

Report on the EMC Testing of:

Fujitsu Isotec Limited
Dot Matrix Printer, Model: M33335A

In accordance with FCC Part 15 Subpart B Class B

Prepared for: Fujitsu Isotec Limited
135, Higashinozaki, Hobara-machi, Date-shi,
Fukushima, 960-0695 Japan
Phone: +81-24-574-2832 Fax: +81-24-574-2283



Japan

Add value.
Inspire trust.

COMMERCIAL-IN-CONFIDENCE

Document Number: JPD-TR-20039-0

SIGNATURE

NAME	JOB TITLE	RESPONSIBLE FOR	ISSUE DATE
Hiroaki Suzuki	Deputy Manager of RF Group	Approved Signatory	19 AUG 2020

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD Japan Ltd. document control rules.

EXECUTIVE SUMMARY – Result: Complied

A sample of this product was tested and the result above was confirmed in accordance with FCC Part 15 Subpart B (excluding the deviations mentioned in section 1.4 of this document).



Certificate #3686.03

DISCLAIMER AND COPYRIGHT

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 Japan Ltd.

ACCREDITATION

This test report must not be used by the client to claim product certification, approval, or endorsement by A2LA or any agency of the federal government.

TÜV SÜD Japan Ltd.
Yonezawa Testing Center
5-4149-7 Hachimanpara,
Yonezawa-shi, Yamagata,
992-1128 Japan

Phone: +81 (0) 238 28 2881
Fax: +81 (0) 238 28 2888
www.tuv-sud.jp

Additional signatures required by FCC 47 CFR Part 2, § 2.938 (b) (10)**Signatures of the individuals responsible for testing the product****ENGINEERING STATEMENT**

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported testing was carried out on a sample equipment to demonstrate limited compliance with FCC Part 15 Subpart B. The sample tested was found Complied compliant with the requirements defined in the applied rules.

NAME	RESPONSIBLE FOR	SIGNATURE
Tsuyoshi Okumura	Testing	

Contents

1	Summary of Test	4
1.1	Modification history of the test report	4
1.2	Standards	4
1.3	Measurement standards.....	4
1.4	Deviation from standards.....	4
1.5	List of applied test(s) of the EUT.....	4
1.6	Test information	4
1.7	Test set up.....	5
1.8	Test period.....	5
2	Equipment Under Test	6
2.1	EUT information	6
2.2	Modification to the EUT	6
2.3	Variation of family model(s)	6
2.4	Operation mode	7
3	Configuration of Equipment	8
3.1	Equipment used	8
3.2	Cable(s) used	8
3.3	System configuration.....	9
4	Test Result	11
4.1	Conducted emission at mains port.....	11
4.2	Radiated emission (below 1 GHz)	16
4.3	Radiated emission (above 1 GHz)	21
5	Measurement Uncertainty	27
6	Laboratory Information	28
	Appendix A. Test Equipment	29
	Appendix B. Configuration Photographs	30

1 Summary of Test

1.1 Modification history of the test report

Document Number	Modification History	Issue Date
JPD-TR-20039-0	First Issue	Refer to the cover page

1.2 Standards

FCC Part 15 Subpart B

1.3 Measurement standards

ANSI C63.4 2014

1.4 Deviation from standards

None

1.5 List of applied test(s) of the EUT

Regarding judgment of conformance to Emission test, a value of measurement uncertainty was not taken in account.

Test Name	Classification of EUT	Test	Worst Point (Margin)	Result	Remarks
Conducted emission at mains port	Class B	Applied	RS232C I/F L2 0.763 MHz AV 5.3 dB	Pass	-
Radiated emission (below 1 GHz)	Class B	Applied	LAN I/F V 38.950 MHz QP 3.1 dB	Pass	-
Radiated emission (above 1 GHz)	Class B	Applied	USB I/F V 1066.525 MHz PK 21.5 dB	Pass	-

1.6 Test information

EUT, FCC ID : KHZ020M33335A, has been granted on Dec. 18, 2015.

Purpose of test is Class II Change.

Change: Power supply unit



Japan

1.7 Test set up

Table-top

1.8 Test period

30-July-2020 - 31-July-2020

2 Equipment Under Test

2.1 EUT information

Applicant	Fujitsu Isotec Limited 135, Higashinozaki, Hobara-machi, Date-shi, Fukushima, 960-0695 Japan Phone: +81-24-574-2832 Fax: +81-24-574-2283
Equipment Under Test (EUT)	Dot Matrix Printer
Model number	M33335A
Serial number	MPNMMA227101, MPNMMA201273
Trade name	FUJITSU ISOTEC
Authorization	KHZ020M33335A
Number of sample(s)	2
EUT condition	Pre-production
Maximum frequency	144 MHz
Power rating	AC 100-120 V 50-60 Hz 4 A
Size	(W) 600 × (D) 350 × (H) 290 mm

2.2 Modification to the EUT

The table below details modifications made to the EUT during the test project.

Modification State	Description of Modification	Modification fitted by	Date of Modification
M33335A, S/N: MPNMMA227101			
0	As supplied by the applicant	Not Applicable	Not Applicable
M33335A, S/N: MPNMMA201273			
0	As supplied by the applicant	Not Applicable	Not Applicable

2.3 Variation of family model(s)

2.3.1 List of family model(s)

Not applicable

2.3.2 Reason for selection of EUT

Not applicable



Japan

2.4 Operation 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

Numbers assigned to equipment or cables in "3.1 Equipment(s) used" and "3.2 Cable(s) used" correspond to numbers in "3.3 System configuration".

Cabling and setup(s) were taken into consideration and test data was taken under worse case condition.

3.1 Equipment used

No.	Equipment	Company	Model No.	Serial No.	Authorization	Remarks
EUT 1	Dot Matrix Printer	FUJITSU ISOTEC	M33335A	MPNMMA227101	KHZ020M33335A	EUT *1
				MPNMMA201273	KHZ020M33335A	EUT *2
OP1	Front Cut Sheet Feeder	FUJITSU ISOTEC	KA02027-D714	MA7606528	N/A	Option
OP2	Rear Cut Sheet Feeder	FUJITSU ISOTEC	KA02027-D714	MA8206962	N/A	Option
OP3	LAN card	FUJITSU ISOTEC	KA21223-B40X	N/A	N/A	Option
AE1	Personal Computer	HP	HSTNN-I05C	CNU7071D2W	DoC	-
AE2	AC adapter	HP	PPP009H	F1-09020465460C	N/A	-
AE3	USB Mouse	Lenovo	MOBGUL	4406433	DoC	-
AE4	Printer	SII	DPU-414	1000169C	DoC	-
AE5	AC adapter	SII	PW-4007-JU1-E	0948	N/A	-
AE6	HUB	PLANEX COMMUNICATIONS	FXG-08IM4	54PC10248AR	DoC	-
AE7	Personal Computer	FUJITSU	FMVNC3XC3	R6504891	N/A	-
AE8	AC adapter	FUJITSU	SED110P2-19.0	08601405B	N/A	-

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

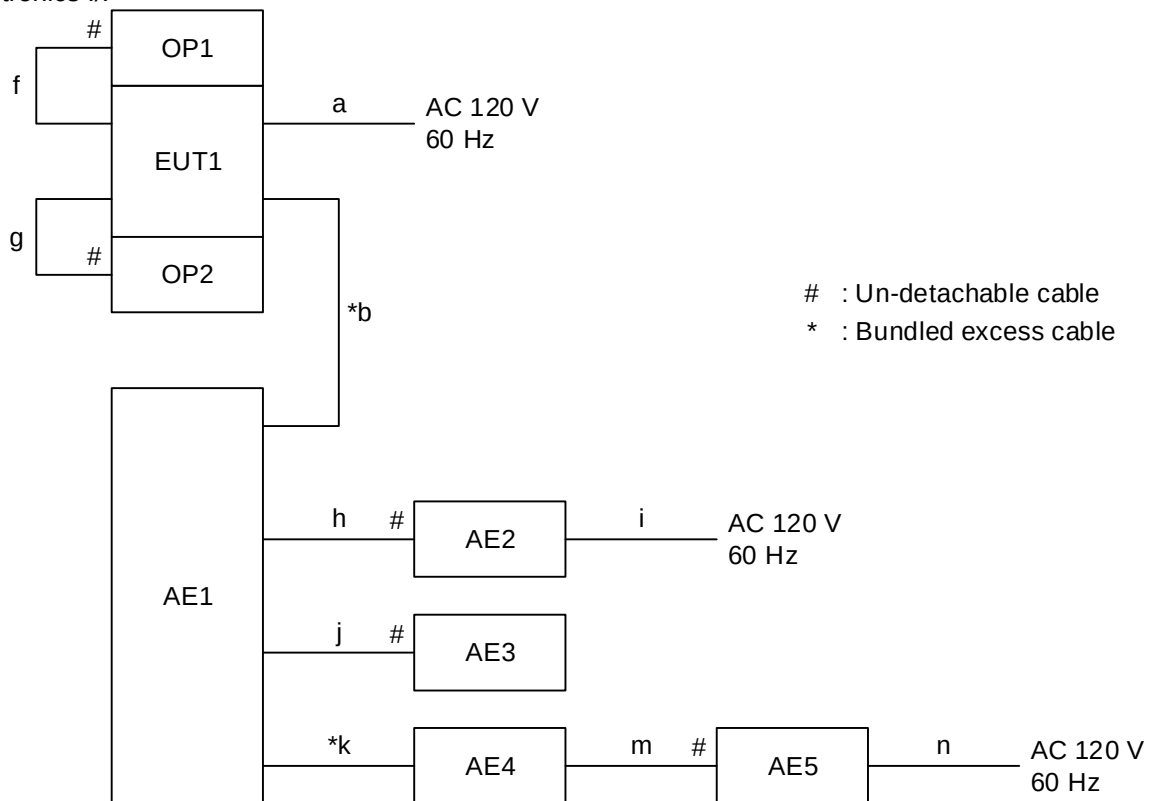
*2 RS232C I/F

3.2 Cable(s) used

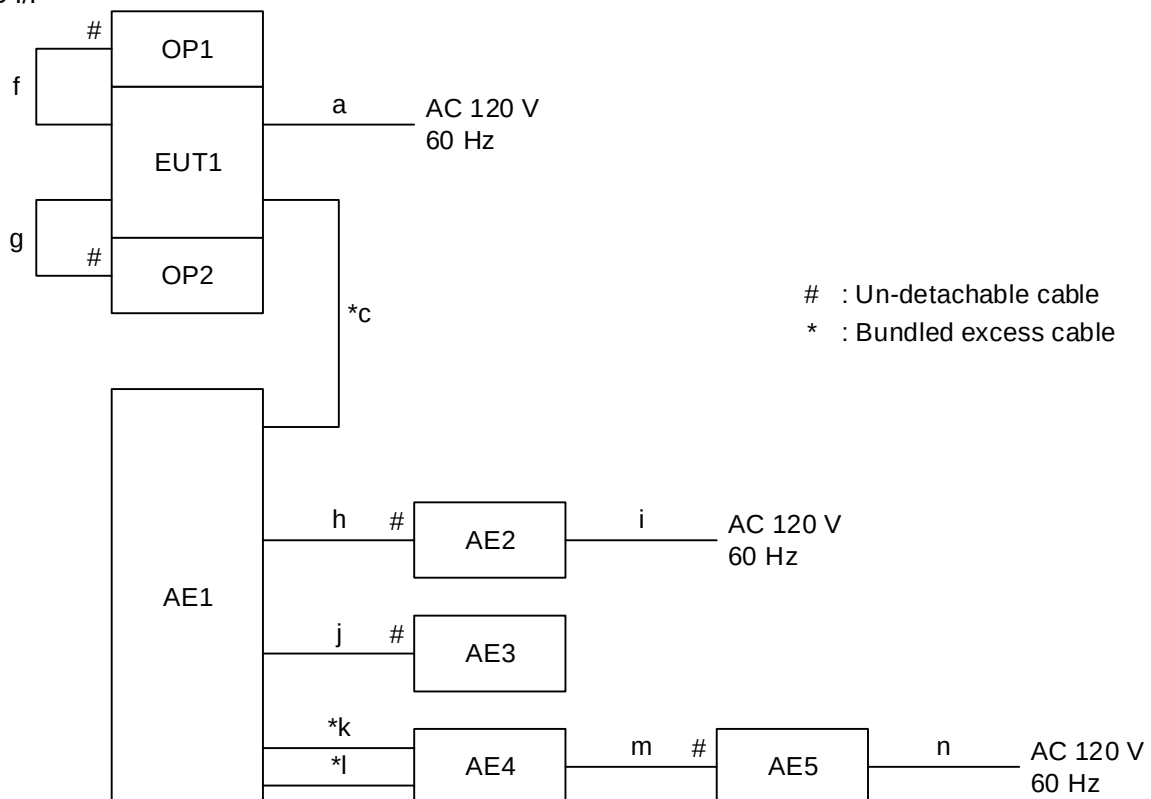
No.	Cable	Length (m)	Shield	EUT accessory Ferrite core	Remarks
a	AC power cord	2.0	No	-	Accessory
b	Centronics cable	3.0	Yes	-	-
c	USB cable	5.0	Yes	-	-
d	Serial cable	1.6	Yes	-	-
e	LAN cable	5.0	No	-	-
f	Cut Sheet Feeder cable	0.25	Yes	-	-
g	Cut Sheet Feeder cable	0.25	Yes	-	-
h	DC cable	1.8	No	-	-
i	AC power cord	1.8	No	-	-
j	USB cable	2.0	Yes	-	-
k	Serial cable	1.8	Yes	-	-
l	Centronics cable	2.1	Yes	-	-
m	DC cable	1.9	No	-	-
n	AC power cord	1.8	No	-	-
o	AC power cord	1.8	No	-	-
p	LAN cable	2.0	No	-	-
q	DC cable	1.8	No	-	-
r	AC power cord	1.0	No	-	-

3.3 System configuration

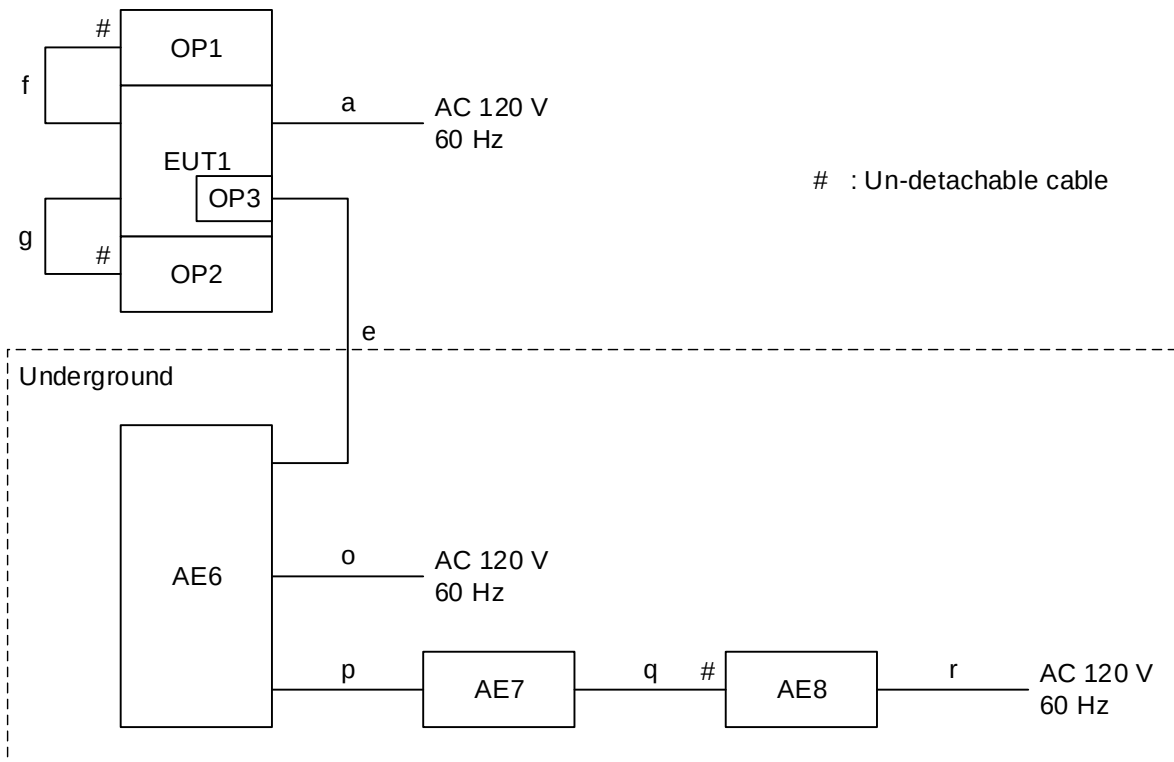
Centronics I/F



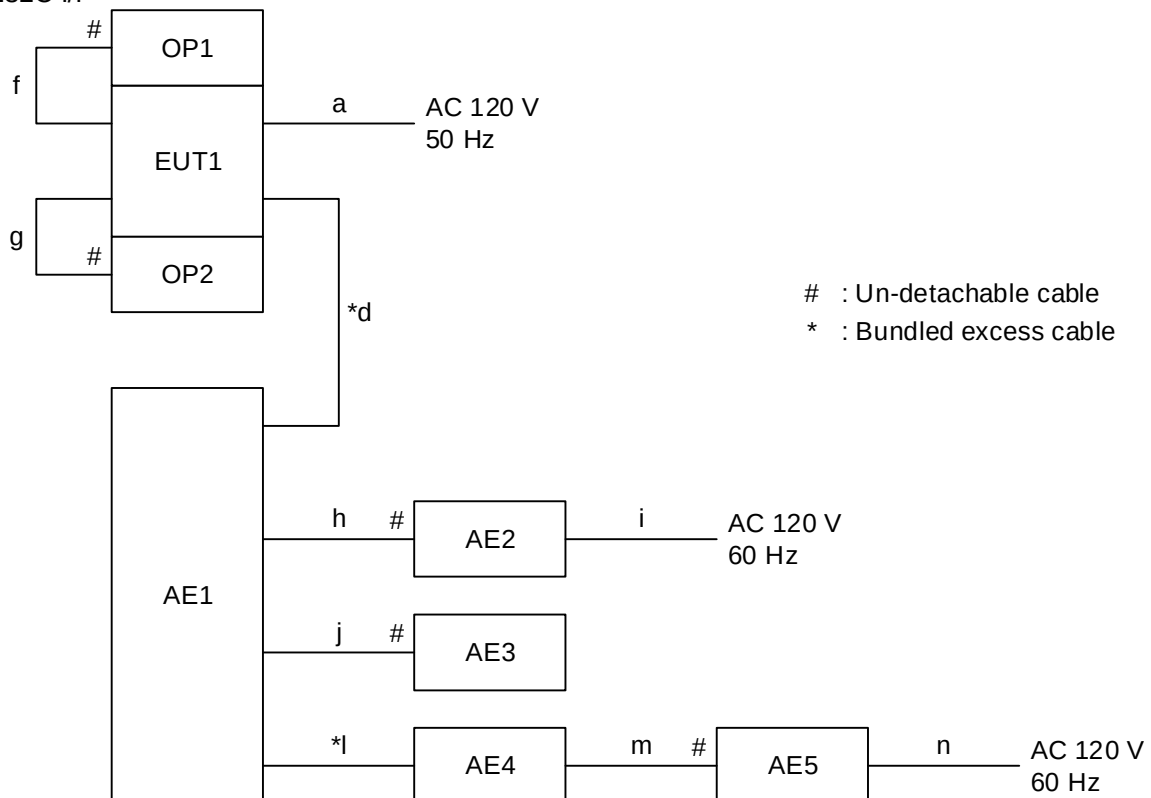
USB I/F



LAN I/F



RS232C I/F



4 Test Result

4.1 Conducted emission at mains port

4.1.1 Measurement condition

Frequency range	0.15 MHz-30 MHz
Test place	10 m Semi-Anechoic Chamber No. 1
EUT was placed on	FRP table (W) 2.0 × (D) 1.0 × (H) 0.8 m
Metal reference plane	Vertical
Test receiver setting	Detector: Quasi-peak, Average Bandwidth: 9 kHz
Line Impedance Stabilization Network (LISN)	Specification: 50 Ω/50 μH Distance from EUT: 0.8 m

EUT is placed on a non-conducting table for table-top equipment or on insulation material for a floor-standing equipment. In addition, a table-top equipment is located 0.4 m to a metal reference plane.

Line Impedance Stabilization Network (LISN) is placed 0.8 m away from the EUT. The power code of the EUT is connected to LISN and its excess part is bundled in the center. The length of bundling is 0.3-0.4 m.

A power code of a peripheral is connected to LISN and terminated into 50 Ω.

Excess cables between equipment are bundled in the center. The length of bundling is 0.3-0.4 m.

Where LISN cannot be applied, the test is performed using a voltage probe.

After overall frequency range is investigated with spectrum analyzer using peak detector, measurements are performed with test receiver in setting to the defined values.

4.1.2 Calculation method

Emission level = Reading + c.f. (correction factor)*

Margin = Limit – Emission level

*Note: c.f. = LISN factor + Cable system loss + Attenuator loss

Example)

Limit @ 6.770 MHz:	60.0 dBμV (Quasi-peak) 50.0 dBμV (Average)
Quasi-peak	Reading = 41.2 dBμV c.f. = 10.3 dB Emission level = 41.2 + 10.3 = 51.5 dBμV Margin = 60.0 - 51.5 = 8.5 dB
Average	Reading = 35.0 dBμV c.f. = 10.3 dB Emission level = 35.0 + 10.3 = 45.3 dBμV Margin = 50.0 - 45.3 = 4.7 dB

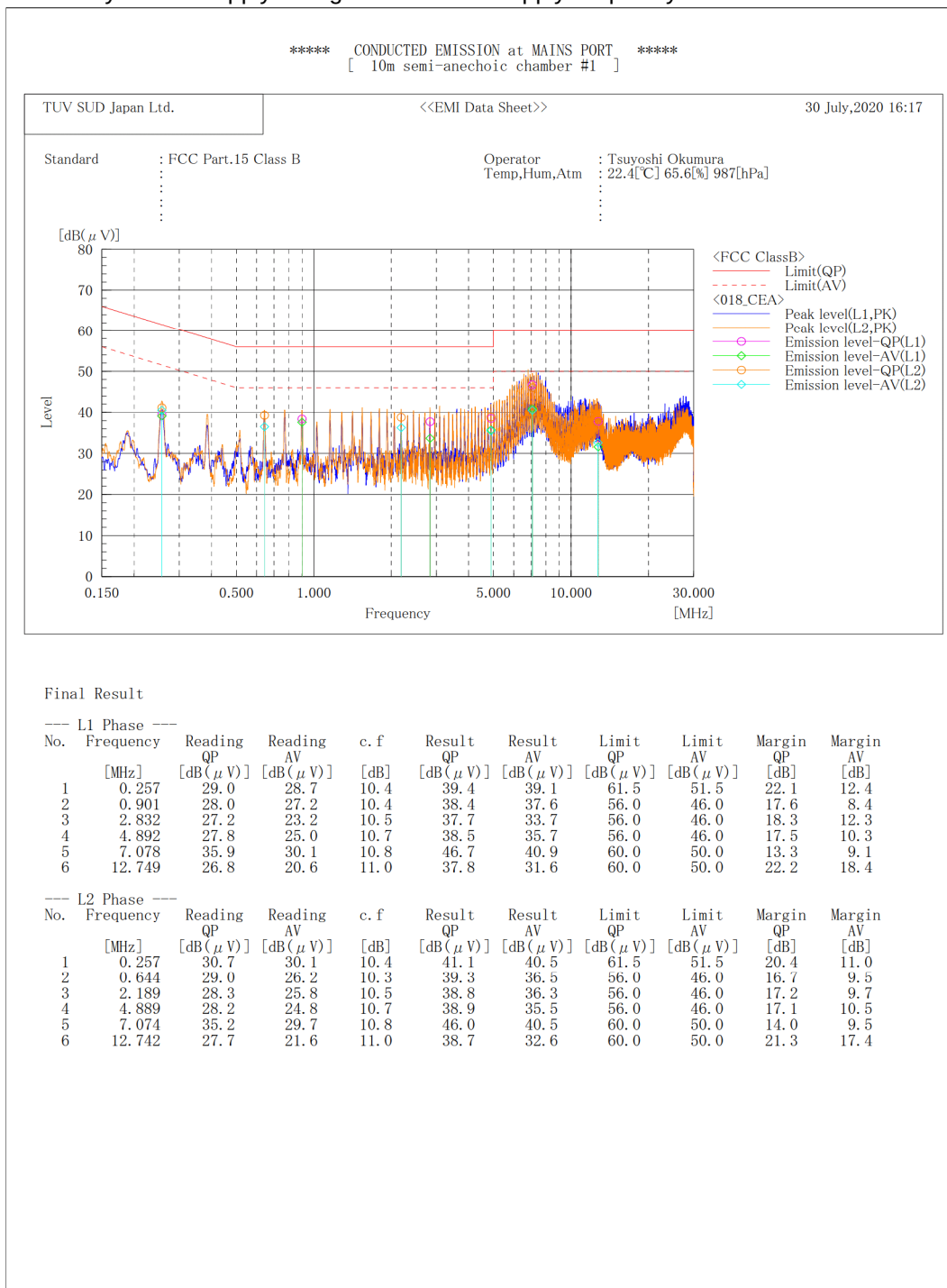
4.1.3 Test data and Configuration photographs

Operation mode	H print mode
EUT	M33335A, S/N: MPNMMA227101 - Modification State 0 M33335A, S/N: MPNMMA201273 - Modification State 0

Centronics I/F

S/N: MPNMMA227101

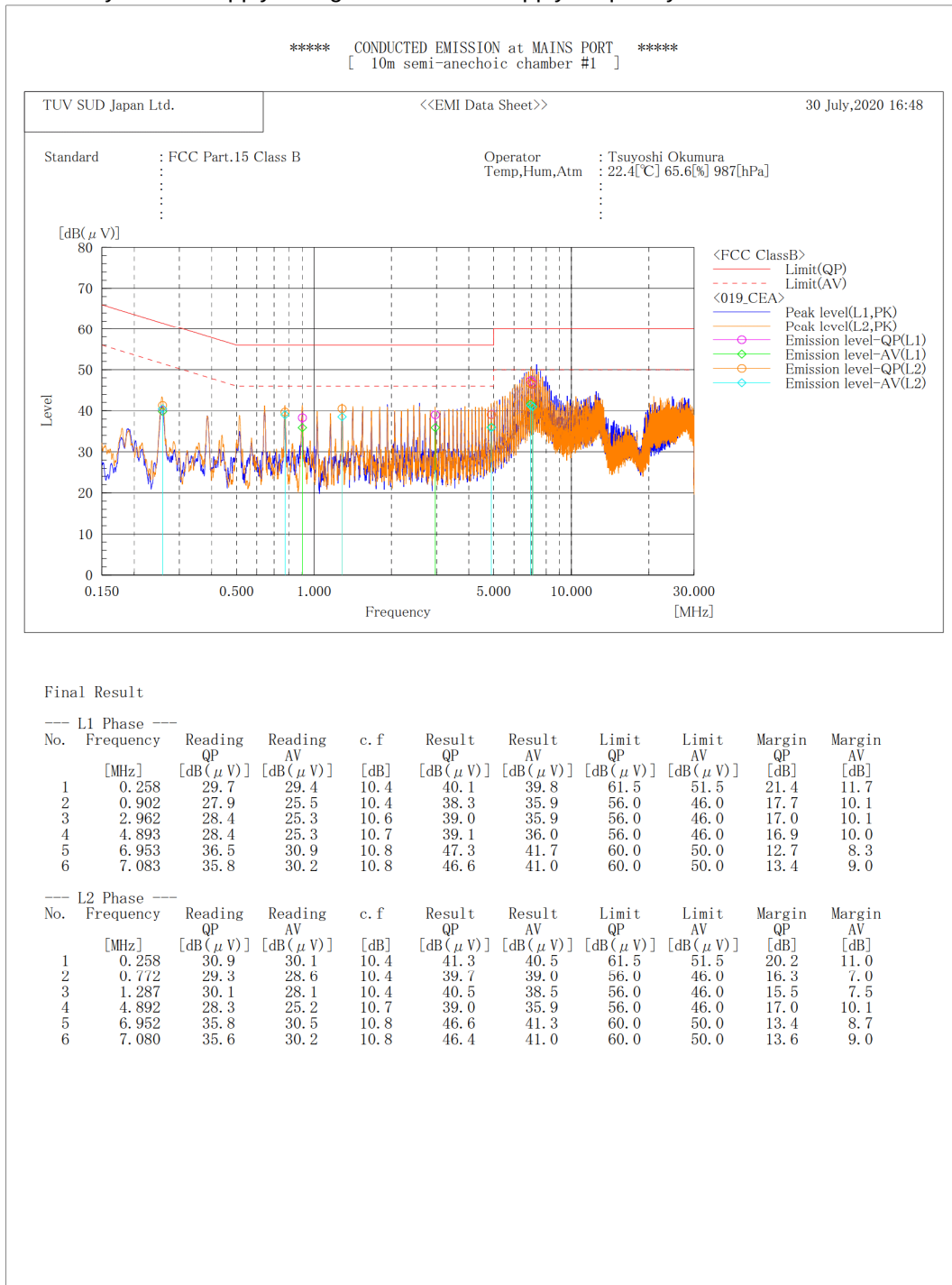
Date of test: 30-July-2020 Supply voltage: AC 120 V Supply frequency: 60 Hz



USB I/F

S/N: MPNMMA227101

Date of test: 30-July-2020 Supply voltage: AC 120 V Supply frequency: 60 Hz

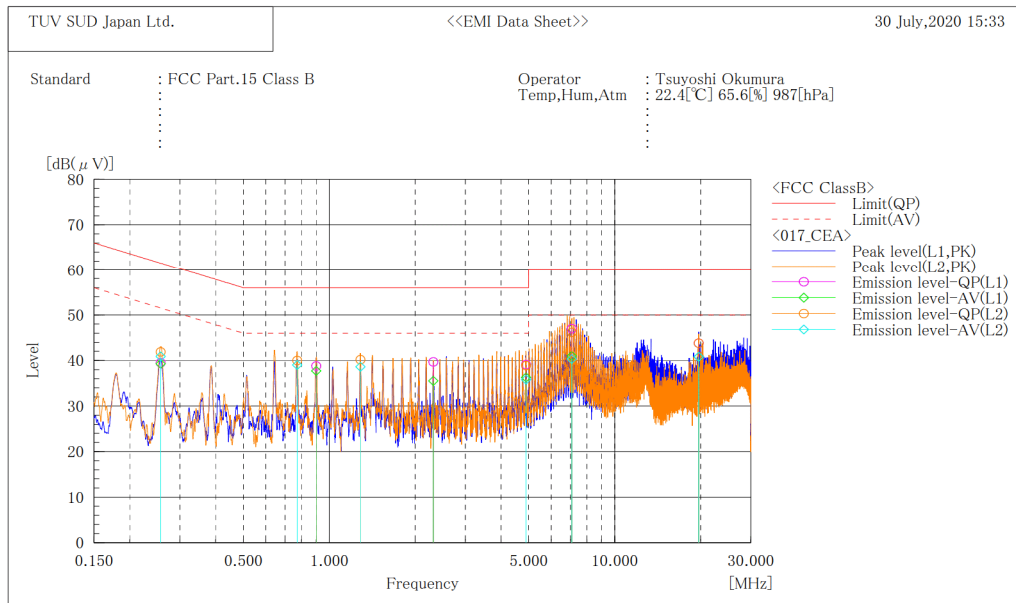


LAN I/F

S/N: MPNMMA227101

Date of test: 30-July-2020 Supply voltage: AC 120 V Supply frequency: 60 Hz

***** 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	0.257	29.1	28.9	10.4	39.5	39.3	61.5	51.5	22.0	12.2
2	0.901	28.4	27.3	10.4	38.8	37.7	56.0	46.0	17.2	8.3
3	2.317	29.2	25.0	10.5	39.7	35.5	56.0	46.0	16.3	10.5
4	4.894	28.4	25.6	10.7	39.1	36.3	56.0	46.0	16.9	9.7
5	7.081	36.2	30.2	10.8	47.0	41.0	60.0	50.0	13.0	9.0
6	19.709	32.6	29.6	11.2	43.8	40.8	60.0	50.0	16.2	9.2

--- L2 Phase ---

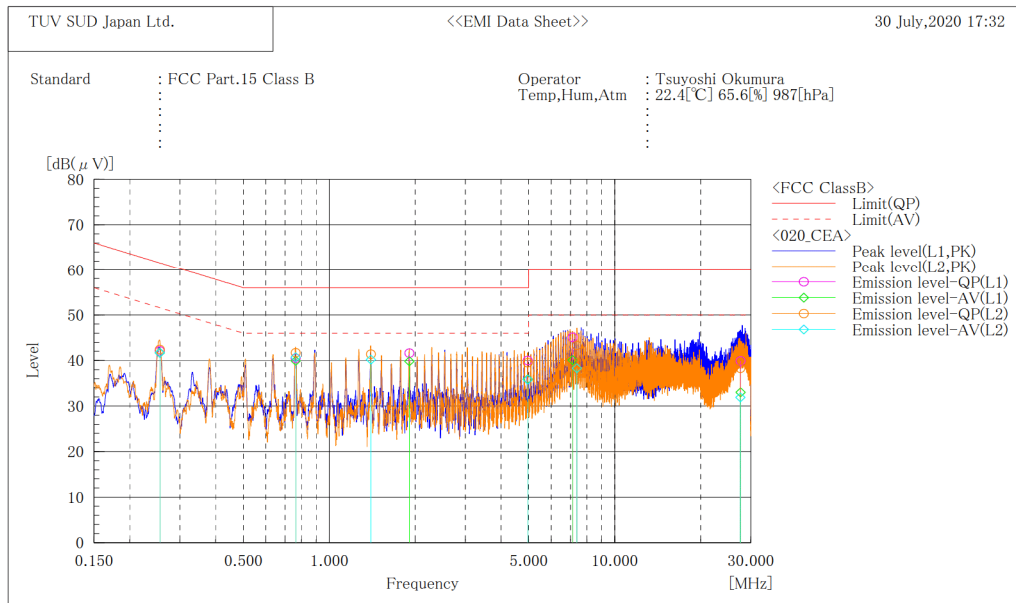
No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c. f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.257	31.5	30.5	10.4	41.9	40.9	61.5	51.5	19.6	10.6
2	0.772	29.6	28.6	10.4	40.0	39.0	56.0	46.0	16.0	7.0
3	1.287	29.8	28.2	10.4	40.2	38.6	56.0	46.0	15.8	7.4
4	4.894	28.2	25.1	10.7	38.9	35.8	56.0	46.0	17.1	10.2
5	7.078	35.4	29.5	10.8	46.2	40.3	60.0	50.0	13.8	9.7
6	19.709	32.5	29.5	11.3	43.8	40.8	60.0	50.0	16.2	9.2

RS232C I/F

S/N: MPNMMA201273

Date of test: 30-July-2020 Supply voltage: AC 120 V Supply frequency: 60 Hz

***** 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	0.255	31.7	31.3	10.4	42.1	41.7	61.6	51.6	19.5	9.9
2	0.763	30.2	29.6	10.3	40.5	39.9	56.0	46.0	15.5	6.1
3	1.908	31.1	29.3	10.5	41.6	39.8	56.0	46.0	14.4	6.2
4	4.962	29.3	25.2	10.7	40.0	35.9	56.0	46.0	16.0	10.1
5	7.125	34.3	29.3	10.8	45.1	40.1	60.0	50.0	14.9	9.9
6	27.630	28.5	21.6	11.4	39.9	33.0	60.0	50.0	20.1	17.0

--- 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	0.255	32.0	31.3	10.4	42.4	41.7	61.6	51.6	19.2	9.9
2	0.763	31.3	30.3	10.4	41.7	40.7	56.0	46.0	14.3	5.3
3	1.400	31.0	29.8	10.4	41.4	40.2	56.0	46.0	14.6	5.8
4	4.961	28.8	25.1	10.7	39.5	35.8	56.0	46.0	16.5	10.2
5	7.378	32.5	27.5	10.8	43.3	38.3	60.0	50.0	16.7	11.7
6	27.550	26.8	20.4	11.5	38.3	31.9	60.0	50.0	21.7	18.1

4.2 Radiated emission (below 1 GHz)

4.2.1 Measurement condition

Frequency range	30 MHz-1000 MHz
Test place	10 m Semi-Anechoic Chamber No. 1
EUT was placed on	FRP table (W) 2.0 × (D) 1.0 × (H) 0.8 m
Axis	0°-360°
Antenna	Distance from EUT: 3 m Height: 1-4 m Polarity: Horizontal/Vertical
Test receiver setting	Detector: Quasi-peak Bandwidth: 120 kHz

EUT is placed on a non-conducting table for table-top equipment or on insulation material for a floor-standing equipment. The non-conducting table or the insulation material is placed on a rotating turn table.

Excess cables between equipment are bundled in the center. The length of bundling is 0.3-0.4 m.

An antenna is adjusted between 1-4 m in height and varied its polarization (horizontal and vertical), and the EUT azimuth is varied by the rotating turntable 0 to 360 degrees.

After overall frequency range is investigated with spectrum analyzer using peak detector, measurements are performed with test receiver in setting to the defined values.

4.2.2 Calculation method

Emission level = Reading + c.f. (correction factor)*

Margin = Limit - Emission level

*Note: c.f. = Antenna factor + Cable system loss + Attenuator loss - Amplifier Gain

Example)

Limit @ 350.0 MHz: 37.0 dBμV/m

Reading = 41.1 dBμV c.f. = -11.8 dB/m

Emission level = 41.1 - 11.8 = 29.3 dBμV/m

Margin = 37.0 - 29.3 = 7.7 dB

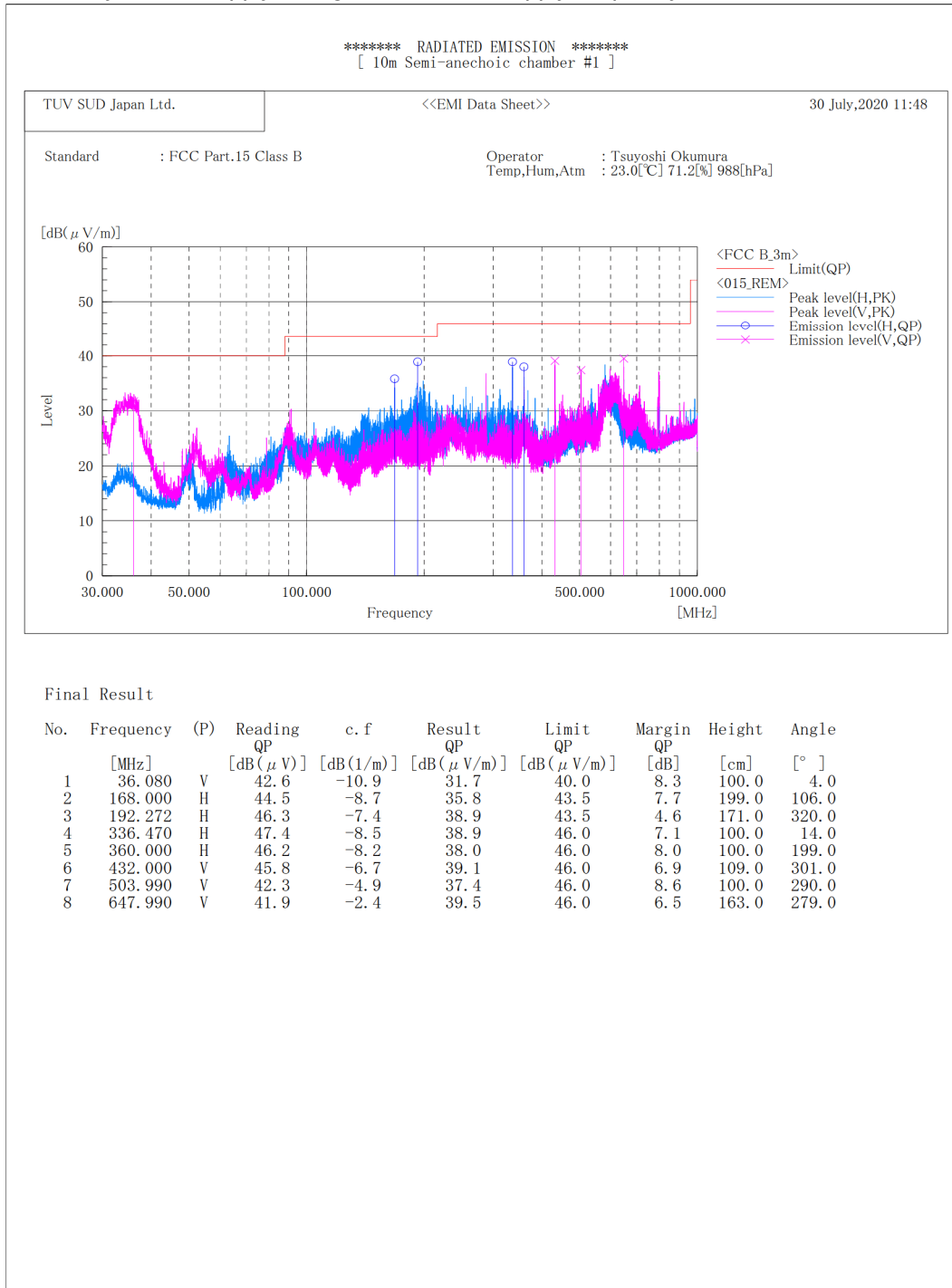
4.2.3 Test data and Configuration photographs

Operation mode	H print mode
EUT	M33335A, S/N: MPNMMA227101 - Modification State 0 M33335A, S/N: MPNMMA201273 - Modification State 0

Centronics I/F

S/N: MPNMMA227101

Date of test: 30-July-2020 Supply voltage: AC 120 V Supply frequency: 60 Hz

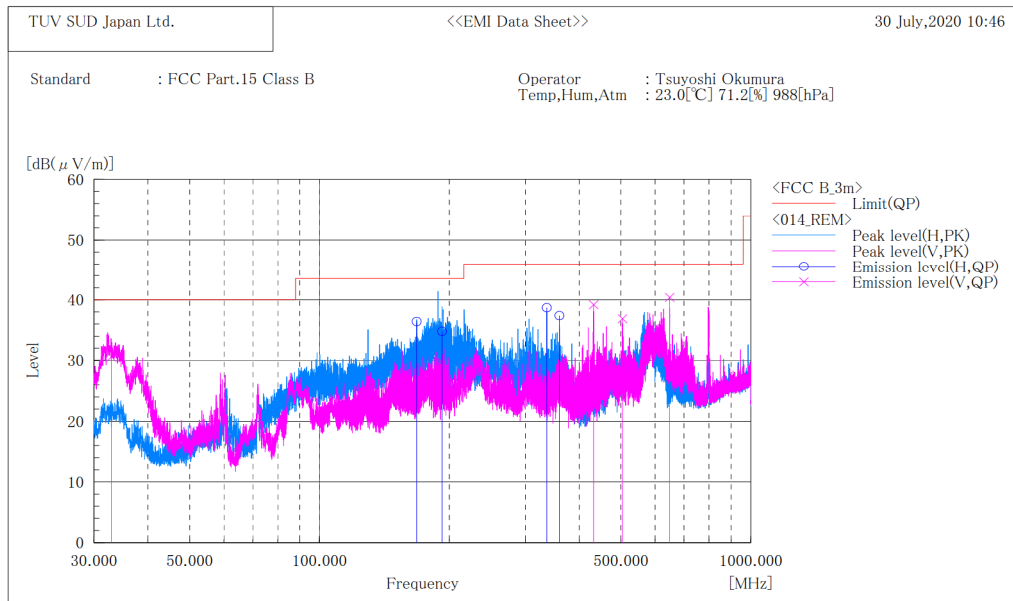


USB I/F

S/N: MPNMMA227101

Date of test: 30-July-2020 Supply voltage: AC 120 V Supply frequency: 60 Hz

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



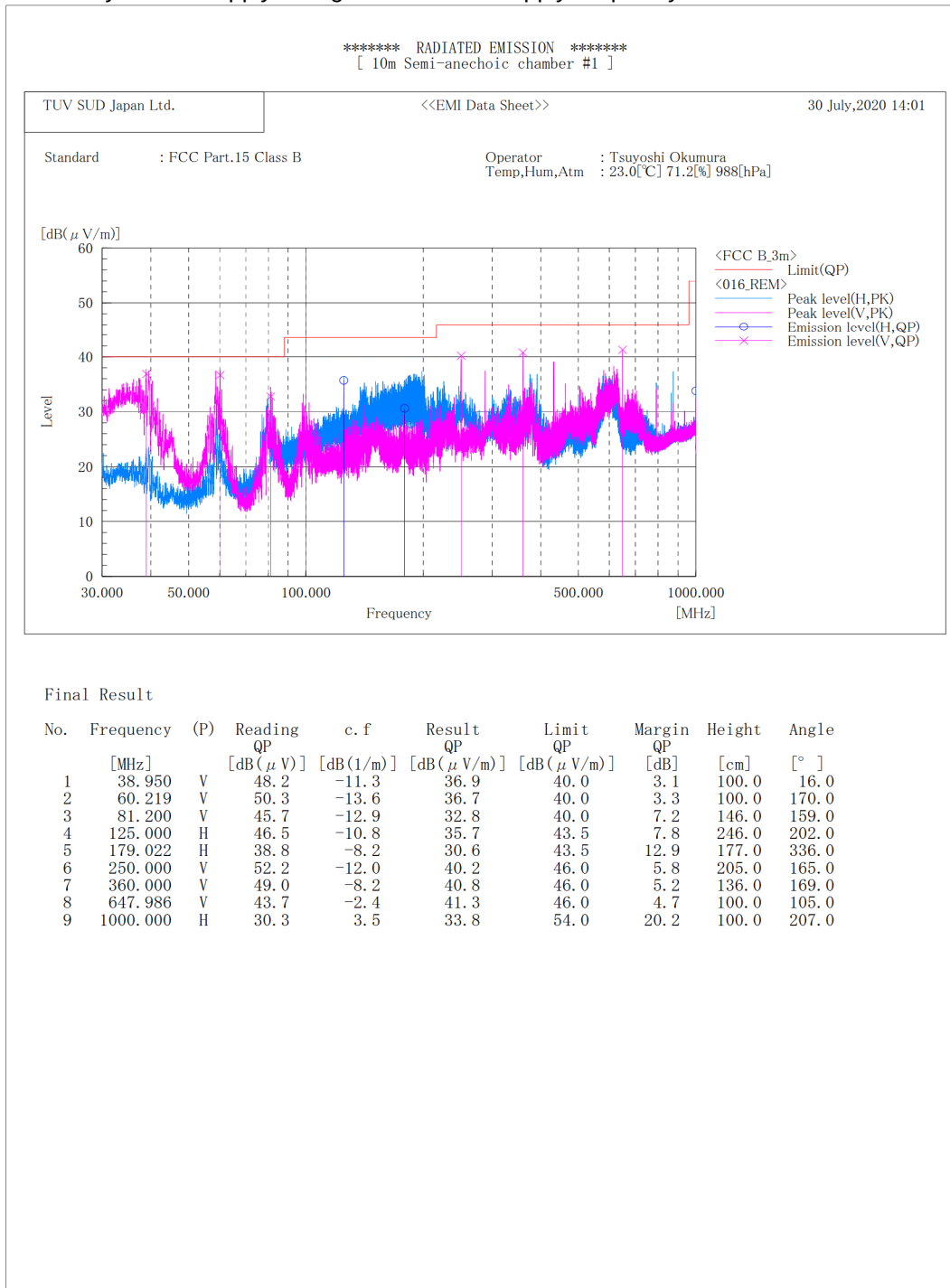
Final Result

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	32.903	V	40.9	-10.3	30.6	40.0	9.4	100.0	231.0
2	168.000	H	45.1	-8.7	36.4	43.5	7.1	198.0	106.0
3	192.272	H	42.2	-7.4	34.8	43.5	8.7	167.0	319.0
4	336.472	H	47.2	-8.5	38.7	46.0	7.3	100.0	15.0
5	360.000	H	45.6	-8.2	37.4	46.0	8.6	100.0	202.0
6	432.000	V	45.9	-6.7	39.2	46.0	6.8	108.0	297.0
7	503.990	V	41.8	-4.9	36.9	46.0	9.1	100.0	286.0
8	647.988	V	42.8	-2.4	40.4	46.0	5.6	155.0	280.0

LAN I/F

S/N: MPNMMA227101

Date of test: 30-July-2020 Supply voltage: AC 120 V Supply frequency: 60 Hz

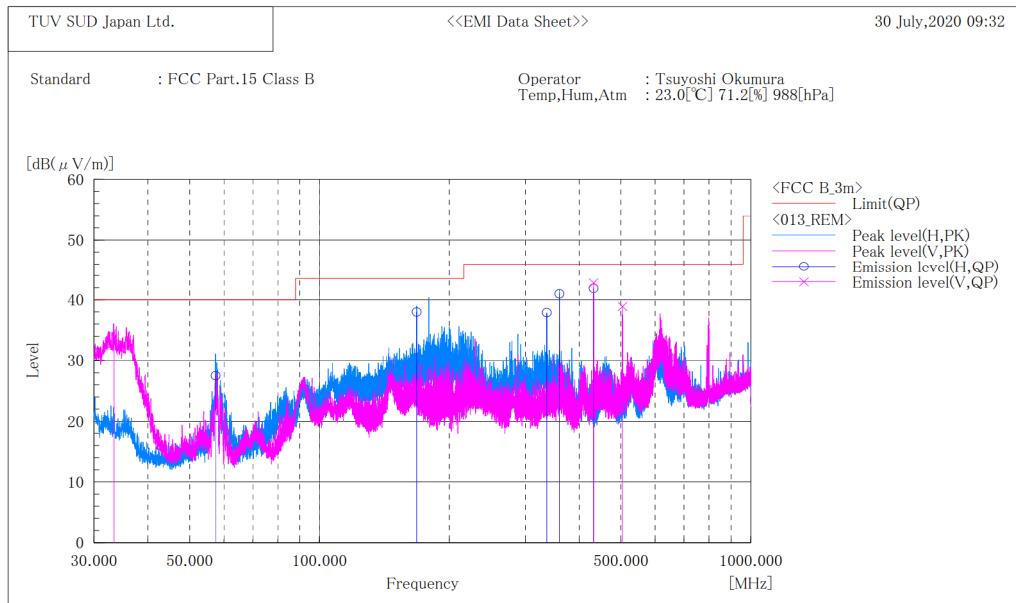


RS232C I/F

S/N: MPNMMA201273

Date of test: 30-July-2020 Supply voltage: AC 120 V Supply frequency: 60 Hz

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



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	33.405	V	43.2	-10.4	32.8	40.0	7.2	100.0	102.0
2	57.405	H	40.9	-13.4	27.5	40.0	12.5	294.0	276.0
3	168.000	H	46.7	-8.7	38.0	43.5	5.5	203.0	102.0
4	336.478	H	46.4	-8.5	37.9	46.0	8.1	100.0	13.0
5	360.000	H	49.2	-8.2	41.0	46.0	5.0	100.0	260.0
6	432.000	V	49.5	-6.7	42.8	46.0	3.2	100.0	289.0
7	432.000	H	48.6	-6.7	41.9	46.0	4.1	100.0	272.0
8	503.990	V	43.8	-4.9	38.9	46.0	7.1	100.0	178.0

4.3 Radiated emission (above 1 GHz)

4.3.1 Measurement condition

Frequency range	1000 MHz-2000 MHz
Test place	10 m Semi-Anechoic Chamber No. 2
EUT was placed on	Styrene foam table (W) 2.0 × (D) 1.0 × (H) 0.8 m
Axis	0°-360°
Antenna	Distance: 3.60 m, 4.05 m Height: 1-4 m Polarity: Horizontal/Vertical
Test receiver setting	Detector: Peak, Average Bandwidth: 1 MHz

EUT is placed on a styrene form table for table-top equipment or on insulation material for a floor-standing equipment. The styrene form table or the insulation material is placed on a rotating turn table.

Excess cables between equipment are bundled in the center. The length of bundling is 0.3-0.4 m.

Absorbers are placed between the EUT and an antenna.

The antenna is adjusted between 1-4 m in height and varied its polarization (horizontal and vertical), and the EUT azimuth is varied by the rotating turntable 0 to 360 degrees. Where height of the antenna is changed, its angle is also adjusted to the position of the EUT.

After overall frequency range is investigated with spectrum analyzer using peak detector, measurements are performed with test receiver in setting to the defined values.

The antenna is positioned from the test volume that was predetermined by the site VSWR measurement. Since this predetermined test volume is different from maximum circumference where the EUT and the peripheral devices are actually placed, the measurement distance conversion factor is added to the measurement data.

Antenna 3 dB beamwidth (antenna used: 3117)

Antenna: 3115

Frequency (GHz)	θ3 dB (°)	3 dB beamwidth w (m)
1.0	63	3.68
2.0	47	2.61
3.0	38	2.07
4.0	36	1.95
5.0	40	2.18
6.0	44	2.42

Antenna: 3117

Frequency (GHz)	θ3 dB (°)	3 dB beamwidth w (m)
1.0	82	5.22
2.0	60	3.46
3.0	76	4.69
4.0	56	3.19
5.0	54	3.06
6.0	50	2.80

Measurement distance: $d = 3.0 \text{ m}$

$W = 2 \times d \times \tan(0.5 \times \theta_{3 \text{ dB}})$

4.3.2 Calculation method

Emission level = Reading + Measurement distance conversion factor + c.f. (correction factor)*

Margin = Limit - Emission level

*Note: c.f. = Antenna factor + Cable system loss + Attenuator loss - Amplifier Gain

Example)

Limit @ 1100.0 MHz: 70.0 dB μ V/m (Peak)
50.0 dB μ V/m (Average)

Measurement distance: 3.25 m

Measurement distance conversion factor: $20 \log (3.25\text{m}/3.0\text{m}) = 0.7 \text{ dB}$

Peak	Reading = 50.2 dB μ V, Measurement distance conversion factor = 0.7 dB, c.f. = 1.7 dB/m Emission level = $50.2 + 0.7 + 1.7 = 52.6 \text{ dB}\mu\text{V/m}$ Margin = $70.0 - 52.6 = 17.4 \text{ dB}$
Average	Reading = 32.0 dB μ V, Measurement distance conversion factor = 0.7 dB, c.f. = 1.7 dB/m Emission level = $32.0 + 0.7 + 1.7 = 34.4 \text{ dB}\mu\text{V/m}$ Margin = $50.0 - 34.4 = 15.6 \text{ dB}$

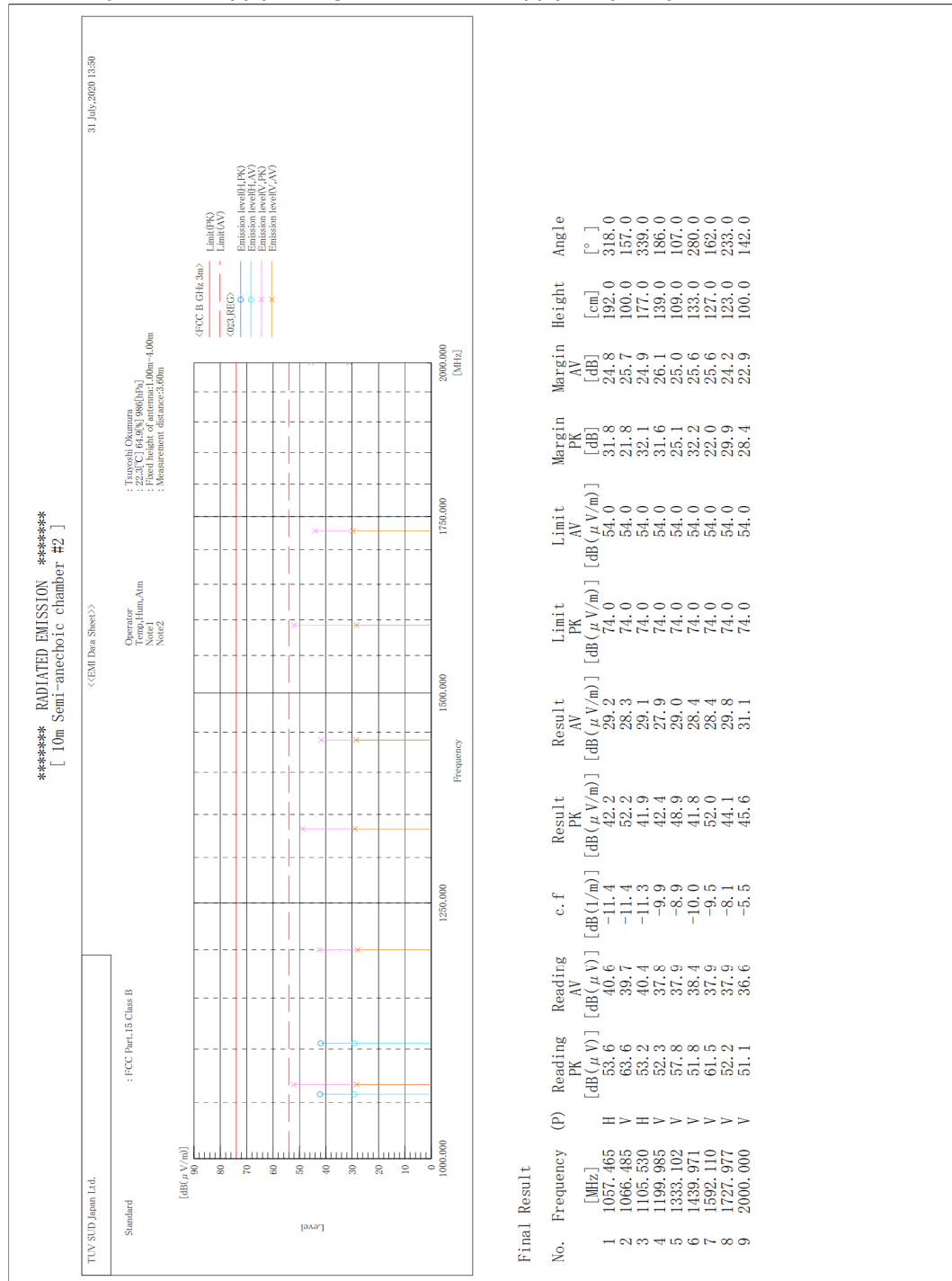
4.3.3 Test data and Configuration photographs

Operation mode	H print mode
EUT	M33335A, S/N: MPNMMA227101 - Modification State 0 M33335A, S/N: MPNMMA201273 - Modification State 0

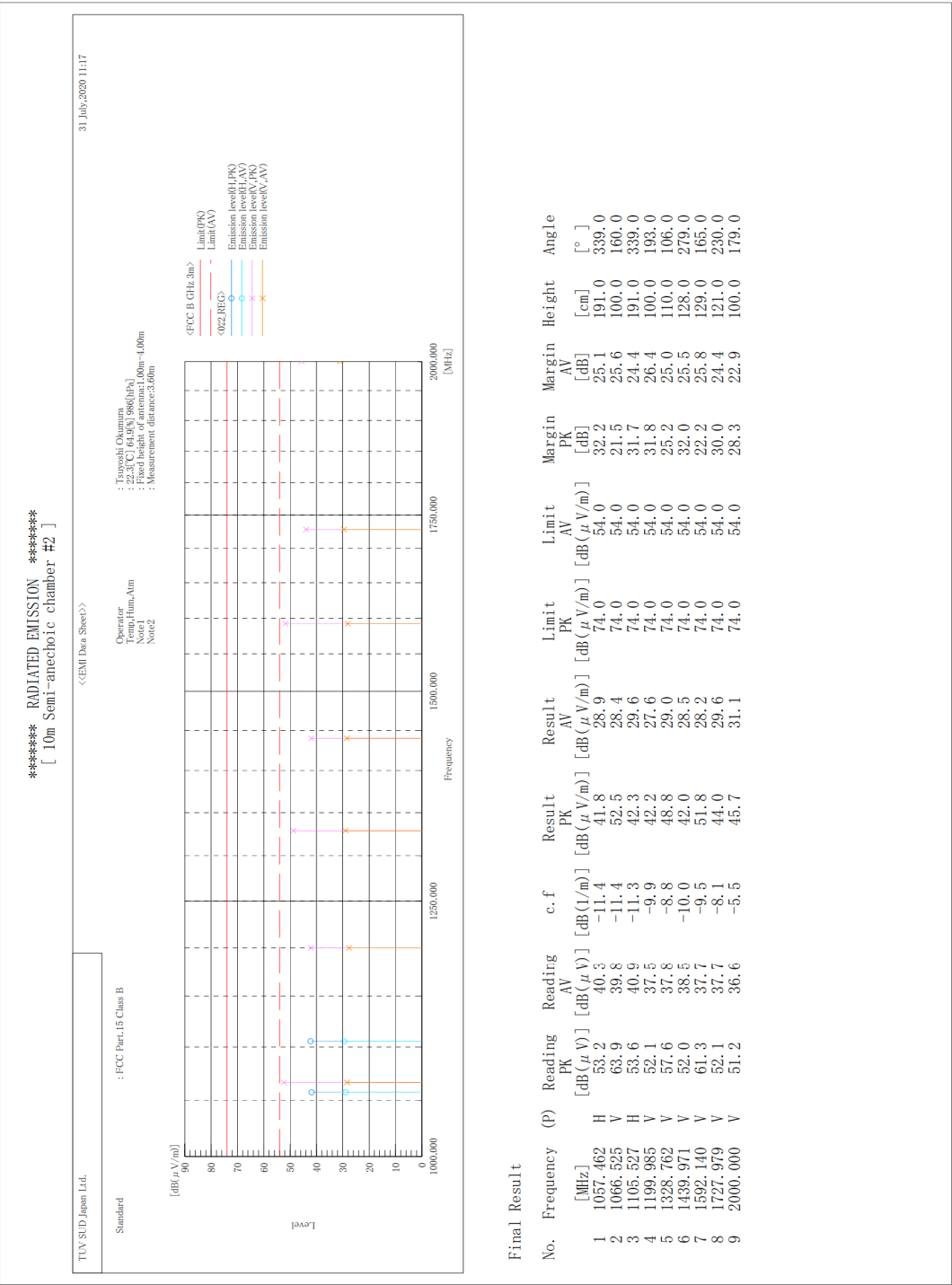
Centronics I/F

S/N: MPNMMA227101

Date of test: 31-July-2020 Supply voltage: AC 120 V Supply frequency: 60 Hz



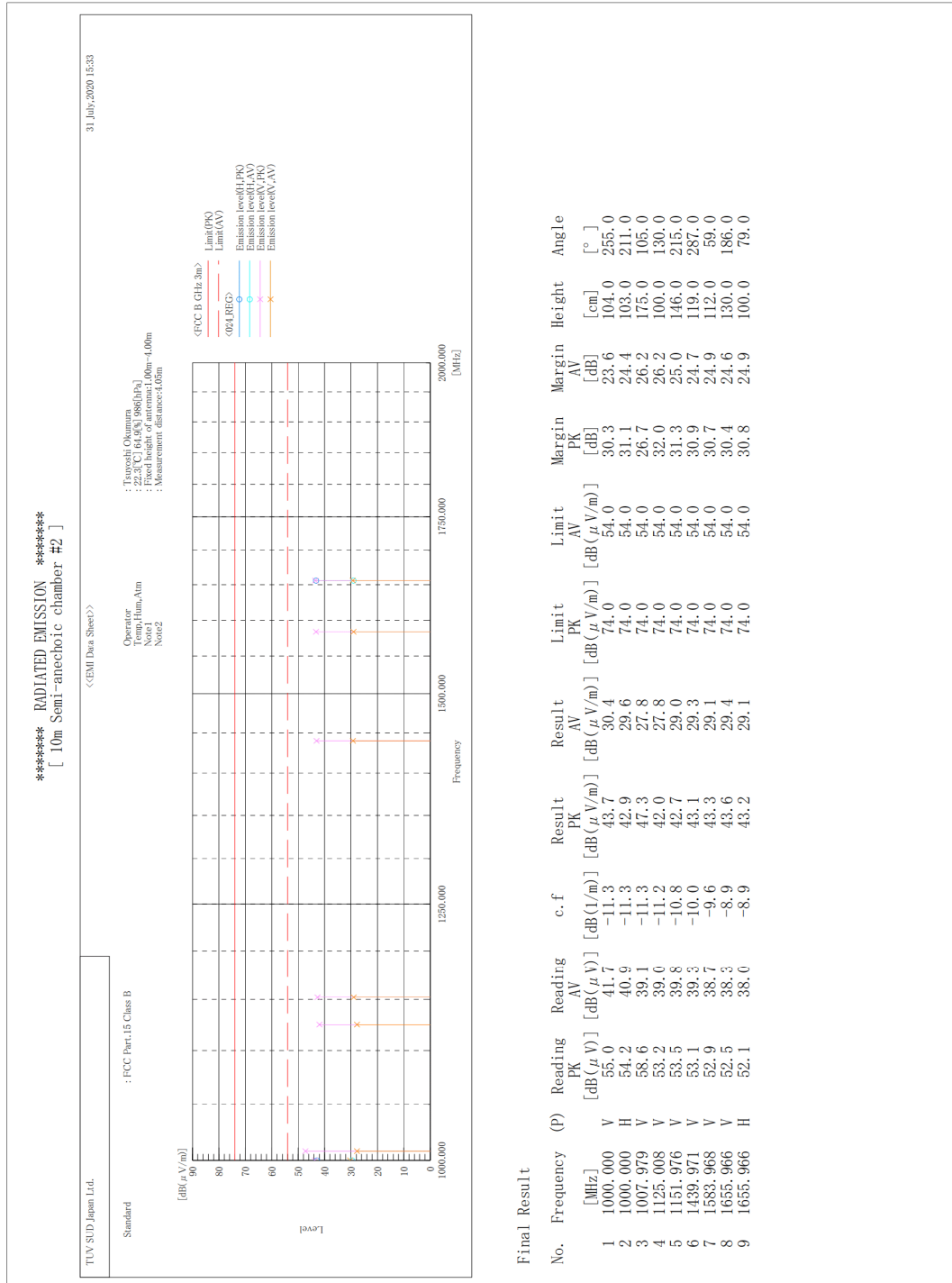
USB I/F
S/N: MPNMMA227101
Date of test: 31-July-2020 Supply voltage: AC 120 V Supply frequency: 60 Hz



LAN I/F

S/N: MPNMMA227101

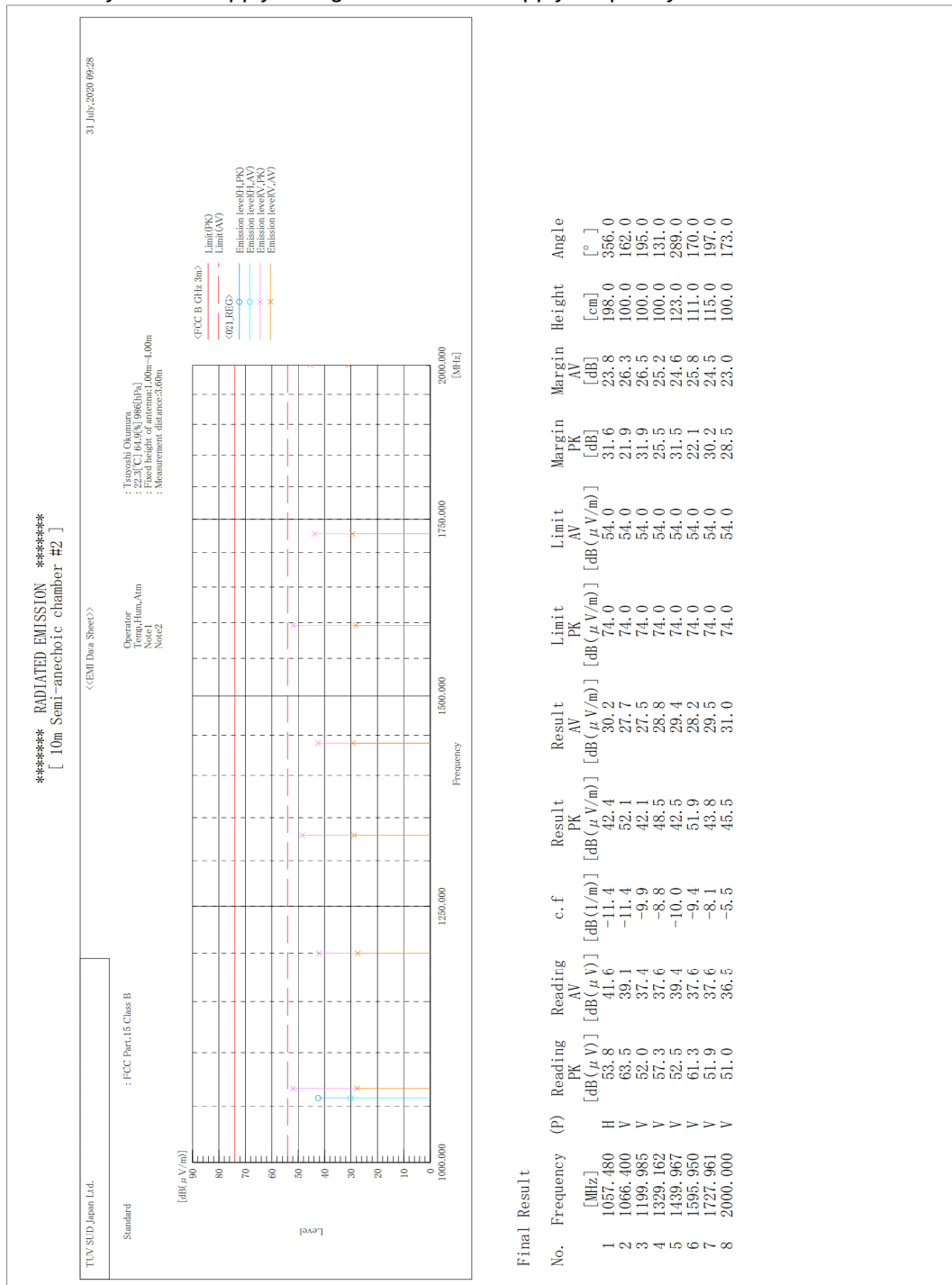
Date of test: 31-July-2020 Supply voltage: AC 120 V Supply frequency: 60 Hz



RS232C I/F

S/N: MPNMMA201273

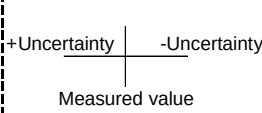
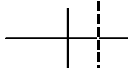
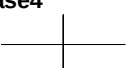
Date of test: 31-July-2020 Supply voltage: AC 120 V Supply frequency: 60 Hz



5 Measurement Uncertainty

The reported measurement uncertainty is based on a value obtained by multiplying standard uncertainty by coverage factor of $k=2$, and a level of confidence becomes 95 %.

Item	Parameter	U_{lab}	U_{cisp}
Conducted Emission, AMN	9kHz to 150kHz	± 3.8 dB	± 3.8 dB
Conducted Emission, AMN	150kHz to 30MHz	± 3.4 dB	± 3.4 dB
Conducted Emission, AN	150kHz to 30MHz	± 4.3 dB	-
Conducted Emission, Voltage Probe	9kHz to 30MHz	± 2.8 dB	± 2.9 dB
Conducted Emission, AAN	150kHz to 30MHz	± 4.9 dB	± 5.0 dB
Conducted Emission, Current Probe	150kHz to 30MHz	± 2.9 dB	± 2.9 dB
Disturbance Power	30MHz to 300MHz	± 4.3 dB	± 4.5 dB
Radiated Emission	30MHz to 1000MHz	± 4.9 dB	± 6.3 dB
Radiated Emission	1GHz to 6GHz	± 4.6 dB	± 5.2 dB
Radiated Emission	6GHz to 18GHz	± 4.9 dB	± 5.5 dB
Radiated Emission	9kHz to 30MHz	± 3.9 dB	-

Judge	Measured value and standard limit value	
PASS	Standard limit value Case1  Even if it takes uncertainty into consideration, a standard limit value is fulfilled.	
	Case2  Although measured value is in a standard limit value, a limit value won't be fulfilled if uncertainty is taken into consideration.	
FAIL	Case3  Although measured value exceeds a standard limit value, a limit value will be fulfilled if uncertainty is taken into consideration.	
	Case4  Even if it takes uncertainty into consideration, a standard limit value isn't fulfilled.	

6 Laboratory Information

Testing was performed and the report was issued at:

TÜV SÜD Japan Ltd. Yonezawa Testing Center

Address: 5-4149-7 Hachimanpara, Yonezawa-shi, Yamagata, 992-1128 Japan
Phone: +81-238-28-2881
Fax: +81-238-28-2888

Accreditation and Registration

A2LA
Certificate #3686.03

VLAC
Accreditation No.: VLAC-013

BSMI
Laboratory Code: SL2-IN-E-6018, SL2-A1-E-6018

Innovation, Science and Economic Development Canada
ISED#: 4224A

VCCI Council

Registration number	Expiration date
A-0166	03-July-2021

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	30-Apr-2021	28-Apr-2020
Line impedance stabilization network	Kyoritsu Technology Corporation	TNW-407F2	12-17-110-2	30-Jun-2021	03-Jun-2020
Line impedance stabilization network	Kyoritsu Technology Corporation	TNW-242F2	12-17-109-2	30-Jun-2021	03-Jun-2020
Attenuator	HUBER+SUHNER	6810.01.A	N/A(S442)	31-Dec-2020	18-Dec-2019
Coaxial cable	FUJIKURA	5D-2W/4m	N/A(S349)	31-Oct-2020	02-Oct-2019
Microwave cable	HUBER+SUHNER	SUCOFLEX104/2m	317672/4	31-Oct-2020	02-Oct-2019
Coaxial cable	HUBER+SUHNER	RG214/U/25m	N/A(S191)	31-Oct-2020	02-Oct-2019
50Ω terminator	RS	090-0510	N/A(S026)	31-Mar-2021	27-Mar-2020
Software	TOYO Corporation	EP5/CE-AJ	0611193/V5.4.11	N/A	N/A

Radiated emission (below 1 GHz)

Equipment	Company	Model No.	Serial No.	Cal. due	Cal. date
EMI Receiver	ROHDE&SCHWARZ	ESR7	101187	30-Apr-2021	28-Apr-2020
Biconical antenna	Schwarzbeck	VHBB9124/BBA9106	1333	31-Dec-2020	04-Dec-2019
Log-periodic antenna	Schwarzbeck	VUSLP9111B	344	30-Apr-2021	17-Apr-2020
Attenuator	TDC	TAT-43B-06	N/A(S209)	31-Jul-2021	20-Jul-2020
Attenuator	TAMAGAWA.ELEC	CFA-10/3dB	N/A(S504)	31-Jul-2021	20-Jul-2020
Microwave cable	HUBER+SUHNER	SUCOFLEX104/9m	MY23758/4	31-Oct-2020	02-Oct-2019
Microwave cable	HUBER+SUHNER	SUCOFLEX104/1m	MY24628/4	31-Oct-2020	02-Oct-2019
Microwave cable	HUBER+SUHNER	SUCOFLEX104/2m	SN MY28398/4	31-Oct-2020	02-Oct-2019
Microwave cable	HUBER+SUHNER	SUCOFLEX106/13m	MY1159/6	31-Oct-2020	02-Oct-2019
Preamplifier	ANRITSU	MH648A	M96057	31-Jan-2021	09-Jan-2020
10m Semi-anechoic Chamber	TOKIN	N/A	N/A(9001-NSA3m)	31-Oct-2020	03-Oct-2019
Software	TOYO Corporation	EP5/RE-AJ	0611193/V5.6.0	N/A	N/A

Radiated emission (above 1 GHz)

Equipment	Company	Model No.	Serial No.	Cal. due	Cal. date
EMI Receiver	ROHDE&SCHWARZ	ESR7	101742	31-Jan-2021	29-Jan-2020
Low Noise Pre Amplifier	tsj	MLA-0118-J02-40	19326	31-Dec-2020	17-Dec-2019
Double ridged guide antenna	ETS LINDGREN	3117	00224193	31-Mar-2021	03-Mar-2020
Attenuator	HUBER+SUHNER	6803.17.B	N/A(2341)	31-Dec-2020	18-Dec-2019
Microwave cable	HUBER+SUHNER	SUCOFLEX104/1m	MY38347/4	31-Jan-2021	09-Jan-2020
Microwave cable	HUBER+SUHNER	SUCOFLEX104/9m	MY36274/4	31-Dec-2020	19-Dec-2019
Microwave cable	HUBER+SUHNER	SUCOFLEX106/10m	501942/6	31-Jan-2021	09-Jan-2020
Microwave cable	HUBER+SUHNER	SUCOFLEX104/2m	MY34424/4	31-Jan-2021	09-Jan-2020
Absorber	NEC TOKIN	TFA	N/A	N/A	N/A
10m Semi-anechoic Chamber	TOKIN	N/A	N/A(9005-SVSWR/TTΦ3m)	31-Jan-2021	10-Jan-2020
Software	TOYO Corporation	EP5/RE-AJ	0611193/V5.6.0	N/A	N/A

Appendix B. Configuration Photographs

Abort Appendix B: Please refer to the JPD-TR-20039-0Annex