

# EXHIBIT 3



**global skyware**  
completing the picture

Antenna Development Group  
Engineering Test Report

**Global Skyware**  
**New 90cm Antenna**  
**With Jupiter II Transceiver**  
**And Vendor #1 Feed**  
**FCC Mask**

04/13/17

Report: 1302-05-004

Internal Use Only: Yes, excepting prior permission

REVISIONS				
MF	REV	DESCRIPTION	DATE	APPROVED
	ORIG	Initial	04/13/17	

## Table of Contents

1	Introduction	3
1.1	Antenna Configuration	3
1.2	Frequency List	3
1.3	Photos	4
2	TX Antenna Range Data	5
2.1	LHCP Azimuth Radiation Patterns	5
2.2	RHCP Azimuth Radiation Patterns	13
2.3	LHCP Elevation Radiation Patterns	21
2.4	RHCP Elevation Radiation Patterns	29
2.5	TX Gain	38
3	RX Antenna Range Data	39
3.1	LHCP Azimuth Radiation Patterns	39
3.2	LHCP Elevation Radiation Patterns	48
3.3	RHCP Azimuth Radiation Patterns	57
3.4	RHCP Elevation Radiation Patterns	66
3.5	RX Gain	75

## 1 Introduction

This report details radiation patterns and gain performance of the 90cm Ka-Band antenna. The data is presented in accordance with FCC regulation 25.138 ('Blanket licensing of GSO FCC Earth Stations' ... at Ka-band) and is with respect to the FCC masks outlined in regulation 25.209 ('Antenna Performance Standards'). The measurements were carried out in Skyware's Compact Antenna Test Range in Smithfield, North Carolina.

### 1.1 Antenna Configuration

The antenna system comprises of a 90cm Ka-Band antenna and Jupiter II Feed. Measurements are referenced to the waveguide transition at the radio.

### 1.2 Frequency List

The antenna system had both co-polar and cross-polar radiation components taken in the azimuth and elevation planes for both Left Hand Circular Polarisation (LHCP) and Right Hand Circular Polarisation (RHCP) polarisations at 28.0, 28.5, 29.0, 29.5, and 30GHz for the transmit band and 17.7, 18.3, 18.76, 19.24, 19.72, and 20.2GHz for the receive band. Each pattern is presented separately and is plotted along with the applicable FCC mask.

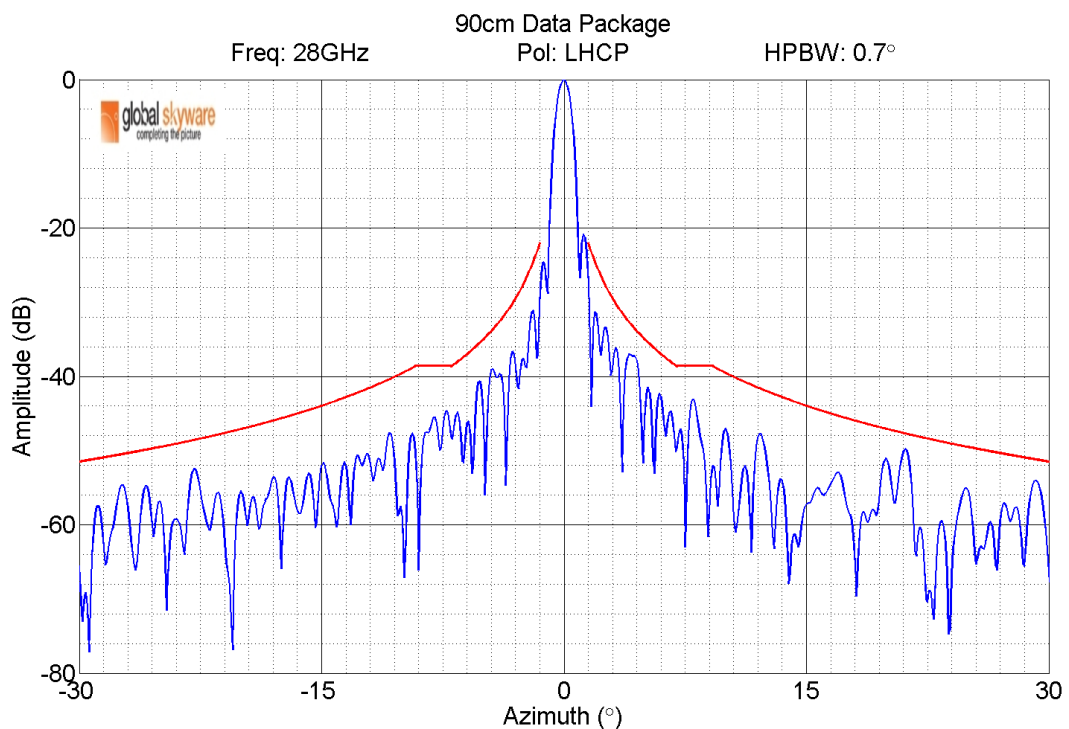
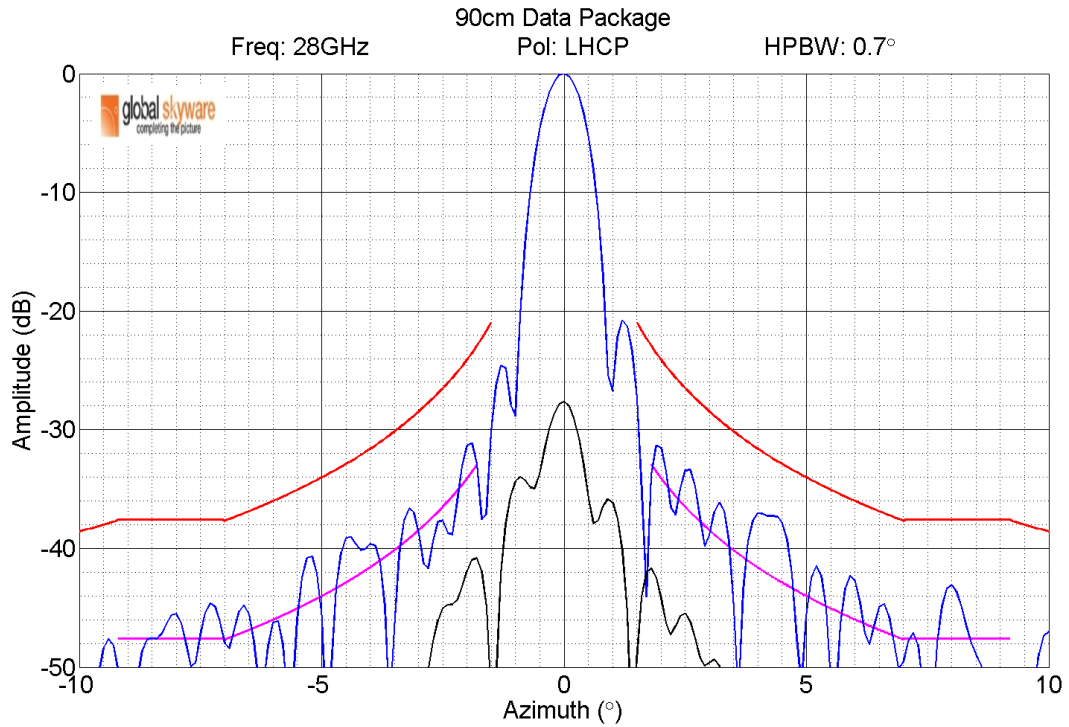
### 1.3 Photos

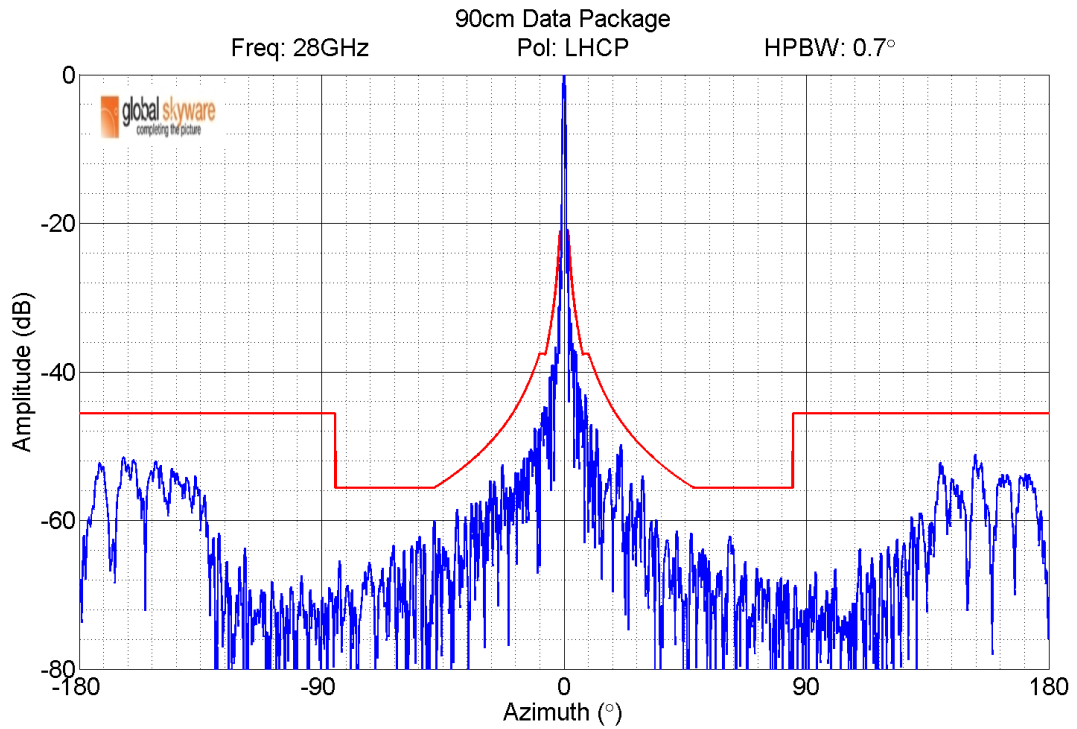




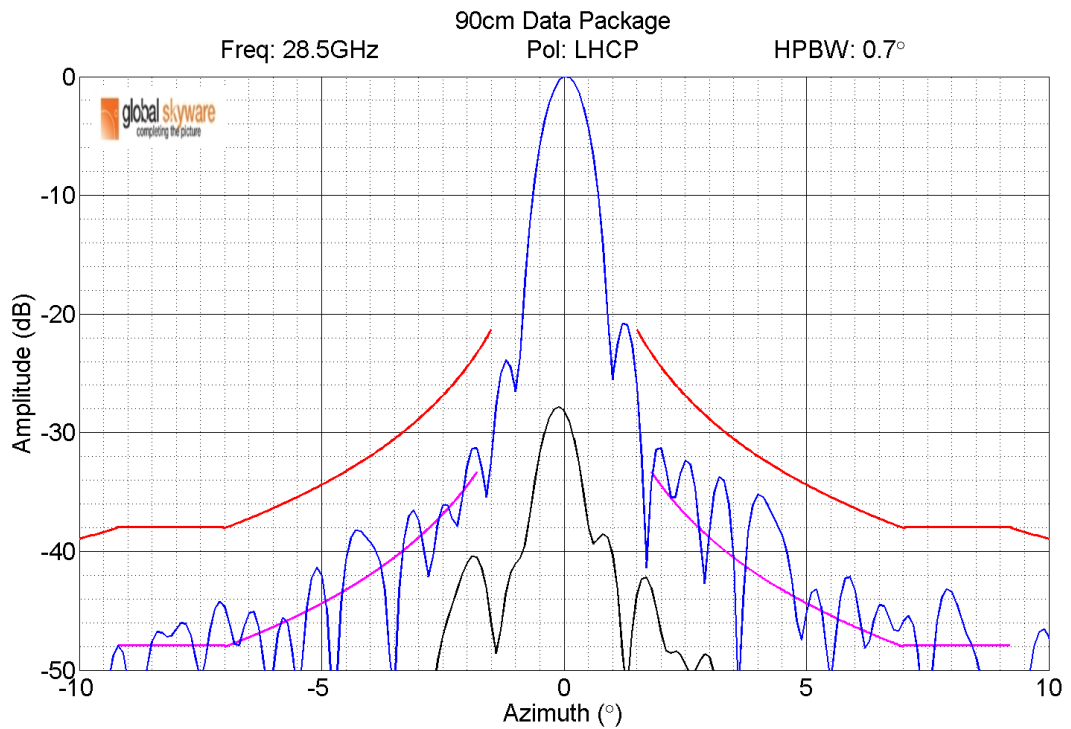
## 2 TX Antenna Range Data

### 2.1 LHCP Azimuth Radiation Patterns

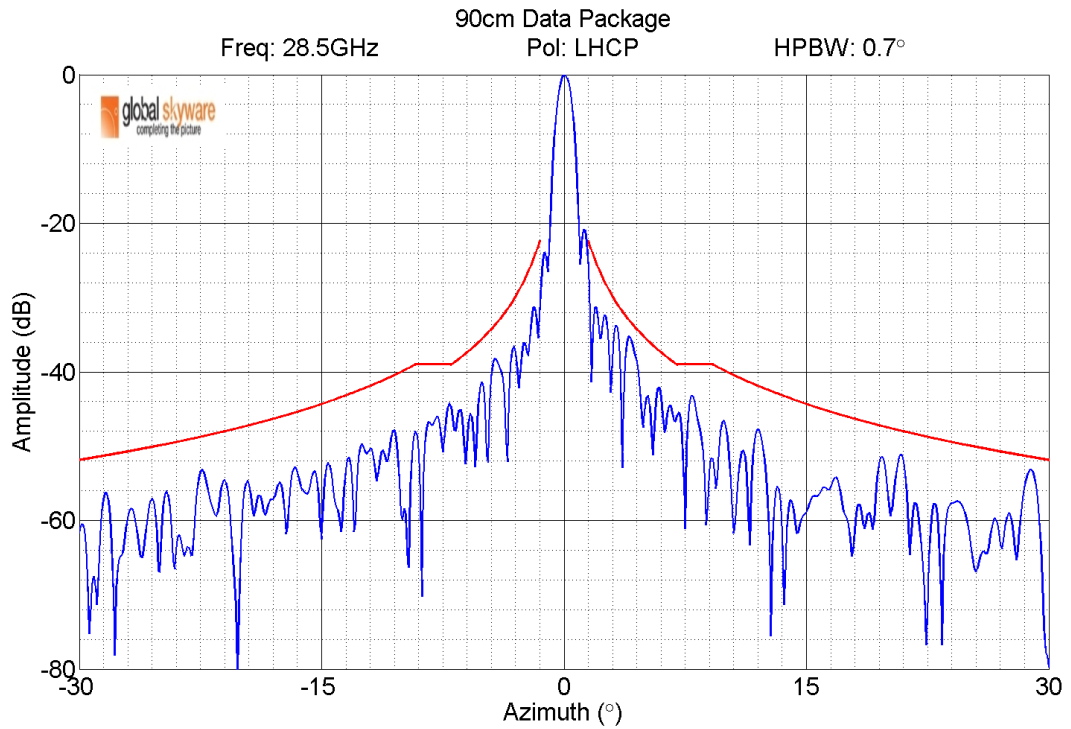




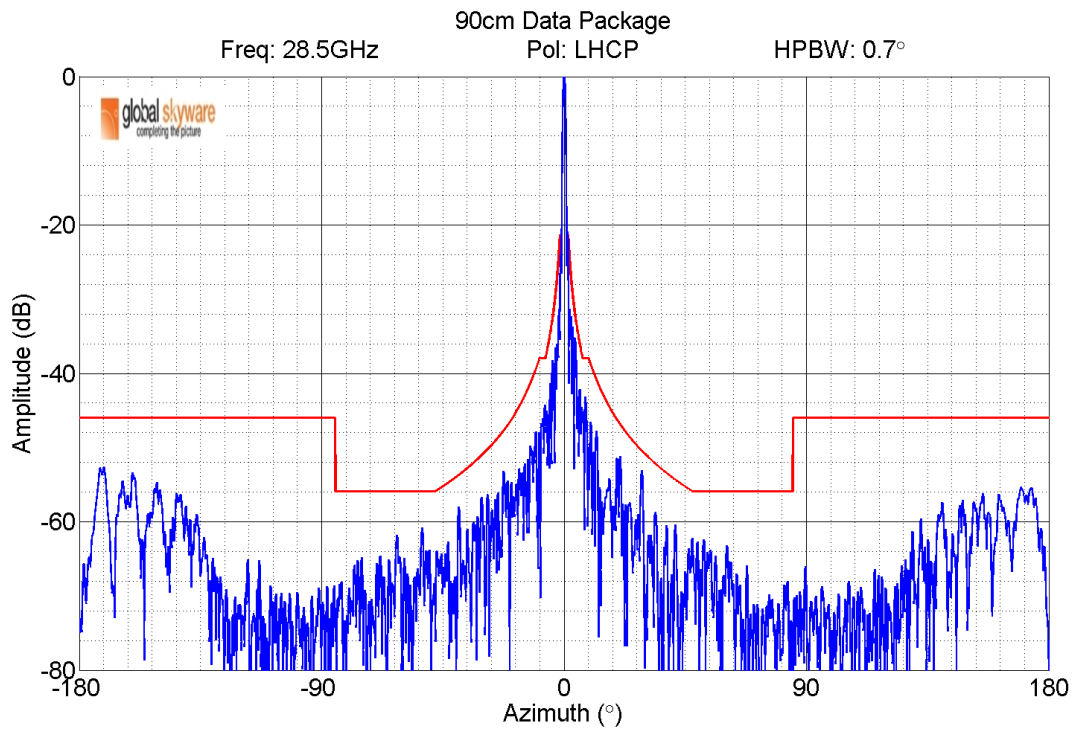
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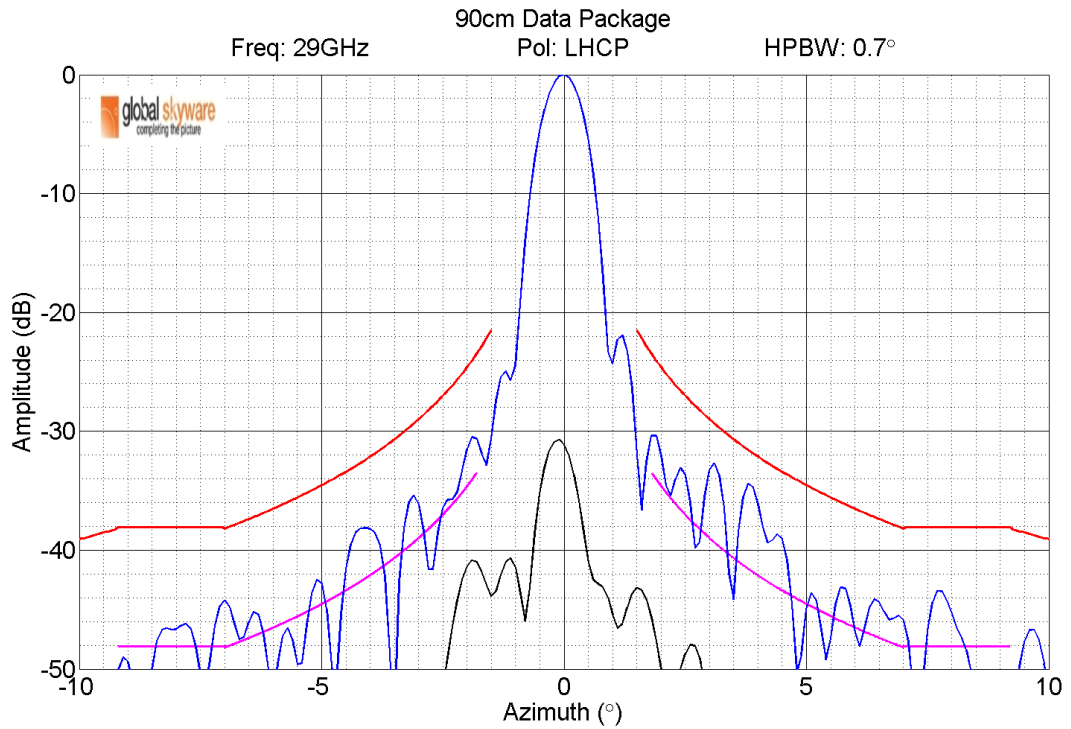
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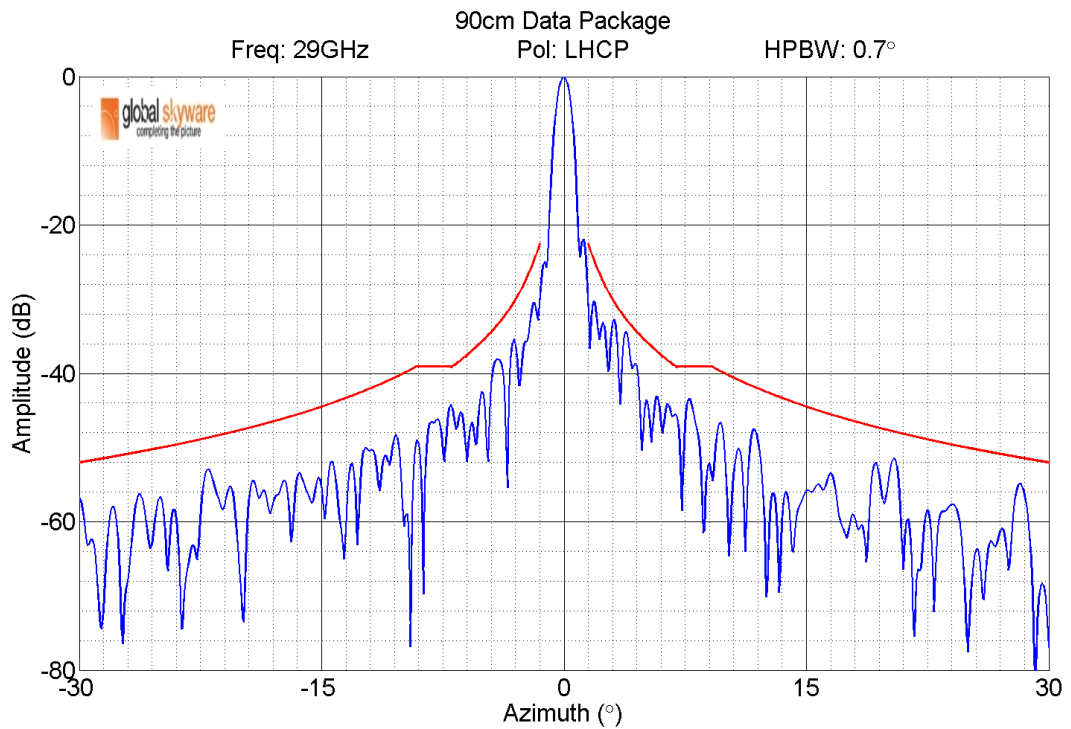
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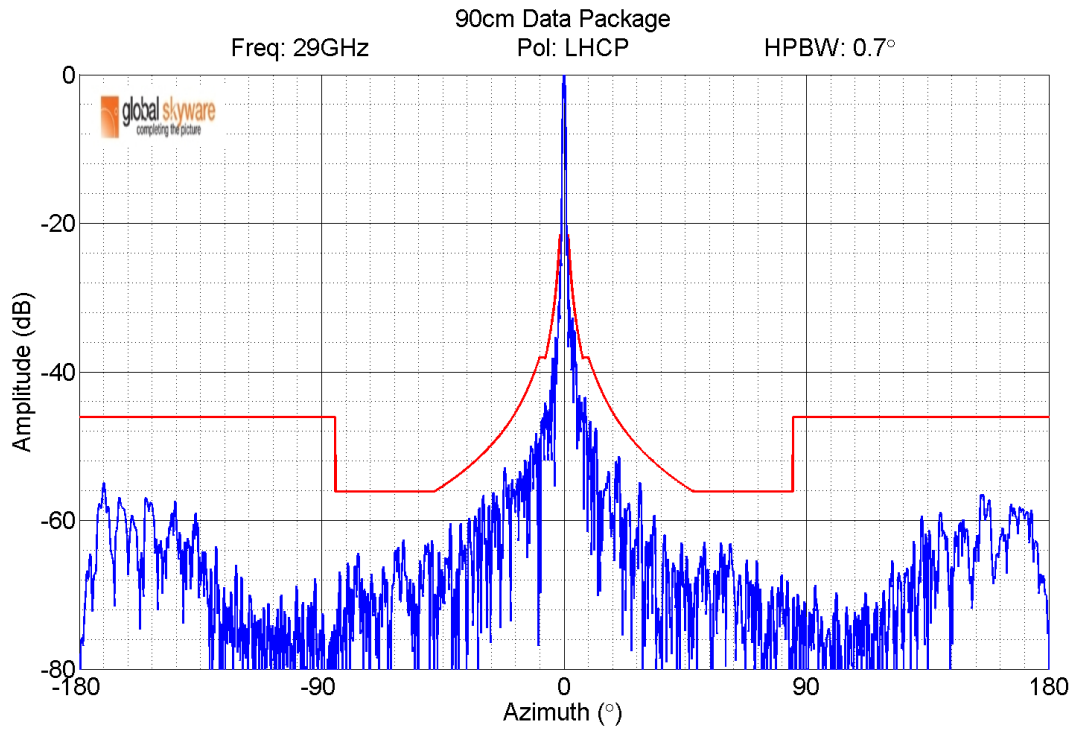
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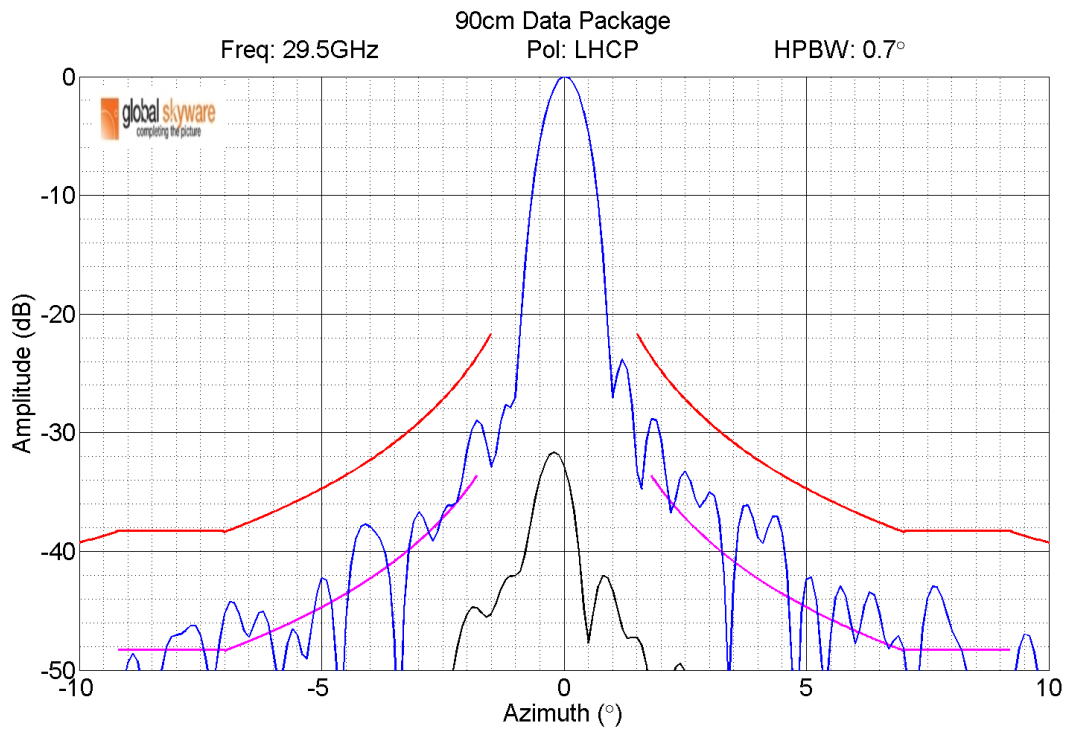
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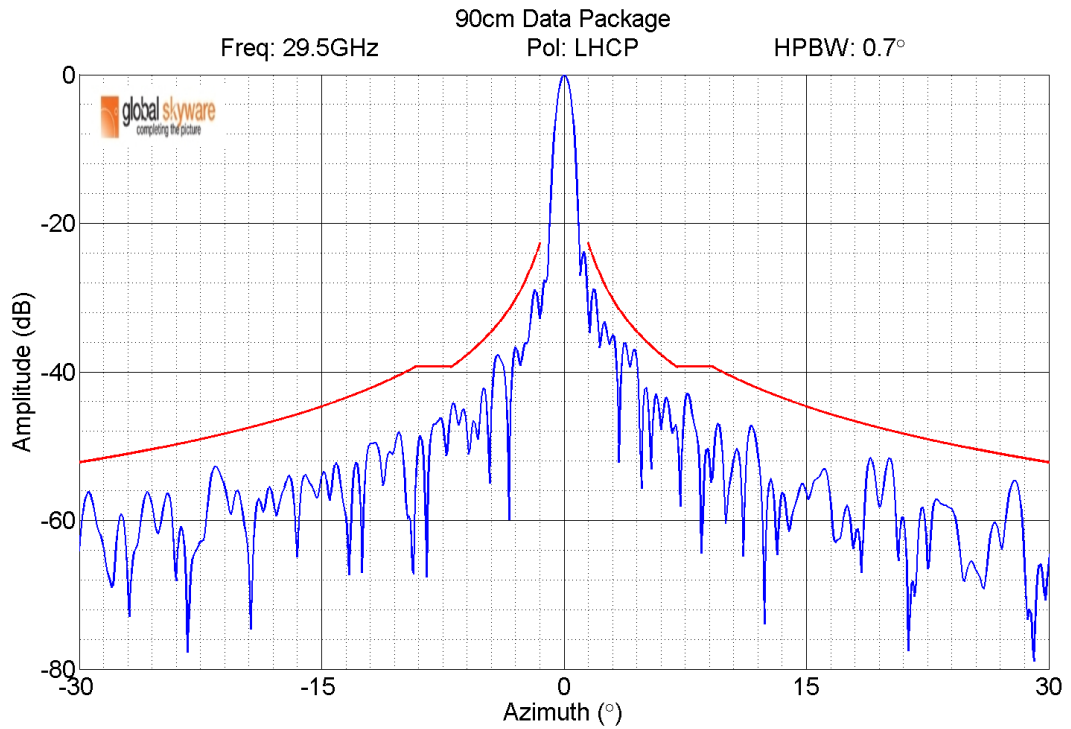
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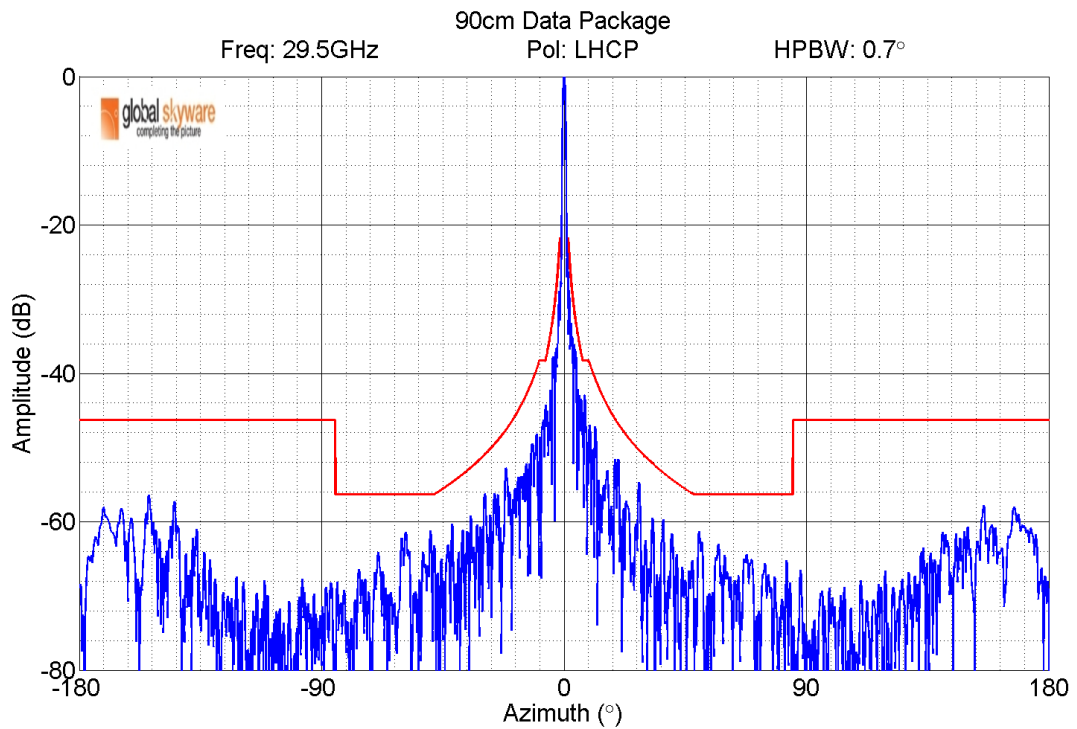
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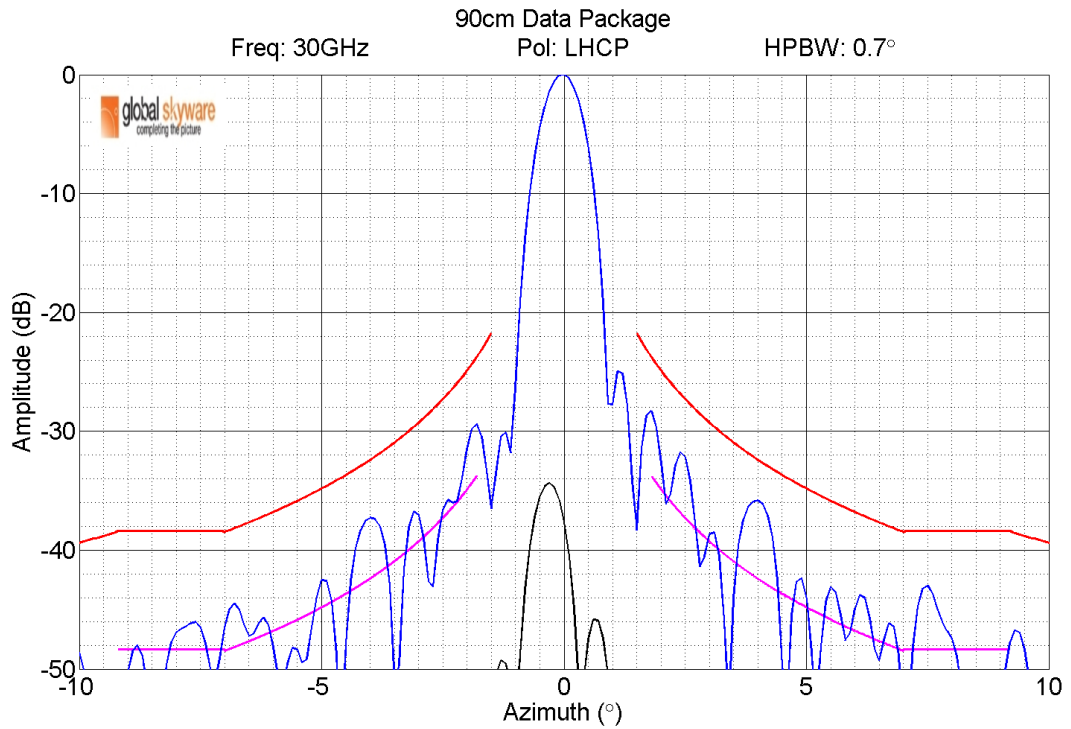
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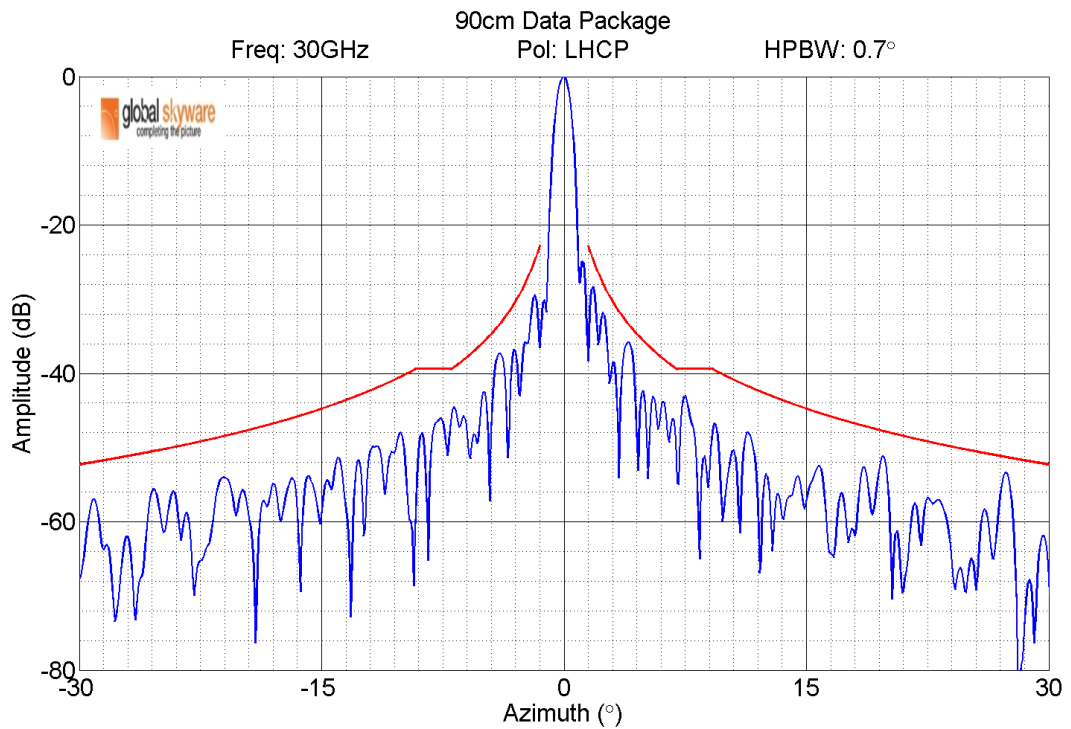
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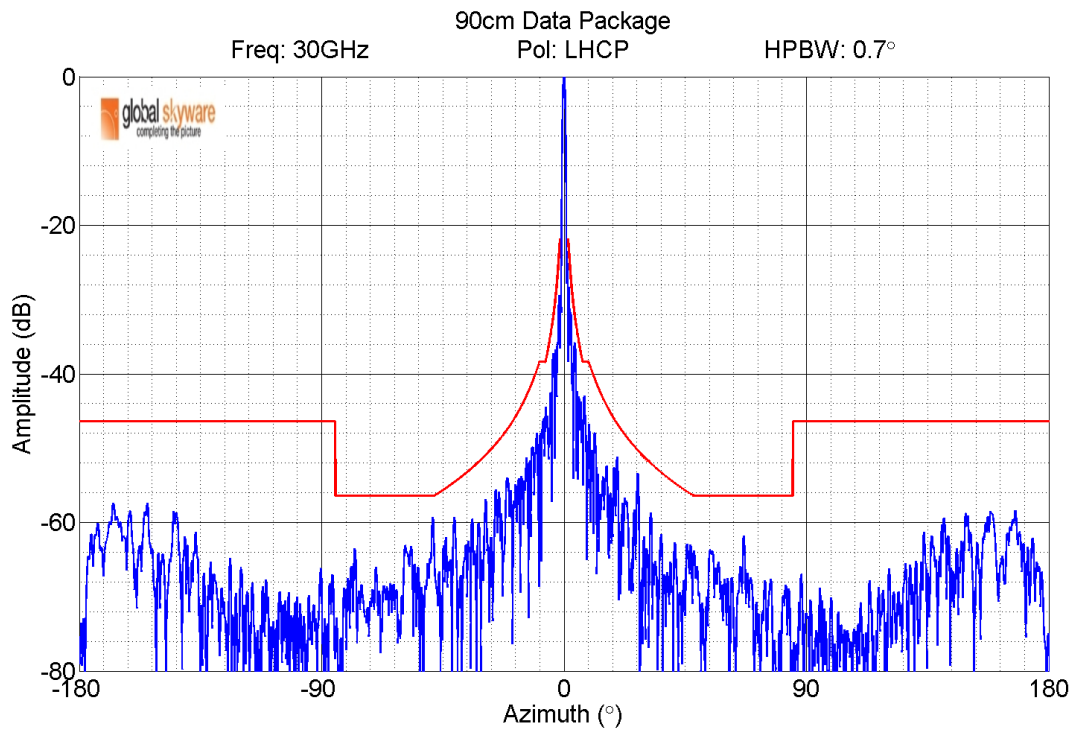
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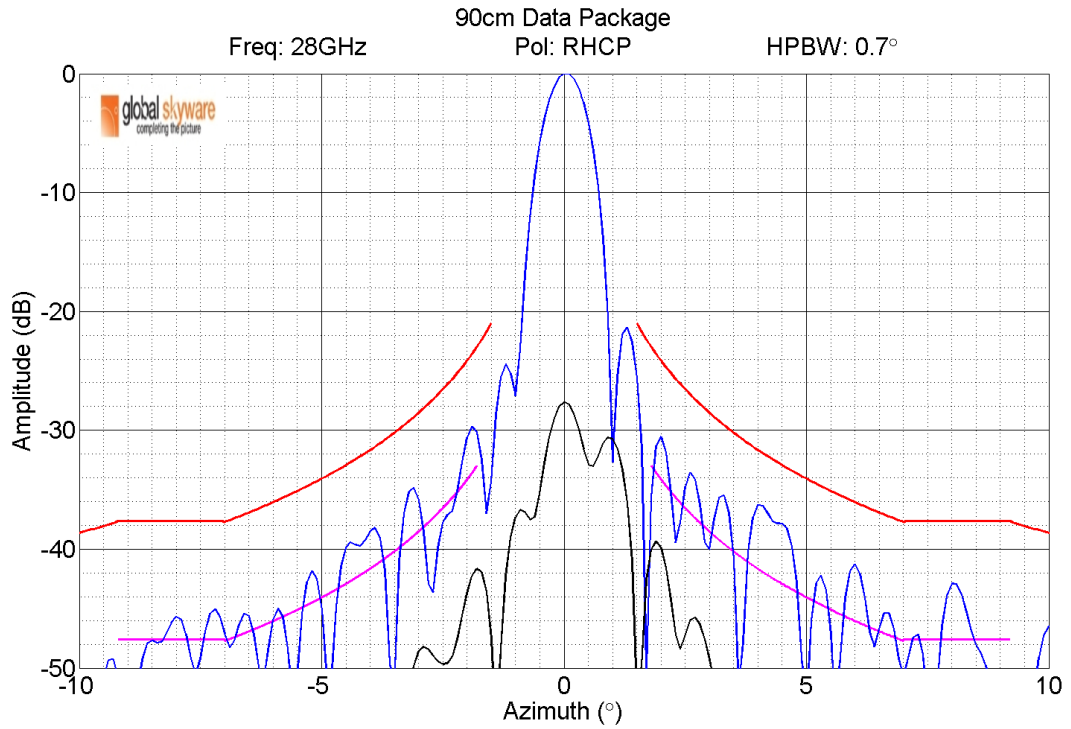
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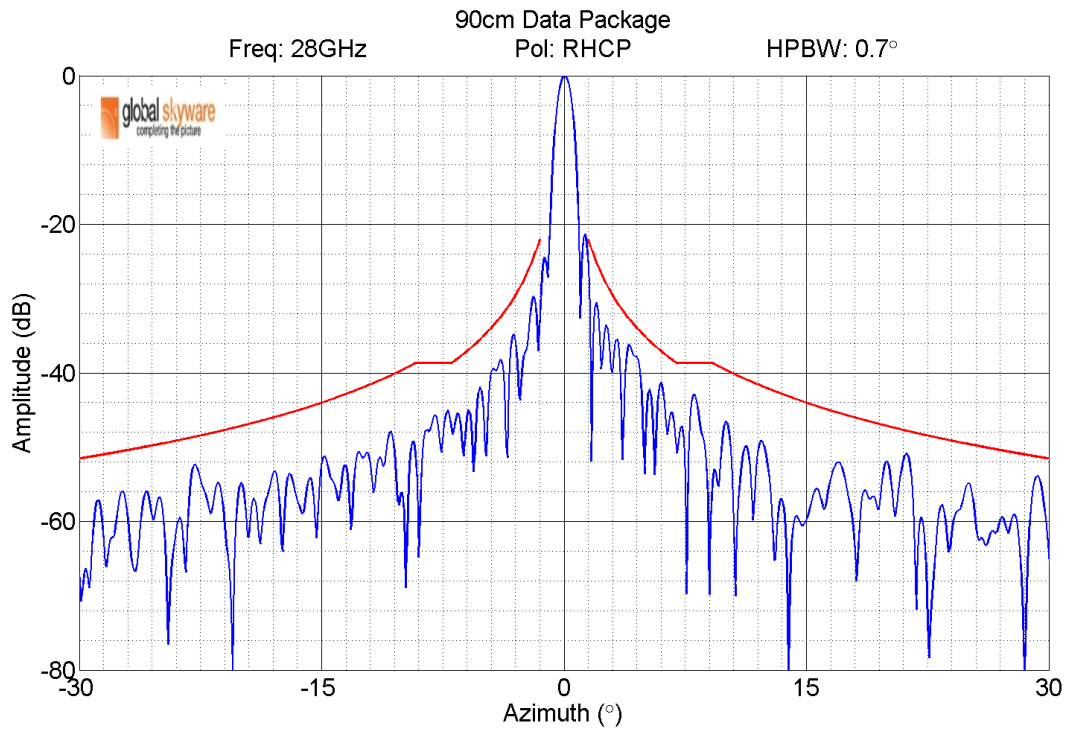
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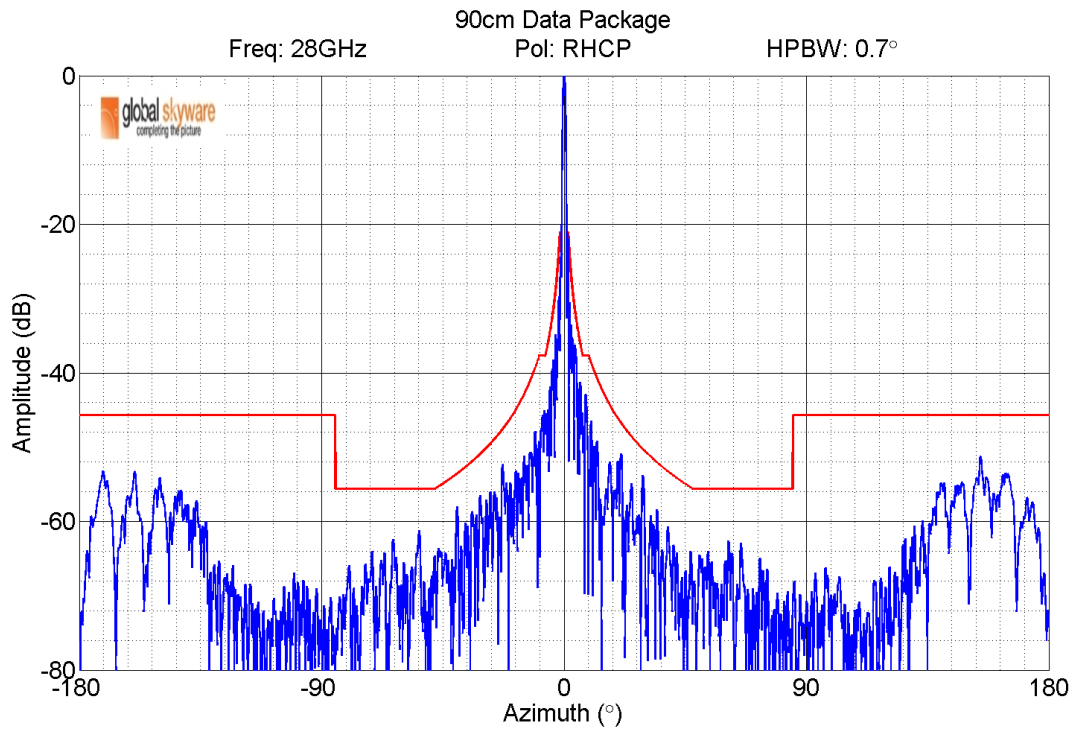
## 2.2 RHCP Azimuth Radiation Patterns



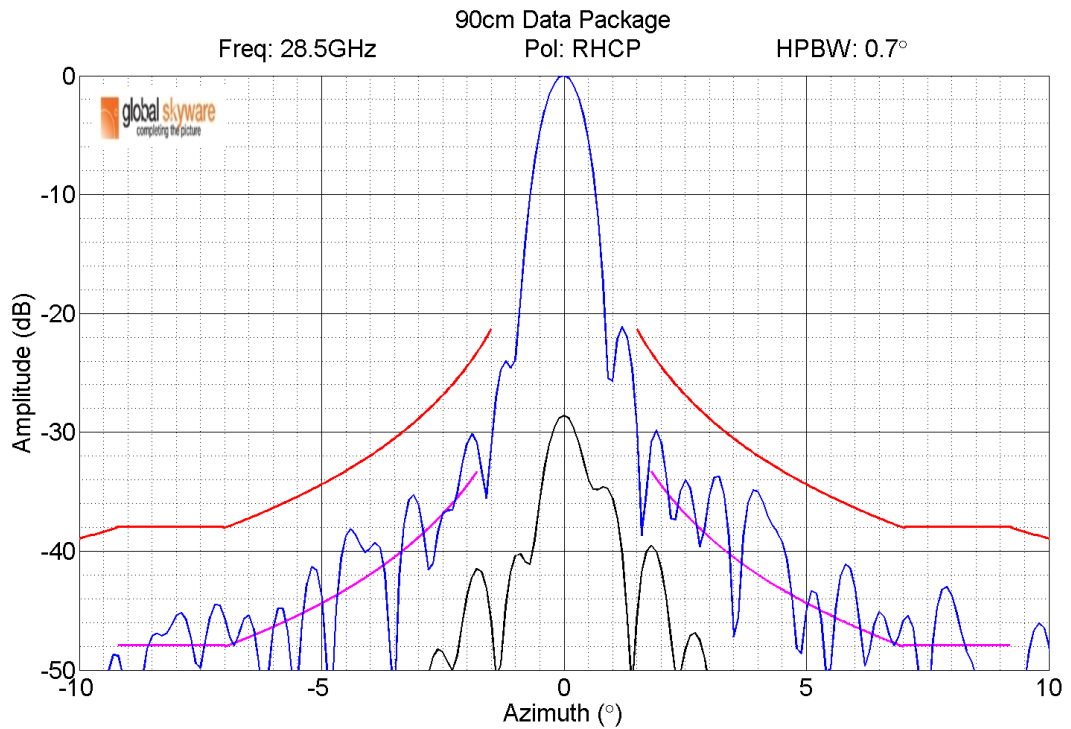
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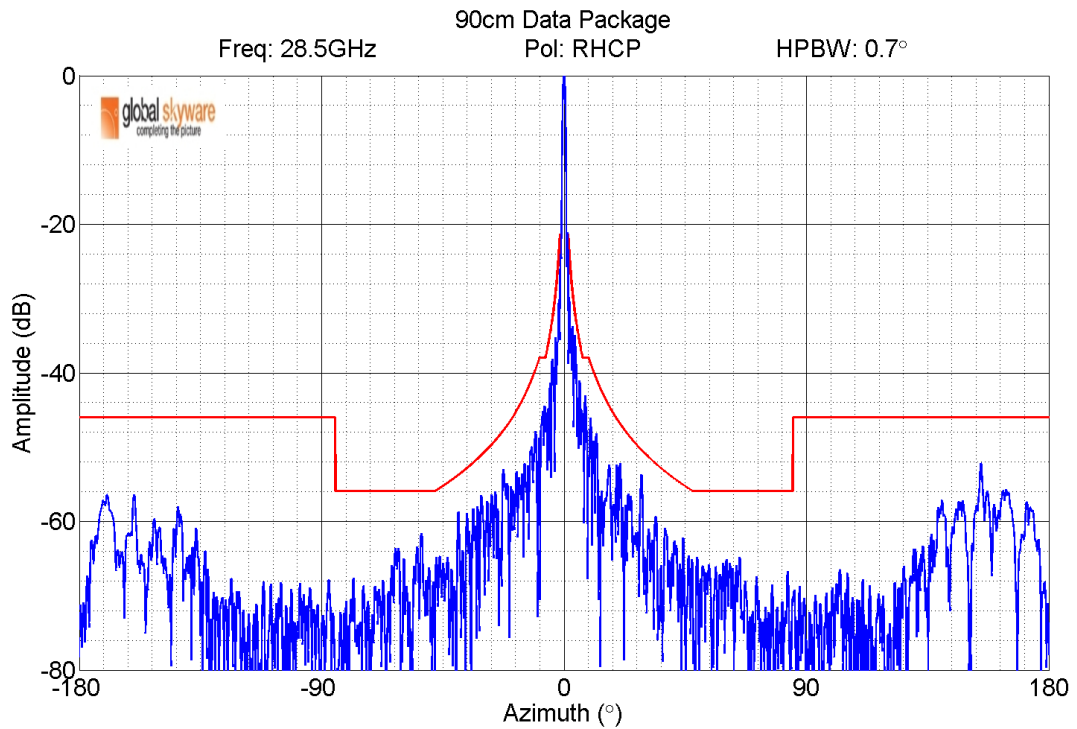
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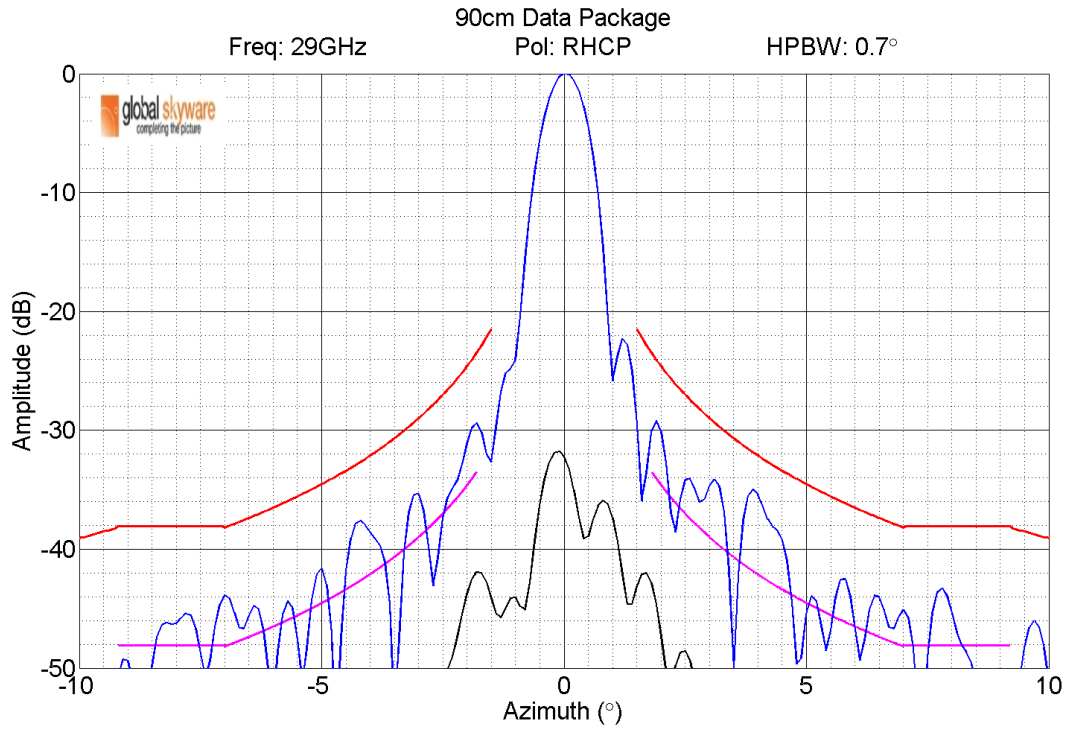
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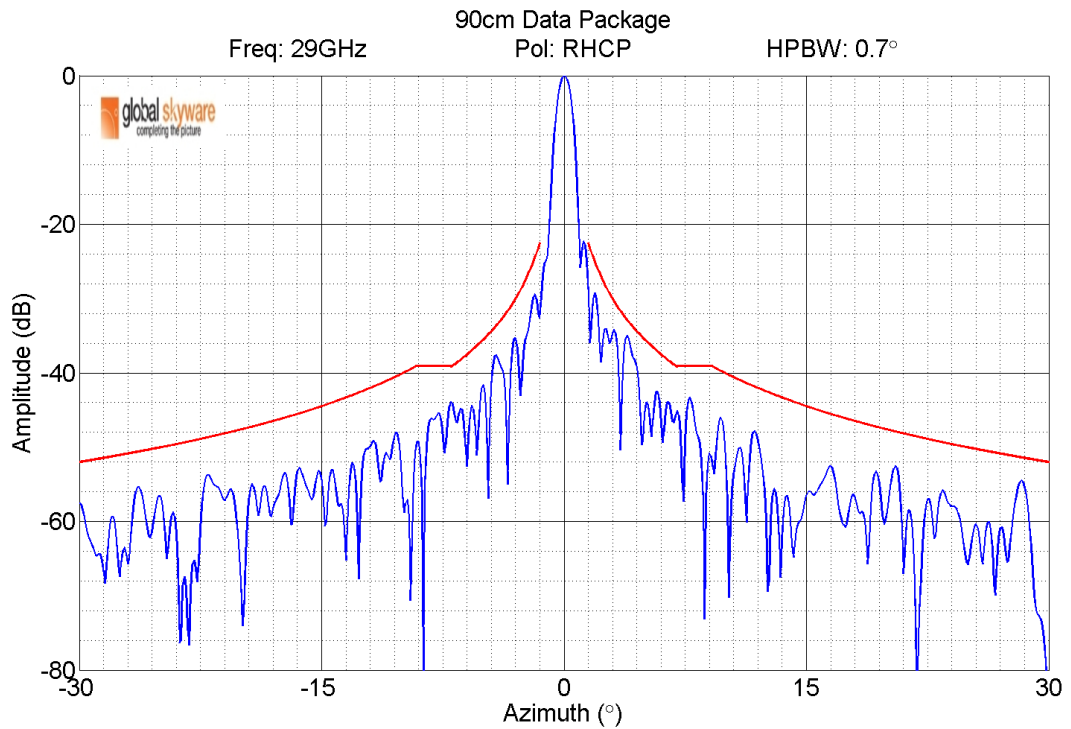
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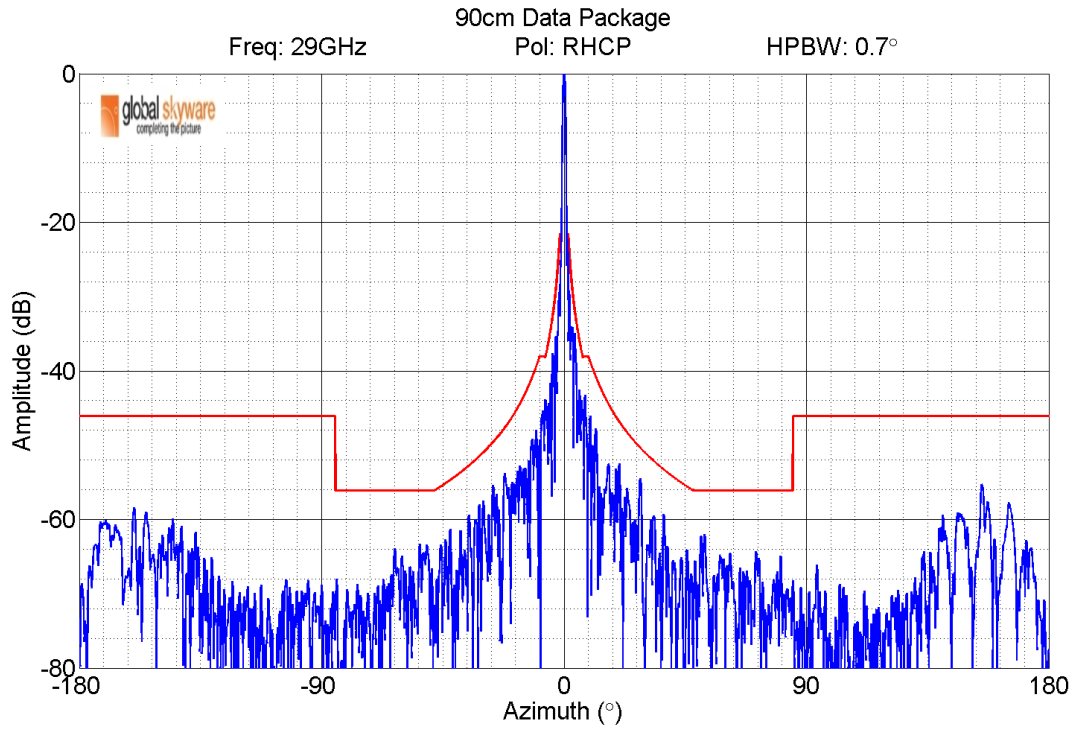
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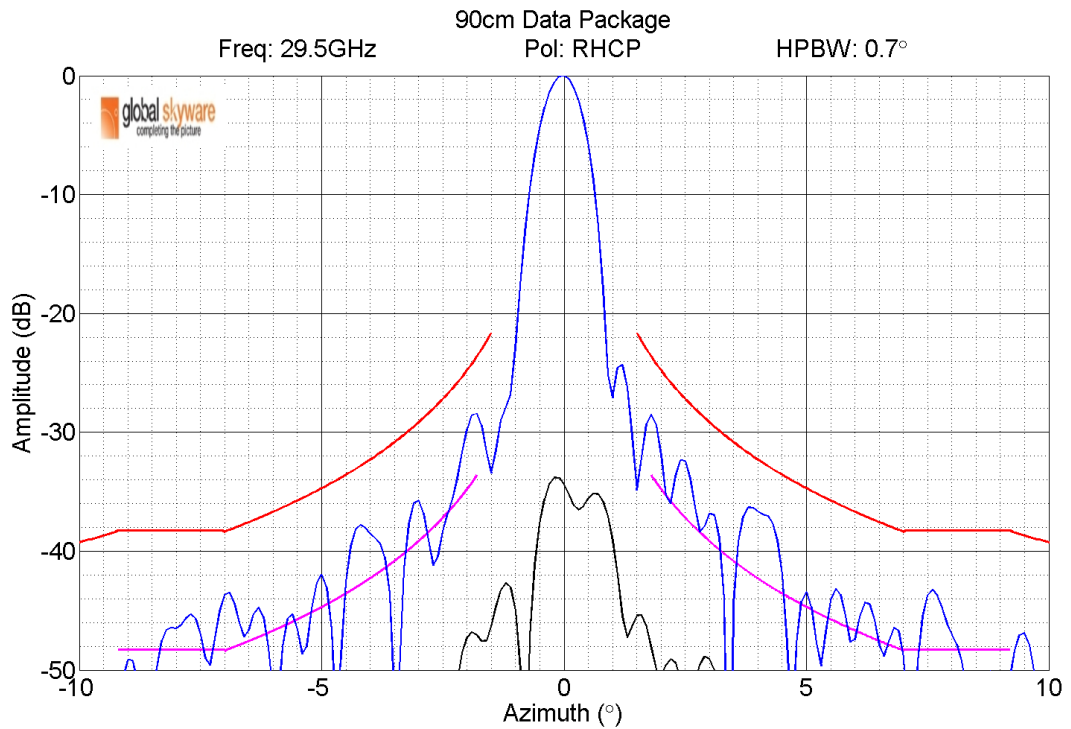
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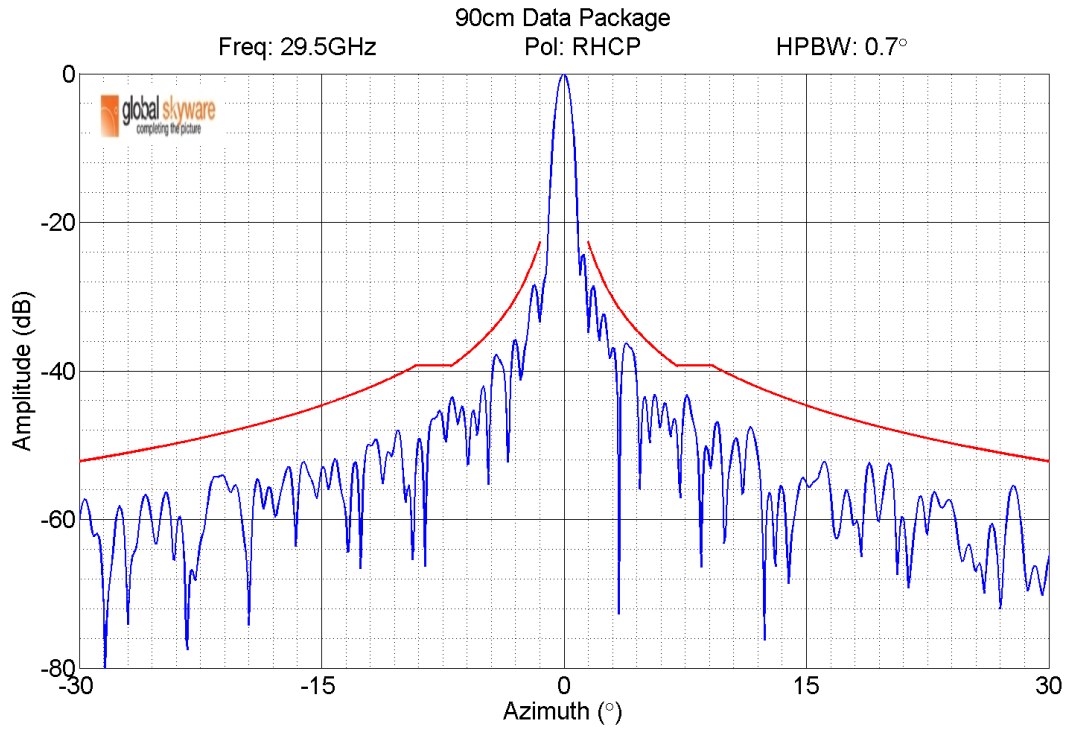
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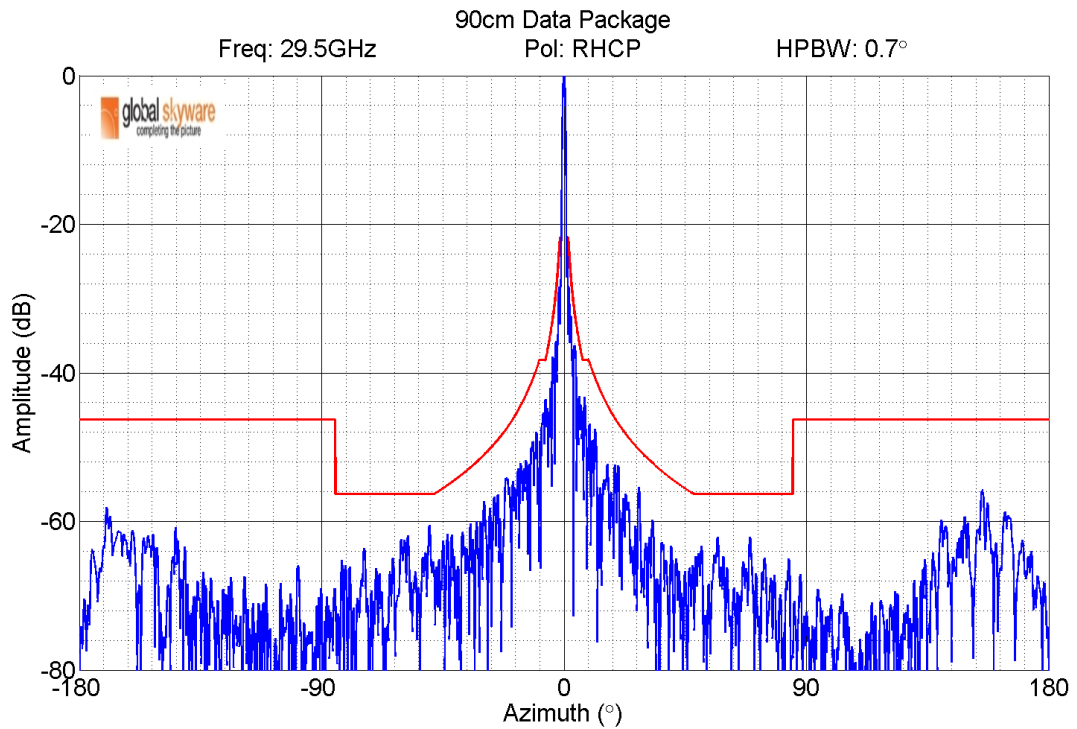
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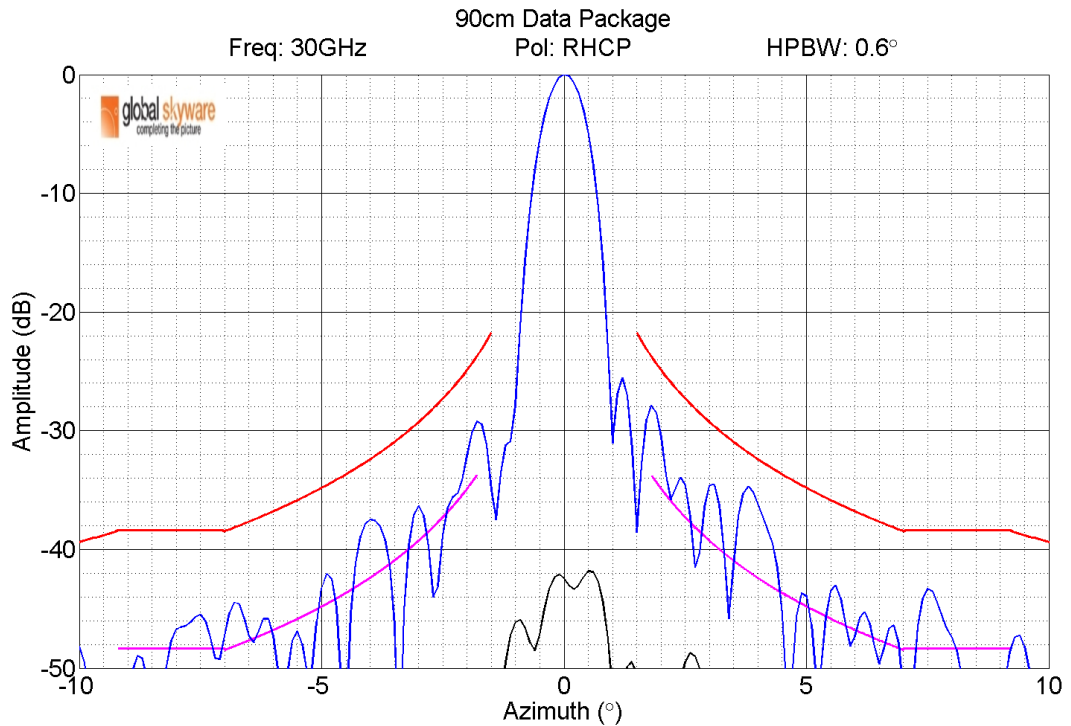
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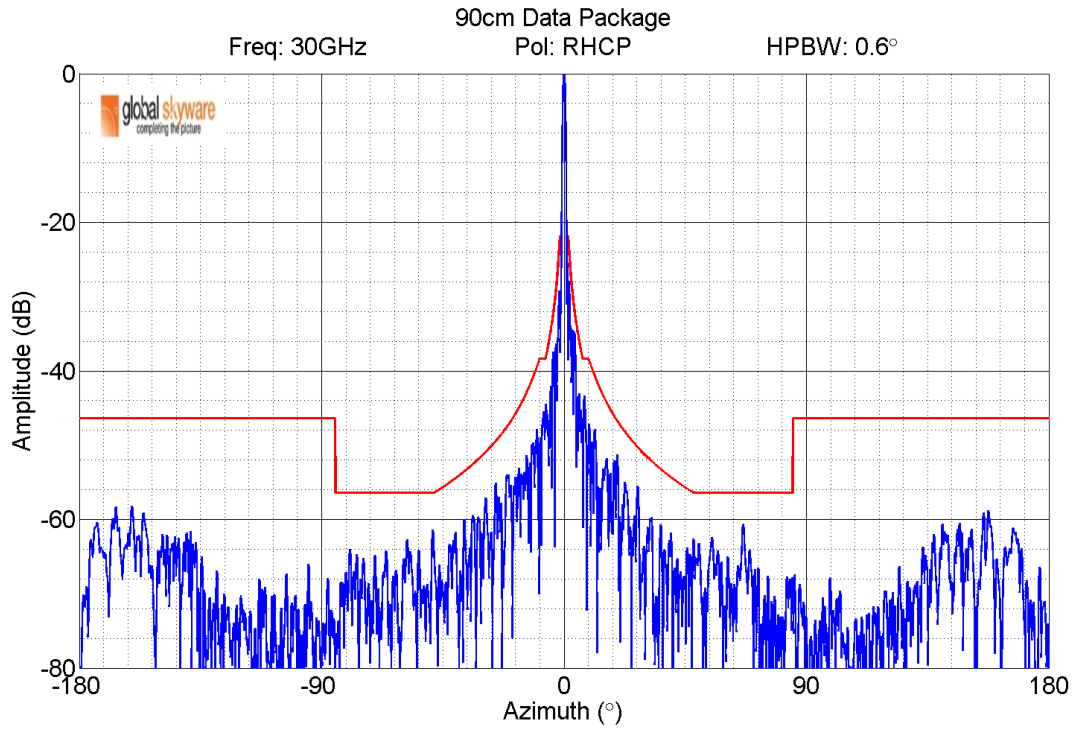
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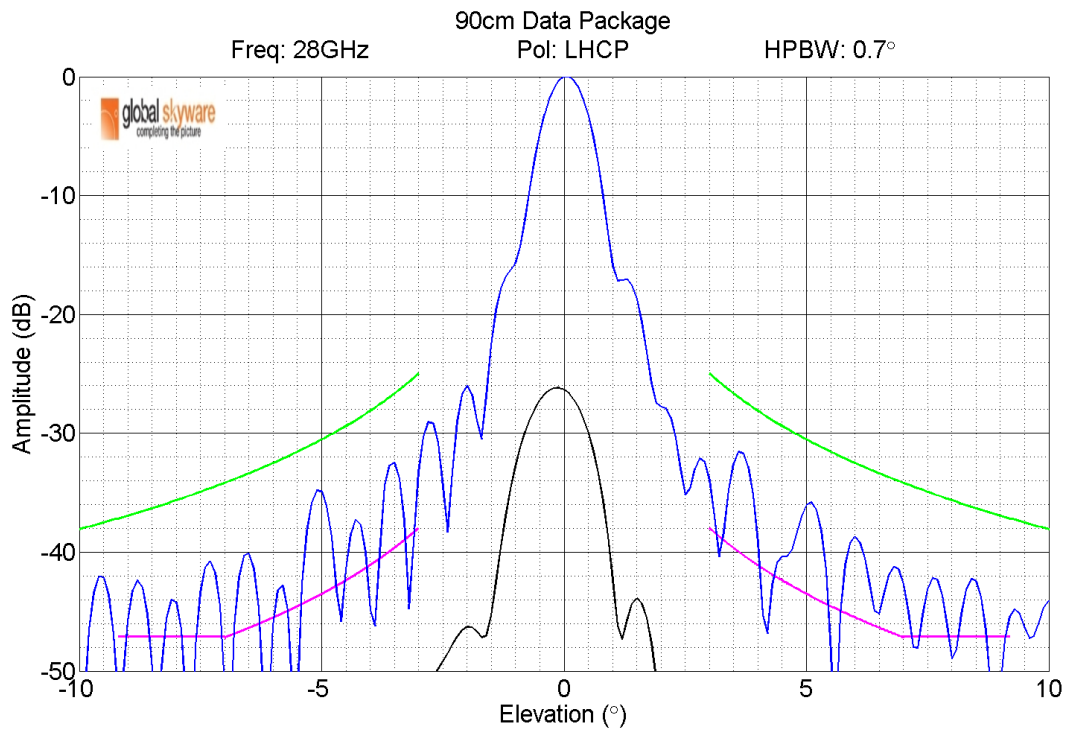
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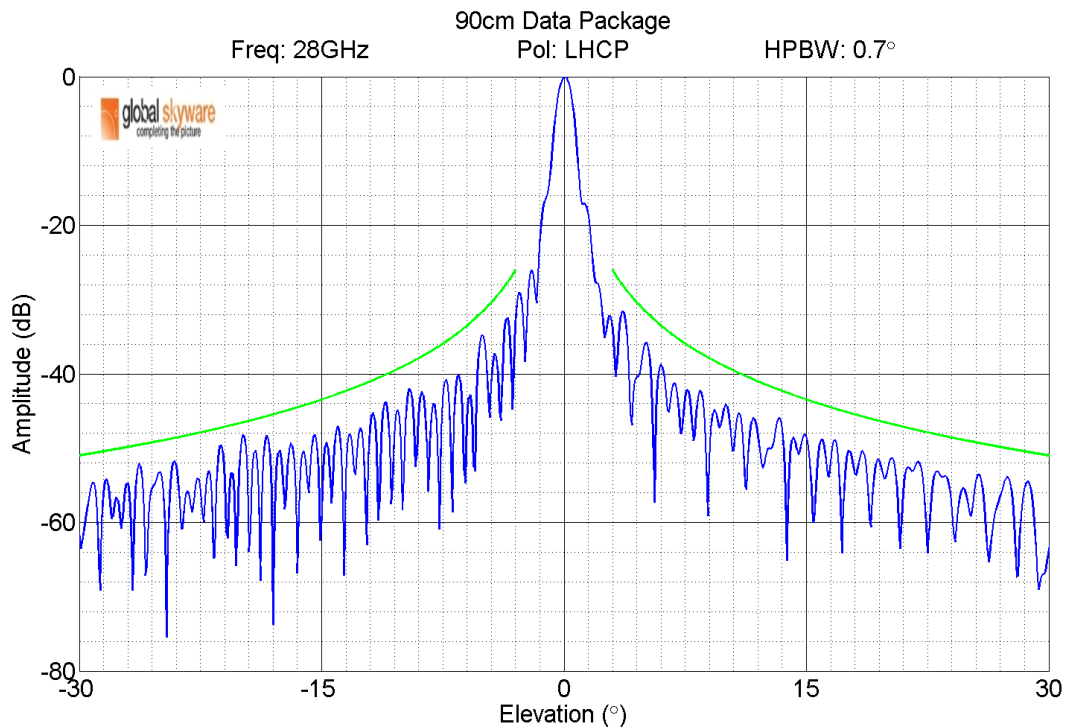
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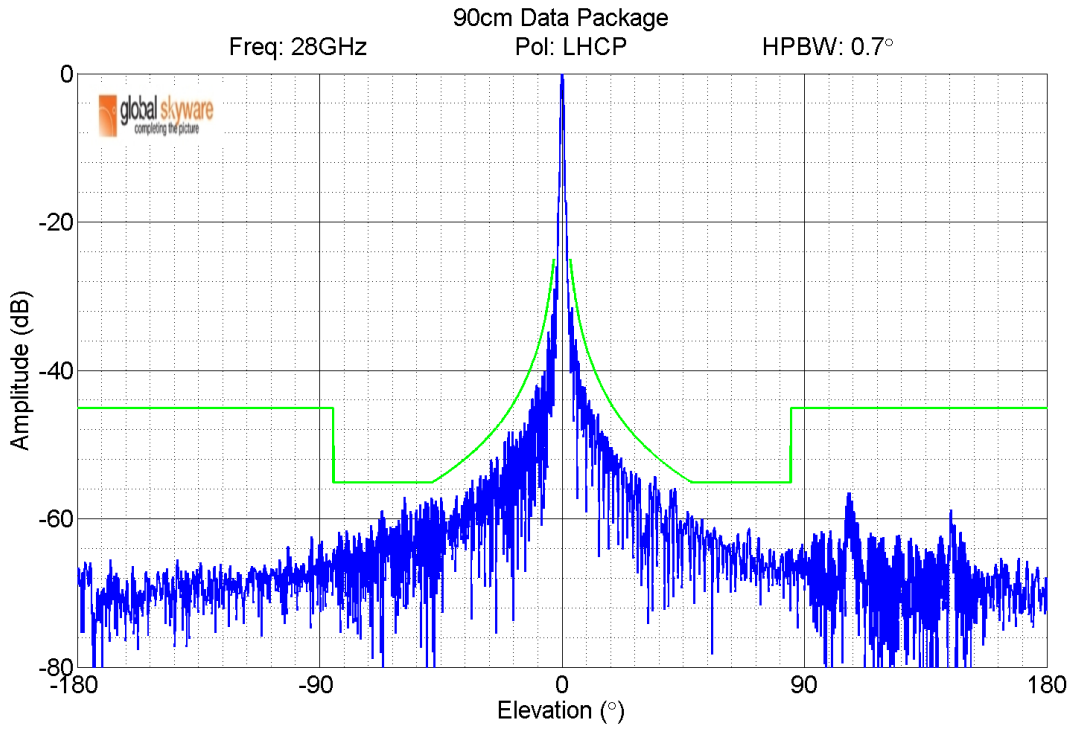
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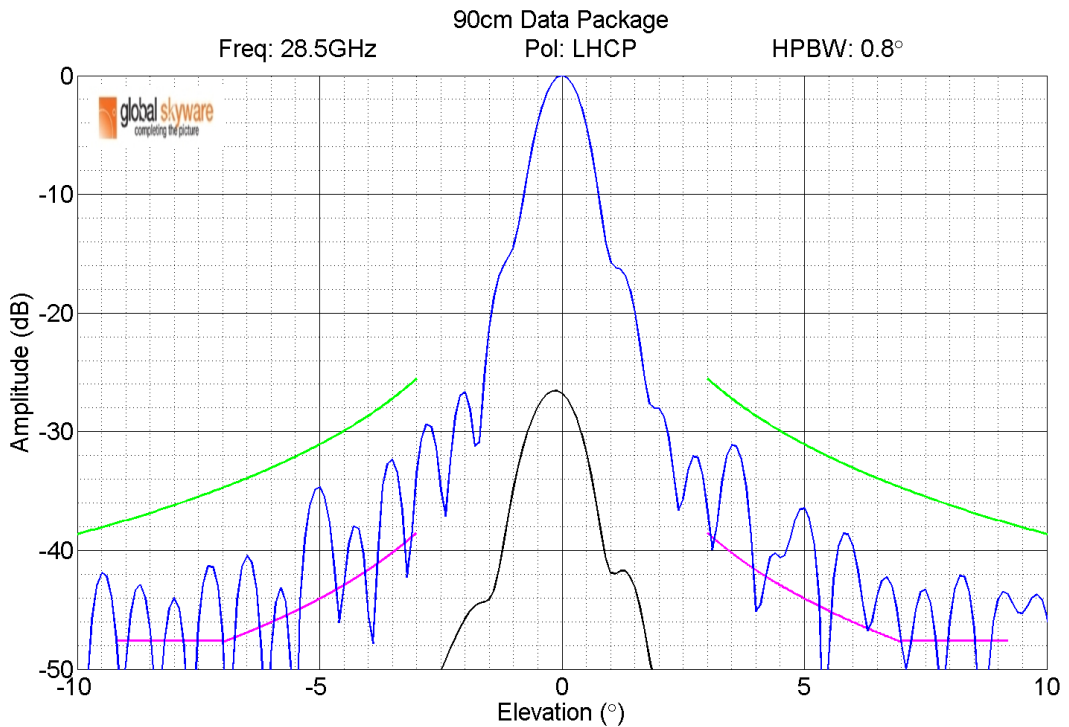
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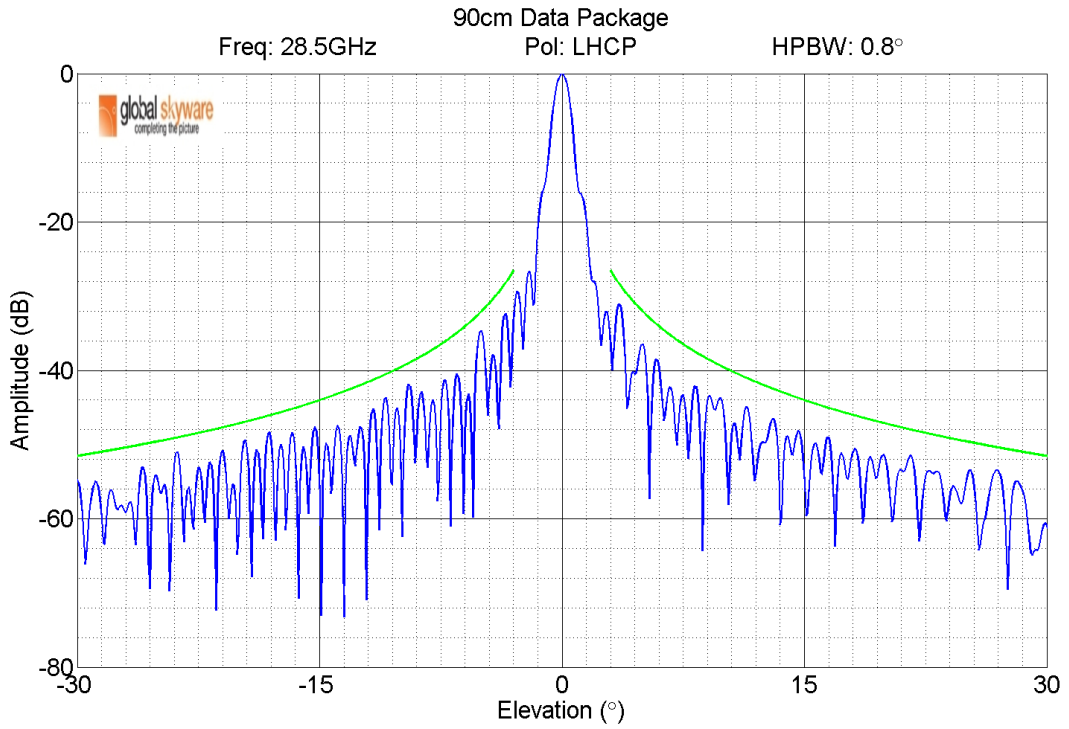
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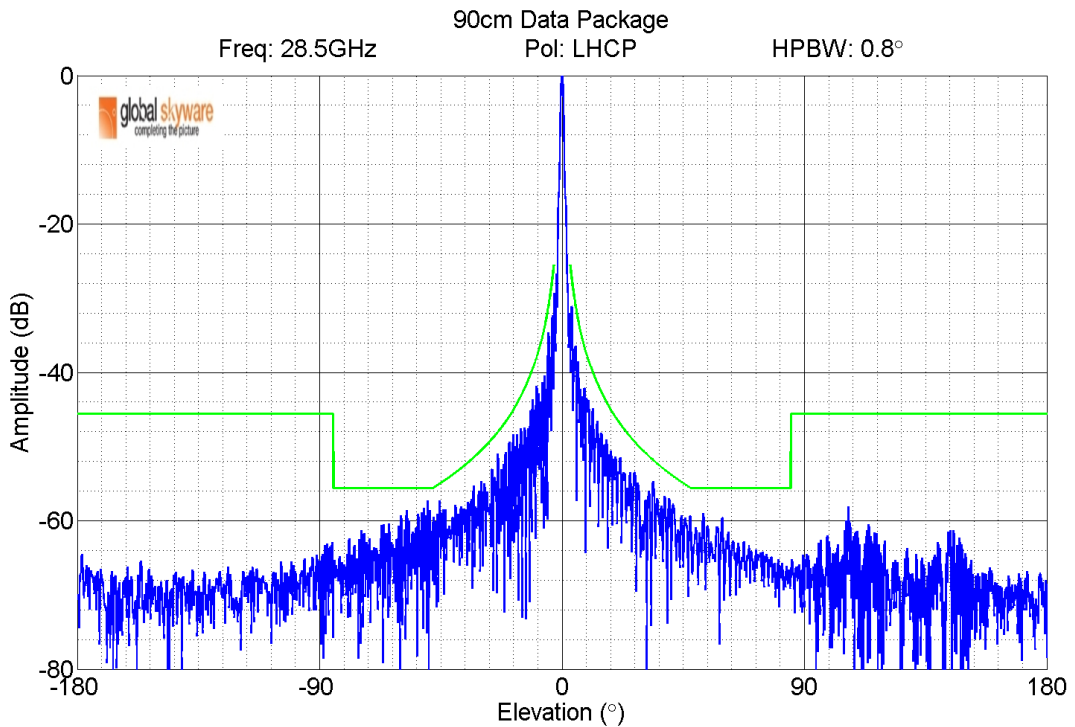
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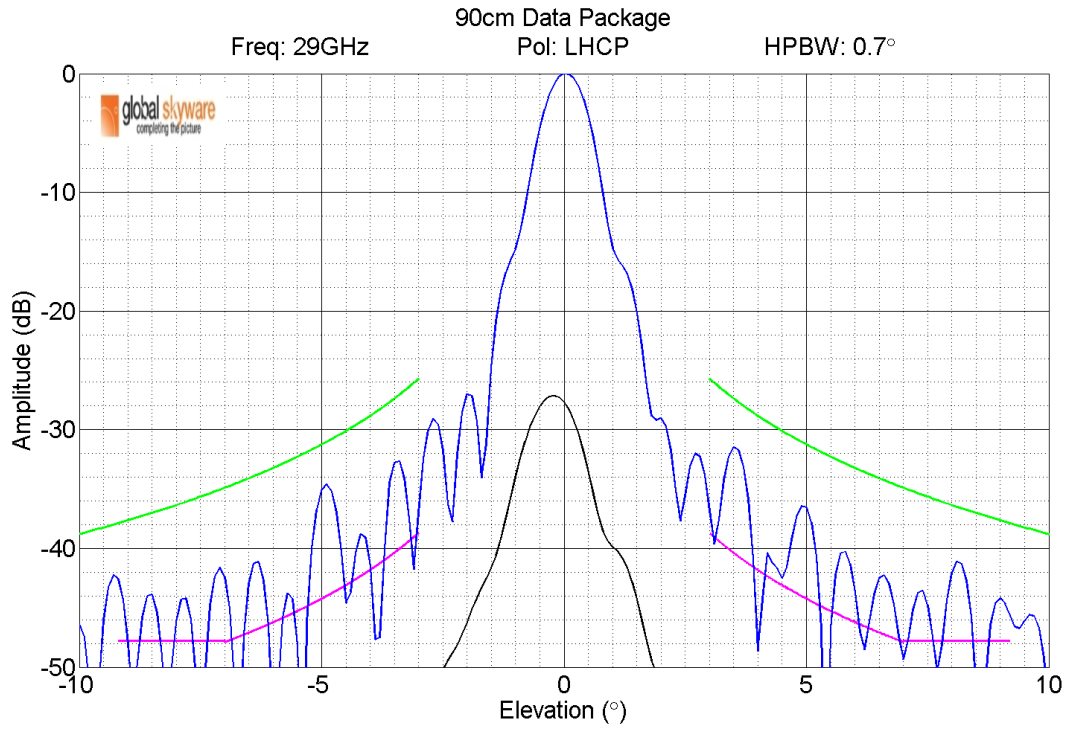
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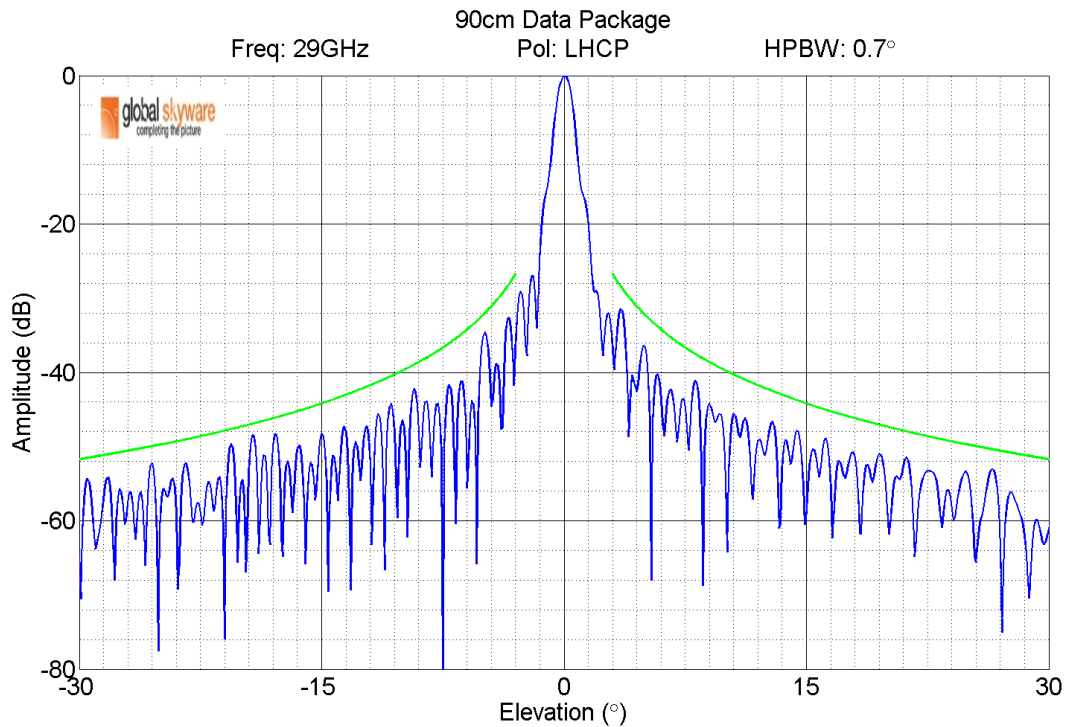
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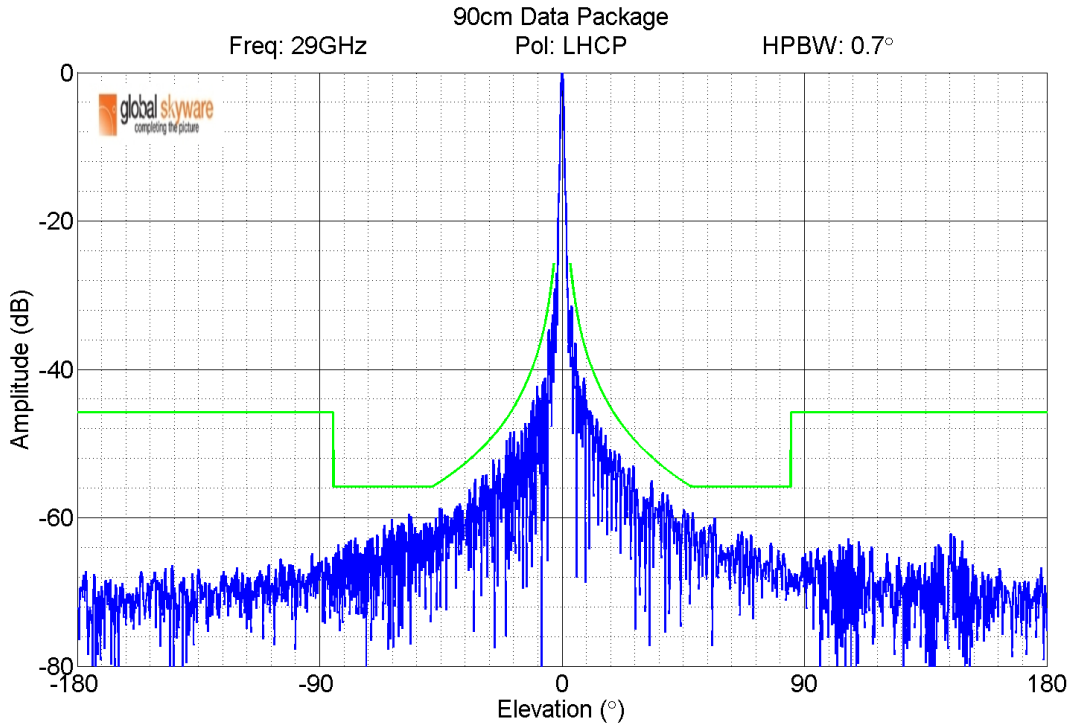
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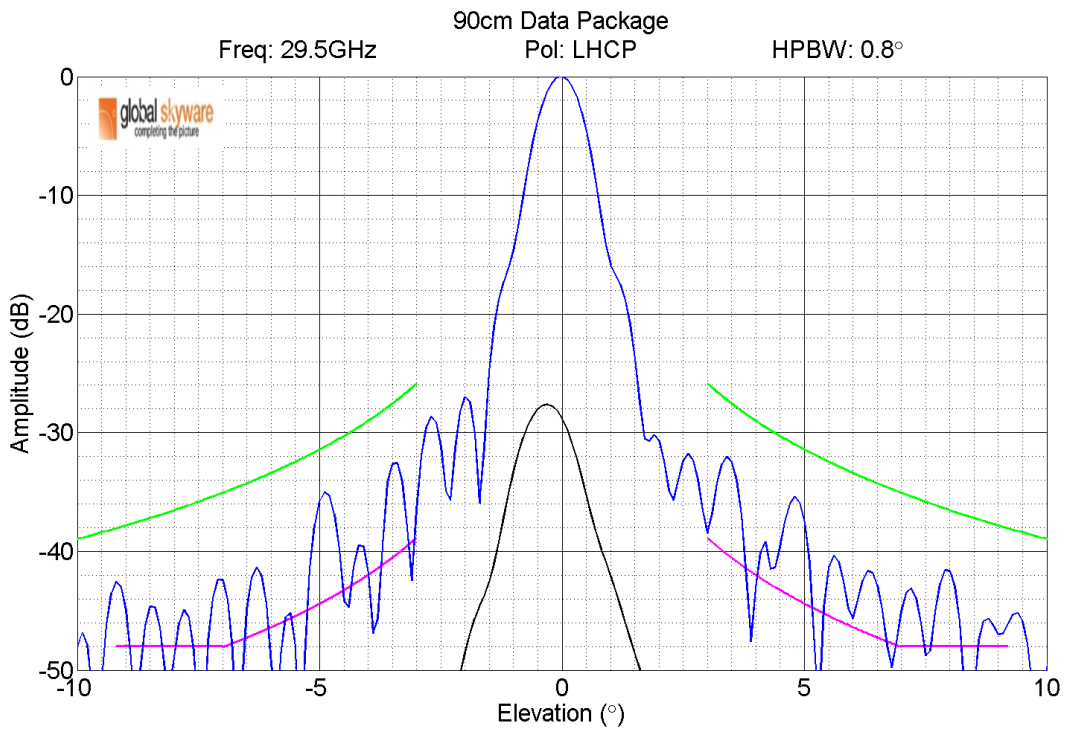
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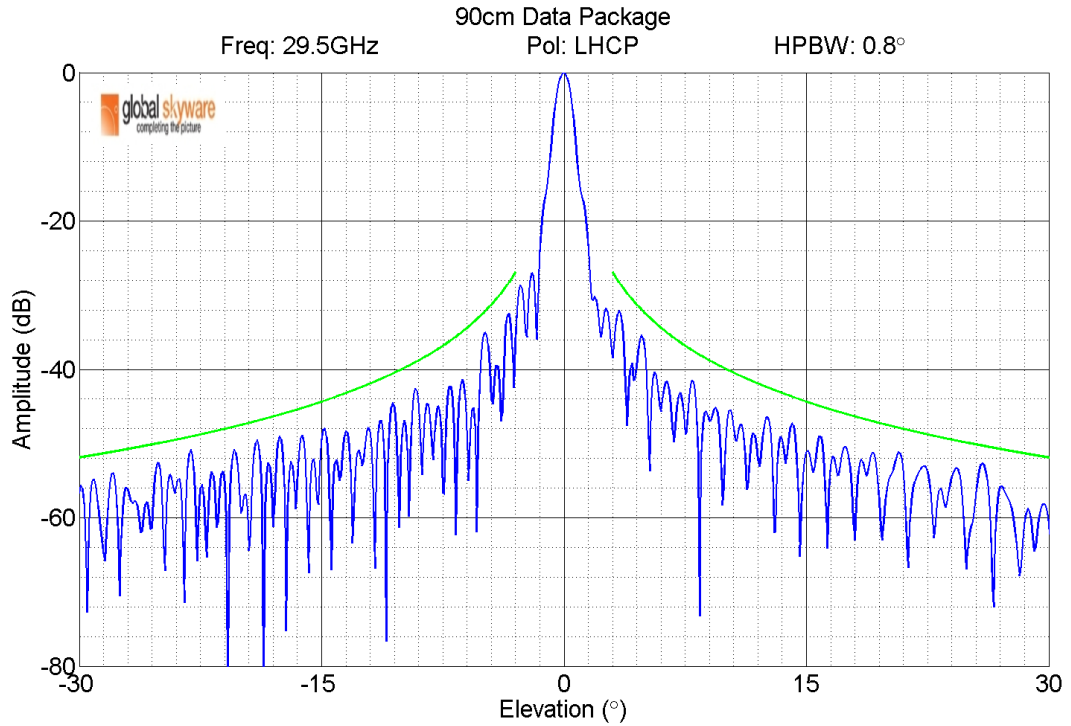
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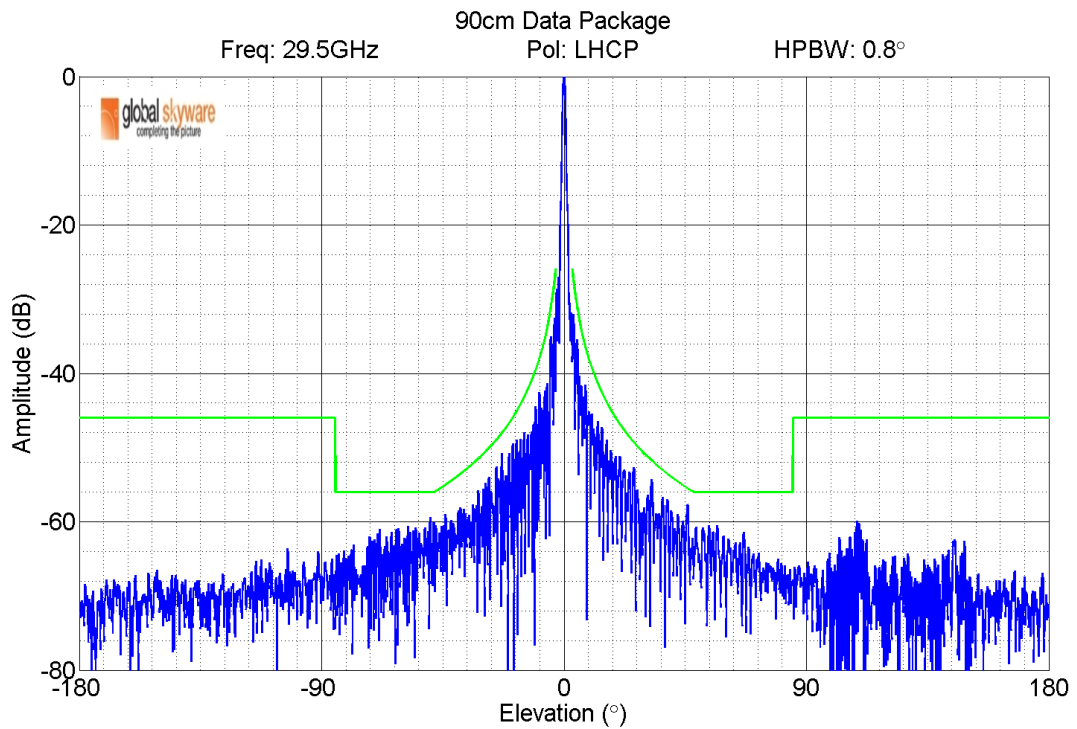
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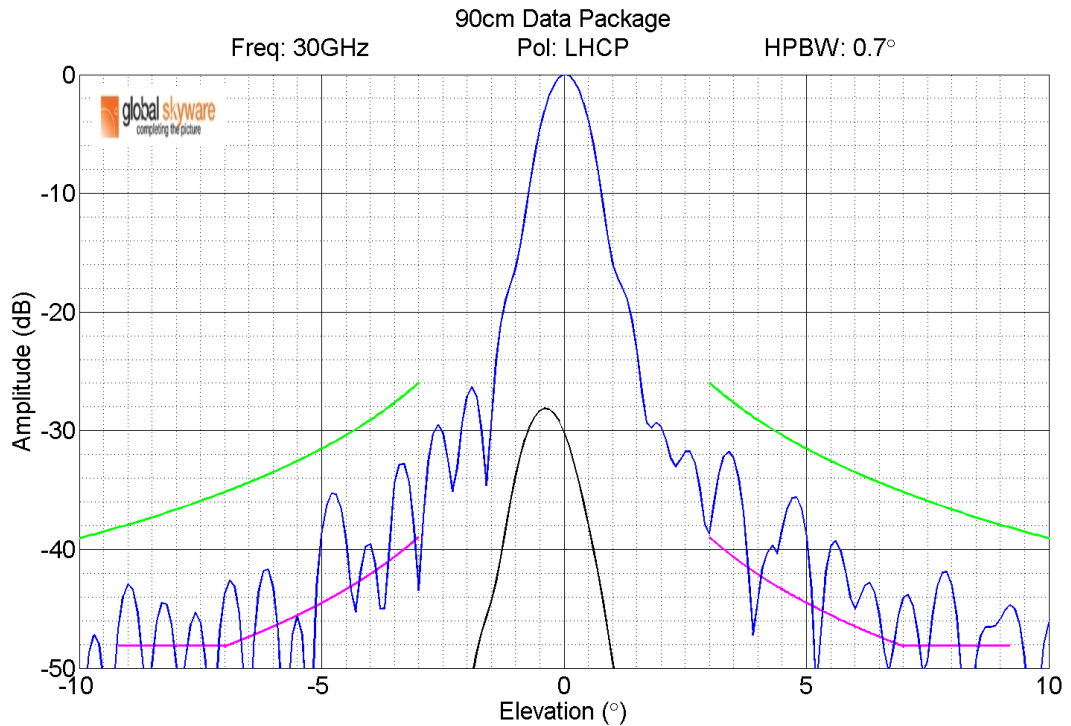
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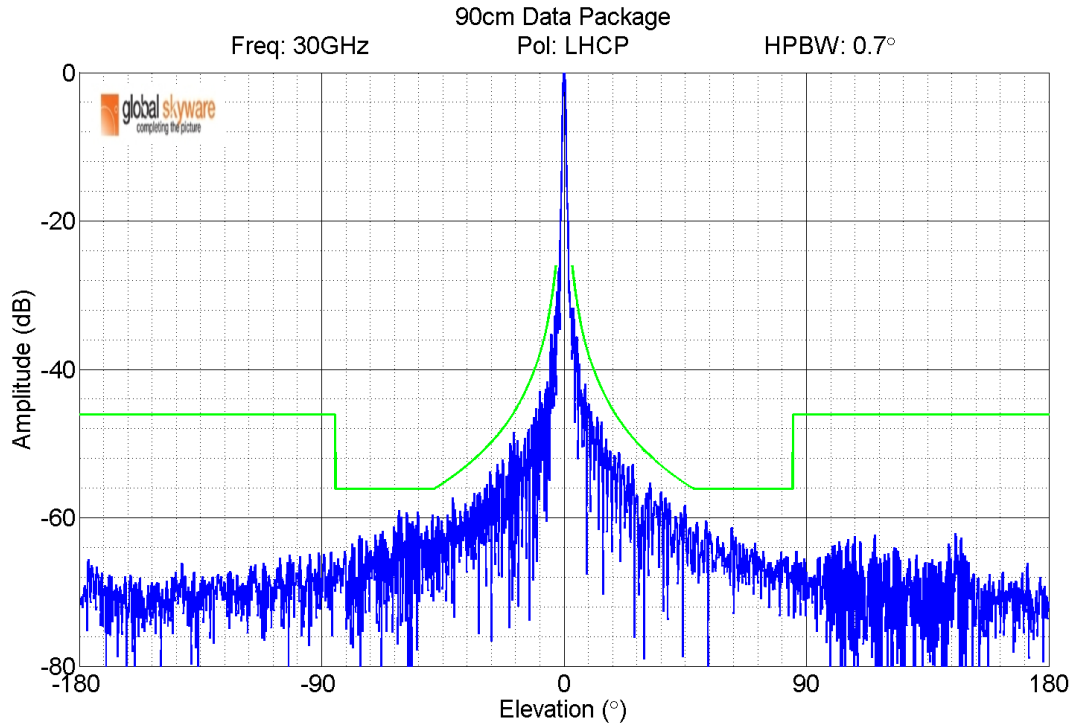
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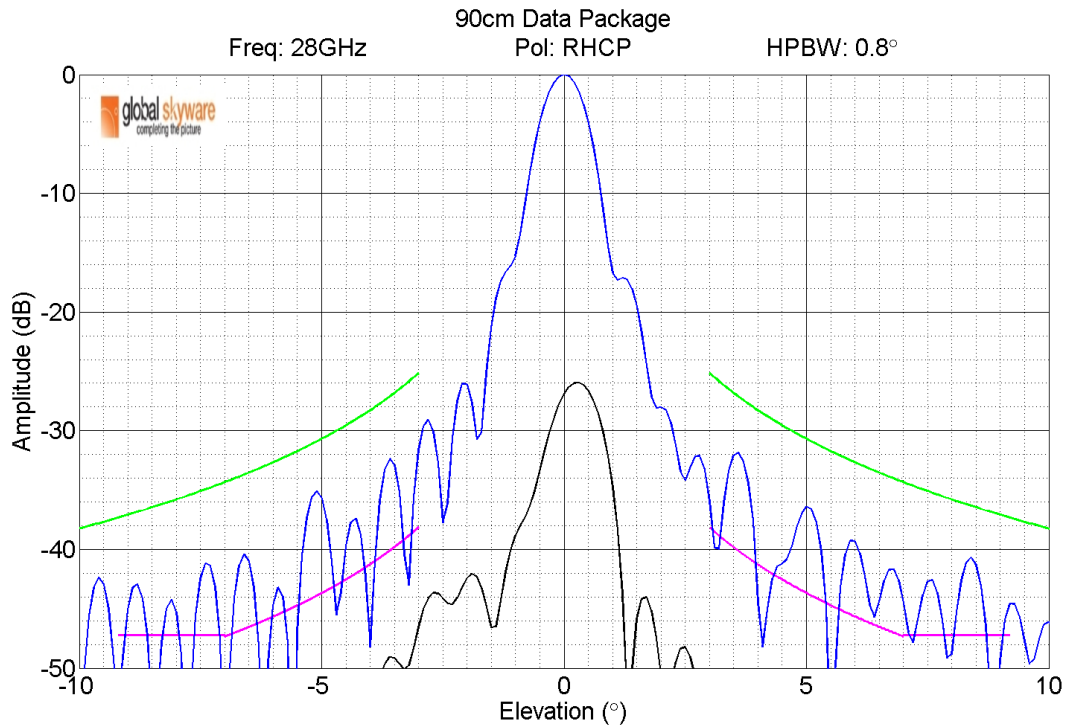
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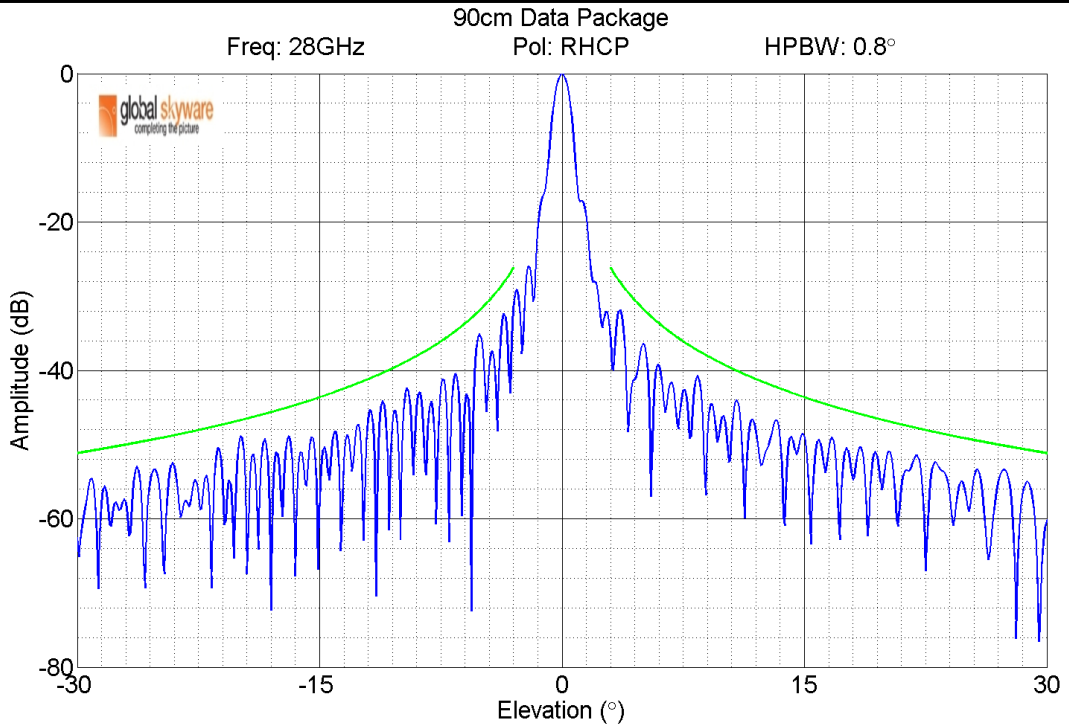
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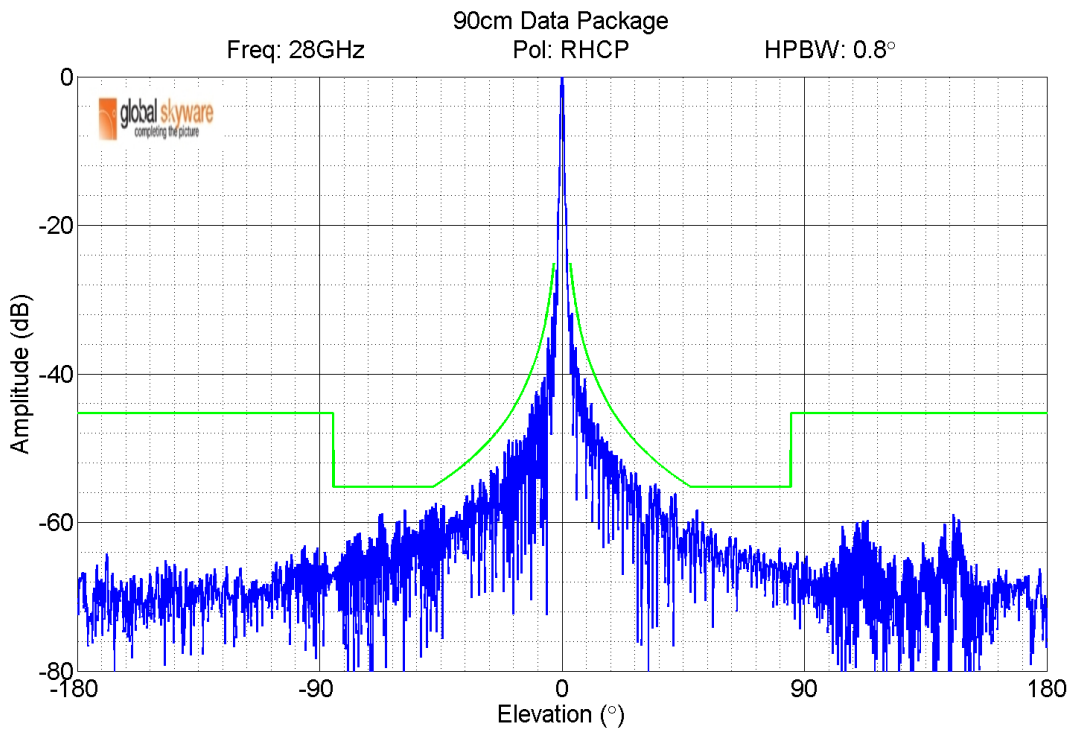
## 2.4 RHCP Elevation Radiation Patterns



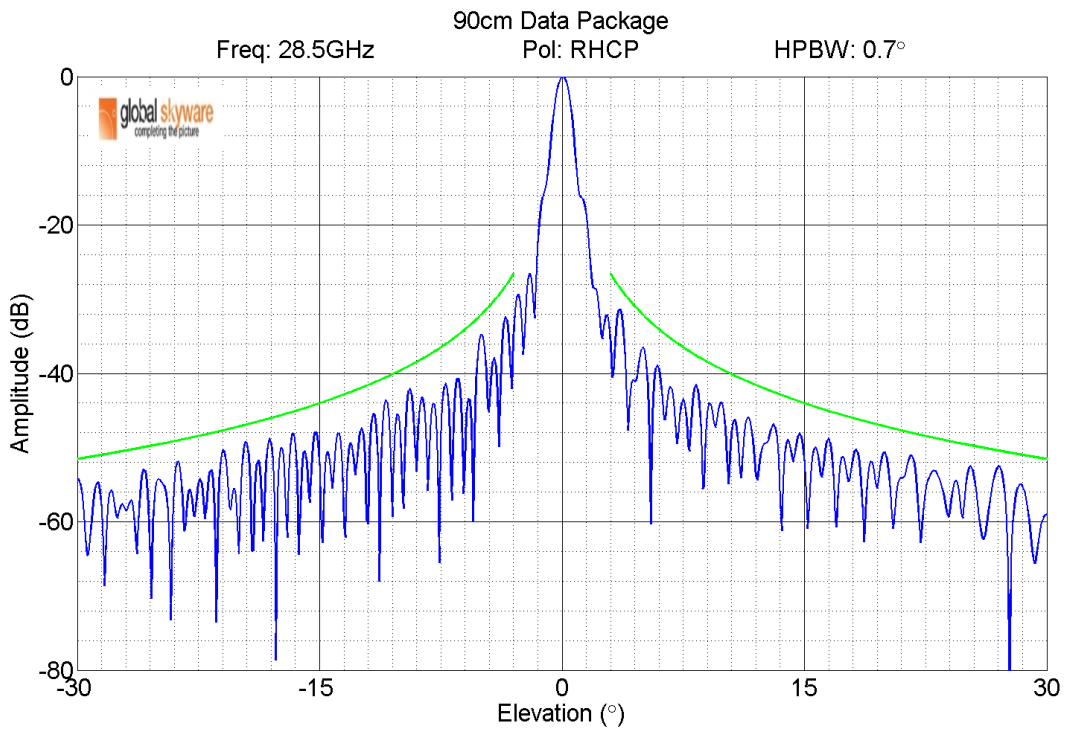
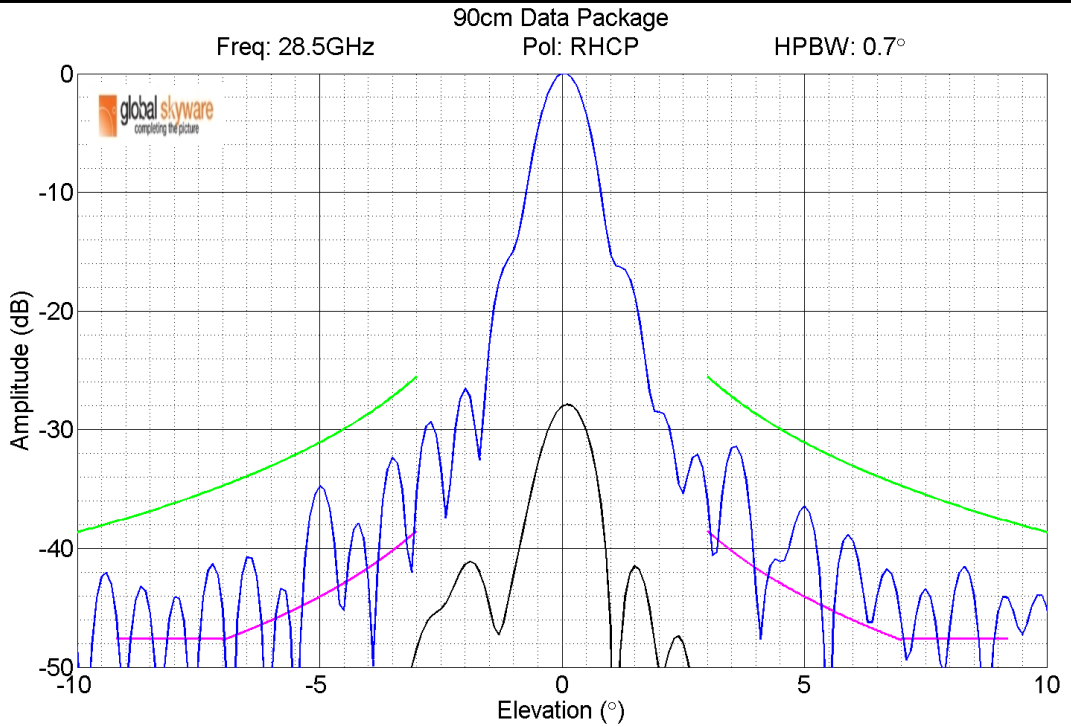
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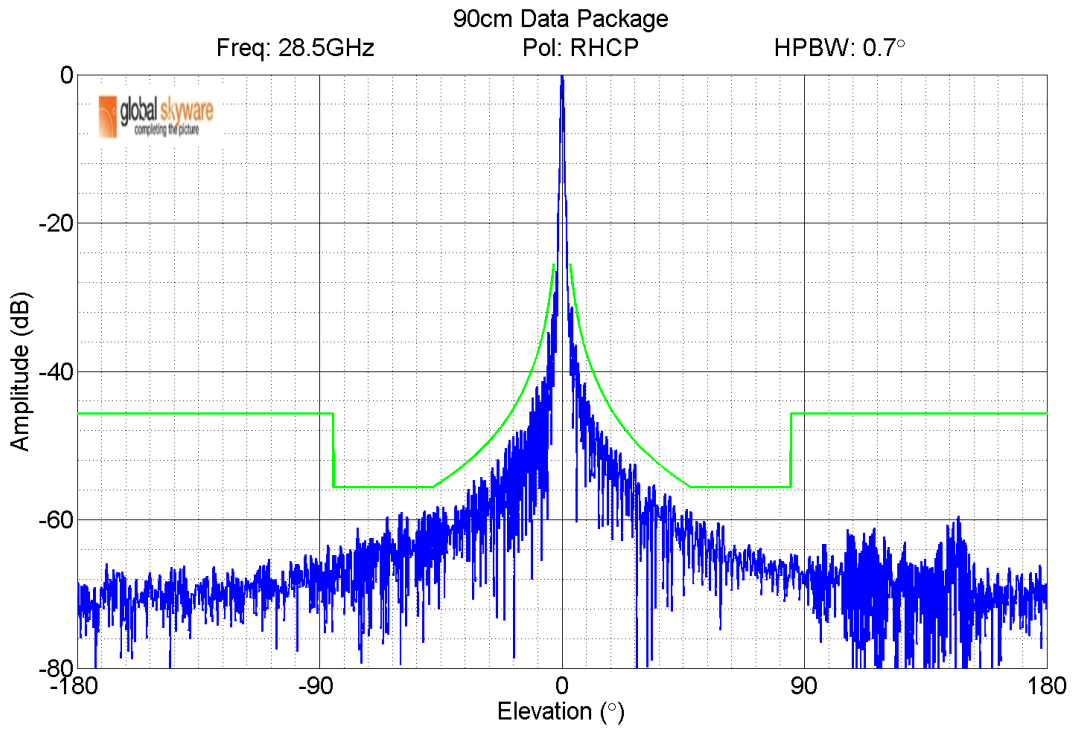


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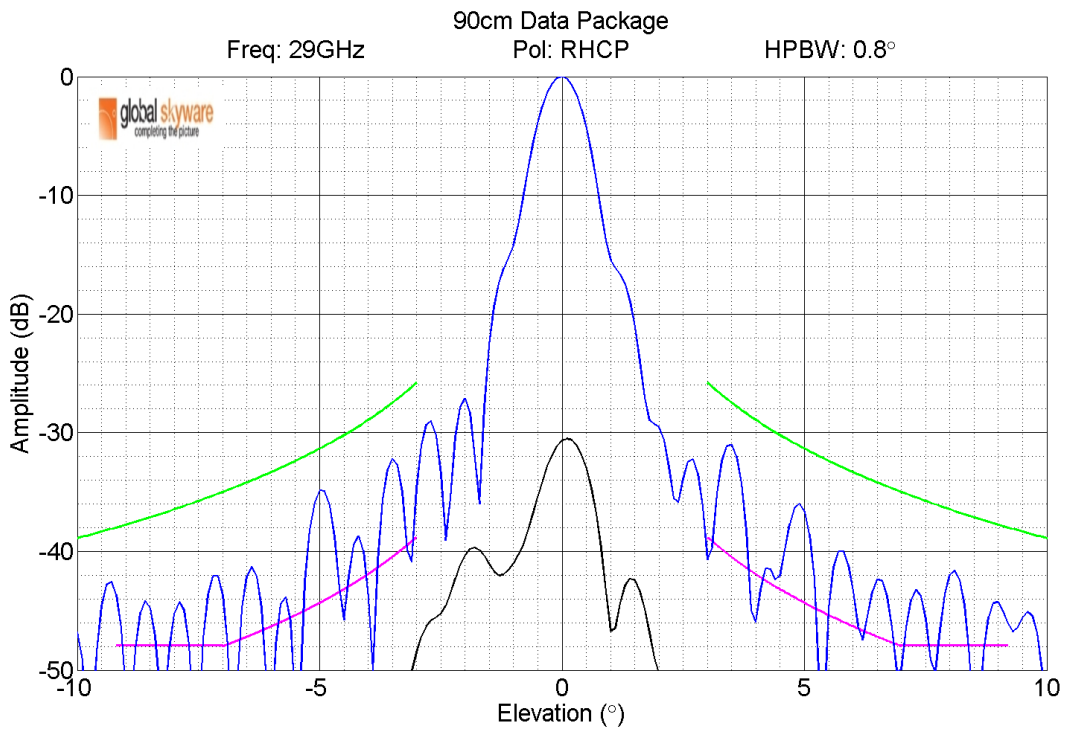


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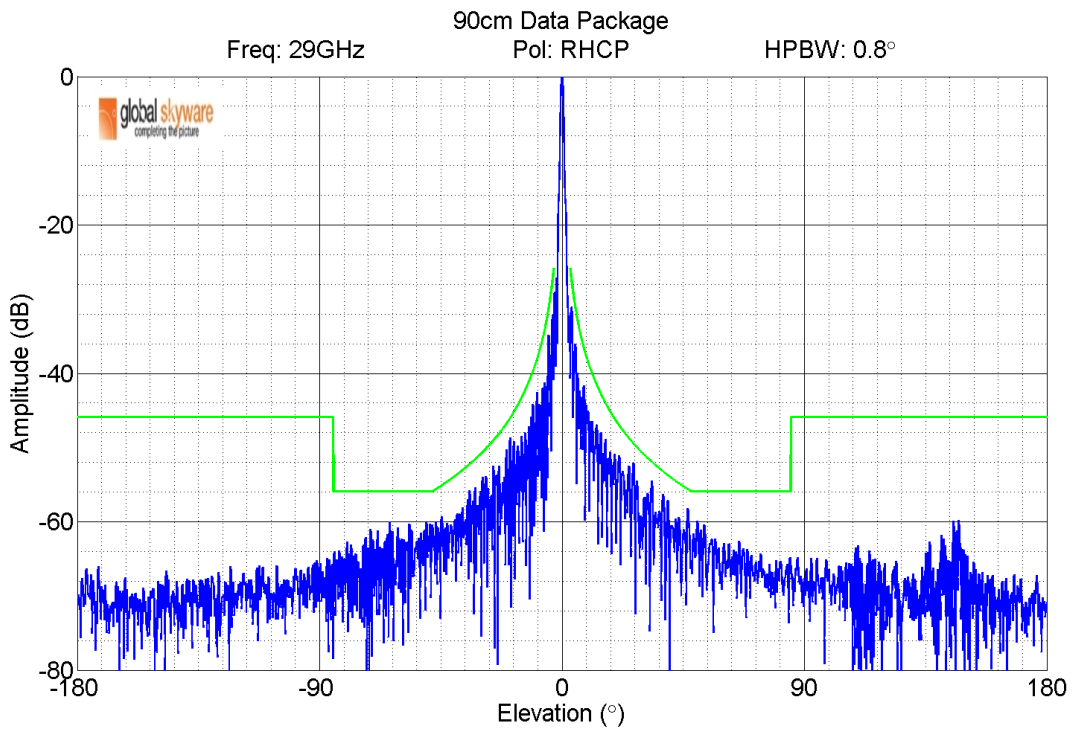
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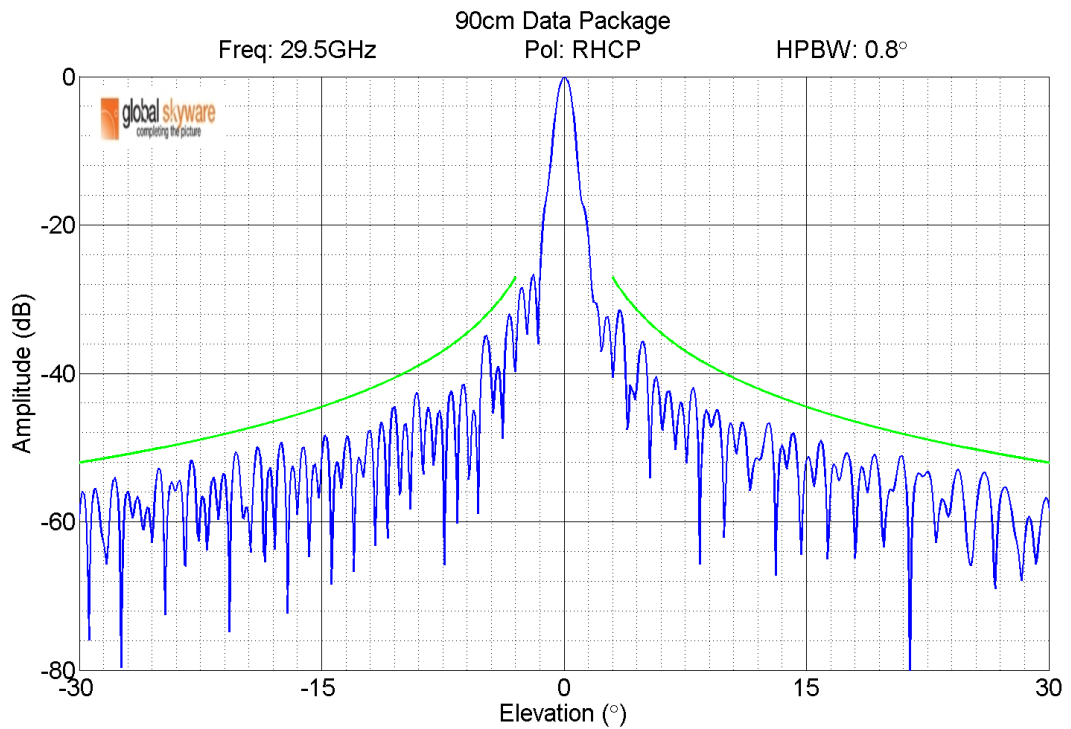
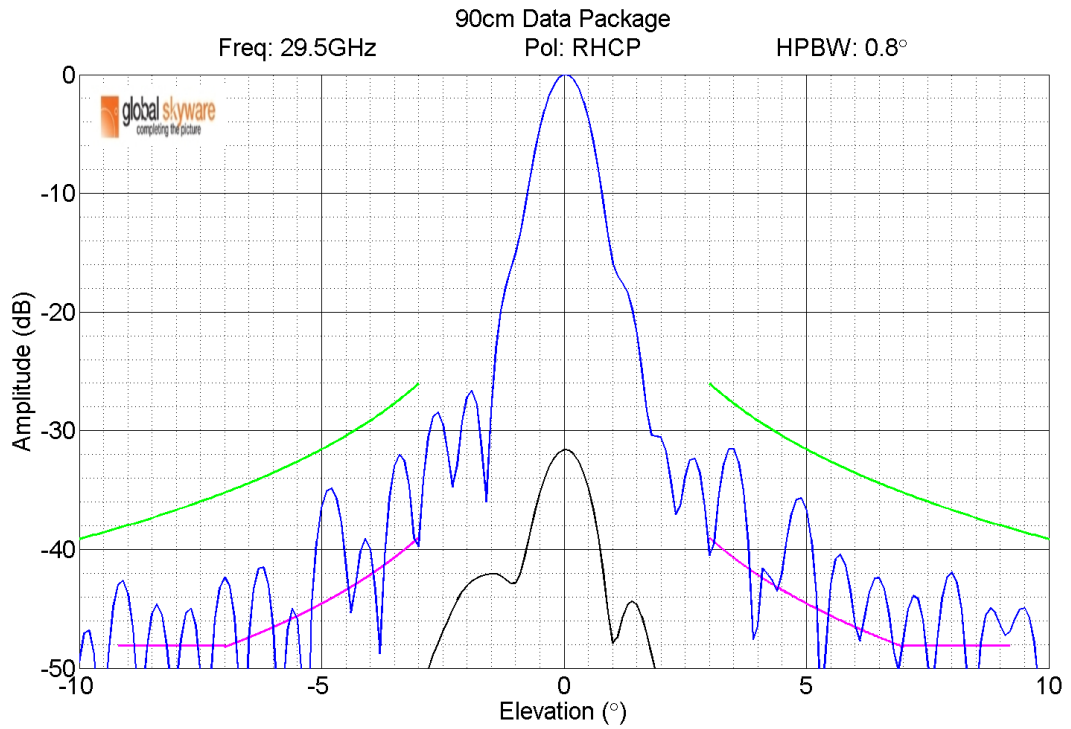
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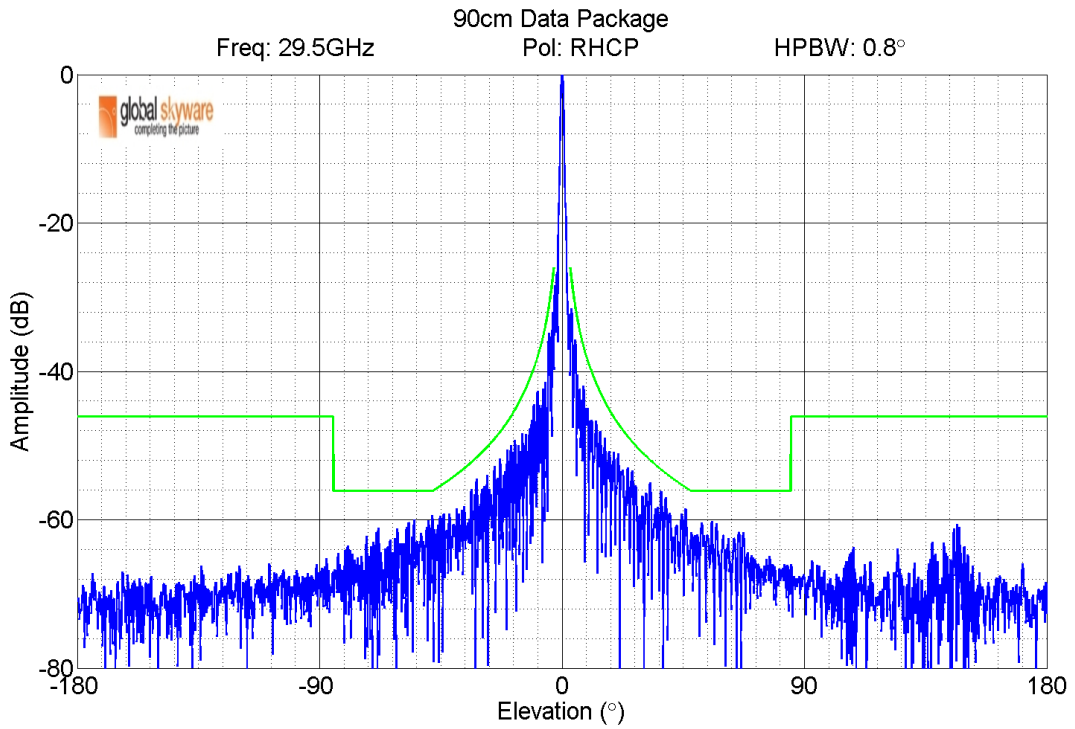


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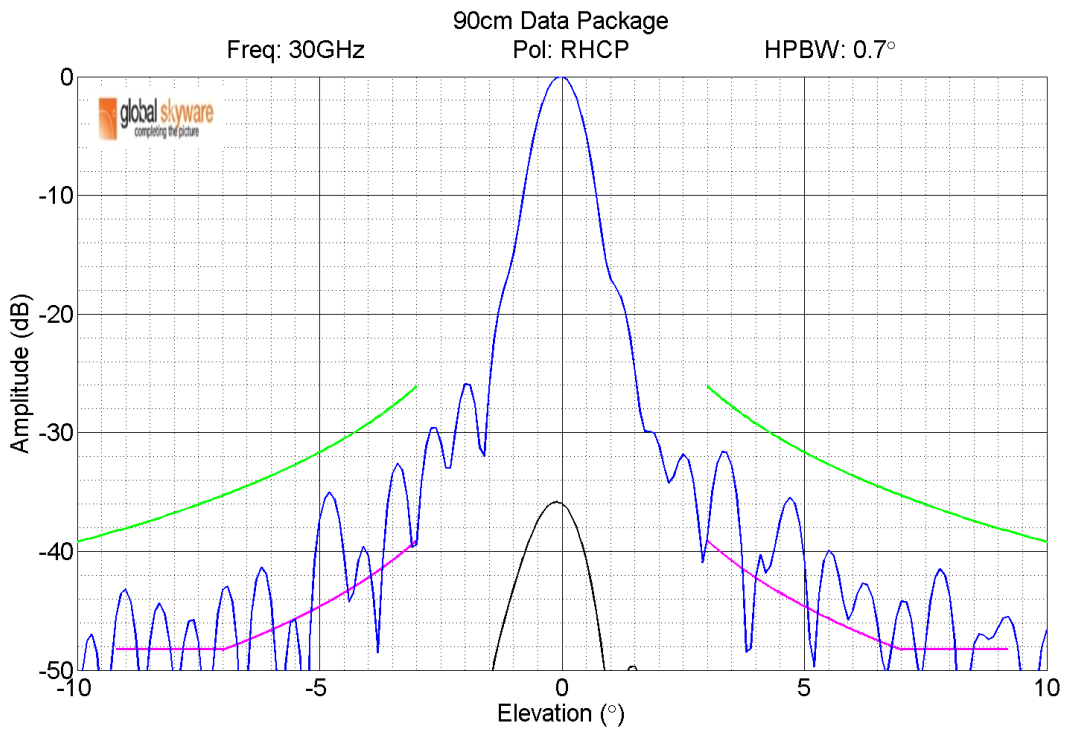


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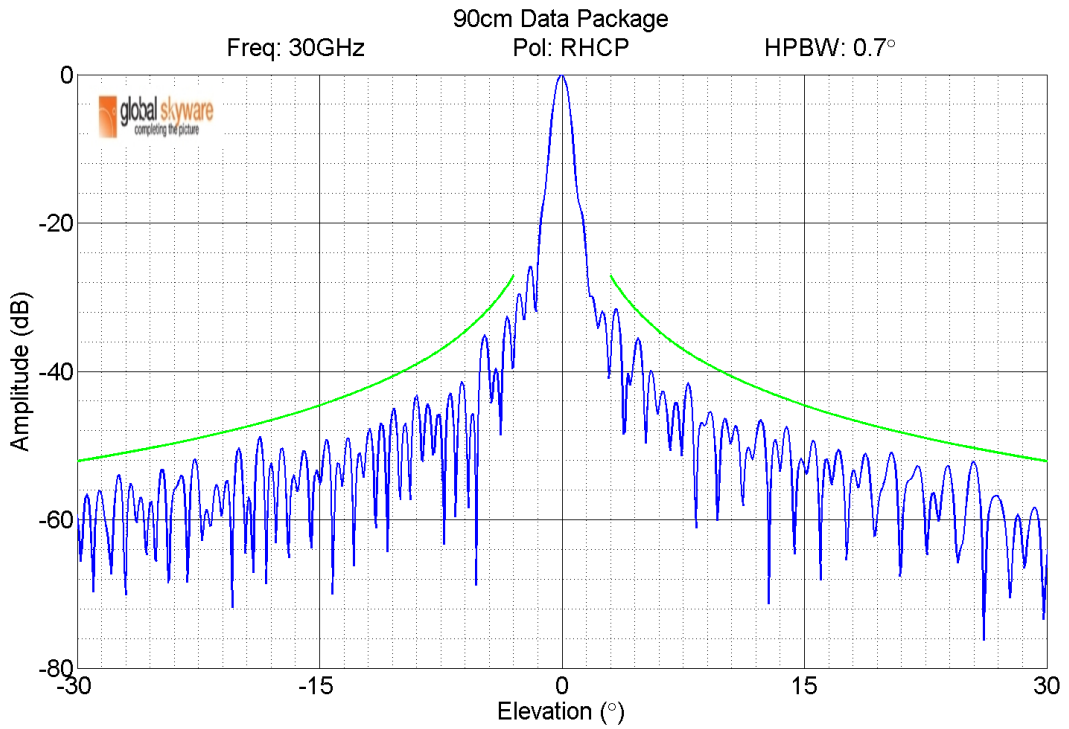




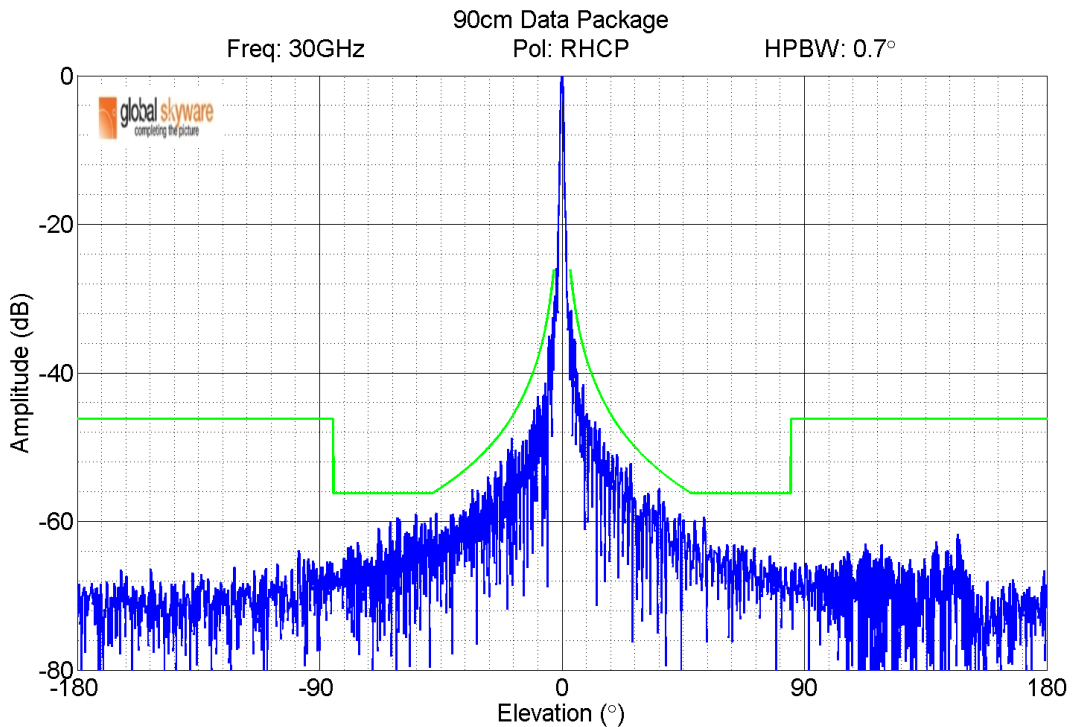
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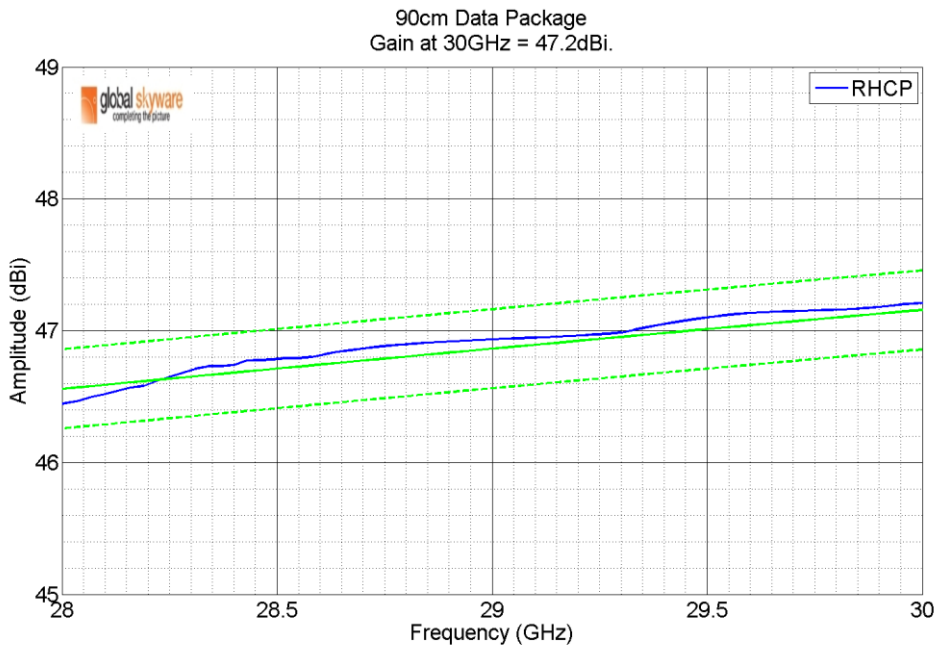
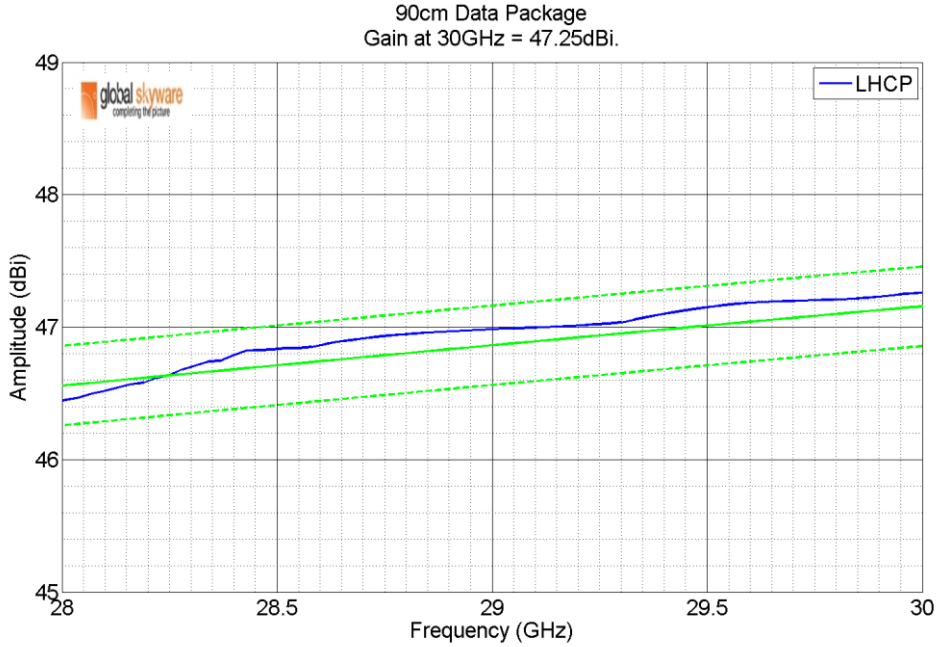


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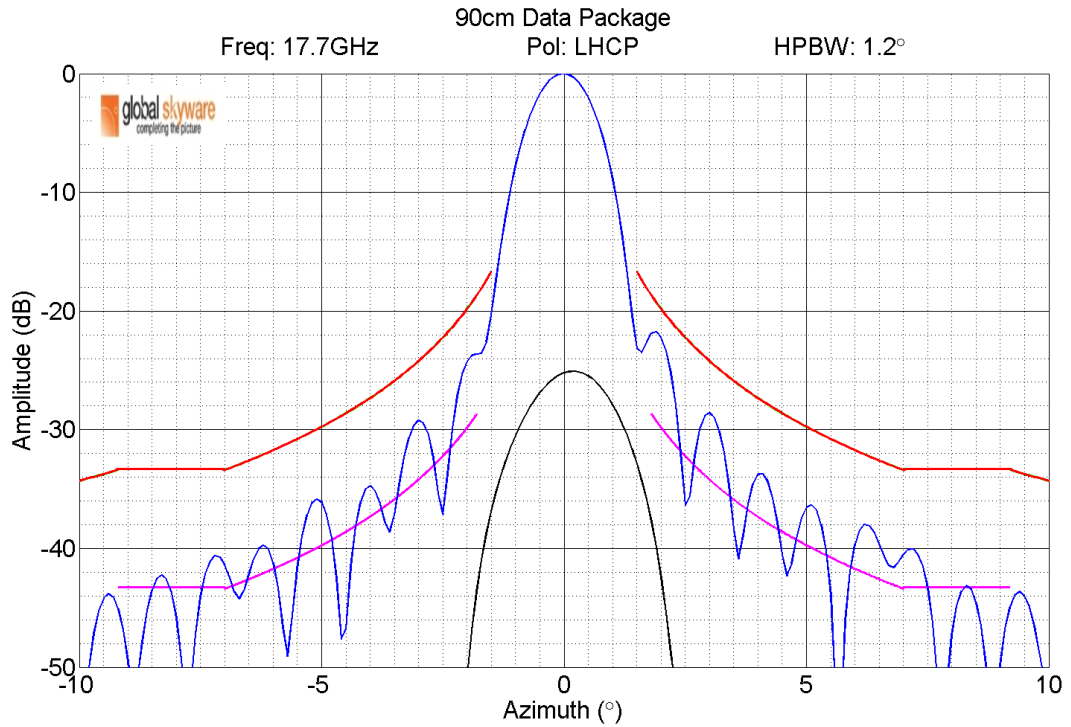


2.5 TX Gain

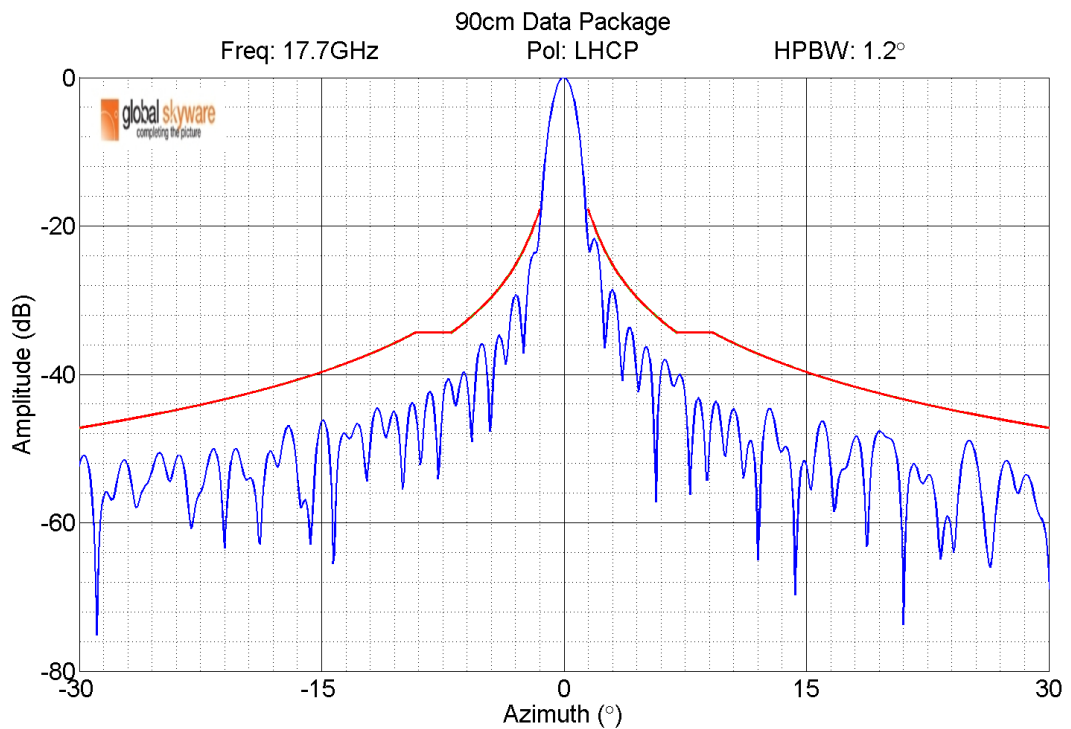


### 3 RX Antenna Range Data

#### 3.1 LHCP Azimuth Radiation Patterns



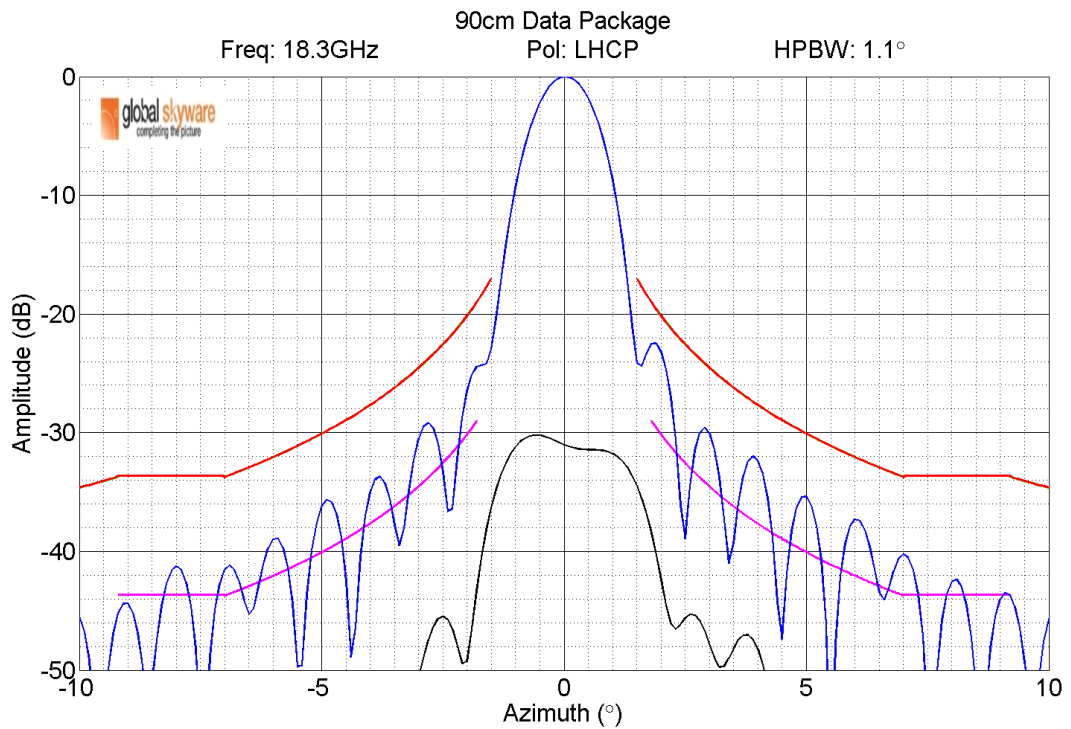
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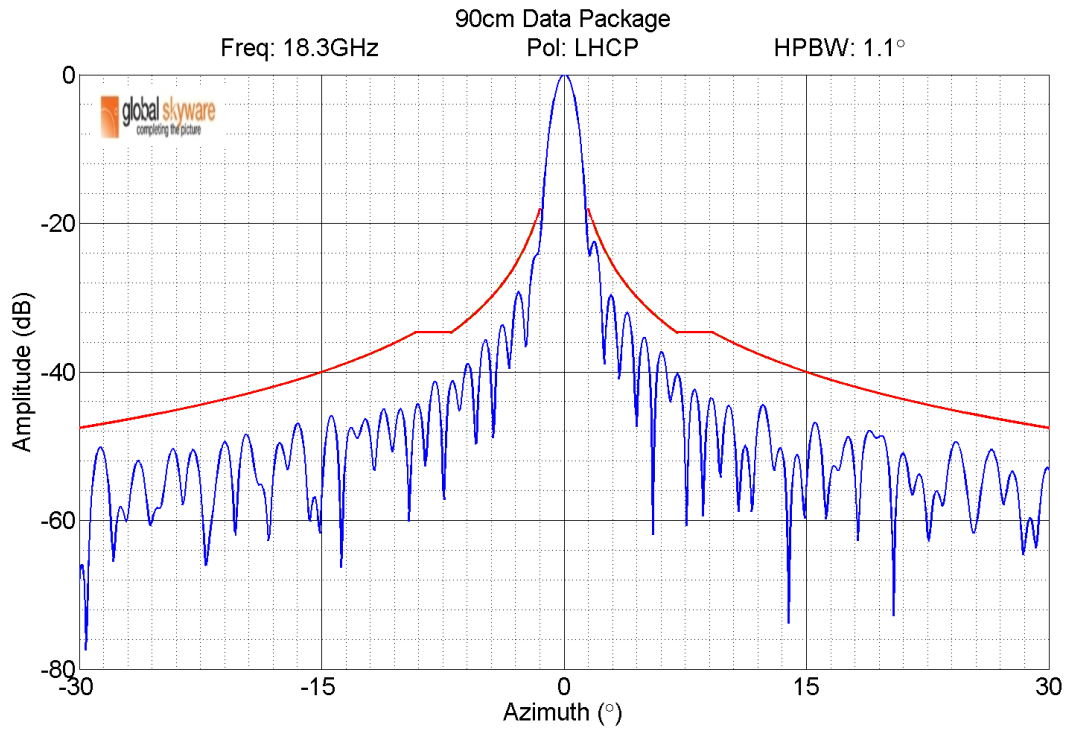
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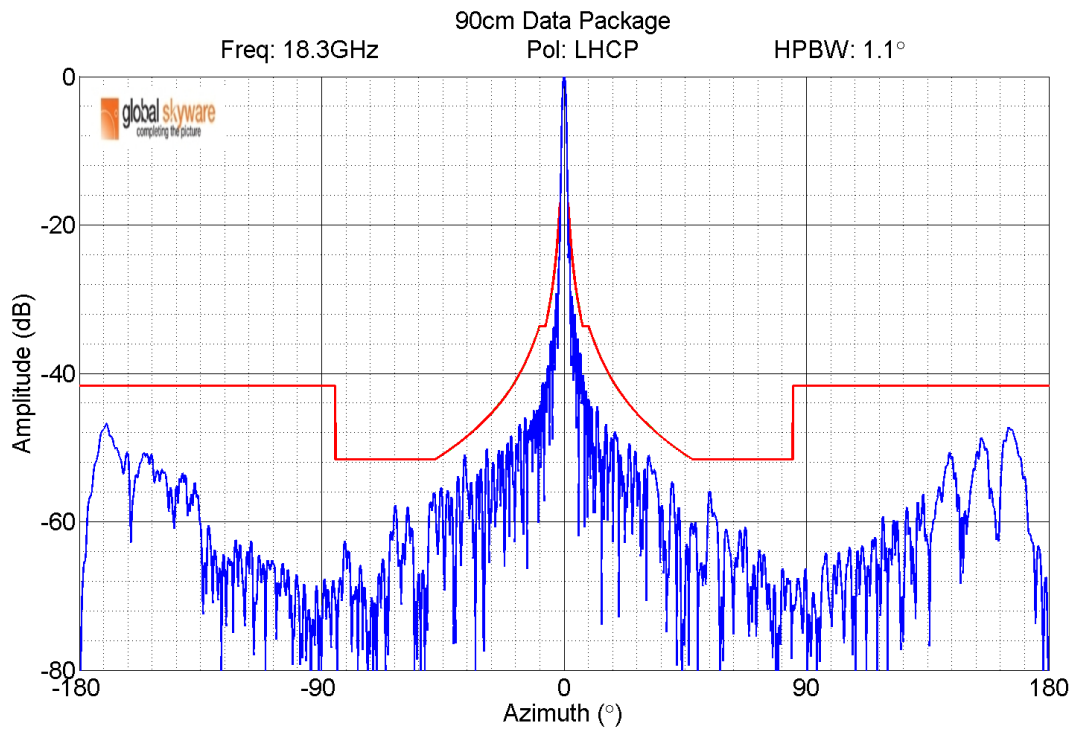
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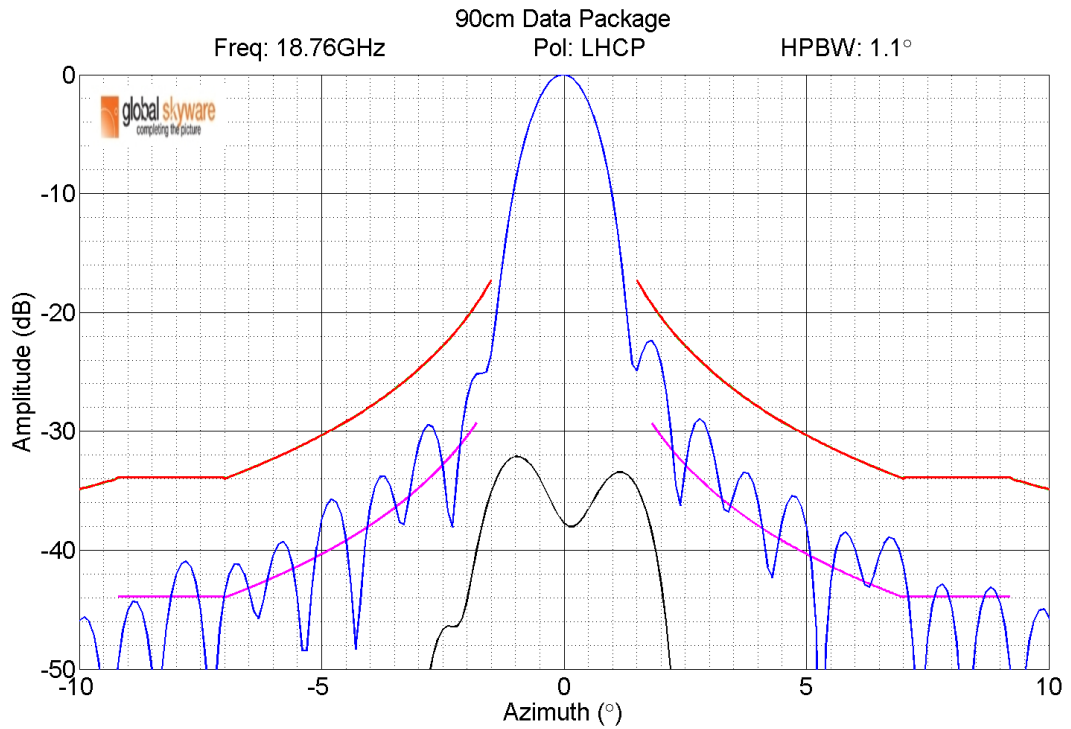
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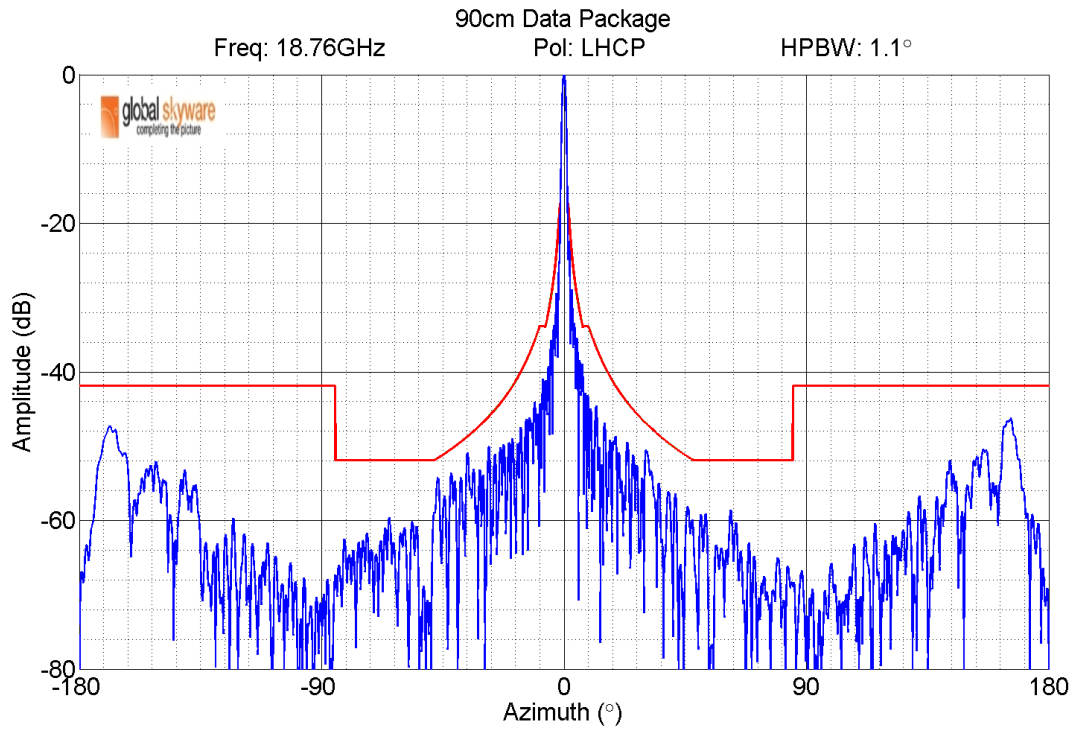
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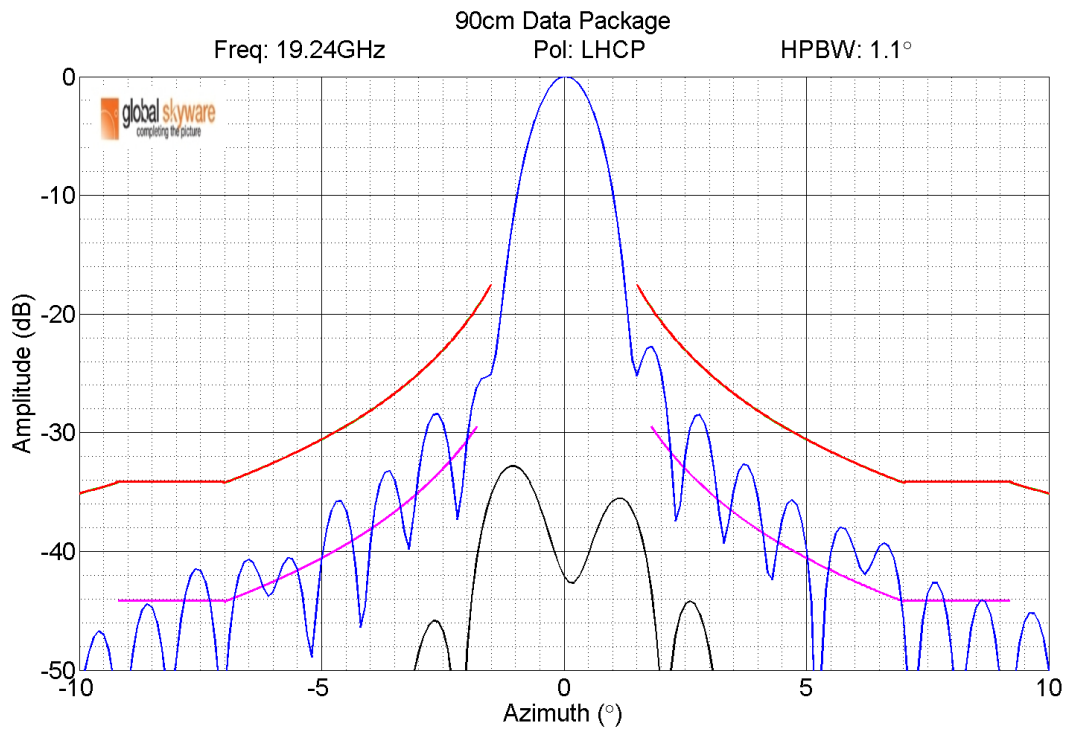
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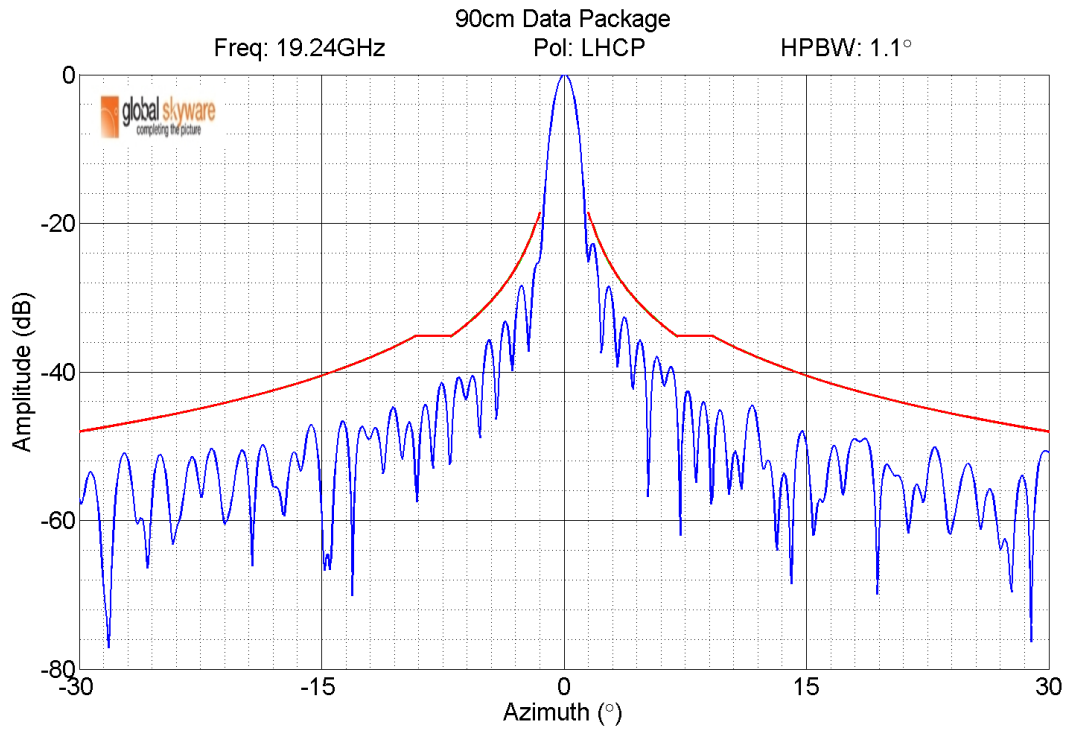
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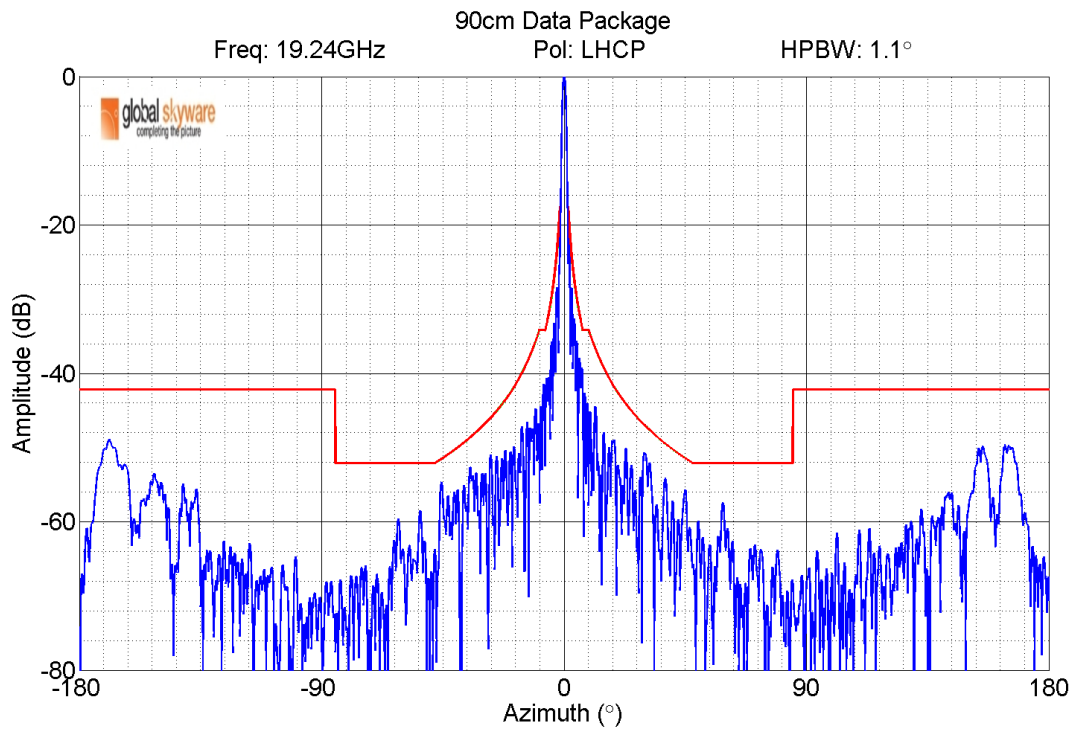
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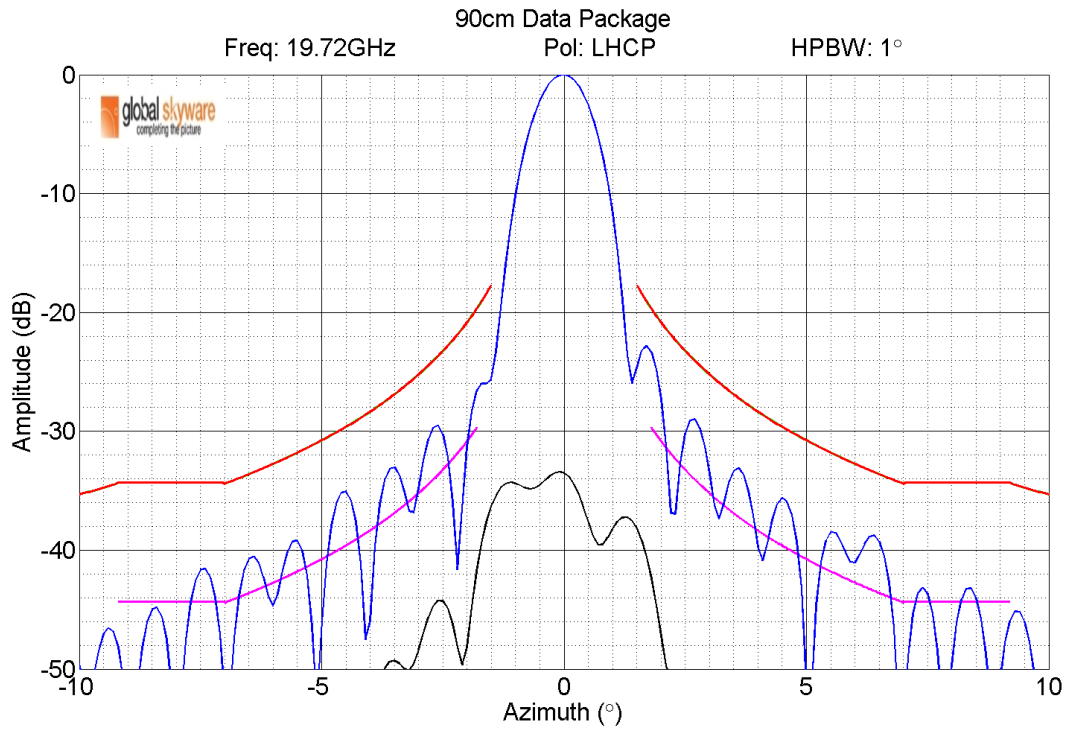


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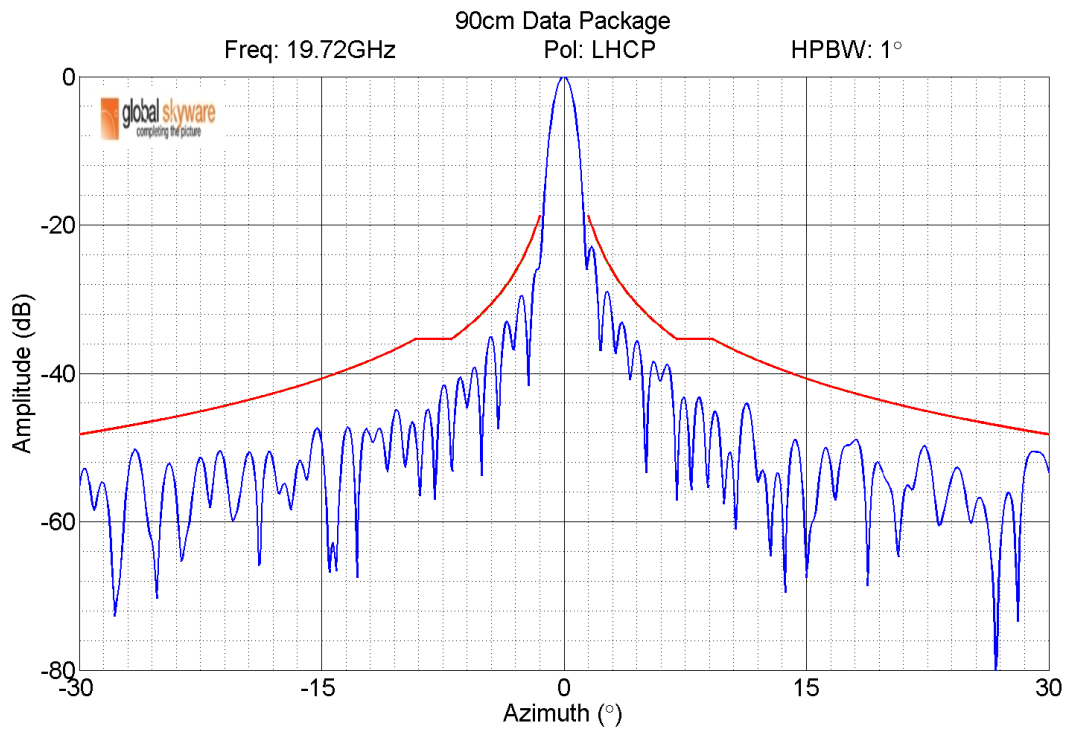


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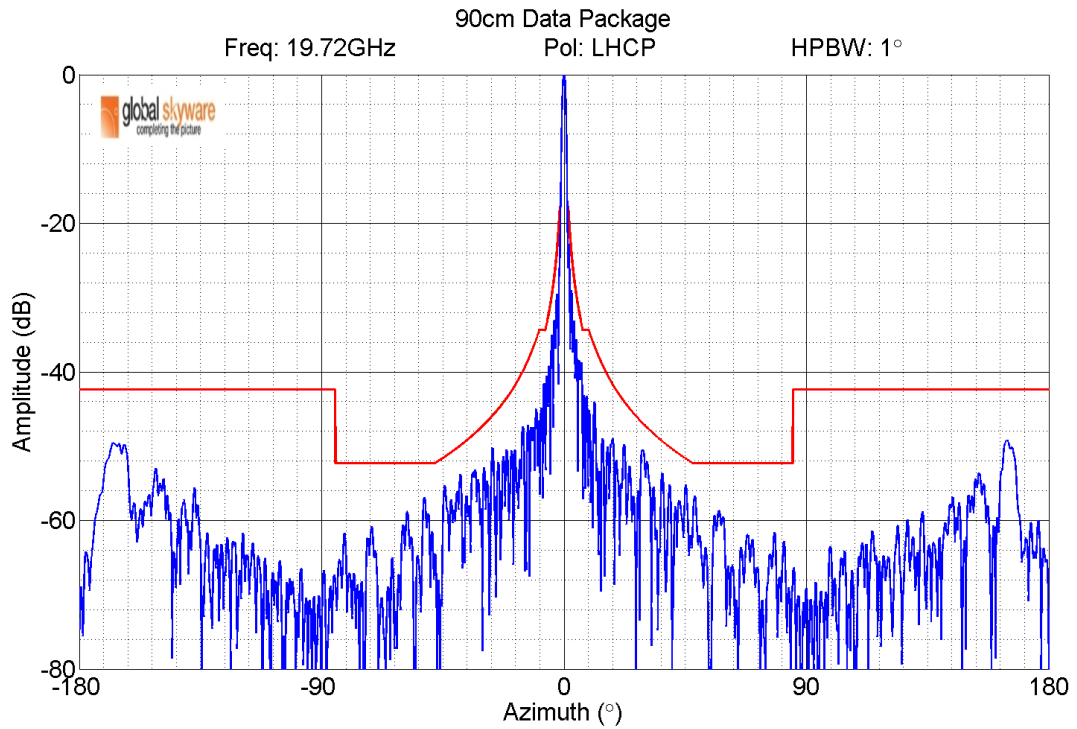




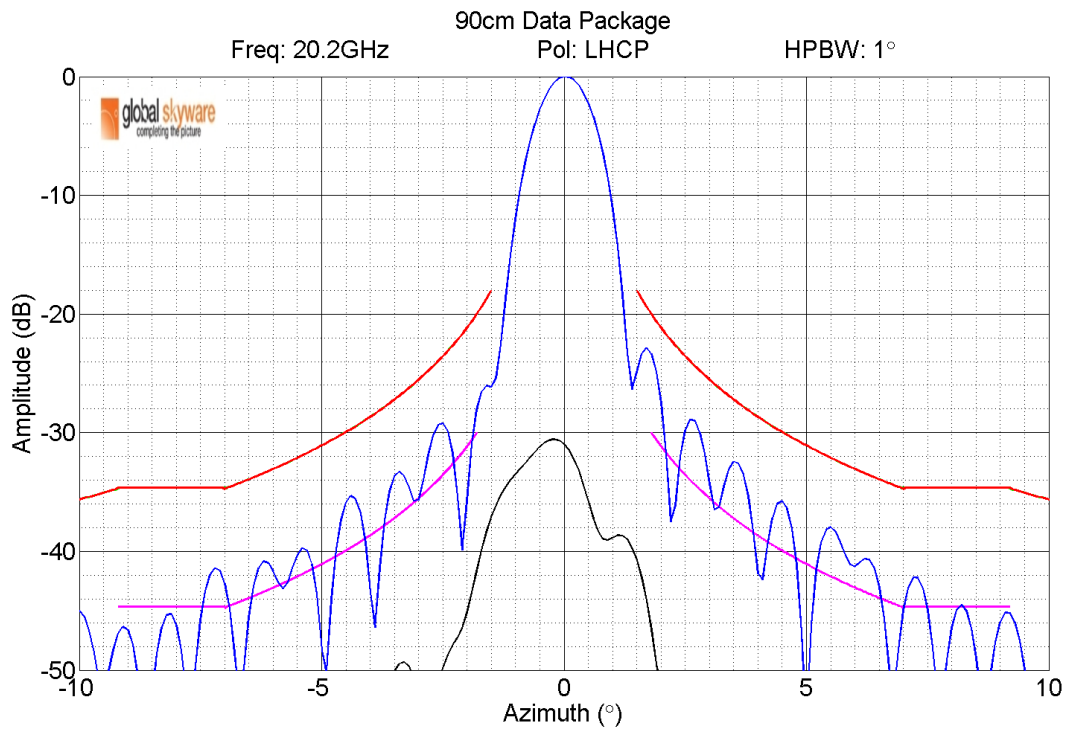
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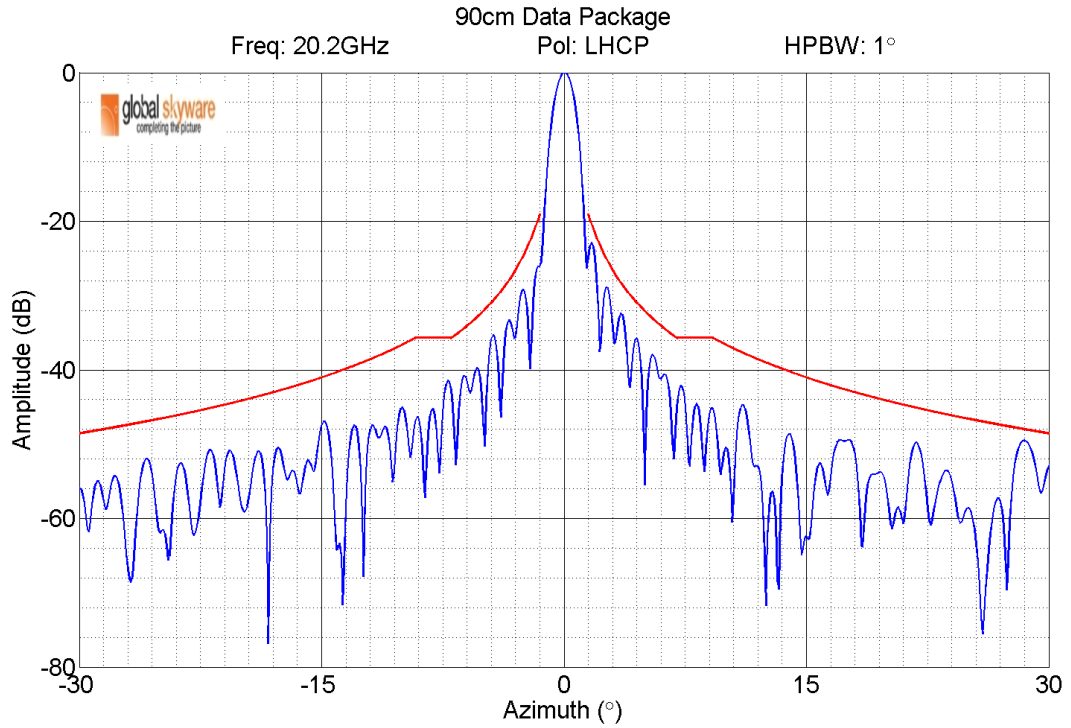
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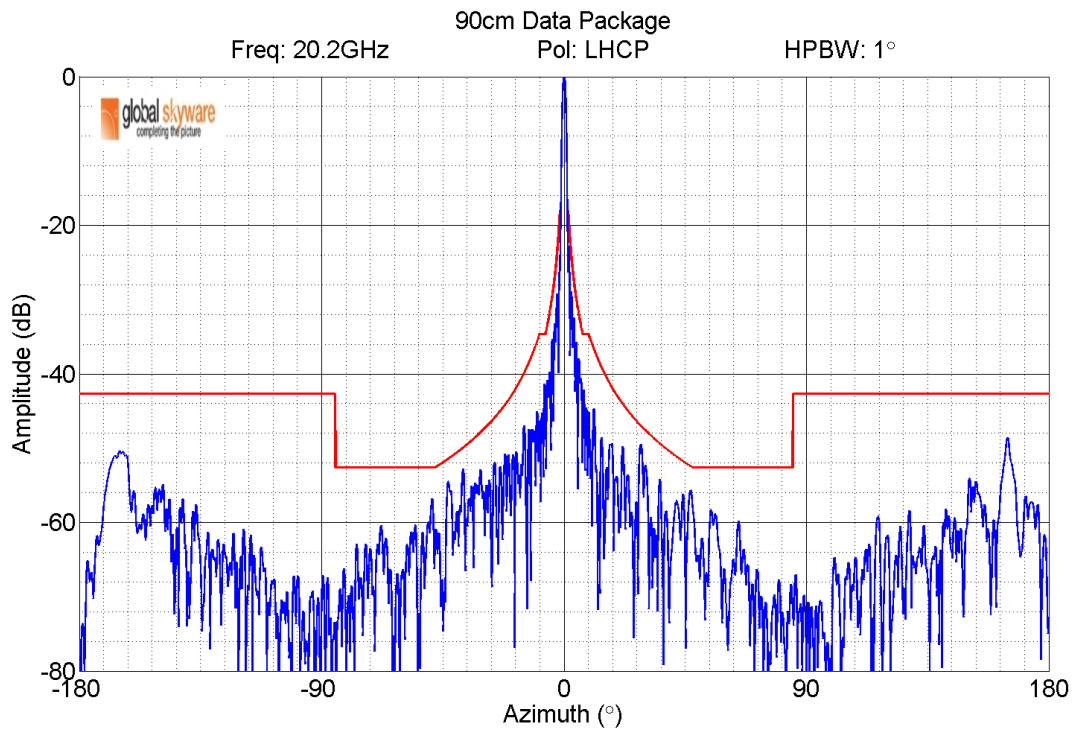
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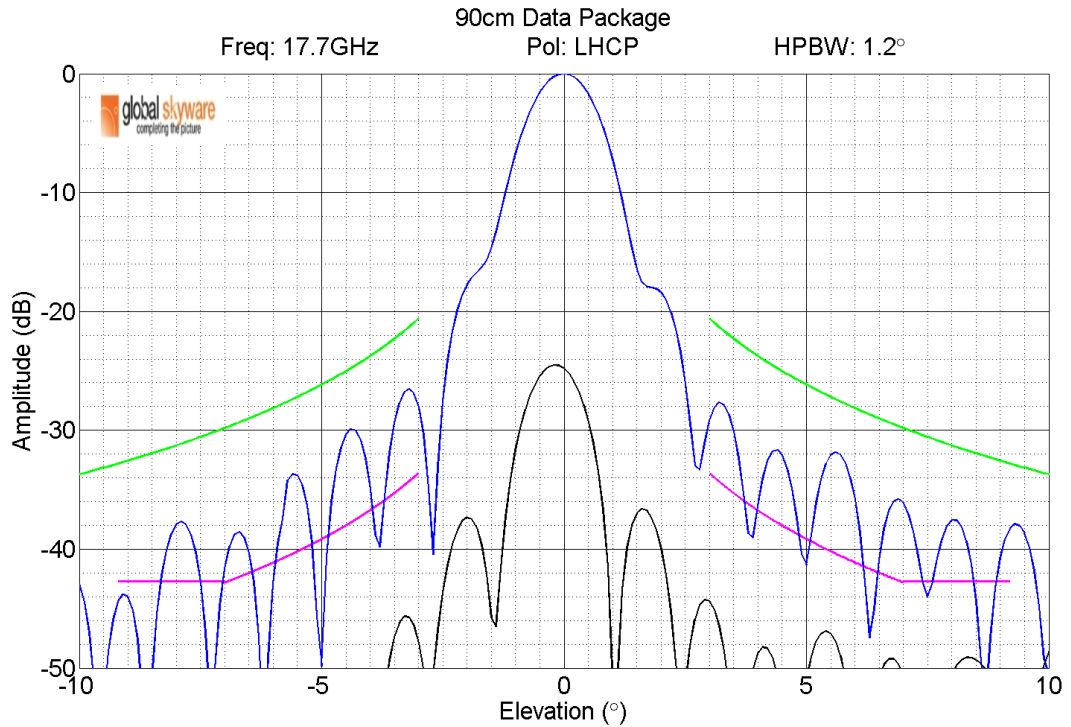


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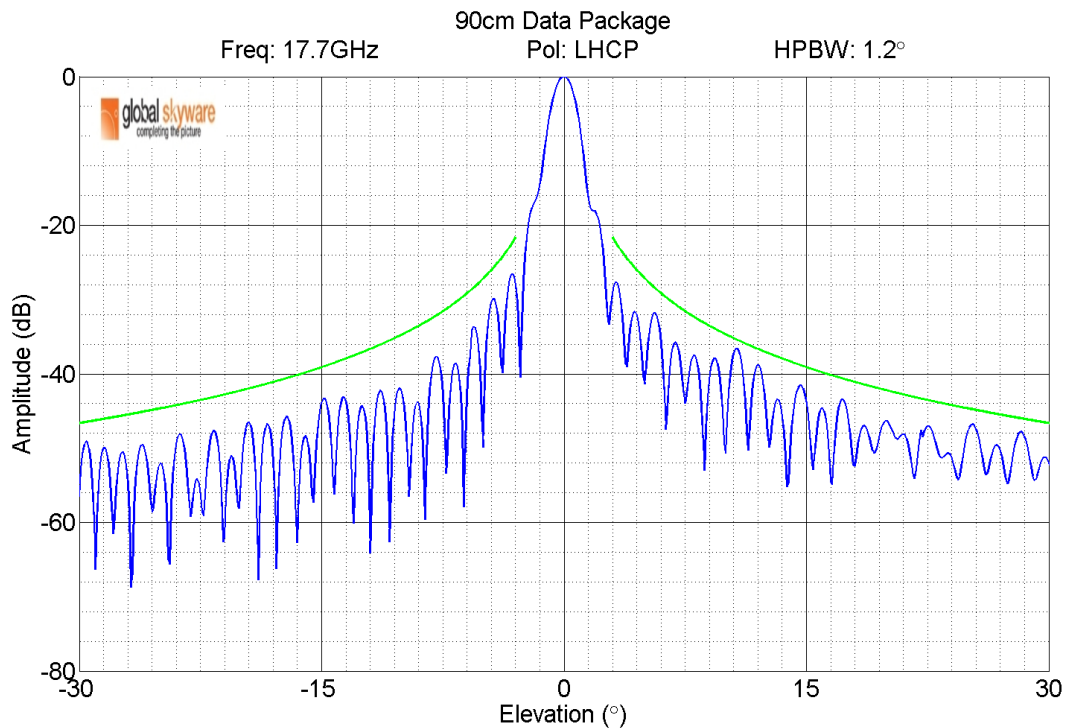


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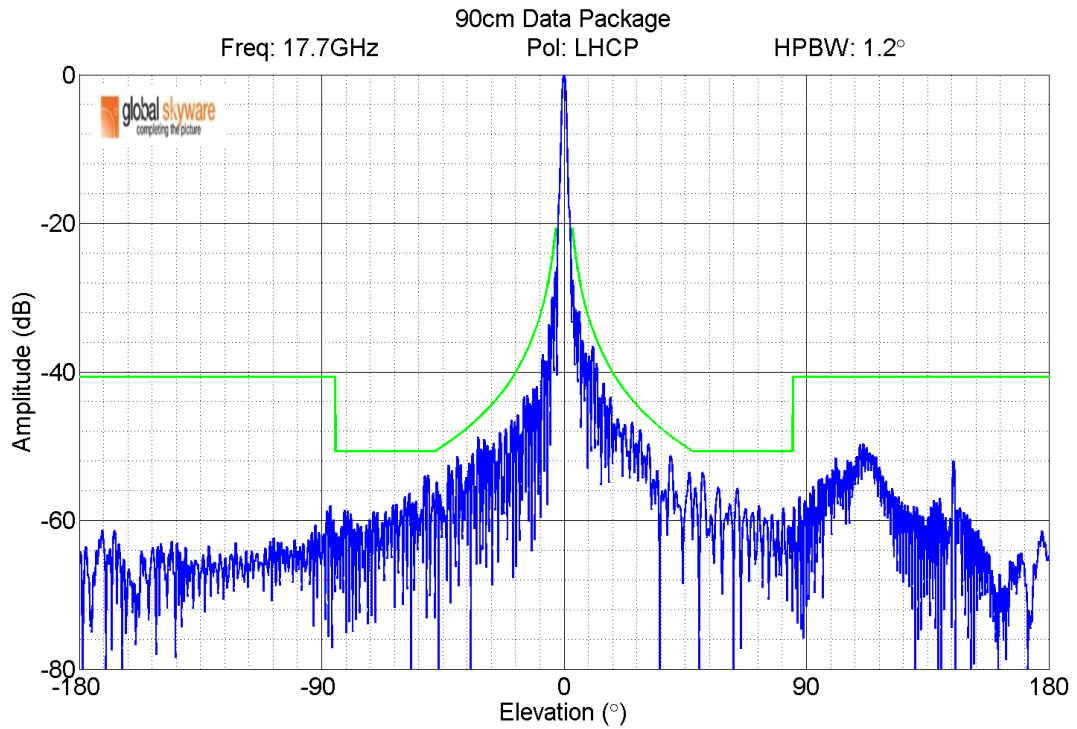
### 3.2 LHCP Elevation Radiation Patterns



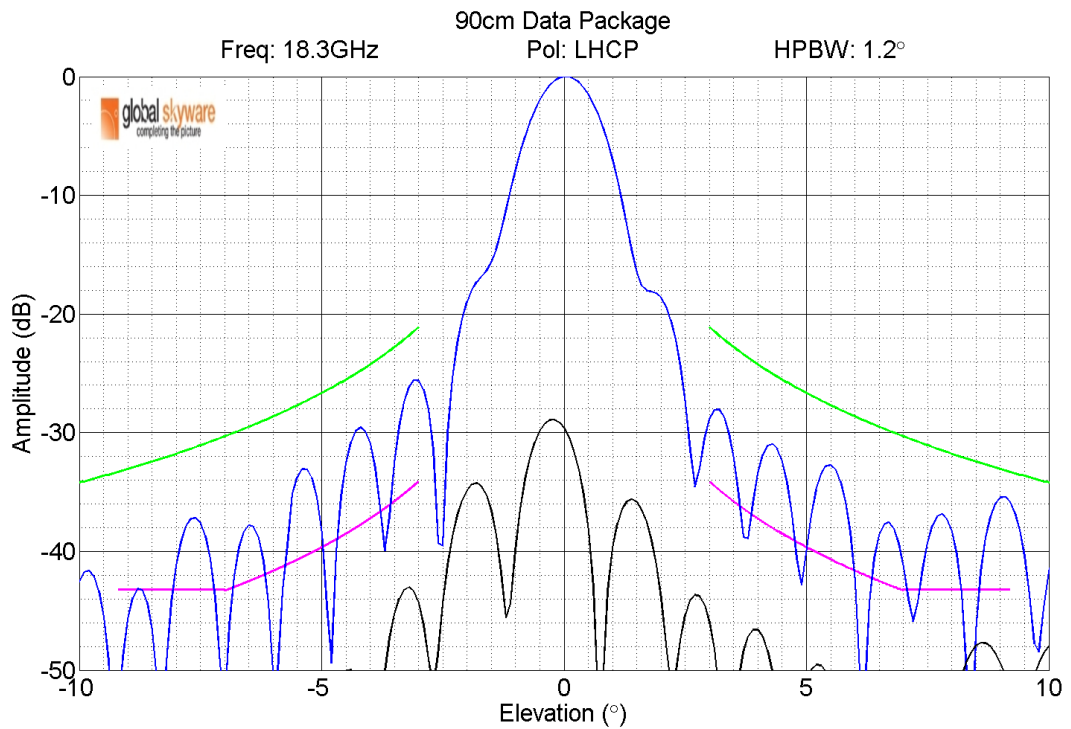
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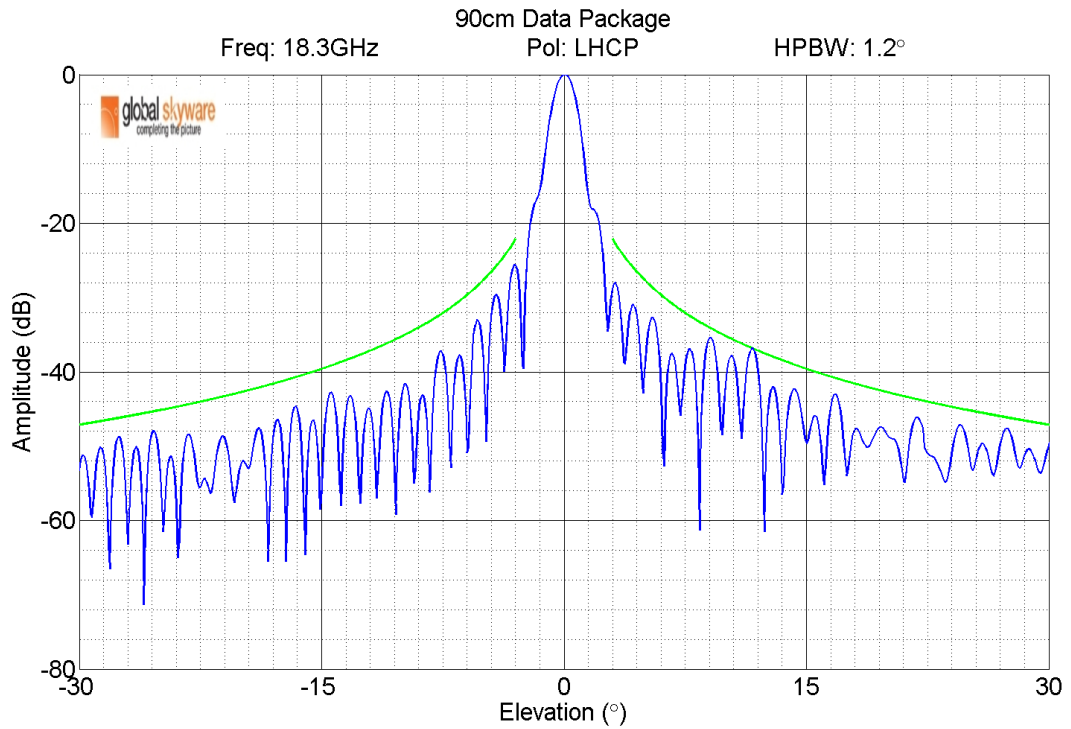
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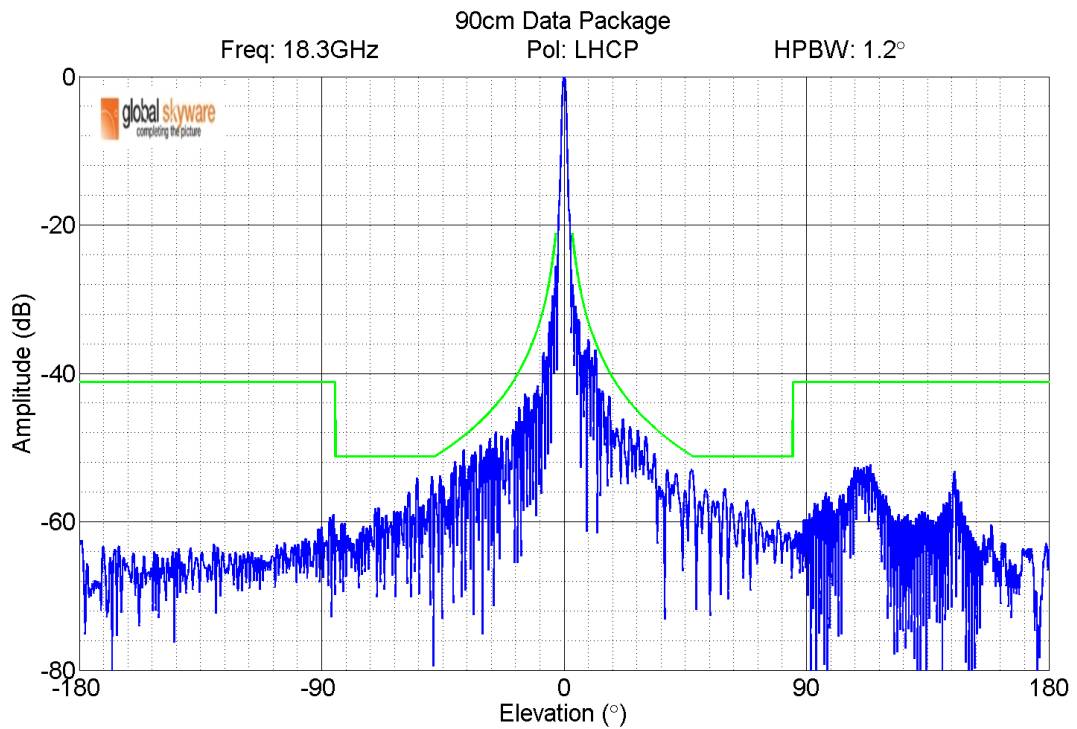
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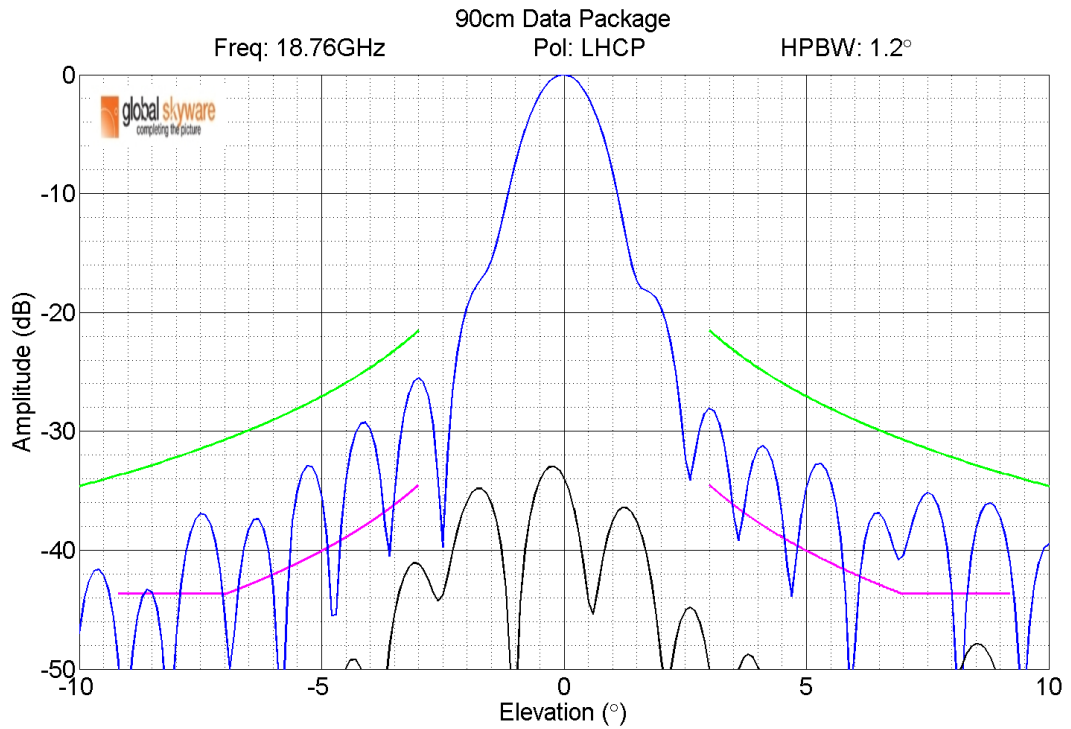
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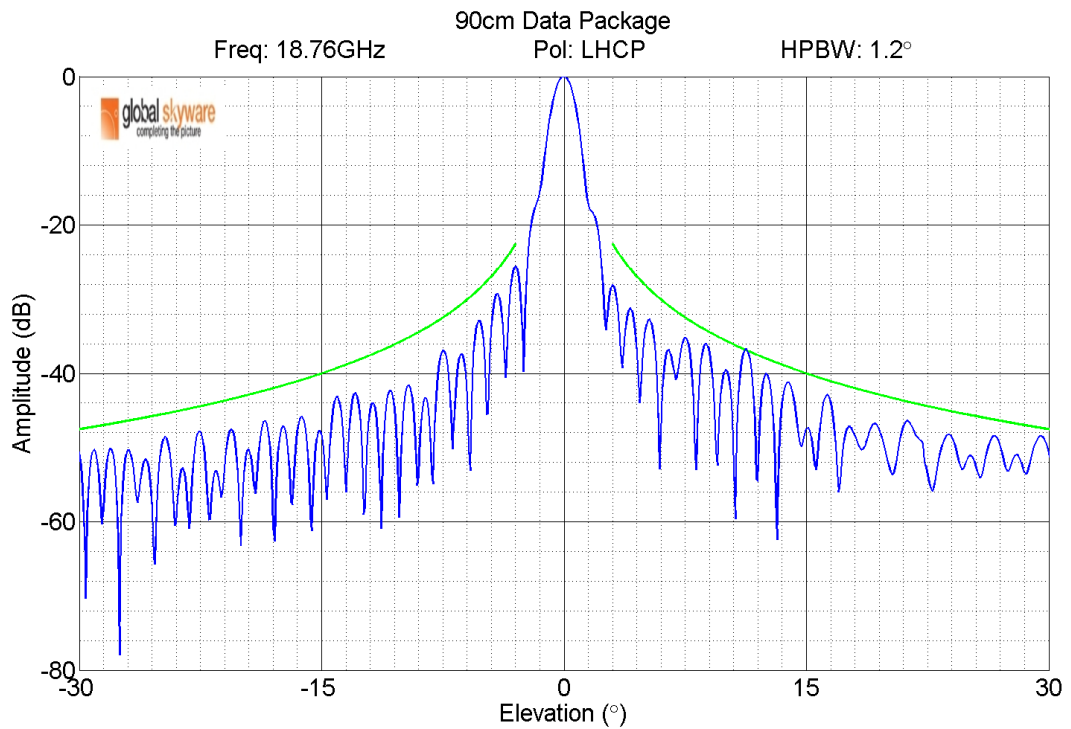
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Utilizing FCC Mask 25.209

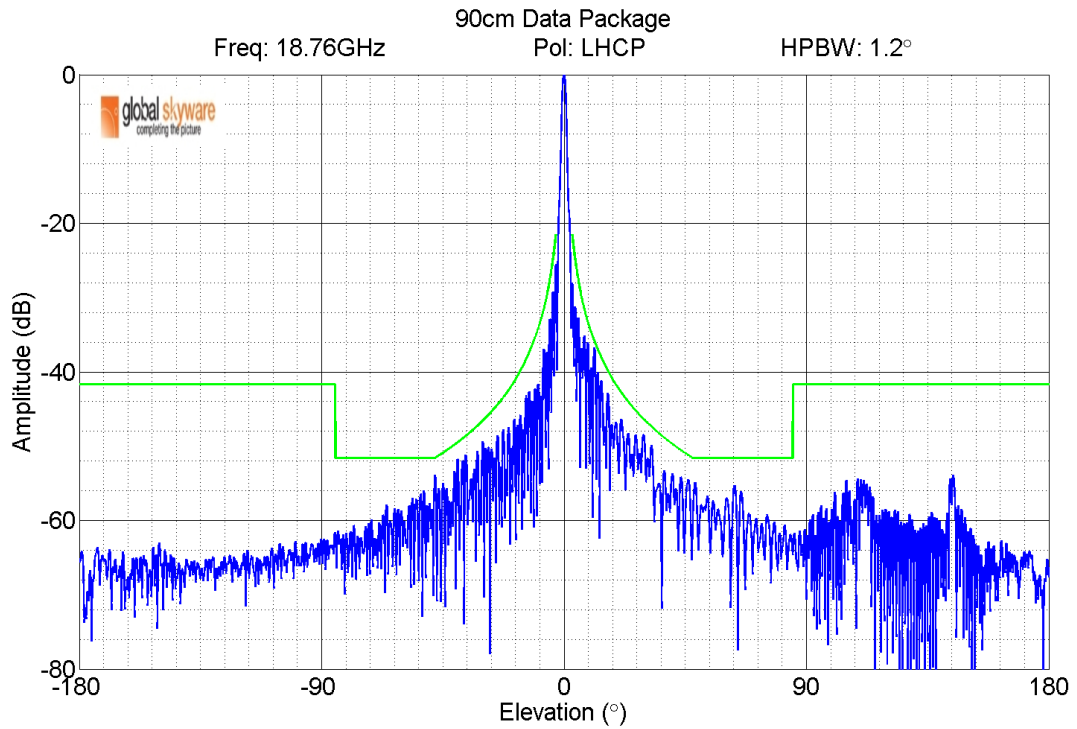


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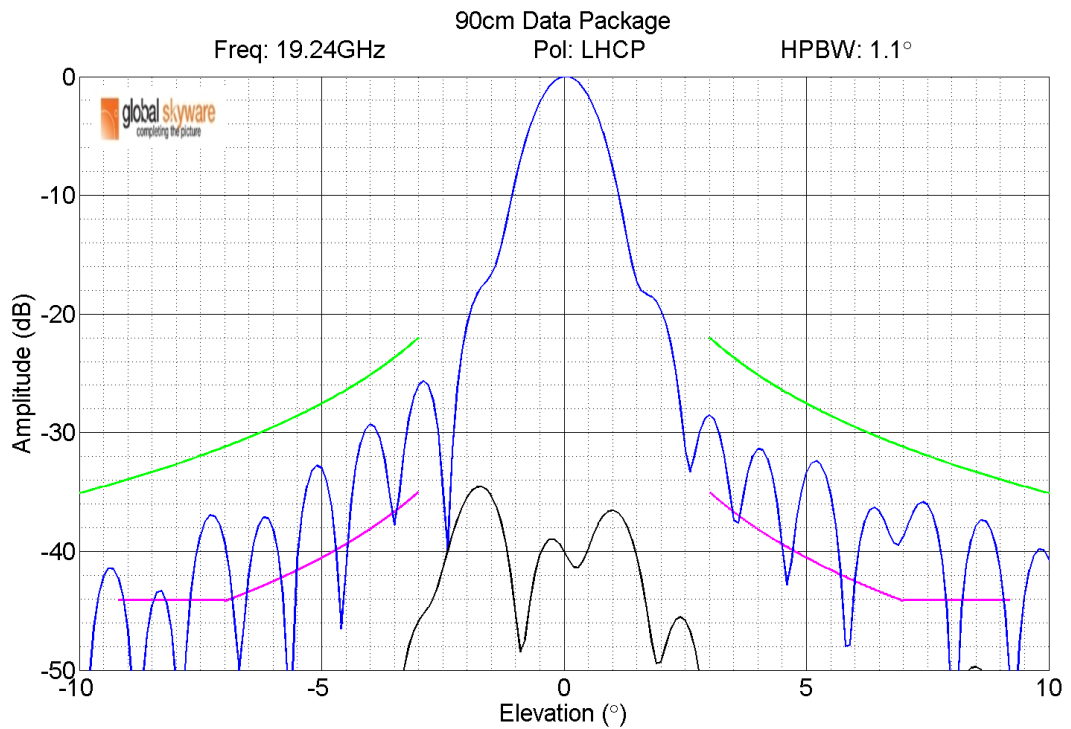


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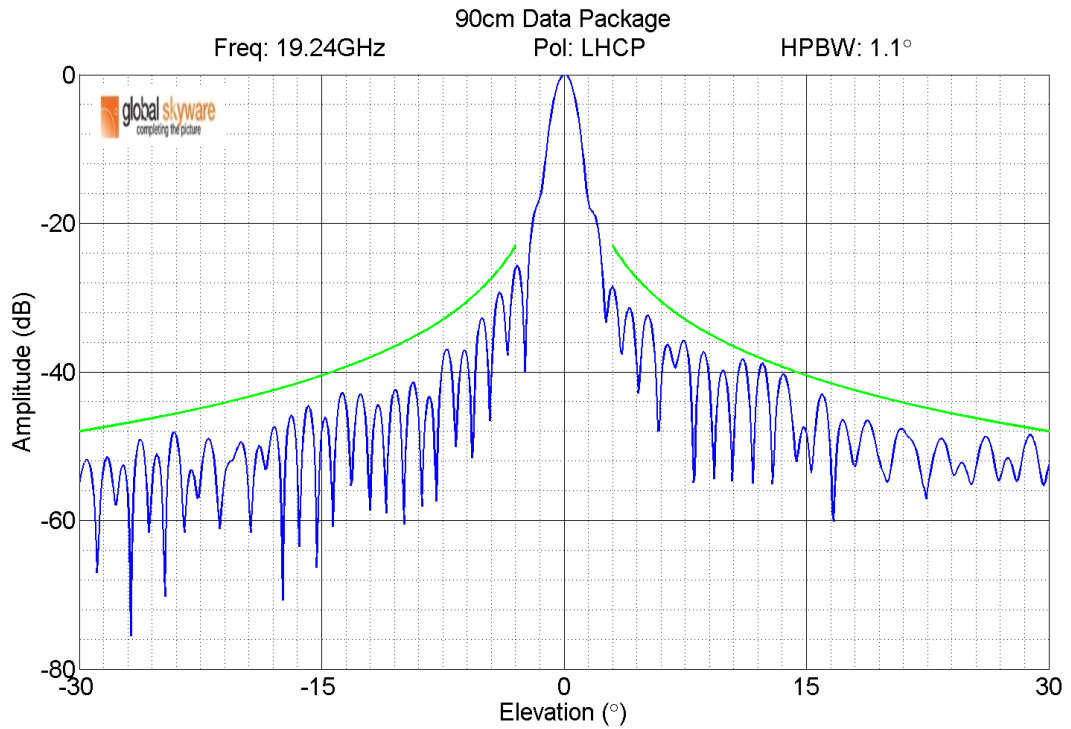


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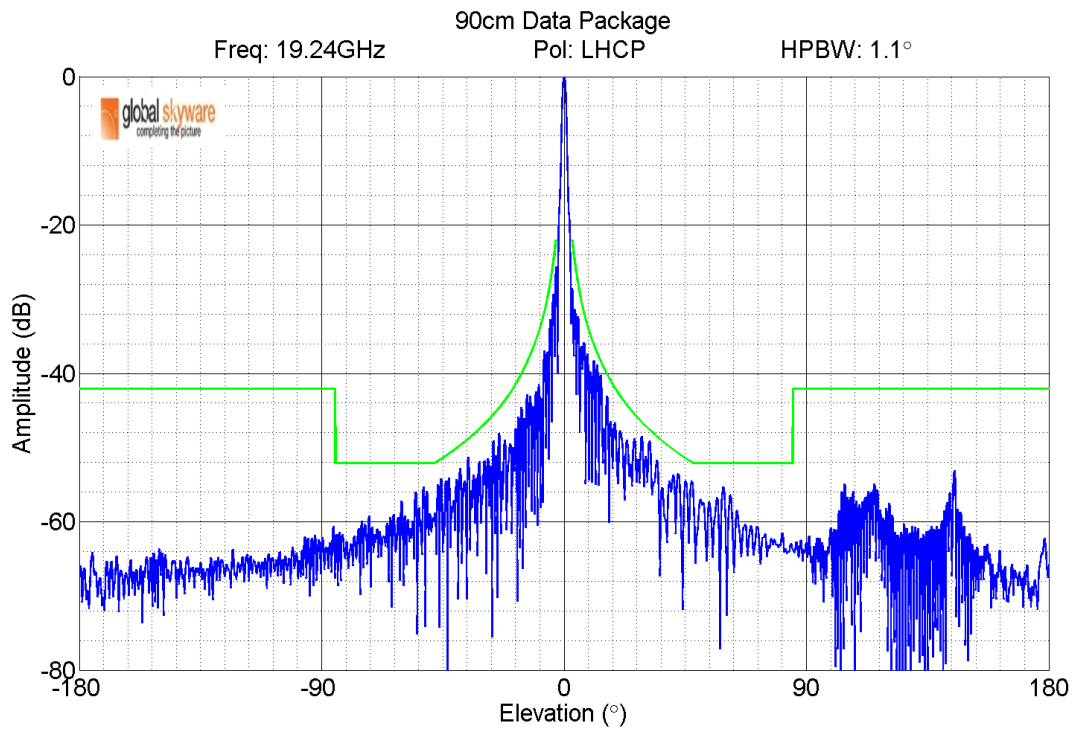


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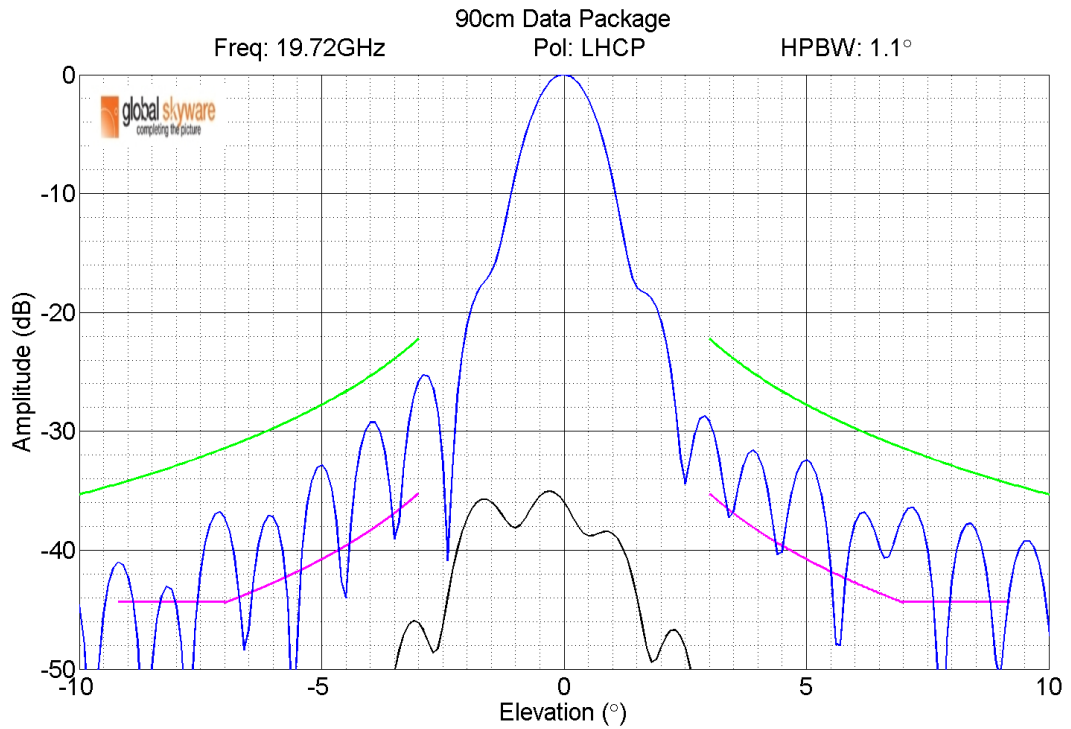




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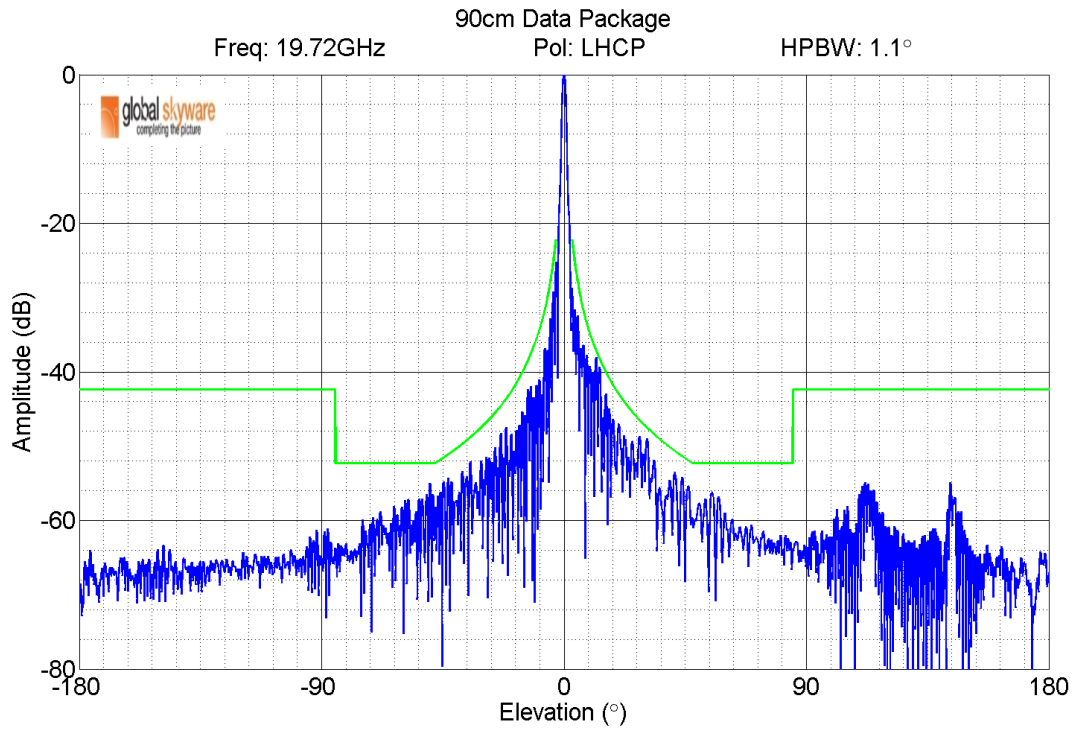
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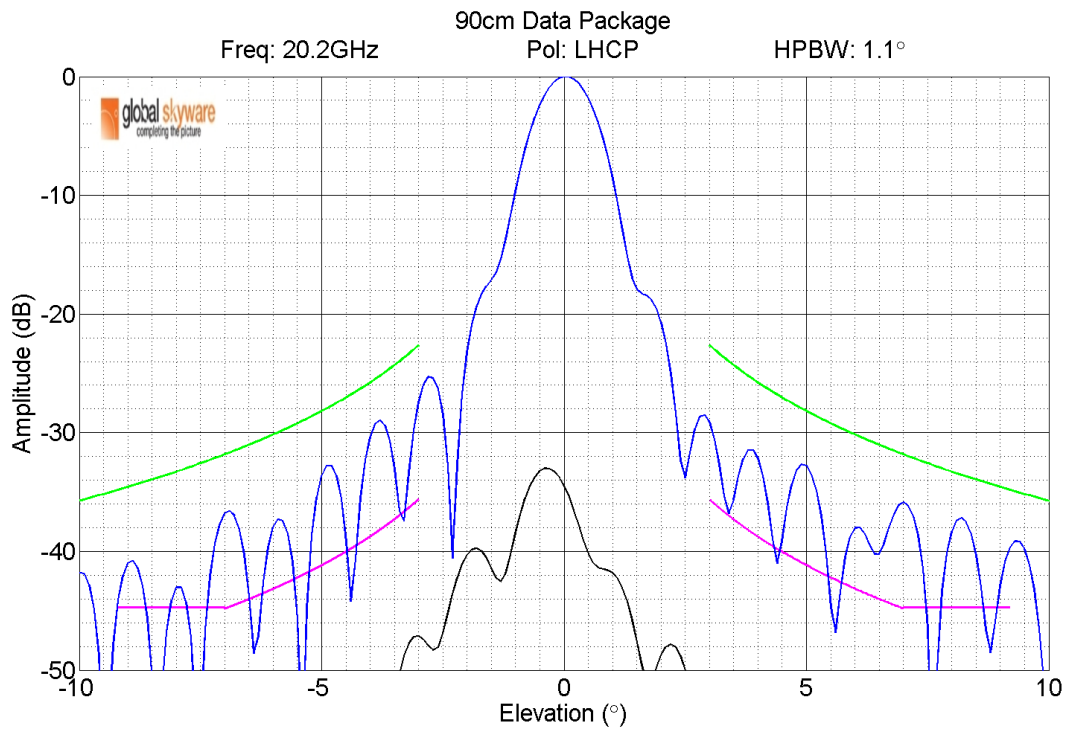
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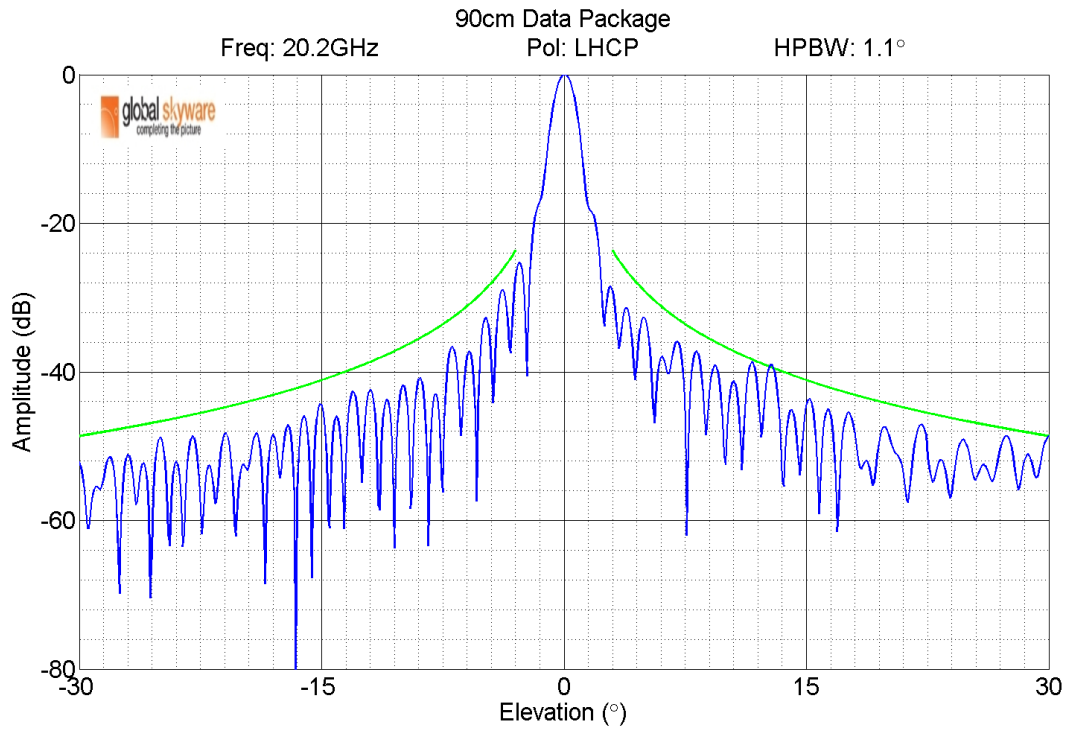
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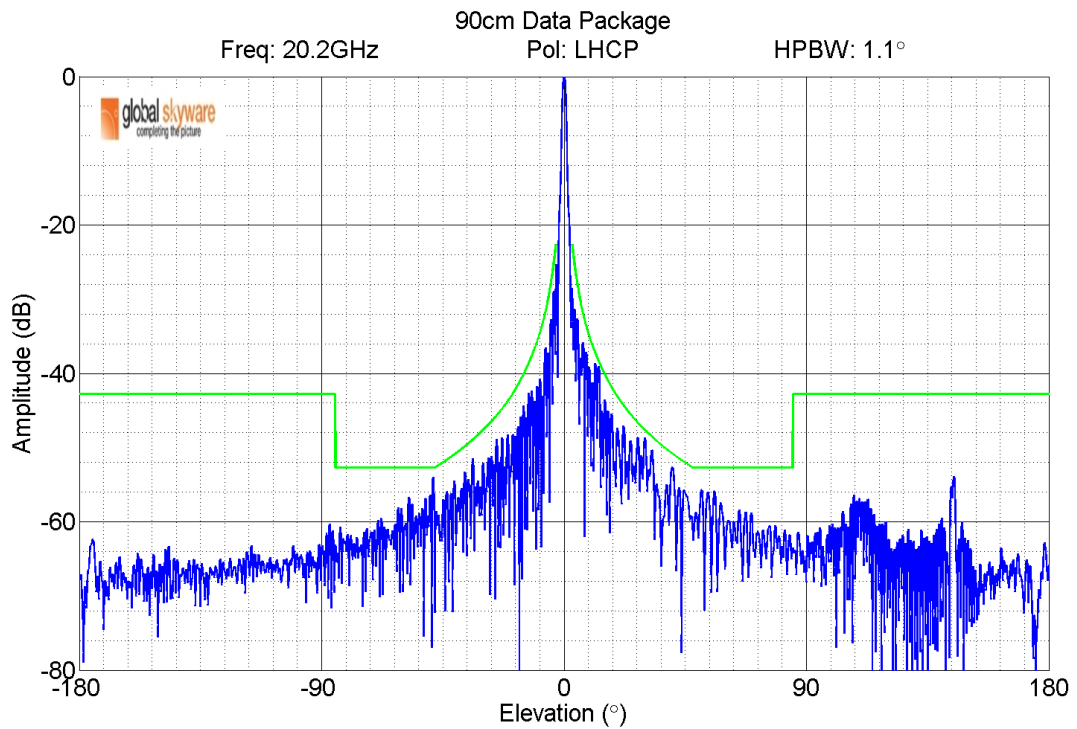
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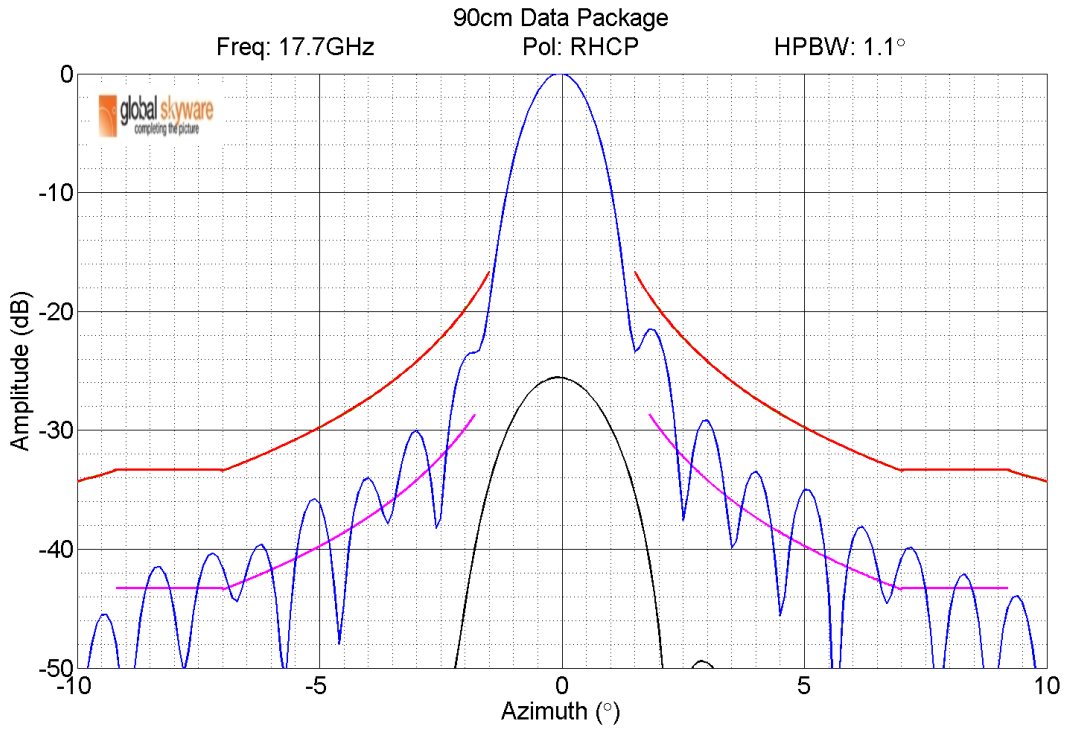


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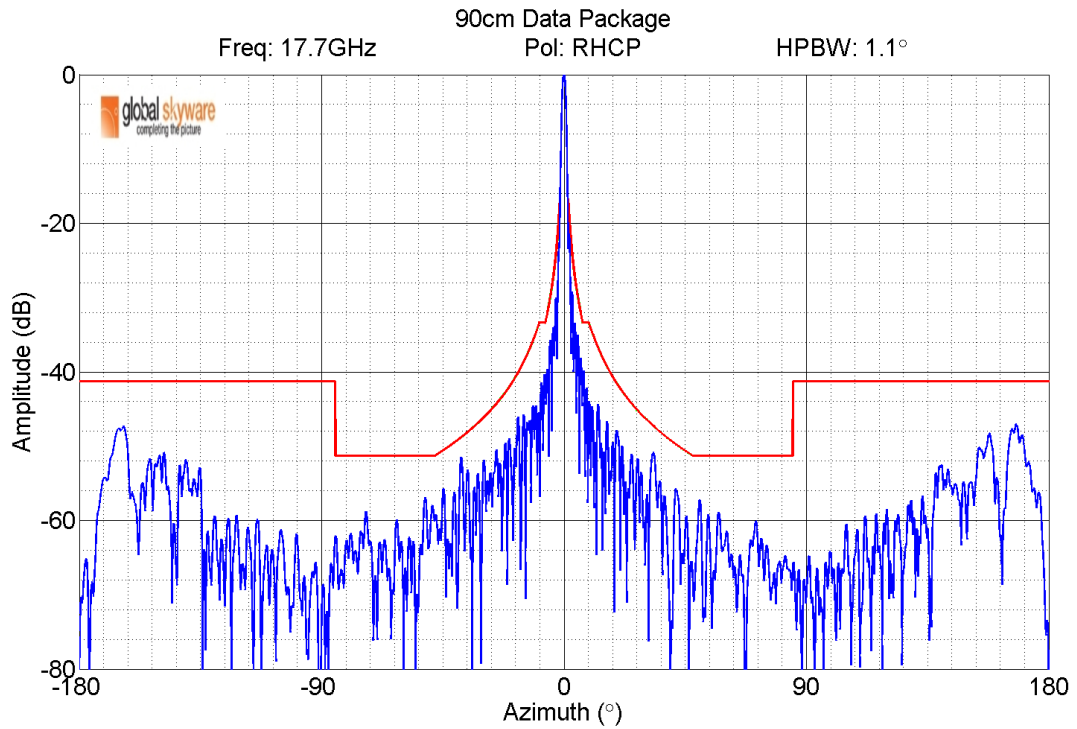
### 3.3 RHCP Azimuth Radiation Patterns



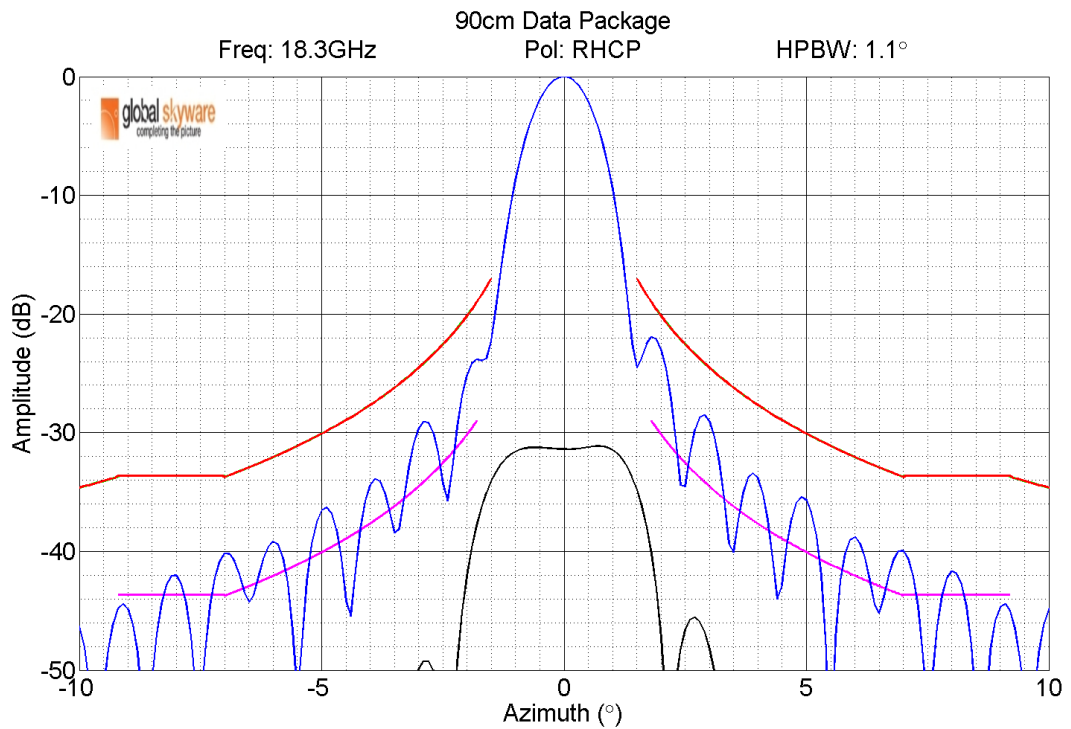
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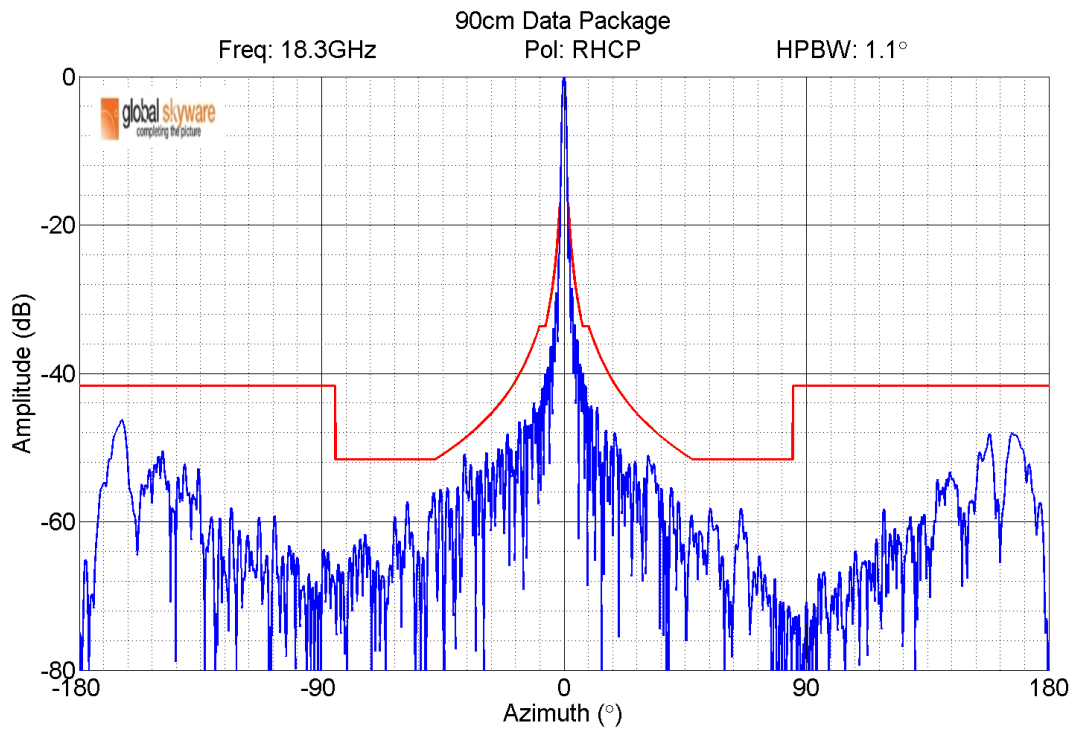
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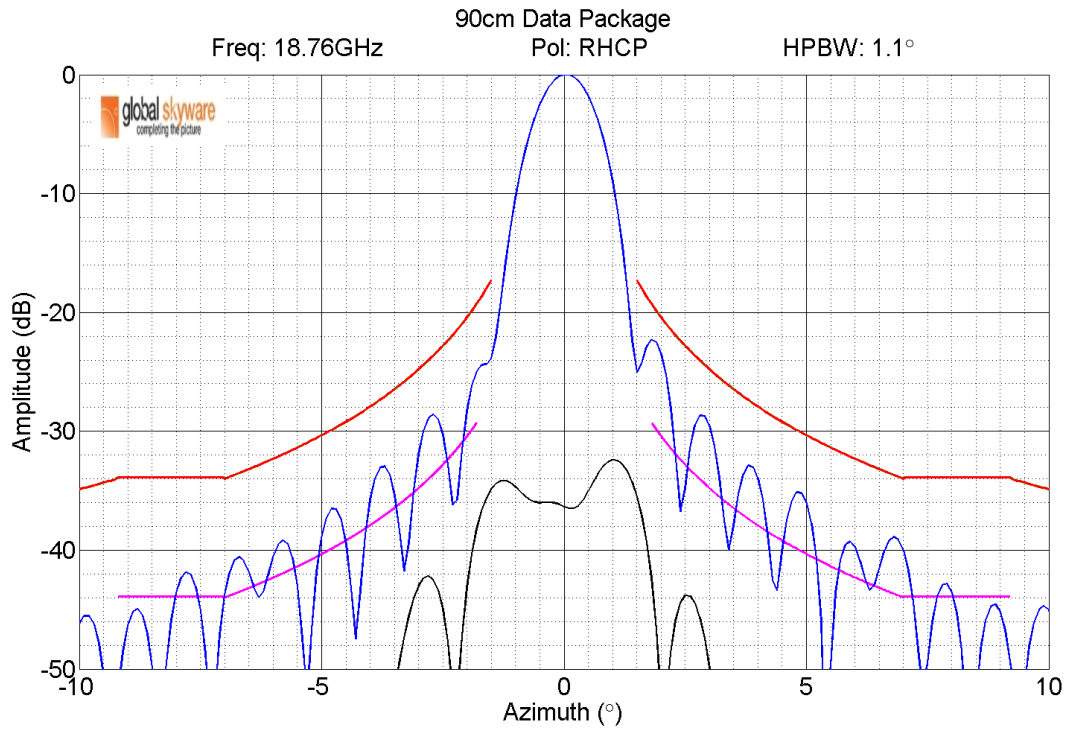


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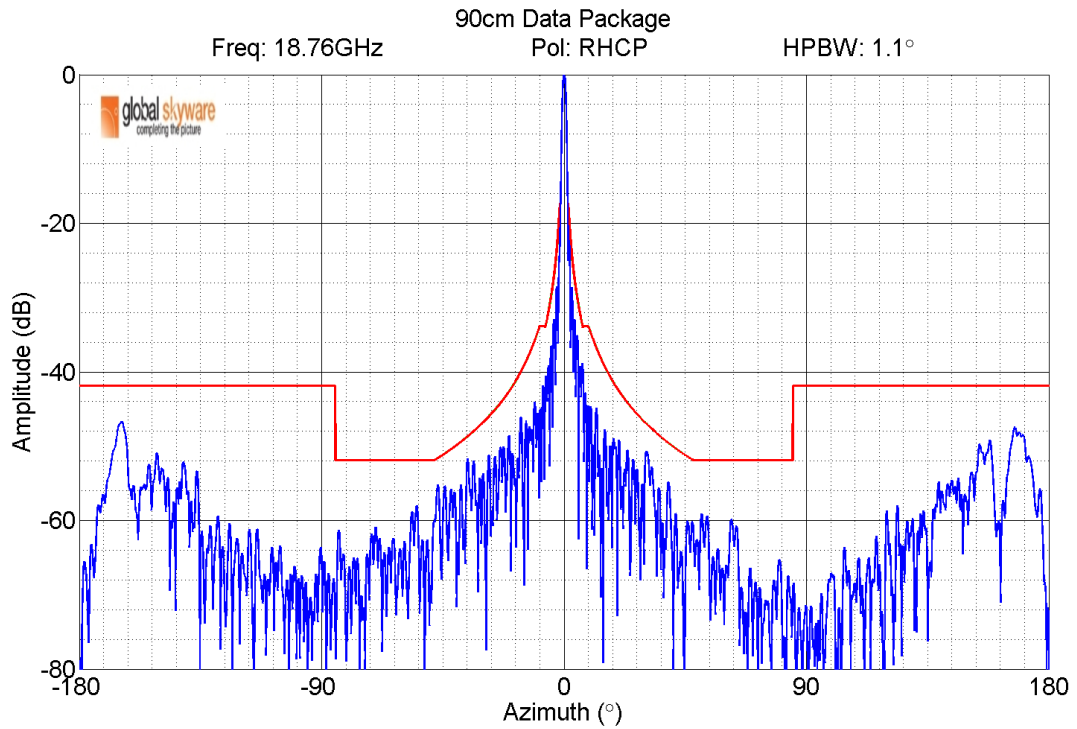


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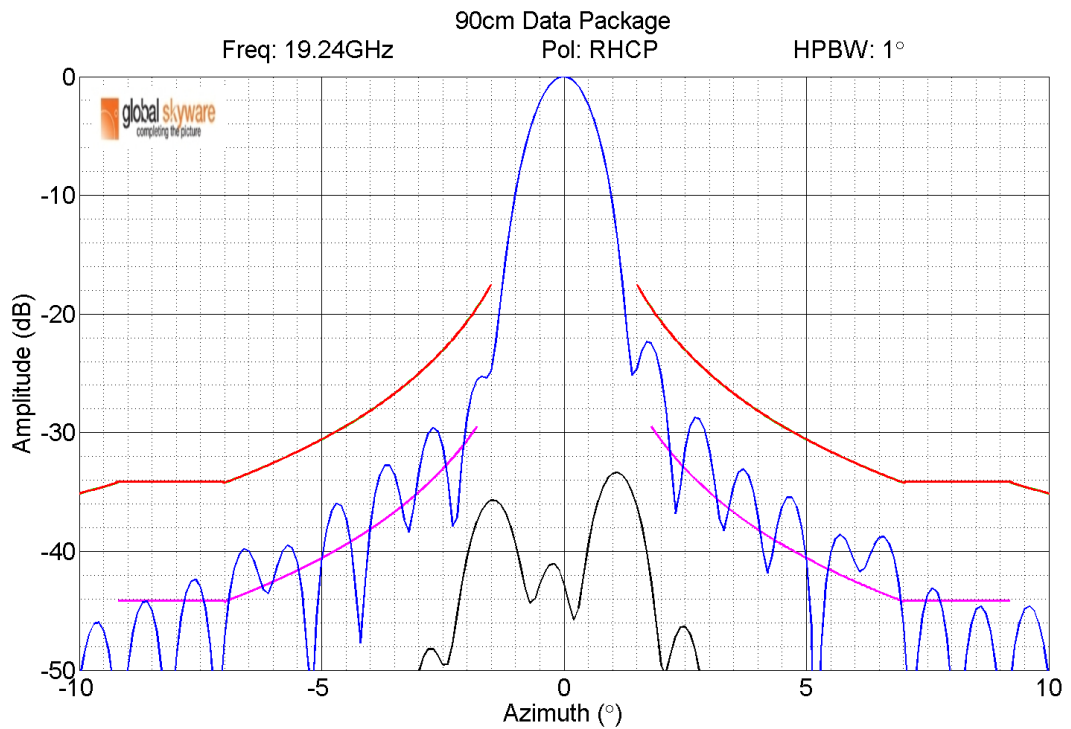


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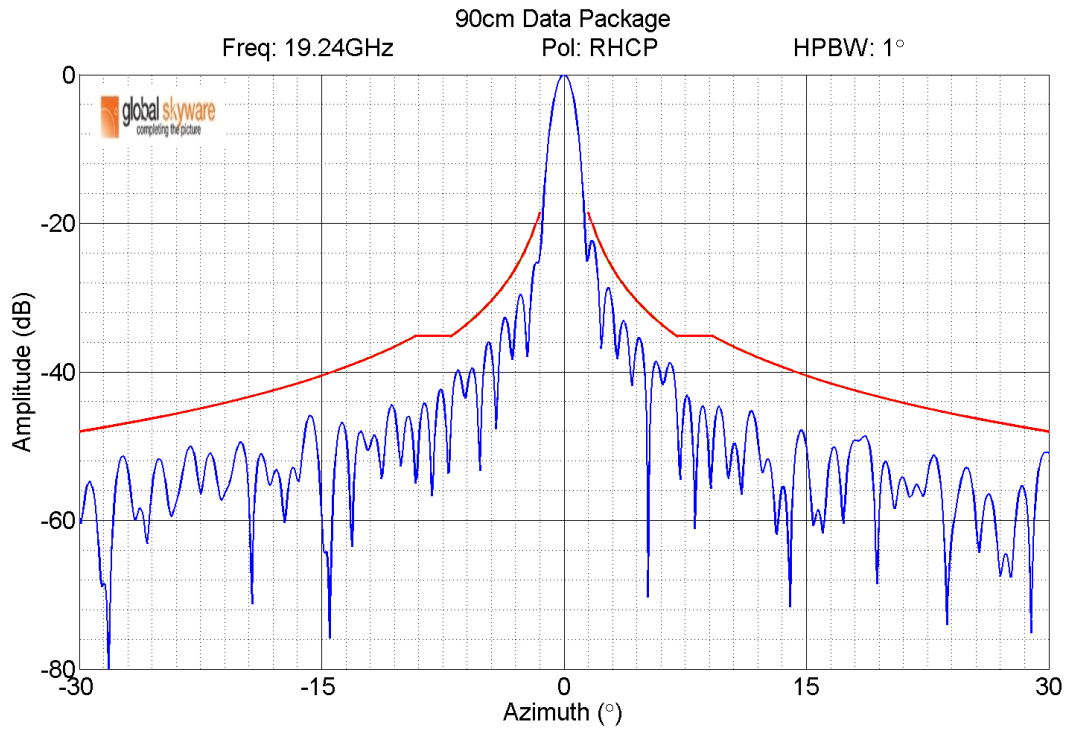




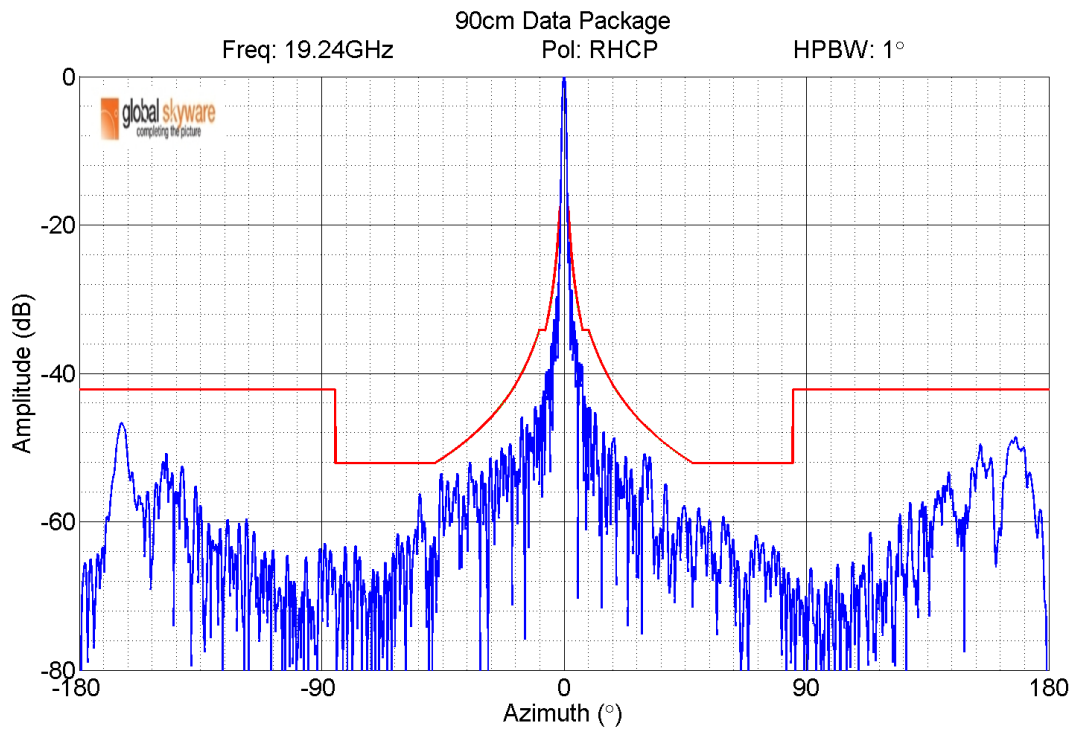
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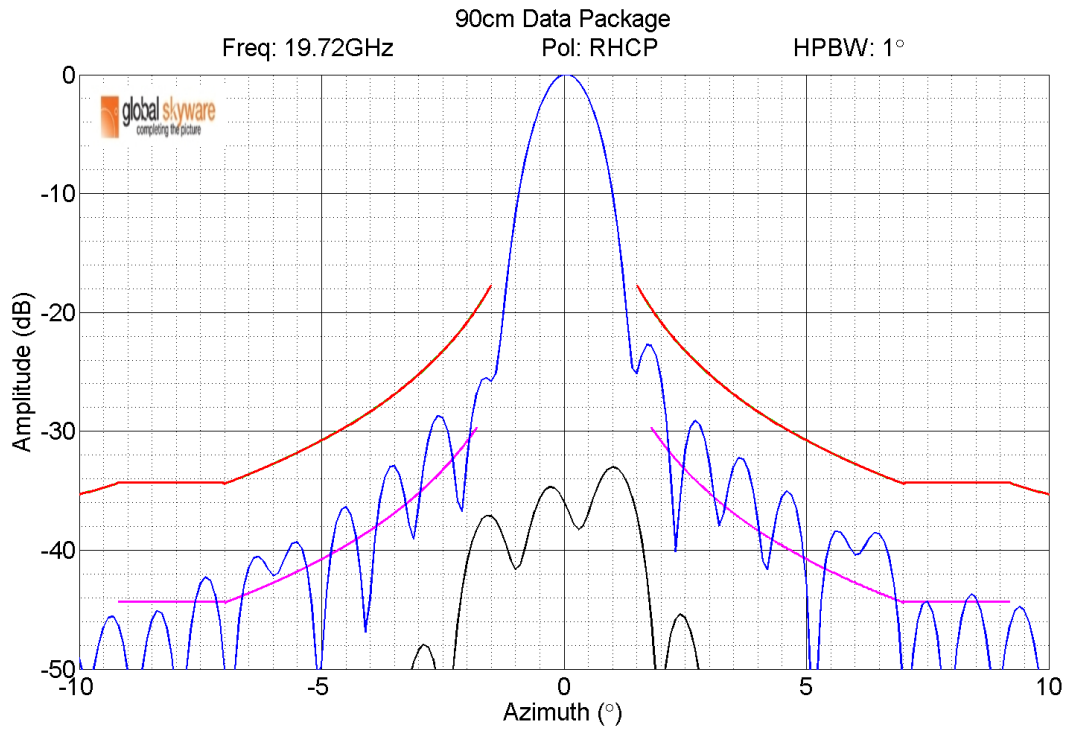
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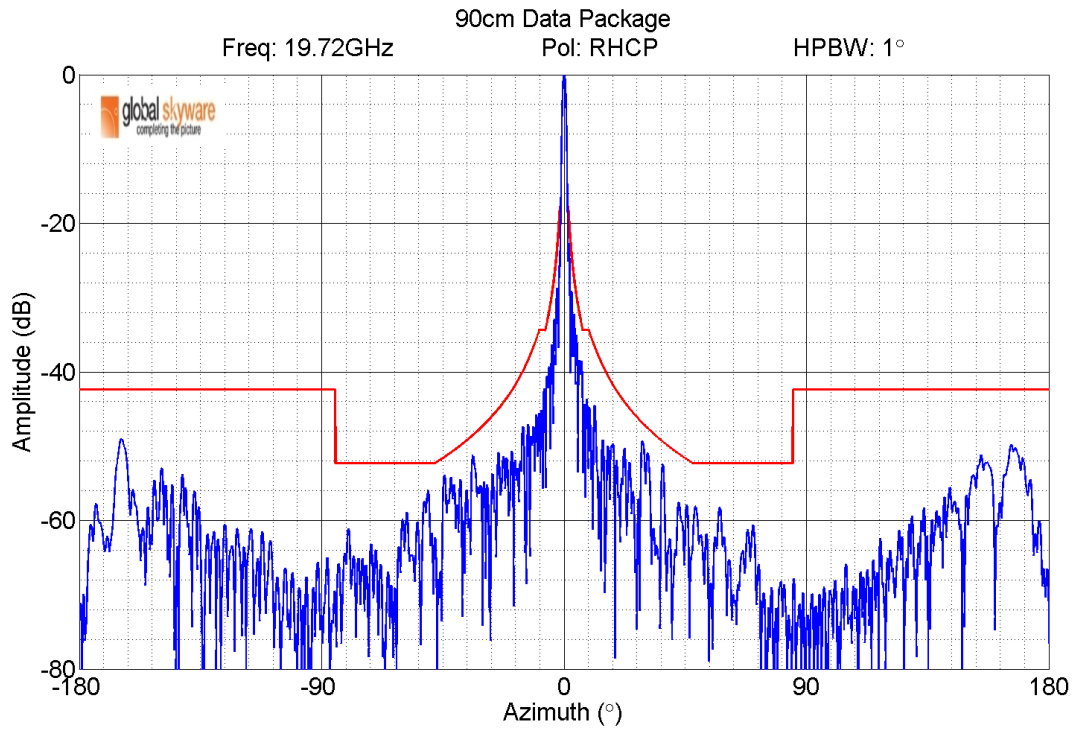
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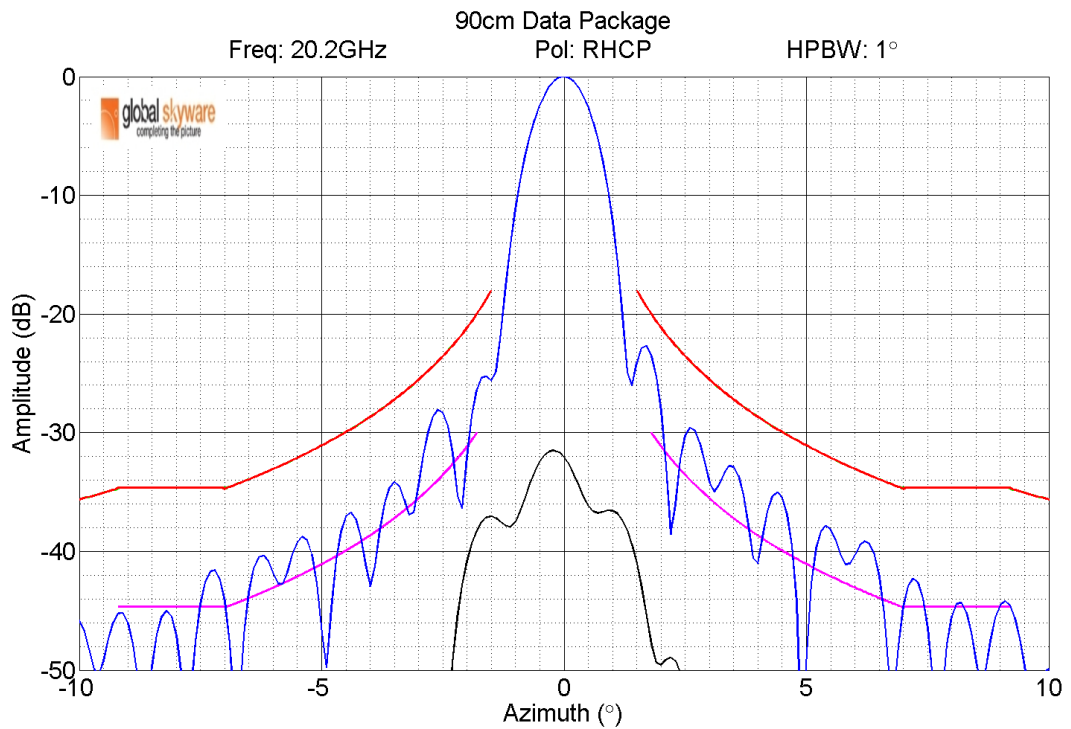
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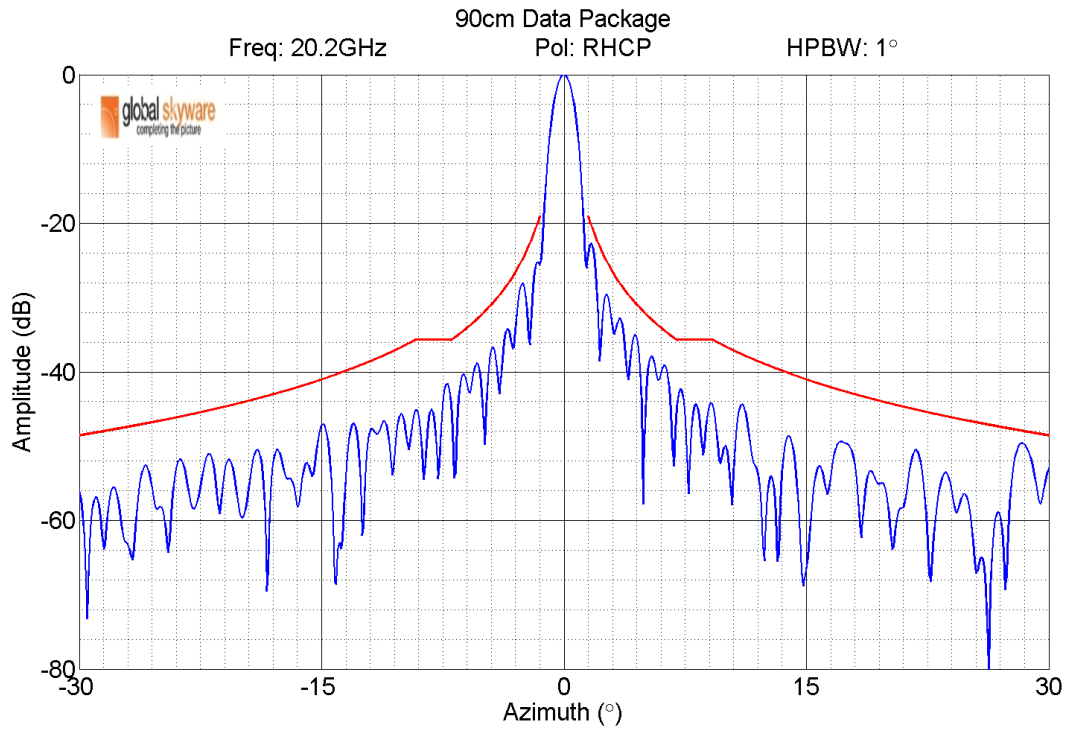
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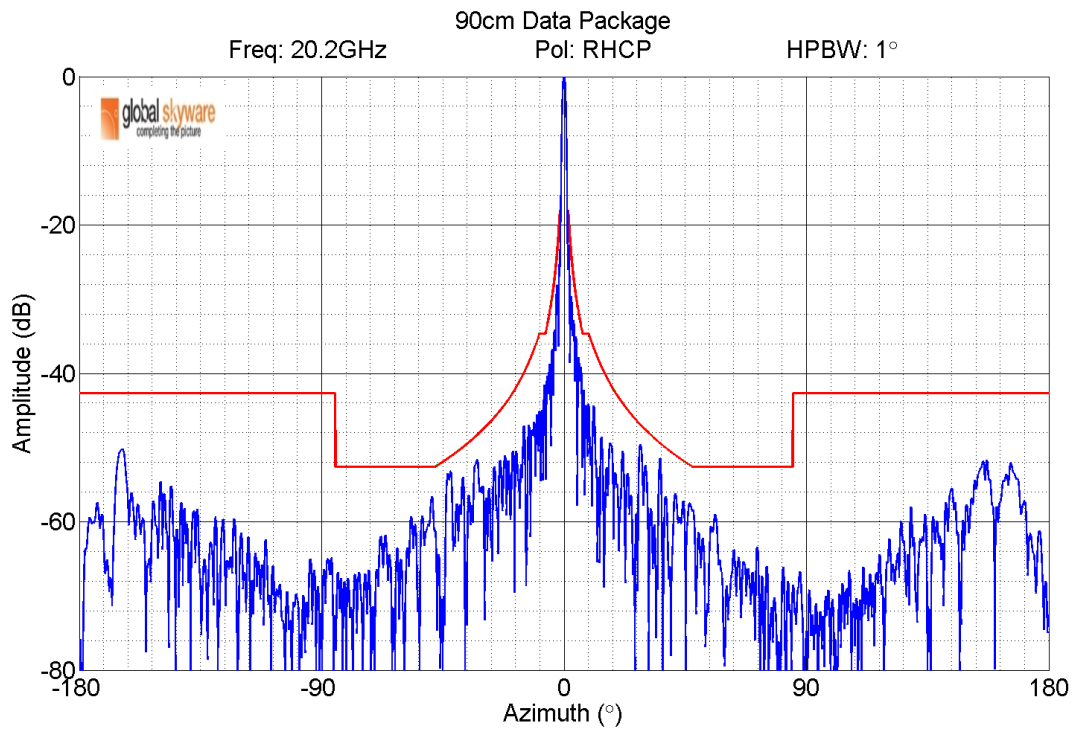
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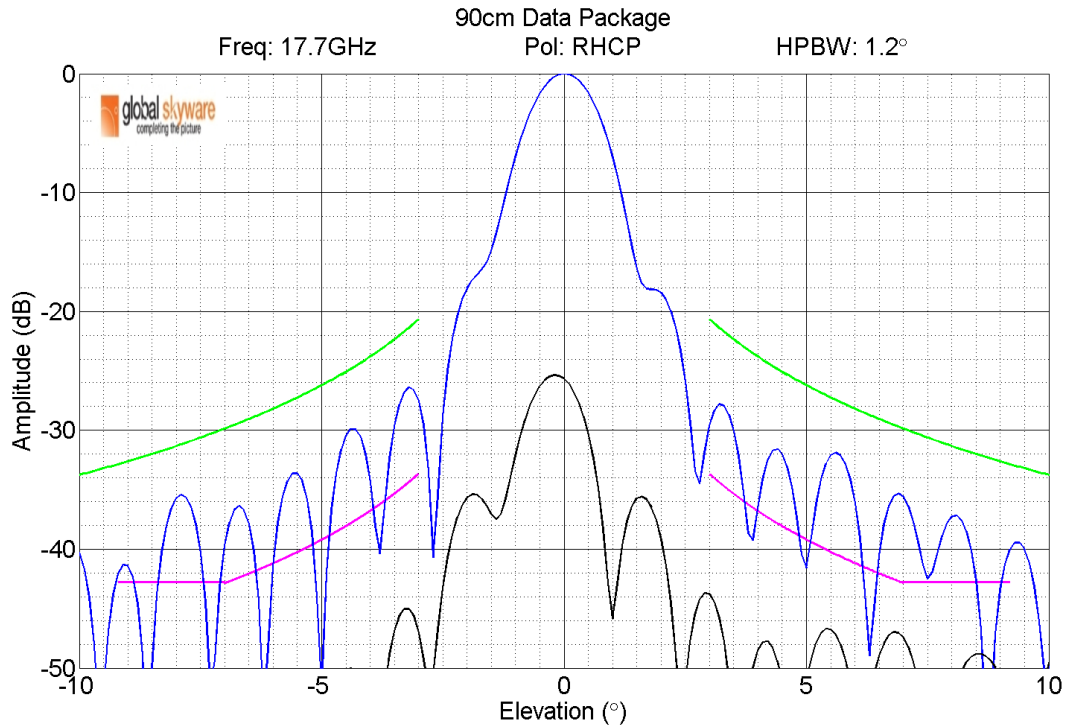


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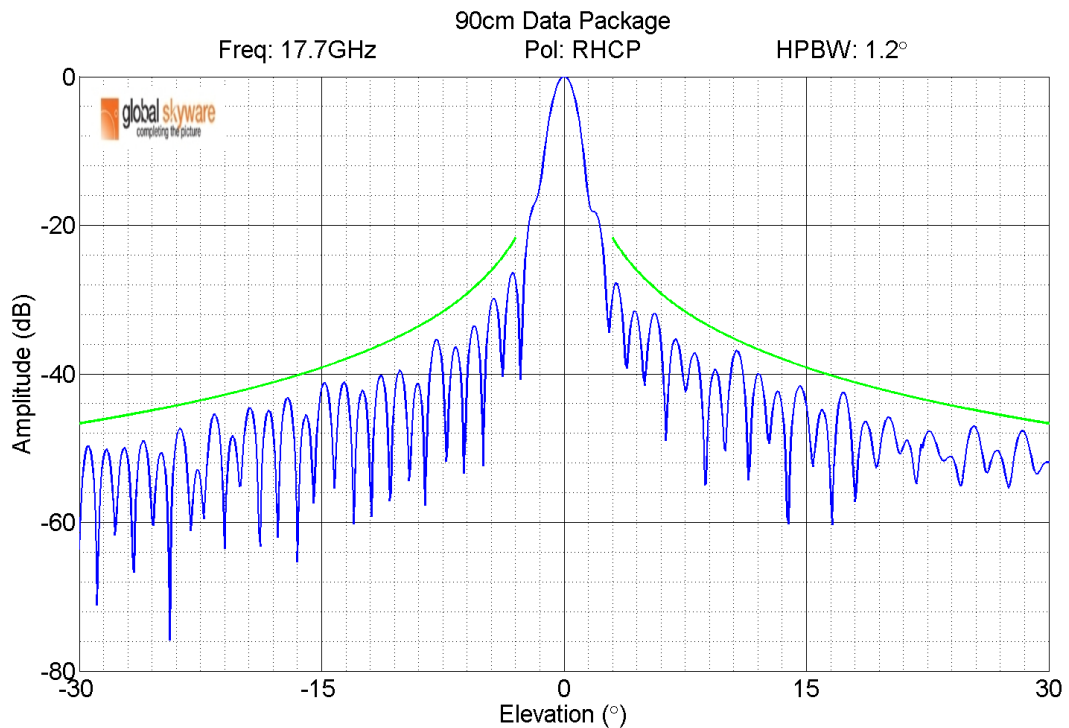


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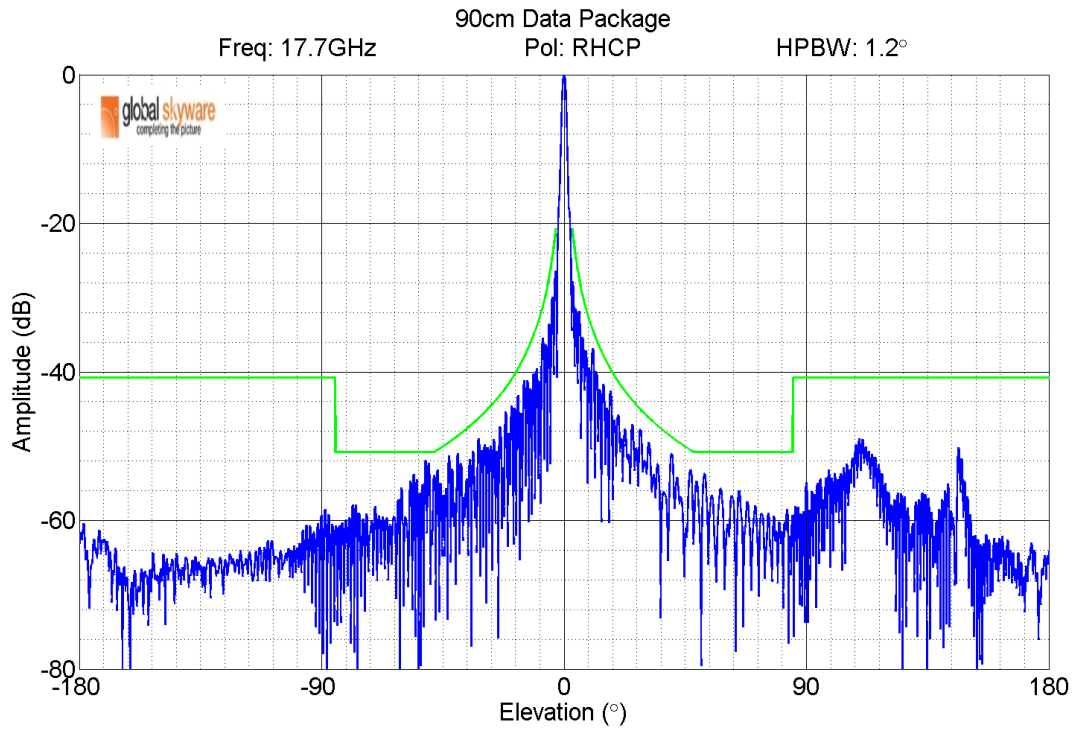
### 3.4 RHCP Elevation Radiation Patterns



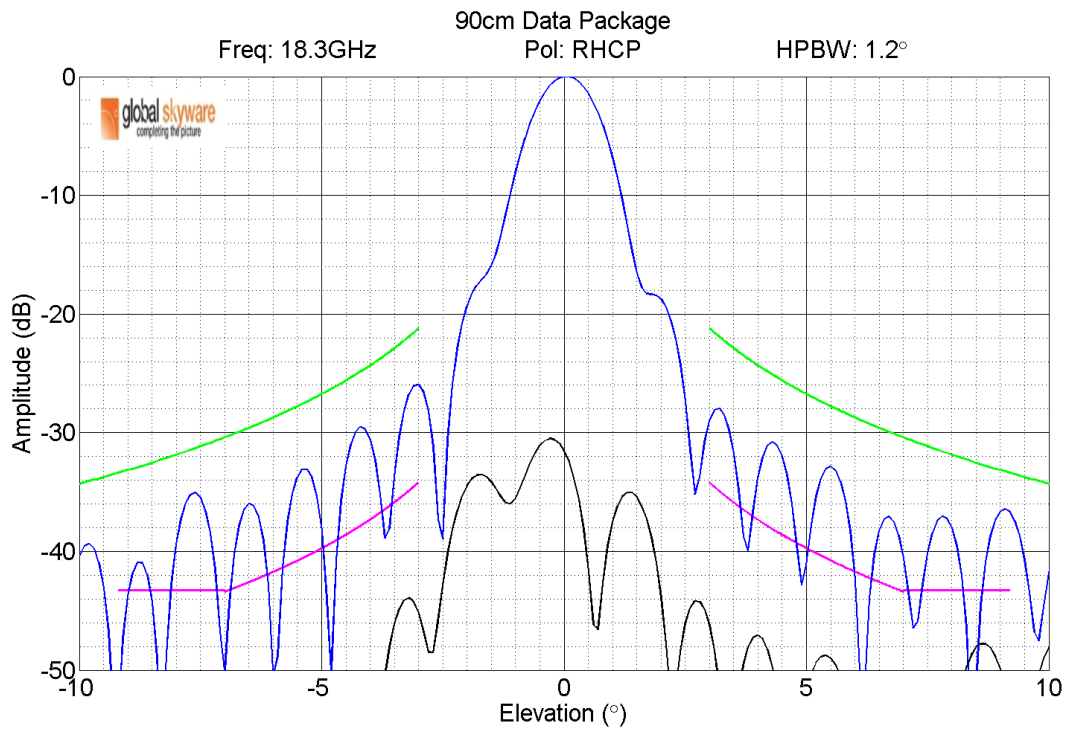
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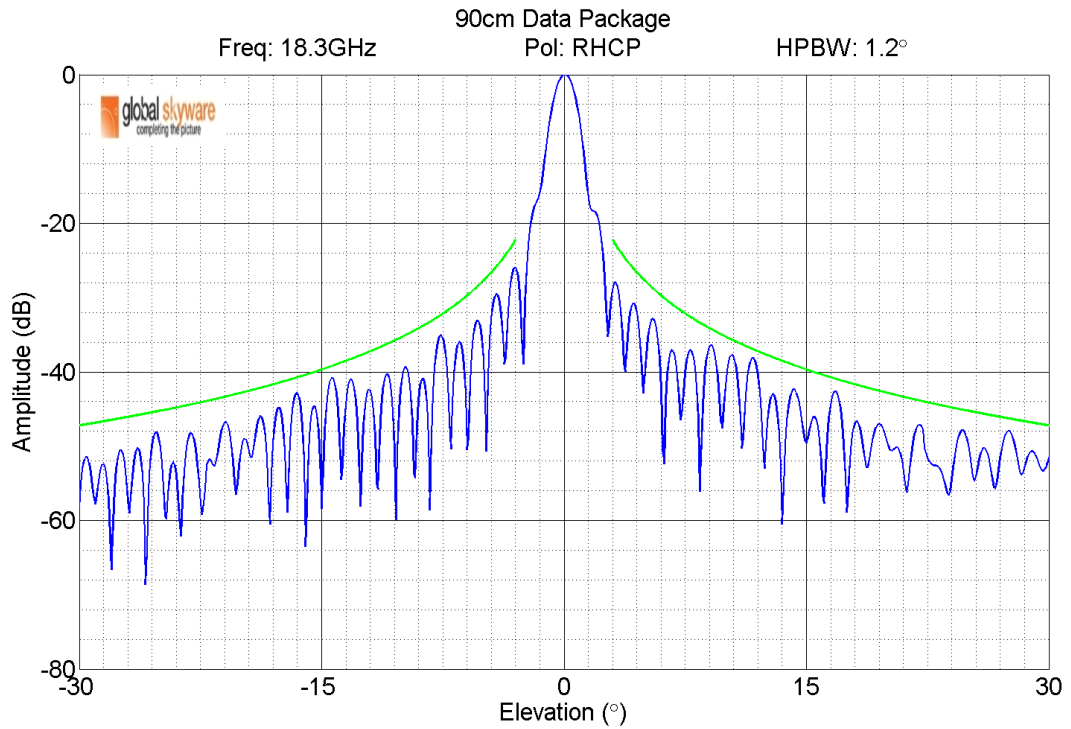


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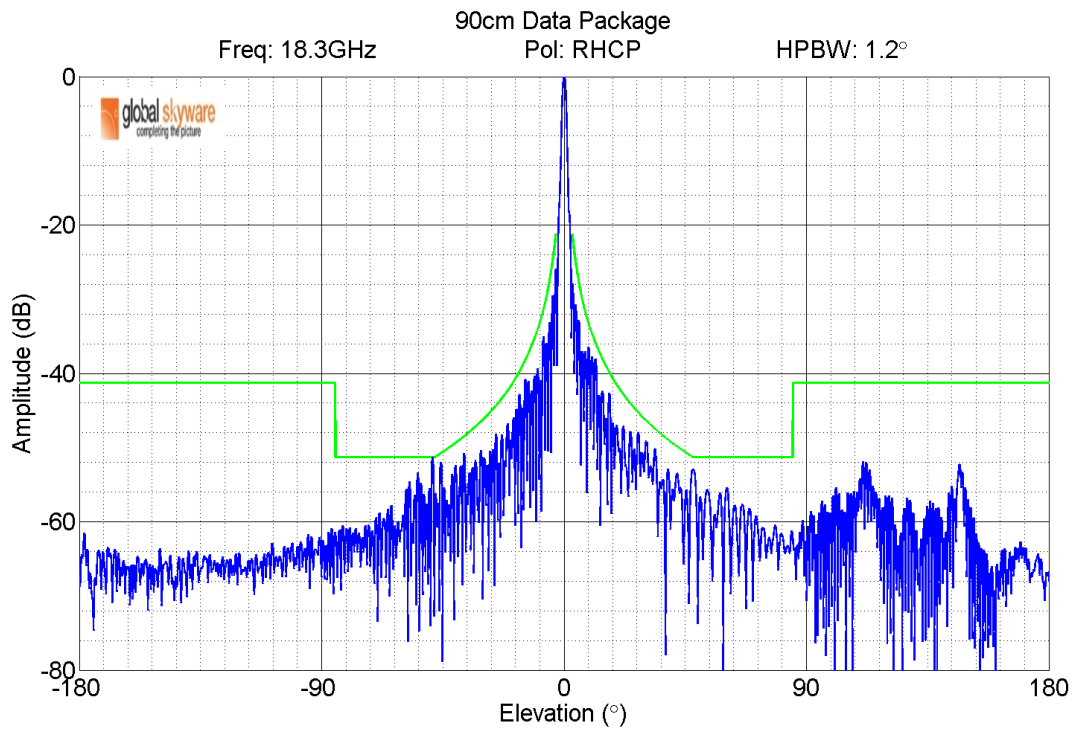


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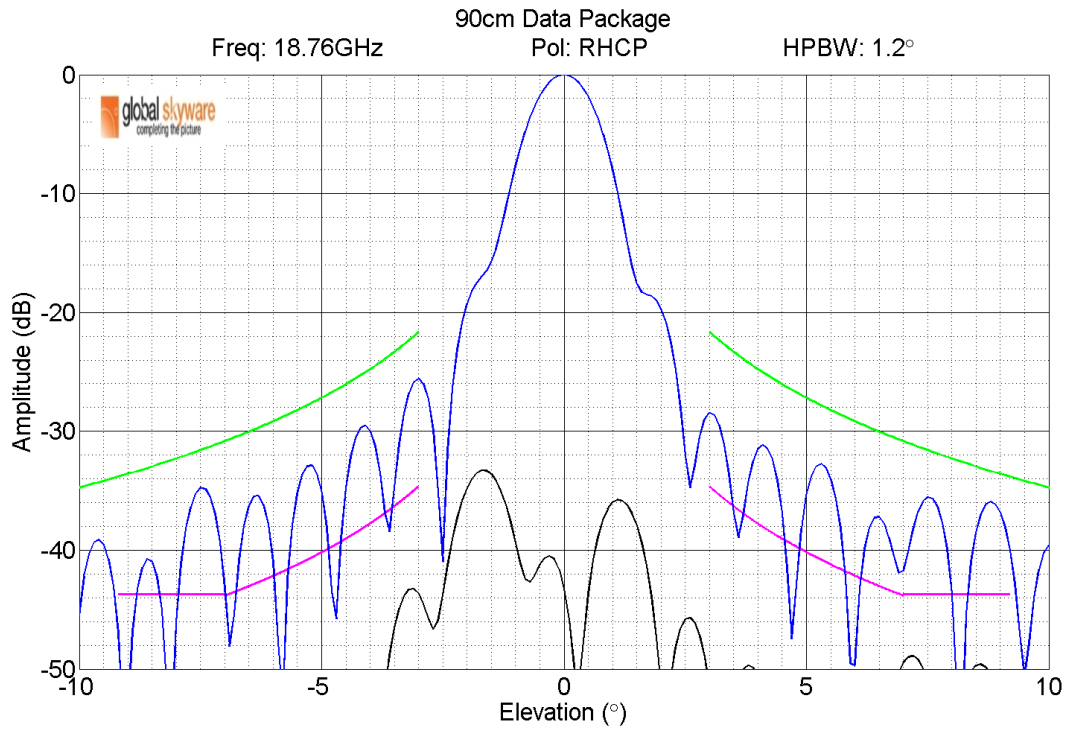


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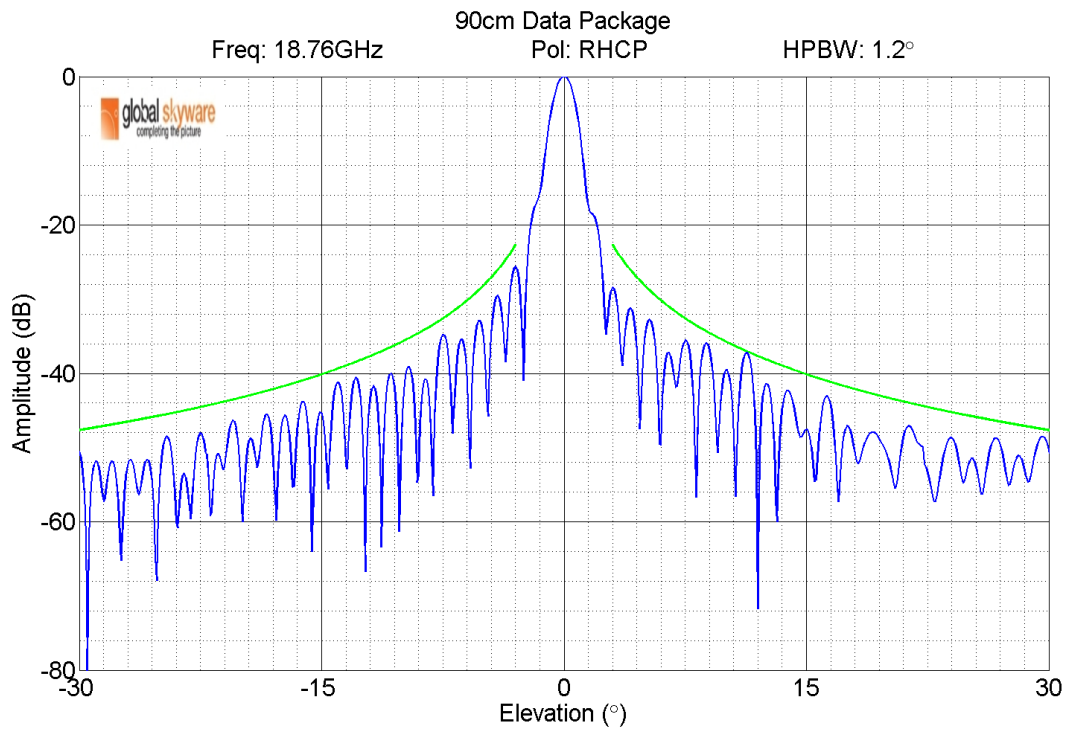


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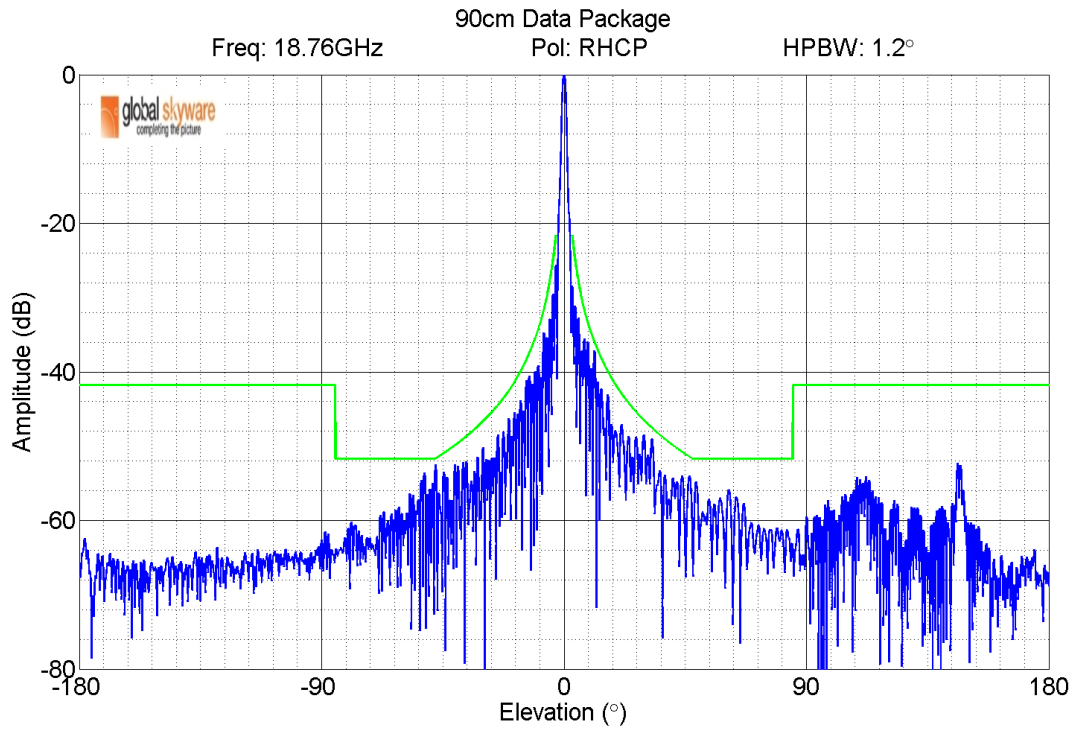




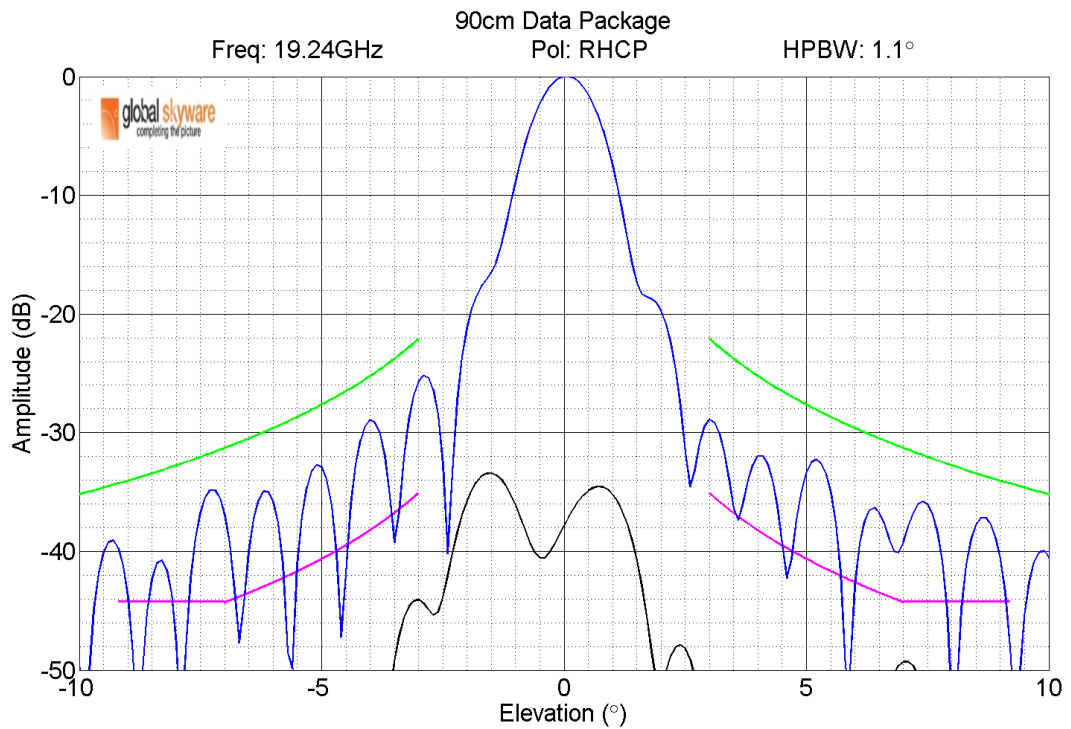
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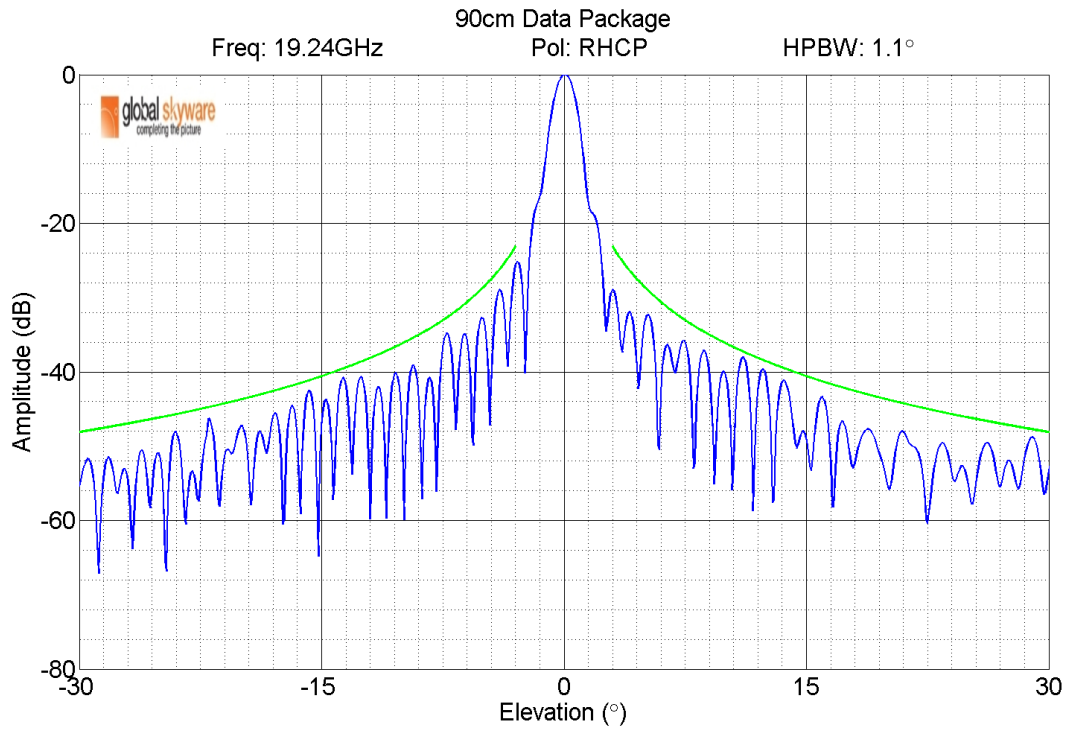
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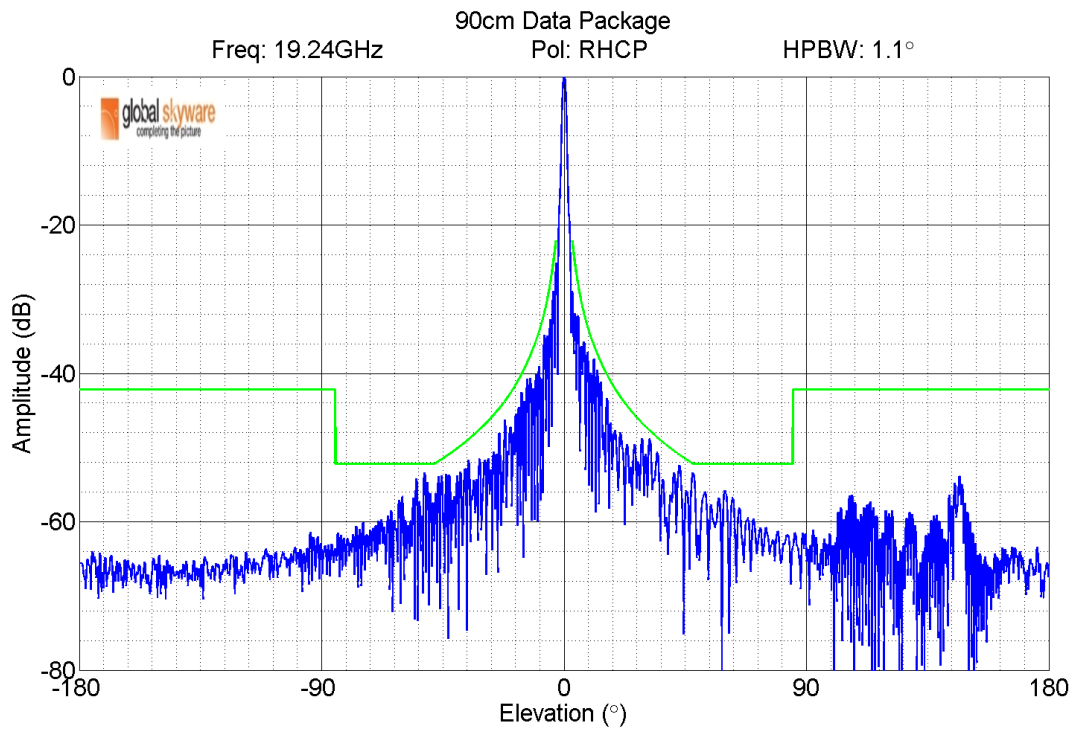
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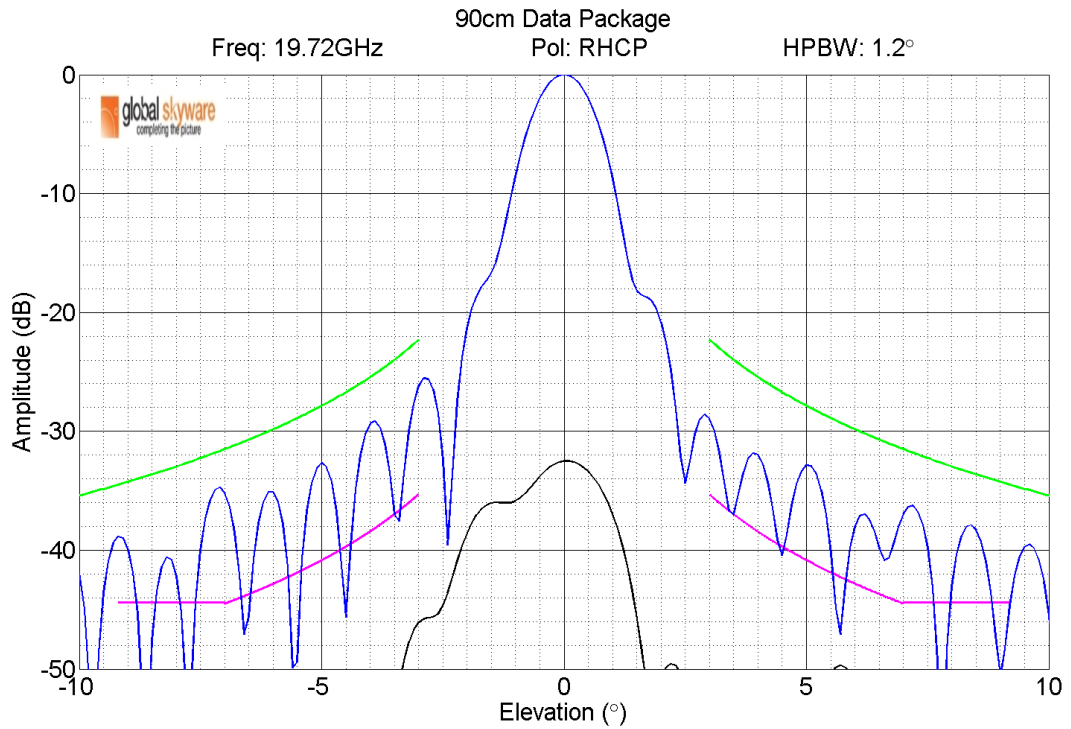
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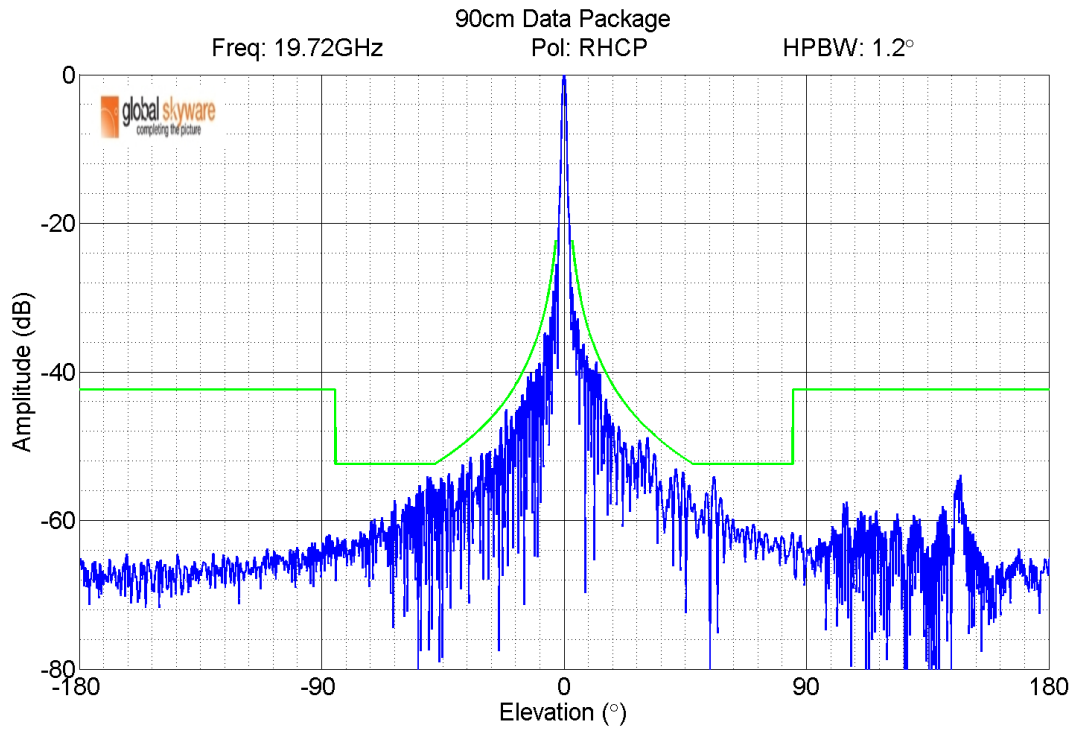
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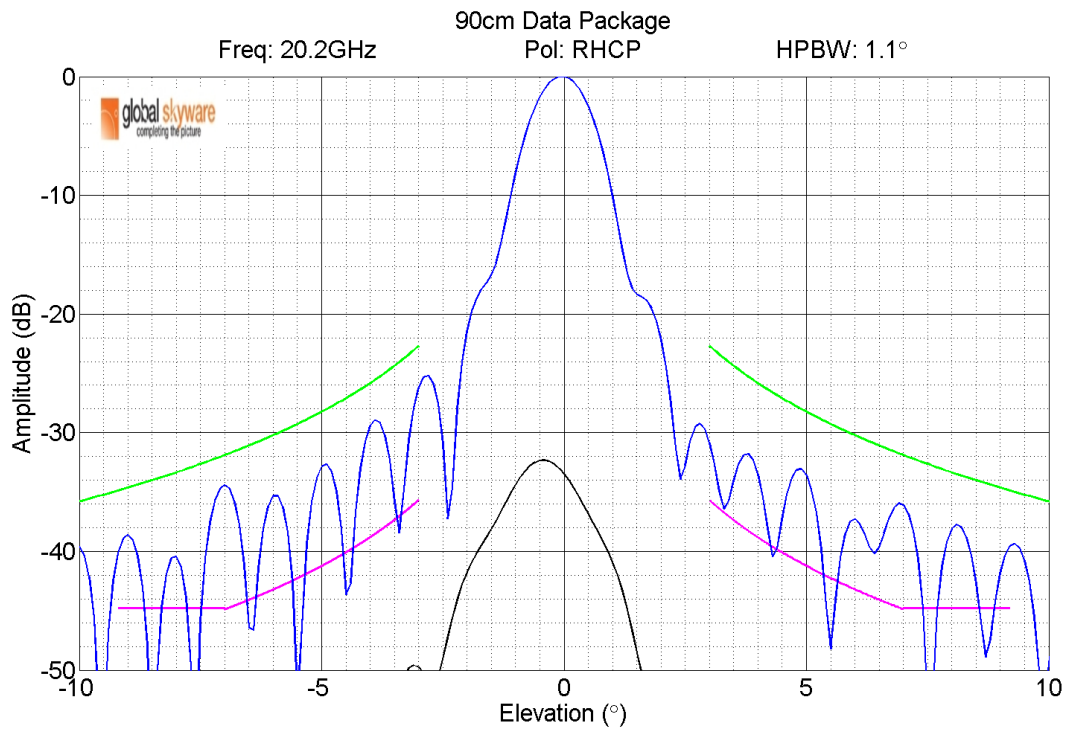
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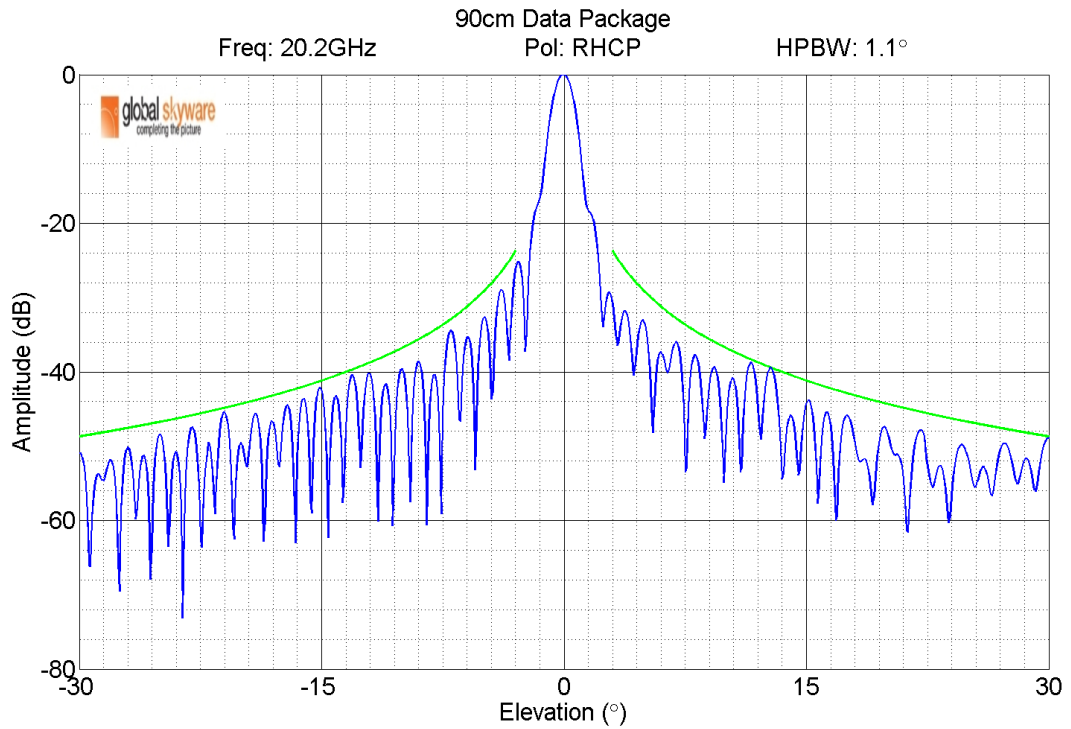
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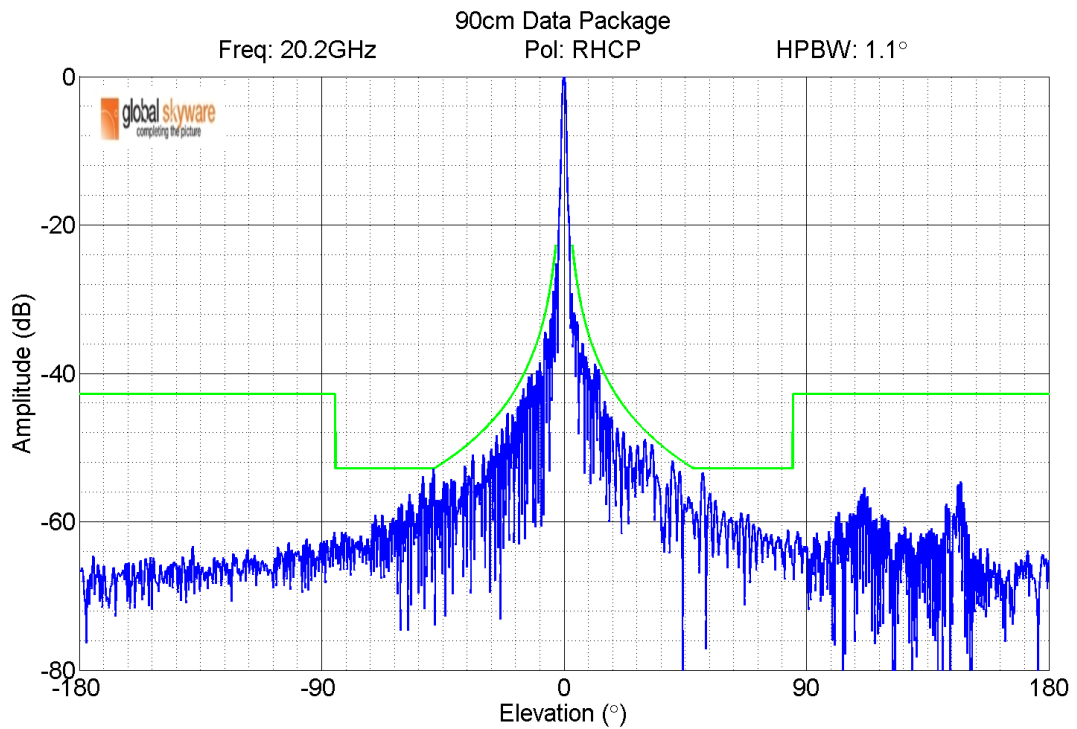
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### 3.5 RX Gain

