

TEST REPORT

Report number : Z071C-15374

Issue date : December 18, 2015

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

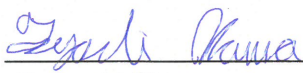
FCC Part15 Subpart B

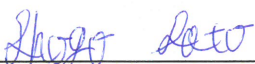
The test results are traceable to the international or national standards.

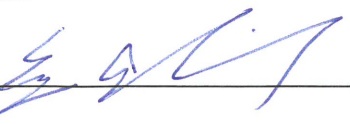
Applicant	: FUJITSU ISOTEC LIMITED
Equipment under test (EUT)	: Dot Matrix Printer
Model number	: M33334A

Date of test : November 30, December 1,2, 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



NVLAP LAB CODE 200306-0

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1. Summary of Test

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

Table-Top

2. Equipment Under Test

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 : M33334A

Serial number : MA191964 (Centronics I/F, USB I/F, LAN I/F)
MA191965 (RS-232C I/F)

EUT condition : Pre-production

Max. frequency : 144 MHz

Power ratings : AC 100-120V 50/60Hz 1.7A

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	M33334A	MA191964	KHZ019 M33334A	EUT *1
				MA191965		EUT *2
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	-

*1: Used for Centronics I/F, USB I/F, LAN I/F

*2: Used for RS-232C I/F

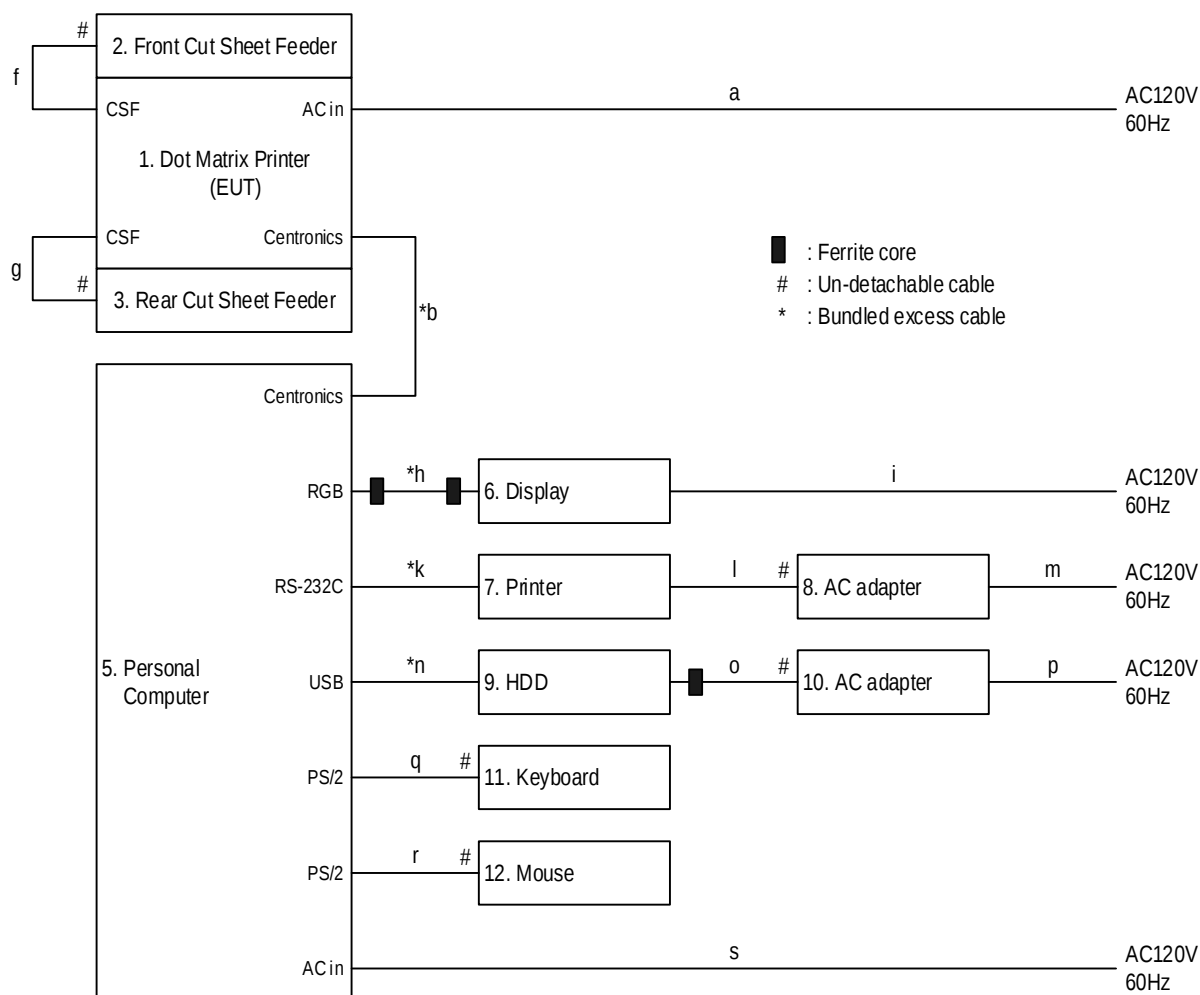


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3.2 Cable(s) used

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]

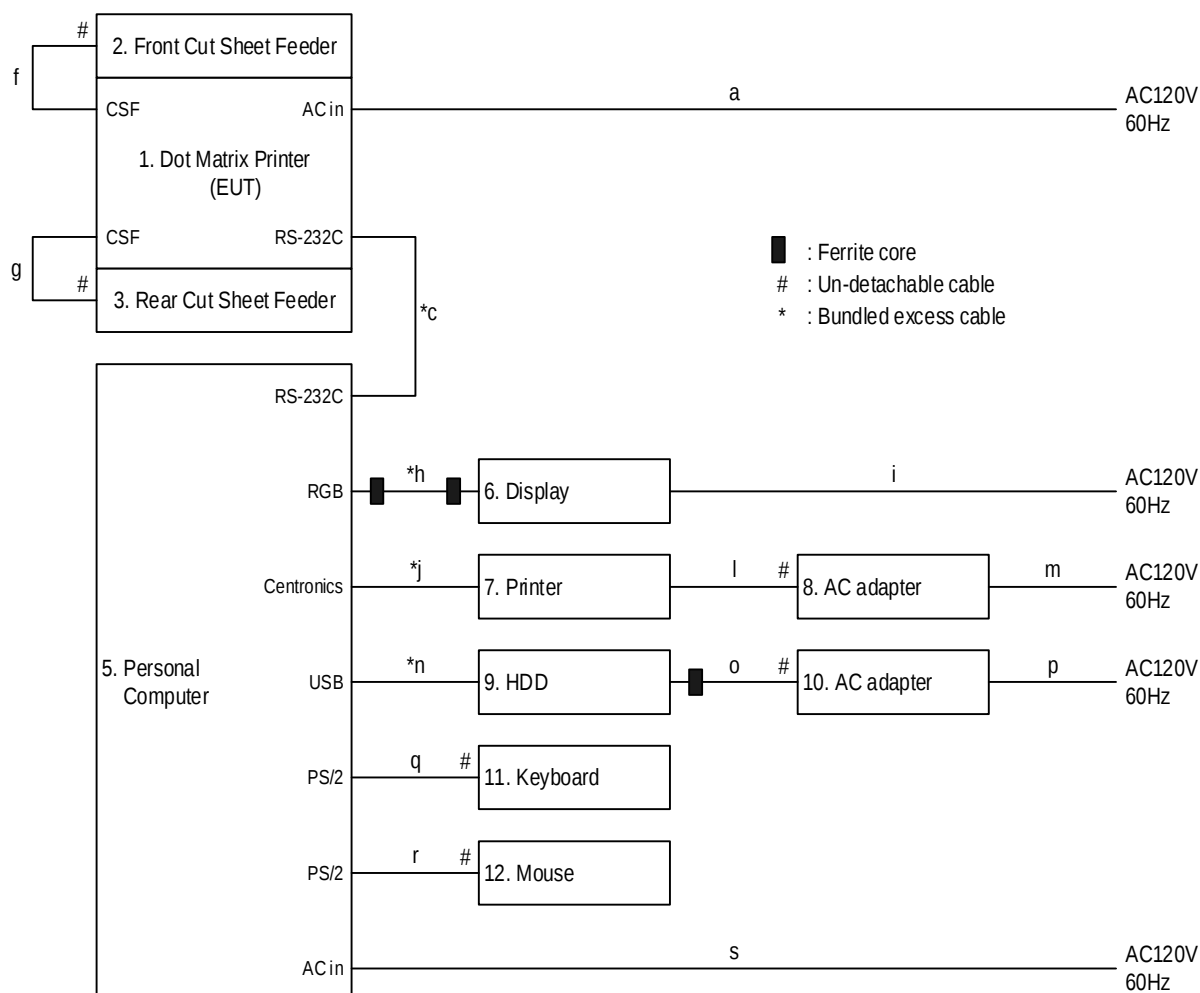


Note1: Numbers assigned to equipment or cables on this diagram correspond to the list in "3.1 Equipment(s) used" and "3.2 Cable(s) used".

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]

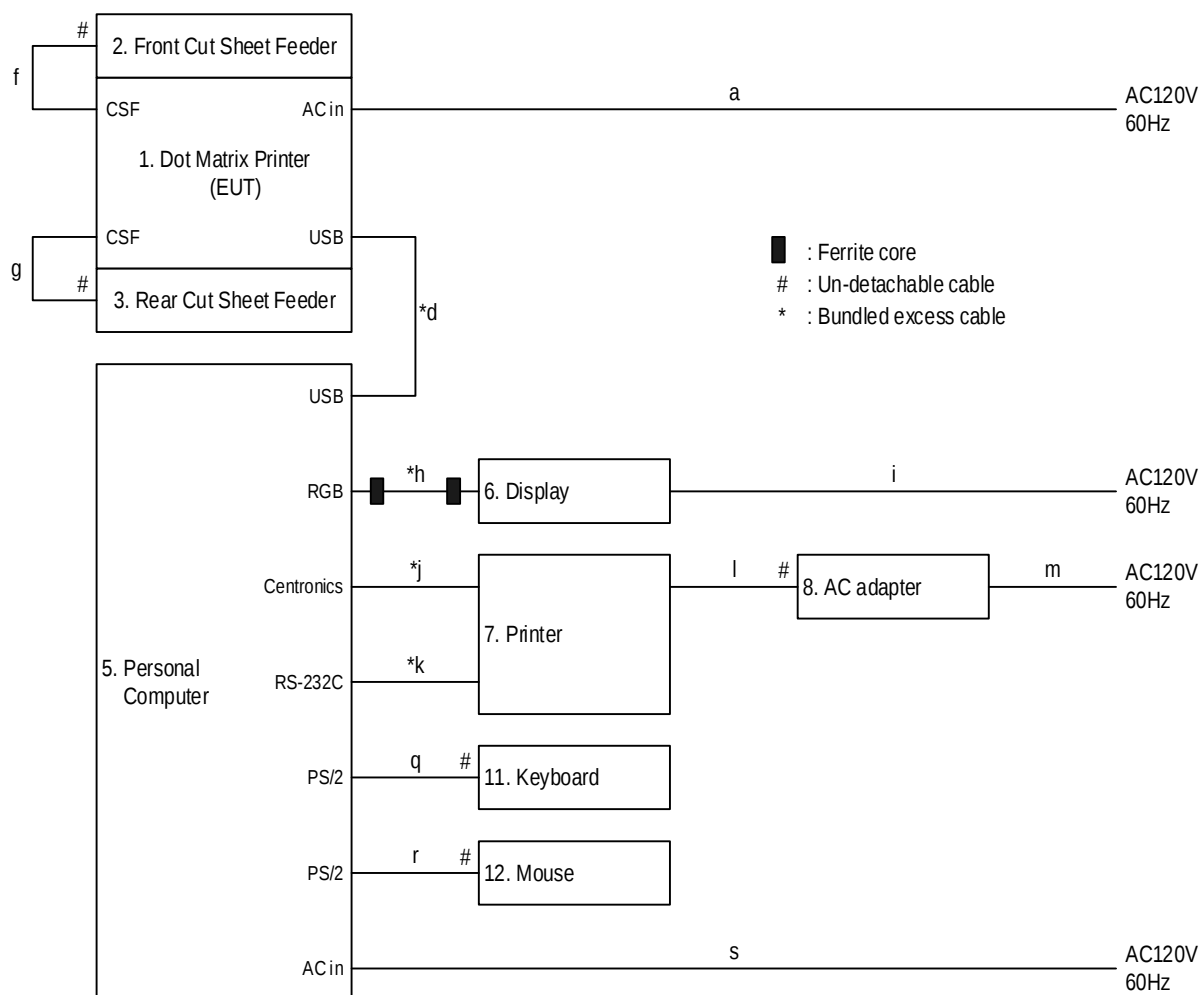


Note1: Numbers assigned to equipment or cables on this diagram correspond to the list in "3.1 Equipment(s) used" and "3.2 Cable(s) used".

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).

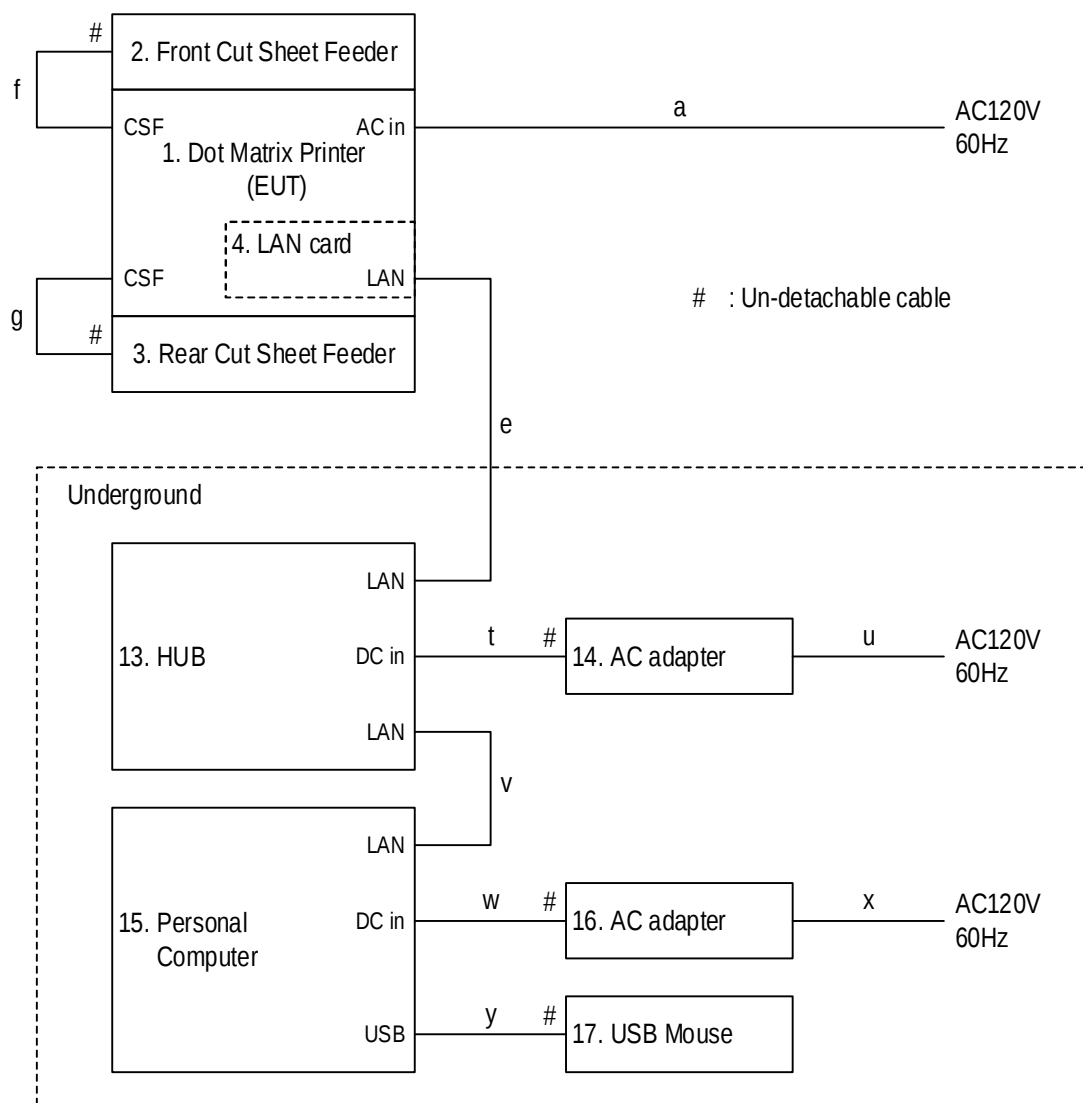
3.5 System configuration [USB I/F]



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".

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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 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.

The diagram illustrates the measurement setup for the test room. A vertical dashed line separates the **Test room** on the left from the **Measurement room** on the right. In the Test room, a **LISN** (Line Impedance Stabilization Network) is connected to a **Cable system**. The Cable system extends into the Measurement room, where it is connected to a **Spectrumanalyzer / Receiver**. A **Vertical metal reference plane** is indicated on the far left, adjacent to the LISN.

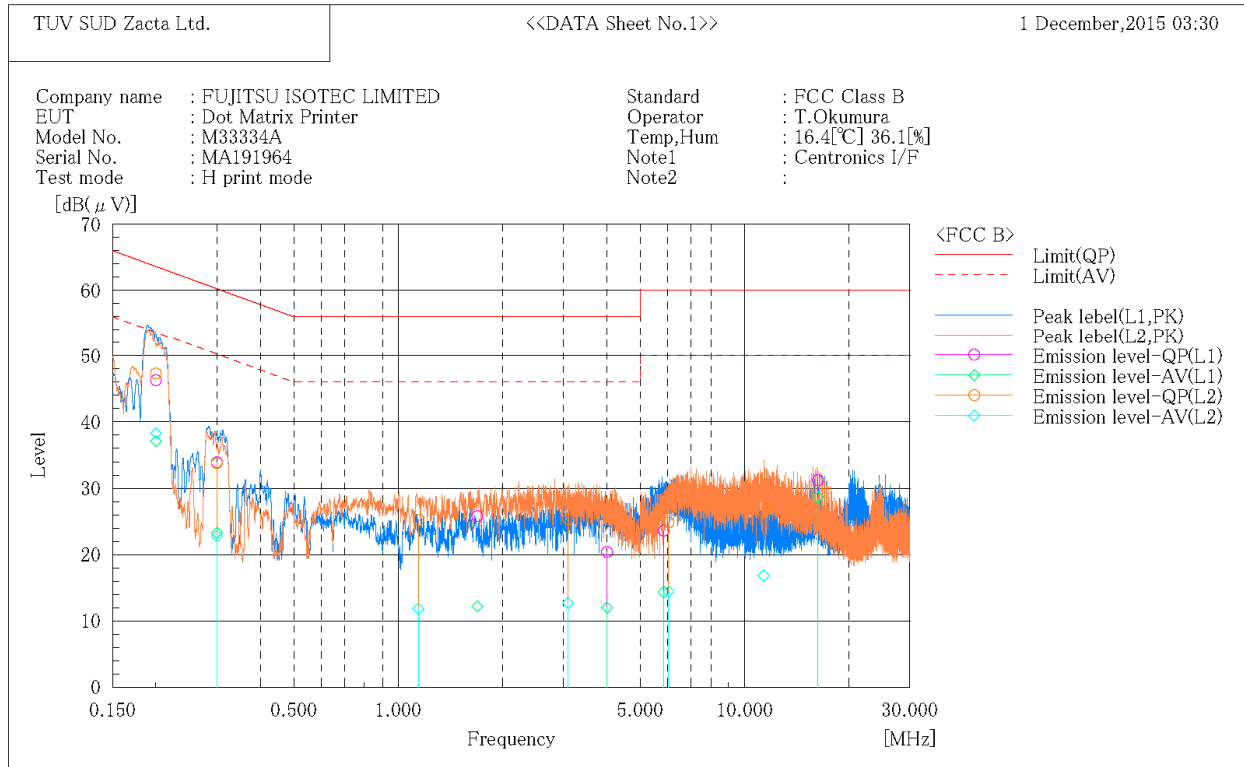
$$c.f = LISN. factor + \text{Cable system loss}$$

Example:

$$\text{Margin} = 50.0 - 45.3 = 4.7\text{dB}$$

4.3 Test data

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



Final Result

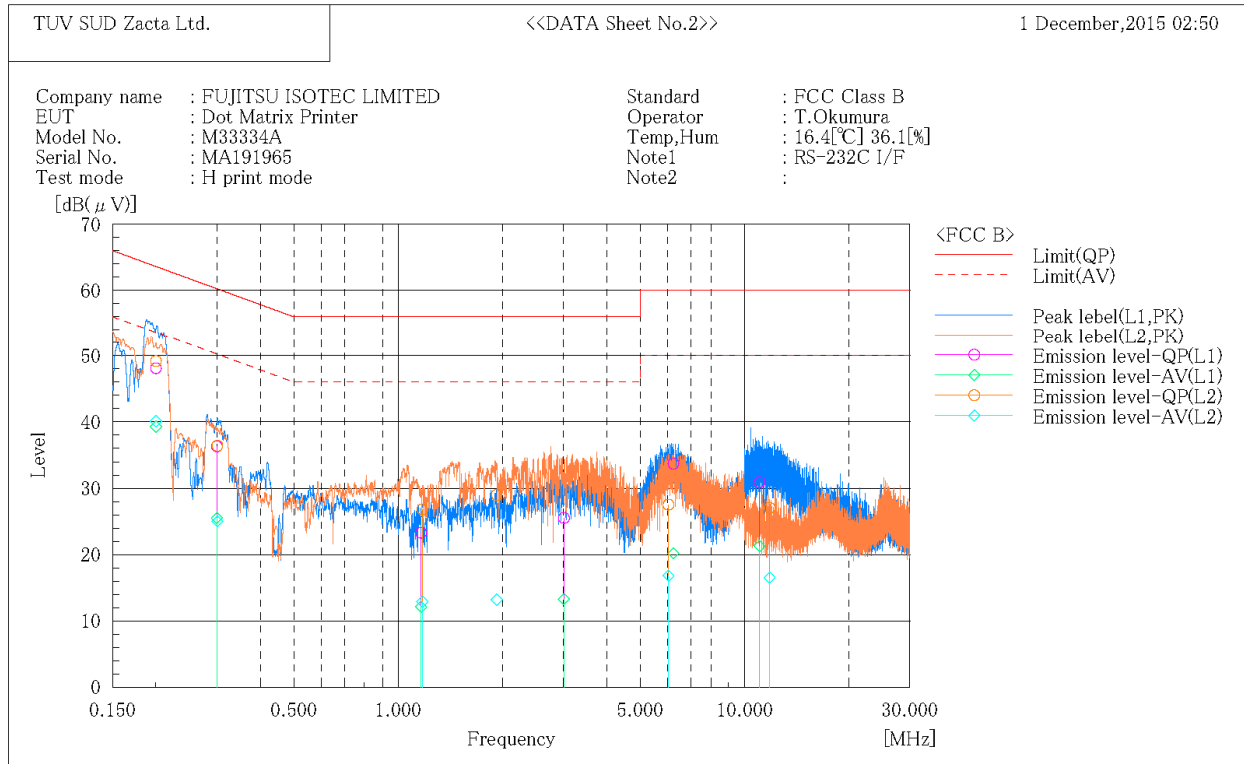
--- L1 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c. f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.200	35.8	26.6	10.5	46.3	37.1	63.6	53.6	17.3	16.5
2	0.300	23.4	12.8	10.5	33.9	23.3	60.2	50.2	26.3	26.9
3	1.692	15.2	1.6	10.6	25.8	12.2	56.0	46.0	30.2	33.8
4	4.005	9.6	1.2	10.8	20.4	12.0	56.0	46.0	35.6	34.0
5	5.849	12.8	3.5	10.8	23.6	14.3	60.0	50.0	36.4	35.7
6	16.270	19.8	17.2	11.4	31.2	28.6	60.0	50.0	28.8	21.4

--- L2 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c. f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.200	36.6	27.6	10.7	47.3	38.3	63.6	53.6	16.3	15.3
2	0.300	23.2	12.2	10.6	33.8	22.8	60.2	50.2	26.4	27.4
3	1.145	14.6	1.2	10.6	25.2	11.8	56.0	46.0	30.8	34.2
4	3.092	14.5	1.9	10.8	25.3	12.7	56.0	46.0	30.7	33.3
5	6.031	13.9	3.5	10.9	24.8	14.4	60.0	50.0	35.2	35.6
6	11.354	15.2	5.6	11.2	26.4	16.8	60.0	50.0	33.6	33.2

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



Final Result

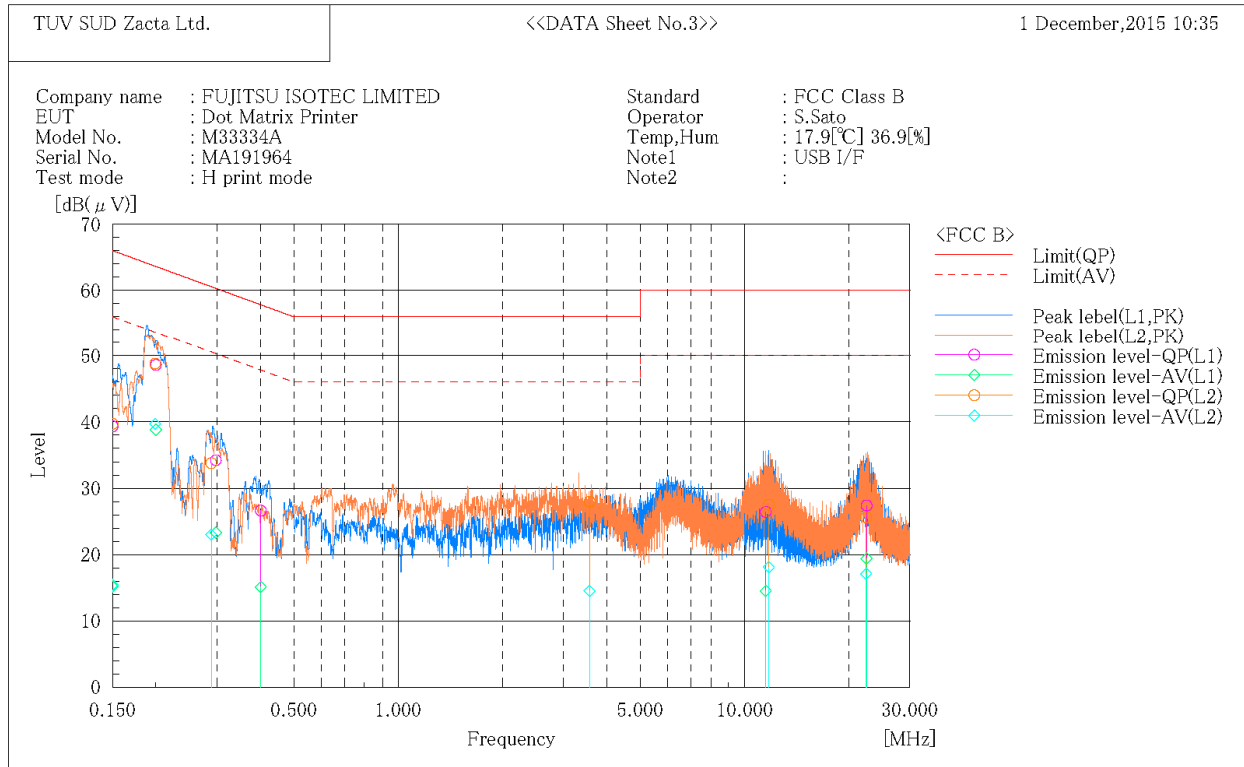
--- L1 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c. f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.200	37.6	28.8	10.5	48.1	39.3	63.6	53.6	15.5	14.3
2	0.300	25.8	15.0	10.5	36.3	25.5	60.2	50.2	23.9	24.7
3	1.165	12.8	1.6	10.5	23.3	12.1	56.0	46.0	32.7	33.9
4	3.008	14.8	2.6	10.7	25.5	13.3	56.0	46.0	30.5	32.7
5	6.230	22.8	9.3	10.9	33.7	20.2	60.0	50.0	26.3	29.8
6	11.040	19.8	10.2	11.1	30.9	21.3	60.0	50.0	29.1	28.7

--- L2 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c. f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.200	38.5	29.4	10.7	49.2	40.1	63.6	53.6	14.4	13.5
2	0.301	25.8	14.4	10.6	36.4	25.0	60.2	50.2	23.8	25.2
3	1.175	16.2	2.3	10.6	26.8	12.9	56.0	46.0	29.2	33.1
4	1.925	18.3	2.5	10.7	29.0	13.2	56.0	46.0	27.0	32.8
5	6.030	16.6	5.9	10.9	27.5	16.8	60.0	50.0	32.5	33.2
6	11.800	15.8	5.3	11.2	27.0	16.5	60.0	50.0	33.0	33.5

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



Final Result

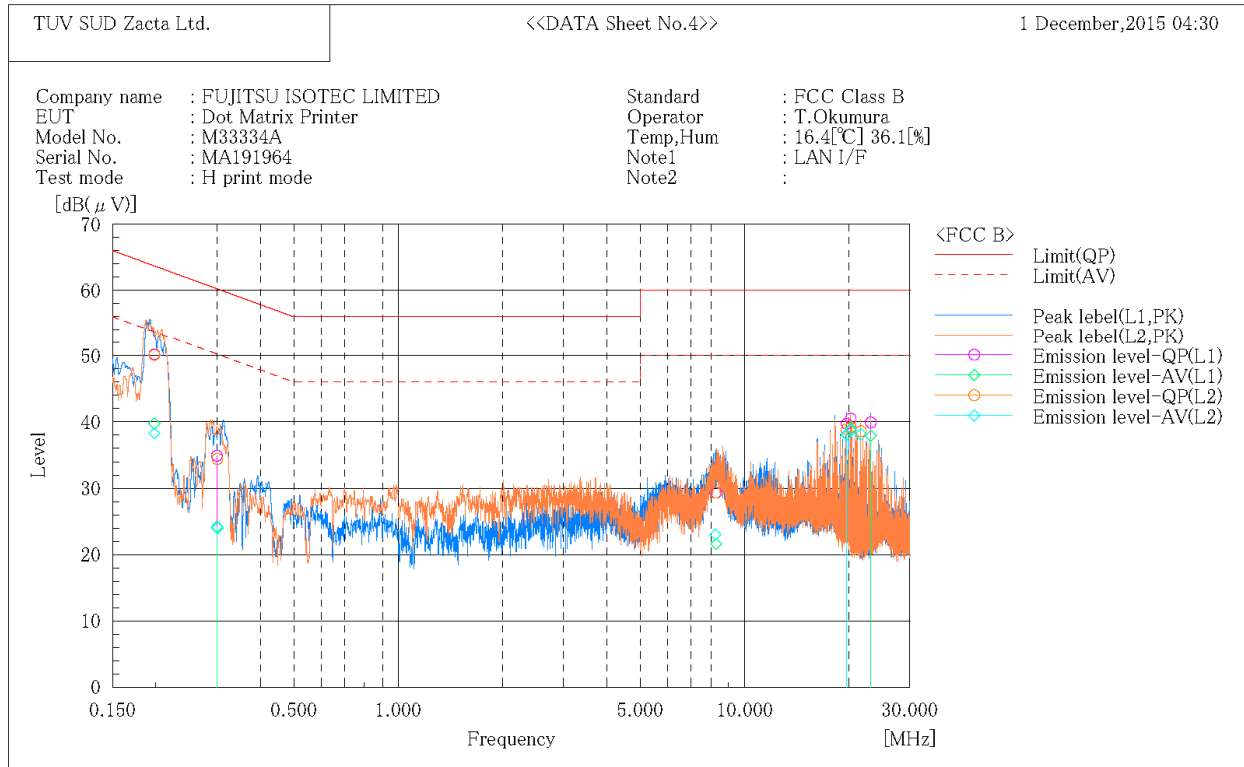
--- L1 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c. f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.150	28.7	4.6	10.6	39.3	15.2	66.0	56.0	26.7	40.8
2	0.200	38.1	28.3	10.5	48.6	38.8	63.6	53.6	15.0	14.8
3	0.298	23.7	12.8	10.5	34.2	23.3	60.3	50.3	26.1	27.0
4	0.401	16.1	4.6	10.5	26.6	15.1	57.8	47.8	31.2	32.7
5	11.498	15.3	3.4	11.1	26.4	14.5	60.0	50.0	33.6	35.5
6	22.507	15.7	7.7	11.7	27.4	19.4	60.0	50.0	32.6	30.6

--- L2 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c. f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.150	29.0	4.7	10.7	39.7	15.4	66.0	56.0	26.3	40.6
2	0.199	38.1	29.0	10.7	48.8	39.7	63.7	53.7	14.9	14.0
3	0.289	23.2	12.4	10.6	33.8	23.0	60.6	50.6	26.8	27.6
4	3.571	17.2	3.7	10.8	28.0	14.5	56.0	46.0	28.0	31.5
5	11.750	16.3	6.9	11.2	27.5	18.1	60.0	50.0	32.5	31.9
6	22.430	13.9	5.4	11.7	25.6	17.1	60.0	50.0	34.4	32.9

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



Final Result

--- L1 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c. f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.198	39.6	29.2	10.6	50.2	39.8	63.7	53.7	13.5	13.9
2	0.300	24.4	13.7	10.5	34.9	24.2	60.2	50.2	25.3	26.0
3	8.280	18.3	10.6	11.0	29.3	21.6	60.0	50.0	30.7	28.4
4	19.710	28.2	26.6	11.5	39.7	38.1	60.0	50.0	20.3	11.9
5	20.259	28.9	27.4	11.6	40.5	39.0	60.0	50.0	19.5	11.0
6	23.128	28.2	26.2	11.7	39.9	37.9	60.0	50.0	20.1	12.1

--- L2 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c. f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.198	39.4	27.6	10.7	50.1	38.3	63.7	53.7	13.6	15.4
2	0.301	23.8	13.4	10.6	34.4	24.0	60.2	50.2	25.8	26.2
3	8.230	18.2	11.9	11.1	29.3	23.0	60.0	50.0	30.7	27.0
4	19.710	27.3	26.4	11.6	38.9	38.0	60.0	50.0	21.1	12.0
5	20.259	27.6	27.1	11.6	39.2	38.7	60.0	50.0	20.8	11.3
6	21.664	26.9	26.4	11.7	38.6	38.1	60.0	50.0	21.4	11.9

5. Radiated emission test information

5.1 Measurement procedure

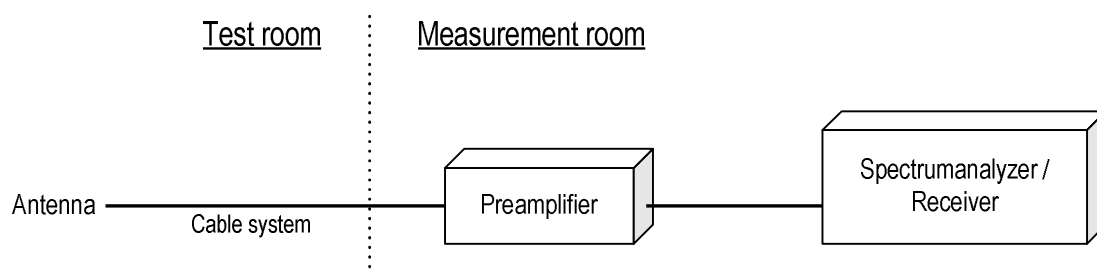
Test was applied by following conditions.

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 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

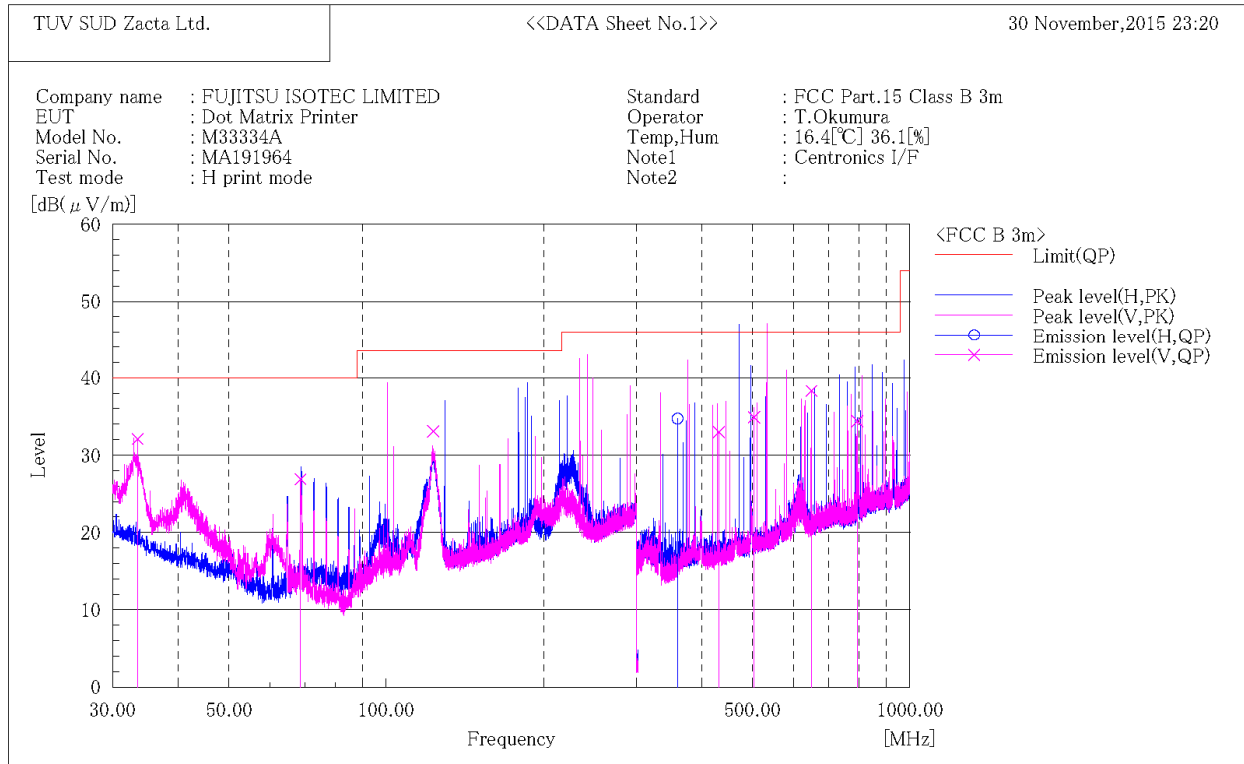
c.f = Ant. factor + Cable system loss - Amp. Gain

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

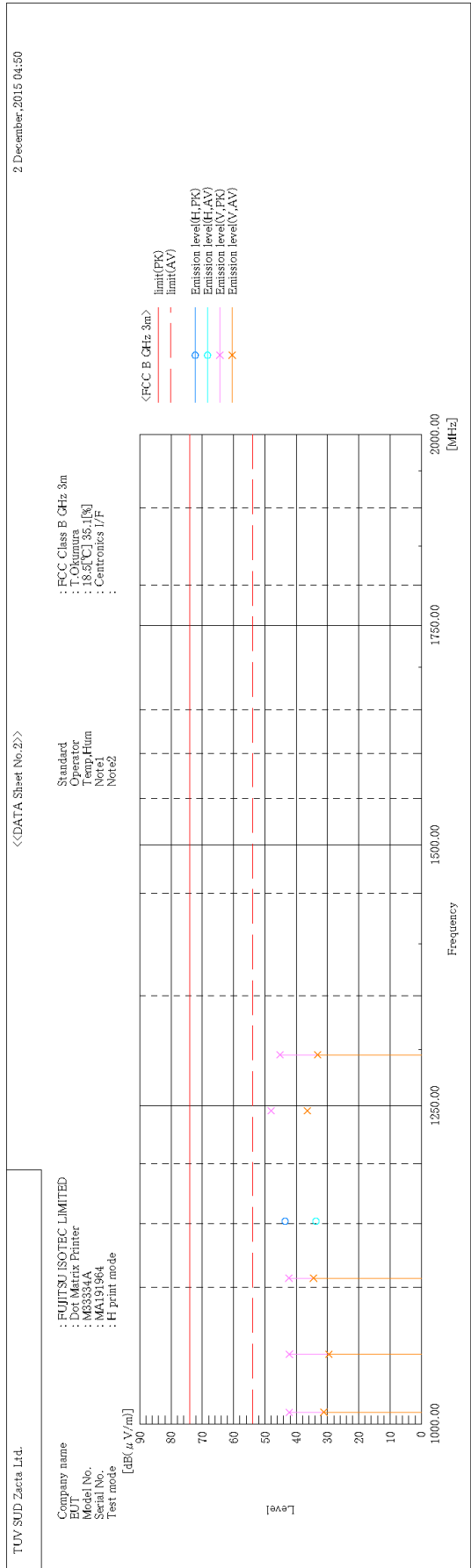
***** RADIATED EMISSION *****
[10m Semi-anechoic chamber #2]



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	33.465	V	37.9	-5.8	32.1	40.0	7.9	100.0	280.0
2	68.500	V	43.0	-16.1	26.9	40.0	13.1	100.0	87.0
3	122.750	V	42.0	-8.9	33.1	43.5	10.4	100.0	202.0
4	360.000	H	44.5	-9.8	34.7	46.0	11.3	100.0	187.0
5	432.000	V	40.5	-7.5	33.0	46.0	13.0	170.0	225.0
6	504.000	V	40.6	-5.7	34.9	46.0	11.1	150.0	215.0
7	648.000	V	41.6	-3.3	38.3	46.0	7.7	100.0	274.0
8	792.000	V	36.0	-1.6	34.4	46.0	11.6	100.0	276.0

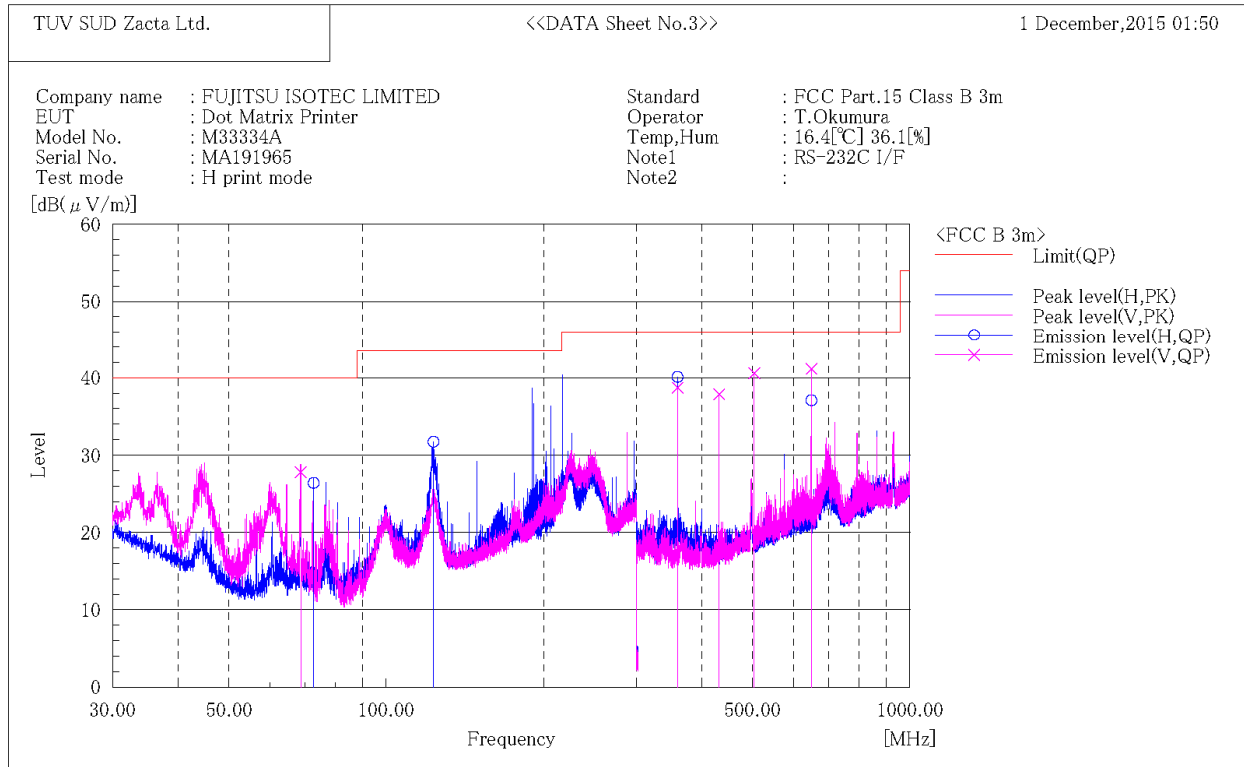
***** RADIATED EMISSION *****
[10m Semi-anechoic chamber #2]



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	1008.000	V	40.8	29.7	1.5	42.3	31.2	74.0	54.0	31.7	22.8	100.0	72.0
2	1049.595	V	40.6	28.0	1.6	42.2	29.6	74.0	54.0	31.8	24.4	145.0	0.0
3	1107.000	V	40.6	32.7	1.8	42.4	34.5	74.0	54.0	31.6	19.5	105.0	210.0
4	1152.000	H	40.8	30.9	2.8	43.6	33.7	74.0	54.0	30.4	20.3	100.0	177.0
5	1245.380	V	44.2	32.6	3.9	48.1	36.5	74.0	54.0	25.9	17.5	100.0	205.0
6	1295.980	V	41.2	29.2	4.0	45.2	33.2	74.0	54.0	28.8	20.8	110.0	275.0

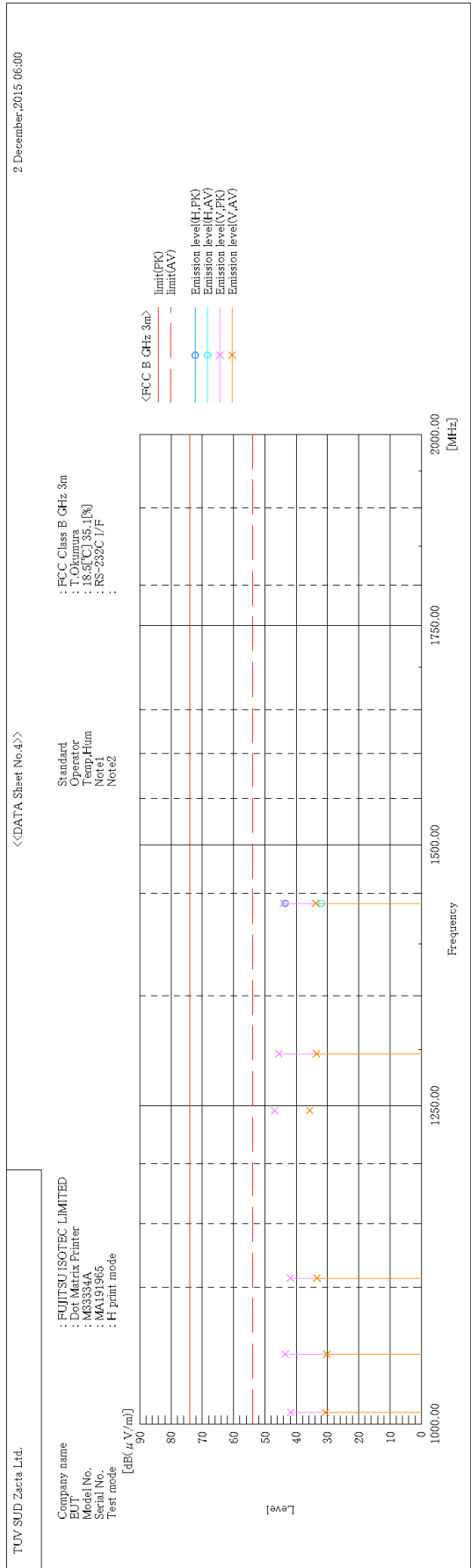
***** RADIATED EMISSION *****
[10m Semi-anechoic chamber #2]



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	68.605	V	43.9	-16.1	27.8	40.0	12.2	100.0	80.0
2	72.635	H	42.6	-16.2	26.4	40.0	13.6	400.0	95.0
3	122.995	H	40.6	-8.9	31.7	43.5	11.8	340.0	145.0
4	360.000	H	49.9	-9.8	40.1	46.0	5.9	100.0	306.0
5	360.000	V	48.5	-9.8	38.7	46.0	7.3	165.0	0.0
6	432.000	V	45.4	-7.5	37.9	46.0	8.1	165.0	238.0
7	504.000	V	46.3	-5.7	40.6	46.0	5.4	112.0	265.0
8	648.000	V	44.5	-3.3	41.2	46.0	4.8	205.0	315.0
9	648.000	H	40.4	-3.3	37.1	46.0	8.9	345.0	273.0

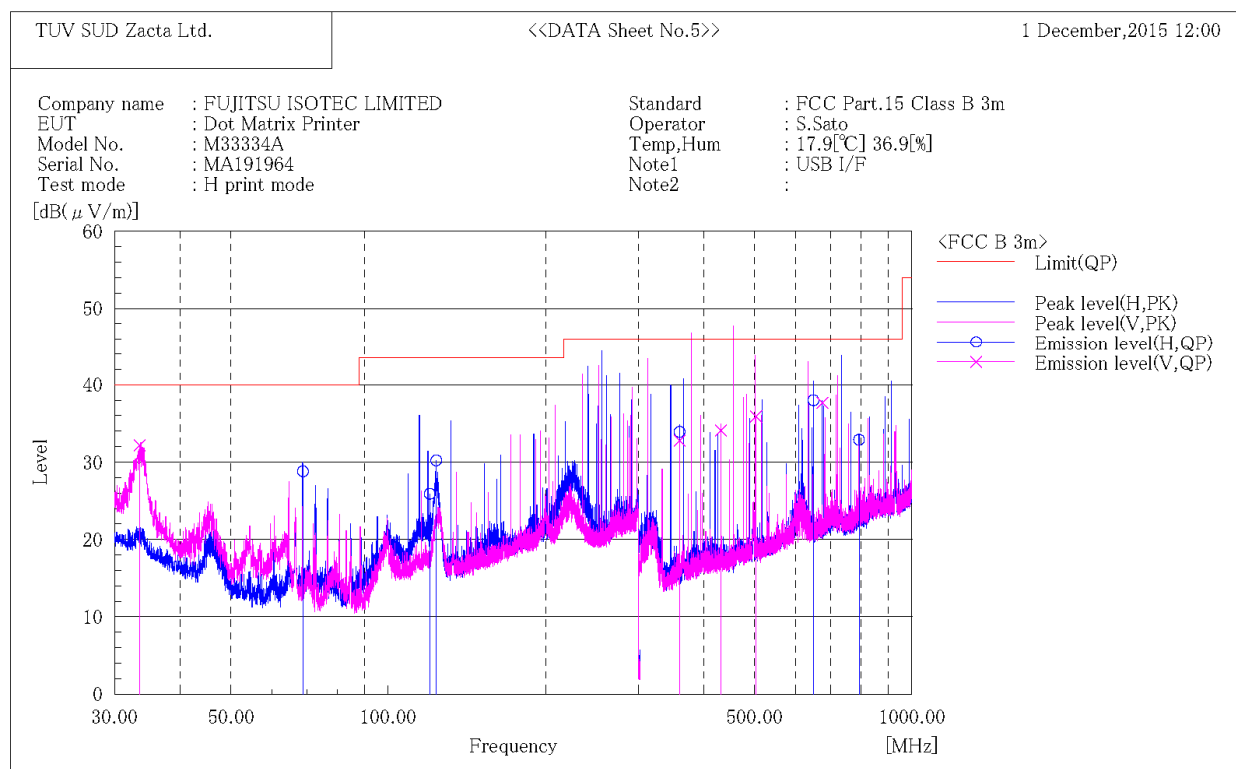
***** RADIATED EMISSION *****
[10m Semi-anechoic chamber #2]



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	1008.000	V	40.3	29.2	1.5	41.8	30.7	74.0	54.0	32.2	23.3	100.0	62.0
2	1049.595	V	41.9	28.7	1.6	43.5	30.3	74.0	54.0	30.5	23.7	135.0	0.0
3	1107.000	V	40.1	31.6	1.8	41.9	33.4	74.0	54.0	32.1	20.6	105.0	205.0
4	1245.380	V	43.0	31.8	3.9	46.9	35.7	74.0	54.0	27.1	18.3	100.0	203.0
5	1295.980	V	41.6	29.6	4.0	45.6	33.6	74.0	54.0	28.4	20.4	115.0	285.0
6	1439.970	V	40.8	30.5	3.3	44.1	33.8	74.0	54.0	29.9	20.2	105.0	277.0
7	1439.970	H	40.2	28.6	3.3	43.5	31.9	74.0	54.0	30.5	22.1	100.0	235.0

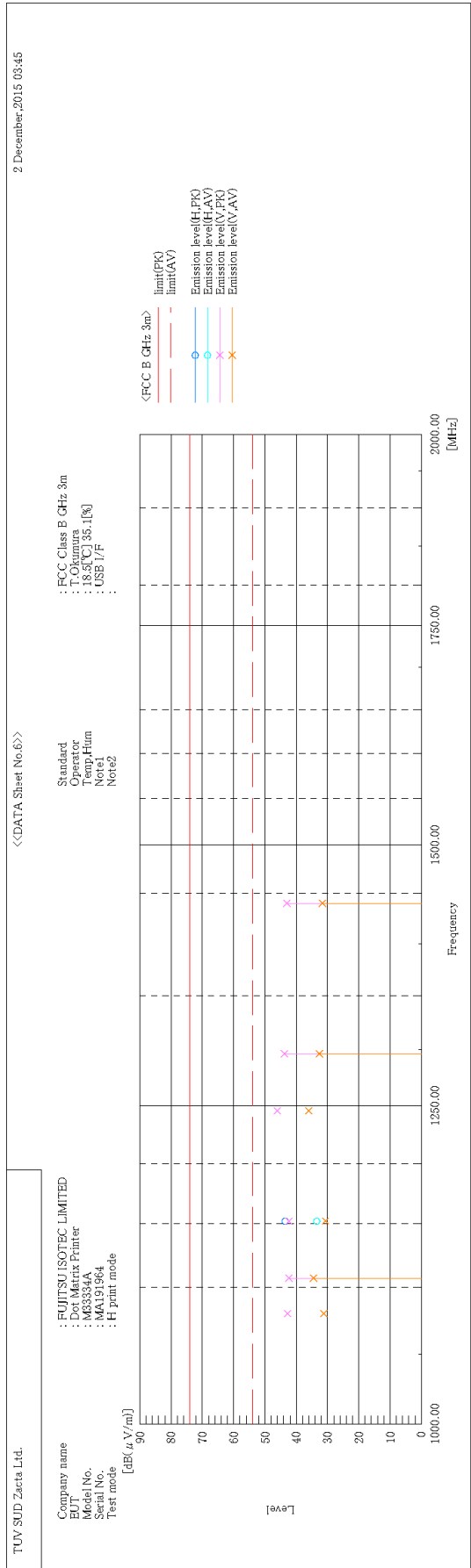
***** RADIATED EMISSION *****
[10m Semi-anechoic chamber #2]



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	33.479	V	38.0	-5.8	32.2	40.0	7.8	100.0	0.0
2	68.637	H	44.9	-16.1	28.8	40.0	11.2	343.0	271.0
3	119.906	H	35.0	-9.1	25.9	43.5	17.6	224.0	174.0
4	123.443	H	39.1	-8.9	30.2	43.5	13.3	229.0	166.0
5	359.989	V	42.6	-9.8	32.8	46.0	13.2	161.0	220.0
6	359.994	H	43.7	-9.8	33.9	46.0	12.1	100.0	193.0
7	431.992	V	41.6	-7.5	34.1	46.0	11.9	144.0	263.0
8	503.992	V	41.6	-5.7	35.9	46.0	10.1	123.0	294.0
9	647.981	H	41.3	-3.3	38.0	46.0	8.0	232.0	219.0
10	674.986	V	40.4	-2.7	37.7	46.0	8.3	114.0	146.0
11	791.983	H	34.5	-1.6	32.9	46.0	13.1	100.0	215.0

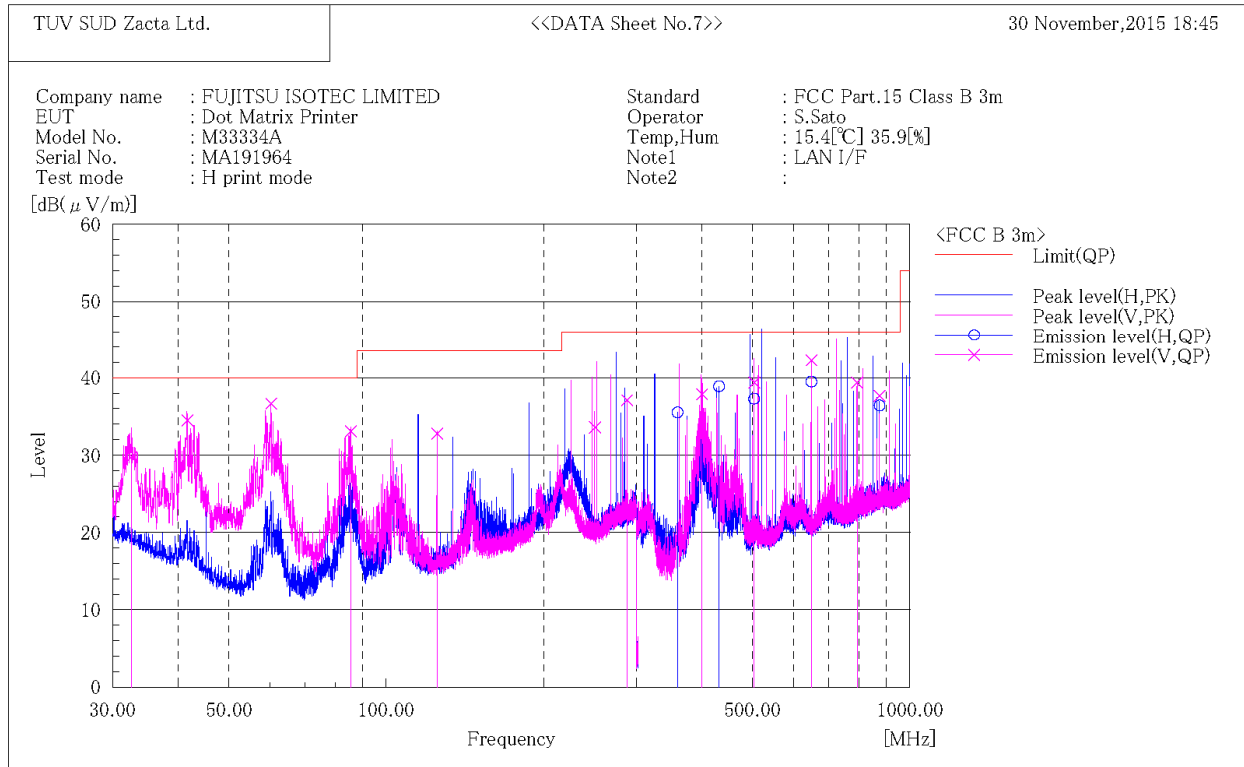
***** RADIATED EMISSION *****
[10m Semi-anechoic chamber #2]



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	1080.000	V	41.2	29.6	1.6	42.8	31.2	74.0	54.0	31.2	22.8	100.0	0.0
2	1107.005	V	40.6	32.7	1.8	42.4	34.5	74.0	54.0	31.6	19.5	100.0	207.0
3	1152.000	V	39.6	27.9	2.8	42.4	30.7	74.0	54.0	31.6	23.3	110.0	227.0
4	1152.000	H	40.7	30.6	2.8	43.5	33.4	74.0	54.0	30.5	20.6	100.0	173.0
5	1245.380	V	42.2	32.2	3.9	46.1	36.1	74.0	54.0	27.9	17.9	100.0	202.0
6	1295.980	V	39.9	28.6	4.0	43.9	32.6	74.0	54.0	30.1	21.4	110.0	275.0
7	1439.970	V	39.7	28.3	3.3	43.0	31.6	74.0	54.0	31.0	22.4	100.0	275.0

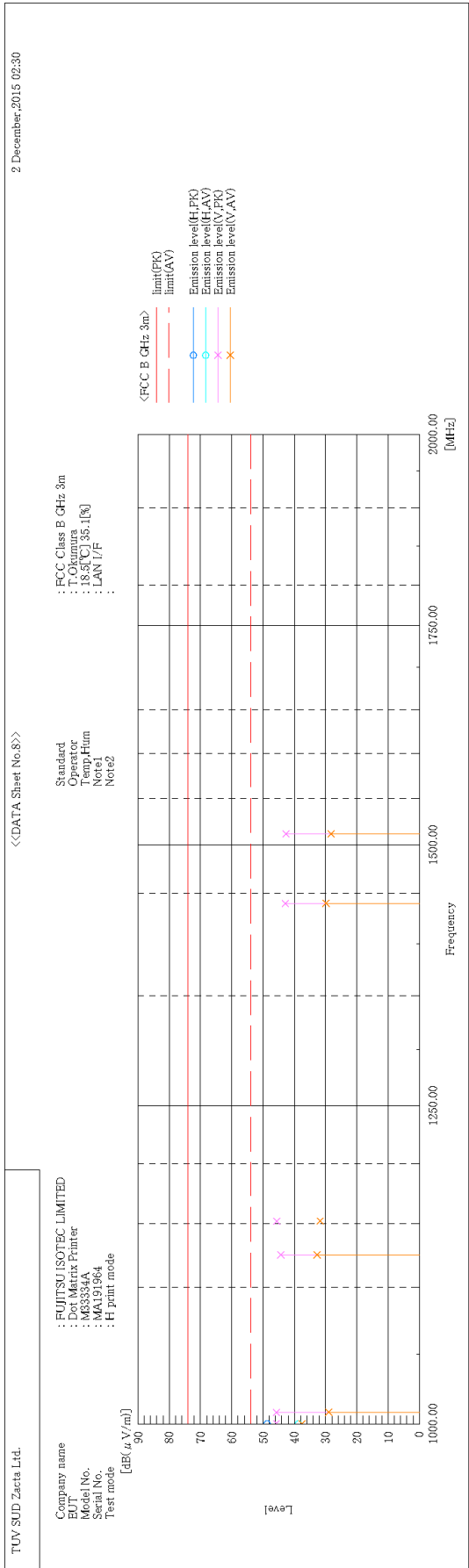
***** RADIATED EMISSION *****
[10m Semi-anechoic chamber #2]



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	32.594	V	35.3	-5.5	29.8	40.0	10.2	100.0	280.0
2	41.616	V	43.4	-8.9	34.5	40.0	5.5	100.0	221.0
3	60.214	V	51.2	-14.5	36.7	40.0	3.3	100.0	156.0
4	85.517	V	48.6	-15.5	33.1	40.0	6.9	100.0	6.0
5	124.999	V	41.6	-8.8	32.8	43.5	10.7	100.0	143.0
6	249.998	V	37.8	-4.2	33.6	46.0	12.4	100.0	240.0
7	287.993	V	39.6	-2.5	37.1	46.0	8.9	209.0	274.0
8	359.995	H	45.3	-9.8	35.5	46.0	10.5	100.0	185.0
9	400.605	V	45.8	-7.9	37.9	46.0	8.1	154.0	103.0
10	431.989	H	46.4	-7.5	38.9	46.0	7.1	100.0	226.0
11	503.985	V	45.1	-5.7	39.4	46.0	6.6	126.0	207.0
12	503.987	H	43.0	-5.7	37.3	46.0	8.7	178.0	78.0
13	647.982	H	42.8	-3.3	39.5	46.0	6.5	131.0	19.0
14	647.983	V	45.6	-3.3	42.3	46.0	3.7	100.0	129.0
15	791.976	V	41.0	-1.6	39.4	46.0	6.6	100.0	279.0
16	874.989	V	37.4	0.3	37.7	46.0	8.3	136.0	96.0
17	874.989	H	36.1	0.3	36.4	46.0	9.6	100.0	134.0

***** 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	1000.000	H	47.2	37.1	1.5	48.7	38.6	74.0	54.0	25.3	15.4	100.0	126.0
2	1000.000	V	44.3	36.1	1.5	45.8	37.6	74.0	54.0	28.2	16.4	120.0	92.0
3	1007.981	V	44.3	27.6	1.5	45.8	29.1	74.0	54.0	28.2	24.9	132.0	280.0
4	1125.075	V	42.2	30.6	2.1	44.3	32.7	74.0	54.0	29.7	21.3	110.0	180.0
5	1151.972	V	42.9	29.0	2.8	45.7	31.8	74.0	54.0	28.3	22.2	125.0	215.0
6	1439.965	V	39.6	26.6	3.3	42.9	29.9	74.0	54.0	31.1	24.1	100.0	252.0
7	1511.940	V	39.6	25.2	3.1	42.7	28.3	74.0	54.0	31.3	25.7	100.0	93.0

6. Uncertainty of measurement

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