 2016, before the transition from 95A to 95E. Apparently OET didn't make this transition until November 15, 2018. New certifications before then were under 95A, and on and after, 95E. NOTE: The Midland MXTs are ***narrow band.***

For a list of some of the more popular Chinese company ID Codes, see: http://www.miklor.com/COM/UV_Certification.php. If you want to conduct your own FCC webpage OET searches, and need help, the FCC Laurel (MD) Lab phone number is (202) 418 - 2470.

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BAOFENG GMRS RADIOS

What the heck is the deal with Baofeng?? I'd been led to believe that they were a new company in China that was importing **really cheap** 2-way radios into the United States without bothering to get any FCC *certifications*. The answer is a lot more complicated and different from that.

To understand the true picture you must first know that Baofeng is not just one single company, but several. Baofeng in China manufacturers two-way radio equipment. Its FCC certification ID code was ZP5 until they changed name to Pofung. Now their ID code is 2AJGM. Baofeng**Tech** is a US company in Arlington, SD, and their code is 2AGND. Apparently, they actually *design* and market variations of the Chinese Baofeng radios made specifically for the US. They are the ones bringing these radios into the USA, not the Chinese manufacturing company.

And no, they were never doing so without *certification*. Baofeng**Tech** was issued its first *certification* on May 16, 20*16*, and has a total of 38 such certificates. When they began offering UHF 2-way radios, these were *certified* in Part 90 ("commercial"). It was the GMRS community that was taking advantage of the cheap prices to use *uncertified* radios, not BaofengTech. The radios were *certified,* but for Business Band, etc. This is the traditional dilemma for GMRS users, just like with Icom, etc. Ever since the FCC has stopped certifying GMRS radios to operate also in other services, users can no longer legally utilize "commercial" UHF gear.

For many, many years I have felt that the future of GMRS depends on some manufacturer of UHF equipment adopting our service and designing and providing consumer priced radios with attractive features specifically for personal communications. I started seeking this as early as 1978, when I was a Task Coordinator in PURAC (the FCC's Personal Use Radio Advisory Committee).

Now this may be coming true. BaofengTech has taken their Amateur/Commercial UHF mobiles and portables and re-engineered them with highly GMRS-specific features. Pricing is not "commercial" expensive, but rather closer to "bubble-pack".

IS-230.d – Fundamentals of Emergency Management; and

IS-700.b – An Introduction to the National Incident Management System (NIMS).

There are literally hundreds of courses. These are found on the FEMA Emergency Management Institute (EMI) web page at:

https://training.fema.gov/is/.

To start taking these free courses, you must first register as a student by obtaining a FEMA SID number. To do so go to this website: https://cdp.dhs.gov/femasid, and click on "Register for a FEMA SID". When registration is successfully completed you will get a 10-digit FEMA SID on your computer screen immediately. I recommend you save a screen shot of that page and print it as well.

In this time of crisis and home quarantine, many of us have much more free time available than normally. Why not put that extra time to good use and complete *Skywarn* and FEMA training while you have the opportunity?

And, when you complete any of the training, be sure to get a certificate or proof and shoot NSEA a copy. We'll keep track of this important evidence of GMRS operator professionalism and proficiency.

Who knows, we may start to have on-the-air drills to practice what we have learned?

As the Boy Scouts say, Be Prepared!

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MODEL DETAILS

The first BaofengTech entry into the GMRS market was their UHF portable, the GMRS-V1. It's an FCC *certified* ***wideband*** radio, 2AGND-GMRS-V1, 9/15/16.

(I'm shocked that this has been around this long!) Details are on the Baofeng-Tech website at: https://baofengtech.com/gmrs-v1. Rather than discuss specifications, I'll let you peruse the website information for yourself. I'll just make a couple of observations.

At 2 watts, this design is eligible for unlicensed use. As you might expect at the price of just $55, it has pretty poor selectivity and rejection. Don't plan on using this in high RF areas, anything like downtown Chicago, it's not for serious GMRS operators. This is almost a "bubble-pack" radio. But for volunteer groups, like Evanston ESDA, Red Cross Disaster Service, Neighborhood Watch, etc., it's a lot closer to ideal, having repeater capability, VHF/UHF receive, and many advanced features.

A more serious entry is the BaofengTech mobile, GMRS-50X1, *certification* 2AGND50X1G, 3/20/19. BaofengTech website at: https://baofengtech.com/gmrs-50x1, priced at $180. But **don't** even THINK of using the combination multiband receive/transmit antenna they recommend. This radio only tolerates 1.5-1 SWR and you must be very careful to *tune* a good commercial grade antenna for lowest reflected for transmitting. Just live with the degradation for receiving VHF. The GMRS specific feature set looks very good.

A YouTube review last August reported 2 significant problems: The CTCSS tone scan feature was not working at all, and the CHIRP programming software did not work to configure features, just receive channels. This review gives you a good look at the radio in operation https://www.youtube.com/watch?v=Av2kdfF6Vt4. I assume (hope) the tone scanning problem has been fixed in a firmware update by now. Efforts to get detailed information from BaoFengTech via e-mail are as yet unanswered.

I've taken a close look at the CHIRP website. It's open source, and the latest build was just on April 9th. The testing chart for this new version shows that features for the GMRS-50X1 passed, so now the problem has definitely been solved. NOTE: this software works with both Windows, as well as Mac, LINUX and others. The commercial software equivalent, RT System's BTS-50X1 ($49), is Windows only.

Receiver specs look significantly better than the GMRS-V1 portable. They're not great, but this is the kind of compromise one would expect for such a moderately priced, but full featured, full powered mobile. To be sure the advanced channel/system searching features are best used with this radio while powered with an AC supply. You have to be close to clearly see all the data crammed in the display. For transient operation (travelling) one would probably need to pull over to do any channel or tone searching.

Excluding old, discontinued vintage equipment, today this is the ***only*** wide band capable mobile radio you can buy for GMRS that is *certified*. This may be the beginning of the bridge to the future of GMRS. Transient use is especially encouraged, as well as UHF/VHF monitoring, which is ideal for volunteer groups working with public safety, such as police and fire. Group and selective calling is vital for non-radio enthusiasts. I need to further evaluate circuit design compromises to consider getting one to try out.

Would you like to contribute to The Repeater? Submissions are encouraged. Send to Randy@NSEA.com.