

Title:	Bandwidth Requirement Chart for H.264, MPEG4 and MJPEG				
Date:	11/24/2010	Version:	1.0	Pages	3
Product:	All IP Video Devices				
Action Required:	Information Only				

Resolution		VGA	4 CIF	HD	1.3 MP	2.0 MP	Full HD	5.0 MP
H.264	Cameras	640x480	704x480	1280x720	1280x1024	1600x1200	1920x1080	2600x1950
30 fps		Mbit/s	Mbit/s	Mbit/s	Mbit/s	Mbit/s	Mbit/s	Mbit/s
	1	0.74	0.98	2.46	3.44	5.16		
	2	1.47	1.97	4.92	6.88	10.32		
	3	2.21	2.95	7.38	10.32	15.48		
	4	2.95	3.94	9.84	13.76	20.64		
	5	3.69	4.92	12.30	17.2	25.8		
	6	4.42	5.91	14.76	20.64	30.96		
	7	5.16	6.89	17.22	24.08	36.12		
	8	5.9	7.88	19.68	27.52	41.28		
	9	71.7	8.86	22.14	30.96	46.44		
	10	7.37	9.85	24.60	34.4	51.6		

Resolution		VGA	4 CIF	HD	1.3 MP	2.0 MP	Full HD	5.0 MP
H.264	Cameras	640x480	704x480	1280x720	1280x1024	1600x1200	1920x1080	2600x1950
12 fps		Mbit/s	Mbit/s	Mbit/s	Mbit/s	Mbit/s	Mbit/s	Mbit/s
	1	0.39	0.49	1.28	1.77	2.65		
	2	0.78	0.98	2.56	3.54	5.31		
	3	1.17	1.47	3.84	5.31	7.97		
	4	1.56	1.96	5.12	7.08	10.63		
	5	1.95	2.45	6.40	8.85	13.29		
	6	2.34	2.94	7.68	10.62	15.95		
	7	2.73	3.43	8.96	12.39	18.61		
	8	3.12	3.92	10.24	14.16	21.27		
	9	3.51	4.41	11.52	15.93	23.93		
	10	3.9	4.90	12.80	17.7	26.59		

Resolution		VGA	4 CIF	HD	1.3 MP	2.0 MP	Full HD	5.0 MP
H.264	Cameras	640x480	704x480	1280x720	1280x1024	1600x1200	1920x1080	2600x1950
8 fps		Mbit/s	Mbit/s	Mbit/s	Mbit/s	Mbit/s	Mbit/s	Mbit/s
	1	0.33	0.39	0.92	1.31	1.9	2.03	4.98
	2	0.66	0.79	1.84	2.62	3.8	4.06	9.96
	3	0.99	1.19	2.76	3.93	5.7	6.09	14.94
	4	1.32	1.59	3.68	5.24	7.6	8.12	19.92
	5	1.65	1.99	4.60	6.55	9.5	10.15	24.90
	6	1.98	2.39	5.52	7.86	11.4	12.18	29.88
	7	2.31	2.79	6.44	9.17	13.3	14.21	34.86
	8	2.64	3.19	7.36	10.48	15.2	16.24	39.84
	9	2.97	3.59	8.28	11.79	17.1	18.27	44.82
	10	3.30	3.99	9.20	13.1	19	20.30	49.80

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Resolution		VGA	4 CIF	HD	1.3 MP	2.0 MP	Full HD	5.0 MP
MPEG-4	Cameras	640x480	704x480	1280x720	1280x1024	1600x1200	1920x1080	2600x1950
30 fps		Mbit/s	Mbit/s	Mbit/s	Mbit/s	Mbit/s	Mbit/s	Mbit/s
Quantity	1	2.21	2.46	6.88	9.83	14.25	15.48	37.85
	2	4.42	4.92	13.76	19.66	28.51	30.97	75.69
	3	6.63	7.38	20.64	29.49	42.77	46.46	113.53
	4	8.84	9.84	27.52	39.32	57.03	61.95	151.37
	5	11.05	12.30	34.4	49.15	71.29	77.44	189.21
	6	13.26	14.76	41.28	58.98	85.55	92.93	227.05
	7	15.47	17.22	48.16	68.81	99.81	108.42	264.89
	8	17.68	19.68	55.04	78.64	114.07	123.91	302.73
	9	19.89	22.14	61.92	88.47	128.33	139.40	340.57
	10	22.1	24.60	68.8	98.3	142.59	154.89	378.41

Resolution		VGA	4 CIF	HD	1.3 MP	2.0 MP	Full HD	5.0 MP
MPEG-4	Cameras	640x480	704x480	1280x720	1280x1024	1600x1200	1920x1080	2600x1950
12 fps		Mbit/s	Mbit/s	Mbit/s	Mbit/s	Mbit/s	Mbit/s	Mbit/s
	1	1.18	1.28	3.44	4.92	7.27	7.77	19.07
	2	2.36	2.56	6.88	9.83	14.55	15.53	38.14
	3	3.54	3.84	10.32	14.74	21.83	23.29	57.21
	4	4.72	5.12	13.76	19.65	29.11	31.05	76.28
	5	5.9	6.4	17.2	24.56	36.39	38.81	95.35
	6	7.08	7.68	20.64	29.47	43.67	46.57	114.42
	7	8.26	8.96	24.08	34.38	50.95	54.33	133.49
	8	9.44	10.24	27.52	39.29	58.23	62.09	152.56
	9	10.62	11.52	30.96	44.2	65.51	69.85	171.63
	10	11.8	12.8	34.4	49.11	72.79	77.61	190.7

Resolution		VGA	4 CIF	HD	1.3 MP	2.0 MP	Full HD	5.0 MP
MPEG-4	Cameras	640x480	704x480	1280x720	1280x1024	1600x1200	1920x1080	2600x1950
8 fps		Mbit/s	Mbit/s	Mbit/s	Mbit/s	Mbit/s	Mbit/s	Mbit/s
	1	0.85	0.92	2.49	3.6	5.24	5.70	13.89
	2	1.70	1.84	4.98	7.21	10.49	11.40	27.79
	3	2.55	2.76	7.47	10.82	15.74	17.10	41.69
	4	3.40	3.68	9.96	14.43	20.99	22.80	55.59
	5	4.25	4.60	12.45	18.04	26.24	28.50	69.49
	6	5.10	5.52	14.94	21.65	31.49	34.20	83.39
	7	5.95	6.44	17.43	25.26	36.74	39.90	97.29
	8	6.80	7.36	19.92	28.87	41.99	45.60	111.19
	9	7.65	8.28	22.41	32.48	47.24	51.30	125.09
	10	8.50	9.20	24.90	36.09	52.49	57.00	138.99

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MJPEG	Cameras	640x480	704x480	1280x720	1280x1024	1600x1200	1920x1080	2600x1950
30 fps		Mbit/s	Mbit/s	Mbit/s	Mbit/s	Mbit/s	Mbit/s	Mbit/s
Quantity	1	11.3	12.53	34.16	48.66	71.27	77.17	188.5
	2	22.61	25.07	68.32	97.32	142.54	154.34	377
	3	33.92	37.61	102.48	145.98	213.81	231.51	565.5
	4	45.23	50.15	136.64	194.64	285.08	308.68	754
	5	56.54	62.69	170.8	243.3	356.35	385.85	942.5
	6	67.85	75.23	204.96	291.96	427.62	463.02	1131
	7	79.16	87.77	239.12	340.62	498.89	540.19	1319.5
	8	90.47	100.31	273.28	389.28	570.16	617.36	1508
	9	101.78	112.85	307.44	437.94	641.43	694.53	1696.5
	10	113.09	125.39	341.6	486.6	712.70	771.70	1885

Resolution		VGA	4 CIF	HD	1.3 MP	2.0 MP	Full HD	5.0 MP
MJPEG	Cameras	640x480	704x480	1280x720	1280x1024	1600x1200	1920x1080	2600x1950
12 fps		Mbit/s	Mbit/s	Mbit/s	Mbit/s	Mbit/s	Mbit/s	Mbit/s
	1	4.52	5.01	13.66	19.46	28.51	30.87	75.4
	2	9.04	10.03	27.33	38.93	57.02	61.73	150.8
	3	13.56	15.05	41	58.4	85.53	92.59	226.2
	4	18.08	20.07	54.67	77.87	114.04	123.45	301.6
	5	22.6	25.09	68.34	97.34	142.55	154.31	377
	6	27.12	30.11	82.01	116.81	171.06	185.17	452.4
	7	31.64	35.13	95.68	136.28	199.57	216.03	527.8
	8	36.16	40.15	109.35	155.75	228.08	246.89	603.2
	9	40.68	45.17	123.02	175.22	256.59	277.75	678.6
	10	45.2	50.19	136.69	194.69	285.1	308.61	754

Resolution		VGA	4 CIF	HD	1.3 MP	2.0 MP	Full HD	5.0 MP
MJPEG	Cameras	640x480	704x480	1280x720	1280x1024	1600x1200	1920x1080	2600x1950
8 fps		Mbit/s	Mbit/s	Mbit/s	Mbit/s	Mbit/s	Mbit/s	Mbit/s
	1	3.01	3.34	9.11	12.98	19.01	20.58	50.27
	2	6.03	6.68	18.22	25.95	38.01	41.16	100.53
	3	9.05	10.02	27.33	38.92	57.01	61.74	150.79
	4	12.07	13.36	36.44	51.89	76.01	82.32	201.05
	5	15.09	16.70	45.55	64.86	95.01	102.90	251.31
	6	18.11	20.04	54.66	77.83	114.01	123.48	301.57
	7	21.13	23.38	63.77	90.8	133.01	144.06	351.83
	8	24.15	26.72	72.88	103.77	152.01	164.64	402.09
	9	27.17	30.06	81.99	116.74	171.01	185.22	452.35
	10	30.19	33.40	91.10	129.71	190.01	205.80	502.61