APPROVAL SHEET

Customer	:	PANTECH
Item	:	RAP_(BT)
Description	:	Inverted F Antenna
Customer p/no	:	
Date	:	2008. 07. 21

CUSTOMER'S APPROVED

A p p r o v e d			
Pantech & Curitel	**EN'GR**	**CHKD**	**APPD**
	Approval Date		
	Approval No.		
	DESC		

Rev No ;

	Cuit.	**Mech.**	**Safety**	**EMI**
Chkd				
Appd				

KOSAN	**Document No.** KAT-0807-IN018P	**Model Name** KIN-TR3-PC820	**Rev. No.** IR

Document No.	KAT-0807-IN018P	Rev. No.	IR
Model Name	KIN-TR3-PC820	Date	2008.07.21
Application System	BT	Customer	PANTECH
Notice			

KOSAN I & T Co., Ltd.
[R&D Center]
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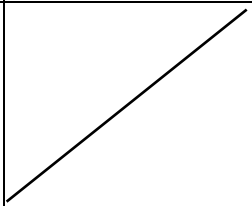
Kosan I & T's Approved

Project Manager : Young-chun, Ahn

Investigation	Verification	Approval
		
Approval No.		
Approval Date		

< CONTENTS >

KOSAN	**Document No.** KAT-0807-IN018P	**Model Name** KIN-TR3-PC820	**Rev. No.** IR

1. Revision History

Rev No.	Rev Date	Des.	Page	History	Drafter	Remarks
IR						

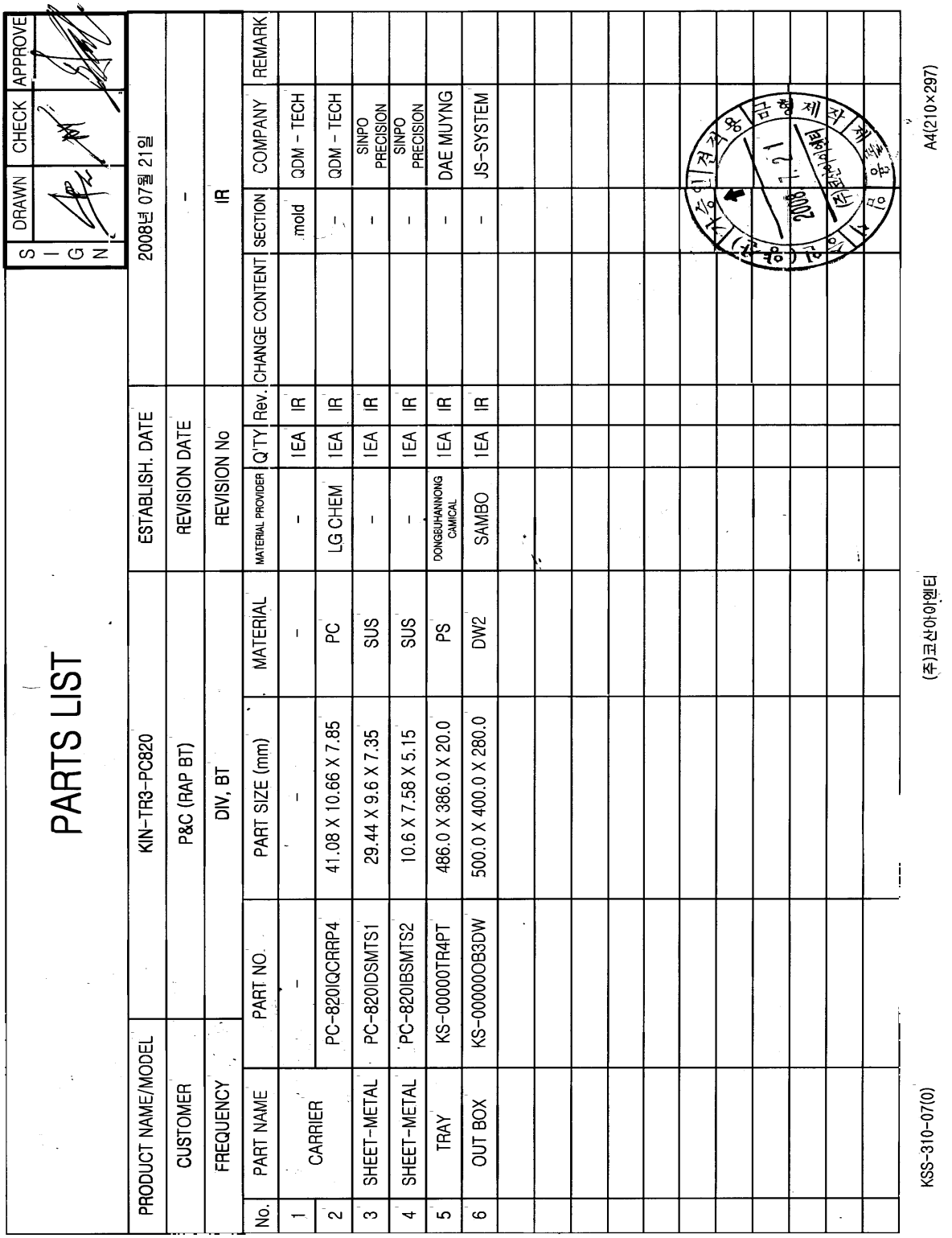
2. Electrical and Mechanical Specifications

Electrical Specifications			
Frequency Range	2400MHz~2484MHz		
V.S.W.R	Folder close	2400~2484MHz	< 3.0
	Folder open	2400~2484MHz	< 3.0
GAIN	Folder close	2400~2484MHz	1dBi
	Folder open	2400~2484MHz	1dBi
Nominal Impedance	50 ohm		
Radiation Pattern	Omni – Directional		
Polarization	Linear		
Power Handling	3 watts (max)		
Matching Value	NC		

Mechanical Specifications	
Dimensions	41.08 x 10.66 x 7.85 mm
Weight	0.9g
Radiator	SUS
Operating Temp	-20 ~ 90 ℃
Operating Humidity	0 ~ 95 %

KOSAN	Document No.	Model Name	Rev. No.
	KAT-0807-IN018P	KIN-TR3-PC820	IR

3. Part List



PARTS LIST

PRODUCT NAME/MODEL	KIN-TR3-PC820	ESTABLISH. DATE	2008년 07월 21일
CUSTOMER	P&C (RAP BT)	REVISION DATE	-
FREQUENCY	DIV, BT	REVISION No	IR

SIGN: DRAWN | CHECK | APPROVE

No.	PART NAME	PART NO.	PART SIZE (mm)	MATERIAL	MATERIAL PROVIDER	Q'TY	Rev.	CHANGE CONTENT	SECTION	COMPANY	REMARK
1	CARRIER	-	-	-	-	1EA	IR		mold	QDM - TECH	
2		PC-820IQCRRP4	41.08 X 10.66 X 7.85	PC	LG CHEM	1EA	IR		-	QDM - TECH	
3	SHEET-METAL	PC-820IDSMTS1	29.44 X 9.6 X 7.35	SUS	-	1EA	IR		-	SINPO PRECISION	
4	SHEET-METAL	PC-820IBSMTS2	10.6 X 7.58 X 5.15	SUS	-	1EA	IR		-	SINPO PRECISION	
5	TRAY	KS-00000TR4PT	486.0 X 386.0 X 20.0	PS	DONGBUHANNONG CAMICAL	1EA	IR		-	DAE MUYNG	
6	OUT BOX	KS-00000OB3DW	500.0 X 400.0 X 280.0	DW2	SAMBO	1EA	IR		-	JS-SYSTEM	

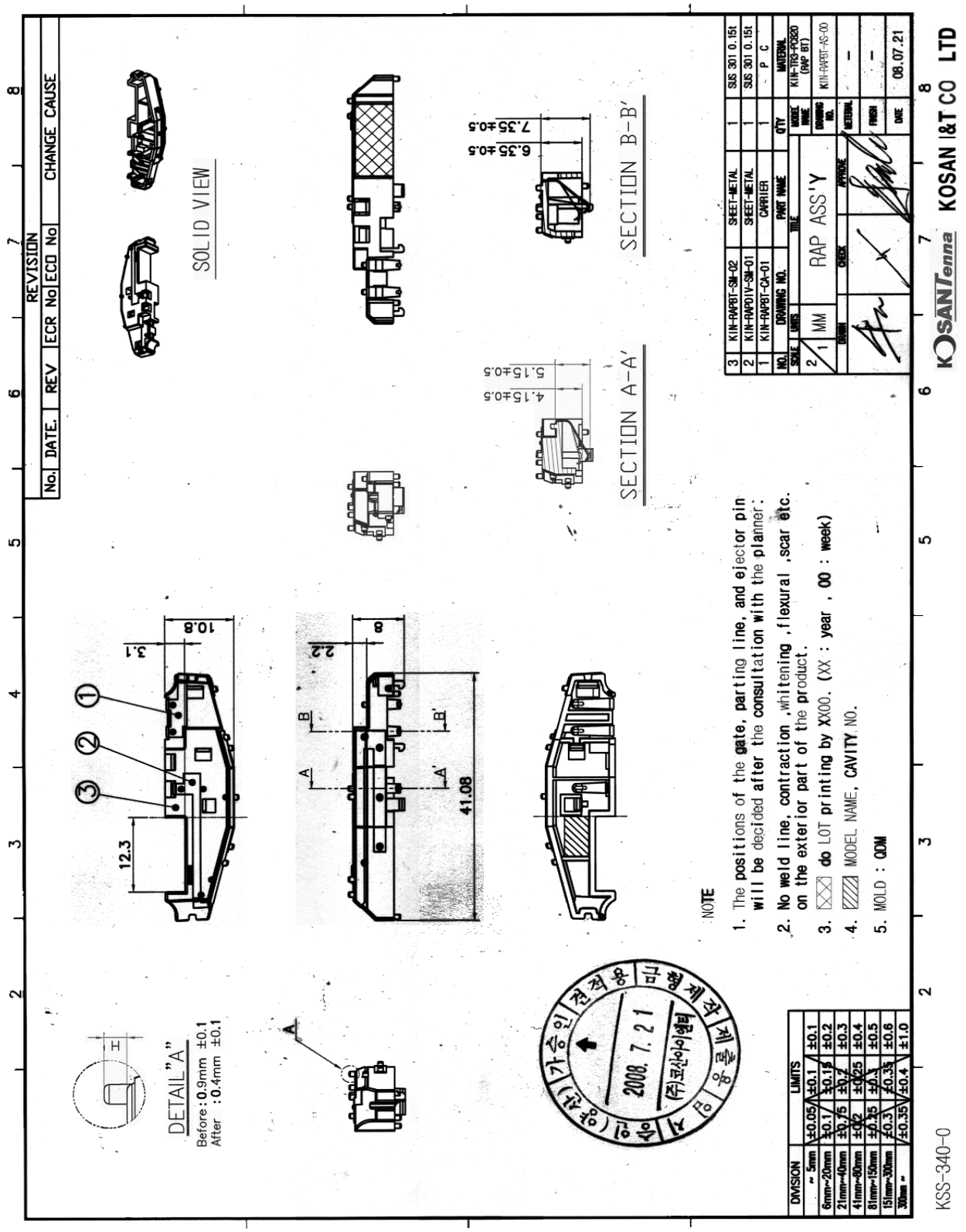
(주)코산아이엔티

KSS-310-07(0)

A4(210×297)

KOSAN	Document No.	Model Name	Rev. No.
	KAT-0807-IN018P	KIN-TR3-PC820	IR

4. Mechanical Drawing



5. Measurement Setup

5.1 Test Equipments

Network Analyzer	HP8753E
Calibration Kit	HP85033E
Adaptor	SMA Type Female ↔ SMA male

5.2 Test Equipments Setting

Split display	On
Sweep setup	Number of points : 401
Test port power	0 dBm
Measure	Channel 1 : S11

5.3 Calibration

Calibration Cal. Kit : 3.5mmD/E
Calibration menu → S11 1-Port
Open → Short → Load
Done

6. Test Procedures

6.1 VSWR.

Step 1. Connect ANT port with cable included adaptor to port1 of Network analyzer.

Step 2. Point out markers on network analyzer display at

2400~2484MHz

Step 3. Inspect VSWR

2400~2484MHz CLOSE < 3.0
OPEN < 3.0

Step 4. Measurement

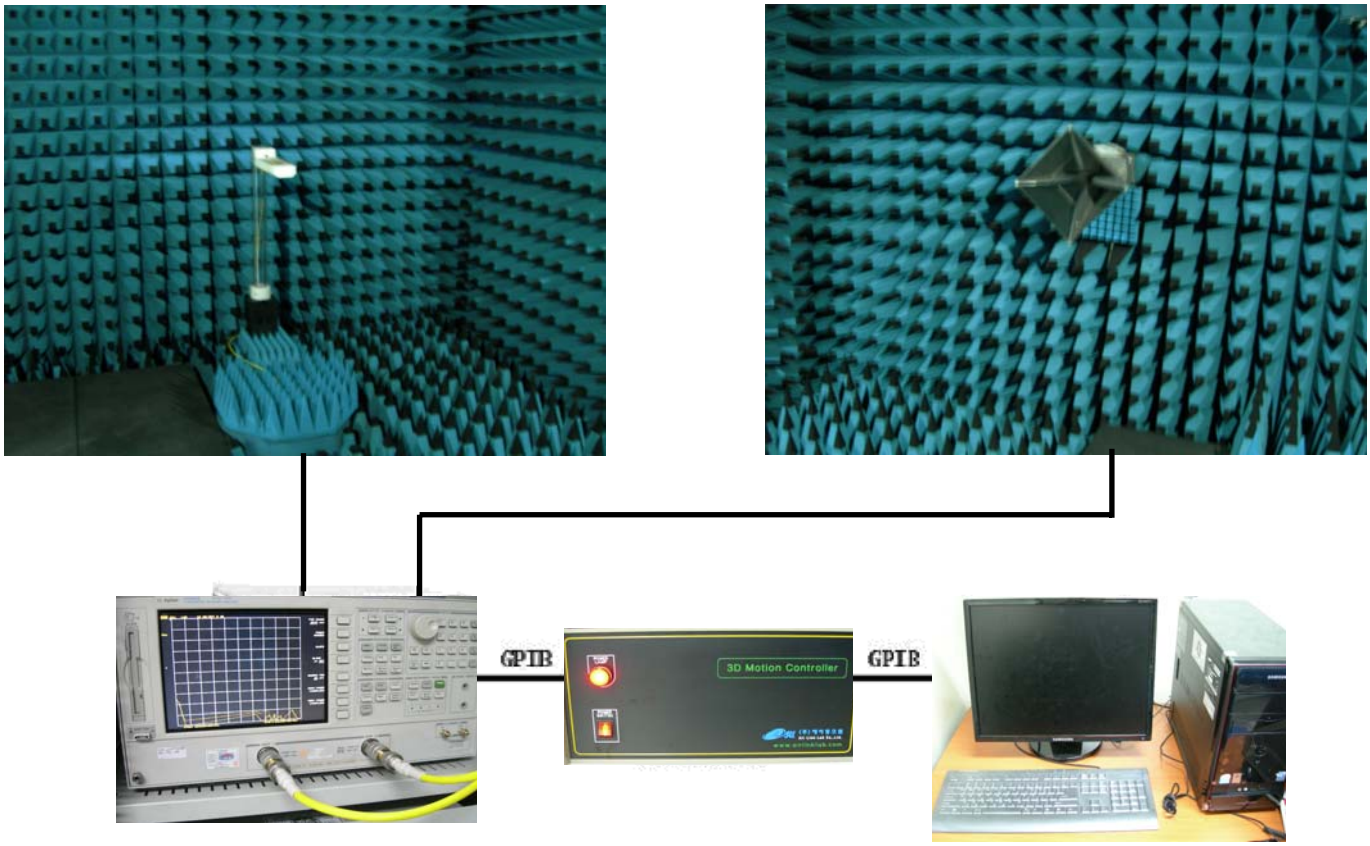
6.2 Radiation pattern and Gain

Step 1. Calibrate chamber system for gain measurement using horn antenna. At the same time set up software program for chamber system control.

Step 2. Change over from a horn antenna to measuring antenna on target positioner.

Step 3. Start a software program for chamber system control & measuring

Step 4. Measurement of gain and efficiency



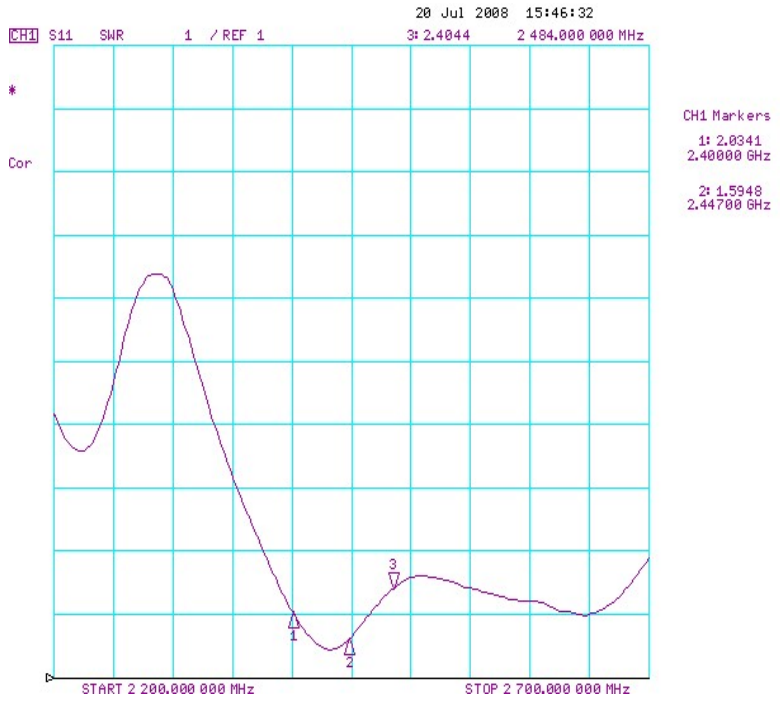
7. Measurement Data

Model Name	KIN-TR3-PC820		
Written by	**Young-chun, Ahn**	**Authorized by**	**Sung-tae, KANG**
Instrument	**Network Analyzer: 8753ES (HP)**		
Subject	**Inverted F Antenna**		
Frequency	2400~2484MHz		

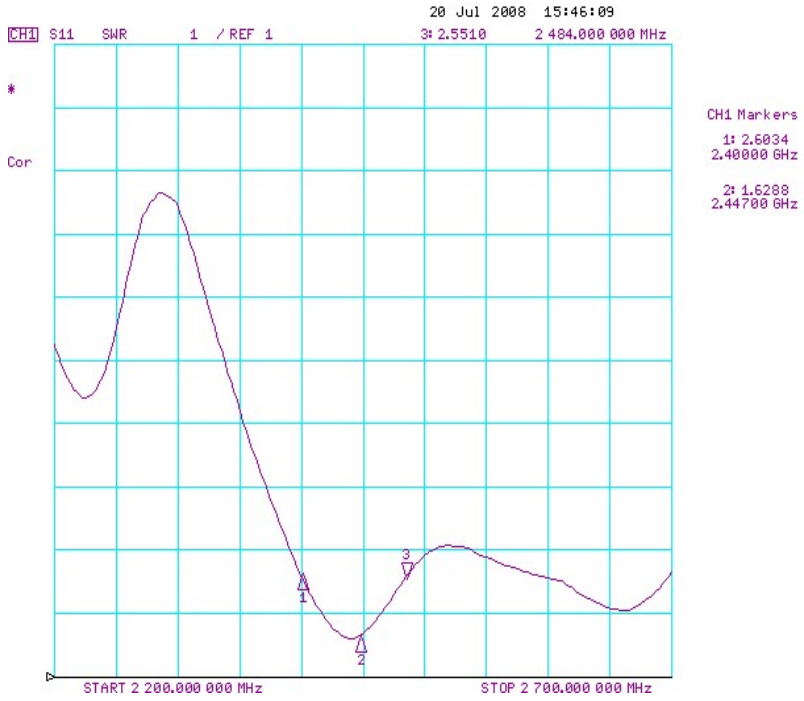
Items	**Spec.**		**Test Result**
Frequency	2400~2484MHz		**O.K**
V.S.W.R	**FOLDER CLOSE**	2400~2484MHz < 3.0	**O.K**
	FOLDER OPEN	2400~2484MHz < 3.0	**O.K**
Gain(Peak)	**FOLDER CLOSE**	2400~2484MHz 1dBi	**O.K**
	FOLDER OPEN	2400~2484MHz 1dBi	**O.K**
Polarization	**Linear**		**Linear**

7.1 VSWR

FOLDER CLOSE

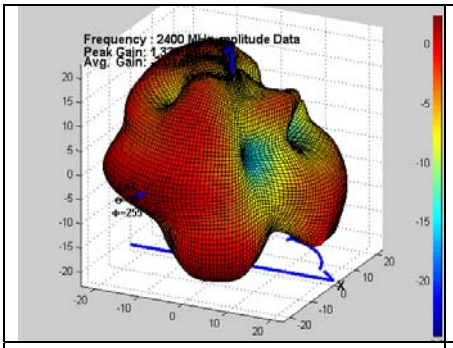


FOLDER OPEN

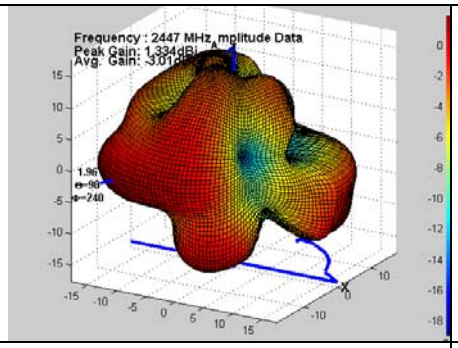


7.2 Gain & Pattern

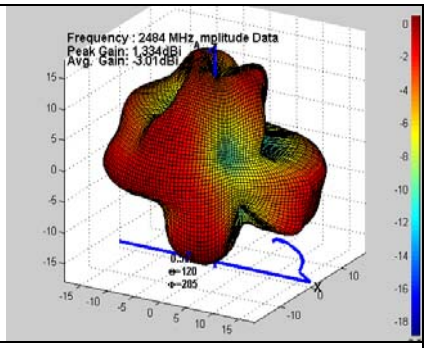
FOLDER CLOSE



2400MHz(3D pattern)



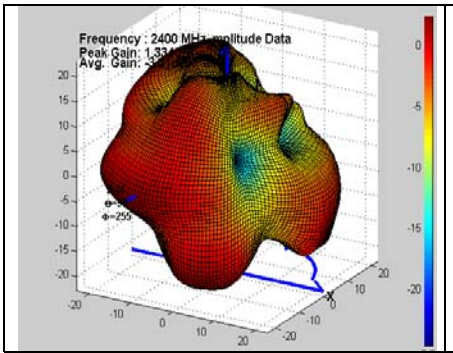
2447MHz(3D pattern)



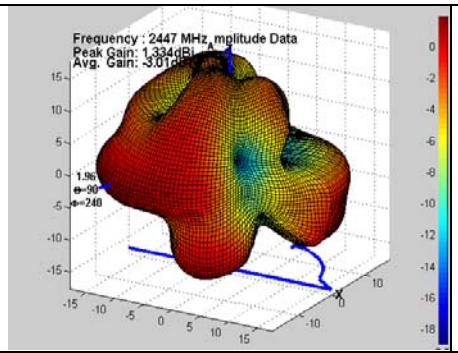
2484MHz(3D pattern)

Frequency	Eff. (%)	Ave. Gain (dBi)	Peak Gain (dBi)
2400 MHz	50	-3.01	1.33
2445 MHz	45	-3.51	1.26
2447 MHz	44	-3.59	1.23
2475 MHz	42	-3.79	0.36
2484 MHz	41	-3.90	-0.17

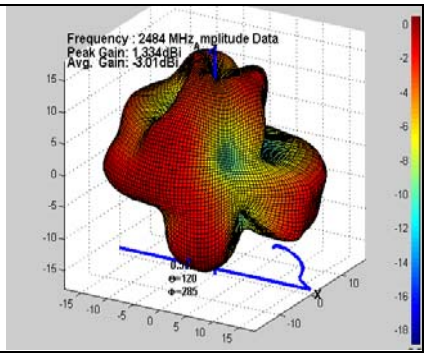
FOLDER OPEN



2400MHz(3D pattern)



2447MHz(3D pattern)



2484MHz(3D pattern)

Frequency	Eff. (%)	Ave. Gain (dBi)	Peak Gain (dBi)
2400 MHz	50	-3.01	1.33
2445 MHz	45	-3.45	1.29
2447 MHz	44	-3.53	1.19
2475 MHz	41	-3.85	0.20
2484 MHz	40	-3.97	-0.48

8. Control Plan

관 리 계 획 서
(CONTROL PLAN)

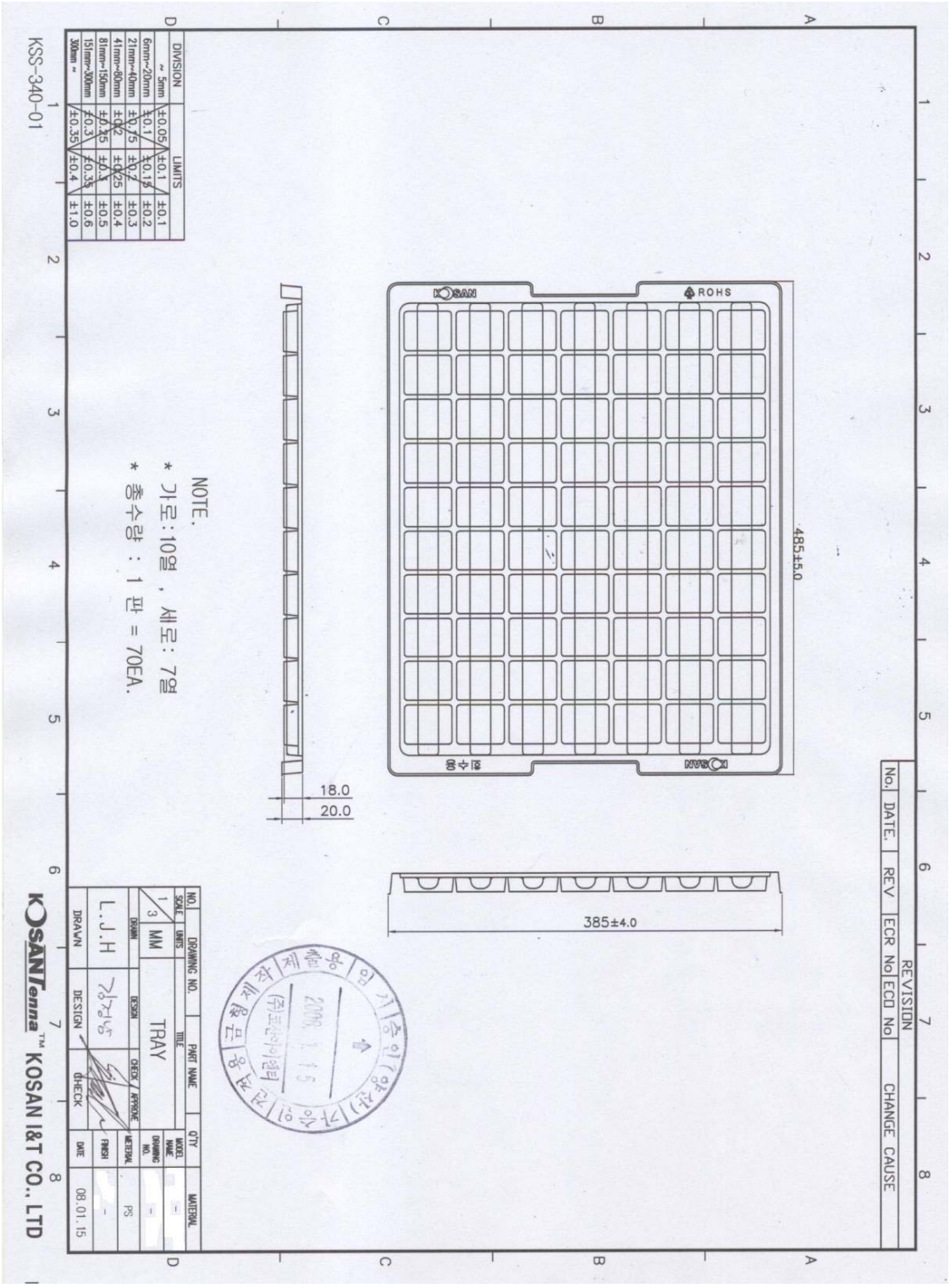
단 계	☐ WS ☑ ES ☐ TP ☐ 본승인 ☐ 변경 ☐ 정기검사					결재	작 성	검 토	승 인
고 객 명	PANTECH		제품명	MSSP					
MODEL	KIN-QU4-PC749		공급자부품명	Internal Antenna (PIFA)					
작 성 일	2008.04.02.	공급자 코드		고객품질승인		관리번호	KQP-119		

공정 (Progress) 번호 (NO.)	공정 흐름도 (Progress Flow)	공정명	설비명	관리항목 (Characteristics) 순번 (NO)	공정 (Process)	제품 (Product)	특별특성 (Special CHAR)	방법 (Methods) 관리기준 (Control Standard)	측정방법 (Measurement)	주기 (Cycle)	관리방법 (Control Method)	관리분담 (Dept.) 생산 (Prod)	품보 (QA)	이상처리 (Reaction)	비고 (Remarks)
1	▽	원자재입고 (Carrier) (Sheet Metal)	사출성형기		거래명세서, 검사성적서, 제품점수					입고시					
2	□					수량,실물확인		거래명세서, 검사성적서	목시/라벨	입고시				시정/반품조치	구매자재
3	◇	수입검사	V-Calipers Micro Meter Vision Meter 확대경		Carrier 검사 PC-749IQCRRP4	치수/외관검사		도면,승인원, 검사성적서	측정기	s/m	검사기준서 KSS-550-01 KII-004-51		○	불량통보 대책서발송	선인테크
			V-Calipers Micro Meter Vision Meter 확대경		Sheet Metal 검사 PC-749IQSMTS1	치수/외관검사		도면,승인원, 검사성적서	측정기	s/m	검사기준서 KSS-550-01 KII-005-56		○	불량통보 대책서발송	신포정밀
			V-Calipers Micro Meter Vision Meter 확대경		SHILD TAPE 검사 PC-764QSHTAA	치수/외관검사		도면,승인원, 검사성적서	측정기	s/m	검사기준서 KSS-550-01 KII-008-007		○	불량통보 대책서발송	DS Cop.
					검사기록						검사이력카드 KSS-550-03		○		
4	⇨	입고처리	핸드카		창고이관						거래명세서		○		
5	⇨	자재수불	핸드카			FIFO		Lot관리	라벨		자재청구서 KSS-510-04	○			
6	⇨	키팅보관	키팅									○			
7	○	조립(가조립)	수작업		외관검사	Carrier		작업기준서	목시	전수	작업기준서 KSS-370-06 KSP-119	○		선별/ 관리자호출	
					외관검사	Sheet Metal		작업기준서	목시	전수		○		선별/ 관리자호출	
					Carrier + Sheet Metal 장착							○			
8	○	융착	열융착기		열융착			· 융착조건 (압력:7kgf/㎠, 온도:172℃, Time:1초)	목시	작업전	작업기준서 KSS-370-06 KSP-119	○		수동전환 관리자호출	
						Carrier + Sheet Metal		외관검사 (융착상태)	목시	전수		○		선별/ 관리자호출	
9	○	조립	수작업		TAPE 부착	SHILD TAPE		위치	목시	전수	작업기준서 KSS-370-06 KSP-119	○		선별/ 관리자호출	
10	◇	검사			외관검사			융착상태	목시	전수	작업기준서 KSS-370-06 KSP-119	○		선별/ 관리자호출	
			Network Analyzer (Ag 8753ES)		특성검사			VSWR 측정	JIG 측정	전수	작업기준서 KSS-370-06 KSP-119	○		관리자호출	
11	○	MARKING	MARKING PRINTER		PRINTING			주차확인	육안	전수	작업기준서 KSS-370-06 KSP-119	○		관리자호출	
12	⊠	포장			Tray 에 제품삽입	TRAY		규격 Tray KS-00000TR4PT	100품/20단 /2000EA		작업기준서 KSS-370-06 KSP-119	○		관리자호출	대명
					Box 포장	BOX		규격 Box KS-00000OB3DW	500×400 ×280			○		관리자호출	JS
13	⇨	제품검사의뢰	핸드카		검사대기 적재					일일	제품검사 입고의뢰서 KSS-550-07	○			
14	◇	출하검사	확대경		외관 조립검사			외관,조립검사	목시	s/m	출하검사 기준서 KSS-550-08 KOI-119		○	불량통보 대책서발송	
			Network Analyzer (Ag 8753ES)		특성검사			VSWR 측정	JIG 측정	s/m			○	불량통보 대책서발송	
			V-Calipers Micro Meter Vision Meter		치수검사			도면,승인원	측정기	s/m			○	불량통보 대책서발송	
15	⇨	제품이관	핸드카		합격구역적재						제품검사 입고의뢰서 KSS-550-07		○		
			핸드카		창고이관			합격품	합격도장	검사완료		○	○		
16	▽	제품출하	핸드카		제품발췌			품명,수량확인	라벨확인	출하시	제품출하서 KSS-220-04	○	○	이상발생 통보서발송	

1 페이지
2 페이지

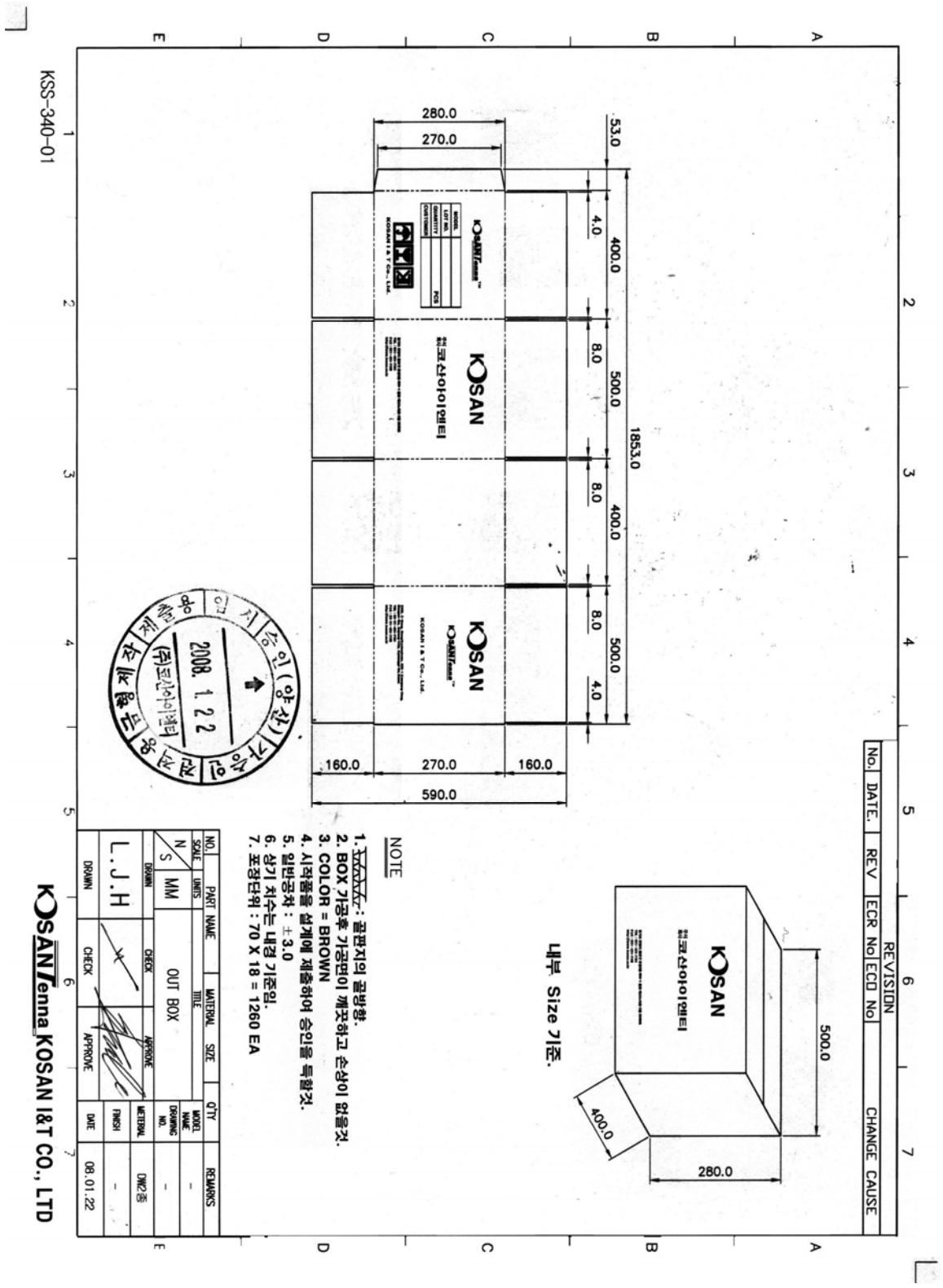
9. Packing

9.1 Tray



KOSAN	Document No.	Model Name	Rev. No.
	KAT-0807-IN018P	KIN-TR3-PC820	IR

9.2 Out Box



10. Caution

10-1. Loading

1) **Avoid places in extremely high temperature and locations affected by humidity.**
2) **Avoid places with corrosive Hydrogen sulfating gas present.**
   (An acid, chlorine or ammonia will corrode the external appearance of antenna and its performance will be hindered).
   Storage environment
   -Temperature: 5 to 35℃
   -Humidity: 45 to 75% RH

10-2. Transportation

1) **Take care with the antenna, as when the contact point is squashed or bent, the connection will be unstable and therefore its efficiency will drop.**
2) **Do not touch the antenna directly with bare hands while transporting.**
   (When touched by bare hands, marks that may be left will bring about the corrosion of the antenna on its external surface.)