FCC TEST REPORT

Part 15 subpart C

Client Information:

Applicant: Listan Asia

Applicant add.: 5F, No. 148, Sec. 2, Minquan E. Rd., Zhongshan Dist., Taipei 10483. Taiwan.

Product Information:

Product Name: DARK BASE PRO 900

Product Description: PC case with wireless charging function (DARK BASE PRO 900)

Model No.: BGX1X

Brand Name: be quiet!

FCC ID: 2AJ54BGX1X

Standards: CFR 47 PART 15 Subpart C: 2016

Test procedure used: ANSI C63.10-2013

Prepared By:

Dongguan Yaxu (AiT) Technology Limited

Add. : No.22, Jinqianling Third Street, Jitigang, Huangjiang, Dongguan, Guangdong, China

Date of Receipt: July 20, 2016 Date of Test: July 21~ July 23, 2016

Date of Issue: Aug. 05, 2016 Test Result: Pass

This device described above has been tested by Dongguan Yaxu (AiT) Technology Limited, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

*This test report must not be used by the client to claim product endorsement by any agency of the U.S. government.

Reviewed by: Seal-Chen **Approved by:**

1 Version

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
00		2016-08-05		

2 Contents

3 Test Summary

TEST	TEST REQUIREMENT	TEST METHOD	RESULT
Conduction Emissions	FCC PART 15 C: 15.207	ANSI C 63.10: Clasue 6.2	PASS
Radiated Emission	FCC PART 15 C: 15.209 (a)	ANSI C 63.10: Clasue 6.4, 6.5	PASS
Antenna Requirement	FCC PART 15 C: 15.203	FCC PART 15 C: 15.203	PASS
occupied bandwidth(99%)	FCC PART 2.1049	FCC PART 2.1049	PASS

Remark:
N/A: not applicable. Refer to the relative section for the details.
Tx: In this whole report Tx (or tx) means Transmitter.
Rx: In this whole report Rx (or rx) means Receiver.
RF: In this whole report RF means Radio Frequency.

3.1 Measurement Uncertainty

All measurements involve certain levels of uncertainties, the maximum value of the uncertainty as below:

No.	Item	Uncertainty
1	Conducted Emission Test	1.20dB
2	Radiated Emission Test	3.30dB
3	RF power,conducted	0.16dB
4	RF power density,conducted	0.24dB
5	Spurious emissions,conducted	0.21dB
6	All emissions,radiated(<1G)	4.68dB
7	All emissions,radiated(>1G)	4.89dB

4 Test Facility

The test facility is recognized, certified or accredited by the following organizations:

.CNAS- Registration No: L6177

Dongguan Yaxu (AiT) technology Limited is accredited to ISO/IEC 17025:2005 general Requirements for the competence of testing and calibration laboratories (CNAS-CL01 Accreditation Criteria for the competence of testing and calibration laboratories) on Apr. 18, 2013

.FCC- Registration No: 248337

The 3m Semi-Anechoic Chamber, 3m/10m Open Area Test Site and Shielding Room of Dongguan Yaxu (AiT) Technology Limited have been registered by Federal Communications Commission (FCC) on Aug.29, 2014.

.Industry Canada(IC)-Registration No: IC6819A-1

The 3m Semi-Anechoic Chamber and 3m of Dongguan Yaxu (AiT) Technology Limited have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing on Oct. 01, 2014.

.VCCI- Registration No: 2705

The 3m/10m Open Area Test Site, Shielding Room and 3m Chamber of Dongguan Yaxu (AiT) Technology Limited have been registered by Voluntary Control Council for Interference on Nov. 21, 2012. The Telecommunication Ports Conducted Disturbance Measurement of Dongguan Yaxu (AiT) Technology Limited have been registered by Voluntary Control Council for Interference on May. 13, 2013.

4.1 Deviation from standard

None

4.2 Abnormalities from standard conditions

None

5 General Information

5.1 General Description of EUT

Manufacturer:	Casing Macron Technology Co., Ltd.
Manufacturer Address:	No3, Hung Yeh N 17th Rd., Hong Yeh Industrial Zone, Tangxia, Dongguan City.
EUT Name:	DARK BASE PRO 900
Product type:	identical prototype
Model No.:	BGX1X
Derivative model No.:	N/A
Antenna Type:	Internal type(Coil antenna)
Frequency Range:	110 KHz to 205 KHz
Modulation type:	load modulation
HW version:	V1.0.1A
SW version:	V1.0
Power Supply Range:	DC 5V from PC power, AC 120V/60Hz for PC power
Power Supply:	The same as above.
Power Cord:	N/A
Signal Cable:	N/A

5.2 Test Location

All tests were performed at:

Dongguan Yaxu (AiT) Technology Limited

No.22, Jinqianling Third Street, Jitigang, Huangjiang,Dongguan, Guangdong, China

Tel.: +86.769.82020499 Fax.: +86.769.82020495

5.3 Test Peripheral List

No.	Equipment	Manufacturer	EMC Compliance	Model No.	Serial No.	Power cord	signal cable
1	PC power	Seventeam	N/A	ST-750PHS	N/A	N/A	N/A
2	Cell phone	VIZIO	N/A	XR6M	N/A	N/A	N/A

6 Equipment Used during Test

No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	SIGNAL Analyzer	R&S	FSV40	101470	2016.06.29	2017.06.28
2	EMI Measuring Receiver	R&S	ESR	101660	2016.06.29	2017.06.28
3	Low Noise Pre Amplifier	Tsj	MLA-10K01-B01-27	1205323	2016.06.29	2017.06.28
4	Low Noise Pre Amplifier	Tsj	MLA-0120-A02-34	2648A04738	2016.06.29	2017.06.28
5	TRILOG Super Broadband test Antenna	SCHWARZBECK	VULB9160	9160-3206	2016.06.29	2017.06.28
6	Loop Antenna	ETS	6512	00165355	2015.12.25	2016.12.24
7	Radiated Cable 1#（30MHz-1GHz）	FUJIKURA	5D-2W	01	2015.12.25	2016.12.24
8	Radiated Cable 2#（1GHz -25GHz）	FUJIKURA	10D2W	02	2015.12.25	2016.12.24
9	Conducted Cable 1#(9KHz-30MHz)	FUJIKURA	1D-2W	01	2015.12.25	2016.12.24
10.	EMI Test Receiver	R&S	ESCI	100124	2016.06.29	2017.06.28
11.	LISN	Kyoritsu	KNW-242	8-837-4	2016.06.29	2017.06.28
12.	LISN	Kyoritsu	KNW-407	8-1789-3	2016.06.29	2017.06.28
13.	SMA Antenna connector	Dosin	Dosin-SMA	N/A	N/A	N/A
Note: The SMA antenna connector is soldered on the PCB board in order to perform conducted tests and this SMA antenna connector is listed in the equipment list.						

7 Test Results

7.1 E.U.T. test conditions

Test Voltage: DC 5V from PC power, AC 120V/60Hz for PC power

Requirements: **15.31(e)**: For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. For battery operated equipment, the equipment tests shall be performed using a new battery.

Operating Environment:
Temperature: 22-25.0 °C
Humidity: 48-55% RH
Atmospheric Pressure: 1001-1010 mbar

Test frequencies and frequency range: According to the 15.31(m) Measurements on intentional radiators or receivers, other than TV broadcast receivers, shall be performed and, if required, reported for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in the following table:

According to the 15.33 (a) For an intentional radiator, the spectrum shall be investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to at least the frequency shown in the following table:

Number of fundamental frequencies to be tested in EUT transmit band

Frequency range in which device operates	Number of frequencies	Location in frequency range of operation
1 MHz or less	1	Middle
1 MHz to 10 MHz	2	1 near top and 1 near bottom
More than 10 MHz	3	1 near top, 1 near middle and 1 near bottom

Frequency range of radiated emission measurements

Lowest frequency generated in the device	Upper frequency range of measurement
9 kHz to below 10 GHz	10th harmonic of highest fundamental frequency or to 40 GHz, whichever is lower
At or above 10 GHz to below 30 GHz	5th harmonic of highest fundamental frequency or to 100 GHz, whichever is lower
At or above 30 GHz	5th harmonic of highest fundamental frequency or to 200 GHz, whichever is lower, unless otherwise specified

Description of test mode

Mode 1	Charging and TX mode

Remark:
1. Pretest low/middle/high frequency(Controlled by the test software), find the worst case is the middle frequency is 136.0kHz and record max. load data in this report

7.2 Antenna Requirement

Standard requirement

15.203 requirement:

For intentional device. According to 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.

EUT Antenna

The antenna is an integral Antenna integrated and no consideration of replacement.

Test result: The unit does meet the FCC requirements.

8 Conduction Emissions Measurement

8.1 Applied procedures / Limit

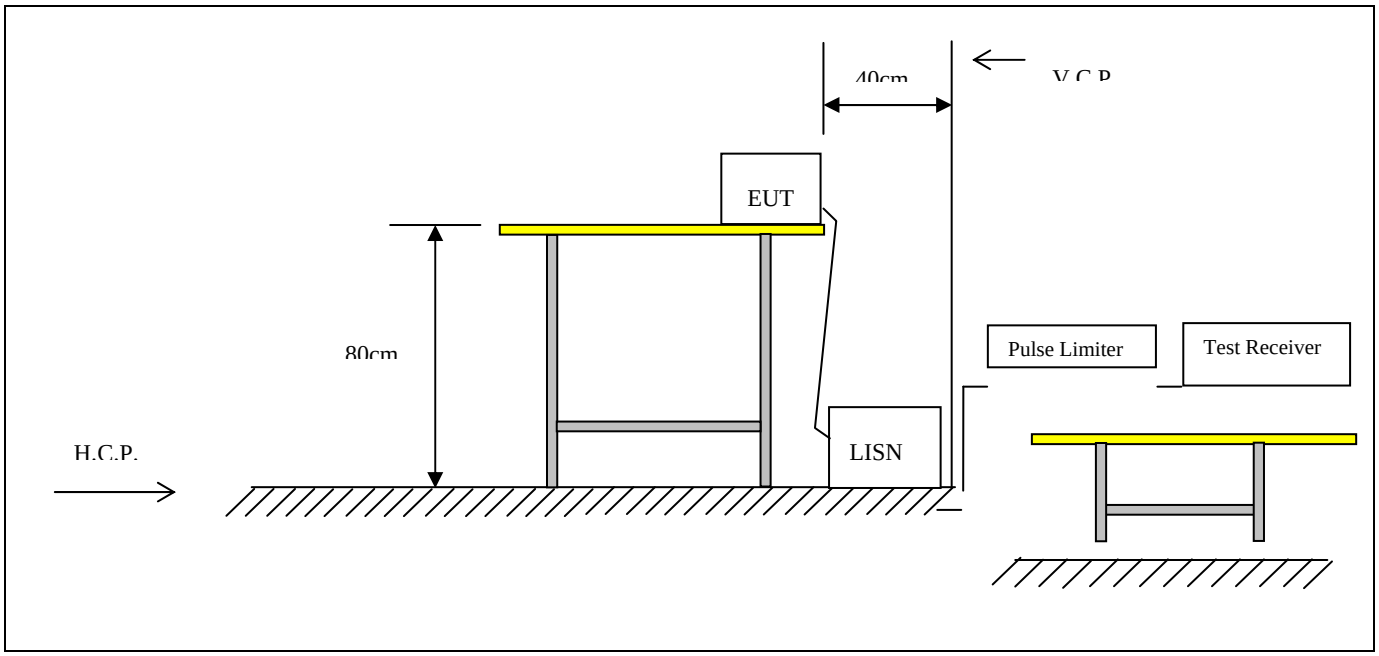
Frequency of Emission (MHz)	Conducted Limit (dBμV)	
	Quasi-peak	Average
0.15-0.5 0.5-5 5-30	66 to 56 * 56 60	56 to 46 * 46 50

Note: Decreases with the logarithm of the frequency.

8.2 Test procedure

EUT was placed upon a wooden test table 0.8m above the horizontal metal reference plane and 0.4m from the vertical ground plane, and it was connected to an AMN. The closest distance between the boundary of the EUT and the surface of the AMN is 0.8m. All peripherals were connected to another AMN, and placed at a distance of 10cm from each other. A spectrum and receiver was connected to the RF output port of the AMN. Both average and quasi-peak value were detected.

8.3 Test setup



8.4 Test results

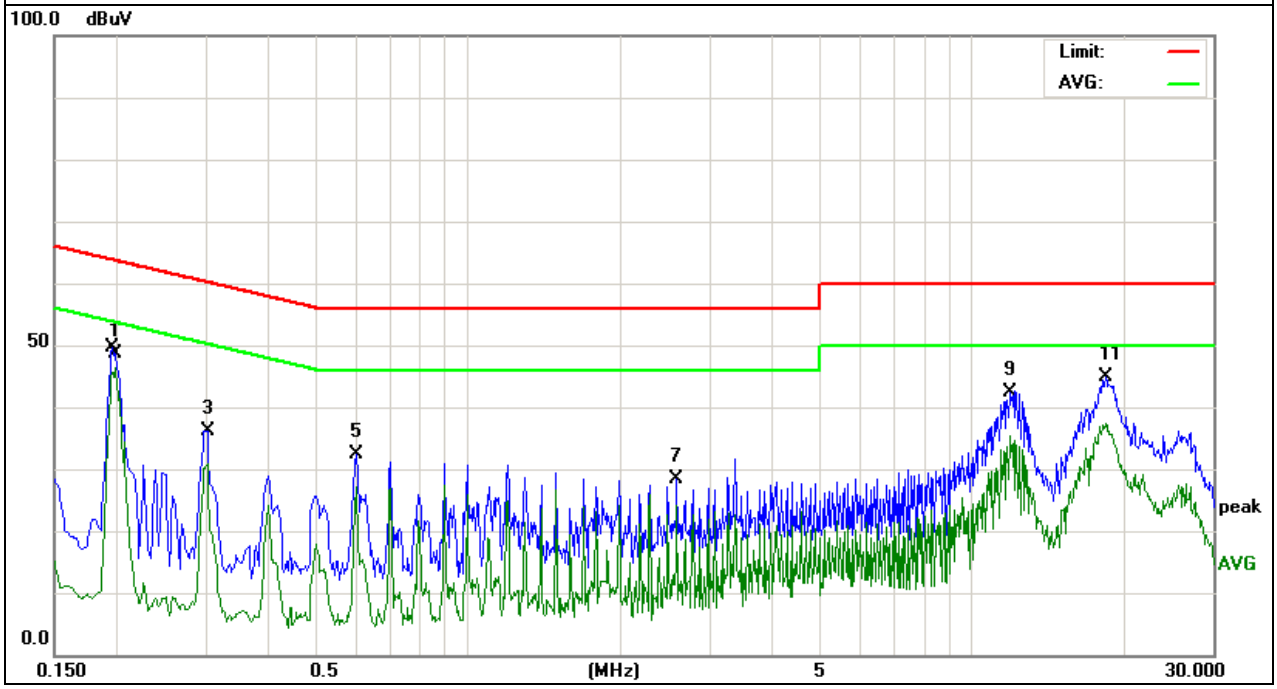
EUT：	DARK BASE PRO 900	Model Name. ：	BGX1X
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Test Date：	2016-07-23
Test Mode：	Mode 1	Phase：	L
Test Voltage ：	DC 5V from PC power, AC 120V/60Hz for PC power		

Frequency	Factor	Meter Reading (dBμV)		Emission Level (dBμV)		Limits (dBμV)		Margin (dB)	
(MHz)	(dB)	QP	Average	QP	Average	QP	Average	QP	Average
0.1980	11.16	37.54	35.19	48.70	46.35	63.69	53.69	-14.99	-7.34
0.3019	10.21	25.88	20.75	36.09	30.96	60.19	50.19	-24.10	-19.23
0.5977	9.99	22.30	17.04	32.29	27.03	56.00	46.00	-23.71	-18.97
2.5819	10.01	18.40	14.14	28.41	24.15	56.00	46.00	-27.59	-21.85
11.9298	10.32	32.15	25.03	42.47	35.35	60.00	50.00	-17.53	-14.65
18.4019	1.84	42.96	35.55	44.80	37.39	60.00	50.00	-15.20	-12.61

Remark:

1. All readings are Quasi-Peak and Average values.

2. Factor = LISN factor + Cable Loss + Pulse limiter.



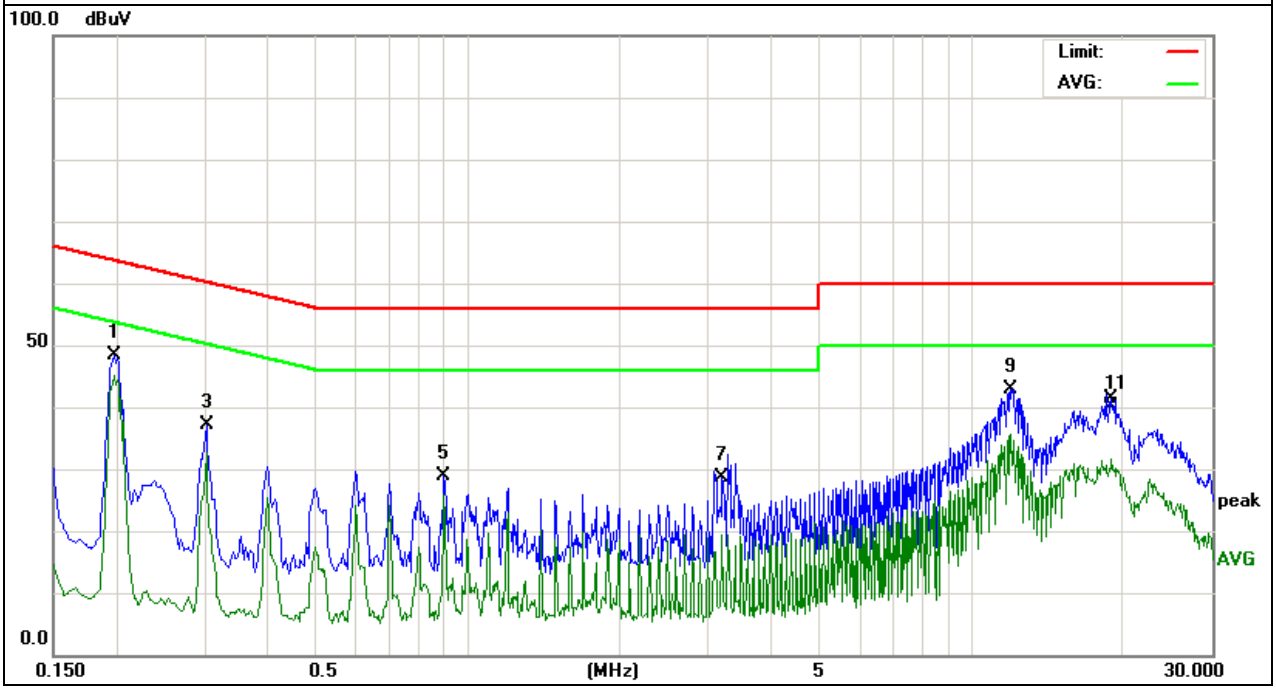
EUT：	DARK BASE PRO 900	Model Name. ：	BGX1X
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Test Date：	2016-07-23
Test Mode：	Mode 1	Phase：	N
Test Voltage ：	DC 5V from PC power, AC 120V/60Hz for PC power		

Frequency	Factor	Meter Reading (dBμV)		Emission Level (dBμV)		Limits (dBμV)		Margin (dB)	
(MHz)	(dB)	QP	Average	QP	Average	QP	Average	QP	Average
0.1985	11.16	37.24	34.00	48.40	45.16	63.67	53.67	-15.27	-8.51
0.3019	10.21	26.90	22.47	37.11	32.68	60.19	50.19	-23.08	-17.51
0.8980	9.93	18.91	15.91	28.84	25.84	56.00	46.00	-27.16	-20.16
3.1899	10.04	18.69	9.39	28.73	19.43	56.00	46.00	-27.27	-26.57
11.9579	10.32	32.44	25.19	42.76	35.51	60.00	50.00	-17.24	-14.49
18.9376	1.90	38.25	29.78	40.15	31.68	60.00	50.00	-19.85	-18.32

Remark:

1. All readings are Quasi-Peak and Average values.

2. Factor = LISN factor + Cable Loss + Pulse limiter.



9 Radiated Emissions

Test Requirement: FCC Part 15 C

Test Method: ANSI C63.10: Clause 6.4, 6.5 and 6.6

Measurement Distance: 3 m (Semi-Anechoic Chamber)

Test Status: Test in transmitting mode.

Requirements:

the field strength of emissions from intentional radiators operated under this Section shall not exceed the following:

15.227(a):The field strength of any emission within this band shall not exceed 10,000 microvolts/meter at 3 meters. The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in Section 15.35 for limiting peak emissions apply.

15.227(b) :The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209.

Out of band emissions shall not exceed:

Frequency range(MHz)	**Quasi-peak limits** dB (μV/m)
30 to 88	40
88 to 216	43.5
216 to 960	46
Above 960	54
At transitional frequencies the lower limit applies.	

Test Procedure:

1) 9 kHz to 30 MHz emissions:

For testing performed with the loop antenna. The center of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specied distance from the EUT.During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane.

2) 30 MHz to 1 GHz emissions:

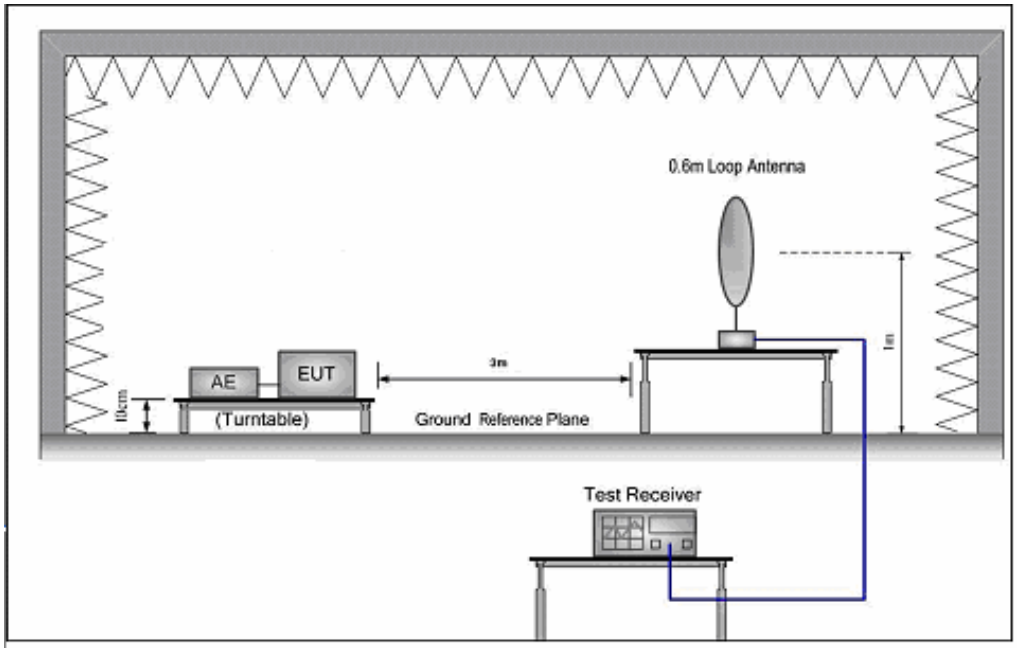
For testing perfomed with the bi-log type antenna. The measurement is performed with the EUT rotated 360º, the antenna height scaned between 1m and 4m, and the antenna rotated to repeat the measurement for both the horizontal and vertical antenna polarizations.

Detector:

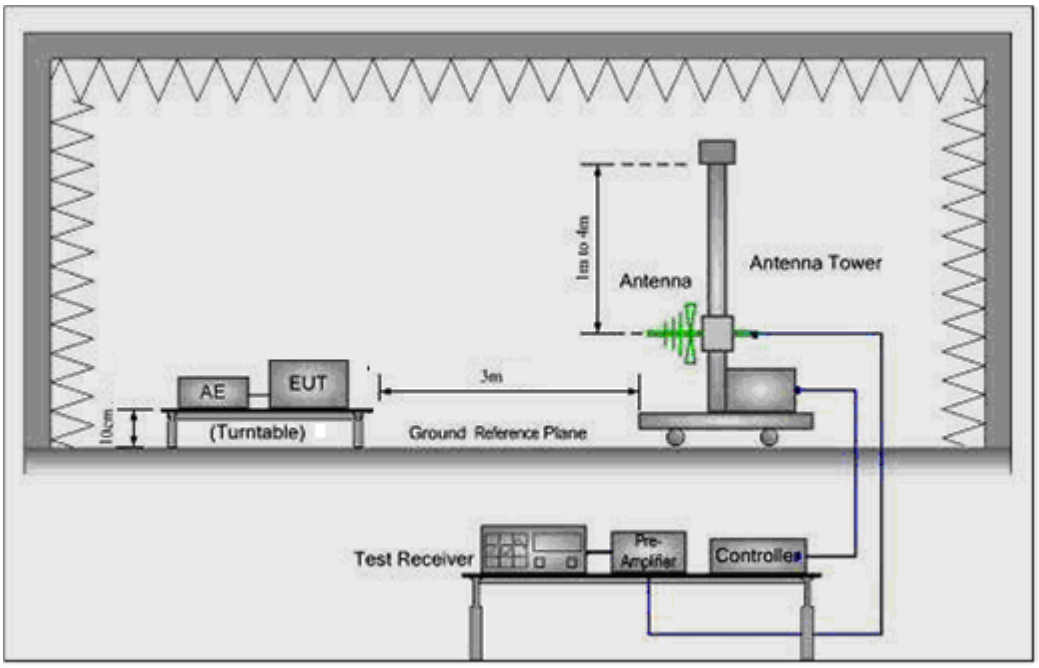
Test Receiver test setup	Detector	
	Peak	Average
RBW	120 kHz for f < 1 GHz	120 kHz for f < 1 GHz
VBW	≥ RBW	≥ RBW
Sweep	auto	auto
Detector function	peak	AV
Trace	max hold	max hold

Test Configuration:

1) 9 kHz to 30 MHz emissions:



2) 30 MHz to 1 GHz emissions:



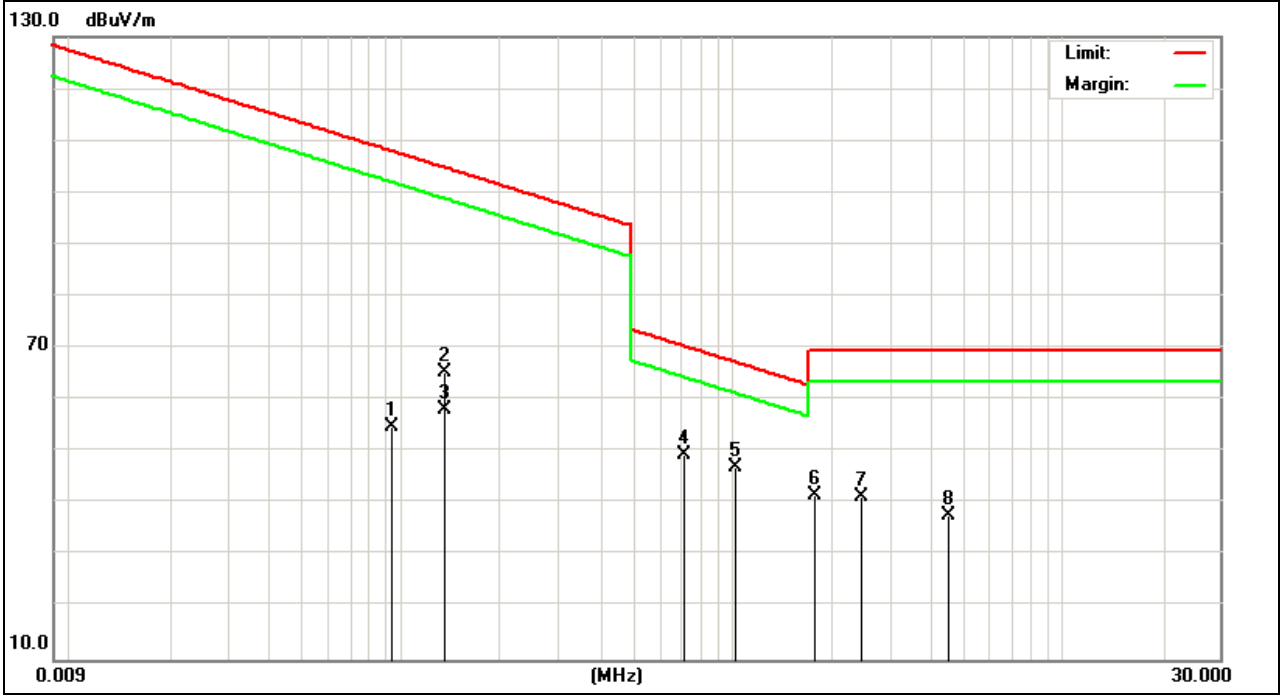
9 kHz~30 MHz Field Strength of Unwanted Emissions Measurement

EUT：	DARK BASE PRO 900	Model Name ：	BGX1X
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Test Date：	2016-07-23
Test Mode ：	Mode 1	Polarization：	Horizontal
Test Power ：	DC 5V from PC power, AC 120V/60Hz for PC power		

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
0.1363	**46.57**	**18.68**	**65.25**	**124.80**	**-59.55**	**Peak**
0.1363	**39.62**	**18.68**	**58.30**	**104.80**	**-37.54**	**Average**
0.0946	33.85	20.95	54.80	108.00	-53.20	Quasi-Peak
0.7186	49.96	-0.36	49.60	70.47	-20.87	Quasi-Peak
1.0354	50.65	-3.55	47.10	67.30	-20.20	Quasi-Peak
1.7903	48.51	-6.71	41.80	69.50	-27.70	Quasi-Peak
2.4765	51.09	-9.59	41.50	69.50	-28.00	Quasi-Peak
4.5503	51.45	-13.85	37.60	69.50	-31.90	Quasi-Peak

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

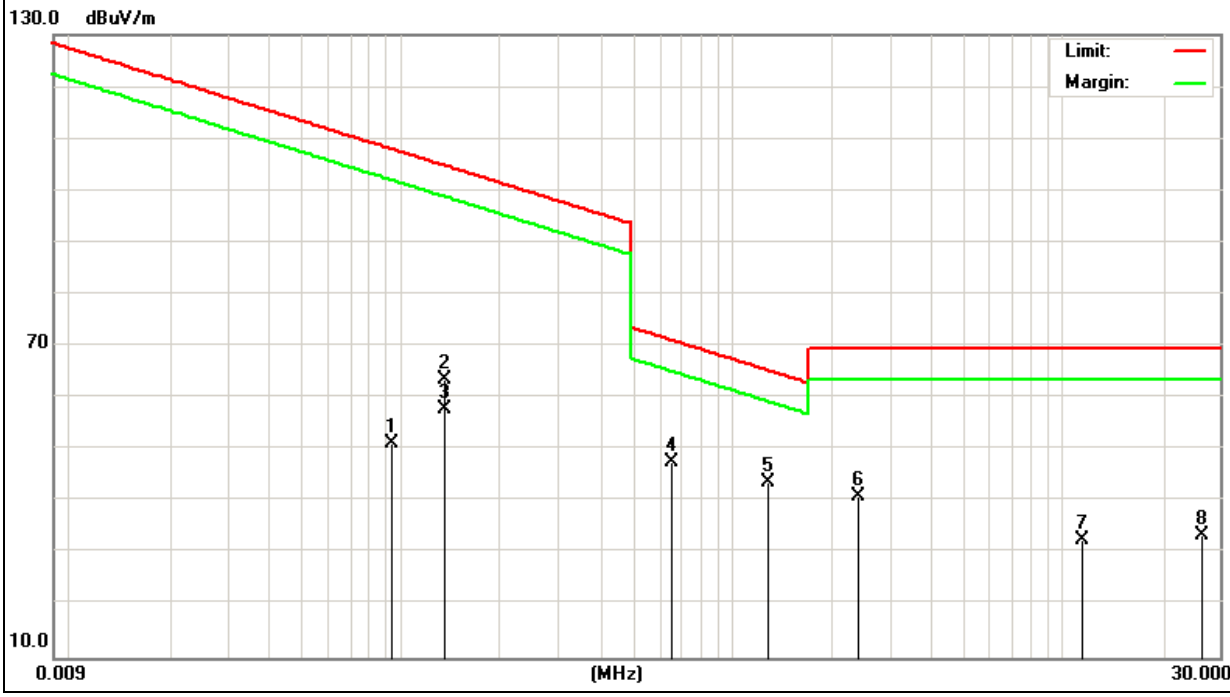


EUT：	DARK BASE PRO 900	Model Name ：	BGX1X
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Test Date：	2016-07-23
Test Mode ：	Mode 1	Polarization：	Vertical
Test Power ：	DC 5V from PC power, AC 120V/60Hz for PC power		

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
0.1363	**44.96**	**18.68**	**63.64**	**124.80**	**-61.16**	**Peak**
0.1363	**39.02**	**18.68**	**57.70**	**104.80**	**-40.14**	**Average**
0.0946	30.35	20.95	51.30	108.00	-56.70	Quasi-Peak
0.6623	47.45	0.25	47.70	71.18	-23.48	Quasi-Peak
1.2942	48.44	-4.64	43.80	65.36	-21.56	Quasi-Peak
2.4267	50.48	-9.38	41.10	69.50	-28.40	Quasi-Peak
11.5659	48.96	-16.36	32.60	69.50	-36.90	Quasi-Peak
26.5626	50.61	-17.01	33.60	69.50	-35.90	Quasi-Peak

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



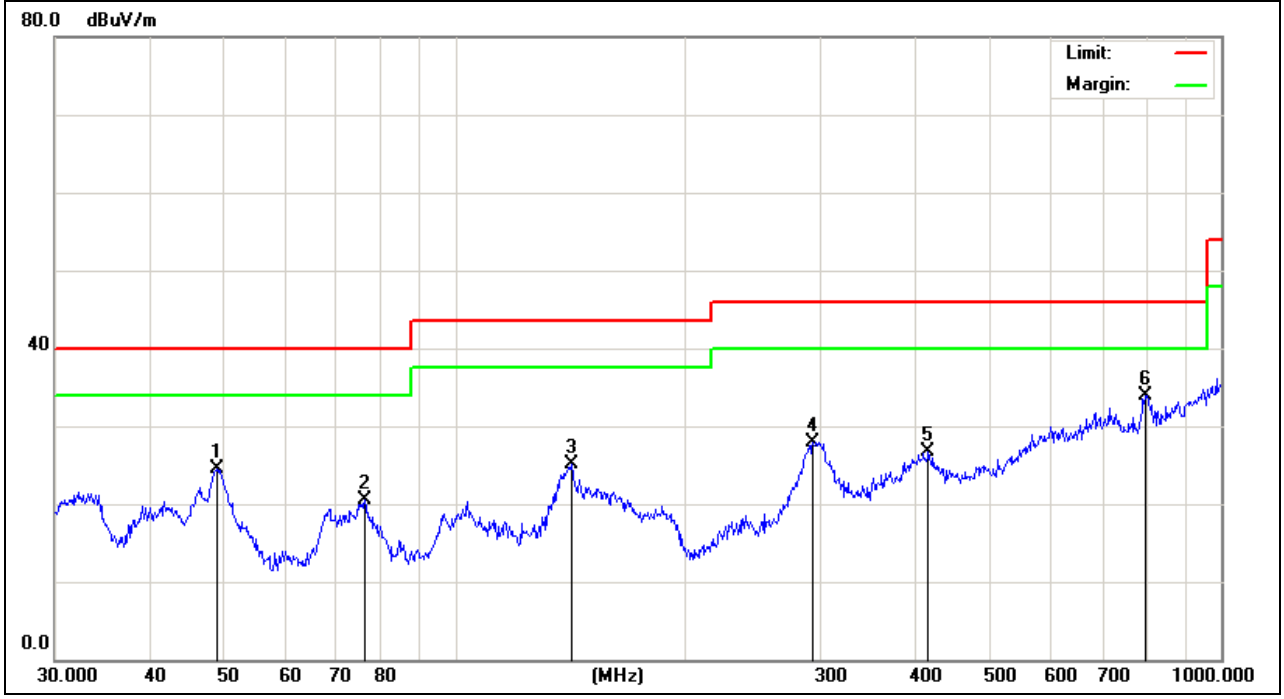
30 MHz~1 GHz Field Strength of Unwanted Emissions.Quasi-Peak Measurement

EUT：	DARK BASE PRO 900	Model Name ：	BGX1X
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Test Date：	2016-07-23
Test Mode ：	Mode 1	Polarization：	Horizontal
Test Power ：	DC 5V from PC power, AC 120V/60Hz for PC power		

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
48.8429	42.98	-18.49	24.49	40.00	-15.51	Quasi-Peak
76.2442	39.70	-19.18	20.52	40.00	-19.48	Quasi-Peak
141.8262	40.55	-15.35	25.20	43.50	-18.30	Quasi-Peak
293.0842	38.19	-10.25	27.94	46.00	-18.06	Quasi-Peak
414.7223	33.26	-6.63	26.63	46.00	-19.37	Quasi-Peak
796.1829	30.89	3.01	33.90	46.00	-12.10	Quasi-Peak

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

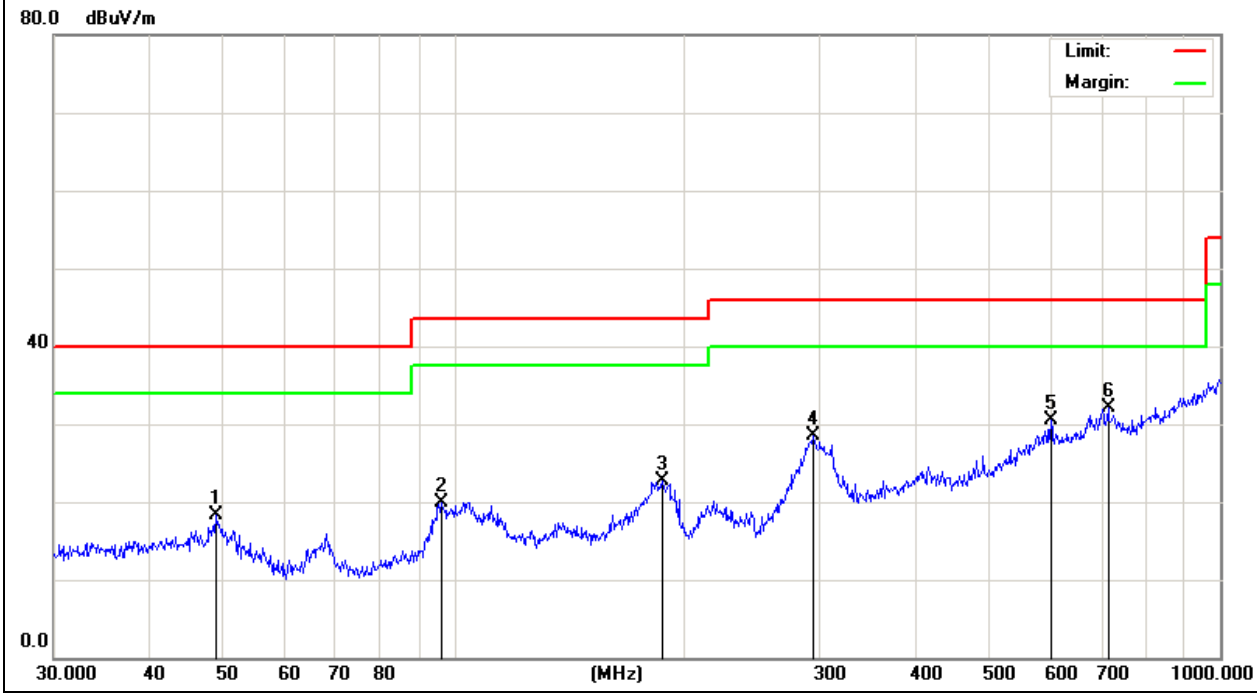


EUT：	DARK BASE PRO 900	Model Name ：	BGX1X
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Test Date：	2016-07-23
Test Mode ：	Mode 1	Polarization：	Vertical
Test Power ：	DC 5V from PC power, AC 120V/60Hz for PC power		

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
48.8429	32.42	-14.21	18.21	40.00	-21.79	Quasi-Peak
96.0986	36.40	-16.43	19.97	43.50	-23.53	Quasi-Peak
187.0958	35.80	-13.17	22.63	43.50	-20.87	Quasi-Peak
294.1137	38.75	-10.28	28.47	46.00	-17.53	Quasi-Peak
601.4265	32.27	-1.74	30.53	46.00	-15.47	Quasi-Peak
714.1734	32.50	-0.44	32.06	46.00	-13.94	Quasi-Peak

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



Remark:
According to 15.35 (b) When average radiated emission measurements are specified in the regulations, including emission measurements below 1000 MHz, there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules, e.g., see Section 15.255.

10 BANDWIDTH TEST

10.1.1 Applied procedures / Limit

FCC part 2.1049, only applicable to report.

10.1.2 Test procedure

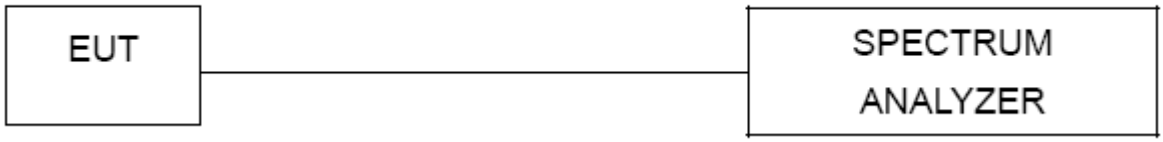
a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.

b. Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel
RBW ≥ 1% of the 20 dB bandwidth, VBW ≥ RBW, Sweep = auto, Detector function = peak
Trace = max hold

10.1.3 Deviation from standard

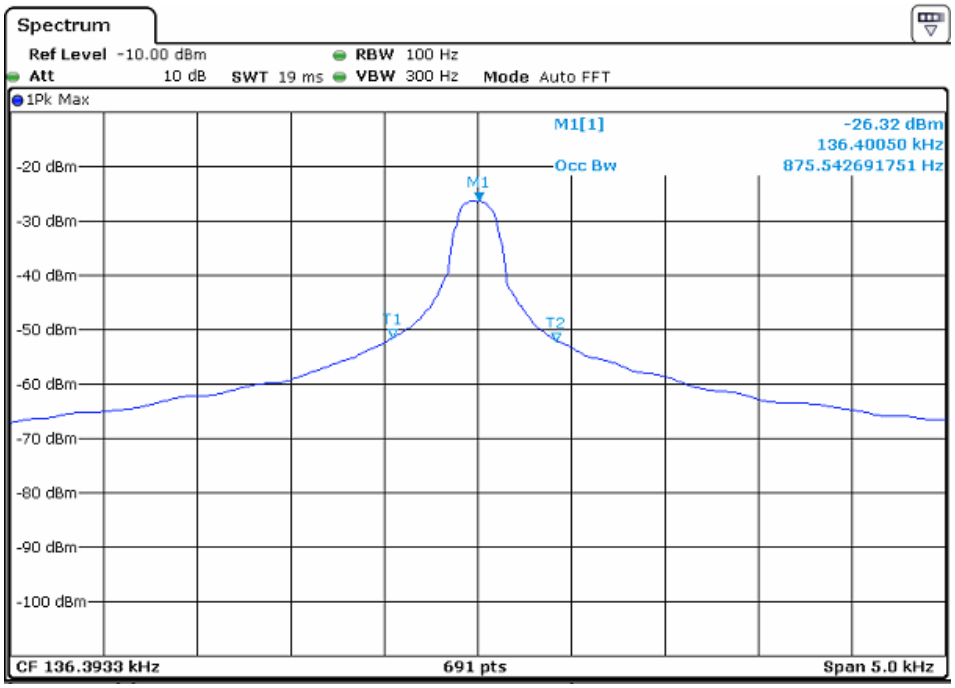
No deviation.

10.1.4 Test setup



10.1.5 Test results

Channel frenqucy (KHz)	Occupied bandwidth(99%) (Hz)
136	875.54



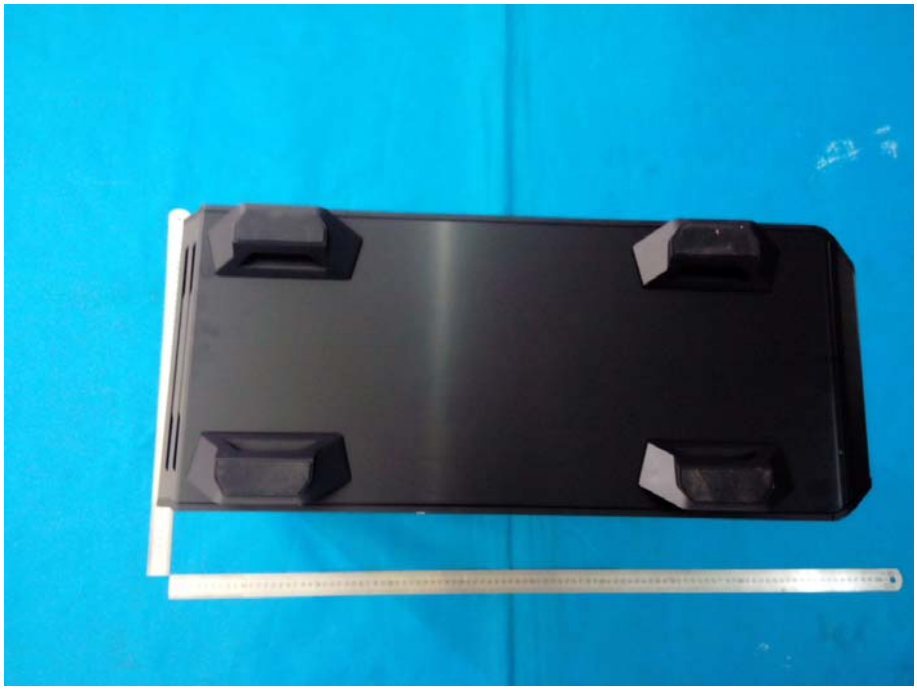
11 Photographs

11.1 Radiated Emission & Fundamental Emission (below 30 MHz)

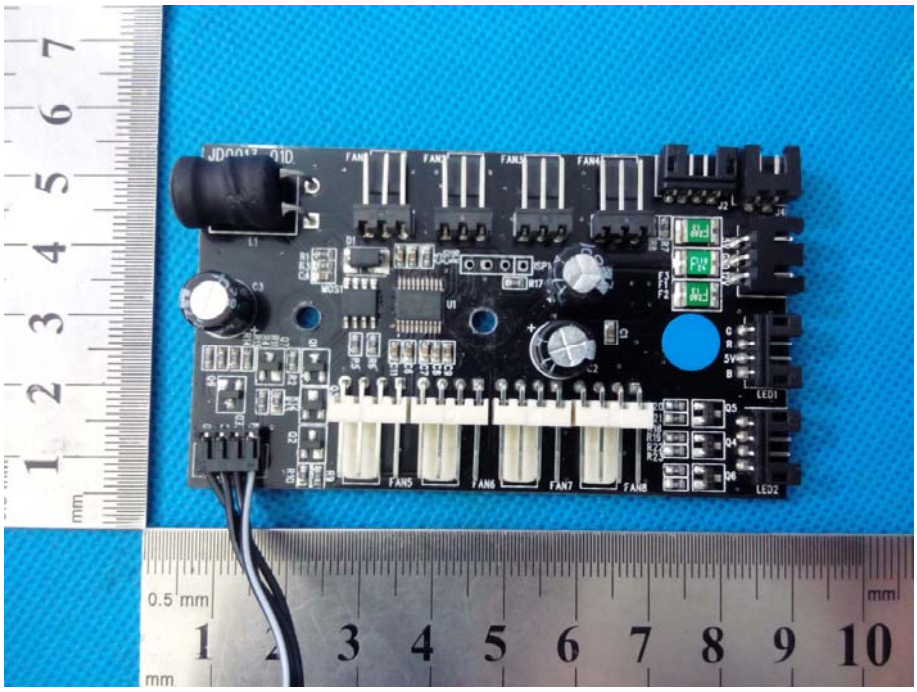
11.2 Radiated Emission (30MHz-1GHz)

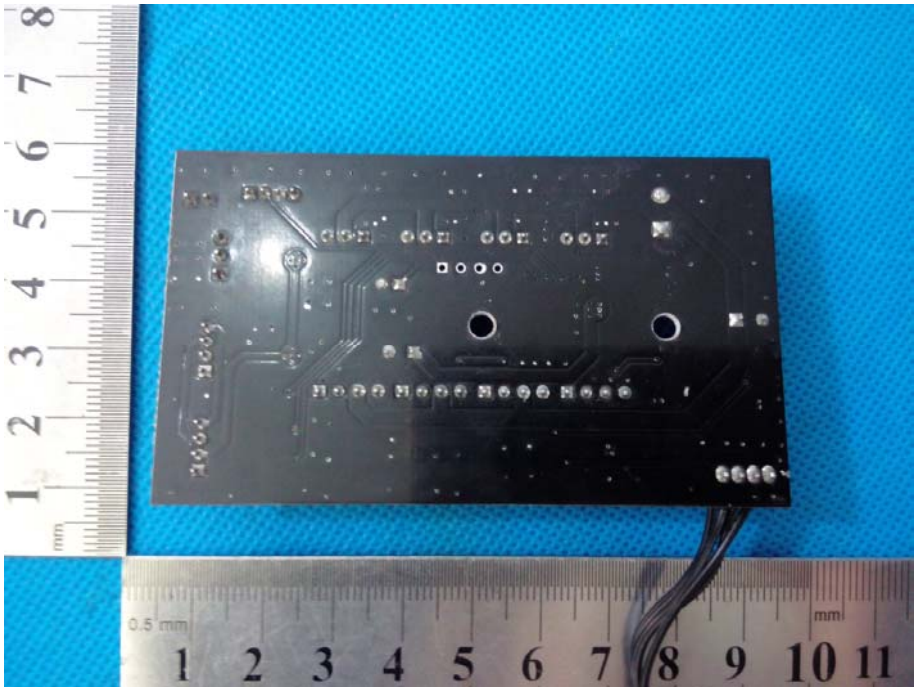
11.3 Conduction Emissions

11.4 Photographs of EUT Constructional Details




廠牌：be quiet!
型號：BGX1X

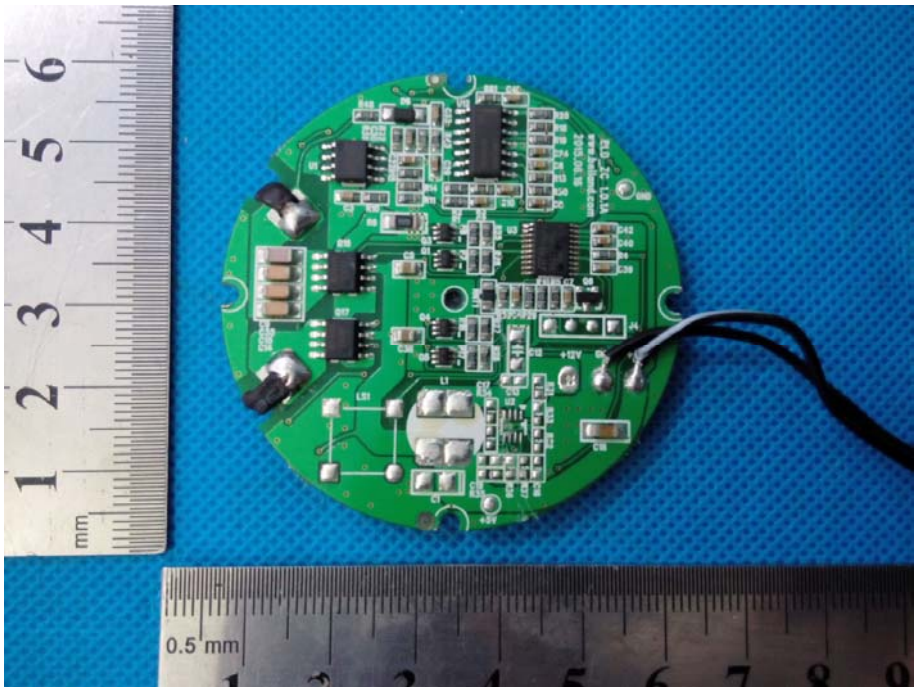

FAN1
FAN2
FAN3
FAN4
FAN5
FAN6
FAN7
FAN8
LED1
LED2
0.5 mm
mm




be quiet!
SILENT WINGS 3


be quiet!®
SILENT WINGS 3
BQ SIW3-14025-LF-PWM
DC 12V 0.3A 1000rpm
Made in China
2016-04-27


be quiet!


mm
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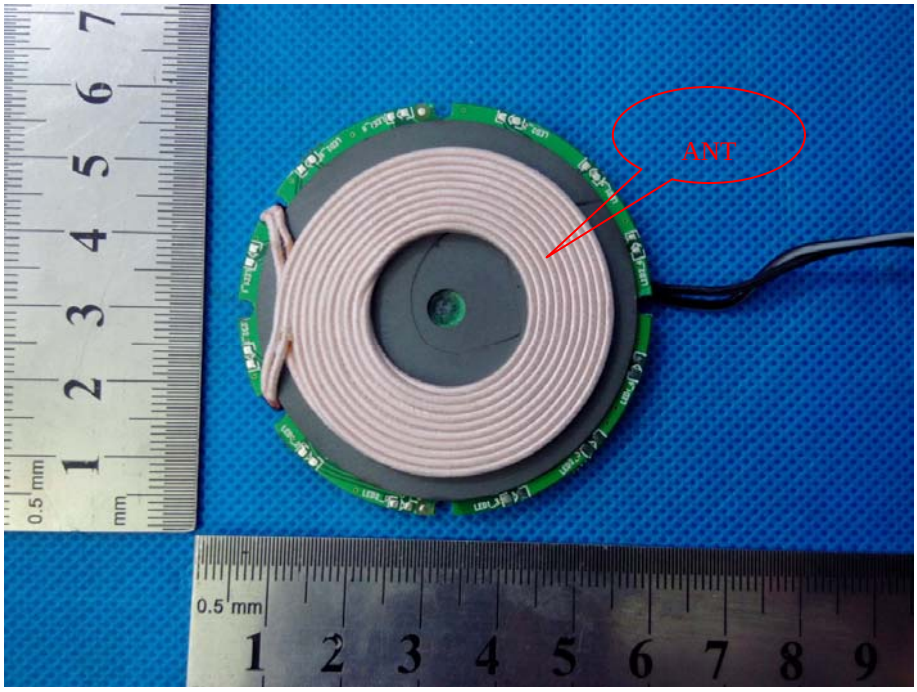
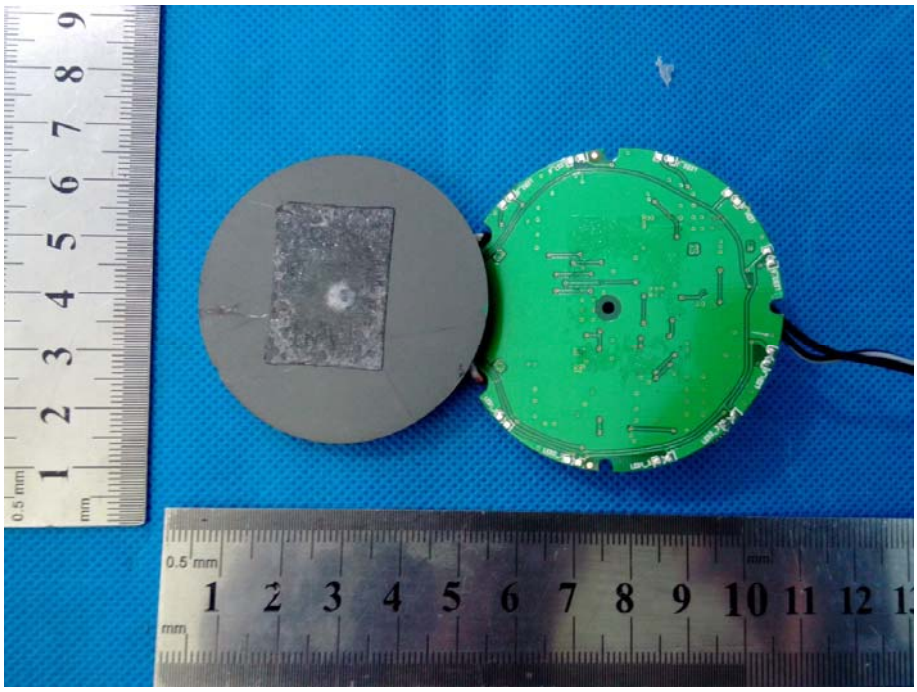
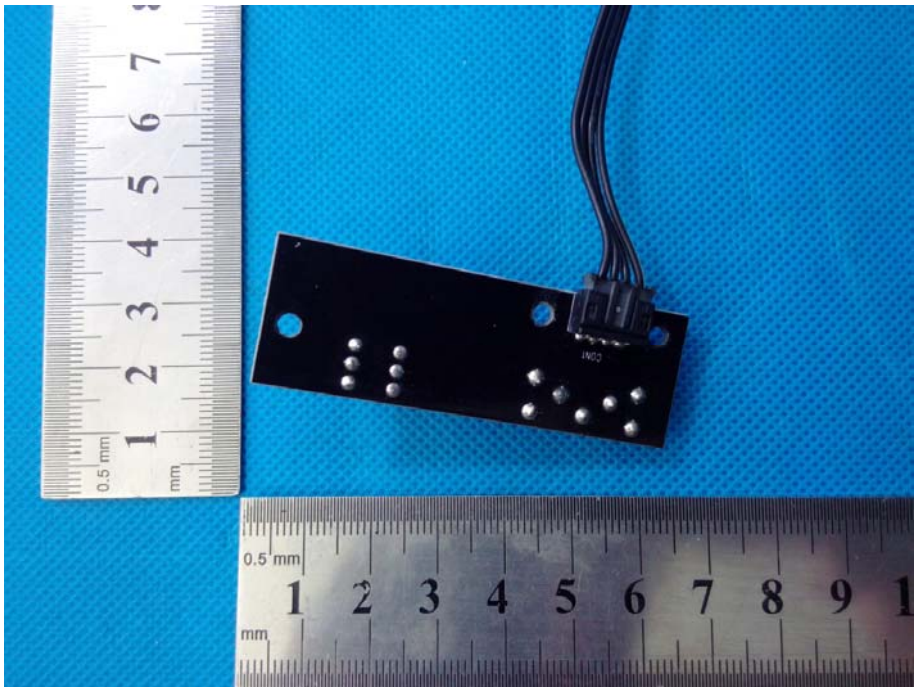
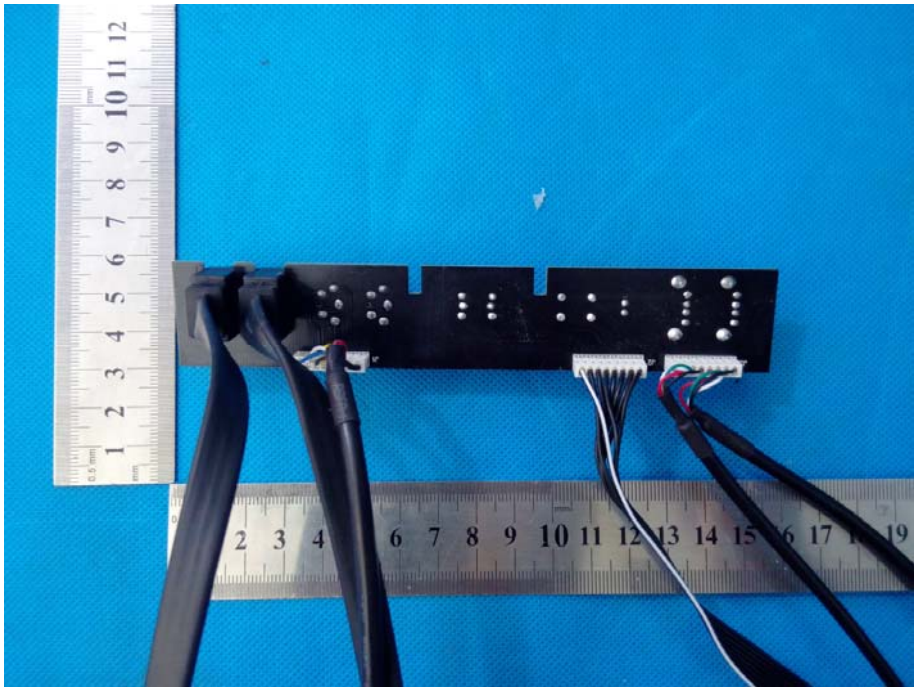
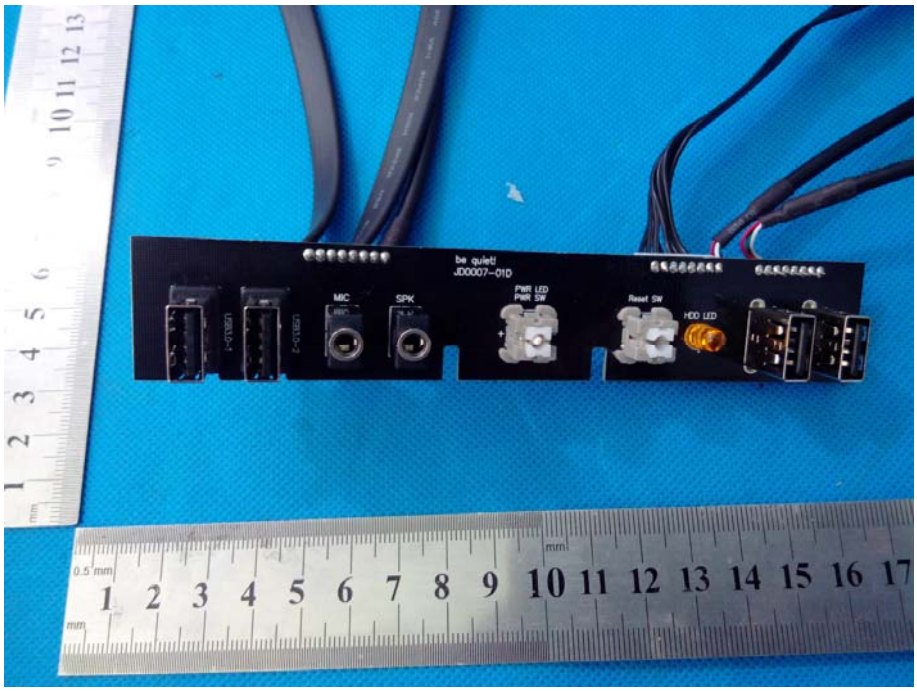

ANT
0.5 mm
1 2 3 4 5 6 7 8 9

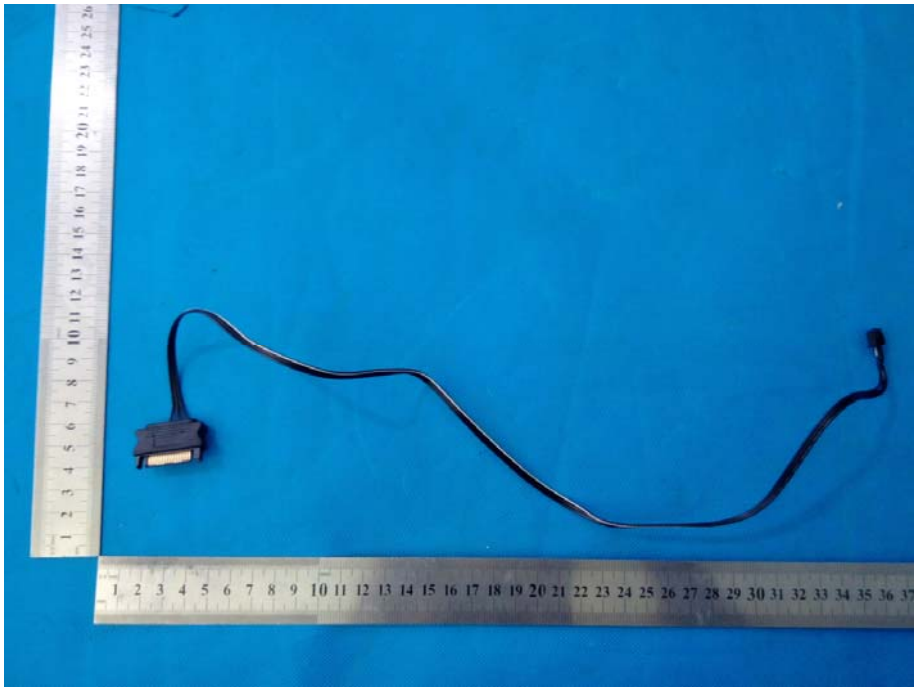

0.5 mm
1 2 3 4 5 6 7 8 9 10 11 12

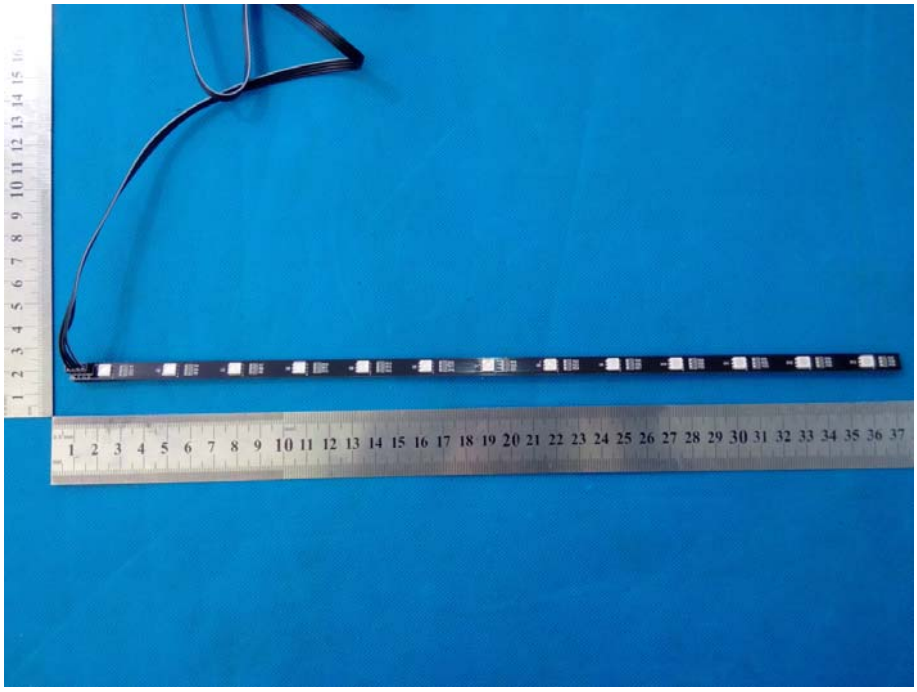

JD0014-01B
0.5 mm
mm

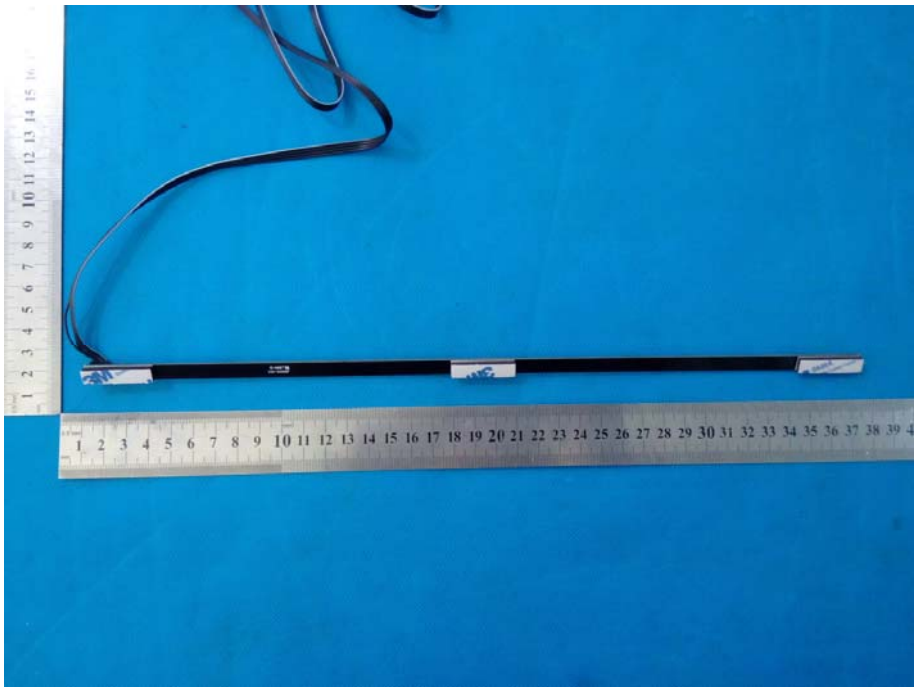

0.5 mm
mm

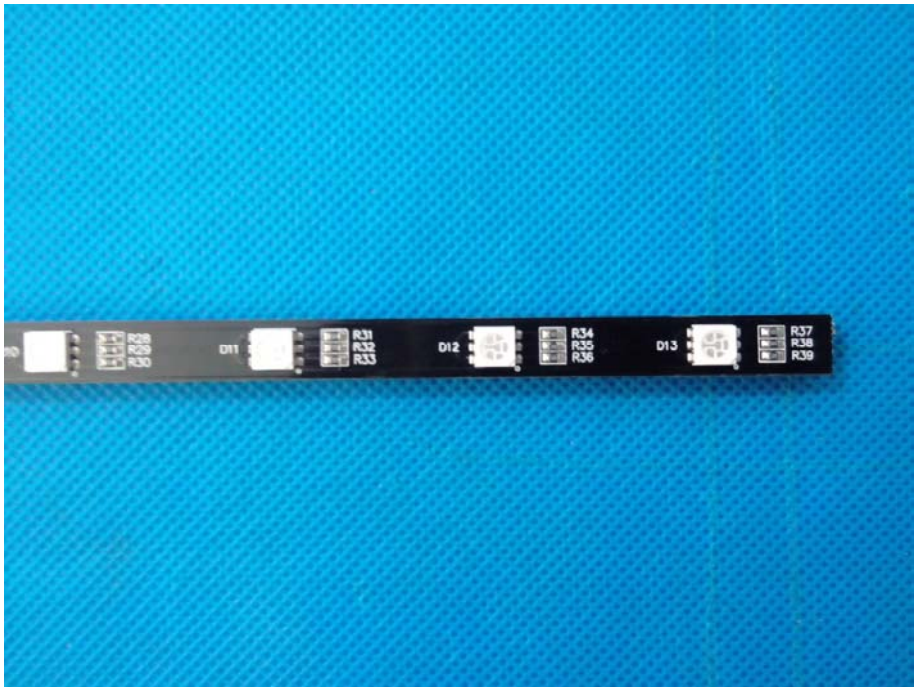



be quiet!
JD0007-01D
MIC
SPK
PWR LED
PWR SW
Reset SW
HDD LED









--The End of Report--