



Zacta

TEST REPORT

Report number : Z071C-15200Issue date : June 26, 2015

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

FCC Part15 Subpart B
Canada ICES-003
- Class II Permissive Change -

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

Applicant	: FUJITSU ISOTEC LIMITED
Equipment under test (EUT)	: Dot Matrix Printer
FCC ID	: KHZ015M33324A
Model number	: M33324A

Date of test : June 10-12, 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
[EUT complies with Canadian Interference-Causing Equipment
Standard ICES-003.]
Remarks : CISPR 22 limit was applied to Radiated emission measurements as
prescribed in FCC part 15 section 15.109(g).

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 : Shogo Sato Nobuaki Marukawa
Shogo Sato Nobuaki Marukawa
Authorized by : Eiji Akiba
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

EUT, FCC ID: KHZ015M33324A, has been granted on Sep. 26, 2006.
Purpose of test is retest of EUT by changing AC power supply unit.

1.2 Standards

CFR47 FCC Part 15 Subpart B
ICES-003 Issue 5

1.2.1 Test Methods

ANSI C63.4-2009

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: +81-24-575-2214 Fax: +81-24-574-2277
Equipment under test	: Dot Matrix Printer
Trade name	: FUJITSU ISOTEC LIMITED
Model number	: M33324A
Serial number	: MA173214 (Centronics I/F, USB I/F, LAN I/F) MA173216 (RS-232C I/F)
EUT condition	: Production
Max. frequency	: 20MHz (Centronics I/F, RS-232C I/F) 48MHz (USB I/F) 125MHz (LAN I/F)
Power ratings	: AC 100-120V 50-60Hz [Power supply for EUT in testing was AC 120V 60Hz.]
Size	: (W) 600 × (D) 350 × (H) 290 mm

2.3 Variation of the family model(s)

Not applicable

2.4 Operating mode

[H print, Centronics I/F]

[H print, RS-232C I/F]

[H print, USB I/F]

[H print, LAN I/F]

- 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 LIMITED	M33324A	MA173214	KHZ015 M33324A	EUT *1
				MA173216		EUT *2
2	Front Cut Sheet Feeder	FUJITSU ISOTEC LIMITED	KA02027-D750	82049679	N/A	Option
3	Rear Cut Sheet Feeder	FUJITSU ISOTEC LIMITED	KA02027-D750	0Y507684	N/A	Option
4	LAN card	FUJITSU ISOTEC LIMITED	KA02012	N/A	N/A	Option *3
5	Personal Computer	DELL	MMS	DWZQ21S	DoC	-
6	Display	DELL	E177FPc	CN-0PR083-64180-6BQ-0C7S	DoC	-
7	Printer	SII	DPU-414	3002673	DoC	-
8	AC adapter for Printer	SII	PW-4007-J1-E	0104	N/A	-
9	USB JOY Pad	Logicool	G-UF13	N/A	DoC	-
10	Keyboard	DELL	RT7D00	TH-054EXM-37171-19A-1180	AQ6-7D 0080COB	-
11	Mouse	Logitech	M-S34	LNA13032232	DZL211029	-
12	HUB	Logitec	LAN-GSW05/PHB	22L230106672A	N/A	-
13	AC adapter for HUB	Logutec	LA-6W9VS	CB08 PL	N/A	-
14	Personal Computer	HP	HSTNN-I05C	CNU7071D2W	DoC	-
15	AC adapter for PC	HP	PPP009H	F1-09020465460C	N/A	-

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

*2: RS-232C I/F

*3: Option of M/N:M33324A S/N:MA173214

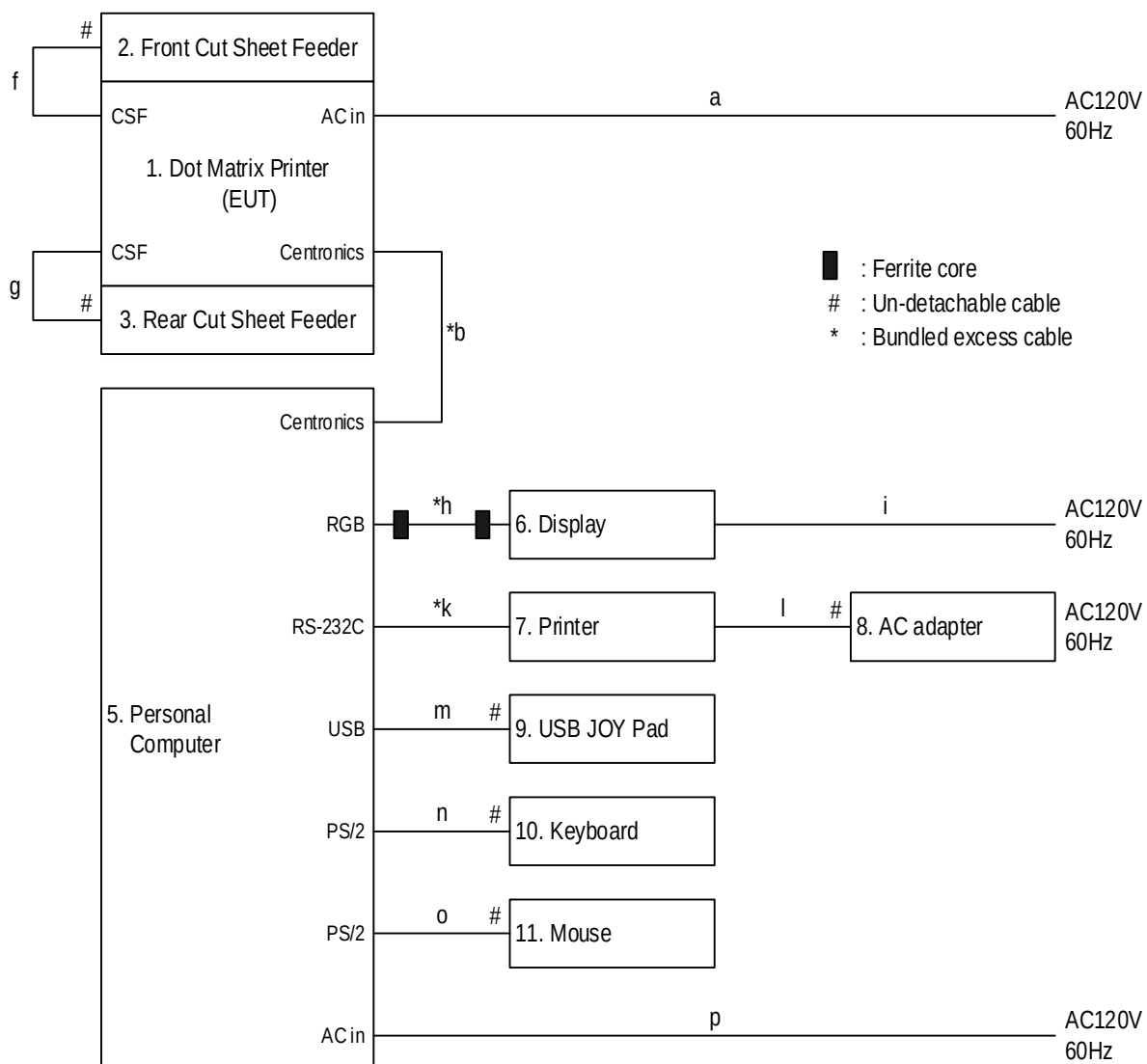


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3.2 Cable(s) used

No.	Cable	Length[m]	Shield	Connector	Comment
a	AC power cord for EUT	3.0	No	Plastic	Accessory
b	Parallel cable	3.2	Yes	Metal	-
c	Serial cable	1.6	Yes	Metal	-
d	USB cable	5.0	Yes	Metal	-
e	LAN cable	8.65	No	Plastic	-
f	Cut Sheet Feeder cable	0.25	Yes	Metal	-
g	Cut Sheet Feeder cable	0.25	Yes	Metal	-
h	RGB cable	1.8	Yes	Metal	-
i	AC power cord for Display	1.8	No	Plastic	-
j	Serial cable	2.1	Yes	Metal	-
k	Parallel cable	2.0	Yes	Metal	-
l	DC cable	1.9	No	Plastic	-
m	USB JOY Pad cable	1.8	Yes	Metal	-
n	Keyboard cable	1.8	No	Metal	-
o	Mouse cable	1.8	Yes	Metal	-
p	AC power cord for PC	2.0	No	Plastic	-
q	DC cable for HUB AC adapter	1.5	No	Plastic	-
r	LAN cable	1.0	No	Plastic	-
s	DC cable for PC AC adapter	1.8	No	Plastic	-
t	AC power cord for PC AC adapter	1.8	No	Plastic	-

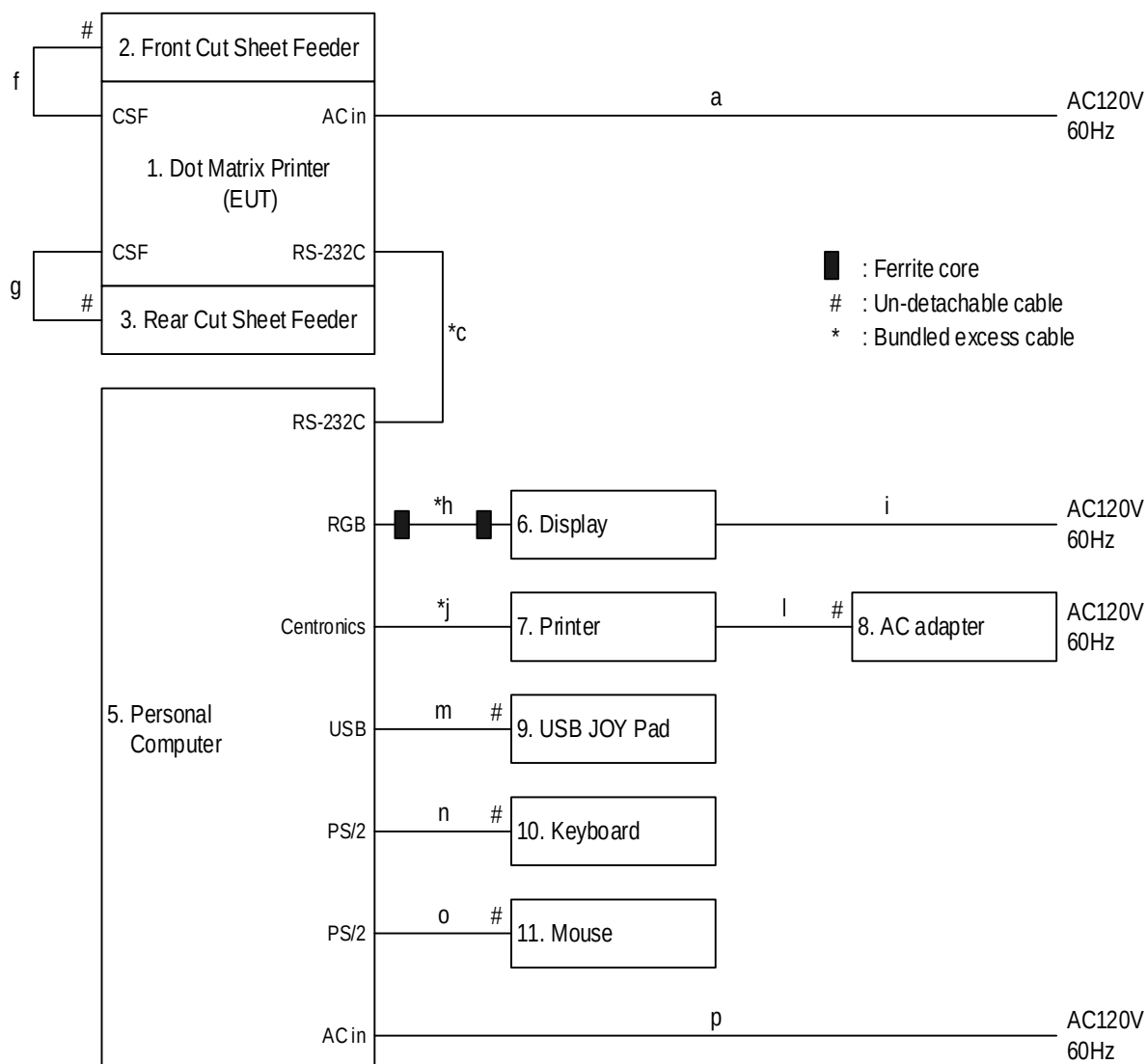
3.3 System configuration [Centronics I/F]



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).

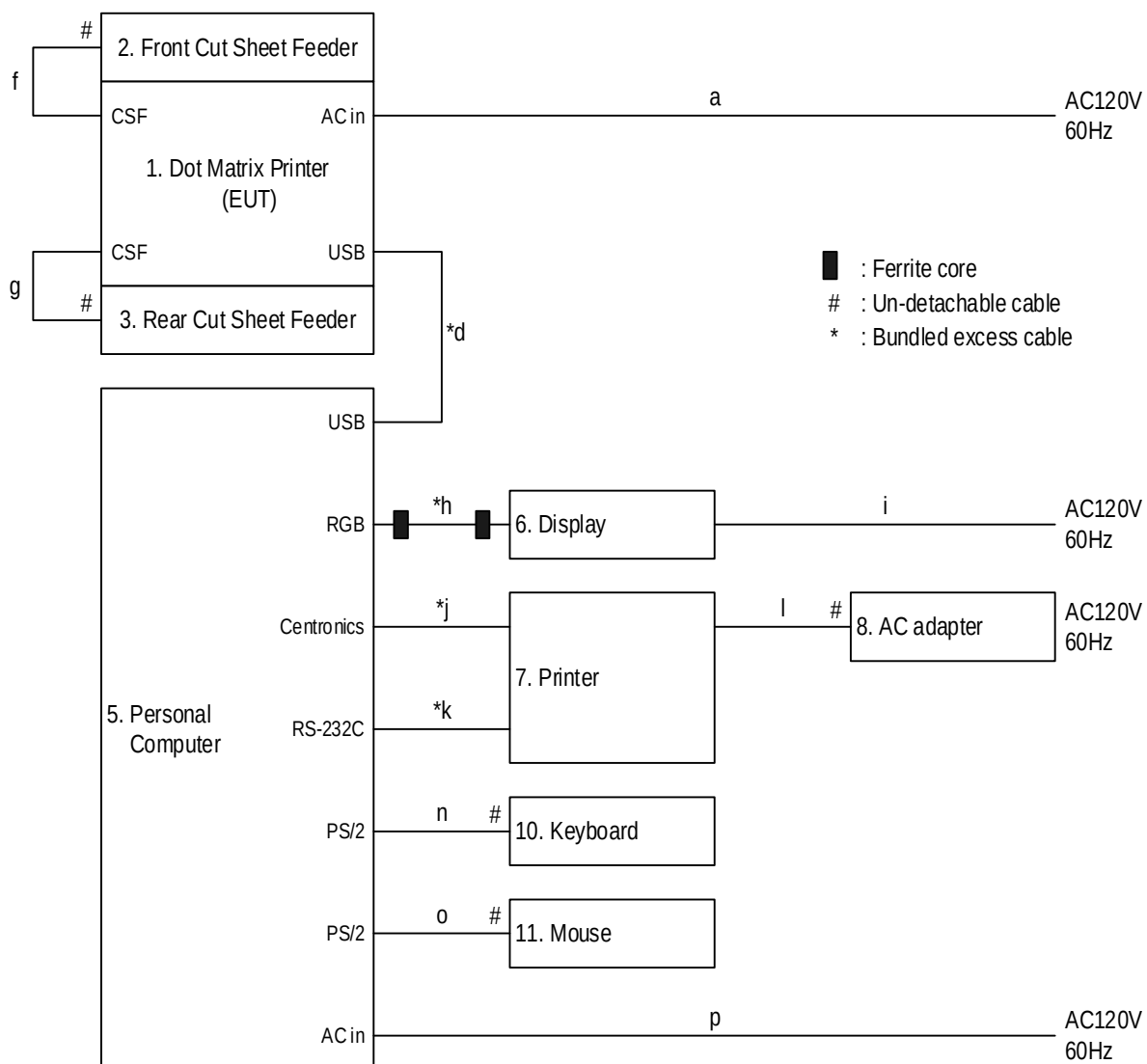
3.4 System configuration [RS-232C I/F]



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).

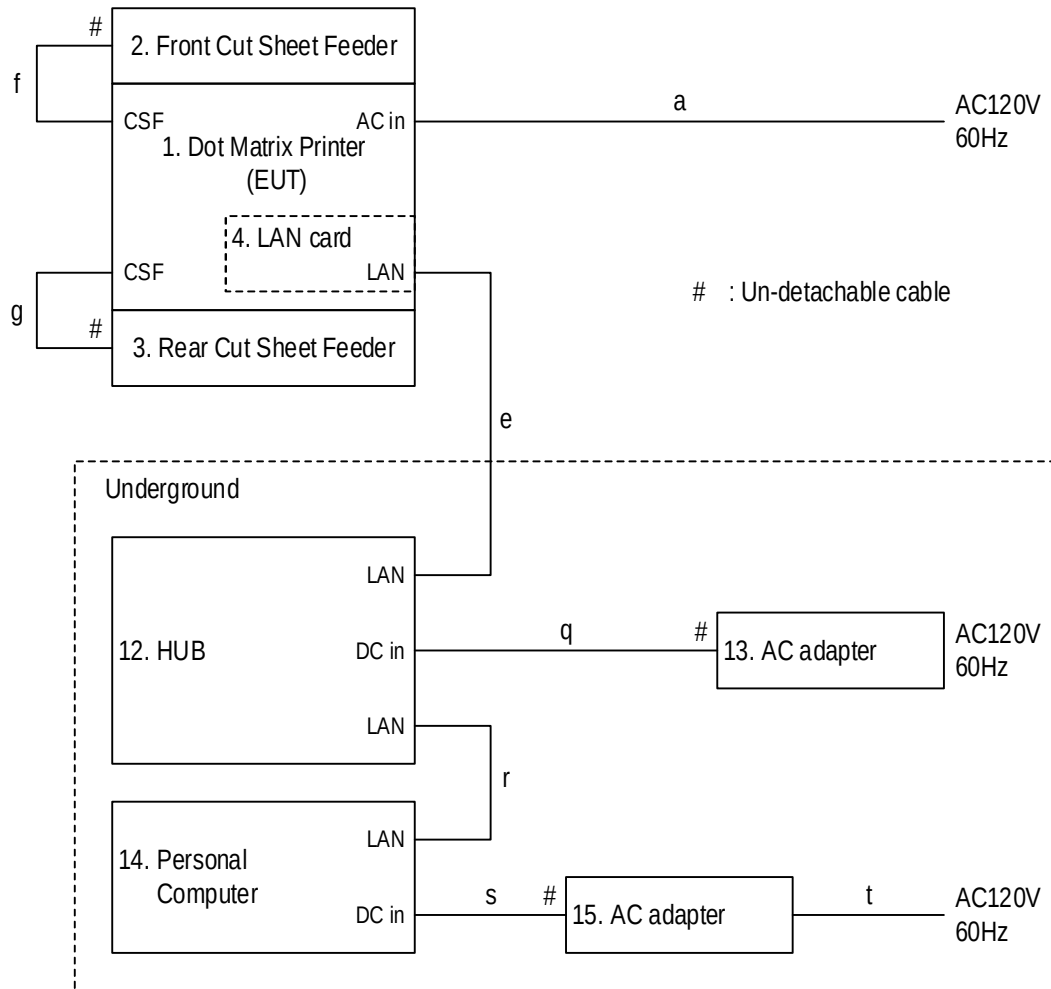
3.5 System configuration [USB I/F]



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.1
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	:	13.0m × 21.0m
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 from the Measurement room. In the Test room, a **LISN** (Line Impedance Stabilization Network) is connected to the **Cable system**. In the Measurement room, the **Cable system** is connected to a **Spectrum analyzer / Receiver**. A **Vertical metal reference plane** is indicated on the left side of the Test room.

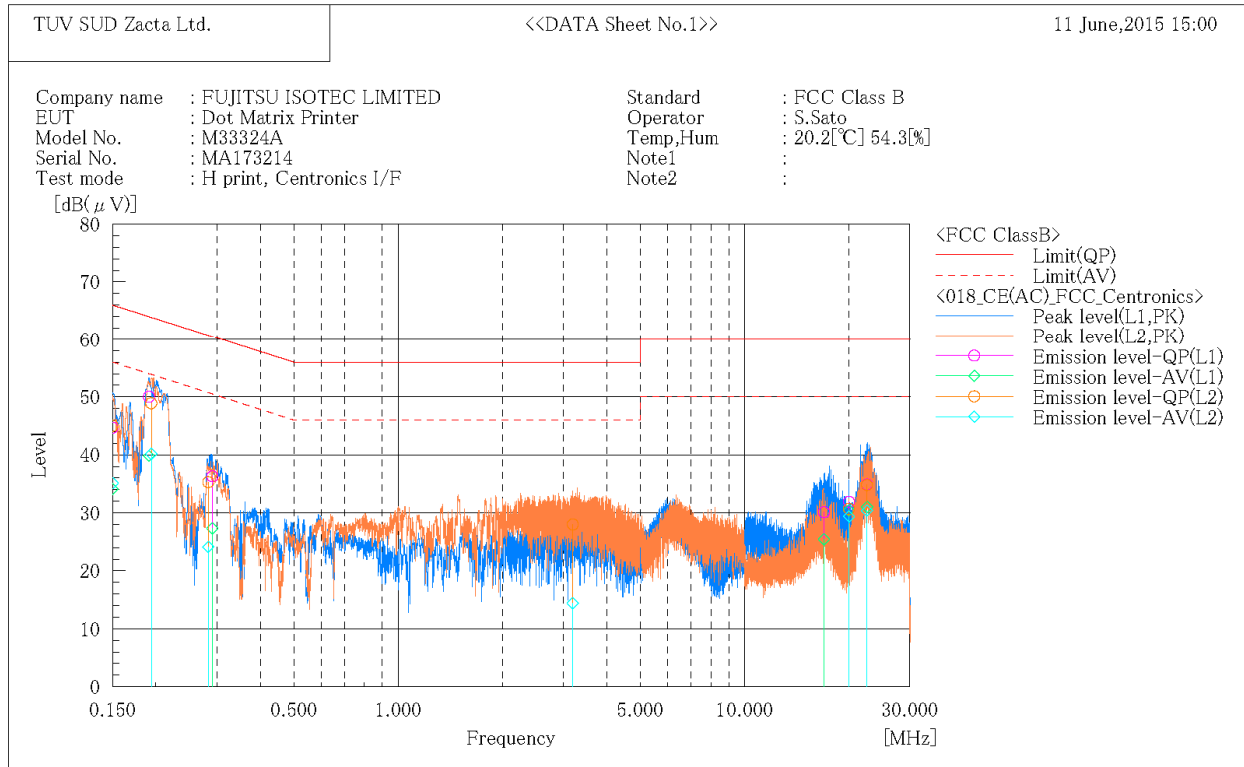
$$c.f = \text{LISN factor} + \text{Cable system loss}$$

$$\text{Margin} = \text{Limit} - \text{Emission level}$$

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 #1]



Final Result

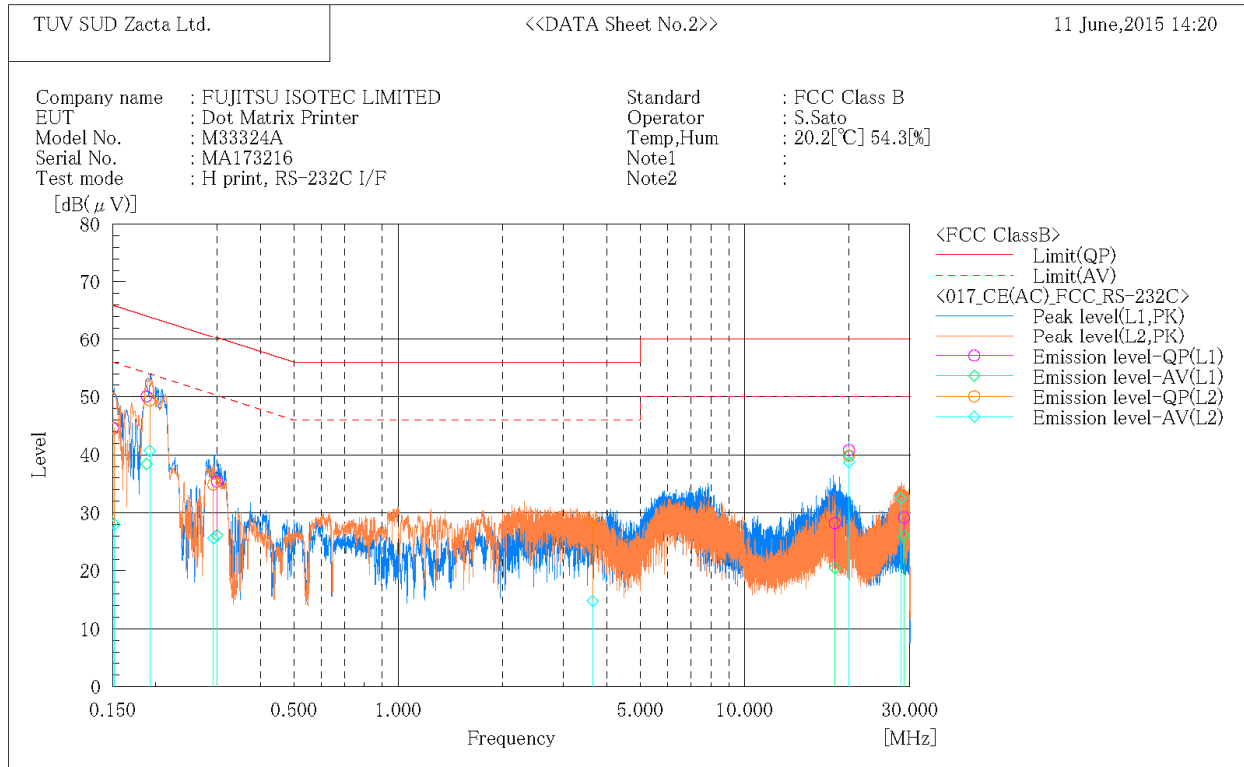
--- L1 Phase ---

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	34.0	23.4	10.7	44.7	34.1	66.0	56.0	21.3	21.9
2	0.191	39.4	29.2	10.6	50.0	39.8	64.0	54.0	14.0	14.2
3	0.291	25.8	16.8	10.5	36.3	27.3	60.5	50.5	24.2	23.2
4	16.940	18.6	13.9	11.5	30.1	25.4	60.0	50.0	29.9	24.6
5	20.008	20.2	18.7	11.7	31.9	30.4	60.0	50.0	28.1	19.6
6	22.549	23.1	19.2	11.8	34.9	31.0	60.0	50.0	25.1	19.0

--- 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	34.3	24.4	10.7	45.0	35.1	66.0	56.0	21.0	20.9
2	0.194	38.3	29.6	10.6	48.9	40.2	63.9	53.9	15.0	13.7
3	0.283	24.8	13.6	10.5	35.3	24.1	60.7	50.7	25.4	26.6
4	3.191	17.2	3.6	10.8	28.0	14.4	56.0	46.0	28.0	31.6
5	20.007	18.8	17.5	11.9	30.7	29.4	60.0	50.0	29.3	20.6
6	22.550	22.7	18.3	12.1	34.8	30.4	60.0	50.0	25.2	19.6

***** CONDUCTED EMISSION at MAINS PORT *****
[10m semi-anechoic chamber #1]



Final Result

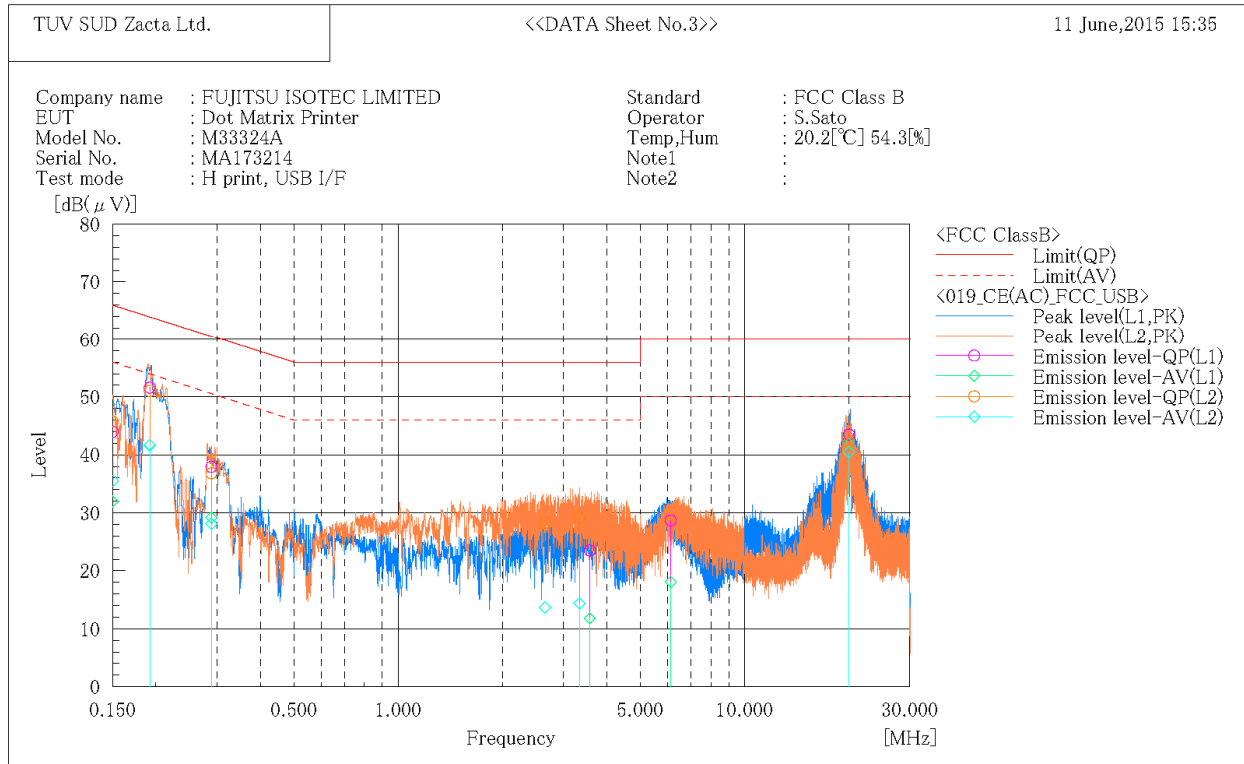
--- L1 Phase ---

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	33.9	17.6	10.7	44.6	28.3	66.0	56.0	21.4	27.7
2	0.188	39.5	27.8	10.6	50.1	38.4	64.1	54.1	14.0	15.7
3	0.300	24.9	15.6	10.5	35.4	26.1	60.2	50.2	24.8	24.1
4	18.202	16.6	8.8	11.6	28.2	20.4	60.0	50.0	31.8	29.6
5	20.009	29.1	28.2	11.7	40.8	39.9	60.0	50.0	19.2	10.1
6	28.826	17.2	14.0	12.0	29.2	26.0	60.0	50.0	30.8	24.0

--- 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	0.152	33.9	17.3	10.7	44.6	28.0	65.9	55.9	21.3	27.9
2	0.192	38.8	30.1	10.6	49.4	40.7	63.9	53.9	14.5	13.2
3	0.293	24.4	15.1	10.5	34.9	25.6	60.4	50.4	25.5	24.8
4	3.640	18.3	4.0	10.8	29.1	14.8	56.0	46.0	26.9	31.2
5	20.008	27.9	26.8	11.9	39.8	38.7	60.0	50.0	20.2	11.3
6	28.241	20.6	20.1	12.4	33.0	32.5	60.0	50.0	27.0	17.5

***** CONDUCTED EMISSION at MAINS PORT *****
 [10m semi-anechoic chamber #1]



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	33.3	21.3	10.7	44.0	32.0	66.0	56.0	22.0	24.0
2	0.192	41.0	31.1	10.6	51.6	41.7	63.9	53.9	12.3	12.2
3	0.289	27.4	18.7	10.5	37.9	29.2	60.6	50.6	22.7	21.4
4	3.573	12.7	1.0	10.8	23.5	11.8	56.0	46.0	32.5	34.2
5	6.121	17.7	7.1	11.0	28.7	18.1	60.0	50.0	31.3	31.9
6	20.009	31.8	30.2	11.7	43.5	41.9	60.0	50.0	16.5	8.1

--- 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	0.150	35.0	24.8	10.7	45.7	35.5	66.0	56.0	20.3	20.5
2	0.192	40.4	31.0	10.6	51.0	41.6	63.9	53.9	12.9	12.3
3	0.289	26.3	17.6	10.5	36.8	28.1	60.6	50.6	23.8	22.5
4	2.654	17.6	3.0	10.7	28.3	13.7	56.0	46.0	27.7	32.3
5	3.336	18.4	3.6	10.8	29.2	14.4	56.0	46.0	26.8	31.6
6	20.009	30.3	28.6	11.9	42.2	40.5	60.0	50.0	17.8	9.5

***** CONDUCTED EMISSION at MAINS PORT *****
 [10m semi-anechoic chamber #1]

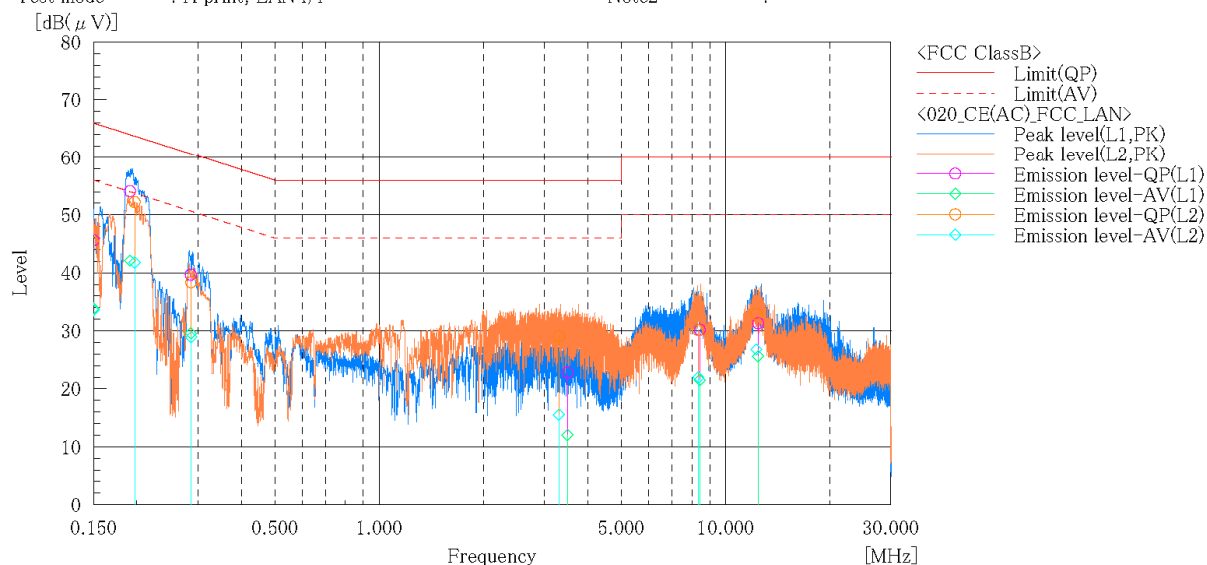
TUV SUD Zacta Ltd.

<<DATA Sheet No.4>>

11 June,2015 16:20

Company name : FUJITSU ISOTEC LIMITED
 EUT : Dot Matrix Printer
 Model No. : M33324A
 Serial No. : MA173214
 Test mode : H print, LAN I/F

Standard : FCC Class B
 Operator : S.Sato
 Temp,Hum : 20.2[°C] 54.3[%]
 Note1 :
 Note2 :



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	34.9	23.1	10.7	45.6	33.8	66.0	56.0	20.4	22.2
2	0.191	43.5	31.5	10.6	54.1	42.1	64.0	54.0	9.9	11.9
3	0.286	29.2	19.1	10.5	39.7	29.6	60.6	50.6	20.9	21.0
4	3.493	12.0	1.2	10.8	22.8	12.0	56.0	46.0	33.2	34.0
5	8.415	19.1	10.4	11.1	30.2	21.5	60.0	50.0	29.8	28.5
6	12.400	20.0	14.3	11.3	31.3	25.6	60.0	50.0	28.7	24.4

--- 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	0.150	34.5	22.9	10.7	45.2	33.6	66.0	56.0	20.8	22.4
2	0.197	41.6	31.2	10.6	52.2	41.8	63.7	53.7	11.5	11.9
3	0.287	27.9	18.4	10.5	38.4	28.9	60.6	50.6	22.2	21.7
4	3.302	18.3	4.7	10.8	29.1	15.5	56.0	46.0	26.9	30.5
5	8.352	19.0	10.9	11.1	30.1	22.0	60.0	50.0	29.9	28.0
6	12.265	21.5	15.4	11.4	32.9	26.8	60.0	50.0	27.1	23.2

5. Radiated emission test information

5.1 Measurement procedure

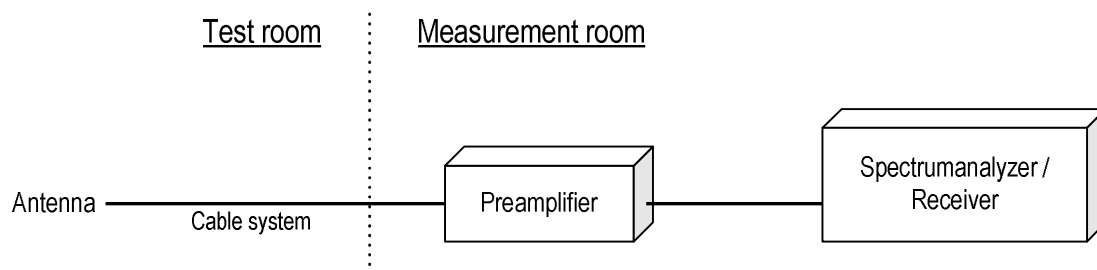
Test was applied by following conditions.

Test method	: ANSI C63.4
Frequency range	: 30MHz to 1GHz [Centronics I/F, RS-232C I/F, USB I/F] 30MHz to 2GHz [LAN I/F]
Test place	: Open area test site [Below 1GHz] 10m Semi-anechoic chamber No.1 [Above 1GHz]
EUT was placed on	: Wooden table / (W)2.3m × (D)1.0m × (H)0.8m [Below 1GHz] Styrene foam table / (W)2.0m × (D)1.0m × (H)0.8m [Above 1GHz]
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:

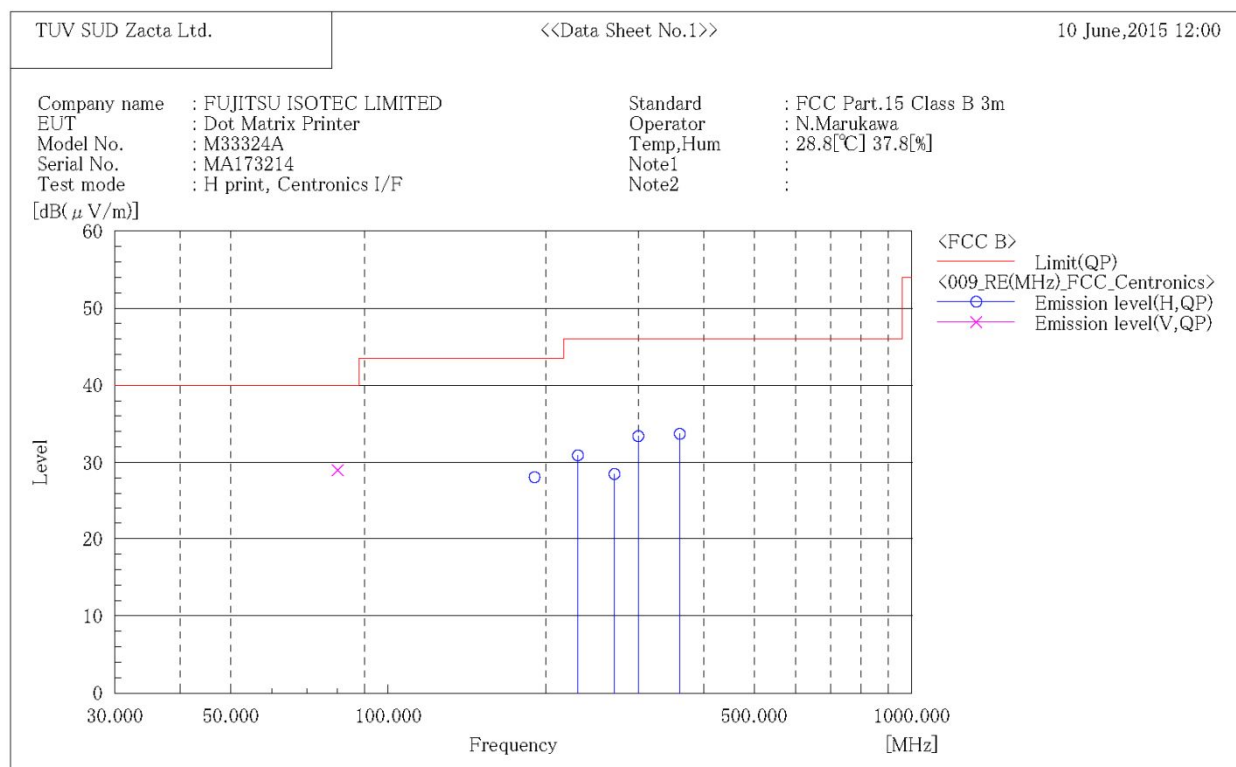
Limit @ 350.0MHz : 37.0dBμV/m
Reading = 41.1dBμV c.f = -11.8dB/m
Emission level = 41.1 - 11.8 = 29.3dBμV/m
Margin = 37.0 - 29.3 = 7.7dB



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5.3 Test data

***** RADIATED EMISSION *****
 << Open area test site #3 >>



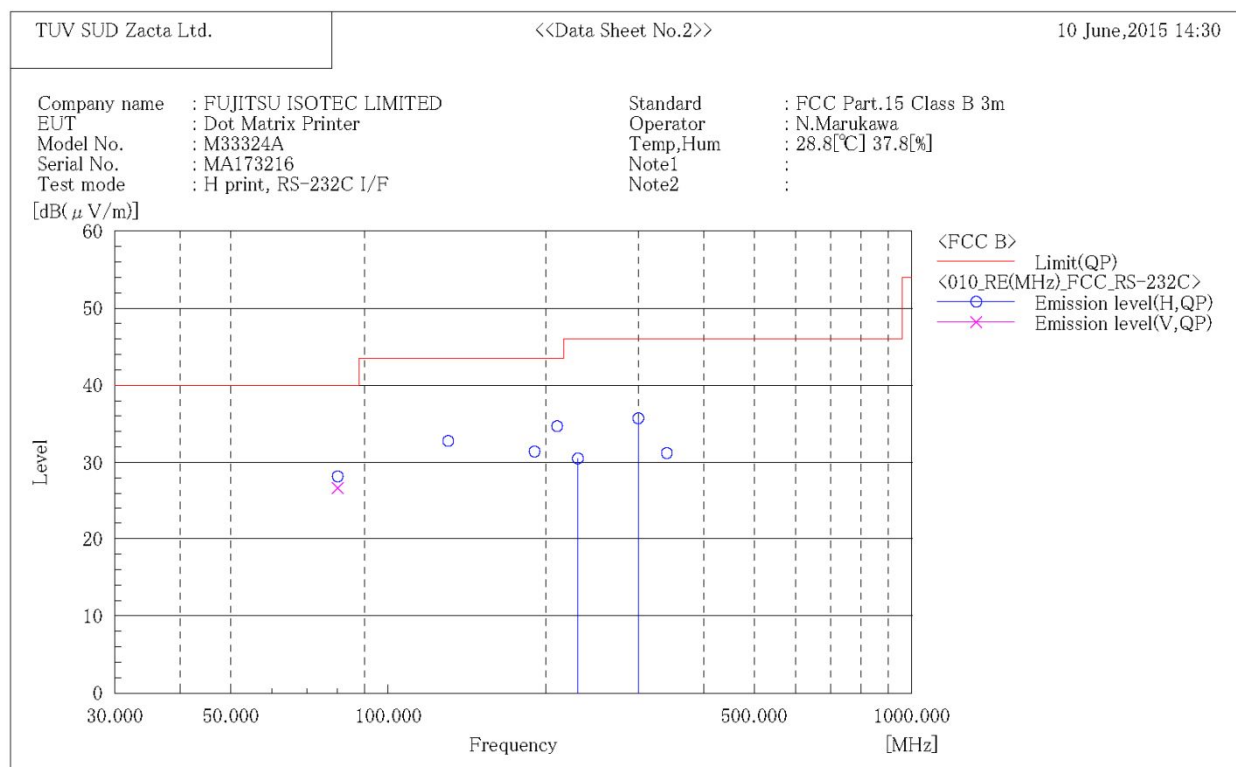
Final Result

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	80.045	V	48.3	-19.3	29.0	40.0	11.0	100.0	255.0
2	190.086	H	36.3	-8.2	28.1	43.5	15.4	164.0	330.0
3	230.120	H	38.2	-7.3	30.9	46.0	15.1	150.0	225.0
4	270.110	H	34.5	-6.0	28.5	46.0	17.5	100.0	200.0
5	300.146	H	43.1	-9.7	33.4	46.0	12.6	100.0	185.0
6	360.184	H	42.1	-8.4	33.7	46.0	12.3	100.0	305.0



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***** RADIATED EMISSION *****
 << Open area test site #3 >>



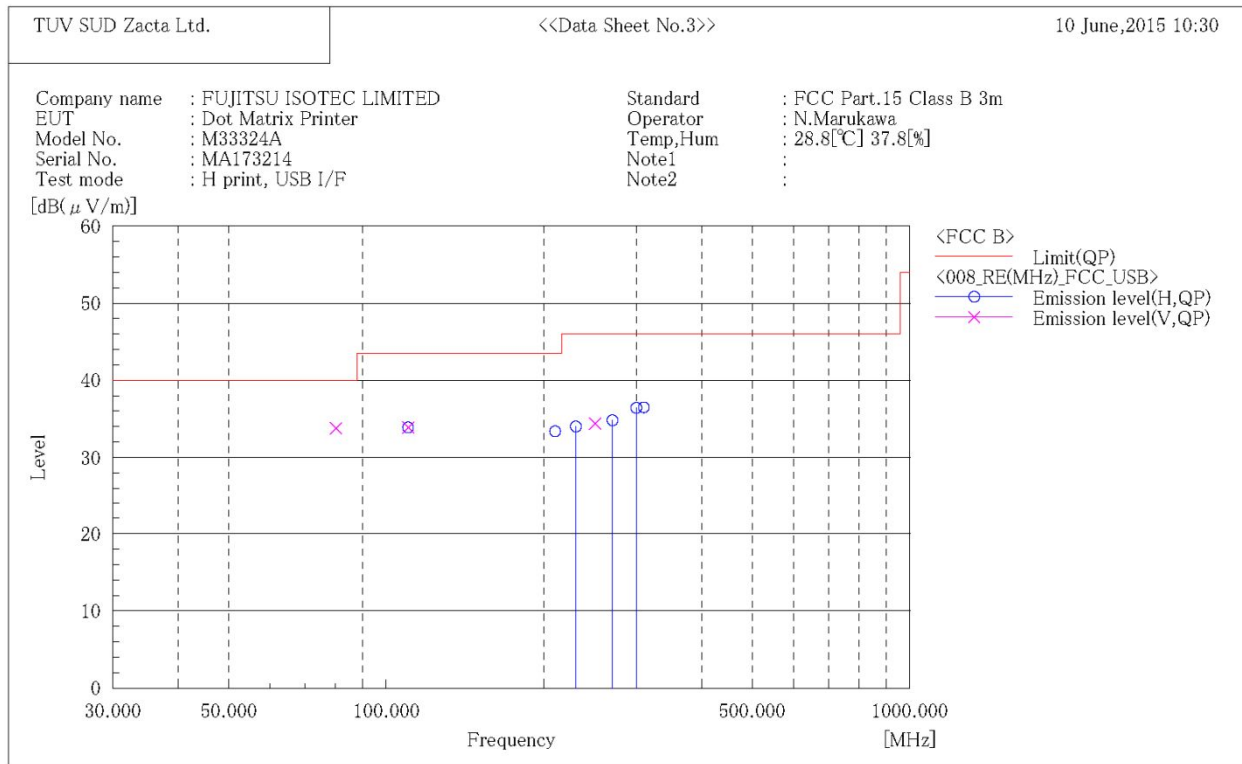
Final Result

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	80.045	V	46.0	-19.3	26.7	40.0	13.3	100.0	250.0
2	80.045	H	47.5	-19.3	28.2	40.0	11.8	400.0	190.0
3	130.050	H	44.1	-11.3	32.8	43.5	10.7	233.0	185.0
4	190.086	H	39.6	-8.2	31.4	43.5	12.1	178.0	315.0
5	210.076	H	42.3	-7.6	34.7	43.5	8.8	141.0	210.0
6	230.079	H	37.8	-7.3	30.5	46.0	15.5	146.0	310.0
7	300.146	H	45.4	-9.7	35.7	46.0	10.3	100.0	195.0
8	340.168	H	40.4	-9.2	31.2	46.0	14.8	100.0	305.0



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***** RADIATED EMISSION *****
 << Open area test site #3 >>



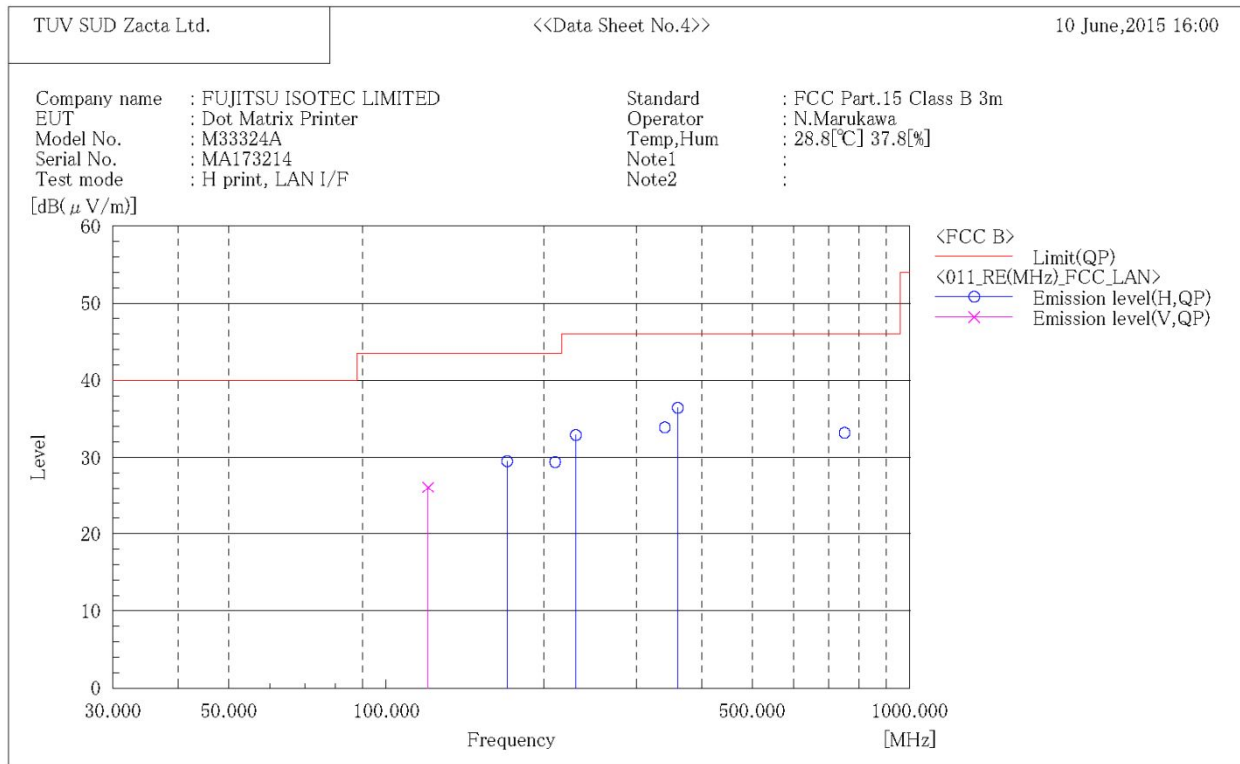
Final Result

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	80.000	V	53.1	-19.3	33.8	40.0	6.2	100.0	255.0
2	110.020	V	47.4	-13.5	33.9	43.5	9.6	100.0	100.0
3	110.020	H	47.4	-13.5	33.9	43.5	9.6	177.0	220.0
4	210.075	H	41.0	-7.6	33.4	43.5	10.1	142.0	200.0
5	230.090	H	41.3	-7.3	34.0	46.0	12.0	123.0	235.0
6	250.090	V	41.3	-6.9	34.4	46.0	11.6	100.0	325.0
7	270.127	H	40.8	-6.0	34.8	46.0	11.2	100.0	190.0
8	300.158	H	46.1	-9.7	36.4	46.0	9.6	100.0	195.0
9	310.162	H	46.1	-9.6	36.5	46.0	9.5	100.0	195.0



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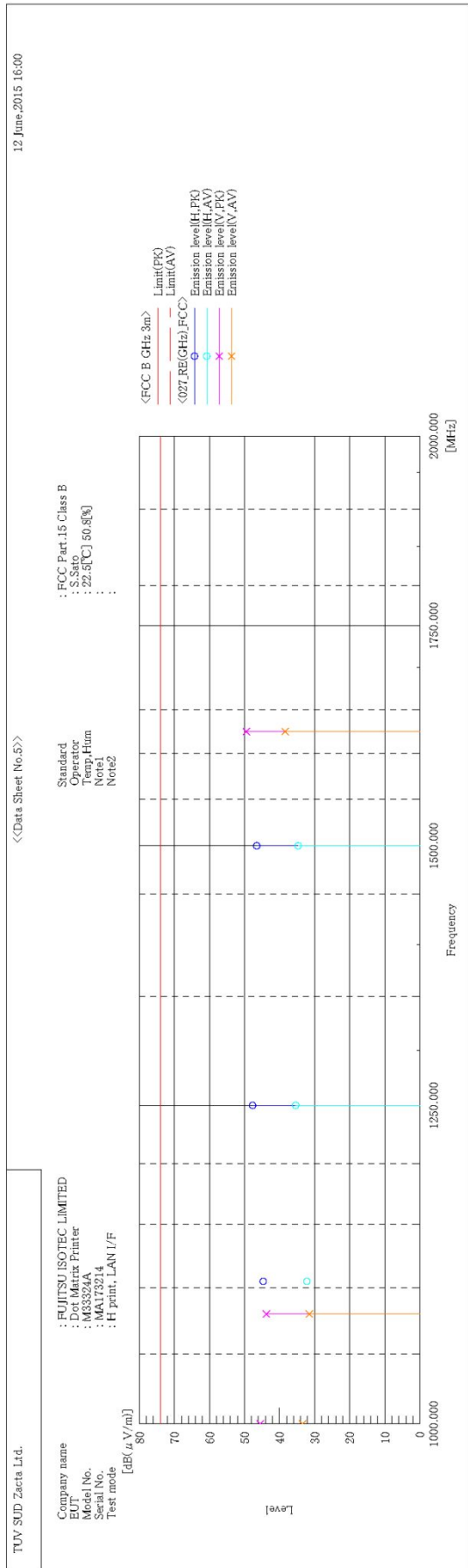
***** RADIATED EMISSION *****
 << Open area test site #3 >>



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	120.060	V	38.3	-12.2	26.1	43.5	17.4	100.0	215.0
2	170.103	H	38.7	-9.2	29.5	43.5	14.0	189.0	335.0
3	210.110	H	37.0	-7.6	29.4	43.5	14.1	232.0	320.0
4	230.110	H	40.2	-7.3	32.9	46.0	13.1	155.0	315.0
5	340.150	H	43.1	-9.2	33.9	46.0	12.1	100.0	325.0
6	360.160	H	44.8	-8.4	36.4	46.0	9.6	100.0	315.0
7	750.000	H	34.2	-1.0	33.2	46.0	12.8	168.0	225.0

***** RADIATED EMISSION *****
[10m Semi-anechoic chamber #1]



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	V	47.0	35.0	-1.5	45.5	33.5	74.0	54.0	28.5	20.5	119.0	161.0
2	1080.000	V	45.2	33.0	-1.4	43.8	31.6	74.0	54.0	30.2	22.4	100.0	85.0
3	1105.000	H	46.0	33.5	-1.3	44.7	32.2	74.0	54.0	29.3	21.8	137.0	140.0
4	1250.000	H	46.0	33.7	1.7	47.7	35.4	74.0	54.0	26.3	18.6	223.0	214.0
5	1500.000	H	45.8	34.0	0.7	46.5	34.7	74.0	54.0	27.5	19.3	100.0	137.0
6	1625.000	V	47.0	35.9	2.5	49.5	38.4	74.0	54.0	24.5	15.6	225.0	98.0

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, 2015
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, 2015
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	ESCI	100764	Aug. 31, 2015	Aug. 23, 2014
Attenuator	TYC	BA-PJ-10	N/A(S344)	Apr. 30, 2016	Apr. 6, 2015
Line impedance stabilization network for EUT	Kyoritsu Electrical Works, Ltd.	KNW-407	8-663-4	Mar. 31, 2016	Mar. 5, 2015
Line impedance stabilization network for peripheral	Kyoritsu Electrical Works, Ltd.	KNW-242F	8-1094-5	Jun. 30, 2015	Jun. 12, 2014
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
Spectrum analyzer	Agilent Technologies	8568B	2732A03847	Mar. 31, 2016	Mar. 11, 2015
Spectrum analyzer Display	Agilent Technologies	85662A	2648A14093	Mar. 31, 2016	Mar. 11, 2015
EMI Receiver	ROHDE&SCHWARZ	ESCI	100451	Dec. 31, 2015	Dec. 25, 2014
Biconical antenna	Schwarzbeck	VHA9103/BBA9106	1627	Jul. 31, 2015	Jul. 17, 2014
Log periodic antenna	Schwarzbeck	UHALP9108A	0398	Jul. 31, 2015	Jul. 17, 2014
Attenuator	TDC	TAT-43B-03	N/A(S396)	Jun. 30, 2015	Jun. 9, 2014
Attenuator	TME	CFA-01NPJ-3	N/A(S271)	Jun. 30, 2015	Jun. 9, 2014
Coaxial cable	FUJIKURA	8D-SFA/15m	OATS#3R-001	May. 31, 2016	May. 29, 2015
Coaxial cable	FUJIKURA	8D-SFA/15m	OATS#3R-002	May. 31, 2016	May. 29, 2015
Coaxial cable	FUJIKURA	8D-2W/8m	OATS#3R-003	May. 31, 2016	May. 29, 2015
Coaxial cable	FUJIKURA	5D-2W/1m	OATS#3RC-001	May. 31, 2016	May. 29, 2015
Coaxial cable	FUJIKURA	5D-2W/1m	OATS#3RC-002	May. 31, 2016	May. 29, 2015
Preamplifier	ANRITSU	MH648A	M96157	May. 31, 2016	May. 29, 2015
Coaxial switch	ANRITSU	MP59B	6201280329	May. 31, 2016	May. 29, 2015
Normalized Site Attenuation	TÜV SÜD Zacta Ltd.	N/A	OATS#3	Aug. 31, 2015	Aug. 1, 2014
PC	NEC	PC-MY18AEZE4	7Y007681A	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
Spectrum analyzer	Agilent Technologies	E4447A	MY46180188	Mar. 31, 2016	Mar. 31, 2015
Preamplifier	Agilent Technologies	8449B	3008A00589	Oct. 31, 2015	Oct. 31, 2014
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