Bin number	Polar angles	Azimuthal angles
1	$\theta_p \in [0, \pi/4]$ and $\theta_{\Delta^{++}} \in [0, \pi/4]$ $\theta_p \in [\pi/2, 3\pi/4]$ and $\theta_{\Delta^{++}} \in [\pi/2, 3\pi/4]$	$|\varphi| \in [0, \pi/2]$
2	$\theta_p \in [0, \pi/4]$ and $\theta_{\Delta^{++}} \in [\pi/4, \pi/2]$ $\theta_p \in [\pi/2, 3\pi/4]$ and $\theta_{\Delta^{++}} \in [3\pi/4, \pi]$	$|\varphi| \in [0, \pi/2]$
3	$\theta_p \in [0, \pi/4]$ and $\theta_{\Delta^{++}} \in [\pi/2, 3\pi/4]$ $\theta_p \in [\pi/2, 3\pi/4]$ and $\theta_{\Delta^{++}} \in [0, \pi/4]$	$|\varphi| \in [0, \pi/2]$
4	$\theta_p \in [0, \pi/4]$ and $\theta_{\Delta^{++}} \in [3\pi/4, \pi]$ $\theta_p \in [\pi/2, 3\pi/4]$ and $\theta_{\Delta^{++}} \in [\pi/4, \pi/2]$	$|\varphi| \in [0, \pi/2]$
5	$\theta_p \in [\pi/4, \pi/2]$ and $\theta_{\Delta^{++}} \in [0, \pi/4]$ $\theta_p \in [3\pi/4, \pi]$ and $\theta_{\Delta^{++}} \in [\pi/2, 3\pi/4]$	$|\varphi| \in [0, \pi/2]$
6	$\theta_p \in [\pi/4, \pi/2]$ and $\theta_{\Delta^{++}} \in [\pi/4, \pi/2]$ $\theta_p \in [3\pi/4, \pi]$ and $\theta_{\Delta^{++}} \in [3\pi/4, \pi]$	$|\varphi| \in [0, \pi/2]$
7	$\theta_p \in [\pi/4, \pi/2]$ and $\theta_{\Delta^{++}} \in [\pi/2, 3\pi/4]$ $\theta_p \in [3\pi/4, \pi]$ and $\theta_{\Delta^{++}} \in [0, \pi/4]$	$|\varphi| \in [0, \pi/2]$
8	$\theta_p \in [\pi/4, \pi/2]$ and $\theta_{\Delta^{++}} \in [3\pi/4, \pi]$ $\theta_p \in [3\pi/4, \pi]$ and $\theta_{\Delta^{++}} \in [\pi/4, \pi/2]$	$|\varphi| \in [0, \pi/2]$
9	$\theta_p \in [0, \pi/4]$ and $\theta_{\Delta^{++}} \in [0, \pi/4]$ $\theta_p \in [\pi/2, 3\pi/4]$ and $\theta_{\Delta^{++}} \in [\pi/2, 3\pi/4]$	$|\varphi| \in [\pi/2, \pi]$
10	$\theta_p \in [0, \pi/4]$ and $\theta_{\Delta^{++}} \in [\pi/4, \pi/2]$ $\theta_p \in [\pi/2, 3\pi/4]$ and $\theta_{\Delta^{++}} \in [3\pi/4, \pi]$	$|\varphi| \in [\pi/2, \pi]$
11	$\theta_p \in [0, \pi/4]$ and $\theta_{\Delta^{++}} \in [\pi/2, 3\pi/4]$ $\theta_p \in [\pi/2, 3\pi/4]$ and $\theta_{\Delta^{++}} \in [0, \pi/4]$	$|\varphi| \in [\pi/2, \pi]$
12	$\theta_p \in [0, \pi/4]$ and $\theta_{\Delta^{++}} \in [3\pi/4, \pi]$ $\theta_p \in [\pi/2, 3\pi/4]$ and $\theta_{\Delta^{++}} \in [\pi/4, \pi/2]$	$|\varphi| \in [\pi/2, \pi]$
13	$\theta_p \in [\pi/4, \pi/2]$ and $\theta_{\Delta^{++}} \in [0, \pi/4]$ $\theta_p \in [3\pi/4, \pi]$ and $\theta_{\Delta^{++}} \in [\pi/2, 3\pi/4]$	$|\varphi| \in [\pi/2, \pi]$
14	$\theta_p \in [\pi/4, \pi/2]$ and $\theta_{\Delta^{++}} \in [\pi/4, \pi/2]$ $\theta_p \in [3\pi/4, \pi]$ and $\theta_{\Delta^{++}} \in [3\pi/4, \pi]$	$|\varphi| \in [\pi/2, \pi]$
15	$\theta_p \in [\pi/4, \pi/2]$ and $\theta_{\Delta^{++}} \in [\pi/2, 3\pi/4]$ $\theta_p \in [3\pi/4, \pi]$ and $\theta_{\Delta^{++}} \in [0, \pi/4]$	$|\varphi| \in [\pi/2, \pi]$
16	$\theta_p \in [\pi/4, \pi/2]$ and $\theta_{\Delta^{++}} \in [3\pi/4, \pi]$ $\theta_p \in [3\pi/4, \pi]$ and $\theta_{\Delta^{++}} \in [\pi/4, \pi/2]$	$|\varphi| \in [\pi/2, \pi]$