

# 1.575&2.4GHz 5320 Chip Antenna: AAN5320F1R1524

## Application:

WLAN, 802.11/b/g, Bluetooth, GPS, etc...

## Features

SMD, high reliability, ultra Impact, Omni-directional...



## Part number

AAN   5320   F1   R   1524  
 (1)   (2)   (3)   (4)   (5)

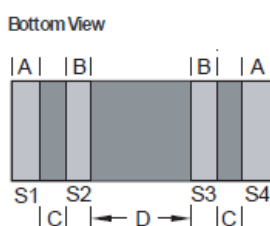
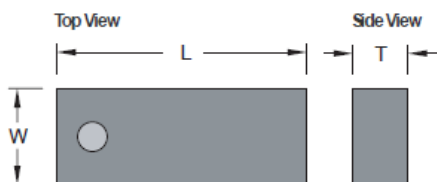
(1) Product Type	Chip Antenna
(2) Size Code	5.3x2.0mm
(3) Type Code	F1
(4) Packing	Tape and reel
(5) Frequency	1.575G & 2.4GHz

## Electrical Specification

Centre Frequency	1.575G & 2.4 GHz
Peak Gain	0.89 & 1.87 dBi (Typ.)
Impedance	50 Ohm
Return loss	10 dB ( Min.)
Polarization	Linear
Azimuth Beamwidth	Omni-directional
Operation Temperature(°C)	-40 ~85°C

The specification is defined on EVB.

## Dimension and Terminal Configuration

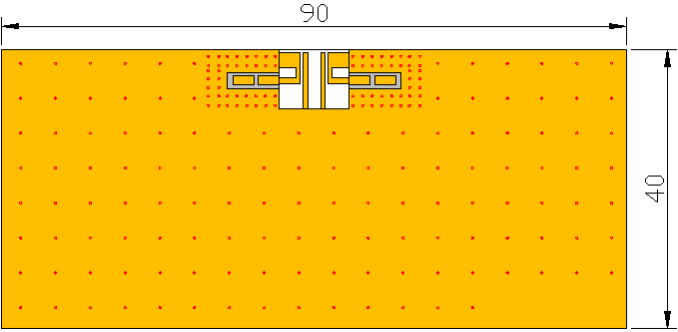
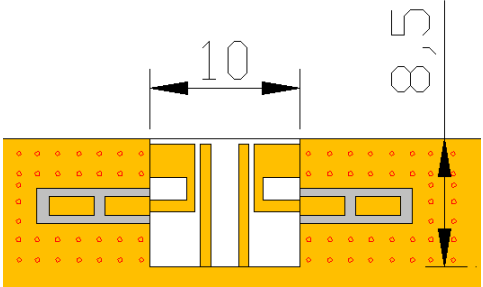


Dimension (mm)	
L	5.3+-0.2
W	2.0+-0.2
T	1.15+-0.15
A	0.58+-0.1
B	0.52+-0.1
C	0.52+-0.1
T	1.96+-0.15

No.	Terminal Name
S1	BT Feeding
S2	BT GND
S3	GPS GND
S4	GPS Feeding

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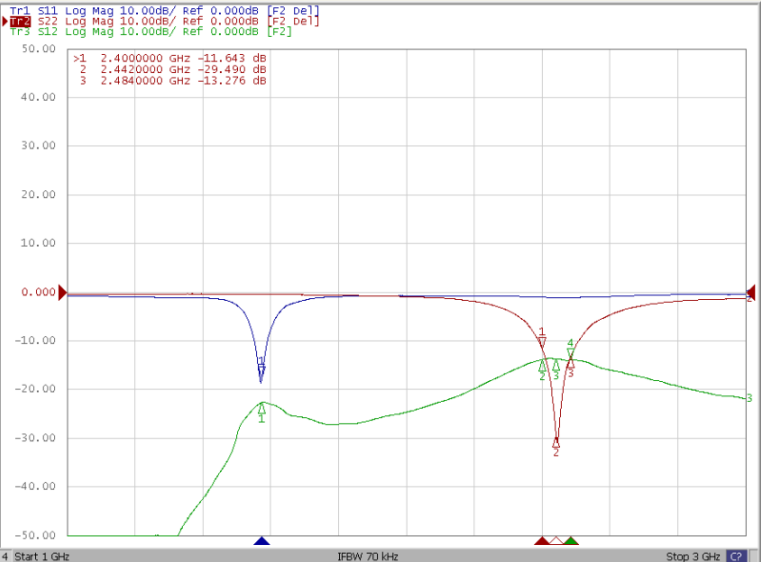
## Evaluation Board Reference

PCB Dimension	Antenna Layout Reference
	 <p style="text-align: right;">unit :mm</p>

## Electrical Characteristics

### Return Loss & Radiation

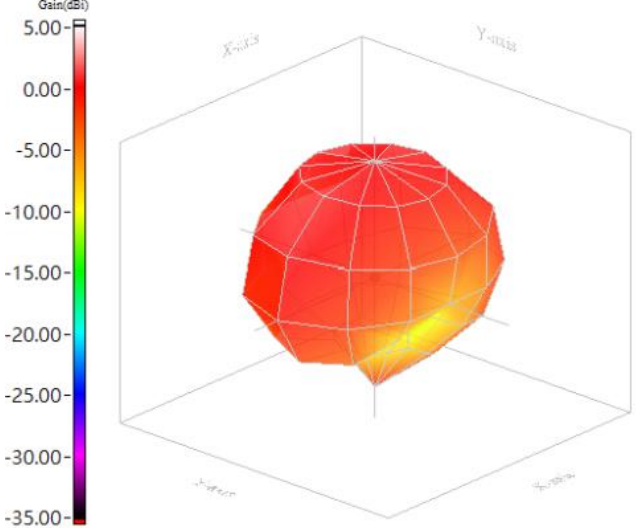
#### Return Loss

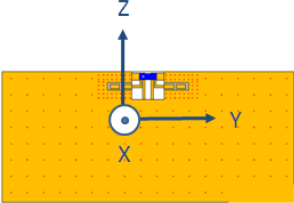


Frequency (GHz)	Return Loss (dB)
2.400000	-11.643
2.442000	-29.490
2.484000	-13.276

Frequency (MHz)	S11/S22 (dB)
1574	-17.6
2400	-11.6
2442	-29.5
2482	-13.2

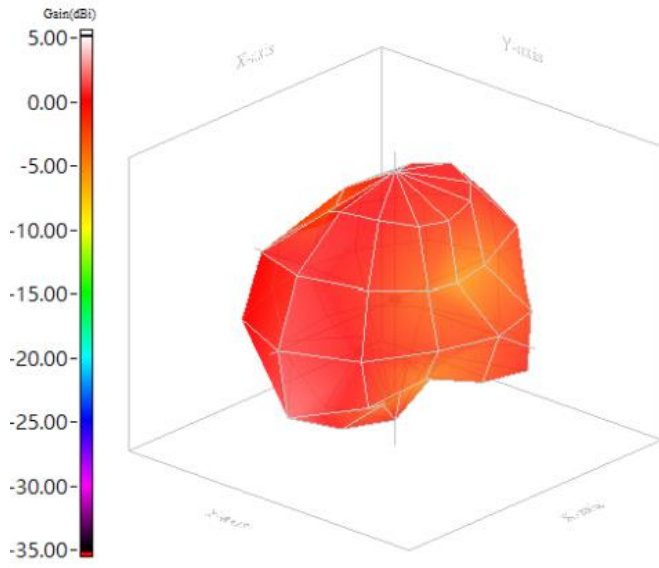
### Radiation





Frequency	1.575GHz
Peak gain	0.89dBi
Average gain	-1.87dBi
Efficiency	52.46%

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Frequency	2.45GHz
Peak gain	1.84dBi
Average gain	-1.32dBi
Efficiency	65.83%

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## Taping Specifications

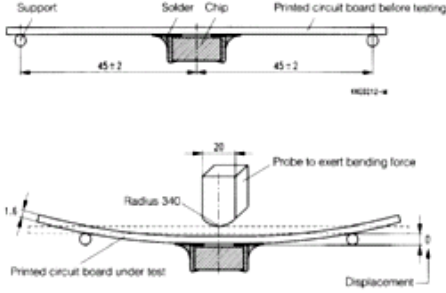
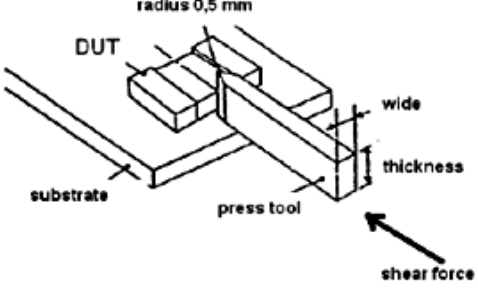
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## Reliability Table

Test Item	Procedure	Requirements Ceramic Type	Remark (Reference)
<b>Electrical Characterization</b>		Fulfill the electrical specification	User Spec.
<b>Thermal Shock</b>	1. Preconditioning: $50 \pm 10^{\circ}\text{C}$ / 1 hr , then keep for $24 \pm 1$ hrs at room temp. 2. Initial measure: Spec: refer Initial spec. 3. Rapid change of temperature test: $-30^{\circ}\text{C}$ to $+85^{\circ}\text{C}$ ; 100 cycles; 15 minutes at Lower category temperature; 15 minutes at Upper category temperature.	No Visible Damage. Fulfill the electrical specification.	MIL-STD-202 107
<b>Temperature Cycling</b>	1. Initial measure: Spec: refer Initial spec. 2. 100 Cycles ( $-30^{\circ}\text{C}$ to $+85^{\circ}\text{C}$ ), Soak Mode=1 (2 Cycle/hours). 3. Measurement at $24 \pm 2$ Hours after test condition.	No Visible Damage. Fulfill the electrical specification.	JESD22 JA104
<b>High Temperature Exposure</b>	1. Initial measure: Spec: refer Initial spec. 2. Unpowered; 500hours @ $T=+85^{\circ}\text{C}$ . 3. Measurement at $24 \pm 2$ hours after test.	No Visible Damage. Fulfill the electrical specification.	MIL-STD-202 108
<b>Low Temperature Storage</b>	1. Initial measure: Spec: refer Initial spec. 2. Unpowered: 500hours @ $T=-30^{\circ}\text{C}$ . 3. Measurement at $24 \pm 2$ hours after test.	No Visible Damage. Fulfill the electrical specification.	MIL-STD-202 108
<b>Solderability (SMD Bottom Side)</b>	Dipping method: a. Temperature: $235 \pm 5^{\circ}\text{C}$ b. Dipping time: $3 \pm 0.5\text{s}$	The solder should cover over 95% of the critical area of bottom side.	IEC 60384-21/22 4.10
<b>Soldering Heat Resistance (RSH)</b>	Preheating temperature: $150 \pm 10^{\circ}\text{C}$ . Preheating time: 1~2 min. Solder temperature: $260 \pm 5^{\circ}\text{C}$ . Dipping time: $5 \pm 0.5\text{s}$	No Visible Damage.	IEC 60384-21/22 4.10
<b>Vibration</b>	5g's for 20 min., 12 cycles each of 3 orientations Note: Use 8"X5" PCB .031" thick 7 secure points on, one long side and 2 secure points at corners of opposite sides. Parts mounted within 2" from any secure point. Test from 10-2000 Hz.	No Visible Damage.	MIL-STD-202 Method 204
<b>Mechanical Shock</b>	Three shocks in each direction shall be applied along the three mutually perpendicular axes of the test specimen (18 shocks) Peak value: 1,500g's Duration: 0.5ms Velocity change: 15.4 ft/s Waveform: Half-sine	No Visible Damage.	MIL-STD-202 Method 213
<b>Humidity Bias</b>	1. Humidity: 85% R.H., Temperature: $85 \pm 2^{\circ}\text{C}$ . 2. Time: $500 \pm 24$ hours. 3. Measurement at $24 \pm 2$ hrs after test condition.	No Visible Damage. Fulfill the electrical specification.	MIL-STD-202 Method 106

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<p><b>Board Flex (SMD)</b></p>	<p>1. Mounting method: IR-Reflow. PCB Size (L:100 × W:40 × T:1.6mm)</p> <p>2. Apply the load in direction of the arrow until bending reaches 2 mm.</p> 	<p>No Visible Damage.</p>	<p>AEC-Q200 005</p>
<p><b>Adhesion</b></p>	<p>Force of 1.8Kg for 60 seconds.</p> 	<p>No Visible Damage Magnification of 20X or greater may be employed for inspection of the mechanical integrity of the device body terminals and body/terminal junction.</p>	<p>AEC-Q200 006</p>
<p><b>Physical Dimension</b></p>	<p>Any applicable method using x10 magnification, micrometers, calipers, gauges, contour projectors, or other measuring equipment, capable of determining the actual specimen dimensions.</p>	<p>In accordance with specification.</p>	<p>JESD22 JB100</p>

## Revision History

Revision	Date	Content
1	2015/7/20	New issue