


The Challenges of Live Recordings



Making a high-quality audio recording in a recording studio is one thing but making a similar recording at a live concert has its own challenges. Neville Roberts flies out to Venice, Italy, to investigate.

By
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I've been fortunate to be able to attend a number of recording sessions in recent years. The aim at each session has, of course, been to produce audiophile-quality recordings either in high-resolution digital format or in the best that analog has to offer in terms of professional master tapes on quarter-inch, half-track, 15 IPS tapes, and direct-to-disk LPs. Most of these recording sessions have been held at recording studios, where everything to do with the recording, from the acoustic environment through to the recording systems and microphones mixing, can be controlled to produce the final stereo mix. Of course, direct-to-disk recordings can only be undertaken at a studio that has the lathe and the supporting equipment required to cut the master lacquers.

Making a recording at a live venue with a live audience is a completely different process altogether. So, when I was offered the opportunity to attend such a live recording event, arranged by the audiophile record label Chasing The Dragon, I was very keen to attend. Then, when I found out that out that the event would involve recording a series of live concerts showcasing one of my favorite genres of music, Italian baroque, my excitement increased. To top it all, the

concerts were to be held in the world renowned and beautiful San Vidal Church in Venice, Italy, and all I had to do was to get myself there in mid-April 2018 to witness the recording sessions first-hand.

The Performers

The recordings featured the internationally famous Interpreti Veneziani (www.interpretiveneziani.com/en/index.php), which debuted on the Italian and international concert stage in 1987. The orchestra quickly gained a reputation for the exuberance and all-Italian brio of its performances. Interpreti Veneziani performs every year to more than 60,000 people from all around the world and is the leading chamber orchestra in Venice where they are presently enjoying their 30th concert season. Their important achievements include appearances in the Melbourne, Bayreuth, and the Prague Music Festivals, as well as concerts at Stockholm's Royal Palace, participating in the World Vision Telemarathon at the Kirov Theatre to mark the reinstatement of the name "St. Petersburg," a concert at the Osaka Symphony Hall in a live broadcast for the Japanese Radio, and concerts at the Tokyo Suntory Hall and Kjo Hall. The orchestra also

travels to the United States, Canada, and Latin America to hold concerts in the most prestigious halls. In 2013, they performed for the first time in India. However, Interpreti Veneziani's home is still the magnificent San Vidal Church in Venice.

Interpreti Veneziani recorded their first CD with the music publisher Musikstrasse featuring music by Giuseppe Tartini. They also have 19 CDs with InVeNiceSound. In 2014, the orchestra traveled to AIR Studios in London to produce a direct-to-disk LP of Antonio Vivaldi's *The Four Seasons* for Chasing The Dragon.

Uniquely, Interpreti Veneziani doesn't have a conductor or orchestra leader as such. Instead, the musicians all work together as a team—and having heard them firsthand, I can see how well that arrangement works. The members of the orchestra are all soloists in their own right and take turns performing when a solo instrument is needed. For example, with the performance of Vivaldi's *The Four Seasons*, Giovanni Agazzi was the solo violinist for "Spring" and "Summer," and Giuliano Fontanella was the solo violinist for "Autumn" and "Winter." The business side of the orchestra, including the organization of the orchestra's concerts world-wide, is organized by the harpsichordist, Paolo Cognolato.

The orchestra not only performs like a close-knit family, it also has members who have family connections. For example, the harpsichordist Paolo is married to the viola player Sonia Amadio, who also happens to be the sister of the cellist Davide Amadio! The energy and enthusiasm given to each performance during the week was both contagious and captivating. Even the rehearsals, which took place from 6 PM to 8 PM every day, were fresh and exciting.

The Location

The beautiful San Vidal, a former church, is now the home of Interpreti Veneziani and is located at one end of the Campo Santo Stefano in the Sestiere of San Marco, Venice. The original church was built at the site in 1084 by Doge Vitale Falier. This church was destroyed in 1105 by a major city fire. Although reconstruction was finished by the 16th century, poor foundations necessitated a further rebuild in 1696 to honor the former Doge Francesco Morosini. The main altar piece features a beautiful painting by Carpaccio of San Vidal on horseback. The church has now been fitted with acoustic carpeting around several of the pillars in order to control reverberations. The result, in my humble opinion, is a venue with absolutely superb acoustics.

The Equipment

Producing audiophile recordings at a remote venue



Aerial view of the San Vidal Church interior in Venice where the live concerts took place.



Mike Valentine starts to set up the microphones (a) and close-up of main microphone assembly (b).



is a massive undertaking. First, there is the logistics of getting all the recording equipment to the venue, and the bulk of that had already arrived by the time we appeared on the scene. A spaced pair of modern Flea C12 microphones set in omnidirectional mode were used for the main stereo feed. These microphones use a 6072 triode fed from a CK12 capsule. Originally designed by AKG and in production between 1953 and 1963, these were the first microphones in the world to allow remote control of the nine polar diagrams (omnidirectional, figure eight, cardioid, and various proportions of these three) through a nine-position switch. This allows for subtle changes to be made without having to dismantle the microphone setup.

A sheepskin-covered Jecklin disk, which enhances

the stereo image when used with omnidirectional microphones, was placed between the C12s set in omnidirectional mode. The Neumann KU-100 dummy head was positioned just below the C12s to produce binaural recordings, which sound particularly good when listening on headphones.

When concerts are recorded live, there is no opportunity to repeat a performance, so it is important to make sure that all the instruments are recorded correctly. To this end, a couple of additional microphones were set up to capture solo instruments that might require an additional level of detail. The output from each of these microphones was recorded on a separate track, which could be added to the stereo feed later if required.

The Neumann U47 FET is a modern microphone that is widely recognized as a superb microphone for female vocals, cellos, double basses, and kick drums, so it was used as a spot mic on the cello. The cello featured significantly in the various concerts, and Interpreti Veneziani is fortunate to have the internationally acclaimed cellist Davide Amadio as one of its members. There was a concern that the spaced pair of C12s might not pick up all the subtle tones of the harpsichord, so a DPA 4006 (formerly known as a B&K 4006 and used in the BBC Proms transmissions) was initially positioned near the harpsichord. However, during rehearsals, there were no issues with the C12s' ability to pick up the subtleties of the harpsichord. The DPA was then positioned close to the violins so that, if necessary, the balance of the strings could be adjusted at the post-production mixing at AIR Studios in London the following week. Chasing The Dragon Recording

The Flea microphone power supplies were used with Nordost power cables.



In the case is \$40,000 worth of cables (a). Those along with the Focusrite preamps and two Sennheiser HD-800S headphones (b) and the Nagra VI Tascam and the Struder A810 recorders (c) were used for the live recordings.



Rehearsals with the bassoon

Engineer Mike Valentine commented that microphones themselves are like musical instruments, so it is vitally important to choose the right microphone for a particular application.

The feeds from the microphones were connected to a pair of quad Focusrite 1 microphones preamps. Each of these eight preamps (although only six were used) provided three outputs—two balanced transformer splitter outputs and one straight output, which is a parallel feed with the input. This enabled the mics to feed all of the recording devices.

PCM digital recording at 24 bit, 192 kHz was undertaken by a Nagra VI six-channel recorder. Channel 1 and Channel 2 were for the stereo feed from the C12s, Channel 3 and Channel 4 for the KU-100 dummy head, Channel 5 for the U47, and Channel 6 for the DPA mic. For DSD recordings, two Tascam DSD two-channel recorders were used—one for the stereo feed from the C12s and one for the binaural feed from the dummy head.

For all the analogaholics amongst us, the stereo feed from the C12s was fed to a Studer A810 recorder, running at 15 IPS and recording onto ATR master tapes. For many people, using an analog format for mastering seems to be a bit of a backward step that is driven more by nostalgia than sound quality. However, many converts, including myself, can hear significant differences between music played from an analog or digital source. The analog sound is simply more real, more natural, and less clinical. Within the world of digital audio, there are noticeable differences in the degree of realism produced by high-resolution PCM digital, DSD, MQA, and other digital formats. But what the analog source is able to reproduce is something that seems to be missing from all digital recordings—something that is key to producing the essence, or at least the illusion, of reality.

With all this high-end equipment to record high-end performers in the superb setting of San Vidal church, it would be a shame to let the audio quality be compromised by the use of inferior cables. To connect and power all the equipment, around £30,000 of cables were used. These included Nordost Ax Angel power cables and Heimdall 2 headphone cables, together with ZenSati Zorro balanced interconnect cables. Sennheiser's top-of-the-range HD 800S dynamic headphones were used to monitor the performances.

The Rehearsals

Each morning, the digital files from the previous day were downloaded from the Nagra VI and the two Tascam digital recorders to a hard disk to make space for the day's new recordings. Daily rehearsal sessions were absolutely invaluable. Apart from the obvious benefits of being able to set up the

equipment, adjust the levels, and ensure everything was working correctly, rehearsals allowed any unforeseen issues to be corrected before the actual recordings. For example, on one occasion the weighty U47 microphone started to slide down on the stand during Davide's rehearsal of Vivaldi's "La Follia." Two people immediately tightened the microphone clamp, and the problem never reoccurred. Other issues that had to be addressed related to health and safety, with plenty of Gaffer tape being used to secure cables that ran rather precariously over the walkways.

Rehearsal sessions also gave the musicians the opportunity to hear some of the previous night's recordings. It was evident that the musicians were a little nervous, being very aware that a bad note or inclination, which would pass largely unnoticed at a live concert, would be recorded for posterity. This heightened sense of urgency and tension didn't seem to have any negative effect on the performances. Of course, hearing each morning how good their performance had been the previous night—and believe me, they really were note-perfect—was a real confidence booster for the musicians and helped to allay any fears.

The Recordings

All the concerts began at 9 PM and every night the church was packed and the atmosphere electric. I sat to the right of the orchestra with the panel of equipment in front of me and monitored the performances on my HD 800S headphones. Before the concert started and following the usual request to put all phones on silent, an announcement was made informing the audience that the concert would be recorded and requesting people to refrain from coughing, if at all possible, which probably made things worse. As a precaution, bottles of water were on hand to give to people as needed. Fortunately, the forecasted thunderstorms did not materialize and the audiences were very well behaved.

It took four pairs of hands to set all the equipment to record as Interpreti Veneziani took to the stage to the sound of tumultuous applause. The orchestra commenced with the first movement of Vivaldi's famous *The Four Seasons* and their performance had all the vivaciousness and sparkling excitement that one would normally associate with a new work that was being performed for the first time. I sat in front of the Focusrite mic preamps and could see the six VU meters behaving themselves admirably, confirming that all the set up during rehearsals had been successful.

The first movement concluded and the audience spontaneously burst into a round of enthusiastic applause. Unfortunately, this was not something that



Mike Valentine sets up the cello microphone.



Mike Valentine monitors and makes final adjustments during rehearsals.



Interpreti Veneziani on the stage

The 5 recorded concerts from Venice have been released by Chasing the Dragon as the "Vivaldi in Venice" double albums, available as vinyl LP, CD, high res digital downloads, copies of Master Tapes, and even a Binaural download for headphone users.



could be edited out later as doing so would have a detrimental effect on the decay of the final notes of the piece. Aware of this, Davide the cellist thoughtfully raised his hand at the end of the second movement to make sure this was not repeated. The audience remained silent for the rest of "Spring" and only applauded again at the end of "Summer," when the solo violinist swapped with another member of the orchestra who then played the remaining two of the

set of four concertos.

It was interesting to notice the subtle differences in acoustics with the audience present, compared to what I heard during rehearsals. The overall sound was clearer and more sophisticated, and the performance somehow had more authority and excitement. Like a good Italian wine, the concerts seemed to improve over time. This was probably because the performers were becoming more accustomed to the presence of the recording equipment and feeling less anxious, knowing that a collection of successful recordings was already building up.

The Aftermath

At the end of each evening's recording session, we were all exhausted but at the same time exhilarated and looking forward to the following day's concert. All the digital files were to be taken to AIR Studios in London the following week for post-production mixing of the digital files (using industry-standard Pro Tools software) and cutting of the master lacquers for the LPs.

It goes without saying that the quality of the recordings is fantastic, but don't just take my word for it. Chasing The Dragon has kindly made available a low-resolution 16 bit/44 kHz digital download of the final Allegro from Corelli Op. 6 No. 4 (an encore played at Tuesday's concert) so you can experience for yourself the ambience of the church and the quality of the playing. You can download sample recording from my website at rssconsultancy.co.uk/files/ChasingTheDragon/InterpretiVeneziani.wav

The rich variety of the music, primarily by Vivaldi but also featuring another Venetian composer, Giuseppe Tartini, is to be made available in a variety of formats, including double CDs, digital downloads in 24 bit/192 kHz PCM, and single and double DSD of both the stereo and binaural versions. The analog stereo releases will be a double LP and double copy-master tapes. As with the other recordings by Chasing The Dragon, the double LPs, double CDs, and copy master tapes of this recordings can be purchased from the US distributor Elusive Disk at www.elusivedisc.com. In addition, the digital downloads are also available via the website of Chasing The Dragon at www.chasingthedragon.co.uk.

This recording session is the first of a series of recordings that will showcase Venetian music performed by Interpreti Veneziani. If these future recordings turn out to be of the same great quality, which I am sure they will, then music lovers will have access to a growing collection of modern recordings of superbly performed Italian baroque—and in formats to suit all tastes. Recording music at live concerts certainly presents real challenges for the recording engineer, but the end results are well worth it. 

About the Author

Neville Roberts, a graduate in Physics, is a Chartered Scientist, Chartered Engineer, Chartered Physicist and a Fellow of the Institution of Engineering and Technology. He is a retired Director of the UK National Health Service (NHS) and has also worked for the UK Ministry of Defence and in the private sector. He is a regular contributor to a UK audio magazine, Hi-Fi Choice, and has a particular interest in tube audio design and is a vinyl devotee. Apart from being an audio enthusiast, he enjoys a wide range of music including classical, especially baroque, light orchestral and jazz. He is a keen photographer and enjoys growing both tropical and hardy orchids at his home near Bournemouth in Dorset. He is also on the Committee of the Bournemouth Orchid Society.