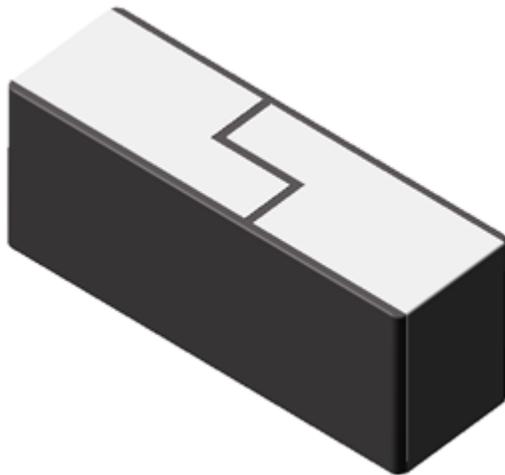


**Description:** Quad Band Monopole Ceramic Chip Antenna

**Series:** Ceramic Chip Antenna

**PART NUMBER:** W3073



**Features:**

- Frequency:  
824-894/1710-2170MHz or  
880-960/1710-2170MHz
- Size 10 x 3.2 x 4 mm
- PCB Keep out 40 x 10 mm
- Polarization Linear
- Radiation pattern Omni

**Applications:**

- 2G/3G
- Nb-IoT
- GSM850 or EGSM900/  
PCN1800, PCS1900 and  
WCDMA

All dimensions are in mm / inches

Issue: 2037

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For more information:

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Pulse/Larsen Antennas  
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Vancouver, WA 98683  
USA  
Tel: 1-360-944-7551

Europe Headquarters  
Pulse GmbH & Do, KG  
Zeppelinstrasse 15  
Herrenberg, Germany  
Tel: 49 7032 7806 0

Pulse (Suzhou) Wireless Products Co, Inc.  
99 Huo Ju Road(#29 Bldg,4<sup>th</sup> Phase  
Suzhou New District  
Jiangsu Province, Suzhou 215009 PR China  
Tel: 86 512 6807 9998



**Description:** Quad Band Monopole Ceramic Chip Antenna

**Series:** Ceramic Chip Antenna

**PART NUMBER:** W3073

**ELECTRICAL SPECIFICATIONS**

Antenna Type	Chip antenna
Frequency	Version1: 868-870MHz 1710-2170MHz Version2: 880-960MHz 1710-2170MHz
Nominal Impedance	50 Ω
Radiation Pattern	Omni
Polarization	Vertical
Power Withstanding	3W

**MECHANICAL SPECIFICATIONS**

Compact size	10 x 3.2 x 4mm
Weight	0.6g
Fixing system	SMT
MSL(MOISTURE SENSITIVITY LEVEL)	1

**ENVIRONMENTAL SPECIFICATIONS**

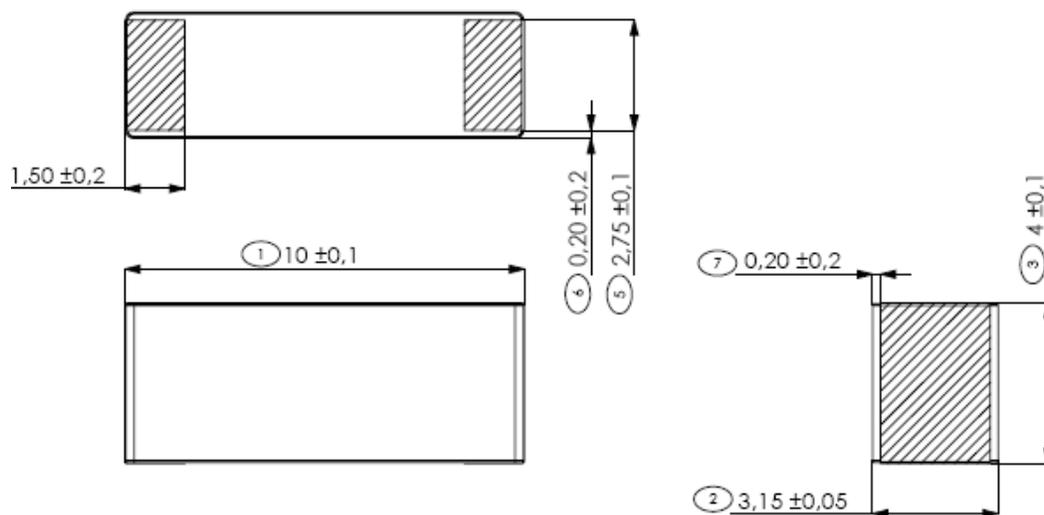
Operating Temperature	-40 ~ +85° C
Storage Temperature	-10 ~ +30° C
RoHS Compliant	Yes

**Description:** Quad Band Monopole Ceramic Chip Antenna

**Series:** Ceramic Chip Antenna

**PART NUMBER:** W3073

**MECHANICAL DRAWING**



No.	Terminal Name	Terminal Dimensions
1	Feed	1.5 x 2.75 mm
2	Support pad	1.5 x 2.75 mm
Antenna is symmetrical and orientation on footprint can be rotated 180 degrees without change in performance		

**Description:** Quad Band Monopole Ceramic Chip Antenna

**Series:** Ceramic Chip Antenna

**PART NUMBER:** W3073

**PWB Layout**

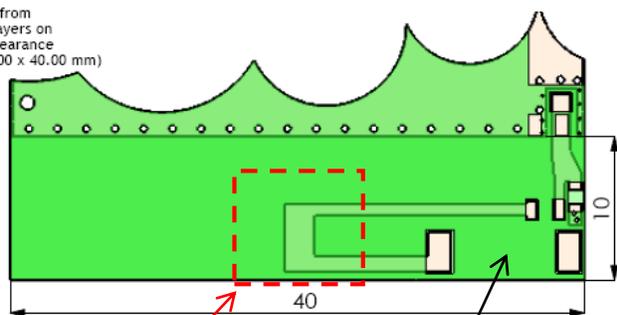
**Test Setup for Electrical Measurements**

Recommended test board- layout for electrical characteristic measurement. Test board outline size 105 x 40mm. Ground cleared under antenna 40mm x 10mm.

**Version 1: GSM850, PCN1800, PCS1900 and WCDMA I**

All metallization should be removed from all PWB layers on ground clearance area (10.00 x 40.00 mm)

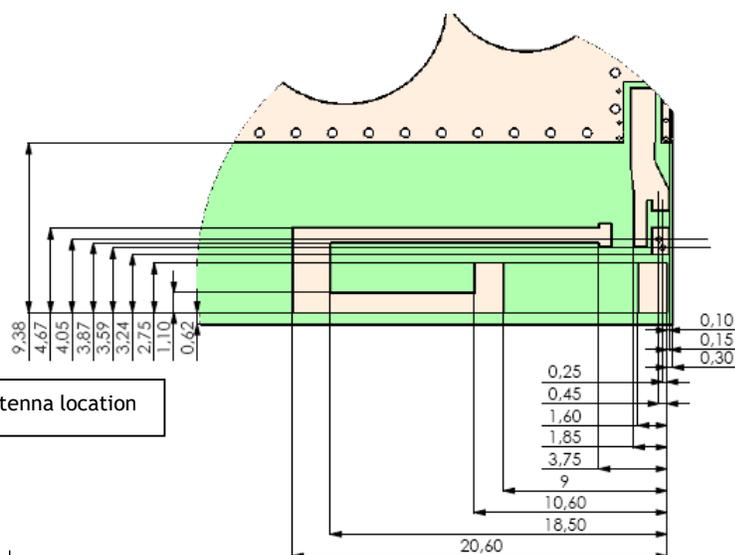
**Ground Clearance Area (10.00mm x 40.00mm)**



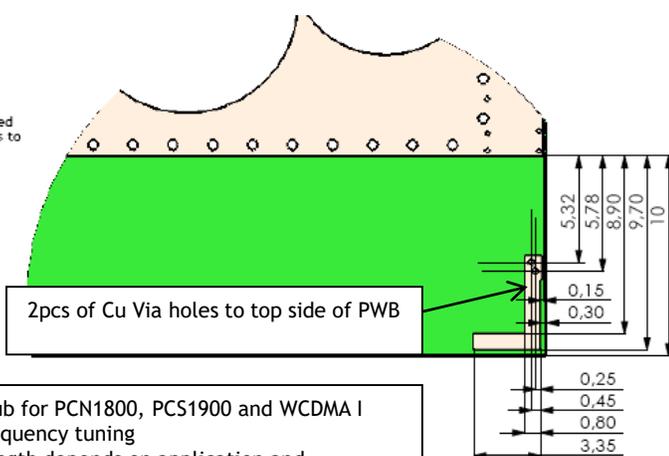
GSM850 frequency tuning area  
PWB layout depends on application and surrounding mechanics / materials.

W3073 Ceramic chip antenna location

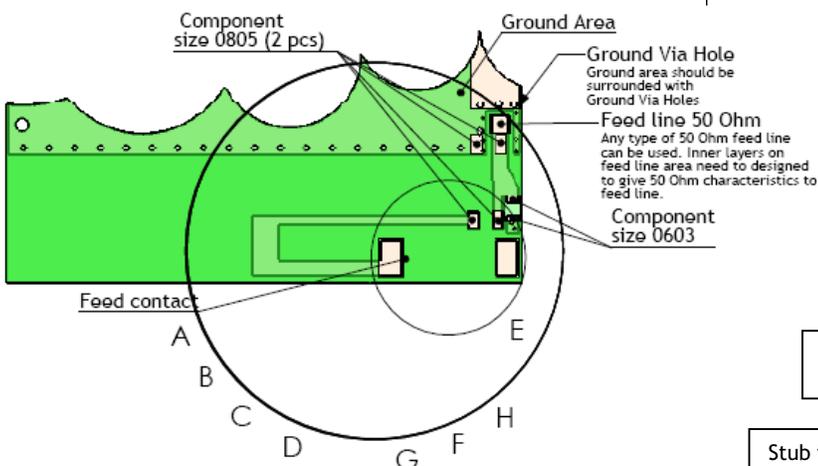
**Layout in Top Copper**



**Layout in Bottom Copper**



Stub for PCN1800, PCS1900 and WCDMA I frequency tuning  
Length depends on application and surrounding mechanics / materials.



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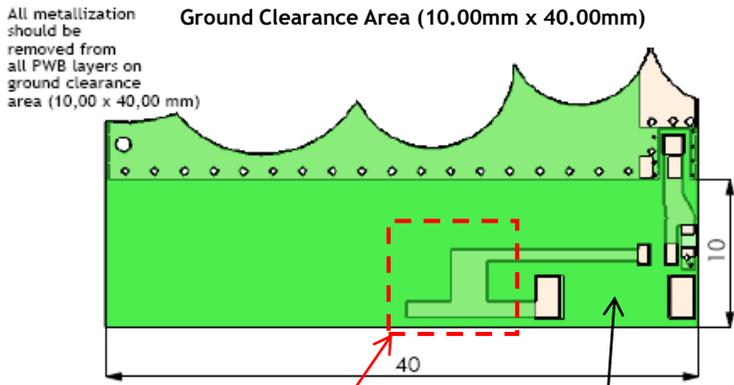
**Description:** Quad Band Monopole Ceramic Chip Antenna

**Series:** Ceramic Chip Antenna

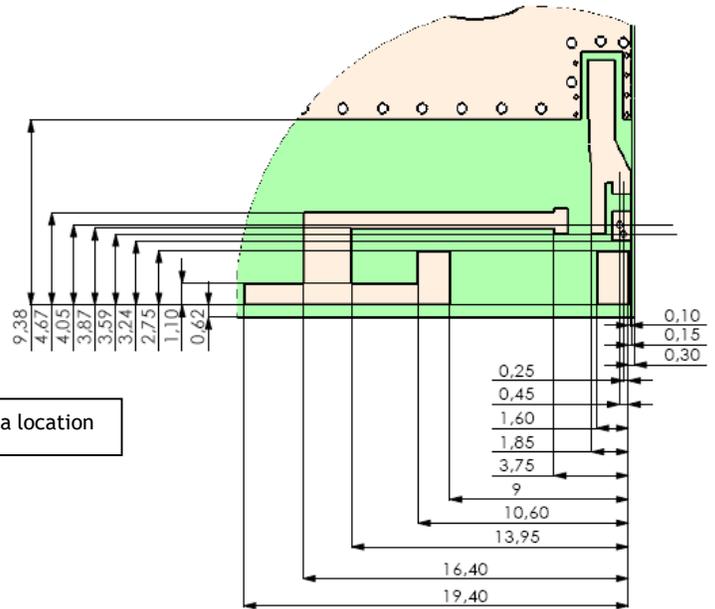
**PART NUMBER:** W3073

**PWB Layout**

**Version 2: EGSM900, PCN1800, PCS1900 and WCDMA I**

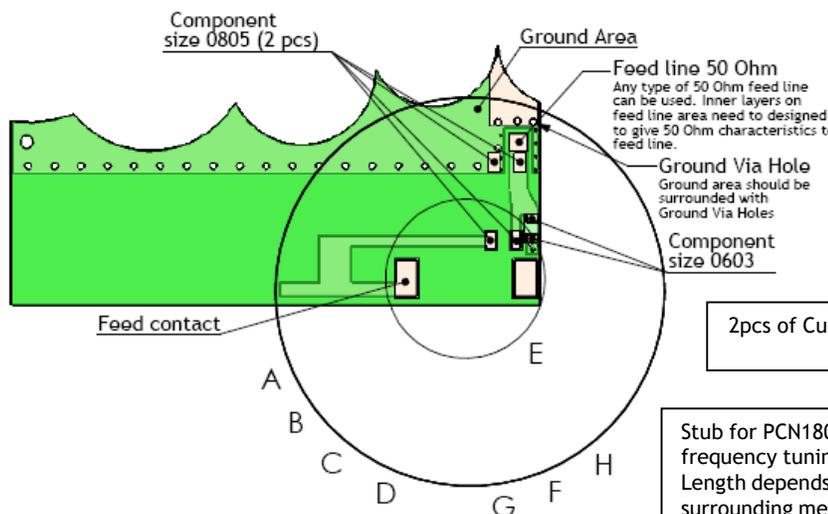


Layout in Top Copper

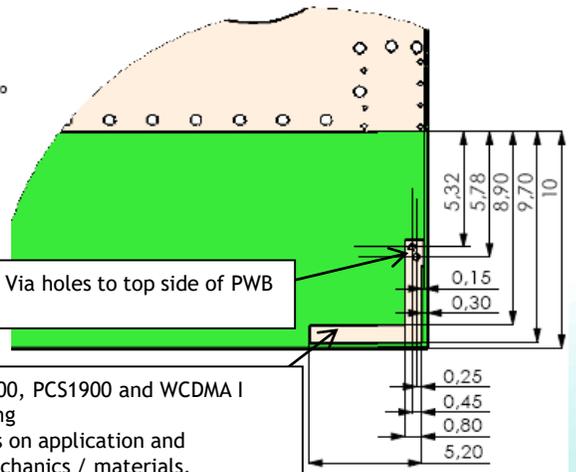


GSM900 frequency tuning area PWB layout depends on application and surrounding mechanics / materials.

W3073 Ceramic chip antenna location



Layout in Bottom Copper



2pcs of Cu Via holes to top side of PWB

Stub for PCN1800, PCS1900 and WCDMA I frequency tuning Length depends on application and surrounding mechanics / materials.

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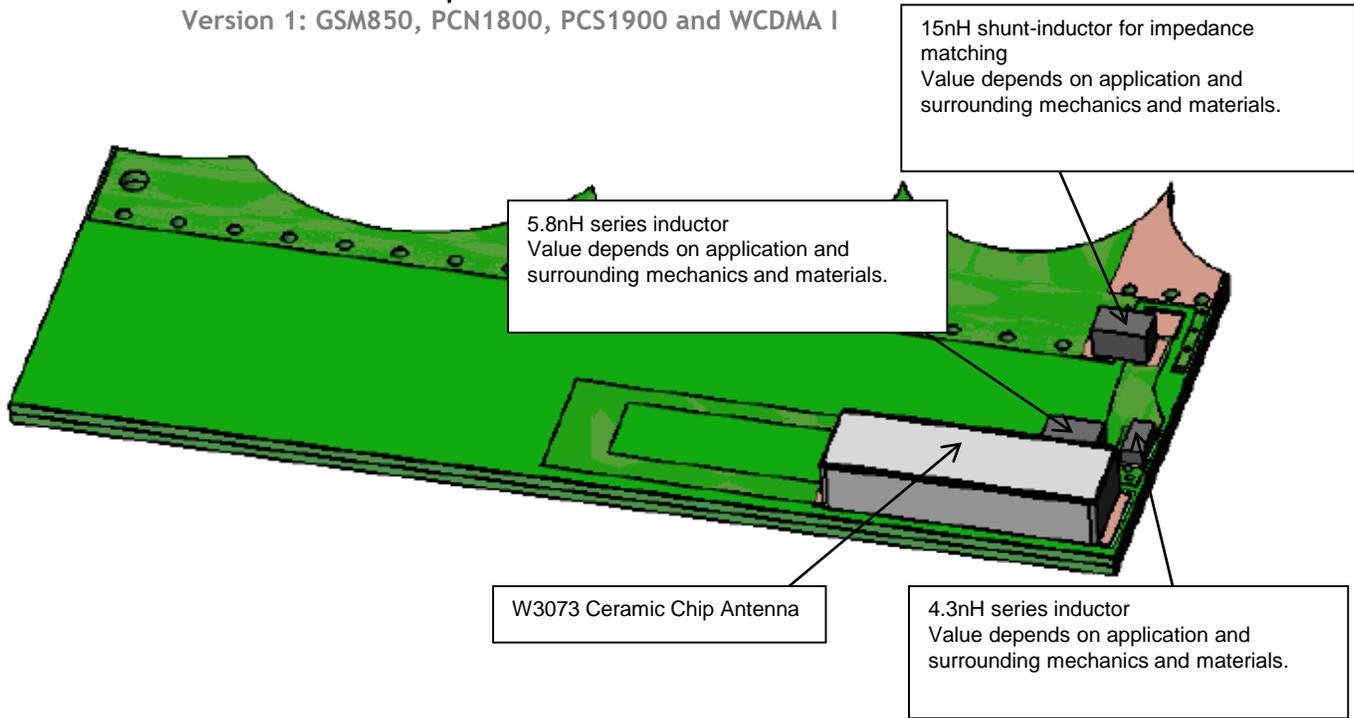
**Description:** Quad Band Monopole Ceramic Chip Antenna

**Series:** Ceramic Chip Antenna

**PART NUMBER:** W3073

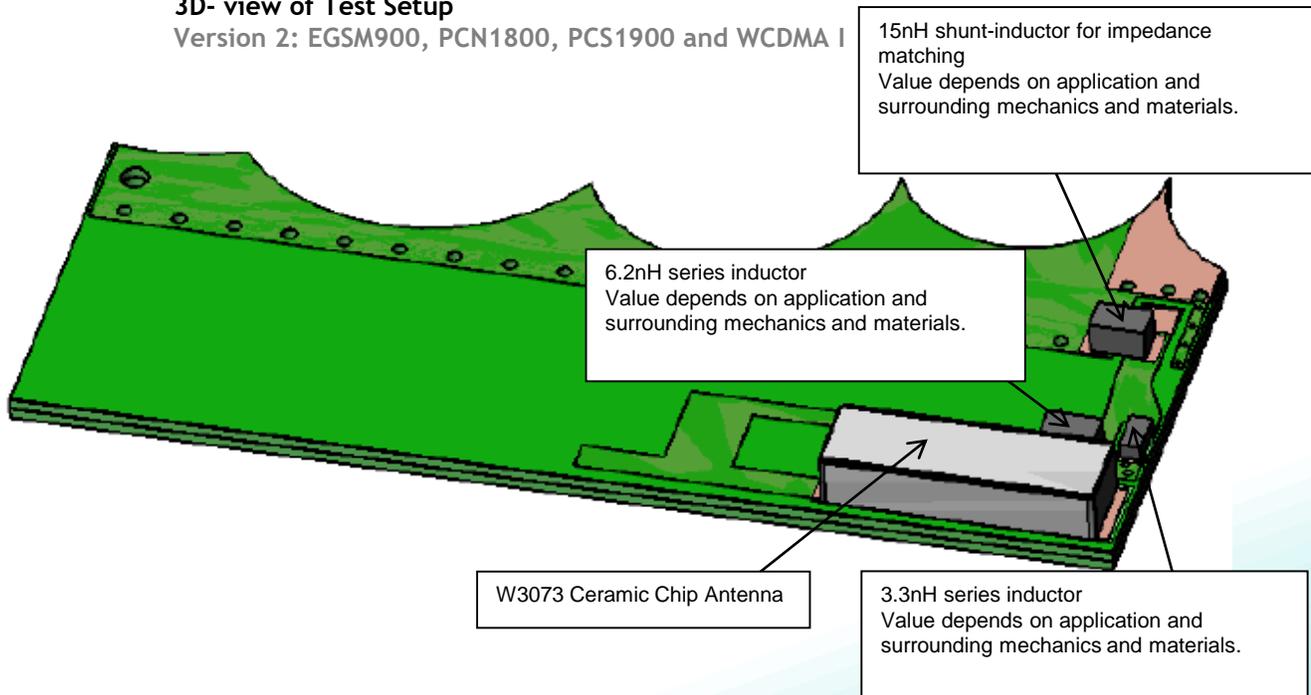
**3D- view of Test Setup**

Version 1: GSM850, PCN1800, PCS1900 and WCDMA I



**3D- view of Test Setup**

Version 2: EGSM900, PCN1800, PCS1900 and WCDMA I



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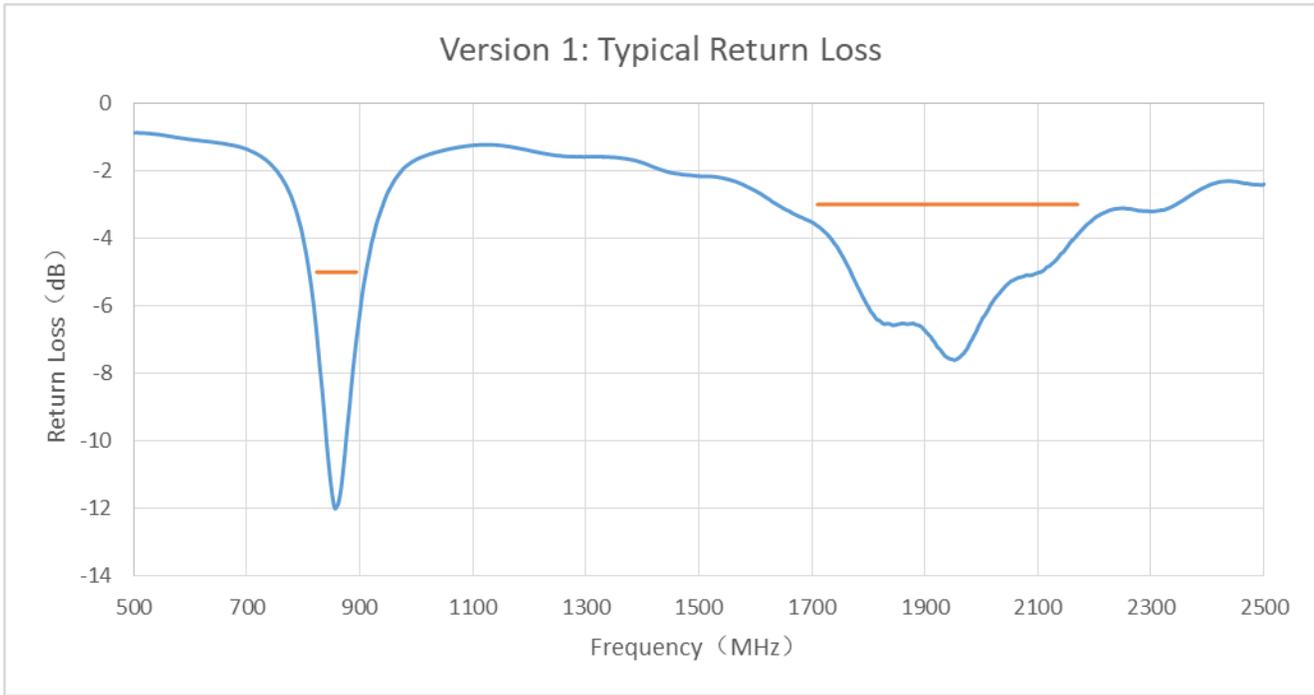
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**Description:** Quad Band Monopole Ceramic Chip Antenna

**Series:** Ceramic Chip Antenna

**PART NUMBER:** W3073

**GHARTS**



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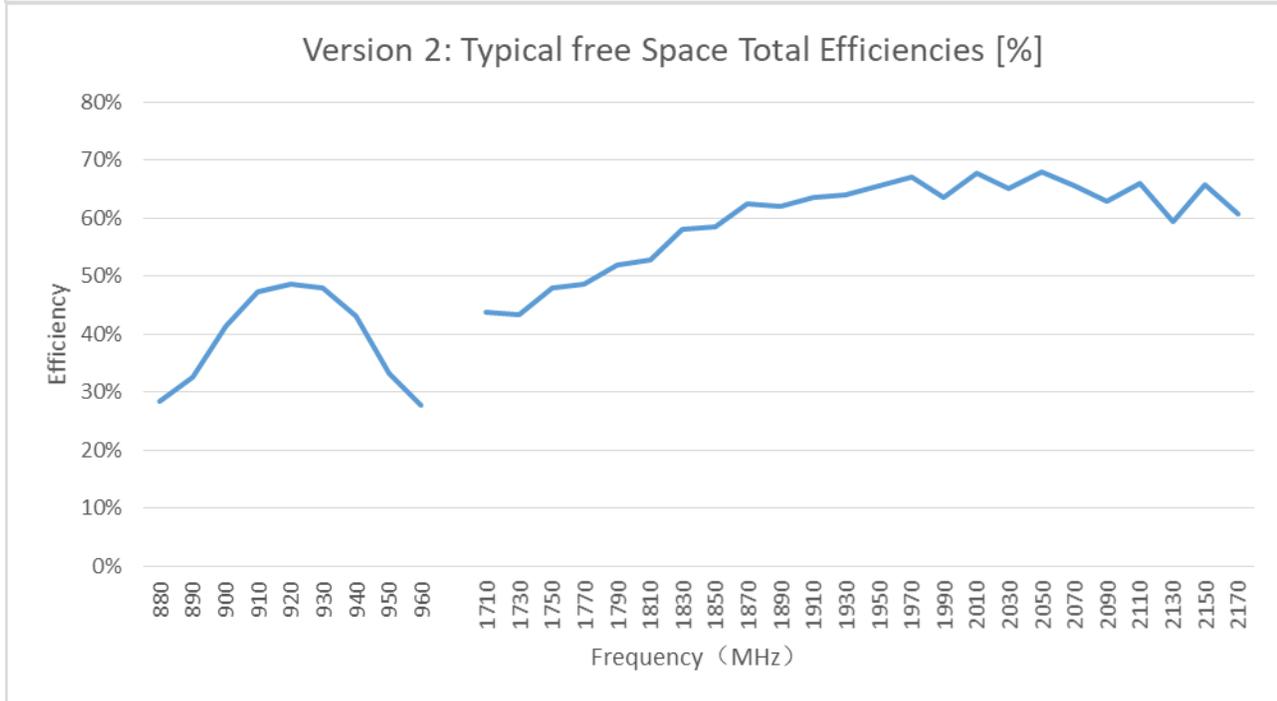
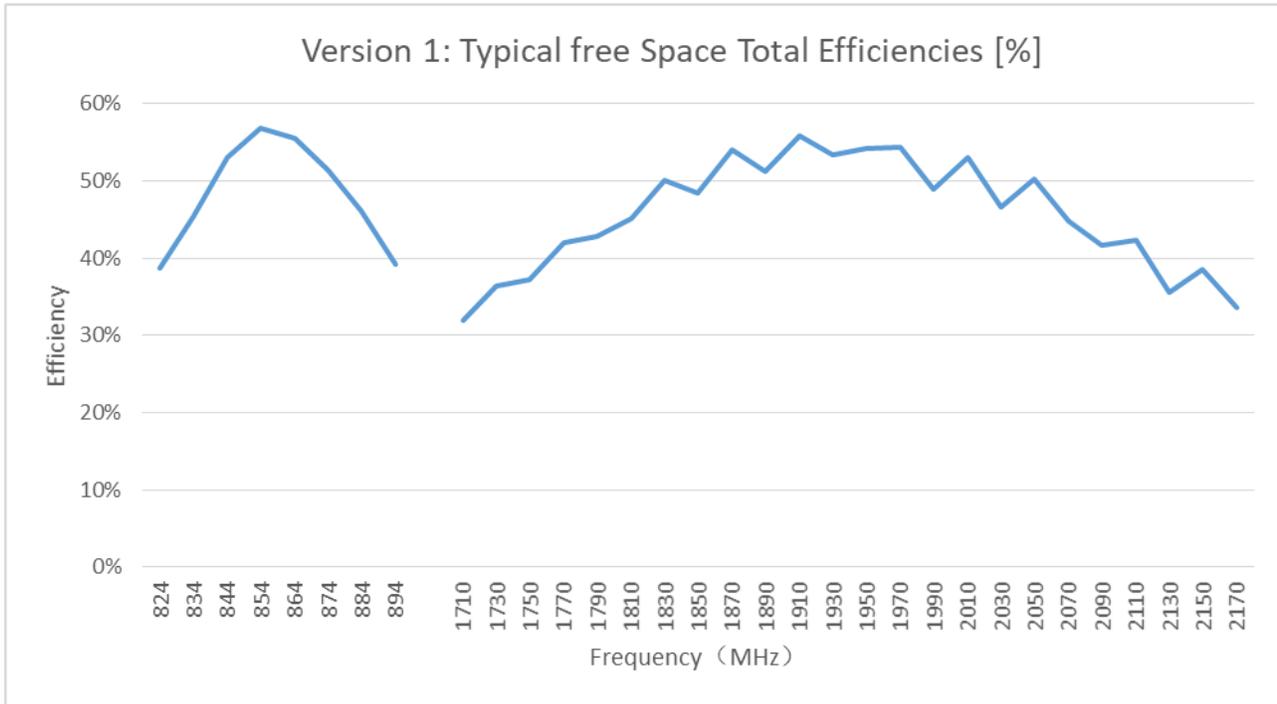
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**Description:** Quad Band Monopole Ceramic Chip Antenna

**Series:** Ceramic Chip Antenna

**PART NUMBER:** W3073

**CHARTS**



Issue: 2037

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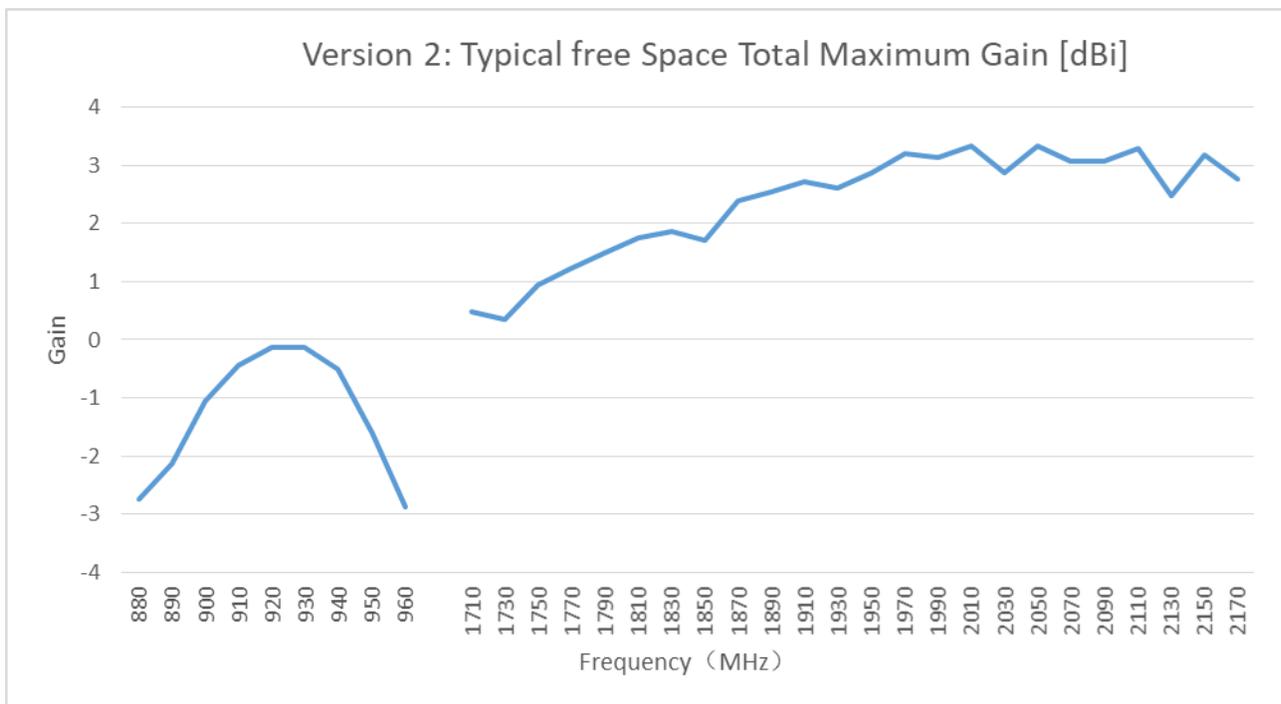
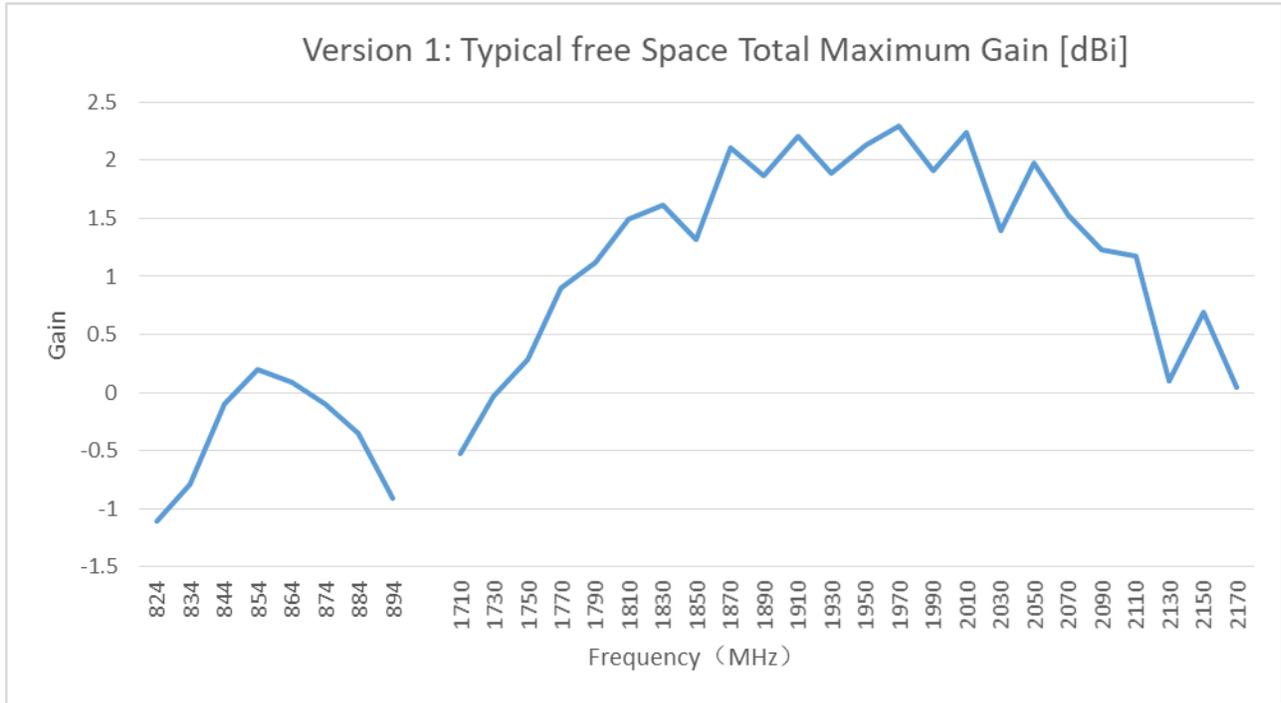
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**Description:** Quad Band Monopole Ceramic Chip Antenna

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**CHARTS**



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**Description:** Quad Band Monopole Ceramic Chip Antenna

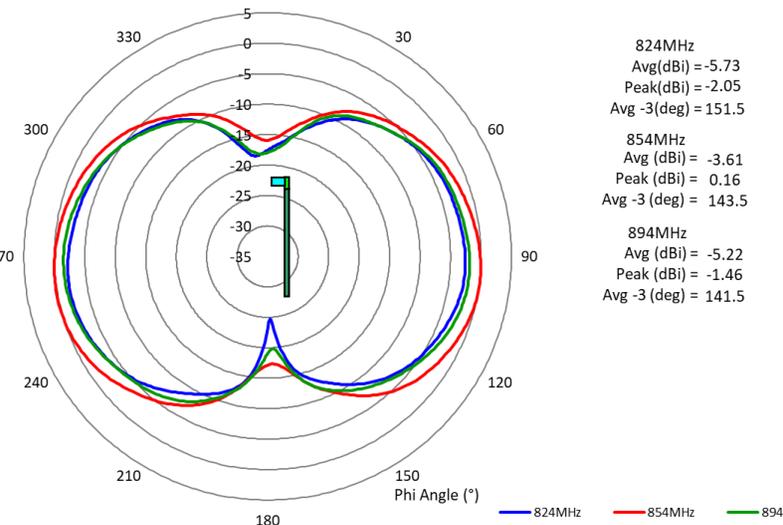
**Series:** Ceramic Chip Antenna

**PART NUMBER:** W3073

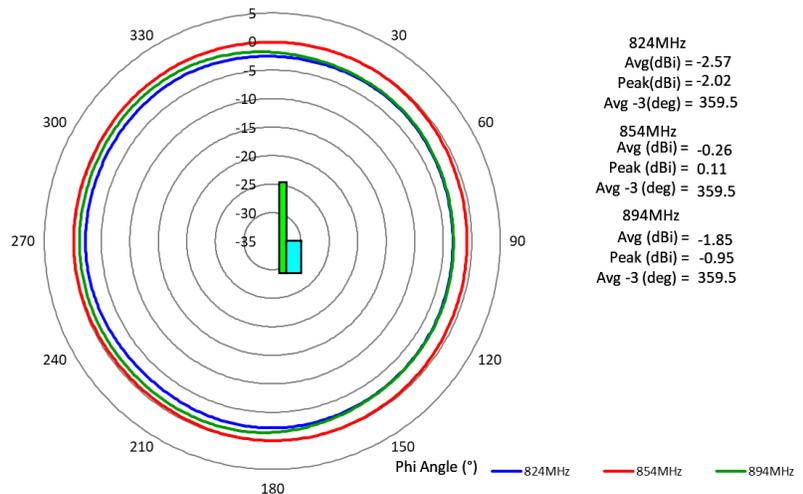
**CHARTS**

**Version 1: Typical Free Space Radiation Patterns**

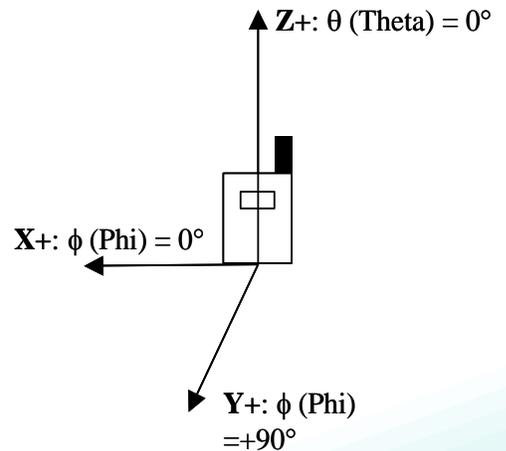
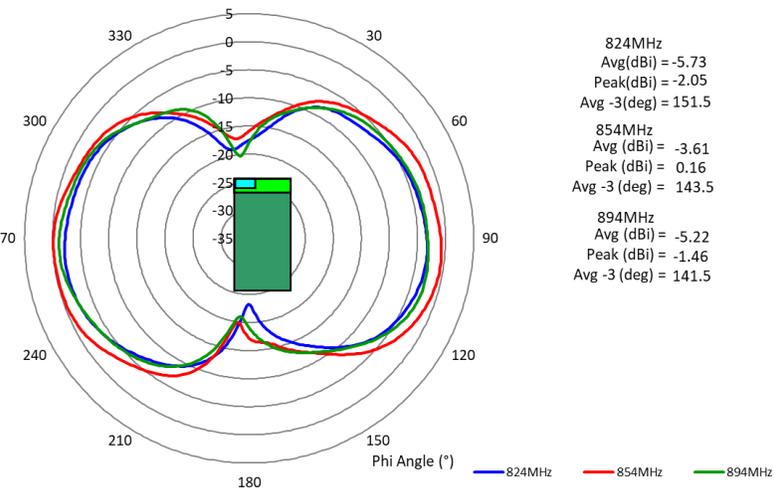
**ZX Plane**



**XY Plane**



**YZ Plane**



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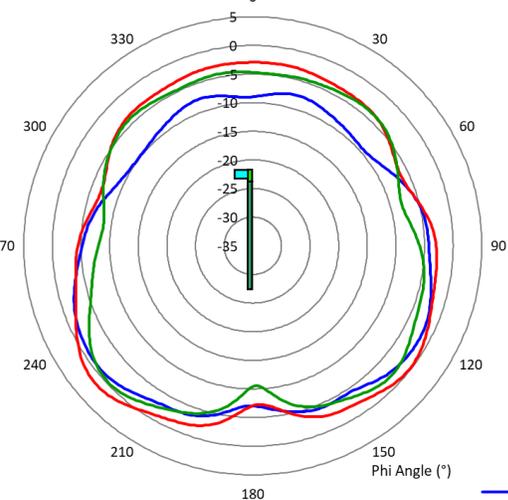
**Series:** Ceramic Chip Antenna

**PART NUMBER:** W3073

**CHARTS**

**Version 1: Typical Free Space Radiation Patterns**

**ZX Plane**

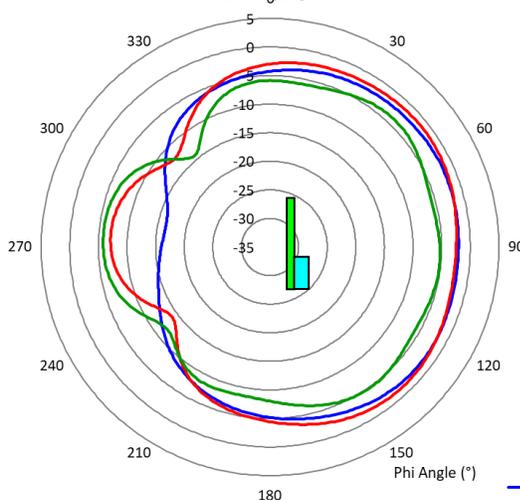


1710MHz  
Avg(dBi) = -4.76  
Peak(dBi) = -0.74  
Avg -3(deg) = 105.5

1990MHz  
Avg (dBi) = -2.70  
Peak (dBi) = 1.52  
Avg -3 (deg) = 71.5

2170MHz  
Avg (dBi) = -4.37  
Peak (dBi) = -0.26  
Avg -3 (deg) = 66.5

**XY Plane**

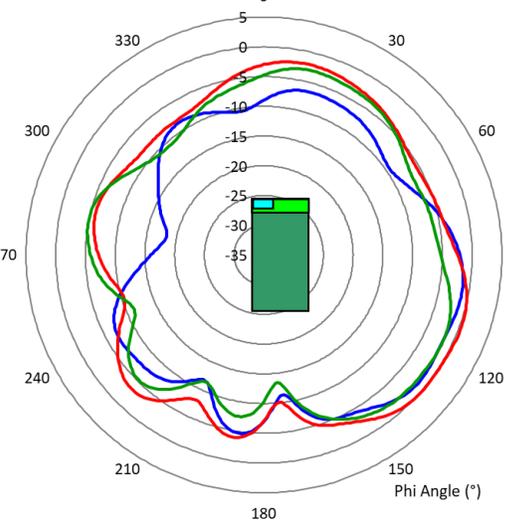


1710MHz  
Avg(dBi) = -4.59  
Peak(dBi) = -1.74  
Avg -3(deg) = 181.5

1990MHz  
Avg (dBi) = -3.90  
Peak (dBi) = -1.18  
Avg -3 (deg) = 189.5

2170MHz  
Avg (dBi) = -6.49  
Peak (dBi) = -3.85  
Avg -3 (deg) = 221.5

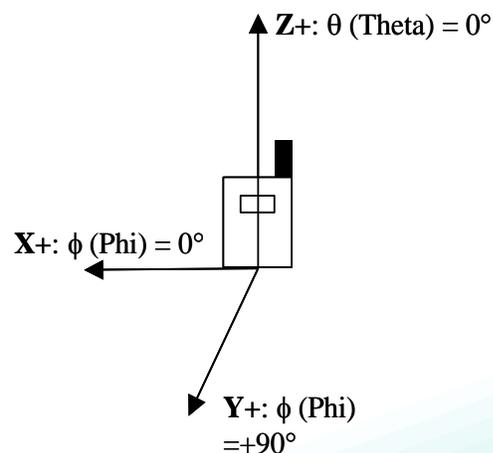
**YZ Plane**



1710MHz  
Avg(dBi) = -6.15  
Peak(dBi) = -1.11  
Avg -3(deg) = 68.5

1990MHz  
Avg (dBi) = -3.90  
Peak (dBi) = 0.35  
Avg -3 (deg) = 84.5

2170MHz  
Avg (dBi) = -5.42  
Peak (dBi) = -1.54  
Avg -3 (deg) = 104.5



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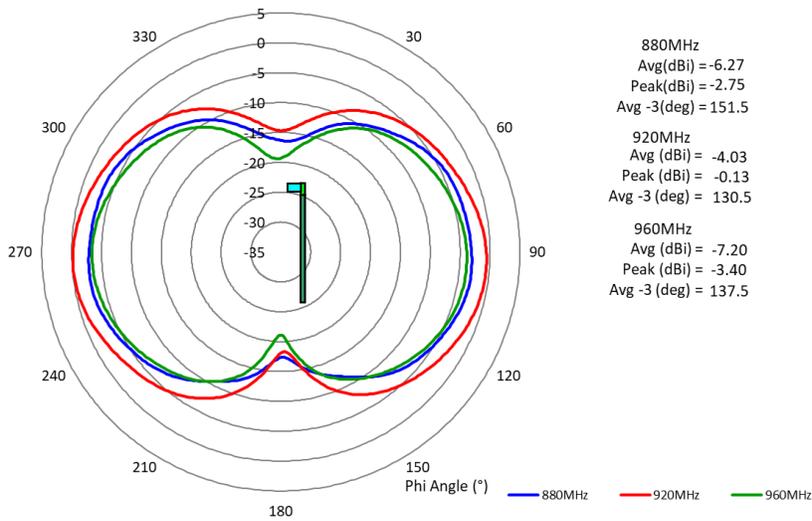
**Series:** Ceramic Chip Antenna

**PART NUMBER:** W3073

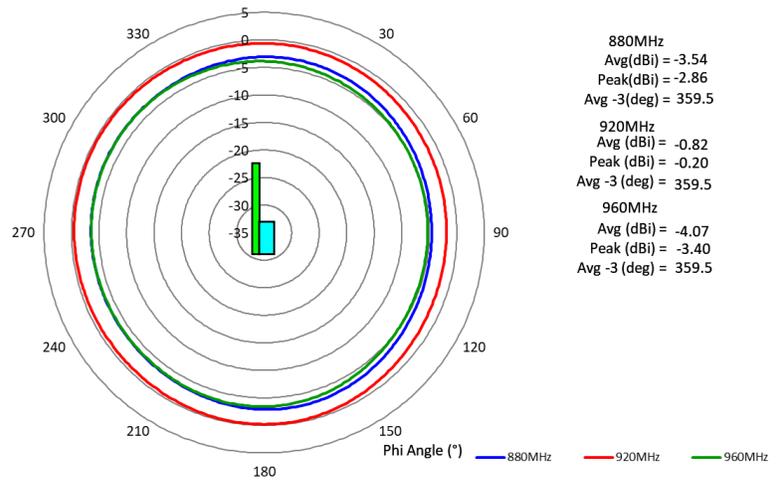
**CHARTS**

**Version 2: Typical Free Space Radiation Patterns**

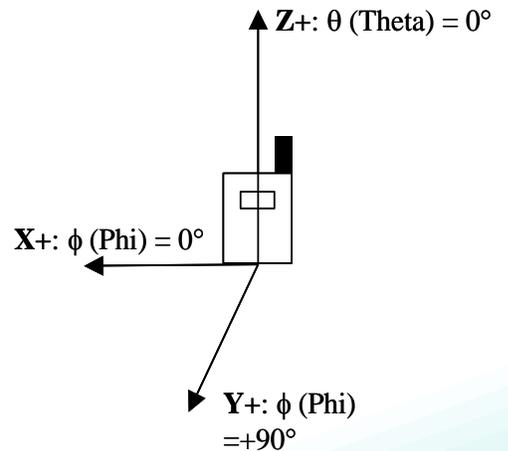
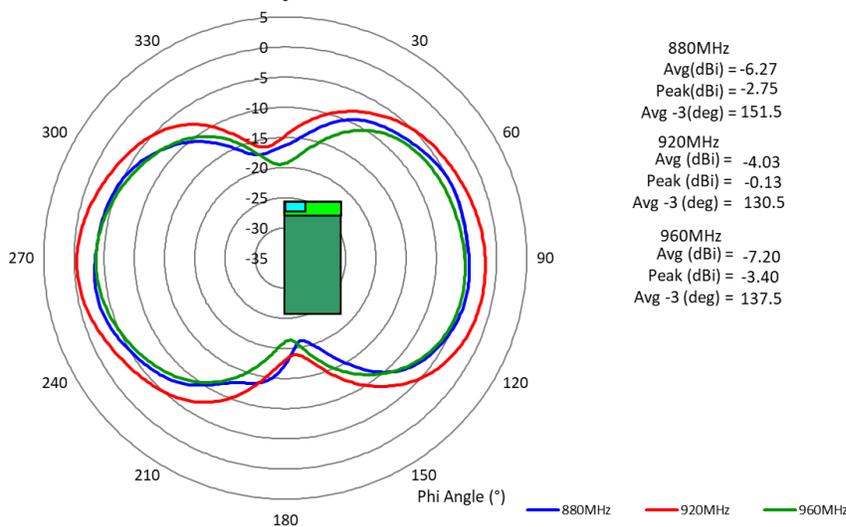
**ZX Plane**



**XY Plane**



**YZ Plane**



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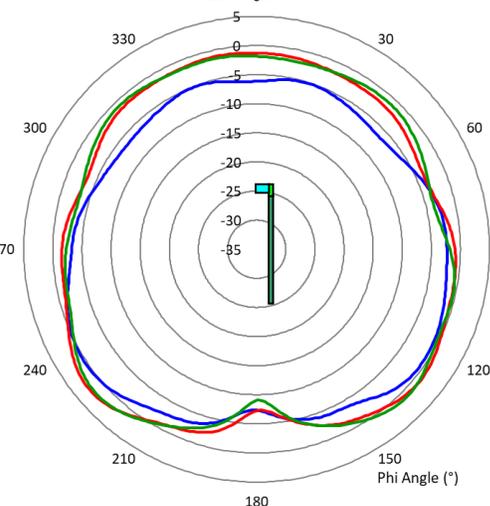
**Series:** Ceramic Chip Antenna

**PART NUMBER:** W3073

CHARTS

Version 2: Typical Free Space Radiation Patterns

ZX Plane



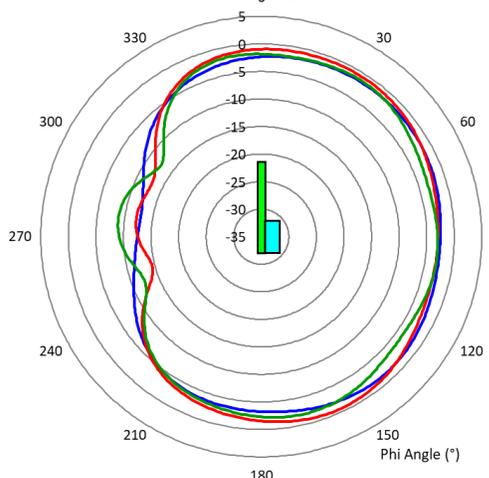
1710MHz  
Avg(dBi) = -3.30  
Peak(dBi) = 0.35  
Avg -3(deg) = 117.5

1990MHz  
Avg (dBi) = -1.19  
Peak (dBi) = 2.53  
Avg -3 (deg) = 76.5

2170MHz  
Avg (dBi) = -1.30  
Peak (dBi) = 2.11  
Avg -3 (deg) = 101.5

— 1710MHz — 1990MHz — 2170MHz

XY Plane



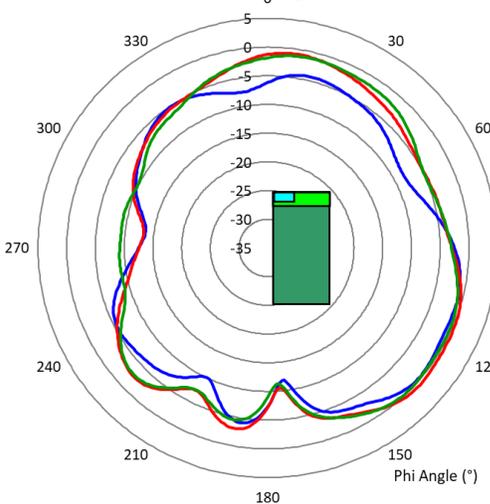
1710MHz  
Avg(dBi) = -3.51  
Peak(dBi) = -1.46  
Avg -3(deg) = 243.5

1990MHz  
Avg (dBi) = -2.97  
Peak (dBi) = -0.61  
Avg -3 (deg) = 240.5

2170MHz  
Avg (dBi) = -3.78  
Peak (dBi) = -1.36  
Avg -3 (deg) = 242.5

— 1710MHz — 1990MHz — 2170MHz

YZ Plane

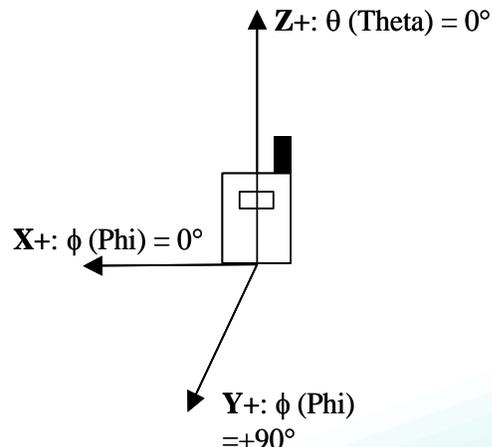


1710MHz  
Avg(dBi) = -4.97  
Peak(dBi) = -0.29  
Avg -3(deg) = 63.5

1990MHz  
Avg (dBi) = -3.39  
Peak (dBi) = 0.62  
Avg -3 (deg) = 99.5

2170MHz  
Avg (dBi) = -3.60  
Peak (dBi) = -0.11  
Avg -3 (deg) = 138.5

— 1710MHz — 1990MHz — 2170MHz



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**Description:** Quad Band Monopole Ceramic Chip Antenna

**Series:** Ceramic Chip Antenna

**PART NUMBER:** W3073

## Recommendations for ceramic chip antenna storage

### Storage time

Products should be used within 6 months from the day of manufacturers packaging even when they are stored under below mentioned conditions. Longer storage period may decrease the component solderability.

### Storage environmental conditions

To maintain solderability of Pulse ceramic products care must be taken to control the storage and use conditions:

- Do not store or use products in a corrosive atmosphere, especially where chloride, sulphur or sulfide, alkali or acid salts exist in the air. Corrosive gases may cause oxidation of electrodes and reduce solderability
- Keep temperature and humidity stable and do not exceed the below mentioned minimum and maximum conditions: Temperature: -10 to +30 Deg C  
Humidity: below 60% RH
- Do not store the products under direct sun light.

It is recommended to keep the products in manufacturers packing (tape&reel) until the time of assembly and soldering process. Air tight vacuum package is recommended in the conditions where it is know to be some corrosive gases.

### Handling

Do not touch the components with bare hands. Protective gloves must be used to prevent contamination of terminals which may cause reduced solderability. Do not touch or damage the silver plated surface by any sharp objects. Soft materials (plastic, wood etc.) must be used if tweezers or other tools are used to pick the components. Avoid any excess mechanical shock or vibration during storage and handling.

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**Description:** Quad Band Monopole Ceramic Chip Antenna

**Series:** Ceramic Chip Antenna

**PART NUMBER:** W3073

**Recommendation for reflow soldering process**

Printing stencil thickness 0,15 - 0,25 mm is recommended for the solder paste. The maximum soldering temperature should not exceed 260°C. The temperature profile recommendations for reflow soldering process is presented in the Figures 1 and 2. The reflow profile

presented in figure 1 describes minimum reflow temperatures. The reflow profile presented in figure 2 describes maximum reflow temperatures. located at the center of the coverage area.

	Method of heat transfer	Controlled hot air convection
1	Average temperature gradient in preheating	2.5 °C/s
2	Soak time	2-3 minutes
3	Max temperature gradient in reflow	3 °C/s
4	Time above 217 °C	Max 30 sec
5	Peak temperature in reflow	230 °C for 10 seconds
6	Temperature gradient in cooling	Max -5 °C/s

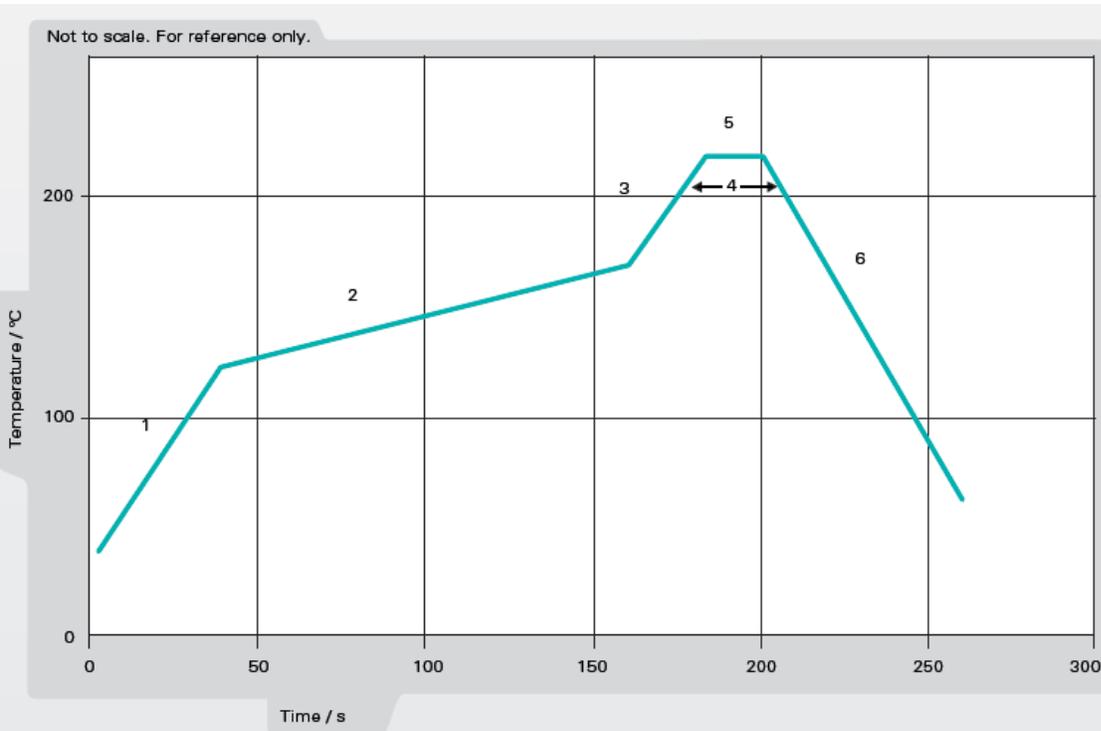


Figure 1. Minimum temperature profile recommendation for reflow soldering process

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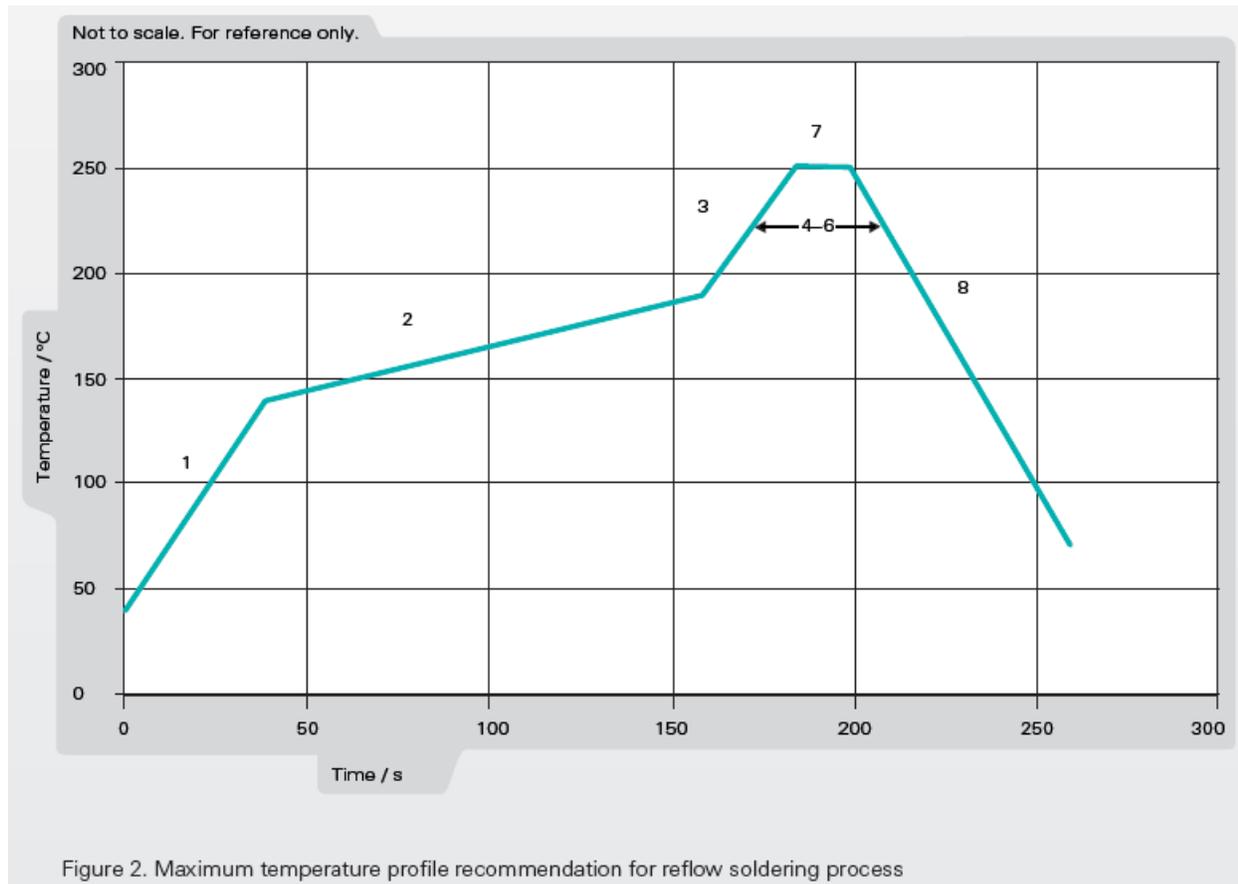
**Description:** Quad Band Monopole Ceramic Chip Antenna

**Series:** Ceramic Chip Antenna

**PART NUMBER:** W3073

**Recommendation for reflow soldering process**

	Method of heat transfer	Controlled hot air convection
1	Average temperature gradient in preheating	2.5 °C/s
2	Soak time	2-3 minutes
3	Max temperature gradient in reflow	3 °C/s
4	Time above 217 °C	Max 60 sec
5	Time above 230 °C	Max 50 sec
6	Time above 250 °C	Max 10 sec
7	Peak temperature in reflow	260 °C for 5 seconds
8	Temperature gradient in cooling	Max -5 °C/s



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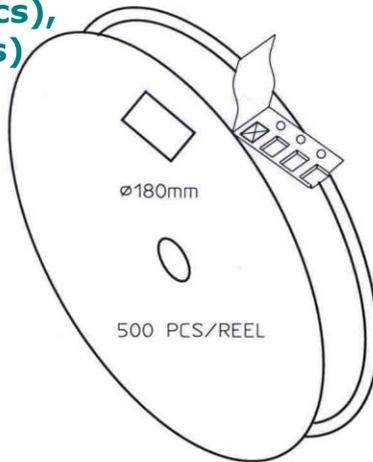
**Series:** Ceramic Chip Antenna

**PART NUMBER:** W3073

**PACKAGING**

**Packing form**

**500pcs in one Reel,  
3 reel in one inbox (1500 pcs),  
2 inbox in out box (3000pcs)**

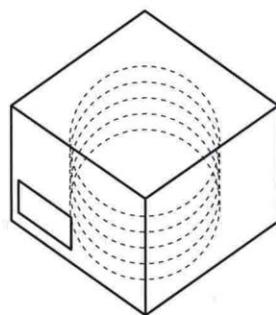


CARRIER TAPE H85-00158  
width=24,00 depth=4.15  
COVER TAPE H85-00159  
width=21.20

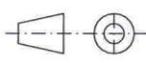
LENGTH OF TAPE:

- Leader section: min 350 mm before component section
- Trailer section: min 40 mm after component section.

Empty part cavities at leader and trailer section of the tape must be sealed with top cover tape.



BOX H85-00128 (182x182x125)	1 pcs
- LABEL	1 pcs/BOX
REEL H85-00160 (D180,W28)	4 pcs
- REEL LABEL	1 pcs/REEL

MATERIAL					
HANDLINGS					
		RATIO	DRWN	160107 PeHa	H
			DGNER		G
			CHKD		F
			APPRD		E
PRODUCT		H90-OY800-F01P01		APPRD BY	D
DENOMINATION		PACKING FORM			C
					B
					A
		VERSION		MOD/DATE/NAME	

Issue: 2037

In the effort to improve our products, we reserve the right to make changes judged to be necessary.

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