Certificate of Test

NCT CO., LTD. 211-71, Geumgok-ro, Hwaseong-si, Gyeonggi-do, 18511, Republic of Korea (Tel: +82-31-323-6070 / Fax: +82-31-323-6071)	Report No.: NE2010-F003 Page (1) / (22)	Your business' success starts with NCT

1. **Client**
   - ○ Name : CPD GROUP
   - ○ Address : Incheon IT Tower-1211, 229, Gyeongin-ro, Michuhol-gu, Incheon, Republic of Korea
   - ○ Date of Receipt : Oct. 15, 2020

2. **Use of Report :** FCC SDoC

3. **Test Sample**
   - ○ Product Name / Model Name : Cam.G Air / CAMG-A1000

4. **Date of Test :** Oct. 16, 2020 ~ Oct. 20, 2020

5. **Test method used :** FCC Part 15 Subpart B

6. **Testing Environment :** Refer to 2.3 Test Condition

7. **Test Results :** Refer to the test results

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
This Test Report cannot be reproduced, except in full

Affirmation	**Tested by** LEE Youngkyoung (signature)	**Technical Manager** Byeongcheol Yoo (signature)

Oct. 22, 2020

NCT CO., LTD. (seal)

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1. General information

1.1 Test Performed

Electromagnetic compatibility measurement facility (18511) is located at 211-71 Geumgok Road, Dongtan-myeon, Hwaseong-si, Gyeonggi-do, Republic of Korea.

Laboratory	:	NCT Co., Ltd. (KR0166)
Address	:	211-71, Geumgok-ro, Hwaseong-si, Gyeonggi-do, Republic of Korea
Telephone	:	+82 (0)31-323-6070
Facsimile	:	+82 (0)31-323-6071

SITE MAP

2. Information about test item

2.1 Applicant information

Company name	:	CPD GROUP
Address	:	Incheon IT Tower-1211, 229, Gyeongin-ro, Michuhol-gu, Incheon, Republic of Korea
Telephone / Facsimile	:	+82 32-873-7307 / -
Contact name	:	Sanghwan, Nam
Manufacturer	:	CPD GROUP
Factory Address	:	Incheon IT Tower-1211, 229, Gyeongin-ro, Michuhol-gu, Incheon, Republic of Korea

2.2 Equipment Under Test (EUT) description

Product name	:	Cam.G Air
Trademark	:	-
Model and/or type reference	:	CAMG-A1000
Additional model name	:	-
Serial number	:	N/A
Date (s) of performance of tests:	:	Oct. 16, 2020 ~ Oct. 20, 2020
Date of receipt of test item	:	Oct. 15, 2020
EUT condition	:	No Problem
Device Category	:	All other devices
Interface Ports	:	DC IN
EUT Power Source	:	DC 3.7 V
Highest internal frequency	:	1.705 ~ 108 MHz
Firmware version	:	-
Note	:	-
FCC ID	:	2AYXV-CAMGA1000

2.3 Test condition

Environment Conditions	- Radiated Emissions	Below 1 GHz : (23.5 ± 1.0) ℃ / (41.2 ± 1.0) % R.H. Above 1 GHz : (-) ℃ / (-) % R.H.
	- Conducted Emissions	(24.2 ± 1.0) ℃ / (43.9 ± 1.0) % R.H.
Operating mode	Operating+Charging Mode	
Test Voltage	AC 120 V, 60 Hz	
Test Date	- Radiated Emissions	Below 1 GHz : Oct. 16, 2020 Above 1 GHz : -
	- Conducted Emissions	Oct. 20, 2020

2.4 Ancillary Equipment

Equipment	Model No.	Serial No.	Manufacturer
Adapter	EP-TA300	R37M79919Z3SE3	SOLUM VINA COMPANY LIMITED
Smart phone	SM-N976N	R3CMA04462W	SAMSUNG

2.5 Cable List

Cable List				
Type	Length (m)	Shielding (Cable/backshell)	Remarks	
			From	to
EUT	1.0	N/N	DC OUT(ADAPTER)	DC IN(EUT)

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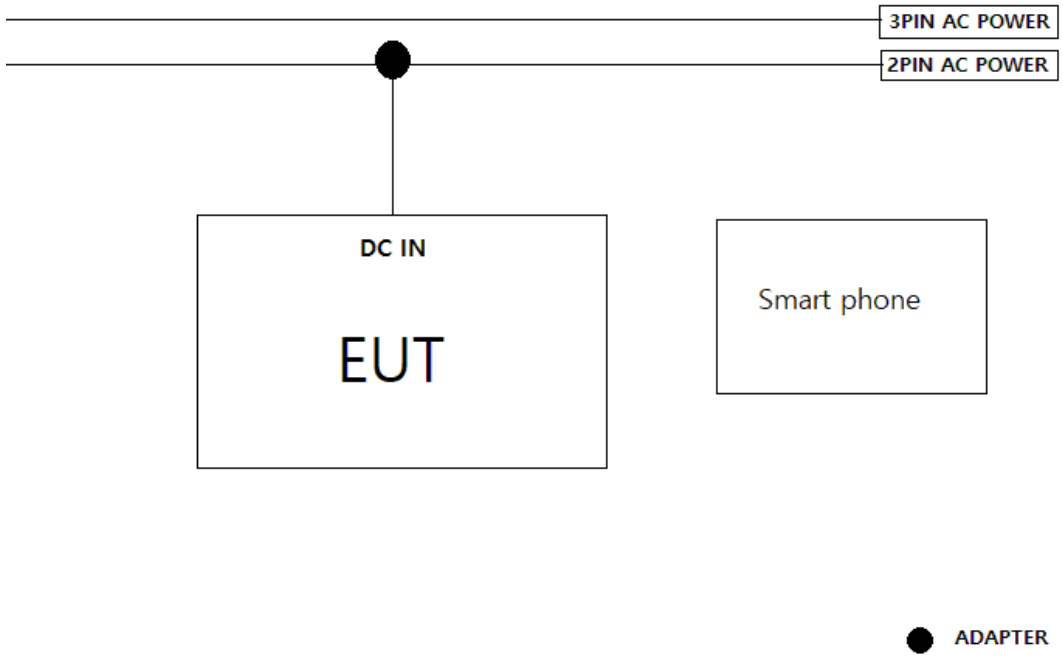
2.6 Block Diagram



Note) The EUT (CAMG-A1000) was arranged as a layout diagram.

- After the test equipment (CAMG-A1000) is placed as follows, it is charged using an adapter, and the environment is measured and tested in Operating + Charging mode.

2.7 Modification

- N/A

2.8 Configuration

Equipment	Model No.	Serial No.	Manufacturer
MAIN BOARD	CAMG_A1000_REV.A	N/A	N/A

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3. Test Report

3.1 Test Summary

Applied	Test items	Test method	Result
☒	Radiated disturbance	FCC Part 15.109 : (November 2, 2017)	**C**
☒	Conducted disturbance	FCC Part 15.107 : (November 2, 2017)	**C**

Note 1 : C=Complies, N/C=Not Complies, N/T=Not Tested, N/A=Not Applicable

* The data in this test report are traceable to the national or international standards.

* Uncertainties was taken into consideration through consultation with the client, and only the test results were determined to meet the requested specifications.

Frequency range to be scanned:

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)	Status (note 1)
Below 1.705	30	**N/A**
1.705 ~ 108	1 000	**C**
108 ~ 500	2 000	**N/A**
500 ~ 1 000	5 000	**N/A**
Above 1 000	5th harmonic of the highest frequency or 40 GHz, whichever is lower.	**N/A**
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.		

0.15 ㎒ ~ 30 ㎒ as conducted measurement

30 ㎒ ~ 1 000 ㎒ as Radiated measurement

1 ㎓ ~ 6 ㎓ as Radiated measurement

Bandwidth:

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

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

A sample calculation:

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

Emission Level = meter reading + COR.F

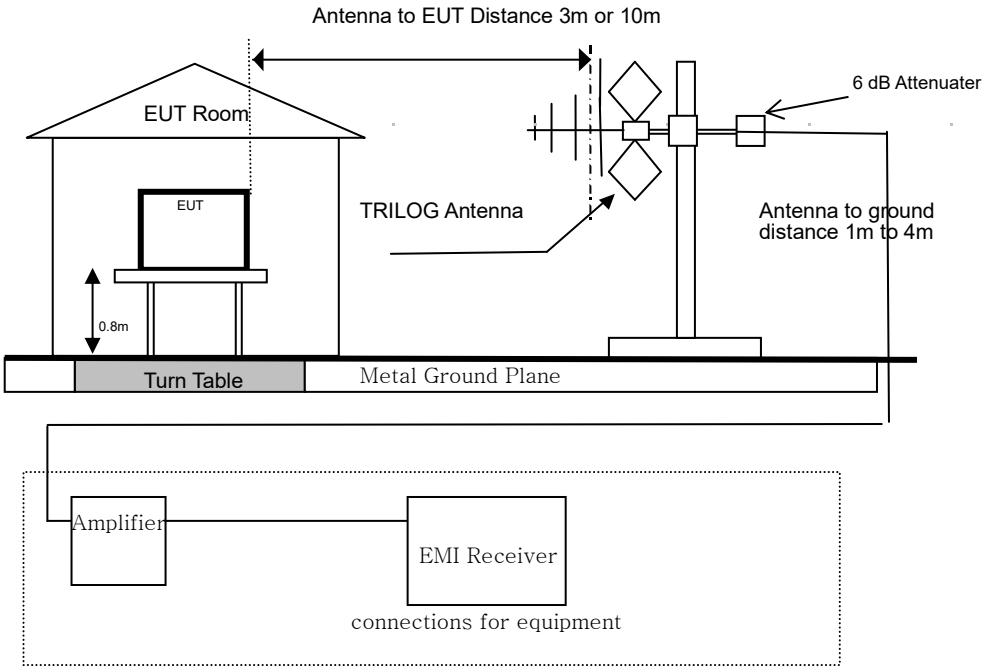
4. General information

4.1 Test Site Description

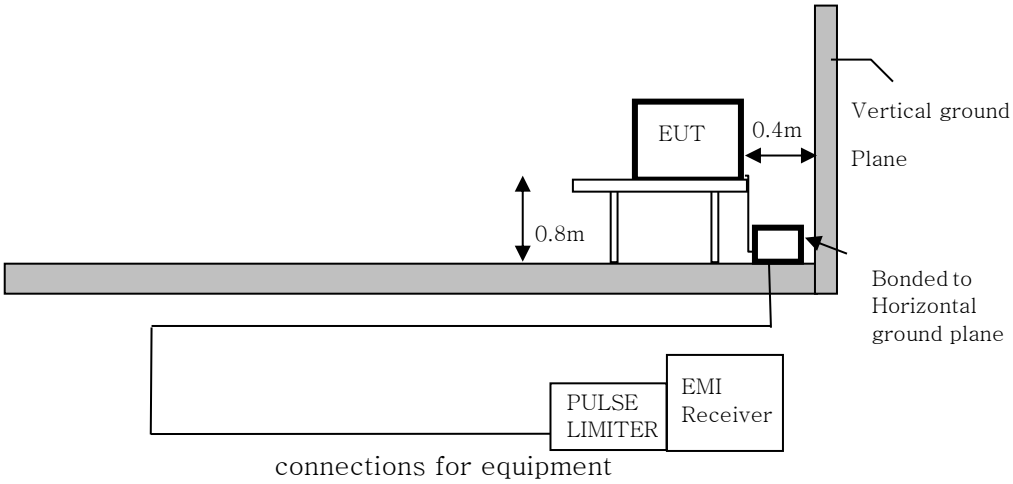
Facility

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 OATS was performed on Jul 5, 2020 according to ANSI C 63.4:2014

4.2 Radiated Disturbance Measurement – Below 1 ㎓



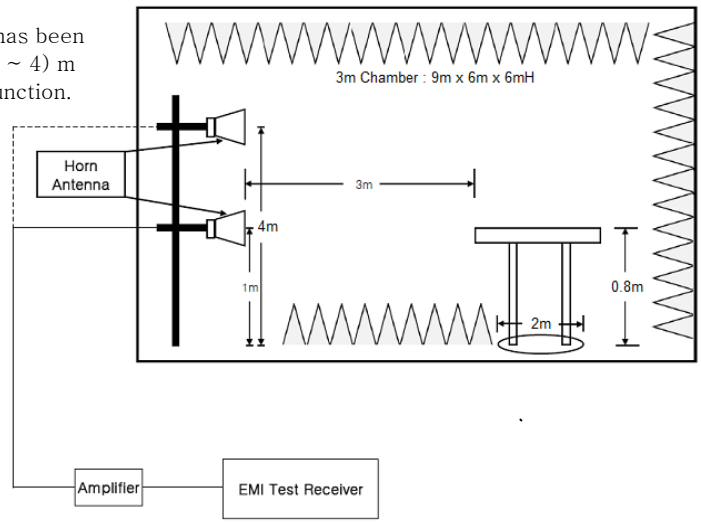
4.3 Conducted Disturbance Measurement



connections for equipment

4.4 Radiated Disturbance Measurement – Above 1 ㎓

The antenna has been changed to (1 ~ 4) m with the tilt function.



5. Test Procedure

5.1 Radiated Disturbance Measurements – Below 1 ㎓

- 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/10 m.
- The turntable can be rotated 360 degrees.
- The antenna can be adjusted between 1m and 4m in height above the ground.
- The EUT is placed on the non-conducting table with 0.8m height on the turntable.
- Measurements are carried out using a EMI test receiver with peak detectors (100 ㎑ bandwidth) and an EMI receiver with quasi-peak detectors(120 ㎑ bandwidth).
- Refer to the list of test equipment used for the test.
- TRILOG antenna are used as wideband antenna.
- The TRILOG antenna is used in the frequency range of 30 ㎒ ~ 1 000 ㎒, the Horn antenna is used in the frequency range of 1㎓ ~ 40㎓.
- 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 4 ~ 6) about details of the EUT and configuration of the cables.
- Measurement is carried out by a NCT EMC Lab. operator as manual operation.

  –searching for some of High disturbance frequency points than the other points with the following settings: bandwidth 100 ㎑, frequency range 10 ㎒ between 30㎒ and 300 ㎒ and frequency range 50 ㎒between 300 ㎒ and 1 ㎓.

  –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 1m to 4m.

  –reading the disturbance level by the EMI receiver with quasi-peak detectors (120 ㎑ bandwidth) according to ANSI C 63.4:2014.

  –measuring to vertical and horizontal polarization.

  –calculating the measurement result with the following formula or equation:

  (Measurement result = Measured value + Antenna factor + Cable loss - Amp. factor)

5.2 Radiated Disturbance Measurements – Above 1 ㎓

- Test site is met the requirements of ANSI C 63.4:2014 and the distance between the EUT and the antenna isadjusted 3m.
- The turntable can be rotated 360 degrees.
- The antenna can be adjusted between 1m in height above the ground.
- The EUT is placed on the non-conducting table with 1m height on the turntable.
- Measurements are carried out using a EMI test receiver with peak detectors (1 ㎒ bandwidth) and an EMI receiver with peak and average detectors(1 ㎒ bandwidth).
- Refer to the list of test equipment used for the test.
- HORN antenna are used as wideband antenna.
- The HORN antenna is used in the frequency range of 1 ㎓ ~ 40㎓.
- 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 4 ~ 6) about details of the EUT and configuration of the cables.
- Measurement is carried out by a NCT Lab. operator as manual operation.
  – searching the worst direction with the maximum level of the disturbance wave in rotating the turn table 360 degrees at each searched frequency point.
  – setting the height of the antenna with the maximum level of the disturbance wave from 1 m
  – reading the disturbance level by the EMI receiver with peak and average detectors (1㎒ bandwidth) according to ANSI C 63.4:2014.
  – measuring to vertical and horizontal polarization.
  – calculating the measurement result with the following formula or equation:
  (Measurement result = Measured value + Antenna factor + Cable loss - Amp. factor)

5.3 Conducted Disturbance Measurements

- 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 0.8m.
- The EUT is placed on the non-conducting table with 0.8m height.
- A remote switch is used for changing phases between Line (L) and Neutral (N).
- Refer to "Brief Information"(page 5-8) about details of the EUT and configuration of the cables.
- Measurement is carried out as manual operation.

  -detecting the maximized emission level using the maxhold function after setting the spectrum analyzer bandwidth 1㎒ and the frequency range from 150 ㎑ ~ 1 ㎒, 1 ㎒ ~ 5 ㎒ and 5 ㎒ ~ 30 ㎒.

  –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 ㎑ bandwidth by the EMI receiver.

  –calculating the measurement result with the following formula or equation.

  (Result = Reading + Cor.F.) (Margin = Limit - Result)

6. List of Equipment Used For the Tests

No.	Item	Model Name	Manufacturer	Serial No.	Interval	Next Cal.
1	Receiver	ESVS30	ROHDE&SCHWARZ	826006/015	1 Year	2021.05.28
2	RF AMPLIFIER	8447F	H.P	3113A05434	1 Year	2021.05.28
3	TRILOG Broadband Antenna(KOLAS)	VULB 9168	Schwarzbeck	01027	2 Year	2021.08.02
4	Temperature and humidity barometer	MHB-382SD (OATS)	LUTRON	93434	1 Year	2021.09.16
5	EMI Test Receiver	ESR7	ROHDE&SCHWARZ	102138	1 Year	2021.05.28
6	Double Ridged Broadband Horn Antenna(KOLAS)	BBHA 9120D	Schwarzbeck	02087	1 Year	2021.06.05
7	Temperature and humidity barometer	MHB-382SD (3m full CH)	LUTRON	93444	1 Year	2021.09.16
8	EMI Test Receiver	ESRP3	ROHDE&SCHWARZ	102116	1 Year	2021.05.28
9	LISN(Without cord)	NSLK 8127	Schwarzbeck	00984	1 Year	2021.05.28
10	LISN(with cord)	NSLK 8127	Schwarzbeck	00984	1 Year	2021.09.24
11	LISN_SUB	NSLK 8127	Schwarzbeck	00983	1 Year	2021.05.28
12	Temperature and humidity barometer	MHB-382SD	LUTRON	93432	1 Year	2021.09.16
13	DUMY RESISTOR	PE6147	PASTERNACK	N/A	1 Year	2021.05.28
14	PULSE LIMITER	VTSD 9561-F	SCHWARZBECK	00623	1 Year	2021.03.10
15	Amplifier	TK-PA18M	TESTEK	160011-L	1 Year	2021.09.14

7. EMI DATA

7.1 Radiated Disturbance Measurements (Below 1 ㎓)

Freq	Reading(dBμV)		A	H	Antenna	Cable Loss	Amp Gain	Attenuator	Result	Limit	Margin
(MHz)	H	V	(°)	(m)	(dB/m)	(dB)	(dB)	(dB)	(dBμV/m)	(dB)	(dB)
87.29	-	34.80	41	1.50	8.38	1.27	26.73	0.00	17.72	40.00	22.28
216.39	-	39.80	211	3.56	10.47	2.08	26.30	0.00	26.05	46.00	19.95
273.36	36.20	-	52	3.88	12.60	2.53	26.15	0.00	25.18	46.00	20.82
298.32	34.90	-	117	3.57	13.41	2.78	26.20	0.00	24.89	46.00	21.11
311.33	35.18	-	248	3.96	13.73	2.67	26.27	0.00	25.31	46.00	20.69
365.39	34.12	-	211	3.84	14.99	2.99	26.62	0.00	25.48	46.00	20.52

TEST EQUIPMENT USED : 1, 2, 3, 4

7.2 Radiated Disturbance Measurements (Above 1 ㎓)

Not Applicable

TEST EQUIPMENT USED : N/A

- Due to the nature of the software, the [˚] symbol of the Test Conditions in the measurement data is denoted by ['], and the [μ] symbol of the graph and measured values is denoted by [u].

7.3 Conducted Disturbance Measurements

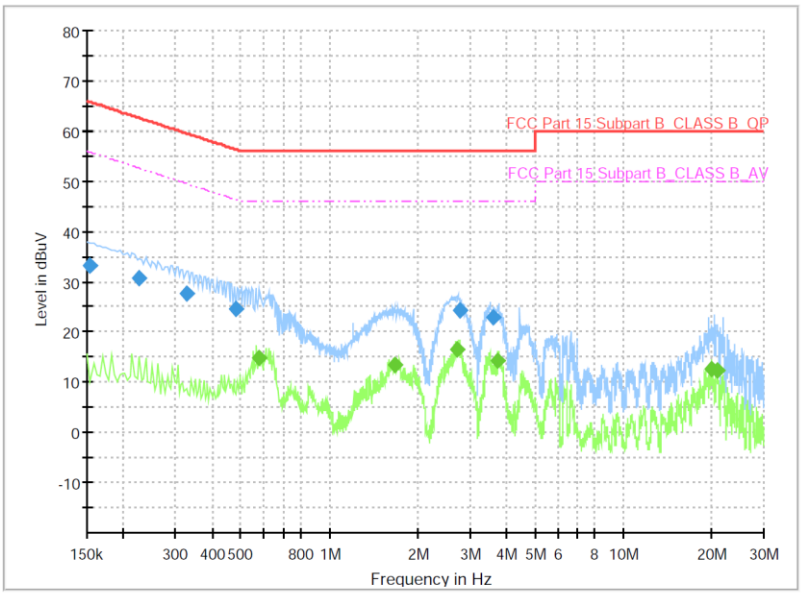
[LINE]

CE_L 1 / 1

Test Report

Common Information

Test Model:	CAMG-A1000
Test Standard:	FCC Part 15 Subpart B
Test Mode:	Operating + Charging
Test Conditions:	AC 120 V, 60 Hz / 24.2 'C, 43.9 % R. H.
Operator Name:	LEE Youngkyoung
Comment:	-
Order Number:	NE-200923-0982



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.154000	33.17	---	65.78	32.61	1000.0	9.000	L1	10.5
0.226249	30.64	---	62.60	31.96	1000.0	9.000	L1	10.5
0.325796	27.72	---	59.55	31.83	1000.0	9.000	L1	10.5
0.481214	24.49	---	56.31	31.82	1000.0	9.000	L1	10.5
0.573754	---	14.71	46.00	31.29	1000.0	9.000	L1	10.5
1.674751	---	13.55	46.00	32.45	1000.0	9.000	L1	10.6
2.720719	---	16.40	46.00	29.60	1000.0	9.000	L1	10.6
2.783226	24.19	---	56.00	31.81	1000.0	9.000	L1	10.6
3.612801	22.97	---	56.00	33.03	1000.0	9.000	L1	10.6
3.757359	---	14.26	46.00	31.74	1000.0	9.000	L1	10.6
19.899991	---	12.69	50.00	37.31	1000.0	9.000	L1	11.1
20.774000	---	12.21	50.00	37.79	1000.0	9.000	L1	11.1

2020-10-20

TEST EQUIPMENT USED : 8, 10, 12, 14

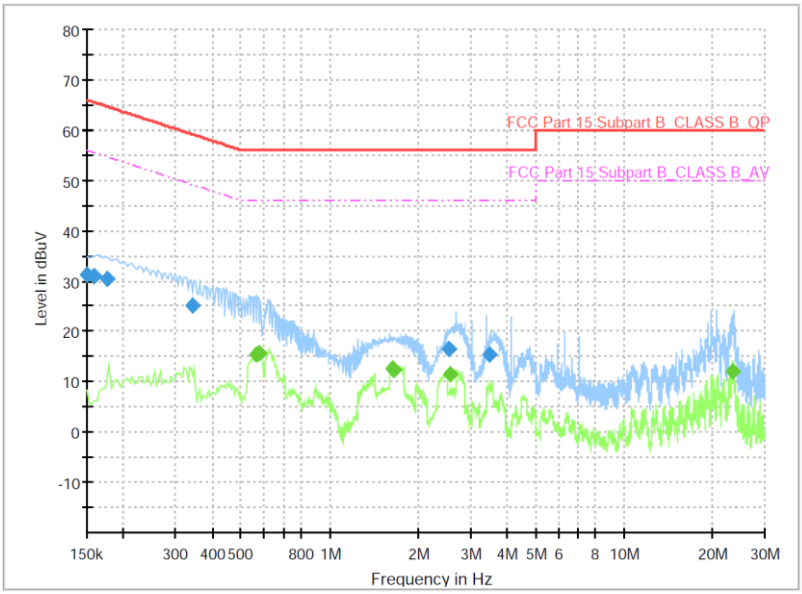
- Due to the nature of the software, the [˚] symbol of the Test Conditions in the measurement data is denoted by ['], and the [μ] symbol of the graph and measured values is denoted by [u].

CE_N 1 / 1

Test Report

Common Information

Test Model:	CAMG-A1000
Test Standard:	FCC Part 15 Subpart B
Test Mode:	Operating + Charging
Test Conditions:	AC 120 V, 60 Hz / 24.2 'C, 43.9 % R. H.
Operator Name:	LEE Youngkyoung
Comment:	-
Order Number:	NE-200923-0982



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.150000	31.12	---	66.00	34.88	1000.0	9.000	N	10.5
0.158000	31.09	---	65.57	34.48	1000.0	9.000	N	10.5
0.176000	30.47	---	64.67	34.21	1000.0	9.000	N	10.5
0.344000	25.26	---	59.11	33.85	1000.0	9.000	N	10.5
0.564000	---	15.48	46.00	30.52	1000.0	9.000	N	10.5
0.576000	---	15.53	46.00	30.47	1000.0	9.000	N	10.5
1.628000	---	12.47	46.00	33.53	1000.0	9.000	N	10.6
1.648000	---	12.44	46.00	33.56	1000.0	9.000	N	10.6
2.532000	16.37	---	56.00	39.63	1000.0	9.000	N	10.6
2.584000	---	11.52	46.00	34.48	1000.0	9.000	N	10.6
3.500000	15.48	---	56.00	40.52	1000.0	9.000	N	10.6
23.492000	---	12.02	50.00	37.98	1000.0	9.000	N	11.2

2020-10-20

TEST EQUIPMENT USED : 8, 10, 12, 14

- Due to the nature of the software, the [˚] symbol of the Test Conditions in the measurement data is denoted by ['], and the [μ] symbol of the graph and measured values is denoted by [u].

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8. PHOTOGRAPHS

Photograph of the Radiated Disturbance Measurements (Maximum emission configuration) – Below 1 ㎓

[Front]

[Rear]

[Front]

[Rear]

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EUT Photo

Front of EUT

Rear of EUT

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Internal of EUT

Position of Label

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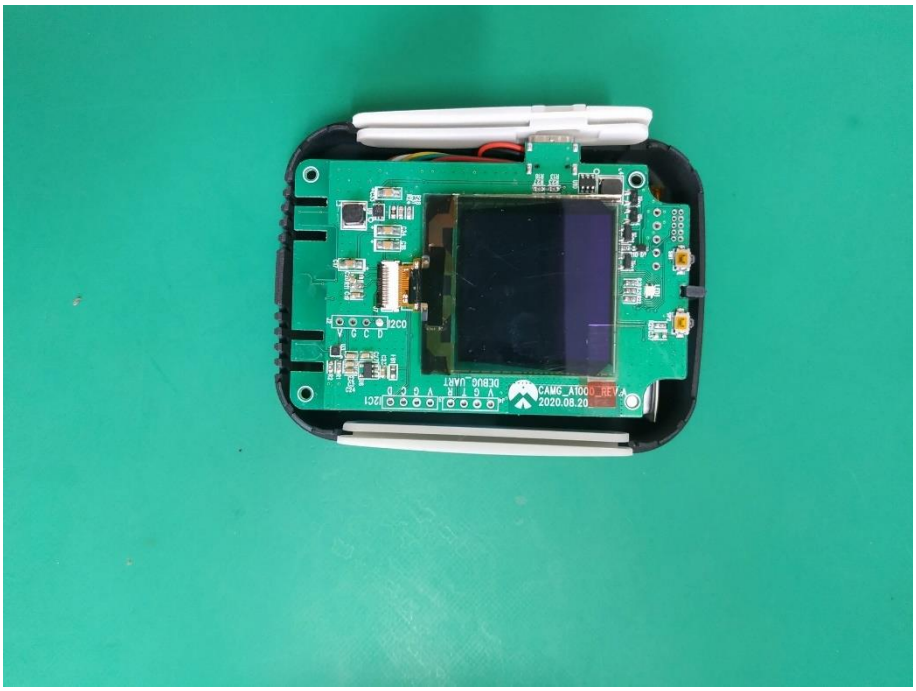
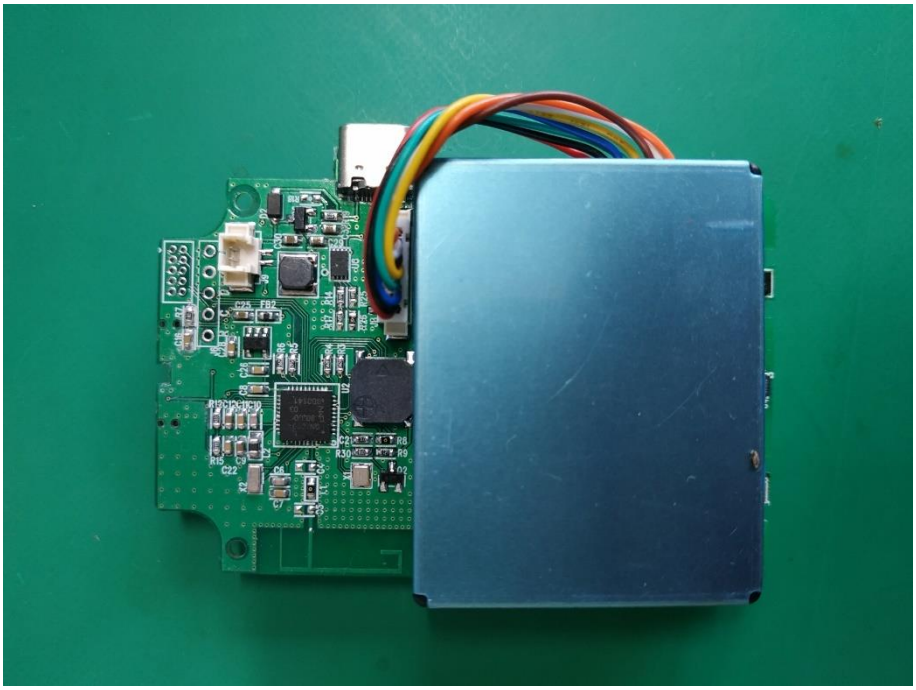
Front of Main Board



Rear of Main Board



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