

## IN THE LAB

	ATLANTIC TECHNOLOGY 170	CELESTION AVP305	WHARFEDALE PACIFIC EVOLUTION
<b>Frequency response</b> (at 2 meters)			
front left/right	100 Hz to 20 kHz $\pm 3.6$ dB	110 Hz to 14.6 kHz $\pm 7.5$ dB	40 Hz to 18.3 kHz $\pm 6.5$ dB
center	100 Hz to 20 kHz $\pm 3.7$ dB	99 Hz to 13 kHz $\pm 6.8$ dB	99 Hz to 16.6 kHz $\pm 3.8$ dB
surround	97 Hz to 20 kHz $\pm 4.2$ dB	110 Hz to 12.8 kHz $\pm 5.9$ dB	72 Hz to 10.2 kHz $\pm 4.8$ dB
subwoofer	44 to 110 Hz $\pm 2.5$ dB	36 to 120 Hz $\pm 2.0$ dB	50 to 118 Hz $\pm 2.2$ dB
<b>Sensitivity</b> (SPL at 1 meter with 2.8-volt pink-noise input)			
front left/right	86 dB	86 dB	88 dB
center	86 dB	85 dB	87 dB
surround	82 dB	86 dB	88 dB
<b>Impedance</b> (minimum/nominal)			
front left/right	2.7/6 ohms	3.7/6 ohms	3.9/5.6 ohms
center	2.9/5 ohms	3.8/6 ohms	3.6/6 ohms
surround	3.5/7 ohms	3.7/6 ohms	3.6/5 ohms
<b>Bass limits</b> (lowest frequency and maximum SPL with limit of 10% distortion at 2 meters in a large room)			
front left/right	80 Hz at 86 dB	100 Hz at 72 dB	40 Hz at 89 dB
center	80 Hz at 84 dB	80 Hz at 76 dB	80 Hz at 90 dB
surround	80 Hz at 77 dB	100 Hz at 72 dB	62 Hz at 78 dB
subwoofer	20 Hz at 80 dB	25 Hz at 82 dB	32 Hz at 89 dB
average SPL from 25 to 62 Hz	100 dB	95 dB	96 dB
maximum SPL	111 dB at 62 Hz	101.2 dB at 62 Hz	108 dB at 62 Hz
bandwidth uniformity	90%	94%	89%

All of the response curves in the graphs are weighted to reflect how sound arrives at a listener's ears with normal speaker placement. The bass limits for all subwoofers were measured with them set to maximum bandwidth and placed in the optimal corner of a 7,500-cubic-foot room. In a smaller room users can expect 2 to 3 Hz deeper extension and up to 3 dB higher sound-pressure level (SPL). Bandwidth uniformity is calculated by dividing the average SPL over the 25- to 62-Hz range by the maximum SPL in that range (higher numbers are better).

The Atlantic Technology 171 LR was quite smooth up to 3 kHz, with some roughness and a gentle downward slope above that. Our averaging techniques downplay the lobing that began at 15° off-axis for the 173 C center speaker and became more severe at wider radiating angles. Its treble output was most smoothly balanced when the tweeter control, which boosts or cuts response by  $\pm 2.5$  dB above 3.5 kHz, was set to noon on the dial. The 171 LR and 173 C are genuine low-impedance speakers, with a minimum falling below 3 ohms near 250 Hz. Directly on-axis, the 174 SR surround speaker had a deep, wide notch common to speakers with drivers on multiple panels. Response was smoother off-axis but varied widely by radiating angle. Directivity

differed somewhat from left to right as well.

The Atlantic Tech 172 PBM sub had excellent extension, but its dynamic capability fell by 16 dB per octave below 62 Hz. There was about 5 dB of interaction between the level and crossover control, which varied between 85 and 110 Hz although the dial has markings from 50 to 150 Hz.

The main feature of the Celestion AVS301's response was a peak at 2 kHz that appeared at all radiating angles. The 7.5-kHz notch was very deep on-axis but less at wider radiating angles. The wider angles improved measured performance when the curves were averaged for the same speaker in the surround position. The 13-kHz peak in the AVC301 center speaker's response appeared to some extent at all radiating angles. Because one of the cones is a passive radiator, the directivity of the AVC301 is different for listeners on the right or left side of the listening area. Response was smoother and more uniform for listeners seated to the left of the speaker (shown in graph below), while it varied radically according to the listening angle for listeners seated to the right.

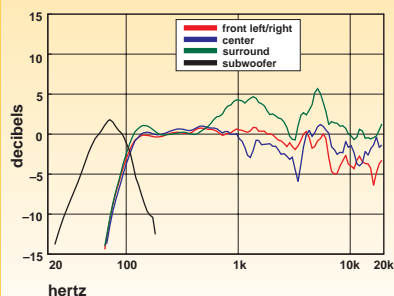
The Celestion S20 subwoofer had good extension with modest output. The 12/24-dB-per-octave crossover slopes worked as indicated. Although the dial was marked from 40 to 140 Hz,

acoustical crossover frequencies varied only between 55 and 120 Hz. The level and crossover controls had 7 dB of interaction. The curve shown reflects response using the Cinema EQ setting. The Music EQ setting reduced overall level by 2 dB and cut output below 45 Hz.

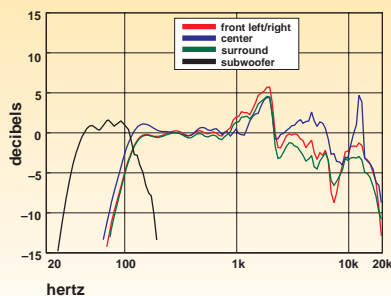
The Wharfedale EVO-30 left/right front tower had extended low-frequency response and the 370-Hz floor bounce typical of floor-standing speakers. Directivity was extremely uniform, but there was some edginess above 800 Hz. The EVO-Centre had a flat bass-to-treble balance and a +3-dB shelf between 700 Hz and 3 kHz. Horizontal lobing began immediately off-axis and became severe at angles of 22.5° and greater. The EVO-DFS surround had varied response at any given listening angle because of the multiple driver panels, but overall the sound delivered into the room was pretty smooth, with extra energy between 100 and 200 Hz.

The Wharfedale PowerCube DX12 subwoofer had limited extension, and response fell at a rate of 18 dB per octave below 62 Hz. Although the crossover's dial is marked from 60 to 170 Hz, the true acoustical turnover frequencies varied only between 90 and 118 Hz. The level fell considerably (11 dB) as the crossover control was adjusted from top to bottom. — Tom Nousaine

### ATLANTIC TECHNOLOGY



### CELESTION



### WHARFEDALE

