

**IEEE C95.1 2005  
KDB 447498 D03  
47 C.F.R. Part 1, Subpart I, Section 1.1310  
47 C.F.R. Part 2, Subpart J, Section 2.1091**

## **RF EXPOSURE REPORT**

**For**

**Neat Pad**

**Model: A1**

**Trade Name: neat.**

*Issued to*

**Neatframe AS  
Martin Linges Vei 25 Fornebu Fornebu 1364 Norway**

*Issued by*

**Compliance Certification Services Inc.  
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Issue Date: December 18, 2019**

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Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.  
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## Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	December 16, 2019	Initial Issue	ALL	Allison Chen
01	December 18, 2019	See the following note Rev.(01)	P.6, P.9	Allison Chen

**Rev.(01)**

1. Revised antenna gain.



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## 1. TEST RESULT CERTIFICATION

### We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10: 2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 15.207, 15.209, 15.247.

The test results of this report relate only to the tested sample EUT identified in this report.

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
IEEE C95.1 2005 KDB 447498 D03 47 C.F.R. Part 1, Subpart I, Section 1.1310 47 C.F.R. Part 2, Subpart J, Section 2.1091	No non-compliance noted
Statements of Conformity	
Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.	

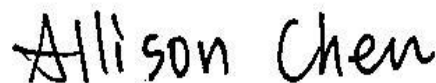
Approved by:




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Kevin Tsai  
Deputy Manager  
Compliance Certification Services Inc.

Reporter:




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Allison Chen  
Report coordinator  
Compliance Certification Services Inc.

## 2. LIMIT

According to §15.247(i), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this chapter.

### 3. EUT SPECIFICATION

<b>EUT</b>	Neat Pad
<b>Model</b>	A1
<b>Frequency band (Operating)</b>	<input checked="" type="checkbox"/> Bluetooth: 2402MHz ~ 2480 MHz <input checked="" type="checkbox"/> 802.11b/g/n HT20: 2412MHz ~ 2462 MHz 802.11n HT40: 2422MHz ~ 2452MHz 802.11a/n HT20: 5180MHz ~ 5240MHz / 5260MHz ~ 5320MHz / 5500MHz ~ 5700MHz / 5745MHz ~ 5825MHz 802.11n HT40: 5190MHz ~ 5230MHz / 5270MHz ~ 5310MHz / 5510MHz ~ 5670MHz / 5755MHz ~ 5795MHz 802.11ac VHT80: 5210MHz / 5290MHz / 5530MHz / 5775MHz <input type="checkbox"/> Others
<b>Device category</b>	<input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others
<b>Exposure classification</b>	<input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm <sup>2</sup> ) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm <sup>2</sup> )
<b>Antenna Specification</b>	<p><b>For Bluetooth: FPC Antenna</b>                                            Antenna Gain :     0.86 dBi (Numeric gain 1.22)</p> <p><b>For 2.4GHz: FPC Antenna</b>            Antenna 1    Antenna Gain :     0.86 dBi (Numeric gain 1.22)            Antenna 2    Antenna Gain :     0.90 dBi (Numeric gain 1.23)            MIMO Directional Gain                                            Antenna Gain :     0.88 dBi (Numeric gain 1.22)</p> <p><b>For 5GHz: FPC Antenna</b>            Antenna 1    Antenna Gain :     3.47 dBi (Numeric gain 2.22)            Antenna 2    Antenna Gain :     3.11 dBi (Numeric gain 2.05)            MIMO Directional Gain                                            Antenna Gain :     3.29 dBi (Numeric gain 2.13)</p>

<b>Maximum Average output power</b>	Bluetooth Mode:	7.05 dBm	(5.070 mW)
	2.4GHz:		
	IEEE 802.11b Mode:	18.68 dBm	(73.790 mW)
	IEEE 802.11g Mode:	19.25 dBm	(84.140 mW)
	IEEE 802.11n HT 20 Mode:	22.14 dBm	(163.682 mW)
	IEEE 802.11n HT 40 Mode:	21.57 dBm	(143.549 mW)
	5GHz:		
	IEEE 802.11a Mode:	20.11 dBm	(102.565 mW)
	IEEE 802.11n HT 20 Mode:	23.02 dBm	(200.447 mW)
	IEEE 802.11n HT 40 Mode:	22.68 dBm	(185.353 mW)
	IEEE 802.11ac VHT 80 Mode:	21.72 dBm	(148.594 mW)
<b>Maximum Tune up Power</b>	Bluetooth Mode:	8.00 dBm	(6.310 mW)
	2.4GHz:		
	IEEE 802.11b Mode:	19.50 dBm	(89.125 mW)
	IEEE 802.11g Mode:	20.00 dBm	(100.000 mW)
	IEEE 802.11n HT 20 Mode:	23.00 dBm	(199.526 mW)
	IEEE 802.11n HT 40 Mode:	22.50 dBm	(177.828 mW)
	5GHz:		
	IEEE 802.11a Mode:	21.00 dBm	(125.893 mW)
	IEEE 802.11n HT 20 Mode:	24.00 dBm	(251.189 mW)
	IEEE 802.11n HT 40 Mode:	23.50 dBm	(223.872 mW)
	IEEE 802.11ac VHT 80 Mode:	22.50 dBm	(177.828 mW)
<b>Evaluation applied</b>	<input checked="" type="checkbox"/> MPE Evaluation*		
	<input type="checkbox"/> SAR Evaluation		
	<input type="checkbox"/> N/A		

## 4. TEST RESULTS

**No non-compliance noted.**

### Calculation

$$\text{Given } E = \frac{\sqrt{30 \times P \times G}}{d} \quad \& \quad S = \frac{E^2}{377}$$

Where  $E$  = Field strength in Volts / meter

$P$  = Power in Watts

$G$  = Numeric antenna gain

$d$  = Distance in meters

$S$  = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{377 d^2}$$

Changing to units of mW and cm, using:

$$P \text{ (mW)} = P \text{ (W)} / 1000 \text{ and}$$

$$d \text{ (cm)} = d \text{ (m)} / 100$$

Yields

$$S = \frac{30 \times (P/1000) \times G}{377 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2} \quad \text{Equation 1}$$

Where  $d$  = Distance in cm

$P$  = Power in mW

$G$  = Numeric antenna gain

$S$  = Power density in mW / cm<sup>2</sup>



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## 5. MAXIMUM PERMISSIBLE EXPOSURE

Substituting the MPE safe distance using  $d = 20$  cm into Equation 1:

$$S = 0.000199 \times P \times G$$

Where  $P =$  Power in mW

$G =$  Numeric antenna gain

$S =$  Power density in mW / cm<sup>2</sup>

### Bluetooth mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm <sup>2</sup>	Limit (mW/cm2)
19	2440	6.31	1.22	20	0.0015	1

### IEEE 802.11b mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm <sup>2</sup>	Limit (mW/cm2)
6	2437	89.125	1.22	20	0.0216	1

### IEEE 802.11g mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm <sup>2</sup>	Limit (mW/cm2)
6	2437	100	1.22	20	0.0243	1

### IEEE 802.11n HT20 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm <sup>2</sup>	Limit (mW/cm2)
1	2412	199.526	1.22	20	0.0484	1

### IEEE 802.11n HT40 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm <sup>2</sup>	Limit (mW/cm2)
6	2437	177.828	1.22	20	0.0432	1

### IEEE 802.11a mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm <sup>2</sup>	Limit (mW/cm2)
100	5500	125.893	2.13	20	0.0534	1

### IEEE 802.11n HT20 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm <sup>2</sup>	Limit (mW/cm2)
157	5785	251.189	2.13	20	0.1065	1

### IEEE 802.11n HT40 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm <sup>2</sup>	Limit (mW/cm2)
110	5550	223.872	2.13	20	0.0949	1

### IEEE 802.11ac VHT80 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm <sup>2</sup>	Limit (mW/cm2)
58	5290	177.828	2.13	20	0.0754	1

--End of Report--