SAR TEST EXCLUSION EVALUATION REPORT

Product Name:	Clock Radio
Trade Mark:	or PHILIPS
Model No. / HVIN:	TAR7606/37
Report Number:	210528019RFC-5
Test Standards:	FCC 47 CFR Part 1 Subpart I RSS-102 Issue 5 SPR-002 Issue 1 RSS-216 Issue 2
FCC ID:	2AR2STAR7606
IC:	24589-TAR7606
Test Result:	PASS
Date of Issue:	November 29, 2021

Prepared for:

MMD Hong Kong Holding Limited
Unit 1006, 10th Floor, C-Bons International Center, 108 Wai Yip Street, Kwun Tong, Kowloon, Hong Kong

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Date: November 29, 2021

Version

Version No.	Date	Description
V1.0	November 29, 2021	Original

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1. GENERAL INFORMATION

1.1 CLIENT INFORMATION

Applicant:	MMD Hong Kong Holding Limited
Address of Applicant:	Unit 1006, 10th Floor, C-Bons International Center, 108 Wai Yip Street, Kwun Tong, Kowloon, Hong Kong
Manufacturer:	MMD Hong Kong Holding Limited
Address of Manufacturer:	Unit 1006, 10th Floor, C-Bons International Center, 108 Wai Yip Street, Kwun Tong, Kowloon, Hong Kong

1.2 EUT INFORMATION

Product Name:	Clock Radio	
Model No. / HVIN:	TAR7606/37	
Add. Model No:	TAR7606/10, TAR7606, TAR7606xx/yy, R7606xx/yy (xx=AA-ZZ or blank denoted different color; yy=00-99 denoted different country destination)	
Trade Mark:	or PHILIPS	
DUT Stage:	Production Unit	
EUT Supports Function:	2.4 GHz ISM Band:	Bluetooth 5.0
	Wireless Power Transfer:	112kHz
Software Version:	V1.0	
Hardware Version:	V1.0	
Sample serial number:	210528019-B02/9	
Sample Received Date:	September 16, 2021	
Sample Tested Date:	September 19, 2021 to October 27, 2021	
Note: The additional model TAR7606/10, TAR7606, TAR7606xx/yy, R7606xx/yy (xx=AA-ZZ or blank denoted different color; yy=00-99 denoted different country destination) is identical with the test model TAR7606/37 except the model number for marketing purpose.		

1.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD

For BT_LE	
Frequency Band:	2400 MHz to 2483.5 MHz
Frequency Range:	2402 MHz to 2480 MHz
Bluetooth Version:	Bluetooth LE
Type of Modulation:	GFSK
Number of Channels:	40
Channel Separation:	2 MHz
Antenna Type:	PCB Antenna
Antenna Gain:	-4.0 dBi
Maximum Peak Power:	0.21dBm

For BT_EDR	
Frequency Band:	2400 MHz to 2483.5 MHz
Frequency Range:	2402 MHz to 2480 MHz
Bluetooth Version:	Bluetooth BR + EDR
Modulation Technique:	Frequency Hopping Spread Spectrum (FHSS)
Type of Modulation:	GFSK, π/4DQPSK, 8DPSK
Number of Channels:	79
Channel Separation:	1 MHz
Antenna Type:	PCB Antenna
Antenna Gain:	-4.0 dBi
Maximum Peak Power:	0.876 dBm

For Wireless Power Transfer	
Nominal Operating Frequency:	112kHz
Type of Modulation:	ASK
Number of Channels:	1
Antenna Type:	Coil antenna
Normal Test Voltage:	120Vac

1.4 OTHER INFORMATION

Test channels for BT_LE				
Type of Modulation	**Tx/Rx Frequency**	**Test RF Channel Lists**		
		Lowest(L)	**Middle(M)**	**Highest(H)**
GFSK	2402 MHz to 2480 MHz	Channel 0	Channel 19	Channel 39
		2402 MHz	2440 MHz	2480 MHz

Test channels for BT_EDR				
Mode	**Tx/Rx Frequency**	**Test RF Channel Lists**		
		Lowest(L)	**Middle(M)**	**Highest(H)**
GFSK (DH1, DH3, DH5)	2402 MHz to 2480 MHz	Channel 0	Channel 39	Channel 78
		2402 MHz	2441 MHz	2480 MHz
π/4DQPSK	2402 MHz to 2480 MHz	Channel 0	Channel 39	Channel 78

(DH1, DH3, DH5)		2402 MHz	2441 MHz	2480 MHz
8DPSK (DH1, DH3, DH5)	2402 MHz to 2480 MHz	Channel 0	Channel 39	Channel 78
		2402 MHz	2441 MHz	2480 MHz

Test channels for Wireless Power Transfer	
Frequency	**Test RF Channel**
112kHz	Channel 1
	112kHz

1.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product, according to the specifications of the manufacturers. It must comply with the requirements of the following standards:

FCC 47 CFR Part 1 Subpart I
RSS-102 Issue 5 Amendment 1 (February 2021)
SPR-002 Issue 1 (September 2016)
RSS-216 Issue 2 Amendment 1 (September 2020)

All test items have been performed and recorded as per the above standards

1.6 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested with associated equipment below.
1) Support Equipment

Description	Manufacturer	Model No.	Serial Number	Supplied by
Mobile phone	SAMSUNG	Samsung Galaxy 7	N/A	UnionTrust

1.7 ABNORMALITIES FROM STANDARD CONDITIONS

None.

1.8 OTHER INFORMATION REQUESTED BY THE CUSTOMER

None.

1.9 MEASUREMENT UNCERTAINTY

The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

No.	Item	Measurement Uncertainty
1	electromagnetic field	5%

2. EQUIPMENT LIST

Test Equipment List						
Used	**Equipment**	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. date (mm dd, yyyy)**	**Cal. Due date (mm dd, yyyy)**
☒	Electric and magnetic field analyzer	narda	EHP-50F	510WY90119	July 20, 2021	July 20, 2022
☒	Probe holder	STT	TR-01	N/A	N/A	N/A
☒	Optical fiber line	STT	L=5M	N/A	N/A	N/A

3. SAR TEST EXCLUSION EVALUATION

3.1 REFERENCE DOCUMENTS FOR EVALUATION

No.	Identity	Document Title
1	FCC 47 CFR Part 1 Subpart I	PROCEDURES IMPLEMENTING THE NATIONAL ENVIRONMENTAL POLICY ACT OF 1969
2	RSS-102 Issue 5 Amendment 1(February 2, 2021)	Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)
3	KDB 447498 D01 General RF Exposure Guidance v06	RF EXPOSURE PROCEDURES AND EQUIPMENT AUTHORIZATION POLICIES FOR MOBILE AND PORTABLE DEVICES

3.2 EXEMPTION LIMITS FOR ROUTINE EVALUATION – SAR EVALUATION

3.2.1 SAR Test Exclusion Threshold

3.2.1.1 FCC 47 CFR Part 1 Subpart I

According to 47 CFR §1.1310, system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for 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^2)	Averaging Times $\|E\|^2$, $\|H\|^2$ 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
1500-100000	/	/	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^2)	Averaging Times $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f^2	30
30-300	27.5	0.073	0.2	30
300-1,500	/	/	f/1500	30
1,500-100,000	/	/	1.0	30

Note: f = frequency in MHz: * = Plane-wave equivalents power density.

Testing Procedure

Enabled the EUT to transmit and receive data continue

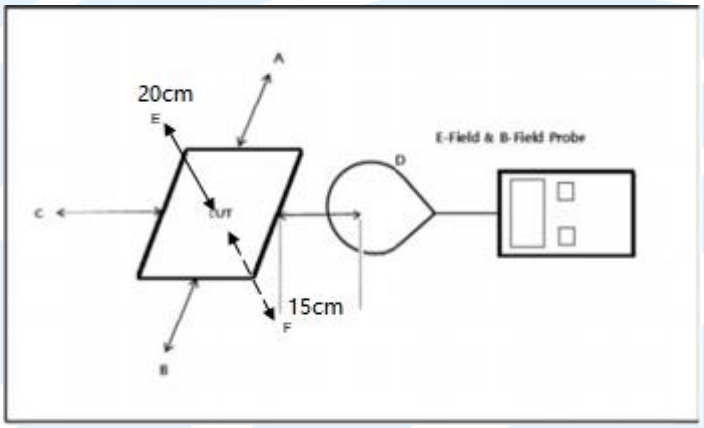
a. The field strength of both E-field and H-field was measured at 15 cm surrounding the device and 20 cm above the top surface using the equipment list above for determining compliance with the MPE requirements of FCC Part 1.1310.

b. The RF power density was measured with the battery at 3 different charge conditions: battery at less than 1 % , battery at 50% charger, battery at 99% charger,.

c. Maximum E-field and H-field measurements were made 15cm from each side of the EUT. Along the side of the EUT and still 15cm away from the edge of the EU T, the field probes were positioned at the location where there is maximum field strength. The maximum E-field and H-field is reported below.

d. This device uses a wireless charging circuit for power transfer operating at the frequency of X kHz. Thus, the 300 kHz limits were used: E-field Limit = 614 (V/m); H-field limit = 1.63 (A/m).

Test setup



Note

The RF exposure test is performed in the shield room

The test distance is between the edge of the charger and the geometric center of probe

The aggregate at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated.

3.2.1.2 RSS-102 Issue 5

According to RSS-102 Issue 5 , system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

According to RSS-102 Issue 5 , system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

- below 20 MHz[6] and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);
- at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $4.49/f^{0.5}$ W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);
- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2}\ f^{0.6834}$ W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

In these cases, the information contained in the RF exposure technical brief may be limited to information that demonstrates how the e.i.r.p. was derived.

Reference: RSS-102 Issue 5

Limits for General Population/Uncontrolled Exposure

Frequency range [MHz]	Electric field strength [V/m]	Magnetic field strength [A/m]	Power density [mW/cm^2]	Averaging time [minutes]
0.003 – 10	83	90	-	Instantaneous
0.1 – 10	-	0.73/ f	-	6
1.1 – 10	87/ $f^{0.5}$	-	-	6
10 – 20	27.46	0.0728	-2	6
20 – 48	58.07/ $f^{0.25}$	0.1540/ $f^{0.25}$	8.944/ $f^{0.5}$	6
48 – 300	22.06	0.05852	1.291	6
300 – 6 000	3.142 $f^{0.3417}$	0.008335 $f^{0.3417}$	0.02619 $f^{0.6834}$	6
6 000 – 15 000	61.4	0.163	10	6
15 000 – 150 000	61.4	0.163	10	616000/ $f^{1.2}$
150 000 – 300 000	0.158 $f^{0.5}$	4.21 x 10^{-4} $f^{0.5}$	6.67 x 10^{-5} f	616000/$f^{1.2}$

Limits for Occupational/Controlled Exposure

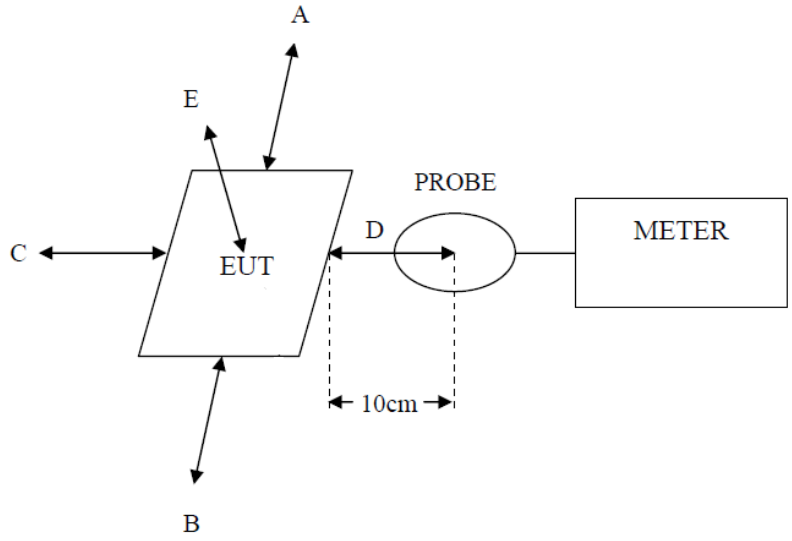
Frequency range [MHz]	Electric field strength [V/m]	Magnetic field strength [A/m]	Power density [mW/cm^2]	Averaging time [minutes]
0.003 – 10	170	180	-	Instantaneous
0.1 – 10	-	1.6/ f	-	6
1.29 – 10	193/ $f^{0.5}$	-	-	6
10 – 20	61.4	0.163	-10	6
20 – 48	129.8/ $f^{0.25}$	0.3444/ $f^{0.25}$	44.72/ $f^{0.5}$	6
48 – 100	49.33	0.1309	6.455	6
100 – 6000	15.60 $f^{0.25}$	0.04138 $f^{0.25}$	0.6455$f^{0.5}$	6
6000 – 15000	137	0.364	50	6
15000 – 150000	137	0.364	50	616000/$f^{1.2}$
150000 – 300000	0.354 $f^{0.5}$	9.40 x 10^{-4} $f^{0.5}$	3.33 x 10^{-4} f	616000/$f^{1.2}$

Testing Procedure

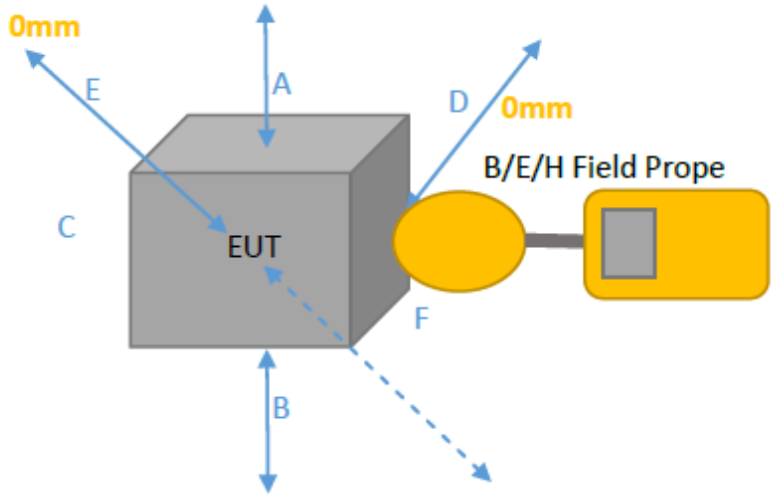
a. Installing the magnetic field probe and turn on the LF-04 power switch, select the magnetic field test mode and the Aim unit, select the peak detection mode, select the Max-Hold display.
b. Measured the ambient noise at this time and record.
c. Make EUT work at maximum transmit power.
d. During the measurement, the magnetic field probe center of the LF-04 is kept in 10cm distance from each test surface of the wireless charging base, and recorded the measured values of the Front, Rear, Left, Right, and Top side are separately.
e. After all the measured values of the Front. Rear, Left, Right. And Top side are subtracted the background noise separately, they are the true magnetic field strength values at that point.
f. Replace the electric field test probe and select the electric field test mode and the Vim unit, select the peak detection mode, select the Max-Hold display.
g. Repeat step 3 to 5 and then get the strength of the electric field. For mobile RF exposure condition, due to installation limitations no tests from the underside of the charging device are required.

Test setup

Test setup-1_ RSS-216 Issue 2 Amendment 1 (September 2020)



Test setup-2_ SPR-002 Issue 1 (September 1, 2016)



Note:

1. The test distance of the portable device is 0mm. 2. The LF-04 probe antenna diameter is 10.5cm.

Evaluation Method

Per RSS-216 section 6.4.4 RF Exposure from WPT Devices that are Category I Radio Apparatus;

1) This section applies to WPT devices (source, client and system) that have at least one subassembly classified as Category I radio apparatus, i.e. WPT devices that include a Type 3 WPT source subassembly (see Section 1.2.1.3) and/or Category I wireless modules (see Section 1.2.3).

2) WPT devices subject to this section, except for those meeting all the conditions in the following paragraph, shall comply with the applicable requirements of RSS-102.

3) Inductive WPT devices with no secondary intentional radiating frequencies that meet all of the following conditions are exempted from RF exposure and/or SAR routine evaluation as set out in RSS- 102. However, this exemption from routine evaluation is not an exemption from compliance with the limits specified in Health Canada's Safety Code 6, as set out in RSS-102. The conditions for exemption from routine evaluation are as follows:

(i) Wireless power transfer frequency is below 1 MHz;

(ii) Output power from each primary coil (i.e. transmitter coil in the WPT source device) is less than or equal to 5 W;

(iii) The WPT device is only capable of wireless power transfer between one source and one client at a time. This includes WPT systems with multiple primary coils (i.e. in the WPT source) as long as they only allow wireless power transfer to take place through a single pair of coils at any given time (one in the source and the other in the client). It also includes WPT systems where the source may use two or more overlapping smaller coils to form a fixed

(iv) charging/powering zone, as long as they only allow wireless power transfer to take place between this zone and a single client device;

(v) The WPT client device is placed in direct contact with or docked onto the WPT source;

(vi) The maximum coupling surface area of the WPT source is less than or equal to 400 cm2; and

(vii) The total leakage fields from all simultaneous transmitting coils are proven to be less than 30% of the applicable Health Canada's Safety Code 6 limits for uncontrolled environments, as set out in RSS-102, at 10 cm from the WPT system in all directions. The total leakage fields shall be calculated or measured based on actual and typical WPT clients of types selected such that they provide worst-case conditions. For WPT source devices with multiple fixed wireless power transfer zones that are only capable of powering/charging one client at a time, this requirement shall be met separately for each zone.

4) RF exposure shall be evaluated with the client devices charged/powered by the source device at maximum output power. Additionally, all transmitters, including those not used for wireless power transfer, must be active simultaneously and at maximum power.

5) For WPT devices designed for desktop applications (e.g. wireless charging pads), RF exposure shall be evaluated at 10 cm away from all sides and from the top of the WPT device / system. The 10 cm shall be as measured from the probe center to the WPT device / system edge.

6) A combination of analysis, electric and magnetic field strength measurements, SAR assessments, radiated and conducted power measurements, in conjunction with computational modeling, may be required to demonstrate compliance with the RF exposure limits, depending on the operating frequency of the wireless power transfer device.

3.3 MPE CALCULATION FORMULA

FCC 47 CFR Part 1 Subpart I

$S = PG/4\pi R^2 = EIRP/4\pi R^2$

S = power density (in appropriate units, e.g., mw/cm2)

P = power input to the antenna (in appropriate units, e.g., mw)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor is normally numeric gain.

R = distance to the center of radiation of the antenna (in appropriate units, e.g., cm)

3.4 MPE CALCULATION RESULTS

Note: For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report

3.4.1 For BT&BLE

For BT_BR & EDR function, operating at 2402MHz to 2480 MHz for GFSK, π/4 DQPSK, 8DPSK

3.4.2 Antenna Type

Chain 0: PCB antenna

3.4.3 Antenna Gain

Chain 0: 2402MHz to 2480 MHz: -4.0 dBi

3.4.4 Results for FCC 47 CFR Part 1 Subpart I

Operating Mode	Freq.	Declared maximum conducted average output power	Max. positive tolerance according manufacturer	Antenna Gain	Calculated maximum EIRP	Declared maximum EIRP	MPE Limit	MPE Value
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(mW)	(mW/cm^2)	
LE	2402-2480	0.5	2	-4.0	-1.5	0.7079	1	0.000282
EDR	2402-2480	0	2	-4.0	-2	0.6310	1	0.000251

So, the transmitter complies with the RF exposure requirements and the SAR is not required.

3.4.5 Results for RSS-102 Issue 5

Operating Mode	Freq.	Declared maximum conducted average output power	Max. positive tolerance according manufacturer	Antenna Gain	Calculated maximum EIRP	Declared maximum EIRP	Limit
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(W)	(W)
LE	2402-2480	0.5	2	-4.0	-1.5	0.0007	2.6764
EDR	2402-2480	0	2	-4.0	-2	0.0006	2.6764

So, the transmitter complies with the RF exposure requirements and the SAR is not required.

3.5 FOR WIRELESS POWER TRANSFER

3.5.1 Result for 47 CFR §1.1310

E-Field Strength

Test Position	Test distance (cm)	Test result (V/m)			Limit (V/m)	Result (Pass/Fail)
		<1% Battery status	<50% Battery status	<99% Battery status		
A: Right	15	0.7143	0.7088	0.7097	614	Pass
B: Left	15	0.6631	0.6579	0.6614	614	Pass
C: Front	15	0.7274	0.7266	0.7274	614	Pass
D: Back	15	0.6631	0.6612	0.6596	614	Pass
E: Top	20	0.7561	0.7534	0.7552	614	Pass
F: Bottom	15	0.7633	0.7624	0.7629	614	Pass

H-Field Strength

Test Position	Test distance (cm)	Test result (A/m)			Limit (A/m)	Result (Pass/Fail)
		<1% Battery status	<50% Battery status	<99% Battery status		
A: Right	15	0.2363	0.2304	0.2361	1.63	Pass
B: Left	15	0.2368	0.2306	0.2336	1.63	Pass
C: Front	15	0.2361	0.2302	0.2326	1.63	Pass
D: Back	15	0.2351	0.2279	0.2349	1.63	Pass
E: Top	20	0.2360	0.2307	0.2356	1.63	Pass
F: Bottom	15	0.2350	0.2307	0.2346	1.63	Pass

Note:

1. Test with 15cm distance from the center of the probe(s) to the edge of the device, 20 cm for top (Position E) test
2. All simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.

Equipment Approval Considerations

Requirements of section 5 of KDB680106 D01 RF Exposure Wireless Charging App v03	Yes/No	Description
Power transfer frequency is less than 1 MHz.	Yes	The device operate in the frequency 112KHz
Output power from each primary coil is less than or equal to 15 watts.	Yes	The maximum output power of the primary coil is 10W
The system may consist of more than one source primary coils, charging one or more clients. If more than one primary coil is present, the coil pairs may be powered on at the same time.	Yes	The transfer system includes only single coil
Client device is placed directly in contact with the transmitter.	Yes	Client device is placed directly in contact with the transmitter
Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).	Yes	Product is not a portable device.
The aggregate H-field strengths anywhere at or beyond 15 cm surrounding the device, and 20 cm away from the surface from all coils that by design can simultaneously transmit, and while those coils are simultaneously energized, are demonstrated to be less than 50% of the applicable MPE limit.	Yes	See the test data in section 2.4 of this report

3.5.2 Result for RSS-216 Issue 2

worst case test data

Test result of Magnetic Field Strength:

Test Position	Test distance (cm)	Test result (A/m)			Limit (A/m)	Result (Pass/Fail)
		<1% Battery status	<50% Battery status	<99% Battery status		
A: Right	10	0.3869	0.3844	0.3862	90 *0.3	Pass
B: Left	10	0.3876	0.3831	0.3833	90 *0.3	Pass
C: Front	10	0.4122	0.4048	0.4095	90 *0.3	Pass
D: Back	10	0.3897	0.3832	0.3849	90 *0.3	Pass
E: Top	10	0.3477	0.3468	0.3446	90 *0.3	Pass

Test result of Electric Field Strength:

Test Position	Test distance (cm)	Test result (V/m)			Limit (V/m)	Result (Pass/Fail)
		<1% Battery status	<50% Battery status	<99% Battery status		
A: Right	10	0.9865	0.9811	0.9849	83 *0.3	Pass
B: Left	10	0.7655	0.7618	0.7630	83 *0.3	Pass
C: Front	10	0.8859	0.8782	0.8855	83 *0.3	Pass
D: Back	10	0.7635	0.7625	0.7580	83 *0.3	Pass
E: Top	10	0.8817	0.8768	0.8758	83 *0.3	Pass

Remark:

1. The device meets the total leakage field limit at a 10cm separation distance as specified in 6.4.4 of the RSS-216 Rules. All simultaneous transmitting coils are demonstrated to be less than 30% of the total leakage field limit.

3.5.3 Result for SPR-002 Issue 1

worst case test data

Test result of Magnetic Field Strength: Fundamental frequency (112kHz)

Test Position	Test distance (cm)	Test result (A/m)			Limit (A/m)	Result (Pass/Fail)
		<1% Battery status	<50% Battery status	<99% Battery status		
A: Right	0	0.6894	0.6816	0.6879	90	Pass
B: Left	0	0.6773	0.6758	0.6761	90	Pass
C: Front	0	0.8845	0.8838	0.8826	90	Pass
D: Back	0	0.6236	0.6179	0.6207	90	Pass
E: Top	0	0.7124	0.7080	0.7121	90	Pass
F: Bottom	0	0.6887	0.6808	0.6862	90	Pass

Test result of Electric Field Strength: Fundamental frequency (112kHz)

Test Position	Test distance (cm)	Test result (V/m)			Limit (V/m)	Result (Pass/Fail)
		<1% Battery status	<50% Battery status	<99% Battery status		
A: Right	0	1.2347	1.2308	1.2325	83	Pass
B: Left	0	0.9765	0.9706	0.9733	83	Pass
C: Front	0	1.0876	1.0815	1.0851	83	Pass
D: Back	0	0.9962	0.9920	0.9924	83	Pass
E: Top	0	1.2271	1.2253	1.2264	83	Pass
F: Bottom	0	0.9654	0.9607	0.9613	83	Pass

Test result of Magnetic Field Strength: spurious emission frequency (30kHz)

Test Position	Test distance (cm)	Test result (A/m)			Limit (A/m)	Result (Pass/Fail)
		<1% Battery status	<50% Battery status	<99% Battery status		
A: Right	0	0.3257	0.2810	0.3034	90	Pass
B: Left	0	0.3384	0.3075	0.3092	90	Pass
C: Front	0	0.3366	0.3147	0.3268	90	Pass
D: Back	0	0.2819	0.2812	0.2734	90	Pass
E: Top	0	0.3456	0.3100	0.3184	90	Pass
F: Bottom	0	0.3145	0.3084	0.2914	90	Pass

Test result of Electric Field Strength: spurious emission frequency (30kHz)

Test Position	Test distance (cm)	Test result (V/m)			Limit (V/m)	Result (Pass/Fail)
		<1% Battery status	<50% Battery status	<99% Battery status		
A: Right	0	0.7429	0.7163	0.6900	83	Pass
B: Left	0	0.4837	0.4729	0.4674	83	Pass
C: Front	0	0.6342	0.5846	0.5802	83	Pass
D: Back	0	0.4879	0.4399	0.4252	83	Pass
E: Top	0	0.6674	0.6417	0.6187	83	Pass
F: Bottom	0	0.4865	0.4428	0.3945	83	Pass

Test result of Magnetic Field Strength: spurious emission frequency (258kHz)

Test Position	Test distance (cm)	Test result (A/m)			Limit (A/m)	Result (Pass/Fail)
		<1% Battery status	<50% Battery status	<99% Battery status		
A: Right	0	0.3162	0.2638	0.2836	90	Pass
B: Left	0	0.3205	0.3025	0.3039	90	Pass
C: Front	0	0.3340	0.3012	0.3091	90	Pass
D: Back	0	0.2817	0.2801	0.2708	90	Pass
E: Top	0	0.3317	0.2950	0.3094	90	Pass
F: Bottom	0	0.3056	0.2903	0.2877	90	Pass

Test result of Electric Field Strength: spurious emission frequency (258kHz)

Test Position	Test distance (cm)	Test result (V/m)			Limit (V/m)	Result (Pass/Fail)
		<1% Battery status	<50% Battery status	<99% Battery status		
A: Right	0	0.7210	0.6700	0.6498	83	Pass
B: Left	0	0.4396	0.4235	0.4589	83	Pass
C: Front	0	0.6004	0.5827	0.5342	83	Pass
D: Back	0	0.4818	0.3933	0.4163	83	Pass
E: Top	0	0.6176	0.6340	0.5690	83	Pass
F: Bottom	0	0.4769	0.4249	0.3522	83	Pass

Test result of Magnetic Field Strength: spurious emission frequency (1.486MHz)

Test Position	Test distance (cm)	Test result (A/m)			Limit (A/m)	Result (Pass/Fail)
		<1% Battery status	<50% Battery status	<99% Battery status		
A: Right	0	0.2988	0.2582	0.2550	90	Pass
B: Left	0	0.3155	0.2715	0.2608	90	Pass
C: Front	0	0.3119	0.3056	0.3253	90	Pass
D: Back	0	0.2641	0.2803	0.2247	90	Pass
E: Top	0	0.3284	0.2648	0.2815	90	Pass
F: Bottom	0	0.2746	0.2900	0.2528	90	Pass

Test result of Electric Field Strength: spurious emission frequency (1.486MHz)

Test Position	Test distance (cm)	Test result (V/m)			Limit (V/m)	Result (Pass/Fail)
		<1% Battery status	<50% Battery status	<99% Battery status		
A: Right	0	0.7387	0.7013	0.6117	83	Pass
B: Left	0	0.4063	0.4220	0.4096	83	Pass
C: Front	0	0.6205	0.5321	0.5757	83	Pass
D: Back	0	0.4370	0.4392	0.4133	83	Pass
E: Top	0	0.6178	0.5693	0.5665	83	Pass
F: Bottom	0	0.4181	0.4310	0.3704	83	Pass

Multiple Frequency Summation

Multiple Frequency Summation Formula	**Test Position**	**Test result (A/m)**			**Limit**	**Result (Pass/Fail)**
		<1% Battery status	**<50% Battery status**	**<99% Battery status**		
$\sum (H_m / H_{RL})$ Note	Right	0.0181	0.0165	0.0170	1	Pass
	Left	0.0184	0.0173	0.0172		Pass
	Front	0.0208	0.0200	0.0204		Pass
	Back	0.0162	0.0162	0.0154		Pass
	Top	0.0191	0.0175	0.0181		Pass
	Bottom	0.0175	0.0174	0.0169		Pass

Note:
Hm = Measured magnetic field at a specific frequency.
HRL= Reference level limit for the magnetic field at the measurement frequency.
H = magnetic field strength (A/m).

Multiple Frequency Summation Formula	Test Position	Test result (V/m)			Limit	Result (Pass/Fail)
		<1% Battery status	<50% Battery status	<99% Battery status		
$\sum (E_m / E_{RL})$	Right	0.0414	0.0400	0.0384	1	Pass
	Left	0.0278	0.0276	0.0279		Pass
	Front	0.0354	0.0335	0.0335		Pass
	Back	0.0290	0.0273	0.0271		Pass
	Top	0.0377	0.0370	0.0359		Pass
	Bottom	0.0283	0.0272	0.0250		Pass

Note:
Em = Measured electric field at a specific frequency
ERL = Reference level limit for the electric field at the measurement frequency
E = electric field strength (V/m)

3.6 Simultaneous multi-band transmission analysis

3.6.1 List of Mode for Simultaneous Multi-band Transmission

No.	Configurations	Support/Not Support
1	Wireless Power Transfer + BLE	Support

3.6.2 Results for transmit simultaneously

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No.	Configurations	Maximum MPE Value			Limits
		Wireless Power Transfer((H_m / H_{RL}) Note)	BLE	Transmit simultaneously	
1	Wireless Power Transfer + BLE	0.145276	0.000282	0.145558	1

Note:

Hm = Measured magnetic field at a specific frequency.

HRL= Reference level limit for the magnetic field at the measurement frequency.

According to KDB 447498 D01 General RF Exposure Guidance v06, At the transmit simultaneously calculation method is as follows:

Transmit simultaneously MPE = Σ of MPE ratios

MPE ratios = Field strengths or power density / MPE limit at the test frequency

No.	Configurations	Maximum MPE Value			Limits
		Wireless Power Transfer((Em / ERL) Note)	BLE	Transmit simultaneously	
1	Wireless Power Transfer + BLE	0.001243	0.000282	0.001525	1

Note:

Em = Measured electric field at a specific frequency

ERL = Reference level limit for the electric field at the measurement frequency

According to KDB 447498 D01 General RF Exposure Guidance v06, At the transmit simultaneously calculation method is as follows:

Transmit simultaneously MPE = Σ of MPE ratios

MPE ratios = Field strengths or power density / MPE limit at the test frequency

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No.	Configurations	Maximum MPE Value			Limits
		Wireless Power Transfer($\sum (H_m / H_{RL})$ Note)	BLE	Transmit simultaneously	
1	Wireless Power Transfer +BLE	0.0208	0.000262	0.021062	1

Note:

Hm = Measured magnetic field at a specific frequency.

HRL= Reference level limit for the magnetic field at the measurement frequency.

According to KDB 447498 D01 General RF Exposure Guidance v06, At the transmit simultaneously calculation method is as follows:

Transmit simultaneously MPE = Σ of MPE ratios

MPE ratios = Field strengths or power density / MPE limit at the test frequency

No.	Configurations	Maximum MPE Value			Limits
		Wireless Power Transfer(∑ (Em / ERL) Note)	BLE	Transmit simultaneously	
1	Wireless Power Transfer +BLE	0.0414	0.000262	0.041662	1

Note:

Em = Measured electric field at a specific frequency

ERL = Reference level limit for the electric field at the measurement frequency

According to KDB 447498 D01 General RF Exposure Guidance v06, At the transmit simultaneously calculation method is as follows:

Transmit simultaneously MPE = Σ of MPE ratios

MPE ratios = Field strengths or power density / MPE limit at the test frequency

Equipment Approval Considerations

Requirements of section 6.4.4 of RSS-216	Yes/No	Description
Power transfer frequency is less than 1 MHz	Yes	The device operates in the frequency 112kHz
Output power from each primary coil (i.e. transmitter coil in the WPT source device) is less than or equal to 5 W	NO	Although its maximum transmission power is 10W, according to the ISED reply, only meet the H field measurement is sufficient, and the limit for magnet field is 0.73/f, where f is frequency in MHz (i.e. 5.72A/m).
The WPT device is only capable of wireless power transfer between one source and one client at a time. This includes WPT systems with multiple primary coils (i.e. in the WPT source) as long as they only allow wireless power transfer to take place through a single pair of coils at any given time (one in the source and the other in the client). It also includes WPT systems where the source may use two or more overlapping smaller coils to form a fixed charging/powering zone, as long as they only allow wireless power transfer to take place between this zone and a single client device;	Yes	The WPT device is only capable of wireless power transfer between one source and one client at a time
The WPT client device is placed in direct contact with or docked onto the WPT source;	Yes	Client device is placed directly in contact with the transmitter
The maximum coupling surface area of the WPT source is less than or equal to 400 cm^2; and	Yes	The maximum coupling surface area of the WPT source is 60 cm^2
The total leakage fields from all simultaneous transmitting coils are proven to be less than 30% of the applicable Health Canada's Safety Code 6 limits for uncontrolled environments, as set out in RSS-102, at 10 cm from the WPT system in all directions. The total leakage fields shall be calculated or measured based on actual and typical WPT clients of types selected such that they provide worst-case conditions. For WPT source devices with multiple fixed wireless power transfer zones that are only capable of powering/charging one client at a time, this requirement shall be met separately for each zone.	Yes	The E-field and H-field strengths at 10 cm surrounding the device from all simultaneous transmitting coils are demonstrated to be less than 30% of the MPE limit.

APPENDIX 1 PHOTOS OF TEST SETUP

See test photos attached in Appendix 1 for the actual connections between Product and support equipment.

APPENDIX 1 PHOTOS OF EUT CONSTRUCTIONAL DETAILS

Refer to Appendix 2 for EUT external and internal Photos.

*** End of Report ***