

Swan_soundbar_DVT_MIC_sesaling test



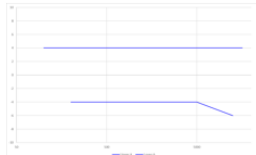
ALT Co., Ltd.

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Issued by SH, SON

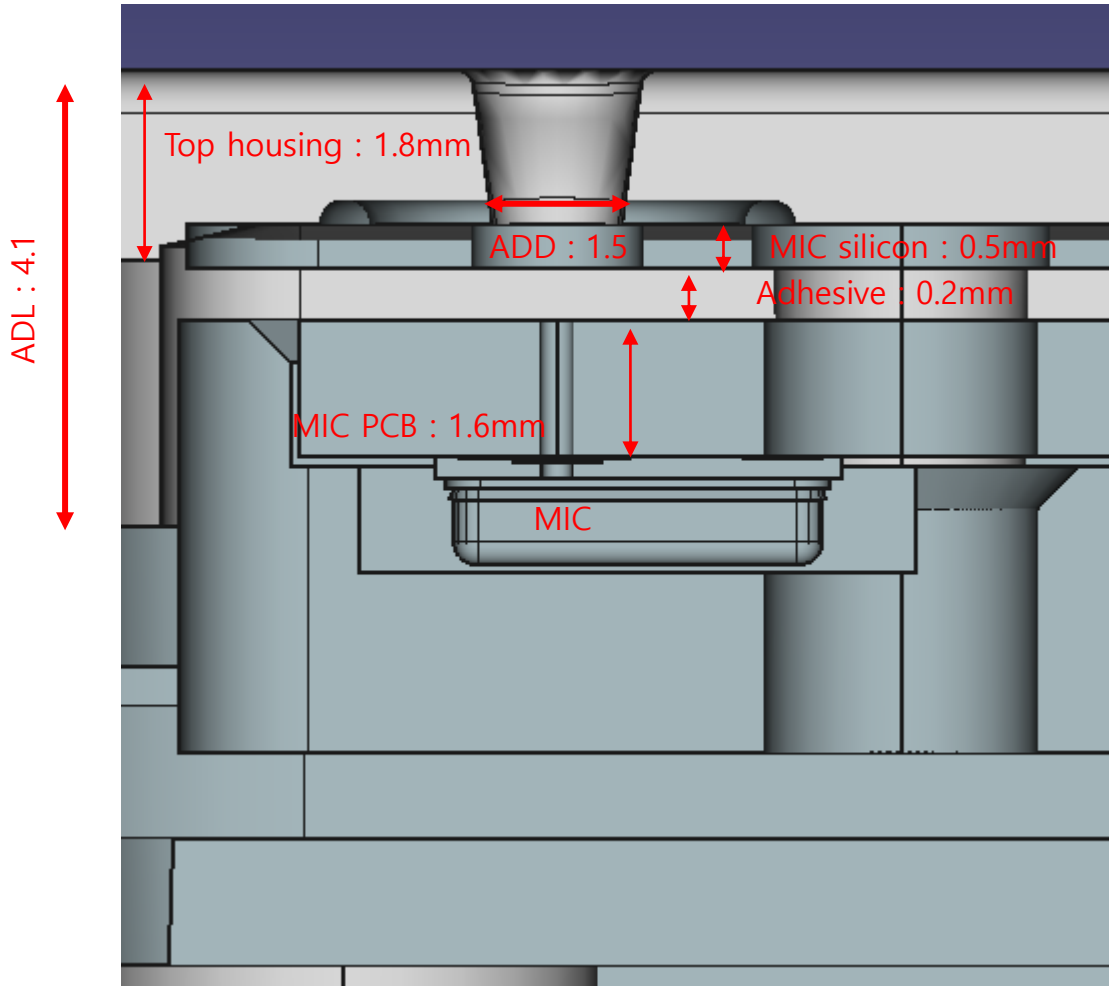
MIC sealing spec by RFP

기능정의	요구사항 정의	관리 주파수 대역	요구사항 상세	측정조건																		
Microphone (Single 기준)	*Frequency Response		관리 주파수 대역 내에서 8kHz 이하는 deep 구간이 없어야 함 Mic peak 8kHz △ 으로 발생/관리  <table><thead><tr><th></th><th>Upper A</th><th>Lower A</th></tr></thead><tbody><tr><td>100</td><td>4</td><td></td></tr><tr><td>200</td><td>4</td><td>-4</td></tr><tr><td>5000</td><td>4</td><td>-4</td></tr><tr><td>12500</td><td>4</td><td>-6</td></tr><tr><td>16000</td><td>4</td><td></td></tr></tbody></table>		Upper A	Lower A	100	4		200	4	-4	5000	4	-4	12500	4	-6	16000	4		측정용 스피커 1m 정면 94dB SPL 에서 마이크 주파수 특성 확인 (SS)
		Upper A	Lower A																			
	100	4																				
	200	4	-4																			
5000	4	-4																				
12500	4	-6																				
16000	4																					
*Sealing	100 Hz ~ 10kHz	관리 주파수 대역 내에서 Mic hole open/closed시 RMS값 차이 25dB △ 관리 주파수 대역 내에서 8kHz 이하는 솟는 구간이 없어야 함	측정용 스피커 1m 정면 94dB SPL 에서 신호 재생 (SS) 후 녹음. Mic hole 밀폐 후 재 녹음.																			
*Total Harmonic Distortion		관리 주파수 대역 내에서 total harmonic distortion 4% ▽	측정용 스피커 1m 정면 94dB SPL 에서 마이크 harmonic 왜곡도 확인 (SS)																			

ADL/ADD spec by RFP

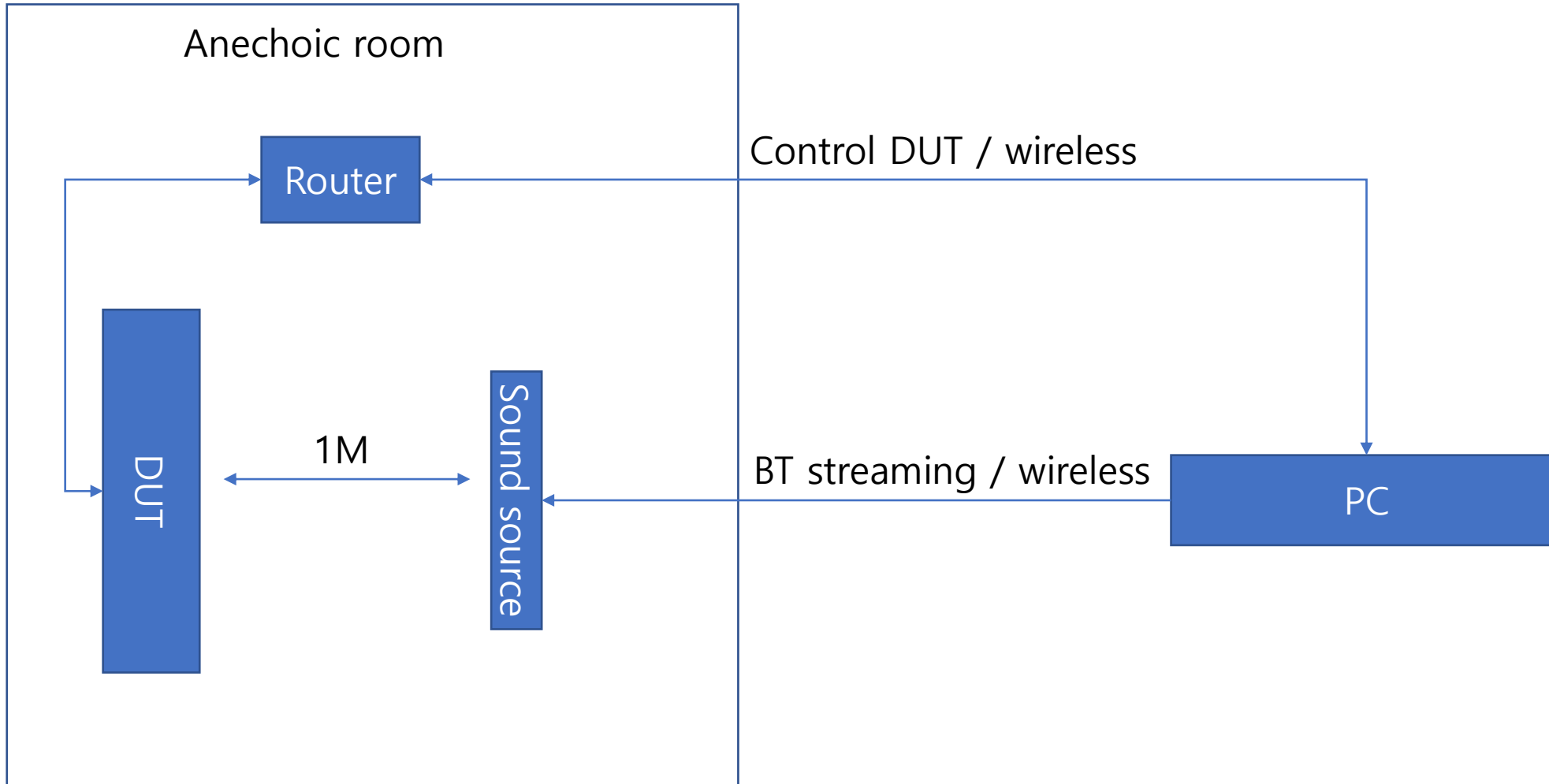
Mic. / Spk. 배치 평가	Mic.Direction	사용자 방향 배치 추천. 불가능할 시 중립 방향.	H/W 디자인의 방향성 보유 여부 에 따라 결정
	Mic.Distance	3 cm ~ 12 cm 이내	너무 멀거나 가까우면 음성인식 전처리 성능 저하
(정성적 평가)	Mic. Hole	ADL/ADD < 4	Hole 깊이가 얕고 지름이 클수록 좋음. 가급적 3 내외 추천
	Mic. / Spk.	Speaker로부터 최대한 멀리 Mic. 배치	AEC의 성능에 큰 영향

• Mechanical design

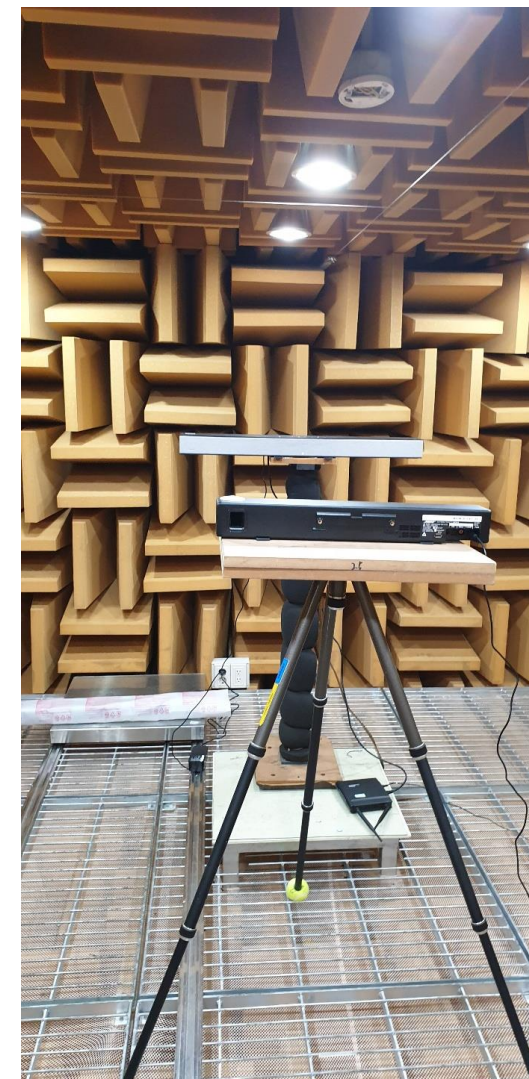
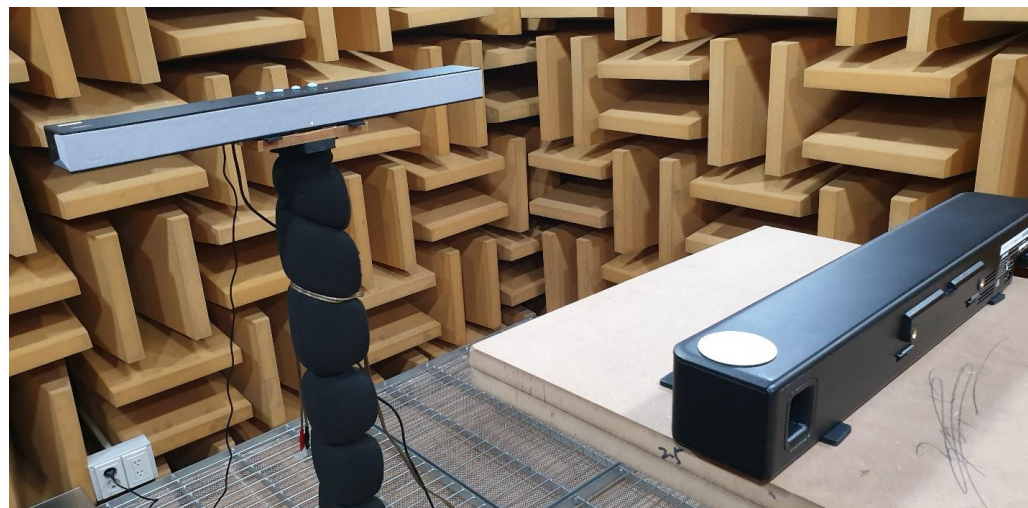
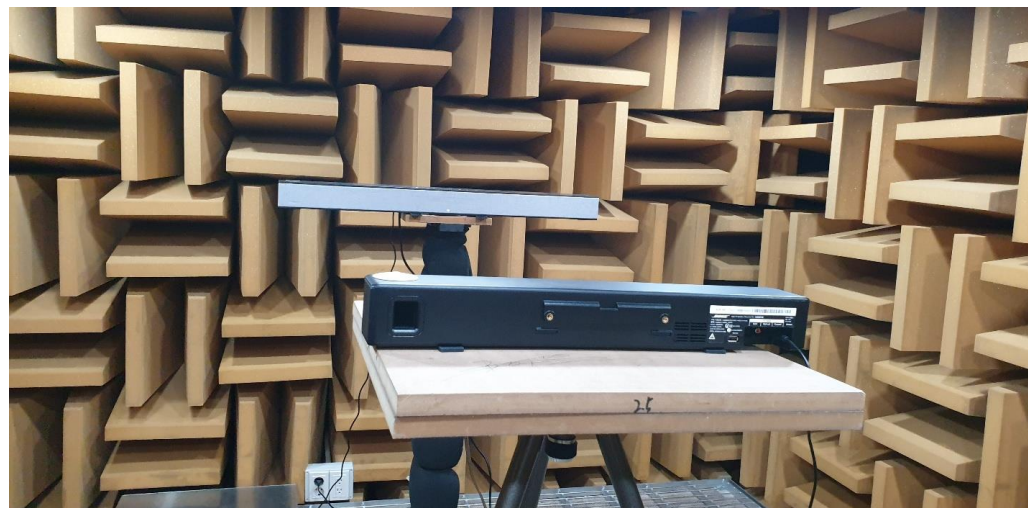
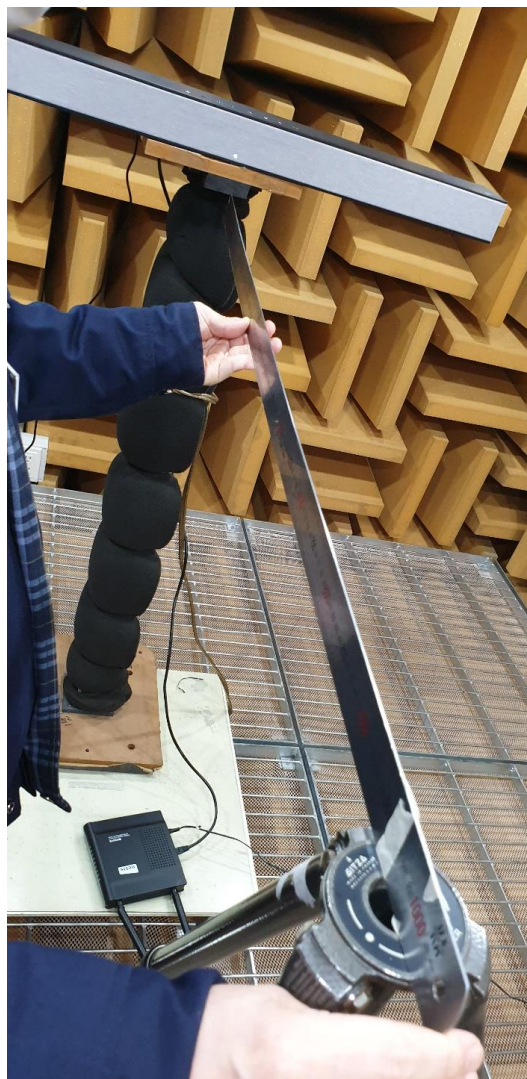


ADL		4.1		ADD		1.50
	Top housing	1.8			Hole diameter	1.50
	Silicon	0.5				
	Adhesive	0.2				
	PCB	1.6				
ADL/ADD		2.733333				

- Test Diagram



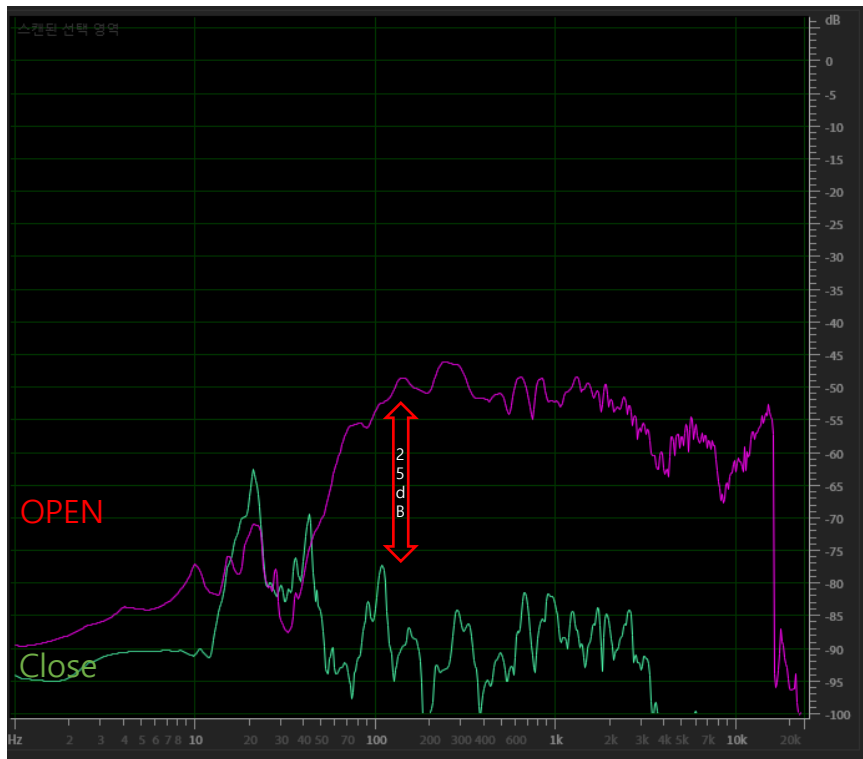
- Test Picture



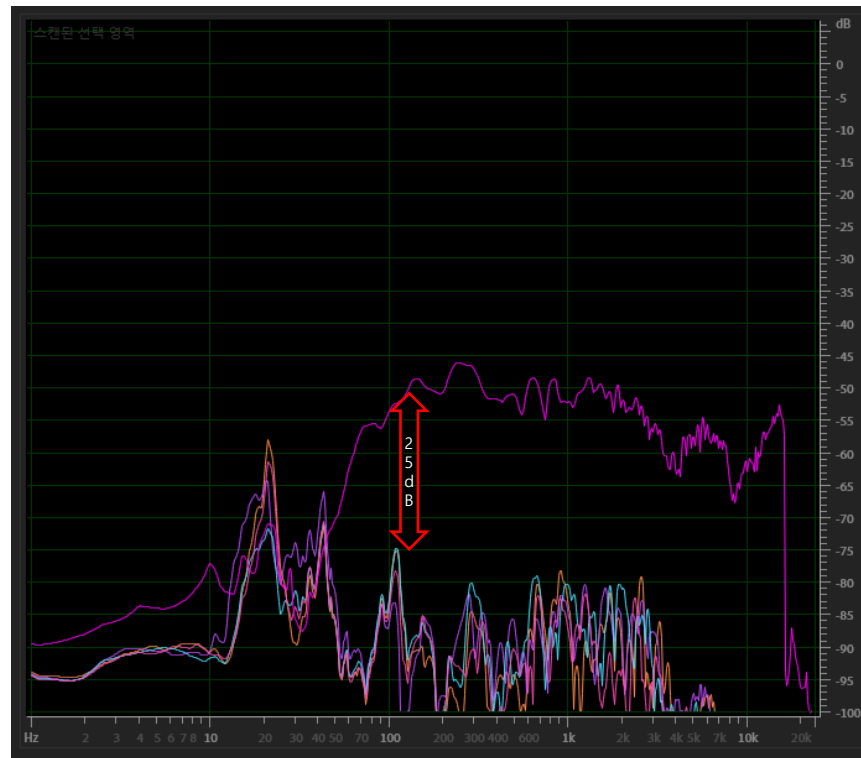
- Test info for simple test
 - Date : 2021.0.21 14:00~
 - SW version : V19.522.49
 - Location : Inkel Anechoic room
 - Test stream : Youtube 20-20,000hz Audio Sweep
 - https://www.youtube.com/watch?v=PAsMlDptjx8&ab_channel=SonicElectronix
- Test conditions
 - Audio source : Youtube play using Bluetooth
 - Audio play : SoundBAR (Bose Solo TV speaker)
 - Audio Source / Play : max volume
 - Recording SWAN MIC and playback
- Test Flow
 - Play audio source (Sweep) -> recording SWAN, opened mic hole
 - Play audio source (Sweep) -> recording SWAN, closed mic hole
 - Compare raw recording file using adobe Audition
- Test command

```
adb shell
$ su
# setenforce 0
# dmesg -n 1
# echo "0 0 0 0" > /proc/sys/kernel/printk
# service call bluetooth_manager 8
# tinycap /sdcard/test.wav -D 0 -d 0 -c 4 -r 48000 -b 32 -p 384 -n 32 -T 120
```

- DVT3 new mic silicon + SPONGE_MIC_SILICON 0.5t with O-ring + Adhesive 0.2t (Everything industrial)



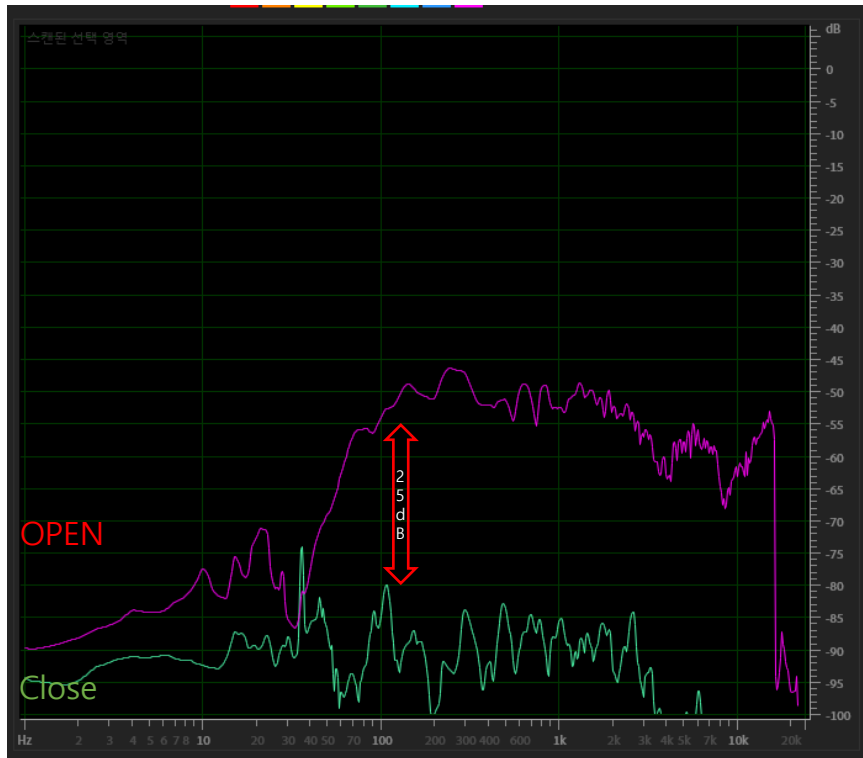
4ch average



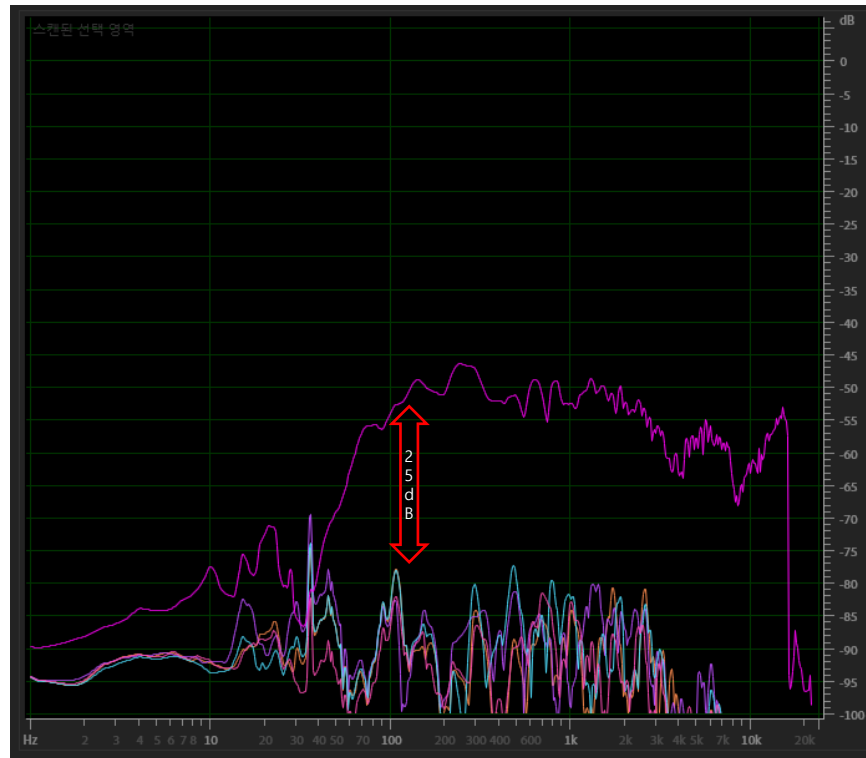
Each channel result

- Sealing performance meet the requirement

- DVT3 new mic silicon + SPONGE_MIC_SILICON 0.5t with O-ring + Adhesive 0.2t (MeiGao Mei)



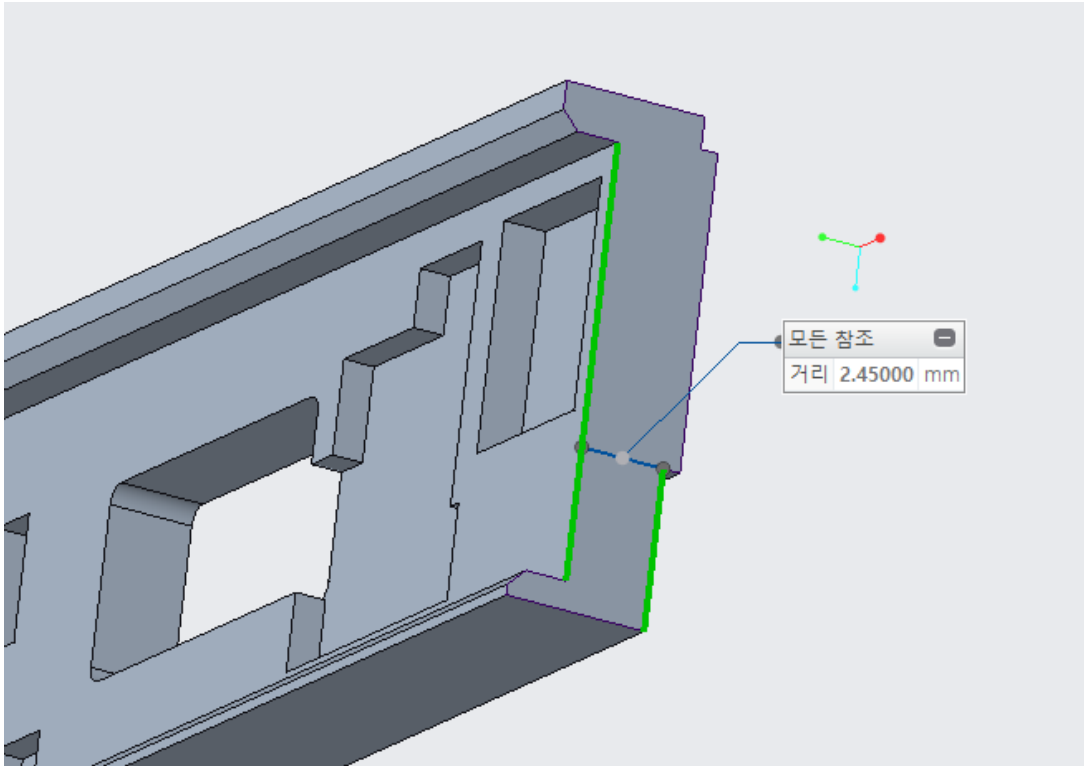
4ch average



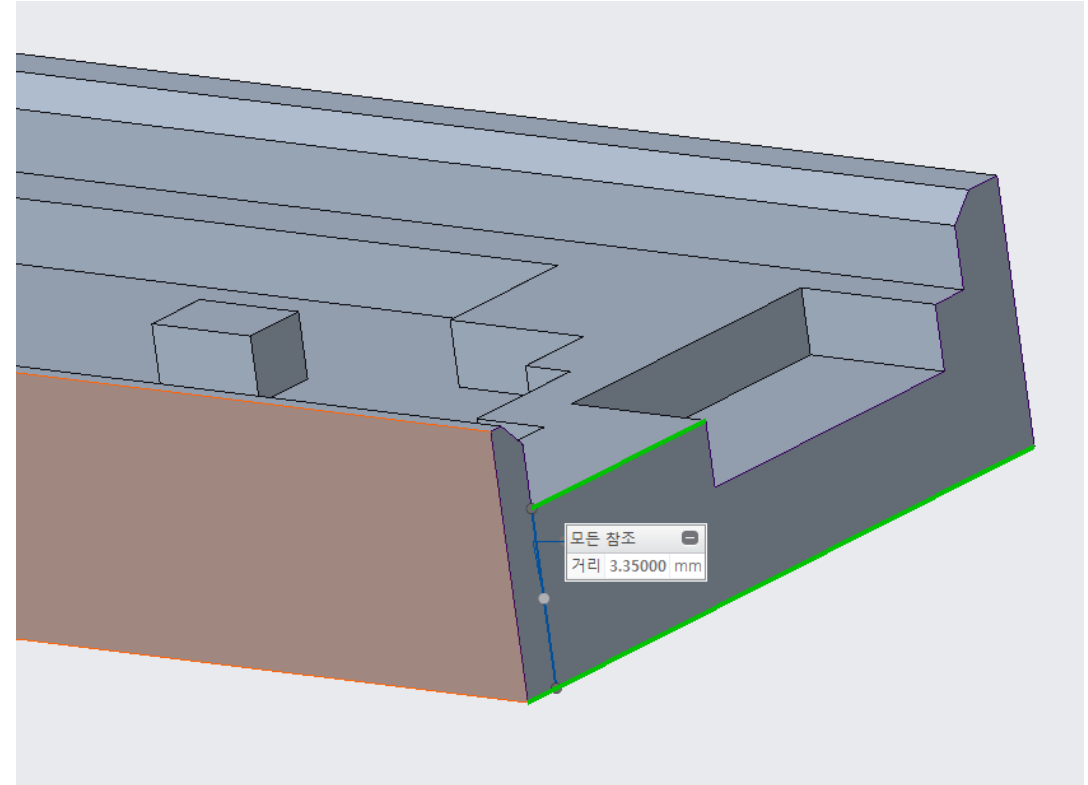
Each channel result

- Sealing performance meet the requirement

- Final MIC Silicon Mechanical structure

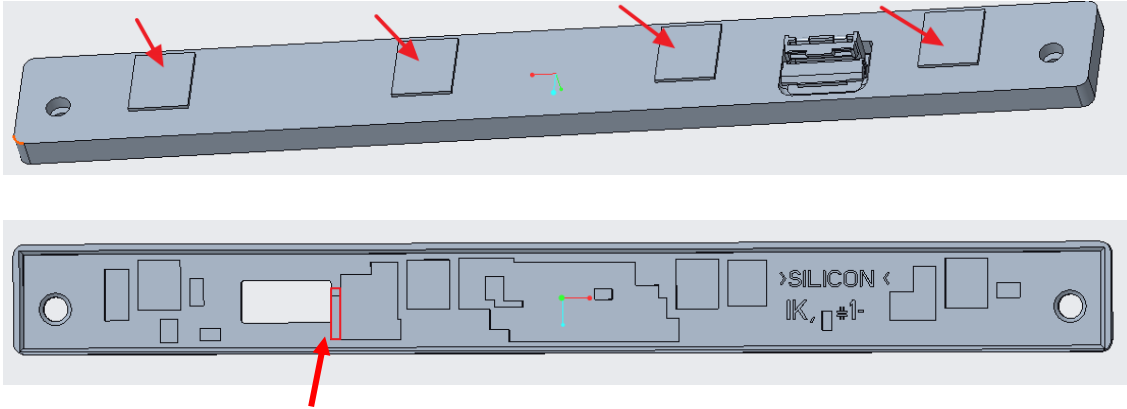


- DVT2
- Back side, thickness add 0.9mm : 2.45mm to 3.35

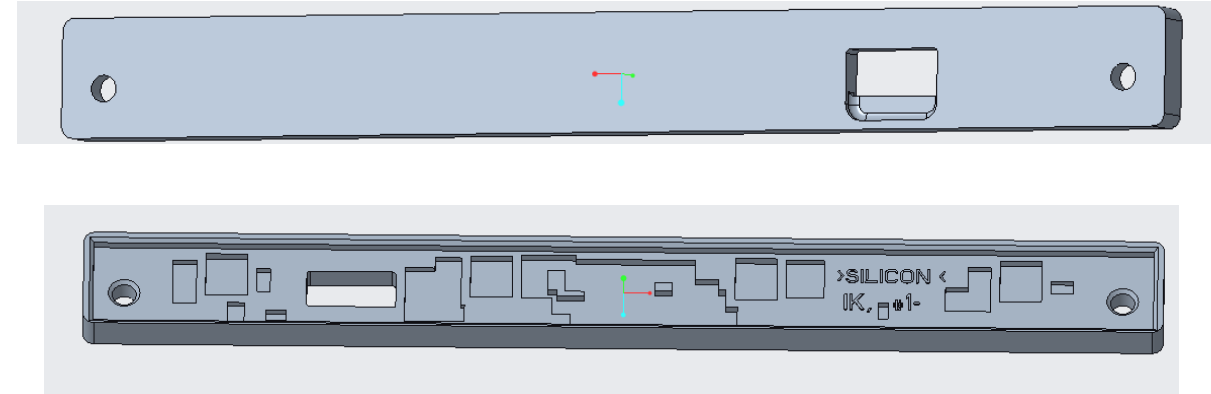


- DVT3

- Final MIC Silicon Mechanical structure



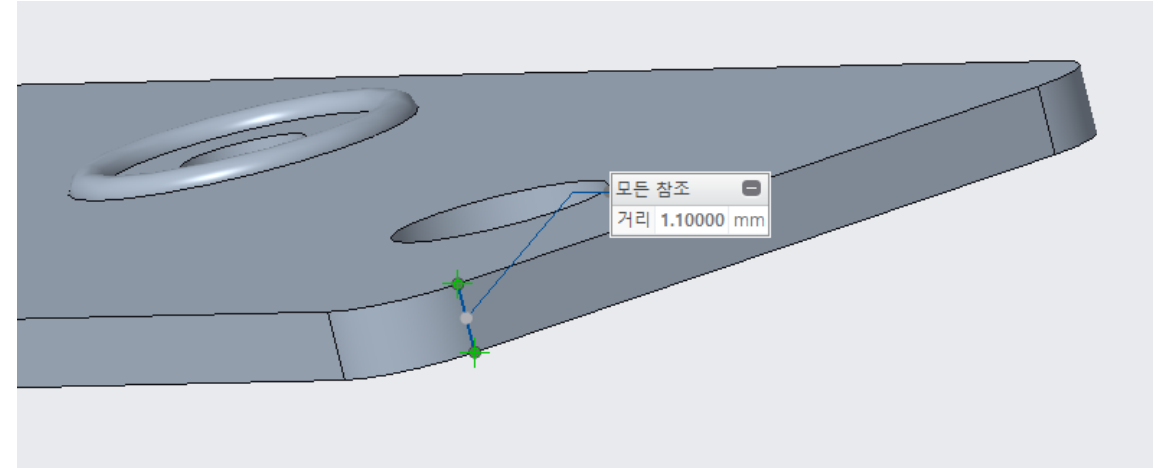
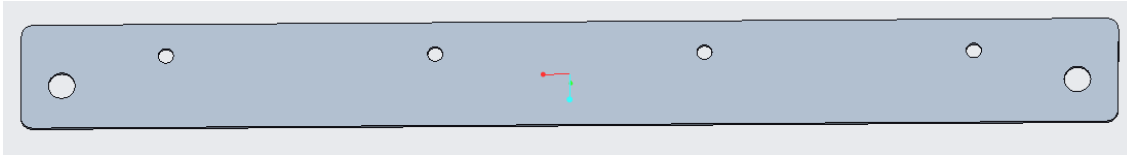
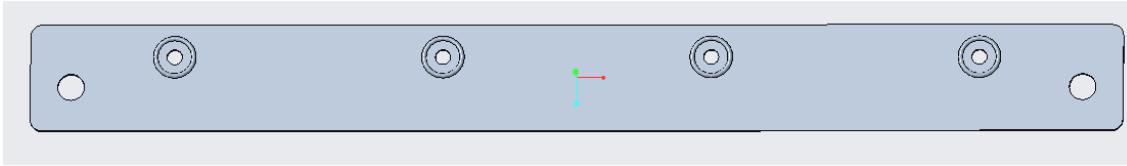
- DVT2



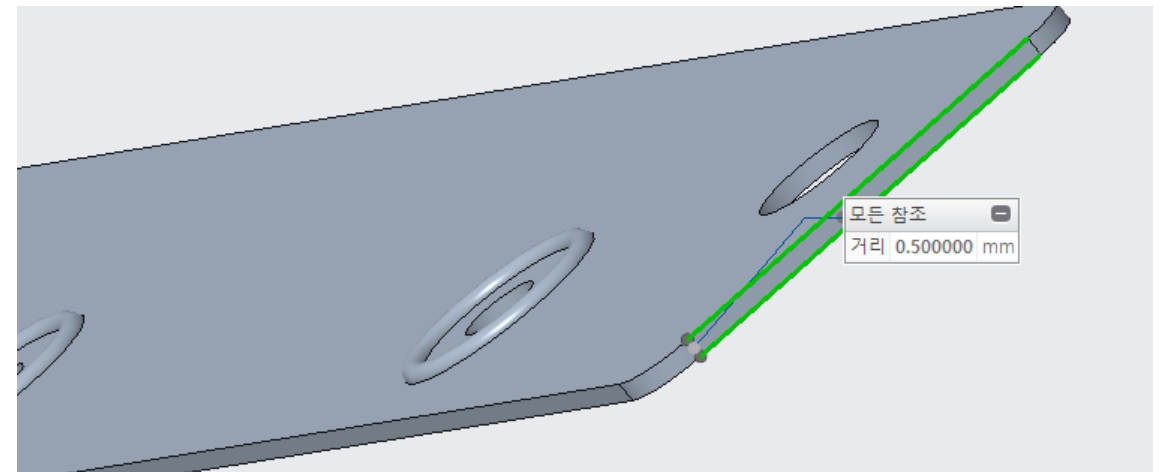
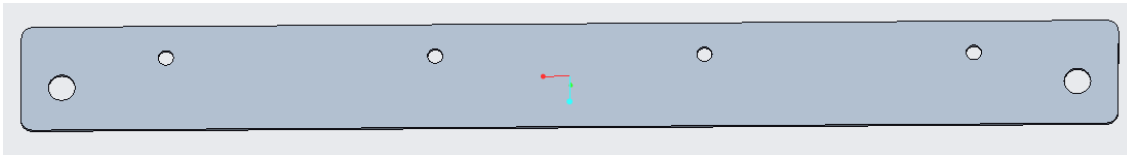
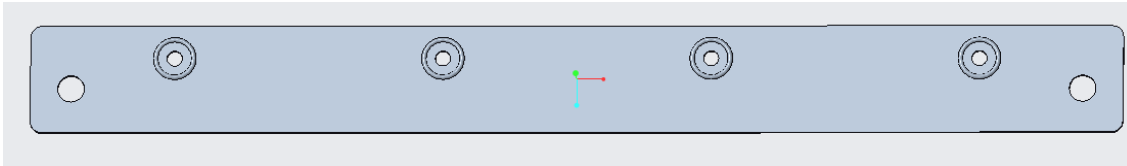
- DVT3

- Back side, rectangular structures Removed
- Inner side, will be more add the rib on the Top housing Mic area

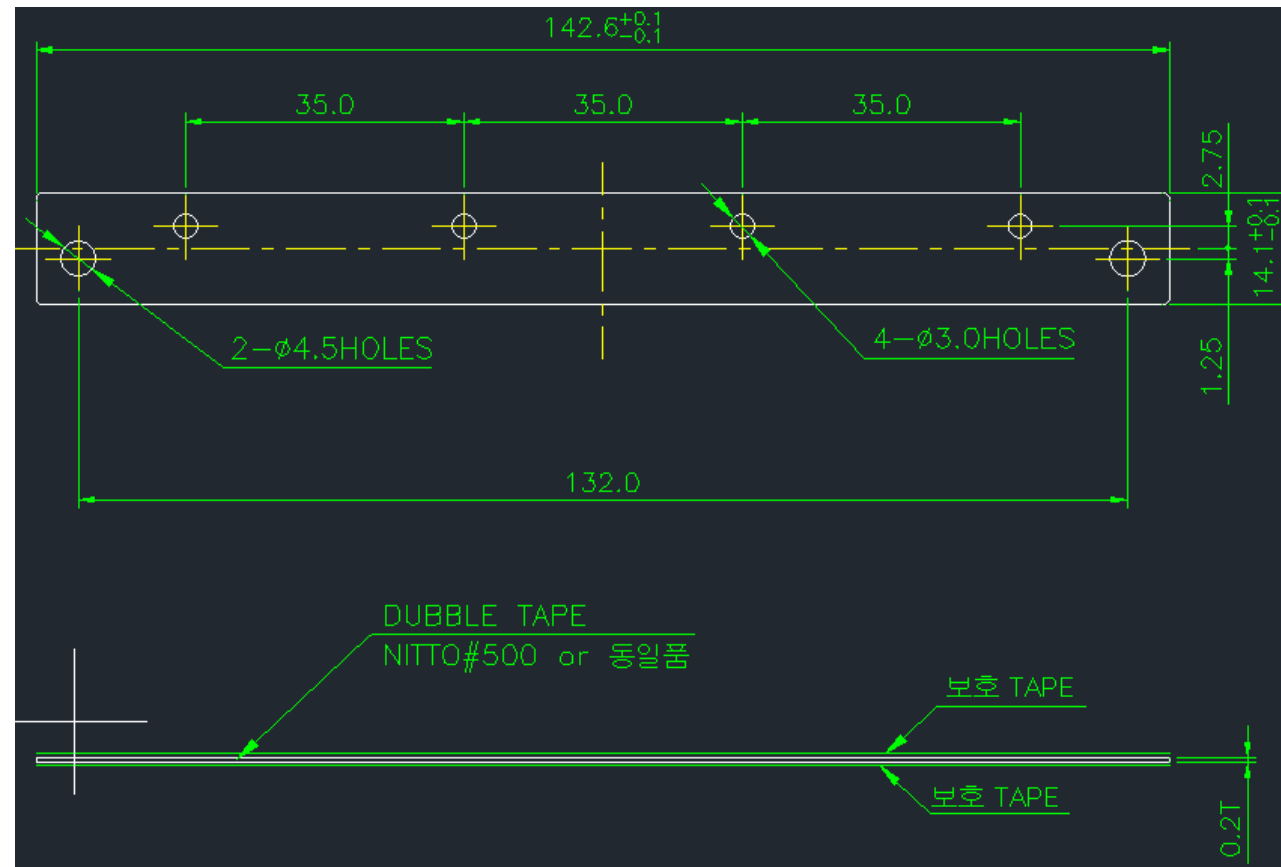
- Final MIC Silicon Mechanical structure
- DVT2



- DVT3



- Final MIC Silicon Mechanical structure
- DVT2
 - N/A
- DVT3 : Adhesive applied



- End of Documents