

FCC 47 CFR PART 15 SUBPART B
TEST REPORT
SHENZHEN DOME TECHNOLOGY CO., LTD.
Car DVR
Model No.: A305, A307

Prepared for : SHENZHEN DOME TECHNOLOGY CO., LTD.
Address : 5th Flr, Huanan Electric Power Building, No.2050 Shennan
Middle Road, Futian District, Shenzhen City, China

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Date of receipt of test sample : March 24, 2017
Number of tested samples : 1
Serial number : Prototype
Date of Test : March 24, 2017 ~ April 21, 2017
Date of Report : April 21, 2017

FCC TEST REPORT

FCC 47 CFR PART 15 SUBPART B

Report Reference No. : **LCS170324020AE**

Date Of Issue : April 21, 2017

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, China

Testing Location/ Procedure : Full application of Harmonised standards ■
Partial application of Harmonised standards □
Other standard testing method □

Applicant's Name : **SHENZHEN DOME TECHNOLOGY CO., LTD.**

Address : 5th Flr, Huanan Electric Power Building, No.2050 Shennan
Middle Road, Futian District, Shenzhen City, China

Test Specification

Standard : FCC 47 CFR Part 15 Subpart B, 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 : **Car DVR**

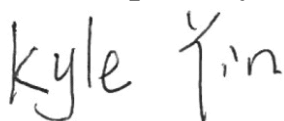
Model/ Type Reference : A305, A307

Trade Mark : N/A

Ratings : DC 12-24V, 3W

Result : **Positive**

Compiled by:



Kyle Yin/ File administrator

Supervised by:



Glin Lu/ Technique principal

Approved by:



Gavin Liang/ Manager

FCC -- TEST REPORT

Test Report No. : LCS170324020AE

April 21, 2017

Date of issue

Type / Model..... : A305, A307

EUT..... : Car DVR

Applicant..... : SHENZHEN DOME TECHNOLOGY CO., LTD.Address..... : 5th Flr, Huanan Electric Power Building, No.2050 Shennan
Middle Road,Futian District, Shenzhen City, China

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Manufacturer..... : SHENZHEN DOME TECHNOLOGY CO., LTD.Address..... : 5th Flr, Huanan Electric Power Building, No.2050 Shennan
Middle Road,Futian District, Shenzhen City, China

Telephone..... : /

Fax..... : /

**Factory..... : DONGGUAN KAKA ELECTRONIC TECHNOLOGY
CO., LTD.**Address..... : NO.395, Huanshi East Road, Shitanpu, Tangxia Town,
Dongguan City, Guangdong, China 523717

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.

Revision History

Revision	Issue Date	Revisions	Revised By
00	April 21, 2017	Initial Issue	Gavin Liang

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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 47 CFR Part 15 Subpart B	Class B	PASS
Radiated disturbance	FCC 47 CFR Part 15 Subpart B	Class B	PASS
Conducted disturbance at Antenna terminals	FCC 47 CFR Part 15 Subpart B	-----	N/A
N/A is an abbreviation for Not Applicable.			

1.2. Special Accessories

Equipment	Manufacturer	Model No.	Serial No.	shielded/ unshielded	Notes
PC	Lenovo	Ideapad	A131101550	/	DOC
Power adapter	Lenovo	CPA-A090	36200414	unshielded	DOC
Keyboard	DELL	SK-8120	6248965	/	DOC
Mouse	HP	HM01	48585211	/	DOC
Laser printer	brother	HL-2140	E65602L0J13 1945	/	DOC

1.3. Description of Test Modes

The EUT has been tested under operating condition.

This test was performed with EUT in X, Y, Z position and the worst case was found when EUT in X position.

AC conducted emission pre-test at both at power adapter and power from PC modes, recorded worst case;

There was 4 test Modes. TM1 to TM3 were shown below:

TM1: Operate in WIFI + Camera mode.

TM2: Exchange data with PC

TM3: Idle mode

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

EUT	: Car DVR
Trade Mark	: PIPO
Model Number	: A305, A307
Model Declaration	: All models are identical in design except some slightly change for non-transmitter portion.
Test Model	: A305, A307
Power Supply	: DC 12-24V, 3W;

2.2. Description of Test Facility

Site Description	
EMC Lab.	: CNAS Registration Number. is L4595. FCC Registration Number. is 899208. Industry Canada Registration Number. is 9642A-1. 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	Level accuracy (9kHz to 150kHz) (150kHz to 30MHz)	± 2.63 dB ± 2.35 dB	± 4.0 dB ± 3.6 dB
Radiated Emission	Level accuracy (9kHz to 30MHz)	± 3.68 dB	N/A
Radiated Emission	Level accuracy (30MHz to 1000MHz)	± 3.48 dB	± 5.2 dB
Radiated Emission	Level accuracy (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%.

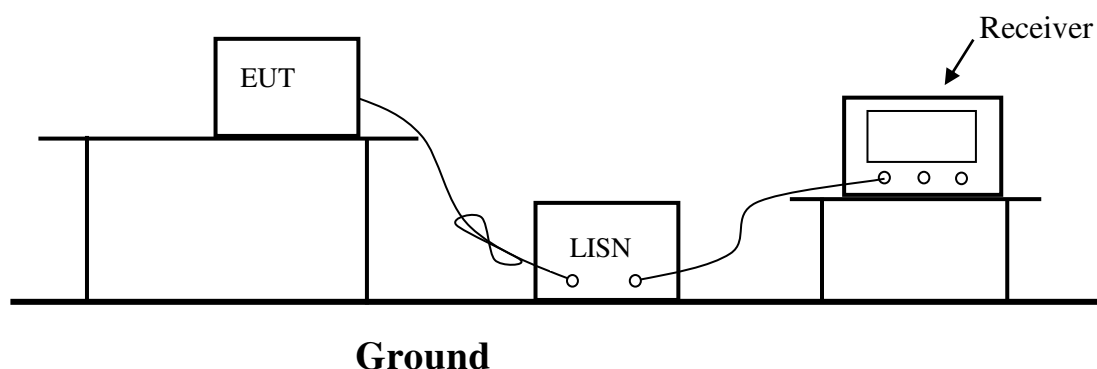
3. POWER LINE CONDUCTED EMISSION MEASUREMENT

3.1. Test Equipment

The following test equipments are used during the power line conducted measurement:

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESR 7	101181	2016-06-18
2	10dB Attenuator	SCHWARZBECK	MTS-IMP136	261115-001-0032	2016-06-18
3	Artificial Mains	ROHDE & SCHWARZ	ENV216	101288	2016-06-18
4	EMI Test Software	AUDIX	E3	N/A	N/A
5	ISN	SCHWARZBECK	NTFM 8158	NTFM 8158 0120	2016-06-18

3.2. Block Diagram of Test Setup



3.3. Test Standard

Power Line Conducted Emission Limits (Class B)

Frequency (MHz)			Limit (dB μ V)	
			Quasi-peak Level	Average Level
0.15	~	0.50	66.0 ~ 56.0 *	56.0 ~ 46.0 *
0.50	~	5.00	56.0	46.0
5.00	~	30.00	60.0	50.0

NOTE1-The lower limit shall apply at the transition frequencies.

NOTE2-The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

3.4. EUT Configuration on Test

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

3.5.Operating Condition of EUT

3.4.1.Setup the EUT as shown on Section 3.2

3.4.2.Turn on the power of all equipments.

3.4.3.Let the EUT work in measuring mode and measure it.

3.6.Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of 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 FCC/ANSI C63.4-2014 on Conducted Emission Measurement.

The bandwidth of the test receiver is set at 9kHz.

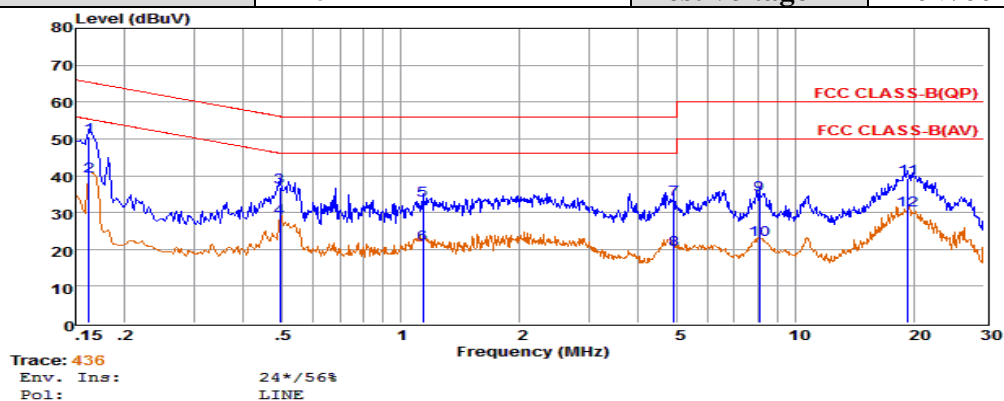
The frequency range from 150kHz to 30MHz is investigated

3.7.Test Results

PASS.

The test result please refer to the next page.

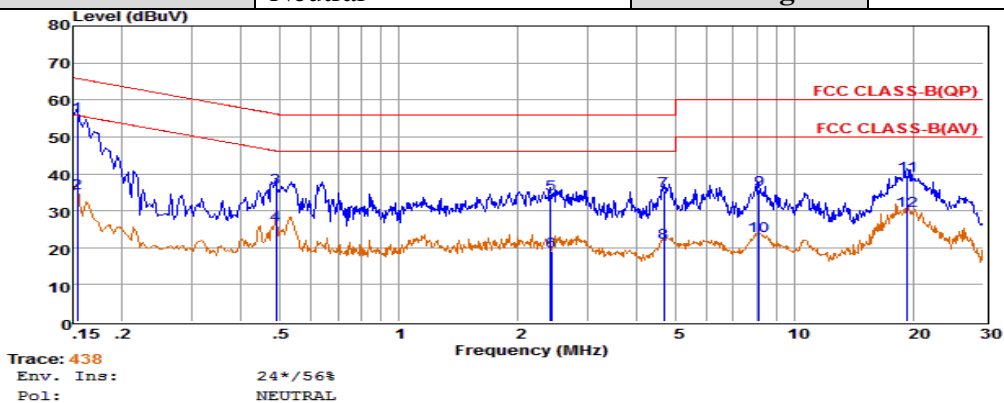
Model No.	A305	Test Mode	TM1
Environmental Conditions	24°C, 56% RH	Test Engineer	Kyle Yin
Pol	Line	Test voltage	120V/60Hz



	Freq	Reading	LISNFac	CabLos	Aux2Fac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dB	dB	dBuV	dBuV	dB
1	0.16	30.88	9.59	0.02	10.00	50.49	65.34	-14.85	QP
2	0.16	20.35	9.59	0.02	10.00	39.96	55.33	-15.37	Average
3	0.49	17.20	9.62	0.04	10.00	36.86	56.10	-19.24	QP
4	0.49	8.98	9.62	0.04	10.00	28.64	46.10	-17.46	Average
5	1.14	13.56	9.63	0.05	10.00	33.24	56.00	-22.76	QP
6	1.14	1.84	9.63	0.05	10.00	21.52	46.00	-24.48	Average
7	4.93	13.83	9.65	0.06	10.00	33.54	56.00	-22.46	QP
8	4.93	0.12	9.65	0.06	10.00	19.83	46.00	-26.17	Average
9	8.11	15.01	9.68	0.07	10.00	34.76	60.00	-25.24	QP
10	8.11	2.76	9.68	0.07	10.00	22.51	50.00	-27.49	Average
11	19.22	19.49	9.75	0.12	10.00	39.36	60.00	-20.64	QP
12	19.22	10.63	9.75	0.12	10.00	30.50	50.00	-19.50	Average

Remarks: 1. Measured = Reading +Cable Loss +Aux2 Fac.
2. The emission levels that are 20dB below the official limit are not reported.

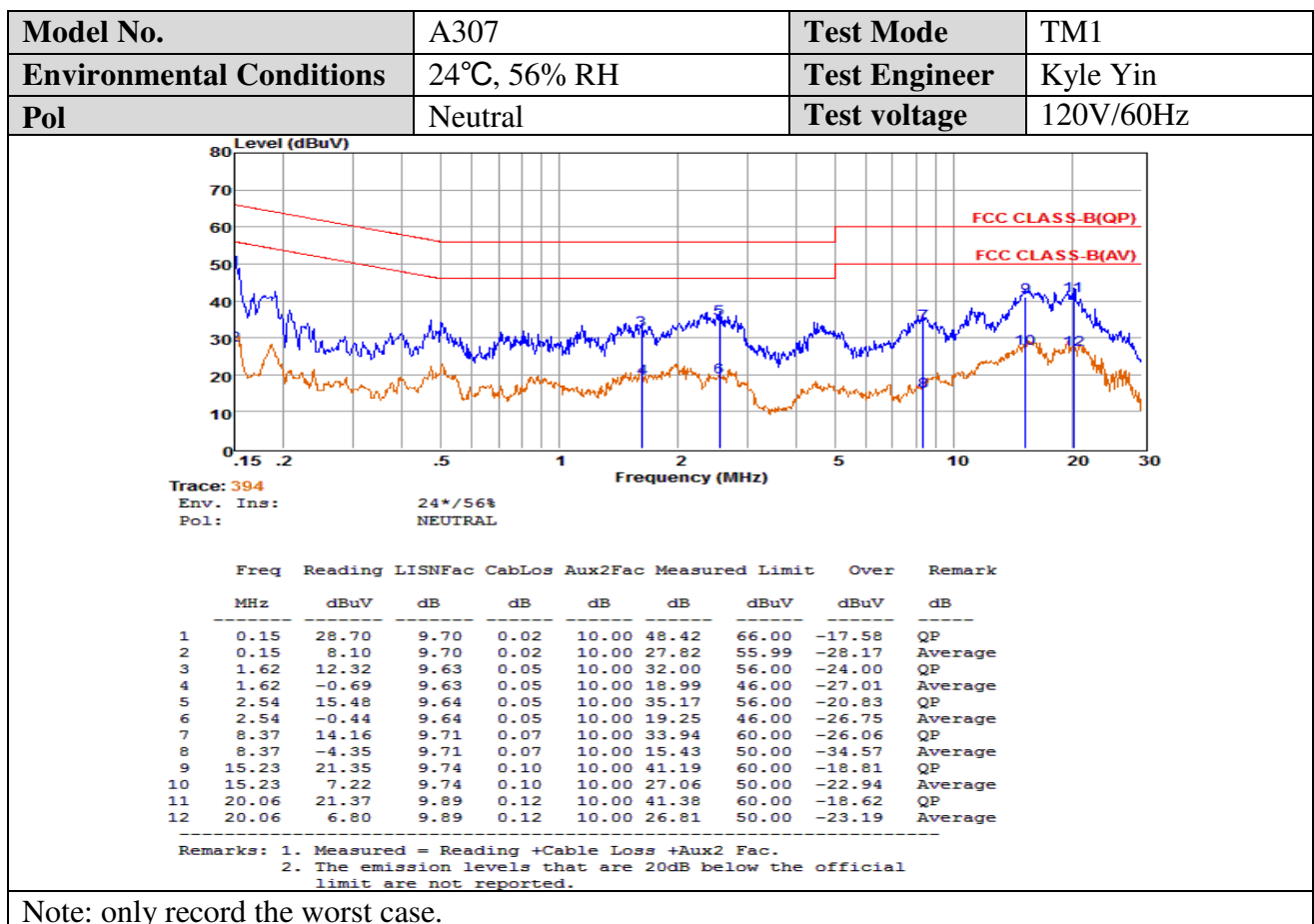
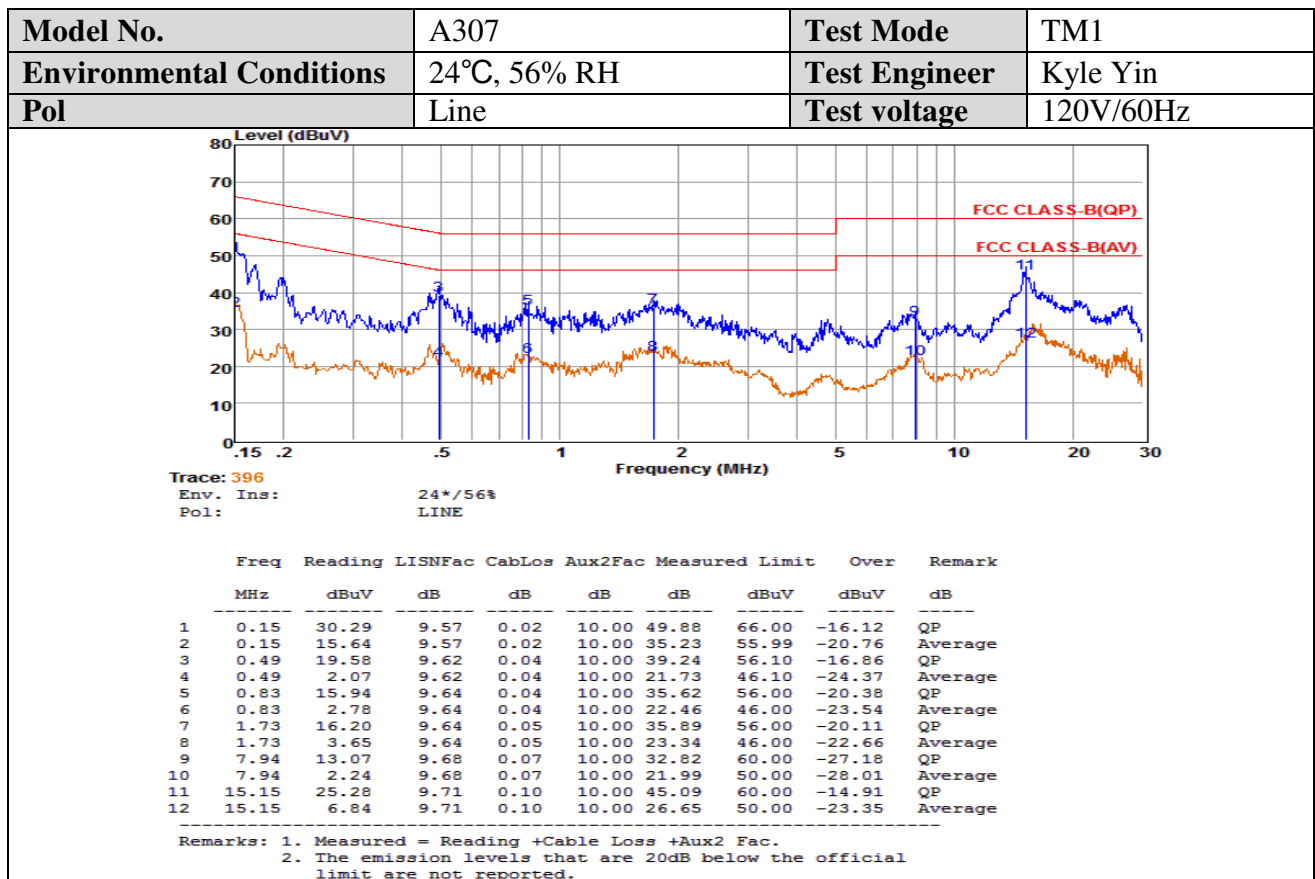
Model No.	A305	Test Mode	TM1
Environmental Conditions	24°C, 56% RH	Test Engineer	Kyle Yin
Pol	Neutral	Test voltage	120V/60Hz



	Freq	Reading	LISNFac	CabLos	Aux2Fac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dB	dB	dBuV	dBuV	dB
1	0.15	35.92	9.69	0.02	10.00	55.63	65.78	-10.15	QP
2	0.15	15.10	9.69	0.02	10.00	34.81	55.77	-20.96	Average
3	0.49	16.71	9.62	0.04	10.00	36.37	56.19	-19.82	QP
4	0.49	6.47	9.62	0.04	10.00	26.13	46.18	-20.05	Average
5	2.42	14.70	9.64	0.05	10.00	34.39	56.00	-21.61	QP
6	2.42	-0.58	9.64	0.05	10.00	19.11	46.00	-26.89	Average
7	4.67	15.54	9.66	0.06	10.00	35.26	56.00	-20.74	QP
8	4.67	1.78	9.66	0.06	10.00	21.50	46.00	-24.50	Average
9	8.15	15.87	9.70	0.07	10.00	35.64	60.00	-24.36	QP
10	8.15	3.53	9.70	0.07	10.00	23.30	50.00	-26.70	Average
11	19.22	19.43	9.86	0.12	10.00	39.41	60.00	-20.59	QP
12	19.22	9.98	9.86	0.12	10.00	29.96	50.00	-20.04	Average

Remarks: 1. Measured = Reading +Cable Loss +Aux2 Fac.
2. The emission levels that are 20dB below the official limit are not reported.

Note: only record the worst case.



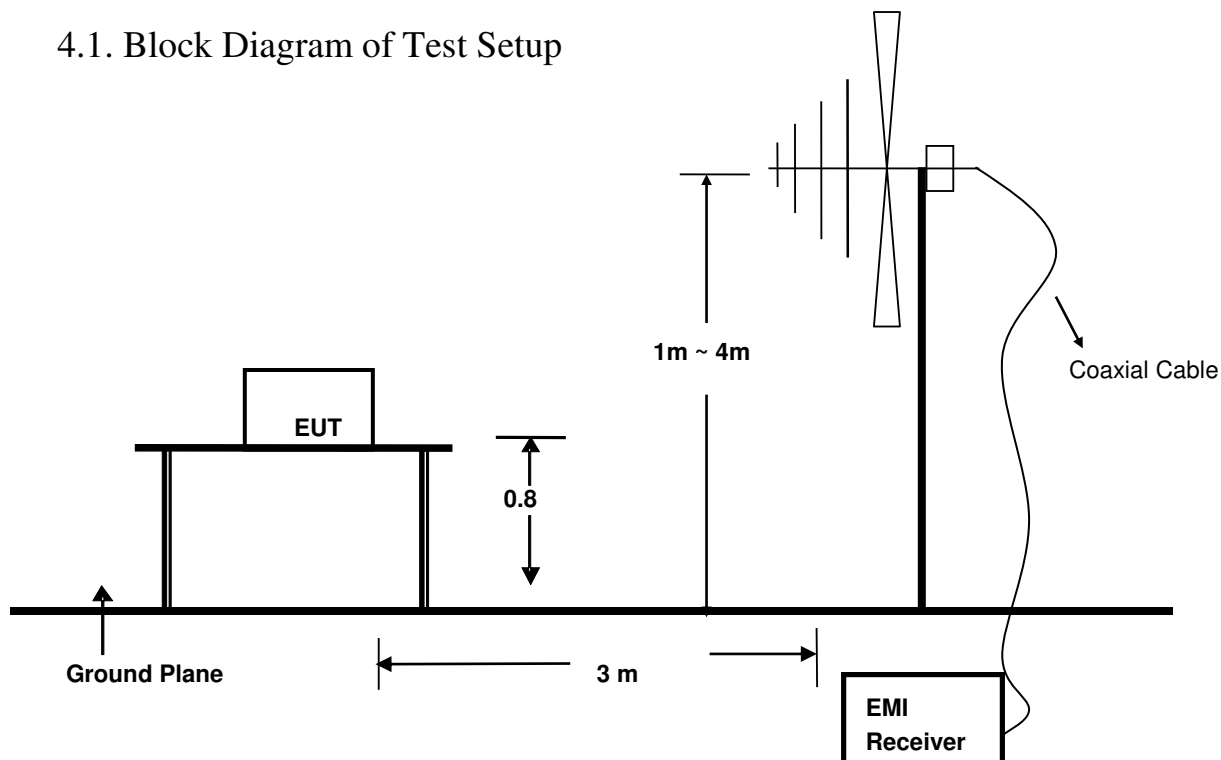
4. RADIATED EMISSION MEASUREMENT

4.1. 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	2016-06-18
2	EMI Test Receiver	ROHDE & SCHWARZ	ESR 7	101181	2016-06-18
3	Log per Antenna	SCHWARZBECK	VULB9163	9163-470	2016-04-18
4	EMI Test Software	AUDIX	E3	N/A	2016-06-18
5	Positioning Controller	MF	MF-7082	/	2016-06-18

4.1. Block Diagram of Test Setup



4.2. Radiated Emission Limit (Class B)

Limits for radiated disturbance Below 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 $(\text{dB})\mu\text{V} = 20 \log$ 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.

4.3. 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.

4.4. 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.

4.5. 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.

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

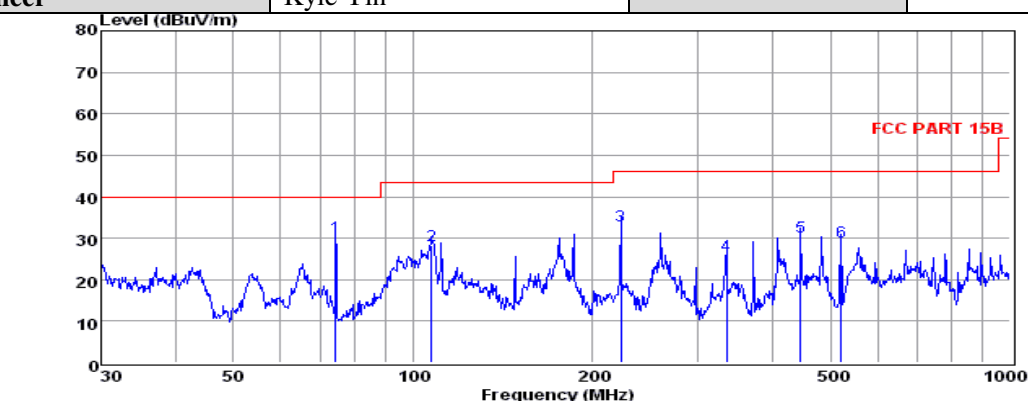
The frequency range from 30MHz to 1000MHz is checked.

4.6. Radiated Emission Noise Measurement Result

PASS.

The scanning waveforms please refer to the next page.

Model No.	A305	Test Mode	TM1
Environmental Conditions	24°C, 56% RH	Detector Function	Quasi-peak
Pol	Vertical	Distance	3m
Test Engineer	Kyle Yin		

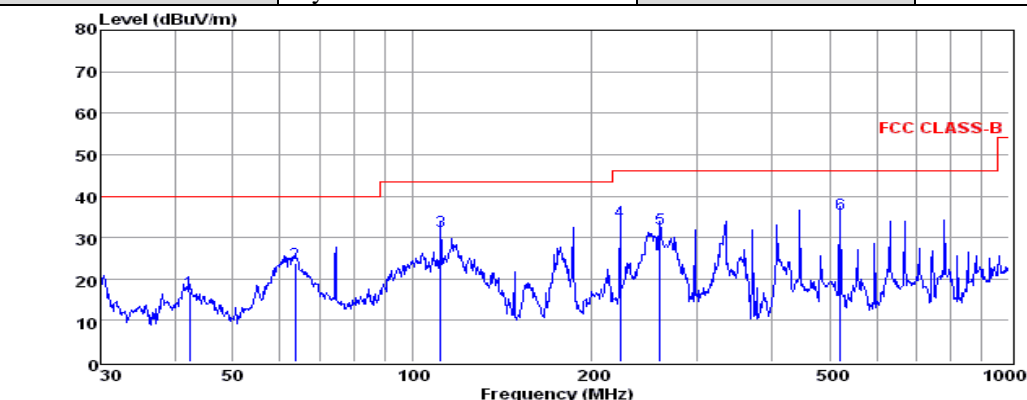


Env./Ins: 24°C/56%
pol: VERTICAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	74.14	21.97	0.54	7.95	30.46	40.00	-9.54	QP
2	107.51	15.04	0.68	12.48	28.20	43.50	-15.30	QP
3	222.95	20.73	0.95	11.33	33.01	46.00	-12.99	QP
4	334.86	10.98	1.09	13.92	25.99	46.00	-20.01	QP
5	446.41	13.30	1.42	15.57	30.29	46.00	-15.71	QP
6	520.89	10.57	1.47	16.97	29.01	46.00	-16.99	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

Model No.	A305	Test Mode	TM1
Environmental Conditions	24°C, 56% RH	Detector Function	Quasi-peak
Pol	Horizontal	Distance	3m
Test Engineer	Kyle Yin		



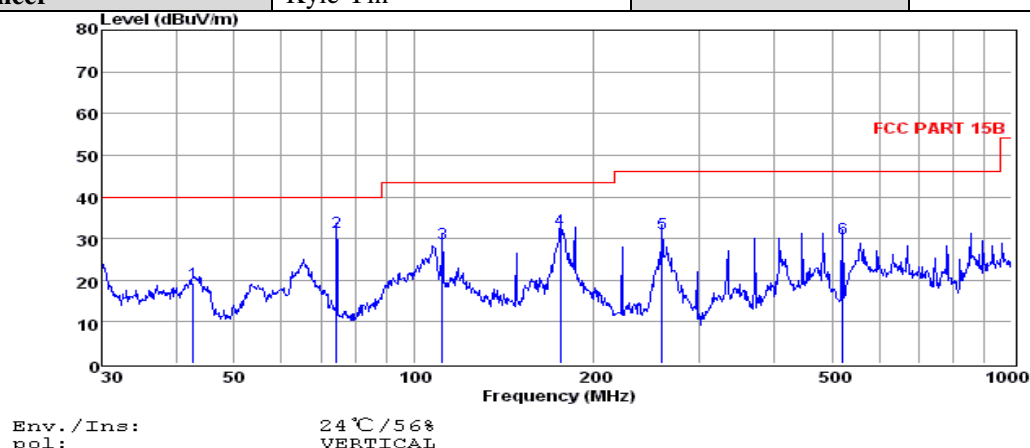
Env./Ins: 24°C/56%
pol: HORIZONTAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	42.30	2.74	0.50	13.57	16.81	40.00	-23.19	QP
2	63.54	11.89	0.48	11.29	23.66	40.00	-16.34	QP
3	111.35	18.92	0.61	12.01	31.54	43.50	-11.96	QP
4	222.95	21.57	0.95	11.33	33.85	46.00	-12.15	QP
5	260.14	18.92	1.01	12.05	31.98	46.00	-14.02	QP
6	520.89	17.10	1.47	16.97	35.54	46.00	-10.46	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

Note: only record the worst case.

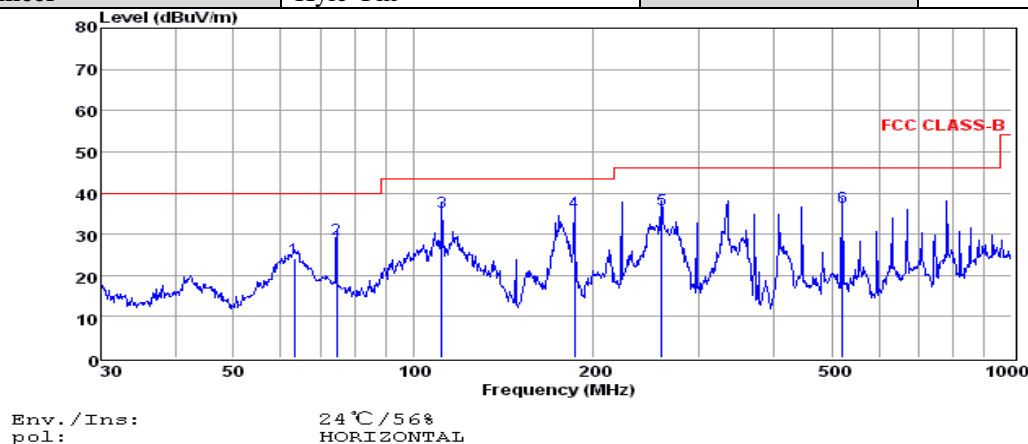
Model No.	A307	Test Mode	TM1
Environmental Conditions	24°C, 56% RH	Detector Function	Quasi-peak
Pol	Vertical	Distance	3m
Test Engineer	Kyle Yin		



	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	42.75	5.33	0.50	13.56	19.39	40.00	-20.61	QP
2	74.14	22.97	0.54	7.95	31.46	40.00	-8.54	QP
3	111.35	16.19	0.61	12.01	28.81	43.50	-14.69	QP
4	175.65	21.97	0.73	9.37	32.07	43.50	-11.43	QP
5	260.14	18.21	1.01	12.05	31.27	46.00	-14.73	QP
6	520.89	11.57	1.47	16.97	30.01	46.00	-15.99	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

Model No.	A307	Test Mode	TM1
Environmental Conditions	24°C, 56% RH	Detector Function	Quasi-peak
Pol	Horizontal	Distance	3m
Test Engineer	Kyle Yin		



	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	63.09	12.23	0.48	11.47	24.18	40.00	-15.82	QP
2	74.40	20.30	0.54	7.90	28.74	40.00	-11.26	QP
3	111.35	22.92	0.61	12.01	35.54	43.50	-7.96	QP
4	185.79	24.47	0.70	10.19	35.36	43.50	-8.14	QP
5	260.14	22.92	1.01	12.05	35.98	46.00	-10.02	QP
6	520.89	18.10	1.47	16.97	36.54	46.00	-9.46	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

Note: only record the worst case.

Model No.	A305	Test Mode	TM1
Environmental Conditions	24°C, 56% RH	Distance	3m
Test Engineer	Kyle Yin	Test date:	April 12, 2017

Frequency MHz	Emission Level dBμV/m		Limits dBμV/m		Margin dBμV/m		Polarization
	Peak	AV	Peak	AV	Peak	AV	
1324.96	48.32	37.59	74.00	54.00	-25.68	-16.41	H
1963.62	51.90	39.12	74.00	54.00	-22.10	-14.88	H
2258.80	48.49	38.55	74.00	54.00	-25.51	-15.45	H
3252.86	56.16	45.29	74.00	54.00	-17.84	-8.71	H
4851.20	57.76	42.80	74.00	54.00	-16.24	-11.20	H
5261.82	53.47	41.82	74.00	54.00	-20.53	-12.18	H
1419.74	48.87	36.16	74.00	54.00	-25.13	-17.84	V
1829.60	51.27	40.18	74.00	54.00	-22.73	-13.82	V
2963.02	47.45	39.03	74.00	54.00	-26.55	-14.97	V
3562.01	55.88	46.01	74.00	54.00	-18.12	-7.99	V
4480.53	56.15	46.26	74.00	54.00	-17.85	-7.74	V
5945.12	55.17	42.63	74.00	54.00	-18.83	-11.37	V

Model No.	A307	Test Mode	TM1
Environmental Conditions	24°C, 56% RH	Distance	3m
Test Engineer	Kyle Yin	Test date:	April 12, 2017

Frequency MHz	Emission Level dBμV/m		Limits dBμV/m		Margin dBμV/m		Polarization
	Peak	AV	Peak	AV	Peak	AV	
1324.91	48.47	37.69	74.00	54.00	-25.53	-16.31	H
1963.55	51.73	39.24	74.00	54.00	-22.27	-14.76	H
2258.68	48.20	38.76	74.00	54.00	-25.80	-15.24	H
3252.96	56.16	45.53	74.00	54.00	-17.84	-8.47	H
4851.28	57.60	43.07	74.00	54.00	-16.40	-10.93	H
5261.87	53.63	42.08	74.00	54.00	-20.37	-11.92	H
1419.93	49.00	36.38	74.00	54.00	-25.00	-17.62	V
1829.65	51.25	39.88	74.00	54.00	-22.75	-14.12	V
2963.15	47.26	39.29	74.00	54.00	-26.74	-14.71	V
3562.20	56.06	45.74	74.00	54.00	-17.94	-8.26	V
4480.71	56.18	46.30	74.00	54.00	-17.82	-7.70	V
5944.99	55.27	42.72	74.00	54.00	-18.73	-11.28	V

Notes:

1. Measuring frequencies from **9 KHz~5th harmonic of working frequency**, No emission found between lowest internal used/generated frequency to 30MHz.

5. PHOTOGRAPH

Please refer to separated files for Test Setup Photos of the EUT.

6. EXTERNAL AND INTERNAL PHOTOS OF THE EUT

Please refer to separated files for Test Setup Photos of the EUT.

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