

Part 0: WIFI TAS Characterization Evaluation Report for FCC

Applicant Name : ASUSTeK COMPUTER INC.

Applicant Address : 1F., No. 15, Lide Rd., Beitou Dist., Taipei City 112, Taiwan

Product Name : Wi-Fi 6E BT 5.2 M.2 1418 Module

Brand Name : Qualcomm

Model Number : QCNFA725

FCC ID : MSQ-QCNFA725

Report Number : USSC249349002

Compliant Standards : FCC 47 CFR §2.1093

Sample Received Date : Sep. 27, 2024

Date of Testing : Oct. 08, 2024 ~ Oct. 18, 2024

Report Issue Date : Feb. 24, 2025

The above equipment have been tested by **Eurofins E&E Wireless Taiwan Co., Ltd.**, and found compliance with the requirement of the above standards. The test record, data evaluation & Device Under Test (DUT) configurations represented herein are true and accurate accounts of the measurements of the sample's characteristics under the conditions specified in this report.

Note:

1. The test results are valid only for samples provided by customers and under the test conditions described in this report.
2. This report shall not be reproduced except in full, without the written approval of Eurofins E&E Wireless Taiwan Co., Ltd.
3. The relevant information is provided by customers in this test report. According to the correctness, appropriateness or completeness of the information provided by the customer, if there is any doubt or error in the information which affects the validity of the test results, the laboratory does not take the responsibility.

Approved By :

Roy Wu / Technical Director

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Revision History

Rev.	Issue Date	Description	Revised by
00	Feb. 24, 2025	Initial release	Rowan Hsieh

1. Information of Testing Laboratory

Test Facilities

Company Name: Eurofins E&E Wireless Taiwan Co., Ltd.
Address No.: 140-1, Changan Street, Bade District, Taoyuan City 334025, Taiwan
Website: <https://www.atl.com.tw>
Telephone: +886-3-271-0188
Fax: +886-3-271-0190
E-mail: infoEETW@eurofins.com

Test Site Location

- ☐ No. 140-1, Changan Street, Bade District, Taoyuan City 334025, Taiwan
☒ No. 2, Wuquan 5th Rd. Wugu Dist., New Taipei City, Taiwan

Laboratory Accreditation

Location	TAF	FCC	ISED
No. 140-1, Changan Street, Bade District, Taoyuan City 334025, Taiwan	Accreditation No.: 1330	Designation No.: TW0010	Company No.: 7381A CAB ID: TW1330
No. 2, Wuquan 5th Rd. Wugu Dist., New Taipei City, Taiwan	Accreditation No.: 1330	Designation No.: TW0034	Company No.: 28922 CAB ID: TW1330

2. Device Under Test Information

Product Name	Wi-Fi 6E BT 5.2 M.2 1418 Module	
Brand Name	Qualcomm	
Model Name	QCNFA725	
FCC ID	MSQ-QCNFA725	
Host Information	Product Name: Notebook PC Trade Name: ASUS Model Name: UX3407Q, BX3407Q, RX3407Q, UX3407R, BX3407R, RX3407R All models are electrically identical, different model names are for marketing purpose.	
Supported Wireless Technologies	Tx Frequency (MHz)	Operating Mode
	WLAN 2.4G : 2412 ~ 2472 5G : 5180 ~ 5240, 5260 ~ 5320, 5500 ~ 5720, 5745 ~ 5825, 5845 ~ 5885 6G : 5955 ~ 6415, 6435 ~ 6515, 6535 ~ 6855, 6875 ~ 7115	2.4G : 802.11b/g/n/ax 5G : 802.11a/n/ac/ax 6G : 802.11a/ax
	Bluetooth 2402 ~ 2480	BR, EDR, LE,

Note:

The above DUT information is declared by manufacturer and for more detailed features description please refers to the manufacturer's specifications or User's Manual.

Time-Averaging for SAR/PD

This device is enabled with *Qualcomm FastConnect WIFI Time Averaged SAR (TAS)* that operates based on a power limit obtained from this SAR and PD compliance test characterization report completed on a device. The power limit and other *FastConnect WIFI TAS* parameters produced in this characterization report must be entered into the board data file (BDF) to enable the *FastConnect WIFI TAS* feature.

The *FastConnect WIFI TAS* supports time-averaged SAR mechanism for WLAN standalone. The *FastConnect WIFI TAS* does not control other radios. Any collocated radios must reduce power or manage power independently for end device RF exposure compliance.

FastConnect WIFI TAS Parameter Definitions

Key Parameters	Description
$RFexp_{target}$	The $RFexp_{target}$ for FastConnect WIFI TAS is the device specific RF exposure limit (SAR or APD depends on operation band) used in the FastConnect WIFI TAS algorithm for WLAN operation (antenna, band and DSI state) in a country. This $RFexp_{target}$ is pre-determined for each specific device, and it shall be less than regulatory RF exposure limit after accounting for all design related tolerances (device uncertainty) and the simultaneous transmission with other radios are taken into account in the $RFexp_{target}$ values.
P_{lim}	P_{lim} (in dBm) is the power corresponding to the $RFexp_{target}$ for FastConnect WIFI TAS. In other words, P_{lim} is the maximum time-average transmit power setting for FastConnect WIFI TAS, at which this radio configuration (i.e., antenna, band and DSI state) reaches the $RFexp_{target}$. The FastConnect WIFI TAS algorithm uses P_{lim} to transmit power to ensure the real time-averaged SAR is below the $RFexp_{target}$ in real time and thus ensure device RF Exposure compliance. P_{lim} values vary with configuration (band, antenna and DSI), therefore it has the unique value for each configuration. Hence, (P_{lim} + device uncertainty (in dB)) should be treated as reported power for the worst-case technologies of given radio configuration and used for assessment of all relevant RF exposure exclusion criteria. In the FastConnect WIFI TAS operation, transmission power can exceed P_{lim} for periods of time if the time-averaged SAR limit is not violated. P_{lim} represents the maximum time average power over a specified time window for the corresponding radio configuration to be compliant with the $RFexp_{target}$. The P_{lim} values is stored in the FastConnect WIFI TAS board data file (BDF) and used by FastConnect WIFI TAS.
P_{max}	P_{max} for FastConnect WIFI TAS represents the maximum WLAN transmit power from other power setting in board data file. The P_{max} value could be identified by compare the target power (Rate-to-Power) and compliance transmit (CTL) and other power limit. $P_{max} = \min \{CTL, Regdomain, TPE/TPC, Rate-to-Power\}$

3. SAR Measurement System

3.1. Definition of Specific Absorption Rate (SAR)

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). The equation description is as below:

$$\text{SAR} = \frac{d}{dt} \left(\frac{dW}{dm} \right) = \frac{d}{dt} \left(\frac{dW}{\rho dy} \right)$$

SAR is expressed in units of Watts per kilogram (W/kg)

SAR measurement can be related to the electrical field in the tissue by

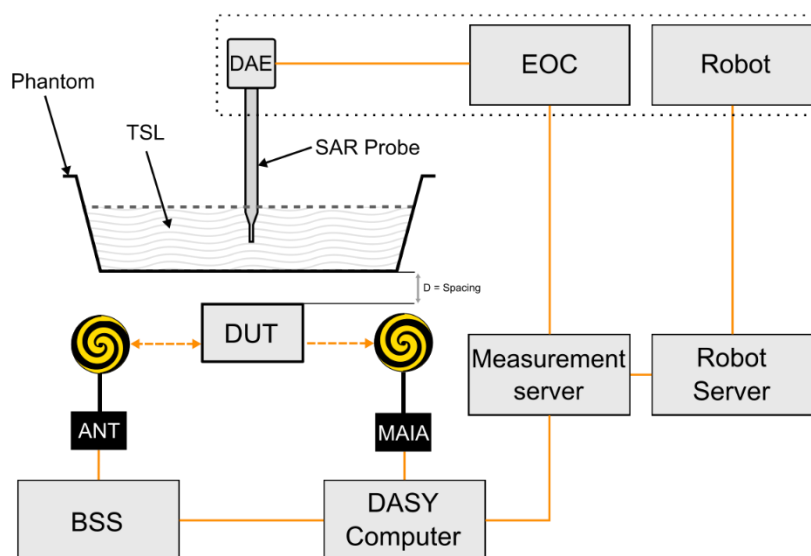
$$\text{SAR} = \frac{\sigma |\mathbf{E}|^2}{\rho}$$

Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength.

3.2. SPEAG DASY8 System

The DASY8 system consists of high precision robot, probe alignment sensor, phantom, robot controller, controlled measurement server and near-field probe. The robot includes six axes that can move to the precision position of the DASY8 software defined. The DASY8 software can define the area that is detected by the probe. The robot is connected to controlled box. Controlled measurement server is connected to the controlled robot box. The DAE includes amplifier, signal multiplexing, AD converter, offset measurement and surface detection. It is connected to the Electro-optical coupler (ECO). The ECO performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC.

Figure 3-1: SPEAG DASY8 System Setup



3.3. SAR Measurement Procedure

According to the SAR test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

- Power reference measurement
- Area scan
- Zoom scan
- Power drift measurement

The SAR measurement procedures for each of test conditions are as follows:

- Make DUT to transmit maximum output power
- Measure conducted output power through RF cable
- Place the DUT in the specific position of phantom
- Perform SAR testing steps on the DASY system
- Record the SAR value

3.3.1. Area Scan and Zoom Scan Procedure

First area scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an area scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, zoom scan is required. The zoom scan is performed around the highest E-field value to determine the averaged SAR-distribution.

Measure the local SAR at a test point at 1.4 mm of the inner surface of the phantom recommended by SPEAG. The area scan (two-dimensional SAR distribution) is performed cover at least an area larger than the projection of the DUT or antenna. The measurement resolution and spatial resolution for interpolation shall be chosen to allow identification of the local peak locations to within one-half of the linear dimension of the corresponding side of the zoom scan volume. Following table provides the measurement parameters required for the area scan.

Parameter	$f \leq 3 \text{ GHz}$	$f > 3 \text{ GHz}$
Maximum distance from closest measurement point to phantom surface	$5 \pm 1 \text{ mm}$	$\frac{1}{2} \delta \ln(2) \pm 0.5 \text{ mm}$
Maximum probe angle from probe axis to phantom surface normal at the measurement location	$30^\circ \pm 1^\circ$	$20^\circ \pm 1^\circ$
Maximum area scan spatial resolution : $\Delta x_{\text{Area}}, \Delta y_{\text{Area}}$	$\leq 2 \text{ GHz} : \leq 15 \text{ mm}$ $2 \sim 3 \text{ GHz} : \leq 12 \text{ mm}$	$3 \sim 4 \text{ GHz} : \leq 12 \text{ mm}$ $4 \sim 6 \text{ GHz} : \leq 10 \text{ mm}$ $6 \sim 7 \text{ GHz} : \leq 7.5 \text{ mm}$

From the scanned SAR distribution, identify the position of the maximum SAR value, in addition identify the positions of any local maxima with SAR values within 2 dB of the maximum value that will not be within the zoom scan of other peaks. Additional peaks shall be measured only when the primary peak is within 2 dB of the SAR compliance limit (e.g. 1 W/kg for SAR_{1g} limit of 1.6 W/kg; or 1.26 W/kg for SAR_{10g} limit of 2 W/kg).

The zoom scan (three-dimensional SAR distribution) is performed at the local maxima locations identified in previous area scan procedure. The zoom scan volume must be larger than the required minimum dimensions. When graded grids are used, which only applies in the direction normal to the phantom surface, the initial grid separation closest to the phantom surface and subsequent graded grid increment ratios must satisfy the required protocols. The 1-g SAR averaging volume must be fully contained within the zoom scan measurement volume boundaries; otherwise, the measurement must be repeated by shifting or expanding the zoom scan volume. The similar requirements also apply to 10-g SAR measurements. Following table provides the measurement parameters required for the zoom scan.

Parameter		$f \leq 3 \text{ GHz}$	$f > 3 \text{ GHz}$
Maximum zoom scan spatial resolution: $\Delta x_{\text{Zoom}}, \Delta y_{\text{Zoom}}$		$\leq 2 \text{ GHz} : \leq 8 \text{ mm}$ $2 \sim 3 \text{ GHz} : \leq 5 \text{ mm}$	$3 \sim 4 \text{ GHz} : \leq 5.0 \text{ mm}$ $4 \sim 6 \text{ GHz} : \leq 4.0 \text{ mm}$ $6 \sim 7 \text{ GHz} : \leq 3.4 \text{ mm}$
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid : $\Delta z_{\text{Zoom}}(n)$	$\leq 5 \text{ mm}$	$3 \sim 4 \text{ GHz} : \leq 4.0 \text{ mm}$ $4 \sim 5 \text{ GHz} : \leq 3.0 \text{ mm}$ $5 \sim 7 \text{ GHz} : \leq 2.0 \text{ mm}$
	graded grids : $\Delta z_{\text{Zoom}}(1)$	$\leq 4 \text{ mm}$	$3 \sim 4 \text{ GHz} : \leq 3.0 \text{ mm}$ $4 \sim 5 \text{ GHz} : \leq 2.5 \text{ mm}$ $5 \sim 6 \text{ GHz} : \leq 2.0 \text{ mm}$ $6 \sim 7 \text{ GHz} : \leq 1.7 \text{ mm}$
	$\Delta z_{\text{Zoom}}(n>1)$	$\leq 1.5 \cdot \Delta z_{\text{Zoom}}(n-1) \text{ mm}$	
Minimum zoom scan volume (x, y, z)		$\geq 30 \text{ mm}$	$3 \sim 4 \text{ GHz} : \geq 28 \text{ mm}$ $4 \sim 5 \text{ GHz} : \geq 25 \text{ mm}$ $5 \sim 7 \text{ GHz} : \geq 22 \text{ mm}$

3.3.2. Power Drift Monitoring

All SAR testing is under the DUT install full charged battery and transmit maximum output power. In DASY measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of DUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drift more than 5%, the SAR will be retested.

3.3.3. Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The DASY software includes all numerical procedures necessary to evaluate the spatial peak SAR value.

The base for the evaluation is a "cube" measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.

The entire evaluation of the spatial peak values is performed within the post-processing engine (SEMCAD). The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

- (a) Extraction of the measured data (grid and values) from the Zoom Scan
- (b) Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
- (c) Generation of a high-resolution mesh within the measured volume
- (d) Interpolation of all measured values from the measurement grid to the high-resolution grid
- (e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
- (f) Calculation of the averaged SAR within masses of 1g and 10g

3.3.4. SAR Averaged Methods

In DASY, the interpolation and extrapolation are both based on the modified Quadratic Shepard's method. The interpolation scheme combines a least-square fitted function method and a weighted average method which are the two basic types of computational interpolation and approximation.

Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1% for the 1 g and 10 g cubes, the extrapolation distance should not be larger than 5 mm.

4. DUT TAS Characterization

4.1. DSI (Device State Index) and SAR Determination

This device uses only one Device State Index (DSI) to configure time averaged power levels based on certain exposure scenarios. Depending on the detection scheme implemented in the DUT, the worst-case SAR was determined by measurements for the relevant exposure conditions for that DSI. Detailed descriptions of the detection mechanisms are included in the operational description document.

When SAR_{1g} exposure comparison is needed, the worst-case was determined from SAR normalized to 1g SAR limit.

The device state index (DSI) conditions used in below represent different exposure scenarios.

Exposure Scenario	Description	SAR Test Cases
Body (DSI = 0)	Device positioned against to body	Body SAR tested with DUT at 0 mm

4.2. RFexp_{target} Determination

The RF exposure target is determined by ensuring that it is less than SAR limit after accounting for total device designed related uncertainties specified by the manufacturer. The total uncertainties for this device is 1.5 dB. To account for total uncertainty, RF exposure target is determined as below.

$$RFexp_{target} < Regulatory\ Limit \times 10^{\frac{-Total\ Uncertainty}{10}}$$

For SAR_{1g}, the SAR_{regulatory} limit is 1.6 W/kg, and the RFexp_{target} is 0.84 W/kg.

4.3. TAS Characterization Results

The P_{lim} determination for each exposure scenario corresponding to RFexp_{target} are show in below.

Note :

1. When $P_{max} < P_{lim}$, the DUT will operate at a power level up to P_{max} .
2. Maximum tune-up output power P_{max} is used to configure DUT during RF tune-up procedure. The maximum allowed output power is equal to maximum tune-up output power +1.5 dB device design uncertainty.

TAS Characterizations

WLAN 2.4 GHz Band								
Mode	Channel	Frequency	ANT 0		ANT 1		ANT 0+1	
			P_{lim}	P_{max}	P_{lim}	P_{max}	P_{lim}	P_{max}
802.11b	1	2412	15.50	17.00	15.50	17.00	N/A	N/A
	6	2437	15.50	18.00	15.50	18.00	N/A	N/A
	11	2462	15.50	17.50	15.50	17.50	N/A	N/A
	12	2467	15.00	15.00	15.00	15.00	N/A	N/A
	13	2472	11.50	11.50	11.50	11.50	N/A	N/A
802.11g	1	2412	14.50	14.50	14.50	14.50	N/A	N/A
	6	2437	15.50	18.00	15.50	18.00	N/A	N/A
	11	2462	15.00	15.00	15.00	15.00	N/A	N/A
	12	2467	13.50	13.50	13.50	13.50	N/A	N/A
	13	2472	0.50	0.50	0.50	0.50	N/A	N/A
802.11n HT20	1	2412	13.50	13.50	13.50	13.50	16.50	16.50
	6	2437	15.50	18.00	15.50	18.00	18.50	21.00
	11	2462	14.00	14.00	14.00	14.00	17.00	17.00
	12	2467	13.50	13.50	13.50	13.50	16.50	16.50
	13	2472	0.50	0.50	0.50	0.50	3.50	3.50
802.11n HT40	3	2422	14.00	14.00	14.00	14.00	17.00	17.00
	6	2437	15.50	15.50	15.50	15.50	18.50	18.50
	9	2452	13.00	13.00	13.00	13.00	16.00	16.00
	10	2457	12.50	12.50	12.50	12.50	15.50	15.50
	11	2462	1.00	1.00	1.00	1.00	4.00	4.00
802.11ax HE20	1	2412	13.50	13.50	13.50	13.50	16.50	16.50
	6	2437	15.50	18.00	15.50	18.00	18.50	21.00
	11	2462	14.00	14.00	14.00	14.00	17.00	17.00
	12	2467	13.50	13.50	13.50	13.50	16.50	16.50
	13	2472	0.50	0.50	0.50	0.50	3.50	3.50
802.11ax HE40	3	2422	14.00	14.00	14.00	14.00	17.00	17.00
	6	2437	15.50	15.50	15.50	15.50	18.50	18.50
	9	2452	13.00	13.00	13.00	13.00	16.00	16.00
	10	2457	12.50	12.50	12.50	12.50	15.50	15.50
	11	2462	1.00	1.00	1.00	1.00	4.00	4.00

WLAN 5.2 GHz Band								
Mode	Channel	Frequency	ANT 0		ANT 1		ANT 0+1	
			P_{lim}	P_{max}	P_{lim}	P_{max}	P_{lim}	P_{max}
802.11a	36	5180	12.00	12.00	12.00	12.00	N/A	N/A
	40	5200	12.00	12.00	12.00	12.00	N/A	N/A
	44	5220	12.00	12.00	12.00	12.00	N/A	N/A
	48	5240	12.00	12.00	12.00	12.00	N/A	N/A
	48	5240	12.00	12.00	12.00	12.00	N/A	N/A
802.11n HT20	36	5180	12.50	12.50	12.50	12.50	15.50	15.50
	40	5200	12.50	12.50	12.50	12.50	15.50	15.50
	44	5220	12.50	12.50	12.50	12.50	15.50	15.50
	48	5240	12.50	12.50	12.50	12.50	15.50	15.50
802.11n HT40	38	5190	13.50	13.50	13.50	13.50	16.50	16.50
	46	5230	13.50	13.50	13.50	13.50	16.50	16.50
802.11ac VHT20	36	5180	12.50	12.50	12.50	12.50	15.50	15.50
	40	5200	12.50	12.50	12.50	12.50	15.50	15.50
	44	5220	12.50	12.50	12.50	12.50	15.50	15.50
	48	5240	12.50	12.50	12.50	12.50	15.50	15.50
802.11ac VHT40	38	5190	13.50	13.50	13.50	13.50	16.50	16.50
	46	5230	13.50	13.50	13.50	13.50	16.50	16.50
802.11ac VHT80	42	5210	12.50	12.50	12.50	12.50	15.50	15.50
802.11ax HE20	36	5180	12.50	12.50	12.50	12.50	15.50	15.50
	40	5200	12.50	12.50	12.50	12.50	15.50	15.50
	44	5220	12.50	12.50	12.50	12.50	15.50	15.50
	48	5240	12.50	12.50	12.50	12.50	15.50	15.50
802.11ax HE40	38	5190	13.50	13.50	13.50	13.50	16.50	16.50
	46	5230	13.50	13.50	13.50	13.50	16.50	16.50
802.11ax HE80	42	5210	12.50	12.50	12.50	12.50	15.50	15.50

WLAN 5.3 GHz Band								
Mode	Channel	Frequency	ANT 0		ANT 1		ANT 0+1	
			P_{lim}	P_{max}	P_{lim}	P_{max}	P_{lim}	P_{max}
802.11a	52	5260	13.50	17.50	13.50	17.50	N/A	N/A
	56	5280	13.50	17.50	13.50	17.50	N/A	N/A
	60	5300	13.50	17.50	13.50	17.50	N/A	N/A
	64	5320	13.50	17.00	13.50	17.00	N/A	N/A
802.11n HT20	52	5260	13.50	16.00	13.50	16.00	16.50	19.00
	56	5280	13.50	16.00	13.50	16.00	16.50	19.00
	60	5300	13.50	16.00	13.50	16.00	16.50	19.00
	64	5320	13.50	16.00	13.50	16.00	16.50	19.00
802.11n HT40	54	5270	13.50	15.50	13.50	15.50	16.50	18.50
	62	5310	13.50	15.00	13.50	15.00	16.50	18.00
802.11ac VHT20	52	5260	13.50	16.00	13.50	16.00	16.50	19.00
	56	5280	13.50	16.00	13.50	16.00	16.50	19.00
	60	5300	13.50	16.00	13.50	16.00	16.50	19.00
	64	5320	13.50	16.00	13.50	16.00	16.50	19.00
802.11ac VHT40	54	5270	13.50	15.50	13.50	15.50	16.50	18.50
	62	5310	13.50	15.00	13.50	15.00	16.50	18.00
802.11ac VHT80	58	5290	13.50	14.50	13.50	14.50	16.50	17.50
802.11ac VHT160	50	5250	12.50	12.50	12.50	12.50	15.50	15.50
802.11ax HE20	52	5260	13.50	16.00	13.50	16.00	16.50	19.00
	56	5280	13.50	16.00	13.50	16.00	16.50	19.00
	60	5300	13.50	16.00	13.50	16.00	16.50	19.00
	64	5320	13.50	16.00	13.50	16.00	16.50	19.00
802.11ax HE40	54	5270	13.50	15.50	13.50	15.50	16.50	18.50
	62	5310	13.50	15.00	13.50	15.00	16.50	18.00
802.11ax HE80	58	5290	13.50	14.50	13.50	14.50	16.50	17.50
802.11ax HE160	50	5250	12.50	12.50	12.50	12.50	15.50	15.50

WLAN 5.6 GHz Band								
Mode	Channel	Frequency	ANT 0		ANT 1		ANT 0+1	
			P_{lim}	P_{max}	P_{lim}	P_{max}	P_{lim}	P_{max}
802.11a	100	5500	13.50	16.50	13.50	16.50	N/A	N/A
	116	5580	13.50	17.50	13.50	17.50	N/A	N/A
	124	5620	13.50	17.50	13.50	17.50	N/A	N/A
	132	5660	13.50	17.50	13.50	17.50	N/A	N/A
	140	5700	13.50	15.50	13.50	15.50	N/A	N/A
	144	5720	13.50	17.50	13.50	17.50	N/A	N/A
802.11n HT20	100	5500	13.50	15.00	13.50	15.00	16.50	18.00
	116	5580	13.50	16.00	13.50	16.00	16.50	19.00
	124	5620	13.50	16.00	13.50	16.00	16.50	19.00
	132	5660	13.50	16.00	13.50	16.00	16.50	19.00
	140	5700	13.50	15.00	13.50	15.00	16.50	18.00
	144	5720	13.50	16.00	13.50	16.00	16.50	19.00
802.11n HT40	102	5510	13.50	14.50	13.50	14.50	16.50	17.50
	110	5550	13.50	15.50	13.50	15.50	16.50	18.50
	126	5630	13.50	15.50	13.50	15.50	16.50	18.50
	134	5670	13.50	15.50	13.50	15.50	16.50	18.50
	142	5710	13.50	15.50	13.50	15.50	16.50	18.50
	144	5720	13.50	15.50	13.50	15.50	16.50	18.50
802.11ac VHT20	100	5500	13.50	15.00	13.50	15.00	16.50	18.00
	116	5580	13.50	16.00	13.50	16.00	16.50	19.00
	124	5620	13.50	16.00	13.50	16.00	16.50	19.00
	132	5660	13.50	16.00	13.50	16.00	16.50	19.00
	140	5700	13.50	15.00	13.50	15.00	16.50	18.00
	144	5720	13.50	16.00	13.50	16.00	16.50	19.00
802.11ac VHT40	102	5510	13.50	14.50	13.50	14.50	16.50	17.50
	110	5550	13.50	15.50	13.50	15.50	16.50	18.50
	126	5630	13.50	15.50	13.50	15.50	16.50	18.50
	134	5670	13.50	15.50	13.50	15.50	16.50	18.50
	142	5710	13.50	15.50	13.50	15.50	16.50	18.50
	144	5720	13.50	15.50	13.50	15.50	16.50	18.50
802.11ac VHT80	106	5530	13.50	14.00	13.50	14.00	16.50	17.00
	122	5610	13.50	15.00	13.50	15.00	16.50	18.00
	138	5690	13.50	15.00	13.50	15.00	16.50	18.00
802.11ac VHT160	114	5570	13.50	13.50	13.50	13.50	16.50	16.50
802.11ax HE20	100	5500	13.50	15.00	13.50	15.00	16.50	18.00
	116	5580	13.50	16.00	13.50	16.00	16.50	19.00
	124	5620	13.50	16.00	13.50	16.00	16.50	19.00
	132	5660	13.50	16.00	13.50	16.00	16.50	19.00
	140	5700	13.50	15.00	13.50	15.00	16.50	18.00
	144	5720	13.50	16.00	13.50	16.00	16.50	19.00
802.11ax HE40	102	5510	13.50	14.50	13.50	14.50	16.50	17.50
	110	5550	13.50	15.50	13.50	15.50	16.50	18.50
	126	5630	13.50	15.50	13.50	15.50	16.50	18.50
	134	5670	13.50	15.50	13.50	15.50	16.50	18.50
	142	5710	13.50	15.50	13.50	15.50	16.50	18.50
	144	5720	13.50	15.50	13.50	15.50	16.50	18.50
802.11ax HE80	106	5530	13.50	14.00	13.50	14.00	16.50	17.00
	122	5610	13.50	15.00	13.50	15.00	16.50	18.00
	138	5690	13.50	15.00	13.50	15.00	16.50	18.00
802.11ax HE160	114	5570	13.50	13.50	13.50	13.50	16.50	16.50

WLAN 5.8 GHz Band								
Mode	Channel	Frequency	ANT 0		ANT 1		ANT 0+1	
			P_{lim}	P_{max}	P_{lim}	P_{max}	P_{lim}	P_{max}
802.11a	149	5745	13.50	17.50	13.50	17.50	N/A	N/A
	157	5785	13.50	17.50	13.50	17.50	N/A	N/A
	165	5825	13.50	17.50	13.50	17.50	N/A	N/A
	169	5845	13.00	13.00	13.00	13.75	N/A	N/A
	173	5865	13.00	13.00	13.00	13.75	N/A	N/A
	177	5885	13.00	13.00	13.00	13.75	N/A	N/A
802.11n HT20	149	5745	13.50	16.00	13.50	17.50	16.50	20.50
	157	5785	13.50	16.00	13.50	17.50	16.50	20.50
	165	5825	13.50	16.00	13.50	17.50	16.50	20.50
	169	5845	13.00	13.00	13.00	17.25	16.00	20.25
	173	5865	13.00	13.00	13.00	17.25	16.00	20.25
	177	5885	13.00	13.00	13.00	16.00	16.00	19.00
802.11n HT40	151	5755	13.50	15.50	13.50	17.00	16.50	20.00
	159	5795	13.50	15.50	13.50	17.00	16.50	20.00
	167	5835	13.50	15.50	13.50	17.00	16.50	20.00
	175	5875	13.50	15.50	13.50	17.00	16.50	20.00
802.11ac VHT20	149	5745	13.50	16.00	13.50	17.50	16.50	20.50
	157	5785	13.50	16.00	13.50	17.50	16.50	20.50
	165	5825	13.50	16.00	13.50	17.50	16.50	20.50
	169	5845	13.00	13.00	13.00	17.25	16.00	20.25
	173	5865	13.00	13.00	13.00	17.25	16.00	20.25
	177	5885	13.00	13.00	13.00	16.00	16.00	19.00
802.11ac VHT40	151	5755	13.50	15.50	13.50	17.00	16.50	20.00
	159	5795	13.50	15.50	13.50	17.00	16.50	20.00
	167	5835	13.50	15.50	13.50	17.00	16.50	20.00
	175	5875	13.50	15.50	13.50	17.00	16.50	20.00
802.11ac VHT80	155	5775	13.50	15.00	13.50	16.50	16.50	19.50
	171	5855	13.50	15.00	13.50	16.50	16.50	19.50
802.11ac VHT160	163	5815	11.50	11.50	11.50	12.00	14.50	15.00
802.11ax HE20	149	5745	13.50	16.00	13.50	17.50	16.50	20.50
	157	5785	13.50	16.00	13.50	17.50	16.50	20.50
	165	5825	13.50	16.00	13.50	17.50	16.50	20.50
	169	5845	13.00	13.00	13.00	17.25	16.00	20.25
	173	5865	13.00	13.00	13.00	17.25	16.00	20.25
	177	5885	13.00	13.00	13.00	16.00	16.00	19.00
802.11ax HE40	151	5755	13.50	15.50	13.50	17.00	16.50	20.00
	159	5795	13.50	15.50	13.50	17.00	16.50	20.00
	167	5835	13.50	15.50	13.50	17.00	16.50	20.00
	175	5875	13.50	15.50	13.50	17.00	16.50	20.00
802.11ax HE80	155	5775	13.50	15.00	13.50	16.50	16.50	19.50
	171	5855	13.50	15.00	13.50	16.50	16.50	19.50
802.11ax HE160	163	5815	11.50	11.50	11.50	12.00	14.50	15.00

WLAN 6 GHz U-NII 5 Band								
Mode	Channel	Frequency	ANT 0		ANT 1		ANT 0+1	
			P_{lim}	P_{max}	P_{lim}	P_{max}	P_{lim}	P_{max}
802.11a	1	5955	11.50	14.50	11.50	14.50	N/A	N/A
	45	6175	11.50	14.50	11.50	14.50	N/A	N/A
	93	6415	11.50	14.50	11.50	14.50	N/A	N/A
802.11ax HE20	1	5955	11.50	14.50	11.50	14.50	14.50	17.50
	45	6175	11.50	14.50	11.50	14.50	14.50	17.50
	93	6415	11.50	14.50	11.50	14.50	14.50	17.50
802.11ax HE40	3	5965	11.50	14.00	11.50	14.00	14.50	17.00
	43	6165	11.50	14.00	11.50	14.00	14.50	17.00
	91	6405	11.50	14.00	11.50	14.00	14.50	17.00
802.11ax HE80	7	5985	11.50	13.50	11.50	13.50	14.50	16.50
	39	6145	11.50	13.50	11.50	13.50	14.50	16.50
	87	6385	11.50	13.50	11.50	13.50	14.50	16.50
802.11ax HE160	15	6025	11.50	13.00	11.50	13.00	14.50	16.00
	47	6185	11.50	13.00	11.50	13.00	14.50	16.00
	79	6345	11.50	13.00	11.50	13.00	14.50	16.00

WLAN 6 GHz U-NII 6 Band								
Mode	Channel	Frequency	ANT 0		ANT 1		ANT 0+1	
			P_{lim}	P_{max}	P_{lim}	P_{max}	P_{lim}	P_{max}
802.11a	97	6435	-0.50	-0.50	-0.50	-0.50	N/A	N/A
	105	6475	-0.50	-0.50	-0.50	-0.50	N/A	N/A
	113	6515	-0.50	-0.50	-0.50	-0.50	N/A	N/A
802.11ax HE20	97	6435	-0.50	-0.50	-0.50	-0.50	2.50	2.50
	105	6475	-0.50	-0.50	-0.50	-0.50	2.50	2.50
	113	6515	-0.50	-0.50	-0.50	-0.50	2.50	2.50
802.11ax HE40	99	6445	2.50	2.50	2.50	2.50	5.50	5.50
	107	6485	2.50	2.50	2.50	2.50	5.50	5.50
802.11ax HE80	103	6465	5.00	5.00	5.00	5.00	8.00	8.00
	119	6545	5.00	5.00	5.00	5.00	8.00	8.00
802.11ax HE160	111	6505	8.00	8.00	8.00	8.00	11.00	11.00

WLAN 6 GHz U-NII 7 Band								
Mode	Channel	Frequency	ANT 0		ANT 1		ANT 0+1	
			P_{lim}	P_{max}	P_{lim}	P_{max}	P_{lim}	P_{max}
802.11a	117	6535	11.50	14.50	11.50	14.50	N/A	N/A
	149	6695	11.50	14.50	11.50	14.50	N/A	N/A
	181	6855	11.50	14.50	11.50	14.50	N/A	N/A
802.11ax HE20	117	6535	11.50	14.50	11.50	14.50	14.50	17.50
	149	6695	11.50	14.50	11.50	14.50	14.50	17.50
	181	6855	11.50	14.50	11.50	14.50	14.50	17.50
802.11ax HE40	115	6525	2.50	14.00	2.50	14.00	5.50	17.00
	147	6685	11.50	14.00	11.50	14.00	14.50	17.00
	179	6845	11.50	14.00	11.50	14.00	14.50	17.00
802.11ax HE80	135	6625	11.50	13.50	11.50	13.50	14.50	16.50
	151	6705	11.50	13.50	11.50	13.50	14.50	16.50
	167	6785	11.50	13.50	11.50	13.50	14.50	16.50
	183	6865	11.50	7.50	11.50	7.50	14.50	10.50
802.11ax HE160	143	6665	11.50	13.00	11.50	13.00	14.50	16.00
	175	6825	8.00	13.00	8.00	13.00	11.00	16.00

WLAN 6 GHz U-NII 8 Band								
Mode	Channel	Frequency	ANT 0		ANT 1		ANT 0+1	
			P_{lim}	P_{max}	P_{lim}	P_{max}	P_{lim}	P_{max}
802.11a	185	6875	-0.50	-0.50	-0.50	-0.50	N/A	N/A
	209	6995	-0.50	-0.50	-0.50	-0.50	N/A	N/A
	233	7115	-0.50	-0.50	-0.50	-0.50	N/A	N/A
802.11ax HE20	185	6875	-0.50	-0.50	-0.50	-0.50	2.50	2.50
	209	6995	-0.50	-0.50	-0.50	-0.50	2.50	2.50
	233	7115	-0.50	-0.50	-0.50	-0.50	2.50	2.50
802.11ax HE40	187	6885	2.50	2.50	2.50	2.50	5.50	5.50
	211	7005	2.50	2.50	2.50	2.50	5.50	5.50
	227	7085	2.50	2.50	2.50	2.50	5.50	5.50
802.11ax HE80	199	6945	5.00	5.00	5.00	5.00	8.00	8.00
	215	7025	5.00	5.00	5.00	5.00	8.00	8.00
802.11ax HE160	207	6985	8.00	8.00	8.00	8.00	11.00	11.00

***** End of Report *****