

Monitoring the Air Show Experience

The Annual MT Air Show Guide

By Larry Van Horn, MT Assistant Editor, N5FPW

DoD photo

Air Show!

It's our ninth annual Air Show Guide and still nothing stirs up the aircraft enthusiast's juices more than those two magical words. Every year, from March through November, thousands travel all around the country each weekend to watch the action, as military and civilian aero teams put their aircraft through the paces to entertain and perform.

While there is nothing quite as thrilling as going out to one of these public air shows and watching the military or civilian demonstration teams strut their stuff in front of thousands of aircraft fanatics, you can add to the visual experience by monitoring the performing teams' radio communications. With a radio scanner in hand, you will experience a whole new perspective of the show that few attendees will realize or enjoy.

Since the new 2008 air show season starts in the second week of March, we here present our annual *Milcom Air Show Guide*, giving you the frequencies to monitor, the recommended list of air show radio equipment, and the major military flight demonstration team schedules for the upcoming air show season.

Where do you hear the action?

From time to time, frequencies for air show teams do change, so it's important to know where to search for potential new frequencies. When the Blue Angel team made some major changes back in 2004, seasoned veterans knew the right bands to target to look for the new frequencies being used. Just like the veterans, if you concentrate on the bands listed below, you should be able to locate most air show activity in your area (all frequencies in this article are in MHz).

118.0-137.0 25 kHz search steps (AM mode)
Note: We have reports of a lot of new air show activity in the new portion of the civilian aero band - 136-137 MHz. Be sure to check

122.7-123.575 25 kHz search steps (AM)
 138.0-144.0 12.5 kHz search steps (AM/Narrowband FM)
 148.0-150.8 12.5 kHz search steps (AM/NBFM)
 225.0-390.0 25 kHz search steps (AM)
 406.1-420.0 12.5 kHz search steps (NBFM)

U.S. Navy Blue Angels

The U.S. Navy (USN)/Marine Corps (USMC) military team is represented on the air show circuit by the Blue Angels flying their F/A-18 Hornet aircraft.

A Blue Angels flight demonstration exhibits the skills possessed by all naval aviators. It includes the graceful aerobatic maneuvers of the four plane Diamond Formation, in concert with the fast paced, high performance maneuvers of its two Solo Pilots. At the close of every show, the team illustrates the pinnacle of precision flying, performing maneuvers locked as a unit in the renowned, six jet Delta Formation.

The team is stationed at Forrest Sherman Field, Naval Air Station Pensacola, Florida, during the show season. However, the squadron spends January through March training pilots and new team members at Naval Air Facility El Centro, California.

The Blue Angels are scheduled to fly 68 air shows at 35 air show sites in the United

States during the 2008 season, as the team celebrates 22 years of flying the F/A 18 Hornet. Last season, more than 15 million spectators watched the Blue Angels perform. Since its inception in 1946, the Blue Angels have performed for more than 442 million fans.

The other major piece of hardware in the squadron is their C-130 Hercules transport aircraft, affectionately known as "Fat Albert." It is the only Marine Corps aircraft permanently assigned to support a Navy squadron and is flown by an all Marine Corps crew of three pilots and five enlisted personnel. "Fat Albert" flies more than 140,000 miles during the course of a show season.

After coping with all the frequency changes noted during the 2004 season, the 2007 season was relatively stable. The primary AM mode UHF frequencies monitored during last season include:

Blue Angels Primary Frequencies

Frequency	Usage
—	Pensacola (KNPA) frequencies <Channels 1-7>
—	Show Site frequencies <Channels 11-15>
237.800	Solos <Channel 8>
255.200	Circle and arrivals discrete <Channel 17>
275.350	Diamond <Channel 9>
284.250	Show Box/Delta <Channel 16>
289.800	Aerial Refueling
302.100	Fat Albert <Secondary>
303.000	Occasional air-to-air comms
305.500	Fat Albert "Bert" Primary <Channel 10>
346.500	Ground start/rollout/maintenance <Channel 18>

Some other UHF frequencies that were not widely reported over the last two seasons include: 251.600 302.150 307.700 (AM).

During the 2005 show season, the Blues started using a new ground cart for show communications. Two new narrowband FM splinter frequencies/designators were found in use: 139.8125 <Bravo/Channel 3> and 142.6125 <Alpha/Channel 3A>. Last year another possible new narrowband FM frequency was reported: 141.5625 MHz <Charlie>.

Although we believe that the older



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162-174 MHz Blue Angel FM LMR frequencies are no longer being widely used, I have not deleted them from this list, as West Coast monitors claim that some of them are still being used there.

I encourage those of you with Signal Stalker and Close Call capability to watch the LMR spectrum from 138-144 MHz closely for new additional 12.5-kHz splinter frequencies being used by the team's ground crews.

Additional Blue Angels Frequencies

- Cross Country Air-Air
 138.250 143.600 237.800 238.150
 275.350 284.250 (AM)
- Maintenance/Ground communications
 [Old communications comcart/ground frequencies]
 140.100 142.000 143.600 163.000
 164.900 165.225 167.500 167.800
 168.900 169.400 170.900 (NBFM)
- Tower-Comm Cart (May no longer be used)
 173.825 (NBFM)
- Tower Observer
 143.000 (AM)
- UHF frequencies not reported in recent seasons
 236.450 249.625 254.500 256.250
 262.850 263.350 264.350 264.550
 265.000 273.300 286.000 299.650
 381.000 (AM)

You can learn more about the Blue Angels flight demonstration team on their internet website at www.blueangels.navy.mil/index.htm.

U.S. Air Force Thunderbirds

The premier U.S. Air Force (USAF)

flight demonstration team is known as the Thunderbirds. This team uses six F-16C Fighting Falcon aircraft, performing formation flying and solo routines. The four aircraft diamond formation demonstrates the training and precision of Air Force pilots, while the solos highlight the maximum capabilities of the F-16. The pilots perform approximately 30 maneuvers in a demonstration. The entire show, including ground and air, runs about an hour and 15 minutes.

The frequency list below has been in use by the team over the last nine air show seasons. It should be noted that at some performances the 143.850 and 235.250 MHz roles are reversed from what is published below.

USAF Thunderbirds

- Frequency Usage
 139.8000 Possible New VHF (AM)
 140.4000 Support "T-Bird Ops"/Cross country air-to-air (AM)
 141.8250 Alternate Diamond <Victor 2>
 141.8500 Pre-take/Four ship/Diamond formation linked to PA system/Cross country air-to-air (AM) <Victor 2>
 142.5750 Program audio/Air-Ground communications (NBFM)
 143.8500 Diamond formation/Cross country air-to-air (AM) <Victor 1> Retransmission to public through the team PA system.
 235.0250 Unknown usage [Tentative]
 235.2000 Thunderbird Control/ComCart (AM)
 235.2500 Pre-Engine Start and Solo aircraft on/off show center/ linked to PA system (AM) <Uniform 1>
 322.9500 Engine Starts/Solo aircraft (5-6) Air-Air (AM) <Uniform 2>

Maintenance/Ground teams (NBFM/P25 digital)

- 216.725 Announce PA feed - show narration <Channel 55>
 216.775 Announce PA feed - show narration <Channel 56>
 216.975 Team Airshow frequency feeds/mix <Channel 60>
 413.000 Ground Maintenance Digital (P25)
 413.025 Ground Maintenance Analog <Channel 1>
 413.100 Ground Maintenance Analog <Channel 2>
 413.250 Ground Maintenance Analog
 413.275 Ground Maintenance Analog (DCS 431) (Listed in official publications)
 413.325 Ground Maintenance Analog (DCS 503) (Listed in official publications)
 413.350 Ground Maintenance Digital (P25)
 413.375 Ground Maintenance Digital (P25)
 901.500 Comm Cart Headset
 905.350 Comm Cart Headset

Previous VHF maintenance frequencies, including 142.175 and 143.900 MHz, appear to have been replaced by 413 MHz frequencies noted in our list above.

The 216 MHz frequencies are transmitted using Comtek gear and are interesting to monitor from the T-Bird Comm cart. You can get a complete Comtek bandplan for that frequency range at www.comtek.com/download/AT-

frequency_chart.pdf. If you don't hear the cart on the frequencies that I have identified above, do a search using the frequency chart at the Comtek link.

You can learn more about the T-Birds on their website at <http://thunderbirds.airforce.com/>.

Other US DoD Military Flight Demo Teams

In addition to the two units mentioned above, the Navy and the Air Force also have other flight demonstration units. Other branches of the Department of Defense (DoD) and David Shultz air shows (one of the premier air show companies) use a wide variety of VHF and UHF frequencies during air shows. Some of the frequencies recently reported for these organizations are listed below. (AM mode is used for all the frequencies listed below unless otherwise indicated.)

US Military Flight Demo Teams

- Combat Search and Rescue
 40.80 (Air/Air) 251.900 (SAR Coordination)
- David Shultz airshows (civilian)
 118.700 (Ground Ops) 132.950 (Operations) 135.650 (Airboss) 238.150 (Airboss) 350.300
- Heritage Flight
 118.500 (Air/Air) 122.475 123.150
 123.425 123.450 127.150 136.575
 136.675 238.150 282.800 376.025
 384.550
- Air Force A-10 Thunderbolt demonstration teams
 40.800 118.700 122.475 123.150
 123.475 136.575 138.050 138.100
 138.200 138.250 138.300 138.475
 138.500 139.900 139.625 136.675
 139.725 139.800 139.975 140.400
 141.675 142.200 225.500 236.850
 251.200 269.900 283.700 305.400
 327.700 341.500 343.000 343.000
 376.025 384.550
- Air Force B-1B Bomber Flyover
 238.150
- Air Force B-2 Bomber Flyovers (509BW)
 290.225 335.550 370.900 388.850
- Air Force B-52 Bomber Flyovers
 376.025
- Air Force F-15 Eagle East demonstration team
 (Replaced by the USAF F-22 Demo Team)
- Air Force F-15 Eagle West demonstration team
 123.150 376.025 384.550
- Air Force F-16 Fighting Falcon demonstration teams
 136.575 136.675 365.700 376.025
 283.700 384.550
- Air Force F-117 Stealth Flight Demo
 123.150
- Air Force F-22 Raptor East demonstration team
 238.900 290.225 292.700 376.025
 387.200
- Air Force AETC T-6 Texan East Coast Team
 118.900 122.925 123.150 123.400
 127.150 138.400 226.100 283.700
 295.000
- Air Force Combat search and rescue (SAR) demonstrations
 127.150 138.100 139.700 225.450
 236.000 242.000 251.900 252.800
 259.000 278.800 280.500 282.800
 287.500 381.000 384.550
- Army Blackhawk Demo (National Guard Unit)



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242.400 (Primary)/46.85 (NBFM)
 Coast Guard aircraft/SAR demonstrations
 122.900 (SAR)
 157.050 (Drug Interdiction demo - NBFM)
 157.075 (Command Post -NBFM)
 237.900 282.800 326.150 345.000 (Demo) 379.050
 Coast Guard HITRON interdiction demo
 157.050 (NBFM)
 Navy F/A-18 Demo Team
 123.150 376.025
 Navy LCAC comms
 40.400 (NBFM)
 Navy Light Amphibious Vehicle comms
 30.000 (NBFM)
 Navy S-3 Viking aircraft demonstrations
 263.400 325.400 325.800 342.500
 Navy SAR demonstrations
 242.500 282.000 283.100

DoD Military Parachute Demonstration

Teams

The premier DoD military parachute team on the air show circuit is the **U.S. Army Golden Knights** based out of Fort Bragg, North Carolina. The team aircraft used during air shows is either the C-31A Friendship or UV-18A Twin Otter.

Look for their communications on the frequently reported frequencies of 122.775 123.400 123.475 and 123.500 MHz. You should also keep the following plugged into your scanner for possible GK team activity: 32.300 32.400 122.575 124.875 126.200 238.000 284.900 and 367.700 MHz. Also watch for a possible new VHF frequency of 142.800 MHz for Golden Knight radio activity in the near future.

You can learn more about the Golden Knights on their official website at www.usarec.army.mil/hq/goldenknights/Webpage2005_content.html.

The U.S. Army actually has more parachute teams than just the Golden Knights. The U.S. Army Special Operations Command parachute team is known as the **Black Daggers** (see *MT Milcom* May 2004). Several frequencies have been uncovered for them during the last four seasons, including: 123.450 136.000 136.500 138.650 237.300 238.150 MHz. The team has a very nice website located at <http://news.soc.mil/blackdaggers/blackdaggers.htm>.

Another Army parachute outfit is the **Silver Wings**. This is the Fort Benning, Georgia, Command Exhibition Parachute Team. They have been monitored on 34.650 and 44.900 MHz. However, both these frequencies were common landing zone frequencies in the area they were performing in, so if neither of the two frequencies above is heard at a performance you attend, I suggest you initiate a rigorous search of the VHF-low band frequencies.

In addition to the VHF low band frequencies mentioned above, ground and safety personnel associated with this team have been heard using 467.6125 MHz (FRS channel 10/GMRS) for communications. There was also one report that the team was using an Intra Squad radio frequency of 397.500 MHz.

See our comments below about programming ISR, GMRS and FRS channels for air show monitoring. The Silver Wings team website is located at www.infantry.army.mil/silverwings/.

The U.S. Army has several more teams, but we still do not have frequency information for them. We would appreciate communication reports on the following U.S. Army teams if you catch them performing this air show season:

All American Free Fall Team (82nd Airborne)
 Fort Bragg, North Carolina
 Green Beret Parachute Team
 Fort Bragg, North Carolina
 Black Knights
 US Military Academy, West Point, New York

The U.S. Special Operations Command has a team based out of MacDill AFB in Florida. They have been heard on the following frequencies: 122.450 123.450 and (no, this is not a misprint) 151.625 MHz, a nationwide business itinerant frequency.

This year we have two new teams to add to our list. During the 2007 show season, the U.S. Air Force Academy Parachute Team **Wings of Blue** was reported. Two frequencies were reported: air-to-ground jump coordination frequency on 121.950 MHz (AM) and 407.500 MHz (NBFM).

A possible frequency for the **Screaming Eagles** (101st Airborne Division) Parachute Team, based out of Fort Campbell, Kentucky, may have been monitored. That possible frequency is 44.200 MHz (NBFM). Further reports are requested.

And last, but not least, the colorful U.S. Navy Seal Parachute Team, known as the **Leap Frogs**, are frequent visitors around the country at various sporting events and air shows. This team has been regularly reported on 270.000 (AM) and 407.500 MHz (NBFM 131.8-Hz PL tone) nationwide over the last several years.

GMRS Frequencies

During the 2001 and 2002 seasons I received several reports that the Golden Knights were using GMRS (General Mobile Radio Service) frequencies 462.625, 467.5625, and 467.6125 MHz. In addition to hearing air show demo crews, monitors have found vendors and other military ground units using GMRS frequencies. You should make these frequencies part of your scanner load-out prior to the air show.

A	B	C
462.550	467.550	462.5625
462.575	467.575	462.5875
462.600	467.600	462.6125
462.625	467.625	462.6375
462.650	467.650	462.6625
462.675	467.675	462.6875*
462.700	467.700	462.7125
462.725	467.725	
*(462.675/467.675 National Emergency Frequency pair)		

Legend:

- A. Base station, Mobile relay, Fixed station, or Mobile station
- B. Mobile station, Control station, Fixed station operating in Duplex mode.
- C. Interstitial frequencies, base and portable simplex

Family Radio Service/Intra-Squad Radio

We have also received several reports of the ground pyrotechnics personnel from the Tora Tora Tora and Warbirds flight demonstration team using FRS (Family Radio service) radios for communications during shows. You will also find military monitoring enthusiasts attending an air show using FRS radios to coordinate meeting fellow monitors. Load up FRS frequencies below (NBFM mode) in your scanner or carry an FRS radio to the show, and you might make a new Milcom monitoring friend or two.

462.5625 <Ch 1> 462.5875 <Ch 2>
 462.6125 <Ch 3> 462.6375 <Ch 4>
 462.6625 <Ch 5> 462.6875 <Ch 6>
 462.7125 <Ch 7> 467.5625 <Ch 8>
 467.5875 <Ch 9> 467.6125 <Ch 10>
 467.6375 <Ch 11> 467.6625 <Ch 12>
 467.6875 <Ch 13> 467.7125 <Ch 14>

The government version of the Family Radio Service is known as the Inter-Squad Radio or ISR. As noted above, I have seen several reports over the last few years that these radios might be in use at air shows by military units, including the Civil Air Patrol (CAP), see below. It might be a good idea to program these frequencies in your scanner as part of your air show load out.

396.8750 <Ch 1> 397.1250 <Ch 2>
 397.1750 <Ch 3> 397.3750 <Ch 4>
 397.4250 <Ch 5> 397.4750 <Ch 6>
 397.5500 <Ch 7> 397.9500 <Ch 8>
 398.0500 <Ch 9> 399.4250 <Ch 10>
 399.4750 <Ch 11> 399.7250 <Ch 12>
 399.9250 <Ch 13> 399.9750 <Ch 14>

U.S. Civil Air Patrol Frequencies

Finally, you should program U.S. Air Force Civil Air Patrol frequencies in your scanner as well. We have received field reports of CAP frequencies (repeater and simplex) being used as ground support at several air shows.

The CAP was in the process of transiting to narrowband allocations/equipment during 2007. Though transition was to have been complete as of October 1, 2007, some regions encountered frequency conflicts. Therefore we have included both the old assignments as well as the new assignments (all found in the public domain).

CAP Frequencies (variety of modes)

Old assignments:
 143.750 143.900 148.125 148.1375
 148.150 148.5375 148.975 149.5375
 New assignments:
 138.0125 140.6375 142.2250 143.7250

143.9000 148.1750 148.7750 150.1625
150.5625 150.6375 MHz

Civilian/Foreign Air/Parachute

Demonstration Teams

The Canadian Forces **Snowbird** aircraft demonstration team (431 Air Demonstration Squadron) is another regular on the U.S./Canada air show circuit. The following frequencies have been recently reported for this popular aerial team: 123.325 227.600 242.600 243.400 245.500 245.750 246.500 272.100 (Primary) 284.900 299.500 333.300 340.100 MHz.

A new Snowbird VHF frequency has now been noted in use during the last three seasons: 116.000 MHz (AM); 243.400 and 272.100 are the only two UHF frequencies reported in 2005-7.

The Canadian Forces also have a CF-18 demonstration team. Last year Brian "Check your Six" Topolski in Connecticut passed along these possible frequencies for that team:

128.9750 129.0250 130.0750 245.5000
263.5000 263.7000 264.6000 (East Ops)
274.4500 285.9750 312.5500 (Air/Air)
316.5500 333.3000 335.6000 340.2000
(West Ops) 341.7000

At most air shows the military flight demonstration units aren't the only performers. Civilian organizations, companies, and individuals sponsor a wide variety of aerobatics teams and parachutists to thrill the crowd. Many different frequencies are used by these teams in the civilian aviation band. Load your scanner with the following frequencies and you shouldn't miss out on communications used by the civilian acts.

122.725 122.750 122.775 122.825
122.850 122.875 122.925 122.950
122.975 123.025 123.050 123.075
123.150 123.175 123.300 123.325
123.350 123.400 123.425 123.450
123.475 123.500 129.650 129.925
136.575 136.975

Some specific frequencies reported to us for other foreign military and US civilian flight demonstration teams are included in the list that follows:

Civilian Flight Demonstration Teams

Aeroshell Aerobatics Team 123.150
Aerostars CJ-6/YAK-52 Flight Formation Team
118.700 122.775
Air Force Reserve Biplane (Ed Hammil)
123.150
All American Firebirds Flight Demonstration
Team 122.775
American Four Jets Patriot 127.300
Bud Light Air Force (ex- Coors Microjet)
122.925 123.350 123.475
Chapman/Mancuso Aerobatics
136.975
Civilian Air Show Discrete Common
123.150
Flight for Diabetes (Michael Hunter)
123.425
Firecat (Rich Perkins) 123.500
Flying Colors Hang Glider Aerobatic (Dan
Buchanan)
123.300 123.450 132.950
French Connection Air Show
122.925 122.975 129.975

Geiko Extra 300 – Tim Webber
123.150
Ian Groom's FedEx Red Bull Aerobatic Team
122.725 122.775 122.825 122.925
123.150 123.350
Iron Eagles Aerobatic Team
122.925 123.150
John Klatt 123.475
Julie Clark's US of Air 118.700
L39 Patriots 127.300
Lima Lima Flight Team
123.150 123.175 123.425 123.575
Manfred Radius Glider Aerobatics Team
123.150
North American Jet Air Show Team
122.775 122.925 129.650 129.925
Northern Lights Aerobatic Team
123.325 136.975
Oreck Vacuum Cleaners Aerobatic Demo (Frank
Ryder
122.825 123.425 123.450
Otto the Helicopter 123.150 123.300
Patty Wagstaff Air Shows Inc 1 2 2 . 7 5 0
123.475
Pitts Special U.S. Air Force Reserve
123.150
Rayban Gold Aerobatics Team
122.925
Red Baron Stearman Squadron
122.725 122.775 123.150
Red Bull Air Race-Michael Goulian
135.075
Red Eagles Flight Demo Team
123.150 123.425 123.475
Sean Tucker Power Aerobatics
118.700 122.875 122.950 123.150
123.450 123.475
SIAI Marchetti SF260 Debbie Gary
123.150
Showcopters 123.150 134.700
Sky Soldiers Demonstration Team (Army Aviation
Foundation)
118.700 123.025 234.500 242.400
Skytypers Team
122.750 122.775 (Diamond) 123.150
123.425 123.450 (Solos)
Swift Magic Aerobatic Team 1 2 2 . 7 7 5
122.925
Team Red 123.350
Tora Tora Tora Warbirds Team (Commemora-
tive Air Force)
118.750 122.850 122.875 123.150
123.450 469.500 469.550

Foreign Military Flight Demonstration Teams

Asas de Portugal, Esquadra 103 (Wings
of Portugal 103 Squadron) Flight Team
262.150
Blue Eagles Royal Army Air Corps Flight Team
(UK) 136.975
Blue Tango Helicopters 123.600
Brazilian Air Force Team (Brazil)
130.550 130.650 132.250
Brazilian Smoke Squadron (Brazil)
133.450
British Army Red Devils Parachute Team (UK)
462.625
Canadian Forces Skyhawks Parachute Jump
Team (Canada)
123.000 294.700
Falcons Royal Air Force Parachute Jump Team
(UK) 255.100 465.100
Frece Tricolori Military Flight Team (Italy)
123.475 (Ground Secondary)
140.600 (Ground Primary)
362.625 (Primary)
263.250 (Secondary)
Grasshopper Helicopter Team (Netherlands)
281.100
Halcones Military Flight Team (Chile)
136.175
La Patrouille Adecce Air Force Flight Team

(France)
121.850 123.600 138.450 141.825
143.100 143.850 242.650
La Patrulla Aguila Military Flight Team (Spain)
130.500 252.500
Le Royal Jordanian Teams (Jordan)
123.500
Les Breitling (Switzerland) 127.350
Les Iskry (Poland) 123.600
Marche Verte [Green March] (Morocco)
135.000 135.925 (Ground)
135.500 (Air-to-Air)
Military Stars Flight Team (Turkey)
264.400 279.600
Patrouille Suisse Military Flight Team (Switzer-
land) 288.850
Red Arrows Royal Air Force Flight Team (UK)
242.200 242.050 243.450 253.450

In Closing

It is always difficult to predict what a new season will bring, so I strongly encourage readers to watch my *Milcom Blogspot* (<http://mt.milcom.blogspot.com/>) and the *Monitoring Times* home page for any late breaking news and frequency information during the 2008 air show season.

If you attend an air show in 2008 and you find this list useful, please pass along any frequencies that you monitor, whether it is on this list or not. This will greatly aid in the production of next year's listing. You can reach me via e-mail at larryvanhorn@monitoringtimes.com or via our snail mail address: *MT Milcom*, 7540 Highway 64 West, Brasstown, NC 28902.

Finally, I would like to extend a sincere thanks to all of the contributors who took the time last year to share their post-show reports with us. I want to especially thank several overseas reporters who added new material to our foreign teams section. I deeply appreciate the time and effort each of you took to let us know what you have heard at many of the air shows in 2007.

Now, break out those scanners, plug in those frequencies, and get ready for the ride of a lifetime – a front row seat at the air show!

Monitoring the Air Show Experience – Equipment and Schedules

Now that you know who are the crack military flight demonstration teams and where to find the frequencies they use for air-ground coordination and other communications, we turn to two other important considerations for successful monitoring: where and when you can find an air show in your area and what equipment is required to listen in.

MT Air Show Equipment List

I am frequently asked which scanner I recommend for air show monitoring. While I don't have a favorite, I have prepared the list in Table 1 as a purchase guide of receivers that meet all the requirements as outlined below.

Not Just Any Old Scanner Will Do

Some scanners currently being marketed and most older scanners on the used market are *not* suited for air show monitoring. There are certain requirements your air show radio has to meet in order to successfully monitor the two major military aerial demonstration teams – the

Blues and T-Birds.

If you are going to a Thunderbird show, you will need a scanner that can monitor the 138-150 MHz military land mobile band in the AM mode. Most of the older Uniden scanners cannot be used for air show monitoring due to their lack of independent transmission mode selection.

You also need a scanner that has the 225-400 MHz military aeronautical band in it. Most of the action (especially the Blues) will be heard in this military UHF portion of the spectrum. Adding this criterion to the mix of possible radios again narrows down our choice for air show scanners even further.

Information below includes current Grove

Enterprises stock codes/prices (if carried by Grove) for the items indicated, but the price does not include shipping or taxes (if applicable). Prices are subject to change without notice, so be sure to call the Grove order department at 800-438-8155 or visit the Grove website at www.grove-ent.com for current pricing.

Air Show Listening Tip

If you are going to use a handheld scanner at the air show, there is another purchase you should consider: an extra set of charged batteries. Murphy's Law applies here and nothing is worse than having your batteries die halfway through the show with no replacements.

TABLE TWO: MILITARY DEMONSTRATION

TEAMS

2008 PERFORMANCE SCHEDULE

Note: If security levels increase in a base to Threat Condition "Bravo" or above, many military installations will not have public air shows. Consequently, demonstration schedules listed below are subject to change or cancellation without notice. You can keep up with the latest schedules on our Milcom Monitoring Post Blog at <http://mt-milcom.blogspot.com/>.

Demonstration Group Abbreviations:

BA	US Navy Blue Angels
GK	US Army Golden Knights
SB	Canadian Forces Snowbirds
SW	US Army Silver Wings
TB	US Air Force Thunderbirds

Abbreviations

AFB	Air Force Base
ARB	Air Reserve Base
CFB	Canadian Forces Base
EAA	Experimental Aircraft Association
MCAS	Marine Corps Air Station
NAF	Naval Air Facility
NAS	Naval Air Station
TBD	To Be Determined

Dates	Group: Locations
Mar 8	BA: NAF El Centro, California - NAF El Centro 2008 Air Show
Mar13-16	GK: South Padre Island, Texas
Mar15-16	BA: Sacramento, California - California Capital AirShow TB: San Angelo, Texas
Mar 29	GK/TB: Tyndall AFB, Florida - Gulf Coast Salute 2008, Tyndall Air Force Base Air Show
Mar 29-30	BA: NAS Meridian, Mississippi - Wings Over Meridian 2008 SW: White Sands, New Mexico - Bataan Death March Commemoration
Apr 5	GK: Slidell, Louisiana SW: Columbus, Georgia - Columbus State University 50th Anniversary
Apr 5-6	BA: NAS Kingsville, Texas - Wings Over South Texas GK/TB: Punta Gorda, Florida - Florida International Airshow
Apr12-13	BA: Smyrna, Tennessee - The Great Tennessee Air Show TB: Lakeland, Florida - EAA Sun 'n Fun 2008
Apr 19-20	BA/GK: Peoria, Illinois - Prairie Air Show/River City Air Expo GK/TB: Wilmington, North Carolina - Coastal Carolina Airshow
Apr 26	GK: Jackson, Mississippi TB: Charleston AFB, South Carolina - Charleston Air Expo 2008
Apr 26-27	BA: Vidalia, Georgia - Vidalia Onion Festival Air Show
May 3-4	BA/GK/SB: Ft. Lauderdale, Florida - Fort Lauderdale Air & Sea Show GK/TB: March ARB, California - AirFest 2008
May 7	GK: Myrtle Beach, South Carolina SB: Anderson, South Carolina - Anderson Air Show
May 10-11	BA/GK/SW: Barksdale AFB, Louisiana - Defenders of Liberty Open House and Airshow TB: Langley AFB, Virginia

TABLE ONE: MILITARY AIR SHOW CAPABLE RECEIVERS

Handheld Unit	Grove Stock No	Price
Alinco DJ-X3T	n/a	\$302.95
Alinco DJ-X7	SCN03	\$169.95
Alinco DJ-X10T	SCN01	\$319.95
Alinco DJ-X2000T	SCN10	\$499.95*
AOR AR-8200 Mk III	SCN51	\$579.95
AOR AR-8600 Mk IIB	RCV11	\$889.95
GRE PSR-300	n/a	\$214.99
GRE PSR-500	SCN18	\$499.95**
Icom IC R-3	SCN07	\$349.95**
Icom IC R-5	SCN02	\$199.95
Icom IC R-20	SCN20	\$509.95
Uniden BCD-396T	SCN47	\$499.95**
Yaesu VR-120D	n/a	\$249.00
Yaesu VR-500	n/a	\$370.00

* This is a closeout price at Grove Enterprises

Base/Mobile Unit	Grove Stock No.	Price
AOR AR-5000A+3B	RCV44P	\$2569.95
AOR AR-8600 Mk II	SCN11	\$889.95
GRE PSR-400	n/a	\$214.99
GRE PSR-600	SCN19	\$499.95**
Uniden BCT-15	SCN15	\$229.95
Uniden BCD996T	SCN48	\$499.95**
Yaesu VR-5000	n/a	\$754.08

** Includes APCO-digital/trunk capability

Computer Receivers	Grove Stock No.	Price
Icom PCR-1500	RCV15	\$499.95
Icom IC-R1500	RCV25	\$599.95
Icom PCR-2500	RCV35	\$729.95
Icom IC-R2500	RCV52	\$899.95
WinRadio WR-G305e	RCV63	\$619.95
WinRadio WR-G305i	RCV53	\$519.95
WinRadio WR-G305e/PD	RCV63P	\$719.95
WinRadio WR-G305i/PD	RCV53P	\$619.95
WinRadio WR-G315e	RCV64	Contact Grove for pricing
WinRadio WR-G315i	RCV54	Contact Grove for pricing
WinRadio WR-3150e	RCV48-E	\$1849.95
WinRadio WR-3150i-DSP	RCV48-I	\$1849.95
WinRadio WR-3500e	RCV49-E	\$2395.95
WinRadio WR-3500i-DSP	RCV49-I	\$2395.95
WinRadio WR-3700e	RCV50-E	\$2895.95
WinRadio WR-3700i-DSP	RCV50-I	\$2895.95

Professional Receiver	Grove Stock No.	Price
AOR AR-Alpha	Not available in a consumer version at presstime.	
AOR AR-One	Not available in a consumer version	
Icom R-9500	RCV27	\$13,500.00

Discontinued radios/scanners that are capable of air show monitoring

Alinco	DJ-X2T
AOR	AR-16B, AR-1000, AR-1500, AR-2515, AR-2700, AR-3000AB, AR-5000+3B, AR-7000B, AR-8000, AR-8200B, AR-8200 Mk-11B, AR-8600B
Icom	IC-R1, IC-R2, R3, R10, R100, R7000, R7100, PCR-100, PCR-1000
Kenwood	RZ-1
Radio Shack	Pro-2004, Pro-2005, Pro-2006, Pro-43
Uniden	BC-296, BR-330T, BC-796
WinRadio	WR-1000i/e, WR-1500i/e, WR-3000i-DSP, WR-3100i-DSP
Yaesu	VR-120

May 14	SB: Pittsburgh, Pennsylvania - Wings Over Pittsburgh	Jul 4-6	SW: Fort Dix, New Jersey - Ft Dix 4th of July Celebration	Sep 2	SB: Whitby, Ontario - Captain Michael VandenBos School Flypast
May 16-18	SB: Duluth, Minnesota - Duluth Air Show	Jul 5-6	TB: Battle Creek, Michigan - Battle Creek's Field of Flight Air Show & Balloon Festival	Sep 6-7	BA/GK: NAS Brunswick, Maine - The 2008 Great State of Maine Airshow
May 17-18	BA: Andrews AFB, Maryland - DoD Joint Services Open House	Jul 11	BA/GK: Traverse City, Michigan - National Cherry Festival	Sep 10	GK/TB: Westover ARB, Massachusetts - Great New England Air Show
May 21	GK: Andrews AFB, Maryland - DoD Joint Services Open House	Jul 12-13	GK: Cape Girardeau, Missouri	Sep 12-13	SB: Halifax, Nova Scotia - Nova Scotia International Air Show
May 23	GK/TB: Ft. Smith, Arkansas - Fort Smith Regional Airshow 2008	Jul 16	BA: Pensacola Beach, Florida - Pensacola Beach Air Show	Sep 13-14	SB: Stephenville, Newfoundland - Stephenville Air Show
May 24	SB: Malmstrom AFB, Montana - Malstrom AFB Open House	Jul 19	TB: Milwaukee, Wisconsin - Milwaukee Air Expo	Sep 14	TB: Reno, Nevada - US National Championship Air Races
May 24-25	BA: US Naval Academy, Annapolis, Maryland	Jul 19-20	SB: Thompson, Manitoba - Thompson Air Show	Sep 20-21	BA/GK: Eau Claire, Wisconsin - Chippewa Valley Airshow
May 24	SB: Cranbrook, British Columbia - Cranbrook Air Show	Jul 20	SB: Yellowknife, North West Territories - Yellowknife International Air Show	Sep 21	TB: Mountain Home, Idaho - 2008 Mountain Home Air Force Base Air Show
May 24-25	BA: US Naval Academy Fly-By, Annapolis, Maryland	Jul 23	BA: Duluth, Minnesota - Duluth Airshow	Sep 24	BA: NAS Oceana, Virginia - NAS Oceana Airshow
May 28	TB: Tinker AFB, Oklahoma - Star Spangled Salute	Jul 26-27	GK: Gary, Indiana	Sep 27-28	GK: Midland, Texas
May 31	BA/GK: Jones Beach, New York - New York Air Show	Jul 30	TB: McChord AFB, Washington - McChord Air Expo 2008	Sep 27-28	SB: Victoria, British Columbia - Victoria Air Show
May 31-Jun 1	GK/SB: Janesville, Wisconsin - Janesville Air Show	Aug 2-3	SB: Edmonton, Alberta - Edmonton Grand Prix Flypast	Oct 1	TB: Scott AFB, Illinois - Scott Air Force Base Open House
Jun 1	TB: U.S. Air Force Academy, Colorado. (Invitation Only)	Aug 3	SB: Prince George, Alberta - Prince George Air Show	Oct 4	GK: Dover, Delaware (NASCAR Sprint Cup Race)
Jun 1	SB: Portage-la-Prairie, Manitoba - 17 Wing Armed Forces Day	Aug 6	TB: Cheyenne, Wyoming	Oct 4-5	SB: Tri-Cities, Washington - Tri-Cities Air Show
Jun 1	TB: McGuire AFB, New Jersey - McGuire/Fort Dix/Lakehurst Joint Base Open House 2008	Aug 8-10	BA: Twin Falls, Idaho - Air Magic Valley 2008	Oct 11-12	BA: Grand Junction, Colorado - Air Show Western Colorado 2008
Jun 4	GK: Danville, Virginia	Aug 13	GK: Helena, Montana	Oct 18-19	GK: Parkersburg, West Virginia
Jun 4	SB: Brandon, Manitoba - Westman Air Show	Aug 16	SB: Wetaskiwin, Alberta - Wetaskiwin Air Show	Oct 25-26	SB: Chico, California - Chico Air Show
Jun 7-8	SB: Kapuskasing, Ontario - Kapuskasing Air Show	Aug 16-17	GK/TB: Rochester, New York - Rochester International Air Show 2008	Nov 1-2	TB: Salinas, California
Jun 7-8	BA/GK: MCAS Cherry Point, North Carolina - MCAS Cherry Point 2008 Open House and Air Show	Aug 23	SB: White Rock, British Columbia - Wings Over White Rock	Nov 8-9	SB: Douglas, Arizona - Douglas Air Show
Jun 10	SB: Montreal, Quebec - Formula 1 Race	Aug 23-24	BA: Seattle, Washington - Seafair Airshow	Nov 14-15	TB: Vance AFB, Oklahoma
Jun 10	TB: Rockford, Illinois - 3rd Annual Rockford Air Show	Aug 27	SB: Dawson Creek, British Columbia - Dawson Creek Air Show		BA/GK: MCAS Miramar, California - Marine Corps Air Station Miramar Air Show
Jun 14	SB: Magog, Quebec - Magog Fly-past	Aug 30-31	SB: Penticton, British Columbia - Penticton Air Show		GK/SB: El Paso, Texas - Amigo Air Sho
Jun 14-15	SW: Detroit, Michigan - June Army Birthday with Detroit Tigers	Aug 30-Sep 1	BA: Fairchild AFB, Washington - Skyfest 2008		BA/SB: San Francisco, California - San Francisco Fleet Week
Jun 18	BA/SB/TB: Quebec City, Quebec Canada - 400th Anniversary of Quebec		SB/TB: Abbotsford, British Columbia Canada - Abbotsford International Airshow		GK: West Chester, Pennsylvania
Jun 21	SB: Kingston, Ontario - Kingston Air Show		SB: Rocky Mountain House, British Columbia - Rocky Mountain House Air Show		GK/TB: Ft. Worth (Alliance), Texas - Fort Worth Alliance Air Show
Jun 21-22	TB: Klamath Falls, Oregon - Klamath Falls Air Show 2008		SB: Springbank, Alberta - Springbank Air Show		SB: CFB Moose Jaw, Saskatchewan - End of Year Show
Jun 21-22	BA/GK: Davenport, Iowa - Quad City Air Show -A Festival in the Sky		BA/GK: Chicago, Illinois - 50th Annual Chicago Air and Water Show		BA/GK: Little Rock AFB, Arkansas - Little Rock Air Force Base 2008 AirPower Arkansas Air Show
Jun 24	GK: Sioux City, Iowa		GK Yankton, South Dakota		GK: Huntington Beach, California
Jun 25	SB: CFB Borden, Ontario - Canadian Force Base Borden		TB: Offutt AFB, Nebraska - 2008 Offutt AFB Open House and Air Show		TB: Dobbins ARB, Georgia
Jun 27-28	TB: Elmendorf AFB, Alaska - Arctic Thunder 2008		GK/TB: Kansas City, Missouri - KC Aviation Expo and Airshow		BA: NAS Jacksonville, Florida - 2008 NAS Jacksonville Air Show
Jun 28-29	BA/GK: Huntsville, Alabama - Huntsville International Airshow 2008		GK: Indianapolis, Indiana		TB: Houston, Texas - Wings Over Houston Airshow
Jul 1	GK: Evansville, Indiana		SB: Welland, Ontario - Welland Air Show		BA/GK: Lackland AFB, Texas - Airfest 2008
Jul 1	SB: Ottawa, Ontario - Ottawa Air Show		SB: Moose Jaw, Saskatchewan - 15 Wing Armed Forces Day		GK/TB: Lafayette, Louisiana
Jul 3	TB: Eielson AFB, Alaska		GK/TB: Kansas City, Missouri - KC Aviation Expo and Airshow		BA: Kennedy Space Center (Shuttle Landing Facility), Florida - World Space Expo - Celebrating NASA's 50th Anniversary
Jul 3	SB: Goderich, Ontario - Goderich Air Show		GK: Indianapolis, Indiana		TB: Nellis AFB, Nevada - Aviation Nation 2008
Jul 4	TB: Elmendorf AFB, Alaska - Arctic Thunder 2008		SB: Welland, Ontario - Welland Air Show		BA: NAS Pensacola, Florida - Naval Air Station Pensacola Open House and Blue Angel Homecoming Air Show
Jul 4	BA/GK: Huntsville, Alabama - Huntsville International Airshow 2008		BA/GK: Cleveland, Ohio - Cleveland National Airshow		
Jul 4	GK: Evansville, Indiana		GK/TB: Travis AFB, California - Travis Air Expo		
Jul 4	SB: Ottawa, Ontario - Ottawa Air Show		SB: Toronto, Ontario - Canadian International Air Show		
Jul 4	SB: Ottawa, Ontario - Canada Day Flypast				
Jul 4	GK: Dubuque, Iowa				
Jul 4	SB: Calgary, Manitoba - Calgary Stampede Flypast				