



JUNIPER AP17 BLE/802.15.4 ANTENNA TEST REPORT

Brand: Juniper

Model: AP17

2026/02/11

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 - Setup Picture
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■ Antenna Result

- Antenna Type
- VSWR
- Efficiency
- Peak Gain
- Radiation Pattern
- Isolation

■ Antenna List

- BLE
- 802.15.4

General Information

■ Antenna Information:

- Antenna type and part number :

Show as each antenna result description

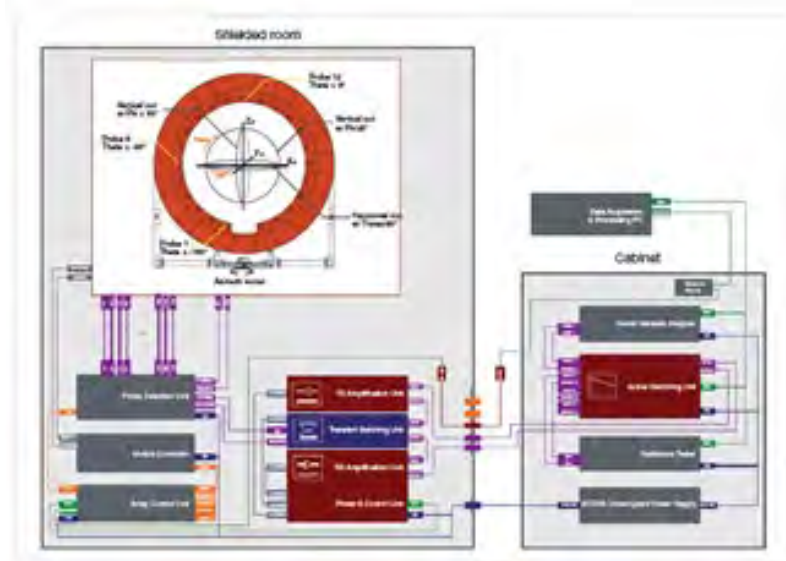
■ Test Date and Member

Date: 2025/12/12

Member: Alvin Hsu

Test Information

- Test Date (yyyymmdd) : 20251212
- Test Engineer : Alvin Hsu
- Measurement System : SATIMO SG24-L
- Software Name : Wave Studio
- Software Version : 22.5.6



Test Equipment

- Measurement System: SATIMO SG24-L Chamber

Setup architecture :

SG24-L system :

1. Hardware system (as Figure.1)
2. Software system (Wave Studio)

Test item :

1. Passive radiation properties of antenna

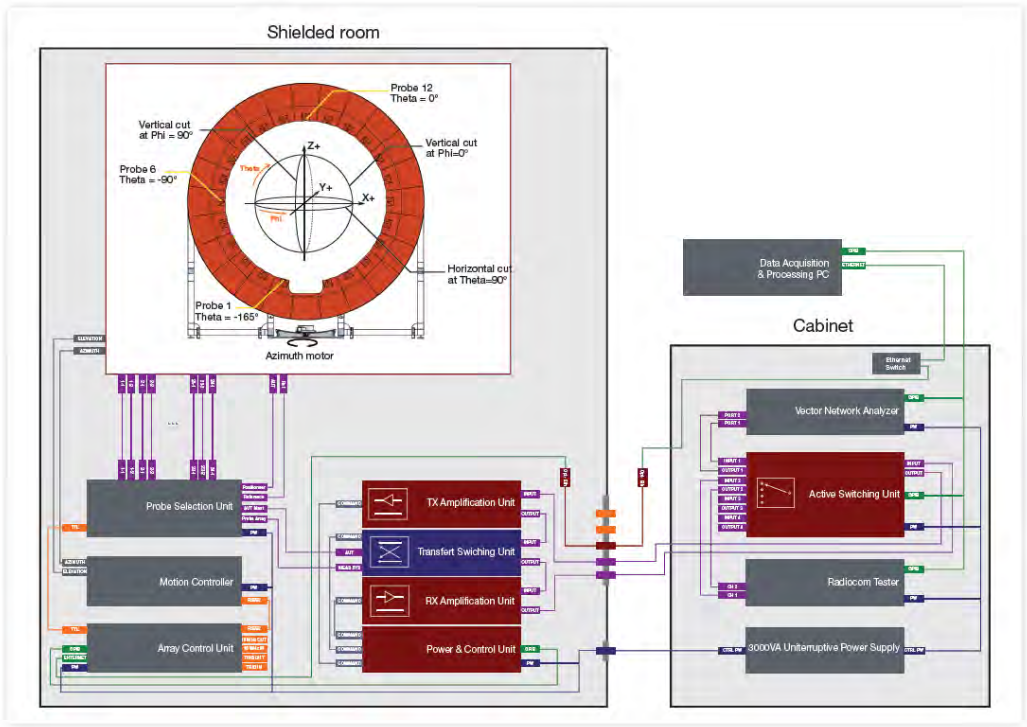


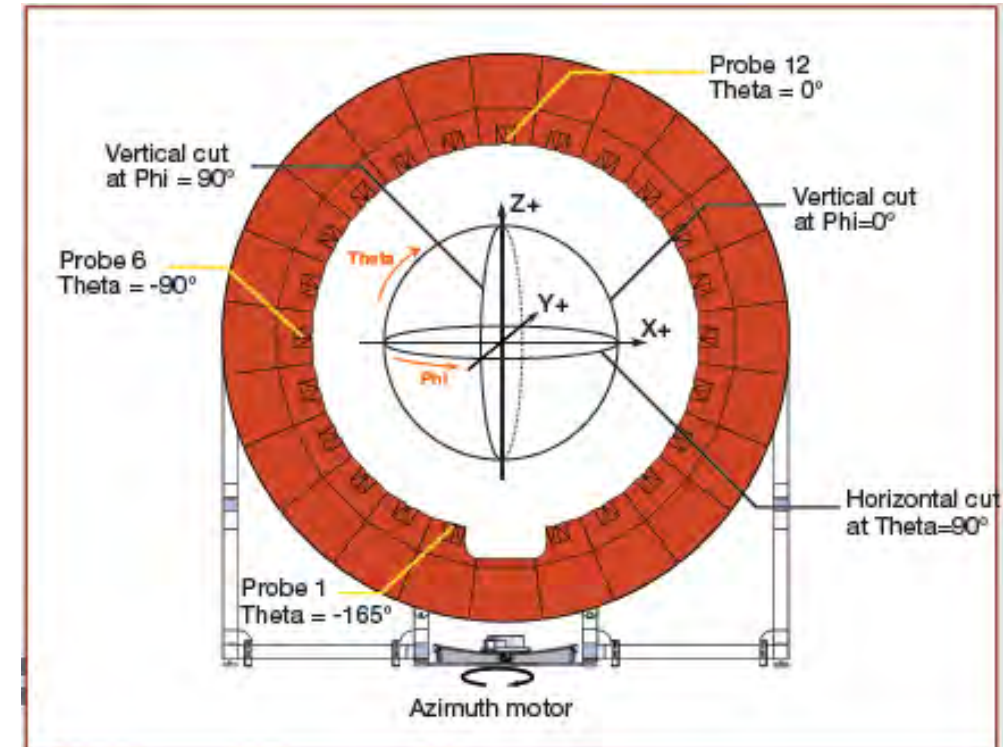
Figure.1 System diagram of SG24-L

- Calibration Information

Device	Type / Model	Serial #	Manufacture	Cal. Date	Cal. Until
Measurement System	SG24-L	HKG1669S	MVG-SATIMO	2025-10-17	2026-10-8
Network Analyzer	Keysight E5080B	MY59203136	Keysight	2025-10-17	2026-10-8

Test Procedure

1. Align and fix the DUT in center of the chamber .
2. Connect the DUT with RF connector of test device .
3. Adjust the settings (name , frequency , dimension) , and operate the Wave Studio program .
4. Get the 3D data by each 3 degrees one step for phi and theta , including efficiency , peak gain , 2D and 3D radiation pattern .
5. This is near field test for antenna verification .
6. This procedure only for passive mode .

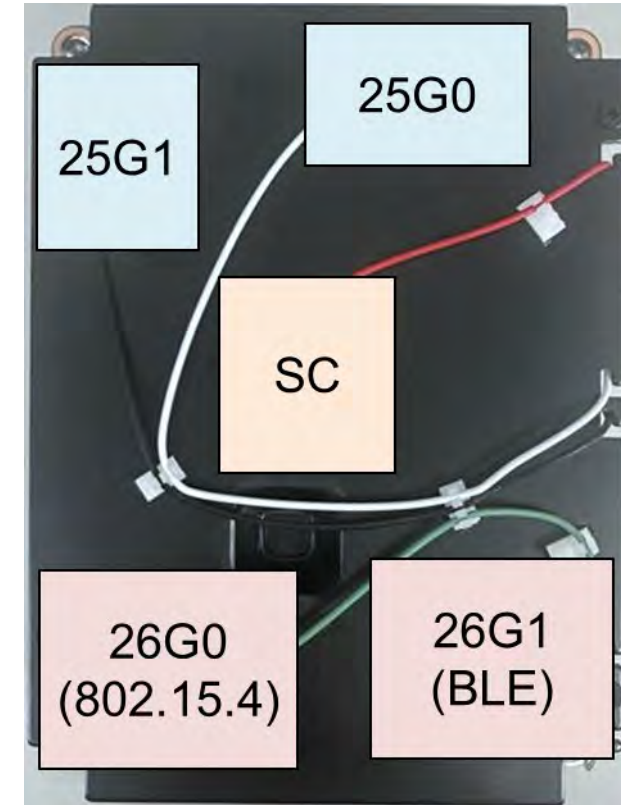


Theta : 0 to 180 degrees

Phi : 0 to 360 degrees

Summary

- Radiation efficiency
 - ~60% for 2.4GHz 802.15.4 antenna [26G0]
 - ~61% for 2.4GHz BLE antenna [26G1]
- Peak gain
 - 3.8 dBi for 2.4GHz 802.15.4 antenna [26G0]
 - 3.4 dBi for 2.4GHz BLE antenna [26G1]



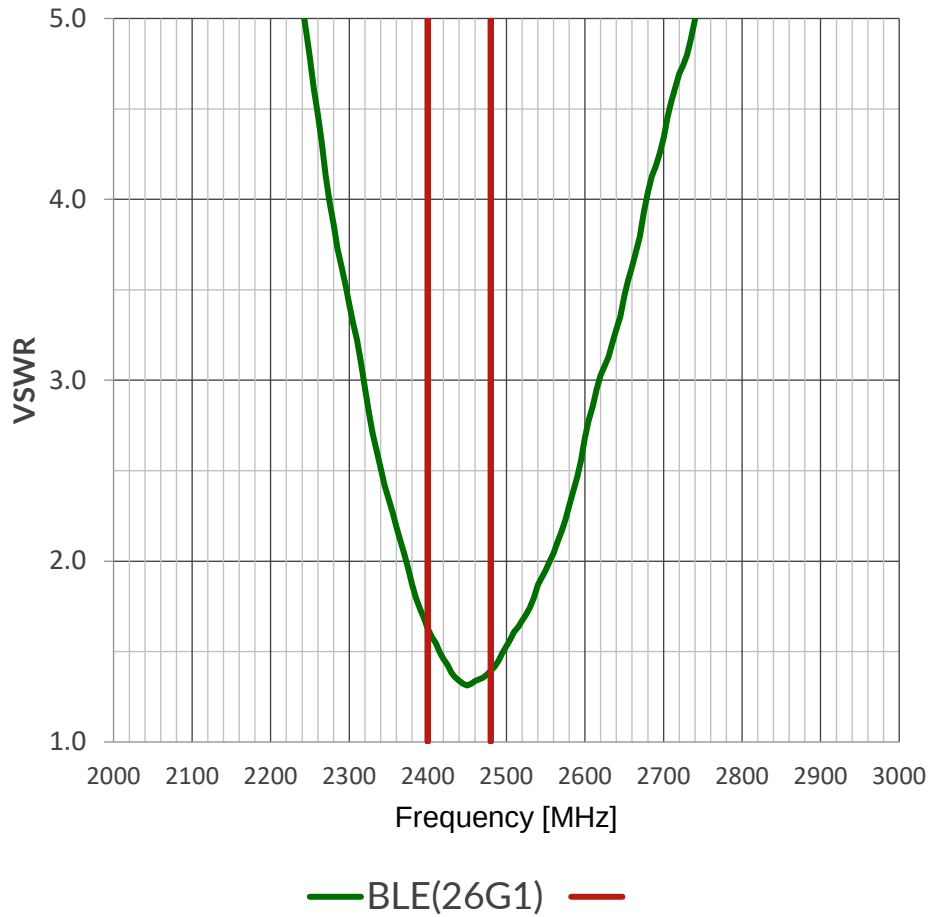
MVG SG24L Testing Tolerance : ± 0.6 dB @ 1~10GHz

BLE

Ant	Brand	Model name	Type
26G1	Juniper	AP17	PIFA

- VSWR
- Efficiency
- Peak Gain
- Radiation Pattern

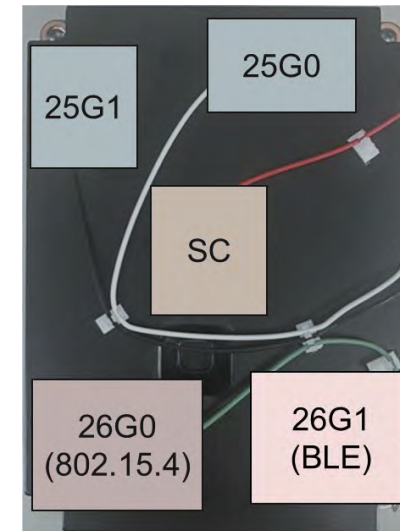
VSWR @ BLE



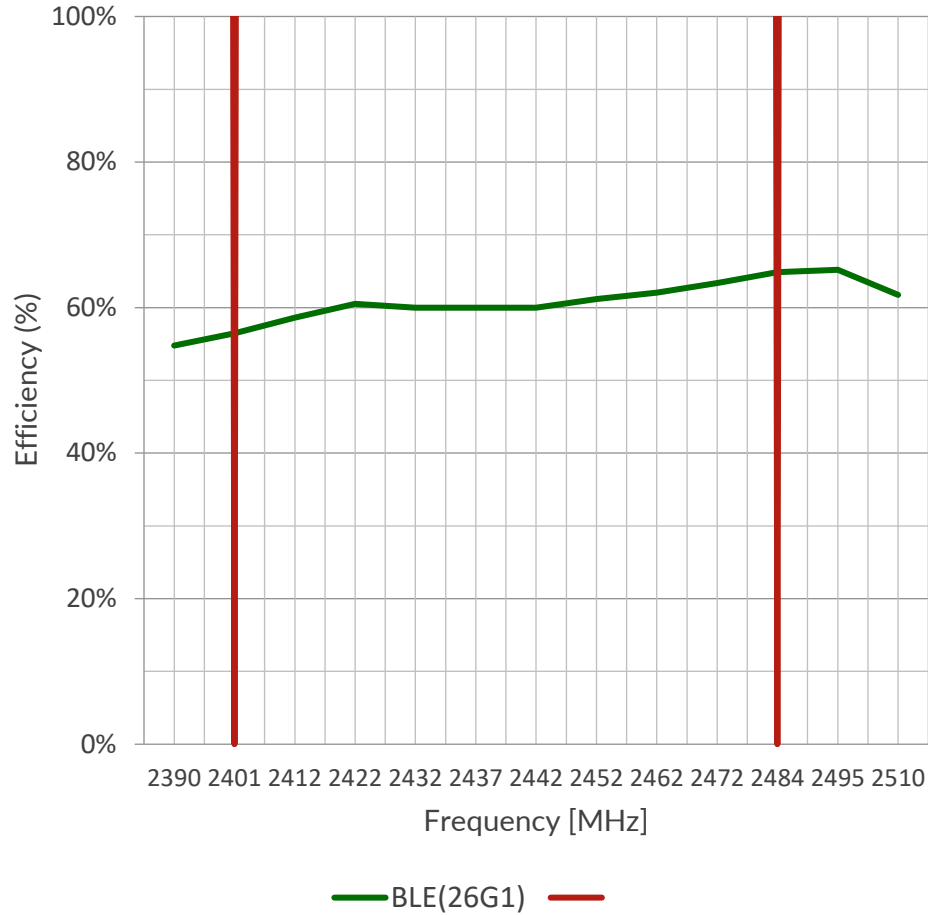
2.4GHz	Max	Mean	Min
BLE (26G1)	1.6	1.4	1.3

■ Cable Length

BLE(26G1) : 72mm



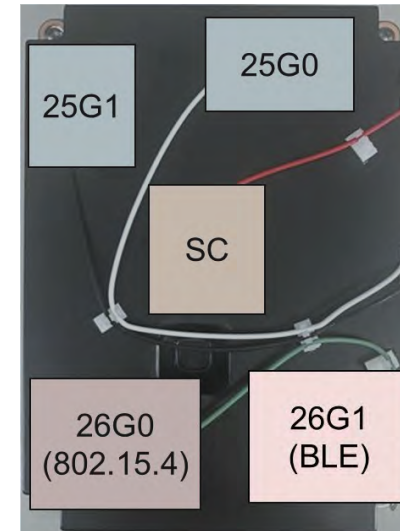
Efficiency @ BLE



2.4GHz	Max	Mean	Min
BLE (26G1)	65%	61%	56%

■ Cable Length

BLE(26G1) : 72mm



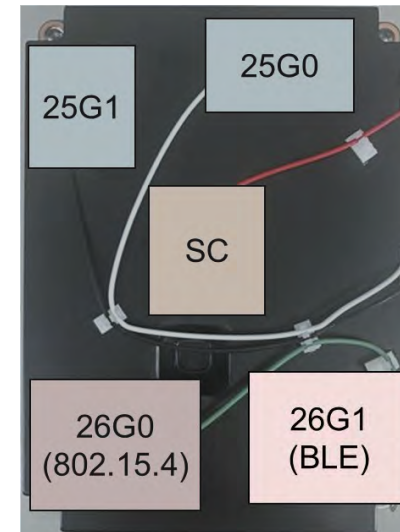
Peak Gain @ BLE



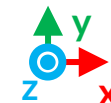
2.4GHz	Max	Mean	Min
BLE (26G1)	3.4 dBi	3.0 dBi	2.5 dBi

■ Cable Length

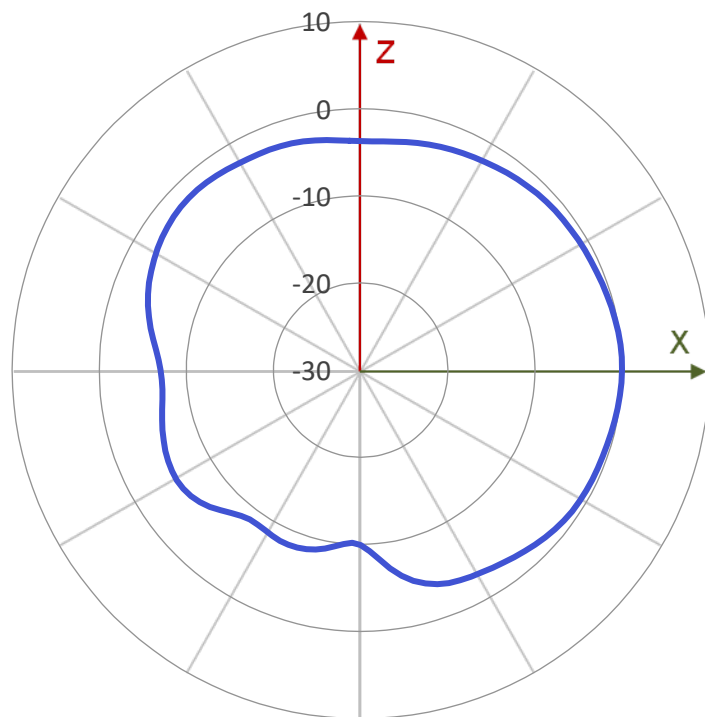
BLE(26G1) : 72mm



Radiation @ BLE V+H @2.4G Low Band

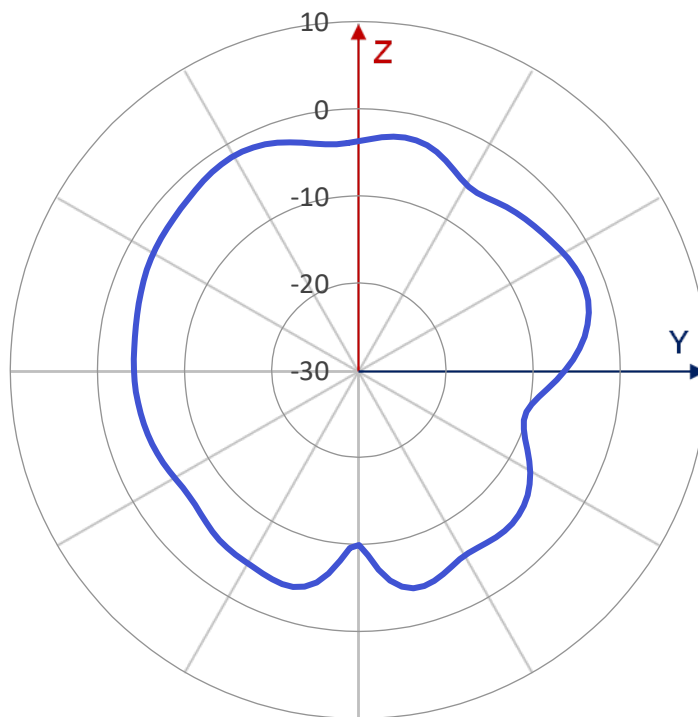


$\phi = 0$



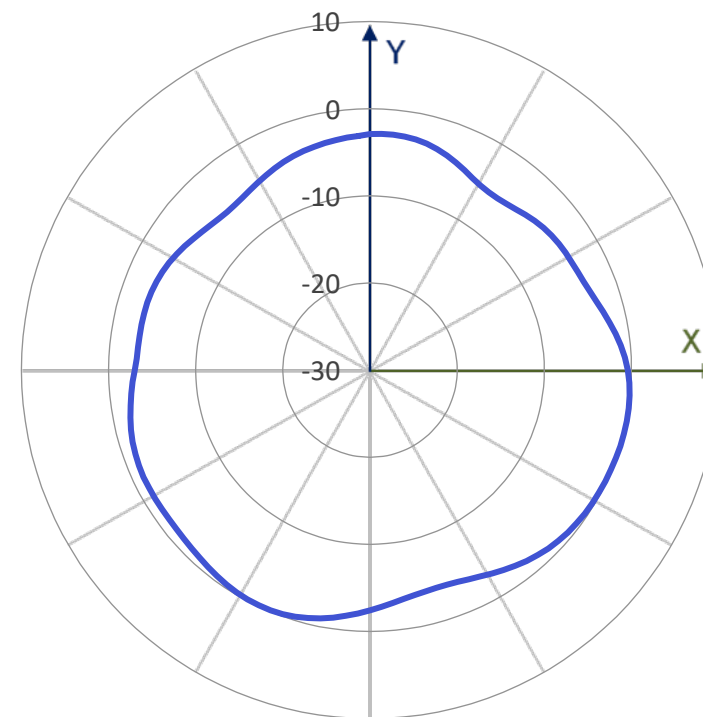
— BLE(26G1)

$\phi = 90$



— BLE(26G1)

$\theta = 60$

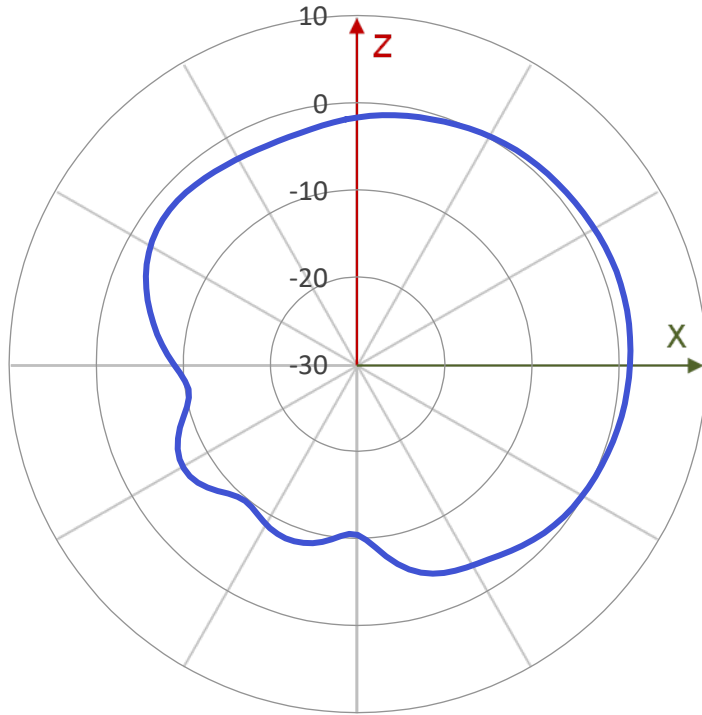


— BLE(26G1)

Radiation @ BLE V+H @2.4G Mid Band

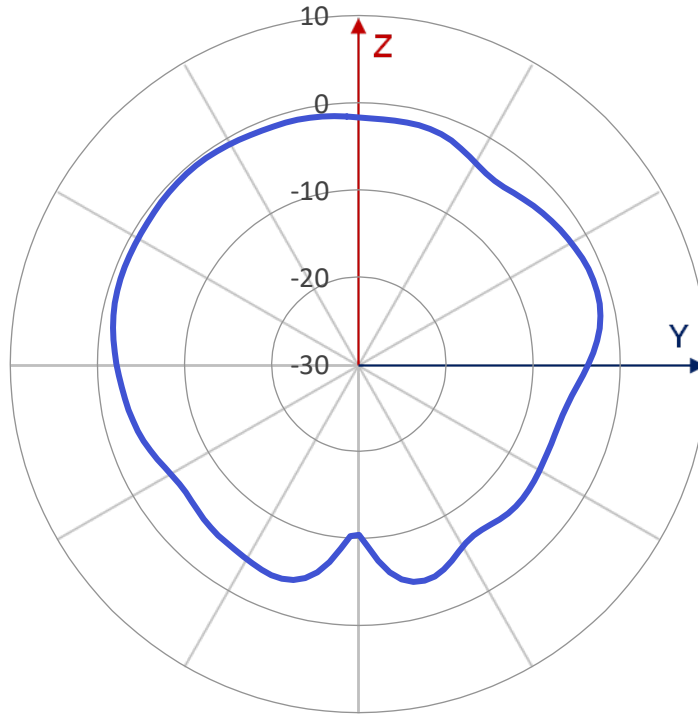


$\phi = 0$



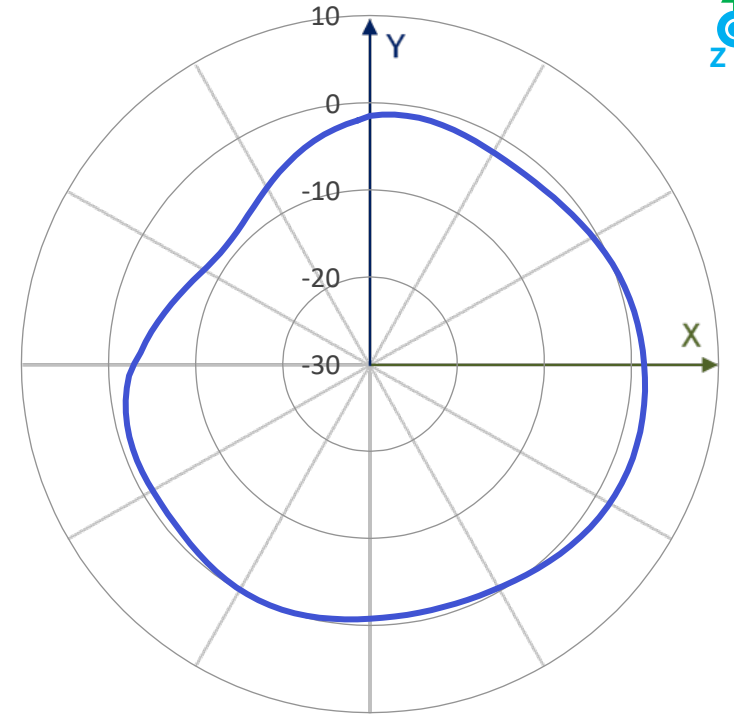
— BLE(26G1)

$\phi = 90$



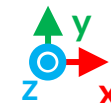
— BLE(26G1)

$\theta = 60$

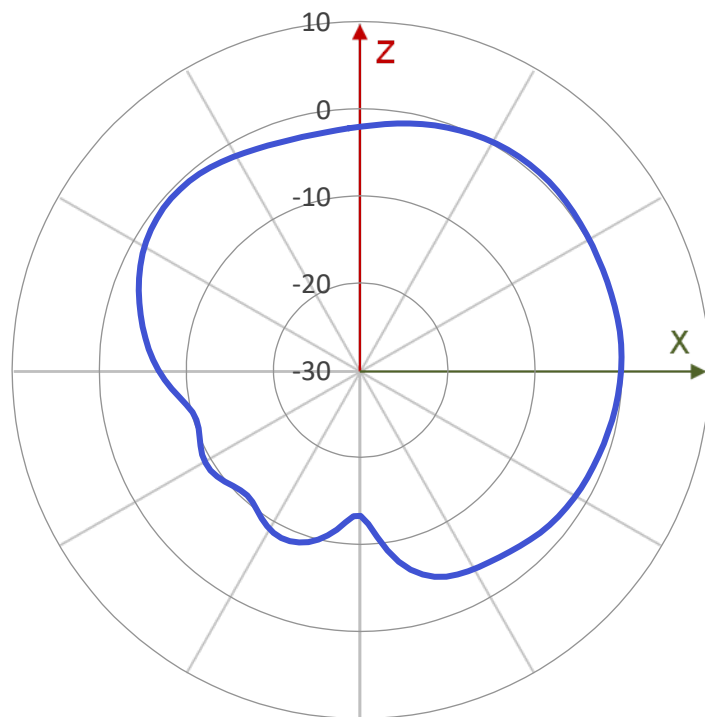


— BLE(26G1)

Radiation @ BLE V+H @2.4G High Band

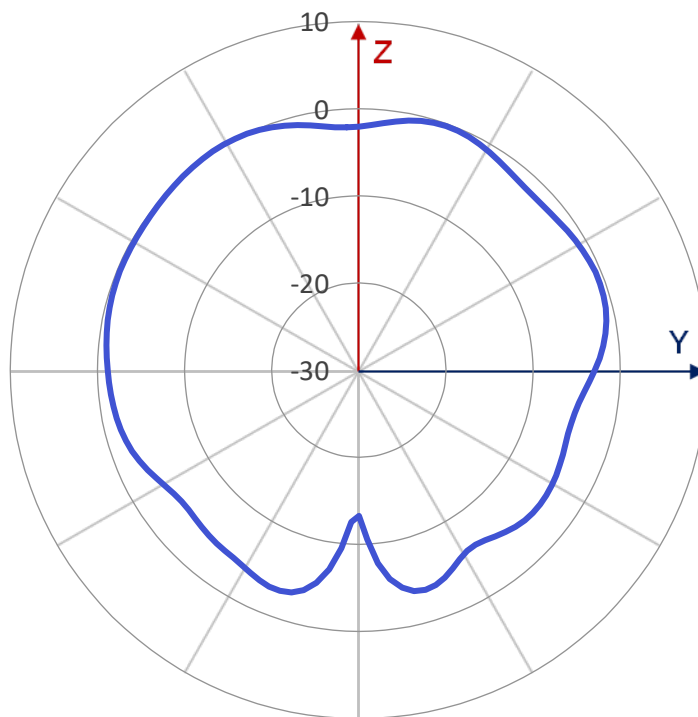


$\phi = 0$



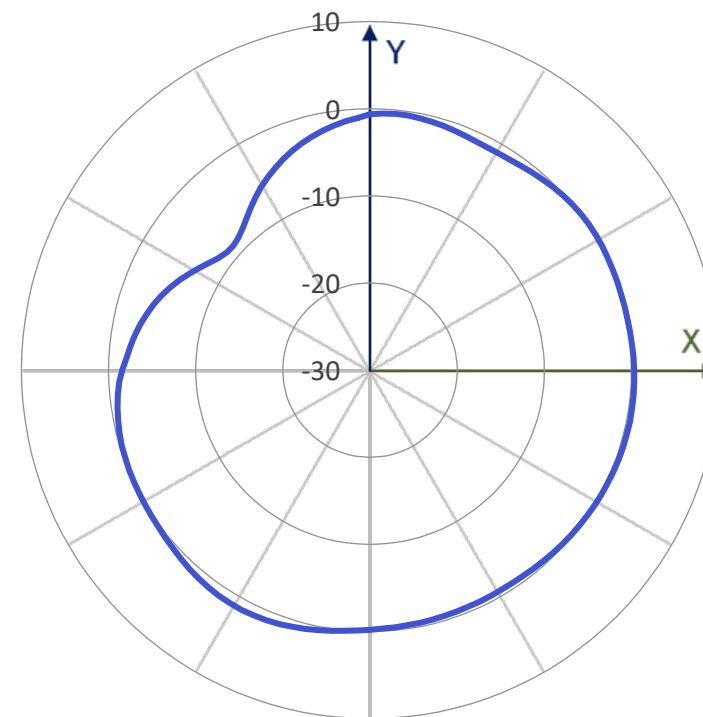
— BLE(26G1)

$\phi = 90$



— BLE(26G1)

$\theta = 60$



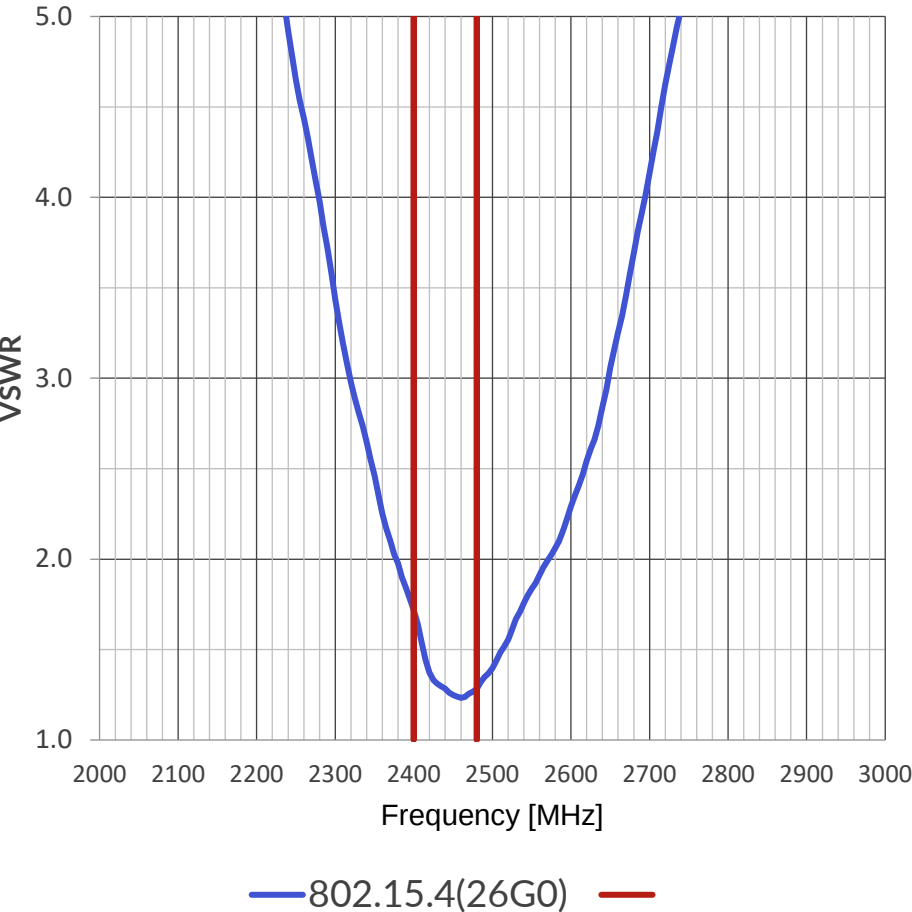
— BLE(26G1)

802.15.4

Ant	Brand	Model name	Type
26G0	Juniper	AP17	PIFA

- VSWR
- Efficiency
- Peak Gain
- Radiation Pattern

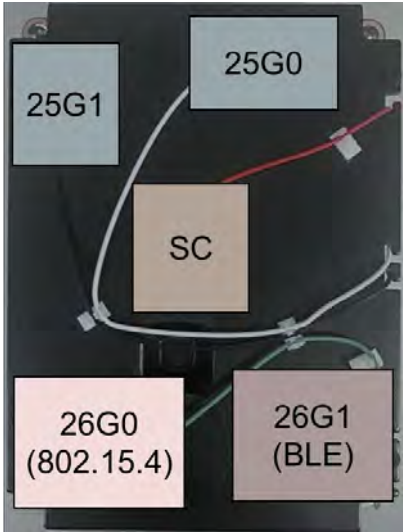
VSWR @ 802.15.4



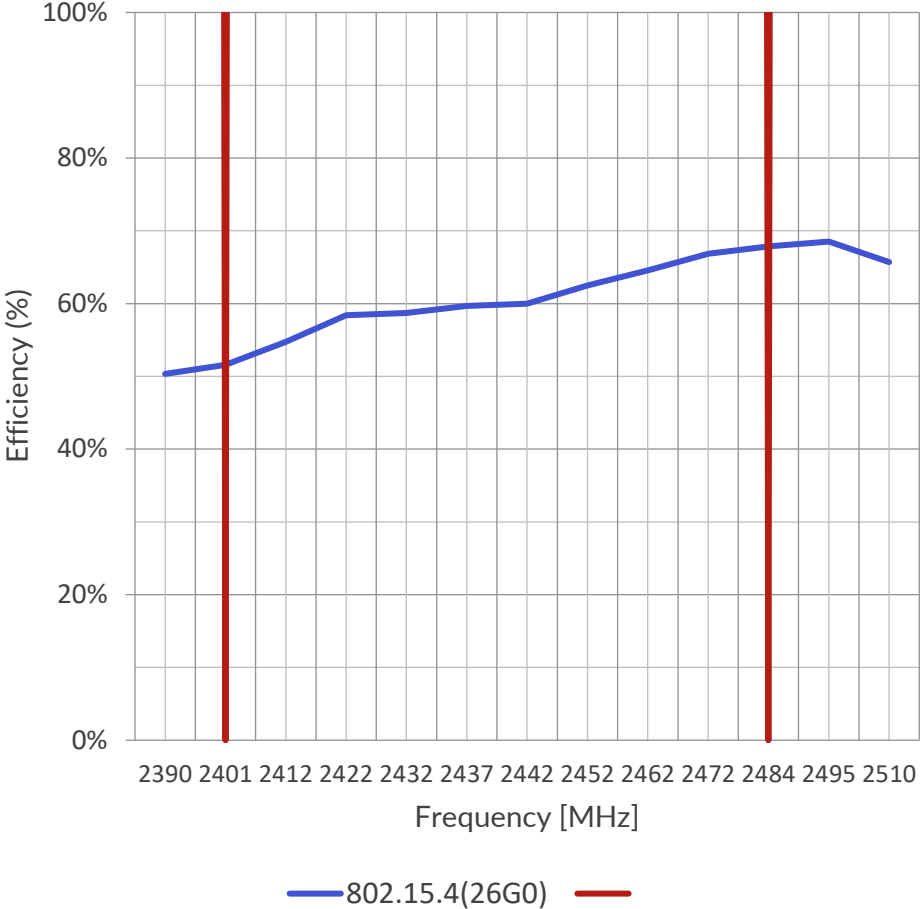
2.4GHz	Max	Mean	Min
802.15.4 (26G0)	1.7	1.4	1.2

■ Cable Length

802.15.4(26G0) : 163mm



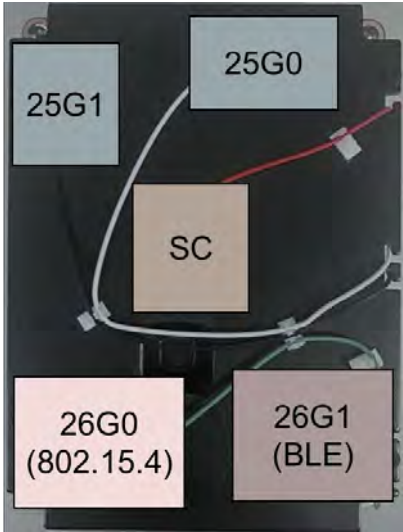
Efficiency @ 802.15.4



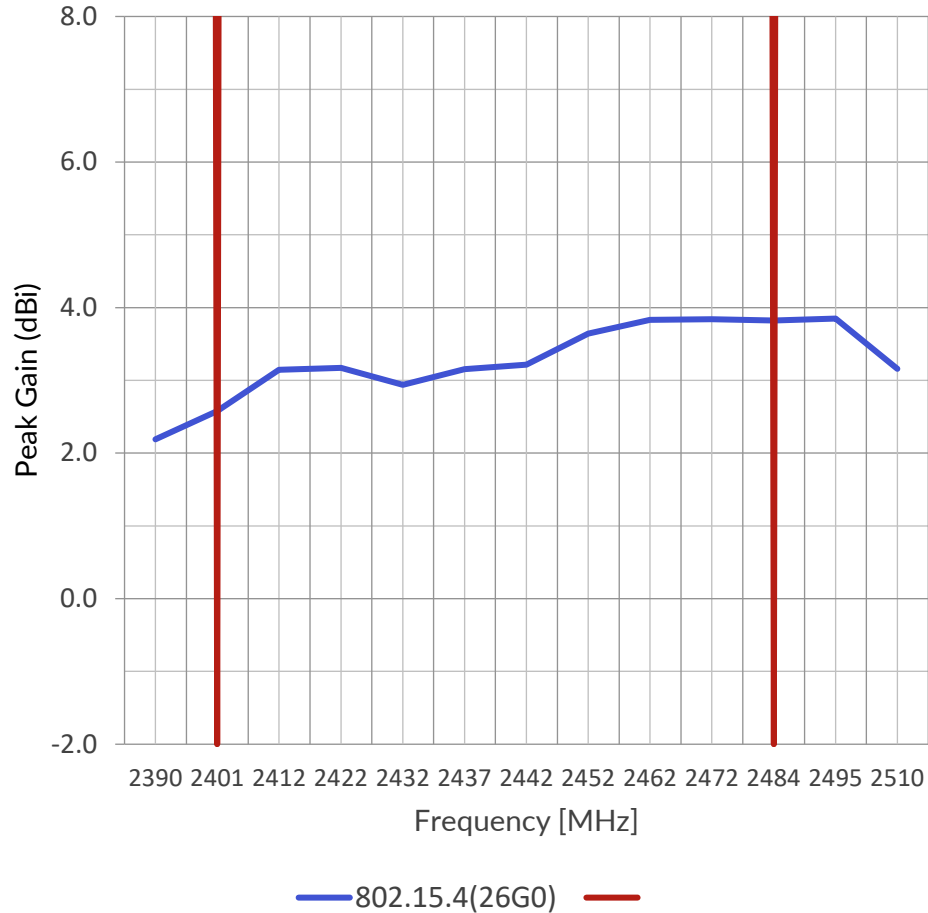
2.4GHz	Max	Mean	Min
802.15.4 (26G0)	68%	60%	52%

■ Cable Length

802.15.4(26G0) : 163mm



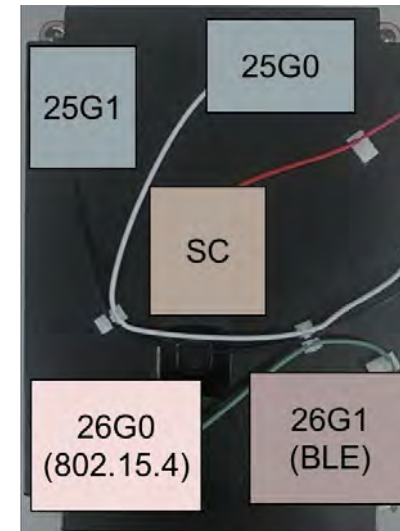
Peak Gain @ 802.15.4



2.4GHz	Max	Mean	Min
802.15.4 (26G0)	3.8 dBi	3.3 dBi	2.6 dBi

■ Cable Length

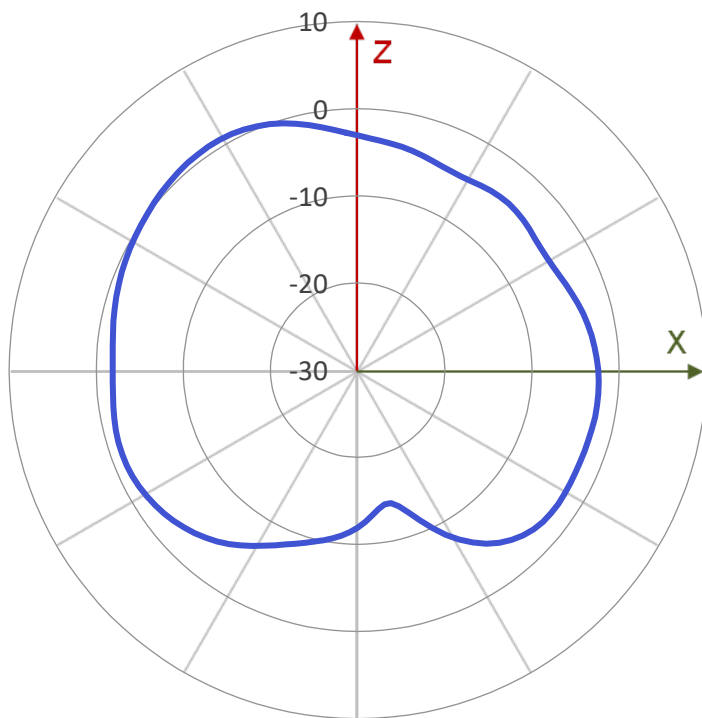
802.15.4(26G0) : 163mm



Radiation @ 802.15.4 V+H @2.4G Low Band

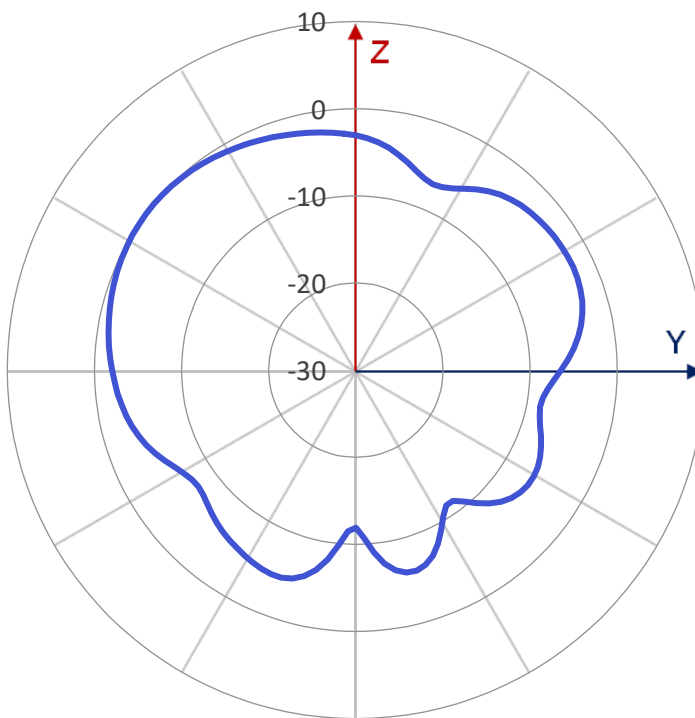


$\phi = 0$



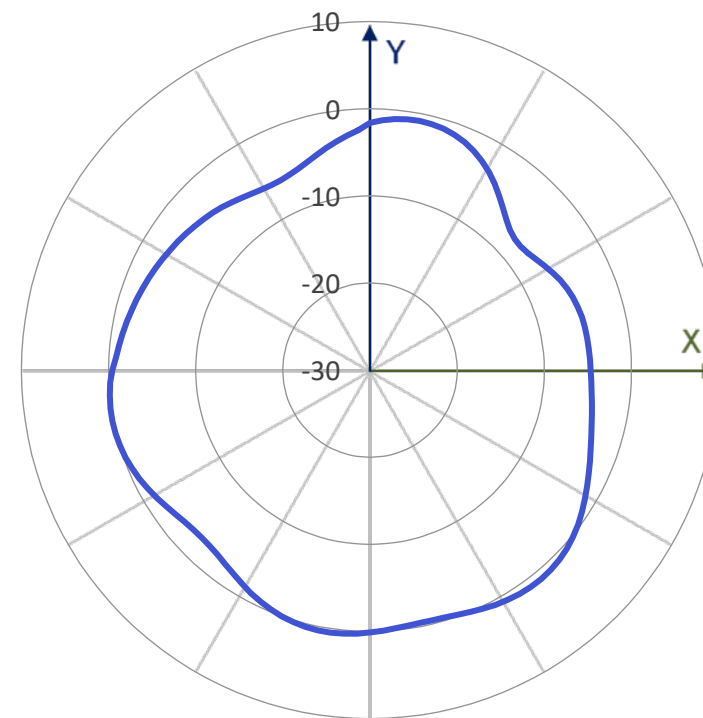
— 802.15.4(26G0)

$\phi = 90$



— 802.15.4(26G0)

$\theta = 60$

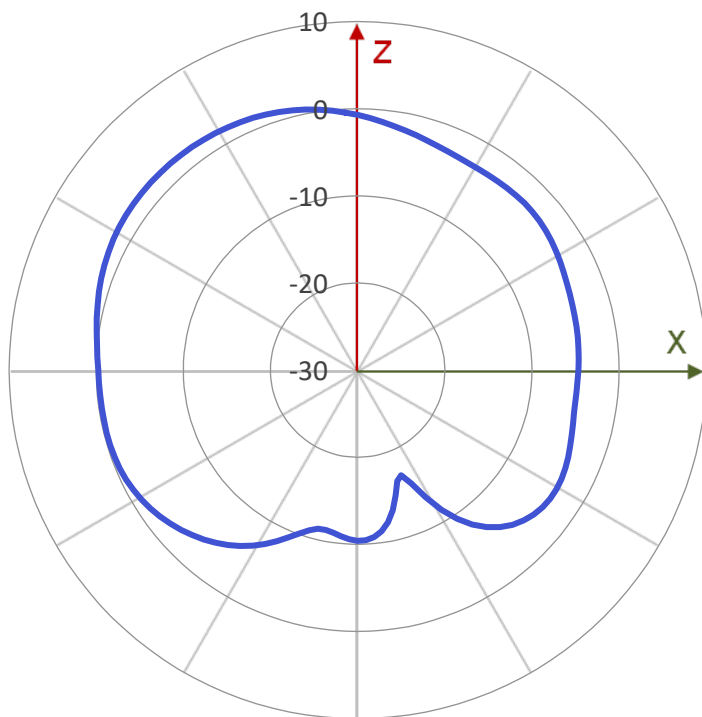


— 802.15.4(26G0)

Radiation @ 802.15.4 V+H @2.4G Mid Band

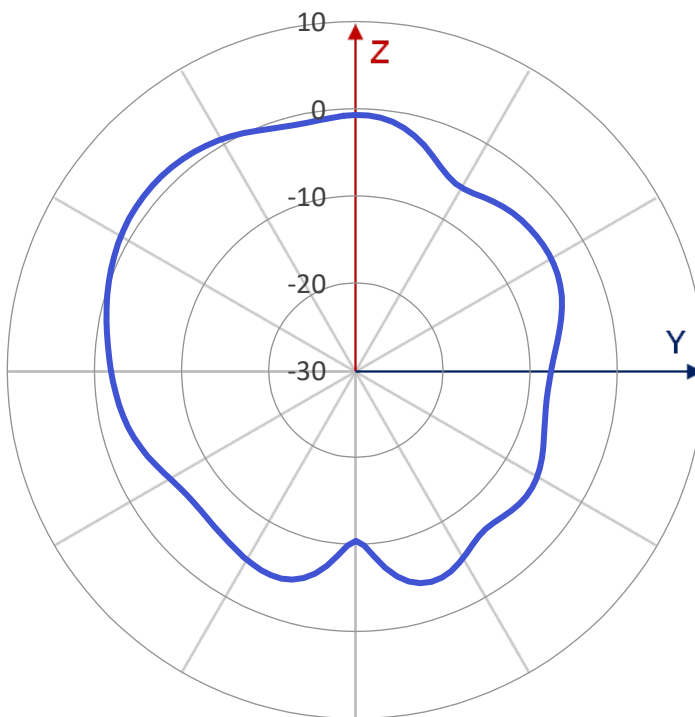


$\phi = 0$



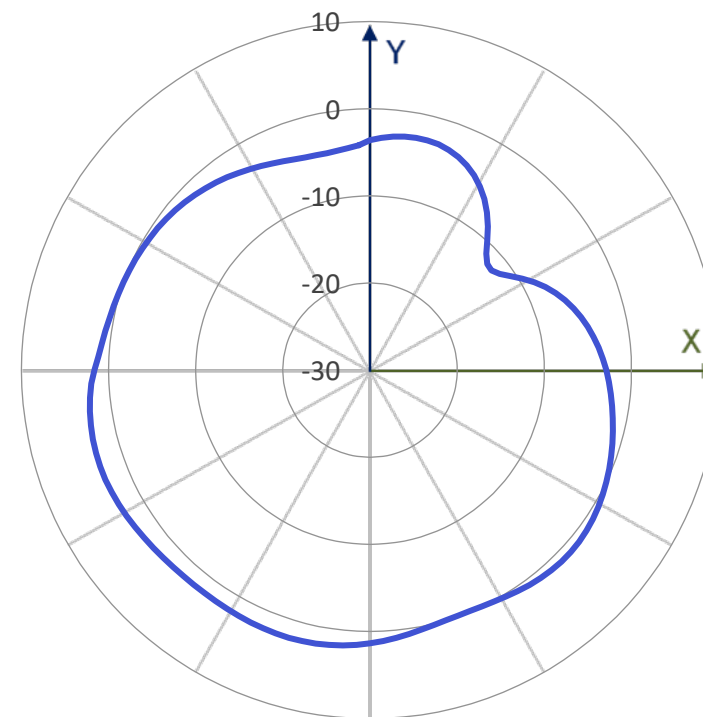
— 802.15.4(26G0)

$\phi = 90$



— 802.15.4(26G0)

$\theta = 60$

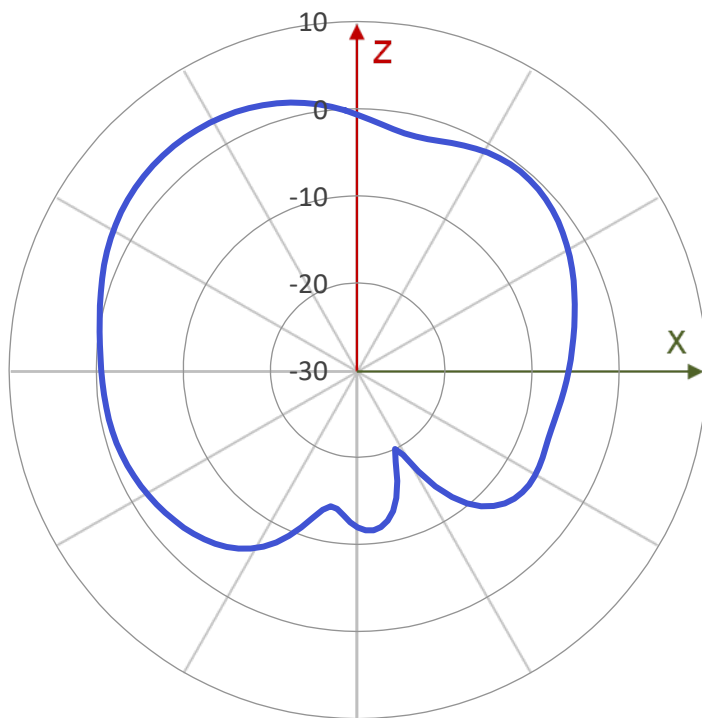


— 802.15.4(26G0)

Radiation @ 802.15.4 V+H @2.4G High Band

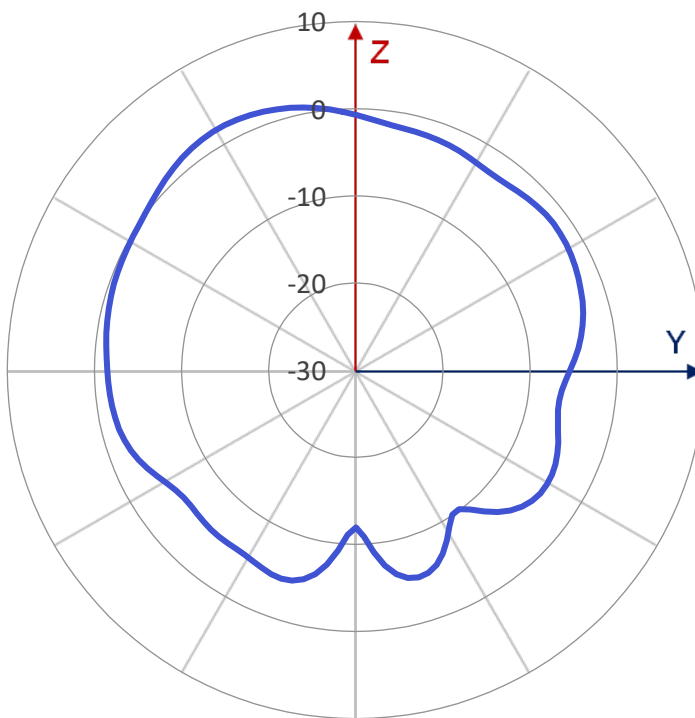


$\phi = 0$



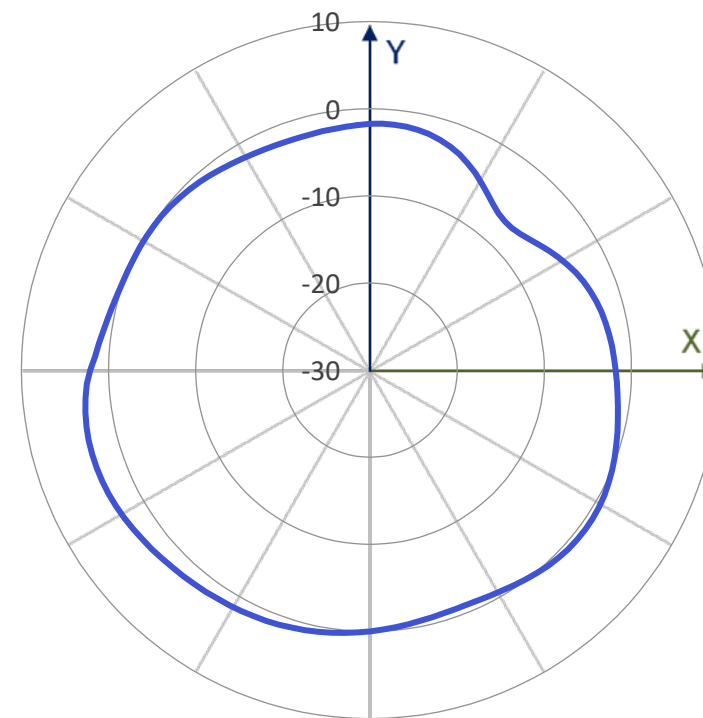
— 802.15.4(26G0)

$\phi = 90$



— 802.15.4(26G0)

$\theta = 60$

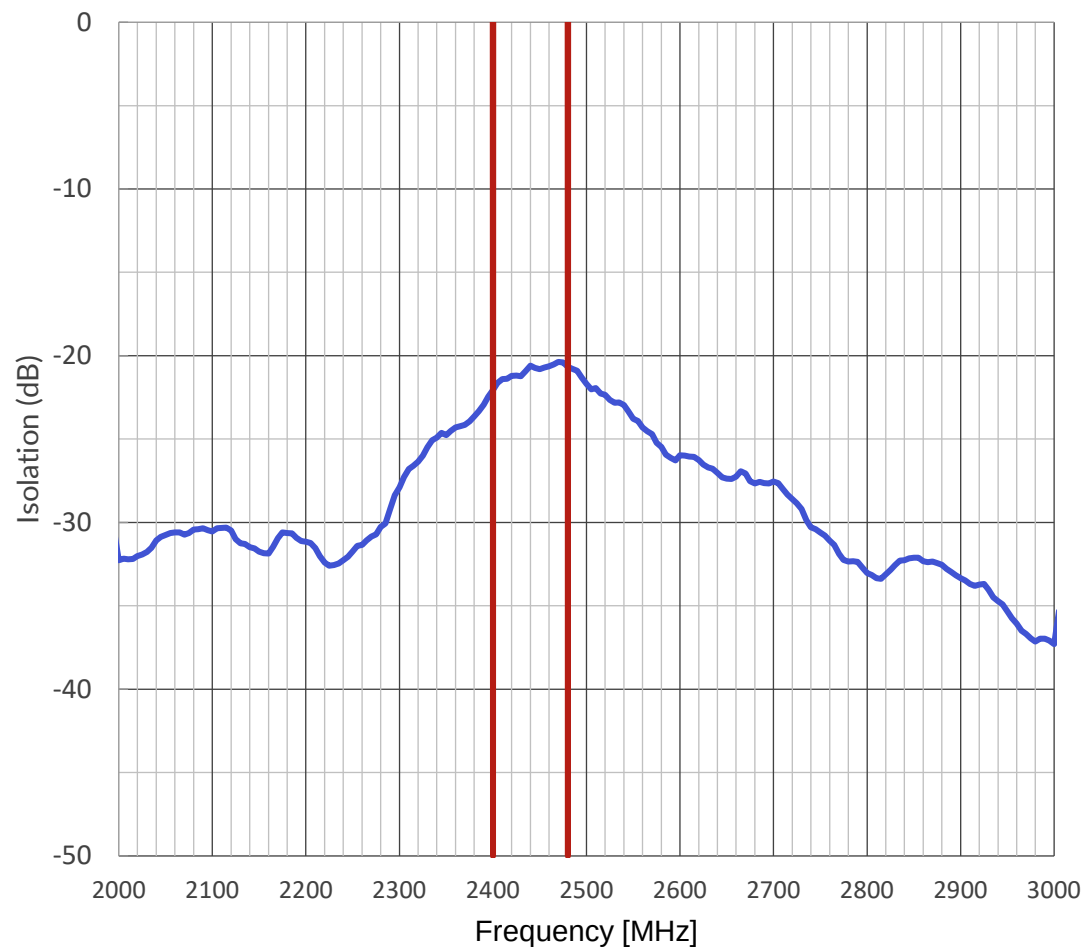


— 802.15.4(26G0)

Isolation (Among Radio)

- Isolation
 - 802.15.4 to BLE

Isolation (Among Radio) @ 802.15.4 & BLE



— 802.15.4 to BLE(26G0 to 26G1) —

2.4GHz	Max	Mean	Min
802.15.4 to BLE (26G0 to 26G1)	-20.4	-21.0	-22.1

