Steve Temme

President, Listen, Inc.

Listen

Question 1: How would you describe the market and the industry over the past year? And how did your current business evolve in the past 12 months?

Temme: It's never a good start to the year when most of your major customers announce massive layoffs and budget freezes in January! However, some of the best innovations are developed during challenging times, and this year has been no exception. Our perceptual measurement drive continued with our new enhanced Loose Particles algorithm for transient distortion detection. We also introduced AudioConnect 2, our portable and budget-friendly two-channel audio interface, and the MDT-4000 audio measurement turntable, with high-end performance at a very competitive price. Also on a positive note, the return to normal component costs and lead times has relieved a lot of our manufacturing stresses and enabled us to return to full stock levels of all our hardware products.

Question 2: What are the perspectives for your business in the next 12 months?

Temme: Right now, I'm just hoping for a year that does not include a pandemic, increased trade sanctions, supply-chain issues, or a fire at one of our key component suppliers! Joking aside, from adversity comes innovation, and the challenges of the past few years have resulted in the audio industry overflowing with new technologies and applications, which is keeping us on our toes with new measurement challenges. One example is the automotive industry—audio measurement is increasingly challenging due to the high channel counts and a vast amount of on-board signal processing combined with many different test requirements including, spatial audio, sound zones, hands-free communications, active noise reduction and more. Similarly, spatial audio presents some exciting measurement challenges as we continue to develop perceptual metrics to locate virtual sound sources and measure spatial audio reproduction accuracy.

Question 3: In reference to your supply chain and the geographical markets in which you do business, what, if any, changes have you made in the way you do business?

Temme: When I visited Shenzhen last year, I was surprised by how much had changed. I was one of very few foreigners, and since my last visit, Chinese brands had replaced most American consumer products—particularly in the automotive industry. Few of our OEM customers have resumed their pre-pandemic travel schedules, leaving far more responsibility for audio product quality in the hands of their contract manufacturers. This, combined with the drive to "buy Chinese," has created a massive surge in factories using locally made, in-house, or even pirated measurement systems with minimal oversight. We've worked closely with our customers to provide new tools that help them ensure test integrity without resuming regular travel to China. This includes the ability to "lock" a measurement sequence so that limits, test levels, and so forth cannot be changed and even the test steps themselves are hidden from the end user. This prevents the test sequence being modified, misappropriated, or re-created on a different test system with unproven results. We also introduced the capability to lock a test sequence to specific verified hardware keys, further ensuring end-to-end test compliance.

Question 4: What were the most exciting developments, technological innovations, and trends happening in your field of interest over the last 12 months?

Temme: There are so many it's hard to list them all, but I'll share my top three. First, spatial audio—it's everywhere and it presents some interesting measurement challenges. We're currently working on what metrics best correlate with sound localization, immersiveness, and reproduction accuracy. These are critical to ensure consistent playback, both between brands and in the end-user's environment. Second, MEMS speakers. This technology has evolved with unprecedented speed, and I am excited to see all the ways in which it will be used in portable audio

in the coming year. Third, Bluetooth Low Energy (BLE) and Auracast. With significantly lower power consumption and broadcast capability over conventional Bluetooth, it's set to drive an explosion in audio-related Bluetooth devices. This will of course require specific test hardware—something we plan to have available very soon!

Question 5: What was the best and most useful trade show you attended in the past year? And why did you choose that particular one?

Temme: The AES Spatial Audio conference at Huddersfield University (UK) last August. This was more of a technical conference that I attended for research purposes, rather than a trade show. It brought together academics, creatives, algorithm developers, and hardware developers under one roof, and provided an excellent forum for the exchange of ideas. I had some fantastic conversations with people on both sides of the measurement fence - those who are desperate for standardized metrics and those who do not believe it can be measured. I made some great connections and came away with ideas on how to develop algorithms and measurement metrics beyond interaural level difference (ILD) and interaural cross correlation (IACC) to help the marketplace objectively quantify spatial sound systems. ***LIS***

Martin Turesson

Head of TPCD, Composite Sound

COMPOSITE SOUND

Question 1: How would you describe the market and the industry over the past year? And how did your current business evolve in the past 12 months?

Turesson: The information we get from customers is that the market has slowed down considerably over the past year. Composite Sound however mainly deals with new projects/products and have seen an accelerated growth in the number of customers launching products with our Thin-Ply Carbon Diaphragms (TPCD) over the past year.

Question 2: What are the perspectives for your business in the next 12 months?

Turesson: The accelerated growth we have seen over the past year will continue, based on the customer products using TPCD that are scheduled to be launched the coming year.

Question 3: In reference to your supply chain and the geographical markets in which you do business, what, if any, changes have you made in the way you do business?

Turesson: Composite Sound sources the thin-ply carbon materials we use to produce the TPCD diaphragms in-house from our mother company Oxeon, which is conveniently located in the same facility as we are.

Question 4: What were the most exciting developments, technological innovations, and trends happening in your field of interest over the last 12 months?

Turesson: This may be presumptuous, but the level of technological development Composite Sound is making on controlling diaphragm resonances is very exciting. The introduction of TPCD into over-ear headphones where controlled resonances make a big difference to the sound quality is particularly exciting.

Question 5: What was the best and most useful trade show you attended in the past year? And why did you choose that particular one?

Turesson: High End Munich. This is the most concentrated gathering of customers within high-end audio. ***LIS***