Getting Started Quickly

Place the loudspeakers at the correct angle
(ITU-R BS.775)

0° C
-30° L   30° R
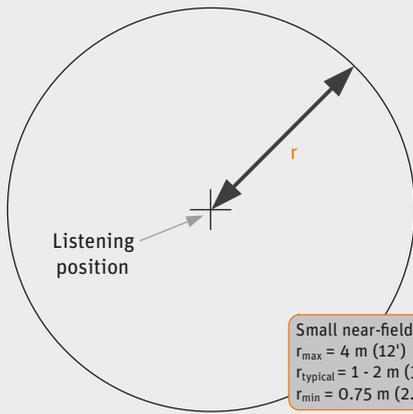-100°   100°
Ls -110°   110° Rs
-120°   120°
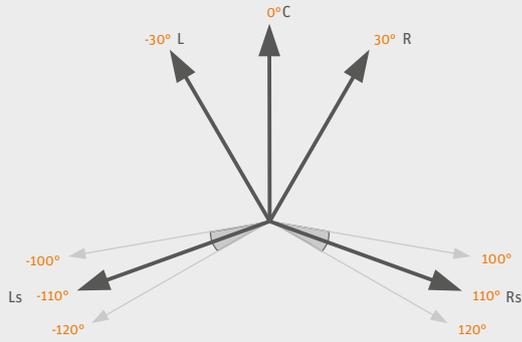
For 2-channel stereo use ±30°

For 7.1 high definition systems
(no international standards)

0° C
-30° L   30° R
-90° Ls   90° Rs
-120°   120°
Lb   Rb
-150°   150°
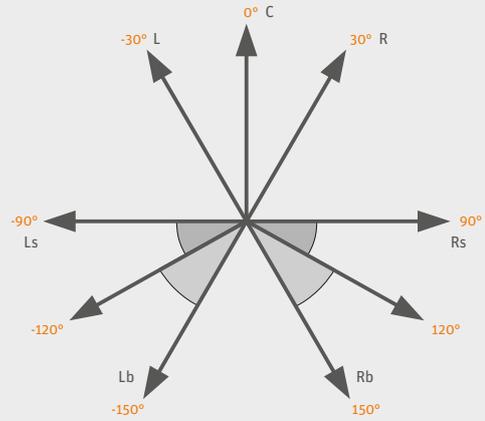
Place the loudspeakers at the same distance

r

Listening position

Small near-field systems:
$r_{max} = 4$ m (12')
$r_{typical} = 1$ - 2 m (3 - 6')
$r_{min} = 0.75$ m (2.5')

Delay closer loudspeakers by 30 µs/cm (76 µs/inch)
Use the furthest loudspeaker a reference

$$t_{del} = 30\ \mu s * (r_2 - r_1)$$

r_{diff}
r_1
r_2
ref

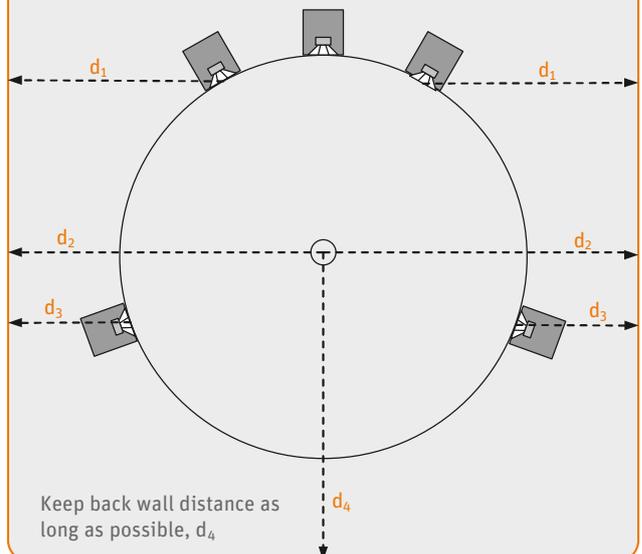| Delays:	
r_{diff}	t_{del}
5 cm (2")	150 µs
10 cm (4")	300 µs
20 cm (8")	600 µs
50 cm (20")	1.5 ms
1 m (3')	3 ms
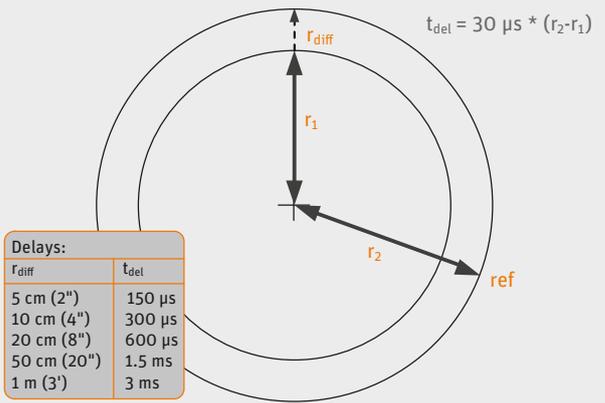
Horizontal: Point loudspeakers at listening position
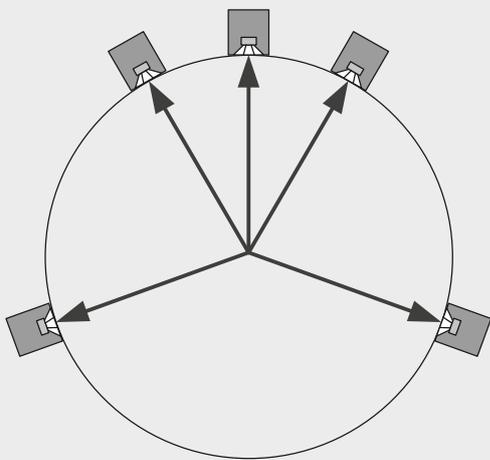
Use the acoustical axis as a reference

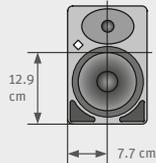## Symmetrical loudspeaker and object placement in the room improves stereo imaging, d_1, d_2, d_3

d_1 d_1
d_2 d_2
d_3 d_3
d_4

Keep back wall distance as long as possible, d_4

Getting Started Quickly

Acoustical axis and cabinet orientation

Use acoustical axis as a reference point

12.9 cm

7.7 cm

Recommended cabinet orientation for a wide usable listening area
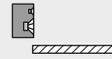
Not recommended cabinet orientation, except for fixed listening positions

Acoustical controls

Autonomous operation

Near a desktop

|	
Small:	Low-Mid = -1.5 dB
Medium:	Low-Mid = -3 dB
Large:	Low-Mid = -4.5 dB

Network controlled using "Neumann.Control"

• Download Neumann.Control software or app

• Use "Guided Alignment" to describe your room and installation and automatically set some acoustical controls

• Use "Manual Alignment" and an acoustic measurement system for more advanced control of the in-room response

• Use "Precision Alignment" for a fully automated alignment of your system (requires a Neumann Measurement Microphone)

Distance from the wall

f_n
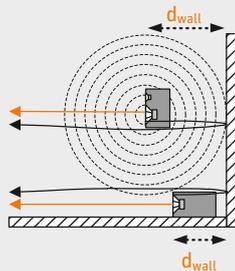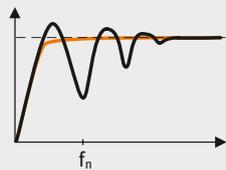
d_{wall}

d_{wall}

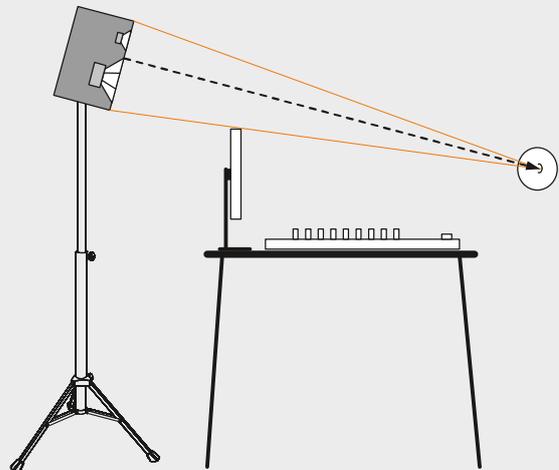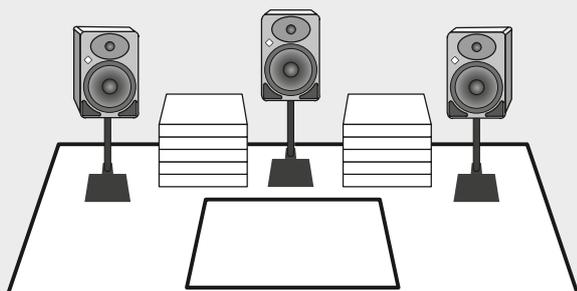|	
Full Range Loudspeakers	Avoid d_{wall} = 0.8 – 2.0 m
Bass Managed Loudspeakers	Avoid d_{wall} = 0.8 – 1.0 m
Subwoofers	Avoid d_{wall} = >0.8 m

Vertical plane: Point the loudspeakers at the listening position.

Avoid objects between the loudspeaker and listening position.

Arranging the desktop: uncluttered and symmetrical

Avoid reflections for a smooth midrange