Prüfbericht-Nr.: *Test Report No.*:	**50230067 001**	**Auftrags-Nr.:** *Order No.*:	238100815	**Seite 1 von** 10 *Page 1 of 10*
Kunden-Referenz-Nr.: *Client Reference No.*:	N/A	**Auftragsdatum:** *Order date*:	31-Jan-2019	
Auftraggeber: *Client*:	H.P.B. HI-TECH CORP. 10F., No. 308, Sec. 1, Neihu Rd., Taipei City 114, Taiwan, R.O.C			
Prüfgegenstand: *Test item*:	Hand Gesture Controller			
Bezeichnung / Typ-Nr.: *Identification / Type No.*:	Wave1210			
Auftrags-Inhalt: *Order content*:	Exposure Assessment Report for Wireless Charging acc. to KDB680106 D01			
Prüfgrundlage: *Test specification*:	CFR47 FCC §1.1307(c) and (d), §1.1310			

Wareneingangsdatum: *Date of receipt*:	31-Jan-2019
Prüfmuster-Nr.: *Test sample No.*:	A000872608-001
Prüfzeitraum: *Testing period*:	12-Mar-2019
Ort der Prüfung: *Place of testing*:	ICT Laboratory Taipei
Prüflaboratorium: *Testing laboratory*:	TUV Rheinland Taiwan Ltd.
Prüfergebnis*: *Test result**:	Pass

geprüft von / *tested by*:			**kontrolliert von /** *reviewed by*:		
13-Mar-2019	Mars Y. J. Lin / Project Engineer		13-Mar-2019	Arvin Ho / Vice General Manager	
Datum *Date*	**Name / Stellung** *Name / Position*	**Unterschrift** *Signature*	**Datum** *Date*	**Name / Stellung** *Name / Position*	**Unterschrift** *Signature*

Sonstiges / *Other*:

Zustand des Prüfgegenstandes bei Anlieferung: *Condition of the test item at delivery*:	Prüfmuster vollständig und unbeschädigt *Test item complete and undamaged*

* Legende:	1 = sehr gut	2 = gut	3 = befriedigend	4 = ausreichend	5 = mangelhaft
	P(ass) = entspricht o.g. Prüfgrundlage(n)		F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
Legend:	*1 = very good*	*2 = good*	*3 = satisfactory*	*4 = sufficient*	*5 = poor*
	P(ass) = passed a.m. test specification(s)		*F(ail) = failed a.m. test specification(s)*	*N/A = not applicable*	*N/T = not tested*

VD4

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1. General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:
Appendix P: Photo Documentation
(File Name: 50230067 001APPENDIX P)

Test Specifications
The following standards were applied .

Table 1: Applied Standard and Test Levels

Radio
CFR47 FCC §1.1307(c) and (d), §1.1310 KDB680106 D01

2. Test Sites

2.1 Test Laboratory

TUV Rheinland Taiwan Ltd.
Taichung Branch Office

No.9, Lane 36, Minsheng Rd., Sec. 3, Daya District,
Taichung City 428
Taiwan (R.O.C.)

2.2 Test Facility

TUV Rheinland Taiwan Ltd.
Taipei Office

11F. No.758, Sec. 4, Bade Rd., Songshan Dist.
Taipei City 105
Taiwan (R.O.C.)

FCC RegistrationNo.: 340738
IC Canada Registration No.: 9465A-1
TAF Accredited NCC Test Lab. No.:0759
TAF ISO17025 Certification effective periods: 2016-Jul-1st to 2019-Jun-30th

Testing Laboratory
0759

2.3 List of Test and Measurement Instruments

Table 2: List of Test and Measurement Equipment

Kind of Equipment	Manufacture	Type	S/N	Last Calibration	Next Calibration
Exposure Level Tester ELT-400	Narda Safety Test Solutions	BN 2304/03	C-0016	2018-04-20	2019-04-19
Magnetic Field Probe 100cm^2	Narda Safety Test Solutions	BN 2300/90.10	C-0016	2018-04-21	2019-04-20
Electric Field Meter	Combinova	EFM100	240	2018-05-25	2019-05-24

3. General Product Information

3.1 Product Function and Intended Use

The EUT is a Hand Gesture Controller. It contains a WPC compatible module enabling the user to charge the battery through a Wireless interface.
For details please also refer to the User Guide, Data Sheet and Circuit Diagram.

3.2 System Details

Table 3: Technical Specification of EUT

Item	**EUT information**
Kind of Equipment	Hand Gesture Controller
Type Designation	Wave1210
FCC ID	2APC5-WAVE1210

Table 4: Technical Specification of EUT

Item	Value
Operating Frequencies	112 - 205kHz
Operation Voltage	9Vdc
Modulation	ASK

3.3 Independent Operation Modes

Testing was performed near the lowest operating frequency, at anoperating frequency in the middle range of the specified frequency band and near the highest operating frequency. The highest value found is shown below in the result section of this report. This was achieved by testing with the battery at low charge, medium charge and near full charge.

3.4 Special Accessories and Auxiliary Equipment

The product has been tested together with the following additional accessories:

Kind of Equipment	Manufacturer	Model Name	S/N
WPC load	N/A	10W	N/A

4. RF EXPOSURE ASSESSMENT

4.1 EUT Operating Condition

Measures taken to maximize magnetic Flux: Power on the EUT and put Load device on it. EUT will start providing wireless power. Power transmission and load status detection is done simultaneously using the fundamental frequency in the range of 112 – 205 KHz.

4.2 Reference limits

4.2.1 FCC

CFR47 FCC §1.1307(c) and (d), §1.1310
According to §1.1310, the criteria listed in the following table shall be used to evaluate the environment impact of a human exposure to RF radiation.

FCC LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*($900/f^2$)	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34–30	842/f	2.19/f	*($180/f^2$)	30

* = Plane-wave equivalent power density

Measurement is done in a distance of 10 cm. The power transfer is achieved by inductive coupling. Therefore, in the table below only the magnetic field is measured. The electric field component would have to be measured at a distance of more than Lambda/2 and will therefore be far below the limits shown in above table.

4.3 Measurement Results

Maximum H-field strength at 10 cm from the edges surrounding the EUT:

\Values Position\	Display uT	Value A/m	Limit A/m	Result	Remark
Left	0.183	0.146	1.63	PASS	--
Right	0.164	0.131	1.63	PASS	--
Front	0.171	0.136	1.63	PASS	Ambient 0.044uT
Back	0.244	0.194	1.63	PASS	--
Top	0.162	0.129	1.63	PASS	--

Remarks: Certification as described in FCC KDB 680106 D01 RF Exposure Wireless Charging Apps v02 is possible. (Limit: 1.63 A/m)

4.4 Photographs of the Test Set-Up

Photograph 1: Set-up for H-field strength