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Tuesday, May 25, 2010

TO: All Pike Regional System Users and radio technicians.

RE: Griggsville Fire Grant Regional System Standards Revision "G", 5/24/2010 cumulative revision & update.

Based on user feedback and our own experience, the system standards have been changed to the following. Changes from previous release revisions "E" through "F" are marked in bold italics.

CH	TAG	RX / CTCSS	TX / CTCSS	ANI	Format	COMP	TxTime Out	Scan
1	ALPHA	154.1000n / 114.8	158.9850n / 162.2	<i>Log-IN</i>	EIA 5/6	<i>OPT</i>	60sec	<i>User</i>
2	BRAVO	151.1300n / 114.8	158.9250n / 91.5	<i>Log-IN</i>		<i>OPT</i>		<i>User</i>
3	IREACH	155.055 / cs	155.055 / 156.7	Log -Out		OFF		<i>User</i>
4	LAW ROAM	154.785 / 114.8	See Note 1	<i>Log-In</i>		OFF		<i>User</i>
5	ILLINI	See Note 2	155.340 / 127.3	Log-Out		OFF		<i>User</i>
6	PAGING	155.100 / 127.3	See Note 3	Log-Out		OFF		<i>Req'd</i>
7	V-CALL	155.7525n / 156.7	Same as RX	Log-Out		OPT		<i>User</i>
8	VTAC-1	151.1375n / 156.7	Same as RX	Log-Out		OPT		<i>User</i>
9	VTAC-2	154.4525n / 156.7	Same as RX	Log-Out		OPT		<i>User</i>
10	VTAC-3	158.7375n / 156.7	Same as RX	Log-Out		OPT		<i>User</i>
11	VTAC-4	159.4725n / 156.7	Same as RX	Log-Out		OPT		<i>User</i>
12	FG-PHLL	154.515 / 203.5	Same as RX	Log-Out		OFF		<i>User</i>
13	FG-PITF	154.250 / 114.8	Same as RX	Log-Out		OFF		<i>User</i>
14	FG-WHITE	See Note 4	154.280 / 74.4	Log-Out		OFF		<i>User</i>
15	FG-BLUE	154.295 / 85.4	Same as RX	Log-Out		OFF		<i>User</i>
16	FG-RED	153.830 / 69.3	Same as RX	Log-Out		OFF		<i>User</i>

Note 1: TX only for law enforcement officers, in other agency owned apparatus, other agency Chief, or by written approval of the Pike County Sheriff's Dept. (System Mobile Tx freq: 159.180 / 123.0, ~~Legacy/Pittsfield Local Mobile Tx freq: 155.040 / 144.8~~, Scott / East Mobile Tx freq: 155.910 / 365N for special operations only)

Note 2: 155.340 is required. RX CTCSS of 127.3 is optional to filter all but Illini / Pike traffic.

Note 3: TX on PAGING is authorized only to Dispatch, and fire base stations for paging only. Mobile portable TX is NOT authorized. Traffic is limited only to agency paging as traffic is repeated after a 15-second delay by the El Dara site. Dispatch has extremely limited RX capability on PAGING.

Note 4: FG-WHITE 154.280 is the same frequency as the Missouri Statewide Fire Mutual Aid channel. Use of RX CTCSS of 74.4 is optional depending on interoperability needs with Missouri Agencies.

- 1) Channel standards and minimum programming shall conform to the above table and notes. Individuals/departments may modify the above layout and add/delete channels, however ALL technical standards must be observed as stated above.
- 2) Where supported, the initial "turn-on" screen of radios shall display the County-assigned ANI number of the radio and the current revision letter programmed.
- 3) ***Log-IN ANI shall disable voice transmission and produce an audible tone at the transmitter prior to 0.3 sec after initial PTT. Use has shown that this is an effective method to get excited users to slow down and make sure their entire message is repeated.***
- 4) ***Maximum Squelch Setpoint: 0.20uV on CTCSS Rx Channels, 0.30uV only on IREACH, MERCI and FG-WHITE if CS is used. Many radios have been found to be programmed with squelch settings too tight to be reliable in fringe reception areas.***
- 5) ***Companding is optional on narrow-band channels. Companding is a system of voice frequency filtering that in***



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some radios sounds better to some users. Programming ALPHA/BRAVO receive with default companding is left to the individual, providing TX companding is not affected.

6) Scan Behavior:

- a) **User selectable scan add/delete will be enabled on all channel except for PAGING. Users should be educated to not delete vital channels or to try and scan too may channels.**
- b) TX channel during scan and RX priority during scan shall be the indicated channel when scan is activated, or the knob set channel wherever possible. This will eliminate the need for the user to manually rewrite priority. If available, 2nd priority during scan must be user selectable. "Last RX Channel Talkback" is strongly discouraged as per NFPA recommendation.
- c) Power-on scan and automatic scan restart after TX shall be enabled by default unless the individual user orders otherwise. "Last State" scan status shall be programmed where supported.
- d) **Priority look-back time shall not exceed 3 seconds while in normal user monitored modes.**
- e) **Per PK-1, PKSD equipment shall be programmed with a 2.95 second priority look-back time.**
- f) **In portable radios also used as paging receivers, care should be taken to ensure that the priority selection and/or 'look-back' timing do not interfere with reliable signaling decode. Many QC-II tone decode radios have been found to be programmed with priority look-back scan settings that cause tone decode to be unreliable.**

7) Individual Channels

- a) All System channels are 20K0F3E wide band except in ALPHA, BRAVO and CHARLEY which are standard narrow 11K0F3E. Wide band will be supported until ~~4/1/2013~~ **Sept, 2012.**
- b) The LAW PITS Mobile TX protocol of 155.910 / 114.8 ~~(the former county wide protocol) is supported only from the Pittsfield In Town Water Tower site.~~ **has been discontinued.** All users **must use** should migrate their equipment to the LAW ROAM standard.
- c) The LAW WIN Mobile TX protocol of 155.910 / D365N is supported only from the Scott County Site. All users should migrate their equipment to the LAW ROAM standard. **PSAP reception of this channel is unreliable.**
- d) UHF Channel CHARLEY (453.3750n / 114.8 – 458.3750n / 114.8) may be programmed to allow access to the VHF tactical channels. The cross connect is fully operational but is only available in the Pittsfield vicinity. Authorization of the Pike County ETSB Executive is required. **(Jan. 2010; CHARLIE is presently cross-connected to Alpha)**
- e) The BAYLIS REPEATER channel is to be deleted. BAYLIS SIMPLEX fireground (154.355 / 114.8) may be programmed as authorized by the Baylis Fire Chief but is not presently in use for tactical operations.
- f) ISPERN and other Federal-owned or Illinois State-owned law enforcement channels shall not be TX enabled except as authorized by the agency chief.
- g) Programming of VTAC-2 and VTAC-4 is optional, as IEMA ITEC-6 and Region 13 Incident Communications will take place only on VTAC-1 and VTAC-3. Suggested replacement channels are PAGING with muted-until-signaled-programming, and IFERN-1 154.265 CS / 210.7.
- h) ALPHA and BRAVO
 - i) **Must be programmed exactly as indicated in this standard, including squelch sensitivity and CTCSS on both RX and TX. These are Narrow Band channels! Many radio problems have been traced to user radios being delivered or re-programmed in Wide-Band mode, or using companding when not necessary. Technician note: Check ALL banks on multi-banked radios.**
 - ii) Simplex use of ALPHA or BRAVO is prohibited except when notified by Dispatch of system failure. The use of IREACH shall be the primary backup channel in case of system failure.
 - iii) **Mobile ERP's greater than 25w shall only be used where absolutely necessary to maintain useable radio functionality. Users have reported portable receiver failure in fringe areas traced to nearby high power mobile transmitters. The ALPHA/BRAVO system was designed to work with 4-watt portables. Mobile transmitter ERP shall be lowered to the minimum reasonable level to reduce receiver desensing in adjacent receivers.**

8) Channel Layout

- a) Channel layout is optional at the discretion of the agency or radio owner.
- b) Banking of channels is allowed ONLY where each actual end user has extensive training on bank management. Alpha, Bravo, Paging and Tactical channels shall be in the same relative position in all programmed banks.
- c) Both MABAS (Source: MABAS Technician's Guidelines for Configuring Fire Radios, and, MABAS Standard C-01-01) and NFPA (Source: NFPA 1561, Ch. 6, and, NFPA 1221 Ch. 13) strongly encourage portable channel layout to place the Dispatch Channels (ALPHA CH1 and BRAVO CH 2) on the leftmost knob positions and the Primary Incident Tactical Channels (FG-RED CH 16 and FG-BLUE CH 15) on the rightmost knob positions to allow for ease of channel selection by a gloved hand without having to look at the radio.
- d) Both MABAS (Source: MABAS Technician's Guidelines for Configuring Fire Radios, and, MABAS Standard C-01-01) and NFPA (Source: NFPA 1561, Ch. 6, and, NFPA 1221 Ch. 9) strongly encourage use of a Dispatch/Command channel for OFF-incident-site communications, and a separate and distinct low-powered non-repeated simplex fireground channel for ON-incident-site tactical/safety operations.

9) EIA 5/6 Signaling

- a) Where supported, the radio shall display the transmitter ANI of other units. Aliasing may be used but is discouraged as end-users frequently change radios, positions and agencies.
- b) All radios are to be programmed to alert upon receipt of any Pike County tornado warning for any zone.

- c) Individual page alerts shall be programmed to conform to the following: “XX”YY’1” where ‘XX’ is the agency number and ‘YY’ is the individual radio. This same code will be user for stun-revive.
 - d) Individual radio stun/kill shall be programmed to conform to the following: “XX”YY’2” where ‘XX’ is the agency number and ‘YY’ is the individual radio.
 - e) Individual “Open Mic” mode shall be programmed to conform to the following: “XX”YY’4” where ‘XX’ is the agency number and ‘YY’ is the individual radio.
 - f) Agency page alerts shall be programmed to conform to the following: “XX”007” where ‘XX’ is the agency number.
 - g) Individual transmit ANI shall be programmed to conform to the following: “XX”YY’0” where ‘XX’ is the agency number and ‘YY’ is the individual radio. This same mask will be user for ANI decode.
 - h) Individual EMERGENCY ANI shall be programmed to conform to the following: “XX”YY’9” where ‘XX’ is the agency number and ‘YY’ is the individual radio. This same mask will be used for EMERGENCY ANI decode. Where supported, the radio shall alert and/or open upon receipt of any signaling using a “???’9” wildcard mask.
 - i) To reduce falsing, radios shall not be programmed to react to any signaling on NWS channels.
 - j) After page or alert signaling, the radio shall stay in ‘Open” mode for no less than 60 seconds.
 - k) Where possible, a county-wide all-call “PANIC” code of “98799” should be included in all alerting masks.**
- 10) MDC-1200 signaling:
- a) Where supported, the same “XX”YY” numbering as above will be used.
 - b) Where supported, RX ANI Unit I.D. shall be enabled. Other functions are optional.
 - c) The deployment of MDC-1200 shall be limited to intra-agency uses. County-wide use is not supported.
- 11) Encryption (encode or decode)
- a) Shall not be enabled on LAW except as authorized in writing by the Pike County Sheriff’s Department.
 - b) Shall not be used on ALPHA or BRAVO except as authorized in writing by the Pike County ETSB Executive.
 - c) Simple inversion encryption may be employed on Incident Tactical Channels provided a fundamental frequency of 3,388Hz is used.

Revision History:

- A) Used for pre-construction engineering only
- B) Used for testing only
- C) 3/2008 Initial release
- D) 4/2008 Changed System mobile TX CTCSS tones (MAJOR CHANGE!)
- E) 5/2008 Modified “Log-in” ANI on ALPHA, BRAVO and LAW
- F) 7/2008 (MAJOR CHANGE!)
 - 1) Authorized “companding” on ALPHA and BRAVO
 - 2) Modified “Log-in” delay ANI on ALPHA, BRAVO and LAW
 - 3) Added minimum squelch sensitivity standard.
 - 4) Modified Scan Behavior
 - 5) Added ALPHA/BRAVO Mobile ERP Standards
 - 6) Amended mobile LAW Tx notes.
 - 7) Revision ‘Fe’, 7/2009 Changed default encryption to ‘ON’ for PKSD tactical channels. Units will be identified as Revision ‘Fe’.
- G) 05/2010 (Cumulative Changes, Incorporated in Revision “G”)
 - 1) Law Pittsfield protocol no longer supported.
 - 2) Revised Wideband // Narrowband conversion date to Sept. , 2012
 - 3) Added technician caution notes for ALPHA and BRAVO.
 - 4) Added References to MABAS and NFPA operational recommendations.
 - 5) Added county-wide all call paging standards.

Please feel free to contact me with any questions.



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