HAMCALC von VE3ERP

nicht verwechseln mit HamCalc von G4VWL!

"Hamcalc, painless math for radio amateurs"

15.4.2011 OE6GC

Übersicht interessanter Freeware für AFU 1

	Hamcalc	**RF-SIM99**	**AADE**	**Multicalc32**	**MiniRingkern**
Filegröße MB	1,3	2,035	12	4,7	1
Betrieb	DOS-Fenster	Windows	Windows	Windows	Windows
Simulation Übertragungskurven	NEIN	x	x	NEIN	NEIN
ASCII-HEX Umrechnung	x			x	
Abschwächer T/Pi	x	(x)	x		
Anpassung R-Match	x	x	x		
Anpassnetzwerk	x	x	x		
Anpassung CL high pass	x	x	x		
Anpassung CLC T high pass	x	x	x		
Anpassung LC low pass	x	x	x		
Anpassung LCL high pass	x	x	x		
Anpassung LCL low pass	x	x	x		
Anpassung LCL T low pass	x	x	x		
Antennendimensionierung	x				

Übersicht interessanter Freeware für AFU 2

	Hamcalc	RF-SIM99	AADE	Multicalc32	MiniRingkern
AWG Drahttabelle	x				
Feldstärke	x				
Filter L/C dimensionieren	x	(x)	x		
Filter Quarz Ladderfilter dimensionieren	x		x		
Induktivitäten Luftspulen	x	x	x	x	
Induktivitäten PCB	x	x			
Induktivitäten PCB Stub	x	x			
Induktivitäten Al Wert von Ringkernen	x				x
Induktivitäten Amidon Ringkernrechner	x				x
Kondensator selbst bauen	x	x		x	
NF-Filter Hochpass Op.Amp.	x			x	
NF-Filter selektiv Op.Amp.	x			x	
NF-Filter Tiefpass Op.Amp.	x			x	
Pegel Leistungs/Spannung	x	x		x	
Phase shift	(x)	x			

Übersicht interessanter Freeware für AFU 3

	Hamcalc	RF-SIM99	AADE	Multicalc32	MiniRingkern
Resonanz LC	x	x		x	x
Returnloss/VSWR	x	x			
Thermal Noise		x			
Hühnerleiter dimensionieren	x			x	
Koaxberechnung	x			x	
Längenmaßumrechnung	x			x	x
Netzteil Ladekondensator				x	
R/L/C parallel/Serienschltg.	x			x	
SWR-Verluste	x			x	
Symmetrierstub	(x)				
Umwegleitung	x			x	
Widerstandsberechnung f. Drähte	x				x
Widerstandsfarbcode	x			x	
wissenschaftl.Rechner			(x)		

INSTALLING AND RUNNING HAMCALC

- DO NOT UNZIP HamCalc.zip IN DRIVE C - unzip it in a temporary location.
- The Zip-file contains one folder "Hamcalc" and two files "Gwbasic.exe" and Ve3erp.bat".

- MOVE THE FOLDER AND BOTH FILES TO YOUR MAIN DRIVE C ROOT DIRECTORY.

  HAMCALC MUST BE INSTALLED IN THE ROOT DIRECTORY OF DRIVE C (i.e. C:HAMCALC) TO OPERATE PROPERLY

HAMCALC Menü A

```
H A M C A L C  Program Menu A                          by George Murphy VE3ERP

 TYPE one of the 2-digit numbers listed below - DO NOT press <ENTER>:

01: A.C. Circuit Calculator              21: B.& W. Air-Core Inductors
02: Acceleration Calculator              22: Baluns - Ferrite Toroid
03: Antenna Field Strength               23: Band-Reject Filter
04: Antenna Frequency Scaling            24: Bandwidth vs. Q
05: Antenna Impedance Calculator         25: Bandwidths - 2:1 SWR
06: Antenna Length/Pruning calculator    26: Barometer Reading Equivalents
07: Antenna Matching Networks            27: Battery Charger
08: Arch Calculator                      28: Beam Element Diameter vs Length
09: ASCII Character Code Page 437        29: Beam Heading Calculator
10: Attenuators: T-Pad and Pi-Pad        30: Beverage Antenna Equations
11: Audio Bandpass Filter - Active       31: Bobtail Curtain Antenna
12: Audio Lowpass Filter(Sallen & Key)   32: Boom Droop - Beam Antennas
13: Audio Filters - Passive              33: Breakdown Voltage
14: Audio Filters - RC Active            34: Calendar - Perpetual/Universal
15: Audio Oscillator (LM 324)            35: Calorie Counter
16: Audio Oscillator (LF 353)dual wave   36: Capacitance - Distributed (stray)
17: Audio Oscillator (Twin-T)            37: Capacitor Design Calculator
18: Audio Programs                       38: Capacitor Measurer
19: A.W.G. Wire Size Calculator          39: Capacitor Plate Designer
20: Bend Allowance - Metals              40: Capacitors - Coaxial Cable
                                         41:MENU   42:INDEX   43:EXIT
```

HAMCALC Menü B

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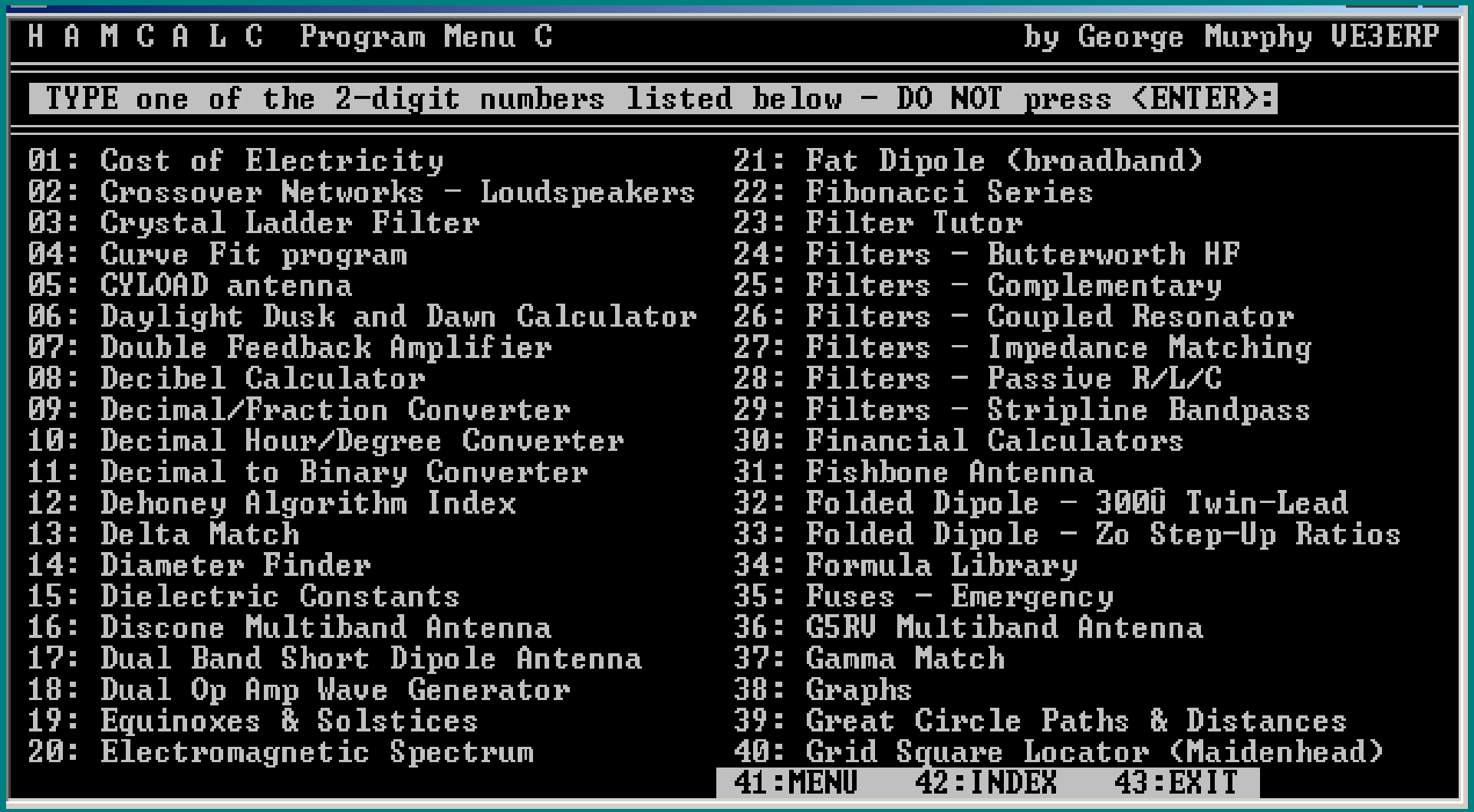
H A M C A L C  Program Menu B                          by George Murphy VE3ERP

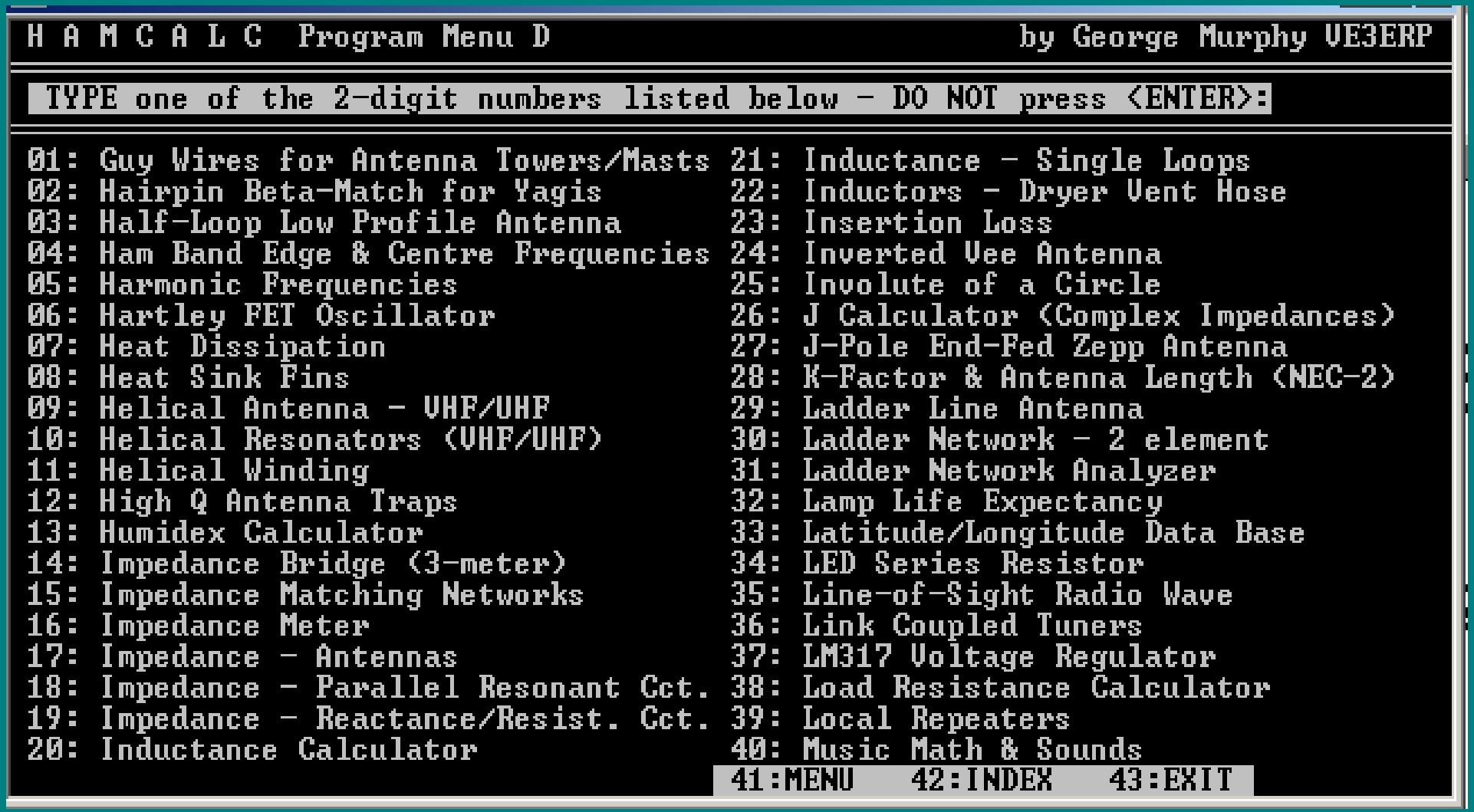
 TYPE one of the 2-digit numbers listed below - DO NOT press <ENTER>:

01: Capacitors - Custom Value                21: Coax Cable Hi-Reactance SuperTrap
02: Capacitors - Precision                   22: Code Practice Oscillator
03: Capacitors - Standard Values             23: Code Trainer (Morse Code)
04: Capacitors - Telescoping Variable        24: Coil Calculator- Dehoney equations
05: Capacitors - Trimmer                     25: Coil Calculator- Wheeler equations
06: Capacity Hat Geometric Shapes            26: Coil Q Calculator
07: Capacity Hats - Vertical Antennas        27: Coil Designer
08: Cartesian/Polar Plot Rotator             28: Coil Q Quick Estimator
09: CCD Antennas                             29: Coil Q - True vs. Apparent
10: Centre Frequency & Wavelength            30: Coil Tap Calculators
11: Centrifugal/Centripetel Force            31: Coil Tap Properties
12: Circle - Properies of                    32: Coil Turns Calculator
13: Circular Waveguide Dish Feeds            33: Coils - Coaxially coupled
14: Clamping Voltage Calculator              34: Coils in Tandem
15: Clark Y Airfoil                          35: Coils - Insulated Wire
16: CMOS Oscillator                          36: Colpitts FET Oscillator
17: Coax Cable Characteristics               37: Cone Calculator
18: Coax Cable L/C Tank                      38: Conjugate Match Calculator
19: Coax Cable RF Chokes & Baluns            39: Constant Phase Difference Networks
20: Coax Cable Traps                         40: Copper Wire Data
                                             41:MENU   42:INDEX   43:EXIT
```

HAMCALC Menü C



HAMCALC Menü D



HAMCALC Menü E

```
H A M C A L C  Program Menu E                          by George Murphy VE3ERP

 TYPE one of the 2-digit numbers listed below - DO NOT press <ENTER>:

01: Logarithms to any base                  21: MINILOOP Miniature Loop Antenna
02: LOG-YAG Log-Periodic Yagi Antenna       22: MINIQUAD Coil Shortened Antenna
03: Long-Tailed Pair                        23: Mobile Whip Antenna Coils
04: Loop Antenna Coil Inductance            24: Mobile Antenna Matching
05: Loop Antennas - Transmitting            25: Mobile/Maritime Whip Antennas
06: Loop Skywire Dimensions                 26: Moon Tracker
07: L/C Networks with NO TRANSFORMERS       27: Moxon Rectangle Antenna
08: L-Pad Calculator                        28: Musical Math & Sounds
09: Lossless L/C circuits                   29: NiCad Battery Discharger
10: Masonry Estimator                       30: Numbered Drills/Screws/Taps/Gauges
11: Matchbox Impedance Transformer          31: Number Sorter
12: Matching into an R/C Load               32: Numbers and Functions
13: Matching Networks for Transistors       33: Octagonal Loop Framework
14: Max. Usable Frequencies (MAXIMUF)       34: OCTALOOP Subminiature Loop Antenna
15: MECHANICS Math                          35: OCTARING Subminiature Loop Antenna
16: Meteor Shower Predictor                 36: Off-Centre Dipole, 3-band trapless
17: Meters (Direct Current)                 37: Ohm's Law Calculator
18: Metric Conversions                      38: OP AMP Constant Current Circuit
19: Metronome                               39: OP AMP Operational Amplifiers
20: MicroVert very short HF Antenna         40: OP AMP Wave Generator
                                            41:MENU   42:INDEX   43:EXIT
```

HAMCALC Menü F

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H A M C A L C  Program Menu F                          by George Murphy VE3ERP

 TYPE one of the 2-digit numbers listed below - DO NOT press <ENTER>:

01: OP AMPS - Cascaded                    21: Pulse Generator
02: OP AMPS - Noise Figure                22: Q Calculator - Resonant Circuits
03: Parabolic Dish Design                 23: Q Measurement - L/C Tank Circuit
04: Pedometer                             24: QRP Fox Hunt Log
05: PHOTOGRAPHY Math                      25: Quad Antenna Dimensions
06: Pi and T Networks                     26: Quadratic Equation Calculator
07: Pipe Sizes - ANSI Standard            27: Quarter Wave Transformer
08: Pixel Data for Scanners & Cameras     28: QSK Break-In module
09: Polygon Dimensions                    29: Radiation Angle - Antenna
10: Potentiometers - Custom Value         30: Radiation Plots - Phased Verticals
11: Power Divider                         31: Random Number Generator
12: Power Supply Analyzer                 32: Reactance Programs
13: Power Supply Design                   33: Remote Signal Lamp
14: Power Supply - Double Bridge          34: Resistor/Inductor/Capacitor Ccts.
15: Power Supply Performance              35: Resistor Colour Code
16: Power Transformer Design              36: Resistors - Copper Wire Wound
17: Power Transformer Winding Estimator37: Resistors - Custom Value
18: Prime Number Calculator               38: Resistors - Precision
19: Printed Circuit Board Traces          39: Resistors - Standard Values
20: Pseudo-Brewster Angle                 40: S-Meter Readings vs. Power
                                          41:MENU   42:INDEX   43:EXIT
```
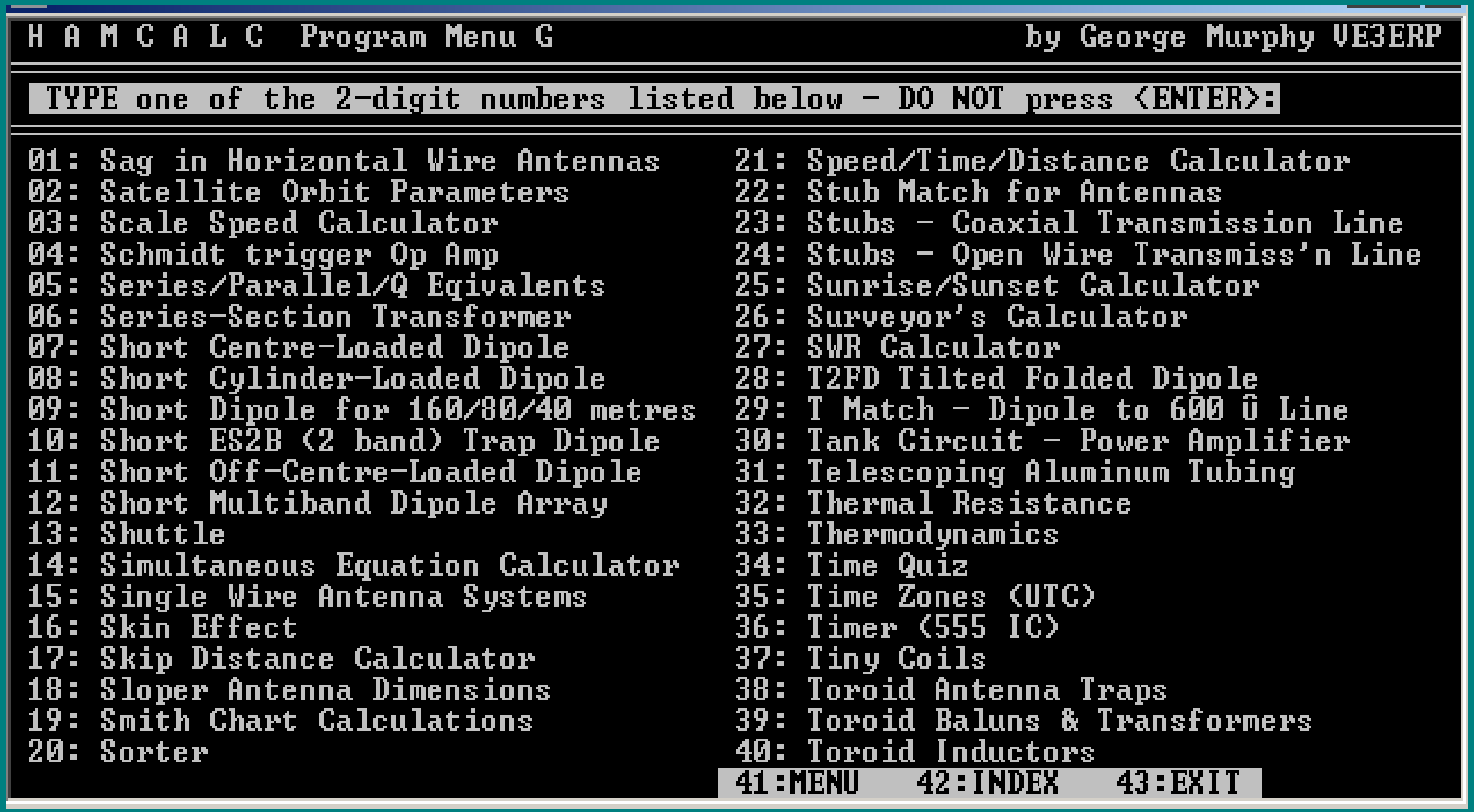

HAMCALC Menü G

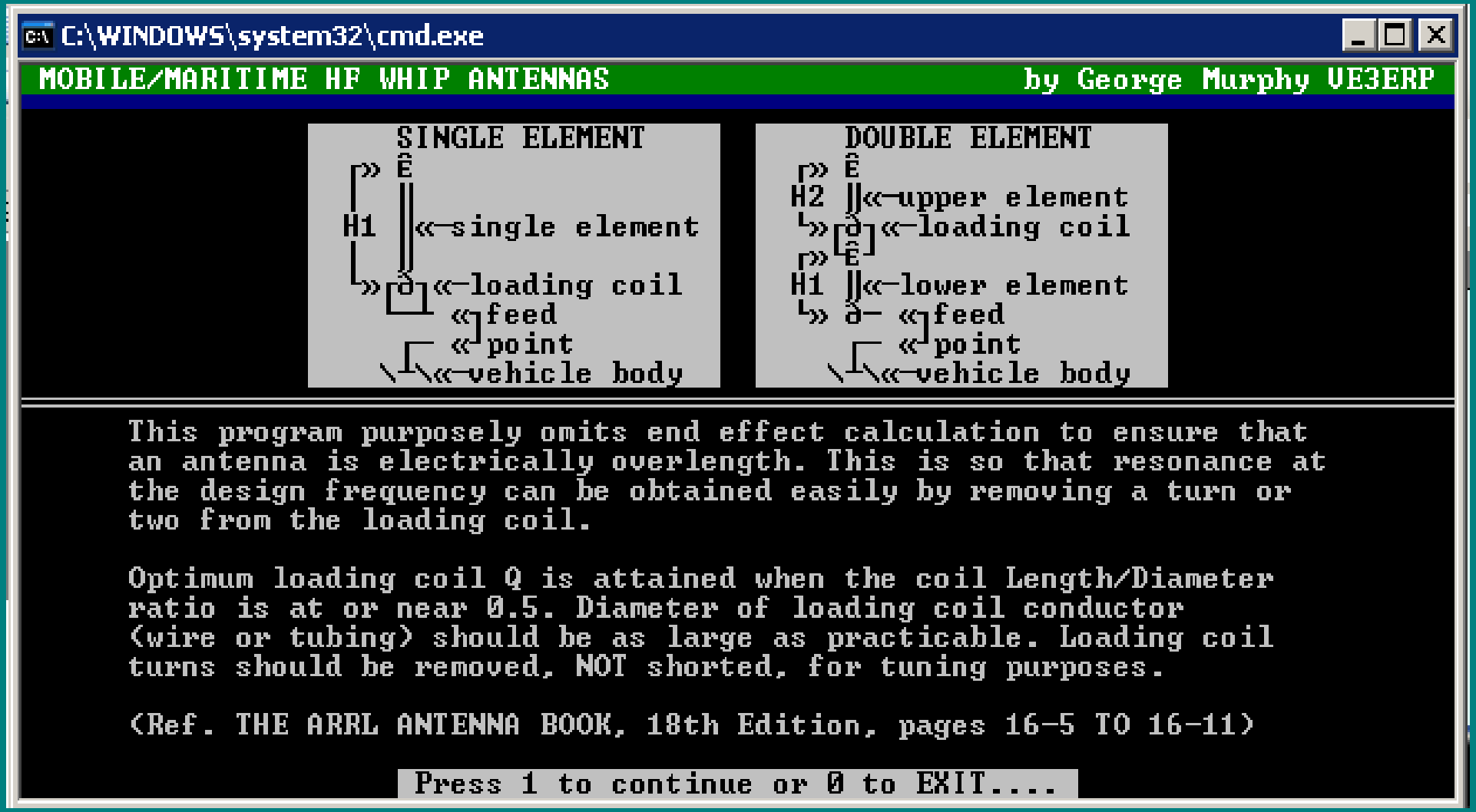


HAMCALC Menü H

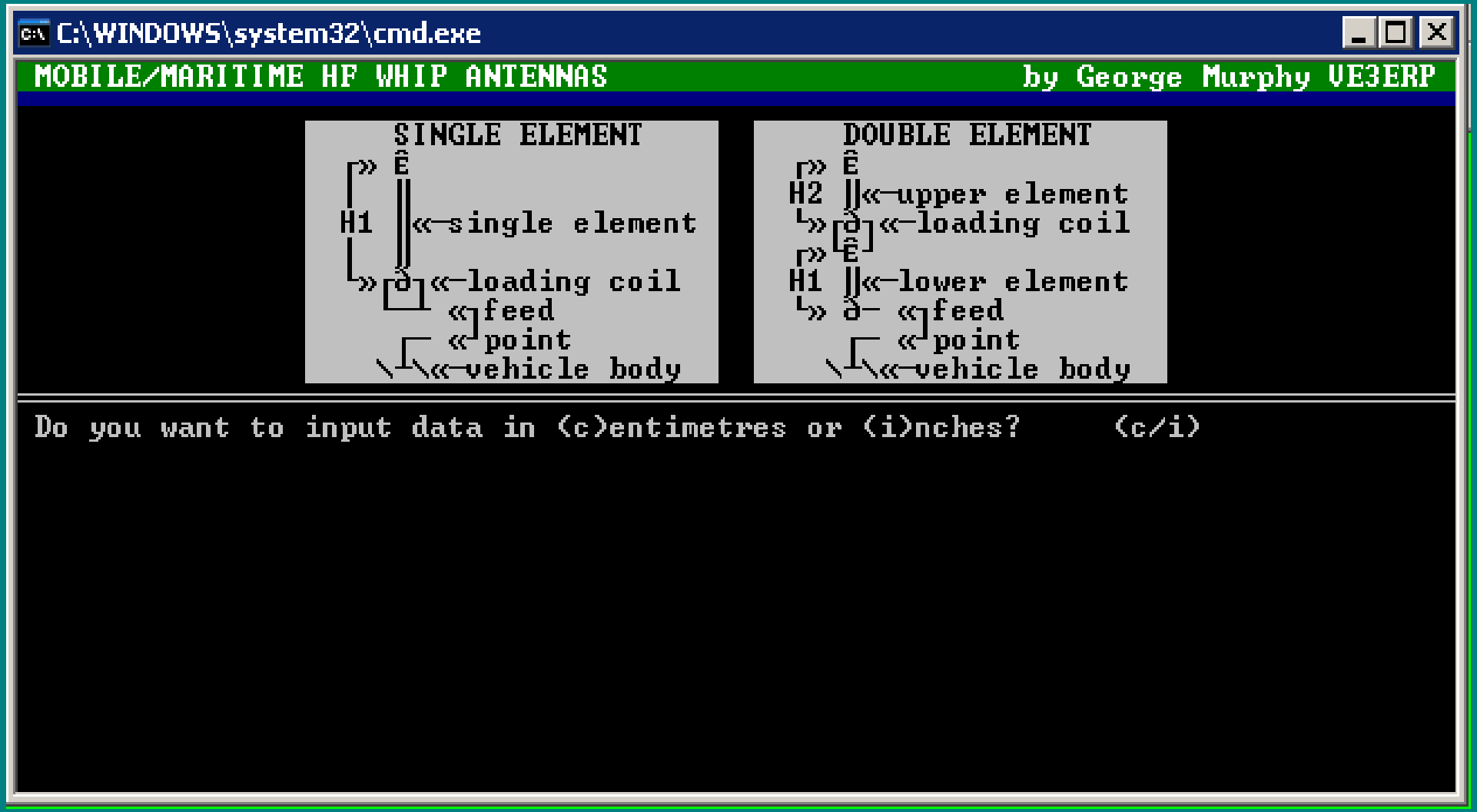
HAMCALC Menü I

```
H A M C A L C  Program Menu I                          by George Murphy VE3ERP

 TYPE one of the 2-digit numbers listed below - DO NOT press <ENTER>:

01: Windom Antenna                          21: -
02: Wind Chill Factor                       22: -
03: Wire Antenna Index                      23: -
04: Wire Mesh Screens - Wind Loads          24: -
05: Wires in Conduit                        25: -
06: Xmtr. Transistor Stage Coupling         26: -
07: YAGI 3-Element Beam Design              27: -
08: YAGI Element Diameter vs. Length        28: -
09: YAGI Element Spacing/NBS Standard       29: -
10: YAGI Tapered Elements                   30: -
11: YAGI Through-Boom Elements              31: -
12: YAGI Extremely Long VHF/UHF Antenna     32: -
13: Zener Diode Voltage Regulator           33: -
14: Zepp (extended double) Antenna          34: -
15: Zepp Multi-band antenna                 35: -
16: -                                       36: -
17: -                                       37: -
18: -                                       38: -
19: -                                       39: -
20: -                                       40: -
                                  41:MENU   42:INDEX   43:EXIT
```

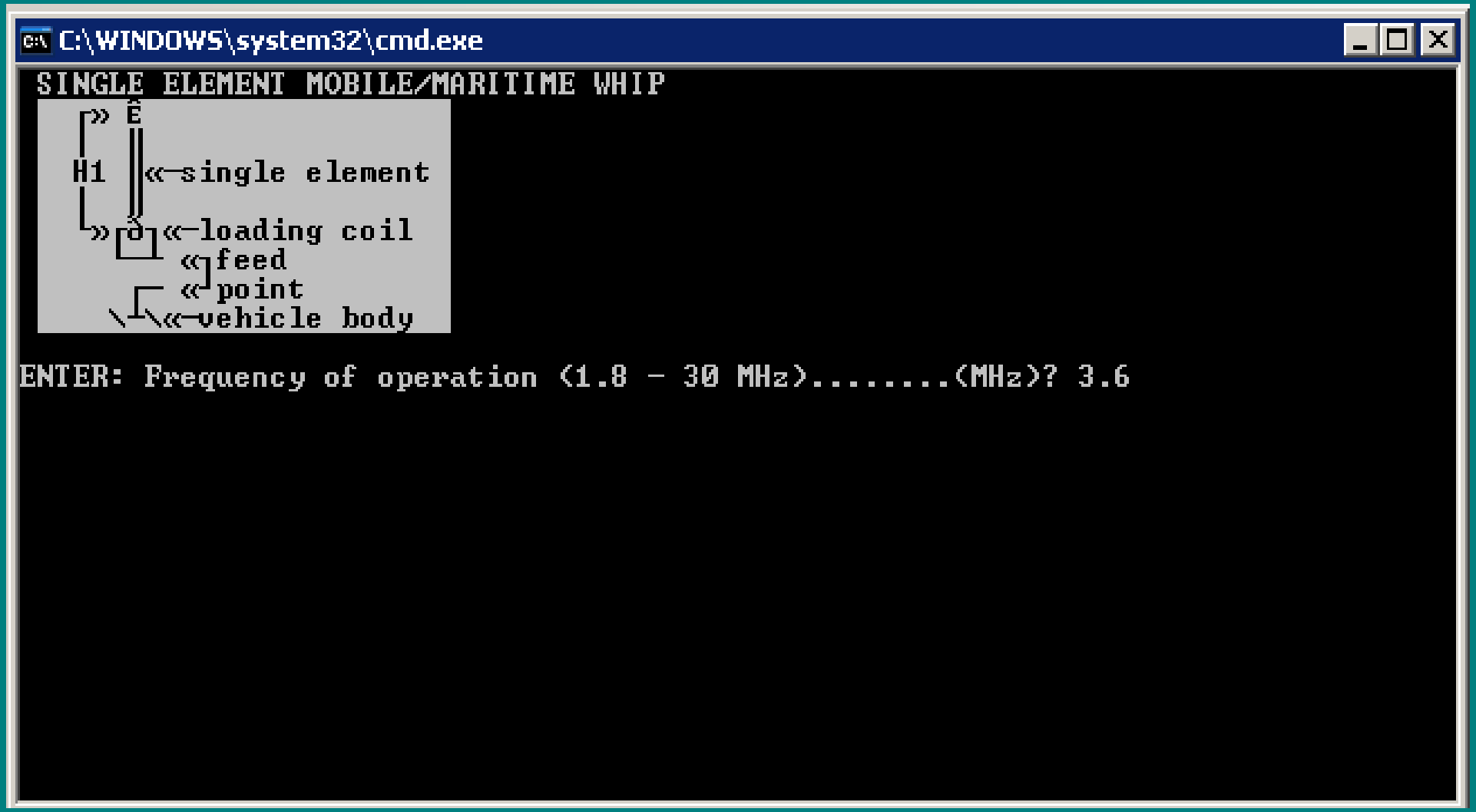
80m Vertikal auf 10m Glasfibermast



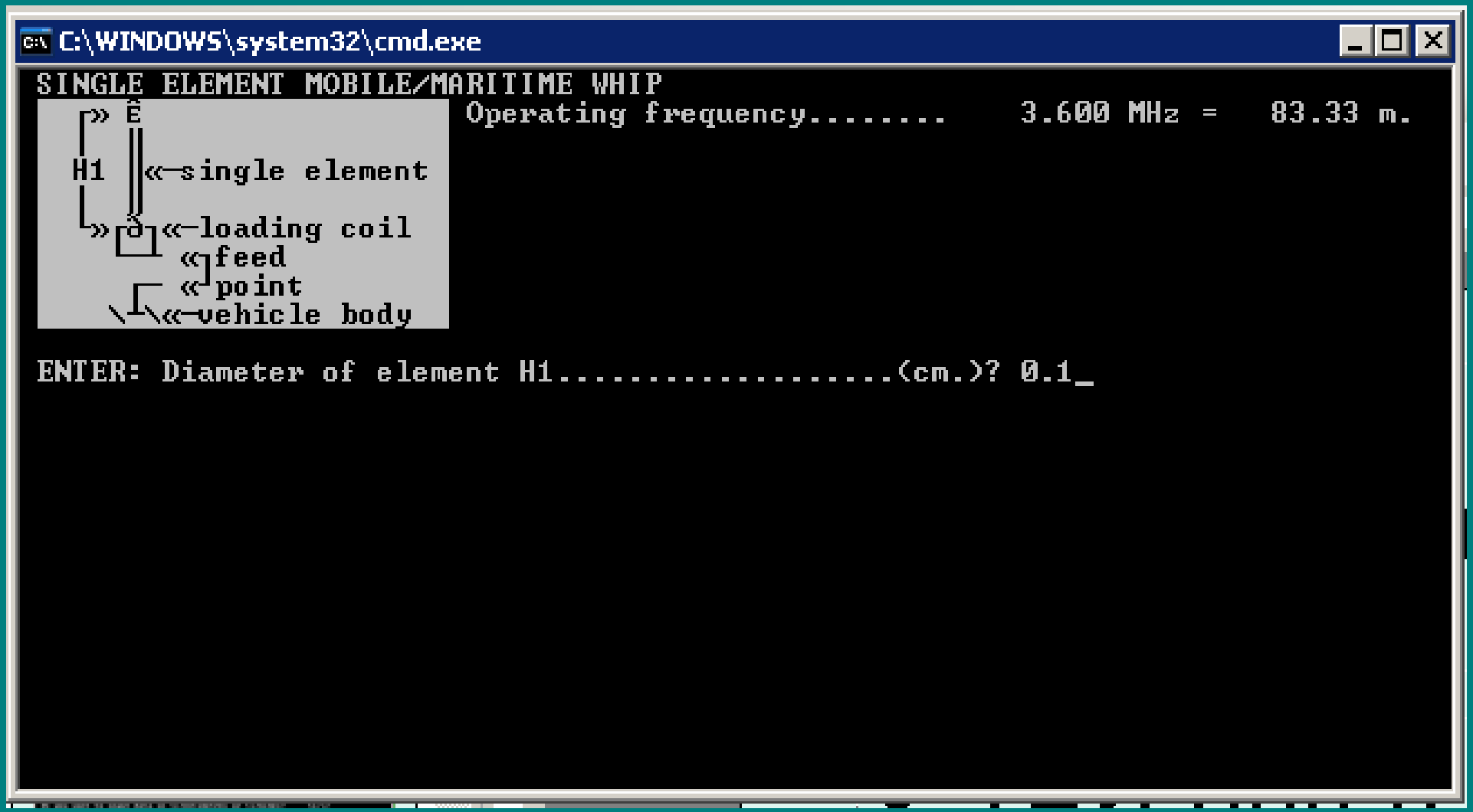
Auswahl Fuß oder Mittelspule



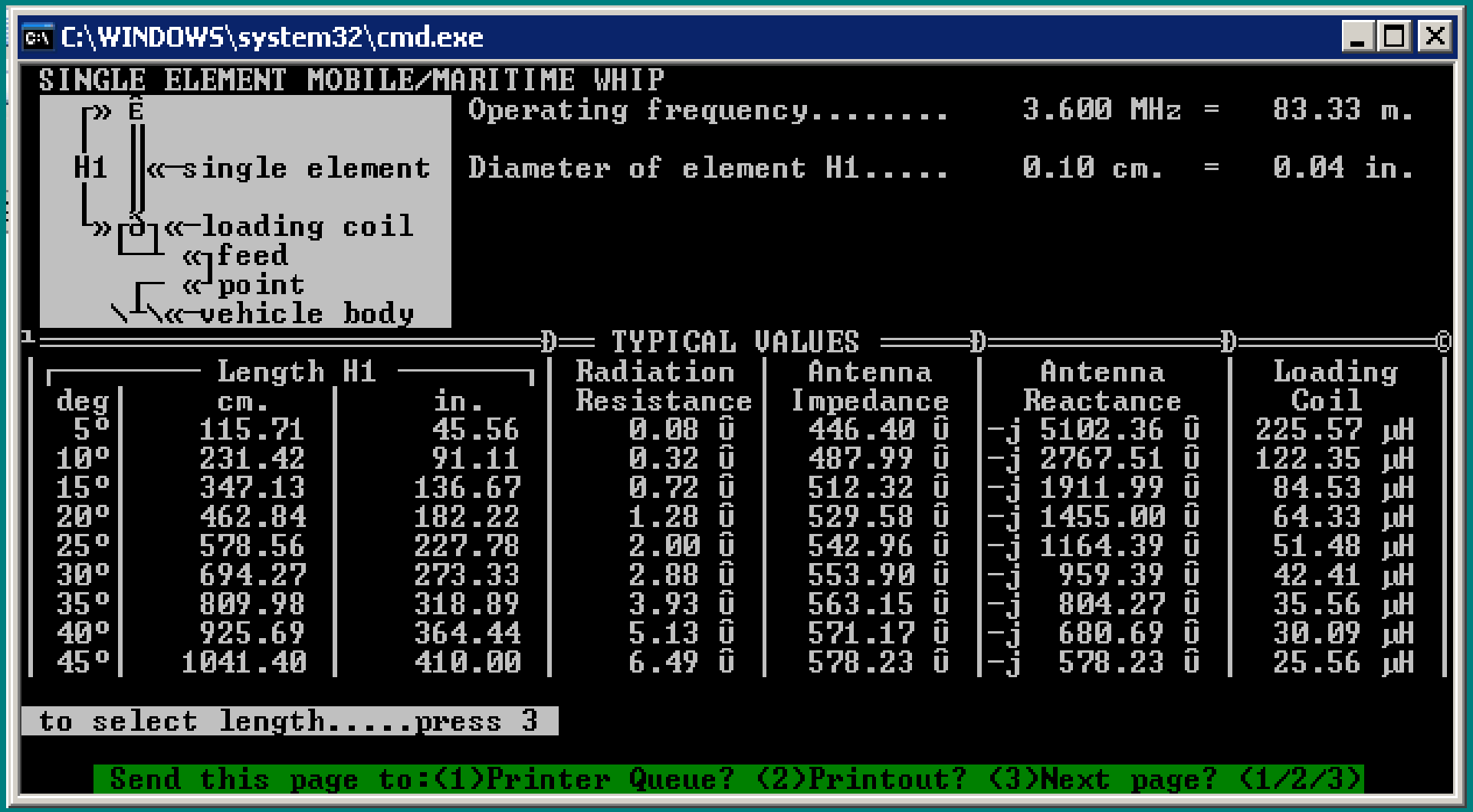
Frequenzeingabe



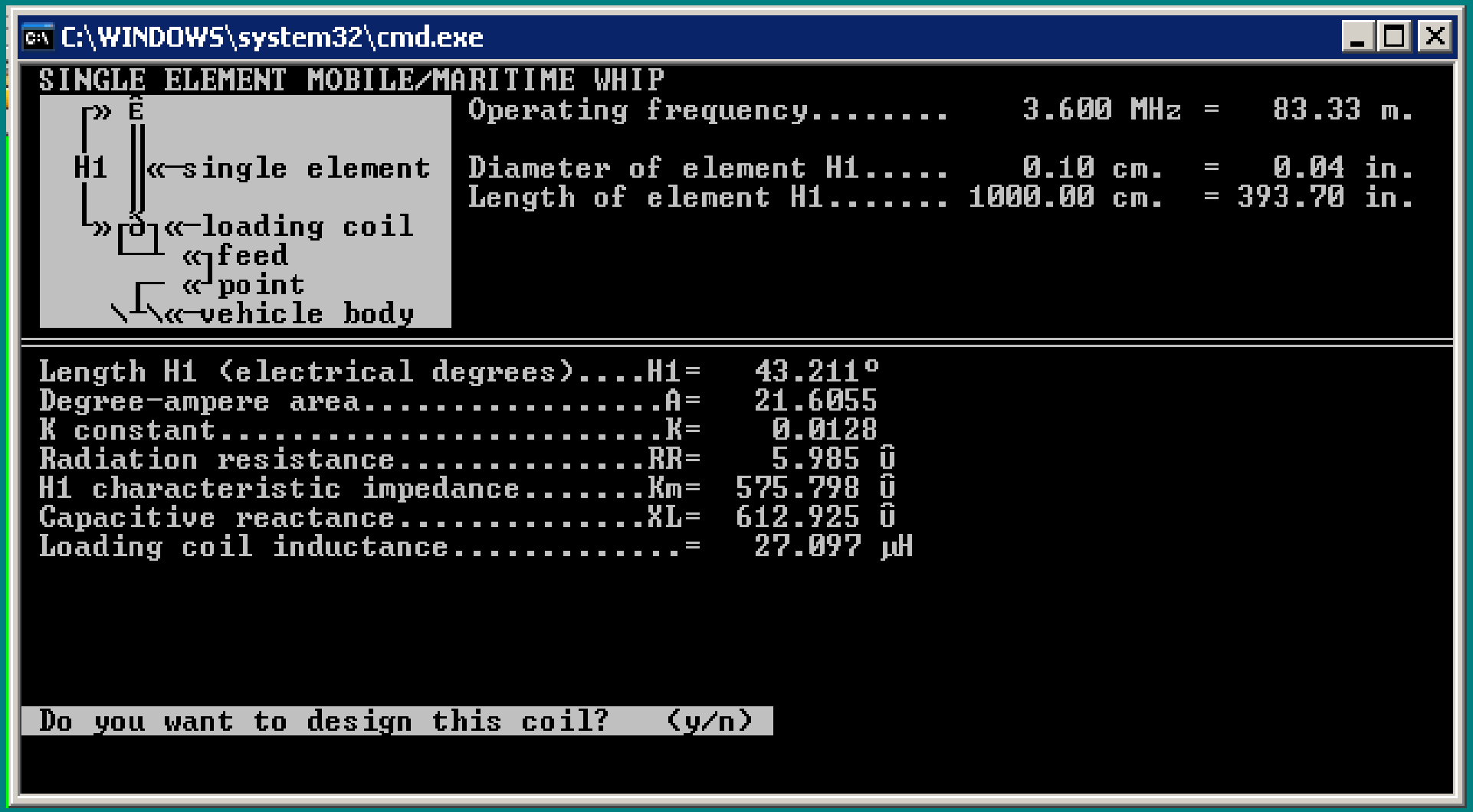
Strahlerdurchmesser



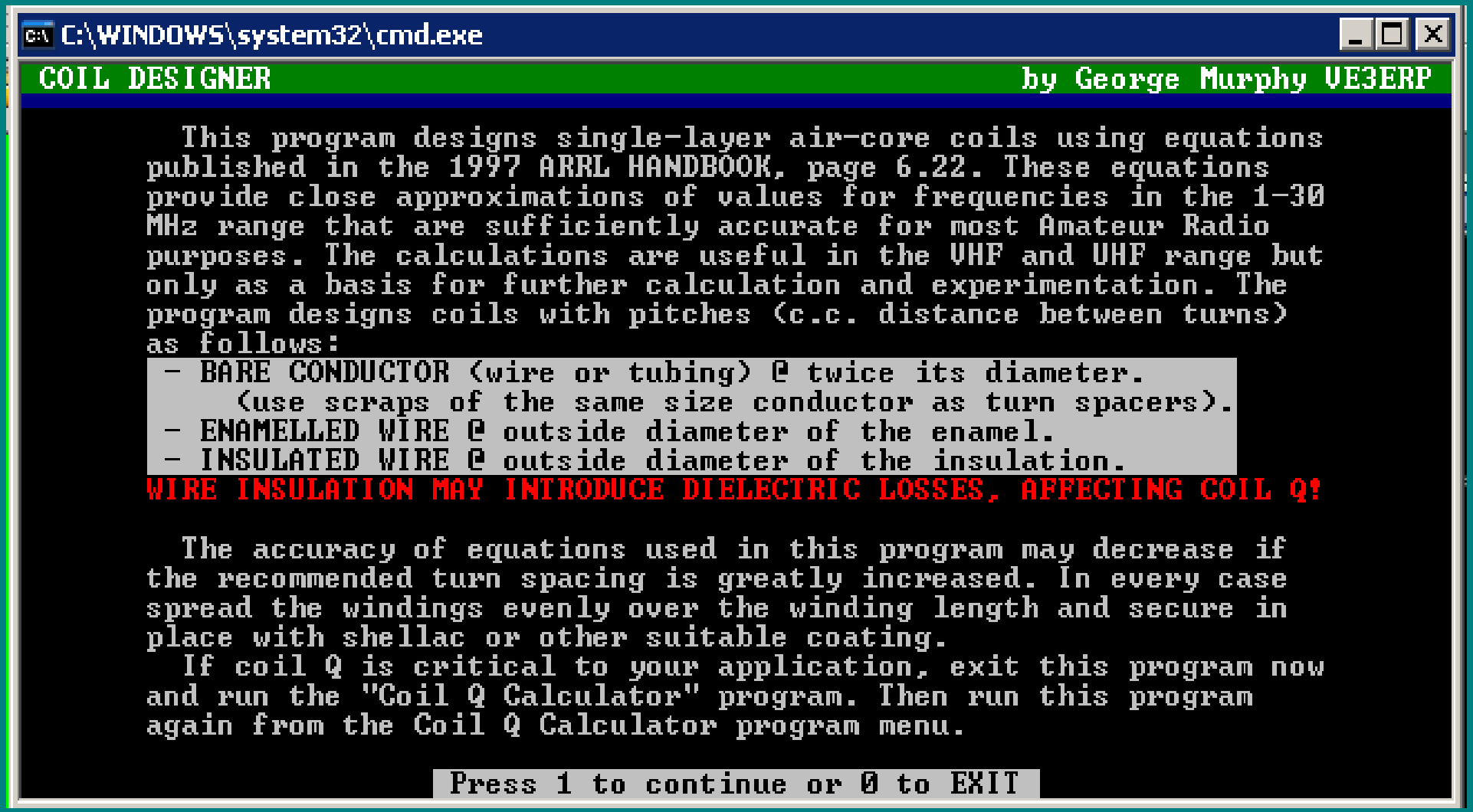
Strahlerlänge wählen



Ergebnis mit Spuleninduktivität



Spule dimensionieren

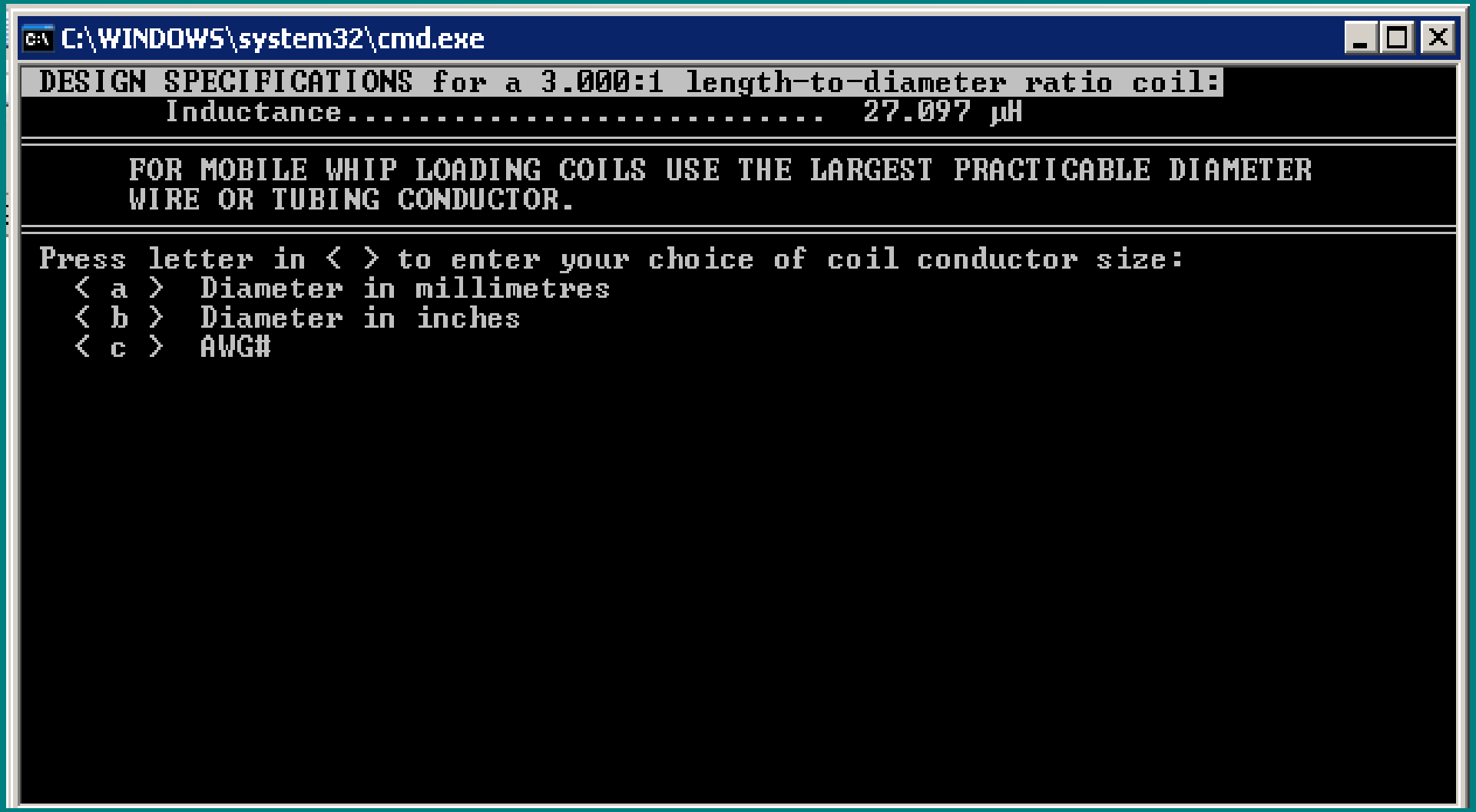


L/d für Gütebereiche

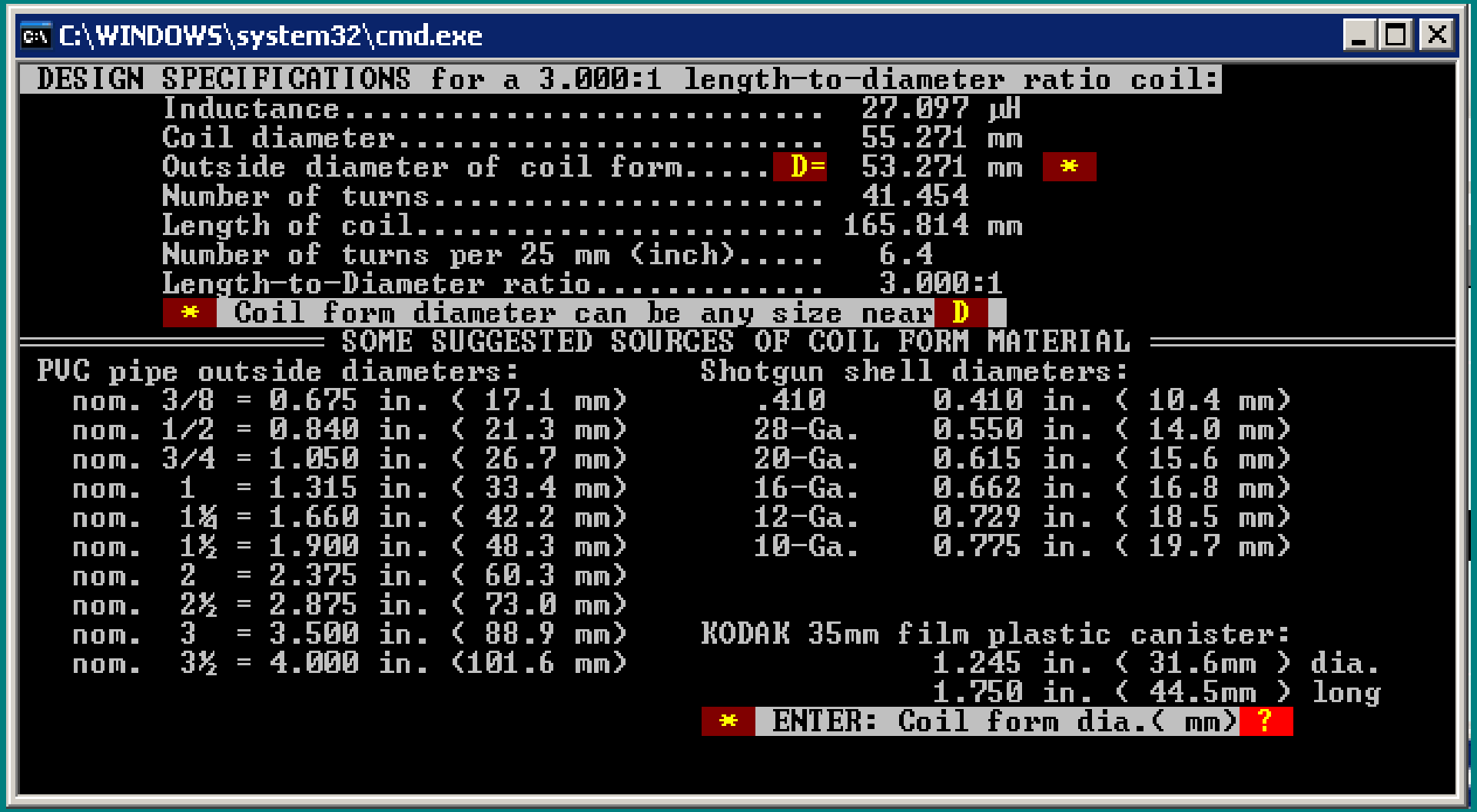
C:\WINDOWS\system32\cmd.exe

```
 Q refers to True Q, as opposed to Apparent Q read by a Q meter.
 - Q increases with coil diameter. Q increases with coil length.
 - Max.Q occurs at about .35-.45 L/d ratio, decreasing rapidly below this range.
 - 0.5 to 2.0 L/d ratios are commonly used in many Amateur radio applications.
 Typical L/d Ratios for Various Coil Diameters and Q Values at 3.6 MHz
| Q= 50 | Q= 71 | Q=100 | Q=141 | Q=200 | Q=283 | Q=400 | Q=566 | Q=800
 0.50"|       |       |       | 0.52  | 1.67  |       |       |       |
 0.75"|       |       |       |       | 0.46  | 1.26  |       |       |
 1.00"|       |       |       |       |       | 0.52  | 1.67  |       |
 1.25"|       |       |       |       |       |       | 0.72  | 4.28  |
 1.50"|       |       |       |       |       |       | 0.46  | 1.26  |
 1.75"|       |       |       |       |       |       |       | 0.74  | 4.87
 2.00"|       |       |       |       |       |       |       | 0.52  | 1.67
 2.25"|       |       |       |       |       |       |       | 0.41  | 1.01
 2.50"|       |       |       |       |       |       |       |       | 0.72  | 4.28
 2.75"|       |       |       |       |       |       |       |       | 0.56  | 1.95
 3.00"|       |       |       |       |       |       |       |       | 0.46  | 1.26
 3.25"|  L/d values shown are approximate                             | 0.39  | 0.93
 3.50"|  for a 10 uH coil wound with #14                              |       | 0.74
 3.75"|  AWG wire. Actual values will be                              |       | 0.61
 4.00"|  computed according to parameters                             |       | 0.52
 4.25"|  you will be asked to enter.                                  |       | 0.46
 4.50"|       |       |       |       |       |       |       |       |       | 0.41
 To compute coil diameter, ENTER: ANY desired L/d ratio....?
```

Drahtauswahl für Spule

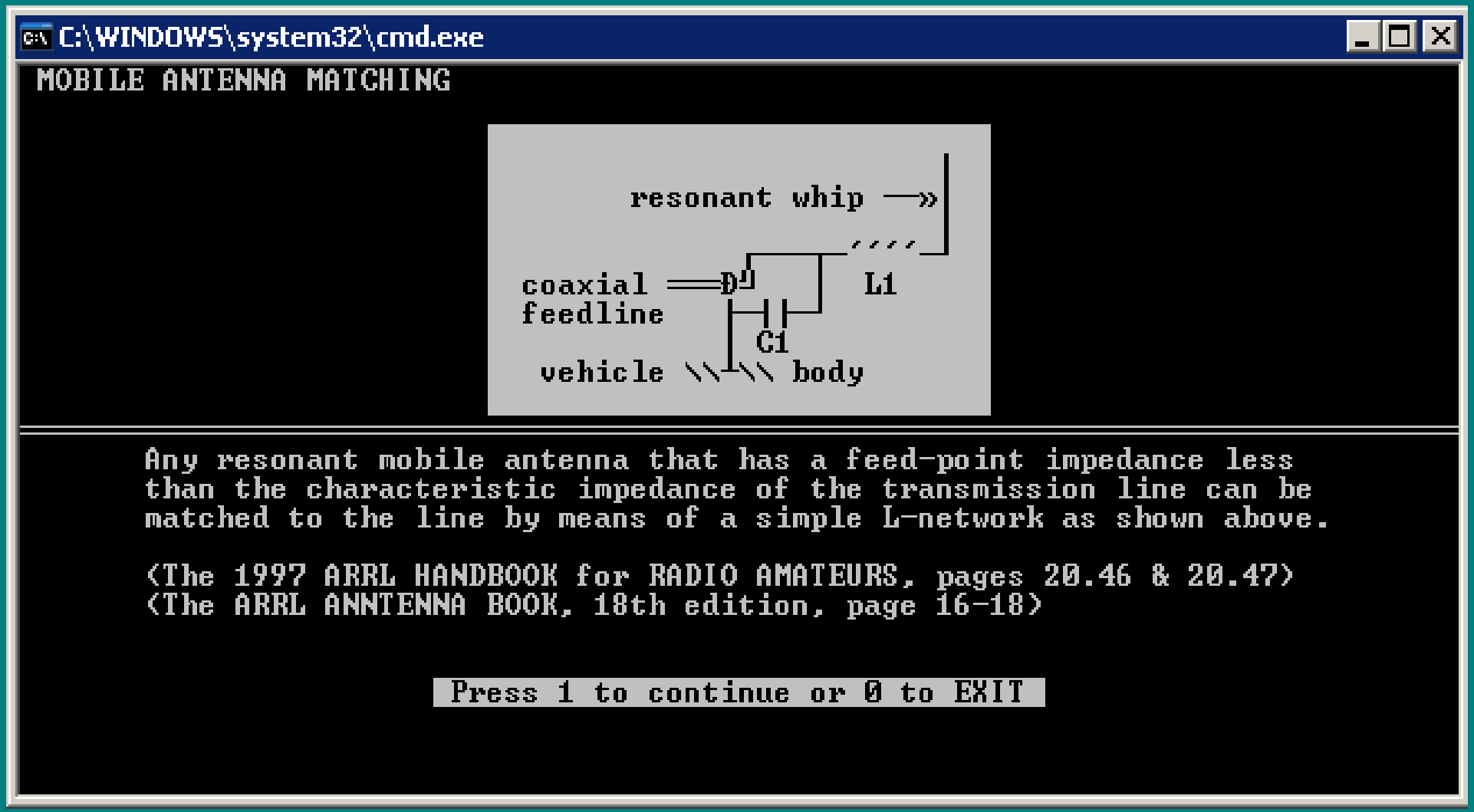


Ergebnis Spulendaten



Alternatives Spulendesign

Anpaasung an 50 Ohm



Ergebnis Anpassnetzwerk