

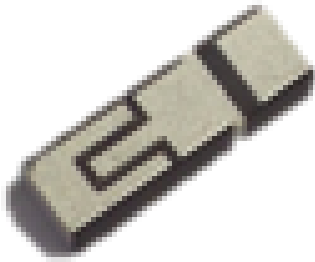
Description: ISM868/915, ISM2.4G

Series: Ceramic antenna

PART NUMBER: W3320

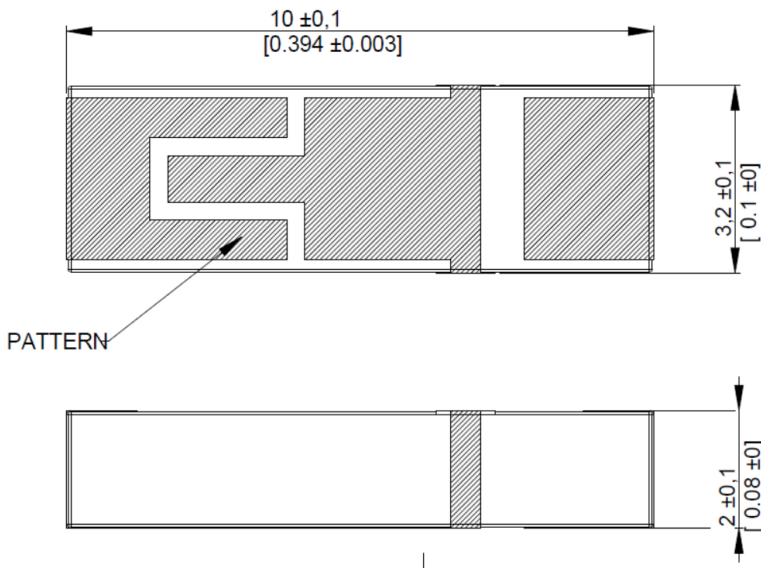
**Features:**

- 3 in1 –combo antenna
  - Port 1: 868/915MHz
  - Port 2: 2.4GHz
- Compact size 3.2x10x2mm
- SMT mounting on PCB
- Tape & Reel packing
- High isolation between ports >20dB



**Applications:**

- ISM band radios
- 868MHz, 915MHz, 2.4GHz
- IoT, M2M, set top boxes, devices requiring small embedded multiband ISM antenna



All dimensions are in mm / inches

Issue: 1612

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

CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.

For more information:

Pulse Worldwide Headquarters  
12220 World Trade Drive  
San Diego, CA 92128  
USA  
Tel:1-858-674-8100

Pulse/Larsen Antennas  
18110 SE 34<sup>th</sup> St Bldg 2 Suite 250  
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:** ISM868/915, ISM2.4G

**Series:** Ceramic antenna

**PART NUMBER:** W3320

## ELECTRICAL SPECIFICATIONS

Frequency	ISM868/915MHz, ISM2.4GHz
Nominal Impedance	50Ω
Return Loss	<-7dB @868/915MHz <-5dB@2.4
Gain	1dBi +/- 1 dB@868/915MHz 3dBi +/- 1 dB@2.4GHz
Radiation Pattern	Omni
Polarization:	Vertical
Power withstanding	2W

Issue: 1612

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

CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.

**Description:** ISM868/915, ISM2.4G

**Series:** Ceramic antenna

**PART NUMBER:** W3320

### MECHANICAL SPECIFICATIONS

Weight	0.3 g
Overall Length	10[0.39] MM[INCHES]
Over all width	3.2[0.12] MM[INCHES]
Over all thickness	2[0.08] MM[INCHES]

### ENVIRONMENTAL SPECIFICATIONS

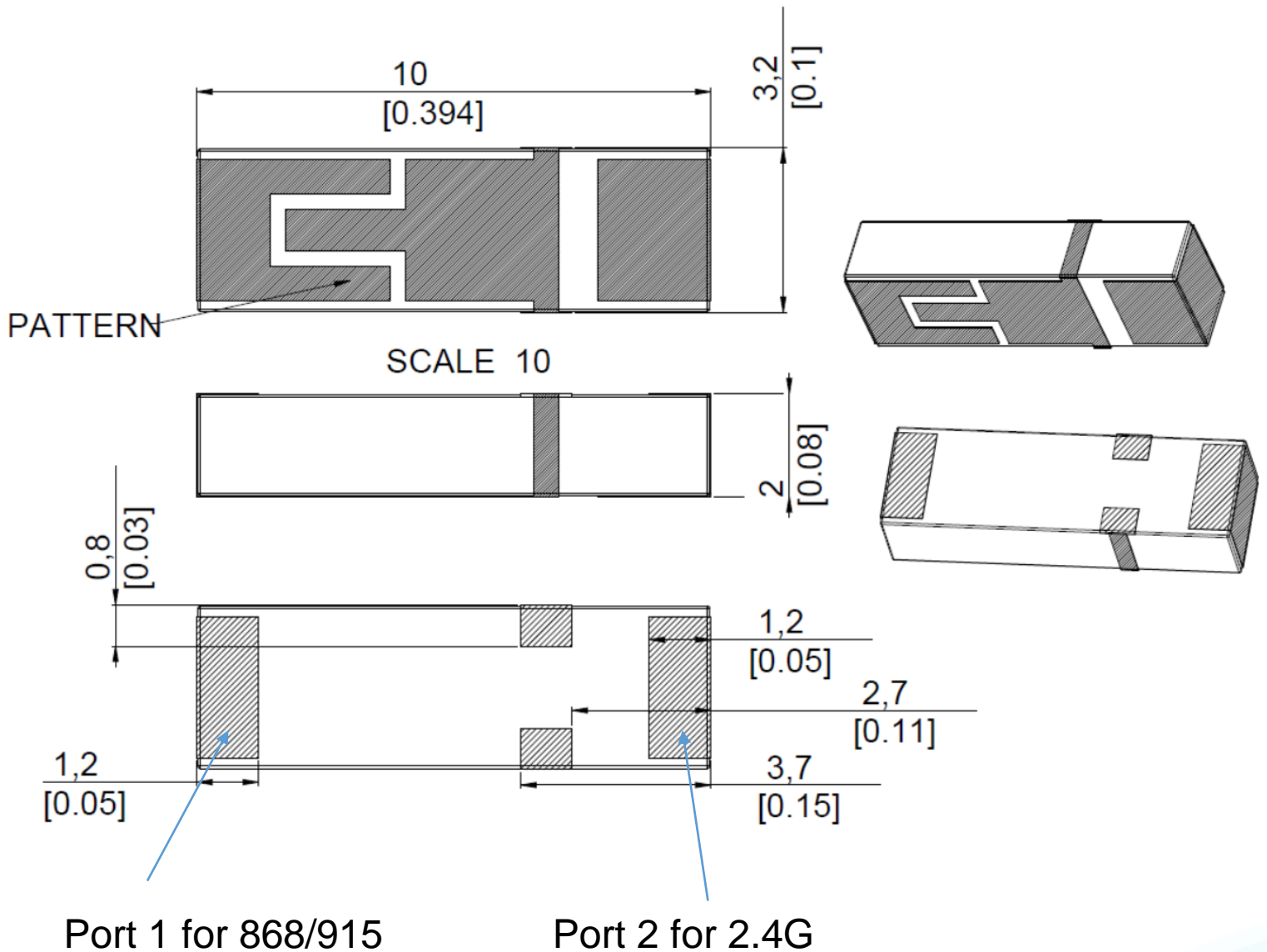
Operating temperature	-40/+85° C
-----------------------	------------

Description: ISM868/915, ISM2.4G

Series: Ceramic antenna

PART NUMBER: W3320

MECHANICAL DRAWING



Issue: 1612

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

CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.

Description: ISM868/915, ISM2.4G

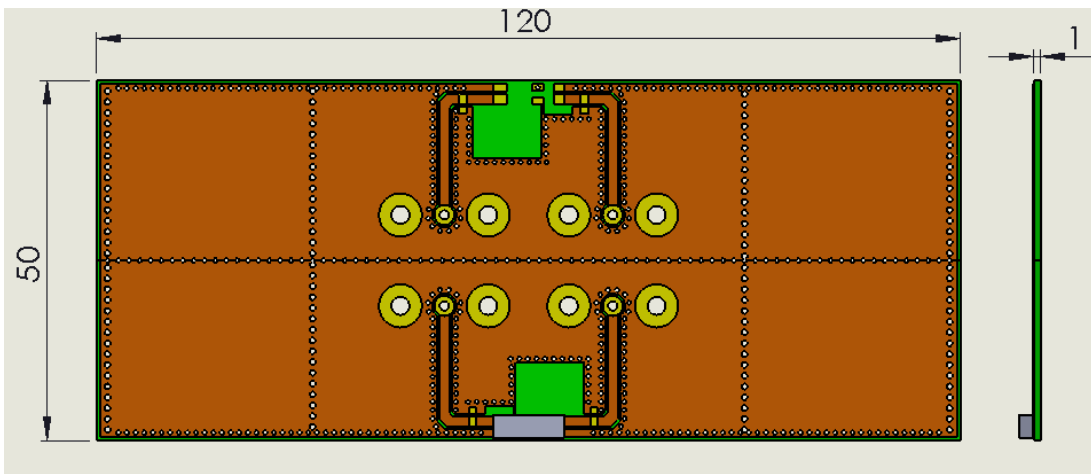
Series: Ceramic antenna

PART NUMBER: W3320

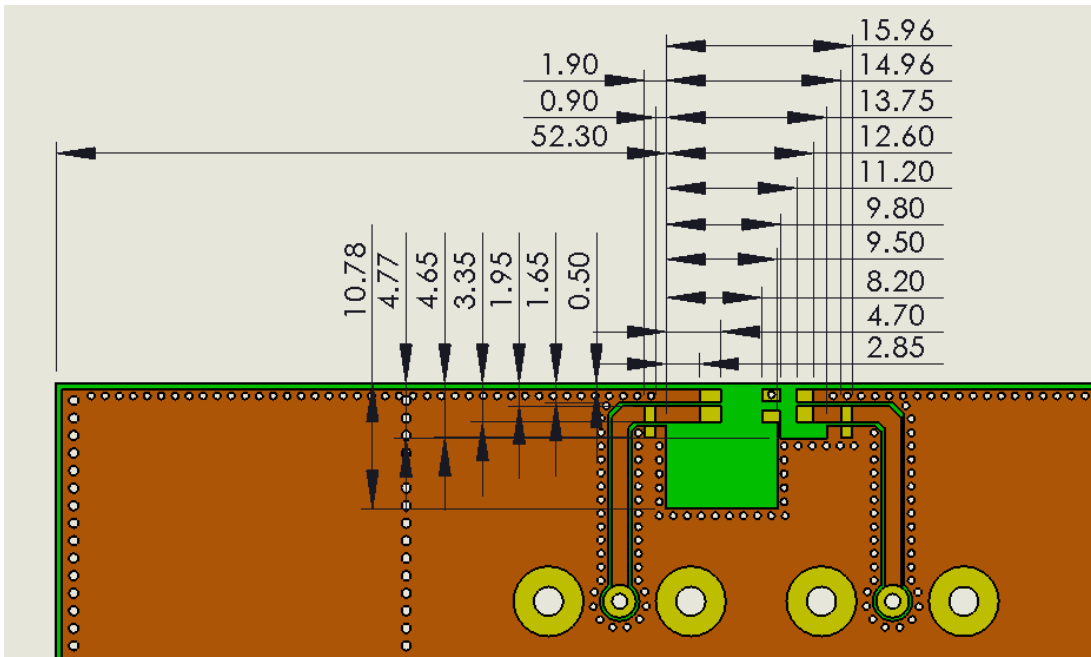
OTHER SPECIFICATIONS

PCB LAYOUT

1, PCB material, FR4, size, 120X50X1mm



2, Clearance area (Top)



Issue: 1612

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

CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.

Description: ISM868/915, ISM2.4G

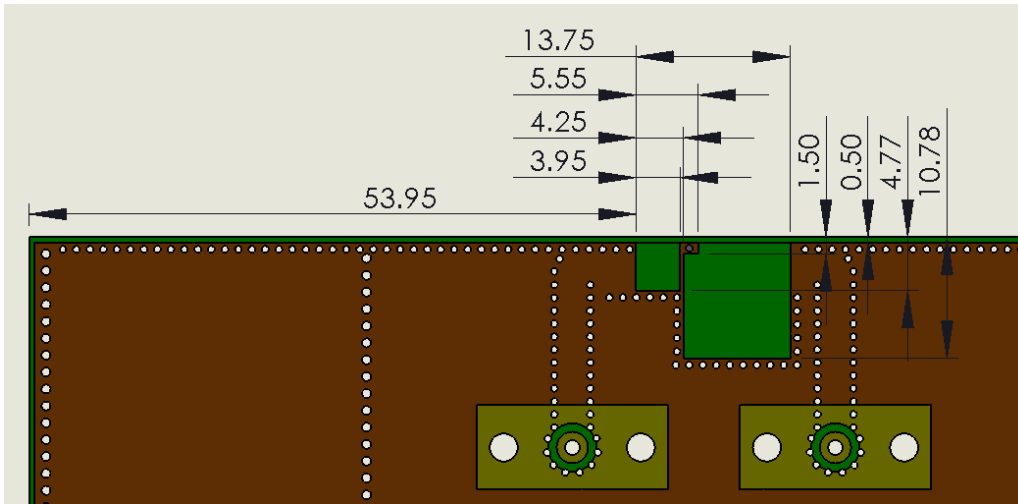
Series: Ceramic antenna

PART NUMBER: W3320

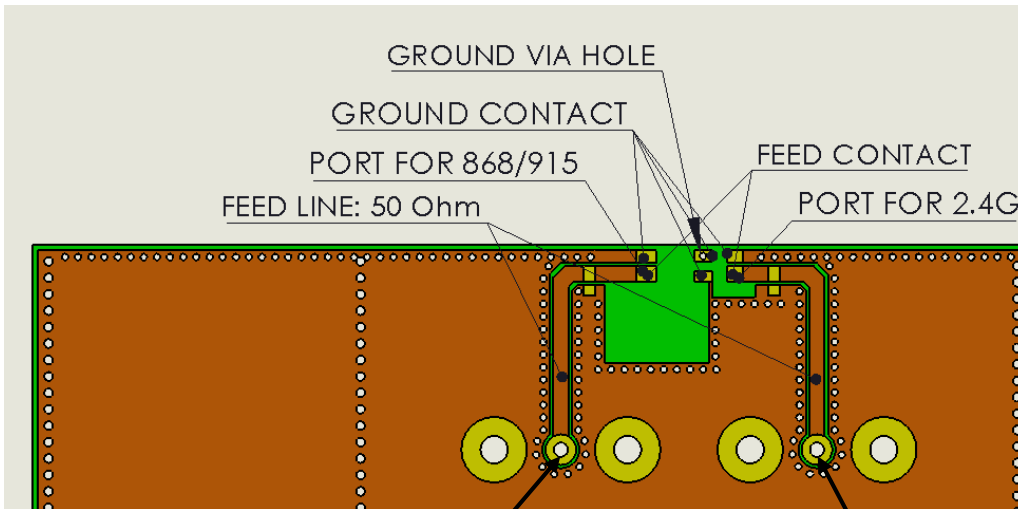
OTHER SPECIFICATIONS

PCB LAYOUT

3, Clearance area (Bottom)



4, PCB Features



Port for ISM868/915MHz

Port for 2.4G

Issue: 1612

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

CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.

Description: ISM868/915, ISM2.4G

Series: Ceramic antenna

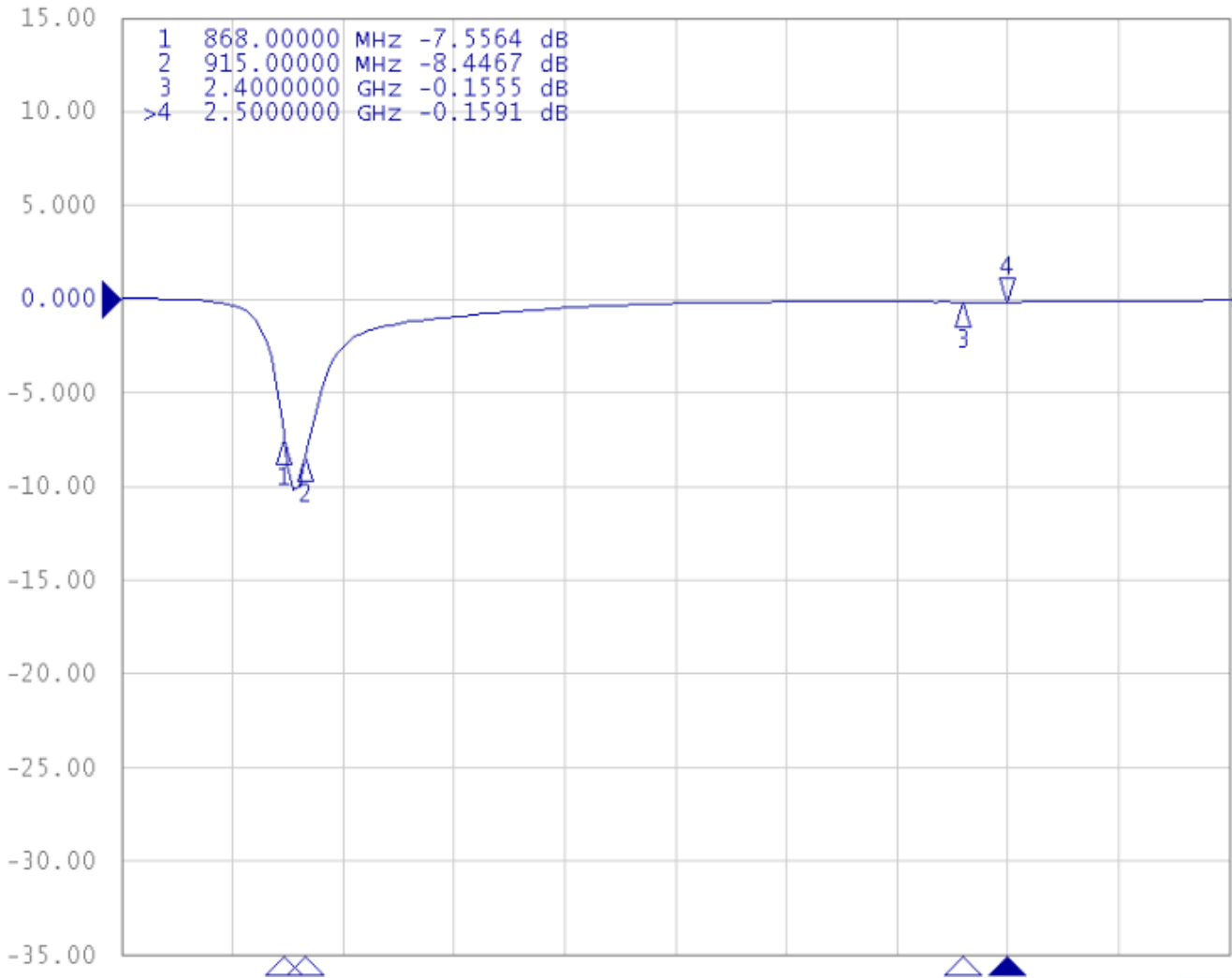
PART NUMBER: W3320

CHARTS

Return Loss

ISM868/915MHz

▶ Tr1 S11 Log Mag 5.000dB/ Ref 0.000dB [F1 Smo]



Issue: 1612

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

CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.

Description: ISM868/915, ISM2.4G

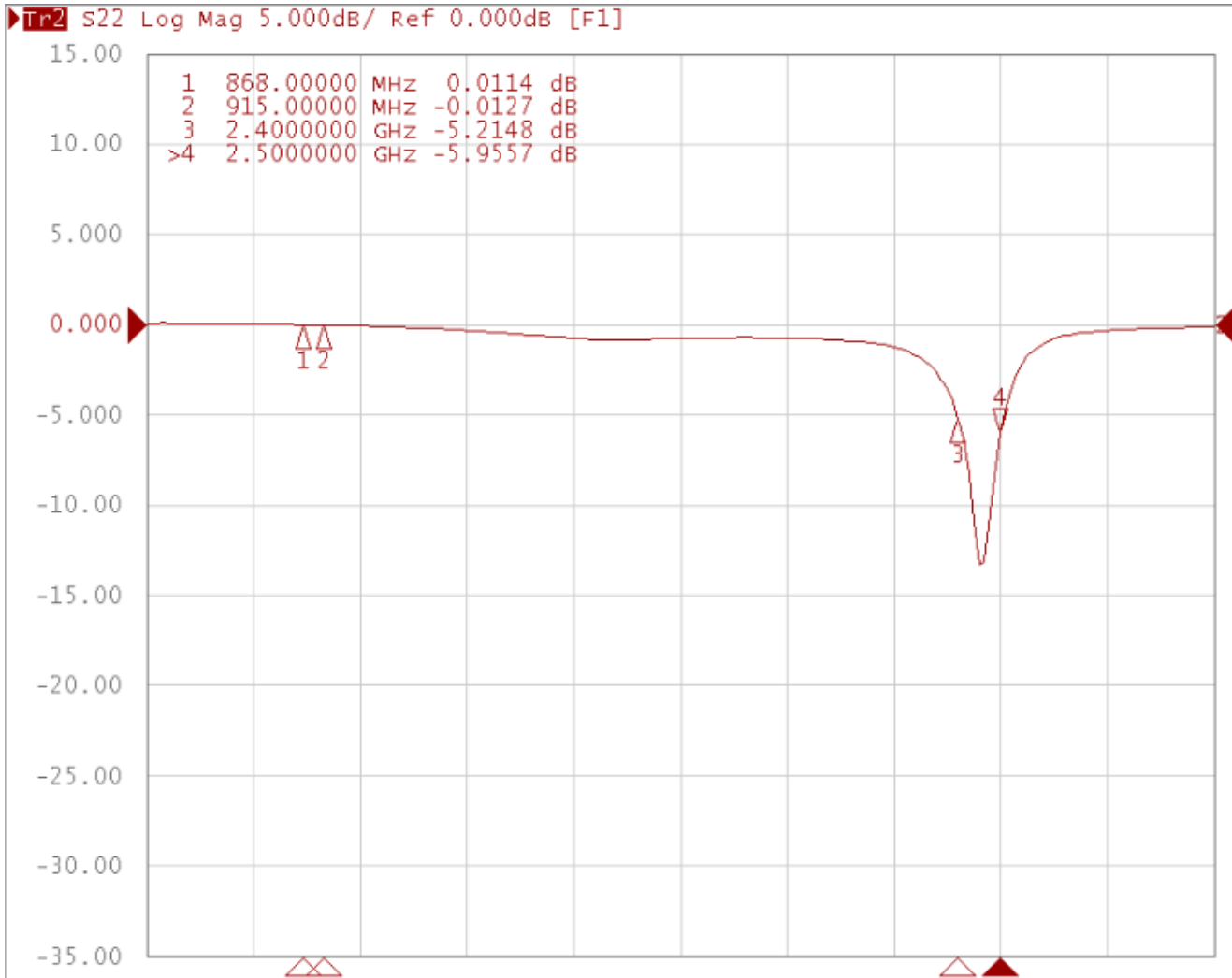
Series: Ceramic antenna

PART NUMBER: W3320

CHARTS

Return Loss

ISM2.4G



Issue: 1612

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

CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.



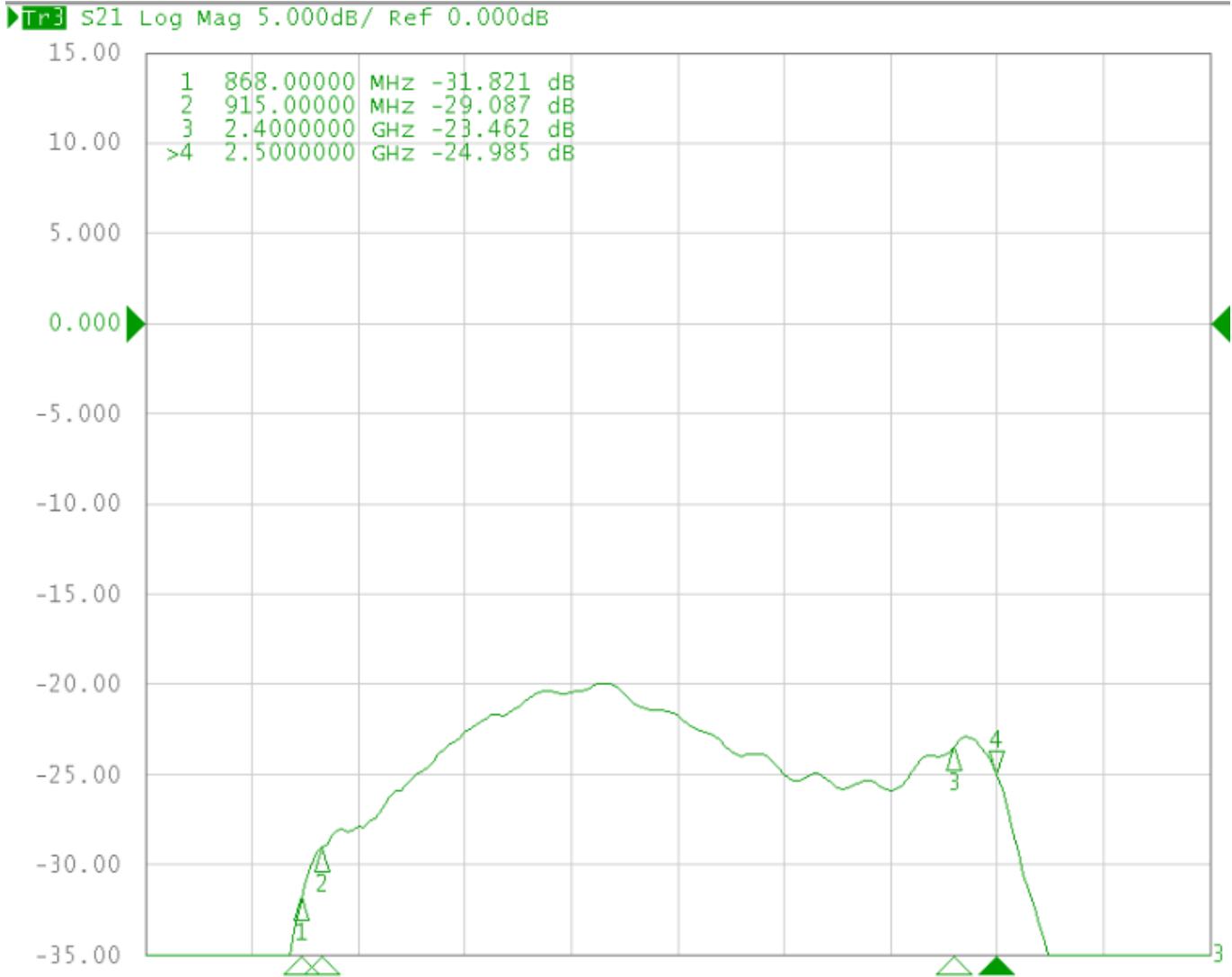
Description: ISM868/915, ISM2.4G

Series: Ceramic antenna

PART NUMBER: W3320

CHARTS

Isolation



Issue: 1612

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

CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.



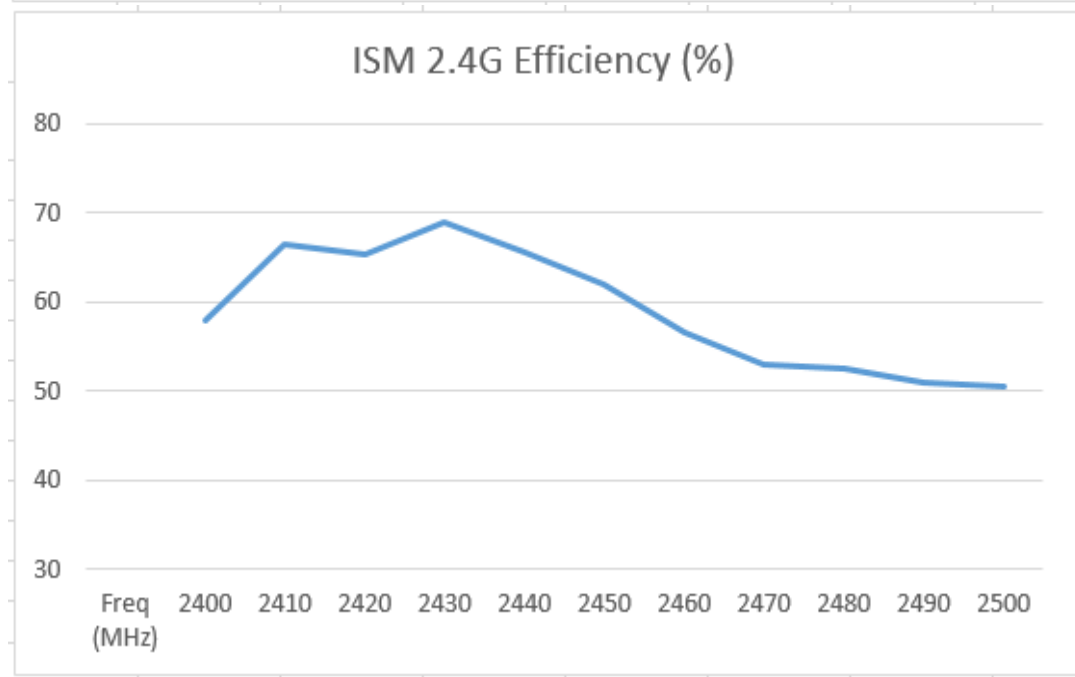
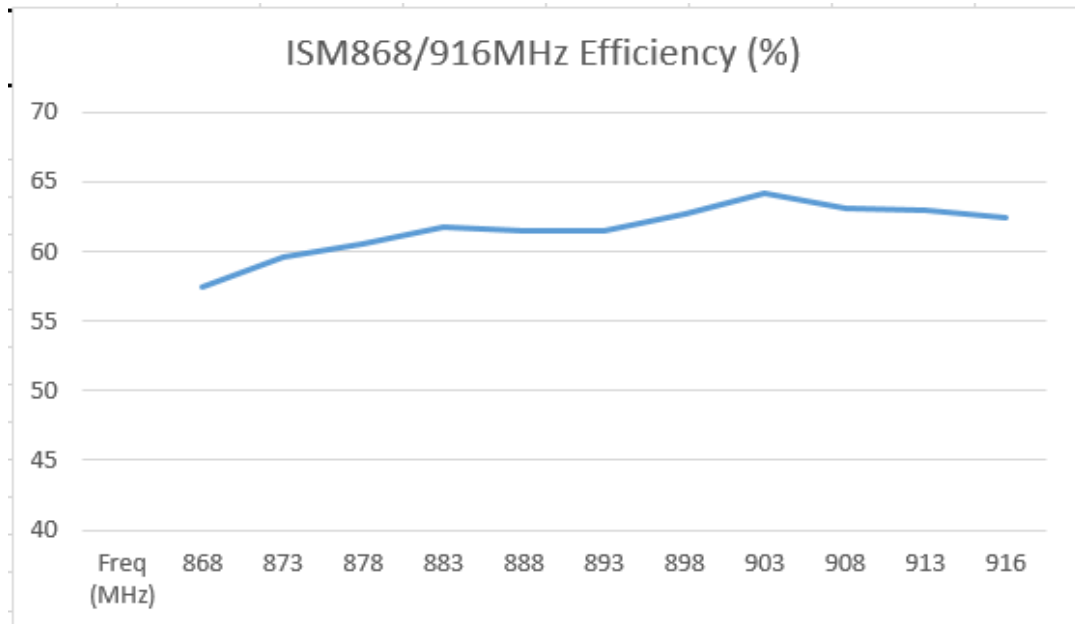
Description: ISM868/915, ISM2.4G

Series: Ceramic antenna

PART NUMBER: W3320

CHARTS

Efficiency(%)



Issue: 1612

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

CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.



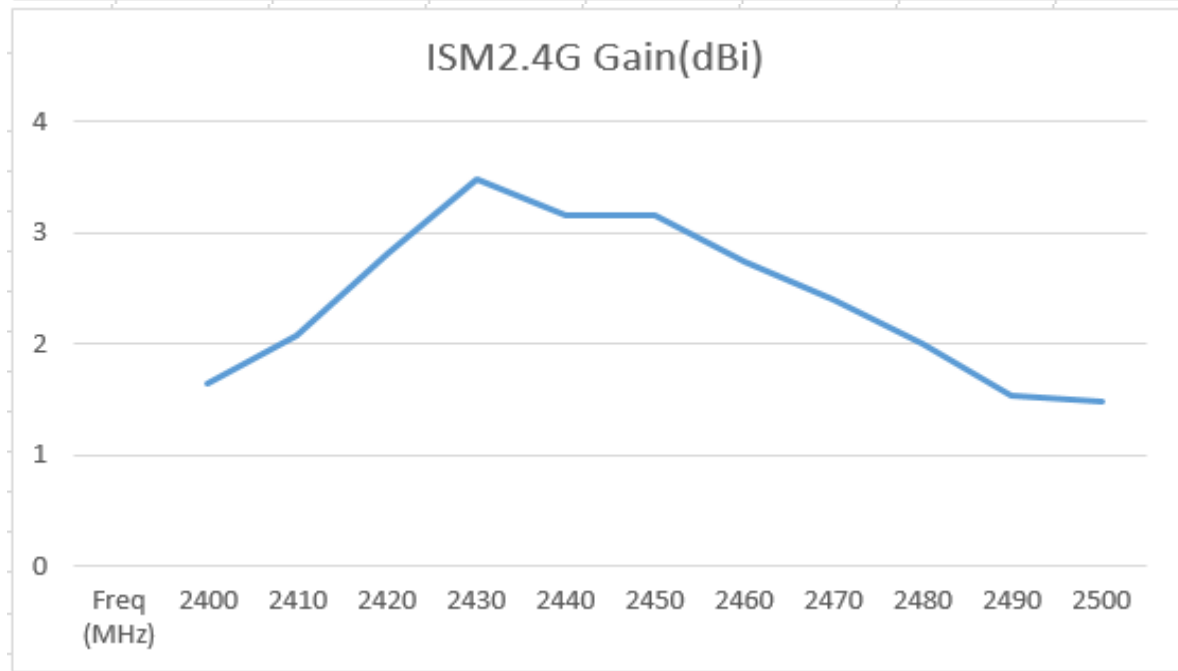
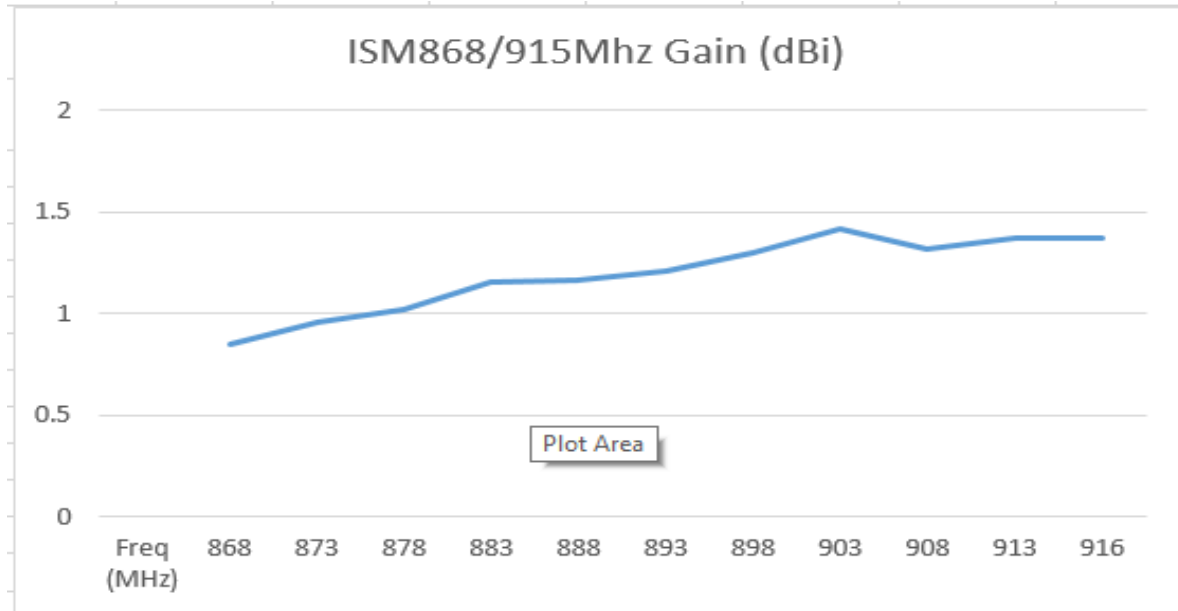
Description: ISM868/915, ISM2.4G

Series: Ceramic antenna

PART NUMBER: W3320

CHARTS

Gain ( dBi )



Issue: 1612

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

CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.



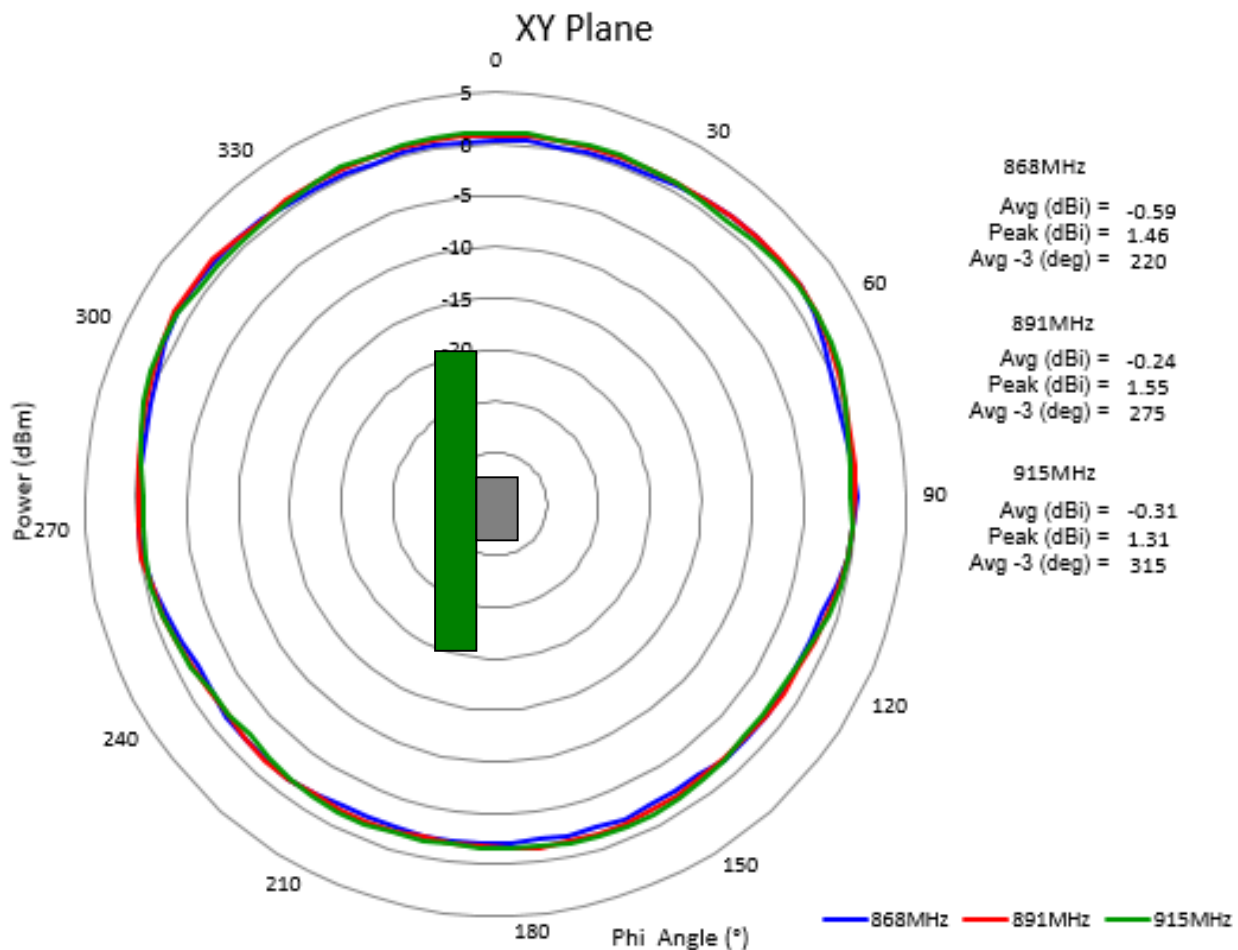
Description: ISM868/915, ISM2.4G

Series: Ceramic antenna

PART NUMBER: W3320

CHARTS

Typical free space radiation pattern  
ISM868/915MHz  
X-Y plane



Issue: 1612

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

CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.

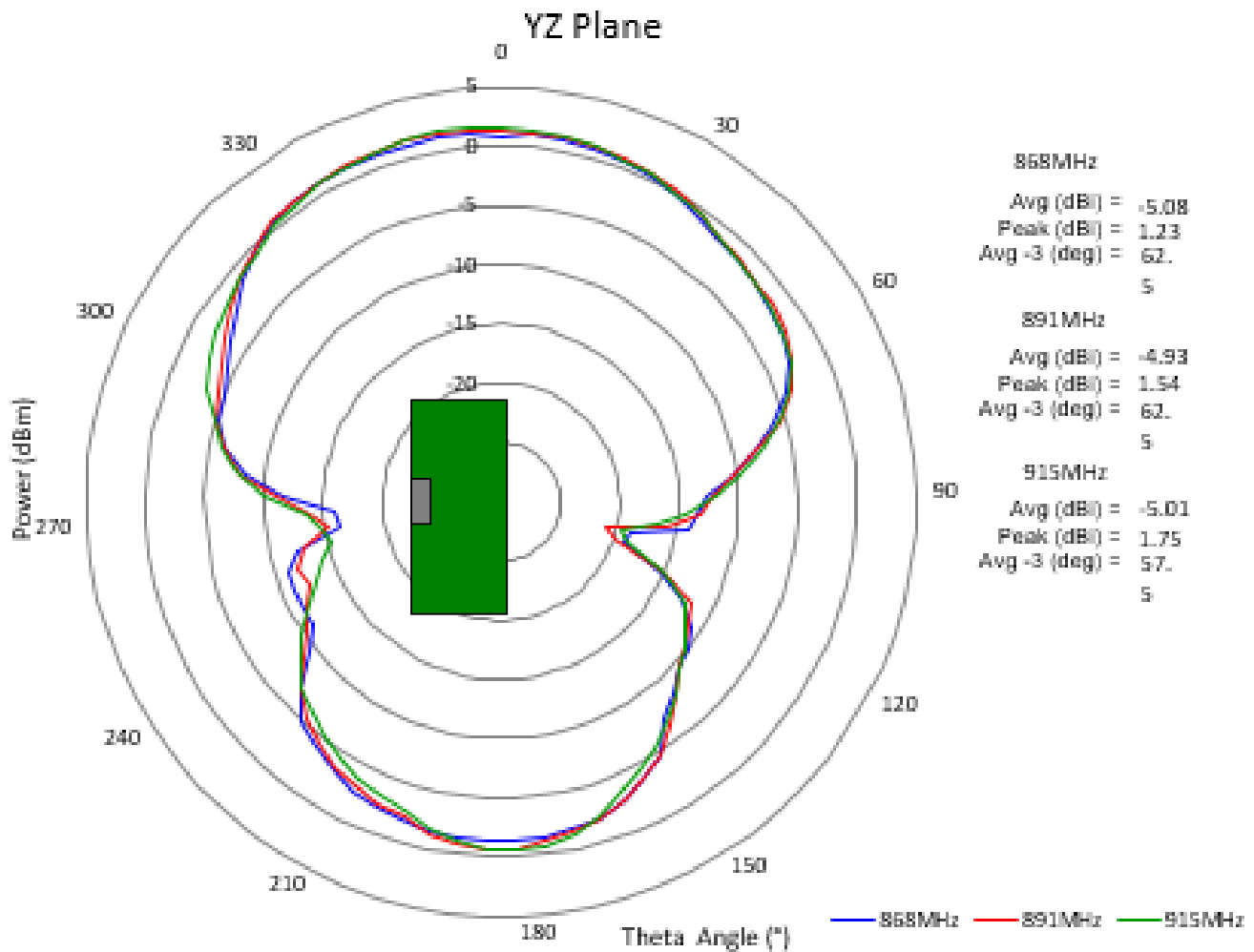
Description: ISM868/915, ISM2.4G

Series: Ceramic antenna

PART NUMBER: W3320

CHARTS

ISM868/915MHz  
Y-Z plane



Issue: 1612

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

CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.

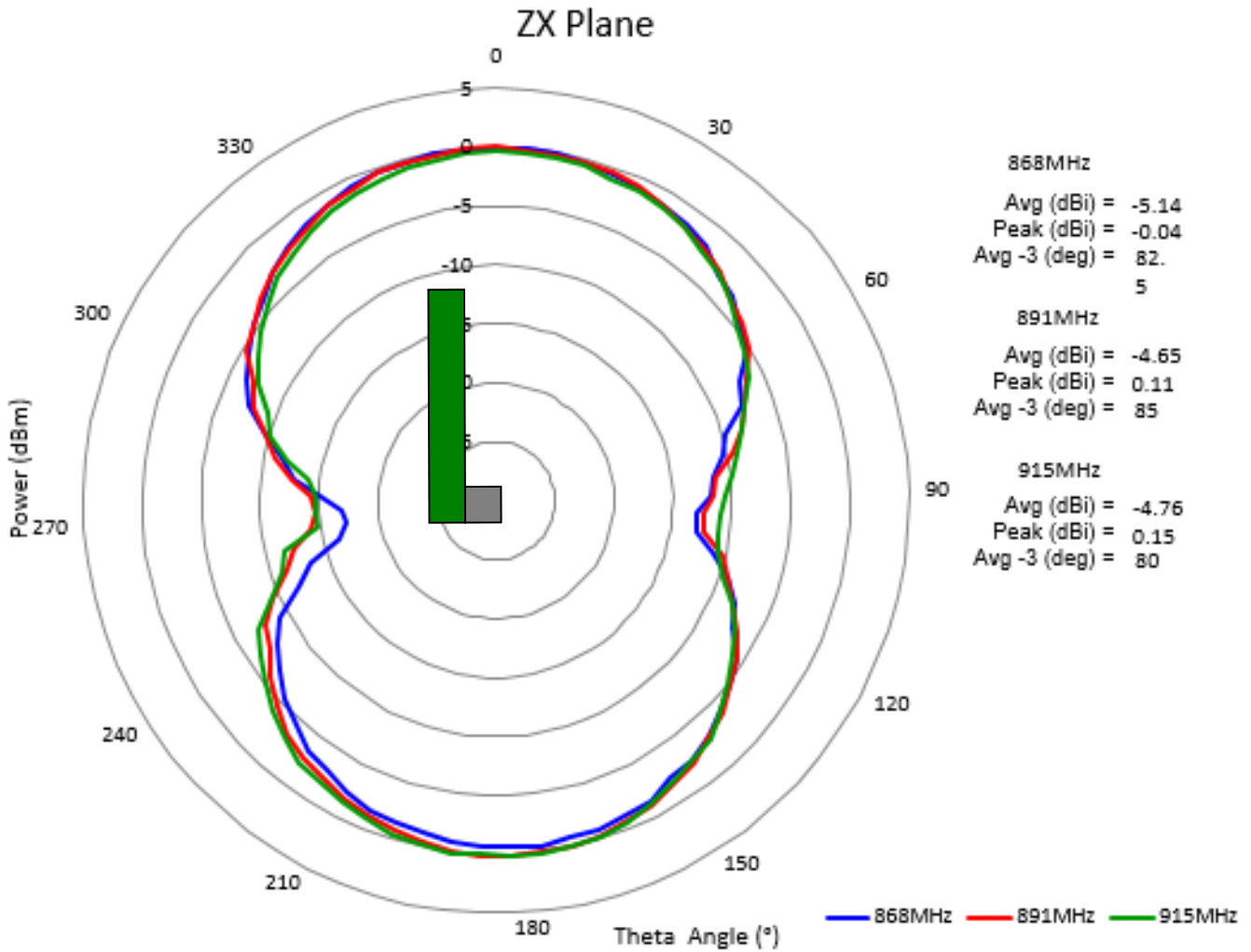
Description: ISM868/915, ISM2.4G

Series: Ceramic antenna

PART NUMBER: W3320

CHARTS

ISM868/915MHz  
X-Z plane



Issue: 1612

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

CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.

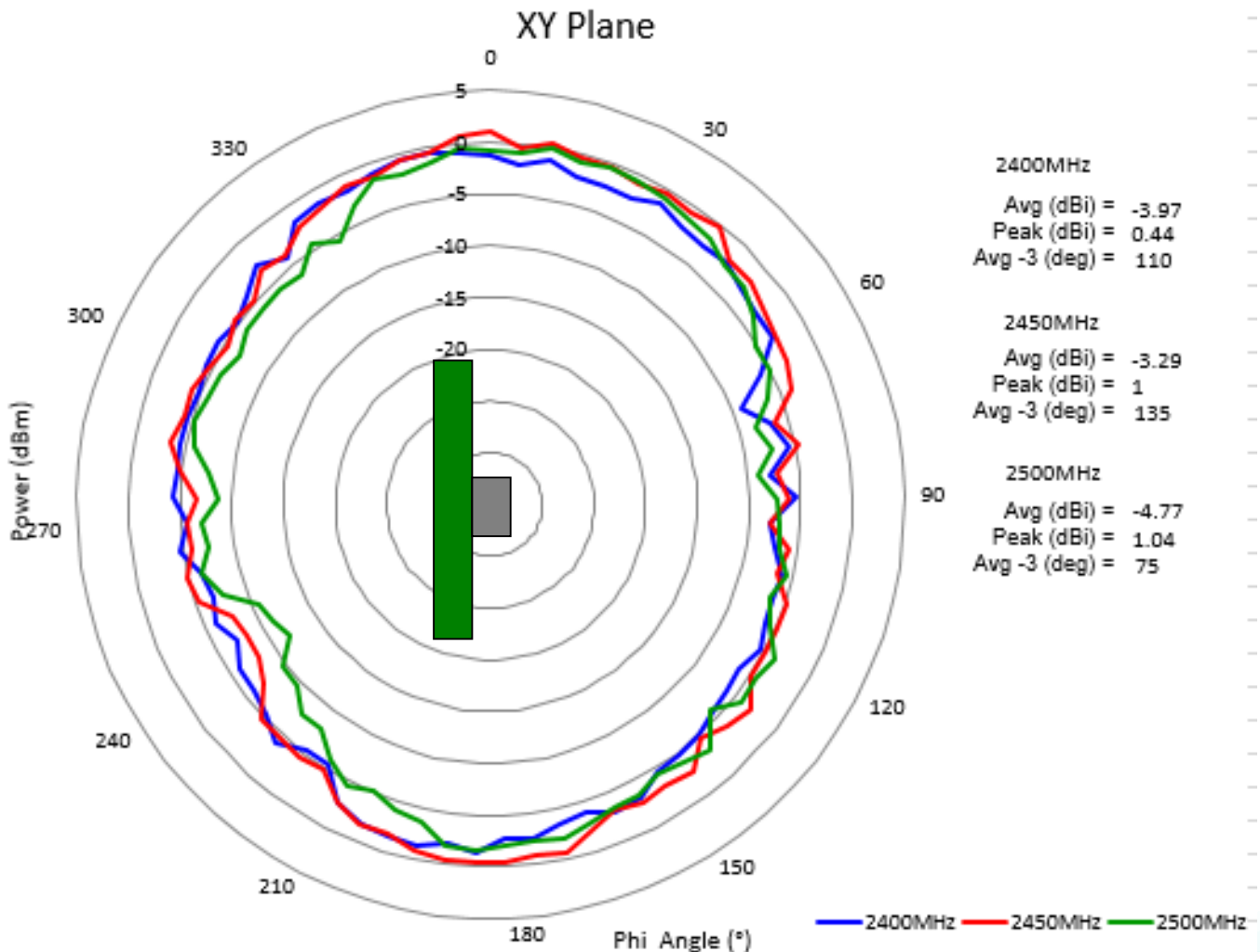
Description: ISM868/915, ISM2.4G

Series: Ceramic antenna

PART NUMBER: W3320

CHARTS

Typical free space radiation pattern  
ISM2.4GHz  
X-Y plane



Issue: 1612

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

CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.

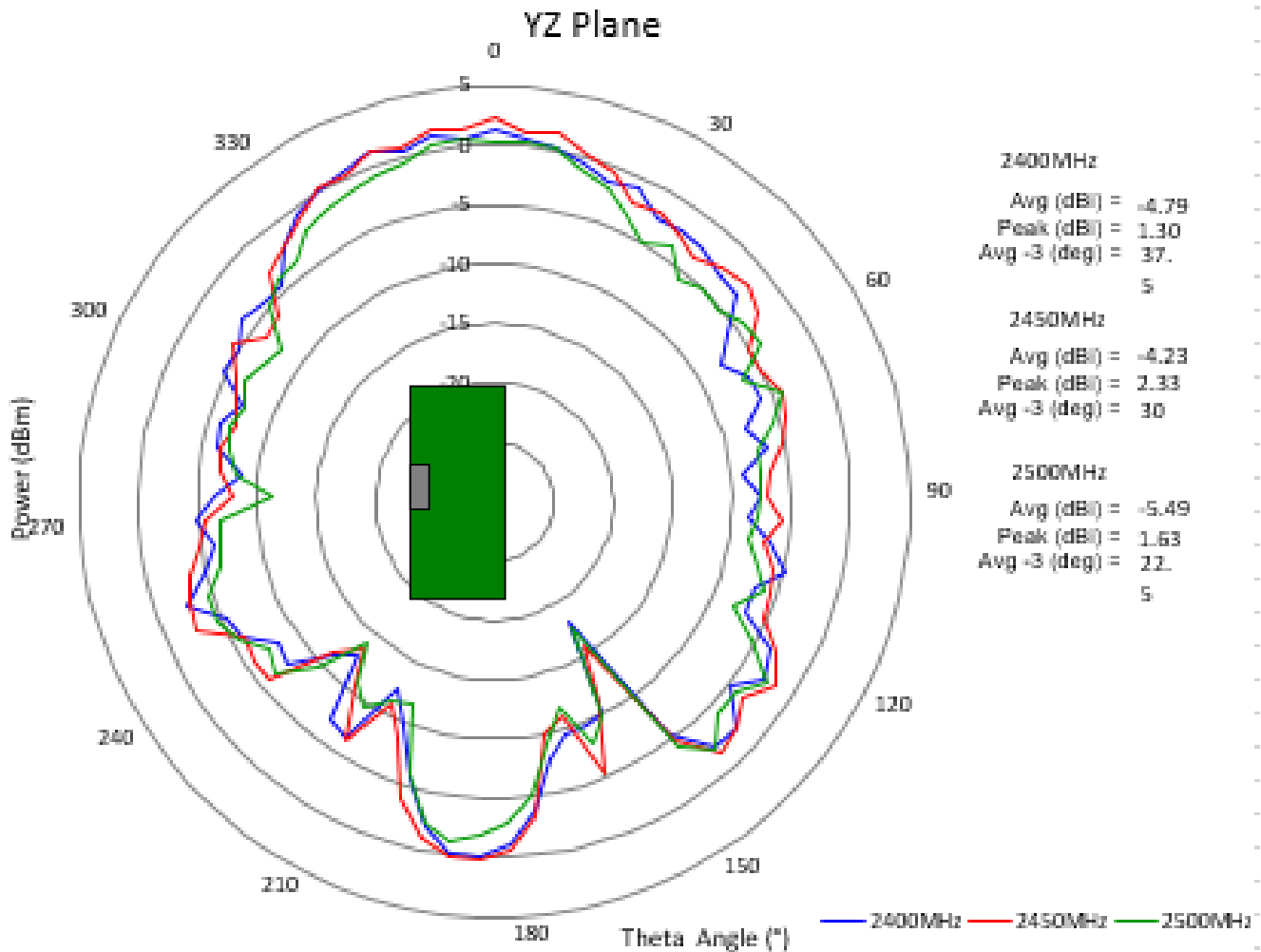
Description: ISM868/915, ISM2.4G

Series: Ceramic antenna

PART NUMBER: W3320

CHARTS

ISM 2.4GHz  
Y-Z Plane



Issue: 1612

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

CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.



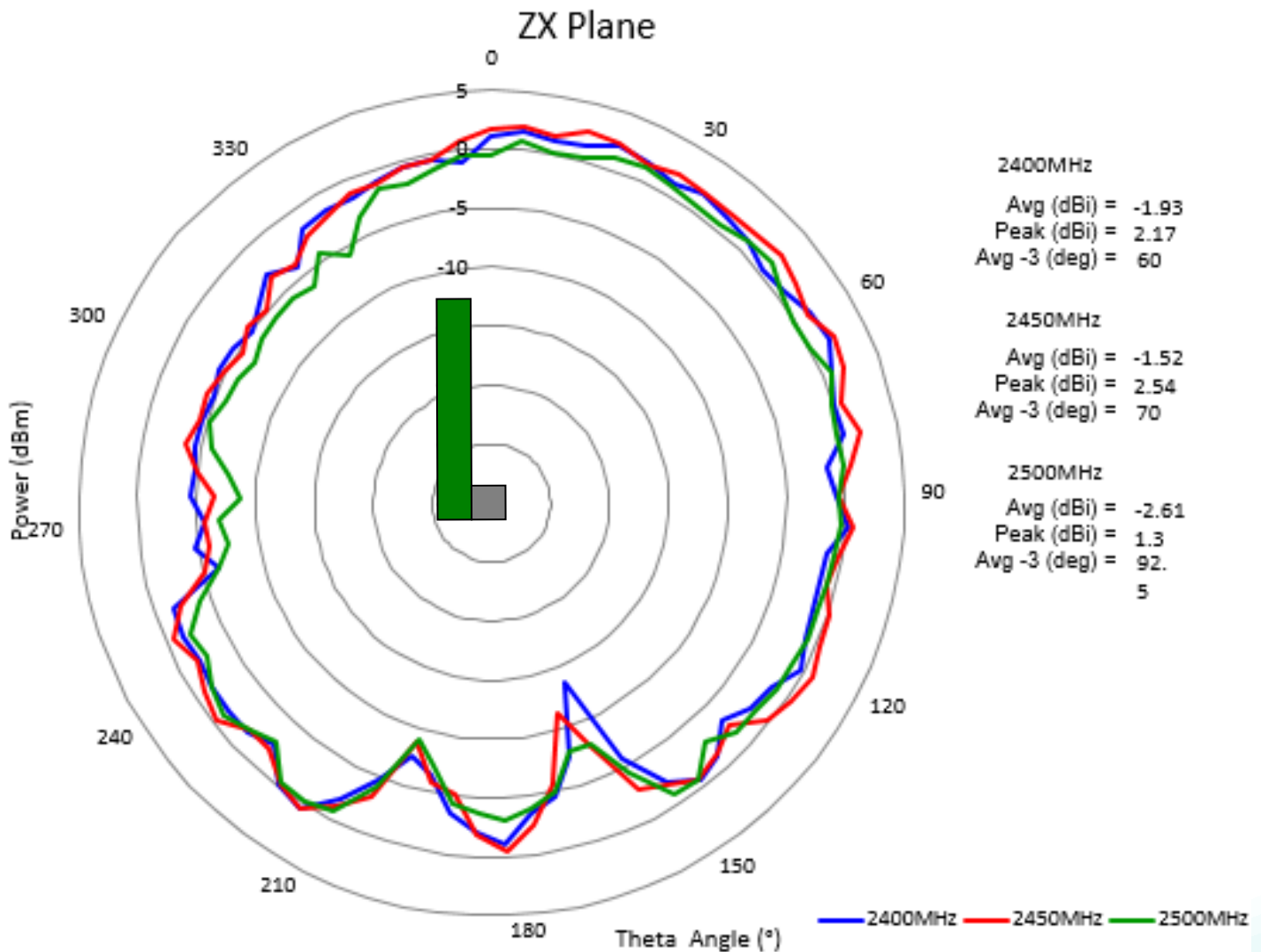
Description: ISM868/915, ISM2.4G

Series: Ceramic antenna

PART NUMBER: W3320

CHARTS

ISM 2.4GHz  
X-Z Plane



Issue: 1612

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

CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.

Description: ISM868/915, ISM2.4G

Series: Ceramic antenna

PART NUMBER: W3320

## PACKAGING

Taping package  
1000PCS/Reel  
3000PCS/Small box  
6000PCS/Carton box



Issue: 1612

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

CONFIDENTIAL AND PROPRIETARY INFORMATION

This document contains confidential and proprietary information of Pulse Electronics, Inc. (Pulse) and is protected by copyright, trade secret and other state and federal laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Pulse is strictly forbidden.