

# Exemption from RF Exposure

FCC ID: 2AQ9F-HLW-TNMP7

To whom it may concern,

HLW-TNMP7 is Super multi wireless charger.

Pursuant to KDB 680106 D01 v03, it meets the requirements indicated in section 5 b) and could be excluded from KDB inquiry.

(1) Power transfer frequency is less than 1 MHz.

**Explain:** The transfer frequency is below 1MHz.

(2) Output power from each primary coil is less than or equal to 15 watts.

**Explain:** The device has output power is less than 15 watt.

(3) The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that are able to detect and allow coupling only between individual pairs of coils.

**Explain:** The system used single coil

(4) Client device is placed directly in contact with the transmitter.

**Explain:** yes. It is.

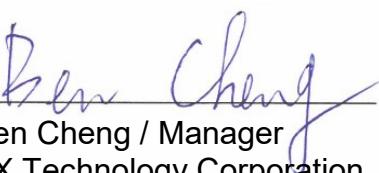
(5) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).

**Explain:** The device has Mobile exposure conditions.

(6) The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.

**Explain:** The aggregate leakage field is less than 50% of limit. Please refer to MPE.

Sincerely Yours,

  
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Mr. Ben Cheng / Manager  
AUDIX Technology Corporation

## Maximum Permissive Exposure

### 1. Description of EUT

Product Name	Super multi wireless charger
Test Model	HLW-TNMP7
Date of Test	2018. 09. 20

### 2. Radiated Emission Measurement

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
1.	Broadband Field Meter	NARDA	NBM-550	B-0959	2017.01.12	2 Years
2.	Magnetic Field Meter	COMBINOVA	MFM-10	535	2018.03.07	1 Year
3.	E-Field Probe	NARDA	EF0391	A-1034	2017.01.04	2 Years
4.	Magnetic Probe	NARDA	HF-3061	A-1023	2017.01.04	2 Years

### 3. Tested Supporting System List

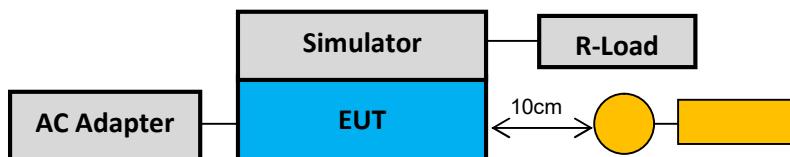
#### 3.1. Support Peripheral Unit

No.	Product	Brand	Model No.	Serial No.	Approval
1.	AC Adapter (5W)	SAMSUNG	EP-TA12WKW	RT4K306kV/B-E	N/A
2.	AC Adapter (10W)	SAMSUNG	EP-TA20JBS	R37G3RA0033DK3	N/A
3.	AC Adapter (15W)	SAMSUNG	EP-TA300	R37K5PN1AE3SE3	N/A
4.	Simulator#1	N/A	N/A	N/A	N/A
5.	Simulator#2	N/A	N/A	N/A	N/A
6.	R-Load#1	N/A	N/A	N/A	N/A
7.	R-Load#2	N/A	N/A	N/A	N/A
8.	R-Load#3	N/A	N/A	N/A	N/A

#### 3.2. Cable Lists

No.	Cable Description Of The Above Support Units
1.	AC Power Cable: Wall-mount, 2C I/P: 100-240Vac, 50-60Hz, 0.35A, O/P: 5.0Vdc 2.0A
2.	AC Power Cable: Wall-mount, 2C I/P: 100-240Vac, 50-60Hz, 0.6A(0.5A), O/P: 9.0Vdc 1.67A or 5.0Vdc 2.0A
3.	AC Power Cable: Wall-mount, 2C I/P: 100-240Vac, 50-60Hz, 1.0A, O/P: 12V 2.1A or 9V 1.67A or 5V 2.0A
4.	Data Cable: Unshielded, Undetachable, 0.18m (5W with R-Load#1)
5.	Data Cable: Unshielded, Undetachable, 0.10m (10W with R-Load#2, 15W with R-Load#3)
6.	Data Cable: Unshielded, Undetachable, 0.11m (5W with Simulator#1)
7.	Data Cable: Unshielded, Undetachable, 0.20m (10W with Simulator#2)
8.	Data Cable: Unshielded, Undetachable, 0.26m (15W with Simulator#2)

### 4. Setup Configuration



### 5. Operating Condition of EUT

The Simulator with R-Load was at 5W/10W/15W and in contact directly with EUT for charging.

## 6. MPE Calculation

**Hitachi-LG Data Storage Korea, Inc.** Declares that the product described above has been evaluated and found to comply with the RF exposure limits for humans, as specified based on ANSI/FCC recommendation.

According to FCC CFR 47 §1.1310, 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).

**Table 1 Limits for Maximum Permissible Exposure**

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm <sup>2</sup> )	Averaging Time (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f <sup>2</sup> )*	30
30-300	27.5	0.73	2	30
300-1500	--	--	f/150	30
1500-100,000	--	--	1	30

**Table 4 RF Field Strength Limits for Devices Used by the General Public (Uncontrolled Environment)**

Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m <sup>2</sup> )	Reference Period (minutes)
0.003-10 <sup>21</sup>	83	90	-	Instantaneous*
0.1-10	-	0.73/f	-	6**
1.1-10	87/f <sup>0.5</sup>	-	-	6**
10-20	27.46	0.0728	-2	6
20-48	58.07/f <sup>0.25</sup>	0.1540/f <sup>0.25</sup>	8.944/f <sup>0.5</sup>	6
48-300	22.06	0.05852	1.291	6
300-6000	3.142f <sup>0.3417</sup>	0.008335f <sup>0.3417</sup>	0.02619f <sup>0.6834</sup>	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	616000/f <sup>1.2</sup>
150000-300000	0.158f <sup>0.5</sup>	4.21 x 10 <sup>-4</sup> f <sup>0.5</sup>	6.67 x 10 <sup>-5</sup> f	616000/f <sup>1.2</sup>

**Note:** f is frequency in MHz.

\* Based on nerve stimulation (NS).

\*\* Based on specific absorption rate (SAR).

**Hitachi-LG Data Storage Korea, Inc.** declares that the product described above has been evaluated and found to comply with the RF exposure limits for humans, as specified based on ANSI/FCC recommendation.

Test Frequency	TX 127.3kHz	Test Mode	5W Charge with AC Adapter
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Separation	Probe from EUT side	E-field strength (V/m)	H-field strength (A/m)
15cm	Left	3.02	0.26
15cm	Right	0.86	0.33
20cm	Top	1.12	0.26
15cm	Bottom	0.7	0.24
15cm	Z-axis above EUT	1.27	0.18
Limit		614	1.63

Test Frequency	TX 127.3kHz	Test Mode	10W Charge with AC Adapter
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Separation	Probe from EUT side	E-field strength (V/m)	H-field strength (A/m)
15cm	Left	1.83	0.28
15cm	Right	1.7	0.36
20cm	Top	1.44	0.27
15cm	Bottom	1.28	0.23
15cm	Z-axis above EUT	2.11	0.19
Limit		614	1.63

Test Frequency	TX 127.3kHz	Test Mode	15W Charge with AC Adapter
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Separation	Probe from EUT side	E-field strength (V/m)	H-field strength (A/m)
15cm	Left	2.13	0.28
15cm	Right	1.94	0.37
20cm	Top	1.63	0.25
15cm	Bottom	0.85	0.22
15cm	Z-axis above EUT	3.38	0.2
Limit		614	1.63

Sincerely Yours,



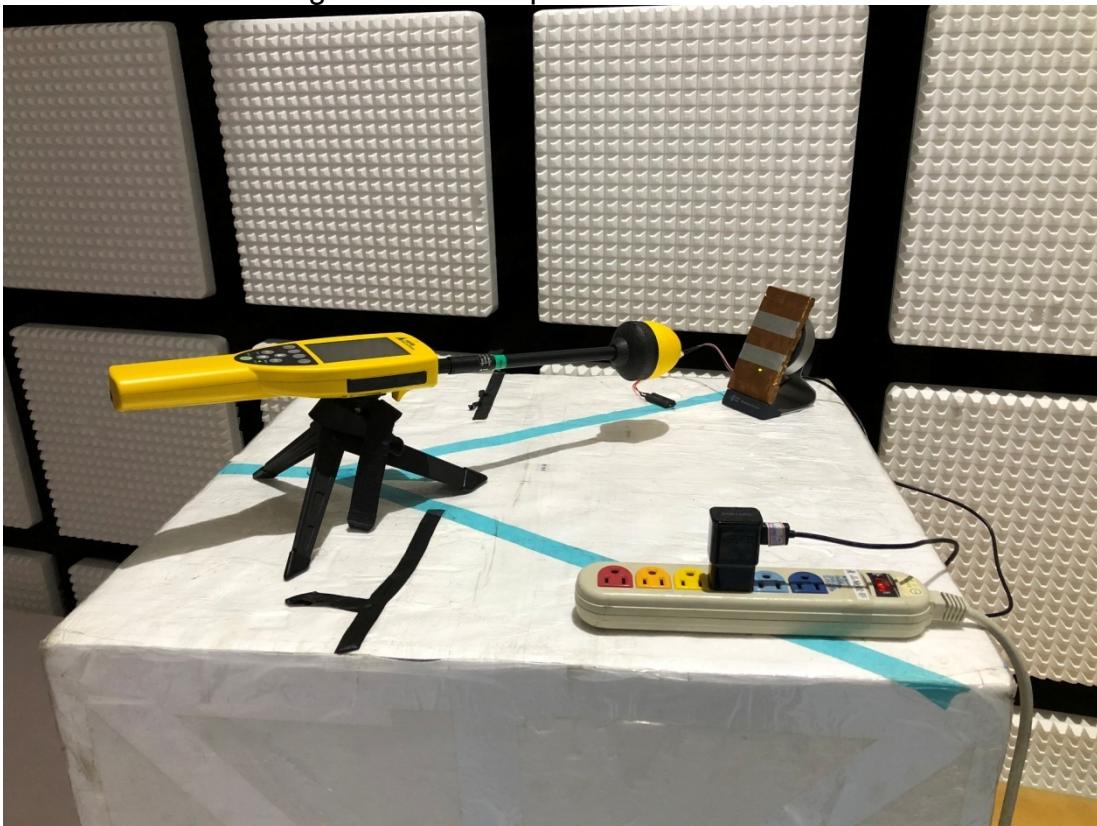
Mr. Ben Cheng / Manager  
AUDIX Technology Corporation

## 7. Test Setup Photo

Test Mode: 5W Charge with AC Adapter



Test Mode: 10W Charge with AC Adapter



Test Mode: 15W Charge with AC Adapter

