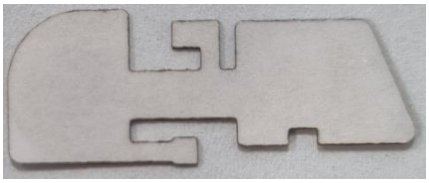
BLE ANTENNA SPECIFICATION

품 명	Olive Max Earbuds ANT/Touch L,R
모 델	Olive Max
ERP CODE	
REVISION	VER 1.0
생산지	국내
검사 및 포장	국내

상측면



하측면

MSL	LEAD FREE	BFRs-Free, Halogen-Free
MSL 1	LEAD-FREE	HF BFRs/CFRs/PVC-Free

㈜ 파트론				
Approval	입안	심사	품질 합의	결 정
	김 재 한	서 재 운	이 광 규	김 원 근
	전 자 결 재			

(주) 파트론

경기도 화성시 삼성1로 2길 22

- CONTENTS -

1. 이력관리

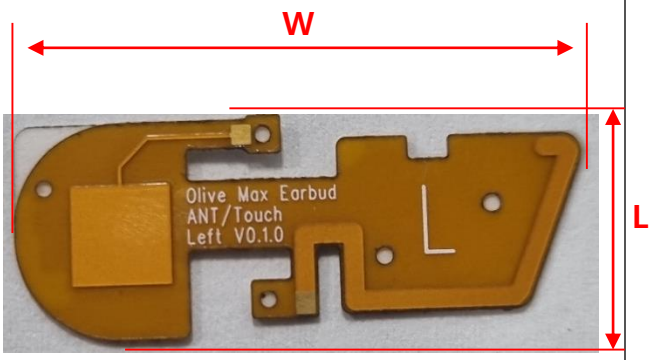
개정 번호	개발자	변경 사항	변경 일자
Ver 1.0	변재범	Antenna Specification 제정 (Olive Max Earbuds FPCB Touch/ANT)	2022.11.14

2. 부품의 개요 및 치수 규격

2.1 . 부품 개요

FPCB 구조의 얇은 동박으로 패턴을 형성하여 특성을 구현함

2.2 . 부품 치수 규격

크기 [mm]	W = 28.86 ± 0.05	
	L = 11.13 ± 0.05	
	T = 0.1 ± 0.05	
온도 [℃]	-40 ~ +80	
습도 [%]	상온에서 RH 100	

3. 중점 관리 항목 (CTF)

항목	내용
보관	상온에 장시간 보관 시 밀봉하여 보관
동작	임의의 설계 변경 시 특성이 변경될 수 있음

4. 전기적 특성

4.1 . Passive Gain

Left

Frequency	Max Gain			Min Gain			Average Gain	Efficiency
[MHz]	θ[Deg]	Φ[Deg]	Gain[dBi]	θ[Deg]	Φ[Deg]	Gain[dBi]	Gain[dBi]	[%]
2,400.000	120.0	315.0	0.774	180.0	345.0	-32.409	-6.325	23.305
2,420.000	120.0	315.0	2.233	180.0	345.0	-25.757	-4.413	36.196
2,440.000	120.0	315.0	0.774	180.0	345.0	-23.381	-5.240	29.921
2,460.000	120.0	315.0	-0.102	180.0	345.0	-21.574	-5.442	28.563
2,480.000	120.0	315.0	-0.947	165.0	15.0	-20.686	-5.679	27.048
2,500.000	75.0	300.0	-0.402	150.0	0.0	-20.361	-4.986	31.722

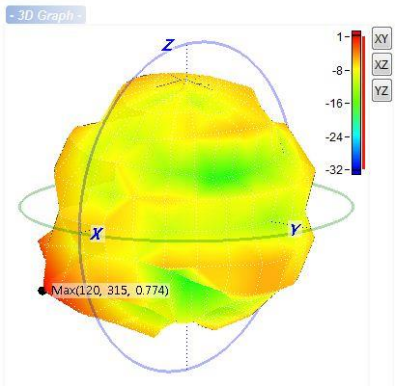
Right

Frequency	Max Gain			Min Gain			Average Gain	Efficiency
[MHz]	θ[Deg]	Φ[Deg]	Gain[dBi]	θ[Deg]	Φ[Deg]	Gain[dBi]	Gain[dBi]	[%]
2,400.000	120.0	315.0	0.804	45.0	240.0	-33.322	-6.068	24.730
2,420.000	150.0	315.0	2.150	45.0	240.0	-19.759	-4.888	32.445
2,440.000	150.0	315.0	1.882	45.0	0.0	-17.285	-5.351	29.170
2,460.000	150.0	315.0	2.213	90.0	75.0	-21.781	-5.220	30.061
2,480.000	150.0	315.0	1.535	90.0	75.0	-27.060	-6.082	24.650
2,500.000	150.0	315.0	2.706	90.0	75.0	-18.552	-4.952	31.976

4.2 . Chamber Data

3D Data_Left

2400MHz



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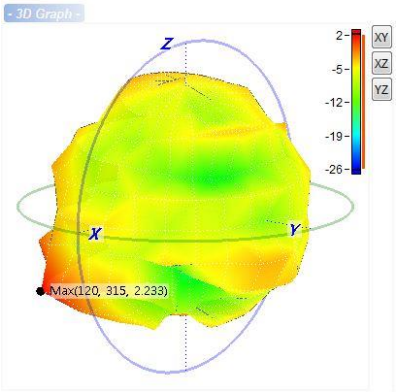

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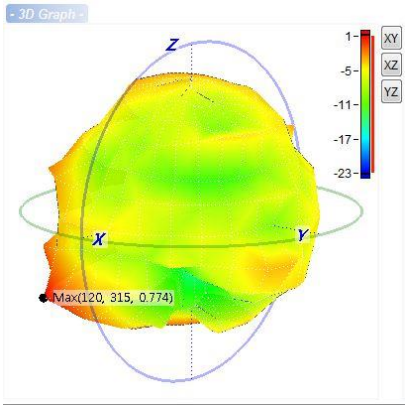

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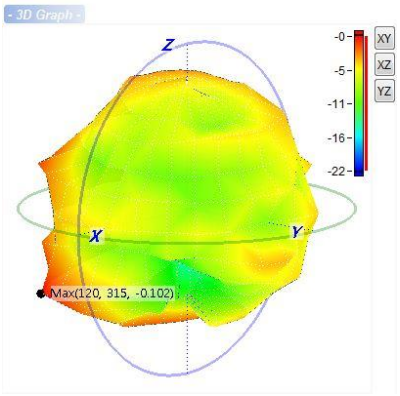

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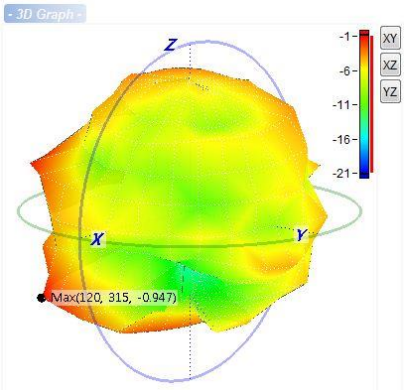

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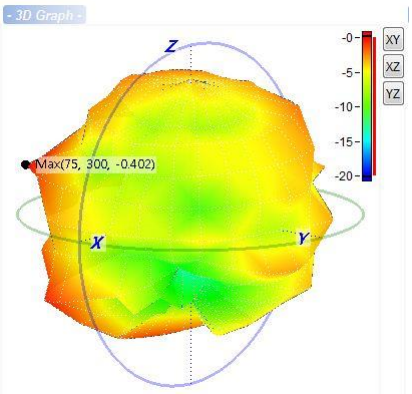
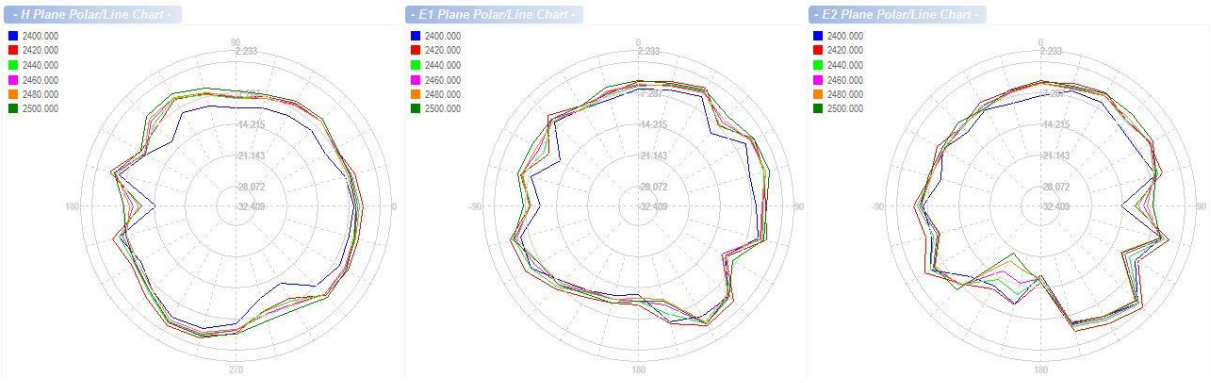


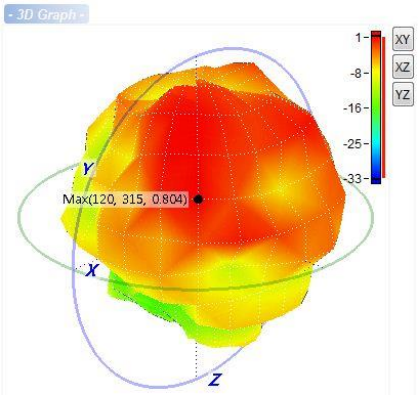
2D Data_Left



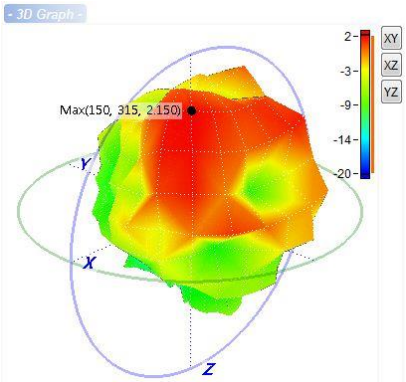
4.2 . Chamber Data

3D Data_Right

2400MHz



2420MHz



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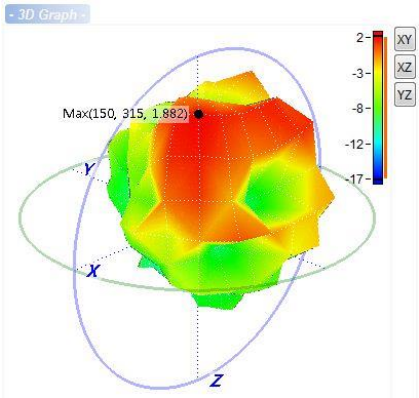

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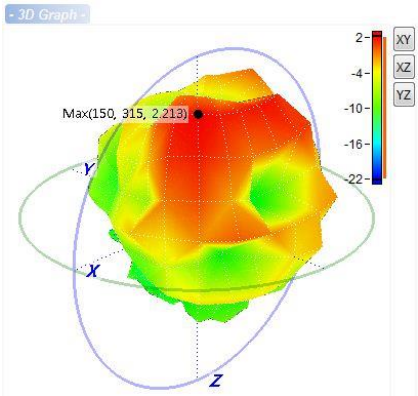
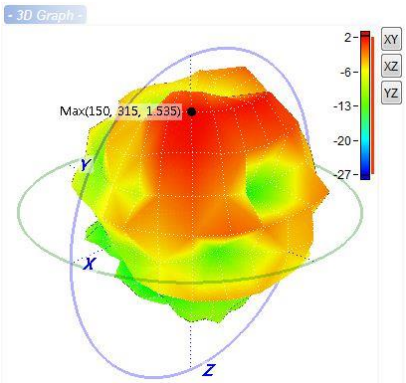


2480MHz



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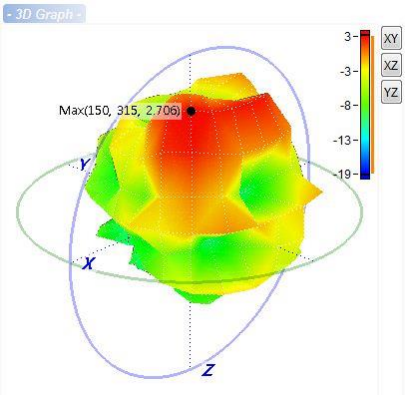
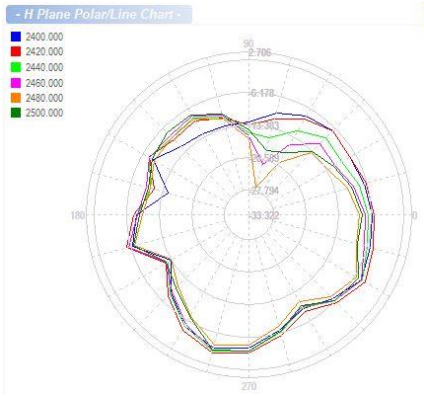
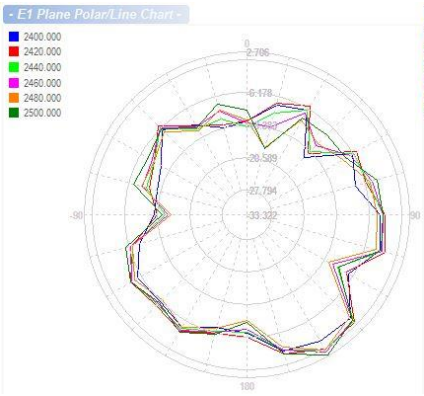
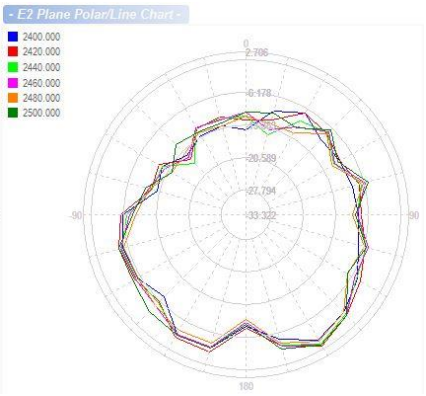


2D Data_Left

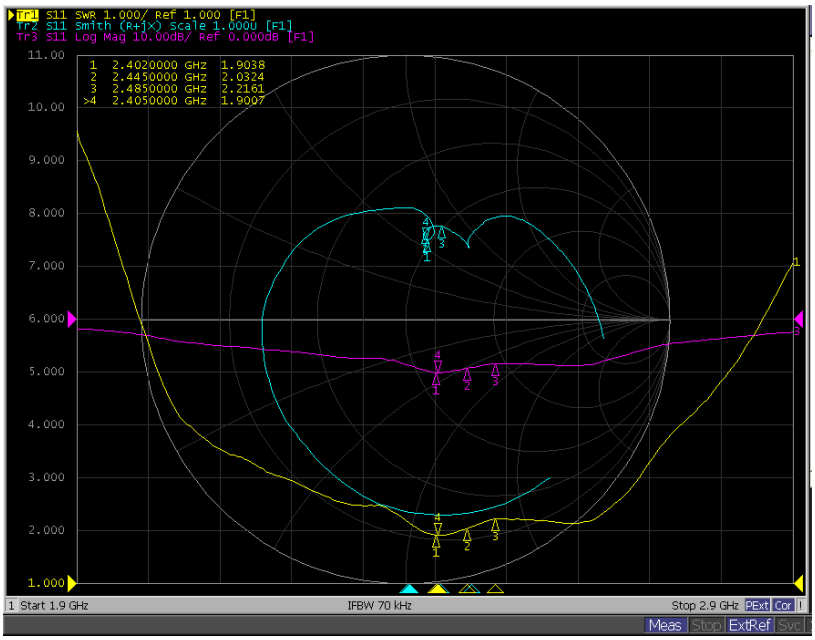






4.3 . 시료 실장 측정 그래프

Left



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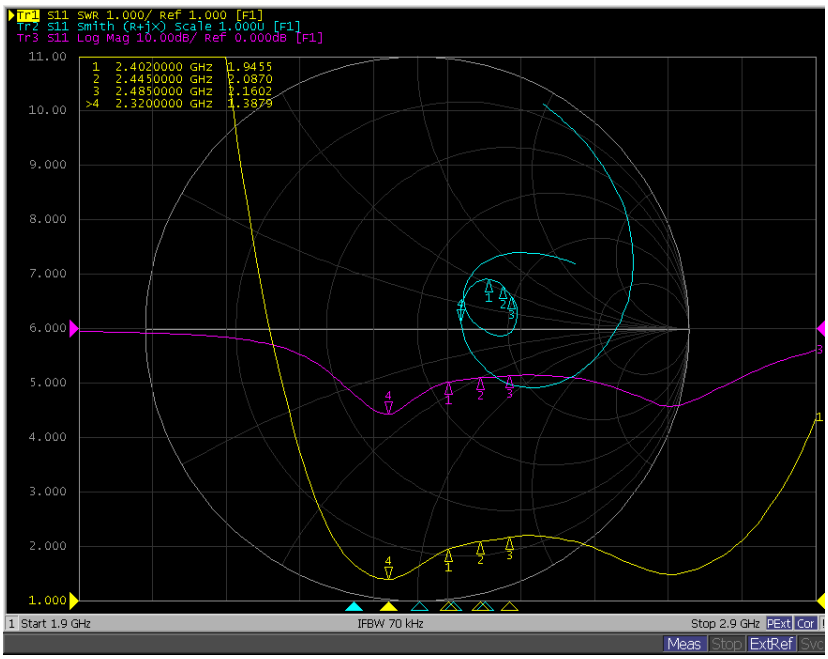
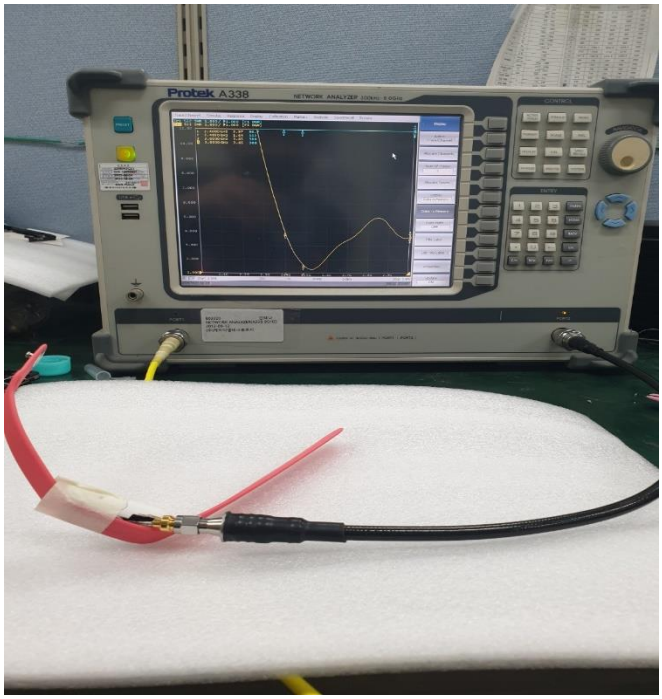


5. 시험 방법

5.1 . SWR/Return loss

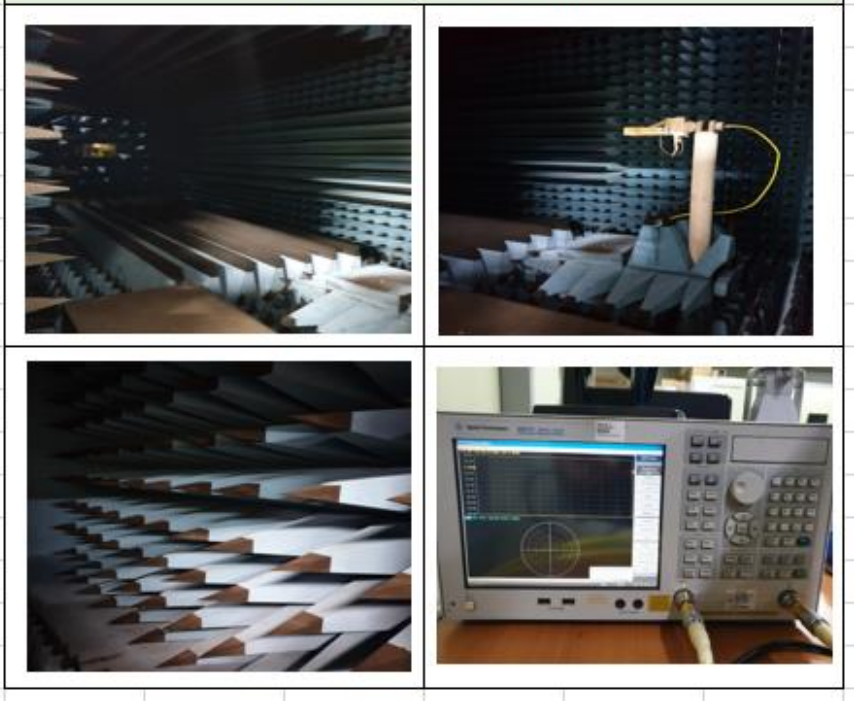
Network Analyzer를 이용하여 SWR / Return loss를 측정하여 표준 샘플을 선별, 수동 지그 측정 또는 자동화 검사장비를 이용하여 양품과 불량품을 선별한다.

	시료 측정 조건
Network Analyzer	Protek A338
Cable	RF Cable (300 mm)
Test Condition	

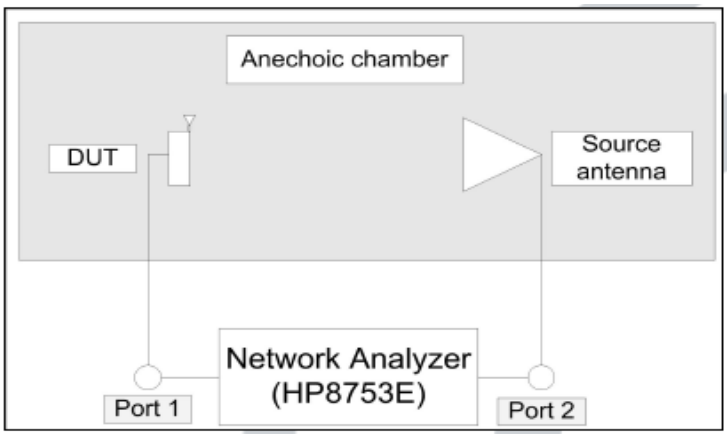
5.2 . 이 득

당사가 보유한 전파 난반사실에서 상기 4.1에서 측정된 시료를 이용하여 안테나 이득을 측정한다.

안테나 측정을 위한 무반사실

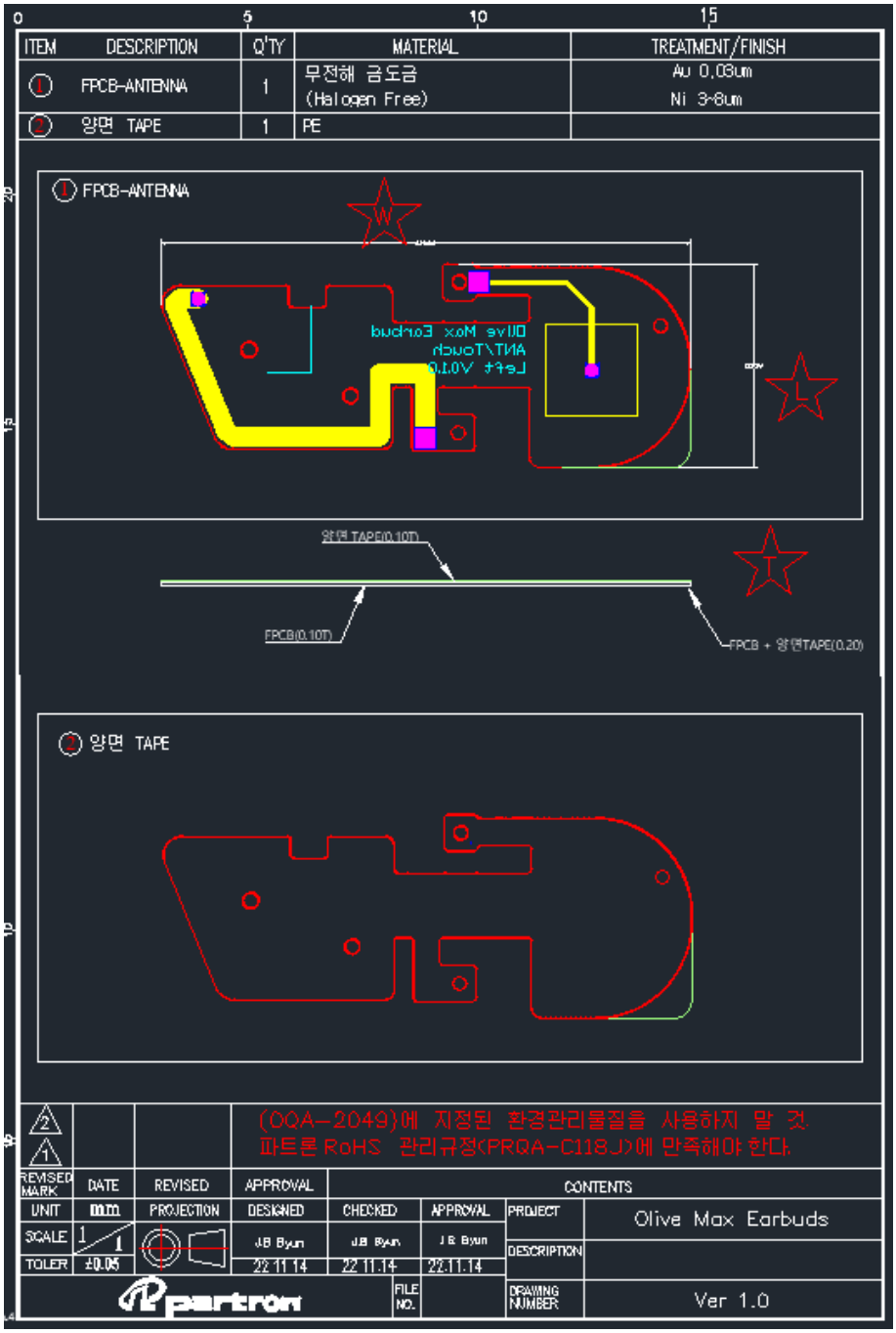


5.3 . 이득 측정을 위한 회로 구성도



6. 기구적 특성

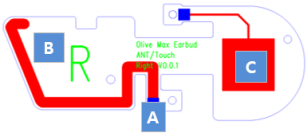
6.1 . 안테나 패턴 도면



6.2 . 안테나 적층도

■ 적층도 (Structure)

MODEL	Olive Max Earbud		LAYER	Single Side FPCB		STACK-UP(㎛)			
ITEM	METERIAL	MAKER	COLOR	SPECIFICATION	THICKNESS(㎛)	LAYER	A	B	C
SILK	SCM-500W HF2	서울화학	White	InK	15				
Cover Lay	HGCS-A605L(Y)	HANWHA	Yellow	Poliymide	12.5			12.5	12.5
				Adhesive	30			30	30
BASE	HGLS-S211EY 1mil 1oz ED	HANWHA		Copper	36	1	36		36
				Adhesive	10		10	10	10
				Poliymide	25	2	25	25	25
TAPE	TP1010	ANYONE		Adhesive	100		100	100	100
표면처리	무전해 금도금 [Au:Min 0.03um Ni:3~8um]					Total Thickness (이형지 포함)	171	177.5	213.5



*** 본 구조의 두께 치수는 이론치 이며 제품 Design에 따라 상이할 수 있음[SPEC. 이 아닌 참조 치수]**