SONY

Sony Mobile Communications

Document number:
PY7-57441Y

Date:
2020/10/05

Remarks:

Revision:
B

FCC ID: PY7-57441Y

Power Density Simulation Report

1. Simulation methodology for Power Density (PD)

1.1 Simulation tool

1.1.1   Tool description

For the simulation approach to calculating power density (PD) evaluation for mobile phone with mmWave antenna modules, ANSYS Electromagnetics suite version 19.2 (HFSS) is used. ANSYS HFSS is one of several commercial tools for 3D full-wave electromagnetic simulation used for antenna and RF structure design of high frequency component. ANSYS Electromagnetics suite version 19.2 (HFSS) is implemented based on Finite Element Method (FEM), which operates in the frequency domain.

1.1.2   Mesh and Convergence criteria

To solve the PD analysis using FEM, volume area containing simulated objects should be subdivided into electrically small parts that are called finite elements as the unknown functions. To subdivide system, the adaptive mesh technique in ANSYS Electromagnetics suite version 19.2 (HFSS) is used. ANSYS Electromagnetics suite version 19.2 (HFSS) starts to refine the initial mesh based on wavelength and calculate the error to iterative process for adaptive mesh refinement. The determination parameter of the number of iterations in ANSYS Electromagnetics suite version 19.2 (HFSS) is defined as convergence criteria, delta S, and the iterative adaptive mesh process repeats until the delta S is met. In ANSYS Electromagnetics suite version 19.2 (HFSS), the accuracy of converged results depends on the delta S. Figure 1 is an example of final adaptive mesh of the device (cross-section of top view).
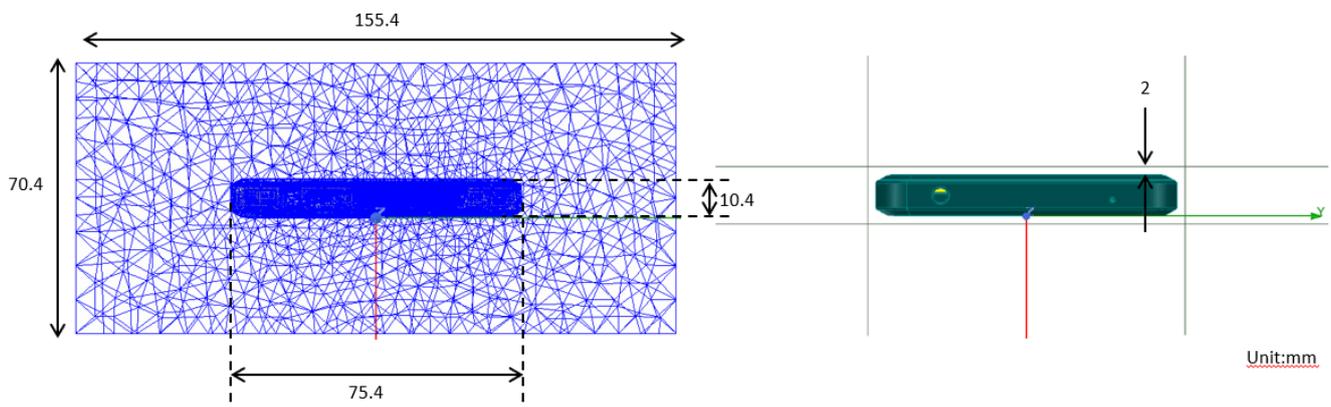

Figure 1 Example of the adaptive mesh technique (Top view)

1.1.3 Power density calculation

After solving 3D full-wave electromagnetic simulation, various kinds of physical quantities can beobtained. To calculate PD evaluation, two physical quantities, an electric field ($\vec{E}$) and a magnetic field ($\vec{H}$) are needed. The actual consumption power can be expressed as the real term of the Poynting vector ($\vec{S}$) from the cross product of $\vec{E}$ and complex conjugation of $\vec{H}$ as shown below:

$$\langle\vec{S}\rangle = Re\left(\frac{1}{2}\vec{E}\times\vec{H}^*\right)$$

$\langle\vec{S}\rangle$ can be expressed as point power density based on a peak value of each spatial point on mesh grids and obtained directly from ANSYS Electromagnetics suite version 19.2 (HFSS).

From the point power density $\langle\vec{S}\rangle$, the spatial-averaged power density (PDav) on an evaluated area (A) can be derived as shown below:

$$PD_{av} = \frac{1}{A}\int_A \langle\vec{S}\rangle\cdot ds = \frac{1}{2A}\int_A \left|Re\left(\vec{E}\times\vec{H}^*\right)\right|$$

, where the spatial-averaged power density (PDav) is total power density value considering on x, y and z components of point power density $\langle\vec{S}\rangle$ and the evaluated area (A) is 4cm^2.

1.2 Simulation setup

1.2.1 3D modeling

Figure 2 shows the simulation model which is mounted four mmWave antenna modules. The simulation modeling includes most of the entire structure of device itself such as PCB, metal frame, battery, cables, and legacy antennas as well as mmWave antenna modules called as Ant#0, Ant#1, Ant#2 and Ant#3. On the back side view, Ant#0 is placing on the right side and antennas are facing the left side of the device. Ant#1 is placing on the right side and antennas are facing the right side of the device. Ant#2 is placed at the top side and antennas are facing the top side of the device. Ant#3 is placed at the bottom side and antennas are facing the bottom side of the device.

(a) Front   (b) Side   (c) Back   (d) Location of mmWave modules(Back)
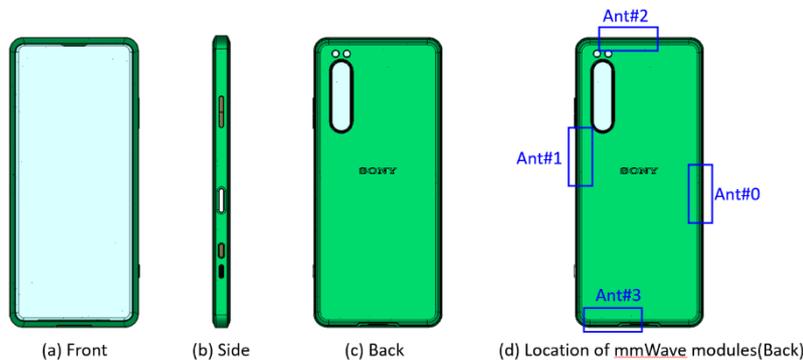
Figure 2 Simulation model which is mounted four mmWave antenna modules

1.2.2 PD evaluation planes

Table 1 shows the PD evaluation planes for each mmWave antenna module and Figure 3 shows the PD evaluation planes and truncation area of the simulation model to find worst case of beamforming cases. In all case, five planes except the opposite side are evaluated, as shown in table 1.

Table 1. PD evaluation planes

	Front	Back	Left (Front View)	Right (Front View)	Top	Bottom
	S1	S2	S3	S4	S5	S6
ANT#0 (Left module)	O	O	O	X	O	O
ANT#1 (Right module)	O	O	X	O	O	O
ANT#2 (Top module)	O	O	O	O	O	X
ANT#3 (Bottom module)	O	O	O	O	X	O

PD evaluation planes
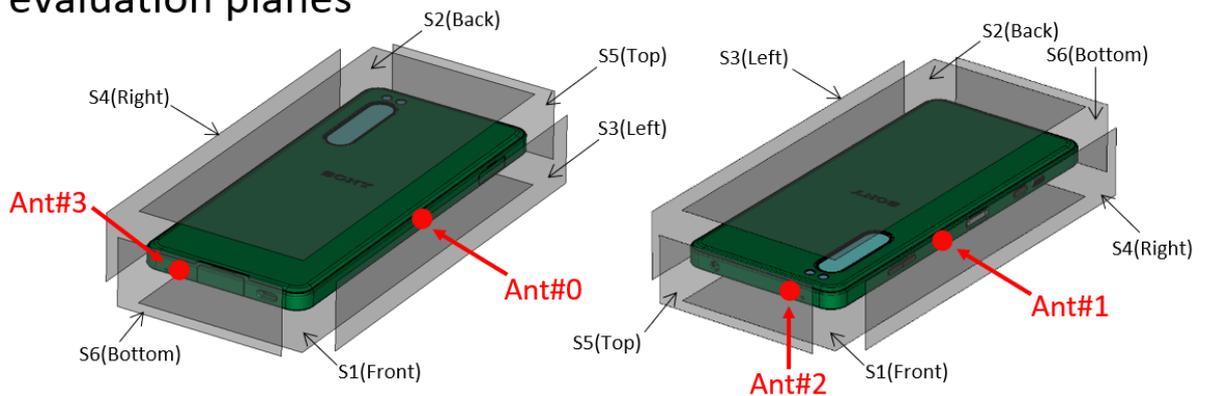
Figure 3. PD evaluation planes

1.2.3 Boundary condition

To simulate electromagnetic tool based on FEM, the boundary condition allows electromagnetic waves to be electrically open at the boundary and radiated far away without reflection. ANSYS Electromagnetics suite version 19.2 (HFSS) can support the absorbing boundary condition (ABC) for radiation boundary and make normally a quarter wavelength from the radiating structure. In this report, to cover all beamforming cases of mmWave antenna modules, the three-wavelength spacing from the device is used.

1.2.4 Source excitation condition

Each antenna module has 16 feed-in ports, 8 ports are 1x4 patch array antenna at n260 band and others are at n261 band, and 4 ports are divided into vertical polarization feeding, and the other 4 ports are divided into horizontal polarization feeding.

Figure 4 shows the Ant#2 module structure and surrounding structure. The ANT#2 module is encrypted in the ANSYS Electromagnetics suite (HFSS) and can only check the feeding position.
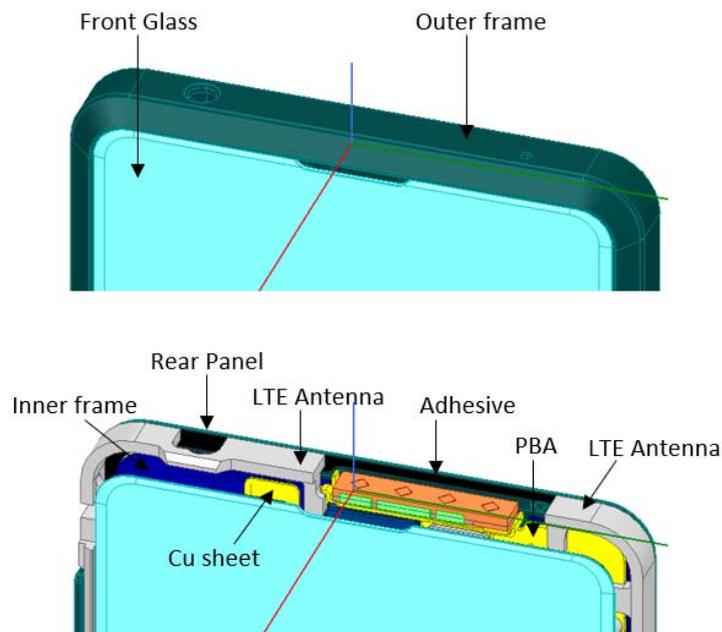
Figure 4. mmWave module (ANT#2)

After finishing 3D full wave electromagnetic simulation of modeling structure, the magnitude and phase information can be loaded for each port by using "Edit Sources" function in ANSYS Electromagnetics suite (HFSS). Figure 5 shows an example of antenna port excitations.
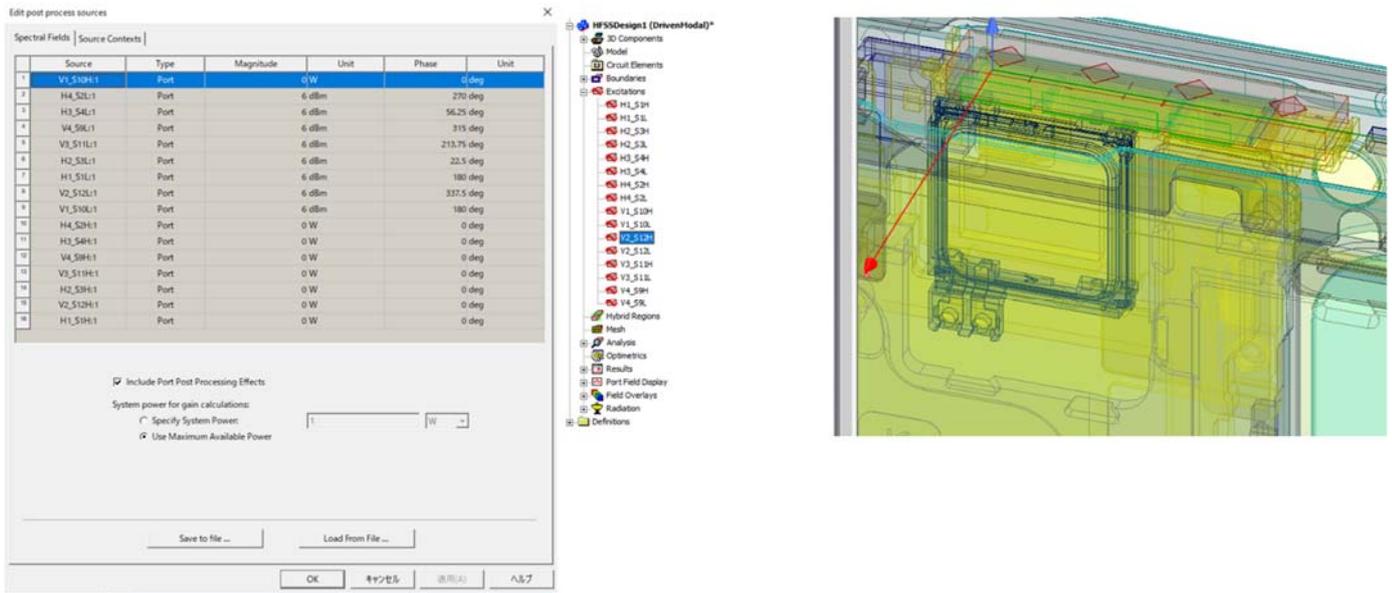
Figure 5. An example of port excitation (ANT#2)

Since ANSYS Electromagnetics suite (HFSS) uses FEM solver based on frequency domain analysis method, the input source for the port excitation applies sinusoidal waveform for each frequency.

1.2.5 Condition of simulation completion

The simulation completion condition of ANSYS Electromagnetics suite (HFSS) is defined as delta S. The ANSYS Electromagnetics suite (HFSS) calculates the S-parameter for the mesh conditions of each step and determines whether to proceed with the operation of the next step by comparing the difference between the S-parameters in the previous step. A difference between the previous step and the current step of S-parameter is expressed as delta S, and the delta S generally sets 0.005. The simulation result of this report is the result of setting delta S to 0.005.

2. Simulation verification

2.1 Spatial-averaged power density

As mentioned in the previous chapter, the Poynting vector ($\vec{S}$) can be obtained through cross product of an electric field ($\vec{E}$) and complex conjugate of a magnetic field ($\vec{H}$). The real term of the Poynting vector can be described as the point power density or peak power density. Using the point power density, the spatial-averaged power density can be obtained by the integral of 4 cm^2 at 2.5 mm intervals of the point power density result. Figure 6 shows the example of the distribution plot of point power density.
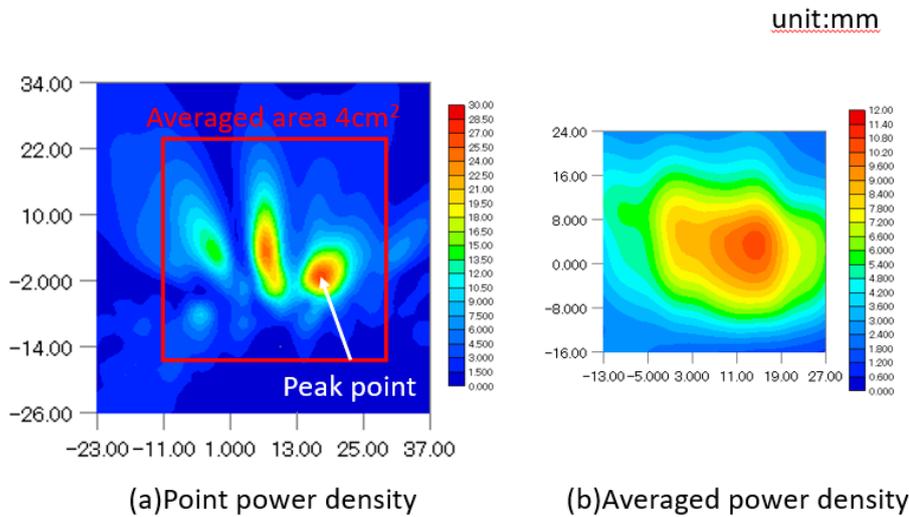
Figure 6. Point power density distribution (Example)

2.2 Comparison between simulation and measurement

In this section, the simulated-power density distributions and measured-power density distributions are compared to each mmWave antenna.

Based on comparison of power density distributions, simulated power density and measured power density have a good correlation. The discrepancy in amplitude between simulated 4cm^2 averaged power density and measured 4cm^2 averaged power density is considered as housing influence and used in determining input power limit for each beam for RF exposure compliance (see RF Exposure Part 0 Report).

The input powers per each active port are listed below for both Simulation and Measurement validation and power density characterization. For Simulation, these values were entered directly into HFSS model. For measurement, FTM S/W was used to input these values for each active port also.

	Input Power [dBm]	
	SISO	**MIMO**
Ant#0 (Left module)	6	6
Ant#1 (Right module)	6	6
Ant#2 (Top module)	6	6
Ant#3 (Bottom module)	6	6

* The below simulation and measurement result were performed at 2mm evaluation distance and 28GHz / 38.5GHz. The input.power.limit was determined based on below results in RF Exposure Part 0 Report.

Bnd	Beam ID	Antenna	Surface	Channel	4cm² ave. PD (W/m²) Meas.	4cm² ave. PD (W/m²) Sim.
n261	31	ANT#0	Left (S3)	Mid	8.64	18.50
	158	ANT#0	Left (S3)	Mid	8.66	18.08
	46	ANT#1	Right (S4)	Mid	7.54	17.90
	154	ANT#1	Right (S4)	Mid	8.39	17.23
	41	ANT#2	Top (S5)	Mid	9.27	18.14
	169	ANT#2	Top (S5)	Mid	9.24	18.33
	35	ANT#3	Bottom (S6)	Mid	5.95	12.26
	163	ANT#3	Bottom (S6)	Mid	6.2	14.07
n260	31	ANT#0	Left (S3)	Mid	10.76	17.76
	158	ANT#0	Left (S3)	Mid	10.72	17.79
	26	ANT#1	Right (S4)	Mid	9.84	17.80
	155	ANT#1	Right (S4)	Mid	8.97	18.17
	42	ANT#2	Top (S5)	Mid	8.87	18.86
	184	ANT#2	Top (S5)	Mid	9.57	17.54
	52	ANT#3	Bottom (S6)	Mid	8.79	12.77
	163	ANT#3	Bottom (S6)	Mid	7.51	11.02

n261 ANT#0: Mid Channel, Beam ID: 31, Left
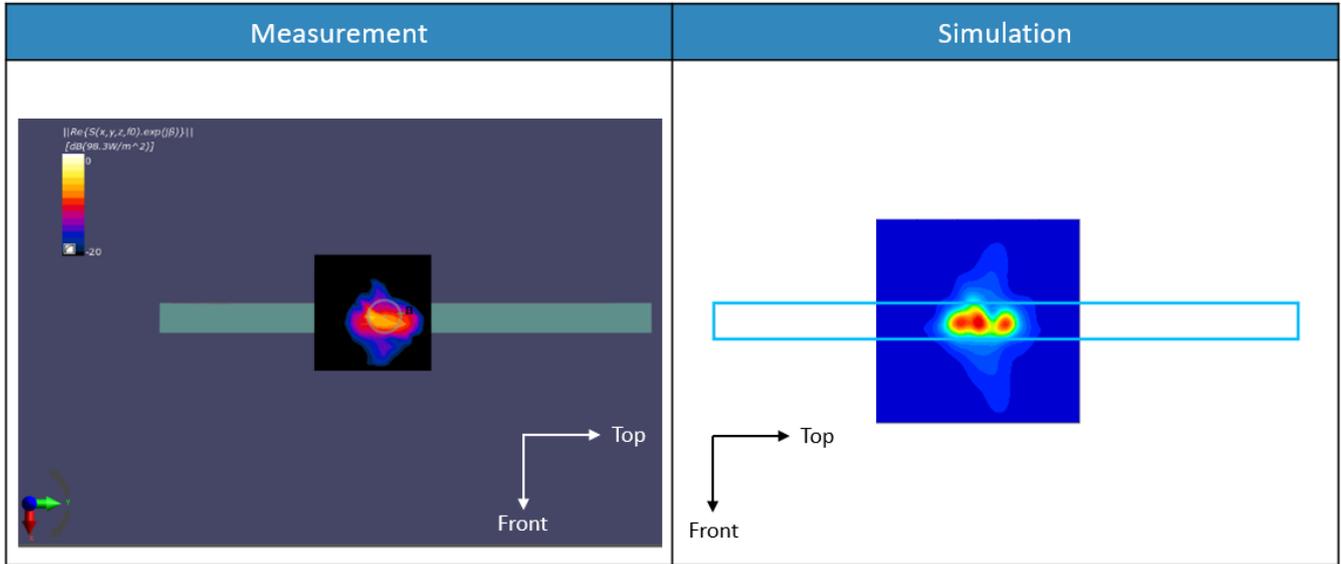
n261 ANT#0: Mid Channel, Beam ID: 31, Point power density
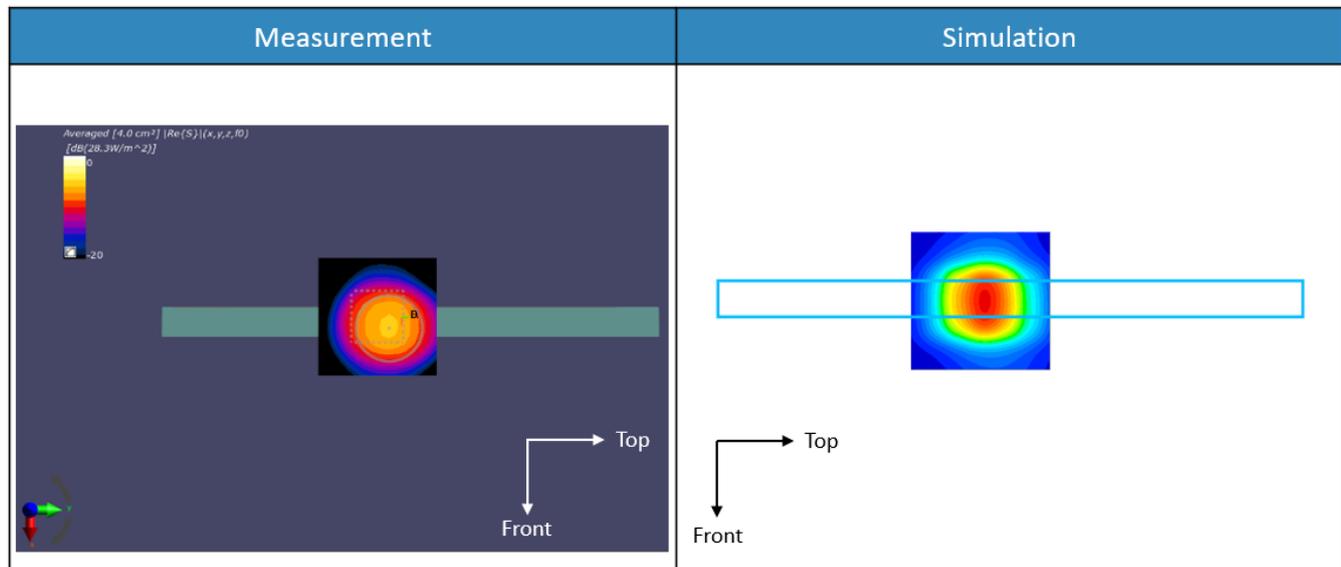
n261 ANT#0: Mid Channel, Beam ID: 51, 4cm^2 averaged power density

n261 ANT#0: Mid Channel, Beam ID: 158, Left

n261 ANT#0: Mid Channel, Beam ID: 158, Point power density
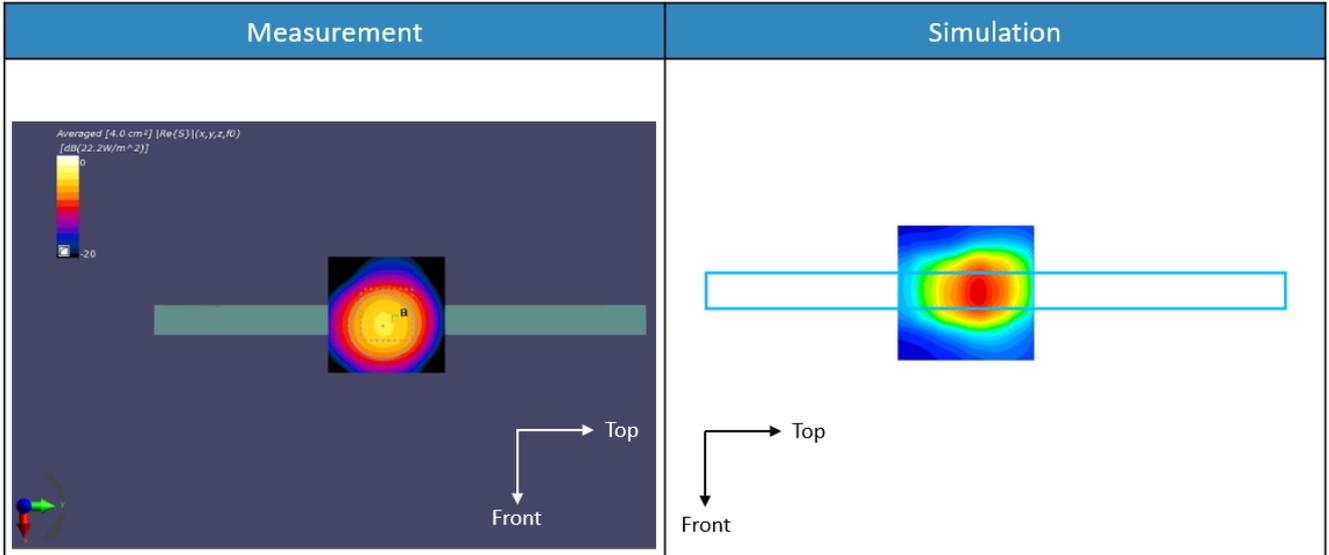
n261 ANT#0: Mid Channel, Beam ID: 158, 4cm^2 averaged power density

n261 ANT#1: Mid Channel, Beam ID: 46, Right
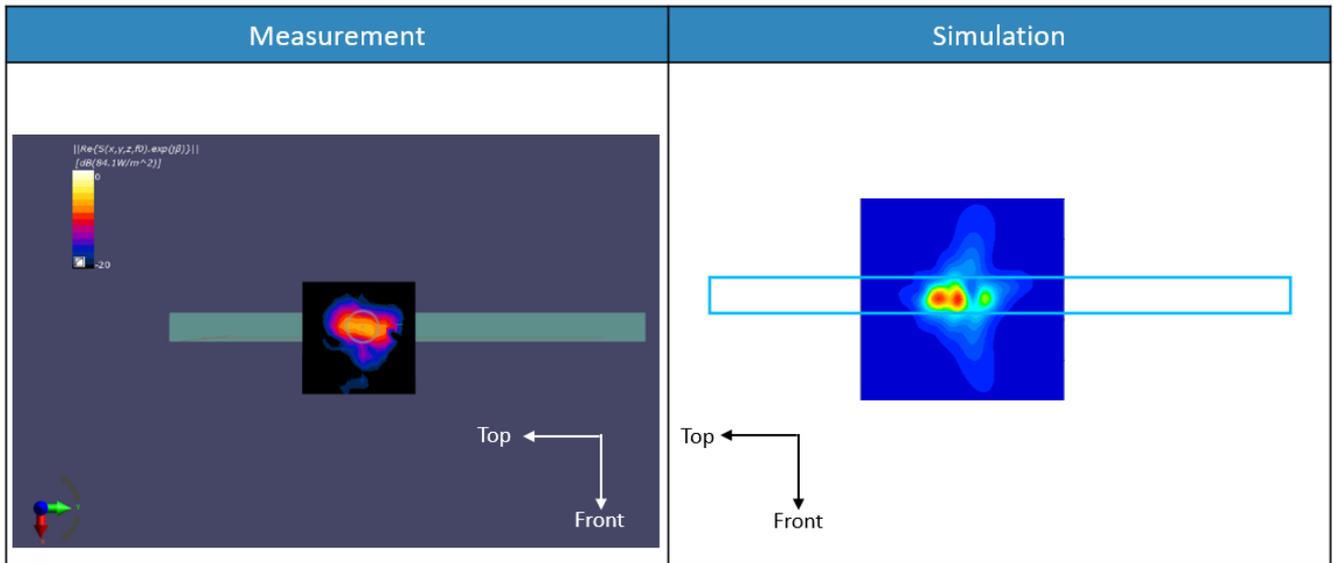
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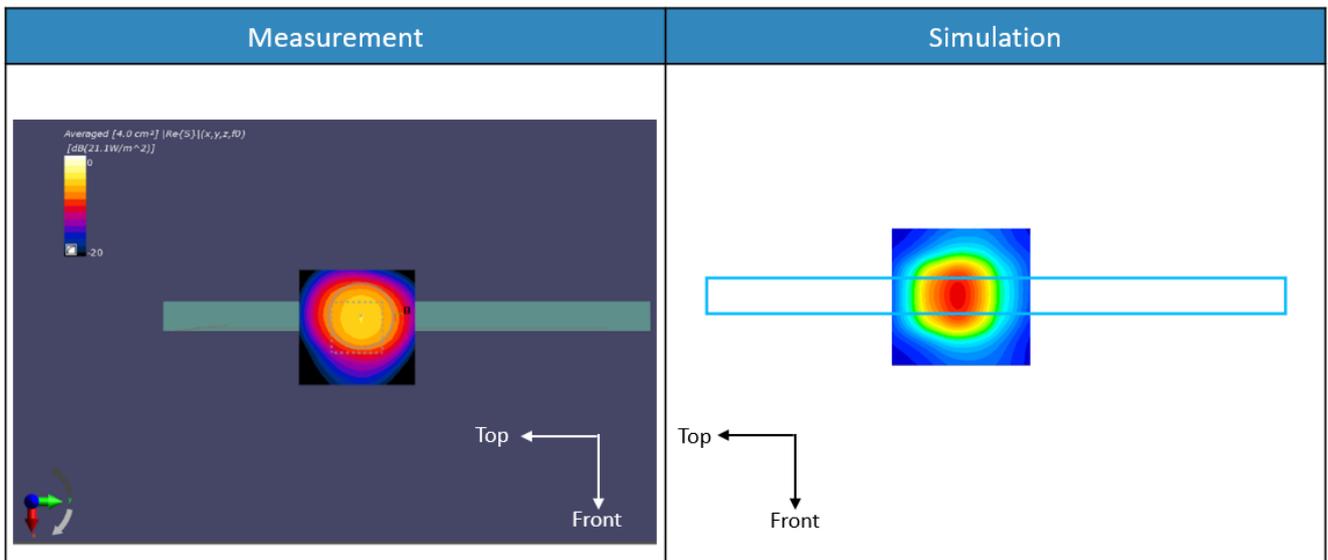
n261 ANT#1: Mid Channel, Beam ID: 46, 4cm^2 averaged power density

n261 ANT#1: Mid Channel, Beam ID: 154, Right
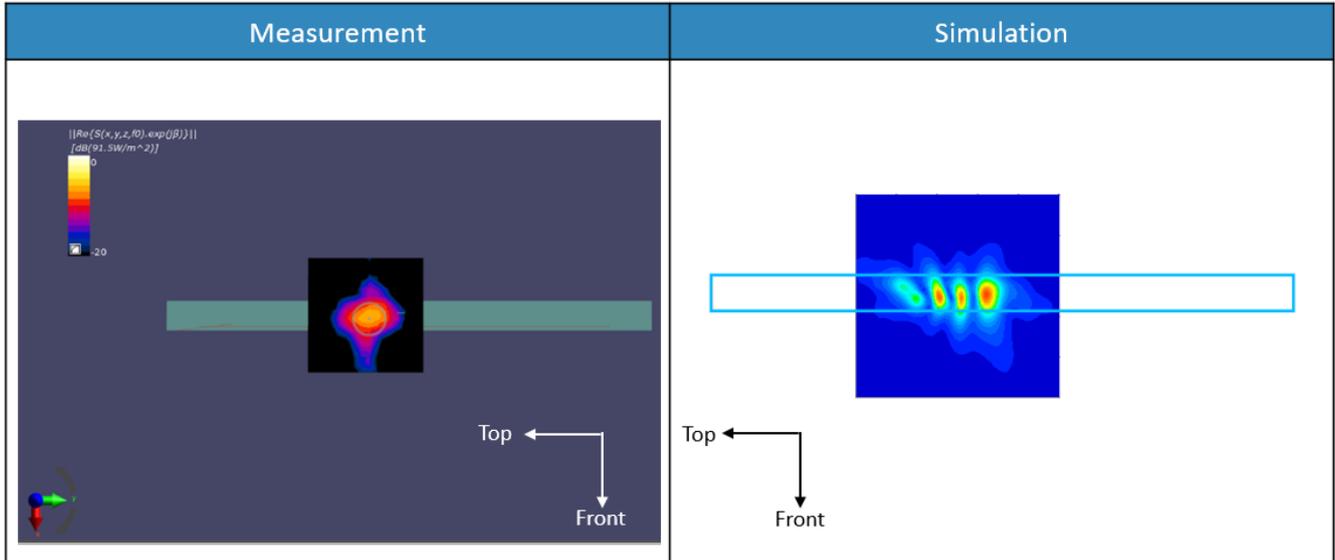
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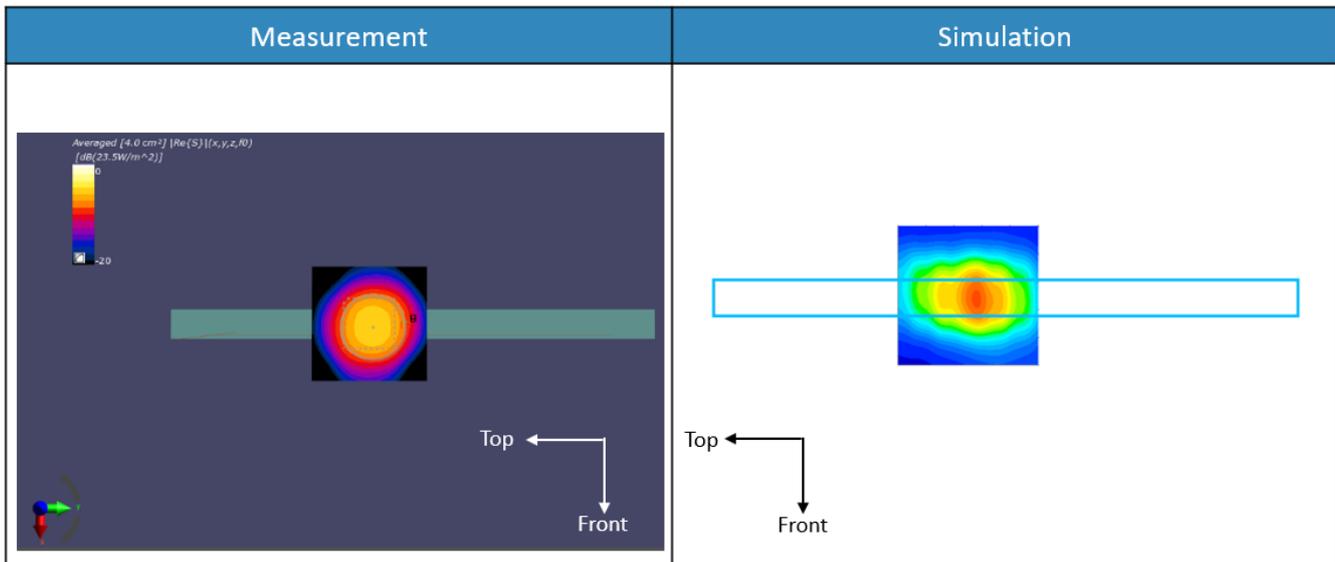
n261 ANT#1: Mid Channel, Beam ID: 154, 4cm^2 averaged power density

n261 ANT#2: Mid Channel, Beam ID: 41, Top
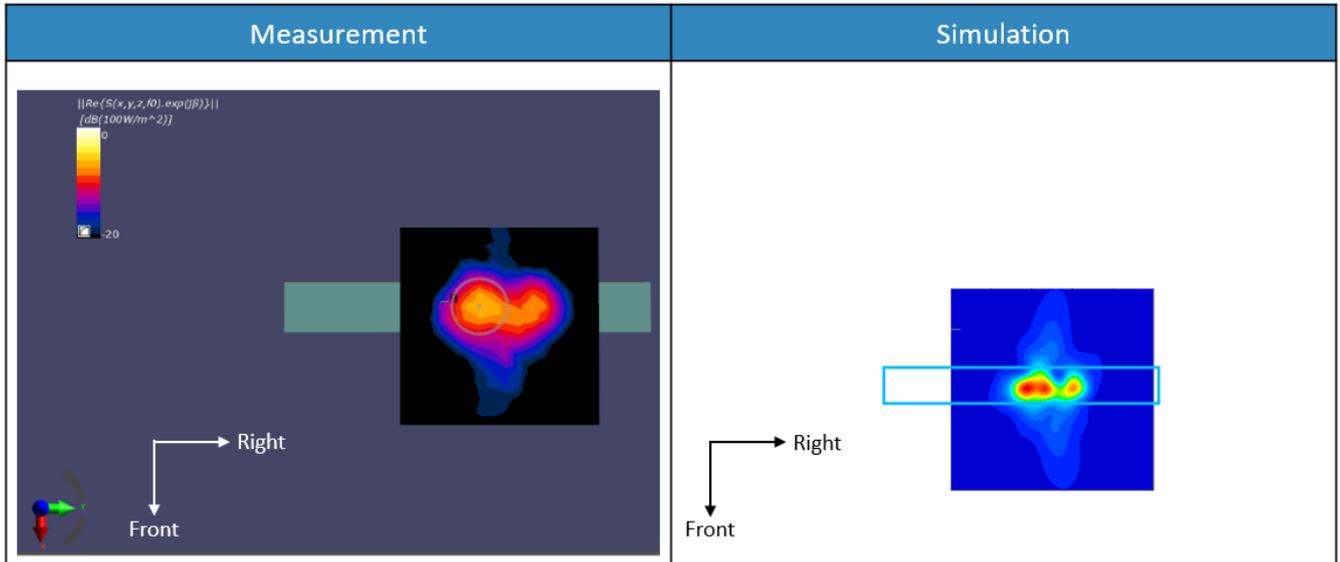
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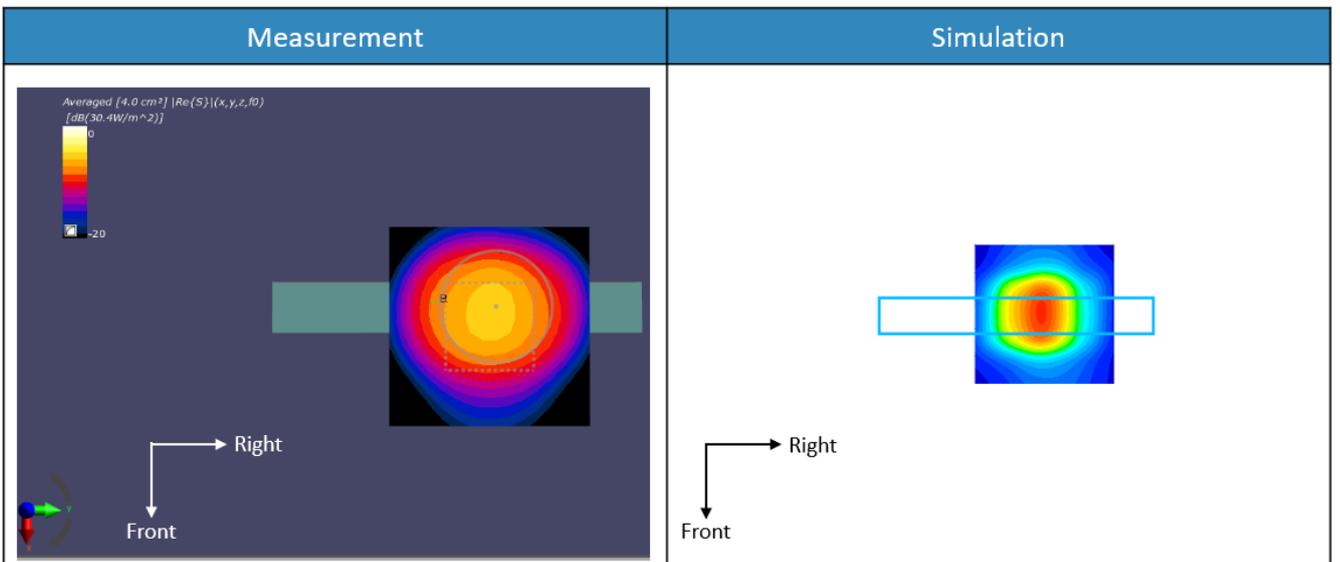
n261 ANT#2: Mid Channel, Beam ID: 41, 4cm^2 averaged power density

n261 ANT#2: Mid Channel, Beam ID: 169, Top
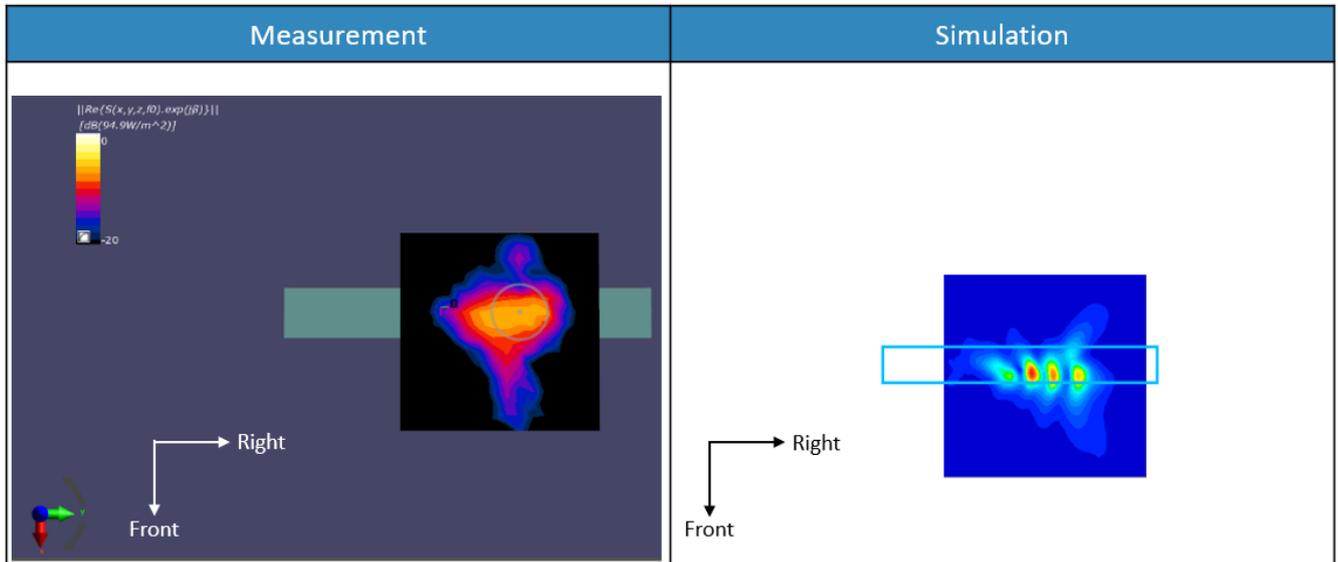
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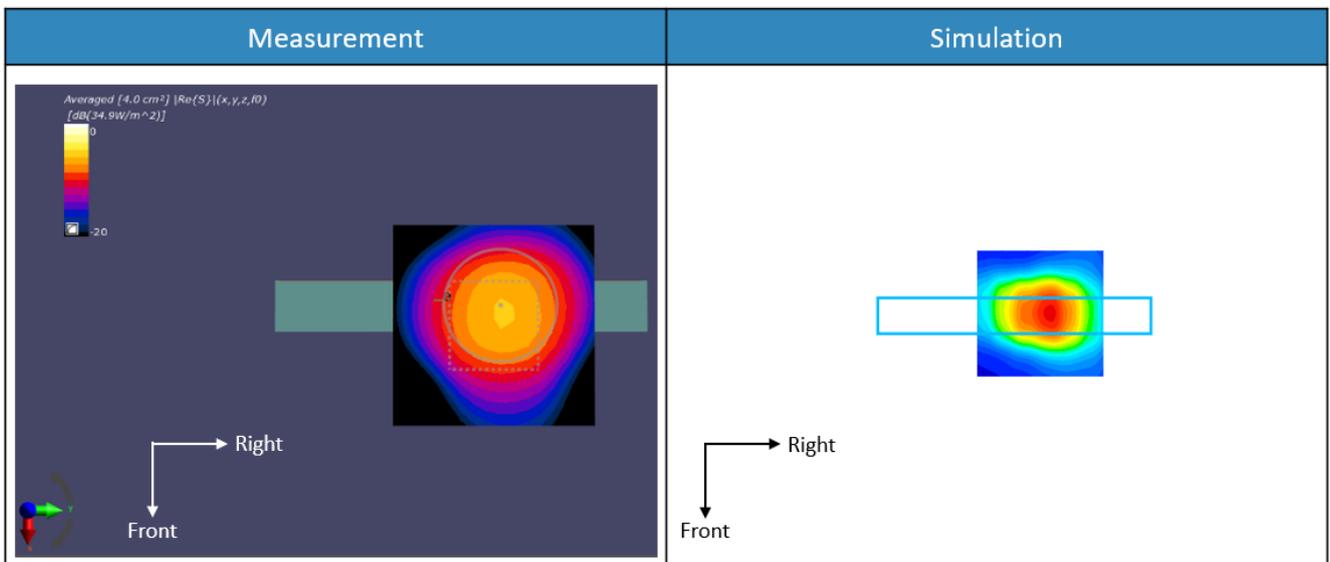
n261 ANT#2: Mid Channel, Beam ID: 169, 4cm^2 averaged power density

n261 ANT#3: Mid Channel, Beam ID: 35, Bottom
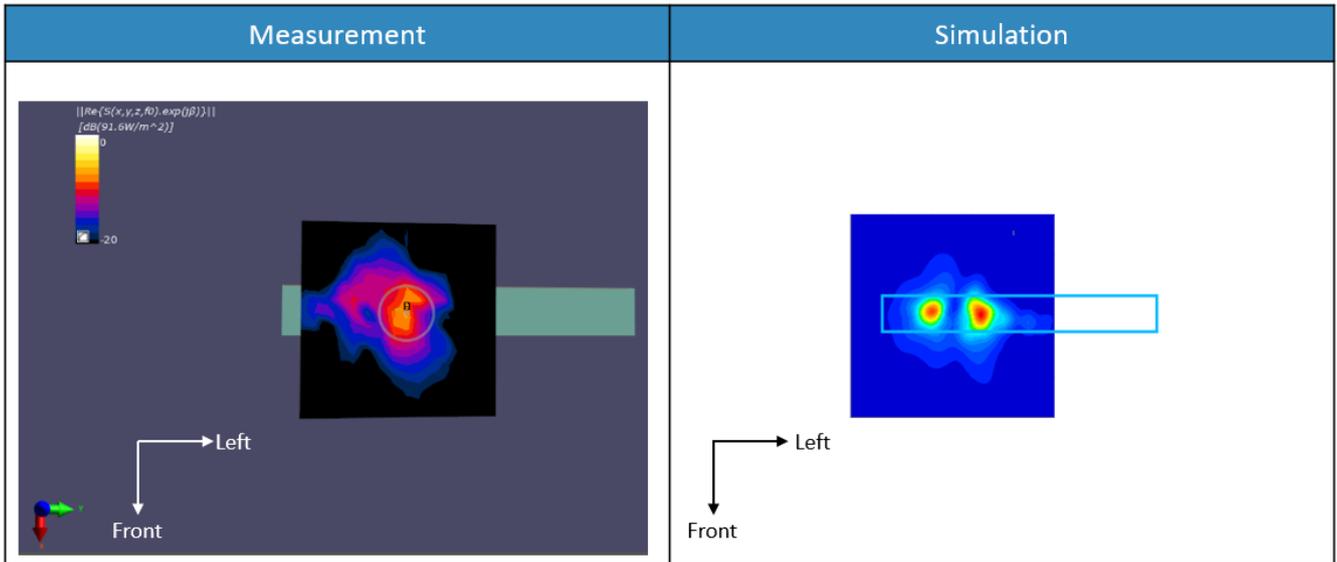
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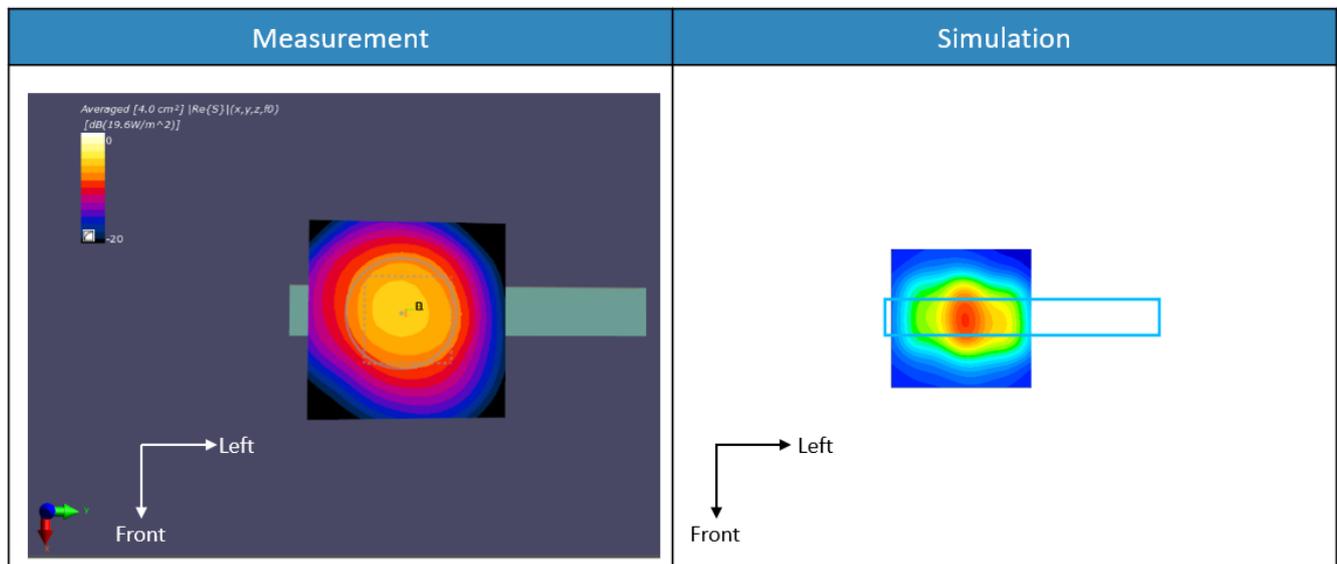
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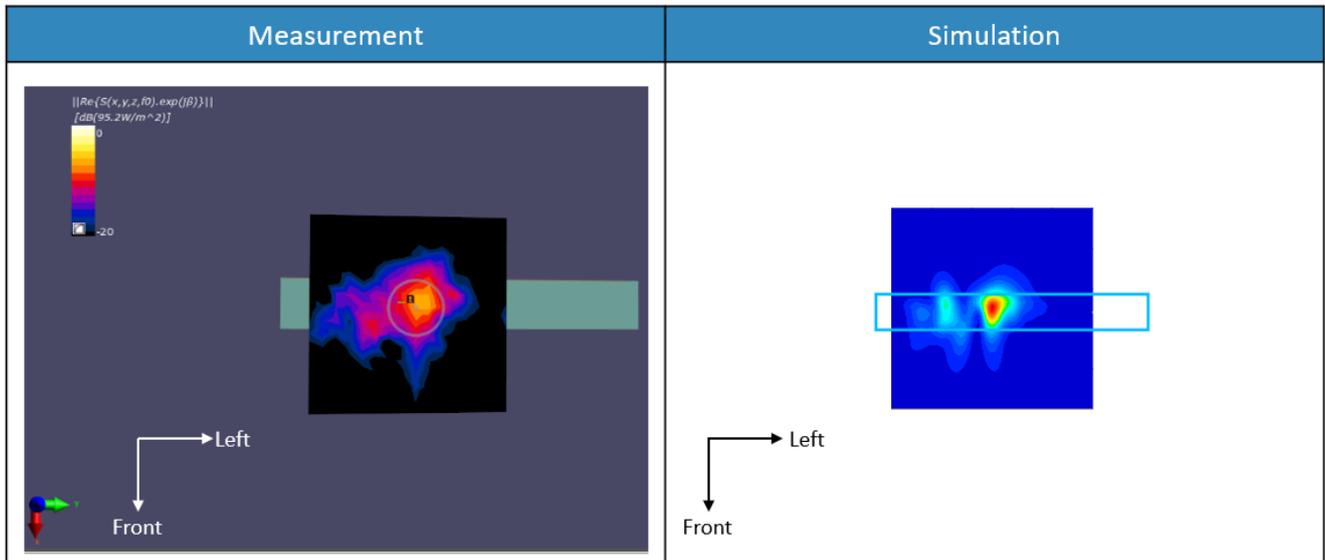
n261 ANT#3: Mid Channel, Beam ID: 163, Bottom

n261 ANT#3: Mid Channel, Beam ID: 163, Point power density
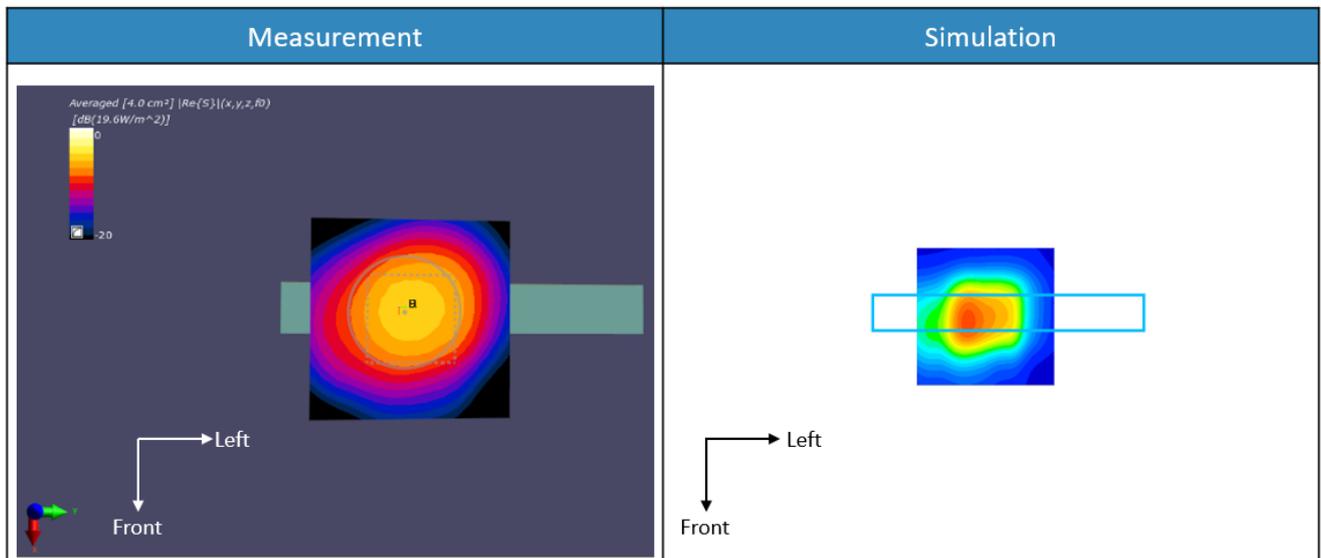
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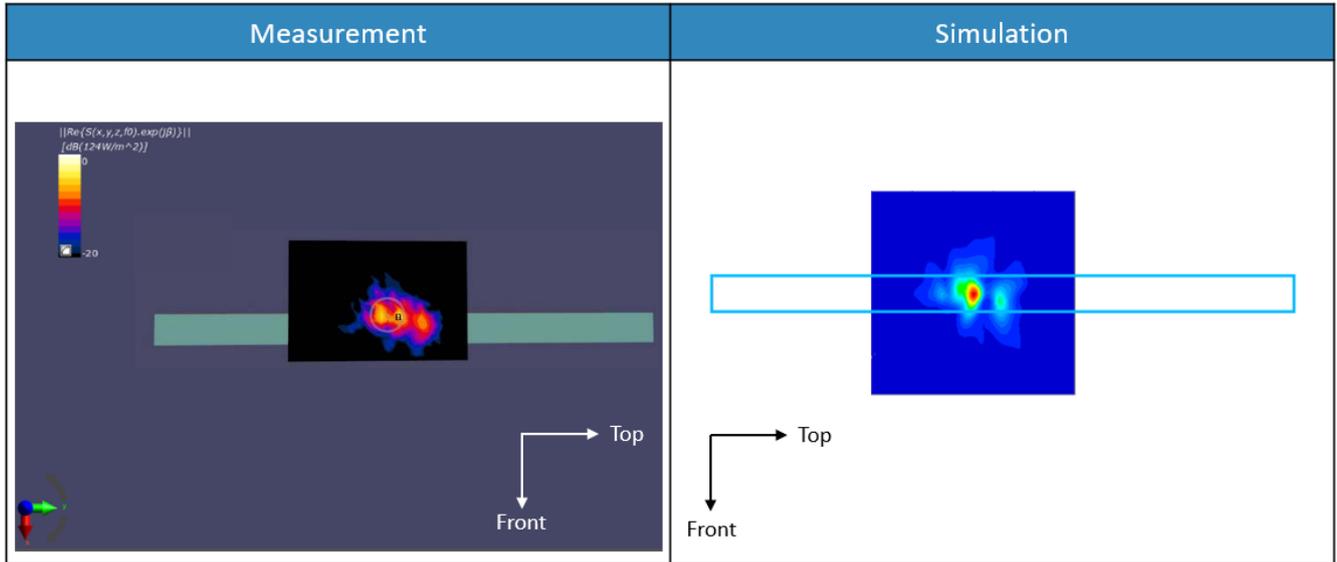
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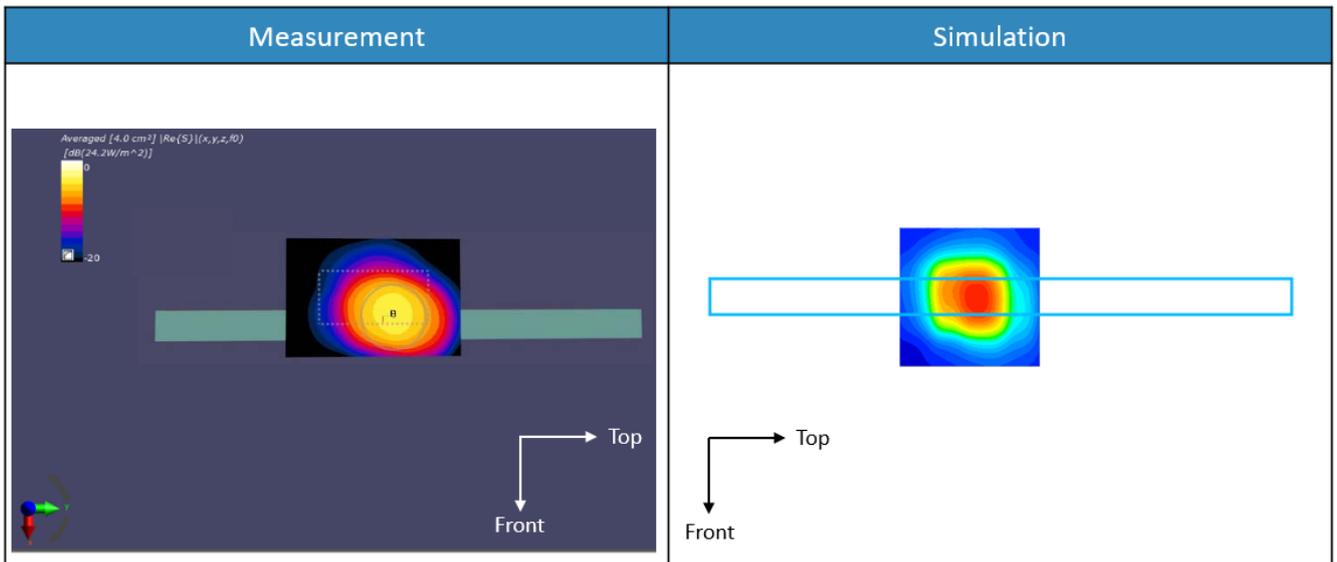
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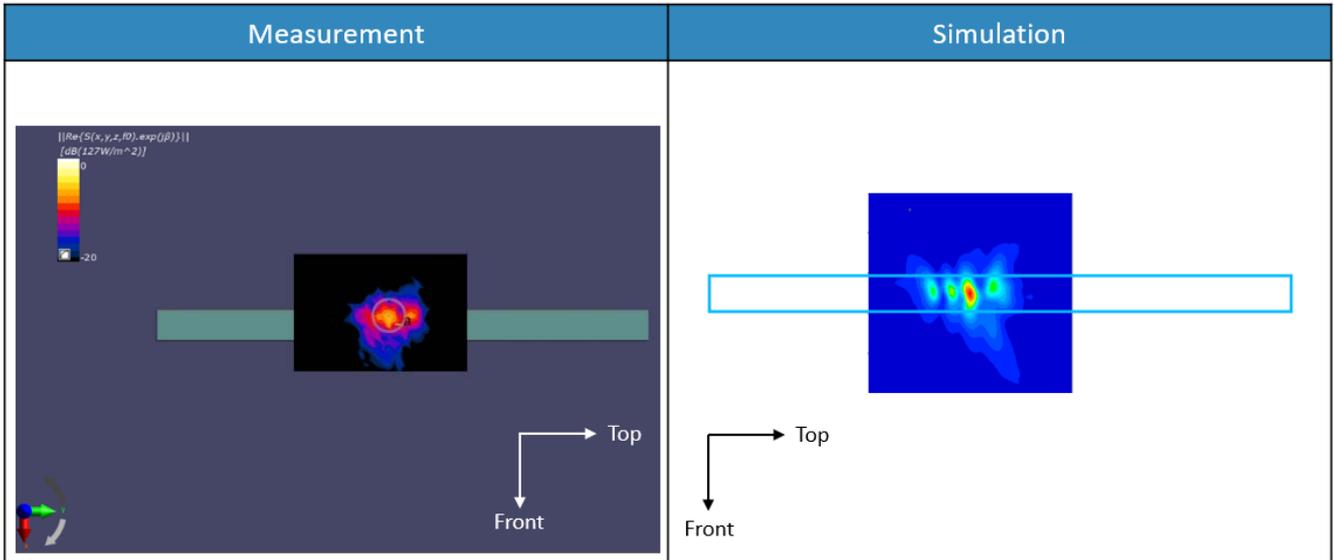
n260 ANT#0: Mid Channel, Beam ID: 158, Left

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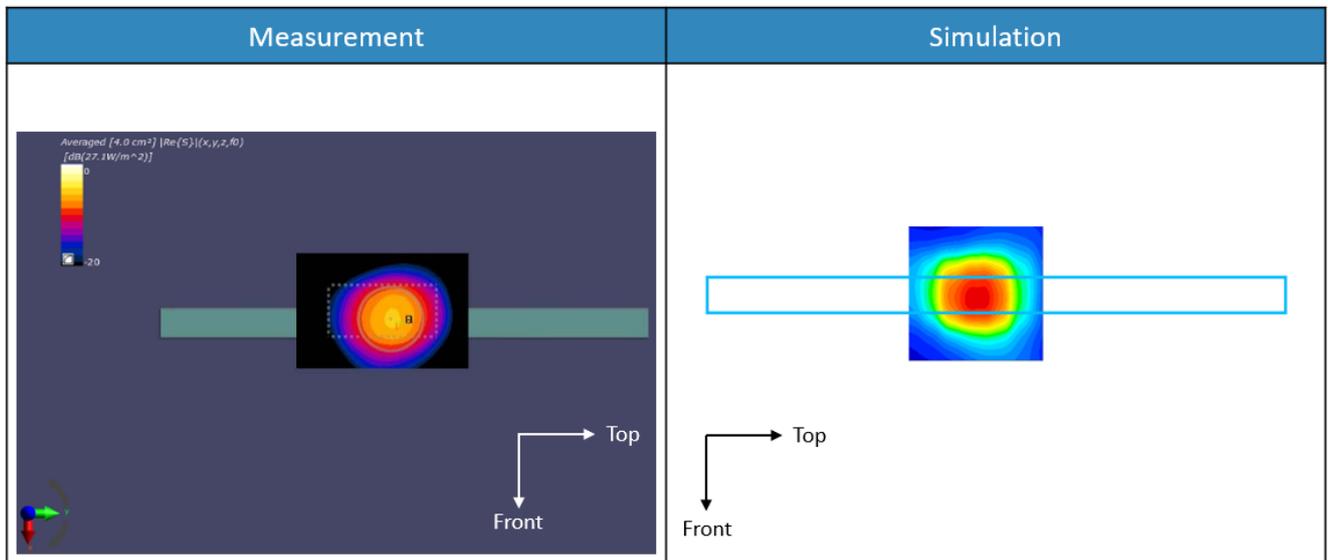
n260 ANT#0: Mid Channel, Beam ID: 158, 4cm^2 averaged power density

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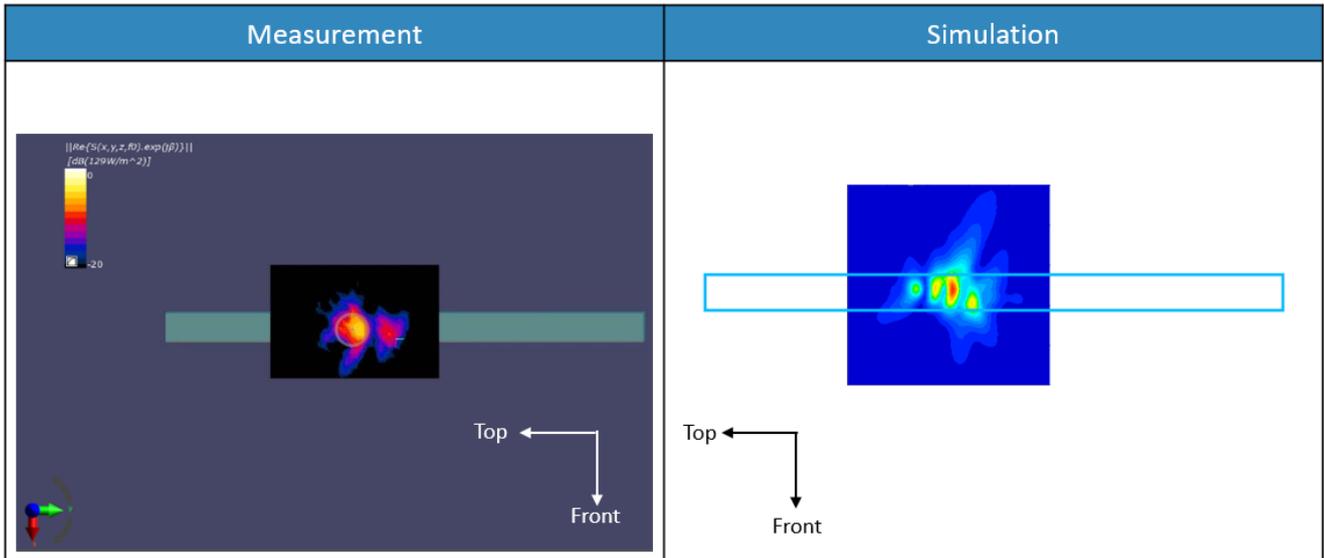
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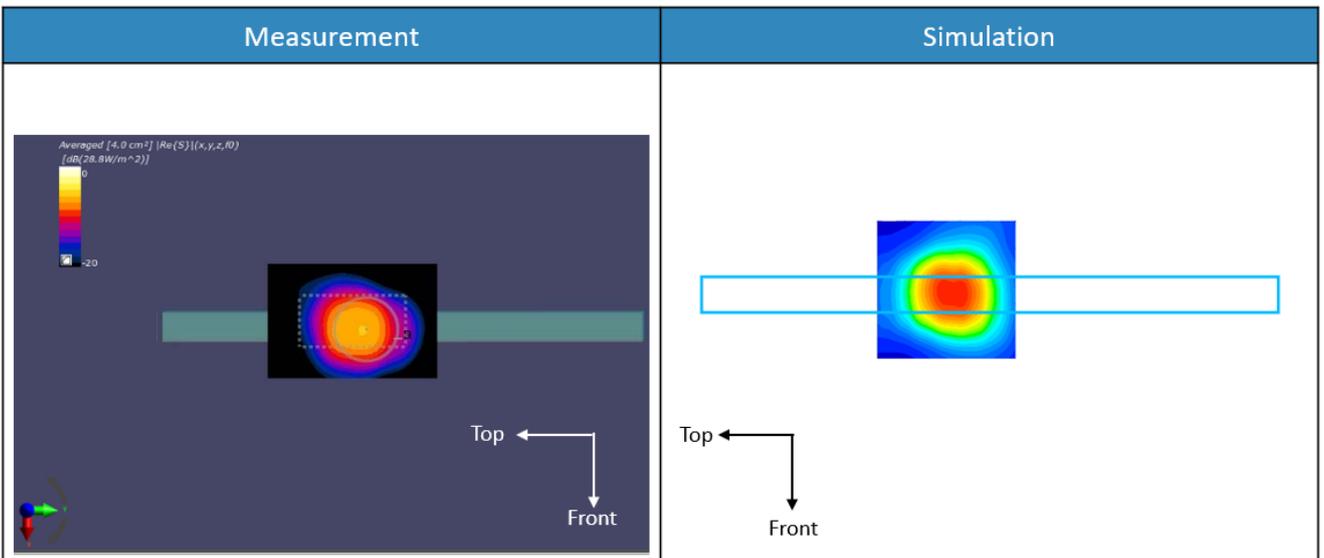
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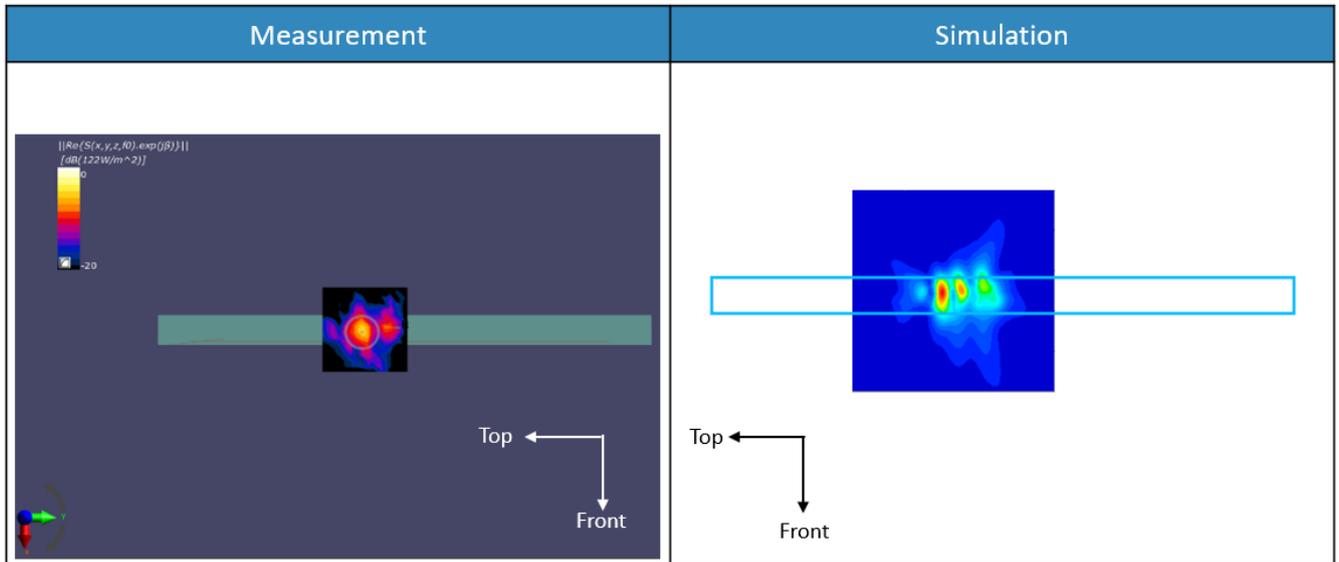
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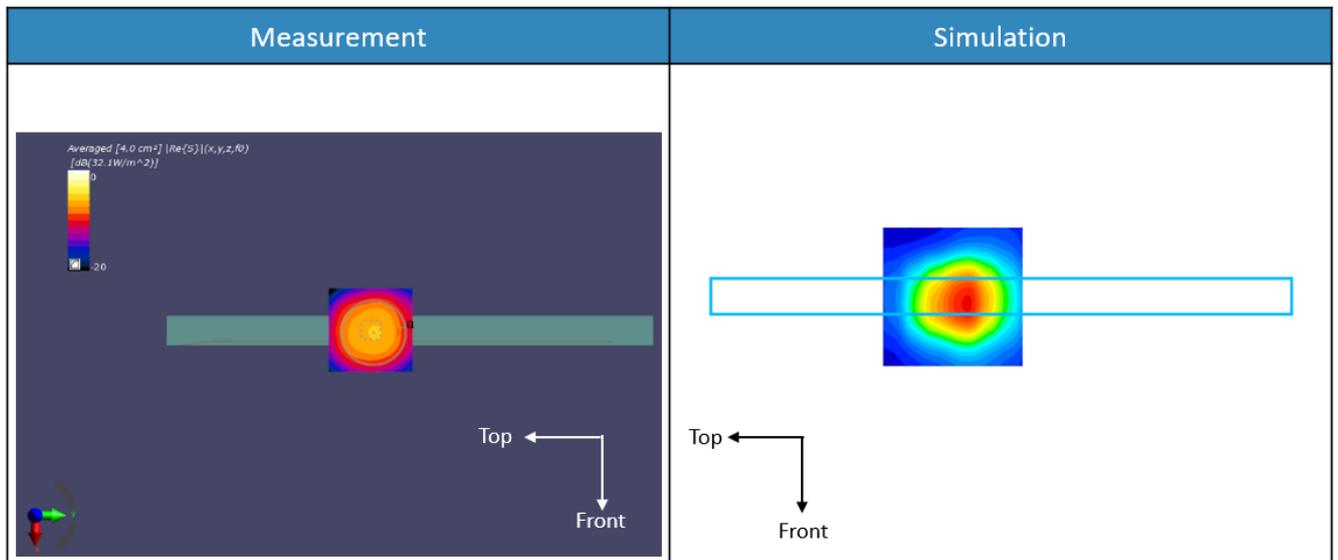
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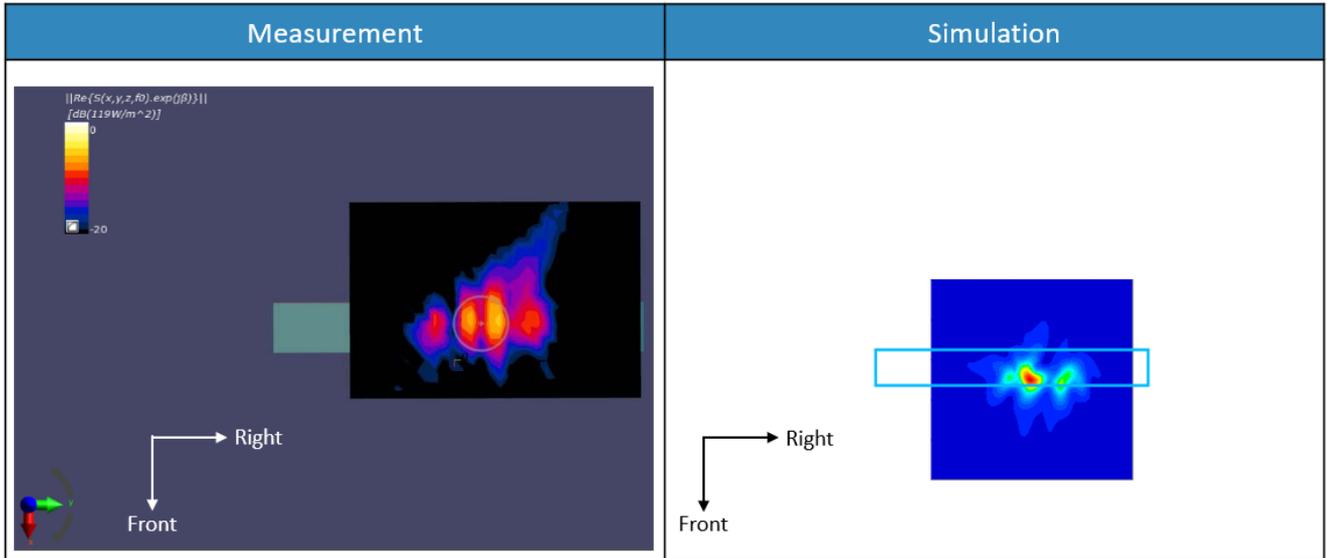
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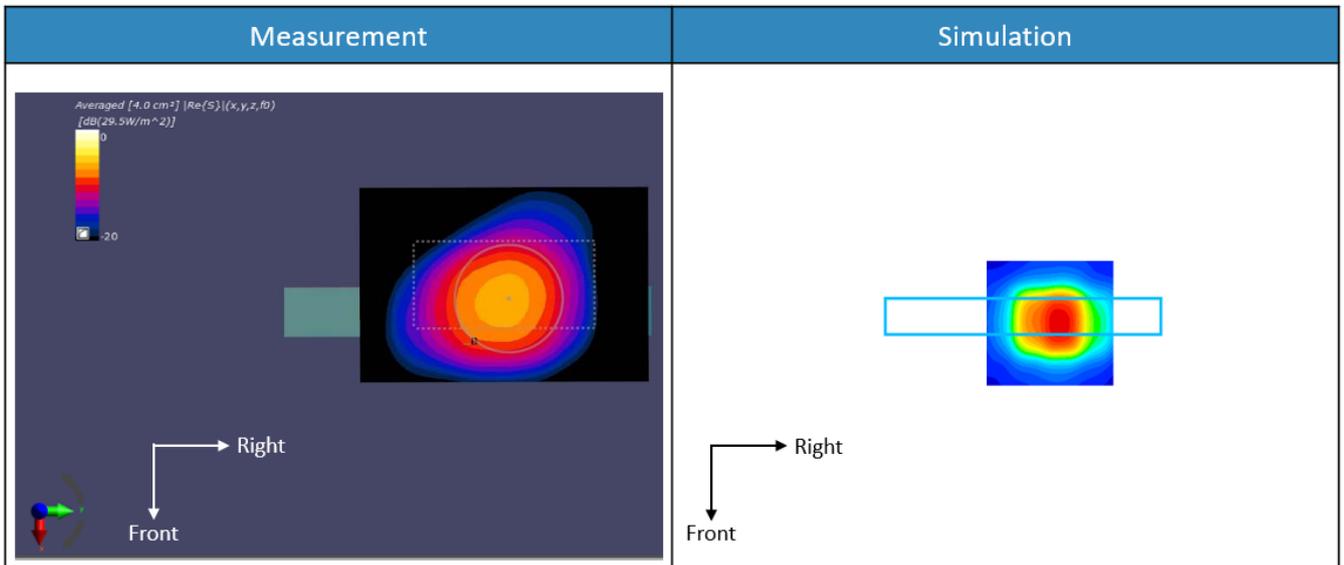
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n260 ANT#2: Mid Channel, Beam ID: 184, Top
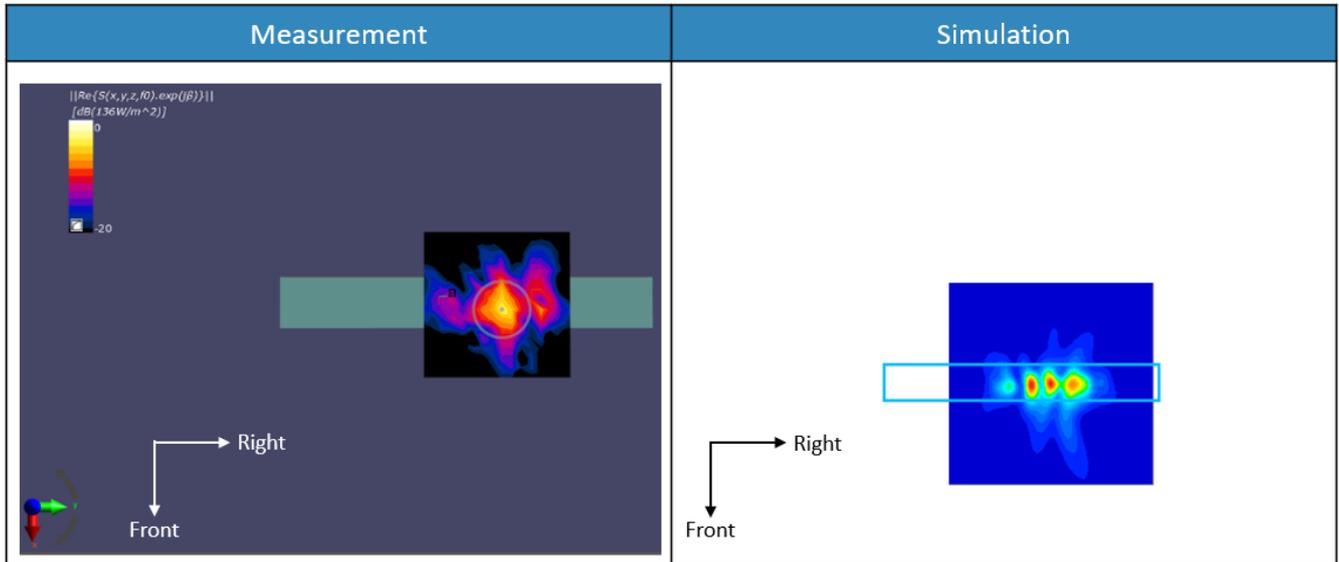
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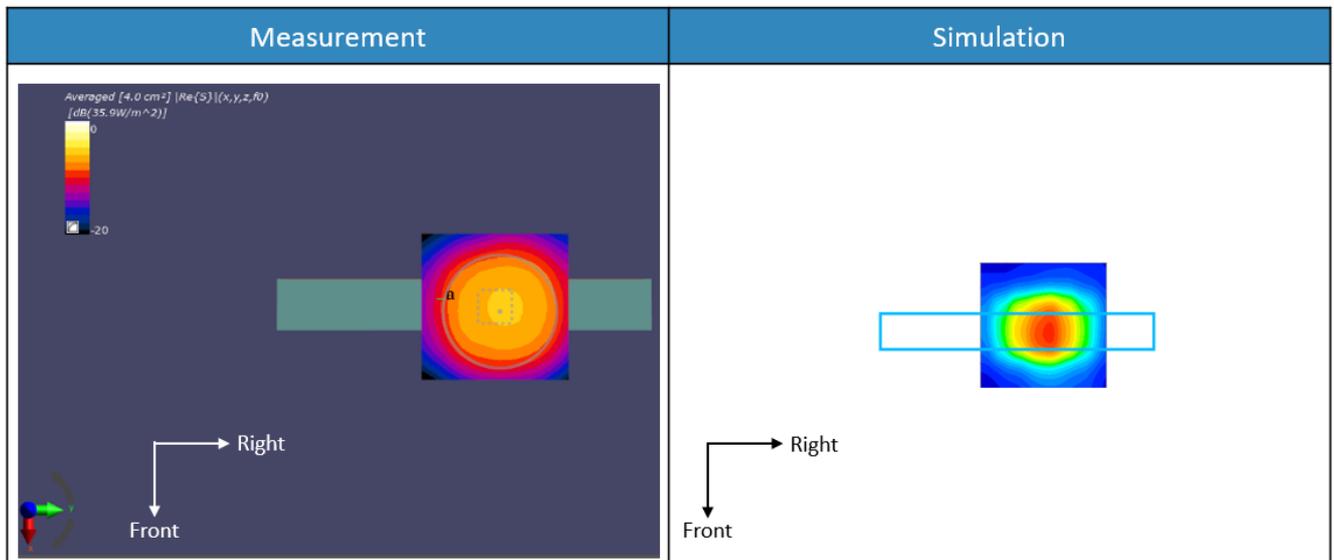
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n260 ANT#3: Mid Channel, Beam ID: 52, Bottom
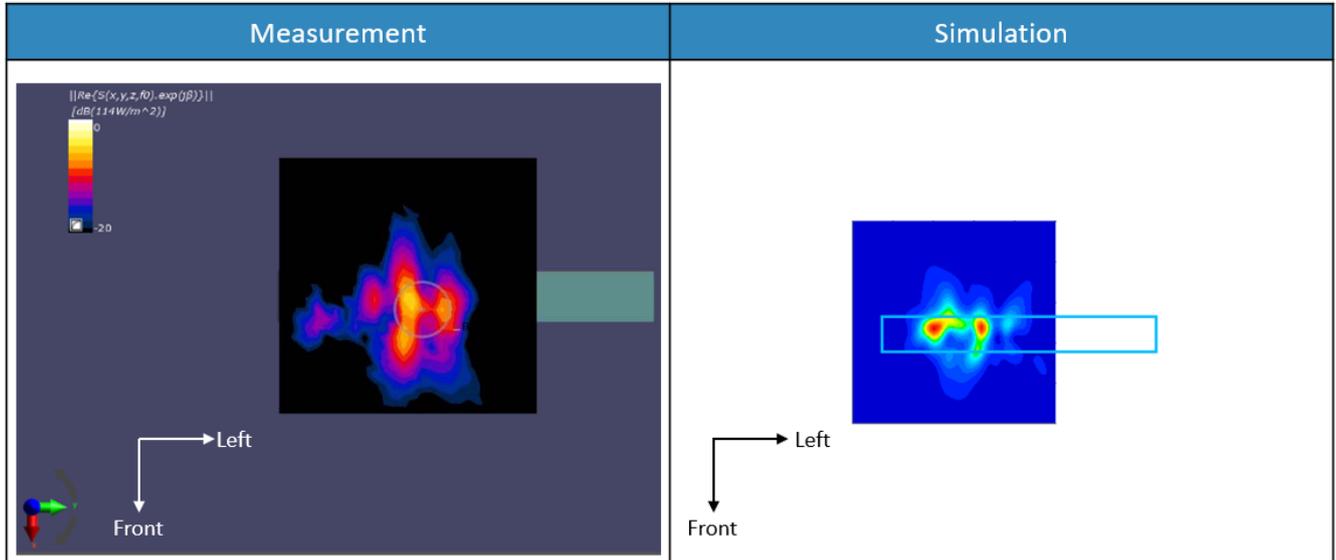
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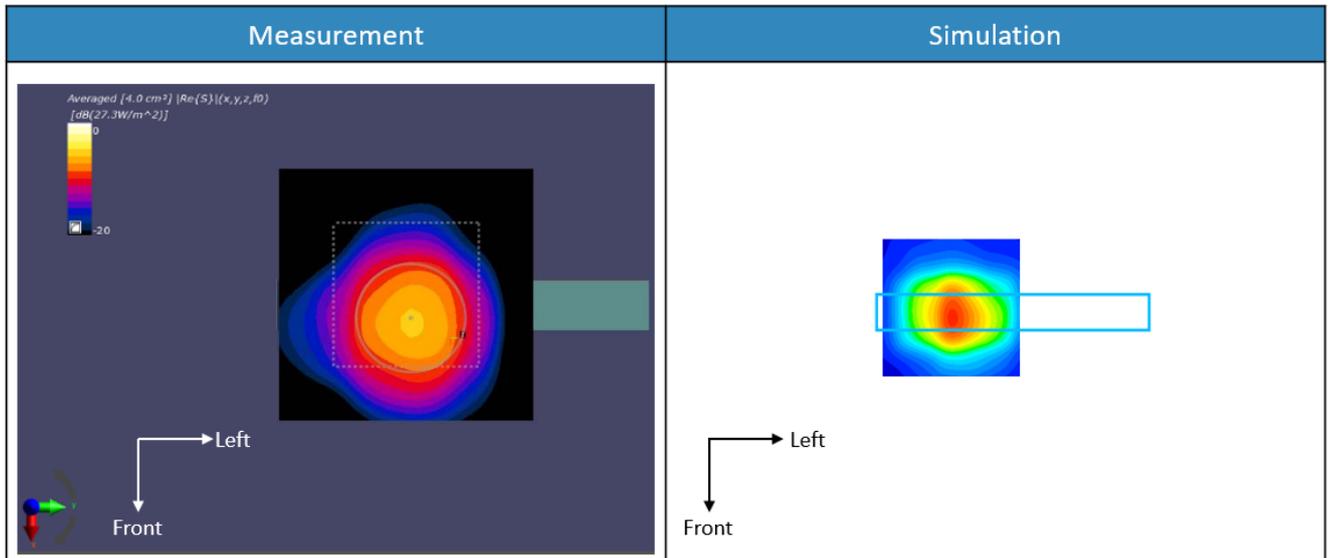
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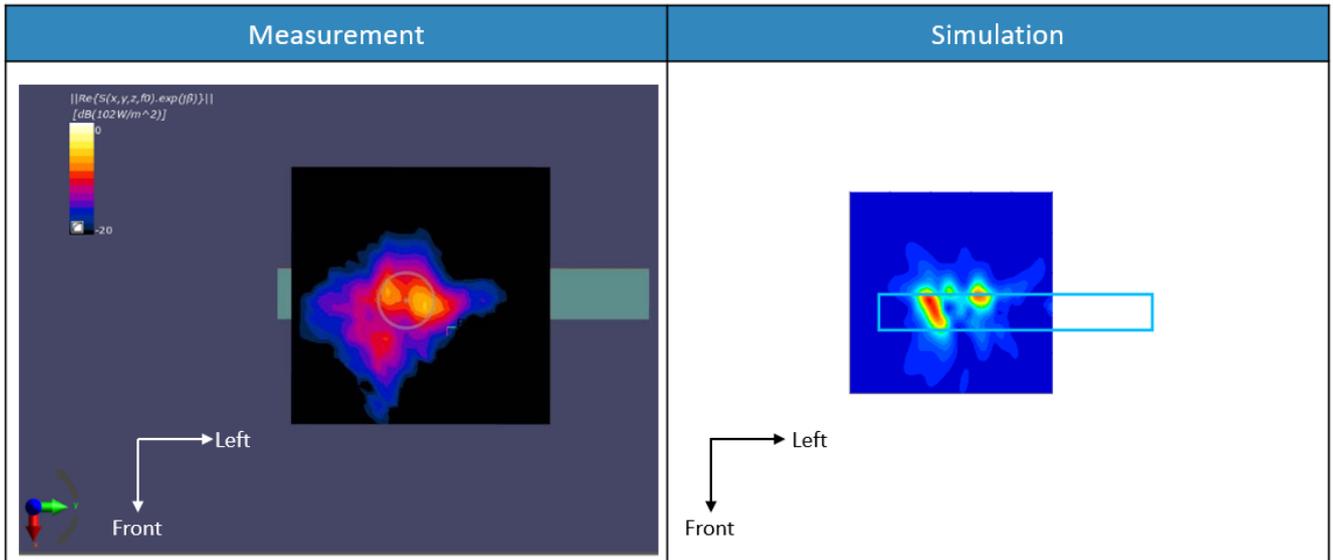
n260 ANT#3: Mid Channel, Beam ID: 163, Bottom

n260 ANT#3: Mid Channel, Beam ID: 163, Point power density
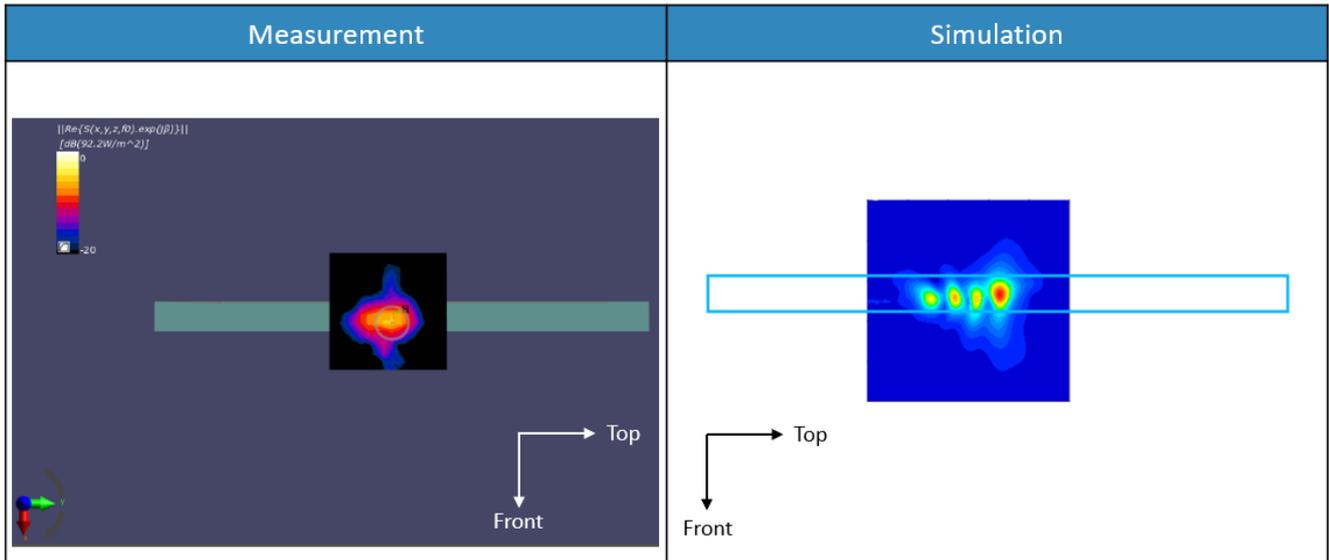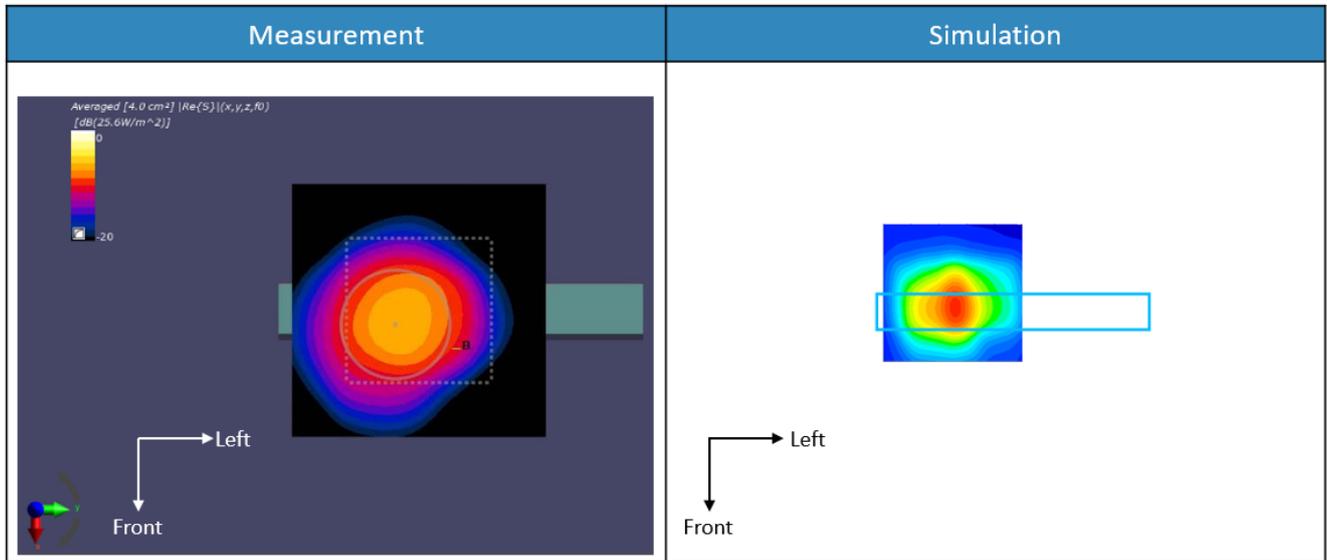

n260 ANT#3: Mid Channel, Beam ID: 163, 4cm^2 averaged power density

3 Simulation results

This section shows the PD simulation results of ANT#0, ANT#1, ANT#2 and ANT#3 at 28GHz and 39GHz for each evaluation plane specified in Table 1 at two separation distances of 2mm. The ratio of PD exposure from front surface to the worst surface at 2mm, and the ratio of PD exposure at 2mm evaluation distance for each beam are also reported in this section to support RF exposure analysis for simultaneous transmission scenarios performed in Appendix D of Part 1 Near Field PD report.

The relative phase between beam pairs is not controlled in the chipset design. Therefore, the relative phase between each beam pair was considered mathematically to identify the worst case conditions. The below MIMO results represent the highest reported MIMO simulation results after sweeping across the relative phase between beams in a 5° step interval from 0° to 360°.

The worst-case simulated PD determined from the tables in this section were used for conservativeness in *input.power.limit* determination in RF Exposure Part 0 Report.

3.1 PD for Low/Mid/High Channel at 28GHz / 39GHz

3.1.1 PD simulation at 28GHz

Table 2, Table 3, Table 4 and Table 5 show the PD simulation evaluation of ANT#0, ANT#1, ANT#2, and ANT#3 patch antenna at 28GHz for the corresponding evaluation planes specified in Table 1.

Table 2. PD of ANT#0 – patch antenna (28GHz)

- ANT#0 Low CH

Ant#0 Low CH (Left Module)

Module	Type	Beam ID_1	Beam ID_2	Feed no.	4cm2 PD[W/m2] at 2mm distance@6dBm Front(S1)	Back(S2)	Left(S3)	Right(S4)	Top(S5)	Bottom(S6)	Ratio Front/ (worst surface)	Back/ (worst surface)	Left/ (worst surface)	Right/ (worst surface)	Top/ (worst surface)	Bottom/ (worst surface)
		1		1	1.58	2.10	4.68	-	0.00	0.01	0.337	0.450	1.000	-	0.001	0.001
		7		2	3.19	3.42	8.64	-	0.01	0.02	0.369	0.396	1.000	-	0.001	0.002
		8		2	3.10	3.34	8.93	-	0.01	0.04	0.347	0.374	1.000	-	0.001	0.004
		9		2	3.33	3.37	8.39	-	0.01	0.01	0.397	0.401	1.000	-	0.001	0.001
		18		2	2.87	4.03	8.75	-	0.01	0.02	0.328	0.460	1.000	-	0.001	0.002
		19		2	3.15	4.20	9.33	-	0.01	0.01	0.337	0.450	1.000	-	0.001	0.001
		29		4	6.68	6.42	16.62	-	0.01	0.06	0.402	0.386	1.000	-	0.001	0.004
		30		4	6.36	6.83	17.24	-	0.01	0.03	0.369	0.396	1.000	-	0.001	0.002
		31		4	6.28	8.38	18.62	-	0.01	0.02	0.337	0.450	1.000	-	0.001	0.001
		32		4	5.09	6.92	14.47	-	0.03	0.18	0.352	0.478	1.000	-	0.002	0.012
		33		4	2.56	3.34	11.58	-	0.05	0.33	0.221	0.288	1.000	-	0.004	0.028
		48		4	6.65	6.72	16.74	-	0.01	0.01	0.397	0.401	1.000	-	0.001	0.001
		49		4	6.18	6.66	17.82	-	0.02	0.07	0.347	0.374	1.000	-	0.001	0.004
		50		4	5.73	8.04	17.46	-	0.02	0.03	0.328	0.460	1.000	-	0.001	0.002
		51		4	4.04	5.35	12.86	-	0.04	0.32	0.314	0.416	1.000	-	0.003	0.025
		129		1	1.76	1.26	4.55	-	0.01	0.03	0.387	0.277	1.000	-	0.002	0.007
		135		2	2.81	2.09	10.75	-	0.05	0.07	0.261	0.195	1.000	-	0.004	0.006
		136		2	1.71	1.51	8.94	-	0.05	0.06	0.192	0.169	1.000	-	0.006	0.007
		137		2	3.83	3.50	8.68	-	0.01	0.03	0.442	0.404	1.000	-	0.001	0.003
		146		2	3.51	2.52	9.57	-	0.02	0.07	0.367	0.263	1.000	-	0.002	0.007
		147		2	2.50	1.62	9.04	-	0.04	0.07	0.276	0.180	1.000	-	0.004	0.008
		157		4	7.89	7.54	18.31	-	0.02	0.03	0.431	0.412	1.000	-	0.001	0.002
Ant#0	Patch	158		4	7.00	5.02	18.10	-	0.03	0.13	0.387	0.277	1.000	-	0.002	0.007
		159		4	3.42	3.02	17.84	-	0.10	0.12	0.192	0.169	1.000	-	0.006	0.007
		160		4	6.16	6.33	14.38	-	0.04	0.06	0.428	0.440	1.000	-	0.003	0.004
		161		4	6.64	7.73	18.01	-	0.01	0.01	0.369	0.429	1.000	-	0.001	0.001
		176		4	7.65	6.99	17.31	-	0.02	0.06	0.442	0.404	1.000	-	0.001	0.003
		177		4	4.98	3.24	18.03	-	0.07	0.14	0.276	0.180	1.000	-	0.004	0.008
		178		4	5.60	4.18	17.45	-	0.09	0.13	0.321	0.240	1.000	-	0.005	0.007
		179		4	5.99	7.52	16.39	-	0.02	0.03	0.365	0.459	1.000	-	0.001	0.002
		1	129	2	5.32	4.47	15.02	-	0.02	0.04	0.355	0.298	1.000	-	0.001	0.003
		7	135	4	8.18	8.78	21.22	-	0.10	0.19	0.386	0.414	1.000	-	0.005	0.009
		8	136	4	9.55	8.78	27.63	-	0.09	0.11	0.346	0.318	1.000	-	0.003	0.004
		9	137	4	12.02	10.00	27.08	-	0.04	0.07	0.444	0.369	1.000	-	0.002	0.003
		18	146	4	10.62	8.92	29.96	-	0.04	0.08	0.355	0.298	1.000	-	0.001	0.003
		19	147	4	8.87	8.61	27.12	-	0.10	0.19	0.327	0.318	1.000	-	0.004	0.007
		29	157	8	23.99	19.96	54.03	-	0.09	0.14	0.444	0.369	1.000	-	0.002	0.003
		30	158	8	21.20	17.80	59.78	-	0.09	0.15	0.355	0.298	1.000	-	0.001	0.003
		31	159	8	17.70	17.19	54.12	-	0.20	0.37	0.327	0.318	1.000	-	0.004	0.007
		32	160	8	17.54	17.85	41.36	-	0.15	0.46	0.424	0.432	1.000	-	0.004	0.011
		33	161	8	15.98	19.36	47.24	-	0.12	0.36	0.338	0.410	1.000	-	0.003	0.008
		48	176	8	23.70	18.45	52.41	-	0.07	0.17	0.452	0.352	1.000	-	0.001	0.003
		49	177	8	19.06	17.53	55.14	-	0.19	0.22	0.346	0.318	1.000	-	0.003	0.004
		50	178	8	16.32	17.53	42.33	-	0.20	0.37	0.386	0.414	1.000	-	0.005	0.009
		51	179	8	17.07	20.76	45.75	-	0.10	0.48	0.373	0.454	1.000	-	0.002	0.010

- ANT#0 Mid CH

Ant#0 Mid CH (Left Module)

Module	Type	Beam ID_1	Beam ID_2	Feed no.	4cm2 PD[W/m2] at 2mm distance@6dBm						Ratio					
					Front(S1)	Back(S2)	Left(S3)	Right(S4)	Top(S5)	Bottom(S6)	Front/(worst surface)	Back/(worst surface)	Left/(worst surface)	Right/(worst surface)	Top/(worst surface)	Bottom/(worst surface)
Ant#0	Patch	1		1	1.67	2.15	4.65	-	0.01	0.02	0.360	0.462	1.000	-	0.002	0.003
		7		2	3.67	3.50	8.74	-	0.02	0.03	0.420	0.401	1.000	-	0.002	0.003
		8		2	3.36	3.41	8.96	-	0.02	0.04	0.375	0.381	1.000	-	0.002	0.004
		9		2	3.66	3.48	8.54	-	0.02	0.02	0.429	0.407	1.000	-	0.002	0.002
		18		2	2.90	4.12	8.85	-	0.02	0.04	0.328	0.466	1.000	-	0.002	0.004
		19		2	3.34	4.28	9.27	-	0.02	0.03	0.360	0.462	1.000	-	0.002	0.003
		29		4	6.55	6.63	16.47	-	0.05	0.05	0.398	0.403	1.000	-	0.003	0.003
		30		4	7.33	6.99	17.44	-	0.03	0.05	0.420	0.401	1.000	-	0.002	0.003
		31		4	6.66	8.54	18.50	-	0.03	0.06	0.360	0.462	1.000	-	0.002	0.003
		32		4	5.44	7.15	14.01	-	0.04	0.21	0.388	0.510	1.000	-	0.003	0.015
		33		4	5.49	5.60	12.25	-	0.17	0.44	0.448	0.457	1.000	-	0.014	0.036
		48		4	7.31	6.94	17.04	-	0.04	0.04	0.429	0.407	1.000	-	0.002	0.002
		49		4	6.70	6.81	17.87	-	0.04	0.07	0.375	0.381	1.000	-	0.002	0.004
		50		4	5.79	8.23	17.66	-	0.04	0.07	0.328	0.466	1.000	-	0.002	0.004
		51		4	5.48	6.34	12.90	-	0.07	0.37	0.425	0.491	1.000	-	0.005	0.029
		129		1	1.56	1.35	4.54	-	0.02	0.05	0.344	0.296	1.000	-	0.003	0.012
		135		2	3.09	2.54	10.67	-	0.10	0.13	0.289	0.238	1.000	-	0.009	0.012
		136		2	2.73	2.54	9.96	-	0.10	0.16	0.274	0.255	1.000	-	0.010	0.016
		137		2	3.85	1.91	8.45	-	0.02	0.05	0.456	0.227	1.000	-	0.002	0.006
		146		2	3.12	2.69	9.86	-	0.03	0.11	0.316	0.272	1.000	-	0.003	0.011
		147		2	2.25	2.42	9.00	-	0.08	0.14	0.250	0.269	1.000	-	0.009	0.016
		157		4	8.36	6.97	17.87	-	0.03	0.06	0.468	0.390	1.000	-	0.002	0.003
		158		4	6.22	5.36	18.08	-	0.06	0.21	0.344	0.296	1.000	-	0.003	0.012
		159		4	5.44	5.07	17.88	-	0.20	0.31	0.304	0.284	1.000	-	0.011	0.017
		160		4	6.42	6.18	13.11	-	0.09	0.07	0.490	0.471	1.000	-	0.007	0.005
		161		4	7.09	7.96	17.90	-	0.03	0.05	0.396	0.445	1.000	-	0.002	0.003
		176		4	7.68	3.82	16.85	-	0.03	0.10	0.456	0.227	1.000	-	0.002	0.006
		177		4	4.48	4.82	17.95	-	0.16	0.28	0.250	0.269	1.000	-	0.009	0.016
		178		4	6.16	5.07	17.29	-	0.20	0.25	0.356	0.293	1.000	-	0.012	0.014
		179		4	6.50	7.23	15.84	-	0.03	0.05	0.410	0.456	1.000	-	0.002	0.003
		1	129	2	5.84	4.36	14.92	-	0.05	0.08	0.391	0.293	1.000	-	0.003	0.005
		7	135	4	8.77	8.27	21.74	-	0.18	0.32	0.403	0.380	1.000	-	0.008	0.014
		8	136	4	9.72	8.55	27.70	-	0.15	0.24	0.351	0.308	1.000	-	0.006	0.009
		9	137	4	12.41	10.18	26.99	-	0.09	0.09	0.460	0.377	1.000	-	0.003	0.003
		18	146	4	11.65	8.71	29.76	-	0.09	0.15	0.391	0.293	1.000	-	0.003	0.005
		19	147	4	8.69	8.35	27.50	-	0.21	0.35	0.316	0.304	1.000	-	0.008	0.013
		29	157	8	24.75	20.32	53.86	-	0.19	0.17	0.460	0.377	1.000	-	0.003	0.003
		30	158	8	23.24	17.37	59.39	-	0.19	0.31	0.391	0.293	1.000	-	0.003	0.005
		31	159	8	17.34	16.66	54.86	-	0.43	0.70	0.316	0.304	1.000	-	0.008	0.013
		32	160	8	17.36	19.11	40.48	-	0.19	0.56	0.429	0.472	1.000	-	0.005	0.014
		33	161	8	15.67	18.70	46.14	-	0.39	0.75	0.340	0.405	1.000	-	0.008	0.016
		48	176	8	25.70	18.60	52.87	-	0.17	0.22	0.486	0.352	1.000	-	0.003	0.004
		49	177	8	19.40	17.05	55.27	-	0.31	0.48	0.351	0.308	1.000	-	0.006	0.009
		50	178	8	17.49	16.51	43.38	-	0.36	0.63	0.403	0.380	1.000	-	0.008	0.014
		51	179	8	15.56	19.65	42.52	-	0.19	0.63	0.366	0.462	1.000	-	0.004	0.015

- ANT#0 High CH

Ant#0 High CH (Left Module)

Module	Type	Beam ID_1	Beam ID_2	Feed no.	4cm2 PD[W/m2] at 2mm distance@6dBm						Ratio					
					Front(S1)	Back(S2)	Left(S3)	Right(S4)	Top(S5)	Bottom(S6)	Front/ (worst surface)	Back/ (worst surface)	Left/ (worst surface)	Right/ (worst surface)	Top/ (worst surface)	Bottom/ (worst surface)
Ant#0	Patch	1		1	1.436799	1.8638197	4.1295413	-	0.0025119	0.0050238	0.348	0.451	1.000	-	0.001	0.001
		7		2	3.17	2.92	7.63	-	0.01	0.01	0.415	0.383	1.000	-	0.001	0.001
		8		2	2.97	2.86	8.00	-	0.01	0.03	0.372	0.357	1.000	-	0.001	0.003
		9		2	3.00	2.93	7.60	-	0.01	0.01	0.395	0.385	1.000	-	0.001	0.001
		18		2	2.36	3.58	7.72	-	0.01	0.02	0.305	0.463	1.000	-	0.001	0.003
		19		2	2.87	3.72	8.24	-	0.01	0.01	0.348	0.451	1.000	-	0.001	0.001
		29		4	5.48	5.77	14.30	-	0.03	0.03	0.383	0.403	1.000	-	0.002	0.002
		30		4	6.32	5.83	15.23	-	0.01	0.02	0.415	0.383	1.000	-	0.001	0.001
		31		4	5.72	7.42	16.44	-	0.01	0.02	0.348	0.451	1.000	-	0.001	0.001
		32		4	3.91	5.72	12.41	-	0.02	0.14	0.315	0.461	1.000	-	0.002	0.011
		33		4	2.01	2.94	9.65	-	0.04	0.29	0.208	0.305	1.000	-	0.004	0.030
		48		4	5.99	5.84	15.17	-	0.01	0.01	0.395	0.385	1.000	-	0.001	0.001
		49		4	5.93	5.70	15.96	-	0.02	0.05	0.372	0.357	1.000	-	0.001	0.003
		50		4	4.70	7.14	15.41	-	0.01	0.04	0.305	0.463	1.000	-	0.001	0.003
		51		4	2.99	4.21	11.02	-	0.04	0.24	0.271	0.382	1.000	-	0.004	0.022
		129		1	1.24	1.18	4.12	-	0.01	0.04	0.301	0.286	1.000	-	0.002	0.009
		135		2	2.26	1.61	9.75	-	0.05	0.03	0.232	0.166	1.000	-	0.005	0.003
		136		2	1.75	1.56	8.16	-	0.05	0.03	0.214	0.192	1.000	-	0.006	0.004
		137		2	3.26	2.95	7.47	-	0.01	0.04	0.436	0.395	1.000	-	0.001	0.005
		146		2	2.48	2.36	8.73	-	0.02	0.07	0.284	0.270	1.000	-	0.002	0.008
		147		2	1.37	1.78	8.10	-	0.04	0.04	0.170	0.220	1.000	-	0.004	0.005
		157		4	6.88	6.35	15.97	-	0.02	0.03	0.431	0.398	1.000	-	0.001	0.002
		158		4	4.95	4.70	16.42	-	0.03	0.14	0.301	0.286	1.000	-	0.002	0.009
		159		4	3.49	3.12	16.29	-	0.09	0.06	0.214	0.192	1.000	-	0.006	0.004
		160		4	5.31	5.45	12.03	-	0.03	0.04	0.441	0.453	1.000	-	0.002	0.003
		161		4	6.18	6.78	15.95	-	0.01	0.01	0.387	0.425	1.000	-	0.001	0.001
		176		4	6.50	5.88	14.90	-	0.02	0.07	0.436	0.395	1.000	-	0.001	0.005
		177		4	2.74	3.55	16.16	-	0.07	0.08	0.170	0.220	1.000	-	0.004	0.005
		178		4	4.51	3.22	15.46	-	0.09	0.05	0.292	0.208	1.000	-	0.006	0.003
		179		4	5.41	6.33	14.17	-	0.01	0.03	0.382	0.447	1.000	-	0.001	0.002
		1	129	2	5.88	4.15	14.97	-	0.02	0.04	0.393	0.277	1.000	-	0.001	0.003
		7	135	4	6.42	8.50	20.01	-	0.10	0.12	0.321	0.425	1.000	-	0.005	0.006
		8	136	4	9.63	8.22	26.81	-	0.09	0.08	0.359	0.307	1.000	-	0.003	0.003
		9	137	4	12.68	9.87	26.93	-	0.05	0.04	0.471	0.366	1.000	-	0.002	0.002
		18	146	4	11.74	8.27	29.87	-	0.04	0.08	0.393	0.277	1.000	-	0.001	0.003
		19	147	4	7.31	8.33	25.82	-	0.12	0.10	0.283	0.323	1.000	-	0.005	0.004
		29	157	8	25.30	19.69	53.74	-	0.10	0.09	0.471	0.366	1.000	-	0.002	0.002
		30	158	8	23.43	16.51	59.59	-	0.09	0.15	0.393	0.277	1.000	-	0.001	0.003
		31	159	8	14.59	16.63	51.51	-	0.24	0.20	0.283	0.323	1.000	-	0.005	0.004
		32	160	8	14.31	18.14	38.78	-	0.14	0.49	0.369	0.468	1.000	-	0.004	0.013
		33	161	8	14.38	17.80	45.22	-	0.14	0.29	0.318	0.394	1.000	-	0.003	0.006
		48	176	8	26.64	17.88	53.01	-	0.09	0.14	0.503	0.337	1.000	-	0.002	0.003
		49	177	8	19.21	16.41	53.49	-	0.17	0.15	0.359	0.307	1.000	-	0.003	0.003
		50	178	8	12.82	16.97	39.92	-	0.20	0.24	0.321	0.425	1.000	-	0.005	0.006
		51	179	8	14.26	18.51	41.60	-	0.09	0.39	0.343	0.445	1.000	-	0.002	0.009

Table 3. PD of ANT#1 – patch antenna (28GHz)

- ANT#1 Low CH

Ant#1 Low CH (Right Module)

Module	Type	Beam ID_1	Beam ID_2	Feed no.	4cm2 PD[W/m2] at 2mm distance@6dBm						Ratio					
					Front(S1)	Back(S2)	Left(S3)	Right(S4)	Top(S5)	Bottom(S6)	Front/ (worst surface)	Back/ (worst surface)	Left/ (worst surface)	Right/ (worst surface)	Top/ (worst surface)	Bottom/ (worst surface)
Ant#1	Patch	0		1	1.73	1.97	-	4.70	0.01	0.01	0.367	0.418	-	1.000	0.002	0.003
		4		2	2.90	3.70	-	8.01	0.15	0.03	0.362	0.462	-	1.000	0.018	0.003
		5		2	3.76	3.70	-	8.58	0.03	0.02	0.438	0.432	-	1.000	0.004	0.002
		6		2	3.89	3.71	-	9.00	0.02	0.01	0.433	0.412	-	1.000	0.002	0.001
		16		2	4.00	3.86	-	8.59	0.04	0.02	0.466	0.450	-	1.000	0.005	0.002
		17		2	3.44	3.92	-	9.39	0.02	0.03	0.367	0.418	-	1.000	0.002	0.003
		24		4	5.04	5.32	-	13.88	0.09	0.20	0.363	0.383	-	1.000	0.006	0.014
		25		4	7.99	7.71	-	17.13	0.08	0.04	0.466	0.450	-	1.000	0.005	0.002
		26		4	7.77	7.40	-	17.96	0.03	0.02	0.433	0.412	-	1.000	0.002	0.001
		27		4	5.79	7.38	-	15.99	0.29	0.05	0.362	0.462	-	1.000	0.018	0.003
		28		4	3.83	3.38	-	12.00	0.59	0.09	0.319	0.282	-	1.000	0.049	0.008
		44		4	7.92	7.33	-	16.46	0.12	0.05	0.481	0.445	-	1.000	0.007	0.003
		45		4	7.50	7.39	-	17.11	0.06	0.03	0.438	0.432	-	1.000	0.004	0.002
		46		4	6.87	7.83	-	18.73	0.03	0.05	0.367	0.418	-	1.000	0.002	0.003
		47		4	5.31	6.26	-	14.54	0.55	0.05	0.365	0.431	-	1.000	0.038	0.003
		128		1	1.61	1.33	-	4.56	0.17	0.02	0.354	0.291	-	1.000	0.037	0.004
		132		2	4.02	3.74	-	8.39	0.20	0.02	0.480	0.446	-	1.000	0.023	0.002
		133		2	2.91	2.53	-	8.77	0.34	0.04	0.331	0.289	-	1.000	0.039	0.004
		134		2	3.71	2.88	-	8.74	0.28	0.03	0.425	0.329	-	1.000	0.032	0.003
		144		2	2.79	2.72	-	8.14	0.31	0.06	0.342	0.334	-	1.000	0.038	0.006
		145		2	3.22	2.65	-	9.10	0.34	0.04	0.354	0.291	-	1.000	0.037	0.004
		155		4	8.03	7.47	-	16.74	0.39	0.04	0.480	0.446	-	1.000	0.023	0.002
		154		4	6.42	5.29	-	18.15	0.67	0.07	0.354	0.291	-	1.000	0.037	0.004
		153		4	5.56	5.43	-	16.25	0.62	0.09	0.342	0.334	-	1.000	0.038	0.006
		156		4	8.39	8.45	-	17.69	0.38	0.03	0.474	0.478	-	1.000	0.021	0.002
		152		4	6.53	7.04	-	15.34	0.43	0.09	0.426	0.459	-	1.000	0.028	0.006
		174		4	7.40	5.74	-	17.43	0.55	0.06	0.425	0.329	-	1.000	0.032	0.003
		173		4	5.80	5.05	-	17.50	0.68	0.07	0.331	0.289	-	1.000	0.039	0.004
		175		4	8.65	7.93	-	17.39	0.39	0.03	0.497	0.456	-	1.000	0.022	0.002
		172		4	5.62	5.48	-	14.85	0.37	0.15	0.378	0.369	-	1.000	0.025	0.010
		0	128	2	5.53	5.51	-	14.70	0.46	0.14	0.376	0.375	-	1.000	0.031	0.009
		4	134	4	5.32	5.40	-	15.52	0.44	0.20	0.343	0.348	-	1.000	0.028	0.013
		5	133	4	5.60	5.65	-	15.11	0.32	0.28	0.371	0.373	-	1.000	0.021	0.018
		6	132	4	4.21	4.27	-	13.92	0.41	0.26	0.302	0.306	-	1.000	0.029	0.019
		16	144	4	5.59	5.33	-	15.65	0.27	0.26	0.357	0.341	-	1.000	0.017	0.017
		17	145	4	5.69	5.39	-	16.42	0.43	0.14	0.346	0.328	-	1.000	0.026	0.008
		24	155	8	22.27	21.23	-	50.35	1.07	1.04	0.442	0.422	-	1.000	0.021	0.021
		25	154	8	22.03	21.95	-	58.54	1.82	0.54	0.376	0.375	-	1.000	0.031	0.009
		26	153	8	22.30	22.47	-	48.23	1.28	1.11	0.462	0.466	-	1.000	0.026	0.023
		27	156	8	25.82	25.70	-	46.73	0.56	0.32	0.553	0.550	-	1.000	0.012	0.007
		28	152	8	17.70	17.41	-	44.03	2.40	0.51	0.402	0.395	-	1.000	0.054	0.012
		44	174	8	22.64	21.47	-	53.44	1.70	0.54	0.424	0.402	-	1.000	0.032	0.010
		45	173	8	21.17	21.49	-	49.85	1.73	0.78	0.425	0.431	-	1.000	0.035	0.016
		46	175	8	21.73	24.85	-	51.24	0.27	0.34	0.424	0.485	-	1.000	0.005	0.007
		47	172	8	16.75	16.98	-	43.47	1.62	1.05	0.395	0.391	-	1.000	0.037	0.024

- ANT#1 Mid CH

Ant#1 Mid CH (Right Module)

Module	Type	Beam ID_1	Beam ID_2	Feed no.	4cm2 PD[W/m2] at 2mm distance@6dBm						Ratio					
					Front(S1)	Back(S2)	Left(S3)	Right(S4)	Top(S5)	Bottom(S6)	Front/ (worst surface)	Back/ (worst surface)	Left/ (worst surface)	Right/ (worst surface)	Top/ (worst surface)	Bottom/ (worst surface)
Ant#1	Patch	0		1	1.90	1.88	-	4.50	0.04	0.02	0.399	0.418	-	1.000	0.009	0.003
		4		2	3.00	3.65	-	7.84	0.23	0.05	0.383	0.465	-	1.000	0.029	0.006
		5		2	4.11	3.72	-	8.45	0.10	0.04	0.486	0.440	-	1.000	0.011	0.004
		6		2	4.29	3.64	-	8.84	0.05	0.04	0.485	0.412	-	1.000	0.006	0.005
		16		2	4.20	3.88	-	8.47	0.13	0.03	0.496	0.458	-	1.000	0.015	0.003
		17		2	3.58	3.75	-	8.97	0.08	0.03	0.399	0.418	-	1.000	0.009	0.003
		24		4	5.70	5.34	-	13.68	0.29	0.27	0.417	0.390	-	1.000	0.021	0.020
		25		4	8.39	7.74	-	16.90	0.26	0.05	0.496	0.458	-	1.000	0.015	0.003
		26		4	8.56	7.27	-	17.64	0.09	0.08	0.485	0.412	-	1.000	0.005	0.005
		27		4	5.99	7.28	-	15.64	0.45	0.09	0.383	0.465	-	1.000	0.029	0.006
		28		4	4.23	7.20	-	12.21	1.12	0.15	0.346	0.590	-	1.000	0.092	0.012
		44		4	8.34	7.29	-	16.28	0.29	0.15	0.512	0.448	-	1.000	0.018	0.009
		45		4	8.20	7.42	-	16.86	0.19	0.07	0.486	0.440	-	1.000	0.011	0.004
		46		4	7.15	7.49	-	17.90	0.16	0.06	0.399	0.418	-	1.000	0.009	0.003
		47		4	5.26	7.18	-	13.52	0.76	0.11	0.389	0.531	-	1.000	0.056	0.008
		128		1	1.37	1.22	-	4.33	0.24	0.05	0.317	0.282	-	1.000	0.056	0.012
		132		2	4.19	3.01	-	7.91	0.12	0.14	0.530	0.380	-	1.000	0.015	0.018
		133		2	2.49	2.95	-	8.54	0.37	0.19	0.292	0.346	-	1.000	0.043	0.022
		134		2	3.50	2.92	-	8.50	0.44	0.11	0.412	0.343	-	1.000	0.052	0.013
		144		2	2.60	3.36	-	7.97	0.24	0.32	0.326	0.421	-	1.000	0.030	0.040
		145		2	2.74	2.44	-	8.64	0.49	0.11	0.317	0.282	-	1.000	0.056	0.012
		155		4	8.37	6.00	-	15.78	0.23	0.28	0.530	0.380	-	1.000	0.015	0.018
		154		4	5.46	4.86	-	17.23	0.97	0.21	0.317	0.282	-	1.000	0.056	0.012
		153		4	5.18	6.70	-	15.91	0.47	0.64	0.326	0.421	-	1.000	0.030	0.040
		156		4	8.95	6.12	-	16.90	0.16	0.10	0.530	0.362	-	1.000	0.009	0.006
		152		4	8.95	6.12	-	16.90	0.16	0.10	0.530	0.362	-	1.000	0.009	0.006
		174		4	6.99	5.82	-	16.96	0.88	0.22	0.412	0.343	-	1.000	0.052	0.013
		173		4	4.97	5.89	-	17.04	0.74	0.38	0.292	0.346	-	1.000	0.043	0.022
		175		4	9.06	5.92	-	15.99	0.09	0.19	0.567	0.370	-	1.000	0.006	0.012
		172		4	5.60	6.63	-	12.99	0.34	0.64	0.431	0.510	-	1.000	0.026	0.049
		0	128	2	5.34	5.74	-	14.55	0.39	0.11	0.367	0.394	-	1.000	0.027	0.008
		4	134	4	5.20	5.68	-	15.56	0.41	0.18	0.334	0.365	-	1.000	0.026	0.012
		5	133	4	5.40	5.80	-	15.21	0.31	0.28	0.355	0.381	-	1.000	0.020	0.019
		6	132	4	3.75	3.88	-	13.34	0.50	0.29	0.281	0.291	-	1.000	0.038	0.022
		16	144	4	5.70	5.13	-	15.29	0.22	0.26	0.373	0.335	-	1.000	0.015	0.017
		17	145	4	5.42	5.34	-	18.03	0.38	0.17	0.301	0.296	-	1.000	0.021	0.009
		24	155	8	22.70	20.42	-	48.94	0.88	1.05	0.464	0.417	-	1.000	0.018	0.022
		25	154	8	21.27	22.85	-	57.94	1.55	0.44	0.367	0.394	-	1.000	0.027	0.008
		26	153	8	21.51	23.09	-	48.62	1.22	1.12	0.442	0.475	-	1.000	0.025	0.023
		27	156	8	24.41	24.14	-	48.26	0.75	0.34	0.506	0.500	-	1.000	0.015	0.007
		28	152	8	16.81	16.47	-	41.84	2.47	0.70	0.402	0.394	-	1.000	0.059	0.017
		44	174	8	21.57	21.25	-	53.88	1.50	0.66	0.400	0.394	-	1.000	0.028	0.012
		45	173	8	20.71	22.63	-	49.99	1.62	0.73	0.414	0.453	-	1.000	0.032	0.015
		46	175	8	21.86	23.44	-	49.50	0.29	0.39	0.442	0.474	-	1.000	0.006	0.008
		47	172	8	14.93	15.44	-	41.17	2.01	1.17	0.363	0.375	-	1.000	0.049	0.028

- ANT#1 High CH
Ant#0 High CH (Right Module)

Module	Type	Beam ID_1	Beam ID_2	Feed no.	4cm2 PD[W/m2] at 2mm distance@6dBm						Ratio					
					Front(S1)	Back(S2)	Left(S3)	Right(S4)	Top(S5)	Bottom(S6)	Front/ (worst surface)	Back/ (worst surface)	Left/ (worst surface)	Right/ (worst surface)	Top/ (worst surface)	Bottom/ (worst surface)
Ant#1	Patch	0		1	1.49	1.54	-	4.07	0.01	0.01	0.365	0.378	-	1.000	0.002	0.002
		4		2	2.49	2.97	-	7.00	0.15	0.02	0.355	0.424	-	1.000	0.021	0.003
		5		2	3.07	3.27	-	7.74	0.02	0.01	0.396	0.422	-	1.000	0.003	0.001
		6		2	3.26	3.09	-	8.05	0.02	0.01	0.405	0.384	-	1.000	0.002	0.001
		16		2	3.13	3.55	-	7.64	0.02	0.02	0.410	0.464	-	1.000	0.002	0.003
		17		2	2.97	3.07	-	8.12	0.02	0.02	0.365	0.378	-	1.000	0.002	0.002
		24		4	4.01	4.87	-	12.16	0.07	0.17	0.330	0.400	-	1.000	0.006	0.014
		25		4	6.25	7.08	-	15.25	0.03	0.04	0.410	0.464	-	1.000	0.002	0.003
		26		4	6.51	6.16	-	16.06	0.03	0.02	0.405	0.384	-	1.000	0.002	0.001
		27		4	4.96	5.92	-	13.97	0.30	0.04	0.355	0.424	-	1.000	0.021	0.003
		28		4	3.99	3.84	-	11.15	0.37	0.10	0.358	0.344	-	1.000	0.033	0.009
		44		4	6.28	6.94	-	14.38	0.07	0.07	0.437	0.483	-	1.000	0.005	0.005
		45		4	6.12	6.52	-	15.44	0.04	0.02	0.396	0.422	-	1.000	0.003	0.001
		46		4	5.92	6.12	-	16.21	0.04	0.03	0.365	0.378	-	1.000	0.002	0.002
		47		4	4.73	5.42	-	12.37	0.51	0.06	0.382	0.438	-	1.000	0.041	0.005
		128		1	1.06	0.87	-	3.66	0.10	0.02	0.290	0.237	-	1.000	0.028	0.005
		132		2	3.02	2.54	-	6.95	0.04	0.06	0.434	0.365	-	1.000	0.006	0.009
		133		2	1.81	1.73	-	6.90	0.10	0.06	0.262	0.251	-	1.000	0.015	0.009
		134		2	2.74	2.69	-	6.41	0.29	0.04	0.428	0.419	-	1.000	0.045	0.005
		144		2	1.98	1.89	-	7.00	0.07	0.12	0.284	0.270	-	1.000	0.009	0.016
		145		2	2.12	1.73	-	7.31	0.21	0.04	0.290	0.237	-	1.000	0.028	0.005
		155		4	6.02	5.06	-	13.87	0.08	0.12	0.434	0.365	-	1.000	0.006	0.009
		154		4	4.23	3.46	-	14.59	0.41	0.08	0.290	0.237	-	1.000	0.028	0.005
		153		4	3.96	3.77	-	13.96	0.13	0.23	0.284	0.270	-	1.000	0.009	0.016
		156		4	6.78	5.22	-	15.49	0.11	0.03	0.438	0.337	-	1.000	0.007	0.002
		152		4	5.72	5.41	-	13.64	0.12	0.14	0.419	0.397	-	1.000	0.009	0.010
		174		4	5.47	5.36	-	12.78	0.58	0.07	0.428	0.419	-	1.000	0.045	0.005
		173		4	3.61	3.46	-	13.76	0.20	0.11	0.262	0.251	-	1.000	0.015	0.008
		175		4	6.62	5.21	-	14.50	0.04	0.03	0.457	0.359	-	1.000	0.003	0.002
		172		4	4.51	3.42	-	11.78	0.10	0.40	0.383	0.290	-	1.000	0.008	0.034
		0	128	2	5.00	5.65	-	14.30	0.35	0.10	0.350	0.395	-	1.000	0.025	0.007
		4	134	4	5.33	5.74	-	15.38	0.07	0.09	0.347	0.373	-	1.000	0.004	0.006
		5	133	4	4.91	5.80	-	15.11	0.30	0.26	0.325	0.384	-	1.000	0.020	0.017
		6	132	4	3.54	3.69	-	12.77	0.48	0.32	0.278	0.289	-	1.000	0.037	0.025
		16	144	4	5.58	5.06	-	14.84	0.20	0.26	0.376	0.341	-	1.000	0.013	0.018
		17	145	4	4.93	5.28	-	16.17	0.32	0.18	0.305	0.326	-	1.000	0.020	0.011
		24	155	8	22.20	20.15	-	47.12	0.78	1.04	0.471	0.427	-	1.000	0.017	0.022
		25	154	8	19.91	22.49	-	56.94	1.41	0.39	0.350	0.395	-	1.000	0.025	0.007
		26	153	8	19.55	23.09	-	48.23	1.19	1.04	0.405	0.479	-	1.000	0.025	0.022
		27	156	8	22.59	23.46	-	46.02	0.75	0.32	0.491	0.510	-	1.000	0.016	0.007
		28	152	8	16.83	15.25	-	40.10	2.16	0.78	0.420	0.380	-	1.000	0.054	0.019
		44	174	8	19.64	21.01	-	52.44	1.29	0.73	0.374	0.401	-	1.000	0.025	0.014
		45	173	8	21.22	22.85	-	49.28	0.27	0.37	0.430	0.464	-	1.000	0.006	0.008
		46	175	8	21.20	22.61	-	48.94	0.27	0.36	0.433	0.462	-	1.000	0.006	0.007
		47	172	8	14.11	14.69	-	38.88	1.90	1.28	0.363	0.378	-	1.000	0.049	0.033

Table 4. PD of ANT#2 – patch antenna (28GHz)

- ANT#2 Low CH

Ant#2 Low CH (Top Module)

Module	Type	Beam ID_1	Beam ID_2	Feed no.	4cm2 PD[W/m2] at 2mm distance@6dBm						Ratio					
					Front(S1)	Back(S2)	Left(S3)	Right(S4)	Top(S5)	Bottom(S6)	Front/ (worst surface)	Back/ (worst surface)	Left/ (worst surface)	Right/ (worst surface)	Top/ (worst surface)	Bottom/ (worst surface)
Ant#2	Patch	3		1	2.07	1.63	0.02	0.08	4.61	-	0.450	0.353	0.004	0.016	1.000	-
		13		2	4.41	3.27	0.02	0.08	9.10	-	0.484	0.359	0.002	0.009	1.000	-
		14		2	4.14	3.24	0.04	0.15	9.20	-	0.450	0.353	0.004	0.016	1.000	-
		15		2	4.93	3.40	0.04	0.09	8.75	-	0.563	0.389	0.005	0.010	1.000	-
		22		2	4.92	3.17	0.02	0.10	9.06	-	0.543	0.350	0.002	0.011	1.000	-
		23		2	3.85	3.40	0.07	0.30	8.81	-	0.437	0.386	0.008	0.034	1.000	-
		39		4	9.19	6.98	0.10	0.09	15.40	-	0.597	0.453	0.006	0.006	1.000	-
		40		4	9.82	6.33	0.04	0.20	18.07	-	0.543	0.350	0.002	0.011	1.000	-
		41		4	8.26	6.47	0.08	0.30	18.35	-	0.450	0.353	0.004	0.016	1.000	-
		42		4	6.91	6.58	0.14	0.20	15.49	-	0.446	0.425	0.009	0.013	1.000	-
		43		4	5.08	5.26	0.43	1.85	14.38	-	0.353	0.366	0.030	0.129	1.000	-
		56		4	9.83	6.79	0.08	0.18	17.46	-	0.563	0.389	0.005	0.010	1.000	-
		57		4	8.79	6.52	0.04	0.16	18.15	-	0.484	0.359	0.002	0.009	1.000	-
		58		4	7.68	6.79	0.14	0.60	17.58	-	0.437	0.386	0.008	0.034	1.000	-
		59		4	5.11	5.10	0.37	1.16	14.14	-	0.361	0.361	0.026	0.082	1.000	-
		131		1	1.96	1.44	0.11	0.15	4.92	-	0.377	0.293	0.021	0.030	1.000	-
		141		2	5.15	2.78	0.03	0.25	8.49	-	0.606	0.328	0.003	0.030	1.000	-
		142		2	2.08	1.44	0.17	1.04	10.56	-	0.197	0.136	0.016	0.098	1.000	-
		143		2	1.73	1.89	0.29	0.71	9.33	-	0.185	0.202	0.031	0.076	1.000	-
		150		2	4.91	3.16	0.03	0.12	9.39	-	0.522	0.336	0.003	0.013	1.000	-
		151		2	3.70	2.87	0.21	0.29	10.81	-	0.343	0.266	0.019	0.027	1.000	-
		168		4	9.79	6.30	0.05	0.24	18.74	-	0.522	0.336	0.003	0.013	1.000	-
		169		4	7.39	5.73	0.42	0.58	19.58	-	0.377	0.293	0.021	0.030	1.000	-
		167		4	8.62	6.52	0.07	0.39	17.96	-	0.480	0.363	0.004	0.022	1.000	-
		170		4	4.16	2.87	0.33	2.07	19.07	-	0.218	0.150	0.017	0.109	1.000	-
		171		4	8.70	6.88	0.14	0.35	18.23	-	0.477	0.377	0.008	0.019	1.000	-
		185		4	10.27	5.55	0.05	0.50	16.94	-	0.606	0.328	0.003	0.030	1.000	-
		186		4	3.45	3.77	0.58	1.41	18.62	-	0.185	0.202	0.031	0.076	1.000	-
		184		4	9.22	6.31	0.05	0.32	18.79	-	0.491	0.336	0.003	0.017	1.000	-
		187		4	8.22	7.64	0.15	0.12	18.05	-	0.455	0.423	0.008	0.007	1.000	-
		3	131	2	5.41	4.24	0.25	0.81	13.14	-	0.412	0.322	0.019	0.061	1.000	-
		13	141	4	8.63	4.39	0.06	0.29	14.41	-	0.599	0.304	0.004	0.020	1.000	-
		14	142	4	4.04	3.89	0.13	1.23	19.11	-	0.212	0.203	0.007	0.064	1.000	-
		15	143	4	7.54	5.40	0.05	0.28	14.05	-	0.537	0.384	0.004	0.020	1.000	-
		22	150	4	6.64	4.53	0.16	0.41	13.83	-	0.480	0.327	0.011	0.030	1.000	-
		23	151	4	5.41	4.24	0.25	0.81	21.64	-	0.250	0.196	0.011	0.037	1.000	-
		39	168	8	35.48	20.55	0.41	0.53	61.08	-	0.581	0.336	0.007	0.009	1.000	-
		40	169	8	26.42	18.02	0.63	1.63	55.06	-	0.480	0.327	0.011	0.030	1.000	-
		41	167	8	30.02	21.51	0.20	1.12	51.97	-	0.578	0.414	0.004	0.022	1.000	-
		42	170	8	16.10	15.47	0.53	4.88	58.18	-	0.277	0.266	0.009	0.084	1.000	-
		43	171	8	26.44	18.79	0.95	3.52	51.66	-	0.512	0.364	0.018	0.068	1.000	-
		56	185	8	34.37	17.46	0.24	1.14	57.36	-	0.599	0.304	0.004	0.020	1.000	-
		57	186	8	21.54	16.86	0.99	3.21	64.26	-	0.335	0.262	0.015	0.050	1.000	-
		58	184	8	31.16	24.46	0.22	1.55	61.30	-	0.508	0.399	0.004	0.025	1.000	-
		59	187	8	23.63	21.68	1.09	2.52	52.04	-	0.454	0.417	0.021	0.048	1.000	-

- ANT#2 Mid CH

Ant#2 Mid CH (Top Module)

Module	Type	Beam ID_1	Beam ID_2	Feed no.	4cm2 PD[W/m2] at 2mm distance@6dBm						Ratio					
					Front(S1)	Back(S2)	Left(S3)	Right(S4)	Top(S5)	Bottom(S6)	Front/ (worst surface)	Back/ (worst surface)	Left/ (worst surface)	Right/ (worst surface)	Top/ (worst surface)	Bottom/ (worst surface)
		3		1	2.00	1.56	0.02	0.07	4.56	-	0.439	0.342	0.004	0.016	1.000	-
		13		2	4.37	3.06	0.02	0.07	8.97	-	0.487	0.342	0.002	0.008	1.000	-
		14		2	3.99	3.11	0.04	0.15	9.09	-	0.439	0.342	0.004	0.016	1.000	-
		15		2	4.79	3.09	0.05	0.10	8.51	-	0.562	0.363	0.005	0.011	1.000	-
		22		2	4.80	3.00	0.02	0.11	8.92	-	0.538	0.336	0.002	0.012	1.000	-
		23		2	3.75	3.22	0.07	0.38	8.88	-	0.422	0.363	0.008	0.042	1.000	-
		39		4	8.80	6.26	0.11	0.11	15.41	-	0.571	0.406	0.007	0.007	1.000	-
		40		4	9.57	5.98	0.04	0.22	17.79	-	0.538	0.336	0.002	0.012	1.000	-
		41		4	7.96	6.21	0.08	0.29	18.14	-	0.439	0.342	0.004	0.016	1.000	-
		42		4	6.81	6.12	0.15	0.23	14.76	-	0.461	0.415	0.010	0.016	1.000	-
		43		4	4.95	5.35	0.41	1.81	14.36	-	0.345	0.373	0.029	0.126	1.000	-
		56		4	9.55	6.16	0.09	0.19	16.98	-	0.562	0.363	0.005	0.011	1.000	-
		57		4	8.72	6.11	0.04	0.14	17.89	-	0.487	0.342	0.002	0.008	1.000	-
		58		4	7.48	6.42	0.14	0.75	17.71	-	0.422	0.363	0.008	0.042	1.000	-
		59		4	4.96	4.70	0.40	1.17	13.85	-	0.358	0.339	0.029	0.084	1.000	-
		131		1	1.77	1.36	0.10	0.12	4.60	-	0.385	0.295	0.022	0.026	1.000	-
		141		2	5.22	2.61	0.04	0.26	8.33	-	0.626	0.313	0.004	0.031	1.000	-
		142		2	2.02	1.55	0.19	1.02	10.11	-	0.200	0.153	0.019	0.101	1.000	-
		143		2	1.64	1.68	0.33	0.56	9.01	-	0.183	0.187	0.037	0.062	1.000	-
		150		2	4.77	3.00	0.03	0.13	9.12	-	0.523	0.329	0.003	0.014	1.000	-
		151		2	3.54	2.71	0.20	0.24	10.19	-	0.347	0.266	0.020	0.024	1.000	-
Ant#2	Patch	168		4	9.52	5.99	0.06	0.26	18.20	-	0.523	0.329	0.003	0.014	1.000	-
		169		4	7.06	5.40	0.40	0.48	18.33	-	0.385	0.295	0.022	0.026	1.000	-
		167		4	8.33	6.26	0.06	0.38	17.90	-	0.465	0.350	0.003	0.021	1.000	-
		170		4	4.03	3.09	0.38	2.04	18.18	-	0.222	0.170	0.021	0.112	1.000	-
		171		4	8.49	6.62	0.15	0.30	17.93	-	0.474	0.369	0.008	0.017	1.000	-
		185		4	10.41	5.21	0.07	0.52	16.63	-	0.626	0.313	0.004	0.031	1.000	-
		186		4	3.28	3.36	0.66	1.11	17.97	-	0.183	0.187	0.037	0.062	1.000	-
		184		4	9.09	6.07	0.04	0.36	18.28	-	0.497	0.332	0.002	0.020	1.000	-
		187		4	8.00	7.08	0.13	0.15	17.15	-	0.466	0.413	0.008	0.009	1.000	-
		3	131	2	5.35	3.89	0.29	0.67	12.79	-	0.418	0.304	0.023	0.052	1.000	-
		13	141	4	8.76	4.10	0.08	0.31	14.39	-	0.610	0.285	0.005	0.021	1.000	-
		14	142	4	3.92	3.20	0.18	1.28	18.83	-	0.208	0.170	0.009	0.068	1.000	-
		15	143	4	7.41	5.12	0.06	0.32	13.67	-	0.542	0.375	0.004	0.024	1.000	-
		22	150	4	6.60	4.27	0.14	0.35	13.36	-	0.493	0.319	0.011	0.026	1.000	-
		23	151	4	5.35	3.89	0.29	0.67	21.29	-	0.251	0.183	0.014	0.031	1.000	-
		39	168	8	35.38	19.33	0.44	0.49	59.01	-	0.600	0.328	0.007	0.008	1.000	-
		40	169	8	26.28	17.00	0.56	1.39	53.26	-	0.493	0.319	0.011	0.026	1.000	-
		41	167	8	29.50	20.40	0.24	1.29	50.45	-	0.585	0.404	0.005	0.026	1.000	-
		42	170	8	15.61	12.75	0.70	5.08	57.04	-	0.274	0.224	0.012	0.089	1.000	-
		43	171	8	25.91	17.97	0.97	3.49	51.78	-	0.500	0.347	0.019	0.067	1.000	-
		56	185	8	34.94	16.32	0.31	1.22	57.31	-	0.610	0.285	0.005	0.021	1.000	-
		57	186	8	21.30	15.49	1.17	2.65	62.85	-	0.339	0.246	0.019	0.042	1.000	-
		58	184	8	28.87	22.97	0.26	2.14	59.38	-	0.486	0.387	0.004	0.036	1.000	-
		59	187	8	23.15	20.08	0.78	2.41	50.66	-	0.457	0.396	0.015	0.048	1.000	-

- ANT#2 High CH

Ant#2 High CH (Top Module)

Module	Type	Beam ID_1	Beam ID_2	Feed no.	Front(S1)	Back(S2)	Left(S3)	Right(S4)	Top(S5)	Bottom(S6)	Front/ (worst surface)	Back/ (worst surface)	Left/ (worst surface)	Right/ (worst surface)	Top/ (worst surface)	Bottom/ (worst surface)
Ant#2	Patch	3		1	2.02	1.54	0.02	0.05	4.51	-	0.448	0.341	0.004	0.011	1.000	-
		13		2	4.21	2.92	0.02	0.07	8.67	-	0.486	0.337	0.002	0.008	1.000	-
		14		2	4.03	3.07	0.04	0.10	9.00	-	0.448	0.341	0.004	0.011	1.000	-
		15		2	4.53	2.86	0.05	0.10	8.11	-	0.559	0.352	0.006	0.012	1.000	-
		22		2	4.45	2.82	0.02	0.14	8.56	-	0.520	0.330	0.002	0.016	1.000	-
		23		2	3.80	3.01	0.06	0.06	8.38	-	0.454	0.359	0.007	0.007	1.000	-
		39		4	8.37	5.82	0.11	0.15	14.60	-	0.573	0.399	0.008	0.010	1.000	-
		40		4	8.88	5.63	0.03	0.28	17.08	-	0.520	0.330	0.002	0.016	1.000	-
		41		4	8.05	6.12	0.08	0.20	17.95	-	0.448	0.341	0.004	0.011	1.000	-
		42		4	6.90	5.44	0.14	0.28	13.99	-	0.493	0.389	0.010	0.020	1.000	-
		43		4	4.94	5.26	0.42	1.68	13.25	-	0.373	0.397	0.032	0.127	1.000	-
		56		4	9.04	5.70	0.09	0.20	16.18	-	0.559	0.352	0.006	0.012	1.000	-
		57		4	8.40	5.83	0.04	0.13	17.29	-	0.486	0.337	0.002	0.008	1.000	-
		58		4	7.59	6.00	0.11	0.11	16.72	-	0.454	0.359	0.007	0.007	1.000	-
		59		4	5.10	4.24	0.44	1.05	12.63	-	0.404	0.336	0.035	0.083	1.000	-
		131		1	1.70	1.28	0.09	0.12	4.35	-	0.390	0.293	0.020	0.027	1.000	-
		141		2	5.04	2.53	0.05	0.28	8.11	-	0.622	0.311	0.006	0.034	1.000	-
		142		2	2.20	1.86	0.22	0.87	8.59	-	0.256	0.217	0.026	0.101	1.000	-
		143		2	1.56	1.83	0.38	0.44	8.74	-	0.179	0.210	0.043	0.050	1.000	-
		150		2	4.75	2.82	0.03	0.14	8.79	-	0.540	0.321	0.003	0.016	1.000	-
		151		2	3.38	2.55	0.18	0.23	8.68	-	0.390	0.293	0.020	0.027	1.000	-
		168		4	9.47	5.63	0.06	0.28	17.53	-	0.540	0.321	0.003	0.016	1.000	-
		169		4	6.75	5.08	0.35	0.46	17.32	-	0.390	0.293	0.020	0.027	1.000	-
		167		4	8.50	5.81	0.06	0.34	17.78	-	0.478	0.327	0.003	0.019	1.000	-
		170		4	4.39	3.71	0.44	1.73	17.13	-	0.256	0.217	0.026	0.101	1.000	-
		171		4	8.48	6.19	0.16	0.20	17.00	-	0.499	0.364	0.009	0.012	1.000	-
		185		4	10.06	5.04	0.09	0.55	16.18	-	0.622	0.311	0.006	0.034	1.000	-
		186		4	3.12	3.66	0.75	0.88	17.43	-	0.179	0.210	0.043	0.050	1.000	-
		184		4	9.11	5.89	0.03	0.34	17.98	-	0.507	0.328	0.002	0.019	1.000	-
		187		4	7.72	6.41	0.10	0.16	15.75	-	0.490	0.407	0.006	0.010	1.000	-
		3	131	2	5.41	3.72	0.34	0.53	12.30	-	0.440	0.303	0.027	0.043	1.000	-
		13	141	4	8.66	3.67	0.07	0.34	13.95	-	0.621	0.263	0.005	0.024	1.000	-
		14	142	4	4.05	2.84	0.20	1.25	18.99	-	0.213	0.149	0.011	0.066	1.000	-
		15	143	4	7.41	4.99	0.07	0.32	12.47	-	0.594	0.400	0.005	0.026	1.000	-
		22	150	4	6.38	3.96	0.12	0.41	12.68	-	0.503	0.312	0.010	0.032	1.000	-
		23	151	4	5.41	3.72	0.34	0.53	20.80	-	0.260	0.179	0.016	0.026	1.000	-
		39	168	8	34.83	17.71	0.43	0.53	58.31	-	0.597	0.304	0.007	0.009	1.000	-
		40	169	8	25.42	15.78	0.49	1.62	50.49	-	0.503	0.312	0.010	0.032	1.000	-
		41	167	8	29.50	19.87	0.27	1.28	49.65	-	0.594	0.400	0.005	0.026	1.000	-
		42	170	8	16.13	11.29	0.82	4.98	57.70	-	0.280	0.196	0.014	0.086	1.000	-
		43	171	8	25.67	16.52	0.88	3.16	51.43	-	0.499	0.321	0.017	0.061	1.000	-
		56	185	8	34.49	14.62	0.29	1.34	55.54	-	0.621	0.263	0.005	0.024	1.000	-
		57	186	8	21.56	14.82	1.34	2.13	60.93	-	0.354	0.243	0.022	0.035	1.000	-
		58	184	8	27.74	20.79	0.26	2.53	57.46	-	0.483	0.362	0.004	0.044	1.000	-
		59	187	8	22.49	17.36	0.95	2.11	47.87	-	0.470	0.363	0.020	0.044	1.000	-

Table 5. PD of ANT#3 – patch antenna (28GHz)

- ANT#3 Low CH

Ant#3 Low CH (Bottom Module)

Module	Type	Beam ID_1	Beam ID_2	Feed no.	4cm2 PD[W/m2] at 2mm distance@6dBm						Ratio					
					Front(S1)	Back(S2)	Left(S3)	Right(S4)	Top(S5)	Bottom(S6)	Front/ (worst surface)	Back/ (worst surface)	Left/ (worst surface)	Right/ (worst surface)	Top/ (worst surface)	Bottom/ (worst surface)
Ant#3	Patch	2		1	1.08	1.31	0.01	0.35	-	4.10	0.262	0.321	0.002	0.085	-	1.000
		10		2	2.15	2.62	0.02	0.69	-	8.68	0.247	0.302	0.002	0.080	-	1.000
		11		2	2.23	2.56	0.05	0.86	-	5.85	0.381	0.438	0.008	0.147	-	1.000
		12		2	2.34	3.31	0.13	0.22	-	5.76	0.406	0.575	0.023	0.038	-	1.000
		20		2	2.15	2.47	0.05	0.77	-	5.12	0.420	0.482	0.009	0.151	-	1.000
		21		2	2.32	2.46	0.16	0.42	-	5.93	0.391	0.414	0.027	0.070	-	1.000
		34		4	4.29	4.93	0.09	1.54	-	10.22	0.420	0.482	0.009	0.151	-	1.000
		35		4	4.28	5.23	0.04	1.38	-	12.33	0.347	0.424	0.003	0.112	-	1.000
		36		4	4.67	6.61	0.26	0.44	-	11.50	0.406	0.575	0.023	0.038	-	1.000
		37		4	2.47	5.40	0.32	0.44	-	8.48	0.291	0.637	0.038	0.052	-	1.000
		38		4	3.69	6.25	0.22	0.98	-	10.04	0.368	0.623	0.022	0.098	-	1.000
		52		4	4.45	5.11	0.09	1.72	-	11.68	0.381	0.438	0.008	0.147	-	1.000
		53		4	4.63	4.90	0.32	0.83	-	11.83	0.391	0.414	0.027	0.070	-	1.000
		54		4	3.91	7.12	0.27	0.40	-	10.82	0.361	0.658	0.025	0.037	-	1.000
		55		4	1.88	4.70	0.31	0.92	-	8.83	0.213	0.532	0.035	0.104	-	1.000
		130		1	0.73	0.83	0.06	0.44	-	5.00	0.146	0.166	0.011	0.088	-	1.000
		138		2	2.50	2.60	0.10	0.23	-	7.26	0.344	0.358	0.013	0.032	-	1.000
		139		2	2.36	1.92	0.25	0.85	-	6.87	0.344	0.279	0.036	0.123	-	1.000
		140		2	2.27	2.65	0.01	0.71	-	6.32	0.358	0.420	0.002	0.112	-	1.000
		148		2	1.46	1.65	0.11	0.88	-	6.99	0.209	0.237	0.016	0.125	-	1.000
		149		2	2.27	2.65	0.01	0.71	-	6.32	0.358	0.420	0.002	0.112	-	1.000
		162		4	5.18	5.58	0.04	1.02	-	13.20	0.392	0.423	0.003	0.077	-	1.000
		163		4	4.98	5.19	0.19	0.46	-	14.48	0.344	0.358	0.013	0.032	-	1.000
		164		4	2.91	3.30	0.22	1.75	-	13.95	0.209	0.237	0.016	0.125	-	1.000
		165		4	5.01	5.38	0.07	2.23	-	11.34	0.442	0.474	0.006	0.197	-	1.000
		166		4	4.52	5.29	0.02	1.41	-	12.61	0.358	0.420	0.002	0.112	-	1.000
		180		4	5.58	6.10	0.14	0.49	-	13.60	0.410	0.449	0.010	0.036	-	1.000
		181		4	4.71	3.83	0.50	1.69	-	13.71	0.344	0.279	0.036	0.123	-	1.000
		182		4	4.87	5.06	0.17	1.70	-	9.19	0.530	0.551	0.018	0.185	-	1.000
		183		4	4.84	5.10	0.04	1.84	-	12.62	0.384	0.404	0.003	0.146	-	1.000
		2	130	2	5.12	3.79	0.13	0.60	-	12.64	0.406	0.300	0.010	0.048	-	1.000
		10	138	4	10.22	7.57	0.26	1.20	-	25.21	0.406	0.300	0.010	0.048	-	1.000
		11	139	4	9.93	6.45	1.13	2.49	-	22.38	0.444	0.288	0.051	0.111	-	1.000
		12	140	4	9.01	8.38	0.24	2.77	-	19.78	0.455	0.424	0.012	0.140	-	1.000
		20	148	4	6.56	11.54	0.16	2.39	-	21.50	0.305	0.537	0.008	0.111	-	1.000
		21	149	4	9.28	8.83	0.26	1.79	-	22.49	0.413	0.392	0.012	0.080	-	1.000
		34	162	8	17.97	16.71	0.48	5.53	-	39.46	0.455	0.424	0.012	0.140	-	1.000
		35	163	8	20.40	15.10	0.53	2.40	-	50.31	0.406	0.300	0.010	0.048	-	1.000
		36	164	8	13.26	16.34	0.99	2.92	-	31.60	0.420	0.517	0.031	0.093	-	1.000
		37	165	8	13.55	24.02	0.44	5.03	-	37.47	0.362	0.641	0.012	0.134	-	1.000
		38	166	8	13.09	23.04	0.32	4.76	-	42.89	0.305	0.537	0.008	0.111	-	1.000
		52	180	8	18.51	17.61	0.53	3.57	-	44.87	0.413	0.392	0.012	0.080	-	1.000
		53	181	8	19.82	12.87	2.26	4.96	-	44.65	0.444	0.288	0.051	0.111	-	1.000
		54	182	8	11.48	20.52	0.43	2.91	-	32.44	0.354	0.633	0.013	0.090	-	1.000
		55	183	8	13.67	23.04	0.49	4.76	-	39.44	0.347	0.584	0.013	0.121	-	1.000

- ANT#3 Mid CH

Ant#3 Mid CH (Bottom Module)

Module	Type	Beam ID_1	Beam ID_2	Feed no.	4cm2 PD[W/m2] at 2mm distance@6dBm						Ratio					
					Front(S1)	Back(S2)	Left(S3)	Right(S4)	Top(S5)	Bottom(S6)	Front/ (worst surface)	Back/ (worst surface)	Left/ (worst surface)	Right/ (worst surface)	Top/ (worst surface)	Bottom/ (worst surface)
Ant#3	Patch	2		1	1.10	1.23	0.01	0.33	-	4.08	0.268	0.300	0.002	0.081	-	1.000
		10		2	2.19	2.45	0.02	0.66	-	8.14	0.268	0.300	0.002	0.081	-	1.000
		11		2	2.32	2.44	0.05	0.82	-	5.84	0.396	0.418	0.009	0.141	-	1.000
		12		2	2.50	2.99	0.14	0.02	-	5.73	0.436	0.521	0.024	0.003	-	1.000
		20		2	2.33	2.39	0.03	0.75	-	5.01	0.465	0.476	0.006	0.149	-	1.000
		21		2	2.44	2.35	0.13	0.43	-	5.94	0.410	0.395	0.021	0.073	-	1.000
		34		4	4.65	4.76	0.06	1.49	-	9.99	0.465	0.476	0.006	0.149	-	1.000
		35		4	4.36	4.88	0.04	1.32	-	12.26	0.356	0.398	0.003	0.108	-	1.000
		36		4	4.98	5.96	0.28	0.04	-	11.43	0.436	0.521	0.024	0.003	-	1.000
		37		4	2.57	5.25	0.29	0.43	-	8.22	0.313	0.639	0.035	0.052	-	1.000
		38		4	3.27	6.00	0.20	0.94	-	9.53	0.343	0.630	0.021	0.099	-	1.000
		52		4	4.62	4.87	0.10	1.64	-	11.66	0.396	0.418	0.009	0.141	-	1.000
		53		4	4.86	4.68	0.25	0.86	-	11.85	0.410	0.395	0.021	0.073	-	1.000
		54		4	4.05	6.49	0.24	0.43	-	10.53	0.385	0.616	0.023	0.041	-	1.000
		55		4	1.90	5.27	0.27	0.91	-	8.52	0.223	0.619	0.032	0.107	-	1.000
		130		1	0.84	0.79	0.06	0.43	-	4.32	0.195	0.182	0.015	0.099	-	1.000
		138		2	2.43	2.64	0.11	0.23	-	7.05	0.345	0.374	0.015	0.032	-	1.000
		139		2	2.16	2.05	0.22	0.78	-	6.67	0.323	0.308	0.033	0.117	-	1.000
		140		2	2.29	2.53	0.01	0.76	-	6.24	0.366	0.405	0.002	0.121	-	1.000
		148		2	1.68	1.57	0.13	0.86	-	6.62	0.254	0.237	0.019	0.129	-	1.000
		149		2	2.29	2.53	0.01	0.76	-	6.24	0.366	0.405	0.002	0.121	-	1.000
		162		4	5.16	5.66	0.03	1.10	-	13.20	0.391	0.429	0.002	0.083	-	1.000
		163		4	4.85	5.26	0.21	0.45	-	14.07	0.345	0.374	0.015	0.032	-	1.000
		164		4	3.35	3.13	0.25	1.71	-	13.21	0.254	0.237	0.019	0.129	-	1.000
		165		4	4.80	5.43	0.07	2.20	-	12.02	0.399	0.452	0.006	0.183	-	1.000
		166		4	4.56	5.05	0.02	1.51	-	12.46	0.366	0.405	0.002	0.121	-	1.000
		180		4	5.47	6.24	0.16	0.48	-	13.42	0.408	0.465	0.012	0.036	-	1.000
		181		4	4.30	4.09	0.44	1.56	-	13.30	0.323	0.308	0.033	0.117	-	1.000
		182		4	5.02	4.96	0.20	1.66	-	9.30	0.540	0.533	0.022	0.178	-	1.000
		183		4	4.92	4.97	0.04	1.89	-	12.86	0.383	0.386	0.003	0.147	-	1.000
		2	130	2	5.23	3.61	0.13	0.49	-	12.75	0.410	0.283	0.010	0.038	-	1.000
		10	138	4	10.44	7.21	0.26	0.97	-	25.45	0.410	0.283	0.010	0.038	-	1.000
		11	139	4	9.92	6.76	1.01	2.50	-	22.99	0.431	0.294	0.044	0.109	-	1.000
		12	140	4	9.38	8.03	0.17	2.71	-	19.48	0.482	0.412	0.009	0.139	-	1.000
		20	148	4	6.59	11.34	0.14	2.33	-	21.26	0.310	0.533	0.006	0.109	-	1.000
		21	149	4	9.64	8.80	0.29	1.53	-	22.43	0.430	0.392	0.013	0.068	-	1.000
		34	162	8	18.72	16.01	0.34	5.41	-	38.86	0.482	0.412	0.009	0.139	-	1.000
		35	163	8	20.83	14.38	0.53	1.94	-	50.78	0.410	0.283	0.010	0.038	-	1.000
		36	164	8	14.71	14.67	1.24	2.62	-	34.36	0.428	0.427	0.036	0.076	-	1.000
		37	165	8	13.11	24.34	0.43	4.91	-	36.94	0.355	0.659	0.012	0.133	-	1.000
		38	166	8	13.14	22.63	0.27	4.64	-	42.42	0.310	0.533	0.006	0.109	-	1.000
		52	180	8	19.23	17.56	0.58	3.04	-	44.76	0.430	0.392	0.013	0.068	-	1.000
		53	181	8	19.79	13.48	2.01	5.00	-	45.88	0.431	0.294	0.044	0.109	-	1.000
		54	182	8	11.42	20.45	0.49	2.89	-	32.59	0.351	0.628	0.015	0.089	-	1.000
		55	183	8	13.60	22.98	0.46	4.59	-	37.94	0.358	0.606	0.012	0.121	-	1.000

- ANT#3 High CH

Ant#3 High CH (Bottom Module)

Module	Type	Beam ID_1	Beam ID_2	Feed no.	4cm2 PD[W/m2] at 2mm distance@6dBm						Ratio					
					Front(S1)	Back(S2)	Left(S3)	Right(S4)	Top(S5)	Bottom(S6)	Front/ (worst surface)	Back/ (worst surface)	Left/ (worst surface)	Right/ (worst surface)	Top/ (worst surface)	Bottom/ (worst surface)
Ant#3	Patch	2		1	1.11	1.14	0.01	0.32	-	3.97	0.278	0.286	0.003	0.081	-	1.000
		10		2	2.21	2.27	0.02	0.64	-	7.93	0.278	0.286	0.003	0.081	-	1.000
		11		2	2.29	2.31	0.06	0.79	-	5.50	0.415	0.420	0.010	0.144	-	1.000
		12		2	2.54	2.75	0.15	0.22	-	5.56	0.457	0.494	0.027	0.040	-	1.000
		20		2	2.30	2.33	0.03	0.75	-	4.83	0.477	0.483	0.006	0.156	-	1.000
		21		2	2.43	2.15	0.10	0.43	-	5.41	0.449	0.397	0.019	0.079	-	1.000
		34		4	4.59	4.65	0.06	1.50	-	9.63	0.477	0.483	0.006	0.156	-	1.000
		35		4	4.40	4.53	0.04	1.28	-	11.84	0.372	0.383	0.003	0.108	-	1.000
		36		4	5.07	5.48	0.30	0.44	-	11.09	0.457	0.494	0.027	0.040	-	1.000
		37		4	2.65	5.12	0.28	0.41	-	7.84	0.338	0.653	0.036	0.052	-	1.000
		38		4	2.91	5.52	0.18	0.88	-	8.79	0.331	0.628	0.020	0.100	-	1.000
		52		4	4.56	4.61	0.11	1.58	-	10.98	0.415	0.420	0.010	0.144	-	1.000
		53		4	4.84	4.28	0.20	0.85	-	10.79	0.449	0.397	0.019	0.079	-	1.000
		54		4	4.00	6.16	0.25	0.48	-	9.94	0.402	0.620	0.025	0.048	-	1.000
		55		4	2.02	5.23	0.24	0.85	-	7.97	0.253	0.656	0.030	0.107	-	1.000
		130		1	0.79	0.82	0.07	0.36	-	3.22	0.245	0.256	0.021	0.112	-	1.000
		138		2	2.30	2.65	0.11	0.22	-	6.87	0.335	0.385	0.016	0.032	-	1.000
		139		2	2.07	2.14	0.21	0.74	-	6.08	0.341	0.352	0.035	0.122	-	1.000
		140		2	2.14	2.68	0.02	0.78	-	6.00	0.357	0.446	0.003	0.130	-	1.000
		148		2	1.57	1.64	0.14	0.72	-	6.42	0.245	0.256	0.021	0.112	-	1.000
		149		2	2.14	2.68	0.02	0.78	-	6.00	0.357	0.446	0.003	0.130	-	1.000
		162		4	5.00	5.88	0.03	1.13	-	12.75	0.392	0.461	0.002	0.089	-	1.000
		163		4	4.59	5.28	0.22	0.44	-	13.70	0.335	0.385	0.016	0.032	-	1.000
		164		4	3.13	3.28	0.27	1.43	-	12.80	0.245	0.256	0.021	0.112	-	1.000
		165		4	4.83	5.40	0.09	2.11	-	12.02	0.402	0.449	0.007	0.176	-	1.000
		166		4	4.27	5.34	0.03	1.56	-	11.97	0.357	0.446	0.003	0.130	-	1.000
		180		4	5.20	6.20	0.18	0.45	-	12.99	0.400	0.477	0.014	0.035	-	1.000
		181		4	4.14	4.27	0.42	1.48	-	12.14	0.341	0.352	0.035	0.122	-	1.000
		182		4	5.34	4.84	0.22	1.57	-	8.91	0.599	0.543	0.025	0.176	-	1.000
		183		4	4.84	5.05	0.07	1.89	-	12.53	0.386	0.403	0.006	0.151	-	1.000
		2	130	2	5.36	3.39	0.16	0.49	-	12.13	0.442	0.279	0.013	0.040	-	1.000
		10	138	4	10.70	6.77	0.32	0.98	-	24.21	0.442	0.279	0.013	0.040	-	1.000
		11	139	4	9.67	6.58	0.80	2.39	-	22.16	0.436	0.297	0.036	0.108	-	1.000
		12	140	4	9.15	7.37	0.11	2.54	-	17.99	0.509	0.410	0.006	0.141	-	1.000
		20	148	4	6.41	11.24	0.12	2.27	-	20.34	0.315	0.553	0.006	0.111	-	1.000
		21	149	4	9.50	8.33	0.37	1.36	-	21.71	0.438	0.384	0.017	0.063	-	1.000
		34	162	8	18.26	14.71	0.22	5.07	-	35.90	0.509	0.410	0.006	0.141	-	1.000
		35	163	8	21.35	13.50	0.65	1.96	-	48.30	0.442	0.279	0.013	0.040	-	1.000
		36	164	8	14.20	12.34	1.53	2.16	-	34.90	0.407	0.354	0.044	0.062	-	1.000
		37	165	8	12.56	23.31	0.36	4.71	-	35.62	0.353	0.654	0.010	0.132	-	1.000
		38	166	8	12.78	22.42	0.24	4.52	-	40.58	0.315	0.553	0.006	0.111	-	1.000
		52	180	8	18.96	16.63	0.73	2.72	-	43.31	0.438	0.384	0.017	0.063	-	1.000
		53	181	8	19.30	13.12	1.60	4.76	-	44.21	0.436	0.297	0.036	0.108	-	1.000
		54	182	8	10.68	19.36	0.54	3.15	-	31.62	0.338	0.612	0.017	0.099	-	1.000
		55	183	8	12.92	21.76	0.39	4.37	-	36.16	0.357	0.602	0.011	0.121	-	1.000

3.1.2 PD simulation at 39GHz

Table 6, Table 7, Table 8 and Table 9 show the PD simulation evaluation of ANT#0, ANT#1, ANT#2, and ANT#3 patch antenna at 39GHz for the corresponding evaluation planes specified in Table 1.

Table 6. PD of ANT#0 – patch antenna (39GHz)

- ANT#0 Low CH

Ant#0 Low CH (Left Module)

Module	Type	Beam ID_1	Beam ID_2	Feed no.	4cm2 PD[W/m2] at 2mm distance@6dBm						Ratio					
					Front(S1)	Back(S2)	Left(S3)	Right(S4)	Top(S5)	Bottom(S6)	Front/ (worst surface)	Back/ (worst surface)	Left/ (worst surface)	Right/ (worst surface)	Top/ (worst surface)	Bottom/ (worst surface)
Ant#0	Patch	1		1	1.27	1.29	3.79	-	0.00	0.02	0.335	0.341	1.000	-	0.001	0.005
		7		2	2.54	2.58	7.56	-	0.01	0.04	0.335	0.341	1.000	-	0.001	0.005
		8		2	2.22	2.65	5.96	-	0.02	0.04	0.372	0.444	1.000	-	0.003	0.007
		9		2	3.12	3.00	7.44	-	0.05	0.02	0.419	0.403	1.000	-	0.007	0.002
		18		2	2.88	2.60	7.45	-	0.04	0.01	0.387	0.349	1.000	-	0.005	0.001
		19		2	2.42	2.29	5.77	-	0.01	0.06	0.418	0.397	1.000	-	0.002	0.010
		29		4	6.15	5.15	13.07	-	0.09	0.02	0.471	0.394	1.000	-	0.007	0.002
		30		4	4.91	6.22	13.01	-	0.03	0.07	0.377	0.478	1.000	-	0.002	0.005
		31		4	5.06	5.14	15.09	-	0.01	0.08	0.335	0.341	1.000	-	0.001	0.005
		32		4	4.43	5.28	11.90	-	0.03	0.08	0.372	0.444	1.000	-	0.003	0.007
		33		4	5.75	5.18	14.86	-	0.07	0.02	0.387	0.349	1.000	-	0.005	0.001
		48		4	6.22	5.98	14.85	-	0.10	0.03	0.419	0.403	1.000	-	0.007	0.002
		49		4	4.04	6.83	12.78	-	0.04	0.06	0.316	0.534	1.000	-	0.003	0.005
		50		4	4.82	4.57	11.52	-	0.02	0.12	0.418	0.397	1.000	-	0.002	0.010
		51		4	5.18	5.89	12.74	-	0.05	0.04	0.407	0.462	1.000	-	0.004	0.003
		129		1	1.75	1.11	3.44	-	0.01	0.04	0.507	0.322	1.000	-	0.002	0.010
		135		2	3.02	1.95	6.26	-	0.01	0.06	0.482	0.311	1.000	-	0.001	0.010
		136		2	3.48	2.22	7.87	-	0.02	0.07	0.443	0.281	1.000	-	0.002	0.009
		137		2	3.36	2.56	6.72	-	0.03	0.05	0.500	0.380	1.000	-	0.004	0.007
		146		2	2.33	3.46	6.60	-	0.02	0.02	0.353	0.525	1.000	-	0.003	0.003
		147		2	2.93	2.87	7.32	-	0.01	0.02	0.400	0.392	1.000	-	0.001	0.003
		160		4	6.04	5.38	12.84	-	0.04	0.02	0.470	0.419	1.000	-	0.003	0.002
		159		4	4.64	6.91	13.16	-	0.04	0.04	0.353	0.525	1.000	-	0.003	0.003
		158		4	6.95	4.42	13.71	-	0.03	0.14	0.507	0.322	1.000	-	0.002	0.010
		157		4	5.84	5.72	12.61	-	0.02	0.04	0.463	0.454	1.000	-	0.002	0.003
		161		4	5.14	5.19	11.95	-	0.06	0.02	0.430	0.434	1.000	-	0.005	0.002
		178		4	5.38	6.29	13.07	-	0.03	0.02	0.412	0.481	1.000	-	0.002	0.002
		177		4	6.71	5.10	13.41	-	0.05	0.10	0.500	0.380	1.000	-	0.004	0.007
		176		4	6.02	3.89	12.50	-	0.01	0.12	0.482	0.311	1.000	-	0.001	0.010
		179		4	5.54	4.97	12.04	-	0.07	0.02	0.460	0.413	1.000	-	0.006	0.002
		1	129	2	4.34	3.42	11.31	-	0.01	0.19	0.384	0.302	1.000	-	0.001	0.017
		7	137	4	9.99	8.91	21.68	-	0.02	0.06	0.461	0.411	1.000	-	0.001	0.003
		8	136	4	8.83	8.61	22.12	-	0.03	0.34	0.399	0.389	1.000	-	0.002	0.015
		9	135	4	10.83	8.71	22.58	-	0.03	0.03	0.480	0.386	1.000	-	0.001	0.002
		18	147	4	8.67	6.82	22.57	-	0.03	0.37	0.384	0.302	1.000	-	0.001	0.017
		19	146	4	11.40	11.96	24.73	-	0.11	0.06	0.461	0.484	1.000	-	0.004	0.002
		29	160	8	22.19	20.33	40.80	-	0.07	0.05	0.544	0.498	1.000	-	0.002	0.001
		30	159	8	21.76	24.75	49.78	-	0.07	0.29	0.437	0.497	1.000	-	0.001	0.006
		31	158	8	17.61	17.19	44.13	-	0.07	0.68	0.399	0.389	1.000	-	0.002	0.015
		32	157	8	21.61	17.37	45.05	-	0.05	0.07	0.480	0.386	1.000	-	0.001	0.002
		33	161	8	18.45	21.52	45.36	-	0.15	0.09	0.407	0.475	1.000	-	0.003	0.002
		48	178	8	22.75	23.87	49.33	-	0.22	0.12	0.461	0.484	1.000	-	0.004	0.002
		49	177	8	21.44	22.88	45.76	-	0.22	0.41	0.468	0.500	1.000	-	0.005	0.009
		50	176	8	17.29	13.62	45.04	-	0.05	0.75	0.384	0.302	1.000	-	0.001	0.017
		51	179	8	19.94	17.78	43.25	-	0.03	0.12	0.461	0.411	1.000	-	0.001	0.003

- ANT#0 Mid CH

Ant#0 Mid CH (Left Module)

| Module | Type | Beam ID_1 | Beam ID_2 | Feed no. | 4cm2 PD[W/m2] at 2mm distance@6dBm | | | | | | Ratio | | | | | |
					Front(S1)	Back(S2)	Left(S3)	Right(S4)	Top(S5)	Bottom(S6)	Front/ (worst surface)	Back/ (worst surface)	Left/ (worst surface)	Right/ (worst surface)	Top/ (worst surface)	Bottom/ (worst surface)
Ant#0	Patch	1		1	1.73	2.19	5.46	-	0.01	0.02	0.317	0.400	1.000	-	0.001	0.003
		7		2	3.45	4.36	8.90	-	0.01	0.03	0.388	0.490	1.000	-	0.001	0.003
		8		2	2.84	3.65	7.58	-	0.02	0.12	0.374	0.482	1.000	-	0.002	0.016
		9		2	2.00	3.71	7.98	-	0.08	0.05	0.251	0.465	1.000	-	0.010	0.006
		18		2	3.11	3.71	8.10	-	0.05	0.08	0.384	0.458	1.000	-	0.006	0.010
		19		2	3.36	4.25	8.57	-	0.01	0.06	0.393	0.496	1.000	-	0.001	0.006
		29		4	5.39	6.02	14.68	-	0.13	0.04	0.367	0.410	1.000	-	0.009	0.003
		30		4	4.99	7.50	14.70	-	0.05	0.05	0.339	0.510	1.000	-	0.003	0.003
		31		4	6.89	8.70	17.76	-	0.02	0.06	0.388	0.490	1.000	-	0.001	0.003
		32		4	5.66	7.29	15.13	-	0.03	0.24	0.374	0.482	1.000	-	0.002	0.016
		33		4	6.20	7.40	16.16	-	0.09	0.16	0.384	0.458	1.000	-	0.006	0.010
		48		4	4.00	7.40	15.92	-	0.16	0.09	0.251	0.465	1.000	-	0.010	0.006
		49		4	5.55	7.51	15.43	-	0.04	0.05	0.360	0.487	1.000	-	0.003	0.003
		50		4	6.71	8.48	17.09	-	0.02	0.11	0.393	0.496	1.000	-	0.001	0.006
		51		4	6.15	7.14	14.80	-	0.07	0.16	0.416	0.482	1.000	-	0.005	0.011
		129		1	1.98	1.40	4.47	-	0.01	0.04	0.444	0.314	1.000	-	0.002	0.008
		135		2	4.01	3.18	8.74	-	0.02	0.07	0.460	0.364	1.000	-	0.002	0.007
		136		2	3.96	2.80	9.92	-	0.02	0.08	0.399	0.283	1.000	-	0.002	0.008
		137		2	3.54	3.20	8.36	-	0.02	0.04	0.423	0.382	1.000	-	0.002	0.005
		146		2	2.06	3.02	8.64	-	0.03	0.04	0.238	0.349	1.000	-	0.003	0.005
		147		2	4.06	3.08	9.40	-	0.04	0.03	0.432	0.327	1.000	-	0.004	0.003
		160		4	6.91	6.81	15.90	-	0.06	0.06	0.435	0.428	1.000	-	0.004	0.004
		159		4	4.11	6.02	17.24	-	0.06	0.08	0.238	0.349	1.000	-	0.003	0.005
		158		4	7.90	5.59	17.79	-	0.04	0.15	0.444	0.314	1.000	-	0.002	0.008
		157		4	8.11	6.14	16.77	-	0.07	0.06	0.484	0.366	1.000	-	0.004	0.004
		161		4	7.04	6.79	16.19	-	0.11	0.04	0.435	0.419	1.000	-	0.007	0.002
		178		4	4.84	6.64	15.32	-	0.05	0.07	0.316	0.433	1.000	-	0.003	0.005
		177		4	7.06	6.38	16.68	-	0.04	0.08	0.423	0.382	1.000	-	0.002	0.005
		176		4	8.01	6.35	17.43	-	0.04	0.13	0.460	0.364	1.000	-	0.002	0.007
		179		4	6.81	6.78	15.81	-	0.12	0.05	0.431	0.429	1.000	-	0.008	0.003
		1	129	2	6.91	4.33	15.57	-	0.03	0.18	0.444	0.278	1.000	-	0.002	0.011
		7	137	4	12.52	10.44	29.86	-	0.03	0.21	0.419	0.349	1.000	-	0.001	0.007
		8	136	4	12.35	11.48	30.19	-	0.06	0.30	0.409	0.380	1.000	-	0.002	0.010
		9	135	4	16.05	9.10	29.72	-	0.04	0.07	0.540	0.306	1.000	-	0.001	0.002
		18	147	4	13.79	8.64	31.08	-	0.07	0.35	0.444	0.278	1.000	-	0.002	0.011
		19	146	4	10.64	11.72	28.68	-	0.12	0.09	0.371	0.409	1.000	-	0.004	0.003
		29	160	8	25.62	27.59	52.00	-	0.07	0.14	0.493	0.531	1.000	-	0.001	0.003
		30	159	8	21.79	24.67	51.61	-	0.15	0.29	0.422	0.478	1.000	-	0.003	0.006
		31	158	8	24.65	22.90	60.23	-	0.12	0.60	0.409	0.380	1.000	-	0.002	0.010
		32	157	8	32.03	18.16	59.30	-	0.09	0.14	0.540	0.306	1.000	-	0.001	0.002
		33	161	8	20.11	31.26	58.92	-	0.14	0.20	0.341	0.531	1.000	-	0.002	0.003
		48	178	8	21.23	23.39	57.23	-	0.24	0.19	0.371	0.409	1.000	-	0.004	0.003
		49	177	8	25.69	31.67	56.17	-	0.20	0.27	0.457	0.564	1.000	-	0.004	0.005
		50	176	8	27.51	17.24	62.00	-	0.14	0.70	0.444	0.278	1.000	-	0.002	0.011
		51	179	8	24.97	20.83	59.59	-	0.07	0.43	0.419	0.349	1.000	-	0.001	0.007

- ANT#0 High CH

Ant#0 High CH (Left Module)

Module	Type	Beam ID_1	Beam ID_2	Feed no.	4cm2 PD[W/m2] at 2mm distance@6dBm						Ratio					
					Front(S1)	Back(S2)	Left(S3)	Right(S4)	Top(S5)	Bottom(S6)	Front/ (worst surface)	Back/ (worst surface)	Left/ (worst surface)	Right/ (worst surface)	Top/ (worst surface)	Bottom/ (worst surface)
Ant#0	Patch	1		1	1.69	2.02	4.16	-	0.01	0.02	0.406	0.485	1.000	-	0.001	0.005
		7		2	3.37	4.03	8.30	-	0.01	0.04	0.406	0.485	1.000	-	0.001	0.005
		8		2	2.75	3.41	7.73	-	0.02	0.15	0.355	0.441	1.000	-	0.003	0.019
		9		2	2.17	3.56	7.44	-	0.07	0.01	0.292	0.478	1.000	-	0.009	0.001
		18		2	3.25	3.08	7.60	-	0.04	0.04	0.427	0.405	1.000	-	0.005	0.005
		19		2	3.15	3.90	8.10	-	0.01	0.08	0.389	0.481	1.000	-	0.001	0.009
		29		4	5.54	5.79	15.00	-	0.14	0.04	0.369	0.386	1.000	-	0.009	0.003
		30		4	4.49	7.07	15.91	-	0.04	0.04	0.282	0.444	1.000	-	0.003	0.003
		31		4	6.73	8.04	16.57	-	0.02	0.08	0.406	0.485	1.000	-	0.001	0.005
		32		4	5.48	6.81	15.43	-	0.04	0.30	0.355	0.441	1.000	-	0.003	0.019
		33		4	6.48	6.14	15.17	-	0.08	0.07	0.427	0.405	1.000	-	0.005	0.005
		48		4	4.33	7.10	14.85	-	0.14	0.02	0.292	0.478	1.000	-	0.009	0.001
		49		4	4.82	6.97	16.43	-	0.03	0.05	0.293	0.424	1.000	-	0.002	0.003
		50		4	6.28	7.78	16.16	-	0.02	0.15	0.389	0.481	1.000	-	0.001	0.009
		51		4	6.18	6.34	15.03	-	0.08	0.18	0.411	0.422	1.000	-	0.005	0.012
		129		1	1.79	1.42	4.23	-	0.01	0.03	0.422	0.336	1.000	-	0.002	0.007
		135		2	3.75	2.88	8.42	-	0.02	0.06	0.446	0.341	1.000	-	0.002	0.007
		136		2	3.56	2.84	9.43	-	0.02	0.06	0.378	0.301	1.000	-	0.002	0.006
		137		2	2.99	2.89	8.28	-	0.02	0.04	0.361	0.348	1.000	-	0.002	0.004
		146		2	1.90	3.05	8.11	-	0.04	0.03	0.234	0.376	1.000	-	0.005	0.004
		147		2	3.54	3.32	8.84	-	0.02	0.04	0.401	0.376	1.000	-	0.002	0.004
		160		4	6.23	7.19	15.42	-	0.03	0.05	0.404	0.466	1.000	-	0.002	0.003
		159		4	3.79	6.08	16.19	-	0.08	0.06	0.234	0.376	1.000	-	0.005	0.004
		158		4	7.11	5.66	16.83	-	0.04	0.11	0.422	0.336	1.000	-	0.002	0.007
		157		4	7.07	6.63	15.64	-	0.04	0.07	0.452	0.424	1.000	-	0.003	0.004
		161		4	6.21	7.45	16.07	-	0.04	0.03	0.386	0.464	1.000	-	0.002	0.002
		178		4	3.91	6.69	14.50	-	0.07	0.07	0.270	0.461	1.000	-	0.005	0.005
		177		4	5.97	5.76	16.53	-	0.03	0.07	0.361	0.348	1.000	-	0.002	0.004
		176		4	7.49	5.74	16.81	-	0.04	0.11	0.446	0.341	1.000	-	0.002	0.007
		179		4	6.13	7.27	15.75	-	0.05	0.03	0.389	0.462	1.000	-	0.003	0.002
		1	129	2	6.62	4.02	15.45	-	0.04	0.15	0.428	0.260	1.000	-	0.002	0.010
		7	137	4	12.23	10.15	29.42	-	0.03	0.03	0.416	0.345	1.000	-	0.001	0.001
		8	136	4	12.00	10.67	30.16	-	0.07	0.24	0.398	0.354	1.000	-	0.002	0.008
		9	135	4	14.31	8.55	28.14	-	0.03	0.13	0.508	0.304	1.000	-	0.001	0.005
		18	147	4	13.21	8.02	30.84	-	0.08	0.30	0.428	0.260	1.000	-	0.002	0.010
		19	146	4	11.04	12.40	27.32	-	0.14	0.10	0.404	0.454	1.000	-	0.005	0.004
		29	160	8	24.85	28.39	51.02	-	0.12	0.17	0.487	0.556	1.000	-	0.002	0.003
		30	159	8	23.17	26.16	54.52	-	0.14	0.29	0.425	0.480	1.000	-	0.002	0.005
		31	158	8	23.94	21.28	60.18	-	0.14	0.48	0.398	0.354	1.000	-	0.002	0.008
		32	157	8	28.54	17.07	56.15	-	0.05	0.26	0.508	0.304	1.000	-	0.001	0.005
		33	161	8	19.96	30.89	59.11	-	0.17	0.17	0.338	0.523	1.000	-	0.003	0.003
		48	178	8	22.03	24.74	54.52	-	0.27	0.20	0.404	0.454	1.000	-	0.005	0.004
		49	177	8	22.47	28.70	56.24	-	0.14	0.31	0.400	0.510	1.000	-	0.002	0.005
		50	176	8	26.35	16.00	61.53	-	0.15	0.60	0.428	0.260	1.000	-	0.002	0.010
		51	179	8	24.40	20.25	58.70	-	0.05	0.05	0.416	0.345	1.000	-	0.001	0.001

SONY

Document number:	Revision:
PY7-57441Y	B

Table 7. PD of ANT#1 – patch antenna (39GHz)

- ANT#1 Low CH

Ant#1 Low CH (Right Module)

Module	Type	Beam ID_1	Beam ID_2	Feed no.	4cm2 PD[W/m2] at 2mm distance@6dBm						Ratio					
					Front(S1)	Back(S2)	Left(S3)	Right(S4)	Top(S5)	Bottom(S6)	Front/ (worst surface)	Back/ (worst surface)	Left/ (worst surface)	Right/ (worst surface)	Top/ (worst surface)	Bottom/ (worst surface)
Ant#1	Patch	0		1	1.35	1.81	-	3.90	0.02	0.01	0.347	0.464	-	1.000	0.005	0.003
		4		2	2.70	3.61	-	8.78	0.04	0.02	0.308	0.411	-	1.000	0.005	0.002
		5		2	2.98	3.09	-	7.01	0.05	0.01	0.425	0.440	-	1.000	0.006	0.001
		6		2	2.88	3.16	-	7.48	0.03	0.02	0.385	0.422	-	1.000	0.004	0.002
		16		2	2.92	2.42	-	6.92	0.04	0.04	0.422	0.350	-	1.000	0.006	0.006
		17		2	1.65	3.55	-	6.82	0.03	0.02	0.242	0.521	-	1.000	0.004	0.003
		24		4	5.83	4.83	-	13.81	0.08	0.08	0.422	0.350	-	1.000	0.006	0.006
		25		4	3.29	7.09	-	13.61	0.06	0.04	0.242	0.521	-	1.000	0.004	0.003
		26		4	5.39	7.20	-	15.53	0.08	0.04	0.347	0.464	-	1.000	0.005	0.003
		27		4	5.74	6.30	-	14.92	0.06	0.03	0.385	0.422	-	1.000	0.004	0.002
		28		4	4.85	5.74	-	12.38	0.02	0.06	0.392	0.464	-	1.000	0.002	0.005
		44		4	4.74	5.47	-	13.38	0.08	0.09	0.354	0.409	-	1.000	0.006	0.007
		45		4	3.76	8.63	-	13.83	0.07	0.09	0.272	0.624	-	1.000	0.005	0.007
		46		4	5.94	6.16	-	13.99	0.09	0.01	0.425	0.440	-	1.000	0.006	0.001
		47		4	4.78	6.02	-	12.77	0.05	0.04	0.374	0.471	-	1.000	0.004	0.003
		128		1	1.59	1.35	-	3.32	0.04	0.00	0.480	0.407	-	1.000	0.011	0.001
		132		2	3.27	2.51	-	7.51	0.05	0.03	0.436	0.334	-	1.000	0.007	0.003
		133		2	3.41	2.33	-	7.82	0.15	0.02	0.437	0.298	-	1.000	0.019	0.002
		134		2	2.92	2.68	-	7.50	0.06	0.01	0.390	0.357	-	1.000	0.007	0.001
		144		2	3.18	2.69	-	7.62	0.07	0.01	0.417	0.353	-	1.000	0.009	0.001
		145		2	2.65	2.98	-	7.48	0.04	0.03	0.355	0.399	-	1.000	0.005	0.004
		152		4	6.31	5.41	-	12.77	0.05	0.03	0.494	0.424	-	1.000	0.004	0.002
		153		4	4.61	6.16	-	13.21	0.08	0.05	0.349	0.466	-	1.000	0.006	0.004
		154		4	6.53	5.01	-	12.99	0.10	0.05	0.503	0.386	-	1.000	0.008	0.004
		155		4	6.34	5.37	-	13.20	0.14	0.01	0.480	0.407	-	1.000	0.011	0.001
		156		4	6.17	5.11	-	13.01	0.10	0.02	0.474	0.393	-	1.000	0.008	0.002
		172		4	5.77	5.55	-	13.17	0.10	0.06	0.438	0.421	-	1.000	0.008	0.005
		173		4	5.29	5.95	-	12.92	0.07	0.06	0.409	0.461	-	1.000	0.005	0.005
		174		4	6.81	4.64	-	13.60	0.29	0.03	0.501	0.341	-	1.000	0.021	0.002
		175		4	5.83	5.35	-	12.97	0.11	0.01	0.449	0.412	-	1.000	0.008	0.001
		0	128	2	4.32	4.22	-	12.99	0.28	0.02	0.332	0.325	-	1.000	0.021	0.002
		4	132	4	8.61	8.43	-	25.92	0.55	0.04	0.332	0.325	-	1.000	0.021	0.002
		5	133	4	9.03	11.15	-	23.38	0.14	0.04	0.386	0.477	-	1.000	0.006	0.002
		6	134	4	9.87	10.72	-	23.00	0.09	0.09	0.429	0.466	-	1.000	0.004	0.004
		16	145	4	8.96	11.14	-	24.41	0.25	0.04	0.367	0.457	-	1.000	0.010	0.002
		17	144	4	11.07	11.34	-	25.51	0.19	0.05	0.434	0.444	-	1.000	0.007	0.002
		24	152	8	22.64	21.88	-	44.69	0.26	0.10	0.507	0.490	-	1.000	0.006	0.002
		25	153	8	22.08	22.63	-	50.91	0.37	0.10	0.434	0.444	-	1.000	0.007	0.002
		26	154	8	21.13	19.57	-	48.33	0.36	0.07	0.437	0.405	-	1.000	0.007	0.001
		27	155	8	17.88	22.24	-	48.71	0.49	0.09	0.367	0.457	-	1.000	0.010	0.002
		28	156	8	19.69	21.39	-	45.88	0.19	0.19	0.429	0.466	-	1.000	0.004	0.004
		44	172	8	17.54	18.56	-	48.60	0.22	0.14	0.361	0.382	-	1.000	0.005	0.003
		45	173	8	15.71	16.52	-	43.06	0.22	0.10	0.365	0.384	-	1.000	0.005	0.002
		46	174	8	17.19	16.81	-	51.72	1.11	0.09	0.332	0.325	-	1.000	0.021	0.002
		47	175	8	18.02	22.25	-	46.65	0.29	0.09	0.386	0.477	-	1.000	0.006	0.002

- ANT#1 Mid CH

Ant#1 Mid CH (Right Module)

Module	Type	Beam ID_1	Beam ID_2	Feed no.	4cm2 PD[W/m2] at 2mm distance@6dBm						Ratio					
					Front(S1)	Back(S2)	Left(S3)	Right(S4)	Top(S5)	Bottom(S6)	Front/ (worst surface)	Back/ (worst surface)	Left/ (worst surface)	Right/ (worst surface)	Top/ (worst surface)	Bottom/ (worst surface)
Ant#1	Patch	0		1	2.03	2.21	-	4.47	0.03	0.01	0.455	0.495	-	1.000	0.007	0.002
		4		2	4.06	4.42	-	9.92	0.07	0.02	0.409	0.445	-	1.000	0.007	0.002
		5		2	4.30	4.01	-	8.90	0.08	0.01	0.483	0.451	-	1.000	0.008	0.001
		6		2	3.57	3.84	-	8.69	0.10	0.03	0.411	0.442	-	1.000	0.012	0.003
		16		2	2.09	2.95	-	7.73	0.04	0.07	0.271	0.382	-	1.000	0.005	0.008
		17		2	1.83	3.68	-	7.84	0.03	0.03	0.233	0.470	-	1.000	0.003	0.003
		24		4	4.18	5.89	-	15.43	0.08	0.13	0.271	0.382	-	1.000	0.005	0.008
		25		4	3.65	7.35	-	15.64	0.05	0.05	0.233	0.470	-	1.000	0.003	0.003
		26		4	8.10	8.81	-	17.80	0.13	0.03	0.455	0.495	-	1.000	0.007	0.002
		27		4	7.13	7.66	-	17.33	0.20	0.06	0.411	0.442	-	1.000	0.012	0.003
		28		4	5.85	7.64	-	16.03	0.06	0.05	0.365	0.477	-	1.000	0.004	0.003
		44		4	3.00	7.54	-	14.73	0.06	0.10	0.204	0.512	-	1.000	0.004	0.007
		45		4	6.17	9.03	-	16.80	0.11	0.09	0.367	0.538	-	1.000	0.007	0.005
		46		4	8.57	8.01	-	17.76	0.15	0.02	0.483	0.451	-	1.000	0.008	0.001
		47		4	6.18	7.72	-	16.91	0.09	0.04	0.365	0.457	-	1.000	0.005	0.002
		128		1	2.30	1.76	-	4.56	0.05	0.01	0.504	0.386	-	1.000	0.011	0.002
		132		2	3.67	3.02	-	9.53	0.05	0.05	0.385	0.317	-	1.000	0.005	0.005
		133		2	4.15	2.88	-	9.89	0.13	0.02	0.420	0.291	-	1.000	0.013	0.002
		134		2	4.64	3.28	-	9.96	0.07	0.02	0.466	0.329	-	1.000	0.007	0.002
		144		2	4.59	3.51	-	10.11	0.10	0.02	0.454	0.348	-	1.000	0.010	0.001
		145		2	2.81	2.60	-	8.73	0.04	0.03	0.322	0.298	-	1.000	0.004	0.003
		152		4	8.61	6.21	-	16.39	0.00	0.09	0.525	0.379	-	1.000	0.000	0.005
		153		4	4.57	6.58	-	15.68	0.00	0.04	0.291	0.420	-	1.000	0.000	0.003
		154		4	7.32	6.03	-	17.02	0.09	0.09	0.430	0.354	-	1.000	0.005	0.005
		155		4	9.16	7.01	-	18.17	0.20	0.03	0.504	0.386	-	1.000	0.011	0.002
		156		4	9.10	5.58	-	16.83	0.08	0.05	0.541	0.332	-	1.000	0.005	0.003
		172		4	7.42	6.19	-	16.71	0.10	0.06	0.444	0.370	-	1.000	0.006	0.004
		173		4	5.60	5.19	-	14.42	0.07	0.06	0.388	0.360	-	1.000	0.005	0.004
		174		4	8.29	5.74	-	17.73	0.25	0.03	0.468	0.324	-	1.000	0.014	0.002
		175		4	9.26	6.54	-	17.87	0.13	0.03	0.518	0.366	-	1.000	0.007	0.002
		0	128	2	5.82	5.82	-	15.98	0.32	0.02	0.364	0.364	-	1.000	0.020	0.001
		4	132	4	11.62	11.61	-	31.89	0.63	0.04	0.364	0.364	-	1.000	0.020	0.001
		5	133	4	11.83	16.49	-	31.45	0.20	0.09	0.376	0.524	-	1.000	0.006	0.003
		6	134	4	12.85	14.80	-	30.01	0.13	0.13	0.428	0.493	-	1.000	0.004	0.004
		16	145	4	10.90	13.71	-	30.56	0.60	0.12	0.357	0.449	-	1.000	0.020	0.004
		17	144	4	10.33	12.52	-	31.28	0.22	0.05	0.330	0.400	-	1.000	0.007	0.002
		24	152	8	23.49	28.87	-	54.73	0.27	0.19	0.429	0.527	-	1.000	0.005	0.003
		25	153	8	20.60	24.97	-	62.40	0.44	0.10	0.330	0.400	-	1.000	0.007	0.002
		26	154	8	23.39	28.27	-	62.29	0.49	0.12	0.376	0.454	-	1.000	0.008	0.002
		27	155	8	21.74	27.35	-	60.97	1.19	0.24	0.357	0.449	-	1.000	0.020	0.004
		28	156	8	25.64	29.53	-	59.87	0.26	0.26	0.428	0.493	-	1.000	0.004	0.004
		44	172	8	16.59	27.32	-	56.80	0.19	0.39	0.292	0.481	-	1.000	0.003	0.007
		45	173	8	13.63	22.22	-	52.88	0.43	0.07	0.258	0.420	-	1.000	0.008	0.001
		46	174	8	23.19	23.17	-	63.64	1.26	0.09	0.364	0.364	-	1.000	0.020	0.001
		47	175	8	23.60	32.90	-	62.75	0.39	0.19	0.376	0.524	-	1.000	0.006	0.003

- ANT#1 High CH

Ant#0 High CH (Right Module)

Module	Type	Beam ID_1	Beam ID_2	Feed no.	4cm2 PD[W/m2] at 2mm distance@6dBm						Ratio					
					Front(S1)	Back(S2)	Left(S3)	Right(S4)	Top(S5)	Bottom(S6)	Front/ (worst surface)	Back/ (worst surface)	Left/ (worst surface)	Right/ (worst surface)	Top/ (worst surface)	Bottom/ (worst surface)
Ant#1	Patch	0		1	1.69	1.98		4.14	0.05	0.01	0.408	0.477	-	1.000	0.011	0.003
		4		2	3.38	3.94		9.27	0.09	0.03	0.364	0.426	-	1.000	0.010	0.003
		5		2	3.57	4.34		8.51	0.09	0.03	0.420	0.510	-	1.000	0.010	0.004
		6		2	2.85	4.49		8.00	0.10	0.03	0.356	0.561	-	1.000	0.012	0.003
		16		2	1.38	3.14		7.11	0.05	0.07	0.195	0.441	-	1.000	0.007	0.009
		17		2	1.89	2.87		8.04	0.04	0.02	0.235	0.357	-	1.000	0.005	0.002
		24		4	2.76	6.26		14.19	0.10	0.13	0.195	0.441	-	1.000	0.007	0.009
		25		4	3.77	5.72		16.04	0.08	0.04	0.235	0.357	-	1.000	0.005	0.002
		26		4	6.74	7.87		16.50	0.18	0.05	0.408	0.477	-	1.000	0.011	0.003
		27		4	5.68	8.96		15.96	0.19	0.05	0.356	0.561	-	1.000	0.012	0.003
		28		4	5.60	8.85		16.50	0.07	0.08	0.339	0.536	-	1.000	0.004	0.005
		44		4	2.84	6.41		14.66	0.08	0.07	0.194	0.437	-	1.000	0.005	0.005
		45		4	4.30	6.65		15.31	0.13	0.06	0.281	0.434	-	1.000	0.008	0.004
		46		4	7.13	8.66		16.97	0.17	0.06	0.420	0.510	-	1.000	0.010	0.004
		47		4	5.12	9.37		17.17	0.09	0.05	0.298	0.546	-	1.000	0.005	0.003
		128		1	2.14	1.51		4.19	0.04	0.01	0.510	0.361	-	1.000	0.010	0.002
		132		2	3.18	2.95		8.97	0.05	0.06	0.355	0.329	-	1.000	0.005	0.006
		133		2	3.11	2.57		9.20	0.08	0.01	0.338	0.279	-	1.000	0.009	0.001
		134		2	4.39	2.91		9.43	0.08	0.03	0.466	0.309	-	1.000	0.008	0.003
		144		2	4.26	3.01		9.35	0.09	0.02	0.455	0.322	-	1.000	0.009	0.002
		145		2	2.48	2.69		8.71	0.03	0.02	0.284	0.309	-	1.000	0.003	0.002
		152		4	8.06	6.35		16.07	0.10	0.11	0.502	0.395	-	1.000	0.006	0.007
		153		4	3.74	5.49		16.10	0.09	0.04	0.232	0.341	-	1.000	0.006	0.002
		154		4	6.35	5.89		15.90	0.09	0.11	0.399	0.370	-	1.000	0.006	0.007
		155		4	8.50	6.01		16.67	0.17	0.04	0.510	0.361	-	1.000	0.010	0.002
		156		4	8.49	5.69		16.17	0.13	0.06	0.525	0.352	-	1.000	0.008	0.004
		172		4	6.81	6.95		16.16	0.09	0.10	0.421	0.430	-	1.000	0.006	0.006
		173		4	4.94	5.37		15.38	0.05	0.04	0.321	0.349	-	1.000	0.003	0.003
		174		4	6.21	5.12		16.37	0.16	0.02	0.379	0.313	-	1.000	0.010	0.001
		175		4	8.76	5.81		16.82	0.15	0.05	0.521	0.345	-	1.000	0.009	0.003
		0	128	2	3.95	6.36		15.66	0.26	0.04	0.253	0.406	-	1.000	0.017	0.002
		4	132	4	7.89	12.70		31.25	0.53	0.08	0.253	0.406	-	1.000	0.017	0.002
		5	133	4	11.52	16.21		29.31	0.24	0.07	0.393	0.553	-	1.000	0.008	0.002
		6	134	4	11.39	14.69		28.87	0.16	0.09	0.395	0.509	-	1.000	0.006	0.003
		16	145	4	9.37	13.45		29.76	0.49	0.10	0.315	0.452	-	1.000	0.016	0.003
		17	144	4	10.62	12.99		30.87	0.26	0.03	0.344	0.421	-	1.000	0.008	0.001
		24	152	8	21.73	30.94		57.79	0.32	0.24	0.376	0.535	-	1.000	0.006	0.004
		25	153	8	21.18	25.93		61.59	0.51	0.07	0.344	0.421	-	1.000	0.008	0.001
		26	154	8	17.80	28.49		59.11	0.56	0.15	0.301	0.482	-	1.000	0.009	0.003
		27	155	8	18.70	26.84		59.37	0.97	0.20	0.315	0.452	-	1.000	0.016	0.003
		28	156	8	22.73	29.31		57.61	0.32	0.17	0.395	0.509	-	1.000	0.006	0.003
		44	172	8	14.82	31.31		58.23	0.15	0.51	0.255	0.538	-	1.000	0.003	0.009
		45	173	8	12.65	26.47		55.90	0.43	0.07	0.226	0.474	-	1.000	0.008	0.001
		46	174	8	15.74	25.33		62.34	1.05	0.15	0.253	0.406	-	1.000	0.017	0.002
		47	175	8	22.98	32.35		58.48	0.48	0.14	0.393	0.553	-	1.000	0.008	0.002

Table 8. PD of ANT#2 – patch antenna (39GHz)

- ANT#2 Low CH

Ant#2 Low CH (Top Module)

Module	Type	Beam ID_1	Beam ID_2	Feed no.	Front(S1)	Back(S2)	Left(S3)	Right(S4)	Top(S5)	Bottom(S6)	Front/ (worst surface)	Back/ (worst surface)	Left/ (worst surface)	Right/ (worst surface)	Top/ (worst surface)	Bottom/ (worst surface)
					4cm2 PD[W/m2] at 2mm distance@5dBm						Ratio					
Ant#2	Patch	3		1	1.34	1.10	0.03	0.04	5.22	-	0.256	0.211	0.006	0.007	1.000	-
		13		2	2.43	1.98	0.03	0.52	6.97	-	0.349	0.285	0.004	0.075	1.000	-
		14		2	2.67	2.20	0.07	0.08	8.43	-	0.317	0.260	0.008	0.009	1.000	-
		15		2	2.67	2.20	0.07	0.08	8.43	-	0.317	0.260	0.008	0.009	1.000	-
		22		2	1.96	2.95	0.13	0.17	6.70	-	0.293	0.441	0.019	0.025	1.000	-
		23		2	2.55	1.66	0.02	0.40	6.78	-	0.376	0.246	0.002	0.058	1.000	-
		39		4	4.85	3.96	0.06	1.04	11.92	-	0.407	0.332	0.005	0.087	1.000	-
		40		4	3.74	5.83	0.31	0.51	14.00	-	0.267	0.416	0.022	0.036	1.000	-
		41		4	4.68	4.93	0.20	0.28	11.94	-	0.392	0.413	0.017	0.023	1.000	-
		42		4	5.33	4.38	0.13	0.15	16.82	-	0.317	0.260	0.008	0.009	1.000	-
		43		4	5.08	3.32	0.03	0.79	13.52	-	0.376	0.246	0.002	0.058	1.000	-
		56		4	4.28	4.49	0.11	0.94	13.95	-	0.307	0.322	0.008	0.067	1.000	-
		57		4	3.92	5.89	0.25	0.34	13.36	-	0.293	0.441	0.019	0.025	1.000	-
		58		4	4.86	4.45	0.19	0.08	16.07	-	0.302	0.277	0.012	0.005	1.000	-
		59		4	5.48	5.02	0.06	0.34	12.62	-	0.434	0.398	0.005	0.027	1.000	-
		131		1	1.60	0.89	0.07	0.06	5.33	-	0.299	0.168	0.013	0.012	1.000	-
		141		2	2.25	2.61	0.03	0.41	8.73	-	0.258	0.298	0.003	0.047	1.000	-
		142		2	3.29	2.29	0.07	0.14	8.54	-	0.386	0.268	0.008	0.016	1.000	-
		143		2	2.48	1.86	0.11	0.09	8.32	-	0.298	0.223	0.013	0.010	1.000	-
		150		2	2.18	2.59	0.07	0.47	8.89	-	0.245	0.291	0.008	0.052	1.000	-
		151		2	3.18	1.78	0.14	0.13	9.64	-	0.330	0.185	0.014	0.013	1.000	-
		170		4	6.03	4.52	0.07	0.35	12.07	-	0.500	0.374	0.006	0.029	1.000	-
		169		4	4.49	5.20	0.05	0.82	13.43	-	0.334	0.387	0.004	0.061	1.000	-
		168		4	4.95	3.71	0.21	0.17	12.61	-	0.393	0.294	0.017	0.013	1.000	-
		167		4	6.57	4.57	0.14	0.28	13.05	-	0.503	0.350	0.011	0.021	1.000	-
		171		4	5.48	4.35	0.11	0.15	11.89	-	0.461	0.366	0.009	0.013	1.000	-
		186		4	5.74	4.91	0.04	0.56	13.13	-	0.437	0.374	0.003	0.043	1.000	-
		185		4	4.34	5.16	0.14	0.93	13.74	-	0.316	0.376	0.010	0.068	1.000	-
		184		4	6.35	3.56	0.27	0.25	15.24	-	0.417	0.234	0.018	0.016	1.000	-
		187		4	5.74	4.32	0.10	0.16	11.72	-	0.490	0.369	0.009	0.014	1.000	-
		3	131	2	4.61	3.53	0.12	0.22	13.91	-	0.331	0.254	0.009	0.016	1.000	-
		13	142	4	9.52	7.76	0.18	0.42	26.32	-	0.362	0.295	0.007	0.016	1.000	-
		14	143	4	7.23	7.34	0.38	0.76	25.71	-	0.281	0.286	0.015	0.029	1.000	-
		15	141	4	6.82	5.66	0.58	0.32	25.28	-	0.270	0.224	0.023	0.013	1.000	-
		22	150	4	9.09	8.04	0.07	1.03	26.21	-	0.347	0.307	0.003	0.039	1.000	-
		23	151	4	9.19	7.05	0.24	0.44	27.75	-	0.331	0.254	0.009	0.016	1.000	-
		39	170	8	20.83	15.32	0.17	2.04	46.29	-	0.450	0.331	0.004	0.044	1.000	-
		40	169	8	19.40	17.26	0.85	0.60	51.00	-	0.380	0.338	0.017	0.012	1.000	-
		41	168	8	11.85	17.00	0.88	0.24	44.10	-	0.269	0.385	0.020	0.005	1.000	-
		42	167	8	18.34	14.06	0.48	0.88	55.36	-	0.331	0.254	0.009	0.016	1.000	-
		43	171	8	18.14	16.05	0.14	2.06	52.30	-	0.347	0.307	0.003	0.039	1.000	-
		56	186	8	18.77	15.69	0.24	1.79	48.68	-	0.386	0.322	0.005	0.037	1.000	-
		57	185	8	14.42	14.65	0.77	1.51	51.29	-	0.281	0.286	0.015	0.029	1.000	-
		58	184	8	13.60	11.29	1.16	0.65	50.44	-	0.270	0.224	0.023	0.013	1.000	-
		59	187	8	18.99	15.49	0.36	0.83	52.52	-	0.362	0.295	0.007	0.016	1.000	-

- ANT#2 Mid CH

Ant#2 Mid CH (Top Module)

Module	Type	Beam ID_1	Beam ID_2	Feed no.	4cm2 PD[W/m2] at 2mm distance@6dBm						Ratio					
					Front(S1)	Back(S2)	Left(S3)	Right(S4)	Top(S5)	Bottom(S6)	Front/ (worst surface)	Back/ (worst surface)	Left/ (worst surface)	Right/ (worst surface)	Top/ (worst surface)	Bottom/ (worst surface)
Ant#2	Patch	3		1	1.35	1.38	0.06	0.09	5.74	-	0.235	0.240	0.010	0.015	1.000	-
		13		2	1.84	2.45	0.03	0.90	8.94	-	0.206	0.274	0.003	0.100	1.000	-
		14		2	2.69	2.75	0.12	0.17	9.45	-	0.284	0.291	0.012	0.018	1.000	-
		15		2	2.69	2.75	0.12	0.17	9.45	-	0.284	0.291	0.012	0.018	1.000	-
		22		2	3.02	3.72	0.08	0.32	9.22	-	0.328	0.403	0.009	0.035	1.000	-
		23		2	2.28	2.59	0.03	0.51	8.10	-	0.281	0.320	0.003	0.063	1.000	-
		39		4	3.67	4.88	0.05	1.79	15.84	-	0.232	0.308	0.003	0.113	1.000	-
		40		4	4.28	7.65	0.21	0.93	18.08	-	0.237	0.423	0.012	0.051	1.000	-
		41		4	7.18	6.36	0.12	0.37	17.22	-	0.417	0.369	0.007	0.021	1.000	-
		42		4	5.36	5.49	0.23	0.34	18.86	-	0.284	0.291	0.012	0.018	1.000	-
		43		4	4.54	5.17	0.05	1.02	16.17	-	0.281	0.320	0.003	0.063	1.000	-
		56		4	3.64	6.87	0.06	1.60	17.58	-	0.207	0.391	0.003	0.091	1.000	-
		57		4	6.03	7.42	0.16	0.64	18.40	-	0.328	0.403	0.009	0.035	1.000	-
		58		4	6.58	5.80	0.18	0.15	18.39	-	0.358	0.315	0.010	0.008	1.000	-
		59		4	5.80	5.90	0.17	0.43	13.96	-	0.415	0.423	0.012	0.031	1.000	-
		131		1	1.39	1.20	0.06	0.10	5.91	-	0.236	0.203	0.009	0.017	1.000	-
		141		2	2.02	2.72	0.06	0.66	9.79	-	0.207	0.278	0.006	0.067	1.000	-
		142		2	4.19	2.47	0.10	0.22	9.76	-	0.429	0.253	0.010	0.022	1.000	-
		143		2	2.95	2.17	0.10	0.19	10.57	-	0.279	0.205	0.009	0.018	1.000	-
		150		2	2.49	1.94	0.05	0.59	10.24	-	0.243	0.190	0.004	0.058	1.000	-
		151		2	2.78	2.40	0.11	0.21	10.79	-	0.257	0.222	0.010	0.019	1.000	-
		170		4	7.65	4.90	0.09	0.71	15.77	-	0.485	0.311	0.006	0.045	1.000	-
		169		4	4.04	5.43	0.12	1.31	15.55	-	0.260	0.349	0.008	0.084	1.000	-
		168		4	5.88	4.33	0.20	0.37	17.10	-	0.344	0.253	0.012	0.022	1.000	-
		167		4	8.36	4.92	0.19	0.43	15.49	-	0.540	0.318	0.012	0.028	1.000	-
		171		4	7.45	5.20	0.15	0.33	15.81	-	0.471	0.329	0.009	0.021	1.000	-
		186		4	7.43	5.47	0.11	0.84	15.64	-	0.475	0.350	0.007	0.054	1.000	-
		185		4	4.97	3.88	0.09	1.18	16.45	-	0.302	0.236	0.005	0.072	1.000	-
		184		4	5.54	4.78	0.22	0.41	17.54	-	0.316	0.273	0.013	0.023	1.000	-
		187		4	7.54	4.69	0.13	0.41	15.62	-	0.483	0.300	0.008	0.026	1.000	-
		3	131	2	5.41	3.17	0.27	0.24	16.51	-	0.328	0.192	0.017	0.014	1.000	-
		13	142	4	11.87	8.97	0.31	0.26	30.59	-	0.388	0.293	0.010	0.009	1.000	-
		14	143	4	8.19	11.71	0.39	0.89	30.67	-	0.267	0.382	0.013	0.029	1.000	-
		15	141	4	8.60	6.81	0.58	0.51	30.48	-	0.282	0.223	0.019	0.017	1.000	-
		22	150	4	9.07	8.46	0.16	1.42	30.01	-	0.302	0.282	0.005	0.047	1.000	-
		23	151	4	10.80	6.32	0.55	0.48	32.93	-	0.328	0.192	0.017	0.014	1.000	-
		39	170	8	21.78	19.64	0.17	2.31	59.11	-	0.368	0.332	0.003	0.039	1.000	-
		40	169	8	19.57	20.77	0.56	0.94	57.62	-	0.340	0.361	0.010	0.016	1.000	-
		41	168	8	15.35	20.49	0.92	0.85	57.80	-	0.266	0.354	0.016	0.015	1.000	-
		42	167	8	21.54	12.61	1.09	0.95	65.71	-	0.328	0.192	0.017	0.014	1.000	-
		43	171	8	18.11	16.88	0.32	2.84	59.88	-	0.302	0.282	0.005	0.047	1.000	-
		56	186	8	19.38	19.55	0.17	2.14	52.49	-	0.369	0.372	0.003	0.041	1.000	-
		57	185	8	16.34	23.36	0.78	1.77	61.20	-	0.267	0.382	0.013	0.029	1.000	-
		58	184	8	17.15	13.58	1.16	1.02	60.82	-	0.282	0.223	0.019	0.017	1.000	-
		59	187	8	23.68	17.90	0.61	0.53	61.03	-	0.388	0.293	0.010	0.009	1.000	-

- ANT#2 High CH

Ant#2 High CH (Top Module)

Module	Type	Beam ID_1	Beam ID_2	Feed no.	4cm2 PD[W/m2] at 2mm distance@6dBm						Ratio					
					Front(S1)	Back(S2)	Left(S3)	Right(S4)	Top(S5)	Bottom(S6)	Front/ (worst surface)	Back/ (worst surface)	Left/ (worst surface)	Right/ (worst surface)	Top/ (worst surface)	Bottom/ (worst surface)
Ant#2	Patch	3		1	1.45	1.39	0.04	0.10	5.96	-	0.244	0.234	0.007	0.016	1.000	-
		13		2	1.70	2.37	0.03	0.97	9.38	-	0.181	0.253	0.003	0.103	1.000	-
		14		2	2.90	2.78	0.09	0.20	9.89	-	0.293	0.281	0.009	0.020	1.000	-
		15		2	2.90	2.78	0.09	0.20	9.89	-	0.293	0.281	0.009	0.020	1.000	-
		22		2	2.55	3.43	0.13	0.30	8.73	-	0.292	0.393	0.015	0.034	1.000	-
		23		2	2.65	2.58	0.02	0.57	8.34	-	0.317	0.309	0.002	0.068	1.000	-
		39		4	3.39	4.73	0.06	1.93	16.73	-	0.203	0.283	0.004	0.115	1.000	-
		40		4	3.26	6.59	0.15	0.71	16.95	-	0.192	0.389	0.009	0.042	1.000	-
		41		4	6.62	6.19	0.21	0.42	16.68	-	0.397	0.371	0.013	0.025	1.000	-
		42		4	5.78	5.54	0.17	0.39	19.74	-	0.293	0.281	0.009	0.020	1.000	-
		43		4	5.28	5.15	0.04	1.13	16.64	-	0.317	0.309	0.002	0.068	1.000	-
		56		4	2.75	6.33	0.08	1.63	16.98	-	0.162	0.373	0.005	0.096	1.000	-
		57		4	5.08	6.85	0.26	0.59	17.41	-	0.292	0.393	0.015	0.034	1.000	-
		58		4	6.25	6.20	0.18	0.23	16.67	-	0.375	0.372	0.011	0.014	1.000	-
		59		4	6.54	5.56	0.13	0.49	15.15	-	0.432	0.367	0.009	0.032	1.000	-
		131		1	1.41	1.21	0.06	0.10	5.97	-	0.237	0.203	0.009	0.017	1.000	-
		141		2	1.71	2.53	0.05	0.67	9.54	-	0.180	0.265	0.005	0.070	1.000	-
		142		2	3.99	2.24	0.09	0.27	9.59	-	0.416	0.234	0.009	0.028	1.000	-
		143		2	2.57	1.95	0.18	0.26	11.05	-	0.233	0.177	0.016	0.023	1.000	-
		150		2	2.33	1.88	0.01	0.51	10.51	-	0.221	0.179	0.000	0.048	1.000	-
		151		2	2.82	2.42	0.11	0.21	10.92	-	0.258	0.222	0.010	0.019	1.000	-
		170		4	6.85	5.53	0.05	0.84	14.73	-	0.465	0.375	0.003	0.057	1.000	-
		169		4	3.42	5.04	0.10	1.33	15.05	-	0.227	0.335	0.007	0.088	1.000	-
		168		4	5.13	3.90	0.35	0.51	18.05	-	0.284	0.216	0.019	0.028	1.000	-
		167		4	7.96	4.47	0.17	0.53	15.14	-	0.526	0.295	0.011	0.035	1.000	-
		171		4	7.05	4.82	0.19	0.43	15.18	-	0.464	0.318	0.013	0.028	1.000	-
		186		4	6.31	6.00	0.07	0.88	14.70	-	0.429	0.408	0.005	0.060	1.000	-
		185		4	4.64	3.75	0.01	1.01	15.99	-	0.290	0.235	0.001	0.063	1.000	-
		184		4	5.63	4.83	0.22	0.41	17.80	-	0.316	0.271	0.012	0.023	1.000	-
		187		4	7.22	5.12	0.14	0.49	15.47	-	0.467	0.331	0.009	0.032	1.000	-
		3	131	2	5.59	3.41	0.25	0.24	16.81	-	0.332	0.203	0.015	0.014	1.000	-
		13	142	4	11.74	9.39	0.28	0.26	31.19	-	0.376	0.301	0.009	0.008	1.000	-
		14	143	4	6.42	12.91	0.43	1.06	32.54	-	0.197	0.397	0.013	0.032	1.000	-
		15	141	4	7.98	7.93	0.53	0.52	29.32	-	0.272	0.271	0.018	0.018	1.000	-
		22	150	4	8.61	8.15	0.17	1.42	30.40	-	0.283	0.268	0.006	0.047	1.000	-
		23	151	4	11.14	6.81	0.50	0.49	33.55	-	0.332	0.203	0.015	0.014	1.000	-
		39	170	8	22.37	23.17	0.24	2.41	61.34	-	0.365	0.378	0.004	0.039	1.000	-
		40	169	8	19.52	24.91	0.43	0.85	61.26	-	0.319	0.407	0.007	0.014	1.000	-
		41	168	8	13.80	24.67	1.70	0.90	58.21	-	0.237	0.424	0.029	0.015	1.000	-
		42	167	8	22.24	13.58	1.00	0.97	66.94	-	0.332	0.203	0.015	0.014	1.000	-
		43	171	8	17.17	16.25	0.34	2.84	60.65	-	0.283	0.268	0.006	0.047	1.000	-
		56	186	8	18.55	23.68	0.26	2.21	55.03	-	0.337	0.430	0.005	0.040	1.000	-
		57	185	8	12.80	25.76	0.85	2.11	64.92	-	0.197	0.397	0.013	0.032	1.000	-
		58	184	8	15.93	15.83	1.05	1.04	58.50	-	0.272	0.271	0.018	0.018	1.000	-
		59	187	8	23.43	18.73	0.56	0.53	62.24	-	0.376	0.301	0.009	0.008	1.000	-

Table 9. PD of ANT#3 – patch antenna (39GHz)

- ANT#3 Low CH

Ant#3 Low CH (Bottom Module)

Module	Type	Beam ID_1	Beam ID_2	Feed no.	4cm2 PD[W/m2] at 2mm distance@6dBm						Ratio					
					Front(S1)	Back(S2)	Left(S3)	Right(S4)	Top(S5)	Bottom(S6)	Front/ (worst surface)	Back/ (worst surface)	Left/ (worst surface)	Right/ (worst surface)	Top/ (worst surface)	Bottom/ (worst surface)
Ant#3	Patch	2		1	1.49	1.81	0.03	0.19	-	3.33	0.447	0.545	0.009	0.056	-	1.000
		10		2	2.00	3.10	0.06	0.89	-	5.07	0.394	0.612	0.012	0.175	-	1.000
		11		2	2.74	2.97	0.02	0.35	-	6.67	0.411	0.445	0.002	0.053	-	1.000
		12		2	2.84	3.85	0.04	0.19	-	6.24	0.454	0.616	0.006	0.030	-	1.000
		20		2	2.52	3.60	0.02	0.51	-	6.46	0.390	0.557	0.003	0.079	-	1.000
		21		2	2.97	3.62	0.06	0.37	-	6.64	0.447	0.545	0.009	0.056	-	1.000
		34		4	5.66	7.68	0.07	0.38	-	12.46	0.454	0.616	0.006	0.030	-	1.000
		35		4	5.46	5.92	0.03	0.70	-	13.30	0.411	0.445	0.002	0.053	-	1.000
		36		4	2.69	4.54	0.08	2.76	-	8.59	0.313	0.529	0.009	0.321	-	1.000
		37		4	5.03	7.18	0.04	1.02	-	12.89	0.390	0.557	0.003	0.079	-	1.000
		38		4	5.64	6.99	0.09	0.49	-	11.75	0.480	0.595	0.008	0.042	-	1.000
		52		4	5.92	7.22	0.12	0.74	-	13.24	0.447	0.545	0.009	0.056	-	1.000
		53		4	3.23	5.22	0.05	2.51	-	10.03	0.322	0.520	0.005	0.250	-	1.000
		54		4	3.99	6.19	0.12	1.77	-	10.12	0.394	0.612	0.012	0.175	-	1.000
		55		4	5.12	7.22	0.04	0.52	-	12.19	0.420	0.592	0.003	0.043	-	1.000
		130		1	1.33	1.60	0.01	0.19	-	3.12	0.426	0.513	0.003	0.061	-	1.000
		138		2	2.53	2.73	0.04	0.53	-	5.53	0.457	0.494	0.006	0.095	-	1.000
		139		2	2.65	3.19	0.02	0.38	-	6.22	0.426	0.513	0.003	0.061	-	1.000
		140		2	2.31	2.83	0.07	0.33	-	5.34	0.432	0.529	0.013	0.061	-	1.000
		148		2	2.05	2.74	0.16	0.82	-	5.11	0.402	0.535	0.031	0.161	-	1.000
		149		2	2.10	2.90	0.11	0.49	-	5.15	0.408	0.563	0.021	0.095	-	1.000
		162		4	4.61	5.64	0.14	0.65	-	10.66	0.432	0.529	0.013	0.061	-	1.000
		163		4	5.29	6.37	0.04	0.76	-	12.42	0.426	0.513	0.003	0.061	-	1.000
		164		4	4.19	5.78	0.22	0.98	-	10.27	0.408	0.563	0.021	0.095	-	1.000
		165		4	5.32	5.12	0.15	0.74	-	10.49	0.507	0.488	0.014	0.071	-	1.000
		166		4	5.41	5.61	0.15	0.39	-	11.23	0.482	0.500	0.013	0.035	-	1.000
		180		4	5.26	6.46	0.06	0.34	-	11.68	0.450	0.553	0.005	0.029	-	1.000
		181		4	4.10	5.46	0.32	1.64	-	10.20	0.402	0.535	0.031	0.161	-	1.000
		183		4	4.30	5.29	0.25	0.54	-	10.28	0.418	0.515	0.024	0.053	-	1.000
		182		4	5.04	5.45	0.07	1.05	-	11.03	0.457	0.494	0.006	0.095	-	1.000
		2	130	2	4.50	4.62	0.13	0.29	-	11.01	0.409	0.420	0.012	0.027	-	1.000
		10	138	4	8.42	11.62	0.09	1.16	-	20.77	0.405	0.559	0.004	0.056	-	1.000
		11	139	4	8.98	9.23	0.26	0.59	-	21.96	0.409	0.420	0.012	0.027	-	1.000
		12	140	4	6.65	7.83	0.42	1.11	-	14.57	0.457	0.537	0.029	0.076	-	1.000
		20	148	4	9.58	10.61	0.19	0.78	-	21.15	0.453	0.501	0.009	0.037	-	1.000
		21	149	4	9.71	12.08	0.10	0.59	-	18.17	0.534	0.665	0.006	0.032	-	1.000
		34	162	8	17.92	18.41	0.51	1.17	-	43.82	0.409	0.420	0.012	0.027	-	1.000
		35	163	8	16.80	23.19	0.17	2.31	-	41.45	0.405	0.559	0.004	0.056	-	1.000
		36	164	8	16.34	20.49	0.36	3.11	-	31.16	0.524	0.657	0.011	0.100	-	1.000
		37	165	8	19.38	24.11	0.20	1.17	-	36.26	0.534	0.665	0.006	0.032	-	1.000
		38	166	8	23.66	26.37	0.39	1.26	-	38.32	0.618	0.688	0.010	0.033	-	1.000
		52	180	8	19.11	21.17	0.37	1.56	-	42.21	0.453	0.501	0.009	0.037	-	1.000
		53	181	8	15.84	22.98	0.43	3.83	-	35.77	0.443	0.643	0.012	0.107	-	1.000
		54	183	8	13.28	15.62	0.83	2.21	-	29.07	0.457	0.537	0.029	0.076	-	1.000
		55	182	8	17.54	24.04	0.14	1.41	-	35.33	0.497	0.680	0.004	0.040	-	1.000

- ANT#3 Mid CH

Ant#3 Mid CH (Bottom Module)

Module	Type	Beam ID_1	Beam ID_2	Feed no.	Front(S1)	Back(S2)	Left(S3)	Right(S4)	Top(S5)	Bottom(S6)	Front/ (worst surface)	Back/ (worst surface)	Left/ (worst surface)	Right/ (worst surface)	Top/ (worst surface)	Bottom/ (worst surface)
						4cm2 PD[W/m2] at 2mm distance@6dBm						Ratio					
Ant#3	Patch	2		1	1.31	1.94	0.03	0.29	-	3.21	0.408	0.604	0.009	0.091	-	1.000
		10		2	1.71	3.12	0.11	0.95	-	4.60	0.371	0.678	0.023	0.207	-	1.000
		11		2	2.46	3.21	0.04	0.41	-	6.20	0.397	0.518	0.006	0.066	-	1.000
		12		2	2.24	4.46	0.02	0.30	-	5.89	0.380	0.757	0.003	0.050	-	1.000
		20		2	1.91	4.09	0.05	0.39	-	5.88	0.325	0.695	0.008	0.066	-	1.000
		21		2	2.61	3.86	0.06	0.58	-	6.40	0.408	0.604	0.009	0.091	-	1.000
		34		4	4.47	8.90	0.04	0.59	-	11.76	0.380	0.757	0.003	0.050	-	1.000
		35		4	4.91	6.41	0.07	0.82	-	12.38	0.397	0.518	0.006	0.066	-	1.000
		36		4	2.82	5.36	0.07	2.48	-	9.32	0.303	0.575	0.008	0.266	-	1.000
		37		4	3.82	8.16	0.09	0.78	-	11.74	0.325	0.695	0.008	0.066	-	1.000
		38		4	3.42	8.57	0.10	0.83	-	11.38	0.301	0.753	0.009	0.073	-	1.000
		52		4	5.21	7.71	0.11	1.16	-	12.77	0.408	0.604	0.009	0.091	-	1.000
		53		4	2.76	5.59	0.04	2.50	-	10.92	0.253	0.512	0.004	0.229	-	1.000
		54		4	3.41	6.22	0.21	1.90	-	9.18	0.371	0.678	0.023	0.207	-	1.000
		55		4	3.80	8.75	0.06	0.58	-	11.94	0.318	0.733	0.005	0.049	-	1.000
		130		1	1.10	1.09	0.01	0.34	-	2.77	0.398	0.395	0.005	0.123	-	1.000
		138		2	2.61	3.07	0.03	0.77	-	5.24	0.499	0.587	0.006	0.147	-	1.000
		139		2	2.20	2.18	0.03	0.68	-	5.52	0.398	0.395	0.005	0.123	-	1.000
		140		2	2.12	2.92	0.10	0.33	-	4.49	0.473	0.651	0.021	0.074	-	1.000
		148		2	1.78	3.06	0.08	0.81	-	5.33	0.335	0.575	0.015	0.152	-	1.000
		149		2	1.94	3.18	0.07	0.85	-	4.90	0.396	0.649	0.014	0.174	-	1.000
		162		4	4.23	5.83	0.19	0.66	-	8.95	0.473	0.651	0.021	0.074	-	1.000
		163		4	4.39	4.35	0.05	1.36	-	11.02	0.398	0.395	0.005	0.123	-	1.000
		164		4	3.87	6.35	0.14	1.70	-	9.78	0.396	0.649	0.014	0.174	-	1.000
		165		4	5.13	6.19	0.18	0.88	-	9.73	0.527	0.636	0.018	0.090	-	1.000
		166		4	4.96	5.43	0.13	0.55	-	10.16	0.488	0.534	0.013	0.054	-	1.000
		180		4	4.35	5.75	0.13	0.57	-	9.25	0.470	0.622	0.014	0.062	-	1.000
		181		4	3.56	6.11	0.16	1.62	-	10.63	0.335	0.575	0.015	0.152	-	1.000
		183		4	4.52	6.34	0.19	0.86	-	10.01	0.452	0.633	0.019	0.086	-	1.000
		182		4	5.21	6.13	0.06	1.54	-	10.45	0.499	0.587	0.006	0.147	-	1.000
		2	130	2	3.86	5.67	0.16	0.42	-	10.78	0.358	0.526	0.015	0.039	-	1.000
		10	138	4	9.77	11.41	0.12	1.08	-	20.27	0.482	0.563	0.006	0.053	-	1.000
		11	139	4	7.71	11.31	0.32	0.83	-	21.51	0.358	0.526	0.015	0.039	-	1.000
		12	140	4	4.38	11.29	0.59	1.34	-	13.92	0.315	0.811	0.042	0.096	-	1.000
		20	148	4	8.50	11.63	0.20	1.12	-	20.88	0.407	0.557	0.010	0.053	-	1.000
		21	149	4	9.16	13.84	0.14	0.43	-	16.87	0.543	0.820	0.008	0.025	-	1.000
		34	162	8	15.39	22.56	0.65	1.67	-	42.92	0.358	0.526	0.015	0.039	-	1.000
		35	163	8	19.50	22.76	0.24	2.16	-	40.44	0.482	0.563	0.006	0.053	-	1.000
		36	164	8	17.61	26.45	0.27	2.24	-	33.52	0.525	0.789	0.008	0.067	-	1.000
		37	165	8	18.28	27.61	0.27	0.85	-	33.66	0.543	0.820	0.008	0.025	-	1.000
		38	166	8	16.88	28.87	0.37	2.69	-	37.37	0.452	0.773	0.010	0.072	-	1.000
		52	180	8	16.97	23.21	0.41	2.23	-	41.66	0.407	0.557	0.010	0.053	-	1.000
		53	181	8	17.41	24.46	0.26	2.40	-	36.74	0.474	0.666	0.007	0.065	-	1.000
		54	183	8	8.74	22.53	1.17	2.67	-	27.78	0.315	0.811	0.042	0.096	-	1.000
		55	182	8	17.54	28.80	0.20	2.60	-	35.68	0.492	0.807	0.006	0.073	-	1.000

- ANT#3 High CH

Ant#3 High CH (Bottom Module)

Module	Type	Beam ID_1	Beam ID_2	Feed no.	4cm2 PD[W/m2] at 2mm distance@6dBm						Ratio					
					Front(S1)	Back(S2)	Left(S3)	Right(S4)	Top(S5)	Bottom(S6)	Front/ (worst surface)	Back/ (worst surface)	Left/ (worst surface)	Right/ (worst surface)	Top/ (worst surface)	Bottom/ (worst surface)
Ant#3	Patch	2		1	1.23	1.79	0.02	0.36	-	3.05	0.403	0.587	0.005	0.119	-	1.000
		10		2	2.05	2.74	0.10	0.81	-	4.35	0.473	0.630	0.022	0.187	-	1.000
		11		2	2.19	3.19	0.04	0.50	-	5.99	0.365	0.532	0.006	0.084	-	1.000
		12		2	1.92	3.86	0.03	0.50	-	5.21	0.369	0.742	0.006	0.096	-	1.000
		20		2	1.55	3.43	0.07	0.52	-	5.61	0.277	0.612	0.013	0.093	-	1.000
		21		2	2.46	3.57	0.03	0.73	-	6.09	0.403	0.587	0.005	0.119	-	1.000
		34		4	3.83	7.71	0.06	1.00	-	10.39	0.369	0.742	0.006	0.096	-	1.000
		35		4	4.37	6.36	0.07	1.00	-	11.96	0.365	0.532	0.006	0.084	-	1.000
		36		4	2.99	5.10	0.07	2.02	-	9.13	0.327	0.559	0.008	0.221	-	1.000
		37		4	3.10	6.85	0.14	1.04	-	11.19	0.277	0.612	0.013	0.093	-	1.000
		38		4	3.11	6.61	0.09	1.00	-	9.93	0.313	0.666	0.009	0.101	-	1.000
		52		4	4.90	7.13	0.06	1.45	-	12.15	0.403	0.587	0.005	0.119	-	1.000
		53		4	2.23	5.23	0.04	2.20	-	10.36	0.215	0.505	0.004	0.212	-	1.000
		54		4	4.10	5.46	0.19	1.62	-	8.67	0.473	0.630	0.022	0.187	-	1.000
		55		4	3.26	7.16	0.07	0.83	-	9.44	0.345	0.758	0.007	0.088	-	1.000
		130		1	1.28	1.17	0.01	0.37	-	2.74	0.469	0.428	0.004	0.134	-	1.000
		138		2	2.45	2.85	0.03	0.66	-	4.93	0.497	0.579	0.005	0.134	-	1.000
		139		2	2.56	2.34	0.02	0.73	-	5.46	0.469	0.428	0.004	0.134	-	1.000
		140		2	2.11	2.85	0.06	0.39	-	4.60	0.459	0.621	0.012	0.085	-	1.000
		148		2	1.98	2.80	0.11	0.82	-	5.14	0.385	0.544	0.020	0.160	-	1.000
		149		2	2.08	3.28	0.08	0.86	-	4.90	0.425	0.670	0.015	0.176	-	1.000
		162		4	4.21	5.69	0.11	0.78	-	9.17	0.459	0.621	0.012	0.085	-	1.000
		163		4	5.11	4.66	0.04	1.46	-	10.89	0.469	0.428	0.004	0.134	-	1.000
		164		4	4.16	6.55	0.15	1.72	-	9.78	0.425	0.670	0.015	0.176	-	1.000
		165		4	4.96	5.21	0.12	0.92	-	8.62	0.575	0.604	0.014	0.107	-	1.000
		166		4	5.24	4.59	0.12	0.65	-	9.75	0.537	0.471	0.012	0.067	-	1.000
		180		4	4.62	5.66	0.10	0.92	-	9.71	0.476	0.583	0.010	0.095	-	1.000
		181		4	3.95	5.58	0.21	1.64	-	10.25	0.385	0.544	0.020	0.160	-	1.000
		183		4	4.87	5.15	0.17	0.98	-	9.19	0.530	0.560	0.018	0.107	-	1.000
		182		4	4.89	5.69	0.05	1.32	-	9.83	0.497	0.579	0.005	0.134	-	1.000
		2	130	2	3.33	5.15	0.12	0.88	-	9.84	0.338	0.523	0.012	0.089	-	1.000
		10	138	4	9.47	11.62	0.09	1.15	-	19.48	0.486	0.597	0.005	0.059	-	1.000
		11	139	4	6.64	10.28	0.24	1.75	-	19.63	0.338	0.523	0.012	0.089	-	1.000
		12	140	4	4.47	9.37	0.50	1.54	-	12.88	0.347	0.728	0.039	0.120	-	1.000
		20	148	4	8.26	11.82	0.16	1.96	-	19.52	0.423	0.605	0.008	0.100	-	1.000
		21	149	4	9.13	12.06	0.12	0.99	-	17.00	0.537	0.710	0.007	0.058	-	1.000
		34	162	8	13.24	20.50	0.48	3.49	-	39.17	0.338	0.523	0.012	0.089	-	1.000
		35	163	8	18.89	23.19	0.19	2.30	-	38.86	0.486	0.597	0.005	0.059	-	1.000
		36	164	8	17.41	26.45	0.43	2.06	-	35.46	0.491	0.746	0.012	0.058	-	1.000
		37	165	8	18.21	24.07	0.24	1.97	-	33.92	0.537	0.710	0.007	0.058	-	1.000
		38	166	8	16.49	23.38	0.44	4.03	-	34.88	0.473	0.670	0.013	0.115	-	1.000
		52	180	8	16.49	23.58	0.32	3.91	-	38.96	0.423	0.605	0.008	0.100	-	1.000
		53	181	8	18.05	23.32	0.39	1.92	-	36.67	0.492	0.636	0.011	0.052	-	1.000
		54	183	8	8.93	18.70	1.00	3.08	-	25.70	0.347	0.728	0.039	0.120	-	1.000
		55	182	8	15.33	23.27	0.24	3.71	-	32.93	0.466	0.707	0.007	0.113	-	1.000