FCC PART 15B TEST REPORT FOR CERTIFICATION
On Behalf of

Rondish Company Limited

Door Strip Sensor

DMS-02

FCC ID: WNG-DMS-02

Prepared for : Rondish Company Limited
Unit G&H, 4/F, Block 1, Kwai Tak Ind. Ctr. 15-33 Kwai Tak St., Kwai Chung, N.T., HongKong

Prepared By : Audix Technology (Shenzhen) Co., Ltd.
No. 6, Kefeng Road, Science & Technology Park, Nanshan District , Shenzhen, Guangdong, China

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Report Number	:	ACS-F17083
Date of Test	:	May.16~24,2017
Date of Report	:	Jun.02,2017

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TEST REPORT CERTIFICATION

Applicant	:	Rondish Company Limited
Manufacturer	:	Rondish Company Limited
Product	:	Door Strip Sensor
FCC ID	:	WNG-DMS-02

(A)Model No. : DMS-02
(B)Power Supply : DC 12V
(C)Test Voltage : DC 12V From Adapter Input AC 120V/60Hz

Tested for comply with:
FCC CFR 47 Part 15 Subpart B

Test procedure used:
ANSI C63.4-2014

The device described above is tested by AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. to confirm comply with all the FCC Part 15 Subpart B requirements.

The test results are contained in this test report and AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. is assumed full responsibility for the accuracy and completeness of these tests. This report contains data that are not covered by the NVLAP accreditation. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of AUDIX TECHNOLOGY (SHENZHEN) CO., LTD.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

Date of Test : May.16~24,2017 Report of date: Jun.02,2017

Prepared by : Brave Zhang / Assistant

Reviewed by : Sunny Lu / Deputy Manager

AUDIX® 信華科技（深圳）有限公司
Audix Technology (Shenzhen) Co., Ltd.
EMC 部門報告專用章
Stamp only for EMC Dept. Report

Approved & Authorized Signer : Signature: David Jin / Manager

1. SUMMARY OF STANDARDS AND RESULTS

1.1.Description of Standards and Results

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

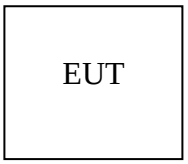
EMISSION		
Description of Test Item	**Standard**	**Results**
Conducted Emission Test	FCC Part 15B ANSI C63.4-2014	PASS
Radiated Emission Test	FCC Part 15B ANSI C63.4-2014	PASS
N/A is an abbreviation for Not Applicable.		

2. GENERAL INFORMATION

2.1.Description of Device (EUT)

Product	:	Door Strip Sensor
Model No.	:	DMS-02
FCC ID	:	WNG-DMS-02
Operation frequency	:	433.92MHz
Applicant	:	Rondish Company Limited Unit G&H, 4/F, Block 1, Kwai Tak Ind. Ctr. 15-33 Kwai Tak St., Kwai Chung, N.T., HongKong
Manufacturer	:	Rondish Company Limited Unit G&H, 4/F, Block 1, Kwai Tak Ind. Ctr. 15-33 Kwai Tak St., Kwai Chung, N.T., HongKong
Antenna Type &Gain	:	Antenna Type: PCB Antenna, -3dBi gain;
Date of Test	:	May.16~24,2017
Date of Receipt	:	May.13,2017
Sample Type	:	Prototype production

2.1. EUT Configuration and operation conditions for test



(EUT: Door Strip Sensor)

2.2.Test Facility

Site Description

Name of Firm	:	Audix Technology (Shenzhen) Co., Ltd. No. 6, Kefeng Road, Science & Technology Park, Nanshan District , Shenzhen, Guangdong, China
3m Anechoic Chamber	:	Certificated by FCC, USA Registration Number: 90454 Valid Date: Jul.12, 2017
3m & 10m Anechoic Chamber	:	Certificated by FCC, USA Registration Number: 794232 Valid Date: Jul.12, 2017
EMC Lab.	:	Certificated by Industry Canada Registration Number: IC 5183A-1 Valid Date: May.07, 2020
	:	Certificated by DAkkS, Germany Registration No: D-PL-12151-01-00 Valid Date: Dec.07, 2021
	:	Accredited by NVLAP, USA NVLAP Code: 200372-0 Valid Date: Mar.31, 2018

2.3.Measurement Uncertainty (95% confidence levels, k=2)

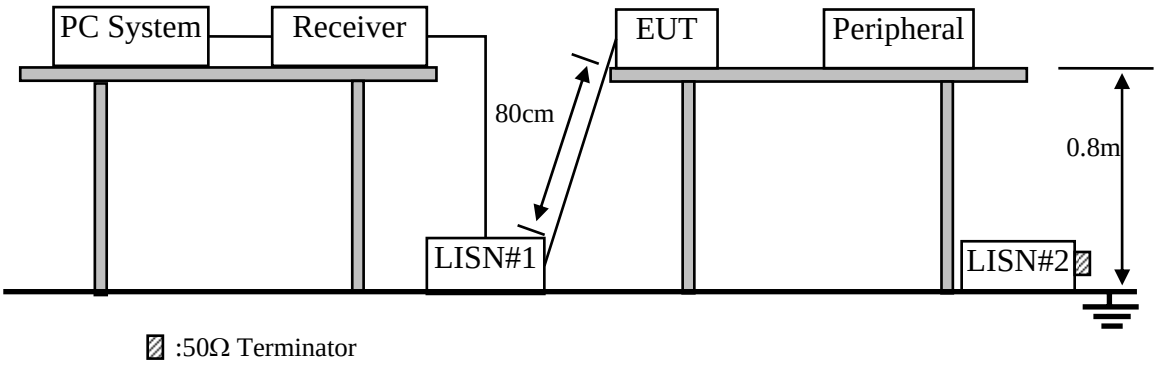
Test Item	Uncertainty
Uncertainty for Radiation Emission test in 3m chamber	2.8dB(30~200MHz, Polarization: H)
	2.8dB(30~200MHz, Polarization: V)
	3.0dB(200M~1GHz, Polarization: H)
	3.0dB(200M~1GHz, Polarization: V)
Uncertainty for Radiation Emission test in 3m chamber (1GHz-18GHz)	5.8dB(1~6GHz, Distance: 3m)
	5.8dB(6~18GHz, Distance: 3m)
Uncertainty for Radiated Spurious Emission test in RF chamber	3.6dB
Uncertainty for Conduction Spurious emission test	2.0dB
Uncertainty for Output power test	0.8dB
Uncertainty for Bandwidth test	83kHz
Uncertainty for DC power test	0.1 %
Uncertainty for test site temperature and humidity	0.6℃
	3%

3. POWER LINE CONDUCTED EMISSION TEST

3.1.Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	1# Shielding Room	AUDIX	N/A	N/A	Apr.17,17	1 Year
2.	Test Receiver	Rohde & Schwarz	ESCI	100842	Apr.22,17	1 Year
3.	L.I.S.N.#1	Rohde & Schwarz	ESH2-Z5	100429	Oct.15,16	1 Year
4.	L.I.S.N.#2	Kyoritsu	K NW-403D	8-1750-2	Apr.22,17	1 Year
5.	Terminator	Hubersuhner	50Ω	No.1	Apr.23,17	1 Year
6.	Terminator	Hubersuhner	50Ω	No.2	Apr.23,17	1 Year
7.	RF Cable	MIYAZAKI	3D-2W	No.1	Apr.23,17	1Year
8.	Coaxial Switch	Anritsu	MP59B	6200766906	Apr.22,17	1 Year
9.	Test Software	AUDIX	e3	6.100913a	N/A	N/A
Note: N/A means Not applicable.						

3.2.Block Diagram of Test Setup



▨ :50Ω Terminator

3.3.Power Line Conducted Emission Test Limits

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. * Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

3.4.Configuration of EUT on Test

The following equipment are installed on Power Line Conducted Emission Test to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

3.4.1. Door Strip Sensor (EUT)

Model No. : DMS-02
Serial No. : N/A

3.4.2. Support Equipment: As Tested Supporting System Details, in Section 2.2.

3.5.Operating Condition of EUT

3.5.1. Setup the EUT and simulator as shown as Section 3.2.

3.5.2. Turn on the power of all equipments.

3.5.3. PC run test software to control EUT work in (RX) mode.

3.6.Test Procedure

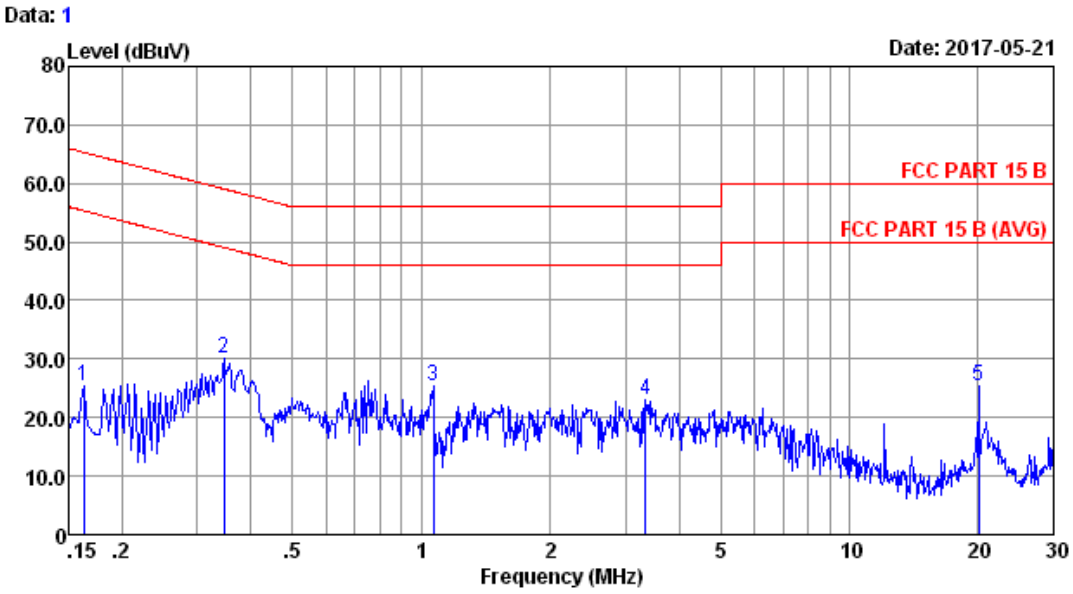
The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power Via PC connected to the power mains through a line impedance stabilization network (L.I.S.N. 1#). This provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs). The AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10: 2013 on Conducted Emission Test.

The bandwidth of test receiver (R & S ESCI) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

3.7.Power Line Conducted Emission Test Results

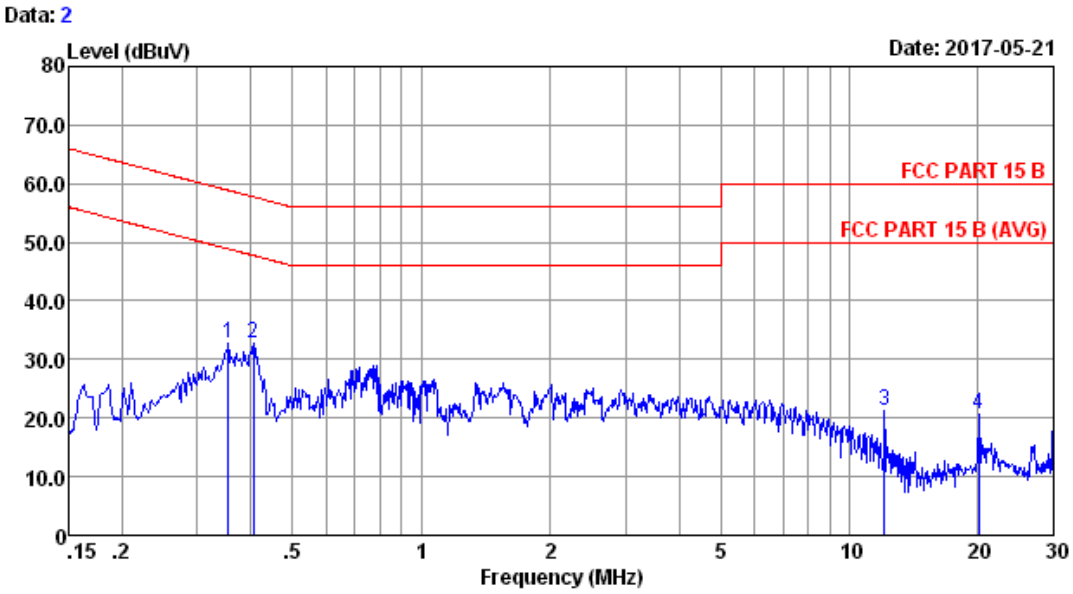
PASS. (All emissions not reported below are too low against the prescribed limits.)



Site no :1# Conduction
Dis./Lisn :2016 ESH2-Z5 LINE
Limit :FCC PART 15 B
Env./Ins. :22.5*C/52% Engineer :Evan
EUT :Door Strip Sensor M/N:DMS-02
Power Rating :DC 12V From Adapter Input AC120V/60MHz
Test Mode :RX

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.162	0.13	0.02	25.24	25.39	65.34	39.95	QP
2	0.346	0.13	0.02	29.98	30.13	59.05	28.92	QP
3	1.065	0.18	0.07	25.02	25.27	56.00	30.73	QP
4	3.346	0.22	0.08	22.68	22.98	56.00	33.02	QP
5	20.056	0.80	0.20	24.42	25.42	60.00	34.58	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.
2.If the average limit is met when using a quasi-peak detector.
the EUT shall be deemed to meet both limits and measurement
with average detector is unnecessary.



Site no :1# Conduction
Dis./Lisn :2016 ESH2-Z5 NEUTRAL
Limit :FCC PART 15 B
Env./Ins. :22.5*C/52% Engineer :Evan
EUT :Door Strip Sensor M/N:DMS-02
Power Rating :DC 12V From Adapter Input AC120V/60MHz
Test Mode :RX

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.354	0.15	0.02	32.50	32.67	58.87	26.20	QP
2	0.406	0.15	0.03	32.51	32.69	57.73	25.04	QP
3	12.060	0.43	0.16	20.80	21.39	60.00	38.61	QP
4	20.056	0.83	0.20	19.71	20.74	60.00	39.26	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.
2.If the average limit is met when using a quasi-peak detector.
the EUT shall be deemed to meet both limits and measurement
with average detector is unnecessary.

4. RADIATED EMISSION TEST

4.1.Test Equipment

Frequency range: 30~1000MHz

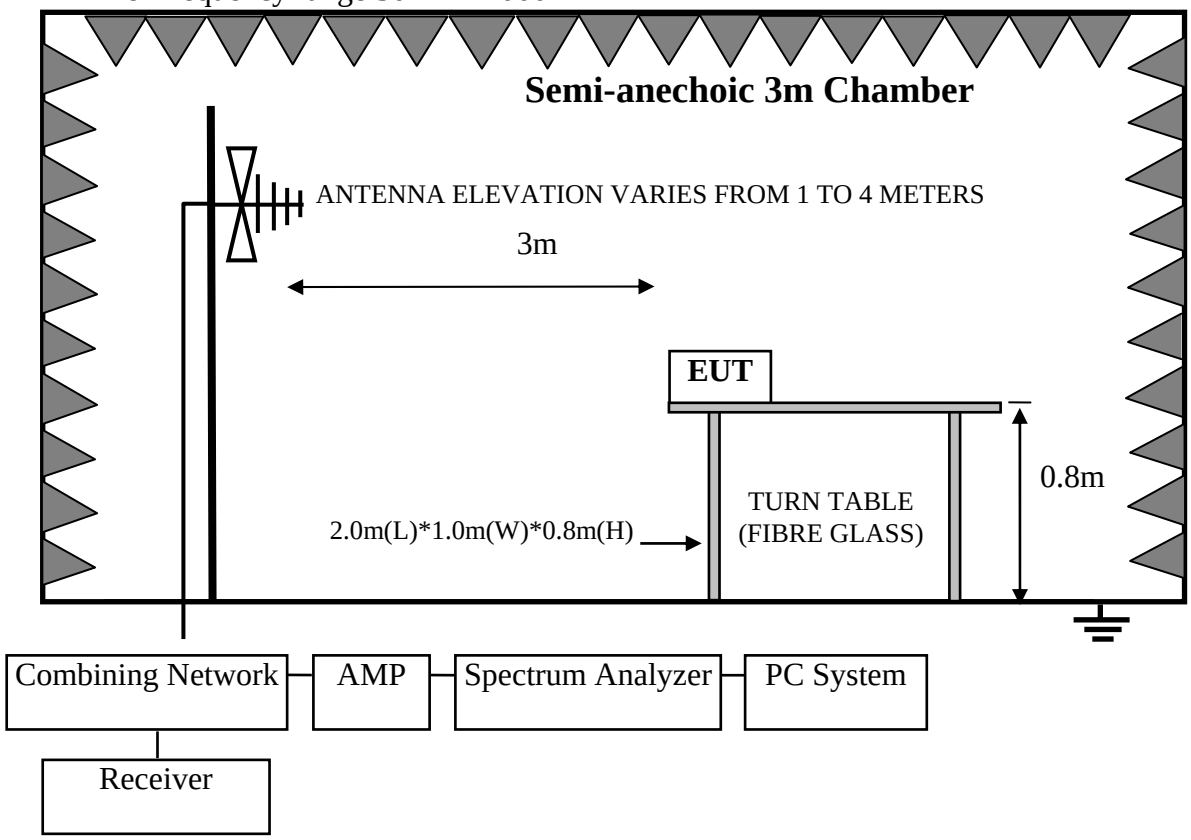
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	3#Chamber	AUDIX	N/A	N/A	Mar.28,17	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESR7	101547	Apr.22,17	1 Year
3.	Spectrum Analyzer	Agilent	N9010A	MY52220804	Oct.15,16	1 Year
4.	Amplifier	HP	8447D	2648A04738	Apr.22,17	1 Year
5.	Bi-log Antenna	TESEQ	CBL6112D	35375	Aug.03,16	1 Year
6.	RF Cable	MIYAZAKI	CFD400NL-LW	No.3	Sep.26.16	1 Year
7.	Coaxial Switch	Anritsu	MP59B	6201397222	Apr.22,17	1 Year
8.	Attenuator	EMCI	EMCI-N-6-06	AT-N0639	Sep.26.16	1 Year
9.	Test Software	AUDIX	e3	6.2009-5-21a(n)	N/A	N/A
Note: N/A means Not applicable.						

Frequency range: above 1000MHz

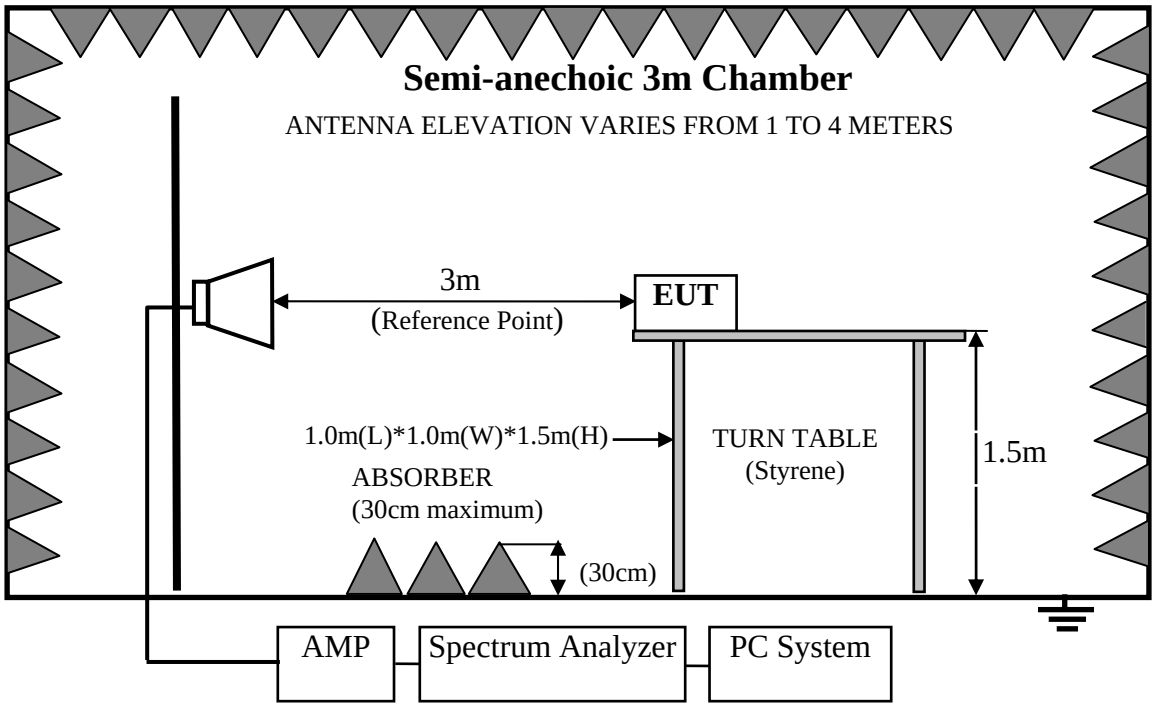
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	3#Chamber	AUDIX	N/A	N/A	May.17,17	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESR7	101547	Apr.22,17	1 Year
3.	Spectrum Analyzer	Agilent	E4446A	US44300459	Apr.22,17	1 Year
4.	Horn Antenna	ETS	3115	9510-4580	Nov.16,16	1 Year
5.	Amplifier	Agilent	8449B	3008A02495	Apr.22,17	1 Year
6.	RF Cable	Hubersuhner	SUCOFLEX104	274094/4	Apr.22,17	1 Year
7.	Horn Antenna	ETS	3116	00060089	Nov.16,16	1 Year
8.	Test Software	AUDIX	e3	6.2009-5-21a(n)	N/A	N/A
Note: N/A means Not applicable.						

4.2.Block Diagram of Test Setup

For frequency range 30MHz-1000MHz



For frequency range above 1GHz



4.3.Radiated Emission Limit

All emanations from a Class B computing devices or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMITS (dBμV/m)
30 ~ 88	3	40.0
88 ~ 216	3	43.5
216~960	3	46.0
960~1000	3	54.0
Above 1000	3	74.0(Peak), 54.0(Average)

Notes**:** (1) Emission level = Antenna Factor + Cable Loss + Reading
Emission level = Antenna Factor -Amp Factor +Cable Loss + Reading (above 1000MHz)
(2) The lower limit shall apply at the transition frequencies.
(3) Distance refers to the distance in meters between the test instrument antenna and the closed point of any part of the EUT.

4.4.EUT 's Configuration during Compliance Measurement

The configuration of EUT is same as used in Conducted Emission test. Please refer to Section 3.4.

4.5.Operating Condition of the EUT

Same as Conducted Emission test that is listed in Section 3.5. except the test set up replaced by Section 4.2.

4.6.Test Procedure

The EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber. An antenna was located 10 from the EUT on an adjustable mast. A pre-scan was first performed in order to find prominent radiated emissions. For final emissions measurements at each frequency of interest, the EUT were rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.4-2014 on Radiated Emission test.

The bandwidth setting on the test receiver (R&S ESCI) is 120kHz.

The resolution bandwidth of the Agilent EMC Analyzer N9030A was set at 1MHz. (For above 1GHz)

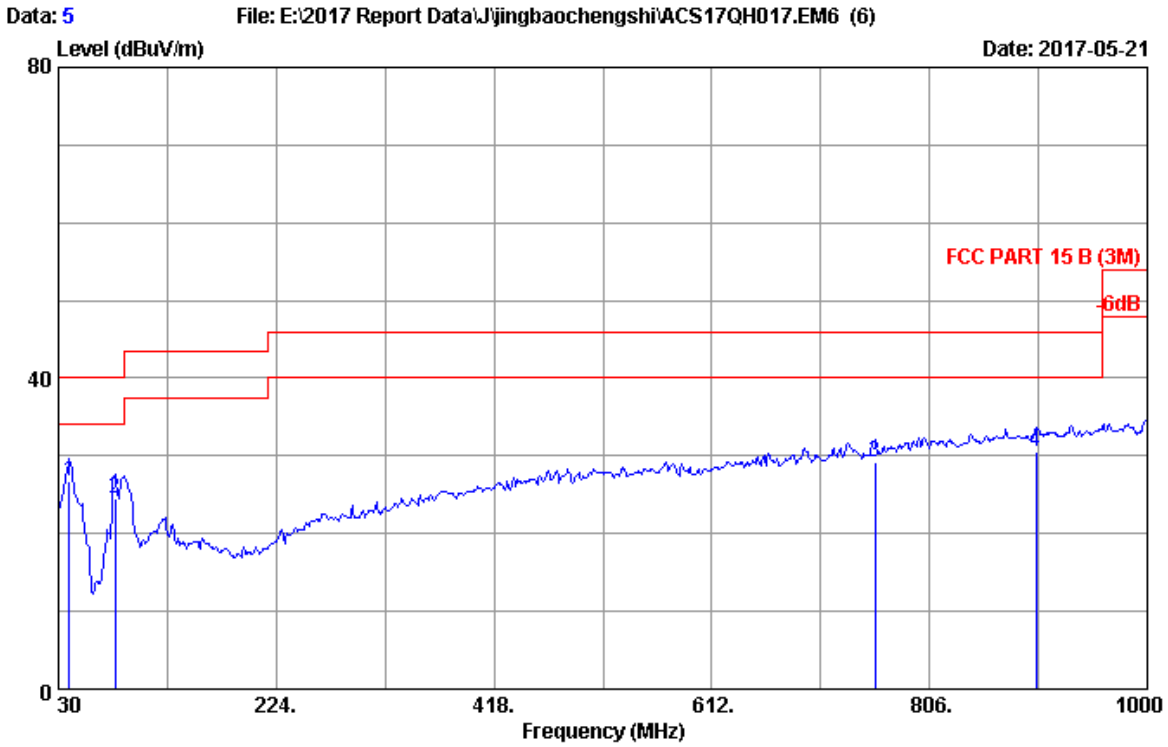
The frequency range from 30MHz to 1000MHz was pre-scanned with a peak detector and all final readings of measurement from Test Receiver are Quasi-Peak values.
The frequency range from 1GHz to 6GHz was checked with peak and average detector, measurement distance is 3m in 10m chamber. the EUT were rotated and the antenna height was varied between 1m and 4m in order to maximize the emission.

The frequency range from 30MHz to 1000MHz is checked. The test results are reported on Section 4.7.

4.7.Radiated Emission Test Results

PASS.

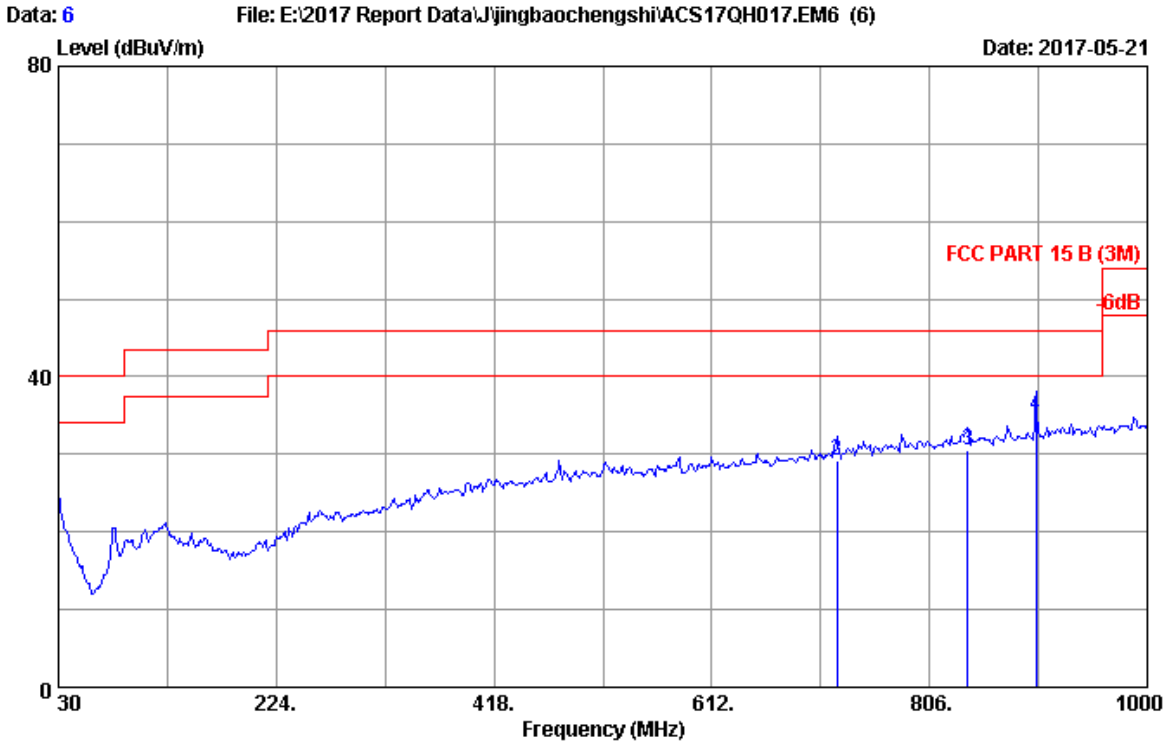
Frequency: 30MHz~1GHz



Site no. : 3m Chamber Data no. : 5
Dis. / Ant. : 3m 2017 CBL6112D 35375 Ant. pol. : HORIZONTAL
Limit : FCC PART 15 B (3M)
Env. / Ins. : 21.0*C/52% Engineer : Hogen
EUT : Door Strip Sensor M/N:DMS-02
Power rating : DC 12V From Adapter Input AC 120V/60MHz
Test Mode : RX

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	39.70	14.40	6.53	28.22	34.02	26.73	40.00	13.27	QP
2	80.44	7.70	6.95	28.11	38.08	24.62	40.00	15.38	QP
3	757.50	20.67	9.67	28.15	26.91	29.10	46.00	16.90	QP
4	901.06	21.91	10.22	27.72	26.18	30.59	46.00	15.41	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.

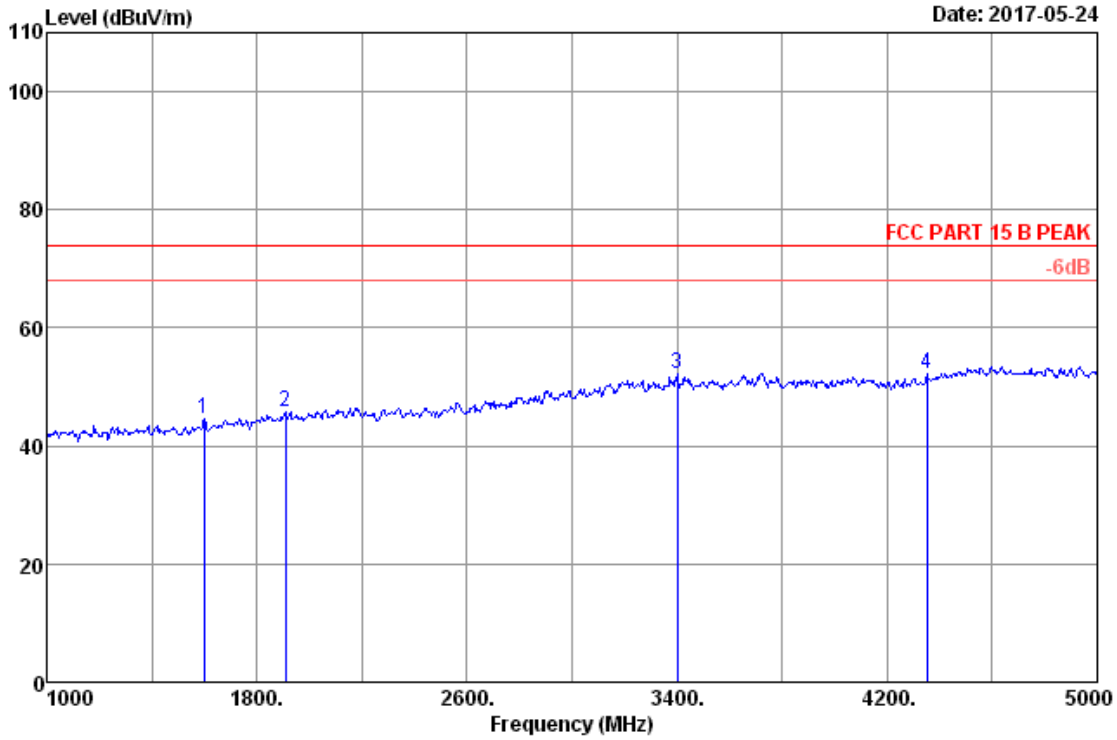


Site no. : 3m Chamber Data no. : 6
Dis. / Ant. : 3m 2017 CBL6112D 35375 Ant. pol. : VERTICAL
Limit : FCC PART 15 B (3M)
Env. / Ins. : 21.0*C/52% Engineer : Hogen
EUT : Door Strip Sensor M/N:DMS-02
Power rating : DC 12V From Adapter Input AC 120V/60MHz
Test Mode : RX

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	30.00	18.90	6.42	28.25	24.89	21.96	40.00	18.04	QP
2	723.55	20.33	9.52	28.23	27.64	29.26	46.00	16.74	QP
3	839.95	21.42	10.01	27.92	26.98	30.49	46.00	15.51	QP
4	901.06	21.91	10.22	27.72	30.66	35.07	46.00	10.93	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.

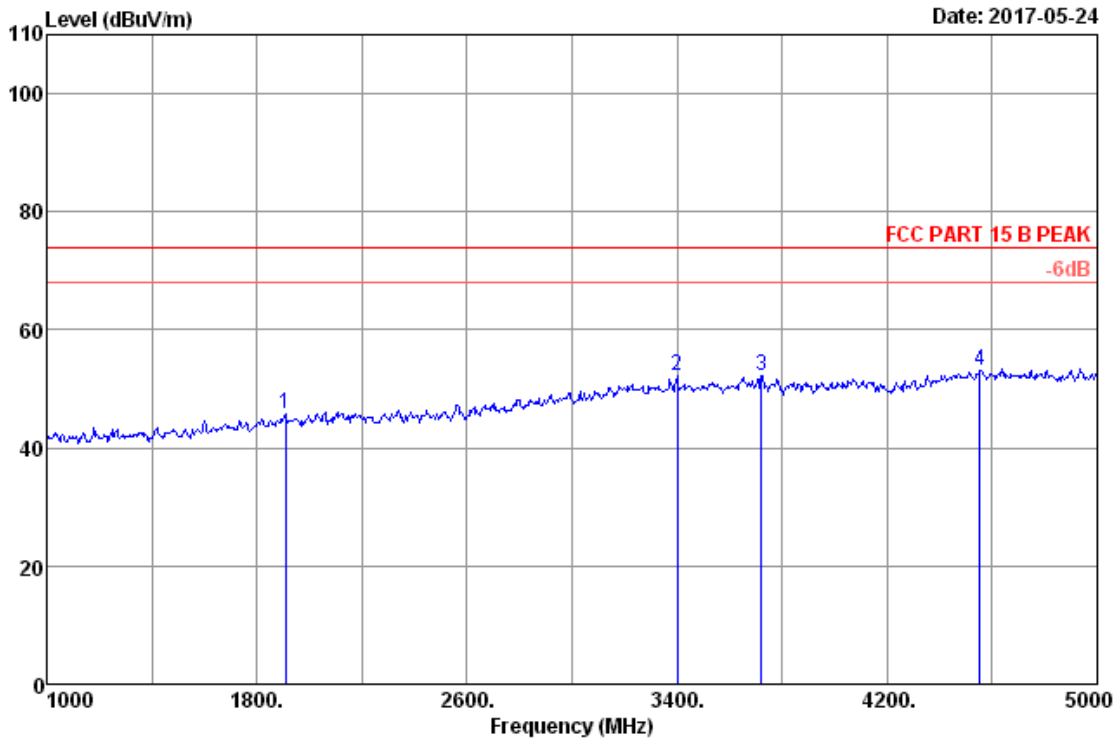
Frequency: 1GHz~5GHz



Site no. : 3m Chamber Data no. : 6
Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : HORIZONTAL
Limit : FCC PART 15 B PEAK Pre : 101.2kPa
Env. / Ins. : 23.4*C/52.9% Engineer : zack_zhu
EUT : Door Strip Sensor M/N:DMS-02
Power rating : DC 12V From Adapter Input AC 120V/60Hz
Test Mode : RX

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1600.00	26.32	7.07	47.83	36.50	44.72	74.00	29.28	Peak
2	1908.00	27.61	7.73	46.89	36.43	45.80	74.00	28.20	Peak
3	3400.00	30.76	10.75	47.11	36.27	52.35	74.00	21.65	Peak
4	4352.00	32.23	11.47	44.43	35.82	52.31	74.00	21.69	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 5
Dis. / Ant. : 3m 2016 3115(4580) Ant. pol. : VERTICAL
Limit : FCC PART 15 B PEAK Pre : 101.2kPa
Env. / Ins. : 23.4*C/52.9% Engineer : zack_zhu
EUT : Door Strip Sensor M/N:DMS-02
Power rating : DC 12V From Adapter Input AC 120V/60Hz
Test Mode : RX

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	AMP factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1908.00	27.61	7.73	46.89	36.43	45.80	74.00	28.20	Peak
2	3400.00	30.76	10.75	47.11	36.27	52.35	74.00	21.65	Peak
3	3720.00	31.57	11.03	45.88	36.28	52.20	74.00	21.80	Peak
4	4552.00	32.32	11.59	44.90	35.61	53.20	74.00	20.80	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.

5. DEVIATION TO TEST SPECIFICATIONS

[NONE]