



Electronics Industry Award entry

Embedded Solution Product of the Year: XMOS XVF3500 stereo-AEC voice processor

Supporting documents

Accuracy put to the test

The XMOS XVF3500 stereo-AEC voice processor is a proven leader in the market, as shown by its performance in various tests related to different aspects of voice capture. The results of three such tests are outlined below

Test for recognition of wake-word when speaking in a noisy kitchen environment

XMOS XVF3500 = green | Synaptics CX20921 = blue | Leading ASR proprietary smart-speaker = grey

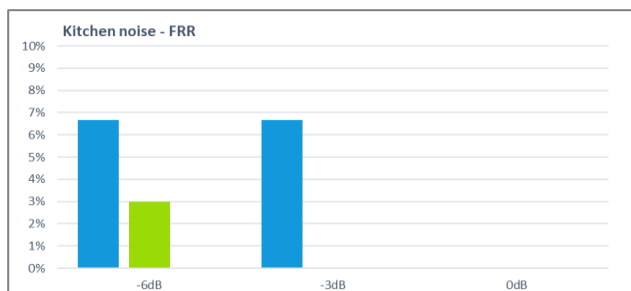


Figure 2: False Reject Rate = (no. missed wake-words) ÷ (no. wake words spoken). **Lower FRR = better**

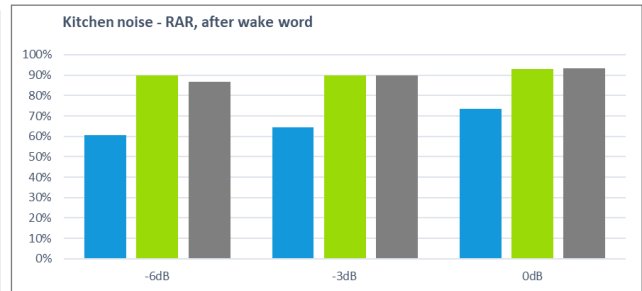


Figure 1: Response Accuracy Rate: After successful wake word detection, how accurately the next request is recognised. **Higher RAR = better**

Test observations:

- XMOS false reject rate is better than the competition - more wake words are heard by XMOS
- XMOS output is better optimised for ASR than the competition, and is better or equivalent to the performance of a leading ASR proprietary smart-speaker

Test for recognition of wake-word when music is playing from another device in the room

XMOS XVF3500 = green | Synaptics CX20921 = blue | Leading ASR proprietary smart-speaker = grey

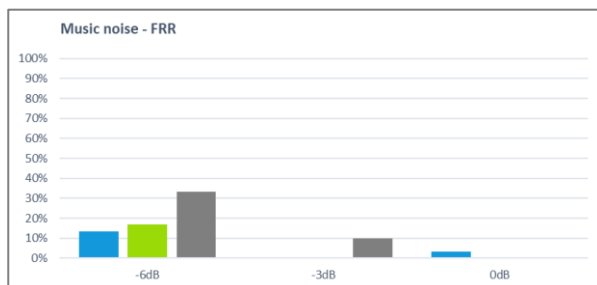


Figure 3: False Reject Rate = (number of missed wake-words) ÷ (number of wake words spoken). **LOWER FFR is better**

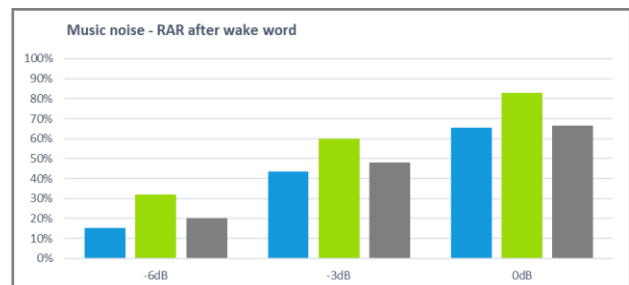


Figure 4: Response Accuracy Rate: After successful wake word detection, how accurately the next request is recognised. **Higher RAR = better**



Test observations:

- XMOS performs as well as, or better than, the competition in cancelling out music noise and detecting the wake-word

Test for barge-in and response accuracy rate when music is playing from the device itself

XMOS XVF3500 = green | Synaptics CX20921 = blue | Leading ASR proprietary smart-speaker = grey

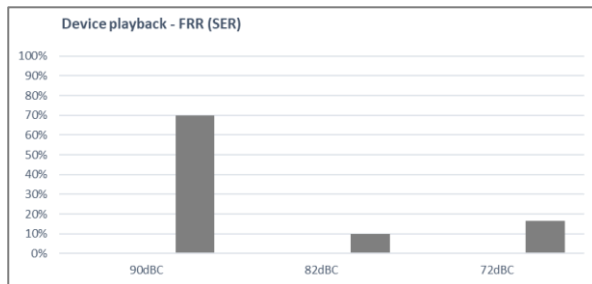


Figure 6: False Reject Rate = (number of missed wake-words) ÷ (number of wake words spoken). LOWER FFR is better

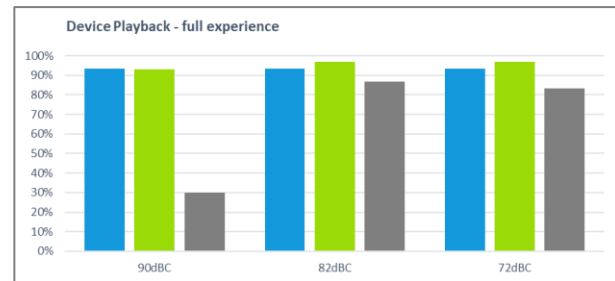


Figure 5: Combination of both the false reject rate, and response accuracy rate. **HIGHER is better**

Test observations:

- No wake-words missed by XMOS
- XMOS output is better optimised than competition

The results of these three tests show that you are more likely to be heard by and get a correct response from your voice-assistant with XMOS voice-capture front-end.