TEST REPORT

This laboratory is accredited by National Radio Research Agency Laboratory and National Voluntary Laboratory Accreditation Program.
The tests reported herein have been performed in accordance with its terms of accreditation.

Test Report No.	**:**	**LR500112008G**
Issue Date	**:**	**August 17, 2020**
Applied Standard	**:**	**FCC Part 15, Subpart B**
Trade Name	**:**	**Smartsound Corporation**
FCC ID	**:**	**2ADIYSM-300**
Equipment Name	**:**	**SKEEPER**
Model Name	**:**	**SM-300**
Serial Number	**:**	**Identification**

Revision history

Revision	Date of issue	Test report No.	Description
0	17.08.2020	LR500112008G	Initial

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LTA Certification

Applicant / Manufacturer

Company name	:	Smartsound Corporation
Address	:	4F, 171, Yangjaecheon-ro, Gangnam-gu, Seoul, Korea
Telephone / Facsimile	:	+82-2-575-2201

Factory

Company name	:	Smartsound Corporation
Address	:	4F, 171, Yangjaecheon-ro, Gangnam-gu, Seoul, Korea

Equipment Under Test (EUT)

Equipment Name	:	SKEEPER
Model name	:	SM-300
Serial number	:	Identification
Intended environment	:	Industrial area
Date of receipt	:	August 17, 2020
EUT condition	:	Pre-production, not damaged
Test Mode	:	Charging + Operating mode, Operating mode
Interface ports	:	AUDIO OUT, DC IN
Power rating	:	DC 3.7 V, DC 5 V
Test Voltage	:	DC 3.7, AC 120 V, 60 Hz

Model Description

- NONE

Model Specification

- NONE

*** To be continued next page ***

LTA Certification –cont.-

Test Performed

Test started & completed	:	August 13 - 14, 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

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

Modification performed by the lab.;

- N.A

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

Laboratory's Certificate

Report number	:	LR500112008G
Issue date	:	August 17, 2020

This test report is issued under the authority of:

Young Kyu Shin, Technical Manager

The test was supervised by:

Yu Hyeon Nam, Test Engineer

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.

General information's

Purpose

This document is based on the Electromagnetic Interference (EMI) tests performed on the **"SM-300"**. 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	:	+82-31-323-6008
Facsimile		+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 : ±4.84 [dB] (k=2)	V : ±4.92 [dB] (k=2)
	(1 GHz to 6 GHz) :	H : ±5.97 [dB] (k=2)	V : ±5.96 [dB] (k=2)
	(6 GHz to 18 GHz) :	H : ±6.20 [dB] (k=2)	V : ±6.20 [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	Accreditation No.	Validity	Reference
NVLAP	U.S.A	200723-0	2020-09-30	ECT accredited Lab.
RRA	KOREA	KR0049	-	RRA accredited Lab.
	U.S.A		2021-04-11	
	CANADA		2021-06-16	
	VIETNAM		2021-04-12	
VCCI	JAPAN	C-14948	2023-09-10	VCCI registration
		T-12416	2023-09-10	
		R-14483	2023-10-15	
		G-10847	2021-12-13	
KOLAS	KOREA	KT551	2021-08-20	KOLAS accredited Lab.

1- Brief Information

1-1 Test Summary

Parameter	Applied Standard	Status (note 1)
I. Emission		
Conducted Emissions	FCC Part 15.107	C
Radiated Emissions	FCC Part 15.109	C
Note 1: C=Complies NC=Not Complies NT=Not Tested NA=Not Applicable * The data in this test report are traceable to the national 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.

Charging + Operating mode, Operating mode

1-3 Modification

- NONE

1-4 List of EUT and ACCESSORY

EUT				
Equipment Name	**Model Name**	**Serial No.**	**Manufacturer**	**Remarks**
SKEEPER	**SM-300**	**N/A**	**Smartsound Corporation**	-
ACCESSORY / Charging + Operating mode				
Equipment Name	**Model Name**	**Serial No.**	**Manufacturer**	**Remarks**
Adapter	MCS-H06KR	RA680045174	Weihai Sunjin Electronics Co.,Ltd	-
Ear Phone	N/A	N/A	N/A	-
Mobile Phone	SM-G930	N/A	SAMSUNG	-
ACCESSORY / Operating mode				
Equipment Name	**Model Name**	**Serial No.**	**Manufacturer**	**Remarks**
Ear Phone	N/A	N/A	N/A	-
Mobile Phone	SM-G930	N/A	SAMSUNG	-

1-5 Cable List

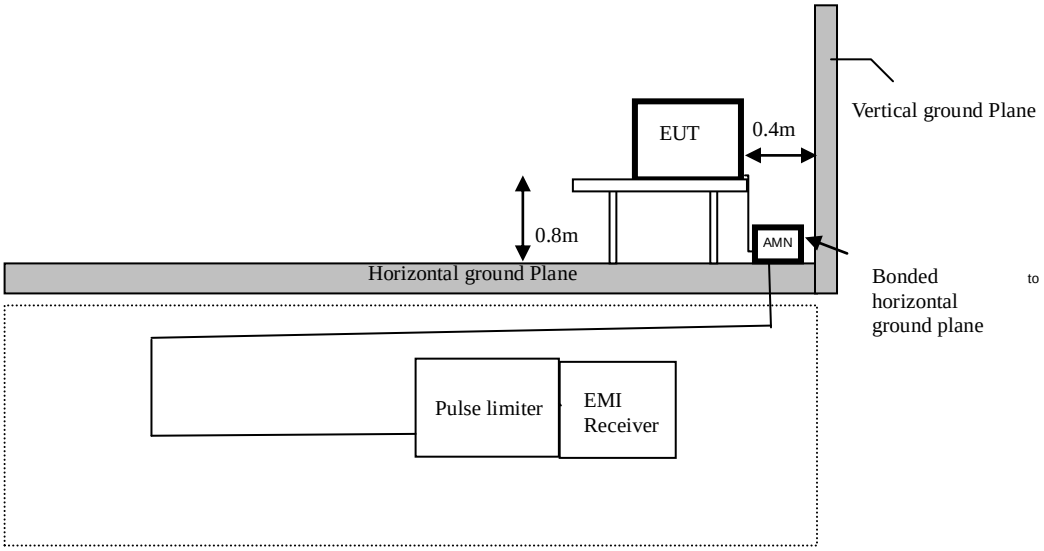
Cable List / Charging + Operating mode						
From		**To**		**Length**	**Shielding**	
Type	**I/O Port**	**Type**	**I/O Port**	**(m)**	**Cable**	**backshell**
EUT	DC IN	Adapter	DC OUT	1.1	NO	Plastic
	AUDIO OUT	Ear Phone	AUX	1.0	NO	Plastic
Mobile Phone	-	-	-	-	-	-
Adapter	AC IN	AC Power Source	2 Pin AC Line	-	-	-
Cable List / Operating mode						
From		**To**		**Length**	**Shielding**	
Type	**I/O Port**	**Type**	**I/O Port**	**(m)**	**Cable**	**backshell**
EUT	DC IN	Battery	DC OUT	-	-	-
	AUDIO OUT	Ear Phone	AUX	1.0	NO	Plastic
Mobile Phone	-	-	-	-	-	-

2- Test Site Description

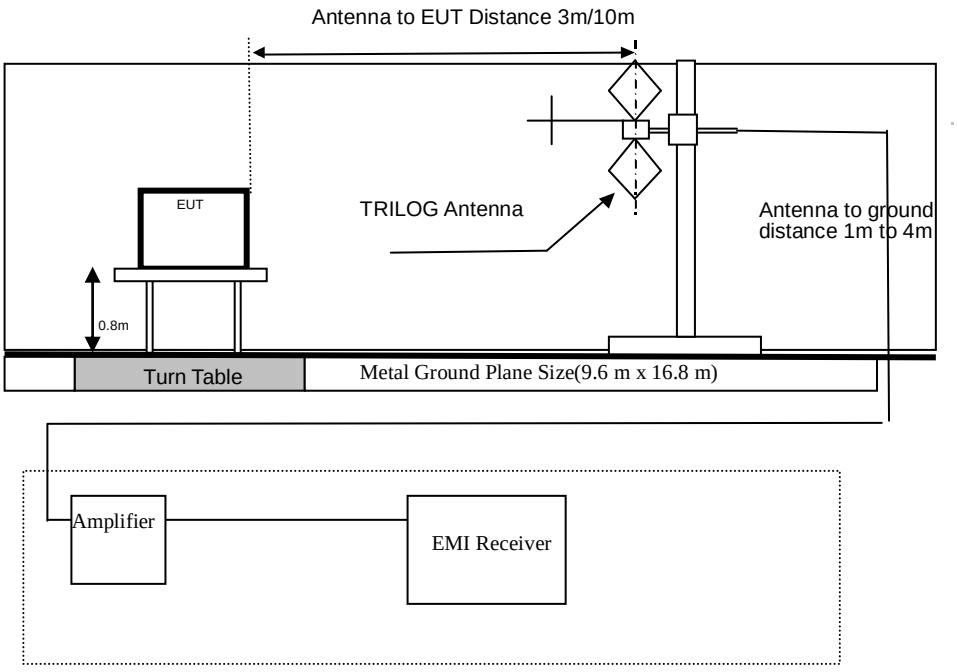
1-Facility

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



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 μH) 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 7-9) 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)

(ex) = 13.23 dBμV + (9.63 dB + 0.01 dB + 9.86 dB)

= 32.73 dBμV

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 7-9) 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 dBμV/m + (11.08 dB(1/m) + 1.31 dB - 27.32 dB)

= 35.67 dBμV/m

4- List of Equipment Used For the Tests

Conducted Emissions

	Item	Model Name	Manufacturer	Serial No.	Next Cal.	Interval
☒	EMI TEST Receiver	ESR	Rohde & Schwarz	101499	2021.07.02	1 year
☒	Pulse Limiter	ESH3-Z2	Rohde & Schwarz	100710	2021.03.16	1 year
☐	LISN	ESH3-Z6	Rohde & Schwarz	100378	2020.09.05	1 year
☐	LISN	ESH3-Z6	Rohde & Schwarz	101468	2020.09.05	1 year
☒	LISN(main)	ENV216	Rohde & Schwarz	101222	2020.09.06	1 year
☐	LISN(sub)	LT32C/10	AFJ	32031518210	2020.09.05	1 year
☒	TEST PROGRAM	e3_ce 20181212a (V9)	AUDIX	-	-	-

Radiated Emissions – Below 1 GHz

	Item	Model Name	Manufacturer	Serial No.	Next Cal.	Interval
☒	EMI TEST Receiver	ESU	Rohde & Schwarz	100092	2020.09.05	1 year
☒	Amplifier (25 ㏈)	8447D	HP	2944A07684	2021.03.16	1 year
☐	BILOG Antenna	VULB 9168	SCHWARZBECK	775	2021.03.26 (KOLAS)	2 year
☒	BILOG Antenna	VULB 9168	SCHWARZBECK	775	2021.11.12 (RRA)	2 year
☒	TEST PROGRAM	e3 20181212a (V9)	AUDIX	-	-	-

5- EMISSION

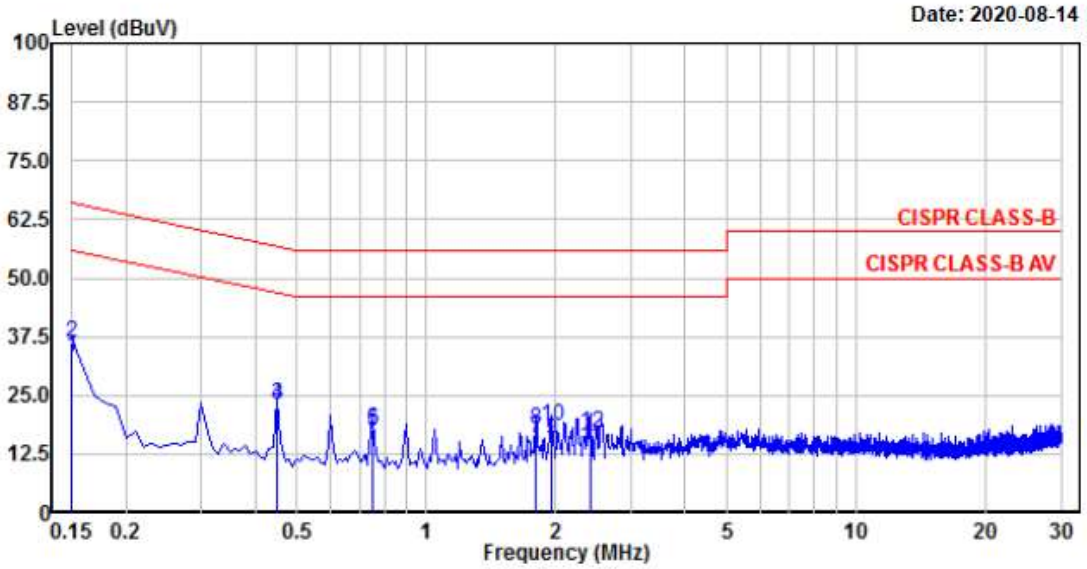
5-1 Conducted Emissions

MODE : Charging + Operating mode

(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.	: SM-300	Phase	: Line
Test Mode	: Charging + Operating mode	Test Power	: 120 V / 60 Hz
Temp./ Humi.	: 23 'C / 51 % R.H.	Test Engineer	: NAM Y H



No.	Freq	RD QP	RD AV	C.F	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV	Phase
	MHz	dBµV	dBµV	dB	dBµV	dBµV	dBµV	dBµV	dB	dB	
2.	0.150	16.74	13.76	19.57	36.31	33.33	66.00	56.00	29.69	22.67	Line
4.	0.451	3.41	3.25	19.59	23.00	22.84	56.85	46.85	33.85	24.01	Line
6.	0.750	-2.05	-2.42	19.62	17.57	17.20	56.00	46.00	38.43	28.80	Line
8.	1.799	-1.82	-3.89	19.69	17.87	15.80	56.00	46.00	38.13	30.20	Line
10.	1.951	-1.29	-4.40	19.70	18.41	15.30	56.00	46.00	37.59	30.70	Line
12.	2.414	-2.90	-5.61	19.73	16.83	14.12	56.00	46.00	39.17	31.88	Line

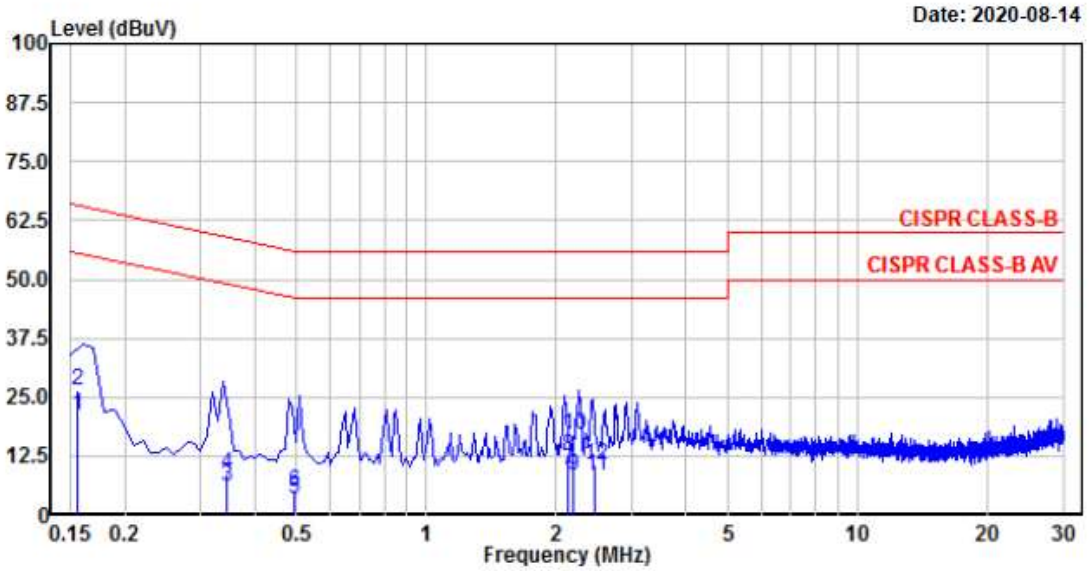
Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

MODE : Charging + Operating mode

(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.	: SM-300	Phase	: Neutral
Test Mode	: Charging + Operating mode	Test Power	: 120 V / 60 Hz
Temp./ Humi.	: 23 'C / 51 % R.H.	Test Engineer	: NAM Y H



No.	Freq	RD QP	RD AV	C.F	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV	Phase
	MHz	dBµV	dBµV	dB	dBµV	dBµV	dBµV	dBµV	dB	dB	
2.	0.156	6.86	1.56	19.63	26.49	21.19	65.70	55.70	39.21	34.51	neutral
4.	0.346	-11.07	-13.79	19.65	8.58	5.86	59.05	49.05	50.47	43.19	neutral
6.	0.496	-14.66	-16.23	19.66	5.00	3.43	56.07	46.07	51.07	42.64	neutral
8.	2.133	-7.50	-10.20	19.77	12.27	9.57	56.00	46.00	43.73	36.43	neutral
10.	2.202	-2.86	-11.56	19.78	16.92	8.22	56.00	46.00	39.08	37.78	neutral
12.	2.462	-9.22	-11.70	19.81	10.59	8.11	56.00	46.00	45.41	37.89	neutral

Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

5-2 Radiated Emissions

MODE : Charging + Operating mode

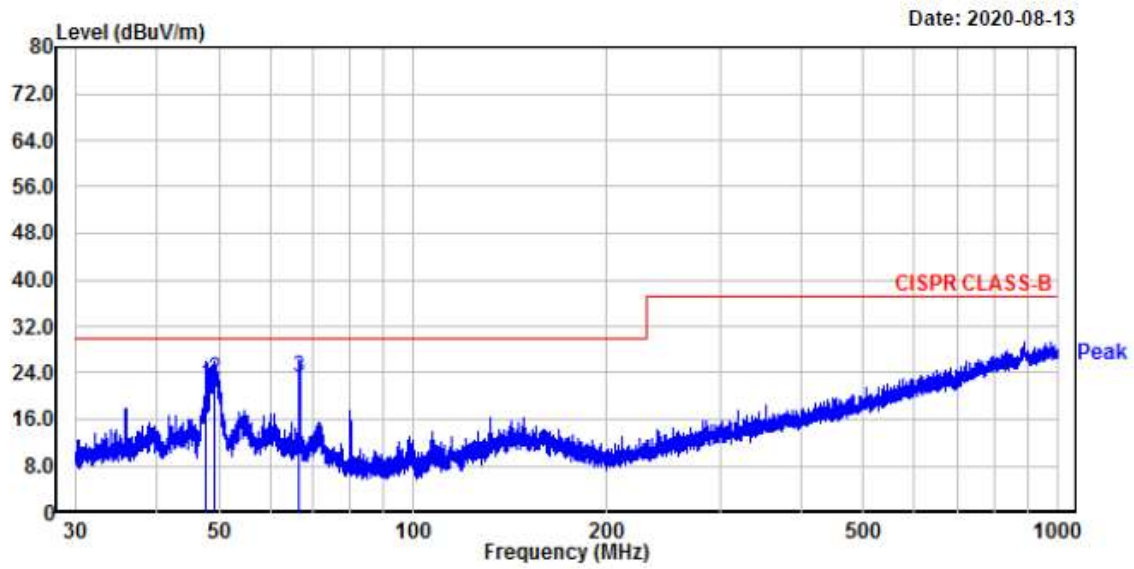
(Below 1 GHz) / V

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.: SM-300 Temp/Humi: 24 'C / 42 % R.H.

Test Mode : Charging + Operating mode Tested by: NAM Y H

Power : 120 V / 60 Hz



No.	Freq	Reading	C.F	Result QP	Limit	Margin	Height	Angle	Polarity
	MHz	dBµV	dB	dBµV/m	dBµV/m	dB	cm	deg	
1.	47.83	35.32	-13.22	22.10	30.00	7.90	151	10	vertical
2.	49.27	36.15	-13.19	22.96	30.00	7.04	126	145	vertical
3.	66.56	38.00	-14.75	23.25	30.00	6.75	137	360	vertical

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

MODE : Charging + Operating mode

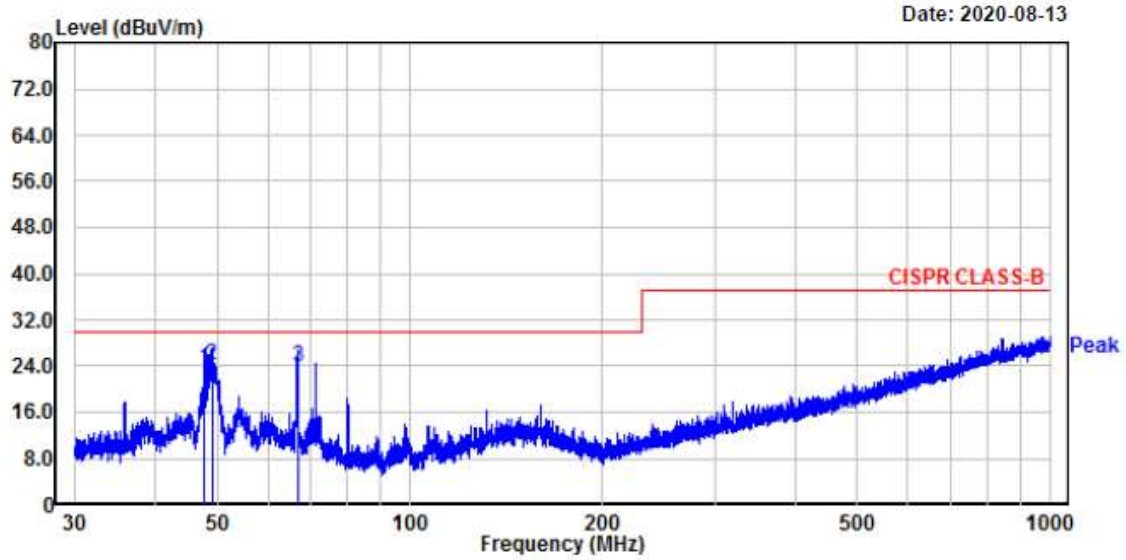
(Below 1 GHz) / H

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.: SM-300 Temp/Humi: 24 'C / 42 % R.H.

Test Mode : Charging + Operating mode Tested by: NAM Y H

Power : 120 V / 60 Hz



No.	Freq	Reading	C.F	Result QP	Limit	Margin	Height	Angle	Polarity
	MHz	dBµV	dB	dBµV/m	dBµV/m	dB	cm	deg	
1.	47.83	36.69	-13.22	23.47	30.00	6.53	281	156	horizontal
2.	49.06	37.37	-13.20	24.17	30.00	5.83	381	211	horizontal
3.	66.76	38.51	-14.79	23.72	30.00	6.28	374	42	horizontal

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

MODE : Operating mode

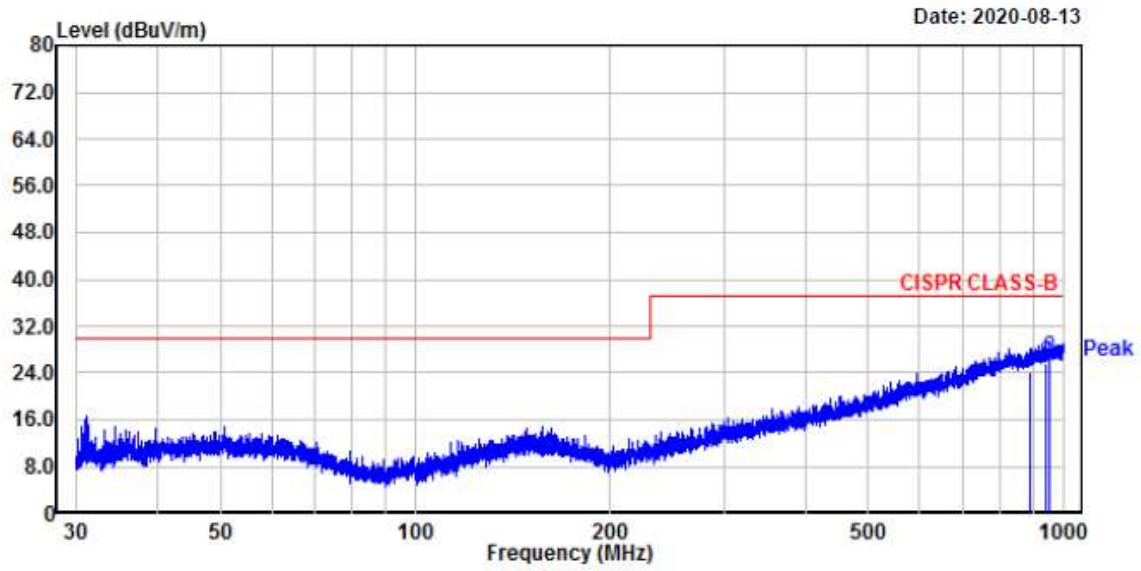
(Below 1 GHz) / V

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.: SM-300 Temp/Humi: 24 'C / 42 % R.H.

Test Mode : Operating mode Tested by: NAM Y H

Power : DC 3.7 V



No.	Freq	Reading	C.F	Result QP	Limit	Margin	Height	Angle	Polarity
	MHz	dBµV	dB	dBµV/m	dBµV/m	dB	cm	deg	
1.	889.56	23.34	0.83	24.17	37.00	12.83	127	158	vertical
2.	939.24	24.02	1.49	25.51	37.00	11.49	217	63	vertical
3.	950.84	24.78	1.64	26.42	37.00	10.58	212	315	vertical

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

MODE : Operating mode

(Below 1 GHz) / H

4, Songjuro 236Beon-gil, yanggi-myeon,
Yongin-si, Gyeonggi-do, Korea
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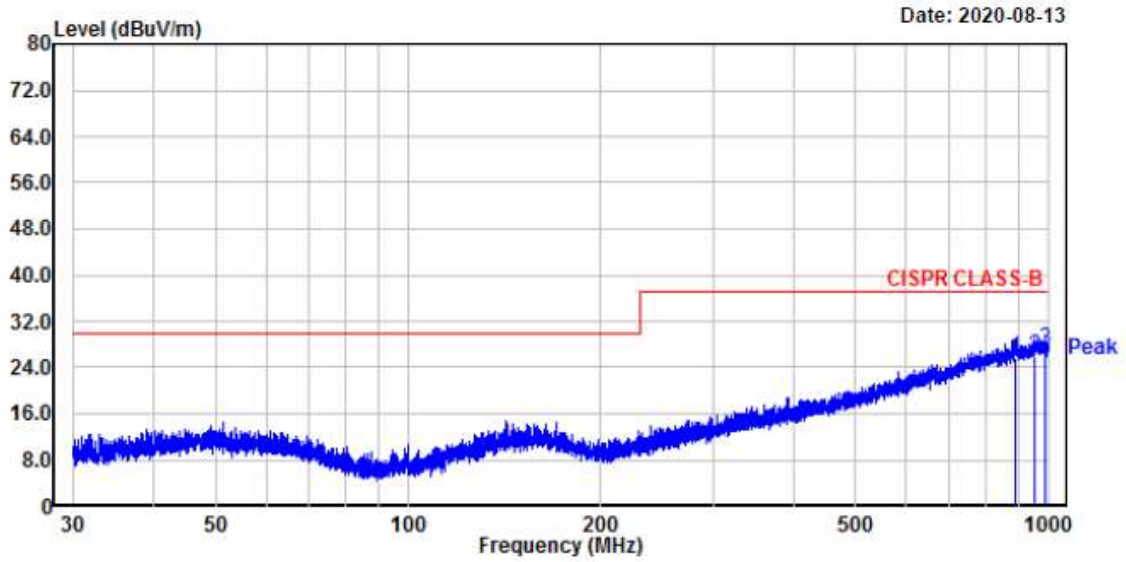
EUT/Model No.: SM-300 Temp/Humi: 24 'C / 42 % R.H.

Test Mode : Operating mode Tested by: NAM Y H

Power : DC 3.7 V



No.	Freq	Reading	C.F	Result QP	Limit	Margin	Height	Angle	Polarity
	MHz	dBµV	dB	dBµV/m	dBµV/m	dB	cm	deg	
1.	890.73	24.93	0.85	25.78	37.00	11.22	298	185	horizontal
2.	950.84	24.24	1.64	25.88	37.00	11.12	267	315	horizontal
3.	986.94	25.04	2.14	27.18	37.00	9.82	265	248	horizontal

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

Conclusions

Product models **"SM-300"** 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 less than 108 MHz, the measurement shall be made up to 1 GHz.
(The highest internal source of an EUT : less than 108 MHz)

