Estech Co., Ltd.
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Test Report for CE

Report Number	**ESTCE1508-001**			
Applicant	Company Name	Suprema Inc.		
	Address	16F Parkview Tower, Jeongja-dong, Bundang-gu, Seongnam, Gyeonggi, 463-863 Korea		
	Contact Person	Sun Bong Kang		
	Factory address	16F Parkview Tower, Jeongja-dong, Bundang-gu, Seongnam, Gyeonggi, 463-863 Korea		
Product	Product type	Scanner (BioMini Combo Dual(S20))		
	Model No.	BioMini Combo Dual(S20)	Manufacturer	Suprema Inc.
	Serial No.	NONE	Country of origin	KOREA
Other	Receipt Date	3-Aug-15	Receipt Number	ESTC-15-01568
	Issued Date	28-Aug-15	Tested Date	10-Aug-15 ~ 21-Aug-15
Test Result	Complied			
Standard	EMI Standard		EMS Standard	
	EN 55022:2010+AC:2011 Class B		EN 55024:2010 EN 61000-4-2:2009 EN 61000-4-3:2006+A1:2008+A2:2010 EN 61000-4-4:2012 EN 61000-4-5:2006 EN 61000-4-6:2009 EN 61000-4-11:2004	
Tested by	K.H. Chung / Senior Engineer (Signature)			
Approved by	J.M. Yang / Engineering Manager (Signature)			

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* Note

o This is certified that the above mentioned products have been tested for the sample provided by client.

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1. Laboratory Information

1.1 General

This EUT (Equipment Under Test) has been shown to be capable of compliance with the applicable technical standards and tested in accordance with the measurement procedures as indicated in this report ESTECH Lab attests to accuracy of test data. All measurement reported herein were performed by ESTECH Co., Ltd.
ESTECH Lab. assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

1.2 Test lab.

Corporation Name : ESTECH Co., Ltd.

Head Office : Suite 1015 World Meridian II, 123 Gasan Digital 2-ro,
Geumcheon-gu, Seoul 153-759, R. O. Korea

EMC Test Lab. : 347-69, Jungbu-daero 147beon-gil, Majang-myeon, Icheon-si,
Gyeonggi-do 467-811, R. O. Korea

1.3 Registration Information

Our Test lab has worked test lab system by ISO/IEC 17025:2005 and was registered the follows certification body

MSIP : Granted Accreditation from Ministry of Information & Communication for EMC, Safety and Telecommunication

KOLAS : Accredited Lab By Korea Laboratory Accreditation Schema base on CENELEC requirements

EK : Granted Accreditation from Ministry of commerce, Industry & Energy for Safety

FCC : Conformity Assessment Body(CAB) with registration number 659627 under APEC TEL MRA between the RRA and the FCC.

VCCI : Granted Accreditation from Voluntary Control Council for Interference from ITE

2. Description of EUT

2.1 Summary of Equipment Under Test

¨ EUT Name : Scanner (BioMini Combo Dual(S20))

¨ Model Number : BioMini Combo Dual(S20)

¨ Serial Number : NONE

¨ Manufacturer : Suprema Inc.

¨ Power Rating : Via USB Port(DC 5 V, 420 mA MAX)

¨ X-tal list : USB(2.0 / 480 Mbps), RFID 13.56 MHz

2.2 General descriptions of EUT

Fingerprint Sensor	Optical
Resolution	500 dpi, 256 gray
Platen Size	18.0mmx25.4mm(0.71"x1.0")
Sensing Area	17.0mmx25.0mm(0.67"x0.99")
Image Size	320x480 pixels
Interface	USB2.0 High Speed
Operating System	MS Windows/ Linux(32/64bit)
Operating Temp./Humidity	-10℃~50℃ / 0~90%
Weight	0.40 kg
Certificates	CE, FCC, KCC, UL or CB, WHQL, USB-IF, WEEE
Smart Card Reader	ISO7816 Class A/B/C (5V, 3.0V, 1.8V) T=0 , T=1 EMV2000 contact smart card with SAM slot(optional, max 2x SAM) Interface: USB2.0 CCID , PC/SC driver
Contactless Smart Card Reader	**ISO/IEC 14443 A&B, Mifare, FeliCa** **NFC Forum tag types (Jewel, Mifare Ultralight, FeliCa, FeliCa lite, Mifare Desifare)** **EMV2000 contactless smart card** **Frequency: 13.56 MHz +- 7KHz** **Distanace transaction: Up to 10cm** **Baud: 106/212/424/848 kbit/s** **Interface: USB2.0 CCID, PC/SC driver**
Dimension(WxLxH)	95.7mmx114.8mmx52.6mm

3. Measurement Condition

3.1 EUT Operation.

- The EUT was in the following operation mode during all testing.
1. Connect the EUT to USB port of the Note PC.
2. Install the provided test program by the manufacturer.
3. Execute the test program and check the operating status of the EUT.
   > Check fingerprint detection and display on the note pc continuously.

3.2 Cable Connecting

Start Equipment		End Equipment		Cable		Remark
Name	**I/O port**	**Name**	**I/O port**	**Length**	**Shielded**	
Scanner (BioMini Combo Dual(S20))	USB	Notebook Computer	USB	1.0	Shielded	
Scanner (BioMini Combo Dual(S20))	13.56 MHz	RFID CARD	13.56 MHz	-	-	
Notebook Computer	Power	Adapter	-	1.8	Shielded	

3.3 EUT Configurations

Equipment Name	Model Name	S/N	Manufacturer	Remark (CE ID)
Scanner (BioMini Combo Dual(S20))	BioMini Combo Dual(S20)	NONE	Suprema Inc.	**E.U.T**
Notebook Computer	P30G	NONE	Dell Inc.	
Adapter	AA90PM111	NONE	Acbel Electronic (Dong Guan) Co., Ltd.	
RFID CARD	NONE	NONE	Suprema Inc.	

4. Electromagnetic Interference Test

4.1 Measurement of radiated emission (Below 1 GHz)

In the range 30 MHz to 1 GHz Eelectric Field strength was measured in accordance with EN 55022:2010+AC:2011 Class B .The test setup was made according to EN 55022:2010+AC:2011 Class B on an 10 m Semi-Anechoic Chamber, which allows a 10 m distance measurement. The height of this table was 0.8 m. The measurement was conducted with both horizontal and vertical antenna polarization. The turntable has fully rotated. For further description of the configuration refer to the picture of the test setup.

4.1.1 Measurement equipments

Equipment Name	Type	Manufacturer	Serial No.	Next Calibration date
TEST Receiver	ESCI7	ROHDE & SCHWARZ	100916	13-Jan-16
Logbicon Antenna	VULB 9168	SCHWARZBECK	237	4-Mar-16
Turn Table	DT3000-2t	Innco System GmbH	N/A	-
Antenna Mast	MA4000-EP	Innco System GmbH	N/A	-
Antenna Master & Turn table controller	CO2000-P	Innco System GmbH	CO2000/641 /28051111/L	-

4.1.2 Environmental conditions

Section	Temperature (°C)	Humidity (% R.H.)
Radiated emission	21.9	56.7
Test Place	10 m Semi-Anechoic Chamber	

4.1.3 Test data

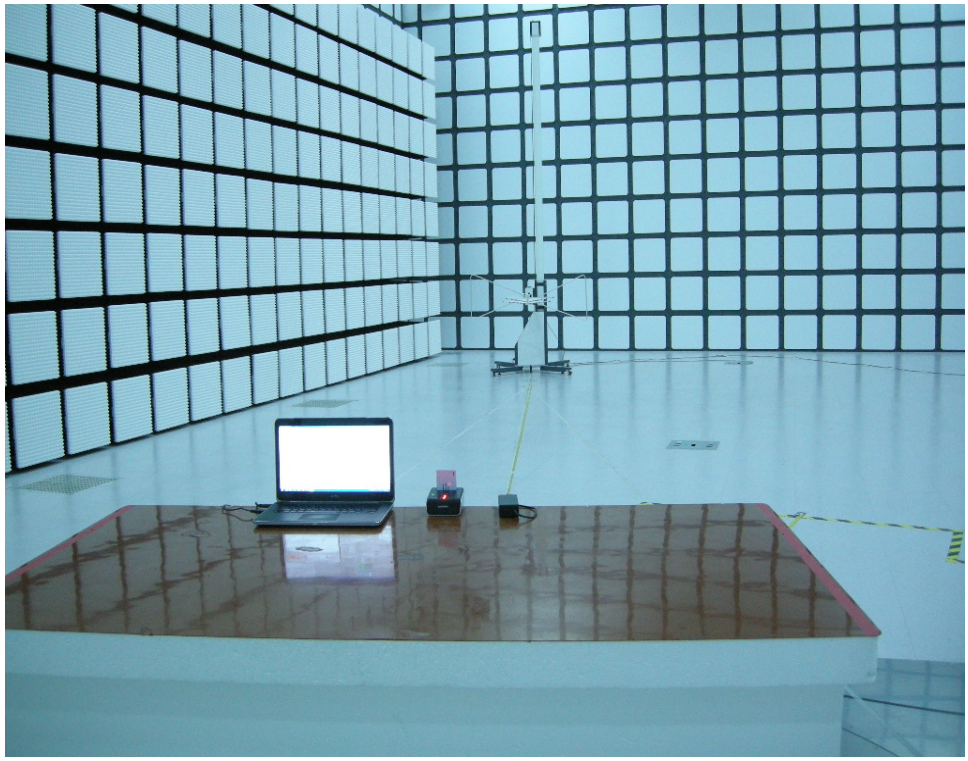
Test Date : 10-Aug-15

Frequency [MHz]	Reading [dBuV]	Position [V/H]	Height [m]	Correction Factor		Result Value [dBuV/m]		Margin [dB]
				Antenna [dB/m]	Cable etc. [dB]	Limit	Result	
35.60	15.10	V	1.0	10.60	1.06	30.0	26.76	3.24
47.50	12.51	V	1.0	12.21	1.21	30.0	25.92	4.08
59.40	12.32	V	1.0	12.34	1.34	30.0	26.01	3.99
239.90	13.33	H	4.0	11.18	2.64	37.0	27.15	9.85
270.00	15.70	H	3.7	12.40	2.80	37.0	30.90	6.1
293.10	16.09	H	3.7	13.21	2.92	37.0	32.21	4.8
299.30	12.39	V	1.2	13.43	2.95	37.0	28.76	8.24
320.30	14.49	H	2.7	13.94	3.04	37.0	31.47	5.53
330.10	15.67	H	2.6	14.17	3.09	37.0	32.93	4.07
422.60	8.39	V	1.1	16.33	3.49	37.0	28.21	8.79

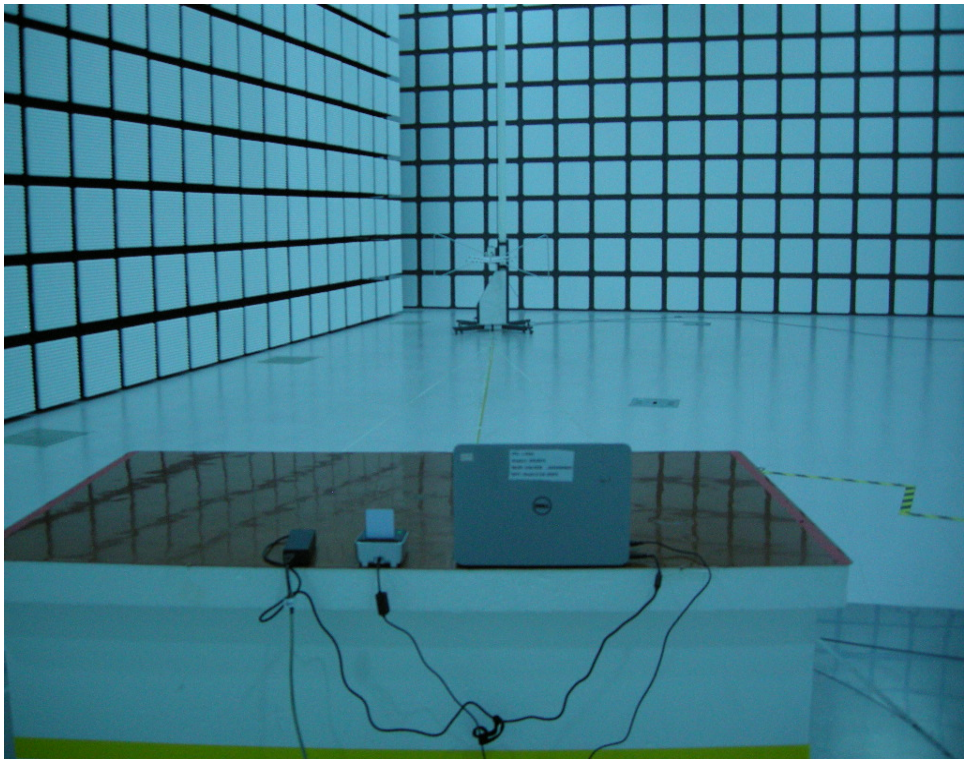
Remark	H : Horizontal, V : Vertical Result Value = Reading + Antenna + Cable loss *The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection.

◆ Setup for Radiated Test

[Front]



[Rear]



4.2 Measurement of radiated emission(Above 1 GHz)

Above 1 GHz the radiated emission was measured in accordance with EN 55022:2010+AC:2011 Class B .The test setup was made according to EN 55022:2010+AC:2011 Class B on an 3 m Semi-Anechoic Chamber, which allows a 3 m distance measurement. The height of this table was 0.8 m. The measurement was conducted with both horizontal and vertical antenna polarization. The turntable has fully rotated. For further description of the configuration refer to the picture of the test setup.

4.2.1 Measurement equipments

Equipment Name	Type	Manufacturer	Serial No.	Next Calibration date
Antenna Mast	MA4000-EP	inn-co GmbH	N/A	N/A
Antenna Master & Turn table controller	CO2000-P	inn-co GmbH	CO2000/642 /28051111/L	N/A
Turn Table	DT1500-S	inn-co GmbH	N/A	N/A
Horn Antenna	BBHA9120D	SCHWARZBECK	352	7-May-16
PREAMPLIFIER	8449B	AGILENT	3008A00595	13-Jan-16
Test Receiver	ESPI7	Rohde & Schwarz	100185	13-Jan-16

4.2.2 Environmental conditions

Section	Temperature (°C)	Humidity (% R.H.)
Radiated emission	22.2	54.8
Test Place	3 m Semi-Anechoic Chamber	

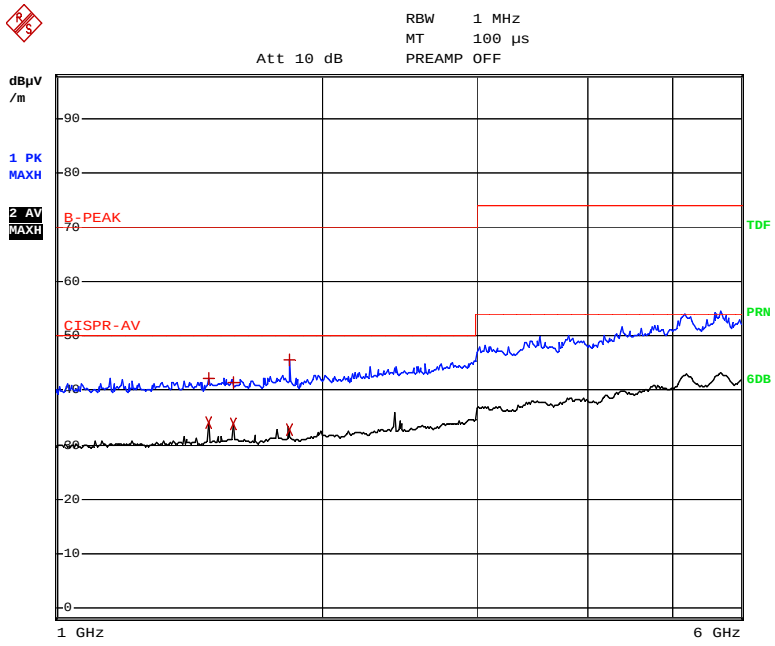
4.2.3 Test data

Test Date : 21-Aug-15

Frequency [MHz]	Reading [dBuV]	Position [V/H]	Height [m]	Correction Factor		Result Value [dBuV/m]		Margin [dB]
				Antenna [dB/m]	Cable etc. [dB]	Limit	Result	
Peak								
1488.00	47.15	H	1.1	25.62	-30.46	70.0	42.31	27.69
1488.00	46.60	V	1.0	25.62	-30.46	70.0	41.76	28.24
1584.00	45.78	H	1.0	25.71	-30.09	70.0	41.40	28.60
1584.00	45.76	V	1.1	25.71	-30.09	70.0	41.38	28.62
1840.00	49.27	H	1.0	25.96	-29.54	70.0	45.69	24.31
1840.00	45.73	V	1.0	25.96	-29.54	70.0	42.15	27.85
Cispr Average								
1488.00	38.89	H	1.1	25.62	-30.46	50.0	34.05	15.95
1488.00	36.65	V	1.0	25.62	-30.46	50.0	31.81	18.19
1584.00	38.19	H	1.0	25.71	-30.09	50.0	33.81	16.19
1584.00	36.10	V	1.1	25.71	-30.09	50.0	31.72	18.28
1840.00	36.34	H	1.0	25.96	-29.54	50.0	32.76	17.24
1840.00	38.21	V	1.0	25.96	-29.54	50.0	34.63	15.37
Remark	H : Horizontal, V : Vertical *Reading = receiver reading + Amplifier Gain *CL = Cable Loss-Amplifier Gain							

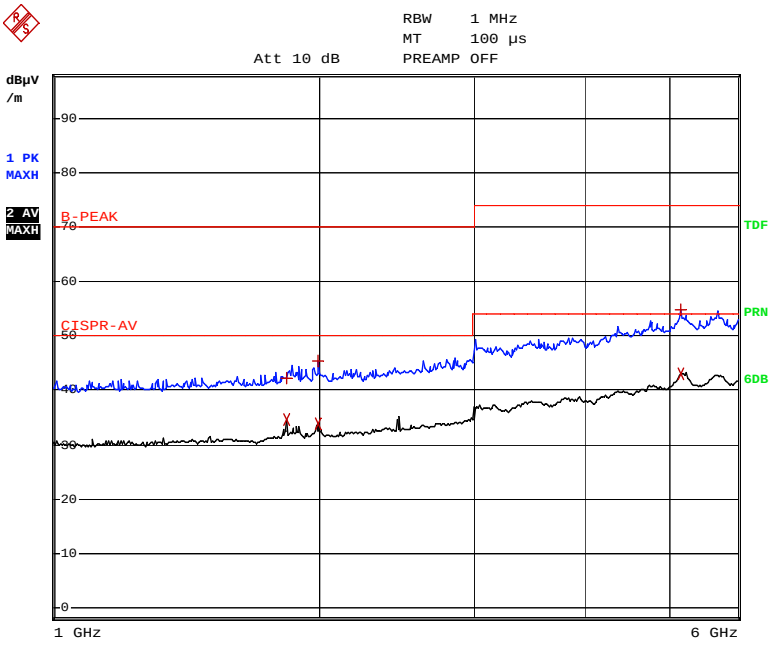
4.2.4 Test data graph

Horizontal (1 GHz to 6 GHz)



Comment: S20_HOR
Date: 21.AUG.2015 16:48:01

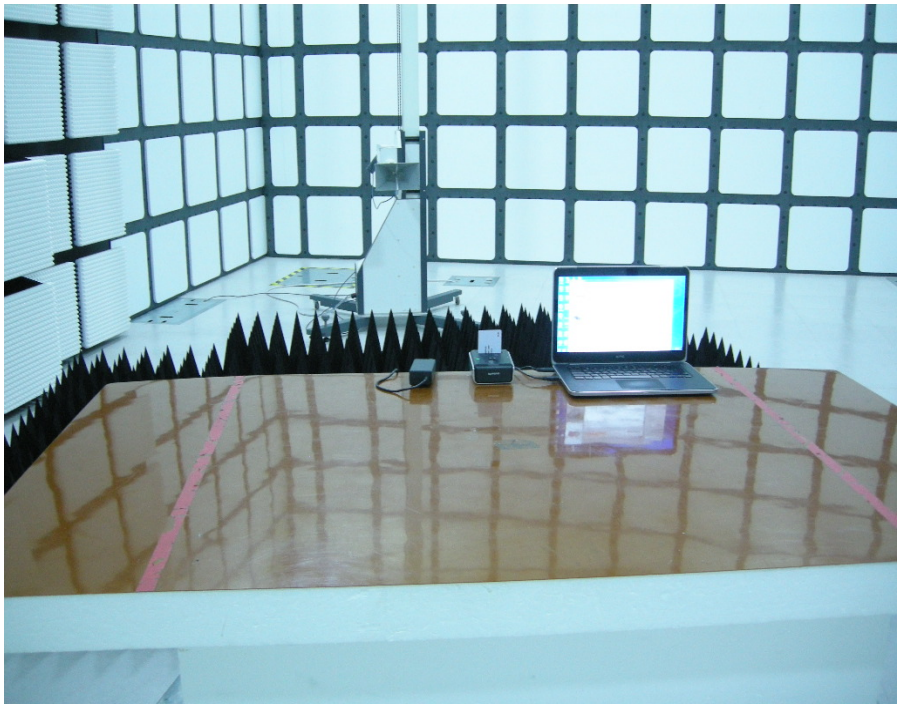
Vertical (1 GHz to 6 GHz)



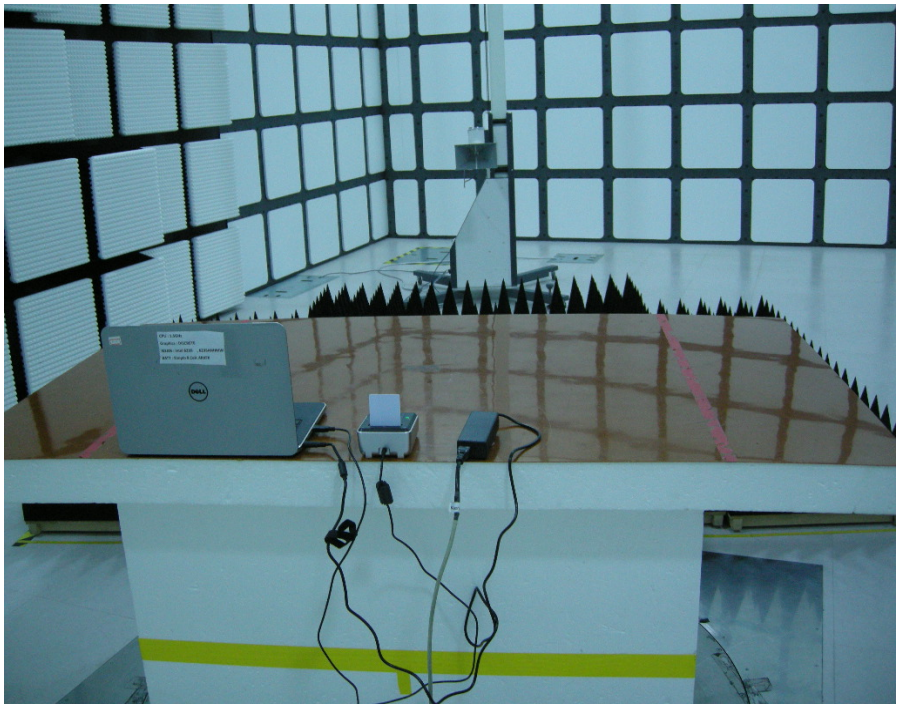
Comment: S20_VER
Date: 21.AUG.2015 16:53:05

◆ Setup for Radiated Test

[Front]



[Rear]



4.3 Conducted emission test

The continuous disturbance voltage of AC Mains was measured in accordance to EN 55022:2010+AC:2011 Class B. The test setup was made according to EN 55022:2010+AC:2011 Class B in a shielded Room. The EUT was placed on a non-conductive table at least 0.8 m above the ground plane. A grounded vertical reference plane was positioned in a distance of 0.4 m from the EUT. The distance from the EUT to other metal surfaces was at least 0.8 m. The EUT was only earthen by its power cord through the line impedance stabilizing network. The power cord has been bundled to a length of 1.0 m. The test receiver with Quasi peak detector.

4.3.1 Measurement equipments

Equipment Name	Type	Manufacturer	Serial No.	Next Calibration date
Pulse Limiter	ESH3-Z2	ROHDE & SCHWARZ	NONE	13-Jan-16
TEST Receiver	ESPI	ROHDE & SCHWARZ	100005	13-Jan-16
LISN	ESH2-Z5	POLARAD	872461/048	14-Jan-16
LISN	ESH3-Z5	ROHDE & SCHWARZ	836679/025	13-Jan-16

4.3.2 Environmental conditions

Section	Temperature (°C)	Humidity (% R.H.)
Conducted emission	23.1	41.9
Test Place	Shielded Room	

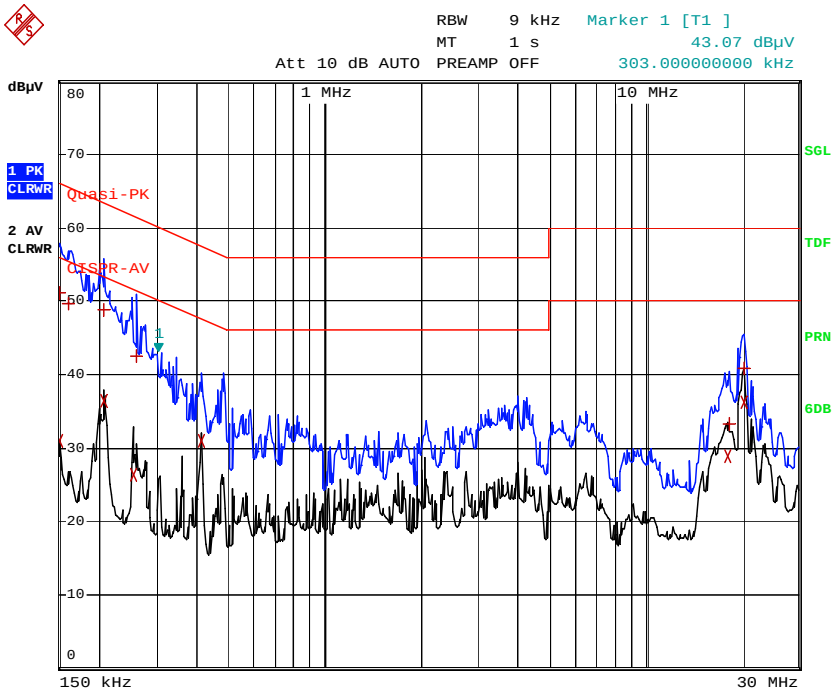
4.3.3 Test data

Test Date : 14-Aug-15

Frequency (MHz)	Correction Factor (dB)		Line (H/N)	Quasi-peak Value (dBuV)			Average Value (dBuV)		
	LISN	Cable etc.		Limit	Reading	Result	Limit	Reading	Result
0.15	0.13	0.12	H	66.0	51.03	51.28	56.0	30.9	31.2
0.16	0.13	0.12	H	65.5	49.76	50.01	55.5		
0.20	0.13	0.13	H	63.4	48.87	49.13	53.4	36.5	36.8
0.26	0.14	0.13	H	61.5	42.44	42.71	51.5	26.4	26.7
18.13	0.64	0.42	H	60.0	33.23	34.28	50.0	28.8	29.8
20.17	0.64	0.42	H	60.0	40.76	41.82	50.0	36.2	37.2
Remark	*H : Hot Line, N : Neutral Line *Result Value=Reading+Correction Factor *Correction factor=LISN factor + Cable loss								

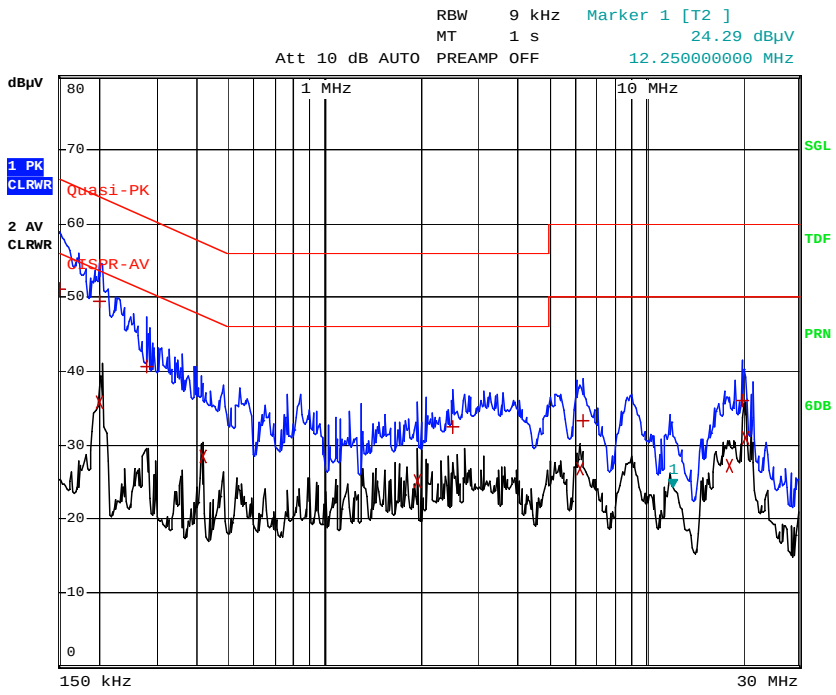
4.3.4 Spectral Diagram

◆ Hot Line



Comment: S20_HOT
Date: 14.AUG.2015 11:12:51

◆ - Neutral Line



Comment: S20_NEUTRAL
Date: 14.AUG.2015 11:03:41

◆ Setup for Conducted Test : 0.15 MHz ~ 30 MHz

[Front]



[Rear]



4.3.5 Test data (Telecommunication Port) - (N/A)

Test Date :

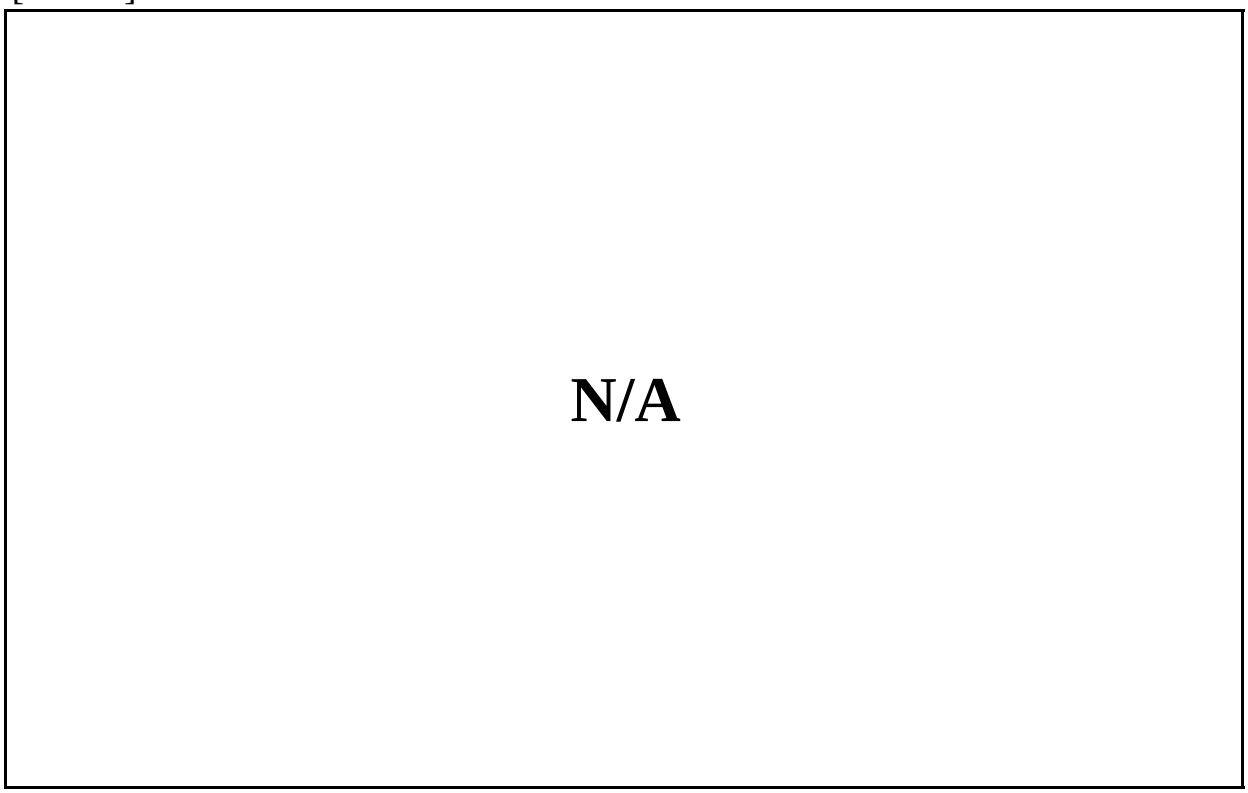
Frequency (MHz)	Correction Factor (dB)		Line (T)	Quasi-peak Value (dBuV)			Average Value (dBuV)		
	ISN	Cable etc.		Limit	Reading	Result	Limit	Reading	Result
Remark	T : Telecommunicaton port *Result Value=Reading+Correction Factor *Correction Factor=ISN factor+Cable loss								

4.3.6 Spectral Diagram

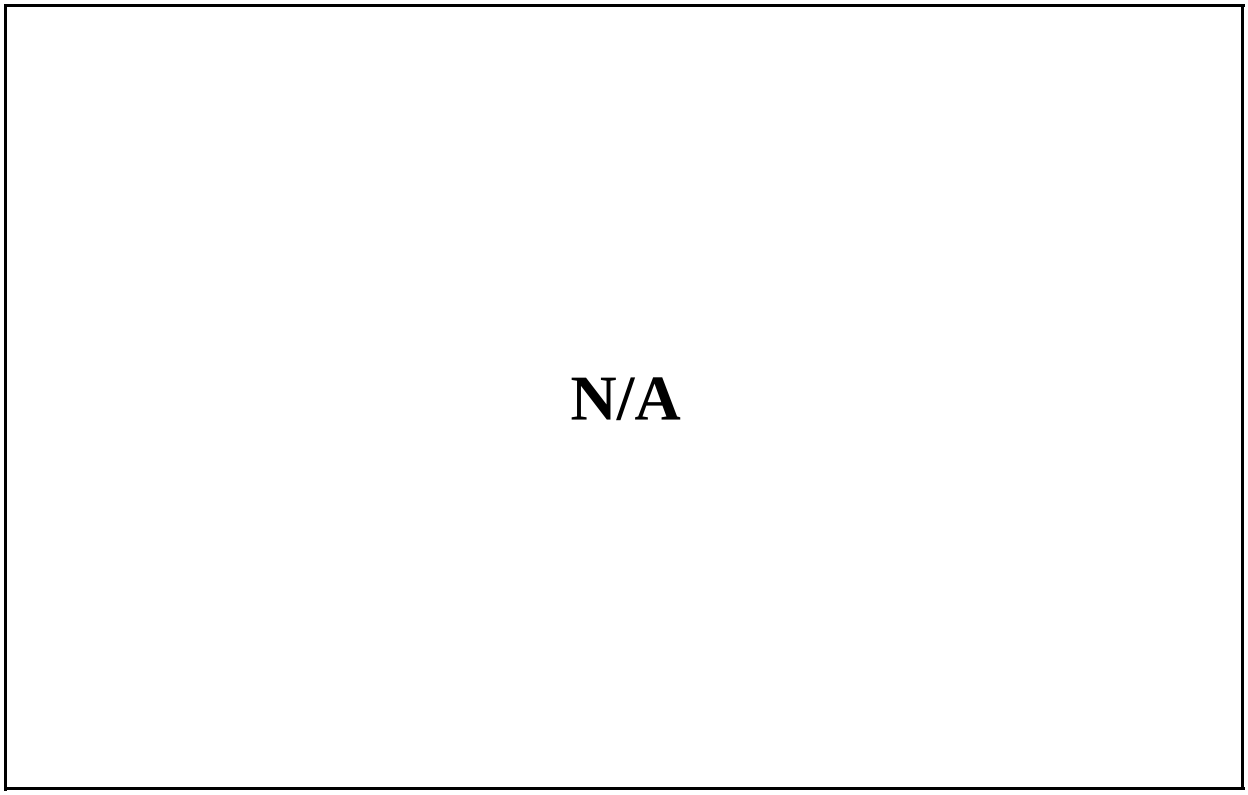
N/A

◆ Setup for Conducted Test : 0.15 MHz ~ 30 MHz

[Front]



[Rear]



4.4 Limits concerning harmonic current test(N/A)

The harmonics on AC Mains in the frequency from 0 kHz to 2 kHz were measured in accordance to EN61000-3-2:2006+A1:2009+A2:2009
The objective of this standard is to set limits for harmonic emissions of equipment within its scope, so that, with due allowance for the emissions from other equipment, compliance with the limits ensures that harmonic disturbance do not exceed the compatibility levels defined in EN 61000-3-2.

For the purpose of harmonic current limitation, equipment is classified as follows.

Class A : - Balanced three-phase equipment;
- Household appliances excluding equipment identified as Class D;
- Tools excluding portable tools;
- Dimmers for incandescent lamps;
- Audio equipment.

Equipment not specified in one of the three other classes shall be considered as Class A equipment.

Class B : - Portable tools;
- Arc welding equipment which is not professional equipment.

Class C : - Lighting equipment.

Class D : Equipment having a specified power less than or equal to 600 W, of the following types:
- Personal computers and personal computer monitors;
- Television receivers.

4.4.1 Measurement equipments

Equipment Name	Type	Manufacturer	Serial No.	Next Calibration date
Test System	PHF555	HAEFELY	080419-11	13-Sep-15
Harmonic & Flicker Test System	DPA 550N	EM Test AG	V1033107193	13-Sep-15

4.4.2 Environmental Conditions

Temperature (°C)	Relative Humidity (% R.H.)

◆ Setup Figure

N/A

4.4.3 Test data(N/A)

Test Date :

4.5 Limits Concerning Voltage Fluctuations & Flicker test(N/A)

The voltage fluctuations on AC mains in the frequency range from 0 kHz to 2 kHz were measured in accordance to EN 61000-3-3:2013

4.5.1 Measurement equipments

Equipment Name	Type	Manufacturer	Serial No.	Next Calibration date
Test System	PHF555	HAEFELY	080419-11	13-Sep-15
Harmonic & Flicker Test System	DPA 550N	EM Test AG	V1033107193	13-Sep-15

4.5.2 Environmental Conditions

Temperature (°C)	Relative Humidity (% R.H.)

◆ Setup Figure

N/A

4.5.3 Test data(N/A)

Test Date :

5. Electromagnetic Susceptibility Test

5.1 Electrostatic Discharge test

5.1.1 Test Standard

- Standard : EN 61000-4-2:2009
- Performance appraisal standard : B
- Energy storage capacitance : 150 pF (± 10 %)
- Discharge resistance : 330 Ω (± 10 %)
- Charging resistance : 50 MΩ (50 MΩ ~100 MΩ)
- Tolerance of the output voltage indication : ± 5 %
- Polarity of the output voltage : Positive(+) and Negative(-)
- Holding time : at least 5 s
- Discharge, Mode of operation : Single discharge
- Interval discharge time : At least 1 s
- Repetition time : At least 200 discharges. 100 each at negative and positive polarity of four test points (a minimum of 50 discharges of each point)

  · At least 50 indirect discharge(contact) to the center of the front edge of the horizontal coupling plane

  · At least 200 indirect discharges shall be applied in the indirect mode use of the vertical conducting plane.

5.1.2 Measurement equipments

Equipment Name	Type	Manufacturer	Serial No.	Next Calibration date
ESD Generator	PESD-1600	Haefely	H605105	20-May-16

5.1.3 Environmental Conditions

Temperature (°C)	Relative Humidity (% R.H.)	Pressure (kPa)
22.4	46.0	101.1

5.1.4 Test data

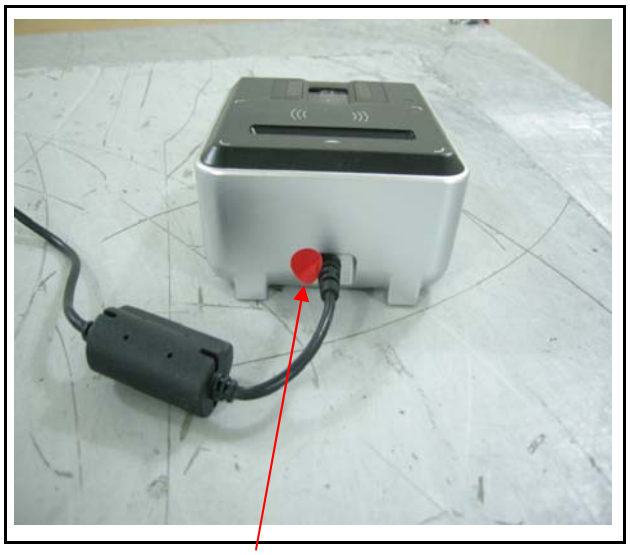
Test Date 20-Aug-15

Point	Test Method	Test Voltage (+/-)	Criterion	Result	Remark
HCP	Horzontal Coupling	2,4 kV	B	A	
VCP	Vertical Coupling	2,4 kV	B	A	
1	Air discharge	2,4,8 kV	B	A	
2	Air discharge	2,4,8 kV	B	A	
3	Air discharge	2,4,8 kV	B	A	
4	Air discharge	2,4,8 kV	B	A	
5	Air discharge	2,4,8 kV	B	A	
6	Air discharge	2,4,8 kV	B	A	
7	Air discharge	2,4,8 kV	B	A	
Reference	Line color : RED-Air BLUE-Contact				

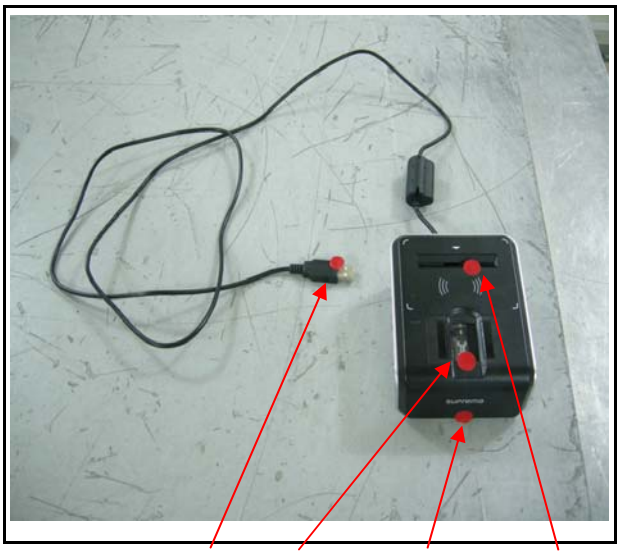
◆ Setup Figure



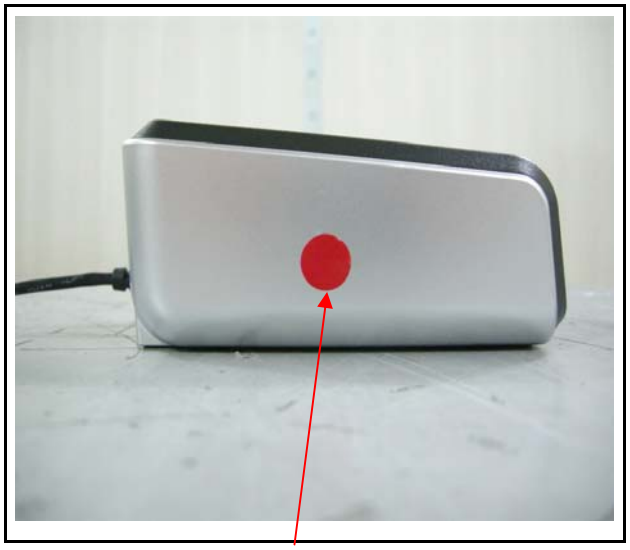
◆ Test Point



5



4 2 1 3



6



7

1. The front cover part
2. The front fingerprint part
3. The front card sense part
4. The USB port part
5. The rear cable connector part
6. The left case part
7. The right case part

HCP: Indirect Discharge

VCP : Indirect Discharge

5.2 Radiated Electromagnetic Fields test

5.2.1 Test Standard

- Standard : EN 61000-4-3:2006+A1:2008+A2:2010
- Criterion standard : A
- Frequency Range and Test Level : 80 MHz ~ 1000 MHz and 3 V/m
- Test Angle : 0°, 90°, 180°, 270°
- Sweep Capability : 1.5×10^{-3} decade/s
- Step Size : 1% of Fundamental
- Antenna Polarity : Horizontally/Vertically
- Measurement Distance : 3 m
- Modulation : AM 80% with 1 kHz sine wave
- Dwell time : 3 s
- Field Strength: 3 V/m

5.2.2 Measurement equipments

Equipment Name	Type	Manufacturer	Serial No.	Next Calibration date
Hybrid Log Periodic Antenna	LPDA-0803	TDK	130243	N/A
Amplifier	250W1000AM1	Amplifier Research	311841	13-Jan-16
Signal Generator	8648C	HP	3623A03549	13-Jan-16
Power Sensor	URV5-Z2	Rohde & Schwarz	100592	13-Jan-16
Power Meter	NRVD	Rohde & Schwarz	DE25524	13-Jan-16
System Interface	SI-300-2	TDK	41610	N/A

5.2.3 Environmental Conditions

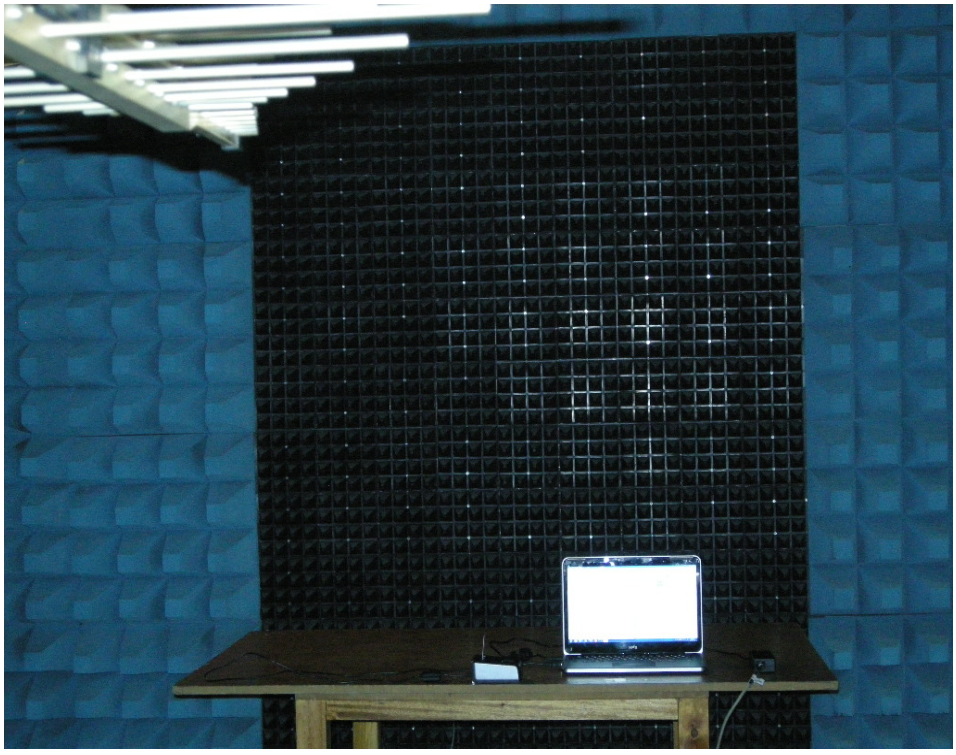
Temperature (°C)	Relative Humidity (% R.H.)	Pressure (kPa)
21.8	46.1	100.9

5.2.4 Test data

Test Date : 18-Aug-15

Range of Frequency (MHz)	Position	Polarity	Electromagnetic Intensity (V/m)	Criterion	Result
80 MHz ~ 1 GHz	Front side	H	3	A	A
		V	3	A	A
	Right side	H	3	A	A
		V	3	A	A
	Left side	H	3	A	A
		V	3	A	A
	Rear side	H	3	A	A
		V	3	A	A
Reference		H : Horizontality, V : Verticality			

◆ Setup Figure



5.3 Electrical Fast Transients/Burst test

5.3.1 Test Standard

- Standard : EN 61000-4-4:2012
- Performance appraisal standard : B
- Test voltage : AC power : ± 1 kV , other port : ± 0.5 kV
- Polarity : Positive(+), Negative(-)
- Repetition Frequency : 5 kHz
- Duration Time : 60 s

5.3.2 Measurement equipments

Equipment Name	Type	Manufacturer	Serial No.	Next Calibration date
Compact Test System	ECOMPACT 4	Haefely Test AG.Basel	153528	13-Jan-16

5.3.3 Environmental Conditions

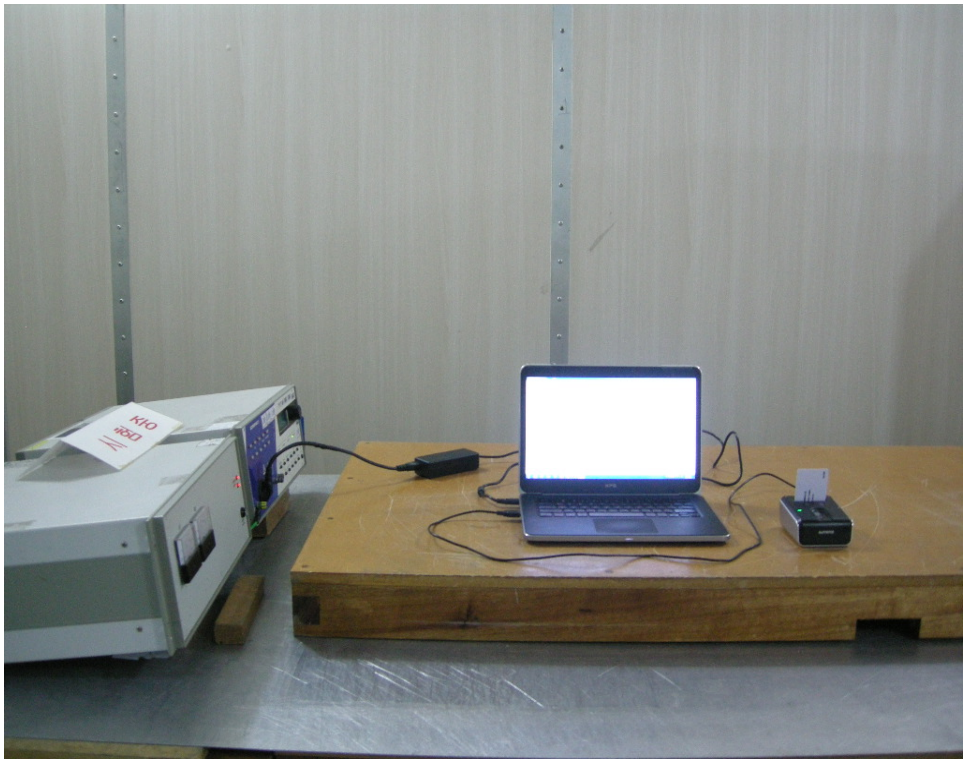
Temperature (°C)	Relative Humidity (% R.H.)	Pressure (kPa)
21.9	38.2	100.4

5.3.4 Test data

Test Date : 19-Aug-15

Tested Point		Test Voltage	Duration Time (s)	Criterion	Result	Remark
Input AC	L1+L2+PE	± 1 kV	60 s	B	A	
Reference	L1: Line, L2: Neutral, PE: Protective earth (Ground)					

◆ Setup Figure



5.4 Surge Test

5.4.1 Test Standard

- Standard : EN 61000-4-5:2006
- Performance appraisal standard : B
- Test voltage AC : line-earth : ±2 kV, line-line : ±1 kV,
  Telecom. & signal : Line-earth : ±1 kV, DC port :±0.5 kV
- Polarity : Positive(+), Negative(-)
- Repetition rate:max 1/min.
- Number of tests:at least five positive and five negative at the selected points.
- Phase shifting:in a range between 0 to 360 versus the a.c. line phase angle.

5.4.2 Measurement equipments

Equipment Name	Type	Manufacturer	Serial No.	Next Calibration date
Compact Test System	ECOMPACT 4	Haefely Test AG.Basel	153528	13-Jan-16

5.4.3 Environmental Conditions

Temperature (°C)	Relative Humidity (% R.H.)	Pressure (kPa)
22.1	39.1	100.3

5.4.4 Test data

Test Date : 19-Aug-15

Tested Point		Test Voltage	Criterion	Result	Remark
Input AC	L1-L2	± 1 kV	B	A	
	L1-PE	± 2 kV	B	A	
	L2-PE	± 2 kV	B	A	
Reference		L1: Line, L2: Neutral, PE: Protective earth (Ground)			

◆ Setup Figure



5.5 Conducted Disturbance test

5.5.1 Test Standard

- Standard : EN 61000-4-6:2009
- Performance appraisal standard : A
- Frequency Range : (0.15~80) MHz
- Field Strength : 3 V
- Modulation : AM 80 % with 1 kHz sine wave
- Dwell time : 3 s
- Sweep Capability : 1.5×10^{-3} decade/s
- Step Size : 1 % of Fundamental

5.5.2 Measurement equipments

Equipment Name	Type	Manufacturer	Serial No.	Next Calibration date
Continuous Wave Simulator	CWS 500C	EM TEST	1101-07	13-Jan-16
Attenuator	ATT6/75	EM TEST	1001-43	13-Jan-16
Coupling/Decoupling Network	CDN M016	Teseq GmbH	27445	13-Jan-16

5.5.3 Environmental Conditions

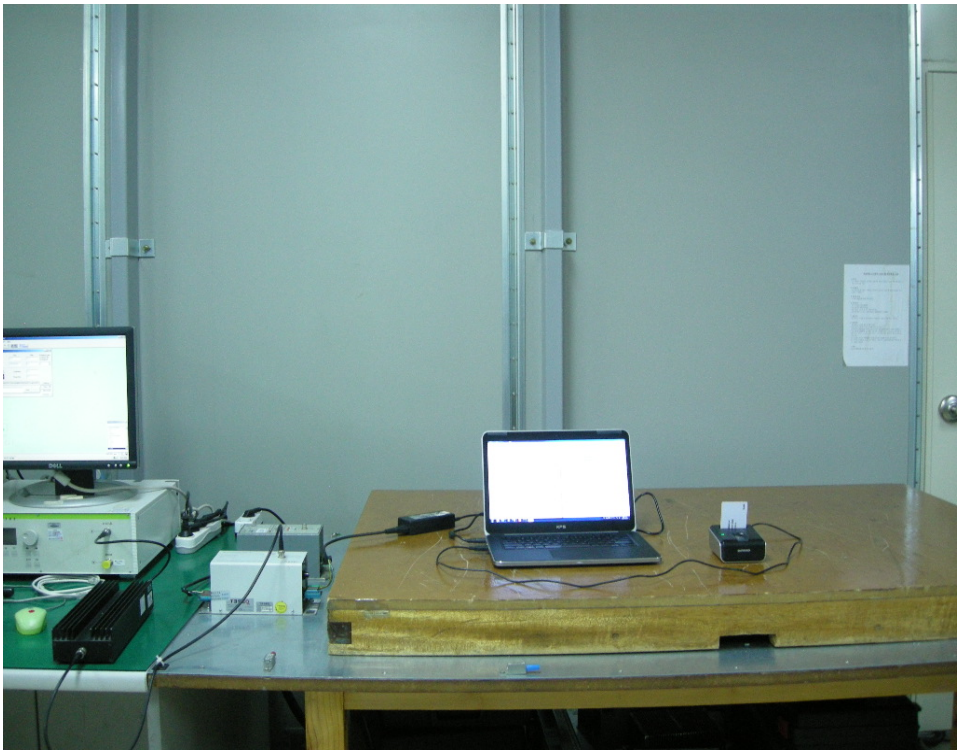
Temperature (°C)	Relative Humidity (% R.H.)	Pressure (kPa)
22.4	39.1	100.3

5.5.4 Test data

Test Date : 19-Aug-15

Freq [MHz]	Level [V]	Tested point	Criterion	Result	Remark
0.15~80	3	Mains(M3)	A	A	
Reference					

◆ Setup Figure



5.6 Voltage Dips and Interruptions test

5.6.1 Test Standard

- Standard : EN 61000-4-11:2004
- Performance appraisal standard and Voltage Reduction
  >95 % 250 cycles : C , >95 % 0.5cycles : B, 30 % 25 cycles : C
- Number of pulses : 3 at each level
- Recovery time between pulses : 10 s
- Additional angles : 45°,90° ,135° , 180° ,225°,270° ,315°

5.6.2 Measurement equipments

Equipment Name	Type	Manufacturer	Serial No.	Next Calibration date
Compact Test System	ECOMPACT 4	Haefely Test AG.Basel	153528	13-Jan-16
Motorized Variac	PEV 1610	Haefely Test AG.Basel	154005	N/A

5.6.3 Environmental Conditions

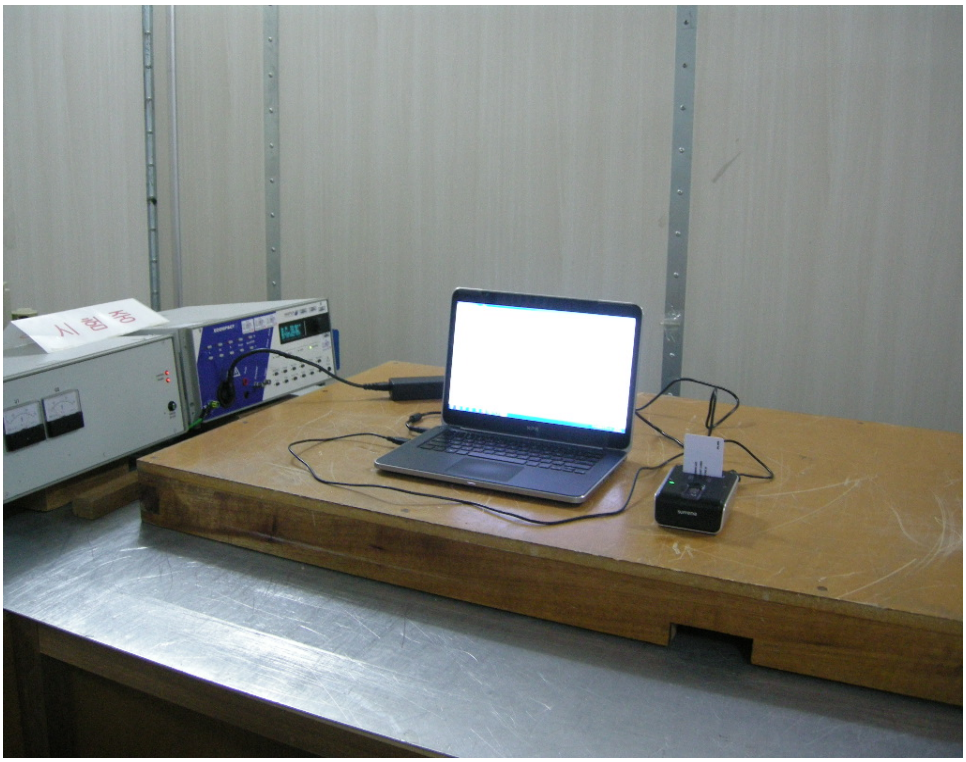
Temperature (°C)	Relative Humidity (% R.H.)	Pressure (kPa)
22.1	38.8	100.4

5.6.4 Test data

Test Date : 19-Aug-15

Voltage Reduction	Duration Cycles	criteria	Result	Remark
> 95 %	0.5	B	A	
30%	25	C	A	
> 95 %	250	C	A	
Reference				

◆ Setup Figure



6. EUT Photographs

[Front]



[Rear]



[Inside]

