

Sonic Studios™

MULTITRACK

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*Making Audio History with DSM™
Ambient Stereo-Surround
Microphones*

Make Live Sounding Studio Session
Recordings. Record Anything or
Everything, Everytime, Anyplace with
Patented DSM™ Method.

Visit the
'Other Mics
vs. DSM' in
the [FAQ](#)
section for
more
informative
discussion
about
microphone
recording
differences
and
techniques.

DSM™ Multichannel Stereo-Surround Mics + Method of Ambient Sound Recording



Edited excerpts from a 1989 letter to Home & Studio Magazine describing DSM & Multitrack Technique. Updated 11/23/2004 descriptions of related surround sound recording/speaker systems.

Author's Statement: Our recorded music lacks the real dimension and emotional content now found only by attending live concerts and performances.

Paul White once wrote all that's needed is a good pair of microphones to make a perfectly good stereo recording. However, Stereo microphones (*that includes single point and two separate microphones*) do not record sounds the way we experience them live.

SURE We still feel some excitement and a measure of pleasure while listening to a good recording, but..... for the most part..... nobody is even remotely fooled into the kind of rapture and joyful feeling that can only be had at a live concert.

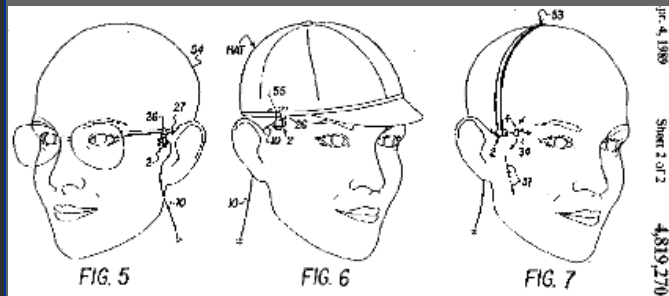
Why is this? IT'S REALLY VERY SIMPLE!

USE YOUR HEAD!

THE SHAPING OF SOUND (*by the true HRTF acoustic properties of a person's head*) BEFORE RECORDING WITH THE MIC IS ALL THAT'S MISSING FROM MAKING IT VIRTUALLY SURROUND-SOUND REAListic!

You have to either wear on your head, or use an acoustically correct HRTF baffle. This is the only way to operate DSM mics patented (*US#4,819,218*) Dimensional Recording Area Method (*that's about .5" to 2.5" away from the ear outer perimeter*). This is what makes it work!

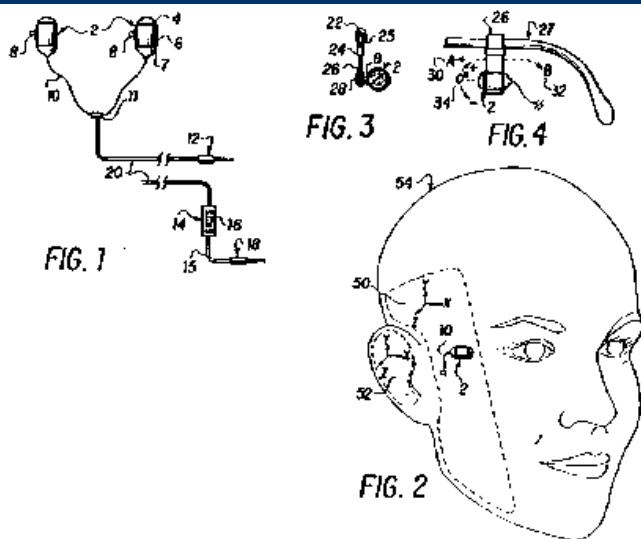
While headwearing (*being part of the microphone system*) works best for some location recording, often it is more practical or easier (*especially for live performance or studio session*), to use a regular mic stand or boom stand. This is made possible with the world's only HRTF acoustically correct [GUY](#) or [LiteGUY](#) dummy



That's
all
there
is to it



head baffle to precondition the acoustic reception before mic-recording any live sound.



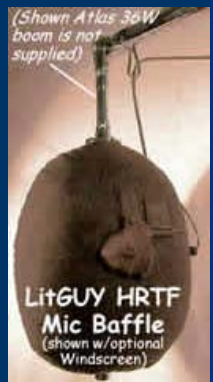
U.S. Patent Apr. 4, 1999 Sheet 1 of 2 4,819,270

This allows two track or multitrack recording of any sound in true 3-D

Headworn or HRTF baffled DSM™ 2-channel stereo mics naturally record the surround ambient within each recording.

This natural encoding sounds binaural-real on headphones, and gives precise wide 2-speaker playback imaging.

When the same recording is played with SRS circle sound, Dolby Pro Logic, or DTS NEO-6 2-channel-to-surround decoder turned on, the surround channels play back in full 360° for 'you-are-there' cinema surround in 4, 5.1, 6.1, 7.1 speaker channel realism!



Prove this to yourself by [downloading sample recordings](#) to your portable MP3 player, or burn a CD to play on any CD player with stereo speakers, or play the CD on any DVD/CD/MP3 video player with 2 channel-to-surround decoding turned on.

QUESTION.....

DO I REALLY HAVE TO **WEAR** THE MICROPHONES? CAN'T I USE A MIKE STAND OR SOMETHING?

ANSWER:

YES!!! You really must be wearing the microphones in the Dimensional Recording Area, or use a true HRTF baffle.

The simple reason for this and NOT conventional usage of bare microphones on stands (or boom) is the primary element missing from all recorded sound today is the psycho acoustic signatures (A.K.A. *The Acoustic Transfer Function or HRTF*) our head (and, to a lesser degree, upper body) create within the acoustic sound field.

Using a conventional microphone or mixing multiple microphones is recording sound that our brain cannot relate to as being real sounding!

Recording studios might well consider the GUY or LiteGUY dummy recording head substitute. The LiteGUY HRTF



**Studio & Stage
Windproof Surround Sound
Recording System**

**INCLUDES:
DSM MIC + LiteGUY + TRIPOD + M1 DAT**

*baffle is most versatile with
conventional 5/8" mic stand or
Boom threaded mounting,*

*For field recording, many choose to wear
the DSM mics; a real person actually works
the very best and allows full real-time*

monitoring of EXACTLY what the DSM mic is recording just by listening!

BIG QUESTION:

HEY!!WAIT A MINUTE!ARE YOU TALKING ABOUT BINAURAL RECORDING...?!??

ANSWER:

NO!!it may sound like the same because of the head worn (HRTF) aspect but, there are major differences and results between Binaural method and Dimensional Stereo-Surround Microphones (DSM) method.

First.....Binaural commonly means

"in or near the ears" mic pickups

While placing microphones inside or directly adjacent to the ears of a real person or dummy head usually produces **very real sounding recordings**.....

Recordings made with 'mics-in-or-near-ear' HRTF Binaural is limited to headphones only without sounding mostly **awful**.

The reason for this limitation is simple;

When you want to listen to a Binaural recording, **NO EARS CAN BE USED TO REPROCESS THE RECORDED SOUND A SECOND TIME**; this will confuse your brain!

Binaural mics use the very complex shapes of the EAR to alter the sound before the mics pick it up.

Headphones (*especially the closed cup types*) **eliminate** ear flaps in the listening process; the perceived sound goes directly into your ear canal. Your brain will then correctly recognize the psycho-acoustic dimensional cues contained in the recording without confusion.



ALSO.....Binaural doesn't easily mix to mono without disagreeable results.

DSM RECORDING METHOD & MICROPHONES HAVE NO SUCH LIMITATIONS as found with binaural methods ... NONE!

Recordings can be mixed to monaural, listened to on mono/stereo/surround sound speakers, headphones, and is virtually compatible with all playback systems. On headphones/surround speakers the recording is heard as a 360 degree ambient field, just like binaural. On simple Stereo Speakers, the rear ambient sounds are naturally folded into the front facing sounds for a wide 180 degree sonic image with *just the right mix*. DSM recordings will playback on all surround speaker systems.

DSM recordings are naturally Dolby Pro Logic/DTS surround sound decodeable

WHILE THIS **SOUNDS** LIKE IT'S **MAYBE** USABLE FOR A LIVE PERFORMANCE RECORDING.....I'M A STUDIO MIDI / Electronic Composer / Musician USING MULTITRACK RECORDINGS TO LAYER AND EVOLVE MY FINAL MUSICAL PRODUCT.

How can the DSM recording method possibly work with Multitrack, *and more important* MIDI that's totally in the electronic domain and *not* acoustic... ???

Can an acoustical recording method (*however effective*) work with any purely **electronic** instrument... ???

QUESTIONS:

ANSWER

YES IT **CAN**.....**and**.....YES,
IT WILL!!!

To do DSM recordings

First of all, the electronic sounds WILL HAVE TO BE CONVERTED TO SOME FORM OF ACOUSTICAL OUTPUT.

While this may **seem** like bad news at first, it is (*in reality*) a **BENEFIT TO CREATIVITY** and will ultimately enhance the final musical outcome.

successfully in a multiple track studio.....some rethinking of the **recording process** is necessary.

Instead of laying down just one track, it's now two tracks (stereo) for each sound and there's more.....You must plan and set up a sound stage.

The sound stage is little more than the room or space you'd ordinarily record a live group of musicians; for example, a four to six piece rock group.

As Paul White mentioned about Phil Spector's ability to have great sounding acoustic rooms to record in, you have to find or created your own (outdoors recording with some primary reflections is also a possibility).



A decent sounding band practice type room may do the trick for starters.

Now it's time to acquaint you with the cardinal rules of DSM multiple track recording:

RULE #1: ONCE YOU SETTLE ON JUST WHERE THE MIKE IS TO BE PLACED, IT CAN'T BE MOVED FROM THAT POSITION FOR THE ARRANGEMENTS DURATION.

If someone is to wear the microphones, a chair placed at the decided position is a good idea. Mark that spot with tape so that it's an absolute. A better studio setup is achieved by using the GUY 'Virtual Reality' recording head.

Position is important because DSM sound is a 3-Dimensional *Holographic* sound recording; moving the microphones position around will '*smear*' the acoustic image of the tracks you are about to create.

RULE #2: SET YOUR RECORDING LEVEL FOR THE MAXIMUM AND LOUDEST SOUND YOU WILL RECORD (That's with some headroom) AND LEAVE IT THERE. All tracks are recorded at this setting regardless of softer type acoustical instruments that may be included in the arrangement.

This rule may be a tough one to understand; however....it is very important; *you must plan ahead.* Changing the reference levels for any one or more of the DSM tracks will cause aberrations of the perceive acoustical *ambient* room response that may be heard as a kind of distortion in the final mix.

If you change one, **all** the tracks must be adjusted identically to keep coherency. In those arrangements where every instrument and sound to be recorded are played together in real time, *such as in a jazz band direct to two-track stereo recording*, the level can indeed be adjusted as desired anytime; even during the recording.

Since you are going to use one DSM mic position for all the sounds acoustic or electronic, a floor plan of just where each sound is to come from is needed. The further the instruments are from the mic, the less the recorded volume level. The rule here is: double the distance to achieve a level drop of 6 db. This means that a scale drawing of the room you intend to use as your sound stage is laid out noting the physical placements of microphone, vocal, acoustic and electronic/MIDI instrument sounds; include somewhere an arrangement number and the volume reference level in case a track needs to be re-recorded later down the line.

Vocalists might be positioned close to the DSM pickups to gain on the other instruments in the group....orvocal mic'd and fortified with a staged PA system with vocal harmonization or processing. *(A vocalist can actually be wearing the DSM microphones in some circumstances for a terrific intimate sound)*

Let's now talk

Electronic synths and instruments are in **reality** in

MIDI

..... NOWHERE LAND !!!

Since the MIDI sounds are *purely electronic*, there has been no *real physical* space for them to occupy or exist! For MIDI to be real sounding, we need to give this *electrical* 'sound' a physical reality. *(No amount of reverb or synthesizing with those ambient processors will give a totally electronic sound signal a really convincing live space sound on a recording.)*

'Nowhere' Land may just be an excellent *desired* effect for some synth sounds.

We're talking about having a choice between nowhere and somewhere.

The electronic sounds must really exist acoustically to sound alive.

This simply means you have to *reproduce* them through a suitable amplifier and speaker(s) positioned on the sound stage.

The photo shown below shows the HRTF LiteGUY directly in front of the Vocal/Acoustic Guitar while simultaneously recording the echo/reverb effects sound of a separately mic'd Didge. The mic'd didge instrument is acoustically outpitted by the small instrument amplifier positioned behind the Vocal/Guitar.



NOTE: Sounds can be positioned all around the DSM mics; be creative.

EQ, Reverb, Effects are *mostly done during the DSM track acoustical recording*, not after.

This simply means that as you listen to the speaker output of the midi or synth, adjust the EQ and add other interesting touches first; before DSM multitrack recording it acoustically.

In fact, playing around with effects on an already recorded DSM track will, by degrees, remove the track from being somewhere to being back to nowhere!

Of course, it doesn't hurt to experiment. Using your creativity can make such tweaking rather interesting now that you have the somewhere to nowhere range under YOUR control.

QUESTION:

OK LET'S JUST **ASSUME** THAT THERE **MAYBE** SOMETHING TO ALL THIS ABOUT DIMENSIONAL RECORDING AND DSM MICS.

ALL I'D HAVE TO DO IS STRAP A PAIR OF SHURE OR AKG STUDIO MICS TO THE SIDES OF MY HEAD AND CHECK IT OUT..... RIGHT?

ANSWER:

WRONG!!....It's a fact of recording life, the larger the microphone, the more its **size** and **shape** distorts the sound field.

Mounting anything **large** like a studio microphone on your head will cause the very sound you want to record to become increasingly obliterated **by the microphone itself!**

Also, a great number of studio microphones used today have a cardioid or directional response that intentionally distorts the microphones acceptance of off axis sound.

This may also greatly decrease the natural bass signals you normally hear and feel, thus failing to record the full

emotional impact that's present in the live sound experience; a typical recorded type sound is the result.

In contrast, DSM microphones have no directional response being a true OMNI type pressure mic and are **also** necessarily tiny; made with multilayered acoustically neutral materials that are unique to the industry.

Another DSM advantage over studio microphones is their ability to record large instruments like drum kits, piano, large chorales, and pipe organs exactly the way you'd hear them live; EXACTLY!!!

Just try doing that with any other set of microphones; regardless the cost! Any recording engineer worth his salt will tell you it's one of the most difficult things to do....that is...to get a large instrument to sound really good in a recording.

The photo illustrates a session where piano, drum kit, and electric bass were recorded directly to two track stereo using the DSM mics+LiteGUY HRTF baffle on a boom stand.



DSM WILL ACCOMPLISH THIS EVERY TIME.....**EASILY**.

A GOOD SOUNDING INSTRUMENT **WILL** SOUND GREAT.

GREAT SOUNDING INSTRUMENTS WILL SOUND FANTASTIC!
GUARANTEED!!!

In this way we'll finally relive by just listening..... no excuses needed..... to really great recordings made with up-to-date techniques that do justice to our musical talent and creativity, and our most significant technical advances.

Paul White states in Multitrack Mentality:

"All you need to make a perfectly good stereo recording is a decent stereo recorder and a couple of microphones."

Make those microphones Sonic Studios stereo-surround
DSM

Visit the 'Other Mics vs. DSM' in the [FAQ](#) section for more informative discussion about microphone recording differences and techniques.

What's on **Sonic Studios** Web Site? *(Click underlined text, and navigation photos)*

[Home Page](#)

DSM™ Patented Stereo-Surround Microphone Technology

Passive DSM™ Mic Powering/Bass Filters



DSM Stereo Mic

Eye-gear/Headband/HRTF Baffle mountable matched omni mics



DSM MIC+W/B/N FOR INSIDE/OUTSIDE SOUND RECORDING

Stops wind blast noise; transparent acoustic design; records real wind sounds

4 Channel Surround DSM™ Microphone System
Headworn or HRTF LiteGUY Baffle Mounted



PA-10XP DSM Mic Powering Adapter
(for MicroTrack 24/96)

miniXLR Input (option)

for MD, DAT, CF, HD, and Video Field/Event/Studio Recording

Battery Powered-Portable Mic Preamplifiers

High-definition, low noise, very wide bandwidth preamp designs to fit any field/event/studio application using DSM™ stereo-surround mics.



FIELD-READY For Marantz PMB-670/671
(DSM mic, model R44B/N Windscreen, PA-24N1-P Model Preamp)

HRTF RECORDING

Stereo-Surround Omni Mic Baffle for Stand, Fishpole, Studio Boom, and Ceiling



MONO ONLY 'Lombardo' Lapel Mic for interview, Narration, Lecture, and clip-on acoustic instrument Recording



(Shown Atlas 30W boom is not supplied)

LitGUY HRTF Mic Baffle
(shown w/optional Windscreen)

RECORDING ACCESSORIES



Patch/Adapter Cables



20+ hours using 6 C alkaline cells
50+ hours using 6 D alkaline cells
BC-ME #1-1P
Microtrack 24/96 external batteries

Portable Deck Power Solutions

BD-8 Ruggedized Power Sled



Long Running Power for Edinol R-4, Fostex FR2, Marantz 670/671



Short cord + included extension

Field/Studio Monitoring Headphones, Reviews

DSM™ Magazine Reviews



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