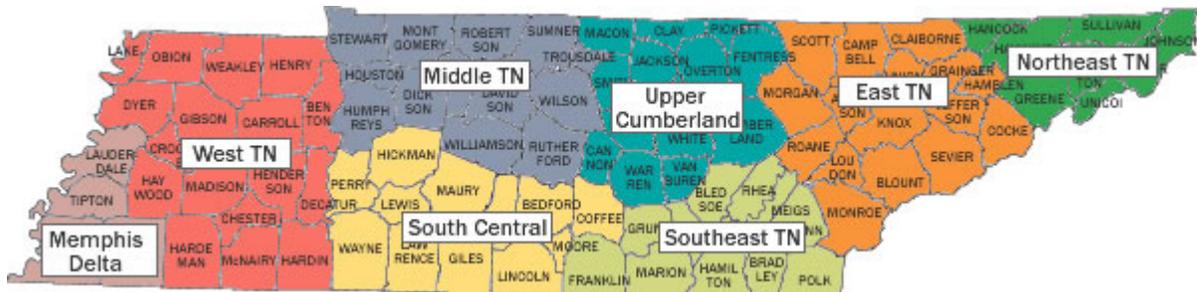




Tennessee Emergency Medical Services Telecommunications Plan



Revised November 15, 2010

**Tennessee Department of Health
Division of Emergency Medical Services
227 French Landing, Suite 303
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Introduction

The Tennessee Emergency Medical Services Board empowered the EMS Telecommunications Committee to draft a revised Telecommunications Plan after more than twenty years of EMS radio system development. The first revision of the plan was approved by the EMS Board in 1995.

It was not until terrorist attacks of September 11, 2001 that the majority of public safety agencies understood the importance of interoperable communications and the need to plan for acts of terrorism and catastrophic natural disasters. In June of 2003, a strategic planning summit was hosted by the Tennessee Department of Health and conducted by the Director, Division of Emergency Medical Services. One of the three focus groups at this summit was charged with communications systems review and recommendation. The group consisted of representatives from Emergency Medical Services, Telecommunications Resource Coordination Centers, Tennessee Emergency Communications Board (911), Tennessee Emergency Management Agency, and Regional EMS Consultants from the Division of Emergency Medical Services.

A Communications Subcommittee on Radio Systems of The Bioterrorism Hospital Advisory Committee drafted the Tennessee Emergency Medical Communications Statewide Development Plan that was approved by the Emergency Medical Services Board on June 17, 2004. Acting on the committee recommendations the Emergency Medical Service Telecommunications General Rules were updated to reinforce the plan. The revisions became effective August 15, 2007.

While the EMS Statewide Development Plan and the Telecommunications General Rules were being developed, there were ongoing efforts to develop a Statewide Communications Interoperability Plan for all public safety agencies that would further define uses of established mutual aid frequencies and incorporate federally established interoperable channels in VHF, UHF and the 700/800-megahertz spectrum. Additionally, the Federal Communications Commission has adopted new Rules and Regulations mandating migration from wide-band (25-KHz) to narrow-band (12.5 KHz) emissions for all commercial and public safety VHF and UHF communications systems operating between 150-174 MHz and between 421-512 MHz no later than January 1, 2013. These changes will require that we continue to adapt to new technology and that we supplement our knowledge and maintain our capabilities to properly dispatch and coordinate the emergency medical assistance for those living in, working in or visiting the State of Tennessee.

Inquiries, comments and suggestions should be referred to the Director at the following address:

Tennessee Department of Health
Division of Emergency Medical Services
227 French Landing, Suite 303
Heritage Place, MetroCenter
Nashville, Tennessee 37243

Telephone: 615-741-2584
Fax: 615-741-2714

Emergency Medical Service Radio Licensure

All users of medical radio frequencies must obtain and maintain the proper radio license. Care must always be taken not to interfere with any radio traffic in progress. Always listen on a frequency before transmitting. In lieu of an FCC license, some ambulance services may obtain a frequency sharing agreement or frequency use agreement for mobile only operation from a properly licensed base station operator providing the base station operator has a sufficient number of mobile units licensed to accommodate the request. A generic frequency use agreement form is provided as *Appendix 6* to this document.

The FCC Rules and Regulations are codified in title 47, of the Code of Federal Regulations <http://www.access.gpo.gov/rules.html>. These rules govern who is eligible to license a transmitter and the specific frequencies and equipment configuration allowed.

The FCC Rules applicable to EMS communications are on line at:

http://www.access.gpo.gov/nara/cfr/waisidx_01/47cfr90_01.html Printed copies of the FCC Rules are available from the U. S. Superintendent of Documents Government Printing Office. <http://bookstore.gpo.gov/support/index.html> The FCC requires all licensees to have access to a copy of the Rules to be familiar with them. Printed copies of the FCC Rules can be obtained from:

Superintendent of Documents
U. S. Government Printing Office
Post Office Box 371954
Pittsburgh, PA 15250-7954
Telephone Toll-Free: 1-888-293-6498
FAX (202) 512-1262
E-Mail: gpoaccess@gpo.gov

Prior to operating a radio transmitter, a license must be obtained from the Federal Communications Commission. In the Private Land Mobile Radio Services (PLMR) license is obtained by completing and filing FCC Form 601. <http://www.fcc.gov/Forms/Form601/601.pdf> In addition to the license application, "frequency coordination" must be undertaken.

Current radio licenses must be maintained for all frequencies and transmitters operated by any EMS provider, hospital, rescue squad or other provider. Per FCC Rule 90.437 the original license shall be retained as a permanent part of the station records. A clearly legible photocopy of the authorization for each base or fixed station shall be posted at every control point of the station.

To obtain a radio license, consult FCC Rules Subpart F, paragraph 1.901 through 1.923, which provides information on the procedure to be followed. There is a requirement for formal frequency coordination under the FCC Rules Section 90.175.

Frequency coordination in the Emergency Medical Radio Service or in the Special Emergency Radio Service is obtained by contacting:

Fire/EMS Frequency Coordination
IMSA/IAFC
Post Office Box 1513
Providence, RI 02901
Telephone: (401) 738-2220

To obtain an FCC license, complete FCC Form 601 "FCC Application for Wireless Telecommunications Bureau Radio Service Authorization." This form is available by calling the FCC Forms Distribution Center at 1-800-418-3676 or downloading the form from the FCC web site at: <http://www.fcc.gov/formpage.html>. The Form 601 is available in several formats at this web site including PDF and zip.

FCC Rule section 90.20(a)(1)(iii) requires that radio license applications in the Emergency Medical Radio Service be accompanied by a letter from the State Division of Emergency Medical Services supporting the application. The essential components of this statement attest that:

- The applicant provides basic or advanced life support services on an ongoing basis.
- The applicant is in conformance with the state EMS communications plan.
- The statement is supported by an authorized signature.

The State Division of Emergency Medical Services has established a method by which this letter is provided. Contact the Division of Emergency Medical Services for assistance.

Tennessee Department of Health
Bureau of Health Licensure and Regulation
Division of Emergency Medical Services
Communications Manager
Telephone: (731) 984-9690
FAX: (731) 512-0063

NOTE: It is very important that the letter of support from the State Division of EMS be received by the frequency coordinator at the same time as the FCC Forms. It has proven difficult to get these documents together after the license application has been mailed to the frequency coordinator.

The Division of Emergency Medical Services has technical staff available to assist entities in selecting equipment and planning communications system to comply with the requirements of the Emergency Medical Service Telecommunications General Rules.

NATIONAL INCIDENT MANAGEMENT SYSTEM (NIMS)

The State of Tennessee will use NIMS as part of the overall interoperability plan. The Governor's Executive Order 23, June 28, 2005 establishes NIMS as the framework for

management of all emergency incidents within the state. It is mandated that all required personnel take NIMS / ICS courses to familiarize themselves with the NIMS / ICS structure and initiate this process on incidents.

REGIONAL EMERGENCY MEDICAL COMMUNICATIONS SYSTEMS

Establishment of the regional emergency medical communications systems is authorized by the EMS Telecommunications Act, TCA 68-140-201 and EMS Board Rule 1200—12-1-.08.

REGIONAL MEDICAL COMMUNICATIONS CENTERS

A regional medical communications center (RMCC) is a state designated communications entity with a multi-county mission and focus that coordinates hospitals, ambulance services and other medical resources, in real time, to optimize emergency patient care in situations where local governments and health care providers request assistance.

See *Appendix 4* for each region's RMCC contact information.

REGIONAL COMMUNICATIONS PLAN

Each EMS Region should develop and maintain a regional EMS Communications Plan. This plan should encompass communications between the RMCC and each EMS Service, Hospital and 911/Public Safety Dispatch entity in the served region. The Plan should include required EMS telecommunications frequencies as prescribed in General Rule 1200-12-01-.08 and include additional channels or programming information as specified in this Telecommunications Plan.

Additionally the plan should show detailed daily operational channels for each EMS Service, all primary and secondary communications channels between hospitals and ambulances, primary and secondary channel information for EMS contact with 911/Public Safety Dispatch centers and pre-developed multi-agency communications plans.

The regional Plan should provide guidance on communications specific to the region and be incorporated into the Emergency Management Plans of services and agencies within the region. A copy of the regional EMS Communications Plan should be on file at the RMCC and with the Communications Manager at the Division of Emergency Medical Services. It is recommended that the Plan contain completed ICS-Forms 217A (frequency resource list) and ICS205

Communications Plan for uniformity and that common channel names be utilized across all disciplines and radios.

INTEROPERABILITY and MUTUAL AID COMMUNICATIONS

BACKGROUND

Interoperability planning efforts began in Tennessee as an Ad Hoc group when the Statewide Interoperability Executive Committee (SIEC) first formed in 2002 as part of the 700 MHz Regional Planning effort. In 2005, the Director of the Tennessee Emergency Management Agency (TEMA) established a State Interoperability Task Force (SITF) to develop a strategy for short term and a direction for long term interoperability. The SITF developed a MOU and Interoperability Guide to establish a set of common radio channel in the HF, VHF, UHF, 700 MHz, 800 MHz, Marine and Aircraft band as well as establish guidelines for usage of cross-band devices such as an ACU-1000. The SITF also recommended for a long term solution that a P25 700 / 800 statewide system be developed. The SIEC now serves as a committee under the WiCAB, authorized by Governor Bredesen in Executive Order #49.

EMS Adoption of TN Interoperability Standards

The Division of Emergency Medical Services supports interoperability through the use of the nationwide and Tennessee Statewide VHF, UHF and 700/800 MHz interoperability and mutual aid communications channels, designated by the FCC and adopted by the Tennessee Statewide Interoperability Executive Committee (SIEC). The detailed frequency use / band plan is published and maintained as the Tennessee Radio Interoperability Guide (TRIG) and as part of the Statewide Communications Interoperability Plan (SCIP). The TRIG will be the accepted source document for channel-naming and frequency-specific data as accepted under the EMS Telecommunications Plan.

Within the TRIG you will find a Memorandum of Understanding (MOU) and a copy of the established operating parameters for the Federal Communications Commission (FCC) designated multi discipline interoperability and mutual aid channels set aside by the FCC in the VHF, UHF, 700 MHz and the 800 MHz public safety radio bands. The term “multi discipline” infers that these channels, as indicated in the attached operational and technical parameters, are to be used for all public safety users to communicate to users within their discipline (Police to Police, Fire to Fire, etc) as well as cross discipline communications (Police to Fire, Fire to Local Government) between all public safety users. There are no channels set aside for individual disciplines, as different incidents require varying amounts of participation from public safety First Responders. None of the national interoperability channels are set aside for individual disciplines, except in the 700 MHz. band, as different incidents require varying amounts of participation

from public safety First Responders. There are a few FCC designated mutual aid channels that are discipline specific. For example VFIRE21, VLAW31 and VMED340. VEMS205 is a Tennessee only mutual aid channel as well as VTNMA, UTNMA and 8TNMA. These channels are most effective when used as a shared resource at the scene of an incident by the Incident Commander. Previously allocated FCC mutual aid channels assigned for inter-system sharing (Police Mutual Aid, Fire Mutual Aid, etc.) within certain disciplines should continue to be used by Tennessee First Responders to facilitate communications within their respective discipline.

The Tennessee State Communications Interoperability Plan (SCIP) require these channels be utilized under an Incident Command (ICS)/National Incident Management System (NIMS) type management structure where channels are used as resources to accomplish the communications function at each individual incident. Eligible entities within the Public Safety Radio Pool (see FCC 90.20a) include, but are not limited to, the agencies listed below:

- Emergency Management
- Emergency Medical Service
- Fire Service
- Forestry-Conservation Agencies
- Highway Maintenance
- Law Enforcement
- Local Government Agencies
- Rescue Squads

All mobile and portable radios licensed for Emergency Medical Service use in Tennessee should meet the minimum channel requirements for interoperable communications as established in the Tennessee SCIP, Tennessee Radio Interoperability Guide Appendix. The SCIP Plan and TRIG are developed and maintained by the Tennessee Emergency Management Agency, Statewide Interoperability Coordinator (SWIC).. All identified channels both in the EMS Telecommunications Plan and SCIP TRIG should be programmed into the radios as specified, regardless whether any infrastructure exists within the service's home area.

FCC LICENSURE for INTEROPERABILITY

See <http://wireless.fcc.gov/publicsafety/pspool.html> for further information on public safety radio pool eligibility.

The FCC, per the Third Report and Order, 00-348 dated October 10, 2000, allowed public safety mobile operation on the VHF and UHF interoperability

channels without an individual mobile license, provided the user is otherwise licensed under Part 90 of the FCC's rules. The FCC also adopted, by rule(87-359 paragraph 33), that mobile only operation of the five 800 MHz NPSPAC interoperability channels as well as the 700MHz interoperability channels (01-10 paragraph 29) can be used provided the user is otherwise licensed under Part 90 of the FCC's rules. In its recommended channel parameters, the SITF has also promoted the primary usage of these channels to mobile only tactical on-scene operations and base or repeater operation as secondary to minimize interference and maximize re-usage.

Use of the interoperability frequencies must be in accordance with the requirements and restrictions approved in the Tennessee SCIP plan TRIG Appendix.. More information on the Tennessee Interoperable Communications Plan and a list of frequencies may be accessed at <http://region39.org> and from the Statewide Interoperability Communications Coordinator, 3041 Sidco Drive, Nashville, TN 37204, or by phone at (800)_262-3300.

COMMON CHANNEL NAMING

All radio channels listed in the Emergency Medical Services Telecommunications Plan shall be programmed into mobile and portable radios in accordance with the Standard Channel Nomenclature for the Public Safety Interoperability Channels. This document may be found at <http://www.apcointi.com/new/commcenter911/documents/APCO-NPSTC-ANS1-104-1web.pdf> or downloaded from the Tennessee Interoperability Community at www.niix.org. Tennessee specific channels not referenced in the Standard, shall be in accordance with the Tennessee SCIP, Tennessee Radio Interoperability Guide. Channels referenced in neither the National Standard nor SCIP shall be programmed per this document.

STATEWIDE EMS OPERATIONAL FREQUENCIES

VHF FREQUENCIES for EMERGENCY MEDICAL SERVICES

The VHF wide-band frequencies 155.205 MHz, 155.280 MHz, 155.295 MHz and 155.340 MHz have been selected as Tennessee statewide standard VHF frequencies. All transmissions on these frequencies shall be conventional analog voice communications. In view of the F. C. C. mandate that all VHF and UHF frequencies operating between 150-174 MHz and between 421-512 MHz operate within a 12.5 kilohertz bandwidth no later than January 1, 2013. Upon conversion to narrow-band operation these Tennessee specific frequencies shall be identified uniformly as VEMS 205, VEMS 280, VEMS 295 and VEMS 340. To assist in standardization of uses of these four frequencies, the following is required:

155.2050 MHz Common Name: VEMS 205

The frequency 155.205 MHz (VEMS 205) is designated primarily for mutual aid. The frequency shall not be used for primary dispatch. All new and modified systems must license an alternate frequency for dispatching. To minimize radio interference from stations in neighboring states, all radios will be programmed to utilize a Digital Coded Squelch (DCS) of 205N on transmit and receive function. Mobile radios may elect to leave the receive set at carrier squelch, should their transceiver not be equipped with a monitor function to deactivate the DCS for out of state responses. The Division of EMS permits the use of Dual Tone Multi Frequency (DTMF) alerting codes to access base radios. This will allow the RMCC or other dispatch center to alert an EMS entity by county or EMS region using a three-digit number corresponding to the alphanumeric listing by county name or EMS region as shown in *Appendix 1*. The designated Regional Medical Communications Centers will monitor this frequency at all times to assist ambulances requesting radio access to a hospital emergency room, and for receiving requests for EMS mutual aid or incident notification.

155.2800 MHz Common Name: VEMS 280

The frequency 155.280 MHz (VEMS 280) is designated for fixed communications between hospitals. Individual hospitals may license this frequency for interfacility use. This frequency may be licensed for mobile operations for medical purposes, as provided in regional EMS Communications Plans and approved by the Communications Manager, Division of Emergency Medical Services.

155.2950 Common Name: VEMS 295

The frequency 155.295 MHz (VEMS 295) is for on-scene tactical communications. This frequency is for mobile and hand held radio use. To minimize radio interference from stations in neighboring states and other users within the Tennessee Department of Health, all radios should be programmed to utilize Digital Coded Squelch 155N on transmit and receive functions.

155.3400 Common Name: VEMS 340

The frequency 155.340 MHz (VEMS 340) is dedicated to communication between EMS providers and hospitals. This frequency is to be used for this purpose only. The frequency is for emergency communications associated with the emergency care and transportation of sick and injured. Information exchanged on this frequency must be pertinent to treatment of the patient on scene or during transport. This frequency shall not be used for dispatch, paging or interfacility communications. Access to hospital radios is accomplished by transmitting a Dual Tone Multi Frequency

(DTMF) code consisting of a three digit number assigned to each hospital. A listing is contained in Appendix 2 of this document. For interoperability with ambulances that may transport patients from neighboring states all hospital radios shall be programmed to transmit the nationally standardized PL (Private Line) tone of 156.7 Hz. The Regional Medical Communications Centers may also utilize DTMF encoding to alert individual hospitals or all hospitals within a region for notification of significant events.

NOTE: 155.340 is also identified as a national interoperability channel VMED28. The Tennessee usage will continue to be as described above. It is recommended that both VEMS340 and VMED28 be programmed into your radios, with VMED 28 for use outside Tennessee.

VHF Interoperability

The Tennessee SCIP Plan and the Tennessee Radio Interoperability Guide Appendix provide the guidance and specification for interoperability use in the VHF spectrum. Calling Channels and Tactical Channels are described in detail and will be the standard minimum requirements for programming in all Emergency Medical System mobile and portable radios.

UHF FREQUENCIES for EMERGENCY MEDICAL SERVICES

The Tennessee Emergency Medical Service Regional Medical Communications Centers support the use of the UHF MED Channels where utilized. It is important that any UHF system use the appropriate frequencies, as designated for dispatch and patient care communications.

UHF MED Channels

The Federal Communications Commission has designated a block of frequencies specifically for use by the emergency medical service community. They were designated "MED Channels", and identified by frequency pair (initially 10) and numbered by the FCC for national uniformity.

The FCC further designated the use of the MED Channels into two differing groups:

1. Command and Control (i.e. dispatch, and assignment)
2. Patient Medical Communications (i.e. patient reporting and medical direction)

Med 9 and Med 10 were designated initially for Command and Control, and Med 1-8 were designated for medical reporting and direction.

The exponential growth of EMS and population as a whole began to put a strain upon the EMS Telecommunications systems nationally, and the 10 frequency pairs began to see congestion in the metropolitan areas. As technology improved, the bandwidth of communications could be accomplished in a narrower segment, and the traditional 25KHz (wide-band) channels were analyzed and 12.5KHz (narrow-band) technology was implemented to add additional frequency pairs in frequency bands already in use. The EMS Med Channels were allotted more channel assignments in this fashion. Where we once had Med 9 & 10 we now have Med 9, 91, 92 and Med 10, 101, and 102 all designated for EMS Command and Control. Similarly, we also have selected channels between Med-1 and Med-82 (*Appendix 3*) for patient related communications.

UHF Interoperability

The Division of Emergency Medical Services and the Tennessee Interoperability Executive Committee have designated Med-82 (UEMSTAC) as the statewide UHF EMS tactical operations channel for Interoperability. The Division of Emergency Medical Services will only authorize a maximum of 5-watts output power for mobile and portable radio licensing on this frequency.

The Tennessee SCIP TRIG Appendix provide the guidance and specifications for interoperability use in the UHF spectrum. Calling Channels and Tactical Channels are described in detail and will be the standard minimum requirements for programming in all Emergency Medical System mobile and portable radios.

700/800 MHz for EMERGENCY MEDICAL SERVICES

As authorized by Rule 1200-12-01-.08(5)(a)2., certain county services may apply to use alternative communications systems in the 800 MHz band plan for public safety communications. Such systems must be included in the regional EMS Communications Plan for the specified region. The Plan must include interoperability design and alternative/backup communications plan to meet the Rule objectives.

Interoperability for 700/800 MHz

For services who utilize 800 MHz radios for public safety communications, as authorized by the Division of Emergency Medical Services, The Tennessee SCIP Plan TRIG and Tennessee Region 39 700-MHz Regional Plan and the 800 MHz Tennessee Region 39 Plan provide the guidance and specifications for interoperability use in the 700/800-MHz. spectrum. Calling Channels and Tactical Channels are described in detail and will be the standard minimum requirements for programming in all Emergency Medical System mobile and portable radios.

Appendix 1

Encode Plan

EMS Dispatch Entities on 155.205 MHz Mutual Aid Channel (County-Wide, Region-Wide and All-Call Code)

001	Anderson	026	Franklin	051	Lewis	076	Scott
002	Bedford	027	Gibson	052	Lincoln	077	Sequatchie
003	Benton	028	Giles	053	Loudon	078	Sevier
004	Bledsoe	029	Grainger	054	McMinn	079	Shelby
005	Blount	030	Greene	055	McNairy	080	Smith
006	Bradley	031	Grundy	056	Macon	081	Stewart
007	Campbell	032	Hamblen	057	Madison	082	Sullivan
008	Cannon	033	Hamilton	058	Marion	083	Sumner
009	Carroll	034	Hancock	059	Marshall	084	Tipton
010	Carter	035	Hardeman	060	Mauzy	085	Trousdale
011	Cheatham	036	Hardin	061	Meigs	086	Unicoi
012	Chester	037	Hawkins	062	Monroe	087	Union
013	Claiborne	038	Haywood	063	Montgomery	088	Van Buren
014	Clay	039	Henderson	064	Moore	089	Warren
015	Cocke	040	Henry	065	Morgan	090	Washington
016	Coffee	041	Hickman	066	Obion	091	Wayne
017	Crockett	042	Houston	067	Overton	092	Weakley
018	Cumberland	043	Humphreys	068	Perry	093	White
019	Davidson	044	Jackson	069	Pickett	094	Williamson
020	Decatur	045	Jefferson	070	Polk	095	Wilson
021	DeKalb	046	Johnson	071	Putnam	096	Out-of-State
022	Dickson	047	Knox	072	Rhea		
023	Dyer	048	Lake	073	Roane		
024	Fayette	049	Lauderdale	074	Robertson		
025	Fentress	050	Lawrence	075	Rutherford		

Regional All-Call

901	Region 1 – Northeast	905	Region 5 – Mid Cumberland
902	Region 2 – East	906	Region 6 – South Central
903	Region 3 – Southeast	907	Region 7 – Rural West
904	Region 4 – Upper Cumberland	908	Region 8 – Memphis Delta

911 State-Wide All Call

Appendix 2

Tennessee Emergency Medical Service 155.340 MHz. Hospital DTMF Encode Numbers

COUNTY	CURRENT FACILITY NAME	CODE
Anderson	Methodist Medical Center of Oak Ridge	010
Bedford	Bedford County Medical Center	020
Benton	Camden General Hospital	025
Bledsoe	Erlanger Bledsoe	030
Blount	Blount Memorial Hospital	040
Bradley	Bradley Memorial Hospital	050
	Cleveland Community Hospital	051
Campbell	Jellico community Hospital, Inc.	060
	St. Mary's Med. Ctr. Of Campbell Co.	061
Cannon	Stones River Hospital	065
Carroll	Baptist Memorial Hospital-Huntingdon	070
	McKenzie Regional Hospital	071
Carter	Sycamore Shoals Hospital	080
Cheatham	Centennial Medical Center at Ashland	090
Chester	<i>No Hospital</i>	
Claiborne	Claiborne County Hospital	095
Clay	Cumberland River Hospital	100
Cocke	Baptist Hospital of Cocke County	105
Coffee	Harton Regional Medical Center	111
	Medical Center of Manchester	112
	United Regional Medical Center	110
Crockett	No Hospital	
Cumberland	Cumberland Medical Center	120
Davidson	Baptist Hospital, Inc.	130
	Centennial Medical Center	134
	Nashville General Hospital	136
	Saint Thomas Hospital	139
	Skyline Medical Center	137
	Southern Hills Medical Center	135
	Summitt Medical Center	132
	Tenn. Christian Med. Ctr. - Madison	140
	Vanderbilt Children's Hospital	142
	Vanderbilt University Hospital	141
VA-TN Healthcare System - Nashville	191	
Humphreys	Three Rivers Hospital	390
Jackson	<i>No Hospital</i>	
Jefferson	Jefferson Memorial Hospital, Inc.	400
Johnson	Johnson County Community Hospital	405
Knox	Baptist Hospital of East Tennessee	410
	Baptist Hospital West	414
	East Tennessee Children's Hospital	411
	Fort Sanders Parkwest Medical Ctr.	413
	Fort Sanders Regional Hospital	412
	Saint Mary's Medical Center	415
	University of Tennessee Medical Ctr.	416
	Saint Mary's Medical Center - North	417
Lake	<i>No Hospital</i>	

COUNTY	CURRENT FACILITY NAME	CODE
Decatur	Decatur County General Hospital	195
DeKalb	Baptist DeKalb Hospital	200
Dickson	Horizon Medical Center	210
Dyer	Dyersburg Regional Medical Center	220
Fayette	Methodist Healthcare - Fayette Hospital	225
Fentress	Jamestown Regional Medical Center	230
Franklin	Emerald-Hodgson Hospital	245
	Southern Tennessee Medical Center	241
Gibson	Gibson General Hospital	252
	Humboldt General Hospital	253
	Milan General Hospital	250
Giles	Hillside Hospital	260
Grainger	No Hospital	
Greene	Laughlin Memorial Hospital, Inc.	266
	Wellmont - Takoma Regional Hospital	267
Grundy	No Hospital	
Hamblen	Lakeway Regional Hospital	276
	Morristown-Hamblen Health System	277
Hamilton	Parkridge East Hospital	284
	Erlanger Medical Center	282
	Erlanger North Hospital	281
	Memorial Health Care System	285
	Memorial North Park Hospital	283
	Parkridge Medical Center	287
T. C. Thompson Children's Hospital	316	
Hancock	Wellmont Hancock County Hospital	290
Hardeman	Bolivar General Hospital, Inc.	330
Hardin	Hardin County General Hospital	340
Hawkins	Wellmont Hawkins Co. Mem. Hospital	350
Haywood	Haywood Park Community Hospital	355
Henderson	Henderson County Community Hospital	360
Henry	Henry County Medical Center	370
Hickman	Baptist Hickman Community Hospital	380
Houston	Trinity Hospital	385
Perry	Perry Community Hospital, LLC	595
Pickett	<i>No Hospital</i>	
Polk	Copper Basin Medical Center	605
Putnam	Cookeville Regional Medical Center	610
Rhea	Rhea Medical Center	620
Roane	Roane Medical Center	631
Robertson	North Crest Medical Center	640
Rutherford	Middle Tennessee Medical Center	651
	Stone Crest Medical Center	650
	VA-Murfreesboro	649
Scott	Scott County Hospital	660
Sequatchie	No Hospital	
Sevier	Fort Sanders Sevier Medical Center	670

Appendix 2 (continued)

Lauderdale	Baptist Memorial - Lauderdale	450
Lawrence	Crockett Hospital	455
Lewis	No Hospital - 24-Hr. Clinic	460
Lincoln	Lincoln County Regional Medical Ctr.	470
Loudon	Fort Sanders Loudon Medical Center	480
Macon	Macon County General Hospital	485
Madison	Jackson-Madison County General	491
	Regional Hospital of Jackson	490
Marion	Grandview Medical Center	510
Marshall	Marshall Medical Center	520
Maury	Maury Regional Hospital	530
McMinn	Athens Regional Medical Center	540
	Woods Memorial Hospital District	541
McNairy	McNairy Regional Hospital	550
Meigs	<i>No Hospital</i>	
Monroe	Sweetwater Hospital Association	560
Montgomery	Gateway Medical Center	570
Moore	<i>No Hospital</i>	
Morgan	<i>No Hospital</i>	
Obion	Baptist Memorial Hospital - Union City	585
Overton	Livingston Regional Hospital	590
	Sumner Regional Medical Center	782
Sumner Cont.	Tenn. Christian Med. Ctr. - Portland	790
	Baptist Memorial Hospital - Tipton	795
Trousdale	Trousdale Medical Center	800
Unicoi	Unicoi County Memorial Hospital, Inc.	810
Union	<i>No Hospital</i>	
Van Buren	<i>No Hospital</i>	
Warren	River Park Hospital	821
Washington	Johnson City Medical Center	841
	Franklin-Woods Community Hospital	842
	VA-James H. Quillen Medical Center	852
Wayne	Wayne Medical Center	855
Weakley	Volunteer Community Hospital	860

Shelby	Baptist Memorial Hospital - Collierville	693
	Baptist Memorial Hospital - Memphis	675
	Delta Medical Center	679
	Methodist Health - Germantown Hosp.	680
	Methodist-LeBonheur Childrns Med.Ctr.	682
	Methodist Healthcare - North Hospital	686
	Methodist Healthcare - South Hospital	684
	Methodist Health - University Hospital	685
	Regional Medical Center at Memphis	688
	Saint Francis Hospital - Memphis	689
Smith	Saint Francis Hospital - Bartlett	690
	St. Jude Children's Research Hospital	691
Stewart	<i>Future Assignment</i>	692
	VA-TN Healthcare System - Memphis	702
	<i>No Hospital</i>	
Sullivan	Carthage General Hospital	760
	Smith County Memorial Hospital	761
	<i>No Hospital</i>	
Sumner	Indian Path Medical Center	769
	Bristol Regional Medical Center	767
	Holston Valley Medical Center	770
White	Hendersonville Medical Center	780
Williamson	White County Community Hospital	900
Wilson	Williamson Medical Center	094
	Univ. Medical Ctr./McFarland Hospital	930
	REGION 1 ALL-CALL	901
	REGION 2 ALL-CALL	902
	REGION 3 ALL-CALL	903
	REGION 4 ALL-CALL	904
	REGION 5 ALL-CALL	905
	REGION 6 ALL-CALL	906
	REGION 7 ALL-CALL	907
	REGION 8 ALL-CALL	908
	STATE-WIDE ALL CALL	999

Appendix 3:

F. C. C. UHF NARROWBAND CHANNEL ASSIGNMENTS

Channel Name	Frequency base and mobile	Frequency mobile only
Med-9	462.95000	467.95000
Med-91	462.95625	467.95625
Med-92	462.96875	467.96875
Med-10	462.97500	467.97500
Med-101	462.98125	467.98125
Med-102	462.98750	467.98750
Med-103	462.99375	467.99375

For applications for new radio systems, the 32-frequency pairs listed below will be assigned in a block for shared operation under 90.20(a)(1)(iii) or 90.20(a)(2)(xiii) subject to the following. For uniformity in use, these frequency pairs may be referred to by channel name as listed below.

Channel Name	Frequency base and mobile	Frequency mobile only
Med-1	463.00000	468.00000
Med-11	463.00625	468.00625
Med-12	463.01250	468.01250
Med-13	463.01875	468.01875
Med-2	463.02500	468.02500
Med-21	463.03125	468.03125
Med-22	463.03750	468.03750
Med-23	463.04375	468.04375
Med-3	463.05000	468.05000
Med-31	463.05625	468.05625
Med-32	463.06250	468.06250
Med-33	463.06875	468.06875
Med-4	463.07500	468.07500
Med-41	463.08125	468.08125
Med-42	463.08750	468.08750
Med-43	463.09375	468.09375
Med-5	463.10000	468.10000
Med-51	463.10625	468.10625
Med-52	463.11250	468.11250
Med-53	463.11875	468.11875
Med-6	463.12500	468.12500
Med-61	463.13125	468.13125
Med-62	463.13750	468.13750
Med-63	463.14375	468.14375
Med-7	463.15000	468.15000
Med-71	463.15625	468.15625
Med-72	463.16250	468.16250
Med-73	463.16875	468.16875
Med-8	463.17500	468.17500
Med-81	463.18125	468.18125
Med-82	463.18750	468.18750
Med-83	463.19375	468.19375

Appendix 4

REGIONAL MEDICAL COMMUNICATION CENTER CONTACTS

EMS Resource Coordination Centers, also known as Regional Medical Communications Centers, are designated by the Director of the State Division of Emergency Medical Services. There is one RMCC in each EMS Region of the State.

Each RMCC is plugged into the Regional and State Healthcare System by internet, phone, and radio to facilitate the rapid flow of information from the State EOC down and from the field back to the State EOC as needs dictate.

The eight RMCC designations are:

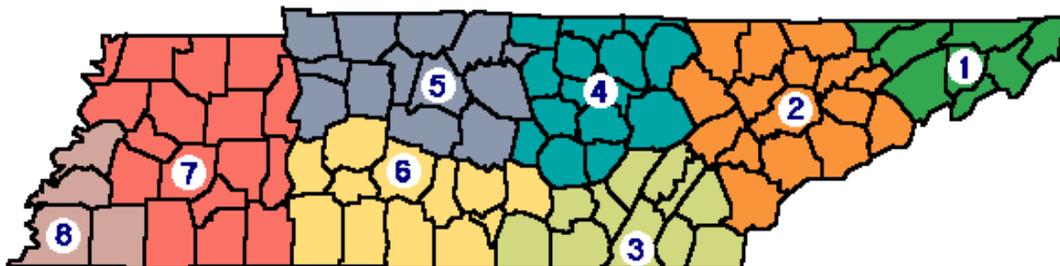
- 1. NORTHEAST REGION**
Contact: Johnson City Medical Center, Johnson City
800-645-9670 423-952-3744
Rick Newman / Leigh Ann Gragg
newmanrb@msha.com graggla@msha.com
- 2. EAST REGION**
Contact: University of Tennessee Medical Center, Knoxville
800-792-1033 865-305-9112
Phyllis Walker / Drew Slemp
pwalker@utmck.edu ASlemp@utmck.edu
- 3. SOUTHEAST REGION**
Contact: Erlanger Medical Center, Chattanooga
800-532-6723 423-778-5433
Mike McKeever / Martha Rhoades
Mike.McKeever@erlangers.org Martha.Rhoades@erlangers.org
- 4. UPPER CUMBERLAND REGION**
Contact: Putnam County 9-1-1, Cookeville
931-646-0911
Randy Porter / Mike Thompson
rporter@putnamco.org mthompson@putnamco.org
- 5. MID CUMBERLAND REGION**
Contact: Vanderbilt University Medical Center, Nashville
800-288-8111 615-936-7575
Jeff Gray Jeffery.L.Gray@vanderbilt.edu
- 6. SOUTH CENTRAL REGION**
Contact: Maury Regional Medical Center - EMS, Columbia
931-490-4665
Danny Fleming dfleming@mrhs.com
- 7. WEST TENNESSEE REGION**
Contact: Jackson - Madison County General Hospital, Jackson
800-281-6428 731-541-5500
Ken Boroughs / Kevin Deaton
Ken.Boroughs@WTH.org Kevin.Deaton@WTH.org
- 8. MEMPHIS-DELTA REGION**
Contact: The Regional Medical Center at Memphis, Memphis
800-262-6556 901-545-8181
Debbie Hill dhill@the-med.org

Appendix 5

RMCC / Regional Map

The RMCC locations coincide with the Regional EMS Offices throughout the state. The colored areas represent the counties served by each RMCC/Regional EMS Office.

Each RMCC has its unique call sign for radio identification. At this point, there is no state-wide standardization for RMCC radio identifiers.



Region 1 Johnson City Med-Com	NORTHEAST Johnson City
Region 2 Med Link II	EAST Knoxville
Region 3 Chattanooga MedComm	SOUTHEAST Chattanooga
Region 4 C-Com	UPPER CUMBERLAND Cookeville
Region 5 Nashville MedComm	MID CUMBERLAND Nashville
Region 6 South Central MedComm	SOUTH CENTRAL Columbia
Region 7 Jackson Med-Link	WEST Jackson
Region 8 Memphis MedComm	MEMPHIS DELTA Memphis

Appendix 6

(On Agency Letterhead)

FREQUENCY USE AGREEMENT

The following agreement is executed to comply with Section 90.421 of the Federal Communications Commission rules and regulations.

The (Your Agency Name Here) hereby gives permission for the (Agency You Are Giving Permission To) permission to operate mobile or portable radio units on the frequencies listed below licensed to us on FCC license (CALL SIGN HERE). Operation will be in accordance with all applicable FCC Rules and Regulations and Agency's operating standards, policies and practices.

Permission is hereby given to operate on the frequencies listed below:

Mobile Rx Freq.	Mobile Tx Freq.	Rx Tone	Tx Tone	Channel Name	Comments

Grantor's FCC Callsign is (Call Sign Here) and expires (Day / Month / Year).

Authorized By: _____ Title: _____

(Your)
MAILING ADDRESS:
CITY/STATE/ZIP:
PHONE NUMBER:
DATE:

(Agency Name You Are Giving Permission To Here) accepts the above conditions of the agreement.

ACCEPTED BY: _____ DATE: _____

TITLE: _____

Appendix 7

Acronyms and Definitions

700 MHz – The Public Safety frequency spectrum from 769 MHz – 805.98750 MHz

800 MHz – The Public Safety frequency spectrum from 806 – 860.98750 MHz

All-Call – To encode a group of users simultaneously.

Analog FM emission – Not digital, Frequency Modulated radio transmission

ARES – Amateur Radio Emergency Service – The non-governmental organization within the American Radio Relay League (ARRL) for providing emergency Amateur Radio Communications. Also see RACES

CAI – Common Air Interface – The Project 25 designation for the analog to digital voice radio conversion. The CAI for P25 is the Improved Multi-Band Excitation (IMBE) vocoder. Vocoder work by using a speech analyzer to convert analog speech waveforms into a digital data stream.

CAP – Civil Air Patrol - A volunteer auxiliary of the United States Air Force which provides assistance in search and rescue operations.

Command & Control – Also Direction & Control – The responsible person or group responsible for the overall management, policy and response function of a disaster or emergency

COML – Communications Unit Leader

COMT – Communications Unit Technician

CSQ – Carrier Squelch – no sub audible tone on either the receiver or transmitter

CTCSS – Continuous tone coded squelch system

dB – Decibel -A unit for measuring the power of an electromagnetic signal; equal to the logarithm of the ratio of the measured signal to that of an arbitrary standard.

dBd – Abbreviation (decibels related to dipole antenna) is a measure of the gain of an antenna system relative to a dipole antenna at radio frequency.

dBi – Abbreviation. In the expression of antenna gain, the number of decibels of gain of an antenna referenced to the zero dB gain of a free-space isotropic radiator

dBu – Abbreviation - Equal to a dBm if the impedance is 600 ohms. In other words, 0.775 volts across 600 ohms equals 1 milliwatt.

DCS – Digital Coded squelch

DHS – Department of Homeland Security, Federal

DTMF - Abbreviation for dual-tone multi-frequency (signaling)

EOC – Emergency Operations Center

EMA – Emergency Management Agency

EMS – Emergency Medical Service

Encode – To dial in or transmit a series of DTMF numbers or CTCSS to alert and open the squelch of a radio.

ERP – Effective Radiated Power – The actual power being radiated out of an antenna

FB – FCC designation for Fixed Base – referring to radio equipment used for base to mobile operations typically installed in a permanent configuration.

FBT – FCC designation for Fixed Base Temporary – radio equipment used at a temporary location for base to mobile operations

FB2 – FCC designation for mobile relay or repeater

FB2T – The FCC designation for mobile relay or repeater in a temporary operation

FCC – Federal Communications Commission

FX1 – The FCC designation for a control station

FX1T – The FCC designation for a control station in a temporary operation

HD – High side of the frequency used for direct communication

Hz - Hertz

Hysteresis – The lag between making a change, such as increasing or decreasing power, and the response or effect of that change.

Interoperability - An essential communications link within public safety and public service wireless communications systems which permits units from two or more different entities to interact with one another and to exchange information according to a prescribed method in order to achieve **predictable** results.

LD – Low side of the frequency used for direct communication

MARS – Military Auxiliary Radio System - An organized body of volunteers prepared to supplement the uniformed services or any designated civilian authorities by provision of specialized autonomous communications services when called upon or when situations warrant.

MED Channels – Radio channels set aside by the FCC for use by the Emergency Medical Service

MHz – Megahertz – One million hertz

Mobile – A radio either carried by a person (portable) or mounted in a vehicle

Mobile Only – FCC reference to a radio frequency that is only to be used in a mobile or portable radio. Not intended for use in base configuration or mobile relay or repeater output

Mobile Command Post – A command and control location in a temporary location

NAC – Network Access Code – a digital code used to decode or open a receiver

Narrowband – used in reference to the narrowing of a frequency. The FCC has mandated all radio spectrum below 512 MHz and above 150 MHz be narrowed or the space the frequency occupies to be cut in half. The deadline to narrowband radio equipment is December 31, 2012.

The FCC analog voice emission for narrowband is 11K0F3E and all public safety VHF and UHF radio equipment must conform to this by December 31, 2012.

NAWAS – National Warning System

NCC – National Coordinating Committee

NIIX – National Interoperability Information Exchange, www.niix.org

NTIA - National Telecommunications and Information Administration – Similar to the FCC but for Federal Government agencies

OEC- DHS Office of Emergency Communications

Operation Secure - Operation SECURE is a frequency allocation and assignment program initiated by the Federal Communications Commission (FCC) and administered by FEMA. Operation SECURE provides each state emergency management agency the opportunity to obtain an FCC license for emergency management communications in the 2-10 MHz high frequency range. Local emergency management agencies may be authorized by states to operate on these state assigned frequencies.

P25 – Refers to the Association of Public-Safety Communications Officials (APCO) project to establish digital radio standards.

Part 90 FCC Rules – The Federal Communications Commission rule section that governs Public Safety / Land Mobile radio operations

Plain Language – as opposed to codes or Ten Codes

RACES – Radio Amateur Civil Emergency Service – The organization defined in the FCC rules for providing Amateur Radio communications by and for governments during emergencies. These rules do not prevent the use of ARES and /or MARS communicators when the State and Local Plans recognize those organizations.

RADO – Radio Operator

Re-banding – The FCC mandated moved of spectrum.

Region 39 – The FCC designated regions for planning and management of the 700MHz and 800MHz radio spectrum in Tennessee

REOC – Regional Emergency Operations Center

RFI – Radio Frequency Interference

RMCC – Regional Medical Communications Center (a.k.a. – RCC, Regional Communications Center, Regional Coordination Center) The RCC/RMCC is utilized to coordinate EMS and other medical information.

SEOC – State Emergency Operations Center

SHARES – SHARed RESources (SHARES) High Frequency (HF) Radio Program. The purpose of SHARES is to provide a single, interagency emergency message handling system by bringing together existing HF radio resources of Federal, state and industry organizations when normal communications are destroyed or unavailable for the transmission of national security and emergency preparedness information.

Simplex – Direct radio to radio communications with a mobile relay or repeater

SMART – Satellite Mutual Aid Radio Talkgroup

TAC – Tactical channel

Talk Around (T/A) – same as simplex or direct mode

TMAC – TEMA Mutual Aid Channels – 800 MHz system used for mutual aid / interoperability to establish command and control. System is open to local, state, federal and designated critical infrastructure operators.

TRIG – Tennessee Radio Interoperability Guide: This document is maintained on a continual basis by TEMA and updated as information changes. It contains a wide and comprehensive variety of information regarding interoperability resources throughout the state, with specific emphasis on statewide mutual aid and interoperability channels. The current version of the TRIG is stored electronically in the Tennessee Community on the National Interoperability Information Exchange (NIIX) web site hosted by the National Public Safety Telecommunications Council (NPSTC).

UHF – Ultra High Frequency – FCC designation of the radio spectrum in the 300 MHz to 3000MHz band

uV – Microvolt abbreviation – measurement of receiver signal strength

VHF – Very High Frequency – FCC designation of the radio spectrum from 30 MHz to 300 MHz.

Vocoder - The vocoder is a hardware/software component in every digital radio. The technology uses a speech analyzer to convert voice into a digital signal, and from a digital signal back to audio.