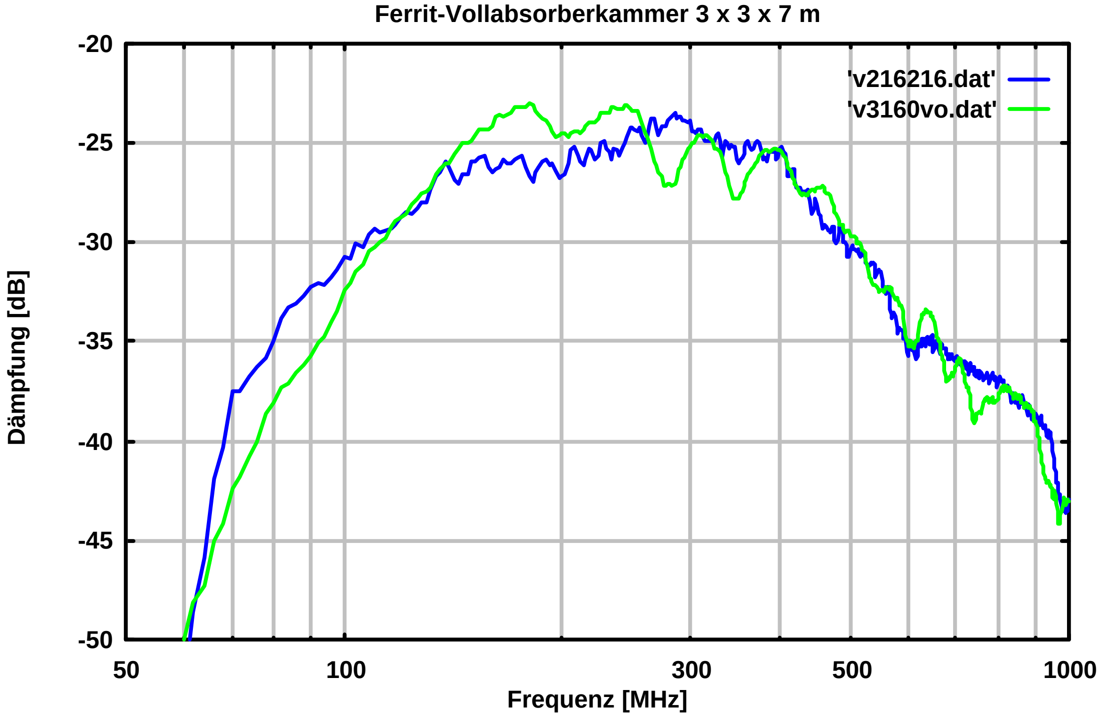
SCHWARZBECK MESS - ELEKTRONIK

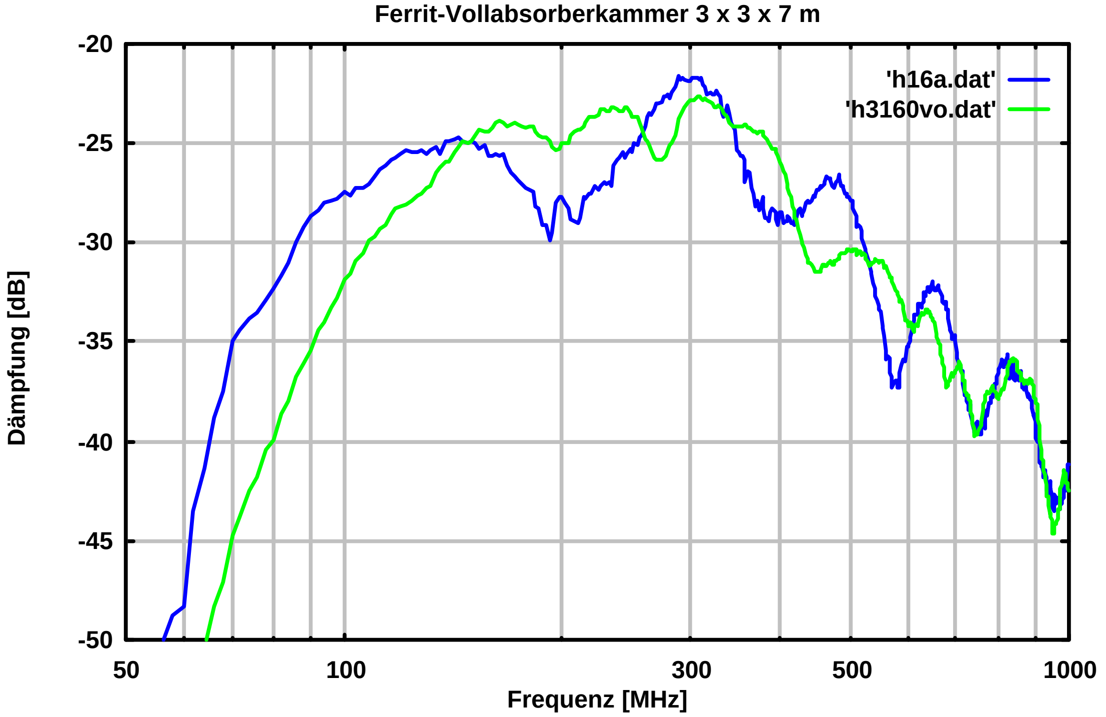
An der Klinge 29 D-69250 Schönau Tel.: 06228/1001 Fax.: (49)6228/1003

Ferrit Vollabsorberkammer 3 x 3 x 7 m

Ferrite Tiled Fully Anechoic Chamber



Attenuation-comparison in the anechoic chamber (v3160vo.dat) and on concrete ground (v216216.dat) at vertical polarisation. The graph v216216.dat is very close to the attenuation measured under freespace conditions. Around 80 MHz the chamber attenuation is approx. 3.2 dB higher than the free-space attenuation, using the same geometry setup and the same antennas.



Attenuation-comparison in the anechoic chamber (h3160vo.dat) and on concrete ground (h16a.dat) at horizontal polarisation. The graph h16a.dat shows the influence of ground reflection, reducing the attenuation by approx. 7 dB at 80 MHz!

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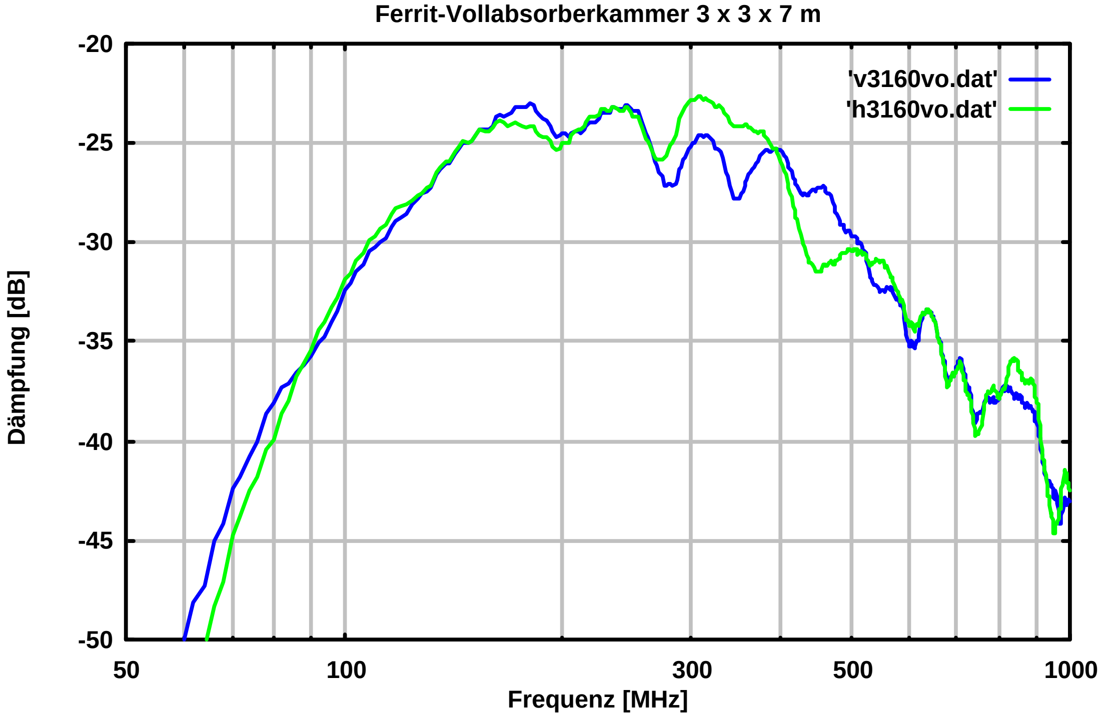
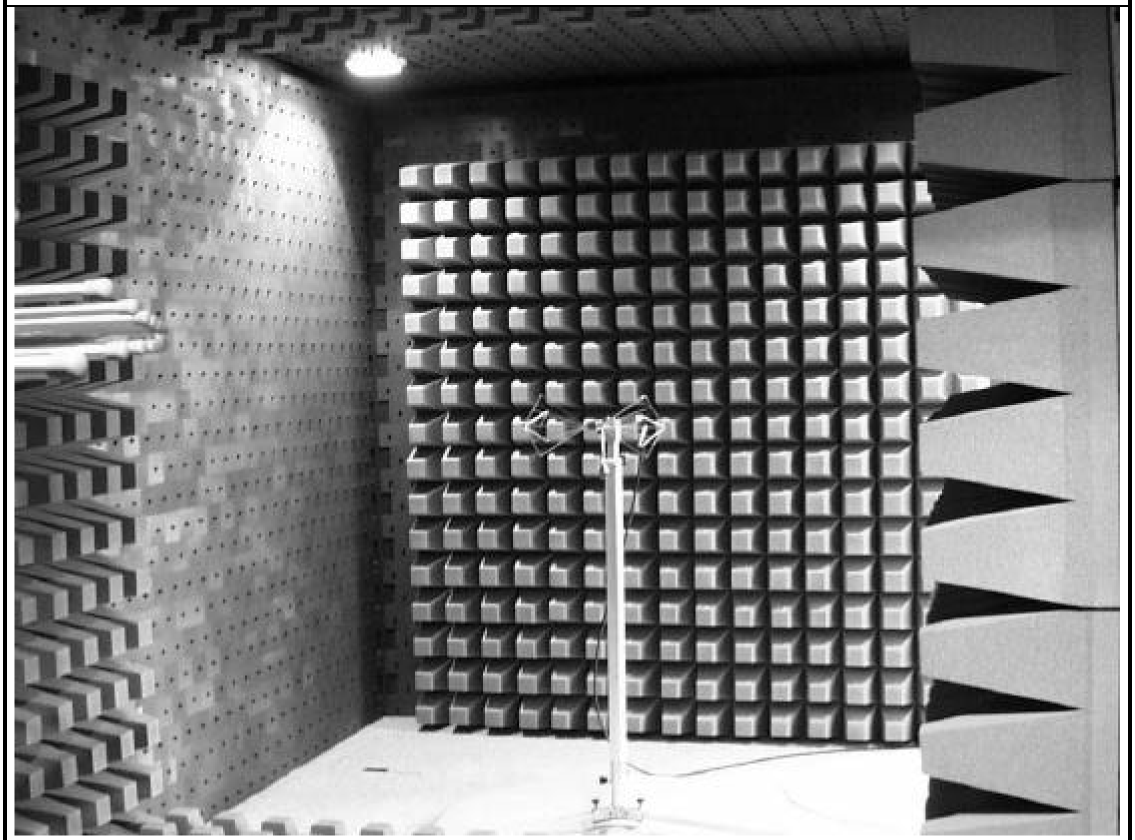


Comparison of the anechoic chamber attenuation at vertical (v3160vo.dat) and horizontal polarisation (h3160vo.dat). Both curves should be equal under perfect anechoic conditions.



Test setup: VULP 9118 E with UBAA 9114 4:1-Balun and BBVU 9135 biconical elements.

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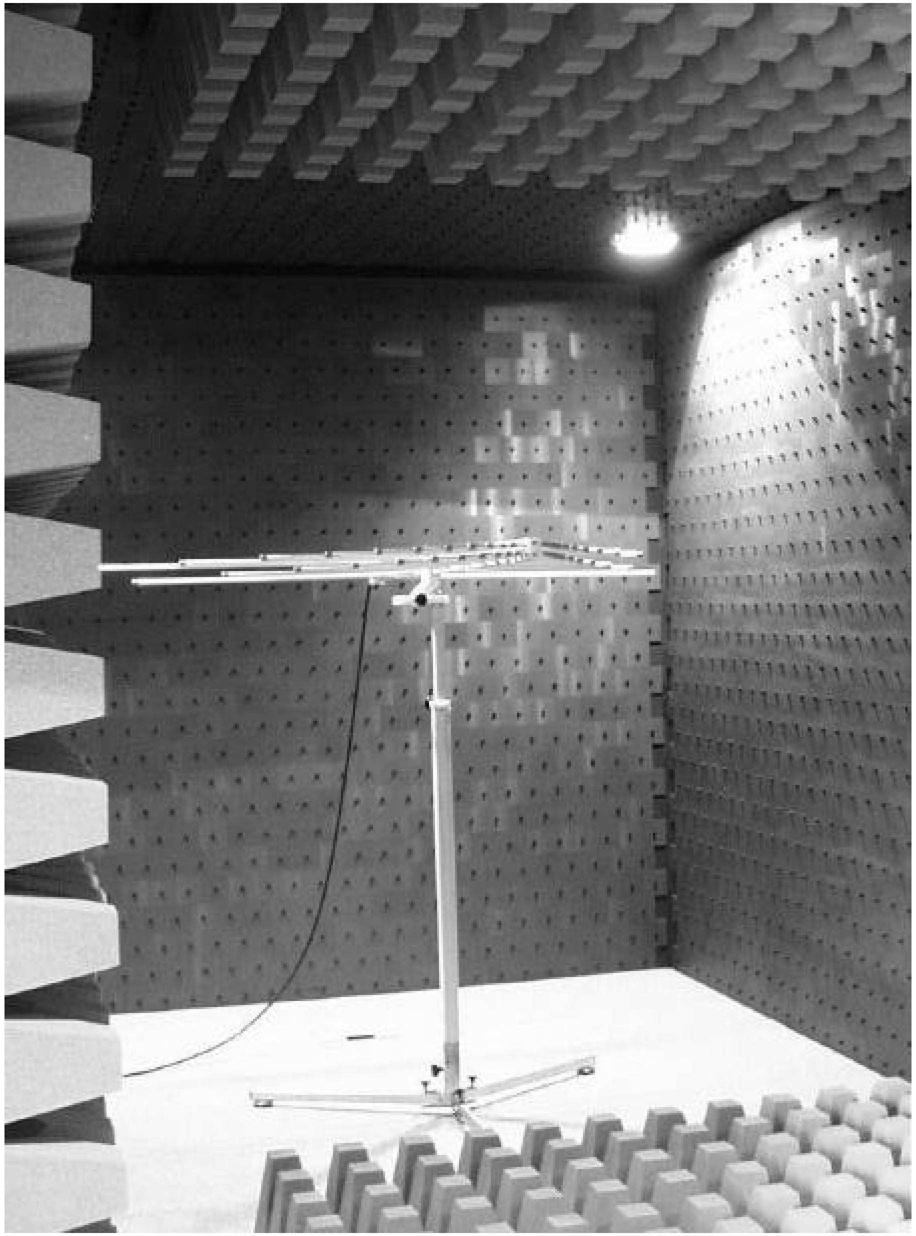

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Ferrit Vollabsorberkammer 3 x 3 x 7 m
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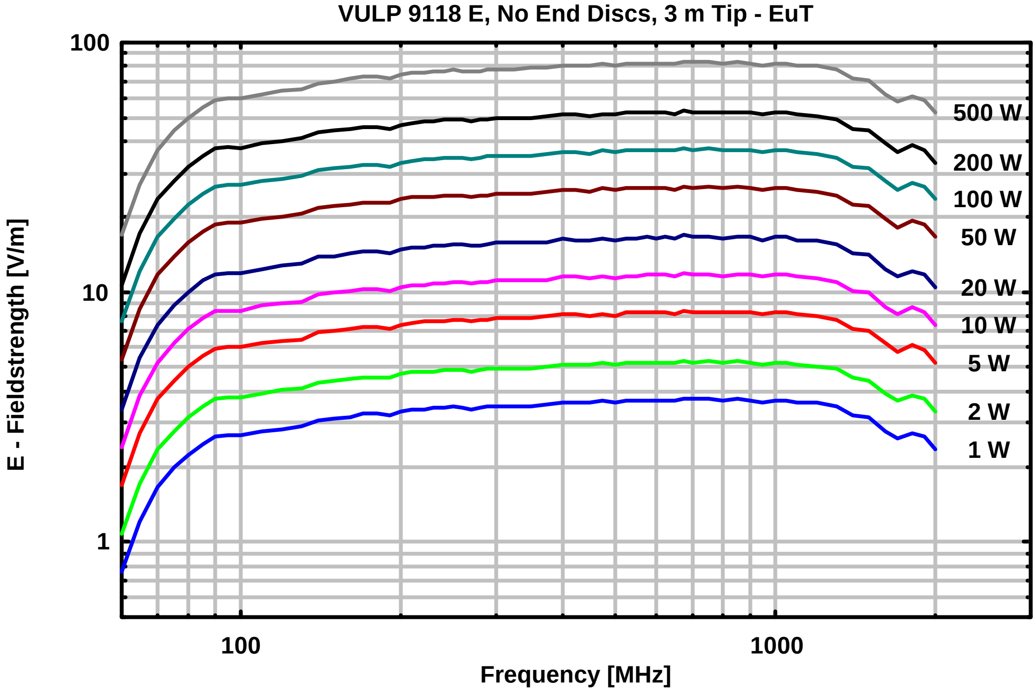

Abschätzung des Leistungsbedarfs
Estimation of power requirement

Logarithmisches Maß	Prozentuale Leistungssteigerung	Leistungsfaktor
Logarithmic Measure	*Relative Power Increase*	*Power Factor*
0 dB	0%	1
0.5 dB	12 %	1.12
1 dB	26 %	1.26
1.5 dB	41 %	1.41
2 dB	58 %	1.58
2.5 dB	78 %	1.78
3 dB	100 %	2
3.5 dB	124 %	2.24
4 dB	151 %	2.51
4.5 dB	182 %	2.82
5 dB	216 %	3.16
5.5 dB	255 %	3.55
6 dB	298 %	4

Calculation Example at 80 MHz:

For determining the power requirement we read the suitable graph of VULP 9118 E for free space conditions. At 80 MHz and 10 V/m the corresponding graph (no modulation) was estimated to be 30 Watt. If an AM of 80% is applied, a power factor of 3.24 (= 5.1 dB) is required. The coaxial cable connecting antenna and amplifier is assumed to have 0.5 dB attenuation (power-factor 1.12) (10 m AK 9515 D: 0.4 dB at 100 MHz). The chamber attenuation in the center of the uniform area is 3.2 dB greater compared to free-space conditions (power-factor 2.09). The uniform area may have a decay of x dB, referring to the center point. Thus we have an additional worst-case attenuation of: 5.1 dB + 0.5 dB + 3.2 dB + x dB = 8.8 + x dB! Not considering the decay x of the uniform area, we still need 7.6-times the power we obtained in the first step, which is the 228 Watt! Using a stacked log.-per antenna instead of a ordinary log.-per. Design, the gain enhancement is around 2 dB, resulting in approx. 144 Watt amplifier power. A further advantage of the stacked log.-per. design is the better focussed directional H-plane pattern, which helps to compensate chamber imperfections.