



OSM/EE DECISION SHEET

Category	Standard:	Clause	Document no.
ITAV	EN 62368-1:2014 + A11:2017 EN IEC 62368-1:2020 + A11:2020 EN IEC 62368-1:2024 + A11:2024	Annex E	OSM-EE 18/2 rev 1
Subject		Key words	Meeting
Determination of audio amplifier normal operating condition		Audio amplifier Normal operating condition	London 2018 Helsinki 2024
Question			
<p>What is the correct way to determine normal operating condition for an active 3-way (woofer, mid, tweeter) loudspeaker with separate amplifier for each driver?</p> <ol style="list-style-type: none"> 1. Input 1kHz signal, turn volume up until clipping and record the maximum unclipped power of the clipping amplifier. Input pink noise signal, turn volume up until amplifier that clipped is delivering 1/8 of its maximum unclipped power. 2. Input 1kHz signal, turn volume up until clipping and record the maximum unclipped power of the clipping amplifier. Input pink noise signal, turn volume up until any of the three amplifiers delivers 1/8 of the maximum unclipped power of the amplifier that clipped the 1kHz signal. 3. Determine the peak response frequency for all three amplifiers. Input the peak response frequency for each amplifier one at the time, turn volume up until clipping and record the maximum unclipped power of the amplifier. Input pink noise signal, turn volume up until one of the amplifiers is delivering 1/8 of the maximum unclipped power recorded at the peak response frequency. 			
Decision			
<p>OSM is of the opinion that option 3. is the correct method.</p> <p>Confirmed by TC108 at Busan, Korea, Oct 2018</p>			

Explanatory notes

1. Is not correct because clipping and 1/8 power is only determined for one of three amplifiers so the power of the other two is unknown. This might, for some constructions, result in clipping of the output for the unmeasured amplifiers during normal operating conditions.
2. Is not correct because clipping is only determined for one of three amplifiers and then 1/8 of that level is applied to all amplifiers. For some constructions this will result in very low power output levels for normal operating conditions.
3. According to E.1:
The peak response frequency shall be used where an amplifier is not intended for operation at 1kHz.
For equipment containing multi-channel amplifiers, where some channels cannot be operated independently, those channels shall be operated using the output power level that corresponds, by design, to 1/8 of the non-clipped output power of the adjustable amplifier channel(s).

In Helsinki 2024, OSM-EE decision 18/2 was modified with following changes:

- add 3rd and 4th editions of EN IEC 62368-1
- change category from OFF to ITAV