

# TEST REPORT

Report number : Z071C-15375

Issue date : December 18, 2015

The device, as described herewith, was tested pursuant to applicable test procedure and complies with the requirements of;

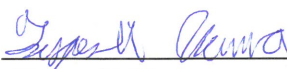
## FCC Part15 Subpart B

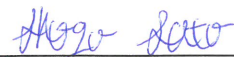
The test results are traceable to the international or national standards.

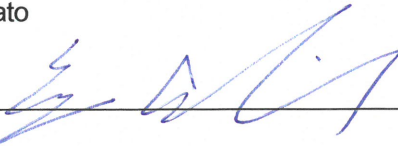
|                            |                          |
|----------------------------|--------------------------|
| Applicant                  | : FUJITSU ISOTEC LIMITED |
| Equipment under test (EUT) | : Dot Matrix Printer     |
| Model number               | : M33335A                |

Date of test : November 30, December 1, 2015  
Test place : TÜV SÜD Zacta Ltd. Yonezawa Testing Center  
4149-7 Hachimanpara 5-chome  
Yonezawa-shi Yamagata 992-1128 Japan  
Phone: +81-238-28-2880 Fax: +81-238-28-2888  
Test results : Complied

The results in this report are applicable only to the equipment tested.  
This report shall not be re-produced except in full without the written approval of TÜV SÜD Zacta Ltd.  
This test report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

Tested by :   
Tsuyoshi Okumura

  
Shogo Sato

Authorized by :   
Eiji Akiba  
Deputy General Manager of Technical Department



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## 1. Summary of Test

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### 1.1 Purpose of test

It is the original test in order to verify conformance to FCC Part 15 Subpart B.

### 1.2 Standards

CFR47 FCC Part 15 Subpart B

#### 1.2.1 Test Methods

ANSI C63.4-2003

#### 1.2.2 Deviation from standards

None

### 1.3 List of applied test to the EUT

| Test item                        | Classification of EUT | Test    | Result | Note |
|----------------------------------|-----------------------|---------|--------|------|
| Conducted emission at mains port | Class B               | Applied | PASS   | -    |
| Radiated emission                |                       | Applied | PASS   | -    |

Note: None.

#### 1.3.1 Test set up

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## ***2. Equipment Under Test***

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### **2.1 General Description of equipment**

The EUT is Dot Matrix Printer.

### **2.2 EUT information**

Applicant : FUJITSU ISOTEC LIMITED  
135, Higashinozaki, Hobara-machi, Date-shi, Fukushima  
960-0695 Japan  
Phone: +81-24-574-2214 Fax: +81-24-574-2277

Equipment under test : Dot Matrix Printer

Trade name : FUJITSU ISOTEC

Model number : M33335A

Serial number : MA191981

EUT condition : Pre-production

Max. frequency : 144 MHz

Power ratings : AC 100-120V 50/60Hz 4A

Size : (W) 600 × (D) 350 × (H) 290 mm

### **2.3 Variation of the family model(s)**

Not applicable

### **2.4 Operating mode**

[H print mode]

- i) Print-data are transferred from personal computer to EUT
- ii) Printer feeds a paper from tractor unit
- iii) EUT prints "H" letters on the paper
- iv) i) to iii) is repeated.

### 3. Configuration of equipment

#### 3.1 Equipment(s) used

| No. | Equipment                   | Company             | Model No.           | Serial No.                   | FCC ID / DoC   | Comment |
|-----|-----------------------------|---------------------|---------------------|------------------------------|----------------|---------|
| 1   | Dot Matrix Printer          | FUJITSU ISOTEC      | M33335A             | MA191981                     | KHZ020 M33335A | EUT     |
| 2   | Front Cut Sheet Feeder      | FUJITSU ISOTEC      | KA02027-D700        | 0Y507684                     | N/A            | Option  |
| 3   | Rear Cut Sheet Feeder       | FUJITSU ISOTEC      | KA02027-D700        | 9Y021512                     | N/A            | Option  |
| 4   | LAN card                    | FUJITSU ISOTEC      | KA21223-B401        | N/A                          | N/A            | Option  |
| 5   | Personal Computer           | DELL                | MMS                 | DWZQ21S                      | DoC            | -       |
| 6   | Display                     | DELL                | E176FPc             | CN-0HC746-46633-5CN-JHCU     | DoC            | -       |
| 7   | Printer                     | SII                 | DPU-414             | 1000169C                     | DoC            | -       |
| 8   | AC Adaptor for Printer      | SII                 | PW-4007-JU1-E       | 0948                         | N/A            | -       |
| 9   | HDD                         | Maxtor              | Maxtor One Touch II | L59KJJBH                     | DoC            | -       |
| 10  | AC adaptor for External HDD | DVE                 | DSA-0421S-12 2      | 0059150871                   | DoC            | -       |
| 11  | Keyboard                    | DELL                | RT7D00              | TH-054EXM-37171-19A-1180     | AQ6-7D0 080COB | -       |
| 12  | Mouse                       | DELL                | M-SAW34             | LNA20517343                  | DoC            | -       |
| 13  | HUB                         | Juniper NETWORKS    | NS-5XT-107-05       | 52112004001472               | DoC            | -       |
| 14  | AC Adapter for HUB          | Sumisho Electronics | EPA-121DA-13        | DTS120100SUD-P5/RD-SZ-COAX-1 | N/A            | -       |
| 15  | Personal Computer           | HP                  | HSTNN-I05C          | CNU7071D2W                   | DoC            | -       |
| 16  | AC Adapter for PC           | HP                  | PPP009H             | F1-09020465460C              | N/A            | -       |
| 17  | USB Mouse                   | FUJITSU             | M-U0026             | N/A                          | DoC            | -       |

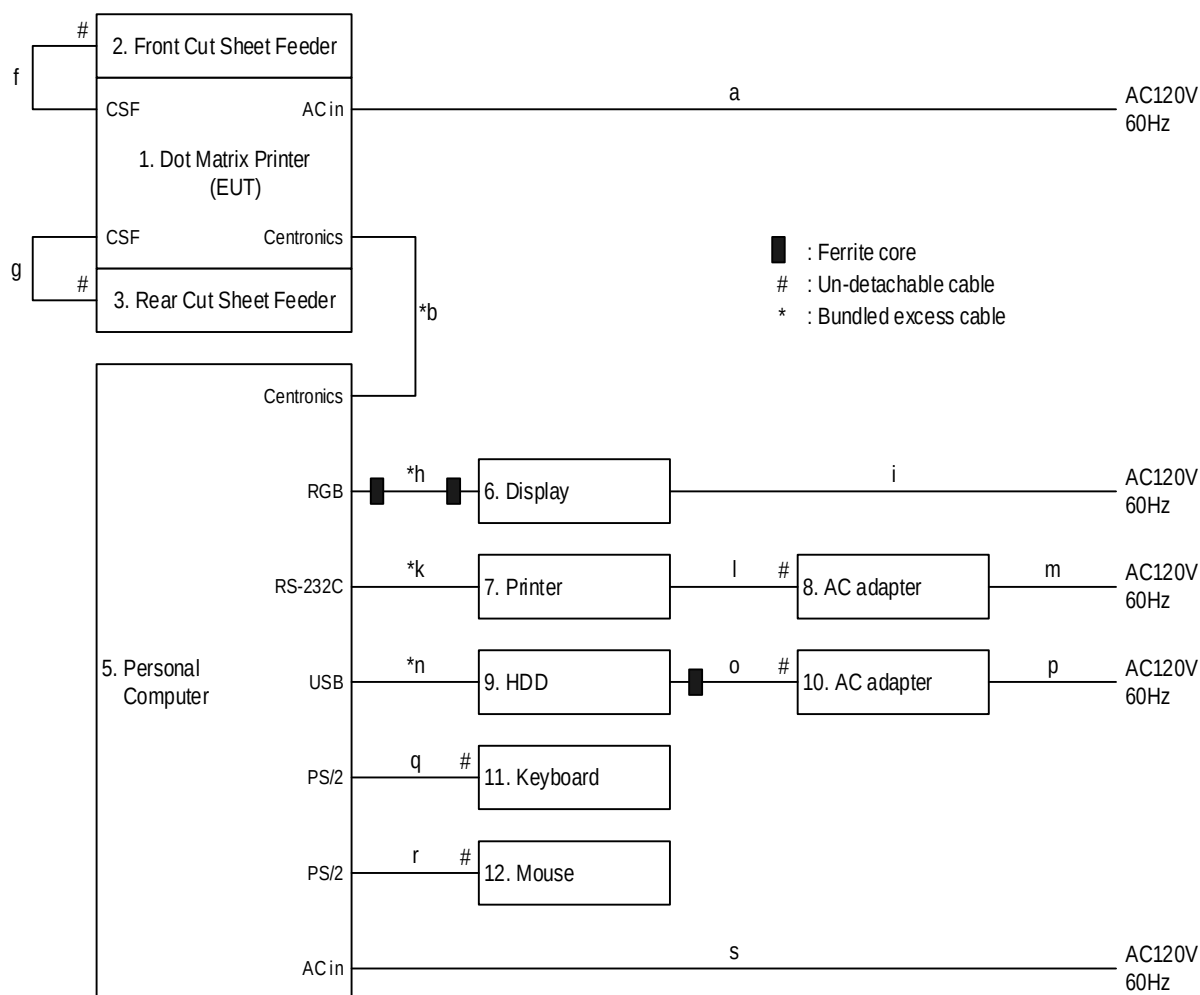


Zacta

### 3.2 Cable(s) used

| No. | Cable                                | Length[m] | Shield | Connector | Comment   |
|-----|--------------------------------------|-----------|--------|-----------|-----------|
| a   | AC power cord for EUT                | 3.0       | No     | Plastic   | Accessory |
| b   | Centronics cable                     | 2.0       | Yes    | Metal     | -         |
| c   | RS-232C cable                        | 1.6       | Yes    | Metal     | -         |
| d   | USB cable                            | 3.0       | Yes    | Metal     | -         |
| e   | LAN cable                            | 5.0       | No     | Plastic   | -         |
| f   | CSF cable                            | 0.2       | Yes    | Metal     | -         |
| g   | CSF cable                            | 0.2       | Yes    | Metal     | -         |
| h   | RGB cable                            | 1.5       | Yes    | Metal     | -         |
| i   | AC power cord for Display            | 2.0       | No     | Plastic   | -         |
| j   | Parallel cable                       | 2.0       | Yes    | Metal     | -         |
| k   | Serial cable                         | 1.7       | Yes    | Metal     | -         |
| l   | DC cable                             | 1.9       | No     | Metal     | -         |
| m   | AC power cord for Printer AC adapter | 2.0       | No     | Plastic   | -         |
| n   | USB cable                            | 1.8       | Yes    | Metal     | -         |
| o   | DC cable                             | 1.8       | No     | Metal     | -         |
| p   | AC power cord for HDD AC adapter     | 2.0       | No     | Plastic   | -         |
| q   | Keyboard cable                       | 1.8       | No     | Metal     | -         |
| r   | Mouse cable                          | 1.9       | No     | Metal     | -         |
| s   | AC power coed for PC                 | 2.0       | No     | Plastic   | -         |
| t   | DC cable                             | 1.8       | No     | Plastic   | -         |
| u   | AC power cord for HUB AC adapter     | 1.8       | No     | Plastic   | -         |
| v   | LAN cable                            | 2.0       | No     | Plastic   | -         |
| w   | DC cable                             | 1.8       | No     | Plastic   | -         |
| x   | AC power cord for PC AC adapter      | 1.8       | No     | Plastic   | -         |
| y   | USB Mouse cable                      | 1.8       | Yes    | Metal     | -         |

### 3.3 System configuration [Centronics I/F]

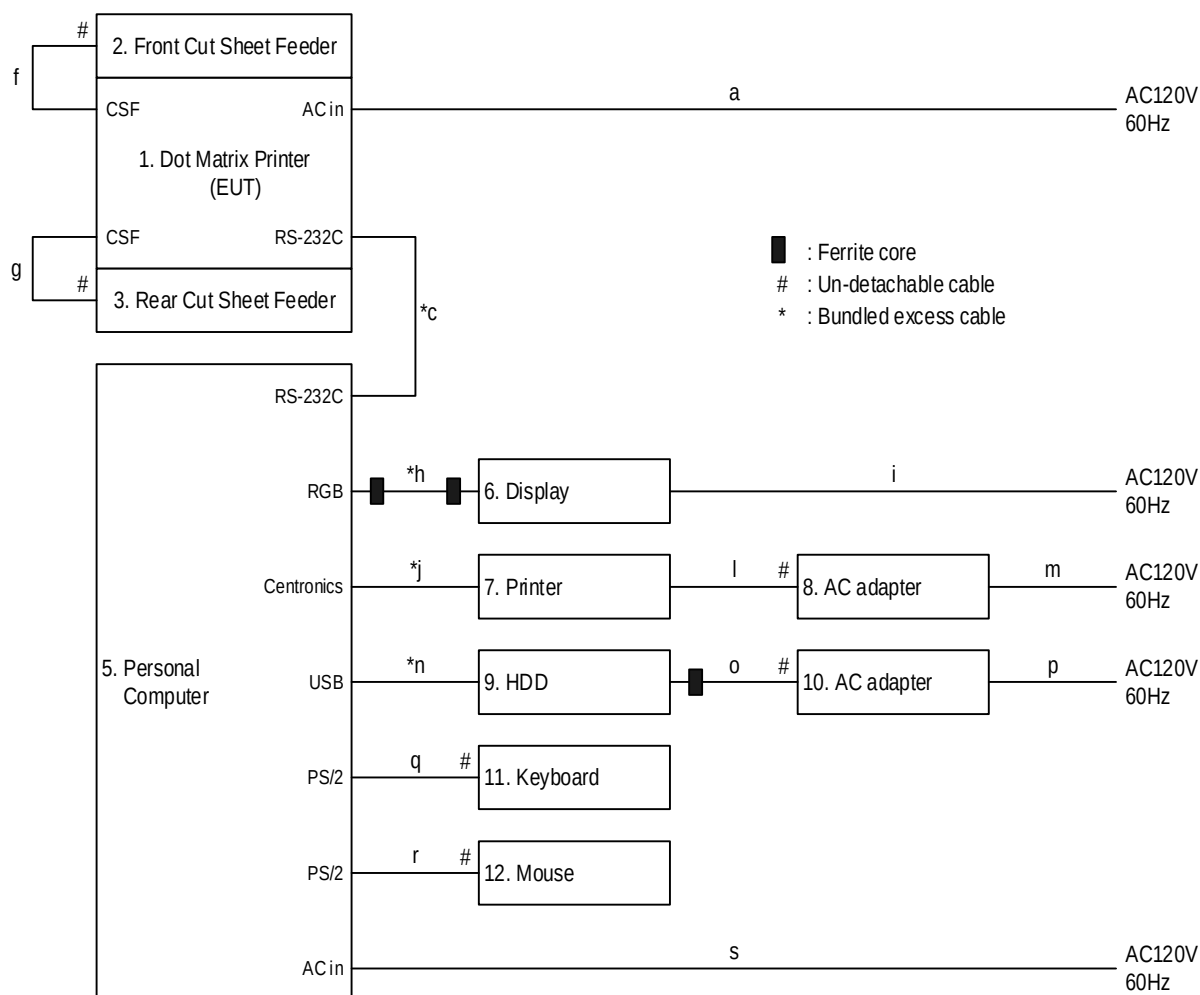


Note1: Numbers assigned to equipment or cables on this diagram correspond to the list in "3.1 Equipment(s) used" and "3.2 Cable(s) used".

Note2: Two ferrite cores of RGB cable (No.h) are accessories of RGB cable (No.h).

Note3: One ferrite core of DC cable (No.o) is an accessory of HDD AC adapter (No.10).

### 3.4 System configuration [RS-232C I/F]



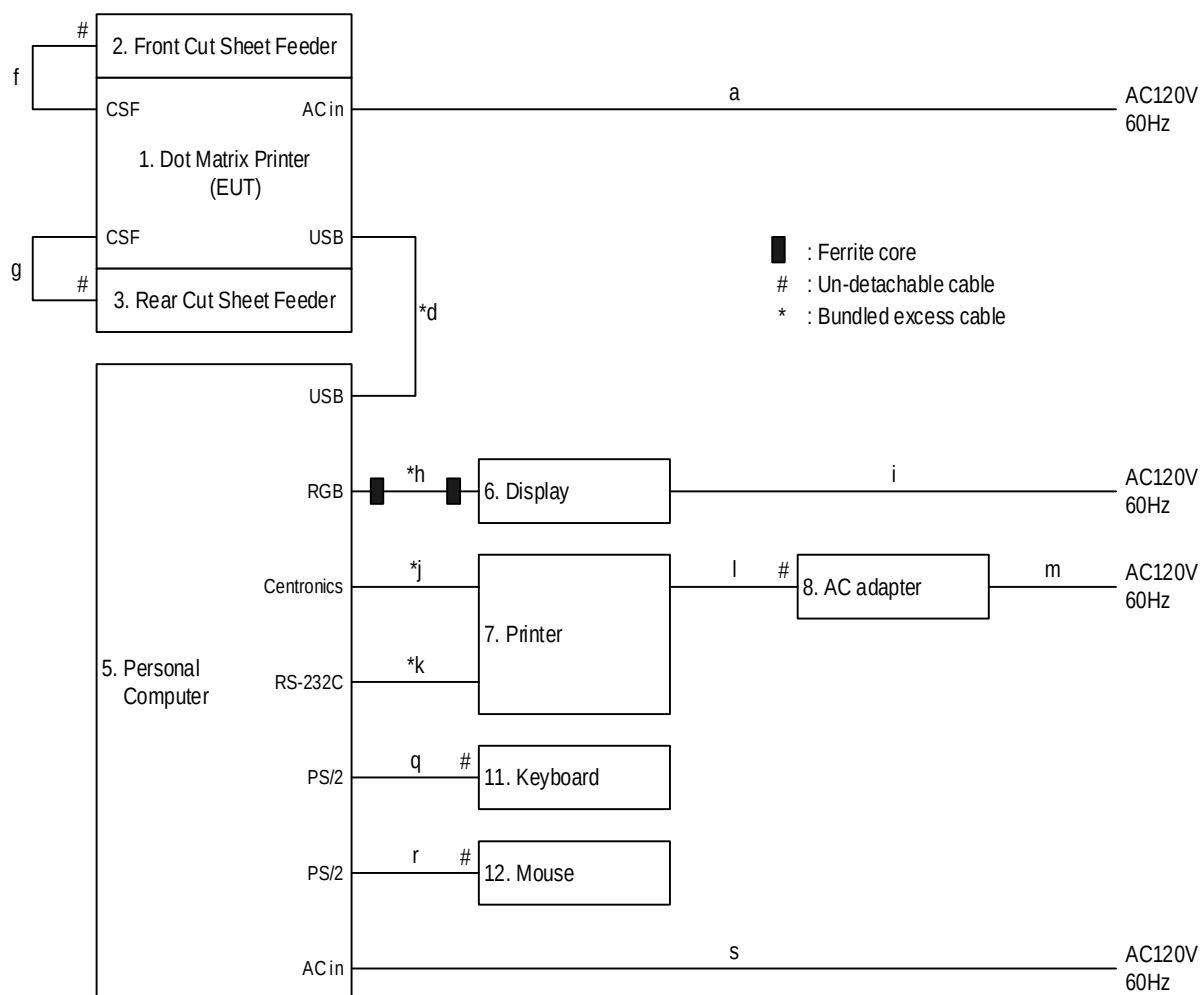
Note1: Numbers assigned to equipment or cables on this diagram correspond to the list in "3.1 Equipment(s) used" and "3.2 Cable(s) used".

Note2: Two ferrite cores of RGB cable (No.h) are accessories of RGB cable (No.h).

Note3: One ferrite core of DC cable (No.o) is an accessory of HDD AC adapter (No.10).



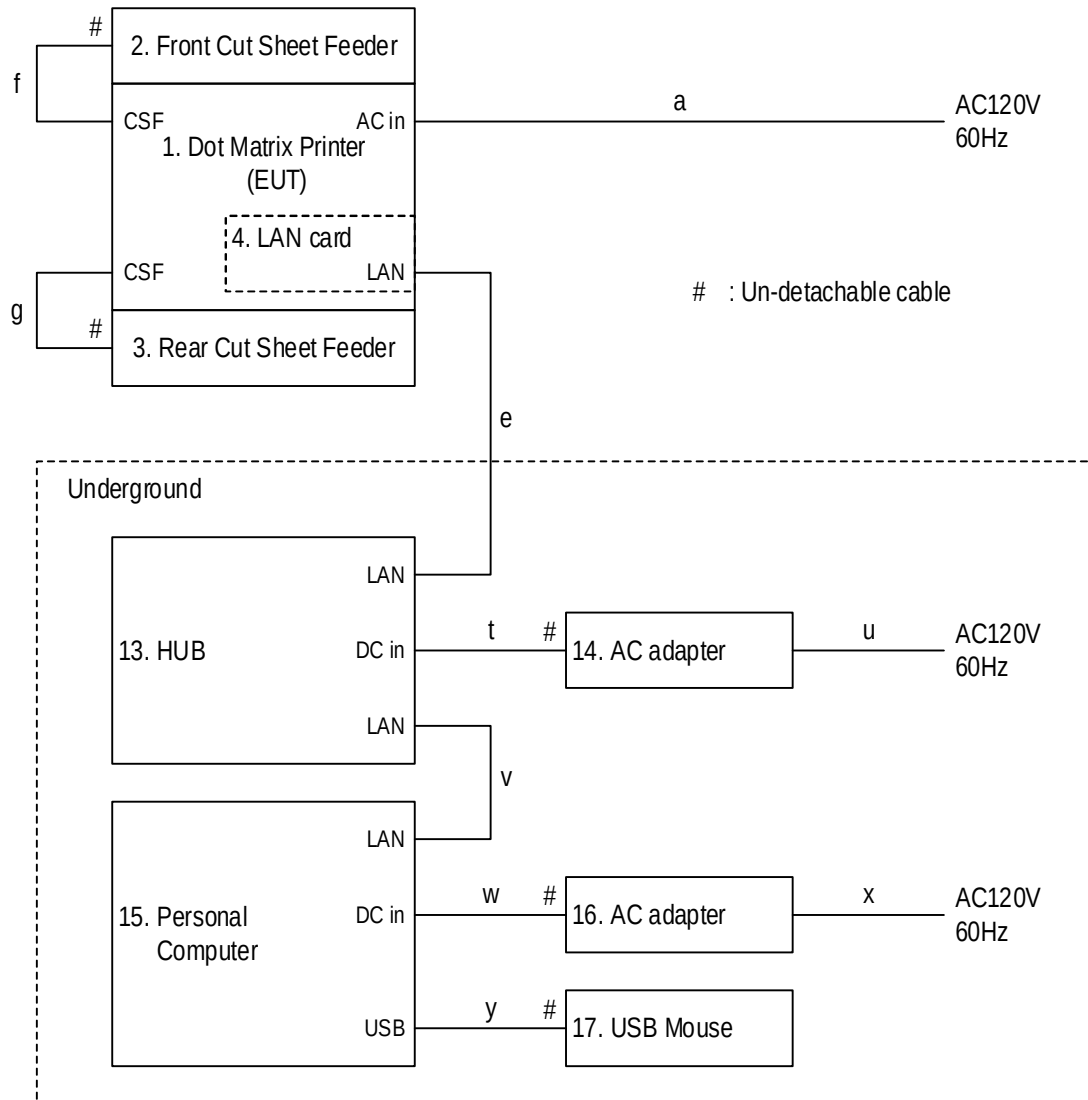
### 3.5 System configuration [USB I/F]



Note1: Numbers assigned to equipment or cables on this diagram correspond to the list in "3.1 Equipment(s) used" and "3.2 Cable(s) used".

Note2: Two ferrite cores of RGB cable (No.h) are accessories of RGB cable (No.h).

### 3.6 System configuration [LAN I/F]



Note1: Numbers assigned to equipment or cables on this diagram correspond to the list in "3.1 Equipment(s) used" and "3.2 Cable(s) used".

## 4. Conducted emission at mains port test information

### 4.1 Measurement procedure

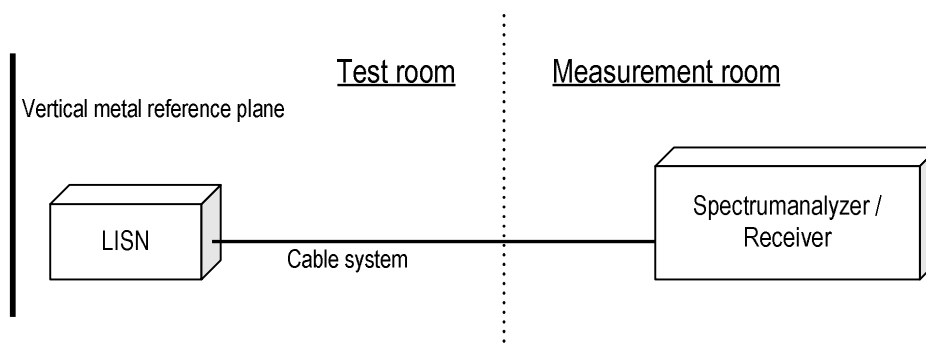
Test was applied by following conditions.

|                                  |                                           |
|----------------------------------|-------------------------------------------|
| Test method                      | : ANSI C63.4                              |
| Frequency range                  | : 0.15MHz to 30MHz                        |
| Test place                       | : 10m Semi-anechoic chamber No.2          |
| EUT was placed on                | : FRP table / (W)2.0m × (D)1.0m × (H)0.8m |
| Vertical Metal Reference Plane   | : (W)3.0m × (H)2.0m 0.4m away from EUT    |
| Horizontal Metal Reference Plane | : 22.0m × 14.0m                           |
| Test receiver setting            |                                           |
| - Detector                       | : Quasi-peak, Average                     |
| - Bandwidth                      | : 9kHz                                    |

EUT and peripherals are connected to 50Ω/50μH and 50Ω/50μH+5Ω Line Impedance Stabilization Network (LISN) which are connected to reference ground plane, and are placed 80cm away from EUT. Excess of AC/DC power cable is bundled in center. LISN for peripheral is terminated in 50Ω.

EUT operating mode is selected to emit the maximum noise. Overall frequency range is investigated with spectrum analyzer using peak detector. Maximum emission configuration is determined by manipulating the EUT, peripherals, interconnecting cables. Then, emission measurements are performed with test receiver in above setting to each current-carrying conductor of the mains port. Sufficient time for EUT, peripherals and test equipment is provided in order for them to warm up to their normal operating condition. If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits.

- Test configuration



### 4.2 Calculation method

Emission level = Reading + c.f

c.f = LISN. factor + Cable system loss

Margin = Limit – Emission level

Example:

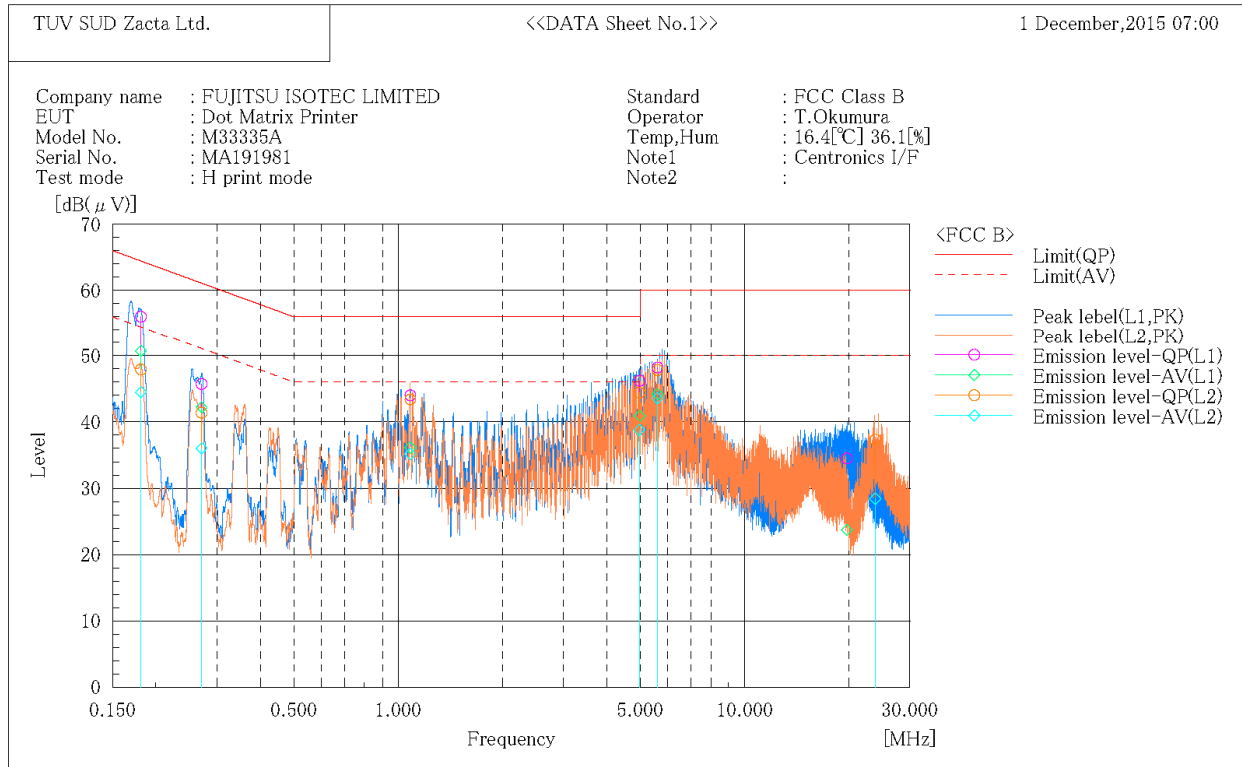
Limit @ 6.770MHz : 60.0dBμV(Quasi-peak)  
                               : 50.0dBμV(Average)

(Quasi peak) Reading = 41.2dBμV      c.f = 10.3dB  
 Emission level = 41.2 + 10.3 = 51.5dBμV  
 Margin = 60.0 – 51.5 = 8.5dB

(Average) Reading = 35.0dBμV      c.f = 10.3dB  
 Emission level = 35.0 + 10.3 = 45.3dBμV  
 Margin = 50.0 – 45.3 = 4.7dB

### 4.3 Test data

\*\*\*\*\* CONDUCTED EMISSION at MAINS PORT \*\*\*\*\*  
[ 10m Semi-anechoic chamber #2 ]



#### Final Result

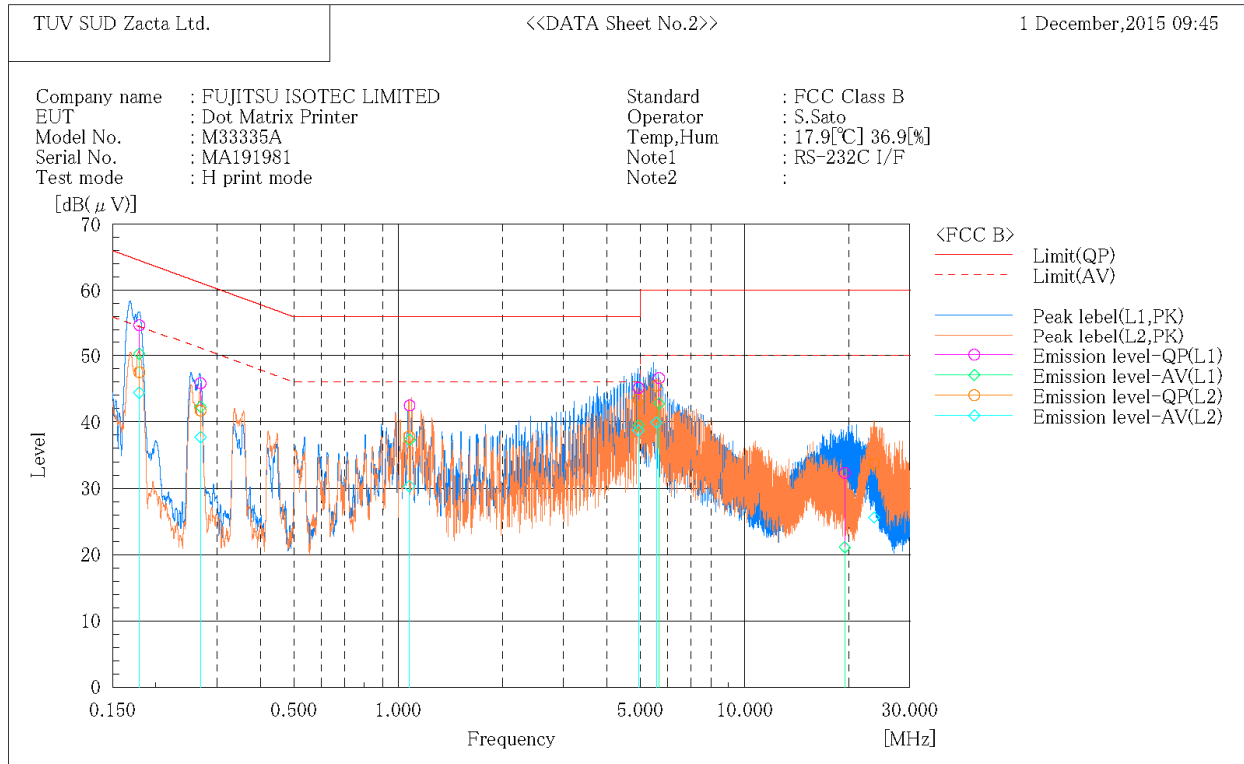
--- L1 Phase ---

| No. | Frequency<br>[MHz] | Reading<br>QP<br>[dB(μV)] | Reading<br>AV<br>[dB(μV)] | c. f<br>[dB] | Result<br>QP<br>[dB(μV)] | Result<br>AV<br>[dB(μV)] | Limit<br>QP<br>[dB(μV)] | Limit<br>AV<br>[dB(μV)] | Margin<br>QP<br>[dB] | Margin<br>AV<br>[dB] |
|-----|--------------------|---------------------------|---------------------------|--------------|--------------------------|--------------------------|-------------------------|-------------------------|----------------------|----------------------|
| 1   | 0.181              | 45.4                      | 40.1                      | 10.6         | 56.0                     | 50.7                     | 64.4                    | 54.4                    | 8.4                  | 3.7                  |
| 2   | 0.271              | 35.2                      | 31.7                      | 10.5         | 45.7                     | 42.2                     | 61.1                    | 51.1                    | 15.4                 | 8.9                  |
| 3   | 1.085              | 33.5                      | 25.6                      | 10.5         | 44.0                     | 36.1                     | 56.0                    | 46.0                    | 12.0                 | 9.9                  |
| 4   | 4.976              | 35.4                      | 30.1                      | 10.8         | 46.2                     | 40.9                     | 56.0                    | 46.0                    | 9.8                  | 5.1                  |
| 5   | 5.609              | 37.4                      | 33.4                      | 10.8         | 48.2                     | 44.2                     | 60.0                    | 50.0                    | 11.8                 | 5.8                  |
| 6   | 19.750             | 23.0                      | 12.2                      | 11.5         | 34.5                     | 23.7                     | 60.0                    | 50.0                    | 25.5                 | 26.3                 |

--- L2 Phase ---

| No. | Frequency<br>[MHz] | Reading<br>QP<br>[dB(μV)] | Reading<br>AV<br>[dB(μV)] | c. f<br>[dB] | Result<br>QP<br>[dB(μV)] | Result<br>AV<br>[dB(μV)] | Limit<br>QP<br>[dB(μV)] | Limit<br>AV<br>[dB(μV)] | Margin<br>QP<br>[dB] | Margin<br>AV<br>[dB] |
|-----|--------------------|---------------------------|---------------------------|--------------|--------------------------|--------------------------|-------------------------|-------------------------|----------------------|----------------------|
| 1   | 0.181              | 37.2                      | 33.8                      | 10.7         | 47.9                     | 44.5                     | 64.4                    | 54.4                    | 16.5                 | 9.9                  |
| 2   | 0.271              | 30.8                      | 25.4                      | 10.6         | 41.4                     | 36.0                     | 61.1                    | 51.1                    | 19.7                 | 15.1                 |
| 3   | 1.085              | 32.8                      | 24.6                      | 10.6         | 43.4                     | 35.2                     | 56.0                    | 46.0                    | 12.6                 | 10.8                 |
| 4   | 4.976              | 33.5                      | 27.9                      | 10.9         | 44.4                     | 38.8                     | 56.0                    | 46.0                    | 11.6                 | 7.2                  |
| 5   | 5.609              | 36.9                      | 32.7                      | 10.9         | 47.8                     | 43.6                     | 60.0                    | 50.0                    | 12.2                 | 6.4                  |
| 6   | 23.796             | 25.5                      | 16.6                      | 11.8         | 37.3                     | 28.4                     | 60.0                    | 50.0                    | 22.7                 | 21.6                 |

\*\*\*\*\* CONDUCTED EMISSION at MAINS PORT \*\*\*\*\*  
[ 10m Semi-anechoic chamber #2 ]



## Final Result

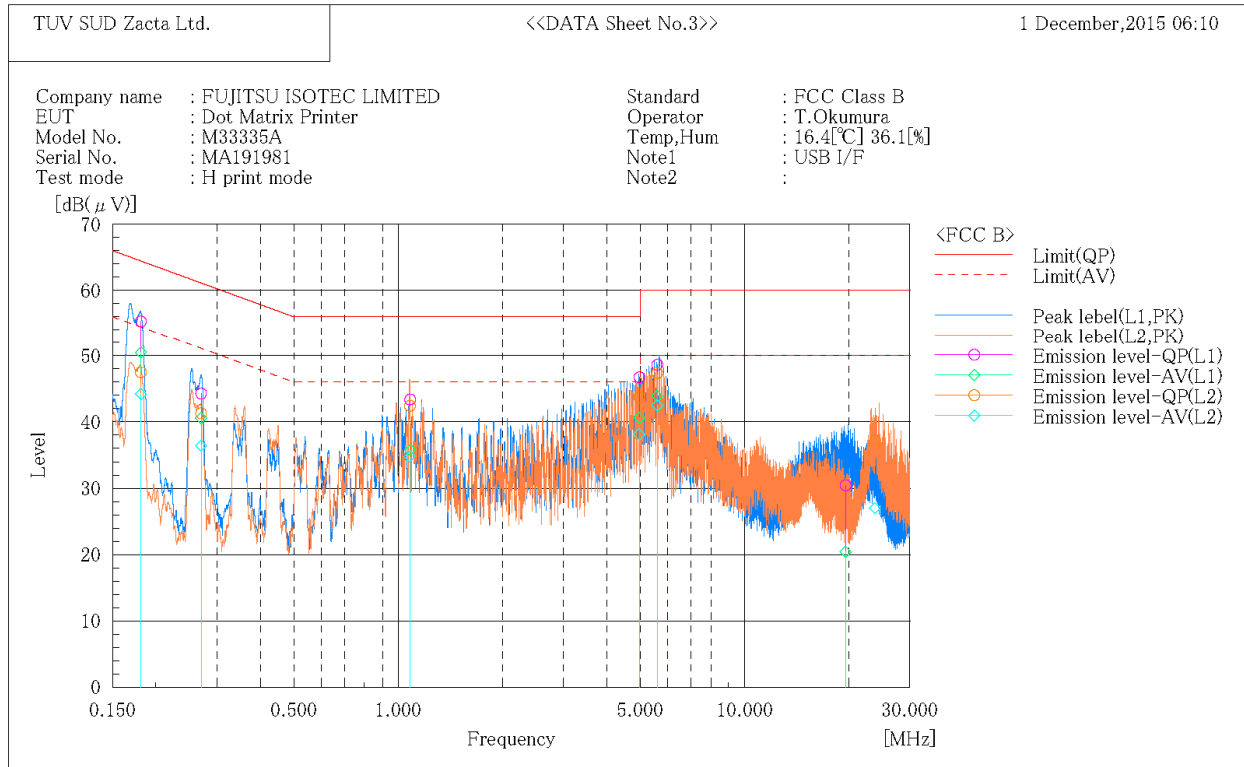
## --- L1 Phase ---

| No. | Frequency<br>[MHz] | Reading<br>QP<br>[dB(μV)] | Reading<br>AV<br>[dB(μV)] | c. f<br>[dB] | Result<br>QP<br>[dB(μV)] | Result<br>AV<br>[dB(μV)] | Limit<br>QP<br>[dB(μV)] | Limit<br>AV<br>[dB(μV)] | Margin<br>QP<br>[dB] | Margin<br>AV<br>[dB] |
|-----|--------------------|---------------------------|---------------------------|--------------|--------------------------|--------------------------|-------------------------|-------------------------|----------------------|----------------------|
| 1   | 0.179              | 44.1                      | 39.7                      | 10.6         | 54.7                     | 50.3                     | 64.5                    | 54.5                    | 9.8                  | 4.2                  |
| 2   | 0.269              | 35.3                      | 31.8                      | 10.5         | 45.8                     | 42.3                     | 61.1                    | 51.1                    | 15.3                 | 8.8                  |
| 3   | 1.079              | 32.0                      | 26.8                      | 10.5         | 42.5                     | 37.3                     | 56.0                    | 46.0                    | 13.5                 | 8.7                  |
| 4   | 4.948              | 34.3                      | 28.7                      | 10.8         | 45.1                     | 39.5                     | 56.0                    | 46.0                    | 10.9                 | 6.5                  |
| 5   | 5.668              | 35.8                      | 32.0                      | 10.8         | 46.6                     | 42.8                     | 60.0                    | 50.0                    | 13.4                 | 7.2                  |
| 6   | 19.457             | 20.8                      | 9.6                       | 11.5         | 32.3                     | 21.1                     | 60.0                    | 50.0                    | 27.7                 | 28.9                 |

## --- L2 Phase ---

| No. | Frequency<br>[MHz] | Reading<br>QP<br>[dB(μV)] | Reading<br>AV<br>[dB(μV)] | c. f<br>[dB] | Result<br>QP<br>[dB(μV)] | Result<br>AV<br>[dB(μV)] | Limit<br>QP<br>[dB(μV)] | Limit<br>AV<br>[dB(μV)] | Margin<br>QP<br>[dB] | Margin<br>AV<br>[dB] |
|-----|--------------------|---------------------------|---------------------------|--------------|--------------------------|--------------------------|-------------------------|-------------------------|----------------------|----------------------|
| 1   | 0.179              | 36.8                      | 33.7                      | 10.7         | 47.5                     | 44.4                     | 64.5                    | 54.5                    | 17.0                 | 10.1                 |
| 2   | 0.269              | 31.1                      | 27.1                      | 10.6         | 41.7                     | 37.7                     | 61.1                    | 51.1                    | 19.4                 | 13.4                 |
| 3   | 1.075              | 27.2                      | 19.7                      | 10.6         | 37.8                     | 30.3                     | 56.0                    | 46.0                    | 18.2                 | 15.7                 |
| 4   | 4.938              | 32.5                      | 27.8                      | 10.9         | 43.4                     | 38.7                     | 56.0                    | 46.0                    | 12.6                 | 7.3                  |
| 5   | 5.568              | 34.6                      | 29.0                      | 10.9         | 45.5                     | 39.9                     | 60.0                    | 50.0                    | 14.5                 | 10.1                 |
| 6   | 23.664             | 21.9                      | 13.8                      | 11.8         | 33.7                     | 25.6                     | 60.0                    | 50.0                    | 26.3                 | 24.4                 |

\*\*\*\*\* CONDUCTED EMISSION at MAINS PORT \*\*\*\*\*  
[ 10m Semi-anechoic chamber #2 ]



## Final Result

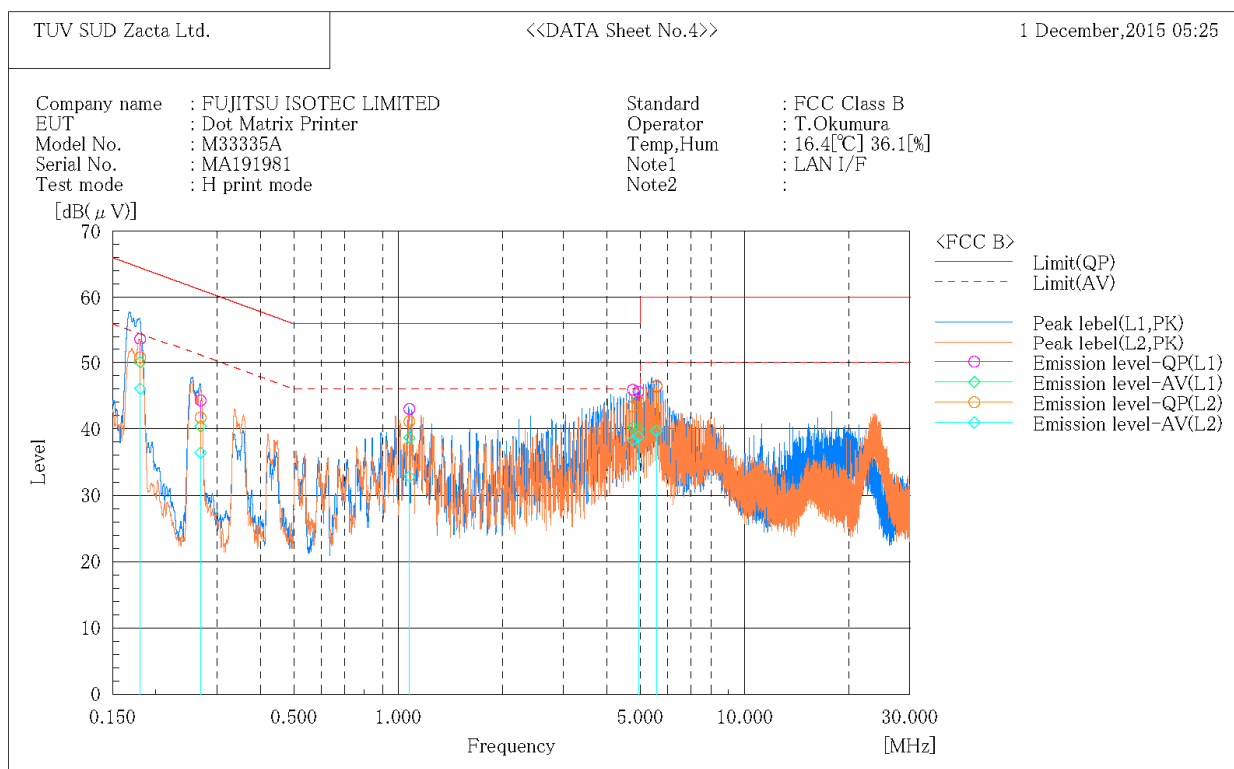
## --- L1 Phase ---

| No. | Frequency<br>[MHz] | Reading<br>QP<br>[dB(μV)] | Reading<br>AV<br>[dB(μV)] | c. f<br>[dB] | Result<br>QP<br>[dB(μV)] | Result<br>AV<br>[dB(μV)] | Limit<br>QP<br>[dB(μV)] | Limit<br>AV<br>[dB(μV)] | Margin<br>QP<br>[dB] | Margin<br>AV<br>[dB] |
|-----|--------------------|---------------------------|---------------------------|--------------|--------------------------|--------------------------|-------------------------|-------------------------|----------------------|----------------------|
| 1   | 0.181              | 44.7                      | 39.9                      | 10.6         | 55.3                     | 50.5                     | 64.4                    | 54.4                    | 9.1                  | 3.9                  |
| 2   | 0.270              | 33.8                      | 30.1                      | 10.5         | 44.3                     | 40.6                     | 61.1                    | 51.1                    | 16.8                 | 10.5                 |
| 3   | 1.083              | 32.9                      | 25.3                      | 10.5         | 43.4                     | 35.8                     | 56.0                    | 46.0                    | 12.6                 | 10.2                 |
| 4   | 4.967              | 35.9                      | 29.8                      | 10.8         | 46.7                     | 40.6                     | 56.0                    | 46.0                    | 9.3                  | 5.4                  |
| 5   | 5.598              | 37.8                      | 33.1                      | 10.8         | 48.6                     | 43.9                     | 60.0                    | 50.0                    | 11.4                 | 6.1                  |
| 6   | 19.572             | 18.9                      | 8.9                       | 11.5         | 30.4                     | 20.4                     | 60.0                    | 50.0                    | 29.6                 | 29.6                 |

## --- L2 Phase ---

| No. | Frequency<br>[MHz] | Reading<br>QP<br>[dB(μV)] | Reading<br>AV<br>[dB(μV)] | c. f<br>[dB] | Result<br>QP<br>[dB(μV)] | Result<br>AV<br>[dB(μV)] | Limit<br>QP<br>[dB(μV)] | Limit<br>AV<br>[dB(μV)] | Margin<br>QP<br>[dB] | Margin<br>AV<br>[dB] |
|-----|--------------------|---------------------------|---------------------------|--------------|--------------------------|--------------------------|-------------------------|-------------------------|----------------------|----------------------|
| 1   | 0.181              | 36.8                      | 33.5                      | 10.7         | 47.5                     | 44.2                     | 64.4                    | 54.4                    | 16.9                 | 10.2                 |
| 2   | 0.270              | 30.7                      | 25.8                      | 10.6         | 41.3                     | 36.4                     | 61.1                    | 51.1                    | 19.8                 | 14.7                 |
| 3   | 1.082              | 31.8                      | 24.2                      | 10.6         | 42.4                     | 34.8                     | 56.0                    | 46.0                    | 13.6                 | 11.2                 |
| 4   | 4.961              | 32.8                      | 27.2                      | 10.9         | 43.7                     | 38.1                     | 56.0                    | 46.0                    | 12.3                 | 7.9                  |
| 5   | 5.596              | 36.5                      | 31.6                      | 10.9         | 47.4                     | 42.5                     | 60.0                    | 50.0                    | 12.6                 | 7.5                  |
| 6   | 23.766             | 25.4                      | 15.2                      | 11.8         | 37.2                     | 27.0                     | 60.0                    | 50.0                    | 22.8                 | 23.0                 |

\*\*\*\*\* CONDUCTED EMISSION at MAINS PORT \*\*\*\*\*  
[ 10m Semi-anechoic chamber #2 ]



## Final Result

## --- L1 Phase ---

| No. | Frequency<br>[MHz] | Reading<br>QP<br>[dB(μV)] | Reading<br>AV<br>[dB(μV)] | c. f<br>[dB] | Result<br>QP<br>[dB(μV)] | Result<br>AV<br>[dB(μV)] | Limit<br>QP<br>[dB(μV)] | Limit<br>AV<br>[dB(μV)] | Margin<br>QP<br>[dB] | Margin<br>AV<br>[dB] |
|-----|--------------------|---------------------------|---------------------------|--------------|--------------------------|--------------------------|-------------------------|-------------------------|----------------------|----------------------|
| 1   | 0.180              | 43.1                      | 39.5                      | 10.6         | 53.7                     | 50.1                     | 64.5                    | 54.5                    | 10.8                 | 4.4                  |
| 2   | 0.269              | 33.8                      | 29.9                      | 10.5         | 44.3                     | 40.4                     | 61.1                    | 51.1                    | 16.8                 | 10.7                 |
| 3   | 1.077              | 32.5                      | 28.2                      | 10.5         | 43.0                     | 38.7                     | 56.0                    | 46.0                    | 13.0                 | 7.3                  |
| 4   | 4.763              | 35.1                      | 29.5                      | 10.8         | 45.9                     | 40.3                     | 56.0                    | 46.0                    | 10.1                 | 5.7                  |
| 5   | 4.939              | 34.8                      | 29.2                      | 10.8         | 45.6                     | 40.0                     | 56.0                    | 46.0                    | 10.4                 | 6.0                  |
| 6   | 5.572              | 35.6                      | 29.0                      | 10.8         | 46.4                     | 39.8                     | 60.0                    | 50.0                    | 13.6                 | 10.2                 |

## --- L2 Phase ---

| No. | Frequency<br>[MHz] | Reading<br>QP<br>[dB(μV)] | Reading<br>AV<br>[dB(μV)] | c. f<br>[dB] | Result<br>QP<br>[dB(μV)] | Result<br>AV<br>[dB(μV)] | Limit<br>QP<br>[dB(μV)] | Limit<br>AV<br>[dB(μV)] | Margin<br>QP<br>[dB] | Margin<br>AV<br>[dB] |
|-----|--------------------|---------------------------|---------------------------|--------------|--------------------------|--------------------------|-------------------------|-------------------------|----------------------|----------------------|
| 1   | 0.180              | 40.1                      | 35.4                      | 10.7         | 50.8                     | 46.1                     | 64.5                    | 54.5                    | 13.7                 | 8.4                  |
| 2   | 0.269              | 31.1                      | 25.8                      | 10.6         | 41.7                     | 36.4                     | 61.1                    | 51.1                    | 19.4                 | 14.7                 |
| 3   | 1.077              | 30.5                      | 22.2                      | 10.6         | 41.1                     | 32.8                     | 56.0                    | 46.0                    | 14.9                 | 13.2                 |
| 4   | 4.763              | 32.5                      | 27.4                      | 10.9         | 43.4                     | 38.3                     | 56.0                    | 46.0                    | 12.6                 | 7.7                  |
| 5   | 4.939              | 33.3                      | 27.9                      | 10.9         | 44.2                     | 38.8                     | 56.0                    | 46.0                    | 11.8                 | 7.2                  |
| 6   | 5.572              | 35.6                      | 28.8                      | 10.9         | 46.5                     | 39.7                     | 60.0                    | 50.0                    | 13.5                 | 10.3                 |

## 5. Radiated emission test information

### 5.1 Measurement procedure

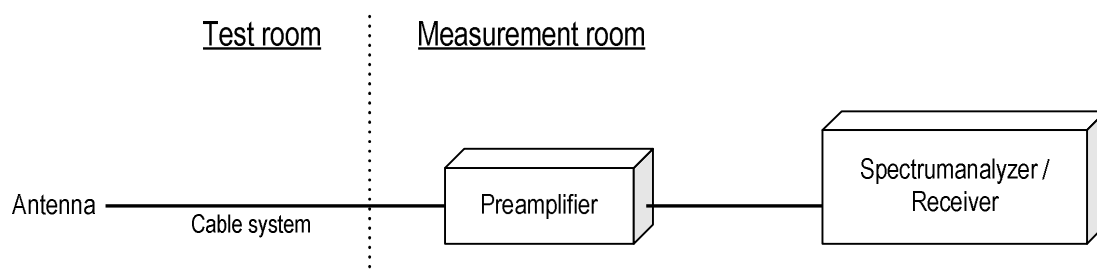
Test was applied by following conditions.

|                           |                                                                                               |
|---------------------------|-----------------------------------------------------------------------------------------------|
| Test method               | : ANSI C63.4                                                                                  |
| Frequency range           | : 30MHz to 2GHz                                                                               |
| Test place                | : 10m Semi-anechoic chamber No.2                                                              |
| EUT was placed on         | : FRP table / (W)2.0m × (D)1.0m × (H)0.8m<br>Styrene foam table / (W)2.0m × (D)1.0m × (H)0.8m |
| Antenna distance          | : 3m                                                                                          |
| Test receiver setting     |                                                                                               |
| - Detector                | : Quasi-peak                                                                                  |
| - Bandwidth               | : 120kHz                                                                                      |
| Spectrum analyzer setting |                                                                                               |
| - Detector                | : Peak / Average                                                                              |
| - Bandwidth               | : 1MHz                                                                                        |

EUT operating mode is selected to emit the maximum noise. Overall frequency range is investigated with spectrum analyzer using peak detector. Then, emission measurements up to 1000MHz were performed with test receiver in above setting. Measurements above 1000MHz were performed with spectrum analyzer in above setting. In order to find the maximum emissions, antenna is adjusted between 1m and 4m in height and varied its polarization (horizontal and vertical), and EUT azimuth was also varied by rotating turntable 0 to 360 degrees. Sufficient time for EUT, peripherals and test equipment is provided in order for them to warm up to their normal operating condition.

With respect to radiated emission(above 1GHz), place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the antenna in the “cone of radiation” from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response.

#### - Test configuration



### 5.2 Calculation method

Emission level = Reading + c.f  
Margin = Limit - Emission level

c.f = Ant. factor + Cable system loss - Amp. Gain

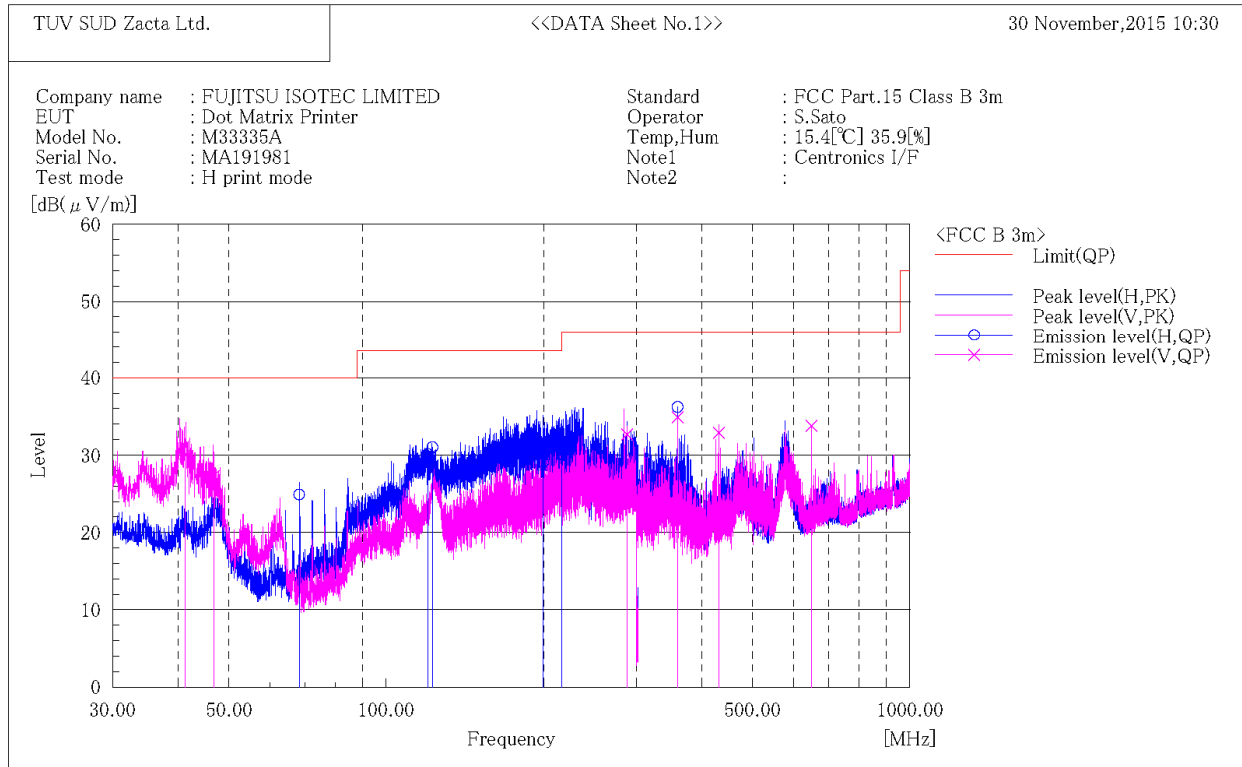
Example:

Limit @ 350.0MHz : 37.0dBμV/m  
Reading = 41.1dBμV c.f = -11.8dB/m  
Emission level = 41.1 - 11.8 = 29.3dBμV/m  
Margin = 37.0 - 29.3 = 7.7dB



### 5.3 Test data

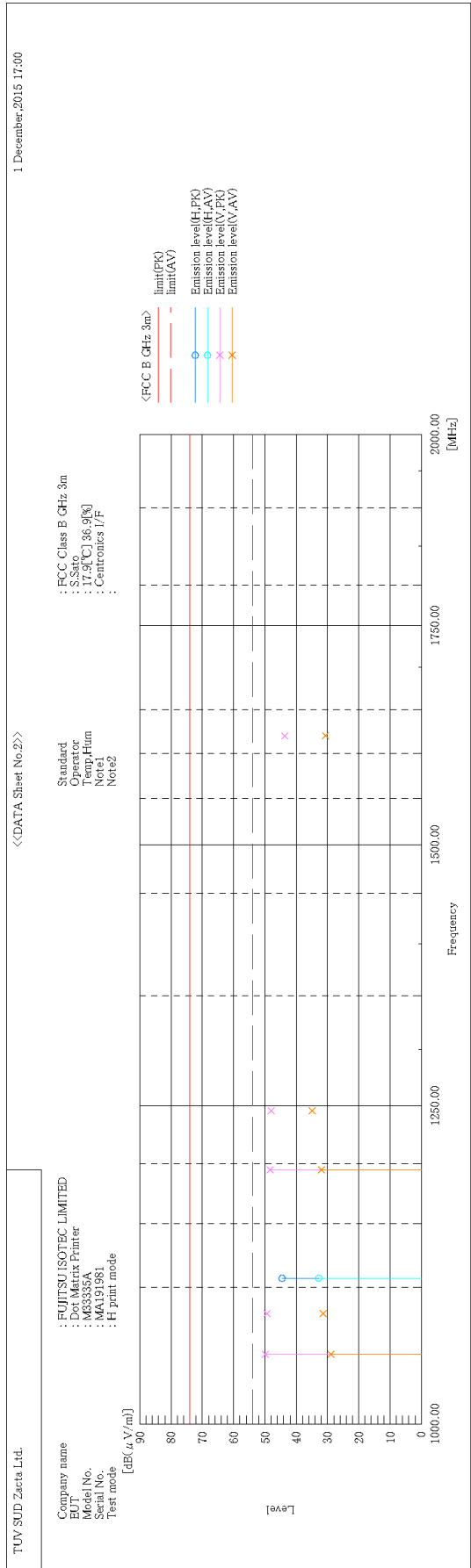
\*\*\*\*\* RADIATED EMISSION \*\*\*\*\*  
[ 10m Semi-anechoic chamber #2 ]



#### Final Result

| No. | Frequency [MHz] | (P) | Reading QP [dB(μV)] | c.f [dB(1/m)] | Result QP [dB(μV/m)] | Limit QP [dB(μV/m)] | Margin QP [dB] | Height [cm] | Angle [°] |
|-----|-----------------|-----|---------------------|---------------|----------------------|---------------------|----------------|-------------|-----------|
| 1   | 41.238          | V   | 38.8                | -8.7          | 30.1                 | 40.0                | 9.9            | 100.0       | 89.0      |
| 2   | 46.793          | V   | 38.0                | -10.7         | 27.3                 | 40.0                | 12.7           | 100.0       | 117.0     |
| 3   | 68.132          | H   | 41.0                | -16.1         | 24.9                 | 40.0                | 15.1           | 283.0       | 51.0      |
| 4   | 119.899         | H   | 39.2                | -9.1          | 30.1                 | 43.5                | 13.4           | 255.0       | 169.0     |
| 5   | 122.496         | H   | 39.9                | -8.9          | 31.0                 | 43.5                | 12.5           | 248.0       | 212.0     |
| 6   | 199.321         | H   | 34.2                | -5.1          | 29.1                 | 43.5                | 14.4           | 203.0       | 311.0     |
| 7   | 215.994         | H   | 34.9                | -4.8          | 30.1                 | 43.5                | 13.4           | 148.0       | 298.0     |
| 8   | 287.993         | V   | 35.2                | -2.5          | 32.7                 | 46.0                | 13.3           | 265.0       | 284.0     |
| 9   | 359.990         | H   | 46.0                | -9.8          | 36.2                 | 46.0                | 9.8            | 100.0       | 246.0     |
| 10  | 359.990         | V   | 44.7                | -9.8          | 34.9                 | 46.0                | 11.1           | 136.0       | 232.0     |
| 11  | 431.988         | V   | 40.4                | -7.5          | 32.9                 | 46.0                | 13.1           | 134.0       | 174.0     |
| 12  | 647.982         | V   | 37.1                | -3.3          | 33.8                 | 46.0                | 12.2           | 122.0       | 268.0     |

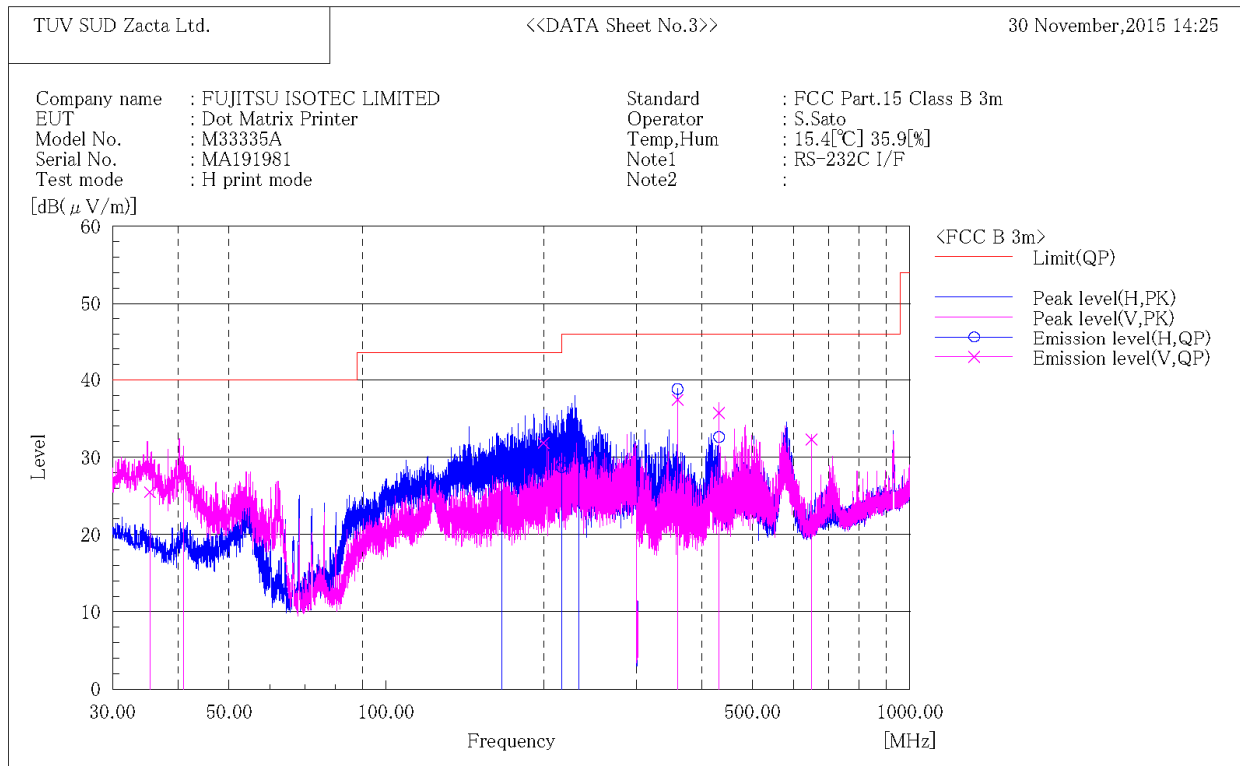
\*\*\*\*\* RADIATED EMISSION \*\*\*\*\*  
[ 10m Semi-anechoic chamber #2 ]



Final Result

| No. | Frequency [MHz] | (P) | Reading PK [dB(μV)] | Reading AV [dB(μV)] | c.f [dB(1/m)] | Result PK [dB(μV/m)] | Result AV [dB(μV/m)] | Limit PK [dB(μV/m)] | Limit AV [dB(μV/m)] | Margin PK [dB] | Margin AV [dB] | Height [cm] | Angle [°] |
|-----|-----------------|-----|---------------------|---------------------|---------------|----------------------|----------------------|---------------------|---------------------|----------------|----------------|-------------|-----------|
| 1   | 1049.624        | V   | 48.3                | 27.3                | 1.6           | 49.9                 | 28.9                 | 74.0                | 54.0                | 24.1           | 25.1           | 107.0       | 340.0     |
| 2   | 1080.000        | V   | 47.8                | 29.8                | 1.6           | 49.4                 | 31.4                 | 74.0                | 54.0                | 24.6           | 22.6           | 110.0       | 4.0       |
| 3   | 1107.003        | H   | 42.7                | 31.0                | 1.8           | 44.5                 | 32.8                 | 74.0                | 54.0                | 29.5           | 21.2           | 100.0       | 222.0     |
| 4   | 1194.897        | V   | 44.7                | 28.3                | 3.7           | 48.4                 | 32.0                 | 74.0                | 54.0                | 25.6           | 22.0           | 100.0       | 31.0      |
| 5   | 1245.378        | V   | 44.1                | 31.0                | 3.9           | 48.0                 | 34.9                 | 74.0                | 54.0                | 26.0           | 19.1           | 100.0       | 235.0     |
| 6   | 1619.978        | V   | 39.3                | 26.3                | 4.4           | 43.7                 | 30.7                 | 74.0                | 54.0                | 30.3           | 23.3           | 134.0       | 199.0     |

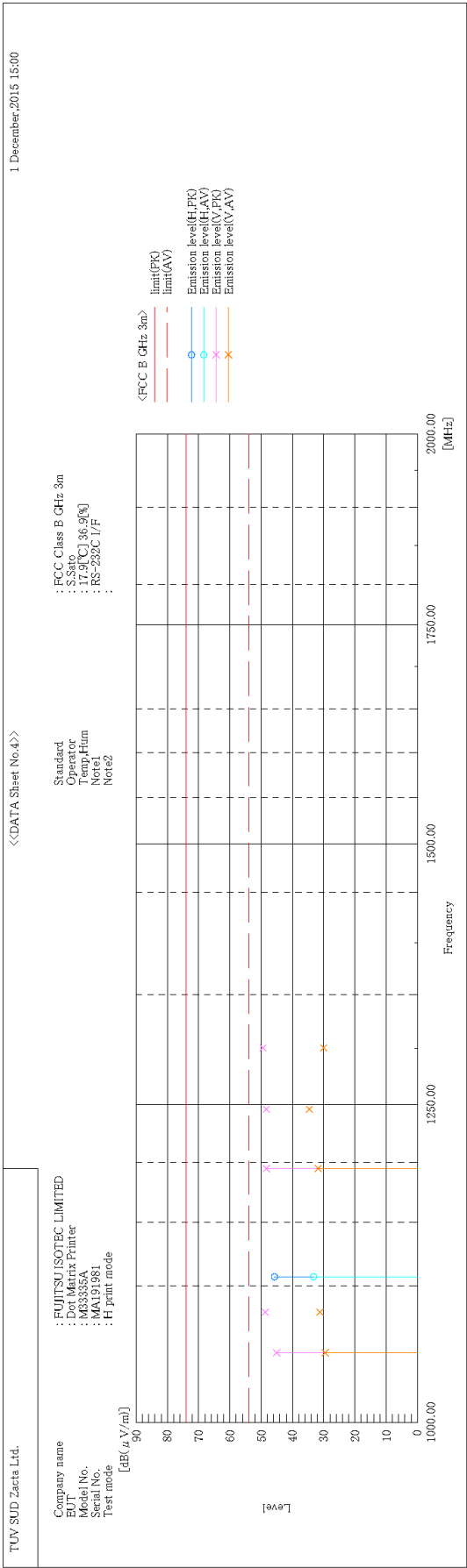
\*\*\*\*\* RADIATED EMISSION \*\*\*\*\*  
[ 10m Semi-anechoic chamber #2 ]



## Final Result

| No. | Frequency [MHz] | (P) | Reading QP [dB(μV)] | c.f [dB(1/m)] | Result QP [dB(μV/m)] | Limit QP [dB(μV/m)] | Margin QP [dB] | Height [cm] | Angle [°] |
|-----|-----------------|-----|---------------------|---------------|----------------------|---------------------|----------------|-------------|-----------|
| 1   | 35.327          | V   | 32.0                | -6.5          | 25.5                 | 40.0                | 14.5           | 100.0       | 295.0     |
| 2   | 40.985          | V   | 36.0                | -8.6          | 27.4                 | 40.0                | 12.6           | 100.0       | 133.0     |
| 3   | 165.976         | H   | 33.9                | -6.1          | 27.8                 | 43.5                | 15.7           | 203.0       | 201.0     |
| 4   | 199.423         | V   | 36.9                | -5.1          | 31.8                 | 43.5                | 11.7           | 166.0       | 313.0     |
| 5   | 215.994         | H   | 33.5                | -4.8          | 28.7                 | 43.5                | 14.8           | 137.0       | 221.0     |
| 6   | 232.742         | H   | 37.1                | -4.5          | 32.6                 | 46.0                | 13.4           | 145.0       | 310.0     |
| 7   | 359.989         | H   | 48.6                | -9.8          | 38.8                 | 46.0                | 7.2            | 100.0       | 222.0     |
| 8   | 359.989         | V   | 47.2                | -9.8          | 37.4                 | 46.0                | 8.6            | 127.0       | 232.0     |
| 9   | 431.988         | V   | 43.2                | -7.5          | 35.7                 | 46.0                | 10.3           | 152.0       | 204.0     |
| 10  | 431.988         | H   | 40.1                | -7.5          | 32.6                 | 46.0                | 13.4           | 100.0       | 306.0     |
| 11  | 647.985         | V   | 35.6                | -3.3          | 32.3                 | 46.0                | 13.7           | 100.0       | 249.0     |

\*\*\*\*\* RADIATED EMISSION \*\*\*\*\*  
[ 10m Semi-anechoic chamber #2 ]



Final Result

| No. | Frequency [MHz] | (P) | Reading PK [dB(μV)] | Reading AV [dB(μV)] | c.f [dB(1/m)] | Result PK [dB(μV/m)] | Result AV [dB(μV/m)] | Limit PK [dB(μV/m)] | Limit AV [dB(μV/m)] | Margin PK [dB] | Margin AV [dB] | Height [cm] | Angle [°] |
|-----|-----------------|-----|---------------------|---------------------|---------------|----------------------|----------------------|---------------------|---------------------|----------------|----------------|-------------|-----------|
| 1   | 1049.624        | V   | 43.4                | 27.9                | 1.6           | 45.0                 | 29.5                 | 74.0                | 54.0                | 29.0           | 24.5           | 100.0       | 355.0     |
| 2   | 1080.000        | V   | 47.1                | 29.6                | 1.6           | 48.7                 | 31.2                 | 74.0                | 54.0                | 25.3           | 22.8           | 218.0       | 207.0     |
| 3   | 1107.003        | H   | 44.0                | 31.4                | 1.8           | 45.8                 | 33.2                 | 74.0                | 54.0                | 28.2           | 20.8           | 226.0       | 125.0     |
| 4   | 1194.884        | V   | 44.6                | 28.1                | 3.7           | 48.3                 | 31.8                 | 74.0                | 54.0                | 25.7           | 22.2           | 100.0       | 35.0      |
| 5   | 1245.378        | V   | 44.5                | 30.7                | 3.9           | 48.4                 | 34.6                 | 74.0                | 54.0                | 25.6           | 19.4           | 100.0       | 232.0     |
| 6   | 1300.003        | V   | 45.5                | 26.0                | 4.0           | 49.5                 | 30.0                 | 74.0                | 54.0                | 24.5           | 24.0           | 100.0       | 235.0     |

\*\*\*\*\* RADIATED EMISSION \*\*\*\*\*  
[ 10m Semi-anechoic chamber #2 ]

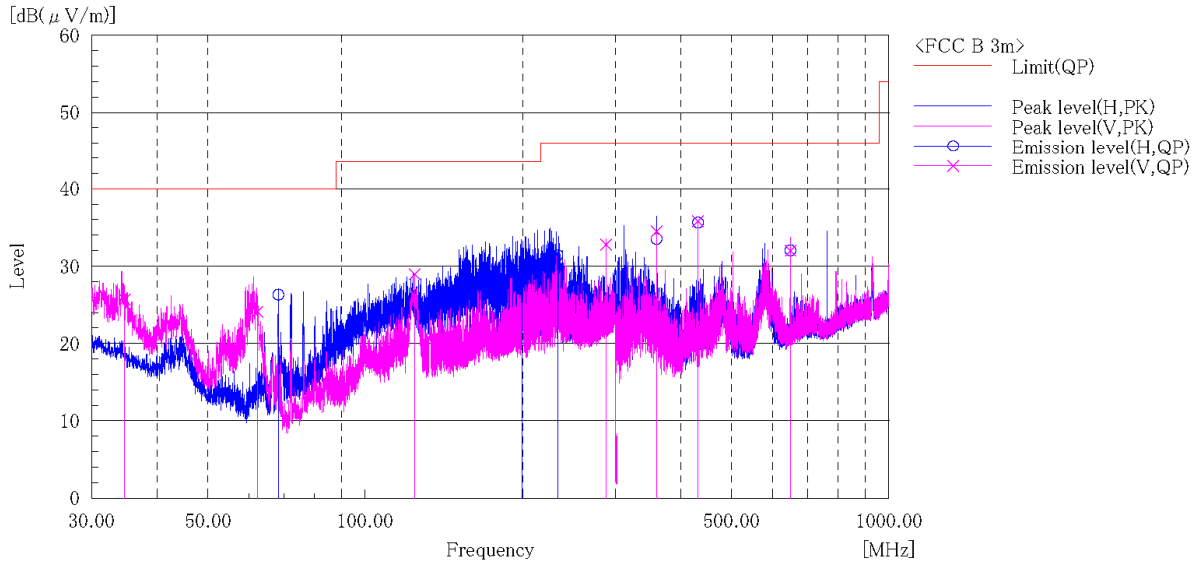
TUV SUD Zacta Ltd.

&lt;&lt;DATA Sheet No.5&gt;&gt;

30 November,2015 12:00

Company name : FUJITSU ISOTEC LIMITED  
EUT : Dot Matrix Printer  
Model No. : M33335A  
Serial No. : MA191981  
Test mode : H print mode

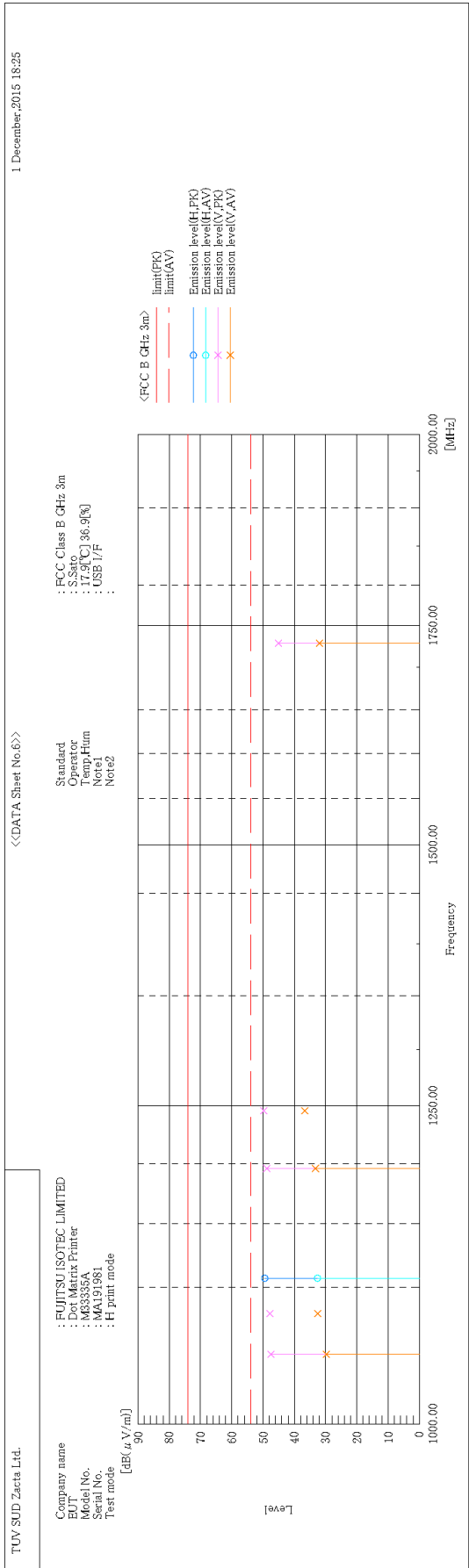
Standard : FCC Part.15 Class B 3m  
Operator : S.Sato  
Temp,Hum : 15.4[°C] 35.9[%]  
Note1 : USB I/F  
Note2 :



## Final Result

| No. | Frequency [MHz] | (P) | Reading QP [dB(μV)] | c.f [dB(1/m)] | Result QP [dB(μV/m)] | Limit QP [dB(μV/m)] | Margin QP [dB] | Height [cm] | Angle [°] |
|-----|-----------------|-----|---------------------|---------------|----------------------|---------------------|----------------|-------------|-----------|
| 1   | 34.675          | V   | 32.0                | -6.3          | 25.7                 | 40.0                | 14.3           | 100.0       | 254.0     |
| 2   | 62.208          | V   | 39.1                | -15.0         | 24.1                 | 40.0                | 15.9           | 100.0       | 136.0     |
| 3   | 68.205          | H   | 42.4                | -16.1         | 26.3                 | 40.0                | 13.7           | 284.0       | 57.0      |
| 4   | 124.086         | V   | 37.8                | -8.8          | 29.0                 | 43.5                | 14.5           | 100.0       | 203.0     |
| 5   | 199.406         | H   | 34.2                | -5.1          | 29.1                 | 43.5                | 14.4           | 160.0       | 324.0     |
| 6   | 232.628         | H   | 35.9                | -4.5          | 31.4                 | 46.0                | 14.6           | 145.0       | 305.0     |
| 7   | 287.993         | V   | 35.3                | -2.5          | 32.8                 | 46.0                | 13.2           | 253.0       | 263.0     |
| 8   | 359.989         | V   | 44.3                | -9.8          | 34.5                 | 46.0                | 11.5           | 138.0       | 233.0     |
| 9   | 359.989         | H   | 43.3                | -9.8          | 33.5                 | 46.0                | 12.5           | 100.0       | 306.0     |
| 10  | 431.988         | V   | 43.3                | -7.5          | 35.8                 | 46.0                | 10.2           | 100.0       | 213.0     |
| 11  | 431.988         | H   | 43.1                | -7.5          | 35.6                 | 46.0                | 10.4           | 100.0       | 315.0     |
| 12  | 647.980         | H   | 35.3                | -3.3          | 32.0                 | 46.0                | 14.0           | 212.0       | 65.0      |
| 13  | 647.980         | V   | 35.3                | -3.3          | 32.0                 | 46.0                | 14.0           | 112.0       | 261.0     |

\*\*\*\*\* RADIATED EMISSION \*\*\*\*\*  
[ 10m Semi-anechoic chamber #2 ]



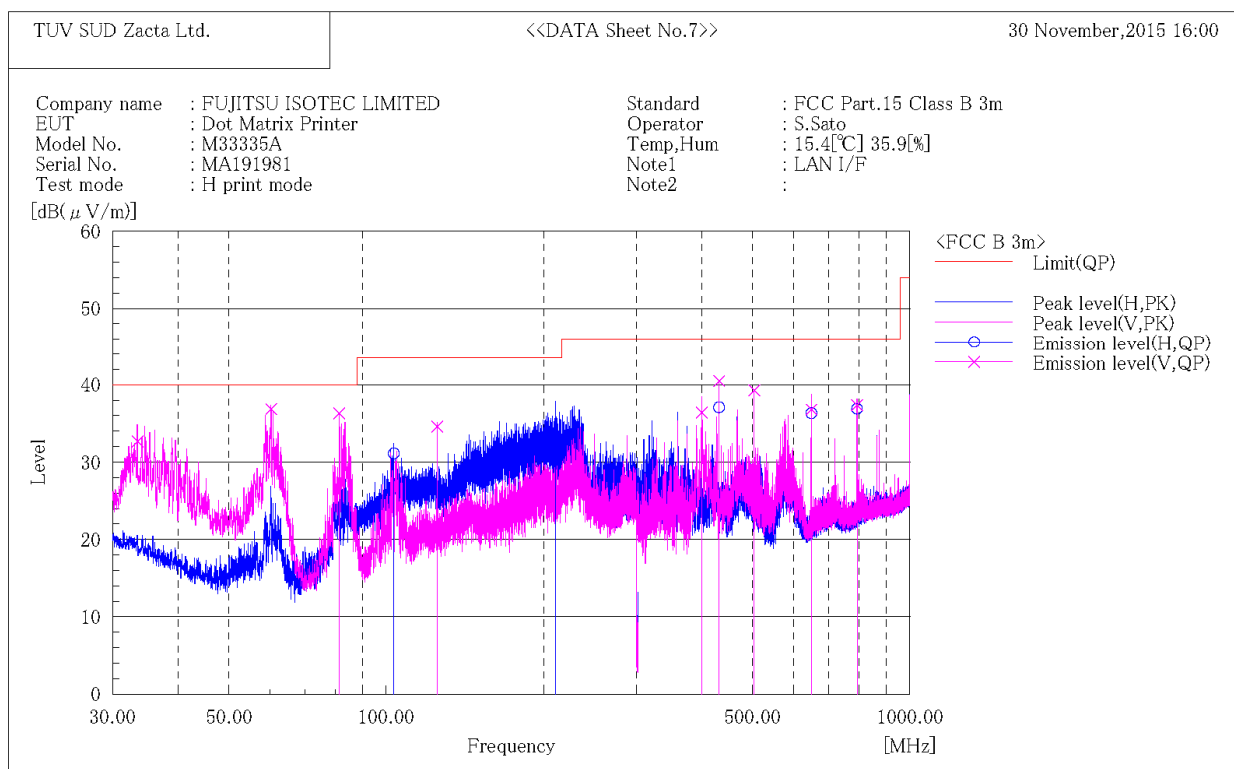
Final Result

| No. | Frequency [MHz] | (P) | Reading PK [dB(μV)] | Reading AV [dB(μV)] | c.f [dB(1/m)] | Result PK [dB(μV/m)] | Result AV [dB(μV/m)] | Limit PK [dB(μV/m)] | Limit AV [dB(μV/m)] | Margin PK [dB] | Margin AV [dB] | Height [cm] | Angle [°] |
|-----|-----------------|-----|---------------------|---------------------|---------------|----------------------|----------------------|---------------------|---------------------|----------------|----------------|-------------|-----------|
| 1   | 1049.624        | V   | 45.9                | 28.2                | 1.6           | 47.5                 | 29.8                 | 74.0                | 54.0                | 26.5           | 24.2           | 156.0       | 347.0     |
| 2   | 1080.000        | V   | 46.3                | 30.9                | 1.6           | 47.9                 | 32.5                 | 74.0                | 54.0                | 26.1           | 21.5           | 114.0       | 3.0       |
| 3   | 1107.003        | H   | 47.7                | 30.8                | 1.8           | 49.5                 | 32.6                 | 74.0                | 54.0                | 24.5           | 21.4           | 150.0       | 202.0     |
| 4   | 1196.012        | V   | 45.2                | 29.5                | 3.7           | 48.9                 | 33.2                 | 74.0                | 54.0                | 25.1           | 20.8           | 100.0       | 6.0       |
| 5   | 1245.378        | V   | 45.9                | 32.8                | 3.9           | 49.8                 | 36.7                 | 74.0                | 54.0                | 24.2           | 17.3           | 100.0       | 219.0     |
| 6   | 1728.197        | V   | 39.1                | 26.0                | 6.0           | 45.1                 | 32.0                 | 74.0                | 54.0                | 28.9           | 22.0           | 165.0       | 10.0      |



Zacta

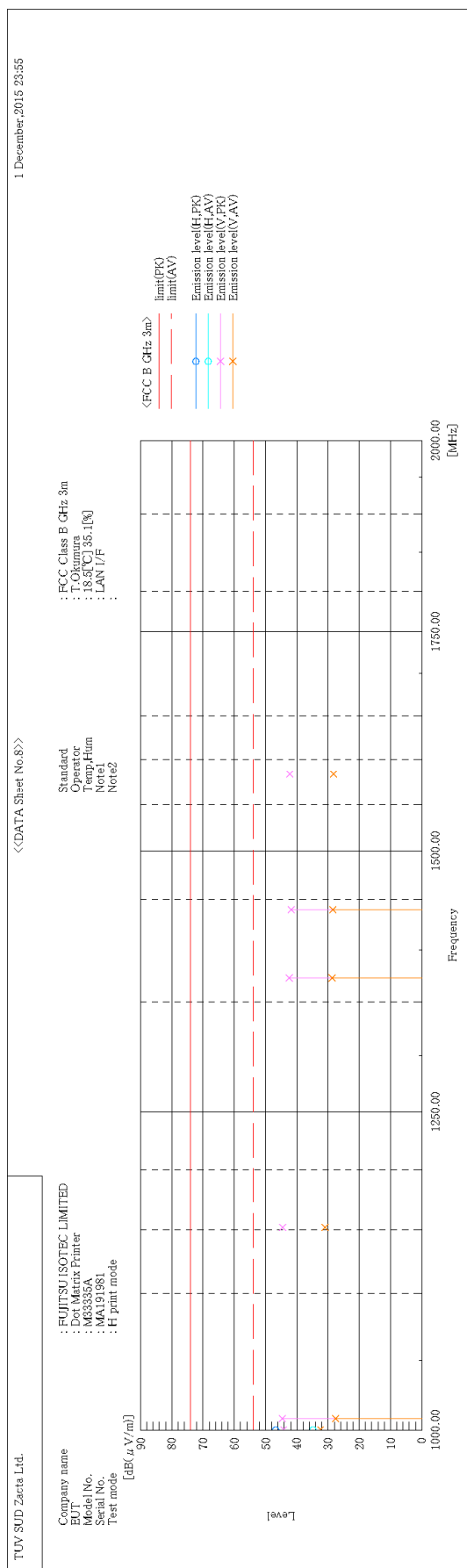
\*\*\*\*\* RADIATED EMISSION \*\*\*\*\*  
[ 10m Semi-anechoic chamber #2 ]



## Final Result

| No. | Frequency [MHz] | (P) | Reading QP [dB(μV)] | c.f [dB(1/m)] | Result QP [dB(μV/m)] | Limit QP [dB(μV/m)] | Margin QP [dB] | Height [cm] | Angle [°] |
|-----|-----------------|-----|---------------------|---------------|----------------------|---------------------|----------------|-------------|-----------|
| 1   | 33.452          | V   | 38.5                | -5.8          | 32.7                 | 40.0                | 7.3            | 100.0       | 84.0      |
| 2   | 60.214          | V   | 51.4                | -14.5         | 36.9                 | 40.0                | 3.1            | 100.0       | 4.0       |
| 3   | 81.196          | V   | 52.5                | -16.2         | 36.3                 | 40.0                | 3.7            | 100.0       | 7.0       |
| 4   | 103.331         | H   | 42.4                | -11.3         | 31.1                 | 43.5                | 12.4           | 278.0       | 206.0     |
| 5   | 125.004         | V   | 43.4                | -8.8          | 34.6                 | 43.5                | 8.9            | 100.0       | 155.0     |
| 6   | 210.495         | H   | 35.8                | -5.0          | 30.8                 | 43.5                | 12.7           | 123.0       | 196.0     |
| 7   | 400.334         | V   | 44.3                | -7.9          | 36.4                 | 46.0                | 9.6            | 130.0       | 161.0     |
| 8   | 431.985         | H   | 44.6                | -7.5          | 37.1                 | 46.0                | 8.9            | 100.0       | 318.0     |
| 9   | 431.985         | V   | 48.0                | -7.5          | 40.5                 | 46.0                | 5.5            | 140.0       | 153.0     |
| 10  | 503.979         | V   | 45.0                | -5.7          | 39.3                 | 46.0                | 6.7            | 122.0       | 109.0     |
| 11  | 647.974         | H   | 39.6                | -3.3          | 36.3                 | 46.0                | 9.7            | 219.0       | 261.0     |
| 12  | 647.974         | V   | 40.1                | -3.3          | 36.8                 | 46.0                | 9.2            | 171.0       | 52.0      |
| 13  | 791.961         | H   | 38.5                | -1.6          | 36.9                 | 46.0                | 9.1            | 113.0       | 223.0     |
| 14  | 791.961         | V   | 39.0                | -1.6          | 37.4                 | 46.0                | 8.6            | 163.0       | 94.0      |

\*\*\*\*\* RADIATED EMISSION \*\*\*\*\*  
[ 10m Semi-anechoic chamber #2 ]



## Final Result

| No. | Frequency<br>[MHz] | (P) | Reading<br>PK<br>[dB (μV)] | Reading<br>AV<br>[dB (μV)] | c. f<br>[dB (1/m)] | Result<br>PK<br>[dB (μV/m)] | Result<br>AV<br>[dB (μV/m)] | Limit<br>PK<br>[dB (μV/m)] | Limit<br>AV<br>[dB (μV/m)] | Margin<br>PK<br>[dB] | Margin<br>AV<br>[dB] | Height<br>[cm] | Angle<br>[°] |
|-----|--------------------|-----|----------------------------|----------------------------|--------------------|-----------------------------|-----------------------------|----------------------------|----------------------------|----------------------|----------------------|----------------|--------------|
| 1   | 1000.000           | H   | 45.2                       | 33.3                       | 1.5                | 46.7                        | 34.8                        | 74.0                       | 54.0                       | 27.3                 | 19.2                 | 100.0          | 109.0        |
| 2   | 1000.000           | V   | 42.7                       | 30.9                       | 1.5                | 44.2                        | 32.4                        | 74.0                       | 54.0                       | 29.8                 | 21.6                 | 100.0          | 284.0        |
| 3   | 1007.981           | V   | 43.2                       | 26.1                       | 1.5                | 44.7                        | 27.6                        | 74.0                       | 54.0                       | 29.3                 | 26.4                 | 146.0          | 113.0        |
| 4   | 1151.972           | V   | 41.8                       | 28.1                       | 1.5                | 44.6                        | 31.0                        | 74.0                       | 54.0                       | 29.4                 | 23.0                 | 100.0          | 104.0        |
| 5   | 1372.485           | V   | 38.6                       | 25.0                       | 3.8                | 42.4                        | 28.8                        | 74.0                       | 54.0                       | 31.6                 | 25.2                 | 100.0          | 285.0        |
| 6   | 1439.965           | V   | 38.5                       | 25.2                       | 3.3                | 41.8                        | 28.5                        | 74.0                       | 54.0                       | 32.4                 | 25.5                 | 100.0          | 284.0        |
| 7   | 1583.959           | V   | 38.4                       | 24.4                       | 3.9                | 42.3                        | 28.3                        | 74.0                       | 54.0                       | 31.7                 | 25.7                 | 140.0          | 55.0         |



## 6. Uncertainty of measurement

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Expanded uncertainties stated are calculated with a coverage Factor  $k=2$ .

Please note that these results are not taken into account when determining compliance or non-compliance with test result.

| Test item                           | Measurement uncertainty |
|-------------------------------------|-------------------------|
| Conducted emission at mains port    | $\pm 3.0\text{dB}$      |
| Radiated emission (30MHz – 1000MHz) | $\pm 3.8\text{dB}$      |
| Radiated emission (1000MHz – 18GHz) | $\pm 5.4\text{dB}$      |
| Radiated emission (18GHz – 26.5GHz) | $\pm 5.9\text{dB}$      |

## 7. Laboratory description

### 1. Location:

TÜV SÜD Zacta Ltd. Yonezawa Testing Center  
 4149-7 Hachimanpara 5-chome Yonezawa-shi Yamagata 992-1128 Japan  
 Phone: +81-238-28-2880 Fax: +81-238-28-2888

### 2. Facility filing information:

1) NVLAP accreditation: NVLAP Lab. code: 200306-0

2) VLAC accreditation: Lab. code: VLAC-013

| Site name                      | Radiated emission | Conducted emission for mains port | Conducted emission for telecom port | Radiated emission (CMAD) | Expiry Date  |
|--------------------------------|-------------------|-----------------------------------|-------------------------------------|--------------------------|--------------|
| 3m Semi-anechoic chamber       | VLAC-013          | VLAC-013                          | VLAC-013                            | -                        | Jul. 3, 2017 |
| 10m Semi-anechoic chamber No.1 |                   |                                   |                                     | VLAC-013                 |              |
| 10m Semi-anechoic chamber No.2 |                   |                                   |                                     | VLAC-013                 |              |
| Shielded room No.1             | -                 | VLAC-013                          | -                                   | -                        |              |

3) FCC filing:

| Site name                      | Registration Number | Expiry Date   |
|--------------------------------|---------------------|---------------|
| Site 3                         | 91065               | Oct. 1, 2017  |
| 3m Semi-anechoic chamber       | 540072              | Feb. 20, 2017 |
| 10m Semi-anechoic chamber No.1 |                     |               |
| 10m Semi-anechoic chamber No.2 |                     |               |
| Shielded room No.1             |                     |               |

4) Industry Canada Oats site filing:

| Site name                      | Sites on file: Oats 3m/10m | Expiry Date   |
|--------------------------------|----------------------------|---------------|
| Site 3                         | 4224A-3                    | Dec. 3, 2017  |
| 3m Semi-anechoic chamber       | 4224A-4                    |               |
| 10m Semi-anechoic chamber No.1 | 4224A-5                    |               |
| 10m Semi-anechoic chamber No.2 | 4224A-6                    | Jan. 15, 2017 |

5) VCCI site filing:

| Site name                      | Radiated emission | Conducted emission for mains port | Conducted emission for telecom port | Expiry Date   |
|--------------------------------|-------------------|-----------------------------------|-------------------------------------|---------------|
| Site 3                         | R-138             | C-134                             | T-1222                              | Nov. 16, 2017 |
| 3m Semi-anechoic chamber       | A-0166            | A-0166                            | A-0166                              | Jul. 3, 2017  |
| 10m Semi-anechoic chamber No.1 |                   |                                   |                                     |               |
| 10m Semi-anechoic chamber No.2 |                   |                                   |                                     |               |
| Shielded room No.1             | -                 | A-0166                            |                                     |               |

6) TÜV SÜD PS authorization:

Authorized as an EMC test laboratory

7) TÜV Rheinland authorization:

Authorized as an EMC test laboratory

## Appendix A. Test equipment

### Conducted emission at mains port

| Equipment                                           | Company                         | Model No.      | Serial No.       | Cal. due      | Cal. Date     |
|-----------------------------------------------------|---------------------------------|----------------|------------------|---------------|---------------|
| EMI Receiver                                        | ROHDE&SCHWARZ                   | ESR7           | 101187           | Sep. 30, 2016 | Sep. 17, 2015 |
| Line impedance stabilization network for EUT        | Kyoritsu Electrical Works, Ltd. | KNW-407F       | 8-2003-1         | Mar. 31, 2016 | Mar. 5, 2015  |
| Line impedance stabilization network for peripheral | Kyoritsu Electrical Works, Ltd. | KNW-242F       | 8-1973-1         | Jun. 30, 2016 | Jun. 24, 2015 |
| Attenuator                                          | TYC                             | BA-PJ-10       | N/A(S344)        | Apr. 30, 2016 | Apr. 6, 2015  |
| Coaxial cable                                       | FUJIKURA                        | 5D-2W/4m       | N/A(S349)        | Feb. 29, 2016 | Feb. 27, 2015 |
| Microwave cable                                     | SUHNER                          | SUCOFLEX104/2m | 317672/4         | May. 31, 2016 | May. 29, 2015 |
| Coaxial cable                                       | SUHNER                          | RG214/U/25m    | N/A(S191)        | Feb. 29, 2016 | Feb. 27, 2015 |
| 50Ω terminator                                      | RS                              | 090-0510       | N/A(S058)        | Jan. 31, 2016 | Jan. 16, 2015 |
| PC                                                  | HP                              | dc7800small    | JPA7450FPJ       | N/A           | N/A           |
| Software                                            | TOYO Corporation                | EP5/CE-AJ      | 0611193/V5.6.000 | N/A           | N/A           |

### Radiated emission [Testing below 1GHz]

| Equipment                  | Company          | Model No.       | Serial No.       | Cal. due      | Cal. date     |
|----------------------------|------------------|-----------------|------------------|---------------|---------------|
| EMI Receiver               | ROHDE&SCHWARZ    | ESR7            | 101187           | Sep. 30, 2016 | Sep. 17, 2015 |
| Biconical antenna          | Schwarzbeck      | VHA9103/BBA9106 | 2850             | Jun. 30, 2016 | Jun. 17, 2015 |
| Log periodic antenna       | Schwarzbeck      | UHALP9108A      | 0991             | Jun. 30, 2016 | Jun. 17, 2015 |
| Attenuator                 | TME              | CFA-01NPJ-6     | N/A(S273)        | Jun. 30, 2016 | Jun. 23, 2015 |
| Attenuator                 | TME              | CFA-01NPJ-3     | N/A(S270)        | Jun. 30, 2016 | Jun. 23, 2015 |
| Microwave cable            | SUHNER           | SUCOFLEX104/9m  | 346315/4         | May. 31, 2016 | May. 29, 2015 |
| Microwave cable            | SUHNER           | SUCOFLEX104/1m  | MY24628/4        | May. 31, 2016 | May. 29, 2015 |
| Microwave cable            | SUHNER           | SUCOFLEX104/2m  | 317672/4         | May. 31, 2016 | May. 29, 2015 |
| Microwave cable            | SUHNER           | SUCOFLEX106/13m | 41623/6          | May. 31, 2016 | May. 29, 2015 |
| Preamplifier               | ANRITSU          | MH648A          | M08067           | Jun. 30, 2016 | Jun. 30, 2015 |
| 10m Semi an-echoic Chamber | TOKIN            | N/A             | N/A(9001-NSA3m)  | Apr. 30, 2016 | Apr. 30, 2015 |
| PC                         | HP               | dc7800small     | JPA7450FPJ       | N/A           | N/A           |
| Software                   | TOYO Corporation | EP5/RE-AJ       | 0611193/V5.4.011 | N/A           | N/A           |

### Radiated emission [Testing above 1GHz]

| Equipment                   | Company              | Model No.       | Serial No.       | Cal. due      | Cal. date     |
|-----------------------------|----------------------|-----------------|------------------|---------------|---------------|
| EMI Receiver                | ROHDE&SCHWARZ        | ESR7            | 101187           | Sep. 30, 2016 | Sep. 17, 2015 |
| Preamplifier                | Agilent Technologies | 8449B           | 3008A00589       | Oct. 31, 2016 | Oct. 30, 2015 |
| Double ridged guide antenna | ETS LINDGREN         | 3117            | 00052315         | Feb. 29, 2016 | Feb. 20, 2015 |
| Attenuator                  | HUBER+SUHNER         | 6803.17.B       | N/A(2340)        | May. 31, 2016 | May. 9, 2015  |
| Microwave Cable             | HUBER+SUHNER         | SUCOFLEX104     | MY23758/4        | May. 31, 2016 | May. 29, 2015 |
| Microwave cable             | SUHNER               | SUCOFLEX104/1m  | MY24628/4        | May. 31, 2016 | May. 29, 2015 |
| Microwave cable             | SUHNER               | SUCOFLEX104/2m  | 317672/4         | May. 31, 2016 | May. 29, 2015 |
| Microwave cable             | SUHNER               | SUCOFLEX106/12m | 41624/6          | May. 31, 2016 | May. 29, 2015 |
| 10m Semi an-echoic Chamber  | TOKIN                | N/A             | N/A(9001-SVSWR)  | Apr. 30, 2016 | Apr. 28, 2015 |
| PC                          | HP                   | dc7800small     | JPA7450FPJ       | N/A           | N/A           |
| Software                    | TOYO Corporation     | EP5/RE-AJ       | 0611193/V5.4.011 | N/A           | N/A           |