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Flint Hills Refinery
Inver Grove Heights, Minnesota
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800 MHz Expansion Band/ Guard Band (EB/ GB)

- Rules became effective on December 27
- FCC released a Public Notice providing dates on which:
 - Pre-coordinated applications may be circulated to other FACs beginning on May 9 – changed to May 16 by the FACs
 - Non-mutually exclusive applications may be filed with FCC beginning July 18
- Expansion Band (860-861 MHz) — up to forty 25 kHz channels available
- Guard Band (861-862 MHz) — up to forty 25 kHz channels available

800 MHz EB/GB

- Expansion Band (channels allocated by eligibility, but inter-category sharing freeze lifted)
 - Business/Industrial Land Transportation (28)
 - SMR (12)
 - Public safety incumbents (no allocation but can remain on already licensed channels)
- Guard Band is a General Category Pool (40)
- There are no technology limitations
 - FCC type-accepted voice and/or data systems
 - 4K to 21/22K (TETRA) emission designators
 - Analog or digital

EB/GB FAC Memorandum of Agreement (MOA)

- Amended MOA executed in 2019
- Applicants limited to five (5) channels within any 113 km (70 mi) radius based on the coordinates of the first transmitter (Service Area)
- Some or all five channels may be reused at multiple sites within the Service Area
- If no channels are available, the application is returned without action
- All duplicative applications will be dismissed
- FAC shopping is discouraged

May 16 Pre-Coordination Application Results

- Date/Time stamps create all-FAC application queue
- 735 applications in queue
- Markets included Boston, Chicago, New York, Philadelphia
- One FAC filed 630 applications in 28.7 seconds
- 21.95 applications per second
- All 630 applications from the same party
- LMCC filing letter with FCC seeking evaluation

800 MHz Interstitial Channels



800 MHz Interstitial Channels

- Eligibility determines access to the 318 channels
- FCC Public Notice will provide availability dates for non-Mexican border area
- Three-year priority access for T-Band licensees (!)
- 88 km co/adjacent channel incumbent protection
- Reciprocal adjacent channel contour analyses to protect applicants and incumbents
- Subject to OMB Approval and FCC release of spectrum

800 MHz Reciprocal Analyses 12.5 kHz to 25 kHz

Interstitial to 25 kHz Interference Contour			Interstitial Channel						
			Modulation						
25 kHz Channel			12.5 Analog	Any P25 (FDMA, LSM, TDMA)	DMR or NXDN 9.6	NXDN 4.8	2 x NXDN 4.8		
			Transmitter Emission						
Modulation			Transmitter Emission	Transmitter Emission	Transmitter Emission	Transmitter Emission	Transmitter Emission		
25 kHz Analog			16K0F3E or 20K0F3E	Rcvr	25	20	25	35	15
ASTRO Widepulse			10K0F1E/D	Rcvr	40	35	40	55	25
OpenSky			12K5F9W	Rcvr	40	35	40	55	30
EDACS			16K0F1E/D	Rcvr	70	65	65	NR	NR
iDEN & HPD			18K3D7W 17K7D7D	Rcvr	25	20	25	45	10
Possible 12.5 kHz Technologies on 25 kHz centers									
12.5 kHz Analog			< 11K3F3E	Rcvr	65	65	65	NR	70
P25 FDMA, LSM, TDMA, Simulcast			8K10F1E/D 8K7D1W 9K80D7W 9K80D1E/D	Rcvr	NR	75	75	NR	NR
DMR or NXDN 9.6			7K60FXE/D or 7K60F7E/D/W 8K30F1E/D	Rcvr	75	70	75	NR	NR
NXDN 4.8			4K00F1E/D	Rcvr	NR	NR	NR	NR	NR
2 x NXDN 4.8 (+/- 3.125 kHz)			11K0F7E/D/W	Rcvr	60	55	60	NR	NR
Possible 90.221 Technologies on 25 kHz centers									
TETRA			22K0D7E/D/W 22K0D1W 22K0G1W 21K0D1E/D/W	Rcvr	25	20	25	45	10
2 x P25 FDMA, LSM, TDMA (+/- 6.25 kHz)			21K7D7E/D/W	Rcvr	25	20	25	60	10
2 x DMR (+/- 6.25 kHz)			To Be Determined	Rcvr	20	15	20	45	10
2 x NXDN 9.6 (+/- 6.25 kHz)			To Be Determined	Rcvr					
3 x NXDN 4.8 (0 +/- 6.25 kHz)			To Be Determined	Rcvr					

NR = derating value > 75 dB, no analysis required

800 MHz Reciprocal Analyses 25 kHz to 12.5 kHz

25 kHz to Interstitial Interference Contour			Interstitial Channel				
			Modulation				
			12.5 Analog	Any P25 (FDMA, LSM, TDMA)	DMR or NXDN 9.6	NXDN 4.8	2 x NXDN 4.8
25 kHz Channel	Transmitter Emission		Transmitter Emission				
			< 11K3F3E	8K10F1E/D 8K70D1W 9K80D7W	7K60FXE/D or 7K60F7E/D/W 8K30F1E/D	4K00F1E/D	11K0F7E/D/W
Modulation	Transmitter Emission		Receiver	Receiver	Receiver	Receiver	Receiver
25 kHz Derated Interference Contour [dBu f(50,50)]							
25 kHz Analog	16K0F3E or 20K0F3E	Xmtr	40	50	45	60	35
ASTRO Widepulse	10K0F1E/D	Xmtr	50	50	50	55	50
OpenSky	12K5F9W	Xmtr	40	50	45	50	35
EDACS	16K0F1E/D	Xmtr	35	40	40	45	35
iDEN or HPD	18K3D7W 17K7D7D	Xmtr	20	45	30	50	15
Possible 12.5 kHz Technologies on 25 kHz centers							
12.5 kHz Analog	< 11K3F3E	Xmtr	65	NR	75	NR	60
P25 FDMA, LSM, TDMA, Simulcast	8K10F1E/D 8K7D1W 9K80D7W 9K80D1E/D	Xmtr	65	75	70	NR	55
DMR or NXDN 9.6	7K60FXE/D or 7K60F7E/D/W 8K30F1E/D	Xmtr	65	75	75	NR	60
NXDN 4.8	4K00F1E/D	Xmtr	NR	NR	NR	NR	NR
2 x NXDN 4.8 (+/- 3.125 kHz)	11K0F7E/D/W	Xmtr	70	NR	NR	NR	NR
Possible 90.221 Technologies on 25 kHz centers							
TETRA	22K0D7E/D/W 22K0DXW 22K0G1W 21K0D1E/D/W	Xmtr	20	25	20	30	15
2 x P25 FDMA, LSM, TDMA (+/- 6.25 kHz)	21K7D7E/D/W	Xmtr	15	20	15	25	10
2 x DMR (+/- 6.25 kHz)	To Be Determined	Xmtr	20	25	20	35	15
2 x NXDN 9.6 (+/- 6.25 kHz)	To Be Determined	Xmtr					
3 x NXDN 4.8 (0, +/- 6.25 kHz)	To Be Determined	Xmtr					

NR = derating value > 75 dB, no analysis required

900 MHz Notice of Proposed Rulemaking (NPRM)

- Notice of Proposed Rulemaking released March 14th
- Comments filed June 3, and Reply Comments due July 3
- Realignment of the band
 - 3x3 MHz Broadband (897.5-900.5/936.5-939.5 MHz)
 - 2x2 Narrowband (896-897.5/935-936.5 MHz and 900.5-901/939.5-940 MHz)
- Geographic broadband licenses
- Market driven, voluntary exchange process
- Other methods of band transition
 - Overlay auction
 - Incentive auction

EWA's Position on NPRM

- Beneficial to B/ILT entities other than utilities
- Secure success at 3x3 MHz prior to pursuing 5x5 MHz broadband allocation
- The FCC should pursue EWA's "green space" 800 MHz GB Petition for Rulemaking
- The transition process should start with an initial voluntary negotiation period prior to implementing auctions
- Incumbents must be provided with comparable facilities and their retuning costs must be paid by the broadband licensee
- EWA does not support the use of an incentive auction either as a backstop to prevent hold outs or as an initial method of band clearing.

T-Band Update

- NPRM pending
- Application freeze – minimal licensing activities permitted
- All renewals presently in pending status at FCC
- Public safety primary legislative change advocate
- Limited mention of identifying comparable spectrum for B/ILT
- Both House and Senate introduce versions of the “Don’t Break Up the T-Band Act” which propose to rescind Section 6103 of the Middle Class Tax Relief and Job Creation Act of 2012
- “Secure T-Band Allocation and No Diversion Act of 2019” (!)

EWA Submits Green Space Petition for Rulemaking (PRM)

- Filed April 17, 2019
- Seeks to set aside Guard Band (861-862 MHz) as green space for incumbent relocation solutions
 - T-Band (470-512 MHz) – B/ILT and private carrier eligible only
 - 900 MHz relocation/transition solutions
- Capacity - (40) 25 kHz or (80) 12.5 kHz channels

Exclusive-Use Channel Access Tactics

- Identify optimal spectrum band
- Determine co-channel systems that preclude exclusivity
- Lower power
- Lower antenna height
- Identify alternative sites
- Utilize Longley Rice propagation model
- Review level of contour overlap, amend antenna pattern, rerun analyses

TETRA at 450-512 MHz

- Emission Designators
 - 22K0D7E/D/W, 22K0DXW, 22K0G1W
 - 21K0D1E/D/W, 21K7D7E/D/W
- Utilize 25 kHz “primary” channels – TETRA satisfies spectral efficiency requirements
- Seek exclusive-use (FB8) channels
- T-Band – assignments and emission upgrades permitted
- Part 22 – lease or purchase
- EWA uniquely qualified to coordinate TETRA systems

Access to CSAA Channels

- Central station alarm channels – B/ILT exclusive use opportunity with TMA concurrence
- 12.5 kHz channels, non-contiguous
- LMCC/TMA Coordination Agreement – 3 step analytical concurrence process
- TMA will be very protective

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Questions?

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