

6.10.84

QPT PAG

R. CMD

V2

R 3.3

Waveterm

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Resonator

2				
3				
4				
5	0000	WAVBAS	EQU	\$0000
6	0009	Z0009	EQU	\$0009
7	000A	Z000A	EQU	\$000A
8	000B	Z000B	EQU	\$000B
9	000E	Z000E	EQU	\$000E
10	0014	WAV14	EQU	\$0014
11	0063	Z0063	EQU	\$0063
12	0064	Z0064	EQU	\$0064
13	0080	Z0080	EQU	\$0080
14	00E8	Z00E8	EQU	\$00E8
15	00FF	Z00FF	EQU	\$00FF
16	0100	Z0100	EQU	\$0100
17	01FD	Z01FD	EQU	\$01FD
18	0200	Z0200	EQU	\$0200
19	020F	Z020F	EQU	\$020F
20	021E	Z021E	EQU	\$021E
21	0320	Z0320	EQU	\$0320
22	0800	WX800	EQU	\$0800
23	1770	Z1770	EQU	\$1770
24	4000	TENDE	EQU	\$4000
25	403E	Z403E	EQU	\$403E
26	403F	Z403F	EQU	\$403F
27				
28	6B50	Z6B50	EQU	\$6B50
29	6B52	Z6B52	EQU	\$6B52
30	6B54	Z6B54	EQU	\$6B54
31	6B56	Z6B56	EQU	\$6B56
32	6B58	Z6B58	EQU	\$6B58
33	6B5A	Z6B5A	EQU	\$6B5A
34	6B5C	Z6B5C	EQU	\$6B5C
35	6B5E	Z6B5E	EQU	\$6B5E
36	6B60	Z6B60	EQU	\$6B60
37	6B62	Z6B62	EQU	\$6B62
38	8F80	Z8F80	EQU	\$8F80
39	C085	ZC085	EQU	\$C085
40	E010	ZE010	EQU	\$E010
41	E110	ZE110	EQU	\$E110
42	E190	ZE190	EQU	\$E190
43	E1A0	ZE1A0	EQU	\$E1A0
44	E1B0	ZE1B0	EQU	\$E1B0
45	E1B1	ZE1B1	EQU	\$E1B1
46	E1D8	ZE1D8	EQU	\$E1D8
47	E220	ZE220	EQU	\$E220
48	E420	ZE420	EQU	\$E420
49	E500	ZE500	EQU	\$E500
50	E900	ZE900	EQU	\$E900
51	E901	ZE901	EQU	\$E901
52	E939	ZE939	EQU	\$E939
53	E950	ZE950	EQU	\$E950
54	EA20	WELANF	EQU	\$EA20
55	EA24	WALEND	EQU	\$EA24
56	EA29	NULAGE	EQU	\$EA29
57	EA2C	HARMN	EQU	\$EA2C
58	EA2D	MERK1	EQU	\$EA2D

151		581A	Z581A	EQU	%581A
152		581E	Z581E	EQU	%581E
153		5824	Z5824	EQU	%5824
154		5826	Z5826	EQU	%5826
155		5830	Z5830	EQU	%5830
156		5832	Z5832	EQU	%5832
157		5834	Z5834	EQU	%5834 <i>ende</i>
158					
159				* *****	
160	6B28			ORG	%6B28
161				* *****	
162					
163	6B28	653D		FDB	Z653D
164	6B2A	66E7		FDB	Z66E7
165	6B2C	66B3		FDB	Z66B3
166	6B2E	6533		FDB	Z6533
167	6B30	6357		FDB	Z6357
168	6B32	650F		FDB	Z650F
169	6B34	61DA		FDB	Z61DA
170	6B36	62A5		FDB	Z62A5
171	6B38	61D2		FDB	Z61D2
172	6B3A	61D6		FDB	Z61D6
173	6B3C	671B		FDB	Z671B
174	6B3E	6766		FDB	Z6766
175	6B40	673F		FDB	Z673F
176	6B42	678E		FDB	Z678E
177	6B44	67BF		FDB	Z67BF
178	6B46	68C5		FDB	Z68C5
179	6B48	687B		FDB	Z687B
180	6B4A	68D2		FDB	Z68D2
181	6B4C	61D2		FDB	Z61D2
182	6B4E	61D6		FDB	Z61D6
183					
184				* *****	
185	6000			ORG	%6000
186				* *****	
187					
188	6000	8D	03	Z6000	BSR Z6005
189	6002	16	0095		LBRA Z609A
190					
191	6005	8E	4174	Z6005	LDX #Z4174
192	6008	6F	82	Z6008	CLR , -X
193	600A	8C	40C0		CMPX #Z40C0
194	600D	26	F9		BNE Z6008
195	600F	8E	E1D8		LDX #ZE1D8
196	6012	6F	80	Z6012	CLR , X+
197	6014	8C	E220		CMPX #ZE220
198	6017	26	F9		BNE Z6012
199	6019	7F	EA2C		CLR >HARMN
200	601C	7F	EB06		CLR >ZEB06
201	601F	7F	EA66		CLR >PFL6
202	6022	86	FF		LDA ##FF
203	6024	87	EB01		STA >INPW
204	6027	86	01		LDA ##01

205	6029 B7	EA3D	STA	>PAGEM
206	602C B7	E1B1	STA	>ZE1B1
207	602F B7	EB07	STA	>ZEB07
208	6032 C6	05	LDB	##05
209	6034 10BE	61C6	LDY	##Z61C6
210	6038 BD	61B0	JSR	>Z61B0
211	603B B6	3F	LDA	##3F
212	603D B7	EA3B	STA	>AMPLL
213	6040 C6	07	LDB	##07
214	6042 BD	61B0	JSR	>Z61B0
215	6045 B6	1F	LDA	##1F
216	6047 B7	412B	STA	>Z412B
217	604A B6	0F	LDA	##0F
218	604C B7	414C	STA	>Z414C
219	604F B6	0B	LDA	##0B
220	6051 B7	4170	STA	>Z4170
221	6054 BE	4040	LDX	##Z4040
222	6057 10BE	E110	LDY	##ZE110
223	605B C6	80	LDB	##80
224	605D A6	80	LDA	,X+
225	605F BB	80	ADDA	##80
226	6061 A7	A0	STA	,Y+
227	6063 5A		DECB	
228	6064 26	F7	BNE	Z605D
229	6066 BE	E010	LDX	##ZE010
230	6069 AD	9F 6B50	JSR	[Z6B50]
231	606D AD	9F 6B50	JSR	[Z6B50]
232	6071 BE	E190	LDX	##ZE190
233	6074 6F	B0	CLR	,X+
234	6076 BC	E1B1	CMFX	##ZE1B1
235	6079 26	F9	BNE	Z6074
236	607B B6	3F	LDA	##3F
237	607D B7	E1B0	STA	>ZE1B0
238	6080 39		RTS	
239				
240	6081 BE	0000	LDX	##WAVBAS
241	6084 BF	EA41	STX	>NATANF
242	6087 B6	30	LDA	##30
243	6089 B7	EA29	STA	>NULAGE
244	608C BF	EA32	STX	>VLAGE
245	608F BE	0100	LDX	##Z0100
246	6092 BF	EA4B	STX	>XP0B
247	6095 20	03	BRA	Z609A
248				
249	6097 7F	EA46	CLR	>HALFTE
250	609A 7C	EF0E	INC	>INVFLG
251	609D 7C	EB05	INC	>INEBC
252	60A0 7F	EA36	CLR	>ECHO
253	60A3 7F	EA53	CLR	>LOOP
254	60A6 7F	EB04	CLR	>INFENB
255	60A9 7F	EB00	CLR	>FILE
256	60AC B6	0C	LDA	##0C
257	60AE AD	9F 5B32	JSR	[Z5B32]
258	60B2 F6	EA3D	LDB	>PAGEM

Init

80 Byte Clear mit 580
Ab E090 weiter 80 Byte bis
E110

Clear Teilton Table

Imp table

OUTCX

259	60B5 C1 03	CMPB	##03	
260	60B7 24 14	BCC	Z60CD	
261	60B9 10BE 000A	LDY	Z1000A	
262	60BD 10BF EA32	STY	>VLAGE	
263	60C1 86 30	LDA	##30	
264	60C3 B7 EA29	STA	>NULAGE	
265	60C6 CE 0100	LDU	#Z0100	
266	60C9 AD 9F 6B52	JSR	[Z6B52]	w. Bin Grafik ausgabe
267	60CD AD 9F 6B54 Z60CD	JSR	[Z6B54]	w. Bin "Page 3 Text" ausgabe
268	60D1 F6 EA3D	LDB	>PAGEM	
269	60D4 C1 01	CMPB	##01	
270	60D6 26 07	BNE	Z60DE	
271	60DB 34 04	PSHS	B	
272	60DA BD 618E	JSR	>Z618E	Display Page 7/2
273	60DD 35 04	PULS	B	
274	60DF C1 02	CMPB	##02	
275	60E1 26 08	BNE	Z60EB	
276	60E3 34 04	PSHS	B	
277	60E5 AD 9F 6B56	JSR	[Z6B56]	
278	60E9 35 04	PULS	B	
279	60EB BE 5B0E	LDX	>Z5B0E	
280	60EE 5A	DECB		
281	60EF 27 04	BEQ	Z60FS	
282	60F1 30 08	LEAX	#05, X	
283	60F3 20 F9	BRA	Z60EE	
284				
285	60F5 10BE 5B0C	LDY	>Z5B0C	
286	60F9 AD 9F 5B12	JSR	[Z5B12]	TASBE
287	60FD F6 EA3D	LDB	>PAGEM	
288	6100 C1 03	CMPB	##03	
289	6102 26 33	BNE	Z6137	woru?
290	6104 86 03	LDA	##03	Page 3
291	6106 7F EA2D	CLR	>MERK1	
292	6109 AD 9F 6B5A	JSR	[Z6B5A]	Transmit (im W. Bin) 7. Bank No. (über v.c.m)
293	610D BE 4000	LDX	#TENDE	2. Transiente (W. Bin)
294	6110 10BE E900	LDY	#ZE900	
295	6114 C6 40	LDB	##40	
296	6116 BD 57	BSR	Z616F	x -> y Transfer
297	6118 BE E939	LDX	#ZE939	
298	611B 10BE C0B5	LDY	#ZC0B5	Text Buff + 5
299	611F C6 03	LDB	##03	
300	6121 BD 4C	BSR	Z616F	x -> y Transfer
301	6123 7F E950	CLR	>ZE950	
302	6126 CC 0305	LDD	#0305	copy
303	6129 AD 9F 5B34	JSR	[Z6B34]	Seite 3. Sende W 2.3 Parameter
304	612D 86 01	LDA	##01	
305	612F B7 EA40	STA	>Z00MER	
306	6132 BD 65E8	JSR	>Z65E8	
307	6135 20 34	BRA	Z616B	
308				
309	6137 C1 04	CMPB	##04	
310	6139 26 30	BNE	Z616B	
311	613B BE 0000	LDX	#WAVBAS	
312	613E BF EA32	STX	>VLAGE	

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313 6141 C6 C7 LDB ##C7
314 6143 CE 0200 LDU #Z0200
315 6146 8D 2F BSR Z6177
316 6148 86 38 LDA ##38
317 614A B7 EA29 STA >NULAGE
318 614D 8E E220 LDX #ZE220
319 6150 AD 9F 6B5C JSR [Z6B5C]
320 6154 86 96 LDA ##96
321 6156 B7 EA4D STA >YPOS
322 6159 7F EA4B CLR >XPOS
323 615C 7F EA4C CLR >ZEA4C
324 615F BD 6997 JSR >Z6997
325 6162 7F EA50 CLR >YPOA
326 6165 7F EA4E CLR >XPOA
327 6168 7F EA4F CLR >ZEA4F
328 616B 6E 9F 5810 Z616B JMP [JMFTAB] INITAS
329
330 616F A6 B0 Z616F LDA ,X+
331 6171 A7 A0 STA ,Y+
332 6173 5A DECB
333 6174 26 F9 BNE Z616F
334 6176 39 RTS
335
336 6177 F7 EA4D Z6177 STB >YPOS
337 617A FF EA24 STU >WALEND
338 617D BF EA4B Z617D STX >XPOS
339 6180 BD 6638 JSR >Z6638
340 6183 BE EA4B LDX >XPOS
341 6186 30 01 LEAX #01,X
342 6188 BC EA24 CMPX >WALEND
343 618B 26 F0 BNE Z617D
344 618D 39 RTS
345
346 618E C6 10 Z618E LDB ##10
347 6190 86 01 LDA ##01
348 6192 8E E1A0 LDX #ZE1A0
349 6195 6E 9F 6B5E JMP [Z6B5E]
350
351 6199 86 20 Z6199 LDA ##20
352 619B 8E BF80 LDX #ZBF80
353 619E 108E 0000 LDY #WAVBAS
354 61A2 C6 96 LDB ##96
355 61A4 10AF B1 Z61A4 STY ,X++
356 61A7 4A DECA
357 61AB 26 FA BNE Z61A4
358 61AA 86 20 LDA ##20
359 61AC 5A DECB
360 61AD 26 F5 BNE Z61A4
361 61AF 39 RTS
362
363 61B0 34 04 Z61B0 PSHS B
364 61B2 8E 40C0 Z61B2 LDX #Z40C0
365 61B5 E6 A0 LDB ,Y+
366 61B7 2A 04 BPL Z61BD

```

$x \rightarrow y$ Versatz

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32 Byte ins Bibl Rom ab PF80

↓
mal 196

367	6189 30	89 0100		LEAX	%0100,X
368	618D A7	85	Z618D	STA	B,X
369	61BF 6A	E4		DEC	,B
370	61C1 26	EF		BNE	Z61B2
371	61C3 35	04		PULS	B
372	61C5 39			RTS	
373					
374	61C6 21 45 69 8D		Z61C6	FCB	%21,%45,%69,%8D,%B1,%20,%24,%44
	61CA B1 20 24 44				
375	61CE 48 6C 90 84			FCB	%48,%6C,%90,%84
376					
377	61D2 6E 9F 5B 2C		Z61D2	FCB	%6E,%9F,%5B,%2C
378					
379	61D6 6E 9F 5B 2E		Z61D6	FCB	%6E,%9F,%5B,%2E
380					
381	61DA B6	EA53	Z61DA	LDA	>LOOP
382	61DD B1	01		CMFA	##01
383	61DF 23	3F		BLS	Z6220
384	61E1 86	01		LDA	##01
385	61E3 87	EA2D		STA	>MERK1
386	61E6 FC	EA54		LDD	>LODPA
387	61E9 7D	EA5A		TST	>LOPKL
388	61EC 26	08		BNE	Z61F6
389	61EE 58			ASLB	
390	61EF 49			ROLA	
391	61F0 58			ASLB	
392	61F1 49			ROLA	
393	61F2 58			ASLB	
394	61F3 49			ROLA	
395	61F4 58			ASLB	
396	61F5 49			ROLA	
397	61F6 58		Z61F6	ASLB	
398	61F7 49			ROLA	
399	61F8 58			ASLB	
400	61F9 49			ROLA	
401	61FA 58			ASLB	
402	61FB 49			ROLA	
403	61FC 10B3 4000			CPMD	##4000
404	6200 25 03			BCS	Z6205
405	6202 CC 4000			LDD	##4000
406	6205 1F 01		Z6205	TFR	D,X
407	6207 10BE 4000			LDY	#TENDE
408	620B A6 B2		Z620B	LDA	,X
409	620D A7 A2			STA	,Y
410	620F 8C 0000			CMFX	##WAVBAG
411	6212 26 F7			BNE	Z620B
412	6214 1F 21			TFR	Y,X
413	6216 10BE 0000			LDY	##WAVBAG
414	621A BD 6460			JSR	>Z6460
415	621D 7E 60B1			JMP	>Z60B1
416					
417	6220 B6 01		Z6220	LDA	##01
418	6222 B7 EA53			STA	>LOOP
419	6225 BE 580E			LDX	>Z580E

→ Transmit

420	6228 30	88 2C	LEAX	#2C,X
421	622B 10BE	580C	LDY	>Z580C
422	622F AD	9F 5812	JSR	[Z5812]
423	6233 86	04	LDA	#04
424	6235 B7	E900	STA	>E900
425	6238 CC	0108	LDD	#0108
426	623B 6E	9F 5834	JMP	[Z5834]
427				
428	623F BD	6597	JSR	>Z6597
429	6242 F3	EA41	ADDD	>NATANF
430	6245 1F	01	TFR	D,X
431	6247 10BE	E420	LDY	#ZE420
432	624B AD	9F 6B5E	JSR	[Z6B5B] P 0 Byte Vennate
433	624F AD	9F 6B62	JSR	[Z6B62] FFT
434	6253 BE	E500	LDX	#ZE500 ← (Pegyl Tailbone)
435	6256 10BE	E190	LDY	#ZE190
436	625A C6	20	LDB	#20 (32 Tailbone)
437	625C 6F	E2	CLR	, -S
438	625E A6	80	LDA	, X+
439	6260 A1	E4	CMFA	, S
440	6262 23	02	BLS	Z6266
441	6264 A7	E4	STA	, S
442	6266 30	01	LEAX	#01,X
443	6268 A7	A0	STA	, Y+
444	626A 5A		DECB	
445	626B 26	F1	BNE	Z625E
446	626D 35	02	PULB	A
447	626F B1	3F	CMFA	#3F
448	6271 23	0D	BLS	Z6280
449	6273 BE	E190	LDX	#ZE190
450	6276 C6	20	LDB	#20
451	627B A6	84	LDA	, X
452	627A 47		ABRA	
453	627B A7	80	STA	, X+
454	627D 5A		DECB	
455	627E 26	F8	BNE	Z627B
456	6280 86	3F	LDA	#3F
457	6282 B7	E1B0	STA	>ZE1B0
458	6285 86	01	LDA	#01
459	6287 B7	EA3C	STA	>FUNDAM
460	628A B7	E1B1	STA	>ZE1B1
461	628D B7	EA3D	STA	>PAGEH
462	6290 32	62	LEAS	#02,S
463	6292 7E	609A	JMP	>Z609A
464				
465	6295 020F		FDB	Z020F
466	6297 EA3A		FDB	MERK4
467	6299 0014		FDB	WAV14
468	629B 0100		FDB	Z0100
469	629D 021E		FDB	Z021E
470	629F EA39		FDB	MERK3
471	62A1 0063		FDB	Z0063
472	62A3 0100		FDB	Z0100
473	62A5 7D	EA53	Z62A5	TST >LOOF

Analyse
+ FFT
+ jump :
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- aus Page 3

```

474 62AB 26 95      BNE  Z623F
475 62AA 7F 403E    CLR  >Z403E
476 62AD 7F 403F    CLR  >Z403F
477 62B0 8E 6295    LDX  #Z6295
478 62B3 AD 9F 5B16 JBR  [Z5B16]
479 62B7 8E 629D    LDX  #Z629D
480 62BA AD 9F 5B16 JBR  [Z5B16]
481 62BE B6 EA39    LDA  >MERK3

```

coole
INVERT
coole
INVERT

```

482 62C1 48        ASLA
483 62C2 34 02      FSHS  A
484 62C4 48        ASLA
485 62C5 AB E0      ADDA  ,B+
486 62C7 43        COMA
487 62C8 B7 FD08    STA  >ZFD08
488 62CB 86 DF      LDA  ##DF
489 62CD B7 FCFA    STA  >PIAA
490 62D0 B6 3C      LDA  ##3C
491 62D2 B7 FCFB    STA  >PIAB
492 62D5 8E 0000    LDX  #WAVBAS
493 62D8 F6 EA3A    LDB  >MERK4
494 62DB 26 17      BNE  Z62F6
495 62DD B6 FCFA    LDA  >PIAA
496 62E0 84 08      ANDA  ##08
497 62E2 27 38      BEQ  Z631C
498 62E4 B6 FD18    LDA  >ZFD18
499 62E7 B7 FD20    STA  >ZFD20
500 62EA A7 80      STA  ,X+
501 62EC 8C 4000    CMPX  #TENDE
502 62EF 26 EC      BNE  Z62DD
503 62F1 8E 0000    LDX  #WAVBAS
504 62F4 20 E7      BRA  Z62DD
505

```

} INIT Soft Keys

← Hält Aufnahme geschwindigkeit

Record 16KHZ

Recording verzögert

```

506 62F6 B6 FCFA    LDA  >PIAA
507 62F9 84 08      ANDA  ##08
508 62FB 27 1F      BEQ  Z631C
509 62FD B6 FD18    LDA  >ZFD18
510 6300 B7 FD20    STA  >ZFD20
511 6303 A7 80      STA  ,X+
512 6305 1F 9B      TFR  B,A
513 6307 5A Z6307    DECB  Count down
514 6308 27 06      BEQ  Z6310
515 630A 30 1F      LEAX  -#01,X
516 630C 30 01      LEAX  #01,X
517 630E 20 F7      BRA  Z6307
518
519 6310 1F B9 Z6310 TFR  A,B
520 6312 8C 4000    CMPX  #TENDE
521 6315 26 DF      BNE  Z62F6
522 6317 8E 0000    LDX  #WAVBAS
523 631A 20 DA      BRA  Z62F6
524
525 631C 1F 10 Z631C TFR  X,D
526 631E C3 2000    ADDD  ##2000
527 6321 10B3 4000  CMPD  ##4000

```

→ Record ENDE

*Sette Zähler
Count down*

} Wait

Reset Zähler

Z631C
ENDE
Record

528	6325	23	03		BLS	Z632A
529	6327	83	4000		SUBD	#64000
530	632A	FD	EA41	Z632A	STD	>NATANF
531	632D	B6	01		LDA	#01
532	632F	B7	EA40		STA	>ZOOMER
533	6332	BD	2C		BSR	Z6360
534	6334	39			RTS	
535						
536	6335	BD	6597	Z6335	JSR	>Z6597
537	6338	F3	EA41		ADD	>NATANF
538	633B	FD	EA58		STD	>LOFANF
539	633E	FC	EA4B		LDD	>XPOS
540	6341	C3	0001		ADD	#0001
541	6344	FD	EA4B		STD	>XPOS
542	6347	BD	6603		JSR	>Z6603
543	634A	B6	02		LDA	#02
544	634C	B7	EA53		STA	>LODP
545	634F	BE	1770		LDX	#Z1770
546	6352	30	1F	Z6352	LEAX	-#01,X
547	6354	26	FC		BNE	Z6352
548	6356	39		Z6356	RTS	
549						
550	6357	B6	EA53	Z6357	LDA	>LODP
551	635A	B1	01		CMPA	#01
552	635C	27	D7		BEQ	Z6335
553	635E	22	F6		BHI	Z6356
554	6360	BD	6597	Z6360	JSR	>Z6597
555	6363	F3	EA41		ADD	>NATANF
556	6366	1F	01		TFR	D,X
557	6368	27	68		BEQ	Z63D2
558	636A	8C	0800		CMPX	#WX800
559	636D	25	38		BCS	Z63A7
560	636F	10BE	E220		LDY	#ZE220
561	6373	CE	0000		LDU	#WAVBAS
562	6376	A6	C0	Z6376	LDA	,U+
563	6378	A7	A0		STA	,Y+
564	637A	10BC	EA20		CMPY	#WELANF
565	637E	26	F6		BNE	Z6376
566	6380	BE	0000		LDX	#WAVBAS
567	6383	A6	C0	Z6383	LDA	,U+
568	6385	A7	B0		STA	,X+
569	6387	11B3	4000		CMPU	#TENDE
570	638B	26	F6		BNE	Z6383
571	638D	10BE	E220		LDY	#ZE220
572	6391	A6	A0	Z6391	LDA	,Y+
573	6393	A7	B0		STA	,X+
574	6395	10BC	EA20		CMPY	#WELANF
575	6399	26	F6		BNE	Z6391
576	639B	BE	EA41		LDX	>NATANF
577	639E	30	B9 F800		LEAX	#F800,X
578	63A2	BF	EA41		STX	>NATANF
579	63A5	20	B0		BRA	Z6357
580						
581	63A7	34	10	Z63A7	PSHS	X

Record ENDE
Setze Bild Parameter

```

582 63A9 108E E220      LDY    #ZE220
583 63AD CE 0000      LDU    #WAVBAS
584 63B0 A6 C0      Z63B0 LDA    ,U+
585 63B2 A7 A0      STA    ,Y+
586 63B4 30 1F      LEAX    -#01,X
587 63B6 26 FB      BNE    Z63B0
588 63B8 BE 0000      LDX    #WAVBAS
589 63BA A6 C0      Z63BB LDA    ,U+
590 63BD A7 B0      STA    ,X+
591 63BF 1183 4000      CMFPU #TENDE
592 63C3 26 F6      BNE    Z63BB
593 63C5 35 20      PULB   Y
594 63C7 CE E220      LDU    #ZE220
595 63CA A6 C0      Z63CA LDA    ,U+
596 63CC A7 B0      STA    ,X+
597 63CE 31 3F      LEAY    -#01,Y
598 63D0 26 FB      BNE    Z63CA
599 63D2 B6 01      Z63D2 LDA    #*01
600 63D4 B7 EA40      STA    >ZOOMER
601 63D7 BE 0100      LDX    #Z0100
602 63DA BF EA4B      STX    >XPDS
603 63DD BE 0000      LDX    #WAVBAS
604 63E0 BF EA41      STX    >NATANF
605 63E3 BD 65EB      JSR    >Z65EB
606 63E6 7F EA2D      CLR    >MERK1
607 63E9 B6 03      LDA    #*03
608 63EB BE 9F 6B5A      JMP    [Z6B5A]
609
610 63EF BE 00B0      Z63EF LDX    #Z00B0
611 63F2 7F EA5A      CLR    >LOPKL
612 63F5 B6 03      LDA    #*03
613 63F7 20 1C      BRA    Z6415
614
615 63F9 BD 6597      Z63F9 JSR    >Z6597
616 63FC F3 EA41      ADDD   >NATANF
617 63FF B3 EA5B      SUBD   >LOPANF
618 6402 FD EA54      STD    >LOOPA
619 6405 10B3 0200      CMFD   #*0200
620 6409 25 E4      BCS    Z63EF
621 640B B6 01      LDA    #*01
622 640D B7 EA5A      STA    >LOPKL
623 6410 BE 0B00      LDX    #WXB00
624 6413 B6 04      LDA    #*04
625 6415 BF EA56      Z6415 STX    >LOOPL
626 6418 B7 E900      STA    >ZE900
627 641B CC 0108      LDD    #*0108
628 641E AD 9F 5834      JSR    [Z5834]
629 6422 7F E900      CLR    >ZE900
630 6425 B6 03      LDA    #*03
631 6427 B7 E901      STA    >ZE901
632 642A B6 01      LDA    #*01
633 642C C6 09      LDB    #*09
634 642E AD 9F 5834      JSR    [Z5834]
635 6432 B6 FE      LDA    #*FE

```

Loop nur 1 Welle

Mem Address Loop Start

eine Welle

3 = 580 Byte 128 Position

4 = 5800 Byte 16 Wellen à 128 Positionen

Code für Loop Typ Übertragung

Sende

Mode 003 im Stack

Stack

Code für

Sende

```

636 6434 B7 FD02 STA >PIA+2
637 6437 B6 FD00 LDA >PIA
638 643A 7D FD01 Z643A TST >PIA+1
639 643D 2A FB REL Z643A
640 643F B6 FD00 LDA >PIA
641 6442 7F FD01 CLR >PIA+1
642 6445 B6 FF LDA #0FF
643 6447 B7 FD00 STA >PIA
644 644A B6 04 LDA #04
645 644C B7 FD01 STA >PIA+1
646 644F 10BC 0000 CMPY #WAVBAS
647 6453 26 01 BNE Z6456
648 6455 39 RTS
649
650 6456 10BE 0000 Z6456 LDY #WAVBAS
651 645A BE 0000 LDX #WAVBAS
652 645D 7F EA2D CLR >MERK1
653 6460 4F Z6460 CLRA
654 6461 34 02 PSHS A
655 6463 34 02 PSHS A
656 6465 A6 B4 LDA ,X
657 6467 20 4D BRA Z64B6

```

Wait

Reset

Einsprung nach Loop ^{Threshold} setzen!

```

658
659 6469 FC EA54 Z6469 LDD >LOOPA
660 646C E3 E4 ADD ,S
661 646E 10B3 EA56 Z646E CMPD >LOOPL
662 6472 25 07 BCS Z647B
663 6474 30 01 LEAX #01,X
664 6476 B3 EA56 SUBD >LOOPL
665 6479 20 F3 BRA Z646E
666
667 647B ED E4 Z647B STD ,S
668 647D 7D EA5A TST >LOPKL
669 6480 26 03 BNE Z6485
670 6482 58 ASLB
671 6483 20 06 BRA Z648B
672
673 6485 44 Z6485 LSRA
674 6486 56 RORB
675 6487 44 LSRA
676 6488 56 RORB
677 6489 44 LSRA
678 648A 56 RORB
679 648B 34 04 Z648B PSHS B
680 648D 7F EA31 CLR >MINUS
681 6490 A6 01 LDA #01,X
682 6492 A0 B4 SUBA ,X
683 6494 2A 04 BPL Z649A
684 6496 43 COMA
685 6497 7C EA31 INC >MINUS
686 649A 35 04 Z649A PULS B
687 649C 3D MUL
688 649D CE 00FF LDU #Z00FF
689 64A0 34 40 PSHS U

```

```

690 64A2 BD 6A0E JSR >Z6A0E
691 64A5 32 62 LEAS #02,S
692 64A7 34 02 PSHS A
693 64A9 A6 B4 LDA ,X
694 64AB 7D EA31 TST >MINUS
695 64AE 27 04 BEQ Z64B4
696 64B0 A0 E0 SUBA ,S+
697 64B2 20 02 BRA Z64B6
698
699 64B4 AB E0 ADDA ,S+
700 64B6 7D EA2D TST >MERK1
701 64B9 27 04 BEQ Z64BF
702 64BB A7 A4 STA ,Y
703 64BD 20 30 BRA Z64EF
704
705 64BF 7D EC8D TST >ZEC8D
706 64C2 27 1A BEQ Z64DE
707 64C4 5F CLR B
708 64C5 44 LSRA
709 64C6 56 RORB
710 64C7 44 LSRA
711 64C8 56 RORB
712 64C9 44 LSRA
713 64CA 56 RORB
714 64CB 44 LSRA
715 64CC 56 RORB
716 64CD F7 FD00 STB >PIA
717 64D0 8D 3C BSR Z650E
718 64D2 C6 34 LDB ##34
719 64D4 F7 FD03 STB >PIA+3
720 64D7 8D 35 BSR Z650E
721 64D9 C6 3C LDB ##3C
722 64DB F7 FD03 STB >PIA+3
723 64DE B7 FD00 STA >PIA
724 64E1 8D 2B BSR Z650E
725 64E3 C6 34 LDB ##34
726 64E5 F7 FD03 STB >PIA+3
727 64E8 8D 24 BSR Z650E
728 64EA C6 3C LDB ##3C
729 64EC F7 FD03 STB >PIA+3
730 64EF 31 21 LEAY #01,Y
731 64F1 108C 4000 CMPY #TENDE
732 64F5 1026 FF70 LBNE Z6469
733 64F9 B6 FD00 LDA >PIA
734 64FC 7F FD01 CLR >PIA+1
735 64FF 7F FD00 CLR >PIA
736 6502 86 04 LDA ##04
737 6504 B7 FD01 STA >PIA+1
738 6507 86 FF LDA ##FF
739 6509 B7 FD02 STA >PIA+2
740 650C 32 62 LEAS #02,S
741 650E 39 Z650E RTS
742
743 650F B6 EA53 Z650F LDA >LDOP

```

*Loop
Transfer
Transient*

Cooline 8→12 Bit

Transmit LSB Accu B

Transmit MSB Accu A

Reset Pion

744	6512	27	0B		BEQ	Z651F	
745	6514	B1	02		CMFA	##02	
746	6516	26	F6		BNE	Z650E	
747	6518	10BE	000A		LDY	#Z000A	
748	651C	16	FEDA		LBRA	Z63F9	
749							
750	>651F	BD	6597	Z651F	JSR	>Z6597	
751	6522	F3	EA41		ADDD	>NATANF	
752	6525	1F	01		TFR	D,X	
753	6527	B6	80		LDA	##80	
754	6529	A7	80	Z6529	STA	,X+	
755	652B	8C	4000		CMFX	#TENDE	
756	652E	26	F9		BNE	Z6529	
757	6530	16	FE9F		LBRA	Z63D2	
758							
759	6533	B6	EA40	Z6533	LDA	>ZOOMER	
760	6536	B1	01		CMFA	##01	
761	6538	27	0D		BEQ	Z6547	
762	653A	4A			DECA		
763	653B	20	0A		BRA	Z6547	
764							
765	653D	B6	EA40	Z653D	LDA	>ZOOMER	
766	6540	4C			INCA		
767	6541	B1	06		CMFA	##06	
768	6543	23	02		BLS	Z6547	
769	6545	B6	06		LDA	##06	
770	6547	B7	EA40	Z6547	STA	>ZOOMER	
771	654A	B6	03		LDA	##03	
772	654C	C6	12		LDB	##12	
773	654E	AD	9F 5826		JSR	[Z5826]	
774	6552	B6	EA40		LDA	>ZOOMER	
775	6555	B8	30		ADDA	##30	
776	6557	AD	9F 5832		JSR	[Z5832]	
777	655B	CC	0100		LDD	##0100	
778	655E	FD	EA4B		STD	>XPDS	
779	>6561	BD	6597		JSR	>Z6597	
780	6564	34	06		PSHS	B,A	
781	6566	FC	EA43		LDD	>PERZ	
782	6569	A3	E1		SUBD	,S++	
783	656B	24	03		BCC	Z6570	
784	656D	C3	4000		ADDD	##4000	
785	6570	FD	EA41	Z6570	STD	>NATANF	
786	>6573	7E	65EB		JMP	>Z65EB	
787							
788	6576	C6	40		Z6576	LDB	##40
789	657B	54			Z657B	LSRB	
790	6579	4A				DECA	
791	657A	26	FC		BNE	Z6578	
792	657C	CE	E220		LDU	#ZE220	
793	657F	10BE	0200		LDY	#Z0200	
794	6583	A6	84	Z6583	LDA	,X	
795	6585	BC	4000		CMFX	#TENDE	
796	6588	2B	04		BMI	Z658E	
797	658A	30	B9 C000		LEAX	#C000,X	

798	658E	A7	C0	Z658E	STA	,U+
799	6590	30	B5		LEAX	B,X
800	6592	31	3F		LEAY	-#01,Y
801	6594	26	ED		BNE	Z6583
802	6596	39			RTS	
803						
804	6597	FC	EA4B	Z6597	LDD	>XPOS
805	659A	34	10		PSHS	X
806	659C	1F	01		TFR	D,X
807	659E	B6	07		LDA	##07
808	65A0	B0	EA40		SUBA	>ZOOMER
809	65A3	34	02		PSHS	A
810	65A5	1F	10		TFR	X,D
811	65A7	6A	E4	Z65A7	DEC	,B
812	65A9	27	04		BEQ	Z65AF
813	65AB	58			ASLB	
814	65AC	49			ROLA	
815	65AD	20	F8		BRA	Z65A7
816						
817	65AF	32	61	Z65AF	LEAS	#01,S
818	65B1	35	90		PULS	PC,X
819						
820	65B3	B6	04	Z65B3	LDA	##04
821	65B5	C6	12		LDB	##12
822	65B7	AD	9F 5824		JSR	[Z5824]
823	>65B8	B0	6597		JSR	>Z6597
824	65BE	F3	EA41		ADDD	>NATANF
825	65C1	10B3	4000		CMPS	##4000
826	65C5	28	03		BMI	Z65CA
827	65C7	B3	4000		SUBD	##4000
828	65CA	FD	EA43	Z65CA	STD	>PERZ
829	65CD	1E	B9		EXG	A,B
830	65CF	48			ASLA	
831	65D0	59			ROLB	
832	65D1	AD	9F 581E		JSR	[Z581E]
833	65D5	B6	3B		LDA	##3B
834	65D7	AD	9F 5832		JSR	[Z5832]
835	65DB	F6	EA44		LDB	>PUNKTZ
836	65DE	C1	B0		CMPS	##B0
837	65E0	25	02		BCS	Z65E4
838	65E2	C0	B0		SUBB	##B0
839	65E4	6E	9F 581E	Z65E4	JMP	[Z581E]
840						
841	65EB	BD	C9	Z65EB	BSR	Z65B3
842	65EA	B6	EA40		LDA	>ZOOMER
843	65ED	BE	EA41		LDX	>NATANF
844	65F0	BD	B4		BSR	Z6576
845	65F2	BD	6199		JSR	>Z6199
846	65F5	CE	0200		LDU	#20200
847	65F8	AD	9F 6852		JSR	[Z6852]
848	65FC	8E	E220		LDX	#ZE220
849	65FF	AD	9F 685C		JSR	[Z685C]
850	6603	BE	EA4B	Z6603	LDX	>XPOS
851	6606	C6	B9		LDB	##B9

906	6671	A6	B4		LDA	,X
907	6673	B4	EA2D		ANDA	>MERK1
908	6676	73	EA2D		COM	>MERK1
909	6679	20	05		BRA	Z66B0
910						
911	667B	A6	B4	Z667B	LDA	,X
912	667D	BA	EA2D		ORA	>MERK1
913	66B0	A7	B4	Z66B0	STA	,X
914	66B2	39			RTS	
915						
916	66B3	BD	20	Z66B3	BSR	Z66A5
917	66B5	BD	0D		BSR	Z6694
918	66B7	BD	67B0	Z66B7	JSR	>Z67B0
919	66BA	7D	EA49		TST	>ALTZ
920	66BD	27	04		BEQ	Z6693
921	66BF	BD	14		BSR	Z66A5
922	6691	20	F4		BRA	Z66B7
923						
924	6693	39		Z6693	RTS	
925						
926	6694	10BE	0320	Z6694	LDY	#Z0320
927	6698	BD	67B0	Z6698	JSR	>Z67B0
928	669B	7D	EA49		TST	>ALTZ
929	669E	27	04		BEQ	Z66A4
930	66A0	31	3F		LEAY	-#01,Y
931	66A2	26	F4		BNE	Z6698
932	66A4	39		Z66A4	RTS	
933						
934	66A5	BD	6603	Z66A5	JSR	>Z6603
935	66A8	BE	EA4B		LDX	>XPOS
936	66AB	30	01		LEAX	#01,X
937	66AD	8C	0200		CMFX	#Z0200
938	66B0	27	1A		BEQ	Z66CC
939	66B2	BF	EA4B	Z66B2	STX	>XPOS
940	66B5	BD	6603		JSR	>Z6603
941	66B8	FC	EA43		LDD	>PERZ
942	66BB	59			ROLB	
943	66BC	49			ROLA	
944	66BD	80	03		SUBA	#*03
945	66BF	B7	E900		STA	>ZE900
946	66C2	CC	000C		LDD	#*000C
947	66C5	AD	9F 5B34		JSR	[Z5B34]
948	66C9	16	FEE7		LBRA	Z65B3
949						
950	66CC	CC	0100	Z66CC	LDD	#*0100
951	66CF	FD	EA4B		STD	>XPOS
952	66D2	BD	6597		JSR	>Z6597
953	66D5	F3	EA41		ADDD	>NATANF
954	66D8	10B3	4000		CMFD	#*4000
955	66DC	2B	03		BMI	Z66E1
956	66DE	83	4000		SUBD	#*4000
957	66E1	FD	EA41	Z66E1	STD	>NATANF
958	66E4	7E	65E8		JMP	>Z65E8
959						

code

Z66C

6.70.84

R.CMD

V2

R 3.3

Page 4
Resonator

ALTZ	00074	00919	00928	00963	00989	01008	01027	01047
AMPLL	00066	00212						
ECHO	00063	00252						
FILE	00089	00255						
FUNDAM	00067	00459						
HALFTE	00073	00249	01081	01099	01389			
HARMN	00057	00199	01218	01237	01257	01260	01263	
INESC	00092	00251						
INFENB	00091	00254						
INPW	00090	00203						
INVFLG	00097	00250						
JMPTAB	00148	00328						
KEY	00081	01209	01221	01266	01269			
LOOP	00083	00253	00381	00418	00473	00544	00550	00743
LODPA	00084	00386	00618	00659				
LODPL	00085	00625	00661	00664				
LOPANF	00086	00538	00617					
LOPKL	00087	00387	00611	00622	00668			
MERK1	00058	00291	00385	00606	00652	00700	00879	00894 00901 00903 00905
	00907	00908	00912					
MERK2	00059	01158	01161	01166				
MERK3	00064	00470	00481					
MERK4	00065	00466	00493					
MINUS	00060	00680	00685	00694	01063	01069	01102	
NATANF	00070	00241	00429	00530	00537	00555	00576 00578 00604 00616 00751	
	00785	00824	00843	00953	00957	00980		
NULAGE	00056	00243	00264	00317	01138			
PAGEM	00068	00205	00258	00268	00287	00461	01172	
PDATA1	00098	01195						
PERZ	00071	00781	00828	00941				
PFLG	00088	00201						
PIA	00101	00636	00637	00638	00640	00641	00643 00645 00716 00719 00722	
	00723	00726	00729	00733	00734	00735	00737 00739	
PIAA	00099	00489	00495	00506				
PIAB	00100	00491						
PUNKTZ	00072	00835						
SOFKEY	00096	01061						
TENDE	00024	00293	00407	00501	00520	00569	00591 00731 00755 00795 01168	
VLAGB	00061	00244	00262	00312				
WALEND	00055	00337	00342					
WAV14	00010	00467						
WAVBAS	00005	00144	00240	00311	00353	00410	00413 00492 00503 00522 00561	
	00566	00583	00588	00603	00646	00650	00651 01101 01115 01130 01152	
	01182	01309						
WAVN	00082	01211	01270					
WELANF	00054	00564	00574					
WXBOO	00022	00558	00623					
WXORME	00062	01073	01109	01112	01124	01127		
XPOA	00078	00326	01038	01072	01097	01143		
XPOS	00075	00246	00322	00338	00340	00539	00541 00602 00778 00804 00850	
	00867	00869	00871	00873	00876	00935	00939 00951 00971 00977 01016	
	01021	01035	01041	01070	01133	01141	01288	
YPOA	00080	00325	01080	01082	01144			
YPOS	00077	00321	00336	00852	00854	00861	00863 00889 00997 01002 01053	
	01058	01076	01148	01175	01337			
Z0009	00006	01279						
Z000A	00007	00261	00747	01308				
Z000B	00008	01280						
Z000E	00009	01281						
Z0063	00011	00471						
Z0064	00012	01307						
Z0080	00013	00610						

Z00EB	00014	01306			
Z00FF	00015	00688			
Z0100	00016	00245	00265	00468	00472 00601
Z01FD	00017	01018			
Z0200	00018	00314	00793	00846	00937 01181
Z020F	00019	00465			
Z021E	00020	00469			
Z0320	00021	00926			
Z1770	00023	00545			
Z403E	00025	00475			
Z403F	00026	00476			
Z4040	00113	00221			
Z40C0	00130	00193	00364		
Z4128	00131	00216			
Z414C	00132	00218			
Z4170	00133	00220			
Z4174	00134	00191			
Z580C	00146	00285	00421		
Z580E	00147	00279	00419		
Z5812	00149	00286	00422		
Z5816	00150	00478	00480		
Z581A	00151	01198			
Z581E	00152	00832	00839	01340	
Z5824	00153	00822	01193		
Z5826	00154	00773	01317	01336	
Z5830	00155	01196	01201	01203	
Z5832	00156	00257	00776	00834	01326 01332
Z5834	00157	00303	00426	00828	00934 00942 01173
Z6000	00188	01403			
Z6005	00191	00188			
Z6008	00192	00194			
Z6012	00196	00198			
Z605D	00224	00228			
Z6074	00233	00235			
Z6081	00240	00142	00415	01173	
Z6095	00247	00143			
Z6097	00249	00141			
Z609A	00250	00140	00189	00247	00463 01189
Z60CD	00267	00260			
Z60DF	00274	00270			
Z60EB	00279	00275			
Z60EE	00280	00283			
Z60F5	00285	00281			
Z6137	00309	00289			
Z616B	00328	00307	00310		
Z616F	00330	00296	00300	00333	
Z6177	00336	00315	01183		
Z617D	00338	00343			
Z618E	00346	00272			
Z6199	00351	00845	01179		
Z61A4	00355	00357	00360		
Z61B0	00363	00210	00214		
Z61B2	00364	00370			
Z61BD	00368	00366			
Z61C6	00374	00209			
Z61D2	00377	00171	00181		
Z61D6	00379	00172	00182		
Z61DA	00381	00169			
Z61F6	00397	00388			
Z6205	00406	00404			
Z620B	00408	00411			
Z6220	00417	00383			
Z623F	00428	00474			
Z625E	00438	00445			

Z6621 00866 00860 00862
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