

Monitoring NASA and Space Communications



Here is the latest *Teak Publishing* list of NASA and space related frequencies. This list was originally compiled and presented by Larry Van Horn, the *Monitoring Times* magazine assistant editor, at the 1995 *Grove Communications Expo*. It was later updated by Bob Grove during a subsequent shuttle launch. After that trip, Larry has been updating the list as new information has become available.

I owe a very special debt of thanks to Bob Grove, Chief Doug Graham, Sven Grahn, David Hall, Paul Marsh, Ted Molczan, Jack NeSmith, Mike, Ronald Rensen, Keith Stein, Ed Tobiasz, a couple of good friends in Florida, and several monitors who wish to remain anonymous for their assistance in compiling portions of this frequency list.

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Distribution of this document is prohibited on the internet, amateur radio nets, packet radio, email groups, or any other websites in any form unless approved by the copyright holder. Unless otherwise indicated all modes in this list are assumed to be narrowband FM (NFM), and frequencies are in MegaHertz (MHz).

Real time updates (as warranted) are now available on the authors internet blogs. More information is available at the *Milcom Monitoring Post* <http://mt-milcom.blogspot.com/> and my personal blog the *Btown Monitoring Post* at <http://monitor-post.blogspot.com/>

This frequency list was last updated on 11 March 2009.

Ham Radio Space Activity

Space Shuttle Audio HF Rebroadcast

According to a recent announcement from the WA3NAN Goddard Amateur Radio Club, they will again rebroadcast Space Shuttle mission audio on the following amateur radio frequencies (+/- 5 kHz for QRM and nets): Current information can be found at the WA3NAN website (<http://garc.gsfc.nasa.gov/>)

3860.0 kHz (LSB)	7185.0 kHz (LSB)	14295.0 kHz (USB)
21395.0 kHz (USB)	28650.0 kHz (USB)	147.450 MHz (NFM simplex)

Space Shuttle Audio/Video VHF/UHF Rebroadcast

Alabama

147.1000 KS4LU – North Al DX Club (NADXC)

California

147.1500 WR6JPL – Jet Propulsion Lab, Pasadena, repeater offset +600 kHz CTCSS 131.8 Hz.

421.2500 K6BEN – Silicon Valley ATV Group repeater output AM TV/input 1255.0000 MHz FM-TV
<http://k6ben.svatv.tripod.com/>

1241.2500 K6KMN – Mt. Wilson ATV Repeater
<http://www.qsl.net/k6kmn/> repeater input is 434.0000 MHz AM video with 4.5 MHz audio sub carrier. This is part of the Amateur Television Network <http://www.atn-tv.org/>.



Colorado

W0CRA – Colorado Repeater Association http://www.w0cra.org/info/cra_status.html

145.1600 Cheyenne Mountain (Colorado Springs, Pueblo, Southeast/South Central Colorado) repeater offset -600 kHz CTCSS 107.2 Hz Linked

145.4600 Boulder (Lee Hill/Northeast Colorado) repeater offset -600 kHz CTCSS 107.2 Hz Linked

147.2250 Conifer Mountain (Denver Metro/Northeast Colorado) repeater offset +600 kHz CTCSS 107.2 Hz Linked

224.9800 Conifer Mountain (Denver Metro/Northeast Colorado) repeater offset -1.6 MHz CTCSS 107.2 Hz Linked

Florida

145.1700 K4HRS – Harris/Intersil Amateur Radio Club (HIARC) Palm Bay <http://www.qsl.net/hiarc/> repeater offset -600 kHz CTCSS 107.2 Hz.

146.9400 K4GCC – Launch Information Service and Amateur Television System (LISATS) Merritt Island – <http://slowbell.freesevers.com/lisats.htm> repeater offset -600 kHz CTCSS 103.5 Hz.

421.2500 K4ATV – Launch Information Service and Amateur Television System (LISATS) Cocoa <http://slowbell.freesevers.com/lisats.htm> ATV repeater output/repeater input 434.0000 MHz. Control receiver on 144.300.

K4LK – Tampa Bay Amateur Television Society <http://home.tampabay.rr.com/k4lk/>

51.8400 East Clearwater/Largo. Repeater offset -500 kHz CTCSS 146.2 Hz

145.2300 Dunedin. Repeater offset -600 kHz CTCSS 146.2 Hz

147.2850 St. Petersburg (Tyrone). Repeater offset +600 kHz CTCSS 146.2 Hz

442.0750 East Clearwater. Repeater offset +5 MHz CTCSS 146.2 Hz

443.9500 Port Richey. Repeater offset +5 MHz CTCSS 146.2 Hz

444.7000 St. Petersburg (Downtown). Repeater offset +5 MHz CTCSS 146.2 Hz

Georgia

N4NEQ – Big Shanty Repeater Group (BSRG) <http://www.bsrg.org/>

146.6550 Sweat Mountain
147.3450 Sweat Mountain
224.1200 Sweat Mountain Link to 146.655 repeater
427.2500 Sweat Mountain ATV repeater

Illinois

K9MOT – Motorola Amateur Radio Club of Schaumburg (MARC) <http://www.qsl.net/k9mot/stations/k9mot/>

446.5750 Schaumburg, (PL 114.8) NFM audio
910.2500 Schaumburg AM video

Michigan

N8UDK – Detroit Amateur Television Society <http://www.detroitatv repeater.com/>

145.5300 Clawson simplex
434.0000 Clawson ATV repeater output/repeater input 439.250
1253.2500 Clawson ATV repeater output/repeater input 439.250

New Jersey

439.2500 N2SMT – Brookdale ARC Lincroft <http://www.qsl.net/kd2bd/atv.html> ATV Repeater
output/repeater input 426.250.

New York

145.4300 W2LRC – Larkfield ARC repeater output (input -600) 136.5 Hz PL tone
446.6250 W2DQ – Suffolk County ARC repeater output 110.9 Hz PL tone
447.2250 KD3NC – Troy ATV repeater output
920.8000 KD3NC – Albany ATV repeater

Ohio

145.6700 NA8SA – NASA Glenn ARC Cleveland
<http://www.grc.nasa.gov/WWW/Clubs/NA8SA/retrans.html/> simplex frequency
421.2500 Dayton Amateur Radio Association (DARA) ATV repeater output/repeater input 439.2500.

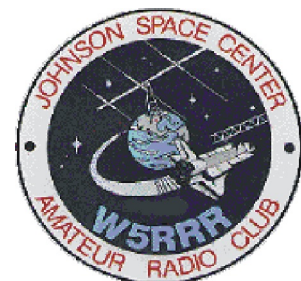
Pennsylvania

146.4450 KE3JP – Greenville. Repeater input +600 kHz CTCSS 186.2 Hz

Texas

53.1100 WA5SIX – Houston
145.2500 KC5NQ – Mesquite
145.2700 WD5GND-Glen Rose -600 kHz CTCSS 110.9 Hz (linked to
224.9000 Arlington)
145.3100 N5ZXJ – Temple
146.6400 W5RRR – NASA Johnson Space Center ARC Houston
<http://www.w5rrr.org/>
147.5400 W5AC – College Station <http://w5ac.tamu.edu/> simplex
147.5600 KE5O – Beaumont simplex
147.5600 WB5ITT – Conroe simplex
421.2500 KC5OYN – Waco (WATS ATV via W5TAH)
442.2000 W5SJZ – Fort Worth (Lockheed Martin Radio Club)
444.3000 K5MOT – Forth Worth (Motorola Radio Club of North Texas)

Utah



426.2500 WB7FID – Utah ARC Salt Lake City ATV repeater output/input 439.250 MHz
http://www.utaharc.org/utah_atv/newfid2.html

Virginia

KG4NJA – NASA Langley ARC <http://larc-exchange.larc.nasa.gov/lea/amateur-radio/>
146.0700 -600 kHz CTCSS 173.8 Hz

KO4FR/WA1TSS – Hampton Area Radio Enthusiast <http://hare66.exis.net/>

144.3400 Norfolk
427.2500 Norfolk (ATV)
431.7500 Norfolk

Canada

British Colombia

442.3500 VE7RUK – Surrey input +5 MHz

Ontario

147.5100 Waterloo – Kitchener Waterloo Amateur Radio Club, service courtesy of VE3NEJ-Terry Taylor.
<http://www.kwarc.org/nasa-link.html>

If your ham voice or ATV repeater/simplex operation carries shuttle mission video/audio and is not listed above please contact us. Email Larry, N5FPW at [larryvanhorn @ monitoringtimes.com](mailto:larryvanhorn@monitoringtimes.com).

Amateur Radio on International Space Station (ARISS) Information

Amateur Radio on the International Space Station (ARISS) <http://spaceflight.nasa.gov/station/reference/radio/>
ARISS Frequently Asked Questions <http://www.arrrl.org/sarex/sarexfaq.html> and

<http://www.rac.ca/ariss/oindex.htm>
Current information on the ISS mission <http://spaceflight.nasa.gov/station/>

145.8000 Worldwide downlink for voice and packet
145.8000 Crossband FM repeater downlink
437.8000 Crossband FM repeater uplink
145.9900 Worldwide packet uplink
145.2000 Region 1 voice uplink (FM)
144.4900 Region 2/3 voice uplink (FM)

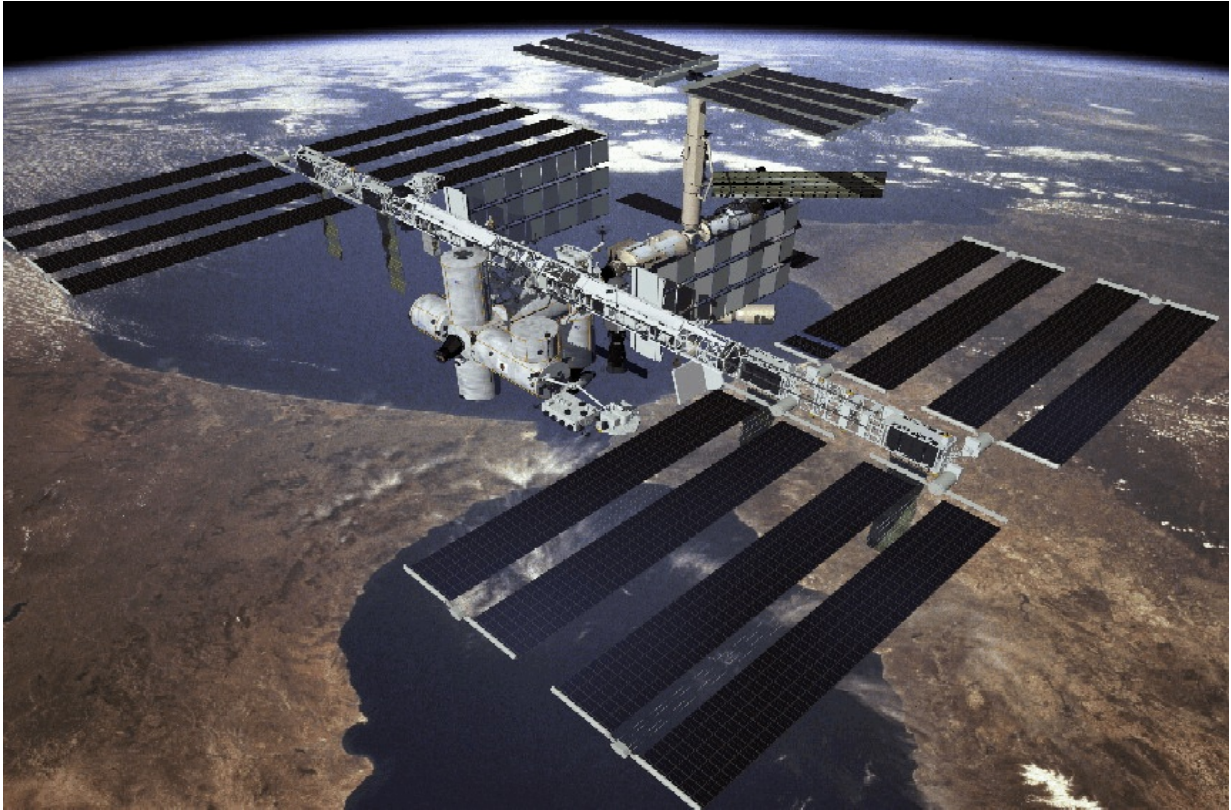
Note: All frequencies are subject to doppler shift.



Amateur Radio callsigns in use on the ISS:

Packet digipeater	ARISS
Packet station keyboard callsign	RS0ISS-3
Packet station mailbox callsign	RS0ISS-11
Russian callsigns for voice	RS0ISS
USA callsign for voice	NA1SS

International Space Station



US On-Orbit Segment (USOS)

Space-to-Space Communications System (UHF 1.4 MHz bandwidth)

414.2000 Extravehicular Mobility Unit-to Extravehicular Mobility Unit (EMU-EMU),
EMU-to-Space Shuttle Orbiter (SSO), EMU-to-International Space Station (ISS),
SSO-to-EMU, SSO-to-ISS, ISS-to-EMU, ISS-to-SSO.

S-band Single Access

2085.6875 Uplink (HDR)(6 MHz bandwidth)
2265.0000 Downlink (HDR/LDR)(6 MHz bandwidth)

S-band Single Access/Ku-band Communications Adapter

2287.5000 Telemetry Downlink
2106.4000 Command Uplink

Ku-band Single Access

13.77500 GHz Uplink (6 MHz bandwidth)
15.00340 GHz Downlink (100 MHz bandwidth)

Ka-band

22.5500-23.5500 GHz TDRSS
25.2500-27.5000 GHz Proximiy Link/TDRSS

Russian Orbital Segment (ROS)

Zarya Control Module

130.1670/121.7500	TORU Rendezvous Control System (Zarya/Progress)
632.0000/634.0000	Zarya BITS Telemetry System (PCM/FM)
633.8500	Zarya FGB BITS Telemetry System (PCM/FM)

Note: Complete information on the TORU rendezvous control system can be found on Sven Grahns excellent website at

<http://www.svengrahn.pp.se/trackind/TORU/Toru.html>



Figure 6 Zarya Control Module

Zvezda ISS Service Module

121.7500	EVA Voice System (Simplex) (EVA-1)
121.7500/130.1670	EVA Voice System (Duplex) (EVA-2)
121.7500/130.1670	Voice Downlink Backup (VHF-2) (FM) , Note: VHF-2 is part of the telemetry, tracking and control subsystem and is used primarily for space-to-space communication. Communications with EVA astronauts is via VHF-2. This is the equivalent system to the Space Shuttle UHF military EVA system.
130.1670/121.7540	TORU Rendezvous Control System (Zvezda/Progress)
143.6250/139.2080	Voice Downlink Primary (VHF-1) (FM)
247.0000/231.0000	EVA Data System
420.0000/463.0000	Internal Wireless System (Video), Note: The ROS Television subsystem collects video during EVA activities and aids in the control of approach / docking vehicles both manned and unmanned. It receives TV video from various modules and displays TV pictures on monitors throughout the ROS. This system does NOT use the US NTSC video standard.
628.1250/630.1250	Zvezda BITS-2 Telemetry System (PCM/FM 256 Kbps)
900.0000/700.0000	Luch Relay Satellite System
922.7600/768.9750	Regul System (Kvant), Note: Regul is designed for two-way voice communications, digital command/program information, as well as telemetry transmission to Russian ground stations or via the Luch satellite.



Figure 7 ISS Early Stack (Zarya (left) Zvezda (middle) docking port (right))

2860.0000/2725.0000	Tracking System(Pulse Modulation)
3294.0000/3300.0000	Kurs Rendezvous Docking Radar, Note: This radar system has a 20 MHz bandwidth and the Zvezda module uses a passive reflector.
13.5110-13.5450 GHz	Lira System Left Hand Circular Polarization (LHCP) (DATA)
15.1300-15.1800 GHz	Lira System Right hand Circular Polarization (RHCP) (Data), Note: Lira provides two-way, high speed radio communications with ground stations through the Luch Relay satellite system.
10.8100-10.8600 GHz	Luch Relay Satellite System RHCP/14.591-14.625 GHz LHCP (Data)
13.5110-13.5450 GHz	Luch Relay Satellite System LHCP/15.130-15.180 GHz RHCP (Data)

Soyuz-TM Spacecraft

VHF Frequencies

121.7500	FM Voice System
166.0000	AM Telemetry (sidebands +/- 125 kHz)
922.7630	CW



Figure 8 Soyuz TMA Spacecraft

Progress-M Ferry Spacecraft

VHF Frequencies

121.7500	TORU Rendezvous Control System
166.0000	AM Telemetry (sidebands +/- 125 kHz)
922.7630	CW



Figure 9 Progress-M Spacecraft

Space Shuttle Communication Systems

UHF Frequencies

243.0000	Emergency only (AM)
259.7000	Air-to-Ground voice downlink (AM) (Primary) <Air-to-Ground 1>
279.0000	EVA voice orbiter only, no ground link (AM)
296.8000	Air-to-Ground voice downlink (AM) (Secondary) <Air-to-Ground 2>
410.2000	EVA downlink (New wideband digital system) (1.4 MHz bandwidth)

S-Band Frequencies

1775.7320	DoD Phase Modulation (PM) forward link (uplink) Secondary SGLS Channel 4
1831.7870	DoD Phase Modulation (PM) forward link (uplink) Primary SGLS Channel 18

2041.9479	Phase Modulation (PM) forward link (uplink) Secondary
2106.4063	Phase Modulation (PM) forward link (uplink) Primary
2119.8000	Space Shuttle Orbiter-to-NASA Payload link (36 kHz bandwidth)
2217.5000	Phase Modulation (PM) return link (downlink) Secondary SGLS channel 4
2250.0000	Frequency Modulation (FM) return link (downlink) (Voice, Data, Video)
2287.5000	Phase Modulation (PM) return link (downlink) Primary SGLS channel 18
2299.8000	NASA Payload-to-Space Shuttle Orbiter link (2.1 MHz bandwidth)

Miscellaneous Systems

1213.0000	TACAN Space Shuttle Orbiter-to-Ground-Space Shuttle Orbiter (600 kHz bandwidth)
4300.0000	Space Shuttle Orbiter Radar Altimeter (28.6 MHz bandwidth)

Ku-band System

13.7750 GHz	TDRS-to-Orbiter (6 MHz bandwidth)
13.8830 GHz	Orbiter Ku-band Radar-to-Target (17 MHz bandwidth)
15.0034 GHz	Orbiter-to-TDRS (200 MHz bandwidth)
15.6880 GHz	Microwave Scanning Beam Landing System (MSBLS) (7 MHz bandwidth)

Tracking and Data Relay Satellite (TDRSS) Communication System

S-band Single Access		S-band Multiple Access	
2030.0000-2123.0000	Uplink	2106.4000	Uplink
2219.0000-2290.0000	Downlink	2287.5000	Downlink
Ku-band		Ka-band (TDRS H/I/J)	
13.7750 GHz	Uplink	22.5500-23.5500 GHz	Uplink
15.0034 GHz	Downlink	25.2500-27.5000 GHz	Downlink



Figure 10 TDRSS Constellation

White Sands, New Mexico TDRSS Ground Station

13.4000-14.0500 GHz	Downlink
14.6000-15.2300 GHz	Uplink

General NASA Frequencies

High Frequency (HF)

Air-to-Ground	3089.5 6743.5 9003.5 11192.5 15062.5 kHz (All USB)
Emergency Nets	3385.0 3395.0 4604.5 6982.5 14455.0 kHz (All USB)
NASA NCS Nets	2360.0 3379.0 3388.0 5403.5 5821.0 5961.0 6106.0 6108.0 6809.0 9462.0 11801.0 12129.0 12219.0 13633.0 13744.0 13780.0 14836.0 14989.0 14908.0 15464.0 16201.0 16430.0 18744.0 20063.0 22983.0 23390.0 kHz (All USB)

Very/Ultra High Frequencies (VHF/UHF)

NASA Air-to-Air	123.050 123.125 (T-38 Interplane) 123.350 126.650 (NASA Weather aircraft/Shuttle training aircraft) 230.650 235.400 (T-38 Interplane) 351.000 (All AM)
NASA Nationwide	162.1125 162.9875 163.1000 166.5250 166.8375 167.0125 167.3500 167.4000 167.7750 168.3500 168.4125 168.9375 169.2125 171.5125 171.6375 172.0375

	172.3375	172.9625	173.4250	173.9000
SAR Operations	282.8000 (AM)			
Emergency Landing Site	408.1500	408.8000		

NASA Television

NASA Television Website <http://www.nasa.gov/multimedia/nasatv/>

NASA Television is now carried on an MPEG-2 digital signal accessed via satellite AMC-6, at 72 degrees west longitude, transponder 17C, 4040 MHz, vertical polarization. A Digital Video Broadcast (DVB) - compliant Integrated Receiver Decoder (IRD) with modulation of QPSK/DBV, data rate of 36.86 and FEC 3/4 is needed for reception. NASA TV Multichannel Broadcast includes: Public Services Channel (Channel 101); the Education Channel (Channel 102) and the Media Services Channel (Channel 103). NASA TV is available in Alaska and Hawaii on an MPEG-2 digital C-band signal accessed via satellite AMC-7, transponder 18C, 137 degrees west longitude, 4060 MHz, vertical polarization.

A Digital Video Broadcast compliant Integrated Receiver Decoder is required for reception of NASA C-band signals. Analog NASA TV is no longer available. NASA TV is also available to small satellite dish owners on Direct TV Channel 376 and Dish Network Channel 213.

UHF Milsat Nets (Shuttle Trans Atlantic Support Nets)

252.1500* 261.5750** 261.7500 261.8000 261.8750 261.9500 263.6250 MHz (All NFM)

* Indicates a STS-116 pre launch shuttle mission SAR support net.

** Indicates a recent usage of this frequency for NASA support.

Note: NASA recently posted more about this TAL capability at <http://www-pao.ksc.nasa.gov/kscpao/nasafact/pdf/TALsites-06.pdf>.

INMARSAT (Shuttle Trans Atlantic Support Nets)

My good friend Paul Marsh regarding the old INMARSAT analog voice TAL support nets – they are no longer used. Paul writes: "There are still emails circulating about NASA's use of Inmarsat for TAL site support during launches - they have moved to a SIP based IP system, and as such are no longer easy to monitor. I took a listen during the past two launches, and sure enough, not any hint of analog NASA comms via Inmarsat."

NASA/USAF Space Ground Link Subsystem (SGLS) Frequencies

Channel	Uplink	Downlink
1	1763.7210	2202.5000
2	1767.7250	2207.5000
3	1771.7290	2212.5000
4	1775.7320	2217.5000
5	1779.7360	2222.5000
6	1783.7400	2227.5000
7	1787.7440	2232.5000
8	1791.7480	2237.5000
9	1795.7520	2242.4000
10	1799.7560	2247.5000
11	1803.7600	2252.5000
12	1807.7640	2257.5000
13	1811.7680	2262.5000
14	1815.7710	2267.5000
15	1819.7750	2272.5000
16	1823.7790	2277.5000



Figure 11 AFSCN Kaena

17	1827.7830	2282.5000
18	1831.7870	2287.5000
19	1835.7910	2292.5000
20	1839.7950	2297.5000

US Coast Guard Support Nets

Note: The USCG UHF frequencies have changed. The old 381.7/.8 etc are no longer used. Here are the new freqs below. The Coast Guard provides support for every shuttle launch.

Aircraft Homing and Rescue	237.9000				
Coast Guard Air-Ground	345.0000 (Primary)	379.0500 (Secondary)			
Coast Guard Air Operations	237.9000 (Secondary)	326.1500 (Primary)			
Coast Guard Operations	275.1250				
Coast Guard Search and Rescue	240.6000	256.2500	282.8000	291.3500	303.2500
Coast Guard to US Navy Liaison	322.0000				
Intl Distress, Calling and Guard	243.0000				
SAR Datum Marker Beacons	229.3250	229.3350	240.6000	242.6500	242.6625 275.1000

NASA Facilities Worldwide

Washington, D.C.

NASA Headquarters

Address: 300 E Street S.W., Washington, D.C.
 Building Maintenance: 463.7250 (Boston Property, Inc)
 NASA HQ Security Guards: 408.4000 418.075
 Wireless Mikes: 170.3050 171.0450 171.9050

Security Force Radio Callsigns (Current as of June 9, 1995)
 Adam 12, Alpha 1/2/3/4/5/7, Bravo 5, Central, Delta 1, Dispatch,
 Papa 16, Queen 16, and Sierra 1
 Headquarters Security Section Westside: Facilities
 Locksmith's Office: Dragon's Lair
 Metrocom: Radioman
 Project Manager's Office: Operations
 Room CX40: Silo 7
 Security Vehicle: Mach 1
 Head Facilities Management and Security Section; Yankee 1



Figure 12 NASA Headquarters

Security Levels (Security Alert)
 1-Normal 2-Medium 3-High

Codes (Performance/Appearance Level)
 1-Normal 2-Medium 3-High

NASA Headquarters Security 10 codes

10-2	Transmit/receive well	10-4	Acknowledge/OK
10-6	Busy	10-7	Out of service
10-8	In service	10-9	Repeat transmission
10-12	Stand by	10-13	Officer in trouble
10-14	Request a Supervisor at ____	10-17	Meet complainant at ____
10-18	Meet officer/Supervisor at ____	10-19	Return to ____
10-20	Present location	10-21	Call by phone
10-22	Disregard	10-23	On scene

10-24	Assignment complete	10-25	Report in person to _____
10-31	Suspicious person/circumstances	10-36	Time/date check
10-44	Leave assigned area/request relief	10-46	Citizen assist
10-61	In the area	10-65	On meal break
10-66	Call home next break	10-74	Negative
10-85	Report Number	10-89	Bomb threat at _____
10-93	Investigating the area	10-97	Alarm at _____
10-99	Subject barred from premises/wanted	10-100	Parking Meter
2665	On portable on meal break	10-400	Begin random inspections

Alabama

Marshall Space Flight Center - Huntsville

Aircraft Advisory	122.8500							
Fire Department	173.7875							
Miscellaneous Net	164.2000	166.2250	170.1000	170.4000	171.0000	171.1500	172.2250	173.6125
	173.6625	173.6875	173.7375					
NASA Air/Ground	314.6000	382.6000						
Paging System	170.3500							
Shuttle Mission Audio	173.0250							
Shuttle Support Nets	408.1500	408.4250	410.0000	410.2000	411.5500	416.4250		
Shuttle Test Operations	162.1250	164.1750	164.2750					

Motorola Type II Smartzone P16 Trunk System (ID a41b)

Base Frequency: 406.2375; Spacing: 12.5; Offset: 380

Frequencies:

Madkin Mountain	406.2375c	406.4375	406.8375	407.0375c	407.2375	407.6375c	407.8625	409.0250
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Talkgroups:

3248	Redstone Arsenal Military Police
8016	Marshall Space Flight Center Police (about 50% encryption)
8112	Redstone Arsenal Intrusion Detection Systems (IDS, used by contractor North American Video)
8528	Marshall Space Flight Center Emergency Operations Center 2
8560	Marshall Space Flight Center Emergency Operations Center 1
8752	Redstone Arsenal Talk-Around 1 (TA-1, Missile Firing Countdowns)
9424	Redstone Arsenal Unknown user/usage

Antigua

Antigua Air Station

Fire/Security police	163.4875								
Shuttle range support	264.8000	284.1000	291.8000	(AM)					
HF Allocations	5060.0	5436.0	6810.0	6919.0	7313.0	7332.0	7605.0	7765.0	7860.0
	7919.0	9115.0	9138.0	9170.0	10310.0	10327.0	10475.0	10949.0	11407.0
	11414.0	12160.0	13495.0	13943.5	14497.0	14585.0	14819.0	14891.0	14914.0
	15528.0	15575.0	16216.0	17554.0	18237.0	18700.0	19143.0	19961.0	20272.0
	22990.0	23413.0	23603	23940	24530.0	24760.0	26515.0	(All kHz, various modes are used)	
Contingency SAR	11440 kHz	(USB)							

Ascension Island

Ascension Auxiliary Air Field

Fire	173.5750
Shuttle range support	264.8000 284.1000 291.8000 (AM)
HF Allocations	2622.0 4500.0 4992.0 5775.0 5822.0 7313.0 7354.0 7605.0 7765.0 7804.0 7910.0 9043.0 10230.0 10780.0 10850.0 10880.0 10949.0 11407.0 11634.0 12107.0 13468.0 13878.0 14432.0 14497.0 14585.0 14615.0 14896.0 14914.0 14921.4 14967.0 16246.0 17554.0 18331.0 18434.0 18700.0 19126.0 19198.0 19371.0 20195.0 20390.0 20475.0 23035.0 23485.0 23603.0 23661.0 23840.0 24240.0 25245.0 25299.0 26356.0 23389.0 26684.5 27720.0 27870.0 27925.0 (All kHz, various modes are used)

California

Ames Research Center/Moffett Federal Airfield

System: EDACS Standard Analog

Frequencies:

Site 1 406.2375/415.2375 (LCN1) 406.4375/415.4375 (LCN2)
406.8375/415.8375 (LCN3) n/f (LCN4)
407.2375/416.2375 (LCN5) 407.4375/416.4375 (LCN6)
407.6375/416.6375 (LCN7)

Talkgroup:

00-000 Ames Heating, Ventilation and Air Conditioning
(HVAC)
00-002 Ames Fire Department Dispatch
02-021 Ames Security Operations
02-132 Ames/Moffett Ramp



Figure 13 Ames Research Facility

Edwards Air Force Auxiliary North Base

Flight Operations Frequencies (All USAF Assignments):

AFFTC RCF Sport Approach/Departure Control (R-2515)

	132.7500 272.0000 343.7000
Tower	120.7000 318.1000 353.6000

Edwards Air Force Base

Land Mobile Services:

DoE	Simplex Support Net	167.8500 168.4500
FAA	NARACS	169.2250 169.3250 172.8250 172.9250
NASA	Disaster Net	412.0500 417.4500
NASA	Emergency 911 Radio	170.3500
NASA	Facility Support	409.3500 415.9250
NASA	Guard Net	166.2250 171.1500
NASA	JPL/Edwards	162.0250 164.9875
NASA	Management Support	409.9000 417.2500
NASA	Mate/Demate Facility	168.0000
NASA	MSBLS Net	165.6125
NASA	Operations	49.8300
NASA	Paging System	410.3000 416.3500
NASA	Public Affairs	169.4000
NASA	Range Control/Operations	170.4000 171.0000
NASA	Safety Net	171.2625
NASA	Security Talk-Around	173.6625

NASA	Space Shuttle Purge Net	162.6125	164.1000		
NASA	Traffic Control	413.5250			
NASA	TV Ops	169.6000	173.6875		
NASA	Video Talk-Around	169.0750			
USA	Corps of Engineers Net	163.4125	164.4375		
USAF	Air Force MARS	142.2750	143.7750		
USAF	Aircraft Maintenance	163.4625			
USAF	Aircrew Alerting	413.4500			
USAF	Civil Engineers	149.2750	163.5375		
USAF	Command Post	412.8750	417.7500		
USAF	EOD Team Operations	148.2000			
USAF	Fire Department	173.4375			
USAF	Fire/Crash Net	173.4125	173.5875		
USAF	Flight Support	149.1750	149.3000		
USAF	Maintenance	138.1250	139.8250	141.7250	148.0750 148.4250
USAF	Medical Net	173.4875			
USAF	NASA Operations	150.1500	150.2825		
USAF	OL-HM Operations	138.0000			
USAF	Optics Control	141.7500			
USAF	OSI	138.0750	138.1750		
USAF	Paging System	413.5000			
USAF	Ramp Operations	148.0500	148.1000		
USAF	Range Support	141.5500			
USAF	Research and Development	413.2500			
USAF	Security Net	148.2250	148.6750	148.8750	149.9250 163.5875
USAF	Special Projects	138.1000	142.1250		
USAF	Test Range Data	138.8750	139.0000	141.6250	
USAF	Weather Sensors	138.3750	143.8750		

System: Motorola Type II Smartnet (P16 Mixed mode)

Motorola System ID: 8d1b

Base Frequency: 406.1625 MHz, Spacing: 12.5-kHz, Offset 380

Frequencies:

Site 1 AFRL	406.1625/415.1625	406.1875/415.1875	407.2500/416.2500	407.2875/416.2875	407.4375/416.4375	407.4500/416.4500	407.5625/416.5625c	409.2000/418.2000	409.3625/418.3625
Site 2 Main Base	407.2000/416.2000	407.3625/416.3625	407.8375/416.8375	408.0000/417.0000	409.0000/418.0000	409.1625/418.1625	409.4250/418.4250	409.5375/418.5375	409.5625/418.5625c
Site 3 Rosamond Hills	406.3250/415.3250	406.6375/415.6375	406.8000/415.8000	406.9625/415.9625	407.2375/416.2375	407.4000/416.4000	407.4750/416.4750	407.6375/416.6375	410.7625/419.7625c
									410.9000/419.9000

Other reported frequencies (status unknown):

406.3500	406.3625	406.7625	407.1625	407.2750	407.7625	407.9625	408.1625	409.2250	409.7000
409.8250	410.1500	410.5250	410.7500						

Flight Operations Frequencies:

Civ Contractor Boeing X-32A Flight Test Support	274.1500
DoE Flight Support	384.0000
FAA Joshua Approach/Departure Control	133.6500/348.7000 Isabella <Channel 6>
	126.5500/322.3000 Owens <Channel 7>
	123.9500/256.8000 Saline <Channel 8>
	120.2500/291.6000 Paramint <Channel 9>

		124.5500/363.0000 Joshua Palmdale <Channel 13>
		126.1000 133.1500 134.0500 269.2000 290.3000
		335.6000 343.7000 Other reported frequencies
FAA	Sport Approach/Departure Control	132.7500/343.7000 <Channel 5>
FAA	Slate Range Advisory	295.1000
NASA	Air Operations	373.1500 Primary 135.8250 Secondary "NASA 4"
NASA	Flight Test Support	237.0000 373.5500 "NASA Ops, Sport"
NASA	JPL/Dryden Flight Program Support	121.9500 122.8500 123.2500
NASA	Space Shuttle Air to Ground	279.0000 Orbiter Chase Aircraft
NASA	Space Shuttle Air to Ground	296.8000
NASA	Space Shuttle Chase/Weather Aircraft	264.8000
NASA	Space Shuttle Orbiter Air-to-Ground	259.7000 Primary
NASA	Space Shuttle Training Aircraft	123.3750 134.2500
USA	Flight Test Support	367.3000
USAF/NASA	Flight Test Support	373.1500 "NASA 4"
USAF	Aerial Refueling (R-2508)	234.8250 Isabella
USAF	Aerial Refueling (R-2508)	252.1750 Coadale
USAF	Aerial Refueling (R-2508)	272.1750 Shoshone
USAF	AFFTC Approach/Departure Control	319.0000 347.1000 Joshua/Sport Approach/Departure
		322.5000 Secondary
USAF	AFFTC RCF UHF Low Level Unicom	315.9000 Sport Approach/Departure <Channel 11>
USAF	Air Operations	138.2500 141.1000 141.2000 141.3000
USAF	Air Rescue Operations	138.4500
USAF	Air Tactical	138.0500 149.1500
USAF	Air Traffic Control Services	136.1750 136.4250
USAF	Aircraft Maintenance	284.1000
USAF	ATIS	116.4000/269.9000 <Channel 1>
USAF	Command Post	311.0000
USAF	Flight Test Support	
		123.1750 123.2000 123.2250 123.2500 123.2750 123.3500 123.3750 123.4000 123.4250 123.4500
		123.4750 123.5250 123.5500 123.5750 136.2250 234.8000 256.1500 276.6000 280.1000 283.7250
		292.3000 298.3000 300.6750 301.7000 317.8500 327.6500 358.4000 381.1750
USAF	Flight Test Support	123.1250 268.1000 283.7000
		"Hat Trick," X-35A Test Frequencies
USAF	Flight Test Support Tanker Frequency	354.4000 <Channel 10> 298.5000 (445FLTS)
USAF	Ground Control	121.8000/225.4000 <Channel 3>
USAF	Helicopter Security Flight STS Landing	138.8500
USAF	Metro	342.4000
USAF	Mission/Test Range Control	286.4000 <Channel 15> 294.6000 <Channel 16>
USAF	Pilot-to-Dispatcher (PTD)	372.2000
USAF	Range Control/Operations	381.1000
USAF	Range Control/Operations-Flight Test	337.0000
USAF	Range Safety/Operations	274.2000
USAF	Supervisor of Flying/Technical Assistance	308.7000
USAF	Test Pilot School (see below for more)	286.8000 <Channel 17>
		375.0250 <Channel 18> "TPS Mission"
USAF	Test Range Control	
		229.1750 260.7000 267.9000 275.9000 286.2500 287.4250 291.8000 303.3250 311.4000 314.4000
		319.6000 349.3000 359.2000 378.1000 383.0000 384.8000 389.0250 398.1000
USAF	Test Range Data	251.2500 ARIS Tankers for Torch 01 test
USAF	Tower	120.7000/318.1000 Primary <Channel 4>
		236.6000 Secondary 340.2000 353.6000
USN	Miscellaneous Net	235.0000

Unit Aviation Frequencies:

USAF	412TW Command Post	304.0000 "Conform" <Channel 2>
USAF	412 OG TOPS/370FLTS Operations	385.9000 Primary "Ghost Ops"
USAF	412TW/410FLTS Operations	322.7000 Primary 228.9500 Secondary - Dagger Ops
USAF	412TW/411FLTS Operations	290.8000 Primary 139.7750 Secondary 230.2750 230.7750 238.8250 240.7750 352.9000 373.5000 375.4000 - Raptor
USAF	412TW/412FLTS Operations	141.5250 Primary Trout Ops
USAF	412TW/416FLTS Operations	311.2000 Primary 141.5500 Secondary 264.6000 349.6000 Primary - Zoom Ops
USAF	412TW/416FLTS Air-to-Air	139.9000
USAF	412TW/418FLTS Operations	123.1500/379.7000 Primary 267.8000 Secondary 251.2500/257.0750 Tertiary - Tiger Ops
USAF	412TW/419FLTS B-1B Operations	276.6500 Primary 279.9000 Secondary - Torch Ops
USAF	412TW/419FLTS B-2 Operations	287.2000 Primary 324.7000 Secondary 136.4250 Tertiary - Torch Ops
USAF	412TW/419FLTS B-52 Operations	266.3000 Primary 383.2000 Secondary - Torch Ops
USAF	412TW/419FLTS Operations	315.2000 Primary - Voron Ops
USAF	412TW/445FLTS Operations	351.4000 Primary 300.8000 Secondary 385.9000 Tertiary - Eagle Ops
USAF	412TW/452FLTS Operations	349.3000 Primary 136.2550/314.2000 Secondary - Global Ops
USAF	412TW/452FLTS Dispatch	123.3250 - Aria
USAF	Air Force Test Pilots School Operations	304.0000/149.1500 Primary 375.0250 Secondary 239.9500/286.8000 Tertiary - Cobra Ops
USAF	OL-HM Operations	290.7000 Primary 138.0000 - X-Ray Control
USMC	HMM-764 Squadron Common Tac-2	293.3500 - Moonlighter
USMC	HMM-764 Air-to-Air Tac-3	326.4250 - Moonlighter
USMC	HMM-764 FM	30.8500
USMC	HMM-764 Tac-1	138.6250
USMC	HMH-769 Squadron Common Tac-2	307.5250 - Roadhog
USMC	HMH-769 Air-to-Air Tac-3	363.4500 - Roadhog
USMC	HMH-769 FM	34.5500
USMC	HMH-769 Tac-1	140.3000

Ground Station Callsigns:

AFFTC Command Net	Ponderosa
AFFTC Operations Center/ROC	Conform
NASA	NASA 4
OL-HM	Xray Control
Sport Radar Control Facility (R-2515)	Sport
Test Pilot School	Cobra Ops
412 OG TOPS/370FLTS	Ghost Ops
410FLTS Operations	Dagger Ops
411FLTS Operations	Raptor Ops
412FLTS Operations	Trout Ops
416FLTS Operations	Zoom Ops
418FLTS Operations	Tiger Ops
419FLTS Operations	Torch Ops
452FLTS Operations	Global Ops

Airborne Callsigns:

AFFTC Command	Eddie ##
USAF Test Pilot School	Cobra ## [Normal Operations], Ammo ## [Student Crew Solo, no IP onboard] Drag [Low L/D (Shuttle or Lift Body

410 FLTS (F-117)
 411 FLTS (F-22)
 412 OG TOPS/370 FLTS (C-12, C-135, KC-10,
 T-3, T-38, T-39, F-15, F-16)
 412 Flight Test Squadron (Speckled Trout)
 416 Flight Test Squadron (F-16, F-15, T-38)
 418 Flight Test Squadron (C-17, C-130, C-135
 (Test), CV-22, C-5)
 419 Flight Test Squadron (B-1, B-2, B-52)
 452 Flight Test Squadron (GH UAV, ABL)
 Det 2, 412 OG
 AFTI
 NASA

approaches0]
 Dagger ##
 Raptor ##/Rage ##/Vapor ##

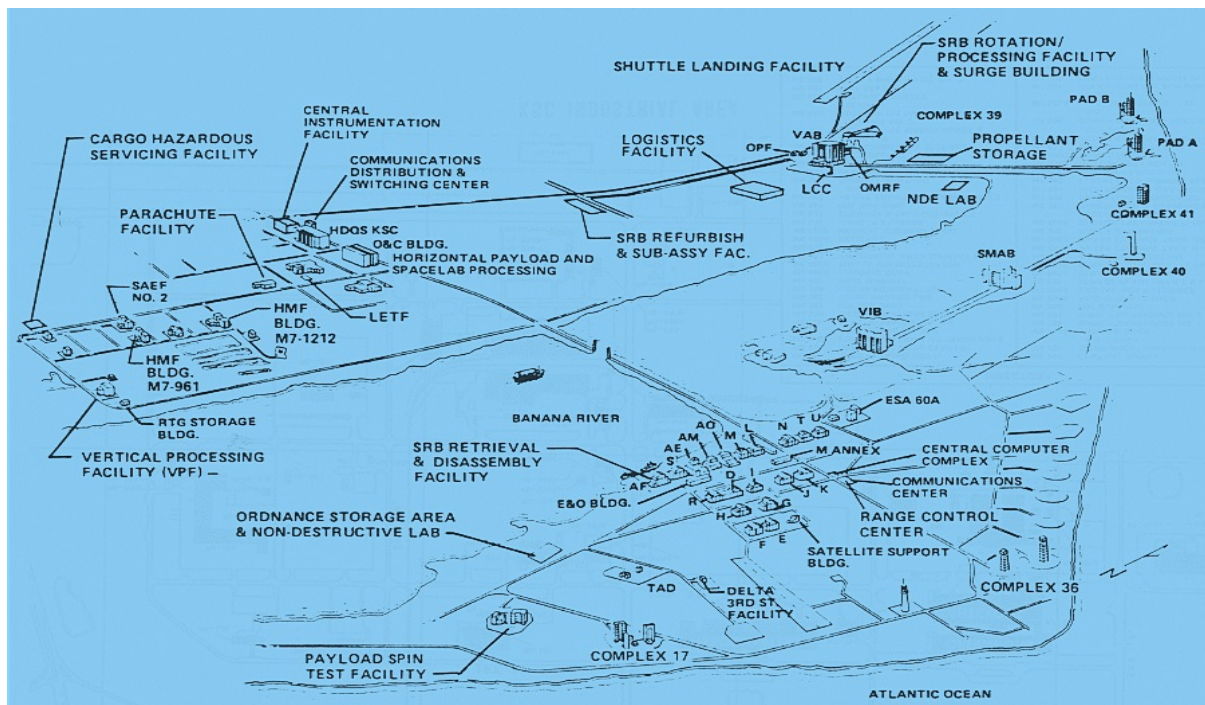
 Ghost ##
 Trout ##
 Zoom ##/Eagle ##/Rick ##

 Arris ##/Osprey ##
 Torch ##
 Hawk ##/Hitest ##
 Xray ##
 AFTI
 NASA

Note: Foreign national aircraft commanders flying in the R-2508 Complex will use a “90-series” call sign (e.g. Cobra 95). For units that use tail numbers as callsigns, add the number nine (9) to the beginning of the numerical portion of the call sign. Foreign national pilots or other crew members that are flying with a US pilot-on-board need not use the 90-series call sign.

Florida

Florida Space Coast Facilities



Shuttle Launch Nets/Frequencies

Net	Talkgroup	Usage (Conventional Frequency)
101	TG 10496	Utility Maintenance Net (Civil Engineers/Utilities/Parking Control) (171.0000 MHz)
102	TG 6800	Telemetry/Measurements/Safety

103	TG 1936	Security (Law Enforcement/Patrol)
104	TG 12496	Launch Support Operations
105	TG 1616	KSC Launch Pad 39 Safety (165.4125/173.4625/173.6625 MHz)
106	TG 8336	Logistics (170.4000 MHz)
107	TG 336	Base Operations
108	TG 9936	PAO/Hurricane Operations
110	TG 1648	Orbiter Operations (165.4125 MHz)
111	TG Unknown	Administration: Loan Pool (173.5375 MHz)
116	TG 976	KSC Fire/Rescue Dispatch
117	TG 1296	KSC Medical Services Net
201	TG 5776	General Maintenance (171.1500 MHz)
202	TG 11600	Shuttle Landing Facility Landing Systems (MSBLS/Telemetry)
203	TG 1952	Security [Tactical 2]
205	TG 1680	KSC Orbiter Processing Facility (OPF) Safety Secondary (173.4625 MHz)
206	TG 13136	Transportation (Truck)/Railroad Operations
207	TG 480	Unknown user/usage
216	TG 1136	KSC Fire Rescue (Tactical)
301	TG 14256	Utility Maintenance Net (Electrical) (173.6375 MHz)
306	TG Unknown	Marine Operations/Transportation (162.0125 MHz)
400	TG 496	KSC Security
408	TG 13776	KSC Television Operations Primary (Supports NASA TV Video)
500	TG 10576	Cargo Operations/Payloads (413.250 MHz UHF-5)
600	TG 10608	Cargo Ops Net (413.375 MHz UHF-6)
700	TG 10640	Cargo/Payload Ops Net

Cape Canaveral/Eastern Test Range Launch Nets

Net	Talkgroup	Usage (Frequency)
Net 1	----	Canaveral Port Control 2716.0 kHz (USB)
Net 6	----	5211.0 kHz(USB)
Net 7	----	5246.0 kHz (USB)
Net 8	----	Cape Radio 3041.0 kHz (USB)
Net B	TG 1760	JBOSC OMEHS Range Safety
Net B2	TG 1776	Range Safety
Net B3	TG 1792	Range Safety/Security
Net C	TG 16976	Utilities
Net D	TG 16656	CCAFS Security
Net G	TG 6736	Photo/Timing
Net H	TG 18256	Frequency Control and Analysis (FCA) Net
Net I	TG 18048	Communications Security (COMSEC)
Net Y	TG 5392	JBOSC EH (Environmental Health) Command

Kennedy Space Center

NASA/USAF Trunk System

The Kennedy Space Center trunk system is a 400 MHz Motorola SmartZone system using APCO P16 mixed mode. Scanner parameters are as follows: Base Frequency: 406.100 MHz, Spacing: 12.5-kHz; Offset: 380. This system covers an area spread over 70 miles from the north end of the Canaveral National Seashore to the Malabar Annex in Palm Bay. Within this smartzone system are one two-simulcast site, one non-simulcast site and interfaces to three Air Force leased non-simulcast sites. In this system there are seven dispatcher consoles, 3 system manager terminals, networks, computers, tone remotes, and audio interfaces. The radio count as of March 31, 2003 was 1600 handhelds, 800 vehicle mounted, and 25 base stations.

System users include a variety of civilian, military and government entities including both NASA and Air Force units. There are various talk groups that encompass a wide variety of operations in the area such as:

Administrative (Fire, Security, Medical, PAO, Transportation, GSA, etc.); Tactical (Crane, Shuttle Landing Facility Landing and Transporter operations); Air-to-Ground (Shuttle, Commercial and Military); and other groups (ALS, outside agencies, etc).

The majority of the activity observed so far has been from the Kennedy Space Center, Cape Canaveral Air Force Station and Patrick AFB areas and is generally heard on their respective sites. Many of the active talk groups heard on the system are being patched from their existing VHF/UHF nets into the trunked system. (talk group ID +3).

There have been times when the VHF nets used by security, fire and others have moved, seemingly at random, to other talk group ID's. Individual sites that are part of this Smartzone system include:

Site 1: Kennedy Space Center Main, two simulcast remote locations: 500 foot Weather Tower (remote 1) and Communications Shop Tower (remote 2)

Frequencies (12 channels) 406.2375c 406.3750c 406.4375c 406.6375c 406.8375 407.0375 407.2375
407.8375 408.0375 408.4375 408.6375 409.0250

Site 2: Northern Kennedy Space Center, location: Shiloh Tower

Frequencies (3 channels) 406.1750 409.4250 409.6375

Site 3: Cape Canaveral AFS, location: Timing Tower

Frequencies (10 channels) 406.5625c 406.9625c 407.7625c 408.1625c 408.5625 408.9625 409.3625
409.7625 410.1625 410.5625

Site 4: Patrick AFB, location: Microwave Tower

Frequencies (8 channels) 407.9625c 408.3625c 408.7625c 409.1625c 409.5625 409.9625 410.3625
410.7625

Site 5: Malabar Annex, location: Unidentified Tower

Frequencies (3 channels) 406.3625c 406.7625c 407.1625c

Trunk System Talkgroups:

CCAFS Cape Canaveral Air Force Station

KSC Kennedy Space Center

PAFB Patrick Air Force Base

208 Merritt Island National Wildlife Refuge: KRU216 – US Fish & Wildlife (Patch 165.450 MHz)
272 Canaveral National Seashore: US Park Service (Patch 164.750 MHz)
336 KSC Facility Operations Net <Net 107> [ex-170.150 MHz patch] "GYCC/GYRM/GYVW/JYBO"
416 KSC Facility Operations Net <Channel 3> "Pebble 1" (Radio Maintenance)
480 KSC Communications <Net 207>
496 KSC Security <Net 400>
512 KSC Unknown user/usage
544 KSC "48 to 88"
592 KSC "107"
656 KSC Unknown user/usage
672 KSC Alarm Technicians "Xray Operations"
688 KSC Alarm Technicians "Alpha ##"
704 KSC Public Safety Talk-Around
832 KSC Unknown user/usage
976 KSC Fire/Rescue Dispatch <Net 116> [ex-173.5625 MHz]
992 KSC Unknown user/usage
1104 KSC Fire Inspectors
1120 KSC Unknown user/usage
1136 KSC Fire <TAC 1>/Fire Alarm Technicians <Net 216> [ex-173.7875 MHz] "Fire Control/Alpha ##"
1152 KSC Fire <TAC 2>
1168 KSC Fire <TAC 3>
1200 KSC Fire Training "Rescue Leader/Rescue #"
1248 KSC Emergency Talk Group "911 Emergency"
1296 KSC Medical Dispatch <Net 117> [ex-173.4375 MHz] "KSC Medical"

1392 KSC Unknown user/usage "Alpha ##"
 1616 KSC Launch Pad 39 Safety <Net 105> [ex-173.6625 MHz, Patch 165.4125 and 173.4625] "Safety Console/Safety ##"
 1648 KSC Orbiter Processing Facility (OPF) Operations <Net 110> (Patch 165.4125 MHz) "Bay # Aft & Forward/Pad Leader"
 1664 KSC Pad Safety
 1680 KSC Orbiter Processing Facility (OPF) Safety Secondary <Net 205> (Patch 173.4625 MHz) "Safety Console/OPF Safety ##"
 1760 CCAFS Range Safety <Net B> [ex-163.5125 MHz] "Whiskey Control"
 1776 CCAFS Range Safety <Net B2> "Whiskey Control"
 1792 CCAFS Range Safety <Net B3> "Projects" [relay 270.000 MHz] "Wave Ops"
 1936 KSC Security Police Channel 1 <Net 103> [ex-173.6875 MHz] "Control"
 1952 CCAFS Security Police Channel 2 <Net 203> [ex-165.0875 MHz] "Control"
 2000 KSC Security Police "Security Emergency/Control"
 2016 KSC Security Police car-to-car/escort "Security Escort Net"
 2064 KSC Security Police
 2080 KSC Security Police supervisors
 2096 KSC Security (Possible SWAT TG)
 2112 CCAFS Security Forces <TAC 1> (ex-165.0875 MHz) "Control"
 2128 CCAFS Security Forces <TAC 2> "Control"
 2208 KSC Security Supervisors "NASA ##"
 2256 KSC Xray Operations "Xray Control"
 2272 KSC Unknown user/usage
 2416 KSC TeleScience
 2576 KSC Instrumentation
 2640 KSC Unknown user/usage
 2880 KSC Convoy Air-Ground
 2896 KSC Convoy Command Net (ex-407.325 MHz) "Houston Flight/LRD/NCC/NTC/NTD/OPS/SLF Tower and Space Shuttle on the pad"
 2928 KSC Convoy Purge Net <Channel 2> (ex-408.150 MHz)/Overhead Crane Operations "Backup Radio Van/CLS/Cool 1-5/ CTV/Escape 1/Fan 1 aka OFA1/Fan 2/FSTM/Generator 1/LRD/OBCC/ OGCU/OMC1-3/OMD/Ops/ OPBD/OSC3/Purge 1-5/Radio Van/Safety Aft/Safety Forward/Tow 1-2"
 2960 KSC Convoy Cooling Net (ex-409.175 MHz), same units as TG2928.
 2992 KSC Convoy Backup Net
 3216 KSC Unknown user/usage
 3232 KSC Unknown user/usage
 3536 KSC Unknown user/usage
 3568 KSC Unknown user/usage
 5136 KSC Alarm Technicians
 5168 KSC Unknown user/usage, test counts
 5392 CCAFS Environmental Health <Net Y> [ex-164.500] "EH Base/EH ##"
 5408 CCAFS Radmon (Radiation Monitoring) [Patch DoE 173.000]
 5472 Unknown user/usage [Patched]
 5776 KSC General Maintenance <Net 201> [Patch 171.150] "Gator Base/Gator ##/Rattler ##"
 5824 KSC General Maintenance 2
 5872 KSC Unknown user/usage
 6736 CCAFS Photo/Timing <Net G> [ex-148.485] "Camera Ops/Photo Control/Photo ##/UCS ##"
 6800 KSC Telemetric Net <Net 102> (ex-165.1875 MHz) [ex-TG 2576] "IPPC##"
 7056 KSC Crawler move <KSC-1>
 7072 KSC Unknown user/usage <KSC-2>
 7376 KSC Electrical troubleshooting
 7696 KSC Unknown user/usage
 7712 KSC Unknown user/usage
 7728 KSC Possible Convoy Operations related

7744 KSC Unknown user/usage
7760 KSC Unknown user/usage
7776 KSC Unknown user/usage
7792 KSC Unknown user/usage
7808 KSC Unknown user/usage
8016 KSC Unknown user/usage
8048 KSC Unknown user/usage
8080 KSC Unknown user/usage
8112 KSC Unknown user/usage
8336 KSC Logistics <Net 106> (Patch 170.400)
9936 KSC Public Affairs Office <Net 108> [ex-163.5375 MHz]
9952 KSC Public Affairs Office 1
10496 KSC Utility Maintenance Net (Civil Engineers/Utilities/Parking Control) <Net 101> (Patch 171.000 MHz) "Bravo Control/Bravo ###"
10576 KSC Cargo Operations/Payload <Net 500> (Patch 413.250 UHF-5)
10608 KSC Cargo Operations <Net 600> (Patch 413.375 UHF-6)
10640 KSC Cargo/Payload Operations <Payload Net 700>
10672 KSC Unknown user/usage
10896 KSC Rail Operations (ex-413.125 MHz) [ex-TG 656]
11536 KSC Shuttle Landing Facility Tower (ex-165.6125 and 128.550 MHz)
11600 KSC Shuttle Landing Facility Tower/Landing Systems (MSBLS/Telemetry) <Net 202> (ex-165.6125, simulcast on 121.750, 128.550 and 284.000 MHz)
11696 KSC Unknown user/usage "Elevator Base"
11712 KSC Unknown user/usage
12176 KSC Unknown user/usage "NASA Base, KSC Base"
12192 KSC Unknown user/usage "Security Base"
12240 KSC Security/SRB escort (tentative)
12496 KSC Launch Support Operations <Net 104> (ex-162.6125) "Life Support/LS ###/Alpha Control/Rattler ###"
12528 KSC Elevator Maintenance
12656 KSC Unknown user/usage
12816 KSC Unknown user/usage
12848 KSC Unknown user/usage
12944 KSC Training Emergency
13136 KSC Transportation/Buses <Net 206> (ex-170.175 MHz/TG 832) "Dispatch/CMT Ops"
13392 KSC Television Operations Secondary
13776 KSC Television Operations Primary (Supports NASA TV Video) <Net 408> [ex-171.2625 MHz] "KSC TV"
13920 KSC Television Operations Secondary
14096 KSC Utilities <Net 101>
14160 KSC Unknown user/usage
14208 KSC Unknown user/usage
14256 KSC Utility Maintenance Net (Electrical) <Net 301> (Patch 173.6375 MHz) "Eagle Control/Eagle ###"
14720 KSC Unknown user/usage
16336 CCAFS Fire
16384 CCAFS Fire Tac
16656 CCAFS Security
16976 CCAFS Utilities <Net C> "Cape Support"
17360 PAFB ORI
17440 CCAFS Safety
17616 CCAFS Port Control
17632 CCAFS Unknown user/usage "test counts"
17936 CCAFS Unknown usage/Troubleshooting
17952 CCAFS Television Operations

17968 CCAFS Unknown user/usage
17984 CCAFS Unknown user/usage
18000 CCAFS Cable Installers
18016 CCAFS Unknown user/usage
18032 CCAFS Unknown user/usage
18048 CCAFS COMSEC <Net I> [ex-148.035]
18064 CCAFS Unknown user/Probable COMSEC secondary
18080 CCAFS TVOC Net [possible ex-148.035]/Radiation Monitors
18096 CCAFS Unknown user/usage
18112 CCAFS Metrics/Optics Net "Metrics ##"
18144 CCAFS Launch Control Center (LCC) Timing "LCC/Timing ##"
18192 CCAFS Weather Net "Weather Base/Weather #" [ex-165.0375]
18256 CCAFS Frequency Control and Analysis <Net H> "PC Base/FS3"
18272 CCAFS Unknown user/usage "PC Base/PC#/FS3/Pebble ## comm techs"
18576 CCAFS Unknown user/usage "Complex 40 tower move"
18608 CCAFS Unknown user/usage "Antenna Operations"
18624 CCAFS Alarm Net
18672 CCAFS Unknown user/usage
18727 CCAFS Unknown user/usage " PC Base/PC #"
19352 CCAFS Unknown user/usage
19552 CCAFS Unknown user/usage
19664 CCAFS Unknown user/Weather Warnings
20176 CCAFS Launch Pad Transportation
20208 CCAFS Utilities [ex-150.250] "Ready Base/ High Voltage ##"
20496 CCAFS Unknown user/usage "test counts"
20512 CCAFS Unknown user/usage
20528 CCAFS Unknown user/usage
20544 CCAFS Unknown user/usage (encrypted communications)
20816 CCAFS Unknown user/usage
24144 Unknown user/usage (Secure)
32336 PAFB Law Enforcement Dispatch Channel 1 (clear/encrypted communications) [ex-173.025]
32352 PAFB Law Enforcement TAC 2 (clear/encrypted communications)
32368 PAFB Unknown user/usage
32384 PAFB Maintenance
32476 PAFB Civil Engineers "CE##"
32592 PAFB Unknown user/usage (encrypted communications)
32656 PAFB Fire/Rescue/Crash Dispatch Channel 1 "Fire Control" (clear/encrypted communications) [ex-164.700]
32672 PAFB Fire/Rescue/Crash TAC 2 (clear/encrypted communications)
32688 PAFB Fire/Rescue/Crash TAC 3
32976 PAFB Base Operations
33296 PAFB Unknown user/usage
33344 PAFB Unknown user/usage (encrypted communications)
33360 PAFB Unknown user/usage (encrypted communications)
33616 PAFB Unknown user/usage (encrypted communications) "Ready Control"
33632 PAFB Unknown user/usage (encrypted communications) "Ready Control" - Malabar
33652 PAFB Unknown user/usage (encrypted communications) "Ready Control, Ready 14"
33648 PAFB Unknown user/Services
33664 PAFB Unknown user/usage (encrypted communications)
33936 PAFB Medical (clear and secure communications)
33952 PAFB Unknown user/usage (clear/encrypted communications) "Gator Control"
33968 PAFB Medical Control Center (MCC) (clear/encrypted communications)
34256 PAFB Explosive Ordinance Disposal (EOD) Teams "EOD Control, EOD Base, EOD 1" [ex-163.375] (clear/encrypted communications)

34560 PAFB Unknown user/usage
 34576 PAFB Civil Engineers Channel 1 Dispatch [ex-171.3875] "CE Control"
 34592 PAFB Civil Engineers Channel 2 Electricians
 34608 PAFB Civil Engineers Channel 3
 34624 PAFB Civil Engineers Channel 4 Unit-to-Unit
 34640 PAFB Civil Engineers Channel 5 Alarm Technicians
 34864 PAFB Unknown user/usage
 34896 PAFB Supply/Ground Freight "COSO, Ramp 4" [ex-149.265]
 34912 PAFB Cargo Deployment Function/Air Freight (CDF)
 34928 PAFB Fuels (POL) "Control" [ex-165.1625]
 34944 PAFB Munitions Operations
 35216 PAFB Unknown user/usage
 35536 PAFB SRC Channel 15 (clear/encrypted communications)
 35552 PAFB Special Events Net (clear/encrypted communications)
 35568 PAFB ET (Exercise/Training) Net
 35856 PAFB Crash Net – Tower/Ramp Control [ex-173.125]
 35984 PAFB Runway Operations
 36496 PAFB Deployment Control Center (DCC) (clear/encrypted communications)
 36512 PAFB Mission Operation Support Center (MOSC) (clear/encrypted communications)
 36544 PAFB Deployment Control Center (DCC)
 36560 PAFB Medical Control Center (MCC)
 36816 PAFB Unknown user/usage
 36832 PAFB Unknown user/usage
 36848 PAFB Pad Control (clear/encrypted communications)
 37126 PAFB Unknown user/usage
 37456 PAFB Unknown user/usage (Encrypted communications)
 37776 PAFB Command Net (clear/encrypted communications) "Reef/Shark #/Shark Control"
 38144 PAFB Base Transportation "Dispatch/Mobile 1"
 38736 PAFB Unknown user/usage
 39056 PAFB ORI Use
 41616 PAFB Unknown user/usage
 41648 PAFB Unknown user/usage (Encrypted communications)

Land Mobile Frequencies:

Note: All land mobile communications are believed to have moved to the KICS trunked system. Reports from the area on this situation are requested and appreciated.

Administration (Loan Pool)	173.5375 (NASA Net 111)
Civil Air Patrol	148.1500 (Repeater output and simplex)/143.9000 107.2-Hz PL 148.1250/? 107.2-Hz PL 149.5375 149.9000 SSTV image downlinks
Crane Operations	407.1000 409.5250 409.7750
Department of Energy Support Net	167.9250
Fuels/General Maintenance Net	171.1500 (NASA Net 201)
KSC Direct 2	411.4000 118.8 Hz PL
KSC Direct 7	411.4500 123.0-Hz PL
KSC Direct 8	411.7375
KSC Tours Delaware North	154.5150 "Tour Control" 154.6000 "Custodial Base"
Logistics	170.4000 (NASA Net 106)
Marine Operations/Transportation	162.0125 (NASA Net 306)
Medical Net	173.4375 "DoD Surgeon" (NASA Net 117) UHF Medical Net operates out of Patrick AFB
Orbiter Processing Facility (OPF) Operations	165.4125 (NASA Net 110/TRS TG 1648)
Orbiter Processing Facility (OPF) Safety Secondary	173.4625 (NASA Net 205/TRS TG 1680)

Public Affairs/Hurricane Operations	163.5375 (NASA Net 108)
Regional Medical	155.3400
Sandia Labs Simplex Support Frequency (DoE)	167.8500 168.4500 (Tone)
Satellite/Payload Maintenance	413.3250
Utility Maintenance Net (Civil Engineers/Utilities/Parking Control)	171.0000 "Bravo Control" (NASA Net 101/TRS TG 10496)
Utility Maintenance Net (Electrical)	173.6375 "Eagle Control"
Vehicle Assembly Building to crawler transport duplex channels	407.6000 and 412.9750 (Crawler No 1), 408.0250 and 413.8250 (Crawler No 2)
Vehicle Assembly Building crane operation	410.1375 410.8625 (Data)

Spaceport USA Visitor Center (Delaware North Corporation)

Delaware North Security	152.3450/157.6050 167.9 Hz PL
Delaware North Maintenance	152.4050 /157.6650 167.9 Hz PL
Delaware North	152.4500 (simplex) 167.9 Hz PL
Center Tour Buses	154.5150 (simplex) 167.9 Hz PL
Custodial Services	154.6000 (simplex) 167.9 Hz PL
Traveler Information Service (TIS) Spaceport USA	1320 kHz (AM-10 watts)

Miscellaneous Frequencies:

Air Traffic Control Radar	1250.0 MHz (erratic pulses)
Air Traffic Control Radar Beacon System (ATCRB)	1030.0 MHz (Pulse every 14 seconds) and 1090.0 MHz
Crane Telecommand	408.49375 408.96875
Crawler Transport System	916.0000 (Pulses every 3, 3, 8 seconds) 929.0000 939.0000
Department of Defense Support Operations Center	138.4500 282.8000
KSC Air Operations	123.6500 284.0000
Remote camera control (data signal provides camera status to control facility)	407.5750 412.8500 932.00625 (Pulse every 3.8 seconds) 941.00625 [Multipoint-to-point operations]
Solid Rocket Booster (SRB) Recovery Beacons	240.0000 242.0000 (Data)
VA Heliport (Shrands-Gainesville, FL)	123.0500
Weather instrumentation (telemetry) net	409.9250 413.0500
Wind telemetry system	418.0750
Wireless mikes	169.5050 170.2450 171.0450 171.9050

Industrial Area Pool Frequencies:

412.8250	UHF-1
412.9500	UHF-2 PL 210.7-Hz
413.0250	UHF-3
413.1500	UHF-4
413.2500	UHF-5 Cargo Operations/Payloads (TRS TG 10576)
413.3750/413.050	UHF-6 Cargo Operations (TRS TG 10608)
413.5250	UHF-7
413.5500	UHF-8

Kennedy Shuttle Landing Facility (KTTS) (All AM mode)

Approach/Departure (Orlando)	132.650/281.425 (South) 134.950/239.275 (North)
Civilian/Military Guard/Emergency	121.500 243.000
Civilian Traffic Advisory	123.600
Ground Control	121.750
Orbiter to ground	259.700 279.000 (also EVA) 296.800
Shuttle Launch Air Support (Weather/	

Shuttle training aircraft)	126.650
Tower Local/Helicopter Control	128.550/284.000

Cape Canaveral Air Station

Land Mobile Frequencies:

Note: All land mobile communications are believed to have moved to the KICS trunked system. Reports from the area on this situation are requested and appreciated. Space Ground Link Subsystem (SGLS)-See listing in NASA General Listings above

Air Force Office of Special Investigation (OSI)	138.075/139.675 138.175 141.525
Boeing Company	451.400/456.400 (P25) 452.175/457.125 (P25) "Delta Control"
CML/OFS	142.125
Command Destruct	416.500
ETR FTS Command Alert	168.000 (tone data signals)
Photo/Timing	173.6375 (ETR Net G/TG 6738)
Security Alarm Maintenance:	407.225
Unknown user/usage	149.500 (test counts, shuttle launch support)

Cape Skid Strip (KXMR) (All AM mode)

Approach/Departure (Orlando)	132.650/281.425 (South) 134.950/239.275 (North)
CCAFS Projects	229.000 (AM)
Guard	121.500
Tower	118.625/239.050 126.200 143.150
Weather	344.600 "Cape Metro"

Note: 118.625 Cape Tower has been heard also on 136.650 and 138.450

Miscellaneous Cape Frequencies

Data Signals	138.1000 148.6500 1030.0 MHz (IFF/SIF pulse every 14 sec.)
Weather Balloons (Rawinsonde)	403.000 (Data; pulse tones) 1680.0 MHz (Rawinsonde Weather Balloon, pulse every 4, 10 seconds)

Eastern Test Range (ETR) – Malabar

Air Force Emergency Hurricane Net	3365.0 4900.0 5350.0 7412.0 10305.0 (All kHz)
Air-to-Ground Support (Aerial Refueling)	253.000 (AM) "Jolly"
FACSFAC Jacksonville "Sealord"	3130.0 3166.0 4058.0 6723.0 6742.0 11205.0 kHz (USB) 120.950 133.950 134.650 135.825 267.500 270.600 284.500 307.200 349.900 369.900 385.100 MHz (AM)
FACSFAC Vacapes "Giant Killer"	2252.0 4372.0 6723.0 8297.0 8969.0 kHz (USB)
Federal Aviation Administration (FAA)	172.850 (repeater output/169.250 repeater input) 166.175 172.175
NORAD Launch Combat Air Patrol (CAP)	228.900 252.000 260.900 (AR) 364.200 (AICC) "Huntress"
Range to Ascension/Antigua Net	6937.0 7833.0 9043.0 9132.0 10310.0 11104.0 11407.0 11414.0 11548.0 11622.0 13878.0 13986.1 14559.5 14896.0 14937.0 15610.0 17490.0 17668.0 18196.0 18237.0 18355.0 18769.0 19304.0 20189.0 20195.0 23413.0 23581.0 24240.0 24760.0 27720.0 27870.0 (All kHz)
Range Clearance Function	2638.0 kHz (USB) 156.800 157.075 157.100 157.150 MHz
Range Contingency Support	11440 kHz (USB) 46.650 "Jolly 1-4 Air-Air" (FM 131.8-Hz) 138.450 349.600 "DoD Cape and Jolly/King" (AM)
Range Control	Cape Radio – 2622.0 3041.0 5810.0 7672.0 7765.0 10780.0 11407.0 11615.5 13878.0 20195.0 20390.0 (All kHz)

	133.800/264.800 "Cape Control" 284.100 291.800 320.200 "Cape Radio" 324.700 340.800 350.600 Net 5 Alpha (AM)
Range Launch Operations	266.200 308.950 320.050 (AM)
Range Pegasus Mission Support	128.150 (AM)
Range Projects	270.000 (AM)
Range/Restricted Area Surveillance	141.300 294.600 (AM) "Variety Net"
Space Shuttle Support	5187.0 kHz (USB)
US Navy Atlantic aircraft/ships	2836.5 kHz (USB)
US Navy Atlantic aircraft	4828.0 5718.0 6693.0 6708.0 6723.0 9006.0 11205.0 11252.0 13227.0 13237.0 15021.0 15051.0 15057.0 15067.0 18009.0 (All kHz and USB)
US Navy Atlantic ships	4521.0 4766.0 4856.5 5246.0 6897.0 7461.0 7676.0 9043.0 (All kHz and USB)
US Navy Fleet Common	277.800 (AM)
US Navy Surface Radar	1250.0 MHz

Port Canaveral

HF/VHF frequencies:

2716.0 kHz	Port Canaveral Harbor common (USB)
154.905/151.635	Canaveral Port Authority Security repeater (DCS 734) (unlicensed)
158.385/Unknown	Canaveral Port Authority Security repeater (DCS 310) (unlicensed)
156.600 (Marine Channel 12)	Coast Guard Port Operations/Port Canaveral Harbor Pilots "Canaveral Control"
156.800 (Marine Channel 16)	Maritime Distress, Safety and Calling
157.050 (Marine Channel 21)	
157.075 (Marine Channel 81)	Coast Guard Range Control, launch danger zone broadcast
157.100 (Marine Channel 22)	Coast Guard Notice-to-Mariners (NTM) launch danger zone broadcast
157.150 (Marine Channel 23)	Coast Guard Working, Port Canaveral (clear and DES encryption)
157.175 (Marine Channel 83)	Coast Guard Auxiliary maritime surveillance
159.090/Unknown	Canaveral Port Authority Security (DCS 031)
159.150/155.610	Canaveral Port Authority Security "Port Control" (DCS 031)
163.4125	U.S. Army Corps of Engineers
163.4375	U.S. Army Corps of Engineers <Channel 3>

Solid Rocket Booster (SRB) Recovery Ship – Eastern Test Range

HF SRB Recovery Vessels Nets	2356.0 2622.0 2639.0 (Intership operations) 2716.0 (Harbor Operations) 2764.0 2800.0 2820.0 2837.0 3187.0 3365.0 4521.0 5180.0 5190.0 5211.0 5810.0 7676.0 7765.0 7833.0 10780.0 kHz (plus various VHF marine channels)
UHF SRB Locator Beacons	240.000 242.000 MHz
UHF SRB Recovery Vessels Net	310.000 "Liberty Star/Raven 2" (AM)

VHF Radiotelephone Net:

156.025 Marine Channel 60	156.050 Marine Channel 01	156.100 Marine Channel 02
156.125 Marine Channel 62	156.150 Marine Channel 03	156.175 Marine Channel 63
156.200 Marine Channel 04	156.225 Marine Channel 64	156.250 Marine Channel 05
156.275 Marine Channel 65A	156.300 Marine Channel 06	156.325 Marine Channel 66A
156.350 Marine Channel 07A	156.375 Marine Channel 67	156.400 Marine Channel 08
156.425 Marine Channel 68	156.450 Marine Channel 09	156.475 Marine Channel 69
156.500 Marine Channel 10	156.525 Marine Channel 70	156.550 Marine Channel 11
156.575 Marine Channel 71	156.600 Marine Channel 12	156.625 Marine Channel 72
156.650 Marine Channel 13	156.675 Marine Channel 73	156.700 Marine Channel 14
156.725 Marine Channel 74	156.750 Marine Channel 15	156.850 Marine Channel 17

156.875 Marine Channel 77	156.900 Marine Channel 18A	156.925 Marine Channel 78A
156.950 Marine Channel 19A	156.975 Marine Channel 79A	157.000 Marine Channel 20
157.025 Marine Channel 80A		

Patrick AFB/Cocoa Beach (KCOF)

Note: All land mobile communications are believed to have moved to the KICS trunked system. Reports from the area on this situation are requested and appreciated.

Land Mobile Systems:

Air Force Military Affiliate Radio	
System (MARS)	142.1500 143.4500 (Repeater output)
Medical	173.4375 also UHF MED 1-10 channel pairs (462.9500/468.9500-463.1750/468.1750)
Wireless Mikes	170.3050

Aeronautical Frequencies:

920th Rescue Wing Air-Air (Refueling)	138.475 "Jolly/King" (AM)
920th Rescue Wing Miscellaneous	259.000 (AM)
920th Rescue Wing Parajump Air-Ground (Judy Drop Zone)	251.900 "Jolly/King" (AM)
920th Rescue Wing Search and Rescue Contingency/Training	236.000 (AM)
920th Rescue Wing/39RQS Operations	321.000 "King Ops" (AM)
920th Rescue Wing/301RQS Air-Air	46.650 "Jolly" (FM)
920th Rescue Wing/301RQS Operations	255.500 "Jolly Ops" (AM) <LARS Alpha>
Airshow Boss (2001 airshow)	121.050/257.425 (AM)
Airshow SAR Demonstration (2001 airshow)	122.925 (AM)
ALCP (Global HF through Cape Radio)	139.050/383.0 (AM)
Approach (Single Frequency)	126.400/290.800 (AM)
Approach/Departure Control (Orlando)	132.650/281.425 (South) 134.950/239.725 (North) (AM)
Approach/Departure Control (Regional)	290.800 297.200 358.300 369.200 372.800 378.800 (AM)
Automatic Terminal Information Service	119.175/273.500 (AM)
Clearance Delivery	118.400/289.400 (AM)
Consolidated Command Post	138.300 383.000 "MAYAAP Control" (AM)
Eastern Test Range Control	324.7 340.8 (AM)
Flight Check (FAA)	135.850 (AM)
Ground Control	124.350/335.800 (AM)
Launch Operations (ETR)	266.200 308.950 320.050 (AM)
NASA ER-2 Operations	138.025 290.800 328.025 378.800 (AM)
NORAD Air Defense Air-to-Ground	148.125 282.400 364.200 (AM)
Pilot-to-Dispatcher (PTD)	139.300/372.200 (AM)
Search and Rescue Training	236.000 251.900 252.800 259.000 (AM)
Tower	133.750/269.375 372.800 (AM)
Training Operations	225.350 316.275 351.200 363.900 383.200 385.700 395.100 (All AM)
Weather (Metro)	344.600 (AM)

Miscellaneous Systems (data/digital transmissions)

ARIA Aircraft Radar	1441.5
ATC Approach Radar	1265.0 1345.0 (wideband sweep pulse)
Base Fire Alarm System	138.9250
Base Paging	142.6750 931.8375 (digital, leased)

ILS Glide Slope	330.800 (Rwy 20) 331.400 (Rwy 2)
Radar (IFF)	1030.0
Weather Balloon Telemetry	1680.0

Canaveral National Seashore (National Park Service)

Note: The Cape NPS is now linked on the KSC trunk system, talkgroup 272.

164.7500/164.2500	KID 767-New Smyrna Beach Ranger Station to Oak Hill repeater
164.7500/164.2500	KID 768-Turtle Mound Ranger Station to Oak Hill repeater
164.7500/164.2500	KID 717-Wilson Park Headquarters to Oak Hill repeater
163.1250 164.6250 164.7500	KL4614-Simplex
Loggerhead Turtle Tracking System (NPS)	
Very low power	164.4375 164.4625 164.4875 164.5125 164.5375 164.5625 164.5875 164.6125 164.6375 164.6625 164.6875 164.7125

Merritt Island National Wildlife Refuge (U.S. Fish and Wildlife Service)

Note: The US FWS is now linked on the KSC trunk system, talkgroup 208

247 kHz	Merritt Island Non-Directional Aeronautical Beacon (NDB) COI (CW)
163.150	USFW Simplex <Tac 1>
164.625	USFW Simplex
165.450/166.725	USFW Repeater (Analog/APCO-25 digital)
168.350	USFW Simplex <Tac 2>

Melbourne Area (Miscellaneous)

Melbourne International Airport (KLMB) (All AM mode)

ATIS	132.550
Approach/Departure (Orlando)	132.650/281.425
Flight Service Station (St. Petersburg FSS)	123.600 (Titusville RCO)
Ground Control/Clearance Delivery	121.900
Northrup-Grumman Operations	123.200 139.775 141.850 231.750 382.600
Northrup-Grumman St. Augustine	236.250 "Echo Base"
TACAN (Titusville-TTS)	1146.00 (Channel 59Y)
Tower	118.200 124.050 257.800
Unicom	122.950

Space Coast Regional Airport (KTIX) (All AM mode)

Air Scan Inc	123.475 "Bat Cave"
Approach/Departure (Orlando North)	134.950/239.275
ATIS	120.625
Flight Service Station (St. Petersburg)	123.600 (Titusville RCO)
Ground Control	121.850
Helicopter Control	119.875
Tower	118.900
Unicom	122.950 123.025 (Helicopter)

Area Air Route Traffic Control Center Frequencies

Jacksonville ARTCC

Daytona RCAG	134.000/273.550
St. Augustine RCAG	126.350/307.250 127.475/346.250 135.450/256.875

Miami ARTCC

Avon Park RCAG	281.500
Key West RCAG	323.100
Melbourne RCAG	119.825/379.250 128.650/343.700 133.475/269.300 135.075/348.700
Pahokee RCAG	307.100
Sarasota RCAG	307.300
Vero Beach RCAG	319.000

Area Approach/Departure Control Frequencies

Daytona Approach/Departure Control	125.800/379.950 387.000
Jacksonville Approach Control	118.600 123.800 351.800
Orlando Approach Control	121.100 284.700 339.800 351.900 124.800/307.000
Tampa Approach Control	119.800 135.500 279.600 290.300

Miscellaneous Intercepts Observed in Melbourne Area

Data	908.000 (Pulse every 1, 3, 5 seconds)
FAA	269.300 348.700 379.250 998.000 (Pulse every 14 seconds)
FAA DME	998.000
FBI (Repeater outputs)	167.2125 167.3125 167.6625 167.7875
Immigrations and Customs Enforcement	165.2375/166.4375 (Repeater output-talk around/input) 166.4875 (Simplex)
National Weather Service broadcasts	162.550
U.S. Air Force	141.850 (Unmodulated carrier)

Area UHF Medcom

<i>Hospital/Unit</i>	<i>Contact Nets</i>
Brevard EOC	463.175/468.175 <Med-8> PL-H.
Cape Canaveral Hospital	463.025/468.025 <Med-2> PL-A, or "Brevard County EOC."
Florida Hospital	"Orange County Medcom" on 463.175/468.175 <Med-8> PL-H. The Florida Hospital helipad control also uses 155.400 MHz PL 118.8, or 155.22 MHz - PL 131.8, or on UNICOM frequency 123.050 MHz AM.
Halifax Medical Center	"Evac Dispatch" on 463.175 <Med-8> PL-H via patch. Halifax also uses UNICOM 123.050 MHz AM.
Holmes Regional Medical Center	463.100/468.100 <Med-5> PL-D, or "Brevard County EOC."
KSC Command Post Physician	KSC Med Net 117 or 463.150/468.150 <Med-7> PL-B
KSC EMS Coordinator	KSC Med Net 117 or 463.150/468.150 <Med-7> PL-B
Orlando Regional Medical Center (ORMC)	"Orange County Medcom" on 463.175/468.175 <Med-8> PL H. ORMC also uses VHF-FM frequency 155.340 MHz - PL 85.4, or UNICOM 123.050 MHz AM.
Parrish Medical Center	463.075/468.075 <Med-4> PL-C, or "Brevard County EOC."
Shands Teaching Hospital	"Alachua EOC" on 462.950/467.950 <Med-9> PL-E via patch. Shands Hospital direct 463.125/468.125 <Med-6> PL E. The Shands Heliport USES UNICOM 123.025 MHz AM.
Wuesthoff Hospital	463.050/468.050 <Med-3> PL-B, or "Brevard County EOC."

KSC Medical Codes

Med Code 0	Patient deceased or severely injured beyond reasonable expectation of survival.
Med Code 1	Condition critical, patient requires immediate care and evacuation.
Med Code 2	Condition fair to poor, patient's need for care is not so acute, but will require care before evacuation.
Med Code 3	Condition good to fair, patient with injuries which do not require hospitalization; some medical care may be needed, but not on a time critical basis.

Brevard County Public Safety Trunk System

This 800 MHz EDACS trunk system does have units on it from NASA and other government agencies/military services in the area of KSC/CCAS. The best information available on this trunk system I have found to date is on the East Central Florida Scanner Page maintained by John Gerstner at <http://home.cfl.rr.com/scanner/>.

Louisiana

Michoud Assembly Facility, New Orleans

Fire Department	173.6125/170.575							
HF Nets	2182.0	2206.0	2382.0	3380.0	3385.0	3395.0	6230.0	6982.5
	14455.0 kHz (Various modes)							
Maintenance Nets								
164.1000 (NOLA Net 201)	164.9875 (NOLA Net 203)				167.9750 (NOLA Net 220)			
171.1500 (NOLA Net 205)	408.0000 (NOLA Net 215)				411.4500/408.4250			
408.8000 (NASA Net 212)	409.1250 (NOLA Net 217)				410.0000 (NOLA Net 214)			
410.2000 (NOLA Net 218)	417.6500 (NOLA Net 219)				419.1500 (NOLA Net 216)			
Miscellaneous Nets								
162.0125 (NOLA Net 208)	164.2000				164.9750 (NOLA Net 213)			
168.4500	173.7375 (NOLA Net 202)				406.2250			
409.2000	409.2250				413.8750			
Paging System	172.2250							
Transportation Net	164.7000 170.4000 (NOLA Net 206)							

Analog EDACS Regular Trunk System

Frequencies: 406.550 (LCN01) 407.350 (LCN02) 408.150 (LCN03) 408.950 (LCN04) 409.750 (LCN05)

Talkgroups:

00-041	33	Unknown user/usage
00-081	65	Unknown user/usage
00-083	67	Unknown user/usage
00-085	69	Unknown user/usage
00-087	71	Unknown user/usage
00-091	73	Unknown user/usage
00-093	75	Unknown user/usage
00-131	105	Unknown user/usage
01-003	131	Unknown user/usage
01-007	135	Unknown user/usage
01-016	142	Unknown user/usage
01-020	144	Unknown user/usage
01-022	146	Unknown user/usage



Figure 15 NASA Michoud

Maryland

Goddard Space Flight Center, Greenbelt

Construction	410.1750
Miscellaneous Net	164.1750 167.8250 167.9750 170.0250 170.1750 170.4000
	171.0000 171.1500 173.6625 173.6875
Paging System	167.9259
Security Net	170.3500

Motorola Type II Smartnet Analog TRS

Motorola System ID: 4631

Base Frequency: 407.000 MHz, Spacing: 25-kHz; Offset: 380; Control Tone: 97.3-Hz

Frequencies: 407.0000 (PP) 408.1500c 408.6250c 409.5250c 410.7250c

Talkgroups:

176	Security
560	Pneumatic (Tentative)
656	Electricians
688	Maintenance

Mississippi

John C. Stennis Space Flight Center

Website: <http://www.nasa.gov/centers/stennis/home/index.html>

System: Motorola Type II Smartnet Analog

Motorola System ID: 6e17; Connect Tone: 138.46 Hz

Base Frequency: 406.000 MHz, Spacing: 25-kHz; Offset: 380

Frequencies: 406.3500 406.7500 407.1500 407.5500c 407.8875c 407.9500c 408.7250c 408.7500 409.5250c 409.5500

Talkgroups:

16	Police Primary	1296	HPIW]
176	Fire/Rescue Primary	1328	TSC Engineering [TSC ENGR]
528	NASA Safety [NASA SAF]	1328	TSC Safety [TSC SAF]
656	Heating, Ventilating and Air Conditioning (HVAC) [HVAC]	1360	TSC Cryogenics [TSC CRYO]
688	Electricians [FSC ELEC]	1392	TSC High Pressure Industrial Gases [TSC HPIG]
720	Plumbing [PLUMBING]	1424	TSC Announcement [TSC ANNC]
752	Carpenters [CARPENTR]	1456	Environmental Lab 1 [ENV LAB 1]
784	Heavy Equipment [HVV EQ]	1904	PTO Announcement [PTO ANNC]
816	Pearl River Barges [Tentative] [PM Shop]	1936	FSC Work 1 [FSC WK 1]
848	Roads/Grounds [ROAD/GND]	2096	Transportation Dispatch [TRAN DIS]
912	Construction [Tentative] [SHUTTLE 1]	2208	Unknown user/usage
944	UCS [UCS]	3056	Coordination 1 [COORD 1]
976	Visitor Center Buses [VIS CNTR]	3088	Coordination 2 [COORD 2]
1008	Marine Operations [MARINE]	3120	Shelter [SHELTER]
1040	FSC Engineering 1 [FSC ENG 1]	3280	Unknown user/usage
1072	FSC Safety [FSC SAF]	3632	Unknown user/usage
1104	FSC Announcement [FSC ANNC]	4048	E1 Test Stand Electrical [EL ELEC]
1136	TSC Mechanical [TSC MECH]	4080	E1 Test Stand Mechanical [E1 MECH]
1168	TSC H L [TSC H L]	4112	ECX D [ECX D]
1200	TSC EL 1 [TSC EL 1]	4176	E2 Test Stand Electrical [E2 ELEC]
1232	TSC EL 2 [TSC EL 2]	4208	E2 Test Stand Mechanical [E2 MECH]
1264	TSC High Pressure Industrial Water [TSC	4240	ECX B [ECX B]
		4400	FSC TSD 1 [FSC TSD 1]

4432 FSC TSD 2 [FSC TSD 2]
4464 FSC TSD 3 [FSC TSD 3]
4656 ECX A [ECX A]
4688 ECX C [ECX C]
4816 Aircraft Unicom (patch to 122.800 MHz)
4848 Railroad Bridge Tenders at the Rigolets
4880 Unknown user/usage
5104 Unknown user/usage
5136 Unknown user/usage
5168 Unknown user/usage
5440 Unknown user/usage
6416 A1 Test Stand Electrical [A1 ELEC]
6480 A1 Test Stand Mechanical [A1 MECH]
6512 ACX A [ACX A]
6544 ACX B [ACX B]
6576 Unknown user/usage
6608 A2 Test Stand Electrical [A2 ELEC]
6640 A2 Test Stand Mechanical [A2 MECH]
6672 ACX C [ACX C]
6704 ACX D [ACX D]
6736 Unknown user/usage
6768 B1 Test Stand Electrical [B1 ELEC]
6800 B1 Test Stand Mechanical [B1 MECH]
6992 BCX A [BCX A]
7024 BCX B [BCX B]
7056 BCX C [BCX C]
7088 BCX D [BCX D]
45952 Unknown user/usage
65520 Emergency or Announcement



Figure 16 Test Stand at John C. Stennis SC

Ohio

Glenn Research Center, Cleveland

EDACS Standard Analog TRS

Frequencies: 406.350 (LCN01) 407.150 (LCN02) 407.950 (LCN03) 408.750 (LCN04) 409.550 (LCN05)

Talkgroups:

02-025	277	Mechanical Engineering
02-031	281	Unknown user/usage
02-041	289	Unknown user/usage
02-042	290	Alarms
02-050	296	Electrical Engineering
02-052	298	Unknown user/usage
02-053	299	Mechanical Engineering
02-057	303	Unknown user/usage
02-085	325	Unknown user/usage
02-101	337	Unknown user/usage
02-146	374	Unknown user/usage
02-157	383	Unknown user/usage

We have field reports that the center is testing a new P25 TRS. Only frequency being reported is 406.775 (a control channel). More reports are requested.

Texas

Johnson Space Center, Houston

Note: It would appear that most of the VHF/UHF nets below have moved to the new P25/encrypted trunk systems listed below. We are waiting for further monitoring information from the area to confirm this.

Administrative net	164.9875
Bridge Crane Operations Building 48	429.6725
Civil Defense (emergencies/disasters only)	155.2650
Construction/Maintenance Building 49	
(Alpha Net, repeater in 164.7000)	170.3500
Emergency Radio Station KHA926	1690 kHz
Engineering/Maintenance net Building 1	
(repeater input 168.0000)	169.0000
JSC Paging System	409.0250
Medical Net Building 45	
(repeater input 168.450)	170.3750
Medical Network (repeater input 407.1750)	409.1750
Mutual Aid (emergencies/disasters only)	154.2800
NASA TV Audio (Shuttle Mission Audio)	171.1500
Paint Net Building 49	173.6625
Procedures Net	173.6875
Public Affairs Net Building 45	
(repeater input 171.000)	170.1000
Security Net	164.2000
Texas Intercity (emergencies/disasters only)	155.3700
Transportation Net Building 320	
(repeater input 172.300)	173.8125
JSC Trunking System	
System:	Motorola Type II SmartZone (APCO-25 Exclusive)
Motorola System ID:	b32c
Base Frequency:	406.100; Spacing: 12.5 kHz; Offset: 380



Figure 17 NASA Johnson Space Flight Center

Frequencies (P25 encrypted)	406.2375/415.2375c 406.4375/415.4375c 406.8375/415.8375c 407.0375/416.0375 407.2375/416.2375 407.4375/416.4375 407.6375/416.6375 408.5500/417.5500 409.5125/418.5125 409.7125/418.7125 409.9125/418.9125 410.3875/419.3875c
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Ellington Air Force Base

ATIS	135.575 269.900 MHz (AM)
Ground Control	121.600 275.800 MHz (AM)
Houston Approach/Departure Services	134.450 MHz (AM)
NASA Aircraft Operations	123.125 (AM) 170.750 (FM)
NASA Air-to-Ground	235.400 (AM)
Nation Guard Radio	41.000 (FM)
Pilot-to-Dispatch	372.200 MHz (AM)
Radar Approach	134.100 271.300 284.000 390.800 396.000
Tower	126.050 253.500 MHz (AM)
Unicom	122.950 MHz (AM)

Virginia

Langley Research Center - Hampton

Civil Engineers	173.1000
Directors Net	173.6375
Duty Officer	173.6625
Fire Department	173.6125
Flight Support	123.150 123.450
Inspection Operations	173.6875
High Temperature Tunnel Operations	170.7500
Landing Dynamics Operations	166.4875
Maintenance	170.1250
NASA Air Operations	314.600 382.600
NASA Operations	122.850 164.9875
Noise Test	40.8700 49.8300
Operations Support	171.1500
Paging System	170.4000
Safety Operations	173.5000
Security	165.6250 170.0000 173.0500
Supply	170.3500
Wind Tunnel Operations	171.0000
Wyle Lab Operations	166.2250

Wallops Island Flight Facility

Air-to-Ground Net	264.550 310.650 326.300 382.600
Approach/Departure Control	127.950 314.000 [Patuxent River Approach//Departure Services] 132.550 134.100 353.600 [Washington ARTCC]
ASOS Weather System	119.175
Clearance Delivery	121.700
Coordination Net	139.4750 140.2750
Distress, Safety and Calling (Marine)	156.8000
Earth Station Operations	166.0500
Facility Maintenance	171.3875
Flight Test Support	122.850 123.150 123.175 123.200 123.225 123.250 123.300 123.375 123.450 123.550
Instrumentation Net	149.1500 149.3250

Medical Net	171.0000				
Miscellaneous Net	236.450	256.550			
NASA Aircraft Operations	311.200				
NASA Range Surveillance Aircraft/ Mission Net	121.950	123.400			
Paging System	170.4000				
Security	170.3500				
Test Range Operations	166.2250	171.1500	314.600		
Test Range Safety	156.3000	156.6000	156.6250	156.7000	164.7000
Tower	126.500	394.300			
Transportation Dispatch	46.7300				
Unicom	122.800				

System: EDACS Networked Standard Analog

Frequencies:

Site 101 170.3875 <LCN02> 173.4250 <LCN04>

Site 102 170.7625 <LCN01>

NASA Callsigns

KHA 900-904	NASA Headquarters HF Callsigns	Washington, DC
KHA 905-909	Ames Research Facility HF Callsigns	Mountain View, CA
KHA 910-914	Dryden Flight Research Center HF Callsigns	Edwards AFB, CA
KHA 915-919	Goddard Space Flight Facility HF Callsigns	Greenbelt, MD
KHA 920-924	Jet Propulsion Laboratory HF Callsigns	Pasadena, CA
KHA 925-929	Johnson Space Center HF Callsigns	Houston, TX
KHA 930-934	Kennedy Space Center HF Callsigns	Kennedy SC, FL
KHA 935-939	Langley Research Center HF Callsigns	Langley, VA
KHA 940-944	Glenn Research Center HF Callsigns	Cleveland, OH
KHA 945, 947-949	Marshall Space Flight Center HF Callsigns	Huntsville, AL
KHA 946	Michoud HF Callsigns	New Orleans, LA
KHA 950-954	Stennis Space Center HF Callsigns	Picayune, MS
KHA 955-959	Wallops Flight Facility HF Callsigns	Wallops Island, VA
KHA 960-969	Spare HF Callsigns	Nationwide
NA2XAA-NA2XGZ	Glenn Research Center Experimental Callsigns	Cleveland, OH
NA2XHA-NA2XOZ	Dryden Flight Research Center Experimental Callsigns	Edwards AFB, CA
NA2XPA-NA2XZZ	Langley Research Center Experimental Callsigns	Langley, VA
NA3XAA-NA3XGZ	Ames Research Facility Experimental Callsigns	Mountain View, CA
NA3XHA-NA3XOZ	Goddard Space Flight Facility Experimental Callsigns	Greenbelt, MD
NA3XPA-NA3XRZ	NASA Headquarters Experimental Callsigns	Washington, DC
NA3XSA-NA3XZZ	Jet Propulsion Laboratory Experimental Callsigns	Pasadena, CA
NA4XAA-NA4XEZ	Marshall Space Flight Center Experimental Callsigns	Huntsville, AL
NA4XFA-NA4XJZ	Stennis Space Center Experimental Callsigns	Picayune, MS
NA4XKA-NA4XUZ	Wallops Flight Facility Experimental Callsigns	Wallops Island, VA
NA4XVA-NA4XZZ	Kennedy Space Center Experimental Callsigns	Kennedy SC, FL
NA5XAA-NA5XGZ	Johnson Space Center Experimental Callsigns	Houston, TX
WPBA 200-214	NASA Headquarters VHF/UHF Callsigns	Washington, DC
WPBA 215-229	Ames Research Facility VHF/UHF Callsigns	Mountain View, CA
WPBA 230-244	Dryden Flight Research Center VHF/UHF Callsigns	Edwards AFB, CA
WPBA 245-259	Goddard Space Flight Facility VHF/UHF Callsigns	Greenbelt, MD

WPBA 260-274	Jet Propulsion Laboratory VHF/UHF Callsigns	Pasadena, CA
WPBA 275-289	Johnson Space Center VHF/UHF Callsigns	Houston, TX
WPBA 290-304	Kennedy Space Center VHF/UHF Callsigns	Kennedy SC, FL
WPBA 305-319	Langley Research Center VHF/UHF Callsigns	Langley, VA
WPBA 320-335	Glenn Research Center VHF/UHF Callsigns	Cleveland, OH
WPBA 336-350	Marshall Space Flight Center VHF/UHF Callsigns	Huntsville, AL
WPBA 351-365	Stennis Space Center VHF/UHF Callsigns	Picayune, MS
WPBA 366-380	Wallops Flight Facility VHF/UHF Callsigns	Wallops Island, VA

NASA Aircraft Callsigns



Figure 18 NASA aircraft at Dryden in 1976

NASA 1	G-1159/Gulfstream III	Headquarters Washington, DC	#N1NA
NASA 2	Gulfstream I	Johnson Space Center, TX	#N2NA
NASA 3	G-1159/Gulfstream III	Marshall Space Flight Center, AL	#N3NA
NASA 4	Gulfstream I	Kennedy Space Center, FL	#N4NA
NASA 7	Beech B200	Headquarters Washington, DC	#N7NA
NASA 8	King Air	Wallops Flight Facility, VA	#N8NA
NASA 118	T-38N	Ellington AFB, TX	
NASA 419	UH-1H	Kennedy Space Center, FL	#65-09708: aka Search 1 callsign
NASA 420	UH-1H	Kennedy Space Center, FL	Flight of two
NASA 426	P-3B	Wallops Flight Facility, VA	#N426NA
NASA 427	EC-130Q	Wallops Flight Facility, VA	#161495/N427NA
NASA 432	Fokker-27	Wallops Flight Facility, VA	#N432NA
NASA 501	Cirrus SR-22	Langley Research Center, VA	#N501NA
NASA 502	Schwiezer SGS 1-36	Langley Research Center, VA	#N502NA
NASA 504	Cessna 206H	Langley Research Center, VA	#N504NA
NASA 507	Lancair LC-40-550FG	Langley Research Center, VA	#N507NA
NASA 511	T-38A	Johnson Space Center, TX	#N511NA/65-10329
NASA 524	OV-10A	Langley Research Center, VA	#N524NA/67-14687
NASA 529	Beech B200	Langley Research Center, VA	#N529NA
NASA 530	Bell 204-B	Langley Research Center, VA	#N530NA
NASA 535	UH-1H	Langley Research Center, VA	#N535NA
NASA 564	T-38B	Langley Research Center, VA	#N564NA/68-8113
NASA 612	T-38A	Unknown	
NASA 711	C-141A	Ames Research Center, CA	#N711NA
NASA 741	Sikorsky S-72 RSRA	Ames Research Center, CA	#N741NA
NASA 801	Beech B200/C-12A	Dryden Space Center, CA	#N801NA
NASA 803	Molino PIK-20E Glider	Dryden Space Center, CA	#N803NA
NASA 805	F/A-18A	Dryden Space Center, CA	Monitored at Edwards
NASA 806	ER-2	Dryden Space Center, CA	#N806NA/80-1063
NASA 809	ER-2	Dryden Space Center, CA	#N809NA/80-1097
NASA 816	F-16A	Dryden Space Center, CA	#N816NA/82-0976

NASA 817	DC-8-72	Dryden Space Center, CA	#N817NA
NASA 818	Lockheed YO-3A	Dryden Space Center, CA	#N818NA/69-18010
NASA 819/USN	T-34C	Dryden Space Center, CA	#N819NA/160945
NASA 824	Lockheed TF-104G	Ames Research Center, CA	#N824NA
NASA 825	Lockheed TF-104G	Ames Research Center, CA	#N825NA
NASA 826	Lockheed F-104G	Ames Research Center, CA	#N826NA
NASA 827	Douglas C-47D	Dryden Space Center, CA	#N827NA
NASA 833	B-727-27	Dryden Space Center, CA	#N833NA
NASA 836	F-15B	Dryden Space Center, CA	#N836NA/74-0141
NASA 837	F-15B	Dryden Space Center, CA	#N837NA/71-0290
NASA 840	F/A-18A	Dryden Space Center, CA	#N840NA/160780
NASA 843	F/A-18A	Dryden Space Center, CA	#N843NA/161519
NASA 845	F/A-18B	Dryden Space Center, CA	#N845NA/160781
NASA 846	F/A-18B	Dryden Space Center, CA	#N846NA/161355
NASA 847	F/A-18A	Dryden Space Center, CA	#N847NA/161520
NASA 850	F/A-18A	Dryden Space Center, CA	#N850NA/161703
NASA 851	F/A-18A	Dryden Space Center, CA	#N851NA/161705
NASA 852	F/A-18B	Dryden Space Center, CA	#N852NA/161217
NASA 853	F/A-18A	Dryden Space Center, CA	#N853NA/161744
NASA 901	T-38A	Ellington AFB, TX	#N901NA/66-8381
NASA 902	T-38A	Ellington AFB, TX	#N902NA/63-8193
NASA 903	T-38A	Ellington AFB, TX	#N903NA/63-8200
NASA 904	T-38A	Ellington AFB, TX	#N904NA/63-8204
NASA 905	B-747-123-SCA	Ellington AFB, TX	#N905NA Shuttle Carrier Aircraft
NASA 906	T-38A	Ellington AFB, TX	#N906NA/65-10326
NASA 907	T-38A	Ellington AFB, TX	#N907NA/61-0912
NASA 908	T-38A	Ellington AFB, TX	#N908NA/65-10328
NASA 909	T-38A	Ellington AFB, TX	#N909NA/65-10351
NASA 910	T-38A	Ellington AFB, TX	#N910NA/65-10352
NASA 911	B-747-SR-46-SCA	Ellington AFB, TX	#N911NA Shuttle Carrier Aircraft



Figure 19 NASA Shuttle Carrier Aircraft with the Space Shuttle Atlantis

NASA 912	T-38A	Ellington AFB, TX	#N912NA/65-10354
NASA 913	T-38A	Ellington AFB, TX	#N913NA/65-10355

NASA 914	T-38A	Ellington AFB, TX	#N914NA/65-10356
NASA 915	T-38N	Ellington AFB, TX	#N915NA/60-0585
NASA 916	T-38A	Ellington AFB, TX	#N916NA/60-8382
NASA 917	T-38A	Ellington AFB, TX	#N917NA/66-8383
NASA 918	T-38A	Ellington AFB, TX	#N918NA/66-8384
NASA 919	T-38N	Ellington AFB, TX	#N919NA/66-8385
NASA 920	T-38A	Ellington AFB, TX	#N920NA/66-8386
NASA 921	T-38A	Ellington AFB, TX	#N921NA/66-8387
NASA 923	T-38A	Ellington AFB, TX	#N923NA/66-8355
NASA 924	T-38A	Ellington AFB, TX	#N924NA/67-14825
NASA 926	WB-57F	Ellington AFB, TX	
NASA 928	WB-57F	Ellington AFB, TX	
NASA 930	Retired KC-135A	Aircraft Retired	#59-1481/N930NA
		Note: Vomit Comet: Retired and being used for spare parts for 931	
NASA 930	Retired KC-135A	Aircraft Retired	#N930NA/59-1481
		Note: Vomit Comet: Retired and being used for spare parts for 931	
NASA 931	KC-135A	Ellington AFB, TX	#N931NA/63-7998 Vomit Comet
NASA 933	Learjet 23	John C. Stennis Space Center, MS	#N933NA
NASA 941	Airbus 377SGT-F	Johnson Space Center, TX	#N941NA
NASA 944	G-1159/Gulfstream II	Ellington AFB, TX	#N944NA Shuttle Training Aircraft (STA)
NASA 945	G-1159/Gulfstream II	Ellington AFB, TX	#N945NA Shuttle Training Aircraft (STA)
NASA 946	G-1159/Gulfstream II	Ellington AFB, TX	#N946NA Shuttle Training Aircraft (STA)
NASA 947	G-1159/Gulfstream II	Ellington AFB, TX	#N947NA Shuttle Training Aircraft (STA)
NASA 948	G-1159/Gulfstream III	Ellington AFB, TX	#N948NA
NASA 949	G-1159/Gulfstream III	Ellington AFB, TX	#N949NA
NASA 950	G-1159/Gulfstream III	Ellington AFB, TX	#N950NA
NASA 955	T-38A	Ellington AFB, TX	#N955NA/69-7082
NASA 956	T-38A	Ellington AFB, TX	#N956NA/69-7084
NASA 959	T-38A	Ellington AFB, TX	#N959NA/70-1550
NASA 960	T-38A	Ellington AFB, TX	#N960NA/70-1552
NASA 961	T-38A	Ellington AFB, TX	#N961NA/70-1555
NASA 962	T-38A	Ellington AFB, TX	#N962NA/70-1556
NASA 963	T-38A	Ellington AFB, TX	#N963NA/59-1603
NASA 965	T-38A	Ellington AFB, TX	#N965NA/68-8116
NASA 966	T-38A	Ames Research Center, CA	#N966NA/65-10357
NASA 967	T-38A	Dryden Space Center, CA	#N967NA/65-10353
		Note: Formerly NASA 821 NASA Dryden	
NASA 969	T-38N	Unknown	
NASA 980	SR-71A	Dryden Space Center, CA	#64-17980/N844NA
NASA 988	T-38A	Ellington AFB, TX	Multi-aircraft flight
NASA 990	T-38A	Ellington AFB, TX	Multi-aircraft flight
NASA 992	T-38A	Ellington AFB, TX	Multi-aircraft flight
NASA 995	T-38A	Ellington AFB, TX	Multi-aircraft flight: 966/967
NASA ###	UH-1B	Deregistered	#N416NA
NASA ###	B-747SP-21	Ames Research Center, CA	#N145UA
NASA ###	Reserved	Ames Research Center, CA	#N719NA
NASA ###	Reserved	Dryden Space Center, CA	#N828NA
NASA ###	Reserved	Dryden Space Center, CA	#N828NA
NASA ###	Reserved	Dryden Space Center, CA	#N829NA

NASA ###	Reserved	Dryden Space Center, CA	#N829NA
NASA ###	Reserved	Dryden Space Center, CA	#N830NA
NASA ###	Reserved	Dryden Space Center, CA	#N830NA
NASA ###	Reserved	Goddard Space Flight Center, MD	#N433NA
NASA ###	Reserved	Goddard Space Flight Center, MD	#N434NA
NASA ###	Reserved	Headquarters Washington, DC	#N925NA
NASA ###	Reserved	Headquarters Washington, DC	#N928NA
NASA ###	T-33A	Aircraft Destroyed	#N940NA/Reserved
NASA ###	B-377SG	Aircraft Retired	#N940NS
NASA ###	Reserved	Johnson Space Center, TX	#N951NA
NASA ###	Reserved	Johnson Space Center, TX	#N952NA
NASA ###	Reserved	Johnson Space Center, TX	#N953NA
NASA ###	Reserved	Johnson Space Center, TX	#N954NA
NASA ###	Reserved	Johnson Space Center, TX	#N958NA
NASA ###	UH-1M	Aircraft Destroyed	#N418NA
NASA ###	UH-1B	Aircraft Destroyed	#N415NA
NASA ###	Scheizer SGS 2-32	University of Texas, Austin, TX	#N7794S

Miscellaneous Callsigns

AFTI ##	Various	Advanced Fighter Technology Integration (AFTI)	Edwards AFB, CA
AF Med 16	Ground Unit	DoD Medical Tech Visitor Support	Patrick AFB, FL
AirDocs 1-4	Aircraft	DoD Flight Surgeons aboard Jolly aircraft	Kennedy Space Center, FL
Airfield Lighting	Ground Unit	Airfield Lighting Maintenance	Patrick AFB, FL
ALD	Firing Room	Assistant Launch Director	Kennedy Space Center, FL
Alert 1-2	Ground Units	Transient Alert Vehicles	Patrick AFB, FL
Alpha ##	Ground Station	Alarm Technicians	Kennedy Space Center, FL
Alpha Control	Ground Station	Launch Support Operations	Kennedy Space Center, FL
AMCF	Ground Station	Additional Medical Care Facilities	Kennedy Space Center, FL
ARFF	Ground Unit	Fire Department Aircraft Fire Fighting	
		Rescue	Kennedy Space Center, FL
Astrovan	Ground Unit	Astronaut Crew Transport	Kennedy Space Center, FL
ATD	Firing Room	Alternate NASA Test Director	Kennedy Space Center, FL
ATM	Ground Unit	Air Freight Boss	Patrick AFB, FL
Bash 1	Ground Unit	Unknown	Patrick AFB, FL
Bearcat	Ground Unit	All terrain rescue vehicle for off-site contingencies	Kennedy Space Center, FL
Bravo Control	Ground Station	Utilities	Kennedy Space Center, FL
BRD	Ground Station	Booster Recovery Director	Kennedy Space Center, FL
C1MT	Firing Room	Maintenance Tech	Kennedy Space Center, FL
C1RF	Firing Room	System Engineer	Kennedy Space Center, FL
C1SE	Firing Room	Launch Processing System Engineer	Kennedy Space Center, FL
C1SI	Firing Room	LPS ?	Kennedy Space Center, FL
C1SM	Firing Room	LPS Station Manager	Kennedy Space Center, FL
CAFC	Firing Room	Ascent Flight Control Engineer	Kennedy Space Center, FL
CAFM	Firing Room	Airframe Mechanical Engineers	Kennedy Space Center, FL
CAPCOM	Ground Station	Space Communicator	Johnson Space Center, TX
Cape Control	Ground Station	45SW Mil Radar Unit Controller	Cape Canaveral, FL
Cape Leader	Ground Station	45SW Aerospace Control Officer (ACO)	
		ETR POC for launch aircraft support	Cape Canaveral, FL
Cape Osborne	UHF Milsat	Unknown	Unknown

Cape Security	Ground Station	CCAFS Ground Security (SPHQ)	Cape Canaveral, FL
Cape Weather	Ground Station	Weather support to range operations	Cape Canaveral, FL
CAPU	Firing Room	Lead APU System Engineer	Kennedy Space Center, FL
CBFC	Firing Room	SRB Flight Controls Engineer	Kennedy Space Center, FL
CBIS	Firing Room	ET/SRB Lead Electrical Engineer	Kennedy Space Center, FL
CBHY	Firing Room	SRB HPU/HYD System Engineer	Kennedy Space Center, FL
CBRS	Firing Room	Booster Range Safety Engineer	Kennedy Space Center, FL
CBSE	Firing Room	Biomedical Console	Kennedy Space Center, FL
CCME	Firing Room	SSME Controller Engineer	Kennedy Space Center, FL
CCNE	Firing Room	Power Systems Engineer	Kennedy Space Center, FL
CCPE	Firing Room	LCC Project Engineer	Kennedy Space Center, FL
CCSE	Firing Room	Comm System Engineer	Kennedy Space Center, FL
CDPS	Firing Room	Data Processing System Engineer	Kennedy Space Center, FL
CDR	Shuttle	Shuttle Commander	Space Shuttle
CE	Ground Unit	Unknown	Patrick AFB, FL
CECL	Firing Room	Environmental Control & Life Support	Kennedy Space Center, FL
CEF	Ground Station	Crew Examination Facility	Kennedy Space Center, FL
CEPD	Firing Room	Orbiter EPDC System Engineer	Kennedy Space Center, FL
CFCP	Firing Room	Fuel Cell/Power Reactant & Storage Distribution	Kennedy Space Center, FL
CFS1	Firing Room	Lead Fuels Engineer	Kennedy Space Center, FL
CGLS	Firing Room	Ground Launch Sequencer Project Engineer	Kennedy Space Center, FL
CGSP	Firing Room	Set Support	Kennedy Space Center, FL
CGSS	Firing Room	Arms Engineers	Kennedy Space Center, FL
CGNC	Firing Room	Guidance & Navigation System Engineer	Kennedy Space Center, FL
Charmer 1	Ground Station		Cape Canaveral, FL
CHGD	Firing Room	Hazardous Gas System Engineer	Kennedy Space Center, FL
Chief 1-2	Ground Units	Fire Department Chiefs	Patrick AFB, FL
Chief 3	Ground Unit	Triage Transport Coordinator	Kennedy Space Center, FL
Chief 5	Ground Unit	Fire Department Ground Ops Chief	Kennedy Space Center, FL
CHYD	Firing Room	Hydraulics System Engineer	Kennedy Space Center, FL
CISL	Firing Room	Orbiter Instrument Engineer Lead/SSE	Kennedy Space Center, FL
CLDB	Firing Room	LDBM Operator	Kennedy Space Center, FL
CLES	Firing Room	Lead Electrical Engineer	Kennedy Space Center, FL
CLH2	Firing Room	LH2 System Engineer	Kennedy Space Center, FL
CLHF	Firing Room	LH2 System Engineer	Kennedy Space Center, FL
CLHL	Firing Room	LH2 System Lead Engineer	Kennedy Space Center, FL
CLHY	Firing Room	Liquid Hydrogen Lead Loading Engineer	Kennedy Space Center, FL
CLO2/3	Firing Room	LO2 System Engineer	Kennedy Space Center, FL
CLOX	Firing Room	Liquid Oxygen Lead Loading Engineer	Kennedy Space Center, FL
CMEC	Firing Room	Arms Engineer	Kennedy Space Center, FL
CMPL	Firing Room	MPS LO2 System Engineer	Kennedy Space Center, FL
CMPS	Firing Room	MPS LH2/HE Engineer	Kennedy Space Center, FL
CNSE	Firing Room	NAVAIDS System Engineer	Kennedy Space Center, FL
CODS	Firing Room	Orbiter Digital System Engineer	Kennedy Space Center, FL
COFC	Firing Room	Orbital Flight Controls Engineer	Kennedy Space Center, FL
Control	Ground Station	Security Dispatcher (Security Console)	Kennedy Space Center, FL
COOS	Firing Room	Fuel Systems Engineers	Kennedy Space Center, FL
COPE	Firing Room	ORB Project Engineer	Kennedy Space Center, FL
CPDR	Firing Room	PDR/SPA Operator	Kennedy Space Center, FL
CPEP	Firing Room	Shuttle Payload Engineer	Kennedy Space Center, FL
CPLE	Firing Room	Payload Electrical Engineer	Kennedy Space Center, FL
CPPE	Firing Room	Shuttle Payload Engineer	Kennedy Space Center, FL
CPROP	Firing Room	Main Propulsion System/Shuttle	

CPVD	Firing Room	Main Engine Lead Engineer	Kennedy Space Center, FL
CPWR	Firing Room	Purge, Vent & Drain	Kennedy Space Center, FL
Crash	Ground Unit	ET/SRB Electrical System Engineer	Kennedy Space Center, FL
Crew Surgeon	Ground Station	Fire Department Crash Unit	Patrick AFB, FL
Crew Van	Ground Unit	JSC Flight Surgeon	Johnson Space Flight Center, TX
CSME	Ground Unit	Motor Pool Ramp Vehicle	Patrick AFB, FL
CTPE	Firing Room	Shuttle Main Engine Lead System Eng.	Kennedy Space Center, FL
CTV	Firing Room	ET/SRB Test Project Engineer	Kennedy Space Center, FL
CVFS	Ground Unit	Landing Crew Transport Vehicle	Kennedy Space Center, FL
CWSE	Firing Room	Flight Software Engineer	Kennedy Space Center, FL
DMCF	Firing Room	LPS Software Engineer	Kennedy Space Center, FL
DECS	Ground Station	Definitive Medical Care Facility	Kennedy Space Center, FL
DKSN	Firing Room	Fluids Engineer	Kennedy Space Center, FL
DoD Cape	Firing Room	SL System Electrical Engineer	Kennedy Space Center, FL
	Ground Station	DoD Support Operations Center, controls	
		launch contingency forces	Cape Canaveral, FL
DoD Moron	Ground Station	DoD Shuttle TAL Support	Moron AB, Spain
DoD Surgeon	Ground Station	DoD Flight Surgeon	Cape Canaveral, FL
DPS	Firing Room	DPS SSE	Kennedy Space Center, FL
Dryden Surgeon	Ground Station	Dryden Flight Surgeon	Dryden Space Center, CA
DSWN	Firing Room	Software Engineer	Kennedy Space Center, FL
Eagle Control	Ground Station	Electrical Utilities	Kennedy Space Center, FL
Eagle 26/28/52	Ground Unit	Ground Mobile Units	Kennedy Space Center, FL
EH Base	Ground Station	Environmental Health	Kennedy Space Center, FL
EMS	Firing Room	KSC EMS Coordinator - Biomed Console	Kennedy Space Center, FL
Engine	Ground Unit	Fire Department Engine	Patrick AFB, FL
EOD	Ground Unit	Explosive Ordnance Disposal Vehicle	Patrick AFB, FL
Fido	Ground Station	Flight Dynamics Officer	Johnson Space Center, TX
Fire Control	Ground Station	Fire Department Dispatcher	Kennedy Space Center, FL
Fisher	Ground Station	Static callsign for Cape Radio (ETR)	Cape Canaveral, FL
Flight	Ground Station	Shuttle Flight Director	Johnson Space Center, TX
Flight Safety	Ground Unit	Flight Safety Vehicle	Patrick AFB, FL
Freedom Star	Vessel	Solid Rocket Booster Recovery Ship	Port Canaveral, FL
Freight 1-6	Ground Units	Air Freight Vehicles	Patrick AFB, FL
Gator Base	Ground Station	General Maintenance	Kennedy Space Center, FL
Giant Killer	Ground Station	FACSFAC Vacapes	Chesapeake, VA
GNC	Firing Room	GN&C SSE	Kennedy Space Center, FL
GOM	Ground Station	Ground Operations Manager	Edward AFB, CA
Guidance	Ground Station	Guidance Officer (aka Guido)	Johnson Space Center, TX
Guido	Ground Station	Guidance Officer (aka Guidance)	Johnson Space Center, TX
Hardtop 1/2/3	Ground Units	Armored Personnel Carriers	Kennedy Space Center, FL
Hazmat	Ground Unit	Fire Department Hazmat Vehicle	Patrick AFB, FL
Herky 641/651	Fixed Wing	C-130 Aircraft	Various
Houston Surgeon	Ground Station	Houston Flight Surgeon	Johnson Space Center, TX
IMCF	Ground Station	Intermediate Medical Care Facilities	Kennedy Space Center, FL
Jolly 1-4	Helicopter	DoD Heavy Lift Helicopters	Patrick AFB, FL
JSC Surgeon	Ground Station	JSC Flight Surgeon	Johnson Space Flight Center, TX
King ##	Fixed Wing	USAF Fixed Wing Aircraft not on SAR	-----
KFRB	Marine Unit	Freedom Star	Kennedy Space Center, FL
KMD	Ground Station	AMOHBB office-based physician	Kennedy Space Center, FL
KORF	Firing Room	E/ORF Exp. Engineer	Kennedy Space Center, FL
KRN	Ground Station	Flight Nurse CTV/BDCF	Kennedy Space Center, FL
KSC Medical	Ground Station	Kennedy Medical Team Command Post	Kennedy Space Center, FL
LCC	Ground Station	Launch Control Center	Kennedy Space Center, FL

LD	Firing Room	Launch Director	Kennedy Space Center, FL
Liberty Star	Vessel	Solid Rocket Booster Recovery Ship	Port Canaveral, FL
LPS	Firing Room	Launch Processing System Test Conductor	Kennedy Space Center, FL
LRD	Firing Room	NASA Landing Recovery Director	Kennedy Space Center, FL
LSO	Ground Station	Landing Support Officer	Kennedy Space Center, FL
LWO	Ground Station	Launch Weather Officer	Kennedy Space Center, FL
MDE	Firing Room	Mid-Deck NPI	Kennedy Space Center, FL
Max	Ground Station	Maintenance, mechanical arm and crew system engineer (MMACS)	Johnson Space Center, TX
Medic	Ground Unit	Medical Unit	Patrick AFB, FL
METNAV	Ground Unit	Unknown	Patrick AFB, FL
MOCC	Ground Station	920RQW Maintenance	Patrick AF, FL
Mower 1	Ground Unit	Airfield Mower Unit	Patrick AFB, FL
MS1	Shuttle	Mission Specialist 1	Space Shuttle
MS2	Shuttle	Mission Specialist 2	Space Shuttle
MS3	Shuttle	Mission Specialist 3	Space Shuttle
MS4	Shuttle	Mission Specialist 4	Space Shuttle
MS5	Shuttle	Mission Specialist 5	Space Shuttle
NASA Tower	Ground Station	Shuttle Landing Facility	Kennedy Space Center, FL
NCC	Ground Station	NASA Convoy Commander Convoy Command Vehicle	Kennedy Space Center, FL
News Center	Ground Station	Public Affairs News Center	Kennedy Space Center, FL
NPI	Firing Room	Payload Integration Engineer	Kennedy Space Center, FL
NTD	Firing Room	NASA Test Director	Kennedy Space Center, FL
OPF Safety	Ground Station	Orbital Processing Facility Safety	Kennedy Space Center, FL
Ops Mobile	Ground Unit	Airfield Management	Patrick AFB, FL
OTC	Firing Room	Orbiter Test Conductor	Kennedy Space Center, FL
OVCC	Ground Unit	Orbiter Vehicle Closeout Crew	Kennedy Space Center, FL
Pad Rescue	Ground Unit	Pad Rescue	Kennedy Space Center, FL
Pax	Ground Unit	Air Freight Pax Vehicle	Patrick AFB, FL
PD	Firing Room	Director of Payload Operations	Kennedy Space Center, FL
Pebble 1	Ground Station	Radio Maintenance	Kennedy Space Center, FL
PLT	Shuttle	Shuttle Pilot	Space Shuttle
Portable 5	Ground Unit	EMS Visitor support - Banana River Causeway East	Kennedy Space Center, FL
Portable 9	Ground Unit	EMS Visitor support - Banana River Causeway West	Kennedy Space Center, FL
Portable 11	Ground Unit	EMS VIP support - Static Test Road Viewing Site	Kennedy Space Center, FL
Portable 12	Ground Unit	EMS Crew family support - LCC Roof	Kennedy Space Center, FL
Portable 14	Ground Unit	EMS VIP support - Banana Creek VIP Viewing Site	Kennedy Space Center, FL
Portable 17	Ground Unit	EMS Visitor support - Indian River Causeway East	Kennedy Space Center, FL
Portable 18	Ground Unit	EMS Press support - Press Site/Employee VIP Site	Kennedy Space Center, FL
Portable 19	Ground Unit	EMS Command Post Physician OHF Staff Car	Kennedy Space Center, FL
PTC	Firing Room	Payload Test Conductor	Kennedy Space Center, FL
PTD	Firing Room	NASA Payload Test Director	Kennedy Space Center, FL
Reef	Ground Station	Command Post	Patrick AFB, FL
Refueler ##	Ground Units	Airfield POL	Patrick AFB, FL
		Units numbers: 9, 10, 11, 20, 49, 54, 70, 71, 73	
Rescue	Ground Unit	Fire Department Rescue Vehicle	Patrick AFB, FL

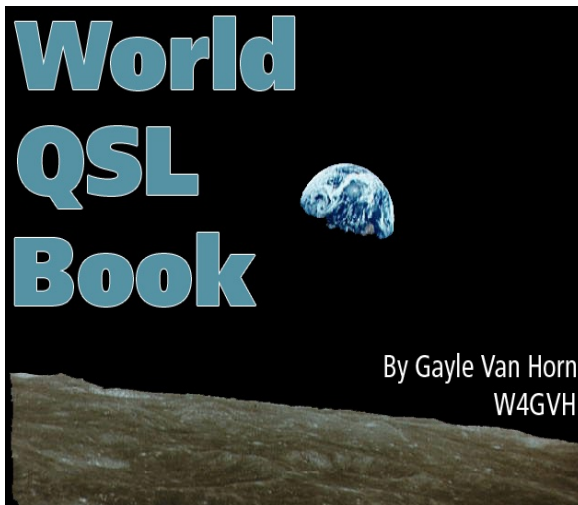
Rescue 1	Ground Unit	EMS Ambulance, first run CCAFS	Kennedy Space Center, FL
Rescue 2	Ground Unit	EMS Ambulance MFF/Fire Station 2	Kennedy Space Center, FL
Rescue 4	Ground Unit	EMS Ambulance MFF/Fire Station 2	Kennedy Space Center, FL
Rescue 12	Ground Unit	EMS OHF Ambulance support, first run for industrial area)	Kennedy Space Center, FL
Rescue 22	Ground Unit	EMS Ambulance	Kennedy Space Center, FL
Rescue 42	Ground Unit	EMS OHF Ambulance support	Kennedy Space Center, FL
RMEH	Ground Station	Environmental Health Van Team	Kennedy Space Center, FL
RSO	Ground Station	Range Safety Officer	Cape Canaveral, FL
RSR	Firing Room	Range Safety Representative	Kennedy Space Center, FL
Sealord	Ground Station	FACSFAC Jacksonville	NAS Jacksonville, FL
Search 1	UH-1H	KSC Command Security/Survey Helicopter	Kennedy Space Center, FL
Search 2	UH-1H	KSC Medevac Helicopter	Kennedy Space Center, FL
Search 3	UH-1H	KSC GOCO Aircraft	Kennedy Space Center, FL
Security 1	Ground Unit	PAFB Security Vehicle	Patrick AFB, FL
SLF Tower	Ground Station	Shuttle Launch Facility Tower	Kennedy Space Center, FL
SPE	Firing Room	Shuttle Project Engineer	Kennedy Space Center, FL
STM	Firing Room	Support Test Manager	Kennedy Space Center, FL
Sweeper	Ground Unit	Runway FOD Sweeper Vehicle	Patrick AFB, FL
Tanker	Ground Unit	Fire Department Tanker Vehicle	Patrick AFB, FL
TBC	Firing Room	Tanker/Booster Test Conductor	Kennedy Space Center, FL
Thinker 1 Charlie			
	Ground Station	Air Force Scheduling	Cape Canaveral, FL
TPROP	Firing Room	Liquid Oxygen/Liquid Hydrogen Sup	Kennedy Space Center, FL
Transport	Ground Station	Medical Transport Coordinator	Kennedy Space Center, FL
Triage Doc	Ground Station	Triage Physician	Kennedy Space Center, FL
Variety 1	Ground Station	Range Safety Surveillance Control Officer Position Surveillance of ops restricted areas	Cape Canaveral, FL
Viper	Ground Station	920RQW Maintenance	Patrick AFB, FL
Wave Ops	Ground Station	CCAFS Projects Ops	Cape Canaveral, FL
Whiskey Control	Ground Station	CCAFS Safety	Cape Canaveral, FL
Wolfden	UHF Milsat	Unknown	Unknown
Wolfhound	UHF Milsat	Unknown	Unknown
Xray Control	Ground Station	Unknown usage	Kennedy Space Center, FL
Xray Ops	Ground Station	Unknown usage	Kennedy Space Center, FL

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