Missouri Repeater Council

Selective Access Policy and Guidelines

Rev	Description	Date
0	Initial Draft	8/17/2016
1	Released for Approval	8/25/2016
2	Approved at Annual Meeting	8/27/2016
3	Corrected Map Errors	5/10/2018
4	Updated for Yaesu DG-ID	7/15/2020

Introduction

The Missouri Repeater Council Selective Access Policy and Guidelines replaces the previously published CTCSS/DCS Map and Guidelines. The original CTCSS/DCS regions have been realigned with the eight (8) coordination areas around the state. The areas have been given a number along with the name for reference purposes.

The original CTCSS and DCS assignments per area have been retained. They are the Primary CTCSS tone and DCS code respectively in areas that were not realigned. Tones and codes in the old areas that have been realigned are now secondary tones and codes in Area 7 – West Central and Area 8 – Southwest.

This document adds selective access code recommendations for the digital modes of DMR, P25, NXDN and Yaesu System Fusion (YSF).

For CTCSS, DCS and YSF, both primary and secondary tones/codes are assigned for each Selective Access Area. The assigned tones and codes are shown below in the Selective Access Area Tone and Code Assignment section of this document.

The selection of the tones and codes takes into account the published selective access guidelines of the neighboring states.

Policy

1. All new coordination recommendations shall include a Selective Access Method as a condition of coordination.
2. All existing coordinated systems shall be grandfathered unless there is a significant change in coordination parameters. At such change, a Selective Access Method shall be assigned.
3. All coordinated system in counties that were impacted by the realignment with the Coordination Areas will have use of the previous tone and code recommendations on existing repeater systems grandfathered unless there is a significant change in the coordination parameters. At such change, a Selective Access Method shall be assigned.
4. All grandfathered systems are encouraged to implement a Selective Access Method in accordance with this document.
5. Yaesu System Fusion coordination will have three Selective Access Methods. CTCSS or DCS for the analog mode, YSF DSQ and YSF DGID for the digital mode.
6. Digital Modes shall not utilize default or “all access” codes such as P25 codes $293, $F7E, $F7F, NXDN RAN 0 and YSF DSQ 0 (off), YSF DG-ID. *The use of YSF DSQ 0 and YSF DGID 00 is grandfathered until Yaesu implements per memory DSQ and DGID settings in their radios.*

7. The use of DMR Color Code 1 is grandfathered on existing systems, but will not be utilized for a new coordination. It is recommended that existing Color Code 1 systems voluntarily change their Color Code to match the guidelines.

Selective Access Methods

Continuous Tone Coded Squelch System (CTCSS)

This access method uses a sub-audible tone to un-squelch the radio. It is also known as Motorola Private Line or "PL". The MRC guideline only utilizes the EIA recommended tones which are implemented by most all equipment manufacturers. Both a primary and a secondary CTCSS tone are assigned to an area.

Digital Code Squelch (DCS)

This access method utilizes a slow speed data stream that passes as sub-audible data to un-squelch the radio. It is also known as Motorola Digital Private Line or "DPL". The DCS codes can be inverted (from a binary perspective) and thus some codes are the inverse of another. The MRC guidelines do not use any DCS codes that would be the "inverted" code of another. Both a primary and a secondary code are assigned to an area.

DMR Color Code (CC)

The Color Code (CC) is used to control access to a DMR system. The use of Color Code is required for all systems. Color Codes range from 0 to 15 (16 total). The MRC guidelines do not allow the use of CC 0 or CC 1 on coordinated systems.

P25 Network Access Code (NAC)

The NAC is used to control access to a P25 system. The use of NAC is required for all P25 systems. It is a 3 digit hexadecimal number. There are 4096 possible NACs. The MRC guidelines do not allow the use of NAC $293, $F7E and $F7F on coordinated systems.

NXDN Radio Access Number (RAN)

The RAN is used to control access to Kenwood's NXDN and Icom's IDAS systems. There are 63 RAN codes. The MRC guidelines do not allow the use of RAN 0 on coordinated systems.

Yaesu System Fusion Digital SQuelch Code (YSF DSQ)

The DSQ is used to control access to the Yaesu Fusion digital mode. There are 126 codes. The MRC guidelines do not allow the use of DSQ 0 on coordinated systems. *The use of YSF DSQ 0 is grandfathered until Yaesu implements per memory DSQ settings in their radios.*

Yaesu System Fusion II Digital Group ID (YSF DGID)

The DGID is used for selective access to the Yaesu DR-2X repeaters, to route between internet connected DR-2X repeaters and for the Group Mode operation on Yaesu Fusion user equipment. There are 100 codes and the first 16 codes are reserved for selective access. The repeater owners may use the remaining codes for routing between DR-2X repeaters. The repeater owners are responsible for resolving any conflicts when using the remaining codes for routing purposes. MDG recommends reserving DG-ID 99 for routing to all repeaters in a network of repeaters. Code 00 is the default open code, like carrier squelch.

Selective Access Tone and Code Assignments

The state has been divided into eight (8) Coordination Areas. Each area is assigned CTCSS, DCS, DMR Color Code, P25 NAC, NXDN RAN, Yaesu System Fusion (YSF) DSQ and Yaesu System Fusion DG-ID tones or codes. For CTCSS, DCS, YSF DSQ and YSF DGID, both primary and alternate tones/codes have been assigned. This is to allow for flexibility in assigning Selective Access tones and/or codes for statewide Low Power 440 MHz Repeaters, statewide Shared Non-Protected (SNP) VHF repeaters and in the case where the primary assignment does not work.

The areas are defined as follows:

Area 1 - Northeast

The counties of Putnam, Schuyler, Scotland, Clark, Sullivan, Adair, Knox, Lewis, Linn, Macon, Shelby and Marion.

Primary CTCSS	Secondary CTCSS	Primary DCS	Secondary DCS	DMR CC	P25 NAC	NXDN RAN	Primary YSF DSQ	Secondary YSF DSQ
103.5	82.5	114	343	9	$40B	28	1	101

Primary YSF DGID	Secondary YSF DGID
01	09

Area 2 – East Central

The counties of Ralls, Pike, Lincoln, Montgomery, Warren, St. Charles, St. Louis, Gasconade, Franklin, Jefferson and the independent city of St. Louis.

Primary CTCSS	Secondary CTCSS	Primary DCS	Secondary DCS	DMR CC	P25 NAC	NXDN RAN	Primary YSF DSQ	Secondary YSF DSQ
141.3	79.7	411	172	2	$585	37	2	102

Primary YSF DGID	Secondary YSF DGID
02	10

Area 3 - Southeast

The counties of Washington, St. Francois, Ste. Genevieve, Perry, Iron, Madison, Bollinger, Cape Girardeau, Reynolds, Wayne, Scott, Butler, Stoddard, Mississippi, Dunklin, New Madrid and Pemiscot.

Primary CTCSS	Secondary CTCSS	Primary DCS	Secondary DCS	DMR CC	P25 NAC	NXDN RAN	Primary YSF DSQ	Secondary YSF DSQ
100.0	97.4	073	156	10	$3E8	27	3	103

Primary YSF DGID	Secondary YSF DGID
03	11

Area 4 – South Central

The counties of Laclede, Pulaski, Phelps, Crawford, Dent, Wright, Texas, Shannon, Douglas, Ozark, Howell, Oregon, Carter and Ripley.

Primary CTCSS	Secondary CTCSS	Primary DCS	Secondary DCS	DMR CC	P25 NAC	NXDN RAN	Primary YSF DSQ	Secondary YSF DSQ
110.9	85.4	703	143	12	$455	30	4	104

Primary YSF DGID	Secondary YSF DGID
04	12

Area 5 - Central

The counties of Chariton, Randolph, Monroe, Audrain, Saline, Howard, Boone, Callaway, Cooper Moniteau, Cole, Osage, Morgan, Miller, Maries, Camden, Pettis, Benton and Hickory.

Primary CTCSS	Secondary CTCSS	Primary DCS	Secondary DCS	DMR CC	P25 NAC	NXDN RAN	Primary YSF DSQ	Secondary YSF DSQ
127.3	156.7	306	114	3	$4F9	34	5	105

Primary YSF DGID	Secondary YSF DGID
05	13

The counties of Pettis, Benton and Hickory were moved from CTCSS/DCS Area 7 and will have the previous tone/code recommendation of 107.2 Hz and 606 that is in use on existing repeater systems grandfathered.

Area 6 - Northwest

The counties of Atchison, Nodaway, Worth, Harrison, Mercer, Holt, Andrew, Gentry, DeKalb, Daviess, Grundy, Caldwell, Livingston, Buchanan and Clinton.

Primary CTCSS	Secondary CTCSS	Primary DCS	Secondary DCS	DMR CC	P25 NAC	NXDN RAN	Primary YSF DSQ	Secondary YSF DSQ
94.8	110.9	023	155	7	$3B4	25	6	106

Primary YSF DGID	Secondary YSF DGID
06	14

The counties of Buchanan and Clinton were moved from CTCSS/DCS Area 10 and will have the previous tone/code recommendation of 151.4 Hz and 205 that is in use on existing repeater systems grandfathered.

Area 7 – West Central

The counties of Platte, Clay, Jackson, Cass, Bates, Ray, Carroll, Lafayette, Johnson, Henry and St. Clair.

Primary CTCSS	Secondary CTCSS	Primary DCS	Secondary DCS	DMR CC	P25 NAC	NXDN RAN	Primary YSF DSQ	Secondary YSF DSQ
151.4	107.2	205	606	4	$5EA	39	7	107

Primary YSF DGID	Secondary YSF DGID
07	15

The counties of Johnson, Henry and St. Clair were moved from CTCSS/DCS area 7. The previous tone of 107.2 Hz and code of 503 are now the Secondary tone and Code and will remain a valid tone/code selection for the area.

The county of Bates was moved from CTCSS/DCS area 9 and will have the previous tone/code recommendation of 91.5 Hz and 503 that is in use on existing repeater systems grandfathered.

The counties of Ray, Carroll and Lafayette were moved from CTCSS/DCS area 6 and will have the previous tone/code recommendation of 94.8 Hz and 203 that is in use on existing repeater systems grandfathered.

Area 8 - Southwest

The counties of Lawrence, Greene, Webster, Christian, McDonald, Barry, Stone, Taney, Vernon, Barton, Jasper, Newton, Cedar, Polk, Dallas and Dade.

Primary CTCSS	Secondary CTCSS	Primary DCS	Secondary DCS	DMR CC	P25 NAC	NXDN RAN	Primary YSF DSQ	Secondary YSF DSQ
162.2	91.5	165	503	4	$656	42	8	108

Primary YSF DGID	Secondary YSF DGID
08	16

The counties of Vernon, Barton, Jasper and Newton were moved from CTCSS/DCS area 9. The previous tone of 91.5 and code of 503 are now the Secondary tone and Code and will remain a valid tone/code selection for the area.

The counties of Cedar, Polk, Dallas and Dade were moved from CTCSS/DCS area 7 and will have the previous tone/code recommendation of 107.2 Hz and 606 that is in use on existing repeater systems grandfathered.

Appendix

Selective Access Area Tone/Code Table

Area #	Primary CTCSS	Secondary CTCSS	Primary DCS	Secondary DCS	DMR CC	P25 NAC	NXDN RAN	Primary YSF DSQ	Secondary YSF DSQ	Primary YSF DGID	Secondary YSF DGID
1	103.5	82.5	114	343	CC9	$40B	28	1	101	01	09
2	141.3	79.7	411	172	CC2	$585	37	2	102	02	10
3	100.0	97.4	073	156	CC10	$3E8	27	3	103	03	11
4	110.9	85.4	703	143	CC12	$455	30	4	104	04	12
5	127.3	156.7	306	114	CC3	$4F9	34	5	105	05	13
6	94.8	110.9	023	155	CC7	$3B4	25	6	106	06	14
7	107.2	97.4	606	371	CC4	$430	29	7	107	07	15
8	162.2	136.5	165	315	CC5	$656	42	8	108	08	16

Selective Access Map