



SHENZHEN HUATONGWEI INTERNATIONAL INSPECTION Co., Ltd.

Test Verification of Conformity

Certificate No.:CHTEE19010081



Issued Date: Jan 21, 2019

In accordance with the following Applicable Directives:

2014/30/EU

Electromagnetic Compatibility

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

**EN 61326-1: 2013
EN 61326-2-1: 2013**

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

Applicant: Kern & Sohn GmbH

Ziegelei 1 Balingen Germany zip:72336

Manufacturer: Kern & Sohn GmbH

Ziegelei 1 Balingen Germany zip:72336

EUT Name: Interface Box

Model number: YKV-02

Listed Model(s): YKV-01

Laboratory: Shenzhen Huatongwei International Inspection Co., Ltd.

Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, Guangdong, China
Tel: 86-755-26748078 Fax: 86-755-26748089
Http: //www.szhtw.com.cn E-mail: cs@szhtw.com.cn



Note:

The certification is only valid for the equipment and configuration described, in conjunction with the test data detailed above.

The CE mark as shown beside can be used, under the responsibility of the manufacturer, after completion of an EC Directive of Conformity and compliance with all relevant EC Directive.

For and on behalf of
Shenzhen Huatongwei International Inspection Co., Ltd.

Authorized by:





TEST REPORT

EN 61326-1

Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements

EN 61326-2-1

Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-1: Particular requirements - Test configurations, operational conditions and performance criteria for sensitive test and measurement equipment for EMC unprotected applications



Report Reference No.....: CHTEE19010081 Report verification:

Date of issue.....: Jan. 21, 2019

Tested by (printed name+signature).....: Stellar Xu

Supervised by (printed name+signature).....: Kevin Yang

Approved by (printed name+signature).....: Tony Jiang

Testing Laboratory Name.....: Shenzhen Huatongwei International Inspection Co., Ltd.

Address.....: Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, Guangdong, China

Testing location/ procedure.....: Full application of Harmonised standards [X] Partial application of Harmonised standards [] Other standard testing methods []

Applicant's name.....: Kern & Sohn GmbH

Address.....: Ziegelei 1 Balingen Germany zip:72336

Test specification:

Standard.....: EN 61326-1: 2013 EN 61326-2-1: 2013

Non-standard test method.....: N/A

Test Report Form No.....: HTWEMCCE_1B

TRF Originator.....: Shenzhen Huatongwei International Inspection Co., Ltd.

Master TRF.....: Dated 2014-06

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Test item description.....: Interface Box

Trade Mark.....: N/A

Manufacturer.....: Kern & Sohn GmbH

Model/Type reference.....: YKV-02

Listed Models.....: YKV-01

Ratings.....: Input:5Vd.c., 1A

Result.....: Positive

EMC -- TEST REPORT

Test Report No. :	CHTEE19010081	Jan. 21, 2019
		Date of issue

Equipment under Test : Interface Box

Model / Type : YKV-02

Listed Models : YKV-01

Applicant : **Kern & Sohn GmbH**

Address : Ziegelei 1 Balingen Germany zip:72336

Manufacturer : **Kern & Sohn GmbH**

Address : Ziegelei 1 Balingen Germany zip:72336

Test Result according to the standards on page 4:	Positive
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The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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1. TEST STANDARDS

The tests were performed according to following standards:

[EN 61326-1: 2013](#) Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements

[EN 61326-2-1: 2013](#) Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-1: Particular requirements - Test configurations, operational conditions and performance criteria for sensitive test and measurement equipment for EMC unprotected applications

Remark: This EUT is ranged to the Group 1 Class B apparatus according to the standard of CISPR 11: 2015+A1: 2016 clause 5.2.

2. SUMMARY

2.1. General Remarks

Date of receipt of test sample : Dec. 26, 2018

Testing commenced on : Jan. 11, 2019

Testing concluded on Jan. 16, 2019

2.2. Equipment Under Test

Power supply system utilised

Power supply voltage : 230V / 50 Hz 120V / 60Hz
 12 V DC 24 V DC
 Other (specified in blank below)

5V DC

2.3. Short description of the Equipment under Test (EUT)

The EUT is a Interface Box, models YKV-02 with all fuctions, YKV-01 wirh partial fuctions.

Therefore all tests are performed on the model: YKV-02.

Serial number: Prototype

2.4. EUT operation mode

The equipment under test was operated during the measurement under the following conditions:

Test program (customer specific)

Emissions tests..... : According to EN 61326-1 searching for the highest disturbance.
Immunity tests..... : According to EN 61326-1, searching for the highest susceptibility.

2.5. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

o - supplied by the manufacturer

■ - Supplied by the lab

■ Computer

Manufacture : Toshiba

M/N : M800

o sensor

Manufacture : /

M/N : /

2.6. Compliance criteria

The general principles (performance criteria) for the evaluation of the immunity test results are the following.

Performance criterion A

The equipment shall continue to operate as intended during and after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation and what the user may reasonably expect from the equipment if used as intended.

Performance criterion B

The equipment shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed. No change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation and what the user may reasonably expect from the equipment if used as intended.

EXAMPLE 1 A data transfer is controlled/checked by parity check or by other means. In the case of malfunctioning, such as caused by a lightning strike, the data transfer will be repeated automatically. The reduced data transfer rate at this time is acceptable.

EXAMPLE 2 During testing, an analogue function value may deviate. After the test, the deviation vanishes.

EXAMPLE 3 In the case of a monitor used only for man-machine monitoring, it is acceptable that some degradation takes place for a short time, such as flashes during the burst application.

EXAMPLE 4 An intended change of the operating state is allowed if self-recoverable.

Performance criterion C

Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls.

EXAMPLE 1 In the case of an interruption in the mains longer than the specified buffer time, the power supply unit of the equipment is switched off. The switch-on may be automatic or carried out by the operator.

EXAMPLE 2 After a programme interruption caused by a disturbance, the processor functions of the equipment stops at a defined position and is not left in a "crashed state". The operator's decision prompts may be necessary.

EXAMPLE 3 The test results in an opening of an over-current protection device that is replaced or reset by the operator.

EN 61326-2-1:

Addition:

Oscilloscopes

Typical parameters observed during immunity testing include trace width deviation, trace offset and display noise.

Logic analysers

Typical parameters observed during immunity testing include logic analyser functional operations that may cause system lock-up or change of function or mode.

Digital multimeters (DMM)

Typical parameters observed during immunity testing include the displayed measurement value.

3. TEST ENVIRONMENT

3.1. Address of the test laboratory

Shenzhen Huatongwei International Inspection Co., Ltd.
Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, Guangdong, China
Tel: 86-755-26748019 Fax: 86-755-26748089

3.2. Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L1225

Shenzhen Huatongwei International Inspection Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories,

A2LA-Lab Cert. No. 3902.01

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

FCC-Registration No.: 762235

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration No: 762235.

IC-Registration No.: 5377B-1, 5377B-2

Two 3m Alternate Test Site of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 5377B.

ACA

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our A2LA accreditation.

VCCI

Radiated disturbance above 1GHz measurement of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20007.

Main Ports Conducted Interference Measurement of Shenzhen Huatongwei International Inspection Co., Ltd. Has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: C-20001.

Telecommunication Ports Conducted Interference Measurement of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: T-20001.

The 3m Semi-anechoic chamber (9.1m×6.4m×6.0m) of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.:R-4398.

3.3. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	<u>22-25° C</u>
Humidity:	<u>40-54%</u>
Atmospheric pressure:	<u>950-1050 mbar</u>

3.4. Test Description

Emission Measurement		
Radiated Emission	EN 61326-1: 2013 EN 61326-2-1: 2013	PASS
Conducted Disturbance	EN 61326-1: 2013 EN 61326-2-1: 2013	N/A
Harmonic Current	EN 61326-1: 2013 EN 61326-2-1: 2013 EN 61000-3-2: 2014	N/A
Voltage Fluctuation and Flicker	EN 61326-1: 2013 EN 61326-2-1: 2013 EN 61000-3-3: 2013	N/A
Immunity Measurement		
Electrostatic Discharge	EN 61326-1: 2013 EN 61326-2-1: 2013 EN 61000-4-2: 2009	PASS
RF Field Strength Susceptibility	EN 61326-1: 2013 EN 61326-2-1: 2013 EN 61000-4-3: 2006+A1: 2008+A2: 2010	PASS
Electrical Fast Transient/Burst Test	EN 61326-1: 2013 EN 61326-2-1: 2013 EN 61000-4-4: 2012	N/A
Surge Test	EN 61326-1: 2013 EN 61326-2-1: 2013 EN 61000-4-5: 2014+A1: 2017	N/A
Conducted Susceptibility Test	EN 61326-1: 2013 EN 61326-2-1: 2013 EN 61000-4-6: 2014+AC: 2015	N/A
Power Frequency Magnetic Field Susceptibility Test	EN 61326-1: 2013 EN 61326-2-1: 2013 EN 61000-4-8: 2010	N/A
Voltage Dips and Interruptions Test	EN 61326-1: 2013 EN 61326-2-1: 2013 EN 61000-4-11: 2004+A1: 2017	N/A

Note: "N/A" means "not applicable". The measurement uncertainty is not included in the test result.

3.5. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Shenzhen Huatongwei International Inspection Co., Ltd quality system acc. to DIN EN ISO/EN 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen Huatongwei laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.28dB	(1)
Conducted Disturbance	0.15~30MHz	3.35dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3.6. Equipments Used during the Test

Radiated Emission/ Radiated power (30MHz-1000MHz)							
Used	Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. mm/dd/yy	Next Cal. mm/dd/yy
✓	1	Ultra-Broadband Antenna	SCHWARZBECK	VULB9163	538	4/5/2017	4/4/2020
✓	2	Emi Test Receiver	R&S	ESCI	100900	10/28/2018	10/28/2019
✓	3	Pre-amplifier	SCHWARZBECK	BBV 9743	9743-0022	10/14/2018	10/14/2019
✓	4	Turntable	Maturo Germany	TT2.0-1T	/	N/A	N/A
✓	5	Antenna Mast	Maturo Germany	CAM-4.0-P-12	/	N/A	N/A
✓	6	Test Software	R&S	ES-K1	/	N/A	N/A

Conducted Disturbance							
Used	Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. mm/dd/yy	Next Cal. mm/dd/yy
×	1	EMI Test Receiver	R&S	ESCI	100900	10/27/2018	10/27/2019
×	2	Artificial Mains	SCHWARZBECK	NNLK 8121	573	10/27/2018	10/27/2019
×	3	Pulse Limiter	R&S	ESH3-Z2	101488	10/27/2018	10/27/2019
×	4	Test Software	R&S	ES-K1	/	N/A	N/A

Harmonic Current and Flicker							
Used	Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. mm/dd/yy	Nex Cal. mm/dd/yy
x	1	Purified Power Source	CALIFORNIA INSTRUMENTS	HFS500	54513	10/28/2018	10/28/2019
x	2	Harmonic And Flicker Analyzer	EM TEST	DPA503S1	0500-10	11/09/2018	11/09/2019
x	3	Test Software	EM TEST	DPA	/	N/A	N/A

Voltage Dips and Interruptions							
Used	Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. mm/dd/yy	Next Cal. mm/dd/yy
x	1	Purified Power Source	CALIFORNIA INSTRUMENTS	HFS500	54513	10/28/2018	10/28/2019
x	2	Test Software	CALIFORNIA INSTRUMENTS	CIGUII-5001iX	/	N/A	N/A

Electrical Fast Transient/Burst							
Used	Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. mm/dd/yy	Next Cal. mm/dd/yy
x	1	Ultra Compact Simulator	EM TEST	UCS500M6	0500-19	10/27/2018	10/27/2019
x	2	3-Phase Coupling Network	EM TEST	CNI503 S5/16A	0606-01	10/27/2018	10/27/2019
x	3	Test Software	EM TEST	ISM IEC	/	N/A	N/A
x	4	Coupling Clamp	EM TEST	HFK	1501-14	10/27/2018	10/27/2019

Electrostatic Discharge							
Used	Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. mm/dd/yy	Next Cal. mm/dd/yy
✓	1	ESD Simulator	EM TEST	DITO	0301-04	08/13/2018	08/12/2019

Surge							
Used	Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. mm/dd/yy	Next Cal. mm/dd/yy
x	1	Ultra Compact Simulator	EM TEST	UCS500M6	0500-19	10/27/2018	10/27/2019
x	2	Surge Generator	EM TEST	TSS500M4	1100-04	10/27/2018	10/27/2019
x	3	3-Phase Coupling Network	EM TEST	CNI503 S5/16A	0606-01	10/27/2018	10/27/2019
x	4	Test Software	EM TEST	ISM IEC	/	N/A	N/A

Conducted Susceptibility							
Used	Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. mm/dd/yy	Next Cal. mm/dd/yy
✘	1	Signal Generator	IFR	2023A	202304/060	10/27/2018	10/27/2019
✘	2	Amplifier	AR	75A250	302205	10/28/2018	10/28/2019
✘	3	6db Attenuator	EMTEST	ATT6/75	0010230A	10/28/2018	10/28/2019
✘	4	CDN	EMTEST	CDN M3/16A	0802-03	10/28/2018	10/28/2019
✘	5	Em Clamp	LÜTHI	EM101	335625	10/28/2018	10/28/2019
✘	6	Test Software	AR	SW1004	/	N/A	N/A

RF Field Strength Susceptibility							
Used	Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. mm/dd/yy	Next Cal. mm/dd/yy
✓	1	Signal Generator	R&S	SMB100A	114360	8/21/2018	8/21/2019
✓	2	Amplifier	R&S	BBA150-BC500	102664	8/21/2018	8/21/2019
✓	3	Amplifier	R&S	BBA150 D200	102728	1/31/2018	1/31/2019
✓	4	Amplifier	R&S	BBA150 E200	102729	1/31/2018	1/31/2019
✓	5	Power Head	R&S	NRP18A	101010	8/21/2018	8/21/2019
✓	6	Power Head	R&S	NRP18A	101011	8/21/2018	8/21/2019
✓	7	Transmit Antenna	Schwarzbeck	STLP9129	00044	7/12/2017	7/11/2020
✓	8	Field Probe	ETS-LINDGREN	HI-6153	00130812	1/17/2018	1/16/2019
✓	9	Test Software	R&S	EMC32	100916	NA	NA

Power Frequency Magnetic Field Susceptibility							
Used	Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. mm/dd/yy	Next Cal. mm/dd/yy
✘	1	Ultra Compact Simulator	EM TEST	UCS500M6	202304/060	10/27/2018	10/27/2019
✘	2	Motor Driven Voltage Transformer	EM TEST	MV2616	302205	10/27/2018	10/27/2019
✘	3	Current Transformer	EM TEST	MC2630	302389	11/02/2018	11/02/2019
✘	4	Magnetic Coil	EM TEST	MS100	0010230A	11/02/2018	11/02/2019
✘	5	Test Software	EM TEST	ISM IEC	/	N/A	N/A

4. TEST CONDITIONS AND RESULTS

4.1. Radiated Emission

For test instruments and accessories used see section 3.6.

4.1.1. Description of the test location

Test location: Shielded room No. 6

Date of test: Jan. 16, 2019

Operator: Pan.Xie

4.1.2. Limits of disturbance (Class B)

Frequency (MHz)	Distance (Meters)	Field Strengths Limits (dBμV/m)
30 ~ 230	3	40
230 ~ 1000	3	47

Note: (1) The tighter limit shall apply at the edge between two frequency bands.

(2) Distance refers to the distance in meters between the test instrument antenna and the closest point of any part of the E.U.T.

4.1.3. Description of the test set-up

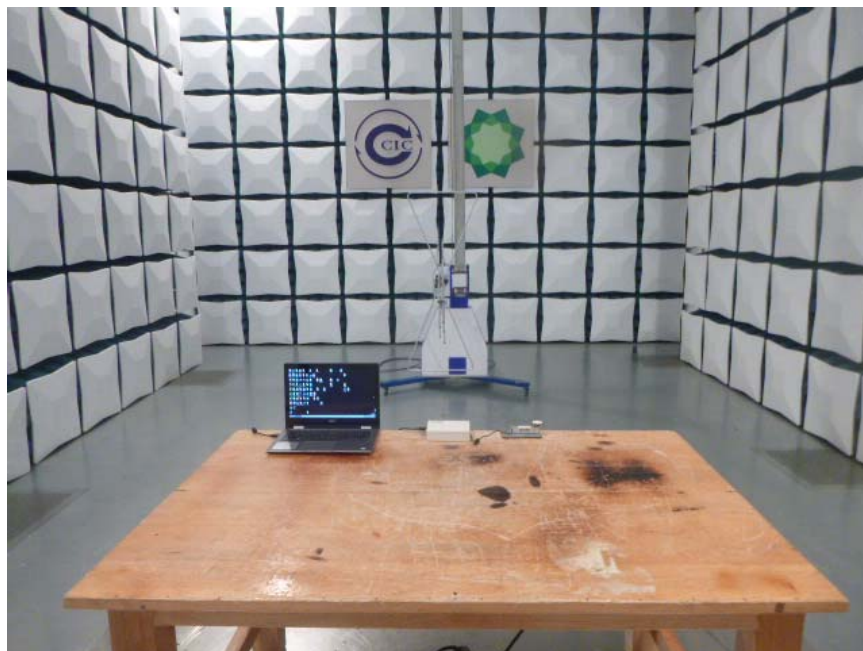
4.1.3.1. Operating Condition

The EUT is operated in the normal work during the test, and the results of the maximum emanation are recorded.

4.1.3.2. Test Configuration and Procedure

EUT is tested in Semi-Anechoic Chamber. EUT is placed on a nonmetal table which is 0.8 meter above a grounded turntable. The turntable can rotate 360 degrees to determine the azimuth of the maximum emission level. EUT is set 3 meters away from the center of receiving antenna, and the antenna can move up and down from 1 to 4 meter to find out the maximum emission level. Both horizontal and vertical polarizations of the antenna are set on the test.

4.1.3.3. Photos of the test set-up



4.1.4. Test result

The requirements are **Fulfilled**

Band Width: 120kHz

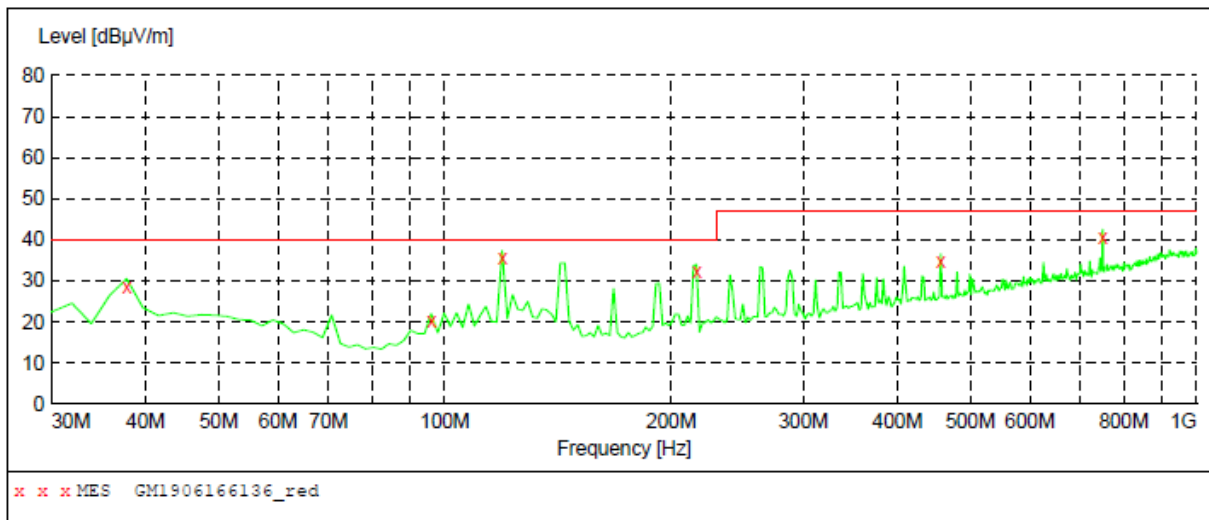
Frequency Range: 30MHz to 1000MHz

Remarks: The limits are kept. For detailed results, please see the following page(s).

Margin=limit-level

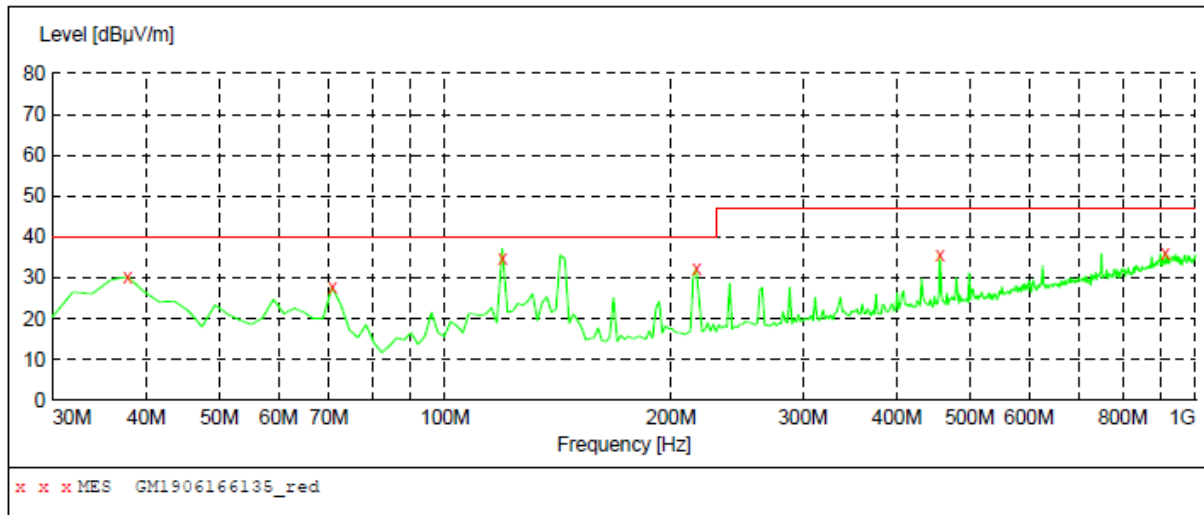
Level=read value+transducer

Transducer=antenna factor+pre-amplifier factor+cable loss



MEASUREMENT RESULT: "GM1906166136_red"

Frequency MHz	Level dBµV/m	Transd dB/m	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
37.760000	28.70	-10.8	40.0	11.3	QP	300.0	208.00	HORIZONTAL
95.960000	20.10	-11.0	40.0	19.9	QP	300.0	313.00	HORIZONTAL
119.240000	35.50	-12.0	40.0	4.5	QP	300.0	359.00	HORIZONTAL
216.240000	32.20	-9.9	40.0	7.8	QP	100.0	192.00	HORIZONTAL
456.800000	34.70	-2.6	47.0	12.3	QP	100.0	23.00	HORIZONTAL
749.740000	40.70	4.7	47.0	6.3	QP	100.0	203.00	HORIZONTAL



MEASUREMENT RESULT: "GM1906166135_red"

Frequency MHz	Level dBµV/m	Transd dB/m	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
37.760000	30.30	-10.8	40.0	9.7	QP	100.0	295.00	VERTICAL
70.740000	27.80	-13.2	40.0	12.2	QP	100.0	264.00	VERTICAL
119.240000	35.50	-12.0	40.0	4.5	QP	100.0	210.00	VERTICAL
216.240000	32.20	-9.9	40.0	7.8	QP	100.0	72.00	VERTICAL
456.800000	35.50	-2.6	47.0	11.5	QP	100.0	239.00	VERTICAL
910.760000	36.00	7.8	47.0	11.0	QP	100.0	0.00	VERTICAL

4.2. Conducted disturbance

The test is not applicable to the EUT.

4.3. Harmonic current

The test is not applicable to the EUT.

4.4. Voltage Fluctuation and Flicker

The test is not applicable to the EUT.

4.5. Electrostatic discharge

For test instruments and accessories used see section 3.6.

4.5.1. Description of the test location and date

Test location: Shielded room No. 8

Date of test: Jan. 16, 2019

Operator: Quanhai, Deng

4.5.2. Severity levels of electrostatic discharge

4.5.2.1. Severity level: Contact Discharge at $\pm 2, 4\text{kV}$ Air Discharge at $\pm 2, 4, 8\text{kV}$

Level	Test Voltage Contact Discharge (kV)	Test Voltage Air Discharge (kV)
1	2	2
2	4	4
3	6	8
4	8	15
X	Special	Special

4.5.2.2. Performance criterion: **B**

4.5.3. Description of the test set-up

4.5.3.1. Operating Condition

The EUT is operated in the normal work during the test, and the results of the maximum susceptible results are recorded.

4.5.3.2. Test Configuration and Procedure:

Air Discharge:

- This test is done on a non-conductive surfaces. The round discharge tip of the Electrostatic Discharge simulator shall be approached as fast as possible then to touch the EUT. After each discharge, the

simulator shall be removed from the EUT. The simulator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

Contact Discharge:

- All the procedure shall be same as air discharge, except using the acute discharge tip. The top end of the Electrostatic Discharge simulator is touch the EUT all the time when the simulator is re-triggered for a new single discharge and repeated 10 times for each pre-selected test point.

Indirect Discharge:

- The vertical coupling plane(VCP) is placed 0.1m away from EUT. The top end of Electrostatic Discharge simulator should aim at the center of one border of the VCP for at least 10 times discharge.
- The top end of Electrostatic Discharge simulator should place at the point 0.1m away from EUT on the horizontal coupling plane(HCP). At least 10 times discharge should be done for every pre-selected point around EUT.

Record any performance degradation of the EUT during the test and judge the test result according to performance criterion.

4.5.3.3. Photo of the test set-up



4.5.4. Test specification:Contact discharge voltage: 2 kV 4 kV 6 kVNumber of discharges: 10 25Air discharge voltage: 2 kV 4 kV 8 kVNumber of discharges: 10 25Type of discharge:

Direct discharge Air discharge
 Contact discharge
Indirect discharge Contact discharge
 Positive Negative

Polarity:Discharge location:

- see photo documentation of the test set-up
- all external locations accessible by hand
- horizontal coupling plane (HCP)
- vertical coupling plane (VCP)

4.5.5. Test resultThe requirements are **Fulfilled**Performance Criterion: **B****Remarks:** During the test no deviation was detected to the selected operation mode(s).

4.6. Radiated, radio-frequency, electromagnetic field

For test instruments and accessories used see section 3.6.

4.6.1. Description of the test location and date

Test location: Shielded room No. 7

Date of test: Jan. 16, 2019

Operator: Shower. Dai

4.6.2. Severity levels of radiated, radio-frequency, electromagnetic field

4.6.2.1. Severity level: 3 V/m 1 V/m

Level	Field Strength (V/m)
1	1
2	3
3	10
X	Special

4.6.2.2. Performance criterion: **A**

4.6.3. Description of the test set-up

4.6.3.1. Operating Condition

The EUT is operated in the normal work during the test, and the results of the maximum susceptible results are recorded.

4.6.3.2. Test Procedure

EUT and its auxiliary instrument are placed on a turntable which is 0.8 meter above ground. Transmitting antenna mounted on an antenna mast is set 3 meter away from the EUT. During the test, each of the four sides of EUT will face the transmitting antenna with the turntable cycled. Both horizontal and vertical polarization of the antenna are set on test and measured individually.

In order to judge the performance of the EUT, a set of monitor system is used.

Record any performance degradation of the EUT during the test and judge the test result according to performance criterion.

4.6.3.3. Photo of the test set-up



4.6.4. Test specification:

<u>Frequency range:</u>	■ 80 MHz to 1000 MHz
<u>Field strength:</u>	■ 3 V/m
<u>Frequency range:</u>	■ 1400 MHz to 2000 MHz
<u>Frequency range:</u>	■ 3 V/m
<u>Frequency range:</u>	■ 2000 MHz to 2700 MHz
<u>Field strength:</u>	■ 1 V/m
<u>EUT - antenna separation:</u>	■ 3 m
<u>Modulation:</u>	■ AM: 80 % ■ sinusoidal 1kHz
<u>Frequency step:</u>	■ 1 % with 1 s dwell time
<u>Antenna polarisation:</u>	■ horizontal ■ vertical

4.6.5. Test result

The requirements are **Fulfilled**

Performance Criterion: **A**

Remarks: During the test no deviation was detected to the selected operation mode(s).

4.7. Electrical fast transients / Burst

The test is not applicable to the EUT.

4.8. Surge

The test is not applicable to the EUT.

4.9. Conducted disturbances induced by radio-frequency fields

The test is not applicable to the EUT.

4.10. Magnetic Field Immunity

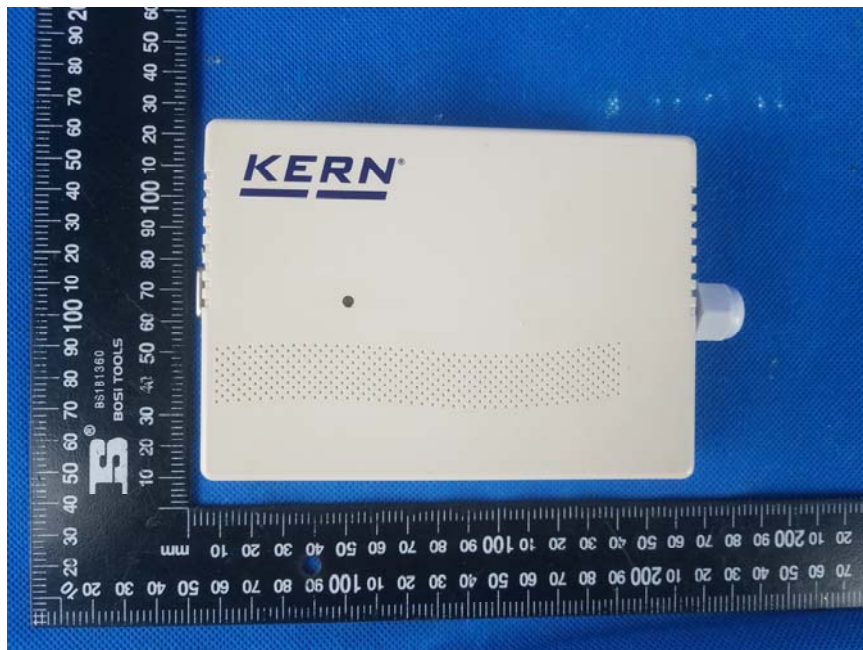
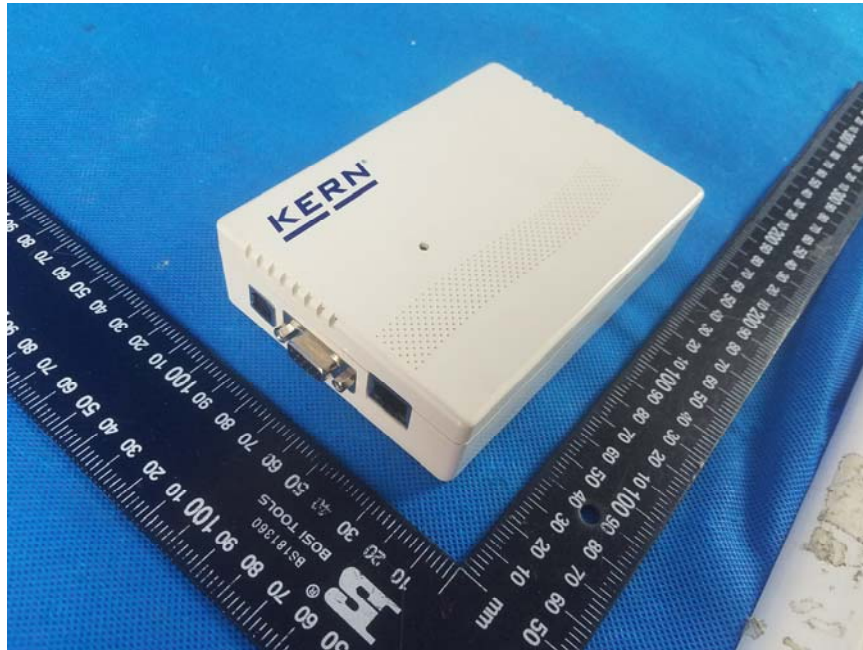
The test is not applicable to the EUT.

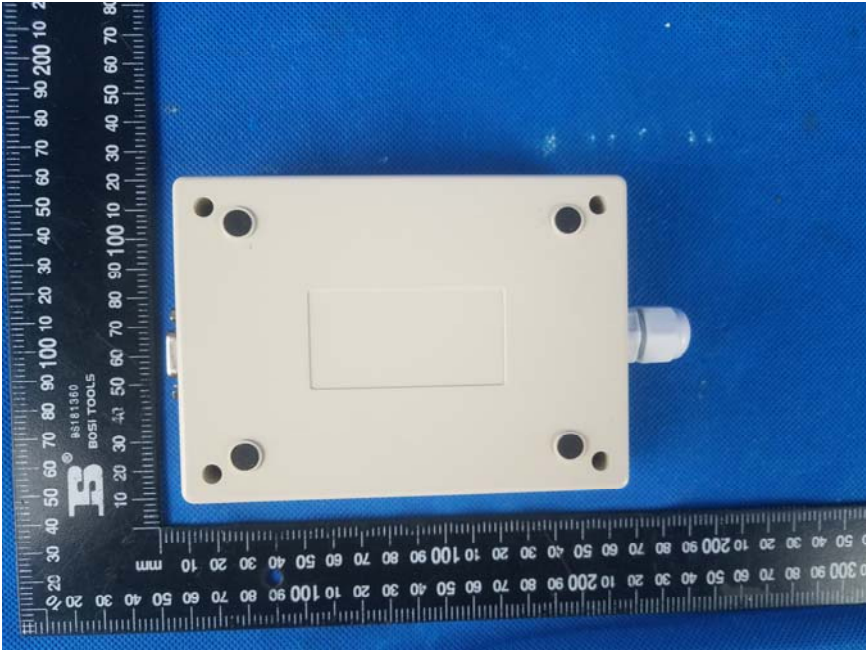
4.11. Voltage Dips and Interruptions

The test is not applicable to the EUT.

5. External and Internal Photos of the EUT

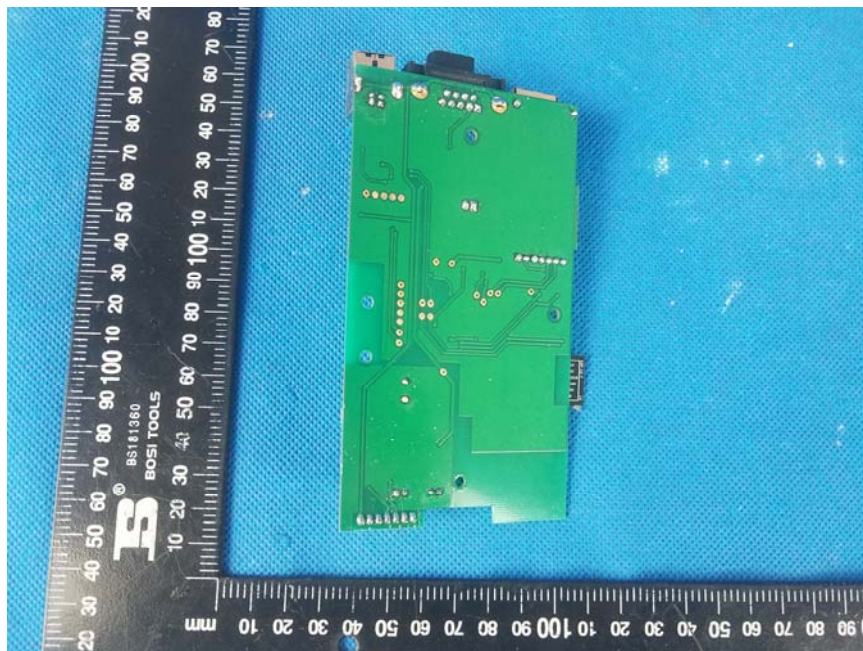
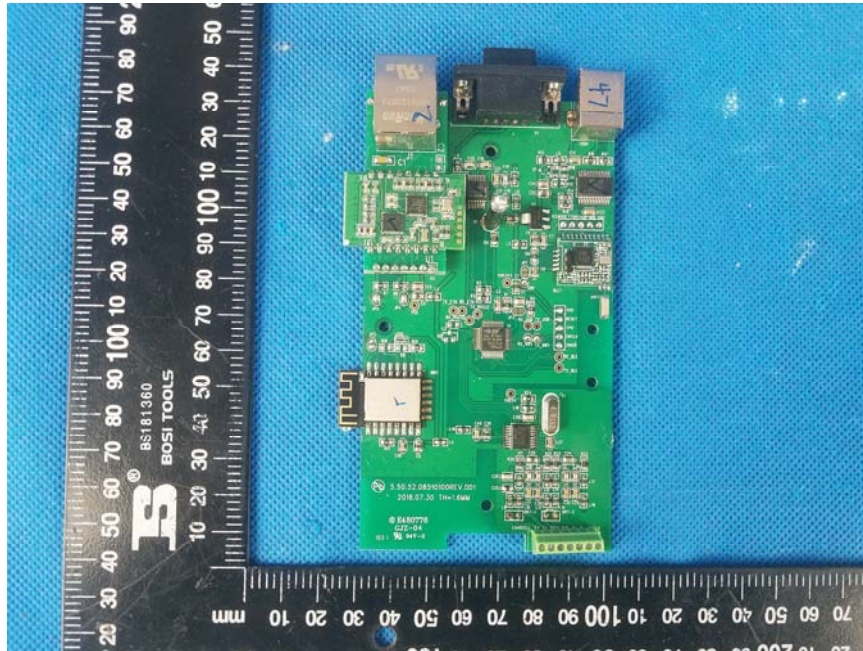
5.1. External photos of the EUT







5.2. Internal photos of the EUT



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