# CNHAM-小卫星项目科普材料

## 未加密的卫星通信频率以及适合中国ＨＡＭ通信的业余卫星

注意，在没有取得相应的业余无线电操作证书和电台执照之前，
请不要进行业余卫星的通信实验！

Sat Mode Uplink Freq. Downlink Freq.

RS-10 [A] (SSB,CW) 145.860-145.900 29.360-29.400

T 21.160-21.200 145.860-145.900

K 21.160-21.200 29.360-29.400

K/A 21.160-21.200 and 29.360-29.400

145.860-145.900

K/T 21.160-21.200 29.360-29.400

145.860-145.900

Robot (CW) 21.120 or 145.820 29.403

Beacons (CW) 29.357, 29.403,

145.857,145.903

Note: RS-10 is down and may not return.

RS-12 A 145.910-145.950 29.410-29.450

T 21.210-21.250 145.910-145.950

[K] (SSB,CW) 21.210-21.250 29.410-29.450

K/A 21.210-21.250 and 29.410-29.450

145.910-145.950

K/T 21.210-21.250 29.410-29.450,

145.910-145.950

Robot (CW) 21.129 or 145.830 29.454 or 145.958

Beacons (CW) 29.408, 29.454,

145.912, 145.958

RS-15 [A] (SSB,CW) 145.858-145.898 29.354-29.394

Beacons (CW) 29.352.5

29.398.7

RS-16

Ground team was never able to activate the transponders.

AO-10 (SSB,CW) 435.050-435.155 145.850-145.955

Beacon (Unmodulated Carrier) 145.810

NOTE: If Beacon is FM'ing don't use it!

AO-11 (FM) No User Uplink 145.825 Primary

435.025

2461.5

AO-13 (SK) as of 11/24/96, Rentered Atmosphere 12/5/96.

Gone but not forgotten!

AO-16 Packet 1200bps 145.900, 145.920, 437.051 Primary

145.940, 145.960 437.026
2401.143
NOTE: Uplink via FM, Downlink via SSB (BPSK).
CALLSIGN: PACSAT
DO-17 [Packet] 1200bps No User Uplink 145.825 Primary
Digital Voice 2401.220
WO-18 Packet 1200bps No User Uplink 437.102 Primary
CCD Pictures 437.075
Note: Downlink via SSB (BPSK).
LO-19 Packet 1200bps 145.900, 145.880, 437.153 Primary
145.860, 145.840 437.125
437.127 (CW)
NOTE: Uplink via FM, Downlink via SSB (BPSK).
CALLSIGN: LUSAT
FO-20 [JA] (SSB,CW) 145.900-146.000 435.900-435.800
JD PKT 1200bps 145.850, 145.890, 435.910
145.910
JA Beacon (CW) 435.795
JD Beacon 435.910
CALLSIGN: 8J1JBS
UO-22 Packet 9600bps 145.900 Primary 435.120
145.975
CALLSIGN: UOSAT5
KO-23 Packet 9600bps 145.850 Primary 435.175
145.900
CALLSIGN: HL01
KO-25 Packet 9600bps 145.870 436.500
CALLSIGN: HL02
IO-26 Packet 1200bps 145.875, 145.900, 437.822 Primary
145.950 437.867
CALLSIGN: ITMSAT
Note: Uplink is FM and Downlink is SSB (BPSK).
AO-27 Packet 9600bps 145.850 436.800
[J] FM Voice
NOTE: Part time repeater.
PO-28 Packet 9600bps 145.975 Primary 435.050 Primary
145.925 435.075
GPS Receiver
CALLSIGN: POSAT1
FO-29 JA (SSB,CW) 145.900-146.000 435.800-435.900
JD 1200bps 145.850, 145.870, 435.910

145.890, 145.910

Beacon (cw) 435.795

Digitalker 435.910

CALLSIGN:8J1JCS

MO-30

Ground team unable to communicate with bird. Early SK.

TO-31 9600bps (FSK) 145.925 436.925

BBS Callsign = TMSAT1-12

Broadcast Callsign = TMSAT1-11

GO-32 3@2meters 435.225 Primary

3@1270meters 435.325

NOTE: Still undergoing tests.

PO-33 9842bps 436.500 436.500

Simplex

Direct Sequence

Spread Spectrum

NOTE: Still undergoing tests.

SO-34 (SEDSAT-1)

Mode L 1268.175-1268.250 437.850-438.000

FSK, 9600bps

Mode A 145.915-145.975 29.350-29.420

Note: Still undergoing tests. May be early SK.

# ISS

NAME: International Space Station ISS
LAUNCHED: 1998/11/20@06:20 (ZARYA)
SITE: Baikonur/Tyura Tam, CIS
STATUS: Operational
CREW: Expedition 11
DNLINK: 145.800* NFM Voice+packet+APRS
DNLINK: 145.800* NFM Repeater
DNLINK: 145.825 NFM (Testing)
DNLINK: 143.625 NFM (VHF-1 voice)
DNLINK: 143.635 NFM (old military voice)
DNLINK: 130.167 NFM (VHF-2 voice)
DNLINK: 247.000 AM (EVAs)
DNLINK: 463.000 TV-1
DNLINK: 436.000 TV
DNLINK: 400.100 ESA Global
UPLINK: 437.800 Repeater

UPLINK: 145.990 Packet+APRS
UPLINK: 145.200 Region 1 voice
UPLINK: 144.490 Region 2/3 voice
UPLINK: 139.208 VHF-1 Voice NFM
UPLINK: 121.750 VHF-2 Voice NFM
UPLINK: 231.000
BEACON: 166.000 AM TLM
BEACON: 632.000 AM TLM
BEACON: 634.000 AM TLM
BEACON: 628.000 AM TLM
BEACON: 630.000 AM TLM
BEACON: 922.76 CW TLM
CALLSIGN: NA1SS* US
CALLSIGN: RS0ISS, RZ3DZR CIS
CALLSIGN: RS0ISS-11 Packet Mailbox
CALLSIGN: RS0ISS-3 Packet Keyboard
CALLSIGN: ARISS* Digipeater
SIG: Very good voice signal NA1SS
LASTRX: 2004/07/31@1838
UPDATED: 2005/05/01
NOTES: The current Expedition 11 crew:
- Commander Sergei Krikalev
- Flight Engineer John Phillips

NAME: AO-51 Phase 3E
LAUNCHED: 2004/06/29@06:30 UTC
SITE: Baikonur Cosmodrome
STATUS: Testing
MODE: FM Repeater, V/U, ON - 9k6 Digital, V/U, PBP BBS, OPEN for Users
DNLINK: 435.300 FM Voice
DNLINK: 435.150 FM Digital 9600 bps PBP
DNLINK: 2401.20 FM Digital 38.4 kbps AX25
UPLINK: 145.920 FM Voice (67hz PL)
UPLINK: 1268.70 FM Voice (67hz PL)
UPLINK: 145.860 FM Digital 9600 bps PBP
SIG:
CALLSIGN: PACB-11 BROADCAST
CALLSIGN: PACB-12 BBS
LASTRX:
UPDATED: 2004/11/07
NOTES: Amsat-OSCAR E or Echo as it is more commonly known is a FM satellite carrying 4 VHF receivers, 2 UHF transmitters, a multimode receiver and a 2400MHz transmitter. It can handle voice and FSK data up to 76.8Kbps. Echo was launched into a low, sun-synchronous polar orbit approximately 850 km high.

NAME: HAMSAT/VO-52
LAUNCHED: 2005/05/05@04:45:00 UTC
SITE:

STATUS: Testing
UPLINK: 435.220-435.280 MHz LSB/CW
DNLINK: 145.870-145.930 USB/CW (Inverting)
BEACON: 145.936 Unmodulated Carrier
BEACON: 145.860 Telemetry
NOTES:

NAME: SAUDISAT 1C SO-50
LAUNCHED: 2002/12/20
SITE: Baikonur Cosmodrome via a converted Soviet ballistic missile.
STATUS: Operational
DNLINK: 436.795 NFM
UPLINK: 145.850 NFM 67.0 Hz PL tone
UPDATE: 2004/07/31
NOTES: To switch the transmitter on, you need to send a CTCSS tone of 74.4 Hz.
The order of operation is thus: (allow for Doppler as necessary)
1) Transmit on 145.850 MHz with a tone of 74.4 Hz to arm the 10 minute timer on board the spacecraft.
2) Now transmit on 145.850 MHz (FM Voice) using 67.0 Hz to PT the repeater on and off within the 10 minute window.
3) Sending the 74.4 tone again within the 10 minute window will reset the 10 minute timer.

NAME: AO-27/AMRAD
LAUNCHED: 1993/09/26
SITE: Kourou, French Guiana
STATUS: Semi-operational, mode J
DNLINK: 436.795 FM Voice
UPLINK: 145.850 FM
NOTES: AO-27's orbit has moved the satellite into a period of Full Orbit Solar Illumination. Due to this, the TEPR method of timing the Transmitter does not work. Therefore AO-27 cannot turn its transmitter on by itself and can only be turned on by ground station command.

UO-14 下行频率为 435.070MHz；上行频率为 145.975MHz；工作方式为 FM 话