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CE EMC Test Report



at the first

For Electromagnetic Interference

Of

Product : LCD Monitor

Trade Name : AOC

Model Number : 215LM00056

Prepared for

Wuhan Hengfa Technology Co., Ltd.

Zhuankou Development of Economic Technological Development Zone Wuhan City, P.R.China

Prepared by

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TEST RESULT CERTIFICATION

| Applicant's name: | Wuhan Hengfa Technology Co., Ltd. |
|---|--|
| Address: | Zhuankou Development of Economic Technological Development Zone Wuhan City, P.R.China. |
| Manufacturer's Name: | Wuhan Hengfa Technology Co., Ltd. |
| Address: | Zhuankou Development of Economic Technological Development Zone Wuhan City, P.R.China. |
| Product description | |
| Product name: | LCD Monitor |
| Model and/or type reference : | 215LM00056 |
| | EN 55022:2010+AC:2011 |
| Standards | EN 55024:2010+A1:2015 |
| Standards | EN 61000-3-2:2014 |
| | EN 61000-3-3:2013 |
| This second all all all the second second | |

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| 10 Sep. 2016~27 Sep. 2016 |
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| 27 Sep. 2016 |
| Pass |
| |

Testing Engineer

Krang. Hu

(Mary Hu)

Technical Manager

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(Sam Chen)



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5 . EUT TEST PHOTO ATTACHMENT PHOTOGRAPHS OF EUT



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1. TEST SUMMARY

Test procedures according to the technical standards:

| | EMC Emission | | | |
|----------------------------------|---|--|----------|----------|
| Standard | Test Item | Limit | Judgment | Remark |
| the states | Conducted Emission On AC And Telecom Port 150kHz to 30MHz | Class B | PASS | in t |
| EN 55022:2010+AC:2011 | Radiated Emission 30MHz to 1000MHz | Class B | PASS | 22 |
| t to to to | Radiated Emission 1GHz to 6GHz | Class B | PASS | NOTE (1) |
| EN 61000-3-2:2014 | Harmonic Current Emission | Class A | N/A | 4 4 |
| EN 61000-3-3:2013 | Voltage Fluctuations & Flicker | 4 | PASS | 22 |
| | EMC Immunity | | | |
| Section EN 55024:2010+A1:2015 | Test Item | Performance Criteria | Judgment | Remark |
| EN 61000-4-2 | Electrostatic Discharge | В | PASS | 5 5 |
| EN 61000-4-3 | RF electromagnetic field | - A- | PASS | L. |
| EN 61000-4-4 | Fast transients | | PASS | 2 3 |

| | i dot transformo | | 17100 | |
|---------------|--|-----------------------|-------|---|
| EN 61000-4-5 | Surges | В | PASS | |
| EN 61000-4-6 | Continuous radio frequency disturbances | H AL | PASS | A C |
| EN 61000-4-8 | Power Frequency Magnetic Field | A A | PASS | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ |
| EN 61000-4-11 | Volt. Interruptions Volt. Dips | B / C / C NOTE (3) | PASS | A A |

NOTE:

- (1) If the highest frequency of the internal sources of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz.
- If the highest frequency of the internal sources of the EUT is between 108 MHz and 500 MHz, the measurement shall only be made up to 2 GHz.
- If the highest frequency of the internal sources of the EUT is between 500 MHz and 1 GHz, measurement shall only be made up to 5 GHz.
- If the highest frequency of the internal sources of the EUT is above 1 GHz, the measurement shall be made up to 5 times the highest frequency or 6 GHz, whichever is less. (2) The power consumption of EUT is less than 75W and no Limits apply.
- (3) Voltage dip: 100% reduction Performance Criteria B
 - Voltage dip: 30% reduction Performance Criteria C
 - Voltage Interruption: 100% Interruption Performance Criteria C
- (4)" N/A" denotes test is not applicable in this Test Report
- (5) For client's request and manual description, the test will not be executed.



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1.1 TEST FACILITY

NTEK Testing Technology Co., Ltd. Add. : 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen P.R. China.

FCC Registration Number: 238937; IC Registration Number: 9270A-1 CNAS Registration Number: L5516

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $\mathbf{y} \pm \mathbf{U}$, where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

| Test Item | Measurement Frequency Range | к | U(dB) |
|---------------------------------------|--------------------------------|-----|-------|
| AC Mains Conducted Emission | 0.009kHz ~ 0.15MHz | 2 | 2.66 |
| AC Mains Conducted Emission | 0.15MHz ~ 30MHz | 2 | 2.80 |
| Telecom Conducted Emission (Cat 3) | 0.15MHz ~ 30MHz | L 2 | 2.40 |
| Telecom Conducted Emission (Cat 5) | 0.15MHz ~ 30MHz | 2 | 2.58 |
| Radiated Emission | 30MHz ~ 1000MHz | 2 | 2.64 |
| Radiated Emission | 1000MHz ~ 6000MHz | 2 | 2.40 |
| Radiated Emission | 6000MHz ~ 18000MHz | 2 | 2.52 |
| Power Clamp | 30MHz ~ 300MHz 🔷 | 2 | 2.20 |



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2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

| Equipment | LCD Monitor |
|---------------------|---|
| Model Name | 215LM00056 |
| Additional Model | N/A ~ ~ ~ ~ ~ ~ ~ |
| Number(s) | |
| Model Difference | N/A ST ST ST ST ST |
| Product Description | Operating frequency: 148.5MHz Connecting I/O port: VGA Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual. |
| Power Source | AC Voltage |
| Power Rating | Input: AC 100-240V, 50/60Hz |
| | Output: DC 19VDC,1.3A |

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2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

| Description |
|---------------------------------|
| VGA(800*600 1280*800 1920*1080) |
| |
| For Conducted Test |
| Description |
| VGA VGA |
| |
| For Radiated Test |
| Description |
| VGA(800*600 1280*800 1920*1080) |
| |
| For EMS Test |
| Description |
| VGA (VGA |
| |



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2.3 DESCRIPTION OF TEST SETUP

Mode CE: VGA





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2.4 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| 4 | Item | Equipment | Brand | Model/Type No. | Series No. | Note |
|---|------|-------------------|-------|----------------|--------------------------|------|
| | E-1 | LCD Monitor | AOC | 215LM00056 | N/A ^S < | EUT |
| 4 | E-2 | Adapter | N/A | ADS-25FSG-19 | N/A | Y. |
| • | E-3 | Personal computer | DELL | 🔷 D06S 🚄 | 34531671097 | 1. |
| 2 | E-4 | Printer | Canon | L11121E | LBP2900 | Y. |
| - | E-5 | Keyboard | DELL | SK-8185 | OY526KUS | 1 |
| 2 | E-6 | Mouse | DELL | MS111-P | cn-011d3v-71581-11e-1th7 | T. |
| | 1 | | | | | 1.5 |
| | t | x x x | x x | * * | x x x | Y. |
| | 3 | N SN SN | ST ST | St St S | | |
| | + | * * * | * * | | x x x | t, |

| ١, | | | | | | _ | | | | | | | | - |
|----|------|------|-----------|--|-----------|-----|-----|--------|----|-----|----|------|-----|------|
| | Item | Sł | hielded T | ype | Ferrite C | ore | | Length | | | Nc | ote | | |
| 4 | C-1 | Ł. | NO | A. | NO | 4 | ST. | 80cm | K | 交 | A. | A. | A. | |
| | C-2 | | YES | ~ | NO | ~ | | 120cm | 2 | 5 | 2º | ~ | 4 | 5 |
| 2 | C-3 | t | NO | t | NO | | 5 | 80cm | 6 | t t | A | A | A | |
| | 14 | | S | SI | - | 12 | | 2 | 12 | 2 | 5 | 2 | J. | 1 |
| 2 | t | A | A | A | A | | A | A | 1 | t t | A | A | A | |
| | 1 | | <u>s</u> | SIV | S'Y | 5 | ~ | S' | S | SIL | S' | SI | ST. | - |
| / | T, | A | t | · At- | t | * | × | t | | t t | A | t | t | |
| X | 1 | . V. | and in | and the second s | | | V. | | X | | | A.C. | | . Di |

Note:

- The support equipment was authorized by Declaration of Confirmation. (1)
- For detachable type I/O cable should be specified the length in cm in ^[] Length ^[] column. (2) "YES" means "shielded" "with core"; "NO" means "unshielded" "without core".
- (3)

Г

| 2.5.1 | CONDUCT | ED TEST SIT | E C | 4 4 | 2 7 | 4 4 | 0 111 |
|----------------|--|--------------|-------------|--------------------|------------------|------------------|-------------------------|
| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Last calibration | Calibrated until | Calib tion perio |
| H | LISN | R&S | ENV216 | 101490 | Nov. 19, 2015 | Nov. 18, 2016 | 1 yea |
| 2 | LISN | R&S | ENV216 | 101313 | Nov. 19, 2015 | Nov. 18, 2016 | 1 yea |
| 3 | 50Ω Switch | Anritsu | MP59B | 6200983704 | Jun. 26, 2016 | Jun. 25, 2017 | 1 yea |
| 4 | Low frequency cable | N/A | C-01 | N/A | Jun. 26, 2016 | Jun. 25, 2017 | 1 yea |
| 5 | EMI Test Receiver | R&S | ESCI | 101160 | Jun. 26, 2016 | Jun. 25, 2017 | 1 yea |
| 2.5.2 | RADIATED | TEST SITE | to the | t t | t d | t at | at . |
| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Last calibration | Calibrated until | Calib tion perio |
| 1 | Bilog Antenna | TESEQ | CBL6111D | 31216 | Aug. 23, 2016 | Aug. 22, 2017 | 1 yea |
| 2 | 2Test CableN/A3Test CableN/A4EMI Test ReceiverR&S | | R-03 | N/A | Jun. 26, 2016 | Jun. 25, 2017 | 1 yea |
| 3 | | | R-01 | S N/AS | Jun. 26, 2016 | Jun. 25, 2017 | 1 yea |
| 4 | | | ESPI7 | 101318 | Jun. 26, 2016 | Jun. 25, 2017 | 1 yea |
| 5 | Antenna Mast | EM SEM | SC100_1 | N/A | <`N/A <` | N/A | N/A |
| 6 | Turn Table | EM | SC100 | 060531 | N/A | N/A | N/A |
| 7 | 50Ω Switch | Anritsu | MP59B | 6200983705 | Jun. 26, 2016 | Jun. 25, 2017 | 1 yea |
| 8 | 8 Broadband 8 Horn EM Antenna | | EM-AH-10180 | 2011071402 | Aug. 23, 2016 | Aug. 22, 2017 | 1 yea |
| 9 | Power Amplifier | EMC | EMC051835SE | 980246 | Aug. 09, 2016 | Aug. 09, 2017 | 1 yea |
| 2.5.3 | HARMONIC | CS AND FLICI | KERS | 5 5 | 5 5 | 2 2 | |
| Item | Kind of | Manufacturer | Type No. | Serial No. | Last calibration | Calibrated until | Calibi tion perio |
| F1 | Harmonic & Flicker | EM TEST | DPA500 | 0303-04 | Jun. 24, 2016 | Jun. 23, 2017 | 1 yea |
| 2 | AC Power Source | EM TEST | ACS500S1 | 0203-01 | Jun. 24, 2016 | Jun. 23, 2017 | 1 yea |
| 2. <u>5</u> .4 | ESD _ | STV S | N Stor | Str Str | St St | × | |
| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Last calibration | Calibrated until | Calibi tion perio |
| T | ESD TEST GENERAT OR | Lioncel | ESD-203B | ESD203B0150 402 | Nov. 20, 2015 | Nov. 19, 2016 | 1 yea |



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| 4 | Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Last calibration | Calibrated until | Calibra tion period |
|---|------|------------------------------|--------------|------------|------------|------------------|------------------|---------------------------|
| | £1 8 | Signal Generator | R&S | SMT 06 | 832080/007 | Jul. 23, 2016 | Jul. 22, 2017 | 1 year |
| | 2 | Log-Bicon Antenna | Schwarzbeck | VULB9161 | 4022 | Aug. 14, 2016 | Aug. 13, 2017 | 1 year |
| 4 | 3 | Power Amplifier | AR | 150W1000M1 | 320946 | Sep. 20, 2016 | Sep. 19, 2017 | 1 year |
| 5 | 4 | Microwave Horn Antenna | AR | AT4002A | 321467 | Jun. 15, 2016 | Jun. 14, 2017 | 1 year |
| | 5 | Power Amplifier | AR | 25S1G4A | 308598 | Sep. 20, 2016 | Sep. 19, 2017 | 1 year |

2.5.6 SURGE, EFT/BURST, VOLTAGE INTERRUPTION/DIPS

| | Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Last calibration | | Calibra tion period |
|---|------|----------------------|--------------|---------------------|------------|------------------|---------------|---------------------------|
| | 1 | Surge Generator | EVERFINE | EMS61000-5A | 1101002 | Jun. 26, 2016 | Jun. 25, 2017 | 1 year |
| 1 | 2 | DIPS Generator | EVERFINE | EMS61000-11 K-V2 | 1011002 | Jun. 26, 2016 | Jun. 25, 2017 | 1 year |
| | 3 | EFT/B Generator | EVERFINE | EMS61000-4A- V2 | 1012005 | Jun. 26, 2016 | Jun. 25, 2017 | 1 year |

2.5.7 CONTINUOUS RADIO FREQUENCY DISTURBANCES

| 1 | Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Last calibration | Calibrated until | Calibra tion period |
|----|------|--|--------------|-------------|------------|------------------|------------------|---------------------------|
| 4 | Ť | Signal Generator | R&S | SML03 | 100954 | Jun. 27, 2016 | Jun. 26, 2017 | 1 year |
| 1 | 2 | Power Amplifier | EMC | EMC051835SE | 980246 | Aug. 09, 2016 | Aug. 09, 2017 | 1 year |
| N. | 3 | Coupling and Decoupling Network | TESEQ | CDN M016 | 38722 | Nov. 19, 2015 | Nov. 18, 2016 | 1 year |
| | 4 | Attenuator | TESEQ | ATN 6075 | 38411 | N/A | N/A | N/A |
| | 5 | RF Cable | TESEQ | RF Cable | N/A | N/A | N/A | N/A |

2.5.8 MF

| 1 | Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Last calibration | | Calibra tion period |
|---|------|----------------------|--------------|-------------|------------|------------------|---------------|---------------------------|
| | 1 | Generator | EVERFINE | EMS61000-8K | 1007001 | Jun. 26, 2016 | Jun. 25, 2017 | 1 year |

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION (Frequency Range 150kHz-30MHz)

| FREQUENCY (MHz) | Class / | A (dBµV) | ⊠Class B (dBµV) | | |
|-------------------|------------|----------|-----------------|-----------|--|
| FREQUENCT (IVITZ) | Quasi-peak | Average | Quasi-peak | Average | |
| 0.15 -0.5 | 79.00 | 66.00 | 66 - 56 * | 56 - 46 * | |
| 0.50-5.0 | 73.00 | 60.00 🔶 | 56.00 | 46.00 | |
| 5.0 -30.0 | 73.00 | 60.00 | 60.00 | 50.00 | |

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.
- 3.1.2 TELECOMMUNICATION PORT CONDUCTED EMISSION(VOLTAGE LIMITS) (Frequency Range 150kHz-30MHz)

| FREQUENCY (MHz) | Class / | Α (dBμV) | ⊠Class B (dBµV) | | |
|--------------------|------------|-----------|-----------------|-----------|--|
| FREQUENCT (IVITIZ) | Quasi-peak | Average | Quasi-peak | Average | |
| 0.15 -0.5 | 97 - 87 * | 84 - 74 * | 84 - 74 * | 74 - 64 * | |
| 0.5 -30.0 | 87.00 | 74.00 | 74.00 | 64.00 | |
| Noto | 4 | 4 | 1 1 | 1 1 1 | |

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

(3) When the EUT has the telecommunication terminal, this test is performed.

The following table is the setting of the receiver

| ~ | Receiver Parameters | 5. 5 | | 2 | Setting | 2 | 4 |
|-----|---------------------|-------|---|---|------------|---|----|
| * * | Attenuation | X | X | X | 10 dB | X | X |
| | Start Frequency | 1 1 1 | | 1 | 🔨 0.15 MHz | 1 | N. |
| | Stop Frequency | | | - | 30 MHz | ~ | |
| | IF Bandwidth | | 5 | 5 | 9 kHz | 4 | A. |
| | | | | | | | |



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3.1.3 TEST PROCEDURE

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item -EUT Test Photos.

3.1.4 TEST SETUP



Note: 1.Support units were connected to second LISN. 2.Both of LISNs (ANN) are 80 cm from EUT and at least 80 from other units and other metal planes

3.1.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.



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3.1.6 TEST RESULTS

| EUT : | LCD Monitor | Model Name: | 215LM00056 |
|---------------|--------------|---------------------|------------|
| Temperature : | 26℃ | Relative Humidity : | 54% |
| Pressure : | 1010hPa | Test Date : | 2016-09-26 |
| Test Mode : | VGA | Phase : | |
| Test Voltage: | AC 230V/50Hz | 4 4 | 2 2 2 4 |
| | | | |



| | | | | | | | | ~ ~ | | |
|--------|-----|--------|------------------|-------------------|------------------|-------|-------|----------|---------|------|
| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure- ment | Limit | Over | | | |
| | | MHz | dBuV | dB | dBuV | dBu∨ | dB | Detector | Comment | |
| 1 | | 0.6660 | 42.31 | 9.79 | 52.10 | 56.00 | -3.90 | QP | | |
| 2 | | 0.6660 | 29.46 | 9.79 | 39.25 | 46.00 | -6.75 | AVG | | |
| 3 | | 0.9140 | 42.03 | 9.85 | 51.88 | 56.00 | -4.12 | QP | | |
| 4 | | 0.9140 | 28.49 | 9.85 | 38.34 | 46.00 | -7.66 | AVG | | |
| 5 | | 1.1816 | 42.62 | 9.85 | 52.47 | 56.00 | -3.53 | QP | | |
| 6 | | 1.1816 | 27.10 | 9.85 | 36.95 | 46.00 | -9.05 | AVG | | |
| 7 | | 1.4899 | 43.52 | 9.81 | 53.33 | 56.00 | -2.67 | QP | | |
| 8 | | 1.4899 | 27.15 | 9.81 | 36.96 | 46.00 | -9.04 | AVG | | |
| 9 | * | 2.2820 | 44.08 | 9.77 | 53.85 | 56.00 | -2.15 | QP | | |
| 10 | | 2.2820 | 31.81 | 9.77 | 41.58 | 46.00 | -4.42 | AVG | | |
| 11 | | 7.2458 | 47.15 | 9.85 | 57.00 | 60.00 | -3.00 | QP | | |
| 12 | | 7.2458 | 34.04 | 9.85 | 43.89 | 50.00 | -6.11 | AVG | | |

Factor = Insertion Loss + Cable Loss.

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| EUT : | LCD Monitor | Model Name: | 215LM00056 |
|---------------|--------------|---------------------|------------|
| Temperature : | 26°C | Relative Humidity : | 54% |
| Pressure : | 1010hPa | Test Date : | 2016-09-26 |
| Test Mode : | VGA | Phase : | NXXX |
| Test Voltage: | AC 230V/50Hz | 4 4 | 4 4 4 4 |
| | | | |



| No. M | k. Freq. | Reading Level | Correct Factor | Measure- ment | Limit | Over | | | | |
|-------|----------|------------------|-------------------|------------------|-------|-------|----------|---------|-----|---|
| | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment | | |
| 1 | 0.4060 | 42.65 | 10.05 | 52.70 | 57.73 | -5.03 | QP | | | |
| 2 | 0.4060 | 32.54 | 10.05 | 42.59 | 47.73 | -5.14 | AVG | | | |
| 3 | 0.6580 | 42.67 | 9.82 | 52.49 | 56.00 | -3.51 | QP | | | |
| 4 | 0.6580 | 29.36 | 9.82 | 39.18 | 46.00 | -6.82 | AVG | | | |
| 5 * | 0.9220 | 43.23 | 9.87 | 53.10 | 56.00 | -2.90 | QP | | | |
| 6 | 0.9220 | 29.84 | 9.87 | 39.71 | 46.00 | -6.29 | AVG | | | |
| 7 | 1.2298 | 43.05 | 9.86 | 52.91 | 56.00 | -3.09 | QP | | | |
| 8 | 1.2298 | 27.77 | 9.86 | 37.63 | 46.00 | -8.37 | AVG | | | |
| 9 | 1.6618 | 42.98 | 9.82 | 52.80 | 56.00 | -3.20 | QP | | | |
| 10 | 1.6618 | 28.46 | 9.82 | 38.28 | 46.00 | -7.72 | AVG | | | |
| 11 | 7.5739 | 46.44 | 9.82 | 56.26 | 60.00 | -3.74 | QP | | | |
| 12 | 7.5739 | 32.76 | 9.82 | 42.58 | 50.00 | -7.42 | AVG | | | |
| Remar | | ion Loss + | Cable I | 000 | - | な | A. | A A | AT. | A |

Factor = Insertion Loss + Cable Loss



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3.2 RADIATED EMISSION MEASUREMENT

3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

(Below 1000MHz)

| 5.4 | | | | | | |
|-----|-----------------|--------|--------|----------|--------|--|
| | | | ass A | ⊠Class B | | |
| | FREQUENCY (MHz) | At 10m | ∏At 3m | ☐At 10m | ⊠At 3m | |
| | | dBµV/m | dBµV/m | dBµV/m | dBµV/m | |
| | 30 – 230 | 40 | 50 | 30 | 40 | |
| 4 | 230 – 1000 🔨 | 47 | 57 | 37 | 47 | |

3.2.2 LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

| FREQUENCY (MHz) | Class A (at | : 3m) dBµV/m | ⊠Class B (at 3m) dBµV/m | | |
|-----------------|-------------|--------------|-------------------------|-----|--|
| | Peak | Avg | Peak | Avg | |
| 1000-3000 | 76 | 56 | 70 | 50 | |
| 3000-6000 | 80 | 60 | 74 | 54 | |

Notes:

(1) The limit for radiated test was performed according to as following: CISPR 22.

- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBµV/m)=20log Emission level (uV/m).

3.2.3 TEST PROCEDURE

- a. The measuring distance of at 3m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured, above 1G Average detector mode will be instead.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP(AV) Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item -EUT Test Photos.



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3.2.4 TEST SETUP

(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



(B) Radiated Emission Test Set-Up Frequency Above 1GHz



3.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.



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3.2.6 TEST RESULTS

| | | ~ | | |
|---------------|--------------|---|---------------------|------------|
| EUT : | LCD Monitor | 7 | Model Name: | 215LM00056 |
| Temperature : | 24°C | | Relative Humidity : | 54% |
| Pressure : | 1010hPa 🍼 🍼 | 5 | Test Date : | 2016-09-26 |
| Test Mode: | VGA(800*600) | | Polarization : | Horizontal |
| Test Power: | AC 230V/50Hz | 1 | | |



Remark:

Factor = Antenna Factor + Cable Loss.

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Report No.: NTEK- 2016NT09108872E

| EUT : | LCD Monitor | Model Name: | 215LM00056 |
|--|--|---|--|
| Temperature : | 24°C ~ ~ | Relative Humidity | 54% - |
| Pressure : | 1010hPa | Test Date : | 2016-09-26 |
| Test Mode: | VGA(800*600) | Polarization : | Vertical |
| Test Power: | AC 230V/50Hz | ~ ~ ~ ~ | ~ ~ ~ |
| 72.0 dBu∀/m | | | AF AF AF |
| | | | Limit: — Margin: — |
| | | | 5 6 * |
| | | 4 | l l l l l l l l l l l l l l l l l l l |
| 32 32 32 32 32 32 32 32 32 32 32 32 32 3 | mm | Julia man al and man | real work and a sure to the balance we |
| | | | ngelseen under heren alle heren alle |
| | | | 400 500 600 700 1000.000 |
| 8 | | (MHz) 300 | 400 500 600 700 1000.000 |
| 8 | | (MHz) 300 | 400 500 600 700 1000.000 |
| 8 | 0 60 70 80 Reading Correct Measure | (MHz) 300 e- Anten | 400 500 600 700 1000.000 |
| 8 30.000 40 50 No. Mk. Freq. | 0 60 70 80 Reading Correct Measure Level Factor ment | (MHz) 300 Limit Over Heigl | 400 500 600 700 1000.000 |
| 8 30.000 40 50 No. Mk. Freq. MHz 1 * 36.8952 2 ! 44.4308 | Correct Measure Reading Correct Measure Level Factor ment dBuV dB dBuV/m 18.26 17.08 35.34 22.26 12.94 35.20 | (MHz) 300 (MHz) 4000 -4.66 QP 40.00 -4.80 QP | 400 500 600 700 1000.000 |
| 8 30.000 40 50 No. Mk. Freq. MHz 1 * 36.8952 2 ! 44.4308 3 140.3421 | Correct Measure Reading Correct Measure Level Factor ment dBuV dB dBuV/m 18.26 17.08 35.34 22.26 12.94 35.20 20.69 12.11 32.80 | (MHz) 300 (MHz) Anten Limit Over Heigl dBuV/m dB Detector cm 40.00 -4.66 QP 40.00 -7.20 QP | 400 500 600 700 1000.000 |
| 8 40 50 30.000 40 50 No. Mk. Freq. MHz 36.8952 2 2 1 44.4308 3 140.3421 4 1 210.7860 | Beading Level Correct Factor Measure ment dBuV dB dBuV/m 18.26 17.08 35.34 22.26 12.94 32.80 22.61 12.30 34.91 | (MHz) 300 (MHz) 300 Limit Over Heigl dBuV/m dB Detector cm 40.00 -4.66 QP 40.00 -7.20 QP 40.00 -7.20 QP | 400 500 600 700 1000.000 |
| -8 30.000 40 50 No. Mk. Freq. MHz 1 * 36.8952 2 ! 44.4308 3 140.3421 | Correct Measure Reading Correct Measure Level Factor ment dBuV dB dBuV/m 18.26 17.08 35.34 22.26 12.94 35.20 20.69 12.11 32.80 | (MHz) 300 (MHz) Anten Limit Over Heigl dBuV/m dB Detector cm 40.00 -4.66 QP 40.00 -7.20 QP | 400 500 600 700 1000.000 |

Factor = Antenna Factor + Cable Loss.

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| | | | | | | | | | | - | tt |
|----------------------------|---|---|---|---|--|-------------------------------|----------------------------|-------------------------------|----------------------------------|---------------|--|
| EUT : | | LCD Mo | onitor 🖉 | 5 4 | | | el Name: 215LM00056 | | | | |
| Temper | | 24℃ | 5 | S | 5 | | | | 54% | | |
| Pressur | | 1010hP | | لمناح | | Test Da | | | 2016-09-26 | | t d |
| Test Mo | ode: | | VGA(1280*800) | | | Polariz | ation : | H | lorizont | tal | |
| Test Po | ower: | AC 230 | V/50Hz | 2 | 2 | 2 | | | 2 | 2 | 2 |
| 5 | 1 1 | | | | - 1 | * | A | A | A | 6 | |
| Ś | N Str | SI | Si | S | S. | 2 | | Š. | S. | S | S |
| 72.0 dB | Bu¥/m | | | 1 | | | | i | | | |
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| 32 | | | | | | 2 | | | × | Ň. | 6 M Journal |
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| 32 \ ^{Min} two | www.jutit | Minustania, 12Mi | Mark Mu. | , here, | | | noper land | makelennet | × | Mun | < X word |
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| | www.juliy | Menning and a full | 4Mur Minnor | nurhadamluru | have put | | y approximation | mahalamahad | × Later Mardel | , Aux | < X water and a second |
| | | Manufalan Manufalu | 4Mbr ⁴ Wayan | annalantuma | h may pull | | r shinking | transfeller overland | Kaunan | <u>A</u> | < × where we have a start of the second start |
| | non July | lunville (_{N-1})) | ul/un/www. | nonduntura | h man gridd | | a share | prospections | × Lauran | | < × where we have a start of the second start |
| | www | lunnille an trill | HM104 Mayor | nondundun | h, mark fred | | n det Manda | iron ha la vora de la la | Kalenderade | | < × where we have a second sec |
| v Providence | | lunnigel un public | ul/Un ^{ut} Vin _{en} n | n on of the second s | h, may public | | a open hand | production | × Lauran | | < × where we have a second sec |
| 1 Parties | | | | monolyingtime | (MHz) | | | 19445 for 1940 a | X Lanut | | < × |
| 8 | | | | normalium/mm | | | | 17400 haller Ard And DO 40 | X Lanut | | < X A |
| 8 | |) 60 7(| 0 80 | Measure | | | | A. | 0 500 | | < X A |
| 8 | 40 50 |) 60 7(| D 80 Correct | Measure- ment | | | | Antenna | x yuunnuuuu 0 500 Table | | < X A |
| 8 30.000 | 40 50 |) 60 7(| 0 80 | | (MHz) | | | A. | 0 500 | | (X / / / / / / / / / / / / / / / / / / |
| 8 30.000 | 40 50 | 0 60 70 Reading Level | 0 80 Correct Factor | ment | (MHz) Limit | Over | 31 | Antenna Height | x 0 500 Table Degree | 600 7 | (X / / / / / / / / / / / / / / / / / / |
| 8 30.000 No. Mł | 40 50 k. Freq. MHz | 0 60 70 Reading Level dBuV | D 80 Correct Factor dB | ment dBuV/m | (MHz) Limit dBuV/m | Over dB | 30 Detector | Antenna Height | x 0 500 Table Degree | 600 7 | (X / / / / / / / / / / / / / / / / / / |
| 8 30.000 No. Mł | 40 50 40 50 k. Freq. MHz 48.1626 | 0 60 70 Reading Level dBuV 17.07 | D 80 Correct Factor dB 10.54 | ment dBuV/m 27.61 | (MHz) Limit dBuV/m 40.00 | Over dB -12.39 | 30 Detector QP | Antenna Height | x 0 500 Table Degree | 600 7 | (X / / / / / / / / / / / / / / / / / / |
| 8 30.000 No. Mk | 40 50 k. Freq. MHz 48.1626 210.7860 | 0 60 70 Reading Level dBuV 17.07 21.50 | 0 80 Correct Factor dB 10.54 12.30 | ment dBuV/m 27.61 33.80 | (MHz) Limit dBuV/m 40.00 40.00 | Over dB -12.39 -6.20 | 31 Detector QP QP | Antenna Height | x 0 500 Table Degree | 600 7 | (X / / / / / / / / / / / / / / / / / / |

-10.38

QP

47.00

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Remark: Factor = Antenna Factor + Cable Loss.

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845.0878

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Report No.: NTEK- 2016NT09108872E

| EUT : | | LCD Mo | onitor | | 1 | Model | Name: | 2 | 15LM0 | 0056 | A. |
|--|---|---|--|--|--|---------------------------------------|---|-------------------------|--------------------------|-------------------|--|
| Tempe | erature : | 24 ℃ | ~ | ~ | ~ | Relativ | e Humidi | ty:5 | 4% | ~ | ~ |
| Pressu | re : | 1010hP | a | | - | Test Da | ate : | 2 | 016-09 | -26 🔶 | A |
| Test M | ode: | VGA(12 | 280*800) | 1 Alexandre | 1 | Polariz | ation : | V | ertical | il and a second | 1 th |
| Test Po | ower: | AC 230 | V/50Hz | 7 | 7 | 7 | 4 | | | 7 | 7 |
| 72.0 d | IBuV/m | | | | | - | | | X | | and the second s |
| | | | | | | | | | | Limit: Margin: | |
| | | | | | | | | | 6 * | | |
| 1 | 2 3 | | | | | | | | | | |
| 32 x | | m | and the second | president and feeling to select the | hillinghal | 5 | nymberen | horald | phylologic | he herodulu | hund marked |
| X | | 60 70 | 0 80 | president left will be | (MHz) | ¥_ | 300 | 400 | | 600 700 | 1000.000 |
| -8 30.000 | | Reading | Correct | Measure- | (MHz) | | 300 Ar | 400 Antenna | 0 500 Table | | |
| -8 | 40 50 | Reading Level | Correct Factor | Measure- ment | (MHz) Limit | Over | 300 Ar H | 400 Antenna eight | D 500 Table Degree | 600 700 | |
| 32 32 32 33 | 40 50 40 50 1k. Freq. MHz | Reading Level dBuV | Correct Factor dB | Measure- ment dBuV/m | (MHz) Limit dBuV/m | Over dB | 300 Ar H Detector | 400 Antenna | 0 500 Table | | |
| 32 32 -8 30.000 | 40 50 40 50 1k. Freq. MHz 32.9791 | Reading Level dBuV 16.14 | Correct Factor dB 18.88 | Measure- ment dBuV/m 35.02 | (MHz) Limit dBuV/m 40.00 | Over dB -4.98 | 300 300 Ar H Detector QP | 400 Antenna eight | D 500 Table Degree | 600 700 | |
| -8 30.000 No. M 1 ! 2 ! | A 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | Reading Level dBuV 16.14 18.78 | Correct Factor dB 18.88 16.51 | Measure- ment dBuV/m 35.02 35.29 | (MHz) Limit dBuV/m 40.00 40.00 | Over dB -4.98 -4.71 | 300 300 Ar H Detector QP QP | 400 Antenna eight | D 500 Table Degree | 600 700 | |
| 32 32 -8 30.000 | A 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | Reading Level dBuV 16.14 | Correct Factor dB 18.88 | Measure- ment dBuV/m 35.02 35.29 35.30 | (MHz) Limit dBuV/m 40.00 | Over dB -4.98 | 300 300 Ar H Detector QP | 400 Antenna eight | D 500 Table Degree | 600 700 | |
| 32 32 32 33 30.000 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 40 50 40 50 1k. Freq. MHz 32.9791 37.8121 42.8998 | Reading Level dBuV 16.14 18.78 21.51 | Correct Factor dB 18.88 16.51 13.79 | Measure- ment dBuV/m 35.02 35.29 35.30 32.60 | (MHz) Limit dBuV/m 40.00 40.00 | Over dB -4.98 -4.71 -4.70 | 300 300 Ar H Detector QP QP QP | 400 Antenna eight | D 500 Table Degree | 600 700 | |

Factor = Antenna Factor + Cable Loss.

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Report No.: NTEK- 2016NT09108872E

| EUT : | LCD Monitor | Model Name: | 215LM00056 |
|--|---|--|---|
| Temperature : | 24°C | Relative Humidit | y: 54% |
| Pressure : | 1010hPa | Test Date : | 2016-09-26 |
| Test Mode: | VGA(1920*1080) | Polarization : | Horizontal |
| Test Power: | AC 230V/50Hz | · | 4. 4. 4. |
| t at a | | * * * * | * * * * |
| 72.0 dBu∀/m | 51 51 5 | 1 - 12 - 12 - 12 - 13 | |
| | | | Limit: — Margin: — |
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| | | | - × |
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| 32 | 2 | 3 | × × "/ |
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| | Wilten Willer Manueller | 3 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 | × × "/ |
| B 30.000 40 50 | Reading Correct Meas | (MHz) 300 | 400 500 600 700 1000.000 |
| 8 | | (MHz) 300 ure- Limit Over He | 400 500 600 700 1000.000 |
| 8 30.000 40 50 No. Mk. Freq. | Reading Correct Meas Level Factor mer | (MHz) 300 (MHz) An ure-Limit Over Ha (m dBuV/m dB Detector | 400 500 600 700 1000.000 tenna Table eight Degree |
| B 30.000 40 50 No. Mk. Freq. MHz | X Y Y <td>(MHz) 300 (MHz) An ure- An nt Limit Over Ho /m dBuV/m dB Detector 4 40.00 -12.56 QP</td> <td>400 500 600 700 1000.000 tenna Table eight Degree</td> | (MHz) 300 (MHz) An ure- An nt Limit Over Ho /m dBuV/m dB Detector 4 40.00 -12.56 QP | 400 500 600 700 1000.000 tenna Table eight Degree |
| 1 30.000 40 50 No. Mk. Freq. MHz 1 45.0583 | Reading Correct Meas Level Factor Meas MBuV dB dBuV 15.14 12.30 27.4 | (MHz) 300 (MHz) An ure- ht Limit Over Ha /m dBuV/m dB Detector 4 40.00 -12.56 QP 3 40.00 -10.87 QP | 400 500 600 700 1000.000 tenna Table eight Degree |
| No. Mk. Freq. MHz 1 1 45.0583 2 70.0903 | X Y | (MHz) 300 (MHz) An ure- ht Limit Over An Ho /m dBuV/m dB Detector 4 40.00 -12.56 QP 3 40.00 -12.57 QP | 400 500 600 700 1000.000 tenna Table eight Degree |

Remark: Factor = Antenna Factor + Cable Loss AN INT NTEK

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| 2 | Ter | | ature | : | 24℃ | Monitor | | N A | Model Relativ | ve Hum | idity : 5 | 215LM0 54% | ~ | 4 |
|-------------------------|----------------------------|--|---|--|---|---|---|--|---|--|-------------------|------------------|-------------------|------------|
| - | Pre | essur | e: | | 1010ł | ۱Pa | A | t l | Test Da | ate : | 2 | 2016-09 | -26 🔶 | t |
| - | Tes | st Mode: VGA(1920*108 | | | | | Polariz | ation : | | /ertical | 1 C | 1 Alexandre | | |
| | Tes | st Po | wer: | | AC 23 | 30V/50H | Hz | N N | 1 | | | | ~ | ~ |
| 10. | 72. | .0 dB | uV/m | R | | | E X | | | Æ | J.C. | JACK - | | |
| 1. 1 | 41 | | | | | | | | | | | | Limit: Margin: | |
| 1. 1 | 41 | | | | | | | | | | | | | |
| | 2 | | 1 | 2 | | | | 3 | | | | * | 5 ¥ | |
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| | 4 | | | | * ¥ | Mhthau | L. L. L. MM | Mu wawyi Wi | W MAAM | w interes | 1. Albertally | post all an Jack | | |
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| An An | | 0.000 | 40 | 50 |) 60 | 70 80 | . Mallets | (MHz) | | 3 | 00 40 | 0 500 | 600 700 |) 1000.000 |
| 1 1 1 1 | | 0.000 | 40 | 50 | F | t | . Malleta | × | 4 | 30 | × | t | 600 700 |) 1000.000 |
| a ha ha | 3 | | * | ~ | Readin | g Corre | | re- | Over | 30 | Antenna | Table | × |) 1000.000 |
| As As As | 3 | 6.000 | κ. F | 50 Treq. | F | t | tor ment | re- t Limit | Over | 3 Jetector | Antenna Height | t | × |) 1000.000 |
| 1 1 1 1 1 | 3 | | κ. F | req. | Readin Level | g Corre Fact | tor ment dBuV/n | re- t Limit | | × | Antenna Height | Table Degree | × |) 1000.000 |
| 10 10 10 10 10 10 | 3 | Io. MI | κ. F | req. MHz | Readin Level dBuV | g Corre Fact dB 16.7 | tor ment dBuV/n 5 35.36 | re- t Limit dBuV/m 40.00 | dB | Detector | Antenna Height | Table Degree | × |) 1000.00 |
| the the the the | 3 | lo. Mł 1 * | K. F M 37.4 | req. MHz 1164 2752 | Readin Level dBuV 18.61 | g Corre Fact dB 16.7 13.1 | tor ment dBuV/n 5 35.36 0 35.20 | re- t Limit dBuV/m 40.00 40.00 | dB -4.64 | Detector | Antenna Height | Table Degree | × | 0 1000.000 |
| a da da da da | 3 | lo. Mł 1 * 2 ! | <. F M 37.4 44.2 | req. //Hz /164 2752 3421 | Readin Level dBuV 18.61 22.10 | g Corre Fact dB 16.7 13.1 12.1 | tor ment dBuV/n 5 35.36 0 35.20 1 34.93 | re- Limit dBuV/m 40.00 40.00 | dB -4.64 -4.80 | Detector QP QP | Antenna Height | Table Degree | × |) 1000.00 |
| An An An An An An | 3 | lo. Mł 1 * 2 ! 3 ! | K. F M 37.4 44.2 140.3 | req. //Hz 1164 2752 3421 4685 | Readin Level dBuV 18.61 22.10 22.82 | g Corre Fact dB 16.7 13.1 12.1 18.6 | tor ment dBuV/n 5 35.36 0 35.20 1 34.93 4 41.60 | re- t Limit 40.00 40.00 40.00 40.00 | dB -4.64 -4.80 -5.07 | Detector QP QP QP | Antenna Height | Table Degree | × | 0 1000.000 |
| An An An An An An | 3 | lo. Mł 1 * 2 ! 3 ! 4 ! | K. F M 37.4 44.2 140.3 492.4 | req. //Hz /164 /752 /421 /685 | Readin Level dBuV 18.61 22.10 22.82 22.96 | g Corre Fact dB 16.7 13.1 12.1 18.6 20.7 | tor ment dBuV/n 5 35.36 0 35.20 1 34.93 4 41.60 5 39.08 | re- Limit dBuV/m 40.00 40.00 40.00 47.00 | dB -4.64 -4.80 -5.07 -5.40 | Detector QP QP QP QP | Antenna Height | Table Degree | × |) 1000.00 |
| the day day day day | 3 | lo. Mł 1 * 2 ! 3 ! 4 ! 5 6 ! | K. F M 37.4 44.2 140.3 492.4 603.5 982.6 | req. //Hz /164 /752 /421 /685 | Readin Level dBuV 18.61 22.10 22.82 22.96 18.33 | g Corre Fact dB 16.7 13.1 12.1 18.6 20.7 | tor ment dBuV/n 5 35.36 0 35.20 1 34.93 4 41.60 5 39.08 | re- Limit dBuV/m 40.00 40.00 40.00 47.00 | dB -4.64 -4.80 -5.07 -5.40 -7.92 | Detector QP QP QP QP QP QP | Antenna Height | Table Degree | × | |
| the the the the the the | 3 | Io. MI 1 * 2 3 4 5 6 mark | F M 37.4 44.2 140.3 492.4 603.5 982.6 (:) | req. MHz 1164 2752 3421 685 5392 5200 | Readin Level dBuV 18.61 22.10 22.82 22.96 18.33 12.63 | g Corre Fact dB 16.7 13.1 12.1 18.6 20.7 28.5 | tor ment dBuV/n 5 35.36 0 35.20 1 34.93 4 41.60 5 39.08 | re- Limit dBuV/m 40.00 40.00 40.00 47.00 | dB -4.64 -4.80 -5.07 -5.40 -7.92 | Detector QP QP QP QP QP QP | Antenna Height | Table Degree | × | |

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3.2.7 TEST RESULTS (1000-6000MHz)

| EUT : | LCD Monitor | Model Name: | 215LM00056 |
|---------------|---------------|---------------------|------------|
| Temperature : | 24 °C | Relative Humidity : | 54% |
| Pressure : | 1010hPa 🧢 🧹 🦂 | Test Date : | 2016-09-26 |
| Test Mode: | VGA(1920*800) | Polarization : | Horizontal |
| Test Power: | AC 230V/50Hz | | |
| | | | |



| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure- ment | Limit | Over | | Antenna Height | Table Degree | | |
|-----|-----|----------|------------------|-------------------|------------------|--------|--------|----------|-------------------|-----------------|---------|--|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | cm | degree | Comment | |
| 1 | | 1889.051 | 59.28 | -9.31 | 49.97 | 70.00 | -20.03 | peak | | | | |
| 2 | | 1889.051 | 39.81 | -9.31 | 30.50 | 50.00 | -19.50 | AVG | | | | |
| 3 | * | 2176.294 | 58.31 | -7.31 | 51.00 | 70.00 | -19.00 | peak | | | | |
| 4 | | 2176.294 | 37.21 | -7.31 | 29.90 | 50.00 | -20.10 | AVG | | | | |
| 5 | | 4865.277 | 51.60 | 1.90 | 53.50 | 74.00 | -20.50 | peak | | | | |
| 6 | | 4865.277 | 32.30 | 1.90 | 34.20 | 54.00 | -19.80 | AVG | | | | |

Remark: Factor = Antenna Factor + Cable Loss

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Factor = Antenna Factor + Cable Loss

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3.3 HARMONICS CURRENT

3.3.1 LIMITS OF HARMONICS CURRENT(CLASS A)

Table 1 – Limits for Class A equipment

| Harmonic order (n) | Maximum permissible harmonic current (A) |
|--------------------|---|
| Odd | harmonics |
| 3 3 | 2.3 5 |
| * * 5 * * | 1.14 |
| | 0.77 |
| 1 1 9 1 1 | 0.4 |
| 11 | 0.33 |
| 13 | 0.21 |
| 15≤n≤39 | 0.15*(15/n) |
| Even | harmonics |
| | 1.08 |
| | 0.43 |
| | 0.30 |
| 8≤n≤40 ← | 0.23*(8/n) |
| | |

3.3.1.1 TEST PROCEDURE

a. The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the maximum harmonic components under normal operating conditions.b. The classification of EUT is according to section 5 of EN 61000-3-2. The EUT is classified as follows:

Class A: Balanced three-phase equipment, Household appliances excluding equipment as Class D, Tools excluding portable tools, Dimmers for incandescent lamps, audio equipment, equipment not specified in one of the three other classes.

Class B: Portable tools. Portable tools.; Arc welding equipment which is not professional equipment.

Class C: Lighting equipment.

Class D: Equipment having a specified power less than or equal to 600W of the following types: Personal computers and personal computer monitors and television receivers. c. The correspondent test program of test instrument to measure the current harmonics emanated from EUT is chosen. The measure time shall be not less than the time necessary for the EUT to be exercised.

3.3.1.2 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.





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3.3.2 TEST RESULTS

| | | <u> </u> | <u> </u> |
|-----------------|---------------|---------------------|------------|
| EUT : | LCD Monitor | Model Name: | 215LM00056 |
| Temperature : | 24°C | Relative Humidity : | 54% |
| Pressure : | 1010hPa | Test Date : | N/A ~ ~ ~ |
| Classification: | N/A the state | Test duration: | N/A + + |
| Test Mode: | N/A < | N N | R R R R |
| Test Power: | N/A | 2 4 | ~ ~ ~ ~ ~ |

Note: The active input power of the EUT is less than 75 W. No limits apply for equipment with an active input power up to and including 75W.



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3.4 VOLTAGE FLUCTUATION AND FLICKERS

3.4.1 LIMITS OF VOLTAGE FLUCTUATION AND FLICKERS

| Test items | Limits(EN61000-3-3) | Descriptions |
|------------------|---|--|
| P _{st} | ≤1.0, T _p =10min | short-term flicker indicator |
| Pit | ≪0.65, T _p =2h | long-term flicker indicator |
| d _c | ≤3.3% | relative steady-state voltage change |
| d _{max} | ≪4%(or 6% _{Note(1)} , 7% _{Note(2)}) | maximum relative voltage change: |
| d _(t) | <a> <a> ≤3.3%, more than 500ms | relative voltage change characteristic |

Note:

- 1.6 % for equipment which is:
 - a. switched manually, or
 - b. switched automatically more frequently than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds), or manual restart, after a power supply interruption.
- 2.7 % for equipment which is
- a. attended whilst in use (for example: hair dryers, vacuum cleaners, kitchen equipment such as mixers, garden equipment such as lawn mowers, portable tools such as electric drills), or b. switched on automatically, or is intended to be switched on manually, no more than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds) or manual restart, after a power supply interruption.

3.4.1.1 TEST PROCEDURE

a. Harmonic Current Test:

Test was performed according to the procedures specified in Sub-clause 6.2 of IEC/EN 61000-3-2 depend on which standard adopted for compliance measurement.

- b. Fluctuation and Flickers Test: Tests was performed according to the Test Conditions/Assessment of Voltage Fluctuations specified in Clause 6.0/4.0 of IEC/EN 61000-3-3 depend on which standard adopted for compliance measurement.
- c. All types of harmonic current and/or voltage fluctuation in this report are assessed by direct measurement using flicker-meter.

3.4.1.2 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.

3.4.1.3 TEST SETUP





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3.4.2 TEST RESULTS

| | | <u>`</u> | | <u> </u> | <u> </u> |
|---------------|--------------|----------|---------------------|------------|----------|
| EUT: | LCD Monitor | | Model Name: | 215LM00056 | |
| Temperature : | 24°C | | Relative Humidity : | 54% | |
| Pressure : | 1010hPa 🔶 🔶 | 1. | Test Date : | 2016-09-26 | 2 2 |
| Test Mode: | VGA 🙏 🖌 | x / | * * * | t t | X |
| Test Power: | AC 230V/50Hz | | N N | Nº N | N. N |
| 7 7 | ~ ~ ~ ~ | ~ | 7 7 | 7 7 | 4 4 |

Arter Maximum Flicker results

| | EUT values | Limit | Result |
|----------|------------|-------|--------|
| Pst | 0.035 | 1.00 | PASS |
| Plt | 0.025 | 0.65 | PASS |
| dc [%] | 0.006 | 3.30 | PASS |
| dmax [%] | 0.180 | 4.00 | PASS |
| dt [s] | 0.000 | 0.50 | PASS |

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4. EMC IMMUNITY TEST

4.1 STANDARD COMPLIANCE/SEVERITY LEVEL/CRITERIA

| Tests Standard No. | TEST SPECIFICATION | Test Mode Test Ports | Perform. Criteria |
|--|---|---------------------------------|----------------------|
| 1. ESD | 8kV air discharge 4kV contact discharge | Direct Mode | B |
| IEC/EN 61000-4-2 | 4kV HCP discharge 4kV VCP discharge | Indirect Mode | B |
| 2. RS IEC/EN 61000-4-3 | 80 MHz to 1000 MHz, 1000Hz, 80%, AM modulated | Enclosure | A |
| 3. EFT/Burst | 5/50ns Tr/Th 5kHz Repetition Freq. | Power Supply Port | B |
| 3. EF 1/Burst IEC/EN 61000-4-4 | 5/50ns Tr/Th 5kHz Repetition Freq. | CTL/Signal Data Line Port | B |
| 1. Surges | 1.2/50(8/20) Tr/Th us | L-N | ₹ B ₹ |
| IEC/EN 61000-4-5 | 1.2/50(8/20) Tr/Th us | L-PE N-PE | B |
| | 0.15 MHz to 80 MHz, 1000Hz 80%, AM Modulated 150Ω source impedance | CTL/Signal Port | A |
| 5. Continuous radio requency disturbances IEC/EN 61000-4-6 | 0.15 MHz to 80 MHz, 1000Hz 80%, AM Modulated 150Ω source impedance | AC Power Port | A |
| | 0.15 MHz to 80 MHz, 1000Hz 80%, AM Modulated 150Ω source impedance | DC Power Port | A |
| 6. Power Frequency Magnetic Field IEC/EN 61000-4-8 | 50 Hz A | Enclosure | ATTA AT |
| 7. Volt. Interruptions | Voltage dip 100% | | B |
| Volt. Dips EC/EN 61000-4-11 | Voltage dip 30% | AC Power Port | ~ c ~ |
| | | | С |



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| 4. | 2 GENERAL | PERFORMANCE CRITERIA |
|---------|-------------|---|
| 4 | According | to EN 55024 standard, the general performance criteria as following: |
| 2 4 4 - | Criterion A | The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended. |
| なった。た | Criterion B | After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level |
| A to | Criterion C | Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the |

4.3 GENERAL PERFORMANCE CRITERIA TEST SETUP The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.

4.4 ESD TESTING

4.4.1 TEST SPECIFICATION

| Basic Standard: | IEC/EN 61000-4-2 |
|-----------------------|---|
| Discharge Impedance: | 330ohm / 150pF |
| Required Performance: | BAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA |
| Discharge Voltage: | Air Discharge : 2kV/4kV/8kV (Direct) |
| | Contact Discharge : 2kV/4kV (Direct/Indirect) |
| Polarity: | Positive & Negative |
| Number of Discharge: | Air Discharge: min. 20 times at each test point |
| | Contact Discharge: min. 200 times in total |
| | 50 times at each test point |
| Discharge Mode: | Single Discharge |
| Discharge Period: | 1 second minimum |

4.4.2 TEST PROCEDURE

The test generator necessary to perform direct and indirect application of discharges to the EUT in the following manner:

- a. Contact discharge was applied to conductive surfaces and coupling planes of the EUT.
- During the test, it was performed with single discharges. For the single discharge time between successive single discharges was at least 1 second. The EUT shall be exposed to at least 200 discharges, 100 each at negative and positive polarity, at a minimum of four test points. One of the test points shall be subjected to at least 50 indirect discharges to the center of the front edge of the horizontal coupling plane. The remaining three test points shall each receive at least 50 direct contact discharges.

If no direct contact test points are available, then at least 200 indirect discharges shall be applied in the indirect mode. Test shall be performed at a maximum repetition rate of one discharge per second.

Vertical Coupling Plane (VCP):

- The coupling plane, of dimensions 0.5m x 0.5m, is placed parallel to, and positioned at a distance 0.1m from, the EUT, with the Discharge Electrode touching the coupling plane. The four faces of the EUT will be performed with electrostatic discharge. Horizontal Coupling Plane (HCP):
- The coupling plane is placed under to the EUT. The generator shall be positioned vertically at a distance of 0.1m from the EUT, with the Discharge Electrode touching the coupling plane. The four faces of the EUT will be performed with electrostatic discharge.
- b. Air discharges at insulation surfaces of the EUT. It was at least ten single discharges with positive and negative at the same selected point.


4.4.3 TEST SETUP Nearest Wall 10 cm 1m ESD Generator ESD Generator **Discharge Return** Discharge Cable to GRP Return Cable to GRP To AC Main (0.5 mm) EUT Isolation Support VCP 50 cm x 50 cm HCF

Ground Reference Plane(GRP) Bonded to PE

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470KΩ

470KΩ

Note:

TABLE-TOP EQUIPMENT

(1.6m x 0.8m)

80cm

The configuration consisted of a wooden table 0.8 meters high standing on the Ground Reference Plane. The GRP consisted of a sheet of aluminum at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system. A Horizontal Coupling Plane (1.6m x 0.8m) was placed on the table and attached to the GRP by means of a cable with 940k total impedance. The equipment under test, was installed in a representative system as described in section 7 of IEC /EN 61000-4-2, and its cables were placed on the HCP and isolated by an insulating support of 0.5mm thickness. A distance of1-meter minimum was provided between the EUT and the walls of the laboratory and any other metallic structure.

Non-Conductive Table

FLOOR-STANDING EQUIPMENT

The equipment under test was installed in a representative system as described in section 7 of IEC/EN 61000-4-2, and its cables were isolated from the Ground Reference Plane by an insulating support of 0.1-meter thickness. The GRP consisted of a sheet of aluminum that is at least 0.25mm thick, and 2.5meters square connected to the protective grounding system and extended at least 0.5 meters from the EUT on all sides.



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4.4.4 TEST RESULTS

| <u> </u> | S. | | 2 | | 2 | | - | 5 | | S | | Ś | | - | 5 | | 5 5 | 2 2 |
|--------------------|-------------|------|-----|-----|------|------|---------------------|------|-------------|-----|------|------|-------|-----|------------|---|------------------|----------|
| EUT : | LCD Monitor | | | | | | | | Model Name: | | | | | 2 | 215LM00056 | | | |
| Temperature | re: 25℃ | | | | | | Relative Humidity : | | | | | umi | dity | : 4 | 45% | | | |
| Pressure : | | 1 | 010 | hPa | 7 | | - | | | 2 | Tes | t Da | ate : | | | 2 | 2016-09-26 | 2 2 |
| Test Mode: | | V | GA | 1 | · | X | | 1 | t | | * | | X | | ~ | - | At 1 | t Y |
| Test Power: | | Α | C 2 | 30V | /50l | Ηz | | 1º | | ~ | | ~ | V | - | N. | | N N | |
| | | _ | | | ~ | | D : | | | (1 | | | | | | | | |
| Mode | | | | | Con | tact | : Dis | scha | arge | (In | dire | ct) | | | | | | |
| Test level (kV) | То | et F | oin | | | 2 | | | | 4 | | | | 6 | | _ | Criterion | Result |
| Test Location | 10 | 511 | Uni | | + | | - | | + | | - | | + | | - | | | |
| 4 | 7 | Fro | nt | | Ρ | | Ρ | | Р | 7 | Ρ | Y | | | | | 4 4 | 4 4 |
| | 4 | Rea | ar | 5 | Ρ | 1 | Р | | Р | | Р | | 5 | | 5 | | 5 4 | F |
| HCP | 5 | Le | ft | | P | | Ρ | 5 | Ρ | 5 | Ρ | 5 | | | | | 5 5 | Complian |
| at at | * | Rig | ht | | Ρ | 1 | Ρ | | Р | | Р | | 1 | | ~ | | | |
| | 1 | Fro | nt | | Ρ | 1 | Ρ | XX | Р | | P | | Ś. | | N. | | CB Q | Complies |
| VOD | 2 | Rea | ar | | Р | | Ρ | 3 | Ρ | 2 | Ρ | 2 | | V | 2 | - | 5. 5. | 4 4 |
| VCP | 1 | Le | ft | 1 | Ρ | 2 | Р | 0 | Р | | P | | 1 | | 6 | | at a | - 4 |
| × SV | 5 | Rig | ht | | P | | Ρ | 5 | Р | 1 | Р | S | | - | | | × × × | 1 × 1 |
| Mode | | | Air | Die | cha | rao | | | | C | onta | | Jiec | har | A | - | | |
| Test level | | | | 013 | | ige | | | | 0 | | | | nar | je I | | - | |
| (kV) | 2 | 2 | 4 | 1 | 8 | 3 | 1 | 5 | 2 | 2 | 4 | 1 | 6 | 6 | 8 | 3 | Criterion Result | |
| Test Location | + | - | + | - | + | - | + | - | + | - | + | - | + | - | + | - | | |
| Gap | Ρ | Ρ | Ρ | Ρ | Ρ | Ρ | | | | | | | | | | | | |
| Button | P | Р | Ρ | Ρ | Ρ | Ρ | | 2 | 1 | | 5 | 4 | 5 | | .0 | | | Complian |
| Screen | Ρ | Ρ | Ρ | Р | P | Ρ | V | 5 | | 5 | | 1 | | 1. | | | 2° 2 | Complies |
| VGA port | | ト | | ト | | X | - | / | Р | Р | Ρ | Ρ | x | r - | ~ | | A | t At |

- 1) +/- denotes the Positive/Negative polarity of the output voltage.
- Test location(s) in which discharge (Air and contact discharge) to be applied illustrated by photos shown in next page(s)
- 3) In the table: 'P' represents 'PASS'; 'F' represents 'FAIL'.
- 4) Criteria A: Normal performance within limits specified by the manufacturer, requestor or purchaser.
- 5) Criteria B: Temporary loss of function or degradation of performance which ceases after the disturbance ceases, and from which the EUT recovers its normal performance, without operator intervention.
- 6) Criteria C: Temporary loss of function or degradation of performance, the correction of which requires operator intervention.
- 7) Criteria D: Loss of function or degradation of performance which is not recoverable, owing to damage to hardware or software, or loss of data.



4.5 RS TESTING

4.5.1 TEST SPECIFICATION

| Basic Standard: | IEC/EN 61000-4-3 |
|-----------------------|------------------------------------|
| Required Performance: | Att |
| Frequency Range: | 80 MHz - 1000 MHz |
| Field Strength: | 3 V/m |
| Modulation: | 1kHz Sine Wave, 80%, AM Modulation |
| Frequency Step: | 1 % of fundamental |
| Polarity of Antenna: | Horizontal and Vertical |
| Test Distance: | 3 m 7 7 7 7 7 |
| Antenna Height: | 1.5 m / / |
| Dwell Time: | 3 seconds |

4.5.2 TEST PROCEDURE

The EUT and support equipment, which are placed on a table that is 0.8 meter above ground and the testing was performed in a fully-anechoic chamber.

The testing distance from antenna to the EUT was 3 meters.

The other condition as following manner:

- a. The frequency range is swept from 80 MHz to 1000 MHz, & 1400MHz 2700MHz with the signal 80% amplitude modulated with a 1kHz sine wave. The rate of sweep did not exceed 1.5x 10-3 decade/s. Where the frequency range is swept incrementally, the step size was 1% of fundamental.
- b. Sweep Frequency 900 MHz, with the Duty Cycle:1/8 and Modulation: Pulse 217 Hz(if applicable)
- c. The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.
- d. The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.



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4.5.3 TEST SETUP



Note:

TABLE-TOP EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC/EN 61000-4-3 was placed on a non-conductive table 0.8 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

FLOOR-STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC/EN 61000-4-3 was placed on a non-conductive wood support 0.1 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.



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4.5.4 TEST RESULTS

| 6 6 | | 6 6 | 2 2 2 2 |
|---------------|--------------|---------------------|------------|
| EUT : | LCD Monitor | Model Name: | 215LM00056 |
| Temperature : | 25°C | Relative Humidity : | 60% |
| Pressure : | 1010hPa 🤿 🔿 | Test Date : | 2016-09-26 |
| Test Mode: | VGA | * * * | * * * |
| Test Power: | AC 230V/50Hz | | N N N N |

| 4 | Frequency Range | RF Field | R.F. | Azimuth | Perform. | Results | Judgment |
|----|-----------------|----------|----------------|---------|----------|---------|----------|
| | (MHz) | Position | Field Strength | Azimum | Criteria | Results | Judgment |
| 11 | t sint sint a | | L. | Front | A A | L. L. | |
| 1 | * * * | * * | 3 V/m (r.m.s) | Rear | x x | - * | |
| | 80MHz - 1000MHz | < Н/∨ | AM Modulated | | A | P | Complies |
| | | at at | 1000Hz, 80% | Left | at a | - 4 | |
| 1 | | | A A | | | | 1 |
| | 4 4 4 | | 4 4 | Right | 4 | 2 | |

- 1) N/A denotes test is not applicable in this test report.
- 2) In the table: 'P' represents 'PASS'; 'F' represents 'FAIL'.
- 3) Criteria A: There was no change operated with initial operating during the test.
- 4) Criteria B: The EUT function loss during the test, but self-recoverable after the test.
- 5) Criteria C: The system shut down during the test.

4.6 EFT/BURST TESTING

4.6.1 TEST SPECIFICATION

| Basic Standard: | IEC/EN 61000-4-4 |
|-----------------------|------------------------------|
| Required Performance: | BAAAAAA |
| Test Voltage: | Power Line:0.5 kV, 1 kV |
| | Signal/Control Line : 0.5 kV |
| Polarity: | Positive & Negative |
| Impulse Frequency: | 5 kHz |
| Impulse Wave shape : | 5/50 ns |
| Burst Duration: | 15 ms |
| Burst Period: | 300 ms |
| Test Duration: | 2 minutes |

4.6.2 TEST PROCEDURE

The EUT and its simulators were placed on a ground reference plane and were insulated from it by a wood support 0.1m \pm 0.01m thick. The ground reference plane was 1m*1m metallic sheet with 0.65mm minimum thickness. The other condition as following manner:

- a. The length of power cord between the coupling device and the EUT should not exceed 0.5 meter.
- b. Both positive and negative polarity discharges were applied.
- c. The duration time of each test sequential was 2 minutes.







Note:

TABLE-TOP EQUIPMENT

The configuration consisted of a wooden table (0.8m high) standing on the Ground Reference Plane. The GRP consisted of a sheet of aluminum (at least 0.25mm thick and 2.5m square) connected to the protective grounding system. A minimum distance of 0.5m was provided between the EUT and the walls of the laboratory or any other metallic structure.

FLOOR-STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC/EN 61000-4-4 and its cables, were isolated from the Ground Reference Plane by an insulating support that is 0.1-meter thick. The GRP consisted of a sheet of aluminum (at least 0.25mm thick and 2.5m square) connected to the protective grounding system.



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4.6.4 TEST RESULTS

| | 2 2 2 2 | 2 2 | 7. 7. 7. 7 |
|---------------|--------------|---------------------|---------------------------------------|
| EUT : | LCD Monitor | Model Name: | 215LM00056 |
| Temperature : | 25°C | Relative Humidity : | 60% |
| Pressure : | 1010hPa 🤿 🔿 | Test Date : | 2016-09-26 |
| Test Mode: | VGA | * * * | t t t |
| Test Power: | AC 230V/50Hz | | N N N N |
| Test Power: | AC 230V/50Hz | | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |

| Cour | | | Te | est lev | vel (k\ | √) | | | Criterion | Result | 15. 4 | |
|---------|--|----|-----|---------|---------|-----|-------|-----|-----------|----------|----------|---|
| Coup | ling Line | 0 | .5 | | 1 | | 2 | | 1 | Cillenon | Result | |
| | | + | - | + | - | + | - | + | - | | | 1 |
| * ~ | L L | Р | P | Р | P | x | 2 | T V | , t | L Y L | * * | |
| | J'N J' | P | Р | P | P | | N'SIN | 1. | | L' L' | | 1 |
| t t | PE | | to | 4 | ۲ | t | 1 | ۲. | to | t. | * * | |
| AC line | L+N | P | Р | Р | P | Р | P | 10 | | 5 2 | | Ś |
| t t | L+PE | L. | t. | A | L. | 4 | | Y | Ł. | B | Complies | |
| 1 | <n+pe< td=""><td>1.</td><td></td><td>1</td><td>1</td><td></td><td>1</td><td>1.</td><td></td><td>5 5</td><td>~ ~</td><td>5</td></n+pe<> | 1. | | 1 | 1 | | 1 | 1. | | 5 5 | ~ ~ | 5 |
| t. t | L+N+PE | L. | t's | k | L. | to. | | L. | t. | At 1 | t st | 4 |
| d 🔶 DC | C Line | 1 | | 1 | V | | 2 | 1. | | 2 2 | ~ ~ ~ | 5 |
| Sigr | L. | \$ | 4 | Ţ | \$ | K | L. | 4 | AT . | 5 5 | | |

Note:

1) +/- denotes the Positive/Negative polarity of the output voltage.

2) N/A - denotes test is not applicable in this test report

3) In the table: 'P' represents 'PASS'; 'F' represents 'FAIL'.

4) Criteria A: There was no change operated with initial operating during the test.

5) Criteria B: The EUT function loss during the test, but self-recoverable after the test.

6) Criteria C: The system shut down during the test.

4.7 SURGE TESTING

4.7.1 TEST SPECIFICATION

| Basic Standard: | IEC/EN 61000-4-5 |
|------------------------|--|
| Required Performance: | BAAAAA |
| Wave-Shape: | Combination Wave |
| | 1.2/50 us Open Circuit Voltage |
| | 8 /20 us Short Circuit Current |
| Test Voltage: | Power Line : 0.5 kV, 1 kV, 2 kV |
| Surge Input/Output: | L-N, L-PE, N-PE |
| Generator Source: | 2 ohm between networks |
| Impedance: | 12 ohm between network and ground |
| Polarity: | Positive/Negative |
| Phase Angle: | 0°/90°/180°/270° |
| Pulse Repetition Rate: | 1 time / min. (maximum) |
| Number of Tests: | 5 positive and 5 negative at selected points |

4.7.2 TEST PROCEDURE

- a. For EUT power supply:
- The surge is to be applied to the EUT power supply terminals via the capacitive coupling network. Decoupling networks are required in order to avoid possible adverse effects on equipment not under test that may be powered by the same lines, and to provide sufficient decoupling impedance to the surge wave. The power cord between the EUT and the coupling/decoupling networks shall be 2meters in length (or shorter).
- b. For test applied to unshielded asymmetrically operated interconnection lines of EUT:
- The surge is applied to the lines via the capacitive coupling. The coupling /decoupling networks shall not influence the specified functional conditions of the EUT. The interconnection line between the EUT and the coupling/decoupling networks shall be 2 meters in length (or shorter).
- c. For test applied to unshielded symmetrically operated interconnection /telecommunication lines of EUT:
- d. The surge is applied to the lines via gas arrestors coupling. Test levels below the ignition point of the coupling arrestor cannot be specified. The interconnection line between the EUT and the coupling/decoupling networks shall be 2 meters in length (or shorter).





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4.7.4 TEST RESULTS

| | 2. 2. 2. 2 | 2.2 | 7. 7. 7. 5 |
|---------------|---------------|---------------------|------------|
| EUT : | LCD Monitor | Model Name: | 215LM00056 |
| Temperature : | 25°C | Relative Humidity : | 60% |
| Pressure : | 1010hPa 🤿 🔿 🔿 | Test Date : | 2016-09-26 |
| Test Mode: | VGA | * * * | * * * |
| Test Power: | AC 230V/50Hz | | 1 1 1 1 1 |

| 4 | | | Test level | | | | | | | | | |
|---------------|-----------|--------|------------|------|-------|------|-----------------------|------|----|-----------|--------|----------|
| Coupling Line | | 0.5 kV | | 1 kV | | 2 kV | | 4 kV | | Criterion | Result | |
| | _ | | + | - | + | - | + | - | + | - | | |
| × 4 | ~ ~ | 0° | P | Р | P | P | ~ | | S | ~ | 1 N 2 | 24 |
| t. | L-N | 90° | Р | P | P | Ρ | イ | t | | イ | at | t t |
| ~ ~ | 1 | 180° | P | Р | P | P | | N. | Sn | × * | 5 2 | |
| A | t. | 270° | Ρ | P | P | Ρ | Y | A | | Y | X | t t |
| S S | N SI | 0° | S | · _ | N. N. | 5 | - | | 5 | V . | ST S | Siv 2 |
| AC | L-PE | 90° | | ł | 1 | | 1 | 1 | | 1 | 1 t | t t |
| line | | 180° | N | Ű. | N. | 1 | Ű | N. | 1 | Ü | В | Complies |
| ~ | V | 270° | 7 | 1 | | V | | - | V | 1 | | 4. 4 |
| | | 0° | | | 5 | | | 5 | | | | E E |
| 4 | N-PE | 90° | 2 | | 1. | 2 | | 1. | r | | 5. 5 | 4 4 |
| | | 180° | - | * | 4 | 4 | 公 | 4 | | Y | AT . | |
| 1 | 4 | 270° | 2 | 4 | 5 | 5 | | | 1 | | 5 2 | 4 4 |
| t. | DC Lin | et d | | * | t | | * | 4 | | * | t. | 4 4 |
| 1 | Signal Li | ine 🔬 | 2 | | 5 | 2 | | | 5 | | 5 5 | 5 2 |

Note:

1) Polarity and Numbers of Impulses : 5 Pst / Ngt at each tested mode

2) N/A - denotes test is not applicable in this Test Report

3) In the table: 'P' represents 'PASS'; 'F' represents 'FAIL'.

4) Criteria A: There was no change operated with initial operating during the test.

5) Criteria B: The EUT function loss during the test, but self-recoverable after the test.

6) Criteria C: The system shut down during the test.

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4.8 CONTINUOUS RADIO FREQUENCY DISTURBANCES TESTING

4.8.1 TEST SPECIFICATION

| Basic Standard: | IEC/EN 61000-4-6 |
|-----------------------|------------------------------------|
| Required Performance: | Att |
| Frequency Range: | 0.15 MHz - 80 MHz |
| Field Strength: | 3 Vr.m.s. |
| Modulation: | 1kHz Sine Wave, 80%, AM Modulation |
| Frequency Step: | 1 % of fundamental |
| Dwell Time: | 3 seconds |

4.8.2 TEST PROCEDURE

The EUT are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50mm (where possible). The disturbance signal described below is injected to EUT through CDN.

The other condition as following manner:

- a. The frequency range is swept from 150 kHz to 80 MHz, with the signal 80% amplitude modulated with a 1kHz sine wave. The rate of sweep did not exceed 1.5x 10-3 decade/s. Where the frequency range is swept incrementally, the step size was 1% of fundamental.
- b. The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.

4.8.3 TEST SETUP



NOTE:

FLOOR-STANDING EQUIPMENT

The equipment to be tested is placed on an insulating support of 0.1 meters height above a ground reference plane. All relevant cables shall be provided with the appropriate coupling and decoupling devices at a distance between 0.1 meters and 0.3 meters from the projected geometry of the EUT on the ground reference plane.



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4.8.4 TEST RESULTS

| | | | 2 2 2 2 |
|---------------|---------------|---------------------|-------------|
| EUT : | LCD Monitor | Model Name: | 215LM00056 |
| Temperature : | 25°C | Relative Humidity : | 60% |
| Pressure : | 1010hPa 🔷 🔿 🔿 | Test Date : | 2016-09-26 |
| Test Mode: | VGA | * * * | |
| Test Power: | AC 230V/50Hz | N AN AN | 1 1 1 1 1 1 |

| 1 | Test Ports (Mode) | Freq. Range MHz) | Field Strength | Perform. Criteria | Results | Judgment |
|-----|---------------------------------|---------------------|---------------------------|----------------------|---------|----------|
| 1 | Input/ Output AC. Power Port | 0.1580 | 2)/(5 m c) | A | A A | Complies |
| 1 | Input/ Output DC. Power Port | 0.15 80 | 3V(r.m.s) AM Modulated | AT | N/A | N/A |
| 1 N | Signal Line | 0.15 80 | 1000Hz, 80% | At | NA | N/A |

- 1) N/A denotes test is not applicable in this Test Report.
- 2) In the table: 'P' represents 'PASS'; 'F' represents 'FAIL'.
- 3) Criteria A: There was no change operated with initial operating during the test.
- 4) Criteria B: The EUT function loss during the test, but self-recoverable after the test.
- 5) Criteria C: The system shut down during the test.

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4.9 POWER FREQUENCY MAGNETIC FIELD TESTING

4.9.1 TEST SPECIFICATION

| Basic Standard: | IEC/EN 61000-4-8 |
|-----------------------|-------------------------|
| Required Performance: | Attt |
| Frequency Range: | 50Hz |
| Field Strength: | 1 A/m |
| Observation Time: | 5 minutes |
| Inductance Coil: | Rectangular type, 1mx1m |

4.9.2 TEST PROCEDURE

- The EUT and support equipment, are placed on a table that is 0.8 meter above a metal ground plane measured 1m*1m min. and 0.65mm thick min. The other condition as following manner:
- a. The equipment cabinets shall be connected to the safety earth directly on the GRP via the earth terminal of the EUT.
- b. The cables supplied or recommended by the equipment manufacturer shall be used. 1 meter of all cables used shall be exposed to the magnetic field.



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4.9.3 TEST SETUP



Note:

TABLE-TOP EQUIPMENT

The equipment shall be subjected to the test magnetic field by using the induction coil of standard dimension (1 m x 1 m). The induction coil shall then be rotated by 90 degrees in order to expose the EUT to the test field with different orientations.

FLOOR-STANDING EQUIPMENT

The equipment shall be subjected to the test magnetic field by using induction coils of suitable dimensions. The test shall be repeated by moving and shifting the induction coils, in order to test the whole volume of the EUT for each orthogonal direction. The test shall be repeated with the coil shifted to different positions along the side of the EUT, in steps corresponding to 50 % of the shortest side of the coil. The induction coil shall then be rotated by 90 degrees in order to expose the EUT to the test field with different orientations.



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4.9.4 TEST RESULTS

| 6 6 | | 5 6 | | 2 2 | 2 2 |
|---------------|---------------|-----|---------------------|------------|-----|
| EUT : | LCD Monitor | L. | Model Name: | 215LM00056 | T. |
| Temperature : | 25℃ | | Relative Humidity : | 60% | |
| Pressure : | 1010hPa 🤿 🛛 🤿 | . 2 | Test Date : | 2016-09-26 | 4 4 |
| Test Mode: | VGA | 1 | * * * | t t | X |
| Test Power: | AC 230V/50Hz | | | 1 1 | 1 1 |

| Test Mode | Test Level | Antenna aspect | Duration (s) | Perform Criteria | Results | Judgment |
|-----------|------------|-------------------|-----------------|---------------------|---------|----------|
| Enclosure | 1 A/m | × | 300 s | A | P | STAT & |
| Enclosure | 1 A/m | Y | 300 s | A | ATP A | Complies |
| Enclosure | 1 A/m | Z | 300 s | A | P | |

- 1) N/A denotes test is not applicable in this test report
- 2) In the table: 'P' represents 'PASS'; 'F' represents 'FAIL'.
- 3) Criteria A: There was no change operated with initial operating during the test.
- 4) Criteria B: The EUT function loss during the test, but self-recoverable after the test.
- 5) Criteria C: The system shut down during the test.

4.10 VOLTAGE INTERRUPTION/DIPS TESTING

4.10.1 TEST SPECIFICATION

| | Basic Standard: | IEC/EN 61000-4-11 | | |
|-------------------------|-----------------------|--|--|--|
| | Required Performance: | B (For 100% Voltage Dips) | | |
| | | C (For 30% Voltage Dips) | | |
| | | C (For 100% Voltage Interruptions) | | |
| Test Duration Time: | | Minimum three test events in sequence | | |
| Interval between Event: | | Minimum ten seconds | | |
| Phase Angle: | | 0°/45°/90°/135°/180°/225°/270°/315°/360° | | |
| | Test Cycle: | 3 times | | |
| | | | | |

4.10.2 TEST PROCEDURE

The EUT shall be tested for each selected combination of test levels and duration with a sequence of three dips/interruptions with intervals of 10 s minimum (between each test event). Each representative mode of operation shall be tested. Abrupt changes in supply voltage shall occur at zero crossings of the voltage waveform.

4.10.3 TEST SETUP





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4.10.4 TEST RESULTS

| 6 6 | | 2 2 | 6 6 | 2 2 | 2 2 |
|---------------|--------------|-----|---------------------|------------|---------------------------------------|
| EUT : | LCD Monitor | t. | Model Name: | 215LM00056 | , , , , , , , , , , , , , , , , , , , |
| Temperature : | 25°C | A A | Relative Humidity : | 60% | A A |
| Pressure : | 1010hPa 🤿 | 4 4 | Test Date : | 2016-09-26 | 4 4 |
| Test Mode: | VGA | A I | * * * | t t | X |
| Test Power: | AC 230V/50Hz | N 1 | St St | Nº Nº | × × |

| Interruption & Dips | Duration (T) | Perform Criteria | Results | Judgment |
|---------------------|-----------------|---------------------|----------|-------------|
| Voltage dip 100% | 0.5 | A SHE | STOP STO | Stat Stat S |
| Voltage dip 30% | 25 | t ct | dP dt | Complies |
| Voltage dip 100% | 250 | ₹c ₹ | ₹ P₹ | |

- 1). N/A denotes test is not applicable in this test report.
- 2) In the table: 'P' represents 'PASS'; 'F' represents 'FAIL'.
- 3) Criteria A: There was no change operated with initial operating during the test.
- 4) Criteria B: The EUT function loss during the test, but self-recoverable after the test.
- 5) Criteria C: The system shut down during the test.



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5. EUT TEST PHOTO

Radiated Measurement Photos







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Conducted Measurement Photos



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ATTACHMENT PHOTOGRAPHS OF EUT

Photo 1







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