

SFERO ANTENNA SPECIFICATION

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1.0 OVERVIEW

Figure 1 shows the four fundamental SFERO patch antenna structures, and all antenna variants fall within these four types with different tuning in terms of frequency range and radiation patterns.

Table 1 lists ten antennas used in the SFERO products.

1. **10037158 (A1230 FCC)**. This is a narrow 3x1 patch antenna (41cmx11cm) with two ports, FCC version. The antenna has two ports, each having a 15-degree tilt. The maximum antenna gain is 8 dBiC. Radiation pattern is shown in **Figure 2**
2. **10037630 (A1245 CE)**. This is the CE version of A1230. The maximum antenna gain is 8 dBiC. Radiation pattern is shown in **Figure 2**.
3. **10039547 (A1266 FCC)**. This is a narrow 3x1 patch antenna (41cmx11cm). The antenna has two beams, one having a 15-degree tilt and one having a 35-degree tilt. The maximum antenna gain is 8.5dBiC. Radiation pattern is shown in **Figure 3**.
4. **10039917 (A1265 CE)**. This is the CE version of A1266. The maximum antenna gain is 8.5dB iC. Radiation pattern is shown in **Figure 3**.
5. **10039838 (A1268 FCC)**. This is a wide 3x2 patch antenna (41cmx26cm). The antenna has two beams, one having a 15-degree tilt and one having a 35-degree tilt. Each beam is split into two ports for monostatic antenna application. The maximum antenna gain is 7dBiC. Radiation pattern is shown in **Figure 4**.
6. **10039928 (A1269 CE)**. This is the CE version of A1268. The maximum antenna gain is 7dBiC. Radiation pattern is shown in **Figure 4**.
7. **10039870 (A1270 FCC)**. This is a wide 3x2 patch antenna (41cmx26cm). The antenna has four beams, two having a 15-degree tilt and two having a 35-degree tilt. Each beam is split into two ports for monostatic antenna application. The maximum antenna gain is 6.5dBiC. Radiation pattern is shown in **Figure 5**.
8. **10040036 (A1275 CE)**. This is the CE version of A1270. The maximum antenna gain is 6.5dBiC. Radiation pattern is shown in **Figure 5**.
9. **10040423 (A1278 FCC)**. This is a narrow 3x1 patch antenna (41cmx11cm). The antenna has two beams, each having a 15-degree tilt. Each beam is split into two ports for monostatic application. The maximum antenna gain is 5.5dBiC. Radiation pattern is shown in **Figure 2**
10. **10040426 (A1279 CE)**. This is the CE version of A1279. The maximum antenna gain is 5.5dBiC. Radiation pattern is shown in **Figure 2**

2.0 ANTENNA SPECIFICATIONS

The detailed antenna specifications are shown in **Table 2** to **Table 6**.

SFERO ANTENNA SPECIFICATION

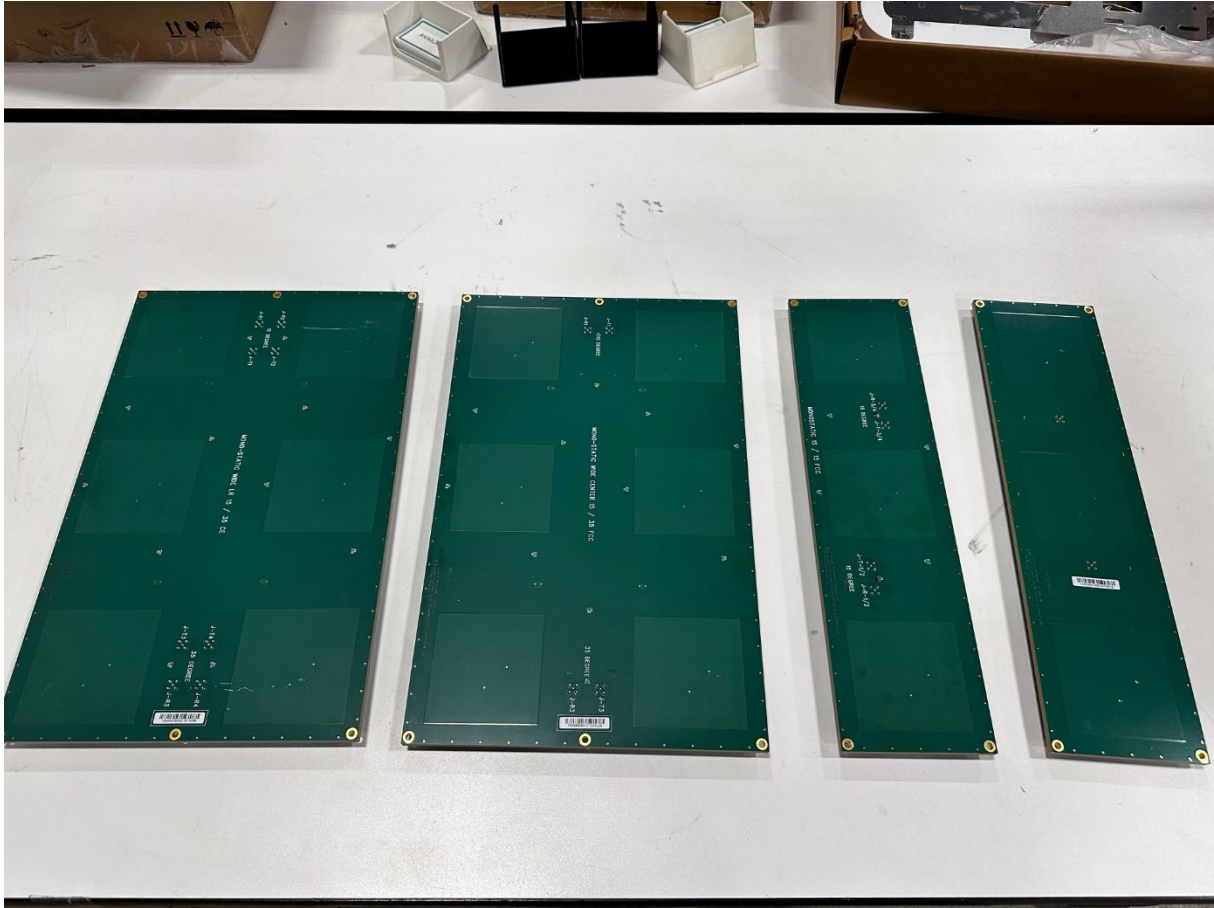


Figure 1: SFERO patch antenna examples

Table 1 SFERO Antenna List

Part Number	PCB	Bistatic/ Monostatic	Tilt	Size/Type	Where Used
10037158	A1230 FCC	Bistatic	15/15	Narrow - 2 port	SFO10, SFP10
10037630	A1245 CE	Bistatic	15/15	Narrow - 2 port	SFO10, SFP10
10039547	A1266 FCC	Bistatic	15/35	Narrow - 2 port	SFO20S, SFO20P, SFO10 REV11
10039917	A1265 CE	Bistatic	15/35	Narrow - 2 port	SFO20S, SFO20P, SFO10 REV11
10039838	A1268 FCC	Monostatic	15/35	Wide - 4 port	SFO20I, SFO10 REV11 INT
10039928	A1269 CE	Monostatic	15/35	Wide - 4 port	SFO20I, SFO10 REV11 INT
10039870	A1270 FCC	Monostatic	15/35	Wide - 8 port	SFO20IW
10040036	A1275 CE	Monostatic	15/35	Wide - 8 port	SFO20IW
10040423	A1278 FCC	Monostatic	15/15	Narrow - 4 port	SFP20
10040426	A1279 CE	Monostatic	15/15	Narrow - 4 port	SFP20

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Table 2 A1230/A1245 Antenna Spec

Bi-static Narrow 15/15			
A1230 FCC		A1245 CE	
Frequency range	902-928 MHz	Frequency range	865-870 MHz
Gain	<8 dBiC	Gain	<8 dBiC
Nominal impedance	50 Ohm	Nominal impedance	50 Ohm
Half power beam width	80 deg (along width) 40 deg (along length)	Half power beam width	80 deg (along width) 40 deg (along length)
Polarization	Circular	Polarization	Circular
Axial ratio	< 1.5dB	Axial ratio	< 1.5dB
Front to back ratio	> 15dB	Front to back ratio	> 15dB
Dimensions	410mm x110mm x 6mm	Dimensions	410mm x110mm x 6mm
Connector	SMA	Connector	SMA

Table 3 A1266/A1265 Antenna Spec

Bi-static Narrow 15/35			
A1266 FCC		A1265 CE	
Frequency range	902-928 MHz	Frequency range	865-870 MHz
Gain	<8.5 dBiC	Gain	<8.5 dBiC
Nominal impedance	50 Ohm	Nominal impedance	50 Ohm
Half power beam width	80 deg (along width) 40 deg (along length)	Half power beam width	80 deg (along width) 40 deg (along length)
Polarization	Circular	Polarization	Circular
Axial ratio	< 1.5dB	Axial ratio	< 1.5dB
Front to back ratio	> 15dB	Front to back ratio	> 15dB
Dimensions	410mm x110mm x 6mm	Dimensions	410mm x110mm x 6mm
Connector	SMA	Connector	SMA

Table 4 A1268/A1269 Antenna Spec

Monostatic Wide 15/35 4 Ports			
A1268 FCC		A1269 CE	
Frequency range	902-928 MHz	Frequency range	865-870 MHz
Gain	<7 dBiC	Gain	<7 dBiC
Nominal impedance	50 Ohm	Nominal impedance	50 Ohm
Half power beam width	80 deg (along width) 40 deg (along length)	Half power beam width	80 deg (along width) 40 deg (along length)
Polarization	Circular	Polarization	Circular
Axial ratio	< 1.5dB	Axial ratio	< 1.5dB
Front to back ratio	> 15dB	Front to back ratio	> 15dB
Dimensions	410mm x260mm x 6mm	Dimensions	410mm x260mm x 6mm
Connector	SMA	Connector	SMA

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Table 5 A1270/A1275 Antenna Spec

Monostatic Wide 15/35 8 Ports			
A1270 FCC		A1275 CE	
Frequency range	902-928 MHz	Frequency range	865-870 MHz
Gain	<6.5 dBic	Gain	<6.5 dBiC
Nominal impedance	50 Ohm	Nominal impedance	50 Ohm
Half power beam width	80 deg (along width) 40 deg (along length)	Half power beam width	80 deg (along width) 40 deg (along length)
Polarization	Circular	Polarization	Circular
Axial ratio	< 1.5dB	Axial ratio	< 1.5dB
Front to back ratio	> 15dB	Front to back ratio	> 15dB
Dimensions	410mm x260mm x 6mm	Dimensions	410mm x260mm x 6mm
Connector	SMA	Connector	SMA

Table 6 A1278/A1279 Antenna Spec

Monostatic Narrow 15/15 4 Ports			
A1278 FCC		A1279 CE	
Frequency range	902-928 MHz	Frequency range	865-870 MHz
Gain	<5.5 dBic	Gain	<5.5 dBiC
Nominal impedance	50 Ohm	Nominal impedance	50 Ohm
Half power beam width	80 deg (along width) 40 deg (along length)	Half power beam width	80 deg (along width) 40 deg (along length)
Polarization	Circular	Polarization	Circular
Axial ratio	< 1.5dB	Axial ratio	< 1.5dB
Front to back ratio	> 15dB	Front to back ratio	> 15dB
Dimensions	410mm x110mm x 6mm	Dimensions	410mm x110mm x 6mm
Connector	SMA	Connector	SMA

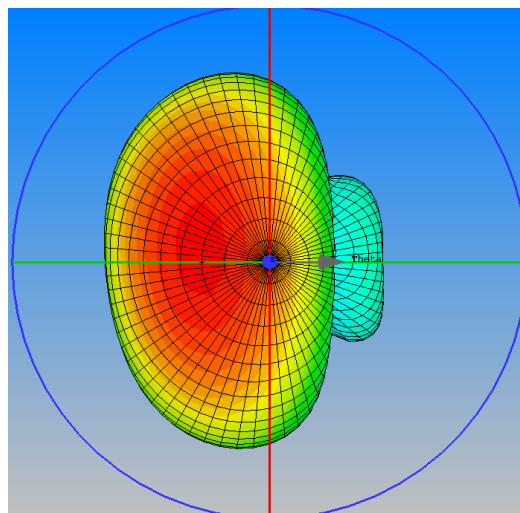


Figure 2 3D radiation pattern for A1230/A1245, A1278/A1279.

SFERO ANTENNA SPECIFICATION

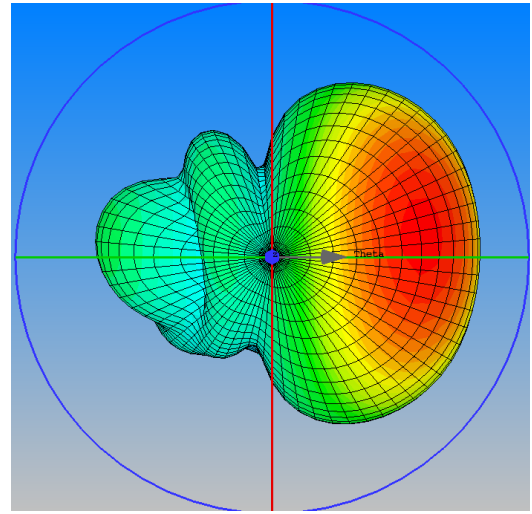
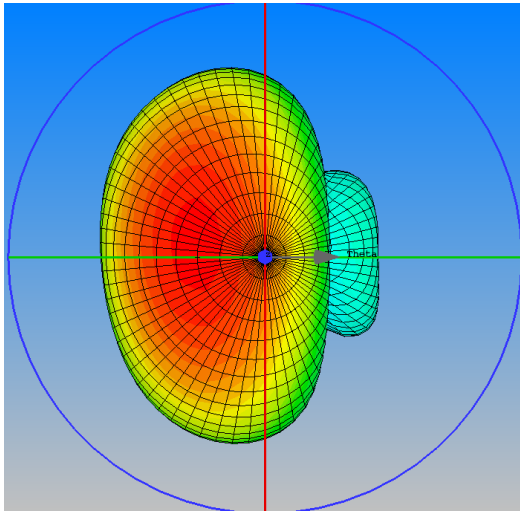


Figure 3 3D radiation pattern for A1265/A1266 has two asymmetrically tilted beams (15 degree tilt and 35 degree tilt)

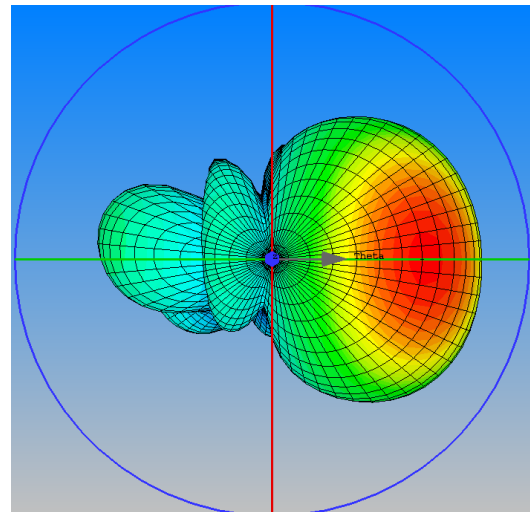
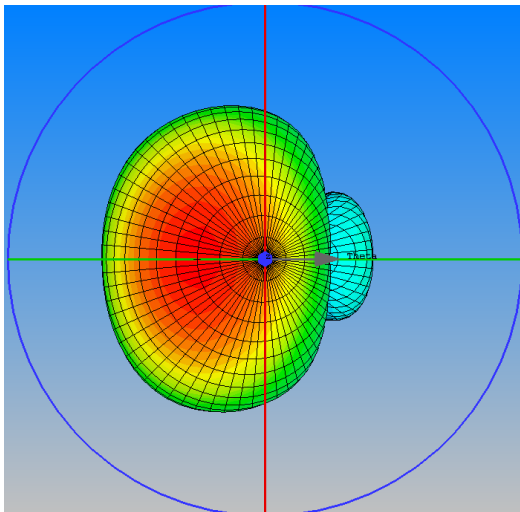


Figure 4 3D radiation pattern for A1268/A1269. A1268/A1269 has two asymmetrically tilted beams (15 degree tilt and 35 degree tilt)

SFERO ANTENNA SPECIFICATION

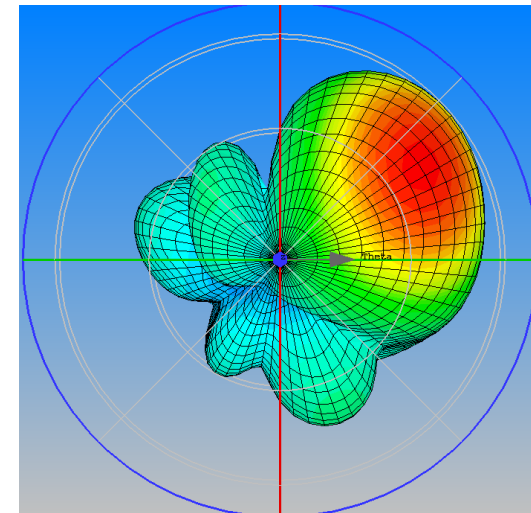
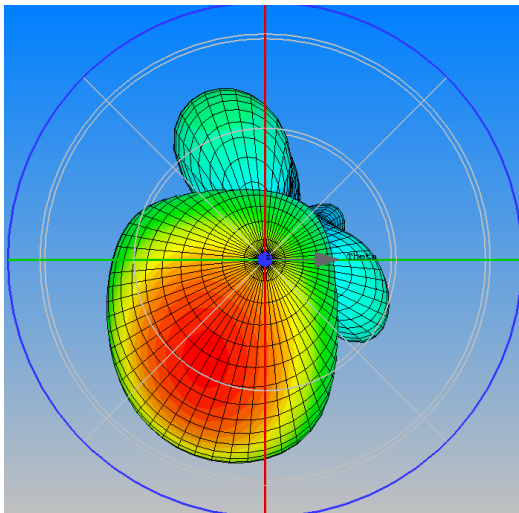
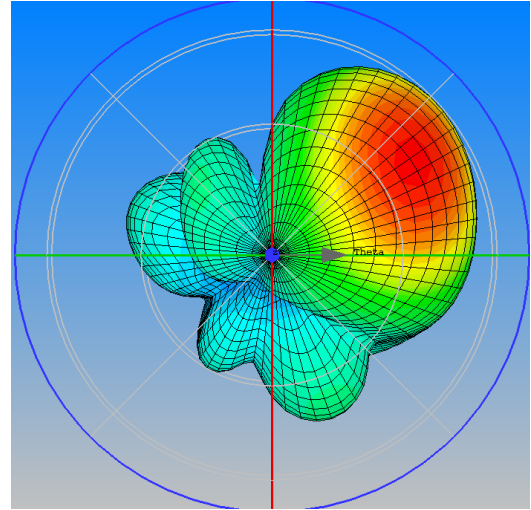
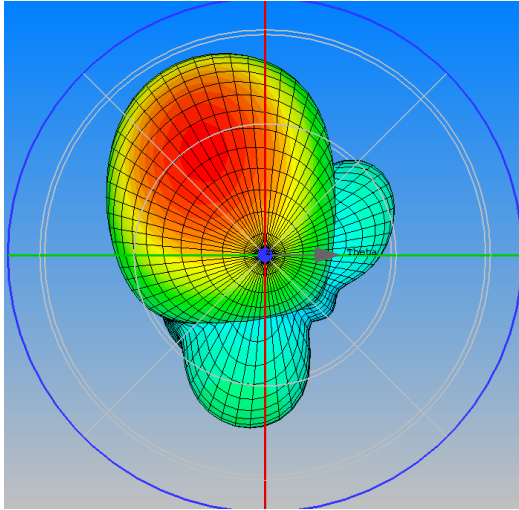


Figure 5 3D radiation pattern for A1270/A1275. A1270/A1275 has four tilted beams.