

RF Bandwidth Calculations Exhibit 3

$$SR = ((DR + OH) * 1/CR * MF * RSF) * 1.35$$

SR = Symbol Rate

DR = Data Rate

OH = Overhead(kps) = 96kbps(IDR); 1/15 x DR (IBS, D & I and Async)

CR = Code Rate (FEC) = 1/2, 3/4, 7/8, 5/6

MF = Modulation Factor = 2(BPSK), 1/2 (QPSK), 1/3 (8PSK), 1/4 (16 QAM)

IDR	T1	1.098	R F Bandwidth = 7819.97 Mhz
IDR	E1	1.09	
IDR	T2	1.09	
IDR	E2	1.09	
IBS	ALL	1.125	
D & I	ALL	1.125	
Async	ALL	1.098	
DVB	ALL	1.085	
None	ALL	1.098	

Data Rate	9300
Overhead	0
Code Rate	7/8
Modulation Factor	1/2
Reed Solomon Factor	1.09

Symbol Rate = 5792.571 KB/s

Spreading Factor = 1

IF Bandwidth = 5792.571