

## HF105 High-Frequency drivers... tested by Mr. Vance Dickason for Voice Coil

This month, I will review three different drivers. I also received the new HF105 compression driver and the STH100 horn from FitalPRO, an Italian Pro-Audio Speaker Manufacturer.

### THE HF105 AND THE STH100

The last driver I examined this month was the FitalPRO HF105 compression driver coupled with Fital's STH100 horn. I reviewed the FitalPRO HF104 coupled to the same STH100 horn in Voice Coil March 2012.

The HF105 is essentially a ferrite-motor version (the HF104 uses neodymium), which in today's market means lower cost, but with only a modest increase in weight of 0.58 lb. Like the HF104, the HF105 is an interesting compression driver and has several unique features.

This includes a Ketone polymer annular-shaped diaphragm and a radial-shaped phase plug. The throat diameter is 25.4 mm (1") and it is coupled to a 28-mm (1.5") diameter voice coil wound on a Kapton former with CCAW.

Other features include an aluminum body, 40-W AES-rated power handling (80-W maximum), and solderable terminals.

The horn tested with the HF105 driver, as in the HF104 review, is Fital's 1" throat, 80-H x 70-V short elliptical tractrix flare STH100.

Testing commenced using the LinearX LMS analyzer to produce the 300-point stepped sine wave impedance plot.

With a 5.5-Ohm DCR, the HF105/STH100's minimum impedance was 5.9 Ohm and at 5.9 kHz.

For the next test sequence, I recess mounted the Fital HF105/STH100 in an enclosure with a 9" x 12" baffle and used a 100-point gated sine wave sweep to measure the horizontal and vertical on and off-axis at 2.83 V/1 m.

The SPL profile measures  $\pm 4$  dB from 1 to 8.8 kHz. (The recommended cross-over frequency for the HF105 is a minimum of 1.7 kHz with a second-order network.)

Since the coverage of this horn is 80 H x 70 V, you wouldn't expect much of a difference in the horizontal and vertical off-axis plots.

For the remaining tests, I used the SoundCheck analyzer and 0.25" SCM microphone and power supply to measure distortion and generate time frequency plots. For the distortion measurement, the HF105/STH100 combination was mounted with the same baffle used for the frequency-response measurements.



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I used a noise stimulus to set the SPL to 104 dB at 1 m (0.65 V) and measured the distortion with the microphone placed 10 cm from the horn's mouth. I then used SoundCheck to get a 2.83-V/1-m impulse response for this driver and imported the data into the SoundMap time/frequency software. Comparing the HF104/STH100 data to the above data, the HF105/STH100's performance is similar to the neodymium version but at lower cost with not a lot more weight.

FaitalPRO officially thanks Mr. Vance Dickason for the kind permission to publish his tests.