LG2851 SLIM (SL/SR) Antenna Specification

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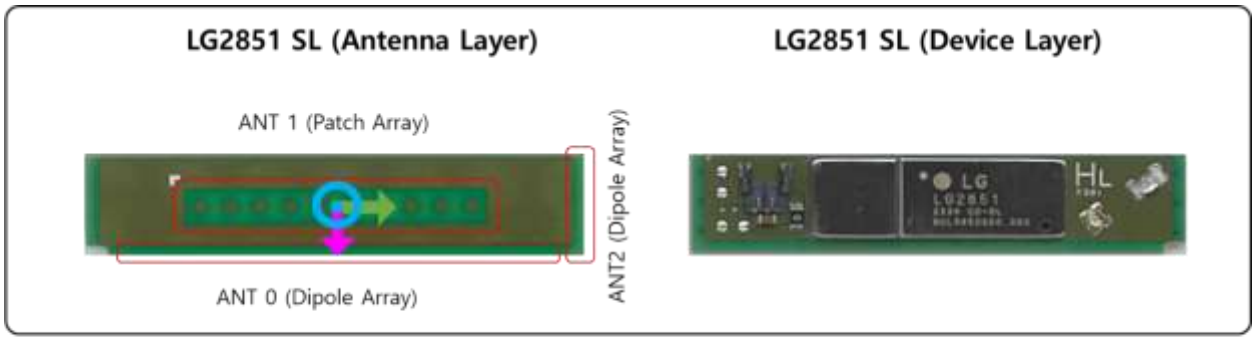
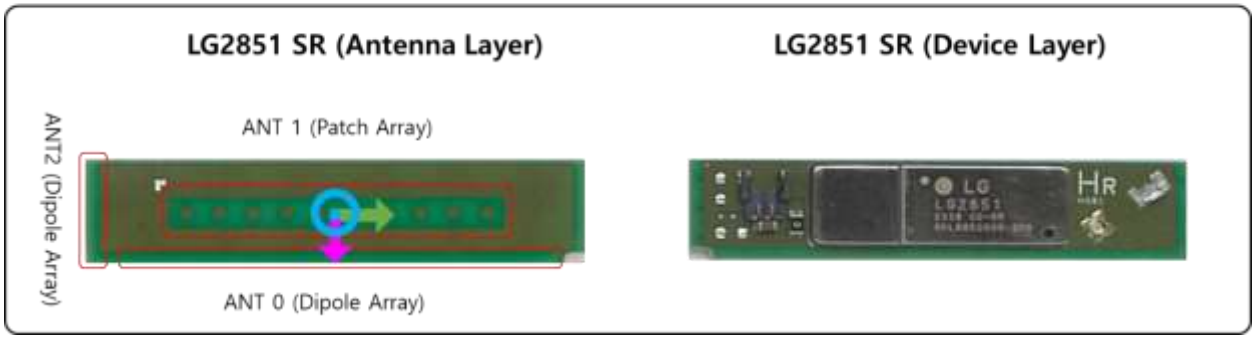
LG2851-Antenna Specification

SOC R&D Center
LG Electronics, Inc.

1 Antenna Definition

LG2851 SL and LG2851 SR operate with array antenna sets for different polarization and beam direction in their package substrate, so called Antenna in Package (AiP). Each antenna set has own antenna element design and array configuration.





2 Antenna Specification

This chapter describes the array antenna specifications of LG2851 SLIM, including operating frequency, radiation characteristics, return loss and antenna impedance of each array antenna sets.

Parameters			Min.	Typ.	Max.	Units
LG2851 SL						
ANT 0	Antenna Type		Dipole Array Antenna			
	Polarization		Horizontal Polarization			
	Operating Frequency		57.24		65.88	GHz
	Transmit mode	Number of Antenna Elements		14		
		Peak Realized Gain	14.3		14.6	dBi
		Peak Beam Direction (Phi/Theta)		0 / 99		Degree
		HPBW (Phi/Theta)		6 / 120		Degree
	Receive mode	Number of Antenna Elements		14		
		Peak Realized Gain	14.3		14.6	dBi
		Peak Beam Direction (Phi/Theta)		0 / 99		Degree
		HPBW (Phi/Theta)		6 / 120		Degree
	Return Loss				-10	dB
	Impedance			50		Ohm
ANT 1	Antenna Type		Patch Array Antenna			
	Polarization		Horizontal Polarization			
	Operating Frequency		57.24		65.88	GHz
	Transmit mode	Number of Antenna Elements		10		
		Peak Realized Gain	15		15.8	dBi
		Peak Beam Direction (Phi/Theta)		0 / 180		Degree
		HPBW (Phi/Theta)		8.2 / 100		Degree
	Receive mode	Number of Antenna Elements		10		
		Peak Realized Gain	15		15.8	dBi
		Peak Beam Direction (Phi/Theta)		0 / 180		Degree
		HPBW (Phi/Theta)		8.2 / 100		Degree
	Return Loss				-10	dB
	Impedance			50		Ohm

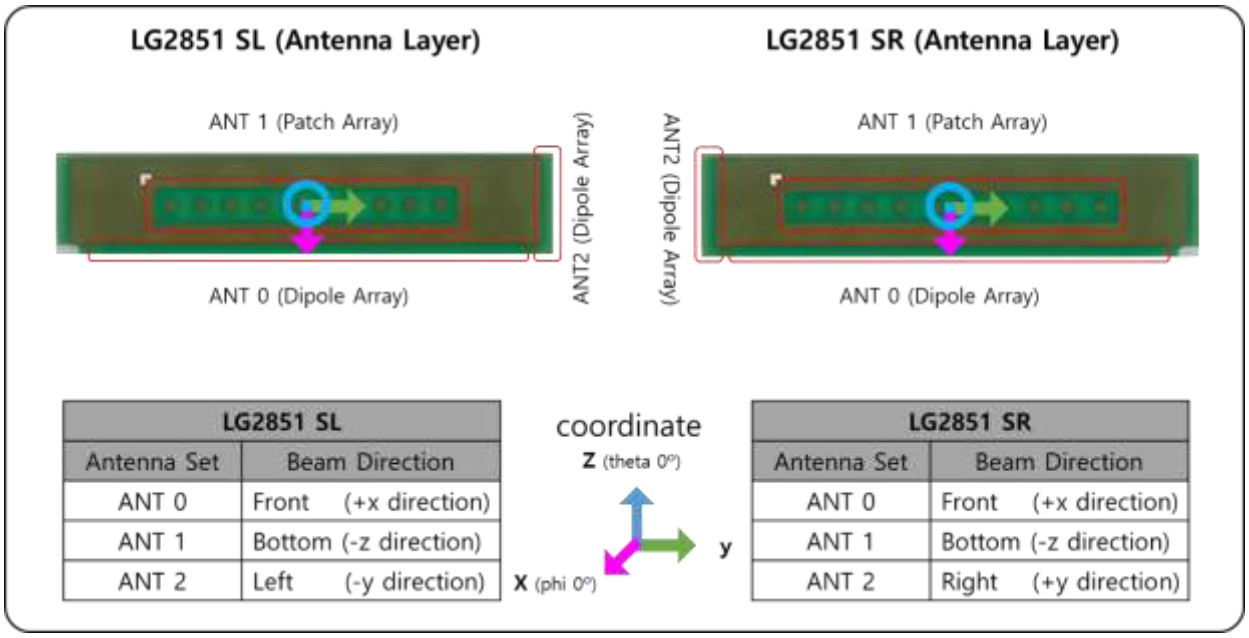
ANT 2	Antenna Type		Dipole Array Antenna			
	Polarization		Horizontal Polarization			
	Operating Frequency		57.24		65.88	GHz
	Transmit mode	Number of Antenna Elements		3		
		Peak Realized Gain	7.5		7.3	dBi
		Peak Beam Direction (Phi/Theta)		-92 / -90		Degree
		HPBW (Phi/Theta)		30 / 133		Degree
	Receive mode	Number of Antenna Elements		3		
		Peak Realized Gain	7.5		7.3	dBi
		Peak Beam Direction (Phi/Theta)		-92 / -90		Degree
		HPBW (Phi/Theta)		30 / 133		Degree
	Return Loss				-10	dB
	Impedance			50		Ohm

Parameters			Min.	Typ.	Max.	Units
LG2851 SR						
ANT 0	Antenna Type		Dipole Array Antenna			
	Polarization		Horizontal Polarization			
	Operating Frequency		57.24		65.88	GHz
	Transmit mode	Number of Antenna Elements		14		
		Peak Realized Gain	14.3		14.6	dBi
		Peak Beam Direction (Phi/Theta)		0 / 100		Degree
		HPBW (Phi/Theta)		6 / 126		Degree
	Receive mode	Number of Antenna Elements		14		
		Peak Realized Gain	14.3		14.6	dBi
		Peak Beam Direction (Phi/Theta)		0 / 100		Degree
		HPBW (Phi/Theta)		6 / 126		Degree
	Return Loss				-10	dB
	Impedance			50		Ohm
ANT 1	Antenna Type		Patch Array Antenna			
	Polarization		Vertical Polarization			
	Operating Frequency		57.24		65.88	GHz
	Transmit mode	Number of Antenna Elements		10		
		Peak Realized Gain	13.4		15.2	dBi
		Peak Beam Direction (Phi/Theta)		0 / 163		Degree
		HPBW (Phi/Theta)		8 / 97		Degree
	Receive mode	Number of Antenna Elements		10		
		Peak Realized Gain	13.4		15.2	dBi
		Peak Beam Direction (Phi/Theta)		0 / 163		Degree
		HPBW (Phi/Theta)		8 / 97		Degree
	Return Loss				-10	dB
	Impedance			50		Ohm
ANT 2	Antenna Type		Dipole Array Antenna			
	Polarization		Horizontal Polarization			
	Operating Frequency		57.24		65.88	GHz
	Transmit mode	Number of Antenna Elements		3		
		Peak Realized Gain	7.5		7.3	dBi
		Peak Beam Direction (Phi/Theta)		-92 / 90		Degree

		HPBW (Phi/Theta)		30 / 133		Degree
	Receive mode	Number of Antenna Elements		3		
		Peak Realized Gain	7.5		7.3	dBi
		Peak Beam Direction (Phi/Theta)		-92 / 90		Degree
		HPBW (Phi/Theta)		30 / 133		Degree
	Return Loss				-10	dB
	Impedance			50		Ohm

3 Radiation Pattern

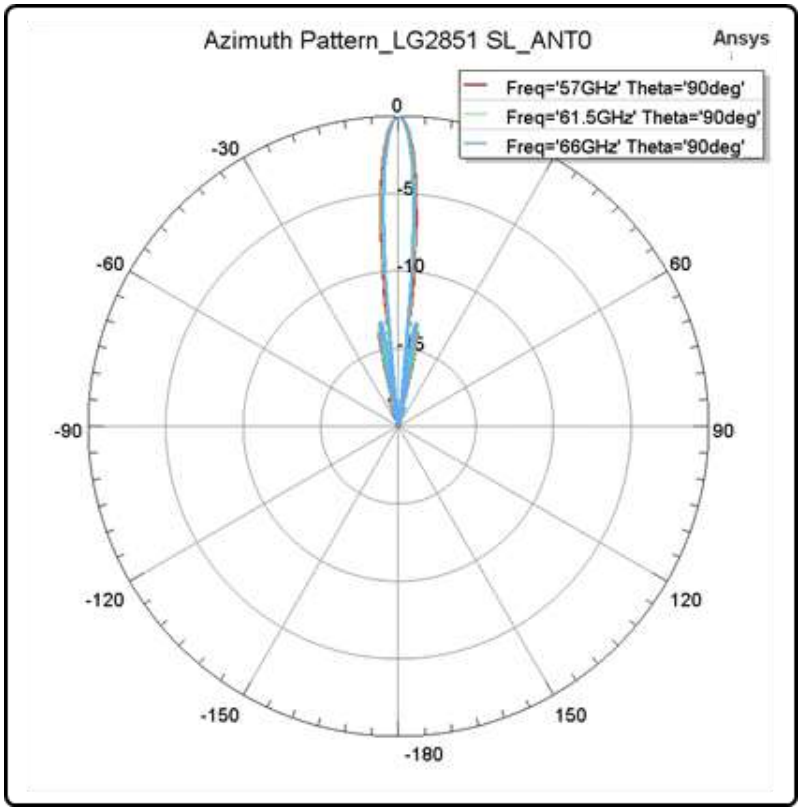
This chapter describes simulated beam patterns of each array antenna set. Normalized beam patterns are represented for transmit and receive mode with uniform phase control. The coordinate of beam pattern and main beam direction of each antenna set is summarized below.



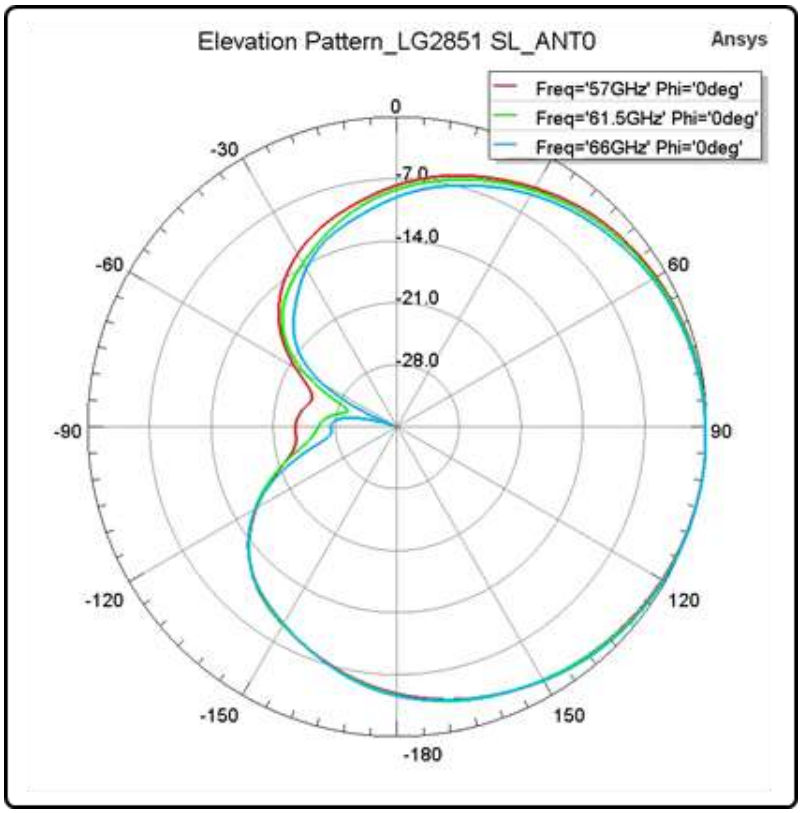
LG2851 SL	
Antenna Set	Beam Direction
ANT 0	Front (+x direction)
ANT 1	Bottom (-z direction)
ANT 2	Left (-y direction)

LG2851 SR	
Antenna Set	Beam Direction
ANT 0	Front (+x direction)
ANT 1	Bottom (-z direction)
ANT 2	Right (+y direction)

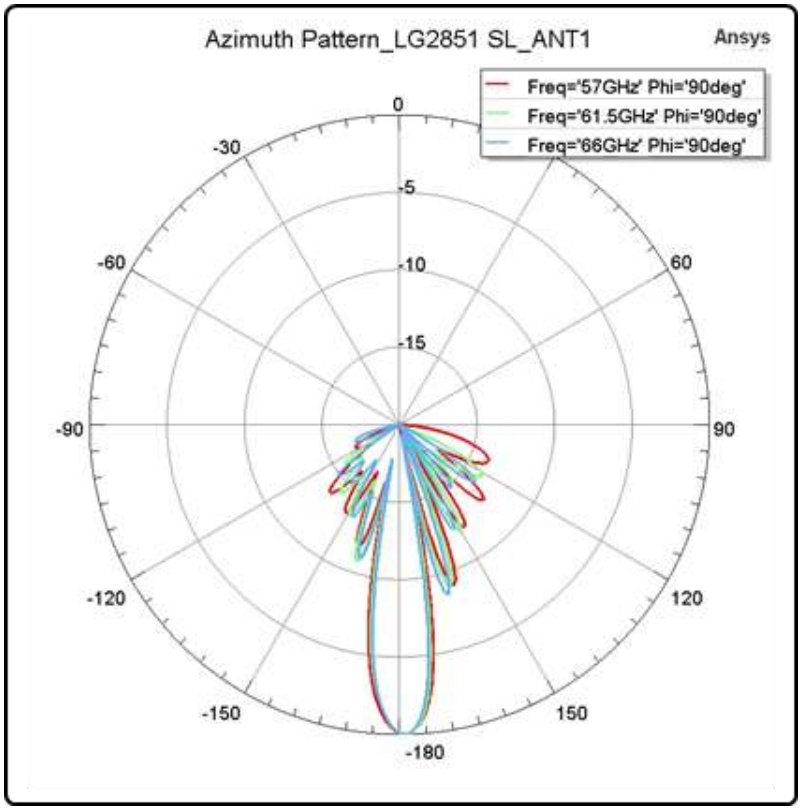
3.1 LG2851 SL (Transmit Mode)



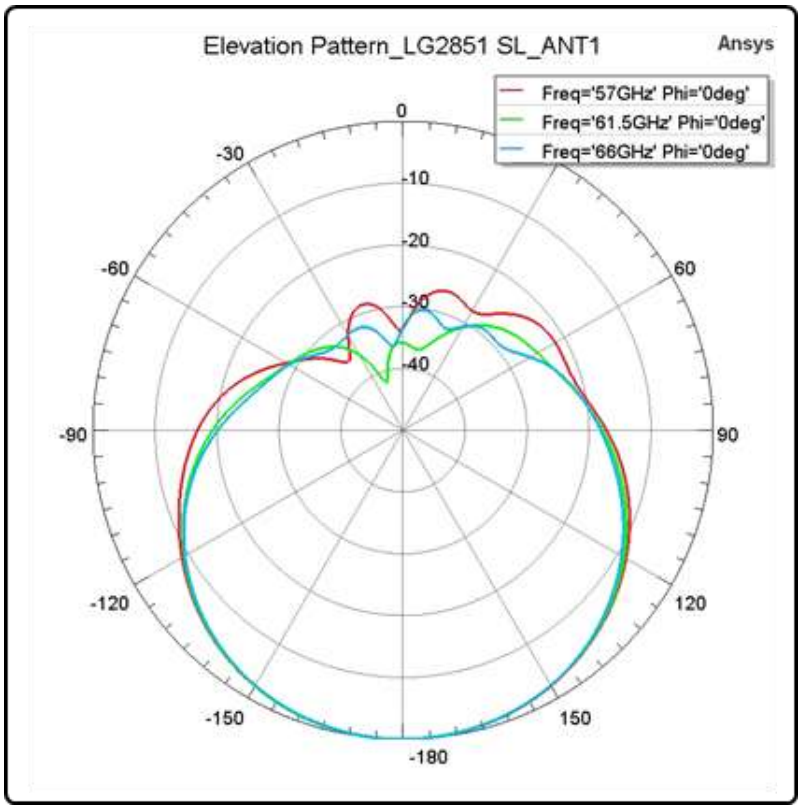
ANT 0 : Azimuth (X-Y plane) beam pattern



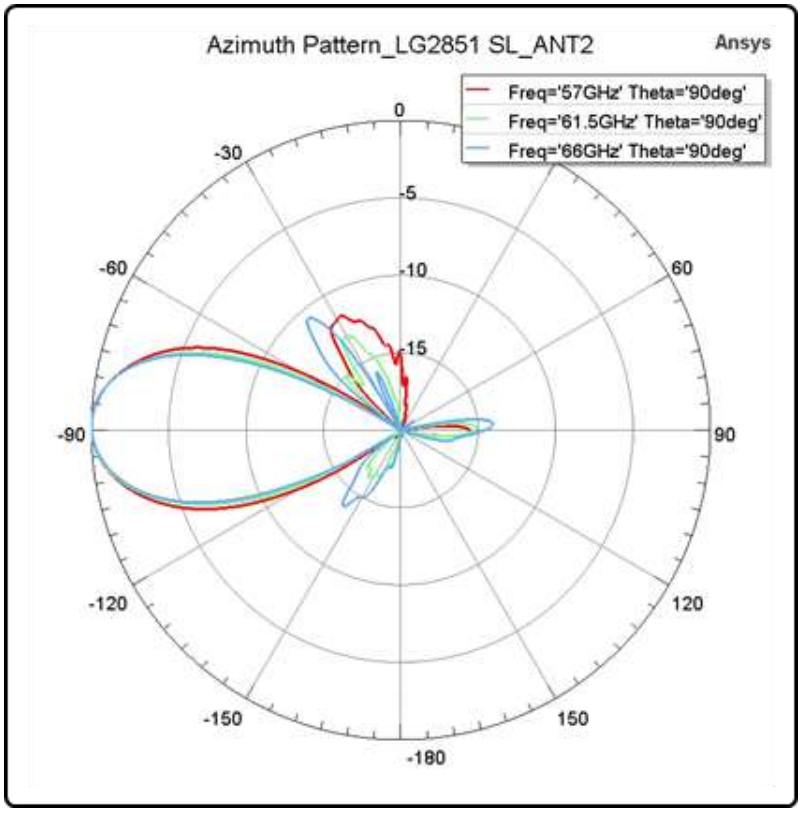
ANT 0 : Elevation (X-Z plane) beam pattern



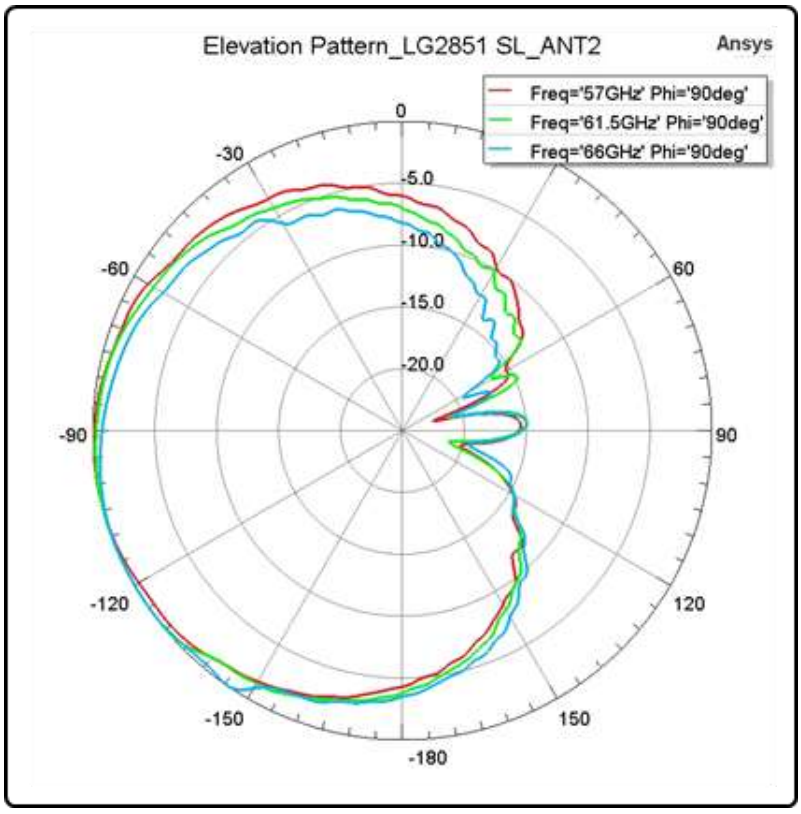
ANT 1 : Azimuth (Y-Z plane) beam pattern



ANT 1 : Elevation (X-Z plane) beam pattern

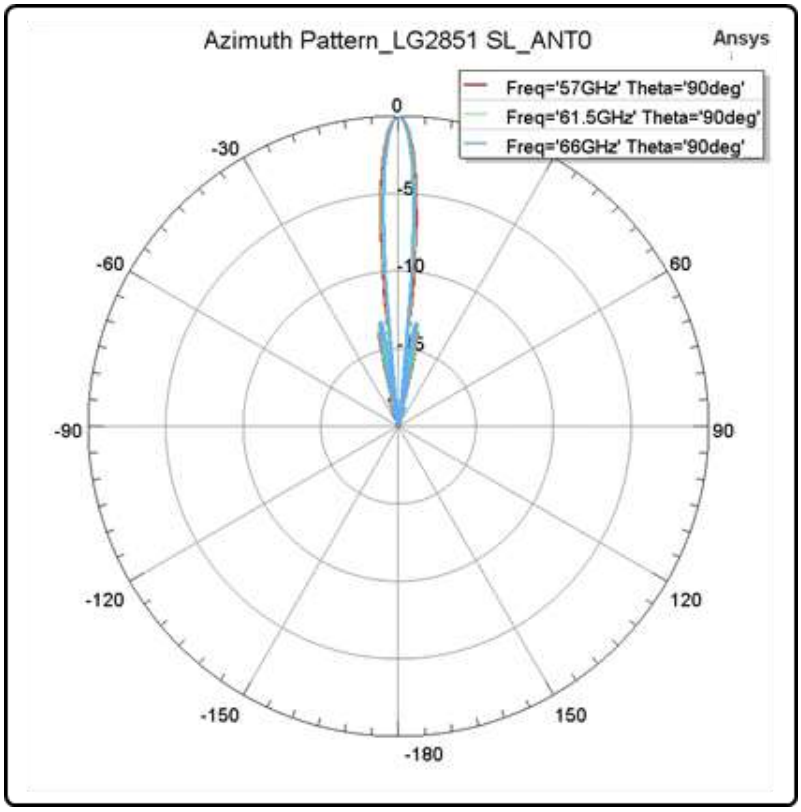


ANT 2 : Azimuth (X-Y plane) beam pattern

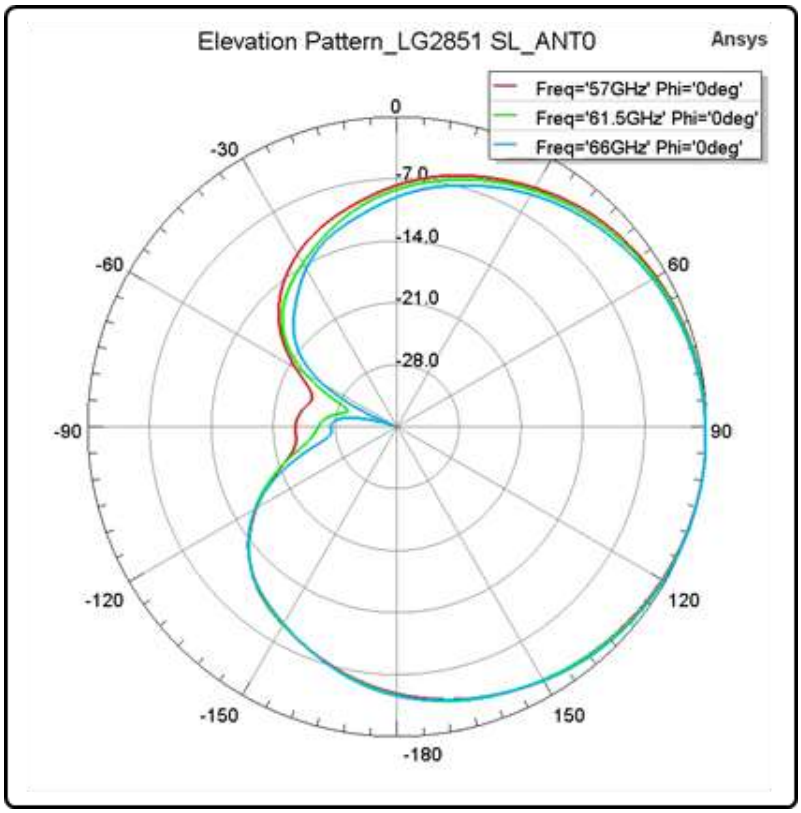


ANT 2 : Elevation (X-Z plane) beam pattern

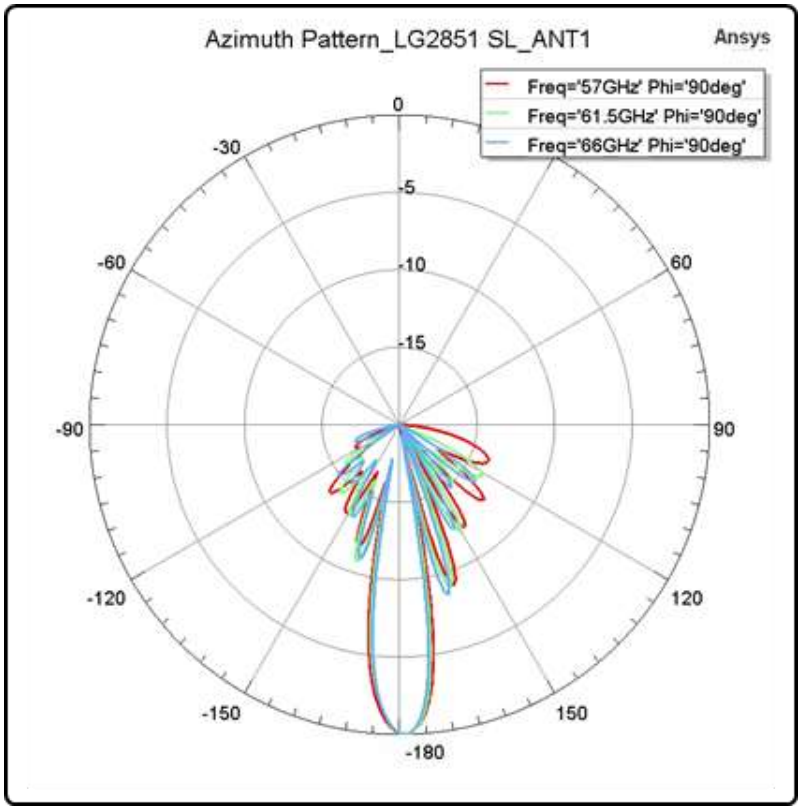
3.2 LG2851 SL (Receive Mode)



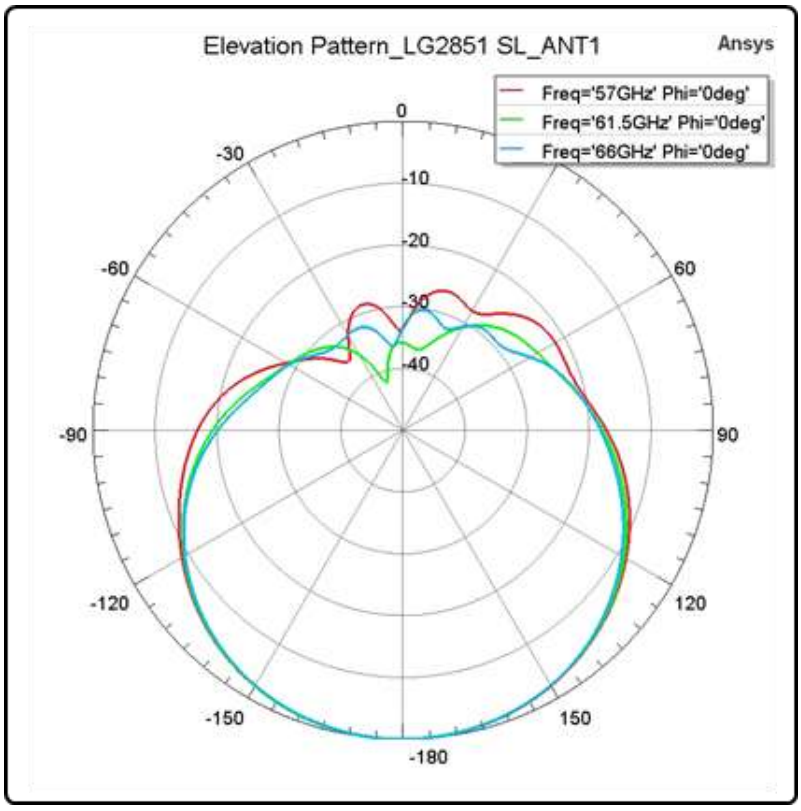
ANT 0 : Azimuth (X-Y plane) beam pattern



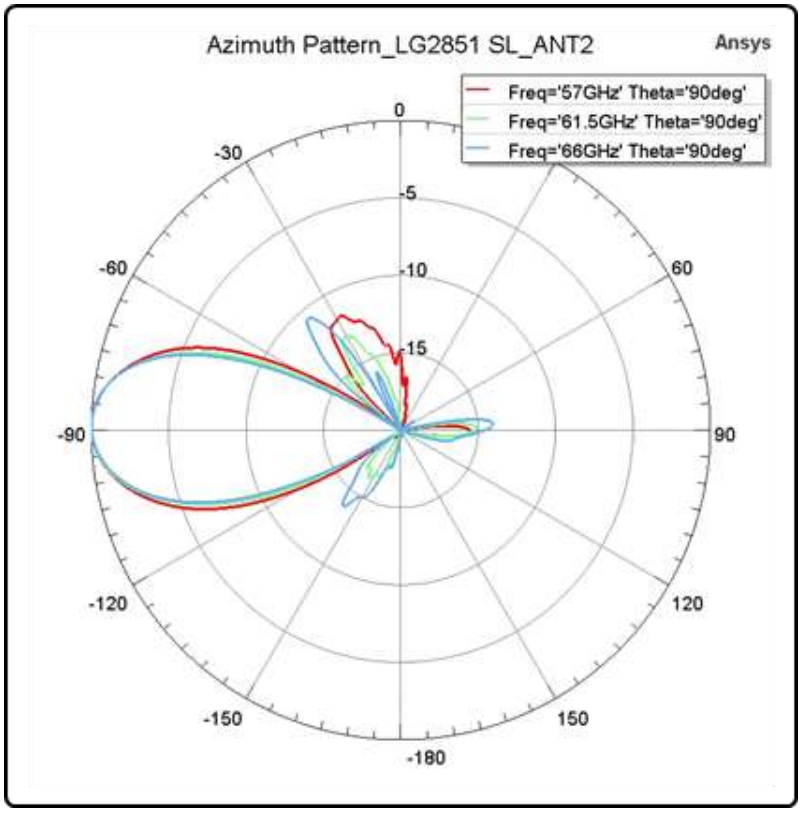
ANT 0 : Elevation (X-Z plane) beam pattern



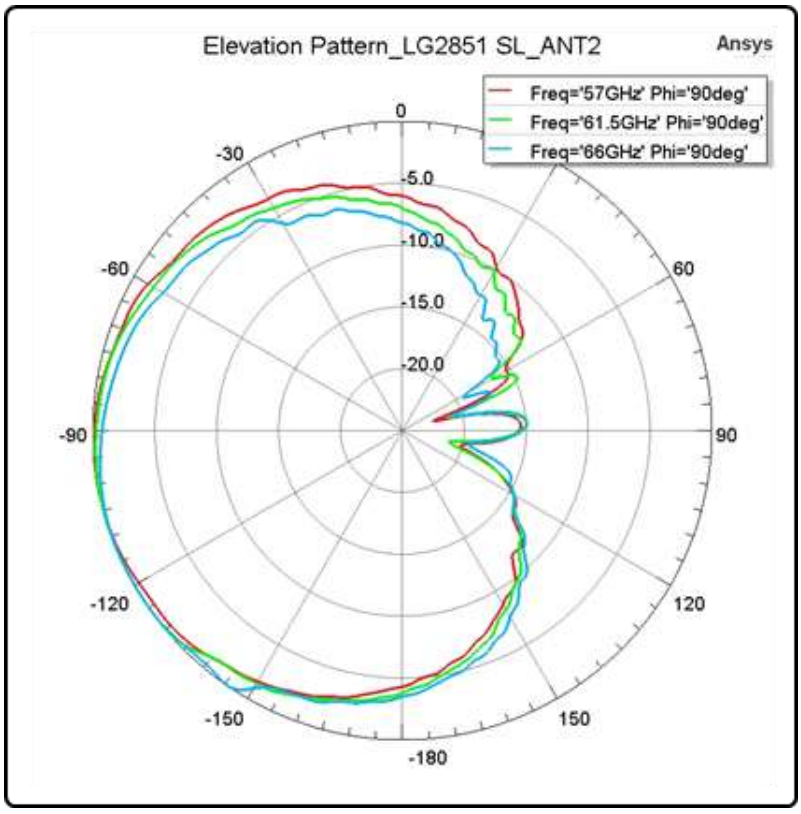
ANT 1 : Azimuth (Y-Z plane) beam pattern



ANT 1 : Elevation (X-Z plane) beam pattern

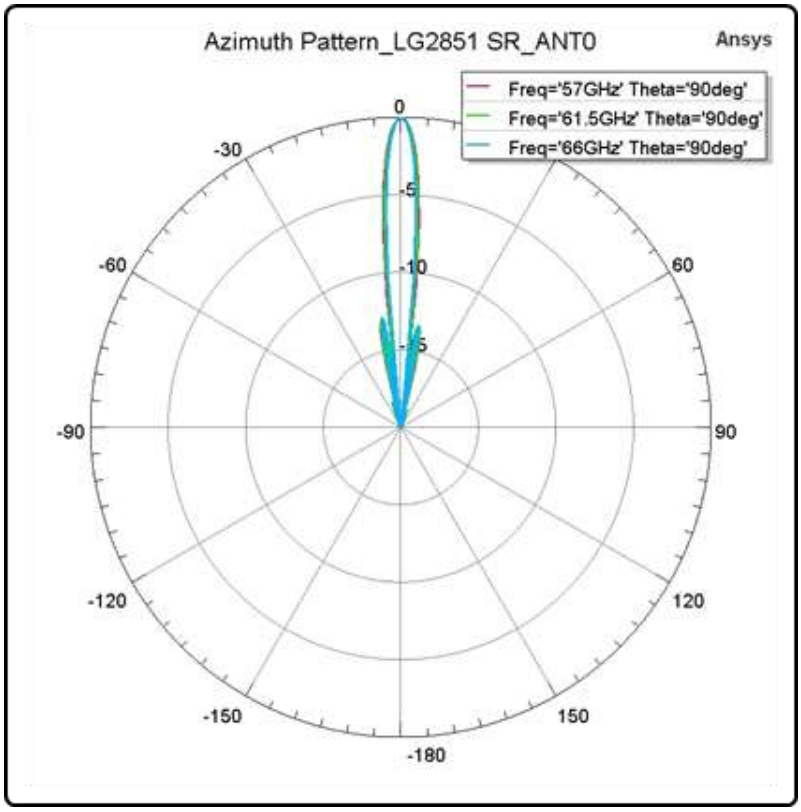


ANT 2 : Azimuth (X-Y plane) beam pattern

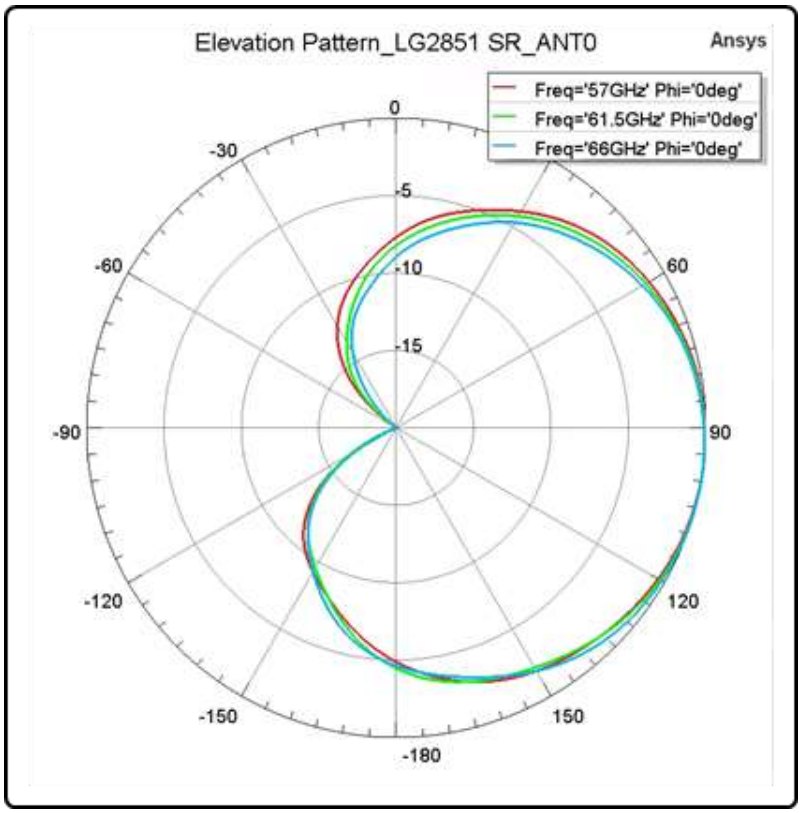


ANT 2 : Elevation (X-Z plane) beam pattern

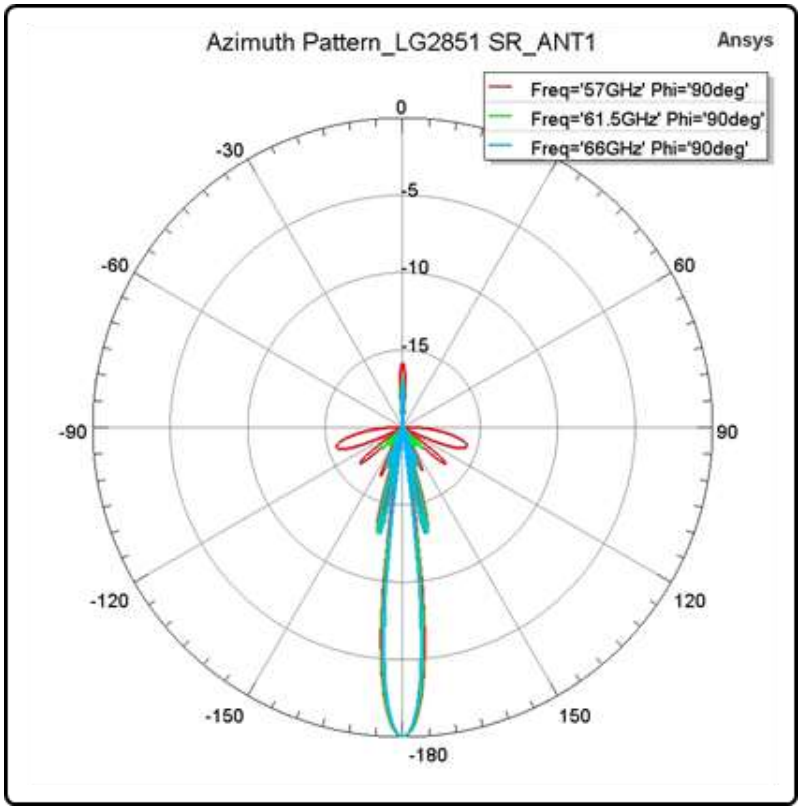
3.3 LG2851 SR (Transmit Mode)



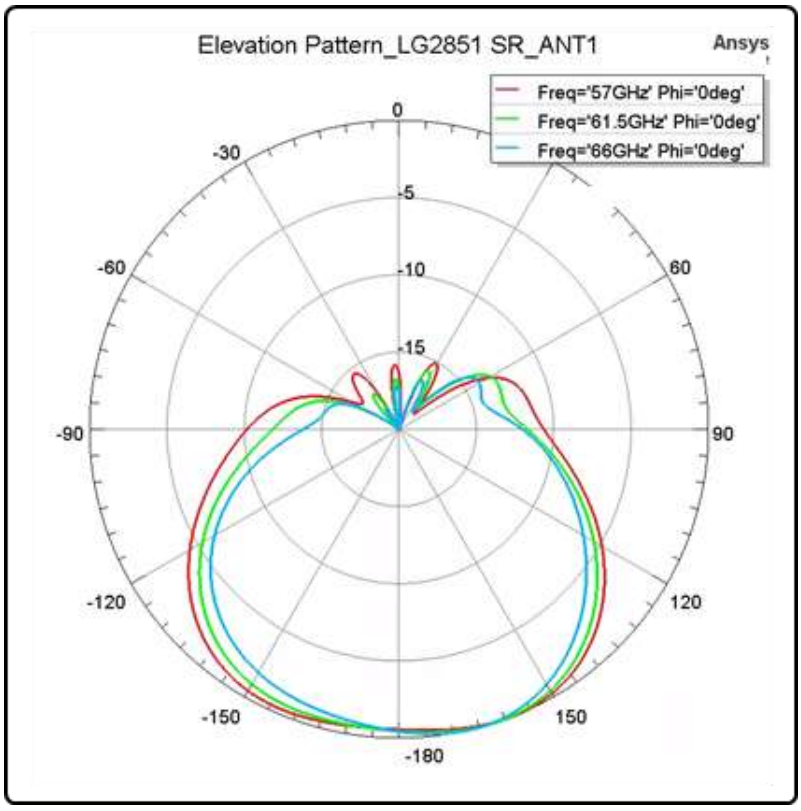
ANT 0 : Azimuth (X-Y plane) beam pattern



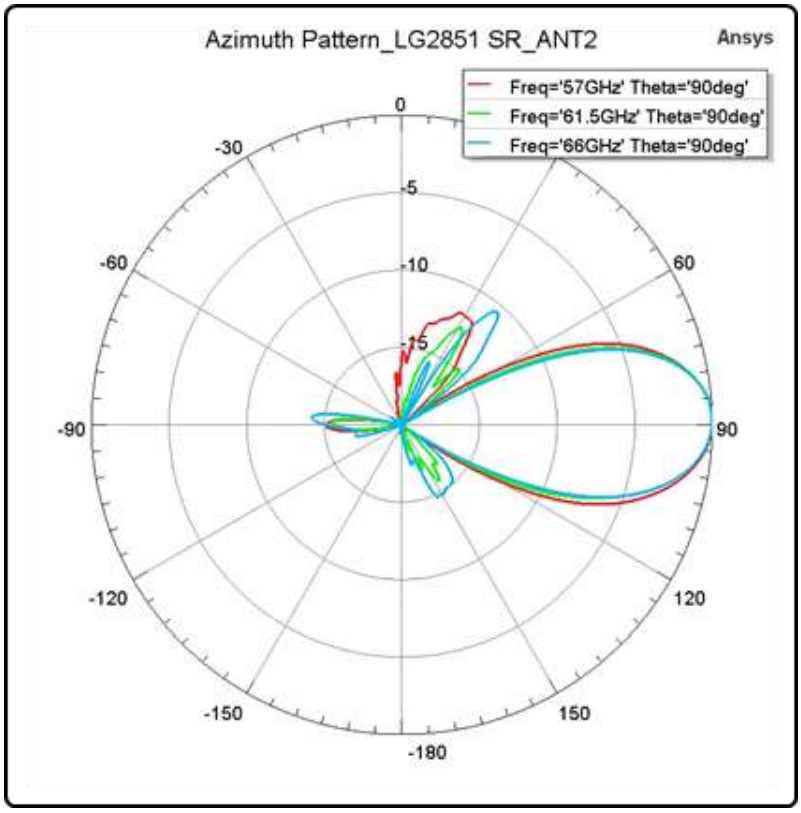
ANT 0 : Elevation (X-Z plane) beam pattern



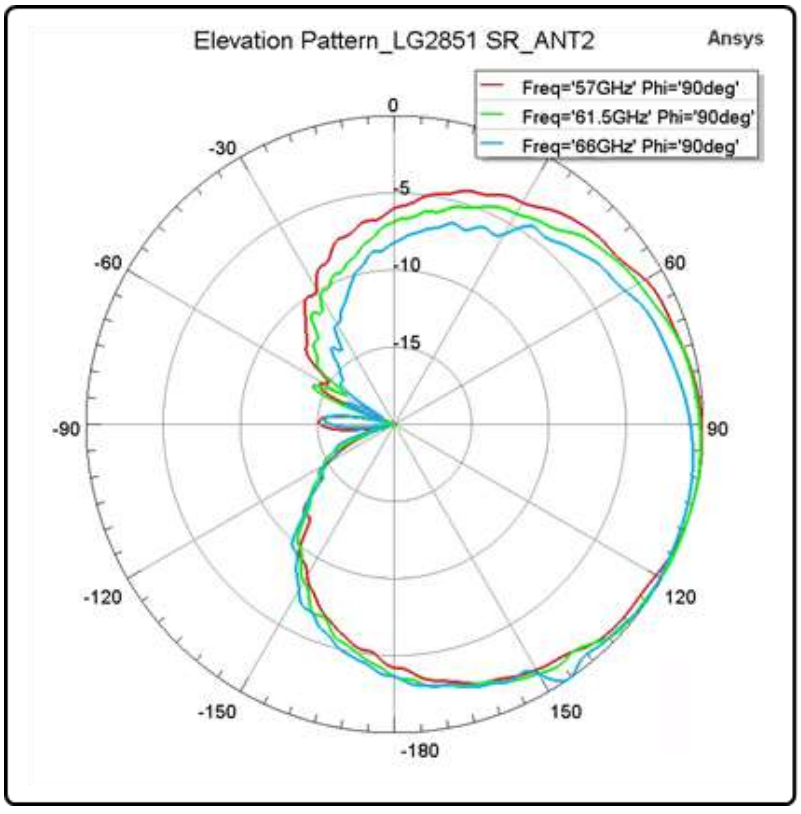
ANT 1 : Azimuth (Y-Z plane) beam pattern



ANT 1 : Elevation (X-Z plane) beam pattern

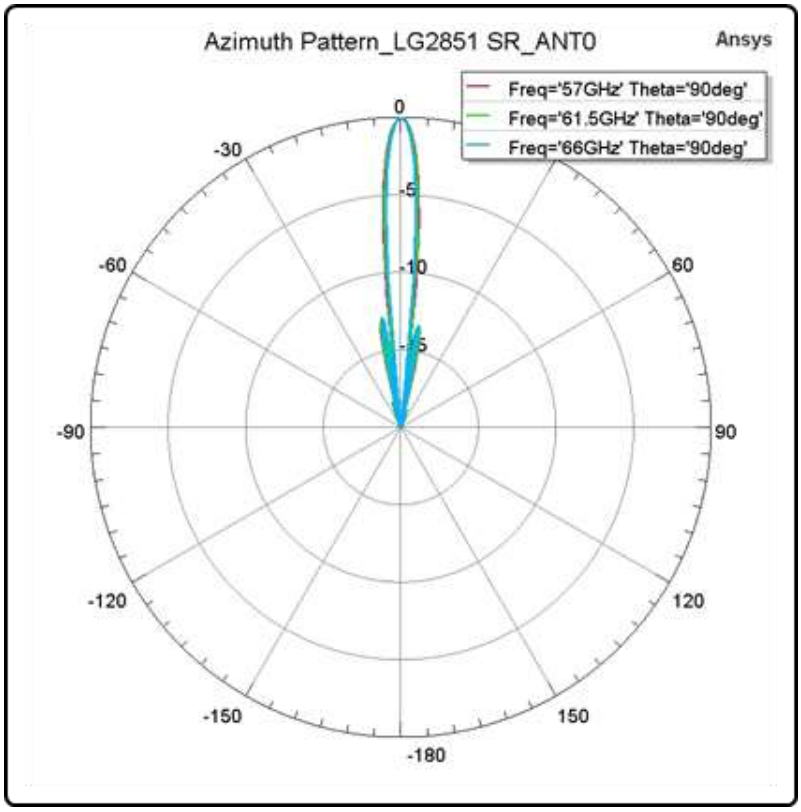


ANT 2 : Azimuth (X-Y plane) beam pattern

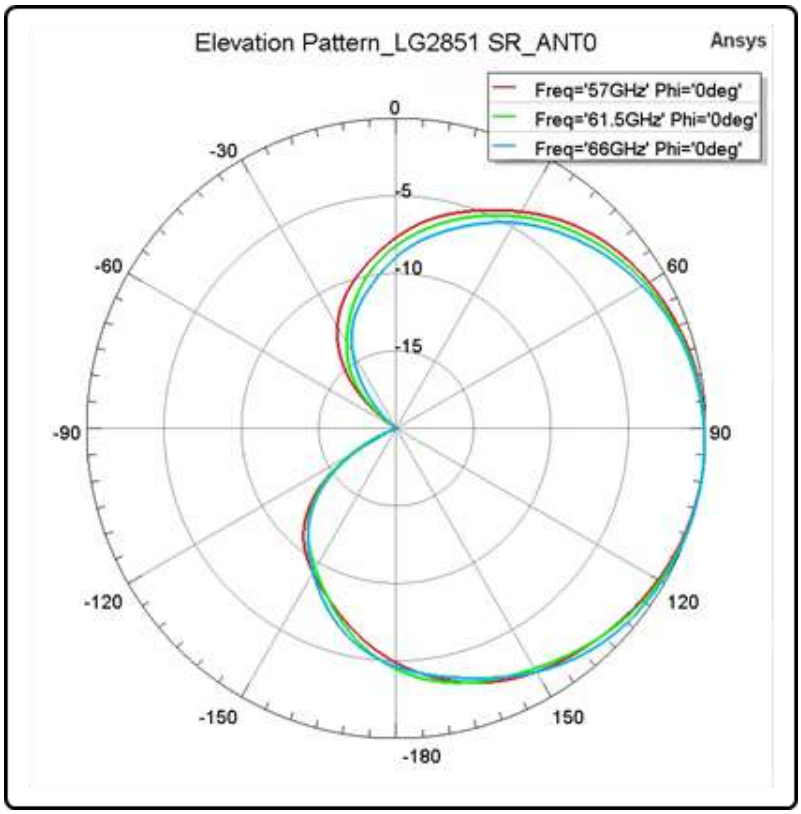


ANT 2 : Elevation (X-Z plane) beam pattern

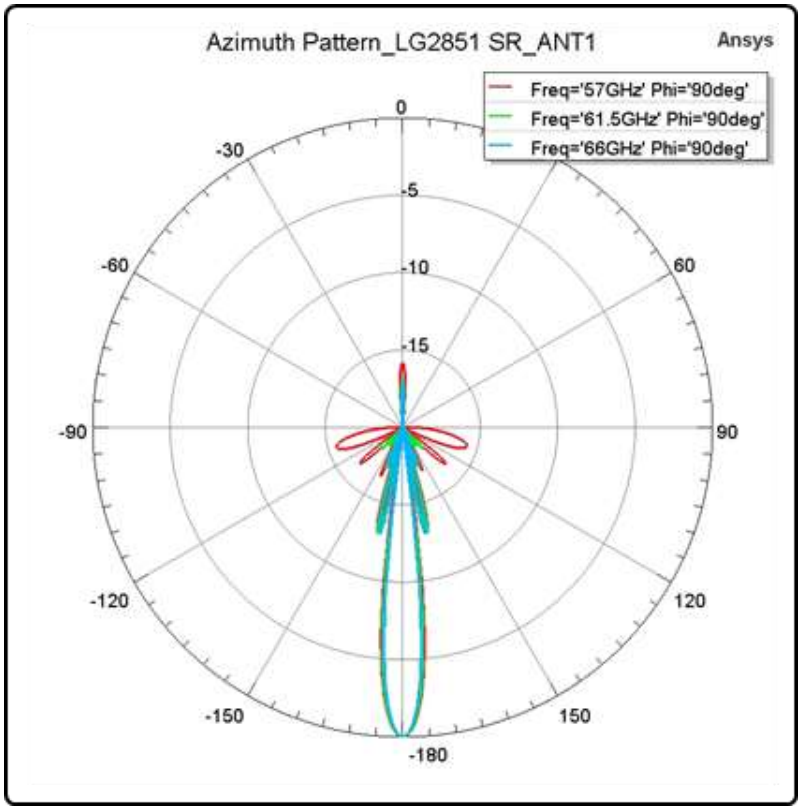
3.4 LG2851 SR (Receive Mode)



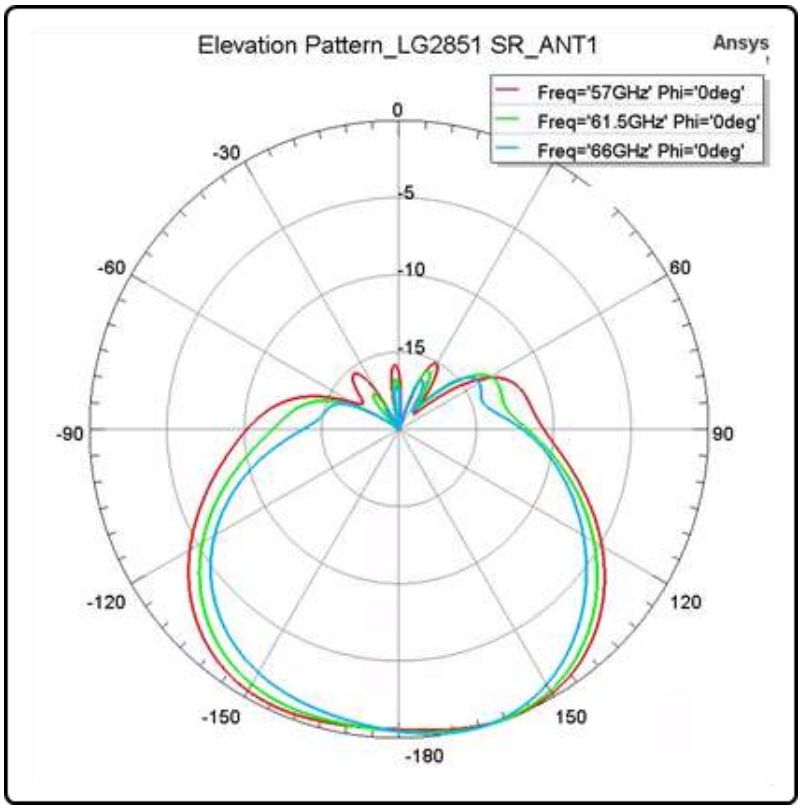
ANT 0 : Azimuth (X-Y plane) beam pattern



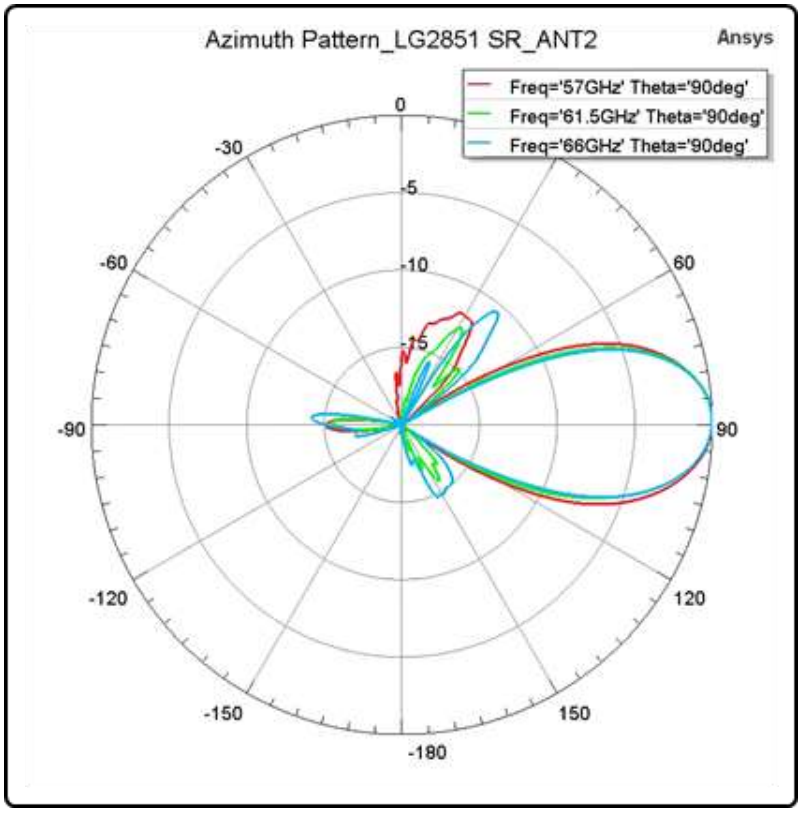
ANT 0 : Elevation (X-Z plane) beam pattern



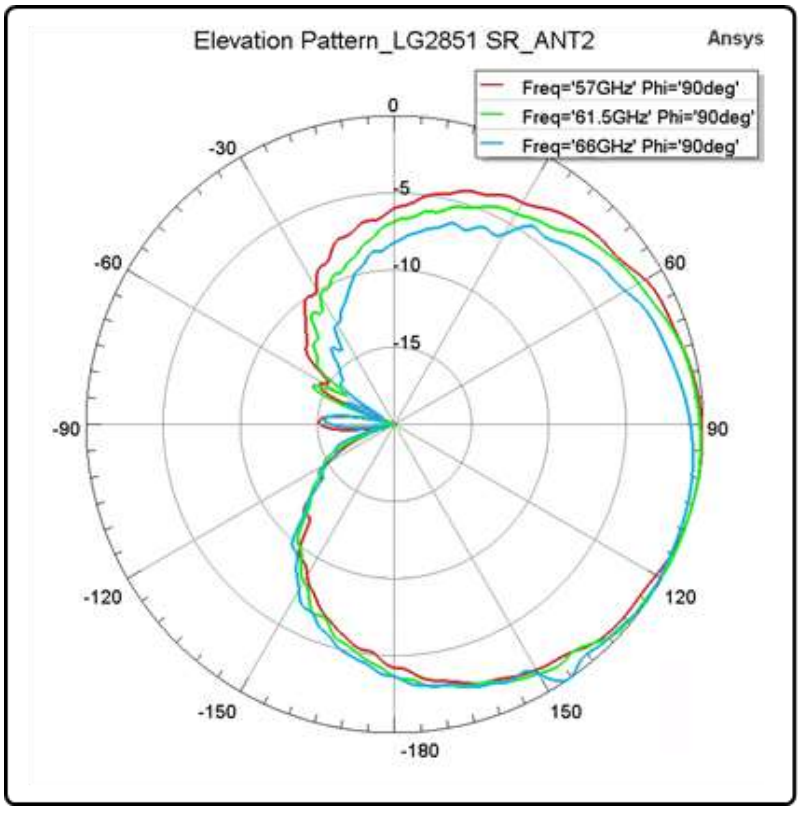
ANT 1 : Azimuth (Y-Z plane) beam pattern



ANT 1 : Elevation (X-Z plane) beam pattern



ANT 2 : Azimuth (X-Y plane) beam pattern



ANT 2 : Elevation (X-Z plane) beam pattern