

Interoperability: The Real Story

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Public safety communications interoperability has been big catch word in the media lately in the aftermath of Hurricane Katrina. Politicians in Washington are pushing hard to move TV stations out of the UHF spectrum to establish a new 700 MHz interop band. If you believe the rhetoric from our elected officials in DC, there are no interop frequencies and we need the new 700 MHz band immediately.

What politicians are not telling you is that interop frequencies have already been set aside in each band. Nor do many taxpayers realize that, thanks to this new 700 MHz band, analog television sets will go the way of the musket and ball, and we'll all have to purchase a new digital television set or converter if we want to watch television.

We decided to investigate what the real world situation is, so we have compiled a list of nationwide VHF/UHF interop and mutual aid frequencies from official government sources, Association of Public-Safety Communication Officers (APCO) information, and Federal Communications Commission (FCC) rules and regulations.

In addition to our nationwide list, there are also local, regional and state frequencies set aside for inter-system, agency, and mutual aid channels throughout the nation. We have not included those in our list below, due to space constraints. But, as an example to illustrate our point, here are statewide mutual aid frequencies in Tennessee that are not on our nationwide list:

Statewide, Tennessee

154.7550	Law enforcement base/mobile <Law VMAD>
155.2050	EMS base/mobile <EMS205>
155.2800	EMS base/mobile <EMS280>
155.2950	EMS mobile only <EMS295>
156.0150	Law enforcement mobile only <Law VMA>
159.7050	Tennessee Police/Fire/EMS/Medical Agencies interoperability <TNTAC>
460.4000	Law enforcement base/mobile <Law UMAD>
465.4000	Law enforcement mobile only <Law UMA>

The VHF/UHF spectrum is loaded, not only with public safety interop frequencies, but with business itinerants, oil spill frequencies and emergency channels which are also available for multiple agency use. Again, due to space they are not listed in our frequency table which follows.

NATIONWIDE LISTINGS

Public Safety/Government Interagency/Interoperability/Itinerant Frequencies

27.5750 Simplex.....	Government Itinerant, short distance, low-power service
27.5850 Simplex.....	Government Itinerant, short distance, low-power service

39.4600 Base/Mob	Law enforcement inter-system <3LAW-1>
39.4800 Base/Mob	Fire inter-system <3FIRE-2> [Proposed]
45.8600 Base/Mob	Law enforcement inter-system <3LAW-3>
45.8800 Base/Mob	Fire inter-system <3FIRE-4>
47.4200 Base/Mob	Special emergency, reserved for assignment only to national organizations eligible for disaster relief operations.
151.1375 Base/Mob	Public safety (all agencies) interoperability, including local, state and federal agencies. <1TAC-5> <VTAC-1>
152.0075 Base/Mob	Special emergency paging <1EMS-6>
154.2650 Mobile	Fire inter-system <1FIRE-7>
154.2725 Base/Mob	Fire inter-system <1FIRE-8>
154.2800 Base/Mob	Fire inter-system <1FIRE-9>
154.2875 Base/Mob	Fire inter-system <1FIRE-10>
154.2950 Mobile	Fire inter-system <1FIRE-11>
154.3025 Base/Mob	Fire inter-system <1FIRE-12>
154.4525 Base/Mob	Public safety (all agencies) interoperability, including local, state and federal agencies. <1TAC-13> <VTAC-2>
155.1600 Base/Mob	National Search and rescue Common, widely used but not an official allocation.
155.3400 Base/Mob	Special emergency inter-system, Medical Hospital Emergency Ambulance Radio (HEAR) <1EMS-14>
155.3475 Base/Mob	Special emergency inter-system <1EMS-15>
155.3700 Base/Mob	Law enforcement mutual aid/inter-system, widely used but not an official allocation
155.4750 Base/Mob	Law enforcement nationwide <1LAW-16>
155.4825 Base/Mob	Law enforcement nationwide <1LAW-17>
155.7525 Base/Mob	Public safety (all agencies) interoperability, including local, state and federal agencies. <1CALL-18> <VCALL>
157.2250 Mobile	Public safety (all agencies) interoperability, selected inland US areas only <1TAC-21D>
157.2500 Mobile	Public safety (all agencies) interoperability, selected inland US areas only <1TAC-19D>
157.2750 Mobile	Public safety (all agencies) interoperability, selected inland US areas only <1TAC-20D>
158.7375 Base/Mob	Public safety (all agencies) interoperability, including local, state and federal agencies. <1TAC-22> <VTAC-2>
159.4725 Base/Mob	Public safety (all agencies) interoperability, including local, state and federal agencies. <1TAC-23> <VTAC-3>
161.8250 Base/Mob	Public safety (all agencies) interoperability, selected inland US areas only <1TAC-25>
161.8500 Base/Mob	Public safety (all agencies) interoperability, selected inland US areas only <1TAC-24>
161.8750 Base/Mob	Public safety (all agencies) interoperability, selected inland US areas only <1TAC-26>
162.0875 Mobile	Interagency Law Enforcement VHF Interoperability <1FCAL-35>
162.2625 Mobile	Interagency Law Enforcement VHF Interoperability <1FLAW-36>
162.8375 Mobile	Interagency Law Enforcement VHF Interoperability <1FLAW-37>
163.1000/168.3500	Government Itinerant, wide-area, common use repeaters
163.2875 Mobile	Interagency Law Enforcement VHF Interoperability <1FLAW-38>
163.4250 Mobile	Interagency Law Enforcement

VHF Interoperability <1FLAW-39>	
163.7125 Simplex.....	Government Itinerant, local-area, common use simplex
164.7125 Mobile	Interagency VHF Incident Response <1FCAL-40>
165.2500 Mobile	Interagency VHF Incident Response <1FTAC-41>
165.9625 Mobile	Interagency VHF Incident Response <1FTAC-42>
165.5750 Mobile	Interagency VHF Incident Response <1FTAC-43>
167.0875 Simplex.....	Interagency Law Enforcement VHF Interoperability National Calling Channel <LE-A> <1FCAL-35D> (167.9 Hz PL)
167.0875/162.0875	Interagency Law Enforcement VHF Interoperability <LE-1> (167.9 Hz PL)
167.2500 Simplex.....	Interagency Law Enforcement VHF Interoperability <1FLAW-36D/LE-6> (167.9 Hz PL)
167.2500/162.2625	Interagency Law Enforcement VHF Interoperability <LE-2> (167.9 Hz PL)
167.3250 Mobile	Interagency VHF Incident Response <1FCAL-44>
167.7500 Simplex.....	Interagency Law Enforcement VHF Interoperability <1FLAW-37D/LE-7> (167.9 Hz PL)
167.7500/162.8375	Interagency Law Enforcement VHF Interoperability <LE-3> (167.9 Hz PL)
168.1125 Simplex.....	Interagency Law Enforcement VHF Interoperability <1FLAW-38D/LE-8> (167.9 Hz PL)
168.1125/163.2875	Interagency Law Enforcement VHF Interoperability <LE-4> (167.9 Hz PL)
168.4625 Simplex.....	Interagency Law Enforcement VHF Interoperability <1FLAW-39D/LE-9> (167.9 Hz PL)
168.4625/163.425	Interagency Law Enforcement VHF Interoperability <LE-5> (167.9 Hz PL)
168.6125 Simplex.....	Government Itinerant, local-area, common use simplex
169.5375 Simplex.....	Interagency VHF Incident Response <1FCAL-40D/IR-5>
169.5375/164.7125	Interagency VHF Incident Response <NC-1 Calling>
170.0125 Simplex.....	Interagency VHF Incident Response <1FTAC-41D/IR-6>
170.0125/165.2500	Interagency VHF Incident Response <IR-1>
170.4125 Simplex.....	Interagency VHF Incident Response <1FTAC-42D/IR-7>
170.4125/165.9625	Interagency VHF Incident Response <IR-2>
170.6875 Simplex.....	Interagency VHF Incident Response <1FTAC-43D/IR-8>
170.6875/166.5750	Interagency VHF Incident Response <IR-3>
173.0375 Simplex.....	Interagency VHF Incident Response <1FTAC-44D/IR-9>
173.0375/167.3250	Interagency VHF Incident Response <IR-4>
173.6250/167.1375	Government Itinerant, local-area, common use repeaters
220.8025-220.8475	Public safety (all agencies) mutual aid (channels at 5 kHz intervals)
396.8750 Simplex.....	Department of Defense Inter Squad Radios <Channel 1>
397.1250 Simplex.....	Department of Defense Inter Squad Radios <Channel 2>
397.1750 Simplex.....	Department of Defense Inter Squad Radios <Channel 3>
397.3750 Simplex.....	Department of Defense Inter Squad Radios <Channel 4>
397.4250 Simplex.....	Department of Defense Inter Squad Radios <Channel 5>
397.4750 Simplex.....	Department of Defense Inter Squad Radios <Channel 6>
397.5500 Simplex.....	Department of Defense Inter

Squad Radios <Channel 7>	Response <4FTAC-54>	463.14375/468.14375Medical Hospital to paramedics base/mobile <Med 63>
397.9500 Simplex.....Department of Defense Inter Squad Radios <Channel 8>	419.8375 MobileInteragency UHF Incident Response <4FTAC-55>	463.1500/468.1500Medical Hospital to paramedics base/mobile <Med 7>
398.0500 Simplex.....Department of Defense Inter Squad Radios <Channel 9>	419.9875 MobileInteragency Law Enforcement UHF Interoperability <4FLAW-46>	463.15625/468.15625Medical Hospital to paramedics base/mobile <Med 71>
399.4250 Simplex.....Department of Defense Inter Squad Radios <Channel 10>	453.2125/458.2125Public safety (all agencies) interoperability, including local, state and federal agencies. <4CALL-27D> <4CALL>	463.1625/468.1625Medical Hospital to paramedics base/mobile <Med 72 >
399.4750 Simplex.....Department of Defense Inter Squad Radios <Channel 11>	453.4625/458.4625Public safety (all agencies) interoperability, including local, state and federal agencies. <4TAC-28D> <UTAC-1>	463.16875/468.16875Medical Hospital to paramedics base/mobile <Med 73>
399.7250 Simplex.....Department of Defense Inter Squad Radios <Channel 12>	453.7125/458.7125Public safety (all agencies) interoperability, including local, state and federal agencies. <4TAC-29D><UTAC-2>	463.1750/368.1750Medical Hospital to paramedics base/mobile <Med 8>
399.9250 Simplex.....Department of Defense Inter Squad Radios <Channel 13>	453.8625/458.8625Public safety (all agencies) interoperability, including local, state and federal agencies. <4TAC-30D><UTAC-3>	463.18125/468.18125Medical Hospital to paramedics base/mobile <Med 81>
399.9750 Simplex.....Department of Defense Inter Squad Radios <Channel 14>	458.2125 MobilePublic safety (all agencies) interoperability, including local, state and federal agencies. <4CALL-27>	463.1875/468.1875Medical Hospital to paramedics base/mobile <Med 82 >
407.5250/416.5250Government Itinerant, local-area, common use repeaters	458.4625 MobilePublic safety (all agencies) interoperability, including local, state and federal agencies. <4TAC-28>	463.19375/368.19375Medical Hospital to paramedics base/mobile <Med 83>
409.0500/418.0500Government Itinerant, wide-area, common use repeaters	458.7125 MobilePublic safety (all agencies) interoperability, including local, state and federal agencies. <4TAC-29>	
409.0750/418.0750Government Itinerant, local-area, common use repeaters	458.8625 MobilePublic safety (all agencies) interoperability, including local, state and federal agencies. <4TAC-30>	
409.3375/418.3375Government Itinerant, wide-area, common use repeaters	460.5250/465.5250Public safety (all agencies) inter-system/intra-system	
409.9875 Simplex.....Interagency Law Enforcement UHF Interoperability <LE-16> <4FLAW-46D> (167.9 Hz PL)	460.5500/465.5500Public safety (all agencies) inter-system/intra-system	
409.9875/418.9875Interagency Law Enforcement UHF Interoperability <LE-10> (167.9 Hz PL)	462.9500/467.9500Medical Hospital to paramedics base/mobile <Med 9>	
410.1875 Simplex.....Interagency Law Enforcement UHF Interoperability <LE-17> <4FLAW-47D> (167.9 Hz PL)	462.95625/467.95625Medical Hospital to paramedics base/mobile <Med 91>	
410.1875/419.1875Interagency Law Enforcement UHF Interoperability <LE-11> (167.9 Hz PL)	462.9625/467.9625Medical Hospital to paramedics base/mobile <Med 92 >	
410.2375 Simplex.....Interagency UHF Incident Response <IR-15> <4FCAL-52D>	462.96875/467.96875Medical Hospital to paramedics base/mobile <Med 93> <EMS UTAC>	
410.2375/419.2375Interagency UHF Incident Response <NC-2 Calling>	462.9750/467.9750Medical Hospital to paramedics base/mobile <Med 10>	
410.4375 Simplex.....Interagency UHF Incident Response <IR-16> <4FTAC-53D>	462.98125/467.98125Medical Hospital to paramedics base/mobile <Med 101>	
410.4375/419.4375Interagency UHF Incident Response <IR-10>	462.9875/467.9875Medical Hospital to paramedics base/mobile <Med 102>	
410.6125 Simplex.....Interagency Law Enforcement UHF Interoperability <LE-18> <4FLAW-48D> (167.9 Hz PL)	462.99375/467.99375Medical Hospital to paramedics base/mobile <Med 103>	
410.6125/419.6125Interagency Law Enforcement UHF Interoperability <LE-12> (167.9 Hz PL)	463.0000/468.0000Medical Hospital to paramedics base/mobile <Med 1>	
410.6375 Simplex.....Interagency UHF Incident Response <IR-17> <4FTAC-54D>	463.00625/468.00625Medical Hospital to paramedics base/mobile <Med 11>	
410.6375/419.6375Interagency UHF Incident Response <IR-11>	463.0125/468.0125Medical Hospital to paramedics base/mobile <Med 12 >	
410.8375 Simplex.....Interagency UHF Incident Response <IR-18> <4FTAC-55D>	463.01875/468.01875Medical Hospital to paramedics base/mobile <Med 13>	
410.8375/419.8375Interagency UHF Incident Response <IR-12>	463.0250/468.0250Medical Hospital to paramedics base/mobile <Med 2>	
412.8250 Simplex.....Government Itinerant, wide-area, common use simplex	463.03125/468.03125Medical Hospital to paramedics base/mobile <Med 21>	
412.8375 Simplex.....Government Itinerant, wide-area, common use simplex	463.0375/468.0375Medical Hospital to paramedics base/mobile <Med 22 >	
412.8500 Simplex.....Government Itinerant, wide-area, common use simplex	463.04375/468.04375Medical Hospital to paramedics base/mobile <Med 23>	
412.8625 Simplex.....Government Itinerant, wide-area, common use simplex	463.0500/468.0500Medical Hospital to paramedics base/mobile <Med 3>	
412.8750 Simplex.....Government Itinerant, local-area, common use simplex	463.05625/468.05625Medical Hospital to paramedics base/mobile <Med 31>	
412.8875 Simplex.....Government Itinerant, local-area, common use simplex	463.0625/468.0625Medical Hospital to paramedics base/mobile <Med 32 >	
412.9000 Simplex.....Government Itinerant, local-area, common use simplex	463.06875/468.06875Medical Hospital to paramedics base/mobile <Med 33>	
412.9125 Simplex.....Government Itinerant, local-area, common use simplex	463.0750/468.0750Medical Hospital to paramedics base/mobile <Med 4>	
413.1875 Simplex.....Interagency UHF Incident Response <IR-13> <4FTAC-56>	463.08125/468.08125Medical Hospital to paramedics base/mobile <Med 41>	
413.2125 Simplex.....Interagency UHF Incident Response <IR-14> <4FTAC-57>	463.0875/468.0875Medical Hospital to paramedics base/mobile <Med 42 >	
414.0375 Simplex.....Interagency Law Enforcement UHF Interoperability National Calling Channel <LE-B> <4FCAL-45D> (167.9 Hz PL)	463.09375/468.09375Medical Hospital to paramedics base/mobile <Med 43>	
414.0625 Simplex.....Interagency Law Enforcement UHF Interoperability <LE-13> <4FLAW-49> (167.9 Hz PL)	463.1000/468.0000Medical Hospital to paramedics base/mobile <Med 5>	
414.3125 Simplex.....Interagency Law Enforcement UHF Interoperability <LE-14> <4FLAW-50> (167.9 Hz PL)	463.10625/468.10625Medical Hospital to paramedics base/mobile <Med 51>	
414.3375 Simplex.....Interagency Law Enforcement UHF Interoperability <LE-15> <4FLAW-51> (167.9 Hz PL)	463.1125/468.1125Medical Hospital to paramedics base/mobile <Med 52 >	
419.1875 MobileInteragency Law Enforcement UHF Interoperability <4FLAW-47>	463.11875/468.11875Medical Hospital to paramedics base/mobile <Med 53>	
419.2375 MobileInteragency UHF Incident Response <4FCAL-52>	463.1250/468.1250Medical Hospital to paramedics base/mobile <Med 6>	
419.4375 MobileInteragency UHF Incident Response <4FTAC-53>	463.13125/468.13125Medical Hospital to paramedics base/mobile <Med 61>	
419.6125 MobileInteragency Law Enforcement UHF Interoperability <4FLAW-48>	463.1375/468.1375Medical Hospital to paramedics base/mobile <Med 62 >	
419.6375 MobileInteragency UHF Incident		

800 MHz National Interop Frequencies

In accordance with the National Plan for 821-824/866-869 MHz, interoperability among federal, state, and local governments during both routine and disaster operations will take place primarily on five common channels in the following configurations:

821.0125 Mobile National Public Safety nationwide mutual aid <8CAL-90>
821.5125 Mobile National Public Safety nationwide mutual aid <8TAC-91>
822.0125 Mobile National Public Safety nationwide mutual aid <8TAC-92>
822.5125 Mobile National Public Safety nationwide mutual aid <8TAC-93>
823.0125 Mobile National Public Safety nationwide mutual aid <8TAC-94>
866.2125/821.0125 ... National Public Safety nationwide mutual aid <8CAL-90D> <8Call>
866.5125/821.2125 ... National Public Safety nationwide mutual aid <8TAC-91D> <8TAC-1>
867.0125/822.0125 ... National Public Safety nationwide mutual aid <8TAC-92D> <8TAC-2>
867.5125/822.5125 ... National Public Safety nationwide mutual aid <8TAC-93D> <8TAC-3>
868.0125/823.0125 ... National Public Safety nationwide mutual aid <8TAC-94D> <8TAC-4>

800 MHz Statewide Frequencies

In addition to the above frequencies, civilian agencies may permit federal use of a non-federal communications system. Below is a sample list of four states' statewide 800 MHz tactical frequencies:

853.3875/808.3875 ... Florida Mutual Aid Channel
866.2000/821.2000 ... California CLEMARS <Channels 20/21>
866.2250/821.2250 ... South Carolina statewide tactical <SCTAC-1>
866.6875/821.6875 ... South Carolina statewide tactical <SCTAC-2>
866.9125/821.9125 ... California FIREMARS-2
867.7750/822.7750 ... South Carolina statewide tactical <SCTAC-3>
868.5125/823.5125 ... California CLEMARS <Channels 8/9>
868.6375/823.6375 ... South Carolina statewide tactical <SCTAC-4>
868.7875/823.7875 ... Colorado statewide base-base/mobile/mobile <STAC-5>
868.9750/823.9750 ... South Carolina statewide tactical <SCTAC-5>
868.9875/823.9875 ... California FIREMARS

In closing, we reiterate the statement made by David Boyd of the Homeland Security Department to a congressional sub-committee, that people, not technology, create the greatest obstacle to achieving interoperable communications. As we can see above, frequencies are already available: We respectfully submit that agencies should quit squabbling and use them!