

# 1 Maximum Permissible Exposure

## 1.1 Maximum Permissible Exposure

### 1.1.1 Limit of Maximum Permissible Exposure

Limits for Occupational / Controlled 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  E  <sup>2</sup> , H  <sup>2</sup> or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6
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 <sup>2</sup> )	Averaging Time  E  <sup>2</sup> , H  <sup>2</sup> or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30
Note 1: f = frequency in MHz ; *Plane-wave equivalent power density				
Note 2: For the applicable limit, see FCC 1.1310				

<b>RF Field Strength Limits for Controlled Use Devices (Controlled Environment)</b>				
<b>Frequency Range (MHz)</b>	<b>Electric Field (V/m rms)</b>	<b>Magnetic Field (A/m rms)</b>	<b>Power Density (W/m<sup>2</sup>)</b>	<b>Averaging Time (minutes)</b>
0.003-1	600	4.9	-	6
1-10	600/ <i>f</i>	4.9/ <i>f</i>	-	6
10-30	60	4.9/ <i>f</i>	-	6
30-300	60	0.163	10*	6
300-1500	3.54 <i>f</i> <sup>0.5</sup>	0.0094 <i>f</i> <sup>0.5</sup>	<i>f</i> /30	6
1500-15000	137	0.364	50	6
15000-150000	137	0.364	50	616000/ <i>f</i> <sup>1.2</sup>
150000-300000	0.354 <i>f</i> <sup>0.5</sup>	9.4 x 10 <sup>-4</sup> <i>f</i> <sup>0.5</sup>	3.33 x 10 <sup>-4</sup> <i>f</i>	616000/ <i>f</i> <sup>1.2</sup>
<b>RF Field Strength Limits for Devices Used by the General Public (Uncontrolled Environment)</b>				
<b>Frequency Range (MHz)</b>	<b>Electric Field (V/m rms)</b>	<b>Magnetic Field (A/m rms)</b>	<b>Power Density (W/m<sup>2</sup>)</b>	<b>Averaging Time (minutes)</b>
0.003-1	280	2.19	-	6
1-10	280/ <i>f</i>	2.19/ <i>f</i>	-	6
10-30	28	2.19/ <i>f</i>	-	6
30-300	28	0.073	2*	6
300-1500	1.585 <i>f</i> <sup>0.5</sup>	0.0042 <i>f</i> <sup>0.5</sup>	<i>f</i> /150	6
1500-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	616000/ <i>f</i> <sup>1.2</sup>
150000-300000	0.158 <i>f</i> <sup>0.5</sup>	4.21 x 10 <sup>-4</sup> <i>f</i> <sup>0.5</sup>	6.67 x 10 <sup>-5</sup> <i>f</i>	616000/ <i>f</i> <sup>1.2</sup>
Note 1: <i>f</i> is frequency in MHz.				
Note 2: For the applicable limit, see IC RSS-102				

## 1.2 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC KDB 680106 D01 RF Exposure Wireless Charging Apps v02 - Part 2 Section 2.109

## 1.3 Ancillary Equipment

Ancillary Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E5530	DoC
2	Mobile Phone	Samsung S3	GT-I9300	DoC

## 1.4 Testing Location Information

Testing Location				
<input checked="" type="checkbox"/>	HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.		
		TEL : 886-3-327-3456 FAX : 886-3-327-0973		
Test Condition		Test Site No.	Test Engineer	Test Environment
RF Conducted		TH01-HY	Ian	24.8°C / 61%

## 1.5 The Worst Charging Condition

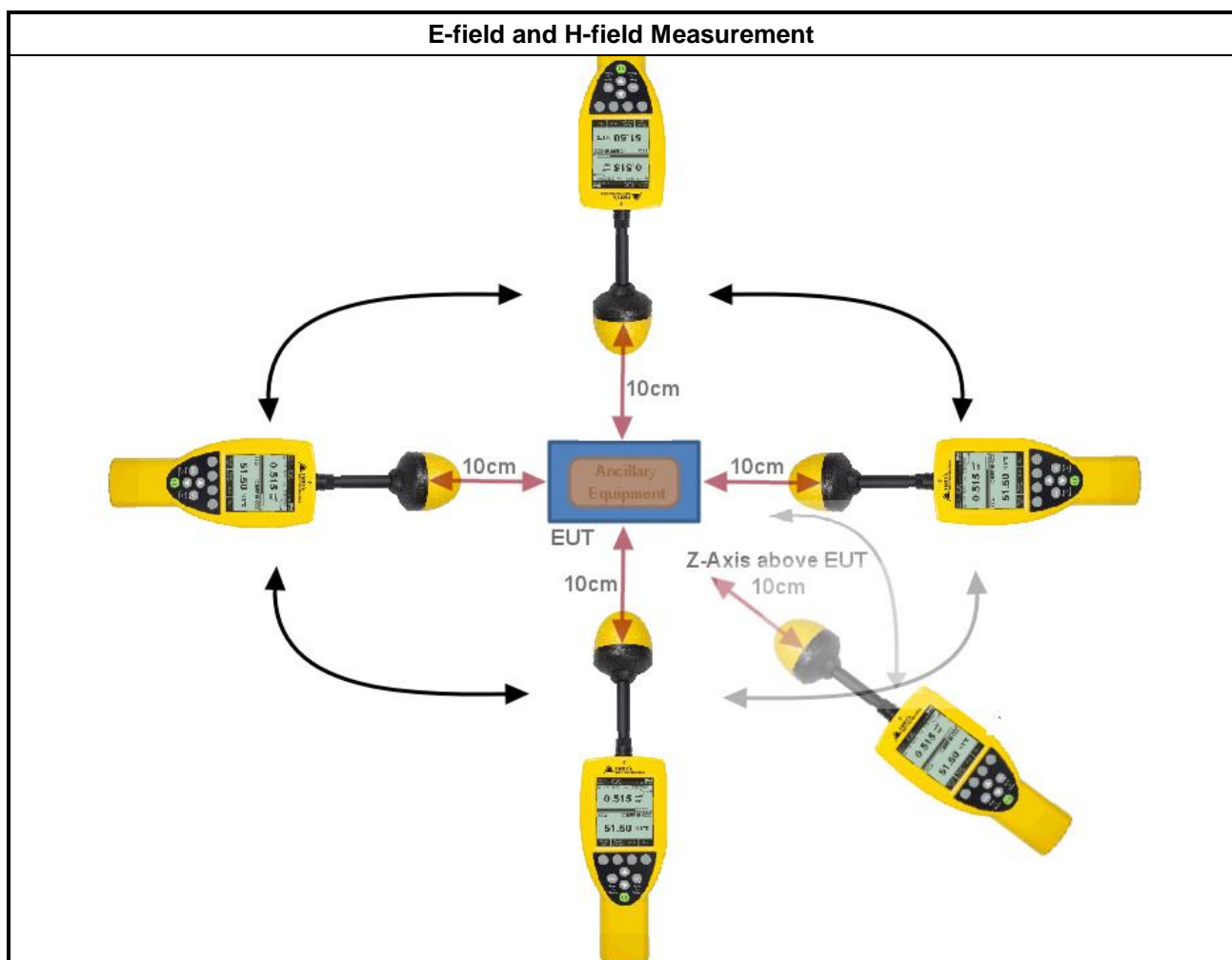
Ancillary Equipment	Charging Condition	Worst Charging Condition
Phone	< 1% Battery Status	< 1% Battery Status
Phone	50% Battery Status	

Note 1: For Wireless Power Consortium Qi specification, a lower operating frequency or high duty cycle result in the transfer of a higher amount of power and charging current.

### 1.5.1 Test Method

Test Method
<input checked="" type="checkbox"/> Performed aggregate both leakage E-field and H-field at surrounding the device from all simultaneous transmitting coils.
<input checked="" type="checkbox"/> During testing, the EUT was placed on a non-conductive table top and the ancillary equipment (e.g., mobile phone) was placed on the EUT for charging. Maximum E-field and H-field measurements were tested 10cm from each side of the EUT. Along the side of the EUT to center of E-field probe and H-field probe were positioned at the location to search maximum field strength.

### 1.5.2 Test Setup



**1.5.3 Result of Maximum Permissible Exposure**

Maximum Permissible Exposure				
Charging Condition	Separation	Probe from EUT Side	E-field (V/m)	H-field Limit (A/m)
< 1% Battery Status	10cm	Left	1.36	0.343
< 1% Battery Status	10cm	Right	1.84	0.310
< 1% Battery Status	10cm	Top	1.61	0.413
< 1% Battery Status	10cm	Bottom	1.08	0.303
< 1% Battery Status	10cm	Z-axis above EUT	6.4	0.378
<b>Limit</b>			614	1.63
<b>Margin Limit (%)</b>			1.04%	25.36%



## 2 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
B-Field Probe	Narda Safety Test Solutions GmbH	B-Field Probe 100 cm <sup>2</sup>	M-0652	50Hz~400KHz	Jun. 17, 2013	Conducted (TH01-HY)
Exposure Level Teste	Narda Safety Test Solutions GmbH	ELT-400	N-0210	100KHz~3MHz	Jun. 26, 2013	Conducted (TH01-HY)
Probe EF	Narda Safety Test Solutions GmbH	0391 E-Field	D-0667	0.1MHz ~ 3GHz	Jun. 24, 2013	Conducted (TH01-HY)
Broadband Field Meter	Narda Safety Test Solutions GmbH	NBM-550	E-0847	0.1MHz ~ 3GHz	Jun. 07, 2013	Conducted (TH01-HY)

Note: Calibration Interval of instruments listed above is two year.