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11-S190-6B0006	SC9EX1_SP9EX1_SC9EX2_SP9EX2 Antenna Specifications	3.0	2024-07-31
AUTHOR	DOCUMENT RESPONSIBLE	APPROVED BY	
Andrey Uryutin	Anders Larsson	Sebastian Kuhn	

SC9EX1 SP9EX1 SC9
EX2 SP9EX2 ANTENNA
SPECIFICATIONS

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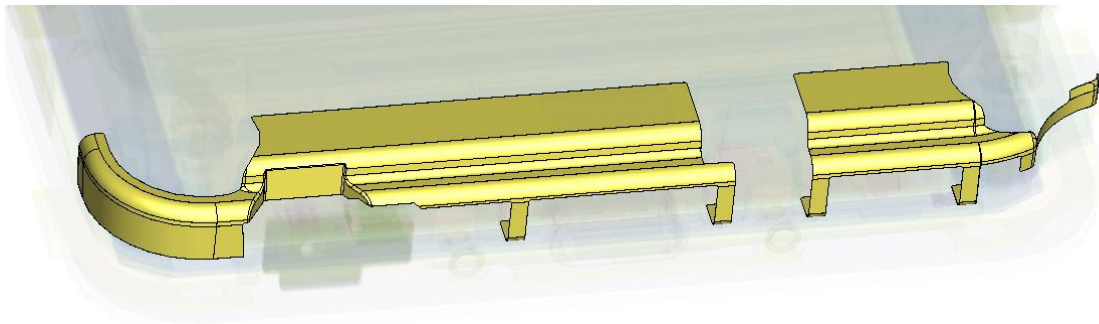
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1 ANTENNA 0

1.1 GENERAL INFORMATION

Type of antenna	IFA antenna
Manufacturing process	LDS printing
Directional characteristics	Omni-Directional
Connection type	Spring connectors
RFFE	Aperture and impedance tuner

1.2 ANTENNA PATTERN

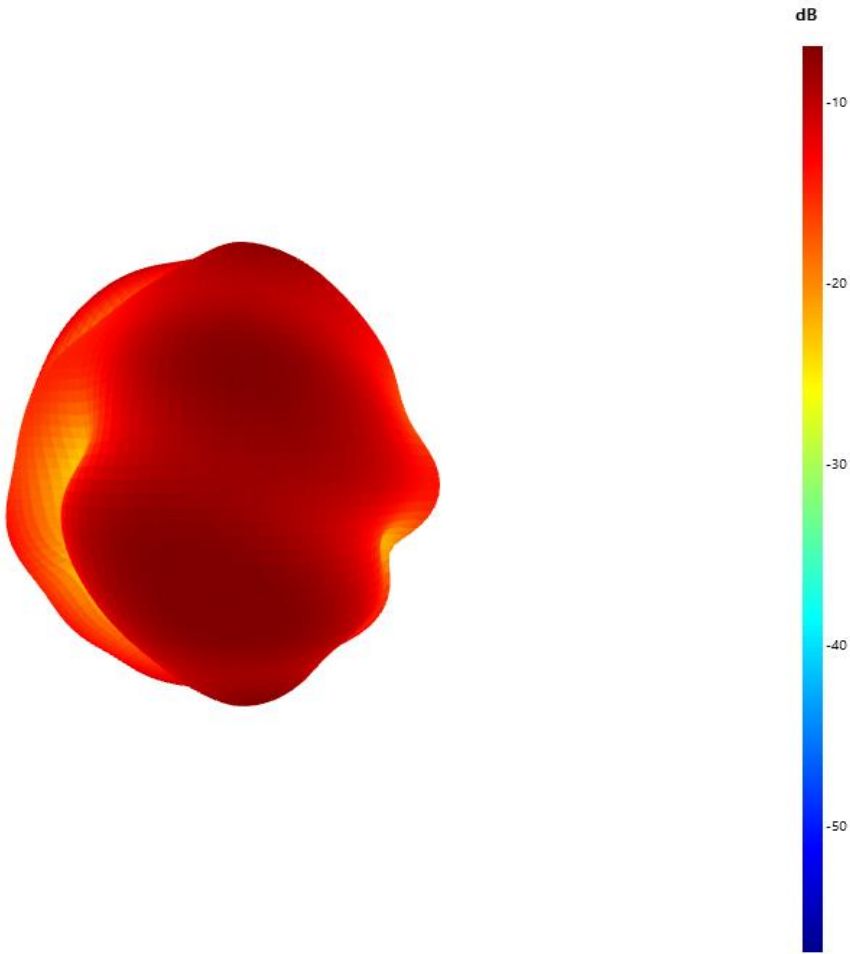


1.3 FREQUENCY RANGE

Frequency range, MHz	Max antenna gain, dBi
617-960	-4.9
1710 - 2200	1.4
2300 - 2690	0.7
UMTS: 1, 2, 4, 5, 8 LTE: 1, 2, 3, 4, 7, 8, 12, 13, 17, 20, 28, 38, 40, 41, 66, 71 5G: 1, 2, 3, 5, 7, 8, 20, 25, 28, 38, 40, 41, 66, 71 GSM: 850, 900, 1800, 1900	

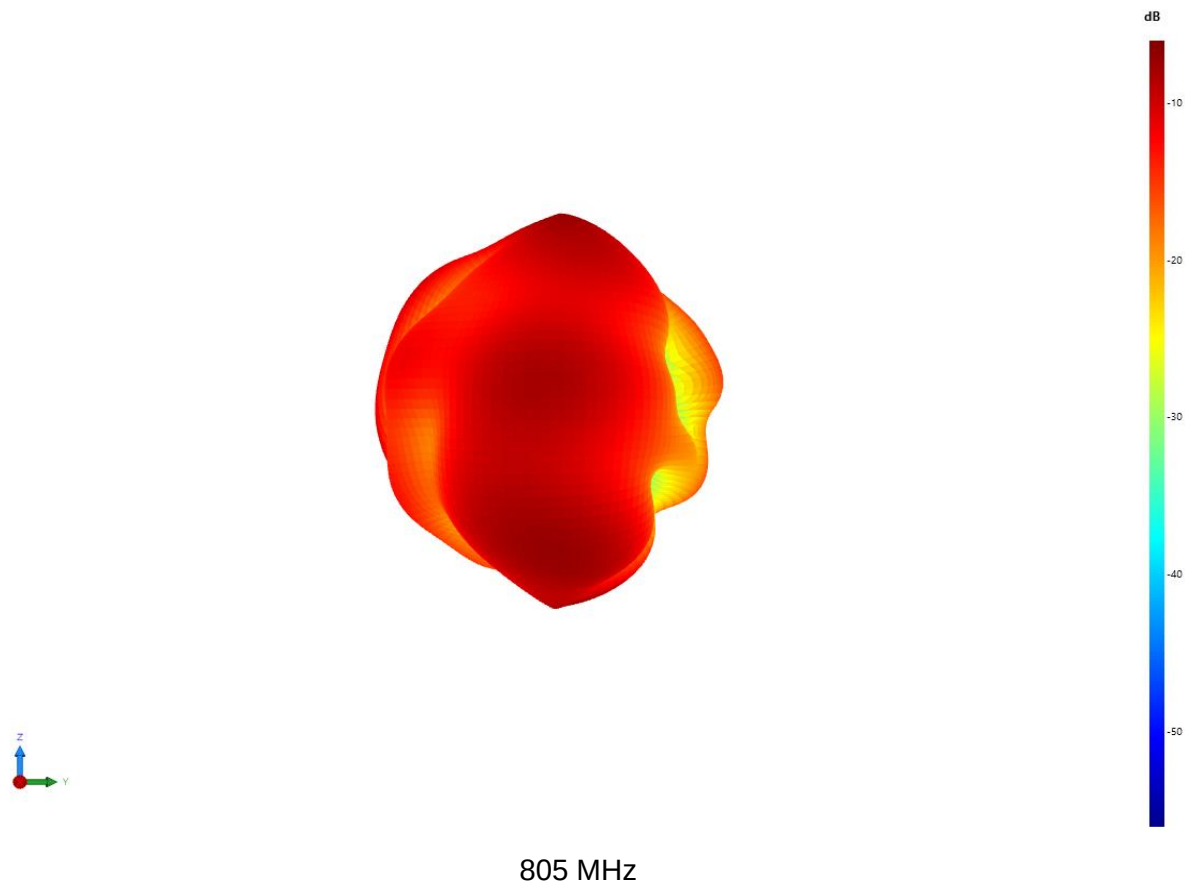
1.4 3D MAP

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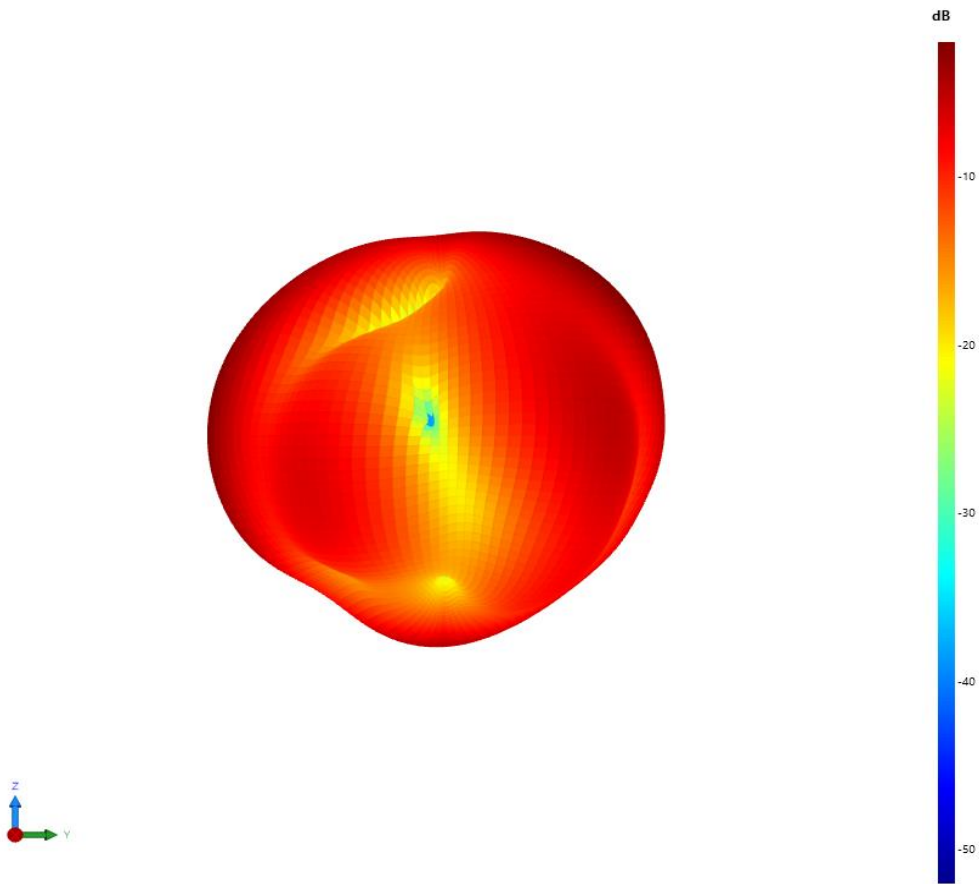


735 MHz

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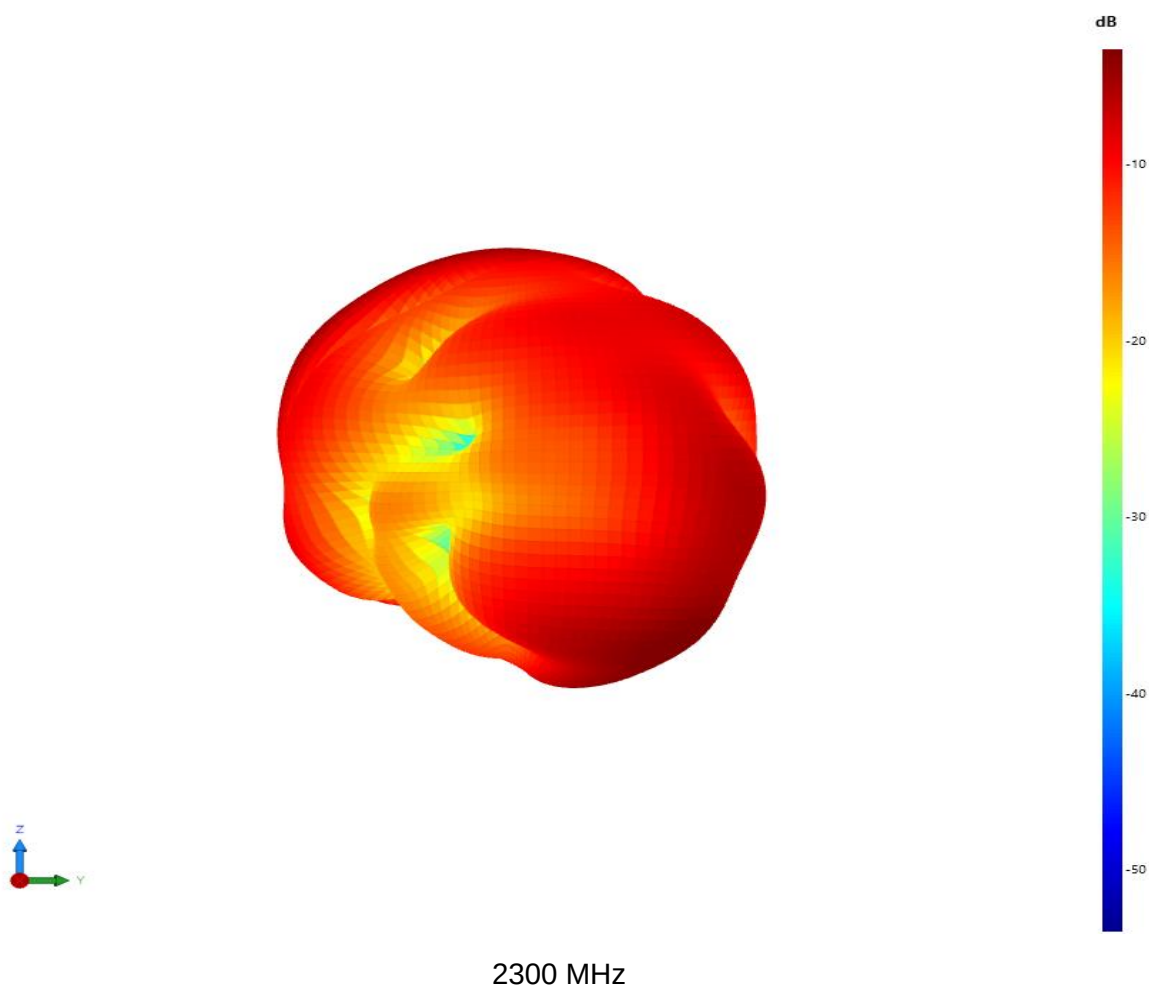


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1700 MHz

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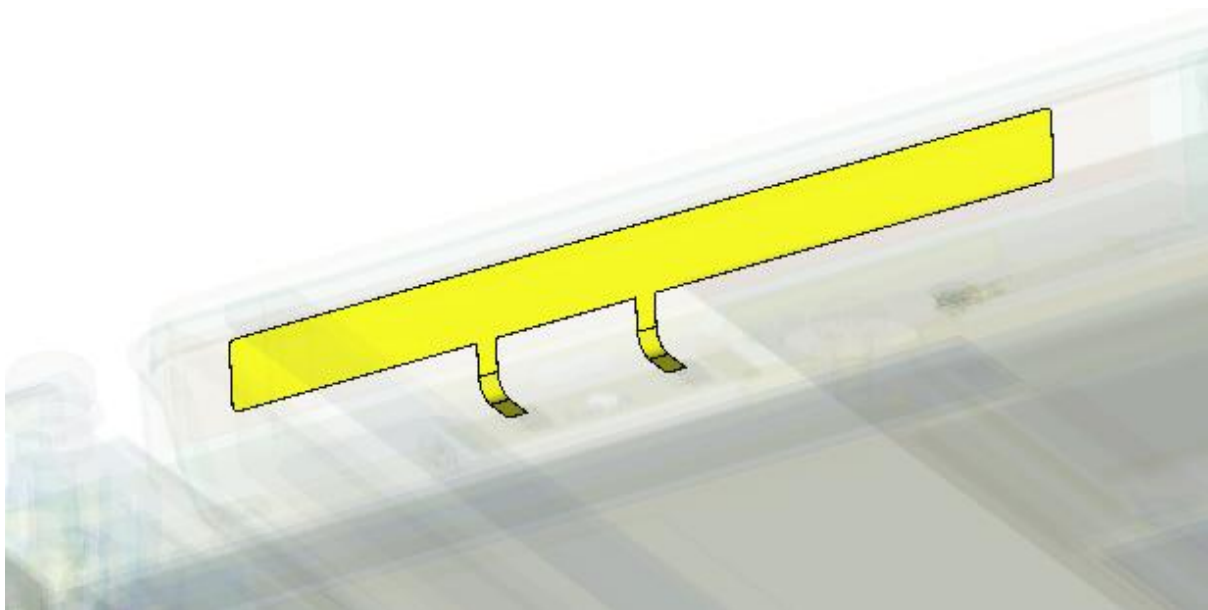


2 ANTENNA 1

2.1 GENERAL INFORMATION

Type of antenna	IFA antenna
Manufacturing process	Flex PCB
Directional characteristics	Omni-Directional
Connection type	Spring connectors
RFFE	None

2.2 ANTENNA PATTERN

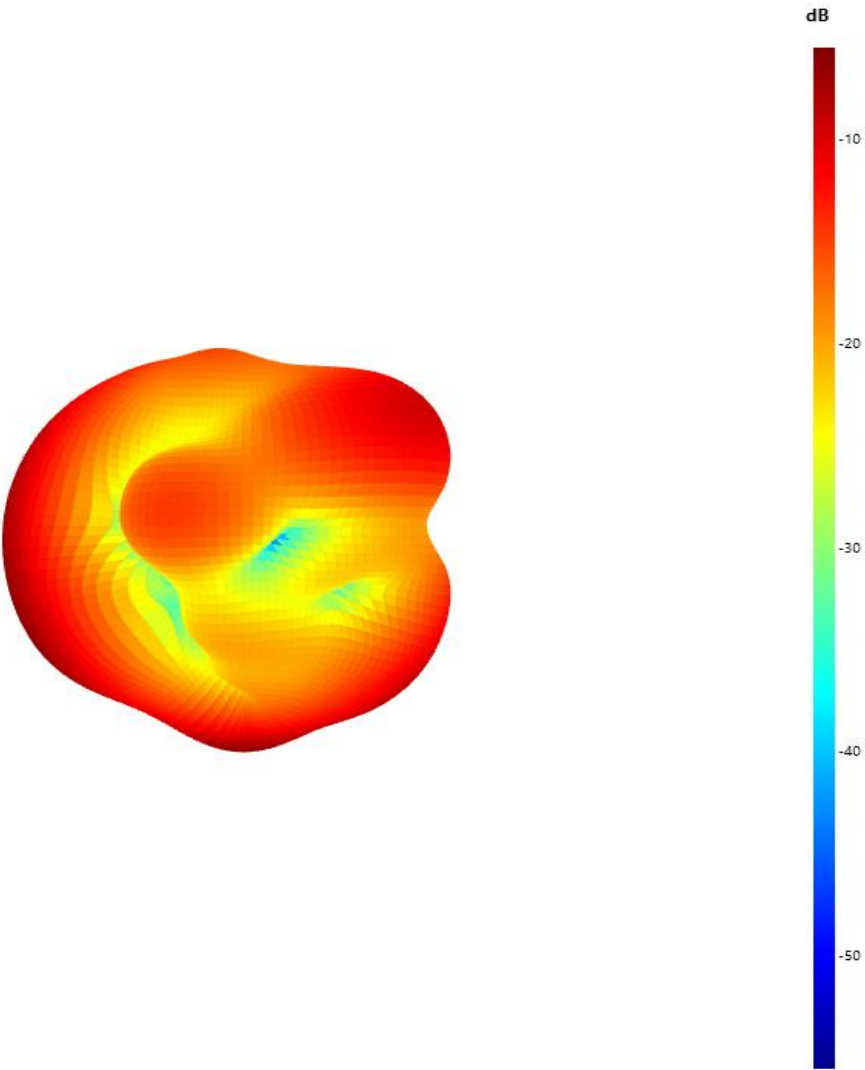


2.3 FREQUENCY RANGE

Frequency range, MHz	Max antenna gain, dBi
1710 - 2200	-2.1
2300 - 2690	0.2
3300 - 4200	0.4
LTE: 1, 2, 3, 4, 7, 38, 40, 41, 48, 66	
5G NR: 1, 2, 3, 7, 25, 38, 40, 41, 48, 66, 77, 78	

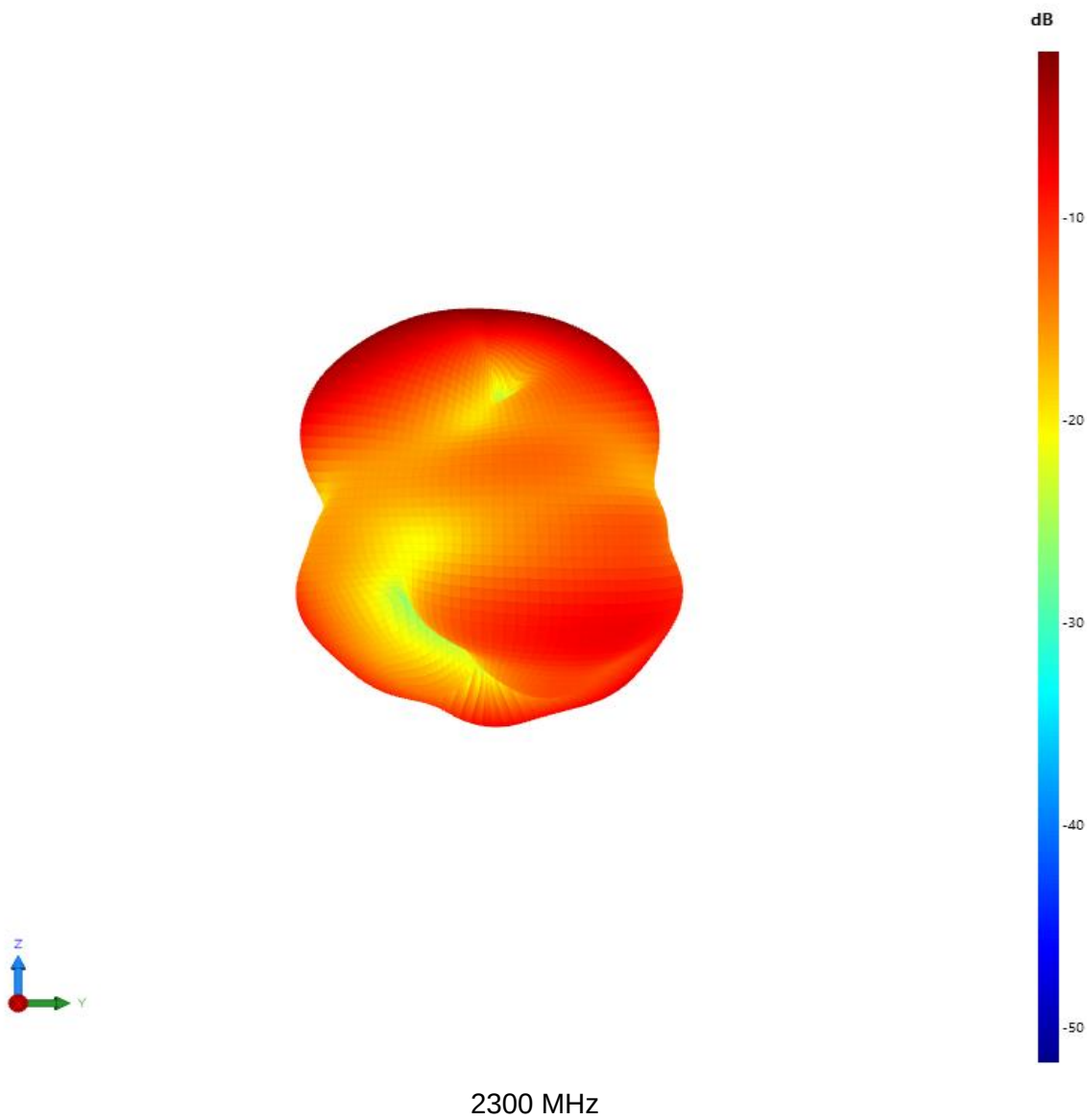
2.4 3D MAP

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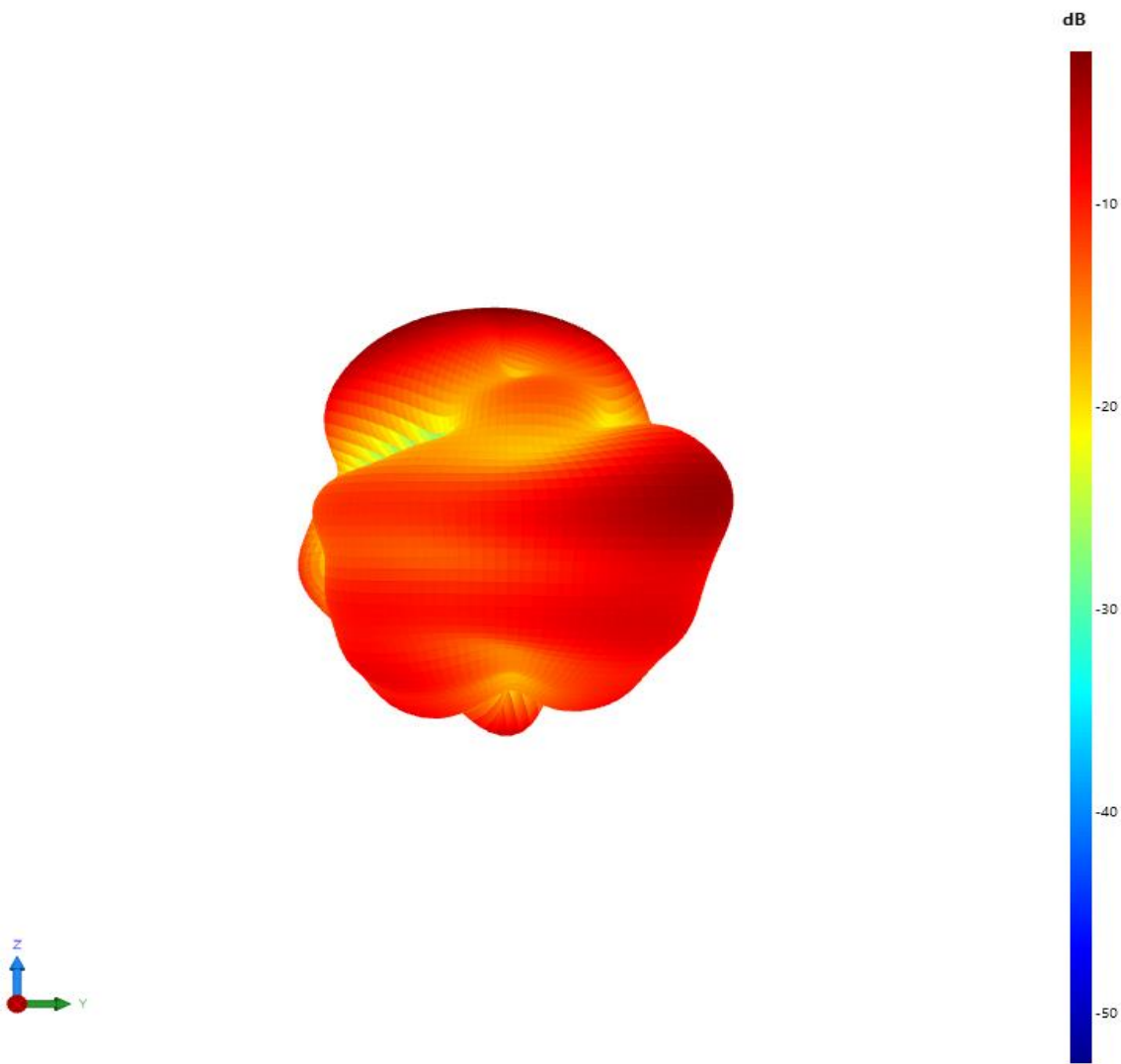


1700 MHz

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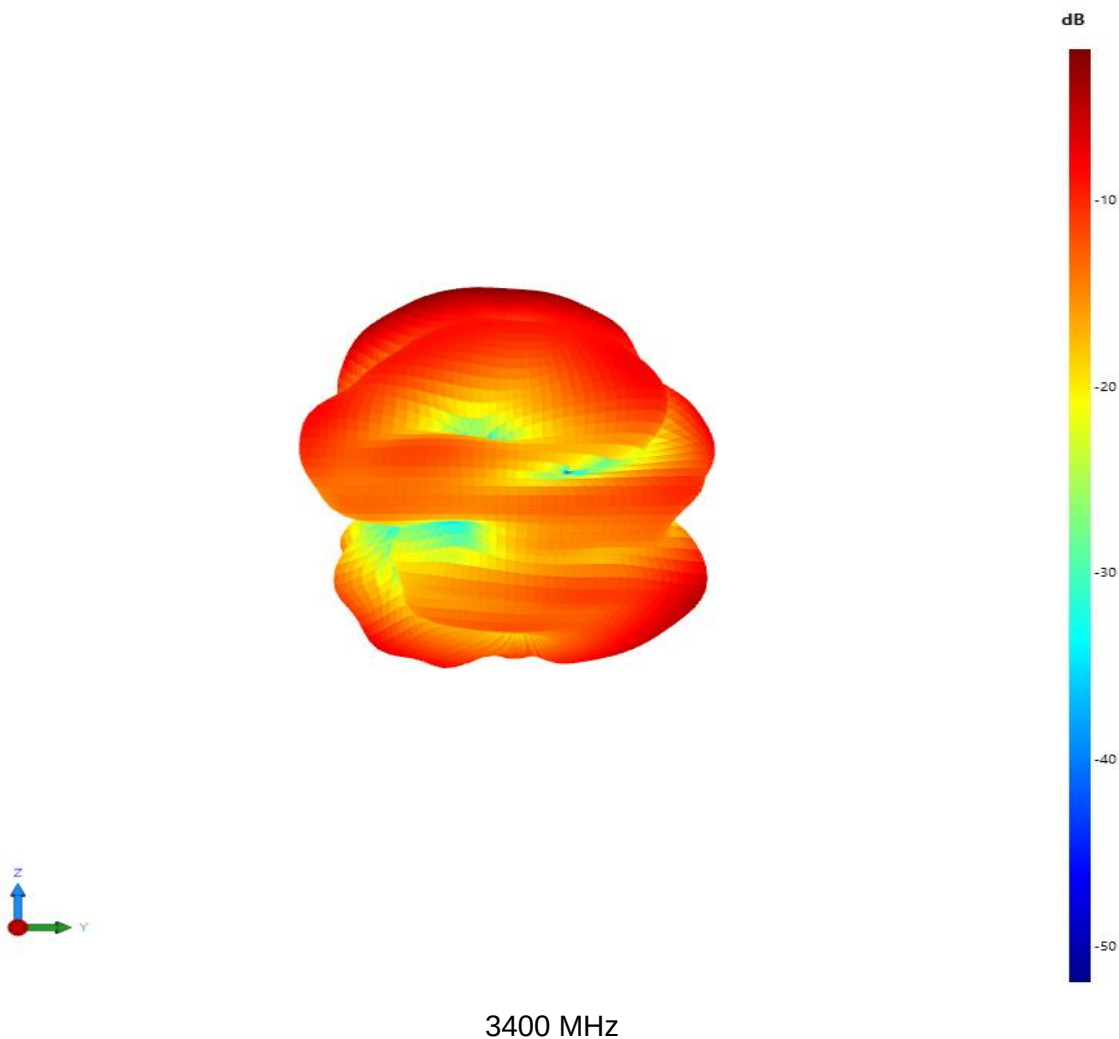


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2700 MHz

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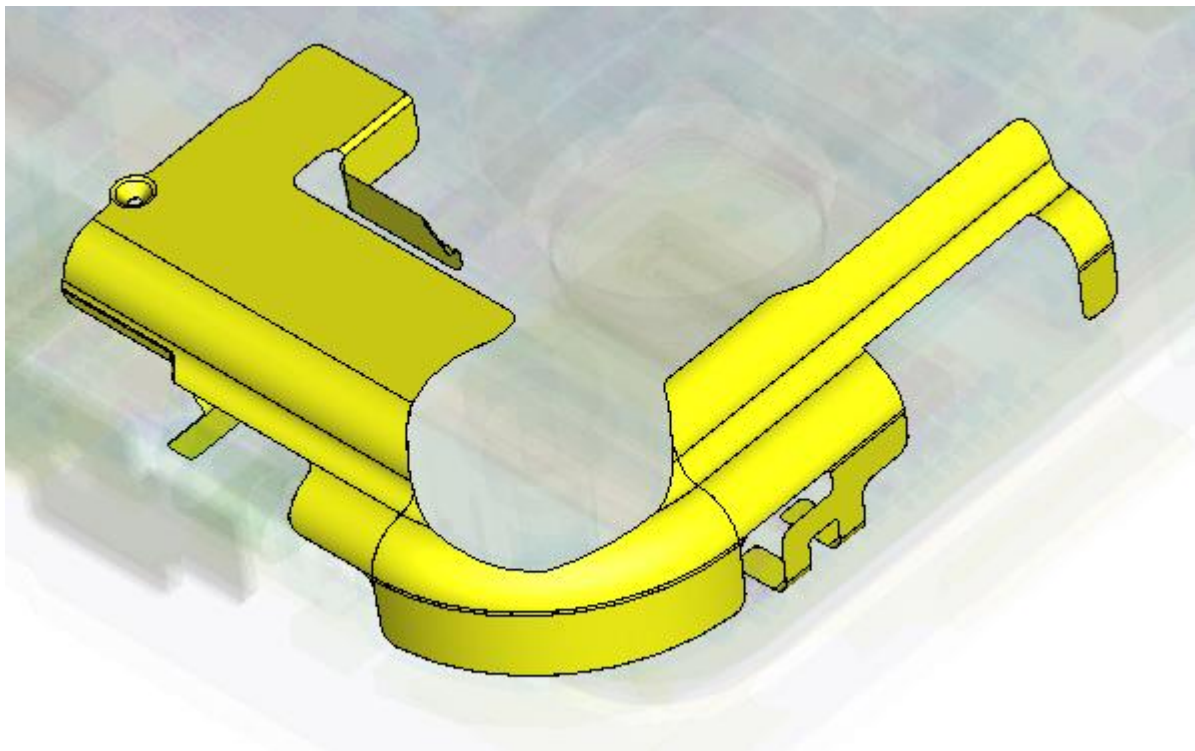


3 ANTENNA 2

3.1 GENERAL INFORMATION

Type of antenna	IFA antenna
Manufacturing process	LDS printing
Directional characteristics	Omni-Directional
Connection type	Spring connectors
RF FE	Aperture and impedance tuners

3.2 ANTENNA PATTERN

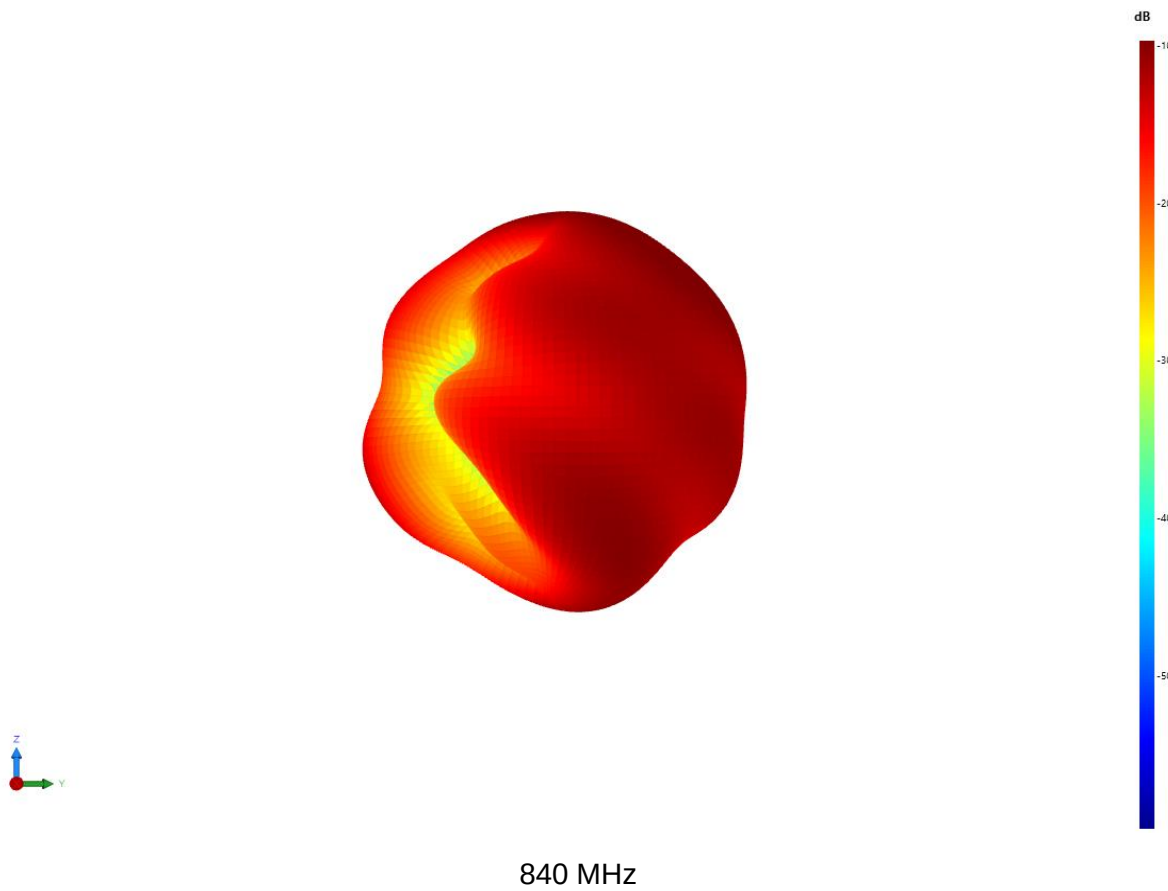
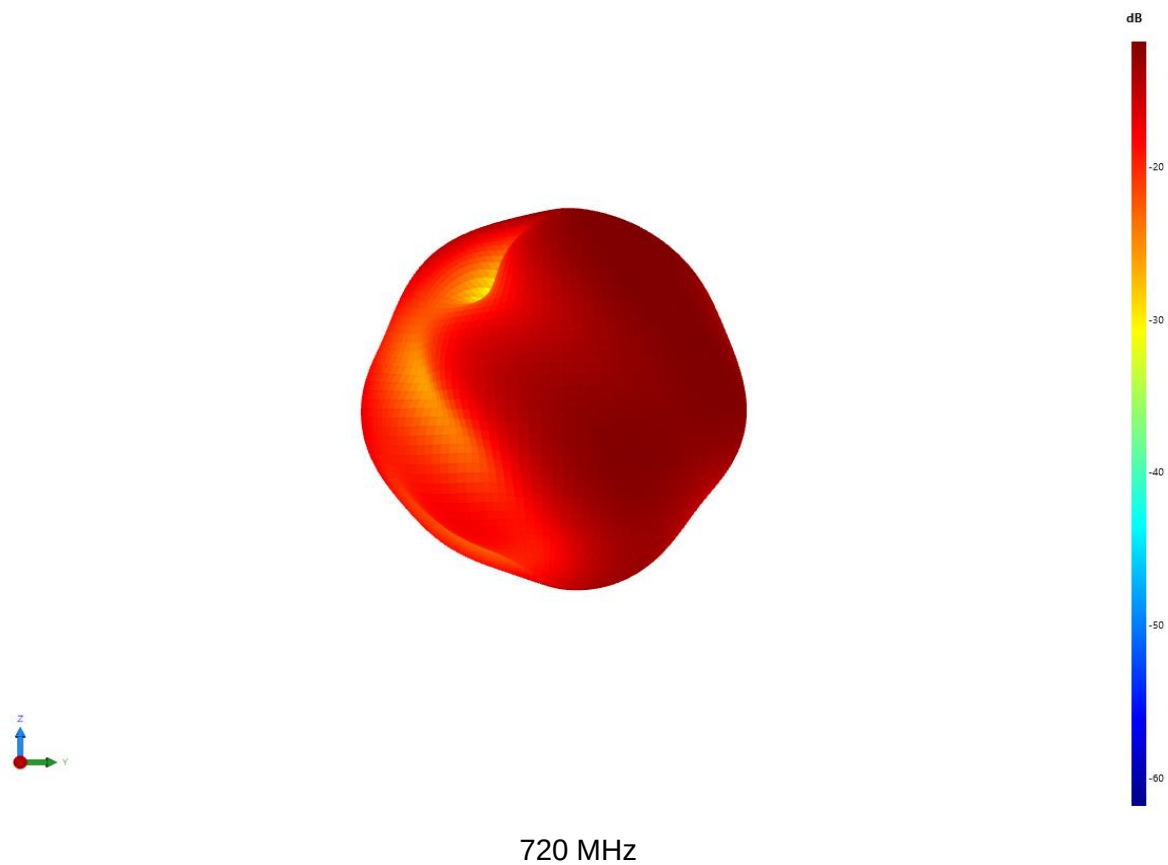


3.3 FREQUENCY RANGE

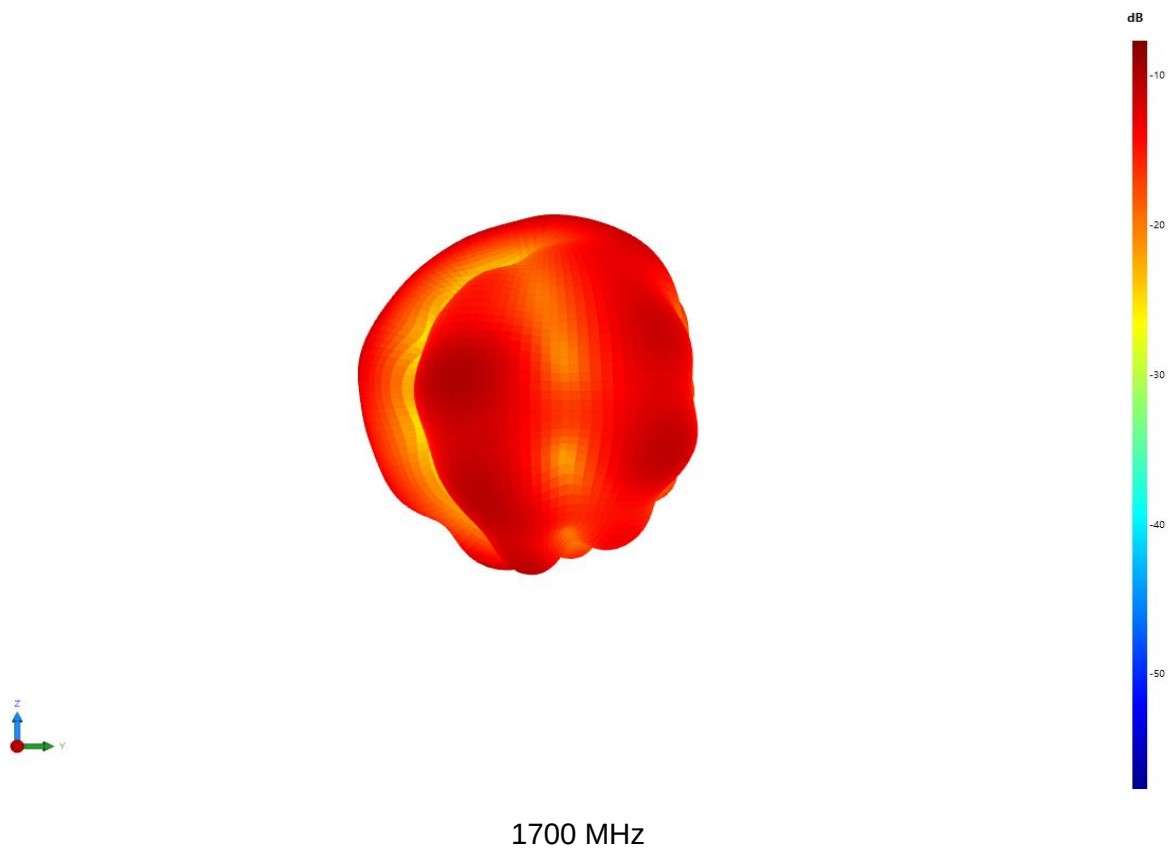
Frequency range, MHz	Max antenna gain, dBi
617-960	-9.7
1710 - 2200	-1.5
2300 - 2690	0.3
UMTS: 1, 2, 4, 5, 8 LTE: 1, 2, 3, 4, 7, 8, 12, 13, 17, 20, 28, 38, 40, 41, 66, 71 5G: 1, 2, 3, 5, 7, 8, 20, 25, 28, 38, 40, 41, 66, 71 GSM: 850, 900, 1800, 1900	

3.4 3D MAP

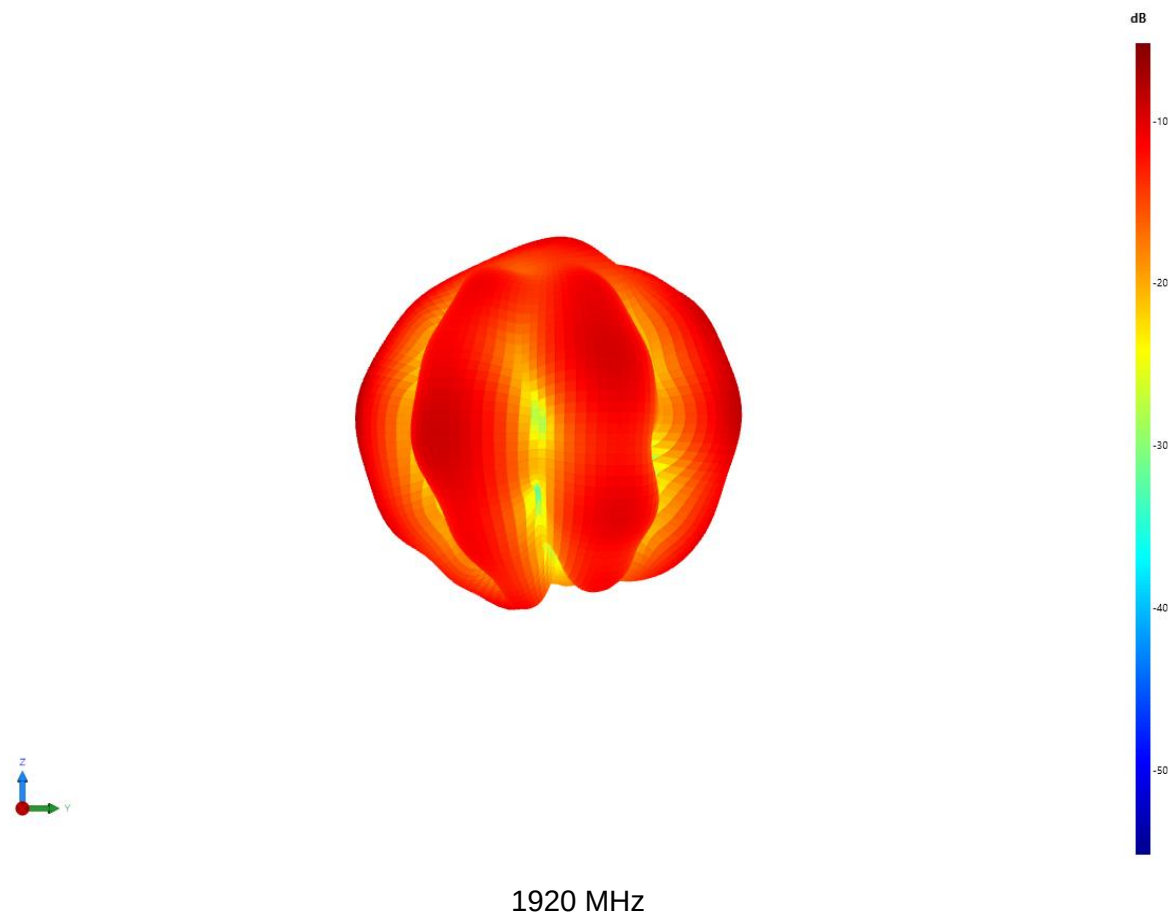
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11-S190-6B0002	SC9EX1_SP9EX1_SC9EX2_SP9EX2 Antenna Specifications	3.0



1700 MHz



1920 MHz

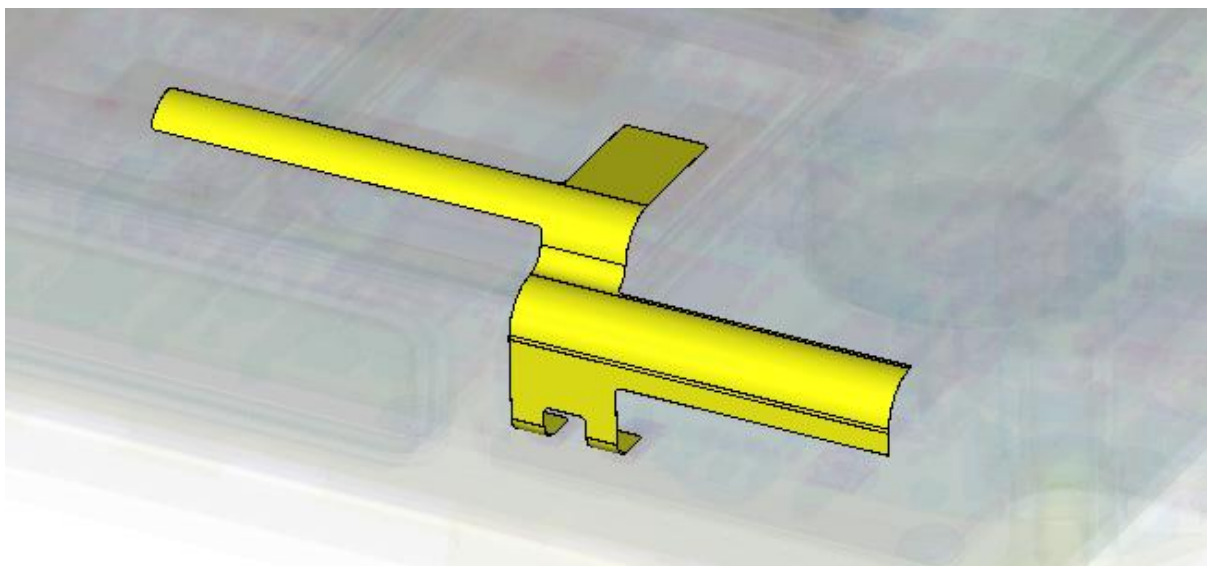
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4 ANTENNA 3

4.1 GENERAL INFORMATION

Type of antenna	IFA antenna
Manufacturing process	LDS printing
Directional characteristics	Omni-Directional
Connection type	Spring connectors
RFFE	None

4.2 ANTENNA PATTERN

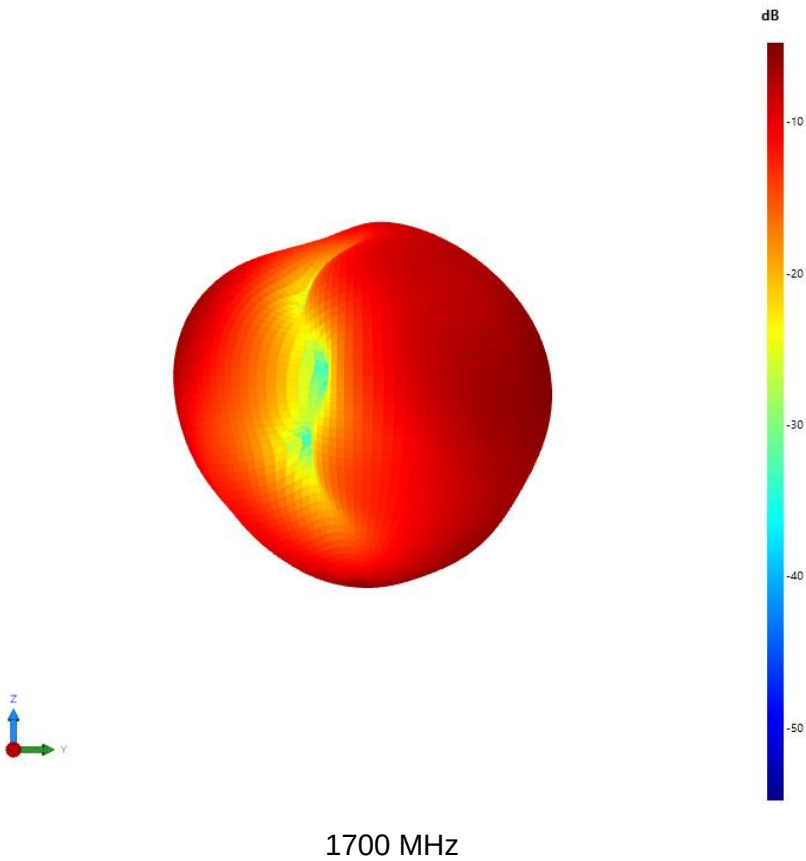


4.3 FREQUENCY RANGE

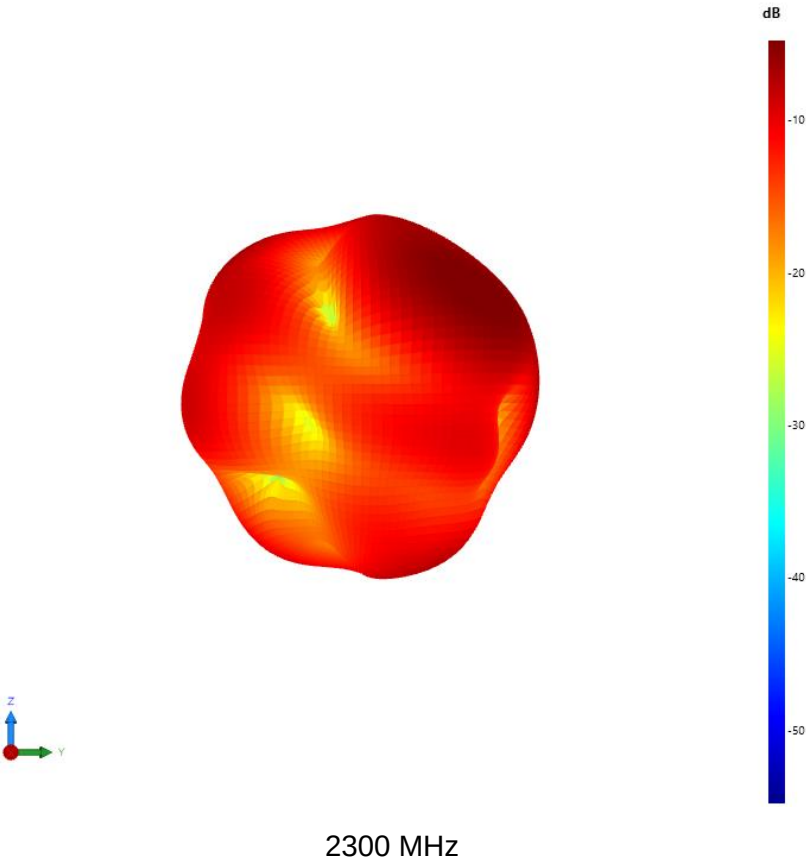
Frequency range, MHz	Max antenna gain, dBi
1710 - 2200	0.5
2300 - 2690	-0.1
3300 - 4200	1.7
LTE: 1, 2, 3, 4, 7, 38, 40, 41, 48, 66	
5G NR: 1, 2, 3, 7, 25, 38, 40, 41, 48, 66, 77, 78	

4.4 3D MAP

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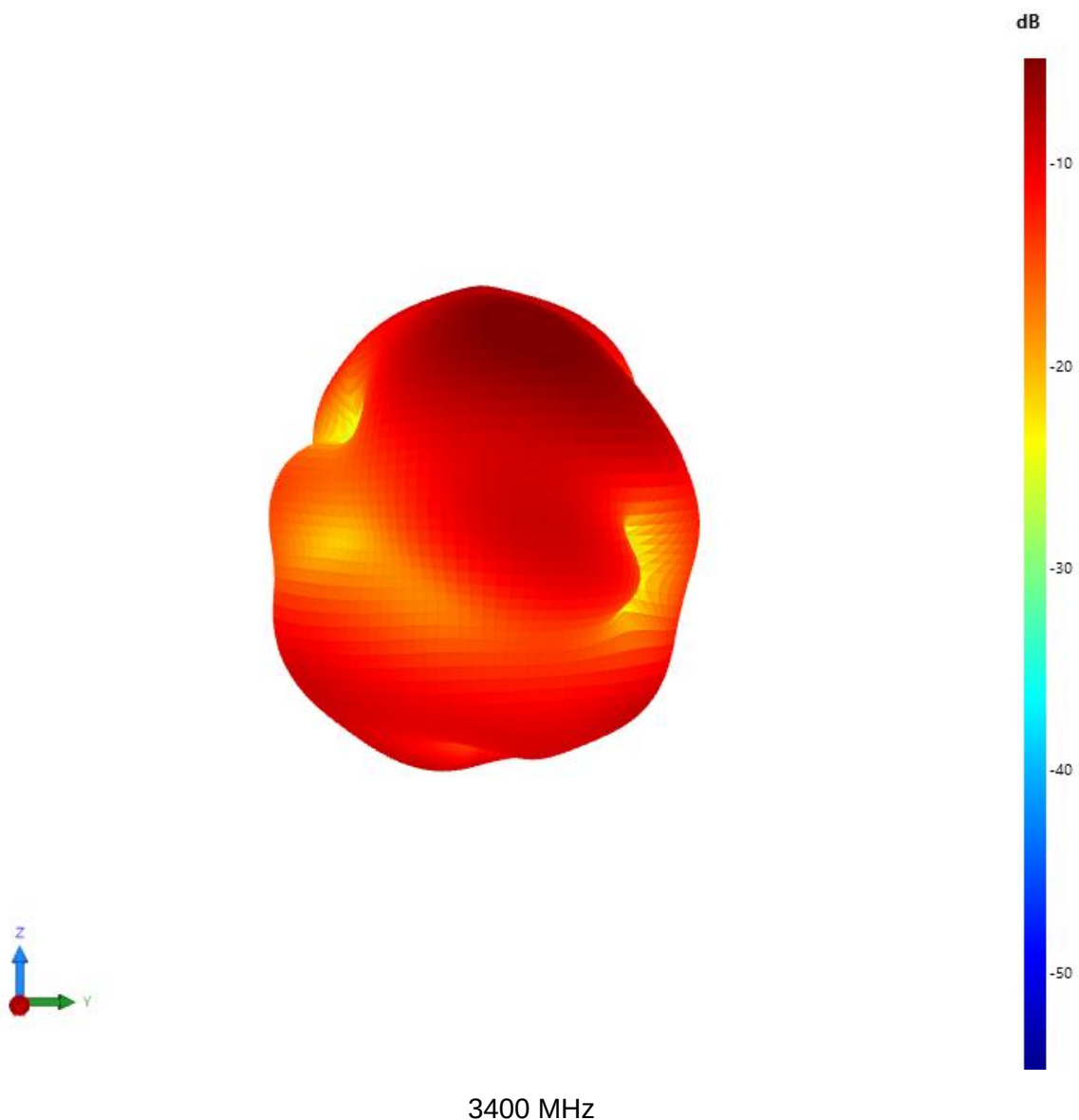


1700 MHz



2300 MHz

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11-S190-6B0002	SC9EX1_SP9EX1_SC9EX2_SP9EX2 Antenna Specifications	3.0



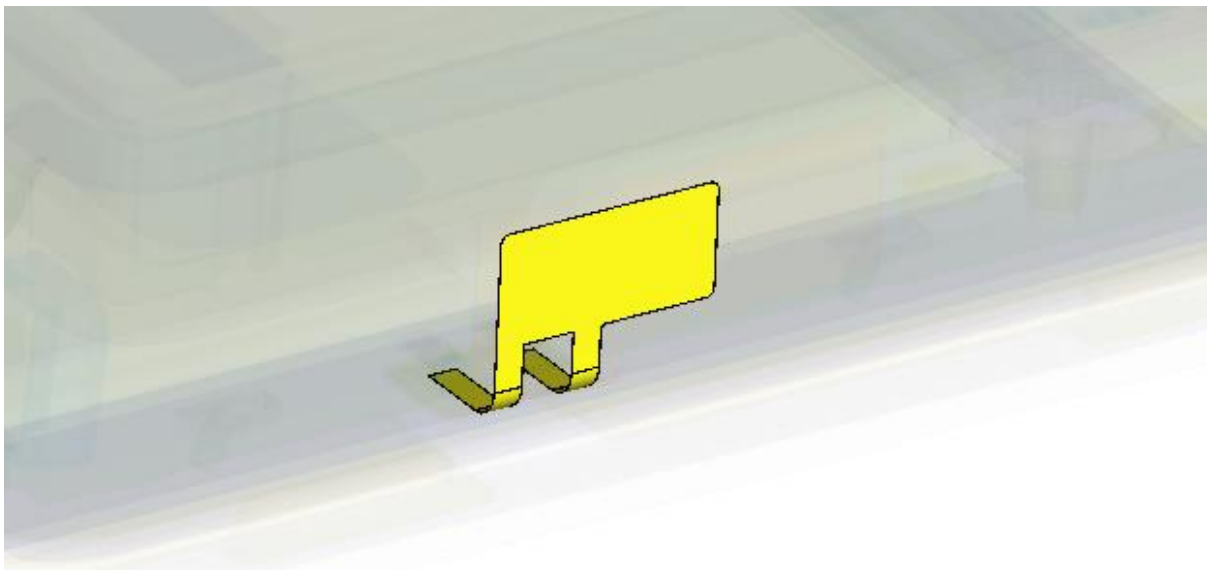
5 ANTENNA 4

5.1 GENERAL INFORMATION

Type of antenna	IFA antenna
Manufacturing process	Flex PCB
Directional characteristics	Omni-Directional
Connection type	Spring connectors
RF FE	None

5.2 ANTENNA PATTERN

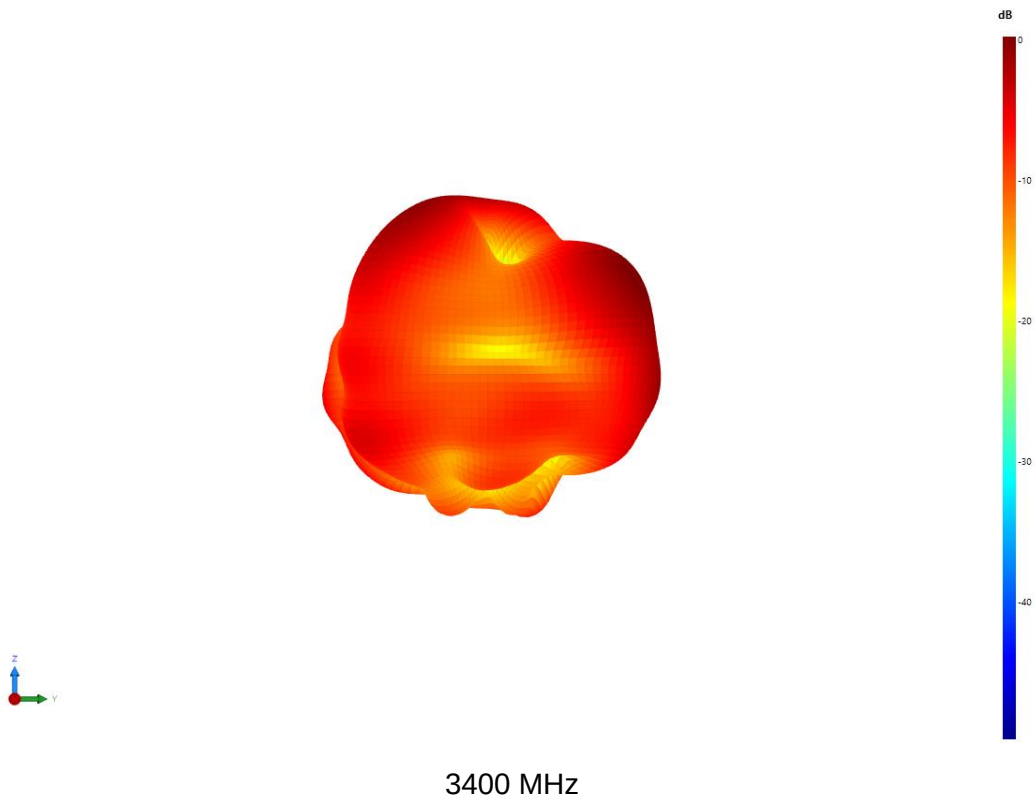
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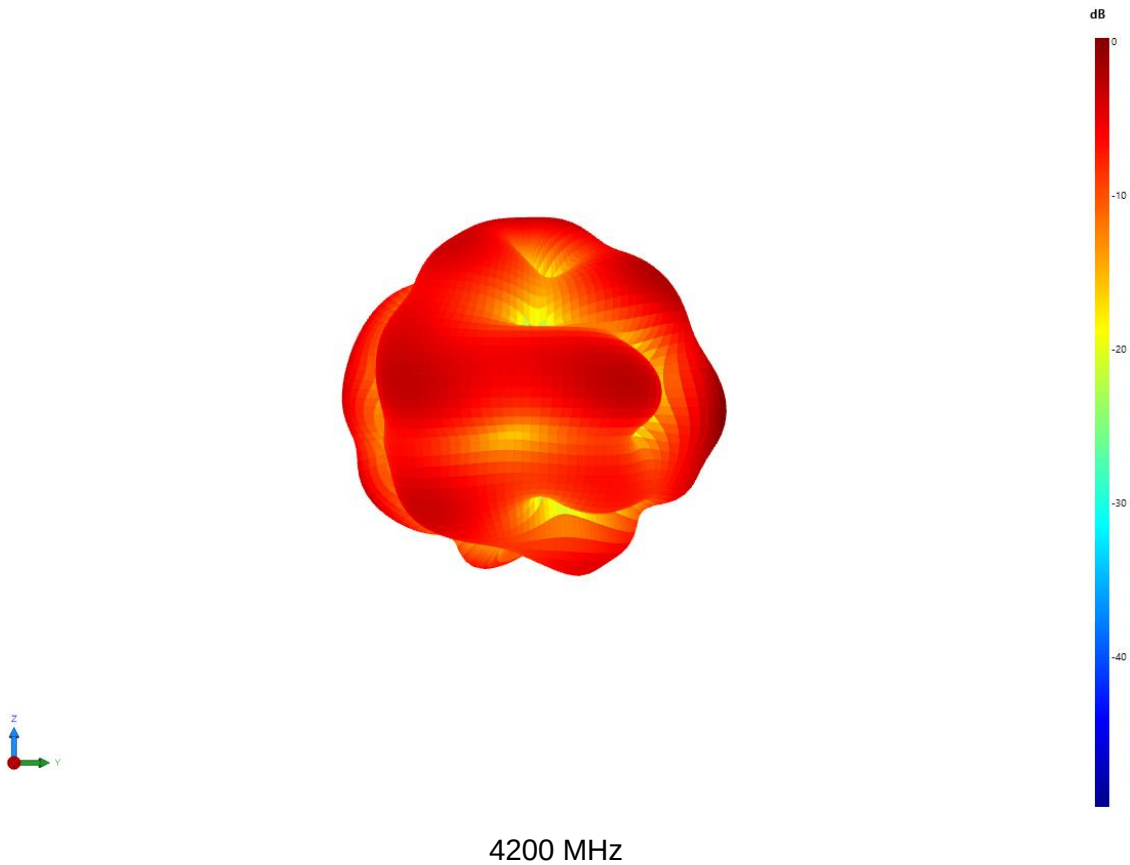
5.3 FREQUENCY RANGE

Frequency range, MHz	Max antenna gain, dBi
3300 - 4200	1.5
LTE: 48	
5G NR: 48, 77, 78	

5.4 3D MAP



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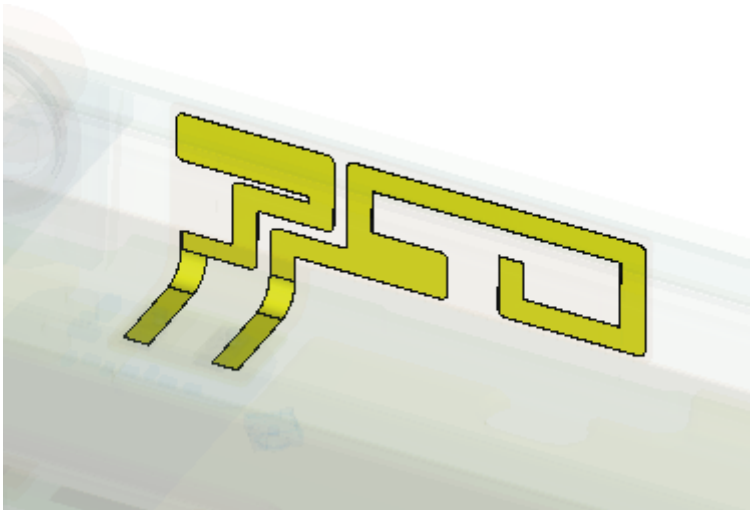
6 ANTENNA 5

6.1 GENERAL INFORMATION

Type of antenna	Monopole antenna
Manufacturing process	Flex PCB
Directional characteristics	Omni-Directional
Connection type	Spring connectors
RF FE	None

6.2 ANTENNA PATTERN

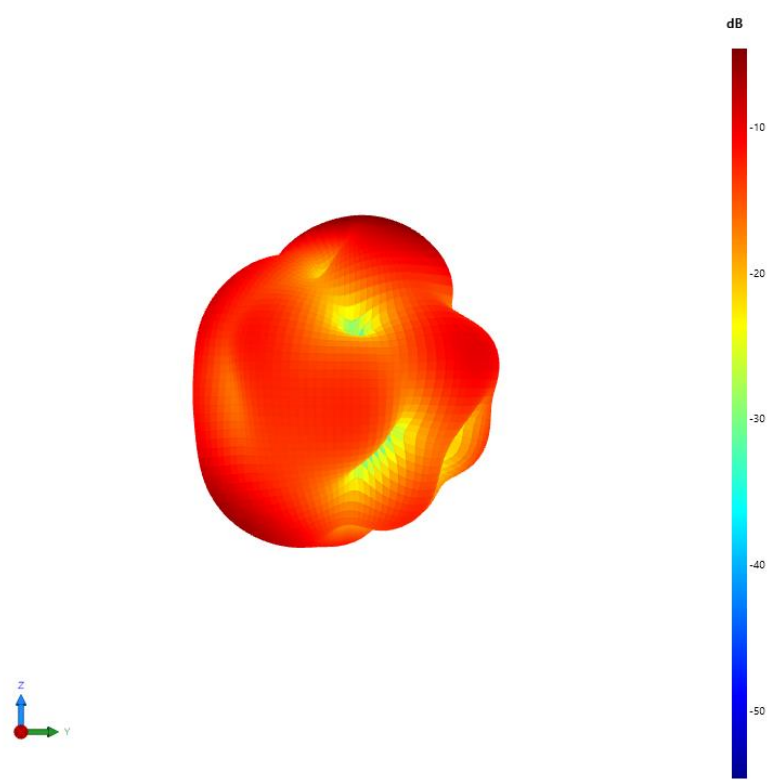
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6.3 FREQUENCY RANGE

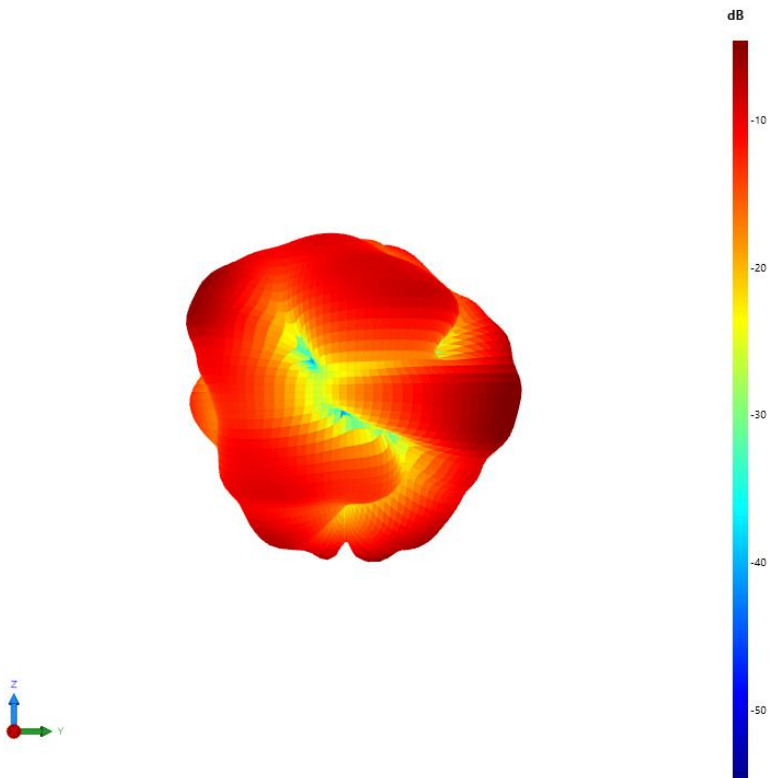
Frequency range, MHz	Max antenna gain, dBi
2400 - 2480	-1.4
3300 - 4200	0.9
5150 - 5925	-1.5
LTE: 48 5G NR: 48, 77, 78 WiFi: 2.4, 5, Bluetooth	

6.4 3D MAP

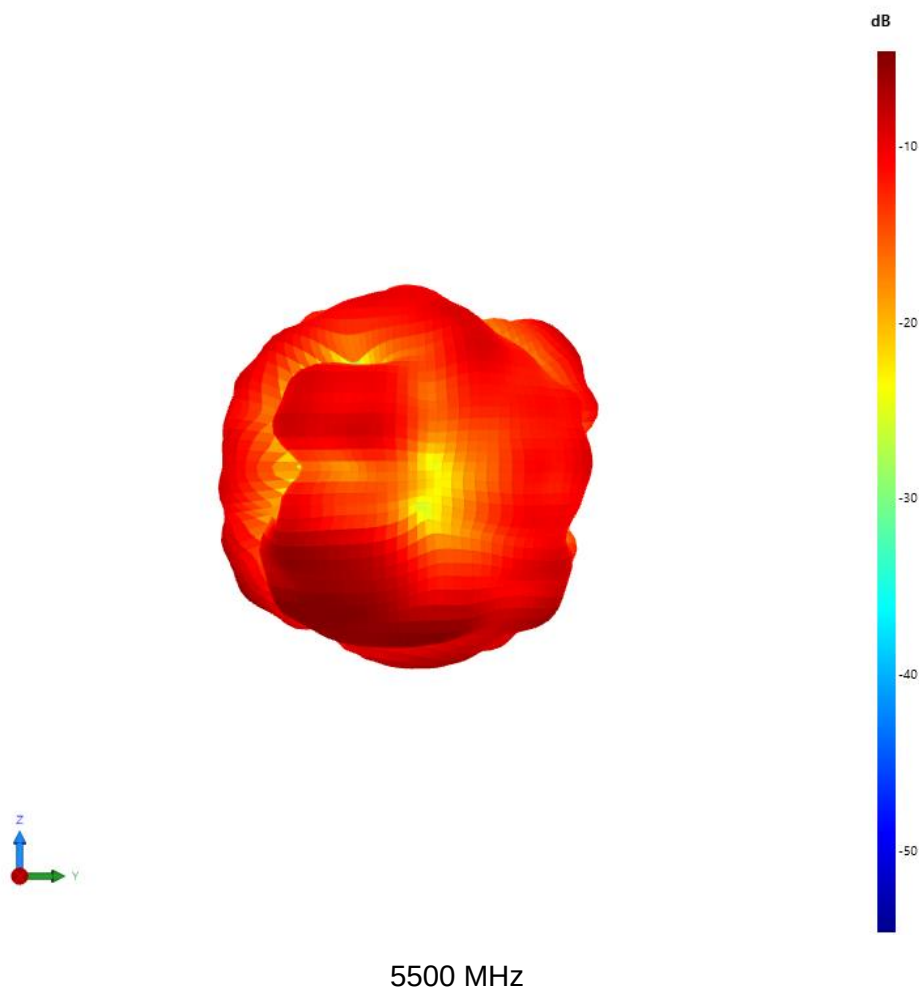


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2400 MHz



3400 MHz

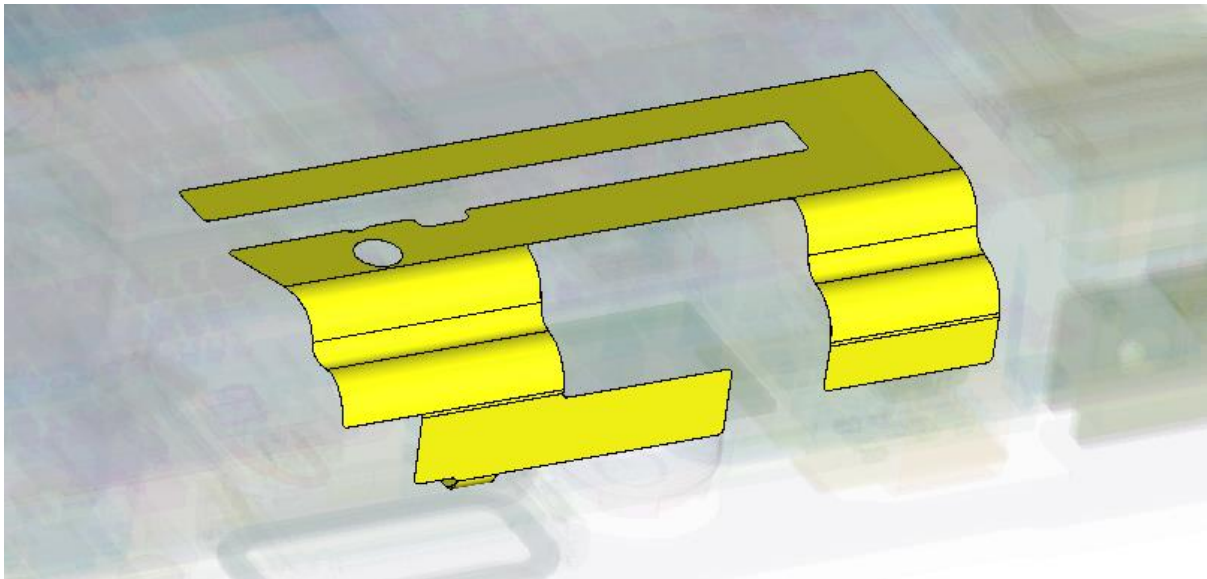


7 ANTENNA 6

7.1 GENERAL INFORMATION

Type of antenna	Monopole antenna
Manufacturing process	LDS printing
Directional characteristics	Omni-Directional
Connection type	Spring connectors
RFFE	None

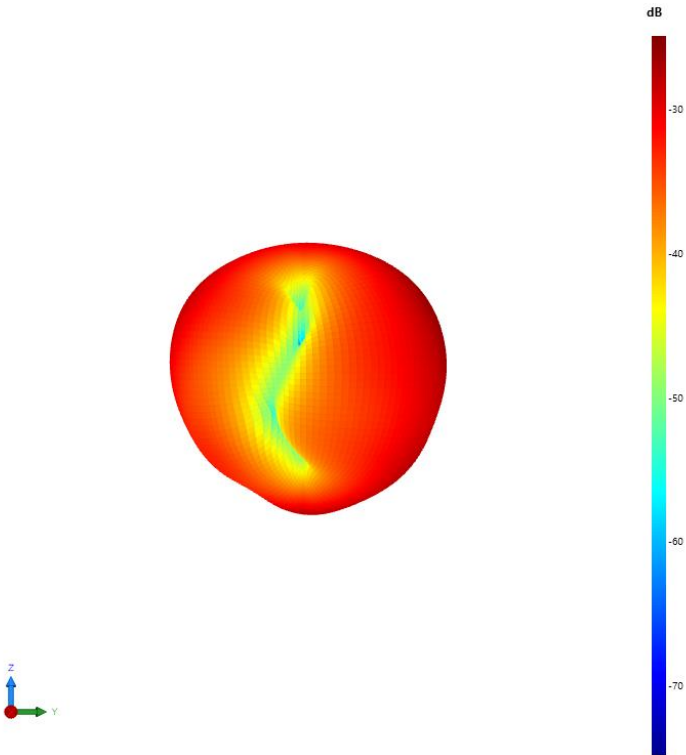
7.2 ANTENNA PATTERN



7.3 FREQUENCY RANGE

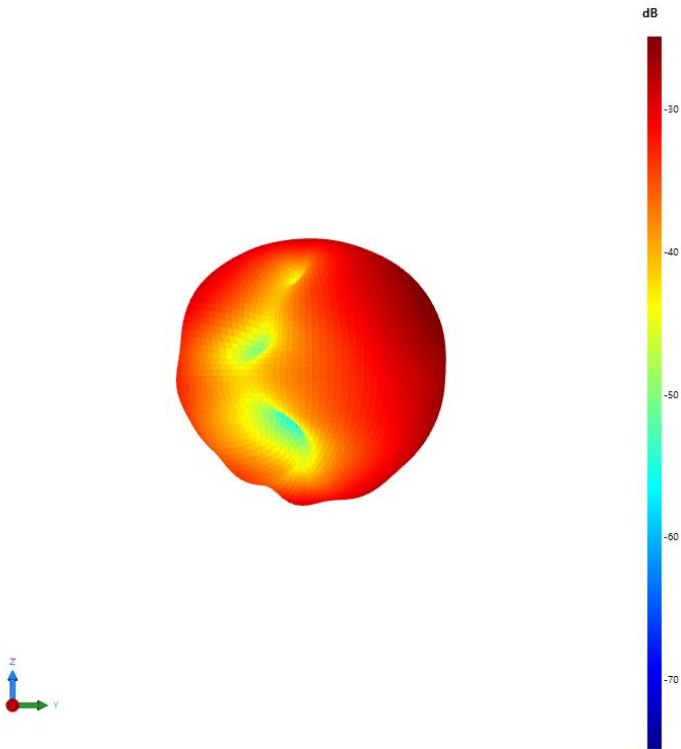
Frequency range, MHz	Max antenna gain, dBi
1560 – 1610	-1.7
2400 – 2480	-1.4
5150 - 5925	-0.1
WiFi 2.4, 5, Bluetooth Rx GNSS: L1	

7.4 3D MAP



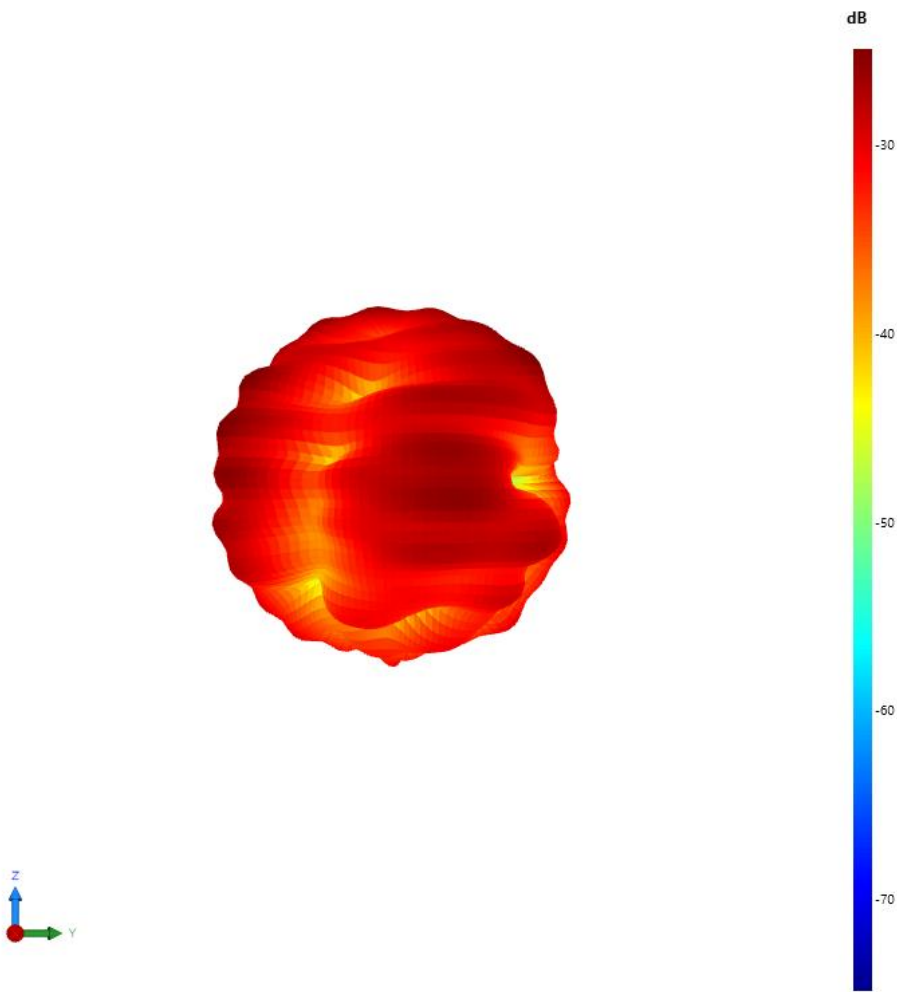
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1575 MHz



2400 MHz

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8 DOCUMENT REVISION HISTORY

Rev	Date	Name	Changes done since previous release
1.0	2024-07-09	Andrey Uryutin	First revision
2.0	2024-07-12	Anders Larsson	§1.3 updated Max antenna gain for frequency bands 617 – 960 MHz and 1710 – 2200 MHz
3.0	2024-07-31	Truls Persson	Zone 2 added