ATTESTATION
of conformity with European Directives

Attestation Number:	**1888AB1130N006001**
Product:	**CLOCK MOVEMENT**
Brand Name:	**QUARTZ CLOCK MOVEMENT**
Model:	**M2188**
Additional Models:	**M2166, M2888, M2188D, M2018, M2188Y, M2188-X, S2166, S2188, S2888, S2018, HQ3268, S2188Y, Q5, Q6**

Applicant:

Address:

Technical Characteristics: **DC 1.5V(1.5V*AA*1) from Battery**

The submitted sample of the above equipment has been tested for CE marking according to following European Directive and standards:

- **Electromagnetic Compatibility Directive 2014/30/EU**

Standards	Report Number	Report date
EN 61000-6-3:2007+A1:2011+AC:2012 **EN 61000-6-1:2007**	**CE181130N006**	**Dec. 11, 2018**

The referred test report(s) show that the product complies with standard(s) recognized as giving presumption of compliance with the essential requirements in the specified European Directive.

This verification does not imply assessment of the production of the product. The CE marking may be affixed if all relevant and effective European Directives with CE are applicable.

Senior project engineer
EMC Department

CE

BUREAU VERITAS CONSUMER PRODUCTS SERVICES REPORT

Name: Breeze Jiang
Date: Dec. 11, 2018

Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd.,
Houjie Town, Dongguan City,
Guangdong 523942, China

Tel.: +86 769 8593 5656
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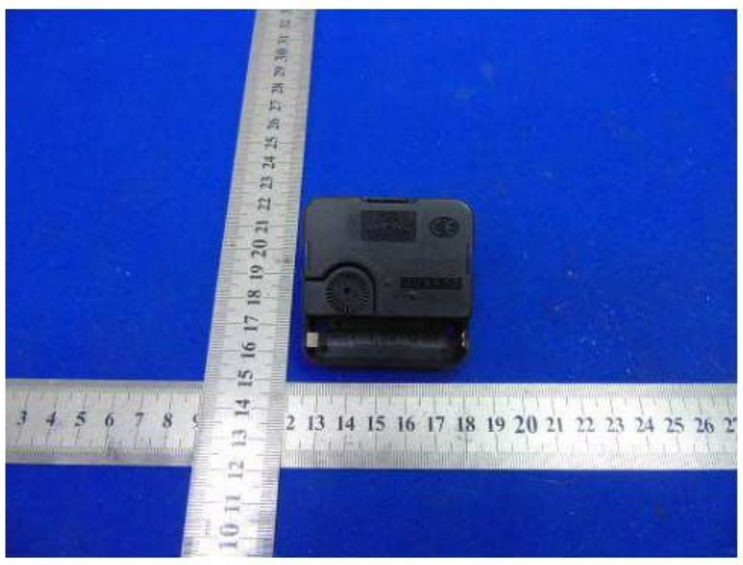
Email: customerservice.dg@cn.bureauveritas.com

TEST REPORT

Applicant	
Address	

Manufacturer or Supplier	
Address	
Product	CLOCK MOVEMENT
Brand Name	QUARTZ CLOCK MOVEMENT
Model	M2188
Additional Model & Model Difference	M2166, M2888, M2188D, M2018; etc., see items 2.1
Date of tests	Nov. 30, 2018 ~ Dec. 07, 2018



The submitted sample of the above equipment has been tested according to the requirements of the following standards:

☒ **EN 61000-6-3:2007+A1:2011+AC:2012**
☒ **EN 61000-6-1:2007**

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Tested by Sophia Xie Project Engineer / EMC Department	Approved by Breeze Jiang Senior project engineer / EMC Department
	Date: Dec. 11, 2018

Bureau Veritas Shenzhen Co., Ltd. Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd., Houjie Town, Dongguan City,
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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
CE181130N006	Original release	Dec. 11, 2018

Bureau Veritas Shenzhen Co., Ltd. Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd., Houjie Town, Dongguan City, Guangdong 523942, China

Tel: +86 769 8593 5656
Fax: +86 769 8593 1080
Email: customerservice.dg@cn.bureauveritas.com

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

EMISSION			
Standard	**Test Type**	**Result**	**Remarks**
EN61000-6-3:2007 +A1:2011+AC:2012	Radiated test (30MHz~1GHz)	PASS	Meets limits minimum passing margin is –16.52 dB at 638.433 MHz

IMMUNITY (EN 61000-6-1:2007)			
Standard	**Test Type**	**Result**	**Remarks**
IEC 61000-4-2:2008 ED. 2.0	Electrostatic discharge immunity test	PASS	Electrostatic Discharge – ESD: 8kV Air discharge, 4kV Contact discharge, Performance Criterion A
IEC 61000-4-3:2010 ED. 3.2	Radiated, radio-frequency, electromagnetic field immunity test	PASS	Radio-Frequency Electromagnetic Field Susceptibility Test – RS: 80-1000 MHz, 3V/m, 80% AM (1kHz), 1400-2000 MHz, 3V/m, 80% AM (1kHz) 2000-2700 MHz, 1V/m, 80% AM (1kHz) Performance Criterion A
IEC 61000-4-8:2009 ED. 2.0	Power frequency magnetic field immunity test.	PASS	Power Frequency Magnetic Field Test, 50 Hz, 3A/m, Performance Criterion A

1.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

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

MEASUREMENT	FREQUENCY	UNCERTAINTY
Radiated Disturbance Test	30MHz ~ 1000MHz	+ /-4.04 dB

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	CLOCK MOVEMENT
MODEL NO.	M2188
ADDITIONAL MODELS	M2166, M2888, M2188D, M2018, M2188Y, M2188-X, S2166, S2188, S2888, S2018, HQ3268, S2188Y, Q5, Q6
POWER SUPPLY	DC 1.5V(1.5V*AA*1) from Battery
CABLE SUPPLIED	N/A
THE HIGHEST OPERATING FREQUENCY	Below 108MHz

NOTE:

1. For the test results, the EUT had been tested with all conditions. But only the worst case was showed in test report.
2. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
3. Please refer to the EUT photo document (Reference No.: 181130N006) for detailed product photo.
4. Additional models (see about table) are identical with the test model M2188 except the appearance is for color and silk-screen only for trading purpose.

2.2 DESCRIPTION OF TEST MODES

The EUT was tested under the **Normal Working** mode for all tests.

2.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT has been tested and complied with the requirements of the following standards:

EN 61000-6-3:2007+A1:2011+AC:2012
EN 61000-6-1:2007
IEC 61000-4-2:2008 ED. 2.0
IEC 61000-4-3:2010 ED. 3.2
IEC 61000-4-8:2009 ED. 2.0

Notes: The above IEC basic standards are applied with latest version if customer has no special requirement
The EUT is without AC input function and therefore the test items Conduction, Harmonic, Flicker, EFT, Surge, CS and Dip were not tested.

2.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit without any other necessary accessories or support units.

3 EMISSION TEST

3.1 RADIATED EMISSION MEASUREMENT

3.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

TEST STANDARD: EN 61000-6-3

FOR FREQUENCY BELOW 1000 MHz

FREQUENCY (MHz)	3m	10m
	Quasi-Peak (dBuV/m)	Quasi-Peak (dBuV/m)
30 – 230	40	30
230 – 1000	47	37

FREQUENCY RANGE OF RADIATED MEASUREMENT
(For unintentional radiators)

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	Up to 5 times of the highest frequency or 6 GHz, whichever is less

FOR FREQUENCY ABOVE 1000 MHz

FREQUENCY (GHz)	3m	
	PEAK (dBuV/m)	AVERAGE (dBuV/m)
1 to 3	70	50
3 to 6	74	54

NOTE: (1) The lower limit shall apply at the transition frequencies.
(2) Emission level (dBuV/m) = 20 log Emission level (uV/m).

3.1.2 TEST INSTRUMENTS

FREQUENCY RANGE BELOW 1GHz

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESU26	100005	Aug. 24,18	Aug. 23,19
EMI Test Receiver	Rohde&Schwarz	ESR7	101564	Jan. 18,18	Jan. 17,19
Trilog-Broadband Antenna	SCHWARZBECK	VULB 9168	9168-555	Nov. 10, 18	Nov. 09, 19
Trilog-Broadband Antenna	SCHWARZBECK	VULB 9168	9168-554	Dec. 10, 18	Dec. 09, 19
Preamplifier	EMCI	EMC1135	980378	Mar. 19,18	Mar. 18,19
Preamplifier	EMCI	EMC1135	980423	Mar. 19,18	Mar. 18,19
10m Semi-anechoic Chamber	CHANGLING	21.4m*12.1m* 8.8m	NSEMC006	Feb. 10,18	Feb. 09,19
Test Software	ADT	ADT_Radiated _V8.7.07	N/A	N/A	N/A

NOTES: 1. The test was performed in 10m Chamber.
2. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

FREQUENCY RANGE ABOVE 1GHz

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Horn Antenna	ETS-Lindgren	3117	00085519	Dec. 10, 17	Dec. 09, 18
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170242	May 05,18	May 04,19
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV40	101003	Apr. 21,18	Apr. 20,19
Broadband Preamplifier (1~18GHz)	SCHWARZBECK	BBV9718	266	Apr. 18,18	Apr. 18,19
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Nov. 08,18	Nov. 07,19
Test Software	ADT	ADT_Radiated _V8.7.07	N/A	N/A	N/A

NOTES: 1. The test was performed in 10m Chamber.
2. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

3.1.3 TEST PROCEDURE

<Frequency Range below 1GHz>

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter semi-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The height of antenna is varied from 1 meter to 4 meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1GHz.

NOTE:

1. The resolution bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
3. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) (if the raw value not contains the amplifier).
4. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Amplifier Gain (dB) (if the raw value contains the amplifier).
5. Margin value = Emission level – Limit value.

<Frequency Range above 1GHz>

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The height of antenna can be varied from one meter to four meters, the height of adjustment depends on the EUT height and the antenna 3dB beamwidth both, to detect the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. The bore sight should be used during the test above 1GHz.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test receiver/spectrum was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.

NOTE:

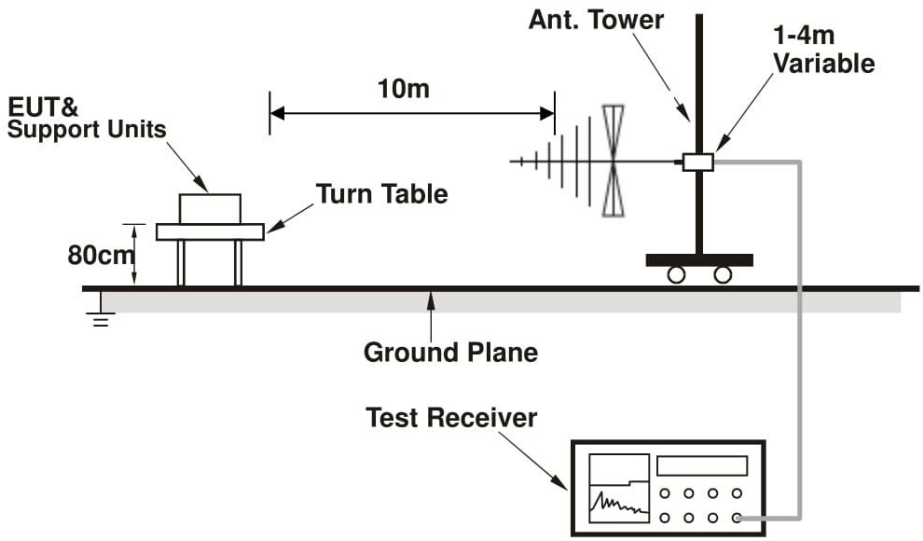
1. The resolution bandwidth is 1MHz and video bandwidth of test receiver/spectrum analyzer is 3MHz for Peak detection at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz for Average detection (AV) at frequency above 1GHz.
2. For measurement of frequency above 1000 MHz, the EUT was set 3 meters away from the receiver antenna.
3. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
4. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) (if the raw value not contains the amplifier).
5. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Amplifier Gain (dB) (if the raw value contains the amplifier).
6. Margin value = Emission level – Limit value.

3.1.4 DEVIATION FROM TEST STANDARD

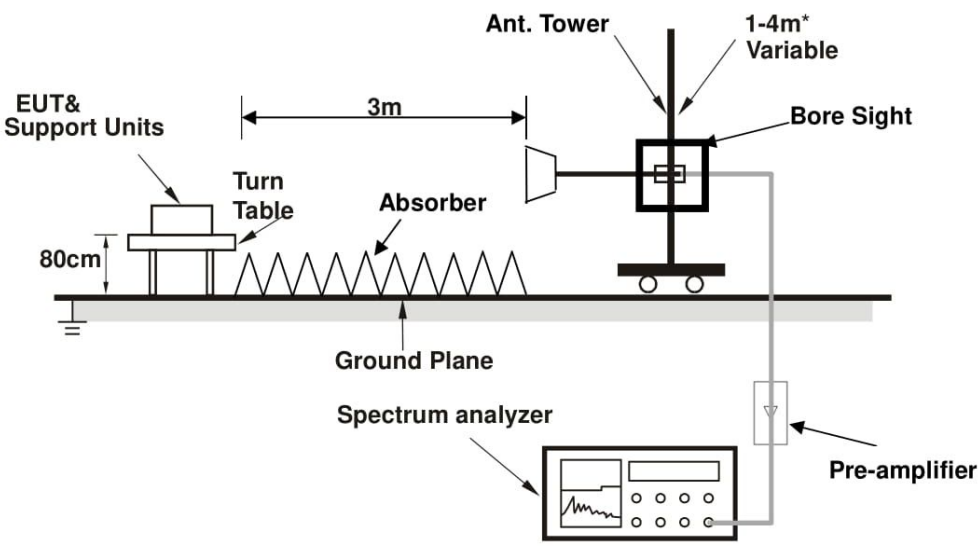
No deviation.

3.1.5 TEST SETUP

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



* : depends on the EUT height and the antenna 3dB beamwidth both, refer to section 7.3 of CISPR 16-2-3.

3.1.6 EUT OPERATING CONDITIONS

a. Turned on the power of all equipment.

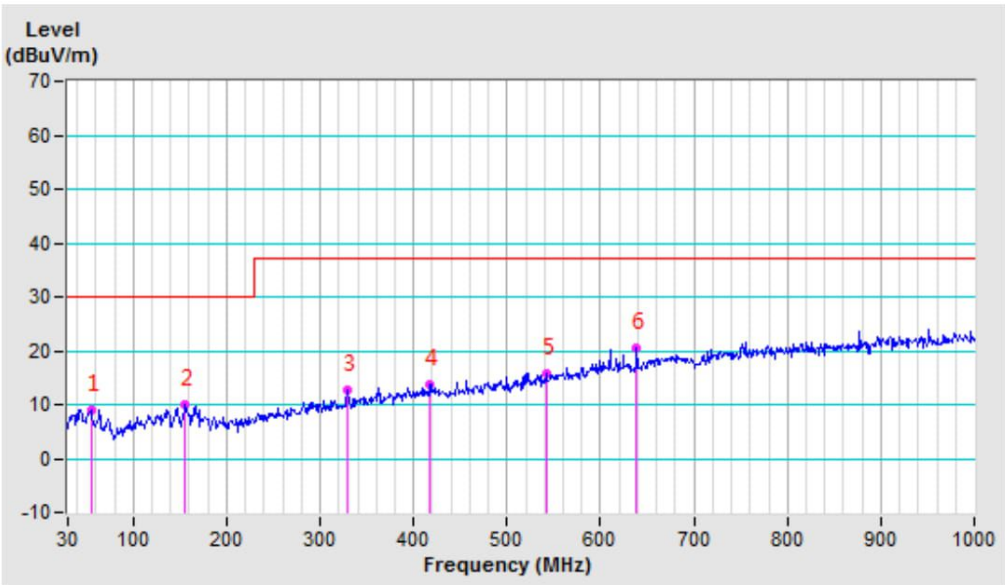
b. EUT was operated according to the type description in manufacturer's specifications or the User's Manual.

3.1.7 TEST RESULTS

TEST MODE	Normal Working	**FREQUENCY RANGE**	30-1000MHz
TEST VOLTAGE	DC 1.5V from Battery	**DETECTOR FUNCTION & RESOLUTION BANDWIDTH**	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	21deg. C, 54% RH	**TESTED BY**: Daniel	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 10 M								
No.	Freq. (MHz)	Correction Factor (dB/m)	Raw Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
1	54.735	-22.90	31.94	9.04	30.00	-20.96	400	162
2	156.100	-21.94	31.90	9.96	30.00	-20.04	200	264
3	328.760	-19.95	32.69	12.74	37.00	-24.26	400	58
4	417.636	-17.81	31.65	13.84	37.00	-23.16	400	131
5	542.160	-15.41	31.16	15.75	37.00	-21.25	200	43
6	**638.433**	**-13.24**	**33.72**	**20.48**	**37.00**	**-16.52**	**400**	**49**

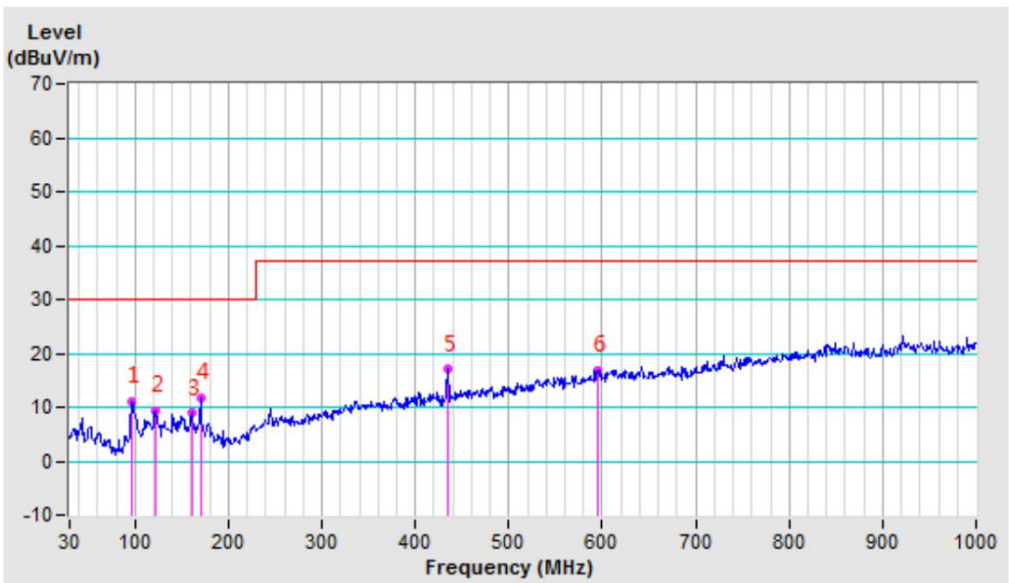
REMARKS: 1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
2. Negative sign (-) in the margin column signify levels below the limit.
3. Frequency range scanned: 30MHz to 1000MHz.
4. Only emissions significantly above equipment noise floor are reported.



TEST MODE	Normal Working	FREQUENCY RANGE	30-1000MHz
TEST VOLTAGE	DC 1.5V from Battery	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	21deg. C, 54% RH	TESTED BY: Daniel	

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 10 M								
No.	Freq. (MHz)	Correction Factor (dB/m)	Raw Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
1	96.448	-25.58	36.67	11.09	30.00	-18.91	100	309
2	121.864	-23.04	32.45	9.41	30.00	-20.59	100	357
3	160.278	-21.03	29.86	8.83	30.00	-21.17	100	359
4	170.221	-21.70	33.41	11.71	30.00	-18.29	100	357
5	434.413	-16.36	33.39	17.03	37.00	-19.97	100	357
6	595.296	-12.44	29.36	16.92	37.00	-20.08	300	242

REMARKS: 1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
2. Negative sign (-) in the margin column signify levels below the limit.
3. Frequency range scanned: 30MHz to 1000MHz.
4. Only emissions significantly above equipment noise floor are reported.



4 IMMUNITY TEST

4.1 GENERAL DESCRIPTION

4.1.1 GENERAL DESCRIPTION OF EN 61000-6-1

Product Standard:	**EN 61000-6-1:2007**	
Basic Standard, specification requirement, and Performance Criteria:	IEC 61000-4-2	Electrostatic Discharge – ESD: 8kV air discharge, 4kV Contact discharge, Performance Criterion B
	IEC 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test – RS: 80-1000 MHz, 3V/m, 80% AM (1kHz), 1400-2000 MHz, 3V/m, 80% AM (1kHz) 2000-2700 MHz, 1V/m, 80% AM (1kHz) Performance Criterion A
	IEC 61000-4-8	Power Frequency Magnetic Field Test, 50 Hz, 1A/m, Performance Criterion A

4.1.2 PERFORMANCE CRITERIA

According to Clause 7.1 of EN 61000-6-1 standard, the following describes the general performance criteria.

CRITERION A	The apparatus 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 apparatus 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 apparatus if used as intended.
CRITERION B	The apparatus 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 apparatus 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 apparatus if used as intended.
CRITERION C	Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls.

4.1.3 EUT OPERATING CONDITION

Same as item 3.1.6

4.2 ELECTROSTATIC DISCHARGE IMMUNITY TEST (ESD)

4.2.1 TEST SPECIFICATION

Basic Standard:	IEC 61000-4-2
Discharge Impedance:	330 ohm / 150 pF
Discharge Voltage:	Air Discharge: 8kV (Direct) Contact Discharge : 4 kV (Direct &Indirect)
Polarity:	Positive & Negative
Number of Discharge:	20 times at each test point
Discharge Mode:	Single Discharge
Discharge Period:	1 second minimum

4.2.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
ESD Generator	TESEQ	NSG 437	279	Mar. 31,18	Mar. 30,19
Test Software	TESEQ	V03.03	N/A	N/A	N/A
ESD Generator	EM TEST	Dito	V1211112265	Jan. 16,18	Jan. 15,19
Test Software	EM TEST	V 2.31	N/A	N/A	N/A

NOTE: 1. The test was performed in ESD Room.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

4.2.3 TEST PROCEDURE

The basic test procedure was in accordance with IEC 61000-4-2:

a. Electrostatic discharges were applied only to those points and surfaces of the EUT that are accessible to users during normal operation.

b. The test was performed with at least ten single discharges on the pre-selected points in the most sensitive polarity.

c. The time interval between two successive single discharges was at least 1 second.

d. The discharge return cable of the generator shall be kept at a distance of at least 0.2 m from the EUT whilst the discharge is being applied and should not be held by the operator.

e. Contact discharges were applied to the non-insulating coating, with the pointed tip of the generator penetrating the coating and contacting the conducting substrate.

f. Air discharges were applied with the round discharge tip of the discharge electrode approaching the EUT as fast as possible (without causing mechanical damage) to touch the EUT. After each discharge, the ESD generator was removed from the EUT and re-triggered for a new single discharge. The test was repeated until all discharges were complete.

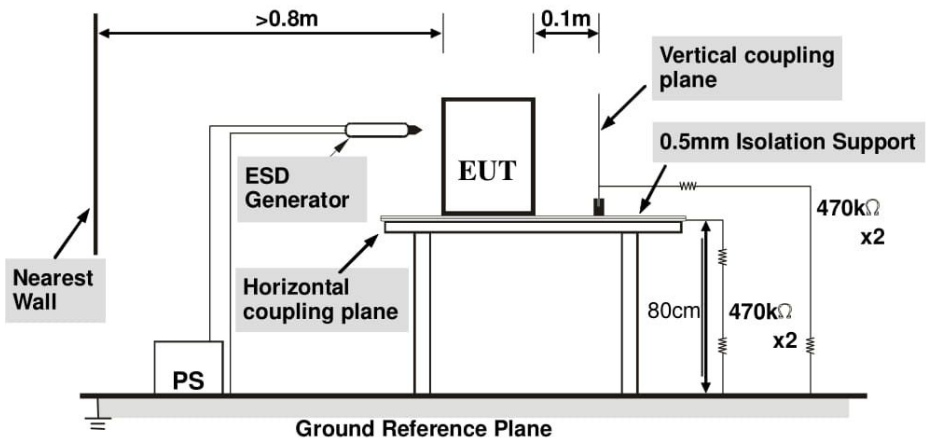
g. At least ten single discharges (in the most sensitive polarity) were applied to the **H**orizontal **C**oupling **P**lane at points on each side of the EUT. The ESD generator was positioned horizontal at a distance of 0.1 meters from the EUT with the discharge electrode touching the **HCP.**

h. At least ten single discharges (in the most sensitive polarity) were applied to the center of one vertical edge of the **V**ertical **C**oupling **P**lane in sufficiently different positions that the four faces of the EUT were completely illuminated. The **VCP** (dimensions 0.5m x 0.5m) was placed vertically to and 0.1 meters from the EUT.

4.2.4 DEVIATION FROM TEST STANDARD

No Deviation.

4.2.5 TEST SETUP



NOTE:

TABLE-TOP EQUIPMENT

The configuration consisted of a wooden table 0.8 meters high standing on the **G**round **R**eference **P**lane. The **GRP** consisted of a sheet of aluminum at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system. A **H**orizontal **C**oupling **P**lane (1.6m x 0.8m) was placed on the table and attached to the **GRP** by means of a cable with 940kΩ total impedance. The equipment under test, was installed in a representative system as described in section 7 of IEC 61000-4-2, and its cables were placed on the **HCP** and isolated by an insulating support of 0.5mm thickness. A distance of 0.8-meter minimum was provided between the EUT and the walls of the laboratory and any other metallic structure.

FLOOR-STANDING EQUIPMENT

The equipment under test was installed in a representative system as described in section 7 of IEC 61000-4-2, and its cables were isolated from the Ground Reference Plane by an insulating support of 0.1-meter thickness. The GRP consisted of a sheet of aluminum that is at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system and extended at least 0.5 meters from the EUT on all sides.

4.2.6 TEST RESULTS

TEST MODE	Normal Working	TEST VOLTAGE	DC 1.5V from Battery
ENVIRONMENTAL CONDITIONS	25.2deg. C, 39.8% RH, 101.5kPa	TESTED BY: Xue Wang	

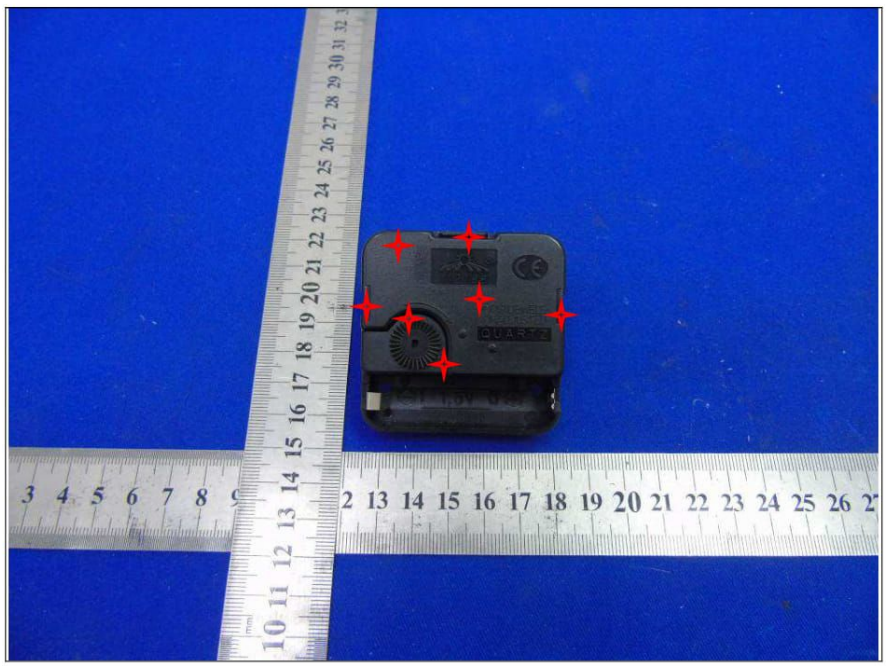
DIRECT DISCHARGE APPLICATION				
Test Level (kV)	Polarity (+/-)	Test Point	Test Result of Contact Discharge	Test Result of Air Discharge
4	+/-	All Metal Parts	A	N/A
8	+/-	All Nonmetal Parts	N/A	A

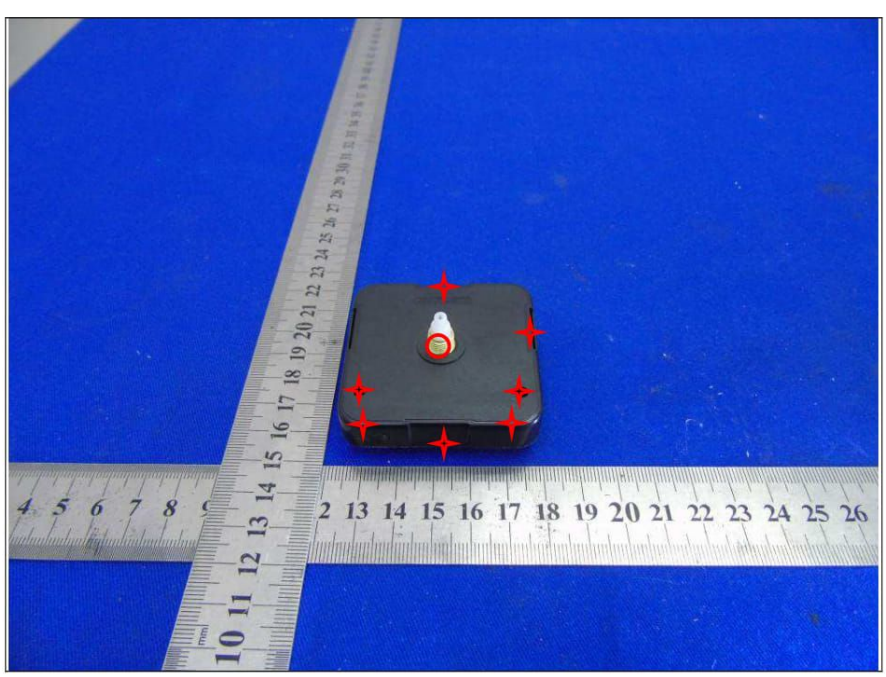
INDIRECT DISCHARGE APPLICATION				
Test Level (kV)	Polarity (+/-)	Test Point	Test Result of HCP	Test Result of VCP
4	+/-	HCP	A	N/A
4	+/-	VCP	N/A	A

NOTE: A: There was no change compared with the initial operation during the test.

ESD TEST POINT

(Direct Contact Discharge; -Air Discharge)





4.3 RADIATED, RADIO-FREQUENCY, ELECTROMAGNETIC FIELD IMMUNITY TEST (RS)

4.3.1 TEST SPECIFICATION

Basic Standard:	IEC 61000-4-3
Frequency Range:	80-1000MHz, 1400-2000MHz, 2000-2700MHz
Field Strength:	3 V/m,3V/m,1V/m
Modulation:	1kHz Sine Wave, 80%, AM Modulation
Frequency Step:	1 % of fundamental
Polarity of Antenna:	Horizontal and Vertical
Antenna Height:	1.5m
Dwell Time:	at least 3 seconds

4.3.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Signal Generator	Agilent	N5181A	MY50142530	Oct. 17,18	Oct. 16,19
Antenna Log-Periodic	AR	ATR80M6G	0337307	N/A	N/A
Antenna Log-Periodic	AR	ATS700M11G	0336821	N/A	N/A
Switch Controller	AR	SC1000	0337343	N/A	N/A
RF Power Meter	ESE	4242	13984	Jan. 02,18	Jan. 01,19
Power Sensor	ESE	51011EMC	35716	Jan. 02,18	Jan. 01,19
Power Sensor	ESE	51011EMC	35715	Jan. 02,18	Jan. 01,19
E-Field probe	Narda	NBM-520	2403/01B	Sep. 25,18	Sep. 24,19
Power Amplifier	TESEQ	CBA 1G-150	T44029	N/A	N/A
Power Amplifier	TESEQ	CBA 3G-100	T44030	N/A	N/A
Power Amplifier	TESEQ	CBA 6G-050	1041204	N/A	N/A
Dual Directional Coupler	TESEQ	C5982	95208	Nov. 09,18	Nov. 08,19
Dual Directional Coupler	TESEQ	C6187	95175	Nov. 09,18	Nov. 08,19
Dual Directional Coupler	TESEQ	CPH-274F	M251304-01	Nov. 09,18	Nov. 08,19
Test Software	Tonscend	TS+	2.5.0.0	N/A	N/A
Test Software	ADT	BVADT_RS_V7.6.4-DG	N/A	N/A	N/A

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
2. The test was performed in RS chamber.

4.3.3 TEST PROCEDURE

The test procedure was in accordance with IEC 61000-4-3

a. The testing was performed in a fully-anechoic chamber.

b. The frequency range is swept from 80 MHz to 1000 MHz, 1400MHz to 2000MHz, 2000MHz to 2700MHz with the signal 80% amplitude modulated with a 1kHz sine wave.

c. The dwell time at each frequency shall not be less than the time necessary for the EUT to be exercised and to respond, but shall in no case be less than 0,5s.

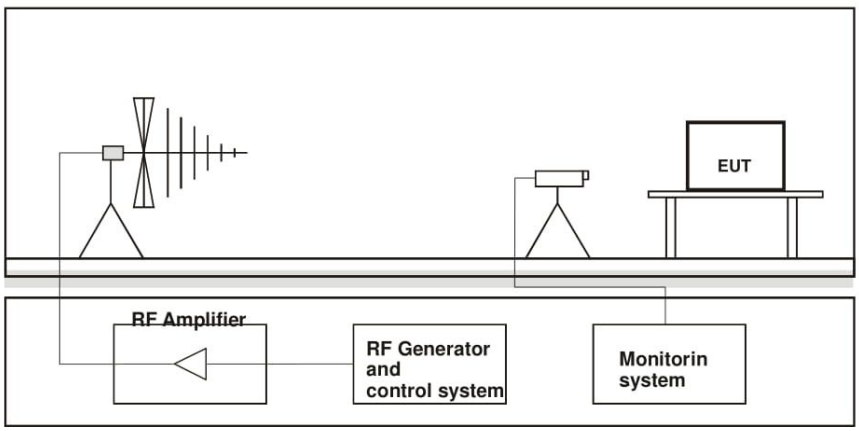
d. The field strength levels were 3V/m, 1V/m.

e. The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.

4.3.4 DEVIATION FROM TEST STANDARD

No Deviation.

4.3.5 TEST SETUP



NOTE:

TABLETOP EQUIPMENT
The EUT installed in a representative system as described in section 7 of IEC 61000-4-3 was placed on a non-conductive table 0.8 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

FLOOR STANDING EQUIPMENT
The EUT installed in a representative system as described in section 7 of IEC 61000-4-3 was placed on a non-conductive wood support 0.1 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

4.3.6 TEST RESULTS

TEST MODE	Normal Working	TEST VOLTAGE	DC 1.5V from Battery
ENVIRONMENTAL CONDITIONS	25.3deg. C, 58.1 % RH	TESTED BY: Andy	

Field Strength (V/m)	Test Frequency Note#1 (MHz)	Polarization of antenna (Horizontal / Vertical)	Test Distance (m)	Test Result	Remark
3	80-1000	H&V	3	A	N/A
3	1400-2000	H&V	3	A	N/A
1	2000-2700	H&V	3	A	N/A

NOTE: A: There was no change compared with initial operation during the test.

4.4 POWER FREQUENCY MAGNETIC FIELD IMMUNITY TEST

4.4.1 TEST SPECIFICATION

Basic Standard:	IEC 61000-4-8
Frequency Range:	50Hz/60Hz
Field Strength:	3A/m
Observation Time:	5 minute
Inductance Coil:	Rectangular type, 1mx1m

4.4.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Magnetic Field Tester	HAEFELY	MAG100.1	150579	Oct. 20,18	Oct. 19,19
Test Software	N/A	N/A	N/A	N/A	N/A

NOTE: 1. The test was performed in Shielding Room 843. .
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

4.4.3 TEST PROCEDURE

a. The equipment is configured and connected to satisfy its functional requirements.

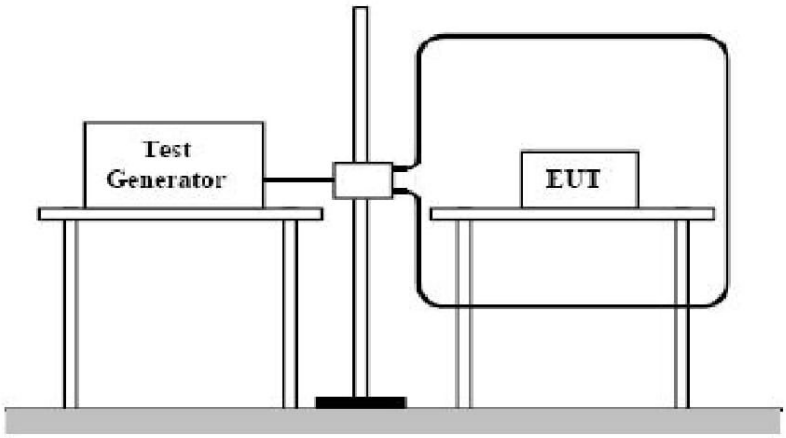
b. The power supply, input and output circuits shall be connected to the sources of power supply, control and signal.

c. The cables supplied or recommended by the equipment manufacturer shall be used. 1 meter of all cables used shall be exposed to the magnetic field.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation.

4.4.5 TEST SETUP



NOTE:

TABLETOP EQUIPMENT
The equipment shall be subjected to the test magnetic field by using the induction coil of standard dimension (1 m x 1 m). The induction coil shall then be rotated by 90 degrees in order to expose the EUT to the test field with different orientations.

FLOOR-STANDING EQUIPMENT
The equipment shall be subjected to the test magnetic field by using induction coils of suitable dimensions. The test shall be repeated by moving and shifting the induction coils, in order to test the whole volume of the EUT for each orthogonal direction. The test shall be repeated with the coil shifted to different positions along the side of the EUT, in steps corresponding to 50 % of the shortest side of the coil. The induction coil shall then be rotated by 90 degrees in order to expose the EUT to the test field with different orientations.

4.4.6 TEST RESULTS

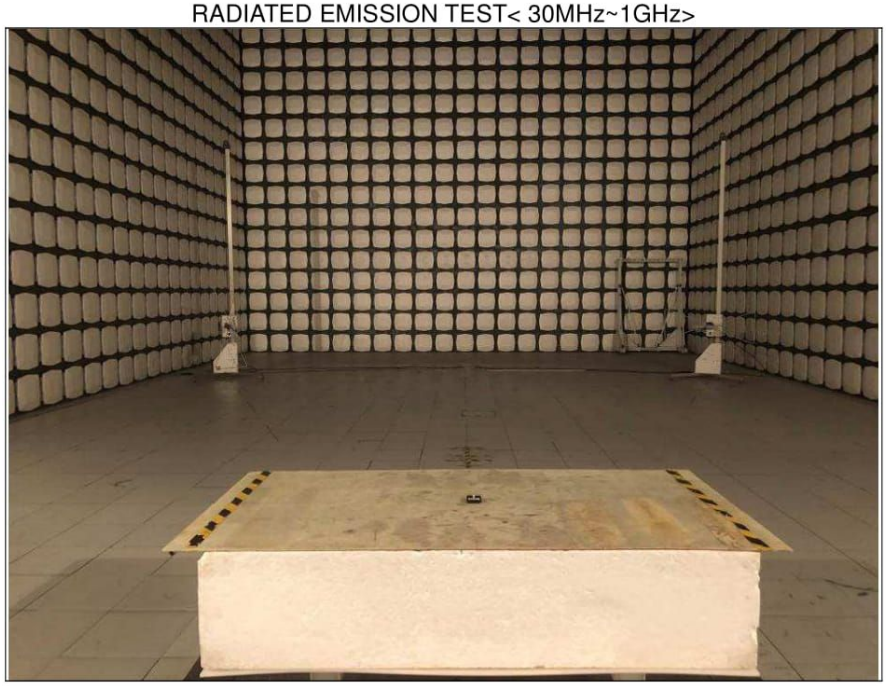
TEST MODE	Normal Working	TEST VOLTAGE	DC 1.5V from Battery
ENVIRONMENTAL CONDITIONS	21.7deg. C, 54.5% RH	TESTED BY: Walker	

Magnetic field direction	Testing result	Remark
X - Axis	A	3A/m
Y - Axis	A	3A/m
Z - Axis	A	3A/m

NOTE: A: There was no change compared with initial operation during the test.

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

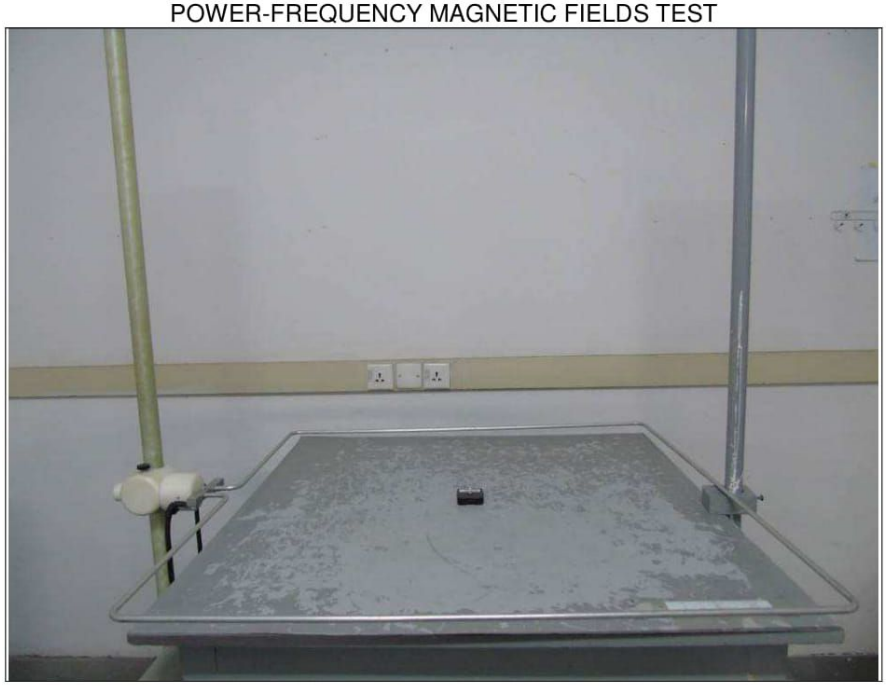
RADIATED EMISSION TEST< 30MHz~1GHz>



ESD TEST

RS TEST

POWER-FREQUENCY MAGNETIC FIELDS TEST



6 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications were made to the EUT by the lab during the test.

---END---

LAVA Group S.C.
ul. Romera 4b, 02-784 Warszawa
tel. +4822 3314100

DEKLARACJA ZGODNOŚCI WE
EC DECLARATION OF CONFORMITY

My / We **LAVA GROUP S.C./ Reiter Polska Sp. Z o.o.**
(nazwa producenta/ manufacturer's name)

Ul. Eugeniusza Romera 4B, 02-784 Warszawa
(adres producenta / manufacturer's address)

niniejszym deklarujemy, że następujący wyrób:
declare, under our responsibility, that the product:

Zegar ścienny WS04 / Wall clock SAINT-TROPEZ WS04
(nazwa wyrobu / name of the article) (typ wyrobu / type or model)

Spełnia wymagania następujących norm:
to which this declaration relates is in conformity with the following standards:

EN 61000-6-3:2007+A1:2011+AC:2012
EN 61000-6-1:2019
EN 61000-4-2:2009

(numer i data wydania normy / title, number and date of issue of the standards)

oraz jest zgodny z postanowieniami następujących rozporządzeń (dyrektyw):
(following the provisions of):

The EMC Directive 2014/30/EU

RoHS Directive (EU) 2015/863 amending 2011/65/EU

Reiter Polska Sp. z o.o.
ul. Romera 4B, 02-784 Warszawa
tel. +48 22 3314100, fax +48 22 3314121
NIP: PL 1230976691, REGON: 015314971

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tel.+48 22 3314100, fax+48 22 3314121
NIP: PL 9512159257, REGON: 140271236

Warszawa dnia 18.09.2022r.

VERIFICATION OF EMC COMPLIANCE

Verification No.:	[illegible]
Applicant:	[illegible]
Address of Applicant:	[illegible]
Manufacturer:	The same as applicant
Address of Manufacturer:	The same as applicant
Factory:	The same as applicant
Address of Factory:	The same as applicant
Product Description:	Movement
Model No.:	SANGTAI6168S, SANGTAI5168S, SANGTAI5168, 6168, SANGTAI6168, SANGTAI7168, SANGTAI7168S, SANGTAI5168L, SANGTAI5168SL, SANGTAIm5, SANGTAI6168L, ST6168SR, SANGTAI6168SL
Trade Mark:	SANGTAI

Sufficient samples of the product have been tested and found to be in conformity with

Test Standards:	EN IEC 61000-6-1: 2019 EN IEC 61000-6-3: 2021
As shown in the Test Report Number(s):	[illegible]

This verification of EMC Compliance has been granted to the applicant based on the results of the tests, performed by laboratory of SGS-CSTC Standards Technical Services Co., Ltd. on the sample of the above-mentioned product in accordance with the provisions of the relevant specific standards under Directive 2014/30/EU.

The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EU Declaration of Conformity and compliance with all relevant EU Directives.

SGS-CSTC STANDARDS TECHNICAL SERVICES CO.,LTD. GUANGZHOU BRANCH EMC LAB 电子电气实验室

Kobe Jian
EMC Laboratory Manager

CE

Date: 2022-12-01

TEST REPORT

Application No.:	
Applicant:	
Address of Applicant:	
Manufacturer:	The same as applicant
Address of Manufacturer:	The same as applicant
Factory:	The same as applicant
Address of Factory:	The same as applicant
Equipment Under Test (EUT):	
EUT Name:	Movement
Model No.:	SANGTAI6168S, SANGTAI5168S, SANGTAI5168, 6168, SANGTAI6168, SANGTAI7168, SANGTAI7168S, SANGTAI5168L, SANGTAI5168SL, SANGTAIm5, SANGTAI6168L, ST6168SR, SANGTAI6168SL ♣
♣	Please refer to section 2 of this report which indicates which item was actually tested and which were electrically identical.
Trade Mark:	SANGTAI
Standard(s) :	EN IEC 61000-6-3: 2021
	EN IEC 61000-6-1: 2019
Date of Receipt:	2022-11-21
Date of Test:	2022-11-23 to 2022-11-25
Date of Issue:	2022-12-01
Test Result:	**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

Kobe Jian
EMC Laboratory Manager

Revision Record			
Version	**Report No.**	**Date**	**Remark**
01		2022-12-01	Original

Authorized for issue by:				
		Michael Huang **Michael Huang/Project Engineer**		
		Terry Lai **Terry Lai/Reviewer**		

2 Test Summary

Emission Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Radiated Emissions (30MHz-1GHz)	EN IEC 61000-6-3: 2021	CISPR 16-2-3	Table 3.1	Pass

Immunity Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Electrostatic Discharge	EN IEC 61000-6-1: 2019	EN 61000-4-2:2009	±4kV Contact Discharge, ±8kV Air Discharge	Pass
Radiated Immunity (80MHz-6GHz)		EN IEC 61000-4-3: 2020	3V/m, 80%, 1kHz Amp. Mod.	Pass

Note:

E.U.T./EUT means Equipment Under Test.

Pass means the test result passed the test standard requirement, please find the detailed decision rule in the report relative section.

♣ Declaration of EUT Family Grouping:

Model No.: SANGTAI6168S, SANGTAI5168S, SANGTAI5168, 6168, SANGTAI6168, SANGTAI7168, SANGTAI7168S, SANGTAI5168L, SANGTAI5168SL, SANGTAIm5, SANGTAI6168L, ST6168SR, SANGTAI6168SL

Only the model SANGTA16168S was tested.

According to the declaration from the applicant, the electrical circuit design, layout, components used and internal wiring were identical for all models, with only difference being the color, model name and appearance.

3 Contents

4 General Information

4.1 Details of E.U.T.

Power supply: Battery Operation(B/O): DC 1.5V"AA" battery
Test voltage: DC 1.5V
Highest operating frequency: Less than 108MHz

Cable(s): N/A

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
--	--	--	--
The EUT has been tested as an independent unit.			

4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Radiated Emissions (30MHz-1GHz)	5.00dB (30MHz-1GHz):3m; 4.38dB (30MHz-1GHz):10m
Remark: The U_{lab} (lab Uncertainty) is less than U_{cispr} (CISPR Uncertainty), so the test results – compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit; – non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.	

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,

198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District, Guangzhou, China 510663

Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.

4.5 Test Facility

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

- **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian/New Zealand Regulatory Compliance Mark (RCM).

- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

- **FCC Recognized Accredited Test Firm(Registration No.: 486818)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818.

- **ISED (Registration No.: 4620B, CAB identifier: CN0052)**

SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Innovation Science and Economic Development Canada for Wireless Device Testing laboratories to test to Canadian radio equipment requirements. Registration No. 4620B, CAB identifier: CN0052.

- **VCCI (Registration No.: R-12460, C-12584, G-20107 and T-11179)**

The 10m Semi-anechoic chamber, 966 Anechoic Chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-12460, C-12584, G-20107 and T-11179 respectively.

- **CBTL (Lab Code: TL129)**

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2017, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

4.8 EMS Monitor

Visual: Moving of the EUT.
Audio: N/A
Other: N/A

5 Equipment List

Radiated Emissions (30MHz-1GHz)					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
EMI Test Receiver (10Hz-26.5GHz)	Rohde & Schwarz	ESIB26	EMC0522	2021-12-17	2022-12-16
10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2022-10-16	2025-10-15
Chamber cable	HangTianXing	N/A	EMC0542	2022-08-24	2023-08-23
Amplifier (9kHz-1.3GHz)	HP	8447F	EMC2065	2022-06-21	2023-06-20
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A
Trilog Broadband Antenna (25MHz-1GHz)	SCHWARZBECK MESS-ELEKTRONIK	VULB 9168	EMC2174	2022-06-19	2025-06-18

Electrostatic Discharge					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Temperature & Humidity	Shanghai Meteorological Instrument Factory Co., Ltd.	ZJ1-2B	EMC0078	2022-06-26	2023-06-25
ESD Ground Plane	SGS-EMC	3m x 3m	EMC0804	N/A	N/A
Aneroid Barometer	Shanghai Meteorological Instrument Factory Co., Ltd.	YM3	EMC2181	2022-11-18	2023-11-17
ESD Simulator-E	EMTEST	NX30	EMC2186	2022-02-27	2023-02-26

Radiated Immunity (80MHz-6GHz)					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
743 Compact 3m Semi-Anechoic Chamber	ChangZhou ZhongYu	N/A	EMC0525	2022-10-16	2025-10-15
Monitor System	Mitsubish Corp.	M-0552AB	EMC0909	N/A	N/A
Oscilloscope	Tektronix	TDS3052C	EMC2055	2022-11-17	2023-11-16
Laser Probe Interface	RF Microwave Instrumentation	FI7000	EMC2089	N/A	N/A
Open Switch And Control Unit	Rohde & Schwarz	OSP130	EMC2090	N/A	N/A
Broadband Amplifier (80MHz~1GHz/250W)	Rohde & Schwarz	BBA150	EMC2091	2021-12-17	2022-12-16
Broadband Amplifier (800MHz~3GHz/110W)	Rohde & Schwarz	BBA150	EMC2092	2021-12-17	2022-12-16
Signal Generator (9kHz-6GHz)	Rohde & Schwarz	SMB100A	EMC2093	2021-12-17	2022-12-16
Laser Probe	RF Microwave Instrumentation	FL7006	EMC2094	2022-03-03	2023-03-02
NRP-Z91 Power Sensor (9kHz-6GHz)	Rohde & Schwarz	NPR-Z91	EMC2095	2021-12-17	2022-12-16
NRP-Z91 Power Sensor (9kHz-6GHz)	Rohde & Schwarz	NPR-Z91	EMC2096	2021-12-17	2022-12-16
High-Gain Log-preiodic Antenna	Rohde & Schwarz	HL046E	EMC2097	2022-02-14	2025-02-13
RI Cable	Rohde & Schwarz	7m	EMC2098	2022-05-20	2023-05-19
Broadband Amplifier (2.5~6GHZ/30W)	Rohde & Schwarz	BBA150	EMC2105	2022-09-21	2023-09-20
Audio Analyzer	Keysight	U8903B	EMC2180	2022-09-07	2023-09-06
Test Software EMC32	Rohde & Schwarz	Ver. 9.26.00	GZE100-63	N/A	N/A
Stacked Logarithmic-Periodic Broadband Antenna (0.7~9GHz)/300W	Schwarzbeck	STLP 9149	SEM003-21	2021-09-18	2024-09-17

General used equipment					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
DMM	Fluke	73	EMC0006	2022-06-24	2023-06-23
DMM	Fluke	73	EMC0007	2022-06-24	2023-06-23

No.198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District, Guangzhou, China 510663 t (86-20) 82155555 f (86-20) 82075058 www.sgsgroup.com.cn
中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075058 sgs.china@sgs.com

6 Emission Test Results

6.1 Radiated Emissions (30MHz-1GHz)

Test Requirement: EN IEC 61000-6-3: 2021

Test Method: CISPR 16-2-3

Limit:

Test Distance: 10m

30MHz-230MHz 30 dB(μV/m) quasi-peak

230MHz-1GHz 37 dB(μV/m) quasi-peak

Detector: Peak for pre-scan (120kHz resolution bandwidth) 30MHz to 1000MHz

6.1.1 E.U.T. Operation

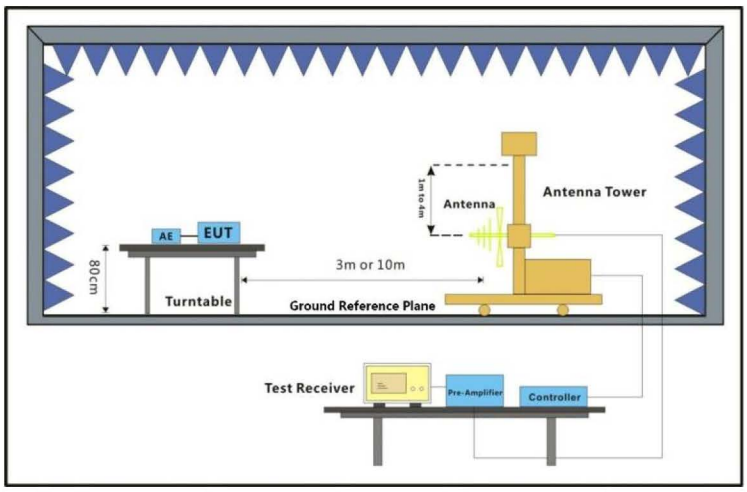
Operating Environment:

Temperature: 23.2 °C Humidity: 56.3 % RH Atmospheric Pressure: 1014 mbar

6.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Test the EUT in axis moving mode.

6.1.3 Test Setup Diagram



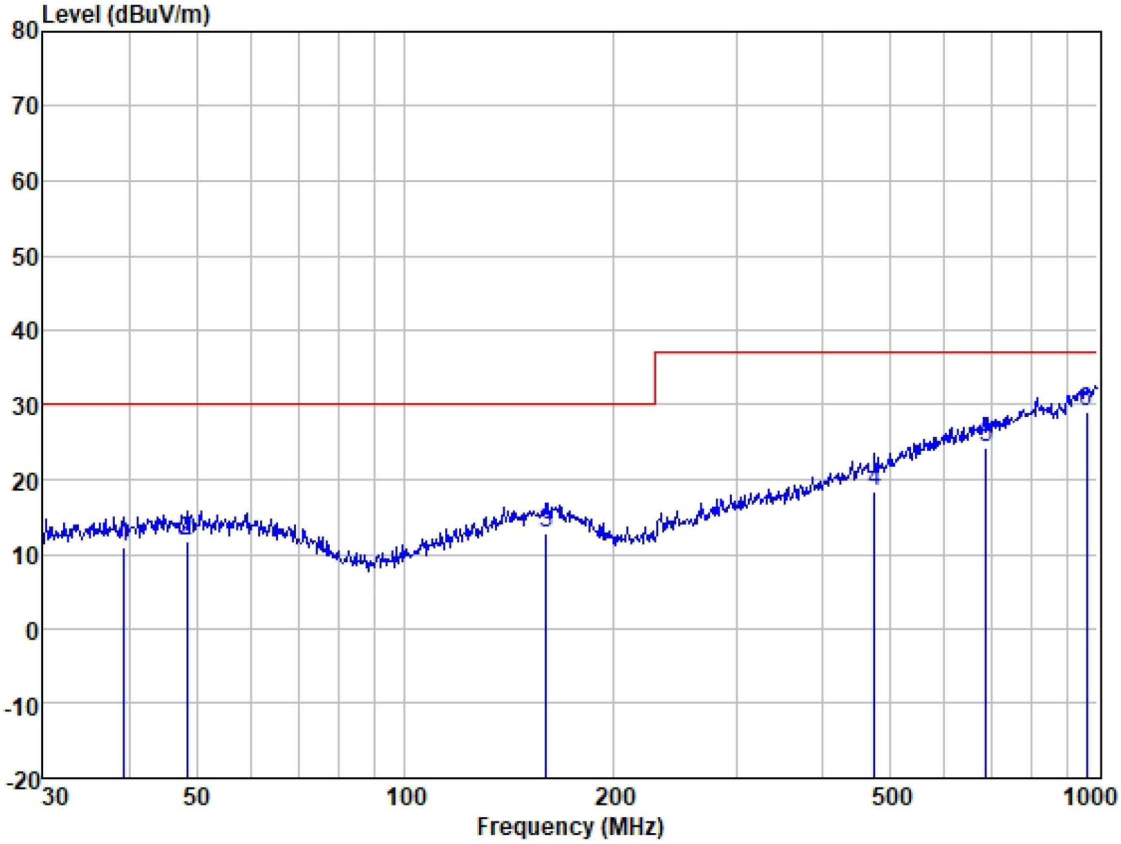
6.1.4 Measurement Procedure and Data

Frequency range: 30MHz-1GHz

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.The red line show in graphic is the limit in standard used in this section.

Level=Read Level + Antenna Factor + Cable Loss - Preamp Factor

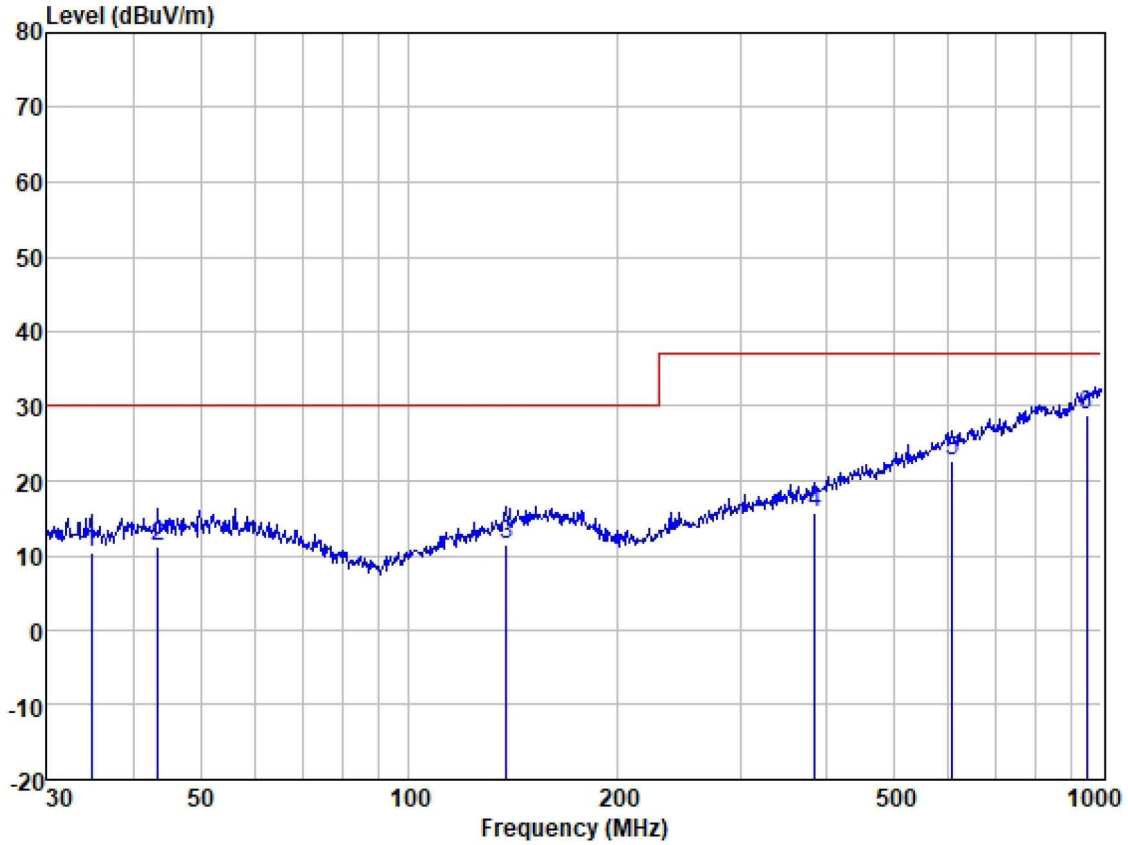
Test Mode: 00; Polarity: Horizontal




```
Site        : SGS
Job         :
Model       : M1
Power       :
Test Mode   :
```

	Freq	Read Level	Anterna Factor	Cable Loss	Preamp Factor	Measured Level	Limit Line	Over Limit	Pol/ Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	39.299	24.09	13.50	1.08	27.61	11.06	30.00	-18.94	HORIZONTAL	QP
2	48.332	24.16	13.97	1.12	27.60	11.65	30.00	-18.35	HORIZONTAL	QP
3	159.784	24.04	13.69	2.32	27.36	12.69	30.00	-17.31	HORIZONTAL	QP
4	475.499	25.24	17.31	4.32	28.51	18.36	37.00	-18.64	HORIZONTAL	QP
5	689.565	26.25	21.34	5.46	28.71	24.34	37.00	-12.66	HORIZONTAL	QP
6	962.162	25.81	24.39	6.90	28.06	29.04	37.00	-7.96	HORIZONTAL	QP

Test Mode: 00; Polarity: Vertical



Site : SGS
Job :
Model : M1
Power :
Test Mode :

	Freq	Read Level	Anterna Factor	Cable Loss	Preamp Factor	Measured Level	Limit Line	Over Limit	Pol/ Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	34.760	23.95	12.97	1.05	27.63	10.34	30.00	-19.66	VERTICAL	QP
2	43.353	23.97	13.82	1.10	27.61	11.28	30.00	-18.72	VERTICAL	QP
3	137.903	24.07	12.91	2.03	27.48	11.53	30.00	-18.47	VERTICAL	QP
4	385.281	24.62	15.25	3.82	27.94	15.75	37.00	-21.25	VERTICAL	QP
5	607.787	26.33	20.15	5.02	28.79	22.71	37.00	-14.29	VERTICAL	QP
6	948.761	26.09	24.19	6.70	28.09	28.89	37.00	-8.11	VERTICAL	QP

7 Immunity Test Results

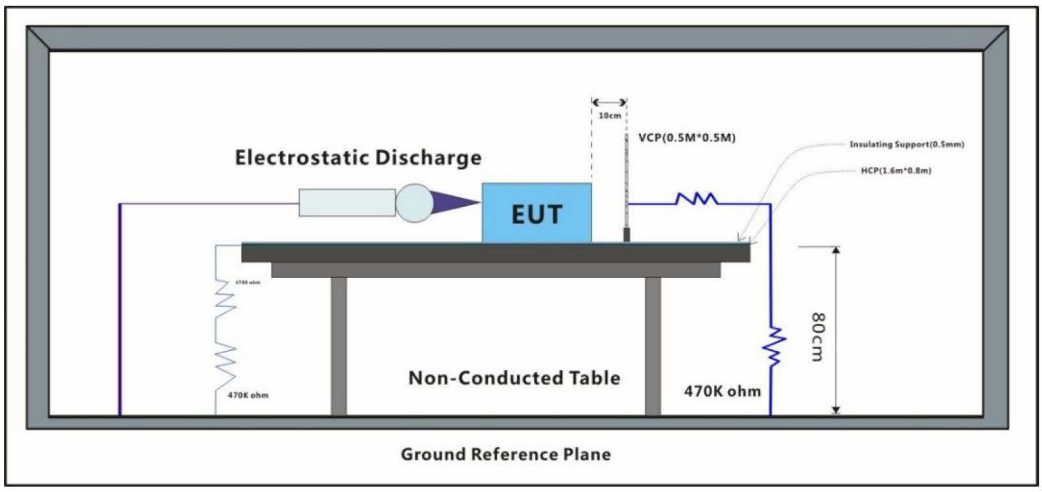
Performance Criteria Description in EN IEC 61000-6-1:2019

Criterion A	The EUT 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 EUT is used as intended. If the performance level is not specified by the manufacturer, this may be derived from the product description and documentation and what the user may reasonably expect from the equipment if used as intended.
Criterion B	The EUT 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 EUT is used as intended. The performance level may be replaced by a permissible loss of performance. However, during the test degradation of performance is allowed but 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.
Criterion C	Temporary loss of function is allowed during the test, provided the function is self-recoverable or can be restored by the operation of the controls.

7.1 Electrostatic Discharge

Test Requirement: EN IEC 61000-6-1: 2019
Test Method: EN 61000-4-2:2009

7.1.1 Test Setup Diagram



7.1.2 E.U.T. Operation

Operating Environment:
Temperature: 22.2 °C Humidity: 50.7 % RH Atmospheric Pressure: 1014 mbar

7.1.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Test the EUT in axis moving mode.

7.1.4 Test Condition and Results:

Performance Criterion: B
Discharge Impedance: 330Ω/150pF
Number of Discharge: Minimum 10 times at each test point
Discharge Mode: Single Discharge
Discharge Period: 1 second minimum
Test Point: 1. All insulated enclosure and seams.
2. All accessible metal parts of the enclosure.
3. All side

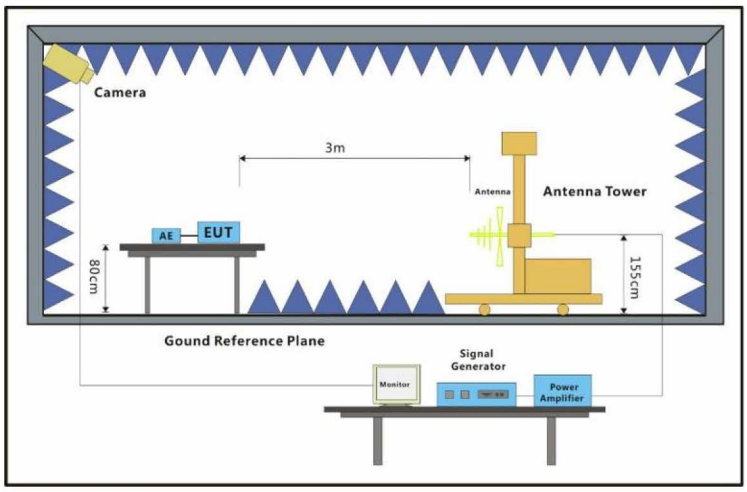
Discharge type	Level (kV)	Polarity	Test Point	Result / Observations
Air Discharge	2,4,8	+	1	A
Air Discharge	2,4,8	-	1	A
Contact Discharge	4	+	2	A
Contact Discharge	4	-	2	A
Horizontal Coupling	4	+	3	A
Horizontal Coupling	4	-	3	A
Vertical Coupling	4	+	3	A
Vertical Coupling	4	-	3	A
A: No degradation in the performance of the EUT was observed				

7.2 Radiated Immunity (80MHz-6GHz)

Test Requirement: EN IEC 61000-6-1: 2019

Test Method: EN IEC 61000-4-3: 2020

7.2.1 Test Setup Diagram



7.2.2 E.U.T. Operation

Operating Environment:

Temperature: 23.6 °C Humidity: 56.1 % RH Atmospheric Pressure: 1014 mbar

7.2.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Test the EUT in axis moving mode.

7.2.4 Test Condition and Results:

Performance Criterion:A

Antenna Polarisation:Vertical and Horizontal

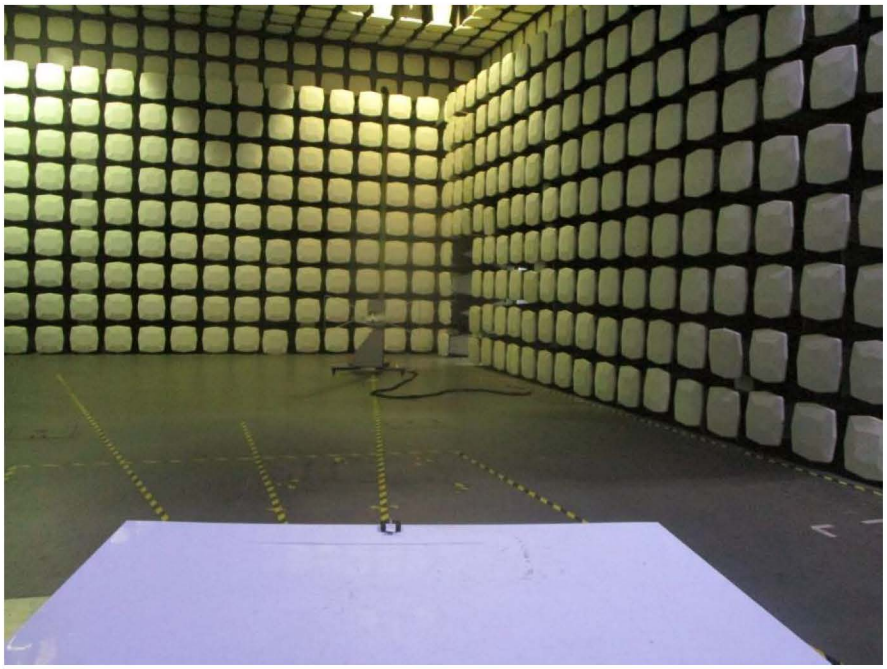
Modulation:1kHz,80% Amp. Mod,1% increment

Frequency Range:80MHz to 1GHz, 1.4GHz to 6GHz

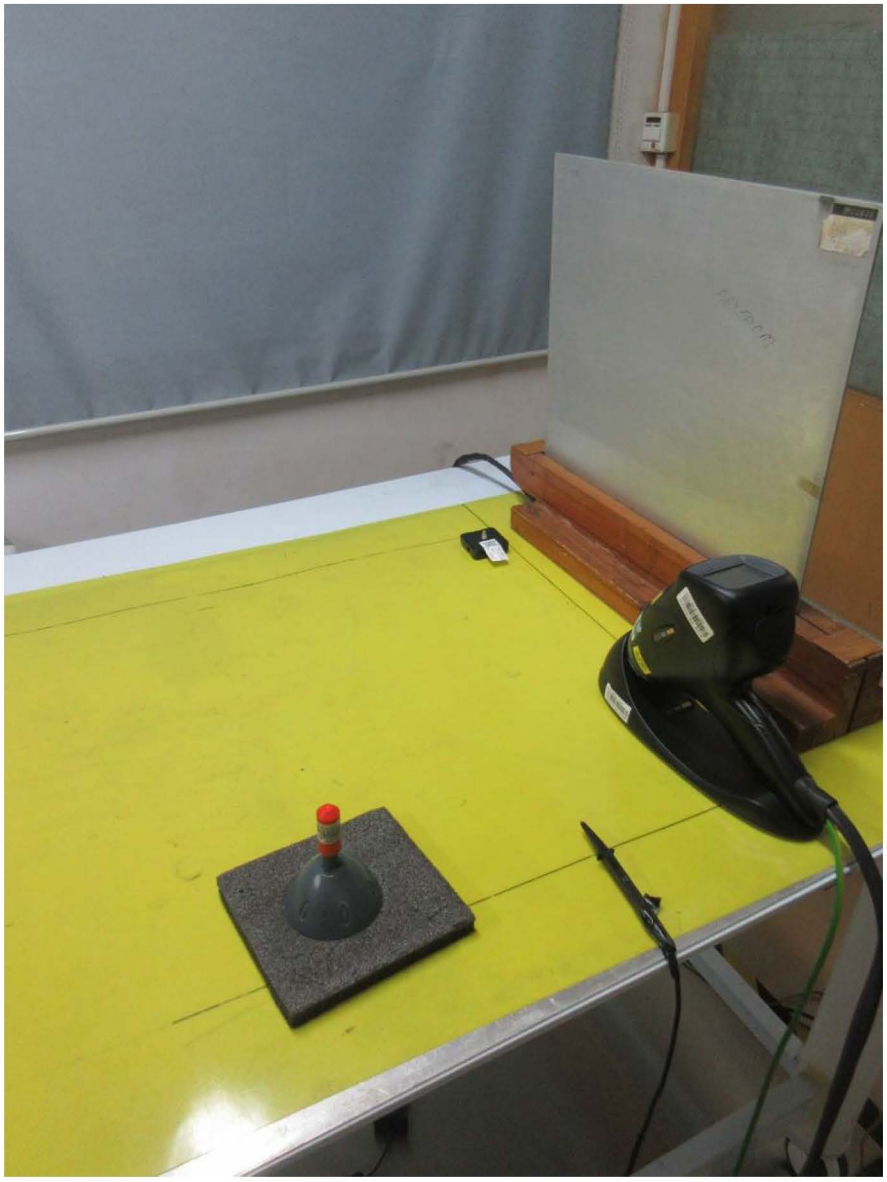
Frequency	Level (V/m)	EUT Face	Dwell time	Result / Observations
80MHz-1GHz	3	Front	2s	A
80MHz-1GHz	3	Back	2s	A
80MHz-1GHz	3	Left	2s	A
80MHz-1GHz	3	Right	2s	A
80MHz-1GHz	3	Top	2s	A
80MHz-1GHz	3	Underside	2s	A
1.4GHz-6GHz	3	Front	2s	A
1.4GHz-6GHz	3	Back	2s	A
1.4GHz-6GHz	3	Left	2s	A
1.4GHz-6GHz	3	Right	2s	A
1.4GHz-6GHz	3	Top	2s	A
1.4GHz-6GHz	3	Underside	2s	A
A: No degradation in the performance of the EUT was observed				

8 Test Setup Photo

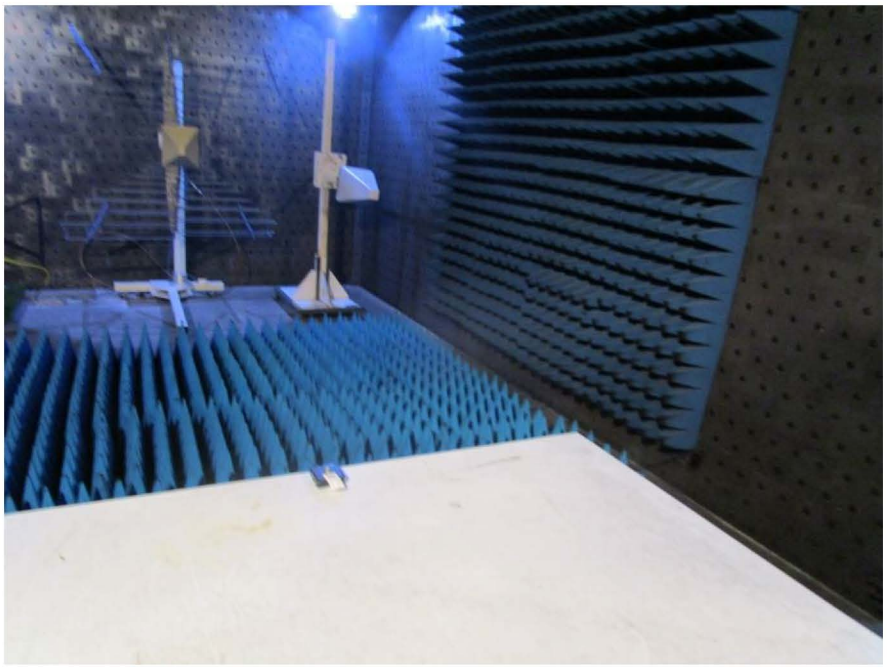
Radiated Emissions (30MHz-1GHz)



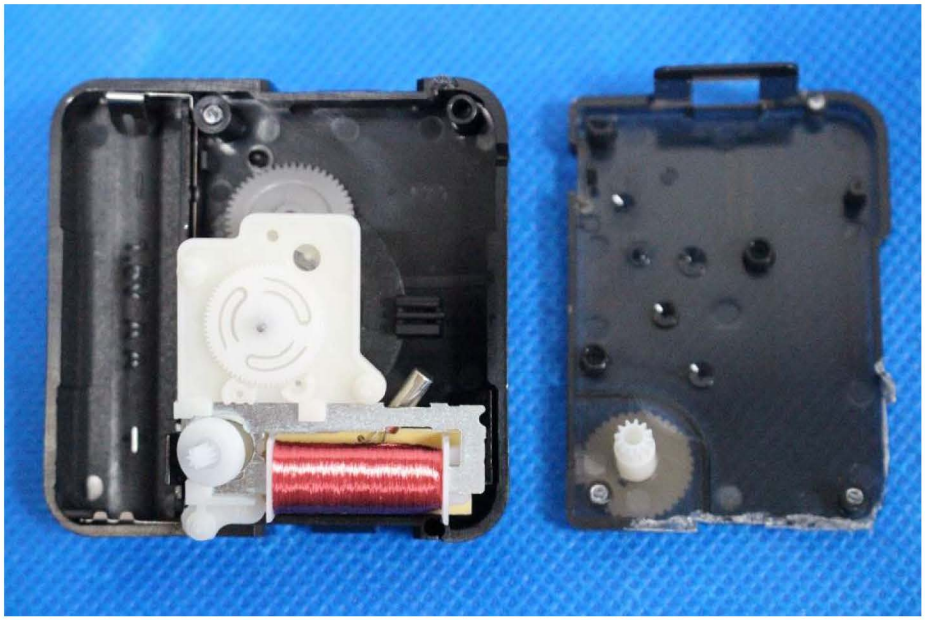
Electrostatic Discharge

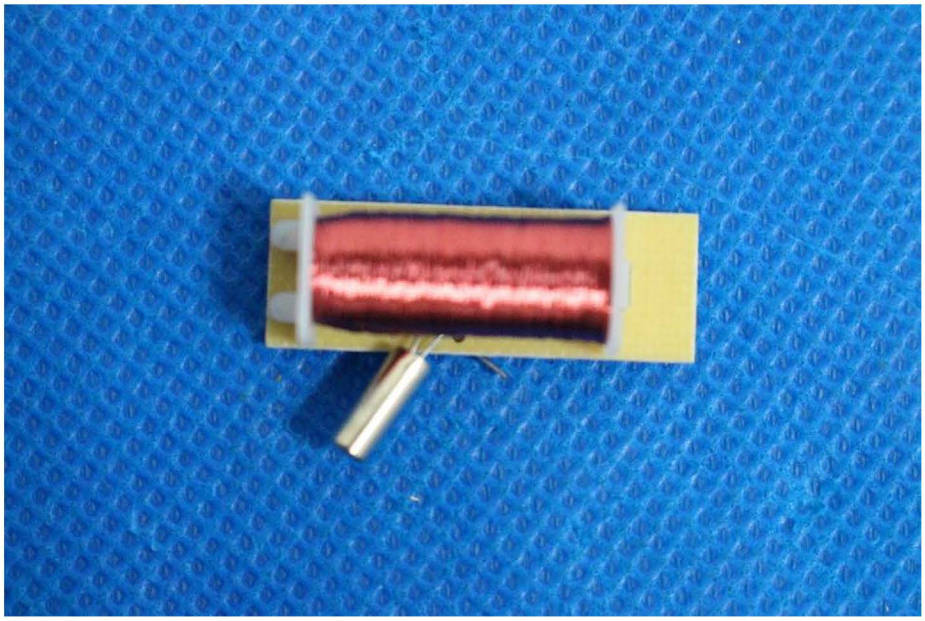


Radiated Immunity (80MHz-6GHz)



9 EUT Constructional Details (EUT Photos)





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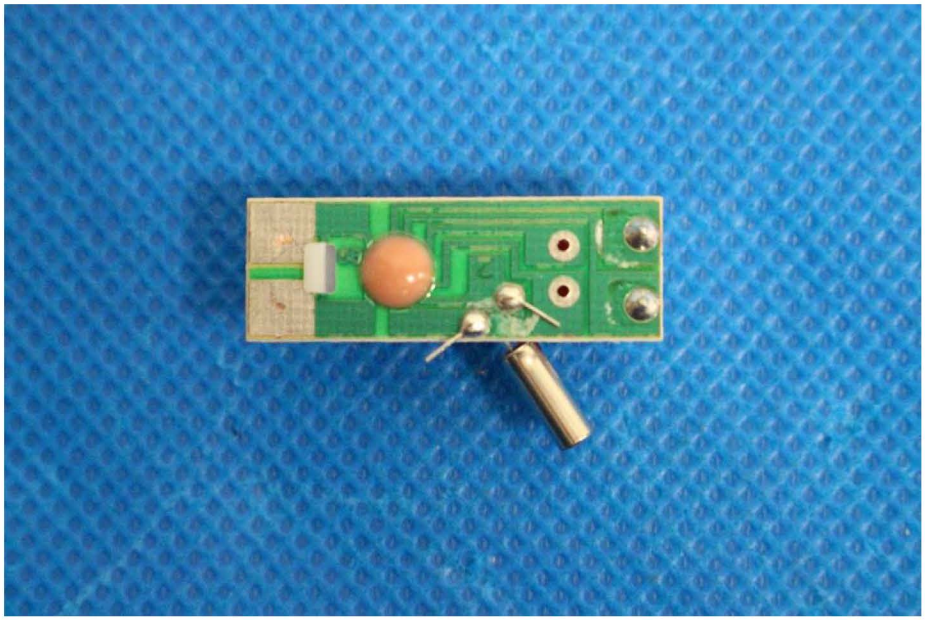

- End of the Report -

Verification Report

No. [redacted] Date: 28 Nov 2022

Client Name : [redacted]

Client Address : [redacted]

Sample Name : Clock movement

Tested Basic Model No. : SANGTAI6168S

(P.O.No) :

Client Ref. Info. : SANGTAI5168S,SANGTAI5168,SANGTAI6168,SANGTAI7168,SANGTAI7168S, SANGTAI5168L,SANGTAI5168SL,SANGTAI6168L,SANGTAI6168SL,6168,SANGTAI m5,ST6168SR

The above sample(s) and information were provided by the client.

SGS Job No. : 23140844 - XM

Date of Sample Received : 17 Nov 2022

Verification Period : 17 Nov 2022 - 25 Nov 2022

Verification Requested : With reference to RoHS Directive (EU) 2015/863 amending 2011/65/EU.

Verification Method(s) : Please refer to next page(s).

Verification Result(s) : Please refer to next page(s).

Test Result Summary

Test Items	Conclusion
EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU- Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)	PASS

Signed for and on behalf of
SGS-CSTC Standards Technical Services Co., Ltd. Xiamen Branch

Rae Chen
Approved Signatory

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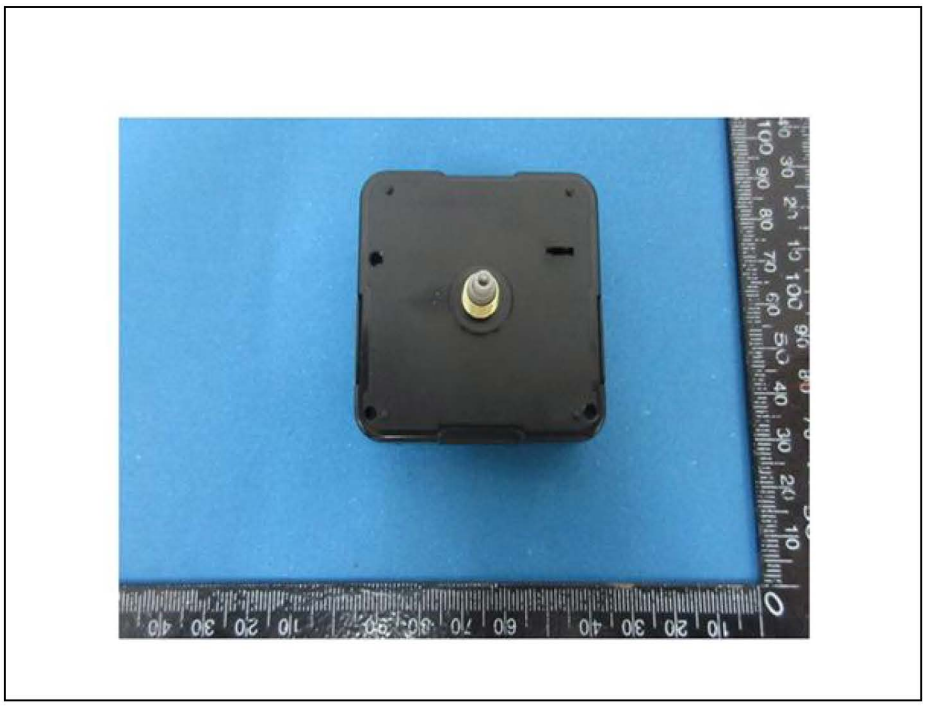
Photo of Submitted Sample



Verification Method(s) :

1. With reference to IEC 62321-2:2021, review was performed for the samples disjointed from the submitted articles.
2. With reference to IEC 62321-1:2013, tests were performed for the samples indicated by the photos in this report
(1) With reference to IEC 62321-3-1:2013, screening by EDXRF spectroscopy.
(2) Wet chemical test method: With reference to IEC 62321-4:2013+A1:2017, IEC62321-5:2013, IEC 62321-7-1:2015, IEC 62321-7-2:2017, ISO 17075-1:2017, IEC 62321-6:2015 and IEC62321-8:2017 , analyzed by ICP-OES,UV-Vis and GC-MS.

Verification Part Description :

SN ID	Sample No	SGS Sample ID	Description
SN1	A1	XMN22-019319.001	Black plastic cover
SN2	A2	XMN22-019319.002	Golden metal part
SN3	A3	XMN22-019319.003	Black translucent plastic shell
SN4	A4	XMN22-019319.004	White plastic part
SN5	A5	XMN22-019319.005	Silvery metal sheet
SN6	A6	XMN22-019319.006	Silvery metal part
SN7	A7	XMN22-019319.007	Grey plastic part

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SN ID	Sample No	SGS Sample ID	Description
SN8	A8	XMN22-019319.008	White plastic gear
SN9	A9	XMN22-019319.009	Grey plastic part
SN10	A10	XMN22-019319.010	Grey plastic gear
SN11	A11	XMN22-019319.011	Transparent plastic gear
SN12	A12	XMN22-019319.012	White plastic gear
SN13	A13	XMN22-019319.013	Silvery metal rod
SN14	A14	XMN22-019319.014	White plastic gear
SN15	A15	XMN22-019319.015	Silvery metal sheet
SN16	A16	XMN22-019319.016	Copper-colored metal wire
SN17	A17	XMN22-019319.017	White plastic bobbin
SN18	A18	XMN22-019319.018	Grey plastic gear
SN19	A19	XMN22-019319.019	White plastic part
SN20	A20	XMN22-019319.020	Silvery metal sheet
SN21	A21	XMN22-019319.021	White plastic part
SN22	A22	XMN22-019319.022	Black material ring (ferrite)
SN23	A23	XMN22-019319.023	Green “PCB”
SN24	A24	XMN22-019319.024	Pink block
SN25	A25	XMN22-019319.025	Silvery metal solder
SN26	A26	XMN22-019319.026	Silvery body

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Verification Results :

Unless otherwise specified, the unit is mg/kg.

Test Item(s)	A1	A2	A3	A4	A5	A6	A7	A8
Pb	BL	BL	BL	BL	BL	BL	BL	BL
Cd	BL	BL	BL	BL	BL	BL	BL	BL
Hg	BL	BL	BL	BL	BL	BL	BL	BL
Cr(VI)▾	BL	BL	BL	BL	ND	ND	BL	BL
PBBs	BL	---	BL	BL	---	---	BL	BL
PBDEs	BL	---	BL	BL	---	---	BL	BL
DBP	BL	---	BL	BL	---	---	BL	ND
BBP	BL	---	BL	BL	---	---	BL	ND
DEHP	BL	---	BL	BL	---	---	BL	ND
DIBP	BL	---	BL	BL	---	---	BL	ND
Conclusion	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Test Item(s)	A9	A10	A11	A12	A13	A14	A15	A16
Pb	BL	BL	BL	BL	BL	BL	BL	BL
Cd	BL	BL	BL	BL	BL	BL	BL	BL
Hg	BL	BL	BL	BL	BL	BL	BL	BL
Cr(VI)▾	BL	BL	BL	BL	ND	BL	ND	BL
PBBs	BL	BL	BL	BL	---	BL	---	---
PBDEs	BL	BL	BL	BL	---	BL	---	---
DBP	BL	ND	ND	ND	---	BL	---	---
BBP	BL	ND	ND	ND	---	BL	---	---
DEHP	BL	ND	ND	ND	---	BL	---	---
DIBP	BL	ND	ND	ND	---	BL	---	---
Conclusion	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Test Item(s)	A17	A18	A19	A20	A21	A22	A23	A24
Pb	BL	BL	BL	BL	BL	BL	BL	BL
Cd	BL	BL	BL	BL	BL	BL	BL	BL
Hg	BL	BL	BL	BL	BL	BL	BL	BL
Cr(VI)▾	BL	BL	BL	ND	BL	ND	BL	BL
PBBs	BL	BL	BL	---	BL	BL	ND	ND

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Test Item(s)	A17	A18	A19	A20	A21	A22	A23	A24
PBDEs	BL	BL	BL	---	BL	BL	ND	ND
DBP	BL	BL	BL	---	ND	---	BL	ND
BBP	BL	BL	BL	---	ND	---	BL	ND
DEHP	BL	BL	BL	---	ND	---	BL	ND
DIBP	BL	BL	BL	---	ND	---	BL	ND
Conclusion	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Test Item(s)	A25	A26
Pb	BL	BL
Cd	ND	BL
Hg	ND	BL
Cr(VI)▾	BL	BL
PBBs	---	BL
PBDEs	---	BL
DBP	---	ND
BBP	---	ND
DEHP	---	ND
DIBP	---	ND
Conclusion	PASS	PASS

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Notes:

(1) Interpretation of screening results by X-ray fluorescence spectrometry (XRF):

(a) Screening limits in mg/kg for regulated elements in various matrices according to IEC 62321-1:2013 Annex A as below table.

Element	Polymer	Metal	Composite Materials
Cd	BL≤(70-3σ)<X<(130+3σ)≤OL	BL≤(70-3σ)<X<(130+3σ)≤OL	LOD<X<(150+3σ)≤OL
Pb	BL≤(700-3σ)<X<(1300+3σ)≤OL	BL≤(700-3σ)<X<(1300+3σ)≤OL	BL≤(500-3σ)<X<(1500+3σ)≤OL
Hg	BL≤(700-3σ)<X<(1300+3σ)≤OL	BL≤(700-3σ)<X<(1300+3σ)≤OL	BL≤(500-3σ)<X<(1500+3σ)≤OL
Br	BL ≤(300-3σ)< X	Not applicable	BL ≤ (250-3σ)< X
Cr	BL ≤(700-3σ)< X	BL ≤ (700-3σ)< X	BL ≤ (500-3σ)< X

(b) If the maximum allowed level restricts PBB/PBDE and Cr(VI) rather than Br and Cr, the exceptions are the XRF determinations of Br and Cr. If the quantitative results for the elements Br and/or are higher than the limit (for Br calculated based on the stoichiometry of Br in the most common congeners of PBB/PBDE), the sample is "inconclusive".

(c) Results are obtained by EDXRF for primary screening, LOD = Limit of Detection, BL = Below Limit, OL = Over Limit, IN (The symbol X marks the region)= Inconclusive, where further investigation is necessary, and further chemical testing by ICP-OES (for Cd, Pb, Hg), UV-Vis (for Cr(VI)) and GC-MS (for PBBs/PBDEs) are recommended to be performed.

(d) The EDXRF screening test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.

(2) Screening results of Phthalates (PHTH) are for primary screening, and further chemical testing by GC-MS (for DBP, BBP, DEHP and DIBP) are recommended to be performed if the concentration exceeds the below warning value (unit: mg/kg)

Test Items	CAS No.	Polymer/ Composite Materials
Dibutyl Phthalate (DBP)	84-74-2	BL ≤ 600< X
Benzylbutyl Phthalate (BBP)	85-68-7	BL ≤ 600< X
Bis(2-ethylhexyl) Phthalate (DEHP)	117-81-7	BL ≤ 600< X
Diisobutyl Phthalate (DIBP)	84-69-5	BL ≤ 600< X

(3) Interpretation of results by chemical tests:

(a) mg/kg = 0.0001%, MDL=Method detection Limit, ND = Not Detected (<MDL), --- = Not Applicable.

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(b) Unit and MDL in wet chemical test

Test Items	Pb	Cd	Hg	DBP	BBP	DEHP	DIBP
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
MDL	10	10	10	100	100	100	100

The MDL for single compound of PBBs and PBDEs is 100 mg/kg.

MDL of Cr(VI) for polymer, composite and leather sample is 10 mg/kg.

MDL of Cr(VI) for metal sample is 0.10μg/cm^2.

(c) ▼ =Metal sample

a. The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than 0.13μg/cm^2. The sample coating is considered to contain Cr(VI)

b. The sample is negative for Cr(VI) if Cr(VI) is ND (concentration less than 0.10μg/cm^2). The coating is considered a non-Cr(VI) based coating

c. The result between 0.10μg/cm^2 and 0.13μg/cm^2 is considered to be inconclusive - unavoidable coating variations may influence the determination

Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.

(4) Restricted substances and maximum concentration values tolerated by weight in homogeneous materials under RoHS Directive: Cd: 0.01%, Pb/Hg/Cr(VI)/PBBs/PBDEs/DEHP/DBP/BBP/DIBP: 0.1%. The limit is quoted from RoHS Directive (EU) 2015/863.

(5) IEC 62321 series is equivalent to EN 62321 series.

(6) ＊ = Considering insufficient sample amount, the Method Detection Limit (MDL) is raised appropriately.

Unless otherwise stated, the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule (w=0) stated in ILAC-G8:09/2019.

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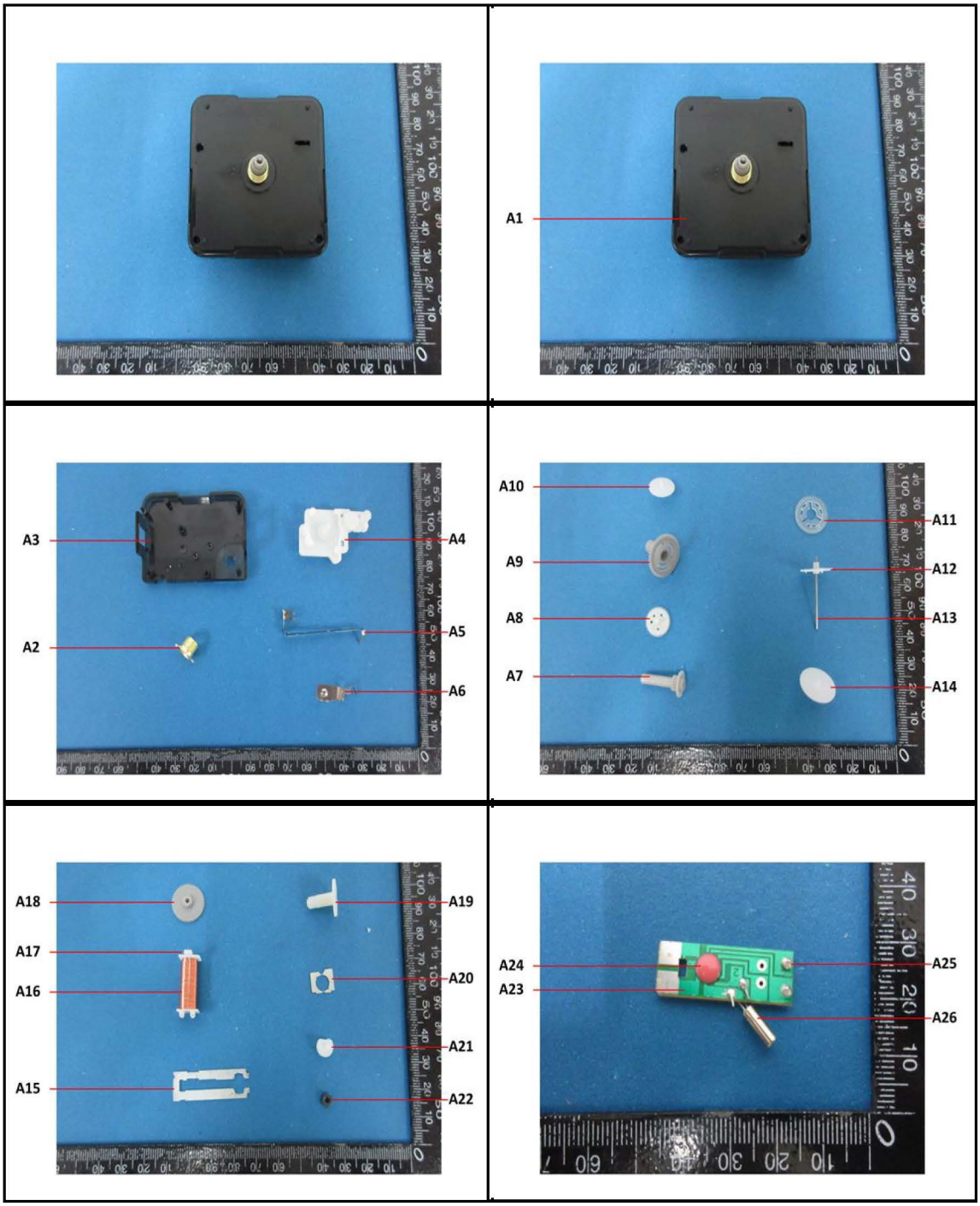
Sample photo:



SGS authenticate the photo on original report only

*** End of Report ***

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Test Report (SVHC)

No. [redacted] Date: 10 Oct 2022

Client Name : [redacted]
Client Address : [redacted]

Sample Name : Clock movement
Model No. : SANGTAI6168S
Client Ref. Info. : SANGTAI5168S ;SANGTAI5168；SANGTAI6168；SANGTAI7168；SANGTAI7168S;SANGTAI 5168L；SANGTAI5168SL；SANGTAI6168L；SANGTAI6168SL；6168；SANG TAI m5

The above sample(s) and information were provided by the client.

SGS Job No. : 23000870 - XM
Date of Sample Received : 13 Sep 2022
Testing Period : 13 Sep 2022 - 29 Sep 2022
Test Requested : As requested by client, SVHC screening is performed according to:
(i) Two hundred and twenty-four (224) substances in the Candidate List of Substances of Very High Concern (SVHC) for authorization published by European Chemicals Agency (ECHA) on and before Jun 10, 2022 regarding Regulation (EC) No 1907/2006 concerning the REACH.
(ii) One (1) potential Substances of Very High Concern (SVHC) in the notification of WTO on Jun 1, 2021.
Test Result(s) : Please refer to next page(s).

Summary :

According to the ruling of the Court of Justice of the European Union on the definition of an article under REACH, and the specified scope and evaluation screening, the test results of SVHC are ≤ 0.1% (w/w) in the articles of the submitted sample.	PASS

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(SVHC)

Signed for and on behalf of
SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch

Jessie Li

Jessie Li
Approved Signatory

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(SVHC)

Remark :

1. The chemical analysis of specified SVHC is performed by means of currently available analytical techniques against the following SVHC related documents published by ECHA: http://echa.europa.eu/web/guest/candidate-list-table
   These lists are under evaluation by ECHA and may subject to change in the future.
2. REACH obligation:
   2.1 Concerning article(s):
   Communication:
   Article 33 of Regulation (EC) No 1907/2006 requires supplier of an article containing a substance meeting the criteria in Article 57 and identified in accordance with Article 59(1) in a concentration above 0.1% weight by weight (w/w) shall provide the recipient of the article with sufficient information, available to the supplier, to allow safe use of the article including, as a minimum, the name of that substance in the Candidate List.

   Notification:
   In accordance with Regulation (EC) No 1907/2006, any EU producer or importer of articles shall notify ECHA, in accordance with paragraph 4 of Article 7, if a substance meets the criteria in Article 57 and is identified in accordance with Article 59(1) of the Regulation, if (a) the substance in the Candidate List is present in those articles in quantities totaling over one tonne per producer or importer per year; and (b) the substance in the Candidate List is present in those articles above a concentration of 0.1% weight by weight (w/w).

   SGS adopts the ruling of the Court of Justice of the European Union on the definition of an article under REACH unless indicated otherwise. Detail explanation is available at the following link:
   http://www.sgs.com/-/media/global/documents/technical-documents/technical-bulletins/sgs-crs-position-statement-on-svhc-in-articles-a4-en-16-06.pdf?la=en

   2.2 Concerning material(s):
   Test results in this report are based on the tested sample. This report refers to testing result of tested sample submitted as homogenous material(s). In case such material is being used to compose an article, the results indicated in this report may not represent SVHC concentration in such article. If this report refers to testing result of composite material group by equal weight proportion, the material in each composite test group may come from more than one article.

   If the sample is a substance or mixture, and it directly exports to EU, client has the obligation to comply with the supply chain communication obligation under Article 31 of Regulation (EC) No. 1907/2006 and the conditions of Authorization of substance of very high concern included in the Annex XIV of the Regulation (EC) No. 1907/2006.

   2.3 Concerning substance and preparation:
   If a SVHC is found over 0.1% (w/w) and/or the specific concentration limit which is set in Regulation (EC) No 1272/2008 and its amendments, client is suggested to prepare a Safety

Data Sheet (SDS) against the SVHC to comply with the supply chain communication obligation under Regulation (EC) No 1907/2006, in which:
- a substance that is classified as hazardous under the CLP Regulation (EC) No 1272/2008.
- a mixture that is classified as hazardous under the CLP Regulation (EC) No 1272/2008, when it contains a substance with concentration equal to, or greater than the classification limit as set in Regulation (EC) No. 1272/2008; or
- a mixture is not classified as hazardous under the CLP Regulation (EC) No 1272/2008, but contains either:
(a) a substance posing human health or environmental hazards in an individual concentration of ≥ 1 % by weight for mixtures that are solid or liquids (i.e., non-gaseous mixtures) or ≥ 0.2 % by volume for gaseous mixtures; or
(b) a substance that is PBT, or vPvB in an individual concentration of ≥ 0.1 % by weight for mixtures that are solid or liquids (i.e., non-gaseous mixtures); or
(c) a substance on the SVHC candidate list (for reasons other than those listed above), in an individual concentration of ≥ 0.1 % by weight for non-gaseous mixtures; or
(d) a substance for which there are Europe-wide workplace exposure limits.

3. If a SVHC is found over the reporting limit, client is suggested to identify the composite component which contains the SVHC and the exact concentration of the SVHC by requesting further quantitative analysis from the laboratory.

Test Sample :

Sample Description :

Component list :

Specimen No.	Test Result ID	Description	SGS Sample ID
SN1	001	Metal group	CAN22-195737.001
SN2	002	Nonmetal group	CAN22-195737.002
SN3	003	Nonmetal group	CAN22-195737.003

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SGS Sample ID	Photo No.	Material Description
001	P4	Golden metal part
001	P6	Silvery metal shaft
001	P13	Silvery metal part
001	P14	Silvery metal sheet
001	P15	Silvery metal sheet
002	P1	Black translucent plastic shell
002	P2	White plastic gear
002	P3	Black plastic shell
002	P5	White plastic gear
002	P7	Light grey plastic gear
002	P8	Light grey plastic gear
002	P9	Colorless transparent plastic gear
002	P10	Grey plastic part
002	P11	White plastic gear
002	P12	Dark grey core
002	P16	White plastic part
002	P17	Copper-colored enamel-insulated wire
002	P18	White plastic part
002	P19	Green "PCB" with solder
003	P20	Silvery body

Test Method :

SGS In-House method- SGS-CCL-TOP-092-01, SGS-CCL-TOP-092-02, Analyzed by ICP-OES, UV-VIS, GC-MS, HPLC-DAD/MS and Colorimetric Method.

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Test Result: (Substances in the Candidate List of SVHC)

Batch	Substance Name	CAS No.	001 Concentration (%)	RL (%)
XIX	Lead	7439-92-1	0.014	0.010
-	Other tested SVHC in candidate list	-	ND	-

Test Result: (Substances in the Candidate List of SVHC)

Batch	Substance Name	CAS No.	002 Concentration (%)	RL (%)
I	Diarsenic pentaoxide*	1303-28-2	NA^	0.010
I	Diarsenic trioxide*	1327-53-3	NA^	0.010
I	Triethyl arsenate*	15606-95-8	NA^	0.010
III	Boric acid*	-	NA^	0.010
III	Disodium tetraborate, anhydrous*	1303-96-4, 1330-43-4, 12179-04-3	NA^	0.010
III	Tetraboron disodium heptaoxide, hydrate*	12267-73-1	NA^	0.010
VI	Arsenic acid*	7778-39-4	NA^	0.010
VI	Calcium arsenate*	7778-44-1	NA^	0.010
VII	Diboron trioxide*	1303-86-2	NA^	0.010
XIX	Disodium octaborate*	12008-41-2	NA^	0.010
XXV	Orthoboric acid, sodium salt*	13840-56-7	NA^	0.005
-	Other tested SVHC in candidate list	-	ND	-

Test Result: (Potential SVHC)

Batch	Substance Name	CAS No.	002 Concentration (%)	RL (%)
-	All tested Potential SVHC	-	ND	-

Test Result: (Substances in the Candidate List of SVHC)

Batch	Substance Name	CAS No.	003 Concentration (%)	RL (%)
-	All tested SVHC in candidate list	-	ND	-

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Notes :

1.The table above only shows detected SVHC, and SVHC that below RL are not reported.
Please refer to Appendix for the full list of tested SVHC.
2.RL = Reporting Limit (Test data will be shown if it ≥ RL. RL is not regulatory limit.) ND = Not detected (lower than RL),
ND is denoted on the SVHC substance.
3.* The test result is based on the calculation of selected element(s) and to the worst-case scenario.
** The test result is based on the calculation of selected marker(s) and to the worst-case scenario.
4. RL = 0.01% is evaluated for element (i.e. cobalt, arsenic, lead, chromium (VI), aluminum, zirconium, boron, strontium, zinc, antimony, titanium, barium and cadmium respectively), except molybdenum RL=0.001%, boron RL=0.005% (only for Lead bis(tetrafluoroborate), Orthoboric acid, sodium salt), chromium (VI) RL=0.005% (only for Pentazinc chromate octahydroxide).
5. Calculated concentration of boric compounds are based on the water extractive boron by ICP-OES.
6. § The substance is proposed for the identification as SVHC only where it contains
Michler's ketone (CAS Number: 90-94-8) or Michler's base (CAS Number: 101-61-1) ≥0.1% (w/w).
7. Composite test has been performed in equal proportion for the components/material per client requested. And the result is calculated using the minimum sample weight.
8. In consideration of the analysis requirement and the limit of sample volume, the screening test for the article is based on components / material enough to test.
9. / = Potential SVHC
10.NA^ = Upon further test verification on the specific detected element(s) of SVHC and also information provided from client, the possibility that the element(s) content originate from SVHC is very unlikely, even though their presence cannot be exclude entirely. It may be assumed that the detected element(s) have a non-SVHC source.
Unless otherwise stated, the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule (w=0) stated in ILAC-G8:09/2019.

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Appendix

Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
I	1	4,4' -Diaminodiphenylmethane(MDA)	101-77-9	0.100
I	2	5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene)	81-15-2	0.100
I	3	Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	85535-84-8	0.100
I	4	Anthracene	120-12-7	0.100
I	5	Benzyl butyl phthalate (BBP)	85-68-7	0.100
I	6	Bis (2-ethylhexyl)phthalate (DEHP)	117-81-7	0.100
I	7	Bis(tributyltin)oxide (TBTO)	56-35-9	0.100
I	8	Cobalt dichloride*	7646-79-9	0.010
I	9	Diarsenic pentaoxide*	1303-28-2	0.010
I	10	Diarsenic trioxide*	1327-53-3	0.010
I	11	Dibutyl phthalate (DBP)	84-74-2	0.100
I	12	Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α-HBCDD, β-HBCDD, γ-HBCDD)	-	0.100
I	13	Lead hydrogen arsenate*	7784-40-9	0.010
I	14	Sodium dichromate*	7789-12-0, 10588-01-9	0.010
I	15	Triethyl arsenate*	15606-95-8	0.010
II	16	2,4-Dinitrotoluene	121-14-2	0.100
II	17	Acrylamide	79-06-1	0.100
II	18	Anthracene oil**	90640-80-5	0.100
II	19	Anthracene oil, anthracene paste**	90640-81-6	0.100
II	20	Anthracene oil, anthracene paste, anthracene fraction**	91995-15-2	0.100

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Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
II	21	Anthracene oil, anthracene paste, distn. lights**	91995-17-4	0.100
II	22	Anthracene oil, anthracene-low**	90640-82-7	0.100
II	23	Diisobutyl phthalate	84-69-5	0.100
II	24	Lead chromate molybdate sulphate red (C.I. Pigment Red 104)*	12656-85-8	0.010
II	25	Lead chromate*	7758-97-6	0.010
II	26	Lead sulfochromate yellow (C.I. Pigment Yellow 34)*	1344-37-2	0.010
II	27	Pitch, coal tar, high temp.**	65996-93-2	0.100
II	28	Tris(2-chloroethyl)phosphate	115-96-8	0.100
III	29	Ammonium dichromate*	7789-09-5	0.010
III	30	Boric acid*	-	0.010
III	31	Disodium tetraborate, anhydrous*	1303-96-4, 1330-43-4, 12179-04-3	0.010
III	32	Potassium chromate*	7789-00-6	0.010
III	33	Potassium dichromate*	7778-50-9	0.010
III	34	Sodium chromate*	7775-11-3	0.010
III	35	Tetraboron disodium heptaoxide, hydrate*	12267-73-1	0.010
III	36	Trichloroethylene	79-01-6	0.100
IV	37	2-Ethoxyethanol	110-80-5	0.100
IV	38	2-Methoxyethanol	109-86-4	0.100
IV	39	Chromic acid, Oligomers of chromic acid and dichromic acid, Dichromic acid*	-	0.010

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Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
IV	40	Chromium trioxide*	1333-82-0	0.010
IV	41	Cobalt(II) carbonate*	513-79-1	0.010
IV	42	Cobalt(II) diacetate*	71-48-7	0.010
IV	43	Cobalt(II) dinitrate*	10141-05-6	0.010
IV	44	Cobalt(II) sulphate*	10124-43-3	0.010
V	45	1,2,3-trichloropropane	96-18-4	0.100
V	46	1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich	71888-89-6	0.100
V	47	1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters	68515-42-4	0.100
V	48	1-methyl-2-pyrrolidone	872-50-4	0.100
V	49	2-ethoxyethyl acetate	111-15-9	0.100
V	50	Hydrazine	7803-57-8, 302-01-2	0.100
V	51	Strontium chromate*	7789-06-2	0.010
VI	52	1,2-Dichloroethane	107-06-2	0.100
VI	53	2,2'-dichloro-4,4'-methylenedianiline	101-14-4	0.100
VI	54	2-Methoxyaniline; o-Anisidine	90-04-0	0.100
VI	55	4-(1,1,3,3-tetramethylbutyl)phenol	140-66-9	0.100
VI	56	Aluminosilicate Refractory Ceramic Fibres *	-	0.010
VI	57	Arsenic acid*	7778-39-4	0.010
VI	58	Bis(2-methoxyethyl) ether	111-96-6	0.100
VI	59	Bis(2-methoxyethyl) phthalate	117-82-8	0.100

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Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
VI	60	Calcium arsenate*	7778-44-1	0.010
VI	61	Dichromium tris(chromate) *	24613-89-6	0.010
VI	62	Formaldehyde, oligomeric reaction products with aniline	25214-70-4	0.100
VI	63	Lead diazide, Lead azide*	13424-46-9	0.010
VI	64	Lead dipicrate*	6477-64-1	0.010
VI	65	Lead styphnate*	15245-44-0	0.010
VI	66	N,N-dimethylacetamide	127-19-5	0.100
VI	67	Pentazinc chromate octahydroxide*	49663-84-5	0.010
VI	68	Phenolphthalein	77-09-8	0.100
VI	69	Potassium hydroxyoctaoxodizincatedichromate*	11103-86-9	0.010
VI	70	Trilead diarsenate*	3687-31-8	0.010
VI	71	Zirconia Aluminosilicate Refractory Ceramic Fibres*	-	0.010
VII	72	[4-[[4-anilino-1-naphthyl][4-(dimethylamino)phenyl]methylene]cyclohexa-2,5-dien-1-ylidene] dimethylammonium chloride (C.I. Basic Blue 26)§	2580-56-5	0.100
VII	73	[4-[4,4'-bis(dimethylamino) benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Violet 3)§	548-62-9	0.100
VII	74	1,2-bis(2-methoxyethoxy)ethane (TEGDME; triglyme)	112-49-2	0.100
VII	75	1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	110-71-4	0.100
VII	76	4,4'-bis(dimethylamino) benzophenone (Michler's Ketone)	90-94-8	0.100
VII	77	4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol§	561-41-1	0.100
VII	78	Diboron trioxide*	1303-86-2	0.010

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Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
VII	79	Formamide	75-12-7	0.100
VII	80	Lead(II) bis(methanesulfonate)*	17570-76-2	0.010
VII	81	N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler's base)	101-61-1	0.100
VII	82	TGIC (1,3,5-tris(oxiranylmethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione)	2451-62-9	0.100
VII	83	α,α-Bis[4-(dimethylamino)phenyl]-4 (phenylamino)naphthalene-1-methanol (C.I. Solvent Blue 4) §	6786-83-0	0.100
VII	84	β-TGIC (1,3,5-tris[(2S and 2R)-2,3-epoxypropyl]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione)	59653-74-6	0.100
VIII	85	[Phthalato(2-)]dioxotrilead*	69011-06-9	0.010
VIII	86	1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	84777-06-0	0.100
VIII	87	1,2-Diethoxyethane	629-14-1	0.100
VIII	88	1-Bromopropane	106-94-5	0.100
VIII	89	3-Ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine	143860-04-2	0.100
VIII	90	4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated	-	0.100
VIII	91	4,4'-Methylenedi-o-toluidine	838-88-0	0.100
VIII	92	4,4'-Oxydianiline and its salts	101-80-4	0.100
VIII	93	4-Aminoazobenzene	60-09-3	0.100
VIII	94	4-Methyl-m-phenylenediamine	95-80-7	0.100
VIII	95	4-Nonylphenol, branched and linear	-	0.100
VIII	96	6-Methoxy-m-toluidine	120-71-8	0.100
VIII	97	Acetic acid, lead salt, basic*	51404-69-4	0.010

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Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
VIII	98	Biphenyl-4-ylamine	92-67-1	0.100
VIII	99	Bis(pentabromophenyl) ether (DecaBDE)	1163-19-5	0.100
VIII	100	Cyclohexane-1,2-dicarboxylic anhydride, cis-cyclohexane-1,2-dicarboxylic anhydride, trans-cyclohexane-1,2-dicarboxylic anhydride	-	0.100
VIII	101	Diazene-1,2-dicarboxamide (C,C'-azodi(formamide))	123-77-3	0.100
VIII	102	Dibutyltin dichloride (DBTC)	683-18-1	0.100
VIII	103	Diethyl sulphate	64-67-5	0.100
VIII	104	Diisopentylphthalate	605-50-5	0.100
VIII	105	Dimethyl sulphate	77-78-1	0.100
VIII	106	Dinoseb	88-85-7	0.100
VIII	107	Dioxobis(stearato)trilead*	12578-12-0	0.010
VIII	108	Fatty acids, C16-18, lead salts*	91031-62-8	0.010
VIII	109	Furan	110-00-9	0.100
VIII	110	Henicosafluoroundecanoic acid	2058-94-8	0.100
VIII	111	Heptacosafluorotetradecanoic acid	376-06-7	0.100
VIII	112	Hexahydromethylphathalic anhydride, Hexahydro-4-methylphathalic anhydride, Hexahydro-1-methylphathalic anhydride, Hexahydro-3-methylphathalic anhydride	-	0.100
VIII	113	Lead bis(tetrafluoroborate)*	13814-96-5	0.010
VIII	114	Lead cyanamidate*	20837-86-9	0.010
VIII	115	Lead dinitrate*	10099-74-8	0.010
VIII	116	Lead monoxide*	1317-36-8	0.010

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Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
VIII	117	Lead oxide sulfate*	12036-76-9	0.010
VIII	118	Lead tetroxide (orange lead)*	1314-41-6	0.010
VIII	119	Lead titanium trioxide*	12060-00-3	0.010
VIII	120	Lead titanium zirconium oxide*	12626-81-2	0.010
VIII	121	Methoxyacetic acid	625-45-6	0.100
VIII	122	Methyloxirane (Propylene oxide)	75-56-9	0.100
VIII	123	N,N-dimethylformamide	68-12-2	0.100
VIII	124	N-Methylacetamide	79-16-3	0.100
VIII	125	N-Pentyl-isopentylphthalate	776297-69-9	0.100
VIII	126	o-Aminoazotoluene	97-56-3	0.100
VIII	127	o-Toluidine	95-53-4	0.100
VIII	128	Pentacosafluorotridecanoic acid	72629-94-8	0.100
VIII	129	Pentalead tetraoxide sulphate*	12065-90-6	0.010
VIII	130	Pyrochlore, antimony lead yellow*	8012-00-8	0.010
VIII	131	Silicic acid, barium salt, lead-doped*	68784-75-8	0.010
VIII	132	Silicic acid, lead salt*	11120-22-2	0.010
VIII	133	Sulfurous acid, lead salt, dibasic*	62229-08-7	0.010
VIII	134	Tetraethyllead*	78-00-2	0.010
VIII	135	Tetralead trioxide sulphate*	12202-17-4	0.010
VIII	136	Tricosafluorododecanoic acid	307-55-1	0.100
VIII	137	Trilead bis(carbonate)dihydroxide (basic lead carbonate)*	1319-46-6	0.010

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Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
VIII	138	Trilead dioxide phosphonate*	12141-20-7	0.010
IX	139	4-Nonylphenol, branched and linear, ethoxylated	-	0.100
IX	140	Ammonium pentadecafluorooctanoate (APFO)**	3825-26-1	0.100
IX	141	Cadmium oxide*	1306-19-0	0.010
IX	142	Cadmium	7440-43-9	0.010
IX	143	Dipentyl phthalate (DPP)	131-18-0	0.100
IX	144	Pentadecafluorooctanoic acid (PFOA)	335-67-1	0.100
X	145	Cadmium sulphide*	1306-23-6	0.010
X	146	Dihexyl phthalate	84-75-3	0.100
X	147	Disodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis(4-aminonaphthalene-1-sulphonate) (C.I. Direct Red 28)	573-58-0	0.100
X	148	Disodium 4-amino-3-[[4'-[(2,4-diaminophenyl)azo][1,1'-biphenyl]-4-yl]azo] -5-hydroxy-6-(phenylazo)naphthalene-2,7-disulphonate (C.I. Direct Black 38)	1937-37-7	0.100
X	149	Imidazolidine-2-thione; (2-imidazoline-2-thiol)	96-45-7	0.100
X	150	Lead di(acetate)*	301-04-2	0.010
X	151	Trixylyl phosphate	25155-23-1	0.100
XI	152	1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear	68515-50-4	0.100
XI	153	Cadmium chloride*	10108-64-2	0.010
XI	154	Sodium perborate; perboric acid, sodium salt*	-	0.010
XI	155	Sodium peroxometaborate*	7632-04-4	0.010

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Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
XII	156	2-(2H-Benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	25973-55-1	0.100
XII	157	2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)	3846-71-7	0.100
XII	158	2-Ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate; DOTE	15571-58-1	0.100
XII	159	Cadmium fluoride*	7790-79-6	0.010
XII	160	Cadmium sulphate*	10124-36-4, 31119-53-6	0.010
XII	161	Reaction mass of 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate & 2-ethylhexyl 10-ethyl-4-[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]-4-octyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (reaction mass of DOTE & MOTE)	-	0.100
XIII	162	1,2-benzenedicarboxylic acid, di-C6-10-alkyl esters; 1,2-benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters with ≥ 0.3% of dihexyl phthalate	-	0.100
XIII	163	5-sec-butyl-2-(2,4-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane [1], 5-sec-butyl-2-(4,6-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane [2] [covering any of the individual isomers of [1] and [2] or any combination thereof]	-	0.100
XIV	164	1,3-propanesultone	1120-71-4	0.100
XIV	165	2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol (UV-327)	3864-99-1	0.100
XIV	166	2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350)	36437-37-3	0.100
XIV	167	Nitrobenzene	98-95-3	0.100
XIV	168	Perfluorononan-1-oic-acid and its sodium and ammonium salts	-	0.100
XV	169	Benzo[def]chrysene (Benzo[a]pyrene)	50-32-8	0.100

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(SVHC)

Appendix

Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
XVI	170	4,4'-isopropylidenediphenol (bisphenol A)	80-05-7	0.100
XVI	171	4-Heptylphenol, branched and linear	-	0.100
XVI	172	Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts	-	0.100
XVI	173	p-(1,1-dimethylpropyl)phenol	80-46-6	0.100
XVII	174	Perfluorohexane-1-sulphonic acid and its salts	-	0.100
XVIII	175	1,6,7,8,9,14,15,16,17,17,18,18-Dodecachloropentacyclo[12.2.1.16,9.02,13.05,10]octadeca-7,15-diene ("Dechlorane Plus"™) [covering any of its individual anti- and syn-isomers or any combination thereof]	-	0.100
XVIII	176	Benz[a]anthracene	56-55-3	0.100
XVIII	177	Cadmium nitrate*	10325-94-7	0.010
XVIII	178	Cadmium carbonate*	513-78-0	0.010
XVIII	179	Cadmium hydroxide*	21041-95-2	0.010
XVIII	180	Chrysene	218-01-9	0.100
XVIII	181	Reaction products of 1,3,4-thiadiazolidine-2,5-dithione, formaldehyde and 4-heptylphenol, branched and linear (RP-HP) [with ≥0.1% w/w 4-heptylphenol, branched and linear]	-	0.100
XIX	182	Benzene-1,2,4-tricarboxylic acid 1,2-anhydride (trimellitic anhydride)	552-30-7	0.100
XIX	183	Benzo[ghi]perylene	191-24-2	0.100
XIX	184	Decamethylcyclopentasiloxane (D5)	541-02-6	0.100
XIX	185	Dicyclohexyl phthalate (DCHP)	84-61-7	0.100
XIX	186	Disodium octaborate*	12008-41-2	0.010
XIX	187	Dodecamethylcyclohexasiloxane (D6)	540-97-6	0.100

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(SVHC)

Appendix

Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
XIX	188	Ethylenediamine	107-15-3	0.100
XIX	189	Lead	7439-92-1	0.010
XIX	190	Octamethylcyclotetrasiloxane (D4)	556-67-2	0.100
XIX	191	Terphenyl hydrogenated	61788-32-7	0.100
XX	192	1,7,7-trimethyl-3-(phenylmethylene)bicyclo[2.2.1]heptan-2-one (3-benzylidene camphor)	15087-24-8	0.100
XX	193	2,2-bis(4'-hydroxyphenyl)-4- methylpentane	6807-17-6	0.100
XX	194	Benzo[k]fluoranthene	207-08-9	0.100
XX	195	Fluoranthene	206-44-0	0.100
XX	196	Phenanthrene	85-01-8	0.100
XX	197	Pyrene	129-00-0	0.100
XXI	198	2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)propionic acid, its salts and its acyl halides (covering any of their individual isomers and combinations thereof)	-	0.100
XXI	199	2-methoxyethyl acetate	110-49-6	0.100
XXI	200	4-tert-butylphenol (PTBP)	98-54-4	0.100
XXI	201	Tris(4-nonylphenyl,branched and linear) phosphite (TNPP) with ≥ 0.1% w/w of 4-nonylphenol, branched and linear (4-NP)	-	0.100
XXII	202	2-benzyl-2-dimethylamino-4'-morpholinobutyrophenone	119313-12-1	0.100
XXII	203	2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one	71868-10-5	0.100
XXII	204	Diisohexyl phthalate	71850-09-4	0.100
XXII	205	Perfluorobutane sulfonic acid (PFBS) and its salts	-	0.100

(SVHC)

Appendix

Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
XXIII	206	1-vinylimidazole	1072-63-5	0.100
XXIII	207	2-methylimidazole	693-98-1	0.100
XXIII	208	Butyl 4-hydroxybenzoate	94-26-8	0.100
XXIII	209	Dibutylbis(pentane-2,4-dionato-O,O')tin**	22673-19-4	0.100
XXIV	210	bis(2-(2-methoxyethoxy)ethyl) ether	143-24-8	0.100
XXIV	211	Dioctyltin dilaurate, stannane, dioctyl-, bis(coco acyloxy) derivs., and any other stannane, dioctyl-, bis(fatty acyloxy) derivs. wherein C12 is the predominant carbon number of the fatty acyloxy moiety**	-	0.100
XXV	212	1,4-dioxane	123-91-1	0.100
XXV	213	2,2-bis(bromomethyl)propane1,3-diol (BMP); 2,2-dimethylpropan-1-ol, tribromo derivative/3-bromo-2,2-bis(bromomethyl)-1-propanol (TBNPA); 2,3-dibromo-1-propanol (2,3-DBPA)	-	0.100
XXV	214	2-(4-tert-butylbenzyl)propionaldehyde and its individual stereoisomers	-	0.100
XXV	215	4,4'-(1-methylpropylidene)bisphenol (bisphenol B)	77-40-7	0.100
XXV	216	Glutaral	111-30-8	0.100
XXV	217	Medium-chain chlorinated paraffins (MCCP) [UVCB substances consisting of more than or equal to 80% linear chloroalkanes with carbon chain lengths within the range from C14 to C17]	-	0.100
XXV	218	Orthoboric acid, sodium salt*	13840-56-7	0.005
XXV	219	Phenol, alkylation products (mainly in para position) with C12-rich branched alkyl chains from oligomerisation, covering any individual isomers and/ or combinations thereof (PDDP)	-	0.100

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(SVHC)

Appendix

Full list of tested SVHC:

Batch	No.	Substance Name	CAS No.	RL (%)
XXVI	220	(±)-1,7,7-trimethyl-3-[(4-methylphenyl)methylene]bicyclo[2.2.1]heptan-2-one covering any of the individual isomers and/or combinations thereof (4-MBC)	-	0.100
XXVI	221	6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol (DBMC)	119-47-1	0.100
XXVI	222	S-(tricyclo[5.2.1.0'2,6]deca-3-en-8(or 9)-yl) O-(isopropyl or isobutyl or 2-ethylhexyl) O-(isopropyl or isobutyl or 2-ethylhexyl) phosphorodithioate	255881-94-8	0.100
XXVI	223	Tris(2-methoxyethoxy)vinylsilane	1067-53-4	0.100
XXVII	224	N-(hydroxymethyl)acrylamide	924-42-5	0.100
/	225	Resorcinol	108-46-3	0.100

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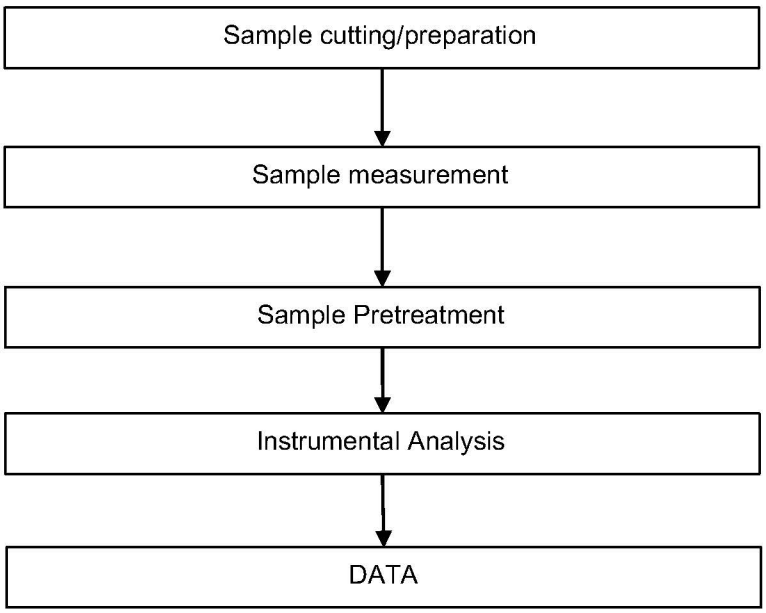
ATTACHMENTS

SVHC Testing Flow Chart



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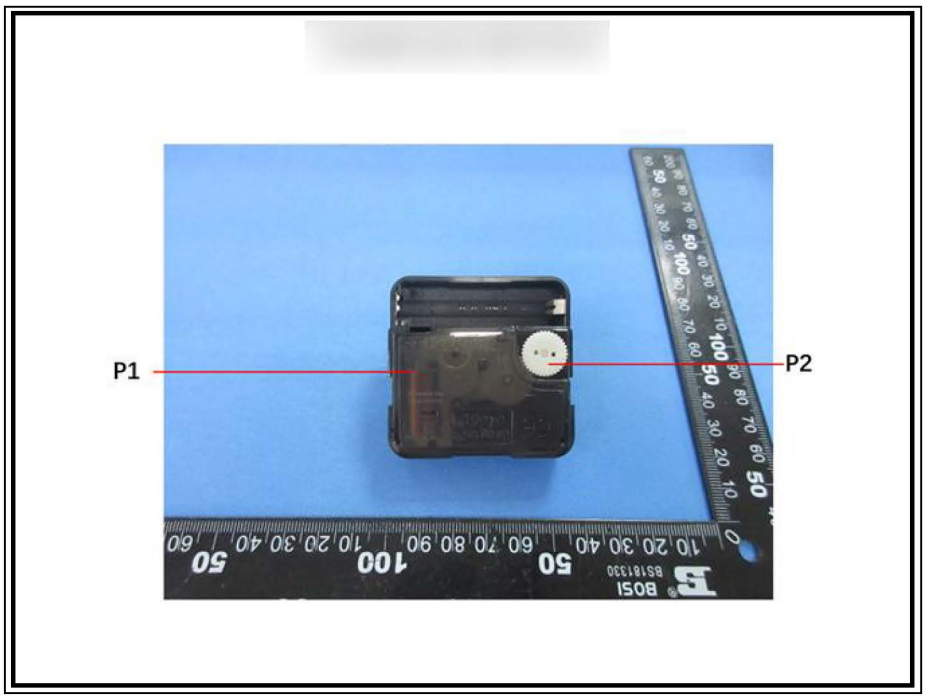
(SVHC)

Sample photo:



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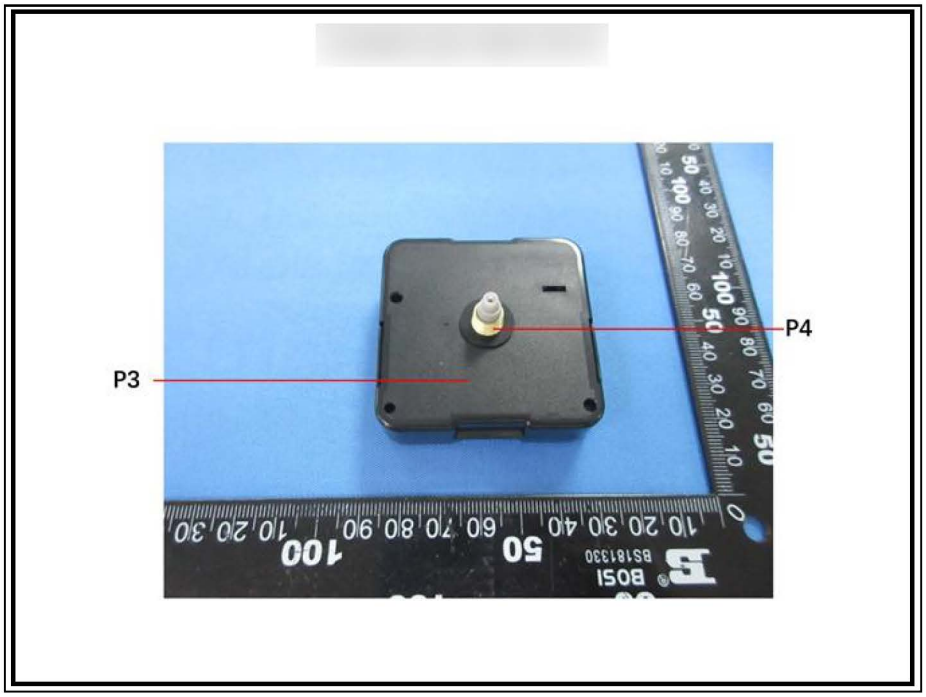

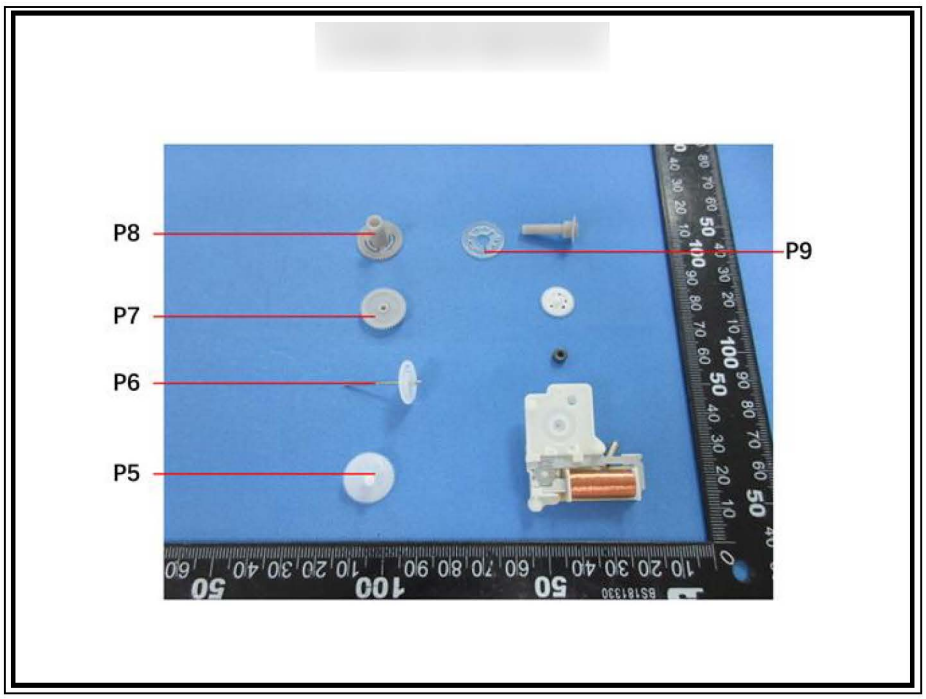

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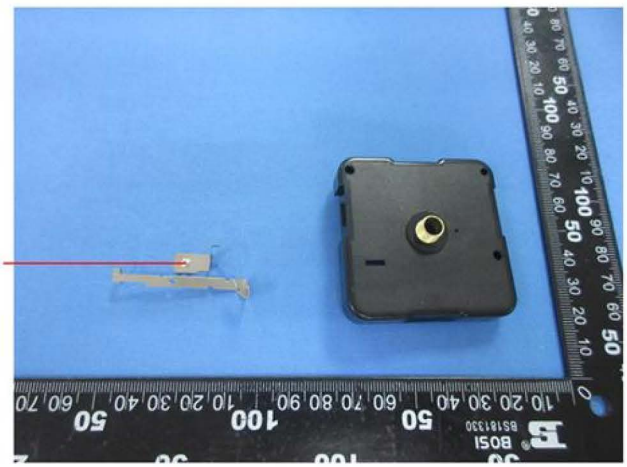

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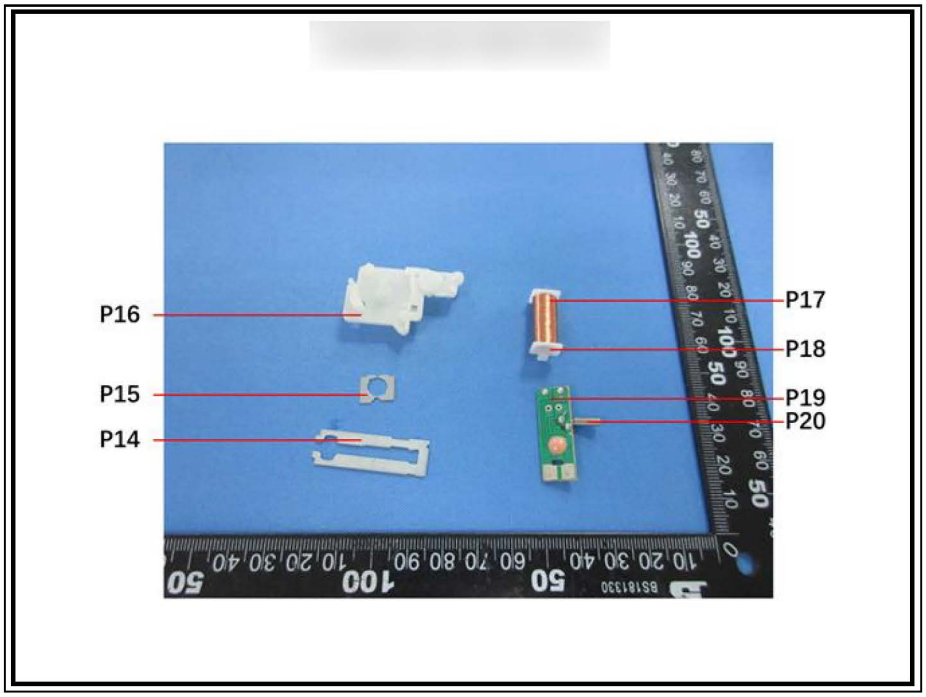

SGS authenticate the photo on original report only

*** End of Report ***

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