FCC ID : ZNFV600VM

Power Density Simulation Report

Rev. B (Ver. 1.2)

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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 of 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).

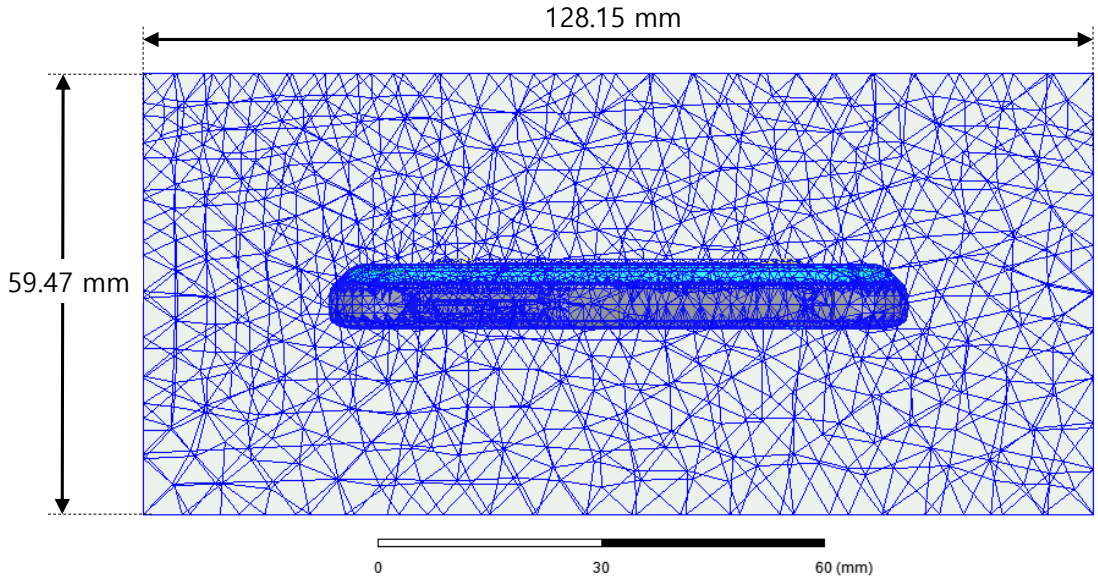


Figure 1. Example of HFSS mesh in a model of the device (Top view)

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.

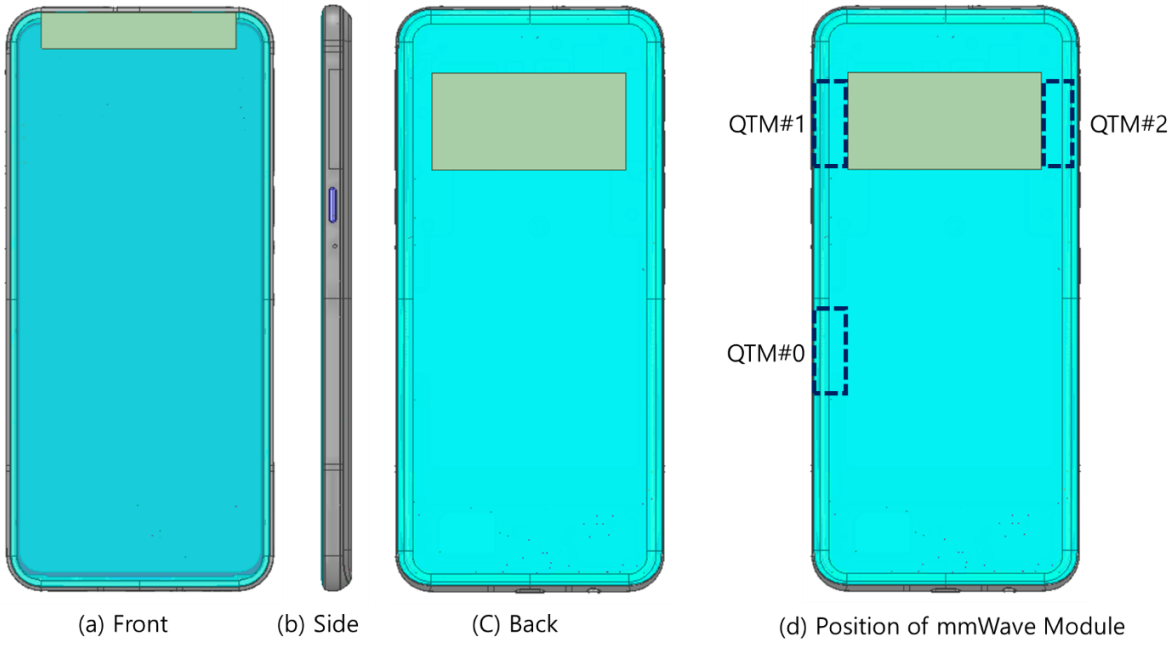


Figure 2. HFSS simulation model which is mounted three mmWave antenna modules

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

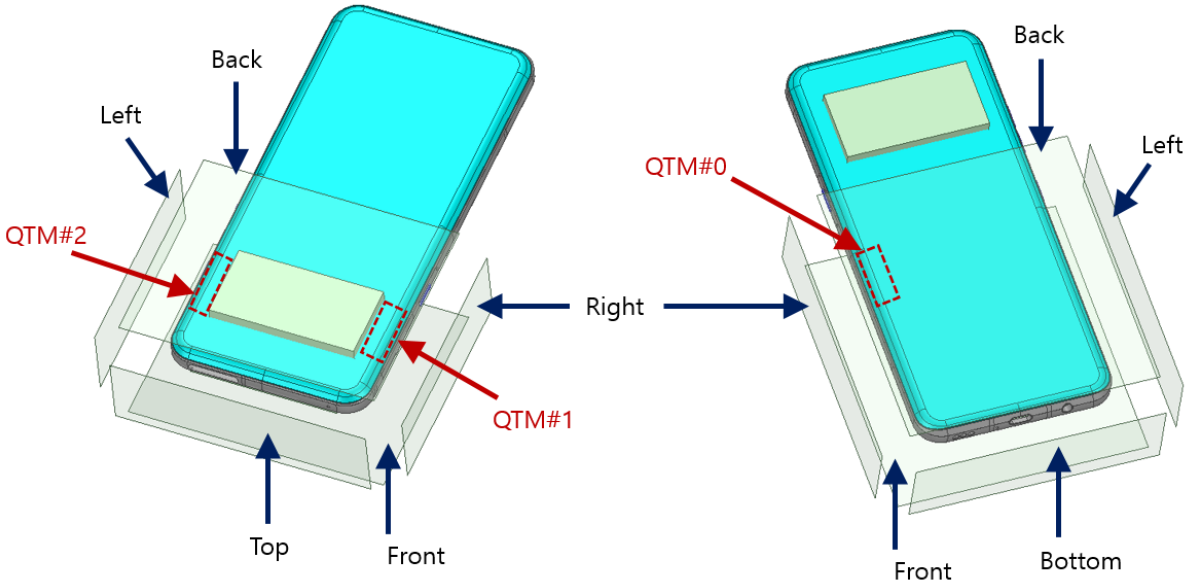


Figure 3. PD evaluation Surfaces

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.

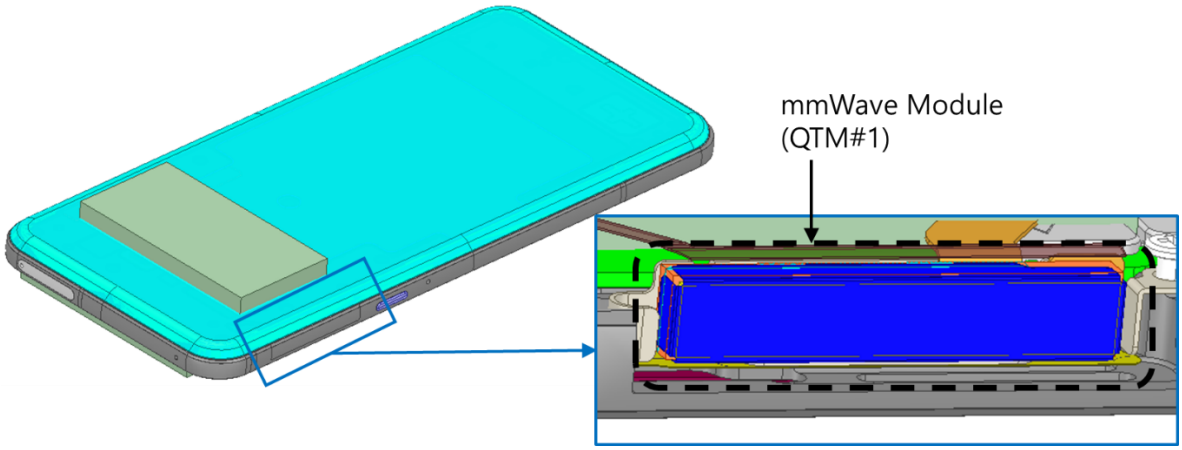


Figure 4. mmWave module (QTM#1)

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.

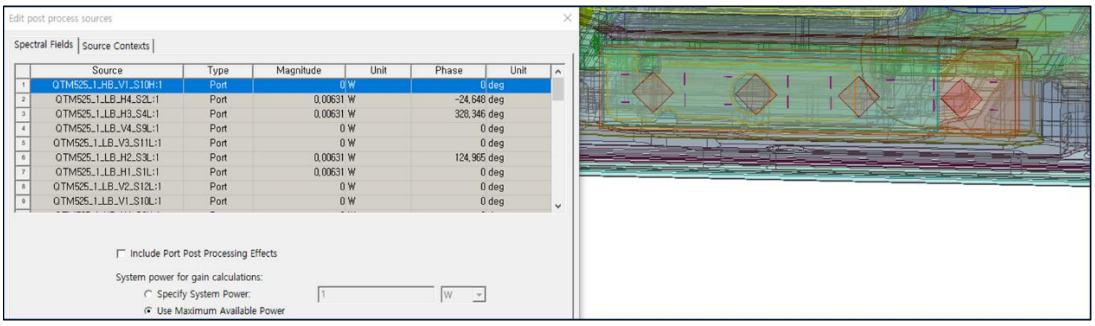


Figure 5. An example of port excitation (QTM#1)

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.

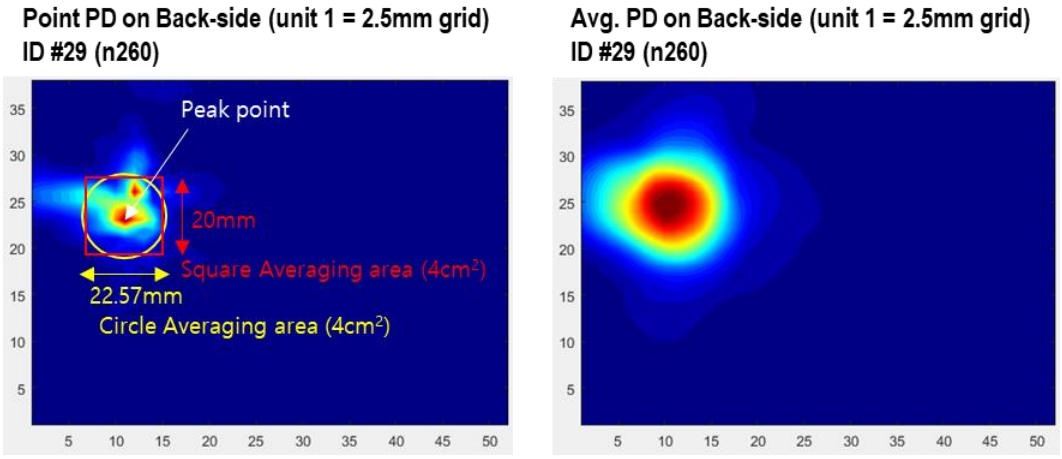
1.2.5 Condition of simulation completion

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).

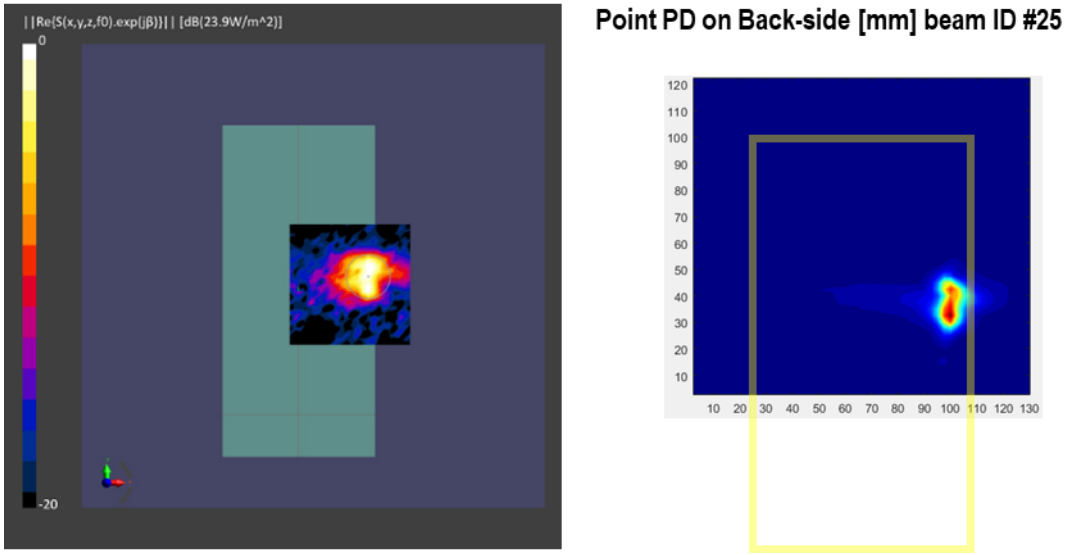
Input power per each active port is listed below for both simulation and measurement verification and power density characterization. For simulation, these values were entered directly into the HFSS model. For measurement, it was used to input these values for each active port using Factory Test Mode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

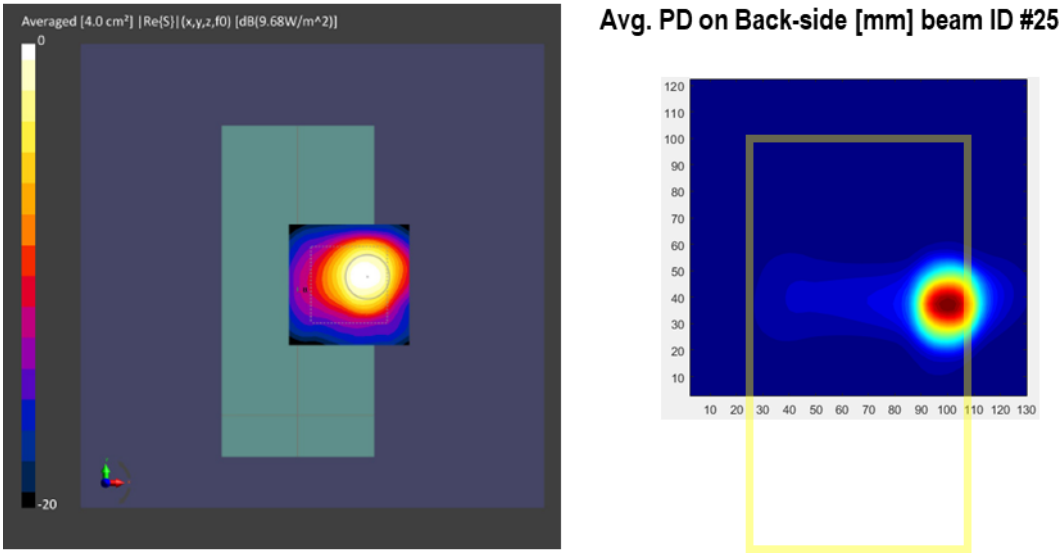
6dBm input measurement / simulation							4cm^2 avg. PD(W/m^2)	
Band	**Ant Type**	**Module**	**Ant Group (Ant Polarization)**	**beam ID**	**Surface**	**Channel**	**Measured**	**Simulated**
n261	Patch	QTM0	AG0(V)	25	Back	Mid	**9.68**	**19.10**
					Right	Mid	**3.88**	**8.92**
			AG1(H)	166	Back	Mid	**9.21**	**17.25**
					Right	Mid	**3.39**	**9.64**
		QTM1	AG0(V)	20	Right	Mid	**16.50**	**34.13**
					Back	Mid	**5.94**	**18.44**
			AG1(H)	162	Right	Mid	**16.30**	**29.46**
					Back	Mid	**6.03**	**14.31**
		QTM2	AG0(V)	44	Back	Mid	**7.51**	**19.05**
					Left	Mid	**6.84**	**11.75**
			AG1(H)	157	Back	Mid	**9.00**	**19.86**
					Left	Mid	**6.42**	**14.15**
n260	Patch	QTM0	AG0(V)	40	Back	Mid	**10.80**	**20.48**
					Right	Mid	**3.27**	**8.18**
			AG1(H)	165	Back	Mid	**10.70**	**18.82**
					Right	Mid	**3.16**	**6.29**
		QTM1	AG0(V)	18	Right	Mid	**12.30**	**16.21**
					Back	Mid	**4.30**	**6.87**
			AG1(H)	164	Right	Mid	**11.50**	**15.17**
					Back	Mid	**3.83**	**6.13**
		QTM2	AG0(V)	41	Back	Mid	**7.31**	**12.66**
					Left	Mid	**5.52**	**10.19**
			AG1(H)	157	Back	Mid	**8.52**	**12.14**
					Left	Mid	**4.81**	**8.59**

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



(a) Measurement (b) Simulation

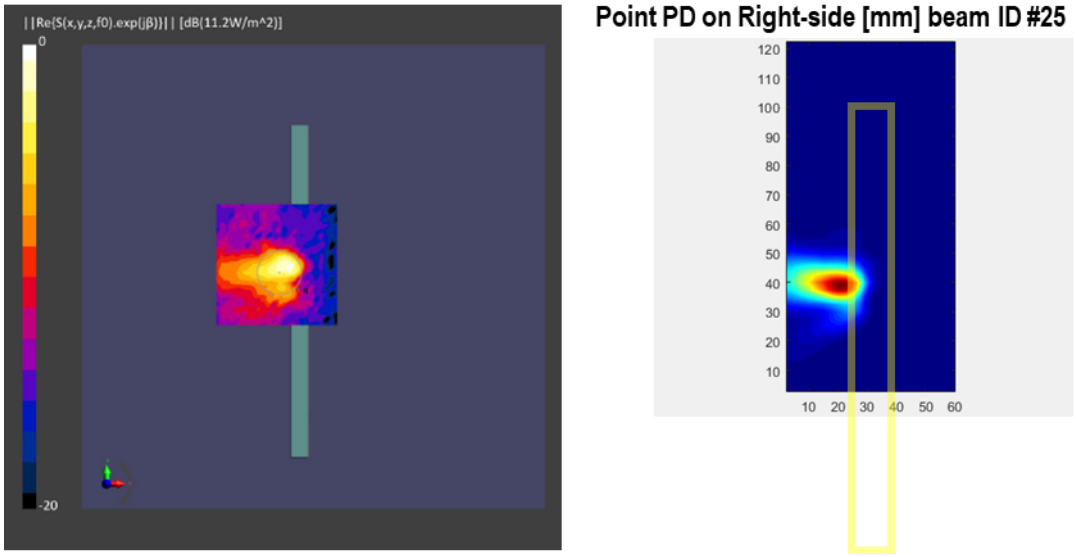
Patch antenna QTM0 AG0(V-polarization) beam ID 25, Point power density



(a) Measurement (b) Simulation

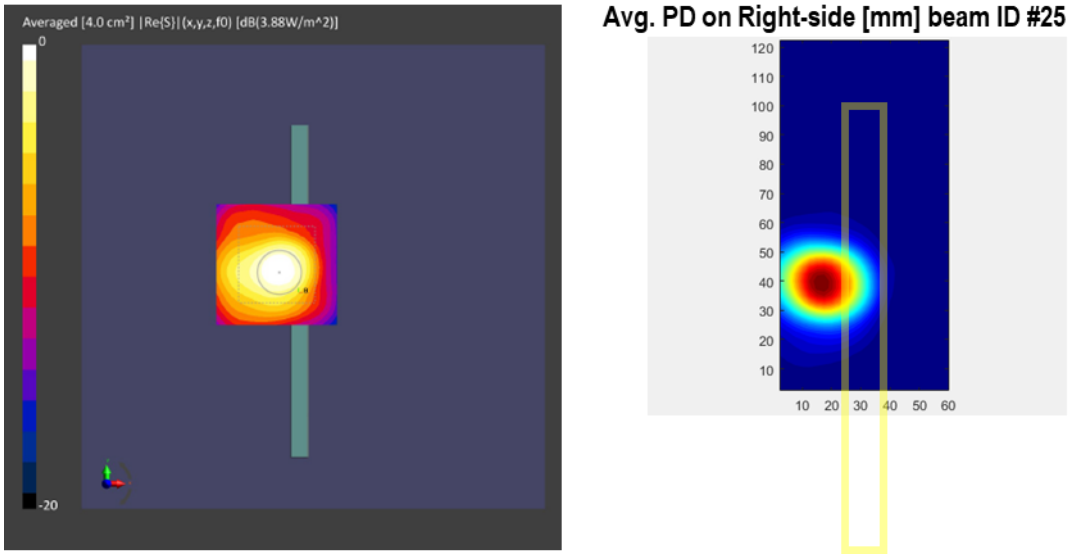
Patch antenna QTM0 AG0(V-polarization) beam ID 25, 4cm^2 Averaged power density

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



(a) Measurement (b) Simulation

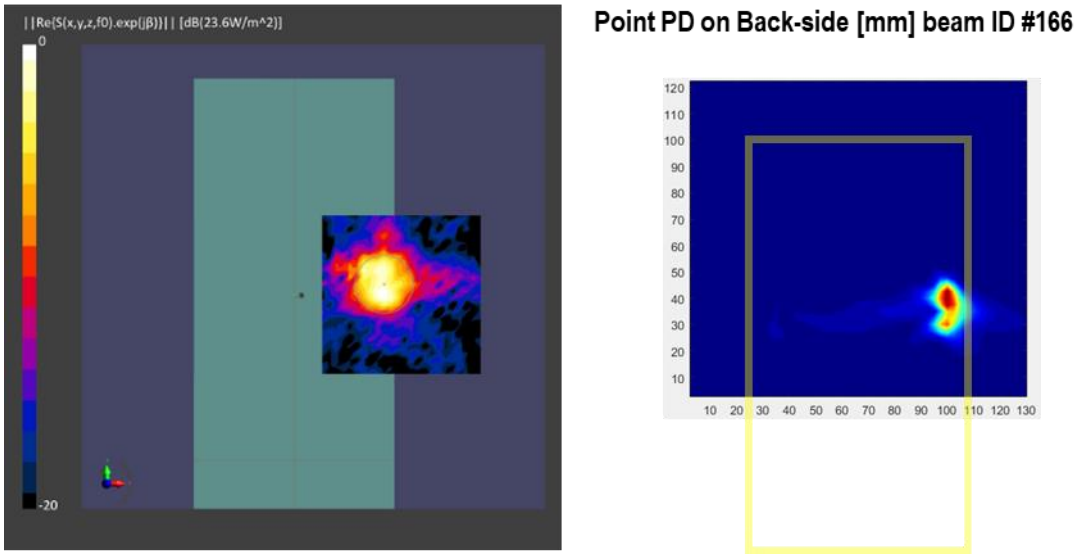
Patch antenna QTM0 AG0(V-polarization) beam ID 25, Point power density



(a) Measurement (b) Simulation

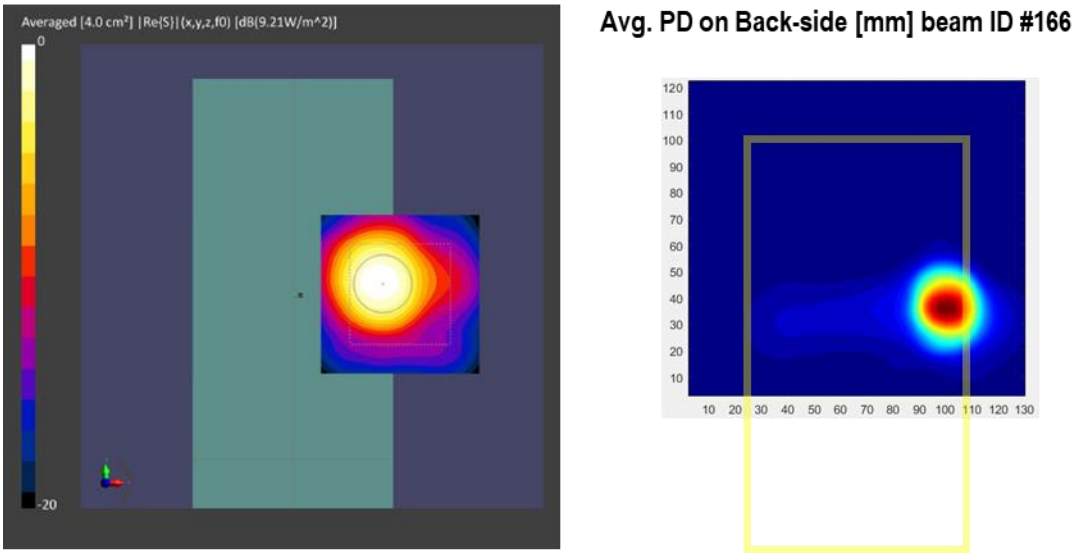
Patch antenna QTM0 AG0(V-polarization) beam ID 25, 4cm^2 Averaged power density

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



(a) Measurement (b) Simulation

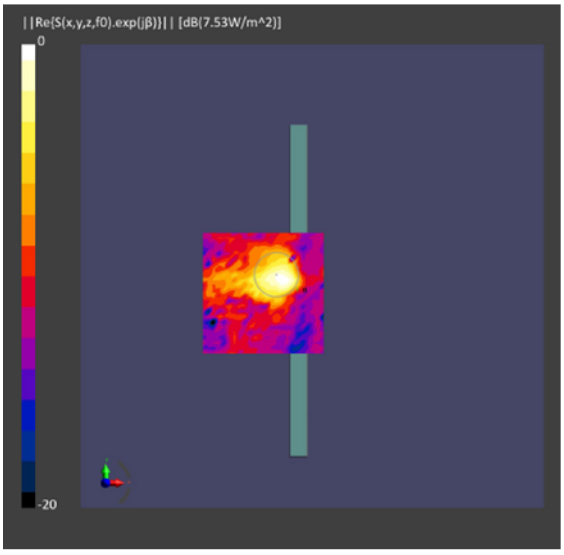
Patch antenna QTM0 AG1(H-polarization) beam ID 166, Point power density

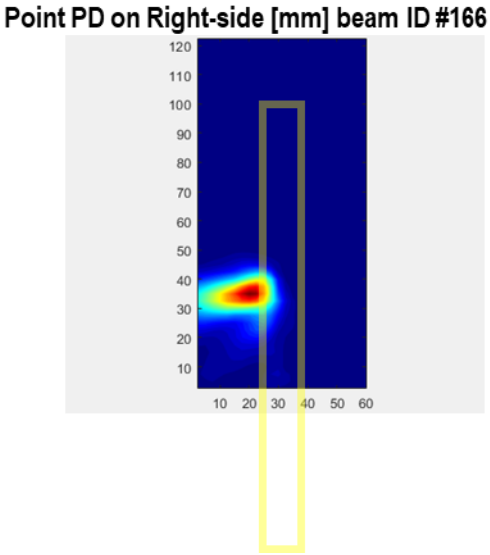


(a) Measurement (b) Simulation

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

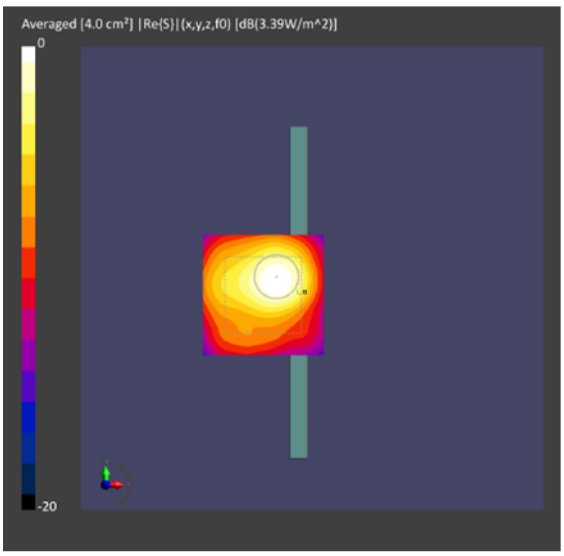
n261 Patch antenna QTM0 Ant_Group1(H-polarization) beam ID 166 Right-side Mid ch.

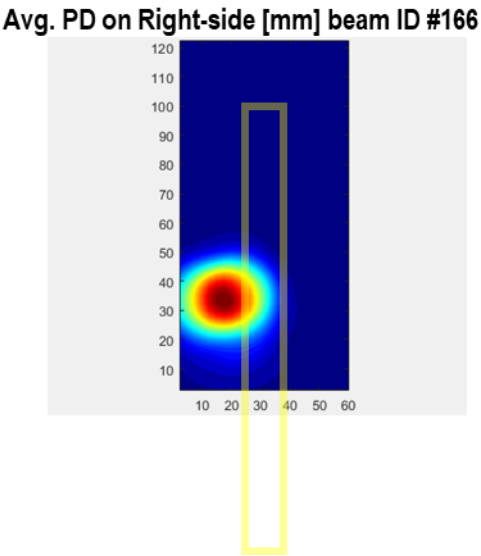




(a) Measurement (b) Simulation

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

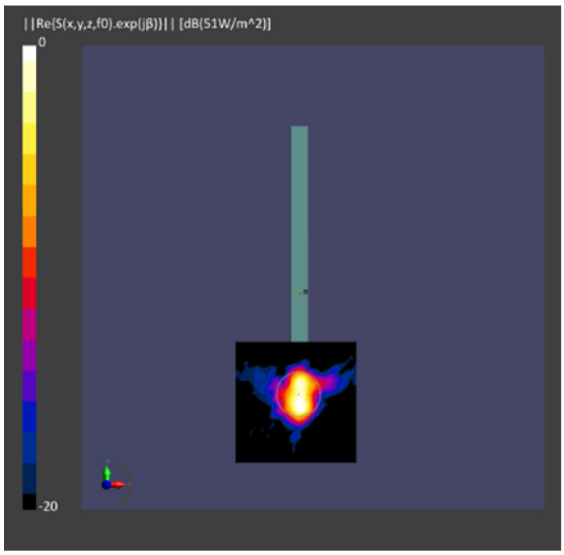


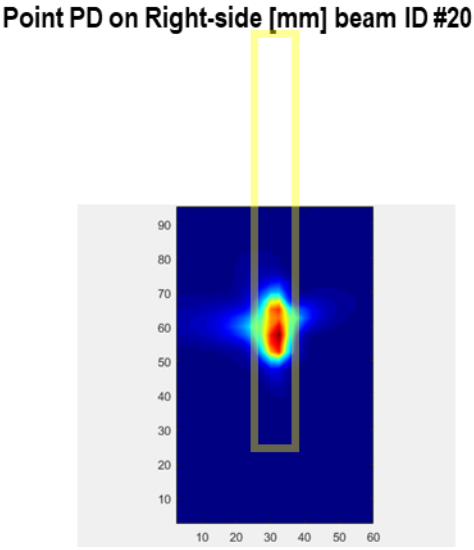


(a) Measurement (b) Simulation

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

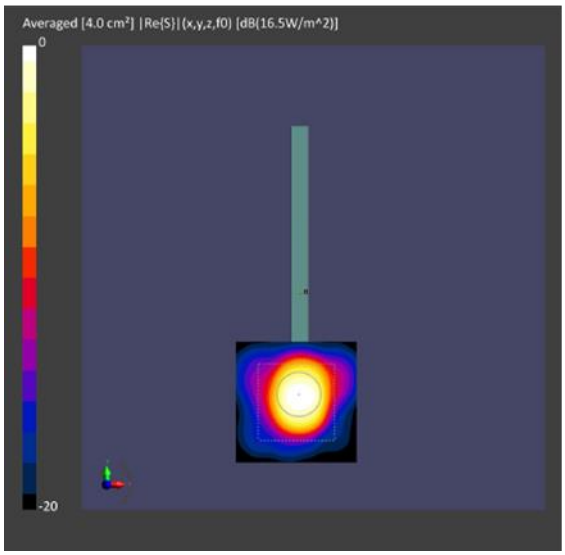
n261 Patch antenna QTM1 Ant_Group0(V-polarization) beam ID 20 Right-side Mid ch.

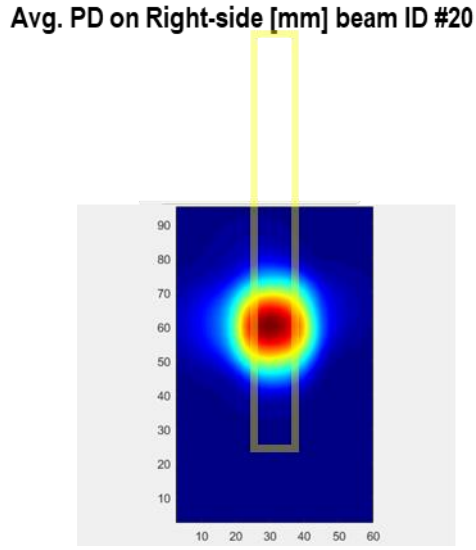




(a) Measurement (b) Simulation

Patch antenna QTM1 AG0(V-polarization) beam ID 20, Point power density

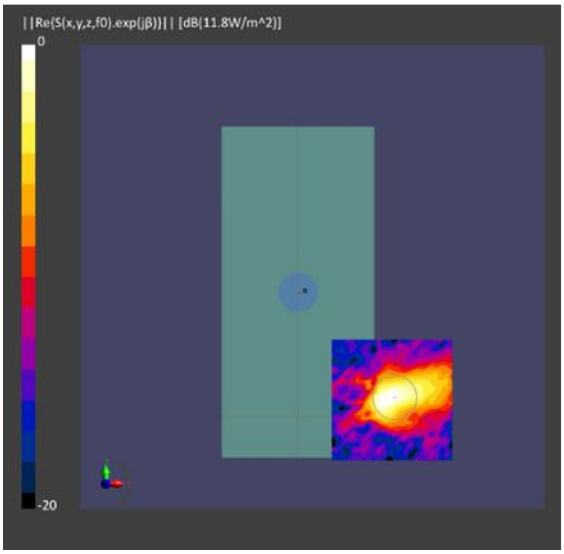


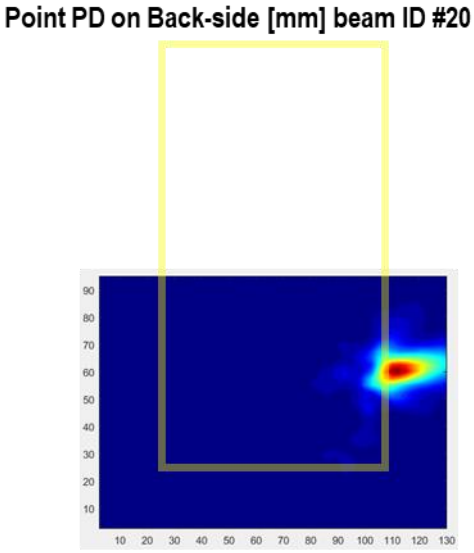


(a) Measurement (b) Simulation

Patch antenna QTM1 AG0(V-polarization) beam ID 20, 4cm^2 Averaged power density

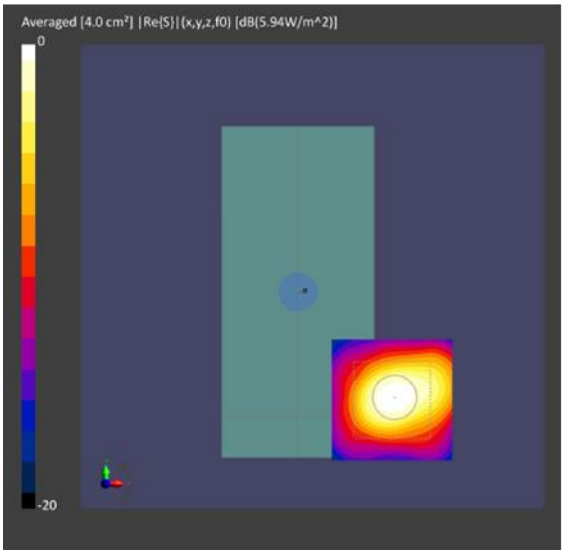
n261 Patch antenna QTM1 Ant_Group0(V-polarization) beam ID 20 Back-side Mid ch.

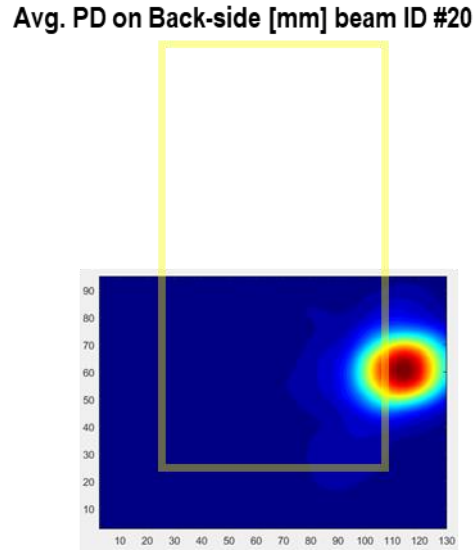




(a) Measurement (b) Simulation

Patch antenna QTM1 AG0(V-polarization) beam ID 20, Point power density

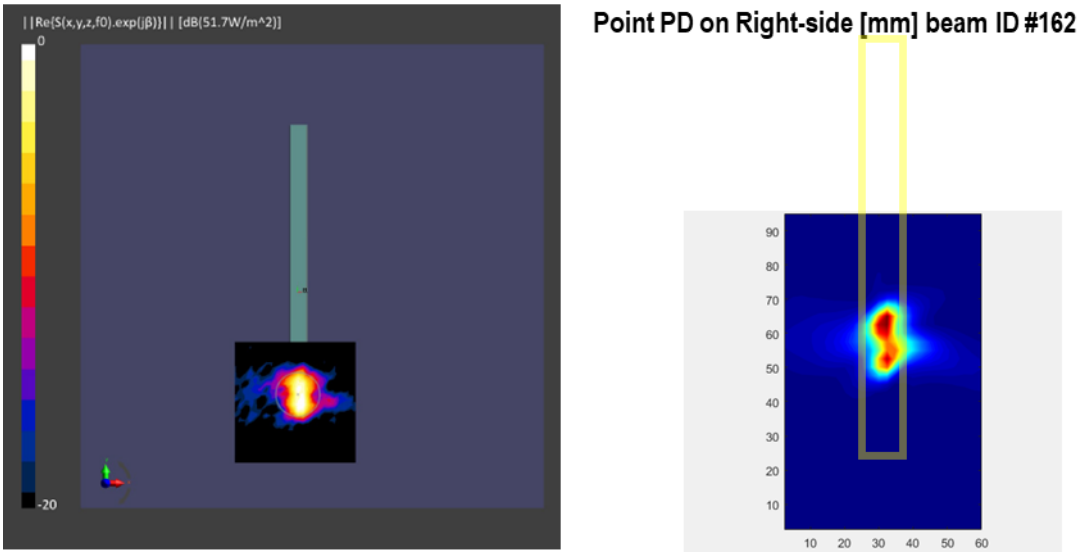




(a) Measurement (b) Simulation

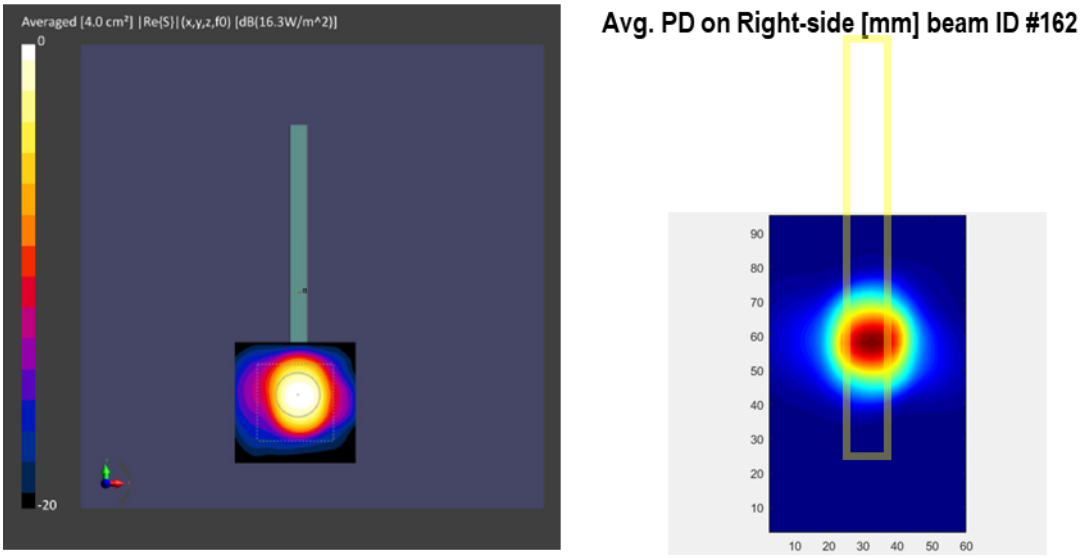
Patch antenna QTM1 AG0(V-polarization) beam ID 20, 4cm^2 Averaged power density

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



(a) Measurement (b) Simulation

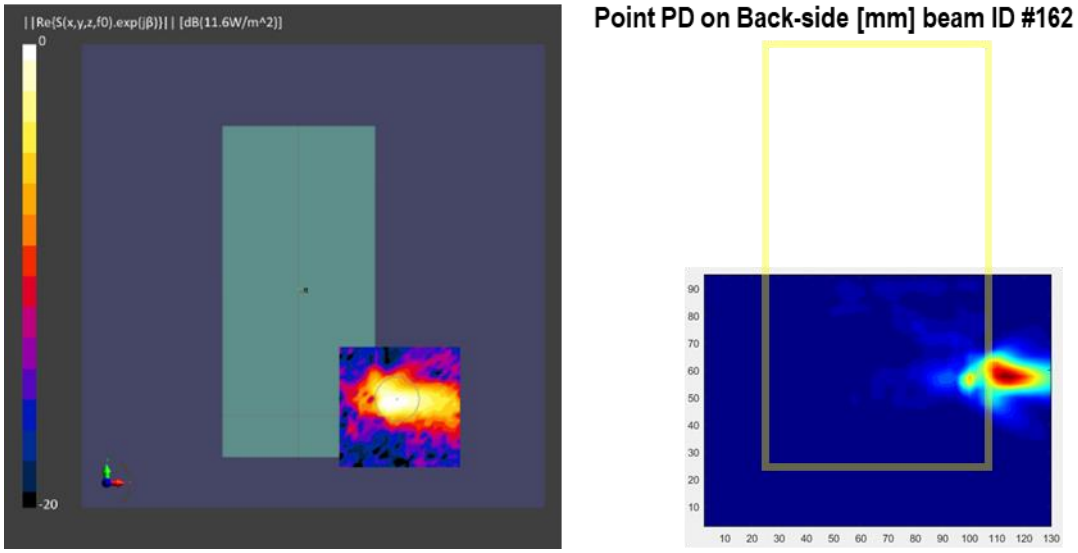
Patch antenna QTM1 AG1(H-polarization) beam ID 162, Point power density



(a) Measurement (b) Simulation

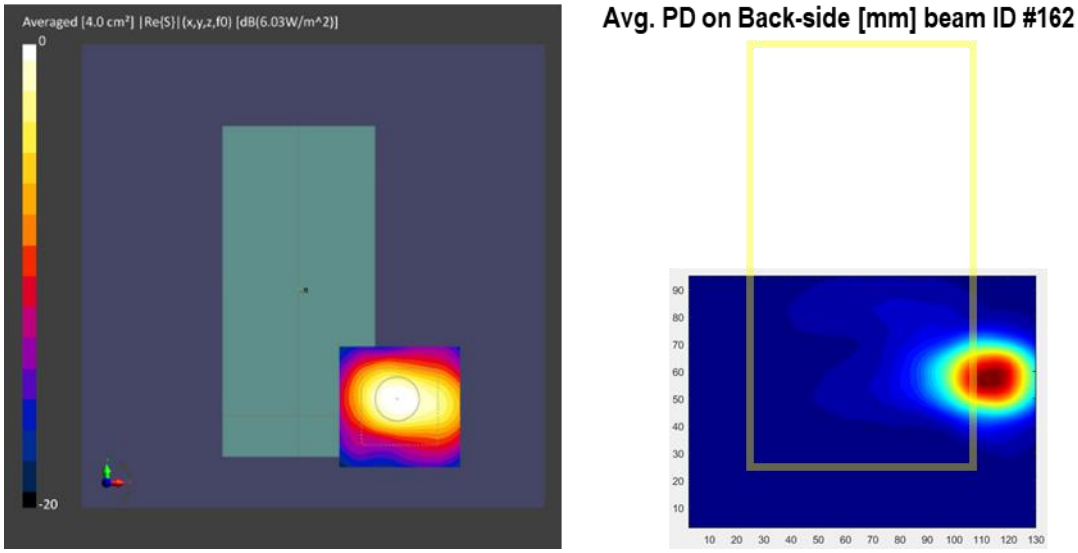
Patch antenna QTM1 AG1(H-polarization) beam ID 162, 4cm^2 Averaged power density

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



(a) Measurement (b) Simulation

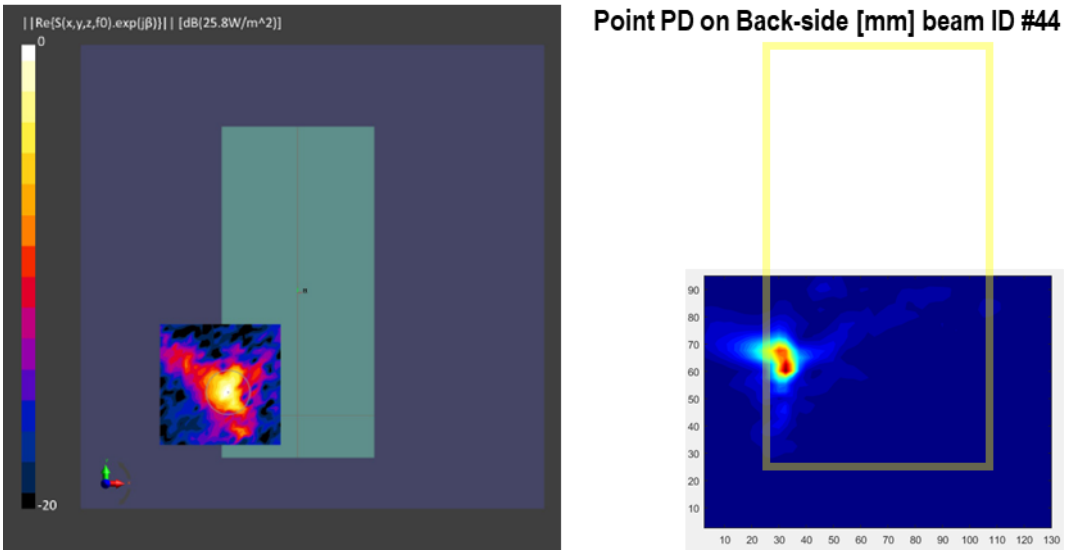
Patch antenna QTM1 AG1(H-polarization) beam ID 162, Point power density



(a) Measurement (b) Simulation

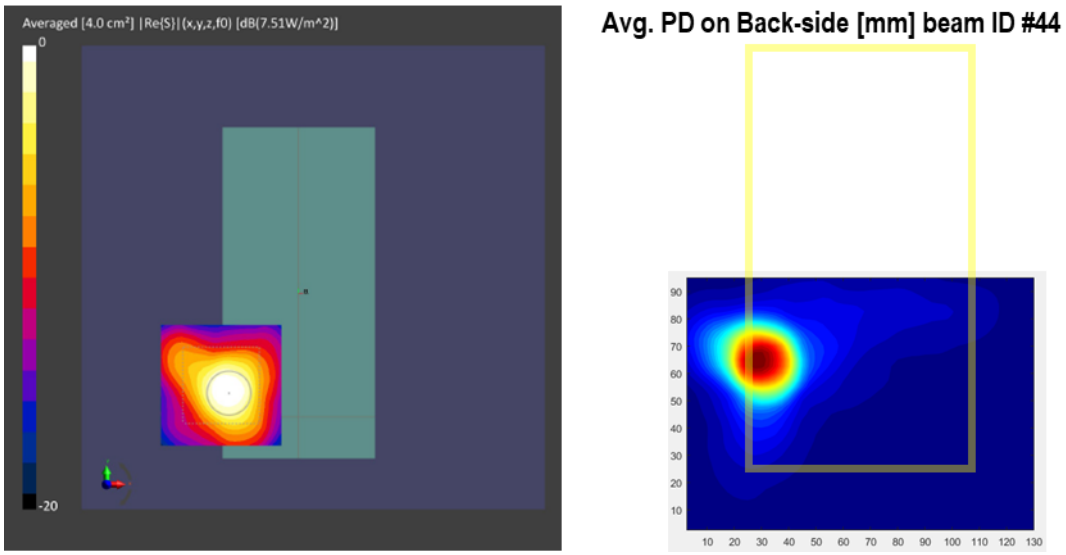
Patch antenna QTM1 AG1(H-polarization) beam ID 162, 4cm^2 Averaged power density

n261 Patch antenna QTM2 Ant_Group0(V-polarization) beam ID 44 Back-side Mid ch.



(a) Measurement (b) Simulation

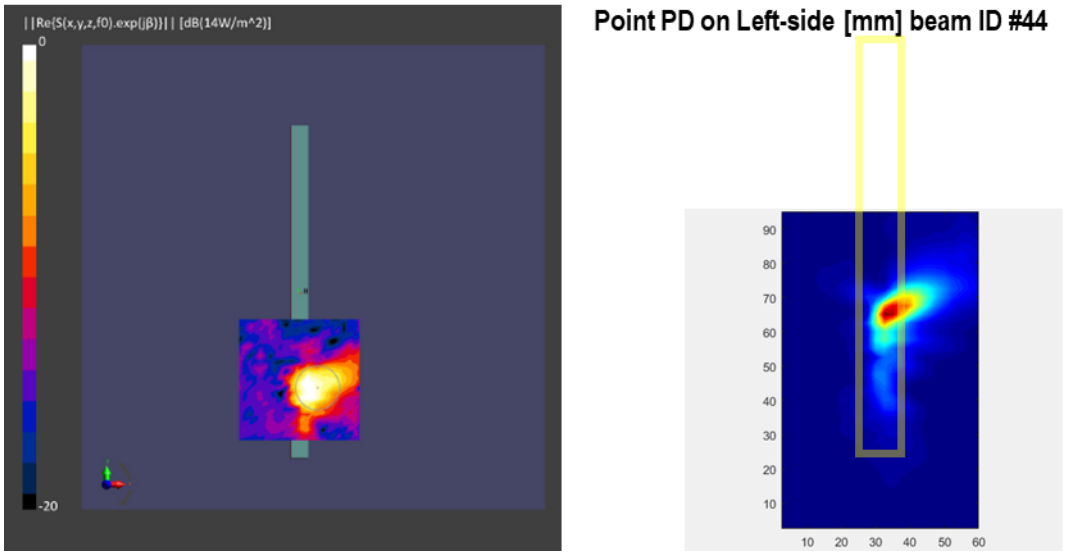
Patch antenna QTM2 AG0(V-polarization) beam ID 44, Point power density



(a) Measurement (b) Simulation

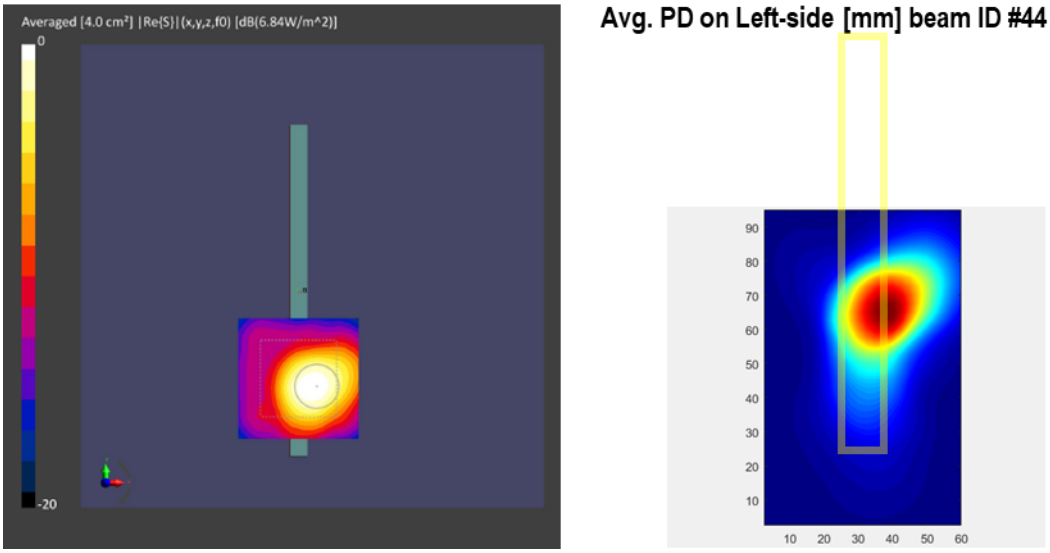
Patch antenna QTM2 AG0(V-polarization) beam ID 44, 4cm^2 Averaged power density

n261 Patch antenna QTM2 Ant_Group0(V-polarization) beam ID 44 Left-side Mid ch.



(a) Measurement (b) Simulation

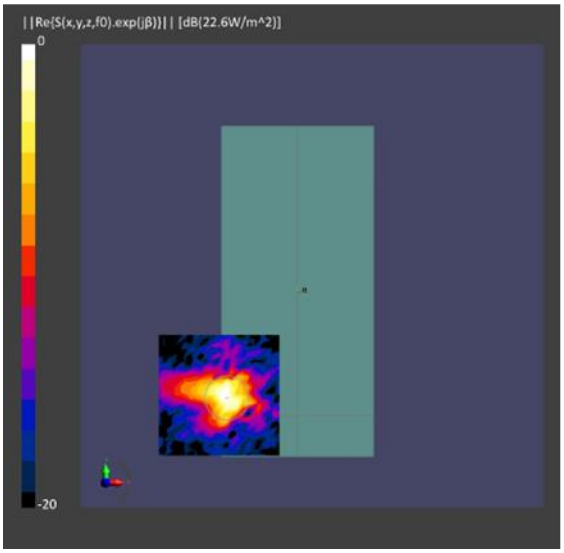
Patch antenna QTM2 AG0(V-polarization) beam ID 44, Point power density

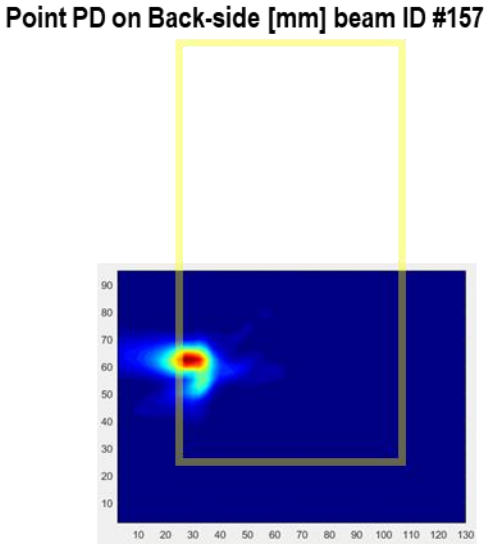


(a) Measurement (b) Simulation

Patch antenna QTM2 AG0(V-polarization) beam ID 44, 4cm^2 Averaged power density

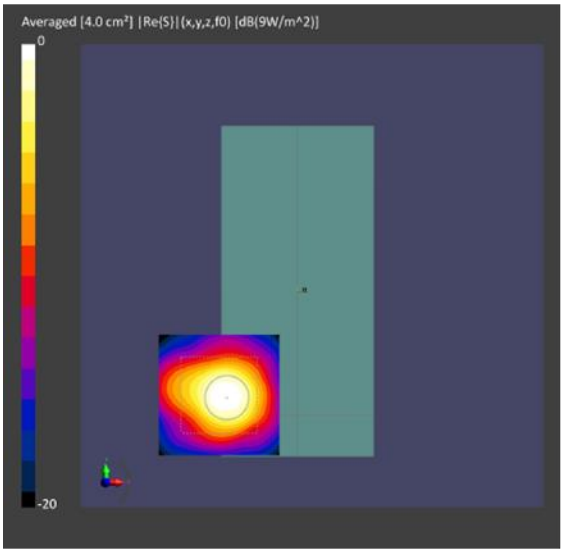
n261 Patch antenna QTM2 Ant_Group1(H-polarization) beam ID 157 Back-side Mid ch.

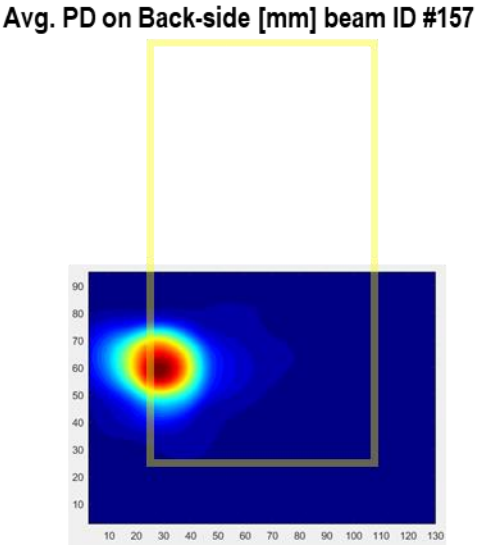




(a) Measurement (b) Simulation

Patch antenna QTM2 AG1(H-polarization) beam ID 157, Point power density

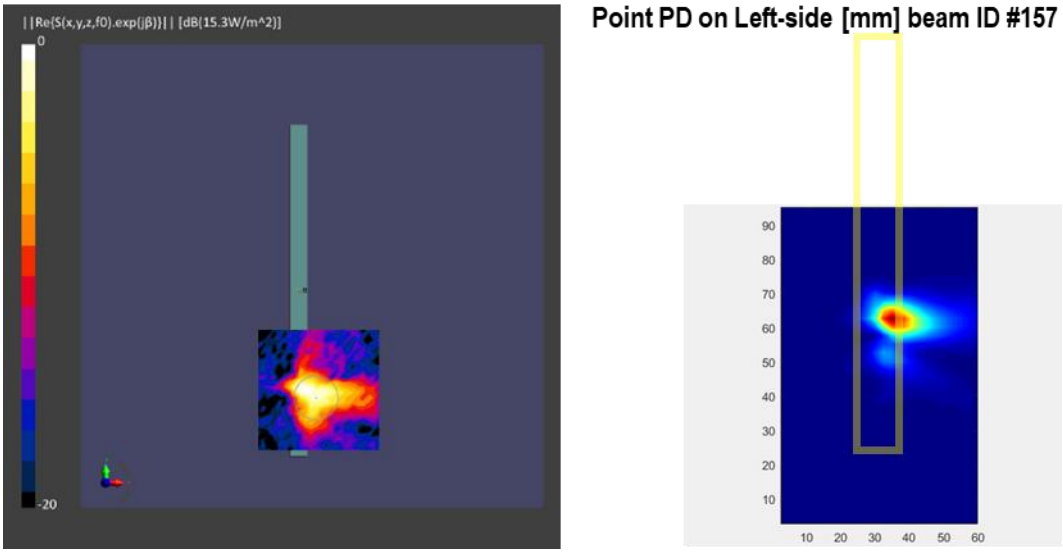




(a) Measurement (b) Simulation

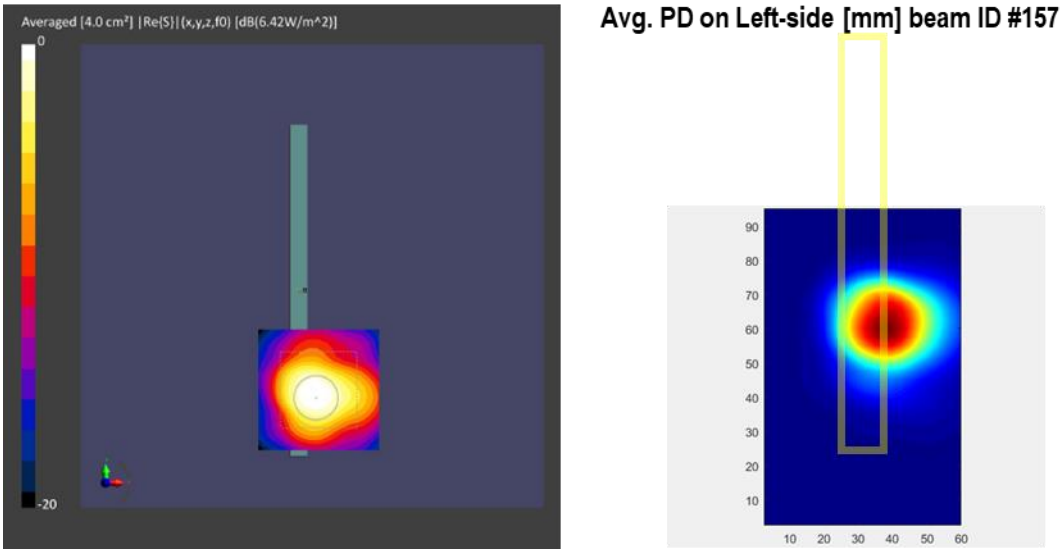
Patch antenna QTM2 AG1(H-polarization) beam ID 157, 4cm^2 Averaged power density

n261 Patch antenna QTM2 Ant_Group1(H-polarization) beam ID 157 Left-side Mid ch.



(a) Measurement (b) Simulation

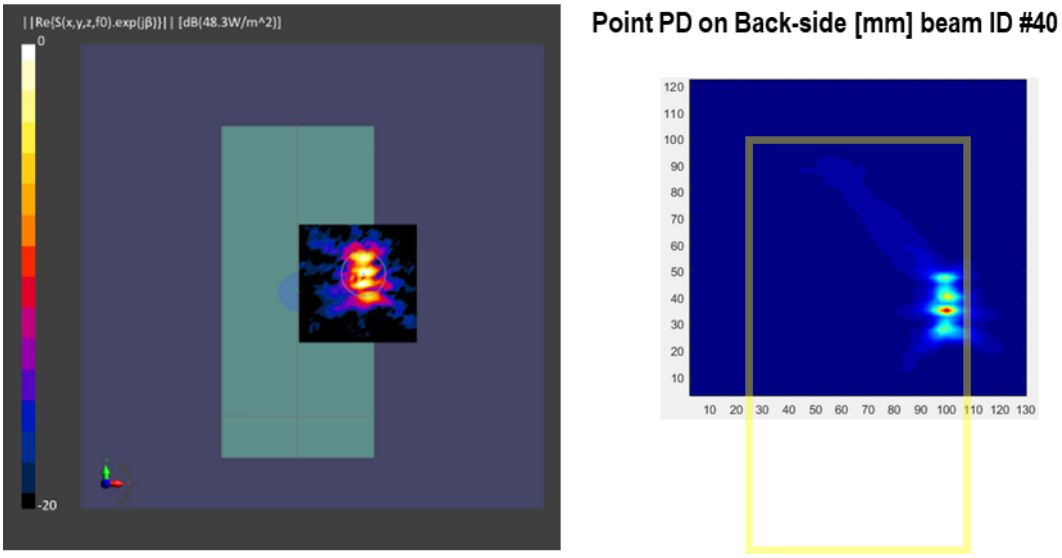
Patch antenna QTM2 AG1(H-polarization) beam ID 157, Point power density



(a) Measurement (b) Simulation

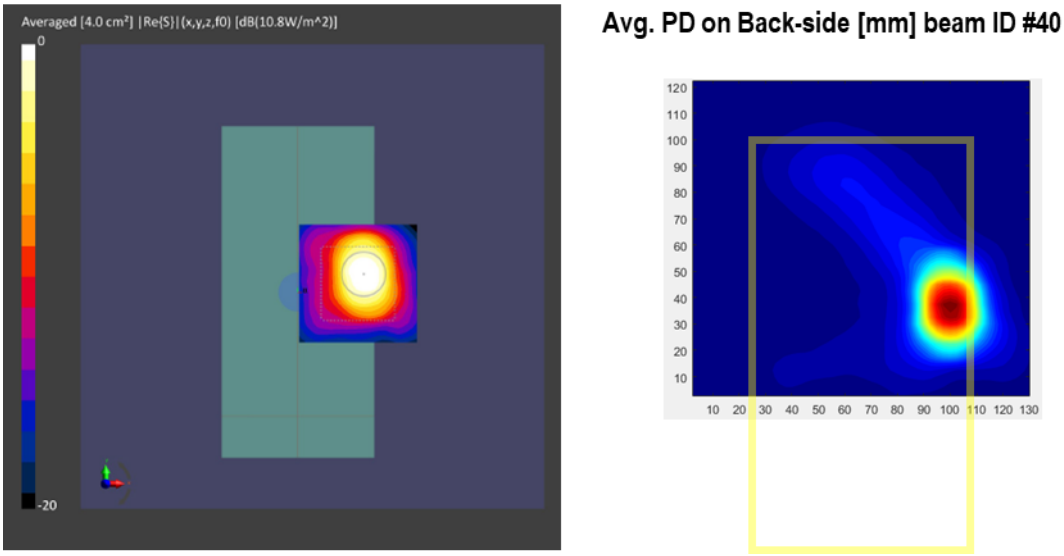
Patch antenna QTM2 AG1(H-polarization) beam ID 157, 4cm^2 Averaged power density

n260 Patch antenna QTM0 Ant_Group0(V-polarization) beam ID 40 Back-side Mid ch.



(a) Measurement (b) Simulation

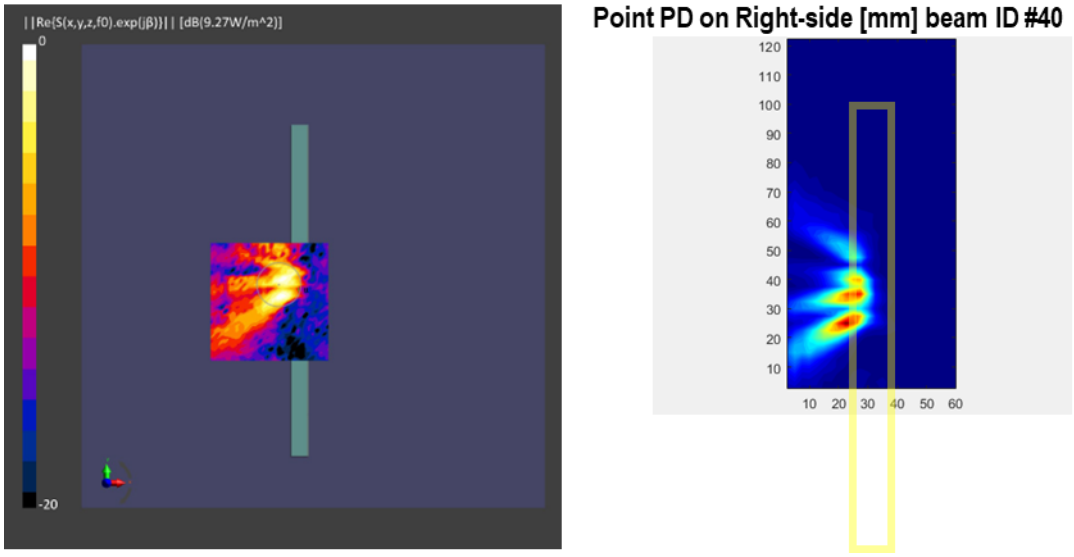
Patch antenna QTM0 AG0(V-polarization) beam ID 40, Point power density



(a) Measurement (b) Simulation

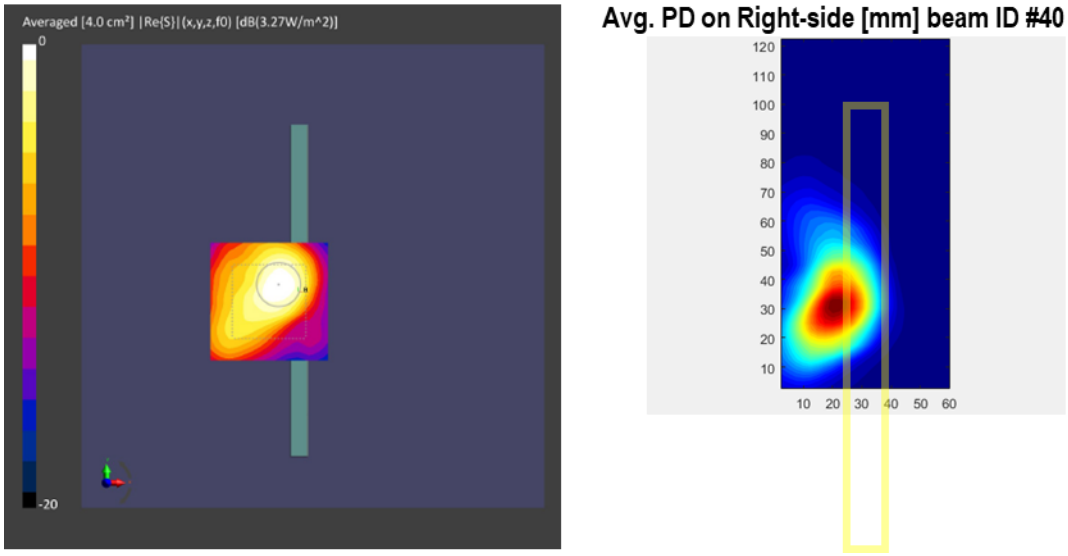
Patch antenna QTM0 AG0(V-polarization) beam ID 40, 4cm^2 Averaged power density

n260 Patch antenna QTM0 Ant_Group0(V-polarization) beam ID 40 Right-side Mid ch.



(a) Measurement (b) Simulation

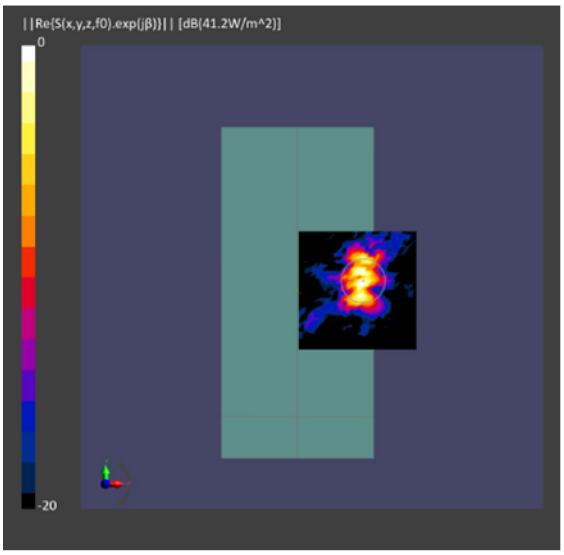
Patch antenna QTM0 AG0(V-polarization) beam ID 40, Point power density

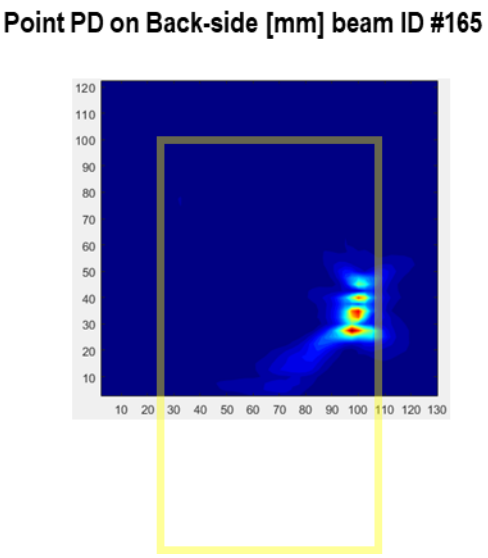


(a) Measurement (b) Simulation

Patch antenna QTM0 AG0(V-polarization) beam ID 40, 4cm^2 Averaged power density

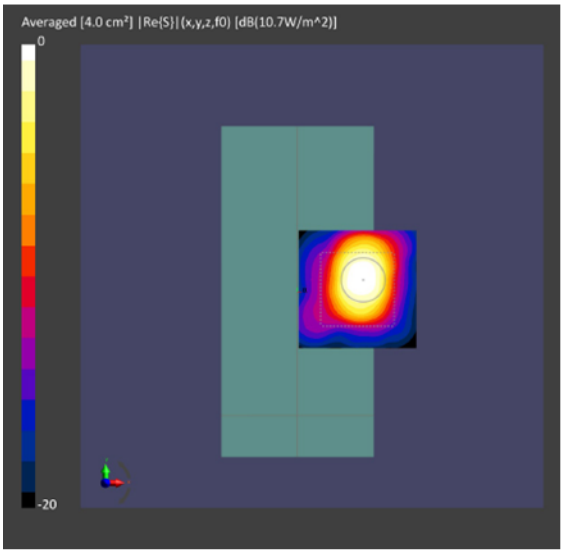
n260 Patch antenna QTM0 Ant_Group1(H-polarization) beam ID 165 Back-side Mid ch.

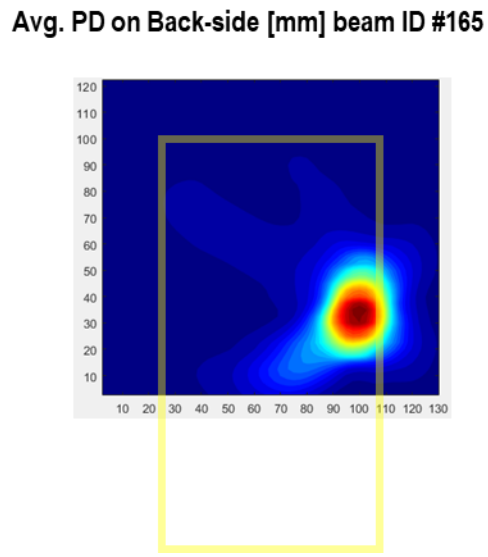




(a) Measurement (b) Simulation

Patch antenna QTM0 AG1(H-polarization) beam ID 165, Point power density

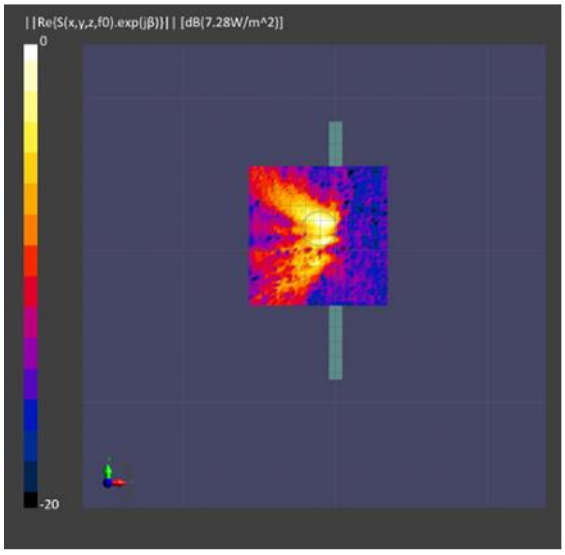


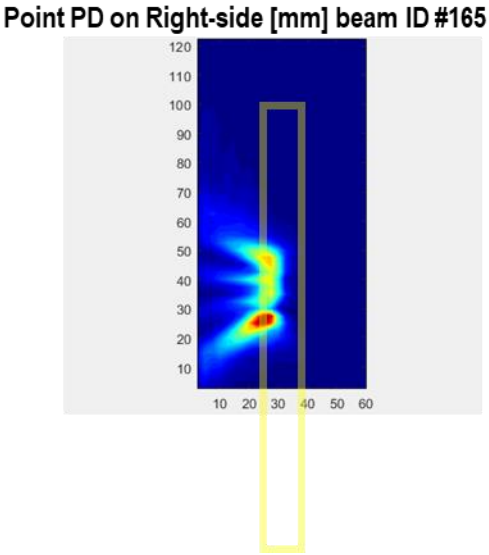


(a) Measurement (b) Simulation

Patch antenna QTM0 AG1(H-polarization) beam ID 165, 4cm^2 Averaged power density

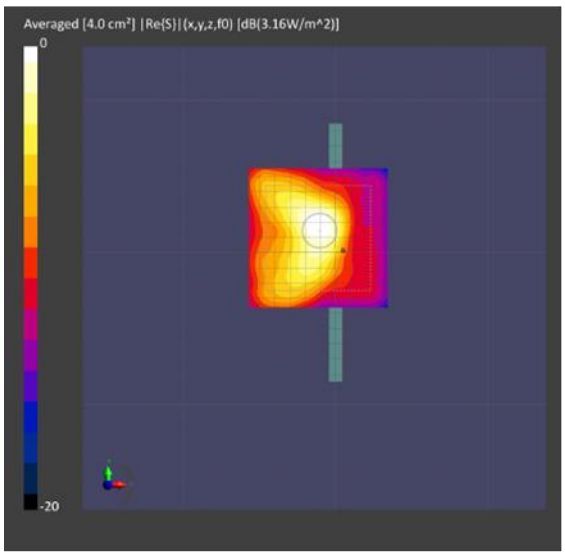
n260 Patch antenna QTM0 Ant_Group1(H-polarization) beam ID 165 Right-side Mid ch.

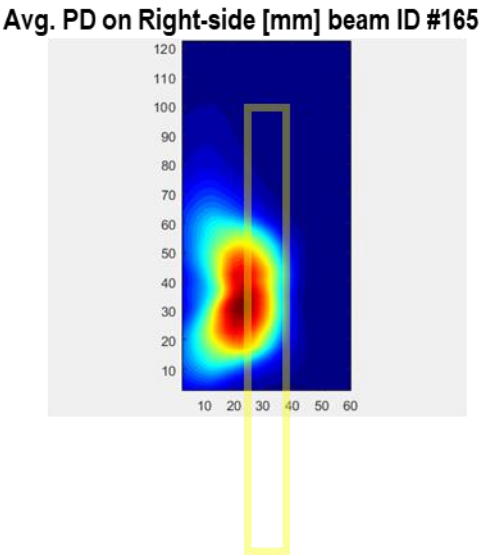




(a) Measurement (b) Simulation

Patch antenna QTM0 AG1(H-polarization) beam ID 165, Point power density

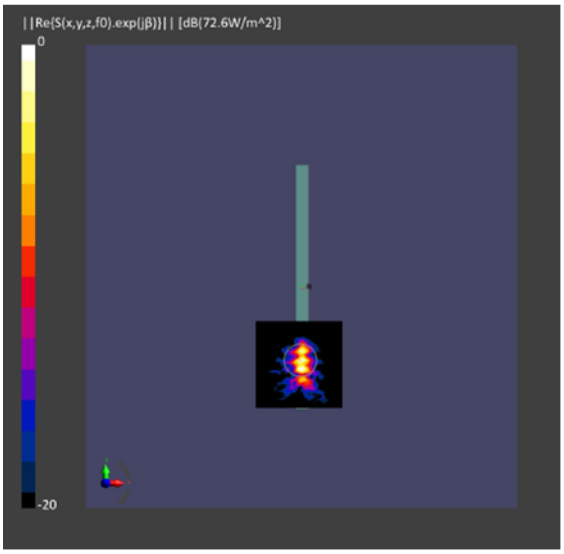


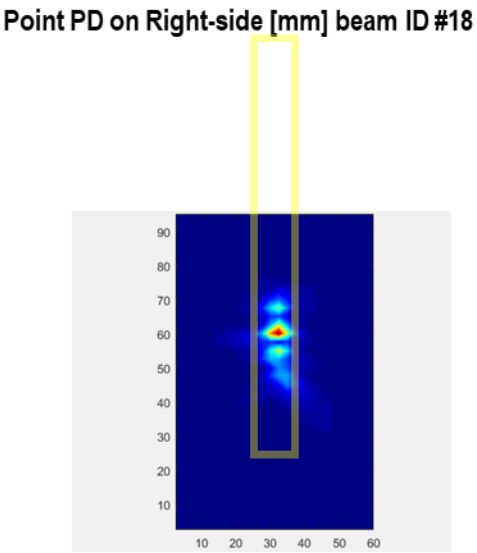


(a) Measurement (b) Simulation

Patch antenna QTM0 AG1(H-polarization) beam ID 165, 4cm^2 Averaged power density

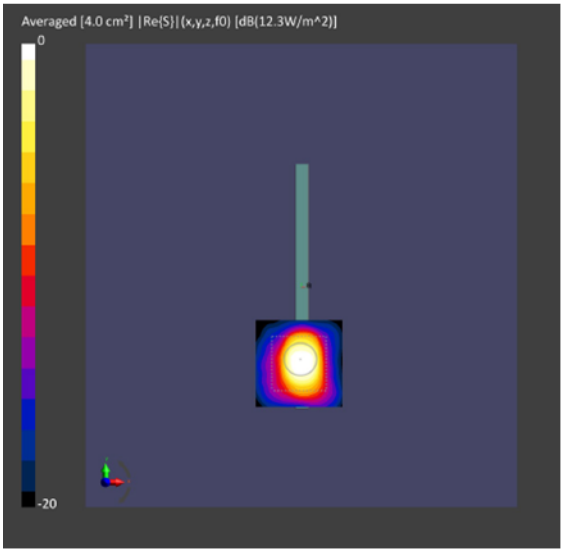
n260 Patch antenna QTM1 Ant_Group0(V-polarization) beam ID 18 Right-side Mid ch.

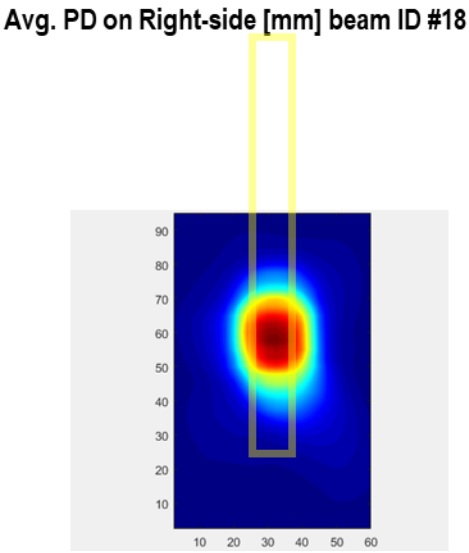




(a) Measurement (b) Simulation

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

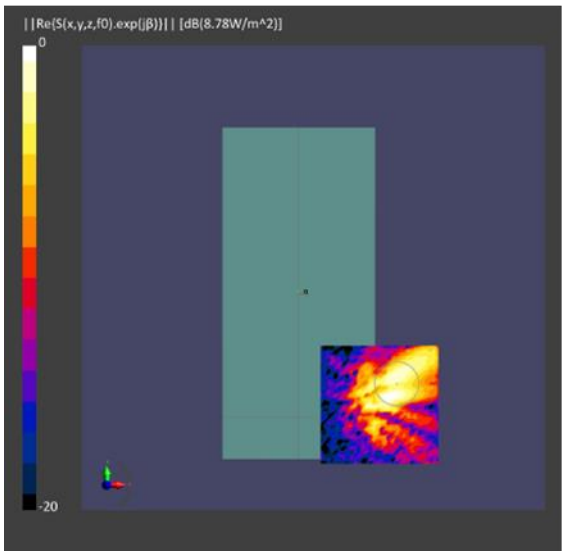


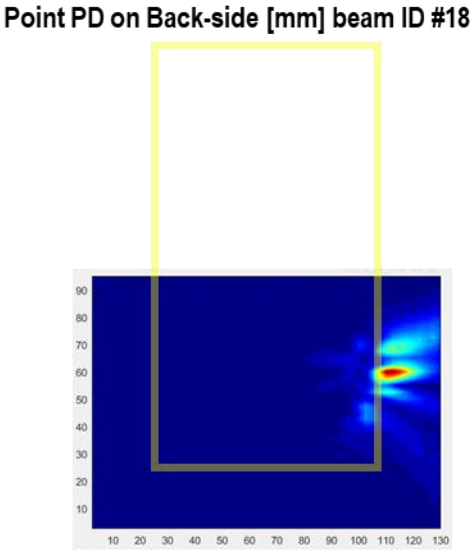


(a) Measurement (b) Simulation

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

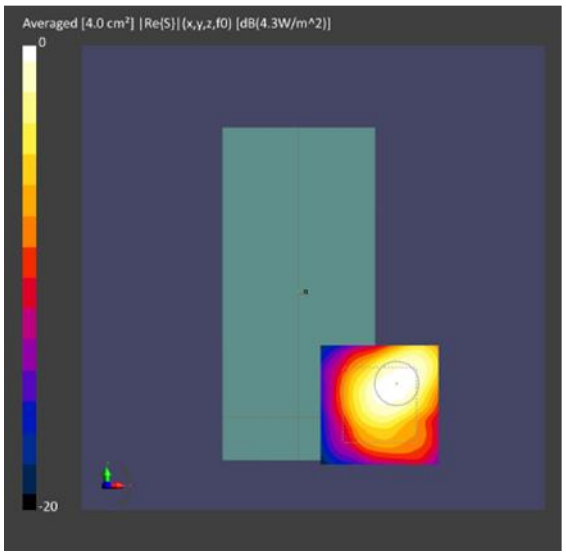
n260 Patch antenna QTM1 Ant_Group0(V-polarization) beam ID 18 Back-side Mid ch.

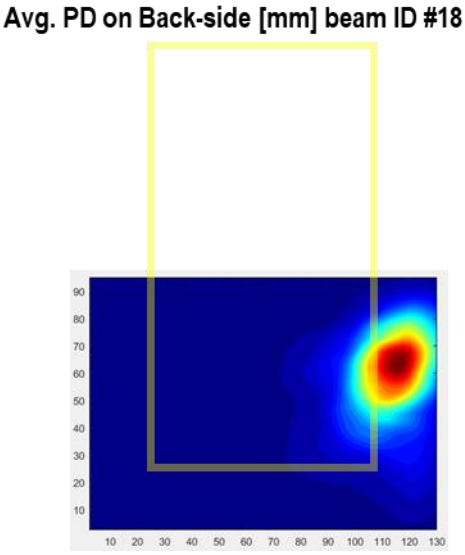




(a) Measurement (b) Simulation

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

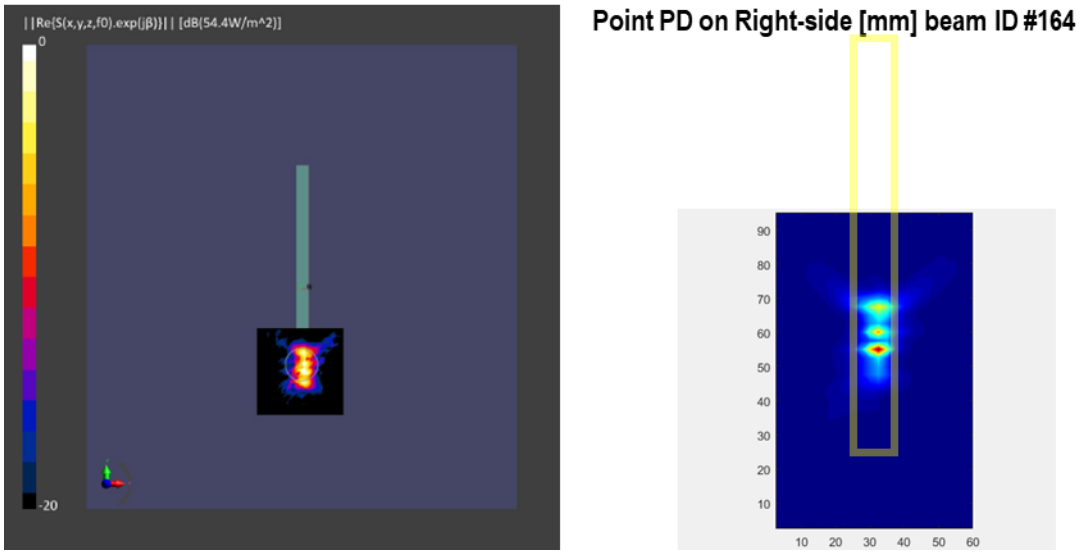




(a) Measurement (b) Simulation

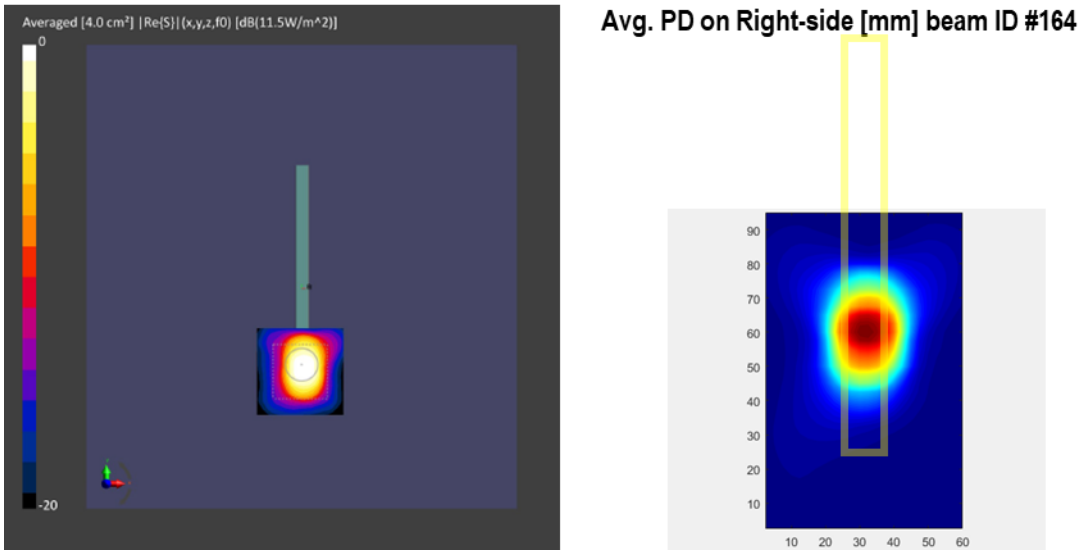
Patch antenna QTM1 AG0(V-polarization) beam ID 18, 4cm^2 Averaged power density

n260 Patch antenna QTM1 Ant_Group1(H-polarization) beam ID 164 Right-side Mid ch.



(a) Measurement (b) Simulation

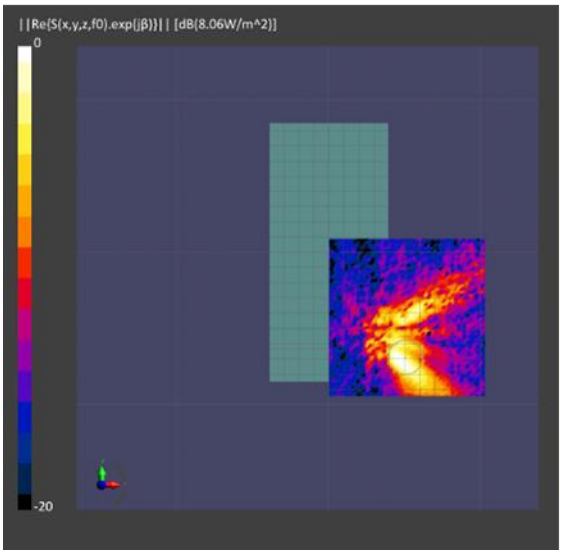
Patch antenna QTM1 AG1(H-polarization) beam ID 164, Point power density

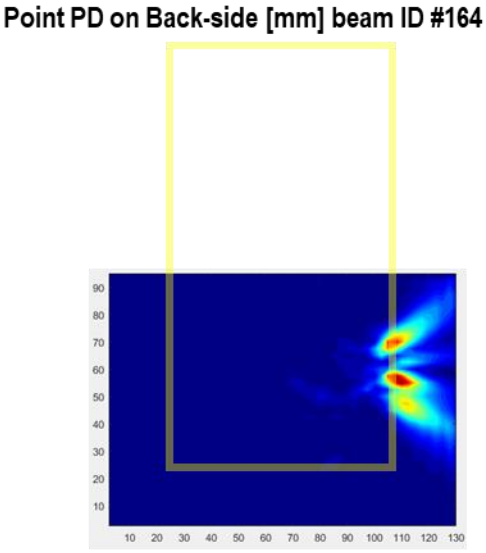


(a) Measurement (b) Simulation

Patch antenna QTM1 AG1(H-polarization) beam ID 164, 4cm^2 Averaged power density

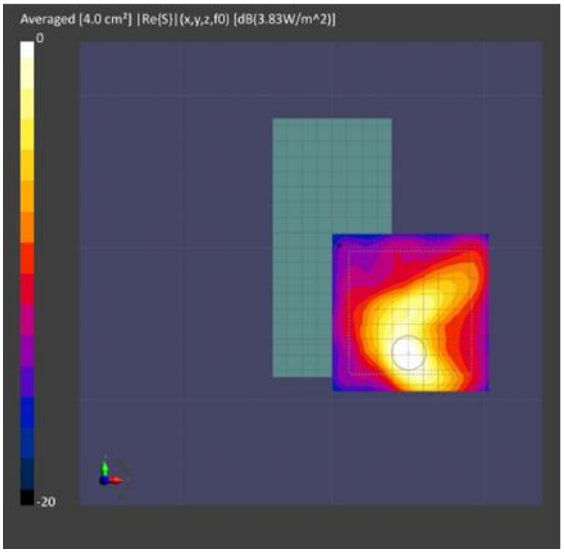
n260 Patch antenna QTM1 Ant_Group1(H-polarization) beam ID 164 Back-side Mid ch.

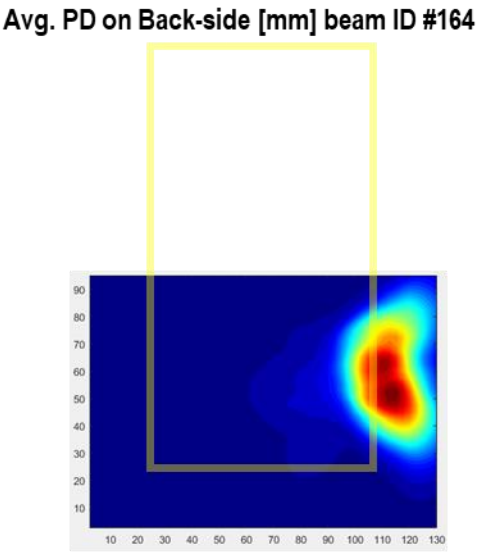




(a) Measurement (b) Simulation

Patch antenna QTM1 AG1(H-polarization) beam ID 164, Point power density

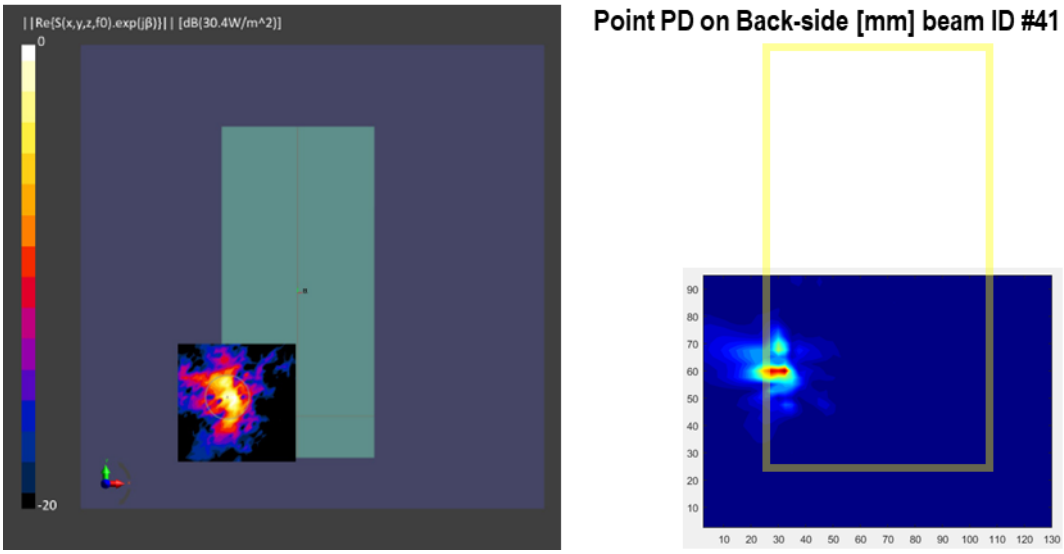




(a) Measurement (b) Simulation

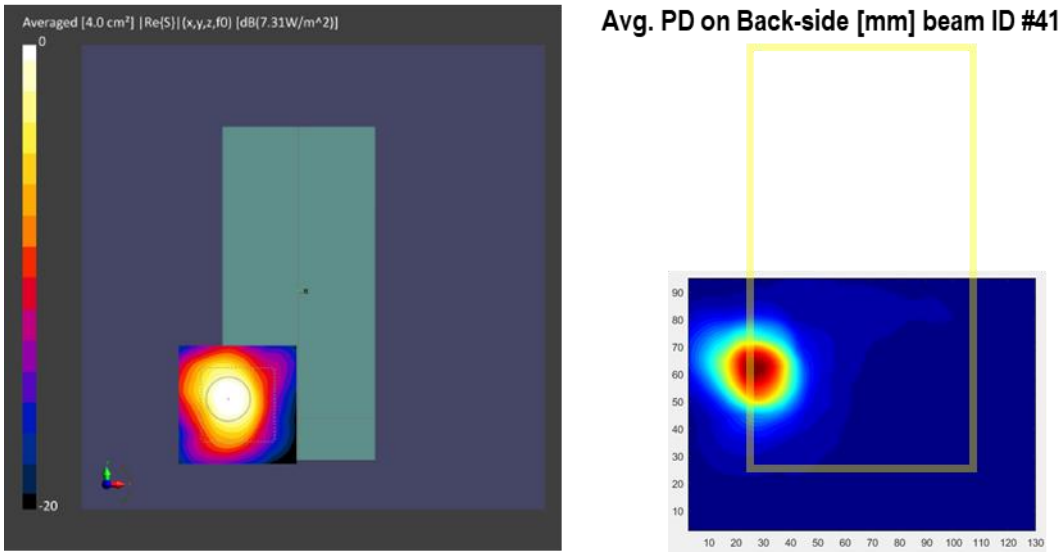
Patch antenna QTM1 AG1(H-polarization) beam ID 164, 4cm^2 Averaged power density

n260 Patch antenna QTM2 Ant_Group0(V-polarization) beam ID 41 Back-side Mid ch.



(a) Measurement (b) Simulation

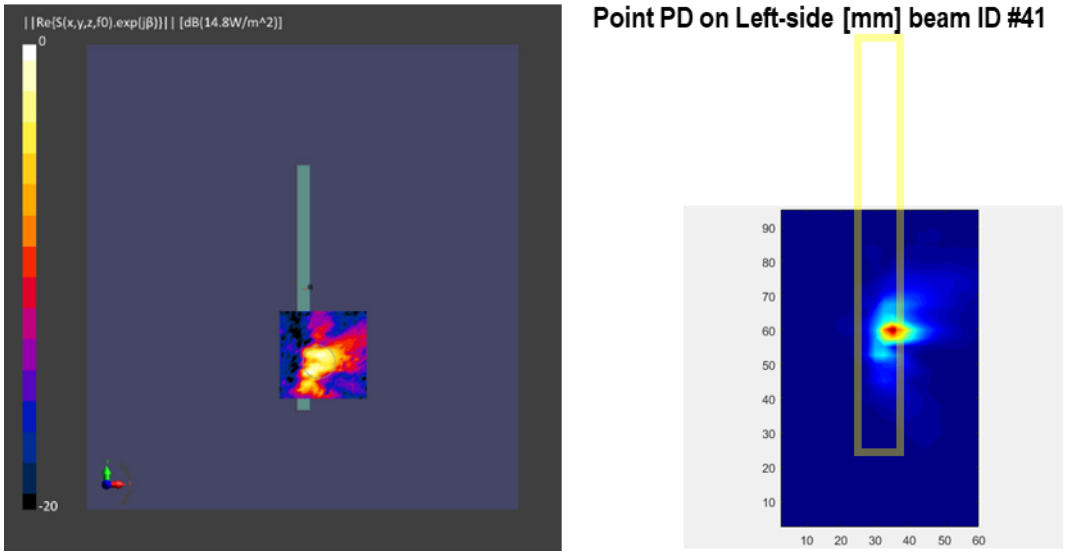
Patch antenna QTM2 AG0(V-polarization) beam ID 41, Point power density



(a) Measurement (b) Simulation

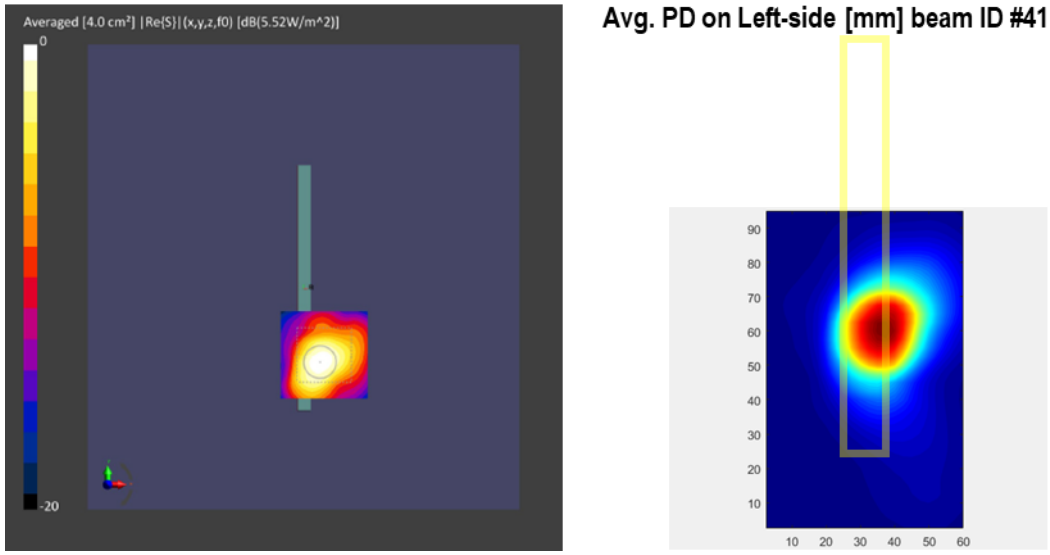
Patch antenna QTM2 AG0(V-polarization) beam ID 41, 4cm^2 Averaged power density

n260 Patch antenna QTM2 Ant_Group0(V-polarization) beam ID 41 Left-side Mid ch.



(a) Measurement (b) Simulation

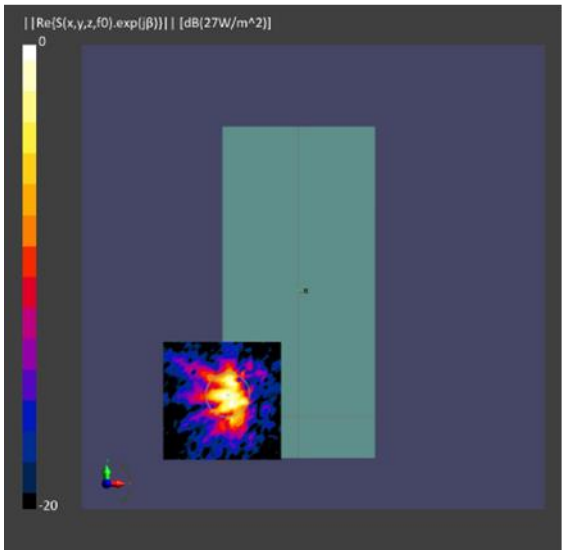
Patch antenna QTM2 AG0(V-polarization) beam ID 41, Point power density

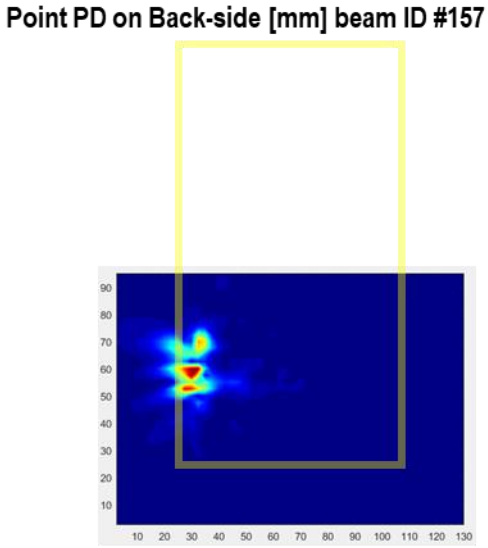


(a) Measurement (b) Simulation

Patch antenna QTM2 AG0(V-polarization) beam ID 41, 4cm^2 Averaged power density

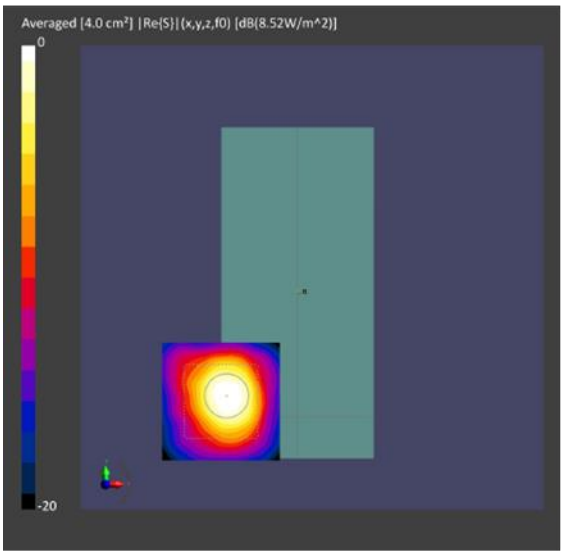
n260 Patch antenna QTM2 Ant_Group1(H-polarization) beam ID 157 Back-side Mid ch.

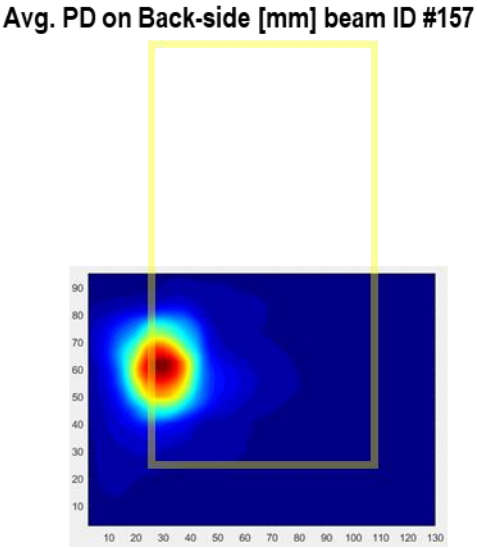




(a) Measurement (b) Simulation

Patch antenna QTM2 AG1(H-polarization) beam ID 157, Point power density

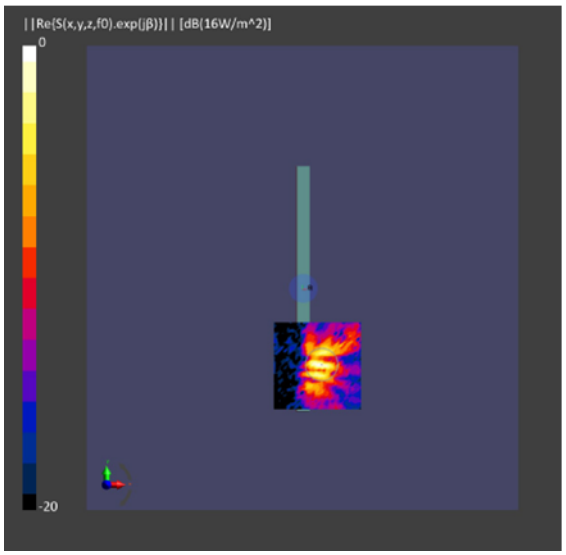


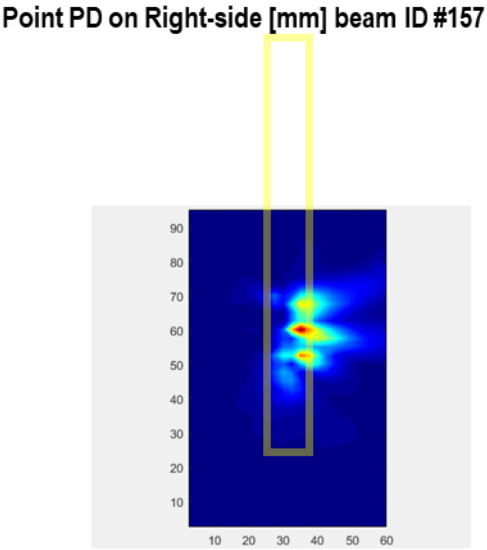


(a) Measurement (b) Simulation

Patch antenna QTM2 AG1(H-polarization) beam ID 157, 4cm^2 Averaged power density

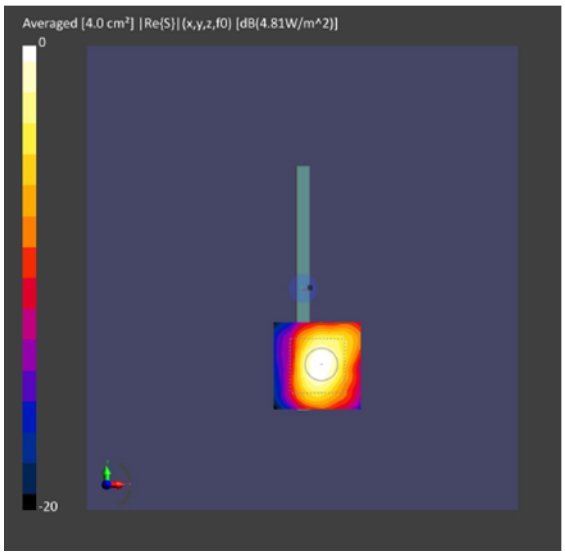
n260 Patch antenna QTM2 Ant_Group1(H-polarization) beam ID 157 Left-side Mid ch.

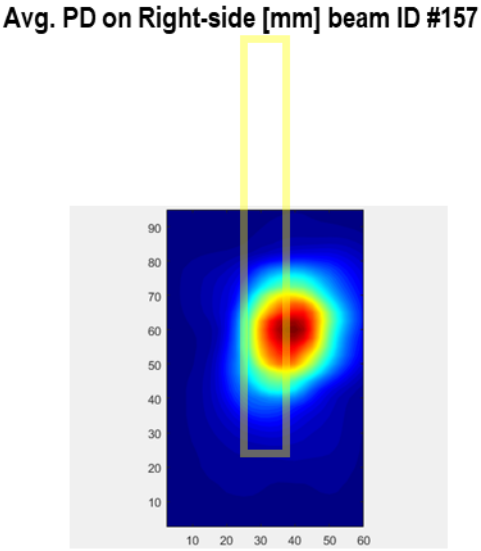




(a) Measurement (b) Simulation

Patch antenna QTM2 AG1(H-polarization) beam ID 157, Point power density





(a) Measurement (b) Simulation

Patch antenna QTM2 AG1(H-polarization) beam ID 157, 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	0.14	6.92	2.98	0.02	-	0.01	0.020	0	0.003
261	6		QTM0	PATCH	2	0.35	11.30	3.55	0.04	-	0.04	0.031	0	0.004
261	7		QTM0	PATCH	2	0.47	13.00	5.56	0.18	-	0.03	0.036	0	0.014
261	8		QTM0	PATCH	2	1.05	11.19	3.32	0.11	-	0.11	0.094	0	0.010
261	14		QTM0	PATCH	2	0.27	13.21	5.34	0.10	-	0.02	0.020	0	0.007
261	15		QTM0	PATCH	2	0.70	12.31	4.83	0.16	-	0.07	0.057	0	0.013
261	23		QTM0	PATCH	4	1.55	13.45	6.11	0.13	-	0.20	0.115	0	0.010
261	24		QTM0	PATCH	4	0.64	17.05	10.37	0.27	-	0.04	0.038	0	0.016
261	25		QTM0	PATCH	4	0.51	21.93	11.62	0.28	-	0.01	0.023	0	0.013
261	26		QTM0	PATCH	4	0.84	18.02	10.37	0.35	-	0.12	0.047	0	0.020
261	27		QTM0	PATCH	4	0.93	17.04	7.86	0.29	-	0.09	0.055	0	0.017
261	37		QTM0	PATCH	4	1.15	17.01	6.98	0.17	-	0.17	0.068	0	0.010
261	38		QTM0	PATCH	4	0.74	18.54	11.27	0.32	-	0.02	0.040	0	0.017
261	39		QTM0	PATCH	4	0.78	22.43	11.98	0.29	-	0.04	0.035	0	0.013
261	40		QTM0	PATCH	4	0.67	16.71	9.59	0.44	-	0.03	0.040	0	0.026
261		129	QTM0	PATCH	1	0.14	6.69	3.55	0.03	-	0.04	0.021	0	0.005
261		134	QTM0	PATCH	2	0.29	11.10	4.76	0.08	-	0.15	0.026	0	0.007
261		135	QTM0	PATCH	2	0.28	12.76	7.00	0.08	-	0.01	0.022	0	0.006
261		136	QTM0	PATCH	2	0.53	10.74	4.02	0.10	-	0.02	0.050	0	0.009
261		142	QTM0	PATCH	2	0.17	12.92	7.53	0.07	-	0.07	0.013	0	0.006
261		143	QTM0	PATCH	2	0.49	11.12	4.23	0.07	-	0.01	0.044	0	0.006
261		151	QTM0	PATCH	4	0.73	16.27	10.30	0.17	-	0.43	0.045	0	0.010
261		152	QTM0	PATCH	4	0.62	18.97	10.57	0.26	-	0.04	0.033	0	0.014
261		153	QTM0	PATCH	4	0.50	18.39	11.70	0.26	-	0.03	0.027	0	0.014
261		154	QTM0	PATCH	4	1.36	16.18	9.43	0.28	-	0.03	0.084	0	0.017
261		155	QTM0	PATCH	4	0.44	17.85	6.21	0.27	-	0.15	0.025	0	0.015
261		165	QTM0	PATCH	4	0.68	17.20	10.33	0.14	-	0.39	0.040	0	0.008
261		166	QTM0	PATCH	4	0.66	23.40	11.73	0.31	-	0.03	0.028	0	0.013
261		167	QTM0	PATCH	4	1.18	16.78	10.91	0.34	-	0.02	0.070	0	0.020
261		168	QTM0	PATCH	4	0.88	17.29	7.16	0.26	-	0.03	0.051	0	0.015
261	1	129	QTM0	PATCH	1	0.43	13.88	8.21	0.15	-	0.11	0.031	0	0.011
261	6	134	QTM0	PATCH	2	0.88	23.04	9.68	0.31	-	0.52	0.038	0	0.013
261	7	135	QTM0	PATCH	2	1.17	26.88	18.55	0.54	-	0.09	0.044	0	0.020
261	8	136	QTM0	PATCH	2	1.58	24.01	11.91	0.44	-	0.47	0.066	0	0.018
261	14	142	QTM0	PATCH	2	0.73	29.22	19.80	0.45	-	0.17	0.025	0	0.015
261	15	143	QTM0	PATCH	2	1.41	24.06	13.17	0.54	-	0.32	0.059	0	0.023
261	23	151	QTM0	PATCH	4	3.20	41.80	28.51	0.36	-	1.32	0.077	0	0.009
261	24	152	QTM0	PATCH	4	1.95	42.50	30.56	1.31	-	0.24	0.046	0	0.031
261	25	153	QTM0	PATCH	4	1.45	49.91	32.63	1.22	-	0.08	0.029	0	0.024
261	26	154	QTM0	PATCH	4	3.31	40.16	30.01	1.56	-	0.41	0.082	0	0.039
261	27	155	QTM0	PATCH	4	1.79	40.94	24.31	1.09	-	0.87	0.044	0	0.027
261	37	165	QTM0	PATCH	4	2.59	43.73	29.27	0.60	-	1.01	0.059	0	0.014
261	38	166	QTM0	PATCH	4	2.35	46.77	32.10	1.23	-	0.18	0.050	0	0.026
261	39	167	QTM0	PATCH	4	2.91	48.26	32.70	1.12	-	0.25	0.060	0	0.023
261	40	168	QTM0	PATCH	4	2.24	39.58	27.49	1.32	-	0.52	0.057	0	0.033

QTM#0 Mid Ch.

n261 Mid ch.(27.925GHz)						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			
261	1		QTM0	PATCH	1	0.13	5.86	2.66	0.02	-	0.01	0.022	0	0.003
261	6		QTM0	PATCH	2	0.30	10.18	3.50	0.07	-	0.05	0.029	0	0.007
261	7		QTM0	PATCH	2	0.40	11.31	4.39	0.17	-	0.01	0.036	0	0.015
261	8		QTM0	PATCH	2	0.59	9.53	2.64	0.10	-	0.04	0.062	0	0.011
261	14		QTM0	PATCH	2	0.22	11.61	4.21	0.15	-	0.02	0.019	0	0.013
261	15		QTM0	PATCH	2	0.49	10.56	3.87	0.14	-	0.03	0.046	0	0.013
261	23		QTM0	PATCH	4	0.83	12.09	4.86	0.07	-	0.10	0.069	0	0.006
261	24		QTM0	PATCH	4	0.66	14.76	8.97	0.24	-	0.06	0.045	0	0.016
261	25		QTM0	PATCH	4	0.40	19.10	8.92	0.27	-	0.01	0.021	0	0.014
261	26		QTM0	PATCH	4	0.48	15.57	8.64	0.28	-	0.06	0.031	0	0.018
261	27		QTM0	PATCH	4	0.98	14.32	7.04	0.24	-	0.08	0.068	0	0.017
261	37		QTM0	PATCH	4	0.64	14.41	6.04	0.10	-	0.07	0.044	0	0.007
261	38		QTM0	PATCH	4	0.68	17.31	9.63	0.23	-	0.03	0.039	0	0.014
261	39		QTM0	PATCH	4	0.57	18.45	9.07	0.26	-	0.03	0.031	0	0.014
261	40		QTM0	PATCH	4	0.55	14.76	8.31	0.24	-	0.02	0.037	0	0.016
261		129	QTM0	PATCH	1	0.12	5.82	2.76	0.03	-	0.02	0.021	0	0.005
261		134	QTM0	PATCH	2	0.22	9.72	3.85	0.07	-	0.10	0.023	0	0.007
261		135	QTM0	PATCH	2	0.24	10.97	5.96	0.09	-	0.01	0.022	0	0.008
261		136	QTM0	PATCH	2	0.50	9.74	3.71	0.05	-	0.07	0.051	0	0.005
261		142	QTM0	PATCH	2	0.18	11.30	6.50	0.07	-	0.01	0.016	0	0.006
261		143	QTM0	PATCH	2	0.49	9.94	3.88	0.04	-	0.04	0.049	0	0.004
261		151	QTM0	PATCH	4	0.85	14.95	8.88	0.16	-	0.06	0.057	0	0.011
261		152	QTM0	PATCH	4	0.45	15.96	8.61	0.21	-	0.04	0.028	0	0.013
261		153	QTM0	PATCH	4	0.36	15.91	9.63	0.23	-	0.02	0.022	0	0.015
261		154	QTM0	PATCH	4	1.08	13.95	8.56	0.21	-	0.03	0.077	0	0.015
261		155	QTM0	PATCH	4	0.39	14.99	5.56	0.23	-	0.09	0.026	0	0.015
261		165	QTM0	PATCH	4	0.70	15.47	8.85	0.14	-	0.06	0.046	0	0.009
261		166	QTM0	PATCH	4	0.47	17.25	9.64	0.38	-	0.03	0.027	0	0.022
261		167	QTM0	PATCH	4	0.89	14.74	9.42	0.27	-	0.01	0.060	0	0.018
261		168	QTM0	PATCH	4	0.73	14.27	6.50	0.08	-	0.06	0.051	0	0.006
261	1	129	QTM0	PATCH	1	0.38	12.01	7.41	0.09	-	0.10	0.032	0	0.008
261	6	134	QTM0	PATCH	2	0.69	20.17	8.36	0.28	-	0.40	0.034	0	0.014
261	7	135	QTM0	PATCH	2	0.90	22.80	16.29	0.52	-	0.07	0.040	0	0.023
261	8	136	QTM0	PATCH	2	0.95	20.73	9.98	0.34	-	0.39	0.046	0	0.017
261	14	142	QTM0	PATCH	2	0.59	25.49	16.85	0.43	-	0.14	0.023	0	0.017
261	15	143	QTM0	PATCH	2	0.93	20.69	11.27	0.42	-	0.25	0.045	0	0.020
261	23	151	QTM0	PATCH	4	1.81	36.78	23.23	0.34	-	0.97	0.049	0	0.009
261	24	152	QTM0	PATCH	4	1.53	35.78	25.81	1.06	-	0.18	0.043	0	0.030
261	25	153	QTM0	PATCH	4	0.94	42.87	26.42	1.14	-	0.05	0.022	0	0.026
261	26	154	QTM0	PATCH	4	2.16	34.36	24.76	1.22	-	0.29	0.063	0	0.035
261	27	155	QTM0	PATCH	4	1.41	35.75	20.36	0.89	-	0.73	0.040	0	0.025
261	37	165	QTM0	PATCH	4	1.42	37.64	24.77	0.57	-	0.70	0.038	0	0.015
261	38	166	QTM0	PATCH	4	1.77	40.17	28.36	1.01	-	0.14	0.044	0	0.025
261	39	167	QTM0	PATCH	4	2.00	41.56	26.66	0.83	-	0.20	0.048	0	0.020
261	40	168	QTM0	PATCH	4	1.69	34.49	22.77	0.99	-	0.36	0.049	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	0.12	5.34	2.48	0.02	-	0.02	0.022	0	0.003
261	6		QTM0	PATCH	2	0.25	9.86	3.83	0.07	-	0.06	0.025	0	0.007
261	7		QTM0	PATCH	2	0.42	10.64	3.94	0.12	-	0.02	0.040	0	0.011
261	8		QTM0	PATCH	2	0.43	8.67	2.57	0.04	-	0.07	0.049	0	0.004
261	14		QTM0	PATCH	2	0.23	11.09	3.53	0.16	-	0.02	0.021	0	0.014
261	15		QTM0	PATCH	2	0.48	9.75	3.70	0.14	-	0.04	0.049	0	0.014
261	23		QTM0	PATCH	4	0.54	11.74	4.47	0.08	-	0.08	0.046	0	0.007
261	24		QTM0	PATCH	4	0.66	15.74	8.60	0.21	-	0.06	0.042	0	0.013
261	25		QTM0	PATCH	4	0.43	17.80	7.22	0.28	-	0.02	0.024	0	0.016
261	26		QTM0	PATCH	4	0.56	15.33	7.94	0.21	-	0.06	0.036	0	0.013
261	27		QTM0	PATCH	4	0.85	13.81	7.15	0.24	-	0.08	0.062	0	0.018
261	37		QTM0	PATCH	4	0.45	13.57	5.13	0.08	-	0.09	0.033	0	0.006
261	38		QTM0	PATCH	4	0.62	16.71	9.02	0.20	-	0.04	0.037	0	0.012
261	39		QTM0	PATCH	4	0.61	16.90	7.26	0.24	-	0.05	0.036	0	0.014
261	40		QTM0	PATCH	4	0.69	14.02	7.99	0.18	-	0.02	0.050	0	0.013
261		129	QTM0	PATCH	1	0.10	5.44	2.49	0.03	-	0.00	0.019	0	0.005
261		134	QTM0	PATCH	2	0.28	9.02	3.14	0.12	-	0.08	0.031	0	0.013
261		135	QTM0	PATCH	2	0.20	10.47	5.55	0.11	-	0.01	0.019	0	0.011
261		136	QTM0	PATCH	2	0.48	9.25	2.75	0.06	-	0.04	0.052	0	0.006
261		142	QTM0	PATCH	2	0.18	10.80	6.00	0.08	-	0.04	0.016	0	0.007
261		143	QTM0	PATCH	2	0.49	9.46	3.65	0.07	-	0.02	0.052	0	0.008
261		151	QTM0	PATCH	4	0.76	14.73	8.36	0.15	-	0.23	0.051	0	0.011
261		152	QTM0	PATCH	4	0.44	14.89	7.38	0.29	-	0.12	0.029	0	0.020
261		153	QTM0	PATCH	4	0.33	14.95	8.52	0.24	-	0.02	0.022	0	0.016
261		154	QTM0	PATCH	4	0.97	12.72	8.74	0.16	-	0.04	0.076	0	0.012
261		155	QTM0	PATCH	4	0.44	13.72	4.88	0.19	-	0.06	0.032	0	0.014
261		165	QTM0	PATCH	4	0.80	15.23	8.25	0.17	-	0.23	0.053	0	0.011
261		166	QTM0	PATCH	4	0.31	15.05	8.54	0.41	-	0.02	0.021	0	0.027
261		167	QTM0	PATCH	4	0.77	14.00	8.77	0.22	-	0.01	0.055	0	0.016
261		168	QTM0	PATCH	4	0.75	12.85	6.70	0.16	-	0.09	0.058	0	0.013
261	1	129	QTM0	PATCH	1	0.39	11.04	6.86	0.10	-	0.13	0.036	0	0.009
261	6	134	QTM0	PATCH	2	0.67	18.78	8.17	0.28	-	0.39	0.036	0	0.015
261	7	135	QTM0	PATCH	2	0.93	21.89	15.98	0.54	-	0.06	0.042	0	0.025
261	8	136	QTM0	PATCH	2	0.80	19.63	8.98	0.31	-	0.30	0.041	0	0.016
261	14	142	QTM0	PATCH	2	0.63	24.76	15.78	0.47	-	0.11	0.026	0	0.019
261	15	143	QTM0	PATCH	2	0.94	19.20	11.38	0.36	-	0.19	0.049	0	0.019
261	23	151	QTM0	PATCH	4	2.05	35.59	21.34	0.40	-	0.84	0.058	0	0.011
261	24	152	QTM0	PATCH	4	1.34	32.56	23.38	1.06	-	0.23	0.041	0	0.033
261	25	153	QTM0	PATCH	4	0.87	40.35	23.64	1.14	-	0.08	0.022	0	0.028
261	26	154	QTM0	PATCH	4	1.79	34.13	23.29	0.97	-	0.23	0.052	0	0.028
261	27	155	QTM0	PATCH	4	1.70	34.13	19.43	0.88	-	0.55	0.050	0	0.026
261	37	165	QTM0	PATCH	4	1.75	36.16	23.25	0.66	-	0.57	0.049	0	0.018
261	38	166	QTM0	PATCH	4	1.37	38.58	26.28	0.93	-	0.14	0.036	0	0.024
261	39	167	QTM0	PATCH	4	1.80	38.83	22.59	0.67	-	0.18	0.046	0	0.017
261	40	168	QTM0	PATCH	4	1.56	34.33	22.14	0.83	-	0.34	0.045	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						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	1		QTM0	PATCH	1	0.07	5.18	2.36	0.04	-	0.03	0.014	0	0.007
260	6		QTM0	PATCH	2	0.10	11.92	5.03	0.08	-	0.03	0.009	0	0.007
260	7		QTM0	PATCH	2	0.05	9.99	2.60	0.38	-	0.10	0.005	0	0.038
260	8		QTM0	PATCH	2	0.03	11.75	2.71	0.27	-	0.04	0.002	0	0.023
260	14		QTM0	PATCH	2	0.07	9.63	1.67	0.35	-	0.13	0.007	0	0.036
260	15		QTM0	PATCH	2	0.03	11.31	3.06	0.25	-	0.03	0.002	0	0.022
260	23		QTM0	PATCH	4	0.08	19.39	6.93	0.23	-	0.12	0.004	0	0.012
260	24		QTM0	PATCH	4	0.11	19.61	8.97	0.47	-	0.10	0.005	0	0.024
260	25		QTM0	PATCH	4	0.28	19.50	7.48	0.71	-	0.18	0.014	0	0.037
260	26		QTM0	PATCH	4	0.06	20.17	8.98	0.27	-	0.06	0.003	0	0.014
260	27		QTM0	PATCH	4	0.31	19.92	8.24	0.09	-	0.09	0.016	0	0.004
260	37		QTM0	PATCH	4	0.10	19.75	9.01	0.42	-	0.10	0.005	0	0.021
260	38		QTM0	PATCH	4	0.11	19.39	8.72	0.47	-	0.10	0.005	0	0.024
260	39		QTM0	PATCH	4	0.20	20.42	7.28	0.90	-	0.09	0.010	0	0.044
260	40		QTM0	PATCH	4	0.05	20.10	8.88	0.14	-	0.08	0.003	0	0.007
260		129	QTM0	PATCH	1	0.01	5.92	1.07	0.07	-	0.02	0.001	0	0.012
260		136	QTM0	PATCH	2	0.09	12.76	3.47	0.12	-	0.03	0.007	0	0.010
260		135	QTM0	PATCH	2	0.04	9.79	1.50	0.38	-	0.02	0.004	0	0.039
260		134	QTM0	PATCH	2	0.06	9.32	1.80	0.18	-	0.02	0.007	0	0.019
260		143	QTM0	PATCH	2	0.07	8.78	1.71	0.31	-	0.01	0.008	0	0.036
260		142	QTM0	PATCH	2	0.10	12.72	3.20	0.15	-	0.04	0.008	0	0.012
260		152	QTM0	PATCH	4	0.16	20.48	4.08	0.62	-	0.16	0.008	0	0.030
260		153	QTM0	PATCH	4	0.12	18.23	5.98	0.70	-	0.08	0.007	0	0.038
260		154	QTM0	PATCH	4	0.16	16.71	6.76	0.36	-	0.04	0.010	0	0.022
260		151	QTM0	PATCH	4	0.17	17.96	7.14	0.14	-	0.04	0.010	0	0.008
260		155	QTM0	PATCH	4	0.14	19.70	4.13	0.46	-	0.05	0.007	0	0.023
260		168	QTM0	PATCH	4	0.12	16.40	6.07	0.48	-	0.04	0.007	0	0.029
260		166	QTM0	PATCH	4	0.12	15.84	6.24	0.74	-	0.07	0.008	0	0.047
260		167	QTM0	PATCH	4	0.13	16.95	6.56	0.78	-	0.04	0.008	0	0.046
260		165	QTM0	PATCH	4	0.09	20.39	5.07	0.08	-	0.06	0.004	0	0.004
260	1	129	QTM0	PATCH	1	0.18	10.84	4.37	0.21	-	0.14	0.017	0	0.020
260	6	136	QTM0	PATCH	2	0.50	20.24	9.72	0.26	-	0.26	0.025	0	0.013
260	7	135	QTM0	PATCH	2	0.43	18.03	6.59	1.42	-	0.35	0.024	0	0.079
260	8	134	QTM0	PATCH	2	0.27	18.27	5.89	0.58	-	0.21	0.015	0	0.032
260	14	143	QTM0	PATCH	2	0.34	19.19	4.84	1.14	-	0.24	0.018	0	0.060
260	15	142	QTM0	PATCH	2	0.29	26.12	9.71	0.46	-	0.19	0.011	0	0.017
260	23	152	QTM0	PATCH	4	0.72	41.27	14.57	1.14	-	0.96	0.018	0	0.028
260	24	153	QTM0	PATCH	4	0.93	39.08	18.86	1.74	-	0.40	0.024	0	0.045
260	25	154	QTM0	PATCH	4	1.02	36.00	19.30	1.92	-	0.30	0.028	0	0.053
260	26	151	QTM0	PATCH	4	0.91	40.18	19.88	0.58	-	0.37	0.023	0	0.014
260	27	155	QTM0	PATCH	4	0.89	42.72	17.84	0.85	-	0.66	0.021	0	0.020
260	37	168	QTM0	PATCH	4	1.06	38.82	18.38	1.59	-	0.36	0.027	0	0.041
260	38	166	QTM0	PATCH	4	0.87	38.69	19.24	1.66	-	0.44	0.023	0	0.043
260	39	167	QTM0	PATCH	4	0.88	38.17	21.06	1.80	-	0.34	0.023	0	0.047
260	40	165	QTM0	PATCH	4	0.79	43.48	17.26	0.48	-	0.66	0.018	0	0.011

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	0.08	4.70	1.83	0.05	-	0.02	0.018	0	0.010
260	6		QTM0	PATCH	2	0.07	12.19	4.64	0.10	-	0.02	0.006	0	0.009
260	7		QTM0	PATCH	2	0.12	10.26	3.60	0.20	-	0.02	0.012	0	0.019
260	8		QTM0	PATCH	2	0.06	11.30	2.75	0.18	-	0.03	0.005	0	0.016
260	14		QTM0	PATCH	2	0.05	9.90	2.60	0.17	-	0.04	0.005	0	0.017
260	15		QTM0	PATCH	2	0.09	10.80	3.45	0.25	-	0.06	0.008	0	0.023
260	23		QTM0	PATCH	4	0.16	19.57	7.31	0.30	-	0.06	0.008	0	0.015
260	24		QTM0	PATCH	4	0.26	18.70	6.22	0.20	-	0.09	0.014	0	0.011
260	25		QTM0	PATCH	4	0.33	18.74	4.83	0.83	-	0.04	0.017	0	0.044
260	26		QTM0	PATCH	4	0.08	19.27	8.23	0.42	-	0.07	0.004	0	0.022
260	27		QTM0	PATCH	4	0.17	20.38	8.39	0.31	-	0.08	0.008	0	0.015
260	37		QTM0	PATCH	4	0.24	18.80	7.15	0.10	-	0.07	0.013	0	0.005
260	38		QTM0	PATCH	4	0.25	18.32	6.35	0.27	-	0.10	0.014	0	0.015
260	39		QTM0	PATCH	4	0.32	19.23	5.33	1.00	-	0.03	0.017	0	0.052
260	40		QTM0	PATCH	4	0.18	20.48	8.18	0.24	-	0.08	0.009	0	0.012
260		129	QTM0	PATCH	1	0.03	5.04	1.49	0.09	-	0.02	0.007	0	0.017
260		136	QTM0	PATCH	2	0.05	12.05	3.89	0.18	-	0.02	0.004	0	0.015
260		135	QTM0	PATCH	2	0.07	7.91	1.88	0.28	-	0.04	0.009	0	0.035
260		134	QTM0	PATCH	2	0.08	9.01	2.57	0.09	-	0.01	0.009	0	0.010
260		143	QTM0	PATCH	2	0.06	7.52	2.05	0.12	-	0.02	0.007	0	0.016
260		142	QTM0	PATCH	2	0.05	11.57	4.00	0.19	-	0.03	0.004	0	0.017
260		152	QTM0	PATCH	4	0.16	18.68	6.06	0.47	-	0.05	0.008	0	0.025
260		153	QTM0	PATCH	4	0.30	18.13	3.58	0.81	-	0.08	0.016	0	0.045
260		154	QTM0	PATCH	4	0.14	17.20	6.82	0.35	-	0.02	0.008	0	0.020
260		151	QTM0	PATCH	4	0.12	18.11	7.24	0.32	-	0.03	0.006	0	0.018
260		155	QTM0	PATCH	4	0.15	18.72	7.03	0.30	-	0.03	0.008	0	0.016
260		168	QTM0	PATCH	4	0.14	16.62	6.01	0.36	-	0.05	0.008	0	0.022
260		166	QTM0	PATCH	4	0.26	18.12	3.63	0.80	-	0.08	0.014	0	0.044
260		167	QTM0	PATCH	4	0.20	15.10	5.37	0.42	-	0.06	0.013	0	0.028
260		165	QTM0	PATCH	4	0.13	18.82	6.29	0.25	-	0.04	0.007	0	0.013
260	1	129	QTM0	PATCH	1	0.32	9.58	3.89	0.18	-	0.15	0.034	0	0.019
260	6	136	QTM0	PATCH	2	0.61	19.98	10.47	0.37	-	0.20	0.030	0	0.019
260	7	135	QTM0	PATCH	2	0.26	16.56	6.99	0.61	-	0.38	0.016	0	0.037
260	8	134	QTM0	PATCH	2	0.48	18.84	6.86	0.70	-	0.18	0.025	0	0.037
260	14	143	QTM0	PATCH	2	0.30	18.81	6.53	0.36	-	0.20	0.016	0	0.019
260	15	142	QTM0	PATCH	2	0.62	25.53	11.83	0.56	-	0.21	0.024	0	0.022
260	23	152	QTM0	PATCH	4	1.04	40.50	16.35	1.12	-	0.71	0.026	0	0.028
260	24	153	QTM0	PATCH	4	0.56	38.83	15.12	1.32	-	0.38	0.014	0	0.034
260	25	154	QTM0	PATCH	4	0.92	34.42	16.57	1.93	-	0.28	0.027	0	0.056
260	26	151	QTM0	PATCH	4	1.15	39.14	18.17	0.90	-	0.38	0.029	0	0.023
260	27	155	QTM0	PATCH	4	1.38	40.09	22.15	1.03	-	0.42	0.034	0	0.026
260	37	168	QTM0	PATCH	4	0.71	34.91	17.78	0.79	-	0.55	0.020	0	0.023
260	38	166	QTM0	PATCH	4	0.55	38.75	15.30	1.14	-	0.36	0.014	0	0.029
260	39	167	QTM0	PATCH	4	1.03	34.67	17.51	1.29	-	0.39	0.030	0	0.037
260	40	165	QTM0	PATCH	4	1.01	41.21	19.59	0.78	-	0.47	0.025	0	0.019

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	3.62	1.17	0.06	-	0.02	0.017	0	0.018
260	6		QTM0	PATCH	2	0.11	9.74	2.70	0.20	-	0.08	0.012	0	0.021
260	7		QTM0	PATCH	2	0.16	6.98	2.92	0.12	-	0.02	0.024	0	0.017
260	8		QTM0	PATCH	2	0.07	8.62	3.02	0.34	-	0.05	0.008	0	0.039
260	14		QTM0	PATCH	2	0.11	7.17	2.34	0.14	-	0.03	0.016	0	0.019
260	15		QTM0	PATCH	2	0.10	8.13	2.80	0.27	-	0.03	0.012	0	0.033
260	23		QTM0	PATCH	4	0.11	15.55	6.31	0.28	-	0.16	0.007	0	0.018
260	24		QTM0	PATCH	4	0.23	10.57	4.80	0.18	-	0.21	0.022	0	0.017
260	25		QTM0	PATCH	4	0.31	13.79	3.73	0.66	-	0.04	0.022	0	0.048
260	26		QTM0	PATCH	4	0.21	16.97	6.10	0.69	-	0.14	0.012	0	0.041
260	27		QTM0	PATCH	4	0.16	16.62	6.87	0.35	-	0.20	0.010	0	0.021
260	37		QTM0	PATCH	4	0.26	11.31	5.47	0.19	-	0.19	0.023	0	0.016
260	38		QTM0	PATCH	4	0.24	10.12	4.21	0.21	-	0.06	0.023	0	0.020
260	39		QTM0	PATCH	4	0.25	15.03	3.74	0.76	-	0.04	0.017	0	0.050
260	40		QTM0	PATCH	4	0.18	16.71	6.69	0.31	-	0.18	0.011	0	0.018
260		129	QTM0	PATCH	1	0.06	4.11	1.04	0.06	-	0.03	0.015	0	0.015
260		136	QTM0	PATCH	2	0.13	10.21	3.67	0.33	-	0.02	0.013	0	0.033
260		135	QTM0	PATCH	2	0.05	5.74	1.31	0.18	-	0.06	0.008	0	0.032
260		134	QTM0	PATCH	2	0.18	6.88	2.66	0.21	-	0.03	0.026	0	0.030
260		143	QTM0	PATCH	2	0.04	5.34	1.55	0.09	-	0.04	0.007	0	0.017
260		142	QTM0	PATCH	2	0.13	9.89	3.66	0.37	-	0.02	0.013	0	0.037
260		152	QTM0	PATCH	4	0.25	16.48	4.95	0.70	-	0.03	0.015	0	0.043
260		153	QTM0	PATCH	4	0.31	9.93	2.84	0.66	-	0.07	0.032	0	0.067
260		154	QTM0	PATCH	4	0.23	11.80	4.72	0.34	-	0.06	0.020	0	0.029
260		151	QTM0	PATCH	4	0.03	16.04	5.33	0.23	-	0.02	0.002	0	0.015
260		155	QTM0	PATCH	4	0.30	16.00	5.45	0.53	-	0.03	0.019	0	0.033
260		168	QTM0	PATCH	4	0.20	11.83	4.25	0.25	-	0.09	0.017	0	0.022
260		166	QTM0	PATCH	4	0.30	10.82	2.98	0.73	-	0.07	0.027	0	0.067
260		167	QTM0	PATCH	4	0.42	11.03	3.57	0.13	-	0.10	0.038	0	0.012
260		165	QTM0	PATCH	4	0.23	17.67	5.62	0.08	-	0.03	0.013	0	0.005
260	1	129	QTM0	PATCH	1	0.28	7.75	2.89	0.22	-	0.13	0.036	0	0.028
260	6	136	QTM0	PATCH	2	0.52	17.39	7.72	0.69	-	0.20	0.030	0	0.039
260	7	135	QTM0	PATCH	2	0.31	11.12	4.84	0.49	-	0.28	0.027	0	0.044
260	8	134	QTM0	PATCH	2	0.63	14.45	6.71	0.66	-	0.19	0.044	0	0.046
260	14	143	QTM0	PATCH	2	0.36	11.93	5.23	0.23	-	0.18	0.030	0	0.020
260	15	142	QTM0	PATCH	2	0.54	19.73	10.56	0.75	-	0.24	0.028	0	0.038
260	23	152	QTM0	PATCH	4	1.18	31.00	14.25	1.33	-	0.50	0.038	0	0.043
260	24	153	QTM0	PATCH	4	0.84	27.89	10.42	1.25	-	0.71	0.030	0	0.045
260	25	154	QTM0	PATCH	4	0.83	25.96	14.47	1.42	-	0.18	0.032	0	0.055
260	26	151	QTM0	PATCH	4	1.38	33.49	17.49	1.14	-	0.49	0.041	0	0.034
260	27	155	QTM0	PATCH	4	1.24	32.94	14.15	1.26	-	0.53	0.038	0	0.038
260	37	168	QTM0	PATCH	4	0.82	26.25	14.77	0.61	-	0.53	0.031	0	0.023
260	38	166	QTM0	PATCH	4	0.90	29.22	10.65	1.06	-	0.71	0.031	0	0.036
260	39	167	QTM0	PATCH	4	1.21	27.70	12.70	1.31	-	0.28	0.044	0	0.047
260	40	165	QTM0	PATCH	4	1.08	35.22	15.37	1.05	-	0.52	0.031	0	0.030

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	3.06	4.83	10.08	0.11	0.12	-	0.303	0.012	0.011
261	3		QTM1	PATCH	2	6.30	9.60	19.29	0.11	0.47	-	0.327	0.024	0.006
261	4		QTM1	PATCH	2	5.00	9.86	19.13	0.14	0.08	-	0.261	0.004	0.007
261	5		QTM1	PATCH	2	4.31	6.28	15.36	0.17	0.62	-	0.280	0.040	0.011
261	12		QTM1	PATCH	2	5.01	9.57	18.25	0.19	0.20	-	0.275	0.011	0.010
261	13		QTM1	PATCH	2	3.83	9.07	18.36	0.15	0.45	-	0.209	0.025	0.008
261	18		QTM1	PATCH	4	9.97	17.32	29.52	0.27	0.18	-	0.338	0.006	0.009
261	19		QTM1	PATCH	4	8.65	19.25	29.43	0.24	0.18	-	0.294	0.006	0.008
261	20		QTM1	PATCH	4	8.65	19.18	35.57	0.30	0.55	-	0.243	0.015	0.008
261	21		QTM1	PATCH	4	6.75	17.29	27.64	0.40	0.28	-	0.244	0.010	0.015
261	22		QTM1	PATCH	4	7.49	8.74	20.04	0.47	2.02	-	0.374	0.101	0.023
261	33		QTM1	PATCH	4	8.39	19.77	28.77	0.26	0.17	-	0.292	0.006	0.009
261	34		QTM1	PATCH	4	9.88	19.14	32.93	0.18	0.14	-	0.300	0.004	0.005
261	35		QTM1	PATCH	4	7.55	17.67	26.53	0.31	0.24	-	0.285	0.009	0.012
261	36		QTM1	PATCH	4	6.78	11.34	21.81	0.55	1.86	-	0.311	0.085	0.025
261		128	QTM1	PATCH	1	2.41	3.38	7.87	0.05	0.27	-	0.306	0.034	0.006
261		132	QTM1	PATCH	2	6.58	8.63	19.41	0.11	0.11	-	0.339	0.005	0.005
261		131	QTM1	PATCH	2	6.14	7.95	19.17	0.21	0.12	-	0.320	0.006	0.011
261		133	QTM1	PATCH	2	3.52	6.21	14.29	0.15	0.16	-	0.246	0.011	0.010
261		141	QTM1	PATCH	2	4.03	8.09	15.89	0.09	0.12	-	0.253	0.007	0.005
261		140	QTM1	PATCH	2	6.65	9.23	20.63	0.16	0.17	-	0.322	0.008	0.008
261		149	QTM1	PATCH	4	7.90	14.64	26.28	0.22	0.26	-	0.301	0.010	0.009
261		148	QTM1	PATCH	4	10.79	9.70	26.80	0.22	0.26	-	0.403	0.010	0.008
261		147	QTM1	PATCH	4	11.50	16.67	27.67	0.21	0.36	-	0.416	0.013	0.008
261		146	QTM1	PATCH	4	9.56	15.33	27.26	0.39	0.80	-	0.351	0.029	0.014
261		150	QTM1	PATCH	4	8.94	8.84	20.06	0.33	0.50	-	0.446	0.025	0.016
261		163	QTM1	PATCH	4	9.39	15.75	23.87	0.19	0.30	-	0.393	0.012	0.008
261		162	QTM1	PATCH	4	12.47	9.85	30.01	0.22	0.15	-	0.415	0.005	0.007
261		161	QTM1	PATCH	4	9.12	16.32	26.18	0.28	0.69	-	0.349	0.026	0.011
261		164	QTM1	PATCH	4	5.98	10.15	20.97	0.29	0.41	-	0.285	0.019	0.014
261	0	128	QTM1	PATCH	1	7.93	9.11	18.09	0.22	0.84	-	0.438	0.046	0.012
261	3	132	QTM1	PATCH	2	18.50	22.31	39.67	0.32	1.36	-	0.466	0.034	0.008
261	4	131	QTM1	PATCH	2	16.66	25.66	41.49	0.48	0.59	-	0.402	0.014	0.012
261	5	133	QTM1	PATCH	2	9.68	20.22	36.25	0.32	2.12	-	0.267	0.059	0.009
261	12	141	QTM1	PATCH	2	12.86	20.85	33.47	0.36	1.97	-	0.384	0.059	0.011
261	13	140	QTM1	PATCH	2	16.05	25.42	39.77	0.45	0.89	-	0.404	0.022	0.011
261	18	149	QTM1	PATCH	4	28.87	43.57	62.70	0.54	4.97	-	0.460	0.079	0.009
261	19	148	QTM1	PATCH	4	36.92	47.75	67.85	0.69	1.35	-	0.544	0.020	0.010
261	20	147	QTM1	PATCH	4	38.55	47.83	68.46	0.66	1.51	-	0.563	0.022	0.010
261	21	146	QTM1	PATCH	4	28.38	47.22	68.46	1.01	1.84	-	0.415	0.027	0.015
261	22	150	QTM1	PATCH	4	19.49	23.13	41.36	1.10	6.36	-	0.471	0.154	0.027
261	33	163	QTM1	PATCH	4	31.17	49.12	67.40	0.66	2.68	-	0.462	0.040	0.010
261	34	162	QTM1	PATCH	4	41.47	47.40	72.05	0.64	1.00	-	0.576	0.014	0.009
261	35	161	QTM1	PATCH	4	33.54	48.17	65.87	0.91	2.04	-	0.509	0.031	0.014
261	36	164	QTM1	PATCH	4	17.14	25.15	42.73	1.17	5.81	-	0.401	0.136	0.027

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	3.04	4.63	9.78	0.10	0.16	-	0.310	0.017	0.010
261	3		QTM1	PATCH	2	6.29	9.40	19.06	0.14	0.67	-	0.330	0.035	0.007
261	4		QTM1	PATCH	2	4.90	9.78	18.92	0.13	0.05	-	0.259	0.003	0.007
261	5		QTM1	PATCH	2	4.33	6.46	15.26	0.17	0.75	-	0.284	0.049	0.011
261	12		QTM1	PATCH	2	4.88	9.11	17.66	0.20	0.24	-	0.277	0.013	0.011
261	13		QTM1	PATCH	2	3.89	9.07	17.82	0.14	0.50	-	0.218	0.028	0.008
261	18		QTM1	PATCH	4	10.51	16.56	30.04	0.27	0.78	-	0.350	0.026	0.009
261	19		QTM1	PATCH	4	8.81	18.63	28.79	0.26	0.16	-	0.306	0.005	0.009
261	20		QTM1	PATCH	4	8.88	18.44	34.13	0.27	0.75	-	0.260	0.022	0.008
261	21		QTM1	PATCH	4	7.08	16.44	26.69	0.45	0.72	-	0.265	0.027	0.017
261	22		QTM1	PATCH	4	7.24	8.86	19.33	0.55	2.43	-	0.375	0.126	0.029
261	33		QTM1	PATCH	4	8.81	19.40	28.32	0.26	0.16	-	0.311	0.006	0.009
261	34		QTM1	PATCH	4	9.64	17.57	31.79	0.23	0.10	-	0.303	0.003	0.007
261	35		QTM1	PATCH	4	7.69	17.47	31.58	0.33	0.79	-	0.244	0.025	0.010
261	36		QTM1	PATCH	4	5.26	11.28	22.17	0.61	2.18	-	0.237	0.098	0.027
261		128	QTM1	PATCH	1	2.48	3.32	7.42	0.06	0.36	-	0.334	0.048	0.008
261		132	QTM1	PATCH	2	7.14	8.27	18.72	0.14	0.11	-	0.381	0.006	0.008
261		131	QTM1	PATCH	2	6.26	7.45	19.25	0.24	0.14	-	0.325	0.007	0.012
261		133	QTM1	PATCH	2	3.58	6.07	12.82	0.17	0.16	-	0.280	0.013	0.013
261		141	QTM1	PATCH	2	4.07	6.51	15.12	0.09	0.43	-	0.269	0.029	0.006
261		140	QTM1	PATCH	2	7.16	8.33	20.68	0.20	0.16	-	0.346	0.008	0.010
261		149	QTM1	PATCH	4	5.25	13.18	24.02	0.23	0.31	-	0.219	0.013	0.010
261		148	QTM1	PATCH	4	11.17	8.84	26.61	0.23	0.24	-	0.420	0.009	0.009
261		147	QTM1	PATCH	4	11.48	12.77	26.24	0.29	0.61	-	0.437	0.023	0.011
261		146	QTM1	PATCH	4	10.07	14.54	27.14	0.51	0.88	-	0.371	0.032	0.019
261		150	QTM1	PATCH	4	7.18	6.52	16.55	0.34	0.56	-	0.434	0.034	0.021
261		163	QTM1	PATCH	4	9.23	10.07	23.74	0.23	0.26	-	0.389	0.011	0.010
261		162	QTM1	PATCH	4	13.14	14.31	29.46	0.25	0.15	-	0.446	0.005	0.009
261		161	QTM1	PATCH	4	9.07	14.53	25.56	0.45	0.92	-	0.355	0.036	0.018
261		164	QTM1	PATCH	4	6.17	9.31	19.92	0.31	0.51	-	0.310	0.026	0.015
261	0	128	QTM1	PATCH	1	7.97	8.51	18.17	0.24	0.77	-	0.439	0.042	0.013
261	3	132	QTM1	PATCH	2	19.21	22.12	39.73	0.43	1.24	-	0.483	0.031	0.011
261	4	131	QTM1	PATCH	2	16.89	25.52	41.35	0.52	0.61	-	0.408	0.015	0.012
261	5	133	QTM1	PATCH	2	9.35	20.30	35.93	0.33	1.84	-	0.260	0.051	0.009
261	12	141	QTM1	PATCH	2	12.46	20.27	31.98	0.40	1.80	-	0.390	0.056	0.012
261	13	140	QTM1	PATCH	2	17.46	24.24	38.32	0.50	1.01	-	0.456	0.026	0.013
261	18	149	QTM1	PATCH	4	25.99	41.17	60.04	0.69	4.29	-	0.433	0.071	0.011
261	19	148	QTM1	PATCH	4	36.35	48.11	66.56	0.73	1.27	-	0.546	0.019	0.011
261	20	147	QTM1	PATCH	4	37.94	45.10	65.94	0.72	2.44	-	0.575	0.037	0.011
261	21	146	QTM1	PATCH	4	28.60	45.14	66.35	0.97	2.47	-	0.431	0.037	0.015
261	22	150	QTM1	PATCH	4	17.79	22.28	39.47	1.17	5.76	-	0.451	0.146	0.030
261	33	163	QTM1	PATCH	4	30.11	49.74	67.21	0.70	2.29	-	0.448	0.034	0.010
261	34	162	QTM1	PATCH	4	39.85	44.11	68.40	0.78	0.98	-	0.583	0.014	0.011
261	35	161	QTM1	PATCH	4	33.24	46.76	64.98	0.88	2.90	-	0.512	0.045	0.014
261	36	164	QTM1	PATCH	4	16.11	24.28	40.82	1.25	5.34	-	0.395	0.131	0.031

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	3.37	4.56	10.38	0.10	0.22	-	0.325	0.021	0.010
261	3		QTM1	PATCH	2	7.04	10.23	21.22	0.23	0.86	-	0.332	0.041	0.011
261	4		QTM1	PATCH	2	5.51	10.47	20.63	0.15	0.07	-	0.267	0.003	0.007
261	5		QTM1	PATCH	2	4.37	7.07	16.59	0.11	0.98	-	0.263	0.059	0.007
261	12		QTM1	PATCH	2	5.31	9.93	18.66	0.22	0.34	-	0.284	0.018	0.012
261	13		QTM1	PATCH	2	4.63	9.64	18.76	0.16	0.66	-	0.247	0.035	0.009
261	18		QTM1	PATCH	4	12.49	17.68	32.97	0.32	1.04	-	0.379	0.031	0.010
261	19		QTM1	PATCH	4	10.30	20.01	35.87	0.39	0.21	-	0.287	0.006	0.011
261	20		QTM1	PATCH	4	10.59	19.41	37.23	0.32	1.06	-	0.284	0.028	0.009
261	21		QTM1	PATCH	4	7.82	16.38	23.11	0.52	1.05	-	0.338	0.046	0.022
261	22		QTM1	PATCH	4	7.11	9.43	20.02	0.61	3.07	-	0.355	0.154	0.031
261	33		QTM1	PATCH	4	10.42	20.89	35.69	0.40	0.21	-	0.292	0.006	0.011
261	34		QTM1	PATCH	4	10.58	18.66	31.14	0.28	0.19	-	0.340	0.006	0.009
261	35		QTM1	PATCH	4	9.40	18.50	30.04	0.39	1.19	-	0.313	0.040	0.013
261	36		QTM1	PATCH	4	6.67	11.96	23.41	0.61	2.66	-	0.285	0.114	0.026
261		128	QTM1	PATCH	1	2.36	3.35	6.89	0.08	0.41	-	0.343	0.059	0.011
261		132	QTM1	PATCH	2	7.57	8.10	18.25	0.18	0.13	-	0.415	0.007	0.010
261		131	QTM1	PATCH	2	5.46	8.05	18.01	0.24	0.14	-	0.303	0.008	0.013
261		133	QTM1	PATCH	2	3.38	5.69	11.82	0.17	0.43	-	0.286	0.036	0.014
261		141	QTM1	PATCH	2	3.92	6.36	13.98	0.09	0.48	-	0.281	0.034	0.006
261		140	QTM1	PATCH	2	7.09	8.26	19.80	0.20	0.14	-	0.358	0.007	0.010
261		149	QTM1	PATCH	4	5.92	11.71	20.57	0.31	0.68	-	0.288	0.033	0.015
261		148	QTM1	PATCH	4	11.05	14.36	26.71	0.29	0.25	-	0.414	0.009	0.011
261		147	QTM1	PATCH	4	11.48	12.09	25.24	0.25	0.81	-	0.455	0.032	0.010
261		146	QTM1	PATCH	4	10.18	14.39	25.39	0.60	0.88	-	0.401	0.035	0.024
261		150	QTM1	PATCH	4	5.93	6.86	14.44	0.35	1.34	-	0.410	0.092	0.024
261		163	QTM1	PATCH	4	8.79	14.01	23.31	0.22	0.28	-	0.377	0.012	0.009
261		162	QTM1	PATCH	4	13.66	13.72	29.37	0.30	0.16	-	0.465	0.006	0.010
261		161	QTM1	PATCH	4	8.94	8.96	24.11	0.52	0.94	-	0.371	0.039	0.021
261		164	QTM1	PATCH	4	5.70	8.25	17.62	0.39	1.21	-	0.324	0.069	0.022
261	0	128	QTM1	PATCH	1	7.67	7.87	17.38	0.25	0.82	-	0.441	0.047	0.014
261	3	132	QTM1	PATCH	2	19.79	22.54	39.61	0.59	1.23	-	0.500	0.031	0.015
261	4	131	QTM1	PATCH	2	16.58	26.25	39.80	0.55	0.61	-	0.417	0.015	0.014
261	5	133	QTM1	PATCH	2	8.85	19.87	34.03	0.37	1.81	-	0.260	0.053	0.011
261	12	141	QTM1	PATCH	2	11.47	20.60	30.89	0.39	1.70	-	0.371	0.055	0.013
261	13	140	QTM1	PATCH	2	18.32	24.11	36.15	0.45	1.14	-	0.507	0.031	0.012
261	18	149	QTM1	PATCH	4	22.74	36.88	55.58	1.03	4.02	-	0.409	0.072	0.019
261	19	148	QTM1	PATCH	4	35.06	48.83	67.82	0.83	1.27	-	0.517	0.019	0.012
261	20	147	QTM1	PATCH	4	36.69	42.61	64.21	0.75	3.16	-	0.571	0.049	0.012
261	21	146	QTM1	PATCH	4	27.89	43.84	62.93	1.08	2.87	-	0.443	0.046	0.017
261	22	150	QTM1	PATCH	4	14.32	21.36	38.20	1.12	6.71	-	0.375	0.176	0.029
261	33	163	QTM1	PATCH	4	28.90	49.25	66.76	0.84	1.96	-	0.433	0.029	0.013
261	34	162	QTM1	PATCH	4	37.85	42.52	66.40	0.79	1.13	-	0.570	0.017	0.012
261	35	161	QTM1	PATCH	4	32.64	46.01	63.55	1.06	3.38	-	0.514	0.053	0.017
261	36	164	QTM1	PATCH	4	13.74	22.79	37.64	1.34	5.53	-	0.365	0.147	0.036

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 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	0.96	0.92	3.28	0.04	0.06	-	0.291	0.019	0.013
260	3		QTM1	PATCH	2	3.01	2.71	8.00	0.04	0.09	-	0.377	0.011	0.005
260	4		QTM1	PATCH	2	2.25	2.42	5.97	0.07	0.25	-	0.377	0.043	0.011
260	5		QTM1	PATCH	2	3.00	2.77	7.93	0.04	0.08	-	0.378	0.010	0.006
260	12		QTM1	PATCH	2	2.96	2.86	9.67	0.05	0.26	-	0.306	0.027	0.005
260	13		QTM1	PATCH	2	2.07	2.05	6.05	0.05	0.16	-	0.342	0.026	0.009
260	18		QTM1	PATCH	4	4.78	7.19	14.94	0.09	0.23	-	0.320	0.015	0.006
260	19		QTM1	PATCH	4	3.09	5.22	12.36	0.16	0.08	-	0.250	0.007	0.013
260	20		QTM1	PATCH	4	2.43	6.12	11.50	0.14	0.41	-	0.211	0.036	0.012
260	21		QTM1	PATCH	4	3.43	6.81	13.67	0.11	0.58	-	0.251	0.043	0.008
260	22		QTM1	PATCH	4	4.10	5.53	13.21	0.11	0.16	-	0.310	0.012	0.008
260	33		QTM1	PATCH	4	4.23	6.73	14.24	0.09	0.20	-	0.297	0.014	0.006
260	34		QTM1	PATCH	4	3.44	4.64	10.40	0.11	0.31	-	0.331	0.030	0.010
260	35		QTM1	PATCH	4	3.18	3.79	12.13	0.12	0.46	-	0.262	0.038	0.010
260	36		QTM1	PATCH	4	3.72	7.03	14.10	0.07	0.19	-	0.264	0.013	0.005
260		128	QTM1	PATCH	1	1.19	1.88	4.45	0.05	0.05	-	0.267	0.012	0.012
260		133	QTM1	PATCH	2	2.47	3.18	8.60	0.11	0.19	-	0.288	0.022	0.012
260		132	QTM1	PATCH	2	2.07	3.62	7.62	0.07	0.12	-	0.272	0.016	0.009
260		131	QTM1	PATCH	2	2.51	3.20	8.31	0.11	0.21	-	0.302	0.026	0.014
260		141	QTM1	PATCH	2	2.19	3.94	8.90	0.06	0.13	-	0.246	0.015	0.007
260		140	QTM1	PATCH	2	2.44	3.28	7.39	0.11	0.23	-	0.330	0.030	0.015
260		146	QTM1	PATCH	4	5.39	5.60	12.37	0.22	0.19	-	0.436	0.016	0.018
260		148	QTM1	PATCH	4	2.64	5.46	11.18	0.07	0.29	-	0.236	0.026	0.007
260		147	QTM1	PATCH	4	3.22	5.25	10.05	0.15	0.31	-	0.320	0.031	0.014
260		150	QTM1	PATCH	4	5.20	5.42	14.90	0.23	0.17	-	0.349	0.012	0.015
260		149	QTM1	PATCH	4	4.64	4.83	12.30	0.11	0.24	-	0.377	0.020	0.009
260		163	QTM1	PATCH	4	4.01	6.05	13.95	0.08	0.30	-	0.287	0.022	0.006
260		162	QTM1	PATCH	4	2.13	5.45	9.79	0.10	0.32	-	0.218	0.033	0.010
260		161	QTM1	PATCH	4	4.66	4.60	10.90	0.18	0.55	-	0.428	0.050	0.017
260		164	QTM1	PATCH	4	5.30	5.68	12.21	0.17	0.18	-	0.434	0.015	0.014
260	0	128	QTM1	PATCH	1	4.09	5.56	8.53	0.12	0.25	-	0.480	0.029	0.015
260	3	133	QTM1	PATCH	2	8.40	11.07	18.37	0.17	1.09	-	0.457	0.059	0.009
260	4	132	QTM1	PATCH	2	7.63	11.11	14.18	0.21	0.46	-	0.538	0.033	0.015
260	5	131	QTM1	PATCH	2	8.14	9.94	17.92	0.17	1.02	-	0.454	0.057	0.010
260	12	141	QTM1	PATCH	2	5.79	9.98	17.98	0.14	0.85	-	0.322	0.047	0.008
260	13	140	QTM1	PATCH	2	8.82	9.11	16.32	0.19	1.07	-	0.540	0.066	0.012
260	18	146	QTM1	PATCH	4	14.61	21.56	31.00	0.37	3.49	-	0.471	0.112	0.012
260	19	148	QTM1	PATCH	4	10.44	15.09	25.42	0.36	0.70	-	0.411	0.027	0.014
260	20	147	QTM1	PATCH	4	12.00	16.95	24.42	0.42	1.07	-	0.491	0.044	0.017
260	21	150	QTM1	PATCH	4	13.91	21.69	31.05	0.39	3.00	-	0.448	0.097	0.013
260	22	149	QTM1	PATCH	4	12.87	17.17	31.79	0.29	1.51	-	0.405	0.047	0.009
260	33	163	QTM1	PATCH	4	12.08	16.48	29.76	0.19	1.86	-	0.406	0.063	0.006
260	34	162	QTM1	PATCH	4	10.90	14.58	23.70	0.29	0.77	-	0.460	0.032	0.012
260	35	161	QTM1	PATCH	4	14.17	17.62	27.46	0.36	2.22	-	0.516	0.081	0.013
260	36	164	QTM1	PATCH	4	14.19	20.61	31.82	0.27	2.56	-	0.446	0.080	0.009

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	1.52	3.95	0.03	0.05	-	0.270	0.012	0.007
260	3		QTM1	PATCH	2	3.01	2.55	9.39	0.04	0.14	-	0.321	0.015	0.004
260	4		QTM1	PATCH	2	2.46	2.80	7.35	0.08	0.15	-	0.335	0.020	0.011
260	5		QTM1	PATCH	2	2.95	2.60	9.20	0.04	0.13	-	0.321	0.014	0.004
260	12		QTM1	PATCH	2	3.37	3.07	10.41	0.06	0.19	-	0.324	0.019	0.005
260	13		QTM1	PATCH	2	2.46	2.08	8.38	0.09	0.19	-	0.293	0.022	0.011
260	18		QTM1	PATCH	4	4.83	6.87	16.21	0.13	0.32	-	0.298	0.020	0.008
260	19		QTM1	PATCH	4	3.01	6.45	14.23	0.14	0.14	-	0.211	0.009	0.010
260	20		QTM1	PATCH	4	2.65	5.64	13.43	0.16	0.46	-	0.197	0.034	0.012
260	21		QTM1	PATCH	4	3.41	7.07	15.76	0.19	0.25	-	0.216	0.016	0.012
260	22		QTM1	PATCH	4	3.18	6.58	15.41	0.12	0.15	-	0.207	0.010	0.008
260	33		QTM1	PATCH	4	3.97	7.36	16.06	0.09	0.11	-	0.247	0.007	0.006
260	34		QTM1	PATCH	4	4.37	5.63	11.28	0.14	0.26	-	0.387	0.023	0.013
260	35		QTM1	PATCH	4	4.67	6.94	14.95	0.16	0.37	-	0.313	0.025	0.011
260	36		QTM1	PATCH	4	4.17	7.26	15.65	0.08	0.26	-	0.266	0.016	0.005
260		128	QTM1	PATCH	1	1.43	2.50	5.30	0.07	0.04	-	0.271	0.007	0.012
260		133	QTM1	PATCH	2	2.54	4.04	9.03	0.12	0.16	-	0.281	0.018	0.014
260		132	QTM1	PATCH	2	2.34	4.32	9.03	0.12	0.13	-	0.260	0.014	0.014
260		131	QTM1	PATCH	2	2.55	4.00	8.55	0.14	0.19	-	0.298	0.022	0.017
260		141	QTM1	PATCH	2	2.58	3.81	9.83	0.07	0.09	-	0.262	0.009	0.007
260		140	QTM1	PATCH	2	2.64	3.69	8.12	0.14	0.22	-	0.325	0.027	0.017
260		146	QTM1	PATCH	4	6.12	6.20	14.41	0.26	0.25	-	0.425	0.017	0.018
260		148	QTM1	PATCH	4	4.27	6.59	13.78	0.14	0.25	-	0.310	0.018	0.010
260		147	QTM1	PATCH	4	3.13	5.67	11.05	0.19	0.09	-	0.283	0.008	0.017
260		150	QTM1	PATCH	4	5.82	6.25	14.36	0.24	0.23	-	0.406	0.016	0.017
260		149	QTM1	PATCH	4	6.55	6.75	14.87	0.14	0.22	-	0.441	0.015	0.010
260		163	QTM1	PATCH	4	4.67	7.04	14.14	0.15	0.06	-	0.330	0.004	0.010
260		162	QTM1	PATCH	4	4.16	5.54	13.17	0.13	0.25	-	0.316	0.019	0.010
260		161	QTM1	PATCH	4	4.62	5.80	11.79	0.18	0.49	-	0.392	0.041	0.015
260		164	QTM1	PATCH	4	6.83	6.13	15.17	0.17	0.24	-	0.450	0.016	0.011
260	0	128	QTM1	PATCH	1	4.79	6.91	9.72	0.12	0.27	-	0.493	0.027	0.013
260	3	133	QTM1	PATCH	2	9.01	10.67	19.89	0.21	0.89	-	0.453	0.045	0.011
260	4	132	QTM1	PATCH	2	9.08	13.56	16.85	0.28	0.51	-	0.539	0.030	0.017
260	5	131	QTM1	PATCH	2	8.75	9.94	19.25	0.23	0.81	-	0.455	0.042	0.012
260	12	141	QTM1	PATCH	2	6.59	10.34	20.39	0.16	1.05	-	0.323	0.051	0.008
260	13	140	QTM1	PATCH	2	10.75	11.93	17.31	0.29	1.00	-	0.621	0.058	0.017
260	18	146	QTM1	PATCH	4	17.25	22.36	33.09	0.40	3.94	-	0.521	0.119	0.012
260	19	148	QTM1	PATCH	4	13.61	19.20	29.96	0.37	0.83	-	0.454	0.028	0.012
260	20	147	QTM1	PATCH	4	15.15	19.24	27.75	0.49	0.94	-	0.546	0.034	0.018
260	21	150	QTM1	PATCH	4	17.03	19.56	33.72	0.49	3.43	-	0.505	0.102	0.014
260	22	149	QTM1	PATCH	4	15.39	19.34	39.19	0.33	1.61	-	0.393	0.041	0.009
260	33	163	QTM1	PATCH	4	10.68	16.31	32.72	0.31	1.41	-	0.326	0.043	0.010
260	34	162	QTM1	PATCH	4	14.29	16.34	28.29	0.32	0.49	-	0.505	0.017	0.011
260	35	161	QTM1	PATCH	4	16.41	17.00	29.49	0.47	2.30	-	0.557	0.078	0.016
260	36	164	QTM1	PATCH	4	16.82	22.32	36.89	0.31	2.69	-	0.456	0.073	0.008

QTM#1 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	0		QTM1	PATCH	1	0.91	2.16	3.72	0.02	0.03	-	0.244	0.009	0.006
260	3		QTM1	PATCH	2	2.33	3.97	8.55	0.04	0.07	-	0.273	0.008	0.005
260	4		QTM1	PATCH	2	2.13	2.73	6.26	0.10	0.12	-	0.340	0.019	0.017
260	5		QTM1	PATCH	2	2.35	3.95	8.46	0.04	0.07	-	0.277	0.008	0.004
260	12		QTM1	PATCH	2	1.87	3.46	8.60	0.08	0.13	-	0.217	0.015	0.010
260	13		QTM1	PATCH	2	1.96	3.56	6.82	0.09	0.10	-	0.287	0.015	0.013
260	18		QTM1	PATCH	4	3.57	8.17	14.94	0.19	0.14	-	0.239	0.010	0.013
260	19		QTM1	PATCH	4	2.73	6.44	12.90	0.09	0.09	-	0.212	0.007	0.007
260	20		QTM1	PATCH	4	2.43	6.08	10.76	0.18	0.43	-	0.226	0.040	0.017
260	21		QTM1	PATCH	4	3.30	8.07	13.08	0.23	0.18	-	0.252	0.014	0.017
260	22		QTM1	PATCH	4	2.84	7.97	15.17	0.10	0.09	-	0.187	0.006	0.006
260	33		QTM1	PATCH	4	3.38	8.95	16.33	0.11	0.07	-	0.207	0.004	0.007
260	34		QTM1	PATCH	4	2.85	4.97	9.60	0.16	0.31	-	0.297	0.033	0.017
260	35		QTM1	PATCH	4	3.22	6.87	11.48	0.19	0.18	-	0.280	0.015	0.017
260	36		QTM1	PATCH	4	3.42	9.19	16.18	0.17	0.07	-	0.212	0.004	0.011
260		128	QTM1	PATCH	1	1.08	1.92	4.36	0.05	0.05	-	0.247	0.010	0.011
260		133	QTM1	PATCH	2	1.83	3.00	8.68	0.09	0.10	-	0.211	0.012	0.011
260		132	QTM1	PATCH	2	1.77	3.75	7.15	0.08	0.05	-	0.247	0.008	0.012
260		131	QTM1	PATCH	2	1.79	3.14	7.97	0.08	0.18	-	0.225	0.023	0.010
260		141	QTM1	PATCH	2	1.80	3.92	9.10	0.05	0.12	-	0.197	0.013	0.006
260		140	QTM1	PATCH	2	1.75	3.51	6.44	0.10	0.17	-	0.272	0.027	0.016
260		146	QTM1	PATCH	4	4.11	4.73	12.21	0.13	0.19	-	0.337	0.015	0.011
260		148	QTM1	PATCH	4	3.12	6.23	11.12	0.15	0.06	-	0.281	0.005	0.013
260		147	QTM1	PATCH	4	2.16	4.99	9.52	0.15	0.11	-	0.227	0.011	0.016
260		150	QTM1	PATCH	4	4.04	4.78	13.07	0.12	0.43	-	0.309	0.033	0.009
260		149	QTM1	PATCH	4	3.40	6.91	15.42	0.15	0.12	-	0.220	0.008	0.010
260		163	QTM1	PATCH	4	3.33	6.70	13.51	0.17	0.07	-	0.247	0.005	0.013
260		162	QTM1	PATCH	4	3.38	5.01	10.99	0.12	0.12	-	0.307	0.011	0.011
260		161	QTM1	PATCH	4	3.26	4.43	8.89	0.13	0.32	-	0.367	0.036	0.015
260		164	QTM1	PATCH	4	4.21	5.83	14.75	0.12	0.17	-	0.286	0.011	0.008
260	0	128	QTM1	PATCH	1	3.89	6.14	8.69	0.08	0.27	-	0.447	0.031	0.009
260	3	133	QTM1	PATCH	2	7.41	12.10	19.05	0.16	0.85	-	0.389	0.045	0.009
260	4	132	QTM1	PATCH	2	7.14	11.73	14.44	0.25	0.32	-	0.495	0.022	0.017
260	5	131	QTM1	PATCH	2	6.97	11.41	18.13	0.17	0.80	-	0.384	0.044	0.009
260	12	141	QTM1	PATCH	2	6.39	9.85	18.48	0.15	0.56	-	0.346	0.030	0.008
260	13	140	QTM1	PATCH	2	7.57	11.11	15.58	0.30	0.96	-	0.486	0.062	0.019
260	18	146	QTM1	PATCH	4	12.17	19.45	27.22	0.33	2.45	-	0.447	0.090	0.012
260	19	148	QTM1	PATCH	4	12.46	19.18	26.74	0.33	0.32	-	0.466	0.012	0.012
260	20	147	QTM1	PATCH	4	9.92	16.35	22.36	0.46	1.21	-	0.444	0.054	0.021
260	21	150	QTM1	PATCH	4	12.27	16.02	24.85	0.39	2.35	-	0.494	0.095	0.016
260	22	149	QTM1	PATCH	4	11.75	18.30	30.38	0.36	1.54	-	0.387	0.051	0.012
260	33	163	QTM1	PATCH	4	9.95	19.46	29.99	0.48	0.69	-	0.332	0.023	0.016
260	34	162	QTM1	PATCH	4	12.08	13.76	23.29	0.37	0.59	-	0.519	0.025	0.016
260	35	161	QTM1	PATCH	4	11.06	15.22	22.69	0.44	2.08	-	0.487	0.092	0.020
260	36	164	QTM1	PATCH	4	11.27	20.47	30.65	0.34	2.10	-	0.368	0.069	0.011

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	0.12	4.48	0.16	3.08	0.11	-	0.027	0.024	0.687
261	9		QTM2	PATCH	2	0.62	8.43	0.17	5.60	0.52	-	0.074	0.062	0.664
261	10		QTM2	PATCH	2	0.83	10.17	0.37	7.53	0.19	-	0.082	0.018	0.740
261	11		QTM2	PATCH	2	0.88	10.44	0.43	6.09	0.33	-	0.084	0.032	0.583
261	16		QTM2	PATCH	2	0.74	9.03	0.20	6.45	0.40	-	0.082	0.044	0.715
261	17		QTM2	PATCH	2	0.76	11.07	0.53	8.04	0.14	-	0.068	0.013	0.726
261	28		QTM2	PATCH	4	1.41	14.13	0.25	10.17	1.20	-	0.099	0.085	0.720
261	29		QTM2	PATCH	4	2.30	18.68	0.19	14.29	0.35	-	0.123	0.019	0.765
261	30		QTM2	PATCH	4	1.54	18.46	0.42	13.89	0.39	-	0.083	0.021	0.752
261	31		QTM2	PATCH	4	1.76	18.21	0.99	12.26	0.67	-	0.097	0.037	0.673
261	32		QTM2	PATCH	4	1.72	17.31	0.65	12.59	0.69	-	0.099	0.040	0.727
261	41		QTM2	PATCH	4	2.11	17.16	0.24	13.88	0.66	-	0.123	0.038	0.809
261	42		QTM2	PATCH	4	1.50	18.65	0.27	14.20	0.34	-	0.081	0.018	0.761
261	43		QTM2	PATCH	4	1.59	17.77	0.82	12.29	0.42	-	0.089	0.024	0.692
261	44		QTM2	PATCH	4	1.71	18.61	0.89	12.42	0.78	-	0.092	0.042	0.667
261		130	QTM2	PATCH	1	0.31	5.81	0.08	4.16	0.09	-	0.053	0.016	0.716
261		138	QTM2	PATCH	2	0.66	10.55	0.21	7.51	0.36	-	0.062	0.034	0.711
261		139	QTM2	PATCH	2	1.17	8.01	0.20	5.82	0.24	-	0.147	0.030	0.727
261		137	QTM2	PATCH	2	0.34	7.41	0.18	4.32	0.22	-	0.045	0.030	0.582
261		145	QTM2	PATCH	2	0.90	7.08	0.06	5.28	0.24	-	0.127	0.034	0.746
261		144	QTM2	PATCH	2	0.77	12.34	0.29	10.19	0.24	-	0.063	0.019	0.826
261		159	QTM2	PATCH	4	1.57	17.07	0.13	13.30	0.57	-	0.092	0.033	0.779
261		158	QTM2	PATCH	4	1.57	18.59	0.34	13.85	0.46	-	0.084	0.025	0.745
261		157	QTM2	PATCH	4	1.36	20.23	0.46	14.68	0.36	-	0.067	0.018	0.726
261		160	QTM2	PATCH	4	2.25	12.81	0.19	11.67	0.88	-	0.176	0.068	0.912
261		156	QTM2	PATCH	4	0.87	14.50	0.49	12.28	0.41	-	0.060	0.028	0.847
261		171	QTM2	PATCH	4	1.35	17.39	0.30	11.49	0.50	-	0.078	0.029	0.661
261		170	QTM2	PATCH	4	1.79	18.18	0.42	14.58	0.29	-	0.099	0.016	0.802
261		172	QTM2	PATCH	4	2.24	15.09	0.09	12.56	0.81	-	0.149	0.054	0.832
261		169	QTM2	PATCH	4	1.03	15.43	0.43	10.51	0.42	-	0.067	0.027	0.681
261	2	130	QTM2	PATCH	1	0.88	11.24	0.38	9.08	0.56	-	0.078	0.050	0.808
261	9	138	QTM2	PATCH	2	1.96	23.74	0.38	16.00	1.61	-	0.083	0.068	0.674
261	10	139	QTM2	PATCH	2	2.43	20.71	0.60	14.31	1.46	-	0.117	0.070	0.691
261	11	137	QTM2	PATCH	2	1.92	19.34	0.68	11.29	1.21	-	0.099	0.063	0.584
261	16	145	QTM2	PATCH	2	1.59	15.57	0.35	11.27	1.67	-	0.102	0.107	0.724
261	17	144	QTM2	PATCH	2	2.81	26.12	1.10	21.81	0.46	-	0.107	0.018	0.835
261	28	159	QTM2	PATCH	4	5.27	35.79	0.52	26.92	3.84	-	0.147	0.107	0.752
261	29	158	QTM2	PATCH	4	7.13	39.70	0.71	31.90	1.09	-	0.180	0.027	0.804
261	30	157	QTM2	PATCH	4	6.01	44.09	1.38	33.39	0.97	-	0.136	0.022	0.757
261	31	160	QTM2	PATCH	4	4.33	29.94	1.34	18.82	3.69	-	0.145	0.123	0.628
261	32	156	QTM2	PATCH	4	5.02	36.75	1.48	30.78	2.07	-	0.137	0.056	0.838
261	41	171	QTM2	PATCH	4	5.88	37.75	0.58	29.91	1.54	-	0.156	0.041	0.792
261	42	170	QTM2	PATCH	4	7.73	42.96	1.21	32.03	0.88	-	0.180	0.020	0.746
261	43	172	QTM2	PATCH	4	4.56	31.38	1.10	22.78	3.51	-	0.145	0.112	0.726
261	44	169	QTM2	PATCH	4	4.51	38.28	1.70	29.79	1.43	-	0.118	0.037	0.778

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	0.13	4.74	0.16	3.08	0.11	-	0.028	0.024	0.650
261	9		QTM2	PATCH	2	0.55	8.27	0.17	5.48	0.57	-	0.067	0.069	0.662
261	10		QTM2	PATCH	2	0.76	9.61	0.35	7.01	0.20	-	0.079	0.021	0.729
261	11		QTM2	PATCH	2	0.76	10.65	0.34	6.15	0.33	-	0.072	0.031	0.577
261	16		QTM2	PATCH	2	0.67	8.63	0.15	6.17	0.43	-	0.077	0.050	0.715
261	17		QTM2	PATCH	2	0.72	10.69	0.55	7.51	0.13	-	0.067	0.012	0.703
261	28		QTM2	PATCH	4	1.25	12.72	0.24	9.28	0.97	-	0.099	0.077	0.729
261	29		QTM2	PATCH	4	1.76	17.63	0.17	13.23	0.48	-	0.100	0.027	0.750
261	30		QTM2	PATCH	4	1.29	17.63	0.45	13.04	0.40	-	0.073	0.023	0.740
261	31		QTM2	PATCH	4	1.44	18.36	0.97	11.68	0.82	-	0.078	0.045	0.636
261	32		QTM2	PATCH	4	1.26	18.16	0.52	11.77	1.03	-	0.069	0.056	0.648
261	41		QTM2	PATCH	4	1.93	15.56	0.17	13.41	0.74	-	0.124	0.048	0.862
261	42		QTM2	PATCH	4	1.37	17.39	0.29	13.31	0.47	-	0.079	0.027	0.765
261	43		QTM2	PATCH	4	1.19	17.27	0.92	11.31	0.56	-	0.069	0.032	0.655
261	44		QTM2	PATCH	4	0.92	19.05	0.80	11.75	0.86	-	0.048	0.045	0.617
261		130	QTM2	PATCH	1	0.36	5.84	0.11	4.15	0.09	-	0.062	0.015	0.711
261		138	QTM2	PATCH	2	0.76	10.95	0.22	7.67	0.36	-	0.070	0.033	0.700
261		139	QTM2	PATCH	2	1.02	8.05	0.19	5.79	0.25	-	0.126	0.031	0.719
261		137	QTM2	PATCH	2	0.38	7.06	0.13	4.00	0.26	-	0.054	0.037	0.566
261		145	QTM2	PATCH	2	0.66	7.08	0.06	4.65	0.24	-	0.093	0.035	0.657
261		144	QTM2	PATCH	2	0.51	12.34	0.29	10.13	0.26	-	0.041	0.021	0.821
261		159	QTM2	PATCH	4	0.89	17.79	0.18	13.02	0.74	-	0.050	0.042	0.732
261		158	QTM2	PATCH	4	0.98	18.86	0.31	13.76	0.49	-	0.052	0.026	0.730
261		157	QTM2	PATCH	4	1.67	19.86	0.34	14.15	0.38	-	0.084	0.019	0.712
261		160	QTM2	PATCH	4	0.86	12.03	0.19	9.96	0.91	-	0.072	0.076	0.828
261		156	QTM2	PATCH	4	0.97	15.24	0.45	12.32	0.62	-	0.064	0.041	0.808
261		171	QTM2	PATCH	4	1.07	17.73	0.29	11.75	0.66	-	0.060	0.037	0.662
261		170	QTM2	PATCH	4	1.94	17.87	0.30	13.94	0.23	-	0.109	0.013	0.780
261		172	QTM2	PATCH	4	0.93	14.30	0.15	10.60	0.88	-	0.065	0.061	0.741
261		169	QTM2	PATCH	4	1.05	15.36	0.41	11.52	0.50	-	0.068	0.033	0.750
261	2	130	QTM2	PATCH	1	0.84	11.16	0.44	9.00	0.57	-	0.076	0.051	0.806
261	9	138	QTM2	PATCH	2	2.02	23.67	0.36	16.00	1.59	-	0.085	0.067	0.676
261	10	139	QTM2	PATCH	2	1.96	20.43	0.70	14.15	1.37	-	0.096	0.067	0.693
261	11	137	QTM2	PATCH	2	1.94	19.80	0.58	11.07	1.50	-	0.098	0.076	0.559
261	16	145	QTM2	PATCH	2	1.39	14.73	0.24	10.78	1.53	-	0.094	0.104	0.732
261	17	144	QTM2	PATCH	2	2.91	25.68	1.11	22.09	0.47	-	0.113	0.018	0.860
261	28	159	QTM2	PATCH	4	4.03	34.13	0.44	27.36	3.68	-	0.118	0.108	0.802
261	29	158	QTM2	PATCH	4	6.64	39.26	0.69	32.35	1.44	-	0.169	0.037	0.824
261	30	157	QTM2	PATCH	4	6.28	42.58	1.32	31.73	1.00	-	0.147	0.023	0.745
261	31	160	QTM2	PATCH	4	4.56	30.99	1.24	18.89	3.04	-	0.147	0.098	0.610
261	32	156	QTM2	PATCH	4	4.31	37.12	1.24	29.07	2.36	-	0.116	0.064	0.783
261	41	171	QTM2	PATCH	4	5.58	37.22	0.51	30.56	1.68	-	0.150	0.045	0.821
261	42	170	QTM2	PATCH	4	7.39	40.95	1.12	29.90	0.73	-	0.180	0.018	0.730
261	43	172	QTM2	PATCH	4	3.68	30.38	1.12	20.20	3.18	-	0.121	0.105	0.665
261	44	169	QTM2	PATCH	4	4.23	38.46	1.56	28.89	1.88	-	0.110	0.049	0.751

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	0.17	4.66	0.14	3.02	0.15	-	0.036	0.032	0.649
261	9		QTM2	PATCH	2	0.56	8.15	0.19	5.72	0.60	-	0.069	0.074	0.702
261	10		QTM2	PATCH	2	0.58	9.42	0.31	6.65	0.22	-	0.061	0.024	0.706
261	11		QTM2	PATCH	2	0.64	10.07	0.32	6.01	0.32	-	0.064	0.032	0.597
261	16		QTM2	PATCH	2	0.61	8.48	0.17	6.18	0.46	-	0.071	0.054	0.729
261	17		QTM2	PATCH	2	0.47	10.45	0.45	6.96	0.09	-	0.045	0.009	0.666
261	28		QTM2	PATCH	4	0.74	12.03	0.24	6.31	0.92	-	0.062	0.076	0.525
261	29		QTM2	PATCH	4	1.89	13.32	0.19	12.44	0.54	-	0.142	0.041	0.935
261	30		QTM2	PATCH	4	1.15	15.92	0.50	12.71	0.53	-	0.072	0.034	0.799
261	31		QTM2	PATCH	4	0.71	17.88	0.88	10.92	0.77	-	0.040	0.043	0.611
261	32		QTM2	PATCH	4	1.18	17.39	0.51	10.42	1.02	-	0.068	0.058	0.599
261	41		QTM2	PATCH	4	2.11	14.09	0.16	11.66	0.66	-	0.150	0.047	0.827
261	42		QTM2	PATCH	4	1.22	15.83	0.43	12.67	0.61	-	0.077	0.038	0.800
261	43		QTM2	PATCH	4	0.74	15.97	0.83	11.58	0.69	-	0.046	0.043	0.725
261	44		QTM2	PATCH	4	1.07	18.42	0.74	10.76	0.75	-	0.058	0.041	0.584
261		130	QTM2	PATCH	1	0.37	5.54	0.10	4.09	0.10	-	0.066	0.018	0.739
261		138	QTM2	PATCH	2	0.66	10.44	0.18	7.38	0.32	-	0.063	0.031	0.707
261		139	QTM2	PATCH	2	0.58	7.52	0.15	5.70	0.23	-	0.078	0.031	0.759
261		137	QTM2	PATCH	2	0.42	6.54	0.10	4.01	0.38	-	0.064	0.057	0.613
261		145	QTM2	PATCH	2	0.58	6.91	0.06	4.45	0.36	-	0.084	0.051	0.644
261		144	QTM2	PATCH	2	0.59	11.73	0.25	9.73	0.26	-	0.051	0.022	0.830
261		159	QTM2	PATCH	4	0.95	17.00	0.15	11.01	0.81	-	0.056	0.048	0.648
261		158	QTM2	PATCH	4	1.20	18.12	0.24	12.24	0.63	-	0.066	0.035	0.675
261		157	QTM2	PATCH	4	1.80	18.70	0.33	13.64	0.36	-	0.096	0.019	0.729
261		160	QTM2	PATCH	4	1.65	11.46	0.17	7.32	0.91	-	0.144	0.079	0.639
261		156	QTM2	PATCH	4	1.19	14.32	0.35	11.79	0.65	-	0.083	0.045	0.823
261		171	QTM2	PATCH	4	0.90	17.01	0.23	11.19	0.83	-	0.053	0.049	0.658
261		170	QTM2	PATCH	4	1.85	17.31	0.30	13.40	0.22	-	0.107	0.013	0.774
261		172	QTM2	PATCH	4	1.02	13.66	0.13	10.73	0.81	-	0.075	0.059	0.785
261		169	QTM2	PATCH	4	1.20	15.24	0.33	11.21	0.57	-	0.079	0.037	0.736
261	2	130	QTM2	PATCH	1	0.81	10.45	0.45	8.58	0.52	-	0.077	0.050	0.822
261	9	138	QTM2	PATCH	2	2.01	22.43	0.38	14.84	1.41	-	0.090	0.063	0.662
261	10	139	QTM2	PATCH	2	1.84	19.87	0.70	14.12	1.11	-	0.093	0.056	0.711
261	11	137	QTM2	PATCH	2	2.03	18.65	0.54	11.03	1.37	-	0.109	0.073	0.591
261	16	145	QTM2	PATCH	2	1.38	14.11	0.30	10.48	1.21	-	0.098	0.086	0.743
261	17	144	QTM2	PATCH	2	2.55	25.68	1.07	21.96	0.42	-	0.099	0.016	0.855
261	28	159	QTM2	PATCH	4	3.68	33.72	0.46	27.92	3.20	-	0.109	0.095	0.828
261	29	158	QTM2	PATCH	4	6.35	39.15	0.71	30.01	1.78	-	0.162	0.045	0.767
261	30	157	QTM2	PATCH	4	5.72	39.67	1.23	30.63	1.16	-	0.144	0.029	0.772
261	31	160	QTM2	PATCH	4	3.89	29.91	1.26	18.90	2.95	-	0.130	0.099	0.632
261	32	156	QTM2	PATCH	4	3.17	35.68	1.13	27.01	2.12	-	0.089	0.059	0.757
261	41	171	QTM2	PATCH	4	5.66	36.88	0.44	28.33	2.01	-	0.153	0.055	0.768
261	42	170	QTM2	PATCH	4	6.77	38.98	1.20	30.38	1.05	-	0.174	0.027	0.779
261	43	172	QTM2	PATCH	4	3.99	27.63	1.20	19.20	3.03	-	0.144	0.110	0.695
261	44	169	QTM2	PATCH	4	3.40	37.29	1.45	27.30	1.90	-	0.091	0.051	0.732

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	0.10	2.77	0.06	1.68	0.07	-	0.038	0.026	0.608
260	9		QTM2	PATCH	2	0.56	7.59	0.18	5.94	0.10	-	0.073	0.013	0.783
260	10		QTM2	PATCH	2	0.25	5.37	0.12	3.02	0.25	-	0.046	0.046	0.561
260	11		QTM2	PATCH	2	0.58	6.42	0.19	4.10	0.06	-	0.090	0.010	0.639
260	16		QTM2	PATCH	2	0.31	5.50	0.11	3.05	0.31	-	0.057	0.056	0.555
260	17		QTM2	PATCH	2	0.23	7.66	0.16	5.00	0.17	-	0.030	0.023	0.653
260	28		QTM2	PATCH	4	0.72	13.42	0.31	9.58	0.37	-	0.053	0.027	0.714
260	29		QTM2	PATCH	4	0.73	12.76	0.21	11.09	0.46	-	0.057	0.036	0.869
260	30		QTM2	PATCH	4	0.56	10.17	0.24	6.83	0.23	-	0.055	0.023	0.671
260	31		QTM2	PATCH	4	0.66	8.52	0.31	6.98	0.15	-	0.077	0.018	0.819
260	32		QTM2	PATCH	4	0.70	13.44	0.28	9.62	0.37	-	0.052	0.027	0.716
260	41		QTM2	PATCH	4	0.69	13.25	0.24	10.60	0.46	-	0.052	0.034	0.800
260	42		QTM2	PATCH	4	0.78	11.69	0.19	9.58	0.42	-	0.067	0.036	0.819
260	43		QTM2	PATCH	4	0.53	9.57	0.22	6.99	0.20	-	0.056	0.021	0.730
260	44		QTM2	PATCH	4	0.86	11.60	0.34	9.02	0.21	-	0.074	0.018	0.778
260		130	QTM2	PATCH	1	0.14	3.22	0.05	2.03	0.12	-	0.044	0.036	0.629
260		139	QTM2	PATCH	2	0.44	4.99	0.13	3.27	0.22	-	0.088	0.044	0.655
260		138	QTM2	PATCH	2	0.21	6.46	0.08	4.56	0.33	-	0.033	0.052	0.706
260		137	QTM2	PATCH	2	0.43	4.74	0.11	3.96	0.20	-	0.092	0.042	0.834
260		144	QTM2	PATCH	2	0.43	5.58	0.18	3.56	0.27	-	0.077	0.048	0.637
260		145	QTM2	PATCH	2	0.24	5.18	0.07	3.27	0.12	-	0.046	0.024	0.632
260		156	QTM2	PATCH	4	0.58	10.03	0.23	5.44	0.25	-	0.058	0.025	0.543
260		157	QTM2	PATCH	4	0.63	11.46	0.15	7.65	0.57	-	0.055	0.050	0.667
260		158	QTM2	PATCH	4	0.56	11.76	0.17	8.78	0.36	-	0.048	0.031	0.747
260		159	QTM2	PATCH	4	0.66	10.23	0.24	7.19	0.42	-	0.065	0.041	0.703
260		160	QTM2	PATCH	4	0.63	10.82	0.24	5.82	0.26	-	0.058	0.024	0.537
260		169	QTM2	PATCH	4	0.62	11.07	0.25	5.83	0.28	-	0.056	0.025	0.527
260		170	QTM2	PATCH	4	0.30	12.36	0.25	7.96	0.47	-	0.024	0.038	0.644
260		171	QTM2	PATCH	4	0.56	10.77	0.24	7.96	0.29	-	0.052	0.027	0.739
260		172	QTM2	PATCH	4	0.96	10.03	0.30	7.14	0.40	-	0.095	0.040	0.712
260	2	130	QTM2	PATCH	1	0.29	5.20	0.14	3.74	0.34	-	0.056	0.066	0.720
260	9	139	QTM2	PATCH	2	1.80	12.51	0.42	10.00	1.02	-	0.144	0.081	0.800
260	10	138	QTM2	PATCH	2	0.56	11.57	0.25	8.52	0.68	-	0.049	0.058	0.737
260	11	137	QTM2	PATCH	2	1.62	11.61	0.41	9.53	0.98	-	0.139	0.085	0.821
260	16	144	QTM2	PATCH	2	0.93	15.40	0.34	8.96	1.54	-	0.061	0.100	0.582
260	17	145	QTM2	PATCH	2	1.41	15.05	0.35	11.45	1.49	-	0.094	0.099	0.761
260	28	156	QTM2	PATCH	4	3.43	28.51	0.62	18.10	2.64	-	0.120	0.092	0.635
260	29	157	QTM2	PATCH	4	2.83	28.93	0.50	22.57	2.08	-	0.098	0.072	0.780
260	30	158	QTM2	PATCH	4	2.90	23.29	0.42	17.43	1.32	-	0.124	0.057	0.748
260	31	159	QTM2	PATCH	4	3.52	23.50	0.68	15.58	1.55	-	0.150	0.066	0.663
260	32	160	QTM2	PATCH	4	3.36	31.01	0.60	19.64	2.83	-	0.108	0.091	0.633
260	41	169	QTM2	PATCH	4	2.90	29.66	0.60	21.17	2.63	-	0.098	0.089	0.714
260	42	170	QTM2	PATCH	4	2.40	27.83	0.51	21.08	1.19	-	0.086	0.043	0.758
260	43	171	QTM2	PATCH	4	3.26	22.18	0.57	16.76	1.24	-	0.147	0.056	0.756
260	44	172	QTM2	PATCH	4	3.66	28.13	0.77	17.21	2.10	-	0.130	0.075	0.612

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	0.11	3.50	0.07	2.12	0.07	-	0.033	0.021	0.607
260	9		QTM2	PATCH	2	0.58	8.02	0.12	6.15	0.10	-	0.072	0.012	0.767
260	10		QTM2	PATCH	2	0.14	6.60	0.14	3.96	0.20	-	0.022	0.031	0.600
260	11		QTM2	PATCH	2	0.71	7.26	0.12	5.27	0.07	-	0.097	0.010	0.726
260	16		QTM2	PATCH	2	0.17	6.30	0.19	3.91	0.22	-	0.027	0.035	0.621
260	17		QTM2	PATCH	2	0.32	7.37	0.14	5.17	0.21	-	0.044	0.029	0.702
260	28		QTM2	PATCH	4	0.67	12.45	0.39	8.74	0.37	-	0.054	0.030	0.702
260	29		QTM2	PATCH	4	0.63	12.50	0.28	10.16	0.38	-	0.050	0.030	0.813
260	30		QTM2	PATCH	4	0.64	10.56	0.16	7.47	0.51	-	0.061	0.048	0.708
260	31		QTM2	PATCH	4	0.53	9.93	0.26	5.67	0.27	-	0.053	0.028	0.572
260	32		QTM2	PATCH	4	0.32	12.63	0.35	10.05	0.41	-	0.025	0.032	0.796
260	41		QTM2	PATCH	4	1.03	12.66	0.27	10.19	0.36	-	0.081	0.029	0.805
260	42		QTM2	PATCH	4	0.86	12.22	0.22	9.88	0.45	-	0.070	0.037	0.808
260	43		QTM2	PATCH	4	0.52	8.30	0.16	5.93	0.41	-	0.063	0.049	0.715
260	44		QTM2	PATCH	4	0.50	12.09	0.36	8.50	0.30	-	0.041	0.025	0.703
260		130	QTM2	PATCH	1	0.24	3.06	0.07	1.61	0.12	-	0.077	0.038	0.527
260		139	QTM2	PATCH	2	0.43	6.08	0.10	3.91	0.17	-	0.071	0.028	0.644
260		138	QTM2	PATCH	2	0.28	6.51	0.08	5.07	0.26	-	0.043	0.040	0.778
260		137	QTM2	PATCH	2	0.42	6.07	0.09	3.97	0.16	-	0.070	0.026	0.654
260		144	QTM2	PATCH	2	0.52	6.58	0.12	3.86	0.18	-	0.079	0.028	0.586
260		145	QTM2	PATCH	2	0.45	4.56	0.10	3.07	0.14	-	0.098	0.031	0.673
260		156	QTM2	PATCH	4	1.03	11.12	0.24	6.84	0.25	-	0.093	0.022	0.615
260		157	QTM2	PATCH	4	0.57	12.14	0.21	8.59	0.29	-	0.047	0.024	0.708
260		158	QTM2	PATCH	4	0.92	9.00	0.18	7.08	0.41	-	0.102	0.045	0.786
260		159	QTM2	PATCH	4	0.94	10.02	0.12	7.69	0.19	-	0.094	0.019	0.768
260		160	QTM2	PATCH	4	1.12	11.32	0.28	7.24	0.30	-	0.099	0.027	0.639
260		169	QTM2	PATCH	4	1.48	11.35	0.29	5.36	0.31	-	0.130	0.027	0.472
260		170	QTM2	PATCH	4	0.96	11.29	0.26	9.25	0.29	-	0.085	0.026	0.819
260		171	QTM2	PATCH	4	0.78	9.72	0.11	7.47	0.38	-	0.080	0.039	0.768
260		172	QTM2	PATCH	4	1.20	9.88	0.29	8.36	0.24	-	0.121	0.025	0.846
260	2	130	QTM2	PATCH	1	0.39	5.39	0.15	3.96	0.25	-	0.073	0.046	0.734
260	9	139	QTM2	PATCH	2	1.82	14.27	0.22	11.17	0.76	-	0.127	0.053	0.783
260	10	138	QTM2	PATCH	2	0.79	12.54	0.27	9.65	0.65	-	0.063	0.052	0.770
260	11	137	QTM2	PATCH	2	1.55	13.23	0.23	9.80	0.73	-	0.117	0.055	0.741
260	16	144	QTM2	PATCH	2	1.27	17.11	0.40	9.84	1.12	-	0.074	0.066	0.575
260	17	145	QTM2	PATCH	2	1.95	12.96	0.33	10.39	0.92	-	0.151	0.071	0.802
260	28	156	QTM2	PATCH	4	3.58	28.98	0.73	19.49	1.95	-	0.124	0.067	0.673
260	29	157	QTM2	PATCH	4	2.62	29.71	0.53	19.85	1.34	-	0.088	0.045	0.668
260	30	158	QTM2	PATCH	4	4.09	21.61	0.43	18.31	1.18	-	0.189	0.055	0.847
260	31	159	QTM2	PATCH	4	4.42	22.88	0.49	16.44	1.10	-	0.193	0.048	0.719
260	32	160	QTM2	PATCH	4	3.46	28.87	0.70	19.14	1.89	-	0.120	0.065	0.663
260	41	169	QTM2	PATCH	4	3.10	29.05	0.58	19.24	1.78	-	0.107	0.061	0.662
260	42	170	QTM2	PATCH	4	3.02	31.65	0.52	22.48	1.31	-	0.095	0.042	0.710
260	43	171	QTM2	PATCH	4	4.18	20.96	0.33	17.54	0.85	-	0.200	0.041	0.837
260	44	172	QTM2	PATCH	4	3.96	28.23	0.74	17.62	1.41	-	0.140	0.050	0.624

QTM#2 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	2		QTM2	PATCH	1	0.10	3.11	0.04	1.70	0.05	-	0.032	0.015	0.546
260	9		QTM2	PATCH	2	0.31	6.11	0.05	4.72	0.14	-	0.051	0.023	0.772
260	10		QTM2	PATCH	2	0.18	5.70	0.13	3.54	0.10	-	0.032	0.018	0.621
260	11		QTM2	PATCH	2	0.34	5.46	0.06	3.94	0.10	-	0.062	0.018	0.722
260	16		QTM2	PATCH	2	0.17	5.13	0.17	2.66	0.11	-	0.033	0.022	0.519
260	17		QTM2	PATCH	2	0.26	6.61	0.14	4.83	0.13	-	0.040	0.020	0.731
260	28		QTM2	PATCH	4	0.72	9.90	0.27	6.88	0.24	-	0.073	0.024	0.695
260	29		QTM2	PATCH	4	0.47	10.20	0.17	7.67	0.22	-	0.046	0.021	0.751
260	30		QTM2	PATCH	4	0.50	9.65	0.21	7.26	0.26	-	0.052	0.027	0.753
260	31		QTM2	PATCH	4	0.49	9.93	0.39	6.41	0.10	-	0.050	0.011	0.645
260	32		QTM2	PATCH	4	0.97	8.88	0.26	6.70	0.25	-	0.109	0.028	0.754
260	41		QTM2	PATCH	4	0.44	8.73	0.20	7.17	0.27	-	0.050	0.031	0.821
260	42		QTM2	PATCH	4	0.53	10.06	0.20	7.56	0.18	-	0.053	0.018	0.751
260	43		QTM2	PATCH	4	0.48	8.03	0.28	6.15	0.19	-	0.060	0.023	0.766
260	44		QTM2	PATCH	4	0.74	10.44	0.25	7.36	0.25	-	0.071	0.024	0.705
260		130	QTM2	PATCH	1	0.14	2.41	0.03	1.43	0.07	-	0.058	0.030	0.592
260		139	QTM2	PATCH	2	0.39	6.77	0.09	3.14	0.10	-	0.057	0.015	0.464
260		138	QTM2	PATCH	2	0.22	4.09	0.09	3.16	0.23	-	0.055	0.056	0.773
260		137	QTM2	PATCH	2	0.36	6.78	0.08	3.28	0.06	-	0.053	0.009	0.484
260		144	QTM2	PATCH	2	0.48	6.36	0.10	2.90	0.12	-	0.076	0.019	0.456
260		145	QTM2	PATCH	2	0.54	3.98	0.04	2.53	0.09	-	0.136	0.023	0.635
260		156	QTM2	PATCH	4	1.03	9.97	0.09	5.56	0.17	-	0.104	0.017	0.558
260		157	QTM2	PATCH	4	0.69	10.03	0.17	6.12	0.40	-	0.069	0.040	0.610
260		158	QTM2	PATCH	4	0.72	7.14	0.07	5.88	0.33	-	0.101	0.047	0.824
260		159	QTM2	PATCH	4	0.96	10.05	0.08	7.15	0.18	-	0.095	0.018	0.712
260		160	QTM2	PATCH	4	0.72	10.50	0.19	6.02	0.28	-	0.069	0.027	0.573
260		169	QTM2	PATCH	4	0.74	10.68	0.17	6.46	0.31	-	0.069	0.029	0.605
260		170	QTM2	PATCH	4	0.68	8.45	0.25	6.09	0.32	-	0.080	0.038	0.721
260		171	QTM2	PATCH	4	0.40	8.03	0.08	6.34	0.25	-	0.050	0.031	0.789
260		172	QTM2	PATCH	4	1.11	11.19	0.08	7.72	0.10	-	0.099	0.009	0.690
260	2	130	QTM2	PATCH	1	0.23	4.60	0.13	3.45	0.25	-	0.050	0.054	0.749
260	9	139	QTM2	PATCH	2	1.36	12.40	0.15	9.01	0.98	-	0.110	0.079	0.726
260	10	138	QTM2	PATCH	2	0.76	9.18	0.28	7.44	0.46	-	0.082	0.050	0.810
260	11	137	QTM2	PATCH	2	1.33	11.49	0.15	8.39	0.90	-	0.116	0.078	0.730
260	16	144	QTM2	PATCH	2	1.26	16.28	0.36	7.67	1.20	-	0.077	0.074	0.471
260	17	145	QTM2	PATCH	2	1.88	11.77	0.28	7.80	0.74	-	0.160	0.063	0.662
260	28	156	QTM2	PATCH	4	3.33	25.45	0.53	14.47	2.41	-	0.131	0.095	0.568
260	29	157	QTM2	PATCH	4	3.04	25.03	0.41	15.12	1.84	-	0.122	0.073	0.604
260	30	158	QTM2	PATCH	4	2.92	23.36	0.30	16.05	0.83	-	0.125	0.035	0.687
260	31	159	QTM2	PATCH	4	3.39	24.04	0.51	16.36	0.77	-	0.141	0.032	0.681
260	32	160	QTM2	PATCH	4	3.71	23.42	0.54	14.32	2.80	-	0.159	0.120	0.612
260	41	169	QTM2	PATCH	4	4.31	23.74	0.45	15.15	2.40	-	0.182	0.101	0.638
260	42	170	QTM2	PATCH	4	1.91	24.37	0.59	16.39	0.76	-	0.078	0.031	0.673
260	43	171	QTM2	PATCH	4	3.31	21.85	0.44	15.65	0.70	-	0.151	0.032	0.717
260	44	172	QTM2	PATCH	4	3.53	26.42	0.50	16.36	1.98	-	0.134	0.075	0.619