

Prüfbericht-Nr.: <i>Test Report No.:</i>	50232957 001	Auftrags-Nr.: <i>Order No.:</i>	238100781	Seite 1 von 20 Page 1 of 20
Kunden-Referenz-Nr.: <i>Client Reference No.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	30-Jan-2019	
Auftraggeber: <i>Client:</i>	Kingston Technology Company, Inc. , 17600 Newhope St., Fountain Valley, CA 92708, USA			
Prüfgegenstand: <i>Test item:</i>	HyperX ChargePlay Base			
Bezeichnung / Typ-Nr.: <i>Identification / Type No.:</i>	HX-CPBS-A,HX-CPBS-C ,HX-CPBS-G			
Auftrags-Inhalt: <i>Order content:</i>	FCC Part 15C			
Prüfgrundlage: <i>Test specification:</i>	FCC 47CFR Part 15: Subpart C Section 15.209			
Wareneingangsdatum: <i>Date of receipt:</i>	25-Feb-2019			
Prüfmuster-Nr.: <i>Test sample No.:</i>	000876585-009			
Prüfzeitraum: <i>Testing period:</i>	14-Feb-2019 - 6-Mar-2019			
Ort der Prüfung: <i>Place of testing:</i>	EMC/RF Laboratory Taipei			
Prüflaboratorium: <i>Testing laboratory:</i>	TUV Rheinland Taiwan Ltd.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von / tested by:		kontrolliert von / reviewed by:		
 2019-03-25 Mars Y.J. Lin/Project Engineer		 2019-03-25 Arvin Ho/Vice General Manager		
Datum <i>Date</i>	Name / Stellung <i>Name / Position</i>	Unterschrift <i>Signature</i>	Datum <i>Date</i>	Name / Stellung <i>Name / Position</i>
Sonstiges / Other:				
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>		Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>		
* 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				
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>				

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Test Report No.

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TEST SUMMARY

5.1.1 ANTENNA REQUIREMENT

RESULT: Passed

5.1.2 FIELD STRENGTH OF FUNDAMENTAL

RESULT: Passed

5.1.3 20dB BANDWIDTH

RESULT: Passed

5.1.4 SPURIOUS EMISSION

RESULT: Passed

5.2.1 CONDUCTED EMISSIONS LINE AND NEUTRAL

RESULT: Passed

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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: 50232957APPENDIX P)

Appendix D: Test Result of Radiated Emissions

(File Name: 50232957APPENDIX D)

Appendix X: Test Setup Photo

(File Name: 50232957APPENDIX X)

Test Specifications

The following standards were applied .

Table 1: Applied Standard and Test Levels

Radio
FCC CFR47 Part 15: Subpart C Section 15. 209 ANSI C63.10:2013

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.)

FCC Registration No.: 340738
TAF Accredited NCC Test Lab. No.:0759
TAF ISO17025 Certification effective period: 2016-Jul-1st to 2019-Jun-30th



Testing Laboratory
0759

2.2 List of Test and Measurement Instruments

Table 2: List of Test and Measurement Equipment

Kind of Equipment	Manu-facturer	Type	S/N	Last Calibration	Next Calibration
Test Software	Farad	EZ_EMC	Ver. TUV3A1	N/A	N/A
Spectrum Analyzer	R&S	FSV 40	100921	2018/05/02	2019/05/02
EXA Signal Analyzer	KEYSIGHT	N9010A	MY53470241	2018/06/04	2019/06/03
Preamplifier (30MHz -1GHz)	Hewlett Packard	8447D	2944A06641	2018/08/31	2019/08/31
Preamplifier (18 GHz -40 GHz)	EMC Instruments	EMC184045SE	980408	2018/06/08	2019/06/08
Pre-Amplifier (1GHz~18GHz)	EM Electronics	EM01G18G	60649	2018/08/24	2019/08/24
Bilog Antenna	TESEQ	CBL6111D	29804	2018/07/02	2019/07/02
Horn Antenna	ETS-Lindgren	3117	138160	2018/06/01	2019/06/01
Horn Antenna (18GHz~40GHz)	COM-POWER	AH-840	101029	2018/12/22	2019/12/22
Loop Antenna	Schwarzbeck	FMZB 1513	1513-076	2018/06/14	2019/06/13
EMI Test Receiver	R&S	ESR 7	101549	2018/11/12	2019/11/10
Temp. & Humid. Chamber	Giant Force	GCT-099-40-S	MAF0103-007	2017/03/09	2019/03/09
LISN (1 phase)	R&S	ENV216	101243	2018/06/18	2019/06/17
LISN	R&S	ENV216	101262	2018/06/22	2019/06/21
Spectrum Analyzer	Agilent	N9010A	MY53470241	2018/06/04	2019/06/03
Test Software	Agilent	300328 testsystem	V1.9.1	N/A	N/A
Power sensor	Agilent	U2021XA	MY54020001	2018/03/31	2019/03/31
EXG-B RF Analog Signal Generator	Agilent	N5171B	MY53050377	2018/04/10	2019/04/09
MXG-B RF Vector Signal Generator	Agilent	N5182B	MY53050524	2018/04/10	2019/04/09
Embedded Attenuator	Keysight	AD211	TW5451121	N/A	N/A

2.3 Traceability

All measurement equipment calibrations are traceable to NML(Taiwan)/NIST(USA) or where calibration is performed outside Taiwan, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements are $\pm 3\text{dB}$.

Table 3: Emission Measurement Uncertainty

Parameter	Uncertainty
Radio Frequency	$\pm 1 \times 10^{-7}$
RF power, conducted	$\pm 1.5 \text{ dB}$
RF power density, conducted	$\pm 3 \text{ dB}$
spurious emissions, conducted	$\pm 3 \text{ dB}$
all emissions, radiated	$\pm 6 \text{ dB}$
Temperature	$\pm 1 \text{ }^{\circ}\text{C}$
Humidity	$\pm 5 \%$

3. General Product Information

3.1 Product Function and Intended Use

The EUT is a Wireless charge pad. It contains a Qi compatible module enabling the user to communicate data through a Wireless interface.
For details refer to the User Guide, Data Sheet and Circuit Diagram.

3.2 Ratings and System Details

Table 4: Basic Information of EUT

Item	EUT information
Kind of Equipment	HyperX ChargePlay Base
Brand Name	HyperX
Type Designation	HX-CPBS-A,HX-CPBS-C ,HX-CPBS-G
FCC ID	JIC-CPBS
Canada ID	3880A-CPBS
HVIN	HX-CPBS-A

Table 5: Technical Specification of EUT

Item	Value
Operating Frequency	110~148kHz
Operation Voltage	5Vdc
Modulation	FSK

3.3 Independent Operation Modes

Basic operation modes are:

- A. Transmitting and receiving at fundamental frequency

3.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

3.5 Submitted Documents

- Circuit Diagram
- Instruction Manual
- Rating Label
- Technical Description

4. Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

The equipment under test (EUT) was configured to measure its maximum emission level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Setup for testing: Test samples are provided with a normal interface which makes it possible to control them through a receiver load.

The charging pad is tested together with a load device simulator provided by the client. The load device has an internal load resistor and two external leads to monitor the voltage generated in the load device.

Test procedure:

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 110~148kHz.

4.3 Special Accessories and Auxiliary Equipment

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

Kind of Equipment	Manufacturer	Model Name	S/N
--	--	--	--

4.4 Countermeasures to achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Constructional Data Form or the Technical Construction File. No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test

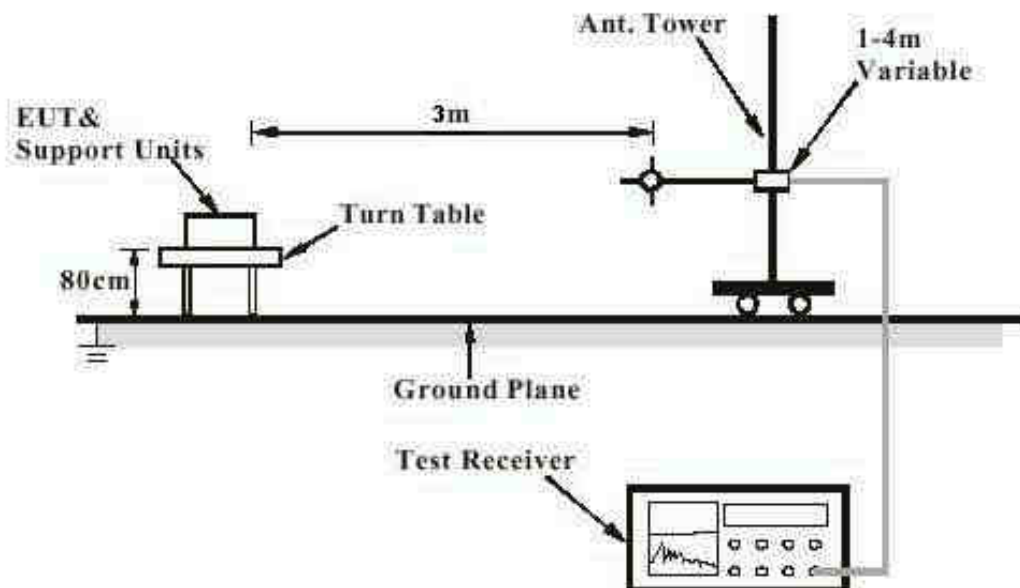
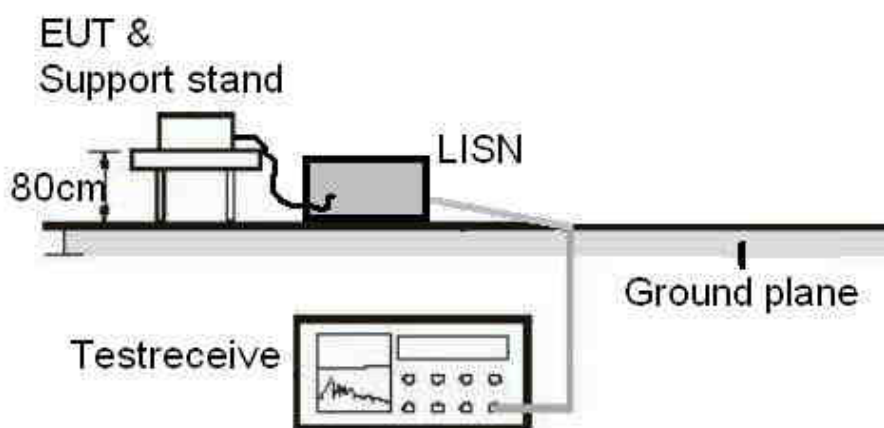


Diagram of Measurement Equipment Configuration for Mains Conduction Measurement (if applicable)



5. Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT:**Passed**

Standard : Part 15.203

Requirement : Manufacturer must

The antenna is a Coil Antenna soldered to the PCB with no possibility of replacement with a non-approved antenna by the end-user. Therefore, the EUT is considered to comply with this provision.

Refer to EUT photo for details.

5.1.2 Field strength of fundamental

RESULT:
Passed

Test standard : Part 15.209
 Basic standard : ANSI C63.10:2013

Test setup

Test Channel : Fundamental Frequency near Middle of Band
 Operation Mode : A

Atmospheric pressure : 100-103 kPa

Table 6: Field strength of fundamental

Frequency (kHz)	Level(3m) (dBuV/m)	Detector	Limit(3m) (dBuV/m)	Level(300m) (dBuV/m)	Limit(300m) (dBuV/m)	Remark	Result
134.6	76.53	Peak	105.02	-3.47	25.02	--	Pass
134.6	76.02	QP	105.02	-3.98	25.02	--	Pass

Level (300m)(dBuV/m)=Level(3m)(dBuV/m)+40log(3m/300m)

For details refer to Appendix D.

5.1.3 20dB Bandwidth**RESULT:****Passed**

Test standard : FCC Part 15.209
Basic standard : ANSI C63.10:2013

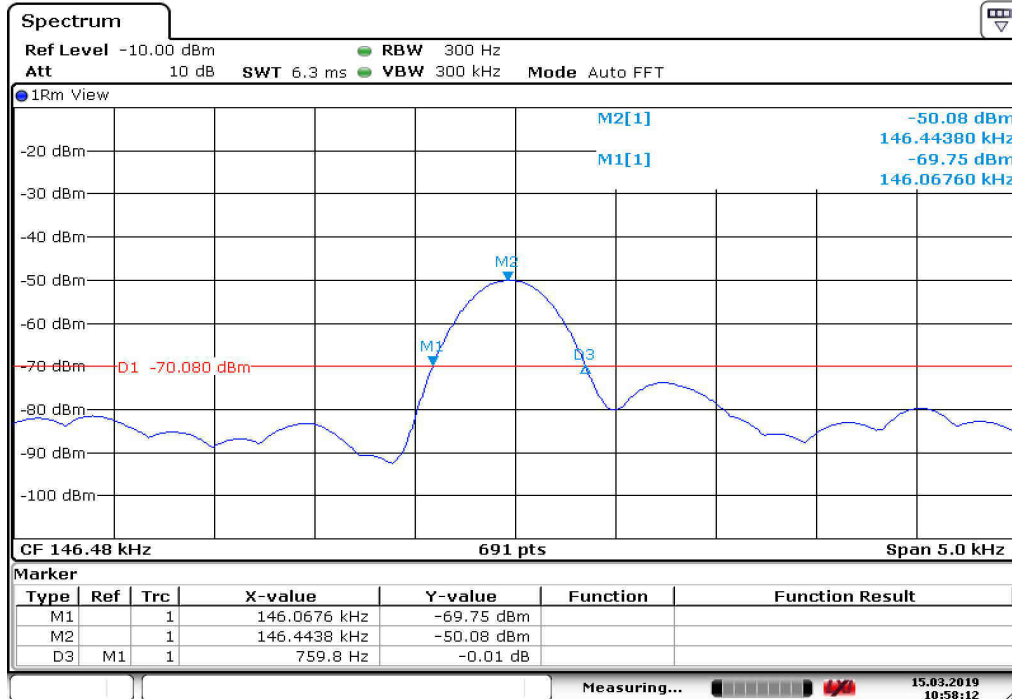
Test setup

Test Channel : Fundamental Frequency near Middle of Band
Operation Mode : A

Table 7: Test result of 20 dB Bandwidth

Frequency (MHz)	20dB Bandwidth (Hz)
0.146	759.8

Test Plot of 20 dB Bandwidth



Date: 15.MAR.2019 10:58:13

5.1.4 Spurious Emission

RESULT:**Passed**

Test standard	:	FCC Part 15.209
Basic standard	:	ANSI C63.10:2013
Limits	:	Radiated emissions must comply with the radiated emission limits specified in FCC 15.209
Kind of test site	:	3m Semi-Anechoic Chamber

Test setup

Test Channel	:	Fundamental Frequency near Middle of Band
Operation mode	:	A

Factor (dB/m)=Antenna Factor(dB/m)+Cable loss (dB)

Level(dBuV/m)=Reading(dBuV)+ Factor(dB/m)

Remark: Testing was carried out within frequency range 9kHz to the tenth harmonic.

For details refer to Appendix D.

5.2 Mains Conducted Emissions

5.2.1 Conducted Emissions Line and Neutral

RESULT:**Passed**

Test standard	:	FCC Part 15.207 FCC Part 15.107
Limits	:	Mains Conducted emissions as defined in Part 15.107(a), must comply with the mains conducted emission.
Kind of test site	:	Shielded Room
Test setup		
Test Channel	:	Fundamental Frequency near Middle of Band
Operation mode	:	A

Remark: For details refer to Appendix D.

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