
RECORDING STRINGS

- VIOLIN/VIOLA/CELLO/CONTRABASS
- ACOUSTIC GUITAR
- PIANO

WITH ADAM CASEY OF THE TRUE VINE PRODUCTIONS



TYPES OF MICROPHONES USED FOR RECORDING STRINGS

- SMALL DIAPHRAGM CONDENSERS (PENCIL MICS)
- LARGE DIAPHRAGM CONDENSERS
- RIBBON MICROPHONES
- DYNAMIC MICROPHONES
- CONTACT MICROPHONES

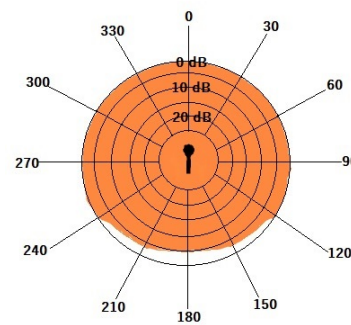


PRO/CONS OF MICROPHONE TYPES

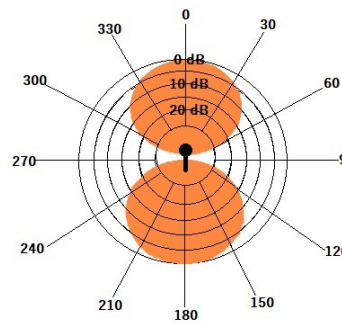


- Large diaphragm condensers (LDCs) are full bodied (better LF response), have lower noise floors and are more 'open' and more sensitive to loud noises
- Small diaphragm condensers (SDCs) are focused (better HF response), directional and less sensitive to loud noises
- Ribbon microphones are darker, warmer, more 'vintage', stronger proximity effect, more prone to breaking!
- Dynamics have the best rear rejection, so, less spill of other instruments, but, tonally the most limited (mid range focused)
- Contact microphones have almost 100% success in rejecting other instruments, but, are the most unnatural sounding as they're only picking up vibration through magnets, not through a diaphragm or ribbon

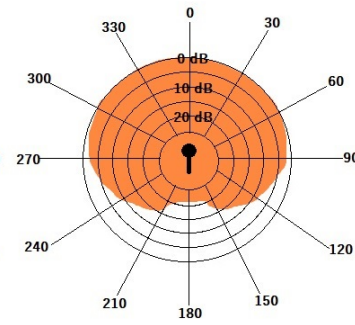
Omnidirectional Polar Pattern



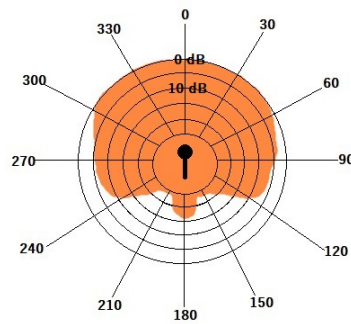
Bidirectional Polar Pattern



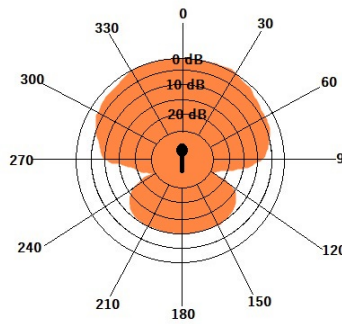
Unidirectional (Cardioid) Pattern



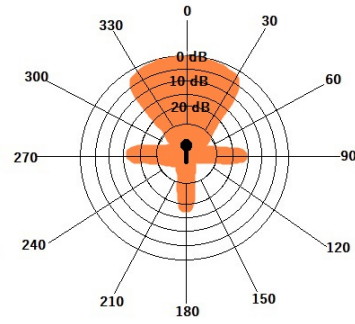
Supercardioid Polar Pattern



Hypercardioid Polar Pattern



Ultracardioid Polar Pattern



PROXIMITY EFFECT



MICROPHONE CLOSE TO
INSTRUMENT = MORE BASS



MICROPHONE DISTANT TO
INSTRUMENT = MORE ROOM



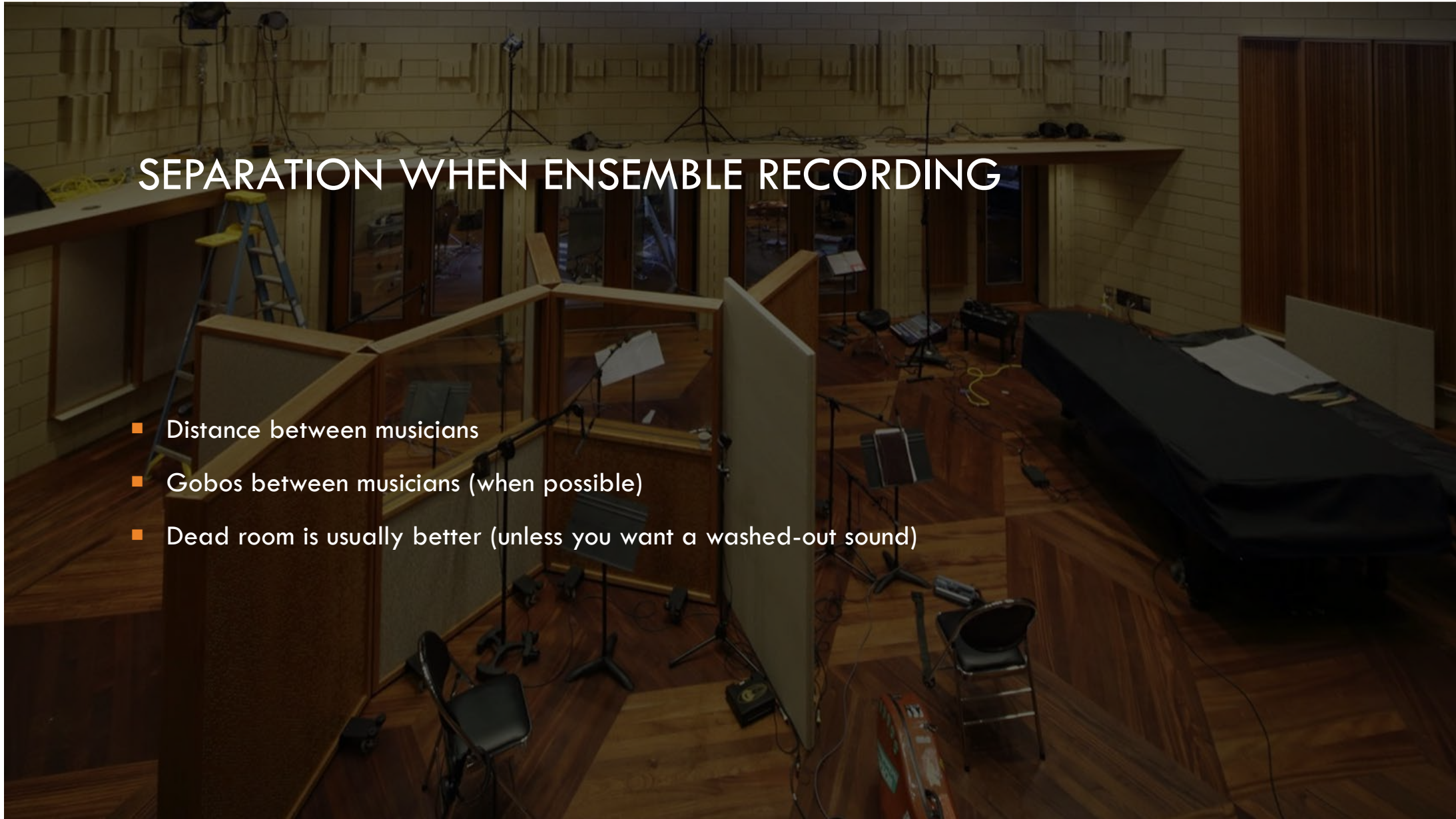
THE LOUDER THE INSTRUMENT,
THE MORE ROOM SOUND
YOU'RE CONTENDING WITH



USE PROXIMITY EFFECT TO
YOUR ADVANTAGE

SEPARATION WHEN ENSEMBLE RECORDING

- Distance between musicians
- Gobos between musicians (when possible)
- Dead room is usually better (unless you want a washed-out sound)



MONO VS STEREO MICROPHONE CONFIGURATIONS

MULTITRACKING
SOLOISTS: A SINGLE
MIC WILL WORK

LIVE TRACKING AN
ENSEMBLE: STEREO
MIC
CONFIGURATIONS
ARE A MUST

STEREO MIC
CONFIGURATIONS
INTRODUCE
COMPLICATIONS
WITH PHASING

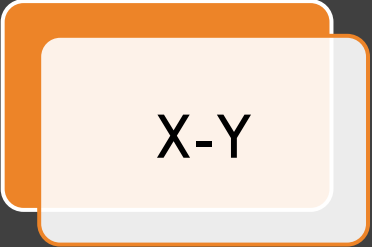
MONO VS STEREO MICROPHONE CONFIGURATIONS

STEREO MIC
POSITIONS CAN
SOUND GREAT ON
SINGLE
INSTRUMENTS

TWO
MICROPHONES
CAN BE USED IN
MONO

EVEN IN MONO,
PHASING ISSUES
CAN BE A PROBLEM

STEREO MICROPHONE POSITIONS



X-Y

A diagram showing two microphones positioned vertically, one above the other, representing the X-Y stereo technique.



ORTF

A diagram showing two microphones positioned side-by-side at an angle, representing the ORTF stereo technique.



SPACED

A diagram showing two microphones positioned side-by-side, representing the SPACED stereo technique.




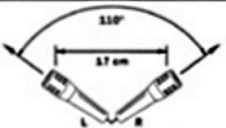
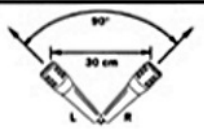

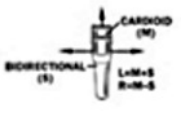
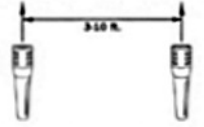
BLUMLEIN

A diagram showing two microphones positioned side-by-side, representing the BLUMLEIN stereo technique.



MID
SIDES

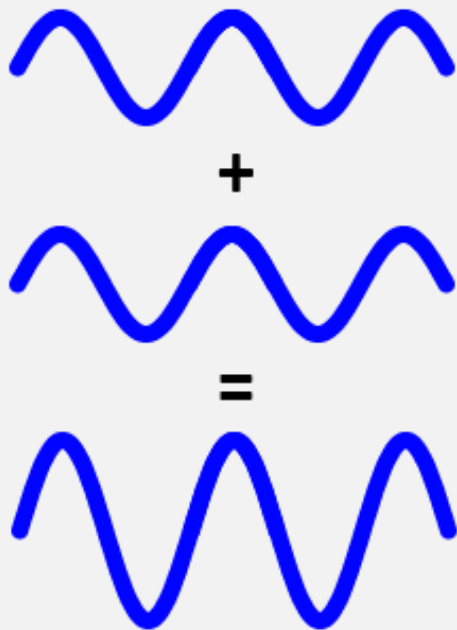
A diagram showing two microphones positioned side-by-side, representing the MID SIDES stereo technique.

STEREO PICKUP SYSTEMS	MICROPHONE TYPES	MICROPHONE POSITIONS	
X-Y	2 - CARDIOID	AXES OF MAXIMUM RESPONSE AT 135° SPACING: COINCIDENT	
ORTF (FRENCH BROADCASTING ORGANIZATION)	2 - CARDIOID	AXES OF MAXIMUM RESPONSE AT 110° SPACING: NEAR-COINCIDENT (7 IN.)	
NOS (DUTCH BROADCASTING FOUNDATION)	2 - CARDIOID	AXES OF MAXIMUM RESPONSE AT 90° SPACING: NEAR-COINCIDENT (12 IN.)	
STEREOSONIC	2 - BIDIRECTIONAL	AXES OF MAXIMUM RESPONSE AT 90° SPACING: COINCIDENT	
MS (MID-SIDE)	1 - CARDIOID 1 - BIDIRECTIONAL	CARDIOID FORWARD-POINTED; BIDIRECTIONAL SIDE-POINTED; SPACING: COINCIDENT	
SPACED	2 - CARDIOID OR 2 - OMNIDIRECTIONAL	ANGLE AS DESIRED SPACING: 3-10 FT.	

STEREO MICROPHONE TECHNIQUES

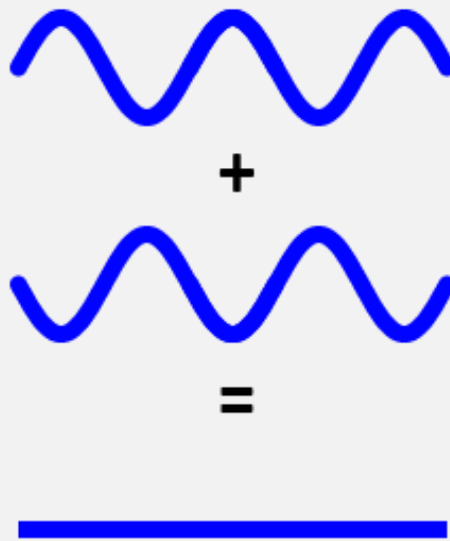
In Phase

Waves added together



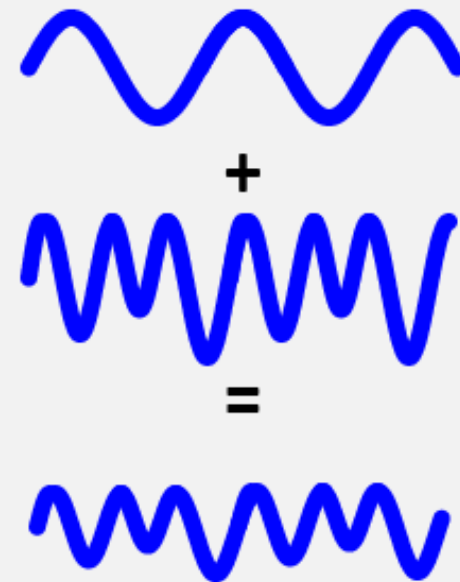
180° Out of Phase

Waves cancel each other

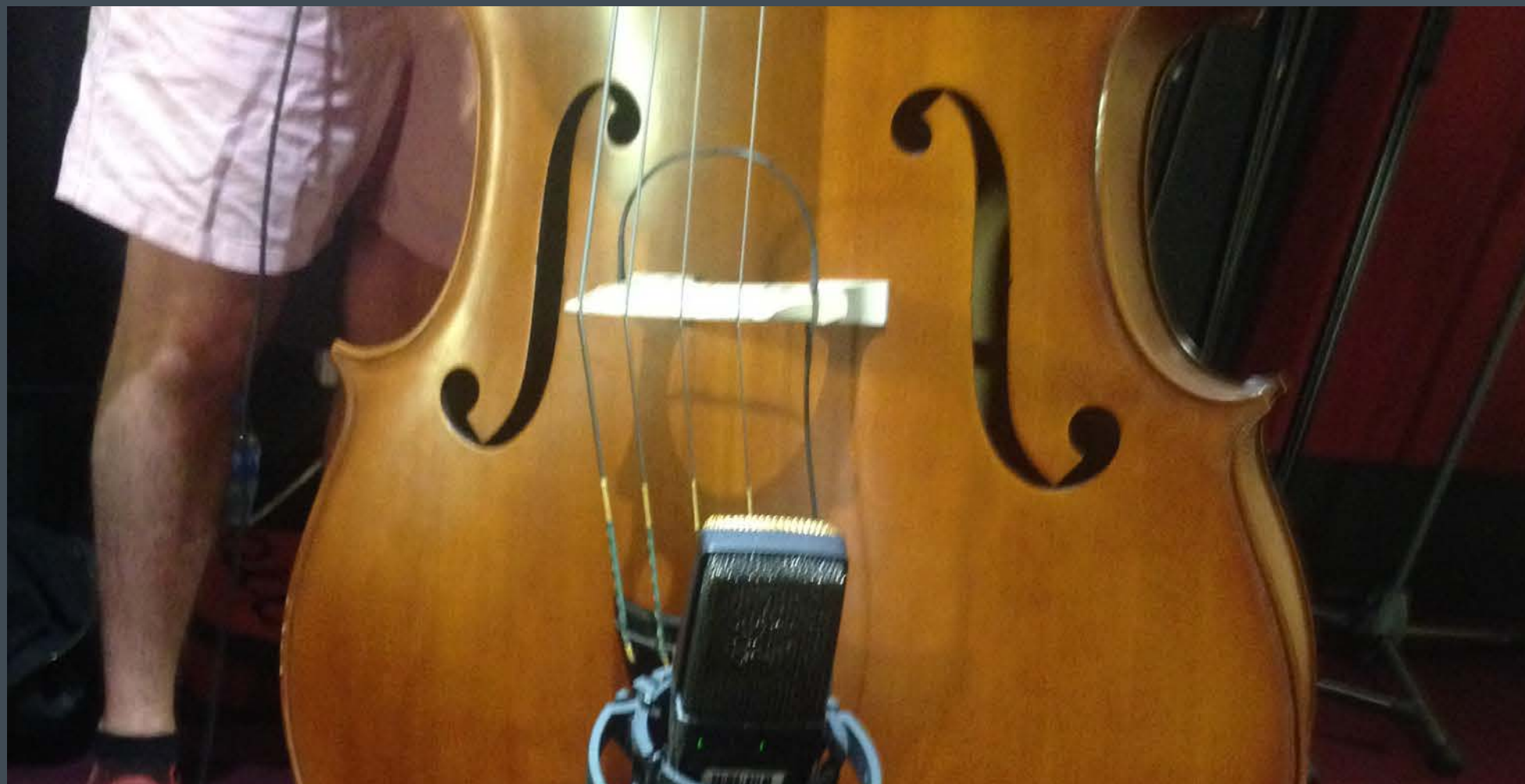


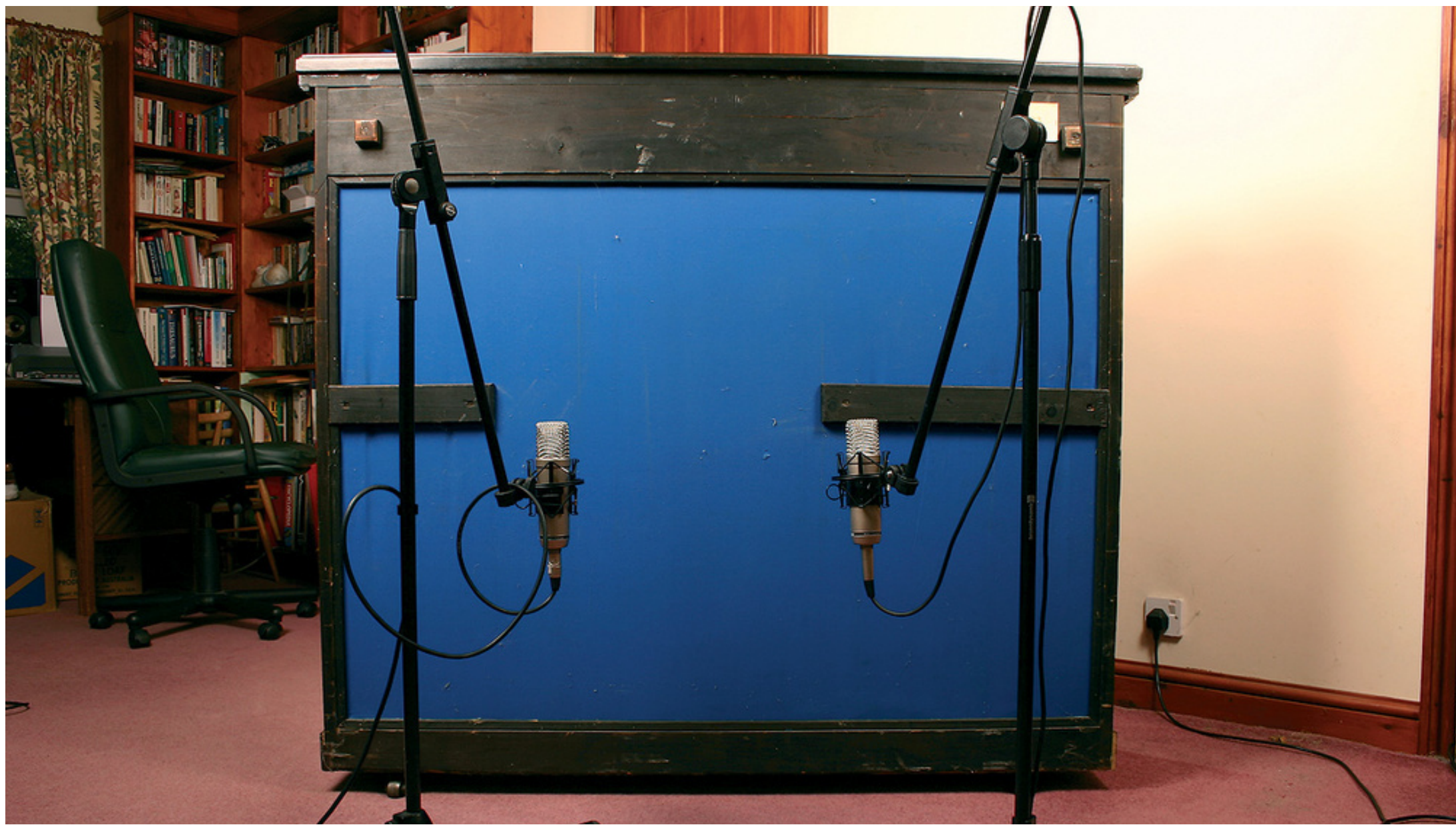
Different Waves

New wave created











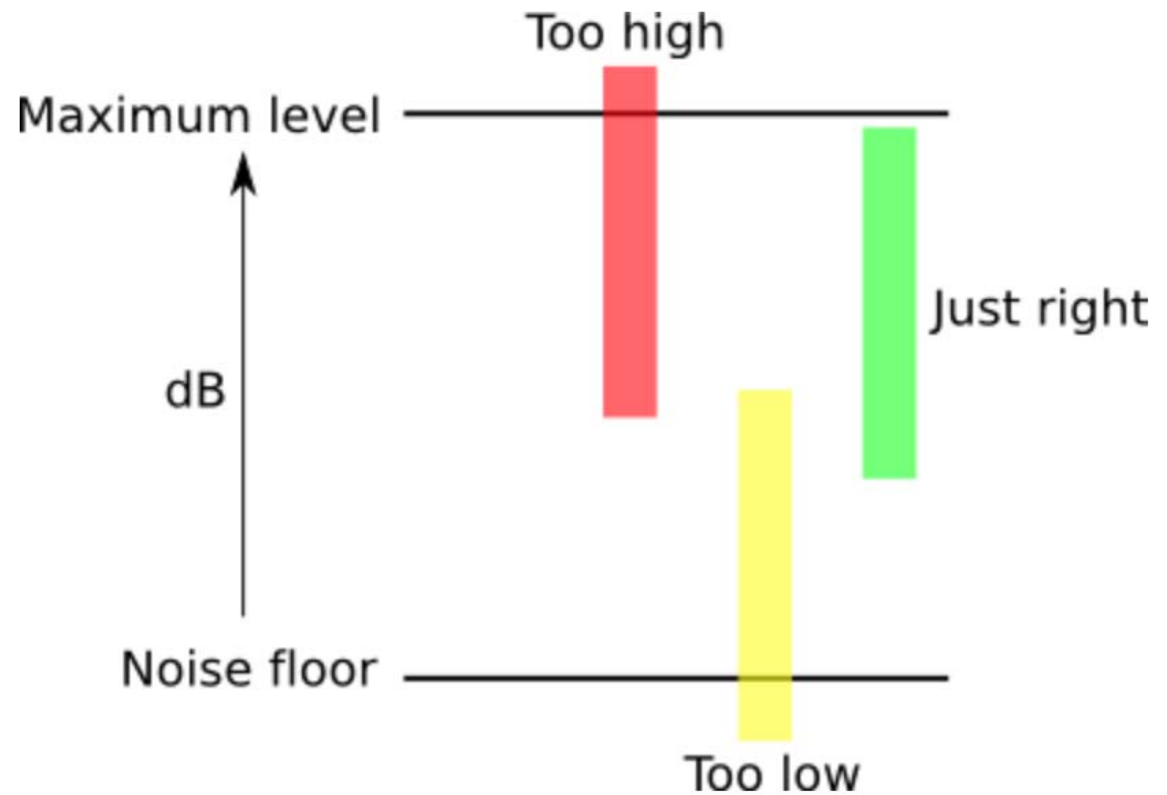




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- <http://www.mxlmicros.com/blog/7-critical-tips-on-how-to-mic-an-acoustic-guitar/>

GAIN STRUCTURE

- The concept of **gain structure** is that, at each connection between components in the system, the signal level is as high as it can be (to minimize noise), but no higher than the maximum level that either component allows (so there is no distortion due to overload).



101: KEEP PEAK AT -6 DECIBELS



WORK WITH A PRO

This sounds self-serving, as this is me, but, I mean it

Recording at home is a wonderful opportunity we all have, but, to truly learn how to record and mix audio with integrity, learn from a professional

Mastering engineers biggest complaint is there is no longer any QC and, thus, recordings arrive in a sorry state that is often unworkable

What you're NOT hearing are things like clipping, compression, acoustic resonance, noise, low frequency response, phasing and more





WORK WITH A PRO

- You will learn something
- You will save time and money
- You will have a much more inspiring experience
- You can focus on making music; what you're best at