

# HF DX Operating Procedures and Guidelines

*Jack Ciaccia, WMØG*



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# TRANSCEIVE Operation

**LISTEN – LISTEN – LISTEN !!!**

The DX station is **TRANSMITTING** and is **LISTENING** on the **SAME** frequency.

- **TRANSCEIVE** is usually used when the DX station has a really strong signal.
- **AND** when there is a good, experienced DX operator behind the key or mike.
- **AND** because the experienced DXer knows when, and how, to split up a “pileup”.



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# TRANSCEIVE Operation

- Sometimes the DX station will take a “TAIL-ENDER”. “TAIL-ENDING” is when someone slips his callsign in just before the other station working the DX has completed his QSO.
- *Example:* We’ll use the fictitious DXer named Igor, whose call sign is L3ØA from the extremely rare QTH of Lower Slobovia.
- The pileup calls, and Igor answers the loudest signal on the band: “NSØW, 5 by 9!”
- Sebastian, NSØW answers: “QSL Igor! You are also 5 by 9, L3ØA, this is NSØW!”
- Jack, WMØG yells: “WMØG”
- Igor responds: “WMØG, 5 by 9!”
- Jack responds: “Thanks Igor, you are also 5 by 9, 73”
- Igor was able to identify the station and give a signal report and get a signal report back without interruption. He was also saving himself the time of asking “QRZed? This is L3ØA, L3ØA, L3ØA”.



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# SPLIT-Frequency Operation

This is when a DX station XMITs on one frequency and LISTENS on another.

eg.. SSB DX station XMITs on 14.190 and listens for US stations from 14.200 to 14.225 (listening up 10 to 15) or a CW DX station XMITs on 14.010 and listens from 14.015 to 14.020 (QsX UP 5 to 10)



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# **SPLIT-Frequency Operation**

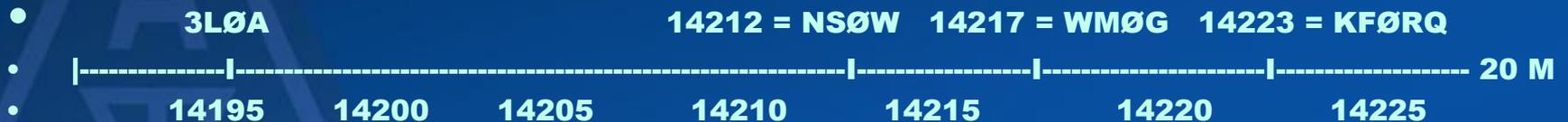
- 1. Press VFO “A+B” or = button to place BOTH VFO’s on the SAME Band/Frequency.**
- 2. VFO-A set to the DX’s XMIT frequency (this is YOUR listening frequency)**
- 3. VFO-B set up to YOUR XMIT frequency**
- 4. Press in “DUPLEX” or “SPLIT” button, press PTT and test your “SPLIT” - make sure you are listening to the DX when you hit the PTT button OR you are REVERSED and will be XMITing on the DX station’s frequency and will cover up the DX station and you will become really, really popular! Lots of people World Wide will know your call sign and even call you special names (mostly “LID”).**
- 5. To go back to a single VFO, push the “A+B” or = button, both VFO’s will now be on the SAME frequency so you can choose either the “A” or “B” VFO to operate on.**



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## An example of a SPLIT Frequency operation



**You are trying to work Igor, L3ØA in Lower Slobovia, (a really rare country) who is transmitting SSB on 14195 kHz. You first press the VFO “A=B” button to put both VFO’s on this frequency. Leave your VFO-A on this frequency. Igor says he is listening up for stations to call him from 14210 kHz to 14225 kHz. You now press in your button for VFO-B, tune and LISTEN from 14210 to 14225 kHz for some loud stations.**



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# TRANSCEIVE Operation

Now, let's "TAIL-END" the WRONG way!

The pileup calls, and Igor answers: "NSØW, 5 by 9"

Jack yells: "WMØG!!!"

Sebastian begins to say: "Igor you are..."

But Jack yells his call over the top of him and covers up Sebastian:  
"WHISKEY MIKE ZERO GOLF !!"

Sebastian (unaware of Jack's QRM) finishes his sentence: "ØW"

Igor says: "Please WMØG, stand by!!! NSØW, again, my report please..."



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# TRANSCEIVE Operation

**This has increased the time in which Igor could have made the QSO with Sebastian and others and also has prevented Igor from receiving the signal report from Sebastian, NSØW. But, Igor also made a tactical error by identifying the interrupting station that he most likely will work next now, and the result of his tactical error will now start a “free-for-all” of people calling on top of each other whenever Igor is listening for his report. Igor should have ignored WMØG and should have just asked NSØW to repeat his report. In any case, Igor should have not rewarded WMØG with the next QSO. The “MESS” has begun!**

- Make sure you can hear the end of the QSO before attempting the “TAIL-ENDER” technique.**
- Be sure the DX is accepting this technique – some will put you on their “BLACK LIST” if they are not.**



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# Dividing by CALL DISTRICTS

**LISTEN – LISTEN – LISTEN !!!**

**The DX station may divide the pileup on his frequency by calling for the *dreaded* “CALL DISTRICTS”**

**This is where the DX station will work about 10 stations from a call district then move on to the next – eg.. “Requesting calls from the first call district” – DX station then works the 10 stations and says: “Looking for call signs from the second call district”, etc...ZZZZZZZ!!**

**Thus: Zeros are the most patient DXers on earth!! WE are always the LAST to work the DX.**

**DO NOT call out of turn – again you may be put on the DX station’s “BLACK LIST”**

**Always give your FULL call sign UNLESS you hear him coming back to the “LAST 2”**



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# DX NET Operations

- In this type of operation there is a Net Control Station (NCS) and you may notice that there are some permanent resident stations (both DX and locals) that are on these DX NETs day in and day out, and are friends of the NCS station. If a DX station likes this mode of operation he will check in regularly.

## LISTEN – LISTEN – LISTEN !!!

- These operations usually are DX stations running low power or DX operators with little or no experience of working DX in a pileup or SPLIT and/or prefer a controlled NET operation.
- It is a *very slow* mode of operation.... ZZZZZZZZZZ!!
- You need to check in and get on the NCS' list first (sometimes this is a bigger problem than working the DX itself due to poor propagation, QRM, etc..)
- You must follow the NCS' instructions for working the DX or he will chastise you!



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# DX LIST Operations

- **Used when the DX station speaks little or no English**
- **Used if the DX operator is inexperienced in pileup or SPLIT operation.**
- **Used if DX station has very weak signal due to poor station and/or bad propagation**

**LISTEN – LISTEN – LISTEN !!!**

**Sometimes the MC of the list (usually a local station with good copy on him) or another DX station with a real good signal, will take the list of about 10 to 20 stations and then have them each work the DX.**

**Sometimes the MC will have another station go down to another frequency and “pick up a list” and then come back and they will relay the list to the MC who will then call each station individually and repeat this procedure as long as feasible... ie.. band propagation, DX station’s allotted time to operate, etc.**

**The MC should NEVER relay signal reports or make call sign corrections! This practice is really frowned upon by real DXers. Don’t be associated with a NET or a LIST that does this as SOP. Bad DXer!!**



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# DX LIST Operations

The MC station should give clear and concise instructions from time to time as to the method of the list operation, like... where and when the list is being taken, how many are on the list, the DX station's QSL info, the DX station(s) that the list is being taken for, etc.. so that any new stations that show up don't continually interrupt with "Who's the DX?", "Where's he listening?", "What's his QSL route?" etc..

When working the DX on a list operation, LISTEN and conform to the DX station's desires such as:

1. He wants you to give him your call sign and his signal report -- no names, QTH, etc..
2. He wants you to give him your call sign, his signal report and your name -- but no QTH, etc..
3. He wants you to give him your call sign, his signal report, your name and your QTH, etc..
4. Just "follow the leader".



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# What Constitutes “Rare DX” ?

*Countries where no amateur radio stations are on the air normally.*

**Mozambique (C8-9), Cambodia (XU), Myanmar (XY/ XZ), Yemen (7O), Vietnam (XV/ 3W), Laos (XW), Libya (5A), Sao Thome & Principe (S9), Afghanistan (YA), Nepal (9N), North Korea (P5), Eritrea (E3), Western Sahara (SØ) etc...**

*Countries where activity is usually only by an operator at a weather station.*

**Crozet I. (FT8W), Kerguelen I. (FT8X), Amsterdam & St. Paul I. (FT8Z), Johnston I. (KH3), Kure I. (KH7), Willis I. (VK9W), Macquarie I. (VKØ), Antarctica (KC4, CE9, LU-Z, Y88-90, R1A, 4K1, IAØ, etc.), South Georgia (VP8), South Orkney (VP8), Shetland I. (VP8), Auckland I. & Campbell I. (ZL9), Chatham I., (ZL7), Kermadec I. (ZL8), Prince Edward & Marion I., (ZS8), Rodriguez I. (3B9).**



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# What Constitutes “Rare DX” ?

*Countries only activated by Special DXpeditions.*

**San Felix I. (CEØX), Juan Fernandez I. (CEØZ), Guinea-Bissau (J5), St. Martin (FJ-FS), Clipperton I. (FO8), Glorioso I. (FR/G), Juan de Nova I. & Europa I. (FR/J E), Tromelin I. (FR/T), Malpelo I. (HKØ), Navassa I. (KP1), Desecheo I. (KP5), Kingman Reef (KH5K), Palmyra I. (KH5), Market Reef (OJØ), Aland I. (OHØ), St. Peter & Paul Rocks (PYØ), Conway Reef (3D2), Mt. Athos (SV/A), Sable I. (CYØ), St. Paul I. (CY9), Mellish Reef (VK9M), Heard I. (HKØ), South Sandwich I. (VP8), Andaman & Nicobar I. (VU7), Laccadive I. (VU7), Revilla Gigedo I. (XF4), Aves I. (YVØ), North Cook I. (ZK1), Spratley I. (1S), Equatorial Guinea (3C), Annobon I. (3CØ), Bouvet I. & Peter I I. (3Y), Banaba I. (T33), Pratas I. (BV9P), Scarborough Reef (BS7), Minami Torishima (JD1), Ogasawara I. (JD1) Agalega & St. Brandon I. (3B6, 7).**



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# Where do I find this DX?

## On the 160 Meter Band:

- **CW and RTTY DX will be usually be found between 1800 to 1830 kHz**
- **AM, SSB, SSTV usually between 1840 to 2000kHz – (on SSB try to stay ABOVE 1842.5 kHz)**
- **DX SSB QSOs are usually made between 1840 to 1850 kHz. The CW “DX WINDOW” is between 1820 to 1830 kHz with 1823 and 1824 kHz being preferred frequencies.**
- **1850 to 1930 kHz is used by Ex-USSR and Eastern European stations.**
- **1907.5 kHz to 1912.5 kHz is used by Japanese SSB stations that will announce that they are “listening DOWN” and will work you “SPLIT” between 1820 kHz and 1835 kHz.**
- **Japanese CW stations operate from 1820 kHz to 1840 kHz.**



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# Where do I find this DX?

## On the 80 Meter Band:

The low end of the US SSB band is used for DX from 3650 to 3800 kHz – mostly **TRANSCEIVE** operation. Remember that **ONLY** Extra Class hams can operate between 3650 and 3775 kHz!

3790 to 3800 kHz is considered the “SSB DX WINDOW” on this band.

Many DX stations will operate **SPLIT** on this band calling below 3750 kHz and announcing where they are “listening UP”. *An example of this might be: EA5BW is calling on 3740 kHz and announces “listening on this frequency (for other DX stations) and 3785”.*

**LISTEN** for many DX stations calling on 3640 kHz and “listening UP” for US stations. Ex – USSR stations cannot XMIT above 3650 kHz SSB (EXCEPTION: They can XMIT up to 3800 kHz during contests).

On CW most DX stations operate between 3501 and 3510 kHz and sometimes from 3525 to 3530 kHz

QRP CW may be found around 3560 kHz or on 3579.5 kHz



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# Where do I find this DX?

## On the 40 Meter Band:

**The US SSB band is from 7125 to 7300 kHz but there's also European, South and Central Americans as well as African and Australian/New Zealand stations that can be worked here in TRANSCEIVE mode.**

**European and some Asian SSB stations will be found between 7040 and 7100 kHz (7040 to 7080 kHz is the focal area) "listening up" for US amateurs in the 7125 to 7300 kHz SSB segment.**

**Most DX stations on CW will be found between 7000 and 7010 kHz -- BUT due to the strong competition for space on this band you may find DX stations up to 7025 kHz and sometimes, even higher**

**QRP US CW operation will be around 7040 kHz ( $\pm$  QRM) -- DX QRPers are around 7030 kHz**



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# Where do I find this DX?

## On the 20 Meter Band:

**The SSB DX “CALLING frequency” is 14195 kHz**

**A lot of DX will be heard below 14150 kHz... BUT the DX will be working each other here usually. Most DX SSB operations are generally found between 14190 kHz and 14200 kHz either working in TRANSCEIVE or SPLIT modes.**

**Most DX CW operation is between 14000 and 14010 kHz operating either TRANSCEIVE or SPLIT. QRP CW is found around 14060 kHz**

**The Northern California DX Foundation (NCDXF) DX beacons are found on 14100 kHz. Each 10 Minute transmission starts with QST DE 4U1N/B (New York). A 10 Minute sequence starts with a one minute beacon each from NY, CA, HI, Japan, Israel, Finland, Madeira Is., So. Africa and Argentina, then the last minute in each sequence is silent.. then the sequence is repeated... These beacons indicate where the 20 Meter band is open to and is real-time propagation info.**



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# Where do I find this DX?

## On the 15 Meter Band:

**The SSB DX “CALLING frequency” is 21295 kHz**

**A lot of DX can be heard below 21150 kHz, but DX stations are usually working each other here.**

**DX SSB operations will usually be found between 21225 and 21350 kHz either working TRANSCEIVE or SPLIT. Don't neglect looking up to 21400 kHz though... sometimes QSL managers will be working their DX stations here trading log and QSL info.**

**On CW most DX operations will be found between 21000 and 21010 kHz TRANSCEIVE or SPLIT**

**QRP CW is around 21060 kHz**



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# Where do I find this DX?

## On the 10 Meter Band:

**The SSB DX “CALLING frequency” is 28495 kHz**

**SSB DX can be found all over this band between 28300 and 28900 kHz TRANSCEIVE or SPLIT**

**On CW most DX operations will be found between 28000 and 28010 kHz TRANSCEIVE or SPLIT**

**In the CW band you may also hear many illegal “freebanders”, taxis and other SSB and AM chatter.**

**DX CW ID beacons can be found here between 28190 and 28225 kHz (Many beacons found here) See ARRL manual for complete listing and frequencies. The same is true for beacons on 6 Meters and all other bands up to the 10 GHz band.**

**QRP CW is found around 28060 kHz**



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# Where do I find this DX?

## On the 30 Meter Band:

**This is a CW ONLY band. Power is limited to 200W. DX is found between 10100 and 10110 kHz but mostly to the lower side of this band (below 10110 kHz). DX operators seem to favor the even numbered frequencies on this band, eg.. 10102, 10104, 10106 and 10108 kHz.**

**NO CONTESTS are allowed to be operated on the WARC Bands (12 Meters, 17 Meters & 30 Meters)**

## On the 17 Meter Band:

**CW DX operations usually announced around 18078 kHz  
SSB DX operations usually announced around 18128 kHz**

## On the 12 Meter Band:

**CW DX operations usually announced around 24905 kHz  
SSB DX operations usually announced around 24940 kHz**



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# Jack's DX Tips:

1. If you hear a lone DX station calling CQ – Work it!
2. Learn how to “Zero Beat” the DX station’s listening frequency on CW.
3. If there is a pileup (a lot of stations trying to work the same station) don’t jump right in. LISTEN for five or six contacts so you can figure out how the DX station is handling the pileup. LISTEN to the DX station and if SPLIT, LISTEN up the band to the callers.
4. Keep your calls short and don’t continue to call the DX station after he has gone back to someone else....”Duhhh!”
5. In a “pileup”, don’t call the DX station’s callsign... He knows who he is! And... he knows why you’re calling him too.
6. If he is working “tail-enders”, try it. If he isn’t... DON’T! (More apt to work when few are calling the DX station).
7. If you notice that the DX station is only working stations in a particular part of the country other than your own, perhaps conditions aren’t quite right for you yet.
8. LISTEN, and follow the DX station’s instructions explicitly.
9. Be courteous to the DX station and to other stations trying to work him.
10. Be sure you log the DX station accurately and log him in Zulu (GMT) time ONLY!



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## Jack's DX Tips:

11. Check DX publications and ARRL on-the-air bulletins, etc.. For announced DX operations, call signs, frequencies and times.
12. Join a DX club like the Mile High DX Association and learn from the “pros”. Check their web page at <http://www.mhdxa.com>
13. Practice setting up “SPLIT” operation on your XCVR both on SSB and CW so it becomes second nature.
14. Know how to use all of your XCVR's features, especially the PBT and Notch filters.
15. Good operating skills will overcome a deficient operating station.
16. Learn to pick the right band at the right time of day or night.
17. Become knowledgeable of DX countries prefixes (including the ITU prefixes) and a student of geography – know exactly where the DX is located just by hearing his prefix.
18. Pick up books and read up on DXing and DX operations, equipment and procedures – I suggest “The ARRL Operating Manual” and “Low Band DXing” by ON4UN.
19. Make sure your antenna is as efficient as it can be on the bands you intend to work.
20. Get a GOOD set of headphones and if possible, a combination headset with mike and either a hand or foot PTT switch. If operating VOX, make sure it isn't “tripping”.



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## Jack's DX Tips:

21. Become a really good CW operator... work DX at HIS speed! Whether it's 5wpm or 35 wpm.

22. Know the Q signals used in DXing: QRZ, QSL, QSY, QSX, QRX, etc.

23. Know where the DX is “lurking” on each band. Know the DX allocations on each band.

24. Know the CW procedural signals: QRL?, AR, K, BK, R, AS, SK, DN

25. On SSB know your International Phonetic Alphabet! DO NOT use a “cutesy” call sign as is sometimes heard on FM repeaters and on CB.

26. Speak clearly, and not too quickly, if the DX station does not speak fluent English – do not use “jargon-speak” like: “My twenty is... and my personal is”...etc.

27. Jack's DX Rule: Be WHERE they are WHEN they are! You can't work them if you're not listening at the right time AND in the right place for them (see rules 17 & 24).

28. Understand radio propagation, at least what the SF, the K and the A indexes mean.

29. Last, but not least, don't forget to always **LISTEN – LISTEN – LISTEN !!!**



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# How to Zero Beat a CW frequency

If there ever was a lost art, this is it!

What is “Zero beating” anyway?

This is when you have set your XMIT frequency to be EXACTLY where the DX station is LISTENING. This could be on his same frequency if he is operating in the TRANSCEIVE mode or maybe “UP 5” as we have discussed before.

You need to learn to Zero beat and to do it as quickly as possible when chasing DX stations on CW.

Why? Because many DX stations are using narrow CW filters like 250 Hz and if you are 350 to 400 Hz away you are probably not going to be heard. So, if you hear a DX station working another station, zero beat the station he is working, NOT the DX station. Why? Because that is where the DX is listening!



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## How to Zero Beat a CW frequency

**Example:** You come across 5L2A working W9UR in Illinois TRANSCEIVE on 14010 kHz. You check your DX assigned country prefix list and it doesn't list a 5L2 in it. So you then check the ITU listings and find that 5LA-5MZ are prefixes assigned to Liberia. You need Liberia.

While simultaneously swinging your beam around to about 90° you immediately turn OFF your VOX and send a string of dits and dahs to set your keyer speed to MATCH 5L2A's SENDING speed.

Next, make sure your RIT (Receiver Incremental Tuning) is turned OFF (as it always should be when you are tuning) and touch your paddle to send a string of "dits" that are again heard only in your monitor and don't go out over the air.

Move the transceiver dial until W9UR's signal is identical in tone to the tone of the dits in your monitor, then turn ON the RIT. Carefully retune the 5L2A's signal by adjusting the RIT control until he is back to where you first heard him. Your CW signal is now zero beat with W9UR's, so you that you will XMIT on the same frequency where, after all, you know that the 5L2A station is listening.



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# **The DX LID's rules, adages, quotes, proverbs, words and actions to live by:**

- 1. Why work DX with 100 watts when you can work him with a couple of kilowatts?**
- 2. Life is too short for QRP!**
- 3. DX is ONLY for the deserving....**
- 4. All is fair in love, war and DXing.**
- 5. QRO – It's the ONLY way to go!**
- 6. You can never work the same DX station too many times!**
- 7. If I can't work him, I'll QRM him!**
- 8. Make sure you always have an "insurance contact" (see rule # 6).**
- 9. If the DX is really busy working a pileup, and you already have him worked, make sure you break the pileup and ask him "do you have me in the log from our QSO this morning OM?" (See rules # 6 & # 8).**
- 10. Always tune up on the DX's frequency (See rule # 7). If asked to QSY only go 300 Hz up or down.**
- 11. Once you've worked the DX, become a 'DX Cop' right on top of his calling frequency so you can yell to everyone else "He's listening Up!", "Wrong VFO!", "Where'd he go?" etc...**
- 12. Never announce on the DX Cluster the rare DX you just worked..**  
***Someone else might get to work him!***



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# **The DX LID's rules, adages, quotes, proverbs, words and actions to live by:**

**13. To improve your image, work imaginary DX stations.. “Yes, he was weak.. but a new one for me”**

**14. Never wait for an answer to ”Is anybody using this frequency?” before calling “CQ DX”.**

**15. When you have raised an exotic DX (and you know half of the continent is listening in), sign with him, and call QRZ DX without bothering about the others. Never give away “your” frequency. It’s yours.**

**16. Always run your microphone gain as high as you can when calling “CQ DX”. This will give you “elbow room” on the frequency. Once someone comes back to you, don’t forget to turn it down so they can understand you!**

**17. Own a frequency in the “DX Window”. This is reserved for the privileged few. Never call “CQ” there without getting an answer, even if you have to go back in your log a few pages (see rule # 13).**

**18. Remember, the DX station is ALWAYS “5 by 9”, even if you have to have him “count out” his report to you numerous times.**



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# **The DX LID's rules, adages, quotes, proverbs, words and actions to live by:**

**19. Once you have raised the rare DX station (and you know that the entire country is waiting on frequency to work him), implore the rare DX to listen while you check out your other six antenna arrays to see if any of them are stronger to his QTH. If the strength on one antenna is close to another antenna, switch back and forth a number of times to make sure. “OK.. Antenna one was 20 dB over 9, and now antenna five was 21 dB over 9 – repeat... Antenna number one... Antenna number five”.... etc.**

**20. After you have worked a particular DX station an innumerable amount of times and you hear him trying to work through a “pileup”, make sure you call him to let him know that you are hearing him.. It really makes their day! “Hi Igor.. we worked each other on Monday and Tuesday and (ad nauseum), but I thought I'd break in to let you know that you are 5 by 9 here in (your QTH goes here). Sounds like you got a pretty good pileup going here... so I'll let you go so you can work them now”...**

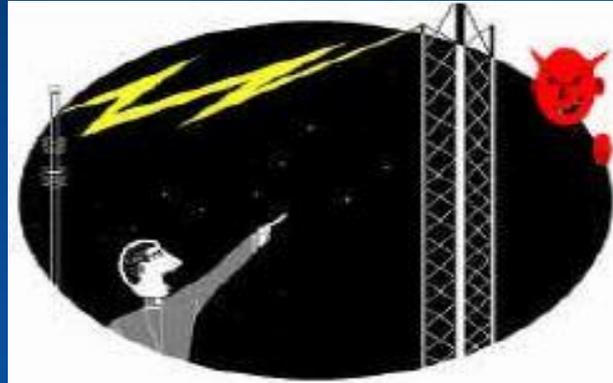


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# **“May the Flux be With You”**

**GUD LUCK ES GUD DX 73 DE JACK WMØG .. a.k.a. “The DXorcist” –  
*Just my presence on the frequency makes DX disappear!***



**Info from:**

- 1. The ARRL Operating Manual, Fifth Edition, ARRL, Chapter 5**
- 2. Amateur Radio Operating Manual, Third Edition, RSGB, Chapter 4**
- 3. Antennas and Techniques for Low Band DXing, Second Edition, by ON4UN, Chapter 2**



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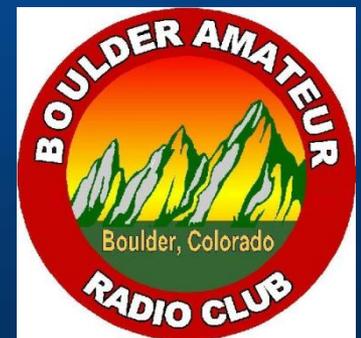
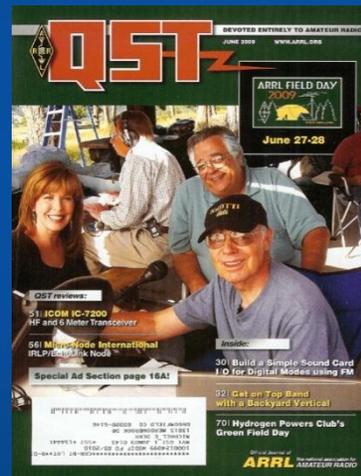
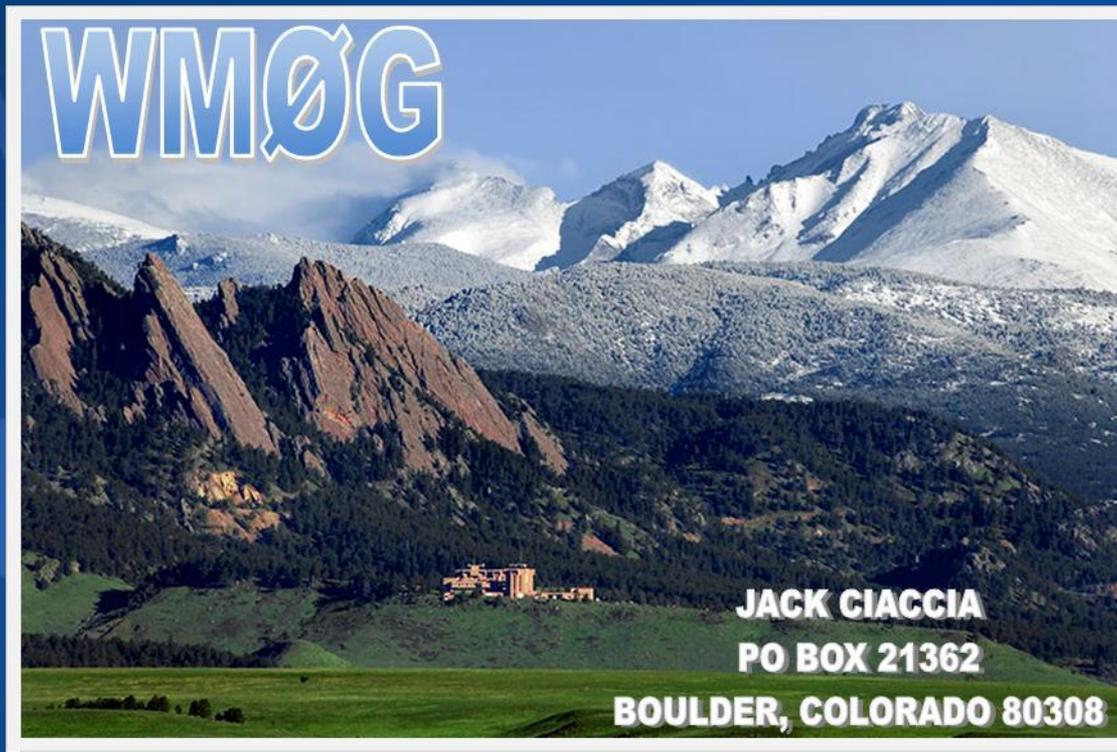
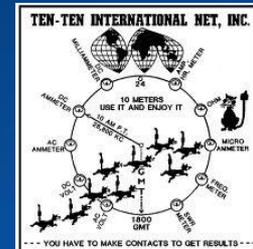
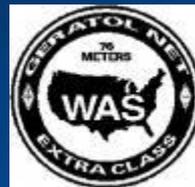
***Any Questions?***



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