SARTS-SST Update

2024-02-23 from Hoe Teck 9V1ST

Connecting SARTS, SST and Space Science & Technology

- SST matters because it selects our strongest science/tech oriented students aged 12-16.
- Tan Hoe Teck 9V1ST is Physics teacher.
- Runs Astronomy CCA with 90+ members but optical astronomy is challenging in Singapore.
- So focusing on linking ‘space science’ to the MOE curriculum because space science and technology became a priority.

Two Stories to Share

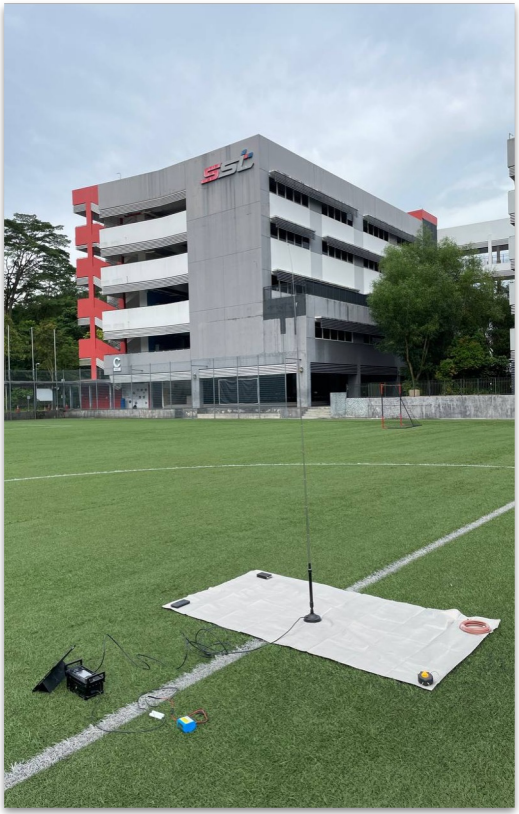
1. **Radio demo for partial eclipse of moon event 28/29 Oct 2023**
2. **Pilot FCC Technician License crash course 1-4 Nov 2023**

Thanks to:

- Darryl 9V1DE
- Chew 9V1YP
- Roland 9V1RT
- Fu Hang 9V1FH
- Haoyuan 9V1HY
- Hugh 9V1SA

Partial Lunar Eclipse Event 28/29 October 2023

Fu Hang 9V1FH explained Dipoles, Verticals and HT’s



IMDA approved but 9V1SST call not possible this time

INFOCOMM MEDIA DEVELOPMENT AUTHORITY

27 October 2023

Mr Mason Hugh Peter
Singapore Amateur Radio Transmitting Society

Dear Mr Mason,

ASTRONOMICAL SCIENCE EVENT 2023

1. We refer to your email dated 23 October 2023.

2. Your request to participate in the Astronomical Science Event at School of Science and Technology invitation, with the following Singapore Amateur Radio Transmitting Society ("**SARTS**")'s members has been approved.

   Date: 28 October to 29 October 2023

   Location: School of Science and Technology
   1 Technology Dr
   Singapore 138572

   SARTS Members and Equipment Involved:

S/N	Name	Licence No	Callsign	Equipment to be Deployed	
				Manufacturer	Model No.
1	Chu HaoYuan	AM114187	9V1HY	Icom	IC-7300
2	Thum Fu Hang	AM114257	9V1FH	Icom	IC-7100 & HD1
3	Mason Hugh Peter	AM114274	9V1SA	-	
4	Darryl Ee	AM113983	9V1DE		
5	-	-	-	Icom	IC-7300

3. IMDA's approval is subject to the following conditions:

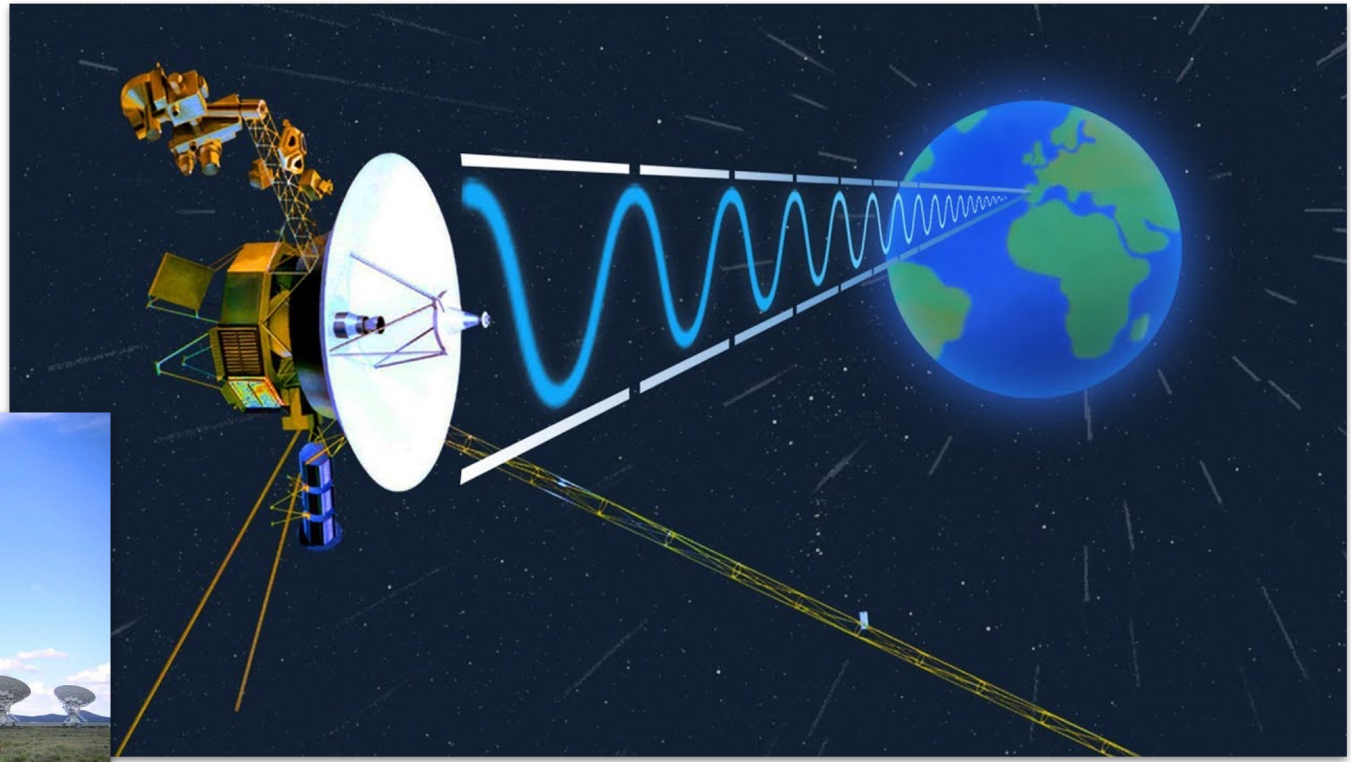
   i) the Amateur Radio Stations shall only be operated by the Amateur Station Licensees of or any other person under the supervision of the licensed operator.

   ii) the operation of the Amateur Radio Stations shall not cause radio interference to other authorized radio services.

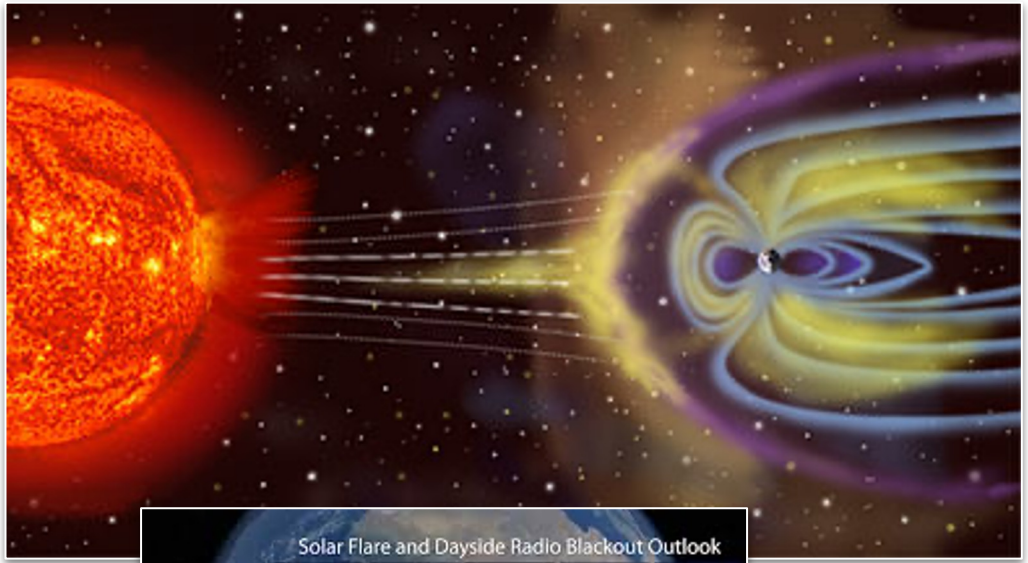
10 Pasir Panjang Road, #03-01 Mapletree Business City, Singapore 117438
T: (65) 6377 3800 F: (65) 6377 3888 www.imda.gov.sg

Meanwhile … How Radio Connects us to the Cosmos

- Voyager 1 story showed the role of radio in space
- Human model to show probe now 5X further than Pluto



Storms in Space: Sunspots, Ionosphere, Aurorae



‘Aurora borealis’ in suburban Malaysia takes locals by surprise

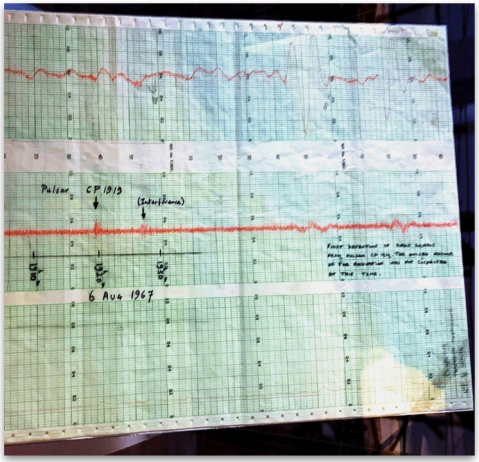
Locals in Sungai Besar, a coastal town in Selangor, first noticed the bright rays at around 8.30pm on Oct 24. PHOTO: MAN TOYA/FACEBOOK

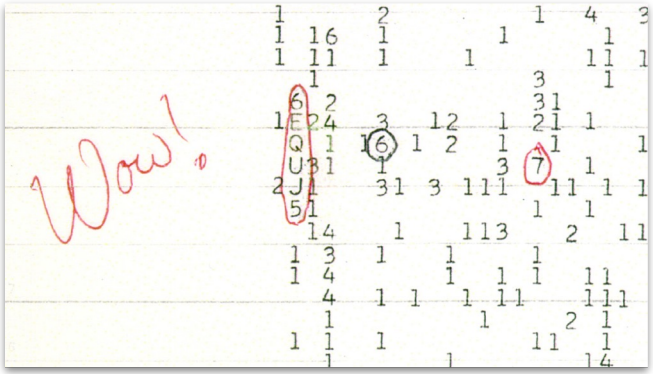
Lok Jian Wen

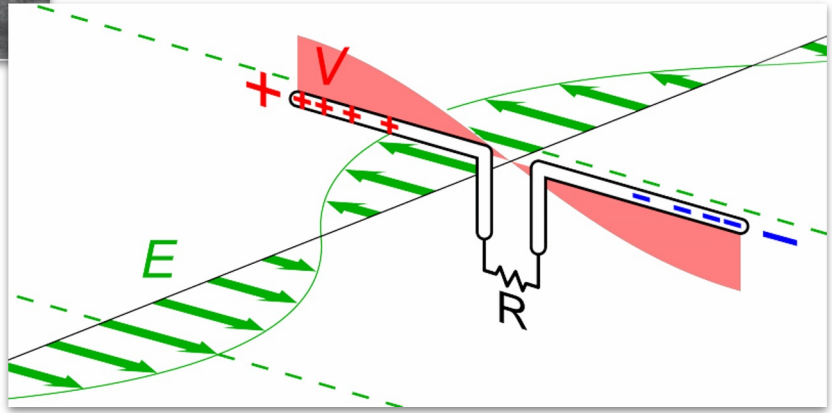
UPDATED 27 OCT 2023, 9:51 PM SGT

Residents of Sungai Besar in Malaysia could be forgiven for thinking they were looking at the northern lights in Scandinavia on Tuesday when the night sky glowed in different shades of green.

Strange Signals: Pulsars, Aliens, Number Stations





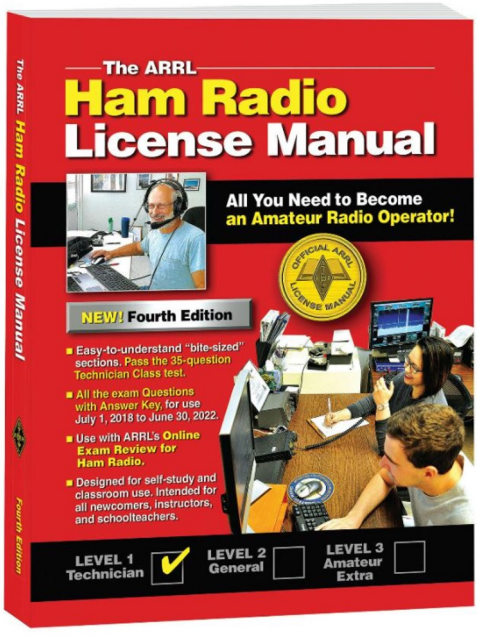


Technician License Crash Course 31Oct - 3 Nov

8 Students aged 12-14 signed up, 6 stuck with the course past day 1
5 passed: KK7PNZ, KK7PRU, KK7PRT, KK7PUU and KK7PSH

We used HamStudy.Org and the ARRL Textbook

HAMSTUDY by SignalStuff



1. Welcome to Amateur Radio
2. Radio and Signals Fundamentals
3. Electricity, Components, and Circuits
4. Propagation, Antennas, and Feed Lines

TUE

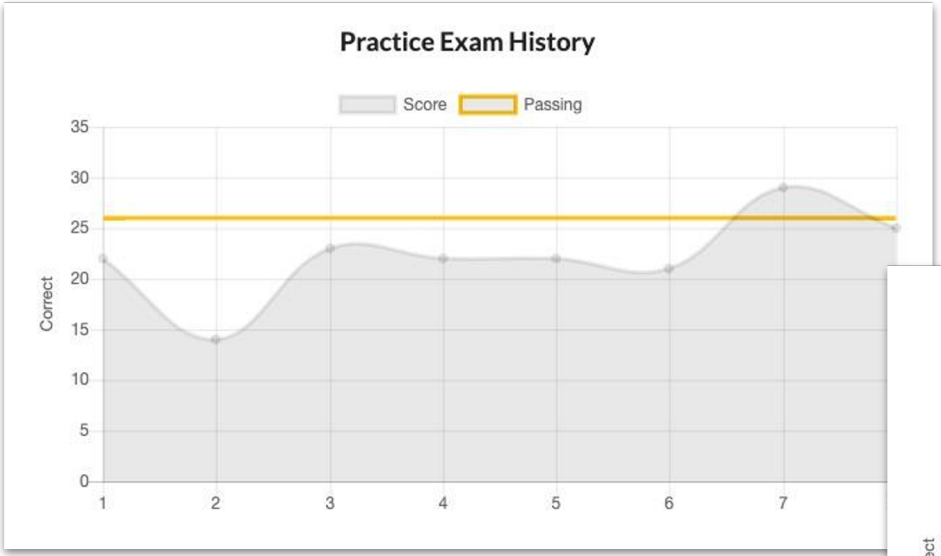
1. Amateur Radio Equipment
2. Communicating With Other Hams

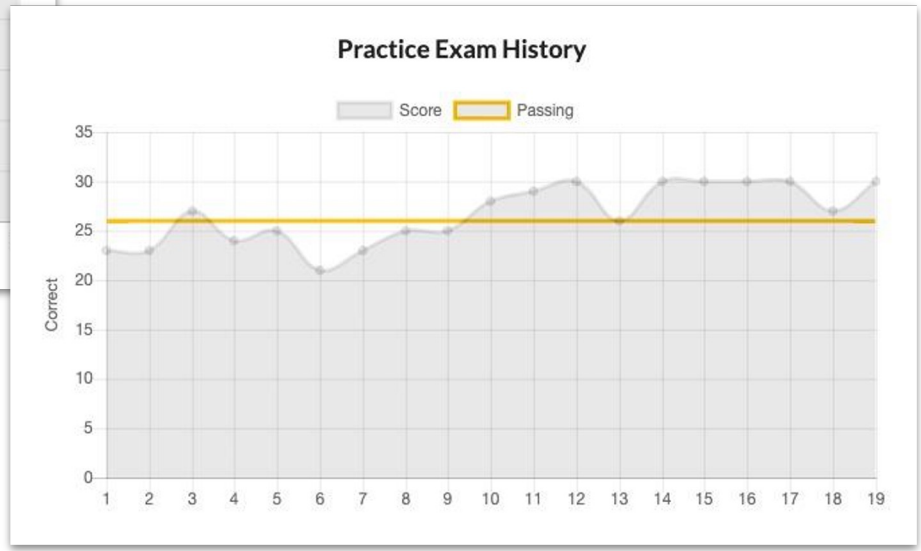
WED

1. Licensing Regulations
2. Operating Regulations
3. Safety

FRI

By end day 2, half students were already passing





Learning from this experiment

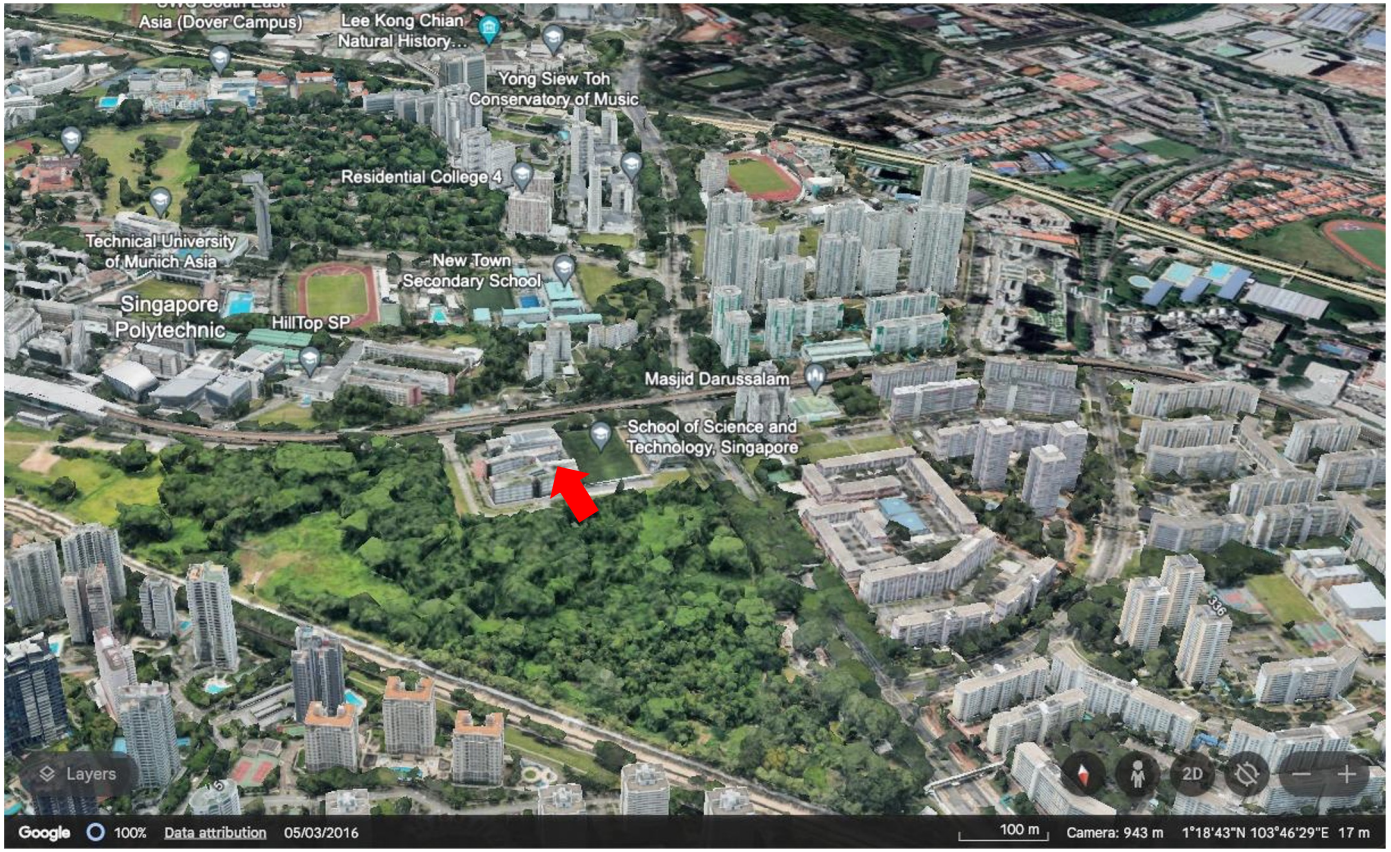
1. Motivated students aged 12-16 can pass with a crash course + practice.
2. Students aged 13+ more likely to keep focus.
3. Most interested in electronics, antennas, ionosphere, DX, space + satellites.
4. Least interested in FCC website sign-up process.
5. Setting up demos takes time but would be worthwhile, especially to cover …
6. Unfamiliar topics like polarization, heterodynes, modulation, SWR.
7. Good to just let them learn through play with equipment.
8. RemoteHamRadio.com offers free unlimited use for FCC licensees <21yo.

Looking Forward … New Radio Room at SST

Could run regular courses + tests locally.

Discussion with IMDA about club station 9V1SST that would allow under 16s to transmit

End 2024: SST may turn out to be a good site for HF



5 mins walk from Dover MRT with EW line tracks running directly by

200m+ from nearby buildings

Most local equipment switched off at night

Future Radio room 5 floors 13m+ above ground. Going through Procurement.

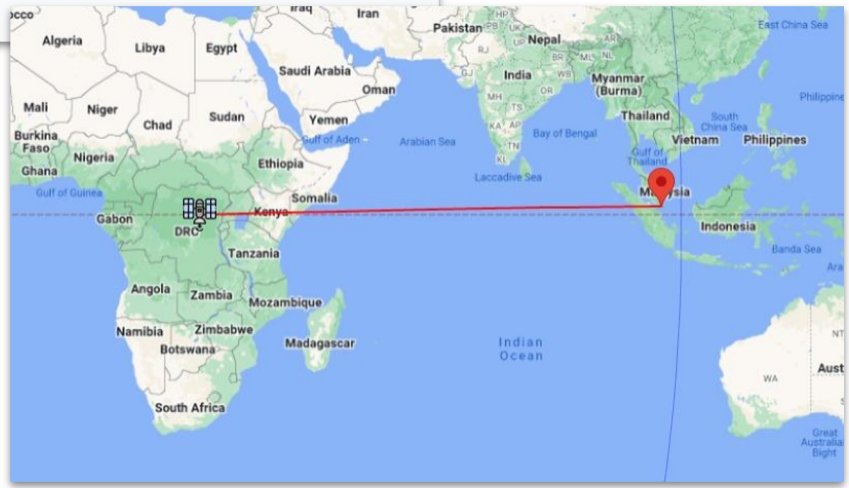
4.3 Es'Hail-2 QO-100 satellite path may just miss Blk 367

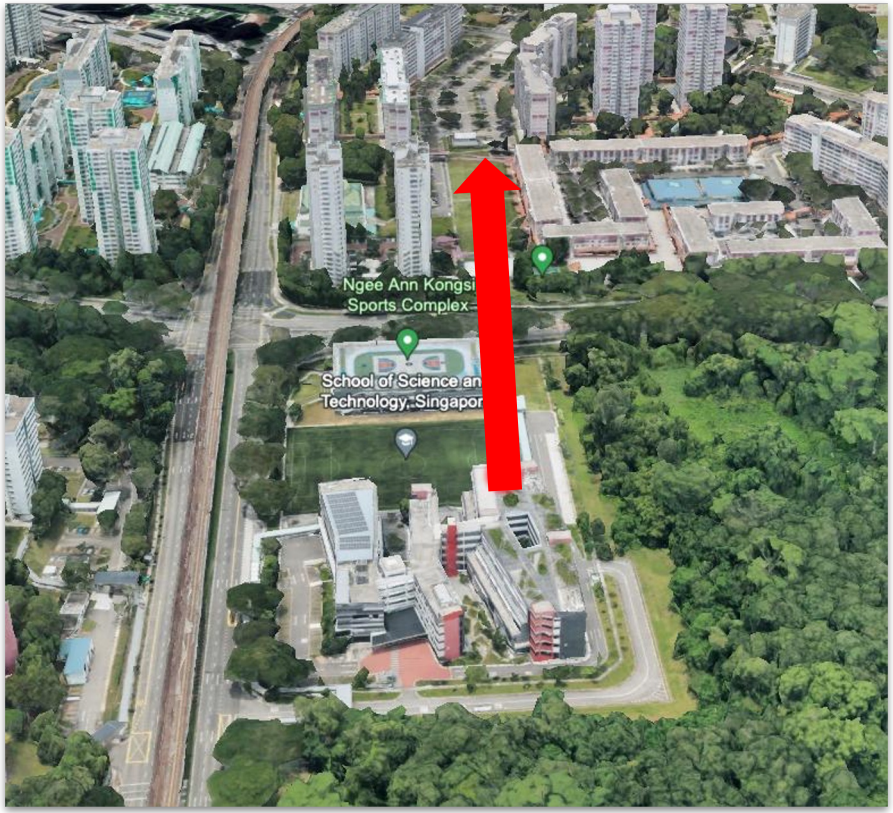
Ground Station Location

- Latitude: 1.3232°
- Longitude: 103.7865°
- Locator: OJ11VH
- Use my device location

Pointing

- Azimuth: 269.7° (269.7° magnetic)
- Elevation: 3.4°
- LNB Skew: +88.6°
- Current Sun-Earth-Satellite Angle: 31°





4.4 Long Term for Ham Radio: Same Same, But Different

K5ATA former teacher visioning the future for ARRL.

My guess: more digital, software, satellites, IoT, APRS.

- Next generation are still interested in CW, SSB
- Thrill of connection without wires is still there
- Just not all about HF, as in the 1970s and 80s