无线充电器的CE、FCC、IC认证介绍 检测认证百事通

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无线充电器是指不用传统的充电电源线连接到需要充电的终端设备上的充电器，采用电磁感应原理，通过线圈进行能量耦合实现能量的传递。从理论来说，无线充电技术对人体安全无害处，无线充电使用的共振原理是磁场共振，只在以同一频率共振的线圈之间传输，而其他装置无法接受波段。但是它在正常工作下会产生电磁场，所以也要满足相应的EMC要求。

CE 认证标准：

R&TTE指令中，ETSI 针对无线充电器在EN300 330-1 V1.8.1中有章节规定：

For the purpose of the present document WPT systems are classified into three different groups according to table 3.

Table 3: Distinction between WPT cases with regard to the communication technology

Case	Applicable Directive(s)	Operating frequency range	Essential requirement		
			EMF	EMC	Radio
1	EMC-D and LVD/GPSD	ISM and non-ISM bands > 9 kHz	Applicable standard selected from OJ LVD List [i.25]	EN 55011 [i.15] Group 2 (or more specific CENELEC standard if applicable)	N/A
2	R&TTE-D	9 kHz < band < 30 MHz	EN 62311 [i.13] EN 62479 [i.14]	ETSI EN 301 489-1 [i.19] ETSI EN 301 489-3 [i.20]	ETSI EN 300 330 [i.23]
		30 MHz < band < 1 GHz			ETSI EN 300 220 [i.1
		1 GHz < band < 40 GHz			ETSI EN 300 440 [i.18]
3	EMC-D (wireless charger part)	Rules for Case 1 apply			
	R&TTE-D (communication part)	Depends on the communication technology (e.g. Bluetoo -> ETSI EN 301 4 .19] ETSI EN 301 489-17 [i.21]; ETSI EN 3 28 [i.22])			

WPT Cases:

Case 1: when the charging device operates without a d mmunication function between the charger and the charge receiving device, then the fram e EMC Directive [i.27] and EMC standards can define an adequate path for com ce.

Case 2: when a data communication function between the charger and the charge ing device at the same frequency as the charging energy transfer, th ditionally the R&TTE (SRD) framework and the present document provide an dequate path for compliance.

Medical devices using WPT are rever compatibility with other medical devices placed on the market when e ve of the ETSI EN 300 330 [i.23] were harmonized, are allowed to have ing mode in which they do not to comply with the R&TTE (SRD) framework.

Case 3: when a dat nformation function exists between the charger and the charge receiving device at a different fr to the energy transfer, the R&TTE (SRD) framework and the related harmonized standa for radio equipment shall apply to the frequency band/technology in use for the data communications path, while the framework of the EMC Directive [i.27] with its EMC standards shall apply to the charger function as for Case 1 above.

新的RED已经将无线充电器划分到了EN303 417，适用的范围如下：

The present document specifies technical characteristics and methods of measurements for wireless power transmission (WPT) systems using technologies other than radio frequency beam, in the 19 - 21 kHz, 59 - 61 kHz, 79 - 90 kHz, 100 - 300 kHz, 6765 - 6795 kHz ranges.

The present document applies to wireless power transmission systems which are regarded as radio equipment since including inherent radio communication functionality or radiodetermination via the WPT interface or port at the specific WPT frequency range.

Such systems usually consist of:

A power transmitter with additional communication capability to control the charge function, in conjunction with the receiving part. The power transmitter could also be named as base station.

A power receiver, which supplies the received energy to a mobile device and performs a control/supervision function for the mobile device status and charge operation.

Both parts in combination are able to transmit and receive data in addition to the power transmission mode e.g. to control the mobile device status and to optimize the power transmission mode.

Note: 无线充电器一定要有Radio Communication or Radio Determination功能才属于EN303 417的范畴。如果仅仅是充电功能的话，那么就应该符合EMCD。

FCC 认证标准（KDB680106 D01）：

Wireless power transfer (WPT) devices operating at frequencies above 9 kHz are intentional radiators and are subject to either Part 15 and/or Part 18 of the FCC rules. The specific applicable rule part depends on how the device operates, and if there is communication between the charger and device being charged.

无线充电器的标准可以是part 15 或 part 18，取决于充电设备和接受充电的设备之间是否有通讯。

Intentional radiators transmitting information must be certified under the appropriate Part 15 Rules and will generally require an equipment certification. A WPT device may operate in two different modes: charging and communications. It is possible for the device to be approved under Part 18 for the charging mode and Part 15 for the communications mode, if it can be shown that (1) the device complies with the relevant rule parts; and (2) the functions are independent. Part 18 consumer

devices can be authorized using either certification or SDoC, once the appropriate RF exposure evaluation has been completed.

充电模式可以做part 18， 通讯模式可以做part 15. 这两个标准都需要增加RF exposure evaluation。

IC认证标准：

Table 1 — Applicable Requirements

WPT Device or System that includes		Applicable technical requirements, other than RF exposure	RF exposure	Certification	Labelling
Component	Type				
WPT subassembly of the client	ISM	ICES-001 (Section 6.2)	NA (**Notes 2, 3**) (Section 6.4.1)	Not required	RSS-216 (**Notes 5, 6**) (Section 8.1)
WPT subassembly of the source	Type 1 (ISM)	ICES-001 (Section 6.2)	Safety Code 6 (**Notes 2, 3**) (Section 6.4.2)	Not required	RSS-216 (**Notes 5, 6**) (Section 8.1)
	Type 2 (Cat II)	ICES-001 (**Note 1**) (Section 6.2)	RSS-102 (**Notes 3, 4**) (Section 6.4.3)	Not required	RSS-216 (**Notes 5, 6**) (Section 8.1)
	Type 3 (Cat I)	ICES-001 (**Note 1**) (Section 6.2)	RSS-102 (**Notes 3, 4**) (Section 6.4.4)	RSP-100 (Section 5)	RSP-100 (**Note 5**) (Section 8.2)
Wireless module (in the client or in the source)	Category II	RSS-Gen and RSS-310 (Section 6.3)	RSS-102 (**Notes 3, 4**) (Section 6.4.3)	Not required	RSS-2 (No 5, 6) (S
	Category I	RSS-Gen and other RSS(s) (Section 6.3)	RSS-102 (No 3, 4) (S	RSP-100 (Section	RSP-100 (**Note 5**) (Section 8.2)

Note：请参考RSS-216 Section 2.

Note 1: Test facility must be registered with the Department and fundam ... cannot exceed the restricted bands specified in RSS-Gen.

Note 2: WPT source devices with Type 1 WPT subassemblies ... which also include Category I wireless ... must comply with the Radio frequency (RF) exposure requirements set out in RS... same applies to WPT client devices.

Note 3: RF exposure must be verified at the device or s... level with all transmitters operating at maximum power.

Note 4: Category II radio apparatus is exempt from the ... evaluation procedure in RSS-102 ... they are not exempt from compliance with *Limits of Human Exposure to Radiofrequency Electromagnetic Energy in the ... Frequency Range from 3 kHz to 300 GHz* (2015), referred to hereinafter as S... 6. The same applies to some Ca... radio apparatus (see Section 6.4.4).

Note 5: RSS-216 labelling is performed ... the device or system level. ... RSP-100 labelling (... Category I radio apparatus) can be performed at the device / system level ... module level ... use of third-party ... Category I wireless modules).

Note 6: WPT devices or system... that ... these sub... plus at le... Category I wireless module can either be certified at the host level, in which case the ... RSP-100 labelling ... requirements apply ... be labelled as per Section 8.1 in addition to the specific labelling requirements ... applicable to m... Category I radio ... set out in RSP-100.