Power Density Simulation Report

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Google LLC

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1. Numerical modeling for Power Density (PD) calculations

1.1 Full-wave numerical computation tool

To calculate the Power Density (PD) of the phone at FR2 frequencies, a commercial software called HFSS [1], which is a part of ANSYS Electronics Desktop 2020 R2 package, is used. This software is a 3D full-wave electromagnetic (EM) computational solver based on Finite Element Method (FEM).

1.2 Full-wave simulation setup

1.2.1 Simulation model

The device includes one L-shaped mmWave module which consists of Plane A sub-module (Plane A Module) and Plane B sub-module (Plane B Module), located at the top and the back side of the device, respectively, as shown in Figure 1-1. In order to obtain accurate PD calculations, it is necessary to have accurate modeling of the mmWave antennas, as well as all other components of the device in close proximity to the mmWave antennas. The simulation model therefore must include all components of the device located within a distance of at least one wavelength from the mmWave module. A list of the components included in the simulation model includes housing, mmWave antenna module, sub6 antennas, PCB, shield cans, Flexible Printed Circuits (FPCs), battery, all components having metallic parts, etc.

1.2.2 Mesh settings and solution setup

ANSYS HFSS features an automatic adaptive mesh refinement algorithm that refines the computational mesh iteratively in regions with strong EM fields and thereby generates very accurate high-frequency simulation results. The steps of adaptive mesh refinement algorithm execution are as follows. First, an initial computational mesh is created, based on the solution setup parameters entered by the user, and is then used to obtain the initial solution for the EM fields of the simulation model. The algorithm then adaptively refines the mesh in each subsequent iteration until a desired solution accuracy, specified by the user, is achieved. The solution accuracy is commonly defined by a convergence parameter called ΔS, which is a variation in the magnitude of all S-parameters between the consecutive iterations of the algorithm [1]. The ΔS parameter specified for all PD simulations presented in this report is 0.02. Figure 1-1 shows an example cut surface in the model showing a tetrahedral computational mesh created by the adaptive mesh refinement algorithm in one of the HFSS simulation models. A radiation boundary with Absorbing Boundary Condition (ABC) is assigned to the outer surface of an air-box surrounding the simulation model, which allows the EM waves to propagate outward from the boundary of the domain without generating any reflected EM waves.

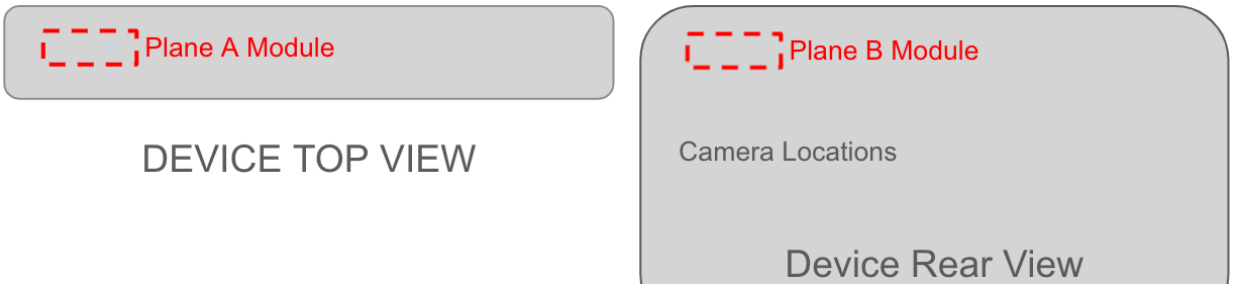

Figure 1-1 Placement of the L-shaped mmWave module, called Plane-A sub-module and Plane-B sub-module, at the top and the back side of the device, respectively.

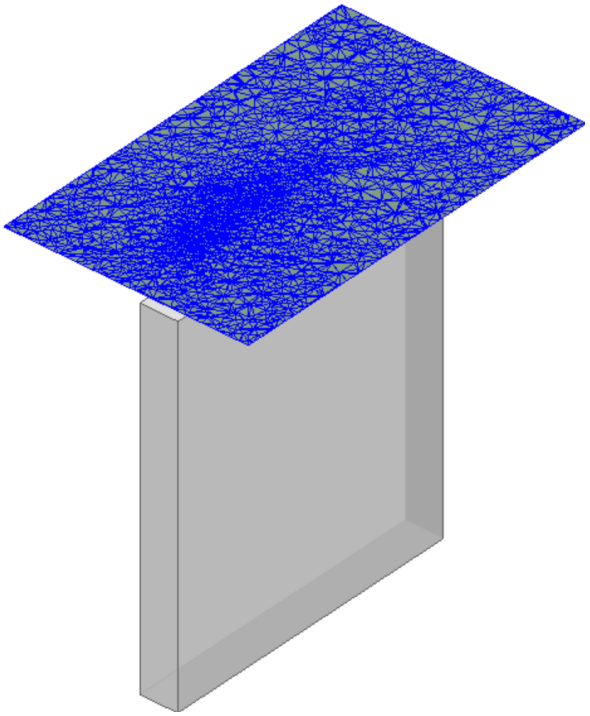

Figure 1-2 An example cut surface in an HFSS simulation model showing the tetrahedral mesh created by the adaptive mesh refinement algorithm.

The FEM simulations are performed for the mmWave module that includes Plane A sub-module and Plane B sub-module, as shown in Figure 1-1. In the simulation, 32 wave-ports are assigned to the feed points of the mmWave antenna arrays. Each sub-module has 16 feeding ports. Specifically, eight of them excite the vertical polarization on the antenna array, called V-pol, and the other eight wave-ports excite the horizontal polarization, called H-pol. After the FEM simulations are completed and full-wave EM solutions are obtained, the magnitude and phase

values of the 32 wave-ports excitation signals are sequentially assigned for each of the beams in the codebook. This is accomplished as a post-processing step by using the “Edit post process sources” tab in the HFSS environment, as shown in Figure 1-3 for one of the beams from the codebook.

Spectral Fields | Source Contexts

	Source	Type	Magnitude	Unit	Phase	Unit
1	HFSSDesign1_1_1:1	Port	0	W	0	deg
2	HFSSDesign1_1_2:1	Port	0	W	0	deg
3	HFSSDesign1_1_3:1	Port	0	W	0	deg
4	HFSSDesign1_1_4:1	Port	0	W	0	deg
5	HFSSDesign1_1_5:1	Port	0	W	0	deg
6	HFSSDesign1_1_6:1	Port	0	W	0	deg
7	HFSSDesign1_1_7:1	Port	0	W	0	deg
8	HFSSDesign1_1_8:1	Port	0	W	0	deg
9	HFSSDesign1_1_9:1	Port	0	W	0	deg
10	HFSSDesign1_1_10:1	Port	0	W	0	deg
11	HFSSDesign1_1_11:1	Port	0	W	0	deg
12	HFSSDesign1_1_12:1	Port	0	W	0	deg
13	HFSSDesign1_1_13:1	Port	0	W	0	deg
14	HFSSDesign1_1_14:1	Port	0	W	0	deg
15	HFSSDesign1_1_15:1	Port	0	W	0	deg
16	HFSSDesign1_1_16:1	Port	0	W	0	deg
17	HFSSDesign1_1_17:1	Port	0	W	0	deg
18	HFSSDesign1_1_18:1	Port	0	W	0	deg
19	HFSSDesign1_1_19:1	Port	0	W	0	deg
20	HFSSDesign1_1_20:1	Port	0	W	0	deg
21	HFSSDesign1_1_21:1	Port	0	W	0	deg
22	HFSSDesign1_1_22:1	Port	0	W	0	deg
23	HFSSDesign1_1_23:1	Port	0	W	0	deg
24	HFSSDesign1_1_24:1	Port	0	W	0	deg
25	HFSSDesign1_1_25:1	Port	0	W	0	deg
26	HFSSDesign1_1_26:1	Port	0	W	0	deg
27	HFSSDesign1_1_27:1	Port	0	W	0	deg
28	HFSSDesign1_1_28:1	Port	0	W	0	deg
29	HFSSDesign1_1_29:1	Port	0	W	0	deg
30	HFSSDesign1_1_30:1	Port	1	W	0	deg
31	HFSSDesign1_1_31:1	Port	0	W	0	deg
32	HFSSDesign1_1_32:1	Port	0	W	0	deg

Figure 1-3 An example of magnitude and phase assignments to the wave-ports in the “Edit post process sources” tab in the HFSS environment.

1.2.3 Time-averaged PD calculation

After the convergence criterion is achieved in the last iterative pass, that is Max{|ΔS|} is smaller

than the specified value of the convergence parameter ΔS (that being 0.02 in this report, as mentioned above), the values of the electric and magnetic field vectors $\vec{E}$ and $\vec{H}$ respectively, are calculated, and then used to calculate the *PD* by the following formula:

$$PD = \frac{1}{2}\left|Re\left\{\vec{E} \times \vec{H}^{*}\right\}\right|$$

Based on the calculated *PD*, the time-averaged *PD* (PD_{ave}) over a surface *A* can be obtained as:

$$PD_{ave} = \frac{1}{2A}\int_{A}\left|Re\left\{\vec{E} \times \vec{H}^{*}\right\}\right| \cdot dS$$

In order to determine the RF exposure from the mmW antennas in the device, the values of the electric and magnetic field vectors at the six surfaces S1, S2, S3, S4, S5, and S6 shown in Figure 1-4 are needed. Depending on the simulation or measurement setting, the distance from these six surfaces to the device is set to be either 2 mm or 10 mm. As long as the distance between mmWave sub-module and any six surfaces is greater than 25mm, the surface integration terms in the above formula for the PD_{ave} corresponding to some of these six surfaces are negligible, and thus can be excluded from the PD_{ave} calculation. Using square markings, Table 1-1 specifies which one of the six surfaces needs to be used in the above formula for the PD_{ave} calculation. As seen, the surfaces S1, S2, S3, and S5 need to be used in the PD_{ave} calculations for both planes.

In the spatially averaged power density calculations, the surface *A* is a circle in the evaluation plane with an area of 4 [cm^2]. Furthermore, PD_{ave} is calculated at the points of a grid with 0.1 mm step size defined in each evaluation plane.

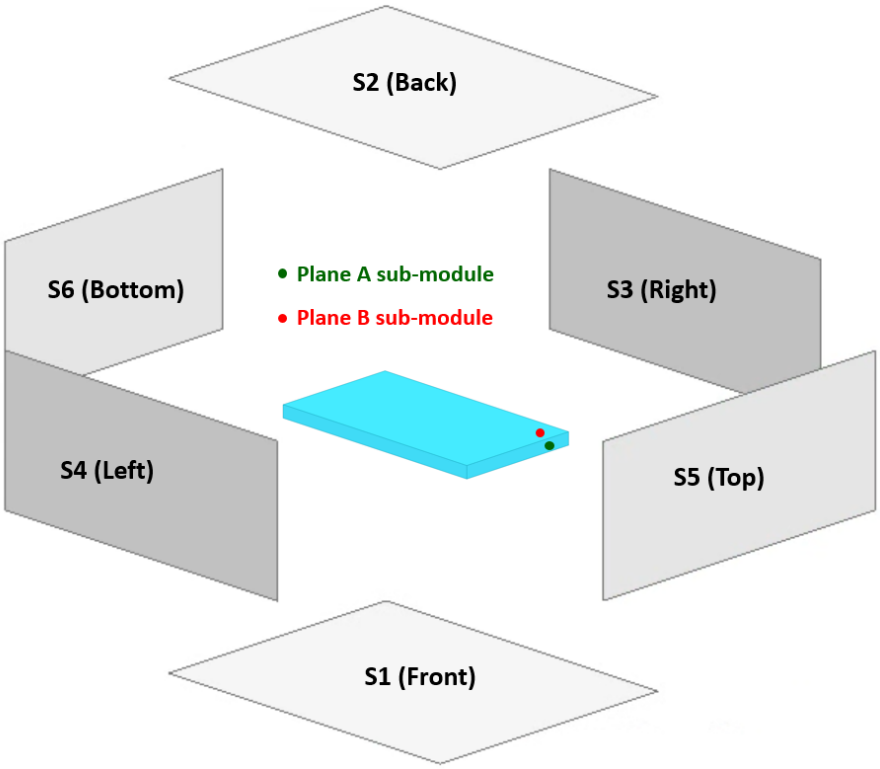

Figure 1-4 *PD* evaluation surfaces. Averaged power densities (PD_{ave}) are calculated and measured on the specified surfaces (S1, S2, S3, and S5) surrounding the phone.

Table 1-1 *PD* evaluation surfaces considered for each mmWave module in the device.

	S1 (front)	S2 (back)	S3 (right)	S4 (left)	S5 (top)	S6 (bottom)
Plane A Module				✗		✗
Plane B Module				✗		✗

2. Simulation and modeling validation

2.1 Comparison between simulation and measurement

Following the time-average *PD* calculation procedure described in section 1.2.3, the distributions of *PD* and PD_{ave} are calculated in the evaluation planes and are compared with the measurements for a selected number of beams, with highest PD_{ave} values compared to the other beams, whose IDs are listed in Table 2-1. Also shown in this table are simulated and measured results for the PD_{ave} for both n260 and n261 frequency bands, as well as Horizontal,

Vertical, and Horizontal + Vertical (Simultaneous Transmit) polarizations, denoted as H, V and H+V, respectively. For Plane B Module, PD_{ave} of 2mm from DUT is used for calculating minimum target power while PD_{ave} of 2mm from Camera Bump (CB) is used to derive the correction factor. Figure 2-1 shows orientation of the device for the *PD* and PD_{ave} distribution plots presented in Figures 2-2 to 2-25. The presented plots demonstrate a good agreement between simulated and measured results for both *PD* and PD_{ave}.

Test No.	Module	Beam ID	Pol	Band	Freq.(GHz)	Exposure Surface	Test Distance	Ref. Plane	Meas. (W/m2)	Sim. (W/m2)	Sim. - Meas. (dB)
1	Plane A	0	H	n260	38.5	Top (S5)	2mm	DUT	9.18	11.31	0.906
2	Plane A	6	V	n260	38.5	Top (S5)	2mm	DUT	9.41	11.35	0.814
3	Plane A	3	H+V	n260	38.5	Top (S5)	2mm	DUT	24.8	27.65	0.472
4	Plane B	1	H	n260	38.5	Back (S2)	2mm	CB	11.9	9.77	-0.857
5	Plane B	3	V	n260	38.5	Back (S2)	2mm	CB	9.78	10.14	0.157
6	Plane B	4	H+V	n260	38.5	Back (S2)	2mm	CB	19.5	24.09	0.918
-	Plane B	6	H+V	n260	38.5	Back (S2)	2mm	DUT	-	31.84	-
7	Plane A	5	H	n261	27.925	Top (S5)	2mm	DUT	9.62	18.44	2.826
8	Plane A	1	V	n261	27.925	Top (S5)	2mm	DUT	9.38	18.45	2.938
9	Plane A	2	H+V	n261	27.925	Top (S5)	2mm	DUT	26.7	38.55	1.595
10	Plane B	4	H	n261	27.925	Back (S2)	2mm	CB	13.5	13.35	-0.049
11	Plane B	2	V	n261	27.925	Back (S2)	2mm	CB	14.1	16.64	0.719
12	Plane B	3	H+V	n261	27.925	Back (S2)	2mm	CB	31.2	31.06	-0.020
-	Plane B	3	H+V	n261	27.55	Back (S2)	2mm	DUT	-	41.98	-

Table 2-1 Simulated and measured PD_{ave} for selected beams with 18dBm and 21dBm target power at boresight for single and H+V polarization.

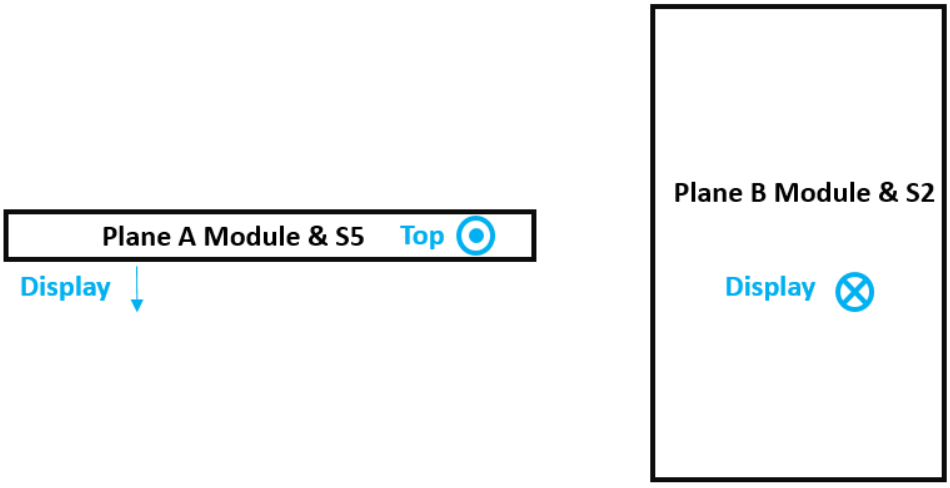

Figure 2-1 Orientation of the device for the *PD* distribution plots.

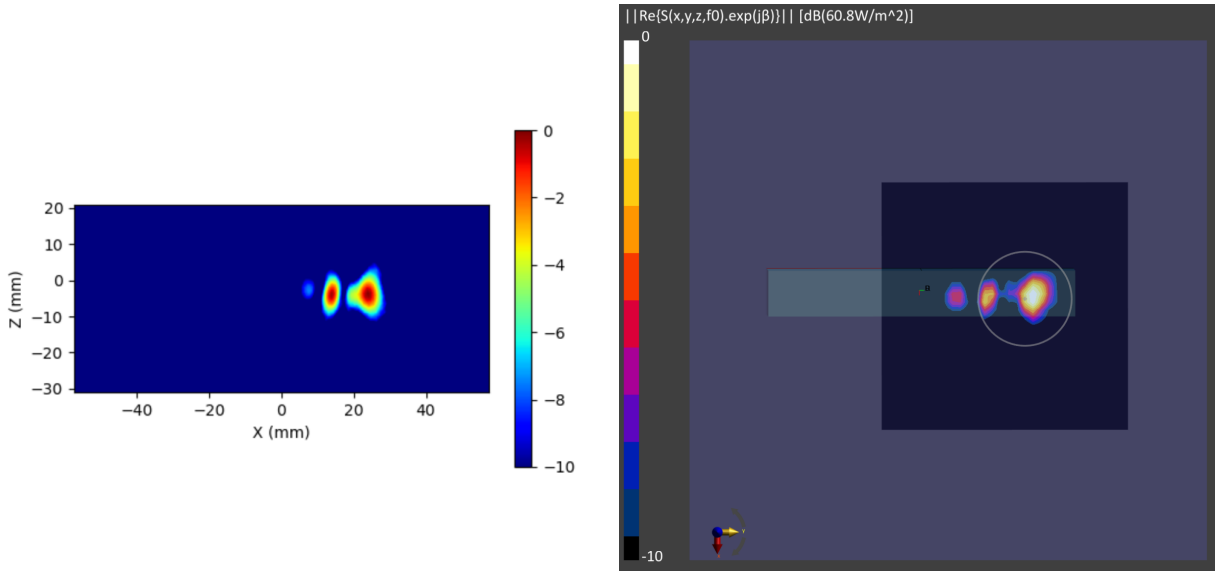

Figure 2-2 Simulated (left) and measured (right) *PD* distribution for the following configuration: Band n260, MID Channel, Beam ID 0, H polarization, Plane A Module, plotted on the surface S5 (top) with 2mm separation distance to the DUT.

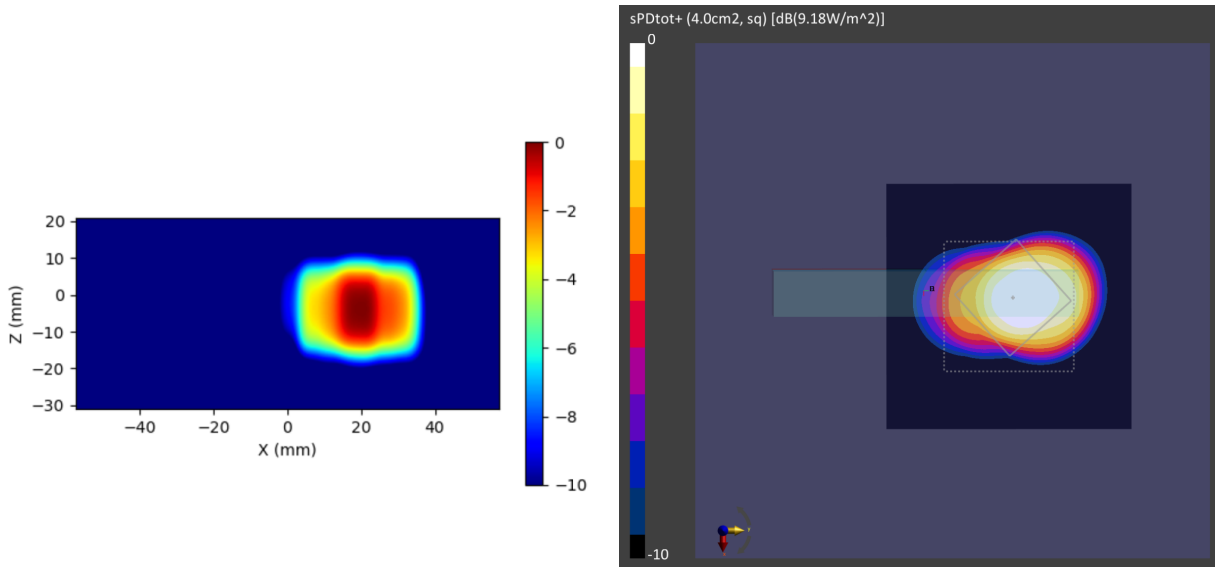

Figure 2-3 Simulated (left) and measured (right) averaged *PD* distribution for the following configuration: Band n260, MID Channel, Beam ID 0, H polarization, Plane A Module, plotted on the surface S5 (top) with 2mm separation distance to the DUT.

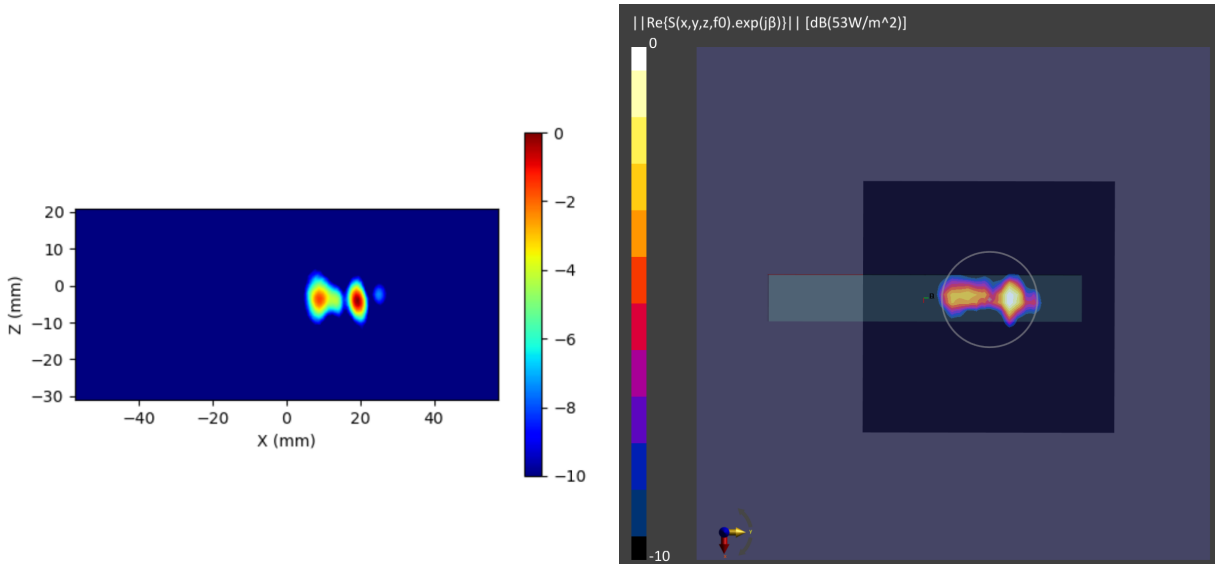

Figure 2-4 Simulated (left) and measured (right) *PD* distribution for the following configuration: Band n260, MID Channel, Beam ID 6, V polarization, Plane A Module, plotted on the surface S5 (top) with 2mm separation distance to the DUT.

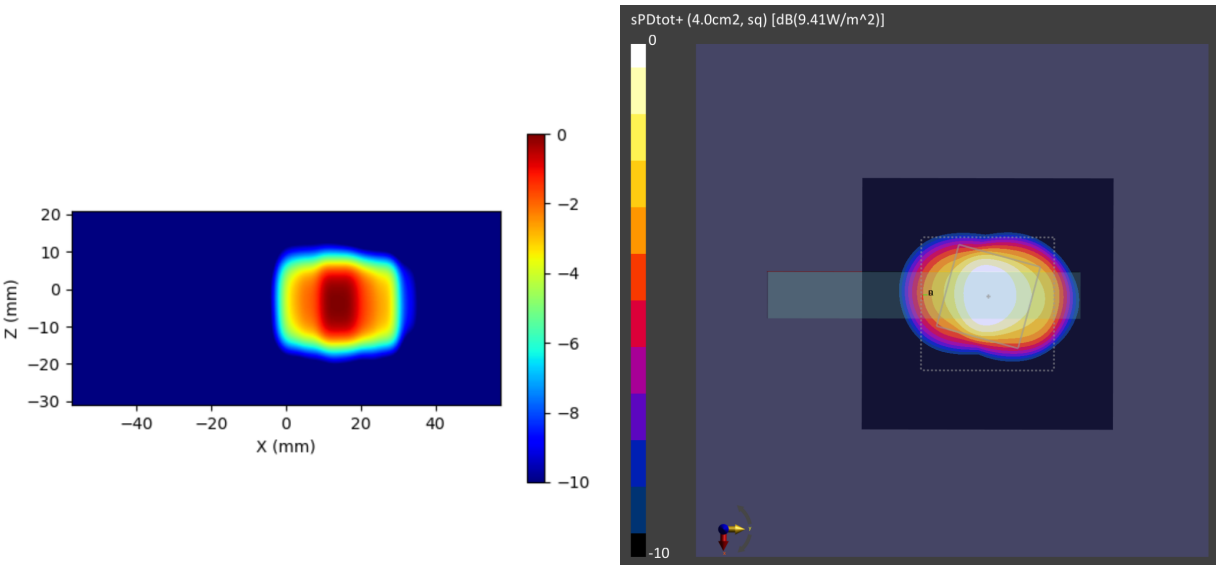

Figure 2-5 Simulated (left) and measured (right) averaged *PD* distribution for the following configuration: Band n260, MID Channel, Beam ID 6, V polarization, Plane A Module, plotted on the surface S5 (top) with 2mm separation distance to the DUT.

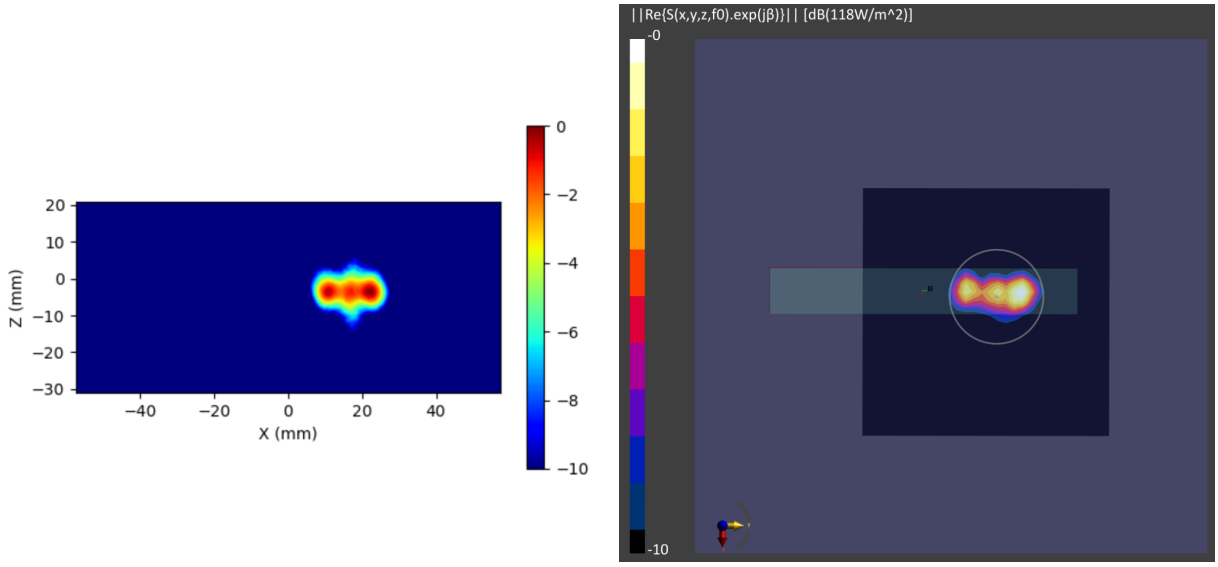

Figure 2-6 Simulated (left) and measured (right) *PD* distribution for the following configuration: Band n260, MID Channel, Beam ID 3, H+V polarization, Plane A Module, plotted on the surface S5 (top) with 2mm separation distance to the DUT.

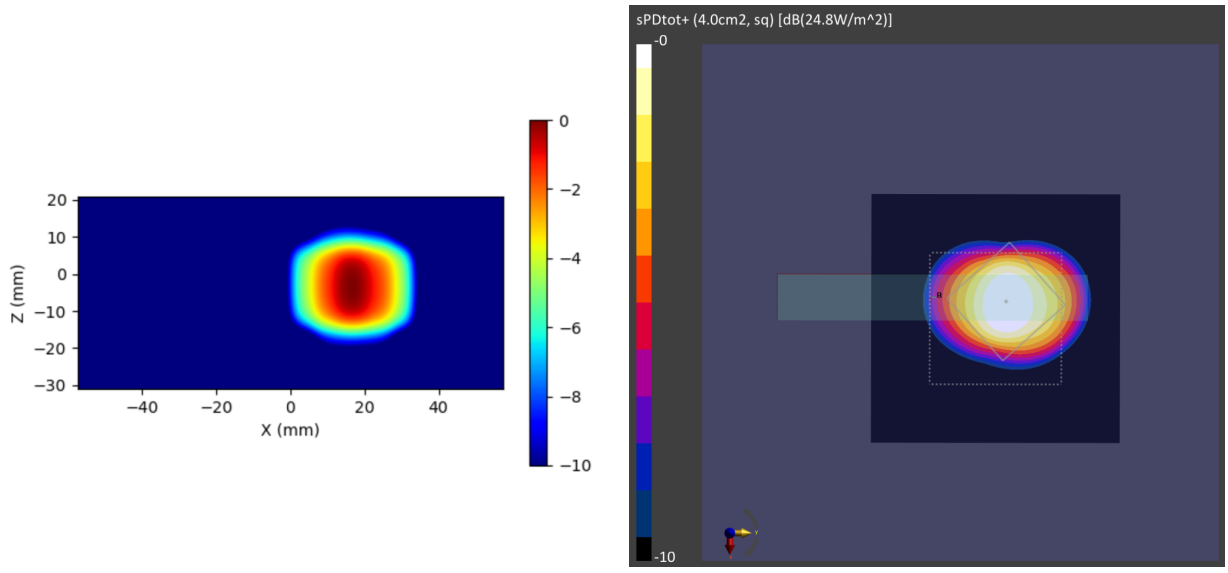

Figure 2-7 Simulated (left) and measured (right) averaged *PD* distribution for the following configuration: Band n260, MID Channel, Beam ID 3, H+V polarization, Plane A Module, plotted on the surface S5 (top) with 2mm separation distance to the DUT.

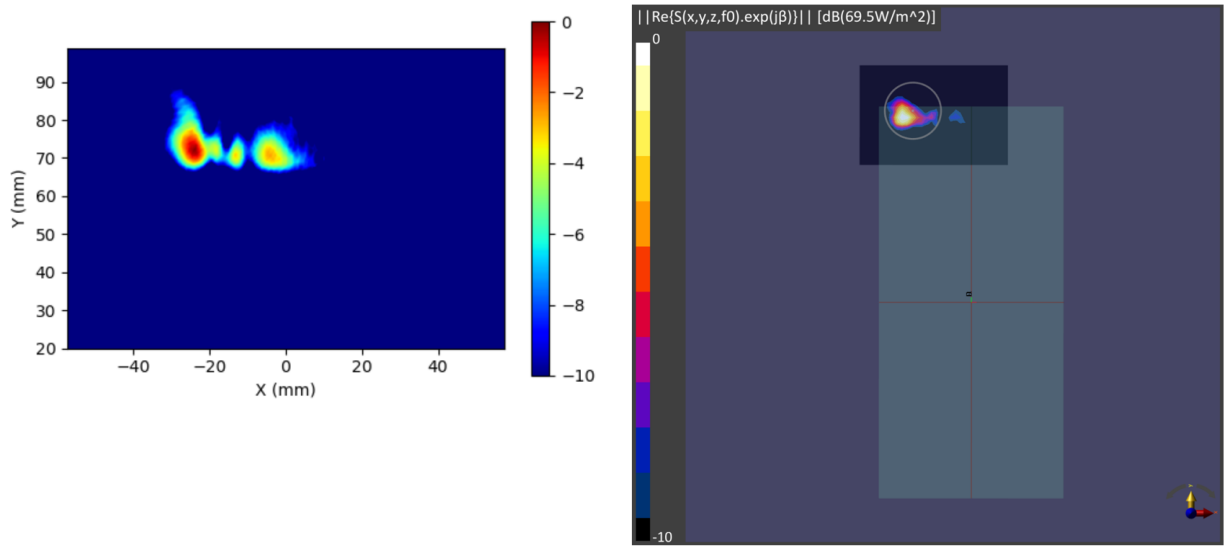

Figure 2-8 Simulated (left) and measured (right) *PD* distribution for the following configuration: Band n260, MID Channel, Beam ID 1, H polarization, Plane B Module, plotted on the surface S2 (back) with 2mm separation distance to the camera bump.

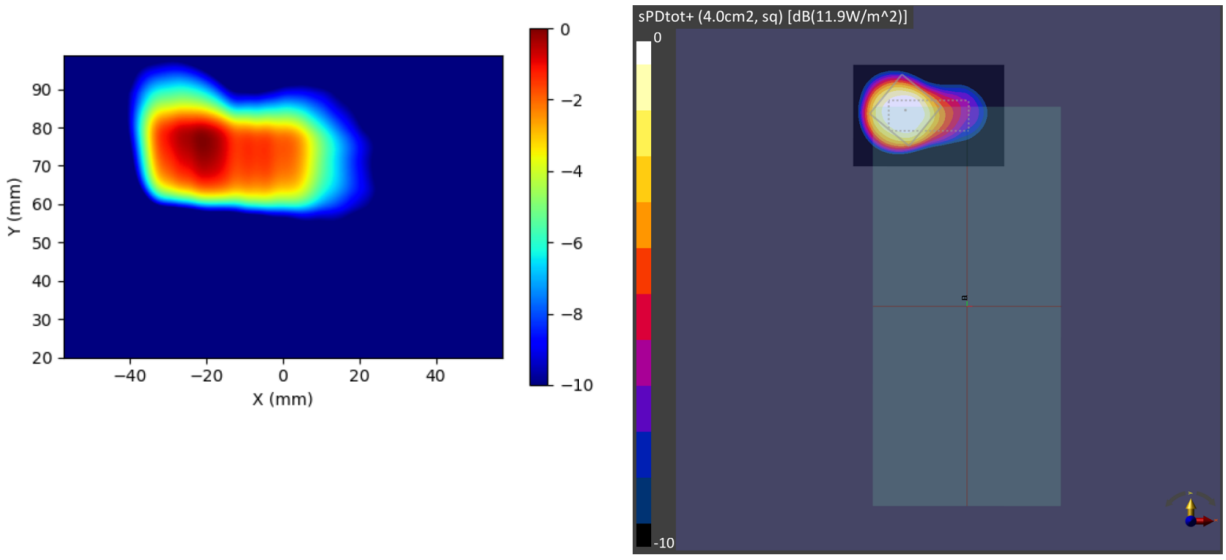

Figure 2-9 Simulated (left) and measured (right) averagged *PD* distribution for the following configuration: Band n260, MID Channel, Beam ID 1, H polarization, Plane B Module, plotted on the surface S2 (back) with 2mm separation distance to the camera bump.

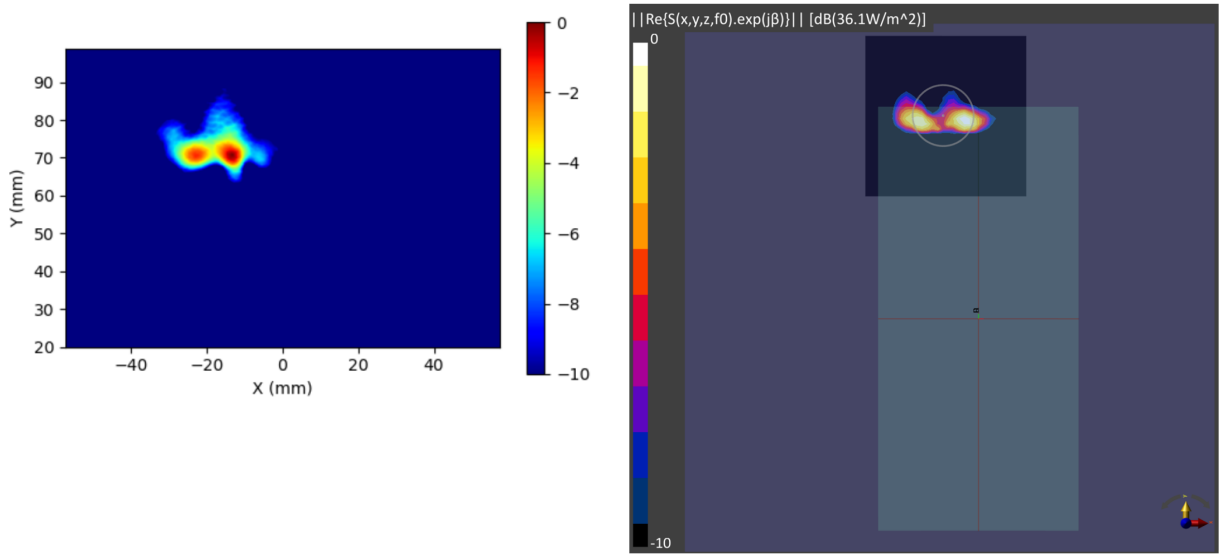

Figure 2-10 Simulated (left) and measured (right) *PD* distribution for the following configuration: Band n260, MID Channel, Beam ID 3, V polarization, Plane B Module, plotted on the surface S2 (back) with 2mm separation distance to the camera bump.

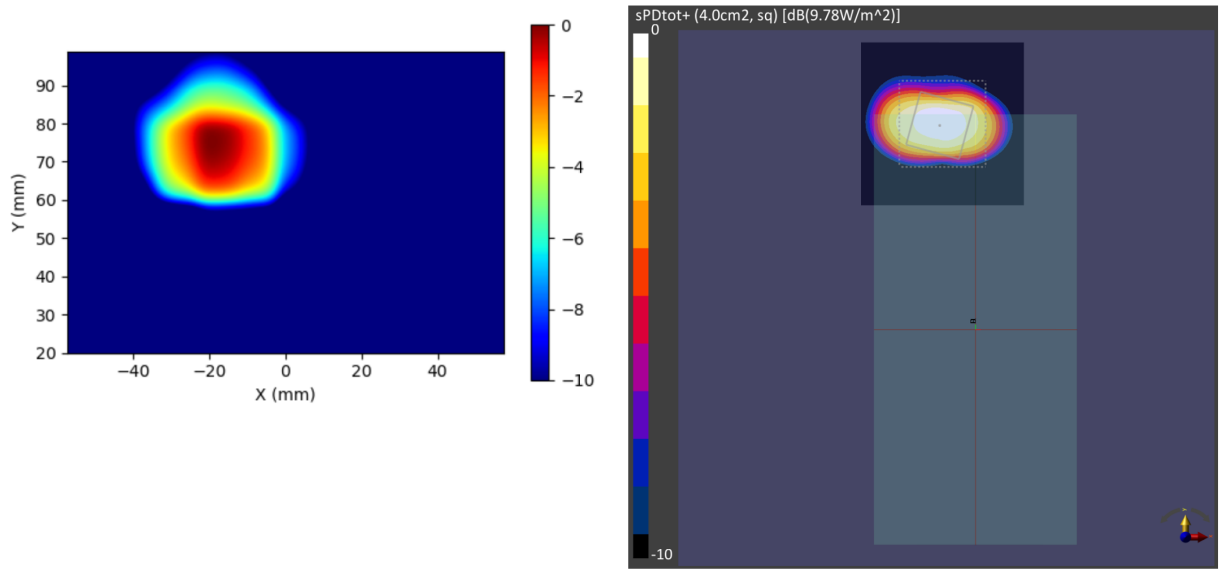

Figure 2-11 Simulated (left) and measured (right) averaged *PD* distribution for the following configuration: Band n260, MID Channel, Beam ID 3, V polarization, Plane B Module, plotted on the surface S2 (back) with 2mm separation distance to the camera bump.

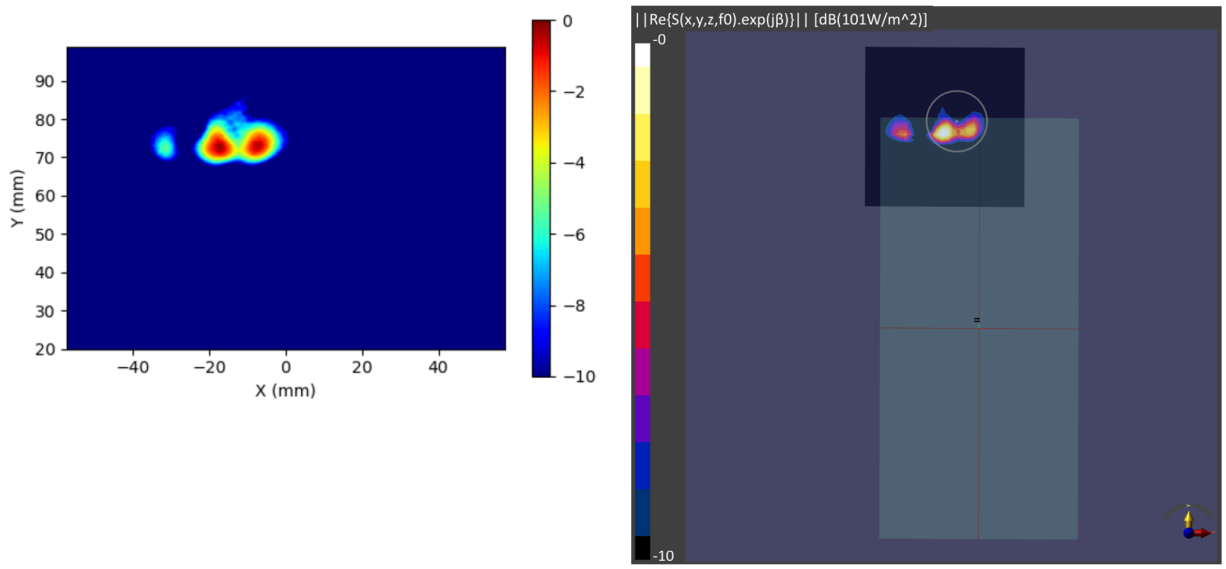

Figure 2-12 Simulated (left) and measured (right) *PD* distribution for the following configuration: Band n260, MID Channel, Beam ID 4, H+V polarization, Plane B Module, plotted on the surface S2 (back) with 2mm separation distance to the camera bump.

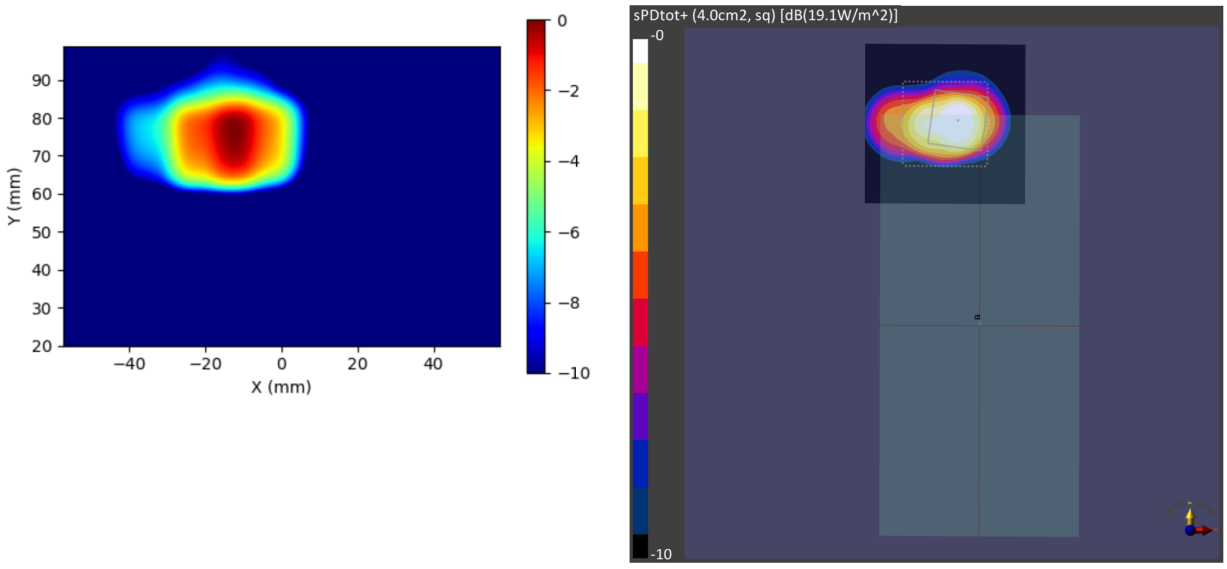

Figure 2-13 Simulated (left) and measured (right) averaged *PD* distribution for the following configuration: Band n260, MID Channel, Beam ID 4, H+V polarization, Plane B Module, plotted on the surface S2 (back) with 2mm separation distance to the camera bump.

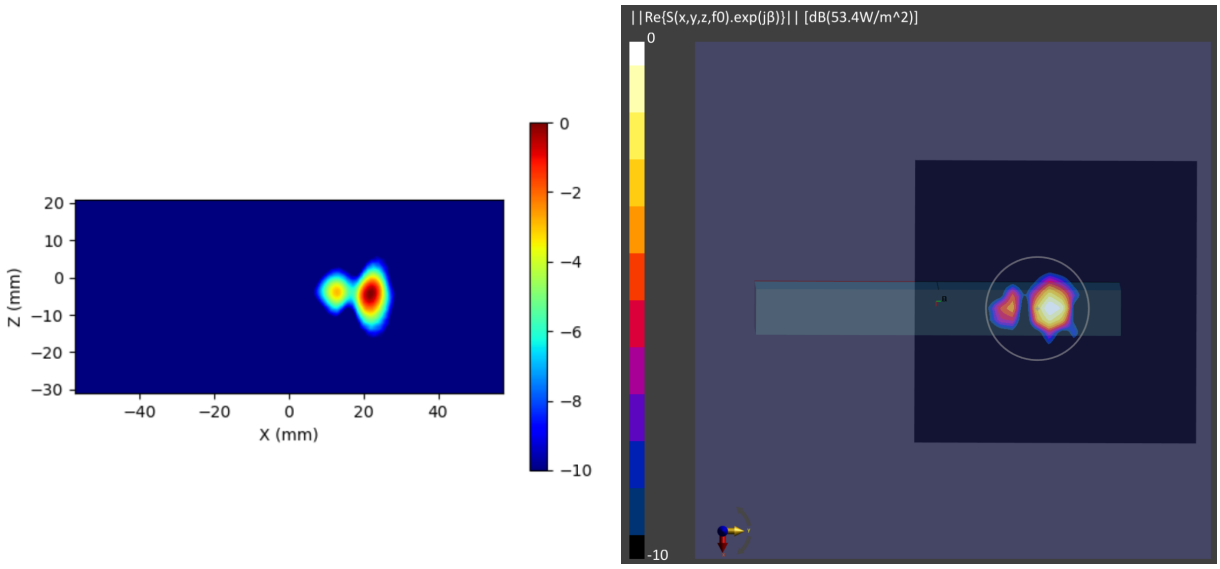

Figure 2-14 Simulated (left) and measured (right) *PD* distribution for the following configuration: Band n261, MID Channel, Beam ID 5, H polarization, Plane A Module, plotted on the surface S5 (top) with 2mm separation distance to the DUT.

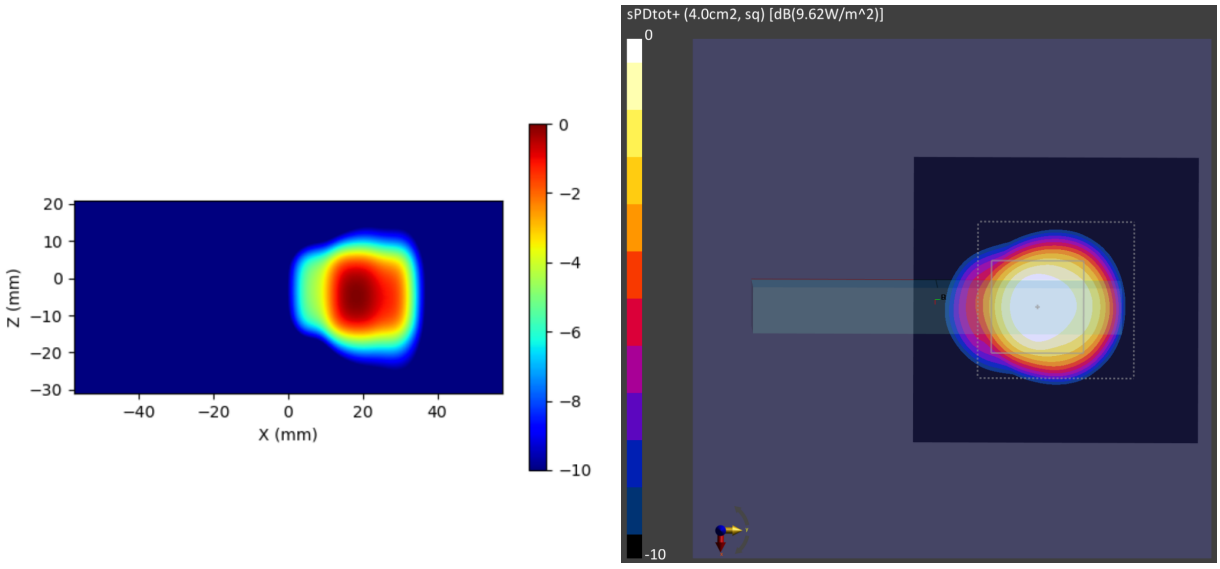

Figure 2-15 Simulated (left) and measured (right) averaged *PD* distribution for the following configuration: Band n261, MID Channel, Beam ID 5, H polarization, Plane A Module, plotted on the surface S5 (top) with 2mm separation distance to the DUT.

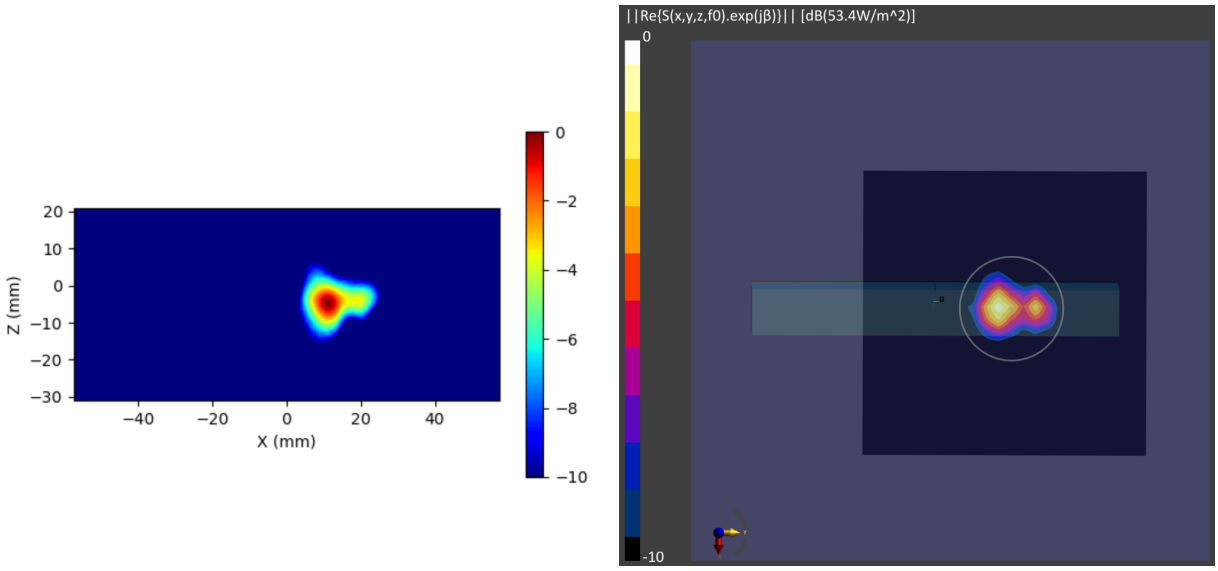

Figure 2-16 Simulated (left) and measured (right) *PD* distribution for the following configuration: Band n261, MID Channel, Beam ID 1, V polarization, Plane A Module, plotted on the surface S5 (top) with 2mm separation distance to the DUT.

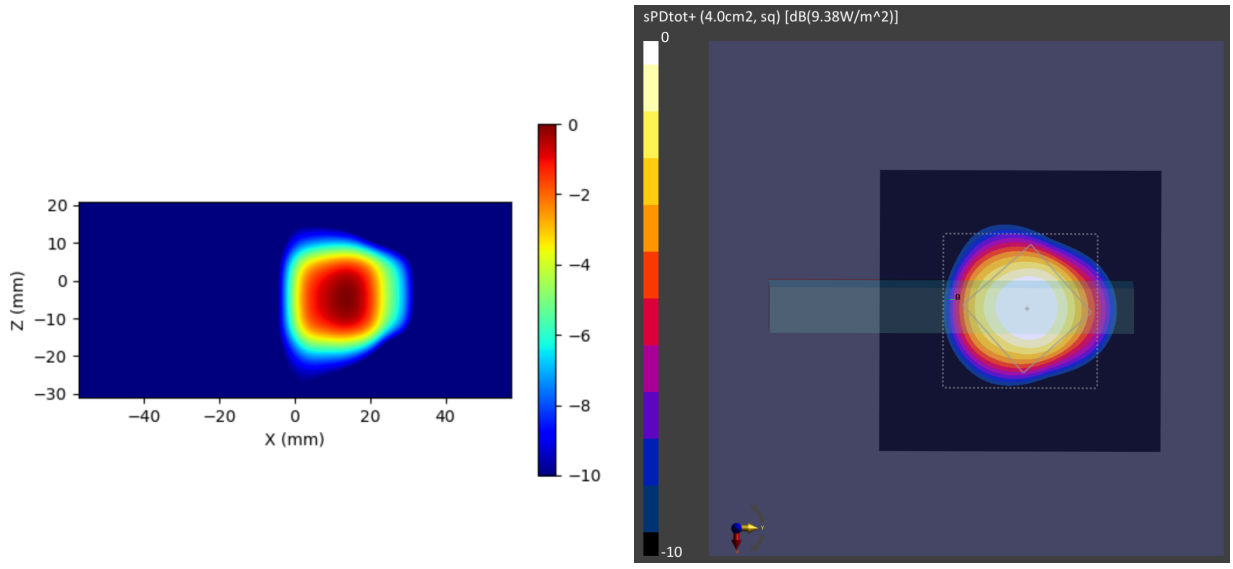

Figure 2-17 Simulated (left) and measured (right) averaged *PD* distribution for the following configuration: Band n261, MID Channel, Beam ID 1, V polarization, Plane A Module, plotted on the surface S5 (top) with 2mm separation distance to the DUT.

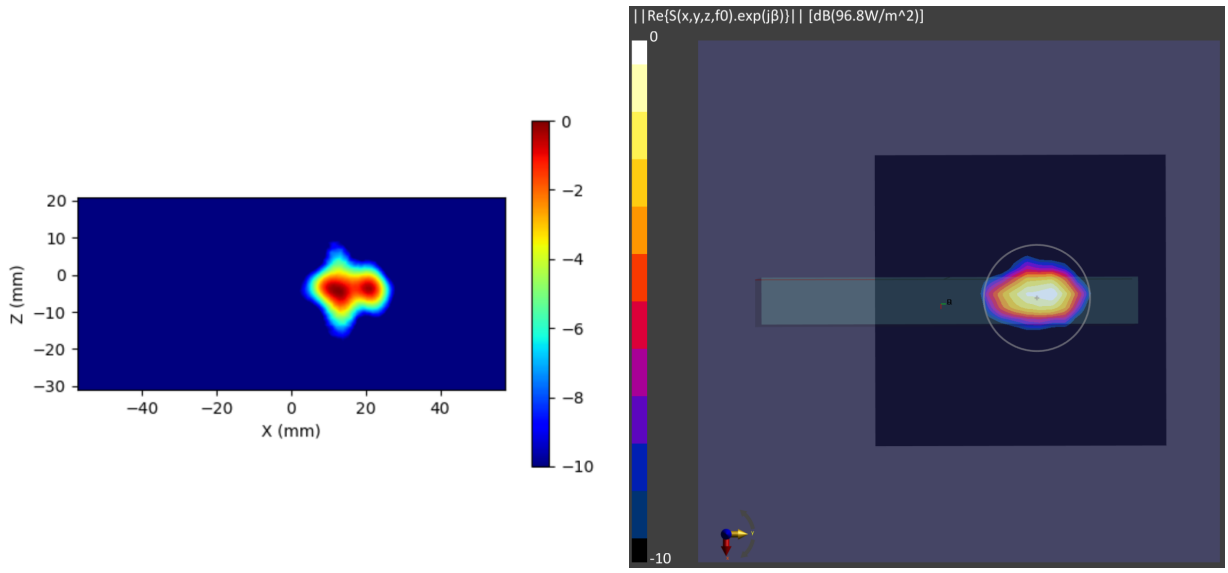

Figure 2-18 Simulated (left) and measured (right) *PD* distribution for the following configuration: Band n261, MID Channel, Beam ID 2, H+V polarization, Plane A Module, plotted on the surface S5 (top) with 2mm separation distance to the DUT.

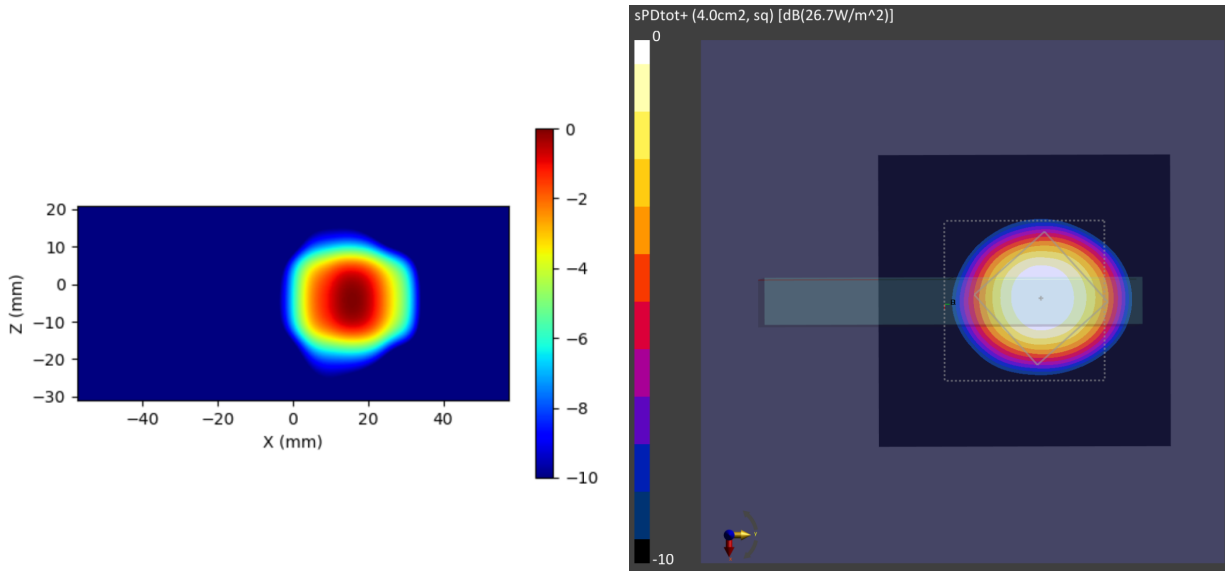

Figure 2-19 Simulated (left) and measured (right) averaged *PD* distribution for the following configuration: Band n261, MID Channel, Beam ID 2, H+V polarization, Plane A Module, plotted on the surface S5 (top) with 2mm separation distance to the DUT.

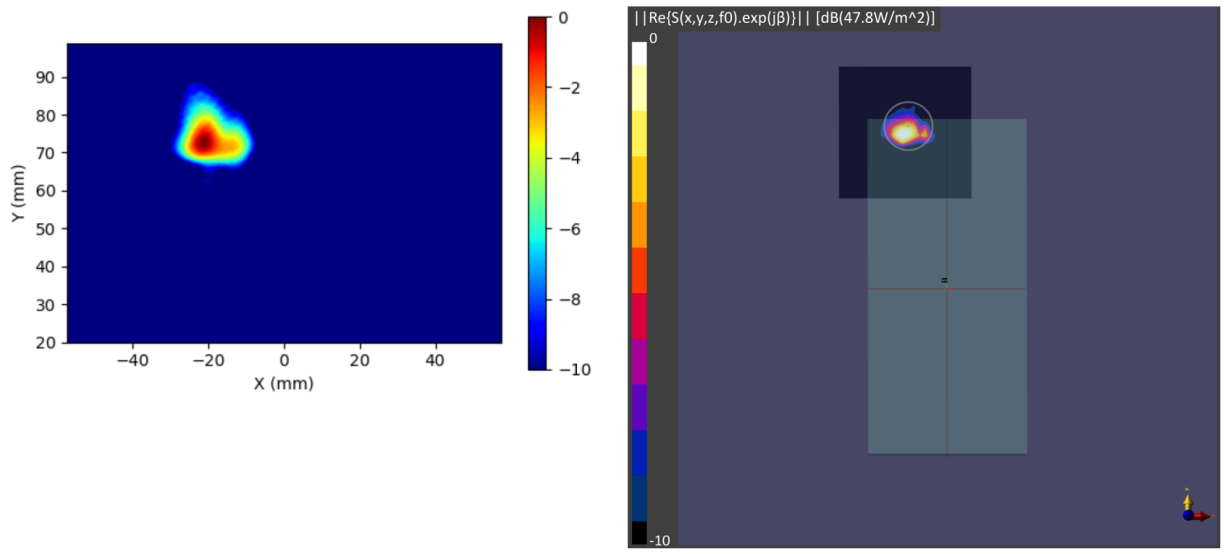

Figure 2-20 Simulated (left) and measured (right) *PD* distribution for the following configuration: Band n261, MID Channel, Beam ID 4, H polarization, Plane B Module, plotted on the surface S2 (back) with 2mm separation distance to the camera bump.

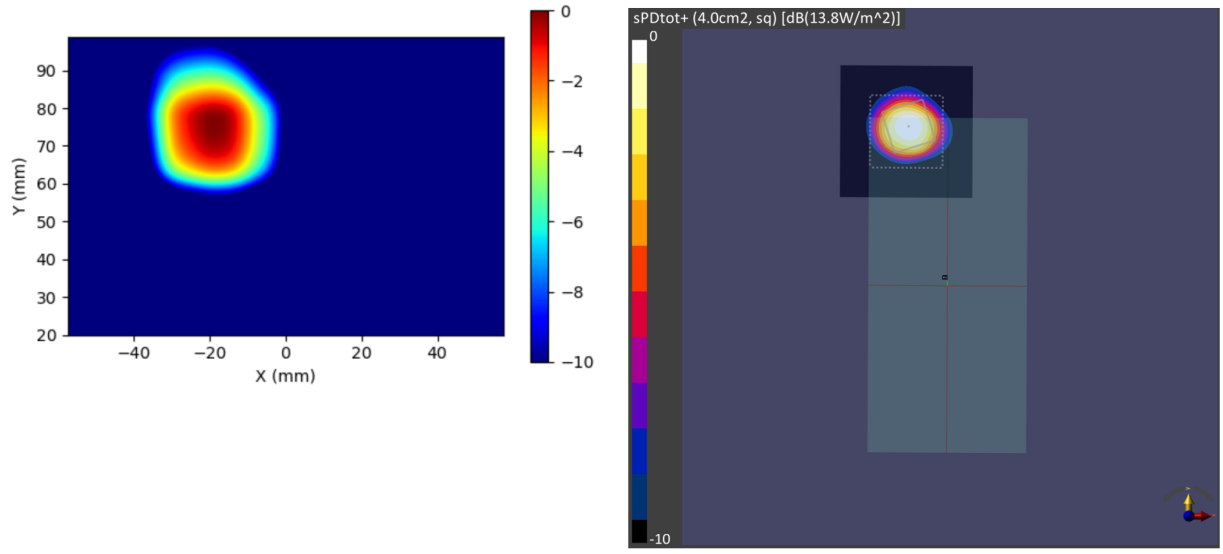

Figure 2-21 Simulated (left) and measured (right) averaged *PD* distribution for the following configuration: Band n261, MID Channel, Beam ID 4, H polarization, Plane B Module, plotted on the surface S2 (back) with 2mm separation distance to the camera bump.

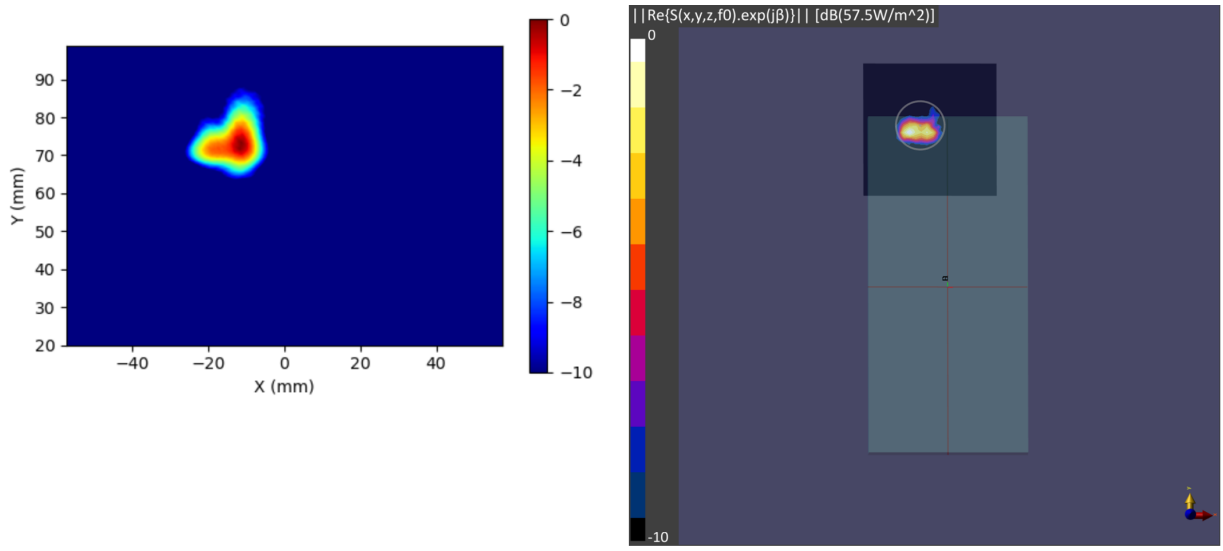

Figure 2-22 Simulated (left) and measured (right) *PD* distribution for the following configuration: Band n261, MID Channel, Beam ID 2, V polarization, Plane B Module, plotted on the surface S2 (back) with 2mm separation distance to the camera bump.

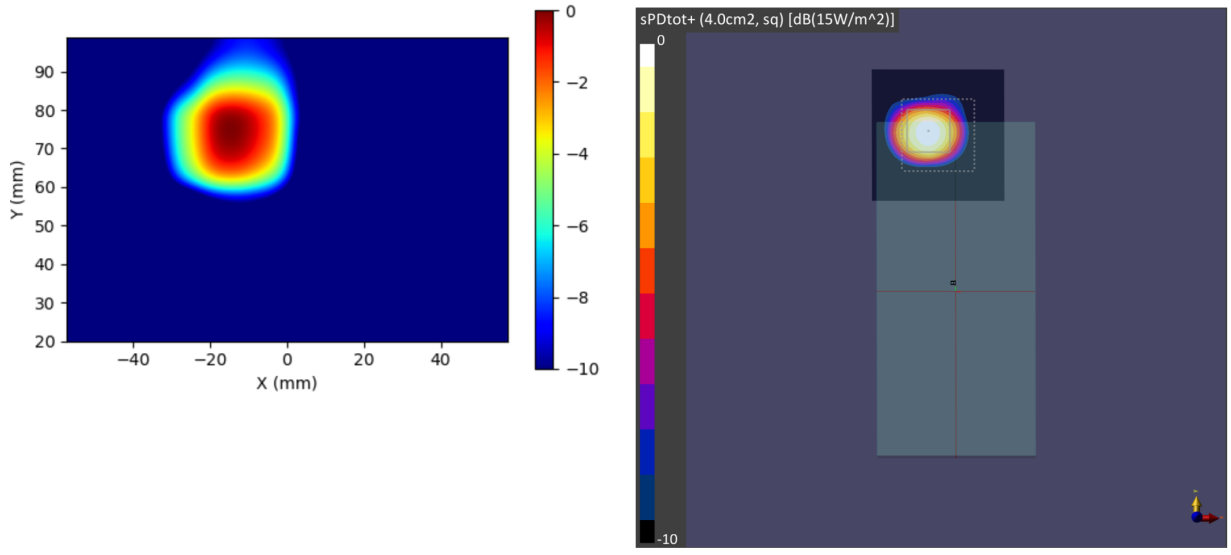

Figure 2-23 Simulated (left) and measured (right) averaged *PD* distribution for the following configuration: Band n261, MID Channel, Beam ID 2, V polarization, Plane B Module, plotted on the surface S2 (back) with 2mm separation distance to the camera bump.

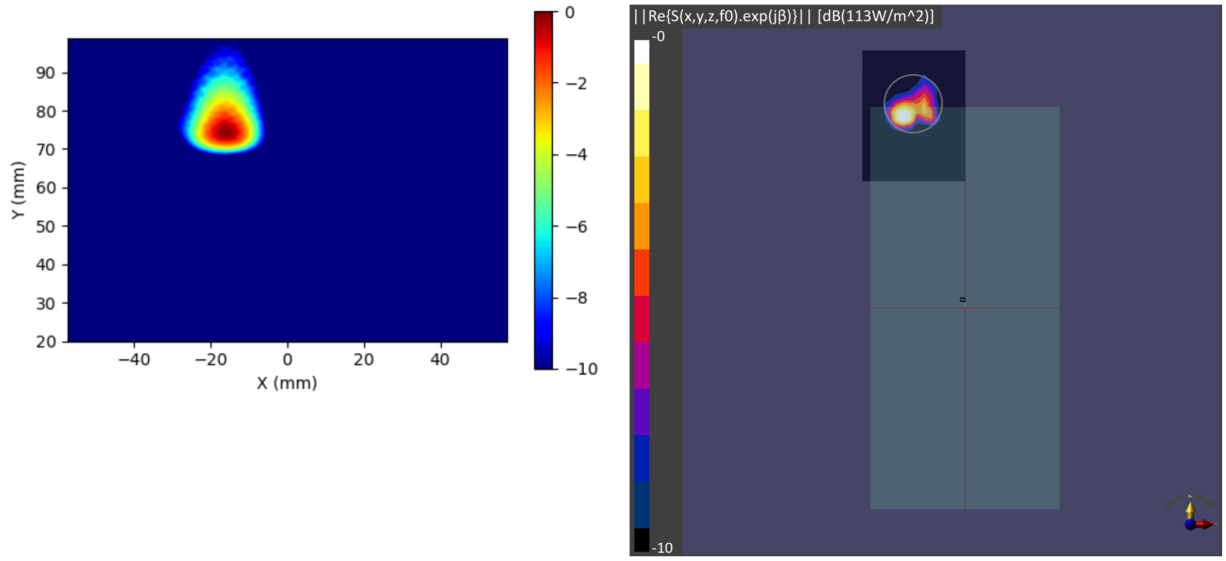

Figure 2-24 Simulated (left) and measured (right) *PD* distribution for the following configuration: Band n261, MID Channel, Beam ID 3, H+V polarization, Plane B Module, plotted on the surface S2 (back) with 2mm separation distance to the camera bump.

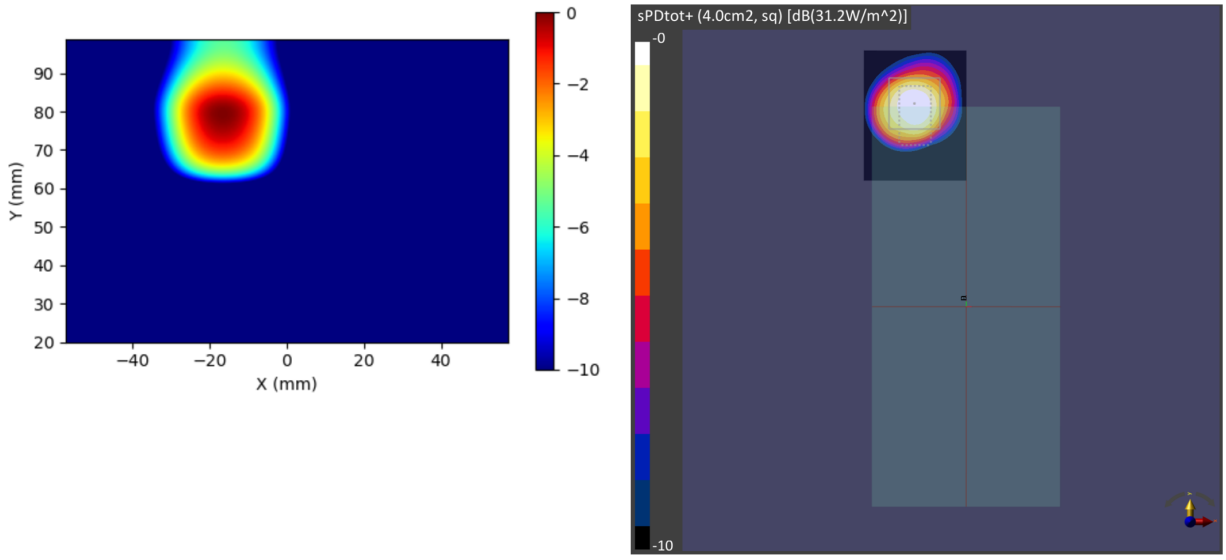

Figure 2-25 Simulated (left) and measured (right) averaged *PD* distribution for the following configuration: Band n261, MID Channel, Beam ID 3, H+V polarization, Plane B Module, plotted on the surface S2 (back) with 2mm separation distance to the camera bump.

2.2 Calculated PD per beam ID

The simulated time-average *PD* calculated for the selected evaluation planes for all beams in the codebook are presented in this section. The calculations are done for the LOW, MID, and HIGH channels of n260 and n261 frequency bands for both Plane A Module and Plane B Module. Since the beams of H+V configuration are not phase coherent, the relative phase difference between the corresponding H+V beams with vertical and horizontal polarizations is swept from 0° to 360° in 5° steps and the PD_{ave} is calculated for all of these phase difference values in order to capture the largest possible PD_{ave} value. The PD_{ave} values for every beam ID are reported in the Tables 2-2 to Table 2-13. For H+V configuration, the largest possible PD_{ave} values calculated using this relative phase difference sweeping method are reported.

Table 2-2 Simulated averaged PD over 4 [cm^2] area on Plane A Module - n260 Low Channel.

PD Simulation (W/m^2) Limit = 10 W/m^2		Low Channel												
		2 mm					46.60%	57.49%	29.66%	10 mm				67.29%
		S1	S2	S2 (CB)	S3	S5	S1/S5	S2/S5	S3/S5	S1	S2	S3	S5	10 mm/ 2mm
Pol	Beam ID	Front	Back	Back	Right	Top				Front	Back	Right	Top	S5/S5
H	0	3.99	4.44	2.75	3.88	13.08	0.305	0.340	0.297	1.518	1.21	1.75	5.80	0.443
H	1	4.96	4.94	3.43	2.84	11.85	0.419	0.417	0.240	2.302	1.79	0.86	6.80	0.573
H	2	4.66	5.66	3.90	0.70	11.41	0.408	0.497	0.061	2.278	1.96	0.42	6.73	0.590
H	3	5.35	6.26	4.36	0.82	11.92	0.449	0.525	0.069	2.371	1.97	0.23	7.53	0.632
H	4	4.77	5.38	3.73	0.46	10.46	0.456	0.515	0.044	2.069	1.75	0.24	6.70	0.641
H	5	4.60	4.24	2.88	1.79	9.91	0.464	0.427	0.181	2.078	1.59	1.08	6.15	0.620
H	6	4.15	3.68	2.38	1.98	11.09	0.374	0.332	0.179	1.777	1.13	1.21	4.86	0.439
V	0	3.90	3.52	2.40	2.07	10.66	0.366	0.330	0.194	1.668	1.16	0.84	4.72	0.443
V	1	4.87	4.92	3.27	1.11	10.45	0.466	0.471	0.106	2.209	1.72	0.42	6.68	0.639
V	2	4.11	4.62	3.08	0.76	9.33	0.440	0.496	0.081	1.919	1.53	0.44	5.75	0.617
V	3	5.09	6.16	4.26	0.38	11.45	0.444	0.538	0.033	2.119	1.89	0.22	7.41	0.647
V	4	4.59	6.31	4.28	0.43	11.61	0.396	0.544	0.037	2.022	2.03	0.28	7.16	0.617
V	5	4.88	4.94	3.21	0.66	11.97	0.407	0.413	0.055	2.146	1.62	0.45	6.69	0.558
V	6	4.32	4.40	2.83	0.75	12.94	0.334	0.340	0.058	1.927	1.32	0.54	5.99	0.463
H+V	0	8.99	8.92	5.54	6.39	24.19	0.372	0.369	0.264	3.435	2.69	3.09	11.47	0.474
H+V	1	11.28	11.20	7.82	4.42	25.18	0.448	0.445	0.175	5.105	4.12	1.70	15.46	0.614
H+V	2	9.81	11.80	8.11	2.11	22.22	0.441	0.531	0.095	4.585	4.22	1.19	14.24	0.641
H+V	3	10.91	14.07	9.55	1.26	24.47	0.446	0.575	0.051	4.813	4.21	0.40	16.46	0.673
H+V	4	9.79	13.17	8.81	1.00	23.27	0.421	0.566	0.043	4.153	4.25	0.60	15.61	0.671
H+V	5	10.78	10.80	7.33	2.94	24.87	0.433	0.434	0.118	4.440	3.95	1.88	15.15	0.609
H+V	6	9.95	8.89	5.30	3.07	25.60	0.389	0.347	0.120	4.229	2.49	1.96	12.10	0.473

Table 2-3 Simulated averaged PD over 4 [cm^2] area on Plane A Module - n260 Mid Channel.

PD Simulation (W/m^2) Limit = 10 W/m^2		Mid Channel												
		2 mm					50.29%	52.13%	30.62%	10 mm				67.19%
		S1	S2	S2 (CB)	S3	S5	S1/S5	S2/S5	S3/S5	S1	S2	S3	S5	10 mm/2 mm
Pol	Beam ID	Front	Back	Back	Right	Top				Front	Back	Right	Top	S5/S5
H	0	3.44	4.31	2.84	3.53	11.52	0.298	0.374	0.306	1.28	1.28	1.60	5.39	0.468
H	1	4.08	4.90	3.32	2.55	10.73	0.380	0.456	0.238	1.89	1.55	0.71	6.18	0.576
H	2	4.27	4.85	3.30	0.71	10.36	0.412	0.468	0.069	1.95	1.56	0.42	5.88	0.568
H	3	5.18	5.17	3.61	0.68	10.85	0.478	0.476	0.063	2.29	1.65	0.20	6.87	0.633
H	4	4.69	4.68	3.21	0.47	9.62	0.487	0.486	0.049	2.00	1.35	0.27	6.31	0.656
H	5	4.29	4.21	2.78	1.69	8.96	0.479	0.469	0.189	1.86	1.13	1.02	6.02	0.672
H	6	3.90	3.30	2.02	1.74	10.11	0.386	0.326	0.172	1.57	0.96	1.12	4.77	0.472
V	0	3.77	3.36	2.26	1.98	9.74	0.387	0.345	0.203	1.68	1.23	0.85	4.67	0.480
V	1	4.59	4.38	2.86	1.00	9.61	0.478	0.456	0.104	2.09	1.32	0.35	6.16	0.641
V	2	3.83	4.36	2.92	0.91	8.39	0.456	0.520	0.108	1.76	1.20	0.49	5.43	0.648
V	3	4.78	4.89	3.36	0.28	10.06	0.475	0.486	0.027	1.99	1.57	0.16	6.51	0.647
V	4	4.74	5.62	3.94	0.28	10.78	0.440	0.521	0.026	2.09	1.89	0.16	6.69	0.620
V	5	4.56	4.56	2.99	0.48	10.57	0.431	0.432	0.046	2.03	1.48	0.31	6.30	0.595
V	6	3.90	4.03	2.49	0.60	10.91	0.358	0.369	0.055	1.65	1.18	0.41	5.29	0.485
H+V	0	8.38	10.71	7.22	7.31	25.72	0.326	0.416	0.284	3.51	3.43	3.33	12.59	0.489
H+V	1	10.00	11.25	7.90	5.31	24.01	0.416	0.468	0.221	4.71	3.37	1.53	14.17	0.590
H+V	2	9.60	10.08	7.08	2.60	21.92	0.438	0.460	0.119	4.54	3.30	1.57	12.63	0.576
H+V	3	13.16	11.40	8.21	1.18	26.16	0.503	0.436	0.045	6.06	4.41	0.38	15.78	0.603
H+V	4	11.93	11.37	8.12	0.73	24.79	0.481	0.459	0.029	5.44	4.39	0.45	15.18	0.612
H+V	5	10.73	10.55	7.32	3.07	23.21	0.462	0.454	0.132	5.01	3.36	1.93	14.53	0.626
H+V	6	9.89	9.17	5.96	2.89	25.17	0.393	0.364	0.115	4.09	2.76	1.92	12.28	0.488

Table 2-4 Simulated averaged PD over 4 [cm^2] area on Plane A Module - n260 High Channel.

PD Simulation (W/m^2) Limit = 10 W/m^2		High Channel												
		2 mm					54.84%	52.53%	26.93%	10 mm				64.79%
		S1	S2	S2 (CB)	S3	S5	S1/S5	S2/S5	S3/S5	S1	S2	S3	S5	10 mm/2 mm
Pol	Beam ID	Front	Back	Back	Right	Top				Front	Back	Right	Top	S5/S5
H	0	4.19	4.00	2.75	3.01	11.31	0.371	0.354	0.266	1.44	1.30	1.27	5.22	0.462
H	1	4.57	5.03	3.39	2.04	11.13	0.410	0.452	0.184	2.06	1.58	0.70	6.26	0.563
H	2	5.48	4.85	3.43	0.43	11.41	0.480	0.425	0.037	2.45	1.51	0.24	6.79	0.595
H	3	5.95	5.04	3.49	0.44	11.27	0.528	0.447	0.039	2.63	1.45	0.13	7.30	0.648
H	4	5.07	4.83	3.42	0.58	10.01	0.507	0.482	0.058	2.18	1.25	0.31	6.48	0.648
H	5	4.86	4.32	3.01	1.13	9.83	0.495	0.440	0.115	2.15	1.09	0.71	6.20	0.631
H	6	4.21	3.34	1.97	1.58	10.19	0.413	0.328	0.155	1.82	0.96	0.92	5.23	0.513
V	0	4.27	2.90	1.95	2.20	9.53	0.448	0.305	0.231	1.98	1.05	0.78	4.96	0.520
V	1	4.95	4.34	2.90	0.95	10.05	0.493	0.432	0.094	2.29	1.07	0.32	6.44	0.641
V	2	4.36	4.93	3.40	0.96	9.38	0.464	0.525	0.102	2.01	1.26	0.58	5.91	0.630
V	3	5.28	4.90	3.33	0.32	10.52	0.502	0.466	0.030	2.28	1.32	0.13	6.81	0.647
V	4	5.75	5.22	3.68	0.25	11.31	0.508	0.462	0.022	2.44	1.60	0.13	7.11	0.629
V	5	5.24	4.92	3.45	0.58	11.29	0.464	0.436	0.051	2.27	1.46	0.35	7.11	0.630
V	6	4.49	4.42	2.82	0.63	11.35	0.395	0.389	0.056	1.83	1.29	0.42	6.15	0.542
H+V	0	10.59	9.58	6.65	7.24	26.89	0.394	0.356	0.269	4.47	3.38	3.05	12.85	0.478
H+V	1	12.28	11.16	7.86	4.16	26.17	0.469	0.427	0.159	5.86	3.47	1.39	14.93	0.571
H+V	2	13.09	11.10	7.87	1.87	25.38	0.516	0.437	0.074	6.18	3.45	1.19	15.19	0.599
H+V	3	15.16	11.13	7.83	1.12	27.65	0.548	0.403	0.040	6.94	3.73	0.43	17.10	0.618
H+V	4	13.33	11.80	8.32	0.85	26.09	0.511	0.452	0.033	5.80	3.69	0.48	16.34	0.626
H+V	5	12.72	11.41	8.13	2.28	25.89	0.491	0.440	0.088	5.80	3.57	1.54	16.10	0.622
H+V	6	12.04	10.12	6.73	2.70	27.61	0.436	0.366	0.098	5.16	3.30	1.72	14.53	0.526

Table 2-5 Simulated averaged PD over 4 [cm^2] area on Plane B Module - n260 Low Channel.

PD Simulation (W/m^2) Limit = 10 W/m^2		Low Channel											
		2 mm					11.17%	25.80%	52.88%	10 mm			58.63%
		S1	S2	S2 (CB)	S3	S5	S1/S2	S3/S2	S5/S2	S2	S3	S5	10 mm/2 mm
Pol	Beam ID	Front	Back	Back	Right	Top				Back	Right	Top	S2/S2
H	0	1.18	12.19	7.61	3.15	4.09	0.097	0.258	0.335	3.56	1.93	1.97	0.292
H	1	1.02	13.10	8.85	2.94	5.04	0.078	0.224	0.385	4.93	1.56	2.55	0.376
H	2	0.48	9.17	7.77	0.86	4.36	0.052	0.093	0.475	5.38	0.30	2.28	0.586
H	3	0.29	8.83	7.53	0.49	3.62	0.033	0.055	0.410	4.87	0.14	1.90	0.551
H	4	0.59	8.77	7.12	0.87	3.61	0.067	0.099	0.412	4.47	0.44	1.91	0.509
H	5	1.02	10.00	7.03	2.23	3.90	0.102	0.223	0.390	3.97	1.12	2.19	0.397
H	6	0.77	11.17	7.29	2.67	3.40	0.069	0.239	0.304	2.85	1.45	1.52	0.255
V	0	1.17	13.15	8.18	2.40	4.74	0.089	0.183	0.360	4.72	1.64	2.50	0.359
V	1	1.29	11.53	7.14	1.61	3.62	0.112	0.139	0.314	3.71	0.93	1.94	0.322
V	2	1.09	10.55	7.41	0.94	4.00	0.103	0.089	0.379	4.01	0.32	2.20	0.380
V	3	0.64	9.94	7.70	0.31	3.86	0.065	0.031	0.389	4.52	0.14	2.08	0.454
V	4	0.51	9.11	7.19	1.02	3.61	0.056	0.112	0.396	4.43	0.63	1.88	0.487
V	5	0.61	10.47	7.49	1.33	4.14	0.058	0.127	0.395	4.76	0.81	2.22	0.455
V	6	1.12	12.64	7.84	2.49	4.45	0.088	0.197	0.352	4.39	1.61	2.27	0.348
H+V	0	2.78	27.60	15.76	6.08	10.29	0.101	0.220	0.373	8.10	3.68	5.05	0.293
H+V	1	2.71	29.86	21.30	7.69	13.85	0.091	0.258	0.464	11.70	4.50	7.52	0.392
H+V	2	1.59	25.04	20.61	3.36	12.90	0.064	0.134	0.515	12.80	1.07	7.59	0.511
H+V	3	1.38	23.02	20.50	1.36	12.17	0.060	0.059	0.529	12.79	0.39	7.36	0.556
H+V	4	1.47	23.02	19.65	2.68	11.66	0.064	0.116	0.507	11.61	1.41	6.85	0.504
H+V	5	2.07	26.06	20.42	3.94	13.41	0.079	0.151	0.515	12.50	2.23	7.92	0.480
H+V	6	2.58	28.37	19.08	5.79	12.28	0.091	0.204	0.433	10.40	3.59	6.70	0.367

Table 2-6 Simulated averaged PD over 4 [cm^2] area on Plane B Module - n260 Mid Channel.

PD Simulation (W/m^2) Limit = 10 W/m^2		Mid Channel											
		2 mm					14.44%	26.58%	51.51%	10 mm			55.87%
		S1	S2	S2 (CB)	S3	S5	S1/S2	S3/S2	S5/S2	S2	S3	S5	10 mm/2 mm
Pol	Beam ID	Front	Back	Back	Right	Top				Back	Right	Top	S2/S2
H	0	1.27	12.75	8.61	3.14	3.60	0.099	0.246	0.282	4.00	2.00	1.92	0.313
H	1	1.32	14.41	9.77	3.36	4.68	0.091	0.233	0.325	5.56	1.23	2.57	0.386
H	2	1.01	11.25	8.80	1.03	4.86	0.090	0.091	0.432	6.13	0.21	2.14	0.545
H	3	0.58	11.54	9.24	0.78	4.14	0.051	0.067	0.359	6.19	0.28	2.03	0.536
H	4	0.66	11.61	9.49	1.04	4.49	0.057	0.089	0.387	6.06	0.48	2.19	0.522
H	5	1.03	12.99	8.25	3.45	4.33	0.079	0.266	0.333	4.40	1.96	2.33	0.339
H	6	0.75	13.54	9.60	3.17	3.45	0.055	0.234	0.255	3.72	1.79	1.72	0.275
V	0	1.33	15.31	10.03	2.86	5.23	0.087	0.187	0.341	5.56	1.74	2.99	0.363
V	1	1.57	13.54	7.61	2.01	3.62	0.116	0.148	0.267	4.10	0.68	1.89	0.302
V	2	1.60	11.08	7.56	0.74	3.79	0.144	0.067	0.342	4.18	0.45	2.09	0.377
V	3	1.06	13.24	10.14	0.84	4.22	0.080	0.064	0.319	5.82	0.43	2.35	0.439
V	4	0.73	11.70	9.66	1.19	4.72	0.062	0.102	0.404	6.14	0.56	2.31	0.525
V	5	0.83	13.40	9.45	2.24	4.77	0.062	0.167	0.356	6.26	1.11	2.52	0.467
V	6	1.21	14.94	10.10	2.97	5.47	0.081	0.199	0.366	5.53	1.73	2.96	0.370
H+V	0	2.55	30.56	19.18	6.95	10.22	0.084	0.227	0.334	9.03	4.66	5.90	0.296
H+V	1	3.18	28.68	20.55	7.13	12.04	0.111	0.249	0.420	11.74	3.29	6.70	0.409
H+V	2	3.12	23.64	19.59	2.57	11.76	0.132	0.109	0.498	12.66	0.69	6.98	0.536
H+V	3	2.04	26.44	22.28	2.94	11.72	0.077	0.111	0.443	13.55	1.24	6.99	0.513
H+V	4	1.87	27.20	24.09	3.06	14.01	0.069	0.113	0.515	15.20	1.63	7.81	0.559
H+V	5	2.82	28.38	22.14	6.61	13.50	0.099	0.233	0.476	13.50	3.65	7.76	0.476
H+V	6	2.47	31.84	23.25	7.94	13.40	0.078	0.249	0.421	11.89	4.64	7.47	0.373

Table 2-7 Simulated averaged PD over 4 [cm^2] area on Plane B Module - n260 High Channel.

PD Simulation (W/m^2) Limit = 10 W/m^2		High Channel											
		2 mm					13.42%	24.21%	45.01%	10 mm			53.59%
		S1	S2	S2 (CB)	S3	S5	S1/S2	S3/S2	S5/S2	S2	S3	S5	10 mm/ 2mm
Pol	Beam ID	Front	Back	Back	Right	Top				Back	Right	Top	S2/S2
H	0	1.09	12.96	9.38	2.72	3.34	0.084	0.210	0.258	4.17	1.74	1.44	0.322
H	1	0.87	13.75	9.64	2.80	4.45	0.063	0.203	0.324	5.79	0.55	2.12	0.421
H	2	1.01	11.09	8.01	0.78	3.79	0.091	0.070	0.342	4.96	0.31	1.65	0.448
H	3	0.86	11.47	8.57	1.00	3.69	0.075	0.087	0.321	5.21	0.49	1.94	0.454
H	4	0.54	12.80	9.88	1.29	4.53	0.042	0.101	0.354	5.30	0.68	2.55	0.414
H	5	0.98	13.39	8.83	2.96	3.91	0.073	0.221	0.292	4.26	1.73	2.10	0.318
H	6	0.77	14.49	10.11	2.78	3.62	0.053	0.192	0.250	3.76	1.68	1.86	0.259
V	0	1.14	14.21	9.57	2.81	4.46	0.080	0.198	0.313	5.40	1.72	2.36	0.380
V	1	1.27	13.88	7.85	2.27	3.78	0.091	0.164	0.273	4.09	0.89	1.84	0.295
V	2	1.43	11.67	7.29	0.79	3.61	0.122	0.067	0.309	4.20	0.39	2.01	0.360
V	3	0.85	11.34	8.63	1.02	3.77	0.075	0.090	0.333	5.04	0.38	2.03	0.445
V	4	0.56	10.66	8.99	1.46	4.26	0.053	0.137	0.399	5.71	0.76	1.74	0.536
V	5	0.61	12.06	8.86	2.64	4.86	0.051	0.219	0.403	6.30	1.41	2.24	0.522
V	6	1.01	13.52	10.14	2.73	4.67	0.074	0.202	0.345	5.72	1.58	2.40	0.423
H+V	0	2.24	29.74	23.01	6.26	9.11	0.075	0.211	0.306	10.33	4.14	4.81	0.348
H+V	1	2.48	29.90	21.12	5.70	10.45	0.083	0.191	0.349	12.62	2.17	5.54	0.422
H+V	2	3.55	26.41	18.21	2.70	9.28	0.134	0.102	0.351	11.06	1.21	5.41	0.419
H+V	3	2.12	25.81	17.93	3.33	8.64	0.082	0.129	0.335	11.55	1.55	5.24	0.447
H+V	4	1.29	25.58	21.35	3.51	11.51	0.050	0.137	0.450	12.38	1.80	6.24	0.484
H+V	5	2.12	27.34	20.80	6.62	11.63	0.077	0.242	0.425	12.50	4.18	6.54	0.457
H+V	6	2.12	30.85	23.95	7.01	12.39	0.069	0.227	0.401	12.59	4.69	6.73	0.408

Table 2-8 Simulated averaged PD over 4 [cm^2] area on Plane A Module - n261 Low Channel.

PD Simulation (W/m^2) Limit = 10 W/m^2		Low Channel												
		2 mm					47.55%	57.71%	24.26%	10 mm				61.40%
		S1	S2	S2 (CB)	S3	S5	S1/S5	S2/S5	S3/S5	S1	S2	S3	S5	10 mm/2 mm
Pol	Beam ID	Front	Back	Back	Right	Top				Front	Back	Right	Top	S5/S5
H	0	6.96	6.35	4.17	1.16	16.79	0.41	0.38	0.07	3.141	1.94	0.69	8.07	0.48
H	1	7.73	7.44	5.18	0.47	17.05	0.45	0.44	0.03	3.570	2.50	0.25	9.52	0.56
H	2	7.79	8.71	6.23	1.03	17.22	0.45	0.51	0.06	3.534	3.24	0.54	9.89	0.57
H	3	7.53	9.32	6.69	0.86	17.81	0.42	0.52	0.05	3.456	3.64	0.42	9.76	0.55
H	4	7.61	10.05	7.35	0.60	18.24	0.42	0.55	0.03	3.533	3.82	0.30	10.43	0.57
H	5	6.77	10.26	7.12	2.84	18.89	0.36	0.54	0.15	2.889	3.43	1.18	9.51	0.50
H	6	6.08	8.41	5.42	3.70	16.45	0.37	0.51	0.22	2.249	2.19	2.30	6.80	0.41
V	0	6.55	7.65	5.05	0.38	16.73	0.39	0.46	0.02	2.657	2.18	0.22	7.06	0.42
V	1	7.32	10.09	7.04	0.26	18.55	0.39	0.54	0.01	3.426	3.40	0.11	10.30	0.56
V	2	6.77	9.73	7.03	0.96	16.86	0.40	0.58	0.06	3.145	3.47	0.43	9.80	0.58
V	3	7.50	8.86	6.36	1.24	17.09	0.44	0.52	0.07	3.510	3.27	0.86	9.69	0.57
V	4	7.81	8.85	6.48	0.83	16.42	0.48	0.54	0.05	3.729	3.36	0.46	10.08	0.61
V	5	7.11	6.71	4.72	1.74	15.66	0.45	0.43	0.11	3.323	2.35	0.55	8.31	0.53
V	6	6.18	5.07	3.30	3.34	14.60	0.42	0.35	0.23	2.541	1.59	1.80	6.35	0.44
H+V	0	15.19	16.66	11.02	2.11	38.03	0.40	0.44	0.06	6.151	5.10	1.20	16.65	0.44
H+V	1	16.07	19.69	13.79	1.01	38.39	0.42	0.51	0.03	7.325	7.11	0.56	20.15	0.52
H+V	2	16.20	20.62	14.63	2.24	38.18	0.42	0.54	0.06	7.409	7.79	1.05	20.95	0.55
H+V	3	15.88	19.73	14.26	2.43	37.47	0.42	0.53	0.06	7.487	7.84	1.54	20.33	0.54
H+V	4	16.89	19.85	13.97	1.46	37.22	0.45	0.53	0.04	8.277	7.79	0.80	22.19	0.60
H+V	5	14.58	19.31	12.58	5.38	38.16	0.38	0.51	0.14	6.726	6.29	2.17	18.78	0.49
H+V	6	14.31	15.31	10.22	8.28	34.12	0.42	0.45	0.24	5.252	4.59	5.33	14.18	0.42

Table 2-9 Simulated averaged PD over 4 [cm^2] area on Plane A Module - n261 Mid Channel.

PD Simulation (W/m^2) Limit = 10 W/m^2		Mid Channel												
		2 mm					46.73%	56.44%	24.15%	10 mm				61.75%
		S1	S2	S2 (CB)	S3	S5	S1/S5	S2/S5	S3/S5	S1	S2	S3	S5	10 mm/2 mm
Pol	Beam ID	Front	Back	Back	Right	Top				Front	Back	Right	Top	S5/S5
H	0	6.46	6.12	4.06	1.44	15.85	0.41	0.39	0.09	2.88	1.84	0.80	7.64	0.48
H	1	7.43	7.55	5.32	0.60	16.77	0.44	0.45	0.04	3.36	2.56	0.31	9.47	0.56
H	2	7.65	9.06	6.45	0.99	17.25	0.44	0.53	0.06	3.39	3.42	0.49	10.00	0.58
H	3	7.37	9.30	6.68	0.89	17.61	0.42	0.53	0.05	3.34	3.64	0.44	9.69	0.55
H	4	7.63	9.64	7.05	0.58	17.99	0.42	0.54	0.03	3.54	3.68	0.24	10.20	0.57
H	5	6.49	10.11	7.02	2.63	18.44	0.35	0.55	0.14	2.68	3.47	1.08	9.22	0.50
H	6	5.89	8.34	5.44	3.64	16.31	0.36	0.51	0.22	2.17	2.19	2.26	6.63	0.41
V	0	6.23	7.56	4.85	0.39	16.62	0.37	0.45	0.02	2.48	2.06	0.21	7.01	0.42
V	1	6.93	10.20	7.08	0.26	18.45	0.38	0.55	0.01	3.21	3.32	0.12	10.15	0.55
V	2	6.75	9.61	7.03	0.95	17.02	0.40	0.56	0.06	3.13	3.50	0.40	9.66	0.57
V	3	7.26	8.79	6.26	1.38	16.93	0.43	0.52	0.08	3.34	3.27	0.99	9.50	0.56
V	4	7.46	8.75	6.33	0.88	15.96	0.47	0.55	0.06	3.53	3.28	0.45	9.86	0.62
V	5	6.93	6.60	4.52	1.75	15.39	0.45	0.43	0.11	3.25	2.12	0.52	8.20	0.53
V	6	6.22	5.00	3.18	3.46	14.72	0.42	0.34	0.24	2.53	1.49	1.90	6.40	0.43
H+V	0	14.71	16.19	10.59	2.53	37.03	0.40	0.44	0.07	5.99	4.72	1.35	16.01	0.43
H+V	1	15.95	19.47	13.55	1.19	37.78	0.42	0.52	0.03	7.16	6.91	0.69	20.07	0.53
H+V	2	16.34	21.02	14.79	2.28	38.55	0.42	0.55	0.06	7.55	7.86	1.06	21.55	0.56
H+V	3	15.60	19.44	14.08	2.64	37.64	0.41	0.52	0.07	7.23	7.87	1.65	20.31	0.54
H+V	4	16.28	19.81	13.82	1.53	37.06	0.44	0.53	0.04	8.00	7.63	0.83	21.88	0.59
H+V	5	14.86	19.06	12.46	5.10	37.99	0.39	0.50	0.13	6.59	6.21	1.99	18.42	0.48
H+V	6	14.22	15.28	10.10	8.48	35.12	0.40	0.44	0.24	5.29	4.51	5.59	14.51	0.41

Table 2-10 Simulated averaged *PD* over 4 [cm^2] area on Plane A Module - n261 High Channel.

PD Simulation (W/m²) Limit = 10 W/m²		High Channel												
		2 mm					46.10%	56.86%	23.85%	10 mm				62.23%
		S1	S2	S2 (CB)	S3	S5	S1/S5	S2/S5	S3/S5	S1	S2	S3	S5	10 mm/2mm
Pol	Beam ID	Front	Back	Back	Right	Top				Front	Back	Right	Top	S5/S5
H	0	6.20	5.70	3.78	1.61	14.77	0.42	0.39	0.11	2.75	1.69	0.88	7.00	0.47
H	1	6.99	7.36	5.10	0.72	16.05	0.44	0.46	0.04	3.12	2.48	0.38	8.92	0.56
H	2	7.42	8.79	6.20	0.92	16.74	0.44	0.53	0.05	3.29	3.34	0.49	9.57	0.57
H	3	7.12	8.89	6.39	0.90	16.87	0.42	0.53	0.05	3.17	3.42	0.47	9.33	0.55
H	4	7.39	9.22	6.68	0.57	17.39	0.42	0.53	0.03	3.44	3.40	0.24	9.96	0.57
H	5	6.15	9.78	6.64	2.41	17.83	0.34	0.55	0.13	2.49	3.32	1.02	8.85	0.50
H	6	5.67	8.10	5.30	3.61	16.19	0.35	0.50	0.22	2.09	2.11	2.29	6.51	0.40
V	0	5.94	7.79	4.87	0.42	16.42	0.36	0.47	0.03	2.27	1.92	0.21	6.99	0.43
V	1	6.41	10.20	7.12	0.28	17.93	0.36	0.57	0.02	2.89	3.29	0.15	9.76	0.54
V	2	6.37	9.33	6.78	0.81	16.48	0.39	0.57	0.05	2.94	3.37	0.35	9.24	0.56
V	3	6.89	8.42	5.96	1.33	16.27	0.42	0.52	0.08	3.11	3.01	0.96	9.10	0.56
V	4	7.02	8.52	6.08	0.89	15.22	0.46	0.56	0.06	3.29	3.01	0.45	9.47	0.62
V	5	6.66	6.66	4.52	1.67	15.08	0.44	0.44	0.11	3.19	1.99	0.45	8.13	0.54
V	6	6.04	5.18	3.35	3.43	14.84	0.41	0.35	0.23	2.52	1.52	1.90	6.45	0.43
H+V	0	14.94	15.89	10.21	2.89	36.13	0.41	0.44	0.08	6.10	4.36	1.46	15.41	0.43
H+V	1	16.02	18.83	13.10	1.45	37.11	0.43	0.51	0.04	7.18	6.65	0.81	19.07	0.51
H+V	2	16.61	20.79	14.57	2.08	38.43	0.43	0.54	0.05	7.68	7.83	1.04	21.69	0.56
H+V	3	15.90	19.12	13.81	2.68	37.74	0.42	0.51	0.07	7.27	7.65	1.54	20.47	0.54
H+V	4	15.57	19.69	13.80	1.58	37.07	0.42	0.53	0.04	7.53	7.32	0.86	21.28	0.57
H+V	5	15.08	18.70	12.38	4.75	37.78	0.40	0.50	0.13	6.64	6.15	1.88	18.33	0.49
H+V	6	14.11	14.99	9.72	8.51	35.66	0.40	0.42	0.24	5.37	4.35	5.66	14.81	0.42

Table 2-11 Simulated averaged *PD* over 4 [cm^2] area on Plane B Module - n261 Low Channel.

PD Simulation (W/m²) Limit = 10 W/m²		Low Channel											
		2 mm					17.67%	26.45%	58.11%	10 mm			48.45%
		S1	S2	S2 (CB)	S3	S5	S1/S2	S3/S2	S5/S2	S2	S3	S5	10 mm/ 2mm
Pol	Beam ID	Front	Back	Back	Right	Top				Back	Right	Top	S2/S2
H	0	1.99	12.00	7.65	0.51	5.59	0.166	0.043	0.466	3.50	0.39	2.34	0.292
H	1	2.28	14.80	10.96	0.16	6.77	0.154	0.011	0.457	5.73	0.12	3.12	0.387
H	2	1.81	15.70	12.47	0.38	7.46	0.115	0.025	0.475	7.32	0.24	3.97	0.467
H	3	1.42	16.61	13.29	0.42	8.34	0.086	0.025	0.502	8.05	0.30	4.68	0.485
H	4	1.04	16.60	13.71	2.10	7.93	0.062	0.127	0.478	8.02	0.92	4.46	0.483
H	5	1.82	16.41	12.53	3.71	6.90	0.111	0.226	0.420	6.44	2.05	3.37	0.392
H	6	1.62	14.52	10.32	3.84	5.28	0.112	0.264	0.364	5.12	2.42	2.30	0.353
V	0	1.82	12.88	8.82	0.42	4.59	0.141	0.033	0.356	4.56	0.21	2.14	0.354
V	1	1.08	16.38	12.43	0.31	6.58	0.066	0.019	0.402	6.95	0.18	3.44	0.425
V	2	0.94	16.79	13.47	0.45	7.42	0.056	0.027	0.442	8.13	0.27	4.07	0.484
V	3	1.59	16.53	12.76	0.27	7.60	0.096	0.017	0.460	7.62	0.17	4.18	0.461
V	4	2.20	15.96	12.27	0.75	6.93	0.138	0.047	0.434	6.94	0.42	3.70	0.435
V	5	2.73	15.43	11.32	2.03	7.55	0.177	0.132	0.489	5.57	1.01	3.51	0.361
V	6	2.09	12.28	8.01	1.85	6.10	0.171	0.151	0.496	3.16	1.33	2.43	0.257
H+V	0	4.85	27.85	18.48	1.42	15.00	0.174	0.051	0.539	10.58	1.07	5.79	0.380
H+V	1	4.79	36.01	25.58	0.78	19.08	0.133	0.022	0.530	15.53	0.44	9.24	0.431
H+V	2	3.13	39.45	28.84	1.30	20.46	0.079	0.033	0.519	17.74	0.78	11.54	0.450
H+V	3	3.45	41.98	31.67	0.88	23.48	0.082	0.021	0.559	17.34	0.70	14.12	0.413
H+V	4	3.89	40.39	29.89	4.36	22.16	0.096	0.108	0.549	16.19	1.62	12.76	0.401
H+V	5	6.69	38.85	25.47	6.96	22.58	0.172	0.179	0.581	13.58	4.49	10.60	0.350
H+V	6	4.68	30.15	20.49	7.29	16.83	0.155	0.242	0.558	9.83	4.15	6.46	0.326

Table 2-12 Simulated averaged *PD* over 4 [cm^2] area on Plane B Module - n261 Mid Channel.

PD Simulation (W/m²) Limit = 10 W/m²		Mid Channel											
		2 mm					17.59%	26.85%	57.15%	10 mm			49.83%
		S1	S2	S2 CB)	S3	S5	S1/S2	S3/S2	S5/S2	S2	S3	S5	10 mm/2 mm
Pol	Beam ID	Front	Back	Back	Right	Top				Back	Right	Top	S2/S2
H	0	2.06	11.89	7.56	0.58	5.01	0.173	0.049	0.422	3.368	0.45	2.34	0.283
H	1	2.38	14.62	10.82	0.18	6.57	0.163	0.013	0.450	5.597	0.14	3.12	0.383
H	2	2.02	15.42	12.43	0.40	7.40	0.131	0.026	0.480	7.230	0.22	3.97	0.469
H	3	1.52	16.36	13.14	0.38	8.34	0.093	0.023	0.510	7.993	0.27	4.68	0.489
H	4	1.17	16.08	13.35	1.68	7.80	0.073	0.104	0.485	8.014	0.73	4.46	0.498
H	5	1.84	15.94	12.30	3.42	6.98	0.116	0.215	0.438	6.404	1.97	3.37	0.402
H	6	1.60	14.50	10.48	3.89	5.53	0.110	0.269	0.381	5.237	2.35	2.30	0.361
V	0	1.88	12.89	8.65	0.43	4.63	0.146	0.033	0.359	4.513	0.21	2.14	0.350
V	1	1.18	15.94	12.17	0.29	6.28	0.074	0.018	0.394	6.653	0.17	3.44	0.417
V	2	0.96	16.64	13.39	0.45	7.13	0.057	0.027	0.428	7.964	0.27	4.07	0.479
V	3	1.64	16.57	12.72	0.28	7.53	0.099	0.017	0.455	7.510	0.16	4.18	0.453
V	4	2.35	16.13	12.34	0.78	7.07	0.146	0.049	0.438	7.016	0.45	3.70	0.435
V	5	2.62	15.32	11.14	1.94	7.25	0.171	0.126	0.473	5.567	0.95	3.51	0.363
V	6	1.91	12.18	7.94	1.77	5.65	0.157	0.145	0.464	3.271	1.14	2.43	0.269
H+V	0	4.93	28.03	18.48	1.55	14.56	0.176	0.055	0.519	10.439	1.19	5.79	0.372
H+V	1	4.79	35.16	25.81	0.76	18.71	0.136	0.022	0.532	15.163	0.42	9.24	0.431
H+V	2	3.24	38.07	28.00	1.14	19.89	0.085	0.030	0.522	17.429	0.72	11.54	0.458
H+V	3	3.35	41.23	31.06	0.94	22.89	0.081	0.023	0.555	17.112	0.63	14.12	0.415
H+V	4	4.02	39.72	29.39	4.01	21.74	0.101	0.101	0.547	16.474	1.42	12.76	0.415
H+V	5	6.58	38.80	25.34	6.59	22.17	0.170	0.170	0.572	13.967	4.19	10.60	0.360
H+V	6	4.57	30.46	20.53	7.09	16.47	0.150	0.233	0.541	9.882	3.81	6.46	0.324

Table 2-13 Simulated averaged *PD* over 4 [cm^2] area on Plane B Module - n261 High Channel.

PD Simulation (W/m²) Limit = 10 W/m²		High Channel											
		2 mm					17.34%	26.02%	56.02%	10 mm			50.26%
		S1	S2	S2 (CB)	S3	S5	S1/S2	S3/S2	S5/S2	S2	S3	S5	10 mm/2 mm
Pol	Beam ID	Front	Back	Back	Right	Top				Back	Right	Top	S2/S2
H	0	1.95	11.25	7.23	0.566	4.44	0.173	0.050	0.395	3.24	0.41	1.77	0.288
H	1	2.31	14.12	10.45	0.198	6.26	0.164	0.014	0.443	5.45	0.12	2.80	0.386
H	2	2.07	14.87	12.04	0.446	7.28	0.139	0.030	0.489	7.05	0.21	4.05	0.474
H	3	1.43	15.87	12.74	0.407	8.20	0.090	0.026	0.517	7.82	0.24	4.90	0.493
H	4	1.24	15.96	13.13	1.496	7.81	0.078	0.094	0.490	8.02	0.57	4.45	0.503
H	5	1.86	15.34	11.80	3.165	6.87	0.121	0.206	0.448	6.27	1.76	3.18	0.409
H	6	1.67	13.61	9.85	3.543	5.29	0.123	0.260	0.389	4.86	2.05	2.28	0.357
V	0	1.88	12.79	8.35	0.396	4.62	0.147	0.031	0.361	4.26	0.22	2.25	0.333
V	1	1.24	15.28	11.61	0.280	5.89	0.081	0.018	0.385	6.24	0.16	3.04	0.409
V	2	0.96	16.18	13.05	0.437	6.86	0.060	0.027	0.424	7.72	0.27	3.65	0.477
V	3	1.57	16.33	12.58	0.267	7.42	0.096	0.016	0.454	7.34	0.13	4.05	0.450
V	4	2.26	15.97	12.33	0.738	7.13	0.142	0.046	0.447	7.05	0.43	3.75	0.442
V	5	2.35	14.85	10.80	1.713	6.83	0.158	0.115	0.460	5.53	0.85	3.07	0.372
V	6	1.80	11.61	7.57	1.706	5.21	0.155	0.147	0.449	3.33	1.05	1.91	0.286
H+V	0	4.72	28.05	17.41	1.569	13.87	0.168	0.056	0.494	9.86	1.19	5.54	0.352
H+V	1	4.64	34.62	24.60	0.753	18.22	0.134	0.022	0.526	14.65	0.41	8.82	0.423
H+V	2	3.35	37.03	27.18	0.992	19.22	0.090	0.027	0.519	16.91	0.59	10.72	0.457
H+V	3	3.18	40.18	30.12	1.014	22.02	0.079	0.025	0.548	16.53	0.54	13.13	0.411
H+V	4	4.00	39.14	28.85	3.715	21.38	0.102	0.095	0.546	16.65	1.24	12.32	0.426
H+V	5	6.25	38.00	24.65	6.142	21.29	0.164	0.162	0.560	13.83	3.79	9.89	0.364
H+V	6	4.51	29.78	19.08	6.664	15.98	0.152	0.224	0.537	9.51	3.58	5.94	0.319

3. References

[1] ANSYS HFSS for Antenna Simulation