

Maximum Permissive Exposure

1. Description of EUT

Product Name	Super multi wireless charger
Model	(1)HLW-TNMP7 (2)HLW-TNMP7A (3)HLW-TNMP7B (4)HLW-TNMP7C (5)HLW-TNMP7*
Brand	H-L Data Storage
FCC ID	2AQ9F-HLW-TNMP7-R1
Test Model	HLW-TNMP7
Date of Test	2019. 04. 22

2. Radiated Emission Measurement

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
1.	Broadband Field Meter	NARDA	NBM-550	B-0959	2019.02.05	2 Years
2.	E-Field Probe	NARDA	EF0391	A-1034	2019.02.05	2 Years
3.	Exposure Level Tester	NARDA	ELT-400	M-0291	2019.02.04	2 Years
4.	B-Field Probe 100 cm ²	NARDA	2300/90.10	M-0309	2019.02.04	2 Years

3. Tested Supporting System List

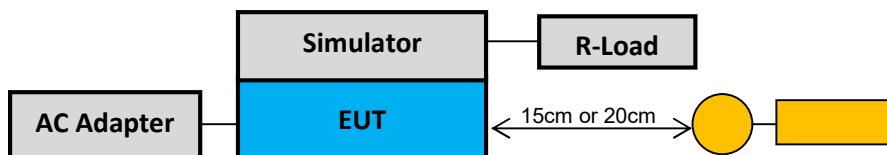
3.1. Support Peripheral Unit

No.	Product	Supplier or Brand	Model No.	Serial No.	Approval
1.	Simulator with 9.6Ω R-Load	Hitachi-LG	N/A	N/A	N/A
	Simulator with 5.6Ω R-Load	Hitachi-LG	N/A	N/A	N/A
	Simulator with 14.6Ω R-Load	Hitachi-LG	N/A	N/A	N/A
2	Adapter (O/P: 12V)	Samsung	EP-TA300	N/A	N/A
	Adapter (O/P: 9V)	LG	MCS-H06KR	N/A	N/A
	Adapter (O/P: 5V)	Samsung	EP-TA12KWK	N/A	N/A

3.2. Cable Lists

No.	Cable Description Of The Above Support Units
1.	Data Cable: Unshielded, Detachable, 0.28m (For 9.6Ω R-Load) Data Cable: Unshielded, Detachable, 0.35m (For 5.6Ω R-Load) Data Cable: Unshielded, Detachable, 0.56m (For 14.6Ω R-Load)
2.	N/A

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 ²)	Averaging Time (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	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 ²)	Reference Period (minutes)
0.003-10 ²¹	83	90	-	Instantaneous*
0.1-10	-	0.73/f	-	6**
1.1-10	87/f ^{0.5}	-	-	6**
10-20	27.46	0.0728	-2	6
20-48	58.07/f ^{0.25}	0.1540/f ^{0.25}	8.944/f ^{0.5}	6
48-300	22.06	0.05852	1.291	6
300-6000	3.142f ^{0.3417}	0.008335f ^{0.3417}	0.02619f ^{0.6834}	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	616000/f ^{1.2}
150000-300000	0.158f ^{0.5}	4.21 x 10 ⁻⁴ f ^{0.5}	6.67 x 10 ⁻⁵ f	616000/f ^{1.2}

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 127.72kHz	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	3.16	0.0318
15cm	Right	1.04	0.0278
20cm	Top	1.32	0.0310
15cm	Bottom	0.63	0.0231
15cm	Z-axis above EUT	1.56	0.0468
Limit		614	1.63

Test Frequency	TX 127.58kHz	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	2.04	0.0382
15cm	Right	1.86	0.0310
20cm	Top	1.69	0.0382
15cm	Bottom	1.52	0.0278
15cm	Z-axis above EUT	2.54	0.0286
Limit		614	1.63

Test Frequency	TX 127.58kHz	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	2.26	0.0302
15cm	Right	2.43	0.0342
20cm	Top	1.83	0.0779
15cm	Bottom	1.02	0.0644
15cm	Z-axis above EUT	2.86	0.0509
Limit		614	1.63

Sincerely Yours,



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



8. Exemption from RF Exposure

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.