

TEST REPORT

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The tests reported herein have been performed in accordance with its terms of accreditation.

Test Report No. : LR500112011K

Issue Date : November 12, 2020

Applied Standard : FCC Part 15, Subpart B

Trade Name : SONIC DUTCH KOREA Co.,Ltd.

Equipment Name : Cold Brew Coffee Machine

Model Name : SDK-0502 Serial Number : Identification

This test result only responds to the tested sample. It is not allowed to copy this report even partly without the allowance of the test laboratory. 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.





Revision history

Revision	Date of issue	Test report No.	Description
0	12.11.2020	LR500112011K	Initial



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LTA Certification

Applicant / Manufacturer

Company name : SONIC DUTCH KOREA Co.,Ltd.

Address : 410, 160, Hyanggyo-ro, Paldal-gu, Suwon-si, Gyeonggi-do, Korea.

Telephone / Facsimile : +82-31-247-3999 / +82-31-247-3999

Factory

Company name : SONIC DUTCH KOREA Co.,Ltd.

Address : 410, 160, Hyanggyo-ro, Paldal-gu, Suwon-si, Gyeonggi-do, Korea.

Equipment Under Test (EUT)

Equipment Name : Cold Brew Coffee Machine

Model name : SDK-0502

FCC ID : 2ATZYSDK-0502

Serial number : Identification

Intended environment : Industrial area

Date of receipt : October 23, 2020

EUT condition : Pre-production, not damaged

Test Mode : Operating mode

Interface ports : DC IN

Power rating : AC 120 V, 60 Hz
Test Voltage : AC 120 V, 60 Hz

Model Description

- NONE

Model Specification

- NONE

*** To be continued next page ***



LTA Certification -cont.-

Test Performed

Test started & completed : November 11 - 12, 2020

Location : LTA Co., Ltd.

Test Specification

Purpose of the test : Compliance test to the following standard

Applied standard : FCC Part 15, Subpart B

Classification : Class B

Deviations from Standard Test Method : N/A

Test Results

Measurement Results* Test method

Conducted Emissions Complies ANSI C 63.4-2014

Radiated Emissions Complies ANSI C 63.4-2014

Modification performed by the lab.;

- N.A

-We were performed the test according to LTA procedure LTA-QI-04.

Laboratory's Certificate

Report number : LR500112011K

Issue date : November 12, 2020

This test report is issued under the authority of:

The test was supervised by:

Young Kyu Shin, Technical Manager

Chan Bum Kim, Test Engineer

2-Com Jun

The results in this report apply only to the sample(s) tested.

It is not allowed to copy this report even partly without the allowance of the test laboratory.

^{*:} The compliance statement is based on nominal value only.



General information's

Purpose

This document is based on the Electromagnetic Interference (EMI) tests performed on the "SDK-0502". The measurements were performed according to the measurement procedure described in ANSI C 63.4-2014. The tests were carried out in order to confirm whether the electromagnetic emissions from the EUT(Equipment Under Test), are within the Class B limits defined in FCC Part 15, Subpart B- "Section 15.107- Conducted limits" and "Section 15.109-Radiated emission limits".

Test Performed

Company name : LTA Co., Ltd.

Address : 34, Songju-ro 236Beon-gil, Yangji-myeon, Cheoin-gu Yongin-si,

Gyeonggi-do 449-822, Korea

Telephone : +82-31-323-6008Facsimile +82-31-323-6010

Measurement uncertainty

Conducted Emissions (0.15 to 30 MHz) : ± 2.80 [dB] (k=2)

Radiated Emissions (30 to 1,000 MHz): $H: \pm 4.28 \text{ [dB] (k=2)}$ $V: \pm 4.73 \text{ [dB] (k=2)}$

(1 GHz to 6 GHz): $H: \pm 5.89 \text{ [dB] (k=2)}$ $V: \pm 5.89 \text{ [dB] (k=2)}$

(6 GHz to 18 GHz) : $H:\pm 5.94$ [dB] (k=2) $V:\pm 5.98$ [dB] (k=2)

The coverage factor k=2 yields approx. a 95% level of confidence for near-normal distribution typical of most measurement results.

Accredited agencies

LTA Co., Ltd. is approved to perform EMC testing by the following agencies:

Agency	Country	Country Accreditation No. Validity		Reference
NVLAP	U.S.A	200723-0	2021-09-30	ECT accredited Lab.
	KOREA		-	
DDA	AP U.S.A 200723-0 2021-09-30 ECT acc KOREA - U.S.A 2021-04-11 RRA acc CANADA VIETNAM 2021-04-12 C-14948 2023-09-10 T-12416 2023-09-10 R-14483 2023-10-15 G-10847 2021-12-13	2021-04-11	RRA accredited Lab.	
KKA		KKA accredited Lab.		
VIETNAM 20	2021-04-12			
	CANADA 2021-06 VIETNAM 2021-06 C-14948 2023-09 VCCI JAPAN T-12416 2023-09	C-14948	2023-09-10	
VCCI		2023-09-10	VCCI registration	
VCCI JAPAN T-12416 R-14483	R-14483	2023-10-15	VCCI registration	
		G-10847	2021-12-13	
KOLAS	KOREA	KT551	2021-08-20	KOLAS accredited Lab.



1- Brief Information

1-1 Test Summary

Parameter	Applied Star	ndard Status (note 1)
I. Emission		
Conducted Emissions	FCC Part 15.1	107 C
Radiated Emissions	FCC Part 15.1	109 C
Note 1: C=Complies NC=Not Complies 1	T=Not Tested NA=Not Applicab	ble
* The data in this test report are traceable to the na	ional or international standards.	

Frequency range to be scanned:

0.15 MHz - 30 MHz as conducted measurement

30 MHz to 5th harmonic of the highest frequency or 40 GHz, whichever is lower as radiated measurement.

Bandwidth:

Measured by the CISPR quasi-peak function Bandwidth is 9 kHz in the frequency 0.15 MHz to 30 MHz and 120 kHz in the frequency 30 MHz to 1,000 MHz.

Measured by the Peak function Bandwidth is 1 MHz in the frequency 1 GHz to 40 GHz.

A sample calculation:

COR. F (correction factor)= Antenna factor + Cable loss- Amp.gain- Distance correction

 $Emission\ Level = meter\ reading + COR.F$

1-2 Test mode of the EUT

The tests have been conducted with the following operational mode(s) of the EUT.

Operating mode

1-3 Modification

1. Insert ferrite core at Power cable.

Model: N/A, Manufacturer: N/A, Quantity: 1 EA

2. Insert ferrite core at Motor cable.

Model: N/A, Manufacturer: N/A, Quantity: 1 EA Model: N/A, Manufacturer: N/A, Quantity: 1 EA



1-4 List of EUT and ACCESSORY

EUT				
Equipment Name	Model Name	Serial No.	Manufacturer	Remarks
Cold Brew Coffee Machine	SDK-0502	N/A	SONIC DUTCH KOREA Co.,Ltd.	-
Adapter	Adapter KPL-060M-VI N/A		Channel Well Technology (Guangzhou)co.,Ltd.	-
ACCESSORY				
Equipment Name	Model Name	Serial No.	Manufacturer	Remarks
-	-	-	-	-

1-5 Cable List

Cable List									
From To Length Shielding									
Type	I/O Port	Туре	I/O Port	(m)	Cable	backshell			
EUT	DC IN	Adapter	DC OUT	1.2	NO	Plastic			
Adapter	AC IN	AC Power Source	3 Pin AC Line	1.9	NO	Plastic			



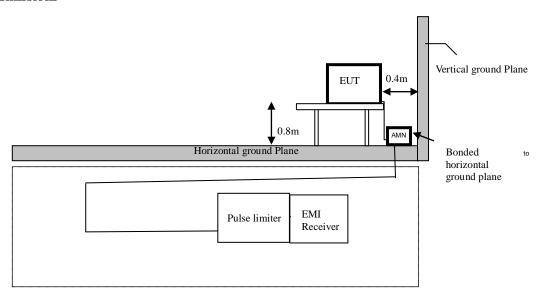
2- Test Site Description

1-Facility

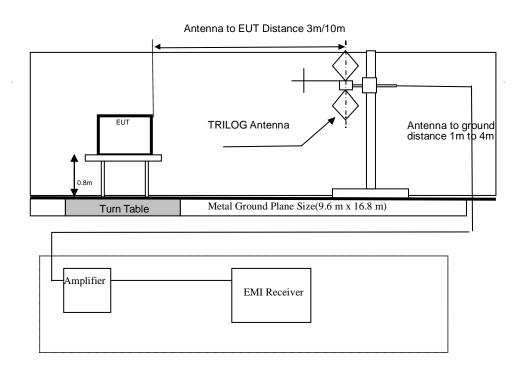
All the testing facilities are periodically serviced as a daily check for equipment and cables systems, an every 6 months facility check for the facilities and a monthly check and annual calibration for testing equipment according to ISO/IEC 17025. All the testing facilities are used as the same specifications shown below. There are descriptions both for radiated disturbance measurement and conducted disturbance measurement conformed by ANSI C 63.4-2014.

The NSA measurement of the 10 m chamber was performed on January 18, 2020 according to ANSI C 63.4:2014 The SVSWR measurement of the 10 m chamber was performed on January 18, 2020 according to ANSI C 63.4:2014

2-1 Conducted Emissions

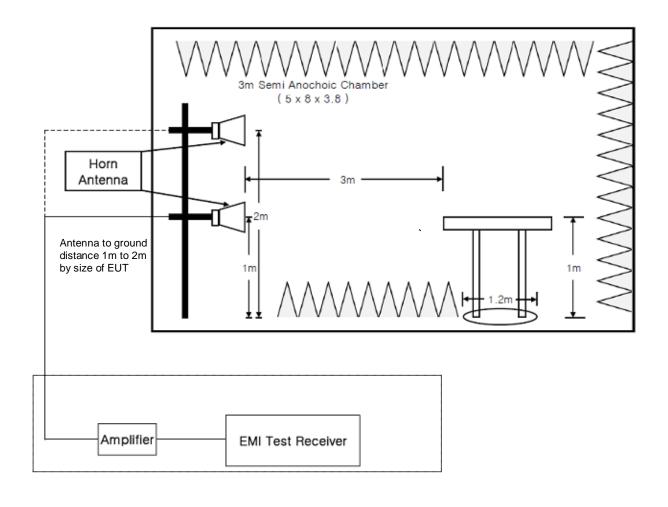


2-2 Radiated Emissions - Below 1 GHz





2-3 Radiated Emissions – Above 1 GHz





3- Test Procedure

3-1 Conducted Emissions

- The measurement is carried out on an open site with horizontal and metallic ground plane.
- An AMN(Artificial Mains Network) with a nominal impedance (50 Ω /50 μ H) as defined in ANSI C 63.4-2014., shall be utilized.
- The AMN is grounded on a horizontal metal ground plane.
- Measurement is carried out using an EMI receiver with quasi-peak detectors and average detector. (Refer to the List of test equipment used for the test.)
- The shortest distance between the EUT and the AMN is 0.8 m.
- The EUT is placed on the non-conducting table with 0.8 m height.
- · Refer to "Brief Information"(page 7-8) about details of the EUT and configuration of the cables.
- Measurement is carried out as manual operation.
- -searching the maximum frequency point of the disturbance wave in each frequency range.
- -reading the disturbance level of quasi-peak, average and Line (L) and Neutral (N) in 9 kHz bandwidth by the EMI receiver.
- -calculating the measurement result with the following formula or equation.

```
(Result = Reading + Cor.F.(LISN\ Factor + Cable\ Loss + Pulse\ Limiter)
```

$$\begin{array}{ll} (ex) & = 13.23 \ dB\mu V + (9.63 \ dB + 0.01 \ dB + 9.86 \ dB) \\ \\ & = 32.73 \ dB\mu V \end{array}$$



3-2 Radiated Emissions – Below 1 GHz

- Test site is met the requirements of ANSI C 63.4-2014 and the distance between the EUT and the antenna is adjusted 3 m or 10 m.
- The turntable can be rotated 360 degrees.
- The antenna can be adjusted between 1 m and 4 m in height above the ground.
- The EUT is placed on the non-conducting table with 0.8 m height on the turntable.
- Measurements are carried out using an EMI receiver with quasi-peak detectors (120 kHz bandwidth).
- Refer to the list of test equipment used for the test.
- The TRILOG antenna are used as wideband antenna.
- The TRILOG antenna is used in the frequency range of 30 MHz to 1 000 MHz.
- A variable attenuator is used for verifying amplifier's linearity.
- Rotating the turntable and adjusting the height of the antenna are carried out by control buttons on the console.
- Refer to "Brief Information" (page 7-8) about details of the EUT and configuration of the cables.
- Measurement is carried out by a LTA operator as manual operation.
- -searching the worst direction with the maximum level of the disturbance wave in rotating the turntable 360 degrees at each searched frequency point.
- -setting the height of the antenna with the maximum level of the disturbance wave from 1 m to 4 m.
- -reading the disturbance level by the EMI receiver with quasi-peak detectors (120 kHz bandwidth) according to ANSI C 63.4-2014.
- -measuring to vertical and horizontal polarization.
- -calculating the measurement result with the following formula or equation:

```
(Result = Reading + Cor.F (antenna factor + cable loss - PreAmp Gain)
```

(ex) =
$$50.6 \text{ dB}\mu\text{V/m} + (11.08 \text{ dB}(1/\text{m}) + 1.31 \text{ dB} - 27.32 \text{ dB})$$

= $35.67 \text{ dB}\mu\text{V/m}$



3-3 Radiated Emissions - Above 1 GHz

- Test site is met the requirements of ANSI C 63.4-2014 and the distance between the EUT and the antenna is adjusted 3 m.
- The turntable can be rotated 360 degrees.
- The antenna can be adjusted between 1 m and 4 m in height above the ground.
- The EUT is placed on the non-conducting table with 1 m height on the turntable.
- · Measurements are carried out using an EMI receiver with peak and average detectors(1 MHz bandwidth).
- Refer to the list of test equipment used for the test.
- The HORN antenna are used as wideband antenna.
- The HORN antenna is used in the frequency range of 1 GHz to 18 GHz.
- A variable attenuator is used for verifying amplifier's linearity.
- Rotating the turntable and adjusting the height of the antenna are carried out by control buttons on the console.
- Refer to "Brief Information" (page 7-8) about details of the EUT and configuration of the cables.
- Measurement is carried out by a LTA operator as manual operation.
- -searching the worst direction with the maximum level of the disturbance wave in rotating the turntable 360 degrees at each searched frequency point.
- -setting the height of the antenna with the maximum level of the disturbance wave from 1 m to 4 m
- -reading the disturbance level by the EMI receiver with peak and average detectors (1 MHz bandwidth) according to ANSI C 63.4-2014.
- -measuring to vertical and horizontal polarization.
- -calculating the measurement result with the following formula or equation:

```
(Result = Reading + Cor.F (antenna factor + cable loss - PreAmp Gain)
```

(ex) =
$$35.9 \text{ dB}\mu\text{V/m} + (23.92 \text{ dB}(1/\text{m}) + 7.01 \text{ dB} - 38.33 \text{ dB})$$

= $28.5 \text{ dB}\mu\text{V/m}$



4- List of Equipment Used For the Tests

Conducted Emissions

	Item	Model Name	Manufacturer	Serial No.	Next Cal.	Interval
\boxtimes	EMI TEST Receiver	ESR	Rohde & Schwarz	101499	2021.07.02	1 year
\boxtimes	Pulse Limiter	ESH3-Z2	Rohde & Schwarz	100710	2021.03.16	1 year
	LISN	ESH3-Z6	Rohde & Schwarz	100378	2021.09.03	1 year
	LISN	ESH3-Z6	Rohde & Schwarz	101468	2021.09.03	1 year
\boxtimes	LISN(main)	ENV216	Rohde & Schwarz	100408	2021.09.04	1 year
	LISN(sub)	LT32C/10	AFJ	32031518210	2021.09.03	1 year
\boxtimes	TEST PROGRAM	e3_ce 20181212a (V9)	AUDIX	-	-	-

Radiated Emissions – Below 1 GHz

	Item	Model Name	Manufacturer	Serial No.	Next Cal.	Interval
\boxtimes	EMI TEST Receiver	ESU	Rohde & Schwarz	100092	2021.09.03	1 year
\boxtimes	Amplifier (25 dB)	8447D	HP	2944A07974	2021.09.03	1 year
	BILOG Antenna	VULB 9168	SCHWARZBECK	775	2021.03.26 (KOLAS)	2 year
\boxtimes	BILOG Antenna	VULB 9168	SCHWARZBECK	775	2021.11.12 (RRA)	2 year
	TEST PROGRAM	e3 20181212a (V9)	AUDIX	-	-	-

Radiated Emissions - Above 1 GHz

	Item	Model Name	Manufacturer	Serial No.	Next Cal.	Interval
\boxtimes	EMI TEST Receiver	ESU	Rohde & Schwarz	100092	2021.09.03	1 year
\boxtimes	Amplifier	8449B	Agilent	3008A02126	2021.03.17	1 year
	Amplifier	PAM-840A	COM-POWER	461314	2021.03.16	1 year
	HORN ANTENNA	3116B	ETS	133350	2022.05.12	1 year
	HORN ANTENNA	3116B	ETS	81109	2022.05.12	1 year
	HORN ANTENNA	3115	ETS	114105	2021.09.17 (KOLAS)	2 year
\boxtimes	HORN ANTENNA	3115	ETS	114105	2021.11.11 (RRA)	2 year
\boxtimes	TEST PROGRAM	e3 20181212a (V9)	AUDIX	-	-	-



5- EMISSION

5-1 Conducted Emissions

(LINE)



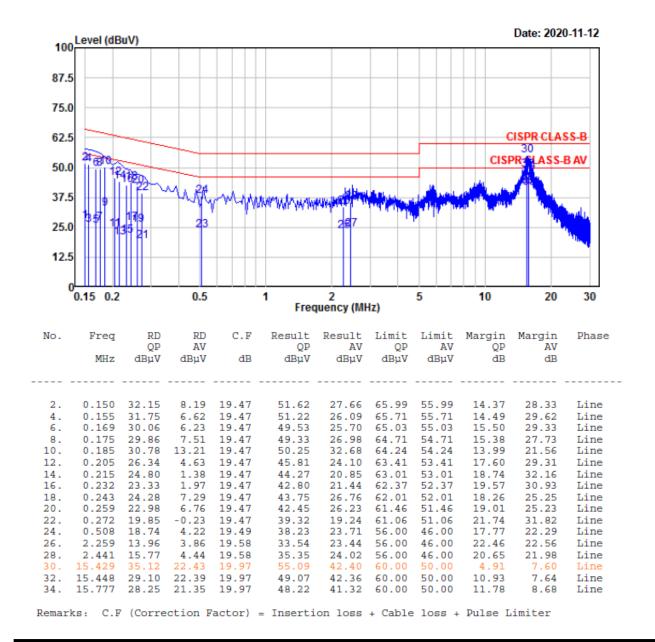
4, Songjuro 236 Beon-gil, Yangji-myeon Cheoin-gu, Youngin-si, Gyeonggi-do 449-822 Korea

Tel:+82-31-3236008,9 Fax:+82-31-3236010

EUT /Model No. : SDK-0502 Phase : Line

Test Mode : Operating mode Test Power : 120 V / 60 Hz

Temp./ Humi. : 23 'C / 43 % R.H. Test Engineer : KIM C B





(NEUTRAL)



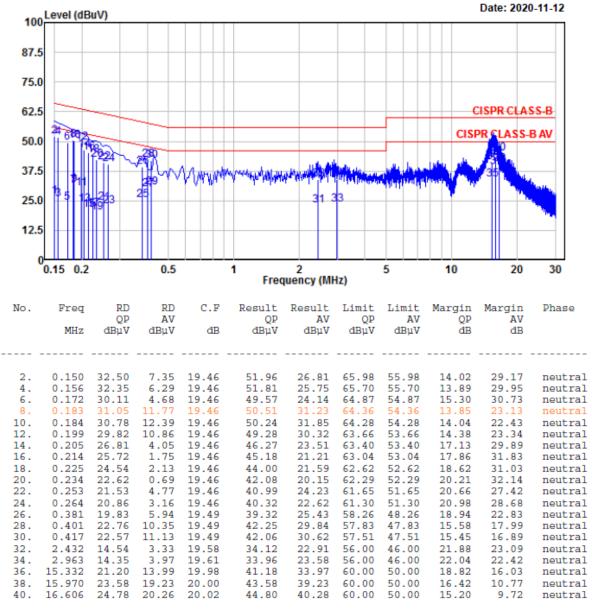
4, Songjuro 236 Beon-gil, Yangji-myeon Cheoin-gu, Youngin-si, Gyeonggi-do 449-822 Korea

Tel:+82-31-3236008,9 Fax:+82-31-3236010

EUT /Model No. : SDK-0502 Phase : Neutral

Test Mode : Operating mode Test Power : 120 V / 60 Hz

Temp./ Humi. : 23 'C / 43 % R.H. Test Engineer : KIM C B





5-2 Radiated Emissions

(Below 1 GHz) / V



4, Songjuro 236Beon-gil, yanggi-myeon,

Yongin-si, Gyeonggi-do, Korea

Tel: +82-31-3236008,9 Fax: +82-31-3236010

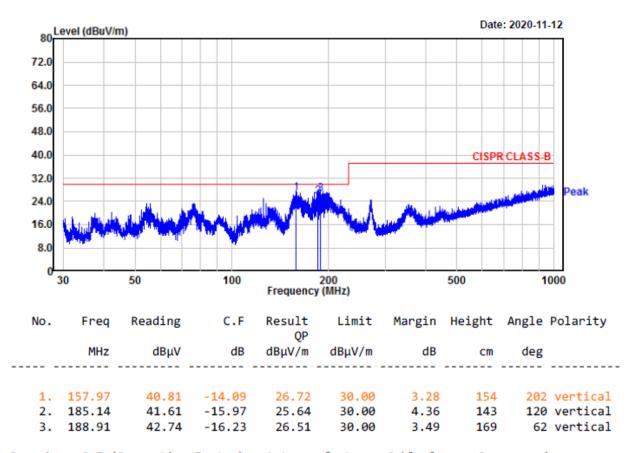
www.ltalab.com

EUT/Model No.: SDK-0502 Temp/Humi: 21 'C / 42 % R.H.

.....

Test Mode : Operating mode Tested by: KIM C B

Power : 120 V / 60 Hz



Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain



(Below 1 GHz) / H



4, Songjuro 236Beon-gil, yanggi-myeon,

Yongin-si, Gyeonggi-do, Korea

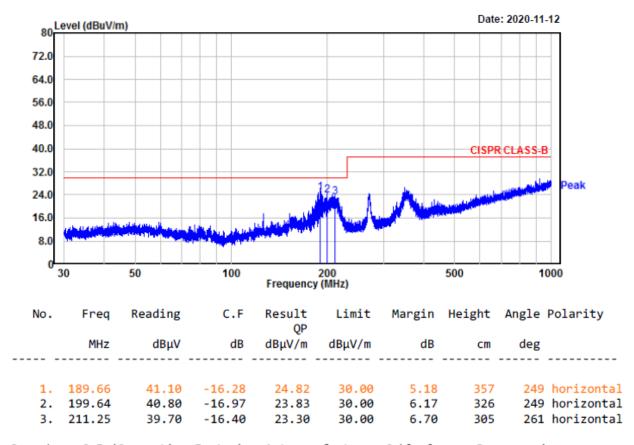
Tel: +82-31-3236008,9 Fax: +82-31-3236010

www.ltalab.com

EUT/Model No.: SDK-0502 Temp/Humi: 21 'C / 42 % R.H.

Test Mode : Operating mode Tested by: KIM C B

Power : 120 V / 60 Hz



Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

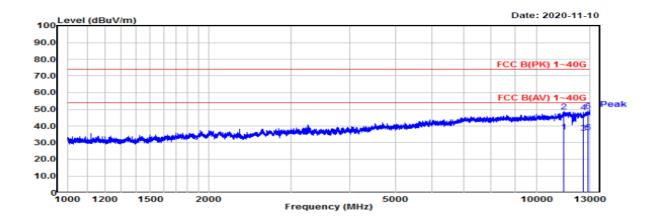


(Above 1 GHz) / V

EUT/Model No.: SDK-0502 Temp/Humi: 21 'C / 49 % R.H.

Test Mode : Operating mode Tested by: KIM C B

Power : 120 V / 60 Hz

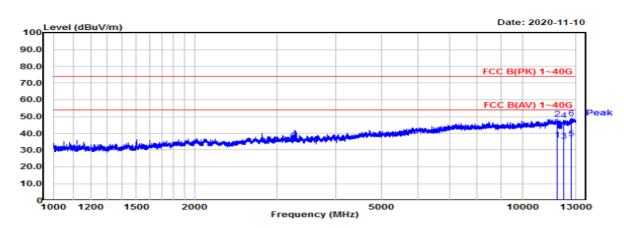


(Above 1 GHz) / H

EUT/Model No.: SDK-0502 Temp/Humi: 21 'C / 49 % R.H.

Test Mode : Operating mode Tested by: KIM C B

Power : 120 V / 60 Hz



 Manufacture : SONIC DUTCH KOREA Co.,Ltd.
 Test Date
 Temp.: Humidity Distance [℃] : [%] (m)

 Model : SDK-0502
 2020-11-10
 21
 49
 4.4

TEST mode: Operating

Frequency	Reading(PK)	Reading(AV)	C.F	Result(PK)	Result(AV)	Limit(PK)	Limit(AV)	Margin(PK)	Margin(AV)	Height	Angle	Polarity
MHz	dBu∨	dBu∀	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	cm	deg	H/V
11863.13	41.77	29.44	10.25	52.02	39.69	74.00	54.00	21.98	14.31	100	11	Н
12272.95	41.22	28.48	10.21	51.43	38.69	74.00	54.00	22.57	15.31	100	349	Н
12715.28	41.08	29.11	11.21	52.29	40.32	74.00	54.00	21.71	13.68	100	274	Н
11417.40	41.97	29.84	10.12	52.09	39,96	74.00	54.00	21.91	14.04	100	124	٧
12591.85	41.02	28.47	10.64	51.66	39.11	74.00	54.00	22.34	14.89	100	70	V
12914.37	40.12	27.44	12.15	52.27	39, 59	74.00	54.00	21.73	14.41	100	253	٧



Conclusions

Product models "SDK-0502" meets all of the Class B requirements of the FCC Part 15, Subpart B. Limits of radio disturbance characteristics of ITE).

(Refer to Test Specification and Test Results in the "LTA certification", page 4 and 5)

- The highest internal source of an EUT is higher than 108 MHz, the measurement shall be made up to 13 GHz. (The highest internal source of an EUT : 2.4 GHz)