

KDB 680106 D01 V02
47 C.F.R. Part 1, Subpart I, Section 1.1310
47 C.F.R. Part 1, Subpart I, Section 1.1307
47 C.F.R. Part 2, Subpart J, Section 2.1093

MPE Test REPORT

For

All in One PC

Model: TPC-T011-34

Trade Name: HP

Issued to

INVENTEC CORPORATION
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Issued by

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Issued Date: October 3, 2016



Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	2016/10/3	Initial Issue	ALL	Andy Lin
01	2016/11/21	1. Add column with % of limit in the E- and H-field tables. 2. Revise simultaneous Result	8,9	Andy Lin

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1. EUT Specification**Equipment under Test:** All in One PC**Trade Name:** HP**Model Number:** TPC-T011-34**Operating Frequency:** 110kHz~ 205kHz**Date of Test:** October 3, 2016

Applicable Standards
KDB 680106 D01 V02 47 C.F.R. Part 1, Subpart I, Section 1.1310 47 C.F.R. Part 1, Subpart I, Section 1.1307 47 C.F.R. Part 2, Subpart J, Section 2.1093
Test Result
Pass

The test results in this report apply only to the tested sample of the stated device/equipment. Other similar device/equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Approved by:**Tested by:**



Scott Hsu
 Section Manager
 Compliance Certification Services Inc.

Andy Lin
 SAR Engineer
 Compliance Certification Services Inc.

2. Test limit

FCC Rules and Regulations Part 1 Section 1.1310 and KDB 680106 D01 v02

§1.1310 : The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of FCC part 2.1093 of this chapter.

Table 1 – Limits for Maximum Permissible Exposure (MPE)
Limits for General Population/Uncontrolled 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	0.073	0.2	30
300-1500			f/500	30
1500-100,000			1.0	30

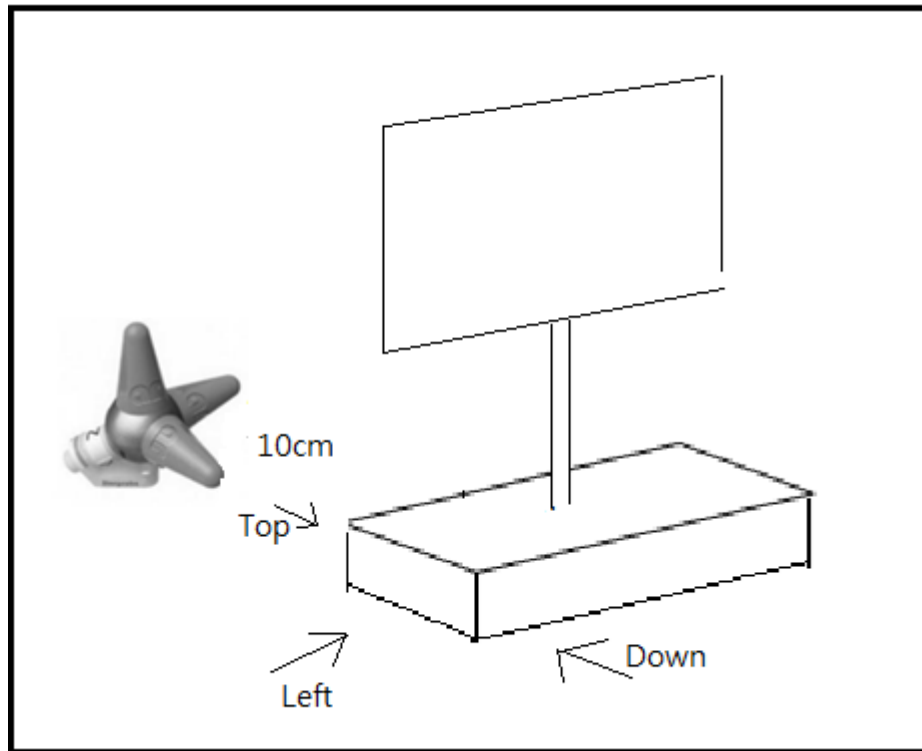
f = frequency in MHz

* = Plane-wave equivalent power density

Note to Table 1 : General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

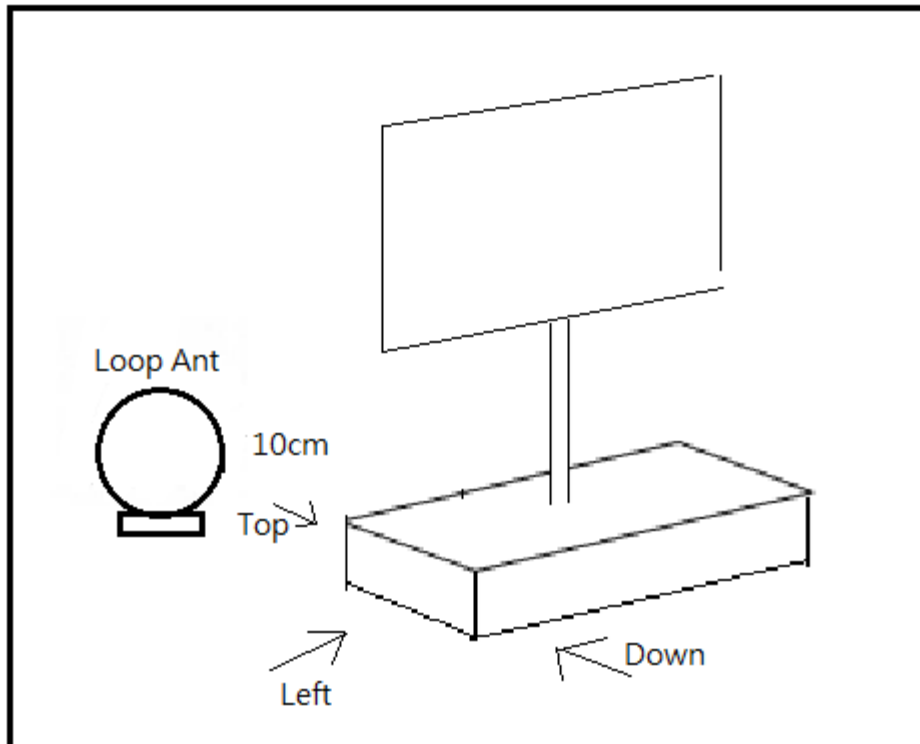
3. Test Method

Test setup



- a) The measurement probe was placed at test distance as 10cm which is between the edge of the charger and the probe.
- b) The highest emission level was recorded and compared with the limit as soon as measurement of each point (Top, Left and Down) was completed.

H-Field



- a) The measurement probe was placed at test distance as 10cm which is between the edge of the charger and the probe.
- b) The highest emission level was recorded and compared with the limit as soon as measurement of each point (Top, Left and Down) was completed.

4. Test Results

E-Field Strength

Test Distance (cm)	Test Position	Test result (V/m)	FCC Limit (V/m)	% of limit
10 cm	Top	0.21	614	0.03 %
	Left	0.03	614	0.004 %
	Down	0.23	614	0.03 %

H-Field Strength

Test Distance (cm)	Test Position	Test result (A/m)	FCC Limit (A/m)	% of limit
10 cm	Top	0.0054	1.63	0.33 %
	Left	0.0021	1.63	0.12 %
	Down	0.0056	1.63	0.34 %

5. Simultaneous Transmission Analysis

Both of the Wi-Fi, Bluetooth and Wireless Charger can transmit simultaneously, the formula of calculated the MPE is:

$$[\Sigma \text{ of MPE ratios}] \leq 1.0.$$

The Wi-Fi and Bluetooth values are taken from FCC ID: PD97265NG.

Max. Tune up power:

- Bluetooth : 8.00 dBm (6.310 mW)
- 2.4GHz Band : 17.50 dBm (56.234 mW)
- 5GHz Band : 16.00 dBm (39.811 mW)

Antenna Gain:

- BT: Antenna Gain : 2.76 dBi (Numeric gain: 1.89) Worst
- 2.4GHz: Antenna Gain : 2.76 dBi (Numeric gain: 1.89) Worst
- 5GHz: Antenna Gain : 2.85 dBi (Numeric gain: 1.93) Worst

2.4GHz:

$$\text{Directional gain} = 2.76 \text{ dBi} + 10\log (2) = 5.77 \text{ dBi (Numeric gain: 3.78)}$$

5GHz:

$$\text{Directional gain} = 2.85 \text{ dBi} + 10\log (2) = 5.86 \text{ dBi (Numeric gain: 3.86)}$$

Maximum Permissible Exposure

	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
Bluetooth	6.310	1.89	20	0.0024	1
2.4GHz Band	56.234	3.78		0.0423	
5GHz Band	39.811	3.86		0.0306	

5.1. Simultaneous Transmission Analysis Result

Wi-Fi + Bluetooth + Wireless Charger

Therefore the worst case situation is $0.0423 / 1 + 0.0024 / 1 + 0.0056 / 1.63 = 0.0481$, which is less than “1”.

6. Equipment List

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due Date
Laser Powered Field Probe	AR	FL7006	0330722	2017/08/24
Loop Antenna	COM-POWER	AL-130	121051	2017/02/24
Spectrum Analyzer	Agilent	E4446A	US42510268	2016/12/7

Note: The calibration period equipment is 1 year.