Prüfbericht-Nr.: *Test Report No.*:	**50077007 002**	**Auftrags-Nr.:** *Order No.*:	114061721	**Seite 1 von 10** *Page 1 of 10*
Kunden-Referenz-Nr.: *Client Reference No.*:	N/A	**Auftragsdatum:** *Order date*:	21-Feb-2017	
Auftraggeber: *Client*:	U-Way Corporation., 3F.-2, No.125, Ln. 235, Baoqiao Rd., Xindian Dist., New Taipei City 23145, Taiwan (R.O.C.).			
Prüfgegenstand: *Test item*:	Insignia Fast Charging Pad Qi Charging Pad for Apple			
Bezeichnung / Typ-Nr.: *Identification / Type No.*:	SAMQT-1011/1012,NS-MWPC2, NS-MWPC2-C, NS-MWPCA5			
Auftrags-Inhalt: *Order content*:	Exposure Assessment Report for Wireless Charging Pads acc. to KDB680106 D01 and RSS-216			
Prüfgrundlage: *Test specification*:	CFR47 FCC §1.1307(c) and (d), §1.1310			

Wareneingangsdatum: *Date of receipt*:	3-Mar-2017
Prüfmuster-Nr.: *Test sample No.*:	A000496041 002
Prüfzeitraum: *Testing period*:	21-Mar-2017 – 22-Mar-2017
Ort der Prüfung: *Place of testing*:	ICT Laboratory Taipei
Prüflaboratorium: *Testing laboratory*:	TUV Rheinland Taiwan Ltd.
Prüfergebnis*: *Test result**:	Pass

geprüft von / *tested by*:

01-Aug-2017 Amy S.R.Hsu /Engineer

Datum *Date*	**Name / Stellung** *Name / Position*	**Unterschrift** *Signature*

kontrolliert von / *reviewed by*:

01-Aug-2017 Arvin Ho/Department Manager

Datum *Date*	**Name / Stellung** *Name / Position*	**Unterschrift** *Signature*

Sonstiges / *Other*:
002 add model name NS-MWPCA5 and product name Qi Charging Pad for Apple.
SAMQT-1011/1012, NS-MWPC2, NS-MWPC2-C, NS-MWPCA5 RF characteristics and PCB layout are the same,only difference in the model name and appearance color due to market strategy.

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

V04

Contents

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: 50077007APPENDIX 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 Facilities

TUV Rheinland Taiwan Ltd.

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

2.2 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	2015-04-20	2017-04-19
Magnetic Field Probe 100cm^2	Narda Safety Test Solutions	BN 2300/90.10	C-0016	2015-04-21	2017-04-20

3. General Product Information

3.1 Product Function and Intended Use

The EUT is a Wireless Charging Pad. As an option, the device can have an external 130 kHz Card reader. This test report is for the 130 kHz portion.
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	Insignia Fast Charging Pad Qi Charging Pad for Apple
Type Designation	SAMQT-1011/1012, NS-MWPC2, NS-MWPC2-C, NS-MWPCA5
FCC ID	2ALAP-001101
IC ID	22492-001101
HVIN	NS-MWPC2-C

Table 4: Technical Specification of EUT

Item	Value
Operating Frequencies	112 – 205KHz
Channel number	1
Operation Voltage	AC/DC adaptor input: 100 - 240 VAC 50/60Hz 0.4A ; output: 5 - 12V, 2.15 - 2A
Modulation	CW with load modulation similar to WPC qi standard

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:

simulator load

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.

4.2.2 Health Canada

According to RSS-102, the criteria listed in the following table shall be used to evaluate the environment impact of a human exposure to RF radiation.

HEALTH CANADA LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Reference Level Basis	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.003-10	170	**180**	NS	instantanous
0.1-10	--	**1.6 / *f***	SAR	6
1.129-10	193 / $f^{0.5}$	--	SAR	6
(B) Limits for General Population/Uncontrolled Exposure				
0.003-10	83	**90**	NS	instantanous
0.1-10	--	**0.73 / *f***	SAR	
1.1 -10	87 / $f^{0.5}$	--	SAR	6

f is frequency in MHz.
* = Plane-wave equivalent power density
NS = Nerve Stimmulation

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.
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4.3 Measurement Results

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

\Values Position\	Display uT	Value A/m	DoC Possible?	Certification possible?	Remark
Left	0.114	0.091	PASS	PASS	--
Right	0.140	0.111	PASS	PASS	--
Front	0.104	0.083	PASS	PASS	Ambient 0.044uT
Back	0.130	0.103	PASS	PASS	--
Top	0.153	0.122	PASS	PASS	--

For FCC:
Remarks: DoC authorization as described in FCC *KDB 680106 D01 RF Exposure Wireless Charging Apps v02* is possible. (Limit: 0.5 A/m)

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

For Health Canada:

The maximum operating frequency of the device is 205 kHz
Thus, the minimum limit for Canada is 0.73 / f = 0.73 / 0.205 = 3.56 A/m > 0.153 A/m => **PASS**

4.4 Test Setup Charger with Load