

# Tekniam, LLC RF Exposure Exhibit

#### **SCOPE OF WORK**

EMC TESTING - RUCS Distribution Module, Model: RDM21

#### **REPORT NUMBER**

104856862MPK-006

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# RF Exposure Exhibit (mobile devices)

Report Number: 104856862MPK-006 Project Number: G104856862

Report Issue Date: February 24, 2022

**Product Designation: RUCS Distribution Module** 

Model Tested: RDM21

FCC ID: 2A2SC-RDM21

to

47CFR 2.1091

for

Tekniam, LLC

Tested by:

Intertek 1365 Adams Court Menlo Park, CA 94025 USA Client:

Tekniam, LLC 15501 W. 100th Terr Lenexa, KS 66219

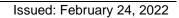
Report prepared by:

Report reviewed by:

Minh Ly / Senior Project Engineer

Krishna Vemuri / EMC Manager

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Report No. 104856862MPK-006				
Equipment Under Test:	RUCS Distribution Module			
Trade Name:	Tekniam, LLC			
Model(s) Tested:	RDM21			
Applicant:	Tekniam, LLC			
Contact:	Jamie Gilbert			
Address: Tekniam, LLC 15501 W. 100th Terr Lenexa, KS 66219				
Country:	USA			
Tel. Number:	(563) 449-2998			
Email:	Jgilbert@gbasi.com			
Applicable Regulation:	47CFR 2.1091			



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#### **1.0 RF Exposure Summary**

Test Reference FCC		Result	
Radio frequency Radiation Exposure Evaluation	47 CFR§2.1091	Complies	

#### 2.0 RF Exposure Limits

In this document, we evaluate the RF Exposure to human body due the intentional transmission from the transmitter (EUT). The limits for Maximum Permissible Exposure (MPE) specified in FCC 1.1310 is followed.

#### 2.1 FCC Limits

According to FCC 1.1310 table 1: The criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in 1.1307(b)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

LIMITS FOR MAXIMUM FERMISSIBLE EXPOSURE (MFE)						
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm²)	Average Time (minutes)		
	(A)Limits For	Occupational / Cont	rol Exposures			
0.3 – 3.0	614	1.63	*100	6		
3.0 – 30 1842/f		4.89/f	*900/f²	6		
30-300	61.4	0.163	1.0	6		
300 - 1500			F/300	6		
1500 - 100,000			5	6		
(B)Limits For General Population / Uncontrolled Exposure						
0.3 – 1.34	614	1.63	*100	30		
1.34 – 30	824/f	2.19/f	*180/f²	30		
30 – 300	27.5	0.073	0.2	30		
300 - 1500		•••	F/1500	30		
1500 - 100,000			1.0	30		

F = Frequency in MHz

<sup>\* =</sup> plane wave equivalent density

#### 3.0 Test Results (Mobile Configuration)

#### 3.1 Classification

Radio is installed inside a mobile host device. The antenna of the product, under normal use condition, is installed at least 5m away from the body of the user and accessible to the end user. Warning statement to the user for keeping at least 5m or more separation distance with the antenna should be included in user's manual.

#### 3.2 EIRP calculations

The RUCS Distribution Module, Model: RDM21 consists of three radio modules:

- 2.4GHz Wifi.
- 5GHz U-NII 1.
- 5GHz U-NII 3.

#### 3.3 Maximum RF Power

Frequency Range (MHz)	RF Output (dBm)	Antenna Gain <sup>1</sup> (dBi)	Note
2400-2483.5	27.41	7.0	Conducted power measurements were taken from Report # 104856862MPK-001.
5150 – 5250	15.85	12.0	Conducted power measurements were taken from Report # 104856862MPK-004.
5725 – 5850	21.51	12.0	Conducted power measurements were taken from Report # 104856862MPK-004.

<sup>&</sup>lt;sup>1</sup>As declared by the manufacturer.



#### 3.4 RF Exposure Calculation

#### 3.4.1 RF Exposure calculation.

Calculations for this report are based on highest power measured for each band.

Frequency Range (MHz)	EIRP¹ (dBm)	EIRP¹ (mW)	Power Density (mW/cm²) @5m	FCC Limit (mW/cm²)	MPE Ratio	Sum of MPE Ratios
2400-2483.5	34.41	2760.5	0.000879	1	0.000879	
5150 - 5250	27.85	609.5	0.000194	1	0.000194	0.001788
5725 – 5850	33.51	2243.8	0.000715	1	0.000715	

<sup>&</sup>lt;sup>1</sup>Note: Antenna gains below 0 are considered as 0dBi.

The summation of the MPE ratio is less than 1, therefore, the EUT complies for the MPE requirement of simultaneous transmission.



## **Appendix A: Power Density Calculation**

The Power Density can be calculated using the formula

 $S = EIRP/4\pi D^2$ 

Where: S is Power Density in mW/cm²
D is the distance from the antenna in cm.



## 4.0 Document History

Revision/ Job Number	Writer Initials	Reviewers Initials	Date	Change
1.0/ G104856862	ML	KV	February 24, 2022	Original document