

Recently, someone stopped by my house with a Letter to the Editor which appeared in the "Yated" March 29, 2010 issue. I assume the letter writer was responding to an article bemoaning the volume level at simchos, but as I am not a Yated subscriber, I had not seen the article. Her solution to the "volume" problem was to require musicians to sign an agreement that they would not play louder than 85db. I am a musician, and volume plays a big role in how I play at a Chasuna. However, every time I see an article or letter like this, it bothers me very much, because there is a tremendous lack of knowledge and understanding of what the actual issues are. And if you don't understand the issue, you should not be proposing solutions.

First - from a technical standpoint, 85db is just a number. And a pretty meaningless number at that. The biggest ambiguities about stating "Play at 85db" are:

How long is the exposure?

What location do you measure from?

What frequency do you measure?

Is 85 db the peak or the average?

Let me explain each of these...

### **How Long?**

The ASHA website has a chart (<http://www.asha.org/public/hearing/disorders/noise.htm>) that lists 80db as the volume on a busy street. There are other public health sites (like <http://www.dangerousdecibels.org/hearingloss.cfm>) that state that the decibel level of a busy street is 85 db. (Even the public health organizations that are focused on hearing protection can not agree to a consistent number. Even more ambiguity!) Given that a busy street is 80-85 decibels, how can the ASHA site say "Sounds louder than 80 decibels are considered potentially dangerous."? We should all be deaf just from walking outside! The answer lies in the next sentence on their website... "Both the amount of noise and the **length of time of exposure** determine the amount of damage." So there are many other factors involved in 85db being dangerous, and one of those factors is time. There is a chart on the Dangerous Decibels site that helps a bit. It states that one can be exposed to 85db for up to eight hours consistently without fear of harm. Eight hours non-stop! When was the last time you were at a Chasuna where the music lasted 8 hours without a break?

### **What Location?**

The difference between 85db and 87db can not be heard by the human ear. The smallest increment that we can discern is a 3db. On the other hand, raising the volume by only 10db results in double the volume (and requires 10 times the amplification). The reason for this is that the measurement called "decibel", or "db", is a logarithmic measurement. So it increases exponentially. In addition, when presented with two instances of the same source material, one at X db and one at X+3 db, the human

ear (up to a point) will interpret the +3 version as sounding “better”, not louder. The drop off of the decibel level as you move away from the sound source is also logarithmic. Every doubling of the distance drops the decibel level by 6db (or by  $\frac{1}{4}$  of the volume). The reason for this is that the sound wave spreads out in all directions as it moves away from the source. So in addition to moving 1 foot farther away from the source, it becomes diffused as it expands one foot to the right, one foot to the left, one foot up and one foot down. It is now spread over 4 times the area and is therefore  $\frac{1}{4}$  as intense. So if a speaker is producing sound at 85db measured at 1 foot away, moving an additional 32 feet away will result in a measurement of 55 db. That is quieter than a regular conversation! Remember, that 10db will double (or cut in half) the volume, so going from 85db to 55db is  $\frac{1}{8}$ th the volume of standing in front of the speaker. (This is called the Inverse Square Law and is really more complicated as the physics of the room have to be included too.)

Now – let’s apply this to a Chasuna. At an average size event there will be a few hundred men on the dance floor. (And many of them will be singing and stomping. So if the dance floor is 32 feet long, a speaker which is producing sound at 85db, will only measure at 55db at the back end of the dance floor. If you go back and look at the ASHA chart, you will see that normal conversation between two people occurs at 60db. So with many men singing and dancing, (certainly louder than a simple conversation), they will not even hear the music on the back half of the dance floor. So do you measure 85db at the back end of the dance floor? But then that would mean 109db at the front of the dance floor! Ouch! Exposure to 109db can cause damage in less than two minutes! Additionally, the decibel level of 100 men singing and dancing is well over 85 db by itself – even without any music playing.

Now let's take it a step further. At many wedding halls, the band must play at a prescribed location. (For example, at Bais Faiga in Lakewood, the band must play on the stage in the far corner.) But the dance floor is clear across the room! And to make it worse, there are sometimes tables between the band and the dance floor. Do you have any idea how loud the band would have to be on the stage to be heard at anywhere near 85db on the dance floor 50 to 100 feet away?

### **What Frequency?**

The frequency at which the decibel level is measured is very important. Unless you break the sound down to individual frequencies (like with an FFT), the SPL meter (used to measure decibels) is just choosing the highest amplitude (volume) at whichever frequency it occurs at. The problem with that is that the high frequencies (like cymbal crashes) will cause much more damage/pain than the low frequencies at the exact same decibel level. So an 85db cymbal crash might hurt your ears, while a bass note at 85db will be barely audible.

### **Peak or Average?**

Is the target value of 85db the loudest it is allowed to get? Or the average? Remember, that time is an important factor. So while 100db can cause damage with 15 minutes of constant exposure, split second peaks at that level are not as harmful. Bring an SPL meter to the next wedding you attend and measure the db. You will see it constantly fluctuate more than 10db. And remember – a 10db change is double

(or half) the volume. In any case, the volume level in an average size wedding hall during dinner, even before the music starts playing, is probably going to exceed 85db just from the volume of hundreds of people eating and talking.

### **Social Issues**

So just saying 85db without specifying anything else is a recipe for failure. It makes no factual sense, and is unenforceable. But enough technical stuff for a minute... There is also a human aspect. Why is it that everyone is screaming for the bands to play quieter, yet many bands persist in playing too loudly? Wouldn't you think that the loud bands wouldn't get hired if "everyone" wanted quieter music? Simple economics should dictate that the "loud" bands would be out of business by now. Yet it is still the number one complaint. And those bands are still being hired. Why?

The answer is that it depends on where you are during the dancing. When a man and his 23 year old son attend a friend's wedding, the father spends much of the dancing sitting at a table eating his desert, drinking his coffee, and trying to talk to his friends. And all the while, he is complaining that the volume is too loud. And he is right. It is too loud. It is too loud to be sitting at a table and talking. On the other hand, his son is dancing in the middle of a mass of dancing and singing bodies. There, the volume is just right. (Or at least it should be.) Now, when that father marries off his son, where will he be during the dancing? On the dance floor! And not even in the outside circle. He will be right in the middle. Where the volume is just right for dancing. So not only will he not complain about the volume, he will recommend that band to his friends. In a perfect world, the Simcha (and the heart) makes the dancing, but if that was the case there would be no need for bands. The music plays a very important role. And if you can't hear it and feel it on the dance floor, you can't dance.

### **Solution**

So what is the solution? Well – There is no perfect answer, but I will give you my approach. It has many components: Education, equipment and experience, compromise, common sense and cognizance.

It begins with educating the client about any decisions that he/she or the hall/caterer will make that can help or hurt the desired volume levels. The first concern is the placement of the band. There should not be any tables (or much space) between the band and the dance floor. The band should be on the edge of the men's dance floor, by the end of the mechitza, (or off to the men's side a bit) so that both the men's dance floor and the women's dance floor are (almost) directly in front of the band. The women's dance floor should not be across the men's dance floor from the band, (and certainly not across the whole room), but alongside it. Like this rough sketch ...



Not to schmooze with your friends. Go schmooze out in the hallway, or go dance. (All this is obviously only applies when the Baal Simcha agrees with this sentiment). My concern during the dancing is the dance floor and the dance floor only. What many people don't realize though is that with the right setup, position, equipment, mix, and knowledge, there is a happy medium – or a “sweet spot” – where the volume can be loud enough for the dancers on the far end of the dance floor, and at the same time not be too painful for those on the front end (or those not dancing at all).

Keeping the volume low is a very difficult thing for bands to do for two reasons. One, as I mentioned above, to some extent louder translates as better. And everyone wants to sound their best. Second, musicians need to hear themselves, (and feel the music,) to perform at peak. Non-musicians will not understand this but it is really true. Especially for the singer. And the better a singer can hear himself and the music, the more confident he will be and the better the performance will be. This is very difficult to overcome. There are some solutions, but none are as easy, as comfortable, or as cheap as just turning up the volume. And if you have been singing with that loud volume for twenty years, it is very difficult to switch.

So it boils down to what is more important: This event (i.e. the happiness of the client), or future events (i.e. your happiness). If my biggest concern was booking more gigs, then I would do what I think makes me sound my best – regardless of the wishes of my client. However, each event is as important to me as it is to that Baal Simcha, so when there is a conflict between what the Baal Simcha wants and what will make me sound my best, I go with what the Baal Simcha wants. In a best case scenario, I educate the client before the event, and use the correct equipment and setup for that specific event. That usually negates all problems. But if there still is a difference between what I am providing and what the client wants, the bottom line is that it is not my concert, it is his wedding. So I will give him what he is asking for.

So clearly, the answer is not 85db. That is too ambiguous and probably the wrong number anyway. It would be impossible to interpret and measure. I just played at a wedding where the client (who must have read the Yated article) told me that he wanted to put in the contract that I won't play over 85db. I explained to him how meaningless that was based on what I have written here and we agreed that if at any point he is not happy with the volume, he can come over and lower it to his liking, and I will not raise it. The bottom line is that if a band has a reputation of listening to the client, the client will trust that he is going to get the volume that he wants. And that shouldn't have to be (and usually can't be) quantified in writing. I have been at weddings (as a guest) where the client came over to ask that the volume be lowered, and the band leader lowered a slider connected to a channel that had nothing plugged into it – and therefore did not effect the sound at all! No wonder some clients need to have the volume levels specified in the contract. Once my client understands that he is in charge and I am just a consultant, there is no need to worry, and certainly no need to put unenforceable numbers that he does not understand into the contract. I will provide him what he wants.

### **Some Extra Tidbits...**

I am tired of hearing “in the olden days they did not use amplification”. They also did not have one man bands. Instead, they used a large horn section. Did you know that a single trumpet without any amplification can produce sounds close to 120db? Not to mention the drums. So they were plenty loud, and cost much more money too.

A number of musicians in the NY/NJ area have told me that if they advertised that they were “not loud”, they would not get any phone calls. And even out of town (where I live) I have to have two sales pitches. One for the Chasun and one for his father (or mother). I have to reassure the parents that I truly am much quieter than they are used to, and I have to assure the Chasun that despite my phone number (1-877-NOT-LOUD), I will still be “loud enough”. Countless times I have been told by the Chasun to ignore his father’s volume request, and then been told by the father that since he is signing the check, he will dictate the volume regardless of his son’s wishes. And I am usually able to please both.

1-877-NOT-LOUD