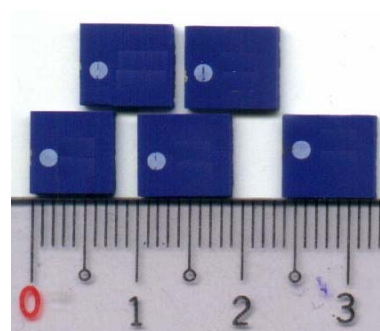


**MULTILAYER CERAMIC ANTENNA  
FOR BLUETOOTH/WLAN IEEE 802.11b & WLAN IEEE 802.11a (2.45/5.2GHz)  
(Surface Mounted Ceramic Dual Band Antenna)**

**Product Specification<sup>1</sup> (Preliminary)**

**QUICK REFERENCE DATA**

Dimension	8.7* 8 * 0.9 mm
Central Frequency*	2.45 GHz /5.2GHz
Bandwidth	>100 MHz
Gain*	3.5dBi max @5.2GHz 1.5dBi max @2.45GHz
VSWR	2.5 max
Polarization	Linear
Azimuth	Omni-directional
Impedance	50 Ohm
Operating Temperature	-55~125 Deg. C
Termination	Ni/Sn (Environmentally-Friendly Leadless)
Resistance to soldering heats	260 Deg. C, 10 sec.
Maximum Power	1W



\* Actual value will depend on size of customer ground plane



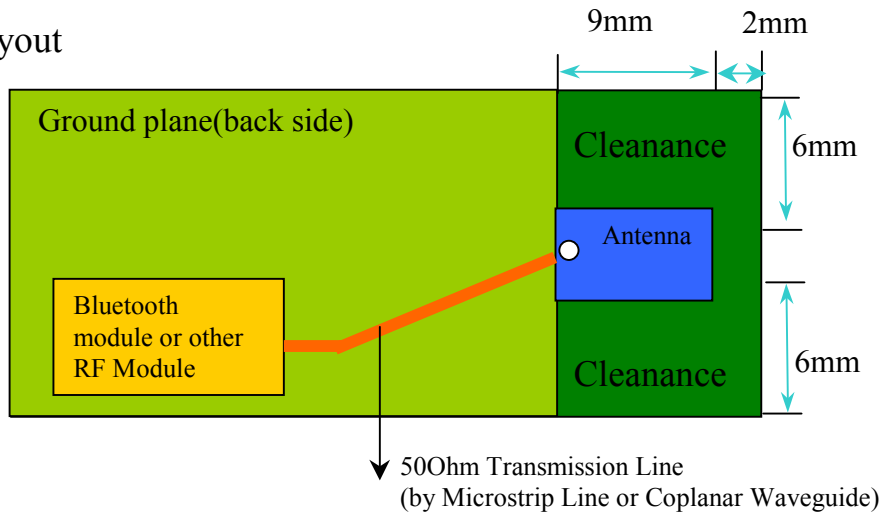
*Special Environmental Concerns- Green Products Design: The foil making process is using environmentally-friendly aqueous solvent technology. Termination is lead free (Pb free) and packing materials can be re-cycled*

<sup>1</sup> All the technical data and information contained herein are subject to change without prior notice

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## APPLICATION

### Suggested Layout



## DIMENSIONAL DATA

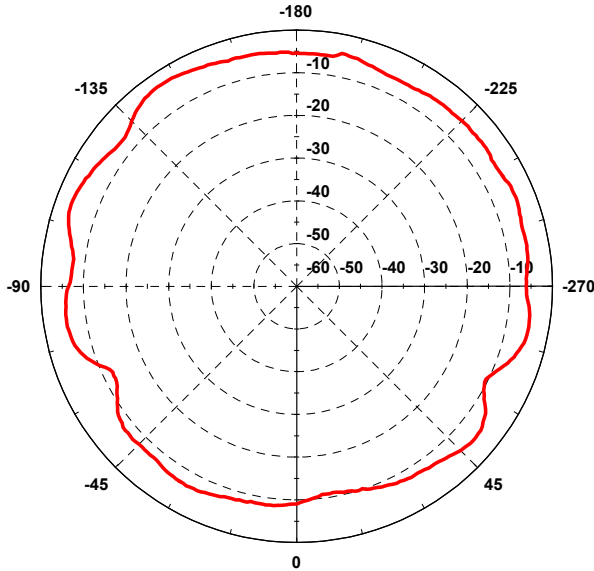
Figure	Dimension	Port	
	L	8.7 +0.25 mm	-
	W	7.8 +0.2 mm	-
	T	0.9 +0.2 mm	-
	F	3.10 +0.25 mm	Feed Termination
	C	0.45 +0.3 mm	-
	S1	1.10 +- 0.25 mm	NC Solder Termination
	S2	3.10 +0.25 mm	NC Solder Termination

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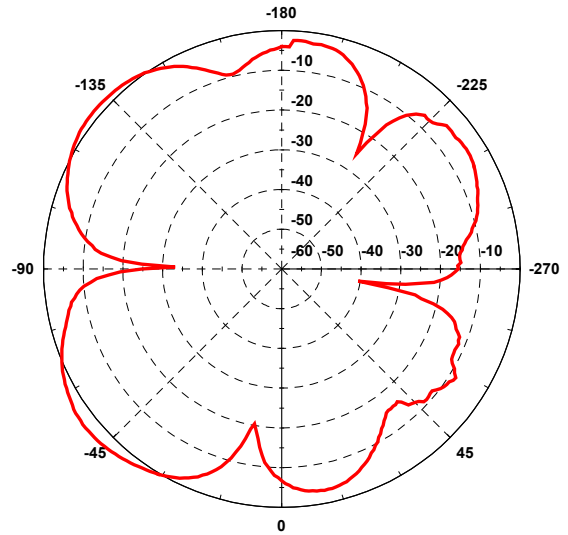
## SOLDER LAND PATTERN

Figure	Dimensions	Remark															
	<table border="1"> <tr> <td>L</td> <td>10 +/- 0.10 mm</td> <td></td> </tr> <tr> <td>F</td> <td>3.40 +/- 0.10 mm</td> <td>Feed Pad</td> </tr> <tr> <td>C</td> <td>0.90 +/- 0.10 mm</td> <td></td> </tr> <tr> <td>S2</td> <td>3.40 +/- 0.10 mm</td> <td>NC Mount Pad</td> </tr> <tr> <td>S1</td> <td>1.40 +/- 0.10 mm</td> <td>NC Mount Pad</td> </tr> </table>	L	10 +/- 0.10 mm		F	3.40 +/- 0.10 mm	Feed Pad	C	0.90 +/- 0.10 mm		S2	3.40 +/- 0.10 mm	NC Mount Pad	S1	1.40 +/- 0.10 mm	NC Mount Pad	
L	10 +/- 0.10 mm																
F	3.40 +/- 0.10 mm	Feed Pad															
C	0.90 +/- 0.10 mm																
S2	3.40 +/- 0.10 mm	NC Mount Pad															
S1	1.40 +/- 0.10 mm	NC Mount Pad															

## Typical Radiation Pattern Polar Plot (Based on 35\*15 Test Board)

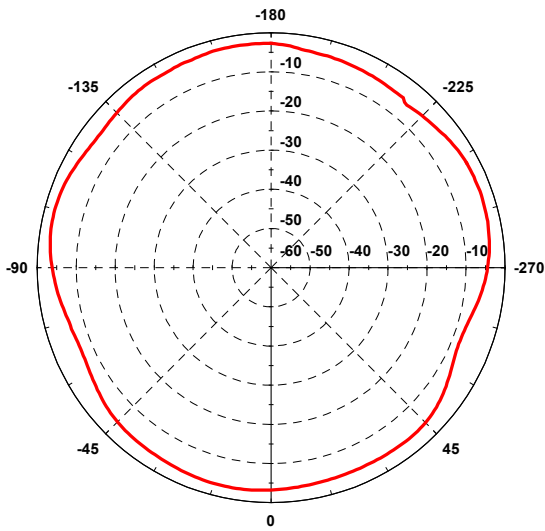


**5.2GHz  
H-Plane**

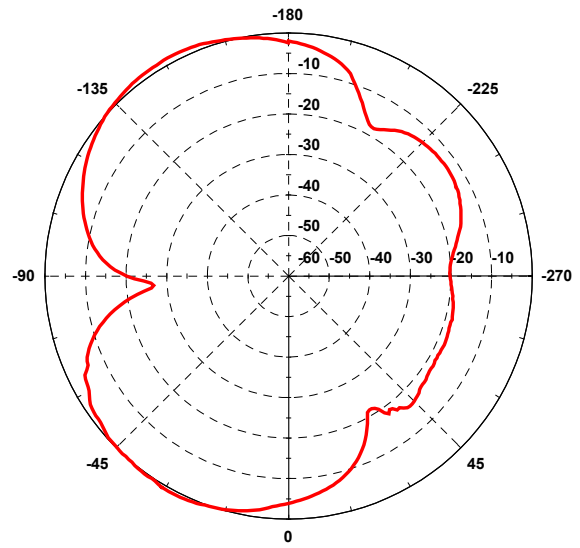


**5.2GHz  
E-Plane**

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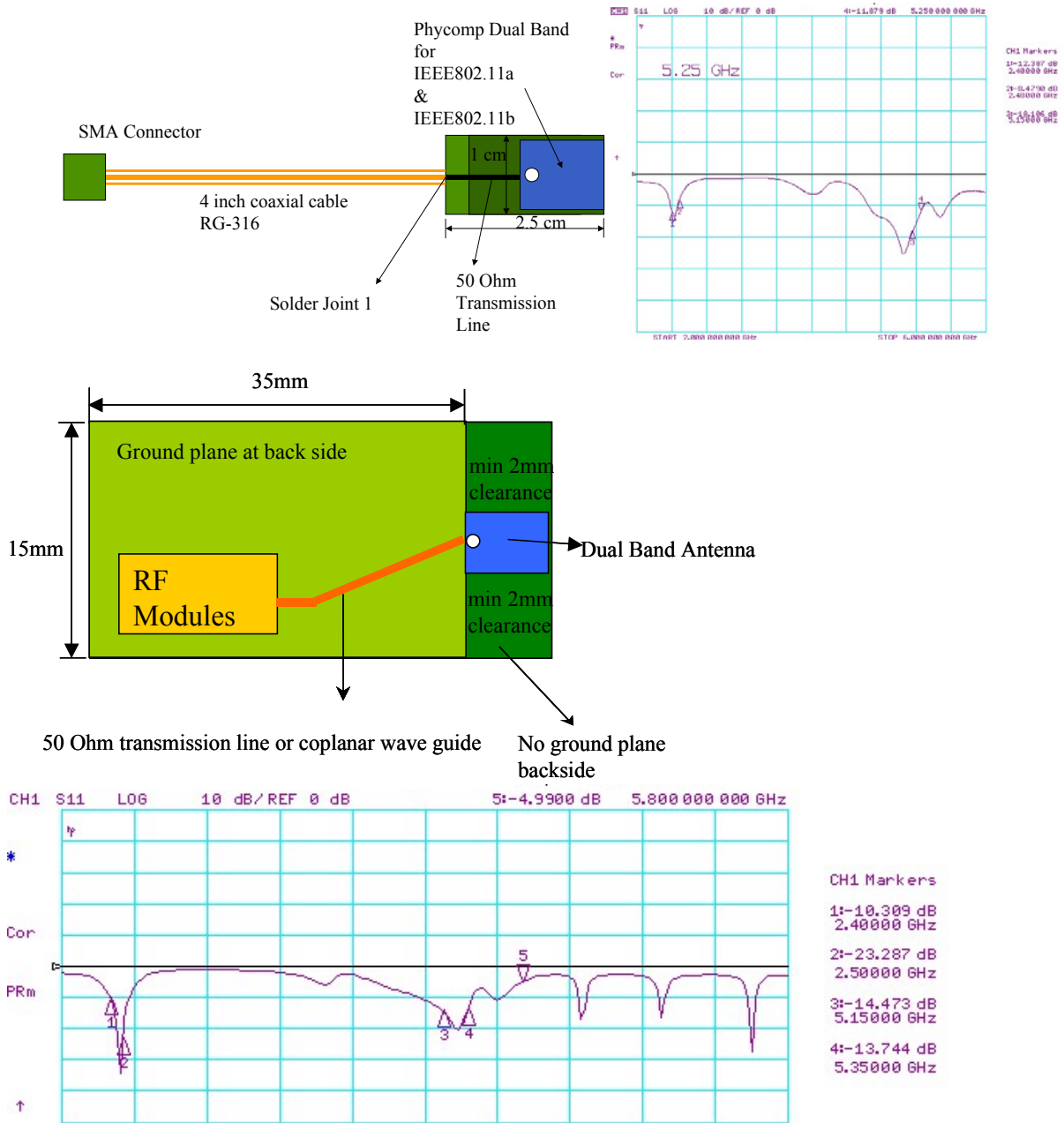
**2.45GHz  
H-Plane**



**2.45GHz  
E-Plane**

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# CUSTOMERIZED TEST BOARD FOR RETURN LOSS



Remark: Different ground PCB may have different central frequency. The central frequency may be customized.

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**RELIABILITY DATA (Reference to IEC Specification)**

IEC 384-10/CECC 32 100 CLAUSE	IEC 60068-2 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS
4.4		Mounting	The antenna can be mounted on printed-circuit boards or ceramic substrates by applying wave soldering, reflow soldering (including vapour phase soldering) or conductive adhesive	No visible damage
4.5		Visual inspection and dimension check	Any applicable method using $\times 10$ magnification	In accordance with specification (chip off 4mm)
4.6.1		Antenna	Frequency = 2.45/5.2 GHz; at 20 Deg. C	Standard test board in page 4
4.8		Adhesion	A force of 3 N applied for 10 s to the line joining the terminations and in a plane parallel to the substrate	No visible damage
4.9		Bond strength of plating on end face	Mounted in accordance with CECC 32 100, paragraph 4.4	No visible damage
			Conditions: bending 0.5 mm at a rate of 1mm/s, radius jig. 340 mm, 2mm warp on FR4 board of 90 mm length	No visible damage

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<b>IEC 384-10/ CECC 32 100 CLAUSE</b>	<b>IEC 60068-2 TEST METHOD</b>	<b>TEST</b>	<b>PROCEDURE</b>	<b>REQUIREMENTS</b>
4.10	20(Tb)	Resistance to soldering heat	260 ± 5 Deg. C for 10 ± 0.5 s in a static solder bath	The terminations shall be well tinned after recovery and Central Freq. Change ± 6%
		Resistance to leaching	260 ± 5 Deg. C for 30 ± 1 s in a static solder bath	Using visual enlargement of × 10, dissolution of the termination shall not exceed 10%
4.11	20(Ta)	Solderability	Zero hour test, and test after storage (20 to 24 months) in original atmosphere; un-mounted chips completely immersed for 2 ± 0.5 s in 235 ± 5 Deg. C.	The termination must be well tinned, at least 75% is well tinned at termination
4.12	4(Na)	Rapid change of temperature	-55 Deg. C (30 minutes) to +125 Deg. C (30 minutes); 5 cycles	No visible damage Central Freq. Change ± 6%
4.14	3(Ca)	Damp heat	500 ± 12 hours at 60 Deg. C; 90 to 95 % RH	No visible damage 2 hours recovery Central Freq. Change ± 6%
4.15		Endurance	500 ± 12 hours at 125 Deg. C;	No visible damage 2 hours recovery Central Freq. Change ± 6%

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**ORDERING INFORMATION: Method I- by 12NC Ordering Code**

The antennas may be ordered by using the 12 NC ordering code. These code numbers can be determined by the following rules:

4311 1 17 00 252  
 F C M S T A

F. Family Code

**43** = Antenna

C. Packing Type Code

**11** = 180 mm/ 7" blister (1000pcs), **13**= Bulk 1000 pcs

**21** = with Cable Length 1 **22** = with Cable Length 2

M. Materials Code

**1** = High Frequency Material

**3** = High Frequency Material (FR4)

S. Size Code

**17** = 8.7 \* 8 \* 0.9 mm

T. Tolerance

**00** = 100 M Hz Band Width

A. Working Frequency

**252** = 2.45/5.2 GHz Dual Band

**Example: 12NC 4311 117 00252**  
 Product description: Antenna (43) by 1000 pcs (11) of High Frequency Material (1), Size 8.7\*8\*0.9 mm (17);  
 Tolerance (00) of 100 MHz (VSWR<2.5)  
 Working Frequency (252) = 2.45/5.2G Hz Dual Band

**ORDERING INFORMATION: Method II- by Clear Text Code**

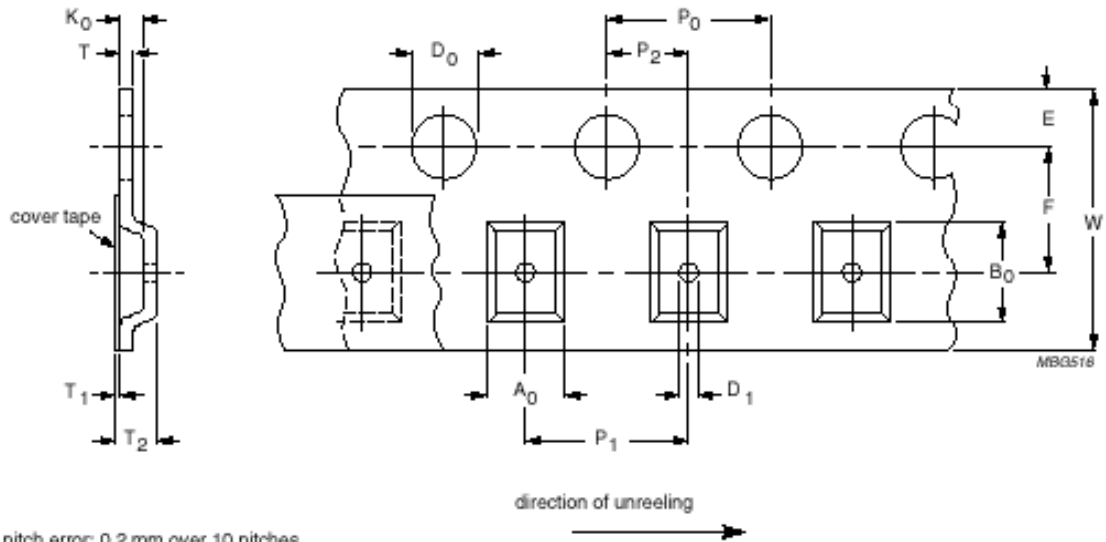
The antennas may be ordered by using the 16-digit clear text ordering code. These code numbers can be determined by the following rules:

<b>AN2520000708081K (Clear Text Code Example)</b>						
AN	2520	00	07	0808	1	K
Product	Central Freq.	Bandwidth	Material	Size	Quantities	Packing
AN= Antenna	2520=2.45GHz + 5.2GHz	00=>100MHz 01 Cable Length1 02 Cable Length2	07=K7 04=K4	0808=8.7*8*0.9 mm	1 = 1K	K=7" plastic B = Bulk

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## Taping Blister Tape



Cumulative pitch error: 0.2 mm over 10 pitches.

Cumulative tolerance over 10 holes:  $\pm 0.2$  mm.

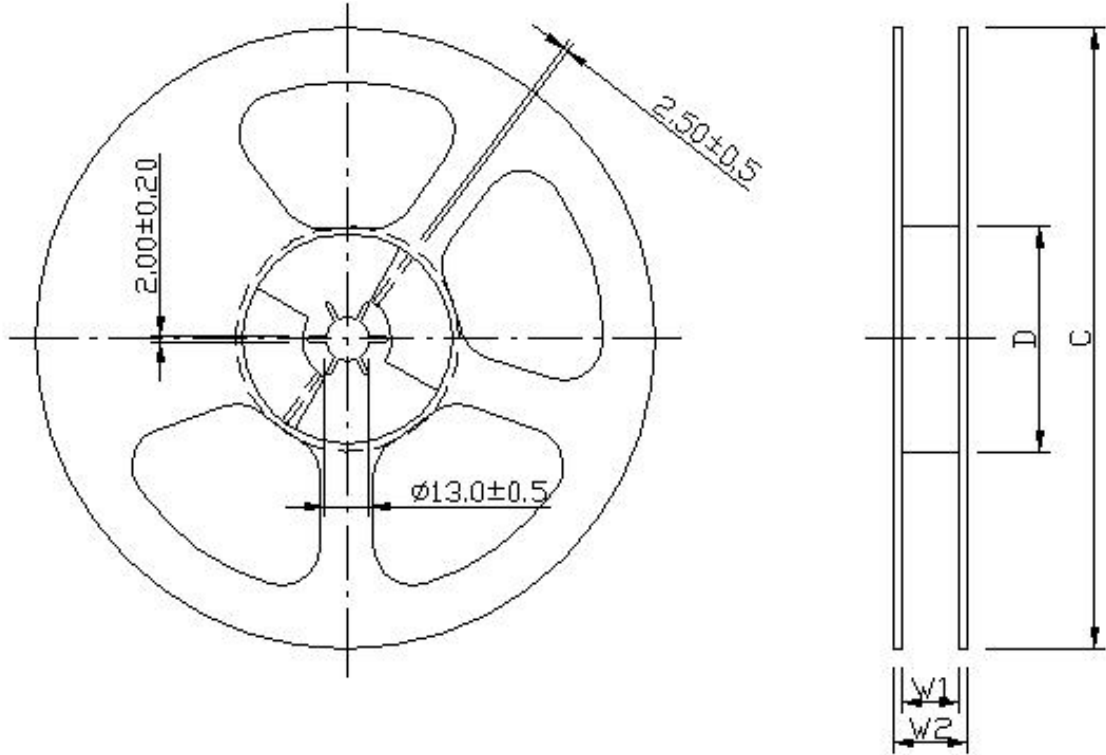
$K_0$ : chosen so that the orientation of the component cannot change.

### DIMENSION:

Serial no	Checking note	Index	Spec(mm)
1	Sprocket hole	Do	$1.55 \pm 0.10$
2	Pocket hole	D1	$1.50 \pm 0.10$
3	Distance sprocket hole/sprocket hole	Po	$4.0 \pm 0.10$
4	Distance pocket/pocket	P1	$12.0 \pm 0.10$
5	Distance sprocket hole/pocket	P2	$2.0 \pm 0.10$
6	Tape width	W	$16.0 \pm 0.30$
7	Distance sprocket hole/outside	E	$1.75 \pm 0.10$
8	Distance sprocket hole/pocket	F	$7.50 \pm 0.10$
9	Pocket length	Ao	$8.20 \pm 0.10$
10	Pocket length	Bo	$9.10 \pm 0.10$
11	Pocket depth	Ko	$1.25 \pm 0.10$
12	Thickness of tape	T	$0.25 \pm 0.10$
13	10x sprocket hole pitch	10Po	$40.0 \pm 0.20$

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## 7"(180mm) Reel Specifications



Product size code	Units per Reel	Tape Width (mm)	C (mm)	D (mm)	$W_1$ (mm)	$W_2$ (mm)
Antenna	1000	16	$180.0 \pm 1.0$	$62 \pm 0.5$	$16.0^{+1}_{-0}$	$20.5 \pm 0.2$

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