CETECOM ICT Services GmbH

Radio Satellite Communication
Untertürkheimer Straße 6-10 . D-66117 Saarbrücken Telefon: +49 (0)681 598-9100 Telefax: -9075

Recognized by the
Federal Communications Commission and Industry Canada
Anechoic chamber registration No.: 90462 (FCC)
Anechoic chamber registration No.: 3463 (IC)
TCB ID: DE0001

Accredited by the
German Accreditation Council
DAR–Registration Number
TTI–P–G 081/94-D0

Independent ETSI
compliance test house

Accredited Bluetooth™ Test Facility (BQTF)

Test report no.: 4-1432-01-02/04
FCC Part 15.249 / CANADA RSS-210
SBC HC8430/37 HC8440/37
FCC-ID: OYMHC8442
IC: 135M-SBCHC844237

CETECOM – ICT Services GmbH
Untertürkheimerstr. 6-10
66117 Saarbrücken, Germany

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REFERENCE NUMBER(S) OF TEST EQUIPMENT USED
(for reference numbers see test equipment listing)
17 – 24; 64; 52-63

1 General information

1.1 Notes

The test results of this test report relate exclusively to the test item specified in 1.5.
The CETECOM ICT Services GmbH does not assume responsibility for any conclusions and generalisations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the CETECOM ICT Services GmbH.

Test laboratory manager:

2004-10-11	RSC - 8414	Ames H.	
Date	Section	Name	Signature

Technical responsibility for area of testing:

2004-10-11	RSC - 8412	Hausknecht D.	
Date	Section	Name	Signature

REFERENCE NUMBER(S) OF TEST EQUIPMENT USED
(for reference numbers see test equipment listing)
17 – 24; 64; 52-63

1.2 Testing laboratory

CETECOM ICT Services GmbH
Untertürkheimer Straße 6 - 10
66117 Saarbrücken
Germany
Telephone : + 49 681 598 - 0
Telefax : + 49 681 598 - 9075
E-mail : info@ict.cetecom.de
Internet : www.cetecom-ict.de

Accredited testing laboratory
Accredited by : Regulierungsbehörde für Telekommunikation und Post (RegTP)
Listed by : Federal Communications Commission (FCC)

Authority	Identification/Registration No.
RegTP	TTI-P-G 081/94-D0
FCC	90462

1.3 Details of applicant

Name : Philips Consumer Electronics B.V. BLC P&A CC
Street : Glaslaan 2
City : NL-5616LW Eindhoven
Country : The Netherlands
Telephone: +31 (0) 40 27-36589
Telex : +31 (0) 40 27-39066

Contact person:
Name : Mr. Karel Rysman
Telephone : +31 (0) 40 27-36589
Telex : +31 (0) 40 27-39066
E-mail : Karel.rysman@philips.com

1.4 Application details

Date of receipt of application : 2004-08-10
Date of receipt of test item : 2004-09-02
Date of test : 2004-09-03

REFERENCE NUMBER(S) OF TEST EQUIPMENT USED
(for reference numbers see test equipment listing)
17 – 24; 64; 52-63

1.5 Test item

Type of equipment	:	RF wireless headphones
Type designation	:	SBC HC8440/37 consists of TX 8442/37 and RX 8445/37 SBC HC8430/37 consists of TX 8432/37 and RX 8435/37
Manufacturer	:	Uni-Art Precise Products Ltd
Street	:	11-12/F, Yue Xiu Ind'l Bldg
City	:	Kwun Tong, Kowloon
Country	:	Hong Kong, China

Additional information	**:**	
Frequency	:	914.0 – 915.0 MHz
Channel spacing	:	1 MHz
Number of channels	:	2
Antenna	:	Integrated λ/4 wire antenna
Emission designation	:	250k0F3E
ERP	:	91.5 dBµV/m in 3m
Power supply	:	Tx: 120V/12V AC/DC Adapter Rx: 3,0V DC by rechargeable batteries
Temperature range	:	+5°C - +45°C
Transmitter spurious	:	36.1 dBµV/m in 3m
Receiver spurious	:	39.3 dBµ/m in 3m
Certification no USA	:	OYMHC8442
Certification no CANADA	:	135M-SBCHC844237

DECLARATION OF COMPLIANCE: I declare that the testing was performed or supervised by me; that the test measurements were made in accordance with the above-mentioned Industry Canada standard(s); and that the equipment identified in this application has been subjected to all the applicable test conditions specified in the Industry Canada standards and all of the requirements of the standard have been met.

Signature: _____

Date: 2004-09-03 **Michael Berg ; Test management**
NAME AND TITLE (Please print or type):

1.6 Test specifications:

FCC Part 15 §15.249
CANADA RSS-210

REFERENCE NUMBER(S) OF TEST EQUIPMENT USED
(for reference numbers see test equipment listing)
17 – 24; 64; 52-63

2 Technical test

2.1 Summary of test results

The radiated measurements are performed in vertical and horizontal plane in the frequency range from 9 kHz to 20 GHz in semi-anechoic chambers. The EUT is positioned on a non-conductive support with a height of 0.80 m above a conductive ground plane that covers the whole chamber. The receiving antennas are conform with specifications ANSI C63.2-1996 clause 15 and ANSI C63.4-2003 clause 4.1.5. These antennas can be moved over the height range between 1.0 m and 4.0 m in order to search for maximum field strength emitted from EUT. The measurement distances between EUT and receiving antennas are indicated in the test set-ups for the various frequency ranges. For each measurement, the EUT is rotated in all three axes until the maximum field strength is received.
The wanted and unwanted emissions are received by spectrum analysers where the detector modes and resolution bandwidths over various frequency ranges are set according to requirement ANSI C63-4-2001 clause 4.2.
Antennas are conform with ANSI C63.2-1996 item 15.
9 kHz - 30 MHz: Quasi Peak measurement, 200Hz/9kHz Bandwidth, passive loop antenna.
30 MHz - 200 MHz: Quasi Peak measurement, 120KHz Bandwidth, biconical antenna
200MHz - 1GHz: Quasi Peak measurement, 120KHz Bandwidth, log periodic antenna
>1GHz: Average, RBW 1MHz, VBW 10 Hz, wave guide horn

All measurement settings are according to FCC 15.35, 15.209.

The product fulfils also the requirements for CANADA RSS-210 Issue 5

All measurements of the TX were made with an AC power supply provided by the customer.
The RX was measured with a fresh set of batteries.

No deviations from the technical specification(s) were ascertained in the course of the tests performed.

The system consists of two different TX/RX-combinations. The only difference is the build-in charging unit of the device SBC HC8440/37.
We measured this device as it represents the worst configuration.

FINAL VERDICT : PASS

REFERENCE NUMBER(S) OF TEST EQUIPMENT USED
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2.2 Test report

2.2.1 Field Strength of Fundamental § 15.249

TEST CONDITIONS		MAXIMUM OUTPUT POWER (QUASI PEAK) ERP (dBµV/m)		
Frequency (MHz)		914 MHz	915 MHz	
T_{nom}(23.0)°C	V_{nom}(115)V	91.5	90.7	
Measurement uncertainty		±3dB		

Quasi Peak

Measured at a distance of 3m

Limits **SUBCLAUSE § 15.249 (a)**

Fundamental Frequency (MHz)	Field strength of Fundamental (mV/m)	Field strength of Fundamental (µV/m)
902-928	50 (94 dBµV/m)	500 (54 dBµV/m)
2400-2483.5	50 (94 dBµV/m)	500 (54 dBµV/m)
5725-5875	50 (94 dBµV/m)	500 (54 dBµV/m)
24.0-24.25 GHz	250 (108 dBµV/m)	2500 (68 dBµV/m)

REFERENCE NUMBER(S) OF TEST EQUIPMENT USED
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2.2.2 Spurious Radiation § 15.249

SPURIOUS EMISSIONS LEVEL (µV/m)								
914 MHz			915 MHz					
f (MHz)	Detect	Level (dBµV/m)	f (MHz)	Detect	Level (dBµV/m)	f (MHz)	Detect	Level (µV/m)
1828	AV	35.4	1830	AV	36.1			
Measurement uncertainty			±3 dB					

f < 1 GHz : RBW/VBW: 100 kHz **f ≥ 1GHz : RBW/VBW: 1 MHz**
Measured at a distance of 3m

Limits **SUBCLAUSE § 15.249 (a)**

	Field strength of Fundamental (mV/m)	Field strength of Harmonics (µV/m)
902-928	50 (94 dBµV/m)	500 (54 dBµV/m)
2400-2483.5	50 (94 dBµV/m)	500 (54 dBµV/m)
5725-5875	50 (94 dBµV/m)	500 (54 dBµV/m)
24.0-24.25 GHz	250 (108 dBµV/m)	2500 (68 dBµV/m)

Limits **SUBCLAUSE § 15.109 / 209**

Frequency (MHz)	Field strength (µV/m)	Measurement distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
above 960	500	3

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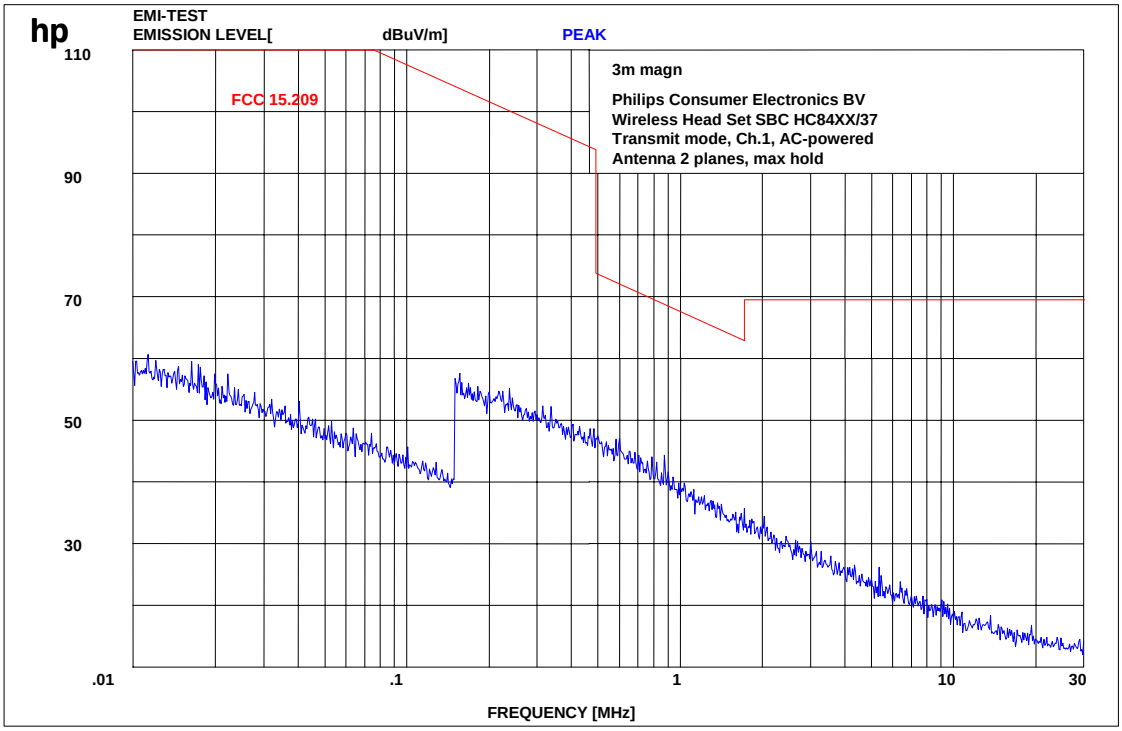
Spurious Radiation (9kHz – 30 MHz) **§ 15.109**

TX Mode, Valid for both channels

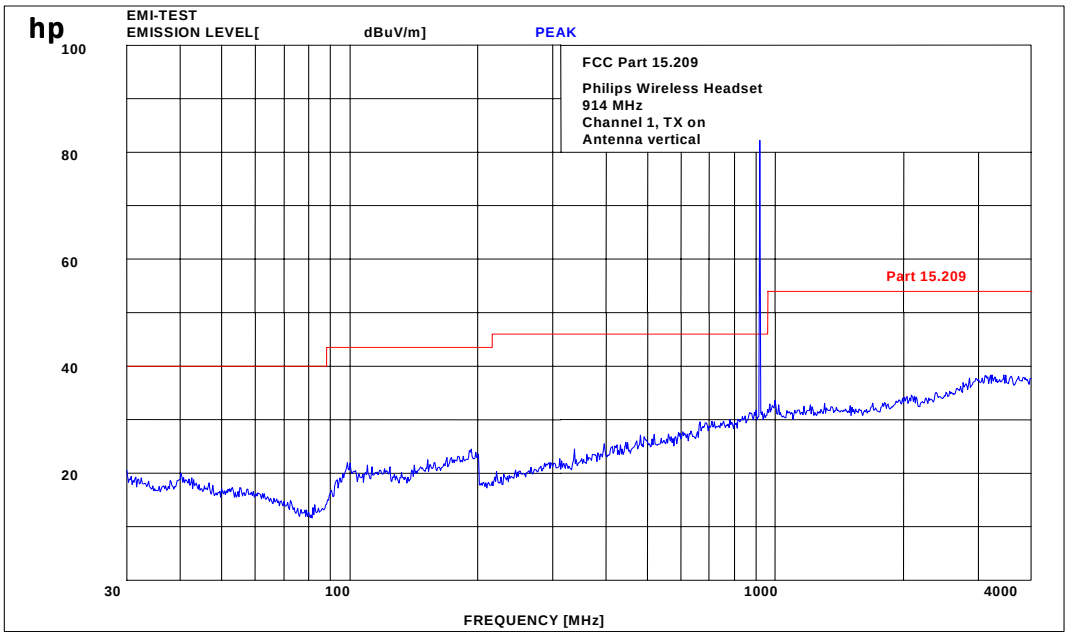


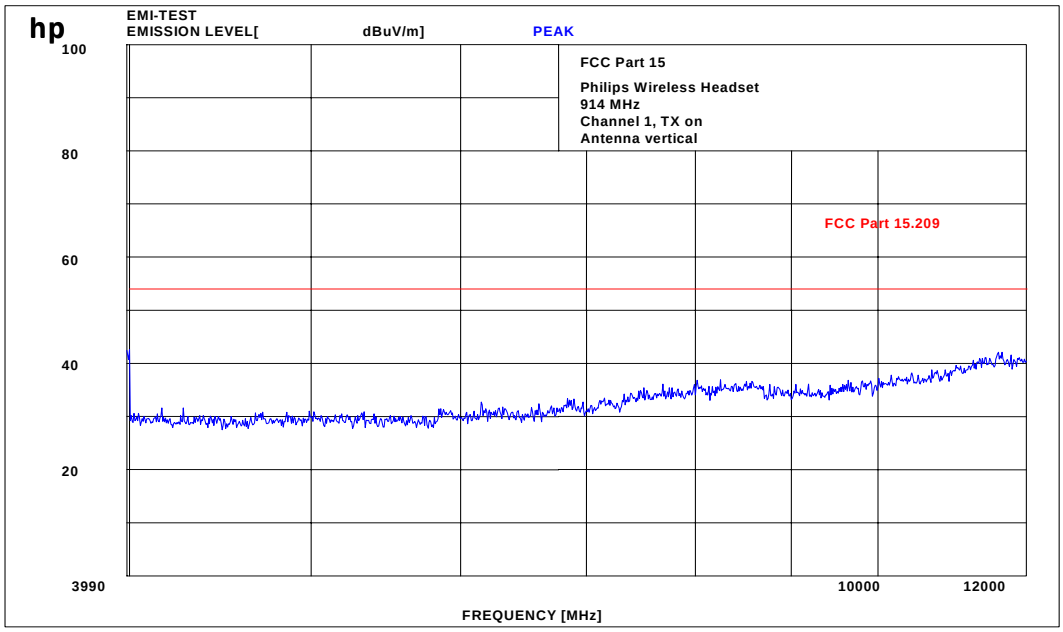
Limits **SUBCLAUSE § 15.109**

Frequency (MHz)	Field strength (µV/m)	Measurement distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30 / 29.5 dBµV/m	30

REFERENCE NUMBER(S) OF TEST EQUIPMENT USED
(for reference numbers see test equipment listing)
17 – 24; 64; 52-63

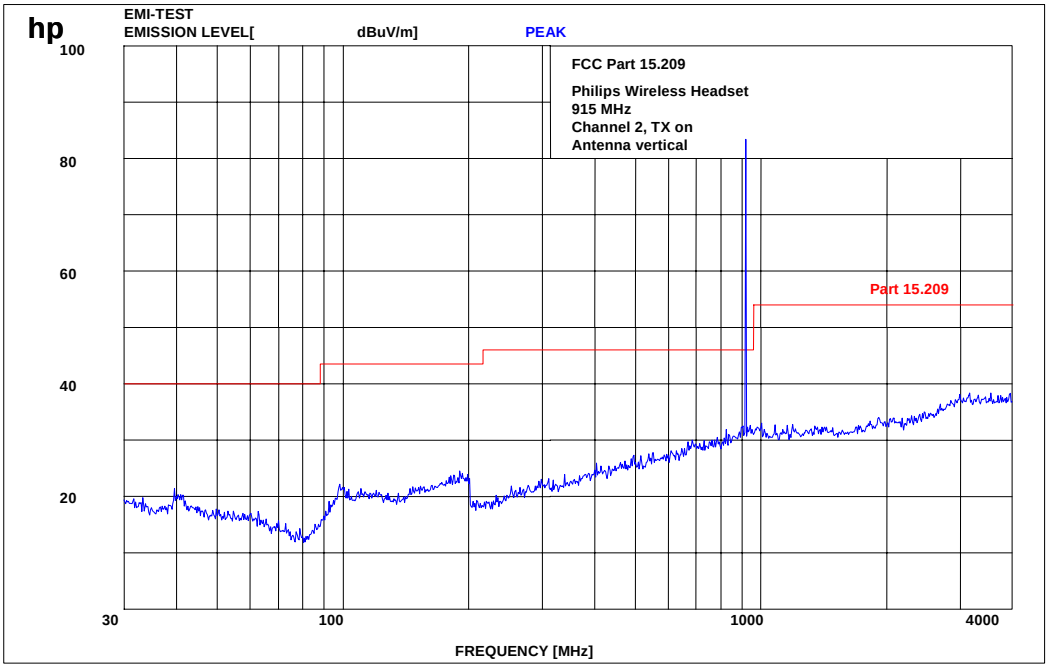
Spurious Radiation (30 MHz –12 GHz) Channel 1

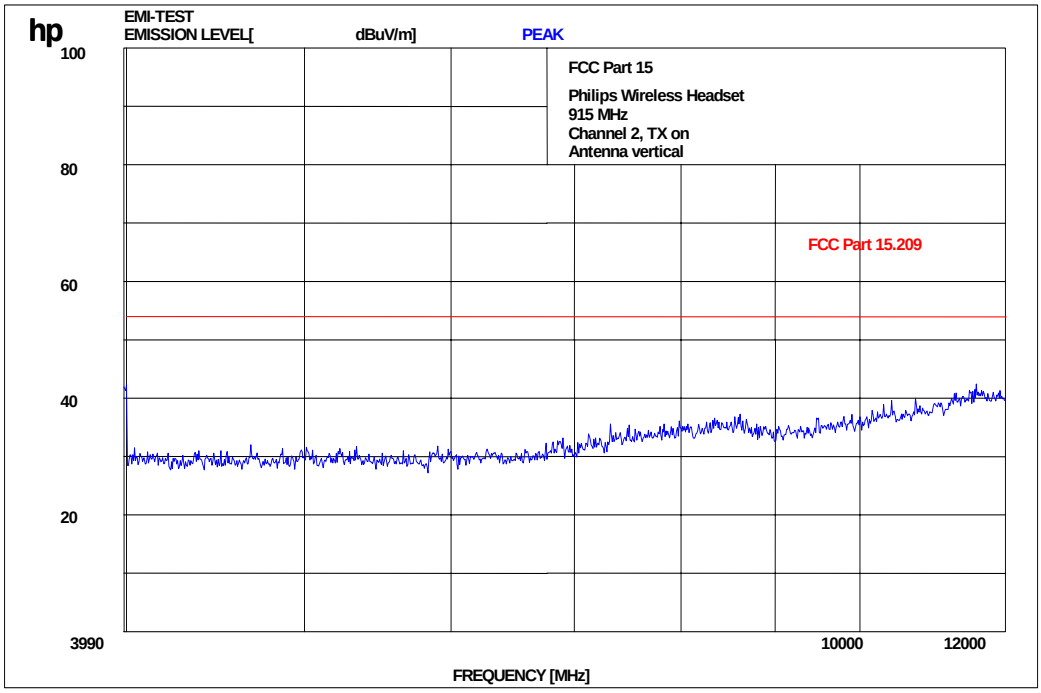




REFERENCE NUMBER(S) OF TEST EQUIPMENT USED
(for reference numbers see test equipment listing)
17 – 24; 64; 52-63

Spurious Radiation (30 MHz –12 GHz) Channel 2





REFERENCE NUMBER(S) OF TEST EQUIPMENT USED
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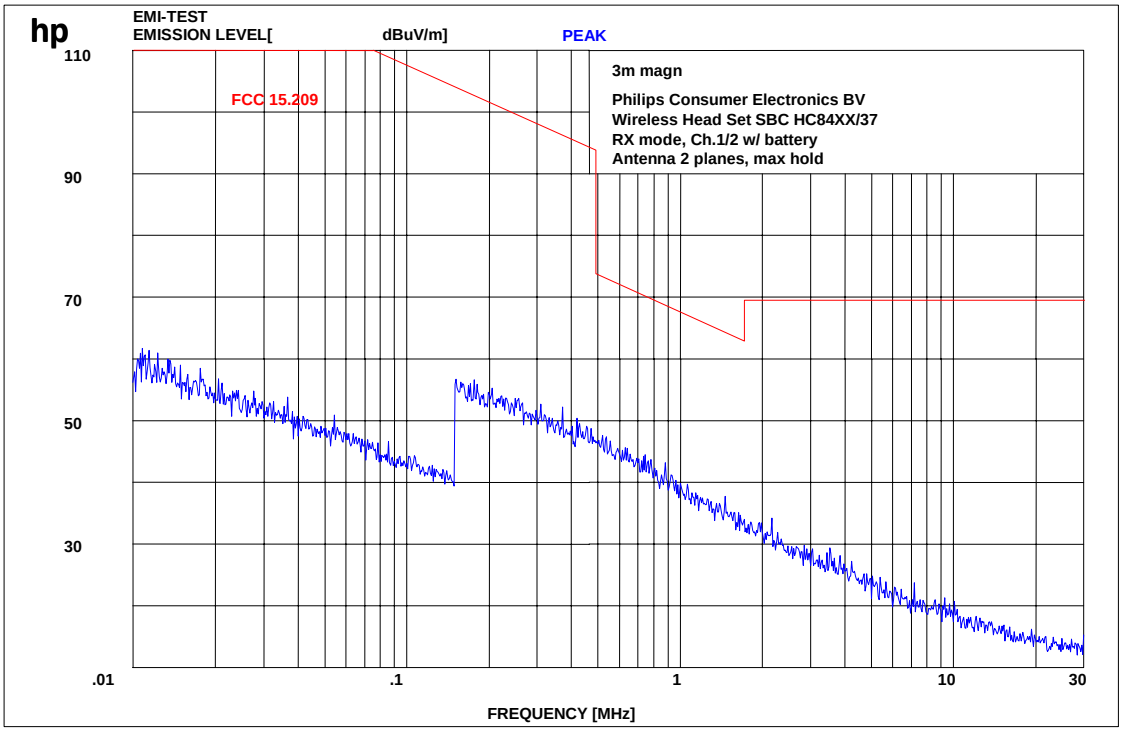
17 – 24; 64; 52-63

2.2.3 Receiver Spurious Radiation 9kHz – 30 MHz § 15.109

RX mode, valid for both channels

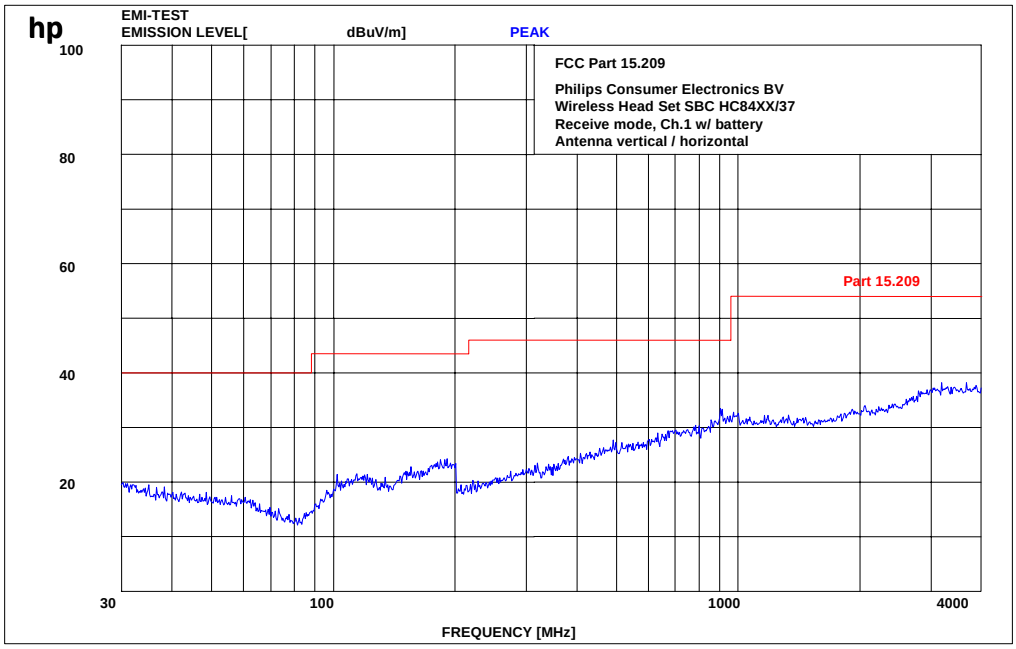


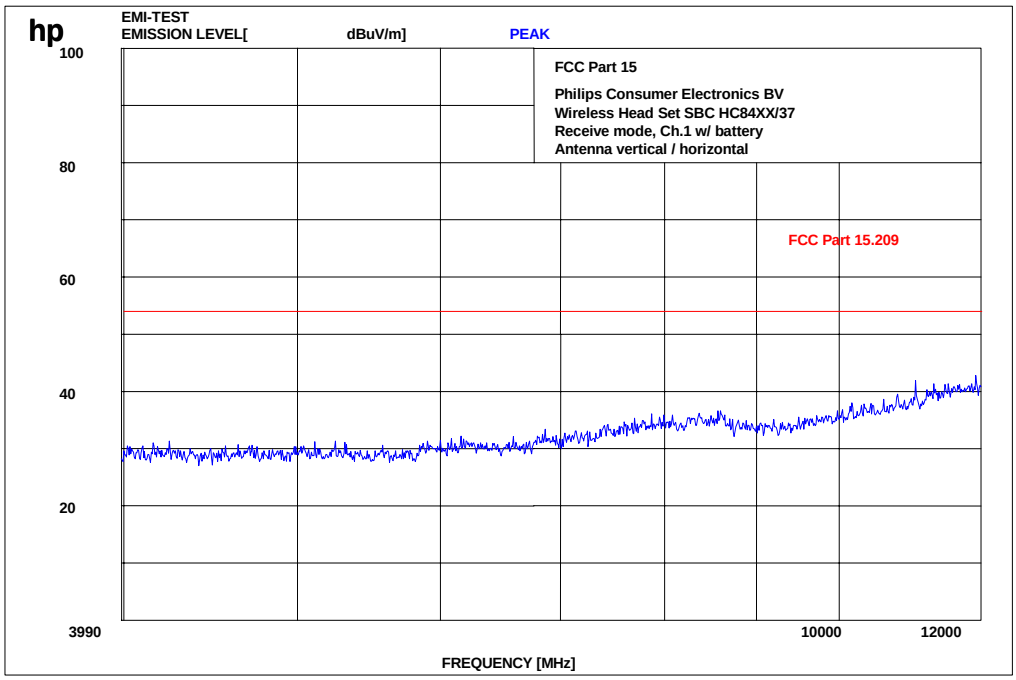
Limits **SUBCLAUSE § 15.109**

Frequency (MHz)	Field strength (µV/m)	Measurement distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30 / 29.5 dBµV/m	30

REFERENCE NUMBER(S) OF TEST EQUIPMENT USED
(for reference numbers see test equipment listing)
17 – 24; 64; 52-63

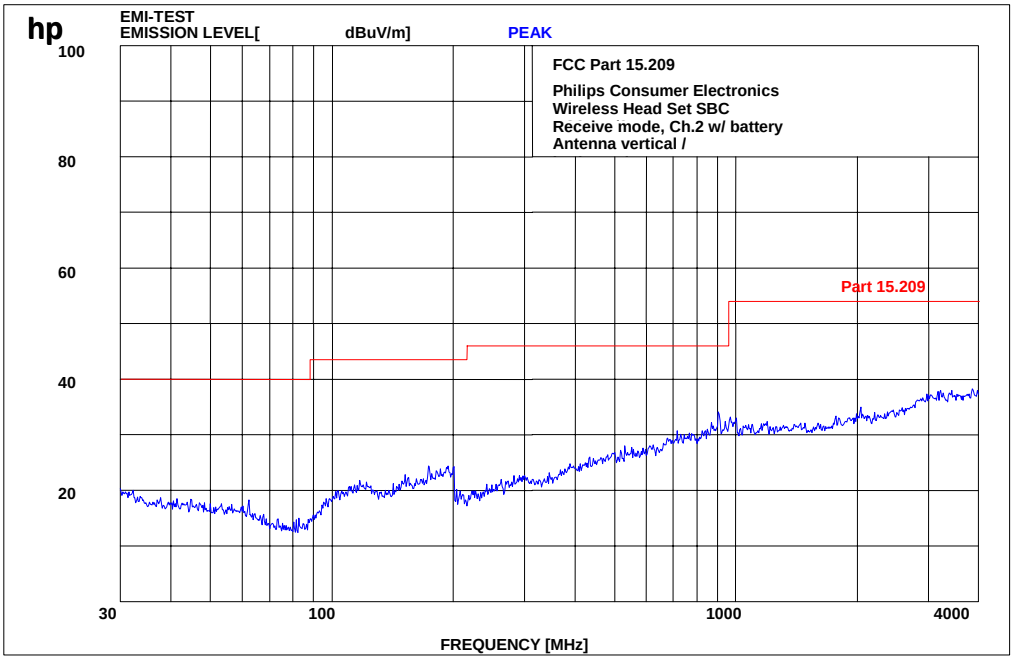
Spurious emissions § 15.109
RX-mode (30 MHz –12 GHz) Channel 1

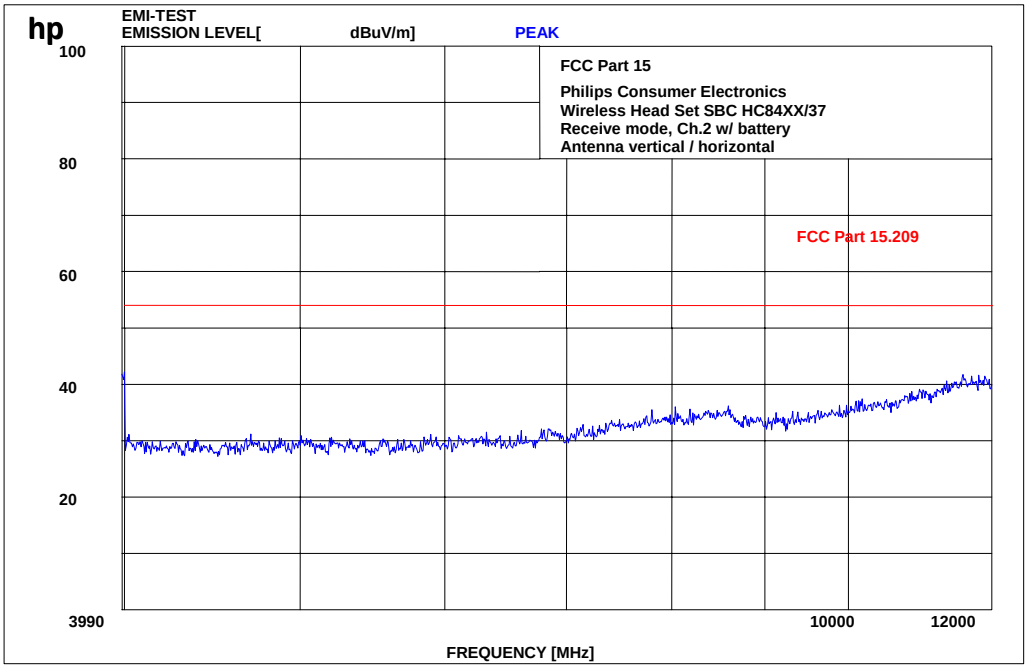




REFERENCE NUMBER(S) OF TEST EQUIPMENT USED
(for reference numbers see test equipment listing)
17 – 24; 64; 52-63

Spurious emissions **§ 15.109**
RX-mode (30 MHz –12 GHz) Channel 2





REFERENCE NUMBER(S) OF TEST EQUIPMENT USED
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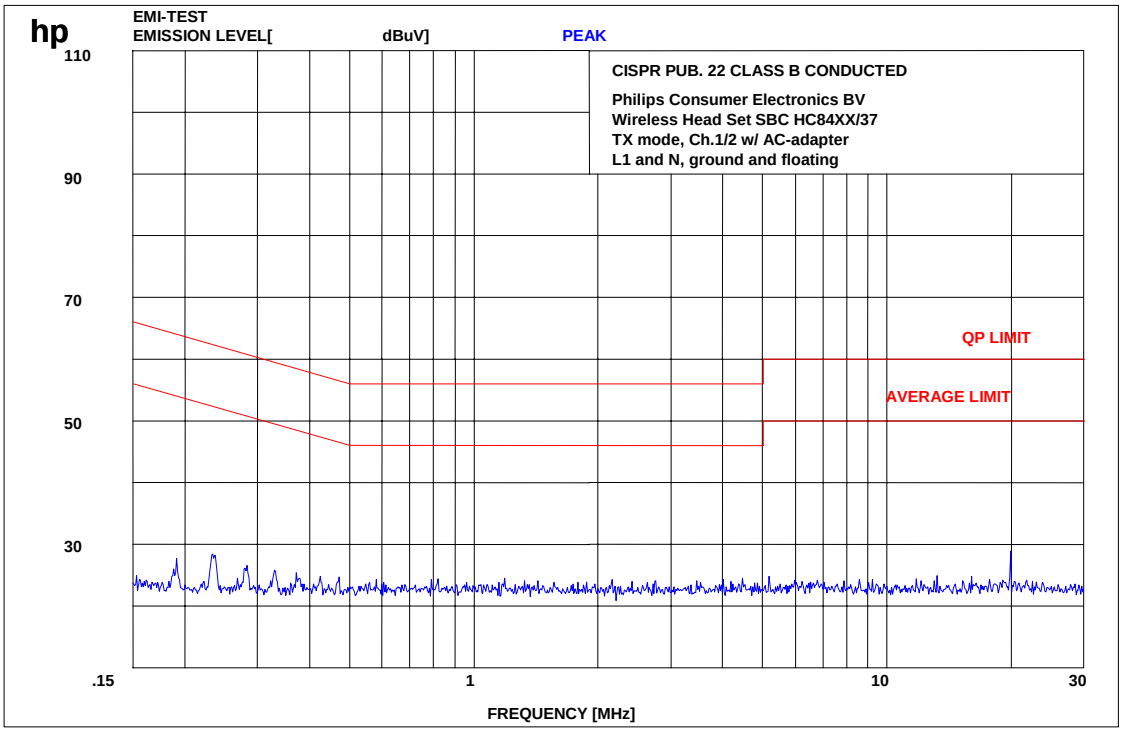
17 – 24; 64; 52-63

2.2.4 Conducted emissions § 15.107/207



We measured L1- and N-system floating and grounded with max hold.

Limit **SUBCLAUSE § 15.207**

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	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.

REFERENCE NUMBER(S) OF TEST EQUIPMENT USED
(for reference numbers see test equipment listing)
17 – 24; 64; 52-63

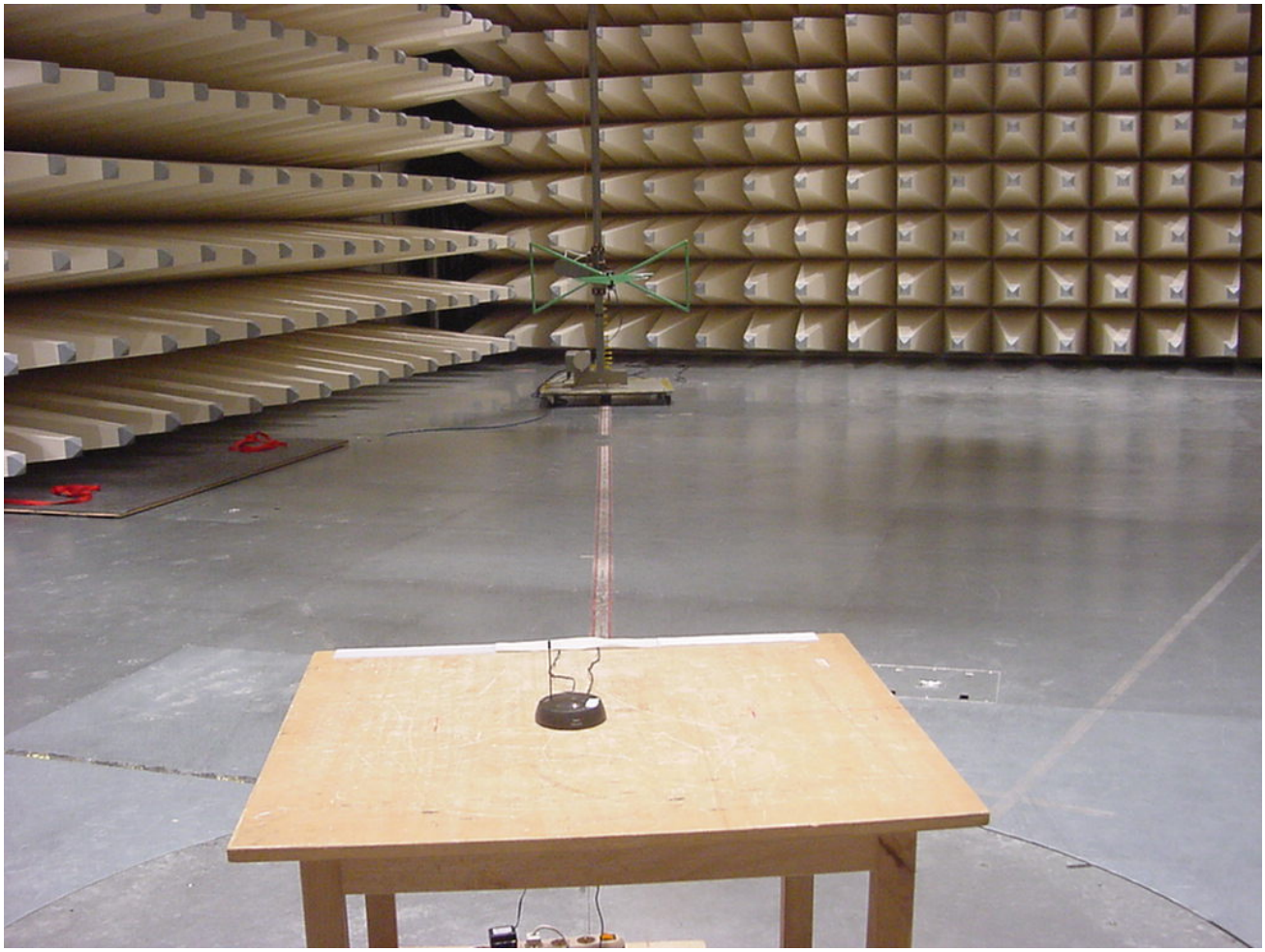
3. Test Equipment and Ancillaries used for Tests

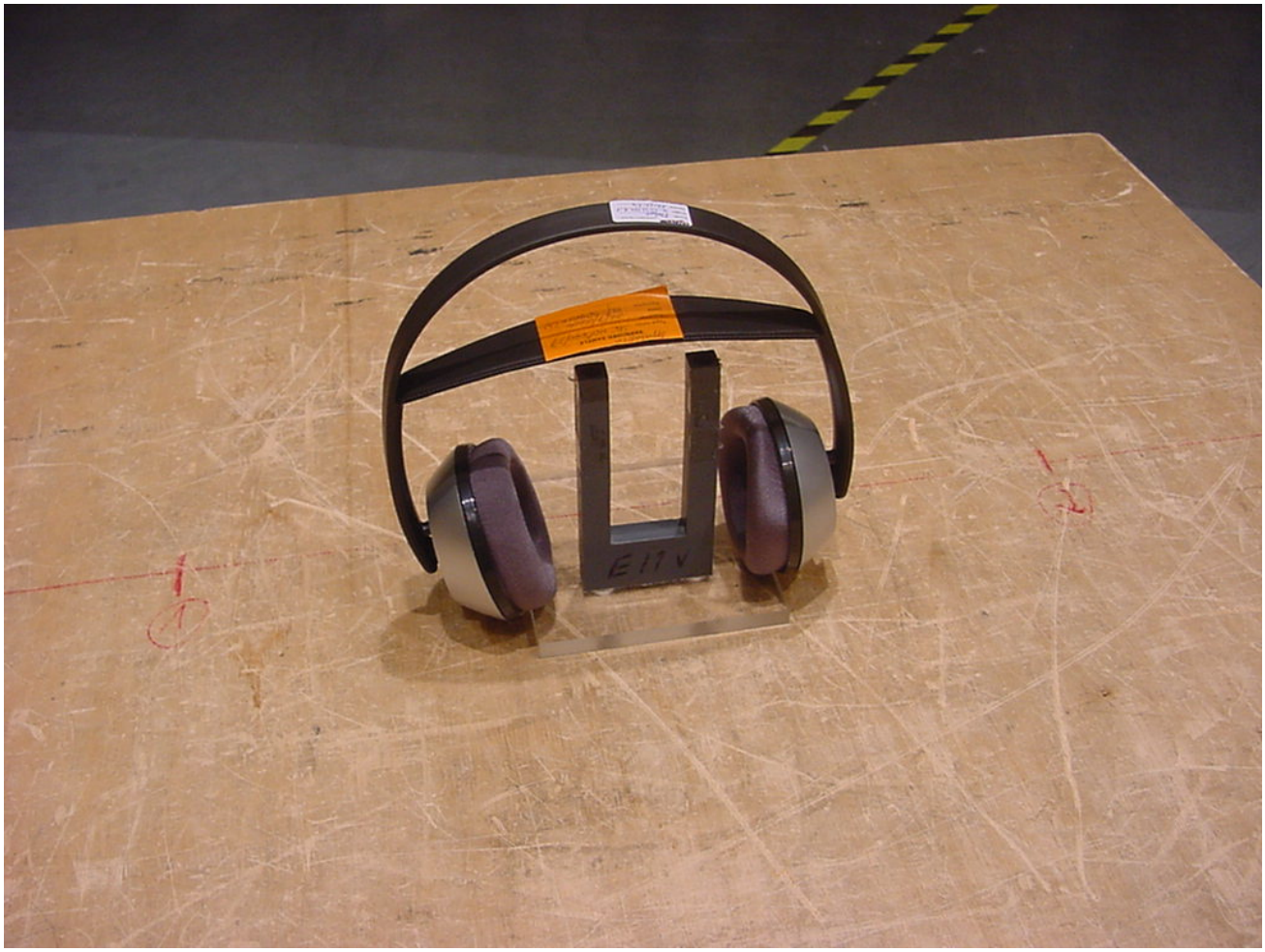
To simplify the identification on each page of the test equipment used, on each page of the test report, each item of test equipment and ancillaries such as cables are identified (numbered) by the Test Laboratory, below.

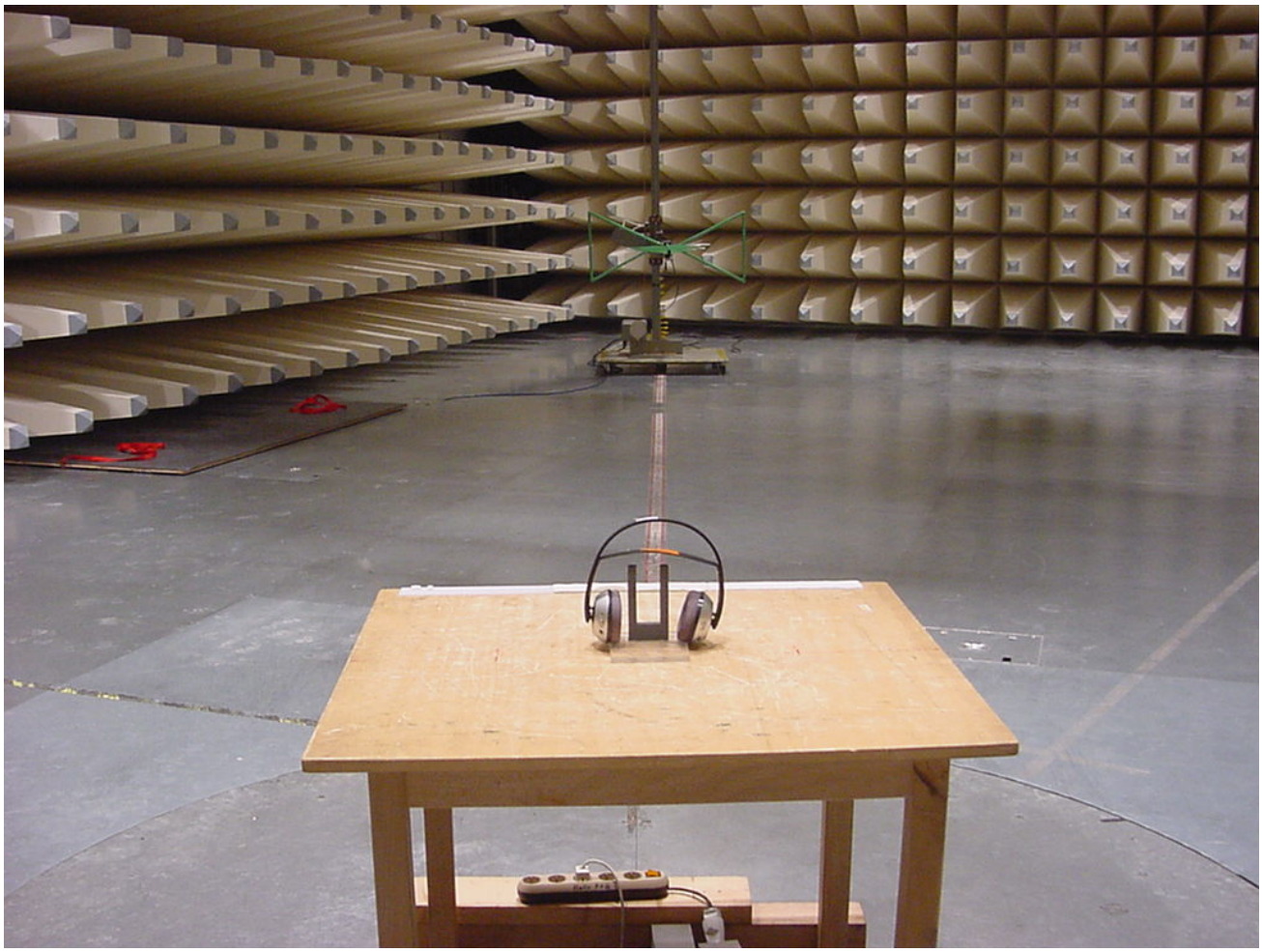
No	Instrument/Ancillary	Type	Manufacturer	Serial No.
01	Spectrum Analyzer	8566 A	Hewlett-Packard	1925A00257
02	Analyzer Display	8566 A	Hewlett-Packard	1925A00860
03	Oscilloscope	7633	Tektronix	230054
04	Radio Analyzer	CMTA 54	Rohde & Schwarz	894 043/010
05	System Power Supply	6038 A	Hewlett-Packard	2848A07027
06	Signal Generator	8111 A	Hewlett-Packard	2215G00867
07	Signal Generator	8662 A	Hewlett-Packard	2224A01012
08	Funktionsgenerator	AFGU	Rohde & Schwarz	862 480/032
09	Regeltrenntrafo	MPL	Erfi	91350
10	Netznachbildung	NNLA 8120	Schwarzbeck	8120331
11	Relais-Matrix	PSU	Rohde & Schwarz	893 285/020
12	Power-Meter	436 A	Hewlett-Packard	2101A12378
13	Power-Sensor	8484 A	Hewlett-Packard	2237A10156
14	Power-Sensor	8482 A	Hewlett-Packard	2237A00616
15	Modulationsmeter	9008	Racal-Dana	2647
16	Frequenzzähler	5340 A	Hewlett-Packard	1532A03899
17	Absorber Schirmkabine	---	MWB	87400/002
18	Spectrum Analyzer	85660 B	Hewlett-Packard	2747A05306
19	Analyzer Display	85662 A	Hewlett-Packard	2816A16541
20	Quasi Peak Adapter	85650 A	Hewlett-Packard	2811A01131
21	RF-Preselector	85685 A	Hewlett-Packard	2833A00768
22	Biconical Antenne	3104	Emco	3758
23	Log. Per. Antenne	3146	Emco	2130
24	Double Ridge Horn	3115	Emco	3088
25	EMI-Testreceiver	ESAI	Rohde & Schwarz	863 180/013
26	EMI-Analyzer-Display	ESAI-D	Rohde & Schwarz	862 771/008
27	Biconical Antenne	HK 116	Rohde & Schwarz	888 945/013
28	Log. Per. Antenne	HL 223	Rohde & Schwarz	825 584/002
29	Relais-Switch-Unit	RSU	Rohde & Schwarz	375 339/002
30	Highpass	HM985955	FSY Microwave	001
31	Amplifier	P42-GA29	Tron-Tech	B 23602
32	Absorber Schirmkabine		Frankonia	
33	Steuerrechner	PSM 7	Rohde & Schwarz	834 621/004
34	EMI Test Reciever	ESMI	Rohde & Schwarz	827 063/010
35	EMI Test Receiver	Display	Rohde & Schwarz	829 808/010

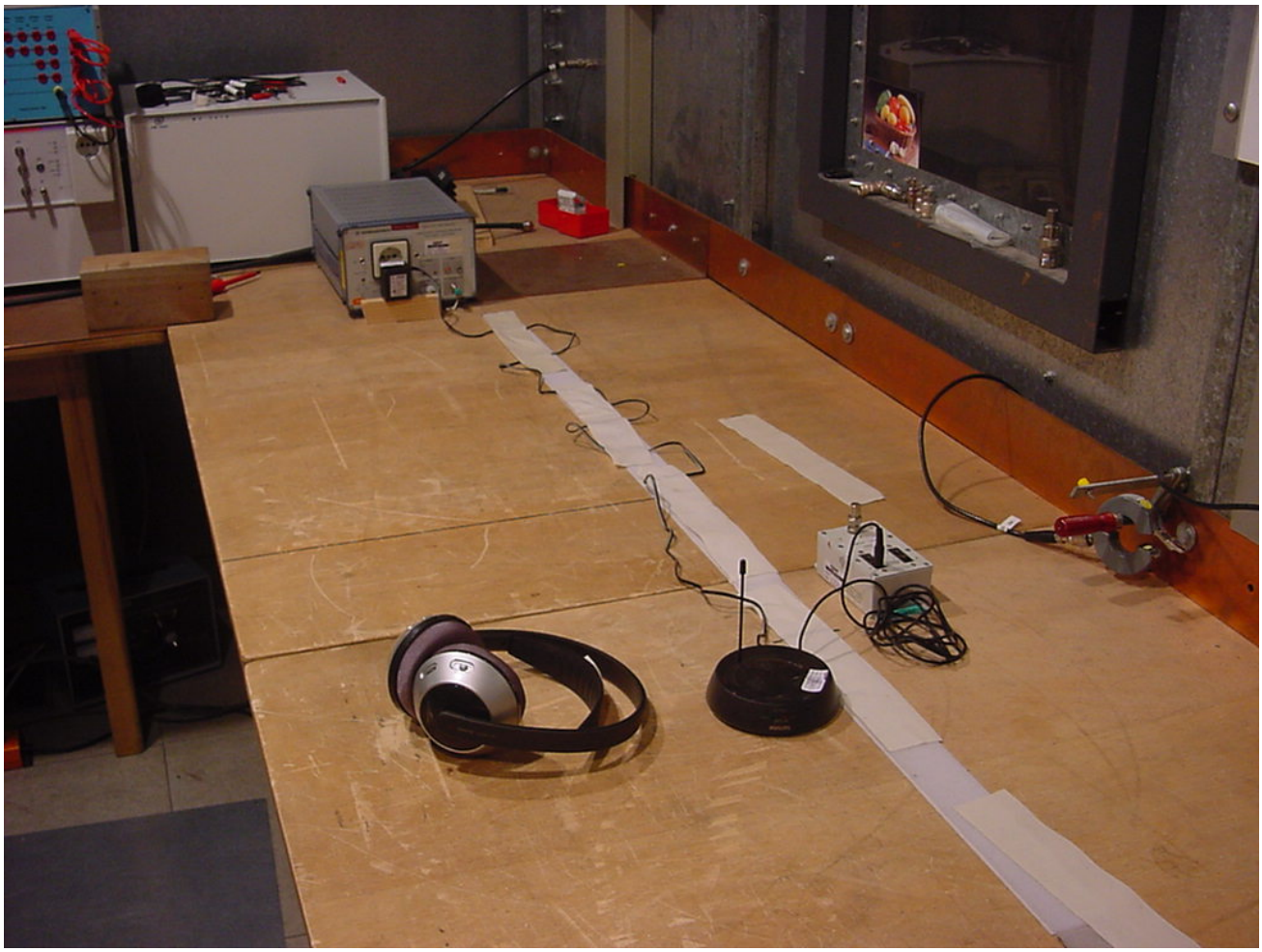
No	Instrument/Ancillary	Type	Manufacturer	Serial No.
36	Controler	HD 100	Deisel	100/322/93
37	Relais Matrix	PSN	Rohde & Schwarz	829 065/003
38	Control Unit	GB 016 A2	Rohde & Schwarz	344 122/008
39	Relais Switch Unit	RSU	Rohde & Schwarz	316 790/001
40	Power Supply	6032A	Hewlett Packard	2846A04063
41	Spektrum Monitor	EZM	Rohde & Schwarz	883 720/006
42	Meßempfänger	ESH 3	Rohde & Schwarz	890 174/002
43	Meßempfänger	ESVP	Rohde & Schwarz	891 752/005
44	Biconi Ant. 20-300MHz	HK 116	Rohde & Schwarz	833 162/011
45	Logper Ant. 0.3-1 GHz	HL 223	Rohde & Schwarz	832 914/010
46	Amplifier 0.1-4 GHz	AFS4	Miteq Inc.	206461
47	Logper Ant. 1-18 GHz	HL 024 A2	Rohde & Schwarz	342 662/002
48	Polarisationsnetzwerk	HL 024 Z1	Rohde & Schwarz	341 570/002
49	Double Ridge G Horn Antenne 1-26.5 GHz	3115	EMCO	9107-3696
50	Microw. Sys. Amplifier 0.5- 26.5 GHz	8317A	Hewlett Packard	3123A00105
51	Spectrum Analyzer	8562A	Hewlett Packard	2809AO2682
52	Steuerrechner	PSM 7	Rohde & Schwarz	883 086/026
53	DC V-Netzwerk	ESH3-Z6	Rohde & Schwarz	861 406/005
54	DC V-Netzwerk	ESH3-Z6	Rohde & Schwarz	893 689/012
55	AC 2 Phasen V-Netzwerk	ESH3-Z5	Rohde & Schwarz	861 189/014
56	AC 2 Phasen V-Netzwerk	ESH3-Z5	Rohde & Schwarz	894 981/019
57	AC-3 Phasen V-Netzwerk	ESH2-Z5	Rohde & Schwarz	882 394/007
58	Stromversorgung	6032A	Rohde & Schwarz	2933A05441
59	HF-Test Empfänger	ESVP.52	Rohde & Schwarz	881 487/021
60	Spectrum Monitor	EZM	Rohde & Schwarz	883 086/026
61	HF-Test Empfänger	ESH3	Rohde & Schwarz	881 515/002
62	Relais Matrix	PSU	Rohde & Schwarz	882 943/029
63	Relais Matrix	PSU	Rohde & Schwarz	828 628/007
64	Spectrum Analyzer	FSIQ 26	Rohde & Schwarz	119.6001.27
65	Spectrum Analyzer	HP 8565E	Hewlett Packard	3473A00773
66				

4. Test setup










0411
CAUTION
RISK OF ELECTRIC SHOCK
DRY LOCATION USE ONLY


PHILIPS
Type: SBC CS030/33
Input: 120VAC
60Hz 6W
Output: 12VDC 200mA
CLASS 2 POWER SUPPLY
LISTED
63N5
E94142
MADE IN CHINA

5. Photos of the equipment

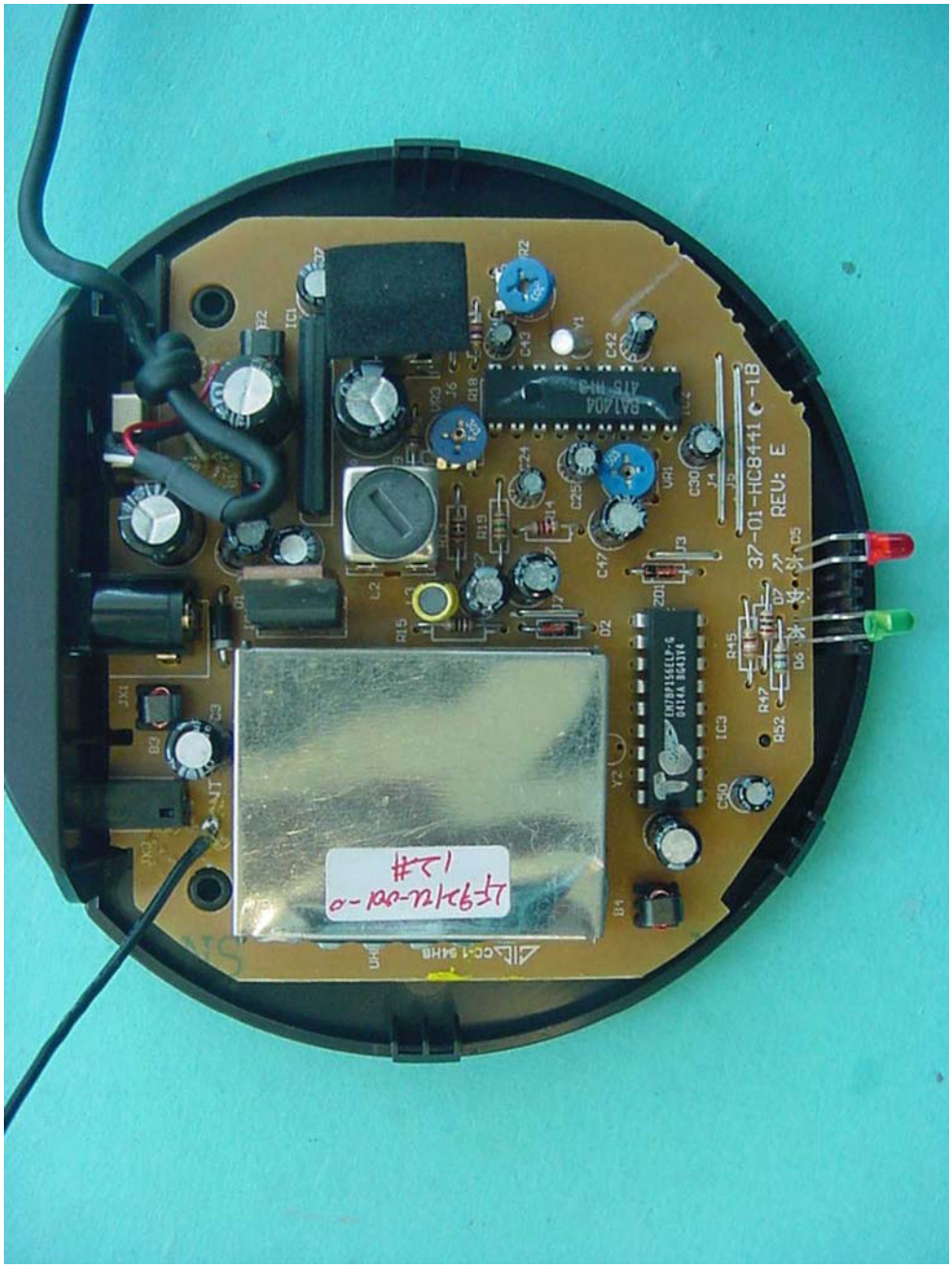
SBC HC8440/37

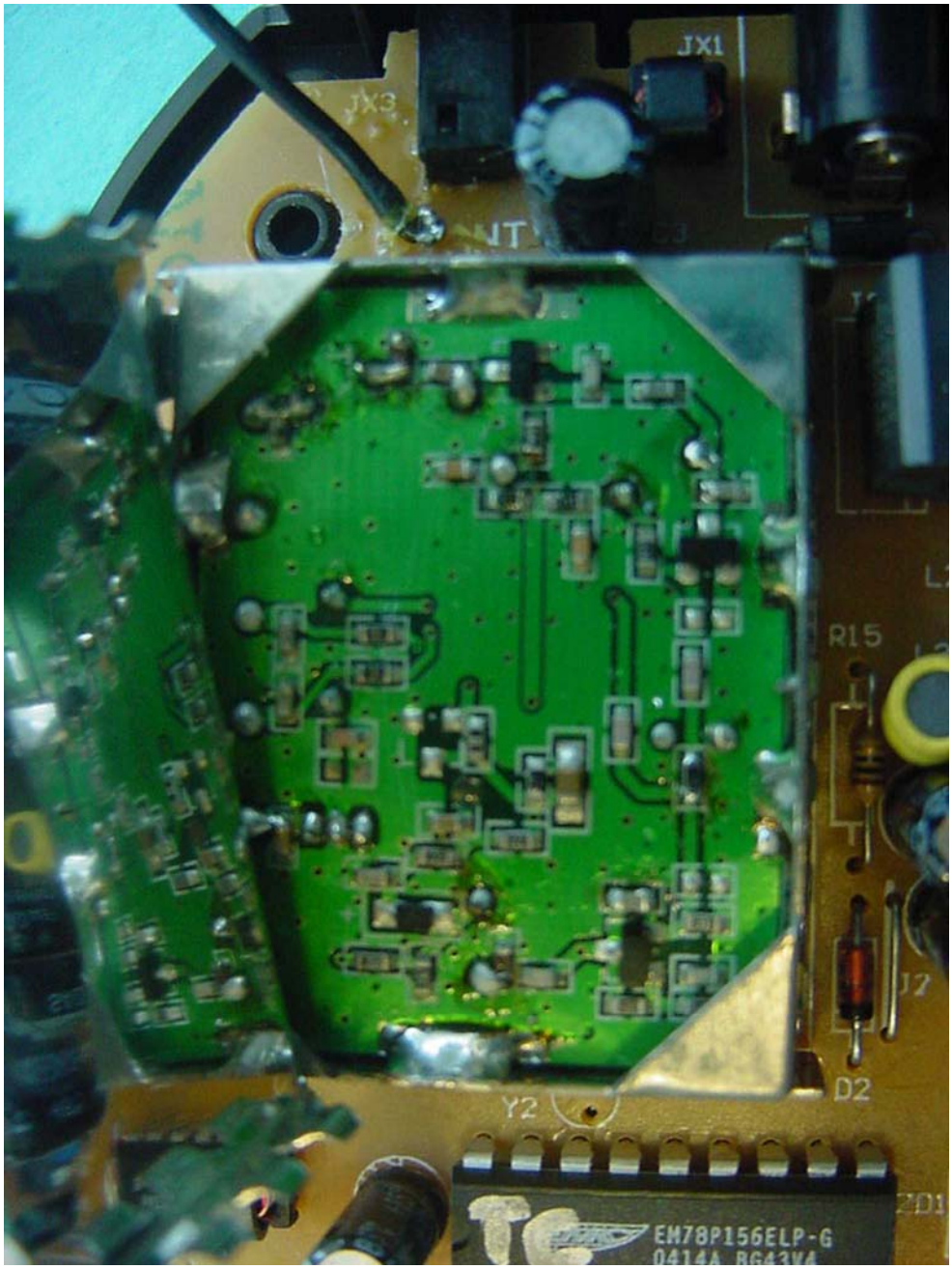
Transmitter SBC HC 8442/37


wireless
PHILIPS


CHARGE

SBC HC8442/37

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R15
D2
Y2
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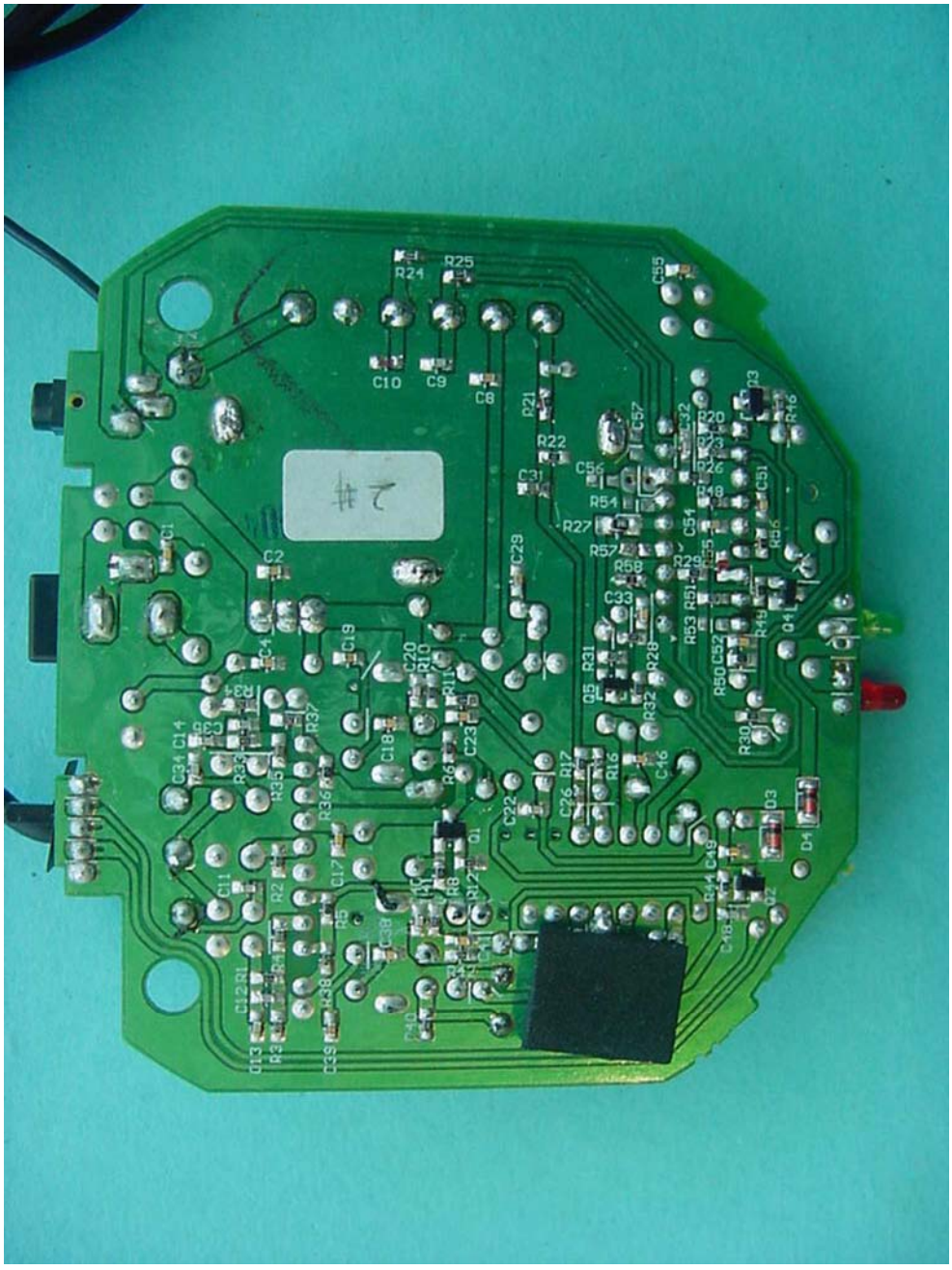
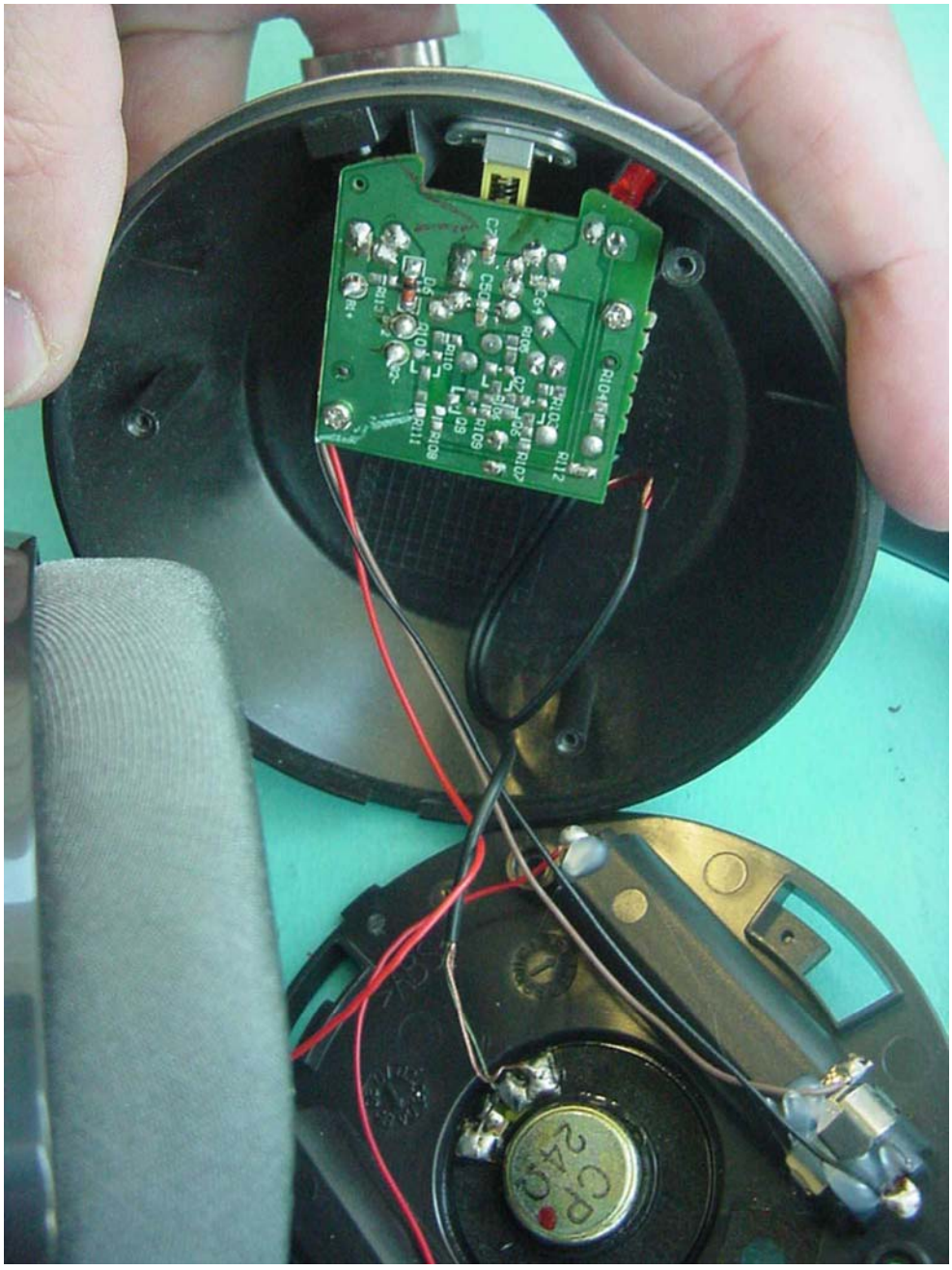

#7

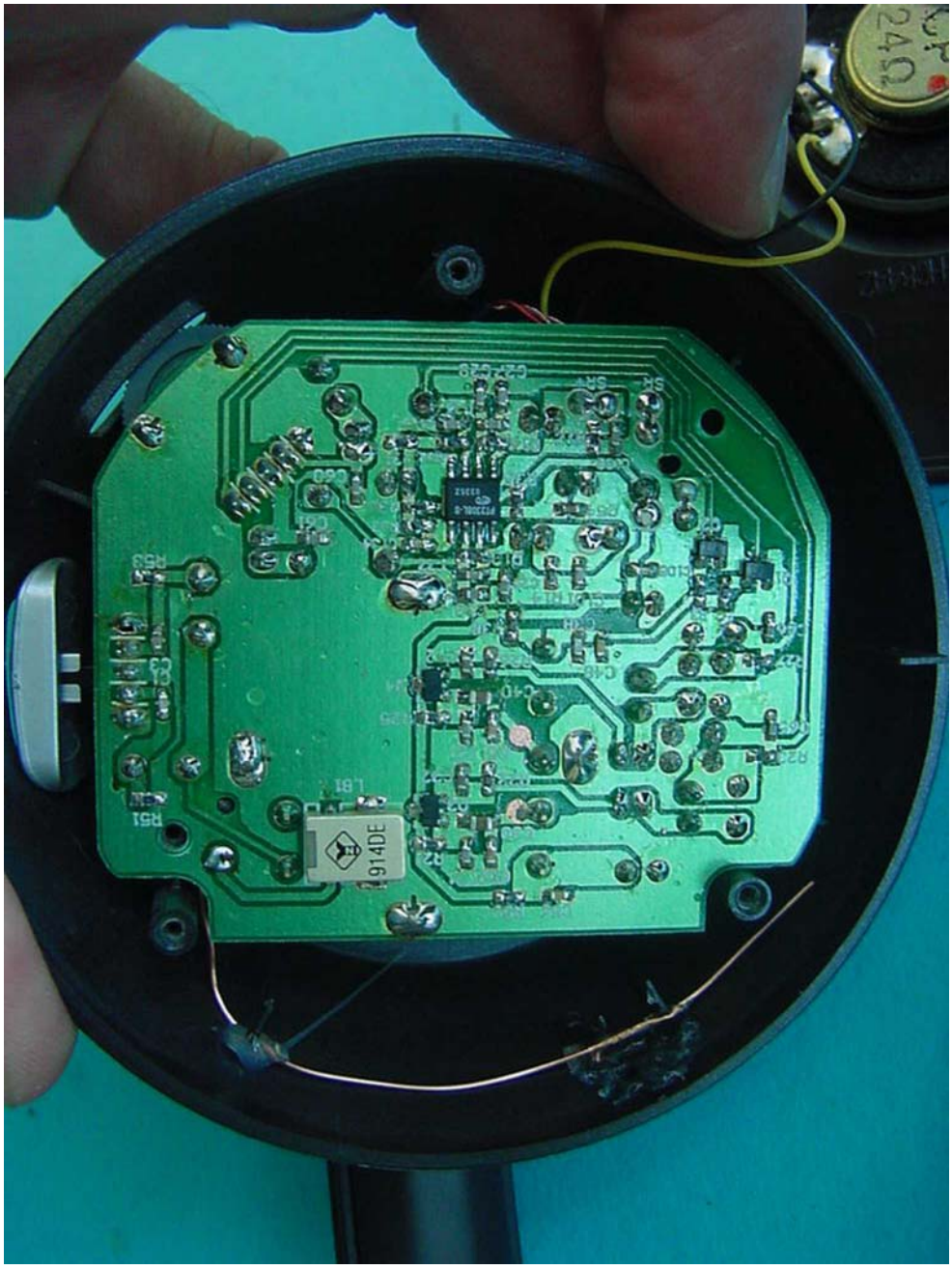
Headset SBC HC8445/37


VOLUME
CHARGING
POWER
CHANNEL
1
2


PHILIPS Accessories
Rechargeable SBC HB550S

Headset SBC HC8445/37

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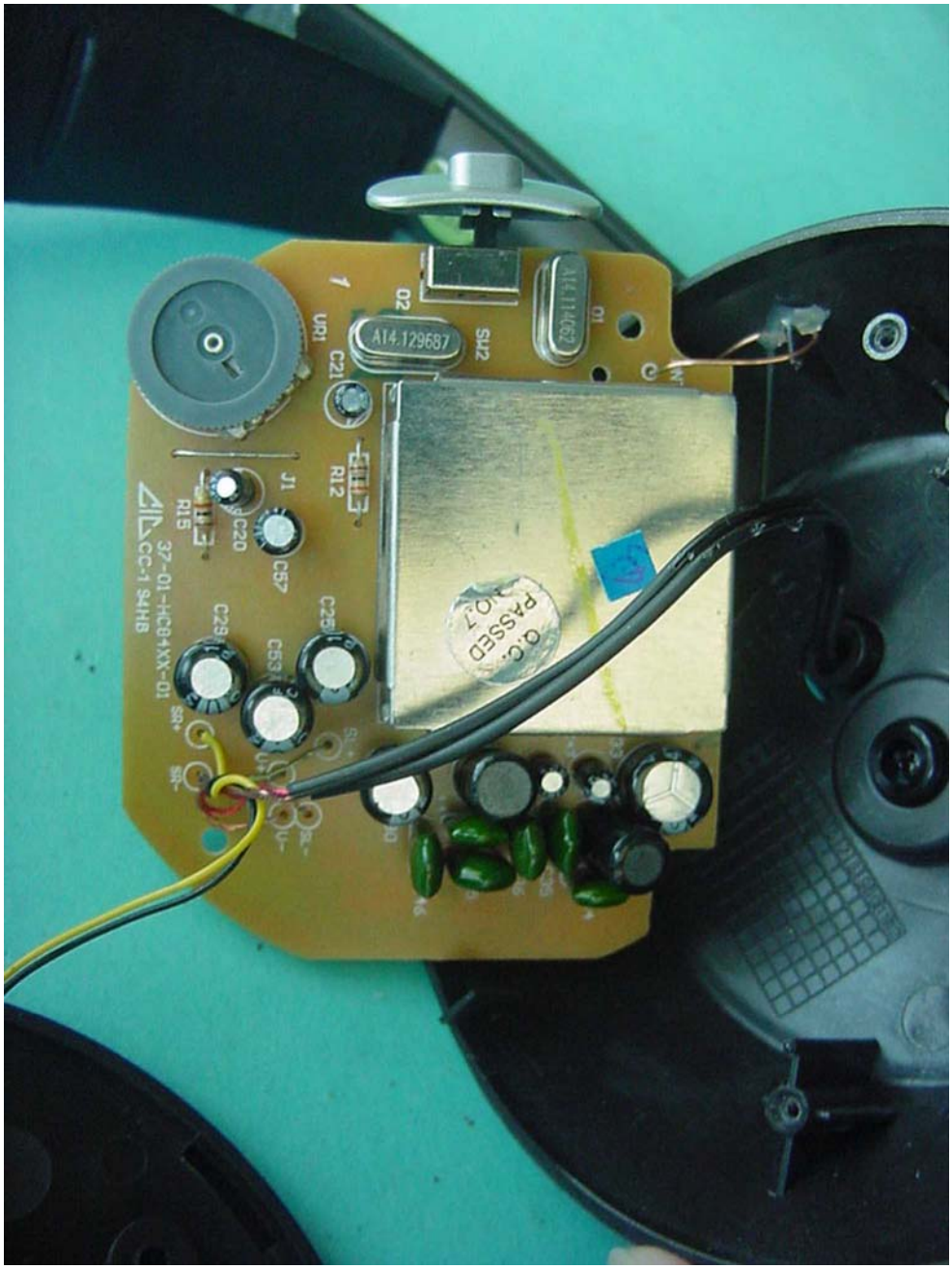
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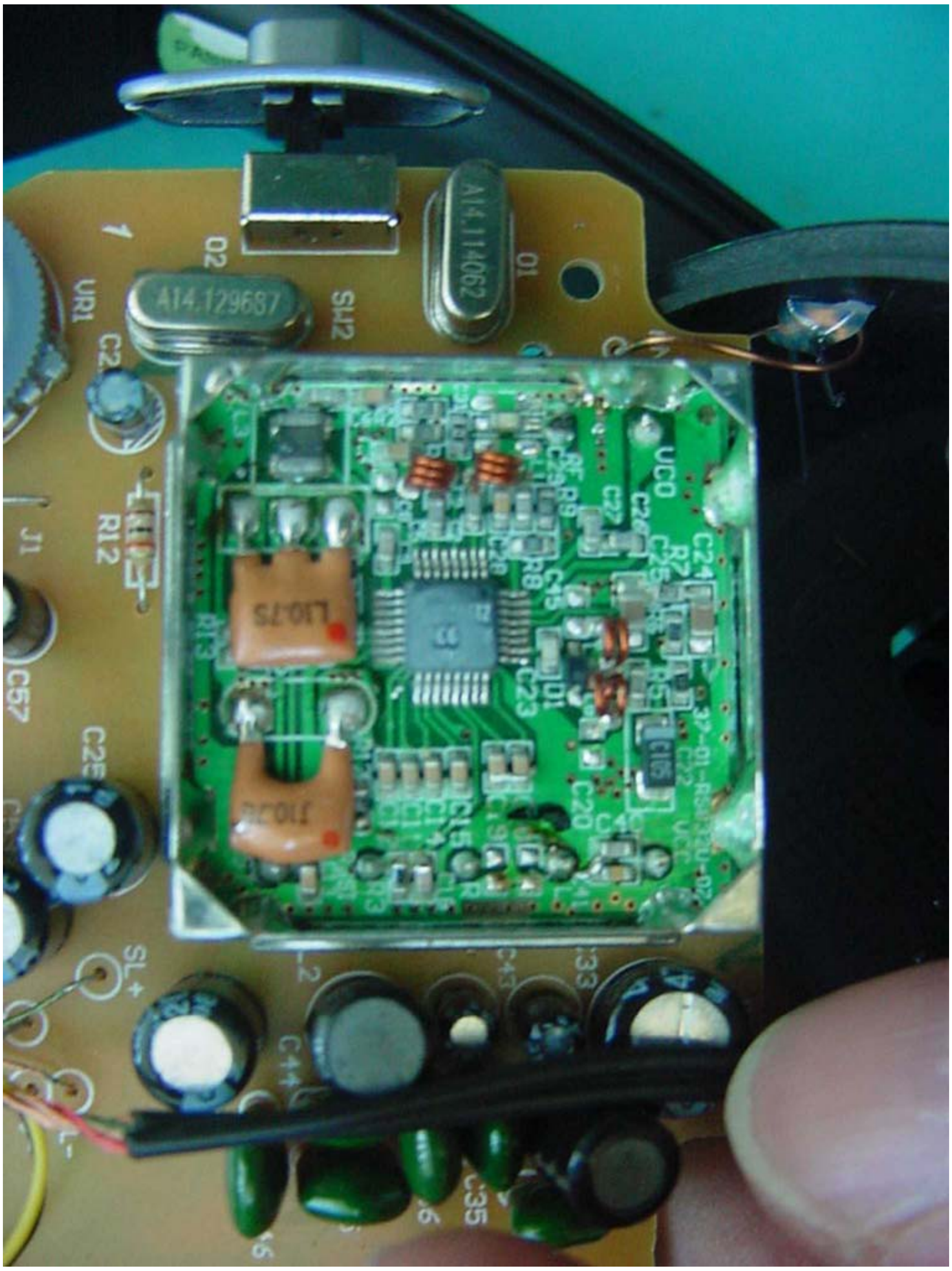
PASSED



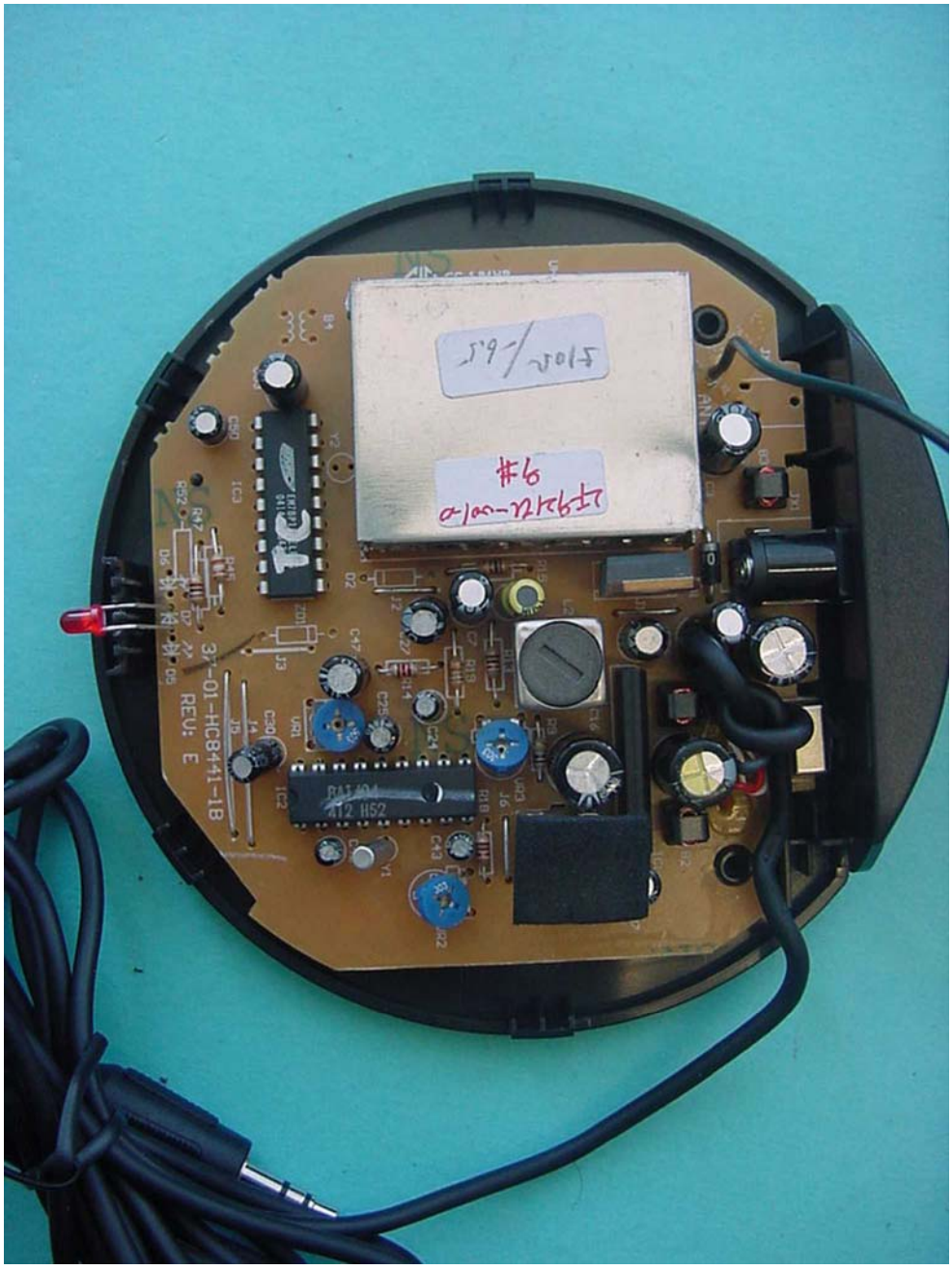
SBC HC8430/37

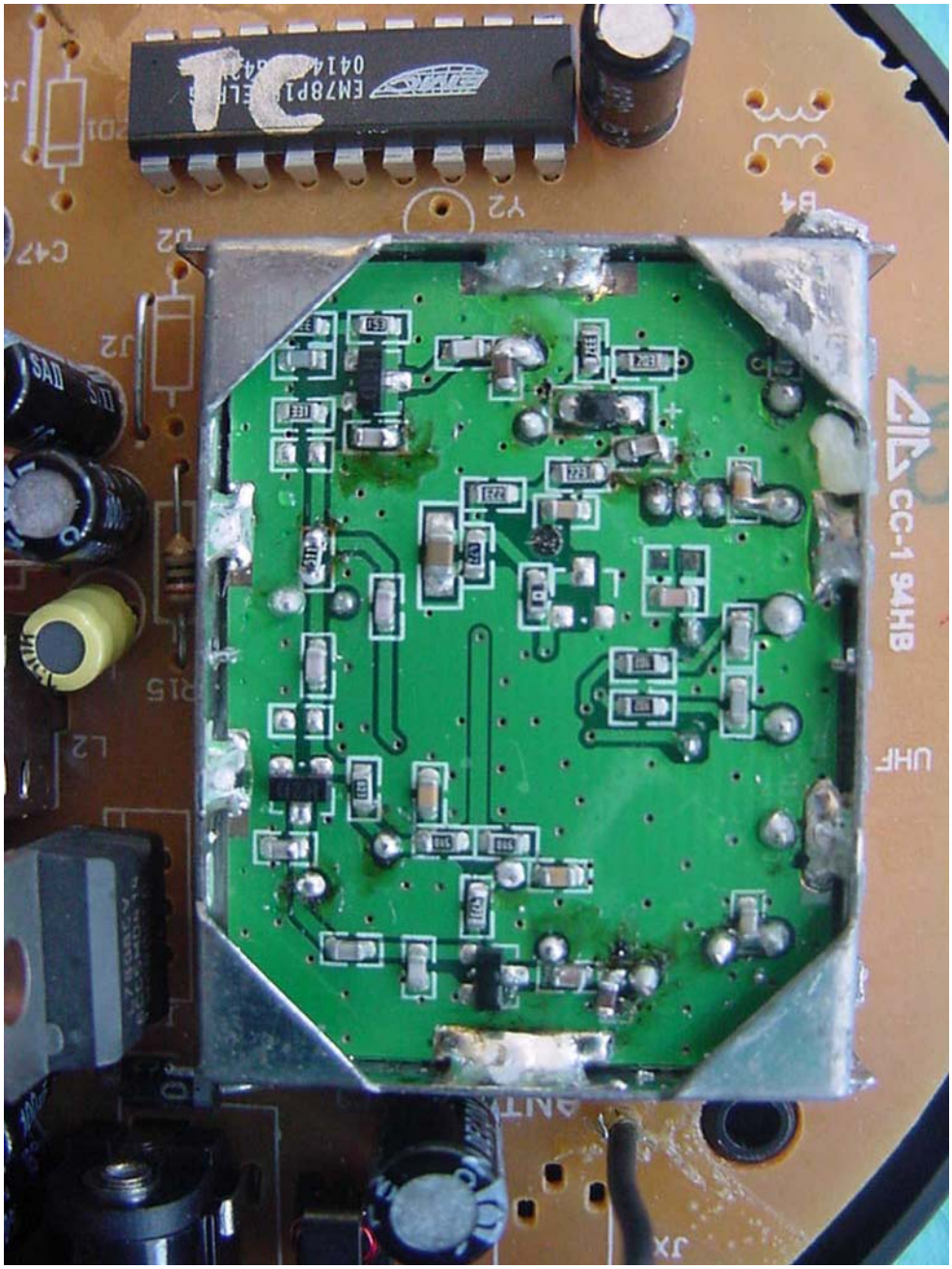
TX: SBC HC8432/37

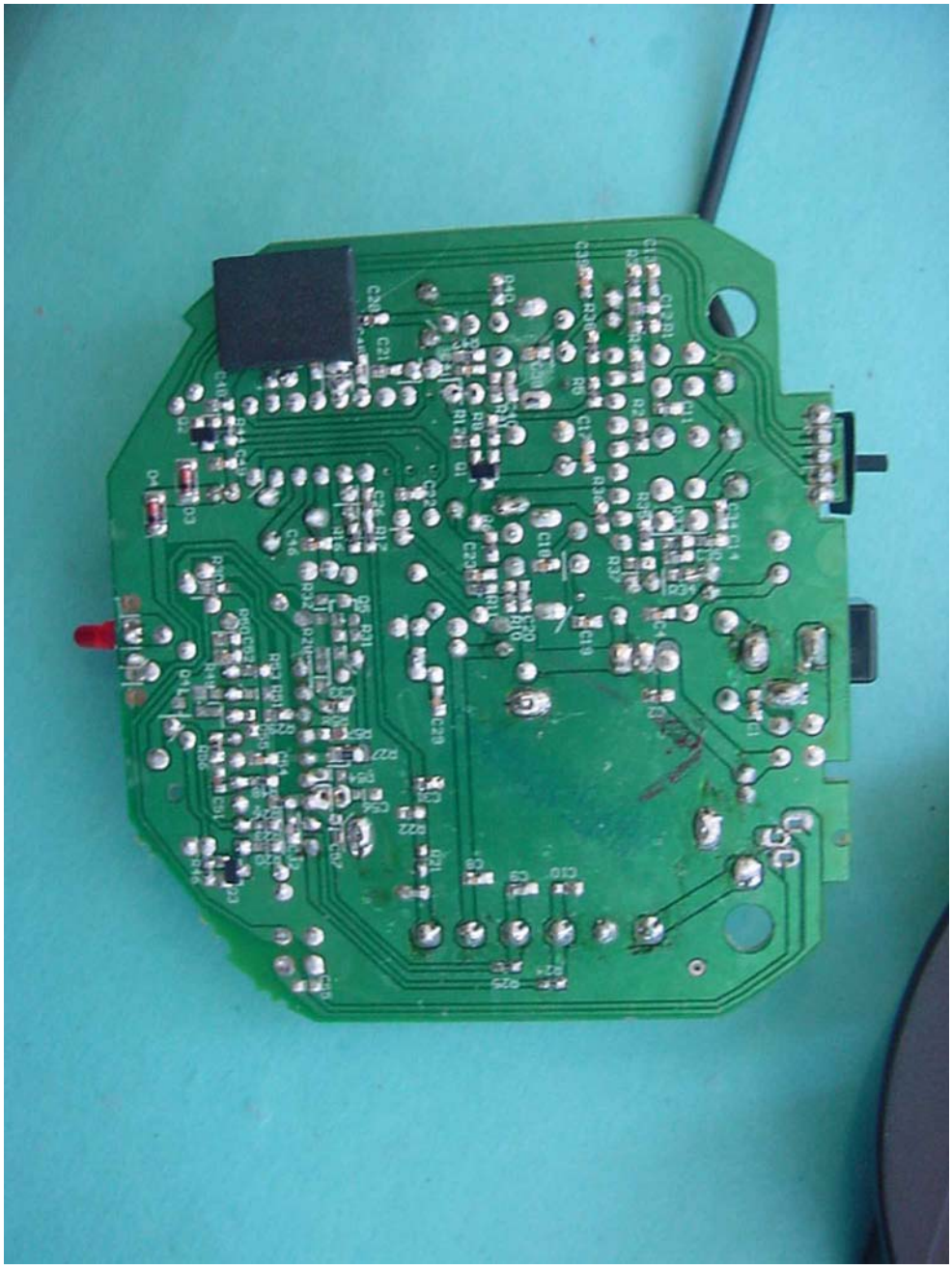

PHILIPS
SBC HC8432
POWER
wireless


CHANNEL

TX: SBC HC8432/37




CC-1 94HB
UHF

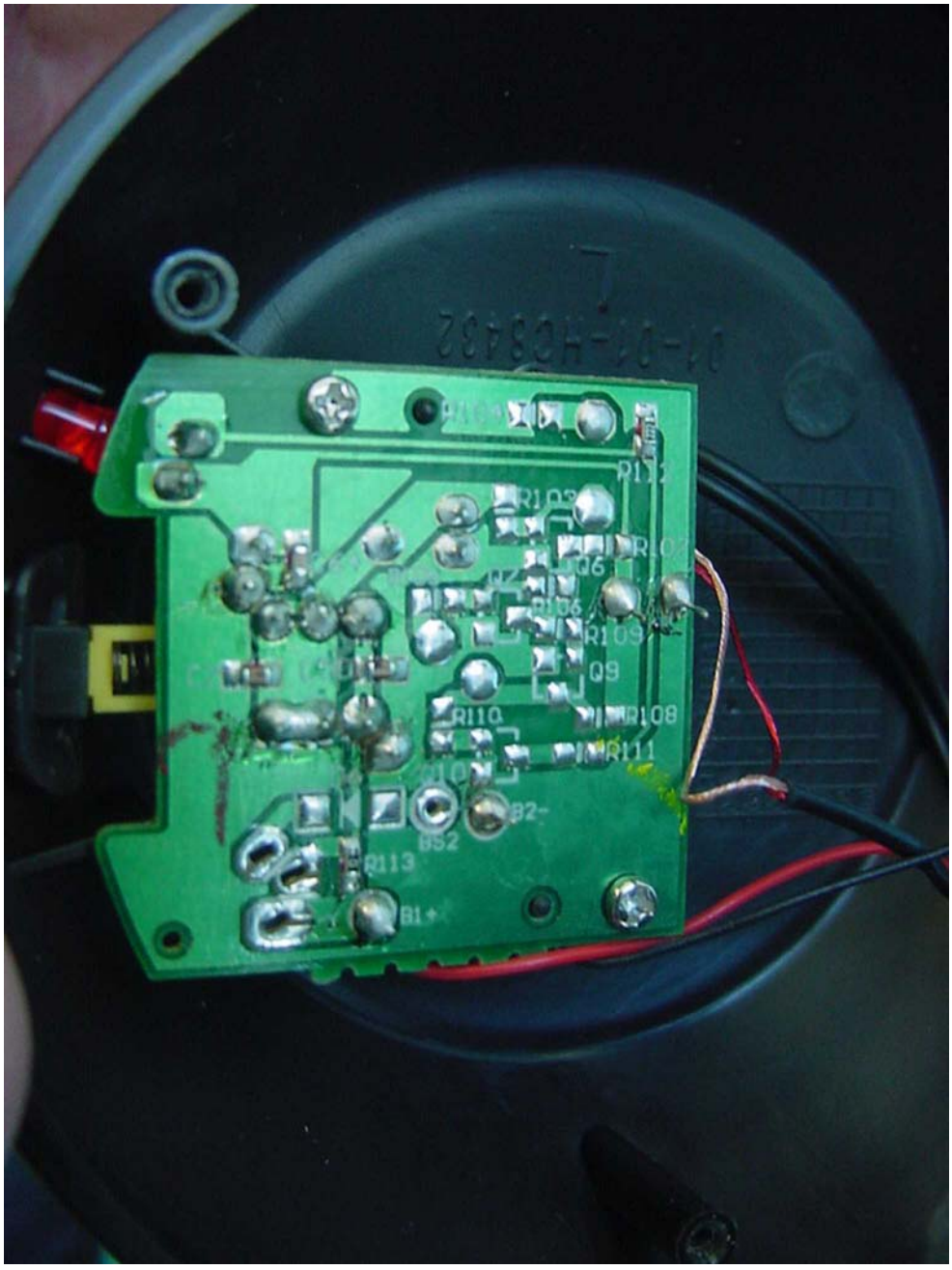


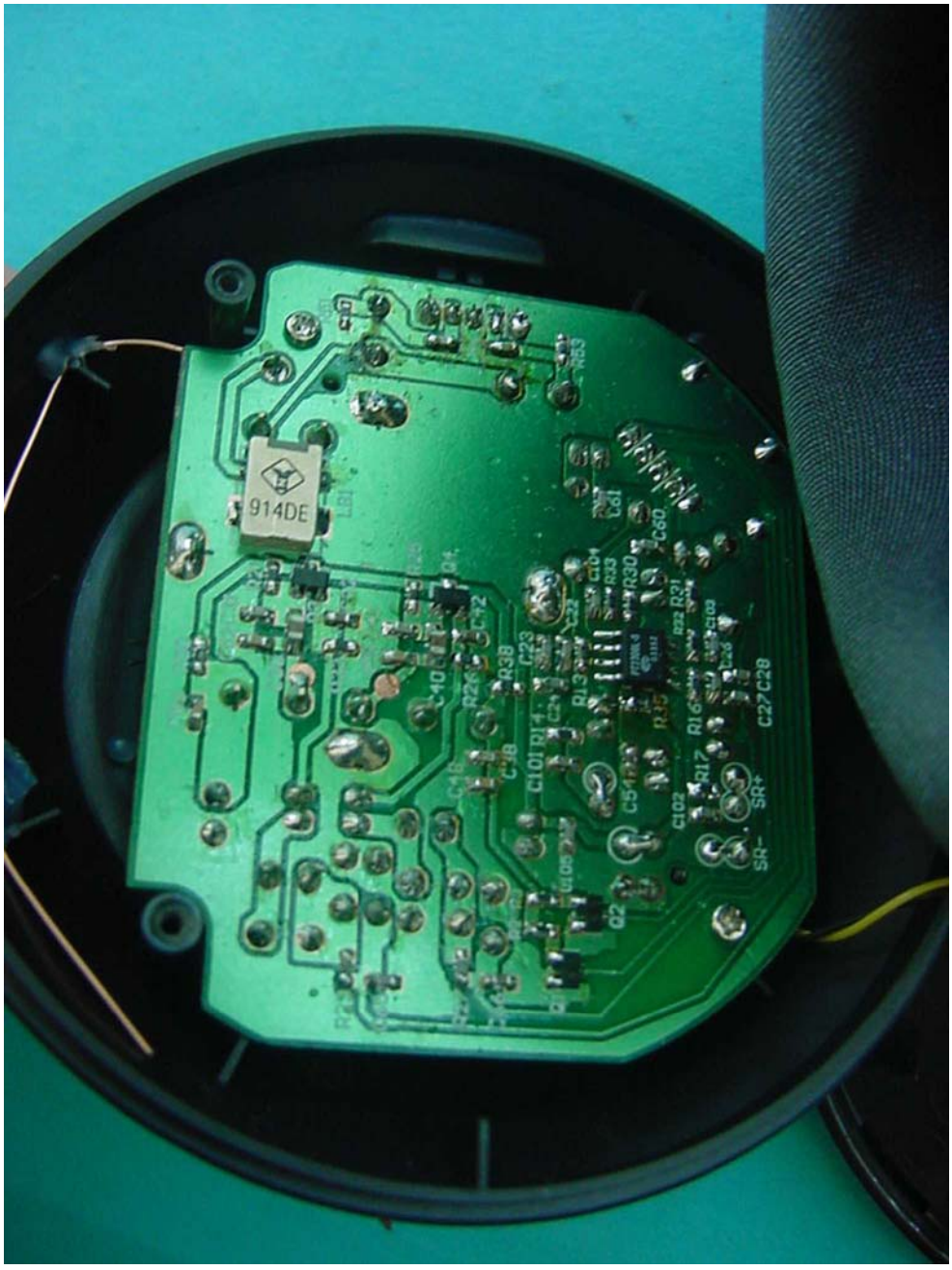
RX: SBC HC8435/37

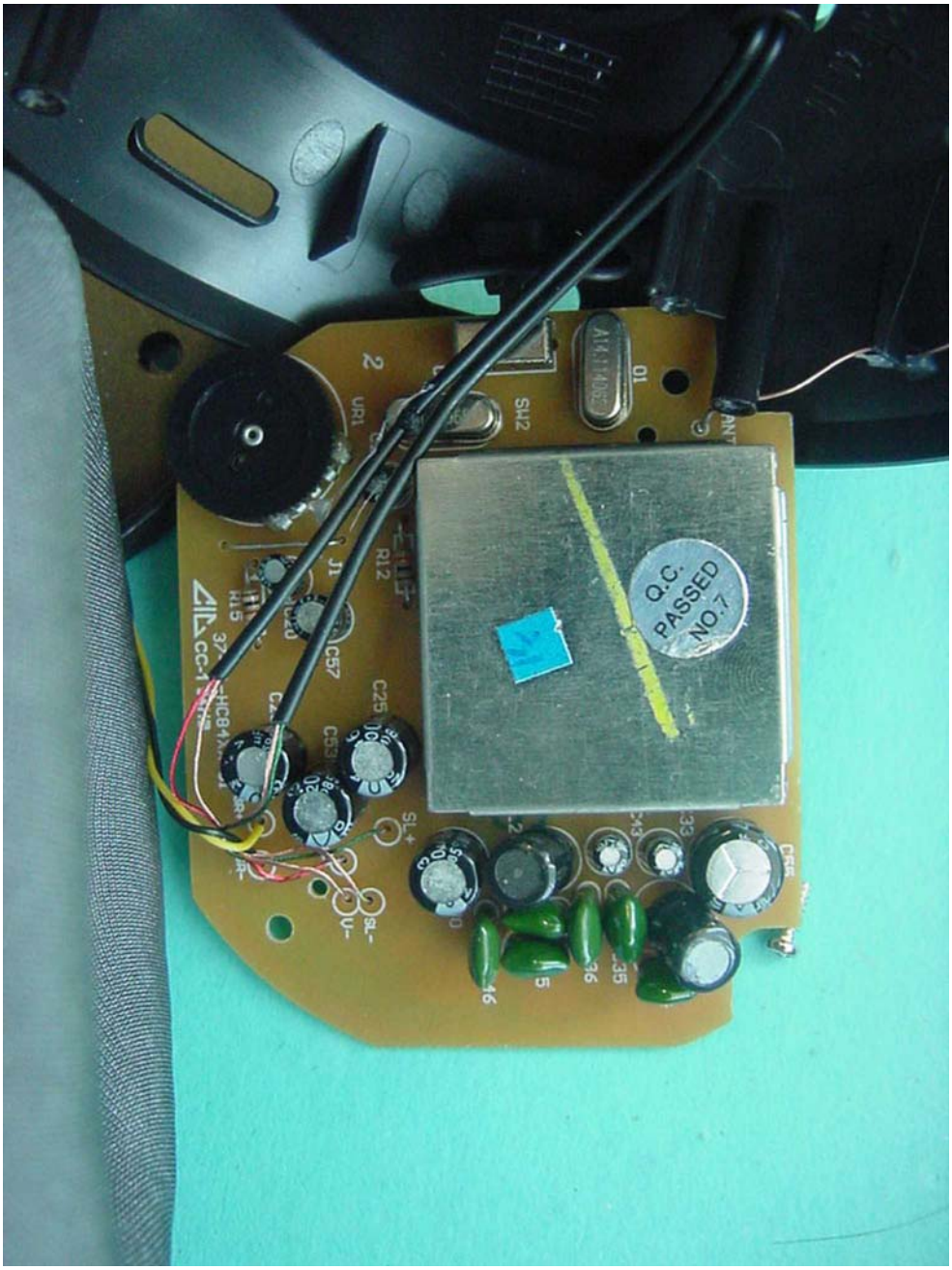

POWER
1
2
CHANNEL
VOLUME


PHILIPS
LONGLIFE

RX: SBC HC8435/37




914DE
SR+
SR-


Q.C.
PASSED
NO.7