

Audio Amp(WA20-6829B)Performance

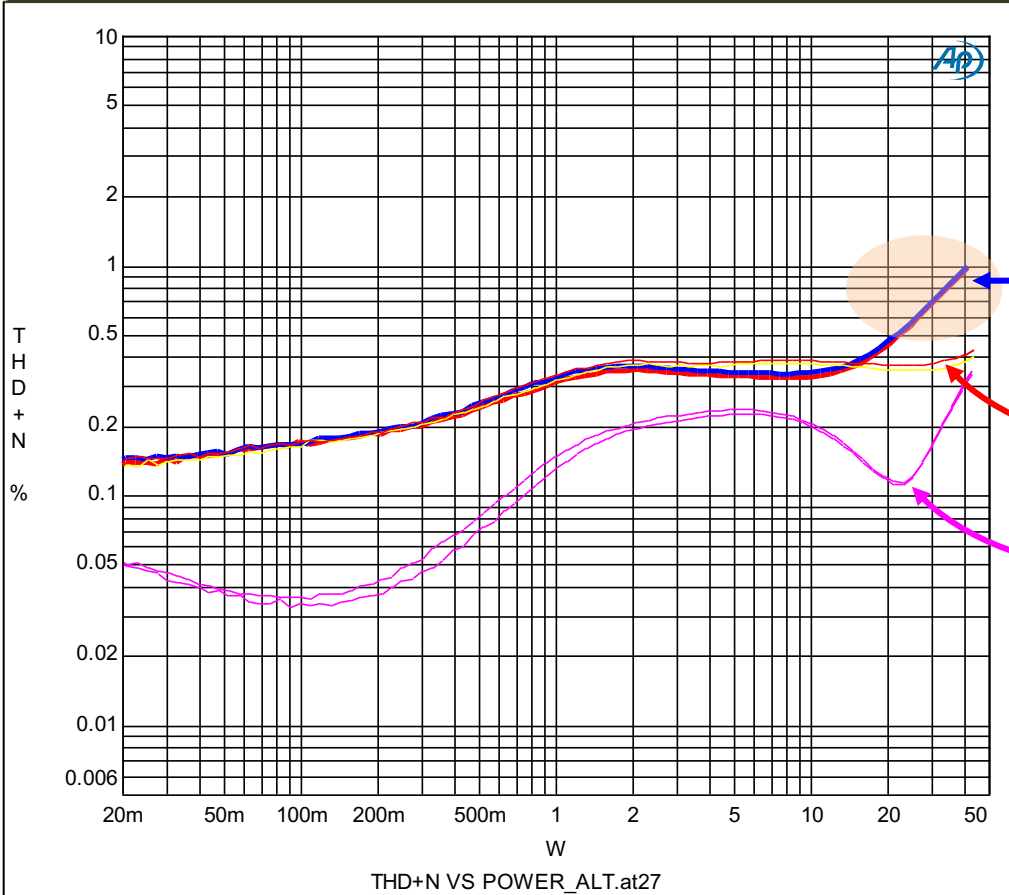
April. 2021

Wellang Co.,Ltd.

❖ Condition

- WA20-6829B Control Board+ SWAN Sound Bar Board (Connect I2C, I2S of WA20-6829B Control Board to SWAN Sound Bar Board to operate AMP.

THD+N vs Power (WF)



THD Performance degradation due to T1 (Noise Filter)
Over 18W.

With SPH10040(Without T1 Noise Filter)

With Sunlord Inductor (SPWA8065S)

❖ Test Result

- THD characteristics deteriorate above 18W due to T1 Noise Filter connected to PVDD power supply. -> Use a noise filter that fits the current capacity and has a small resistance value.
- When using the inductor selected by ALT, the THD characteristics deteriorate at all outputs. -> Since the inductor used in Wellang has a height of 6.5mm and is not suitable for use in current fixtures, it is necessary to select parts considering the THD Spec of ALT.

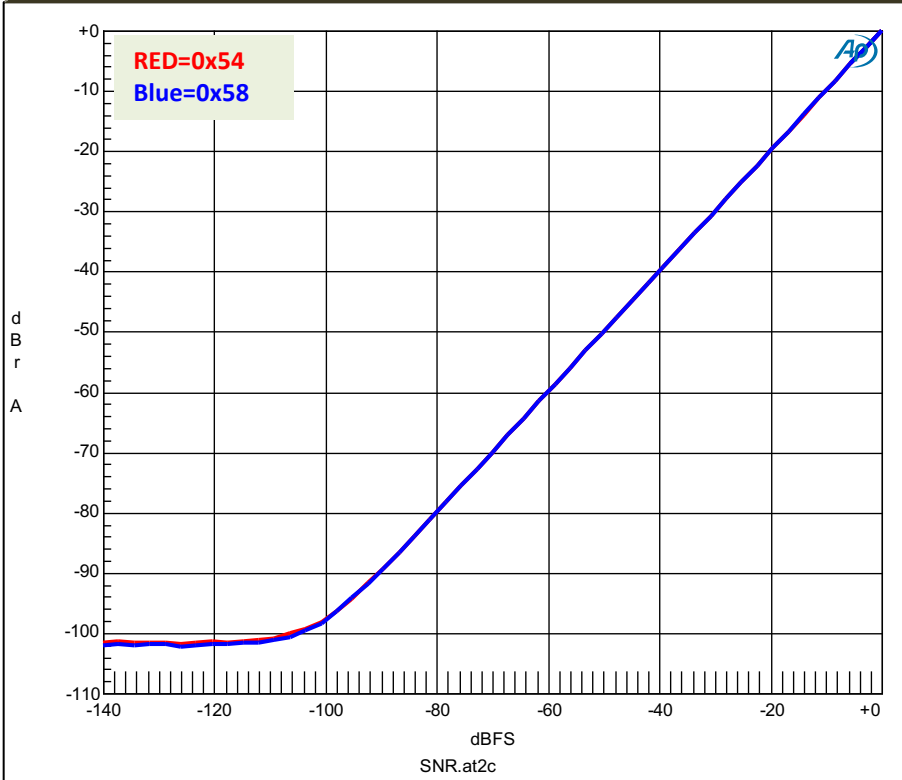
Woofer

1. SNR

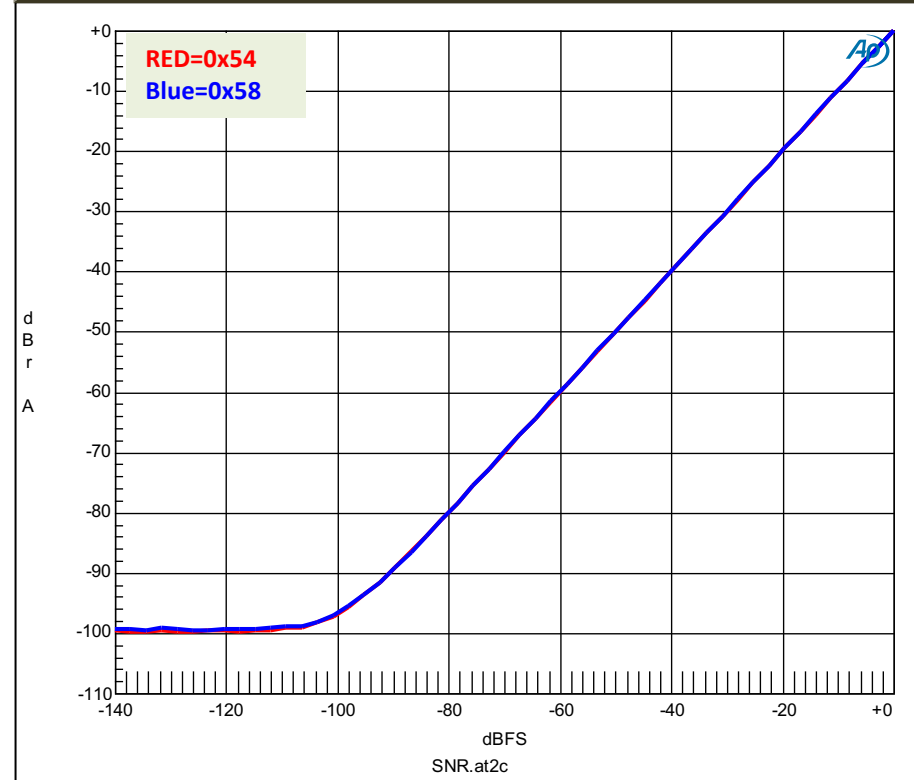
❖ Condition

- PVDD=24V, Load=3Ω Load, Without Noise Filter

Inductor (SPWA8065S)



Inductor (SPH10040)



❖ Test Result

- SNR

- SPWA8065S Inductor : 101.8dB/102.1dB

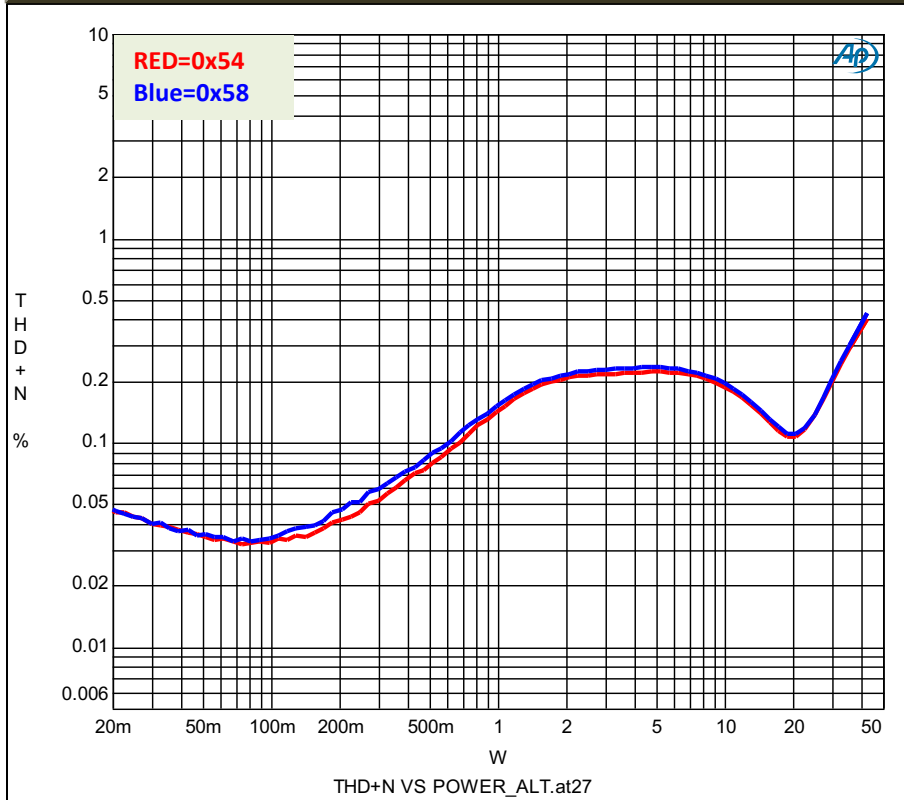
- SPH10040 Inductor : 99.8dB/99.2dB

2. THD+N vs Power

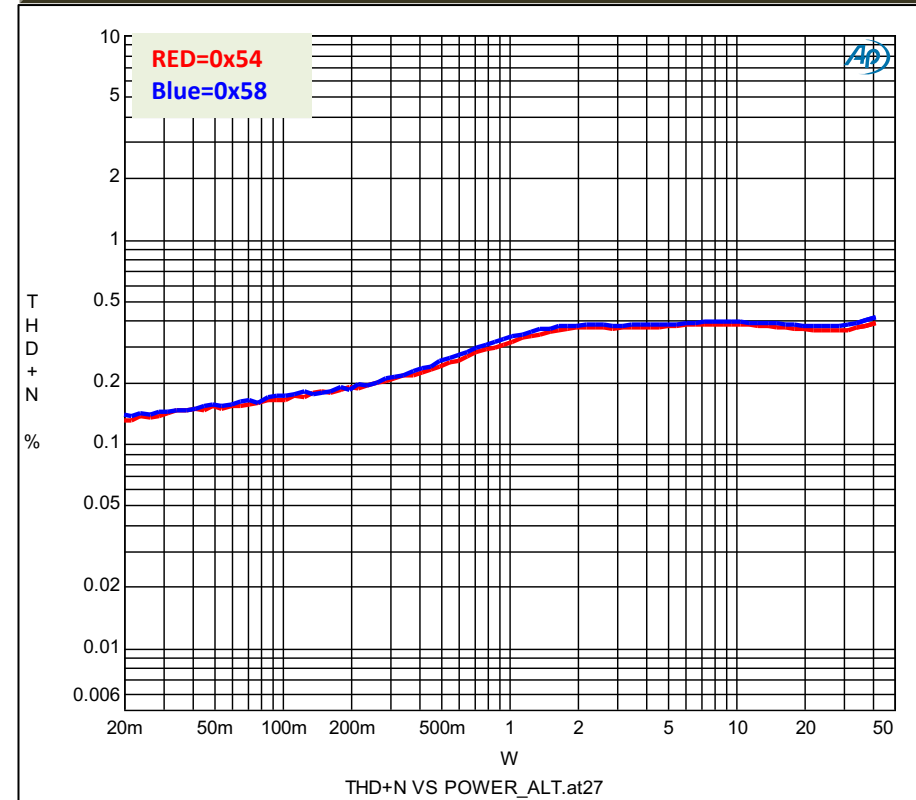
❖ Condition

- PVDD=24V, Load=3Ω Load, Without Noise Filter, Power sweep 20mW~40W

Inductor (SPWA8065S)



Inductor (SPH10040)



❖ Test Result

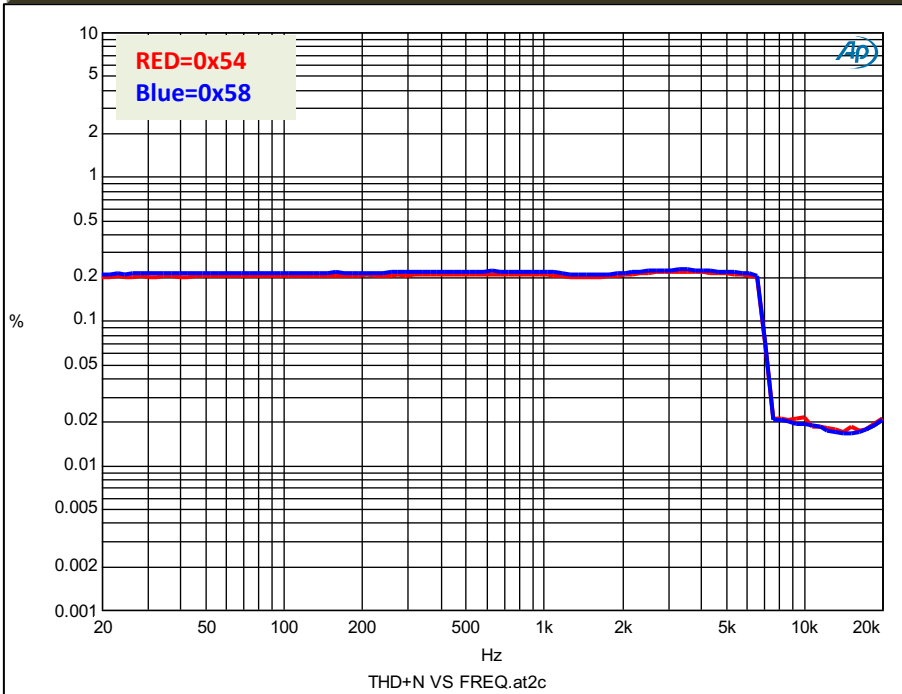
- THD+N vs Power @1W
- SPWA8065S Inductor : 0.151%/0.162%
- SPH10040 Inductor : 0.312%/0.324%

3. THD+N vs Frequency

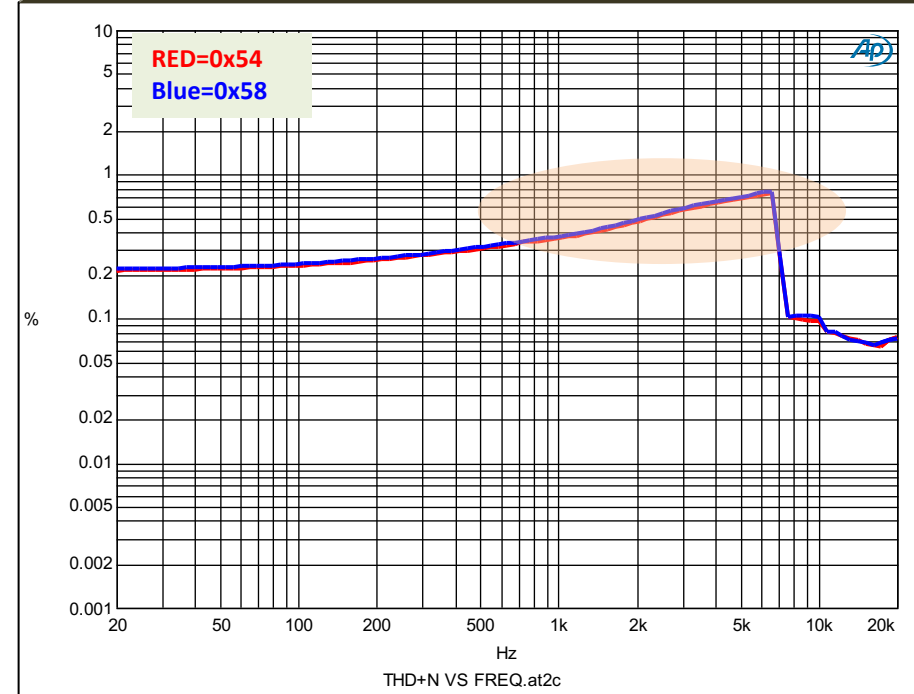
❖ Condition

- PVDD=24V, Load=3Ω Load, Without Noise Filter, Power=1W, Frequency Sweep : 20Hz~20kHz

Inductor (SPWA8065S)



Inductor (SPH10040)



❖ Test Result

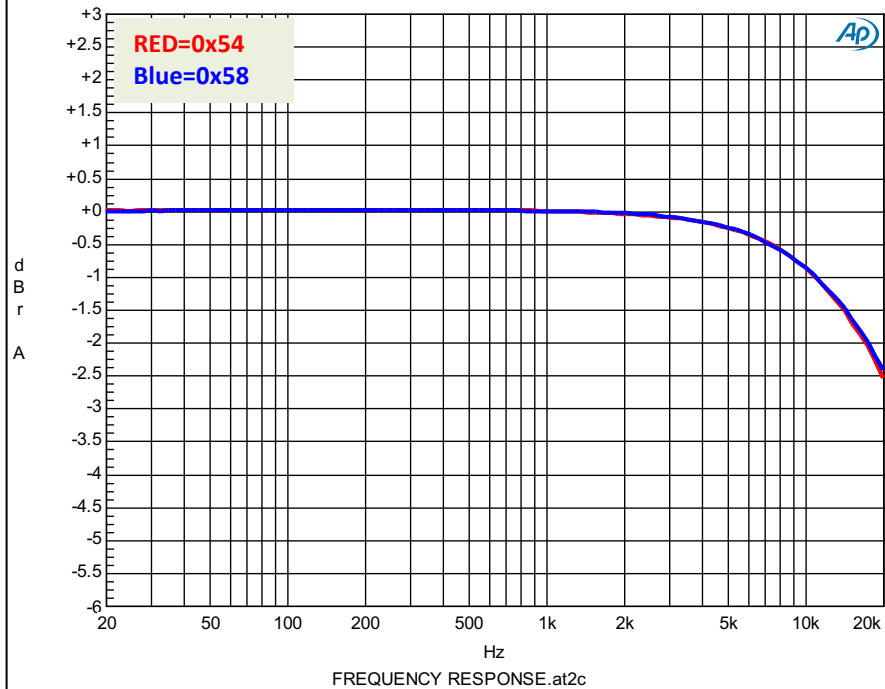
- THD+N vs Frequency
- SPWA8065S Inductor : 0.213%/0.225%
- SPH10040 Inductor : 0.681%/0.701%

4. Frequency Response

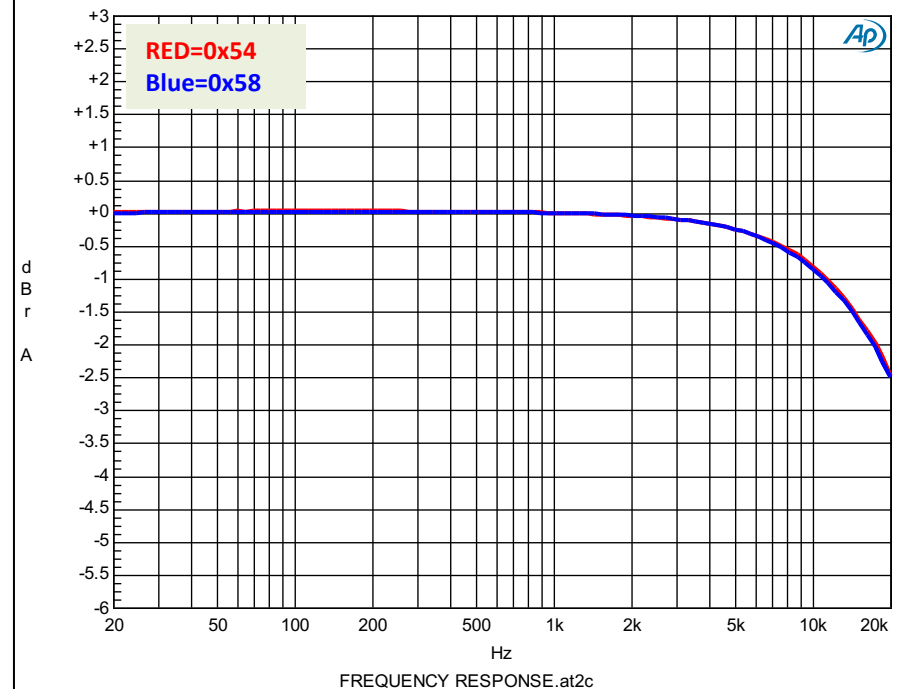
❖ Condition

- PVDD=24V, Load=3Ω Load, Without Noise Filter, Power=1W, Frequency Sweep : 20Hz~20kHz

Inductor (SPWA8065S)



Inductor (SPH10040)



❖ Test Result

- Frequency Response

- SPWA8065S Inductor : +0.05dB ~ -2.51dB

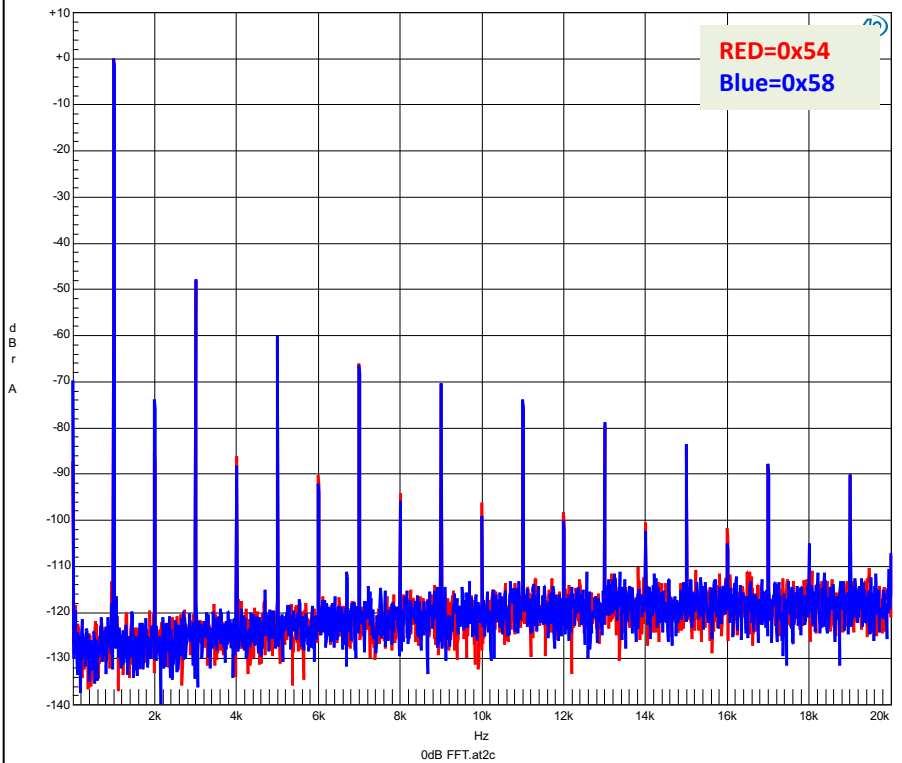
- SPH10040 Inductor : +0.05dB ~ -2.49dB

5. 0dB FFT

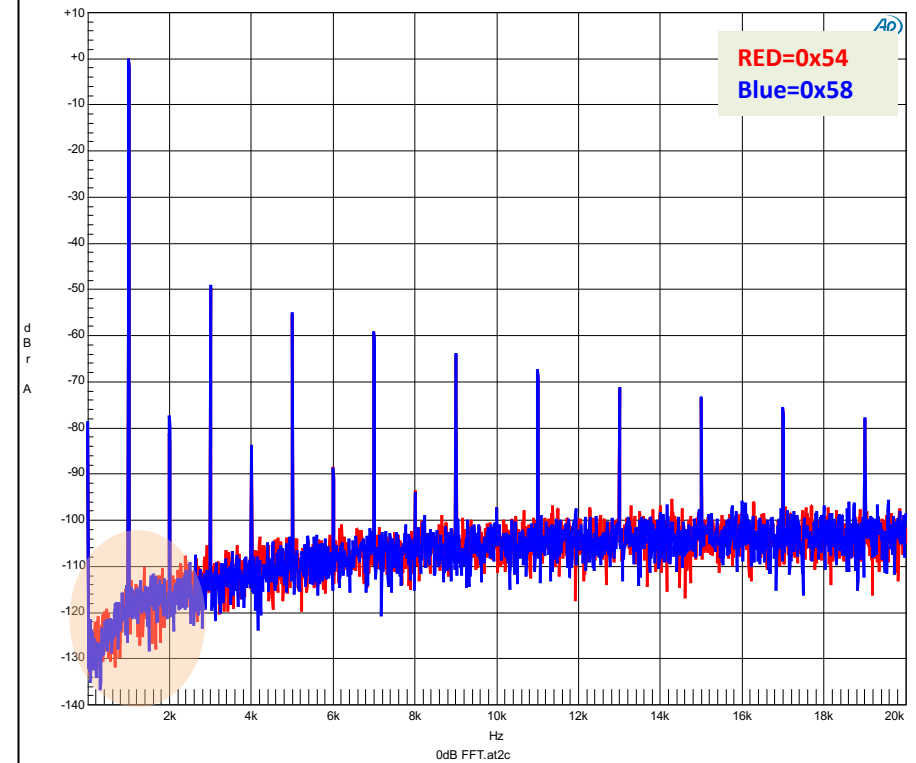
❖ Condition

- PVDD=24V, Load=3Ω Load, Without Noise Filter, Power=40W

Inductor (SPWA8065S)



Inductor (SPH10040)



❖ Test Result

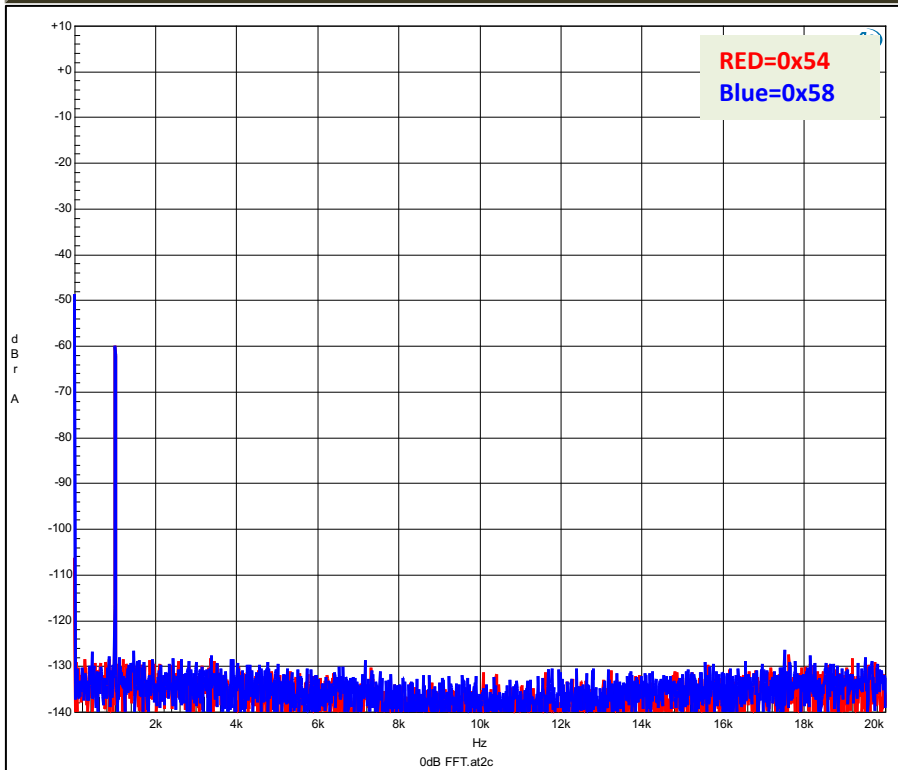
- 0dB FFT
- SPWA8065S Inductor : -110dB/-110dB
- SPH10040 Inductor : -96dB/ -96dB

6. -60dB FFT

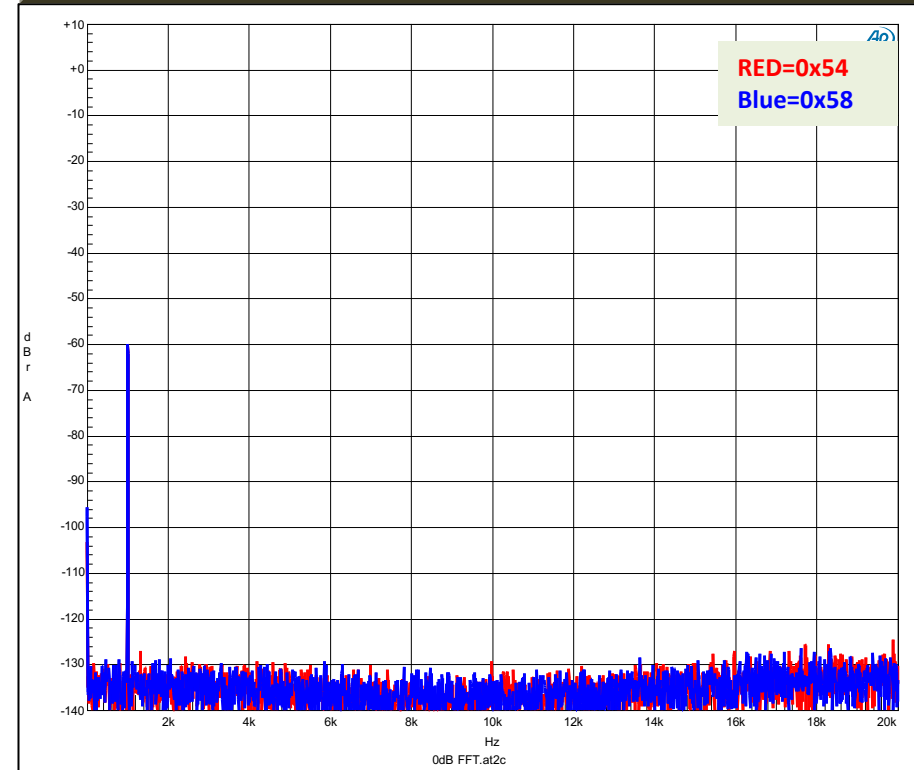
❖ Condition

- PVDD=24V, Load=3Ω Load, Without Noise Filter,

Inductor (SPWA8065S)



Inductor (SPH10040)



❖ Test Result

- 60dB FFT
- SPWA8065S Inductor : -126dB/-126dB
- SPH10040 Inductor : -124dB/ -126dB

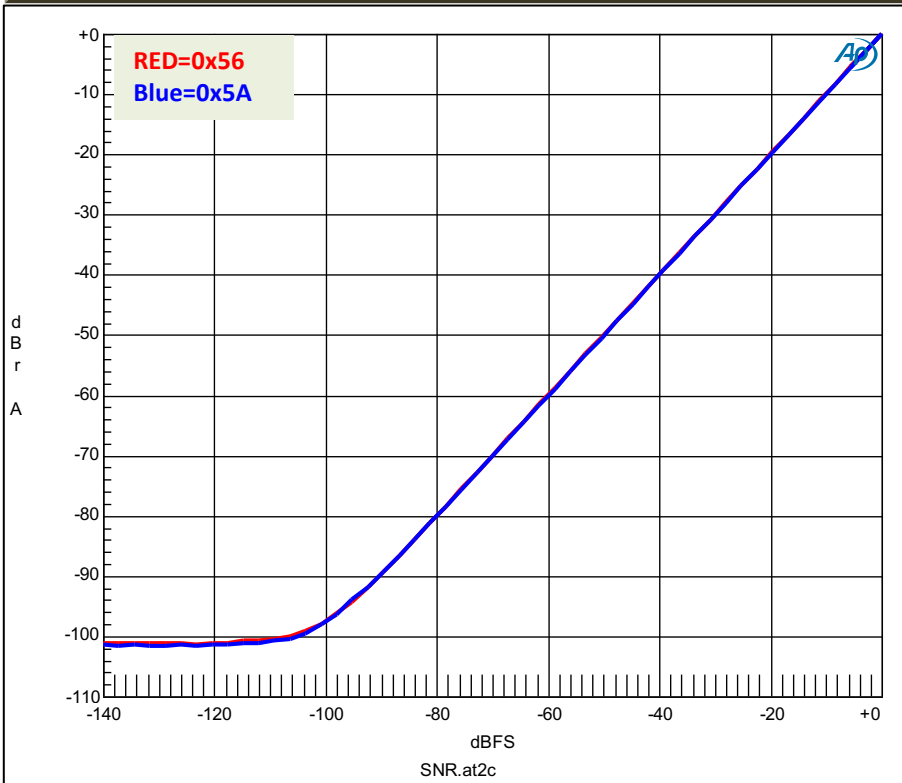
Full Range

1. SNR

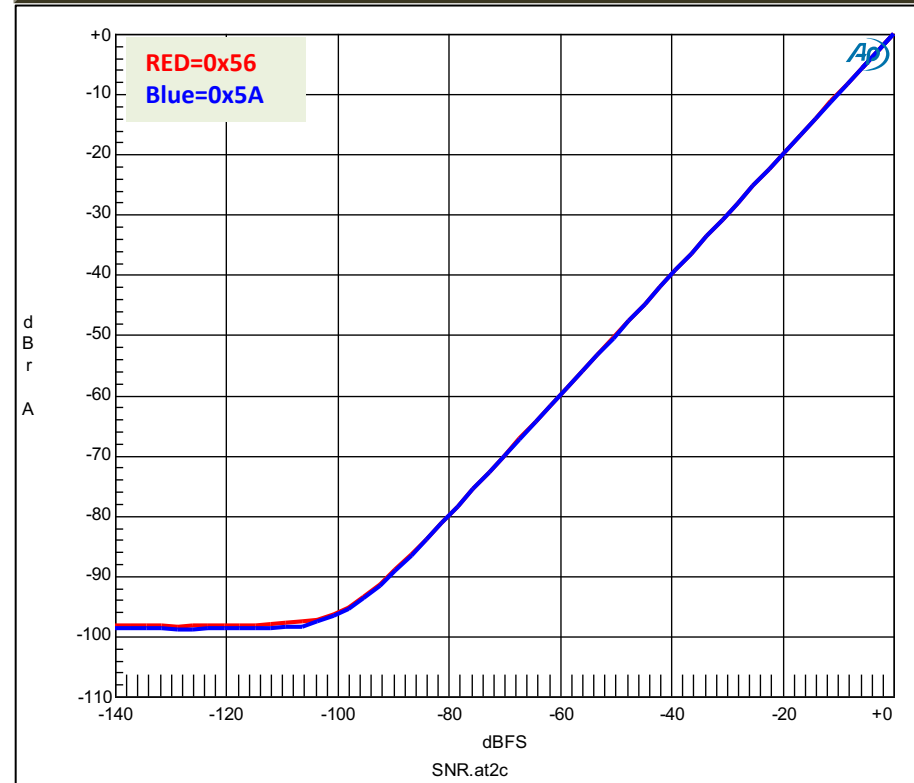
❖ Condition

- PVDD=24V, Load=4Ω Load, Without Noise Filter

Inductor (SPWA8065S)



Inductor (SPH10040)



❖ Test Result

- SNR

- SPWA8065S Inductor : 101.2dB/102.5dB

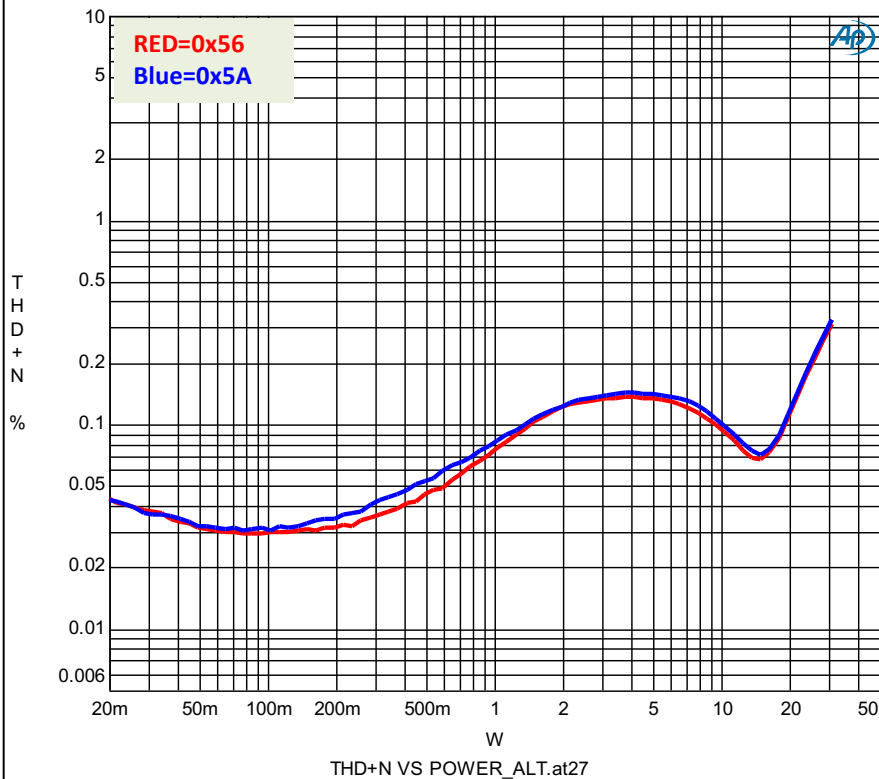
- SPH10040 Inductor : 98.2dB/98.5dB

2. THD+N vs Power

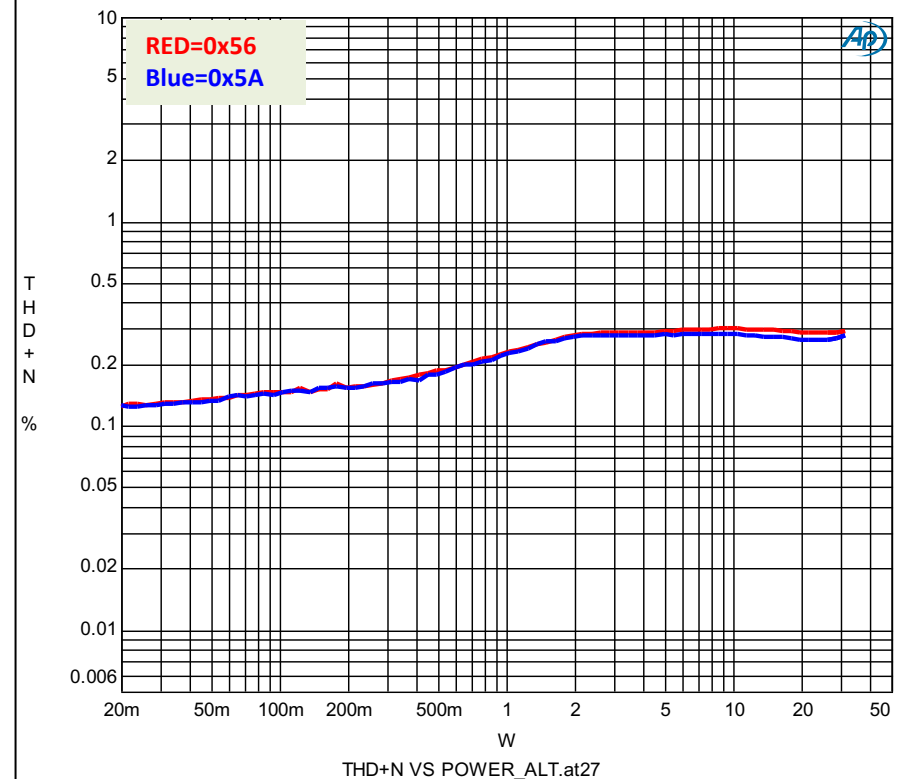
❖ Condition

- PVDD=24V, Load=4Ω Load, Without Noise Filter, Power sweep : 20mW~40W

Inductor (SPWA8065S)



Inductor (SPH10040)



❖ Test Result

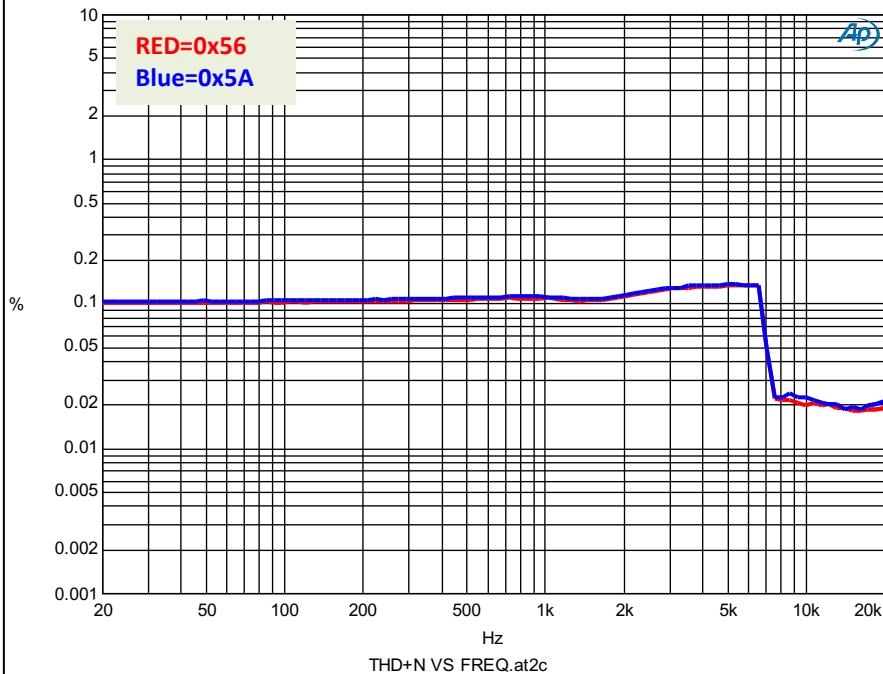
- THD+N vs Power @1W
- SPWA8065S Inductor : 0.076%/0.083%
- SPH10040 Inductor : 0.232%/0.231%

3. THD+N vs Frequency

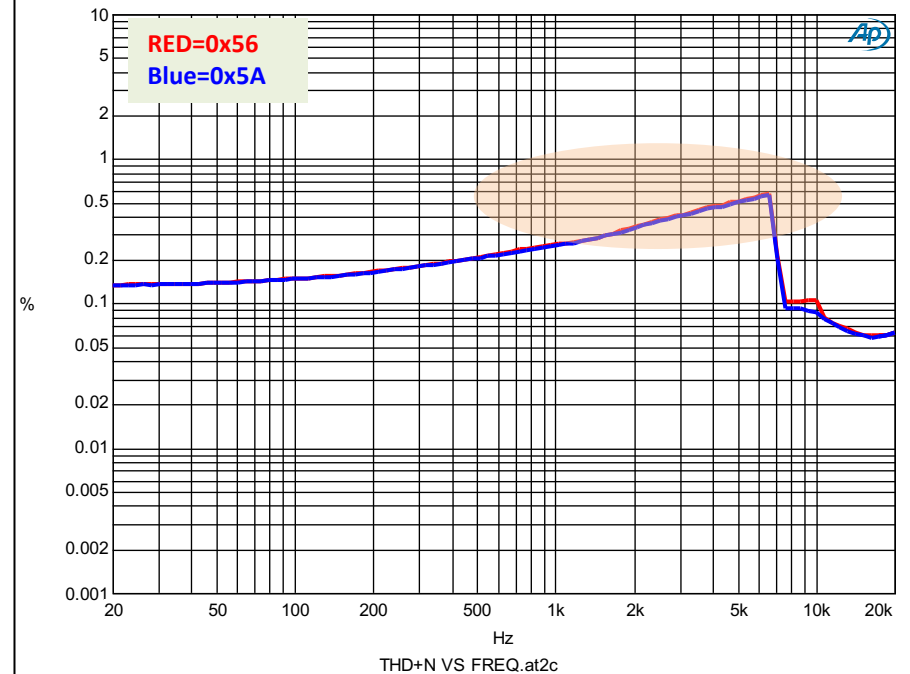
❖ Condition

- PVDD=24V, Load=4Ω Load, Without Noise Filter, Power=1W, Frequency sweep : 20Hz~20kHz

Inductor (SPWA8065S)



Inductor (SPH10040)



❖ Test Result

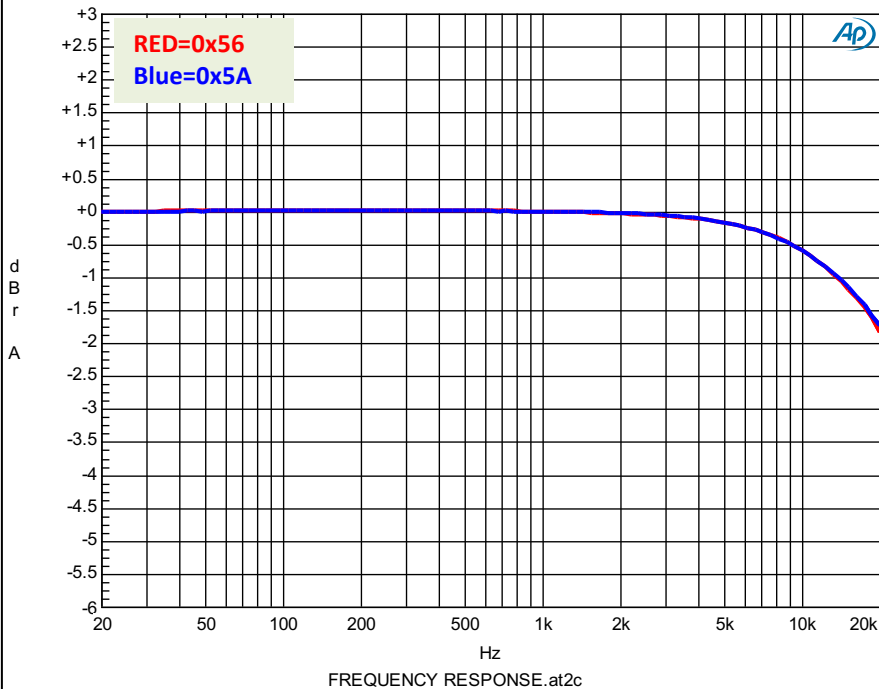
- THD+N vs Frequency
- SPWA8065S Inductor : 0.142%/0.145%
- SPH10040 Inductor : 0.591%/0.585%

4. Frequency Response

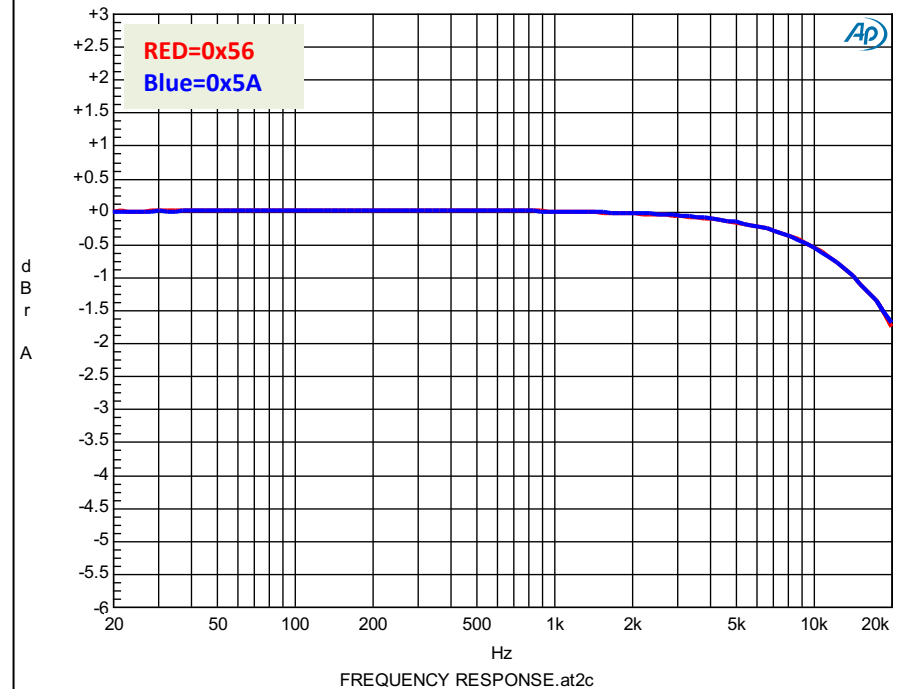
❖ Condition

- PVDD=24V, Load=4Ω Load, Without Noise Filter, Power=1W, Frequency sweep : 20Hz~20kHz

Inductor (SPWA8065S)



Inductor (SPH10040)



❖ Test Result

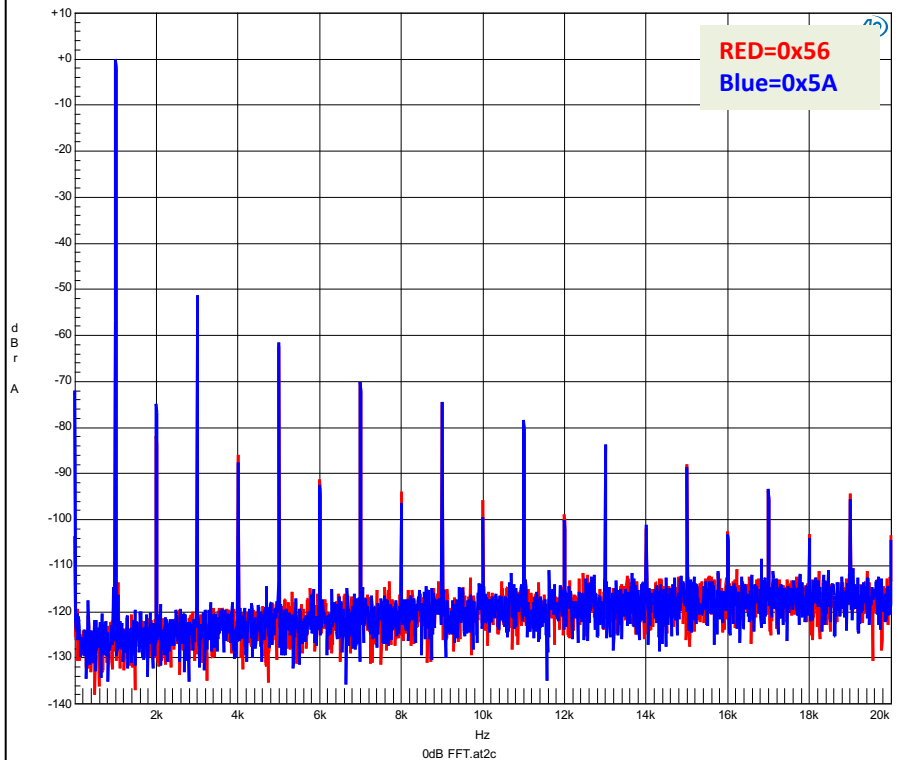
- Frequency Response
 - SPWA8065S Inductor : +0.05dB ~ -1.58dB
 - SPH10040 Inductor : +0.05dB ~ -1.56dB

5. 0dB FFT

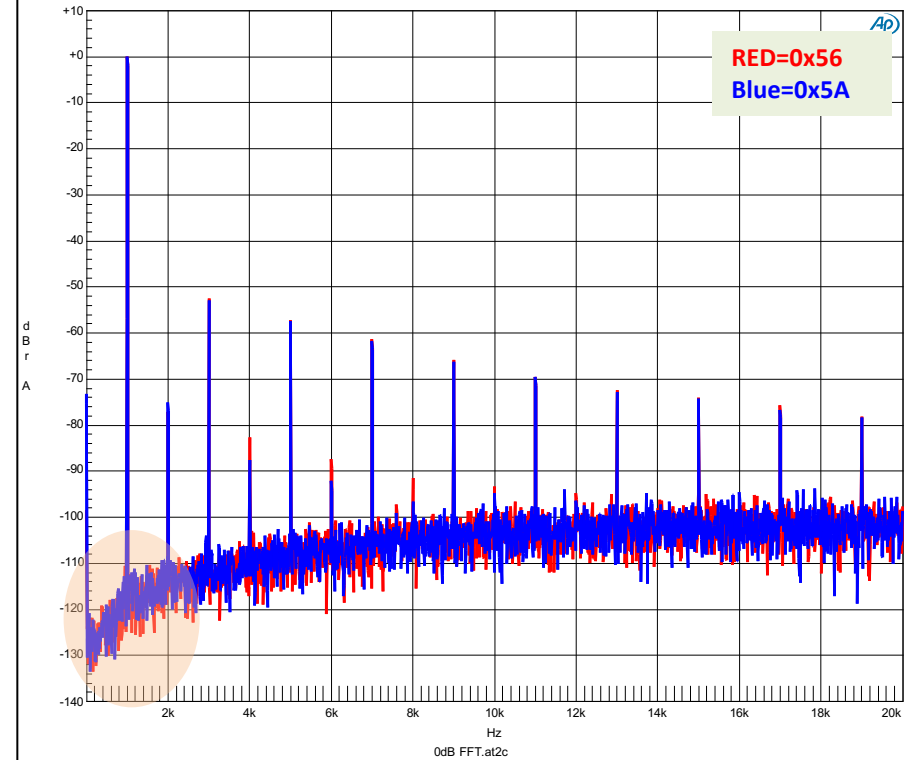
❖ Condition

- PVDD=24V, Load=4Ω Load, Without Noise Filter, Power : 30W

Inductor (SPWA8065S)



Inductor (SPH10040)



❖ Test Result

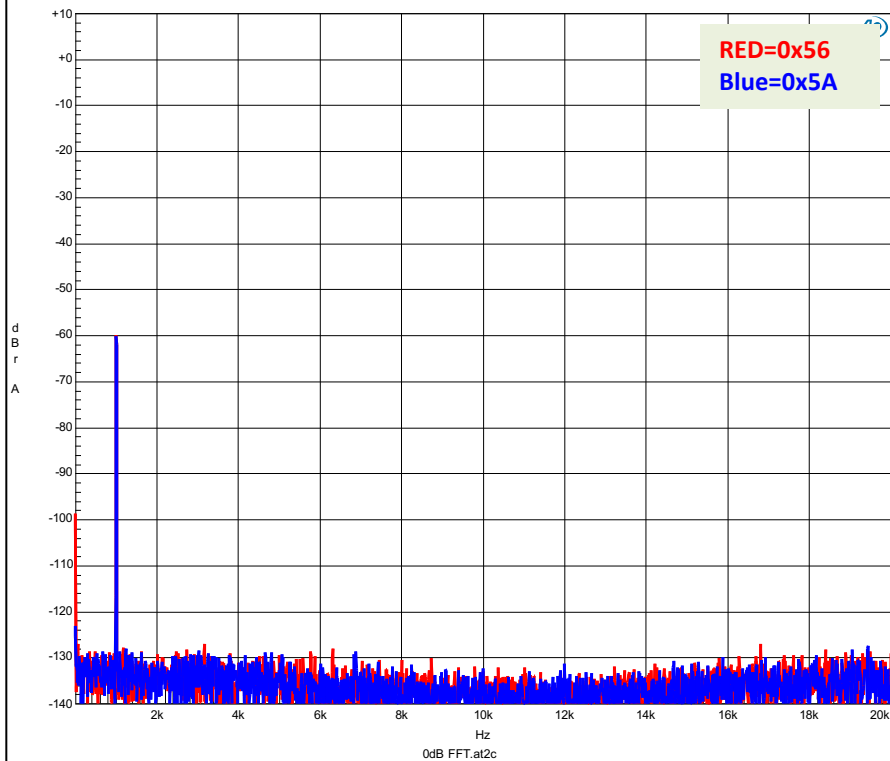
- 0dB FFT
- SPWA8065S Inductor : -110dB/-108dB
- SPH10040 Inductor : -96dB/ -96dB

6. -60dB FFT

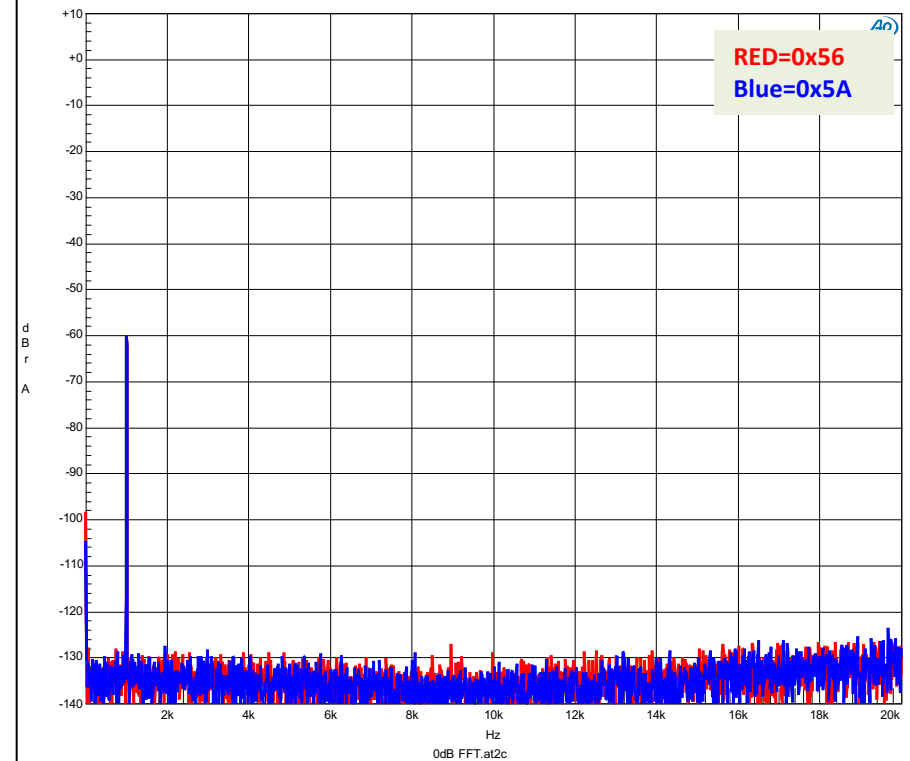
❖ Condition

- PVDD=24V, Load=4Ω Load, Without Noise Filter,

Inductor (SPWA8065S)



Inductor (SPH10040)



❖ Test Result

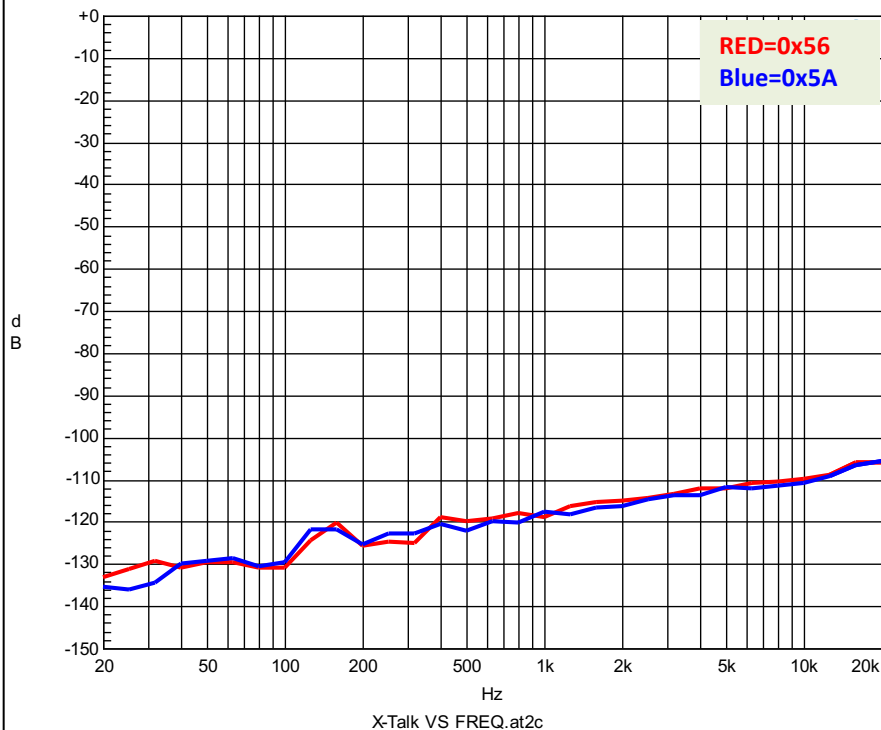
- 60dB FFT
- SPWA8065S Inductor : -126dB/-126dB
- SPH10040 Inductor : -126dB/ -124dB

7. Crosstalk

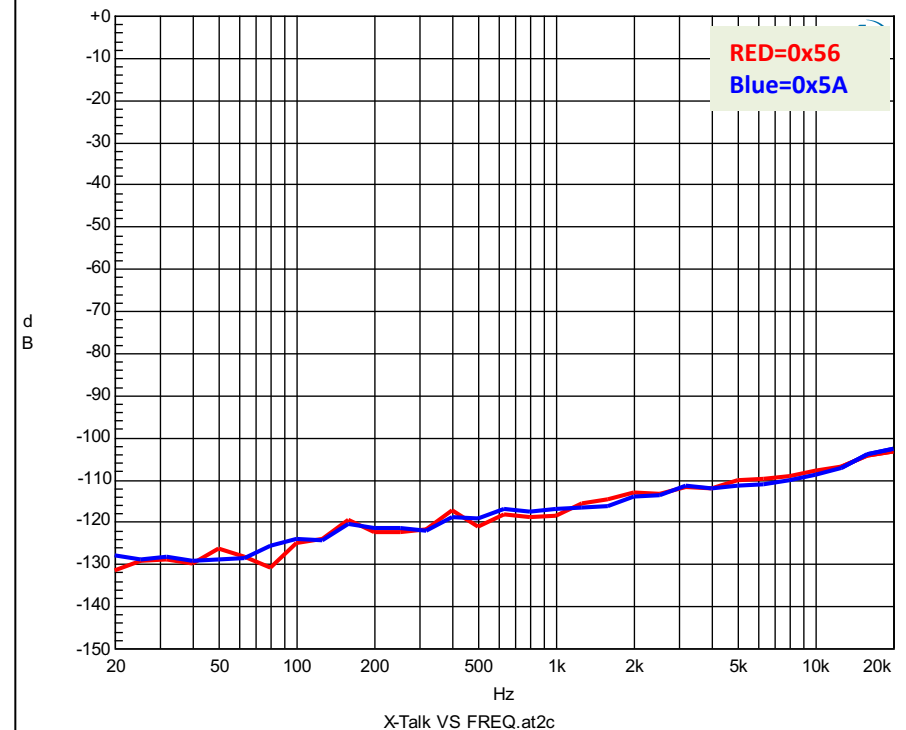
❖ Condition

- PVDD=24V, Load=4Ω Load, Without Noise Filter, Power=30W, Frequency sweep : 20Hz~20kHz

Inductor (SPWA8065S)



Inductor (SPH10040)



❖ Test Result

- Crosstalk @1kHz

- SPWA8065S Inductor : -119dB/-118dB

- SPH10040 Inductor : -118dB/ -117dB