

MT HELP DESK

SPECIFIC FREQUENCY AND EQUIPMENT QUESTIONS

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Q. I have seen a couple of posts on your internet Milcom blog (<http://mt-milcom.blogspot.com>) concerning SGLS. What is it, who uses it, what can I hear and what equipment do I need? (Tom Banks-Dallas, Texas via email)

A. Since the late 1960s the Air Force Satellite Control Network (AFSCN), and other satellite support ground systems, have used transmitting and receiving equipment known as the Space-Ground Link Subsystem (SGLS) to provide command and control links with orbiting space vehicles. SGLS, over its nearly three decades of service, has effectively become a defacto standard for satellite tracking, telemetry reception, and commanding (TT&C).

The AFSCN is a global configuration of common user and dedicated control nodes and space/ground link resources whose mission is to support space vehicle telemetry, tracking, and control (TT&C) requirements and to receive, process and disseminate mission data for a variety of operational DoD space systems.

AFSCN currently is supporting 170-plus DoD, Civil and NRO satellite launch and satellite operations in surveillance, navigation, communications and weather. The primary space/ground link resources include nine remote tracking stations (RTS) supporting 16 antennas that operate at S-band using the Space-Ground Link Subsystem.

Although most TT&C operations are provided by fixed sites, the Air Force also uses transportable SGLS-compatible earth stations to provide additional coverage during launches, early orbit operations, anomaly resolution, and critical orbit insertion maneuvers.

The band plan for SGLS comprises 20 discrete channel pairs beginning at 1763.721 MHz and ending with 1839.795 MHz. Each channel is 4.004 MHz wide. These 20 channel pairs (see table below) consist of one uplink and two downlink carriers.

The downlink is transmitted at 1.024 Mbps and uplink rates are 2 kbps. In one type of SGLS system, a subcarrier is modulated by an information signal using BPSK or QPSK modulation. Then the composite signal phase modulates the primary carrier. SGLS provides its users with range, range rate, telemetry and mission data.

Data traffic that uses SGLS includes secure voice or data; image dissemination, intelligence collection, telemetry and command relay, mission data relay, and computer-to-computer data transfer.

Channel No	Uplink (MHz)	Downlink (MHz)
Channel 1	1763.7210	2202.5
Channel 2	1767.7250	2207.5
Channel 3	1771.7290	2212.5
Channel 4	1775.7320	2217.5
Channel 5	1779.7360	2222.5

Channel 6	1783.7400	2227.5
Channel 7	1787.7440	2232.5
Channel 8	1791.7480	2237.5
Channel 9	1795.7520	2242.5
Channel 10	1799.7560	2247.5
Channel 11	1803.7600	2252.5
Channel 12	1807.7640	2257.5
Channel 13	1811.7680	2262.5
Channel 14	1815.7710	2267.5
Channel 15	1819.7750	2272.5
Channel 16	1823.7790	2277.5
Channel 17	1827.7830	2282.5
Channel 18	1831.7870	2287.5
Channel 19	1835.7910	2292.5
Channel 20	1839.7950	2297.5

You can find some excellent S-band equipment recommendations on one of the best websites on the internet for space monitoring information at www.uhf-satcom.com/sband/. If you want to sleuth many of the world's military satellites, then prowling the SGLS network frequencies is the place to explore.

Q. Can you provide website(s) for "A" and "K" indices plus Solar Flux given hourly on WWV? My condo antenna situation is limited, the audio for this on WWV is not as clear as the time announcements, plus with QRM and QRN it is quite difficult to hear the report, usually on 15 MHz and sometimes on 20 MHz late in the day. (Everett F Seidenberg, AG4UM, Stuart, FL)

A. My favorite site on the internet is run by frequent MT contributor Tomas Hood at <http://propagation.hfradio.org/>.

There are plenty of links there to other sites on the internet. Speaking of links, the best place on the net to find anything involving amateur radio is Rodney Dinkins AC6V's Amateur Radio and DX Reference Guide. You can find this site at www.ac6v.com/

Q. My Uniden 246T, while ID scanning my local Public Safety, seems to skip every few seconds after conversation begins on the channel. Is this due to a setting? Please help. (Chris Witczak via email)

A. Sounds like you have the priority setting selected. While scanning a conventional system, the scanner interrupts every 2 seconds and checks the priority channels in each unlocked conventional system. Priority channels in lower priority key numbered systems (starting from 1) have highest priority. Look for "Pri" on your screen as it appears when you select this mode.

Q. Do you have any air-to-air or any other frequencies for the Hawaii Air National Guard? (Greg Brazil, San Francisco, CA)

A. Here is my latest listing for Hickam AFB, Hawaii, from the *Grove Military Frequency Directory*:

141.8000	USAF Command Post
225.4000	USAF Air Traffic Control Training
236.6000	USAF/FAA Ground Control/Ramp Advisory
238.3000	USAF Air Traffic Control Training
239.0500	FAA Approach/Departure Control
251.1500	USAF/FAA ATIS
251.2500	USAF Squadron Common
252.8000	USAF Search and Rescue (SAR)
257.8000	USAF/FAA Tower
269.0000	FAA Approach/Departure Control
270.4000	USAF Ground Controlled Approach
273.5750	FAA Tower ex-267.900 MHz
276.0000	USAF Tower
281.4000	FAA Clearance Delivery
285.4000	FAA As Assigned
292.5000	USAF Command Post
293.7000	USAF 203ARS Operations Hoku Ops
300.1000	USAF Air-to-Ground Contingency
300.6000	USAF Air-to-Ground Contingency
305.4000	USAF ANG Operations
311.0000	USAF ACC Command Post
317.6000	FAA Departure Control
319.6000	USAF Air-to-Ground Contingency Discrete
321.0000	USAF ACC Command Post
327.4000	USAF Air-to-Ground
337.4000	USAF ANG Command/Control Tactical
338.2000	FAA Approach/Departure Control
339.2000	USAF Air-to-Ground
346.6000	USAF Metro
348.6000	FAA Ground Control
349.4000	USAF AMC Command Post
354.2000	USAF ANG Ground Controlled Intercept
372.2000	USAF Pilot-to-Dispatcher (PTD)
396.9000	USAF Ground Controlled Approach

Q. In amateur radio, when operating SSB, lower sideband (LSB) is used on the 40M band and below while upper sideband (USB) is used on the 20 meter band and higher. Do commercial users of SSB follow the same or similar type of USB/LSB selection for ordinary voice traffic? (Anonymous via Eric and the UDXF newsgroup)

A. In short – No! For the most part, USB will reign supreme in the HF utility bands. There are a few U.S. government entities that will use LSB – FEMA and MARS come to mind. But if you tune in USB you will catch the great bulk of the voice traffic on HF.