



TEST REPORT nr. R16150201
Federal Communication Commission (FCC)

Test item

Description: INDUCTION RANGE TOP
Trademark: MENEGHETTI
Model/Type: RTUI304**M (The variable fields are related to the color version)

Test Specification

Standard: FCC Rules & Regulations, Title 47:2015
Part 18 paragraph(s): 305 and 307

Client's name: MENEGHETTI S.p.A.
Address: Via Borgo Lunardon, 8 – 36027 Rosa' (VI) – ITALY

Manufacturer's name : Same as client
Address: --

Report

Tested by: G. Gandini – Technician

Approved by: R. Beghetto – Laboratory Manager

Date of issue: 14.10.16

Contents: 35 pages

This test report shall not be reproduced except in full without the written approval of CMC.
The test results presented in this report relate only to the item tested.



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ANNEX 1: component list



1. Summary

Emission Test:

FCC Rules & Regulations, Title 47:2015
Part 18 paragraph(s): 305 and 307

<i>Test specifications</i>	<i>Environmental Phenomena</i>	<i>Port</i>	<i>Tests sequence</i>	<i>Result</i>
Part 18.305	Radiated disturbance	Enclosure	1	Complies
Part 18.307	Continuous disturbance voltage	Mains terminal	2	Complies

The Test Report was given to the Client representatives for necessary documentation of ratification of the tested equipment and it is valid for the FCC certification.



2. Description of Equipment under test (EUT)

Power supply : 208-240 V ~ 60 Hz single-phase + earth
Tests performed on 240 V ~ power supply
Power cable : Unshielded
Serial Number : --
Components list : Annex 1
Filtering and construction devices : Addition of ferrite, 2 turns on AC power cable

2.1 Test Site

Company : CMC Centro Misure Compatibilità S.r.l.
Address : Via della Fisica, 20
36016 Thiene (VI) – ITALY
Test site facility's FCC registration number : 271947

3. Testing and sampling

Date of receipt of test item : 08.07.16
Testing start date : 18.07.16
Testing end date : 13.10.16
Samples tested nr. : 1
Sampling procedure. : Equipment used for testing was picked up by the manufacturer, at the end of the production process with random criterion
Internal identification : adhesive label with the product number P160832

4. Operative conditions

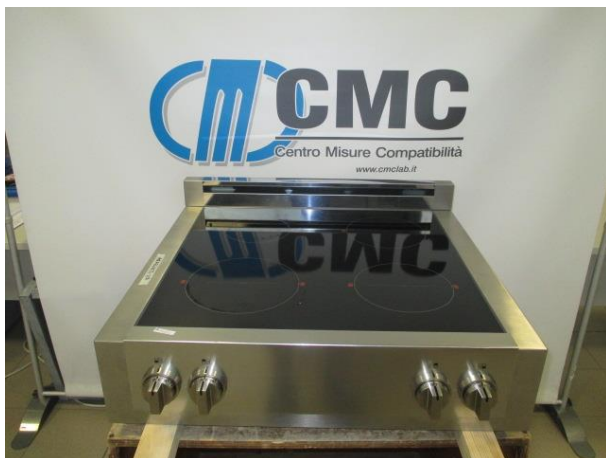
EUT exercising : Heating mode, worst case of power level
Auxiliary equipment : None



CMC
Centro Misure Compatibilità S.r.l.
Via della Fisica, 20
36016 Thiene (VI)

5. Photograph(s) of EUT

5.1 Photograph(s) of EUT



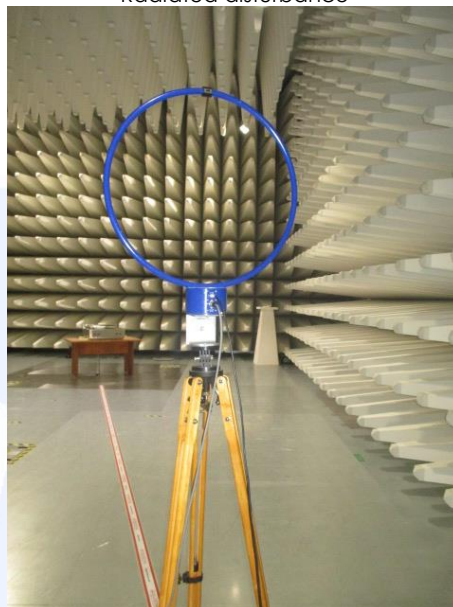


5.2 Photograph(s) of setup

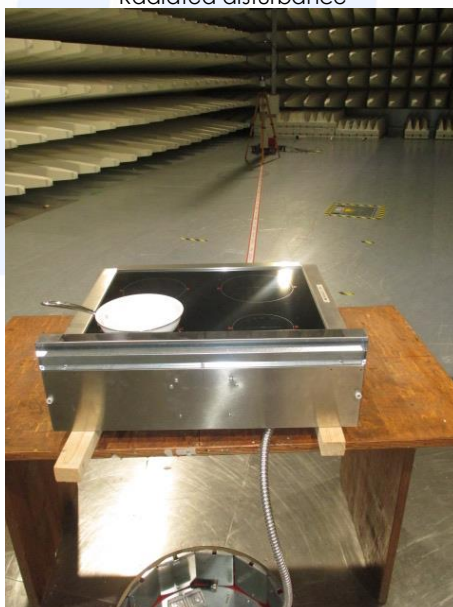
Continuous disturbance voltage



Radiated disturbance



Radiated disturbance





6. Equipment list

<i>Id. number</i>	<i>Manufacturer</i>	<i>Model</i>	<i>Description</i>	<i>Serial number</i>	<i>Last calibration</i>	<i>Due date calibration</i>
CMC S010	Rohde & Schwarz	ESH3-Z2	Impulses Limiting Device	- - -	January '16	January '17
CMC S108	EMCO	3115	Horn Antenna	9811-5622	June '16	June '19
CMC S127	Schaffner	HLA6120	Loop Antenna	1191	November '13	November '16
CMC S164	Rohde & Schwarz	ESU26	EMC interference receiver	100052	January '16	January '17
CMC S200	Schwarzbeck	NSLK 8128	V-LISN	8128-273	January '16	January '17
CMC S227	Rohde & Schwarz	ESR7	EMI Test Receiver 7GHz	101121	January '16	January '17
CMC S271	Schwarzbeck	BBA 9106 + VHBB 9124	Biconical Antenna (30-300MHz)	831	June '16	June '19
CMC S287	Schwarzbeck	VUSLP 9111B	Log-periodic Antenna (200 MHz-3Ghz)	9111B-203	June '16	June '19



7. Measurement uncertainty

Test	Expanded Uncertainty	note
Conducted Emission		
(50Ω/50μH AMN) - (9 kHz – 150 kHz)	±3,6 dB	1
(50Ω/50μH AMN) - (150 kHz – 30 MHz)	±3,0 dB	1
(Voltage probe) - (150 kHz – 30 MHz)	±2,9 dB	1
(50Ω/5μH AMN) - (150 kHz – 108 MHz)	±2,6 dB	1
Discontinuous Conducted Emission		
Conducted Emission (50Ω/50μH AMN) - (150 kHz – 30 MHz)	±3,0 dB	1
Disturbance Power (30 MHz – 300 MHz)		
	±3,4 dB	1
Radiated Emission		
(0,150 MHz – 30 MHz)	±3,8 dB	1
(30 MHz – 1000 MHz)	±3,8 dB	1
(1 GHz – 6 GHz)	±4,3 dB	1
Electromagnetic field EMF		
	±10,5 %	1
Harmonic current emissions test		
	±1,2 %	1
Voltage fluctuation and flicker test		
	±3,8 %	1
Insertion loss test		
	±2,0 dB	1
Radiated electromagnetic disturbance test (loop antenna)		
	±1,5 dB	1
Radiated electromagnetic field immunity test		
	0,81 V/m at 3V/m	1
Pulse modulated radiated electromagnetic field immunity test		
	0,81 V/m at 3V/m	1
Injected currents immunity test		
	0,45 V at 3V	1
Bulk current		
	3,7 mA at 60 mA	1
Power frequency magnetic field immunity test		
	0,23 A/m at 10 A/m	1
Effective radiated power (F < 1GHz)		
	±3,8 dB	1
Effective radiated power (F > 1GHz)		
	±5,5 dB	1
Frequency error		
	< 1x10 ⁻⁷	1
Modulation bandwidth		
	< 1x10 ⁻⁷	1
Conducted RF power and spurious emission		
	±0,7 dB	1
Adjacent channel power		
	±1,2 dB	1
Blocking		
	±1,2 dB	1
Electrostatic discharge immunity test		
		2
Electrical fast transients / burst immunity test		
		2
Surge immunity test		
		2
Pulse magnetic field immunity test		
		2
Damped oscillatory magnetic field immunity test		
		2
Short interruption immunity test		
		2
Voltage transient emission test		
	±2,2 %	1
Transient immunity test		
		2

Rev_16_01 date 09/02/2016

Note 1:

The expanded uncertainty reported according to EN55016-4-2:2011 is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of p = 95%

Note 2:

It has been demonstrated that the used test equipment meets the specified requirements in the standard with at least a 95% confidence, covering factor k = 2.



8. Reference documents

Reference no.	Description
FCC Rules and Regulation Title 47 part 18:2015	--
FCC Measurement Procedure MP-5:1986	FCC Methods of measurements of radio noise emissions from Industrial, Scientific and Medical equipment
Internal Procedure PM001 rev. 2.0 (Quality Manual)	Measure procedure
Internal procedure INC_M rev. 8.2 (Quality Manual)	Measurement uncertainty calculation



9. Deviation from test specification

In agreement with the client, emission tests were performed with peak detector.

At the frequencies where the measures exceed the limit or within 6 dB from it, the test was repeated with quasi-peak detector and/or average detector.

10. Test case verdicts

Test case does not apply to the test object : N.A.

Test item does meet the requirement : Complies

Test item does not meet the requirement : Does not comply

Test not performed : N.E.

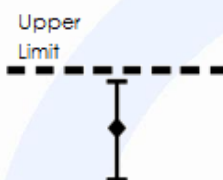
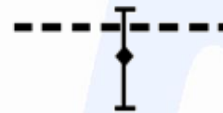

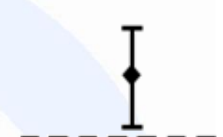


11. Results

In this clause tests results are reported.

Measurement uncertainty is in accordance with document CMC INC_M rev. 8.2.

Judgement of compliance:

Case 1	Case 2	Case 3	Case 4
			
The sample complies with the requirement.	The sample complies with the requirement.	The sample does not comply with the requirement.	The sample does not comply with the requirement.
The measurement results is within the specification limit when the measurement uncertainty is taken into account.	It is not possible to state compliance using a 95% coverage probability for the expanded uncertainty although the measurement result is below the limit.	It is not possible to state compliance using a 95% coverage probability for the expanded uncertainty also the measurement result is upper the limit.	The measurement results is outside the specification limit when the measurement uncertainty is taken into account.

In agreement with ILAC-G8: 03/2009 Guidelines on the Reporting of Compliance with Specification.



11.1 Continuous disturbance voltage test

Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part. 18.307
- FCC Measurement Procedure MP-5
- Internal procedure PM001
- See clause 4 of this test report

Test configuration and test method

Test site:
Shielded chamber

Auxiliary equipment:
See clause 4 of this test report

EUT exercising

See clause 4 of this test report

Test equipment used

CMC S010, CMC S200, CMC S227
Measurement uncertainty: See clause 7 of this test report

Test specification

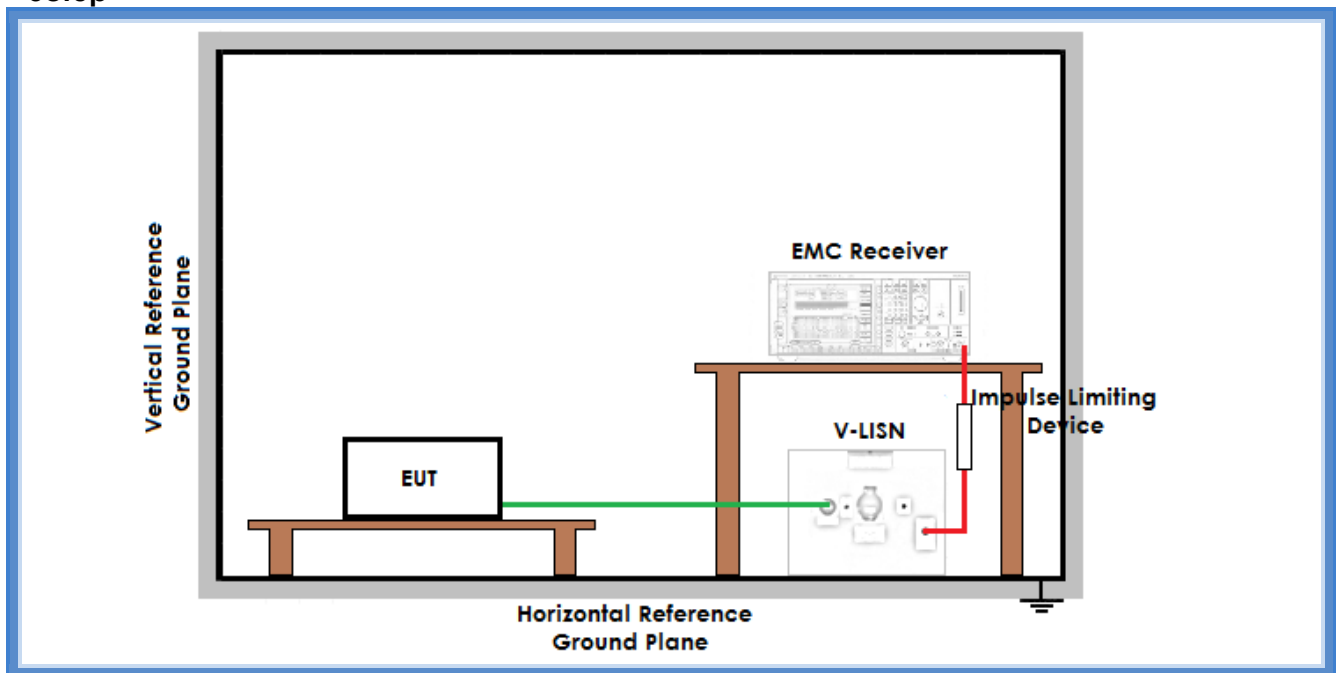
Port: Mains terminal
Frequency range: 9 kHz – 30 MHz

Acceptance limits

Limits for all induction cooking ranges and ultrasonic equipment		
Frequency range (MHz)	dB(μV) Quasi-peak	dB(μV) Average
0,009 to 0,05	110	--
0,05 to 0,15	90 to 80	--
0,15 to 0,5	66 to 56	56 to 46
0,5 to 5	56	46
5 to 30	60	50



Setup



Result

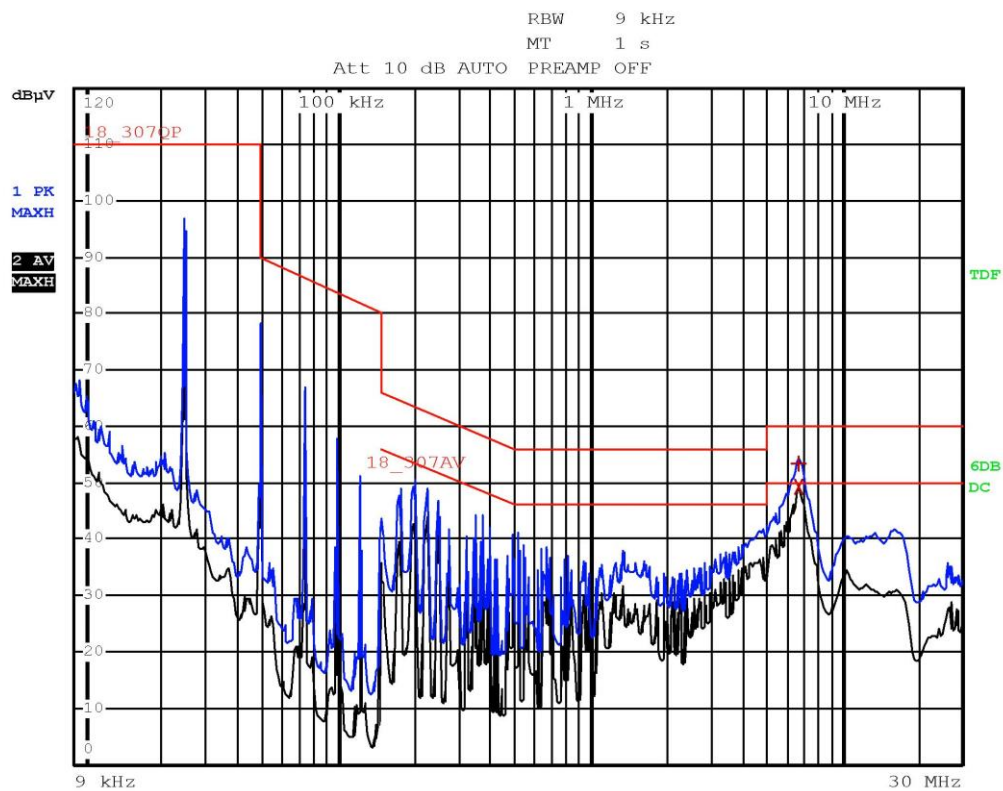
Line	Graphs	Remarks	Result
L1	G16150209	Power level 9, bottom right plate	Complies
N	G16150210	Power level 9, bottom right plate	Complies
N	G16150211	Power level 9, top right plate	Complies
L1	G16150212	Power level 9, top right plate	Complies
N	G16150213	Power level 9, top left plate	Complies
L1	G16150214	Power level 9, top left plate	Complies
N	G16150215	Power level 9, bottom left plate	Complies
L1	G16150216	Power level 9, bottom left plate	Complies
Remarks: --			

Graphs Legend

PK: Peak; QP [1s] (quasi-peak at 1 second) values are marked with a +
AV: Average; AV [1s] (average at 1 second) values are marked with a X



Graphs

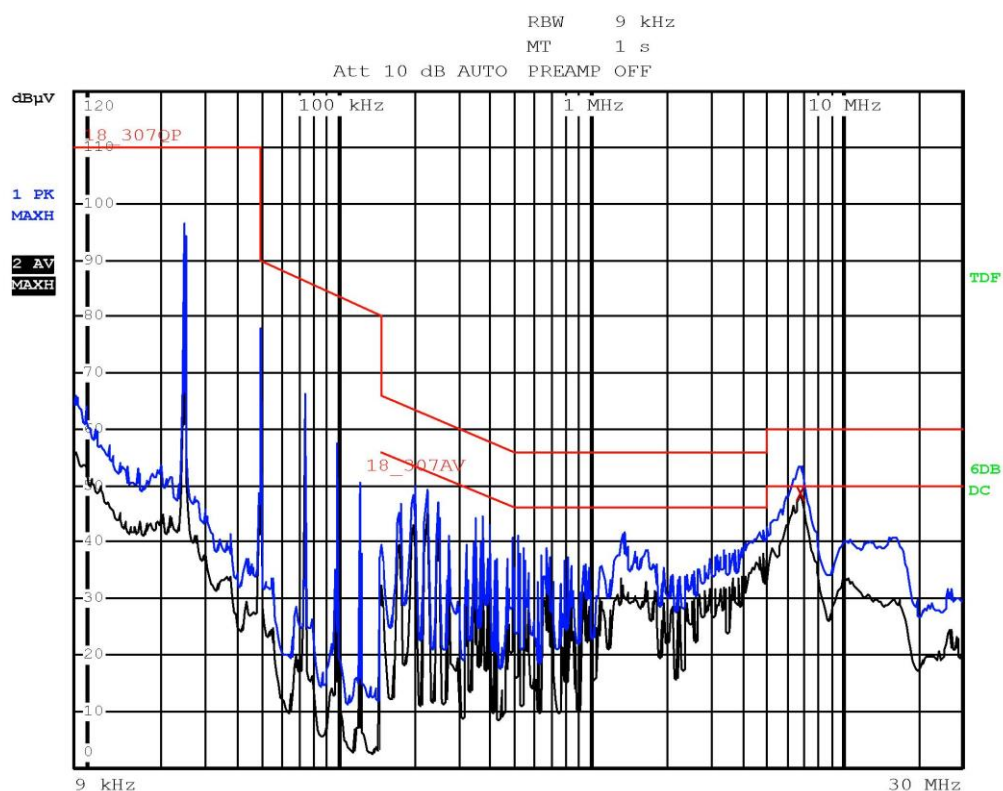


Gandini 16150209-Line L-Bottom right zone - power 9

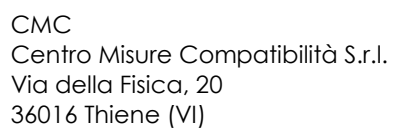


EDIT PEAK LIST (Final Measurement Results)			
Trace1:	18_307QP		
Trace2:	18_307AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB
2 Average	6.762 MHz	49.39	-0.60
1 Quasi Peak	6.786 MHz	53.35	-6.64

Gandini 16150209-Line L-Bottom right zone - power 9



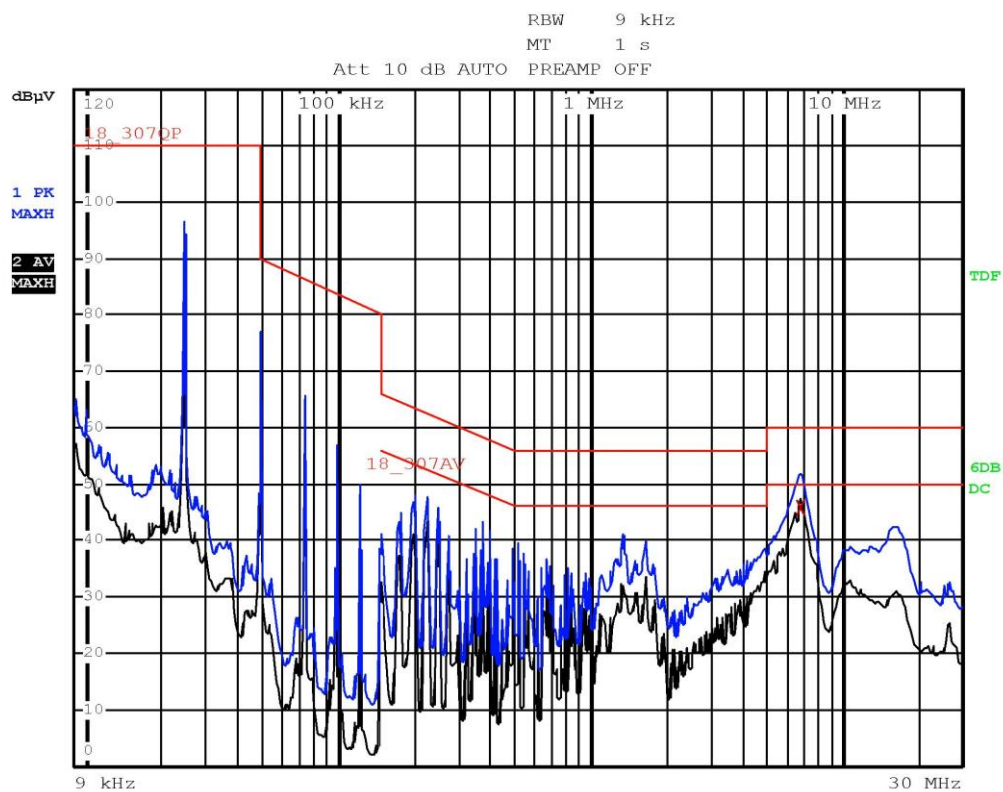
Gandini 16150210-Line N-Bottom right zone - power 9



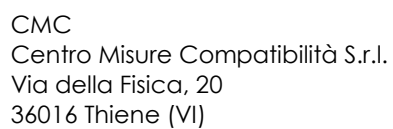
Test report R16150201

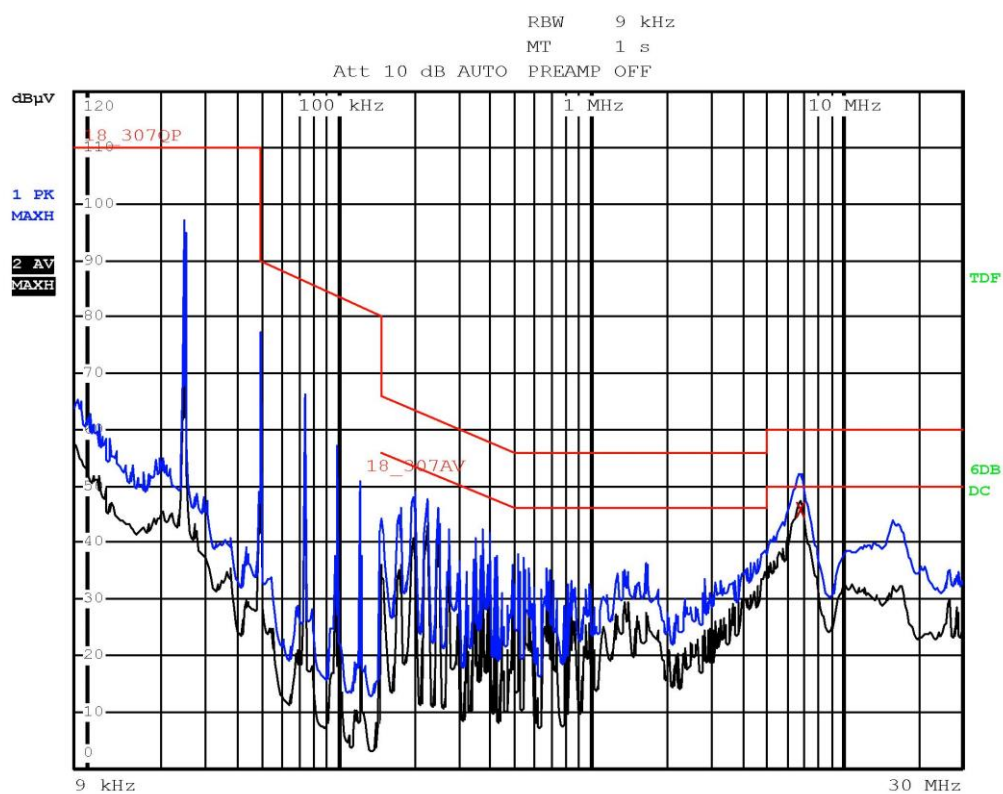
Order M161502

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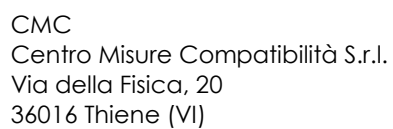


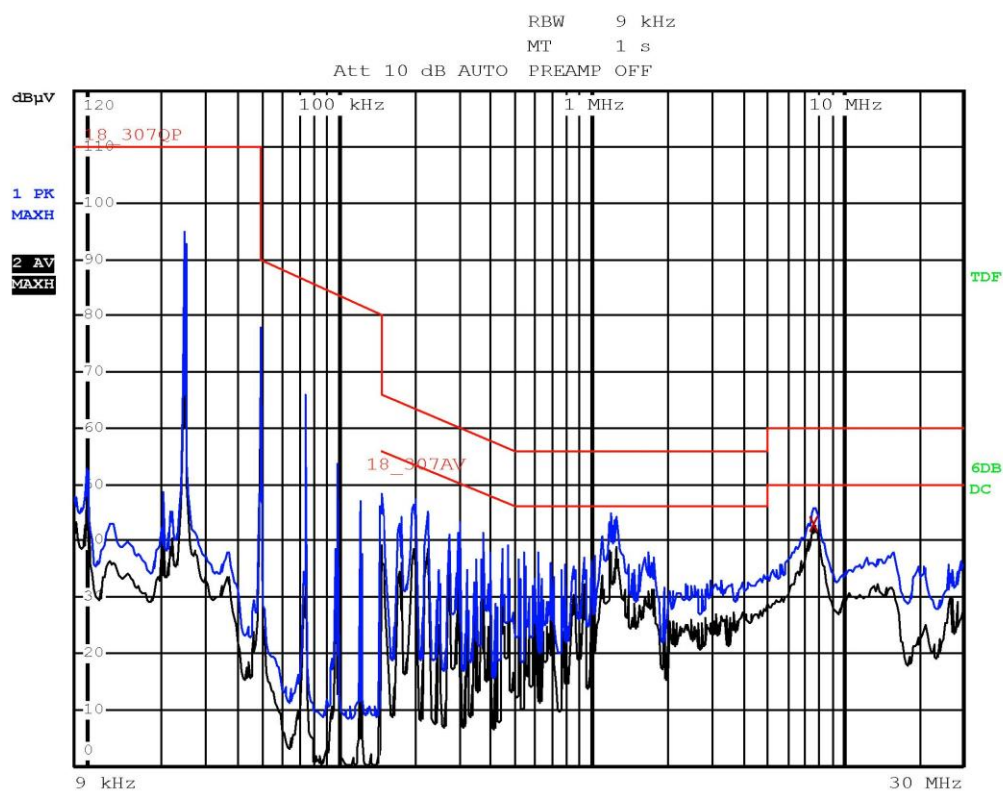
Gandini 16150211-Line N-Top right zone - power 9



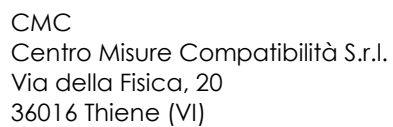


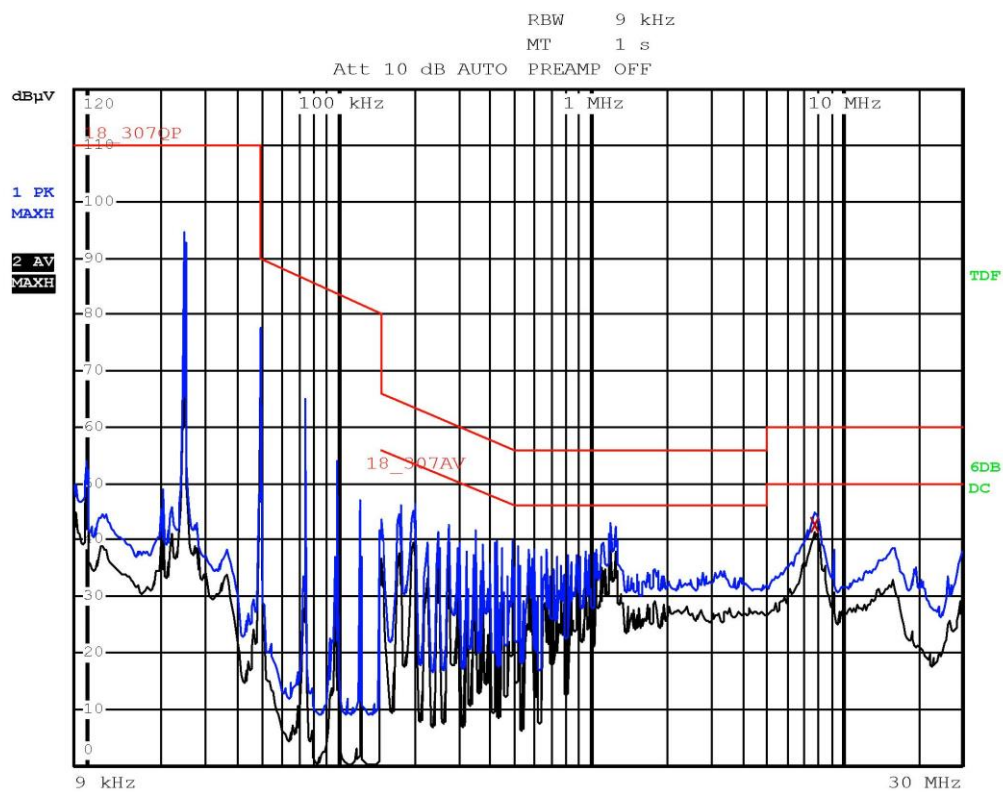
Gandini 16150212-Line L-Top right zone - power 9



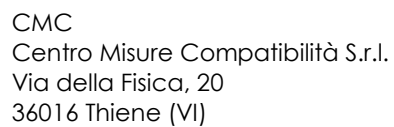


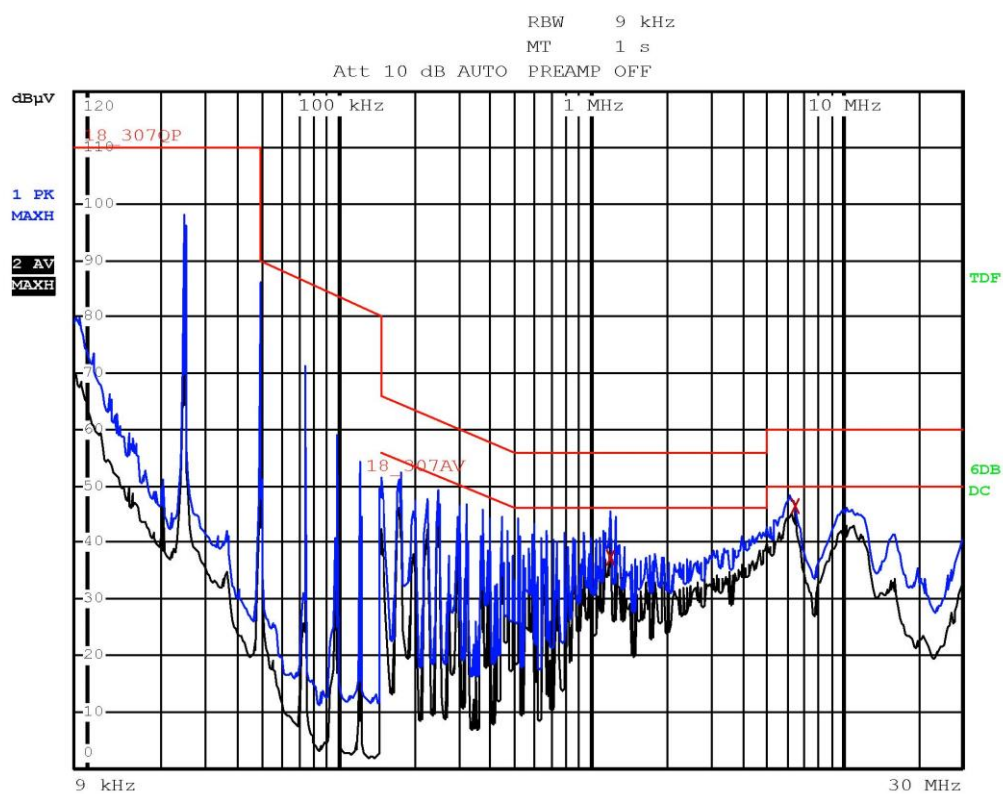
Gandini 16150213-Line L-Top left zone - power 9





Gandini 16150214-Line N-Top left zone - power 9



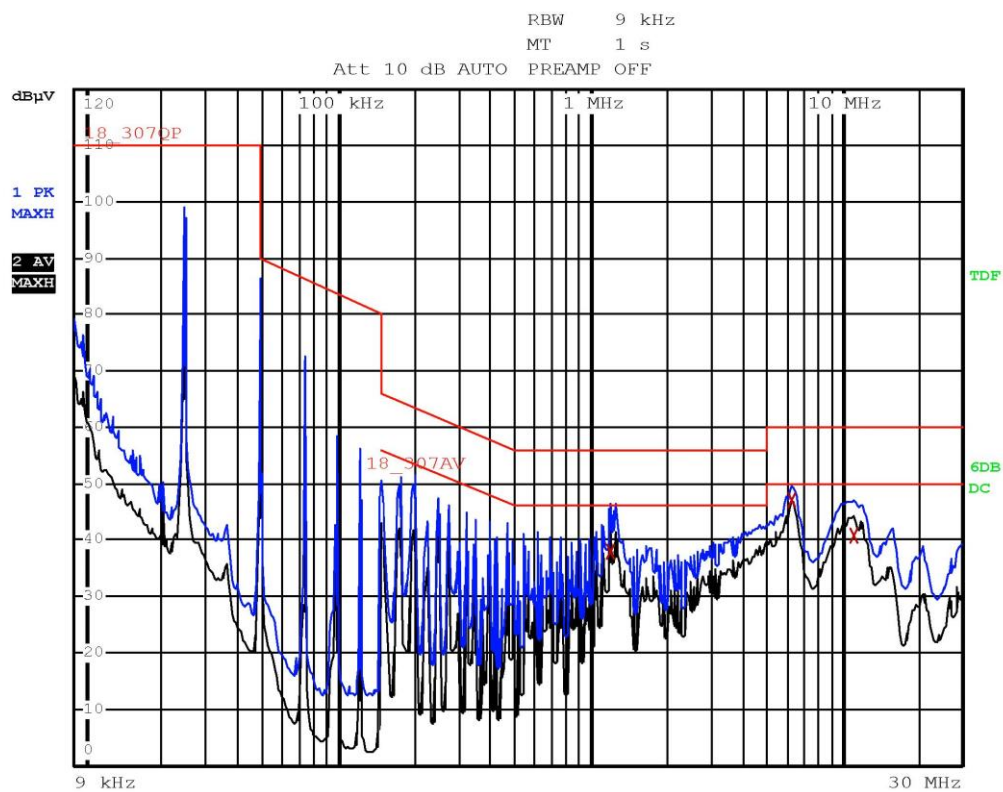


Gandini 16150215-Line N-Bottom left zone - power 9



EDIT PEAK LIST (Final Measurement Results)			
Trace1:	18_307QP		
Trace2:	18_307AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB
2 Average	1.21 MHz	37.36	-8.63
2 Average	6.49 MHz	46.55	-3.44

Gandini 16150215-Line N-Bottom left zone - power 9



Gandini 16150216-Line L-Bottom left zone - power 9



EDIT PEAK LIST (Final Measurement Results)			
Trace1:	18_307QP		
Trace2:	18_307AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB
2 Average	1.21 MHz	37.99	-8.00
2 Average	6.342 MHz	47.19	-2.80
2 Average	11.178 MHz	40.76	-9.23

Gandini 16150216-Line L-Bottom left zone - power 9

Result: The requirements are met



11.2 Radiated disturbance test

Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part. 18.305
- FCC Measurement Procedure MP-5
- Internal procedure PM001
- See clause 4 of this test report

Test configuration and test method

Test site:
Semi-anechoic chamber

Auxiliary equipment:
See clause 4 of this test report

EUT exercising

See clause 4 of this test report

Test equipment used

CMC S108, CMC S127, CMC S164, CMC S271, CMC S287
Measurement uncertainty: See clause 7 of this test report

Test specification

Port: Enclosure
Frequency range: 9 kHz – 30 MHz
Antenna polarization: Horizontal (H) – Vertical (V)
EUT – Antenna distance: 10 m

ISM equipment may be operated on any frequency above 9 kHz except as indicated in Part 18.303. The following frequency bands, in accordance with Part 2.106 of the rules, are allocated for use by ISM equipment:

ISM frequency	Tolerance
6,78 MHz	±15,0 kHz
13,56 MHz	±7,0 kHz
27,12 MHz	±163,0 kHz
40,68 MHz	±20,0 kHz
915 MHz	±13,0 MHz
2,450 MHz	±50,0 MHz
5,800 MHz	±75,0 MHz
24,125 MHz	±125,0 MHz
61,25 GHz	±250,0 MHz
122,50 GHz	±500,0 MHz
245,00 GHz	±1,0 GHz

Operation of ISM equipment within the following safety, search and rescue frequency bands is prohibited: 490 – 510 kHz, 2170 – 2194 kHz, 8354 – 8374 kHz, 121,4 – 121,6 MHz, 156,7 – 156,9 MHz and 242,8 – 243,2 MHz

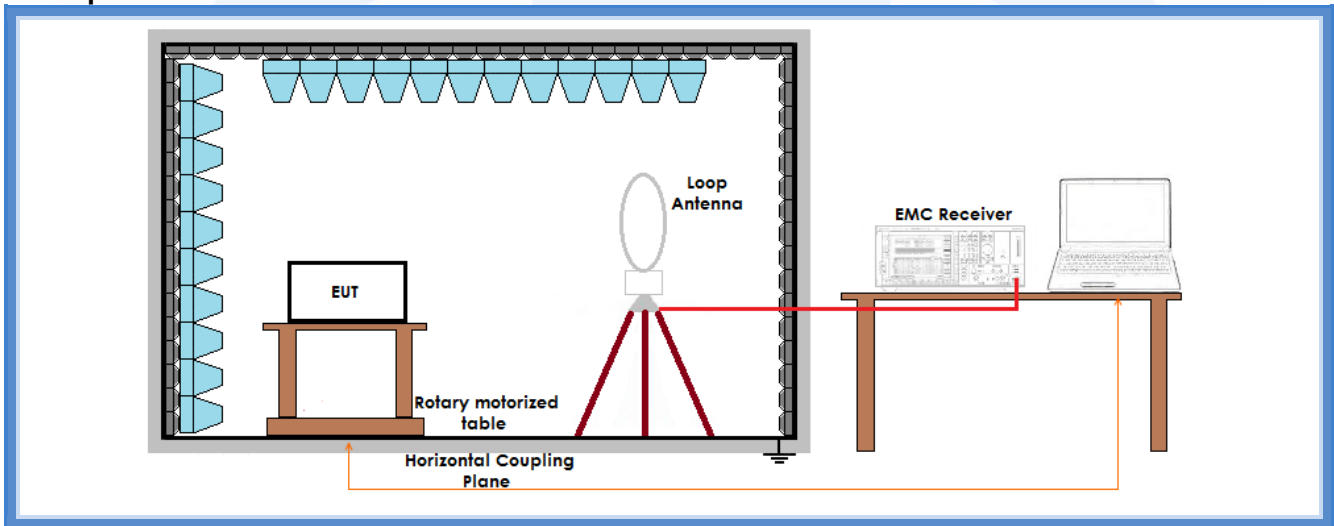


Acceptance limits

- ISM equipment operating on a frequency specified in Part 18.301 is permitted unlimited radiated energy in the band specified for that frequency
- The field strength levels of emissions which lie outside the bands specified in Part 18.301, unless otherwise indicated, shall not exceed the following:

Field strength limits for induction cooking ranges	
Operating frequency	Limits [dB(μ V/m)]
Below 90 kHz	83,52
On or above 90 kHz	69,54

Setup



Result

Polarization	Frequency Range (MHz)	Graphs	Remarks	Result
Loop	0,009 – 30	G16150217	Power level 9, bottom left plate	Complies
Loop	0,009 – 30	G16150218	Power level 9, bottom right plate	Complies
Loop	0,009 – 30	G16150219	Power level 9, top right plate	Complies
Loop	0,009 – 30	G16150220	Power level 9, top left plate	Complies
Remarks: --				

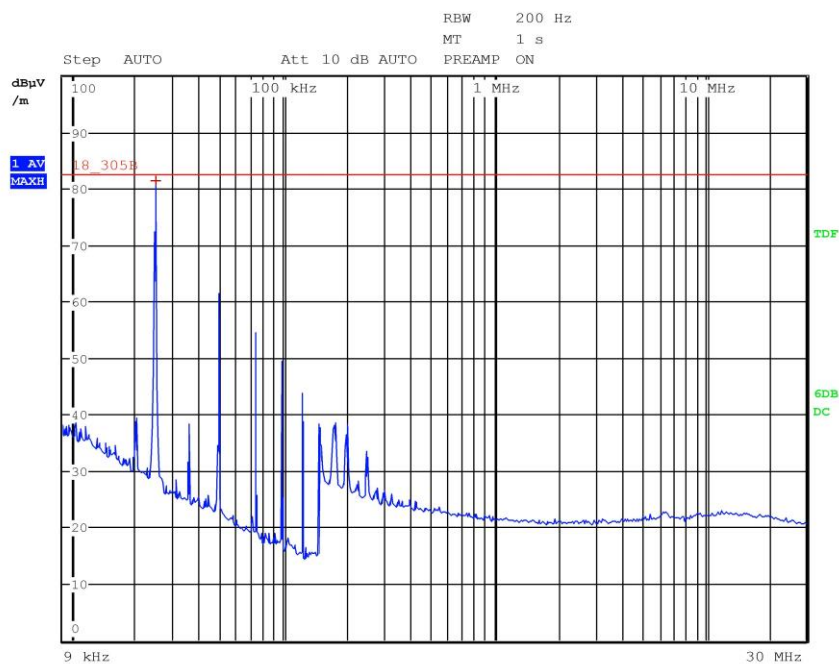
Graphs Legend

PK: Peak; QP [1s] (quasi-peak at 1 second) values are marked with a +
AV: Average; AV [1s] (average at 1 second) values are marked with a x



Graphs

Meas Type Emission
Equipment under Test
Manufacturer
OP Condition Bottom left zone - power 9
Operator Gandini 16150217
Test Spec
Loop



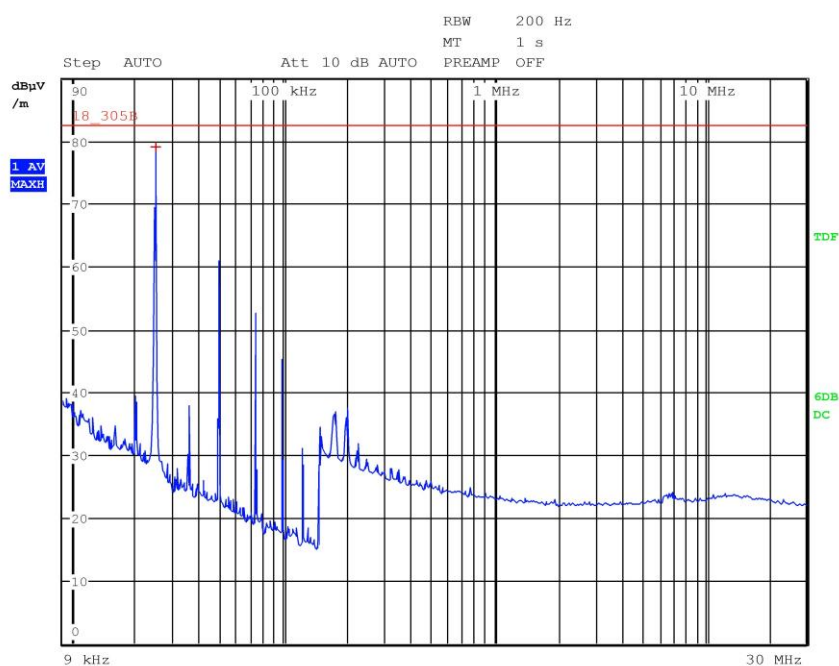
Final Measurement

Meas Time: 1 s
Margin: 20 dB
Subranges: 1

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
1	24.680000000 kHz	81.51	Average	-1.10



Meas Type Emission
Equipment under Test
Manufacturer
OP Condition Bottom right zone - power 9
Operator Gandini 16150218
Test Spec
Loop



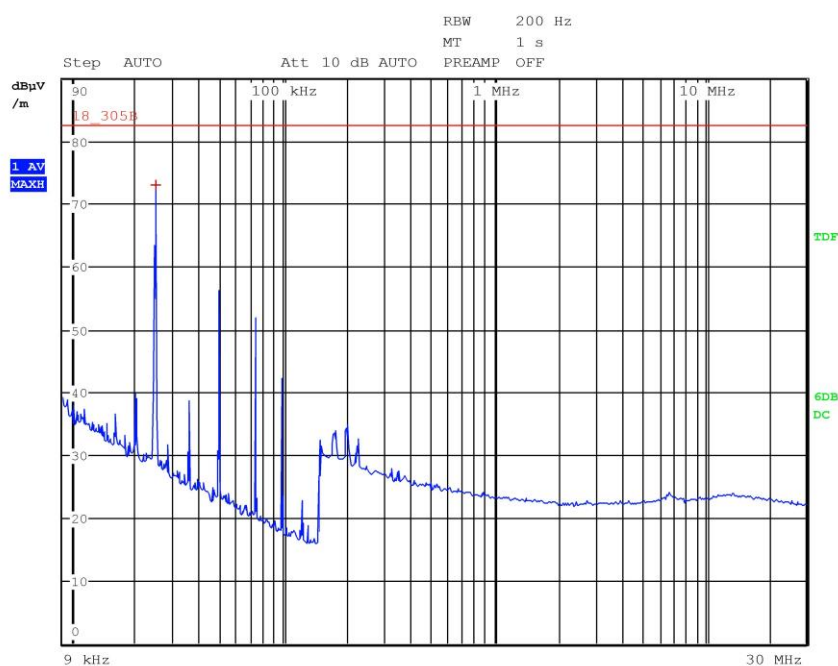
Final Measurement

Meas Time: 1 s
Margin: 20 dB
Subranges: 1

Trace	Frequency	Level (dBμV/m)	Detector	Delta Limit/dB
1	24.680000000 kHz	79.11	Average	-3.50



Meas Type Emission
Equipment under Test
Manufacturer
OP Condition Top right zone - power 9
Operator Gandini 16150219
Test Spec
Loop



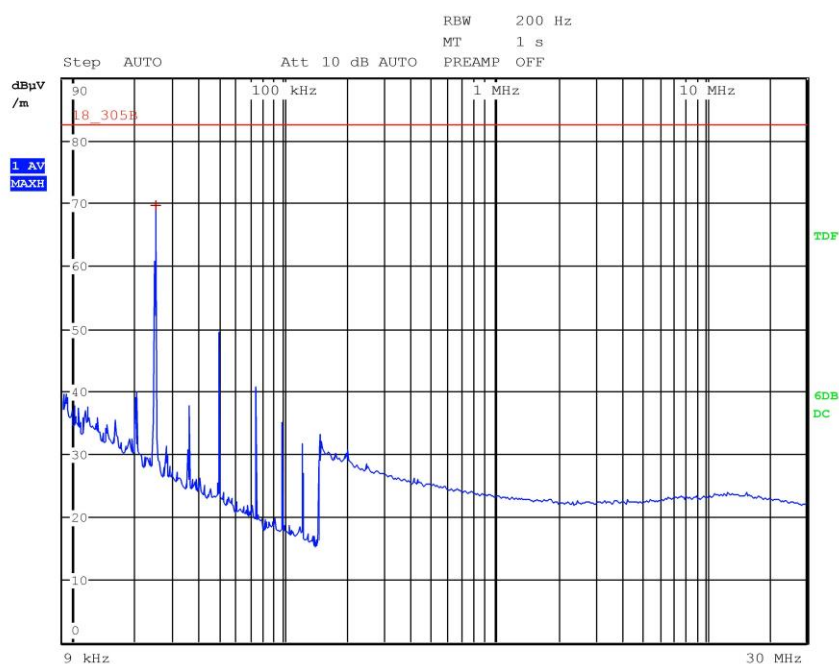
Final Measurement

Meas Time: 1 s
Margin: 20 dB
Subranges: 1

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
1	24.680000000 kHz	72.98	Average	-9.63



Meas Type Emission
Equipment under Test
Manufacturer
OP Condition Top left zone - power 9
Operator Gandini 16150220
Test Spec
Loop



Final Measurement

Meas Time: 1 s
Margin: 20 dB
Subranges: 1

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
1	24.680000000 kHz	69.76	Average	-12.85

Result: The requirements are met

ANNEX 1 of document nr. R16150201

Components						
Name			Manufacturer/ trademark	Type / model	Technical data and securement means	Mark(s) of conformity
		Cooling fan	FIME (ELICA)	C20R60XXUL	240V, 60Hz, 0.16A, T110, class H	cURus
		Cooling fan thermostat	CAMPINI	TY60	250V, 16 A, T200	cURus
		Induction module	EGO	75.08018.505	T85, 240 VAC, 32 A	URus
		Induction selector	EGO	44.02020.XXX	T85, 4 provided	URus
		Coil Ø145mm (not shown)	EGO	75.95060.501	1500W, 240V	URus
		Coil Ø180mm (not shown)	EGO	75.95061.501	2300W, 240V, 2 provided	URus
		Coil Ø210mm (not shown)	EGO	75.95062.502	3700W, 240V	URus