China

FCC - TEST REPORT

Report Number	:	60.790.16.038.01	Date of Issue	:	August 22, 2016
Model	:	STS-C-3			
Product Type	:	**STS Cadence Transmitter**			
Applicant	:	SIGMA Sport USA LLC			
Address	:	1860B Dean St., St. Charles, IL 60174, United States			
Production Facility	:	SIGMA Sport USA LLC			
Address	:	1860B Dean St., St. Charles, IL 60174, United States			
Test Result	:	■Positive	☐Negative		
Total pages including Appendices	:	20			

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1 Table of Contents

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2 Description of Equipment Under Test

Description of the Equipment Under Test

Product:	STS Cadence Transmitter
Model no.:	STS-C-3
FCC ID:	M5LCAD3STS
Rating:	3.0VDC (1 x 3.0VDC “CR2032“ button cell battery)
Frequency:	112kHz
Antenna gain:	0 dBi
Number of operated Channel:	1
Description of the EUT:	The EUT is considered as wireless device, the frequency range is 112kHz. More details of EUT technical specification please refer to the User's Manual.

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3 Summary of Test Standards

Test Standards
FCC Part 15 Subpart C 10-1-15 Edition Federal Communications Commission, PART 15 — Radio Frequency Devices, Subpart B — Unintentional Radiators

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4 Details about the Test Laboratory

Site 1

Company name: TÜV SÜD Hong Kong Ltd.
3/F, West Wing, Lakeside 2,
10 Science Park West Avenue,
Science Park, Shatin, Hong Kong

Site 2

Company name: TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch
Building 12&13 Zhiheng Wisdomland Business Park,
Nantou Checkpoint Road 2,
Shenzhen 518052, P.R.China
FCC test site number 502708

Emission Tests	
Test Item	Test Site
FCC Part 15 Subpart C	
FCC Title 47 Part 15.209 Radiated Emission	Site 2
FCC Title 47 Part 15.207 Conduct Emission	NIL
FCC Title 47 Part 15.203 Antenna Requirement	Site 2

4.1 Test Equipment Site List

Radiated Emission Test – Site 2

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 26	101269	17-Aug-17
Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9163	707	17-Aug-17
Horn Antenna	Rohde & Schwarz	HF907	102294	17-Aug-17
Pre-amplifier	Rohde & Schwarz	SCU 18	102230	17-Aug-17
3m Semi-anechoic chamber	TDK	9X6X6	----	29-May-19

4.2 Measurement System Uncertainty

Measurement System Uncertainty Emissions

System Measurement Uncertainty	
Items	**Extended Uncertainty**
Uncertainty for Radiated Emission in 3m chamber 9kHz-30MHz	4.54dB
Uncertainty for Radiated Emission in 3m chamber 30MHz-1000MHz	Horizontal: 4.83dB; Vertical: 4.91dB;

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5 Summary of Test Results

Emission Tests				
FCC Part 15 Subpart C				
Test Condition	Pages	Test Result		
		Pass	Fail	N/A
FCC Title 47 Part 15.209 Radiated Emission	10-11	☒	☐	☐
FCC Title 47 Part 15.207 Conduct Emission	NIL	☐	☐	☒
FCC Title 47 Part 15.203 Antenna Requirement	12	☒	☐	☐

Remark:
(1) EUT is transmitter only

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6 General Remarks

Remarks

NIL

SUMMARY:

- All tests according to the regulations cited on page 5 were

■ - Performed

☐ - **Not** Performed

- The Equipment Under Test

■ - **Fulfills** the general approval requirements.

☐ - **Does not** fulfill the general approval requirements.

Sample Received Date: August 3, 2016

Testing Start Date: August 4, 2016

Testing End Date: August 19, 2016

- TÜV SÜD HONG KONG LTD. -

Reviewed by: Prepared by:

TSENG Chi Kit	CHAN Kwong Ngai
EMC Project Engineer	EMC Test Engineer

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7 Emission Test Results

7.1 Radiated Emission

EUT: STS-C-3
Op Condition: On Mode
Test Specification: Antenna: Horizontal
Comment: 3.0VDC
Remark: 9kHz to 1GHz

Test Result
☒ Passed
☐ Not Passed

Frequency MHz	Result dBµV/m	Limit dBµV/m	Margin dB	Detector
0.112	55.26	106.6	-51.34	Quasi Peak
51.620	17.36	40	-22.64	Quasi Peak
99.840	12.11	43.5	-31.39	Quasi Peak
275.430	19.48	46	-26.52	Quasi Peak
844.620	25.12	46	-20.88	Quasi Peak

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Radiated Emission

EUT: STS-C-3
Op Condition: On Mode
Test Specification: Antenna: Vertical
Comment: 3.0VDC
Remark: 9kHz to 1GHz

Test Result
☒ Passed
☐ Not Passed

Frequency MHz	Result dBµV/m	Limit dBµV/m	Margin dB	Detector
0.111	54.86	106.6	-51.74	Quasi Peak
50.120	18.01	40	-21.99	Quasi Peak
99.250	12.25	43.5	-31.25	Quasi Peak
275.160	18.98	46	-27.02	Quasi Peak
845.120	25.32	46	-20.68	Quasi Peak

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7.2 Antenna Requirement

EUT:	STS-C-3
Op Condition:	On Mode
Test Specification:	FCC15.203
Comment:	3.0VDC

Test Result
☒ Passed
☐ Not Passed

Limit

For intentional device, according to FCC Title 47 Part 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

Antenna Connector Construction

The antenna used in this product is PCB antenna, and the maximum gain of this antenna is 0.0 dBi.

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8 Appendix A - Photographs of EUT

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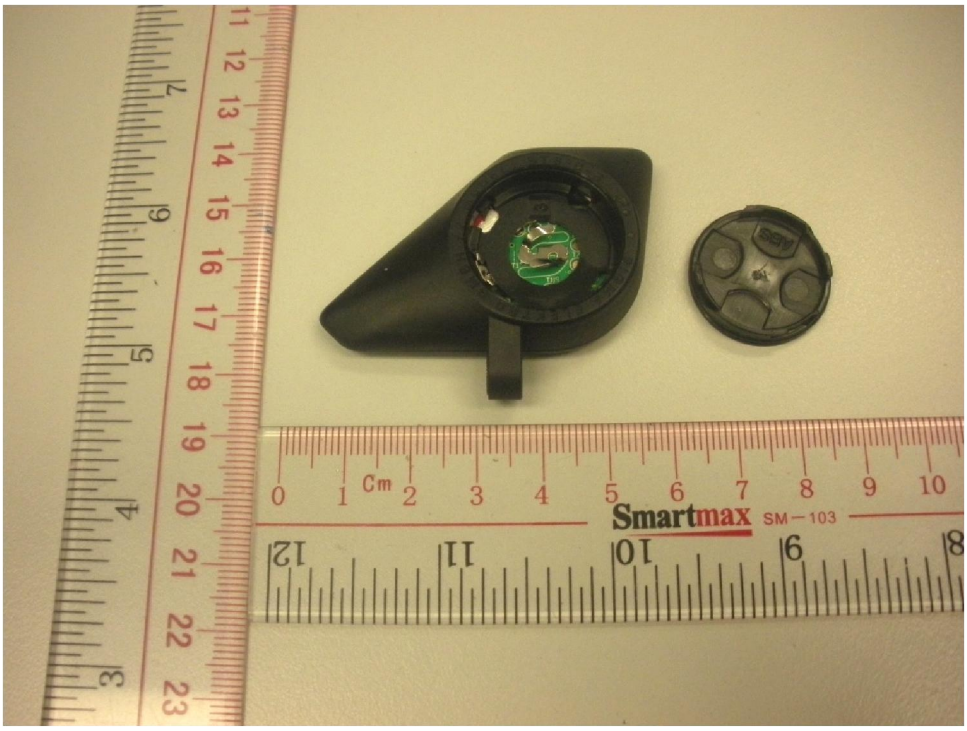
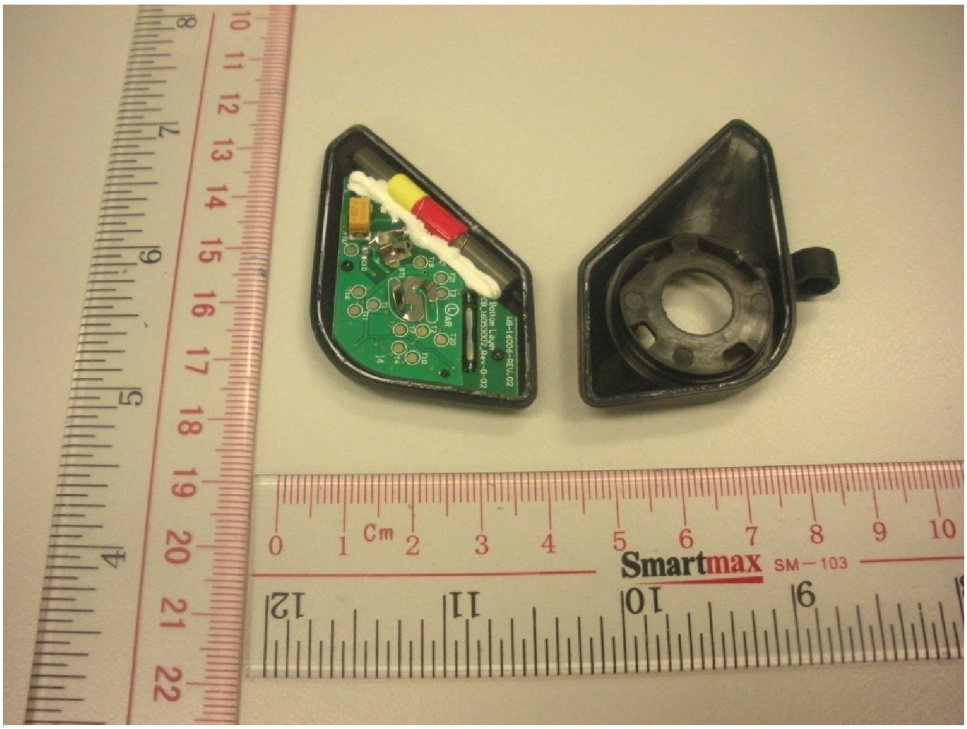
Appendix A





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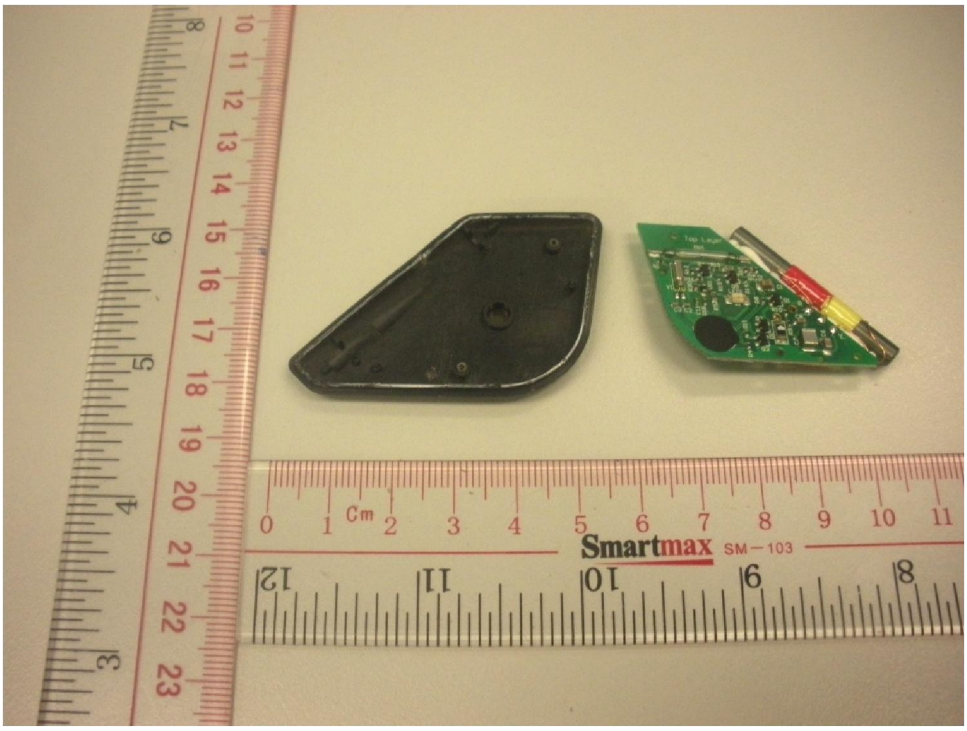

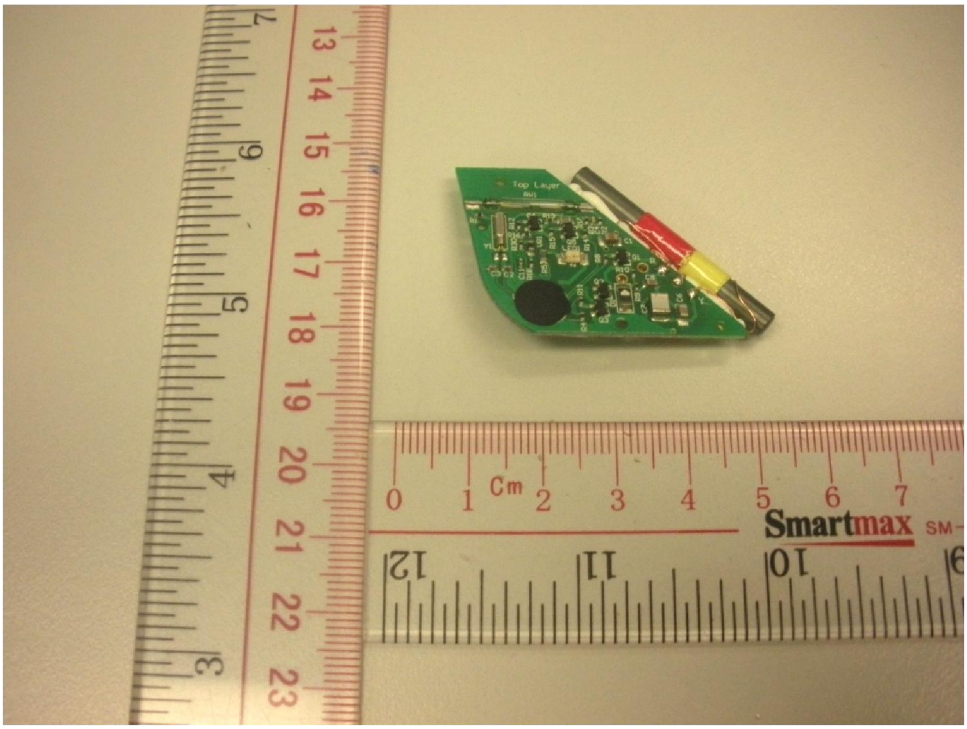

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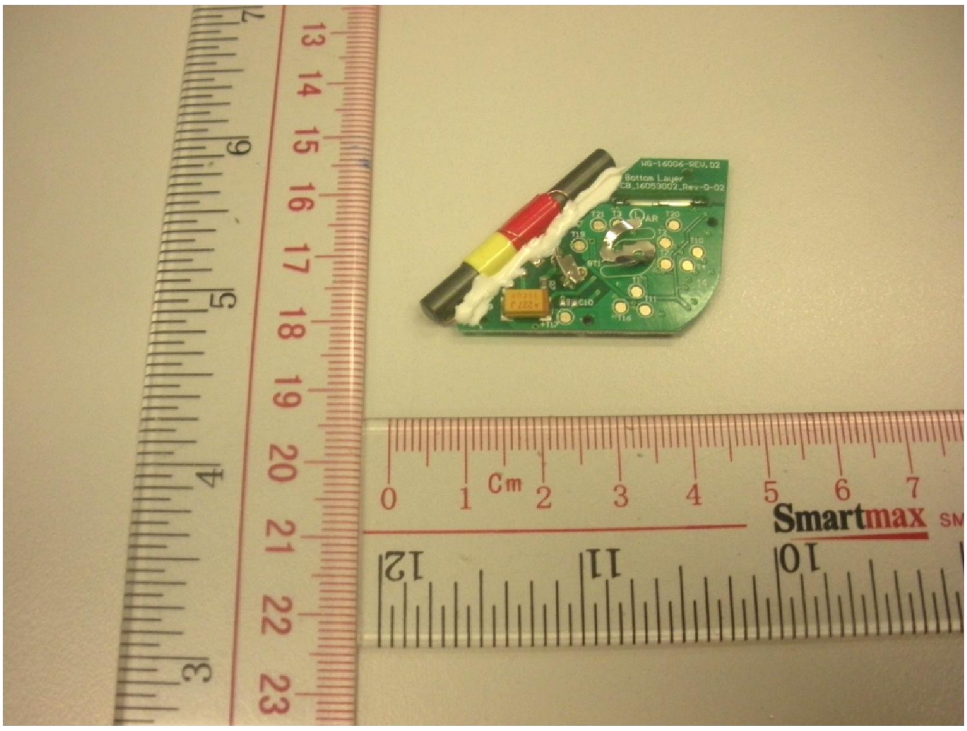

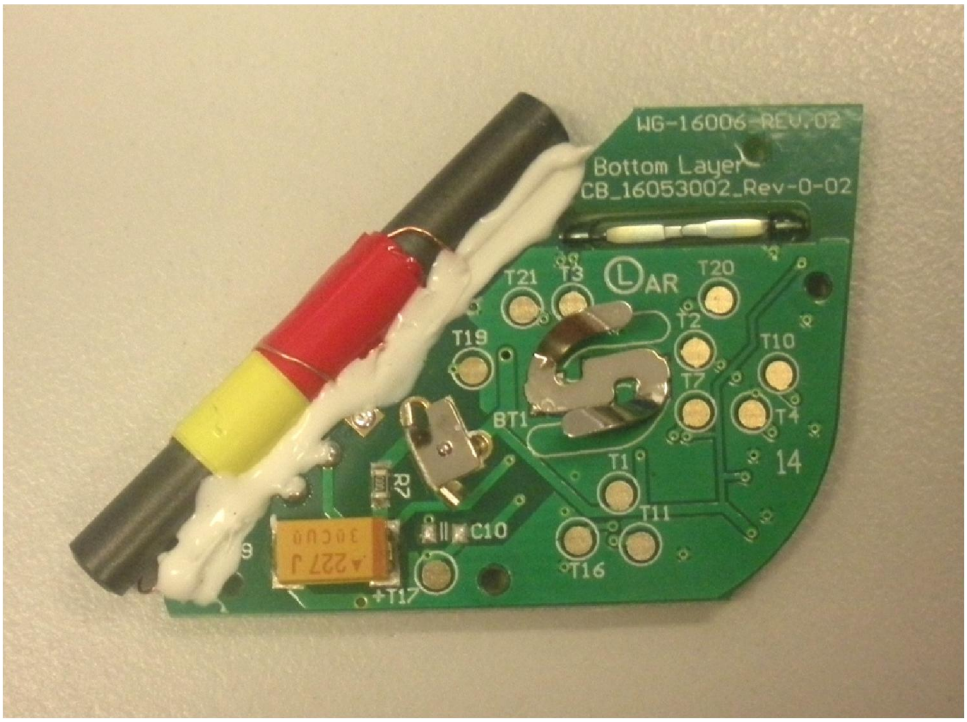

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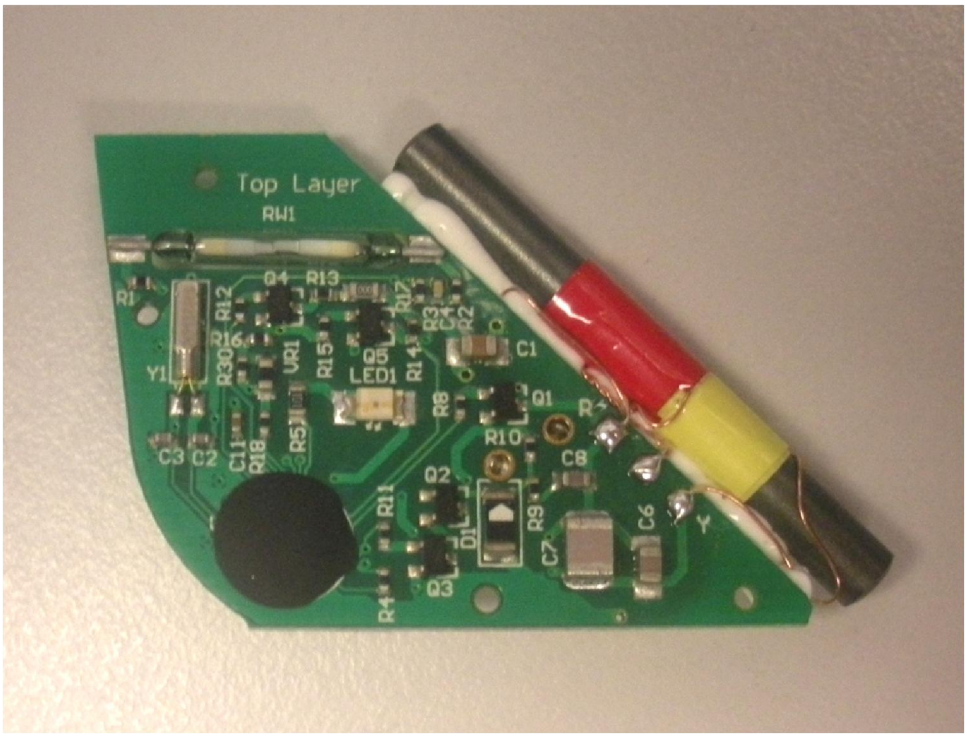
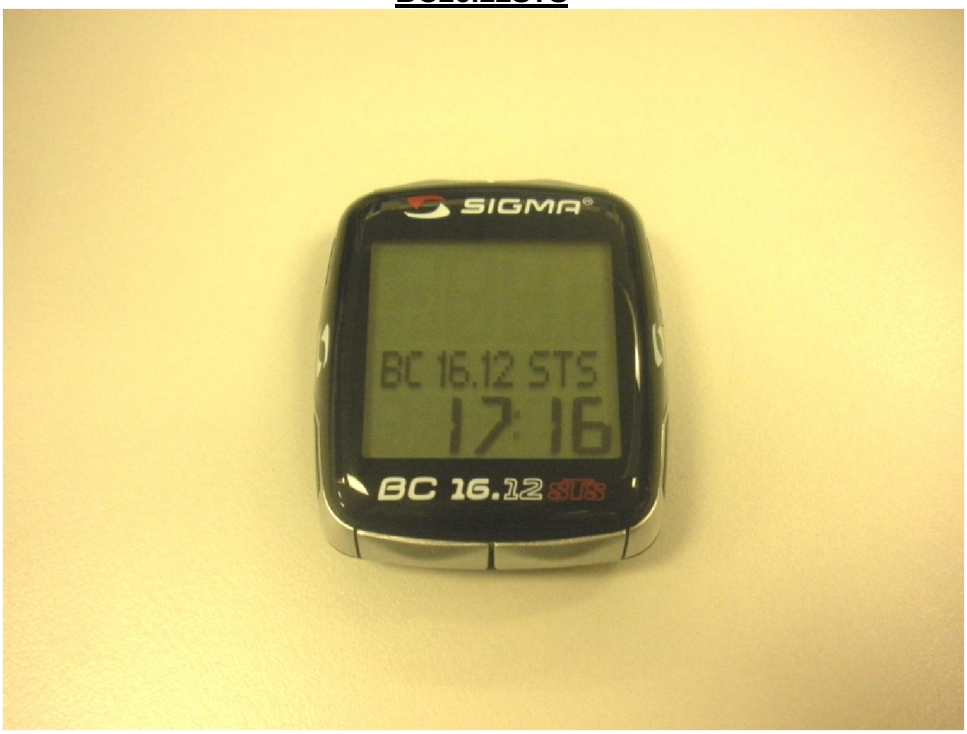


9 Appendix B - Test Support Equipment

BC16.12STS



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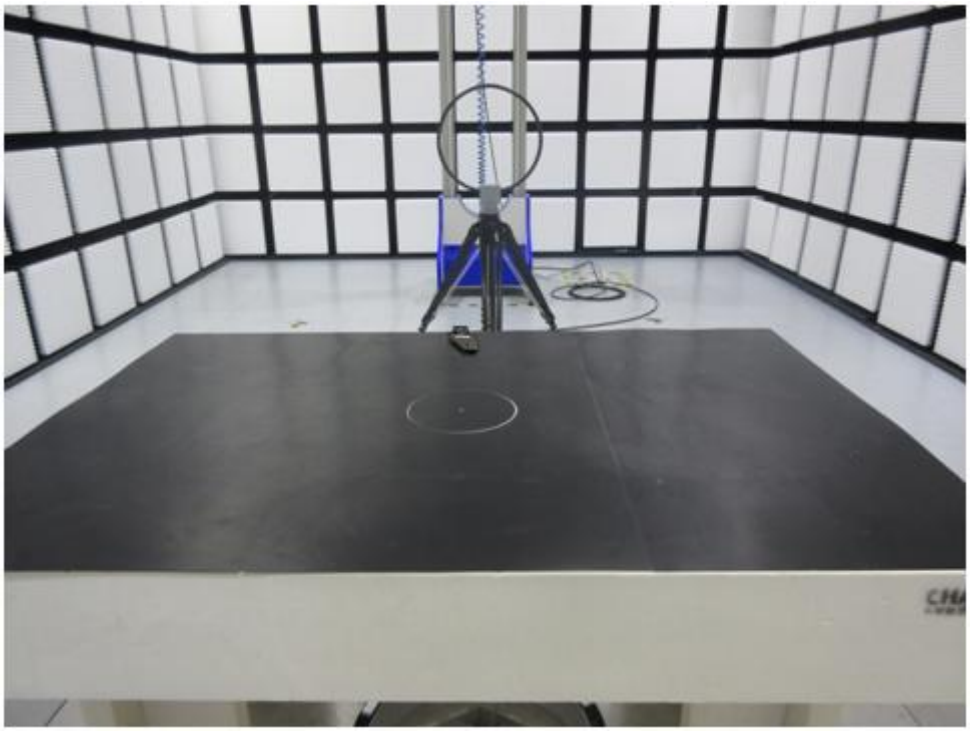
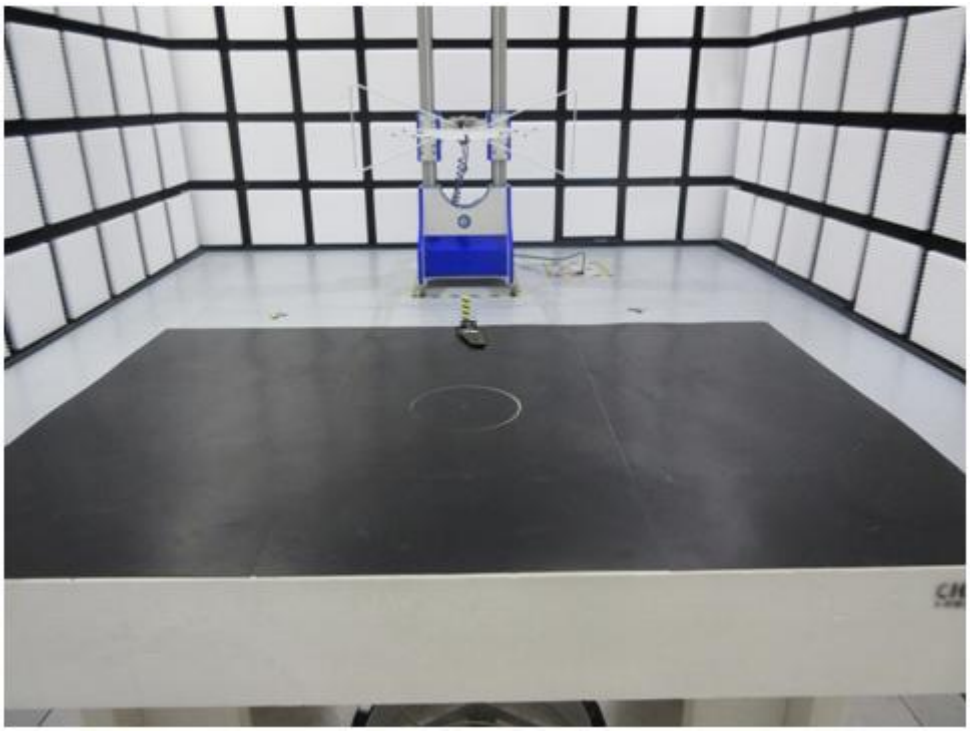
10 Appendix C - Setup Photographs of EUT

Radiated Emission





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11 Appendix D - General Product Information

Radiofrequency radiation exposure evaluation

According to KDB 447498 D01v06 section 4.3.1 & Appendix C

>> The 1-g SAR test exclusion thresholds, for frequency <100 MHz, at test separation distances < 200 mm are determined by:

Appendix C

***SAR Test Exclusion Thresholds* for < 100 MHz and < 200 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 4.3.1 must be applied to determine SAR test exclusion.

MHz	< 50	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	mm
100	237	474	481	487	494	501	507	514	521	527	534	541	547	554	561	567	
50	308	617	625	634	643	651	660	669	677	686	695	703	712	721	729	738	
10	474	948	961	975	988	1001	1015	1028	1041	1055	1068	1081	1095	1108	1121	1135	
1	711	1422	1442	1462	1482	1502	1522	1542	1562	1582	1602	1622	1642	1662	1682	1702	mW
0.1	948	1896	1923	1949	1976	2003	2029	2056	2083	2109	2136	2163	2189	2216	2243	2269	
0.05	1019	2039	2067	2096	2125	2153	2182	2211	2239	2268	2297	2325	2354	2383	2411	2440	
0.01	1185	2370	2403	2437	2470	2503	2537	2570	2603	2637	2670	2703	2737	2770	2803	2837	

>> The fundamental frequency of the EUT is 0.112 kHz, the test separation distance is < 200mm. (Manufacturer specified the separation distance is: 20mm)

>> The power of EUT measured is:
- For 112 kHz: 0.0001013mW = 10 log (0.0001013) dBm ~ -39.94dBm

>> Therefore the device is exempt from stand-alone SAR test requirements.

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