

Presented originally at CES 2006 in Las Vegas



Home Theater 101

THX Home Theater

- ▶ THX Goal
- ▶ THX Experience
- ▶ Seats
- ▶ Room
- ▶ Picture
- ▶ Speakers
- ▶ Electronics
- ▶ User Controls
- ▶ Setup and Calibration

The THX Goal

- ▶ Have the Picture & Sound take you away to “another place”
- ▶ That “place” can be in a movie, a game or a musical interlude
- ▶ Great sound and picture in all the seats
- ▶ Have the best possible experience given your budget, time, space and available technology

In the THX Experience

- ▶ You are immersed in the sound
 - Speakers cover all the seats
- ▶ You are immersed in the picture
 - Big, Impressive, Sharp, Clear
- ▶ You do not get distracted
- ▶ You do not get tired
- ▶ You experience the artists original work

The Seats

- ▶ Comfortable for long distance sitting
 - Not fatiguing
 - Don't block the surround sounds
 - The right number for the picture and room
- ▶ Can be placed properly for the best picture
- ▶ Can be placed properly for best sound

The Room

- ▶ The quieter the better
 - No distracting background noise or stray light
 - No distracting lights or reflections
 - Light level adjusted for best viewing
- ▶ Sounds reflected by the room all sound smooth and even
- ▶ Is well isolated so that it can be used anytime

Room Considerations

- ▶ Doors that be closed
- ▶ Windows that can be shuttered
- ▶ Lights that can be controlled
- ▶ Flexible enough to place seats for best experience
- ▶ Small rooms are good, big rooms are better

The Picture

Big enough to fill your vision
but small enough to be,
clear and sharp.

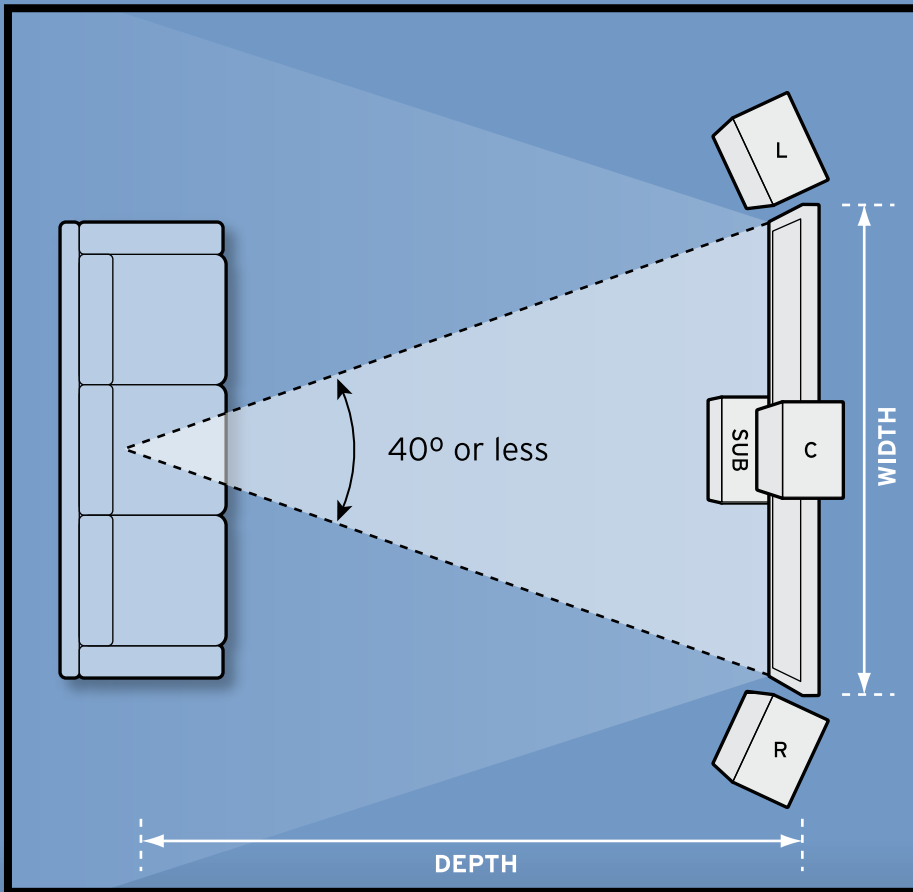
The Picture

- ▶ Excellent Picture Quality
 - Maximum Black-White contrast
 - Good grey detail
 - Full, accurate color spectrum
 - Selectable picture presets for light and dark rooms
- ▶ Proper type for the room
 - Use a direct view set for light rooms
 - Use a front projector only in a light controlled room

The Picture

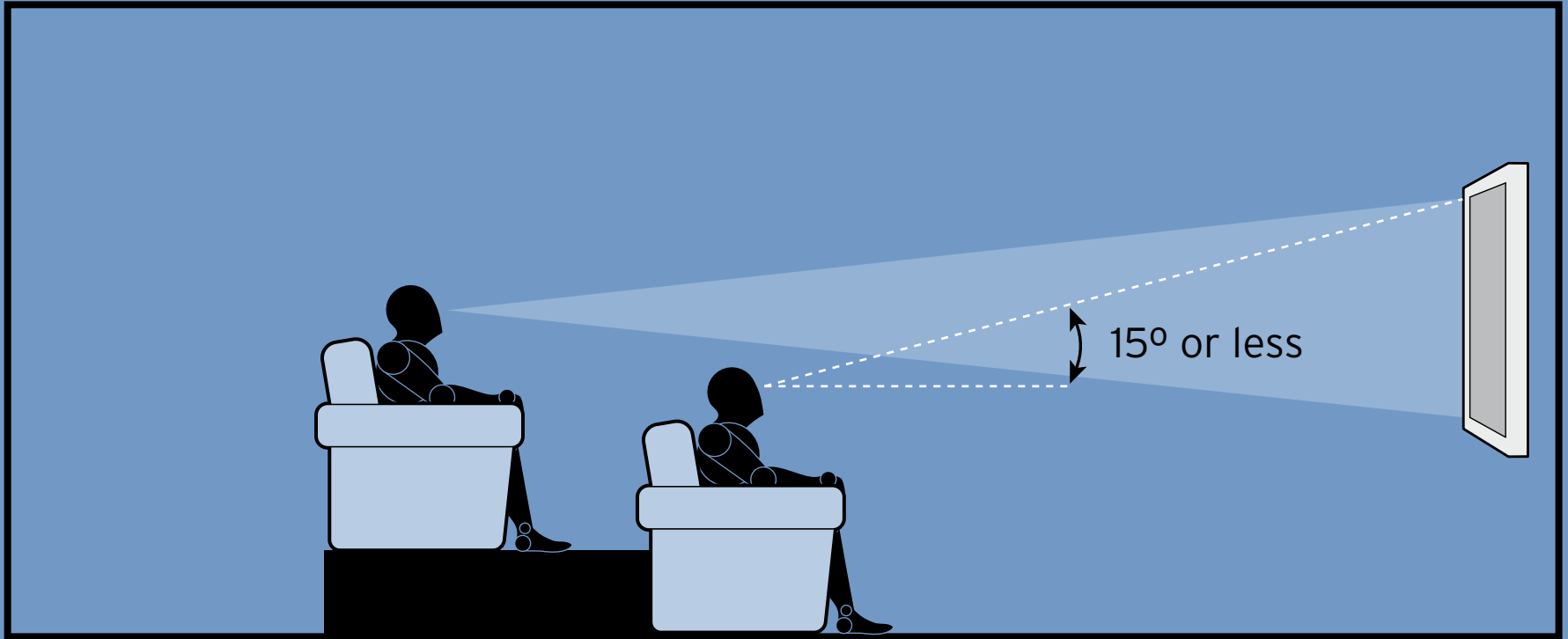
- ▶ Sized properly for audience and source
 - For High Definition material the apparent screen size can be larger
 - For Standard Definition material the apparent screen size should be smaller
- ▶ Distance to seats = Picture Size
 - Measure from the main seat to find the apparent size then go to a larger or smaller screen or move seats closer or further away
- ▶ Clear view from all the seats
 - Screen high enough for a clear view for all but no one forced to look up more than 15°

The Picture



- ▶ Based on average human vision
- ▶ Theoretical max horizontal width for HD: 40°
- ▶ Sharp only on the very best material
- ▶ Consider going to a smaller screen
- ▶ $D = W / .728$
- ▶ $W = D \times .728$
- ▶ For SD use .535

The Picture



All viewers should have clear sight lines without having to look up more than 15°.

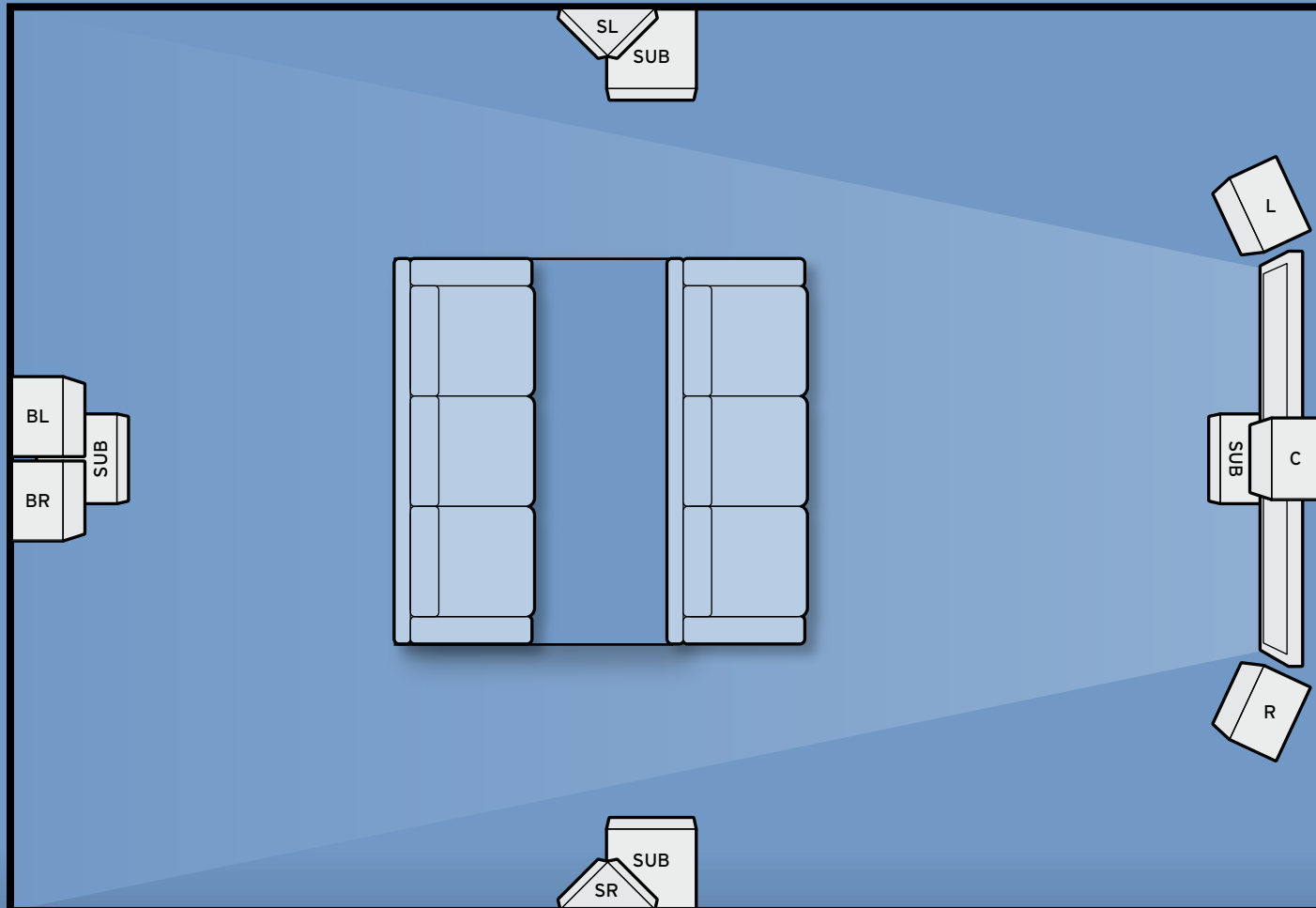
Speakers

- ▶ **Good quality, all THX Certified**
 - No tones lost or exaggerated
 - Free from buzzes, rattles or bad resonance
 - Play loud enough for you without distorting
 - All sound radiates smoothly in all directions
- ▶ **Suited to the room and seating**
 - Sound covers all of the seats evenly
 - Sound from the screen speakers concentrated on the listeners not the walls, floor or ceiling
 - Sound from surround speakers balance acoustic envelopment and exciting effects

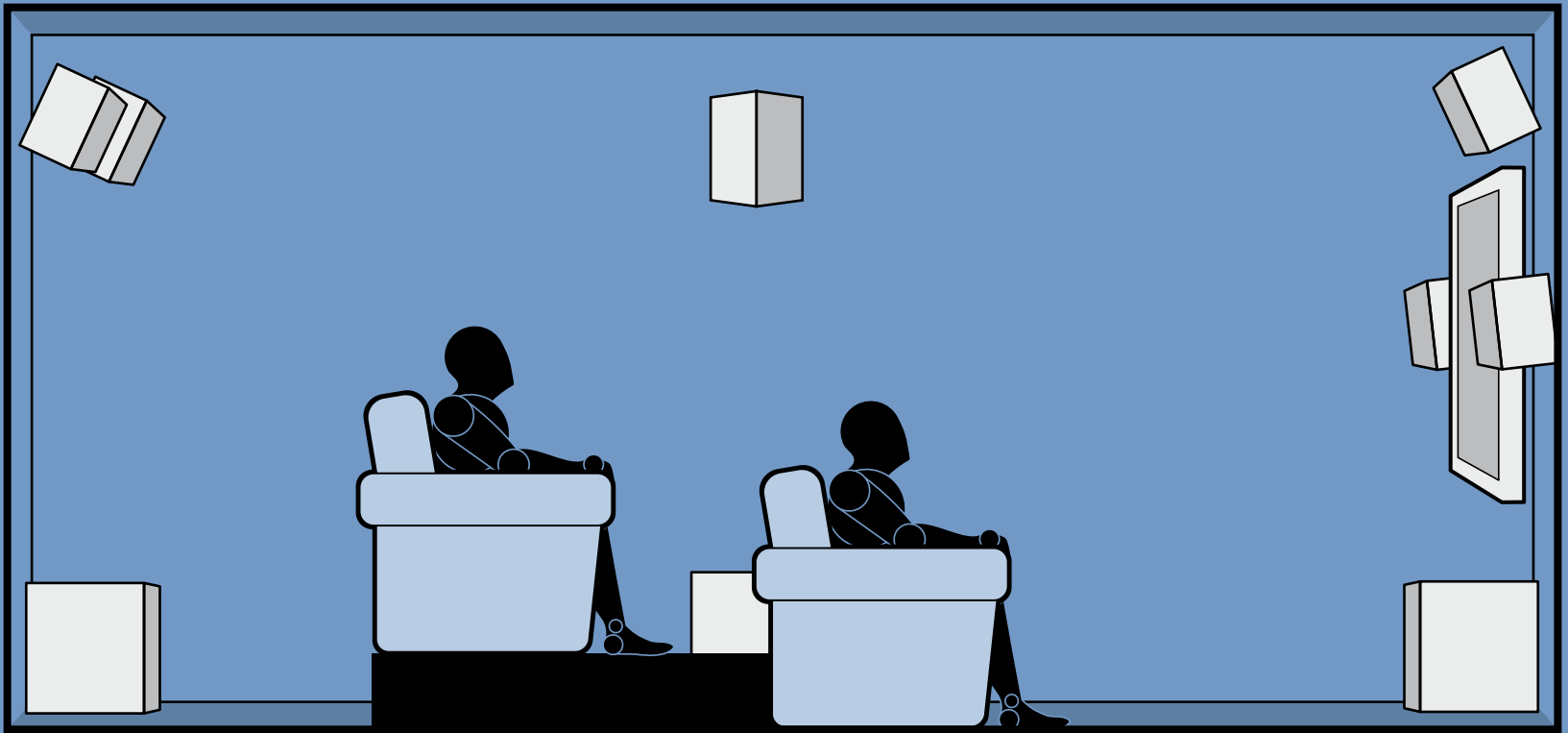
Speakers

- ▶ Placed properly around screen
 - Left and Right at mid screen spread about 45°
 - Center speaker below the screen (good), above the screen (better), behind the screen (best)
- ▶ Placed properly for seating
 - Surround speakers always to the side and high
 - Back speakers in 7.1 systems behind and high
 - ▶ Directly together for THX 7.1 with ASA
 - ▶ Apart for other 7.1
- ▶ Placed properly for room
 - Surrounds can work well in ceiling placements
 - Use a subwoofer in the middle of each wall for the best possible bass QUALITY

Speakers



Speakers



Electronics

- ▶ All THX Certified of course
 - Extensive engineering input and product testing done by THX
 - Easier to setup and use
 - Reliable
- ▶ Appropriate for theater size and maximum expected playback level
- ▶ Properly setup and calibrated!!

Accessories

- ▶ Wiring
 - Good electrical performance
 - Good mechanical quality
 - Reasonable price
- ▶ Equalizers - an excellent tool if (and only if) they are properly used

User Controls

- ▶ A single remote controlling all products and functions
- ▶ Simple, intuitive layout
- ▶ All basic actions available with one or two keystrokes maximum
- ▶ Reliably produces the expected result

Setup & Calibration

▶ Setup Audio

- Set speaker number and size

- ▶ All speakers small plus subwoofer using appropriate crossover (THX or 80Hz-120Hz)
- ▶ Mono subwoofer output daisy chained to all subs
- ▶ Distance from main seat to each speaker set
- ▶ CAUTION - Auto setup programs can be fooled

- Aim speakers

- ▶ Front speaker aim up/down and side to side to cover all the seats
- ▶ Surrounds speakers aimed for best balance of envelopment plus special effects excitement without distracting from the story on the screen

Setup & Calibration

- ▶ Setup Video – Proper picture calibration including bright room/dark room presets
- ▶ Verification of Audio
 - Each speaker gets the right channel
 - All speakers in proper phase
 - Each speaker plays loud without distortion
 - Each input set for appropriate mode
- ▶ Calibration of Audio
 - Balance the channel to channel volume using internal test noise
 - CAUTION – Automatic room calibration modes can be fooled. Look, listen and decide if the adjustments it chooses makes sense!

The THX Experience

- ▶ Clear dialog
- ▶ Immersive sound and picture
- ▶ No distracting sounds or lights
- ▶ No fatigue from compromised picture, sound or seat

The THX Experience

Total involvement in the
artists story in every seat
in the theater.

Thank you for your
interest in THX

For more information find a
THX Certified Technician at
www.thx.com/mod/designers/fin.html

