

	A	B	C	D	E	F	G
1	HTTP OHNE PIPELINE						
2	RTT NR	Tx Client	cwnd Client	Client (Browser)	Server	cwnd Server	Tx Server
3	1	MOReq:S[0]-S0[799], MOReq:S1[800-S1[1199]	2 MSS	HTML-Request (2 Segmente)	HTML-Response(2 Segmente)	2 MSS	MO:S0[0]-S1[799], MO:S1[800]-S2[1599]
4	2	2x ack	2 MSS	Ack dass 2 Segmente angekommen	CWND erhöhen, HTML- Response(1 Segment)	4 MSS	MO:S1[1600]-S2[1999]
5	3	1x ack	4 MSS	ack dass 1 Segment angekommen	erhöhe cwnd	5 MSS	
6	4	I01Req:S0[0]-S0[799], I01Req:S1[800-S1[1599]	5 MSS	Request Bild 1 (2 Segmente)	Sende Bild 1 komplett(4Segmente)	5 MSS	I01:S0[0]-S0[799], I01:S1[800]-S1[1599], I01:S2[1600]-S2[2399], I01:S3[2400]-S3[3199]
7	5	4x ack	5 MSS		erhöhe cwnd	9 MSS	
8	6	I02Req:S0[0]-S0[799], I02Req:S1[800-S1[1599], I02Req:S1[1600-S1[2399], I02Req:S1[2400-S1[3199]	9 MSS	Request Bild 2 (4 Segmente)	Sende Bild 2 komplett(1 Segment)	9 MSS	I02:S0[0]-S0[799],
9	7	1x ack	9 MSS		erhöhe cwnd	10 MSS	
10	8	I03Req:S0[0]-S0[799], I03Req:S1[800-S1[1599], I03Req:S1[1600-S1[2399], I03Req:S1[2400-S1[3199], I03Req:S1[3200-S1[3999], I03Req:S1[4000-S1[4799]	10 MSS	Request Bild 3 (6 Segmente)	Sende Bild 3komplett (10 Segmente)	10 MSS	I03:S0[0]-S0[799], I03:S1[800]-S1[1599], I03:S2[1600]-S2[2399], I03:S3[2400]-S3[3199], I03:S4[3200]-S4[3999], I03:S5[4000]-S5[4799], I03:S6[4800]-S6[5599], I03:S7[5600]-S7[6399],I0 3:S8[6400]-S8[7199], I03:S9[7200]-S9[7999],
11	9	10x ack	10 MSS		erhöhe cwnd	20 MSS	
12	10	I04Req:S0[0]-S0[799]	20 MSS	Request Bild 4 (1 Segment)	Sende Bild 4 (20 segmente)	20 MSS	I04:S0-S799, I04:S800-S1599, I04:S1600-S2399, I04:S2400-S3199, I04:S3200-S3999, I04:S4000-S4799, I04:S4800-S5599, I04:S5600-S6399, I04:S6400-S7199, I04:S7200-S7999, I04:S8000-S8799, I04:S8800-S9599, I04:S9600-S10399, I04:S10400-S11199, I04:S11200-S11999, I04:S12000-S12799, I04:S12800-S13599, I04:S13600-S14399, I04:S14400-S15199, I04:S15200-S15999,
13	11	20x ACK	20 MSS	ACK für Bild 4-Teil 1	erhöhe cwnd, Sende Bild4 (18 Segmente)	40 MSS	I04:S16000-S16799, I04:S16800-S17599, I04:S17600-S18399, I04:S18400-S19199, I04:S19200-S19999, I04:S20000-S20799, I04:S20800-S21599, I04:S21600-S22399, I04:S22400-S23199, I04:S23200-S23999, I04:S24000-S24799, I04:S24800-S25599, I04:S25600-S26399, I04:S26400-S27199, I04:S27200-S27999, I04:S28000-S28799, I04:S28800-S29599, I04:S29600-S30000,

	A	B	C	D	E	F	G
12		18x ACK	40 MSS		erhöhe cwnd	58 MSS	
14							
13		I05Req:S0[0]-S0[799], I05Req:S1[800-S1[1200]	58 MSS	Request Bild 5 (2 Segmenet)	Sende Bild 5 komplett (15 segmente)	58 MSS	I05:S0-S799, I05:S800-S1599, I05:S1600-S2399, I05:S2400-S3199, I05:S3200-S3999, I05:S4000-S4799, I05:S4800-S5599, I05:S5600-S6399, I05:S6400-S7199, I05:S7200-S7999, I05:S8000-S8799, I05:S8800-S9599, I05:S9600-S10399, I05:S10400-S11199, I05:S11200-S11600,
15							
14		15x ACK	58 MSS		erhöhe cwnd	73 MSS	
16							
17							
18							
19							
20							
21	HTTP MIT PIPELINE						
22	RTT NR	Tx Client	cwnd Client	Client (Browser)	Server	cwnd Server	Tx Server
23	1	M0Req:S[0]-S0[799], M0Req:S1[800-S1[1199]	2 MSS	HTML-Request (2 Segmente)	HTML-Response(2 Segmente)	2 MSS	M0:S0[0]-S1[799], M0:S1[800]-S2[1599]
24	2	2x ack	2 MSS	Ack dass 2 Segmente angekommen	CWND erhöhen, HTML- Response(1 Segment)	4 MSS	M0:S1[1600]-S2[1999]
25	3	1x ack, I01Req:S0[0]-S0[799], I01Req:S1[800-S1[1599]	4 MSS	ack dass 1 Segment angekommen, Request Bild 1 (2 Segmente)	erhöhe cwnd, Sende Bild 1 komplett(4Segmente)	5 MSS	I01:S0[0]-S0[799], I01:S1[800]-S1[1599], I01:S2[1600]-S2[2399], I01:S3[2400]-S3[3199]
26	4	4x ack, I02Req:S0[0]-S0[799], I02Req:S1[800-S1[1599], I02Req:S1[1600-S1[2399], I02Req:S1[2400-S1[3199]	5 MSS	Request Bild 2 (4 Segmente)	erhöhe cwnd, Sende Bild 2 komplett(1 Segment)	9 MSS	I02:S0[0]-S0[799],
27	5	1x ack, I03Req:S0[0]-S0[799], I03Req:S1[800-S1[1599], I03Req:S1[1600-S1[2399], I03Req:S1[2400-S1[3199], I03Req:S1[3200-S1[3999], I03Req:S1[4000-S1[4799]	9 MSS	Request Bild 3 (6 Segmente)	erhöhe cwnd, Sende Bild 3komplett (10 Segmente)	10 MSS	I03:S0[0]-S0[799], I03:S1[800]-S1[1599], I03:S2[1600]-S2[2399], I03:S3[2400]-S3[3199], I03:S4[3200]-S4[3999], I03:S5[4000]-S5[4799], I03:S6[4800]-S6[5599], I03:S7[5600]-S7[6399],I0 3:S8[6400]-S8[7199], I03:S9[7200]-S9[7999],

	A	B	C	D	E	F	G
28	6	10x ack, I04Req:S0[0]-S0[799]	10 MSS	Request Bild 4 (1 Segment)	erhöhe cwnd, Sende Bild 4 (20 segmente)	20 MSS	I04:S0-S799, I04:S800-S1599, I04:S1600-S2399, I04:S2400-S3199, I04:S3200-S3999, I04:S4000-S4799, I04:S4800-S5599, I04:S5600-S6399, I04:S6400-S7199, I04:S7200-S7999, I04:S8000-S8799, I04:S8800-S9599, I04:S9600-S10399, I04:S10400-S11199, I04:S11200-S11999, I04:S12000-S12799, I04:S12800-S13599, I04:S13600-S14399, I04:S14400-S15199, I04:S15200-S15999,
29	7	20x ACK	20 MSS	ACK für Bild 4-Teil 1	erhöhe cwnd, Sende Bild4 (18 Segmente)	40 MSS	I04:S16000-S16799, I04:S16800-S17599, I04:S17600-S18399, I04:S18400-S19199, I04:S19200-S19999, I04:S20000-S20799, I04:S20800-S21599, I04:S21600-S22399, I04:S22400-S23199, I04:S23200-S23999, I04:S24000-S24799, I04:S24800-S25599, I04:S25600-S26399, I04:S26400-S27199, I04:S27200-S27999, I04:S28000-S28799, I04:S28800-S29599, I04:S29600-S30000,
30	8	18x ACK, I05Req:S0[0]-S0[799], I05Req:S1[800-S1[1200]	40 MSS	Request Bild 5 (2 Segmenet)	erhöhe cwnd, Sende Bild 5 komplett (15 segmente)	58 MSS	I05:S0-S799, I05:S800-S1599, I05:S1600-S2399, I05:S2400-S3199, I05:S3200-S3999, I05:S4000-S4799, I05:S4800-S5599, I05:S5600-S6399, I05:S6400-S7199, I05:S7200-S7999, I05:S8000-S8799, I05:S8800-S9599, I05:S9600-S10399, I05:S10400-S11199, I05:S11200-S11600,
31	9	15x ACK	58 MSS		erhöhe cwnd	73 MSS	
32	HTTP OHNE PIPELINE MIT PAKETVERLUST						
34	RTT NR	Tx Client	cwnd Client	Client (Browser)	Server	cwnd Server	Tx Server
35	1	MOReq:S[0]-S0[799], MOReq:S1[800-S1[1199]	2 MSS	HTML-Request (2 Segmente)	HTML-Response(2 Segmente)	2 MSS	MO:S0[0]-S1[799], MO:S1[800]-S2[1599]
36	2	2x ack	2 MSS	Ack dass 2 Segmente angekommen	CWND erhöhen, HTML- Response(1 Segment)	4 MSS	MO:S1[1600]-S2[1999]
37	3	1x ack	4 MSS	ack dass 1 Segment angekommen	erhöhe cwnd	5 MSS	
38	4	I01Req:S0[0]-S0[799], I01Req:S1[800-S1[1599]	5 MSS	Request Bild 1 (2 Segmente)	Sende Bild 1 komplett(4Segmente)	5 MSS	I01:S0[0]-S0[799], I01:S1[800]-S1[1599], I01:S2[1600]-S2[2399], I01:S3[2400]-S3[3199]
39	5	4x ack	5 MSS		erhöhe cwnd	9 MSS	
40	6	I02Req:S0[0]-S0[799], I02Req:S1[800-S1[1599], I02Req:S1[1600-S1[2399], I02Req:S1[2400-S1[3199]	9 MSS	Request Bild 2 (4 Segmente)	Sende Bild 2 komplett(1 Segment)	9 MSS	I02:S0[0]-S0[799],
41	7	1x ack	9 MSS		erhöhe cwnd	10 MSS	
42	8	I03Req:S0[0]-S0[799], I03Req:S1[800-S1[1599], I03Req:S1[1600-S1[2399], I03Req:S1[2400-S1[3199], I03Req:S1[3200-S1[3999], I03Req:S1[4000-S1[4799]	10 MSS	Request Bild 3 (6 Segmente)	Sende Bild 3komplett (10 Segmente)	10 MSS	I03:S0[0]-S0[799], I03:S1[800]-S1[1599], I03:S2[1600]-S2[2399], I03:S3[2400]-S3[3199], I03:S4[3200]-S4[3999], I03:S5[4000]-S5[4799], I03:S6[4800]-S6[5599], I03:S7[5600]-S7[6399],I0 3:S8[6400]-S8[7199], I03:S9[7200]-S9[7999],
43	9	10x ack	10 MSS		erhöhe cwnd	20 MSS	

	A	B	C	D	E	F	G
44	10	I04Req:S0[0]-S0[799]	20 MSS	Request Bild 4 (1 Segment)	Sende Bild 4 (20 segmente)	20 MSS	I04:S0-S799, I04:S800-S1599, I04:S1600-S2399, I04:S2400-S3199, I04:S3200-S3999, I04:S4000-S4799, I04:S4800-S5599, I04:S5600-S6399, I04:S6400-S7199, I04:S7200-S7999, I04:S8000-S8799, I04:S8800-S9599, I04:S9600-S10399, I04:S10400-S11199, I04:S11200-S11999, I04:S12000-S12799, I04:S12800-S13599, I04:S13600-S14399, I04:S14400-S15199, I04:S15200-S15999,
45	11	20x ACK	20 MSS	ACK für Bild 4-Teil 1	erhöhe cwnd, Sende Bild4 (18 Segmente)	40 MSS	I04:S16000-S16799, I04:S16800-S17599, I04:S17600-S18399, I04:S18400-S19199, I04:S19200-S19999, I04:S20000-S20799, I04:S20800-S21599, I04:S21600-S22399, I04:S22400-S23199, I04:S23200-S23999, I04:S24000-S24799, I04:S24800-S25599, I04:S25600-S26399, I04:S26400-S27199, I04:S27200-S27999, I04:S28000-S28799, I04:S28800-S29599, I04:S29600-S30000,
46	12	18x ACK	40 MSS		erhöhe cwnd	58 MSS	
47	13	I05Req:S0[0]-S0[799], I05Req:S1[800-S1[1200]	58 MSS	Request Bild 5 (2 Segmenet)	Sende Bild 5 komplett (15 segmente)	58 MSS	I05:S0-S799, I05:S800-S1599, I05:S1600-S2399, I05:S2400-S3199, I05:S3200-S3999, I05:S4000-S4799, I05:S4800-S5599, I05:S5600-S6399, I05:S6400-S7199, I05:S7200-S7999, I05:S8000-S8799, I05:S8800-S9599, I05:S9600-S10399, I05:S10400-S11199, I05:S11200-S11600,
48	14	15x ACK	58 MSS		erhöhe cwnd	73 MSS	
49	15	I06-14Req:S0[0]-S0[799]	73 MSS	Request Bild 6-14 (1 Segmenet)	Sende Bild 6-14 komplett (10 Segmente)	73 MSS	I06-14:S0-S799, I06-14:S800-S1599, I06-14:S1600-S2399, I06-14:S2400-S3199, I06-14:S3200-S3999, I06-14:S4000-S4799, I06-14:S4800-S5599, I06-14:S5600-S6399, I06-14:S6400-S7199, I06-14:S7200-S7999,
50	16	10x ACK	73 MSS		erhöhe cwnd	83 MSS	
51		I015Req:S0[0]-S0[799]	83 MSS	Request Bild 15(1 Segmenet)	Sende Bild 15 komplett (65 Segmente)	83 MSS	I015:S0-S799, I015:S800-S1599, I015:S1600-S2399, I015:S2400-S3199, I015:S51200-S52000,

	A	B	C	D	E	F	G
52		64x ACK	83 MSS	Sendet 64x ACK	Paketverlust weil sollten eigentlich 65x ACK sein. Reduziere cwnd, Sende Bild6(41 Segmente)	41 MSS	I015:S0-S799, I015:S800-S1599, I015:S1600-S2399, I015:S2400-S3199, I015:S32000-32799,
53		41x ACK	41 MSS	Sendet 41x ACK	erhöhe cwnd, Sende Bild6 (24 Segmente)	82 MSS	I015:S32800-33599 I015:S51200-S52000,
54		24x ACK	82 MSS	Sendet 24x ACK	erhöhe cwnd	106 MSS	