Maida Vale VR Capture Survey

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Measurement Summary

MV5 Live Room:

- Acoustic Setup 1 - 3DOF/6DOF Measurements
  - Measurements from 3 performer positions to a grid of receiver positions using Eigenmike to facilitate 3DOF/6DOF rendering.

- Acoustic Setup 2 - Performer KEMAR Reference Measurements
  - Measurements from 3 performer positions using KEMAR binaural head with voice box and 2 Genelecs as sources and KEMAR also as receiver. KEMAR position alternates between performer positions.

- Acoustic Setup 3 - ISO 3382 Measurements
  - Standardised measurements to capture the acoustical characteristics of the space for more broad reference.

Sweep Details:

- Genelec:
  20Hz to 20kHz, 48kHz, 24 bit
  [3 second current measurement voice ident; Metadata burst; 2 second silence; 32 second overlap sweeps; 3 sec silence; 3 second next measurement voice ident; 17 seconds silence] = 60 seconds

- Dodecahedron:
  20Hz to 20kHz, 48kHz, 24 bit
  [3 second current measurement voice ident; Metadata burst; 2 second silence; 20 second sweeps; 3 sec silence; 32 seconds silence] = 60 seconds

- KEMAR Voice Box:
  Integrated with overlapping sweeps for Acoustic Setup 3. Sweep pre-equalised for voicebox.

Setup and calibration:

All sources calibrated to 85dBc SPL (slow integration) at 1m with -20dBFS rms pink noise.

Preamp calibration set to -18dBFS for loudest source/receiver combination.

KEMAR Calibrated with 8030A at 1m.

Eigenmike Calibrated above 8030A.

Lav reference microphone calibrated above 8030A (mounted to Eigenmike)

MV5 Live Room

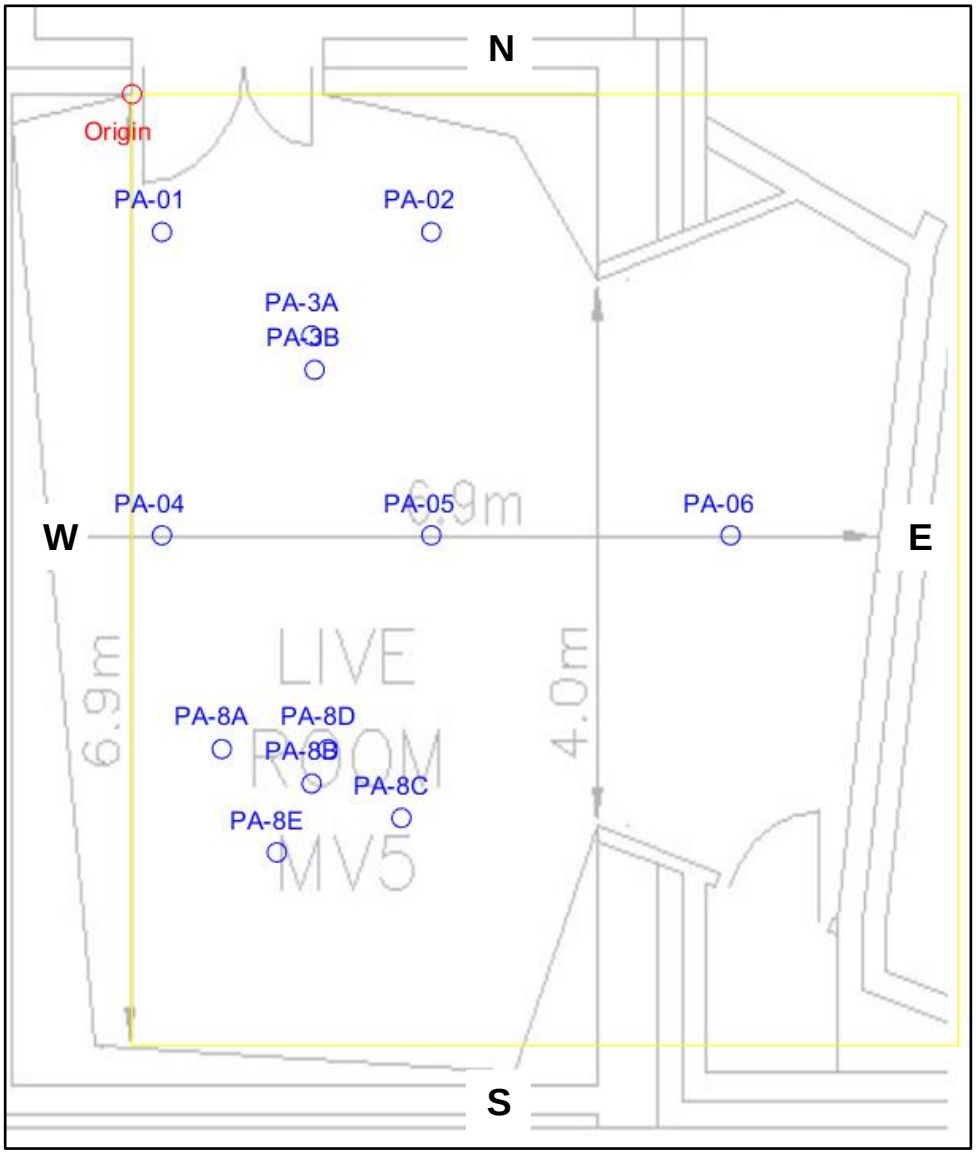

Figure 3. Measurement points in MV5 live room.

Origin = 0 0

Performance Area (Blue) =

PA-01:	0.2500	-1.0000
PA-02:	2.5000	-1.0000
PA-3A:	1.5000	-1.7500
PA-3B:	1.5250	-2.0000
PA-04:	0.2500	-3.2000
PA-05:	2.5000	-3.2000
PA-06:	5.0000	-3.2000
PA-7A:	0.7500	-4.7500
PA-7B:	1.5000	-5.0000
PA-7C:	2.2500	-5.2500
PA-7D:	1.6350	-4.7500
PA-7E:	1.2100	-5.5000

Note: No 'Outside performance Area' for this studio

Performer perspectives are from PA-3A, PA8B and PA-8E

FULL ACOUSTIC MEASUREMENT PROGRAMME

MV5 Live Room Measurements

Acoustic Setup 1 - 3DOF/6DOF Measurements

Aim - To get 4th-order Ambisonic Source-Receiver Measurements for each of the performer positions for 3DoF/6DOF rendering.

Method: 6 Genelec loudspeakers were set up and an Eigenmike captured acoustic measurements at 8 Eigenmike positions. Within each configuration the Genelecs were rotated to 4 orientations (North/South/West/East) to facilitate 1st order source directivity post-processing. Source excitation signals were 20 second exponential sine sweeps. Each sweep played out from each loudspeaker 2 seconds apart, in an overlap method. The 2 second gap allowed IRs to be deconvolved out separately.

Source: Genelec 8030
Receiver: Eigenmike
Source Positions and heights (measured to tweeter):

- PA-3A: 1.5m
- PA-3B: 1m
- PA-7A: 1.5m
- PA-7B: 1.5m
- PA-7C: 1.5m
- PA-7D: 1m

PA-3A and PA-3B are configured to represent a singer with an acoustic guitar.
PA-7A, PA-7B, PA-7C are configured to represent a source with extent such as a piano.
PA-7B and PA-7D are configured to represent a singer with an acoustic guitar.

Receiver Positions - All receiver positions at 1.6m
6 Source positions x 4 source orientations x 8 Receiver Positions = 192 measurements

Protocol: Same as Acoustic Setup 1 for MV4.

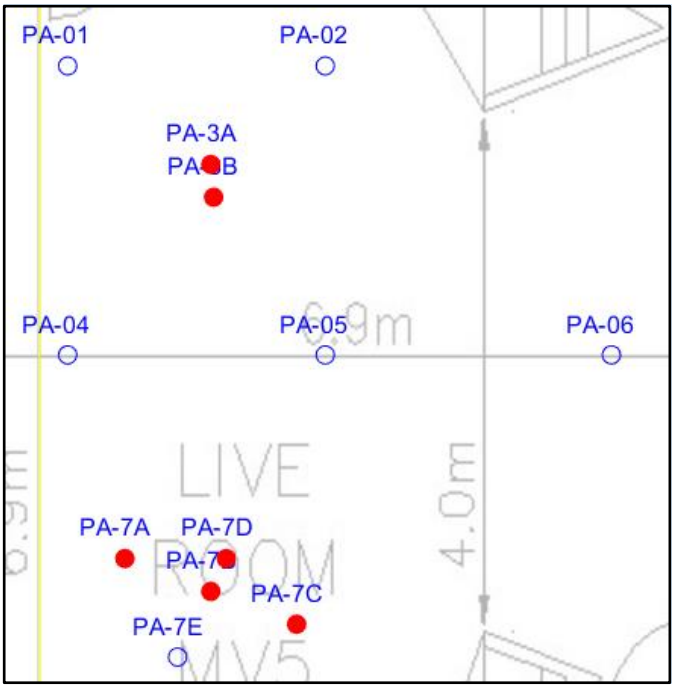

Figure 14. Source Positions for Acoustic Setup 1. Sources are Genelec 8030A loudspeakers.

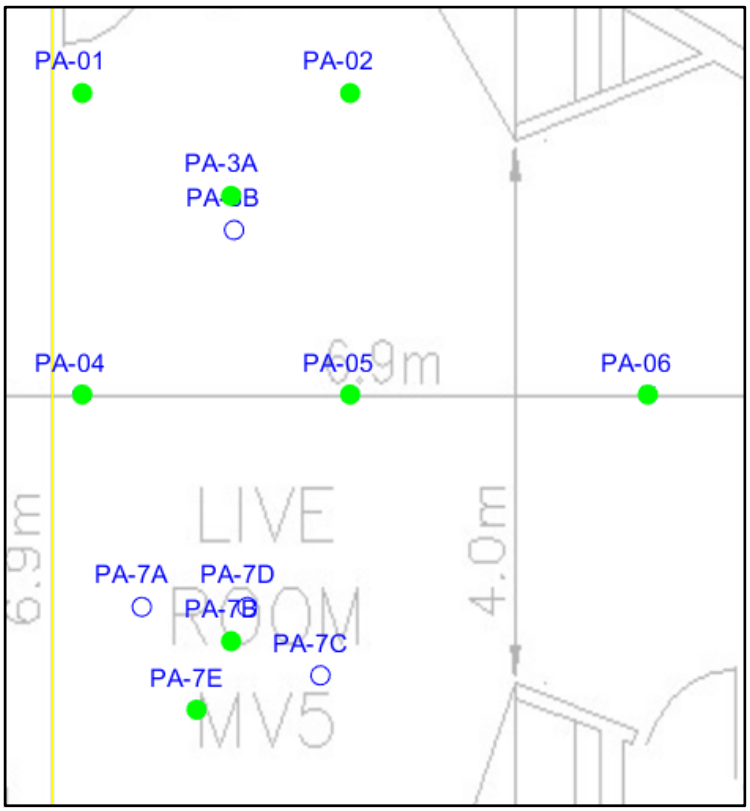

Figure 15: Receiver positions for Acoustic Setup 1. Receiver is the Eigenmike.

Acoustic Setup 2 - Performer KEMAR Reference Measurements

Aim - To get KEMAR reference measurements for each of the performer positions

Method: 5 Genelec loudspeakers and 1 KEMAR binaural head with voicebox were set up as sources. The in-ear microphones of the KEMAR were used as receivers. Within each configuration the Genelecs were rotated to 4 orientations (North/South/West/East) to facilitate 1st order source directivity post-processing.

Two different configurations from the main performer positions were considered, with KEMAR moving to each main performance point. KEMAR remained static in each configuration and faced South at point PA-3A and north at point PA-7B.

Source excitation signals are 20 second exponential sine sweeps. Each sweep played out from each loudspeaker and KEMAR 2 seconds apart, in an overlap method. The 2 second gap allows IRs to be deconvolved out separately.

The KEMAR sweep was pre-equalised for flat output from the voicebox.

Sources: Genelec 8030 and KEMAR (Voice box)
Receiver: KEMAR.
KEMAR ear height set to 1.6m.

6 Source positions x 4 rotations x 2 receiver configurations = 48 measurements.

Protocol: Same as Acoustic Setup 1.

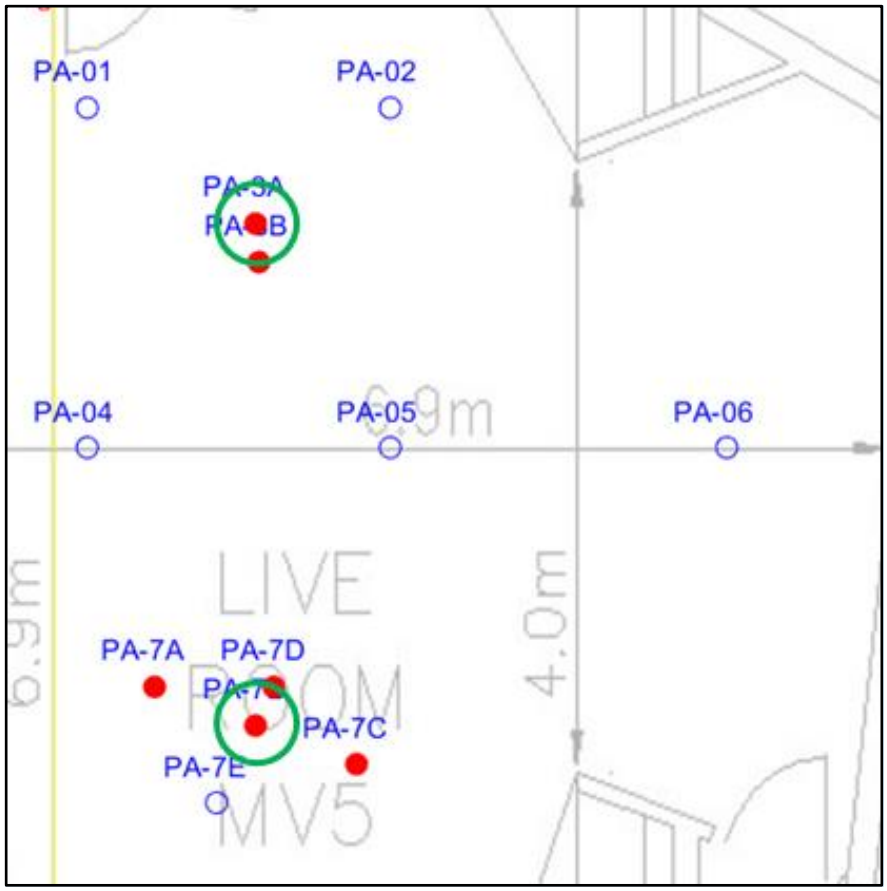

Figure 16: Source positions for Acoustic Setup 2. Sources are 6 Genelec 8030A loudspeakers and KEMAR voice box. KEMAR will alternate into each performer position.

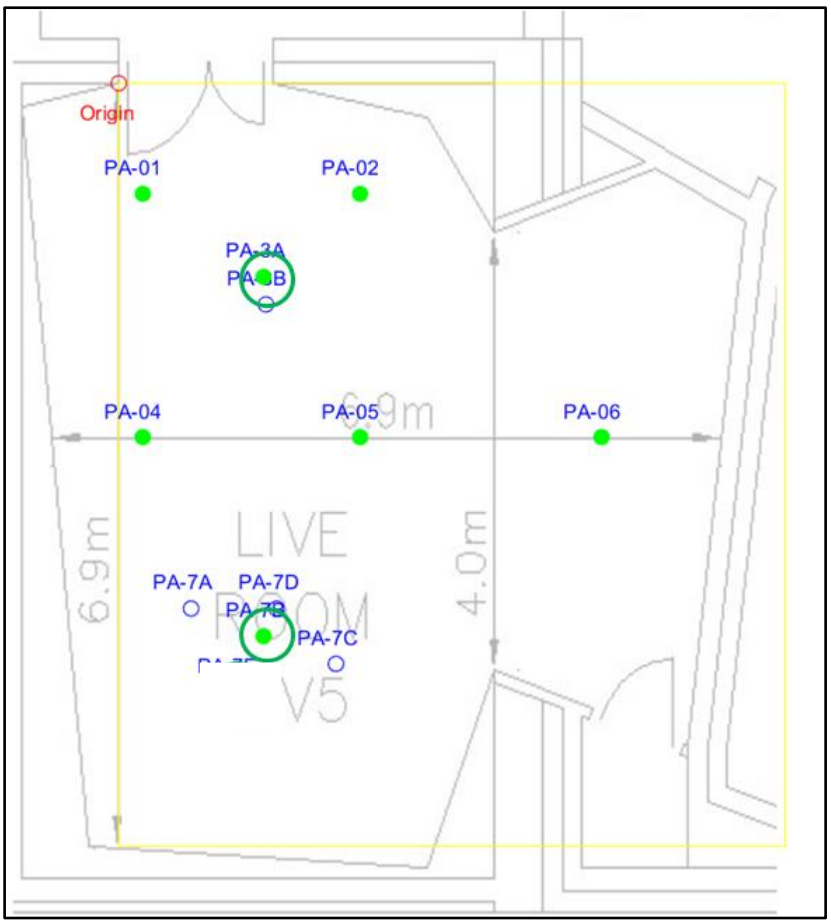

Figure 17: Receiver positions for Acoustic Setup 3. KEMAR will alternate into each receiver position.

Acoustic Setup 3 - ISO 3382 Measurements

Aim - To get standardised measurements of the full space in accordance with ISO-3382.

Method: Omnidirectional source (dodecahedron) measured in 1 position across 4 receiver positions spanning the full acoustic space.

Source: Dodecahedron

Receivers: Eigenmike and KEMAR

1 Source position x 4 receiver positions

All heights set to 1.5m

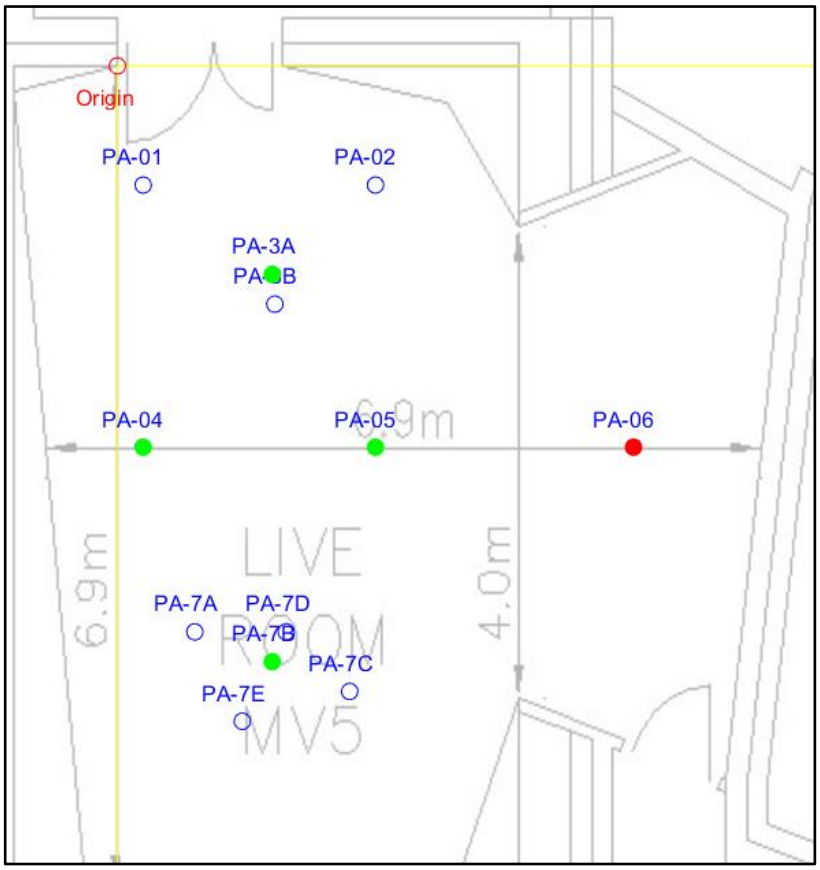

Figure 18: Source (Red) and receiver (Green) positions for ISO 3382 Measurements