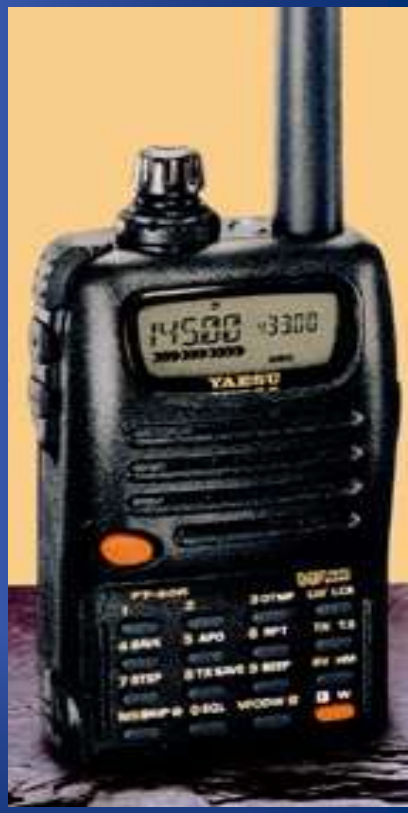
The Art of Operating Amateur Satellites With an HT

W2JV AMSAT Ambassador & Congressional Liaison

W2JV@AMSAT.ORG



star trek cut.mp4

Peter Portanova to the general public

KEEPING AMATEUR RADIO IN SPACE

PLEASE CONSIDER JOINING

AMSAT

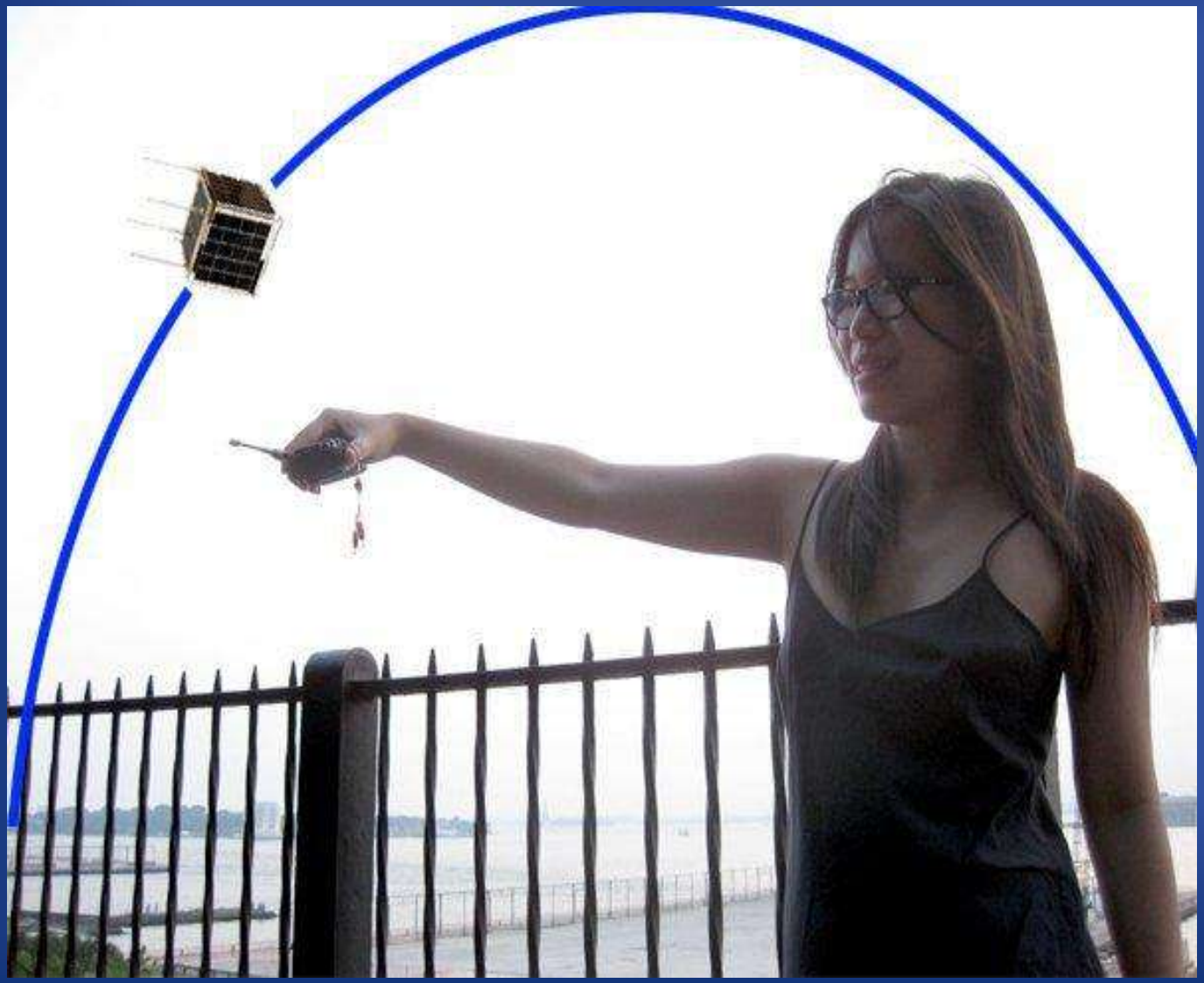
Support us with amazonsmile
You shop. Amazon gives.

Radio Amateur Satellite Corp.

Formed 1969 -501 C-3 Charity
ALL Volunteer's
Hardware/Software development
Arrange launch opportunities-ELENA

WWW.AMSAT.ORG

KISS METHOD OF SATELLITE OPS

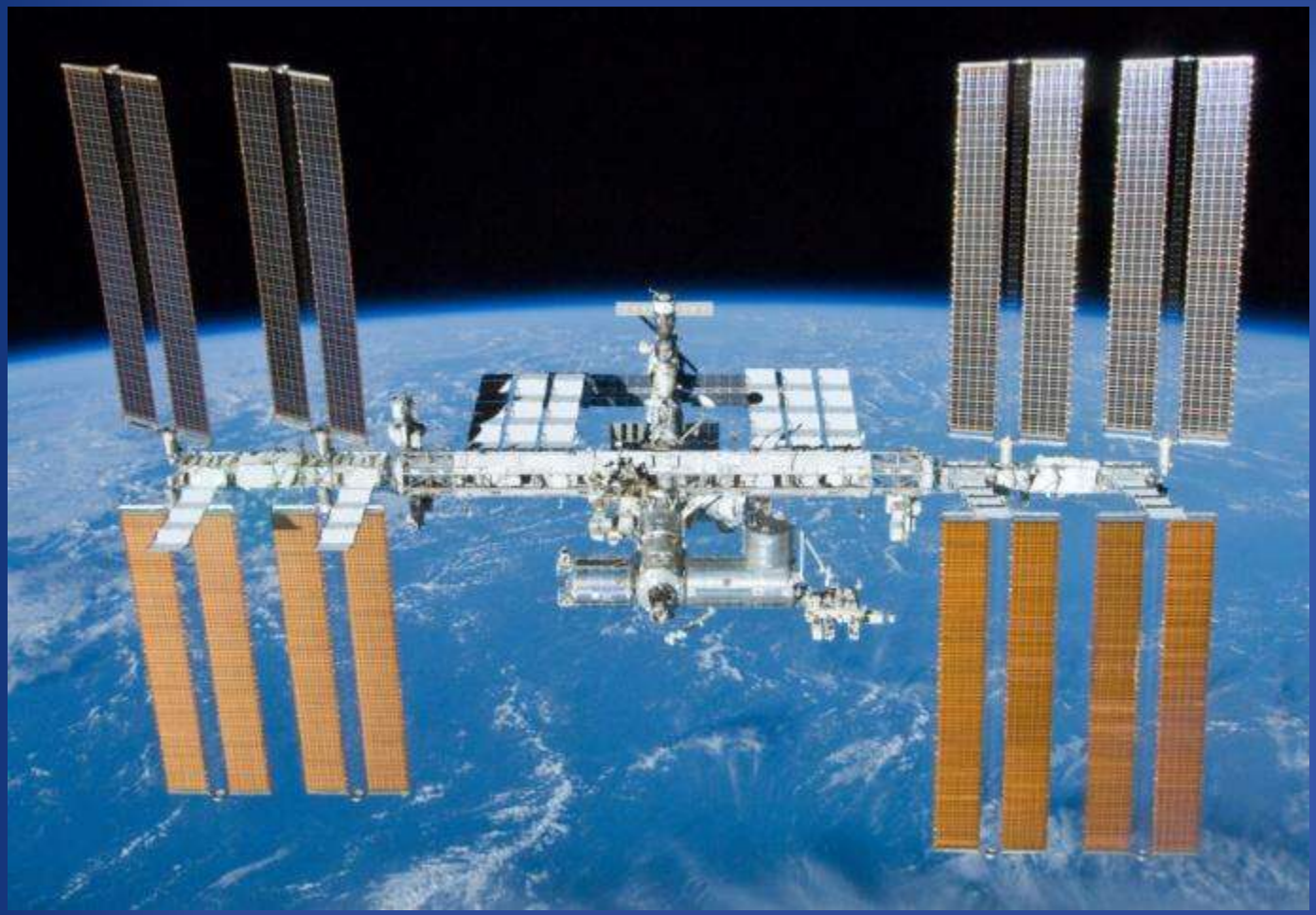


ao27.whip.10.mp4

What Is An FM Satellite?

Single-channel; only one person can talk at a time
FM Capture- loudest signal is what's heard
Acts like an orbiting repeater
Satellites: AO-91, AO-92, AO-27, SO-50, ISS CBR

ISS Largest Satellite in Space

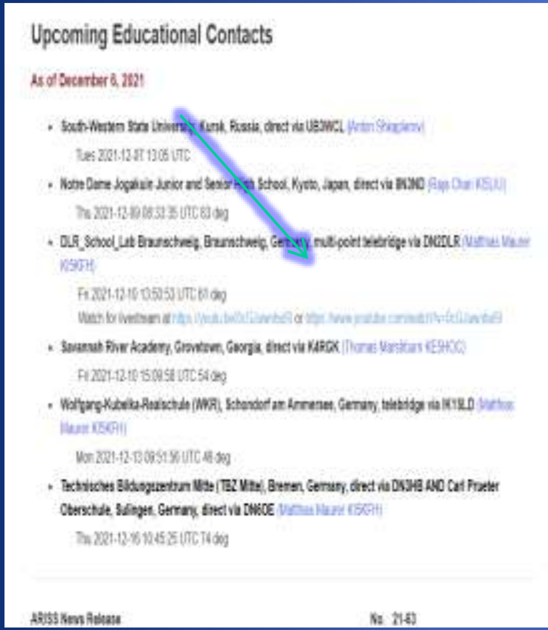


https://www.ariss.org/current-status-of-iss-stations.html

ARISS

Amateur Radio on the International Space Station

School Contacts



Upcoming Educational Contacts

As of December 6, 2021

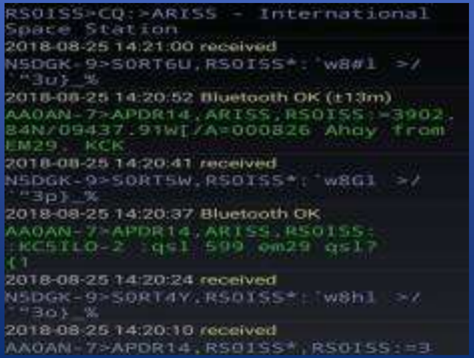
- South-Western State University, Kursk, Russia, direct via UB3WCL
  Tues 2021-12-07 13:05 UTC
- Notre Dame Jogakuin Junior and Senior High School, Kyoto, Japan, direct via 8N3ND
  Thu 2021-12-09 08:32:35 UTC 83 deg
- DLR_School_Lab Braunschweig, Braunschweig, Germany, multi-point telebridge via DN2DLR
  Fri 2021-12-10 13:50:53 UTC 61 deg
  Watch for livestream at
- Savannah River Academy, Grovetown, Georgia, direct via K4RGK
  Fri 2021-12-10 15:09:58 UTC 54 deg
- Wolfgang-Kubelka-Realschule (WKR), Schondorf am Ammersee, Germany, telebridge via IK1SLD
  Mon 2021-12-13 09:51:56 UTC 46 deg
- Technisches Bildungszentrum Mitte (TBZ Mitte), Bremen, Germany, direct via DN3HB AND Carl Prueter Oberschule, Sulingen, Germany, direct via DN6OE
  Thu 2021-12-16 10:45:25 UTC 74 deg

ARISS News Release No. 21-63

ISS CBR

SSTV

ISS Digipeater



```
RS0ISS>CQ:>ARISS - International
Space Station
2018-08-25 14:21:00 received
N5DGK-9>S0RT6U,RS0ISS*:`w8#l >/
`"3u}_%
2018-08-25 14:20:52 Bluetooth OK (±13m)
AA0AN-7>APDR14,ARISS,RS0ISS:=3902.
84N/09437.91W[/A=000826 Ahoy from
EM29. KCK
2018-08-25 14:20:41 received
N5DGK-9>S0RT5W,RS0ISS*:`w8Gl >/
`"3p}_%
2018-08-25 14:20:37 Bluetooth OK
AA0AN-7>APDR14,ARISS,RS0ISS:
:KC5ILO-2 :qsl 599 em29 qsl?
{1
2018-08-25 14:20:24 received
N5DGK-9>S0RT4Y,RS0ISS*:`w8hl >/
`"3o}_%
2018-08-25 14:20:10 received
AA0AN-7>APDR14,RS0ISS*,RS0ISS:=3
```

Current Status of ISS Stations

•*as of December 29, 2021*

Columbus Module radio's: IORS (Kenwood D710GA) – STATUS - Configured. Current mode set to packet operation (145.825 MHz up & down). Next mode change to support cross band repeater (145.990 MHz up {PL 67} & 437.800 MHz down) targeting Jan 4.

https://www.ariss.org/current-status-of-iss-stations.html

What is needed to get started with the FM satellites?

Technician license

Amsat.org

AMSAT Online Satellite Pass Predictions - SO-50

View the current location of SO-50

Date (UTC)	AOS (UTC)	Duration	AOS Azimuth	Maximum Elevation	Max El Azimuth	LOS Azimuth	LOS (UTC)
05 Jan 18	14:40:31	00:13:31	216	72	284	32	14:54:02
05 Jan 18	16:23:01	00:11:01	269	12	328	19	16:34:02
05 Jan 18	18:08:34	00:05:50	324	2	350	15	18:14:24
05 Jan 18	19:51:39	00:06:26	347	3	13	44	19:58:05
05 Jan 18	21:31:34	00:11:57	340	15	38	98	21:43:31
05 Jan 18	23:11:37	00:13:59	327	88	212	149	23:25:36
06 Jan 18	00:53:11	00:10:22	302	9	262	205	01:03:33
06 Jan 18	13:25:55	00:12:42	185	28	131	43	13:38:37
06 Jan 18	15:06:09	00:13:01	238	31	324	26	15:19:10
06 Jan 18	16:50:07	00:08:41	292	6	333	13	16:58:48
06 Jan 18	18:35:46	00:04:24	342	1	354	20	18:40:10
06 Jan 18	20:16:45	00:08:51	345	6	26	66	20:25:36
06 Jan 18	21:58:34	00:13:21	335	28	59	120	22:09:55
06 Jan 18	23:36:58	00:13:32	319	36	235	171	23:50:30
07 Jan 18	01:21:23	00:02:59	273	1	260	248	01:24:22
07 Jan 18	12:13:17	00:08:50	147	7	106	63	12:22:07
07 Jan 18	13:50:35	00:13:29	207	75	146	35	14:04:04
07 Jan 18	15:32:26	00:11:46	259	16	318	21	15:44:12
07 Jan 18	17:17:37	00:06:29	315	3	341	13	17:24:06
07 Jan 18	19:04:42	00:05:23	347	2	13	34	19:07:05

SMILEY 2/220/440

Dual-band, HT

AMSAT SEARCH

Search ...

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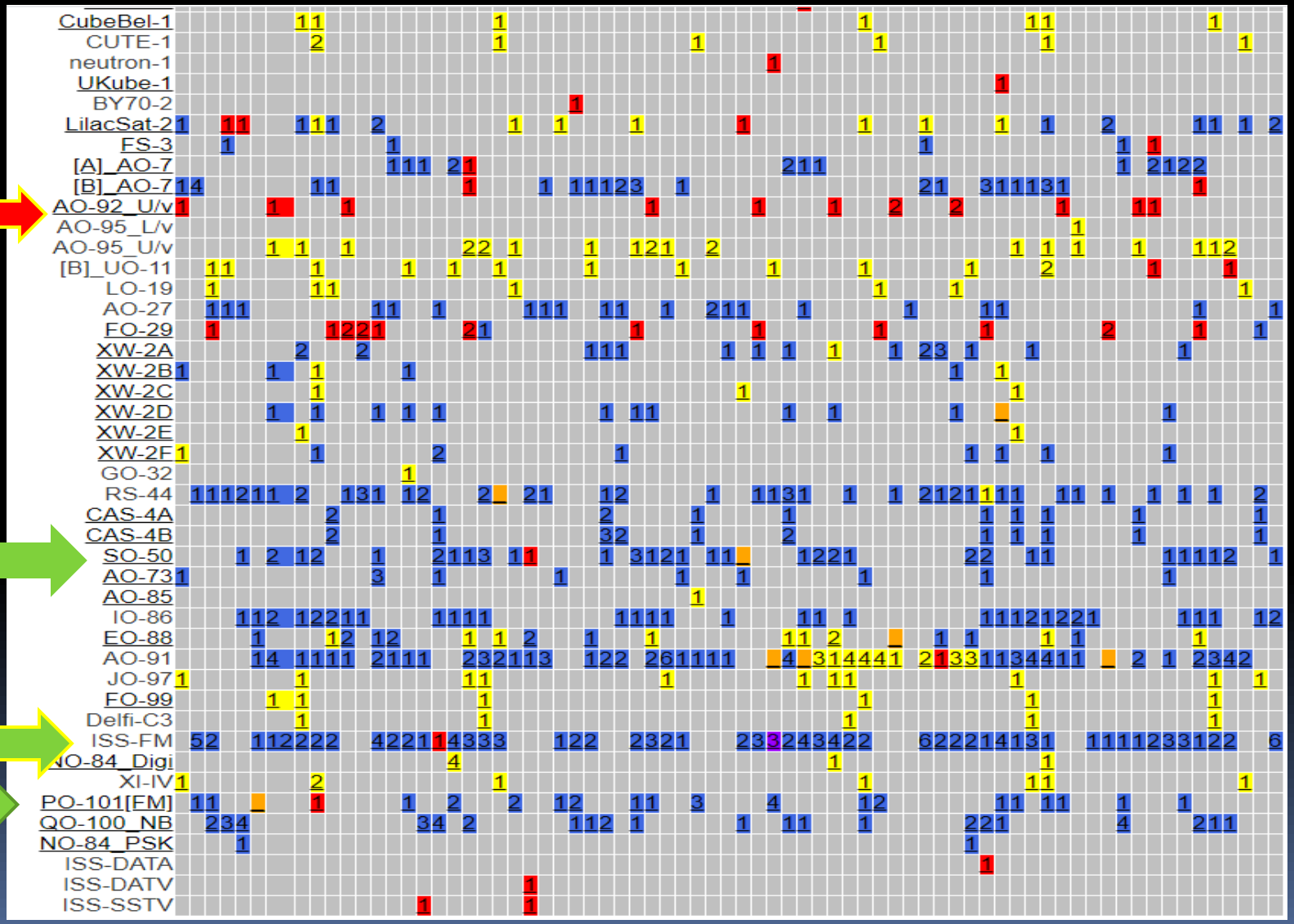
Help Keep Amateur Radio in Space – Join the AMSAT President's Club today!

The AMSAT Journal

Join or Renew Today

AMSAT & You
Online Member Management Portal

SATELLITE STATUS



Radio Programming -ISS CBR

CH #	NAME	TX FREQ	CTCSS (TX)	RX FREQ
101	ISS- CBR	145.990	67.0	437.815
102	ISS-CBR	145.990	67.0	437.810
103	ISS-CBR	145.990	67.0	437.805
104	ISS-CBR	145.990	67.0	437.800
105	ISS-CBR	145.990	67.0	437.795
106	ISS-CBR	145.990	67.0	437.790
107	ISS-CBR	145.990	67.0	437.785

ADJUSTING FOR DOPPLER

Radio Programming

CH #	NAME	TX FREQ	CTCSS (TX)	RX FREQ
101	SO-50 ON	145.850	74.4	436.810
102	SO-50- 1	145.850	67.0	436.810
103	SO-50- 2	145.850	67.0	436.805
104	SO-50- 3	145.850	67.0	436.800
105	SO-50- 4	145.850	67.0	436.795
106	SO-50- 5	145.850	67.0	436.790
107	SO-50- 6	145.850	67.0	436.785

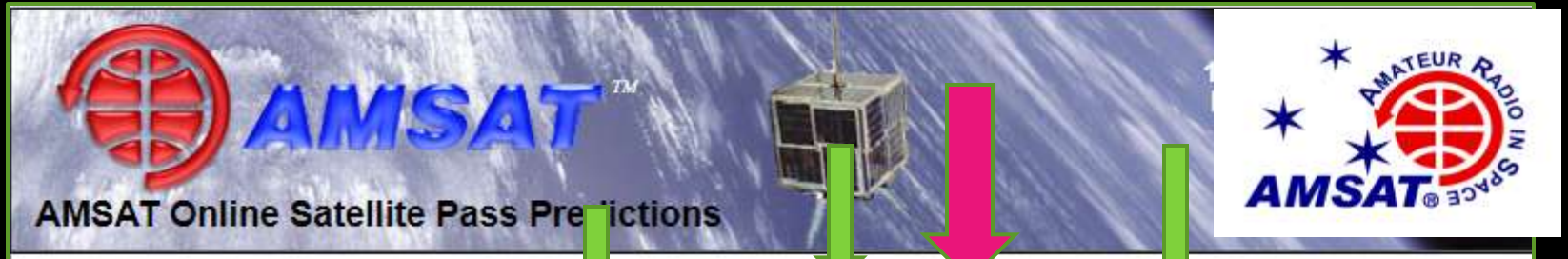
ADJUSTING FOR DOPPLER

Pass Prediction- ISS-CBR

Show Predictions for: ISS *for Next* 10 *Passes*	
Calculate Latitude and Longitude from Gridsquare:	Calculate Position
Or	
Enter Decimal Latitude:	40.8959 North
Enter Decimal Longitude:	73.2916 West
Elevation in meters AMSL:	0
Predict	
Save my location for later use	

https://levinecentral.com/ham/grid_square.php

Pass Results



AMSAT Online Satellite Pass Predictions - ISS

View the current location of ISS

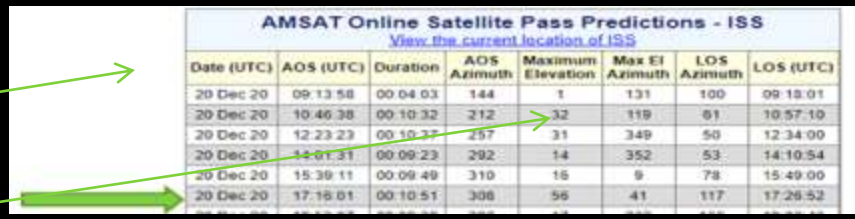
Date (UTC)	AOS (UTC)	Duration	AOS Azimuth	Maximum Elevation	Max El Azimuth	LOS Azimuth	LOS (UTC)
20 Dec 20	09:13:58	00:04:03	144	1	131	100	09:18:01
20 Dec 20	10:46:38	00:10:32	212	32	119	61	10:57:10
20 Dec 20	12:23:23	00:10:37	257	31	349	50	12:34:00
20 Dec 20	14:01:31	00:09:23	292	14	352	53	14:10:54
20 Dec 20	15:39:11	00:09:49	310	16	9	78	15:49:00
20 Dec 20	17:16:01	00:10:51	308	56	41	117	17:26:52
20 Dec 20	18:53:07	00:09:39	292	17	232	166	19:02:46
21 Dec 20	09:59:24	00:09:56	199	20	140	66	10:09:20
21 Dec 20	11:35:31	00:10:51	246	47	340	51	11:46:22
21 Dec 20	13:13:29	00:09:43	285	16	345	51	13:23:12
21 Dec 20	14:51:24	00:09:34	307	14	7	70	15:00:58
21 Dec 20	16:28:21	00:10:41	310	35	43	106	16:39:02
21 Dec 20	18:05:14	00:10:15	297	27	243	153	18:15:29
22 Dec 20	09:12:25	00:08:55	184	12	124	73	09:21:20
22 Dec 20	10:47:46	00:10:55	235	79	320	54	10:58:41
22 Dec 20	12:25:26	00:10:01	276	19	335	50	12:35:27
22 Dec 20	14:03:31	00:09:24	303	13	4	63	14:12:55
22 Dec 20	15:40:41	00:10:20	311	25	7	96	15:51:01
22 Dec 20	17:17:27	00:10:46	302	49	209	140	17:28:13
22 Dec 20	18:55:40	00:06:27	273	4	247	199	19:02:07

Pass Track


Heavens-Above
Heavens-Above Education
8,921
Everyone
Contains Ads
You don't have any devices
Add to Wishlist
Install
HEAVENS ABOVE
Heavens-Above Pro
Live sky chart
Nightly Events
ISS
Radio satellites
Search satellites
Nightly Events
Mo 2020-07-06
Sunset 21:16:06
STARLINK-32 21:54:28
Cosmos 1758 Rocket 21:54:51
Cosmos 1455 21:55:26
STARLINK-40 21:56:05
Twilight ends 21:56:37
STARLINK-1142 21:57:41
STARLINK-44 21:57:43
ISS
SKY CHART
ORBIT
INFO
Time Elev. Azimuth
Display 02:35:06 10° SW, 236°
Exits shadow 02:37:47 52° SSW, 212°
Max elev. 02:38:25 68° SSE, 153°
Below 10° 02:41:46 10° ENE, 70°
Inclination

CHECKLIST for a Successful ISS-CBR Pass

- Go to WWW.AMSAT.ORG
- BE EARLY
- Show predictions for ISS
- "Passes" - 50 degrees minimum
- Doppler Shift Freq. Programmed
- Squelch Open
- WATCH- UTC Time
- COMPASS/phone- to trace pass-landmarks
- Grid Square- Yours- FN30?
- Voice Recorder



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)
20 Dec 20	09:13:58	00:04:03	144	1	131	100	09:18:01
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20 Dec 20	12:23:23	00:10:37	257	31	349	50	12:34:00
20 Dec 20	14:01:31	00:09:23	292	14	352	53	14:10:54
20 Dec 20	15:39:11	00:09:49	310	16	9	78	15:49:00
20 Dec 20	17:16:01	00:10:51	308	56	41	117	17:26:52

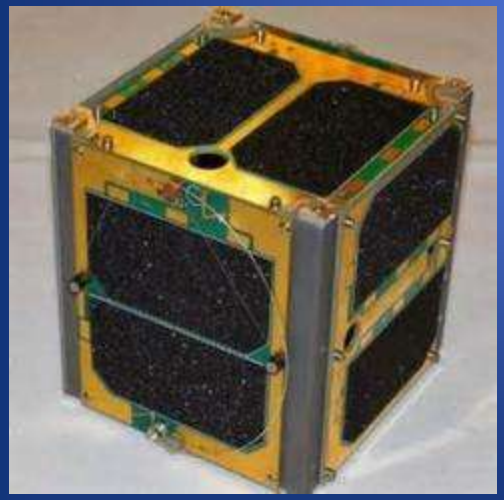
CH #	NAME	TX FREQ	CTCSS (TX)	RX FREQ
101	ISS- CBR	145.990	67.0	437.815

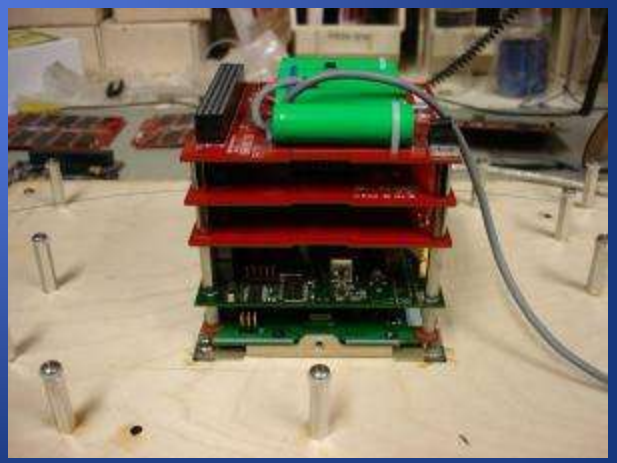
The Art Of Making Contacts

- Make sure you can hear other stations
- LISTEN-LISTEN-LISTEN
- Adjust antenna for best signal- YAGI WRIST
- Change frequency when signal is not clear
- Try not to call early in pass- elevation too low
- Wait for pause in the activity
- Give you call sign once- Listen
- Or Call a specific station, DO NOT CALL CQ!
- Know your Grid Square
- Repeat the process as the satellite moves
- You can schedule a contact with another

SATELLITE ETIQUETTE

WAIT FOR ACTIVITY BEFORE YOU TX
DON'T CALL CQ
DON'T CALL OVER SOMEONE





MAKING CONTACTS


A0.51.TRIM.mp4

Roll Video #1

Satellite Resources

AMSAT.ORG

http://www.k6lcs.com/Home.html

http://www.amsat.org/mailman/listinfo/amsat-bb

https://ke0pbr.wordpress.com/

https://www.pe0sat.vgnet.nl/satellite/amateur-radio-satellites/

https://levinecentral.com/ham/grid_square.php

PROGRESSION

Kenwood TH-D72
Full duplex

Yaesu FT-60R

BAOFENG/TWO PACK

ONE DUAL BAND HT/ FM SIMPLEX- yagi antenna

TWO HT'S/DUPLEX/ FM-SO-50- I HEAR MY DOWNLINK!

ALL MODE VHF/UHF/SSB 2 RADIOS- AO-7-FO-29-AO-73

ALL MODE VHF/UHF- BASE STATION- AZ-EL ANTENNAS

Satellite Tracking Software

I-Phone- GoSatWatch- App- store

Droid- AMSAT droid free

Web- Orbitron.com

Heaven's Above.com

N2YO.com

_____PROGRESSION-_____

SatPC32- Radio/Antenna control. AMSAT.ORG

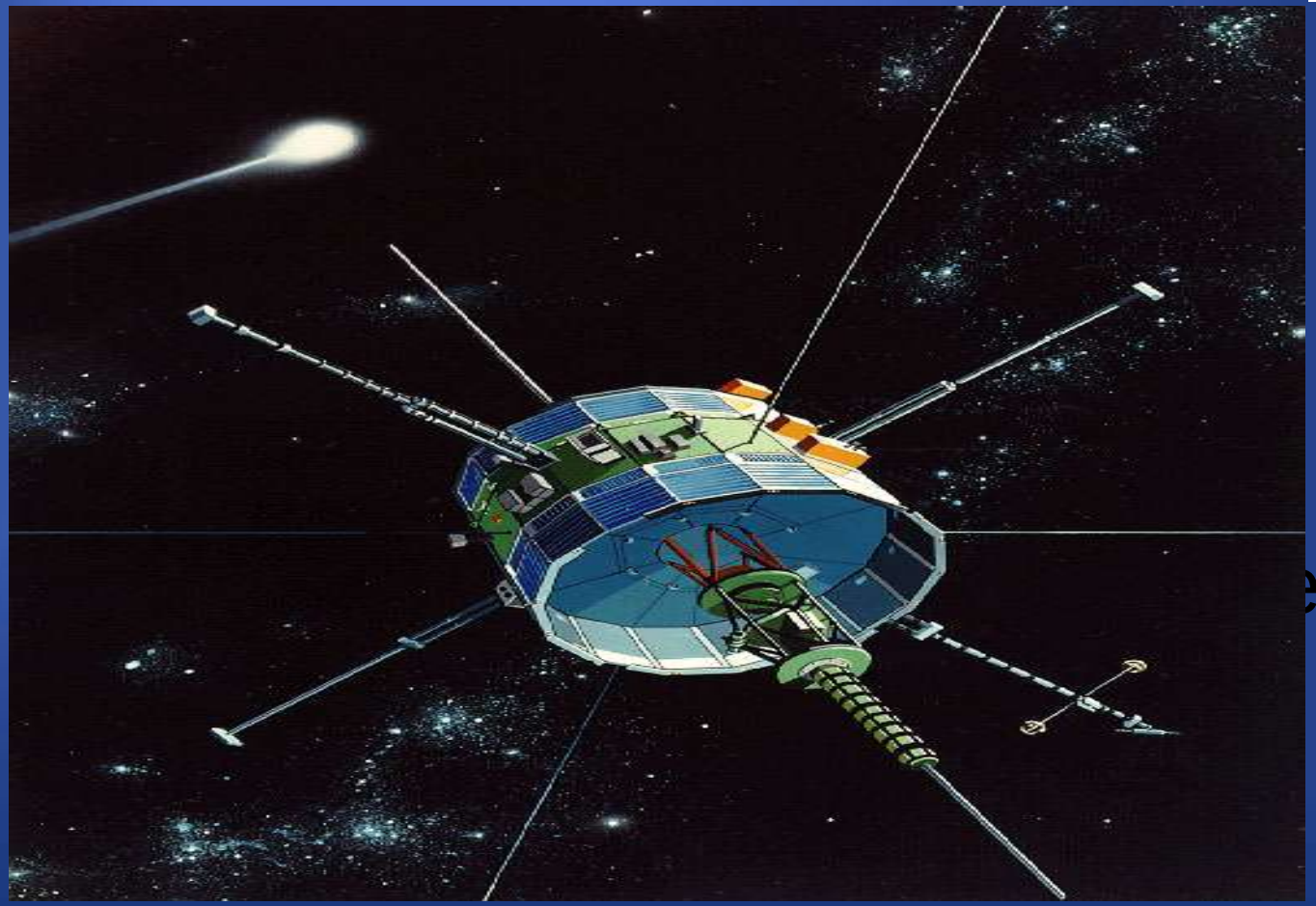
SAT- Self contAined Antenna Tracker-igatemini.com/sat

EMCOM

VO-52

The Amateur Radio Emergency Service (ARES)
Providing Auxiliary Communications when the Emergency becomes *A DISASTER*.

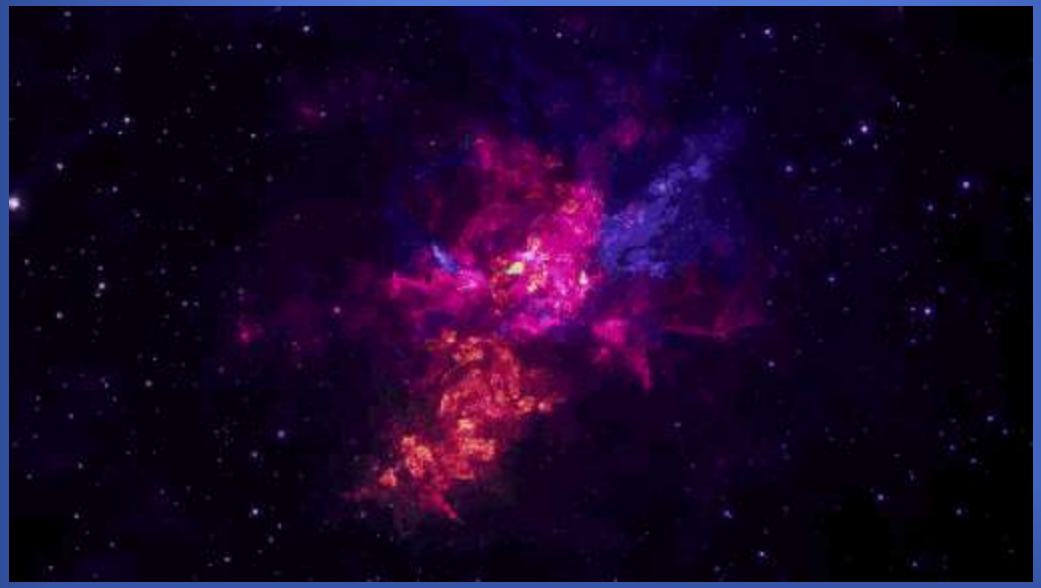
QUESTIONS?

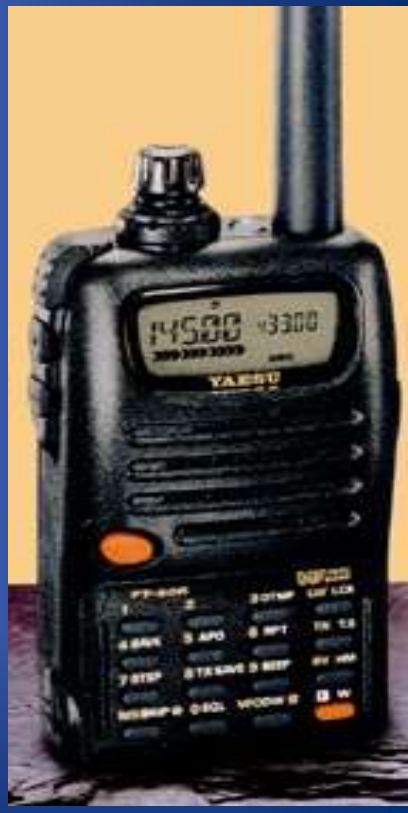


THANK YOU, 73'S W2JV

The Art of Operating Amateur Satellites With an HT

THANK YOU- KEEP LOOKING UP





N2MUN FOREVER REMEMBERED


AMATEUR RADIO IN SPACE
AMSAT®