How to be heard by the ISS via APRS using the Kenwood TM-D710A

By Ned Linch – N4LS

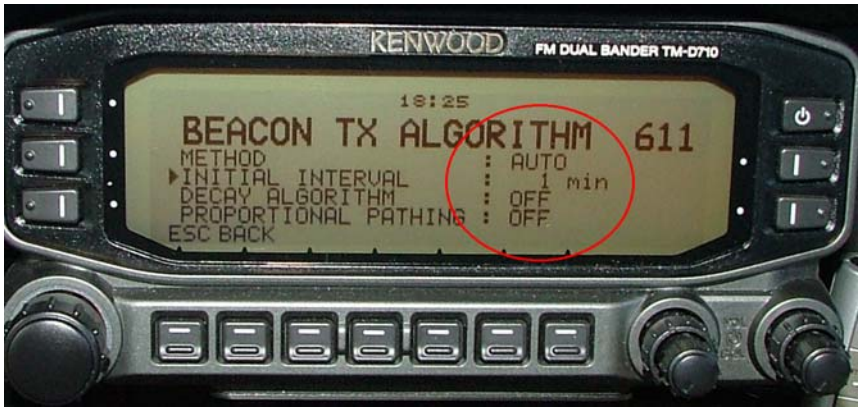
Being heard by the ISS (International Space Station) via APRS (Automatic Position Reporting System) is actually very simple with the new Kenwood TM-D710A. The Kenwood manual is not clear on exactly how to communicate with (digipeat via) the ISS via APRS so the purpose of this short article is to explain how I setup my radio to be heard by the ISS and displayed on the "Amateur Radio Stations heard via the ISS" website (www.ariss.net).

My Kenwood TM-D710A is installed next to my Kenwood TS480SAT in a Toyota FJ Cruiser and my antenna for the 710A is a basic Larsen 2m/440 three foot whip installed on a Diamond K400 mount.

Steps to being heard by the ISS:

1. First, insure you have a valid position data….either a valid GPS signal input to your radio or fixed coordinates (Lat/Long) for your position stored in menu 605 (My Position).
2. Go to Menu 608 (Status Text) and input some text here. I put the address to my ham radio website. Some folks put their name and QTH. Set the "Tx rate" to 1/4.

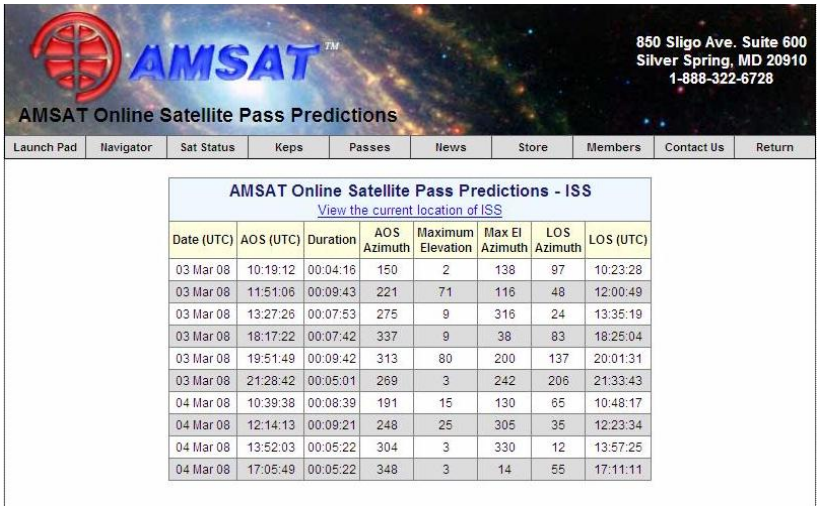
3. Menu 611 (Beacon Tx Algorithm). Bob Bruninga's recommendation is to set the Method to "Auto", the Initial Interval to "1 min", the Decay Algorithm and Proportional Pathing both to "OFF".



4. Menu 612 (Packet Path). The "Type" should be "Others" and the path should be "ARISS".

5. Insure you have the "Beacon" ON (BCON will be displayed on the screen).
6. Monitor 145.825 (on the left side of the radio)

7. Check the AMSAT website for information on the location of the ISS so you know when to anticipate being heard by the ISS. http://www.amsat.org/amsat-new/tools/predict/



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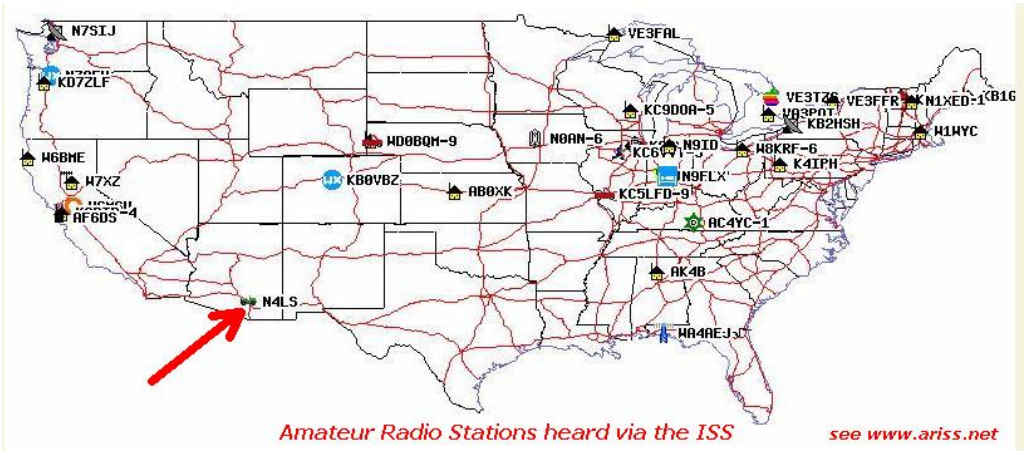
AMSAT Online Satellite Pass Predictions - ISS

View the current location of ISS

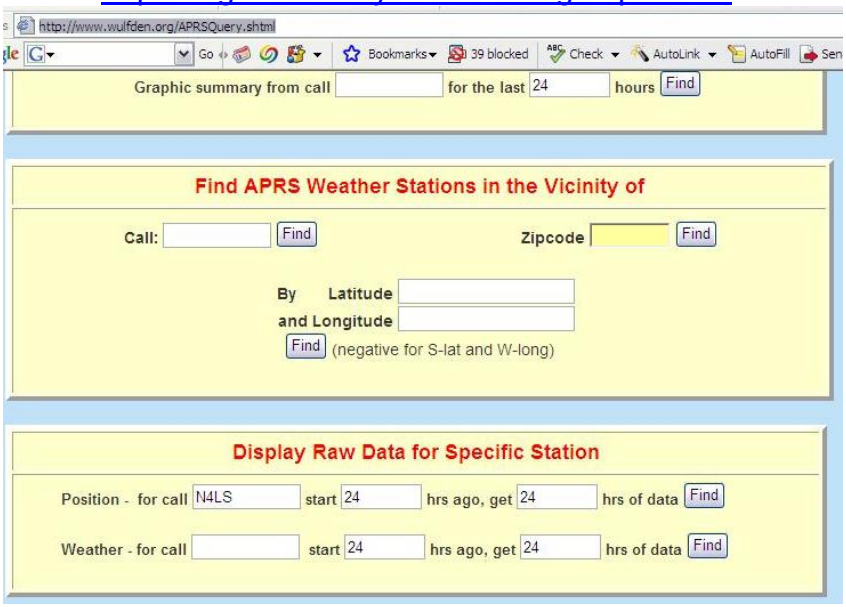
Date (UTC)	AOS (UTC)	Duration	AOS Azimuth	Maximum Elevation	Max El Azimuth	LOS Azimuth	LOS (UTC)
03 Mar 08	10:19:12	00:04:16	150	2	138	97	10:23:28
03 Mar 08	11:51:06	00:09:43	221	71	116	48	12:00:49
03 Mar 08	13:27:26	00:07:53	275	9	316	24	13:35:19
03 Mar 08	18:17:22	00:07:42	337	9	38	83	18:25:04
03 Mar 08	19:51:49	00:09:42	313	80	200	137	20:01:31
03 Mar 08	21:28:42	00:05:01	269	3	242	206	21:33:43
04 Mar 08	10:39:38	00:08:39	191	15	130	65	10:48:17
04 Mar 08	12:14:13	00:09:21	248	25	305	35	12:23:34
04 Mar 08	13:52:03	00:05:22	304	3	330	12	13:57:25
04 Mar 08	17:05:49	00:05:22	348	3	14	55	17:11:11

8. Monitor, be patient and then magically when the ISS and you are in the right place at the right time, your radio will automatically digipeat with the ISS via APRS. At some point as you're driving around town, your radio will start beeping and you'll start to see your radio displaying call signs and messages. You can manually hit the Beacon button to increase your chances of your information being relayed by the ISS. The key is for the ISS to relay your data and then be picked up by a ground station connected to the internet.

9. Once you're information is relayed (digipeat) via the ISS, visit www.ariss.net and see if your call sign is depicted on the map. If not, then recheck everything again and continue monitoring 145.825. At some point, you'll get lucky and your signal will be relayed by the ISS and then received by a ground station connected to the internet.



10. There are several other website available to view the APRS data heard by the ISS. I like N1BQ's website at http://www.wulfden.org/APRSQuery.shtml. His website allows you to access APRS data in several different ways including raw APRS data which has all the details regarding your relay from the ISS. You can find a variety of other useful APRS websites by utilizing Google to search including Bob Bruninga's APRS website at http://eng.usna.navy.mil/~bruninga/aprs.html.



N1BQ's APRS website

20080226142637,N4LS>SR2TRR,RS0ISS-4*,qAo,W6MSU:"X*l j/]www.N4LS.com=
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20080226142834,N4LS>SR2TRR,RS0ISS-4*,qAO,KC9XG-2:"X*l j/]=

RAW APRS data

11. I'd like to thank Walter (K5WH) for the many emails he sent me in order to get my radio set correctly. I also had assistance from Bob Bruninga, WB4APR, the father of APRS. He insured my words were technically correct.

Good luck with your Kenwood radio and 73, Ned N4LS (www.N4LS.com)