

External Monopole Antenna

APPROVAL SHEET

CUSTOMER : 삼성전자 디지털프린팅사업부

ITEM : External WLAN Antenna

DESCRIPTION : Monopole Ant.

CUSTOMER P/NO :

DATA : 2004 . 12 . 02

CUSTOMER'S APPROVED

APPROVED			
	EN'GR	CHKD	APPD
삼성전자 디지털 프린팅 사업부			
	Approval Date		
	Approval No.		
	DESC		

REV NO ;

	CUIT.	MECH.	SAFETY	EMI
CHKD				
APPD				

		Subject		External Monopole Antenna Approval Sheet	
Document No.	KAT-0404-EX078P		Rev.		IR
Model Name	KWBE-2454TD90		Date		May 6, 2004
Application System	WLAN		Customer	삼성전자 디지털프린팅 사업부	
Notice	All the specifications and data in this sheet may vary for each different product board of you.				
KOSAN I & T Co., Ltd. R&D Center, 3209, C-Dong Dongil technotown, 889-1 Kwanyang-Dong, Dongan-Ku, Anyang-City, Kyunggi-Do 431-060, Korea Tel : +82-31-424-7167, Fax : +82-31-424-7166					

KOSAN		Investigation	Verification	Approval
	SEOK KEE SONG			
	Approval No.			
	Approval Date			

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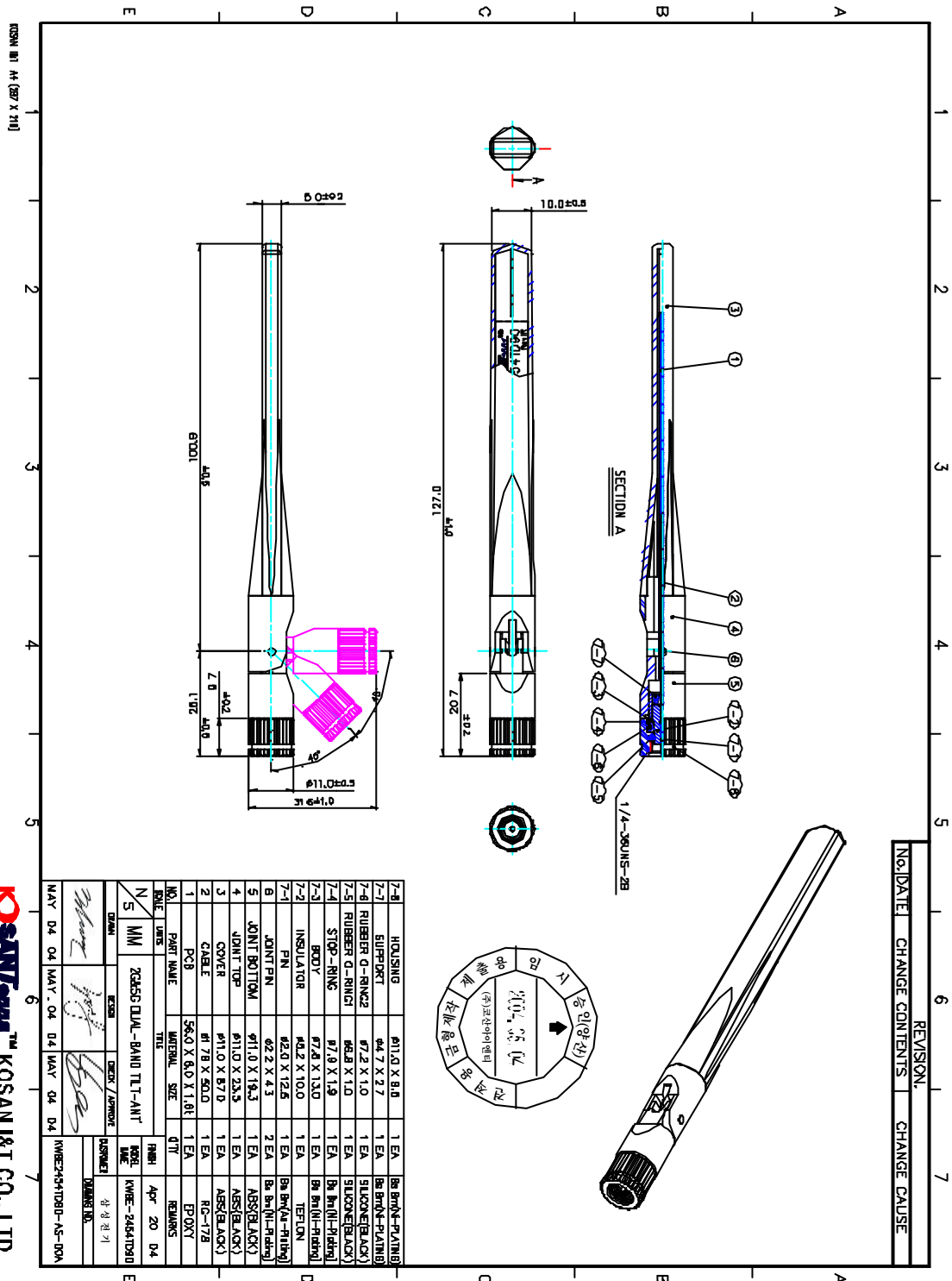
1. Electrical & Mechanical Specifications

Electrical Specifications		
Frequency Range	2400~2483.5 MHz	5150~5875 MHz
V.S.W.R	1.9 : 1 (Max)	1.9 : 1 (Max)
Gain(Max)	4±0.5 dBi	4±0.5 dBi
Nominal Impedance	50 ohm	
Radiation Pattern	Omni - Directional	
Polarization	Linear	
Power Handling	3 watts (max)	

Mechanical Specifications	
Dimensions	128 mm × 11 Ø
Weight	15g
Radiator	Copper
Operating Temp	-20 ~ 90 °C
Operating Humidity	0 ~ 95 %
Option	N/A

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2. Mechanical Drawing



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3. Measurement Setup

3-1. Test Equipments

Network Analyzer	HP8753ES
Calibration Kit	HP85033D
High Resistance Meter	HP4277A
Withstanding Voltage Tester	TOS-8750
Adaptor	SMA Type Female ↔ SMA male
Measurement Cable	8120-4779 (Hewlett Packard)

3-2. Test Equipments Setting

2.1 Display	Dual channel : On Split display : On
2.2 Menu	Number of points : 201 Power : 0 dBm
2.3 Measure	Channel 1 : S11

3-3. Calibration

Calibration-	Cal. Kit : 50 Ω
	Calibration menu → Full-2 Port
	Reflection
	Forward : Open → Short → Load
	Reverse : Open → Short → Load
	Done
	Transmission
	Do Both → FWD + REV
	Done
	Isolation
	Omit Isolation
	Done

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4. Test Procedures

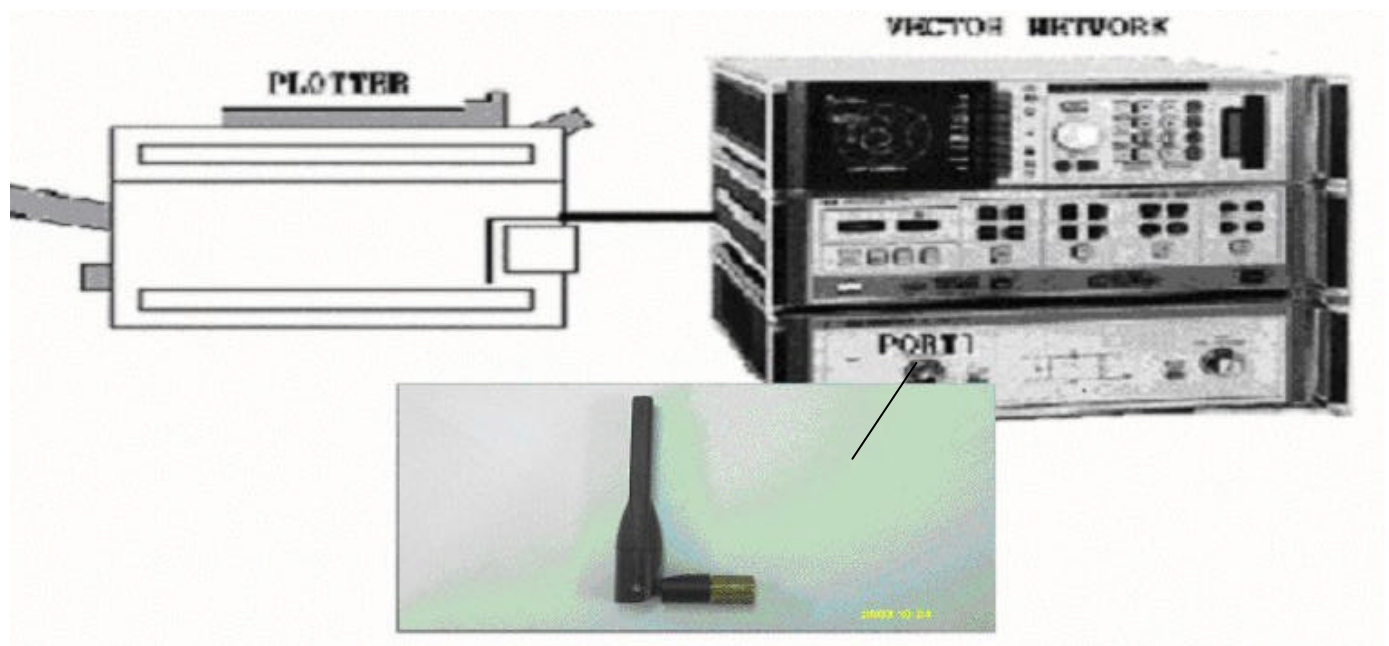
4-1. V.S.W.R.

Step 1. Connect ANT Port With Cable included Adaptor to Port1 of Network Analyzer.

Step 2. Point out Markers on Network Analyzer Display at 2400MHz , 2483.5MHz, and 5150MHz, 5475 MHz, 5875MHz

Step 3. Inspect V.S.W.R < 1.9

Step 4. Measurement



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4-2. Gain and Pattern (Near Field Chamber)

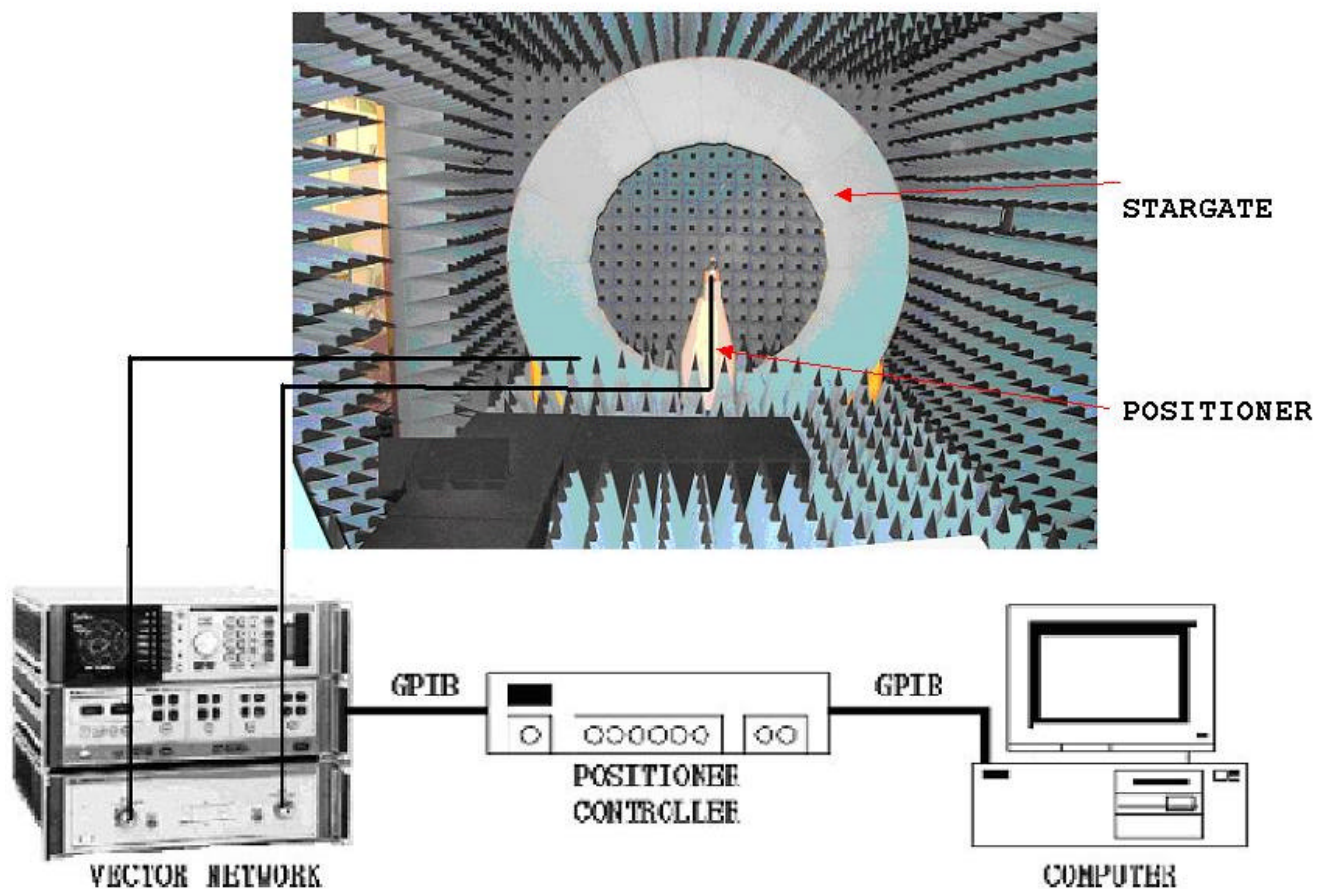
Step 1. Calibrate Chamber System for Gain Measurement Using Stargate 32 Sensor.

At the Same Time Set Up Software Program for Chamber System Control.

Step 2. Change Over from a Stargate 32 Sensor to Measuring Antenna
on Target Positioner.

Step 3. Start a Software Program for Chamber System Control & Measuring

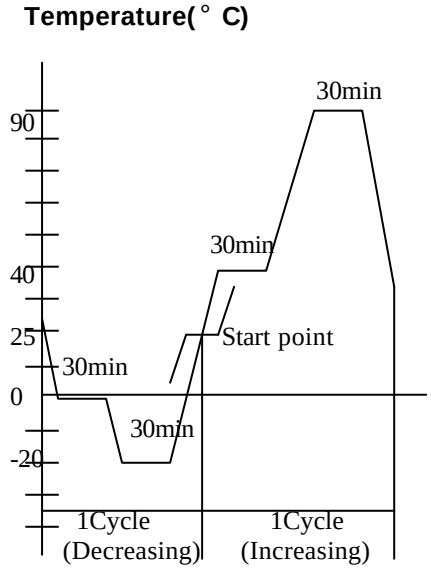
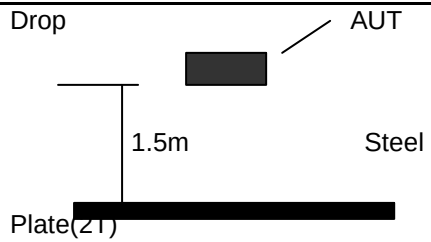
Step 4. Measurement Data



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5. Reliability Test

Item	Specification	Conditions
Vibration Resistance	No Momentary Disconnections or Noise for 300s to 600s No Damage, Crack or Parts Looseness	Frequency of 100Hz to 20KHz , Amplitude of 1mm for versus deaction of Antenna , 1 Cycle Time of 60s
Humidity Resistance	Changeable range of RF Impedance in $50\Omega \pm 5\Omega$ No Electrical Short	Temperature of 40°C, Humidity of 95% let stand for 96 hours
Temperature Test  The graph shows a temperature cycle starting at 25°C (labeled 'Start point'). It decreases to -20°C over 30 minutes (labeled '1Cycle (Decreasing)'). It remains at -20°C for 30 minutes. It then increases back to 25°C over 30 minutes (labeled '1Cycle (Increasing)'). The cycle continues, with the next peak reaching 90°C and the next trough reaching -20°C, with 30-minute dwell times at each extreme.	Changeable range of RF Impedance in $50\Omega \pm 5\Omega$ No change of material characteristic No disconnection	Decreasing form +25°C to -0°C; 5min / Keeping on -0°C for 30min / Decreasing form -0°C to -20°C; 5min / Keeping on -20°C for 30min / Increasing form -20°C to +25°C; 30min / Cycle time = 5 Increasing form +25°C to +40°C; 5min / Keeping on +40°C for 30min / Increasing form +40°C to +90°C; 5min / Keeping on +90°C for 30min / Decreasing form +90°C to +25°C; 60min / Cycle time = 5
Withstand Voltage	No line or insulator breakdown No disconnection No damage	200V AC for 1 min
Drop  The diagram shows an antenna (AUT) suspended by a wire at a height of 1.5m above a 'Steel Plate(2T)'. The antenna is represented by a rectangle.	No disconnection No crack or damage	Drop antenna' set at 1.5m height From steel plate(2T) of ground

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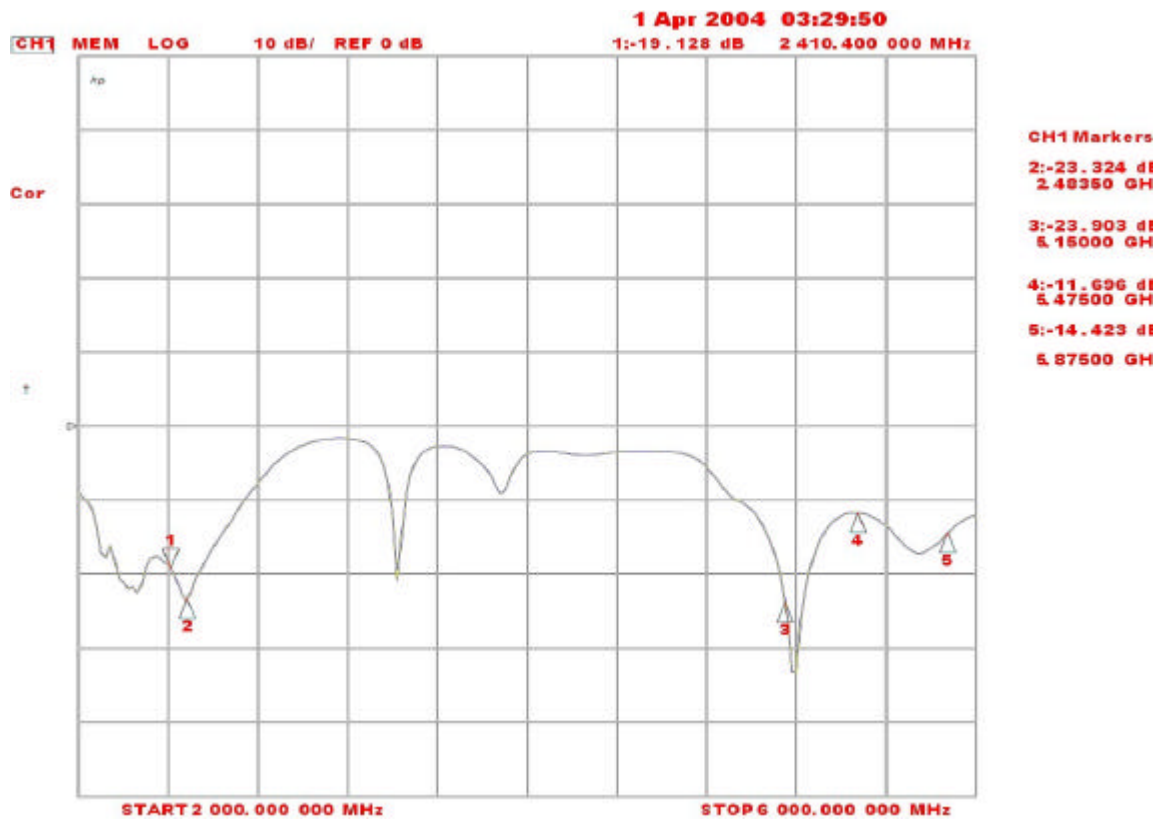
6. Measurement Data

Model Name	KWBE-2454TD90		
Written by	SEOK KEE SONG	Authorized by	PAN SIK CHOI
Instrument	Network Analyzer: 8753ES (HP)		
Subject	External Monopole Antenna		
Frequency	2400~2483.5 MHz	5150~5875 MHz	

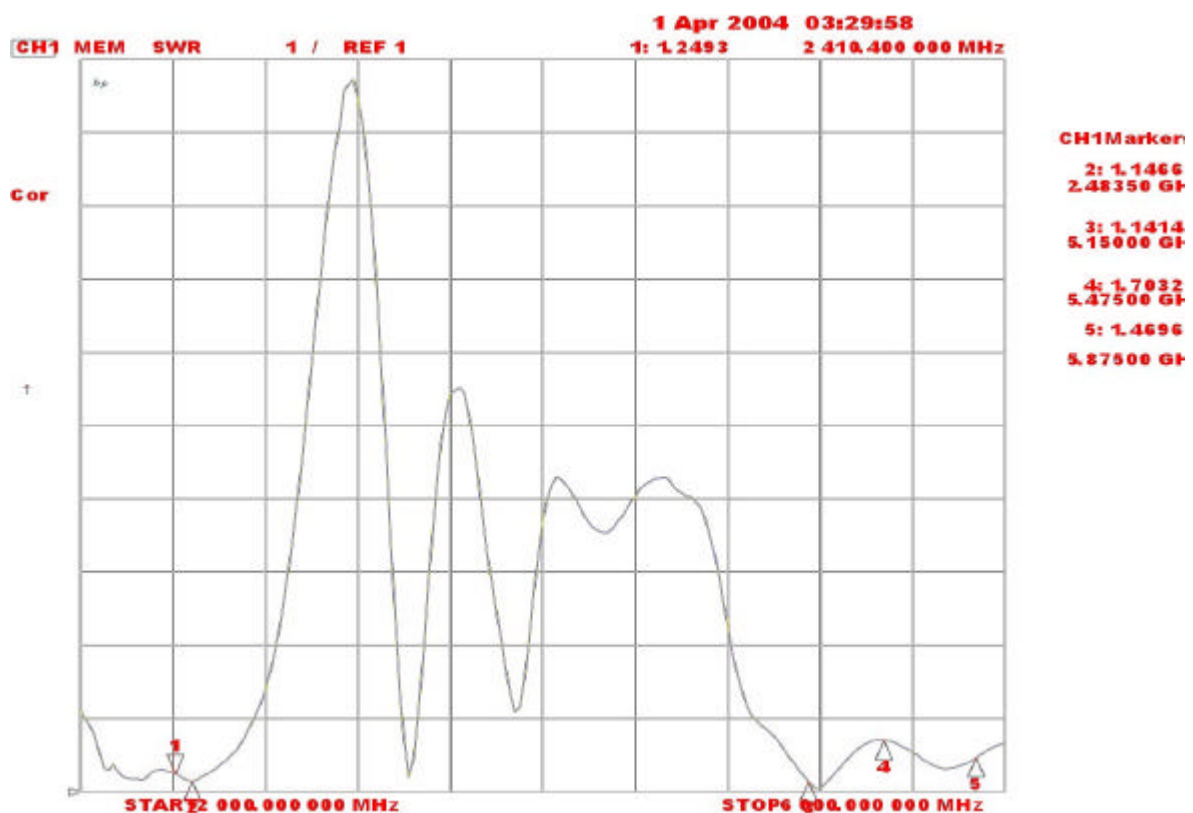
Items	Spec.		Test Result (#1)
Frequency	2400~2483.5 MHz	5150~5875 MHz	O.K
V.S.W.R	< 1.9	< 1.9	O.K
Gain	4 ± 0.5 dBi (Max)	4 ± 0.5 dBi (Max)	O.K
Polarization	Linear	Linear	Linear

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S₁₁



VSWR



Legend

- 2400.00MHz E Total (dB/E)
- 2420.00MHz E Total (dB/E)
- 2440.00MHz E Total (dB/E)
- 2460.00MHz E Total (dB/E)
- 2480.00MHz E Total (dB/E)

0

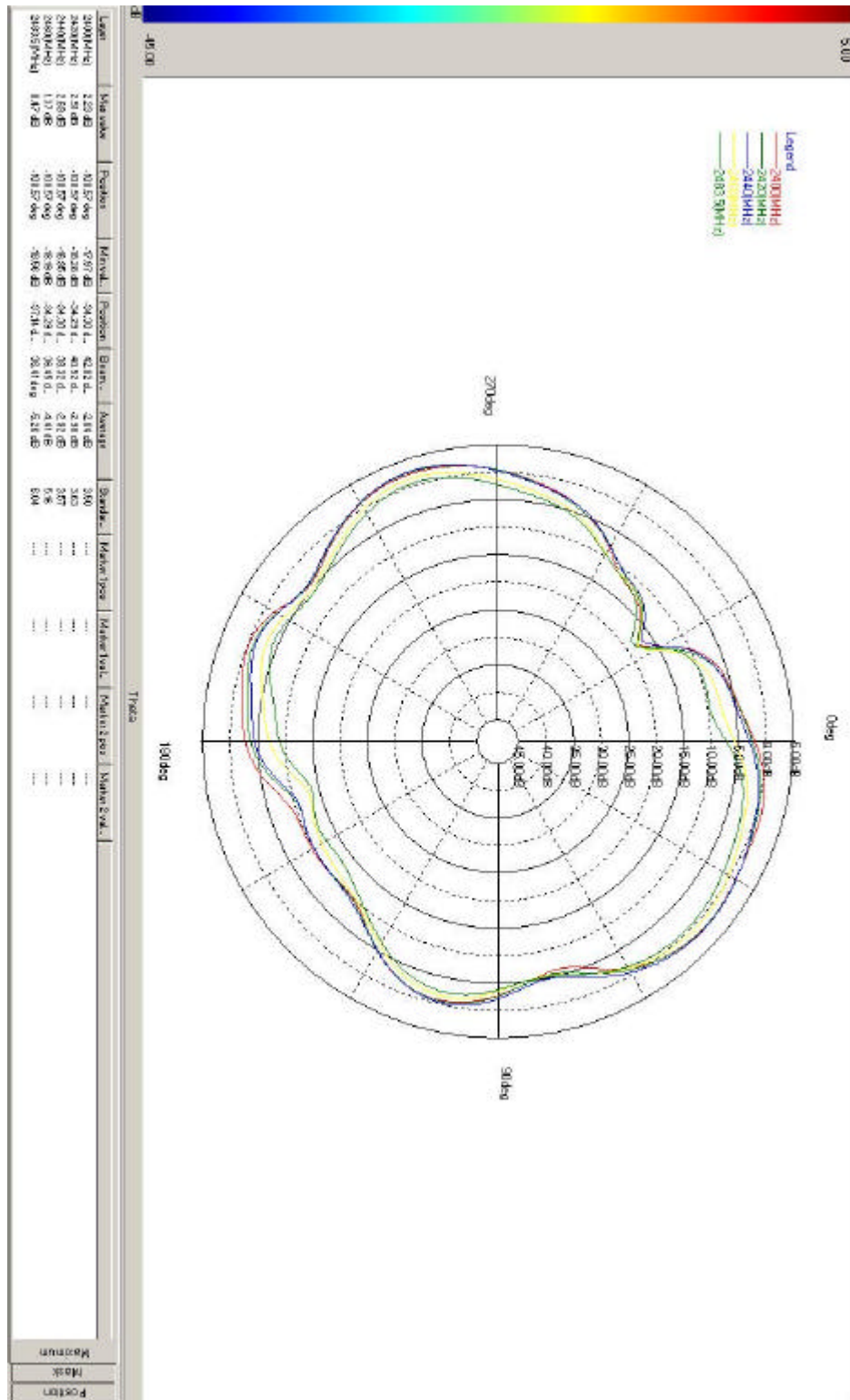
100 ohms

0 ohms

0.5 wavelengths

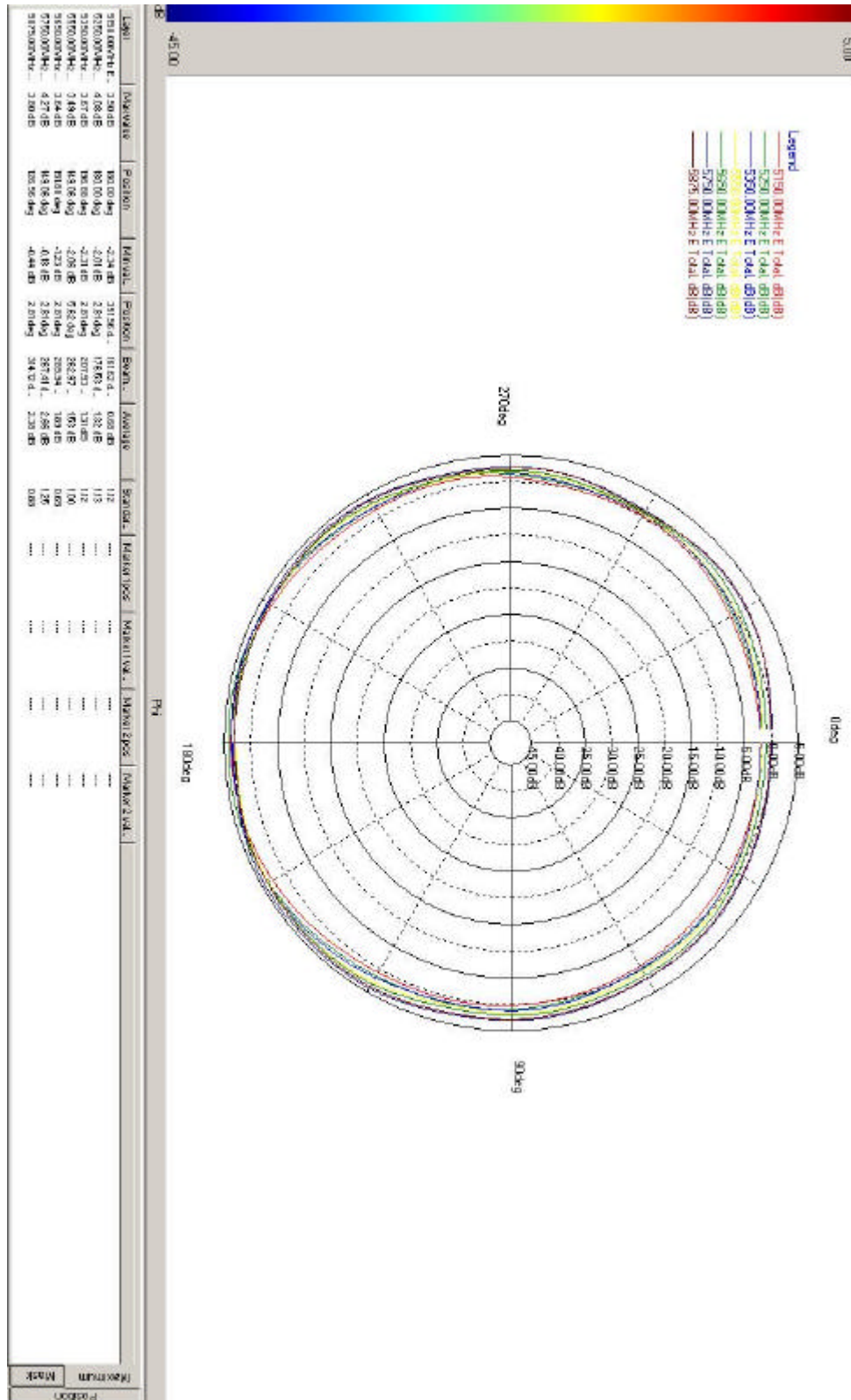
Radiation Pattern(ELEVATION)

- 2GHz대역 -



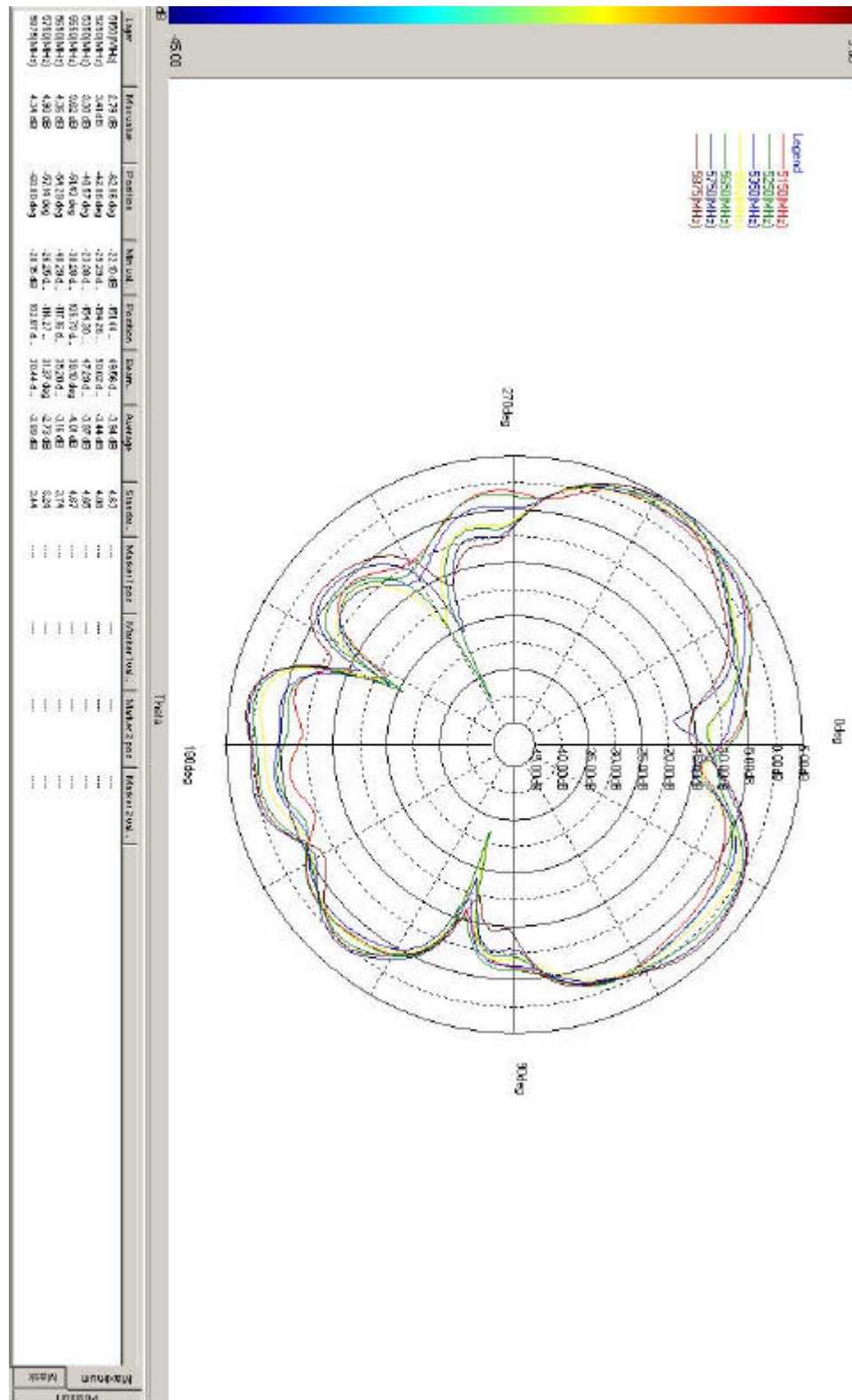
Radiation Pattern(AZIMUTH)

- 5GHz 대역 -

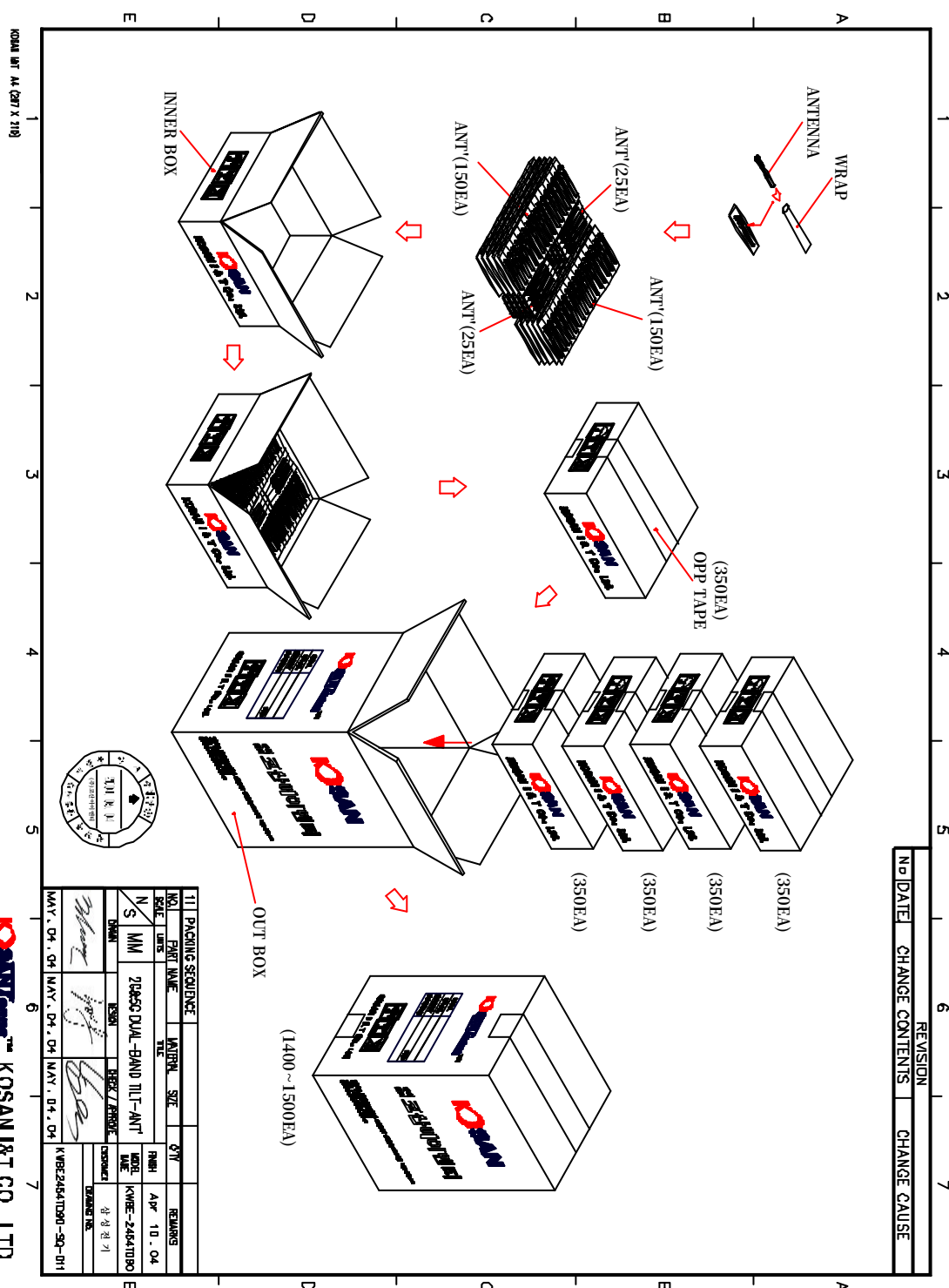


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Radiation Pattern(ELEVATION) - 5GHz 대역 -



7. Packing



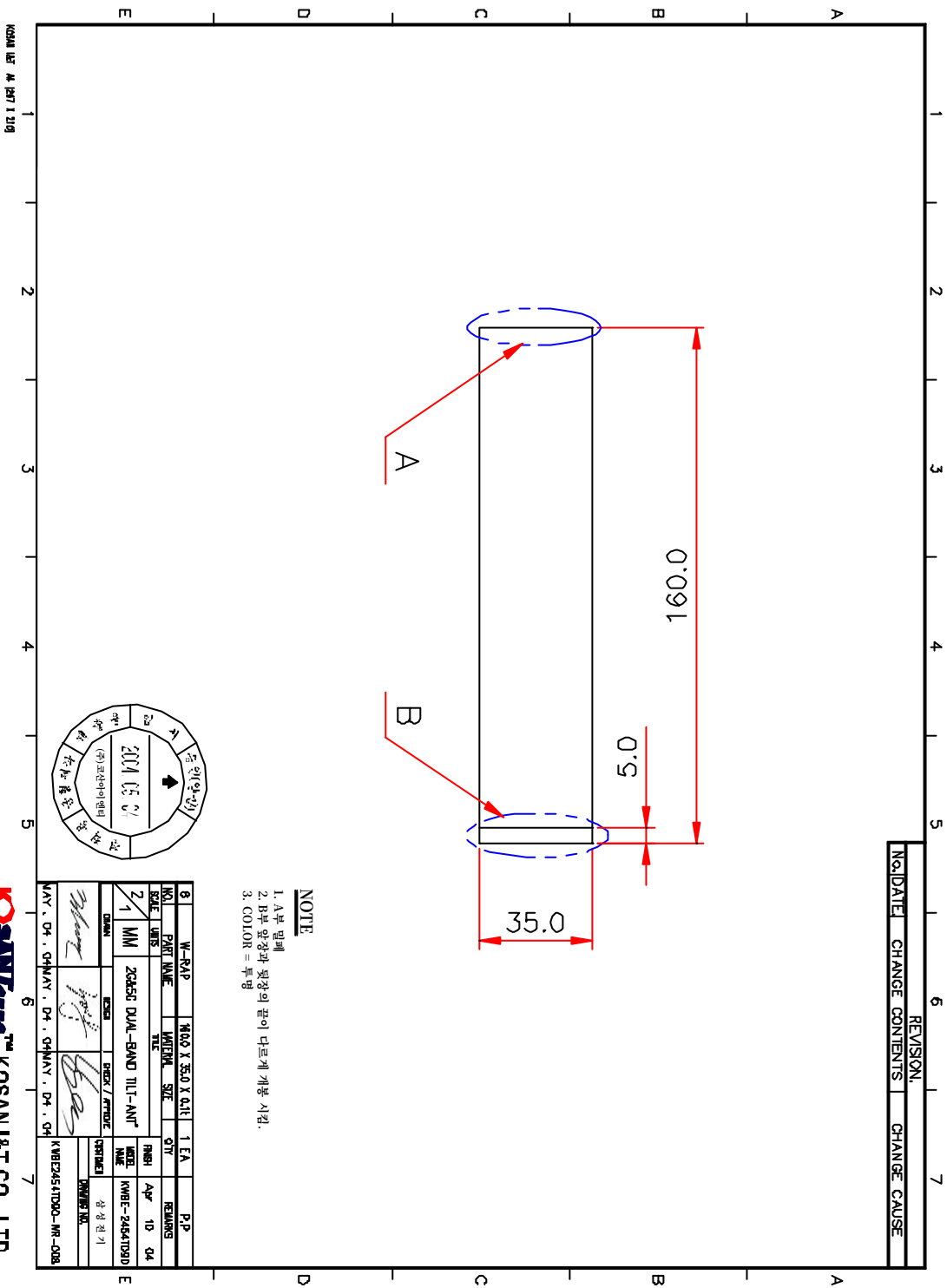


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WRAP



NOTE

1. A 부분 밑면

2. B 부분 앞장과 뒷장의 끝이 다르게 개를 시킴.

3. COLOR = 투명

8	W-RAP	160.0 X 35.0 X 0.1	1 EA	P.P
NO.	PART NAME	UNIT PRICE	QTY	REMARKS
SCALE	UNIT	SIZE		
2/1	MM	20450 DUAL-BAND 11T-ANT		
DATE	DESIGN	CHECK / APPROVE		
MAY. 04. 04	CHANY. 04. 04	CHANY. 04. 04		
KWB2454TD90-WR-008				

NO.	DATE	CHANGE CONTENTS	CHANGE CAUSE

[illegible]

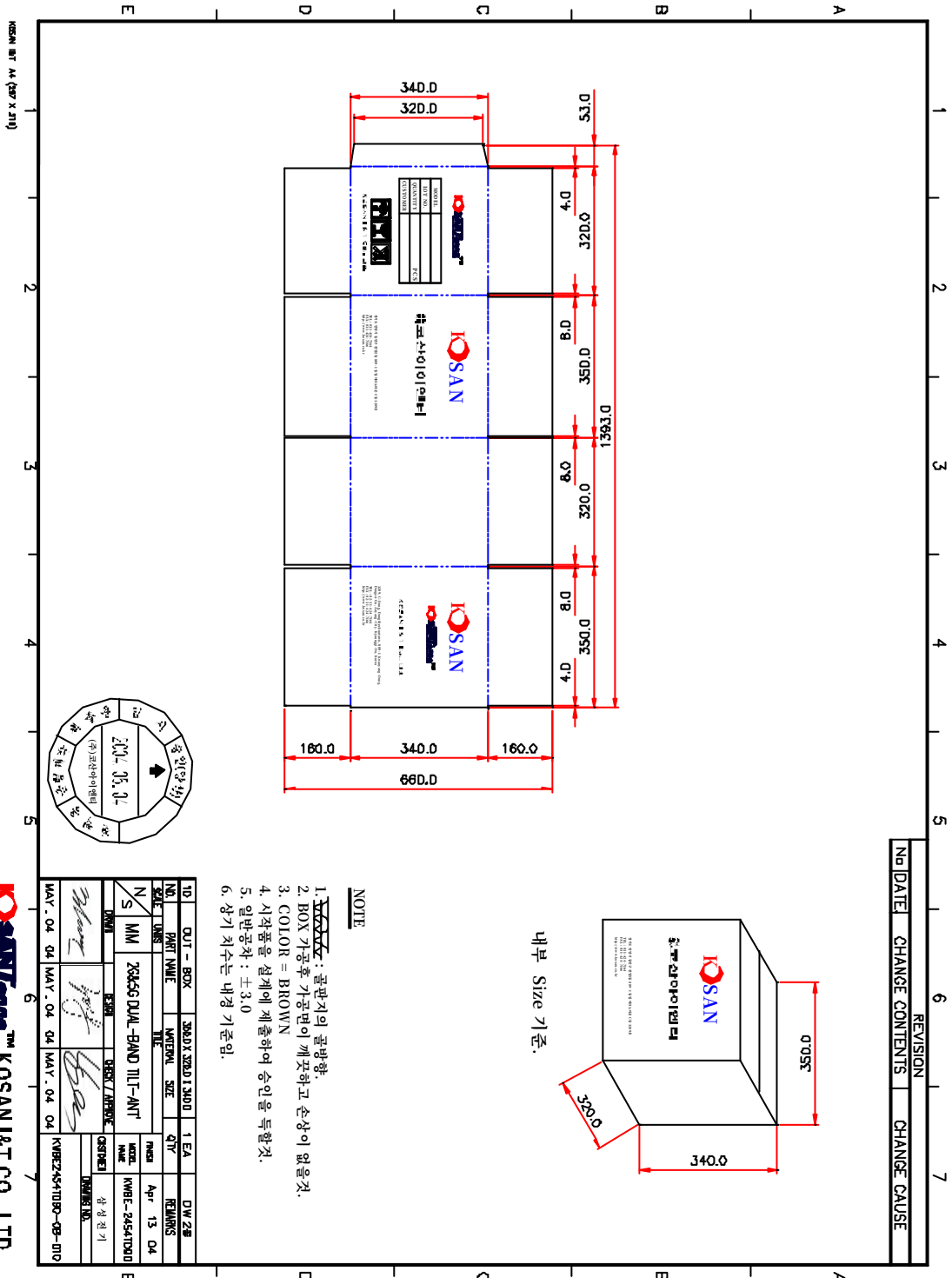


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OUT BOX





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8. QC Process Chart

QC Process Chart														작	생	일	일
제품/모델		Tilt Antenna/KWBE-2454TD90		도		번		문서번호		제 정 일		2004. 4. 12					
번 호	공정	공정명	주관 부서	작업 내용	사용설비/ 계측기	관리 항목(양법)	품질기준			비고							
							검사항목	검사기준	주기								
1	자 재	자재	QA	· Vendor 확인 · 검사의뢰	· Part List	· Lot 구분(FIFO)											
2	수입검사	QA		· 부품 외관/특성 검사의뢰	· 계측기 · 육안		· 외관 · 치수/특성 · 신뢰성	· 양호할 것 · Spec.과 일치할 것 · 이상 없을 것	Lot	· 수입검사 · 기준서			· Data				
3	자 재	자재		· Item별 불출	· Part List	· Lot 구분(FIFO)				· Part List							
4	납 뱐	생산		· Cable(탈피면 간쪽)과 Pin을 연결하며 납뱐 - ① (Cable길이 50.0mm)	· 인두기	· 납뱐상태	· 냉납 · 미납 · 과납	· 없을 것 · 없을 것 · 없을 것	전수	· 작업 기준서							
5	납 뱐	생산		· 상기 ①을 Connector에 연결하며 납뱐 - ②	· 인두기	· 납뱐상태	· 냉납 · 미납 · 과납	· 없을 것 · 없을 것 · 없을 것	전수	· 작업 기준서							
6	조 립	생산		· 상기 ②의 Cable를 Joint 하부 (사출물)에 넣고 조립 - ③	· Hand Press	· 조립상태			전수	· 작업 기준서							
7	외관검사 (자주검사)	생산		· Ass'y (납뱐, 조립)상태를 육안으로 확인		· 납뱐상태 · 조립상태	· 냉납 · 미납 · 과납	· 없을 것 · 없을 것 · 없을 것	전수	· 작업 기준서							
8	납 뱐	생산		· 상기 ③의 Cable를 PCB에 연결하며 납뱐 - ④	· 인두기	· 납뱐상태			전수	· 작업 기준서							
9	조 립	생산		· 상기 ④의 Joint 하부(사출물)와 Jo-int 상부(사출물)를 결합 · 결합후 Pin(CEA)을 넣고 프레스를 이용하며 체결	· Hand Press	· 조립상태			전수	· 작업 기준서							
10	외관검사 (자주검사)	생산		· Ass'y (납뱐포함)상태를 육안으로 확인		· 외관 · 납뱐상태	· 미물질	· 없을 것	전수								
11	시험	생산		· 제품의 특성을 시험	· N/A		· 정제피비	· Spec.과 일치할 것	전수	· 작업 기준서							
12	조립	생산		· Cover 안쪽 접합부에 Bond를 360° 원전도포하고 Joint 상단 접합부 삽	· Bond				전수	· 작업 기준서							
13	포장	생산		· 비닐봉지에 제품을 넣어 밀봉	· 밀봉기	· 포장상태(수량)			전수	· 작업 기준서							
14	출하검사	QA		· 제품 특성 및 외관 상태를 확인	· Network Analyzer	· 외관 · 특성 · 특성 · 특성	· 양호할 것 · Spec. 만족할 것 · 양호할 것		전수	· 출하검사 · 기준서			· Data				
15	출하	자재		· 제품 창고에 입고	· Hand car	· Lot 구분 · 적체상태	· 포장										
번호		개정일			개정자		확인	번호	개정일		개정자						
번호		개정일			개정자		확인	번호	개정일		개정자						

