



EMC Test Data

Client: Arris	PR Number: PR101106
Product: NVG5XDBAX	T-Log Number: TL-101106-RANA
	Project Manager: Deepa Shetty
Contact: Mark Rieger	Project Engineer: David Bare
Standard: FCC Part 15, RSS-247	Class: N/A

Maximum Permissible Exposure / SAR Exclusion

Specific Details

Objective: Evaluate the RF Exposure requirements per FCC 1.1310, 2.1091, 2.1093 and RSS-102.

Date of Evaluation: 10/10/2019

Test Engineer: David Bare

General Test Configuration

Calculation uses the free space transmission formula:

$$S = (PG)/(4 \pi d^2)$$

Where: S is power density (W/m^2), P is output power (W), G is antenna gain relative to isotropic, d is separation distance from the transmitting antenna (m).

SAR exclusion calculation formula is from FCC KDB 447498 D01 section 4.3:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f_{\text{GHz}}}]$$

Where: f_{GHz} is the RF transmit channel frequency

Summary of Results

Device complies with Power Density requirements at 20cm separation:	No
If not, required separation distance (in cm):	30

Deviations From The Standard

No deviations were made from the requirements of the standard.



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FCC MPE Calculation

Use: General
Antenna: Custom

2.4 GHz Wi-Fi

Freq. MHz	EUT Power		Cable Loss Loss dB	Ant Gain dBi	Power at Ant dBm	EIRP mW	Power Density (S) at 30 cm mW/cm ²	MPE Limit at 30 cm mW/cm ²
	dBm	mW*						
2412	28.3	676.3	0	7.6	28.3	3891.80	0.344	1.000
2437	27.9	616.8	0	7.4	27.9	3389.61	0.300	1.000
2462	27.2	525.9	0	7.3	27.2	2824.23	0.250	1.000

For the cases where S > the MPE Limit

Freq. MHz	Power Density (S) at 30 cm mW/cm ²	MPE Limit at 30 cm mW/cm ²	Distance where S <= MPE Limit cm
2412	0.344	1.000	17.6
2437	0.300	1.000	16.4
2462	0.250	1.000	15.0

5 GHz Wi-Fi

Freq. MHz	EUT Power		Cable Loss Loss dB	Ant Gain dBi	Power at Ant dBm	EIRP mW	Power Density (S) at 30 cm mW/cm ²	MPE Limit at 30 cm mW/cm ²
	dBm	mW*						
5180	25.6	363.1	0	8.1	25.6	2344.2	0.207	1.000
5200	26.3	430.2	0	8.1	26.3	2777.8	0.246	1.000
5240	26.2	417.6	0	8.1	26.2	2696.5	0.238	1.000
5745	26.7	469.6	0	8.8	26.7	3562.0	0.315	1.000
5785	26.4	435.6	0	8.8	26.4	3304.5	0.292	1.000
5825	26.5	442.8	0	8.8	26.5	3358.9	0.297	1.000

For the cases where S > the MPE Limit

Freq. MHz	Power Density (S) at 30 cm mW/cm ²	MPE Limit at 30 cm mW/cm ²	Distance where S <= MPE Limit cm
5180	0.207	1.000	13.7cm
5200	0.246	1.000	14.9cm
5240	0.238	1.000	14.6cm
5745	0.315	1.000	16.8cm
5785	0.292	1.000	16.2cm
5825	0.297	1.000	16.3cm



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ISED MPE Calculation

Use: General
Antenna: Custom

2.4 GHz Wi-Fi

Freq. MHz	EUT Power		Cable Loss Loss dB	Ant Gain dBi	Power at Ant dBm	EIRP mW	Power Density (S) at 30 cm mW/cm ²	MPE Limit at 30 cm mW/cm ²
	dBm	mW*						
2412	28.3	676.3	0	7.6	28.3	3891.8	0.344	0.537
2437	27.9	616.8	0	7.4	27.9	3389.6	0.300	0.540
2462	27.2	525.9	0	7.3	27.2	2824.2	0.250	0.544

For the cases where S > the MPE Limit

Freq. MHz	Power Density (S) at 30 cm mW/cm ²	MPE Limit at 30 cm mW/cm ²	Distance where S <= MPE Limit cm
2412	0.344	0.537	24.0
2437	0.300	0.540	22.3
2462	0.250	0.544	20.3

5 GHz Wi-Fi

Freq. MHz	EUT Power		Cable Loss Loss dB	Ant Gain dBi	Power at Ant dBm	EIRP mW	Power Density (S) at 30 cm mW/cm ²	MPE Limit at 30 cm mW/cm ²
	dBm	mW*						
5190	14.7	29.5	0	8.1	14.7	190.5	0.017	0.906
5200	12.9	19.5	0	8.1	12.9	125.9	0.011	0.907
5230	14.7	29.5	0	8.1	14.7	190.5	0.017	0.911
5745	26.7	469.6	0	8.8	26.7	3562.0	0.315	0.971
5785	26.4	435.6	0	8.8	26.4	3304.5	0.292	0.976
5825	26.5	442.8	0	8.8	26.5	3358.9	0.297	0.980

For the cases where S > the MPE Limit

Freq. MHz	Power Density (S) at 30 cm mW/cm ²	MPE Limit at 30 cm mW/cm ²	Distance where S <= MPE Limit cm
5190	0.017	0.906	4.1
5200	0.011	0.907	3.3
5230	0.017	0.911	4.1
5745	0.315	0.971	17.1
5785	0.292	0.976	16.4
5825	0.297	0.980	16.5



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Combined exposure from both radios (highest contribution from each radio) as a percentage of the corresponding limit

FCC			
5 GHz	31.5%		
2.4 GHz	34.4%		
Total	65.9%	Complies	

ISED			
5 GHz	32.4%		Total RF Value 6.59 W/m ²
2.4 GHz	64.1%		
Total	96.6%	Complies	