



SK TECH CO., LTD.

Page 1 of 10

Certificate of Compliance

Test Report No.:	SKTTTRT-081007-017		
Applicant:	SAMSUNG ELECTRONICS CO., LTD		
Applicant Address:	416, Maetan-3dong, Yeongtong-gu, Suwon-si, Gyeonggi-do, 442-600, Korea		
Manufacturer:	YOUNGBO ENGINEERING INC		
Manufacturer Address:	20-2, Sinhang-ri, Dunpo-myeon, Asan-si, Chungcheongnam-do, Korea		
Device Under Test:	Mono Bluetooth Headset		
FCC ID:	A3LWEP350	Model Name:	WEP350
Brand/Trade Name:	SAMSUNG		
Receipt No.:	SKTEU08-0822	Date of receipt:	September 23, 2008
Date of Issue:	October 7, 2008		
Location of Testing:	SK TECH CO., LTD. #820-2, Wolmoon-ri, Wabu-up, Namyangju-si, Kyunggi-do, 472-905 South Korea		
Test Procedure:	ANSI C63.4, FCC Public Notice DA 00-705 (March 2000)		
Test Specification:	47CFR, Part 15 Rules, RSS-210 Issue 7		
FCC Equipment Class: IC Equipment Category:	DSS - Part 15 Spread Spectrum Transmitter RSS-210 Issue 7 – Category I Equipment, Annex 8		
Test Result:	The above-mentioned device has been tested and passed.		
Tested & Reported by: Seung-Taek, Shim		Approved by: Jong-Soo, Yoon	
 _____ Signature		 _____ Signature	
_____ Date		_____ Date	
Other Aspects:	<i>Application for FCC/IC Class II permissive change; No electrical or mechanical modifications were made to the transmitter from the time of their original FCC/IC submissions. The AC power line conducted emissions were measured, because the additional AC/DC adaptor for charging the battery will be marketed.</i>		
Abbreviations:	· OK, Pass = passed · Fail = failed · N/A = not applicable		
 ➤ This test report is not permitted to copy partly and entirely without our permission. ➤ This test result is dependent on only equipment to be used. ➤ This test result is based on a single evaluation of submitted samples of the above mentioned.			

**>> CONTENTS <<**

1. GENERAL	4
2. TEST SITE	4
2.1 Location	4
2.2 List of Test and Measurement Instruments	4
2.3 Test Date	4
2.4 Test Environment	4
3. DESCRIPTION OF THE EQUIPMENT UNDER TEST	5
3.1 Rating and Physical Characteristics	5
3.2 Equipment Modifications	5
3.3 Submitted Documents	5
4. MEASUREMENT CONDITIONS	6
4.1 Description of test configuration	6
4.2 List of Peripherals	6
4.3 Type of Used Cables	6
4.4 Uncertainty	6
5. TEST AND MEASUREMENTS	7
5.1 AC POWER LINE CONDUCTED EMISSIONS	8
5.1.1 Regulation	8
5.1.2 Test Procedure	8
5.1.3 Test Results	9
Table 1: Measured values of the AC Power Line Conducted Emissions	9
Figure 1: Plot of the AC Power Line Conducted Emissions	10



1. GENERAL

These tests were performed using the test procedure outlined in ANSI C63.4, 2003 for intentional radiators, and in accordance with the limits set forth in FCC Part 15.247 for Spread Spectrum Transmitter. The EUT (Equipment Under Test) has been shown to be capable of compliance with the applicable technical standards.

We attest to the accuracy of data. All measurements reported herein were performed by SK TECH CO., LTD. and were made under Chief Engineer's supervision.

We assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

2. TEST SITE

SK TECH CO., LTD.

2.1 Location

#820-2, Wolmoon-ri, Wabu-up, Namyangju-si, Kyunggi-do, 472-905 South Korea

(FCC Registered Test Site Number: 90752)

(OPEN AREA TEST SITE INDUSTRY CANADA NUMBER: IC 5429)

This test site is in compliance with ISO/IEC 17025 for general requirements for the competence of testing and calibration laboratories.

This laboratory is recognized as a Conformity Assessment Body (CAB) for CAB's Designation Number:

KR0007 by FCC, is accredited by NVLAP for NVLAP Lab. Code: **200220-0**.



2.2 List of Test and Measurement Instruments

No.	Description	Manufacturer	Model #	Serial #	Calibrated until	Used
1	Spectrum Analyzer	Agilent	E4405B	US40520856	2009.07	
2	EMC Spectrum Analyzer	Agilent	E7405A	US40240203	2009.02	
3	EMI Test Receiver	Rohde&Schwarz	ESIB40	100277	2009.02	
4	EMI Test Receiver	Rohde&Schwarz	ESVS10	825120/008	2009.07	
5	EMI Test Receiver	Rohde&Schwarz	ESHS10	862970/019	2009.07	☒
6	Artificial Mains Network	Rohde&Schwarz	ESH3-Z5	836679/018	2009.07	☒
7	Pre-amplifier	HP	8447F	3113A05153	2009.07	
8	Pre-amplifier	MITEQ	AFS44	1116321	2009.03	
9	Pre-amplifier	MITEQ	AFS44	1116322	2009.03	
10	Power Meter	Agilent	E4418B	VS39402176	2009.03	
11	Power Sensor	Agilent	8485A	3318A13916	2009.07	
12	Attenuator (10dB)	HP	8491B	38067	2009.07	
13	Oscilloscope	Agilent	54820A	US40240160	2009.03	
14	Diode detector	Agilent	8473C	1882A03173	2009.02	
15	High Pass Filter	Wainwright	WHKX3.0/18G	8	2009.07	
16	VHF Precision Dipole Antenna (TX/RX)	Schwarzbeck	VHAP	1014 / 1015	2008.11	
17	UHF Precision Dipole Antenna (TX/RX)	Schwarzbeck	UHAP	989 / 990	2008.11	
18	Loop Antenna	Schwarzbeck	HFH2-Z2	863048/019	2008.12	
19	TRILOG Broadband Antenna	Schwarzbeck	VULB9160	3141	2009.07	
20	Horn Antenna	AH Systems	SAS-200/571	304	N/A	
21	Horn Antenna	EMCO	3115	00040723	2009.03	
22	Horn Antenna	EMCO	3115	00056768	2009.07	
23	Vector Signal Generator	Agilent	E4438C	MY42080359	2009.07	
24	PSG analog signal generator	Agilent	E8257D-520	MY45141255	2009.07	
25	DC Power Supply	HP	6622A	3448A03950	2009.07	
26	DC Power Supply	HP	6268B	2542A-07856	2009.07	
27	Digital Multimeter	HP	HP3458A	2328A14389	2009.03	
28	PCS Interface	HP	83236B	3711J00881	2009.03	
29	CDMA Mobile Test Set	HP	8924C	US35360253	2009.03	
30	Hygro/Thermo Graph	SATO	PC-5000TRH-II	-	2009.08	☒
31	Temperature/Humidity Chamber	All Three	ATM-50M	20030425	2009.03	
32	Temperature/Humidity Chamber	DAEJIN	DJ-THC02	06071	2009.03	

2.3 Test Date

Date of Test: October 6, 2008 ~ October 6, 2008

2.4 Test Environment

See each test item's description.



3. DESCRIPTION OF THE EQUIPMENT UNDER TEST

The product specification described herein was obtained from the product data sheet or user's manual.

3.1 Rating and Physical Characteristics

Power source	DC 3.7 V Li-ion battery and/or AC/DC Adaptor
Local Oscillator or X-Tal	X-Tal: 26 MHz
Transmit Frequency	2402 ~ 2480 MHz (1MHz step, 79 channels)
Antenna Type	Integral (chip antenna, Model MONO_0802.A00, Gain: -0.69 dBi)
Type of Modulation	FHSS (GFSK)
RF Output power	< 4 dBm
External Ports	- DC Input for battery charging AC/DC Adaptor Manufacturer : HAEM Co., Ltd. Model : ATADD30JBE Input : AC 100 – 240 V, 50/60 Hz, 0.15 A Output : DC 4.75 V, 0.55 A

*** This test report was issued for FCC Class II permissive change; No electrical or mechanical modifications were made to the transmitter from the time of their original FCC submissions. The AC power line conducted emissions were measured for additional AC/DC adaptor.*

3.2 Equipment Modifications

None

3.3 Submitted Documents

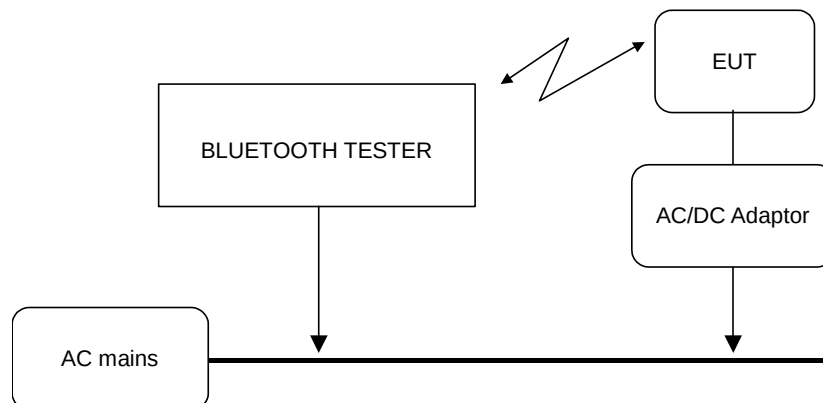
AC/DC adaptor specification



4. MEASUREMENT CONDITIONS

4.1 Description of test configuration

The measurements were taken in continuous transmitting mode using BLUETOOTH TESTER.



NOTE: The AC power line conducted emission measurement was performed while charging the battery and simultaneously transmitting the RF signal. If not otherwise stated, for modulating the transmitter, a pseudo random bit sequence with a pattern type DH5 was used.

4.2 List of Peripherals

Equipment Type	Manufacturer	Model	S/N
AC/DC Adaptor	HAEM Co., Ltd	ATADD30JBE	DW1Q917WS/5-G
BLUETOOTH TESTER **	TESCOM	TC-3000B	3000B63009

** For control of the RF module via air interface.

4.3 Type of Used Cables

#	START		END		CABLE	
	NAME	I/O PORT	NAME	I/O PORT	LENGTH(m)	SHIELDED
1	EUT w/ cradle	DC power IN	AC/DC Adaptor	DC output	-	-
2	AC/DC Adaptor	AC input	AC mains	-	1.5	NO
3	BT com	AC input	AC mains	-	1.8	NO

4.4 Uncertainty

Measurement Item	Combined Standard Uncertainty U_c	Expanded Uncertainty $U = k \times U_c (k = 1.96)$
Radiated disturbance	± 2.30 dB	± 4.51 dB
Conducted disturbance	± 1.96 dB	± 3.84 dB



5. TEST AND MEASUREMENTS

Summary of Test Results

Requirement	CFR 47 Section	RSS Standards	Report Section	Test Result
Antenna Requirement	15.203, 15.247(b)(4)	RSS-Gen, 7.1.4	-	N/A **
Maximum Peak Output Power	15.247(b)(1), (4)	RSS-210, A8.4 (2)	-	N/A **
Carrier Frequency Separation	15.247(a)(1)	RSS-210, A8.1 (b)	-	N/A **
20dB Channel Bandwidth	15.247(a)(1)	RSS-210, A8.1 (b)	-	N/A **
Number of Hopping Channels	15.247(a)(iii), 15.247(b)(1)	RSS-210, A8.1 (b) RSS-210, A8.4 (2)	-	N/A **
Time of Occupancy (Dwell Time)	15.247(a)(iii)	RSS-210, A8.1 (d)	-	N/A **
Spurious Emission, Band Edge, and Restricted bands	15.247(d), 15.205(a), 15.209(a)	RSS-210, A8.5 Table 1, 2, and 3	-	N/A **
Peak Power Spectral Density	15.247(e)	RSS-210, A8.2	-	N/A **
AC Power Line Conducted Emissions	15.207(a)	RSS-Gen, 7.2.2	5.1	PASS
Receiver Spurious Emissions	-	RSS-Gen, 7.2.3	-	N/A **
RF Exposure	15.247(i), 1.1307(b)(1)	RSS-Gen, 5.5 RSS-102, 2.5	-	N/A **

*** This test report was issued for FCC Class II permissive change; No electrical or mechanical modifications were made to the transmitter from the time of their original FCC submissions. The original test results were applicable and representative of the transmitter.*



5.1 AC POWER LINE CONDUCTED EMISSIONS

5.1.1 Regulation

According to §15.207(a), for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 Ω line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency of emission (MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average
0.15 – 0.5	66 to 56 *	56 to 46 *
0.5 – 5	56	46
5 – 30	60	50

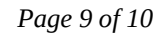
* Decreases with the logarithm of the frequency.

According to §15.107(a), for unintentional device, except for Class A digital devices, line conducted emission limits are the same as the above table.

According to RSS-Gen 7.2.2, for any licence-exempt radiocommunication device equipped to operate from the public utility AC power supply, either directly or indirectly, the radio frequency voltage that is conducted back onto the AC power lines in the frequency range of 0.15 MHz to 30 MHz shall not exceed the limits shown in Table 2(The same as FCC requirements).

5.1.2 Test Procedure

1. The EUT was placed on a wooden table of size, 1 m by 1.5 m, raised 80 cm in which is located 40 cm away from the vertical wall and 1.5m away from the side wall of the shielded room.
2. Each current-carrying conductor of the EUT power cord was individually connected through a 50 Ω /50 μ H LISN, which is an input transducer to a Spectrum Analyzer or an EMI/Field Intensity Meter, to the input power source.
3. Exploratory measurements were made to identify the frequency of the emission that had the highest amplitude relative to the limit by operating the EUT in a range of typical modes of operation, cable position, and with a typical system equipment configuration and arrangement. Based on the exploratory tests of the EUT, the one EUT cable configuration and arrangement and mode of operation that had produced the emission with the highest amplitude relative to the limit was selected for the final measurement.
4. The final test on all current-carrying conductors of all of the power cords to the equipment that comprises the EUT (but not the cords associated with other non-EUT equipment in the system) was then performed over the frequency range of 0.15 MHz to 30 MHz.
5. The measurements were made with the detector set to PEAK amplitude within a bandwidth of 10 kHz or to QUASI-PEAK and AVERAGE within a bandwidth of 9 kHz. The EUT was in transmitting mode during the measurements.



PASS

[illegible]

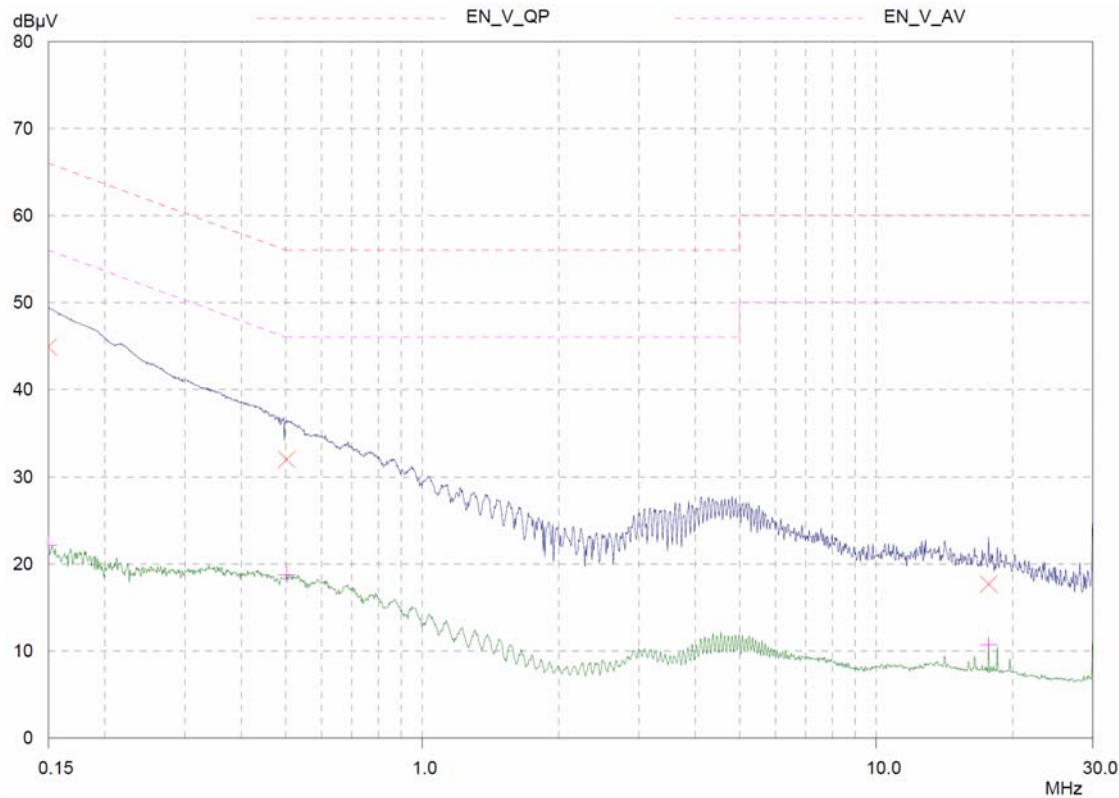
CF/CL = Correction Factor and Cable Loss

NOTE: The frequency range was scanned from 150 kHz to 30 MHz. All emissions not reported were more than 20 dB below the specified limit.



Figure 1. Plot of the AC Power Line Conducted Emissions

Line – PE(Quasi-Peak and Average detector used)



Neutral – PE(Quasi-Peak and Average detector used)

