# *Verification*

## *With The 47 CFR, Part2 and Part15 Of FCC Requirement*

Hereby certifies that

**Type of Product: Dome Network Camera (Class A digital devices)**

**Model No.: MNC-300**

Manufactures and address

**MicroWeb Co., Ltd.**
**909 Kranz Techno Bldg., 5442-1 Sangdaewon-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do, 462-729 Korea.**

**This document is the proof that above product, system, and also relates OEM models are complying with FCC requirement. We, LTA Co., Ltd is the accredited EMC laboratory for NVLAP(US), RRL(KOREA).**
**We certify that the above products had performed test on our laboratory and it was confirmed to comply with FCC requirement. These products might be marketed at the US accordance to DoC of FCC Rule based on the standard 47CFR Part 2 and 15. The test was performed accordance to the procedures from ANSI C63.4-2003. Test data and results are issue on the EMC test report No. as follows.**

**Reference Endorsed Test Report No. is LR500110806C**

**Date: June 13, 2008**

**Dong –Min JUNG, Technical Manager**
**LTA Co., Ltd.**

NVLAP LAB Code.: 200723-0

# TEST REPORT

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

| | | |
|---|---|---|
| **Test Report No.** | **:** | **LR500110806C** |
| **Issue Date** | **:** | **June 13, 2008** |
| **Applied Standard** | **:** | **FCC Part 15, Subpart B** |
| **Trade Name** | **:** | **MicroWeb Co., Ltd** |
| **Category** | **:** | **Dome Network Camera (Class A digital devices)** |
| **Model Name** | **:** | **MNC-300** |
| **Serial Number** | **:** | **Identification** |

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# LTA Certification

## Client / Factory

| | | |
|---|---|---|
| Company name | : | MicroWeb Co., Ltd. |
| Address | : | 909 Kranz Techno Bldg., 5442-1 Sangdaewon-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do, 462-729 Korea. |
| Telephone / Facsimile | : | +82-31-735-7200 / +82-31-735-7600 |

## Equipment Under Test (EUT)

| | | |
|---|---|---|
| Trade name | : | MicroWeb Co., Ltd. |
| Category | : | Dome Network Camera (Class A digital devices) |
| Brand | : | Webview |
| Model name | : | MNC-300 |
| Additional Model name | : | - |
| Serial number | : | Identification |
| Date of receipt | : | May 19, 2008 |
| EUT condition | : | Pre-production, not damaged |
| Interface port | : | LAN, MIC, IR, POWER, BNC |
| Power Source | : | INPUT : 100-240v, 50-60Hz, 1.0A<br>OUTPUT : 12V, 2.5A |
| Test memory Size | : | - |
| Operating mode | : | Web camera + Ping mode |
| Crystal/Oscillator(s) | : | Main : 14.318180 MHz, 28.750BMHz, 2.048BMHz, 10AMHz, 25MHz<br>Sub : 28.375MHz, 27 MHz |

*** To be continued next page***

# LTA Certification-cont.-

## Model Specification

**Specifications**

**Standards**
- IEEE 802.3 (10Base-T Ethernet)
- IEEE 802.3u (100Base-TX Fast Ethernet)
- IEEE 802.3af (Power over Ethernet)
- IP66 (Ingress Protection)

**General**
- 32-bit ARM9 RISC CPU
- 16 MByte video frame buffer
- 8 Mbyte flash memory
- 32 Mbyte SDRAM
- Supported image resolutions: NTSC D1 (720 x 480), PAL D1 (720 x 576), VGA, CIF
- Audio support:
  - Full duplex
  - Bandwidth: 300 Hz to 3.4 KHz
  - Audio input: 3.5 mm / 1.8" microphone input jack
  - Audio output: 3.5 mm / 1.8" speaker output jack
- IR distance : Max. 30M Effective 25M
- Protocols supported: TCP/IP, UDP, HTTP, FTP, SMTP, DHCP, DNS, ARP, ICMP, RTSP, RTC
- Certifications: FCC Class B, RF: EN300328, EMC: EN301489-1/-7, Safety: EN60950-1

**Image Sensor and Lens Specification**
- 1/3" SONY Super HAD CCD sensor
- S/N ratio: > 48 dB
- Video output: 1.0 Vp-p (75 Ohms, composite)
- Automatic white balance control
- Image Control, Brightness, Contrast, Saturation, Hue
- Min. Illumination 0.5 Lux / 0.00001 Lux for TDN

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- Electronic shutter: 1/60 ~ 1/10.000 sec.
- Lens : 4.0~9.0mm Vari-focal Auto Iris Lens (DC Drive)

**LED's**
- Power
- Network connection
- Camera operation

**Environmental**
- Dimensions: 160(D)mm*110mm(H) (6.29inch * 4.33inch)
- Weight: 990g (Bracket not included)
- Operating temperature: -10°C~+50°C
- Storage temperature: -10°C~+50°C

**Power**
- External power adapter: 12 V DC, 2.0 A
- Power consumption: 4.0 Watts (maximum)

**System Requirements**
- Windows 2000, XP, Vista
- Computer with network connection
- Web browser support:
  - MS Internet Explorer 5.0 or higher (ActiveX)
  - Netscape Navigator, Mozilla, Firefox, Opera (Java for JPEG only)

**Package Contents**
- Vandal Dome Network Camera
- User manual
- External power adapter
- Software CD

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## Test Performed

| | | |
|---|---|---|
| Test started & completed | : | May 19 ~ 23, 2008 |
| 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 A |
| Deviations from Standard Test Method | : | N/A |

*** To be continued next page ***

# LTA Certification-cont.-

## Test Results

| Measurement | Results* | Test method |
|---|---|---|
| Radiated disturbance | Complies | ANSI C 63.4:2003 |
| Conducted disturbance | Complies | ANSI C 63.4:2003 |

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

## Modification performed by the lab.;

- N.A

## Laboratory's Certificate

Report number : LR500110806C

Issue date : June 13, 2008

This test report is issued under the authority of:

Dong –Min JUNG, Technical Manager

The test was supervised by:

Bok – Soo KIM, Test Engineer

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

# General information's

## Purpose

This document is based on the Electromagnetic Interference (EMI) tests performed on the "**MNC-300**". The measurements were performed according to the measurement procedure described in ANSI C 63.4:2003. The tests were carried out in order to confirm whether the electromagnetic emissions from the EUT( Equipment Under Test), are within the class A 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 | : | 243, Jubug-ri,Yangji-Myeon,Youngin-Si, Kyunggi-Do, Korea. 449-822 |
| Telephone | : | +82-31-323-6008 |
| Facsimile | | +82-31-323-6010 |

## Measurement uncertainty

| | | | |
|---|---|---|---|
| Radiated disturbance | (30 – 1000MHz) | : | +4.52 [dB] ,-4.43 [dB] (k=2) |
| Conducted disturbance | (0.15 – 30MHz) | : | +0.11 [dB] ,-0.11 [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 | 2008-09-30 | ECT accredited Lab. |
| RRL | KOREA | KR0049 | 2009-06-20 | EMC accredited Lab. |
| FCC | U.S.A | 610755 | 2011-04-22 | FCC filing |
| VCCI | JAPAN | R2133, C2307 | 2011-06-22 | VCCI registration |
| IC | CANADA | IC5799A-1 | 2010-05-23 | IC filing |

# Brief Information

## 1-1 Test Summary

| Parameter | Applied Standard | Status (note 1) |
|---|---|---|
| **I. Emission** | | |
| Radiated disturbance | FCC Part 15.109 | C |
| Conducted disturbance | FCC Part 15.107 | C |
| Note 1: C=Complies NC=Not Complies NT=Not Tested NA=Not Applicable<br>* 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

5th harmonic of the highest frequency or 40 GHz, whichever is lower

Bandwidth:

Measured by the CISPR quasi-peak function Bandwidth is 10kHz in the frequency 0.15MHz to 30MHz and 120kHz in the frequency 30MHz to 1,000MHz.

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

A sample calculation:

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

Emission Level= meter reading + COR.F

## 1-2 Operating Mode of the EUT

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

| Name of mode in the report | Description |
|---|---|
| Web camera + Ping | - |

## 1-3 Modification

- None

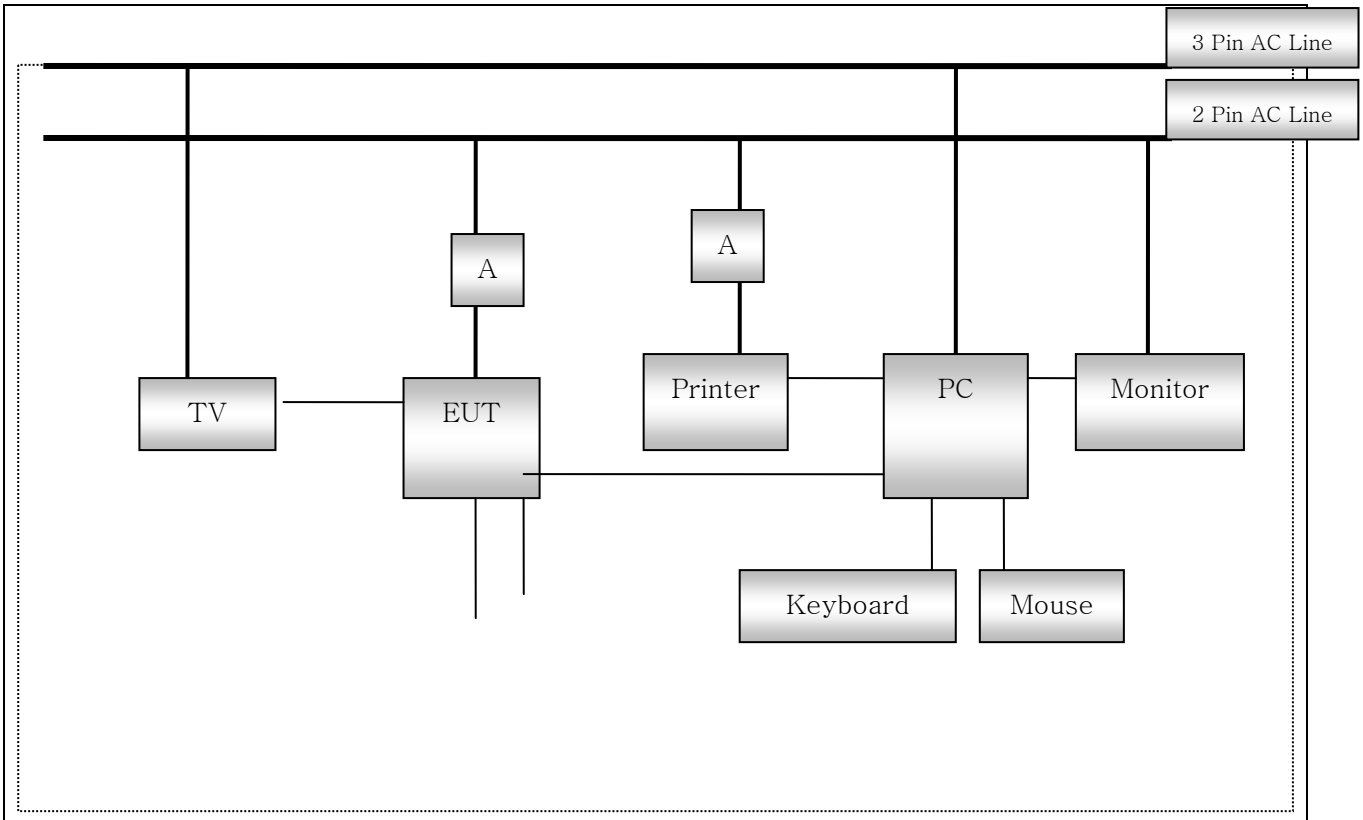
## 1-4 List of EUT and accessory

| **EUT** | | | | |
|---|---|---|---|---|
| **Category** | **Model Name** | **Serial No.** | **Manufacturer** | **Remarks** |
| Dome Network Camera | MNC-300 | N/A | MicroWeb Co., Ltd. | – |
| **ACCESSORY** | | | | |
| **Category** | **Model Name** | **Serial No.** | **Manufacturer** | **Remarks** |
| PC | HP Compaq dx2200 Microwtower | CNG6500WPK | HP | – |
| Monitor | VS11353 | E060T0404 | VIEWSONIC | – |
| Keyboard | SK-8115 | 641-OEW | DELL | – |
| Mouse | M056UOA | FOJOONOL | DELL | – |
| Printer | DESKJET 600K | SG7631B1XX | HP | – |
| TV Monitor | N/A | N/A | N/A | – |

## 1-5 Cable List

| Cable List | | | | |
|---|---|---|---|---|
| Type | Length | Shielding (Cable/backshell) | Remarks | |
| | | | From | to |
| ADAPTER | 1.70 | YES / NO | DC | ADAPTER |
| LAN | 5.70 | YES / NO | LAN | LAN |
| MIC | 0.95 | NO / NO | MIC | MIC |
| IR | 1.45 | NO / NO | IR | IR |

## 1-6 Block diagram of the EUT test




A : Adapter

Note) refer to the Test setup photograph.

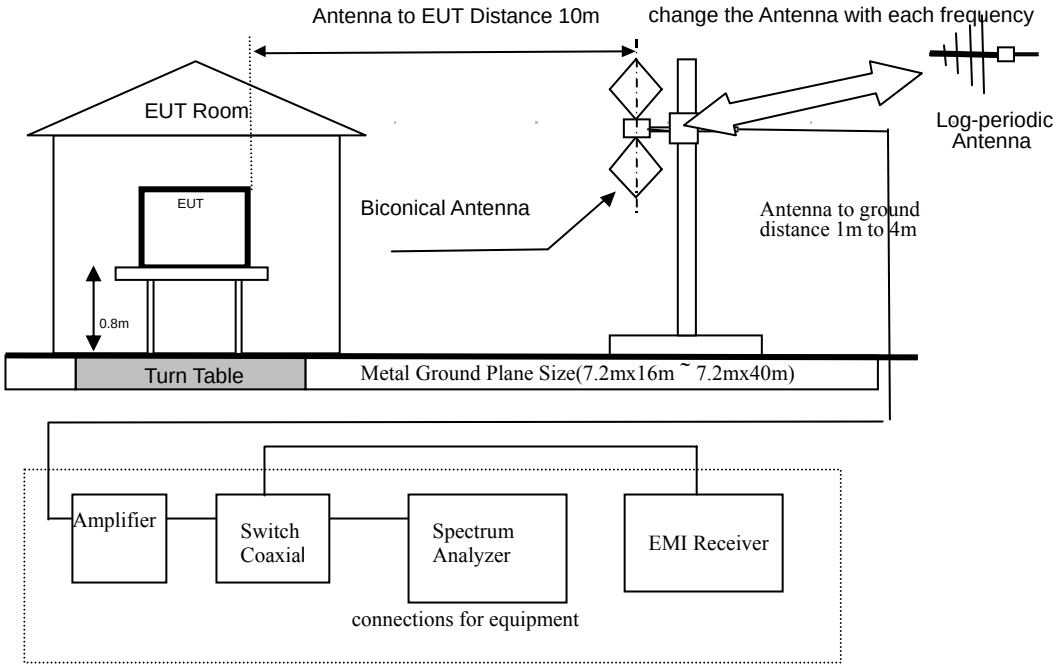
## 2- Test Site Description

### 1-Facility

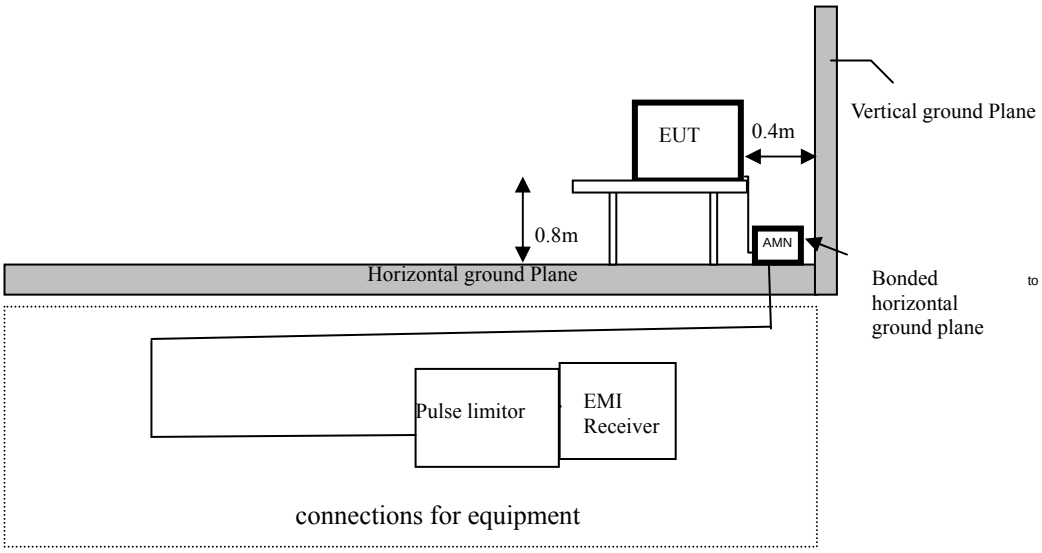
All the testing facilities are periodically serviced as a daily check for equipment and cables systems, an every 6 months facility check for the facilities and a monthly check and annual calibration for testing equipment according to ISO/IEC 17025. All the testing facilities are used as the same specifications shown below. There are descriptions both for radiated disturbance measurement and conducted disturbance measurement conformed by ANSI C 63.4:2003.

The NSA measurement of the OATS was performed on Feb 8, 2008 according to ANSI C63.4 : 2003.

### 2-1 Radiated Disturbance Measurement




### 2-2 Conducted Disturbance Measurement



# 3- Test Procedure

## 3-1 Radiated Disturbance Measurements

・Test site is met the requirements of ANSI C 63.4:2003 and the distance between the EUT and the antenna is adjusted 3m.

・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 spectrum analyzer with peak detectors (100kHz bandwidth) and an EMI receiver with quasi-peak detectors(120kHz 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 30MHz to 1000MHz, the Horn antenna is used in the frequency range of 1GHz to 13GHz.

・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 5-8) about details of the EUT and configuration of the cables.

・Measurement is carried out by a LTA operator as manual operation.

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

–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 (120kHz bandwidth) according to ANSI C 63.4:2003.

–measuring to vertical and horizontal polarization.

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

(Measurement result= measured value + antenna factor + antenna cable loss)

## 3-2 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 (50Ω/50μH) as defined in ANSI C 63.4:2003, 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 1MHz and the frequency range from 150kHz to 1MHz , 1MHz to 5MHz and 5MHz to 30MHz.

–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 9kHz bandwidth by the EMI receiver.

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

(Result = Reading + Cor.F.)

(Margin = Limit- Result)

## 4- List of Equipment Used For the Tests

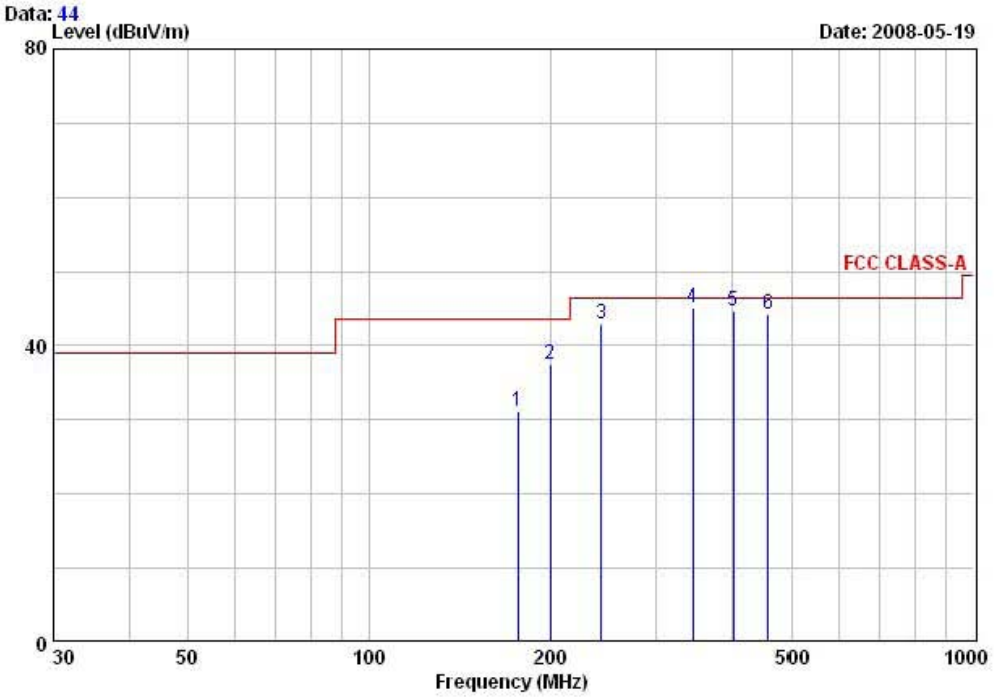
| | Item | Model Name | Serial No. | Manufacturer | Interval | Last Cal. |
|---|---|---|---|---|---|---|
| 1 | Spectrum Analyzer | 8594E | 3624A03247 | HP | 1 year | Oct-12-07 |
| 2 | Test Receiver | ESHS10 | 828404009 | R&S | 1 year | Aug-24-07 |
| 3 | Two-Line V-Network | ENV216 | 100408 | R&S | 1 year | Dec-07-07 |
| 4 | Two-Line V-Network | ESH3-Z5 | 893045/017 | R&S | 1 year | Oct-12-07 |
| 5 | EMI Test Receiver | ESVD | 843748/001 | R&S | 1 year | Aug-24-07 |
| 6 | Spectrum Analyzer | 8591E | 3649A05888 | HP | 1 year | Oct-12-07 |
| 7 | RF Amplifier | 8447D | 2949A02670 | HP | 2 year | Jan-25-07 |
| 8 | RF Amplifier | 8447D | 2439A09058 | HP | 1 year | Oct-12-07 |
| 9 | TRILOG Antenna | VULB9160 | 9160-3212 | SCHWARZBECK | 2 year | Jul-05-06 |
| 10 | RF Switch | MP59B | 6200414971 | ANRITSU | 2 year | May-28-07 |
| 11 | Splitter | ZFM-150 | 15542 | Mini-Circuits | 1 year | Apr-02-08 |
| 12 | RF Amplifier | 8449B | 3008A02126 | HP | 1 year | Apr-03-08 |
| 13 | Horn Antenna | 3115 | 00055005 | ETS | 2 year | Mar-15-07 |

## 5-1 Radiated Disturbance Measurements

243 Jubug-ri, yangji-Myeon, Youngin-si,
Gyeonggi-do 449-822 Korea
Tel :+82-31-3236008,9
Fax:+82-31-3236010

EUT/Model No.: MNC-300 TEST MODE: Web camera+ping mode

Temp Humi : 11 / 46 Tested by: KIM.B.S




| | Freq | Reading | C.F | Result QK | Limit | Margin | Height | Angle | Polarity |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | cm | deg | |
| 1 | 176.53 | 43.00 | -11.88 | 31.12 | 43.50 | 12.38 | 400 | 134 | HORIZONTAL |
| 2 | 200.01 | 51.30 | -13.80 | 37.50 | 43.50 | 6.00 | 400 | 333 | HORIZONTAL |
| 3 | 243.00 | 54.70 | -11.68 | 43.02 | 46.40 | 3.38 | 400 | 221 | HORIZONTAL |
| 4 | 345.01 | 53.50 | -8.48 | 45.02 | 46.40 | 1.38 | 306 | 306 | HORIZONTAL |
| 5 | 402.52 | 52.00 | -7.29 | 44.71 | 46.40 | 1.69 | 254 | 240 | HORIZONTAL |
| 6 | 460.01 | 50.20 | -6.00 | 44.20 | 46.40 | 2.20 | 222 | 359 | HORIZONTAL |

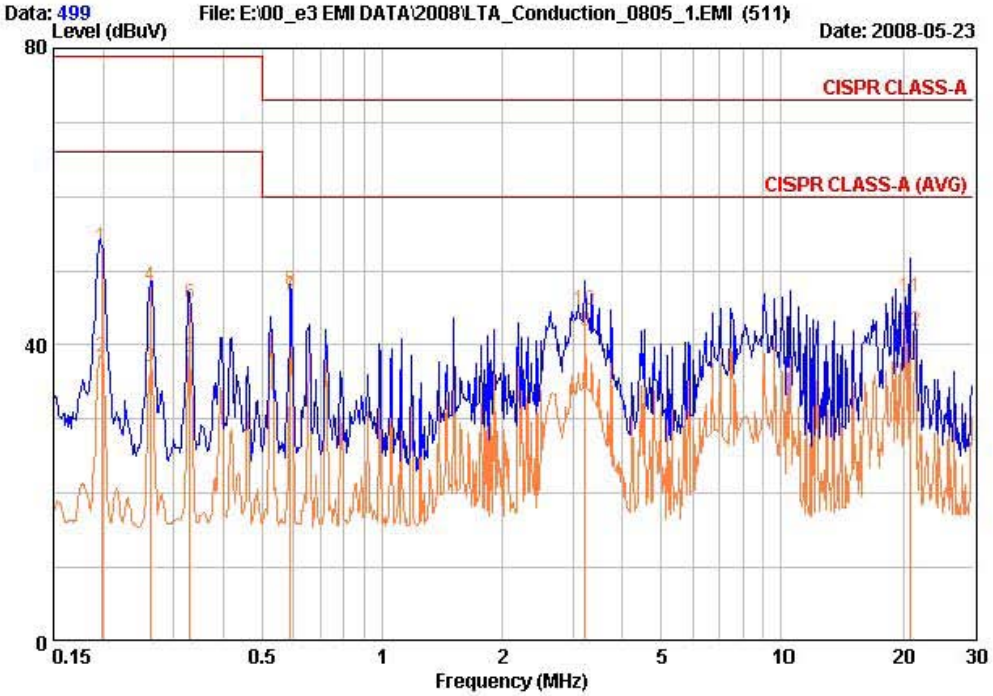
Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

## 5-2 Conducted Disturbance Measurements

243 Jubug-ri, yangji-Myeon, Youngin-si,
Gyeonggi-do 449-822 Korea
Tel :+82-31-323-6008
Fax:+82-31-323-6010

| | | | |
|---|---|---|---|
| EUT / Model No. | : MNC-300 | Phase | : LINE |
| Test Mode | : web camera+ping mode | Test Power | : 120 / 60 |
| Temp./Humi. | : 22 / 62 | Test Engineer | : B.S.KIM |




| Freq | RD QP | RD AV | C.F | Result QP | Result AV | Limit QP | Limit AV | Margin QP | Margin AV |
|---|---|---|---|---|---|---|---|---|---|
| MHz | dBuV | dBuV | dB | dBuV | dBuV | dBuV | dBuV | dB | dB |
| 0.198 | 52.90 | 38.10 | 0.20 | 53.10 | 38.30 | 79.00 | 66.00 | 25.90 | 27.70 |
| 0.262 | 47.80 | 36.90 | 0.24 | 48.04 | 37.14 | 79.00 | 66.00 | 30.96 | 28.86 |
| 0.330 | 45.20 | 38.10 | 0.31 | 45.51 | 38.41 | 79.00 | 66.00 | 33.49 | 27.59 |
| 0.589 | 47.10 | 46.30 | 0.29 | 47.39 | 46.59 | 73.00 | 60.00 | 25.61 | 13.41 |
| 3.221 | 44.10 | 41.30 | 0.61 | 44.71 | 41.91 | 73.00 | 60.00 | 28.29 | 18.09 |
| 20.805 | 44.80 | 40.20 | 1.55 | 46.35 | 41.75 | 73.00 | 60.00 | 26.65 | 18.25 |

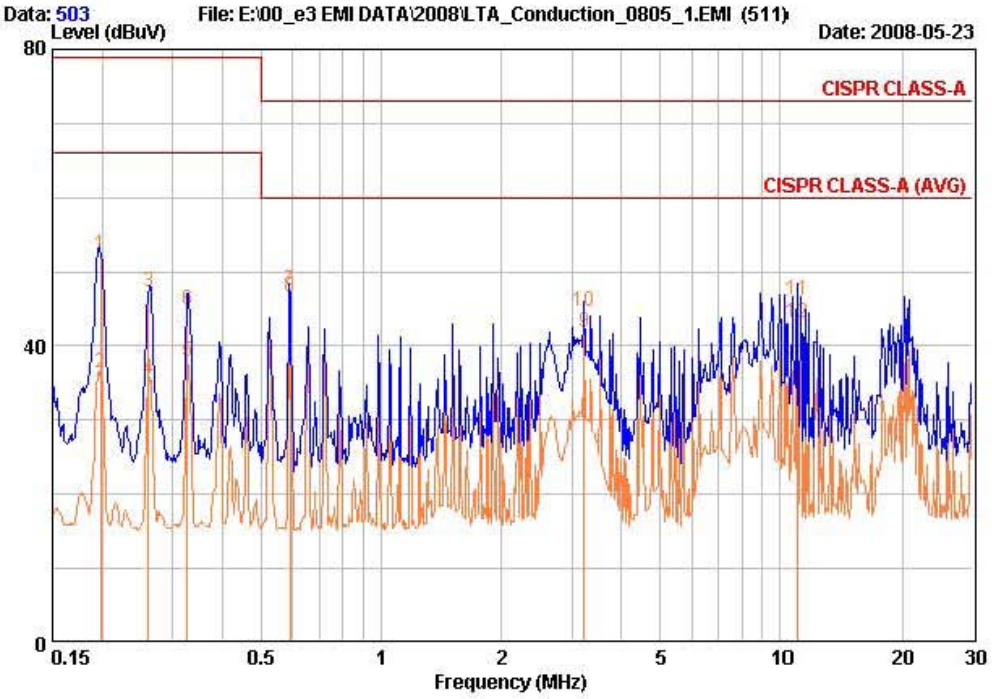
Remarks: C.F (Correction Factor) = Insertion loss + Cable loss

## 5-2 Conducted Disturbance Measurements - Continue

243 Jubug-ri, yangji-Myeon, Youngin-si,
Gyeonggi-do 449-822 Korea
Tel :+82-31-323-6008
Fax:+82-31-323-6010

| | | | |
|---|---|---|---|
| EUT / Model No. | : MNC-300 | Phase | : NEUTRAL |
| Test Mode | : web camera+ping mode | Test Power | : 120 / 60 |
| Temp./Humi. | : 22 / 62 | Test Engineer | : B.S.KIM |




| Freq (MHz) | RD QP dBuV | RD AV dBuV | C.F dB | Result QP dBuV | Result AV dBuV | Limit QP dBuV | Limit AV dBuV | Margin QP dB | Margin AV dB |
|---|---|---|---|---|---|---|---|---|---|
| 0.198 | 52.20 | 36.20 | 0.19 | 52.39 | 36.39 | 79.00 | 66.00 | 26.61 | 29.61 |
| 0.261 | 47.00 | 35.40 | 0.23 | 47.23 | 35.63 | 79.00 | 66.00 | 31.77 | 30.37 |
| 0.327 | 44.70 | 37.60 | 0.30 | 45.00 | 37.90 | 79.00 | 66.00 | 34.00 | 28.10 |
| 0.590 | 47.20 | 46.30 | 0.27 | 47.47 | 46.57 | 73.00 | 60.00 | 25.53 | 13.43 |
| 3.219 | 44.00 | 41.30 | 0.59 | 44.59 | 41.89 | 73.00 | 60.00 | 28.41 | 18.11 |
| 10.909 | 45.40 | 42.20 | 0.91 | 46.31 | 43.11 | 73.00 | 60.00 | 26.69 | 16.89 |

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

## Conclusions

Product models " **MNC-300** " meets all of the Class A 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", page3.)

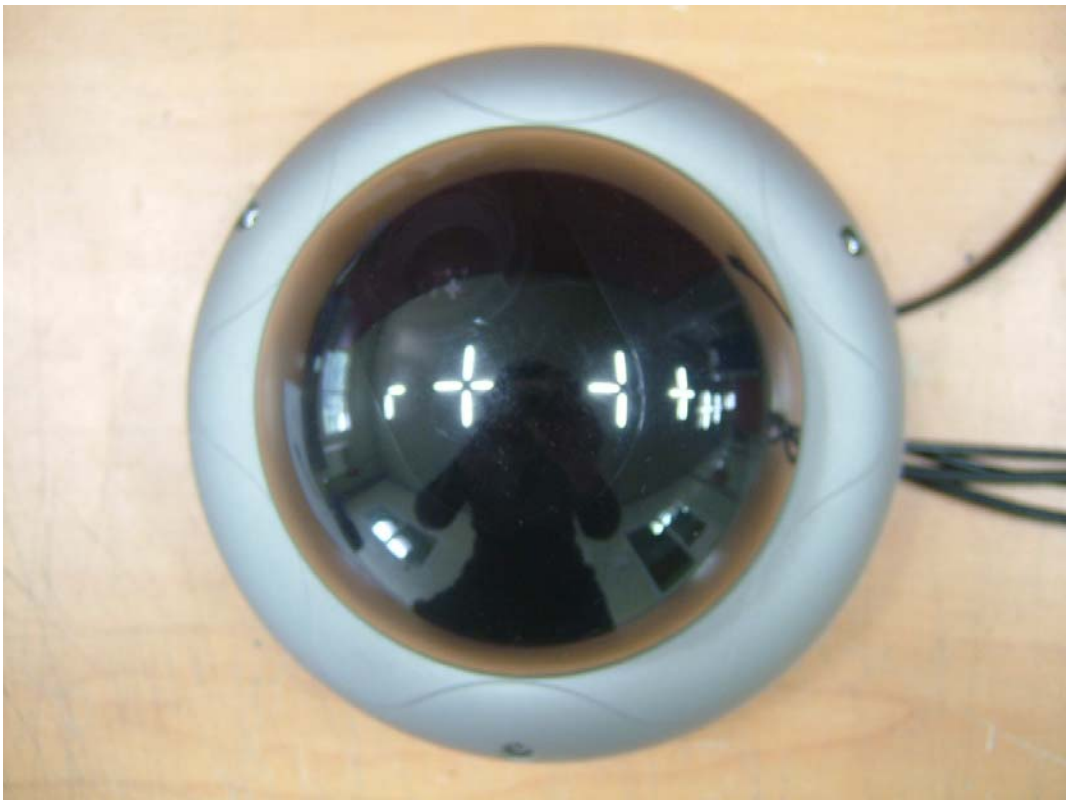
 

## Photograph of the Radiated Disturbance Measurements

## Photograph of the Conducted Disturbance Measurement

## Photograph of the Equipment Under Test



## Photograph of the Equipment Under Test

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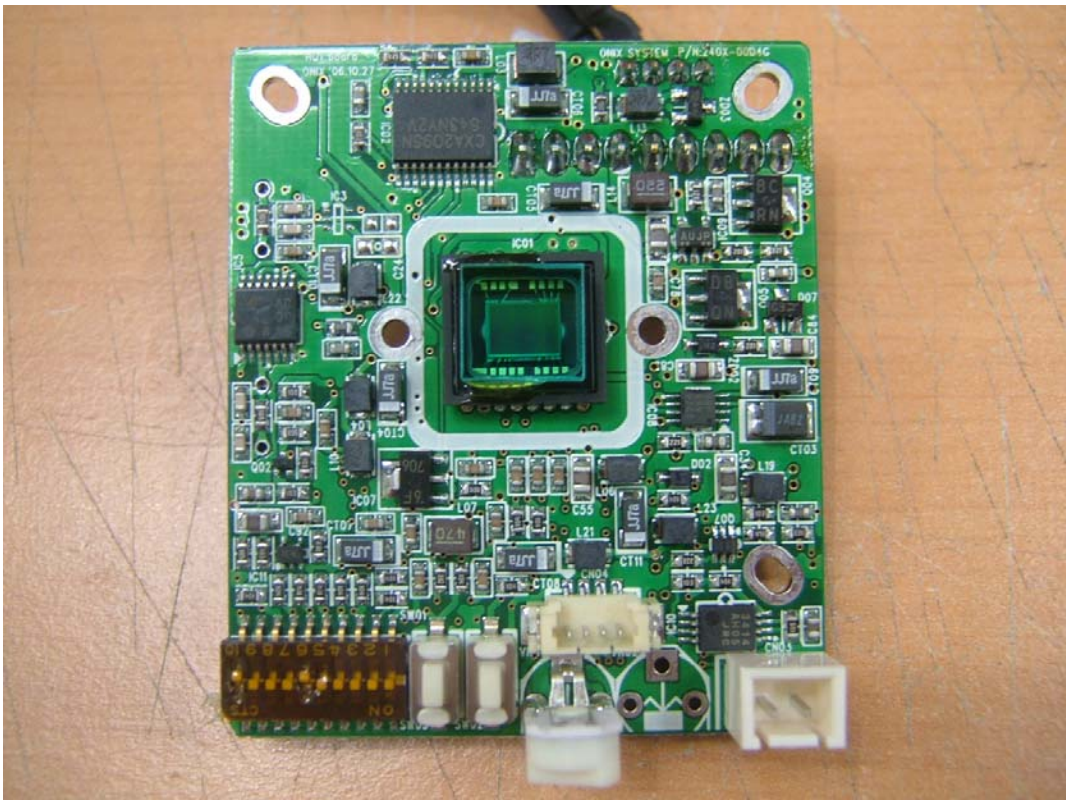

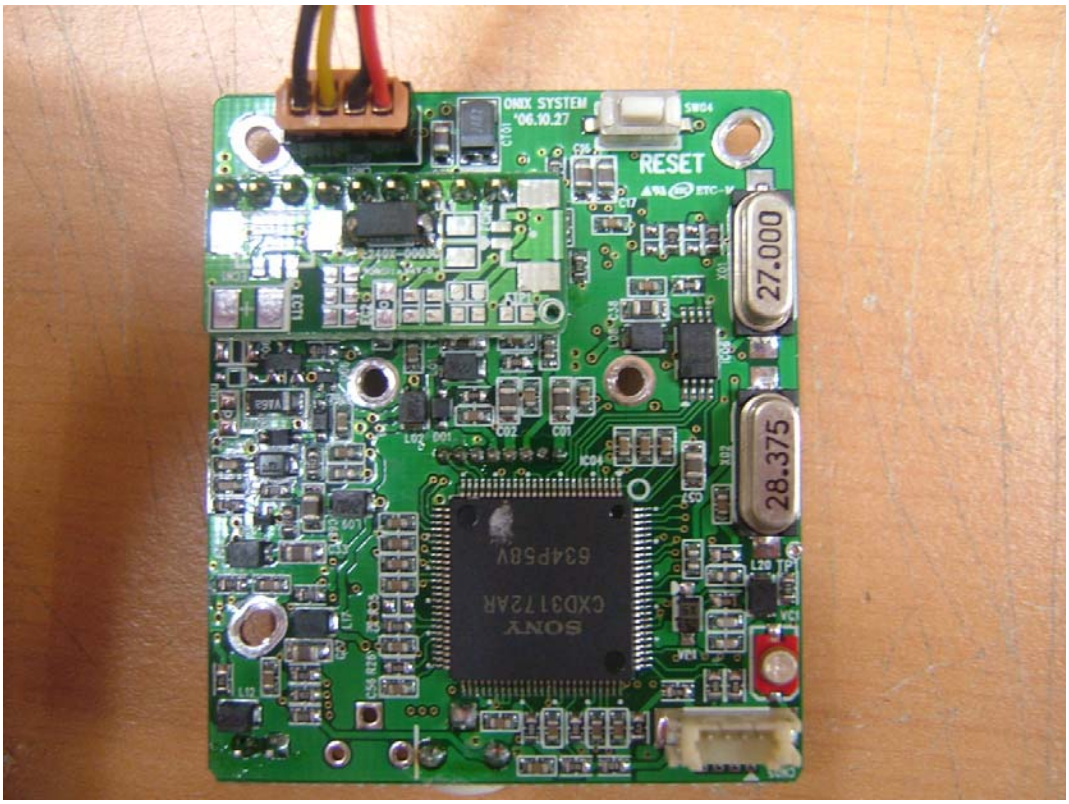

## Photograph of the Equipment Under Test

 

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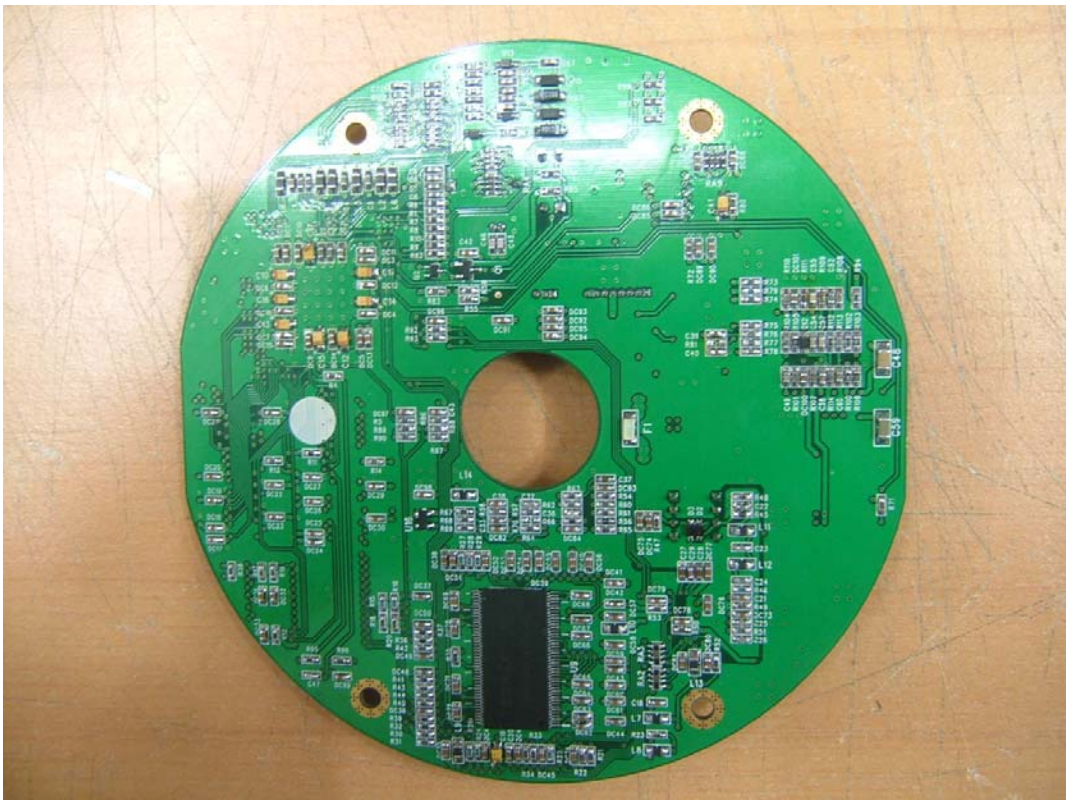

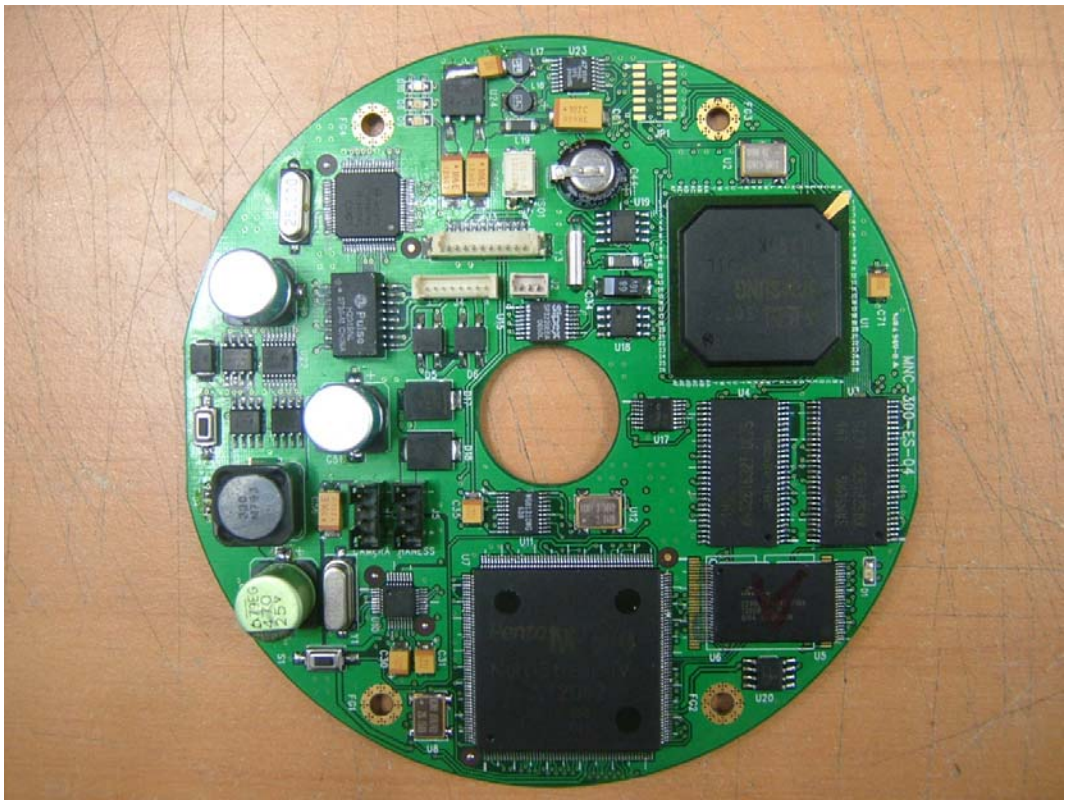

## Photograph of the Equipment Under Test


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