

# FCC RF Exposure Report

**FCC ID** : DMOSCBT5  
**Equipment** : BT Stereo Headset  
**Model No.** : SCBT5  
**Brand Name** : Sennheiser  
**Applicant** : Sennheiser Communications A/S  
**Address** : Industriparken 27, Ballerup 2750, Denmark  
**Standard** : 47 CFR FCC Part 2.1093  
**Received Date** : Dec. 01, 2015  
**Tested Date** : Dec. 07 ~ Dec. 10, 2015

We, International Certification Corp., would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

Approved & Reviewed by:

  
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Along Chen / Assistant Manager



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## Release Record

Report No.	Version	Description	Issued Date
FA5D0103	Rev. 01	Initial issue	Feb. 01, 2016

# 1 General Description

## 1.1 Information

### 1.1.1 Specification of the Equipment under Test (EUT)

RF General Information				
Frequency Range (MHz)	Bluetooth Mode	Ch. Frequency (MHz)	Channel Number	Data Rate
2400-2483.5	BR	2402-2480	0-78 [79]	1 Mbps
2400-2483.5	EDR	2402-2480	0-78 [79]	2 Mbps
2400-2483.5	EDR	2402-2480	0-78 [79]	3 Mbps
2400-2483.5	V4.2 LE	2402-2480	0-39 [40]	1 Mbps

Note 1: Bluetooth BR uses a GFSK modulation.  
 Note 2: Bluetooth EDR uses a combination of  $\pi/4$ -DQPSK and 8DPSK modulation.  
 Note 3: Bluetooth LE (Low energy) uses GFSK modulation.

### 1.1.2 EUT Operational Condition

Supply Voltage	3.7Vdc from battery
HW Version	Beta 1.1
SW Version	1.05

### 1.1.3 Antenna Details

Ant. No.	Type	Gain (dBi)	Remark
1	Inverted F	4.2	No

## 2 EXPOSURE EVALUATION OF PORTABLE DEVICES

Human exposure to RF emissions from portable devices (47 CFR §2.1093), as defined by the FCC, must be evaluated with respect to the FCC-adopted limits for SAR. Evaluation of mobile devices, as defined by the FCC, may also be performed with respect to SAR limits, but in such cases it is usually simpler and more cost-effective to evaluate compliance with respect to field strength or power density limits. For certain devices that are designed to be used in both mobile and portable configurations similar to those described in 47 CFR §2.1091(d)(4), such as certain desktop phones and wireless modem modules, compliance for mobile configurations is also satisfied when the same device is evaluated for SAR compliance in portable configurations.

### 2.1 LIMITS FOR GENERAL POPULATION/UNCONTROLLED EXPOSURE

Frequency (MHz)	5	10	15	20	25	Separation distance (mm)
150	39	77	116	155	194	SAR Test Exclusion Threshold (mW)
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	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	

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

$$\left[ \frac{\text{(max. power of channel, including tune-up tolerance, mW)}}{\text{(min. test separation distance, mm)}} \cdot \sqrt{f(\text{GHz})} \right] \leq 3.0$$
 for 1-g SAR and  $\leq 7.5$  for 10-g extremity SAR, where

- $f(\text{GHz})$  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

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 is applied to determine SAR test exclusion

## 2.2 EVALUATION RESULTS

Maximum Conducted Output Power Result					
Condition		RF Output Power (dBm)			
Modulation Mode	Freq. (MHz)	Peak Power (dBm)	Average Power (dBm)	Average Power (mW)	Antenna Gain (dBi)
BR-1Mbps	2402	3.71	3.22	2.10	4.2
BR-1Mbps	2441	4.48	3.95	2.48	4.2
BR-1Mbps	2480	5.2	4.69	<b>2.94</b>	4.2
EDR-2Mbps	2402	2.81	0.38	1.09	4.2
EDR-2Mbps	2441	3.3	0.85	1.22	4.2
EDR-2Mbps	2480	4.15	1.72	1.49	4.2
EDR-3Mbps	2402	3.17	0.4	1.10	4.2
EDR-3Mbps	2441	3.77	0.87	1.22	4.2
EDR-3Mbps	2480	4.55	1.74	1.49	4.2
LE-1Mbps	2402	3.60	3.04	2.01	4.2
LE-1Mbps	2440	4.21	3.71	2.35	4.2
LE-1Mbps	2480	5.11	4.57	2.86	4.2

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] * [\sqrt{f}(\text{GHz})]$   
 $= 2.94 / 5 * \sqrt{2.480} = 0.93 < 3.0$

SAR Test Exclusion Thresholds is < 10mW and 3.0 for separation distance 5mm. Therefore, SAR test is not required.

### 3 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corp, it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan Hsiang. Location map can be found on our website <http://www.icertifi.com.tw>.

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