

Alpha P/N : 506924000116		申請者：白智銘	主管：楊威
零組件品名：Ant 2.4G E421C SMA For D-Link			
原製造廠商：FRE(505620)		原廠編號：E421C-200000R04	
在台代理商：福登		連絡人：吳志信	電話：(03)464-3715#223
應用機種：DWL-2100AP			
COMMENTS：			
測試結果	FIRST SOURCE		
檢驗重點：			
1. 外觀			
2. Dimension			
3. Return Loss(For Specification 4.2): -10 dB			
			
主管：王椅楠		承辦者：劉炫松	
		測試人：	日期：2004/8/26
機構	R&D		PM
生技	資材		品管
結果	合格	否決	其它
	審核		電子檔 王椅楠 2004/8/26



SPECIFICATION AND PERFORMANCE FOR APPROVAL

P/N: E421C-200000R04 2004/7/23 REV.0 1 of 25
FULL RISE ELECTRONIC CO., LTD.

No.19-4,Kao Shan Hsia,Kao Shuang Village,Pin Chen City,Taoyuan,Taiwan, TEL:+886-3-4643715 FAX:+886-3-4643720/21 http://:www.fre.com.tw
No.22-23 buolding,JinBi Industry Park ,Huang Tian Village ,Baoan District,Shenzhen City,China, TEL:+86-755-27511462, FAX:+86-755-27511578

MAXTOP TELECOM ELECTRONICS CO., LTD.

C2 Area,Far East Industrial Park,Yu Yao City,Zhejiang,China TEL:+86-574-62887000-62887003 FAX:+86-574-62887063

Part No.: E421C-200000R04

Product Description: ANTENNA 9 +SMA CONNECTOR

Customer : _____

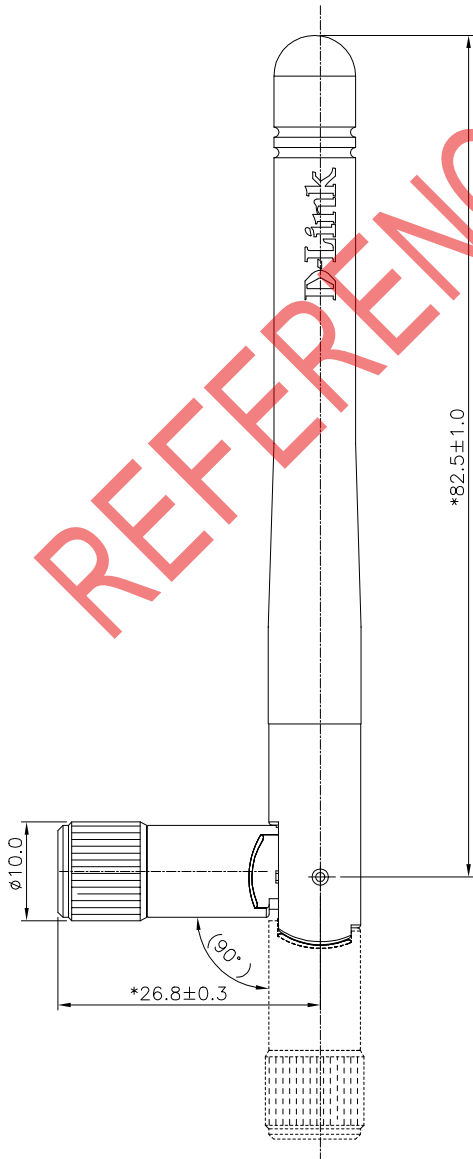
Customer Part No.: _____

Sample Qty. _____

FRE		
Issued By	Checked BY	QA Inspection
		Warren Chung Jul-23-2004
Sales&Marketing Group	R&D Group	QA Group

Customer		
Customer Approval: <input type="checkbox"/> Approved <input type="checkbox"/> Concessionary <input type="checkbox"/> Rejected		
Issued By	Checked BY	Approved By
Comments:		

REVISION RECORD				
REV	ECO	DESCRIPTION	DRFT	CHKD



REFERENCE ONLY

NOTE:

- ELECTRICAL PROPERTIES**
- DESCRIPTION : 1/4 λ SWIVEL TYPE DIPOLE ANTENNA
ø9x82.5+ SMA
 - MODEL NO. : AN-A1
 - FREQUENCY : 2400~2500MHz
 - IMPEDANCE : 50 Ohms nominal
 - V.S.W.R. : 2.0 max. IN BAND
 - GAIN : 1.14~2.14 dBi, VERTICAL DIRECTION
 - ADMITTED POWER RADLATION : 1W
 - TYPE OF RADLATION : TOROIDAL
 - POLARIZATION : VERTICAL
 - ELECTRICAL LENGTH : 1/4 λ ,DIPOLE
 - RADIATION : Omni
 - CONNECTOR TYPE : SMA (MALE/FEMALE OPTION)

- MECHANICAL PROPERTIES**
- CABLE : RG-178, 50ohm
 - OPERATING TEMPERATURE RANGE : -20°C~+65°C
 - STORAGE TEMPERATURE RANGE : -30°C~+75°C
 - ANTENNA COVER : TPEE
 - COLOR : GRAY (PATONE: #COOL GRAY 8C)

PART NUMBER : E421X-200000R04

CONNECTOR
C:R-SMA (FEMALE)
D:SMA (MALE)

DETACHED LISTS	← MM →	DFTO	CXQ	DATE	6/16/04*	FULL RISE ELECTRONIC CO., LTD
	TOLERANCES EXCEPT AS NOTED	CHKD		DATE		
		MFO		DATE		
		APPVL		DATE		
	.0 ± 0.2	MATERIAL :		TITLE		ANTENNA ø9+SMA CONNECTOR
	.00 ± 0.15	QTY :		DRAWING NO. GE423P14		
	.000 ± 0.075	FINISH :		/PART NO. SEE NOTE		
	ANGLES ± 0.5	SCALE : 2:1		DO NOT SCALE DRAWING		
	 THIRD ANGLE PROJECTION	SHEET		1 OF 1		

7-506924000116(E8429) A

**SPECIFICATION AND PERFORMANCE
FOR APPROVAL**

P/N: E421C-200000R04 2004/7/23 REV.0 4 of 25
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Electrical Properties:

1. Frequency Range: 2.4 ~ 2.5 GHz
2. Impedance: 50 Ohms nominal
3. VSWR: 2.0 max. IN BAND
4. Gain :1.14~2.14 dBi,Vertical direction
5. Radiation: Omni
6. Polarization: Vertical
7. Electrical Wave: Dipole
- 8.Connector type: SMA CONNECTOR

Mechanical properties:

1. Cable:RG-178,50ohm
- 2.Operating temperature range:-20 ~+65
- 3.Storage temperature range:-30 ~+75
- 4.Antenna cover:TPEE
- 5.Color:Gray

REFERENCE ONLY

SPECIFICATION AND PERFORMANCE FOR APPROVAL

P/N: E421C-200000R04 2004/7/23 REV.0 5 of 25
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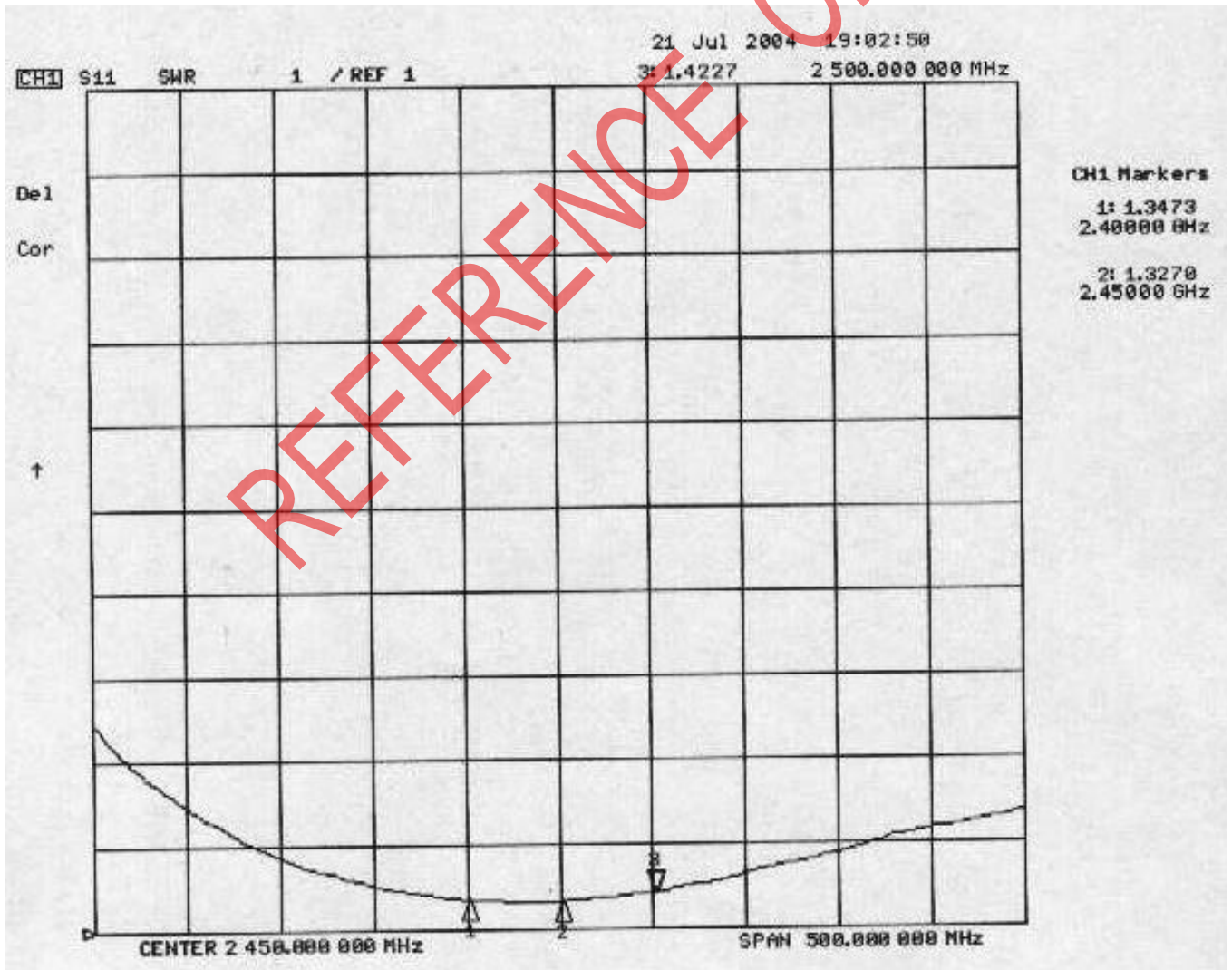
C2 Area,Far East Industrial Park,Yu Yao City,Zhejiang,China TEL:+86-574-62887000-62887003 FAX:+86-574-62887063

Test Result:

1.V.S.W.R(For Specification 4.1): 2.0

Frequency	2.4 GHz	2.45 GHz	2.5 GHz
Sample 1	1.347	1.327	1.422
Sample 2	1.376	1.325	1.427
Sample 3	1.317	1.328	1.407
Sample 4	1.387	1.326	1.428
Sample 5	1.337	1.328	1.421

V.S.W.R Profiles



SPECIFICATION AND PERFORMANCE FOR APPROVAL

P/N: E421C-200000R04 2004/7/23 REV.0 6 of 25
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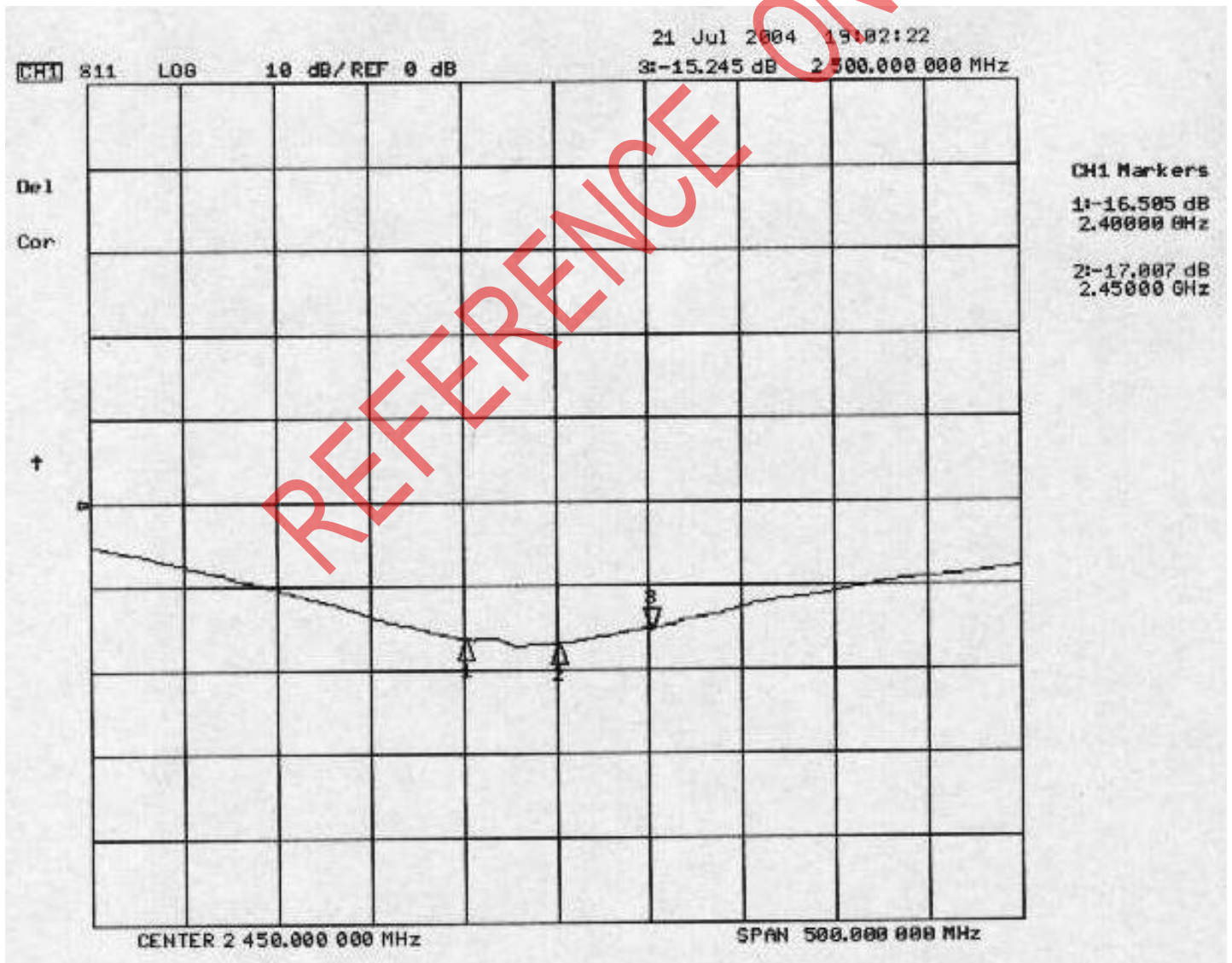
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2.Return Loss(For Specification 4.2): -10 dB

Frequency	2.4 GHz	2.45 GHz	2.5 GHz
Sample 1	-16.50 dB	-17.00 dB	-15.24 dB
Sample 2	-16.52 dB	-16.85 dB	-15.41 dB
Sample 3	-15.51 dB	-16.57 dB	-15.23 dB
Sample 4	-16.89 dB	-17.09 dB	-15.25 dB
Sample 5	-16.73 dB	-17.05 dB	-15.29 dB

Return Loss Profile



SPECIFICATION AND PERFORMANCE FOR APPROVAL

P/N: E421C-200000R04 2004/7/23 REV.0 7 of 25
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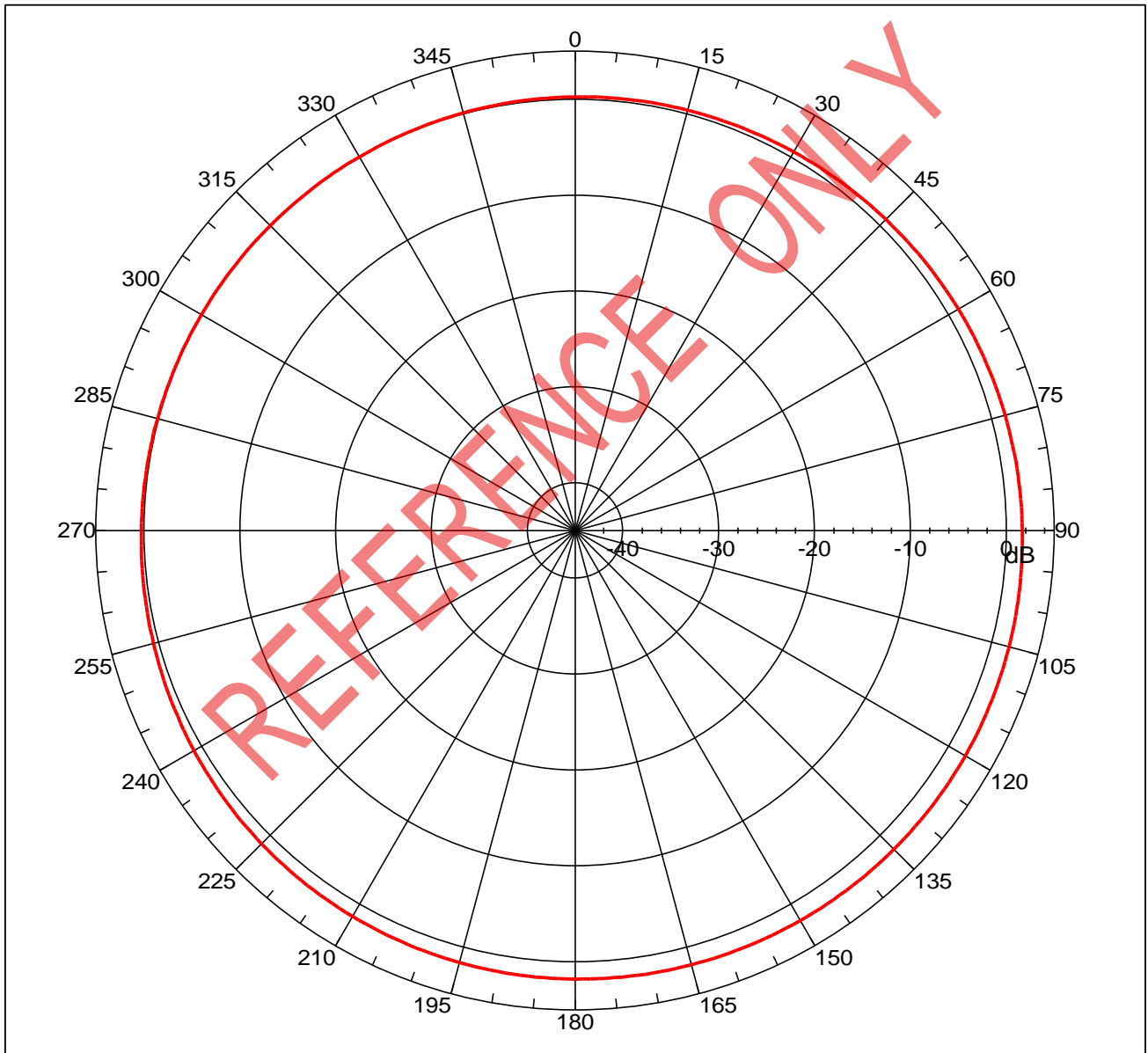
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3. Gain (For Specification 4.5):1.14~2.14 dBi

2.4 GHz H-Plain Field Pattern

E421C-200000R04 + %9 + RSMA_Hcut.nsi
2.4 GHz 1.807 dBi



SPECIFICATION AND PERFORMANCE FOR APPROVAL

P/N: E421C-200000R04 2004/7/23 REV.0 8 of 25
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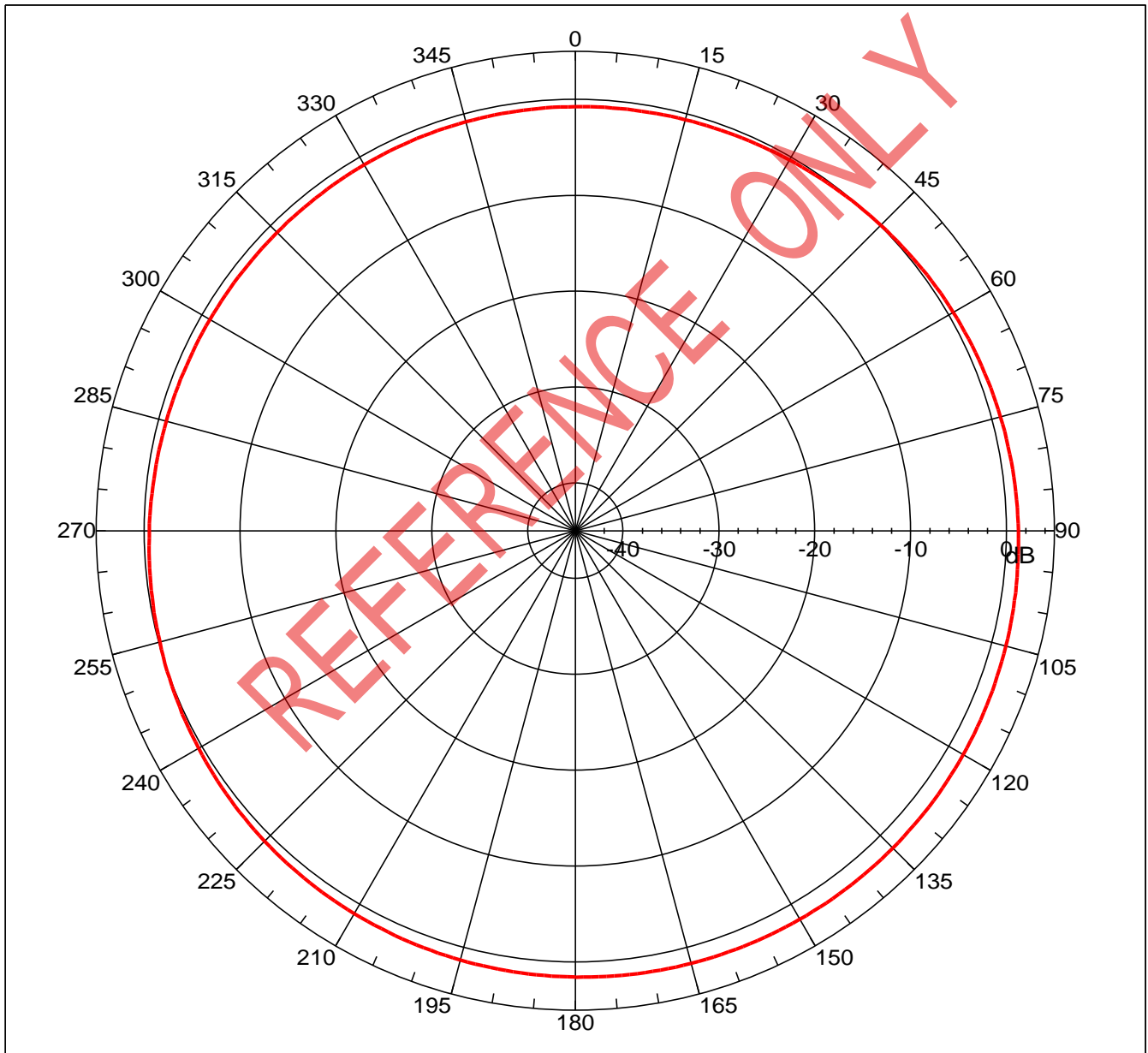
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2.45 GHz H-Plain Field Pattern

E421C-200000R04 + %9 + RSMA_Hcut.nsi
2.45 GHz 1.855 dBi



SPECIFICATION AND PERFORMANCE FOR APPROVAL

P/N: E421C-200000R04 2004/7/23 REV.0 9 of 25
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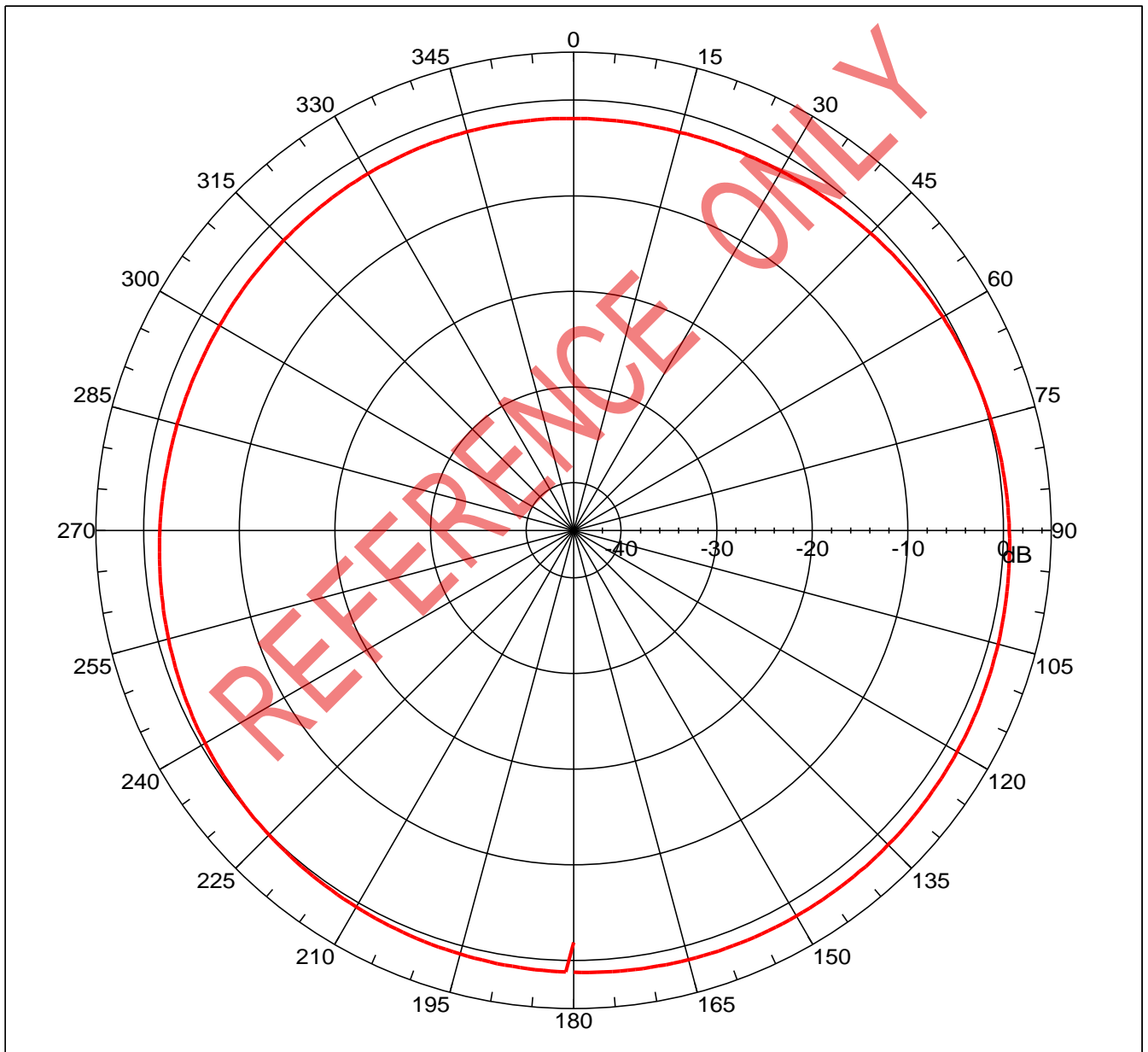
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2.5 GHz H-Plain Field Pattern

E421C-200000R04 + %9 + RSMA_Hcut.nsi
2.5 GHz 1.777 dBi



SPECIFICATION AND PERFORMANCE FOR APPROVAL

P/N: E421C-200000R04 2004/7/23 REV.0 10 of 25
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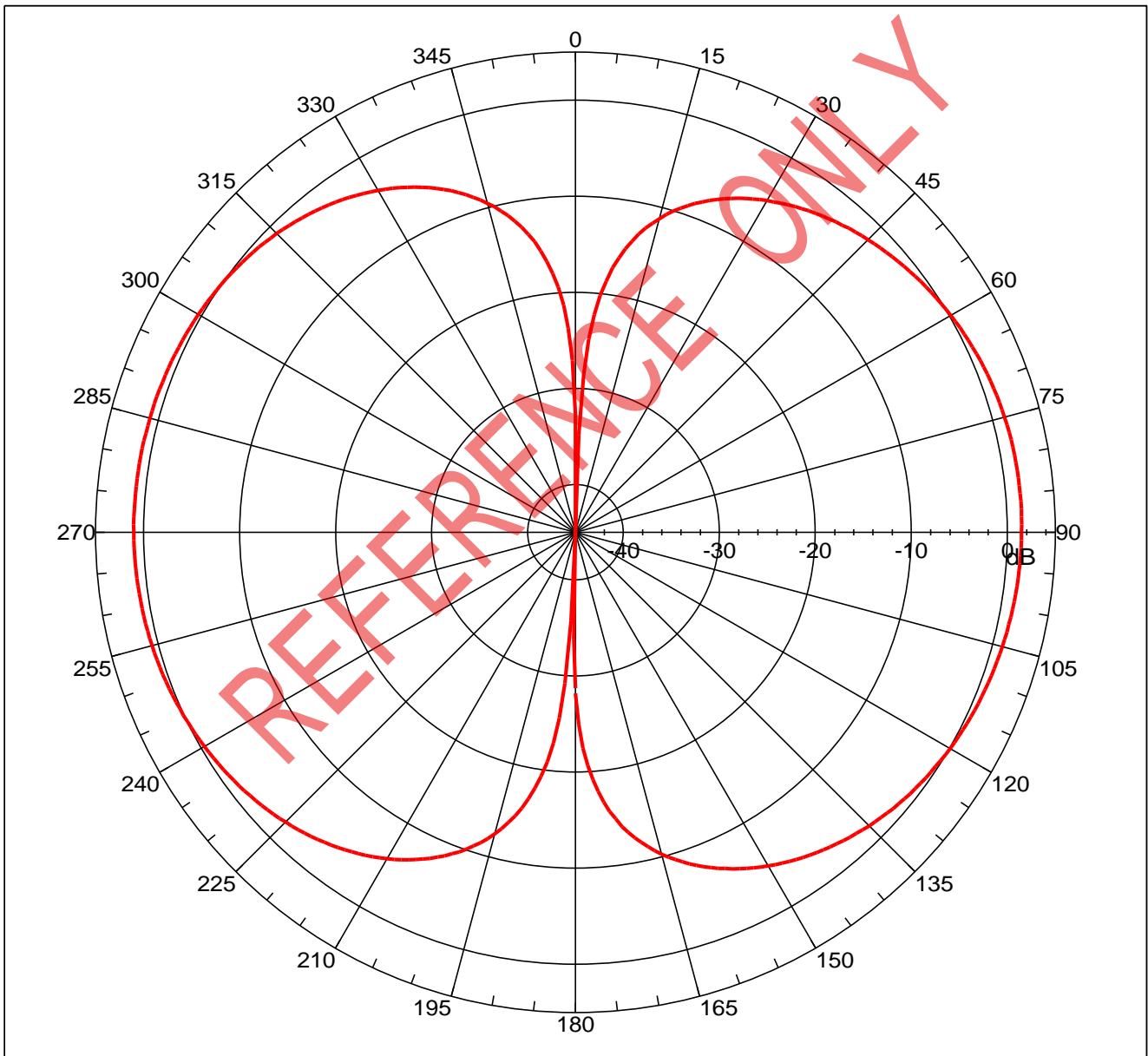
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2.4 GHz V-Plain Field Pattern

E421C-200000R04 + %9 + RSMA_Vcut.nsi
2.4 GHz 1.801 dBi



SPECIFICATION AND PERFORMANCE FOR APPROVAL

P/N: E421C-200000R04 2004/7/23 REV.0 11 of 25
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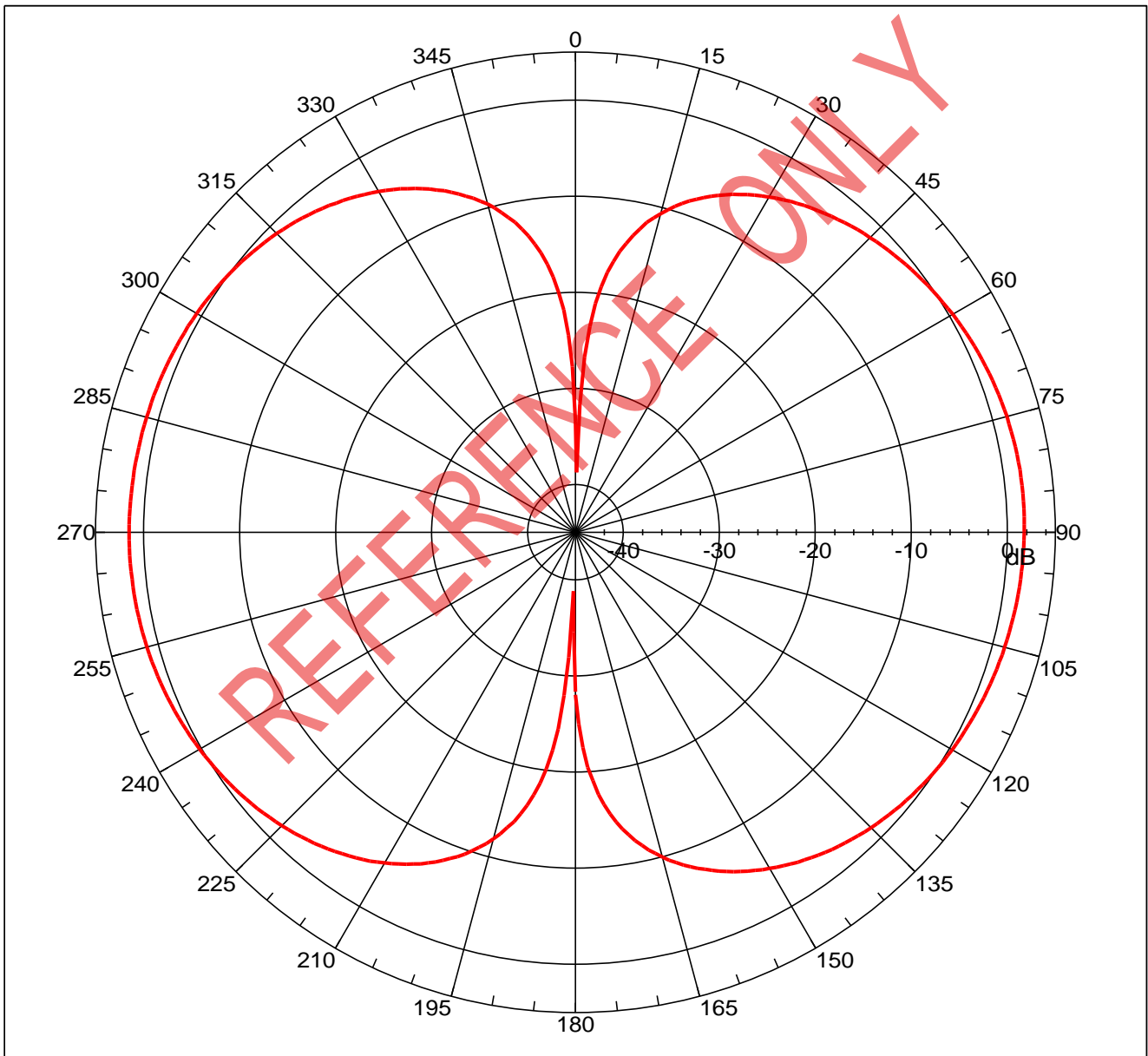
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2.45GHz V-Plain Field Pattern

E421C-200000R04 + %9 + RSMA_Vcut.nsi
2.45 GHz 1.871 dBi



SPECIFICATION AND PERFORMANCE FOR APPROVAL

P/N: E421C-200000R04 2004/7/23 REV.0 12 of 25
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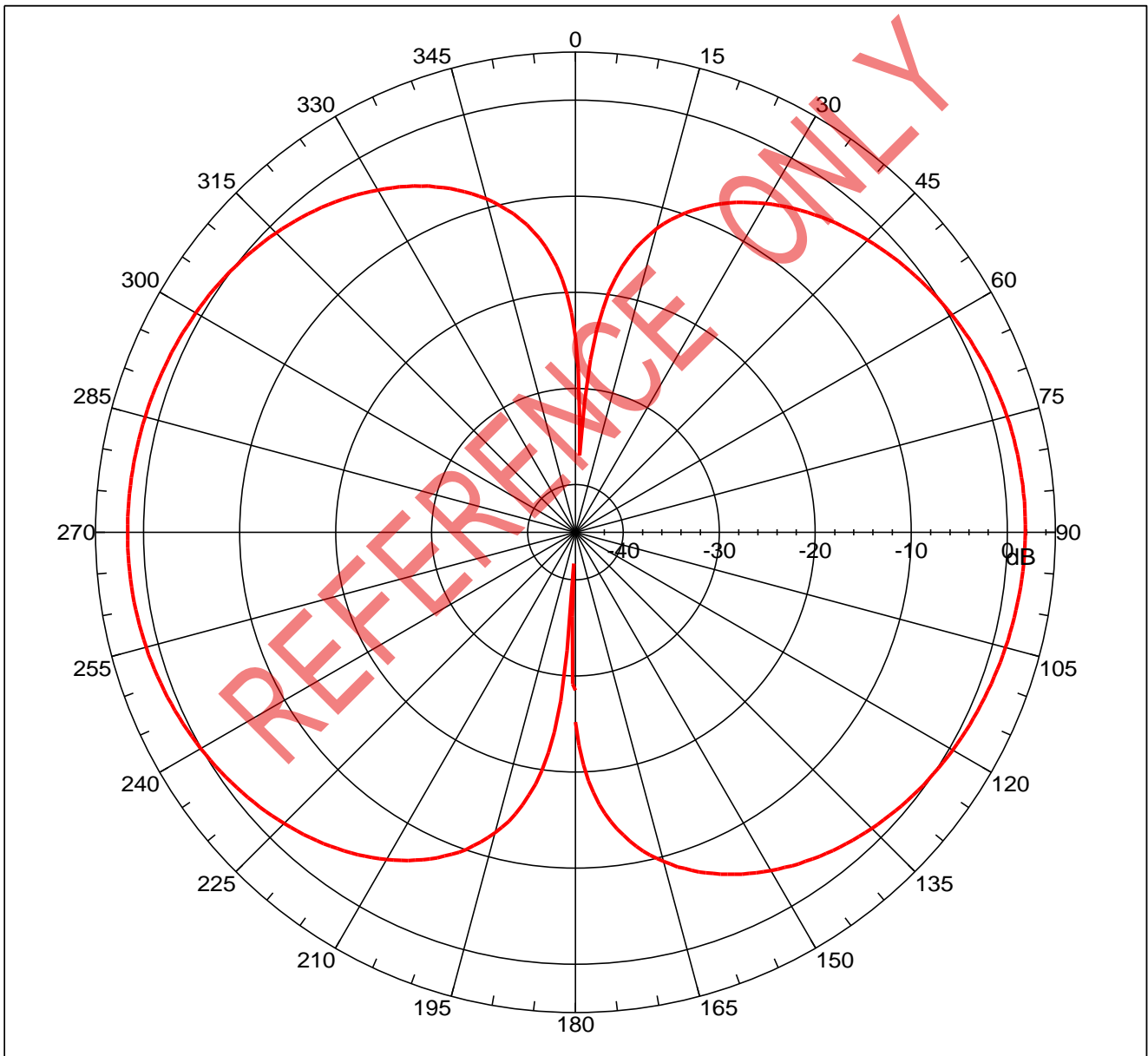
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2.5GHz V-Plain Field Pattern

E421C-200000R04 + %9 + RSMA_Vcut.nsi
2.5 GHz 1.809 dBi



T-BLEND[®]9094N-DV Thermoplastic Elastomer Technical Document

T-BLEND[®]9094N-DV is a pre-formulated and palletized general-purpose thermoplastic elastomer compound based on TPV Raw material.

It is designed for the over-molding of soft-touch elastomer components onto hard olefin thermoplastics such as PP resins. This material exhibits excellent flow properties and offers molded articles with fine texture, dry surface and excellent rubbery feeling. And it gets the matt surface similar to the TPV product.

Being a thermoplastic elastomer, T-BLEND[®]9094N-DV can be easily processed with general processing equipment and tools designed for thermoplastics and yet possess elastomeric properties at ambient temperatures.

Properties

Characteristics	Methods	Typical values
Product Form	NA	Pellets
Colour	NA	Natural
Specific Gravity	ASTM D 792	0.9
Hardness (Injection Test Piece)	ASTM D 2240	90 ± 3
Tensile Strength at Break (kg/cm ²)	ASTM D 412	97.4
Elongation at Break (%)	ASTM D 412	397
300% Modulus (kg/cm ²)	ASTM D 412	91.2
Melt Flow Index 5 kg @ 180	ASTM D 1238	52
Tear strength (kg/cm)	ASTM D 624	70
Rebound (%)	ASTM D1054	40.4
Akron (c.c)	B.S 903	0.09
Compression set (%) 70 *22hrs		42

Processing Guide

T-BLEND[®]9094N-DV rubber is a versatile material and can be processed by using high shear rate injection molding methods. Stability of T-BLEND[®]9094N-DV is excellent at normal processing temperature. However should inadvertent loss of temperature control lead to decomposition the degradation products are non-corrosive. Generally, it reacts the same as other easy molding thermoplastics, such as polystyrenes. The finished parts have sharp and well-defined details.

Typical starting conditions for a reciprocating screw injection-molding machine are listed in the accompanying chart. These values are intended only as guidelines, and the optimum conditions will vary from machine to machine.

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TSRC CORPORATION
2 Hsing Kung Road, Ta-She,
Kaohsiung, Taiwan 815, R.O.C.
Tel : 886-7-352-0073
Fax : 886-7-352-0024
E-mail : darcy@tsrc.com.tw



T-BLEND[®]9094N-DV
Thermoplastic Elastomer
Technical Document

Typical mold shrinkage for T-BLEND[®]9094N-DV is between 0.010-0.020 inch/inch. Short cycle time can be achieved and the scrap is 20% recyclable without loss in properties.

LDPE or EVA colour concentrates can be used to colour T-BLEND[®]9094N-DV.

Suggested Processing Conditions	
Barrel temperature	
Feed	80° C
Rear	170° C
Front	180° C
Nozzle	190° C
Mold temperature	30 - 40° C
Back pressure	50 - 100 psi
Injection rate	Moderate
Cycle time	25 - 50 sec

Precaution in handling and storing

T-BLEND[®]9094N-DV rubber pellets present no unusual handling problems, thus normal procedures for handling solids that might form a dust should be followed.

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TSRC CORPORATION
 2 Hsing Kung Road, Ta-She,
 Kaohsiung, Taiwan 815, R.O.C.
 Tel : 886-7-352-0073
 Fax : 886-7-352-0024
 E-mail : darcy@tsrc.com.tw

From = 守泰弘

宮前五金股份有限公司

檢驗報告表

編號: 891207

客 戶	ELITE ELECTRONICS CO., LTD.			
品 名	FREE CUTTING BRASS ROD			
規 格	JIS H3250 C3604 BD			
數 據	標 準 值	實 測 值	備 註	
化 學 成 份 %	Cu	57.0 - 61.0	58.98	六角11.0m/m 六角8.0m/m 六角12.7m/m 四角11.0m/m 四角9.5m/m 丸 21.0m/m 丸 19.0m/m 丸 11.0m/m 丸 9.0m/m 丸 6.35m/m
	Pb	1.8 - 3.7	3.40	
	Fe	< 0.5	-----	
	Sn+Fe	< 1.2	0.74	
	Zn	REMAINDER	REMAINDER	
其 它				



桃園縣龜山鄉頂湖一街 24 號 TEL: (03) 3283068-70

Tef.

APPENDIX (技術仕様)

LEO ME PTFE Rod is manufactured with virgin PTFE powder by ram extrusion or compression molding and is conformed to meet the requirement of ASTM

TABLE 1 Detail Specification for PTFE Rod

ITEM	PROPERTY	ASTM TEST METHOD	VALUE
1	Specific gravity	D792	2.15-2.2
2	Tensile strength	D638	280-350 kg/cm ²
3	Elongation	D638	200-400%
4	Dielectric strength	D149	30KV/mm
5	Deformation under load. 6.9Mpa, 50C, %	D621	3.5 - 6
6	Dissipation factor 1 KHz	D150	Less than .0.0005
7	Dielectric constant 1 KHz	D150	2.0 - 2.1
8	Volume resistivity	D257	> 10 ¹⁶
9	Surface resistivity	D257	10 ¹⁷
10	Flexural modulus	D790	430-500Mpa
11	Compressibility	D1147	16-20%
12	Hardness, durometer	D2240	D53 - D60
13	Impact strength	D256	16kg-cm/cm
14	Coefficient of linear thermal expansion, per C. 30C to 80C, 10 ⁻⁵ C	D696	12.3 to 11.6

Tef.

浩裕興業有限公司

台北縣新莊市復興路三段 87 號

TEL:(02)29907903

FAX:(02)29978644

數據組編號: 1

n = 1	AU = 5.47 μ"
n = 2	AU = 6.38 μ"
n = 3	AU = 4.56 μ"
n = 4	AU = 4.37 μ"
n = 5	AU = 4.12 μ"

XRAY XDL

數據組編號: 1

產品名稱: Au

數據組結果
(Flash 3 μ")

校正標準片

	Au	
平均值	X:	4.982 μ"
標準差	S:	0.9328 μ"
讀值數量	n:	5
最小值		4.122 μ"
最大值		6.382 μ"

REFERENCE ONLY

電話 (86) 886 2 29898188

FUN JAN CO LTD

01#04月11日 14時00分 第01/01

BC 00017B 鋼 9.5 下材

SHYANG RWEV. INDUSTRIAL CO. LTD. FAX NO. : 886282511746

APR. 11 2001 02:26PM P. 1

BRUSHWELLMAN

ENGINEERED MATERIALS

Reading Plant
Shoemakersville Road
READING PA 19555
USA
Phone: (216) 486-4200
Fax: *

Brush Wellman Singapore (S) Pte.
Ltd.
110 Paya Lebar Road, #02-01
409009 SINGAPORE
SINGAPORE

SR0057 2.5

Date	
07/19/2000	
Purchase order Item/date	
S80751 / 03/13/2000	
Delivery Item/date	
60095259 000010 / 07/24/2000	
Order Item/date	
53625 000030 / 03/14/2000	
Customer nbr	Customer part nbr
11817	
Customer spec	
Rev	Type Comp Class Grade

Our Material: K575850200 ROD CD M25 H .09840 X

Brush Wellman testing for chemical composition (by Optical Emission Spectrometry), is conducted at our Simons, OH Laboratories. Testing of mechanical or physical properties is conducted at Laboratories which are accredited by American Association for Laboratory Accreditation.

This material was inspected and tested for conformity as required in accordance with the noted part specification, and test number. The quantitative test data obtained from these tests are available for review by the buyer.

Batch 0000175447 / Quantity 1,195.000 LBS

Characteristic	Unit	Value	Specification Limits	
			Lower	Upper
CPA (UNG) Alloy		CP7300		
ASTM Temper		1004		
Brush Spec Nbr.		BWT-RH5.00-2		
<u>Dimensional Attributes</u>				
Diameter		0.09840		2.5
Diameter Plus		0.00197		
Diameter Minus		0.00197		
Length		59.42525		
Length Plus		0.25000		
Length Minus		0.00000		
<u>Mechanical/Physical Properties</u>				
Grain Size	mm	0.024		0.050
Tensile	kgf	25.0	53.0	88.0
Yield	kgf	61.0	52.0	74.0
Elongation	%	12.0	10.0	
Hardness Scale		HV	200.0	270.0
Hardness Value		254.0		

CERTIFIED TRUE COPY



The material supplied with this certification has not been heat treated. The properties were achieved in Brush Wellman's laboratory. They represent what can be achieved using the time and temperatures.

54-22
93換
船務公司
20700

振吉電化股份有限公司
Chem Chi Electro Chemical Co., Ltd
分光分析檢驗報告表
Vacuum Emission Spectrometer Analysis Report

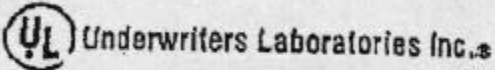
報告者: 黃朝輝
工程師: 黃朝輝
Job Description: 材料分析
來樣日期: 87.7.15
Sample No.: 1
Date Issued: 87.7.15

ANALYTIC RESULT

SR-NO.	Ca	N# 1	N# 2	AVE	Sb	As	N# 1	N# 2	AVE
SR-NO. 1	08.841	02881	02811	02881	00841R	0081R	00230	00159	00199
	33.07	00849	01297	00849	0081R	0081R	00635	00603	00199R
	%2	00816	01298	00816	00849R	00849R	00003	00003	00199R
	%1	00738	00738	00738	00738R	00738R	00003	00003	00199R
	Mn	00867	00867	00867	00867R	00867R	00003	00003	00199R

附註: 本報告僅對送檢樣品負責。
Remarks: This report is responsible for designated samples only.

檢大: 檢驗員: 黃朝輝
Division Chief: Inspector



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GREAT HOLDING INDUSTRIAL CO LTD
 MR H WANG
 516-13 CHUNG-CHENG RD
 SHIN-CHUANG
 TAIPEI HSIEN TAIWAN



Your most recent listing is shown below. Please review this information and report any inaccuracies to the UL Engineering staff member who handled your UL project.

YOPU2
 Component - Extruded Tubing, Electrical

GREAT HOLDING INDUSTRIAL CO LTD
 516-13 CHUNG-CHENG RD SHIN-CHUANG, TAIPEI HSIEN
 TAIWAN

E156256 (S)
 (A card)

Cat. No.	Max Voltage	Max Temp, C	Col Recognized	Max Temp Rated Oil Resistance*, °C	VW-1 Rated #
Polytetrafluoroethylene (PTFE)					
TFL	150	200	BL, NAT	—	Yes
TFT	300	200	BL, NAT	—	Yes
TFS	600	200	BL, NAT	—	Yes

* - Tubing is considered to comply with the optional or resistant requirements only if so marked.
 # - Tubing is considered to comply with the optional VW-1 flammability requirements only if so marked.

Report: January 25, 1994.

915930001 H3088 Underwriters Laboratories Inc.®

(Cont. on B card)
 011/0247451
 213

For information on placing an order for UL Listing Cards in a 3 x 5 inch card format, please refer to the enclosed ordering information.

UNDERWRITERS LABORATORIES INC.

A not-for-profit organization
 dedicated to public safety and
 committed to quality service

SPECIFICATION FOR APPROVAL

DOCUMENT: A30178B001

STYLE : 200 30V
RG-178B/U

SIZE: 7/0.102 SCCS

RECOGNIZED:

WONDERFUL HI-TECH CO.,LTD

OFFICE : 72WU KONG 6TH ROAD,
WU KU IND. DISTRICT
TAIPEI HSIEN,TAIWAN

TEL : (02)22988033
FAX : (02)22988031-2

FACTORY : 17 PEI YUAN ROAD,
CHUNG-LI IND. PARK
TAIWAN, R.O.C.

TEL : (03)4527777
FAX : (03)4517214

WONDERFUL HI-TECH CO., LTD

SPECIFICATION

STYLE	200 30V COAXIAL	DOCUMENT NO : A30178B001	
SIZE	RG-178B/U	ESTABLISHED DATE: 2003/02/13	
STANDARD : MIL-C-17			
Conductor	Size	AWG	30
	Material	----	Silver-Coated Copper Clad Steel
	Conductors No.	----	7
	Conductors Size	mm	0.102
	O.D.	mm	0.30
Insulation	Average Thickness	mm	0.28
	Diameter	mm	0.86
	Material	----	FEP
	Color	----	Clear
Braid	Material	----	Silver-Coated Copper
	Construction	mm	16 / 3 / 0.10
	Coverage	%	95
Jacket	Average Thickness	mm	0.25
	Diameter	mm	1.80 ± 0.05
	Material	----	FEP
	Color	----	Brown
Marking			
Drawing			

AK001/210X297/1.0

PAGE : 1

EDITION : 1.1

REVISED DATE :

MAKER : C.Y.CHEN

CONFIRM : S.N.WONG

APPROVAL : W.J.WANG

WONDERFUL HI-TECH CO., LTD

SPECIFICATION

Electrical & Physical Properties						
Item		RG-178B/U				
Rating Temp Voltage		200 30V				
Conductor Resistance		838 OHM/KM/20 MAX.				
Insulation Resistance		3000 MEGA OHM/KM MIN.				
Dielectric Strength		AC 1.0 KV/Minute				
Spark Test		2.0 KV				
Insulation	Unaged	Tensile Strength	2500 PSI MIN.(1.76 Kg / mm ²)			
		Elongation	200% MIN.			
	Aged	Tensile Strength	UNAGED MIN 75%(168HRS×232)			
		Elongation	UNAGED MIN 75%(168HRS×232)			
Jacket	Unaged	Tensile Strength	2500 PSI MIN.(1.76 Kg / mm ²)			
		Elongation	200% MIN.			
	Aged	Tensile Strength	UNAGED MIN.75%(168HRS×232)			
		Elongation	UNAGED MIN.75%(168HRS×232)			
Nom. Impedance		50 Ohms				
Nom. Capacitance		95.8 pF/m				
Nom. Vel. of Prop.		69.5%				
VSWR (0 – 6 GHZ)		UNDER 1.3				
Attenuation (dB/100m)	100MHz	1GHz	1.8GHz	2.4GHz	5.2GHz	6GHz
	46	155	295	340	505	550

AK001/210X297/1.0

PAGE : 2

EDITION : 1.1

REVISED DATE :

MAKER : C.Y.CHEN

CONFIRM : S.N.WONG

APPROVAL : W.J.WANG

208, Chung Hwa 2nd Road, San
Min District Kaohsiung, Taiwan.
Tel : (07)3230920
Fax: (07)3157484

REPORT NO . KE/2003/20813
PAGE NO . 1 OF 2
DATE . 2003/02/27

Test Report

THE FOLLOWING MERCHANDISE WAS (WERE) SUBMITTED AND IDENTIFIED BY THE CLIENT AS :

CLIENT TSRC CORPORATION.
CARGO TPR-9094N(B)-DV. (AS ATTACHED SAMPLE CARD).
COLOR WHITE.
STYLE/ITEM NO. TPR-9094N(B)-DV.
MATERIAL COMPONENT TPR.
TESTING DATE 2003/02/20~2003/02/26.
SAMPLE RECEIVED 2003/02/20.
SAMPLE SUBMITTED BY TSRC CORPORATION.

WE HAVE TESTED THE SAMPLE(S) SUBMITTED AS REQUESTED AND THE FOLLOWING RESULTS WERE OBTAINED.

TEST RESULT:

TEST ITEM(S)	UNIT	METHOD	DETECT. LIMIT	SPEC.	RESULT	CONCLUSION
CADMIUM	ppm	ASTM F963	0.015	<75.0	n.d.	PASS
LEAD	ppm	ASTM F963	0.020	<90.0	n.d.	PASS
MERCURY	ppm	ASTM F963	0.020	<60.0	n.d.	PASS
ARSENIC	ppm	ASTM F963	0.050	<25.0	n.d.	PASS
CHROMIUM	ppm	ASTM F963	0.025	<60.0	n.d.	PASS
BARIUM	ppm	ASTM F963	0.020	<1000	n.d.	PASS
ANTIMONY	ppm	ASTM F963	0.015	<60.0	n.d.	PASS
SELENIUM	ppm	ASTM F963	0.020	<500	n.d.	PASS
TOTAL LEAD	ppm	ASTM F963	0.020	<600	n.d.	PASS

NOTE: n.d. = not detected.

--- 1 ---

George Huang
George Huang/Supervisor
Sign for and on behalf of
SGS Taiwan Ltd.

"The results shown in this test report refer only to the sample(s) tested unless otherwise stated". The report shall not be reproduced except in full, without the written approval of the laboratory. This report is issued by the Company under its General Conditions for Inspection and Testing Services printed overleaf. The issuance of this Report does not exonerate buyers or sellers from exercising all their rights and discharging all their liabilities under the Contract of Sale. Stipulations to the contrary are not binding on the Company. The Company's responsibility under this report is limited to proven negligence and will in no case be more than ten times the amount of the fees or commission. Except by special arrangement, samples, if drawn, will not be retained by the Company for more than three months.

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Certificate of Approval

Awarded to

FULL RISE ELECTRONIC CO., LTD.

1. NO. 19-4, KAO SHAN, KAO SHUANG VILLAGE, PING CHEN CITY, TAOYUAN,

2. NO. 26, KAO CHING ROAD, KAO SHAN LI, YANG MEI, TAOYUAN,

TAIWAN, R.O.C.

Bureau Veritas Quality International certify that the Quality Management System of the above supplier has been assessed and found to be in accordance with the requirements of the quality standards detailed below

QUALITY STANDARDS

BS EN ISO 9001:2000

SCOPE OF SUPPLY

DESIGN, MANUFACTURE AND SUPPLY THE FOLLOWING:

- 1. PCB MODULAR JACK AND PLUGS**
- 2. TELECOM ACCESSORIES C3, C4, C5, C5E, C6**
- 3. PC CONNECTORS, IEEE 1394, USB**
- 4. SMART CARD CONNECTORS**
- 5. Mobile phone connectors**

Original approval date: **03 March, 1998**

Subject to the continued satisfactory operation of the supplier's Quality Management System, this Certificate is valid for a period of three years from:

26 July, 2001

Date: **01 August, 2001**

Managing Office:
Bureau Veritas Quality International
Taiwan District
6th Fl., No. 3, Tun Hua S. Rd., Sec. 1
Taipei 105, Taiwan, R.O.C.



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[Signature]
For Bureau Veritas Quality International (Holding) S.A.,
2nd Floor, Tower Bridge Court
224-226 Tower Bridge Road
London SE1 2TX

Certificate No: **86005**

BVQI (Holding) S.A. using UKAS accreditation covered by the accreditation certificate number 008