

FCC TEST REPORT
FOR
SBD TECHNOLOGY HK CO.,LTD
Smart Glasses
Model No.: SG2
Additional Model No.: SG2-01, SG2-02, SG2-03

Prepared for : SBD TECHNOLOGY HK CO.,LTD
Address : Unit A5,9/F Silvercorp International Tower,707-713 Nathan Road, Mongkok, Kowloon,Hong kong

Prepared by : Shenzhen LCS Compliance Testing Laboratory Ltd.
Address : 1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue, Bao'an District, Shenzhen, Guangdong, China
Tel : (+86)755-82591330
Fax : (+86)755-82591332
Web : www.LCS-cert.com
Mail : webmaster@LCS-cert.com

Date of receipt of test sample : January 19, 2016
Number of tested samples : 1
Serial number : Prototype
Date of Test : January 19, 2016 – January 22, 2016
Date of Report : January 22, 2016

FCC TEST REPORT**FCC CFR 47 PART 15 Subpart B: 2015****Report Reference No. : LCS1601181190E**

Date Of Issue : January 22, 2016

Testing Laboratory Name..... : Shenzhen LCS Compliance Testing Laboratory Ltd.Address : 1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue,
Bao'an District, Shenzhen, Guangdong, ChinaTesting Location/ Procedure..... : Full application of Harmonised standards ■
Partial application of Harmonised standards □
Other standard testing method □**Applicant's Name : SBD TECHNOLOGY HK CO.,LTD**Address : Unit A5,9/F Silvercorp International Tower,707-713 Nathan Road,
Mongkok, Kowloon,Hong kong**Test Specification**

Standard..... : FCC CFR 47 PART 15 Subpart B: 2015, ANSI C63.4-2014

Test Report Form No..... : LCSEMC-1.0

TRF Originator : Shenzhen LCS Compliance Testing Laboratory Ltd.

Master TRF..... : Dated 2011-03

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Test Item Description..... : Smart Glasses

Trade Mark : N/A

Model/Type Reference : SG2

Ratings..... : DC 3.7V by battery

Result : Positive**Compiled by:**

Jacky Li/ File administrators

Supervised by:

Glin Lu/ Technique principal

Approved by:

Gavin Liang/ Manager

FCC -- TEST REPORT

Test Report No. : LCS1601181190EJanuary 22, 2016

Date of issue

Type / Model..... : SG2

EUT..... : Smart Glasses

Applicant..... : SBD TECHNOLOGY HK CO.,LTDAddress..... : Unit A5,9/F Silvercorp International Tower,707-713 Nathan
Road, Mongkok, Kowloon,Hong kong

Telephone..... : /

Fax..... : /

Manufacturer..... : Shenzhen Spardar Smart Technology Co.,ltdAddress..... : 5/F,Business Building,Longsheng Road 2# ,Longhua New
District, Shenzhen City, Guangdong Province, China

Telephone..... : /

Fax..... : /

Factory..... : Shenzhen Spardar Smart Technology Co.,ltdAddress..... : 5/F,Business Building,Longsheng Road 2# ,Longhua New
District, Shenzhen City, Guangdong Province, China

Telephone..... : /

Fax..... : /

Test Result according to the standards on page 5: **Positive**

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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1. SUMMARY OF STANDARDS AND RESULTS

1.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION			
Description of Test Item	Standard	Limits	Results
Conducted disturbance at mains terminals	FCC CFR 47 PART 15 Subpart B: 2015	Class B	PASS
Radiated disturbance	FCC CFR 47 PART 15 Subpart B: 2015	Class B	PASS
N/A is an abbreviation for Not Applicable.			

1.2 Support Equipment

OUTSIDE SUPPORT EQUIPMENT							
No.	Equipment	Model	Serial No.	FCC ID/BSMI ID	Trade name	Data Cable	Power Cord
1.	Dell PC	OptiPlex 3020 MT	CN/079V51-70163-4 CQ-0556-A00	N/A	Dell	USB Port	1m
2	Dell LCD Monitor	E2014HF	CN-011HFV-72872-46J-CGAM	N/A	Dell	VGA Port	1m
3	Dell Keyboard	KB212-B	CN-ON291F-71581-53H-04ES-A01	N/A	Dell	USB Port	1.8m
4	Dell Mouse	DP/N 09RRC7	CN-09RRC7-48729-512-19MQ-A06	N/A	Dell	USB Port	1.8m
5.	Brother printer	HL-2140	E65602M0J161141	N/A	Brother	LPT to USB	1.5m

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

EUT : Smart Glasses

Model Number : SG2

Power Supply : DC 3.7V by battery

Frequency Range : 2412.00-2462.00MHz for 802.11b/g/n

Modulation Technology : IEEE 802.11b: DSSS(CCK,DQPSK,DBPSK)
IEEE 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK)
IEEE 802.11n: OFDM (64QAM, 16QAM,QPSK,BPSK)

Antenna Type and Gain : PIFA antenna, 2.0 dBi

2.2. Description of Test Facility

EMC Lab. : CNAS Registration Number. is L4595.
FCC Registration Number. is 899208.
Industry Canada Registration Number. is 9642A-1.
VCCI Registration Number. is C-4260 and R-3804.
ESMD Registration Number. is ARCB0108.
UL Registration Number. is 100571-492.
TUV SUD Registration Number. is SCN1081.
TUV RH Registration Number. is UA 50296516-001

2.3. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the LCS quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

2.4.Measurement Uncertainty

Test Item	Frequency Range	Expanded uncertainty (U _{lab})	Expanded uncertainty (U _{cispr})
Conducted Emission	(9kHz to 150kHz)	2.63 dB	4.0 dB
	(150kHz to 30MHz)	2.35 dB	3.6 dB
Radiated Emission	(9kHz to 30MHz)	3.68 dB	N/A
Radiated Emission	(30MHz to 1000MHz)	3.48 dB	5.2 dB
Radiated Emission	(above 1000MHz)	3.90 dB	N/A

- (1) Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus.
- (2) The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor of $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

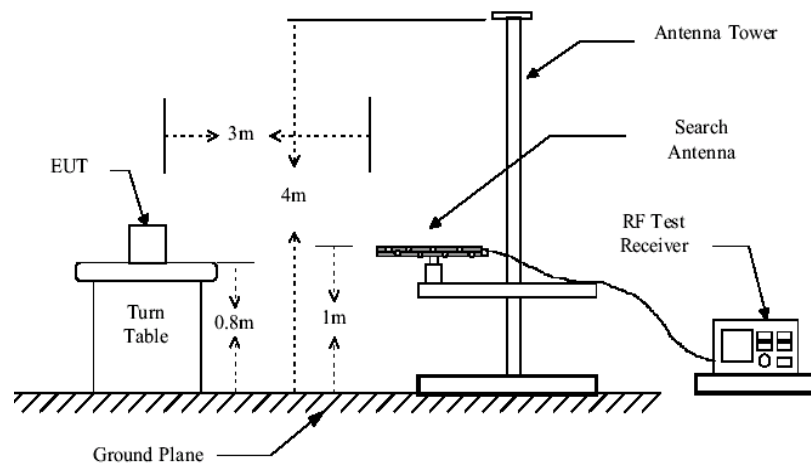
3. RADIATED EMISSION MEASUREMENT

3.1. Test Equipment

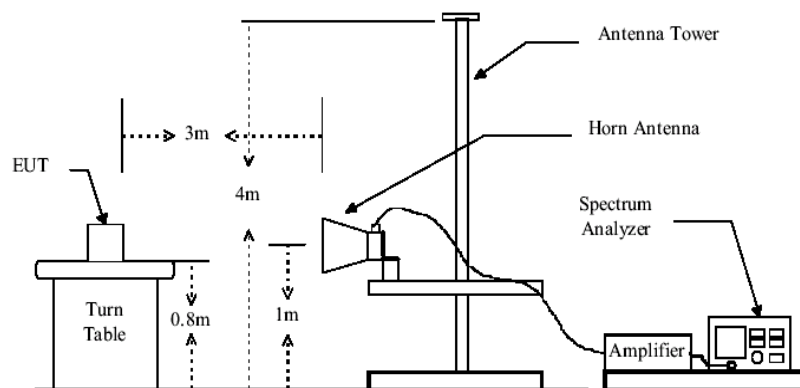
The following test equipments are used during the radiated emission measurement:

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	2015/02/04
2	EMI Test Receiver	ROHDE & SCHWARZ	ESPI	101840	2015/06/18
3	Log per Antenna	SCHWARZBECK	VULB9163	9163-470	2015/06/18
4	EMI Test Software	AUDIX	E3	N/A	2015/06/18
5	Positioning Controller	MF	MF-7082	/	2015/06/18

3.2. Block Diagram of Test Setup



Below 1G



Above 1G

3.3. Radiated Emission Limit (Class B)

Limits for radiated disturbance Blow 1GHz

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		$\mu\text{V/m}$	$\text{dB}(\mu\text{V})/\text{m}$
30 ~ 88	3	100	40
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46
960 ~ 1000	3	500	54

Remark : (1) Emission level $(\text{dB})\mu\text{V} = 20 \log \text{Emission level } \mu\text{V/m}$

(2) The smaller limit shall apply at the cross point between two frequency bands.

(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

3.4. EUT Configuration on Measurement

The following equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

3.5. Operating Condition of EUT

4.5.1. Setup the EUT as shown in Section 4.2.

4.5.2. Let the EUT work in test mode (on) and measure it.

3.6. Test Procedure

EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated by-log antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2014 on radiated emission measurement. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Below 1G:

The bandwidth of the EMI test receiver is set at 120kHz, 1000kHz.

The frequency range from 30MHz to 1000MHz is checked.

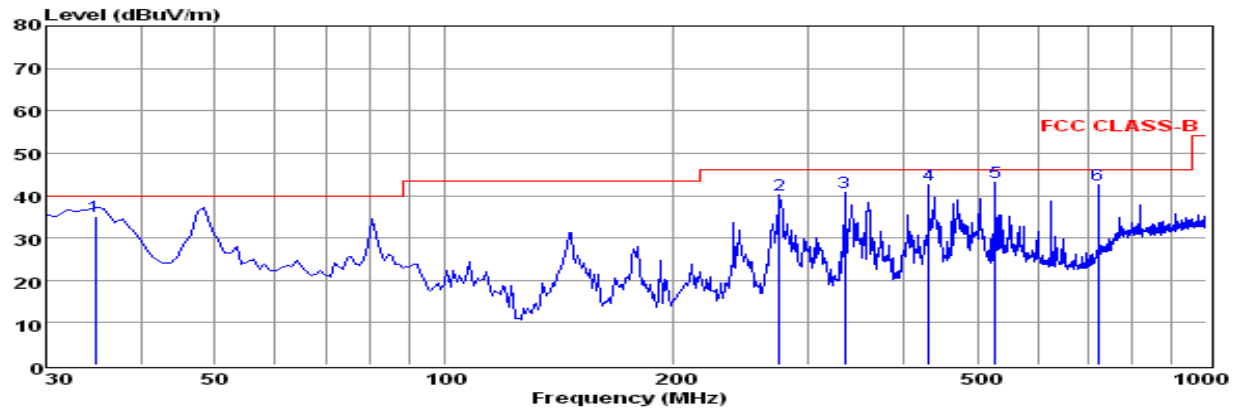
Above 1G:

The bandwidth of the EMI test receiver is set at 1MHz, 3MHz for Peak detector.

The bandwidth of the EMI test receiver is set at 1MHz, 10Hz for Average detector

The frequency range from 1GHz to 26.5GHz is checked.

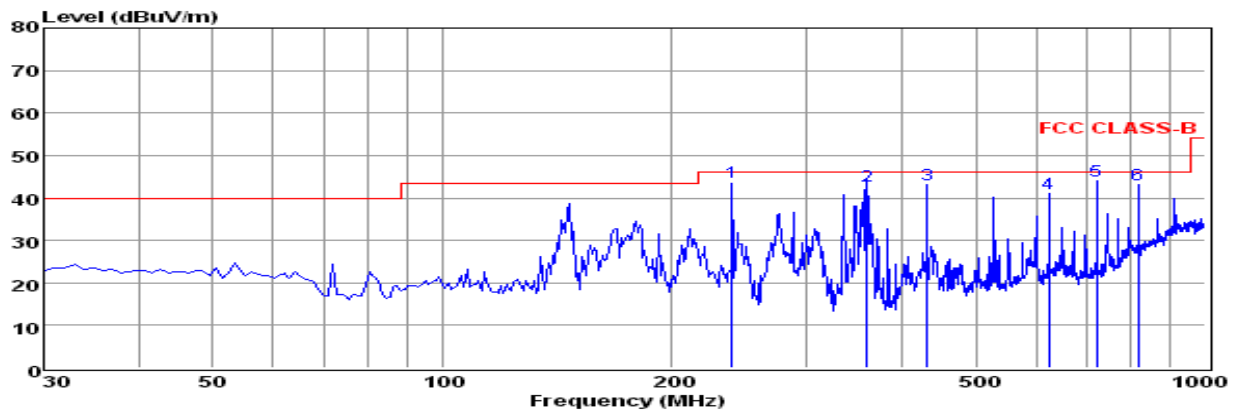
3.7. Radiated Emission Noise Measurement Result PASS.



Env./Ins: 24°C/56%
pol: VERTICAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	34.85	22.41	0.41	12.30	35.12	40.00	-4.88	QP
2	275.41	26.48	1.00	12.53	40.01	46.00	-5.99	QP
3	335.55	25.72	1.09	13.94	40.75	46.00	-5.25	QP
4	431.58	25.68	1.28	15.52	42.48	46.00	-3.52	QP
5	528.58	24.61	1.46	17.11	43.18	46.00	-2.82	QP
6	720.64	21.86	1.63	19.07	42.56	46.00	-3.44	QP

Note: 1. All readings are Quasi-peak values.
2. Measured= Reading + Antenna Factor + Cable Loss
3. The emission that are 20dB below the official limit are not reported



Env./Ins: 24°C/56%
pol: HORIZONTAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	239.52	30.73	1.01	12.07	43.81	46.00	-2.19	QP
2	359.80	27.11	1.18	14.43	42.72	46.00	-3.28	QP
3	431.58	26.17	1.28	15.52	42.97	46.00	-3.03	QP
4	624.61	21.09	1.49	18.54	41.12	46.00	-4.88	QP
5	720.64	23.23	1.63	19.07	43.93	46.00	-2.07	QP
6	816.67	20.97	1.79	20.23	42.99	46.00	-3.01	QP

Note: 1. All readings are Quasi-peak values.
2. Measured= Reading + Antenna Factor + Cable Loss
3. The emission that are 20dB below the official limit are not reported

Test Mode: Transmit data with PC	Tested by: Jacky
Test voltage: DC 3.7V	Test Distance: 3m
Detector Function: Peak+AV	Test Results: Passed

Polarization	Frequency MHz	Emission Level dB μ V/m		Limits dB μ V/m		Margin dB μ V/m	
		Peak	AVG	Peak	AVG	Peak	AVG
Horizontal	1653.24	66.01	49.54	74.00	54.00	-7.99	-4.46
	3467.15	64.27	47.28	74.00	54.00	-9.73	-6.72
	5563.01	63.38	45.73	74.00	54.00	-10.62	-8.27
Vertical	1826.36	62.56	44.14	74.00	54.00	-11.44	-9.86
	3314.08	65.73	48.63	74.00	54.00	-8.27	-5.37
	4693.29	60.44	43.27	74.00	54.00	-13.56	-10.73

Notes:

1. Measuring frequencies from 9k~26.5GHz , No emission found between lowest internal used/generated frequency to 30MHz.
2. Radiated emissions measured in frequency range from 9k~26.5GHz were made with an instrument using Peak detector mode.
3. Data of measurement within this frequency range shown “ --- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measure

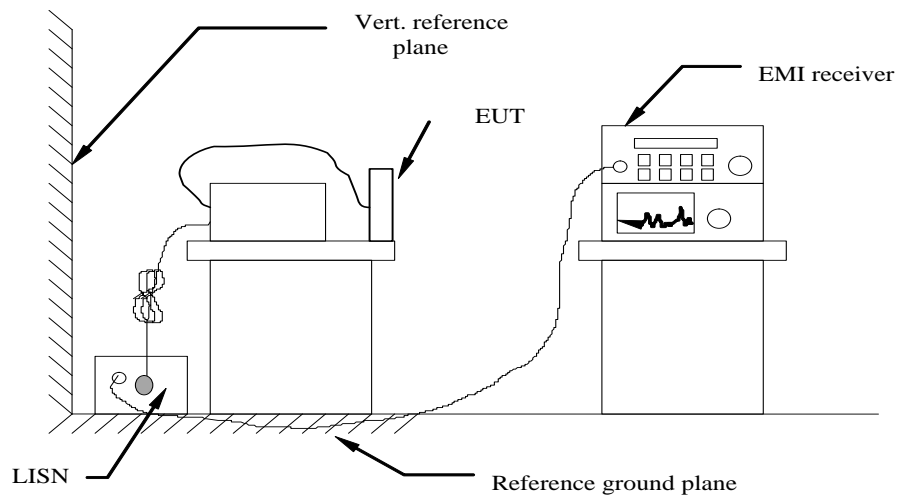
4. POWER LINE CONDUCTED EMISSIONS

4.1 Standard Applicable

According to §15.207 (a): For an intentional radiator which 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 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

Frequency Range (MHz)	Limits (dB μ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

4.2 Block Diagram of Test Setup

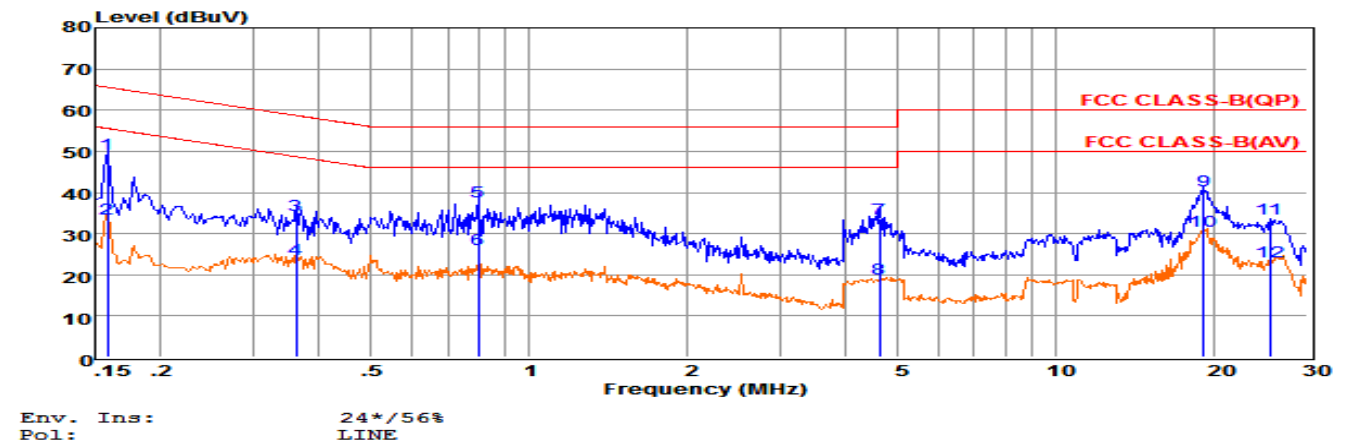
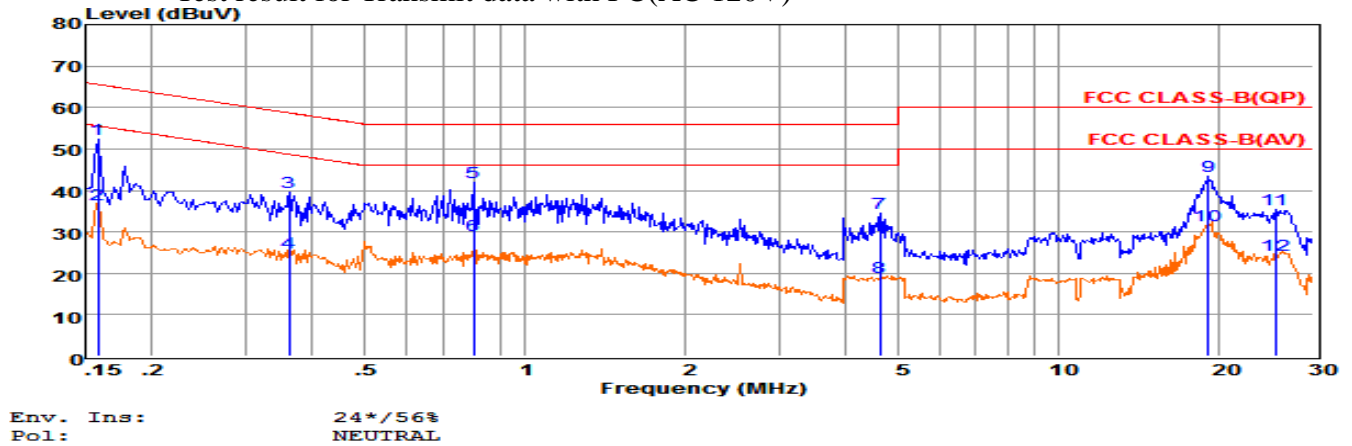


4.3 Test Results

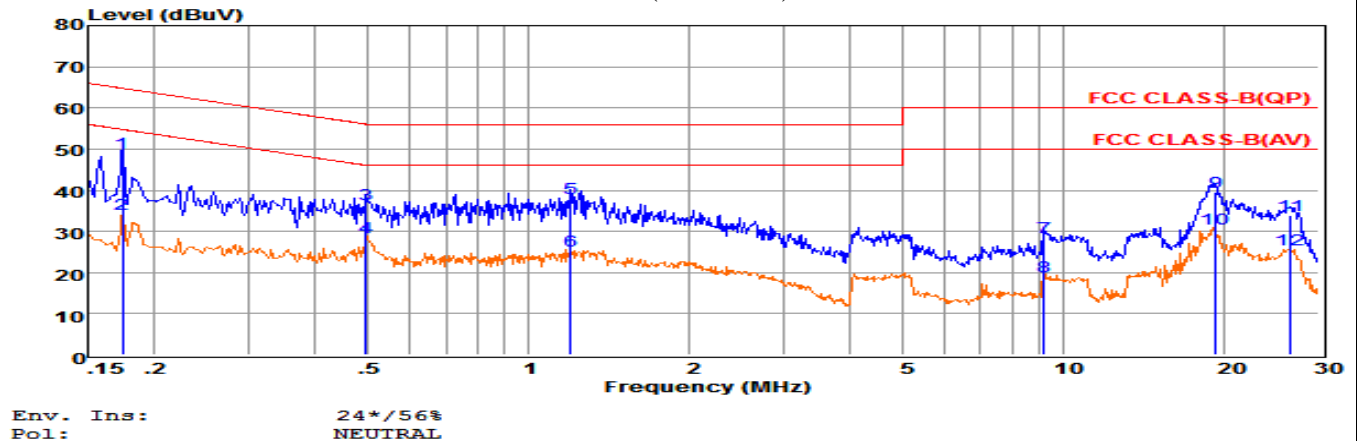
PASS.

The test data please refer to following page.

Test result for Transmit data with PC(AC 120V)

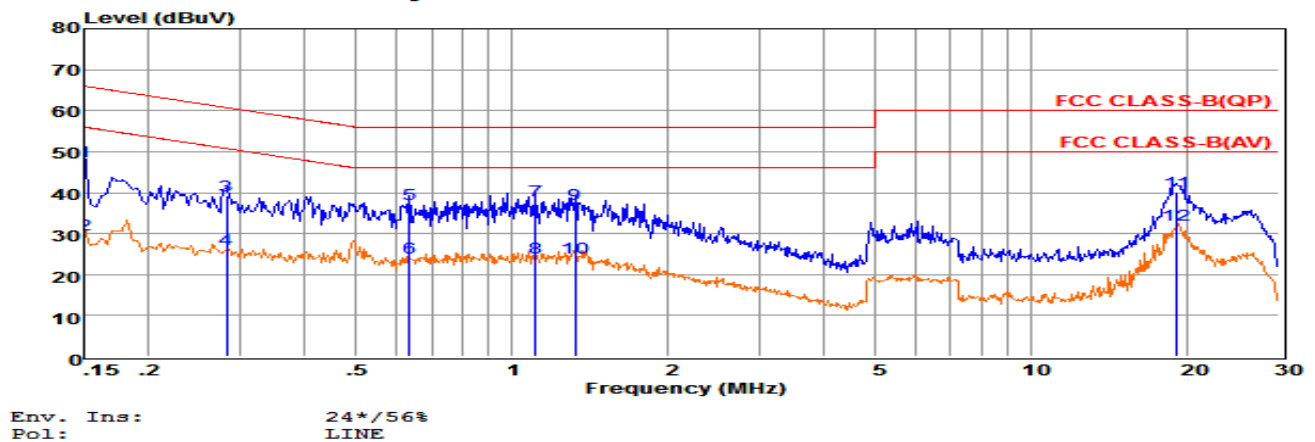


Test result for Transmit data with PC(AC 240V)



Freq	Reading	LisnFac	CabLos	Atten_Fac	Measured	Limit	Over	Remark
MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1 0.17399	29.42	9.64	0.02	10.00	49.08	64.77	-15.69	QP
2 0.17409	14.39	9.64	0.02	10.00	34.05	54.76	-20.71	Average
3 0.49673	16.99	9.62	0.04	10.00	36.65	56.05	-19.40	QP
4 0.49683	8.80	9.62	0.04	10.00	28.46	46.05	-17.59	Average
5 1.19700	18.45	9.63	0.05	10.00	38.13	56.00	-17.87	QP
6 1.19800	5.57	9.63	0.05	10.00	25.25	46.00	-20.75	Average
7 9.20432	8.65	9.71	0.08	10.00	28.44	60.00	-31.56	QP
8 9.20532	-0.79	9.71	0.08	10.00	19.00	50.00	-31.00	Average
9 19.22360	19.64	9.86	0.12	10.00	39.62	60.00	-20.38	QP
10 19.22460	10.52	9.86	0.12	10.00	30.50	50.00	-19.50	Average
11 26.55813	13.97	9.83	0.13	10.00	33.93	60.00	-26.07	QP
12 26.55913	5.61	9.83	0.13	10.00	25.57	50.00	-24.43	Average

Remarks: 1. Measured = Reading + Lisn Factor +Cable Loss+Atten_Fac.
2. The emission levels that are 20dB below the official limit are not reported.



Freq	Reading	LisnFac	CabLos	Atten_Fac	Measured	Limit	Over	Remark
MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1 0.15000	27.97	9.57	0.02	10.00	47.56	66.00	-18.44	QP
2 0.15010	10.28	9.57	0.02	10.00	29.87	55.99	-26.12	Average
3 0.28178	19.66	9.63	0.03	10.00	39.32	60.76	-21.44	QP
4 0.28188	6.55	9.63	0.03	10.00	26.21	50.76	-24.55	Average
5 0.63383	17.52	9.63	0.04	10.00	37.19	56.00	-18.81	QP
6 0.63393	4.46	9.63	0.04	10.00	24.13	46.00	-21.87	Average
7 1.11143	18.53	9.63	0.05	10.00	38.21	56.00	-17.79	QP
8 1.11243	4.46	9.63	0.05	10.00	24.14	46.00	-21.86	Average
9 1.32378	17.60	9.63	0.05	10.00	37.28	56.00	-18.72	QP
10 1.32478	4.32	9.63	0.05	10.00	24.00	46.00	-22.00	Average
11 19.12202	20.38	9.75	0.12	10.00	40.25	60.00	-19.75	QP
12 19.12302	12.35	9.75	0.12	10.00	32.22	50.00	-17.78	Average

Remarks: 1. Measured = Reading + Lisn Factor +Cable Loss+Atten_Fac.
2. The emission levels that are 20dB below the official limit are not reported.

***Note: Pre-scan all mode and recorded the worst case results in this report.

-----THE END OF REPORT-----