ONKEN CALCULATO by Cyr-Marc Debien 2000 © cdebien@cmaisonneuve.c

After original research from M. Eijiro Koïzumi and Jacques Mahul and Jean Hiraga ca

Koïzumi facto		K=	1,57	K=	70,650	Hz

You can modify the RED value. The Green Value are calculated by the software. In many case it's for va

TS parameters

Fs	45,000	Hz	driver frequency resonnance
Re	8,000	ohms	dc resistance of driver
Qms	6,000		mechanical Q of the driver
Qes	0,350		electrical Q of the driver
Qts	0,331		total Q of driver at Fs calculated by the software
Mms/d	10,000	gr	total cone assembly mass
Sd	2,830E-02	m^2	effective radiation area of the driver cone
Rg	2,000	ohms	total components resistance (xover coil, terminal, wire, amp
Cms	1,25E-03		driver suspension compliance calculated by the software
Vas	140,296	litres	air volume driver compliance calculated by the software
Vas*Qts2	23,328		calculated by the software
n =	5,700	(best 5.7)	Onken alignment (best alignment = 5.7, Onken alignment =
			note : you can play with the n factor to maintain the L' vent u
			but try to don't used a excessive value because you don' t re

Box and system response

F-3	46,224	Hz	box cutoff frequency at -3dB
Fb	43,039	Hz	box cutoff frequency
Cab	9,498		acoustical box compliance
Map	14,398		acoustical mass box
S vent	268,800	cm^2	**this value is calculated by the vent dimension section**
nO	0,035		
dB 1w/1m	95,529	dB	total efficiency of the system including Rg

Vent lenght

L vent	29,931	cm	effective lenght vent
L' vent	20,774	cm	corrected effective vent lenght (use this lenght in your vent c
			note : If the L' vent is over 35 cm, your driver is not suitable

Vent dimension (habitually an Onken speaker have a S vent equal or -15 % smaller to the

Width	2,100	cm	indicate the width of one vent
Height	16,000	cm	indicate the height of one vent
Quantity	8,000		indicate the number of vent you can use (Onken speaker ha
S vent	268,800	cm^2	total vent area (try to obtain a S vent equal or maximum 15%

Vent volume	5,584	litres	total volume occupied by all vent in the box	
Total Box Volume				
Vb	132,968	litres	total internal volume of the box	
Vb Total	138,552	litres	total internal volume of the box plus the required volume for	

lidation.		
lifier, etc.)		
6.34)		
nder 30 cm		
espect the Onken approach		
calculation)		
for the Onken speaker application		
ve 6 or 8 identical vent)		
% less to the Sd)		

the vent		