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DF9CY Antenna Comparison Chart of 432 MHz antennas

Design Frequency **432** MHz
Wavelength **693,96** mm 750

#	Antenna Design	Length [mm]	Length [wl]	Gain-Th [dBi]	Gain [dBi]	Gain [dBd]	HPB-E [degs]	HPB-H [degs]	ST-E [mm]	ST-H [mm]	F/B(dB) [dB]	F/R [dB]	T-Loss [K]	T-Ant [K]	G/T [dB]	BC	EZ-Segs.	DE-dia [mm]	Ele-dia [mm]	Z [Ohms]	Remarks
1	**DK7ZB 9 Element**	1480	*2,13*	*13,72*	14,09	*11,95*	36,00	39,40	*1123*	*1029*	25,54		2,6	47,9	-2,72		35	10	8	36,1	**built by DF9CY**
2	**G0KSC 432 OWA 12**	1620	*2,33*	*14,02*	14,41	*12,27*	35,00	38,20	*1154*	*1060*	21,84		0,8	41,9	-1,82		35	12,7	12,7	49	tnxG0KSC
3	**DK7ZB 10 Element**	1920	*2,77*	*14,60*	15,21	*13,07*	32,40	34,80	*1244*	*1160*	31,12		2,2	39,7	-0,78		35	12	8	25,6	**built by DF9CY**
4	**YU7EF_7011**	2110	*3,04*	*14,92*	15,24	*13,10*	33,60	36,20	*1200*	*1117*	19,52		3,5	29,4	0,56		35	10	6	50	
5	**YU7EF_7013**	2725	*3,93*	*15,78*	16,39	*14,25*	29,00	30,60	*1386*	*1315*	21,13		4,8	31,0	1,47		35	10	6	60	**built by DF9CY**
6	**DL6WU 17el (Konni 20ele)**	3355	*4,83*	*16,49*	16,78	*14,64*	28,20	29,80	*1424*	*1349*	24,23		2,0	32,0	1,72		35	10	6	59	old F20 antenna ! (DK1UV); 4R
7	**YU7EF_7015**	3392	*4,89*	*16,53*	17,14	*15,00*	27,20	28,60	*1476*	*1405*	21,24		5,1	28,3	2,63		35	10	6	58	
8	**DK7ZB 16 Element**	3860	*5,56*	*16,96*	17,46	*15,32*	25,40	26,40	*1578*	*1520*	42,77		2,4	33,6	2,20		35	8	8	28	
9	**DJ9BV 20 Element**	4176	*6,02*	*17,23*	17,75	*15,61*	23,60	24,60	*1697*	*1629*	18,08		6,1	36,1	2,17		35	8	5	54	
10	**K1FO 22 Element**	4236	*6,10*	*17,28*	17,84	*15,70*	23,40	24,20	*1711*	*1655*	28,11		5,0	39,0	1,93		35	4,77	4,77	49	
11	**G0KSC 432 LFA 18**	4246	*6,12*	*17,29*	18,10	*15,96*	24,80	25,80	*1616*	*1554*	32,81		-6,7	15,9	6,29		9 / 11	12,7	6,35	50	tnx G0KSC; auto-seg
12	**YU7EF_7018**	4373	*6,30*	*17,39*	17,94	*15,80*	25,20	26,20	*1591*	*1531*	21,50		4,8	27,2	3,60		35	10	6	56	
13	**DL6WU 21el (DF9CY 24ele)**	4464	*6,43*	*17,46*	18,06	*15,92*	23,80	24,60	*1683*	*1629*	20,88		1,8	31,5	3,08		35	10	10	55	**used for EME DF9CY 1991 (ext. Konni F20); 4R**
14	**F9FT 432MHz21 DX N conn**	4563	*6,58*	*17,53*	18,06	*15,92*	23,60	24,40	*1697*	*1642*	20,54		8,6	39,1	2,14 yes		35	4	4	15	tnx F6HLC
15	**DK7ZB 19 Element**	4620	*6,66*	*17,57*	18,26	*16,12*	21,60	22,40	*1852*	*1786*	29,63		4,3	35,0	2,83		33 / 25	8	8	31	
16	**N4GJV (DL9KR)**	4775	*6,88*	*17,68*	18,11	*15,97*	23,20	24,20	*1726*	*1655*	19,63		3,4	38,4	2,27		33	6	4,5	55	8R
17	**DK7ZB 21 Element**	5220	*7,52*	*17,99*	18,64	*16,50*	20,60	21,20	*1941*	*1886*	33,74		2,9	35,4	3,15		35	8	8		
18	**YU7EF_7021**	5303	*7,64*	*18,04*	18,73	*16,59*	23,20	24,00	*1726*	*1669*	29,06		4,7	25,5	4,66		35	10	6	55	
19	**I0JXX 25JXX70**	5488	*7,91*	*18,16*	18,77	*16,63*	23,10	24,00	*1733*	*1669*	27,33		0,1	20,9	5,49		35	5	5	28	from data sheet
20	**G0KSC 432 LFA 22**	5517	*7,95*	*18,17*	19,26	*17,12*	21,80	22,40	*1835*	*1786*	44,80		-13,6	6,5	11,00		35	12,7	6,35	50	tnxG0KSC; D2 behaves crazy → segs 15
21	**DL6WU 25(28) Element**	5575	*8,03*	*18,21*	18,86	*16,72*	21,60	22,20	*1852*	*1802*	22,50		5,1	32,8	3,70		25	10	4	64	**DF9CY (built by DF5LF); 4R**
22	**DJ9BV 26 Element**	5849	*8,43*	*18,37*	19,12	*16,98*	20,20	20,60	*1979*	*1941*	21,11		6,5	37,3	3,38		35	5	5	53	
23	**M2 432 9wl**	6374	*9,18*	*18,66*	19,46	*17,32*	19,60	20,20	*2039*	*1979*	23,50		0,2	32,6	4,32 yes		35	4,75	4,75	35	tnx for file !

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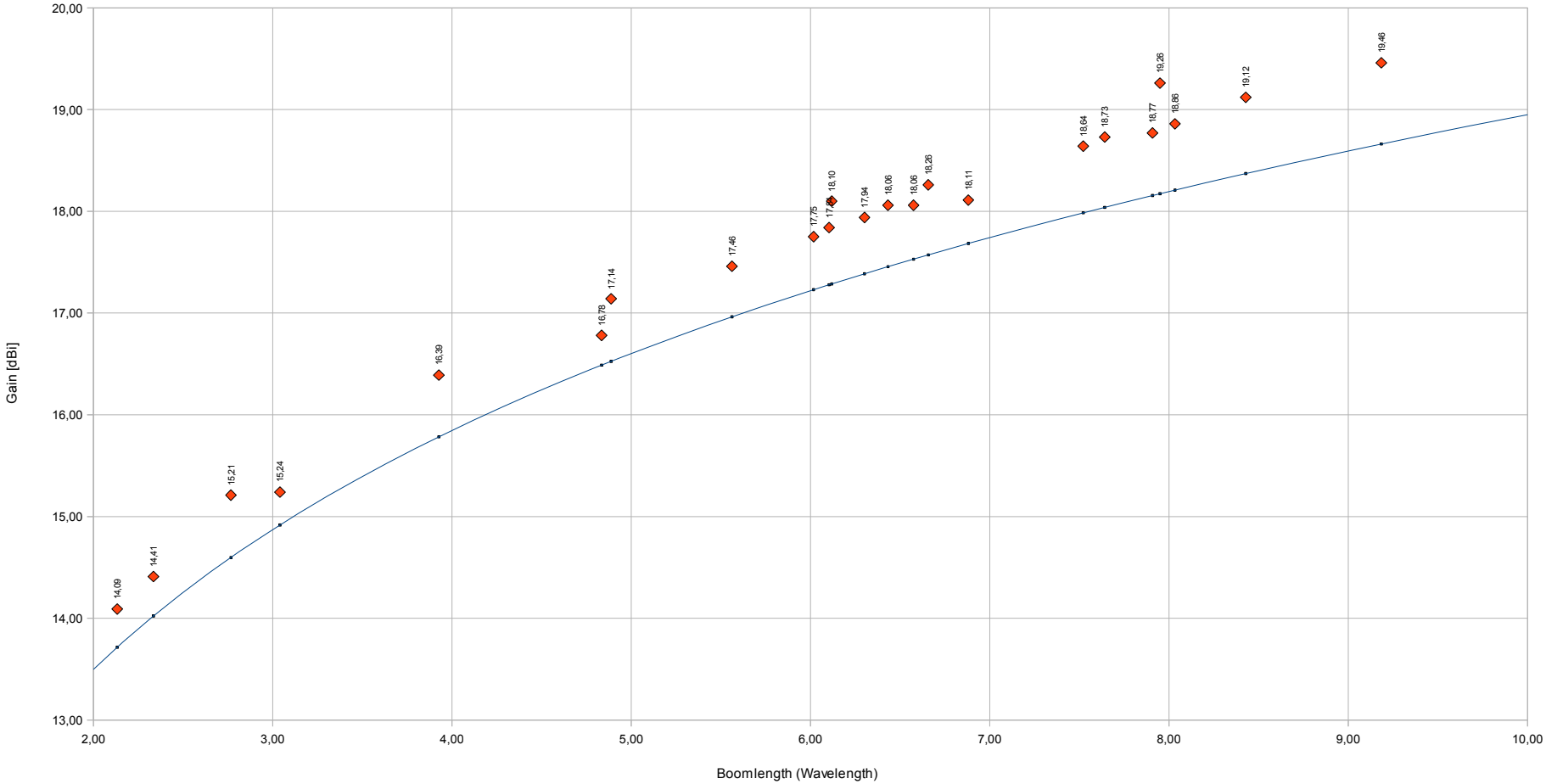

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Remarks:

* Theoretical Antenna gain calculated from *7,8 * log10(length / wavelength) + 11,15 [dBi]* / see www.cebik.com
* The antennas are calculated with EZNEC 5+ by R Lewallen
* The calculations are valid for free space; No boom correction estimated unless marked. Real antennas suffer from losses by booms, masts etc.
* Polarization is horizontal
* Wire losses set to Aluminium
* On-Sheet calculated values are **blue**
* Two antennas are marked red, because of negative T-Loss values

Legend

Length in mm	
Gain-Th:	Theoretical antenna gain
F/B	Front / Back ratio in dB
EZ-Segs	Number of segments used in EZNEC 5+ calculations; Normally set to 35 unless problems occur – see remarks
DE Dia	Driven Element thickness in mm
Ele-dia	Element thickness
Z	Real value of impedance from EZNEC
SL-E, SL-H	Sidelobe at [degs=degrees] from main lobe
T-Ant	Antenna temperature; calculated with Tant.exe (YT1NT) at **30°** elevation, Tsky=**15K**, Tearth=**350K**
T-Loss	Overall antenna losses
BC	Boom correction estimated, as resonance too low
4R, 8R	4, 8 Elements Reflector
HPB-E, HPB-H	Half-Power-BeamWidth (-3dB) E-, H-plane in degrees
ST-E, ST-H	Stacking Distance according DL6WU : Dopt = wavelength / (2 * sin (phi / 2)); phi = PI() / (180 / HPB)

Things to do:

* more antennas

Comments are very welcome to **df9cy@web.de**
If you have **built** an antenna you would like to see in here, please send the dimensions, or even better the EZNEC file.

Antennas wanted: Konni Antennen F20, M2 antennas, CC antennas, KLM antennas

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Other antenna comparison charts and listings

If you want to build your own antenna, here are some VERY good designs to start with !

YU7XL Oblong 432 MHz antennas	www.qslnet.de/member/yu7xl/oblong_models_432.htm
DK7ZB 432 MHz antennas	www.mydarc.de/dk7zb/start1.htm
YU7EF antennas	www.yu7ef.com/LowTemperatureAnt.htm
G0KSC	www.g0ksc.co.uk/

Antennas Theory and more

W4RNL L.B.Cebik (SK)	www.cebik.com	You have to register for free
GM3SEK Dr. Ian White	http://www.ifwtech.co.uk/g3sek/diy-yagi/index.htm	

Additional Information

The antennas were chosen, because I am looking for a design for 432 MHz EME. So I wanted to compare a number of antennas “on the same level”. This was my intention for setting up this file.
The resonance from the EME community is high, and so I am willing to add antennas – but not all numerous designs available. If you have a working design – your own or from the web or commercial, I can put it into this list.
This file is made with OpenOffice 3.2 Calc

History

1. April 2010	Initial File Setup
6. April 2010	added M2 9wl; YU7EF_7021 – deleted DK7ZB 12 ele; DL6WU 24 ele
7. April 2010	added F9FT 432MHz 21el N; G0KSC 432LFA22 – LFA18 – OWA12