TEST REPORT

Order No.	**: G-45-2015-00597**
Applicant	**: i-SENS, Inc.**
Address	**: 43, Banpo-daero 28-gil, Seocho-gu, Seoul, 137-873, Republic of Korea**
Product	**: Blood Glucose Meter**
Model	**: GM01CAB**
Alt Model Name	**: GM01CAD**
Environment	**: Temp. (21.5 ~ 22.7) ℃, Humidity (28.0 ~ 32.0) %R.H. Atmospheric Pressure (100.5 ~ 100.6) kPa**
Standards	**: FCC Part 15 Subpart B FCC Part 18**
Date of Receipt	**: February 26, 2015**
Date of Test	**: March 30, 2015 ~ March 31, 2015**
Date of Issue	**: April 06, 2015**
Test Result	**: Compliance**
Use of report	**: Validation**

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
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Affirmation	Tested by Name : Jinho Seo (Signature)	Technical Manager Name : Paul Kang (Signature)

The above test report is the accredited test results by Korea Laboratory Accreditation Scheme, which signed the ILAC-MRA

Accredited by KOLAS Republic of KOREA

SGS Korea Co., Ltd. Gunpo Laboratory

4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, 435-040 Korea

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1. General Information

1.1 Client Information

Applicant : i-SENS, Inc.
Address of Applicant : 43, Banpo-daero 28-gil, Seocho-gu, Seoul, 137-873, Republic of Korea

Manufacturer : i-SENS, Inc.
Address of Manufacturer : 43, Banpo-daero 28-gil, Seocho-gu, Seoul, 137-873, Republic of Korea

1.2 Test Laboratory

Name and Address : SGS Korea Co., Ltd.
Giheung 1 Laboratory : 35, Giheungdanji-ro 121beon-gil, Giheung-gu, Yongin-si, Gyeonggi-do, Republic of Korea
Giheung 2 Laboratory : 23, Giheungdanji-ro 24beon-gil, Giheung-gu,Yongin-si,Gyeonggi-do, Republic of Korea
Gunpo Laboratory : 4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, 435-040 Republic of Korea
Phone : + 82 31 428 5700
Fax : + 82 31 427 2370
e-mail : paul.kang@sgs.com

1.3 General Information of E.U.T.

Product Name	Blood Glucose Meter
Model Name	GM01CAB
Alt Model Name	GM01CAD
Model different	Model name is different in market
FCC ID	OELGM01CAB
Serial No.	B2C800C00012
H/W Version	V1.0.6
S/W Version	V64.52.3
EMI Classification	Class B
Internal Highest Frequency	20 ㎒
Test Voltage	120 V 60 ㎐

1.4 Operating Modes and Conditions

Operating mode	Operating condition
USB Data communication	USB Data communication with notebook computer.
Blood glucose measurement	Blood glucose measurement status.

1.5 Auxiliary Equipments

Description	Model	Serial No.	Manufacturer
Notebook Computer	LGE-DMLGX14(B)	008QTEQ024836	LG Electronics Co., Ltd.
LCD Monitor	S2740Lb	CN-DP7D0G-74261-352-05CL	DELL Inc.
USB Keyboard	WK590	HDJ2011000000	WINTEK
USB MOUSE	M-U0026	810-002147	Logitech
Wireless Router	WG602v4	-	NETGEAR

Note: Auxiliary equipments are declared according to FCC procedure.

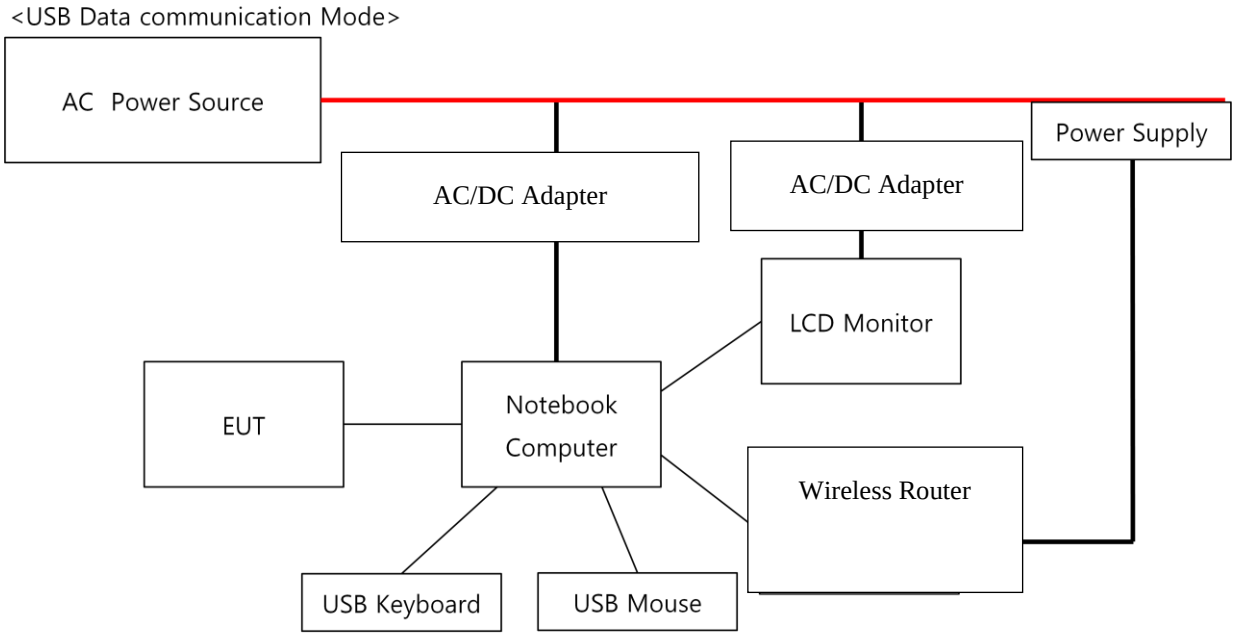
1.6 Cable List

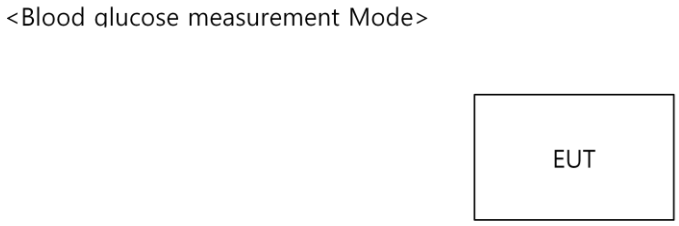
Start		END		Cable Spec.		
Name	I/O Port	Name	I/O Port	Length	Shield	Core
USB Data communication Mode						
EUT	USB	Notebook Computer	USB	0.5	Shield	-
Notebook Computer	USB	USB Keyboard	-	1.2	Unshield	-
	USB	USB Mouse	-	1.2	Unshield	-
	RGB	LCD Monitor	RGB	1.0	Unshield	-
	LAN	Wireless Router	LAN	1.5	Unshield	-
	DC IN	AC/DC Adapter	DC OUT	1.5	Unshield	-
AC/DC Adapter	AC IN	AC Source	-	1.2	Unshield	-
LCD MonItor	DC IN	AC/DC Adapter	DC OUT	1.0	Unshield	-
AC/DC Adapter	AC IN	AC Source	-	1.5	Unshield	-
Wireless Router	DC IN	Power supply	DC OUT	1.0	Unshield	-
Power supply	AC IN	AC Source	-	-	-	-
Blood glucose measurement Mode						
EUT	-	-	-	-	-	-

1.7 System Configurations

Description	Model	Serial No.	Manufacturer
Main Board	RGA2E0620-V2.0.0	141216	-
Display	-	-	-
Inner Battery	JHY403048 2.146Wh 580mAh3.7V	B2C800C00012	-

1.8 Test System Layout





1.9 Modifications

There was no modified item during the test.

1.10 Applicable Standards for Testing

Standards	Status	Deviation
FCC Part 15 Subpart B FCC Part 18	Applicable	No Deviation

1.11 Summary of Test Results

Test Item	Basic Standards	Results
Conducted Emission	FCC Part 15 Subpart B, FCC Part 18 ANSI C63.4 : 2009, MD-5:1986	Complied
Radiated Emission	FCC Part 15 Subpart B, FCC Part 18 ANSI C63.4 : 2009, MD-5:1986	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	Basic Standards	Test Results
Conducted Emission	FCC Part 15 Subpart B, FCC Part 18 ANSI C63.4 : 2009, MD-5:1986	**Complied**
Radiated Emission	FCC Part 15 Subpart B, FCC Part 18 ANSI C63.4 : 2009, MD-5:1986	**Complied**

2.2 Test Method and Limits

2.2.1 Test Method

Test Items	Measuring Frequency Range	RBW	Measuring Distance
Conducted Emission	0.15 ㎒ ~ 30 ㎒	9 ㎑	-
Radiated Emission	9 ㎑ ~ 0.15 ㎒	200 ㎐	3 ㎧
	0.15 ㎒ ~ 30 ㎒	9 ㎑	3 ㎧
	30 ㎒ ~ 1 ㎓	120 ㎑	10 ㎧ & 3 ㎧
	Above 1 ㎓	9 ㎑	3 ㎧

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

2.2.2 Test Limits

-Conducted Emission Limits

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

-Radiated Emission Limits in part 18

Frequency Range	Limits(dB(㎶/m)) Average	Class
9 ㎑ 400 ㎒	63.5	**Miscellaneous device**

-Radiated Emission Limits below 1 ㎓ in part 15

Frequency Range	Limits(dB(㎶/m))	Class
	Quasi-peak	
30 ㎒ ~ 88 ㎒	39.1	**Class A**
88 ㎒ ~ 216 ㎒	43.5	
216 ㎒ ~ 960 ㎒	46.4	
960 ㎒ ~ 1 ㎓	49.5	
30 ㎒ ~ 88 ㎒	40	**Class B**
88 ㎒ ~ 216 ㎒	43.5	
216 ㎒ ~ 960 ㎒	46	
960 ㎒ ~ 1 ㎓	54	

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

Frequency Range	Limits(dB(㎶/m))		Class
	Average	Peak	
Above 1 ㎓	59.5	79.5	**Class A**
Above 1 ㎓	54	74	**Class B**

2.3 Conducted Emission

The initial preliminary exploratory scans were performed over the measuring frequency range(0.15 ㎒ to 30 ㎒) using a max hold mode incorporating a Peak detector and Average detector and using the software of EMC32(Version 8.50.0 from R&S). The final test data was measured using a Quasi-Peak detector and Average detector.

2.3.1 Test Equipments

Description	Model No.	Manufacturer	S/N	Last Cal. Date
Two-Line V-Network	ENV216	R & S	100190	2014.12.25
Artificial Mains Networks	ESH2-Z5	R & S	100280	2014.04.04
Test Receiver	ESCI 7	R & S	100911	2014.01.07

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

2.3.2 Test Site

Shield Room in Gunpo Laboratory

2.3.3 Environment Conditions

Temperature : 22.4 ℃ ~ 22.7 ℃

Humidity : 31.0 %R.H. ~ 32.0 %R.H.

Atmospheric Pressure : 100.5 ㎪

Test Date : March 30, 2015

USB Data Communication Mode

Freq.	Line	Level (dBμV)		CL	LISN	Result (dBμV)		Limit (dBμV)		Margin (dB)	
(㎒)	(H/N)	Q/P	A/V	(dB)	(dB)	Q/P	A/V	Q/P	A/V	Q/P	A/V
0.19	N	42.0	25.9	0.0	9.7	51.7	35.6	63.9	53.9	12.2	18.3
0.20	H	43.0	24.4	0.0	9.6	52.6	34.0	63.6	53.6	11.0	19.6
0.26	H	32.7	15.4	0.0	9.6	42.3	25.0	61.4	51.4	19.1	26.4
0.33	H	25.6	10.1	0.0	9.6	35.2	19.7	59.5	49.5	24.3	29.8
11.08	N	19.8	13.2	0.1	9.8	29.7	23.1	60.0	50.0	30.3	26.9
24.09	N	19.5	12.1	0.2	9.9	29.7	22.3	60.0	50.0	30.3	27.7

Measurement Uncertainty : ± 3.21 ㏈ (The confidential level is about 95%, *k*=2)

Note :
- Line (H) : Hot
- Line (N) : Neutral
- CL: Cable Loss
- LISN : LISN Factor
- Result = Level + CL + LISN
- Margin = Limit – Result

See Appendix A (Conducted Emission)

2.4 Radiated Emission

The initial preliminary exploratory scans were performed at 3 ㎜ distance over the measuring frequency range(9 ㎑ to 1 ㎓) using a max hold mode incorporating a Peak detector and using the software of EP5RE(Version Ver3.10.20 from TOYO). The final test data was measured using a Quasi-Peak detector at 1 ㎓ at 3 ㎜ distance. at USB Communication mode and Average detector at Blood glucose measurement Mode. 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.

2.4.1 Test Equipments

Description	Model No.	Manufacturer	S/N	Last Cal. Date
Bilog Antenna	VULB9163	SCHWARZBECK MESS-ELEKTRONIK	396	2014.06.16
Test Receiver	ESU26	R & S	100109	2014.06.16
Amplifier	8447F	HP	2944A03909	2014.08.27
Active Loop Antenna	FMZB1519	SCHWARZBECK	1519-039	2013.07.09

Note : Only the calibration period of Antennas is 2 years but the 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

Temperature : 21.5 ℃ ~ 21.9 ℃
Humidity : 28.0 %R.H. ~ 31.0 %R.H.
Atmospheric Pressure : 100.6 ㎪

Test Date : March 31, 2015

Blood Glucose measurement Mode

Freq. (㎒)	Level (dBμV)	Pol. (H/V)	A (°)	H (cm)	AF (dB)	CL (dB)	F/S (dBμV/m)	Limit (dBμV/m)	Margin (dB)
9kHz~150kHz									
0.01	27.4	H	172	200	20.4	0.1	47.9	63.5	15.6
0.02	30.0	H	172	200	20.4	0.1	50.4	63.5	13.1
0.03	36.9	V	148	200	20.3	0.1	57.2	63.5	6.3
0.04	26.2	H	105	200	20.2	0.1	46.5	63.5	17.0
0.05	24.2	V	170	200	20.1	0.1	44.4	63.5	19.1
0.09	29.1	H	172	200	20.0	0.1	49.2	63.5	14.3
150kHz~30MHz									
0.19	22.1	H	176	200	20.0	0.1	42.2	63.5	21.3
0.24	20.8	V	340	200	20.0	0.1	40.9	63.5	22.6
0.57	21.2	H	20	200	20.2	0.1	41.5	63.5	22.0
5.03	19.6	V	223	200	20.2	0.3	40.0	63.5	23.5

Measurement Uncertainty (Horizontal) : ± 3.59 ㏈ (The confidential level is about 95%, *k* =2)
Measurement Uncertainty (Vertical) : ± 3.59 ㏈ (The confidential level is about 95%, *k*=2)

Note:
- AF = Antenna Factor
- CL = Cable Loss
- F/S = Field Strength
- Pol.(H) = Horizontal
- Pol.(V) = Vertical
- Amp. = Amplifier Gain
- Margin = Limit – F/S
- F/S = Level + AF + CL – Amp.
- A : Angle
- H : Height

Blood Glucose measurement Mode

Freq. (MHz)	Level (dBμV)	Pol. (H/V)	A (°)	H (cm)	AF (dB)	CL (dB)	Amp. (dB)	F/S (dBμV/m)	Limit (dBμV/m)	Margin (dB)
41.10	32.6	H	65	400	14.3	0.9	27.7	20.1	63.5	43.4
58.27	33.1	V	133	100	12.9	1.0	27.8	19.1	63.5	44.4
93.13	33.8	V	231	100	10.5	1.3	27.8	17.8	63.5	45.7
100.33	32.4	H	111	400	11.2	1.3	27.6	17.4	63.5	46.1
370.55	33.2	V	26	100	15.8	2.5	27.0	24.6	63.5	38.9
397.70	32.6	H	80	200	16.4	2.6	26.7	24.9	63.5	38.6

USB Data Communication Mode

Freq. (MHz)	Level (dBμV)	Pol. (H/V)	A (°)	H (cm)	AF (dB)	CL (dB)	Amp. (dB)	F/S (dBμV/m)	Limit (dBμV/m)	Margin (dB)
48.07	47.8	V	99	100	14.1	0.9	27.6	35.2	40.0	4.8
65.85	50.4	H	231	400	10.1	1.0	27.8	33.7	40.0	6.3
66.17	51.9	V	172	400	9.9	1.0	27.8	35.0	40.0	5.0
143.89	55.1	V	240	100	8.2	1.5	27.2	37.6	43.5	5.9
155.98	54.2	V	103	200	8.2	1.6	27.5	36.5	43.5	7.0
384.33	36.2	H	89	100	16.1	2.6	26.9	28.0	46.0	18.0

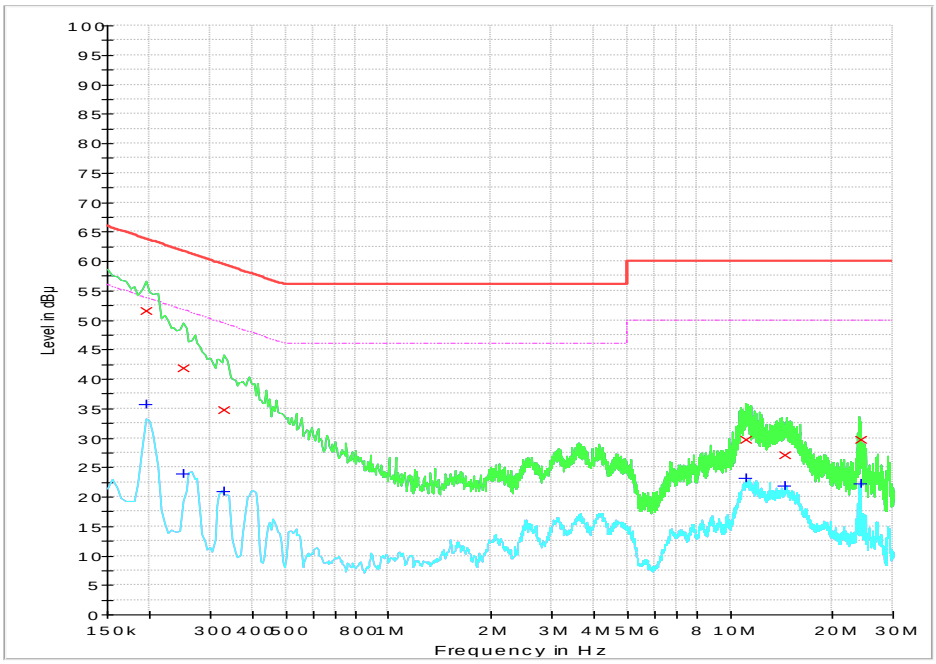
Measurement Uncertainty (Horizontal) : ± 5.31 dB (The confidential level is about 95%, *k*=2)
Measurement Uncertainty (Vertical) : ± 5.71 dB (The confidential level is about 95%, *k*=2)

Note:
- AF = Antenna Factor
- CL = Cable Loss
- F/S = Field Strength
- Pol.(H) = Horizontal
- Pol.(V) = Vertical
- Amp. = Amplifier Gain
- Margin = Limit – F/S
- F/S = Level + AF + CL – Amp.
- A : Angle
- H : Height

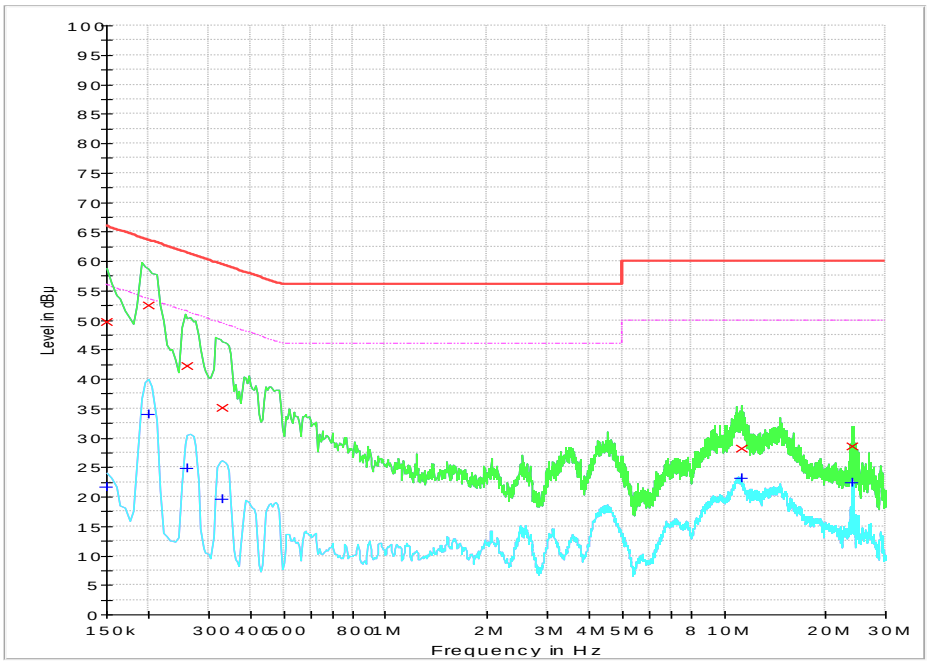
See Appendix B (Radiated Emission)

Appendix A: Conducted Emission

Neutral



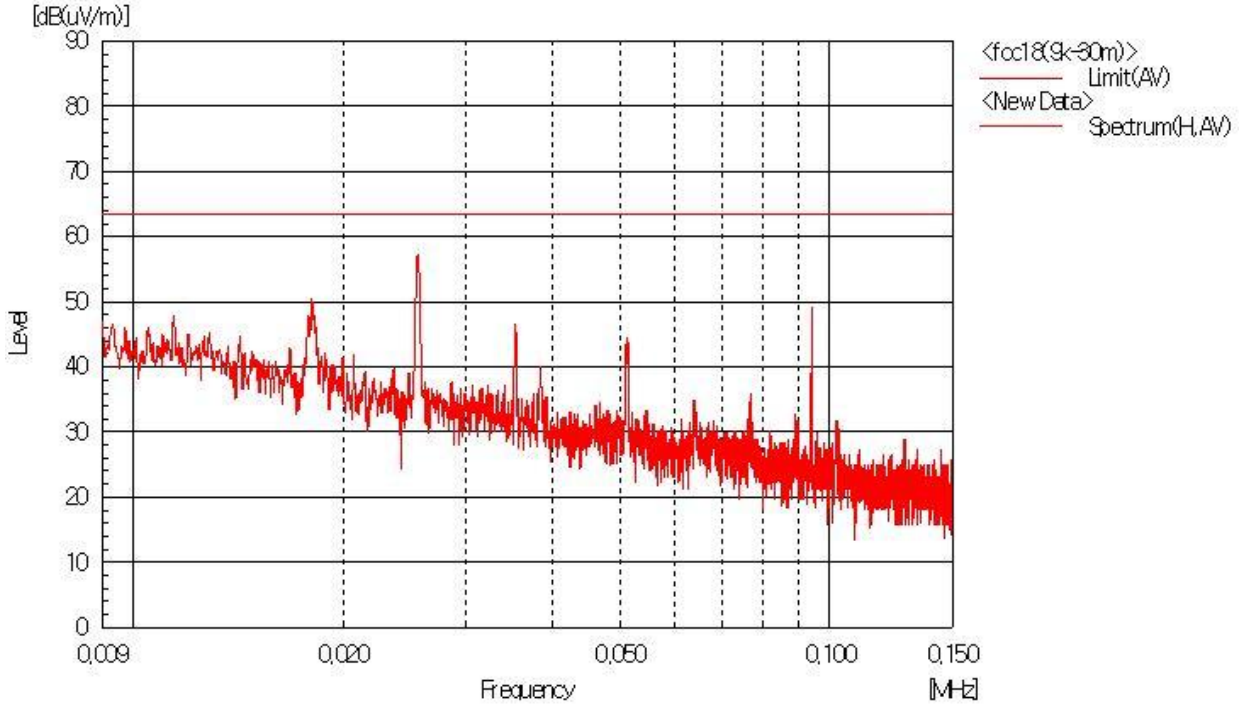
Hot



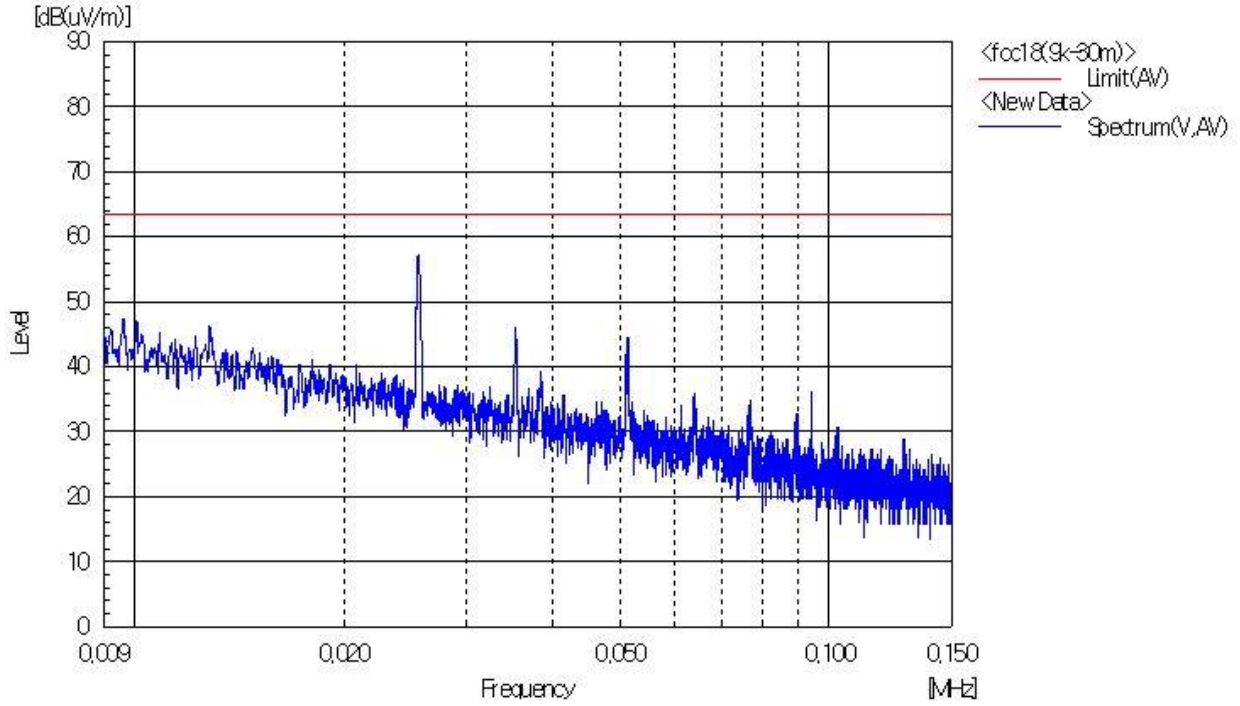
Appendix B: Radiated Emission (3 m Scan Data)

Blood Glucose measurement Mode

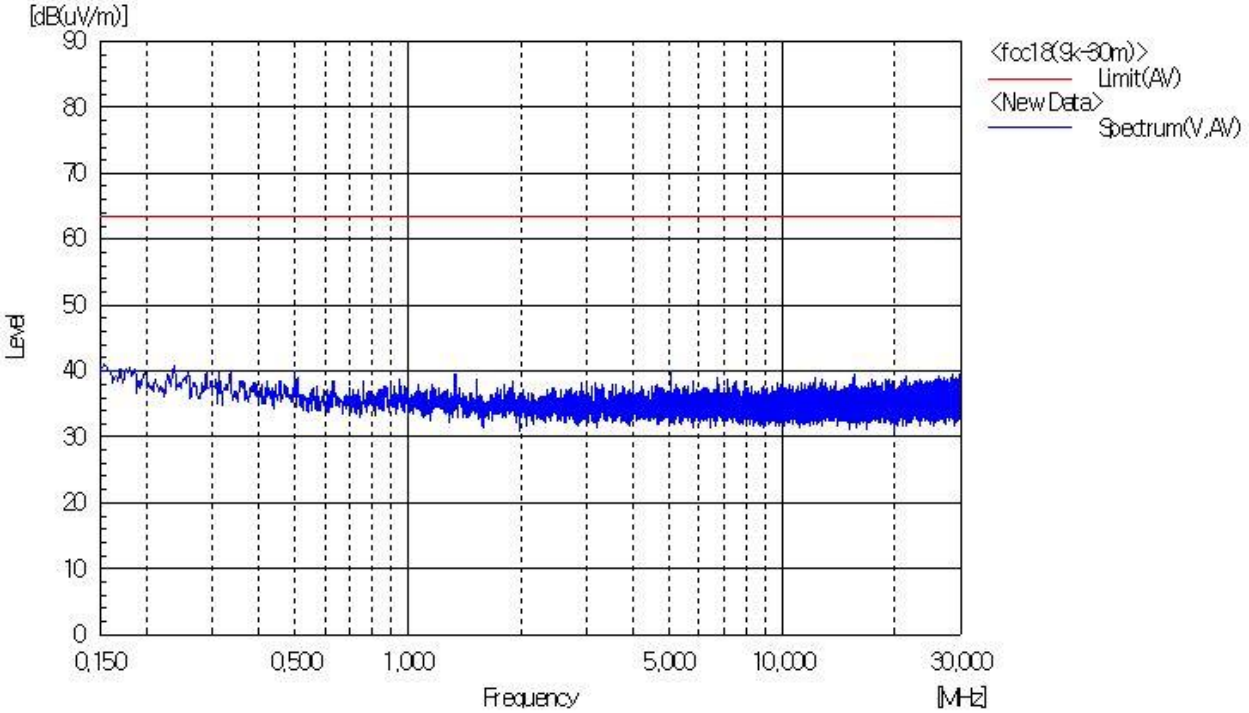
Horizontal (9kHz ~ 150MHz)



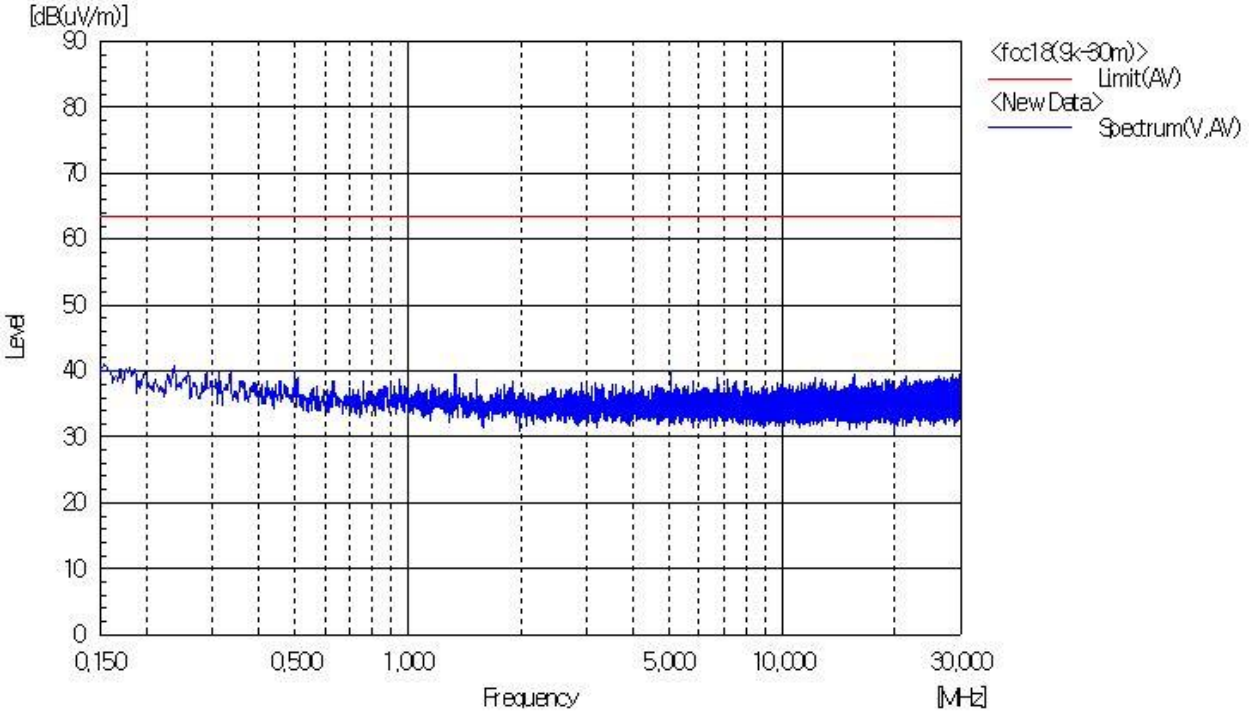
Vertical(9kHz ~ 150MHz)



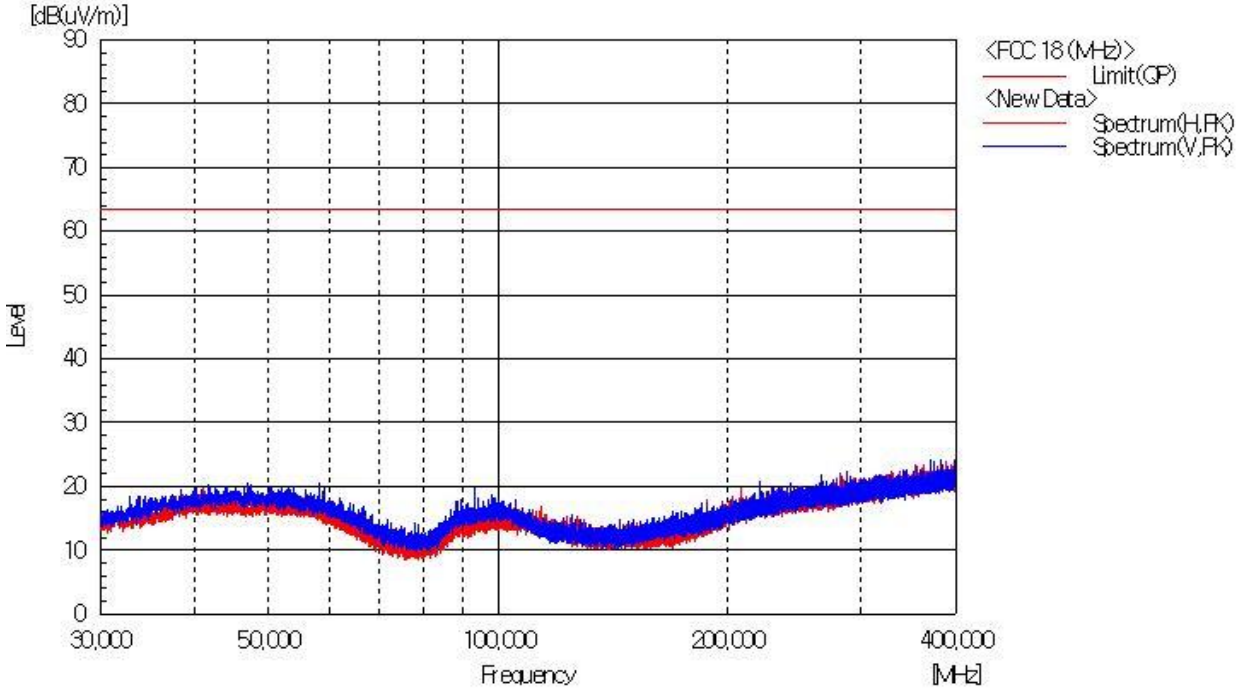
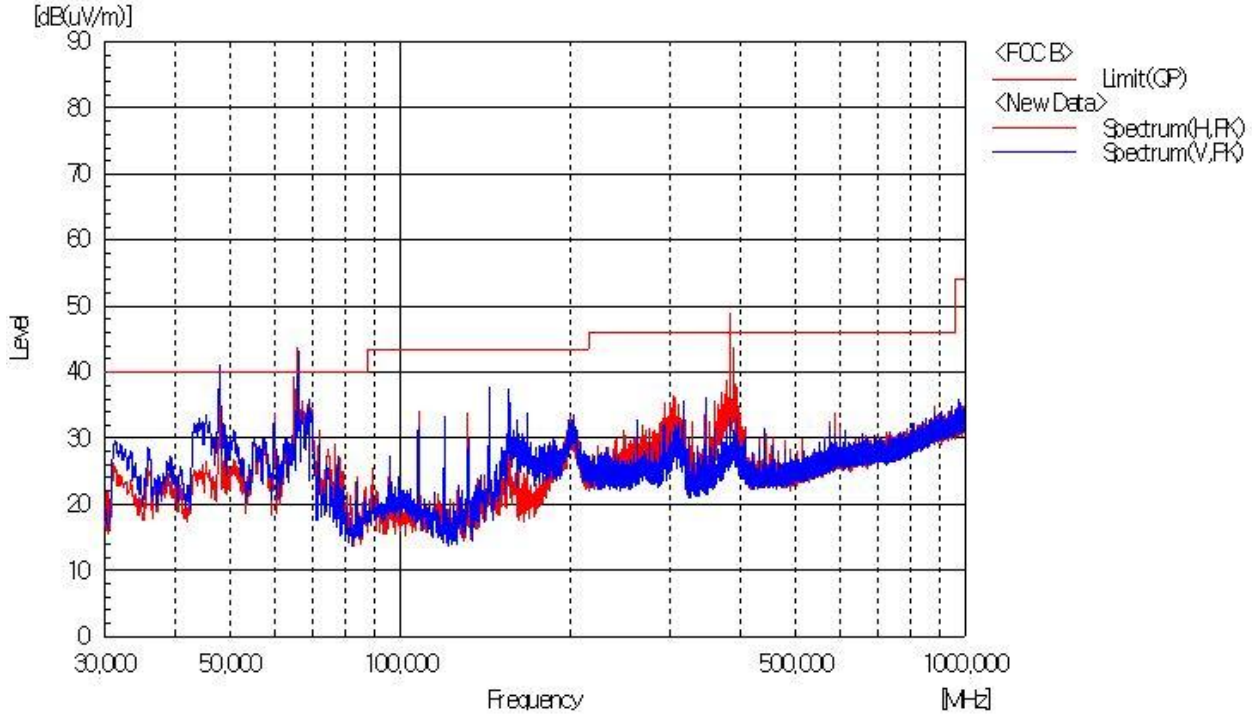
Horizontal (150kHz ~ 30MHz)



Vertical(150kHz ~ 30MHz)



Blood Glucose measurement Mode



USB Data Communication Mode