FCC ID : ZNFV600VM

Power Density Simulation Report

Rev. A (Ver. 2.0)

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LG Electronics

1. Electromagnetic simulation method for power density

1.1 EM simulation tool

1.1.1 EM simulation tool description

The mmWave power density (PD) simulation method for calculating PD (Power Density) for mobile phones with mmWave antenna modules is available in ANSYS Electromagnetics suite HFSS ver. 19.4 (2019 R2) 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 HFSS ver. 19.4 (2019 R2) is implemented based on Finite Element Method (FEM), which operates in the frequency domain.

1.1.2 Mesh and convergence criteria

ANSYS Electromagnetic suite HFSS ver. 19.4 (2019 R2) uses the Finite Element Method (FEM) to solve the structure for 3D EM simulations to analyze power density. The volume area containing the simulated object should be subdivided into electrically small parts called finite elements with unknown functions. To subdivide system, the adaptive mesh technique in ANSYS Electromagnetics suite HFSS ver. 19.4 (2019 R2) is used. ANSYS Electromagnetics suite HFSS ver. 19.4 (2019 R2) 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 iteration in ANSYS Electromagnetics suite HFSS ver. 19.4 (2019 R2) is defined as convergence criteria, delta S, and the iterative adaptive mesh process repeats until the delta S is met. In ANSYS Electromagnetics suite HFSS ver. 19.4 (2019 R2), 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).

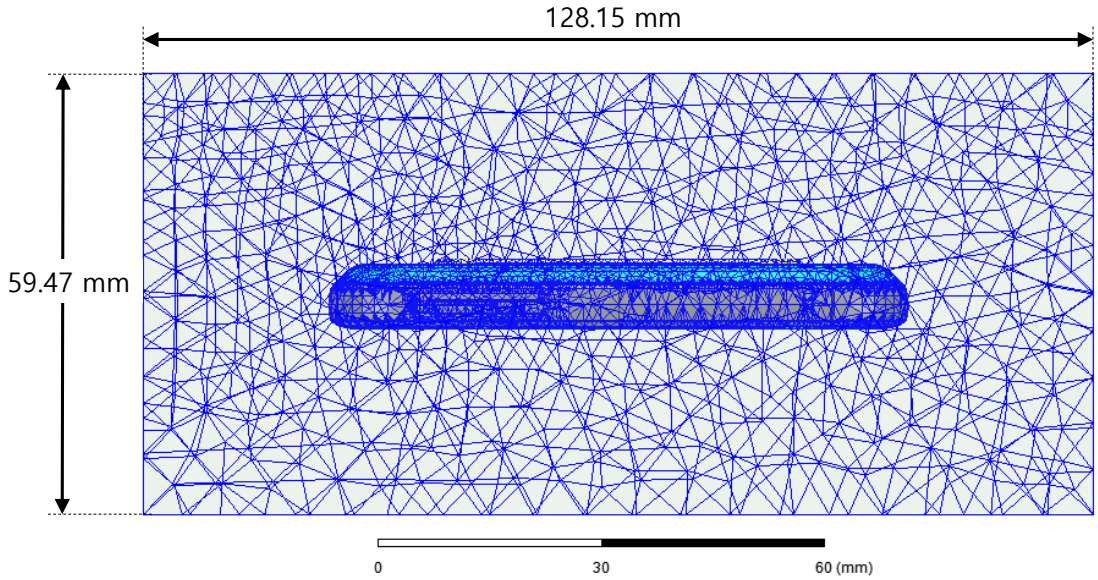


Figure 1. Example of HFSS mesh in a model of the device (Top view)

1.1.3 Time-averaged power density calculation

It is possible to get various kinds of physical quantities can be obtained after finishing 3D full-wave electromagnetic simulation. 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 time-averaged Poynting vector ($\vec{S}$) from the cross product of $\vec{E}$ and complex conjugation of $\vec{H}$ as shown below:

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

$(\vec{S})$ 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 HFSS ver. 19.4 (2019 R2).

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

$$PD_{av} = \frac{1}{A}\int_{A}(\vec{S}) \cdot ds = \frac{1}{2A}\int_{A}\left|Re(\vec{E} \times \vec{H})\right| \cdot ds,$$

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

1.2 Simulation setup

1.2.1 Modeling for simulation

The simulation approach to perform PD assessment for a smartphone requires accurate modeling for mmWave antenna module as well as the smartphone itself. Figure 2 shows the simulation model which is mounted three mmWave antenna modules. The simulation modeling includes most of the entire structure of device itself such as PCB, metal frame, battery, flex cables, large components and legacy antennas as well as mmWave antenna modules QTM#0, QTM#1 and QTM#2. On the back side view, QTM#0 is placed on the left side and antennas are facing the back side of the device. QTM#1 is placed on the left side and antennas are facing the left side of the device. QTM#2 is placed right side and antennas are facing the right and back side of the device.

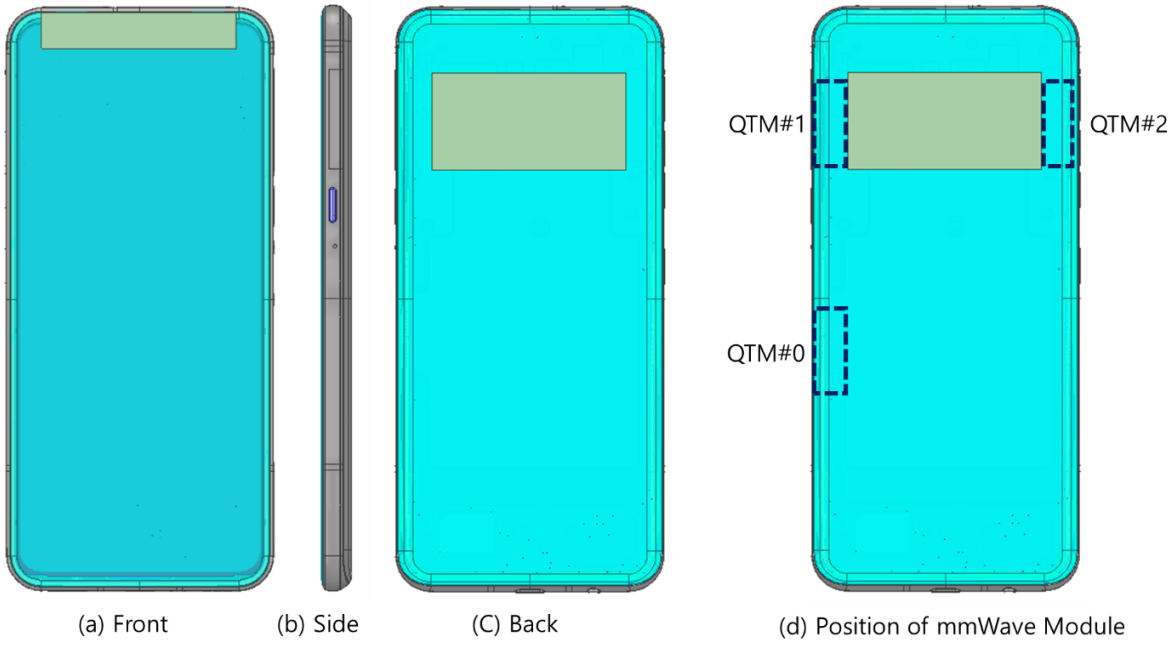


Figure 2. HFSS simulation model which is mounted three mmWave antenna modules

1.2.2 PD evaluation surfaces

Table 1 shows the PD evaluation surfaces 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 beam forming cases. In QTM#0, 5 evaluation surfaces except top side are set up. QTM#0 is placed at the lower of the device and the top side is excluded from the worst case because the distance from the bottom side is more than 10λ at 28 GHz and 39 GHz. In QTM#1 and QTM#2 cases, five PD evaluation surfaces except bottom side are set up. QTM#1 and QTM#2 are placed at the upper of the device and the bottom side is excluded from the worst case for the same reason as QTM#0.

Please note that the “right” and “left” edge of mentioned in this report are defined from the perspective of looking at the device from the front view.

Table 1. PD evaluation surfaces

Module	Front	Back	Right From Front View	Left From Front View	Top	Bottom
QTM#0	O	O	O	O	X	O
QTM#1	O	O	O	O	O	X
QTM#2	O	O	O	O	O	X

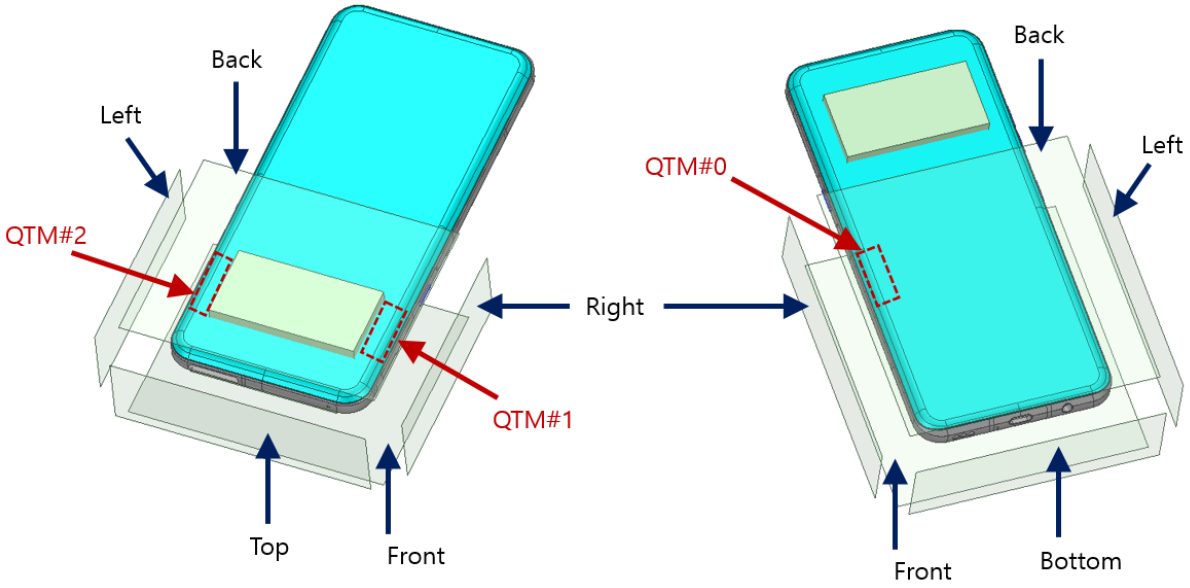


Figure 3. PD evaluation Surfaces

1.2.3 Radiation boundary condition

For radiation boundary, the 2nd order absorbing boundary condition (ABC) is used for all simulations in this report. This radiation boundary simulates an electrically open surface that allows waves to radiate infinitely far into space. The system absorbs the wave via the 2nd order radiation boundary, essentially ballooning the boundary infinitely far away from the structure and into space. The radiation boundaries may also be placed relatively close to a structure and can be of arbitrary shape.

Per ANSYS recommendations for their simulation tool, the radiation boundary plane must be located at least a quarter wavelength from strongly radiating structure, or at least a tenth of a wavelength from a weakly radiating structure. In this simulation report, about two or three wavelengths spacing from the device surfaces in all main beam directions are applied to ensure convergence.

By changing convergence error (i.e., maximum magnitude delta S) from 2% to 4% and moving the radiation boundary closer towards the device by 20%, the combined influence in PD value is < 0.04 dB which confirms that the simulation model is reliable using this setup.

1.2.4 Source excitation condition

Each of the three 5G mmWave array modules is the same part containing a 1x4 element array of dual-polarization patch antennas. The number of antenna ports of QTM#0, QTM#1, and QTM#2 for source excitation is equal to 16. The port of each patch antenna are separated in frequency and polarization. That is, the ports of each patch antenna are divided into a feed for 28 GHz and a feed for 39 GHz, and a vertical polarity feed and a horizontal polarity feed are divided.

Figure 4 shows the QTM#1 module structure and surrounding structure. The QTM#1 module

is encrypted in the ANSYS Electromagnetics suite (HFSS) and can only check the feeding position.

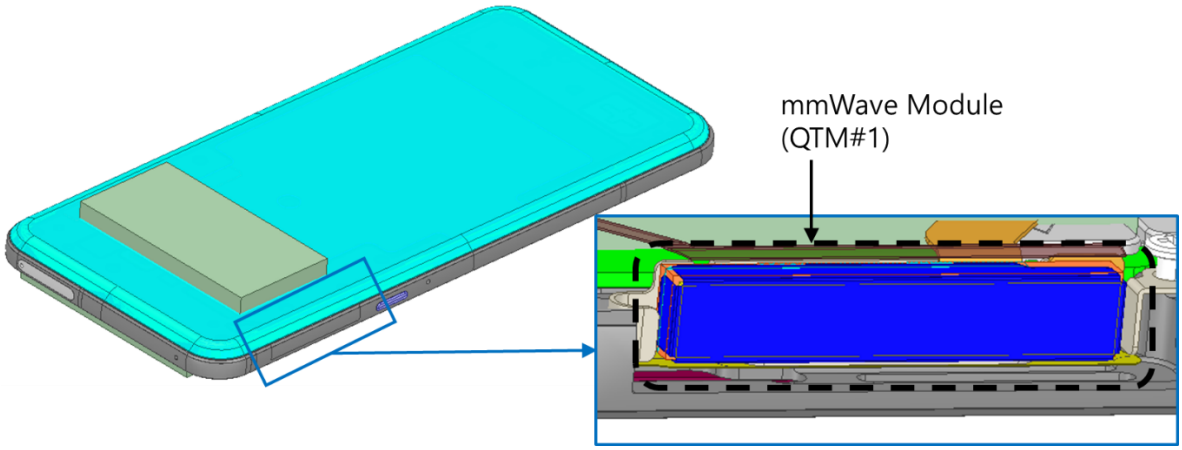


Figure 4. mmWave module (QTM#1)

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.

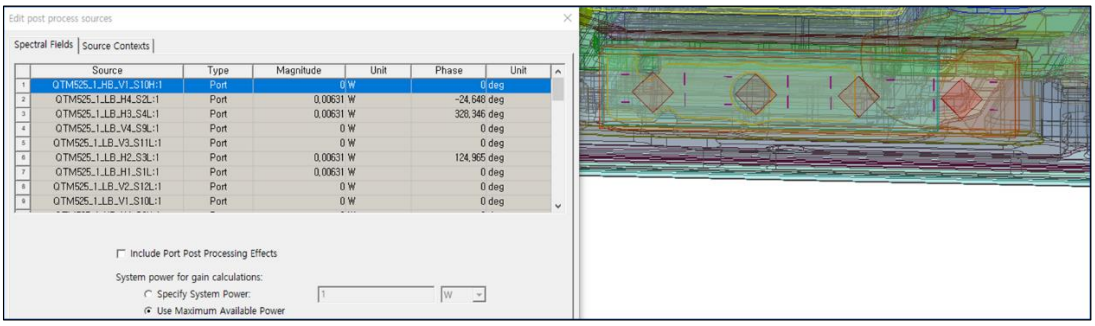


Figure 5. An example of port excitation (QTM#1)

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.

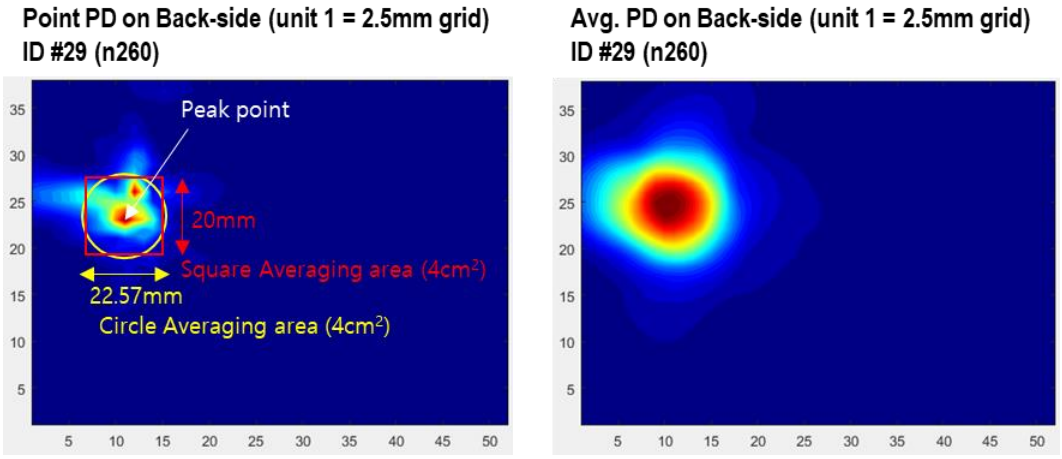
1.2.5 Condition of simulation completion

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 0.02. The simulation result of this report is the result of setting delta S to 0.02.

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 $4cm^2$ at 2.5 mm intervals of the point power density result. Figure 6 shows examples of the distribution plot of point power density and the averaged power density.



(a) Point power density (b) Averaged power density

Figure 6. Power density distribution (Example)

2.2 Comparison between simulation and measurement

In this section, the simulated and measured power density distributions are compared with each mmWave antenna. Based on the comparison of the power density distribution, the simulated power density and the measured power density have a good correlation. The amplitude mismatch between the simulated 4 cm^2 average power density and the measured 4 cm^2 average power density is considered a housing influence and is used to determine the input power limit of each beam for RF exposure compliance (see RF Exposure Part 0 Report).

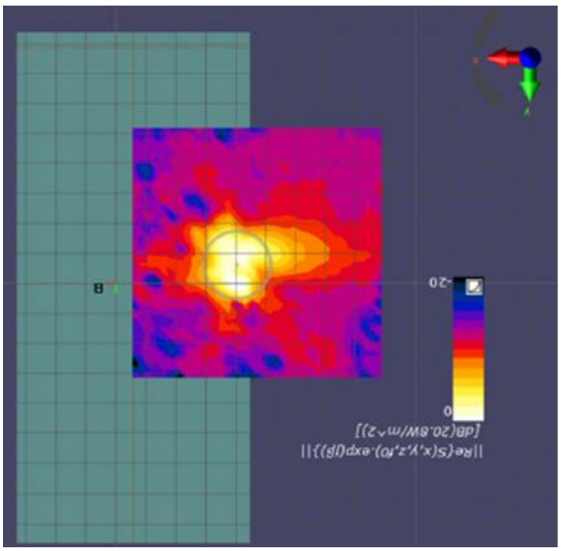
Input power per each active port is listed below for both simulation and measurement verification and power density characterization. For simulation, these values were entered directly into the HFSS model. For measurement, it was used to input these values for each active port using Factory Test Mode S/W.

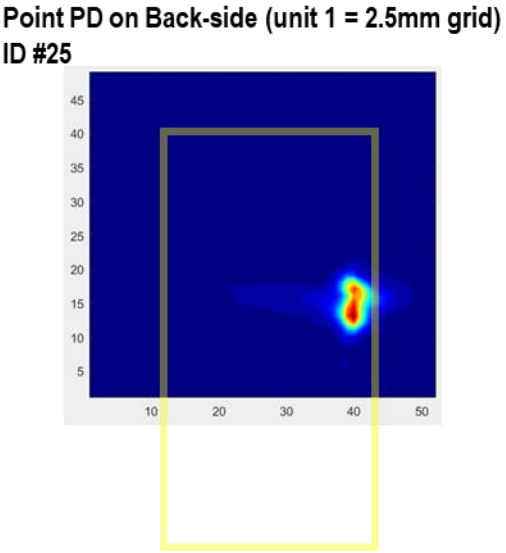
Mode/Band	Antenna	Input Power (dBm) SISO	Input Power (dBm) MIMO
5G NR n261 (28 GHz)	QTM#0 Patch	6.0	6.0
	QTM#1 Patch	6.0	6.0
	QTM#2 Patch	6.0	6.0
5G NR n260 (39 GHz)	QTM#0 Patch	6.0	6.0
	QTM#1 Patch	6.0	6.0
	QTM#2 Patch	6.0	6.0

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

6dBm input measurement / simulation							4cm^2 avg. PD(W/m^2)	
Band	**Ant Type**	**Module**	**Ant Group (Ant Polarization)**	**beam ID**	**Surface**	**Channel**	**Measured**	**Simulated**
n261	Patch	QTM0	AG0(V)	25	Back	Mid	**10.30**	**19.89**
					Right	Mid	**4.99**	**9.27**
			AG1(H)	166	Back	Mid	**10.40**	**17.99**
					Right	Mid	**3.82**	**10.03**
		QTM1	AG0(V)	34	Right	Mid	**15.80**	**29.09**
					Back	Mid	**4.95**	**19.08**
			AG1(H)	162	Right	Mid	**13.40**	**24.26**
					Back	Mid	**7.69**	**14.84**
		QTM2	AG0(V)	32	Back	Mid	**6.91**	**16.25**
					Left	Mid	**4.02**	**10.38**
			AG1(H)	158	Back	Mid	**10.30**	**18.71**
					Left	Mid	**4.98**	**13.95**
n260	Patch	QTM0	AG0(V)	27	Back	Mid	**10.80**	**21.20**
					Right	Mid	**3.24**	**8.86**
			AG1(H)	167	Back	Mid	**8.82**	**18.98**
					Right	Mid	**3.27**	**5.48**
		QTM1	AG0(V)	18	Right	Mid	**11.00**	**16.87**
					Back	Mid	**3.30**	**6.21**
			AG1(H)	146	Right	Mid	**10.40**	**15.42**
					Back	Mid	**3.84**	**5.80**
		QTM2	AG0(V)	29	Back	Mid	**9.32**	**13.23**
					Left	Mid	**5.24**	**10.87**
			AG1(H)	170	Back	Mid	**8.93**	**12.04**
					Left	Mid	**4.85**	**9.90**

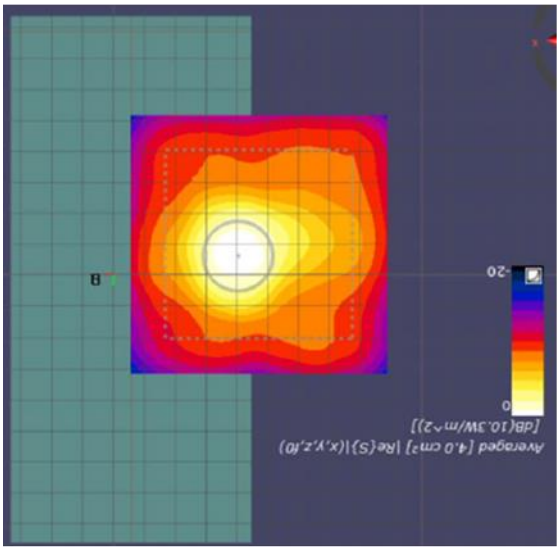
n261 Patch antenna QTM0 Ant_Group0(V-polarization) beam ID 25 Back-side Mid ch.

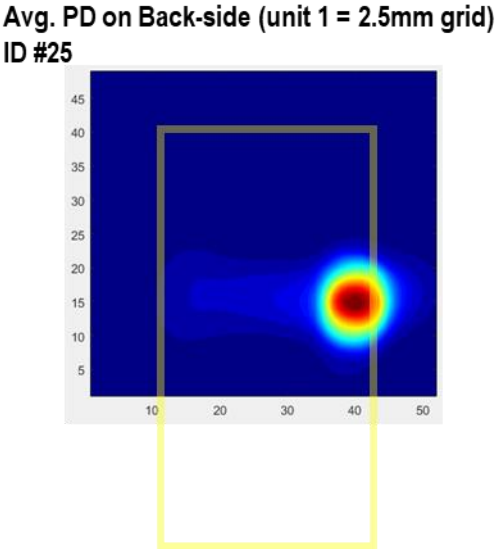




(a) Measurement (b) Simulation

Patch antenna QTM0 AG0(V-polarization) beam ID 25, Point power density

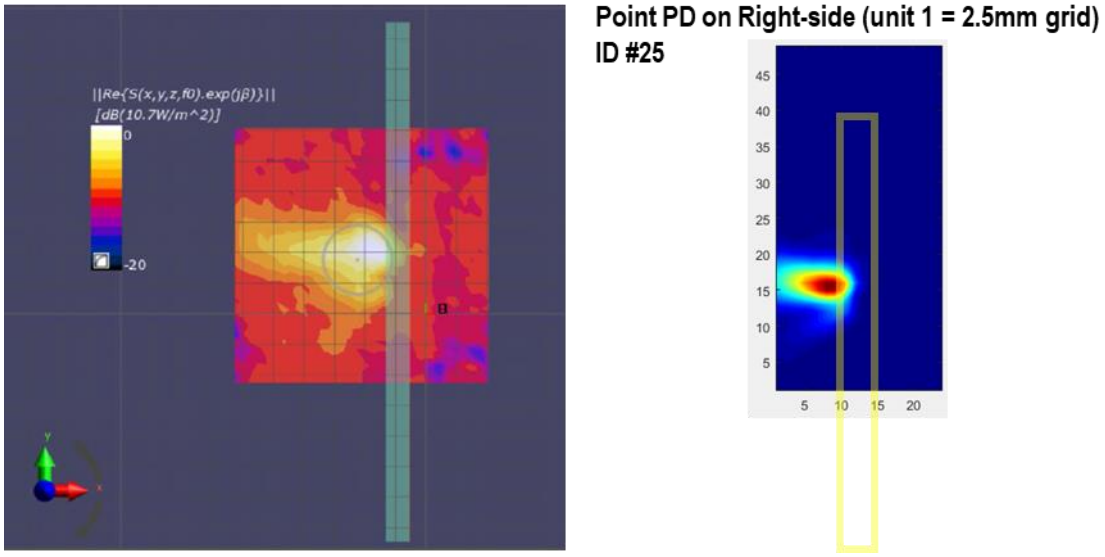




(a) Measurement (b) Simulation

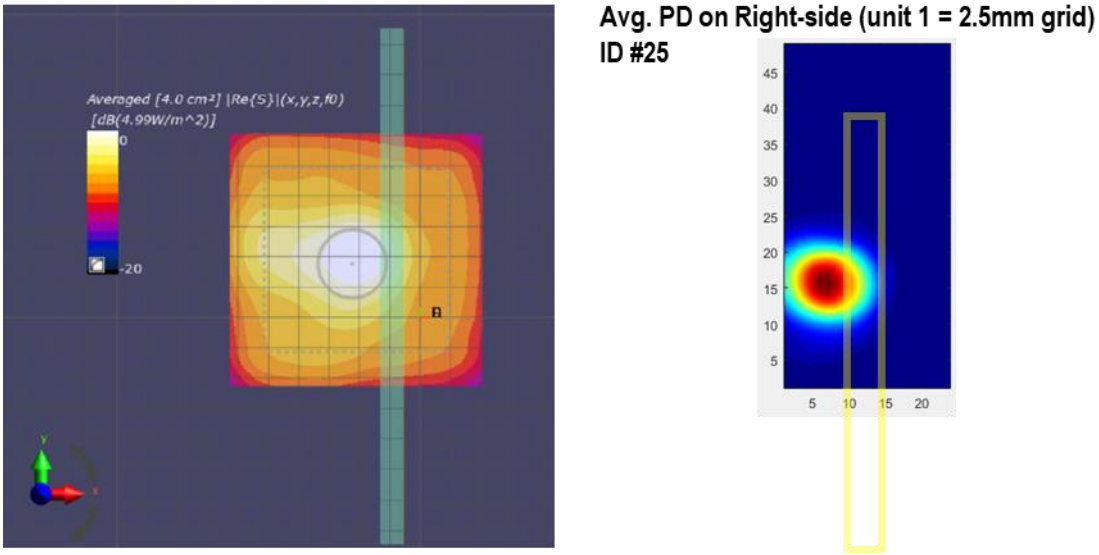
Patch antenna QTM0 AG0(V-polarization) beam ID 25, 4cm^2 Averaged power density

n261 Patch antenna QTM0 Ant_Group0(V-polarization) beam ID 25 Right-side Mid ch.



(a) Measurement (b) Simulation

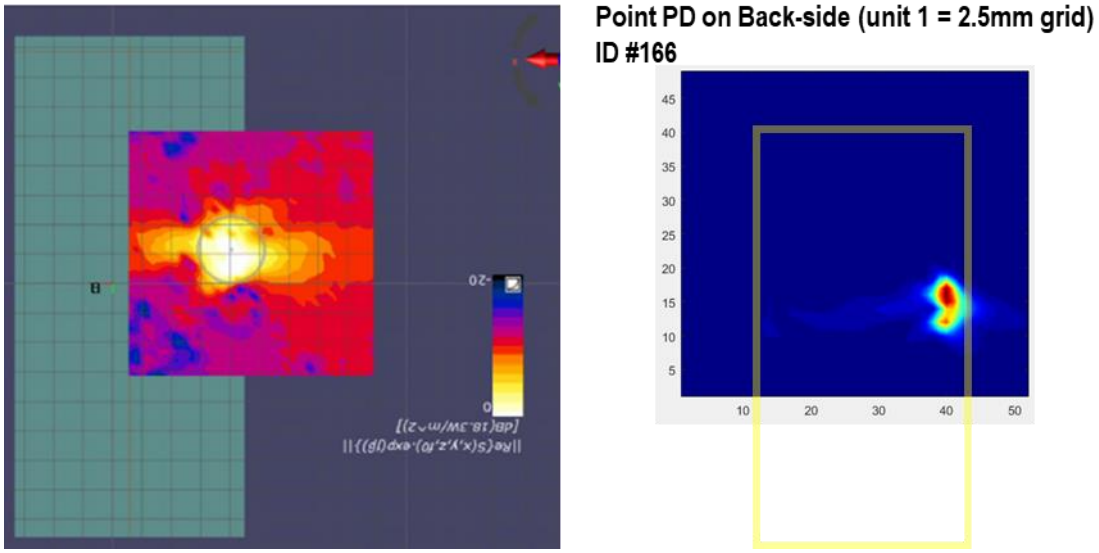
Patch antenna QTM0 AG0(V-polarization) beam ID 25, Point power density



(a) Measurement (b) Simulation

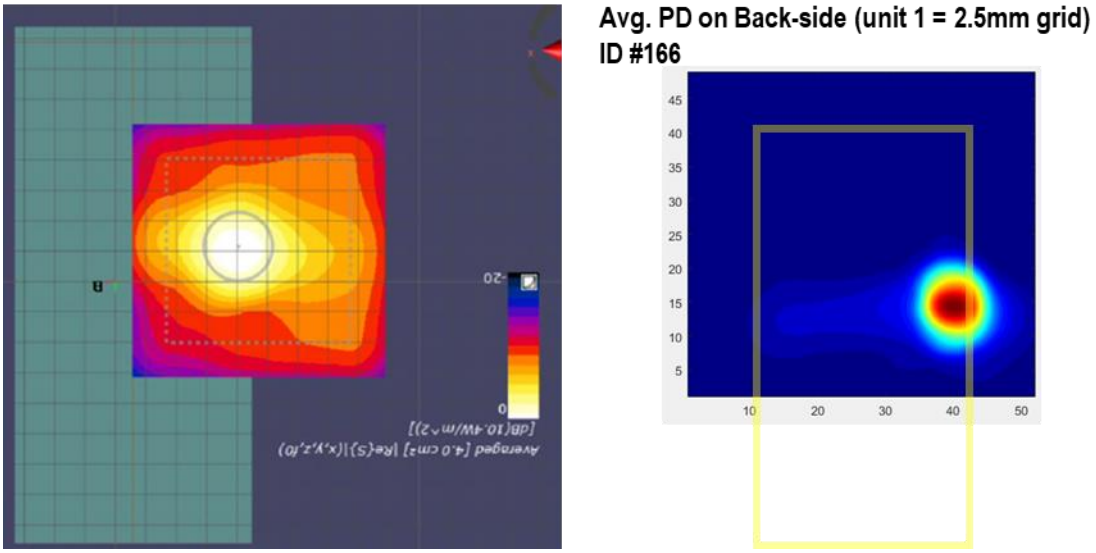
Patch antenna QTM0 AG0(V-polarization) beam ID 25, 4cm^2 Averaged power density

n261 Patch antenna QTM0 Ant_Group1(H-polarization) beam ID 166 Back-side Mid ch.



(a) Measurement (b) Simulation

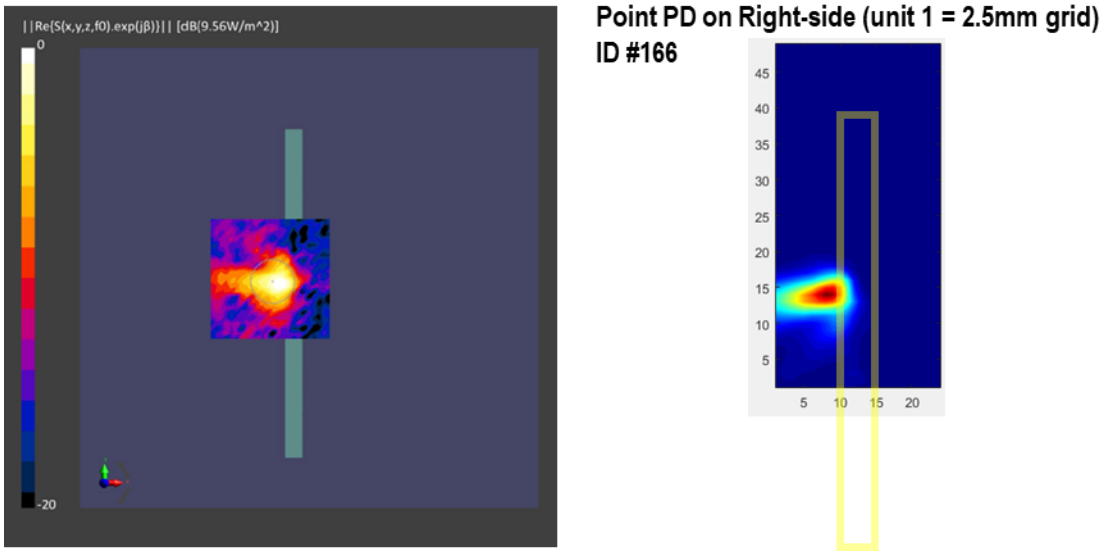
Patch antenna QTM0 AG1(H-polarization) beam ID 166, Point power density



(a) Measurement (b) Simulation

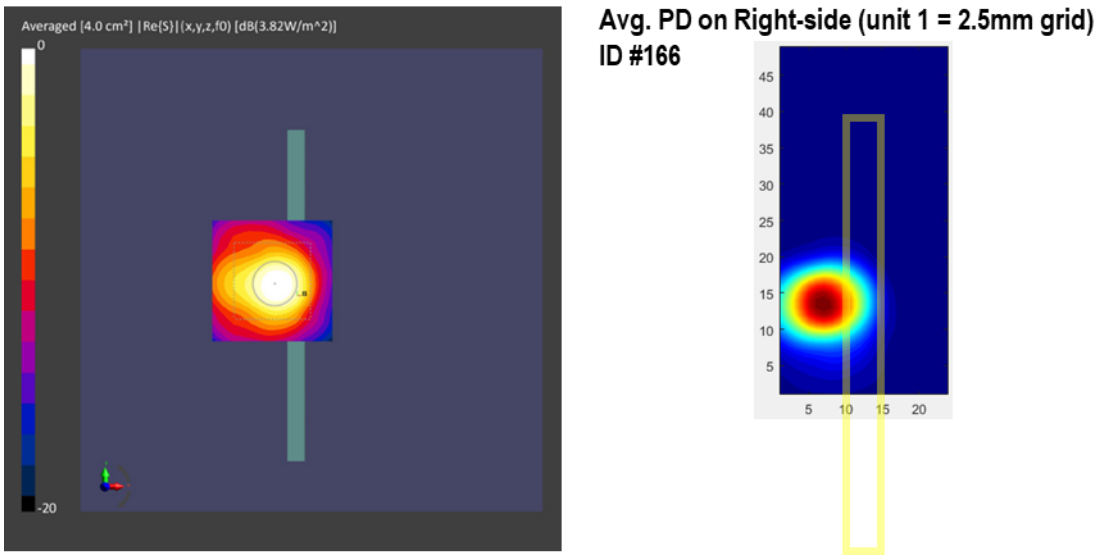
Patch antenna QTM0 AG1(H-polarization) beam ID 166, 4cm^2 Averaged power density

n261 Patch antenna QTM0 Ant_Group1(H-polarization) beam ID 166 Right-side Mid ch.



(a) Measurement (b) Simulation

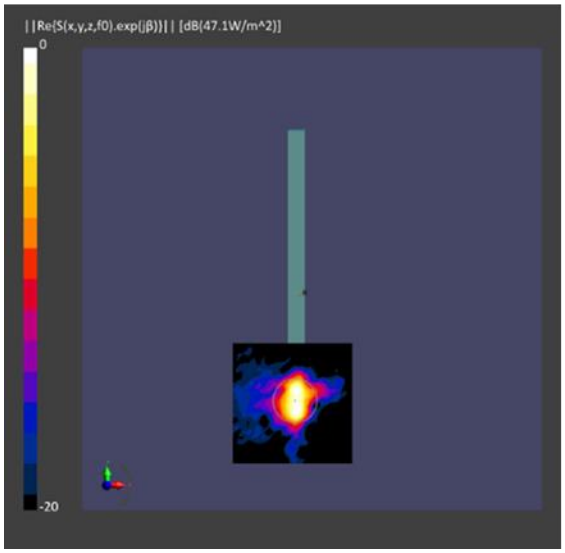
Patch antenna QTM0 AG1(H-polarization) beam ID 166, Point power density

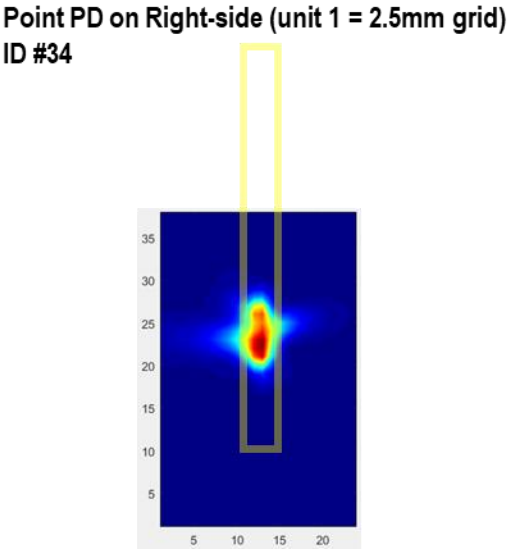


(a) Measurement (b) Simulation

Patch antenna QTM0 AG1(H-polarization) beam ID 166, 4cm^2 Averaged power density

n261 Patch antenna QTM1 Ant_Group0(V-polarization) beam ID 34 Right-side Mid ch.





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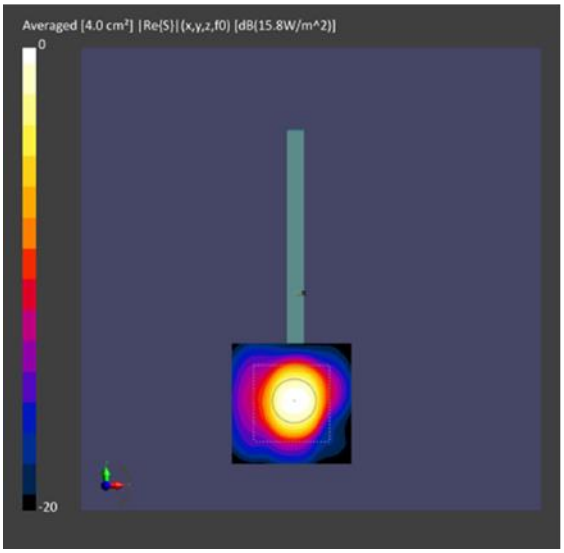
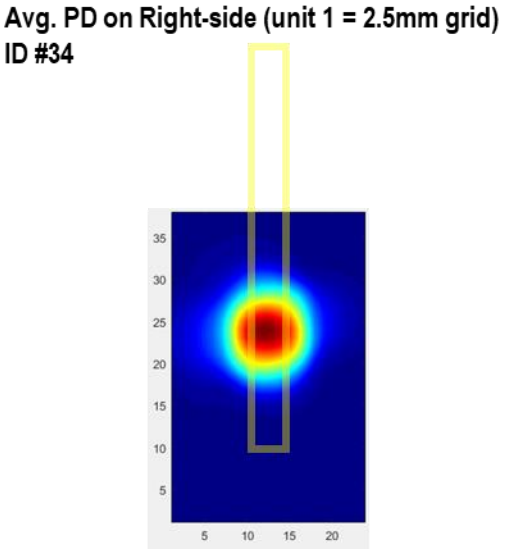
Patch antenna QTM1 AG0(V-polarization) beam ID 34, Point power density

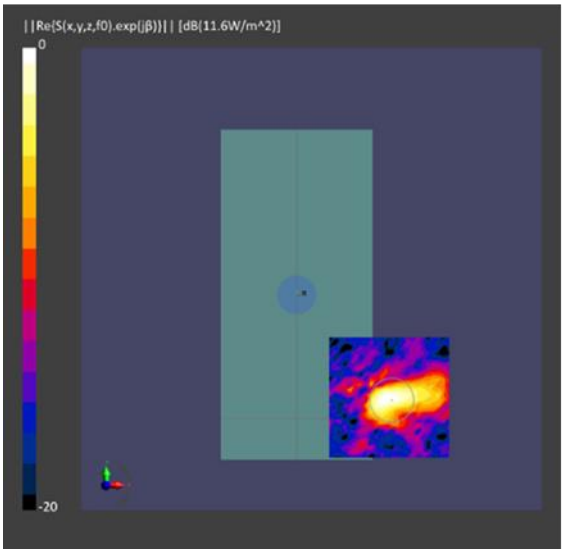


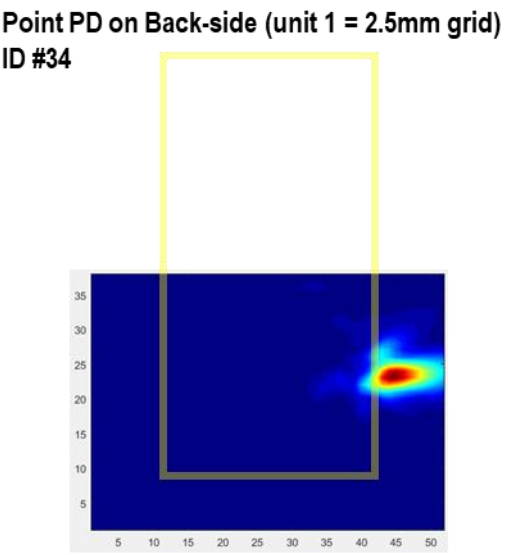


(a) Measurement (b) Simulation

Patch antenna QTM1 AG0(V-polarization) beam ID 34, 4cm^2 Averaged power density

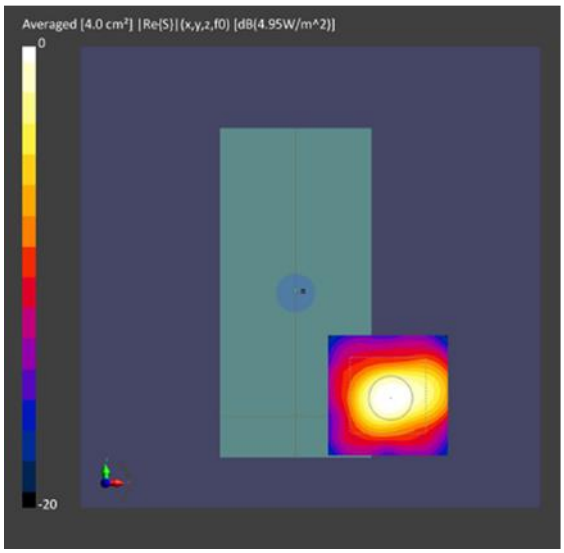
n261 Patch antenna QTM1 Ant_Group0(V-polarization) beam ID 34 Back-side Mid ch.

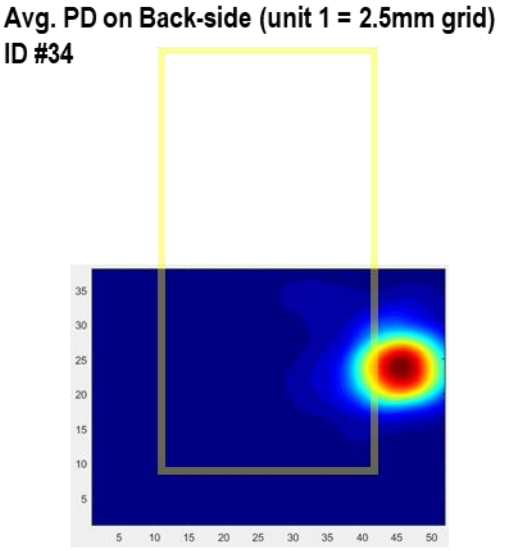




(a) Measurement (b) Simulation

Patch antenna QTM1 AG0(V-polarization) beam ID 34, Point power density

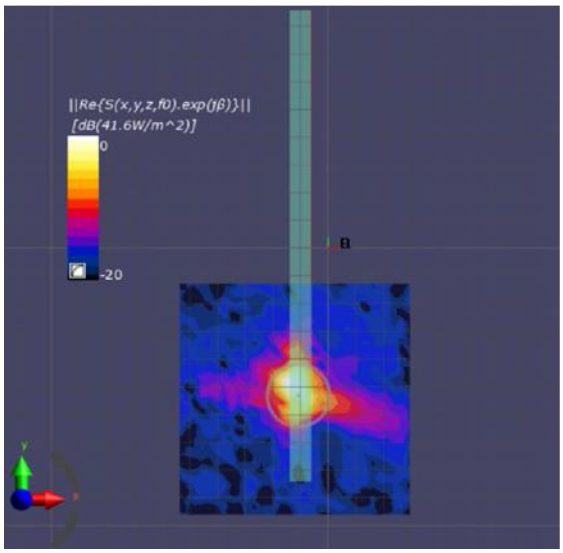


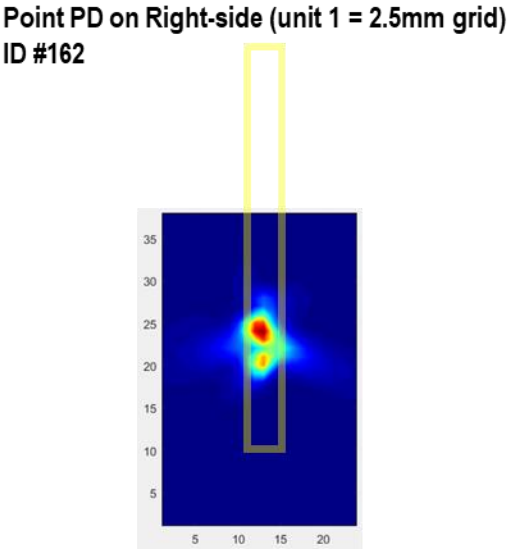


(a) Measurement (b) Simulation

Patch antenna QTM1 AG0(V-polarization) beam ID 34, 4cm^2 Averaged power density

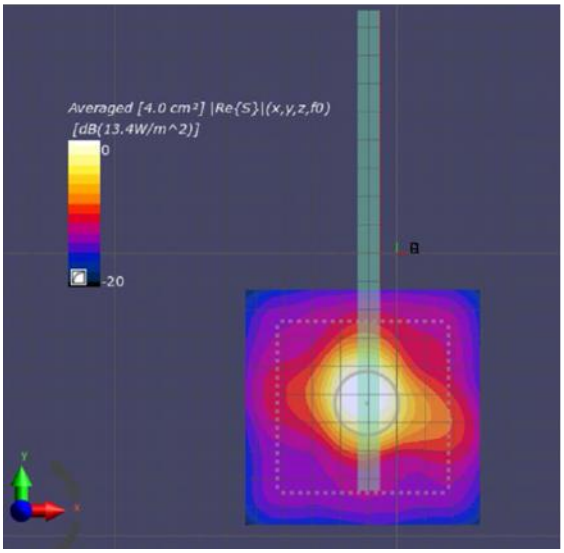
n261 Patch antenna QTM1 Ant_Group1(H-polarization) beam ID 162 Right-side Mid ch.

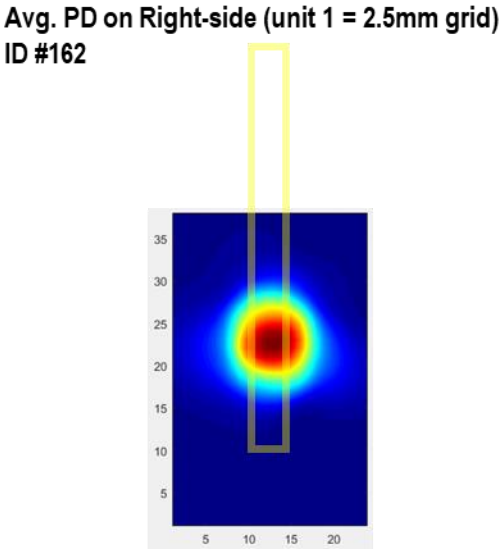




(a) Measurement (b) Simulation

Patch antenna QTM1 AG1(H-polarization) beam ID 162, Point power density

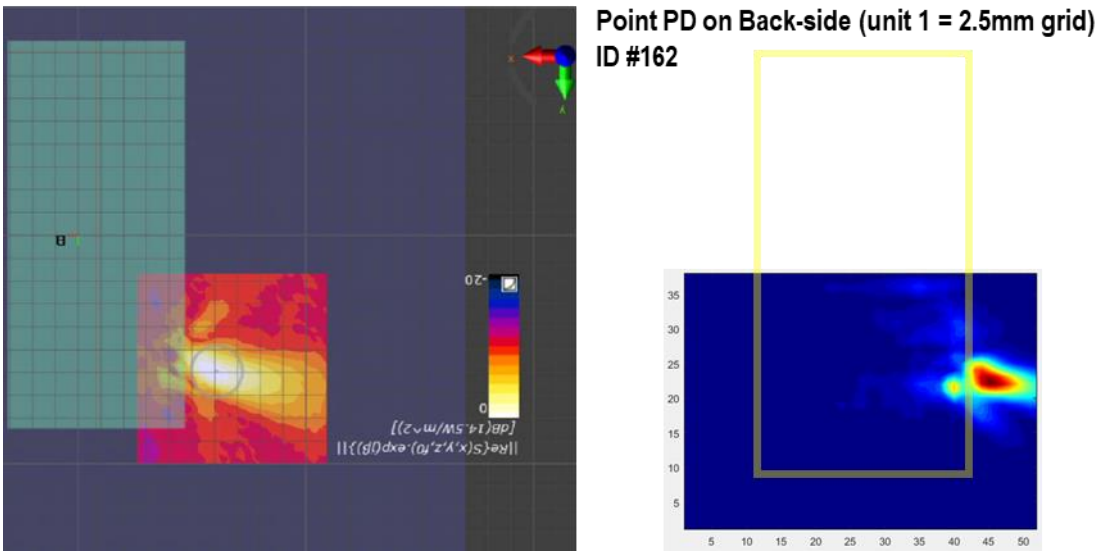




(a) Measurement (b) Simulation

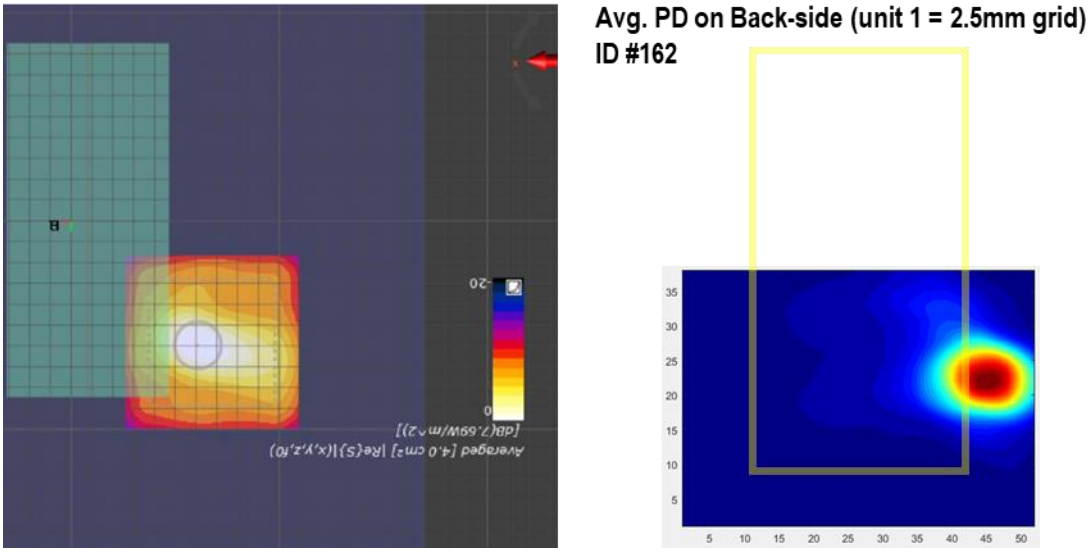
Patch antenna QTM1 AG1(H-polarization) beam ID 162, 4cm^2 Averaged power density

n261 Patch antenna QTM1 Ant_Group1(H-polarization) beam ID 162 Back-side Mid ch.



(a) Measurement (b) Simulation

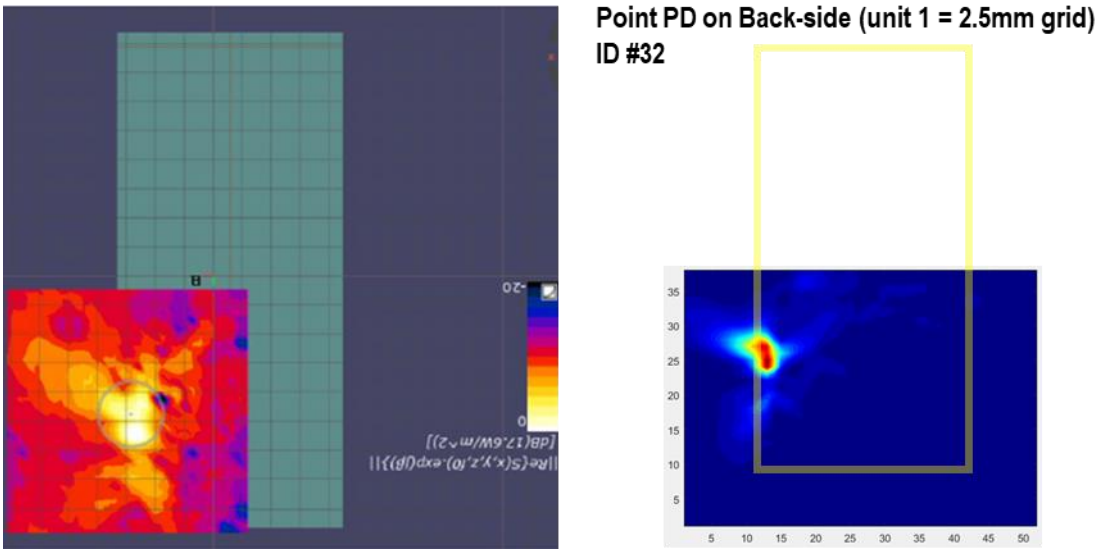
Patch antenna QTM1 AG1(H-polarization) beam ID 162, Point power density



(a) Measurement (b) Simulation

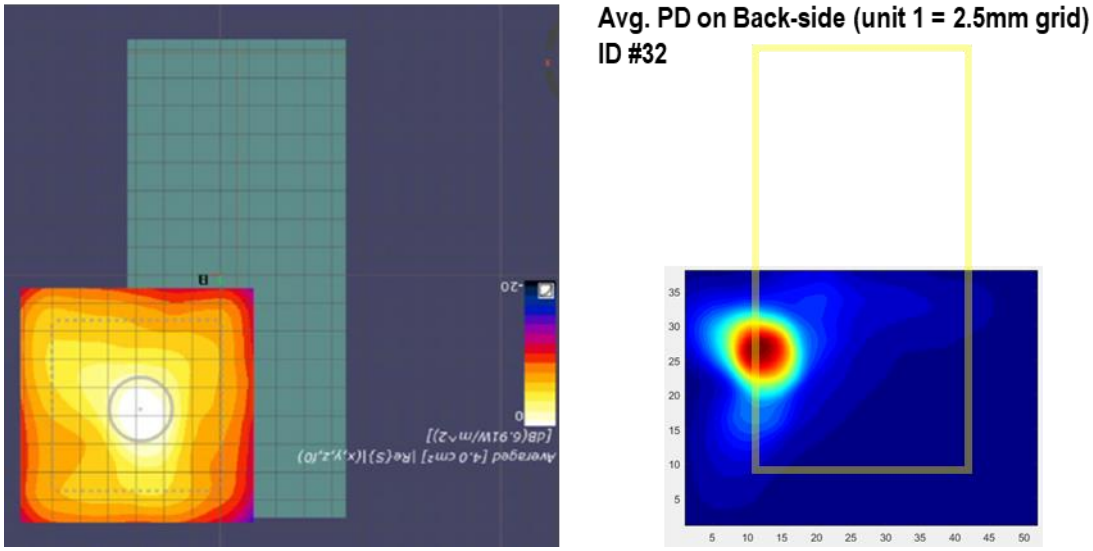
Patch antenna QTM1 AG1(H-polarization) beam ID 162, 4cm^2 Averaged power density

n261 Patch antenna QTM2 Ant_Group0(V-polarization) beam ID 32 Back-side Mid ch.



(a) Measurement (b) Simulation

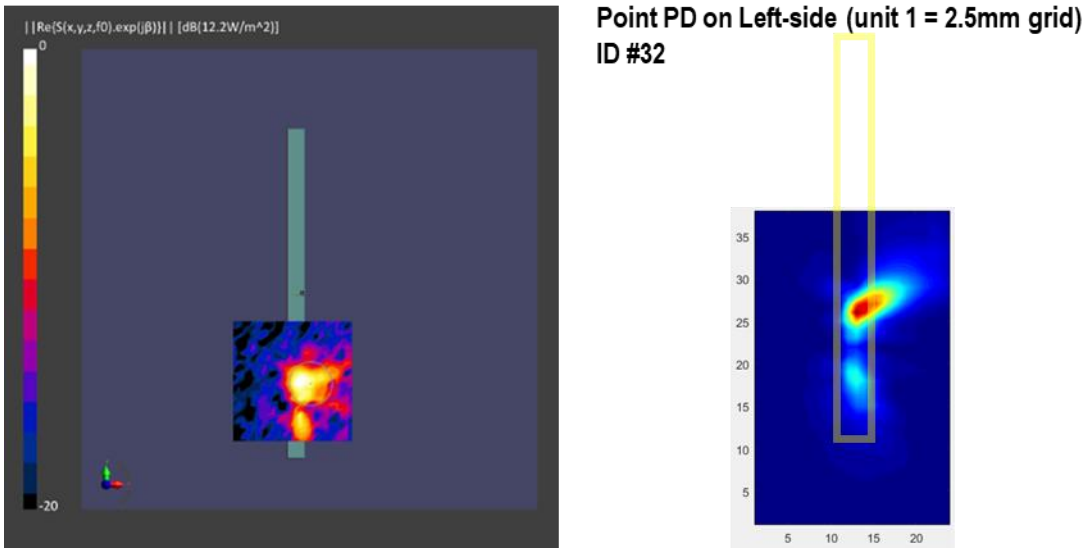
Patch antenna QTM2 AG0(V-polarization) beam ID 32, Point power density



(a) Measurement (b) Simulation

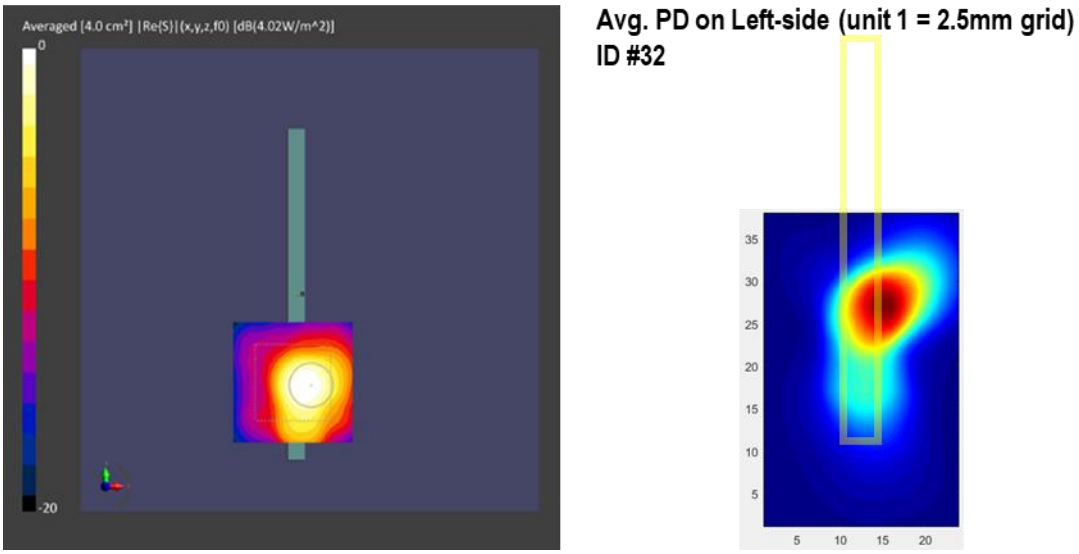
Patch antenna QTM2 AG0(V-polarization) beam ID 32, 4cm^2 Averaged power density

n261 Patch antenna QTM2 Ant_Group0(V-polarization) beam ID 32 Left-side Mid ch.



(a) Measurement (b) Simulation

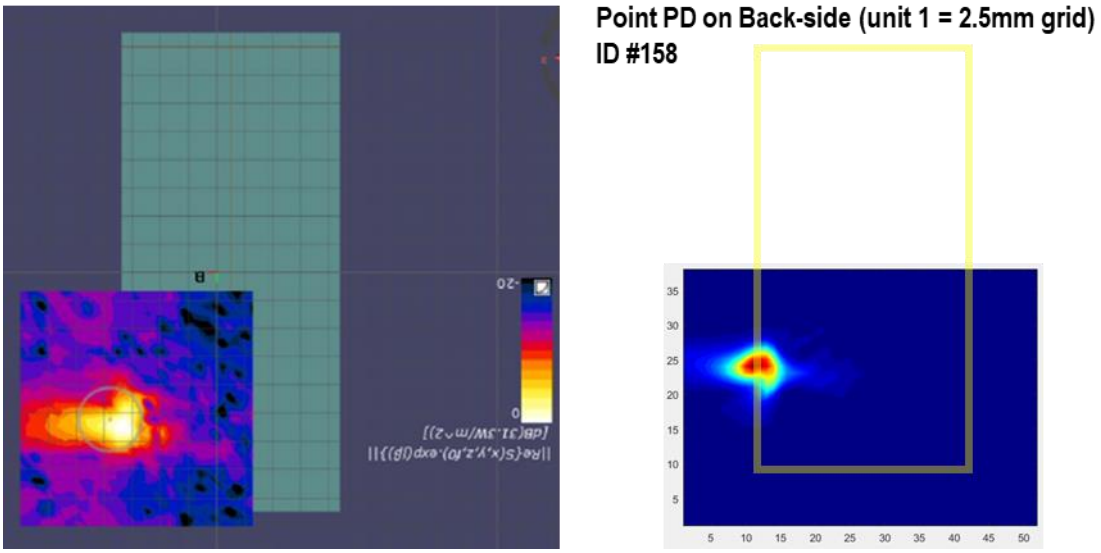
Patch antenna QTM2 AG0(V-polarization) beam ID 32, Point power density



(a) Measurement (b) Simulation

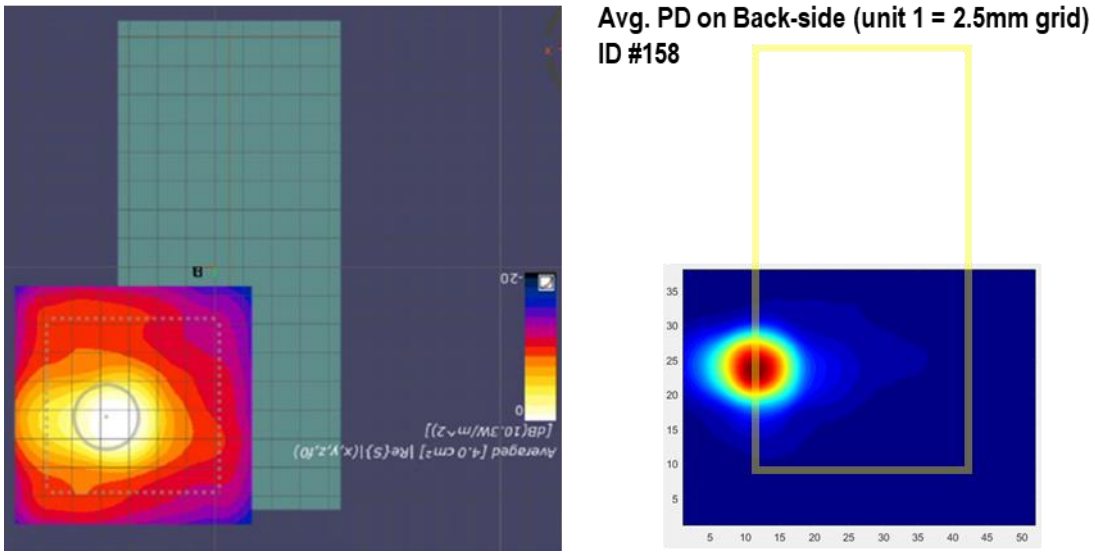
Patch antenna QTM2 AG0(V-polarization) beam ID 32, 4cm^2 Averaged power density

n261 Patch antenna QTM2 Ant_Group1(H-polarization) beam ID 158 Back-side Mid ch.



(a) Measurement (b) Simulation

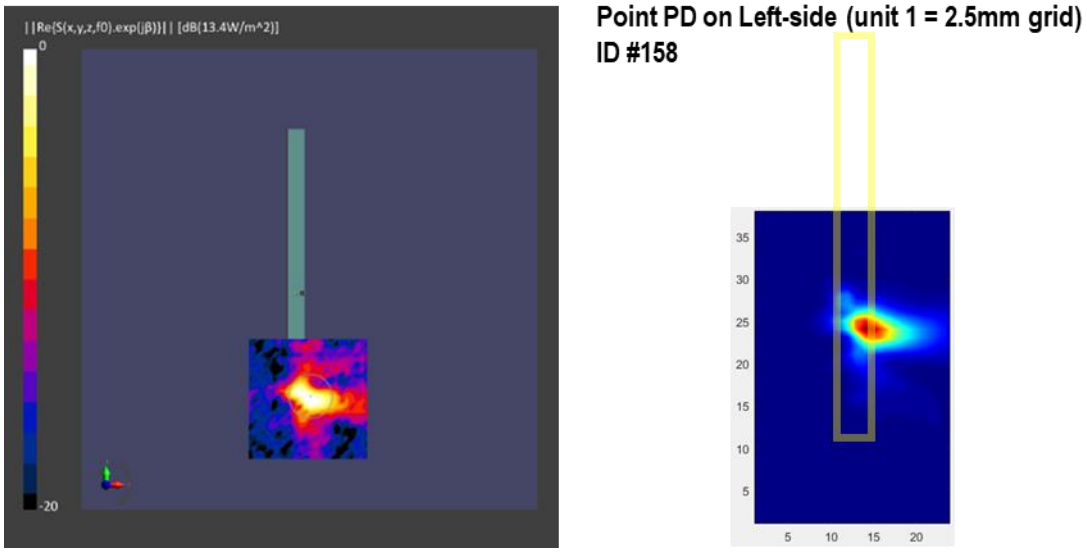
Patch antenna QTM2 AG1(H-polarization) beam ID 158, Point power density



(a) Measurement (b) Simulation

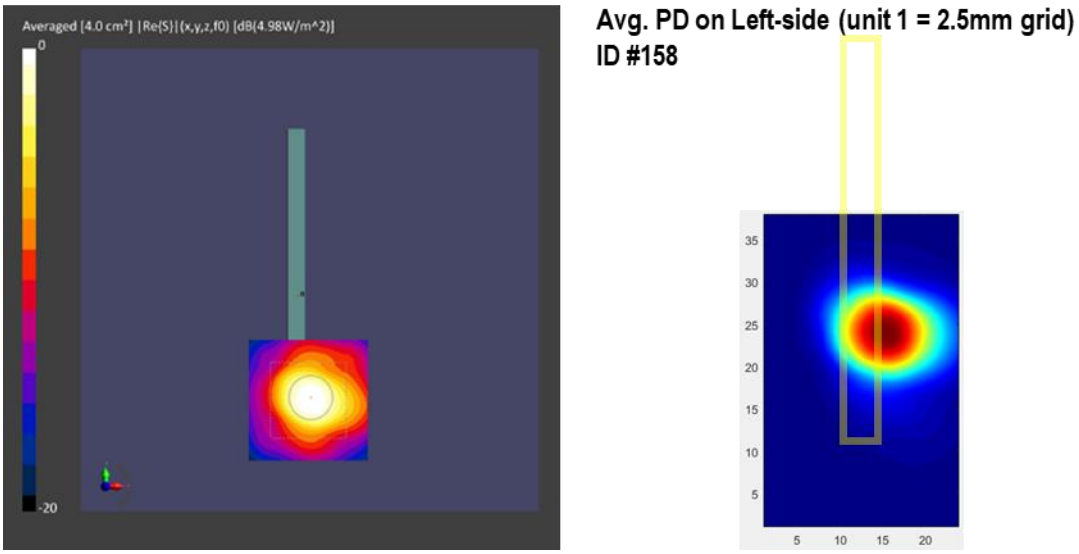
Patch antenna QTM2 AG1(H-polarization) beam ID 158, 4cm^2 Averaged power density

n261 Patch antenna QTM2 Ant_Group1(H-polarization) beam ID 158 Left-side Mid ch.



(a) Measurement (b) Simulation

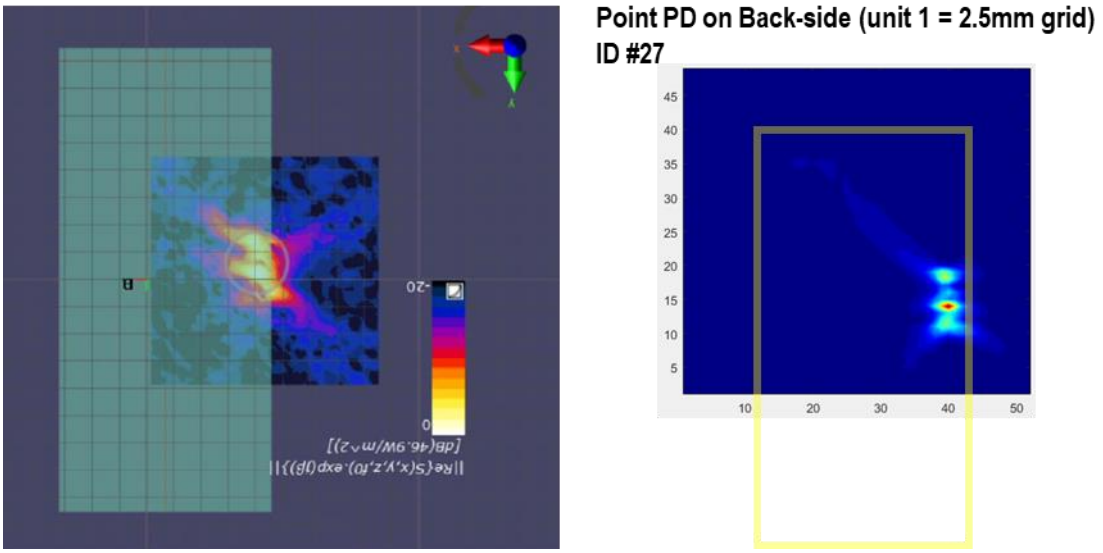
Patch antenna QTM2 AG1(H-polarization) beam ID 158, Point power density



(a) Measurement (b) Simulation

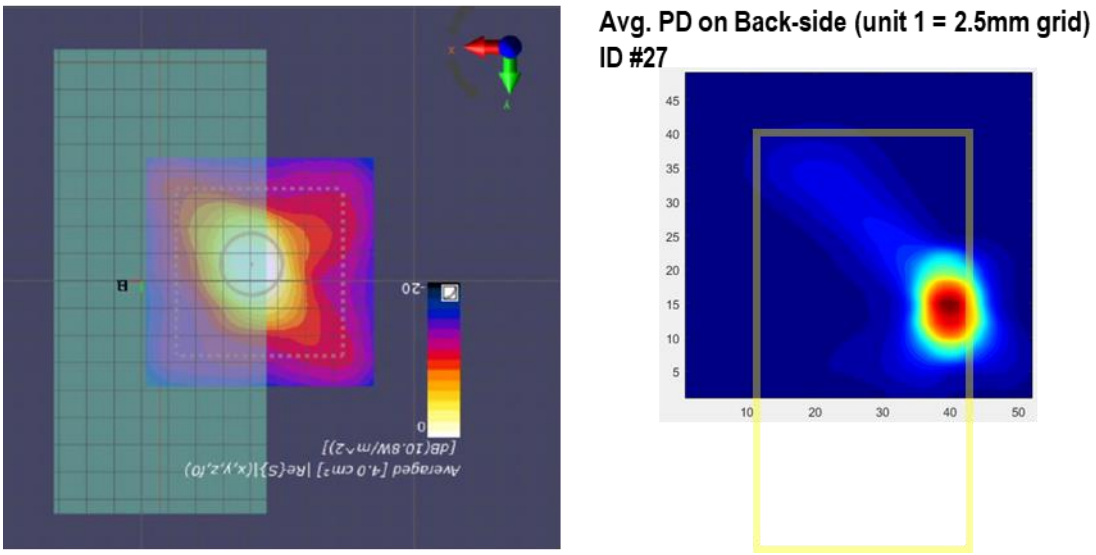
Patch antenna QTM2 AG1(H-polarization) beam ID 158, 4cm^2 Averaged power density

n260 Patch antenna QTM0 Ant_Group0(V-polarization) beam ID 27 Back-side Mid ch.



(a) Measurement (b) Simulation

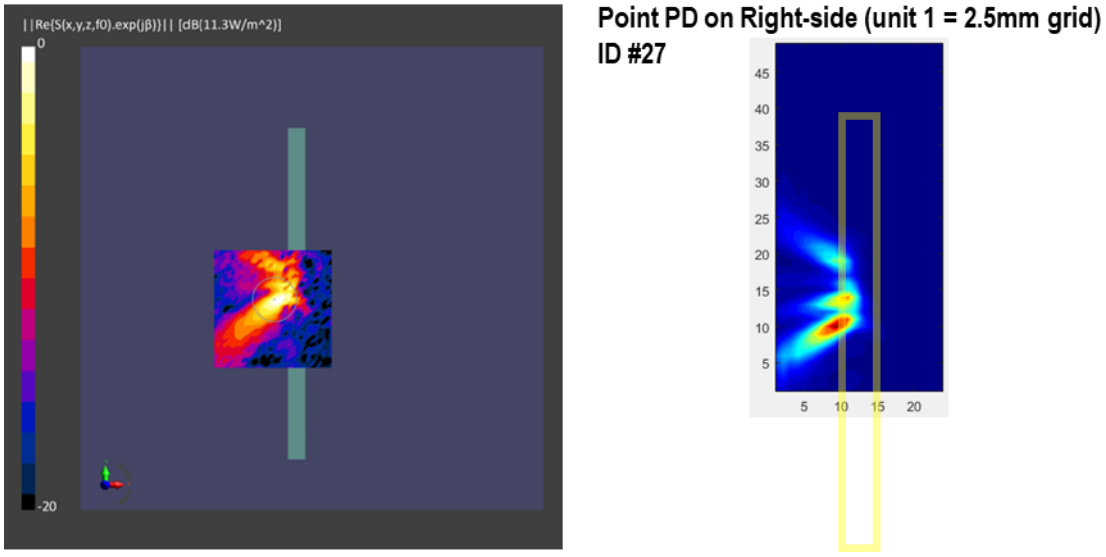
Patch antenna QTM0 AG0(V-polarization) beam ID 27, Point power density



(a) Measurement (b) Simulation

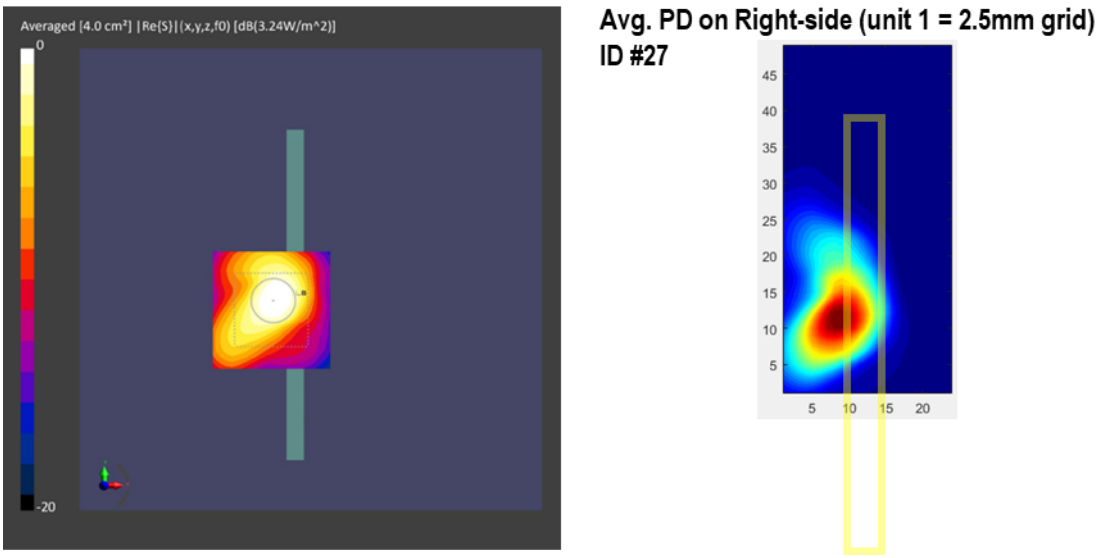
Patch antenna QTM0 AG0(V-polarization) beam ID 27, 4cm^2 Averaged power density

n260 Patch antenna QTM0 Ant_Group0(V-polarization) beam ID 27 Right-side Mid ch.



(a) Measurement (b) Simulation

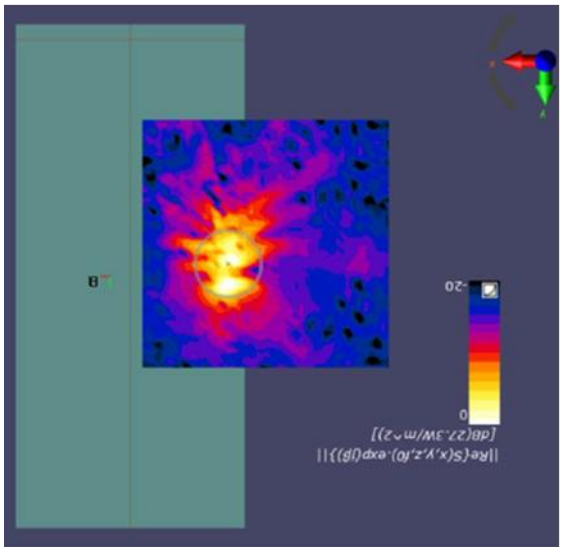
Patch antenna QTM0 AG0(V-polarization) beam ID 27, Point power density

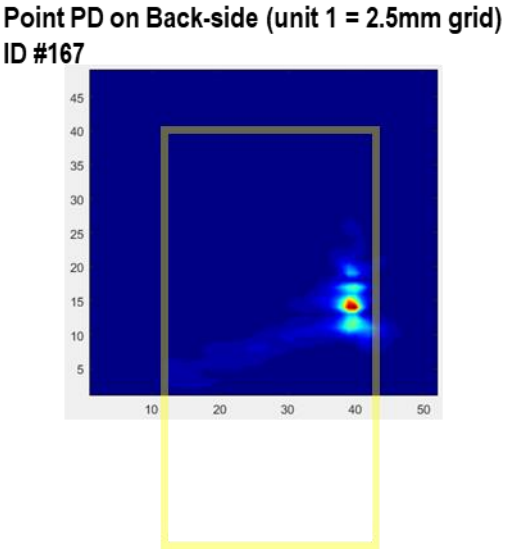


(a) Measurement (b) Simulation

Patch antenna QTM0 AG0(V-polarization) beam ID 27, 4cm^2 Averaged power density

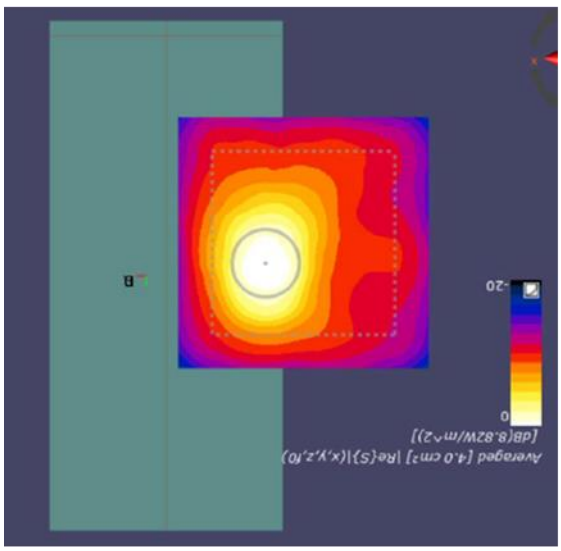
n260 Patch antenna QTM0 Ant_Group1(H-polarization) beam ID 167 Back-side Mid ch.

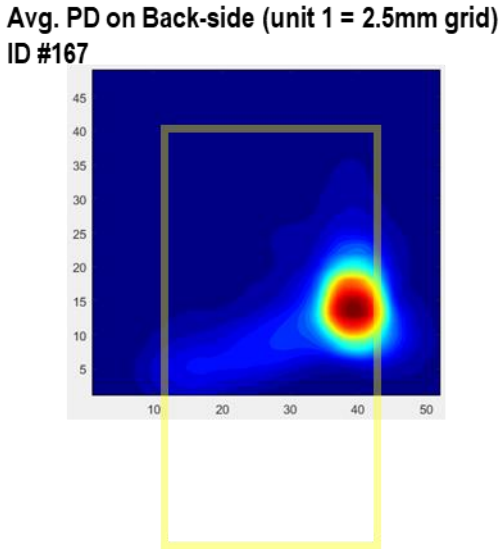




(a) Measurement (b) Simulation

Patch antenna QTM0 AG1(H-polarization) beam ID 167, Point power density

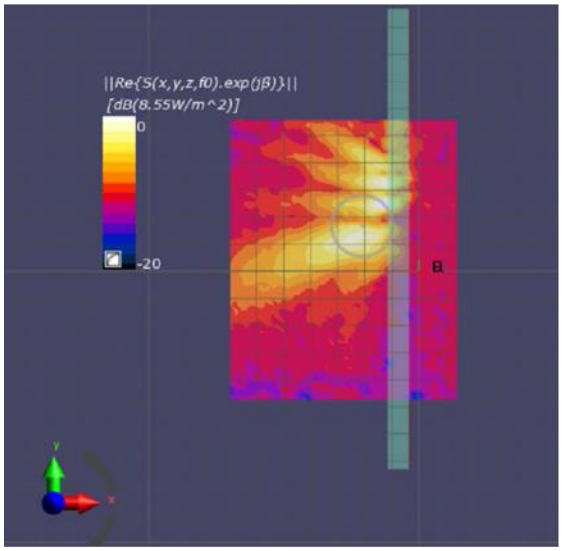


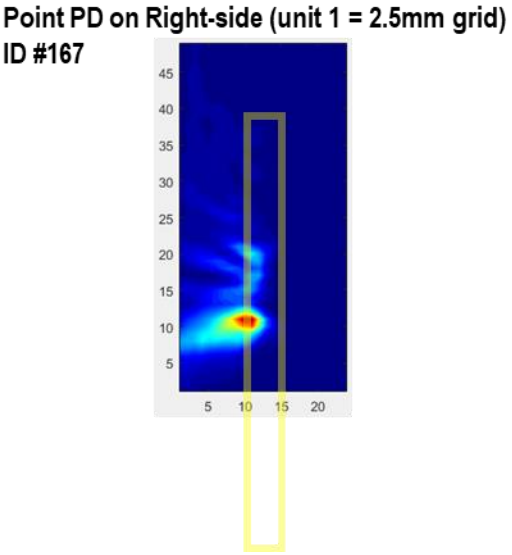


(a) Measurement (b) Simulation

Patch antenna QTM0 AG1(H-polarization) beam ID 167, 4cm^2 Averaged power density

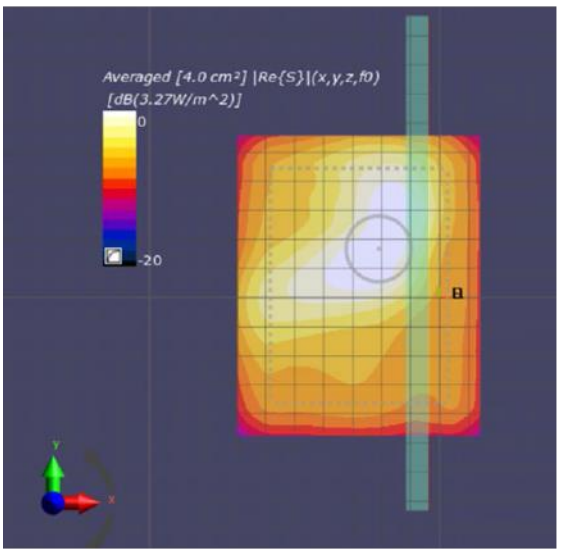
n260 Patch antenna QTM0 Ant_Group1(H-polarization) beam ID 167 Right-side Mid ch.

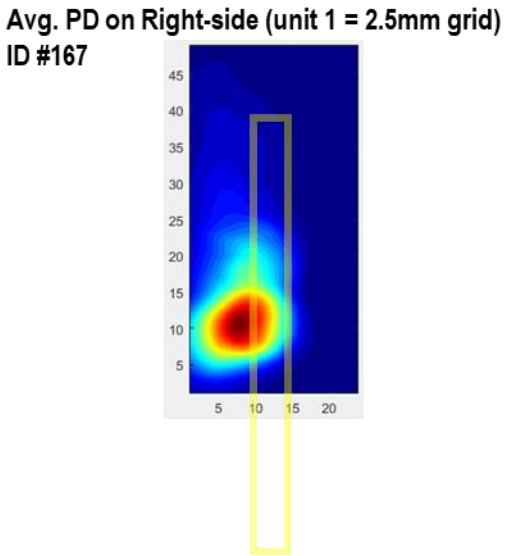




(a) Measurement (b) Simulation

Patch antenna QTM0 AG1(H-polarization) beam ID 167, Point power density

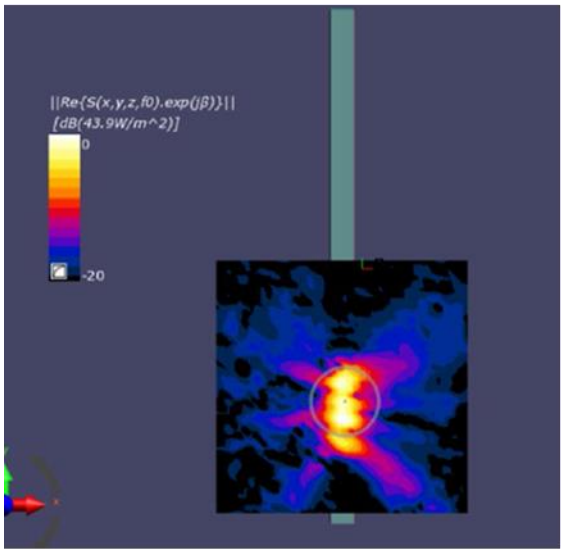


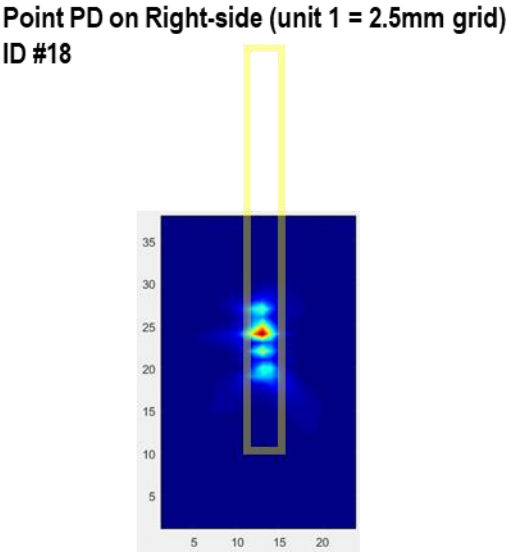


(a) Measurement (b) Simulation

Patch antenna QTM0 AG1(H-polarization) beam ID 167, 4cm^2 Averaged power density

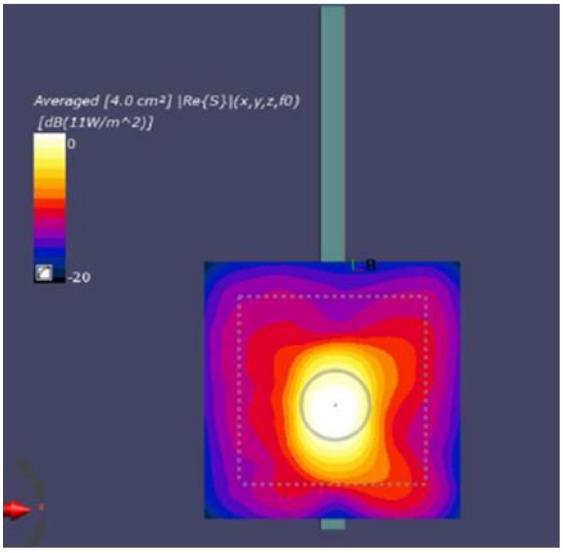
n260 Patch antenna QTM1 Ant_Group0(V-polarization) beam ID 18 Right-side Mid ch.

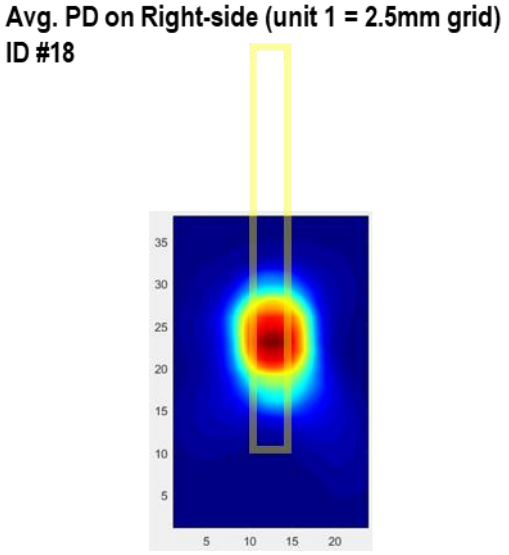




(a) Measurement (b) Simulation

Patch antenna QTM1 AG0(V-polarization) beam ID 18, Point power density

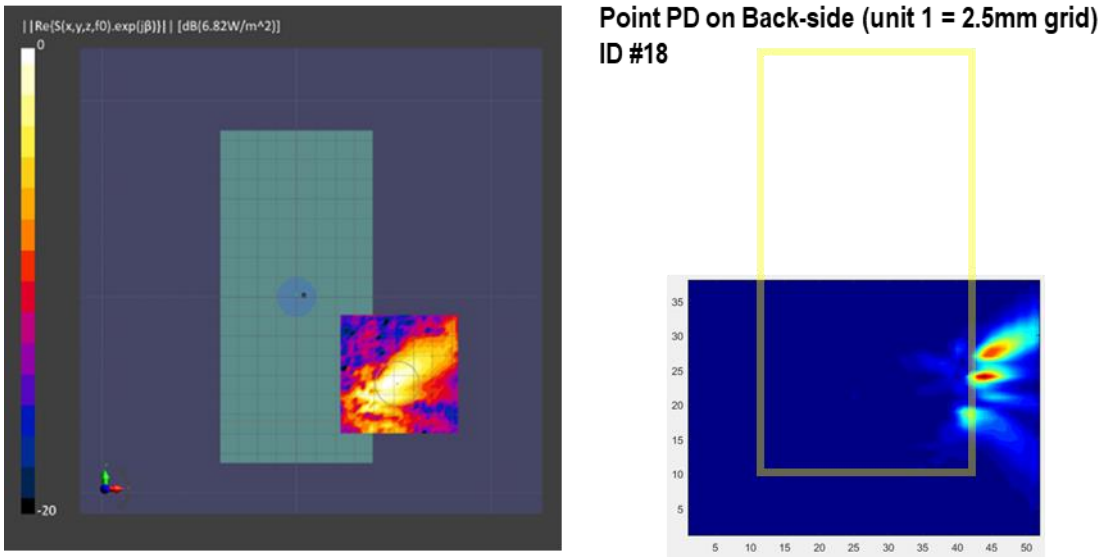




(a) Measurement (b) Simulation

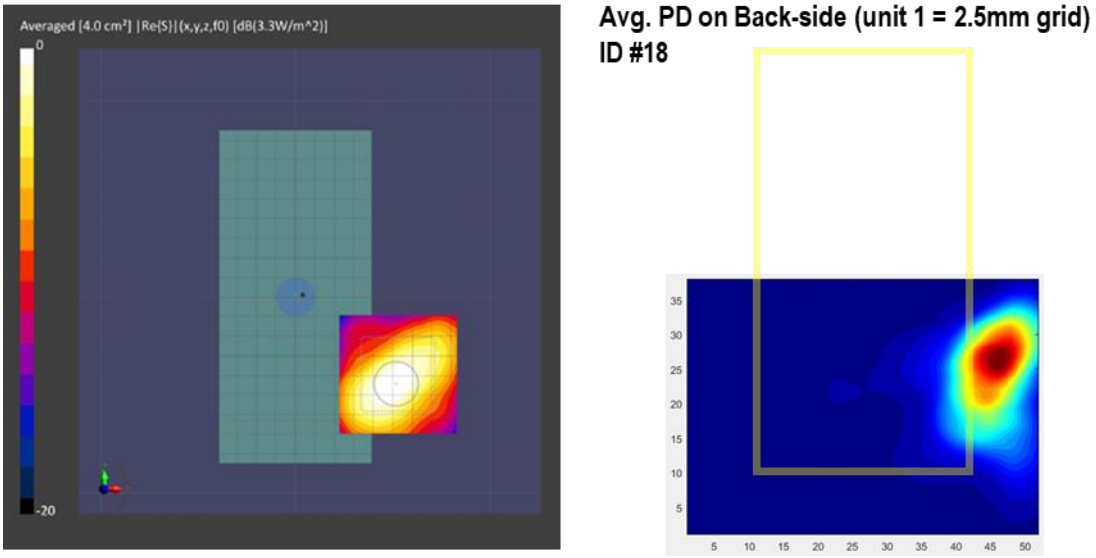
Patch antenna QTM1 AG0(V-polarization) beam ID 18, 4cm^2 Averaged power density

n260 Patch antenna QTM1 Ant_Group0(V-polarization) beam ID 18 Back-side Mid ch.



(a) Measurement (b) Simulation

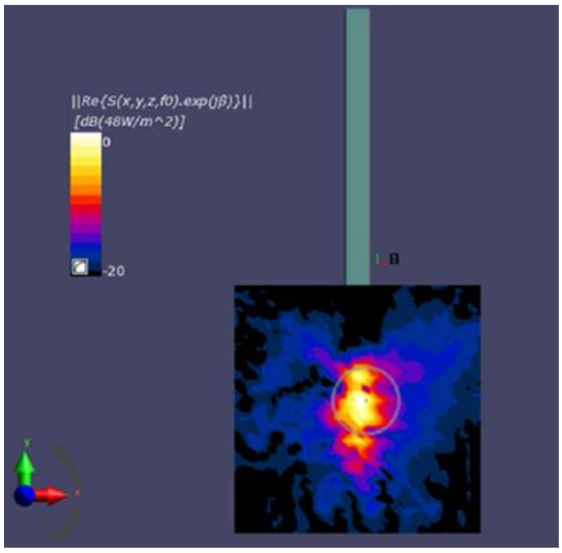
Patch antenna QTM1 AG0(V-polarization) beam ID 18, Point power density

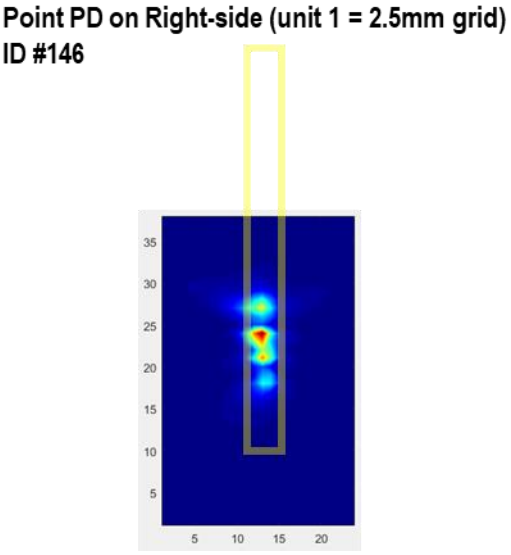


(a) Measurement (b) Simulation

Patch antenna QTM1 AG0(V-polarization) beam ID 18, 4cm^2 Averaged power density

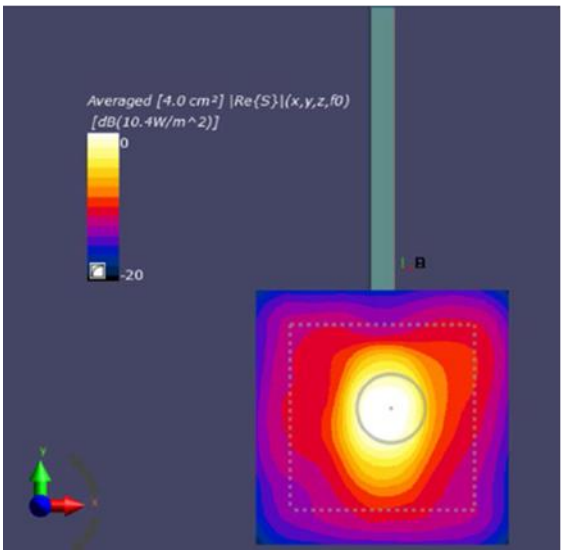
n260 Patch antenna QTM1 Ant_Group1(H-polarization) beam ID 146 Right-side Mid ch.

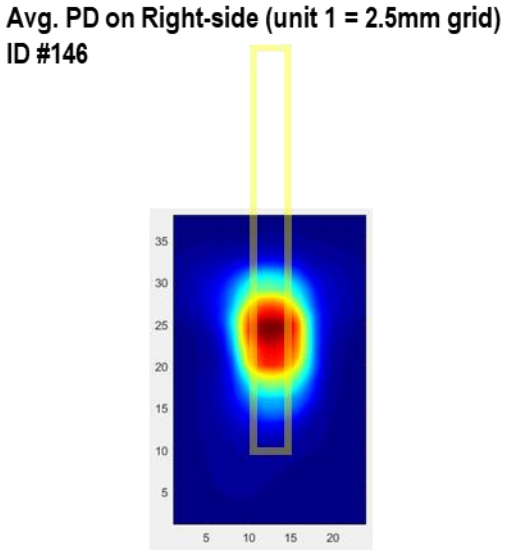




(a) Measurement (b) Simulation

Patch antenna QTM1 AG1(H-polarization) beam ID 146, Point power density

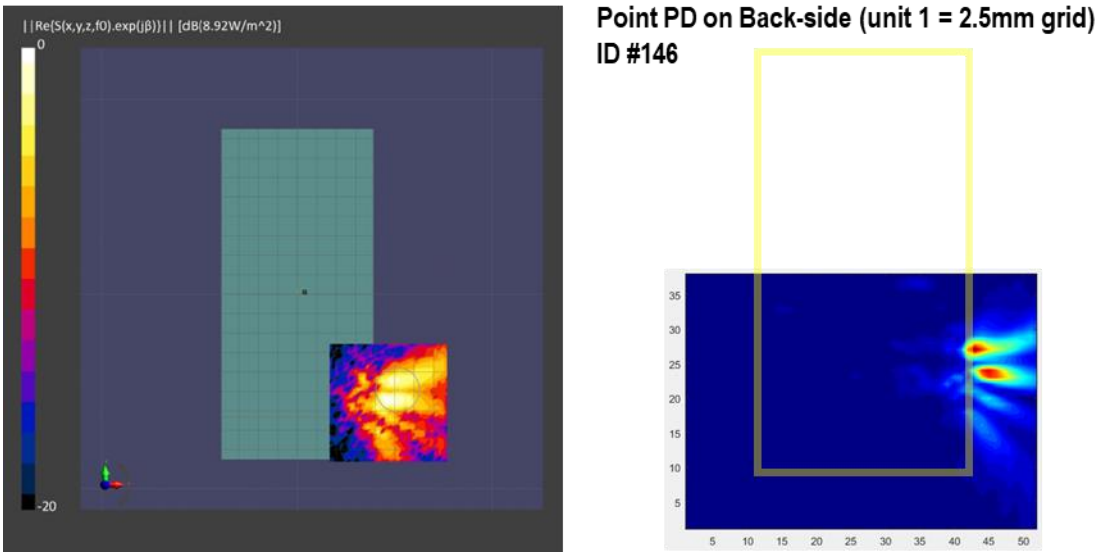




(a) Measurement (b) Simulation

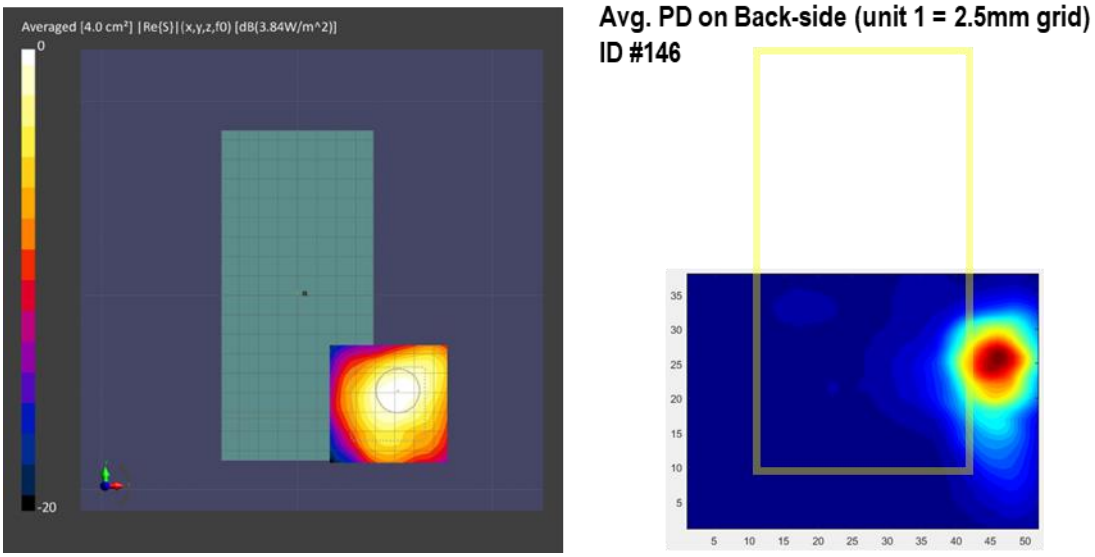
Patch antenna QTM1 AG1(H-polarization) beam ID 146, 4cm^2 Averaged power density

n260 Patch antenna QTM1 Ant_Group1(H-polarization) beam ID 146 Back-side Mid ch.



(a) Measurement (b) Simulation

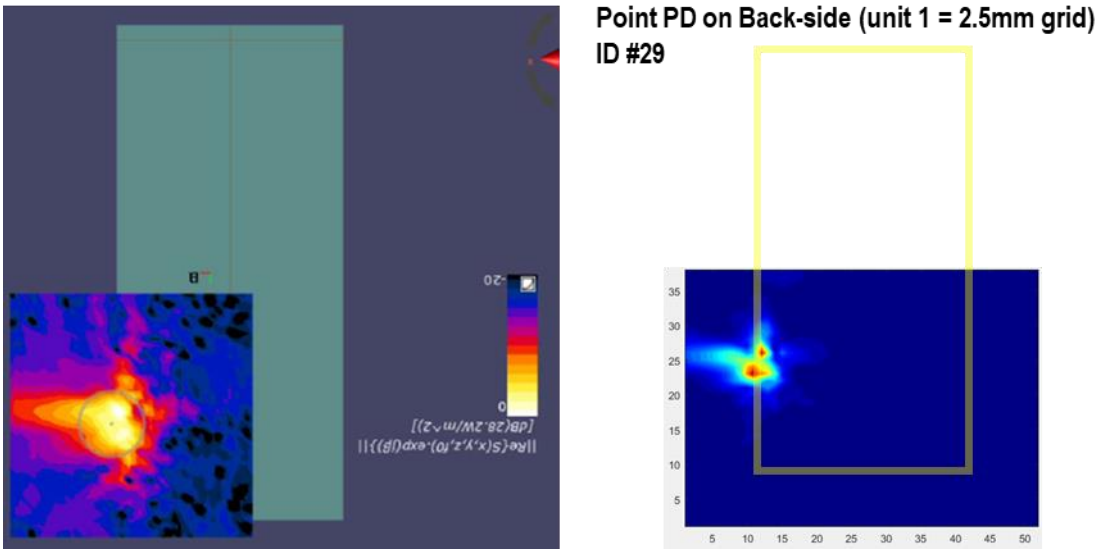
Patch antenna QTM1 AG1(H-polarization) beam ID 146, Point power density



(a) Measurement (b) Simulation

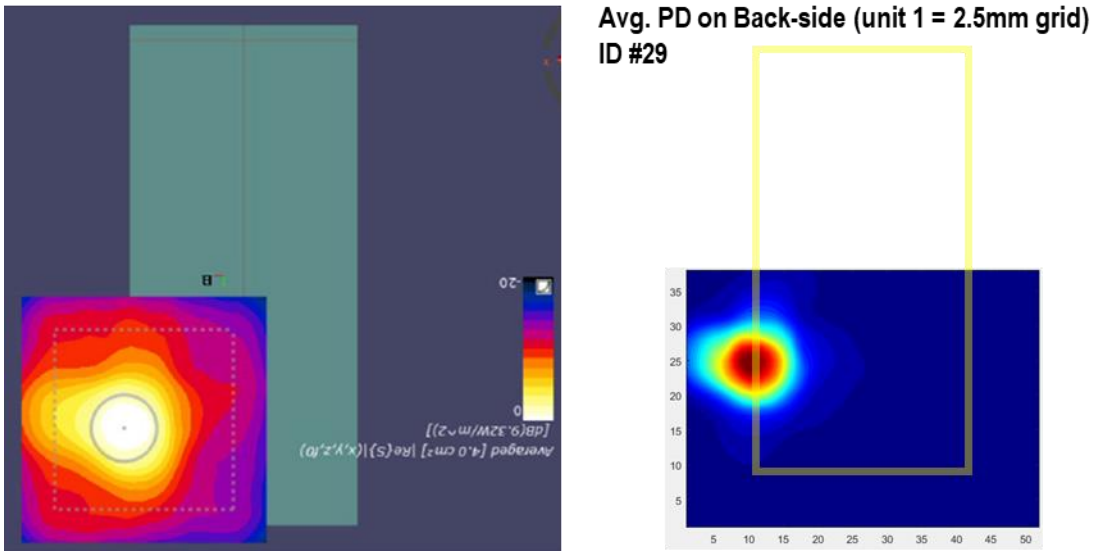
Patch antenna QTM1 AG1(H-polarization) beam ID 146, 4cm^2 Averaged power density

n260 Patch antenna QTM2 Ant_Group0(V-polarization) beam ID 29 Back-side Mid ch.



(a) Measurement (b) Simulation

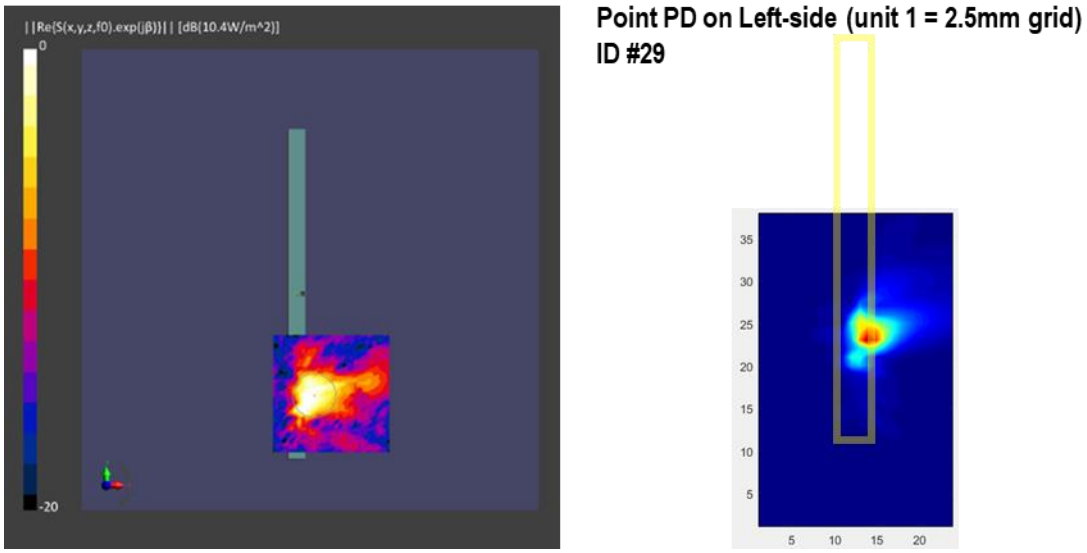
Patch antenna QTM2 AG0(V-polarization) beam ID 29, Point power density



(a) Measurement (b) Simulation

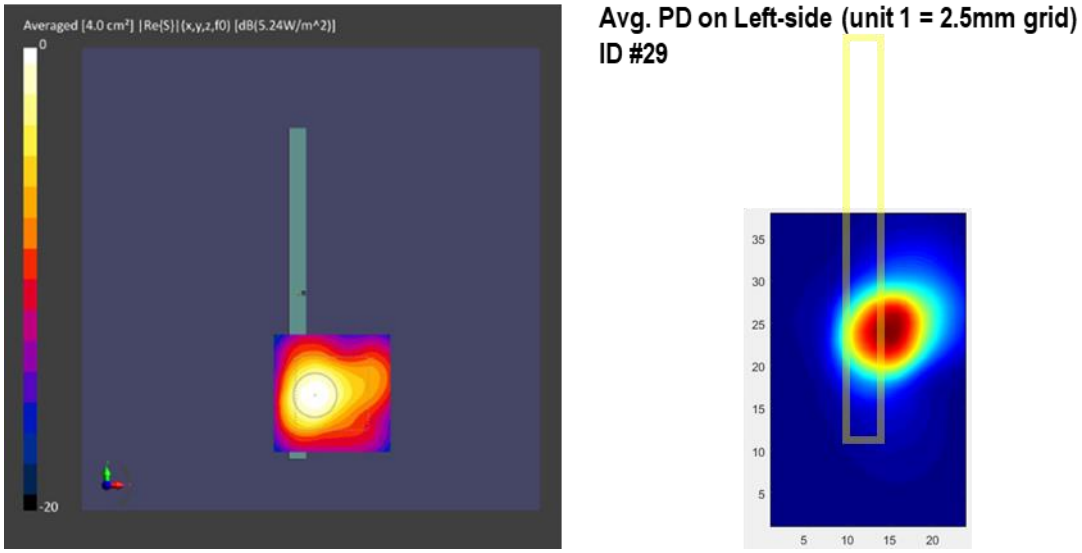
Patch antenna QTM2 AG0(V-polarization) beam ID 29, 4cm^2 Averaged power density

n260 Patch antenna QTM2 Ant_Group0(V-polarization) beam ID 29 Left-side Mid ch.



(a) Measurement (b) Simulation

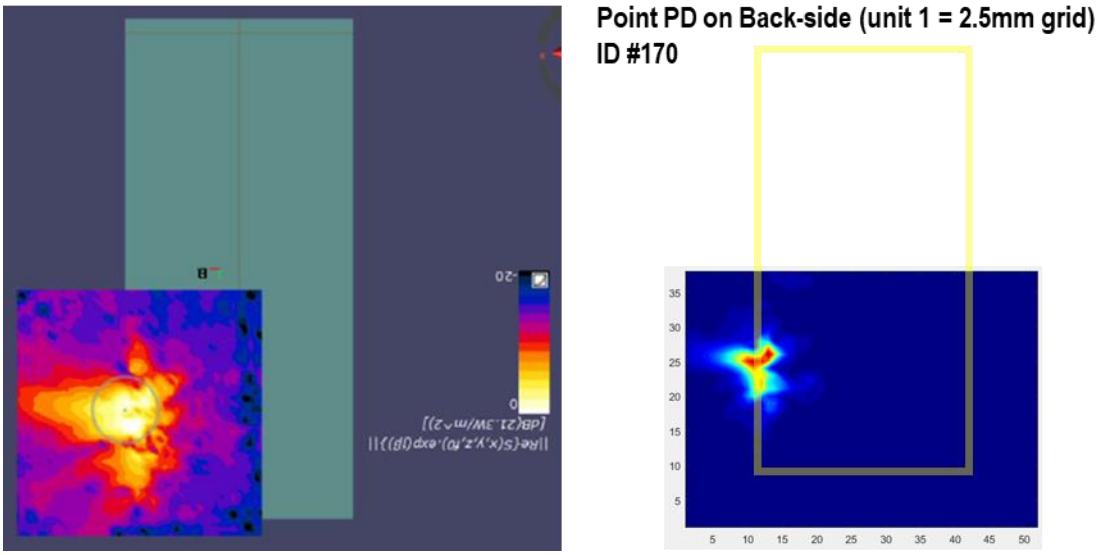
Patch antenna QTM2 AG0(V-polarization) beam ID 29, Point power density



(a) Measurement (b) Simulation

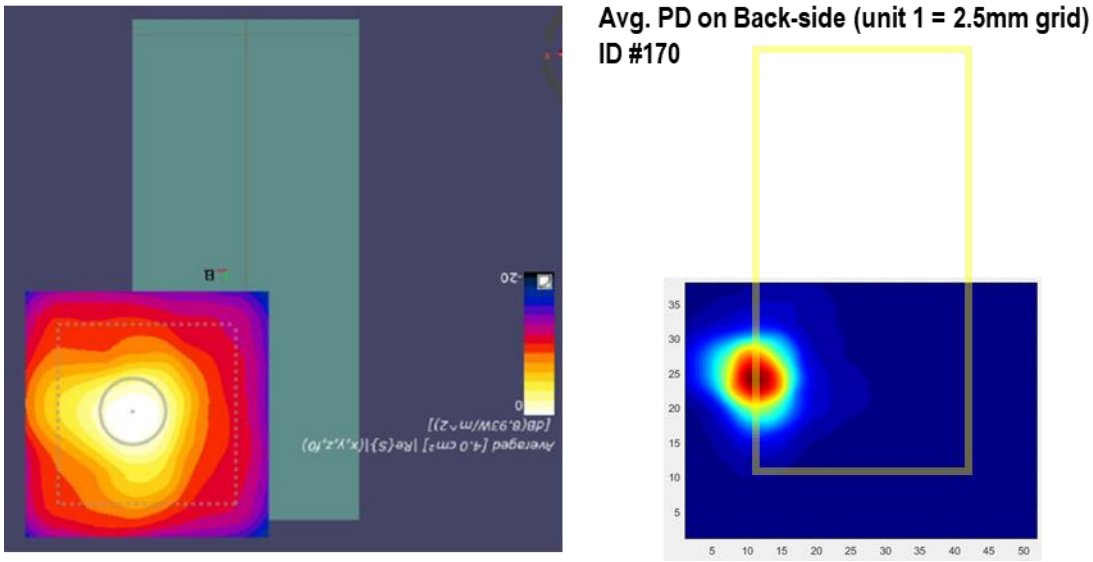
Patch antenna QTM2 AG0(V-polarization) beam ID 29, 4cm^2 Averaged power density

n260 Patch antenna QTM2 Ant_Group1(H-polarization) beam ID 170 Back-side Mid ch.



(a) Measurement (b) Simulation

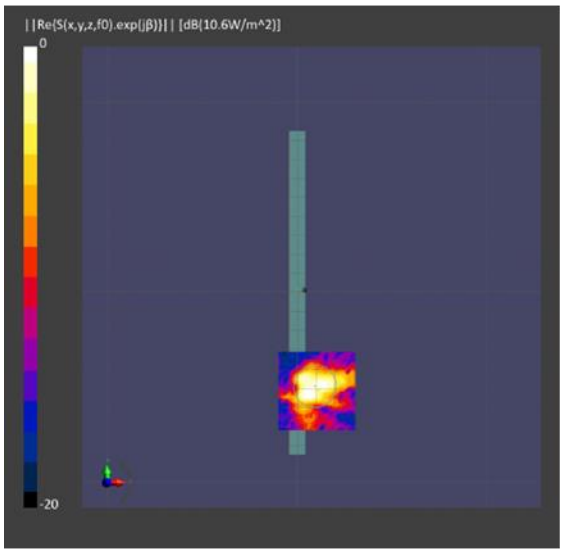
Patch antenna QTM2 AG1(H-polarization) beam ID 170, Point power density

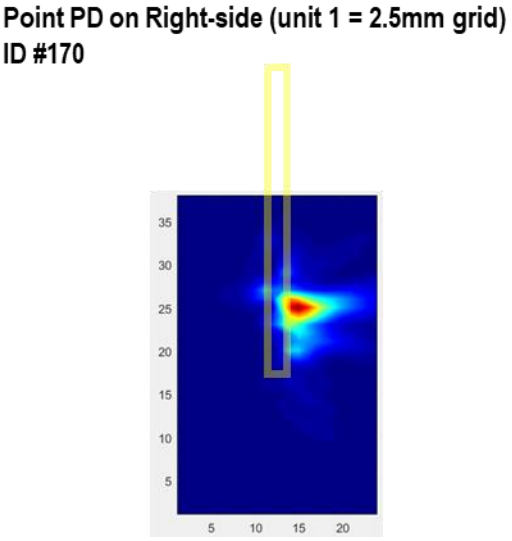


(a) Measurement (b) Simulation

Patch antenna QTM2 AG1(H-polarization) beam ID 170, 4cm^2 Averaged power density

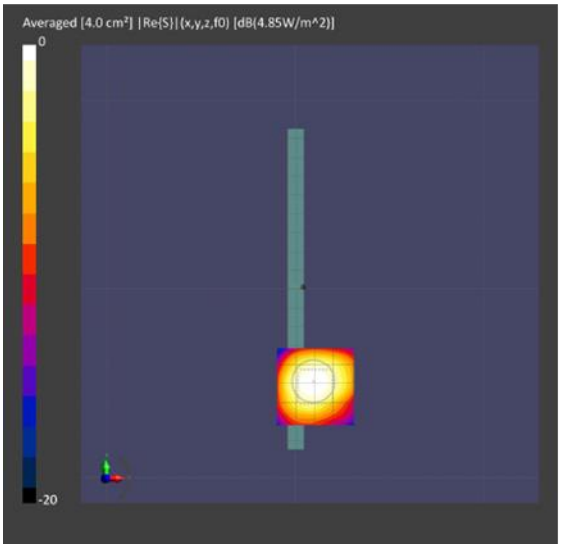
n260 Patch antenna QTM2 Ant_Group1(H-polarization) beam ID 170 Left-side Mid ch.

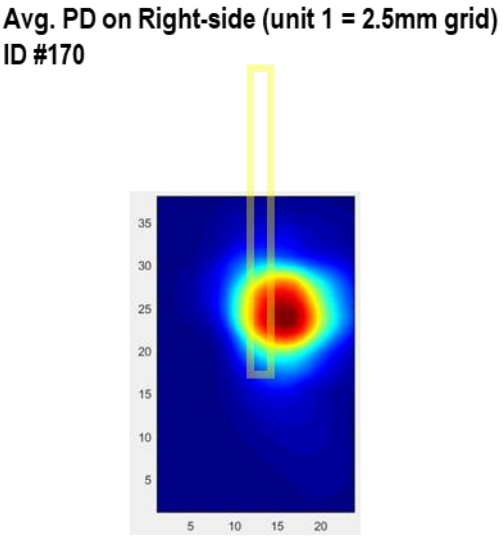




(a) Measurement (b) Simulation

Patch antenna QTM2 AG1(H-polarization) beam ID 170, Point power density





(a) Measurement (b) Simulation

Patch antenna QTM2 AG1(H-polarization) beam ID 170, 4cm^2 Averaged power density

3. Simulation results

This section shows the PD simulation results of QTM#0, QTM#1 and QTM#2 at 28GHz and 39GHz for each evaluation surface specified in Table 1 at 2mm distance.

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 tables MIMO results represent worst case of MIMO. After sweeping the relative phase between beams at 5° intervals from 0° to 360°, the highest value is attached to the MIMO simulation results. 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 QTM#0 – Patch Antenna

Table 2 & Table 3 show the PD simulation evaluation of QTM#0 patch antenna at 28GHz / 39GHz for the corresponding evaluation surfaces specified in Table 1.

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

QTM#0 Low Ch.

n261 Low ch.(27.56GHz)						4cm2 PD(W/m2) at 2mm evaluation surfaces @6dBm relative phase worst PD for MIMO						Ratio		
Band	Beam_ID		Ant module	Ant Type	Num. of Feed	Front	Back	Right	Left	Top	Bottom	Front / (worst surface)	Top / (worst surface)	Left / (worst surface)
261	1		QTM0	PATCH	1	0.13	6.23	2.70	0.02	-	0.01	0.021	0	0.003
261	6		QTM0	PATCH	2	0.32	10.36	3.30	0.04	-	0.04	0.031	0	0.004
261	7		QTM0	PATCH	2	0.44	11.82	5.02	0.16	-	0.03	0.037	0	0.014
261	8		QTM0	PATCH	2	0.95	10.26	3.03	0.10	-	0.09	0.093	0	0.009
261	14		QTM0	PATCH	2	0.24	12.03	4.82	0.09	-	0.02	0.020	0	0.007
261	15		QTM0	PATCH	2	0.65	11.24	4.37	0.15	-	0.06	0.058	0	0.013
261	23		QTM0	PATCH	4	1.39	12.41	5.48	0.12	-	0.18	0.112	0	0.010
261	24		QTM0	PATCH	4	0.58	15.69	9.46	0.25	-	0.03	0.037	0	0.016
261	25		QTM0	PATCH	4	0.46	20.34	10.74	0.25	-	0.01	0.022	0	0.012
261	26		QTM0	PATCH	4	0.78	16.67	9.44	0.32	-	0.11	0.047	0	0.019
261	27		QTM0	PATCH	4	0.83	15.61	7.10	0.25	-	0.07	0.053	0	0.016
261	37		QTM0	PATCH	4	1.04	15.98	6.31	0.16	-	0.15	0.065	0	0.010
261	38		QTM0	PATCH	4	0.67	17.14	10.19	0.29	-	0.02	0.039	0	0.017
261	39		QTM0	PATCH	4	0.73	21.02	11.08	0.26	-	0.03	0.035	0	0.013
261	40		QTM0	PATCH	4	0.60	15.33	8.79	0.38	-	0.03	0.039	0	0.025
261		129	QTM0	PATCH	1	0.13	6.00	3.21	0.03	-	0.03	0.022	0	0.005
261		134	QTM0	PATCH	2	0.26	10.18	4.35	0.07	-	0.14	0.026	0	0.007
261		135	QTM0	PATCH	2	0.25	11.55	6.37	0.07	-	0.01	0.022	0	0.006
261		136	QTM0	PATCH	2	0.48	9.80	3.64	0.09	-	0.01	0.049	0	0.009
261		142	QTM0	PATCH	2	0.15	11.73	6.81	0.07	-	0.06	0.013	0	0.006
261		143	QTM0	PATCH	2	0.44	10.15	3.87	0.06	-	0.01	0.043	0	0.006
261		151	QTM0	PATCH	4	0.65	14.75	9.28	0.15	-	0.39	0.044	0	0.010
261		152	QTM0	PATCH	4	0.57	17.42	9.73	0.23	-	0.04	0.033	0	0.013
261		153	QTM0	PATCH	4	0.46	17.00	10.84	0.23	-	0.02	0.027	0	0.014
261		154	QTM0	PATCH	4	1.24	15.29	8.59	0.25	-	0.03	0.081	0	0.016
261		155	QTM0	PATCH	4	0.40	16.34	5.56	0.25	-	0.13	0.025	0	0.015
261		165	QTM0	PATCH	4	0.60	15.60	9.35	0.13	-	0.36	0.039	0	0.008
261		166	QTM0	PATCH	4	0.60	21.42	10.80	0.27	-	0.03	0.028	0	0.013
261		167	QTM0	PATCH	4	1.07	15.81	10.10	0.30	-	0.02	0.068	0	0.019
261		168	QTM0	PATCH	4	0.80	15.64	6.36	0.24	-	0.03	0.051	0	0.015
261	1	129	QTM0	PATCH	1	0.37	11.96	5.70	0.12	-	0.10	0.031	0	0.010
261	6	134	QTM0	PATCH	2	0.77	19.97	6.65	0.27	-	0.45	0.039	0	0.013
261	7	135	QTM0	PATCH	2	1.02	22.99	12.70	0.47	-	0.08	0.044	0	0.020
261	8	136	QTM0	PATCH	2	1.37	20.85	8.26	0.39	-	0.42	0.066	0	0.019
261	14	142	QTM0	PATCH	2	0.64	25.05	13.68	0.39	-	0.16	0.026	0	0.016
261	15	143	QTM0	PATCH	2	1.22	20.73	9.05	0.47	-	0.28	0.059	0	0.023
261	23	151	QTM0	PATCH	4	2.78	35.99	19.70	0.31	-	1.17	0.077	0	0.009
261	24	152	QTM0	PATCH	4	1.68	36.49	21.00	1.14	-	0.20	0.046	0	0.031
261	25	153	QTM0	PATCH	4	1.25	43.11	22.58	1.07	-	0.07	0.029	0	0.025
261	26	154	QTM0	PATCH	4	2.88	34.43	20.70	1.37	-	0.36	0.084	0	0.040
261	27	155	QTM0	PATCH	4	1.54	35.35	16.85	0.94	-	0.75	0.043	0	0.027
261	37	165	QTM0	PATCH	4	2.27	37.85	20.23	0.53	-	0.89	0.060	0	0.014
261	38	166	QTM0	PATCH	4	2.02	40.03	22.16	1.09	-	0.16	0.050	0	0.027
261	39	167	QTM0	PATCH	4	2.51	41.49	22.45	0.99	-	0.22	0.061	0	0.024
261	40	168	QTM0	PATCH	4	1.93	34.12	18.98	1.16	-	0.46	0.057	0	0.034

QTM#0 Mid Ch.

n261 Mid ch.(27.925GHz)						4cm2 PD(W/m2) at 2mm evaluation surfaces @6dBm relative phase worst PD for MIMO						Ratio		
Band	Beam_ID		Ant module	Ant Type	Num. of Feed	Front	Back	Right	Left	Top	Bottom	Front / (worst surface)	Top / (worst surface)	Left / (worst surface)
261	1		QTM0	PATCH	1	0.14	5.93	2.70	0.02	-	0.01	0.023	0	0.003
261	6		QTM0	PATCH	2	0.31	10.42	3.64	0.07	-	0.05	0.030	0	0.007
261	7		QTM0	PATCH	2	0.42	11.54	4.47	0.16	-	0.01	0.036	0	0.014
261	8		QTM0	PATCH	2	0.60	9.86	2.71	0.10	-	0.04	0.061	0	0.011
261	14		QTM0	PATCH	2	0.23	11.84	4.26	0.15	-	0.02	0.019	0	0.012
261	15		QTM0	PATCH	2	0.50	10.84	3.96	0.14	-	0.03	0.046	0	0.013
261	23		QTM0	PATCH	4	0.83	12.36	4.88	0.07	-	0.10	0.067	0	0.006
261	24		QTM0	PATCH	4	0.68	15.29	9.22	0.23	-	0.06	0.045	0	0.015
261	25		QTM0	PATCH	4	0.41	19.89	9.27	0.27	-	0.01	0.020	0	0.014
261	26		QTM0	PATCH	4	0.50	16.00	8.84	0.28	-	0.06	0.032	0	0.017
261	27		QTM0	PATCH	4	0.98	14.75	7.16	0.24	-	0.08	0.066	0	0.016
261	37		QTM0	PATCH	4	0.66	15.22	6.16	0.10	-	0.07	0.043	0	0.006
261	38		QTM0	PATCH	4	0.70	18.24	10.00	0.23	-	0.03	0.038	0	0.012
261	39		QTM0	PATCH	4	0.61	19.29	9.39	0.27	-	0.03	0.032	0	0.014
261	40		QTM0	PATCH	4	0.55	15.09	8.56	0.24	-	0.02	0.037	0	0.016
261		129	QTM0	PATCH	1	0.13	5.87	2.80	0.03	-	0.02	0.022	0	0.005
261		134	QTM0	PATCH	2	0.23	10.05	3.96	0.07	-	0.10	0.023	0	0.007
261		135	QTM0	PATCH	2	0.24	11.13	6.07	0.09	-	0.01	0.022	0	0.008
261		136	QTM0	PATCH	2	0.50	9.92	3.75	0.05	-	0.07	0.050	0	0.006
261		142	QTM0	PATCH	2	0.19	11.51	5.72	0.06	-	0.01	0.016	0	0.006
261		143	QTM0	PATCH	2	0.48	10.12	3.93	0.04	-	0.04	0.048	0	0.004
261		151	QTM0	PATCH	4	0.87	15.20	9.00	0.16	-	0.05	0.057	0	0.011
261		152	QTM0	PATCH	4	0.46	16.40	8.86	0.21	-	0.04	0.028	0	0.013
261		153	QTM0	PATCH	4	0.37	16.52	10.05	0.23	-	0.02	0.022	0	0.014
261		154	QTM0	PATCH	4	1.11	14.75	8.76	0.21	-	0.03	0.075	0	0.014
261		155	QTM0	PATCH	4	0.42	15.39	5.59	0.24	-	0.09	0.027	0	0.015
261		165	QTM0	PATCH	4	0.71	15.71	9.00	0.15	-	0.06	0.045	0	0.009
261		166	QTM0	PATCH	4	0.49	17.99	10.03	0.38	-	0.03	0.027	0	0.021
261		167	QTM0	PATCH	4	0.91	15.54	9.80	0.27	-	0.01	0.058	0	0.017
261		168	QTM0	PATCH	4	0.75	14.65	6.48	0.08	-	0.06	0.051	0	0.006
261	1	129	QTM0	PATCH	1	0.34	11.62	5.76	0.09	-	0.10	0.029	0	0.008
261	6	134	QTM0	PATCH	2	0.67	19.61	6.44	0.27	-	0.39	0.034	0	0.014
261	7	135	QTM0	PATCH	2	0.79	21.88	12.56	0.52	-	0.07	0.036	0	0.024
261	8	136	QTM0	PATCH	2	1.07	20.24	7.80	0.34	-	0.39	0.053	0	0.017
261	14	142	QTM0	PATCH	2	0.56	24.52	13.06	0.43	-	0.13	0.023	0	0.017
261	15	143	QTM0	PATCH	2	0.89	20.03	8.71	0.42	-	0.25	0.044	0	0.021
261	23	151	QTM0	PATCH	4	1.76	35.47	18.04	0.34	-	0.96	0.050	0	0.009
261	24	152	QTM0	PATCH	4	1.57	34.40	19.95	1.04	-	0.18	0.046	0	0.030
261	25	153	QTM0	PATCH	4	0.94	41.51	20.53	1.11	-	0.06	0.023	0	0.027
261	26	154	QTM0	PATCH	4	2.19	33.12	19.20	1.19	-	0.27	0.066	0	0.036
261	27	155	QTM0	PATCH	4	1.38	34.61	15.82	0.86	-	0.71	0.040	0	0.025
261	37	165	QTM0	PATCH	4	1.38	36.72	19.34	0.56	-	0.71	0.038	0	0.015
261	38	166	QTM0	PATCH	4	1.71	38.65	21.95	1.01	-	0.13	0.044	0	0.026
261	39	167	QTM0	PATCH	4	2.09	40.02	20.54	0.82	-	0.20	0.052	0	0.020
261	40	168	QTM0	PATCH	4	1.69	33.44	17.71	0.98	-	0.35	0.051	0	0.029

QTM#0 High Ch.

n261 High ch.(28.29GHz)						4cm2 PD(W/m2) at 2mm evaluation surfaces @6dBm relative phase worst PD for MIMO						Ratio		
Band	Beam_ID		Ant module	Ant Type	Num. of Feed	Front	Back	Right	Left	Top	Bottom	Front / (worst surface)	Top / (worst surface)	Left / (worst surface)
261	1		QTM0	PATCH	1	0.13	5.42	2.53	0.02	-	0.02	0.023	0	0.003
261	6		QTM0	PATCH	2	0.25	10.15	3.97	0.07	-	0.06	0.025	0	0.006
261	7		QTM0	PATCH	2	0.44	10.86	4.01	0.12	-	0.02	0.040	0	0.011
261	8		QTM0	PATCH	2	0.46	9.02	2.63	0.04	-	0.07	0.051	0	0.004
261	14		QTM0	PATCH	2	0.25	11.31	3.58	0.16	-	0.02	0.022	0	0.014
261	15		QTM0	PATCH	2	0.49	10.01	3.78	0.13	-	0.04	0.049	0	0.013
261	23		QTM0	PATCH	4	0.54	14.52	4.55	0.08	-	0.08	0.037	0	0.005
261	24		QTM0	PATCH	4	0.68	16.59	8.84	0.20	-	0.06	0.041	0	0.012
261	25		QTM0	PATCH	4	0.44	18.53	7.57	0.28	-	0.02	0.024	0	0.015
261	26		QTM0	PATCH	4	0.57	15.63	8.15	0.20	-	0.06	0.036	0	0.013
261	27		QTM0	PATCH	4	0.86	14.08	7.30	0.24	-	0.08	0.061	0	0.017
261	37		QTM0	PATCH	4	0.45	15.44	5.05	0.09	-	0.09	0.029	0	0.006
261	38		QTM0	PATCH	4	0.64	17.48	9.36	0.19	-	0.04	0.037	0	0.011
261	39		QTM0	PATCH	4	0.62	17.71	7.55	0.24	-	0.04	0.035	0	0.013
261	40		QTM0	PATCH	4	0.71	14.86	8.17	0.18	-	0.03	0.048	0	0.012
261		129	QTM0	PATCH	1	0.11	5.51	2.53	0.03	-	0.01	0.020	0	0.005
261		134	QTM0	PATCH	2	0.29	9.40	3.20	0.12	-	0.08	0.031	0	0.012
261		135	QTM0	PATCH	2	0.21	10.62	5.63	0.11	-	0.01	0.020	0	0.011
261		136	QTM0	PATCH	2	0.47	9.42	2.84	0.06	-	0.04	0.050	0	0.006
261		142	QTM0	PATCH	2	0.18	11.02	6.07	0.08	-	0.04	0.017	0	0.007
261		143	QTM0	PATCH	2	0.49	9.58	3.67	0.08	-	0.02	0.051	0	0.008
261		151	QTM0	PATCH	4	0.81	15.06	8.47	0.16	-	0.23	0.054	0	0.010
261		152	QTM0	PATCH	4	0.44	15.24	7.53	0.29	-	0.12	0.029	0	0.019
261		153	QTM0	PATCH	4	0.35	15.56	8.92	0.24	-	0.02	0.022	0	0.015
261		154	QTM0	PATCH	4	1.00	13.54	9.00	0.16	-	0.04	0.074	0	0.012
261		155	QTM0	PATCH	4	0.47	14.20	4.92	0.19	-	0.06	0.033	0	0.014
261		165	QTM0	PATCH	4	0.81	15.54	8.38	0.17	-	0.23	0.052	0	0.011
261		166	QTM0	PATCH	4	0.32	15.76	8.93	0.41	-	0.02	0.020	0	0.026
261		167	QTM0	PATCH	4	0.79	14.69	9.16	0.22	-	0.01	0.054	0	0.015
261		168	QTM0	PATCH	4	0.78	13.43	6.71	0.16	-	0.09	0.058	0	0.012
261	1	129	QTM0	PATCH	1	0.39	10.69	5.33	0.09	-	0.13	0.037	0	0.008
261	6	134	QTM0	PATCH	2	0.65	18.26	6.32	0.27	-	0.39	0.036	0	0.015
261	7	135	QTM0	PATCH	2	0.90	21.02	12.40	0.54	-	0.06	0.043	0	0.026
261	8	136	QTM0	PATCH	2	0.77	19.03	6.97	0.30	-	0.29	0.041	0	0.016
261	14	142	QTM0	PATCH	2	0.62	23.85	12.25	0.46	-	0.11	0.026	0	0.019
261	15	143	QTM0	PATCH	2	0.92	18.68	8.79	0.35	-	0.19	0.049	0	0.019
261	23	151	QTM0	PATCH	4	2.00	34.34	16.61	0.38	-	0.82	0.058	0	0.011
261	24	152	QTM0	PATCH	4	1.29	31.53	18.17	1.04	-	0.22	0.041	0	0.033
261	25	153	QTM0	PATCH	4	0.85	39.12	18.37	1.12	-	0.08	0.022	0	0.029
261	26	154	QTM0	PATCH	4	1.72	32.99	18.03	0.95	-	0.21	0.052	0	0.029
261	27	155	QTM0	PATCH	4	1.66	33.36	15.05	0.85	-	0.54	0.050	0	0.026
261	37	165	QTM0	PATCH	4	1.73	35.35	18.09	0.64	-	0.55	0.049	0	0.018
261	38	166	QTM0	PATCH	4	1.32	37.30	20.39	0.92	-	0.13	0.035	0	0.025
261	39	167	QTM0	PATCH	4	1.76	37.39	17.48	0.66	-	0.18	0.047	0	0.018
261	40	168	QTM0	PATCH	4	1.53	33.41	17.14	0.81	-	0.33	0.046	0	0.024

Table 3. PD of QTM#0 – patch antenna (39GHz)

QTM#0 Low Ch.

n260 Low ch.(37.05GHz)						4cm2 PD(W/m2) at 2mm evaluation surfaces @6dBm relative phase worst PD for MIMO						Ratio		
Band	Beam_ID		Ant module	Ant Type	Num. of Feed	Front	Back	Right	Left	Top	Bottom	Front / (worst surface)	Top / (worst surface)	Left / (worst surface)
260	1		QTM0	PATCH	1	0.03	6.51	1.25	0.17	-	0.06	0.005	0	0.025
260	6		QTM0	PATCH	2	0.06	10.92	2.14	0.23	-	0.06	0.005	0	0.021
260	7		QTM0	PATCH	2	0.06	10.17	2.60	0.41	-	0.11	0.006	0	0.040
260	8		QTM0	PATCH	2	0.05	11.54	2.22	0.24	-	0.05	0.004	0	0.021
260	14		QTM0	PATCH	2	0.03	11.69	3.16	0.24	-	0.03	0.002	0	0.021
260	15		QTM0	PATCH	2	0.05	12.38	5.37	0.25	-	0.04	0.004	0	0.020
260	23		QTM0	PATCH	4	0.05	19.21	7.70	0.21	-	0.09	0.003	0	0.011
260	24		QTM0	PATCH	4	0.16	20.79	7.55	0.89	-	0.05	0.008	0	0.043
260	25		QTM0	PATCH	4	0.14	19.50	8.60	0.55	-	0.11	0.007	0	0.028
260	26		QTM0	PATCH	4	0.19	19.71	8.43	0.26	-	0.17	0.010	0	0.013
260	27		QTM0	PATCH	4	0.30	20.08	7.84	0.25	-	0.06	0.015	0	0.013
260	37		QTM0	PATCH	4	0.14	21.10	6.18	0.57	-	0.06	0.007	0	0.027
260	38		QTM0	PATCH	4	0.31	19.62	7.67	0.67	-	0.16	0.016	0	0.034
260	39		QTM0	PATCH	4	0.19	20.02	9.04	0.48	-	0.12	0.010	0	0.024
260	40		QTM0	PATCH	4	0.08	20.30	7.60	0.07	-	0.12	0.004	0	0.004
260		129	QTM0	PATCH	1	0.01	5.96	1.07	0.07	-	0.02	0.001	0	0.012
260		134	QTM0	PATCH	2	0.07	9.21	1.81	0.19	-	0.01	0.008	0	0.021
260		135	QTM0	PATCH	2	0.11	12.06	3.73	0.33	-	0.02	0.009	0	0.027
260		136	QTM0	PATCH	2	0.07	12.43	4.08	0.07	-	0.02	0.005	0	0.006
260		142	QTM0	PATCH	2	0.09	10.54	5.49	0.10	-	0.02	0.008	0	0.010
260		143	QTM0	PATCH	2	0.13	12.86	3.19	0.23	-	0.06	0.010	0	0.018
260		154	QTM0	PATCH	4	0.08	20.68	5.36	0.33	-	0.04	0.004	0	0.016
260		151	QTM0	PATCH	4	0.15	17.51	7.66	0.29	-	0.03	0.008	0	0.017
260		153	QTM0	PATCH	4	0.13	19.18	6.00	0.84	-	0.08	0.007	0	0.044
260		152	QTM0	PATCH	4	0.16	16.89	6.94	0.85	-	0.14	0.009	0	0.050
260		155	QTM0	PATCH	4	0.21	20.16	7.38	0.15	-	0.06	0.010	0	0.007
260		168	QTM0	PATCH	4	0.14	20.28	6.98	0.16	-	0.06	0.007	0	0.008
260		166	QTM0	PATCH	4	0.17	16.45	7.19	0.75	-	0.08	0.010	0	0.046
260		165	QTM0	PATCH	4	0.09	14.33	6.84	0.78	-	0.05	0.007	0	0.054
260		167	QTM0	PATCH	4	0.19	21.34	4.41	0.89	-	0.17	0.009	0	0.042
260	1	129	QTM0	PATCH	1	0.15	12.30	2.78	0.52	-	0.17	0.012	0	0.042
260	6	134	QTM0	PATCH	2	0.24	18.64	4.13	0.59	-	0.21	0.013	0	0.032
260	7	135	QTM0	PATCH	2	0.42	19.93	6.33	0.94	-	0.22	0.021	0	0.047
260	8	136	QTM0	PATCH	2	0.35	24.40	7.27	0.40	-	0.27	0.014	0	0.016
260	14	142	QTM0	PATCH	2	0.45	21.54	9.46	0.48	-	0.10	0.021	0	0.022
260	15	143	QTM0	PATCH	2	0.58	22.90	8.33	0.48	-	0.36	0.025	0	0.021
260	23	154	QTM0	PATCH	4	0.76	39.93	12.65	0.69	-	0.57	0.019	0	0.017
260	24	151	QTM0	PATCH	4	0.82	36.88	16.90	1.53	-	0.17	0.022	0	0.041
260	25	153	QTM0	PATCH	4	0.84	37.85	14.43	1.52	-	0.48	0.022	0	0.040
260	26	152	QTM0	PATCH	4	1.06	37.16	13.52	1.62	-	0.73	0.029	0	0.044
260	27	155	QTM0	PATCH	4	0.89	39.52	15.72	0.60	-	0.51	0.023	0	0.015
260	37	168	QTM0	PATCH	4	0.68	40.14	14.69	1.19	-	0.31	0.017	0	0.030
260	38	166	QTM0	PATCH	4	0.96	36.59	15.36	1.72	-	0.63	0.026	0	0.047
260	39	165	QTM0	PATCH	4	1.04	35.97	14.34	1.71	-	0.33	0.029	0	0.048
260	40	167	QTM0	PATCH	4	0.81	39.39	12.87	1.39	-	0.75	0.021	0	0.035

QTM#0 Mid Ch.

n260 Mid ch.(38.5GHz)						4cm2 PD(W/m2) at 2mm evaluation surfaces @6dBm relative phase worst PD for MIMO						Ratio		
Band	Beam_ID		Ant module	Ant Type	Num. of Feed	Front	Back	Right	Left	Top	Bottom	Front / (worst surface)	Top / (worst surface)	Left / (worst surface)
260	1		QTM0	PATCH	1	0.03	6.86	1.43	0.12	-	0.03	0.004	0	0.018
260	6		QTM0	PATCH	2	0.04	11.29	2.34	0.14	-	0.04	0.003	0	0.013
260	7		QTM0	PATCH	2	0.12	10.47	3.76	0.19	-	0.02	0.012	0	0.018
260	8		QTM0	PATCH	2	0.04	11.39	2.43	0.15	-	0.04	0.003	0	0.013
260	14		QTM0	PATCH	2	0.08	11.44	3.32	0.25	-	0.06	0.007	0	0.022
260	15		QTM0	PATCH	2	0.13	13.00	4.76	0.19	-	0.03	0.010	0	0.015
260	23		QTM0	PATCH	4	0.17	20.36	6.77	0.32	-	0.09	0.008	0	0.016
260	24		QTM0	PATCH	4	0.36	19.46	5.62	0.76	-	0.04	0.018	0	0.039
260	25		QTM0	PATCH	4	0.25	18.98	8.14	0.28	-	0.11	0.013	0	0.015
260	26		QTM0	PATCH	4	0.18	19.84	7.06	0.32	-	0.05	0.009	0	0.016
260	27		QTM0	PATCH	4	0.42	21.20	8.86	0.44	-	0.06	0.020	0	0.021
260	37		QTM0	PATCH	4	0.27	20.08	5.43	0.67	-	0.04	0.014	0	0.033
260	38		QTM0	PATCH	4	0.32	18.63	4.89	0.71	-	0.03	0.017	0	0.038
260	39		QTM0	PATCH	4	0.25	19.25	7.40	0.10	-	0.07	0.013	0	0.005
260	40		QTM0	PATCH	4	0.15	20.63	7.89	0.32	-	0.07	0.007	0	0.016
260		129	QTM0	PATCH	1	0.03	5.01	1.51	0.09	-	0.02	0.007	0	0.018
260		134	QTM0	PATCH	2	0.05	8.06	2.44	0.12	-	0.01	0.006	0	0.015
260		135	QTM0	PATCH	2	0.18	11.22	2.91	0.31	-	0.03	0.016	0	0.028
260		136	QTM0	PATCH	2	0.05	11.69	3.88	0.12	-	0.01	0.004	0	0.010
260		142	QTM0	PATCH	2	0.06	10.31	4.17	0.12	-	0.02	0.006	0	0.012
260		143	QTM0	PATCH	2	0.05	11.87	3.88	0.28	-	0.04	0.004	0	0.024
260		154	QTM0	PATCH	4	0.13	18.49	6.36	0.22	-	0.04	0.007	0	0.012
260		151	QTM0	PATCH	4	0.12	18.07	8.03	0.33	-	0.02	0.007	0	0.018
260		153	QTM0	PATCH	4	0.24	18.84	3.87	0.86	-	0.08	0.013	0	0.046
260		152	QTM0	PATCH	4	0.25	14.20	6.08	0.52	-	0.08	0.017	0	0.036
260		155	QTM0	PATCH	4	0.19	18.13	8.22	0.32	-	0.04	0.010	0	0.017
260		168	QTM0	PATCH	4	0.10	18.82	5.94	0.25	-	0.04	0.005	0	0.013
260		166	QTM0	PATCH	4	0.21	16.14	4.84	0.58	-	0.10	0.013	0	0.036
260		165	QTM0	PATCH	4	0.12	12.38	6.49	0.43	-	0.04	0.010	0	0.035
260		167	QTM0	PATCH	4	0.16	18.98	5.48	0.72	-	0.05	0.008	0	0.038
260	1	129	QTM0	PATCH	1	0.28	11.88	2.80	0.34	-	0.20	0.024	0	0.029
260	6	134	QTM0	PATCH	2	0.41	18.21	4.81	0.57	-	0.16	0.023	0	0.031
260	7	135	QTM0	PATCH	2	0.43	20.87	7.43	0.54	-	0.22	0.021	0	0.026
260	8	136	QTM0	PATCH	2	0.54	24.70	9.24	0.53	-	0.23	0.022	0	0.021
260	14	142	QTM0	PATCH	2	0.38	20.93	9.34	0.55	-	0.15	0.018	0	0.026
260	15	143	QTM0	PATCH	2	0.67	23.18	8.56	0.51	-	0.26	0.029	0	0.022
260	23	154	QTM0	PATCH	4	1.30	39.28	15.57	0.94	-	0.42	0.033	0	0.024
260	24	151	QTM0	PATCH	4	0.97	37.33	12.67	1.81	-	0.18	0.026	0	0.048
260	25	153	QTM0	PATCH	4	0.59	37.81	11.97	1.09	-	0.39	0.016	0	0.029
260	26	152	QTM0	PATCH	4	0.63	32.53	13.85	0.81	-	0.74	0.019	0	0.025
260	27	155	QTM0	PATCH	4	1.39	39.06	15.38	0.71	-	0.43	0.036	0	0.018
260	37	168	QTM0	PATCH	4	1.11	40.14	13.55	1.71	-	0.30	0.028	0	0.043
260	38	166	QTM0	PATCH	4	1.00	32.71	12.63	1.05	-	0.66	0.031	0	0.032
260	39	165	QTM0	PATCH	4	0.76	33.57	14.31	0.85	-	0.43	0.023	0	0.025
260	40	167	QTM0	PATCH	4	1.07	38.39	14.89	1.58	-	0.66	0.028	0	0.041

QTM#0 High Ch.

n260 High ch.(39.95GHz)						4cm2 PD(W/m2) at 2mm evaluation surfaces @6dBm relative phase worst PD for MIMO						Ratio		
Band	Beam_ID		Ant module	Ant Type	Num. of Feed	Front	Back	Right	Left	Top	Bottom	Front / (worst surface)	Top / (worst surface)	Left / (worst surface)
260	1		QTM0	PATCH	1	0.06	4.65	1.50	0.13	-	0.03	0.014	0	0.029
260	6		QTM0	PATCH	2	0.10	8.56	3.37	0.29	-	0.06	0.012	0	0.033
260	7		QTM0	PATCH	2	0.16	7.07	3.14	0.13	-	0.02	0.023	0	0.019
260	8		QTM0	PATCH	2	0.09	8.65	3.33	0.31	-	0.05	0.011	0	0.035
260	14		QTM0	PATCH	2	0.04	8.46	2.79	0.29	-	0.03	0.004	0	0.034
260	15		QTM0	PATCH	2	0.12	9.11	3.26	0.15	-	0.04	0.013	0	0.016
260	23		QTM0	PATCH	4	0.21	16.43	6.80	0.38	-	0.20	0.013	0	0.023
260	24		QTM0	PATCH	4	0.39	16.53	4.80	0.69	-	0.08	0.023	0	0.042
260	25		QTM0	PATCH	4	0.28	10.47	4.24	0.23	-	0.06	0.027	0	0.022
260	26		QTM0	PATCH	4	0.16	14.82	6.79	0.27	-	0.13	0.011	0	0.018
260	27		QTM0	PATCH	4	0.13	16.57	6.66	0.72	-	0.09	0.008	0	0.043
260	37		QTM0	PATCH	4	0.38	17.21	5.55	0.87	-	0.07	0.022	0	0.051
260	38		QTM0	PATCH	4	0.36	13.35	3.41	0.62	-	0.04	0.027	0	0.047
260	39		QTM0	PATCH	4	0.25	13.86	5.58	0.18	-	0.20	0.018	0	0.013
260	40		QTM0	PATCH	4	0.12	16.42	6.91	0.32	-	0.19	0.007	0	0.020
260		129	QTM0	PATCH	1	0.06	4.07	1.05	0.06	-	0.03	0.014	0	0.015
260		134	QTM0	PATCH	2	0.13	6.15	2.05	0.09	-	0.03	0.021	0	0.015
260		135	QTM0	PATCH	2	0.18	8.45	2.32	0.36	-	0.03	0.021	0	0.043
260		136	QTM0	PATCH	2	0.14	9.88	3.63	0.26	-	0.02	0.014	0	0.026
260		142	QTM0	PATCH	2	0.17	8.86	2.64	0.13	-	0.02	0.019	0	0.015
260		143	QTM0	PATCH	2	0.12	9.80	3.36	0.45	-	0.03	0.012	0	0.046
260		154	QTM0	PATCH	4	0.30	16.92	5.44	0.37	-	0.02	0.018	0	0.022
260		151	QTM0	PATCH	4	0.17	9.70	5.20	0.28	-	0.02	0.017	0	0.029
260		153	QTM0	PATCH	4	0.30	11.15	2.99	0.83	-	0.07	0.027	0	0.074
260		152	QTM0	PATCH	4	0.35	11.04	3.41	0.20	-	0.12	0.032	0	0.018
260		155	QTM0	PATCH	4	0.06	14.81	5.81	0.35	-	0.03	0.004	0	0.024
260		168	QTM0	PATCH	4	0.24	15.38	5.74	0.19	-	0.03	0.015	0	0.012
260		166	QTM0	PATCH	4	0.34	9.60	3.28	0.34	-	0.05	0.036	0	0.036
260		165	QTM0	PATCH	4	0.24	12.96	3.93	0.11	-	0.08	0.019	0	0.009
260		167	QTM0	PATCH	4	0.24	15.65	2.86	0.90	-	0.03	0.015	0	0.057
260	1	129	QTM0	PATCH	1	0.29	8.29	2.70	0.29	-	0.15	0.035	0	0.035
260	6	134	QTM0	PATCH	2	0.56	13.13	4.92	0.52	-	0.18	0.043	0	0.040
260	7	135	QTM0	PATCH	2	0.47	14.77	5.79	0.76	-	0.21	0.032	0	0.051
260	8	136	QTM0	PATCH	2	0.64	20.25	7.57	0.82	-	0.30	0.032	0	0.040
260	14	142	QTM0	PATCH	2	0.47	17.23	7.48	0.65	-	0.19	0.027	0	0.038
260	15	143	QTM0	PATCH	2	0.56	17.95	6.67	0.57	-	0.22	0.031	0	0.032
260	23	154	QTM0	PATCH	4	1.37	31.71	9.96	1.44	-	0.56	0.043	0	0.045
260	24	151	QTM0	PATCH	4	1.16	31.47	10.69	1.18	-	0.23	0.037	0	0.037
260	25	153	QTM0	PATCH	4	0.89	28.11	8.08	1.21	-	0.70	0.032	0	0.043
260	26	152	QTM0	PATCH	4	0.65	24.97	10.85	0.51	-	0.59	0.026	0	0.020
260	27	155	QTM0	PATCH	4	1.69	33.76	15.86	1.33	-	0.50	0.050	0	0.039
260	37	168	QTM0	PATCH	4	1.45	32.58	11.62	1.53	-	0.32	0.045	0	0.047
260	38	166	QTM0	PATCH	4	0.95	24.06	8.50	1.07	-	0.42	0.039	0	0.044
260	39	165	QTM0	PATCH	4	0.67	24.85	10.69	0.50	-	0.55	0.027	0	0.020
260	40	167	QTM0	PATCH	4	1.03	31.00	10.43	1.85	-	0.60	0.033	0	0.060

3.1.2 QTM#1 – Patch Antenna

Table 4 & Table 5 show the PD simulation evaluation of QTM#1 patch antenna at 28GHz / 39GHz for the corresponding evaluation planes specified in Table 1.

Table 4. PD of QTM#1 – patch antenna (28GHz)

QTM#1 Low Ch.

n261 Low ch.(27.56GHz)						4cm2 PD(W/m2) at 2mm evaluation surfaces @6dBm relative phase worst PD for MIMO						Ratio		
Band	Beam_ID		Ant module	Ant Type	Num. of Feed	Front	Back	Right	Left	Top	Bottom	Front / (worst surface)	Top / (worst surface)	Left / (worst surface)
261	0		QTM1	PATCH	1	2.06	5.10	8.19	0.10	0.09	-	0.251	0.012	0.012
261	3		QTM1	PATCH	2	4.15	9.82	17.51	0.16	1.09	-	0.237	0.062	0.009
261	4		QTM1	PATCH	2	7.50	14.61	21.52	0.13	0.07	-	0.348	0.003	0.006
261	5		QTM1	PATCH	2	7.06	12.24	19.99	0.26	0.32	-	0.353	0.016	0.013
261	12		QTM1	PATCH	2	7.22	13.56	21.55	0.23	0.24	-	0.335	0.011	0.010
261	13		QTM1	PATCH	2	7.27	13.69	20.79	0.21	0.23	-	0.350	0.011	0.010
261	18		QTM1	PATCH	4	8.78	22.67	32.18	0.57	1.32	-	0.273	0.041	0.018
261	19		QTM1	PATCH	4	11.68	25.86	36.89	0.36	0.88	-	0.317	0.024	0.010
261	20		QTM1	PATCH	4	14.17	28.90	40.85	0.23	0.18	-	0.347	0.004	0.006
261	21		QTM1	PATCH	4	12.61	28.22	34.92	0.25	0.16	-	0.361	0.005	0.007
261	22		QTM1	PATCH	4	15.60	20.89	32.25	0.33	1.31	-	0.484	0.041	0.010
261	33		QTM1	PATCH	4	10.90	25.17	36.04	0.44	0.81	-	0.302	0.023	0.012
261	34		QTM1	PATCH	4	14.50	29.40	43.01	0.27	0.32	-	0.337	0.007	0.006
261	35		QTM1	PATCH	4	12.79	29.37	36.62	0.30	0.22	-	0.349	0.006	0.008
261	36		QTM1	PATCH	4	15.54	23.97	33.93	0.25	0.22	-	0.458	0.007	0.007
261		128	QTM1	PATCH	1	2.72	3.78	6.97	0.04	0.24	-	0.390	0.035	0.006
261		133	QTM1	PATCH	2	6.60	8.53	16.76	0.19	0.12	-	0.394	0.007	0.011
261		132	QTM1	PATCH	2	7.37	9.25	16.82	0.09	0.10	-	0.438	0.006	0.005
261		131	QTM1	PATCH	2	3.25	7.63	13.23	0.07	0.13	-	0.246	0.010	0.006
261		141	QTM1	PATCH	2	7.23	9.88	18.00	0.16	0.07	-	0.402	0.004	0.009
261		140	QTM1	PATCH	2	6.10	6.75	14.97	0.13	0.16	-	0.408	0.011	0.009
261		150	QTM1	PATCH	4	11.68	12.82	22.34	0.33	0.41	-	0.523	0.018	0.015
261		149	QTM1	PATCH	4	10.85	17.09	25.09	0.34	0.74	-	0.432	0.030	0.013
261		148	QTM1	PATCH	4	13.99	16.68	27.71	0.15	0.10	-	0.505	0.004	0.005
261		147	QTM1	PATCH	4	12.42	17.34	25.42	0.18	0.30	-	0.488	0.012	0.007
261		146	QTM1	PATCH	4	7.78	11.63	20.24	0.24	0.33	-	0.384	0.016	0.012
261		164	QTM1	PATCH	4	11.74	14.79	24.57	0.33	0.32	-	0.478	0.013	0.013
261		163	QTM1	PATCH	4	11.38	19.16	24.94	0.20	0.48	-	0.456	0.019	0.008
261		162	QTM1	PATCH	4	13.70	18.48	26.91	0.22	0.28	-	0.509	0.010	0.008
261		161	QTM1	PATCH	4	10.55	16.68	24.89	0.17	0.23	-	0.424	0.009	0.007
261	0	128	QTM1	PATCH	1	4.25	6.52	12.09	0.12	0.78	-	0.351	0.064	0.010
261	3	133	QTM1	PATCH	2	7.26	12.05	24.72	0.38	1.28	-	0.294	0.052	0.015
261	4	132	QTM1	PATCH	2	14.96	21.83	30.97	0.28	0.76	-	0.483	0.024	0.009
261	5	131	QTM1	PATCH	2	9.28	14.11	25.38	0.32	2.00	-	0.366	0.079	0.013
261	12	141	QTM1	PATCH	2	16.30	24.28	34.38	0.40	0.48	-	0.474	0.014	0.012
261	13	140	QTM1	PATCH	2	12.87	18.36	29.43	0.36	1.46	-	0.437	0.049	0.012
261	18	150	QTM1	PATCH	4	19.91	31.51	48.52	0.92	3.51	-	0.410	0.072	0.019
261	19	149	QTM1	PATCH	4	25.48	38.47	55.21	0.66	2.00	-	0.462	0.036	0.012
261	20	148	QTM1	PATCH	4	34.96	39.09	58.12	0.46	0.86	-	0.601	0.015	0.008
261	21	147	QTM1	PATCH	4	28.79	39.33	52.91	0.52	2.45	-	0.544	0.046	0.010
261	22	146	QTM1	PATCH	4	17.92	26.02	44.08	0.56	4.77	-	0.407	0.108	0.013
261	33	164	QTM1	PATCH	4	22.27	35.78	55.95	0.72	2.71	-	0.398	0.049	0.013
261	34	163	QTM1	PATCH	4	33.28	40.48	57.12	0.52	1.10	-	0.583	0.019	0.009
261	35	162	QTM1	PATCH	4	30.35	38.19	53.93	0.62	1.60	-	0.563	0.030	0.011
261	36	161	QTM1	PATCH	4	26.48	35.78	51.20	0.40	4.17	-	0.517	0.081	0.008

QTM#1 Mid Ch.

n261 Mid ch.(27.925GHz)						4cm2 PD(W/m2) at 2mm evaluation surfaces @6dBm relative phase worst PD for MIMO						Ratio		
Band	Beam_ID		Ant module	Ant Type	Num. of Feed	Front	Back	Right	Left	Top	Bottom	Front / (worst surface)	Top / (worst surface)	Left / (worst surface)
261	0		QTM1	PATCH	1	1.63	3.41	5.50	0.10	0.25	-	0.297	0.045	0.018
261	3		QTM1	PATCH	2	2.95	6.86	12.38	0.13	1.03	-	0.238	0.083	0.010
261	4		QTM1	PATCH	2	5.10	9.98	14.90	0.11	0.09	-	0.342	0.006	0.007
261	5		QTM1	PATCH	2	4.99	8.23	13.68	0.20	0.26	-	0.365	0.019	0.014
261	12		QTM1	PATCH	2	5.24	9.46	15.19	0.15	0.16	-	0.345	0.011	0.010
261	13		QTM1	PATCH	2	5.02	9.25	14.24	0.16	0.19	-	0.353	0.013	0.011
261	18		QTM1	PATCH	4	6.90	15.42	22.55	0.40	1.12	-	0.306	0.050	0.018
261	19		QTM1	PATCH	4	8.11	18.00	24.98	0.27	0.84	-	0.325	0.034	0.011
261	20		QTM1	PATCH	4	10.13	18.98	26.18	0.22	0.10	-	0.387	0.004	0.008
261	21		QTM1	PATCH	4	9.66	19.23	23.45	0.19	0.12	-	0.412	0.005	0.008
261	22		QTM1	PATCH	4	11.87	14.16	21.39	0.26	1.17	-	0.555	0.055	0.012
261	33		QTM1	PATCH	4	7.89	17.28	24.88	0.33	0.75	-	0.317	0.030	0.013
261	34		QTM1	PATCH	4	10.50	19.08	29.09	0.19	0.35	-	0.361	0.012	0.007
261	35		QTM1	PATCH	4	9.17	20.02	25.20	0.22	0.16	-	0.364	0.006	0.009
261	36		QTM1	PATCH	4	12.21	16.13	22.23	0.20	0.80	-	0.549	0.036	0.009
261		128	QTM1	PATCH	1	2.54	3.38	5.98	0.05	0.29	-	0.425	0.048	0.008
261		133	QTM1	PATCH	2	6.05	7.38	15.43	0.19	0.12	-	0.392	0.008	0.012
261		132	QTM1	PATCH	2	7.25	8.18	14.71	0.11	0.10	-	0.493	0.007	0.008
261		131	QTM1	PATCH	2	3.14	5.89	11.32	0.08	0.13	-	0.277	0.011	0.007
261		141	QTM1	PATCH	2	6.93	8.23	16.62	0.17	0.06	-	0.417	0.004	0.010
261		140	QTM1	PATCH	2	5.86	6.26	12.91	0.14	0.18	-	0.454	0.014	0.011
261		150	QTM1	PATCH	4	10.73	11.41	20.19	0.32	0.35	-	0.531	0.017	0.016
261		149	QTM1	PATCH	4	10.61	14.97	22.96	0.37	0.70	-	0.462	0.030	0.016
261		148	QTM1	PATCH	4	13.25	13.39	22.16	0.18	0.09	-	0.598	0.004	0.008
261		147	QTM1	PATCH	4	11.15	10.04	22.84	0.21	0.27	-	0.488	0.012	0.009
261		146	QTM1	PATCH	4	5.70	9.73	17.31	0.24	0.37	-	0.329	0.021	0.014
261		164	QTM1	PATCH	4	11.09	13.26	22.50	0.32	0.26	-	0.493	0.011	0.014
261		163	QTM1	PATCH	4	10.28	15.46	21.82	0.30	0.66	-	0.471	0.030	0.014
261		162	QTM1	PATCH	4	12.95	14.84	24.26	0.24	0.25	-	0.534	0.010	0.010
261		161	QTM1	PATCH	4	9.16	14.11	20.92	0.17	0.24	-	0.438	0.012	0.008
261	0	128	QTM1	PATCH	1	3.08	4.28	8.16	0.11	0.65	-	0.377	0.080	0.014
261	3	133	QTM1	PATCH	2	5.51	8.19	17.40	0.32	1.09	-	0.317	0.063	0.019
261	4	132	QTM1	PATCH	2	10.85	15.76	21.47	0.20	0.48	-	0.505	0.022	0.009
261	5	131	QTM1	PATCH	2	6.64	9.92	17.04	0.24	1.31	-	0.390	0.077	0.014
261	12	141	QTM1	PATCH	2	12.11	16.63	24.08	0.28	0.30	-	0.503	0.012	0.012
261	13	140	QTM1	PATCH	2	9.05	13.24	19.78	0.25	0.96	-	0.458	0.049	0.013
261	18	150	QTM1	PATCH	4	14.92	20.93	33.19	0.71	2.46	-	0.449	0.074	0.021
261	19	149	QTM1	PATCH	4	18.38	26.60	37.73	0.57	1.72	-	0.487	0.046	0.015
261	20	148	QTM1	PATCH	4	24.44	25.14	40.58	0.41	0.59	-	0.602	0.015	0.010
261	21	147	QTM1	PATCH	4	20.09	28.32	36.77	0.38	1.54	-	0.546	0.042	0.010
261	22	146	QTM1	PATCH	4	11.07	17.77	29.47	0.47	3.02	-	0.376	0.103	0.016
261	33	164	QTM1	PATCH	4	16.84	24.45	37.63	0.55	1.92	-	0.447	0.051	0.015
261	34	163	QTM1	PATCH	4	23.93	27.04	39.90	0.48	1.21	-	0.600	0.030	0.012
261	35	162	QTM1	PATCH	4	21.29	27.23	36.51	0.45	1.09	-	0.583	0.030	0.012
261	36	161	QTM1	PATCH	4	17.23	24.58	34.86	0.34	2.66	-	0.494	0.076	0.010

QTM#1 High Ch.

n261 High ch.(28.29GHz) /						4cm2 PD(W/m2) at 2mm evaluation surfaces @6dBm relative phase worst PD for MIMO						Ratio		
Band	Beam_ID		Ant module	Ant Type	Num. of Feed	Front	Back	Right	Left	Top	Bottom	Front / (worst surface)	Top / (worst surface)	Left / (worst surface)
261	0		QTM1	PATCH	1	1.84	3.02	5.25	0.12	0.28	-	0.350	0.054	0.022
261	3		QTM1	PATCH	2	2.79	6.15	11.73	0.16	1.21	-	0.238	0.103	0.014
261	4		QTM1	PATCH	2	4.94	9.49	14.24	0.09	0.06	-	0.347	0.004	0.006
261	5		QTM1	PATCH	2	4.81	7.80	12.71	0.18	0.30	-	0.378	0.024	0.014
261	12		QTM1	PATCH	2	5.49	9.07	14.82	0.15	0.17	-	0.371	0.011	0.010
261	13		QTM1	PATCH	2	4.88	9.01	13.42	0.16	0.24	-	0.363	0.018	0.012
261	18		QTM1	PATCH	4	7.60	13.92	20.91	0.33	1.22	-	0.364	0.058	0.016
261	19		QTM1	PATCH	4	8.66	16.69	23.87	0.30	1.11	-	0.363	0.046	0.013
261	20		QTM1	PATCH	4	9.93	18.06	25.82	0.22	0.13	-	0.385	0.005	0.009
261	21		QTM1	PATCH	4	10.38	18.17	23.15	0.21	0.16	-	0.448	0.007	0.009
261	22		QTM1	PATCH	4	11.65	13.53	20.65	0.30	1.32	-	0.564	0.064	0.014
261	33		QTM1	PATCH	4	8.09	15.43	22.97	0.34	0.96	-	0.352	0.042	0.015
261	34		QTM1	PATCH	4	10.76	17.58	27.54	0.20	0.41	-	0.391	0.015	0.007
261	35		QTM1	PATCH	4	9.19	19.35	25.01	0.28	0.15	-	0.368	0.006	0.011
261	36		QTM1	PATCH	4	12.21	15.41	21.56	0.28	0.99	-	0.566	0.046	0.013
261		128	QTM1	PATCH	1	2.43	3.40	5.55	0.06	0.33	-	0.437	0.059	0.011
261		133	QTM1	PATCH	2	5.16	8.15	14.38	0.19	0.12	-	0.359	0.009	0.013
261		132	QTM1	PATCH	2	7.62	8.04	14.32	0.14	0.12	-	0.532	0.008	0.010
261		131	QTM1	PATCH	2	3.03	5.72	10.33	0.13	0.34	-	0.293	0.033	0.013
261		141	QTM1	PATCH	2	6.53	8.44	15.76	0.17	0.09	-	0.414	0.005	0.011
261		140	QTM1	PATCH	2	5.71	6.45	12.15	0.18	0.19	-	0.470	0.016	0.015
261		150	QTM1	PATCH	4	6.15	12.54	19.10	0.31	0.86	-	0.322	0.045	0.016
261		149	QTM1	PATCH	4	10.50	15.10	21.63	0.47	0.71	-	0.485	0.033	0.022
261		148	QTM1	PATCH	4	13.79	12.59	21.64	0.19	0.32	-	0.637	0.015	0.009
261		147	QTM1	PATCH	4	10.51	9.33	22.18	0.21	0.29	-	0.474	0.013	0.009
261		146	QTM1	PATCH	4	5.15	8.49	15.07	0.29	0.91	-	0.341	0.060	0.019
261		164	QTM1	PATCH	4	9.82	14.41	21.44	0.33	0.69	-	0.458	0.032	0.016
261		163	QTM1	PATCH	4	11.51	14.33	21.08	0.31	0.74	-	0.546	0.035	0.015
261		162	QTM1	PATCH	4	12.86	13.87	24.18	0.28	0.26	-	0.532	0.011	0.012
261		161	QTM1	PATCH	4	5.50	12.62	17.97	0.20	0.25	-	0.306	0.014	0.011
261	0	128	QTM1	PATCH	1	3.19	3.83	7.68	0.14	0.78	-	0.415	0.101	0.018
261	3	133	QTM1	PATCH	2	5.47	7.92	16.23	0.34	1.20	-	0.337	0.074	0.021
261	4	132	QTM1	PATCH	2	11.34	15.76	21.24	0.23	0.41	-	0.534	0.019	0.011
261	5	131	QTM1	PATCH	2	6.38	10.07	16.20	0.23	1.24	-	0.394	0.077	0.014
261	12	141	QTM1	PATCH	2	12.18	16.81	23.29	0.31	0.30	-	0.523	0.013	0.013
261	13	140	QTM1	PATCH	2	9.12	13.25	19.11	0.30	0.82	-	0.477	0.043	0.016
261	18	150	QTM1	PATCH	4	13.74	20.55	30.72	0.68	2.73	-	0.447	0.089	0.022
261	19	149	QTM1	PATCH	4	18.59	26.22	36.01	0.69	2.06	-	0.516	0.057	0.019
261	20	148	QTM1	PATCH	4	24.14	23.89	39.20	0.41	0.65	-	0.616	0.017	0.010
261	21	147	QTM1	PATCH	4	19.32	27.39	36.02	0.47	1.29	-	0.536	0.036	0.013
261	22	146	QTM1	PATCH	4	10.57	16.84	27.74	0.66	2.67	-	0.381	0.096	0.024
261	33	164	QTM1	PATCH	4	16.53	24.03	34.64	0.55	2.18	-	0.477	0.063	0.016
261	34	163	QTM1	PATCH	4	23.82	25.50	38.49	0.48	1.38	-	0.619	0.036	0.012
261	35	162	QTM1	PATCH	4	20.75	27.47	37.19	0.51	1.05	-	0.558	0.028	0.014
261	36	161	QTM1	PATCH	4	15.18	22.50	32.09	0.55	2.09	-	0.473	0.065	0.017

Table 5. PD of QTM#1 – patch antenna (39GHz)

QTM#1 Low Ch.

n260 Low ch.(37.05GHz)						4cm2 PD(W/m2) at 2mm evaluation surfaces @6dBm						Ratio		
						relative phase worst PD for MIMO						Front / (worst surface)	Top / (worst surface)	Left / (worst surface)
Band	Beam_ID		Ant module	Ant Type	Num. of Feed	Front	Back	Right	Left	Top	Bottom			
260	0		QTM1	PATCH	1	1.06	0.95	3.57	0.05	0.06	-	0.296	0.018	0.014
260	3		QTM1	PATCH	2	3.15	2.80	9.03	0.04	0.10	-	0.349	0.011	0.005
260	4		QTM1	PATCH	2	2.49	2.76	6.80	0.07	0.25	-	0.365	0.037	0.011
260	5		QTM1	PATCH	2	3.15	3.11	8.38	0.06	0.08	-	0.376	0.009	0.007
260	12		QTM1	PATCH	2	2.86	3.16	7.85	0.08	0.09	-	0.364	0.011	0.011
260	13		QTM1	PATCH	2	2.75	2.47	8.89	0.04	0.15	-	0.309	0.017	0.005
260	18		QTM1	PATCH	4	5.53	7.18	16.82	0.09	0.23	-	0.328	0.013	0.006
260	19		QTM1	PATCH	4	3.86	5.07	11.31	0.17	0.09	-	0.341	0.008	0.015
260	20		QTM1	PATCH	4	4.02	5.96	12.65	0.13	0.44	-	0.318	0.035	0.010
260	21		QTM1	PATCH	4	4.47	8.26	15.54	0.11	0.23	-	0.287	0.015	0.007
260	22		QTM1	PATCH	4	3.75	6.80	15.26	0.10	0.18	-	0.245	0.012	0.006
260	33		QTM1	PATCH	4	5.31	6.43	16.14	0.08	0.06	-	0.329	0.004	0.005
260	34		QTM1	PATCH	4	3.80	5.32	11.80	0.11	0.38	-	0.322	0.032	0.010
260	35		QTM1	PATCH	4	3.81	3.87	13.98	0.13	0.50	-	0.273	0.035	0.009
260	36		QTM1	PATCH	4	4.00	7.89	15.32	0.08	0.17	-	0.261	0.011	0.005
260		128	QTM1	PATCH	1	1.22	0.70	3.25	0.02	0.05	-	0.377	0.016	0.005
260		131	QTM1	PATCH	2	2.70	3.47	9.76	0.11	0.19	-	0.276	0.019	0.011
260		132	QTM1	PATCH	2	1.85	4.09	8.96	0.06	0.12	-	0.206	0.013	0.007
260		133	QTM1	PATCH	2	3.09	2.77	9.72	0.06	0.16	-	0.318	0.017	0.006
260		141	QTM1	PATCH	2	2.28	4.26	9.83	0.06	0.13	-	0.232	0.014	0.006
260		140	QTM1	PATCH	2	2.66	3.74	8.09	0.11	0.22	-	0.329	0.028	0.014
260		150	QTM1	PATCH	4	4.86	4.76	11.93	0.20	0.23	-	0.407	0.019	0.017
260		148	QTM1	PATCH	4	4.56	6.43	14.19	0.06	0.26	-	0.321	0.018	0.004
260		147	QTM1	PATCH	4	3.63	5.61	8.96	0.17	0.38	-	0.405	0.042	0.018
260		146	QTM1	PATCH	4	4.78	5.28	15.20	0.22	0.26	-	0.314	0.017	0.014
260		149	QTM1	PATCH	4	3.70	6.02	13.51	0.11	0.41	-	0.274	0.031	0.008
260		164	QTM1	PATCH	4	4.69	5.30	13.23	0.18	0.24	-	0.354	0.018	0.014
260		163	QTM1	PATCH	4	4.54	6.89	15.36	0.09	0.34	-	0.295	0.022	0.006
260		161	QTM1	PATCH	4	4.38	5.05	14.15	0.21	0.43	-	0.310	0.030	0.015
260		162	QTM1	PATCH	4	2.19	5.84	11.51	0.11	0.33	-	0.190	0.029	0.009
260	0	128	QTM1	PATCH	1	1.78	1.95	4.46	0.07	0.30	-	0.399	0.067	0.016
260	3	131	QTM1	PATCH	2	7.15	9.34	19.37	0.17	1.24	-	0.369	0.064	0.009
260	4	132	QTM1	PATCH	2	6.04	9.30	15.19	0.21	0.37	-	0.398	0.024	0.014
260	5	133	QTM1	PATCH	2	6.73	7.44	17.42	0.13	0.90	-	0.386	0.052	0.007
260	12	141	QTM1	PATCH	2	6.59	10.73	17.99	0.19	0.52	-	0.366	0.029	0.011
260	13	140	QTM1	PATCH	2	6.63	6.64	16.77	0.18	1.04	-	0.395	0.062	0.011
260	18	150	QTM1	PATCH	4	11.70	15.56	31.30	0.36	3.38	-	0.374	0.108	0.012
260	19	148	QTM1	PATCH	4	10.36	16.29	27.41	0.34	0.73	-	0.378	0.027	0.012
260	20	147	QTM1	PATCH	4	9.02	13.89	24.92	0.36	1.65	-	0.362	0.066	0.014
260	21	146	QTM1	PATCH	4	11.84	19.69	31.15	0.38	3.34	-	0.380	0.107	0.012
260	22	149	QTM1	PATCH	4	9.60	14.38	29.83	0.24	1.64	-	0.322	0.055	0.008
260	33	164	QTM1	PATCH	4	10.91	14.11	32.21	0.31	2.52	-	0.339	0.078	0.010
260	34	163	QTM1	PATCH	4	10.20	16.49	26.91	0.25	0.87	-	0.379	0.032	0.009
260	35	161	QTM1	PATCH	4	11.55	16.49	28.81	0.35	1.75	-	0.401	0.061	0.012
260	36	162	QTM1	PATCH	4	9.12	15.67	26.09	0.25	1.59	-	0.350	0.061	0.010

QTM#1 Mid Ch.

n260 Mid ch.(38.5GHz)						4cm2 PD(W/m2) at 2mm evaluation surfaces @6dBm relative phase worst PD for MIMO						Ratio		
Band	Beam_ID		Ant module	Ant Type	Num. of Feed	Front	Back	Right	Left	Top	Bottom	Front / (worst surface)	Top / (worst surface)	Left / (worst surface)
260	0		QTM1	PATCH	1	1.07	1.47	3.88	0.03	0.05	-	0.275	0.012	0.007
260	3		QTM1	PATCH	2	3.02	2.44	9.35	0.06	0.15	-	0.323	0.016	0.007
260	4		QTM1	PATCH	2	1.84	2.92	7.32	0.08	0.14	-	0.251	0.019	0.011
260	5		QTM1	PATCH	2	2.83	2.62	8.69	0.04	0.12	-	0.326	0.013	0.005
260	12		QTM1	PATCH	2	2.34	2.82	7.73	0.06	0.11	-	0.303	0.014	0.008
260	13		QTM1	PATCH	2	2.60	2.23	9.08	0.08	0.18	-	0.286	0.020	0.009
260	18		QTM1	PATCH	4	5.10	6.21	16.87	0.08	0.29	-	0.302	0.017	0.005
260	19		QTM1	PATCH	4	4.76	5.88	12.89	0.13	0.24	-	0.369	0.019	0.010
260	20		QTM1	PATCH	4	3.78	5.53	12.58	0.13	0.32	-	0.301	0.025	0.010
260	21		QTM1	PATCH	4	4.61	7.21	16.21	0.13	0.26	-	0.285	0.016	0.008
260	22		QTM1	PATCH	4	3.65	6.95	15.49	0.10	0.10	-	0.236	0.006	0.007
260	33		QTM1	PATCH	4	3.78	6.35	16.65	0.11	0.10	-	0.227	0.006	0.006
260	34		QTM1	PATCH	4	4.40	5.89	13.01	0.14	0.30	-	0.338	0.023	0.011
260	35		QTM1	PATCH	4	4.82	6.90	15.94	0.16	0.34	-	0.302	0.021	0.010
260	36		QTM1	PATCH	4	3.87	7.25	15.36	0.11	0.26	-	0.252	0.017	0.007
260		128	QTM1	PATCH	1	1.04	0.76	3.23	0.03	0.03	-	0.321	0.009	0.008
260		131	QTM1	PATCH	2	2.57	4.08	9.52	0.11	0.15	-	0.270	0.016	0.011
260		132	QTM1	PATCH	2	2.33	4.52	9.57	0.11	0.12	-	0.244	0.012	0.012
260		133	QTM1	PATCH	2	3.28	2.93	8.95	0.08	0.18	-	0.366	0.020	0.009
260		141	QTM1	PATCH	2	2.54	3.57	9.90	0.07	0.08	-	0.257	0.008	0.007
260		140	QTM1	PATCH	2	2.75	3.78	8.27	0.14	0.21	-	0.333	0.026	0.016
260		150	QTM1	PATCH	4	4.76	5.11	13.37	0.19	0.27	-	0.356	0.020	0.014
260		148	QTM1	PATCH	4	4.31	7.21	14.66	0.13	0.23	-	0.294	0.016	0.009
260		147	QTM1	PATCH	4	3.19	5.59	9.46	0.14	0.20	-	0.337	0.021	0.015
260		146	QTM1	PATCH	4	4.48	5.80	15.42	0.13	0.45	-	0.291	0.029	0.009
260		149	QTM1	PATCH	4	5.00	7.22	14.82	0.13	0.23	-	0.337	0.016	0.009
260		164	QTM1	PATCH	4	5.64	5.26	14.65	0.16	0.29	-	0.385	0.020	0.011
260		163	QTM1	PATCH	4	4.17	7.35	14.80	0.13	0.18	-	0.282	0.012	0.009
260		161	QTM1	PATCH	4	3.41	5.71	13.60	0.17	0.37	-	0.251	0.027	0.013
260		162	QTM1	PATCH	4	4.36	5.46	14.01	0.14	0.26	-	0.312	0.018	0.010
260	0	128	QTM1	PATCH	1	1.62	2.38	4.63	0.05	0.21	-	0.350	0.045	0.011
260	3	131	QTM1	PATCH	2	7.12	8.42	19.16	0.20	0.95	-	0.372	0.050	0.010
260	4	132	QTM1	PATCH	2	6.41	10.26	16.28	0.26	0.46	-	0.394	0.028	0.016
260	5	133	QTM1	PATCH	2	5.76	6.76	16.55	0.16	0.62	-	0.348	0.037	0.010
260	12	141	QTM1	PATCH	2	6.36	10.67	18.28	0.19	0.35	-	0.348	0.019	0.010
260	13	140	QTM1	PATCH	2	7.66	7.81	16.78	0.26	0.85	-	0.456	0.051	0.015
260	18	150	QTM1	PATCH	4	12.18	15.82	31.18	0.36	3.59	-	0.391	0.115	0.012
260	19	148	QTM1	PATCH	4	10.62	16.42	28.74	0.29	0.54	-	0.370	0.019	0.010
260	20	147	QTM1	PATCH	4	9.69	13.20	25.08	0.36	0.98	-	0.386	0.039	0.014
260	21	146	QTM1	PATCH	4	11.71	19.25	30.37	0.36	3.39	-	0.386	0.112	0.012
260	22	149	QTM1	PATCH	4	9.02	14.59	34.57	0.29	1.20	-	0.261	0.035	0.008
260	33	164	QTM1	PATCH	4	11.95	15.06	34.77	0.29	2.52	-	0.344	0.072	0.008
260	34	163	QTM1	PATCH	4	10.62	16.66	27.14	0.28	0.61	-	0.391	0.022	0.010
260	35	161	QTM1	PATCH	4	12.09	16.17	28.79	0.41	1.62	-	0.420	0.056	0.014
260	36	162	QTM1	PATCH	4	9.43	17.19	28.77	0.24	1.19	-	0.328	0.041	0.008

QTM#1 High Ch.

n260 High ch.(39.95GHz)						4cm2 PD(W/m2) at 2mm evaluation surfaces @6dBm						Ratio		
						relative phase worst PD for MIMO						Front / (worst surface)	Top / (worst surface)	Left / (worst surface)
Band	Beam_ID		Ant module	Ant Type	Num. of Feed	Front	Back	Right	Left	Top	Bottom			
260	0		QTM1	PATCH	1	0.99	2.31	4.00	0.02	0.04	-	0.247	0.009	0.006
260	3		QTM1	PATCH	2	2.45	4.02	8.78	0.05	0.08	-	0.279	0.009	0.006
260	4		QTM1	PATCH	2	2.33	3.14	6.84	0.11	0.13	-	0.341	0.019	0.016
260	5		QTM1	PATCH	2	2.57	3.83	8.94	0.04	0.03	-	0.288	0.004	0.005
260	12		QTM1	PATCH	2	2.48	3.69	7.99	0.06	0.04	-	0.310	0.004	0.008
260	13		QTM1	PATCH	2	2.09	3.80	8.20	0.07	0.09	-	0.255	0.011	0.009
260	18		QTM1	PATCH	4	4.06	9.57	18.14	0.19	0.07	-	0.224	0.004	0.010
260	19		QTM1	PATCH	4	3.15	5.23	11.45	0.16	0.27	-	0.275	0.024	0.014
260	20		QTM1	PATCH	4	3.12	4.42	9.69	0.18	0.62	-	0.322	0.064	0.019
260	21		QTM1	PATCH	4	4.16	8.78	15.44	0.25	0.17	-	0.269	0.011	0.016
260	22		QTM1	PATCH	4	3.40	9.69	17.44	0.15	0.10	-	0.195	0.006	0.008
260	33		QTM1	PATCH	4	4.33	9.38	18.30	0.11	0.11	-	0.237	0.006	0.006
260	34		QTM1	PATCH	4	3.11	4.87	10.40	0.18	0.41	-	0.299	0.039	0.017
260	35		QTM1	PATCH	4	3.81	7.93	13.44	0.21	0.19	-	0.284	0.014	0.015
260	36		QTM1	PATCH	4	3.85	9.88	17.05	0.23	0.07	-	0.226	0.004	0.014
260		128	QTM1	PATCH	1	0.79	0.97	2.93	0.03	0.01	-	0.269	0.003	0.010
260		131	QTM1	PATCH	2	2.01	3.19	9.76	0.09	0.10	-	0.206	0.010	0.010
260		132	QTM1	PATCH	2	2.02	4.14	8.54	0.08	0.05	-	0.237	0.006	0.009
260		133	QTM1	PATCH	2	1.79	3.72	8.48	0.06	0.15	-	0.211	0.018	0.007
260		141	QTM1	PATCH	2	2.02	4.33	9.92	0.06	0.11	-	0.204	0.011	0.006
260		140	QTM1	PATCH	2	1.99	3.96	7.22	0.11	0.16	-	0.276	0.022	0.016
260		150	QTM1	PATCH	4	3.19	5.47	12.46	0.11	0.52	-	0.256	0.042	0.009
260		148	QTM1	PATCH	4	3.46	7.25	13.32	0.17	0.08	-	0.260	0.006	0.013
260		147	QTM1	PATCH	4	2.54	5.37	11.55	0.17	0.12	-	0.220	0.011	0.015
260		146	QTM1	PATCH	4	3.83	5.67	13.94	0.15	0.45	-	0.275	0.032	0.011
260		149	QTM1	PATCH	4	3.75	7.80	16.25	0.16	0.11	-	0.231	0.007	0.010
260		164	QTM1	PATCH	4	3.41	6.57	15.27	0.12	0.18	-	0.223	0.012	0.008
260		163	QTM1	PATCH	4	3.64	7.27	14.50	0.12	0.08	-	0.251	0.006	0.008
260		161	QTM1	PATCH	4	3.08	5.24	12.15	0.19	0.26	-	0.254	0.022	0.015
260		162	QTM1	PATCH	4	3.81	5.74	12.61	0.14	0.13	-	0.302	0.011	0.011
260	0	128	QTM1	PATCH	1	1.38	2.50	4.56	0.05	0.23	-	0.303	0.050	0.011
260	3	131	QTM1	PATCH	2	6.43	10.31	20.09	0.19	0.99	-	0.320	0.049	0.009
260	4	132	QTM1	PATCH	2	5.77	9.68	15.60	0.24	0.36	-	0.370	0.023	0.015
260	5	133	QTM1	PATCH	2	5.52	8.64	16.13	0.14	0.64	-	0.342	0.040	0.009
260	12	141	QTM1	PATCH	2	6.44	10.63	19.18	0.16	0.36	-	0.336	0.019	0.008
260	13	140	QTM1	PATCH	2	5.64	8.56	16.12	0.28	0.82	-	0.350	0.051	0.017
260	18	150	QTM1	PATCH	4	9.75	17.30	29.75	0.29	2.38	-	0.328	0.080	0.010
260	19	148	QTM1	PATCH	4	9.09	12.31	23.25	0.32	0.50	-	0.391	0.022	0.014
260	20	147	QTM1	PATCH	4	8.97	13.07	22.81	0.46	1.17	-	0.393	0.051	0.020
260	21	146	QTM1	PATCH	4	10.19	17.65	27.51	0.44	2.15	-	0.370	0.078	0.016
260	22	149	QTM1	PATCH	4	8.57	15.48	30.93	0.48	1.32	-	0.277	0.043	0.016
260	33	164	QTM1	PATCH	4	9.52	16.53	31.97	0.23	2.26	-	0.298	0.071	0.007
260	34	163	QTM1	PATCH	4	9.49	15.08	23.28	0.41	0.62	-	0.408	0.027	0.018
260	35	161	QTM1	PATCH	4	9.23	15.44	25.51	0.43	1.70	-	0.362	0.067	0.017
260	36	162	QTM1	PATCH	4	8.51	17.57	29.84	0.48	0.71	-	0.285	0.024	0.016

3.1.3 QTM#2 – Patch Antenna

Table 6 & Table 7 show the PD simulation evaluation of QTM#2 patch antenna at 28GHz / 39GHz for the corresponding evaluation plane specified in Table 1.

Table 6. PD of QTM#2 – patch antenna (28GHz)

QTM#2 Low Ch.

n261 Low ch.(27.56GHz)						4cm2 PD(W/m2) at 2mm evaluation surfaces @6dBm relative phase worst PD for MIMO						Ratio		
Band	Beam_ID		Ant module	Ant Type	Num. of Feed	Front	Back	Right	Left	Top	Bottom	Front / (worst surface)	Top / (worst surface)	Left / (worst surface)
261	2		QTM2	PATCH	1	0.45	5.03	0.21	2.77	0.22	-	0.089	0.044	0.551
261	9		QTM2	PATCH	2	0.53	7.56	0.17	4.84	0.50	-	0.070	0.067	0.640
261	10		QTM2	PATCH	2	0.69	9.96	0.48	7.26	0.13	-	0.069	0.013	0.728
261	11		QTM2	PATCH	2	0.81	9.87	0.38	5.54	0.32	-	0.082	0.033	0.561
261	16		QTM2	PATCH	2	0.61	7.88	0.16	5.32	0.44	-	0.077	0.056	0.675
261	17		QTM2	PATCH	2	0.55	10.41	0.55	7.03	0.21	-	0.053	0.020	0.676
261	28		QTM2	PATCH	4	1.36	11.97	0.23	8.93	0.84	-	0.114	0.071	0.746
261	29		QTM2	PATCH	4	1.70	16.59	0.27	12.30	0.65	-	0.102	0.039	0.742
261	30		QTM2	PATCH	4	1.92	12.58	0.45	11.20	0.25	-	0.152	0.020	0.890
261	31		QTM2	PATCH	4	1.51	15.54	0.80	10.12	0.71	-	0.097	0.046	0.651
261	32		QTM2	PATCH	4	1.08	18.15	0.70	11.03	0.83	-	0.060	0.046	0.608
261	41		QTM2	PATCH	4	1.30	14.72	0.27	10.31	0.78	-	0.089	0.053	0.700
261	42		QTM2	PATCH	4	1.28	16.83	0.18	13.24	0.25	-	0.076	0.015	0.787
261	43		QTM2	PATCH	4	1.54	14.97	0.76	10.05	0.55	-	0.103	0.036	0.671
261	44		QTM2	PATCH	4	1.39	15.68	0.74	10.24	0.85	-	0.089	0.054	0.653
261		130	QTM2	PATCH	1	0.12	2.87	0.03	1.95	0.08	-	0.041	0.029	0.680
261		139	QTM2	PATCH	2	0.80	6.32	0.09	4.63	0.22	-	0.127	0.035	0.733
261		138	QTM2	PATCH	2	1.12	10.72	0.23	8.83	0.17	-	0.104	0.016	0.824
261		137	QTM2	PATCH	2	1.06	7.64	0.23	4.71	0.18	-	0.139	0.024	0.617
261		145	QTM2	PATCH	2	0.58	9.62	0.19	6.76	0.33	-	0.061	0.034	0.703
261		144	QTM2	PATCH	2	0.52	9.47	0.23	7.30	0.16	-	0.055	0.017	0.771
261		159	QTM2	PATCH	4	1.49	16.51	0.27	11.11	0.41	-	0.090	0.025	0.673
261		160	QTM2	PATCH	4	1.52	15.30	0.11	10.51	0.45	-	0.099	0.030	0.687
261		158	QTM2	PATCH	4	1.78	19.39	0.42	14.62	0.24	-	0.092	0.012	0.754
261		157	QTM2	PATCH	4	0.68	16.53	0.38	10.98	0.45	-	0.041	0.027	0.665
261		156	QTM2	PATCH	4	0.70	12.46	0.31	7.76	0.83	-	0.056	0.067	0.623
261		172	QTM2	PATCH	4	1.28	15.84	0.13	10.48	0.42	-	0.081	0.027	0.661
261		171	QTM2	PATCH	4	1.54	16.84	0.30	11.69	0.40	-	0.092	0.024	0.694
261		170	QTM2	PATCH	4	1.44	18.37	0.41	12.93	0.35	-	0.078	0.019	0.704
261		169	QTM2	PATCH	4	1.01	13.72	0.37	8.73	0.78	-	0.074	0.057	0.636
261	2	130	QTM2	PATCH	1	0.63	6.85	0.32	4.34	0.59	-	0.093	0.086	0.634
261	9	139	QTM2	PATCH	2	1.44	14.26	0.33	10.86	1.87	-	0.101	0.131	0.761
261	10	138	QTM2	PATCH	2	3.23	25.68	1.14	18.83	0.51	-	0.126	0.020	0.733
261	11	137	QTM2	PATCH	2	2.63	19.54	0.71	13.01	1.36	-	0.135	0.070	0.666
261	16	145	QTM2	PATCH	2	2.06	23.14	0.38	15.83	1.57	-	0.089	0.068	0.684
261	17	144	QTM2	PATCH	2	1.58	24.03	1.16	18.10	0.44	-	0.066	0.018	0.753
261	28	159	QTM2	PATCH	4	4.10	33.76	0.55	25.60	3.06	-	0.122	0.091	0.758
261	29	160	QTM2	PATCH	4	6.05	38.67	0.54	28.21	3.90	-	0.157	0.101	0.730
261	30	158	QTM2	PATCH	4	6.89	41.35	1.66	29.70	0.70	-	0.167	0.017	0.718
261	31	157	QTM2	PATCH	4	4.66	35.47	1.66	25.10	1.76	-	0.131	0.050	0.708
261	32	156	QTM2	PATCH	4	4.60	32.22	1.38	21.81	4.37	-	0.143	0.136	0.677
261	41	172	QTM2	PATCH	4	4.77	34.50	0.55	26.66	2.79	-	0.138	0.081	0.773
261	42	171	QTM2	PATCH	4	6.34	37.86	0.74	30.60	1.05	-	0.167	0.028	0.808
261	43	170	QTM2	PATCH	4	5.48	37.18	1.65	25.83	1.35	-	0.147	0.036	0.695
261	44	169	QTM2	PATCH	4	3.52	34.52	1.51	24.25	2.84	-	0.102	0.082	0.702

QTM#2 Mid Ch.

n261 Mid ch.(27.925GHz)						4cm2 PD(W/m2) at 2mm evaluation surfaces @6dBm relative phase worst PD for MIMO						Ratio		
Band	Beam_ID		Ant module	Ant Type	Num. of Feed	Front	Back	Right	Left	Top	Bottom	Front / (worst surface)	Top / (worst surface)	Left / (worst surface)
261	2		QTM2	PATCH	1	0.40	4.91	0.20	2.58	0.25	-	0.082	0.050	0.525
261	9		QTM2	PATCH	2	0.48	7.50	0.12	4.79	0.56	-	0.064	0.074	0.638
261	10		QTM2	PATCH	2	0.65	9.67	0.50	6.79	0.12	-	0.067	0.012	0.702
261	11		QTM2	PATCH	2	0.67	9.93	0.32	5.37	0.32	-	0.068	0.032	0.540
261	16		QTM2	PATCH	2	0.55	7.66	0.14	5.18	0.49	-	0.072	0.063	0.676
261	17		QTM2	PATCH	2	0.53	10.39	0.59	6.68	0.21	-	0.051	0.020	0.642
261	28		QTM2	PATCH	4	1.11	11.03	0.21	8.36	0.85	-	0.101	0.077	0.758
261	29		QTM2	PATCH	4	1.65	14.77	0.19	11.56	0.70	-	0.112	0.048	0.782
261	30		QTM2	PATCH	4	1.25	12.33	0.56	10.35	0.31	-	0.102	0.025	0.840
261	31		QTM2	PATCH	4	0.88	15.48	0.88	9.52	0.84	-	0.057	0.054	0.615
261	32		QTM2	PATCH	4	1.06	16.25	0.59	10.38	0.84	-	0.065	0.052	0.639
261	41		QTM2	PATCH	4	1.18	13.33	0.22	9.69	0.72	-	0.089	0.054	0.727
261	42		QTM2	PATCH	4	1.41	15.43	0.17	12.40	0.45	-	0.091	0.029	0.804
261	43		QTM2	PATCH	4	0.72	14.84	0.92	9.12	0.68	-	0.048	0.046	0.615
261	44		QTM2	PATCH	4	1.01	16.00	0.70	10.12	0.89	-	0.063	0.055	0.632
261		130	QTM2	PATCH	1	0.12	2.95	0.03	1.76	0.10	-	0.040	0.034	0.596
261		139	QTM2	PATCH	2	0.59	6.29	0.05	4.04	0.23	-	0.095	0.037	0.642
261		138	QTM2	PATCH	2	1.27	11.29	0.21	8.78	0.14	-	0.113	0.012	0.777
261		137	QTM2	PATCH	2	0.82	7.95	0.19	4.80	0.18	-	0.104	0.023	0.604
261		145	QTM2	PATCH	2	0.69	9.97	0.20	6.91	0.32	-	0.069	0.033	0.693
261		144	QTM2	PATCH	2	0.58	9.53	0.21	6.88	0.16	-	0.061	0.017	0.721
261		159	QTM2	PATCH	4	1.06	16.91	0.25	11.00	0.53	-	0.063	0.031	0.651
261		160	QTM2	PATCH	4	0.89	15.78	0.18	10.42	0.56	-	0.056	0.035	0.660
261		158	QTM2	PATCH	4	2.01	18.71	0.34	13.95	0.23	-	0.107	0.012	0.745
261		157	QTM2	PATCH	4	0.69	16.15	0.31	10.72	0.60	-	0.043	0.037	0.664
261		156	QTM2	PATCH	4	0.79	12.91	0.28	7.92	0.80	-	0.061	0.062	0.613
261		172	QTM2	PATCH	4	0.81	16.21	0.21	10.68	0.63	-	0.050	0.039	0.659
261		171	QTM2	PATCH	4	1.34	17.08	0.27	11.42	0.45	-	0.078	0.026	0.669
261		170	QTM2	PATCH	4	1.68	17.79	0.34	12.45	0.45	-	0.094	0.025	0.700
261		169	QTM2	PATCH	4	0.84	13.99	0.31	8.80	0.84	-	0.060	0.060	0.629
261	2	130	QTM2	PATCH	1	0.42	5.44	0.23	3.16	0.49	-	0.076	0.090	0.581
261	9	139	QTM2	PATCH	2	1.26	10.88	0.20	8.09	1.40	-	0.116	0.128	0.744
261	10	138	QTM2	PATCH	2	3.22	19.71	0.96	13.90	0.42	-	0.163	0.021	0.705
261	11	137	QTM2	PATCH	2	2.11	15.79	0.45	10.42	1.07	-	0.134	0.068	0.660
261	16	145	QTM2	PATCH	2	1.65	18.28	0.26	12.46	1.23	-	0.090	0.067	0.682
261	17	144	QTM2	PATCH	2	1.42	18.57	0.94	13.96	0.39	-	0.077	0.021	0.752
261	28	159	QTM2	PATCH	4	2.37	26.45	0.42	20.95	2.42	-	0.089	0.091	0.792
261	29	160	QTM2	PATCH	4	4.56	29.45	0.37	21.65	2.86	-	0.155	0.097	0.735
261	30	158	QTM2	PATCH	4	5.75	30.94	1.37	22.62	0.68	-	0.186	0.022	0.731
261	31	157	QTM2	PATCH	4	3.42	27.19	1.42	19.25	1.69	-	0.126	0.062	0.708
261	32	156	QTM2	PATCH	4	3.98	26.39	0.97	16.87	2.92	-	0.151	0.111	0.639
261	41	172	QTM2	PATCH	4	2.97	27.28	0.38	21.83	2.25	-	0.109	0.083	0.800
261	42	171	QTM2	PATCH	4	5.16	29.52	0.62	24.45	0.99	-	0.175	0.034	0.828
261	43	170	QTM2	PATCH	4	4.44	28.62	1.54	19.98	1.45	-	0.155	0.051	0.698
261	44	169	QTM2	PATCH	4	2.93	27.10	1.10	18.51	1.98	-	0.108	0.073	0.683

QTM#2 High Ch.

n261 High ch.(28.29GHz)						4cm2 PD(W/m2) at 2mm evaluation surfaces @6dBm relative phase worst PD for MIMO						Ratio		
Band	Beam_ID		Ant module	Ant Type	Num. of Feed	Front	Back	Right	Left	Top	Bottom	Front / (worst surface)	Top / (worst surface)	Left / (worst surface)
261	2		QTM2	PATCH	1	0.28	4.72	0.17	2.52	0.22	-	0.059	0.048	0.534
261	9		QTM2	PATCH	2	0.51	7.38	0.19	5.04	0.58	-	0.069	0.079	0.683
261	10		QTM2	PATCH	2	0.44	9.44	0.41	6.27	0.08	-	0.046	0.009	0.664
261	11		QTM2	PATCH	2	0.58	9.39	0.30	5.48	0.29	-	0.061	0.030	0.584
261	16		QTM2	PATCH	2	0.55	7.52	0.18	5.34	0.51	-	0.073	0.068	0.711
261	17		QTM2	PATCH	2	0.35	10.04	0.48	6.16	0.17	-	0.035	0.017	0.613
261	28		QTM2	PATCH	4	0.67	9.87	0.20	7.80	0.85	-	0.068	0.086	0.790
261	29		QTM2	PATCH	4	1.85	13.17	0.18	10.08	0.69	-	0.140	0.052	0.765
261	30		QTM2	PATCH	4	1.20	11.06	0.51	9.10	0.40	-	0.108	0.036	0.823
261	31		QTM2	PATCH	4	0.71	15.13	0.82	9.72	0.79	-	0.047	0.053	0.642
261	32		QTM2	PATCH	4	1.03	15.64	0.53	9.41	0.83	-	0.066	0.053	0.602
261	41		QTM2	PATCH	4	0.99	11.11	0.19	8.61	0.65	-	0.089	0.058	0.775
261	42		QTM2	PATCH	4	1.49	12.09	0.23	11.68	0.59	-	0.124	0.049	0.967
261	43		QTM2	PATCH	4	0.70	14.00	0.85	7.98	0.79	-	0.050	0.057	0.570
261	44		QTM2	PATCH	4	0.96	15.72	0.66	9.47	0.73	-	0.061	0.047	0.603
261		130	QTM2	PATCH	1	0.10	2.77	0.03	1.50	0.18	-	0.037	0.065	0.543
261		139	QTM2	PATCH	2	0.53	6.15	0.06	3.86	0.35	-	0.086	0.058	0.628
261		138	QTM2	PATCH	2	1.21	11.04	0.20	8.44	0.13	-	0.110	0.012	0.764
261		137	QTM2	PATCH	2	0.80	7.09	0.14	4.57	0.17	-	0.113	0.024	0.644
261		145	QTM2	PATCH	2	0.60	9.53	0.16	6.69	0.29	-	0.063	0.031	0.703
261		144	QTM2	PATCH	2	0.63	8.69	0.13	6.48	0.15	-	0.072	0.018	0.746
261		159	QTM2	PATCH	4	1.06	16.28	0.21	10.77	0.69	-	0.065	0.042	0.662
261		160	QTM2	PATCH	4	0.95	15.15	0.21	10.28	0.65	-	0.062	0.043	0.679
261		158	QTM2	PATCH	4	2.00	17.85	0.35	13.73	0.30	-	0.112	0.017	0.769
261		157	QTM2	PATCH	4	0.79	15.37	0.27	10.44	0.64	-	0.051	0.041	0.679
261		156	QTM2	PATCH	4	1.10	11.83	0.21	7.56	0.70	-	0.093	0.059	0.639
261		172	QTM2	PATCH	4	0.95	15.82	0.21	10.53	0.78	-	0.060	0.049	0.666
261		171	QTM2	PATCH	4	0.96	16.59	0.22	11.09	0.59	-	0.058	0.036	0.668
261		170	QTM2	PATCH	4	1.69	16.94	0.31	12.19	0.51	-	0.100	0.030	0.720
261		169	QTM2	PATCH	4	0.96	13.03	0.24	8.41	0.76	-	0.074	0.058	0.645
261	2	130	QTM2	PATCH	1	0.37	5.44	0.21	3.08	0.55	-	0.067	0.102	0.567
261	9	139	QTM2	PATCH	2	1.15	10.34	0.25	7.91	1.20	-	0.111	0.116	0.765
261	10	138	QTM2	PATCH	2	2.77	18.56	0.86	13.80	0.28	-	0.149	0.015	0.744
261	11	137	QTM2	PATCH	2	1.84	15.55	0.42	10.44	1.15	-	0.118	0.074	0.671
261	16	145	QTM2	PATCH	2	1.60	17.26	0.30	11.48	1.08	-	0.093	0.063	0.665
261	17	144	QTM2	PATCH	2	1.22	17.56	0.83	13.31	0.39	-	0.070	0.022	0.758
261	28	159	QTM2	PATCH	4	2.43	25.04	0.38	21.00	2.33	-	0.097	0.093	0.839
261	29	160	QTM2	PATCH	4	4.61	27.80	0.39	20.36	2.48	-	0.166	0.089	0.732
261	30	158	QTM2	PATCH	4	5.02	28.88	1.32	21.78	0.93	-	0.174	0.032	0.754
261	31	157	QTM2	PATCH	4	2.86	25.75	1.25	19.02	1.57	-	0.111	0.061	0.739
261	32	156	QTM2	PATCH	4	3.34	24.25	0.74	16.28	3.13	-	0.138	0.129	0.671
261	41	172	QTM2	PATCH	4	3.19	26.48	0.35	21.20	1.99	-	0.120	0.075	0.801
261	42	171	QTM2	PATCH	4	4.97	29.35	0.60	22.43	1.38	-	0.169	0.047	0.764
261	43	170	QTM2	PATCH	4	3.81	26.61	1.40	19.49	1.65	-	0.143	0.062	0.732
261	44	169	QTM2	PATCH	4	2.67	25.75	0.84	17.93	2.03	-	0.104	0.079	0.696

Table 7. PD of QTM#2 – patch antenna (39GHz)

QTM#2 Low Ch.

n260 Low ch.(37.05GHz)						4cm2 PD(W/m2) at 2mm evaluation surfaces @6dBm relative phase worst PD for MIMO						Ratio		
Band	Beam_ID		Ant module	Ant Type	Num. of Feed	Front	Back	Right	Left	Top	Bottom	Front / (worst surface)	Top / (worst surface)	Left / (worst surface)
260	2		QTM2	PATCH	1	0.27	3.90	0.09	2.94	0.07	-	0.069	0.017	0.754
260	9		QTM2	PATCH	2	0.30	5.84	0.12	3.59	0.31	-	0.051	0.053	0.614
260	10		QTM2	PATCH	2	0.19	5.64	0.15	3.62	0.10	-	0.034	0.017	0.642
260	11		QTM2	PATCH	2	0.26	5.73	0.12	4.00	0.25	-	0.045	0.043	0.698
260	16		QTM2	PATCH	2	0.28	5.73	0.12	3.22	0.29	-	0.050	0.051	0.563
260	17		QTM2	PATCH	2	0.38	7.90	0.16	5.07	0.19	-	0.049	0.023	0.642
260	28		QTM2	PATCH	4	0.64	13.43	0.27	9.81	0.44	-	0.048	0.033	0.730
260	29		QTM2	PATCH	4	0.62	12.89	0.28	10.84	0.42	-	0.048	0.032	0.841
260	30		QTM2	PATCH	4	0.55	10.07	0.29	7.36	0.20	-	0.054	0.020	0.731
260	31		QTM2	PATCH	4	0.83	7.89	0.30	8.08	0.23	-	0.102	0.028	1.000
260	32		QTM2	PATCH	4	0.68	13.17	0.30	9.35	0.40	-	0.052	0.030	0.710
260	41		QTM2	PATCH	4	0.72	13.11	0.27	10.40	0.40	-	0.055	0.031	0.793
260	42		QTM2	PATCH	4	0.71	12.01	0.08	7.59	0.41	-	0.059	0.034	0.632
260	43		QTM2	PATCH	4	0.56	9.64	0.29	7.03	0.15	-	0.058	0.016	0.730
260	44		QTM2	PATCH	4	0.97	12.77	0.34	9.08	0.31	-	0.076	0.025	0.711
260		130	QTM2	PATCH	1	0.14	3.24	0.05	2.06	0.12	-	0.045	0.036	0.634
260		137	QTM2	PATCH	2	0.23	5.69	0.08	2.75	0.18	-	0.041	0.032	0.483
260		138	QTM2	PATCH	2	0.27	6.31	0.09	4.06	0.22	-	0.043	0.035	0.644
260		139	QTM2	PATCH	2	0.45	5.08	0.12	4.07	0.21	-	0.088	0.040	0.801
260		144	QTM2	PATCH	2	0.43	6.14	0.20	3.95	0.28	-	0.071	0.045	0.643
260		145	QTM2	PATCH	2	0.48	6.16	0.12	4.96	0.28	-	0.077	0.046	0.804
260		157	QTM2	PATCH	4	0.59	10.90	0.14	6.97	0.63	-	0.054	0.058	0.640
260		156	QTM2	PATCH	4	0.56	10.81	0.29	5.27	0.28	-	0.052	0.026	0.488
260		158	QTM2	PATCH	4	0.63	10.25	0.26	8.34	0.42	-	0.061	0.041	0.814
260		159	QTM2	PATCH	4	0.68	10.32	0.21	7.06	0.42	-	0.066	0.041	0.684
260		160	QTM2	PATCH	4	0.67	10.69	0.28	5.49	0.24	-	0.063	0.022	0.513
260		169	QTM2	PATCH	4	0.62	11.28	0.12	6.03	0.27	-	0.055	0.024	0.535
260		170	QTM2	PATCH	4	0.27	12.46	0.27	8.02	0.64	-	0.022	0.052	0.644
260		171	QTM2	PATCH	4	0.46	10.41	0.23	8.40	0.32	-	0.044	0.031	0.806
260		172	QTM2	PATCH	4	0.75	10.29	0.30	7.09	0.44	-	0.073	0.043	0.689
260	2	130	QTM2	PATCH	1	0.86	8.08	0.15	6.05	0.67	-	0.106	0.083	0.749
260	9	137	QTM2	PATCH	2	0.82	11.10	0.23	7.77	1.03	-	0.074	0.093	0.700
260	10	138	QTM2	PATCH	2	0.75	12.61	0.32	8.54	0.65	-	0.059	0.052	0.677
260	11	139	QTM2	PATCH	2	1.00	15.56	0.26	11.05	1.38	-	0.064	0.089	0.710
260	16	144	QTM2	PATCH	2	0.85	14.54	0.36	8.95	1.33	-	0.058	0.091	0.616
260	17	145	QTM2	PATCH	2	1.85	15.58	0.28	11.43	0.97	-	0.119	0.062	0.734
260	28	157	QTM2	PATCH	4	3.10	28.94	0.50	20.61	2.56	-	0.107	0.088	0.712
260	29	156	QTM2	PATCH	4	2.20	25.17	0.65	18.95	1.52	-	0.087	0.060	0.753
260	30	158	QTM2	PATCH	4	2.73	23.64	0.71	18.68	0.70	-	0.115	0.030	0.790
260	31	159	QTM2	PATCH	4	3.72	26.32	0.65	18.90	1.74	-	0.141	0.066	0.718
260	32	160	QTM2	PATCH	4	3.47	27.89	0.65	17.35	2.65	-	0.124	0.095	0.622
260	41	169	QTM2	PATCH	4	2.75	28.38	0.58	20.68	2.45	-	0.097	0.086	0.729
260	42	170	QTM2	PATCH	4	2.58	28.45	0.53	22.25	1.32	-	0.091	0.046	0.782
260	43	171	QTM2	PATCH	4	3.14	24.17	0.56	19.49	1.14	-	0.130	0.047	0.806
260	44	172	QTM2	PATCH	4	3.91	27.51	0.76	18.41	2.33	-	0.142	0.085	0.669

QTM#2 Mid Ch.

n260 Mid ch.(38.5GHz)						4cm2 PD(W/m2) at 2mm evaluation surfaces @6dBm relative phase worst PD for MIMO						Ratio		
Band	Beam_ID		Ant module	Ant Type	Num. of Feed	Front	Back	Right	Left	Top	Bottom	Front / (worst surface)	Top / (worst surface)	Left / (worst surface)
260	2		QTM2	PATCH	1	0.21	4.14	0.05	3.53	0.06	-	0.051	0.014	0.852
260	9		QTM2	PATCH	2	0.16	6.15	0.21	3.33	0.25	-	0.026	0.040	0.542
260	10		QTM2	PATCH	2	0.16	6.51	0.13	3.45	0.24	-	0.025	0.036	0.529
260	11		QTM2	PATCH	2	0.15	5.65	0.22	3.28	0.27	-	0.026	0.047	0.580
260	16		QTM2	PATCH	2	0.18	6.89	0.16	4.13	0.21	-	0.026	0.030	0.599
260	17		QTM2	PATCH	2	0.34	7.42	0.15	5.24	0.20	-	0.045	0.027	0.707
260	28		QTM2	PATCH	4	0.63	12.79	0.28	10.24	0.35	-	0.049	0.027	0.800
260	29		QTM2	PATCH	4	1.05	13.23	0.23	10.87	0.42	-	0.080	0.032	0.822
260	30		QTM2	PATCH	4	0.61	10.14	0.16	6.49	0.46	-	0.060	0.045	0.640
260	31		QTM2	PATCH	4	0.54	11.29	0.34	6.98	0.28	-	0.048	0.025	0.618
260	32		QTM2	PATCH	4	0.34	12.97	0.36	10.14	0.38	-	0.026	0.029	0.782
260	41		QTM2	PATCH	4	0.97	13.01	0.23	10.55	0.36	-	0.074	0.027	0.811
260	42		QTM2	PATCH	4	0.76	12.03	0.18	10.71	0.42	-	0.063	0.035	0.890
260	43		QTM2	PATCH	4	0.52	9.89	0.20	6.11	0.33	-	0.052	0.033	0.618
260	44		QTM2	PATCH	4	0.54	12.55	0.41	8.29	0.29	-	0.043	0.023	0.661
260		130	QTM2	PATCH	1	0.25	3.07	0.06	1.63	0.12	-	0.080	0.039	0.529
260		137	QTM2	PATCH	2	0.42	5.58	0.11	2.81	0.16	-	0.076	0.029	0.503
260		138	QTM2	PATCH	2	0.34	6.86	0.15	4.70	0.19	-	0.049	0.028	0.685
260		139	QTM2	PATCH	2	0.45	6.23	0.09	4.08	0.17	-	0.073	0.027	0.655
260		144	QTM2	PATCH	2	0.58	6.90	0.13	4.44	0.18	-	0.084	0.027	0.644
260		145	QTM2	PATCH	2	0.54	5.74	0.12	5.09	0.26	-	0.094	0.045	0.887
260		157	QTM2	PATCH	4	0.70	11.88	0.22	7.93	0.32	-	0.059	0.027	0.668
260		156	QTM2	PATCH	4	1.29	11.04	0.27	7.85	0.24	-	0.117	0.021	0.711
260		158	QTM2	PATCH	4	0.65	10.64	0.15	8.32	0.52	-	0.062	0.049	0.781
260		159	QTM2	PATCH	4	0.96	10.30	0.12	7.70	0.37	-	0.094	0.036	0.748
260		160	QTM2	PATCH	4	1.18	10.88	0.27	5.33	0.32	-	0.108	0.029	0.490
260		169	QTM2	PATCH	4	1.39	11.34	0.28	5.03	0.31	-	0.122	0.027	0.444
260		170	QTM2	PATCH	4	0.99	12.04	0.23	9.90	0.32	-	0.082	0.026	0.822
260		171	QTM2	PATCH	4	0.75	10.39	0.10	7.54	0.44	-	0.072	0.042	0.725
260		172	QTM2	PATCH	4	1.19	10.12	0.11	8.27	0.23	-	0.117	0.022	0.817
260	2	130	QTM2	PATCH	1	1.14	8.43	0.16	6.61	0.34	-	0.135	0.040	0.784
260	9	137	QTM2	PATCH	2	1.12	10.55	0.31	7.30	0.95	-	0.106	0.090	0.692
260	10	138	QTM2	PATCH	2	0.93	14.85	0.36	10.08	0.50	-	0.063	0.034	0.679
260	11	139	QTM2	PATCH	2	1.16	16.70	0.38	8.95	0.74	-	0.069	0.044	0.536
260	16	144	QTM2	PATCH	2	1.25	16.76	0.38	10.42	1.10	-	0.075	0.066	0.622
260	17	145	QTM2	PATCH	2	2.42	14.35	0.26	11.06	0.79	-	0.169	0.055	0.771
260	28	157	QTM2	PATCH	4	3.89	26.96	0.56	19.48	2.01	-	0.144	0.075	0.723
260	29	156	QTM2	PATCH	4	3.32	23.78	0.55	20.15	0.95	-	0.140	0.040	0.847
260	30	158	QTM2	PATCH	4	3.55	23.97	0.51	16.83	1.10	-	0.148	0.046	0.702
260	31	159	QTM2	PATCH	4	4.15	25.53	0.56	16.05	1.28	-	0.163	0.050	0.629
260	32	160	QTM2	PATCH	4	3.86	27.14	0.69	18.17	1.95	-	0.142	0.072	0.669
260	41	169	QTM2	PATCH	4	2.91	28.32	0.57	19.15	1.72	-	0.103	0.061	0.676
260	42	170	QTM2	PATCH	4	3.03	31.53	0.49	23.37	1.11	-	0.096	0.035	0.741
260	43	171	QTM2	PATCH	4	3.63	21.79	0.44	15.11	0.85	-	0.167	0.039	0.693
260	44	172	QTM2	PATCH	4	4.16	28.64	0.66	17.39	1.63	-	0.145	0.057	0.607

QTM#2 High Ch.

n260 High ch.(39.95GHz)						4cm2 PD(W/m2) at 2mm evaluation surfaces @6dBm						Ratio		
						relative phase worst PD for MIMO						Front / (worst surface)	Top / (worst surface)	Left / (worst surface)
Band	Beam_ID		Ant module	Ant Type	Num. of Feed	Front	Back	Right	Left	Top	Bottom			
260	2		QTM2	PATCH	1	0.20	3.06	0.03	2.28	0.06	-	0.065	0.021	0.745
260	9		QTM2	PATCH	2	0.22	5.00	0.18	2.84	0.23	-	0.044	0.046	0.568
260	10		QTM2	PATCH	2	0.15	6.19	0.23	3.81	0.09	-	0.023	0.015	0.614
260	11		QTM2	PATCH	2	0.26	4.61	0.18	2.98	0.20	-	0.056	0.044	0.648
260	16		QTM2	PATCH	2	0.22	5.72	0.15	3.59	0.11	-	0.038	0.018	0.627
260	17		QTM2	PATCH	2	0.30	6.66	0.15	4.80	0.14	-	0.045	0.021	0.721
260	28		QTM2	PATCH	4	0.60	8.53	0.24	6.87	0.28	-	0.070	0.033	0.806
260	29		QTM2	PATCH	4	0.40	9.52	0.16	8.05	0.30	-	0.042	0.031	0.846
260	30		QTM2	PATCH	4	0.53	7.75	0.26	7.06	0.23	-	0.068	0.029	0.911
260	31		QTM2	PATCH	4	0.51	10.67	0.32	7.10	0.21	-	0.048	0.019	0.665
260	32		QTM2	PATCH	4	0.95	7.85	0.27	6.48	0.40	-	0.121	0.050	0.825
260	41		QTM2	PATCH	4	0.43	8.27	0.19	7.29	0.30	-	0.052	0.036	0.882
260	42		QTM2	PATCH	4	0.45	10.12	0.17	8.16	0.18	-	0.045	0.018	0.807
260	43		QTM2	PATCH	4	0.50	9.73	0.39	5.91	0.12	-	0.052	0.012	0.608
260	44		QTM2	PATCH	4	0.52	10.53	0.27	6.80	0.23	-	0.049	0.021	0.646
260		130	QTM2	PATCH	1	0.27	2.44	0.03	1.43	0.08	-	0.110	0.032	0.585
260		137	QTM2	PATCH	2	0.49	4.45	0.05	2.58	0.13	-	0.110	0.029	0.579
260		138	QTM2	PATCH	2	0.38	5.28	0.13	3.30	0.12	-	0.073	0.022	0.625
260		139	QTM2	PATCH	2	0.38	6.98	0.08	3.30	0.06	-	0.054	0.009	0.473
260		144	QTM2	PATCH	2	0.54	6.33	0.10	3.36	0.13	-	0.086	0.020	0.530
260		145	QTM2	PATCH	2	0.54	5.48	0.05	4.26	0.20	-	0.098	0.037	0.778
260		157	QTM2	PATCH	4	0.85	8.75	0.18	6.35	0.40	-	0.097	0.046	0.725
260		156	QTM2	PATCH	4	0.62	10.84	0.08	7.19	0.17	-	0.057	0.016	0.664
260		158	QTM2	PATCH	4	0.70	6.60	0.11	5.45	0.34	-	0.105	0.051	0.826
260		159	QTM2	PATCH	4	0.93	10.12	0.08	7.14	0.19	-	0.092	0.018	0.706
260		160	QTM2	PATCH	4	0.74	10.35	0.20	5.46	0.19	-	0.072	0.019	0.527
260		169	QTM2	PATCH	4	0.75	10.68	0.17	6.33	0.32	-	0.070	0.030	0.592
260		170	QTM2	PATCH	4	0.76	8.75	0.22	6.62	0.35	-	0.087	0.040	0.757
260		171	QTM2	PATCH	4	0.52	8.05	0.09	5.04	0.34	-	0.065	0.043	0.626
260		172	QTM2	PATCH	4	1.08	10.98	0.08	7.62	0.12	-	0.098	0.011	0.694
260	2	130	QTM2	PATCH	1	1.19	7.24	0.07	4.80	0.34	-	0.164	0.047	0.663
260	9	137	QTM2	PATCH	2	1.15	8.51	0.29	6.58	0.97	-	0.135	0.114	0.773
260	10	138	QTM2	PATCH	2	0.85	12.13	0.40	8.26	0.48	-	0.070	0.040	0.681
260	11	139	QTM2	PATCH	2	1.25	16.10	0.35	8.17	1.08	-	0.078	0.067	0.507
260	16	144	QTM2	PATCH	2	1.14	15.30	0.35	8.21	1.02	-	0.075	0.067	0.537
260	17	145	QTM2	PATCH	2	2.15	15.20	0.27	9.64	0.70	-	0.141	0.046	0.634
260	28	157	QTM2	PATCH	4	3.38	20.46	0.55	13.64	2.22	-	0.165	0.109	0.667
260	29	156	QTM2	PATCH	4	3.53	20.80	0.35	16.62	1.66	-	0.170	0.080	0.799
260	30	158	QTM2	PATCH	4	2.66	21.41	0.57	15.00	0.76	-	0.124	0.035	0.701
260	31	159	QTM2	PATCH	4	3.34	24.73	0.45	15.50	1.04	-	0.135	0.042	0.627
260	32	160	QTM2	PATCH	4	3.79	23.18	0.54	13.78	3.05	-	0.164	0.132	0.594
260	41	169	QTM2	PATCH	4	4.15	22.92	0.41	14.62	2.24	-	0.181	0.098	0.638
260	42	170	QTM2	PATCH	4	2.12	23.64	0.52	16.51	1.02	-	0.090	0.043	0.698
260	43	171	QTM2	PATCH	4	3.02	21.71	0.53	15.18	0.56	-	0.139	0.026	0.699
260	44	172	QTM2	PATCH	4	3.59	26.38	0.40	15.35	2.11	-	0.136	0.080	0.582