



Wistron NeWeb Corporation

APPROVAL SHEET

Customer Name	Wistron Corporation		
Date	10/21/2002		
Customer P/N	25.90063.001		
WNC P/N	25.90063.001		
Description	Main antenna for AJ system		
Version	0A	Doc. Version	0

Provided By Wistron NeWeb Corp	Reviewed By Wistron NeWeb Corp	Approved By Customer Company
David WS Tau	Weili Cheng	

wistron

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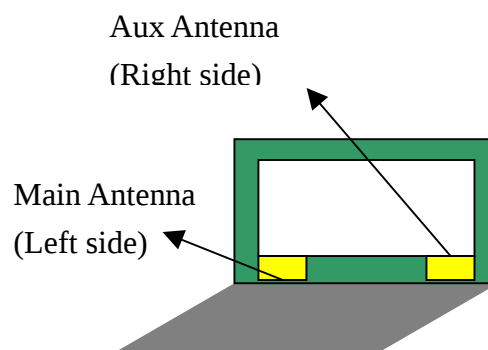
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1. Introduction

Antennas for 802.11a+b system

Main antenna (PIFA type)

1. Application: left side in hinge location
2. Cable length: 125mm, Black
(IPEX connector with Φ 1.13mm RF cable)



2. Revision History

Date	Version	Change Description
10/21/2002	0A	New Release

3. Product Spec.

3.1 Antenna Design Specification

Measure environment LCD angle 110 degree

3.1.1 VSWR

VSWR	2G4 ISM (2.40 GHz - 2.4835 GHz)			U-NII (5.150 GHz - 5.350 GHz)		
	2.40 GHz	2.45 GHz	2.50GHz	5.15 GHz	5.25 GHz	5.35 GHz
MAIN antenna (Left)	2			2.5		

3.1.2 Average gain and peak gain

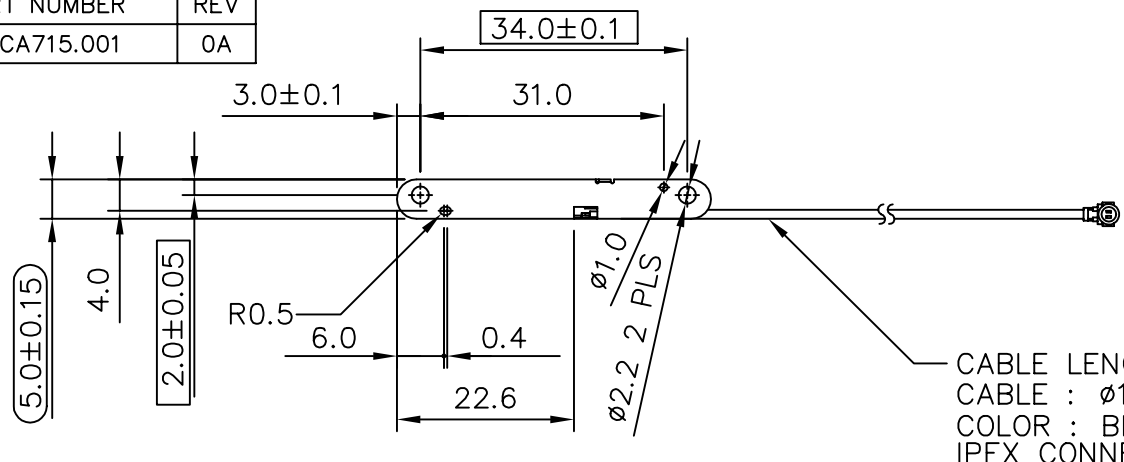
Antenna Gain (dBi)		2G4 ISM (2.40 GHz - 2.4835 GHz)			U-NII (5.150 GHz - 5.350 GHz)		
		2.40 GHz	2.45 GHz	2.50GHz	5.15 GHz	5.25 GHz	5.35 GHz
MAIN (Left)	Peak	3			6		
	Average	-5			-5		

3.2 Mechanical Spec.

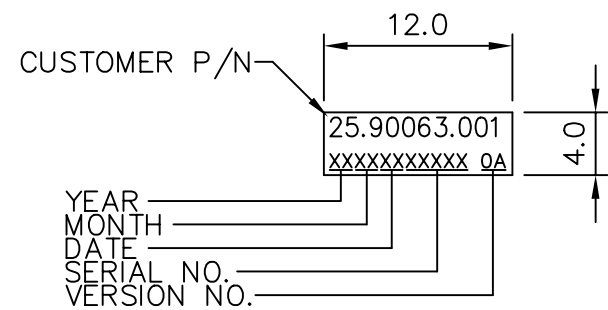
See the attached drawing.

PART NUMBER BLOCK	
PART NUMBER	REV
57.CA715.001	0A

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
S0A	APPROVE SHEET	05/23/02	
SA	APPROVE SHEET	06/13/02	
SB	APPROVE SHEET	06/25/02	
SC	APPROVE SHEET	07/08/02	
SD	APPROVE SHEET	07/15/02	
SE	APPROVE SHEET	09/05/02	
SF	APPROVE SHEET	10/14/02	
0A	APPROVE SHEET	10/21/02	

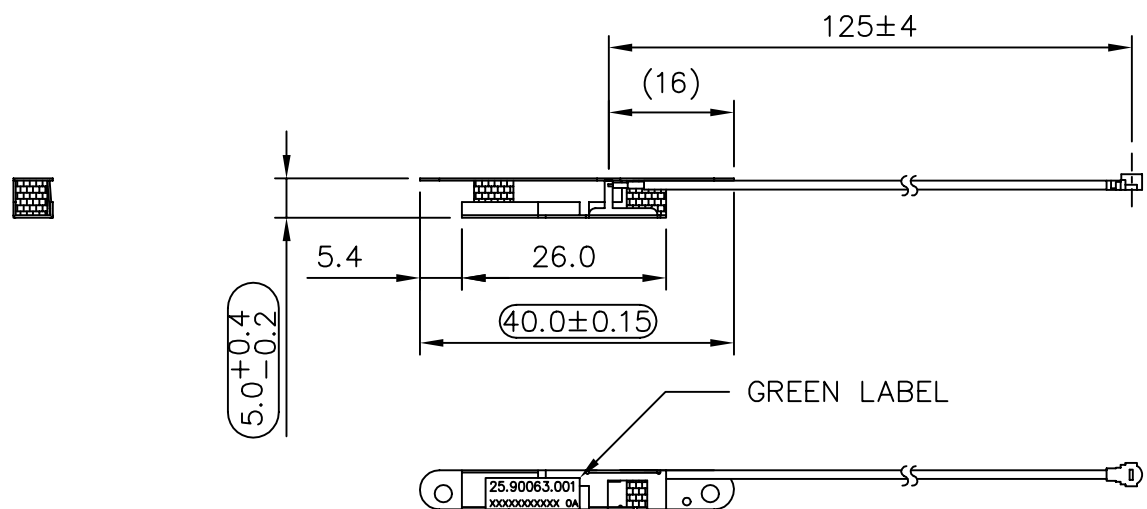


CABLE LENGTH : 125±4
 CABLE : $\phi 1.13$
 COLOR : BLACK
 IPEX CONNECTOR



DETAIL OF LABEL
 SCALE : 2/1

- NOTES :
- INDICATE THE CPK DIMENSION
 - INDICATE THE Critical DIMENSION



		UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN mm AND TOLERANCES ARE:				Wistron Wistron NeWeb Corp. 啟基科技股份有限公司 No. 10-1, Li-hsin Road I, Science-based Industrial Park, Hsinchu 300, Taiwan, R.O.C. Tel: 886-3-6667799 Fax: 886-3-6667711				
		INTEGRAL DIMENSIONS ± 0.2		ANGULAR DIMENSIONS ± 1°		DWG TITLE				
		1 PLACE DECIMAL ± 0.1		HOLES UNDER Ø5.00 ± 0.05						
		2 PLACE DECIMALS ± 0.05								
		MATERIAL: NA				OUTLINE, LEFT, CA7-A				
		FINISH: NA								
	CA7-A	THIRD ANGLE PROJECTION		DRAWN			SIZE		DWG NO.	REV
NEXT ASSY	USED ON			ENGR			A4		C414-57.CA715.001	0A
APPLICATION				APVD			SCALE		1/1	SHEET 1 OF 1



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3.3 Antenna BOM structure

NO.	Part NO	Description	Q'ty
1	50.CA701.001	I-PEX connector with Junkosha CABLE WS-WN-A017 125MM	1
2	3A.CA745.111	(洋白銅)IRON SHEET, CA7-A	1
3	3B.CA780.211	EVA BUFFER-1, CA7-A	2

3.4 Antenna Test Results

3.4.1 VSWR

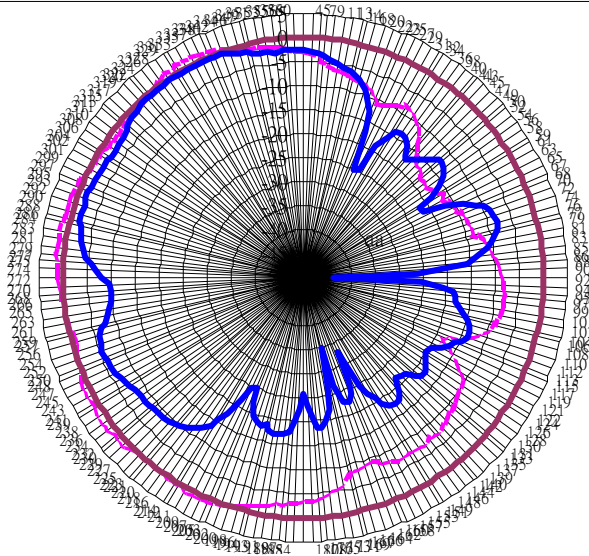
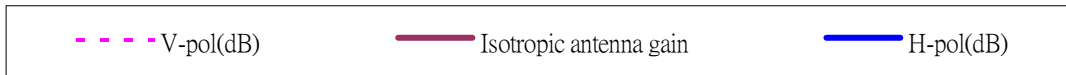
VSWR	2G4 ISM (2.40 GHz - 2.4835 GHz)			U-NII (5.150 GHz - 5.350 GHz)		
	2.40 GHz	2.45 GHz	2.50GHz	5.15 GHz	5.25 GHz	5.35 GHz
MAIN antenna (Left)	1.42	1.69	1.91	1.41	1.38	1.80

3.4.2 Peak Gain and Average Gain

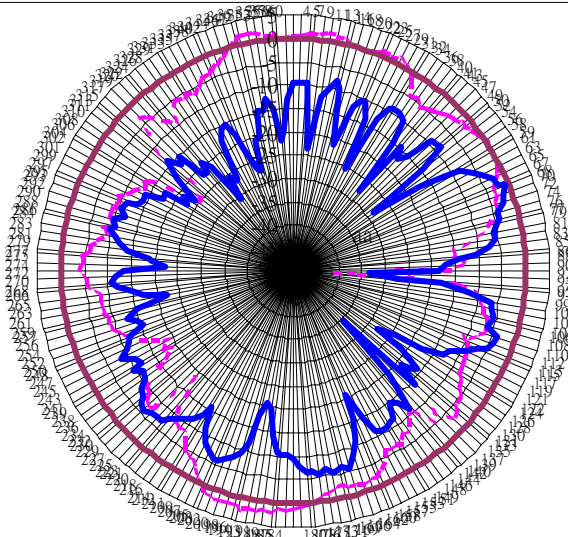
Antenna Gain (dBi)		2G4 ISM (2.40 GHz - 2.4835 GHz)			U-NII (5.150 GHz - 5.350 GHz)		
		2.40 GHz	2.45 GHz	2.50GHz	5.15 GHz	5.25 GHz	5.35 GHz
MAIN (Left)	Peak	2.77	2.27	2.55	2.26	2.54	1.32
	Average	-1.38	-1.82	-1.54	-3.54	-2.84	-3.27

3.4.3 Radiation Pattern

Main antenna -@2.45GHz



Main antenna -@5.6475GHz



4. Environment Performance Test

4.1 Introduction



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This EQT (Environment Qualification Test) report is used to describe the final status of PIFA type Antenna about the EQT test results.

4.2 Test Items and Results IFA & PIFA

4.2.1 the following table is used to show the final status of PIFA type Antenna.

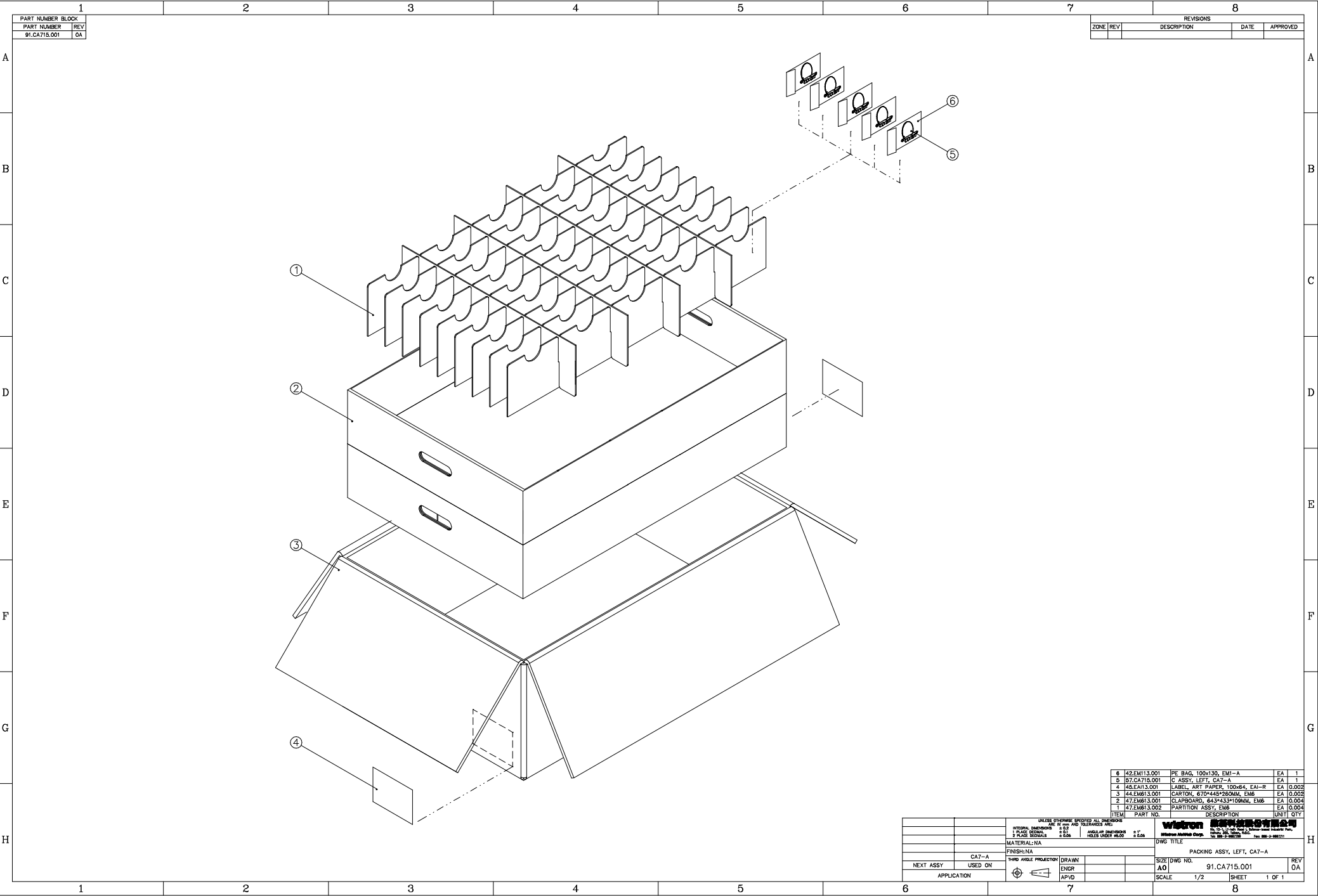
Test Item	Specification	Test Result	Tested By	Remark
Vibration (Need NB)	Frequency 5 to 500Hz Overall rms level: 0.6 G P-P~2.0 G P-P Duration of test: 1 Hr/cycle Number of axes: X, Y, Z 1 cycle / axis	Pass	IST.	
Thermal Shock	Temperature range: -20°C ~ 80°C Hold Time: 30 min Total cycle: 20 cycles	Pass	WNC.	

Main antenna (Left)							
VSWR	S/N	2G4 ISM (2.40 GHz - 2.4835 GHz)			U-NII (5.150 GHz - 5.350 GHz)		
		2.40 GHz	2.45 GHz	2.50GHz	5.15 GHz	5.25 GHz	5.35 GHz
Before Vibration Test	01	1.42	1.22	1.20	1.05	1.30	1.34
	02	1.36	1.13	1.21	1.08	1.33	1.35
	03	1.66	1.19	1.24	1.29	1.13	1.36
After Vibration Test	01	1.66	1.17	1.32	1.18	1.29	1.15
	02	1.40	1.33	1.19	1.12	1.35	1.42
	03	1.61	1.43	1.50	1.41	1.59	1.72

Main antenna (Left)							
VSWR	S/N	2G4 ISM (2.40 GHz - 2.4835 GHz)			U-NII (5.150 GHz - 5.350 GHz)		
		2.40 GHz	2.45 GHz	2.50GHz	5.15 GHz	5.25 GHz	5.35 GHz
Before Thermal Shock Test	01	1.60	1.20	1.14	1.08	1.34	1.30
	02	1.44	1.06	1.23	1.21	1.20	1.45
	03	1.40	1.32	1.25	1.11	1.38	1.14
After Thermal Shock Test	01	1.38	1.20	1.28	1.40	1.35	1.20
	02	1.55	1.18	1.29	1.35	1.34	1.23
	03	1.65	1.29	1.34	1.35	1.30	1.18

5. Package

See the attached drawing.



PART NUMBER BLOCK	
PART NUMBER	REV
91.CA715.001	0A

REVISIONS			
ZONE	REV	DESCRIPTION	DATE

6	42.EM113.001	PC BAG, 100x130, EM1-A	EA	1
5	57.CA715.001	C ASSY, LEFT, CA7-A	EA	1
4	45.EA113.001	LABEL, ART PAPER, 100x64, EAI-R	EA	0.002
3	44.EM613.001	CARTON, 670x445x280MM, EM6	EA	0.002
2	47.EM613.001	CLAMPBOARD, 64.5x43.5x100MM, EM6	EA	0.004
1	47.EM613.002	PARTITION ASSY, EM6	EA	0.004

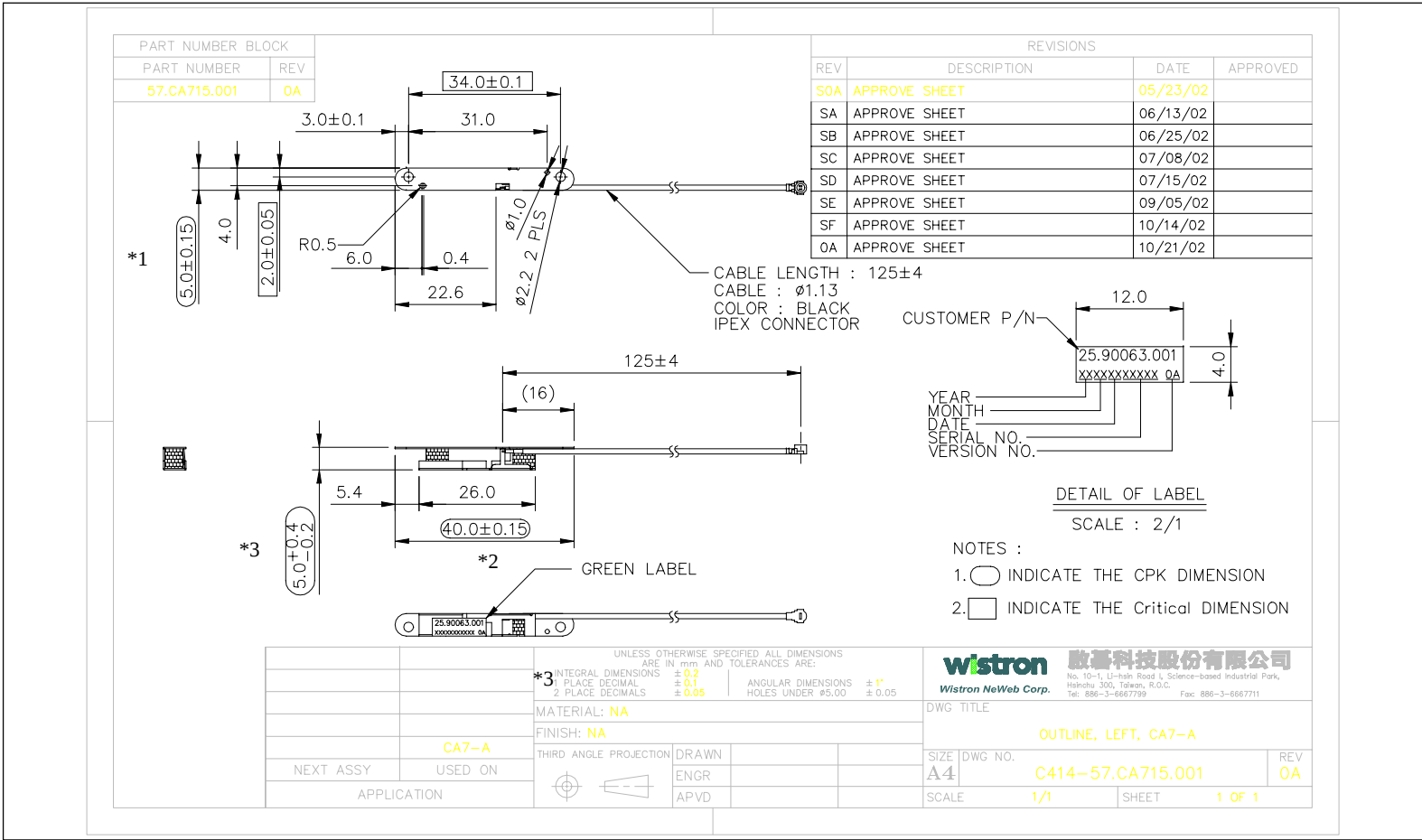
UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN mm AND TOLERANCES ARE:		MATERIAL: NA	
INTERNAL DIMENSIONS	± 0.25	APPROX. DIMENSIONS	± 1"
EXTERNAL DIMENSIONS	± 0.5	HOLDS UNDER 48.00	± 0.5
PLATE THICKNESS	± 0.25		
THIRD ANGLE PROJECTION		DRAWN	
NEXT ASSY		ENGR	
APPLICATION		APVD	
CA7-A		PACKING ASSY, LEFT, CA7-A	
USED ON		SIZE/DWG NO.	
		A0 91.CA715.001	
		SCALE	
		1/2 SHEET 1 OF 1	



6. FAI Test

FAI DATA SHEET

Drawing Number: 91.CA713.001					Supplier : WNC							Date: 2002/7/29				Wistron : SQM/Alex MH Lai	
Part Description: Embedded Antenna					Inspected by:							Gauge#/Unit: 游標卡尺QC0043 (mm)					
Revision: SD					Approved by:							Gauge/Unit 尺 (mm)					
DRAWING SPECIFICATIONS					INSPECTION RESULTS							INSPECTION ANALYSIS				Inspection Method	Precision of Gauge
ITEM	LOCATION	NOMINAL	+TOL	-TOL	Sample Number			Deviation from Nominal			Mean	% Tolerance		Acc/Rej			
					1	2	3	1	2	3		UPPER	LOWER	HIGH	LOW		
	1	5.00	0.15	0.15	5.00	5.02	4.99	0.00	0.02	-0.01	5.00	13%	7%			游標卡尺	0.01mm
	2	40.00	0.15	0.15	39.98	40.02	40.02	-0.02	0.02	0.02	40.01	13%	13%			游標卡尺	0.01mm
	3	5.00	0.40	0.20	5.10	4.95	5.15	0.10	-0.05	0.15	5.07	38%	25%			游標卡尺	0.01mm



Cpk of Antenna

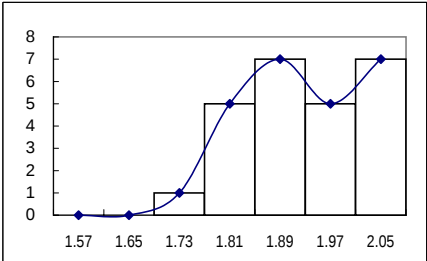
Measurement Value																												
Item	Spec.	Torance +	Torance -	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
VSWR (b)	2.00	0	0	1.88	1.87	1.82	1.75	1.66	1.78	1.82	1.87	1.88	1.77	1.93	1.69	1.76	1.79	1.80	1.83	1.85	1.67	1.77	1.85	1.71	1.65	1.63	1.53	1.65
				26	27	28	29	30	31	32	33	34	35															
				1.59	1.67	1.63	1.58	1.57																				
組界 5				1.53	1.61	1.69	1.77	1.85	1.93	2.01																		
VSWR (a)	2.50	0.00	0.00	2.22	2.01	2.34	2.33	2.01	1.98	1.89	2.11	2.00	2.12	2.09	1.99	1.96	1.92	1.93	2.01	2.12	2.21	2.11	2.09	2.01	2.07	2.19	2.01	1.89
				26	27	28	29	30	31	32	33	34	35															
				1.83	2.06	2.10	2.13	2.21																				
組界 5				1.83	1.93	2.03	2.14	2.24	2.34	2.44																		
C																												
				26	27	28	29	30	31	32	33	34	35															
組界																												
組界																												

Engineering Specification					
工程尺寸		VSWR (b)	VSWR (a)	C	
工程規格	Product spec	1.7417	2.0647		
正公差	Tolerance	0.2583	0.4353		
負公差	Tolerance	1.7417	2.0647		
工程上限	USL	2	2.5		
工程下限	LSL	0	0		
Actual Data					
量測尺寸		VSWR (b)	VSWR (a)	C	
平均數	X bar	1.7417	2.0647		
標準差	Sigma	0.1091	0.1236		
中間值	Median	1.7650	2.0650		
眾數	Mode	1.8800	2.0100		
最大值	Max	1.9300	2.3400		
最小值	Min	1.5300	1.8300		
UCL 3個標準差	1 Sigma	1.8508	2.1883		
	2 Sigma	1.9599	2.3120		
	3 Sigma	2.0690	2.4356		
LCL 3個標準差	1 Sigma	1.6326	1.9411		
	2 Sigma	1.5235	1.8175		
	3 Sigma	1.4143	1.6939		
製程能力	雙邊CP	3.06	3.37		
	單邊CPL	5.32	5.57		
	單邊CPU	0.79	1.17		
	單邊CP	0.79	1.17		
	Ca	0.00	0.00		
	Cpk	3.06	3.37		

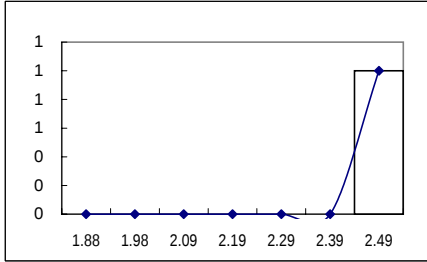
VSWR		B		C	
組別	次數	組別	次數	組別	次數
1.57	0	1.88	0	#####	0
1.65	0	1.98	0	#####	0
1.73	1	2.09	0	#####	0
1.81	5	2.19	0	#####	0
1.89	7	2.29	0	#####	0
1.97	5	2.39	0	#####	0
2.05	7	2.49	1	#####	0

Remark:
Gauge:

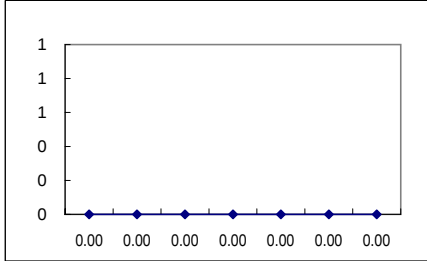
VSWR (b)



VSWR (a)



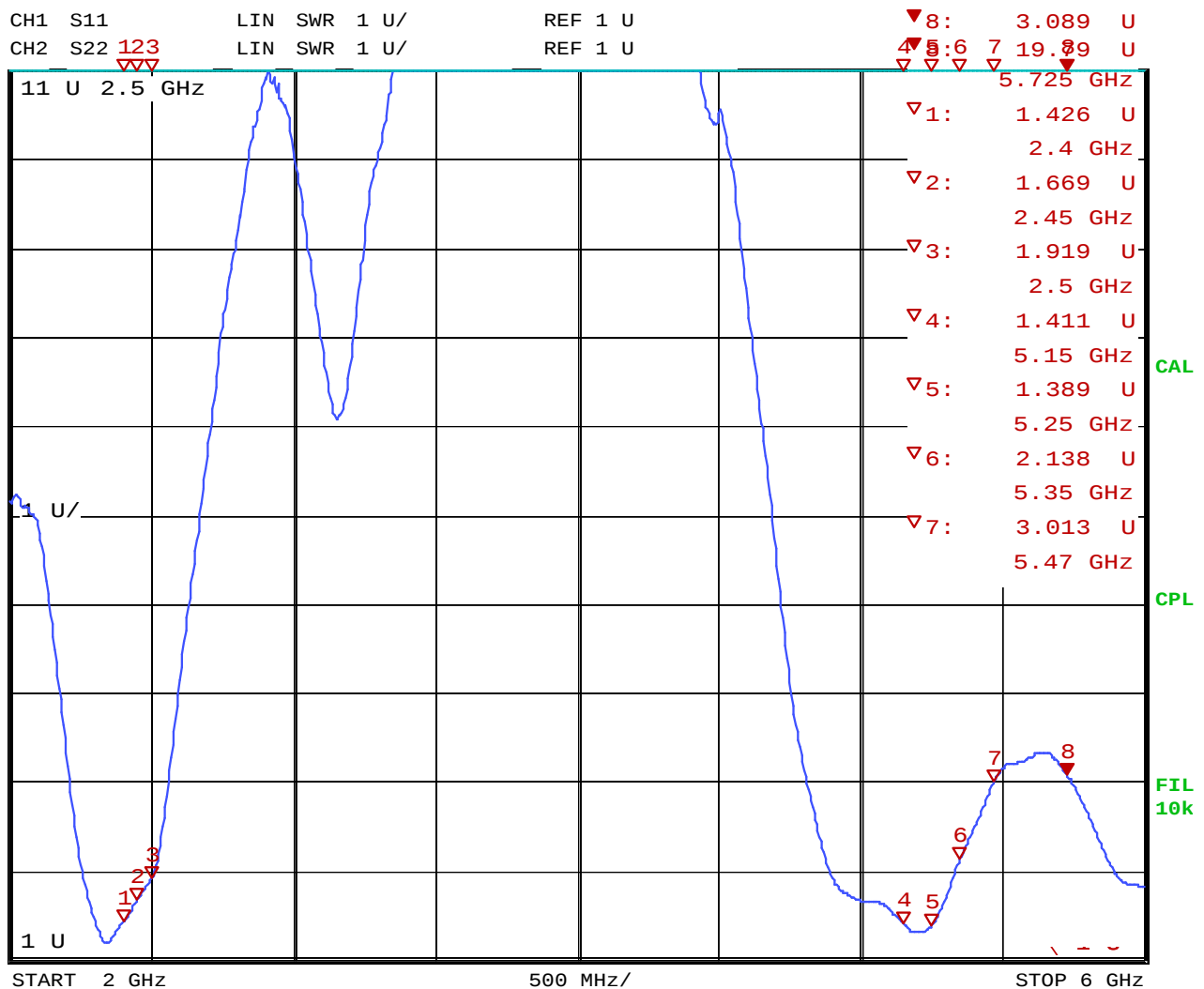
Dimension C





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8.VSWR Graph

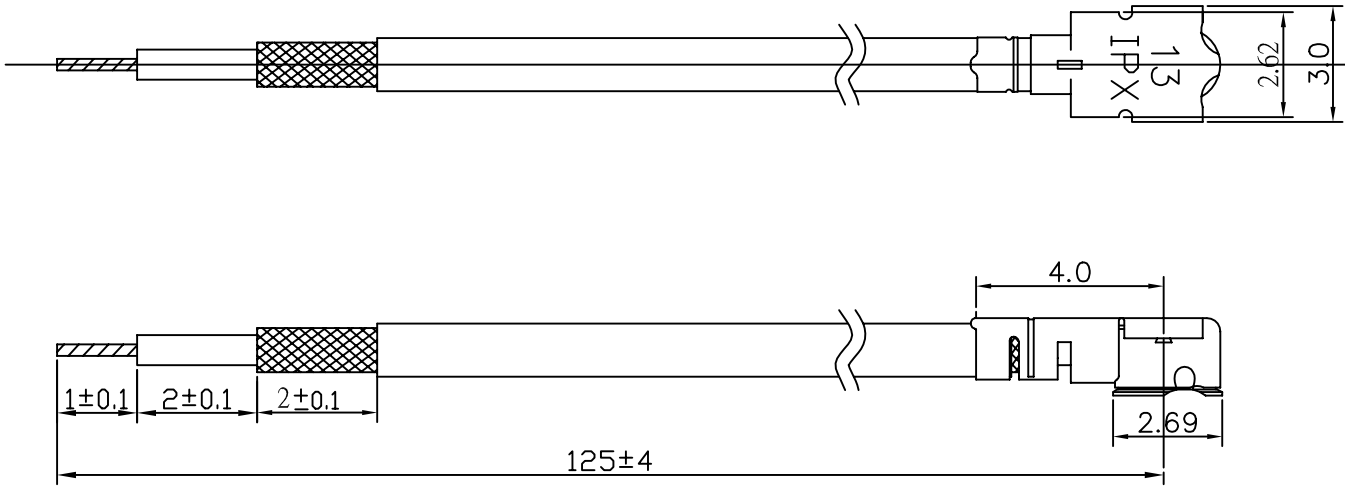


Date: 23.OCT.02 19:18:49

9.Cable Spec.

單位：MM

專案	零件內容	數量	料號	廠牌
A	0.6D $\phi 1.13\text{mm}$	1	J12B1054-2	潤工社
B	Connector $\phi 2.69 \times 5.345\text{mm(L)}$	1	20278-101R-13 (第二代)	I-PEX



1. 剥皮尺寸須正确。
2. 剥皮位置需干淨、整齊。
3. 長度需正确。
4. 加裝連接器時需準確對齊。
使用專用治具嵌合、在治具上需探知中心導體。
5. 外觀上不允許有鬆散、無加錫龔起...等現象發生。
6. 編織網不允許有鬆散、無加錫龔起...等現象發生。
7. 鐵氟龍（透明膠管）不允許有割傷、有異物...等現象發生。
8. 中心導體(7芯)不允許散亂、斷線...等現象發生。

記號	變更內容	年月日	氏名	檢印
品名	ANTENNA CABLE FOR BLUE TOOTH		圖番	WS-WN-A017
客戶	Wistro NeWeb Corp.		料號	
設計	制圖	驗圖	承認	材料 Coaxial Cable
啓碁	譚崇			顏色 Black
				日期 2002.10.21