

FCC TEST REPORT

Job No. : GPEM2209000441EC
Applicant : Coledy Inc.
Equipment Under Test (EUT) :
Product Name : Coledy PTY System
Model Name : DT100PTP1
FCC Authorization Type : Certification
Applied Standards : FCC Part 15 Subpart B, Class B
FCC ID : 2A4FM-DT100PTP1
Date of Receipt : September 7, 2022
Date of Test : October 11, 2022 ~ October 14, 2022
Date of Issue : December 1, 2022
Test Results : Complied

Tested by :



Kevin Jo

Reviewed by :



Paul Kang

This test report does not assure KOLAS accreditation.

- 1) The results of this test report are effective only to the items tested.
- 2) The SGS Korea is not responsible for the sampling, the results of this test report apply to the sample as received.

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Revision History

Revision	Report number	Description
0	F690501-RF-EMC000940	Initial

1. General Information

1.1 Client Information

Applicant	Coledy Inc.
Applicant Address	1-A, 939, Gwacheon-daero, Gwanak-gu, Seoul, Republic of Korea
Manufacturer	Coledy Inc.
Manufacturer Address	1-A, 939, Gwacheon-daero, Gwanak-gu, Seoul, Republic of Korea
Factory	SMT SCOUT
Factory Address	38, Dangeong-ro, Gunpo-si, Gyeonggi-do, Republic of Korea

1.2 Test Laboratory

Name and Address	SGS Korea Co., Ltd.
- Giheung Laboratory	35, Giheungdanji-ro 121beon-gil, Giheung-gu, Yongin-si, Gyeonggi-do, Republic of Korea
- Gunpo Laboratory	4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, 15807, Republic of Korea
- Dongtan Laboratory	12, Dongtansandan 10-gil, Hwaseong-si, Gyeonggi-do, 18487, Republic of Korea
FCC Registration No.	KR0150
Phone	+ 82 31 428 5719
Fax	+ 82 31 427 2371
e-mail	paul.kang@sgs.com

1.3 General Information of E.U.T.

Classification	Specification
Product Name	Coledy PTY System
Model Name	DT100PTP1
Serial No.	KRCCPTNN2CS
EMI Classification	Class B
Test Voltage	120 V~, 60 Hz
Rated Power	DC 3.7 V (Battery)
Internal Clock Frequency	64 Mhz
Wireless Frequency	Transmission : 2 402 Mhz ~ 2 480 Mhz Reception : 2 402 Mhz ~ 2 480 Mhz
H/W Version	R42AD-PTP
S/W Version	KRCCPTNN2CS
Port	DC IN
Function	An IoT based medication data monitoring device.

1.4 Operating Modes and Conditions

Operating mode	Operating Condition
Operating	Counting and recording the number of medication on the mobile app with Bluetooth 4.2 while being charged.

1.5 Peripheral Equipments

Description	Model	Serial No.	Manufacturer	Note.
Mobile Phone	SM-G935S	R39HB09ZRF	Samsung Electronics Co., Ltd.	-
Travel Adapter	ETA0U83EWE	BD1J80PHS/A-E	Samsung Electronics Co., Ltd.	-

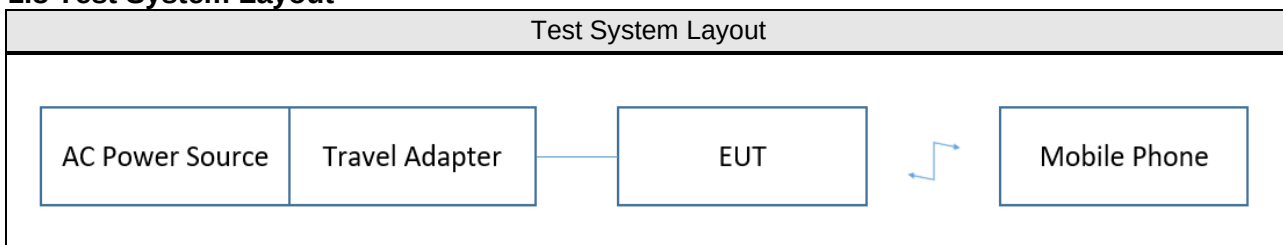
1.6 Cable List

Start		END		Cable Spec.		Used core
Name	I/O Port	Name	I/O Port	Length (m)	Shield	
EUT	DC IN	Travel Adapter	DC OUT	1.0	Unshielded	-

1.7 System Configurations

Description	Model	Serial No.	Manufacturer	Note
Battery	YJ502030	-	YJ POWER GROUP LIMITED	
LED Board	-	-	-	-
Main Board	BT-SENSOR-PTP Rev 4.2 SJB	-	-	-
Sensor	-	-	-	-

1.8 Test System Layout



1.9 Modifications/Notes

- There was no modified item during the test.

1.10 Applicable Standards for Testing

Standards	Status	Deviation
FCC Part 15 : Subpart B	Applicable	No Deviation

1.11 Summary of Test Results

Test Item	Standards	Results
Conducted Emission	FCC Part 15 Subpart B Section 15.107	Complied
Radiated Emission	FCC Part 15 Subpart B Section 15.109	Complied

Note : Test methods of all test items are performed according to the basic standards in this table.

EMISSION

2.1 Test Results

Test Items	Standards	Test Results
Conducted Emission	FCC Part 15 Subpart B Section 15.107	Complied
Radiated Emission	FCC Part 15 Subpart B Section 15.109	Complied

2.2 Test Method and Limits

2.2.1 Test Method

Test Items	Measuring Frequency Range	RBW	Measuring Distance
Conducted Emission	0.15 MHz ~ 30 MHz	9 kHz	-
Radiated Emission	30 MHz ~ 1 GHz	120 kHz	10 m & 3 m
	Above 1 GHz	1 MHz	3 m

Note : 10 m method of radiated emission measurement is only applied to Class A equipment over the frequency range of 30 MHz ~ 1 GHz. Except this, 3 m method is applied to Class B equipment over the frequency range of 30 MHz ~ 1 GHz and Class A and Class B equipment above 1 GHz.

2.2.2 Test Limits

-Conducted Emission Limits

Frequency Range	Limits(dB μ V)		Class
	Quasi-peak	Average	
0.15 MHz ~ 0.5 MHz	79	66	Class A
0.5 MHz ~ 30 MHz	73	60	
0.15 MHz ~ 0.5 MHz	66 to 56	56 to 46	Class B
0.5 MHz ~ 5 MHz	56	46	
5 MHz ~ 30 MHz	60	50	

Note : The lower limit shall apply at the transition frequencies. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

-Radiated Emission Limits below 1 GHz

Frequency Range	Limits(dB μ V/m)	Class
	Quasi-peak	
30 MHz ~ 88 MHz	39.0	Class A (10 m method)
88 MHz ~ 216 MHz	43.5	
216 MHz ~ 960 MHz	46.4	
960 MHz ~ 1 GHz	49.5	
30 MHz ~ 88 MHz	40.0	Class B (3 m method)
88 MHz ~ 216 MHz	43.5	
216 MHz ~ 960 MHz	46.0	
960 MHz ~ 1 GHz	54.0	

-Radiated Emission Limits above 1 GHz (3 m method)

Frequency Range	Limits(dB μ V/m)		Class
	Average	Peak	
Above 1 GHz	59.5	79.5	Class A
Above 1 GHz	54.0	74.0	Class B

Note : The limits of class A equipment is extrapolated using an extrapolation factor of 20 dB/decade because it was measured at 3 m distance not 10 m distance.

2.3 Conducted Disturbance

The initial preliminary exploratory scans were performed over the measuring frequency range(0.15 MHz to 30 MHz) using a max hold mode incorporating a Peak detector and CISPR-Average detector and using the EMI measuring software. The final test data was measured using a Quasi-Peak detector and CISPR-Average detector.

Note. Measuring software

- Giheung Lab.: EMC32(V10.40.10) from R&S
- Gunpo Lab.: EMC32(V8.52.0) from R&S
- Dongtan Lab.: EMC32(V10.40.00) from R&S

2.3.1 Test Equipments

Equipment	Model	Manufacturer	Serial No	Cal Due. Date
Two-Line V-Network	ENV216	R & S	100190	2023.05.13
Test Receiver	ESCI 7	R & S	100911	2023.02.23
RF Cable(CA-03)	-	-	-	2023.04.04

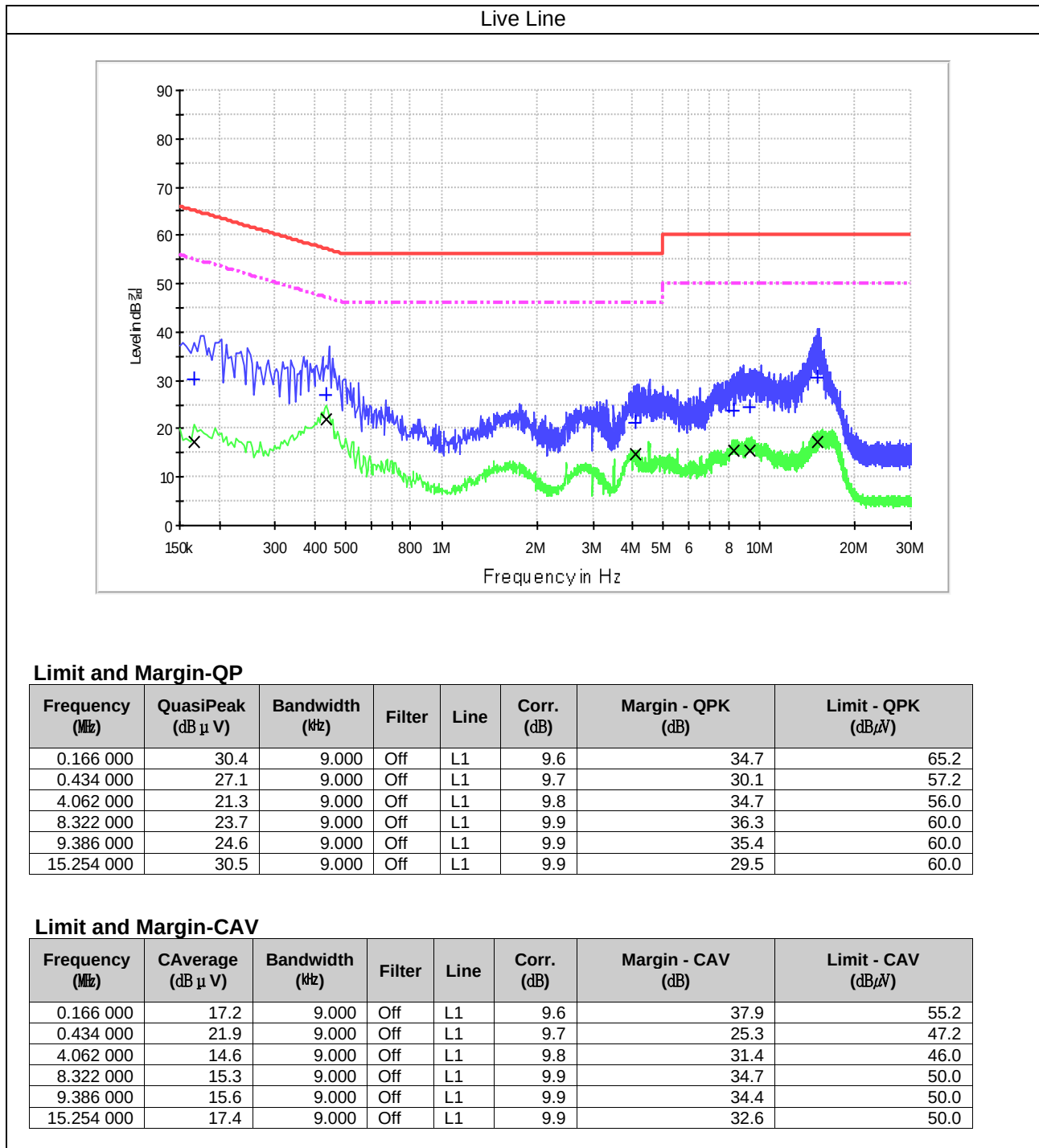
2.3.2 Test Site

Shield Room in Gunpo Laboratory

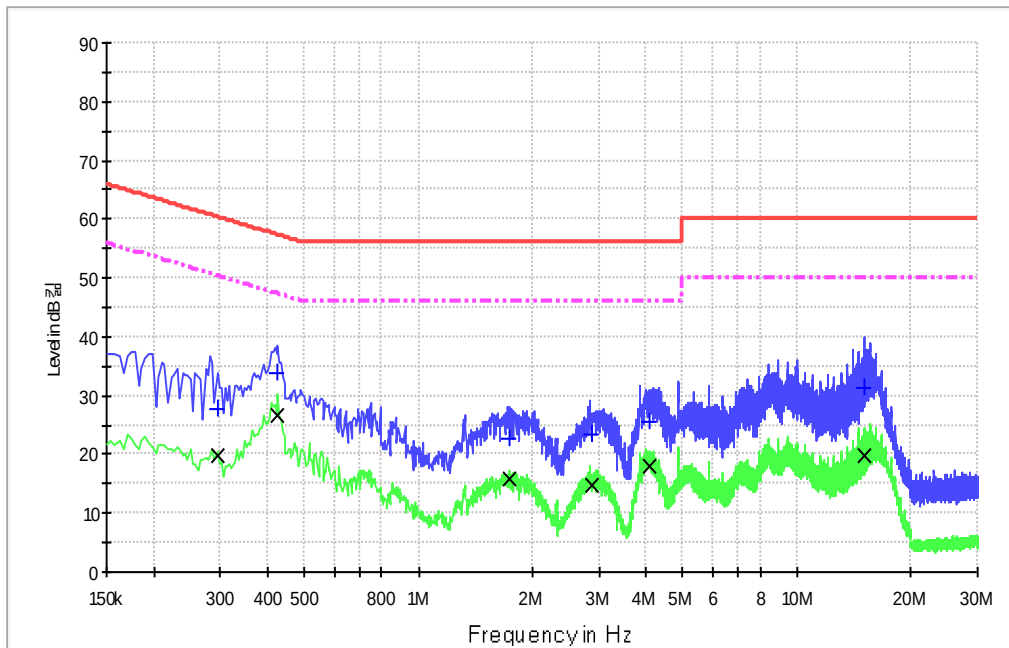
2.3.3 Environment Conditions

Temperature	(Minimum 23.0, Maximum 23.2) °C
Humidity	(Minimum 38.0, Maximum 39.0) % R.H.
Atmospheric Pressure	(Minimum 101.4, Maximum 101.4) kPa
Test Date	October 14, 2022

2.3.4 Test Results



Neutral Line



Limit and Margin-QP

Frequency (MHz)	QuasiPeak (dB μV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dB μV)
0.294 000	27.8	9.000	Off	N	9.8	32.6	60.4
0.426 000	34.0	9.000	Off	N	9.8	23.3	57.3
1.738 000	22.8	9.000	Off	N	9.8	33.2	56.0
2.874 000	23.3	9.000	Off	N	9.8	32.7	56.0
4.070 000	25.7	9.000	Off	N	9.9	30.3	56.0
15.130 000	31.5	9.000	Off	N	10.0	28.5	60.0

Limit and Margin-CAV

Frequency (MHz)	CAverage (dB μV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - CAV (dB)	Limit - CAV (dB μV)
0.294 000	19.7	9.000	Off	N	9.8	30.7	50.4
0.426 000	26.6	9.000	Off	N	9.8	20.7	47.3
1.738 000	15.7	9.000	Off	N	9.8	30.3	46.0
2.874 000	14.8	9.000	Off	N	9.8	31.2	46.0
4.070 000	17.9	9.000	Off	N	9.9	28.1	46.0
15.130 000	19.7	9.000	Off	N	10.0	30.3	50.0

Measurement Uncertainty : See Appendix A

Note1 : • Line (L1) : Hot • Line (N) : Neutral

- Margin = Limit – Quasi Peak or CAverage
- Corr. = LISN Factor + Cable loss

Ex) In case

Freq ; 0.5 MHz, level ; 30 dB(μV), CL ; 0.2 dB, LISN ; 9.5 dB, P/L: 9.8 dB

Result = Level + CL + LISN + P/L

$$= 30 + 0.2 + 9.5 + 9.8$$

$$= 49.5$$

Margin = Limit – Result

$$= 79 - 49.5$$

$$= 29.5$$

2.4 Radiated Emission

The initial preliminary exploratory scans were performed over the measuring frequency range (30 MHz to 13 GHz) using a max hold mode incorporating a Peak detector by using the EMI measuring software. The final test data was measured using a Quasi-Peak detector below 1 GHz.

Measurements were made with the antenna positioned in both the horizontal and vertical planes of polarization. The antenna height was varied from 1 m to 4 m and the EUT was rotated 360° to find the maximum emitting point for each frequency.

Note. Measuring software

- Giheung Lab.: EMC32(V10.40.10) from R&S
- Gunpo Lab.: EP5RE(V5.3.70) from TOYO
- Dongtan Lab.: EMC32(V10.40.10) from R&S

2.4.1 Test Equipments

Equipment	Model	Manufacturer	Serial No	Cal Due. Date
Horn Antenna	HF906	R & S	100326	2023.02.18
Signal Conditioning Unit	SCU 18	R & S	10117	2023.06.13
Test Receiver	ESU26	R & S	100109	2023.01.18
Hybrid Antenna	VULB9163	SCHWARZBECK	01126	2023.02.07
Amplifier	8447F	HP	2944A03909	2023.08.04
RF Cable(CA-04)	-	-	-	2023.04.04
RF Cable(CA-05)	-	-	-	2023.04.04
RF Cable(CA-06)	MWX221-NMSNMS (4m)	RF ONE	J023142	2023.04.04
RF Cable(CA-07)	PL520-NMNM-10M (10m)	RF ONE	0200324001	2023.04.04

Note: The calibration period of every equipment is 1 year.

2.4.2 Test Site

3 m SEMI-ANECHOIC CHAMBER in Gunpo Laboratory

2.4.3 Environment Conditions

Below 1 GHz

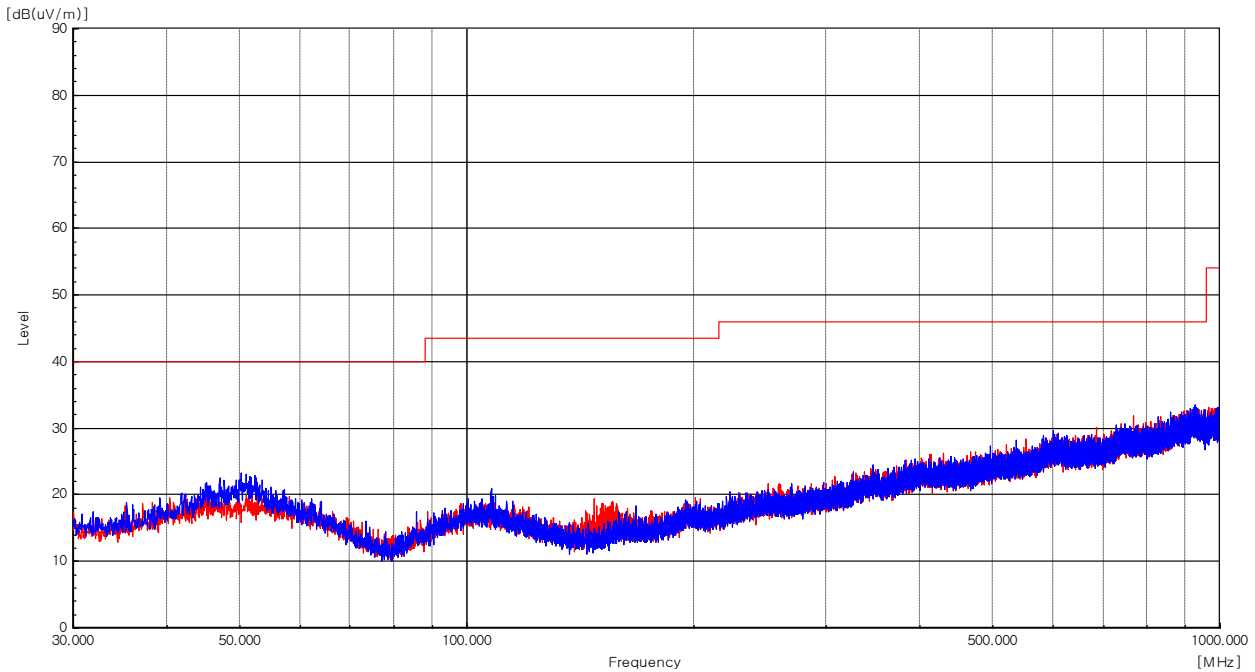
Temperature	(Minimum 21.8, Maximum 21.9) °C
Humidity	(Minimum 44.0, Maximum 44.0) % R.H.
Atmospheric Pressure	(Minimum 100.6, Maximum 100.6) kPa
Test Date	October 11, 2022

Above 1 GHz

Temperature	(Minimum 21.9, Maximum 22.0) °C
Humidity	(Minimum 44.0, Maximum 45.0) % R.H.
Atmospheric Pressure	(Minimum 100.6, Maximum 100.6) kPa
Test Date	October 11, 2022

2.4.4 Test Results

Below 1 GHz (3 m method)



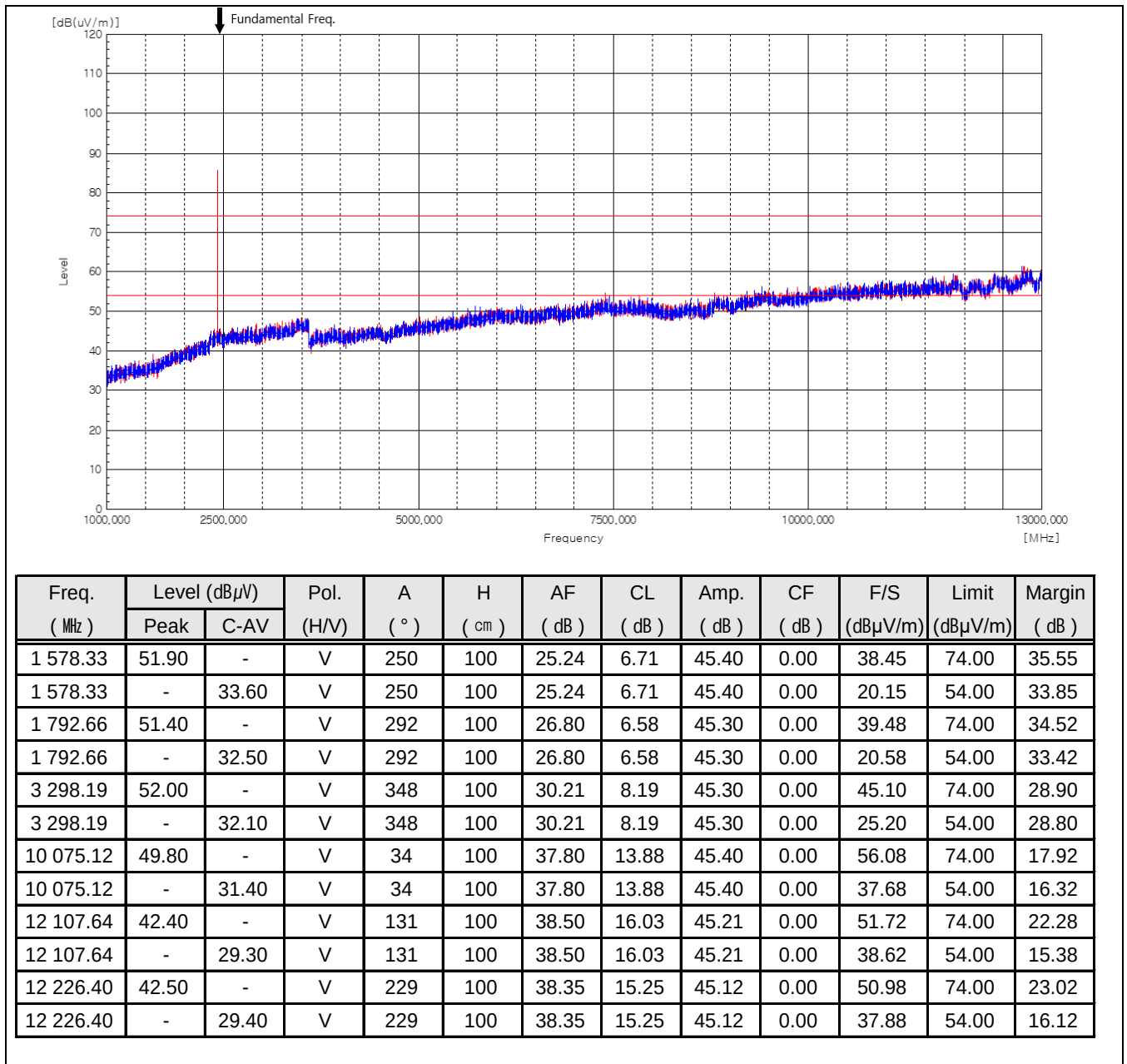
Freq. (MHz)	Reading (dBμV)	Pol. (H/V)	A (°)	H (cm)	AF (dB/m)	CL (dB)	Amp. (dB)	F/S (dBμV/m)	Limit (dBμV/m)	Margin (dB)
50.17	31.00	V	121	100	19.70	0.69	28.20	23.19	40.00	16.81
51.30	28.60	H	131	100	19.67	0.72	28.20	20.79	40.00	19.21
747.96	29.90	V	111	100	26.76	3.04	28.95	30.75	46.00	15.25
767.69	31.30	H	234	100	26.60	2.89	28.93	31.86	46.00	14.14
926.77	30.30	V	201	120	28.30	3.57	28.65	33.52	46.00	12.48
999.76	30.30	H	352	150	28.40	3.30	28.50	33.50	54.00	20.50

Measurement Uncertainty : See Appendix A

Note: • AF = Antenna Factor
• Pol.(H) = Horizontal
• Margin = Limit – F/S
• A: Angle

• CL = Cable Loss
• Pol.(V) = Vertical
• F/S = Level + AF + CL – Amp.
• H: Height
• F/S = Field Strength
• Amp. = Amplifier Gain

- Above 1 MHz (3 m method)



Measurement Uncertainty: See the Appendix A

Note: • AF = Antenna Factor

• Pol.(H) = Horizontal

• Margin = Limit – F/S

• A: Angle

• CL = Cable Loss

• Pol.(V) = Vertical

• F/S = Level + AF + CL – Amp.

• H: Height

• F/S = Field Strength

• Amp. = Amplifier Gain

Ex) In case

Freq ; 100 MHz, level ; 30 dB(μV/m), AF ; 10 dB/m, CL ; 4 dB, Amp ; 25 dB

Result = Level + AF + CL – Amp

= 30 + 10 + 4 - 25

= 19

Margin = Limit – Result

= 43.5 – 19

= 24.5

Appendix A : Measurement Uncertainty

- Giheung Laboratory

Test Method		Measurement Uncertainty	
Conducted Emission		ENV216	3.5 dB (The confidential level is 95 %, $k=2$)
		ESH2-Z5	3.2 dB (The confidential level is 95 %, $k=2$)
		ESH3-Z6	3.2 dB (The confidential level is 95 %, $k=2$)
		NNLK8129	3.2 dB (The confidential level is 95 %, $k=2$)
Conducted Emission - Signal		ISN T800	5.6 dB (The confidential level is 95 %, $k=2$)
		ISNT8-Cat6	5.4 dB (The confidential level is 95 %, $k=2$)
		ISN S751	5.6 dB (The confidential level is 95 %, $k=2$)
Discontinuous		3.4 dB (The confidential level is 95 %, $k=2$)	
Disturbance Voltage at Antenna Terminal		2.0 dB (The confidential level is 95 %, $k=2$)	
Radiated Emission	9 kHz ~30 MHz (3m chamber)	Horizontal	3.4 dB (The confidential level is 95 %, $k=2$)
		Vertical	3.4 dB (The confidential level is 95 %, $k=2$)
	30 MHz ~ 1 000 MHz (10m chamber)	Horizontal	4.4 dB (The confidential level is 95 %, $k=2$)
		Vertical	4.6 dB (The confidential level is 95 %, $k=2$)
	1 GHz ~ 18 GHz (3m chamber)	Horizontal	4.0 dB (The confidential level is 95 %, $k=2$)
		Vertical	4.0 dB (The confidential level is 95 %, $k=2$)

- Gunpo Laboratory

Test Method		Measurement Uncertainty	
Conducted Emission		ENV216	3.4 dB (The confidential level is 95 %, $k=2$)
		ESH2-Z5	3.2 dB (The confidential level is 95 %, $k=2$)
		ESH3-Z6	3.4 dB (The confidential level is 95 %, $k=2$)
Conducted Emission - Signal		ISN T800	5.6 dB (The confidential level is 95 %, $k=2$)
		ISNT8-Cat6	5.6 dB (The confidential level is 95 %, $k=2$)
		ISN S751	7.3 dB (The confidential level is 95 %, $k=2$)
Disturbance Voltage at Antenna Terminal		2.4 dB (The confidential level is 95 %, $k=2$)	
Radiated Emission	9 kHz ~30 MHz (3 m chamber)	Horizontal	3.3 dB (The confidential level is 95 %, $k=2$)
		Vertical	3.3 dB (The confidential level is 95 %, $k=2$)
	30 MHz ~ 1 000 MHz (3 m chamber)	Horizontal	4.8 dB (The confidential level is 95 %, $k=2$)
		Vertical	5.2 dB (The confidential level is 95 %, $k=2$)
	1 GHz ~ 18 GHz (3 m chamber)	Horizontal	3.9 dB (The confidential level is 95 %, $k=2$)
		Vertical	4.0 dB (The confidential level is 95 %, $k=2$)

- Dongtan Laboratory

Test Method		Measurement Uncertainty	
Conducted Emission	ENV216	3.4 dB (The confidential level is 95 %, $k=2$)	
	ESH2-Z5	3.1 dB (The confidential level is 95 %, $k=2$)	
	ESH3-Z6	3.1 dB (The confidential level is 95 %, $k=2$)	
	NNLK8129	3.1 dB (The confidential level is 95 %, $k=2$)	
Conducted Emission - Signal	ISN T800	5.4 dB (The confidential level is 95 %, $k=2$)	
	ISN ST08	5.4 dB (The confidential level is 95 %, $k=2$)	
	ISN S751	5.6 dB (The confidential level is 95 %, $k=2$)	
Discontinuous		3.1 dB (The confidential level is 95 %, $k=2$)	
disturbance Power		3.0 dB (The confidential level is 95 %, $k=2$)	
Radiated Emission	9 kHz ~30 MHz (Triple Loop Ant)	2.7 dB (The confidential level is 95 %, $k=2$)	
	9 kHz ~30 MHz	Horizontal	3.3 dB (The confidential level is 95 %, $k=2$)
		Vertical	3.3 dB (The confidential level is 95 %, $k=2$)
	30 MHz ~ 1 000 MHz	Horizontal	4.7 dB (The confidential level is 95 %, $k=2$)
		Vertical	4.7 dB (The confidential level is 95 %, $k=2$)
	1 GHz ~ 18 GHz	Horizontal	4.0 dB (The confidential level is 95 %, $k=2$)
		Vertical	4.0 dB (The confidential level is 95 %, $k=2$)

- End of Test Report -