This article is from the Car Audio FAQ, by Ian D. Bjorhovde (ianbjor@mobileaudio.com) with numerous contributions by others.

4.1 What are "Thiele/Small parameters?"

These are a group of parameters outlined by A. N. Thiele, and later R. H. Small, which can completely describe the electrical and mechanical characteristics of a mid and low frequency driver operating in its pistonic region. These parameters are crucial for designing a quality subwoofer enclosure, be it for reference quality reproduction or for booming.

`Fs'
Driver free air resonance, in Hz. This is the point at which driver impedance is maximum.

`Fc'
System resonance (usually for sealed box systems), in Hz

`Fb'
Enclosure resonance (usually for reflex systems), in Hz

`F3'
-3 dB cutoff frequency, in Hz

`Vas'
"Equivalent volume of compliance", this is a volume of air whose compliance is the same as a driver's acoustical compliance Cms (q.v.), in cubic meters

`D'
Effective diameter of driver, in meters

`Sd'
Effective piston radiating area of driver in square meters

`Xmax'
Maximum peak linear excursion of driver, in meters

`Vd'
Maximum linear volume of displacement of the driver (product of Sd times Xmax), in cubic meters.

`Re'
Driver DC resistance (voice coil, mainly), in ohms

`Rg'
Amplifier source resistance (includes leads, crossover, etc.), in ohms

`Qms'
The driver's Q at resonance (Fs), due to mechanical losses; dimensionless

`Qes'
The driver's Q at resonance (Fs), due to electrical losses; dimensionless

`Qts'
The driver's Q at resonance (Fs), due to all losses; dimensionless

`Qmc'
The system's Q at resonance (Fc), due to mechanical losses; dimensionless

`Qec'
The system's Q at resonance (Fc), due to electrical losses; dimensionless

`Qtc'
The system's Q at resonance (Fc), due to all losses; dimensionless

`Ql'
The system's Q at Fb, due to leakage losses; dimensionless

`Qa'
The system's Q at Fb, due to absorption losses; dimensionless

`Qp'
The system's Q at Fb, due to port losses (turbulence, viscosity, etc.); dimensionless

`n0'
The reference efficiency of the system (eta sub 0) dimensionless, usually expressed as a percentage

`Cms'
The driver's mechanical compliance (reciprocal of stiffness), in m/N

`Mms'
The driver's effective mechanical mass (including air load), in kg

`Rms'
The driver's mechanical losses, in kg/s

`Cas'
Acoustical equivalent of Cms

`Mas'
Acoustical equivalent of Mms

`Ras'
Acoustical equivalent of Rms

`Cmes'
The electrical capacitive equivalent of Mms, in farads

`Lces'
The electrical inductive equivalent of Cms, in henries

`Res'
The electrical resistive equivalent of Rms, in ohms

`B'
Magnetic flux density in gap, in Tesla

`l'
Length of wire immersed in magnetic field, in meters

`Bl'
Electro-magnetic force factor, can be expressed in Tesla-meters or, preferably, in meters/Newton

`Pa'
Acoustical power

`Pe'
Electrical power

`c'
Propagation velocity of sound at STP, approx. 342 m/s

`p'
Density of air at STP 1.18 kg/m^3 (rho)