

Technical Comparison among Public Safety Radio Technologies					
	P25		TETRA		DMR
	Phase 1	Phase 2	Release 1	Release 2	
Frequency Bands (MHz)	136-174		380-400		136-174
	380-470		410-430		400-470
	450-512		450-470		
	768-870		870-876/915-912		
Access Method	FDMA	TDMA	TDMA		TDMA
Channel Bandwidth (KHz)	12.5		25	25/50/100/150	12.5
Number of Time Slots/Channel	2		4		2
Modulation Schemes	H-CPM H-DQPSK		$\pi/4$ DQPSK	$\pi/4$ DQPSK	4-FSK
				$\pi/8$ DQPSK	
				4-QAM	
				16-QAM	
				64-QAM	

VHF Band			
Band (MHz)	Operating Frequency (MHz)	Channel Number (N)	Channel Spacing (KHz)
138-144	$138+0.025*N$	0-> 240	25
	$138+0.0125*N$	0-> 480	12.5
	$138+0.00625*N$	0-> 960	6.25
146-149.9	$146+0.0125*N$	0-> 155	25
	$146+0.025*N$	0-> 310	12.5
	$146+0.00625*N$	0-> 620	6.25
150.05-156.4875	$150.05+0.0125*N$	0-> 257	25
	$150.05+0.025*N$	0-> 514	12.5
	$150.05+0.00625*N$	0-> 1028	6.25
156.8375-174	$156.850+0.0125*N$	0-> 686	25
	$156.850+0.025*N$	0-> 1372	12.5
	$156.850+0.00625*N$	0-> 2744	6.25

TETRA: Maximum Bit Rates (Kbits/s)					
Modulation	Number of slots	25 KHz	50 KHz	100 KHz	150 KHz
$\pi/4$ DQPSK	1	9			
$\pi/4$ DQPSK	4	36			
$\pi/4$ DQPSK	4	54			
4-QAM	4	38.4	76.8	153.6	230.4
16-QAM	4	76.6	153.6	307.2	460.8
64-QAM	4	115.2	230.4	460.8	691.2

Spectrum Efficiency of Public Safety Radio Technologies												
Analog System	Control Channel				FDMA Voice Channel				FDMA Voice Channel			
	25 KHz				25 KHz				25 KHz			
P25 Phase 1	Control Channel		FDMA Voice Channel		FDMA Voice Channel		FDMA Voice Channel		FDMA Voice Channel		FDMA Voice Channel	
	12.5 KHz		12.5 KHz		12.5 KHz		12.5 KHz		12.5 KHz		12.5 KHz	
P25 Phase 2	Control Channel	TDMA Voice Channel	TDMA Voice Channel	TDMA Voice Channel	TDMA Voice Channel	TDMA Voice Channel	TDMA Voice Channel	TDMA Voice Channel	TDMA Voice Channel	TDMA Voice Channel	TDMA Voice Channel	
	12.5 KHz		12.5 KHz		12.5 KHz		12.5 KHz		12.5 KHz		12.5 KHz	
DMR	Control Channel	TDMA Voice Channel	TDMA Voice Channel	TDMA Voice Channel	TDMA Voice Channel	TDMA Voice Channel	TDMA Voice Channel	TDMA Voice Channel	TDMA Voice Channel	TDMA Voice Channel	TDMA Voice Channel	
	12.5 KHz		12.5 KHz		12.5 KHz		12.5 KHz		12.5 KHz		12.5 KHz	
TETRA	Control Channel	TDMA Voice Channel	TDMA Voice Channel	TDMA Voice Channel	TDMA Voice Channel	TDMA Voice Channel	TDMA Voice Channel	TDMA Voice Channel	TDMA Voice Channel	TDMA Voice Channel	TDMA Voice Channel	
	25 KHz				25 KHz				25 KHz			

UHF Band			
Band (MHz)	Operating Frequency (MHz)	Channel Number (N)	Channel Spacing (KHz)
406-430	$406+0.025*N$	0-> 960	25
	$406+0.0125*N$	0-> 1920	12.5
	$406+0.00625*N$	0-> 3840	6.25
440-470	$440+0.0125*N$	0-> 1200	25
	$440+0.025*N$	0-> 2400	12.5
	$440+0.00625*N$	0-> 4800	6.25