

RF Exposure Evaluation Declaration

CZTCF351

APPLICANT: Shenzhen Unique Scales Co., Ltd

Application Type:	Certification		
Product:	Electronic Bluetooth Scale		
Model No.:	CF351BT, CF350BT, CF399BT, CF335BT, CF352BT,		
	CW222BT, CW263BT, CW288BT, CW265BT,		
	CW266BT, CW223BT, CW227BT		
FCC Classification:	Digital Transmission System (DTS)		
Test Date:	August 21 ~ 25, 2014		

Reviewed By : Robin Wu (Robin Wu) : Marlinchen

Approved By

(Marlin Chen)

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.



Revision History

Report No.	Version	Description	Issue Date
1408RSU02802	Rev. 01	Initial report	08-26-2014



1. **RF Exposure Evaluation**

1.1. Limits

SAR Test Exclusion Thresholds for 100 MHz – 6 GHz and \leq 50 mm

Approximate SAR Test Exclusion Power Thresholds at Selected Frequencies and Test Separation Distances are illustrated in the following Table. The equation and threshold in Note 1 must be applied to determine SAR test exclusion.

MHz 5 10 15 20 25 mm 150 39 77 116 155 194 SAR Test 300 27 55 82 110 137 Exclusion 450 22 45 67 89 112 Hreshold 835 16 33 49 66 82 (mW) 900 16 32 47 63 79 (mW) 1500 12 24 37 49 61 (mW) 1900 11 22 33 44 54 (mW) 2450 10 19 29 38 48 (mW) 5200 7 13 20 26 33 (mV) 5400 6 12 19 25 31 (mV) 5800 6 12 19 26 32 (mV) 5300 164 192							
300 27 55 82 110 137 450 22 45 67 89 112 835 16 33 49 66 82 900 16 32 47 63 79 1500 12 24 37 49 61 1900 11 22 33 444 54 2450 10 19 29 38 48 3600 8 16 24 32 40 5200 7 13 20 26 33 5400 6 13 19 26 32 5800 6 12 19 25 31 MHz 30 35 40 45 50 mm 150 232 271 310 349 387 SAR Test 300 164 192 219 246 274 Exclusion	MHz	5	10	15	20	25	mm
4502245678911283516334966829001632476379150012243749611900112233445424501019293848360081624324052007132026335400613192531MHz3035404550mm150232271310349387SAR Test5300164192219246274Exclusion150232271310349387SAR Test530016419221920122445013415717920122490095111126142158150073869811012219006576879810924505767778696360047556371795200394653596654003945525865	150	39	77	116	155	194	SAR Test
835 16 33 49 66 82 900 16 32 47 63 79 1500 12 24 37 49 61 1900 11 22 33 44 54 2450 10 19 29 38 48 3600 8 16 24 32 40 5200 7 13 20 26 33 5400 6 13 19 26 32 5800 6 12 19 25 31 750 232 271 310 349 387 5800 164 192 219 246 274 450 134 157 179 201 224 835 98 115 131 148 164 900 95 111 126 142 158 1500 73	300	27	55	82	110	137	Exclusion
900 16 32 47 63 79 1500 12 24 37 49 61 1900 11 22 33 44 54 2450 10 19 29 38 48 3600 8 16 24 32 40 5200 7 13 20 26 33 5400 6 12 19 25 31 MHz 30 35 40 45 50 mm 150 232 271 310 349 387 SAR Test 300 164 192 219 246 274 Exclusion 450 134 157 179 201 224 Exclusion 900 95 111 126 142 158 Exclusion 1500 73 86 98 110 122 1900 65 76	450	22	45	67	89	112	Threshold
1500 12 24 37 49 61 1900 11 22 33 44 54 2450 10 19 29 38 48 3600 8 16 24 32 40 5200 7 13 20 26 33 5400 6 13 19 26 32 5800 6 12 19 25 31 MHz 30 35 40 45 50 mm 300 164 192 219 246 274 Exclusion 300 164 192 219 201 224 Exclusion 450 134 157 179 201 224 Exclusion 1500 73 86 98 110 122 158 1500 73 86 98 109 366 360 2450 57	835	16	33	49	66	82	(mW)
1900 11 22 33 44 54 2450 10 19 29 38 48 3600 8 16 24 32 40 5200 7 13 20 26 33 5400 6 13 19 26 32 5800 6 12 19 25 31 MHz 30 35 40 45 50 mm 150 232 271 310 349 387 SAR Test 300 164 192 219 246 274 Exclusion 450 134 157 179 201 224 (mW) 900 95 111 126 142 158 104 (mW) 900 95 111 126 142 158 109 114 148 164 (mW) 900 95 76 87	900	16	32	47	63	79	
2450 10 19 29 38 48 3600 8 16 24 32 40 5200 7 13 20 26 33 5400 6 13 19 26 32 5800 6 12 19 25 31 MHz 30 35 40 45 50 mm 150 232 271 310 349 387 SAR Test 300 164 192 219 246 274 Exclusion 450 134 157 179 201 224 (mW) 900 95 111 126 142 158 (mW) 1500 73 86 98 110 122 199 900 95 111 126 142 158 109 1500 73 86 98 110 122 190 65	1500	12	24	37	49	61	
3600 8 16 24 32 40 5200 7 13 20 26 33 5400 6 13 19 26 32 5800 6 12 19 25 31 MHz 30 35 40 45 50 mm 150 232 271 310 349 387 SAR Test 300 164 192 219 246 274 Exclusion 450 134 157 179 201 224 Threshold (mW) 900 95 111 126 142 158 (mW) 900 95 111 126 142 158 (mW) 900 95 111 126 142 158 (mW) 1900 65 76 87 98 109 (mW) 2450 57 67 77 86 96 <td< th=""><th>1900</th><th>11</th><th>22</th><th>33</th><th>44</th><th>54</th><th></th></td<>	1900	11	22	33	44	54	
520071320263354006131926325800612192531MHz3035404550mm150232271310349387SAR Test300164192219246274Exclusion450134157179201224Threshold83598115131148164(mW)90095111126142158150073869811012219006576879810924505767778696360047556371795200394653596654003945525865	2450	10	19	29	38	48	
54006131926325800612192531MHz3035404550mm150232271310349387SAR Test300164192219246274Exclusion450134157179201224Threshold (mW)90095111126142158150073869811012219006576879810924505767778696360047556371795200394653596654003945525865	3600	8	16	24	32	40	
5800612192531MHz3035404550mm150232271310349387SAR Test300164192219246274Exclusion450134157179201224Threshold83598115131148164(mW)90095111126142158150073869811012219006576879810924505767778696360047556371795200394653596654003945525865	5200	7	13	20	26	33	
MHz3035404550mm150232271310349387SAR Test300164192219246274Exclusion450134157179201224Exclusion83598115131148164(mW)90095111126142158150073869811012219006576879810924505767778696360047556371795200394653596654003945525865	5400	6	13	19	26	32	
150232271310349387SAR Test300164192219246274Exclusion450134157179201224Threshold83598115131148164(mW)90095111126142158150073869811012219006576879810924505767778696360047556371795200394653596654003945525865	5800	6	12	19	25	31	
150232271310349387SAR Test300164192219246274Exclusion450134157179201224Threshold83598115131148164(mW)90095111126142158150073869811012219006576879810924505767778696360047556371795200394653596654003945525865							
300164192219246274Exclusion450134157179201224Threshold83598115131148164(mW)90095111126142158150073869811012219006576879810924505767778696360047556371795200394653596654003945525865	MHz	30	35	40	45	50	mm
450134157179201224Threshold (mW)83598115131148164(mW)90095111126142158150073869811012219006576879810924505767778696360047556371795200394653596654003945525865	150	232	271	310	349	387	SAR Test
835 98 115 131 148 164 900 95 111 126 142 158 1500 73 86 98 110 122 1900 65 76 87 98 109 2450 57 67 77 86 96 3600 47 55 63 71 79 5200 39 46 53 59 66 5400 39 45 52 58 65	300	164	192	219	246	274	Exclusion
90095111126142158150073869811012219006576879810924505767778696360047556371795200394653596654003945525865	450	134	157	179	201	224	Threshold
150073869811012219006576879810924505767778696360047556371795200394653596654003945525865	835	98	115	131	148	164	(mW)
19006576879810924505767778696360047556371795200394653596654003945525865	900	95	111	126	142	158	
24505767778696360047556371795200394653596654003945525865	1500	73	86	98	110	122	
360047556371795200394653596654003945525865	1900	65	76	87	98	109	
5200394653596654003945525865	2450	57	67	77	86	96	
5400 39 45 52 58 65	3600	47	55	63	71	79	
	5200	39	46	53	59	66	
	5400	39	45	52	58	65	
5800 37 44 50 56 62	5000	37	ΔΔ	50	56	62	

Note 1:

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances \leq 50 mm are determined by:



[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] * $[\sqrt{f(GHz)}] \le 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

The test exclusions are applicable only when the minimum test separation distance is \leq 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 5) in section 4.1 is applied to determine SAR test exclusion.



1.2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

The temperature and related humidity: 18°C and 78% RH.

1.3. Test Result of RF Exposure Evaluation

Product	Electronic Bluetooth Scale	
Test Item	RF Exposure Evaluation	

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.0dBi for 2.4GHz in logarithm scale.

Output Power into Antenna:

Test Mode	Frequency Band (MHz)	Maximum output power to antenna (mW)	SAR Test Exclusion Threshold (mW)
BLE	2402 ~ 2480	0.604	10

Per FCC KDB 447498 D01v05r02, the SAR exclusion threshold for distances<50mm is defined by the following equation:

 $\frac{Max Power of Channel (mW)}{Test Separation Dist (mm)} * \sqrt{Frequency(GHz)} \le 3.0$

Based on the maximum conducted power of Bluetooth and the antenna to use separation distance, Bluetooth SAR was not required;

 $[(0.604 \text{mW}/5)^* \sqrt{2.402}] = 0.187 < 3.0.$

Note: When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.