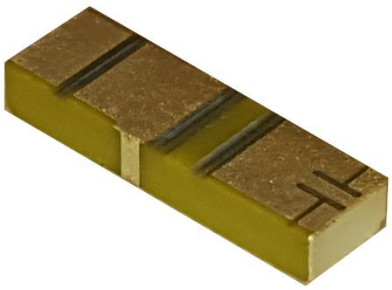
Pulse
a YAGEO company

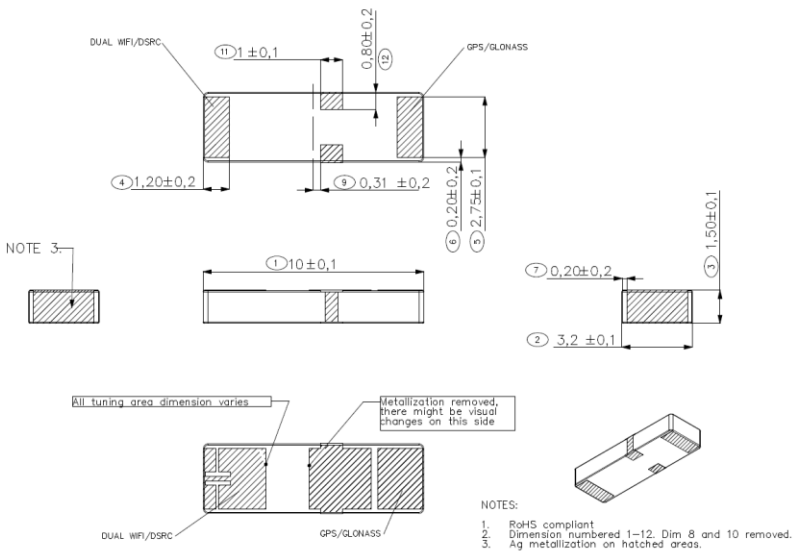
TECHNICAL DATA SHEET

Series: CERAMIC CHIP

Description: GNSS-DUAL WIFI-DSRC ANT

PART NUMBER: W3095





Features:

- 3 in 1 solution on a ceramic chip with two separate feeds.
- Need smaller antenna space on PCB to integrate GNSS, Dual WiFi and DSRC bands
- Compact Size (L x W x H) 10 x 3.2 x 1.5mm.
- Fully SMD compatible

Applications:

- GNSS(1560-1610MHz)
- GPS, Glonass, Beidou
- IEEE 802.11 a/b/g/n compliant 2.4 and 5GHz. (2400-2485/ 4900-5850MHz)
- DSRC (5850-5925MHz)
- Mobile navigation device

All dimensions are in mm / inches

Issue: 2042

RoHS COMPLIANT

For more information:

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Pulse (Suzhou) Wireless Products Co, Inc.
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Suzhou New District
Jiangsu Province, Suzhou 215009 PR China
Tel: 86 512 6807 9998

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ELECTRICAL SPECIFICATIONS

Frequency, Port 1	1.560-1.610 GHZ
Frequency, Port 2	2.4-2.485/ 4.9-5.925 GHz
Normal Impedance	50 Ohm
Return Loss, Port 1	<2.5:1
Return Loss, Port 1	<2:1at low band <2.8:1 at high band
Efficiency (Typ.), Port 1	65 %
Efficiency (Typ.), Port 2	70/ 55 %
Peak Gain, Port 1	1.5 dBi
Peak Gain, Port 2	1.5/ 3.5 dBi
Isolation (Min.) at 1.560-1.610 GHz	20 dB
Isolation (Min.) at 2.4-2.485 GHz	18 dB
Isolation (Min.) at 4.9-5.925 GHz	22 dB
Polarization	Linear
Interface	SMD Mount

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Description: GNSS-DUAL WIFI-DSRC ANT

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MECHANICAL SPECIFICATIONS

Block material	Dielectric ceramic
Plating material	Ag
Weight	0.24 g
RoHS Compliant Product	
Tape and reel packing	
Lead free materials	
Lead free soldering compatible	
Vibration test	According to AEC-Q200-Rev-D MIL-STD-202 Method 204, 5g's for 20 min., 12 cycles each of 3 orientations. Note: USE 8'' x 5'' 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.
Moisture sensitivity level	MSL 1

ENVIRONMENTAL SPECIFICATIONS

Operating temperature	-30 to +80° C

RoHS COMPLIANT

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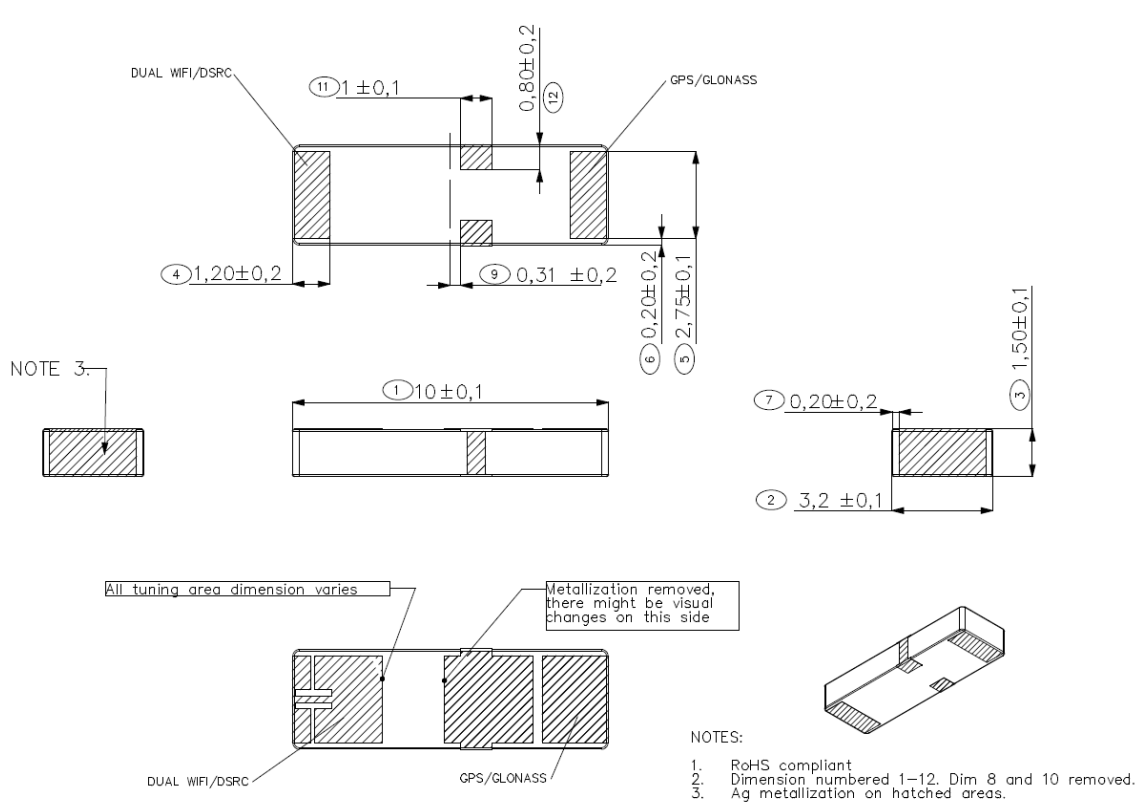
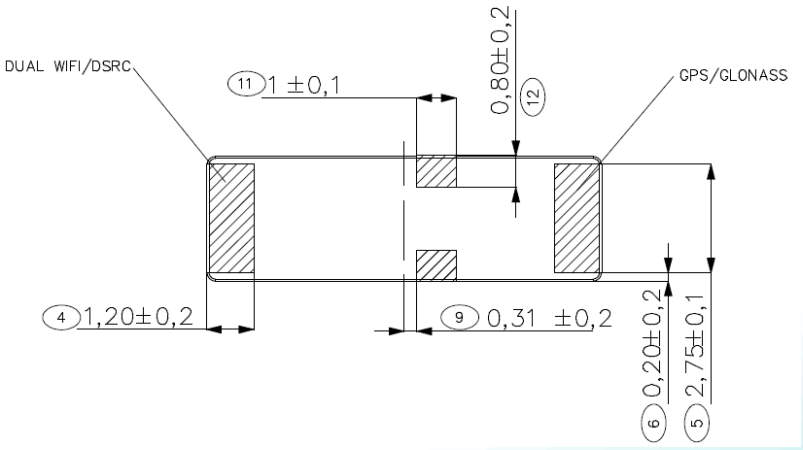
MECHANICAL DRAWING



Dimensions: (mm)

Details of antenna pad dimension on the bottom in mm.



RoHS COMPLIANT

Description: GNSS-DUAL WIFI-DSRC ANT

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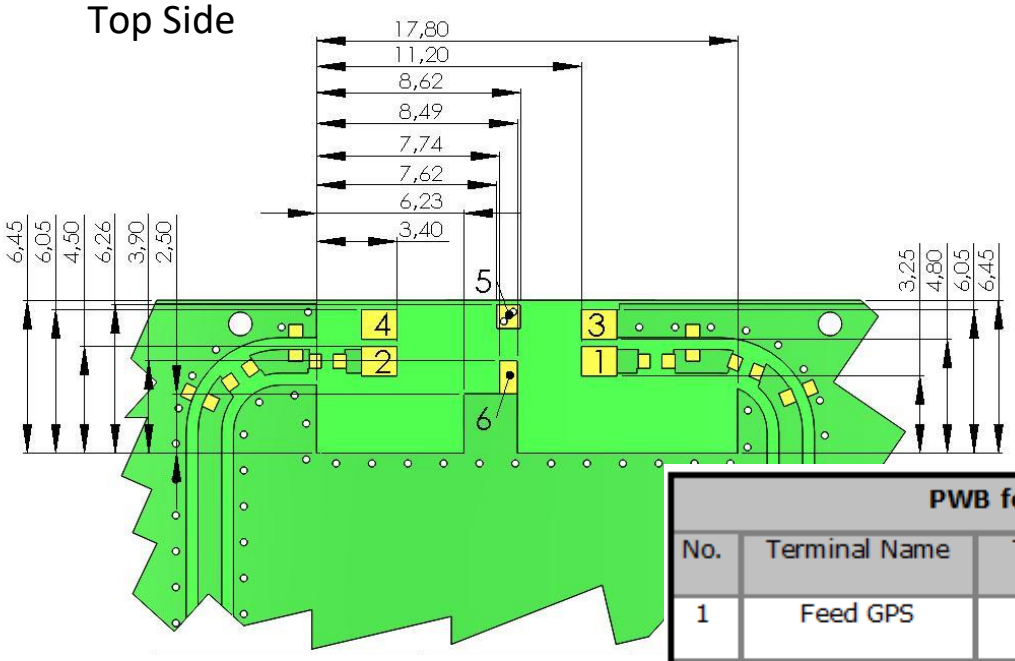
PART NUMBER: W3095

OTHER SPECIFICATIONS

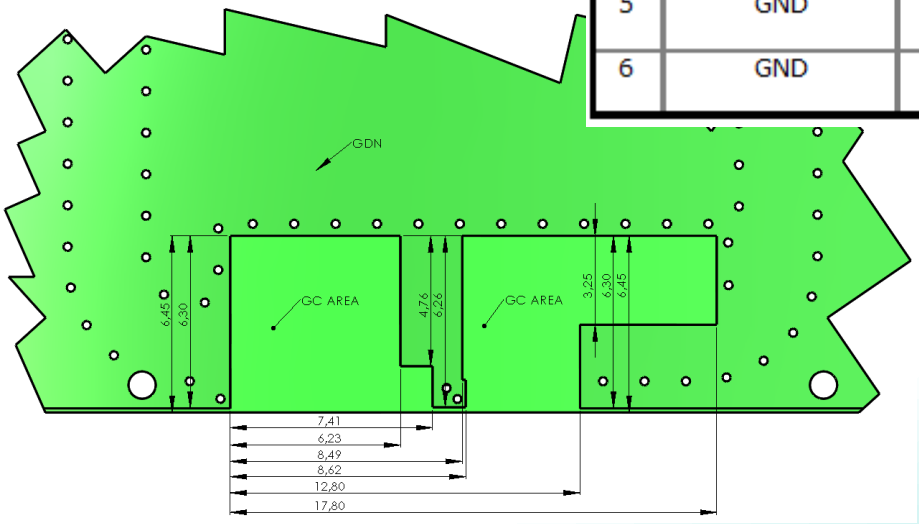
PCB Layout Recommendation

Top Side



PWB features		
No.	Terminal Name	Terminal Dimensions
1	Feed GPS	1.25 x 1.50 mm
2	Feed 2,4-5,925GHZ	1.25 x 1.50 mm
3	GND	1.25 x 1.50 mm
4	Support pad	1.25 x 1.50 mm
5	GND	1.00 x 1.00 mm
6	GND	1.40x 0.75 mm

Bottom Side



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RoHS COMPLIANT

Description: GNSS-DUAL WIFI-DSRC ANT

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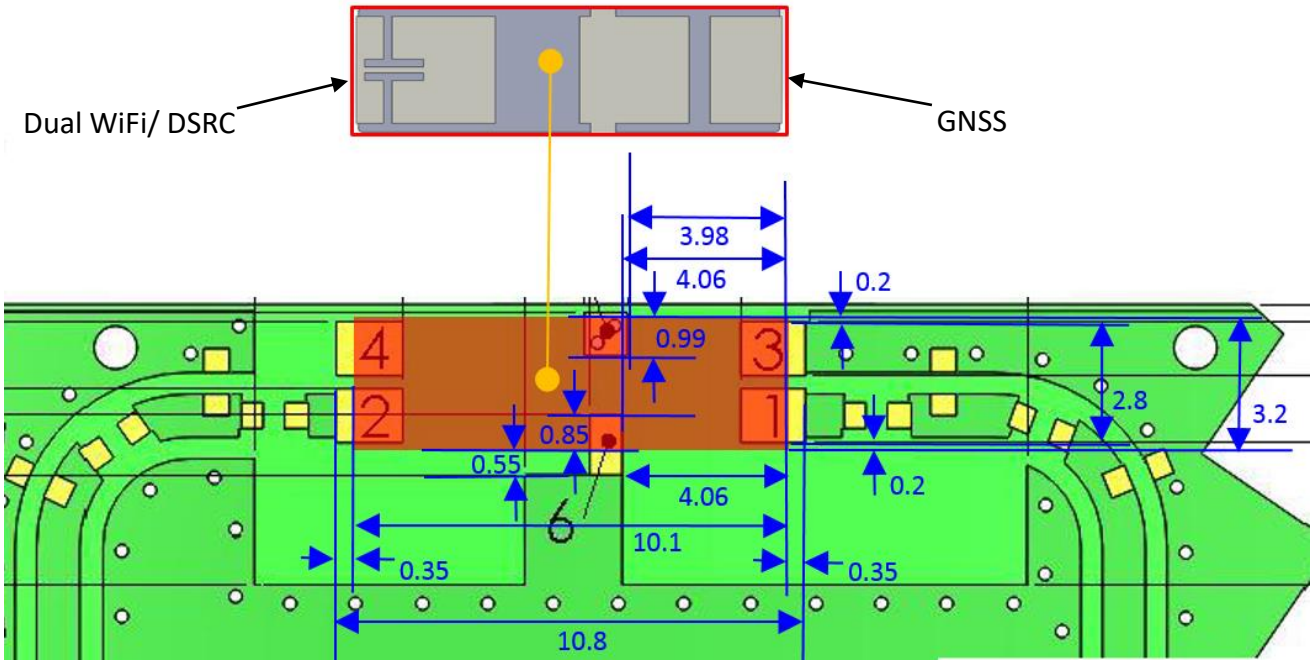
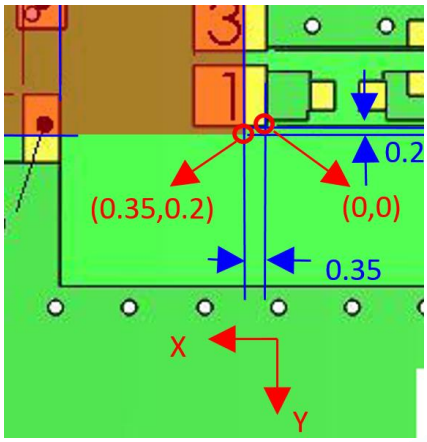
OTHER SPECIFICATIONS

Antenna Alignment on PCB Layout





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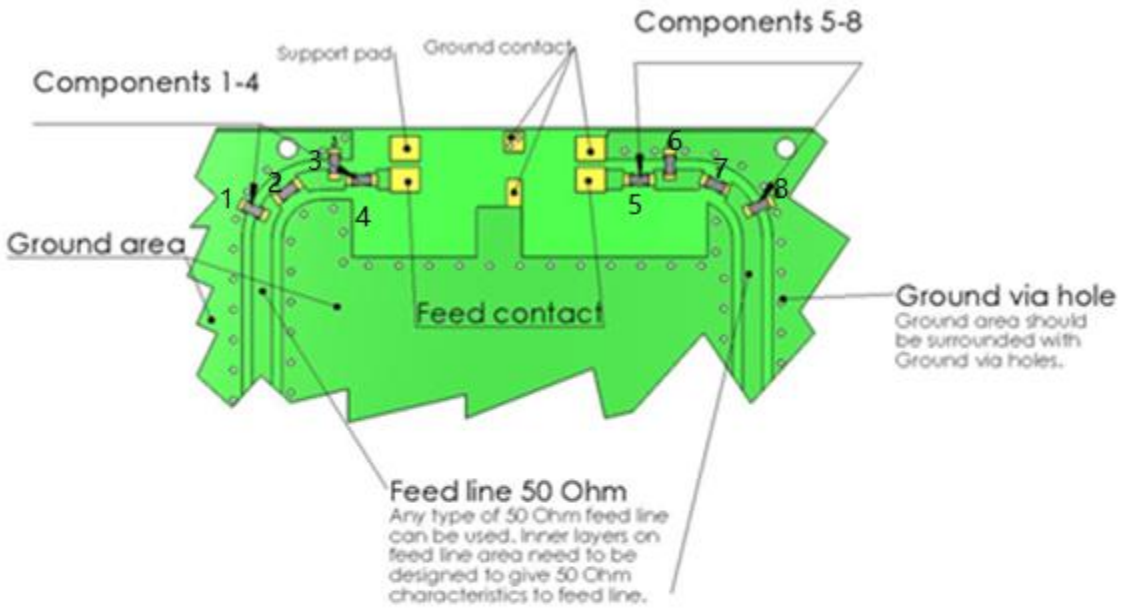
OTHER SPECIFICATIONS

Suggested Matching on PCB



Antenna	Component NO.	Value
2,4-5,85GHz	1	Not in use
2,4-5,85GHz	2	0 Ohm
2,4-5,85GHz	3	2,2nH
2,4-5,85GHz	4	1,2pF
GNSS	5	0 Ohm
GNSS	6	1,8pF
GNSS	7	0 Ohm
GNSS	8	Not in use

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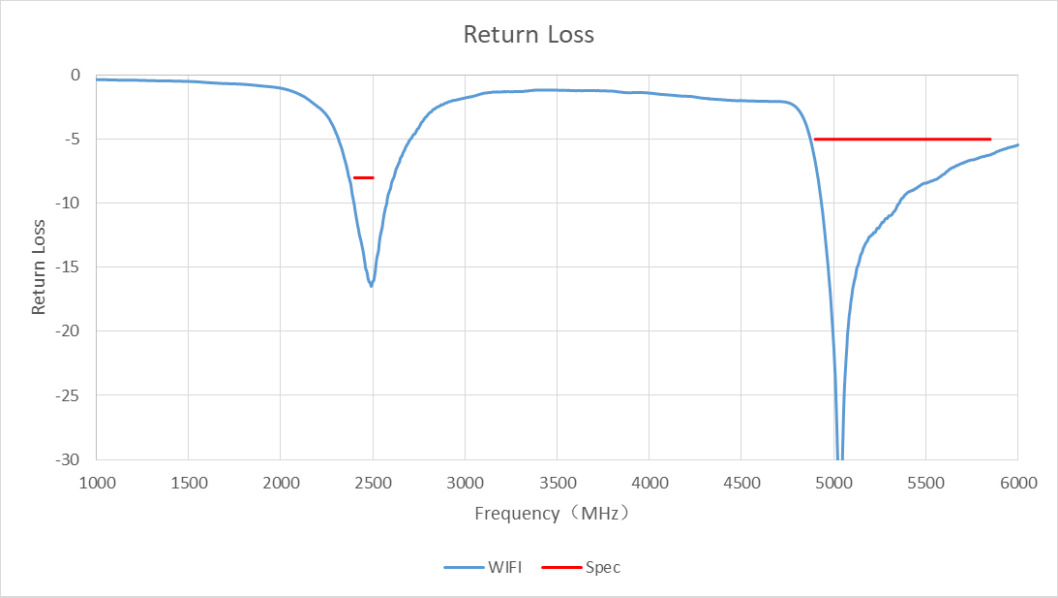
CHARTS

Typical GNSS antenna Return Loss

Typical WIFI antenna Return Loss



Description: GNSS-DUAL WIFI-DSRC ANT

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CHARTS

Typical Isolation

Description: GNSS-DUAL WIFI-DSRC ANT

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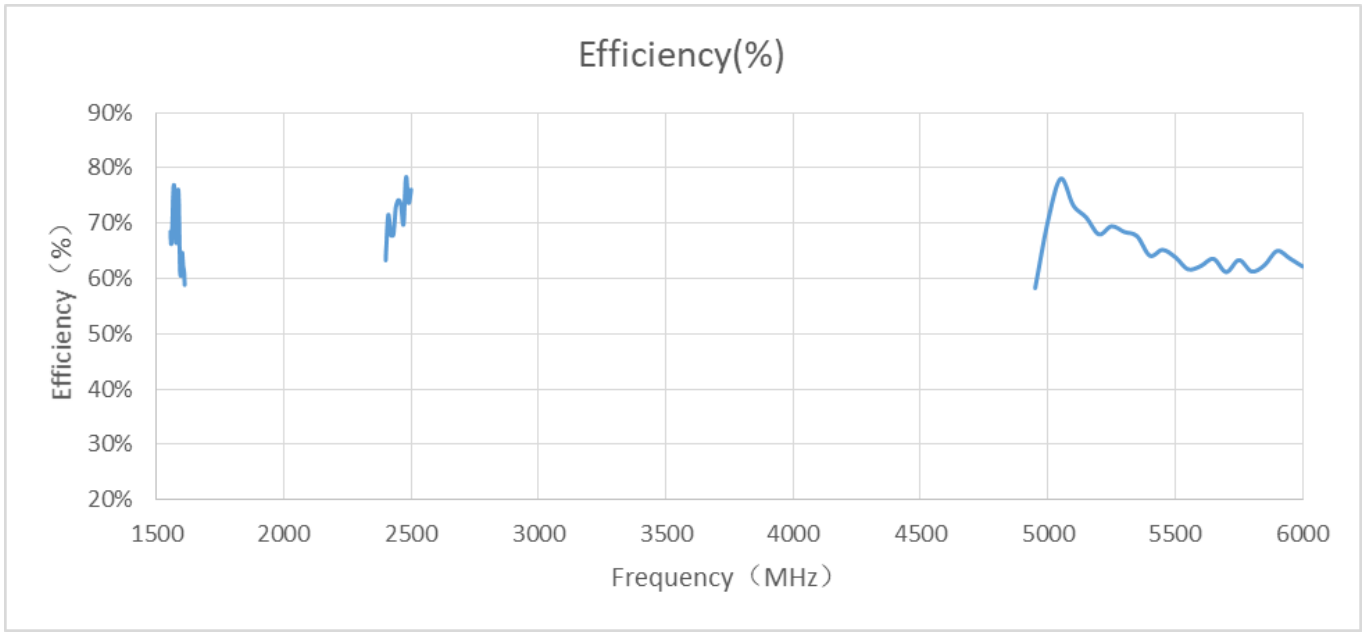
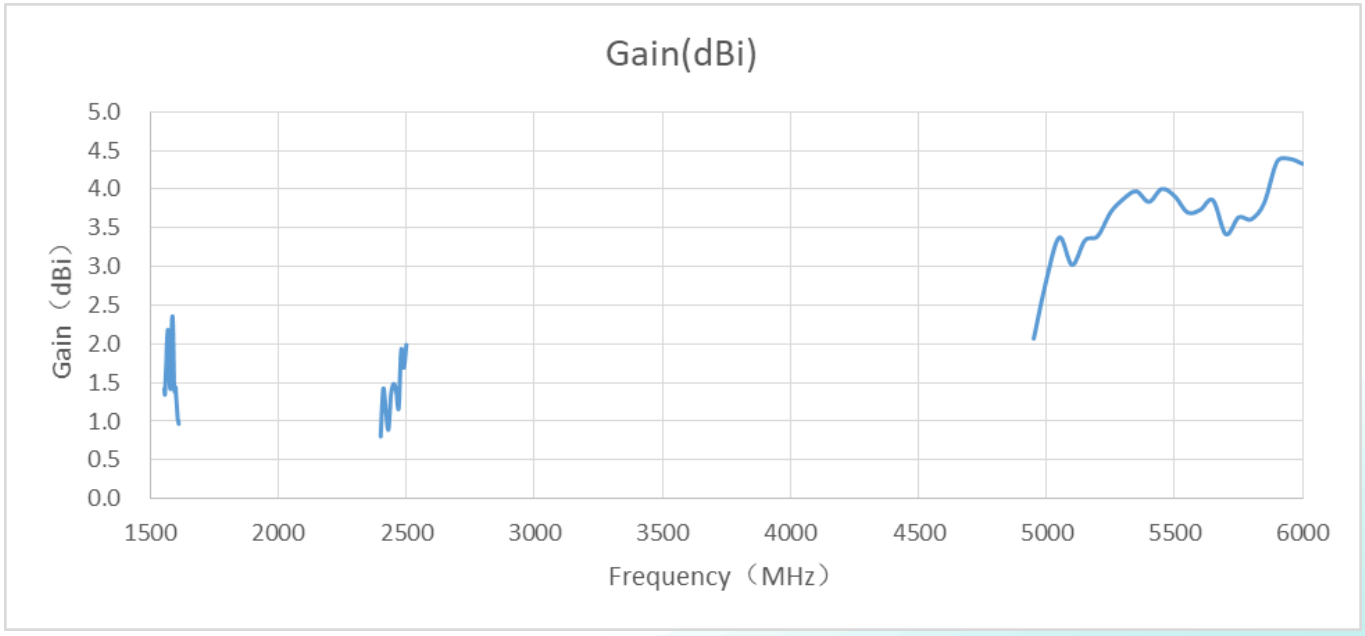
CHARTS

Typical Antenna Total Efficiency



Typical Antenna Peak Gain



RoHS COMPLIANT

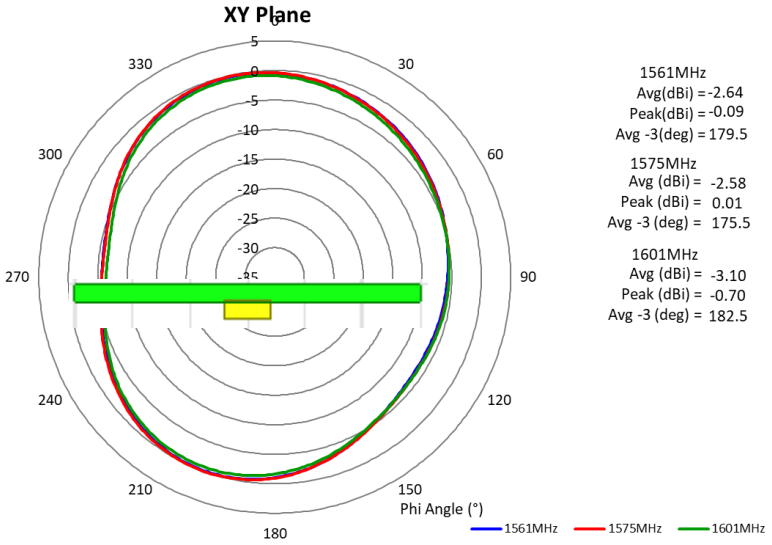
Description: GNSS-DUAL WIFI-DSRC ANT

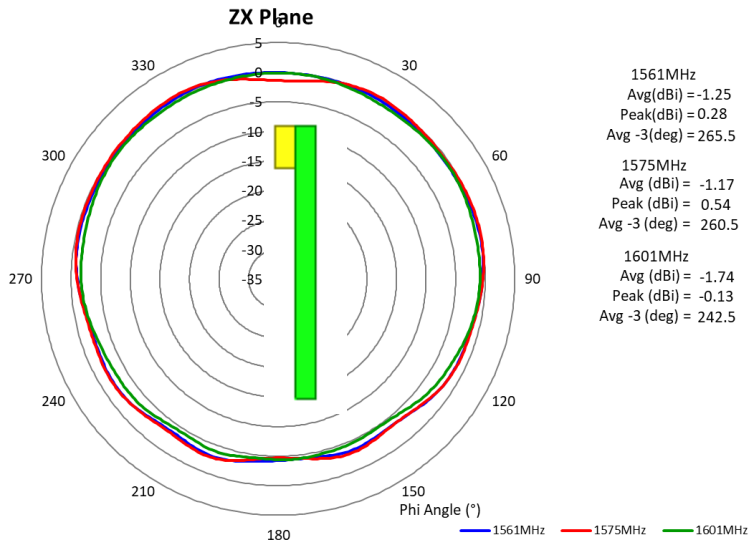
Series: CERAMIC CHIP

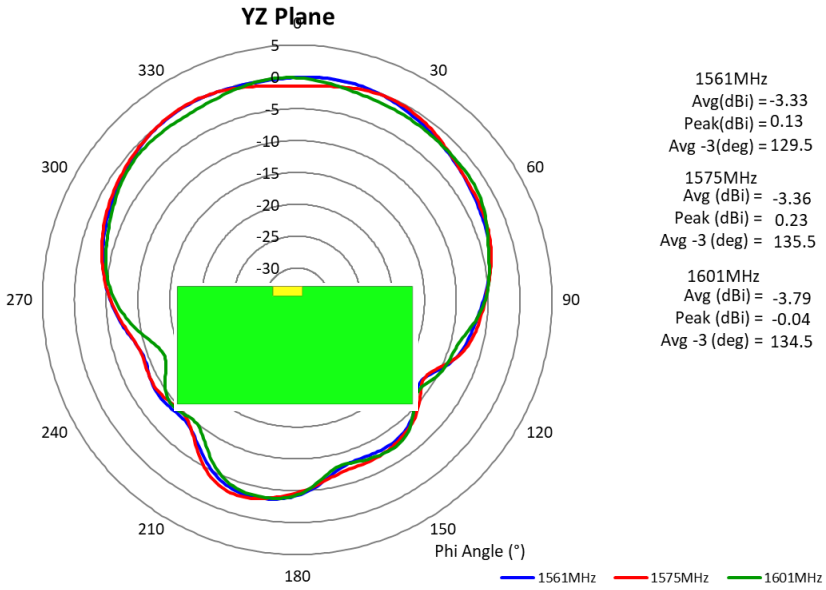
PART NUMBER: W3095

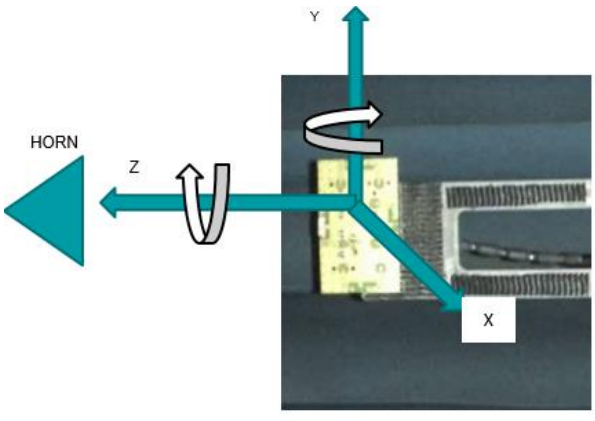
CHARTS

Typical free space radiation pattern—GNSS









RoHS COMPLIANT

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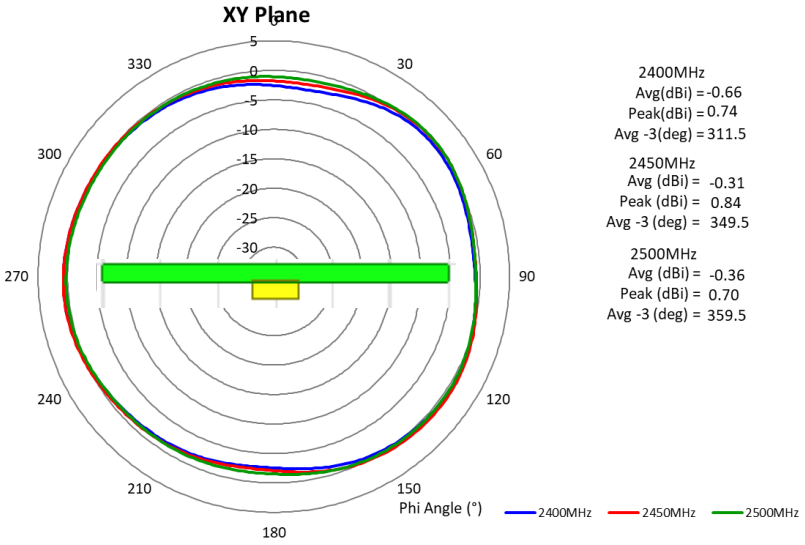
CHARTS

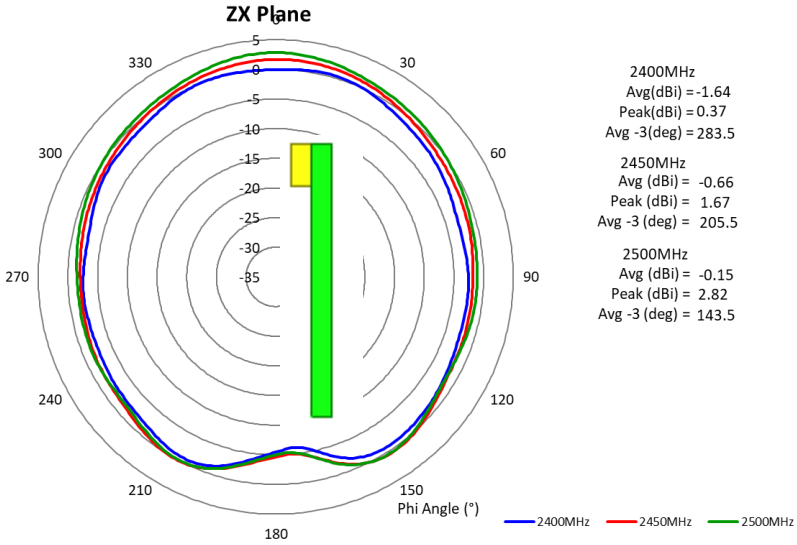
Typical free space radiation pattern—2.4G



2400MHz
Avg(dBi) = -0.66
Peak(dBi) = 0.74
Avg -3(deg) = 311.5

2450MHz
Avg (dBi) = -0.31
Peak (dBi) = 0.84
Avg -3 (deg) = 349.5

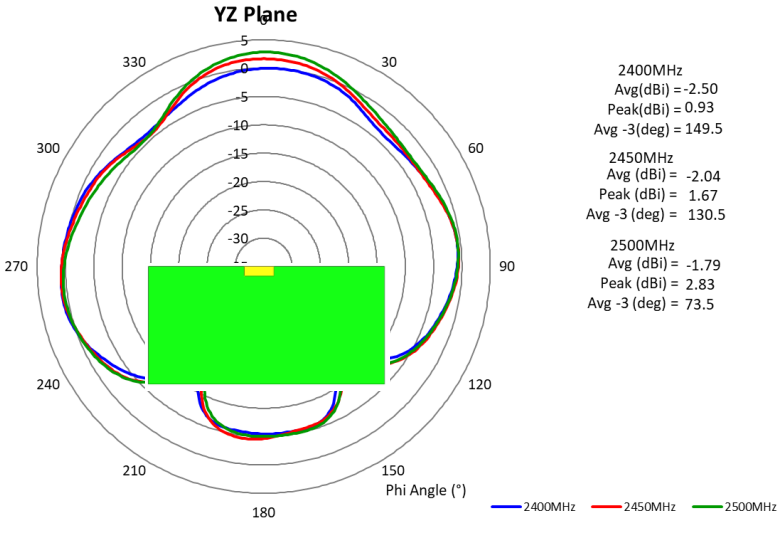
2500MHz
Avg (dBi) = -0.36
Peak (dBi) = 0.70
Avg -3 (deg) = 359.5



2400MHz
Avg(dBi) = -1.64
Peak(dBi) = 0.37
Avg -3(deg) = 283.5

2450MHz
Avg (dBi) = -0.66
Peak (dBi) = 1.67
Avg -3 (deg) = 205.5

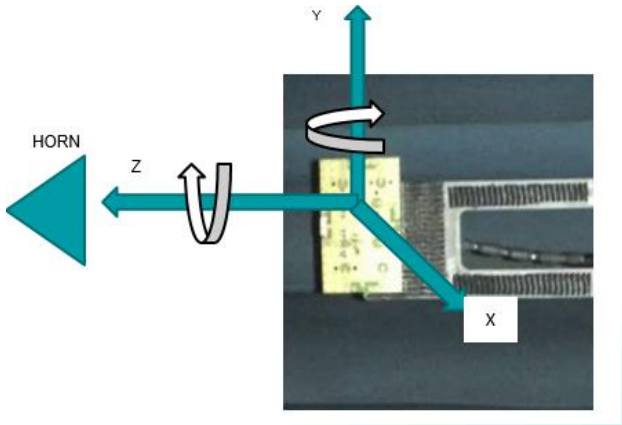
2500MHz
Avg (dBi) = -0.15
Peak (dBi) = 2.82
Avg -3 (deg) = 143.5



2400MHz
Avg(dBi) = -2.50
Peak(dBi) = 0.93
Avg -3(deg) = 149.5

2450MHz
Avg (dBi) = -2.04
Peak (dBi) = 1.67
Avg -3 (deg) = 130.5

2500MHz
Avg (dBi) = -1.79
Peak (dBi) = 2.83
Avg -3 (deg) = 73.5



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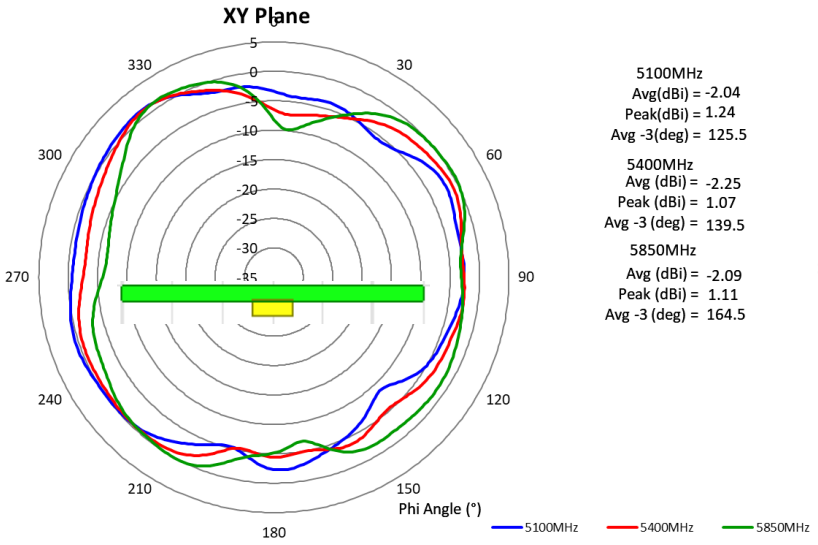
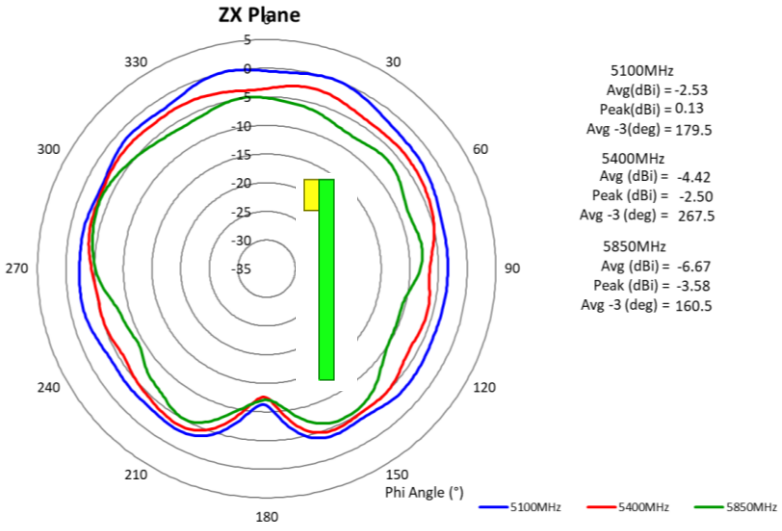
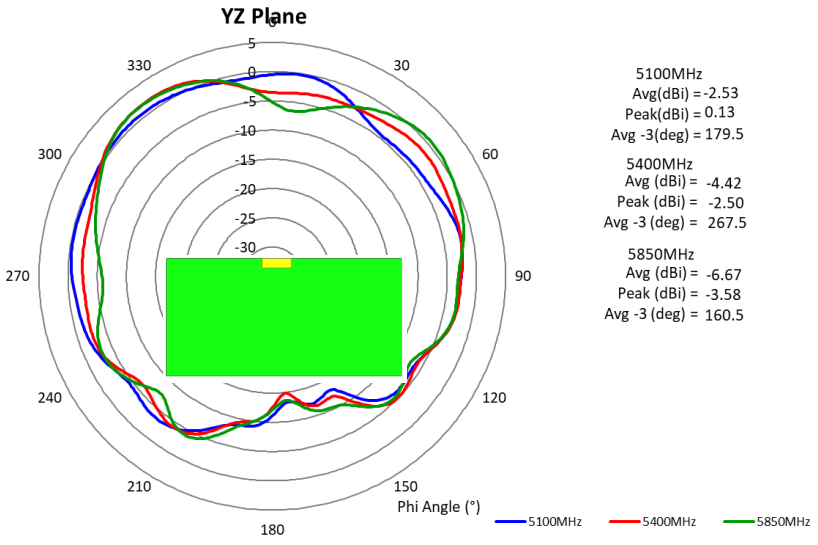
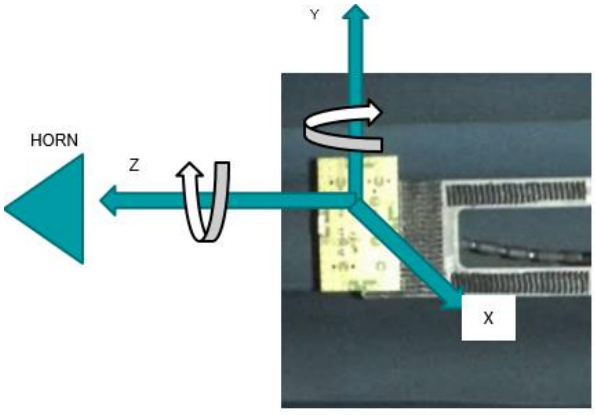
CHARTS

Typical free space radiation pattern—5G









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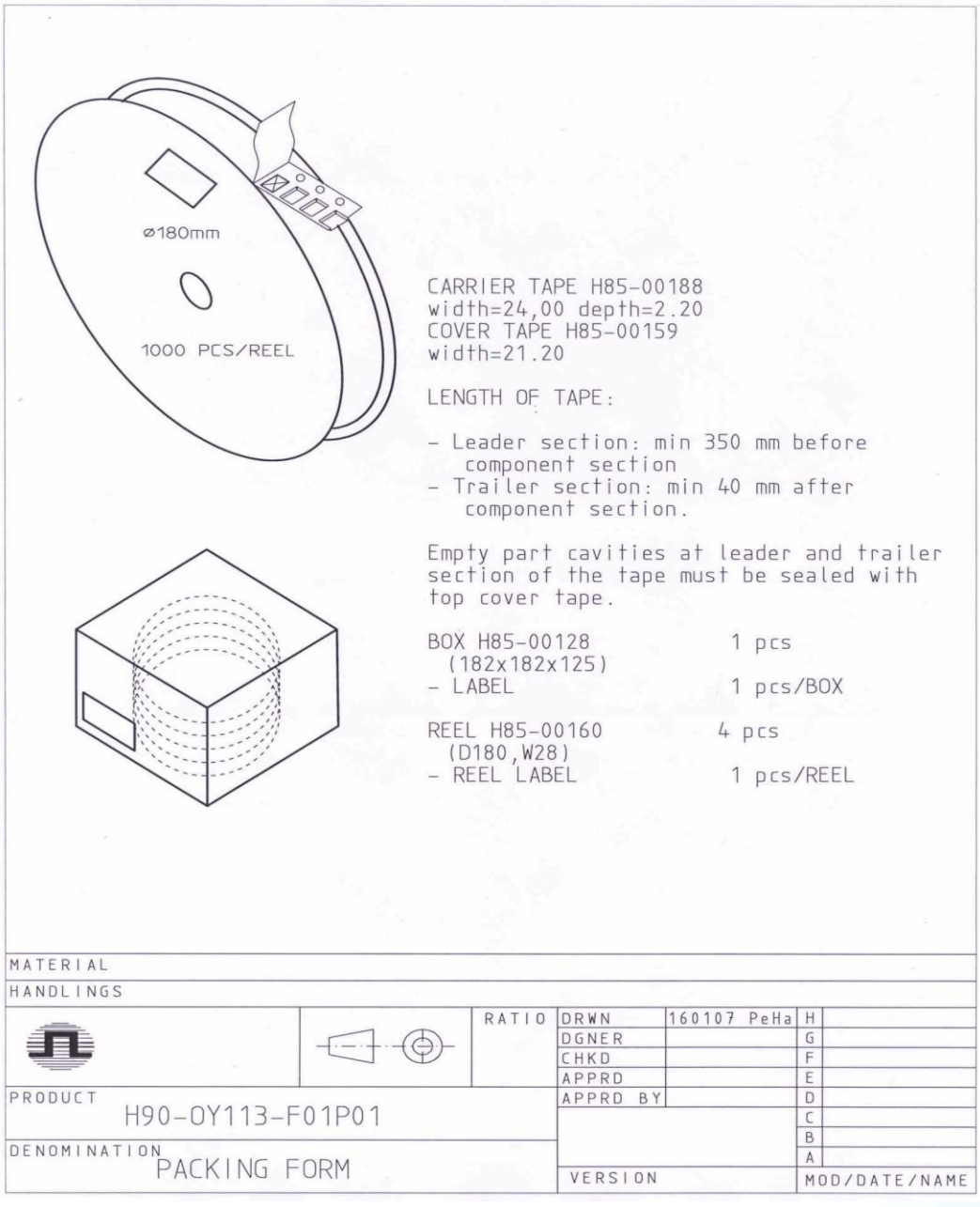
PACKAGING



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Block Orientation

Antenna soldering pads facing down to the bottom of the carrier tape

Top view of the carrier tape