

The background features a light gray gradient with several realistic water droplets of various sizes scattered across the surface. In the center, there is a faint, circular graphic of a radio tower with concentric circles emanating from it, suggesting radio waves.

# WHAT RADIO TO BUY

BARC CLUB MEETING

APRIL 8<sup>TH</sup> 2017

# YOU ARE LOOKING FOR A NEW RADIO

- WHICH RADIO WILL YOU PURCHASE FOR YOUR AMATEUR RADIO STATION? DO YOU WANT A LARGE, FULL-FEATURED TRANSCEIVER FOR THE HF BANDS? A MOBILE RADIO FOR OPERATING ON VHF/UHF OR EVEN A TINY HANDHELD TRANSCEIVER?
- BEFORE YOU DECIDE ON YOUR PURCHASE, FOCUS ON THE FEATURES AND FUNCTIONS YOU WILL NEED FOR THE OPERATING ACTIVITIES YOU PLAN.
- YOUR FIRST RADIO DOESN'T HAVE TO BE NEW. THERE ARE MANY OLDER TRANSCEIVERS THAT HAVE YEARS OF USEFUL SERVICE LEFT IN THEM. THESE TRANSCEIVERS "RIGS," ARE OFTEN AVAILABLE FOR SALE AT ONLINE AUCTION SITES SUCH AS EBAY.

# WHAT OPTIONS DO YOU WANT?

- MOBILE, PORTABLE, BASE STATION
- BAND HF, 2 METER, 70 CENTIMETER, ALL
- MODE FM, SSB, DIGITAL (APRS, D-STAR, DMR, FUSION, TNC OR P-25)
- SINGLE BAND OR MULTIPLE BAND RECEIVER DUAL RECEIVER SINGLE RECEIVER
- DISPLAY- NONE, SMALL OR LARGE, MONOCHROME OR COLOR
- EASE OF PROGRAMMING
- COST
- PARTICULAR MANUFACTURE

# USE THIS SEARCHES LIKE THIS ONE FROM HRO

- [HTTP://WWW.HAMRADIO.COM/SEARCH\\_ADVANCED.CFM](http://www.hamradio.com/search_advanced.cfm)

# CHECK THE SPECIFICATIONS

- LOOK AT RECEIVER SENSITIVITY (SHOULD BE AT .2 MICRO VOLT OR LESS AT 12DB SINAD)

SINAD is a measurement that can be used for any radio communication device to look at the degradation of the signal by unwanted or extraneous signals including noise and distortion. However the SINAD measurement is most widely used for measuring and specifying the sensitivity of a radio receiver.

- THERE ARE MANY OTHER READINGS TO CONSIDER.
- POWER OUT.
- RECEIVER DYNAMIC RANGE
- AUDIO OUTPUT
- RECEIVER TYPES (FM,AM,RTTY,SSB)





# PLACES TO FIND INFO

- [QST](#)
- <FILE:///C:/USERS/KB7PA/DOWNLOADS/PR0605.PDF>
- <HTTP://WWW.ARRL.ORG/REVIEWS-LISTED-BY-MANUFACTURER>
- [HTTP://WWW.ARRL.ORG/FILES/FILE/TECHNOLOGY/TIS/INFO/PDF/QST\\_AUG\\_2004\\_P32-36.PDF](HTTP://WWW.ARRL.ORG/FILES/FILE/TECHNOLOGY/TIS/INFO/PDF/QST_AUG_2004_P32-36.PDF)
- <HTTP://WWW.ARRL.ORG/FILES/FILE/TECHNOLOGY/TIS/INFO/PDF/29379.PDF>
  
- E-HAM
- <HTTP://WWW.EHAM.NET/REVIEWS/>



# DON'T GET IN A RUT

- THERE ARE MANY BRANDS OF RADIOS OUT THERE IF YOU ARE BUYING YOUR 2<sup>ND</sup> THIRD OR WHAT EVER RADIO DON'T BE AFRAID OF TRYING A DIFFERENT MODEL. YOU WILL NOT REALLY GOING TO KNOW WHAT THE DIFFERENT MANUFACTURERS BRING TO THE TABLE UNTIL YOU TRY SOMETHING DIFFERENT.
- YOU BECOME MORE USEFUL AT AN EVENT IF YOU KNOW SOME ABOUT MULTIPLE BRANDS OF RADIOS. MOST MANUFACTURES HAVE A CERTAIN WAY OF PROGRAMMING THERE RADIOS THAT ARE VERY CONSISTENT THROUGHOUT THERE EQUIPMENT.
- YOU MAY FIND THAT WHAT YOU THOUGHT WAS THE BEST RADIO MAY JUST BE RUN OF THE MILL.
- PUTTING IN A CODE PLUG FROM ONE BRAND TO ANOTHER WITH TODAYS SOFTWARE IS USUALLY NOT TO DIFFICULT.



# WHAT IS LEGAL, AND WHAT IS NOT LEGAL FOR OUR CHINESE RADIOS?

- A RADIO NEEDS PART 95 ACCEPTANCE FOR FRS, GMRS, MURS. NO BAOFENG HAS THIS. ONLY ONE WOUXUN MODEL THAT IS APPROVED FOR PART 95(A) GMRS USE. ANYTONE HAS TWO MODELS THAT ARE PENDING GMRS AND MURS CERTIFICATION. CURRENTLY, LEGAL ISSUES HAVE SUSPENDED THE PREVIOUS CERTIFICATION.

FOR COMMERCIAL USE, RADIOS NEED PART 90 APPROVAL. MOST BAOFENG HAS THIS. MANY WOUXUN RADIOS HAVE THIS. A FEW PUXING RADIOS HAVE THIS. MOST ANYTONE RADIOS HAVE THIS. GMRS RADIOS NEED PART 95A CERTIFICATION. MURS RADIOS REQUIRE PART 95D CERTIFICATION. FRS RADIOS REQUIRE PART 95B CERTIFICATION.

- CHECK ON THE BACK OF THE RADIO FOR THE "FCC ID" STICKER. THIS FCC ID CAN BE LOOKED UP TO SEE WHAT RULE PARTS THE RADIO IS CERTIFIED FOR. AN FCC ID LABEL IS REQUIRED TO BE PLACED ON THE BACK OF THE RADIO.

SOME COMMERCIAL RADIOS HAVE MORE THAN ONE RULE PART. YOU'D SEE PART 90 AND PART 95(A). THEN THESE WOULD BE LEGAL ON GMRS. NOT FRS, PART 95(B) OR MURS PART 95(D)? BECAUSE FRS RADIOS HAVE A MAXIMUM OF 500 MW AND NON REMOVABLE ANTENNAS. MURS HAS A 2 WATT MAXIMUM, AND THESE RADIOS EXCEED THAT ON HIGH POWER. OF COURSE, YOU THEN HAVE THE FIELD PROGRAMMABILITY, WHICH ODDLY ENOUGH EVEN VIOLATES THE PART 90 APPROVAL.

# WHAT IS LEGAL, AND WHAT IS NOT LEGAL FOR OUR CHINESE RADIOS?

FOR AMATEUR RADIO USE, NO PART 97 APPROVAL IS REQUIRED. PART 97 PRIMARILY COVERS OPERATING RULES, ALTHOUGH THERE ARE SOME EQUIPMENT RULES. SINCE AMATEUR OPERATORS CAN USE \*ALMOST\* ALL EQUIPMENT, OTHER RULE PARTS DEALING WITH EQUIPMENT COME INTO PLAY. PART 97 DOES COVER PROPER ENGINEERING PRACTICES THAT ARE REQUIRED TO MAKE SURE EQUIPMENT IS WITHIN TOLERANCE.

FOR AMATEUR EQUIPMENT, PART 15 LARGELY APPLIES ON VHF AND UHF RADIOS. THIS IS PRIMARILY FOR RADIOS WITH A SCANNING FUNCTION, TO CERTIFY THE RADIOS CANNOT MONITOR CELLULAR, AS WELL AS RECEIVER PRODUCTS INTERFERING AND RECEIVING INTERFERENCE FROM CONSUMER PRODUCTS.

IF YOU TAKE YOUR ICOM, KENWOOD, ETC., RADIOS AND ENTER THE FCC ID INTO THE FCC DATABASE, YOU WILL SEE IT LIKELY LISTED AS "PART 15 SCANNING RECEIVER." THAT'S WHY YOU SEE SOME NEW EQUIPMENT LIKE ON UNIVERSAL RADIO BEING LISTED "THIS RADIO HAS NOT RECEIVED FCC APPROVAL." NOT WAITING FOR PART 97 APPROVAL; BUT WAITING FOR THAT PART 15 RECEIVER COMPLIANCE.

[HTTPS://WWW.LAW.CORNELL.EDU/CFR/TEXT/47/15.101](https://www.law.cornell.edu/cfr/text/47/15.101)

# WHAT IS LEGAL, AND WHAT IS NOT LEGAL FOR OUR CHINESE RADIOS?

- THE APPLICABLE RULE HERE IS 15.101 PARAGRAPHS (A) AND (B)
- MOST PART 90 RADIOS.... WHICH ARE COMMERCIAL RADIOS, CAN BE USED ON THE AMATEUR BANDS LEGALLY. THAT'S WHY ALL THESE BAOFENGs, WOUXUNs, PUXINGs, ETC., HAVE BEEN SELLING LIKE HOT CAKES. WOUXUN STARTED IT OFF BY BEING THE FIRST CHINESE RADIO TO GET FCC APPROVAL. ALL THESE OTHER RADIOS FLOATING AROUND AT THE TIME HAD NO APPROVAL. OF COURSE, WHEN THIS HIT THE NET WITH A FIRESTORM AND SALES TOOK OFF, OTHER MANUFACTURERS FINALLY GOT INTO THE ACT, AND WE NOW HAVE THE MESS WE ARE IN TODAY.
- YOU SEE ALL THE HAMS WITH MOTOROLA, MIDLAND, AND OTHER RADIOS ON THE HAM BANDS. THEY ARE PART 90 RADIOS, WHICH MAKES THEM LEGAL FOR AMATEUR OPERATORS. THEY HAVE BEEN CERTIFIED FOR USE IN THE USA, BASED ON TECHNICAL STANDARDS FOR COMMERCIAL USE. AMATEURS MAY USE ANY EQUIPMENT CERTIFIED UNDER ANY OTHER RULE PART. THE REVERSE IS NOT TRUE. AMATEURS ARE EXPECTED TO UTILIZE PROPER ENGINEERING PRACTICES AND ARE GRANTED WIDE LATITUDE FOR OPERATION.

# WHAT IS LEGAL, AND WHAT IS NOT LEGAL FOR OUR CHINESE RADIOS?

- WHAT ABOUT ALL THOSE ODDBALL BRANDS. IF THEY HAVE NO FCC ID, THEY MAY NOT BE LEGAL FOR USE ON ANY RADIO SERVICE IN THE USA. INCLUDING AMATEUR. THIS MAY, AT FIRST THOUGHT, CONTRADICT OF PREVIOUS STATEMENTS REGARDING PROPER AMATEUR ENGINEERING PRACTICES. THE ANSWER IS: THE RADIOS HAVE NOT PASSED ANY TYPE OF SCRUTINY IN REGARDS TO SPECTRAL PURITY, SO IF YOU DO NOT HAVE THE ABILITY OF VERIFYING THE SPECTRAL PURITY OF THE EQUIPMENT YOU SHOULDN'T BE USING THEM.
- THE POINT, REALLY, IS TO MAKE PEOPLE STOP AND CONSIDER THE **FACT THAT ALL RADIO SERVICES HAVE RULES, REGULATIONS AND TECHNICAL STANDARDS.** NOT ALL RADIOS WILL WORK WITH OTHER RADIOS. VERY FEW CAN BE USED BY THE GENERAL PUBLIC.

# WHAT IS LEGAL, AND WHAT IS NOT LEGAL FOR OUR CHINESE RADIOS?

- IF YOU HAVE ANY QUESTIONS AS TO WHETHER YOUR OWN MOBILE OR HANDHELD RADIO IS FCC PART 90 CERTIFIED, YOU CAN SEARCH YOUR RADIO'S UNIQUE FCC ID BY ENTERING IT [HERE](#). THE FCC ID MAY BE FOUND ON A SMALL STICKER ON THE BOTTOM OF YOUR MOBILE RADIO OR INSIDE THE BATTERY COMPARTMENT OF YOUR HANDHELD.
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- CLICK [HERE](#) TO VIEW / DOWNLOAD THE FCC CERTIFICATE FOR THE CHINESE IMPORT 5W DUAL-BAND VHF-UHF **WOUXUN KG-UV6D** HANDHELD.
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- CLICK [HERE](#) TO VIEW / DOWNLOAD THE FCC CERTIFICATE FOR THE CHINESE IMPORT 4W DUAL-BAND VHF-UHF **BAOFENG UV-5R** HANDHELD.
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- CLICK [HERE](#) TO VIEW / DOWNLOAD THE FCC CERTIFICATE FOR THE CHINESE IMPORT 2W DUAL-BAND VHF-UHF **BAOFENG UV-3R** HANDHELD.
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- CLICK [HERE](#) TO VIEW / DOWNLOAD THE FCC CERTIFICATE FOR THE CHINESE IMPORT 50W DUAL-BAND VHF-UHF **WOUXUN KG-UV920PA** MOBILE.
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- CLICK [HERE](#) TO VIEW / DOWNLOAD THE FCC CERTIFICATE FOR THE CHINESE IMPORT 50W DUAL-BAND VHF-UHF **ANYTONE AT-5888UV** MOBILE.