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TEST REPORT N°: ARJX-19MY1976DTQDPB

# EMC TEST REPORT

To :	Qingdao Dashang Electric Appliance Co.,Ltd.	Fax :	--
Attn :	--	Email :	--
Address :	No.70, Jinsheng One Road Jihongtan street, Chengyang District, Qingdao City, Shandong Province 266111, P.R.China		
Cc :	--	Fax/Email :	--
Attn :	--		
This document includes : 38 pages		Test date :	Aug.21 to Sep.23, 2019

FACTORY NAME:	Qingdao Dashang Electric Appliance Co.,Ltd.	
ADDRESS :	No.70, Jinsheng One Road Jihongtan street, Chengyang District, Qingdao City, Shandong Province 266111, P.R.China	
PRODUCT :	Commercial Refrigerator	
TRADE MARK :	--	
TYPE REFERENCE :	BR60CP-76, BR120CP-76, BR180CP-76	
RATED VOLTAGE :	AC 220-240V, 50Hz	
RATED CURRENT :	BR60CP-76: 2.0A, BR120CP-76: 2.0A, BR180CP-76: 5.0A	
PROTECTION CLASS :	I	
TESTS REALISED :	On one sample of BR180CP-76 and BR120CP-76	
STANDARDS USED(DATE) :	EN 55014-1:2017 EN 55014-2:2015 EN 61000-3-2:2014 EN 61000-3-3:2013	
CLAUSES EXAMINED :	All Clauses Relevant.	

All the tests done in this report are subcontracted to Qingdao Product Quality Supervision & Testing Research Center

CONCLUSION :	<b>The sample does satisfy the clauses examined .</b>
Test done by:	Approved by:
Name : Tony MAO <i>Tony Mao</i> Date : Sep. 23, 2019	Name : Yi XU Date : Sep. 24, 2019

This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification.

"All the modifications applied in this document are identified by a vertical line on the left at the place where information has been modified regarding to the previous edition of the document".



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## 1 TESTING PROGRAM

The tests have been carried out according to the requirements of the following standards:

### Emission standard EN 55014-1:2017

- Measurement of the disturbance voltage levels.
- Measurement of the discontinuous disturbance levels.
- Measurement of the disturbance power levels.
- Measurement of the radiated disturbance levels.
- Measurement of the magnetic field levels.

### Immunity standard EN 55014-2:2015

- Immunity to electrostatic discharges - publication IEC 61000-4-2.
- Immunity to fast transients/bursts - publication IEC 61000-4-4.
- Immunity to conducted disturbances induced by radio-frequency fields - publication IEC 61000-4-6.
- Immunity to radiated radio-frequency electromagnetic field with amplitude modulation - publication IEC 61000-4-3.
- Immunity to surges - publication IEC 61000-4-5.
- Immunity to voltage dips -publication IEC 61000-4-11.
- Immunity to voltage interruptions - publication IEC 61000-4-11.

### Emission standard EN 61000-3-2:2014

- Measurement of the harmonic currents.

### Emission standard EN 61000-3-3:2013

- Measurement of the voltage fluctuations and flickers.

Special Comment :	The model BR180CP-76 is similar as the models BR120CP-76 and BR60CP-76 except for size and compressor. The model BR180CP-76 has two same compressor. The model BR120CP-76 is similar as the model BR60CP-76 except for size. So we did all EMC test on model BR180CP-76 and all EMI test on model BR120CP-76.
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## 2 HISTORY OF FAILURE

None.



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### 3 EQUIPMENT CHARACTERISTICS

#### 3.1 List of critical EMC components

Object / part No.	Manufacturer/ trademark	Type / model	Technical data
Compressor for BR120CP-76, BR60CP-76	Zanussi Elettromeccanica Tianjin Compressor Co., Ltd.,	NLT80AA	220-240V, 50Hz, R290,
Compressor*2 for BR180CP-76	Secop GmbH	SC18CNX.2	220-240V, 50Hz, R290, Class I
LED lamp	SHENZHEN TIANCHENG LIGHTING CO.,LTD	5050	DC24V, 14W DC24V, 20W DC24V, 22W
Evaporator fan motor	Ebm-papst Motor (Shanghai) Co.,Ltd.	M4Q045-CA01-01/A30	230V-50Hz 0.20A 31/7W, Class B
Condenser fan motor	Hangzhou Weiguang Electronic Co.,Ltd.	YZF series	220-240V 0.25A 7.2/35W, Class B
Transformer in electronic thermostat	WUXI XINCHANG ELECTRONIC CO.,LTD	BCY-432-3025	220-240V 50/60Hz, Class B, CQC17001173661
PCB in electronic thermostat	ZHEJIANG ZAPON ELECTRONIC TECHNOLOGY CO.,LTD	Power Box mini_V1.1_20190216	PTI175V



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### 3.2 Picture of the sample

Front view for BR180CP-76:



Front view for BR120CP-76:





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Front view for BR60CP-76:



Back view:





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Side view:



Side view:





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Top view:



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Top LED lamp view for BR120CP-76 and BR180CP-76:



LED lamp view for BR180CP-76 and BR120CP-76:







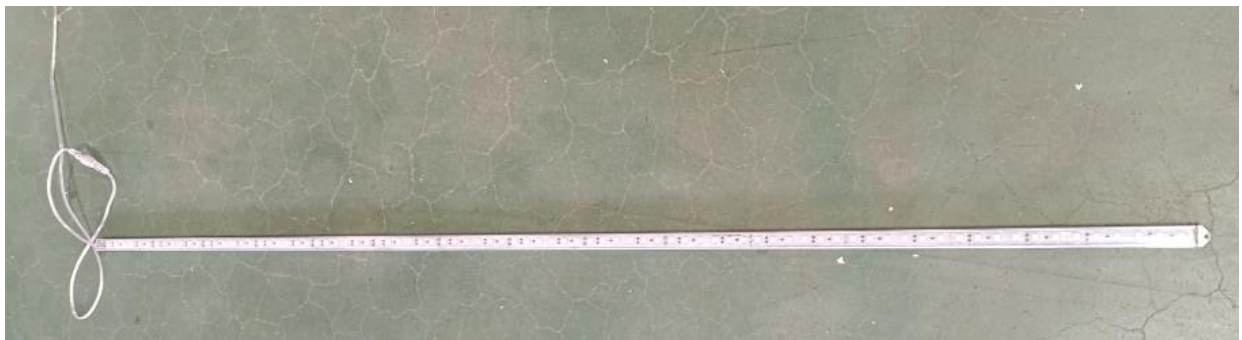
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LED lamp view for BR60CP-76:



LED lamp view:





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Inside view for BR180CP-76:



Inside view for BR120CP-76:





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Inside view:



Inside view:



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Display panel view:



Inside view:





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Inside view for BR180CP-76:



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Inside view for BR180CP-76:



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Inside view for BR120CP-76 and BR60CP-76:



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Inside view for BR120CP-76 and BR60CP-76:



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Inside view:



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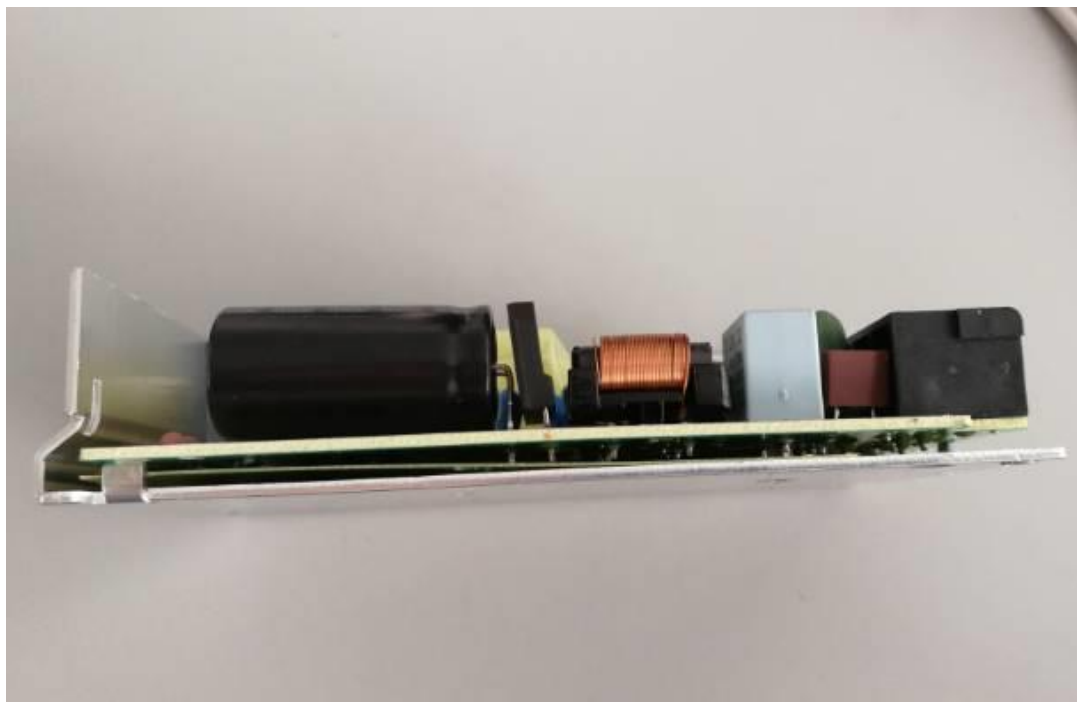
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Power supply view:

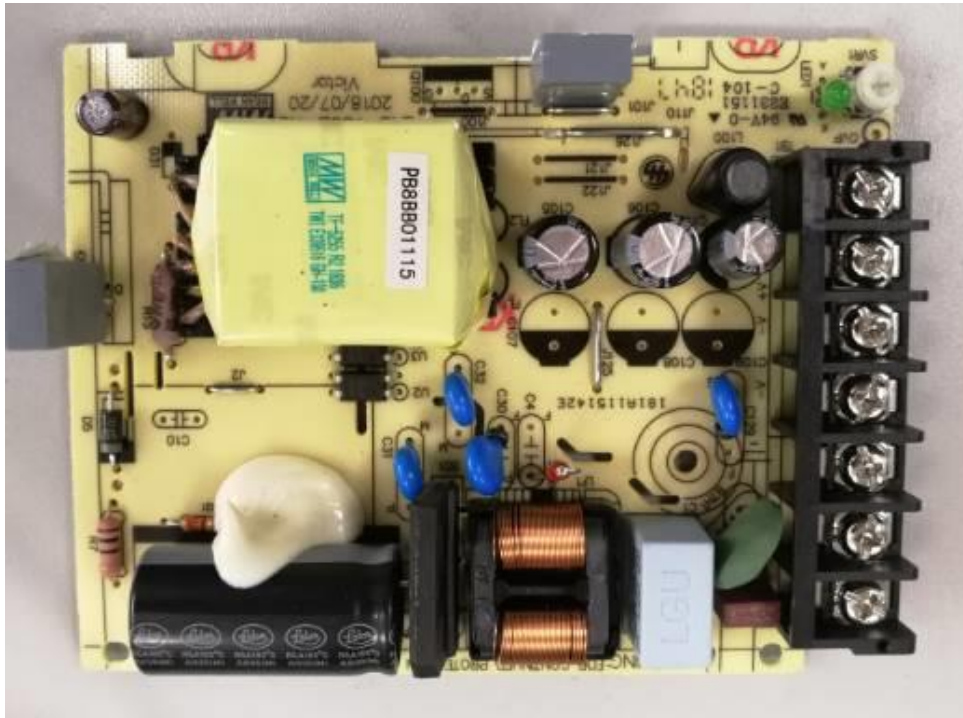




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**TEST REPORT N°: ARJX-19MY1976DTQDPB**

Power supply:

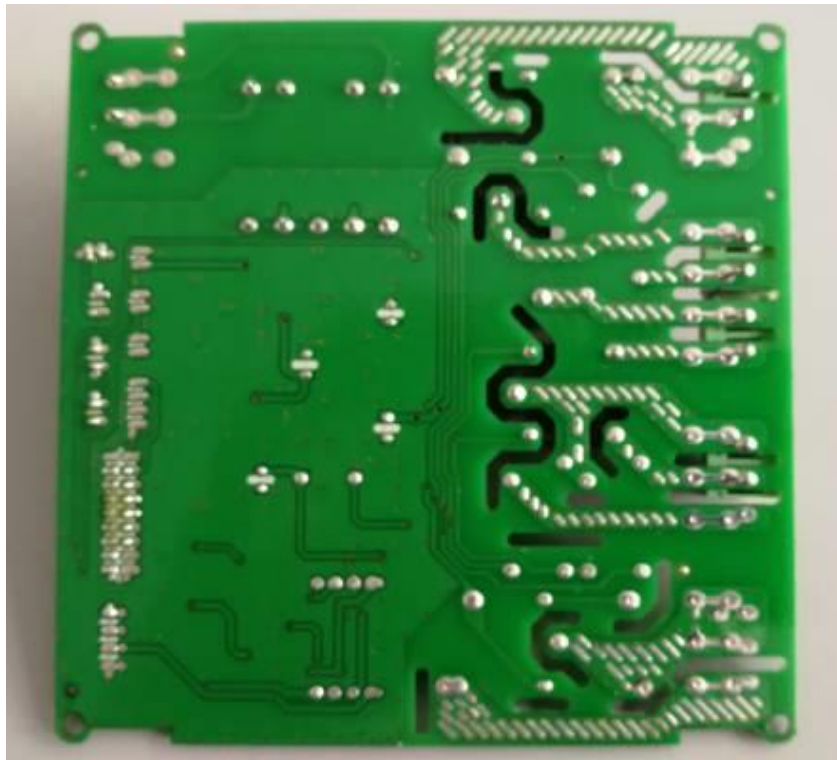
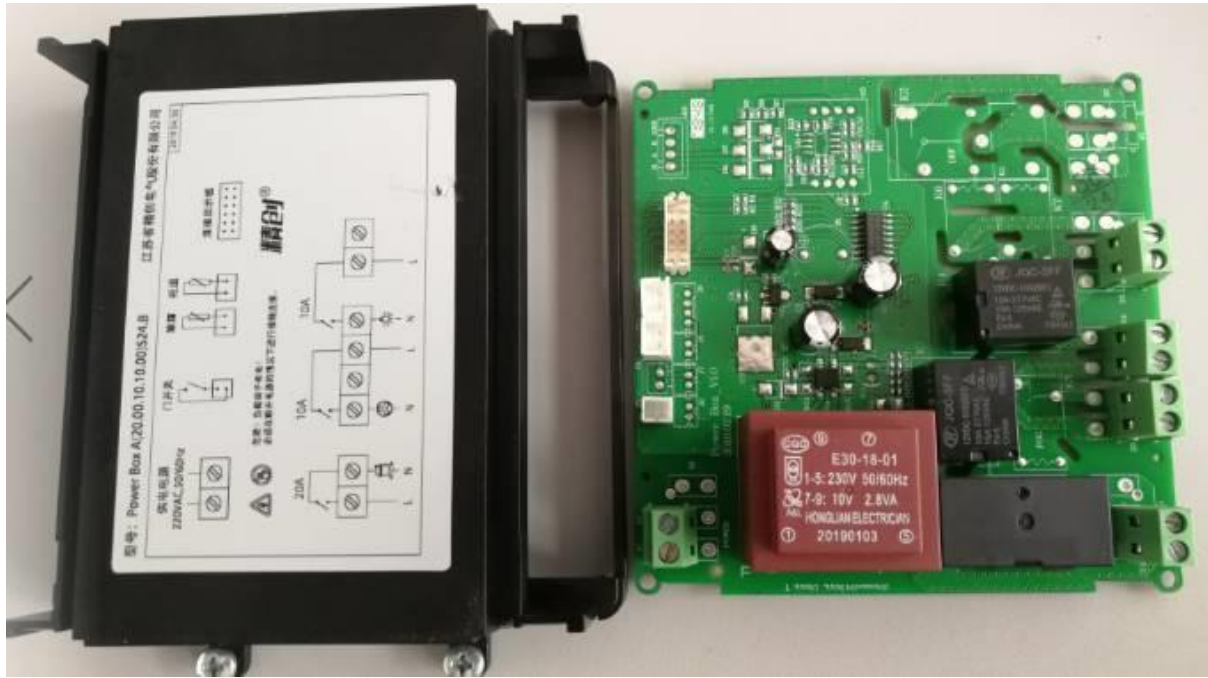




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Electronic thermostat:



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## 4 OPERATING CONDITIONS

The apparatus was placed in a shielded room, and was powered with an alternative current source through filters mounted on the shielded room wall. The apparatus was worked continuously.

Climatic conditions:

Temperature	:	20 °C-30 °C
Relative humidity	:	30 %-60 %
Atmospheric pressure	:	101 kPa

## 5 PERFORMANCE CRITERIA

- Criterion A : The apparatus operate as intended during the test. No degradation of performance or loss of function is allowed below the performance level.
- Criterion B : The apparatus operate as intended after the test. No change of operating state and the stored data are allowed. During the test, degradation of performance is allowed.
- Criterion C : Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use.



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## 6 TEST RESULTS

### 6.1 EMISSION STANDARD EN 55014-1:2017

Article	TEST	TEST SPECIFICATION	RESULTS			
			P	F	NA	Rem
4.3 4.3.2	<b><u>Continuous disturbances</u></b> <b><u>Magnetic field limits</u></b> Frequency range: 0.009 to 30 MHz	Operating conditions : according to the article 6 and Annex A <input type="checkbox"/> Magnetic field induced current (2m LAS) <input type="checkbox"/> Magnetic field strength (0.6m Loop antenna) Port(s) : • Enclosure Diagram No. < >	[ ]	[ ]	[X]	[ ]
4.3.3	<b><u>Disturbance voltage limits</u></b> Frequency range: 0.15 to 30 MHz	Port(s) : • Mains port Diagram No. <1>	[X]	[ ]	[ ]	[ ]
4.3.4.4	<b><u>Disturbance power limits</u></b> Frequency range : 30 to 300 MHz	Port(s) : • Mains port Diagram No. <2>	[X]	[ ]	[ ]	[1]
4.3.4.5	<b><u>Radiated disturbance limits</u></b> Frequency range: 30 to 1000 MHz	Measuring Distance: 3 m Port(s) : • Enclosure Diagram No. < >	[ ]	[ ]	[X]	[2]
4.4 4.4.2	<b><u>Discontinuous disturbances</u></b> <b><u>Discontinuous disturbances limits</u></b> Frequency range: 0.15 to 30 MHz	Operating conditions : according to the article 6 and Annex A Port(s) : • mains port Table No. <1>	[X]	[ ]	[ ]	[3]

P : pass – F : Fail – NA : not applicable – Rem : remark



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**6.2 IMMUNITY STANDARD EN 55014-2:2015**

Apparatus category: II

Article	TEST	TEST SPECIFICATION	RESULTS			
			P	F	NA	Rem
5.1	<b><u>Electrostatic discharges</u></b>  Table 1 Enclosure Performance Criterion B	Contact discharges Level : ± 4 kV Application points : • Horizontal coupling plane	[X]	[ ]	[ ]	[4]
		• Vertical coupling plane	[X]	[ ]	[ ]	[4]
		• Screw	[X]	[ ]	[ ]	[4]
		Air discharges Level : ± 8 kV Application points : • Switch	[X]	[ ]	[ ]	[4]
		• Gap	[X]	[ ]	[ ]	[4]
		• Cable	[X]	[ ]	[ ]	[4]
5.2	<b><u>Fast transients/bursts</u></b>  Table 4 Alternative current power input and output port(s) Performance Criterion B	Level : ± 1 kV Repetition rate : 5 kHz Testing time : 2 min Port(s) :  • AC mains	[X]	[ ]	[ ]	[4]
5.3	<b><u>Injected current 0.15 to 230 MHz</u></b>  Table 7 Alternative current power input and output port(s) Performance Criterion A  Article 8.4	Voltage level : 3V (unmodulated signal) Modulation frequency : 1 kHz Modulation depth : 80 % Frequency Step : 1% Dwell Time: 2 s Application with CDN-M2/M3 Port(s) : • AC mains	[X]	[ ]	[ ]	[4]
5.5	<b><u>Radio-frequency electromagnetic fields 80 to 1000 MHz</u></b>  Table 11 Enclosure  Performance criteria A	Test field strength : 3 V/m (unmodulated signal) Modulation frequency : 1 kHz Modulation depth : 80 % Frequency Step : 1% Dwell Time : 2 s <input type="checkbox"/> Logperiodic antenna <input type="checkbox"/> GTEM: • Horizontal position • Vertical position	[ ] [ ]	[ ] [ ]	[X] [X]	[ ] [ ]

P : pass - F : Fail - NA : not applicable - Rem : remark



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Article	TEST	TEST SPECIFICATION	RESULTS			
			P	F	NA	Rem
5.6	<b>Surges</b> Table 12 Alternative current power input and output port(s) Performance Criterion B	Tr/Th( $\mu$ s) : 1.2/50 (8/20) Number of surges : 5 positive and 5 negative Phase angles : 90° and 270°  Level : $\pm$ 1 kV Port(s) : • Power input, between lines and neutral	[X]	[ ]	[ ]	[4]
		Level : $\pm$ 2 kV Port(s) : • Power input, between lines and earth • Power input, between neutral and earth	[X] [X]	[ ] [ ]	[ ] [ ]	[4] [4]
5.7	<b>Voltage dips and voltage interruptions</b> Table 13 Alternative current power input port(s) Performance Criterion C	<u>Voltage interruptions</u> Test level : 0 % Ut Duration : 10 ms Phase angles : 0° and 180° Port(s) : • AC mains	[X]	[ ]	[ ]	[5]
		<u>Voltage dips</u> Test level : 40 % Ut Duration : 200 ms Phase angles : 0° Port(s) : • AC mains	[X]	[ ]	[ ]	[5]
		<u>Voltage dips</u> Test level : 70 % Ut Duration : 500 ms Phase angles : 0° Port(s) : • AC mains	[X]	[ ]	[ ]	[4]

P : pass - F : Fail - NA : not applicable - Rem : remark





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### 6.3 EMISSION STANDARD EN 61000-3-2:2014

TEST	TEST SPECIFICATION	RESULTS			
		P	F	NA	Rem
<u>Limits for harmonic currents emission</u>	Frequency range: 0 to 2 kHz Class of the apparatus : A Table(s) No. <2>	[X]	[ ]	[ ]	[ ]

P : pass - F : Fail - NA : not applicable - Rem : remark

### 6.4 EMISSION STANDARD EN 61000-3-3:2013

TEST	TEST SPECIFICATION	RESULTS			
		P	F	NA	Rem
<u>Limitation of voltage fluctuations and flicker in low-voltage supply systems</u>	Frequency range: 0 to 2 kHz Table(s) No. <3>	[X]	[ ]	[ ]	[ ]

P : pass - F : Fail - NA : not applicable - Rem : remark

#### Remark(s) :

1. The manufacturer chooses the disturbance power test method according to clause 4.3.4.2 in this standard.
2. The EUT does not contain any internal clock frequency or clock generator operating at frequency higher than 30MHz and the margin for the disturbance power test results between 200MHz and 300MHz fulfilled the margin's requirement in Table 8, the EUT is deemed to comply with this requirement without further testing.
3. The measured click rate is not more than five, and the duration of each click at 500 kHz is less than 10ms. So requirement of clause 5.4.3.4 is met for model BR180CP-76. No click was observed for model BR120CP-76.
4. During and after the test, there are no loss of function and no change of compressor, power consumption and operating state.
5. During the test, there is instantaneous change of compressor and light. After the test, any changes were self-recoverable.

## 7 CONCLUSION

The apparatus Commercial Refrigerator and models BR60CP-76, BR120CP-76, BR180CP-76 are in compliance with the requirements of the standards EN 55014-1:2017, EN 55014-2:2015, EN 61000-3-2:2014 and EN 61000-3-3:2013.



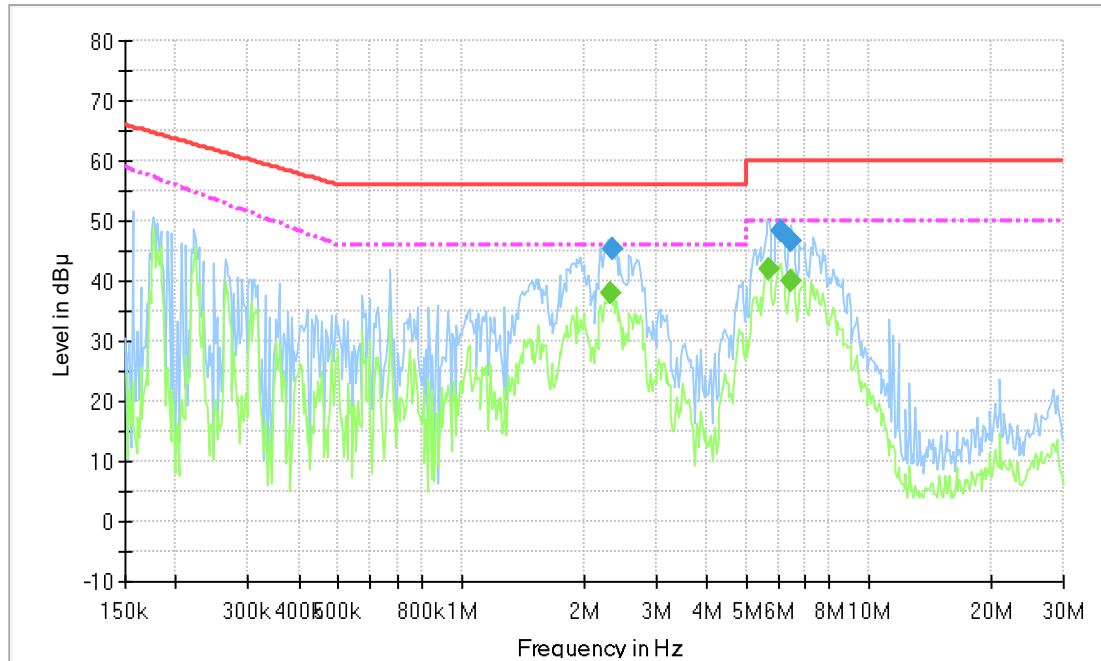
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**Diagram No. 1: Conducted Emission**

**BR180CP-76, Power line-Line**

Voltage with 2-Line-LISN(55014)jydq



**Final Result 1**

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
2.344093	45.4	2000.0	9.000	On	L1	9.6	10.6	56.0	
6.050317	48.4	2000.0	9.000	On	L1	9.7	11.6	60.0	
6.448555	46.6	2000.0	9.000	On	L1	9.7	13.4	60.0	

**Final Result 2**

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
2.325489	37.9	2000.0	9.000	On	L1	9.6	8.1	46.0	
5.676673	41.9	2000.0	9.000	On	L1	9.7	8.1	50.0	
6.397376	40.0	2000.0	9.000	On	L1	9.7	10.0	50.0	

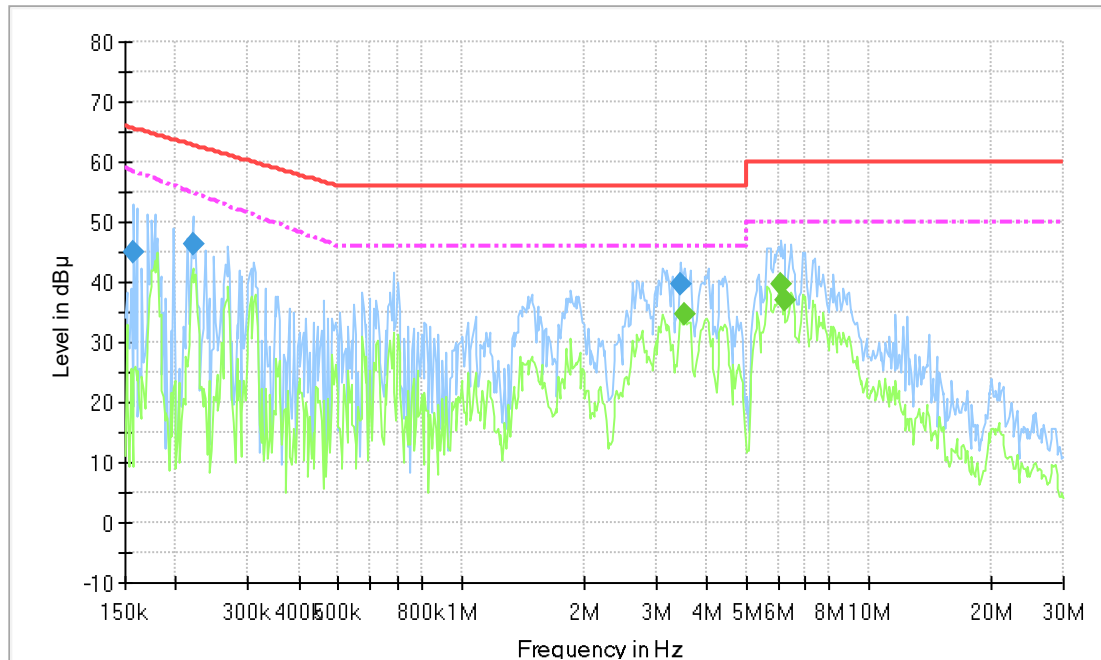


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**BR180CP-76, Power line-Neutral**

Voltage with 2-Line-LISN(55014)jydc



**Final Result 1**

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.157346	44.9	2000.0	9.000	On	N	9.6	20.7	65.6	
0.219886	46.2	2000.0	9.000	On	N	9.5	16.6	62.8	
3.436215	39.7	2000.0	9.000	On	N	9.6	16.3	56.0	

**Final Result 2**

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
3.519346	34.6	2000.0	9.000	On	N	9.6	11.4	46.0	
6.098720	39.8	2000.0	9.000	On	N	9.7	10.2	50.0	
6.196690	37.2	2000.0	9.000	On	N	9.7	12.8	50.0	

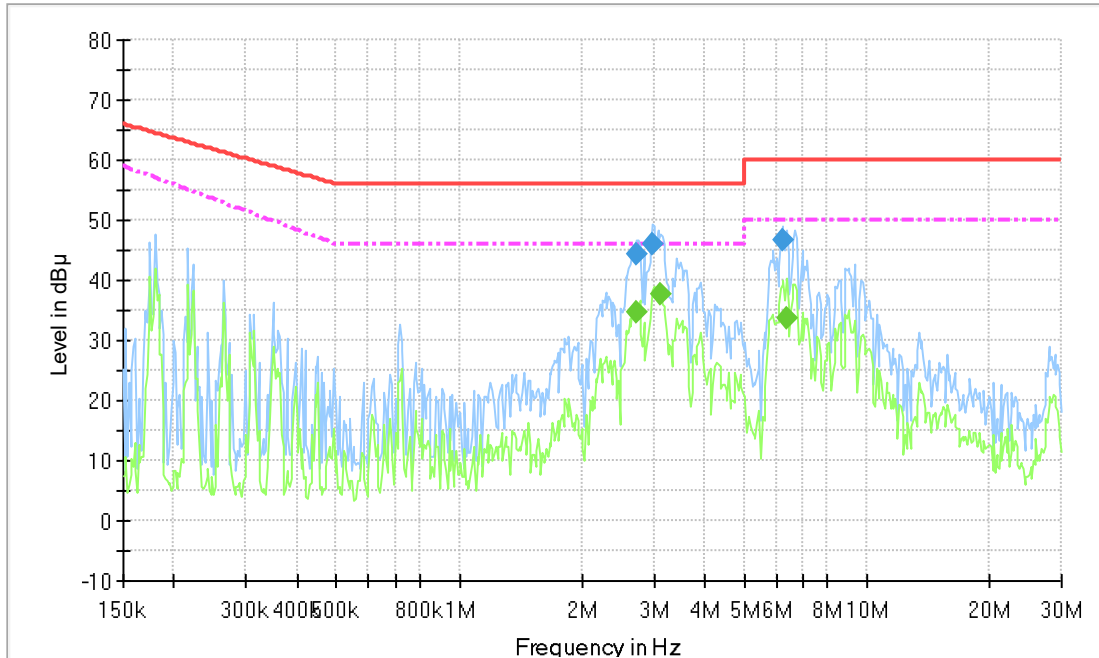


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**BR120CP-76, Power line-Line**

Voltage with 2-Line-LISN(55014)jydg



**Final Result 1**

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
2.727250	44.2	2000.0	9.000	On	L1	9.6	11.8	56.0	
2.977082	45.8	2000.0	9.000	On	L1	9.6	10.2	56.0	
6.196690	46.8	2000.0	9.000	On	L1	9.7	13.2	60.0	

**Final Result 2**

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
2.727250	34.7	2000.0	9.000	On	L1	9.6	11.3	46.0	
3.122871	37.5	2000.0	9.000	On	L1	9.6	8.5	46.0	
6.346603	33.6	2000.0	9.000	On	L1	9.7	16.4	50.0	

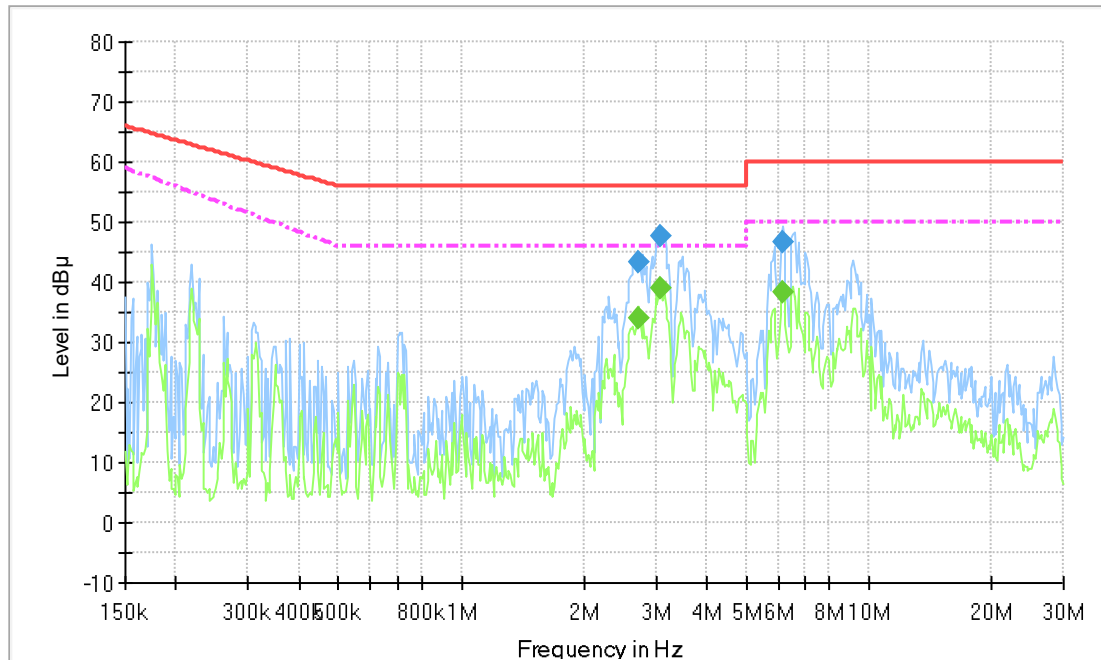


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**TEST REPORT N°: ARJX-19MY1976DTQDPB**

**BR120CP-76, Power line-Neutral**

Voltage with 2-Line-LISN(55014)jydg



**Final Result 1**

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
2.727250	43.3	2000.0	9.000	On	N	9.6	12.7	56.0	
3.098086	47.5	2000.0	9.000	On	N	9.6	8.5	56.0	
6.147510	46.7	2000.0	9.000	On	N	9.7	13.3	60.0	

**Final Result 2**

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
2.727250	33.9	2000.0	9.000	On	N	9.6	12.1	46.0	
3.098086	39.1	2000.0	9.000	On	N	9.6	6.9	46.0	
6.147510	38.5	2000.0	9.000	On	N	9.7	11.5	50.0	



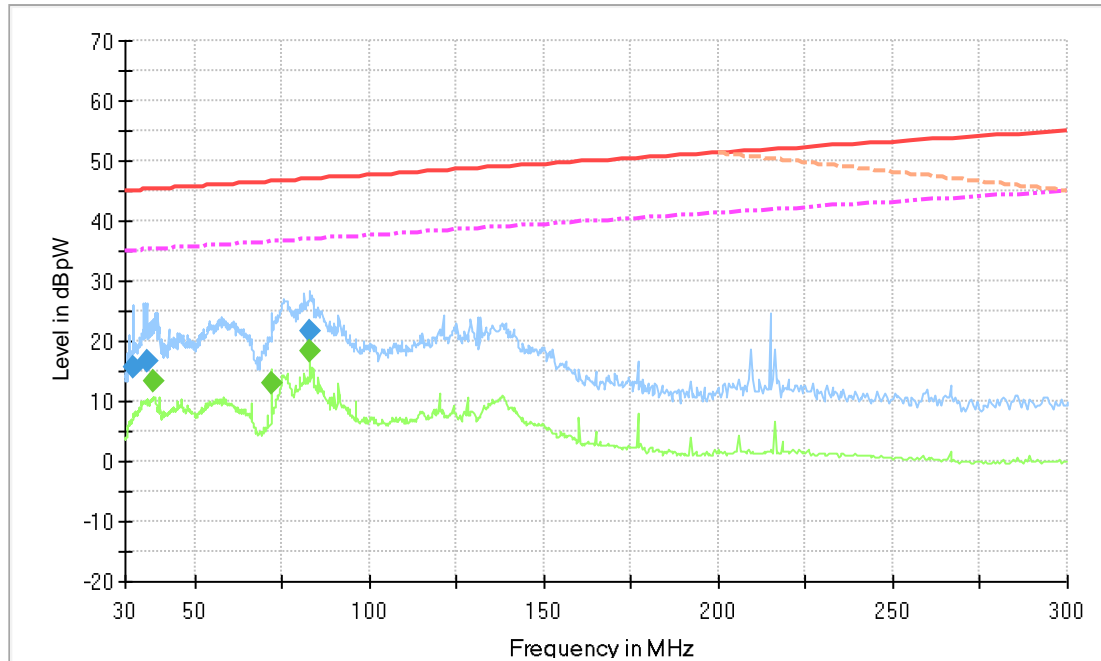
**LCIE**

TEST REPORT N°: ARJX-19MY1976DTQDPB

**Diagram No. 2: Disturbance Power**

**BR180CP-76, Power line**

EMI Power with Scans



**Final Result 1**

Frequency (MHz)	QuasiPeak (dBpW)	Meas. Time (ms)	Bandwidth (kHz)	Slide bar position (cm)	Corr. (dB)	Margin (dB)	Limit (dBpW)	Comment
32.496016	15.6	2000.0	120.000	500.00	9.1	29.5	45.1	
36.053849	16.6	2000.0	120.000	500.00	10.7	28.6	45.2	
82.779689	21.8	2000.0	120.000	191.00	9.2	25.2	47.0	

**Final Result 2**

Frequency (MHz)	Average (dBpW)	Meas. Time (ms)	Bandwidth (kHz)	Slide bar position (cm)	Corr. (dB)	Margin (dB)	Limit (dBpW)	Comment
38.281001	13.2	2000.0	120.000	500.00	11.1	22.1	35.3	
71.975267	13.0	2000.0	120.000	154.00	8.0	23.6	36.6	
82.945249	18.2	2000.0	120.000	140.00	9.2	18.8	37.0	

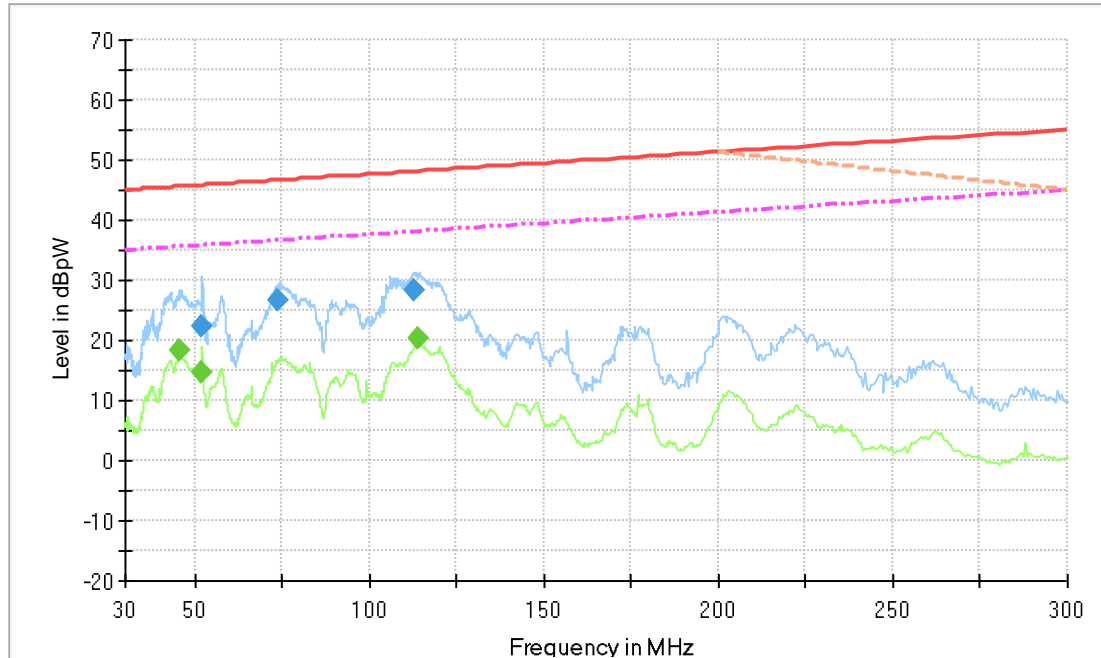


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**TEST REPORT N°: ARJX-19MY1976DTQDPB**

**BR120CP-76, Power line**

EMI Power with Scans



**Final Result 1**

Frequency (MHz)	QuasiPeak (dBpW)	Meas. Time (ms)	Bandwidth (kHz)	Slide bar position (cm)	Corr. (dB)	Margin (dB)	Limit (dBpW)	Comment
52.072976	22.2	2000.0	120.000	500.00	8.1	23.6	45.8	
73.869246	26.6	2000.0	120.000	500.00	8.3	20.0	46.6	
112.828972	28.3	2000.0	120.000	500.00	8.7	19.8	48.1	

**Final Result 2**

Frequency (MHz)	Average (dBpW)	Meas. Time (ms)	Bandwidth (kHz)	Slide bar position (cm)	Corr. (dB)	Margin (dB)	Limit (dBpW)	Comment
45.730979	18.3	2000.0	120.000	500.00	9.5	17.3	35.6	
52.072976	14.7	2000.0	120.000	500.00	8.1	21.1	35.8	
113.961784	20.4	2000.0	120.000	500.00	8.6	17.7	38.1	



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**TEST REPORT N°: ARJX-19MY1976DTQDPB**

**Table No. 1: Discontinuous Disturbance  
BR180CP-76**

First Pass	Rx1 150KHz	Rx2 500KHz	Rx3 1.4MHz	Rx4 30MHz
Short	0	0	0	0
Long	0	0	0	0
Fast Long (< 20ms)	0	0	0	0
Total Clicks	0	0	0	0
Continuous Events	0	0	0	0
Switch Op	2	2	2	2
2 Click	0	0	0	0
Continuous Time	0.00	0.00	0.00	0.00
Limit dBuV	120.00	120.00	120.00	120.00
N	0.00	0.00	0.00	0.00
Offsets	30dB	30dB	30dB	30dB
Pass	1	1	1	1
Limit dBuV	120.00	120.00	120.00	120.00
Allowed Clicks	0	0	0	0

Second Pass	Rx1 150KHz	Rx2 500KHz	Rx3 1.4MHz	Rx4 30MHz
2th pass Short	0	0	0	0
2th pass Long	0	0	0	0
2th Total Clicks	0	0	0	0
2th Continuous Events	0	0	0	0
2th 2 Click	0	0	0	0
2th Continuous Time	0.00	0.00	0.00	0.00

Status Pass





**LCIE**

**TEST REPORT N°: ARJX-19MY1976DTQDPB**

**BR120CP-76**

First Pass	Rx1 150KHz	Rx2 500KHz	Rx3 1.4MHz	Rx4 30MHz
Short	0	0	0	0
Long	0	0	0	0
Fast Long (< 20ms)	0	0	0	0
Total Clicks	0	0	0	0
Continuous Events	0	0	0	0
Switch Op	0	0	0	0
2 Click	0	0	0	0
Continuous Time	0.00	0.00	0.00	0.00
Limit dBuV	120.00	120.00	120.00	120.00
N	0.00	0.00	0.00	0.00
Offsets	30dB	30dB	30dB	30dB
Pass	1	1	1	1
Limit dBuV	120.00	120.00	120.00	120.00
Allowed Clicks	0	0	0	0

Second Pass	Rx1 150KHz	Rx2 500KHz	Rx3 1.4MHz	Rx4 30MHz
2th pass Short	0	0	0	0
2th pass Long	0	0	0	0
2th Total Clicks	0	0	0	0
2th Continuous Events	0	0	0	0
2th 2 Click	0	0	0	0
2th Continuous Time	0.00	0.00	0.00	0.00

Status Pass



**LCIE**

**TEST REPORT N°: ARJX-19MY1976DTQDPB**

**Table No. 2: Harmonic Emission**

**BR180CP-76**

*Average harmonic current results*

Hn	leff [A]	% of Limit	Limit [A]	Result
1	6.781			
2	371.005E-3	34.352	1.08	PASS
3	510.696E-3	22.204	2.30	PASS
4	55.063E-3	12.805	430.00E-3	PASS
5	181.562E-3	15.927	1.14	PASS
6	23.776E-3	7.925	300.00E-3	PASS
7	132.824E-3	17.250	770.00E-3	PASS
8	14.358E-3	6.243	230.00E-3	PASS
9	94.771E-3	23.693	400.00E-3	PASS
10	10.086E-3	5.482	184.00E-3	PASS
11	79.617E-3	24.126	330.00E-3	PASS
12	7.420E-3	4.839	153.33E-3	PASS
13	60.511E-3	28.815	210.00E-3	PASS
14	6.436E-3	4.897	131.43E-3	PASS
15	36.158E-3	24.105	150.00E-3	PASS
16	6.168E-3	5.364	115.00E-3	PASS
17	14.597E-3	11.029	132.35E-3	PASS
18	5.780E-3	5.655	102.22E-3	PASS
19	10.380E-3	8.766	118.42E-3	PASS
20	5.712E-3	6.208	92.00E-3	PASS
21	8.247E-3	5.131	160.71E-3	PASS
22	5.617E-3	6.716	83.64E-3	PASS
23	14.819E-3	10.098	146.74E-3	PASS
24	5.647E-3	7.367	76.66E-3	PASS
25	16.284E-3	12.062	135.00E-3	PASS
26	6.205E-3	8.768	70.77E-3	PASS
27	8.968E-3	7.175	124.99E-3	PASS
28	5.327E-3	8.106	65.71E-3	PASS
29	8.255E-3	7.093	116.39E-3	PASS
30	5.227E-3	8.522	61.33E-3	PASS
31	9.083E-3	8.343	108.87E-3	PASS
32	4.541E-3	7.898	57.50E-3	PASS
33	5.004E-3	4.893	102.27E-3	PASS
34	4.092E-3	7.561	54.12E-3	PASS
35	4.702E-3	4.876	96.44E-3	PASS
36	3.621E-3	7.084	51.11E-3	PASS
37	4.534E-3	4.971	91.21E-3	PASS
38	3.435E-3	7.094	48.42E-3	PASS
39	4.996E-3	5.774	86.53E-3	PASS
40	3.253E-3	7.071	46.00E-3	PASS



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TEST REPORT N°: ARJX-19MY1976DTQDPB

**Maximum harmonic current results**

Hn	leff [A]	% of Limit	Limit [A]	Result
1	8.098			
2	663.009E-3	40.926	1.62	PASS
3	635.586E-3	18.423	3.45	PASS
4	153.645E-3	23.821	645.00E-3	PASS
5	228.824E-3	13.382	1.71	PASS
6	95.086E-3	21.130	450.00E-3	PASS
7	158.712E-3	13.741	1.15	PASS
8	61.746E-3	17.897	345.00E-3	PASS
9	118.397E-3	19.733	600.00E-3	PASS
10	51.433E-3	18.635	276.00E-3	PASS
11	102.508E-3	20.709	495.00E-3	PASS
12	42.389E-3	18.431	229.99E-3	PASS
13	79.434E-3	25.217	315.00E-3	PASS
14	34.549E-3	17.524	197.15E-3	PASS
15	51.995E-3	23.109	225.00E-3	PASS
16	34.140E-3	19.791	172.50E-3	PASS
17	38.170E-3	19.227	198.52E-3	PASS
18	28.880E-3	18.835	153.33E-3	PASS
19	29.465E-3	16.588	177.63E-3	PASS
20	26.290E-3	19.050	138.00E-3	PASS
21	27.197E-3	16.923	160.71E-3	PASS
22	23.994E-3	19.124	125.46E-3	PASS
23	30.673E-3	20.903	146.74E-3	PASS
24	21.762E-3	18.925	114.99E-3	PASS
25	28.052E-3	20.779	135.00E-3	PASS
26	21.730E-3	20.470	106.16E-3	PASS
27	23.992E-3	19.194	124.99E-3	PASS
28	18.103E-3	18.367	98.57E-3	PASS
29	22.651E-3	19.462	116.39E-3	PASS
30	18.811E-3	20.448	92.00E-3	PASS
31	17.885E-3	16.428	108.87E-3	PASS
32	17.655E-3	20.470	86.25E-3	PASS
33	17.395E-3	17.009	102.27E-3	PASS
34	15.921E-3	19.612	81.18E-3	PASS
35	17.174E-3	17.809	96.44E-3	PASS
36	15.843E-3	20.665	76.66E-3	PASS
37	17.233E-3	18.892	91.21E-3	PASS
38	15.533E-3	21.387	72.63E-3	PASS
39	17.470E-3	20.188	86.53E-3	PASS
40	14.411E-3	20.885	69.00E-3	PASS



**LCIE**

**TEST REPORT N°: ARJX-19MY1976DTQDPB**

**BR120CP-76**

***Average harmonic current results***

Hn	I <sub>eff</sub> [A]	% of Limit	Limit [A]	Result
1	2.033			
2	80.068E-3	7.414	1.08	PASS
3	132.758E-3	5.772	2.30	PASS
4	18.309E-3	4.258	430.00E-3	PASS
5	92.777E-3	8.138	1.14	PASS
6	8.510E-3	2.837	300.00E-3	PASS
7	116.461E-3	15.125	770.00E-3	PASS
8	5.551E-3	2.413	230.00E-3	PASS
9	85.123E-3	21.281	400.00E-3	PASS
10	2.420E-3	1.315	184.00E-3	PASS
11	74.680E-3	22.630	330.00E-3	PASS
12	2.414E-3	1.574	153.33E-3	PASS
13	53.555E-3	25.502	210.00E-3	PASS
14	2.061E-3	1.568	131.43E-3	PASS
15	35.993E-3	23.995	150.00E-3	PASS
16	2.114E-3	1.838	115.00E-3	PASS
17	19.878E-3	15.020	132.35E-3	PASS
18	2.088E-3	2.043	102.22E-3	PASS
19	8.834E-3	7.460	118.42E-3	PASS
20	2.081E-3	2.262	92.00E-3	PASS
21	7.194E-3	4.476	160.71E-3	PASS
22	2.081E-3	2.488	83.64E-3	PASS
23	10.915E-3	7.438	146.74E-3	PASS
24	2.508E-3	3.271	76.66E-3	PASS
25	13.097E-3	9.701	135.00E-3	PASS
26	2.819E-3	3.983	70.77E-3	PASS
27	12.570E-3	10.057	124.99E-3	PASS
28	2.713E-3	4.129	65.71E-3	PASS
29	10.197E-3	8.761	116.39E-3	PASS
30	2.205E-3	3.595	61.33E-3	PASS
31	6.596E-3	6.059	108.87E-3	PASS
32	2.077E-3	3.612	57.50E-3	PASS
33	3.726E-3	3.643	102.27E-3	PASS
34	2.059E-3	3.805	54.12E-3	PASS
35	2.806E-3	2.910	96.44E-3	PASS
36	2.057E-3	4.024	51.11E-3	PASS
37	4.381E-3	4.802	91.21E-3	PASS
38	2.047E-3	4.228	48.42E-3	PASS
39	5.925E-3	6.846	86.53E-3	PASS
40	2.041E-3	4.436	46.00E-3	PASS



LCIE

TEST REPORT N°: ARJX-19MY1976DTQDPB

**Maximum harmonic current results**

Hn	I <sub>eff</sub> [A]	% of Limit	Limit [A]	Result
1	2.186			
2	100.460E-3	6.201	1.62	PASS
3	157.480E-3	4.565	3.45	PASS
4	23.306E-3	3.613	645.00E-3	PASS
5	104.939E-3	6.137	1.71	PASS
6	11.474E-3	2.550	450.00E-3	PASS
7	124.043E-3	10.740	1.15	PASS
8	8.317E-3	2.411	345.00E-3	PASS
9	88.032E-3	14.672	600.00E-3	PASS
10	2.849E-3	1.032	276.00E-3	PASS
11	78.554E-3	15.869	495.00E-3	PASS
12	2.714E-3	1.180	229.99E-3	PASS
13	57.739E-3	18.330	315.00E-3	PASS
14	2.284E-3	1.159	197.15E-3	PASS
15	40.477E-3	17.990	225.00E-3	PASS
16	2.324E-3	1.347	172.50E-3	PASS
17	23.754E-3	11.965	198.52E-3	PASS
18	2.298E-3	1.499	153.33E-3	PASS
19	11.273E-3	6.346	177.63E-3	PASS
20	2.305E-3	1.671	138.00E-3	PASS
21	10.591E-3	6.590	160.71E-3	PASS
22	2.379E-3	1.896	125.46E-3	PASS
23	13.168E-3	8.973	146.74E-3	PASS
24	3.549E-3	3.087	114.99E-3	PASS
25	13.713E-3	10.158	135.00E-3	PASS
26	3.979E-3	3.748	106.16E-3	PASS
27	13.739E-3	10.992	124.99E-3	PASS
28	3.478E-3	3.529	98.57E-3	PASS
29	11.909E-3	10.233	116.39E-3	PASS
30	2.415E-3	2.625	92.00E-3	PASS
31	8.678E-3	7.971	108.87E-3	PASS
32	2.348E-3	2.722	86.25E-3	PASS
33	4.902E-3	4.793	102.27E-3	PASS
34	2.338E-3	2.881	81.18E-3	PASS
35	5.523E-3	5.727	96.44E-3	PASS
36	2.319E-3	3.025	76.66E-3	PASS
37	6.400E-3	7.016	91.21E-3	PASS
38	2.263E-3	3.116	72.63E-3	PASS
39	6.550E-3	7.569	86.53E-3	PASS
40	2.210E-3	3.202	69.00E-3	PASS



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TEST REPORT N°: ARJX-19MY1976DTQDPB

**Table No. 3: Voltage flicker and fluctuation**

**BR180CP-76**

	<b>EUT values</b>	<b>Limit</b>	<b>Result</b>
Pst	NA	NA	NA
Plt	NA	NA	NA
dc [%]	0.324	3.30	PASS
dmax [%]	2.324	6.00	PASS
dt [s]	0.000	0.50	PASS

**BR120CP-76**

	<b>EUT values</b>	<b>Limit</b>	<b>Result</b>
Pst	NA	NA	NA
Plt	NA	NA	NA
dc [%]	0.009	3.30	PASS
dmax [%]	0.280	6.00	PASS
dt [s]	0.000	0.50	PASS

---END---