

ECN/PCN No.: R0519

For Manufacturer

Product Description:
EXTERNAL MIMO 4X5G NR + MIMO 2XWIFI + GNSS COMBO ANTENNA

Abracon Part Number / Part Series:
AECR1808A20

☐ Documentation only
☒ ECN
☐ EOL

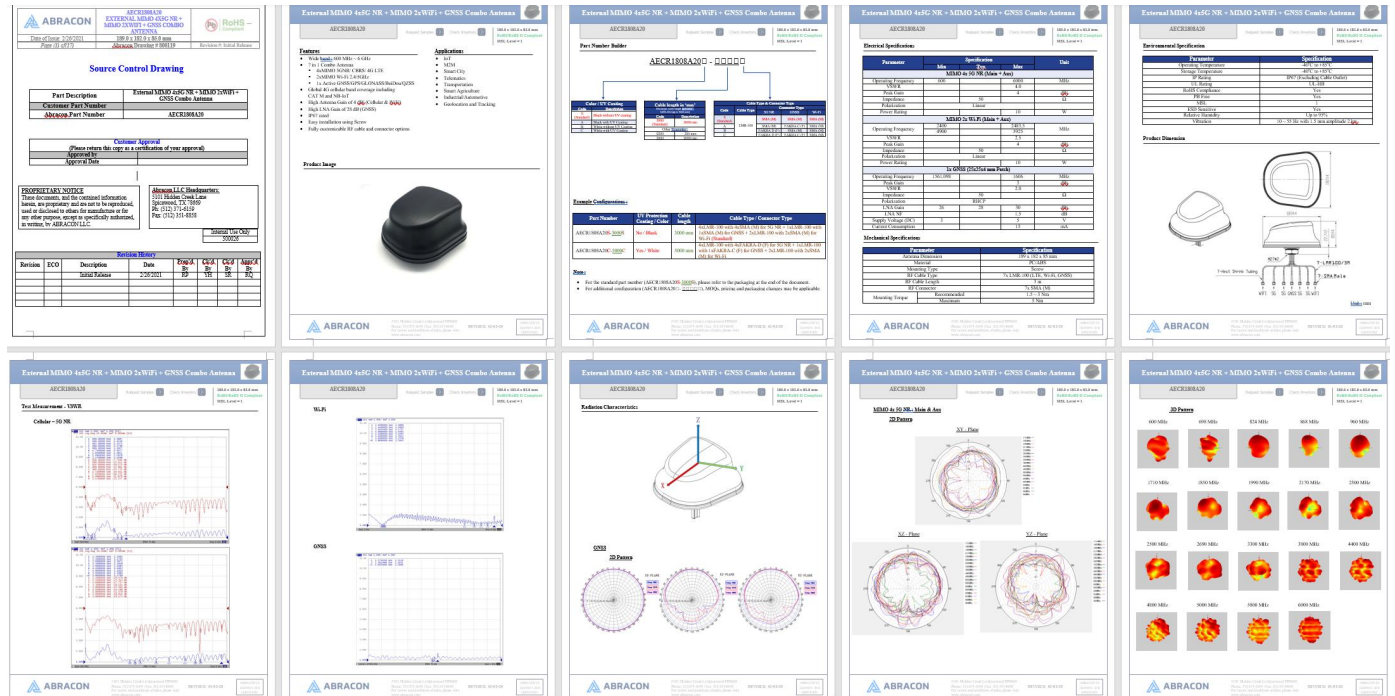
☐ Series
☐ Part Number

Affected Revision:
IR

New Revision:
A

Application:
☐ Safety
☒ Non-Safety

Prior to Change:



After Change:



External 4 x 5G/4G LTE + 2 x Wi-Fi + GNSS Combo Antenna



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189.0 x 182.0 x 85.0 mm
RoHS/RoHS II Compliant
MSL Level = 1

Description

This rugged 7-in-1 combo antenna integrates 4 × MIMO 5G/4G LTE (600–6000 MHz), 2 × MIMO dual-band Wi-Fi 2.4/5 GHz, and active GNSS supporting GPS, GLONASS, BeiDou, and QZSS in an IP67-rated 189.0 x 182.0 x 85.0 mm enclosure. Delivering peak gain up to 4.25 dBi with weatherproof reliability, it ensures robust connectivity for demanding applications. Customizable cables and connectors enable flexible deployment. This RoHS-compliant, MSL Level 1 antenna is ideal for industrial IoT, smart city infrastructure, automotive telematics, intelligent transportation, and precision agriculture systems.



Features

- Frequency Range: 600 - 6000 MHz
- 7-in-1 Combo Antenna
 - 4 x MIMO 5GNR/ CBRS/ 4G LTE
 - 2 x MIMO Wi-Fi 2.4/5GHz
 - 1x Active GNSS/GPS/GLONASS/BeiDou/QZSS
- Antenna Size: 189.0 x 182.0 x 85.0 mm
- High Peak Gain: up to 4.25 dBi
- Weatherproof and IP67 Rated
- Custom Cable & Connector Options Available
- [RoHS Compliant | MSL Level 1](#)

Applications

- Industrial IoT & M2M Communications
- Smart City Infrastructure
- Automotive Telematics & Fleet Management
- Intelligent Transportation Systems
- Precision Agriculture
- Industrial Automation & Ruggedized Equipment
- High-Precision Geolocation & Asset Tracking

Ordering Information

Part Number	Description	Connector Option
AECR1808A20S-3000S	External 4 x 5G/4G LTE + 2 x Wi-Fi + GNSS Combo Antenna with 3000 mm LMR100 cable length & SMA(M) connectors	SMA(M)
AECR1808A20A-3000S	External 4 x 5G/4G LTE + 2 x Wi-Fi + GNSS Combo Antenna with UV Coating & 3000 mm LMR100 cable length & SMA(M) connectors	SMA(M)

Note: Other options not listed may be available upon request via [Abracon online support](#)



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Electrical Specification

Parameter	Specification			Unit
	Min	Typ	Max	
MIMO 4 x 5G NR (Main + Aux)				
Operating Frequency	600		6000	MHz
VSWR		3.0	4.0	
Peak Gain			4.25	dBi
Efficiency		66	69	%
Impedance		50		Ω
Polarization	Linear			
Power Rating			10	W
MIMO 2 x Wi-Fi (Main + Aux)				
Operating Frequency	2400		2483.5	MHz
	4900		5925	
VSWR		2.0	2.5	
Peak Gain			4	dBi
Efficiency		55	57	%
Impedance		50		Ω
Polarization	Linear			
Power Rating			10	W
1 x GNSS (25 x 25 x 4 mm Patch)				
Operating Frequency	1561.098		1606	MHz
Peak Gain			3	dBi
VSWR			2.0	
Impedance		50		Ω
Polarization	RHCP			
LNA Gain	26	28	30	dBi
LNA NF			1.5	dB
Supply Voltage (DC)	3		5	V
Current Consumption			15	mA



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Mechanical Specification

Parameter		Specification
Antenna Dimension		189.0 x 182.0 x 85.0 mm
Material ⁽¹⁾		PC/ABS
Mounting Type		Screw
RF Cable Type ⁽²⁾		7 x LMR-100 (5G/4G LTE, Wi-Fi, GNSS)
RF Cable Length ⁽²⁾		3 m
RF Connector ⁽²⁾		7 x SMA (M)
Mounting Torque	Recommended	1.5 - 3 Nm
	Maximum	5 Nm

(1): UV Resistant optional

(2): Other cable and connector options available

Environmental Specification

Parameter	Specification
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +85°C
IP Rating	IP67 (Excluding Cable Outlet)
UL Rating	UL-HB
RoHS Compliance	Yes
PB Free	Yes
MSL	1
ESD Sensitive	Yes
Relative Humidity	Up to 95%
Vibration	10 ~ 55 Hz with 1.5 mm amplitude 2 hrs



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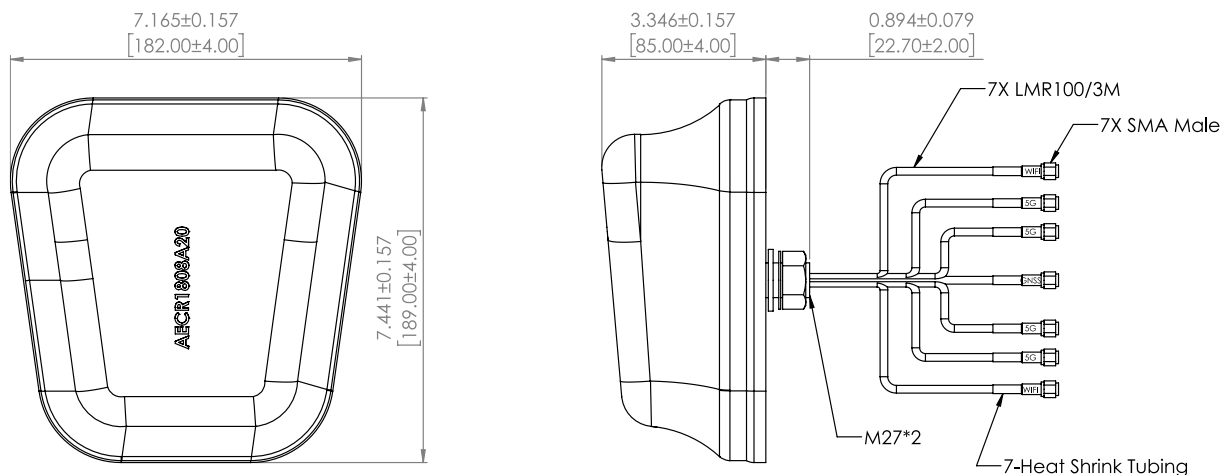


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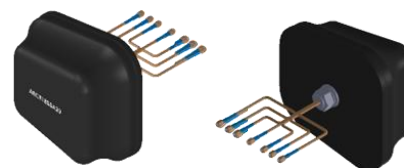


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Product Dimensions



PARAMETER	DESCRIPTION
CABLE LENGTH	3.00 m
RF CABLE	7x LMR-100
RF CONNECTOR	7x SMA(M)
RADOME MATERIAL	PC/ABS
MOUNTING TYPE	Screw



Unit: inches [mm]

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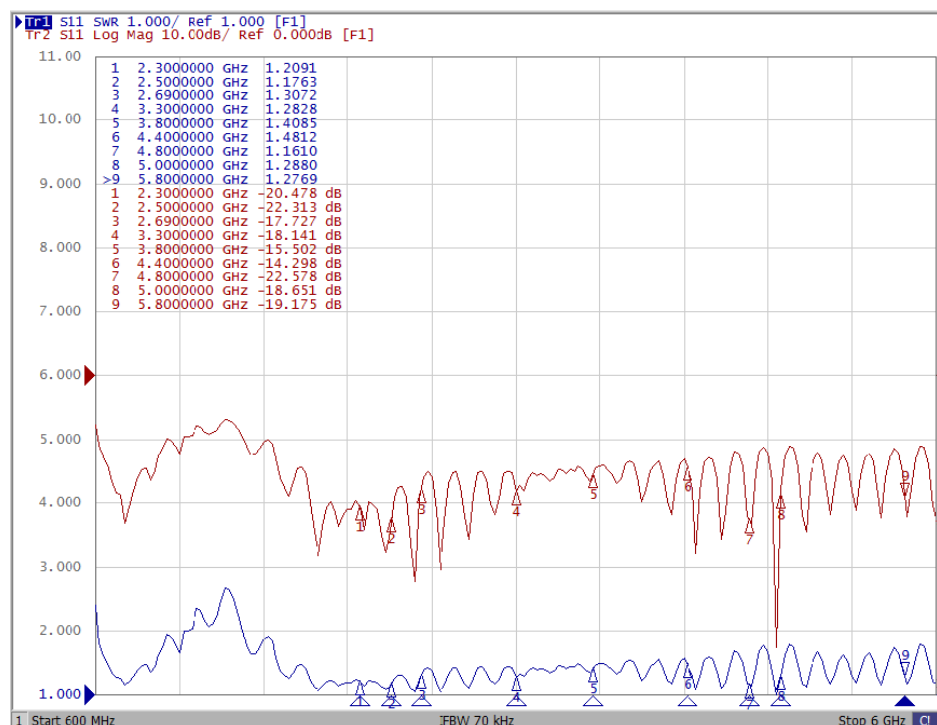
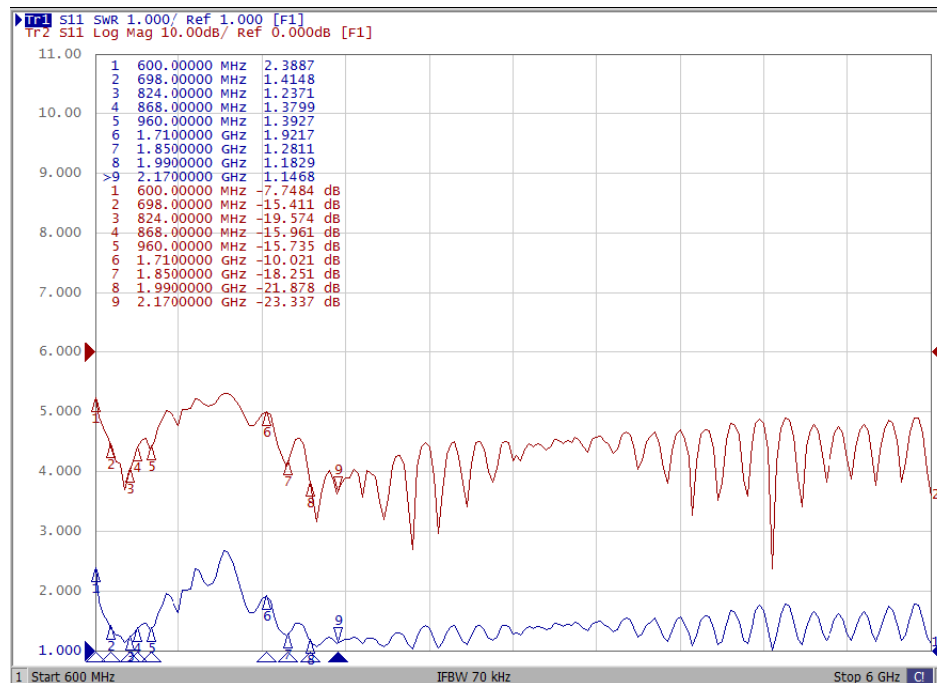
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Reflection Characteristics VSWR

5G/4G LTE



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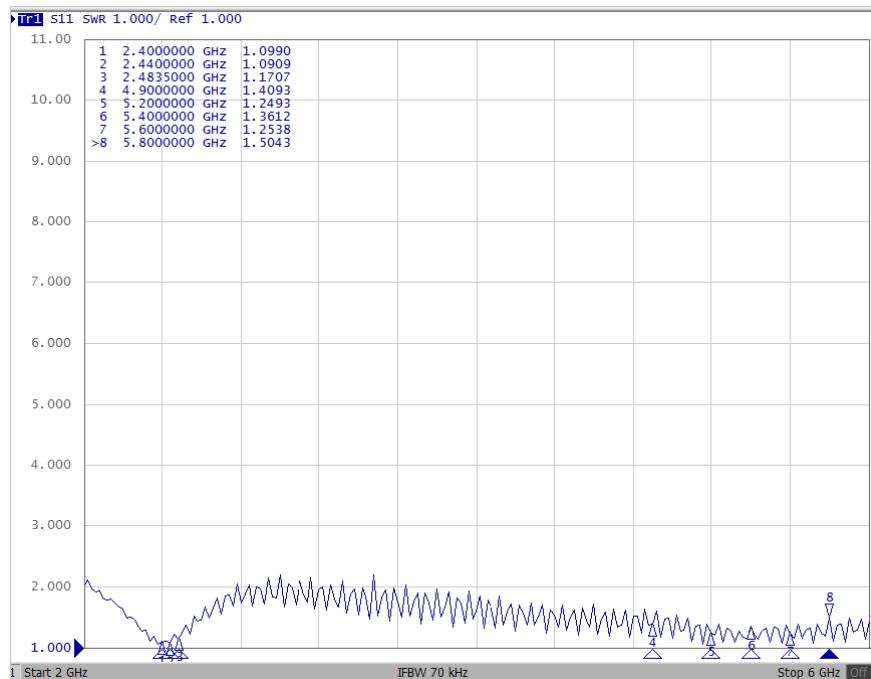


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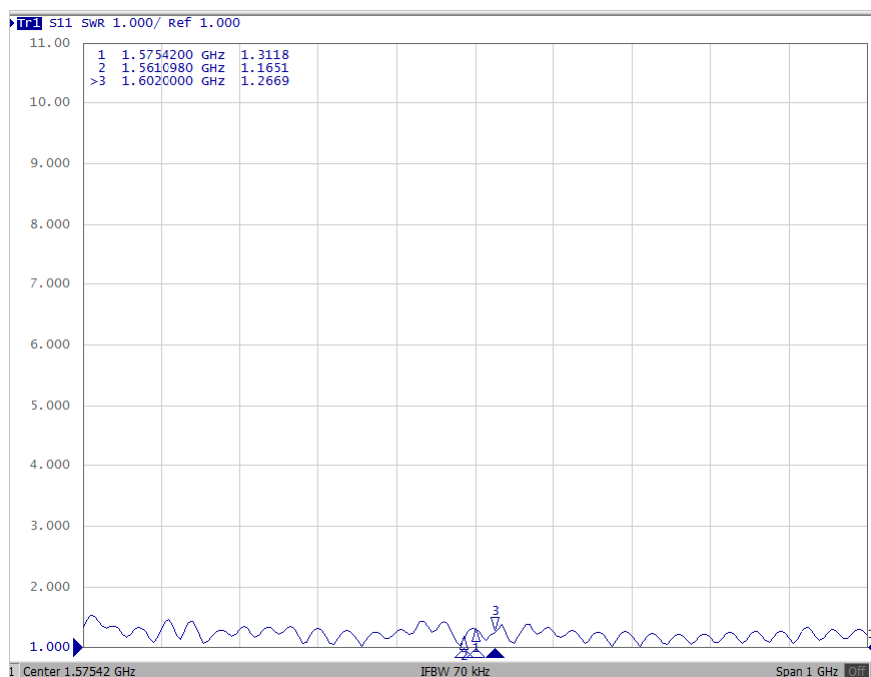


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Wi-Fi



GNSS



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Radiation Characteristics – Total Efficiency & Peak Gain

Frequency (MHz)	Efficiency	Gain (dBi)
MIMO 4x 5G NR (Main + Aux)		
600	0.63	1.05
698	0.68	1.97
824	0.69	3.17
868	0.56	1.37
960	0.69	1.69
1710	0.58	0.76
1850	0.57	0.89
1990	0.59	0.77
2170	0.62	2.29
2300	0.63	2.34
2500	0.59	2.17
2690	0.60	1.27
3300	0.53	-0.47
3800	0.51	-1.51
4400	0.66	2.08
4800	0.56	-0.19
5000	0.59	-0.62
5800	0.58	4.25
6000	0.58	4.17
MIMO 2x Wi-Fi (Main + Aux)		
2400	0.56	3.97
2440	0.53	2.53
2483	0.57	1.45
4900	0.55	-0.17
5200	0.49	-0.41
5400	0.51	1.05
5600	0.48	0.67
5825	0.51	3.37



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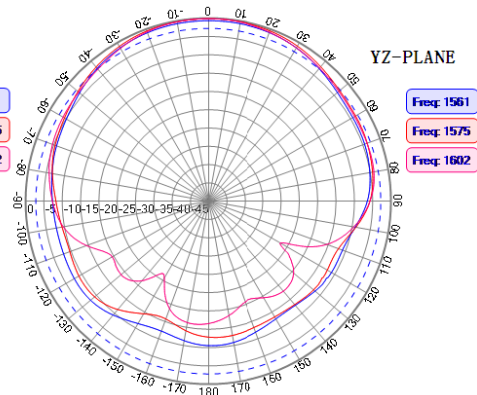
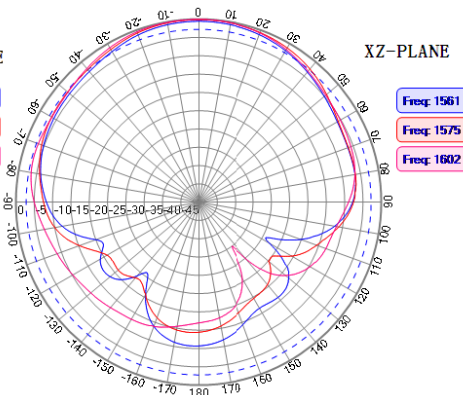
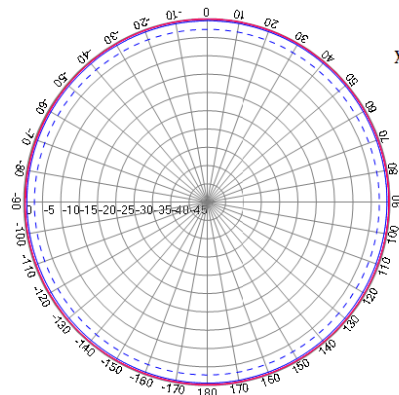
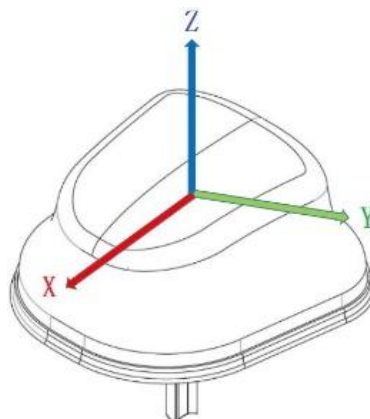


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GNSS Radiation Characteristics – 2D Pattern



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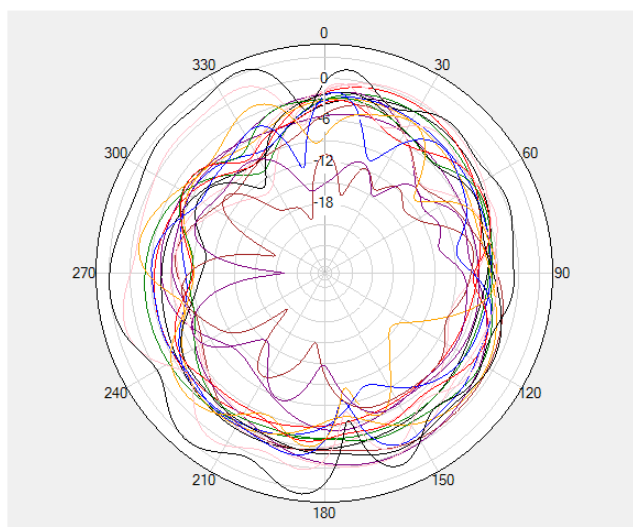
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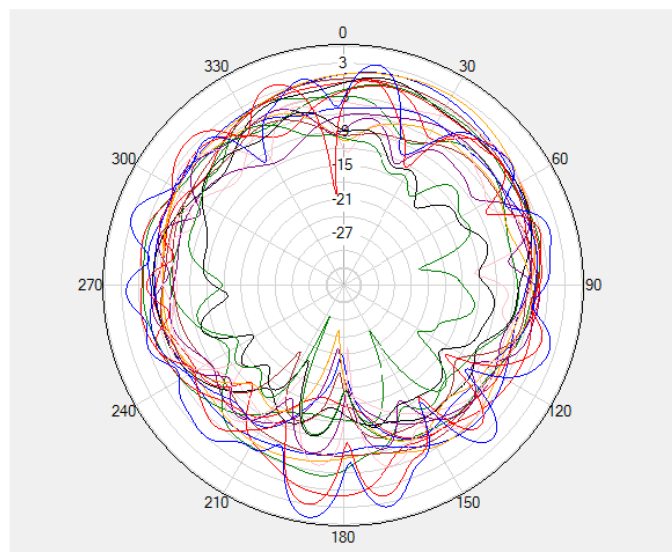
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RoHS/RoHS II Compliant
MSL Level = 1

5G/4G LTE MIMO Radiation Characteristics – 2D Pattern

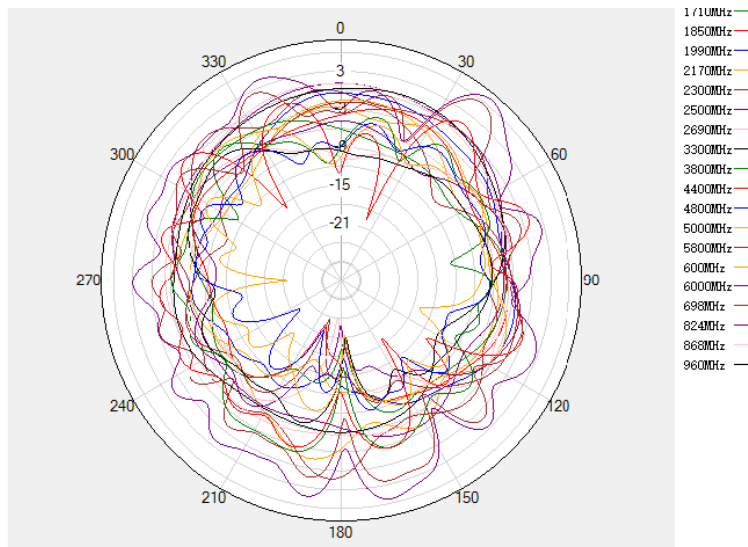
XY - Plane



XZ - Plane



YZ - Plane



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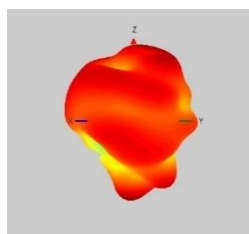
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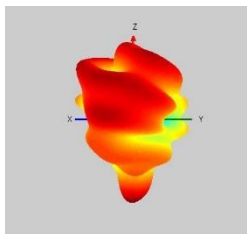
189.0 x 182.0 x 85.0 mm
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MSL Level = 1

5G/4G LTE MIMO Radiation Characteristics – 3D Pattern

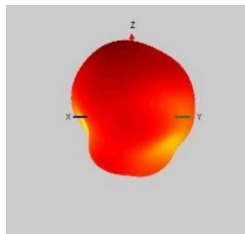
600 MHz



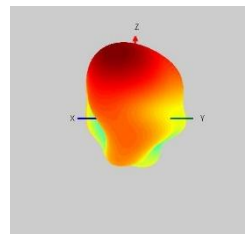
698 MHz



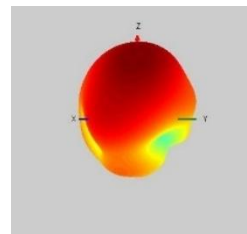
824 MHz



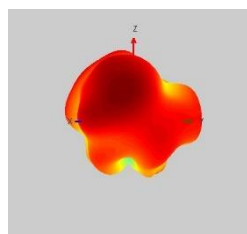
868 MHz



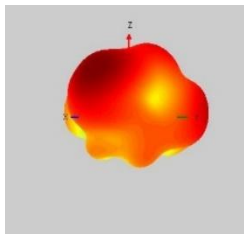
960 MHz



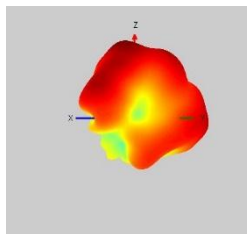
1710 MHz



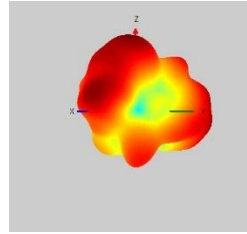
1850 MHz



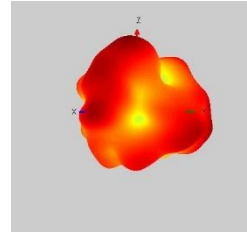
1990 MHz



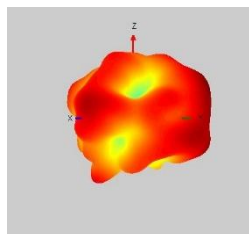
2170 MHz



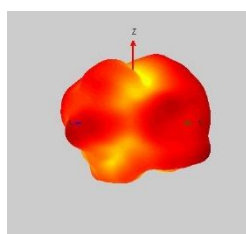
2300 MHz



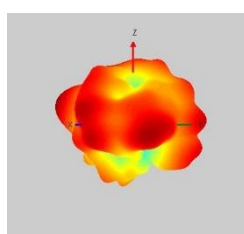
2500 MHz



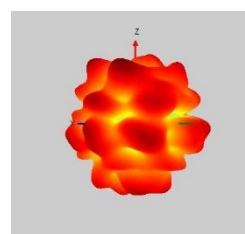
2690 MHz



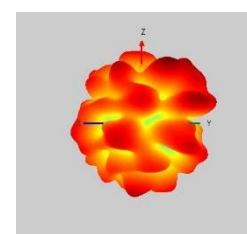
3300 MHz



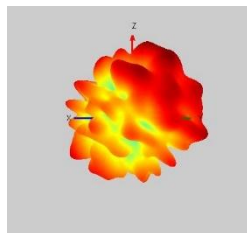
3800 MHz



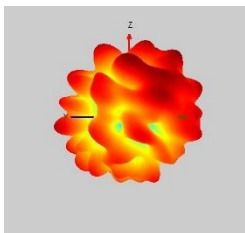
4400 MHz



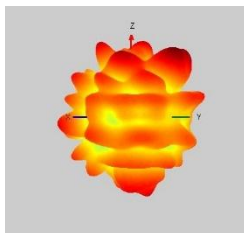
4800 MHz



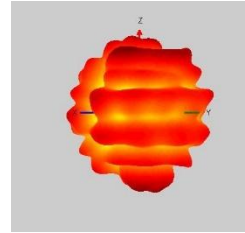
5000 MHz



5800 MHz



6000 MHz



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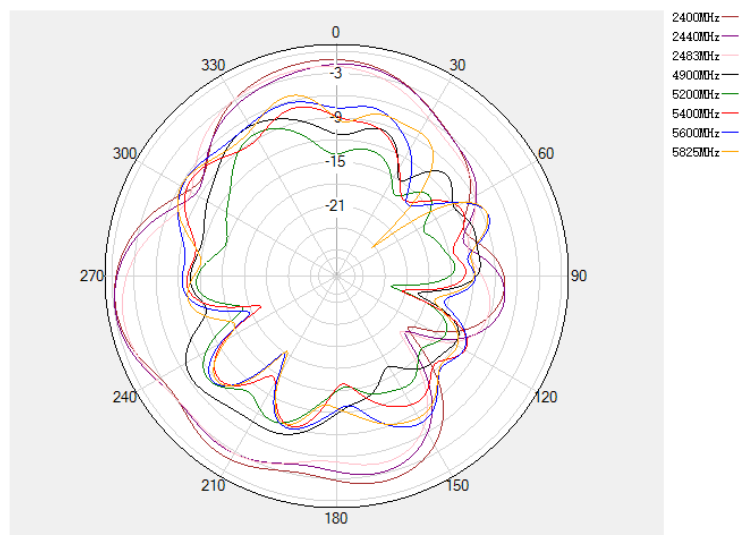
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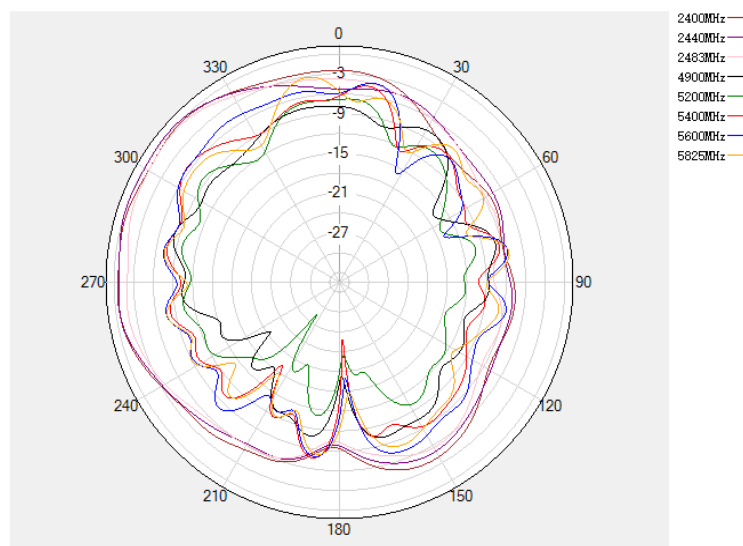
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RoHS/RoHS II Compliant
MSL Level = 1

Wi-Fi MIMO Radiation Characteristics – 2D Pattern

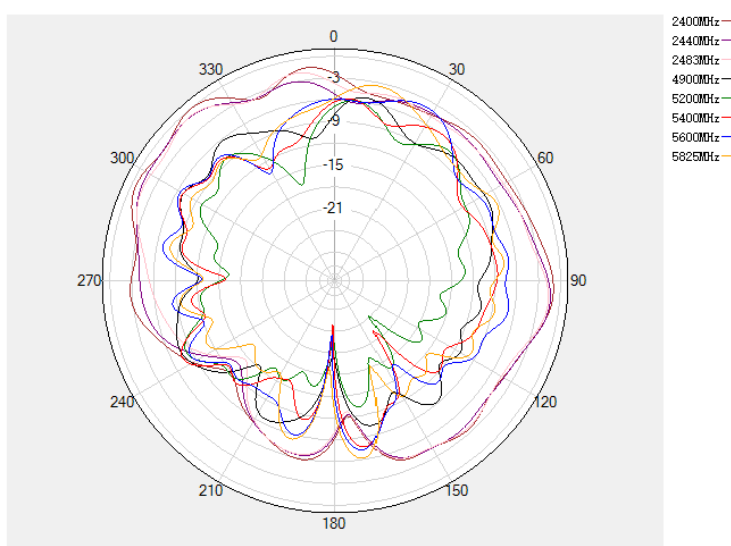
XY - Plane



XZ - Plane



YZ - Plane



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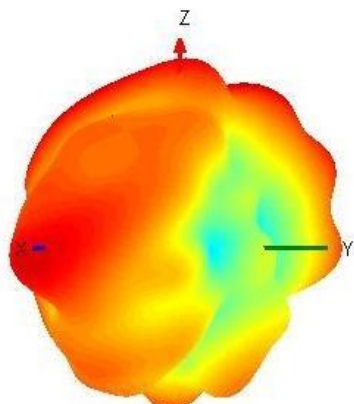
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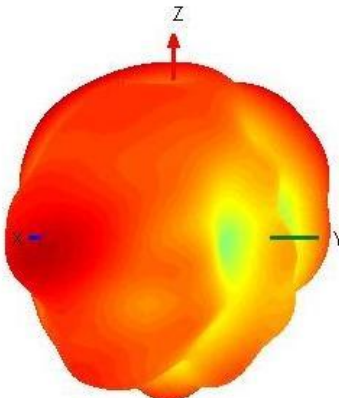
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Wi-Fi MIMO Radiation Characteristics – 3D Pattern

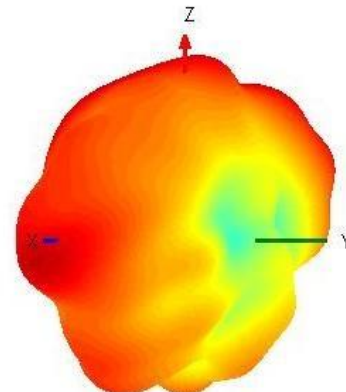
2400 MHz



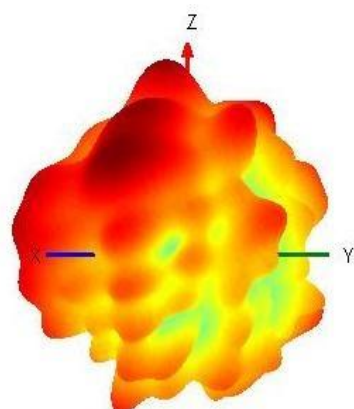
2440 MHz



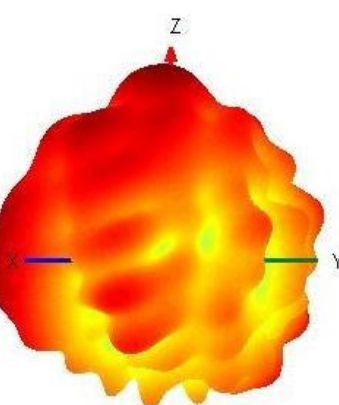
2483 MHz



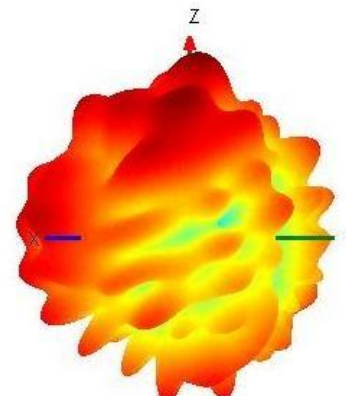
4900 MHz



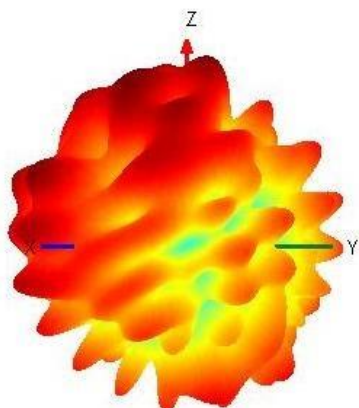
5200 MHz



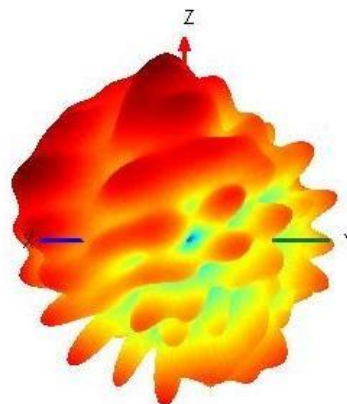
5400 MHz



5600 MHz



5825 MHz



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MSL Level = 1

Packaging Information

Number of Antenna/ Carton: 8 pcs

Dimension of the Carton: 430 x 430 x 340 mm

Weight of 1 pc of antenna: 1.1 kg

Weight of the Carton: 10 kg

ATTENTION: Abracon LLC's products are Commercial-Off-The-Shelf ('COTS'), which are designed, intended, and validated for use in commercial, industrial, and automotive applications. The customer is responsible for testing and verifying the performance of an Abracon solution to meet their system-level requirements.



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Brand	Affected PN	Discontinued/EOL PN	Added PN	Series	ECO#	Datasheet Link	ECN Notification Link
Abracon	AECR1808A20S-3000S			AECR1808A20	R0519	https://abracon.com/datasheets/AECR1808A20.pdf	https://abracon.com/downloads/ECN-PCN/ECN-PCN-Notification_ECOR0519_AECR1808A20.pdf
Abracon	AECR1808A20A-3000S			AECR1808A20	R0519	https://abracon.com/datasheets/AECR1808A20.pdf	https://abracon.com/downloads/ECN-PCN/ECN-PCN-Notification_ECOR0519_AECR1808A20.pdf