



## FCC- TEST REPORT

Report Number : **709502228915-00B** Date of Issue: Feb.02, 2023

Model : CM-09-C120, CM-09-QC120, CM-10-QC120

Product Type : TUBULAR MOTOR

Applicant : Coulisse B.V.

Address : Vonderweg 48, 7468 DC Enter, THE NETHERLANDS

Manufacturer : Coulisse B.V.

Address : Vonderweg 48, 7468 DC Enter, THE NETHERLANDS

Test Result :  Positive  Negative

Total pages including Appendices : 27



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## 2 Details about the Test Laboratory

### Details about the Test Laboratory

#### Test Site 1

Company name: TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch  
No.16 Lane, 1951 Du Hui Road,  
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Test Firm FCC 820234

Registration  
Number:

Designation  
number: CN1183

IC Company  
Number: 25988

CAB identifier: CN0101

Telephone: +86 21 6141 0123  
Fax: +86 21 6140 8600

### 3 Description of the Equipment under Test

#### Description of the Equipment Under Test

Product: TUBULAR MOTOR  
 PMN / HVIN / Model no.: CM-09-C120, CM-09-QC120, CM-10-QC120  
 FCC ID: ZY4CM0910B  
 Rating: 120V~, 60Hz  
 RF Transmission Frequency: Bluetooth LE:2402~2480MHz;  
 433.92MHz  
 No. of Operated Channel: Bluetooth LE:40  
 Modulation: For 2.4GHz BLE: GFSK; 433.92MHz: GFSK

Channel list:

Bluetooth Low Energy							
Ch	Fre(MHz)	Ch	Fre(MHz)	Ch	Fre(MHz)	Ch	Fre(MHz)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

Antenna Type: Integral antenna for BLE  
 Spring antenna for 433.92MHz

Antenna Gain: For 2.4GHz: 1.0dBi; For 433.92MHz: 0dBi

Description of the EUT:

The Equipment Under Test (EUT) is a TUBULAR MOTOR which have 2.4GHz BLE (support 1Mbps and 2Mbps data rate) and 433.92MHz transceiver. There are 3 models in all, they have same electrical construction except for different motor and torque. We chose model CM-09-QC120 to perform all tests, CM-09-C120 to only perform radiate emission below 1GHz and conducted emission.

Model	Difference
CM-09-QC120, CM-10-QC120	Same electrical construction except for torque and mechanical structure
CM-09-C120	Only motor different from CM-09-QC120 and CM-10-QC120

The sample's mentioned in this report is/are submitted/ supplied/ manufactured by client. The laboratory therefore assumes no responsibility for accuracy of information on the brand name, model number, origin of manufacture, consignment or any information supplied.

## 4 Summary of Test Standards

<b>Test Standards</b>	
FCC Part 15 Subpart C	PART 15 - RADIO FREQUENCY DEVICES Subpart C - Intentional Radiators

All the test methods were according to ANSI C63.10-2013.

## 5 Summary of Test Results

		Technical Requirements		
FCC Part 15 Subpart C		Pages	Test Site	Test Result
Test Condition				
§15.207	Conducted emission AC power port	11-15	Shield room	Pass
§15.205, §15.209, 15.35 (c)§15.231(b)	Radiated Emission, 30MHz to 4.5GHz	16-18	3m chamber	Pass
§15.231(c)	Bandwidth Measurement	19	Shield room	Pass
§15.231(a)(1)	Deactivation Time	20	Shield room	Pass
§15.203	Antenna requirement	--	See Note 2	Pass

Note 1: The EUT uses an Integral antenna (BLE) and spring antenna (433.92MHz), which gain is 1.0dBi for 2.4GHz and 0dBi for 433.92MHz. In accordance to §15.203, It is considered sufficiently to comply with the provisions of this section.

## 6 General Remarks

### Remarks

This submittal(s) (test report) is intended for FCC ID: ZY4CM0910B, complies with Section 15.207,15.209,15.231,15.247 of the FCC Part 15, Subpart C Rules.

This report is only for the 433.92MHz test report, for the BLE test report please refer to 709502228915-00C.

### SUMMARY:

All tests according to the regulations cited on page 5 were

- Performed

- **Not** Performed

The Equipment Under Test

- **Fulfills** the general approval requirements.

- **Does not** fulfill the general approval requirements.

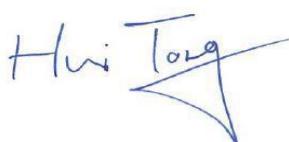
Sample Received Date: June 10, 2022

Testing Start Date: June 11, 2022

Testing End Date: January 11, 2023

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch

Reviewed by:



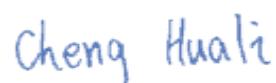
Hui TONG  
Review Engineer

Prepared by:



Jiaxi XU  
Project Engineer

Tested by:



Cheng Huali  
Test Engineer

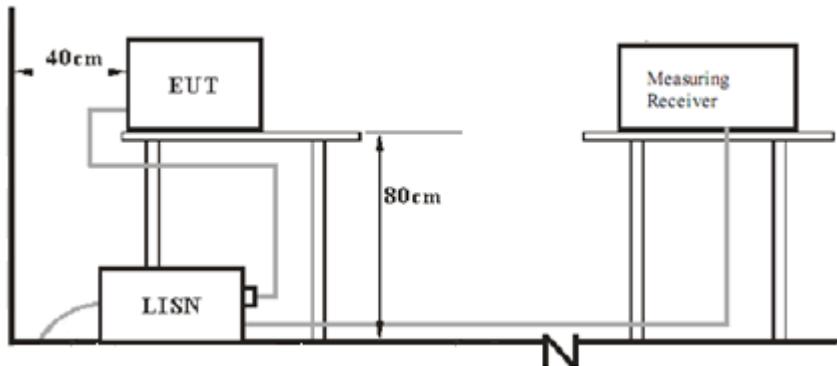
## 7 Systems test configuration

Auxiliary Equipment Used during Test:

DESCRIPTION	MANUFACTURER	MODEL NO.(SHIELD)	S/N(LENGTH)
--	--	--	--

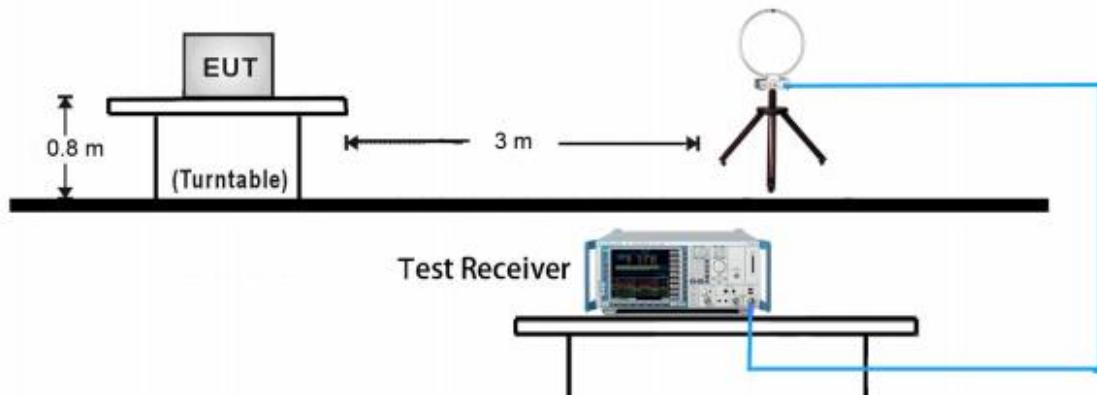
## 8 Test Setups

### 8.1 AC Power Line Conducted Emission test setups

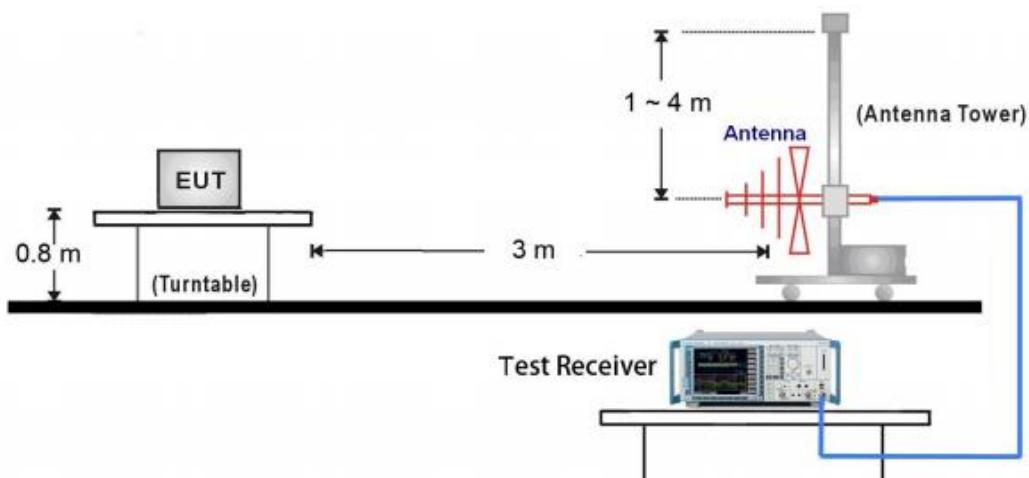


### 8.2 Radiated test setups

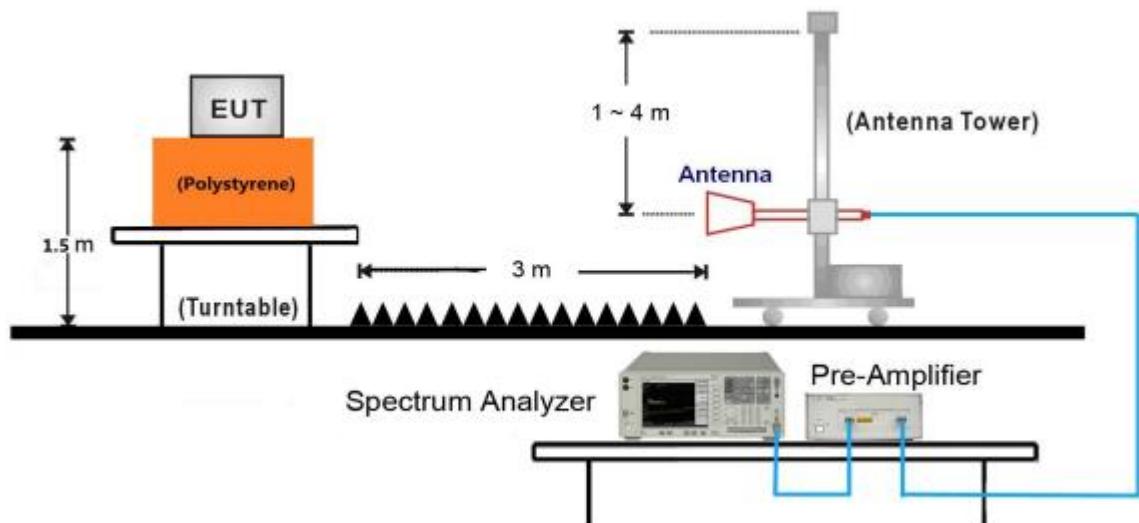
9kHz ~ 30MHz Test Setup:



30MHz ~ 1GHz Test Setup:



## 1GHz ~ 18GHz Test Setup:



## 9 Test Methodology

### 9.1 Conducted Emission

#### Test Method

1. The EUT was placed on a table, which is 0.8m above ground plane
2. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.).
3. Maximum procedure was performed to ensure EUT compliance
4. A EMI test receiver is used to test the emissions from both sides of AC line

#### Limit

Frequency MHz	QP Limit dB $\mu$ V	AV Limit dB $\mu$ V
0.150-0.500	66-56*	56-46*
0.500-5	56	46
5-30	60	50

Decreasing linearly with logarithm of the frequency

## Conducted Emission

# 150k-30MHz Conducted Emission Test

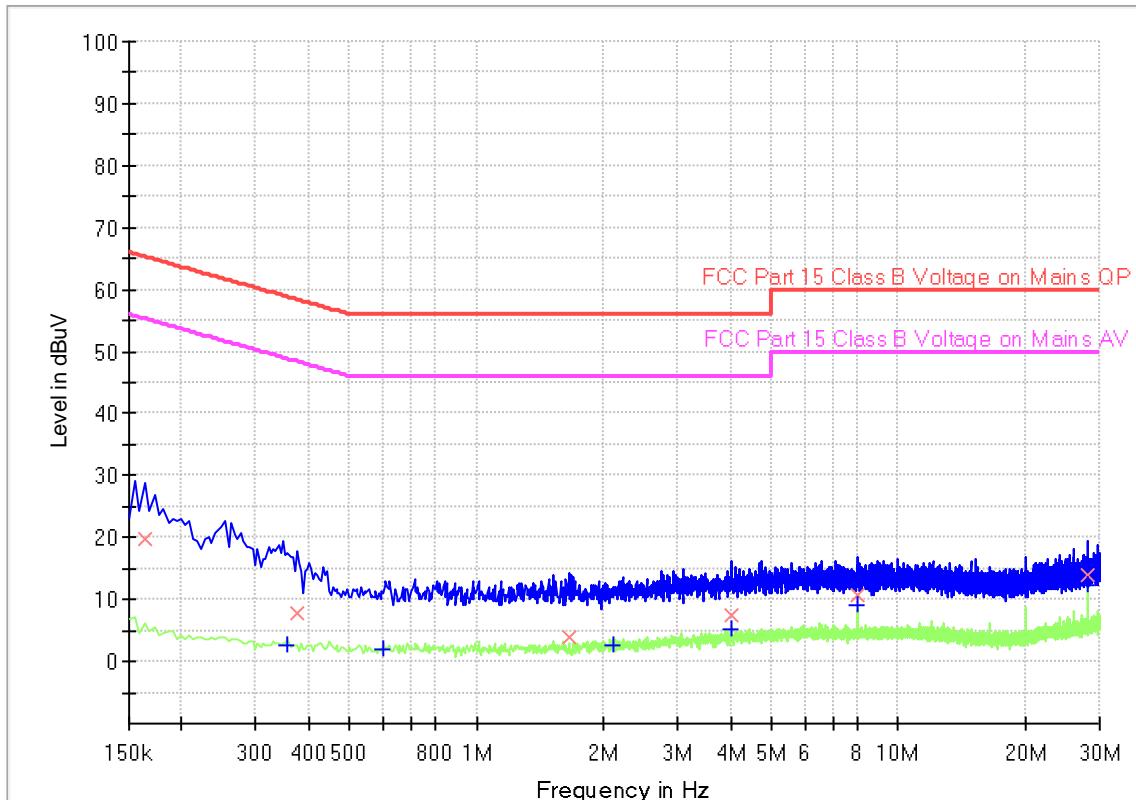
## EUT Information

EUT Name: TUBULAR MOTOR  
 Model: CM-09-QC120  
 Client: Coulisse B.V.  
 Op Cond: Power on, TX\_433.92MHz at 1Mbps, AC 120V/60Hz, T21.3, H56.3%, P100.9kPa  
 Operator: Cheng Huali  
 Standard: FCC 15.207 (a)  
 Comment: Phase L  
 Sample No.: SHA- 653704-4

## Scan Setup: Voltage with 2-Line-LISN pre [EMI conducted]

Hardware Setup: Voltage with 2-Line-LISN  
 Receiver: [ESR 3]  
 Level Unit: dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0.02 s	0 dB
150 kHz - 30 MHz	4.5 kHz	PK+, AVG	9 kHz	0.01 s	0 dB



## Final\_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.163500	19.77	---	65.28	45.51	1000.0	9.000	L1	19.6
0.357000	---	2.66	48.80	46.14	1000.0	9.000	L1	19.6
0.375000	7.84	---	58.39	50.55	1000.0	9.000	L1	19.6
0.600000	---	2.07	46.00	43.93	1000.0	9.000	L1	19.6
1.662000	3.86	---	56.00	52.14	1000.0	9.000	L1	19.6
2.116500	---	2.68	46.00	43.32	1000.0	9.000	L1	19.6
3.997500	---	5.34	46.00	40.66	1000.0	9.000	L1	19.6
4.002000	7.52	---	56.00	48.48	1000.0	9.000	L1	19.6
7.998000	10.81	---	60.00	49.19	1000.0	9.000	L1	19.7
7.998000	---	9.05	50.00	40.95	1000.0	9.000	L1	19.7
28.000500	---	12.46	50.00	37.54	1000.0	9.000	L1	20.3
28.000500	13.87	---	60.00	46.13	1000.0	9.000	L1	20.3

# 150k-30MHz Conducted Emission Test

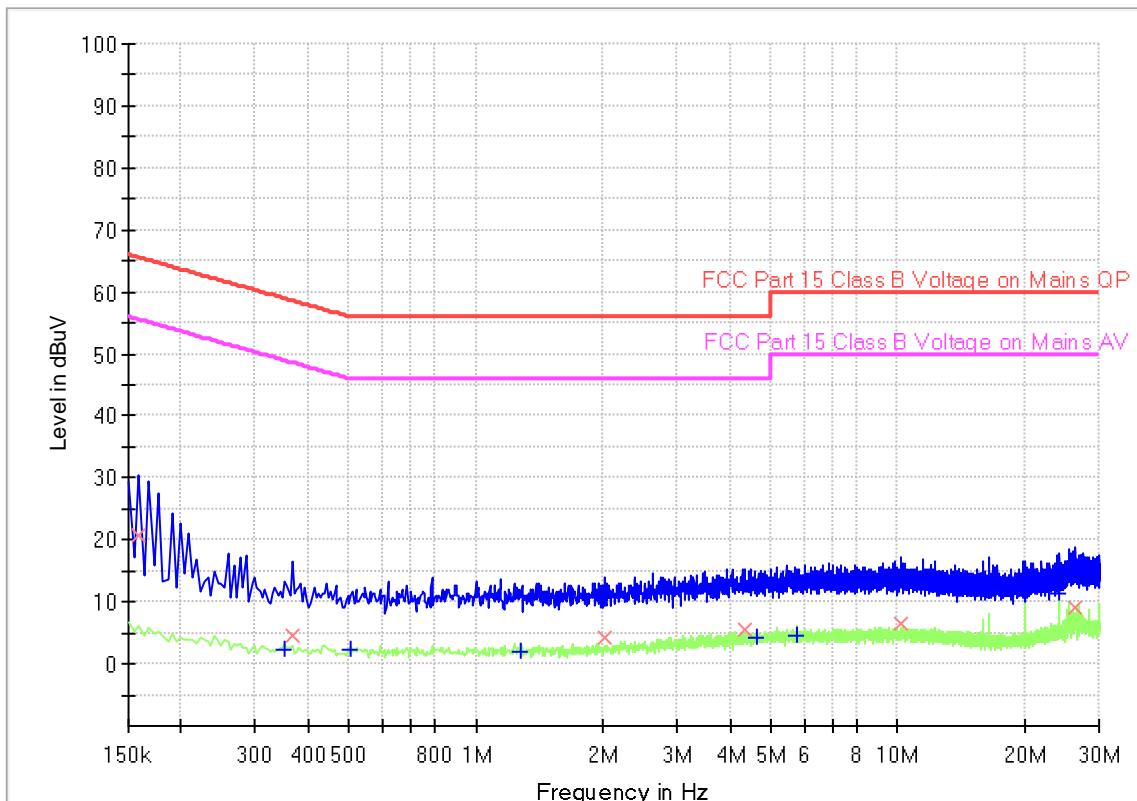
## EUT Information

EUT Name: TUBULAR MOTOR  
 Model: CM-09-QC120  
 Client: Coulisse B.V.  
 Op Cond: Power on, TX\_433.92MHz at 1Mbps, AC 120V/60Hz, T21.3, H56.3%, P100.9kPa  
 Operator: Cheng Huali  
 Standard: FCC 15.207 (a)  
 Comment: Phase N  
 Sample No.: SHA- 653704-4

## Scan Setup: Voltage with 2-Line-LISN pre [EMI conducted]

Hardware Setup: Voltage with 2-Line-LISN  
 Receiver: [ESR 3]  
 Level Unit: dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0.02 s	0 dB
150 kHz - 30 MHz	4.5 kHz	PK+; AVG	9 kHz	0.01 s	0 dB



## Final\_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.159000	20.68	---	65.52	44.84	1000.0	9.000	N	19.6
0.352500	---	2.40	48.90	46.50	1000.0	9.000	N	19.6
0.366000	4.43	---	58.59	54.16	1000.0	9.000	N	19.6
0.505500	---	2.15	46.00	43.85	1000.0	9.000	N	19.6
1.279500	---	2.09	46.00	43.91	1000.0	9.000	N	19.6
2.022000	4.16	---	56.00	51.84	1000.0	9.000	N	19.6
4.348500	5.66	---	56.00	50.34	1000.0	9.000	N	19.7
4.654500	---	4.13	46.00	41.87	1000.0	9.000	N	19.7
5.775000	---	4.44	50.00	45.56	1000.0	9.000	N	19.7
10.167000	6.50	---	60.00	53.50	1000.0	9.000	N	19.9
24.000000	---	11.27	50.00	38.73	1000.0	9.000	N	20.2
26.232000	9.25	---	60.00	50.75	1000.0	9.000	N	20.2

# 150k-30MHz Conducted Emission Test

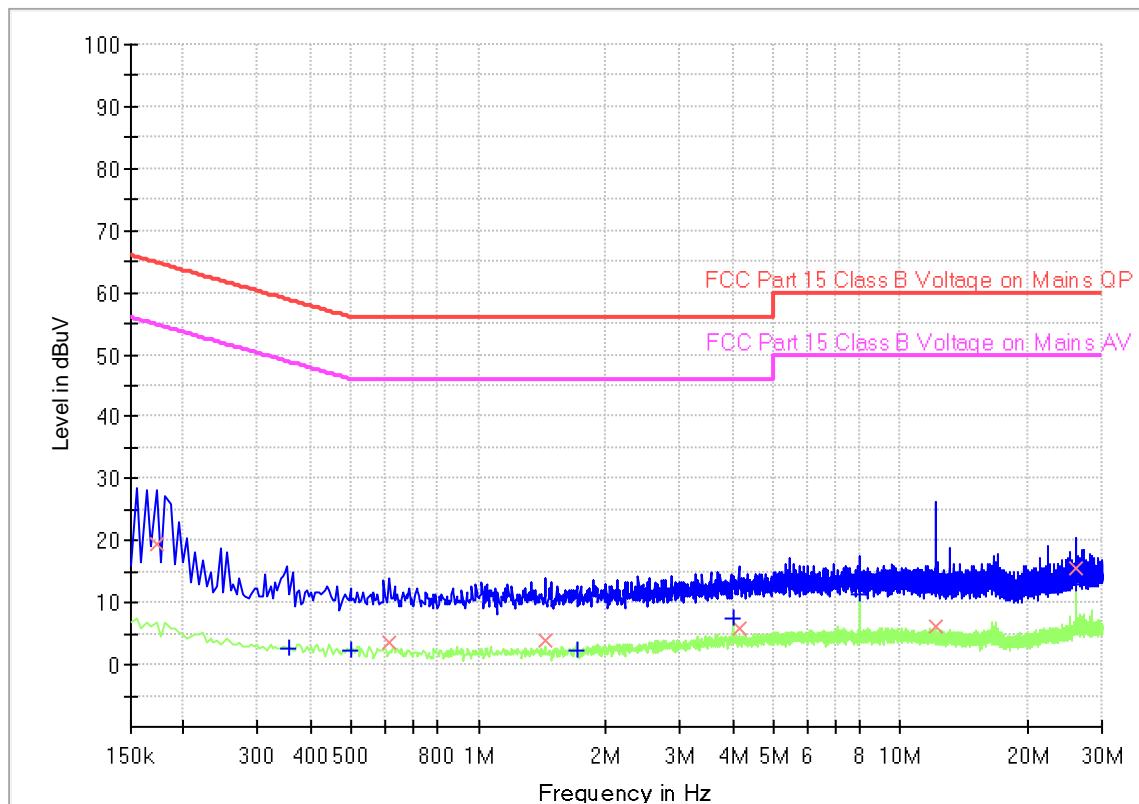
## EUT Information

EUT Name: Tubular motor  
 Model: CM-09-C120  
 Client: Coulisse B.V.  
 Op Cond: Power on, forward, AC 120V/60Hz, T20.3, H40.1%, P103.5kPa  
 Operator: Cheng Huali  
 Standard: FCC 15.207 (a)  
 Comment: Phase L  
 Sample No.: SHA-703502-1

## Scan Setup: Voltage with 2-Line-LISN pre [EMI conducted]

Hardware Setup: Voltage with 2-Line-LISN  
 Receiver: [ESR 3]  
 Level Unit: dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0.02 s	0 dB
150 kHz - 30 MHz	4.5 kHz	PK+; AVG	9 kHz	0.01 s	0 dB



## Final\_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.172500	19.29	---	64.84	45.55	1000.0	9.000	L1	19.6
0.357000	---	2.63	48.80	46.17	1000.0	9.000	L1	19.6
0.496500	---	2.26	46.06	43.80	1000.0	9.000	L1	19.6
0.613500	3.62	---	56.00	52.38	1000.0	9.000	L1	19.6
1.441500	3.93	---	56.00	52.07	1000.0	9.000	L1	19.6
1.707000	---	2.35	46.00	43.65	1000.0	9.000	L1	19.6
4.002000	---	7.32	46.00	38.68	1000.0	9.000	L1	19.6
4.132500	5.74	---	56.00	50.26	1000.0	9.000	L1	19.6
7.998000	---	11.32	50.00	38.68	1000.0	9.000	L1	19.7
12.088500	6.24	---	60.00	53.76	1000.0	9.000	L1	19.8
25.998000	---	12.92	50.00	37.08	1000.0	9.000	L1	20.3
25.998000	15.52	---	60.00	44.48	1000.0	9.000	L1	20.3

# 150k-30MHz Conducted Emission Test

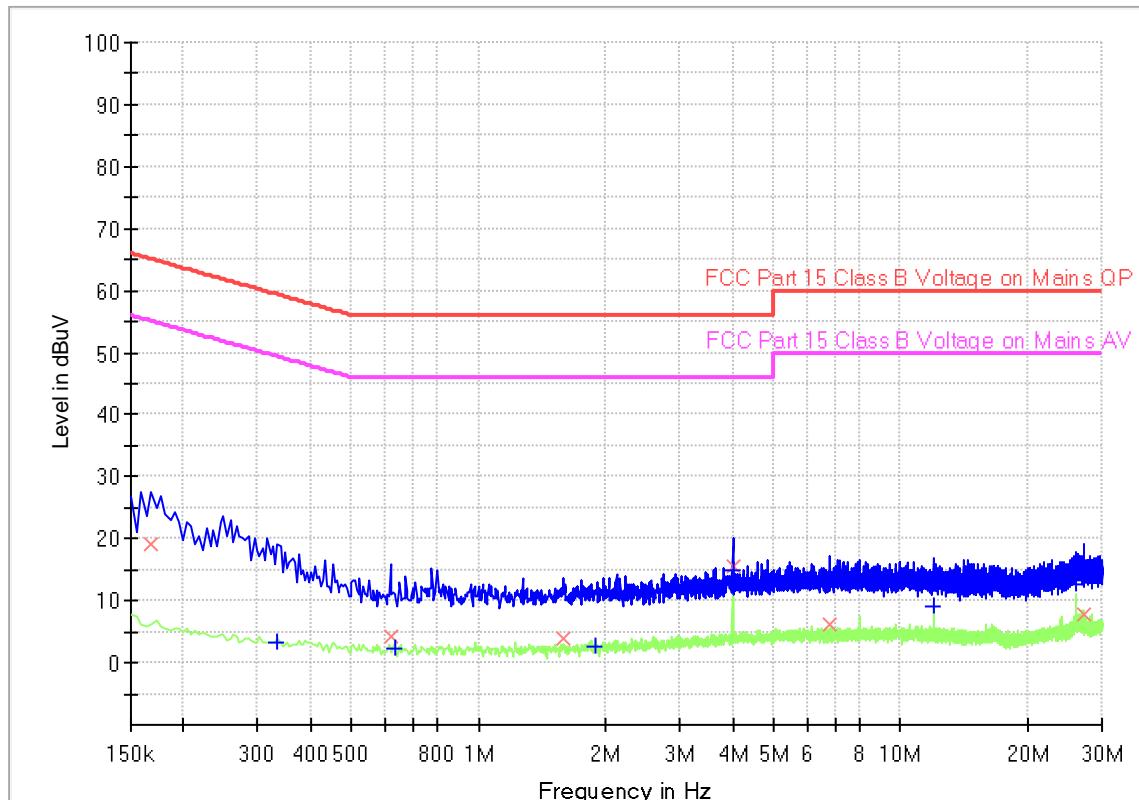
## EUT Information

EUT Name: Tubular motor  
 Model: CM-09-C120  
 Client: Coulisse B.V.  
 Op Cond: Power on, forward, AC 120V/60Hz, T20.3, H40.1%, P103.5kPa  
 Operator: Cheng Huali  
 Standard: FCC 15.207 (a)  
 Comment: Phase N  
 Sample No.: SHA-703502-1

## Scan Setup: Voltage with 2-Line-LISN pre [EMI conducted]

Hardware Setup: Voltage with 2-Line-LISN  
 Receiver: [ESR 3]  
 Level Unit: dBuV

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0.02 s	0 dB
150 kHz - 30 MHz	4.5 kHz	PK+; AVG	9 kHz	0.01 s	0 dB



## Final\_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.168000	18.97	---	65.06	46.09	1000.0	9.000	N	19.6
0.334500	---	3.27	49.34	46.07	1000.0	9.000	N	19.6
0.618000	4.24	---	56.00	51.76	1000.0	9.000	N	19.6
0.631500	---	2.14	46.00	43.86	1000.0	9.000	N	19.6
1.590000	3.99	---	56.00	52.01	1000.0	9.000	N	19.6
1.896000	---	2.49	46.00	43.51	1000.0	9.000	N	19.6
4.002000	15.62	---	56.00	40.38	1000.0	9.000	N	19.7
4.002000	---	15.03	46.00	30.97	1000.0	9.000	N	19.7
6.792000	6.16	---	60.00	53.84	1000.0	9.000	N	19.7
11.998500	---	9.15	50.00	40.85	1000.0	9.000	N	19.9
25.998000	---	12.62	50.00	37.38	1000.0	9.000	N	20.2
27.150000	7.81	---	60.00	52.19	1000.0	9.000	N	20.2

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB) + 10dB Attenuator

## 9.2 Radiated Emission

### Test Method

1. The EUT was placed on a turn table which is 1.5m above ground plane for above 1GHz and 0.8m above ground for below 1GHz at 3 meters chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
2. Set to the maximum power setting and enable the EUT transmit continuously
3. The EUT was set 3 meters away from the interference – receiving antenna, which was mounted on the top of a variable – height antenna tower.
4. The height of antenna is varied from one meter to four 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.
5. 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.
6. Use the following spectrum analyzer settings According to C63.10:
  - (1) Span shall wide enough to fully capture the emission being measured;
  - (2) Set RBW=100 kHz for  $f < 1$  GHz; VBW RBW; Sweep = auto; Detector function = peak; Trace = max hold;
  - (3) Set RBW = 1 MHz, VBW= 3MHz for  $f \geq 1$  GHz for peak measurement.
- For average measurement:
 

VBW = 10 Hz, when duty cycle is no less than 98 percent.

VBW  $\geq 1/T$ , when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
7. Repeat above procedures until all frequencies measured were complete.

### Limit

According to §15.231 (b), the field strength of emissions from intentional radiators operated under this section shall not exceed the following:

Fundamental frequency (MHz)	Field Strength of Fundamental (Microvolts /meter)	Field Strength of spurious emissions ((Microvolts /meter)
40.66-40.70	2,250	225
70-130	1,250	125
130-174	1,250 to 3,370 *	125 to 375 *
174-260	3,750	375
260-470 ✓	3,750 to 12, 500*	375 to 1,250*
Above 470	12,500	1,250

## Limits for 15.209 Radiated emission limits; general requirements

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Frequency	Limit at 3m (dBuV/m)
0.009 MHz – 0.490 MHz	128.5 to 93.8 <sup>1</sup>
0.490 MHz – 1.705 MHz	73.8 to 63 <sup>1</sup>
1.705 MHz – 30 MHz	69.5 <sup>1</sup>
30 MHz – 88 MHz	40.0 <sup>1</sup>
88 MHz – 216 MHz	43.5 <sup>1</sup>
216 MHz – 960 MHz	46.0 <sup>1</sup>
Above 960 MHz	54.0 <sup>1</sup>
Above 1000 MHz	54.0 <sup>2</sup>
Above 1000 MHz	74.0 <sup>3</sup>

<sup>1</sup>Limit is with detector with bandwidths as defined in CISPR-16-1-1 except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz where an Average detector is used.

<sup>2</sup>Limit is with 1 MHz measurement bandwidth and using an Average detector

<sup>3</sup>Limit is with 1 MHz measurement bandwidth and using a Peak detector

## Spurious radiated emissions for transmitter

According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in below table if the peak value complies with average limit.

Radiated Emission (CM-09-QC120)								
Value	Emissions Frequency MHz	E-Field Polarity	Field Strength at 3m dB $\mu$ V/m	Average Factor dB	Net Field Strength at 3m dB $\mu$ V/m	Limit dB $\mu$ V/m	Margin dB	Emission Type
PK	433.91	H	77.72	/	77.72	100.80	23.08	Fundamental
AV	433.91	H	77.72	-22.62	55.10	80.80	25.70	Fundamental
PK	867.78	H	35.66	/	35.66	60.80	25.14	Spurious
PK	1301.66	H	35.15	/	35.15	74.00	38.85	Retricted band
PK	1752.45	H	35.78	/	35.78	60.80	25.02	Spurious
PK	433.91	V	80.47	/	80.47	100.80	20.33	Fundamental
AV	433.91	V	80.47	-22.62	57.85	80.80	22.95	Fundamental
PK	867.64	V	34.86	/	34.98	60.80	25.82	Spurious
PK	1301.83	V	33.61	/	33.61	74.00	40.39	Retricted band
PK	3467.61	V	43.06	/	43.06	60.80	17.74	Spurious

Remark:

1: AV Emission Level= PK Emission Level+20log(dutycycle)

2: Corrected Amplitude = Read level + Corrector factor

Above 1GHz: Corrector factor = Antenna Factor + Cable Loss- Amplifier Gain

Below 1GHz: Corrector factor = Antenna Factor + Cable Loss

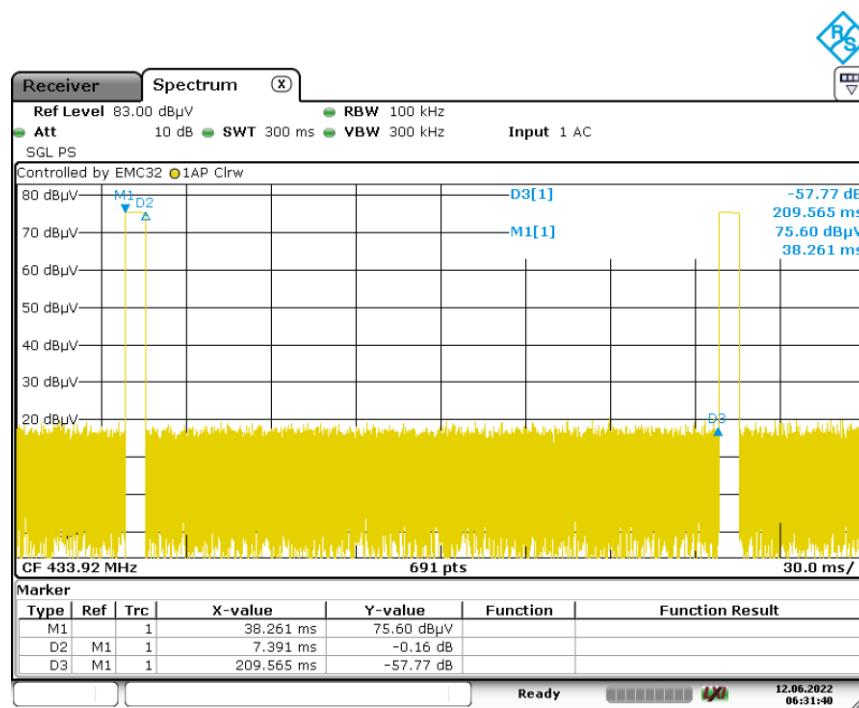
3. Correct Factor = Antenna Factor + Cable Loss (+ Amplifier, for higher than 1GHz)

4. Corrected Reading = Original Receiver Reading + Correct Factor

5. Only the worst data listed in this report, Other frequency was 20dB below the limit

Duty Cycle = 7.391ms/100ms =7.391%

Duty Cycle Factor =20log (Duty Cycle) =-22.62



Date: 12.JUN.2022 06:31:40

Radiated Emission (CM-09-C120)								
Value	Emissions Frequency MHz	E-Field Polarity	Field Strength at 3m dB $\mu$ V/m	Average Factor dB	Net Field Strength at 3m dB $\mu$ V/m	Limit dB $\mu$ V/m	Margin dB	Emission Type
PK	124.89	H	28.77	/	28.77	40.00	11.23	Retricted band
PK	163.48	H	25.29	/	25.29	40.00	14.71	Retricted band
PK	109.21	V	26.21	/	26.21	40.00	13.79	Retricted band
PK	120.38	V	27.15	/	27.15	40.00	12.85	Retricted band

## 9.3 Bandwidth Measurement

### Test Method

1. The RF output of EUT was connected to the test receiver by RF cable. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit continuously.
3. Use the following test receiver settings:  
Span = approximately 5 times the 20dB bandwidth, centered on a hopping channel  
RBW = 1% to 5% of the 20dB bandwidth of the emission being measured,  $VBW \geq RBW$ ,  
Sweep = auto, Detector function = peak, Trace = max hold
4. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth. Record the results.
5. Repeat above procedures until all frequencies measured were complete.

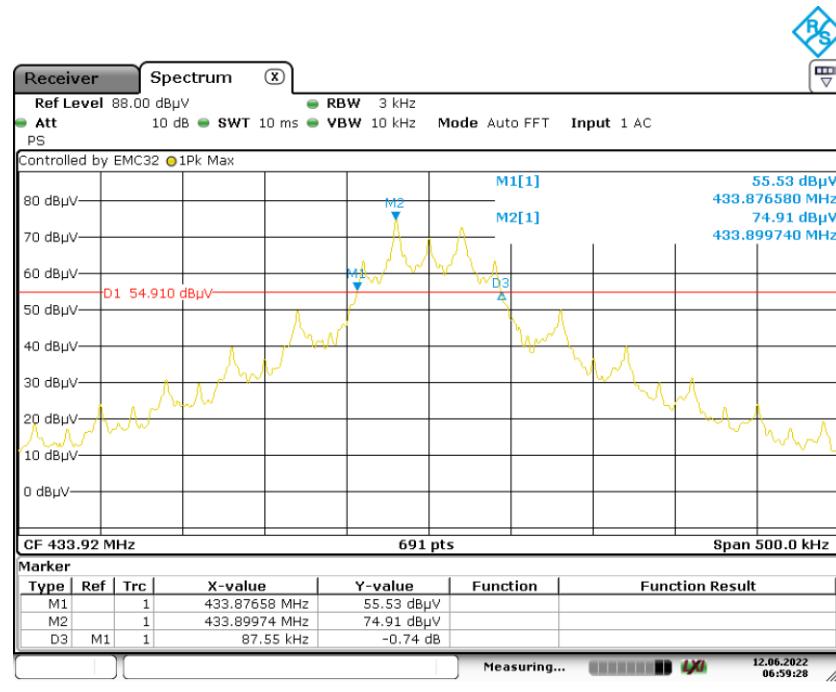
### Limit

The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70MHz and below 900MHz. For devices operating above 900MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20dB down from the modulated carrier.

The limit for the EUT =  $0.25\% * 433.92 \text{ MHz} = 1084 \text{ kHz}$

### Test Result

Channel	20dB Bandwidth (KHz)	Limit (KHz)
1	87.55	1084



## 9.4 Deactivation Time

### Test Method

1. The RF output of EUT was connected to the test receiver by RF cable. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT in transmitting mode.
3. Set center frequency of spectrum analyzer=operating frequency.
4. Set the spectrum analyzer as RBW=120 KHz, VBW=1MHz, Span=0Hz.
5. Repeat above procedures until all frequency measured was complete.

### Limit

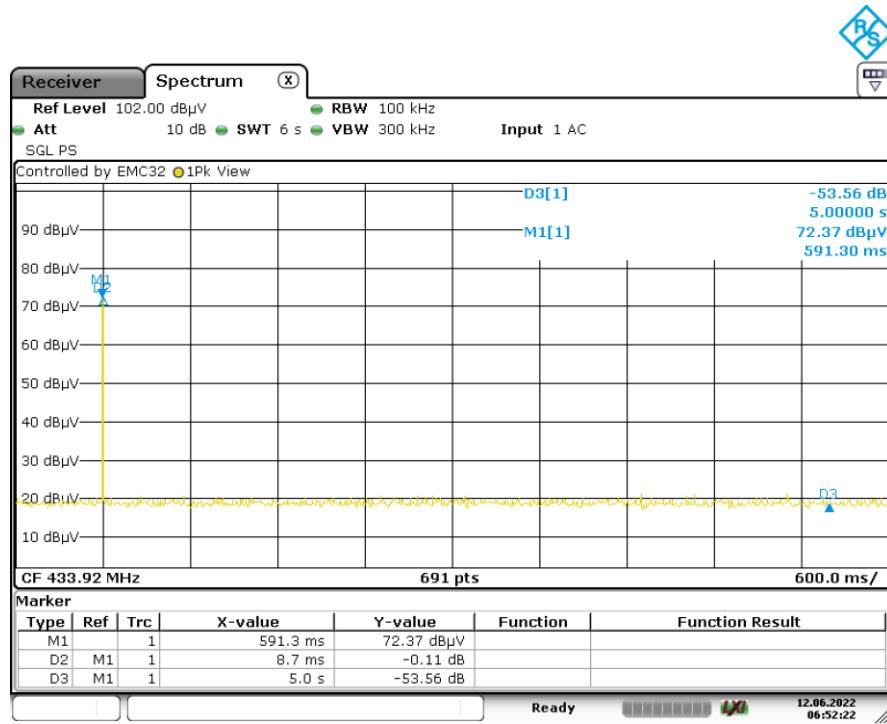
According to FCC Part 15.231 (a), the transmitter shall be complied the following requirements:  
 (1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

(2) A transmitter activated automatically shall cease transmission within 5 seconds after activation.

(3) Periodic transmissions at regular predetermined intervals are not permitted. However, polling or supervision transmissions, including data, to determine system integrity of transmitters used in security or safety applications are allowed if the total duration of transmissions does not exceed more than two seconds per hour for each transmitter. There is no limit on the number of individual transmissions, provided the total transmission time does not exceed two seconds per hour.

### Test Result

Channel	Frequency	Deactivation Time	Result
1	433.92MHz	591.30ms	Pass



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## 10 Test Equipment List

### List of Test Instruments

#### RF Test

Description	Model no.	Manufacturer	Equipment ID.	Calibration Date	Calibration Due
Signal and spectrum analyzer	FSV40	R&S	S1503003-YQ-EMC	2021-8-02	2022-8-01

#### Conducted Emission

Description	Model no.	Manufacturer	Equipment ID.	Calibration Date	Calibration Due
EMI test receiver	ESR3	R&S	S1503001-YQ-EMC	2022-8-01	2023-7-31
2-Line V-network	ENV216	R & S	S1503103-YQ-EMC	2022-8-01	2023-7-31

#### Conducted Emission

Description	Model no.	Manufacturer	Equipment ID.	Calibration Date	Calibration Due
EMI test receiver	ESR3	R&S	S1503001-YQ-EMC	2021-8-02	2022-8-01
2-Line V-network	ENV216	R & S	S1503103-YQ-EMC	2021-8-02	2022-8-01

#### Radiated Emission Test

USED	Equipment Name	Model	Manufacturer	Equipment ID.	Calibration Date	Calibration Due
<input checked="" type="checkbox"/>	EMI test receiver	ESR3	R&S	S1503109-YQ-EMC	2022-8-01	2023-7-31
<input checked="" type="checkbox"/>	Trilog super broadband test antenna	SCHWARZBECK	VULB9168	S1808296-YQ-EMC	2021-9-23	2024-9-22

#### Radiated Emission Test

USED	Equipment Name	Model	Manufacturer	Equipment ID.	Calibration Date	Calibration Due
<input checked="" type="checkbox"/>	EMI test receiver	ESR3	R&S	S1503109-YQ-EMC	2021-8-02	2022-8-01
<input checked="" type="checkbox"/>	Trilog super broadband test antenna	SCHWARZBECK	VULB9168	S1808296-YQ-EMC	2021-9-23	2024-9-22
<input checked="" type="checkbox"/>	Double-ridged waveguide horn antenna	HF907	R&S	S1503009-YQ-EMC	2021-4-13	2024-4-12
<input checked="" type="checkbox"/>	Signal conditioning unit	SCU-18D	R&S	S1503012-YQ-EMC	2021-8-02	2022-8-01
<input checked="" type="checkbox"/>	Signal and spectrum analyzer	FSV40	R&S	S1503003-YQ-EMC	2021-8-02	2022-8-01
<input checked="" type="checkbox"/>	Loop antenna	HFH2-Z2	R&S	S1503013-YQ-EMC	2021-5-21	2022-5-20

## 11 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

Items	Extended Uncertainty
Conducted Disturbance	9kHz to 30MHz, 3.16dB (AMN)
Radiated Disturbance	9kHz to 30MHz, 3.52dB 30MHz to 1GHz, 5.03dB (Horizontal) 5.12dB (Vertical) 1GHz to 18GHz, 5.49dB 18GHz to 40GHz, 5.63dB
RF Conducted Measurement	Power related: 1.16dB Frequency related: $6.00 \times 10^{-8}$

Measurement Uncertainty Decision Rule:

Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115: 2021, clause 4.4.3 and 4.5.1.

-----End of Test Report-----