

TEST REPORT

Applicant:	Aukey Technology Co., Ltd
Address of Applicant:	No.102, Bldg. P09, Electronics Trade Center Huanan City, Pinghu Town, Longgang, Shenzhen, Guangdong, 518111, China
Manufacturer:	Aukey Technology Co., Ltd
Address of Manufacturer:	No.102, Bldg. P09, Electronics Trade Center Huanan City, Pinghu Town, Longgang, Shenzhen, Guangdong, 518111, China
Product name:	Wireless Charging Phone Mount
Model:	HD-C52, HD-C58, HD-C59, HD-C60, HD-C61, HD-C62, HD-C63, HD-C64, HD-C65, HD-C66, HD-C67, HD-C68, HD-C69, HD-C70, HD-C71, HD-C72
Rating(s):	Input: 9Vdc, 2A /5Vdc, 2A Output: 9Vdc, 1.12A
Trademark:	AUKEY
Standards:	47 CFR PART 15 Subpart C
FCC ID:	2ATIH-HDC52
Data of Receipt:	2019-11-07
Date of Test:	2019-11-07~2019-11-14
Date of Issue:	2019-11-15
Test Result	Pass*

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

Authorized for issue by:**Test by:**

Nov.15, 2019 Eleven Liang
Project Engineer

Date Name/Position Signature

Reviewed by:

Nov.15, 2019

Pauler Li *Pauler Li*
Project Engineer

Date Name/Position Signature

Possible test case verdicts:

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

test object does meet the requirement.....: P (Pass)

test object does not meet the requirement..: F (Fail)

Testing Laboratory information:

Testing Laboratory Name: ITL Co., Ltd.

Address.....: No.8, JinQianLing street 5, DongHuan Road, Huangjiang
Town, Dongguan, China.

Testing location : Same as above

Tel : 0086-769-39001678

Fax : 0086-20-62824387

E-mail : itl@i-testlab.com

General remarks:

The test results presented in this report relate only to the object tested.

The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report.

This report would be invalid test report without all the signatures of testing technician and approver.

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

General product information:

All models are are similar to each other except for model designations

If no otherwise specified, tests were conducted on model HD-C52 to represent the others.

1 Test Summary

Test	Test Requirement	Test method	Result
Antenna Requirement	FCC PART 15 section 15.203	FCC PART 15 section 15.203	PASS
Radiated Emission	FCC PART 15 section 15.209	ANSI C 63.10	PASS
Conducted Emission	FCC PART 15 section 15.207	ANSI C 63.10	N/A
Emission Bandwidth	FCC PART 15 section 15.215(c)	ANSI C 63.10	PASS

Remark:

N/A: because the device is battery operated.
EUT: In this whole report EUT means Equipment Under Test.
Tx: In this whole report Tx (or tx) means Transmitter.
Rx: In this whole report Rx (or rx) means Receiver.
RF: In this whole report RF means Radio Frequency.
ANSI C63.10: the detail version is ANSI C63.10:2013 in the whole report.

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3 General Information

3.1 Client Information

Applicant: Aukey Technology Co., Ltd
Address of Applicant: No.102, Bldg. P09, Electronics Trade Center Huanan City, Pinghu Town, Longgang, Shenzhen, Guangdong, 518111, China

3.2 General Description of E.U.T.

Name: Wireless Charging Phone Mount
Model No.: HD-C52
Trade Mark: AUKEY
Operating Frequency: 110-205KHz
Type of Modulation: FM
Function: Wireless Charging Phone Mount
Antenna Type: **Coil Antenna**
Antenna gain: 0 dBi

3.3 Details of E.U.T.

EUT Power Supply: 9Vdc and 5Vdc
Test mode: Mode 1: base station in stand-by, idle mode
Mode 2: Communication and charging
Power cord: /

3.4 Description of Support Units

The EUT has been tested as an independent unit for fixed frequency by testing lab.

3.5 Test Location

All tests were performed at:

ITL Co., Ltd.

No.8, JinQianLing street 5, DongHuan Road, Huangjiang Town, Dongguan, China.

0086-769-39001678

itl@i-testlab.com

No tests were sub-contracted.

3.6 Deviation from Standards

Biconical and log periodic antennas were used instead of dipole antennas.

3.7 Abnormalities from Standard Conditions

None.

3.8 Other Information Requested by the Customer

None.

3.9 Test Facility

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

- CNAS Lab code:L9342
- FCC Designation No.:CN5035
- IC Registration NO.: 12593A
- NVLAP LAB CODE: 600199-0

3.10 Measurement Uncertainty

The below measurement uncertainties given below are based on a 95% confidence level (base on a coverage factor (k=2).)

Parameter	Uncertainty
Radio frequency	$\pm 1.06 \times 10^{-7}$
total RF power, conducted	1.37 dB
RF power density , conducted	2.89 dB
All emissions, radiated	± 3.35 dB
Temperature	± 0.23 °C
Humidity	± 0.3 %
DC and low frequency voltages	± 0.3 %

4 Instruments Used during Test

Radiated Emission						
No.	Test Equipment	Manufacturer	Model	Serial No.	Last Cal.	Cal. Due
DGITL- 301	Semi-Anechoic chamber	ETS•Lindgren	9*6*6	CT000874-1181	2019.05.31	2020.05.31
DGITL- 307	EMI test receiver	R&S	ESVS10	833616 /003	2019.05.27	2020.05.27
DGITL- 306	Spectrum Analyzer	Agilent Technologies	N9010A	MY54200334	2017.05.31	2020.05.31
DGITL- 308	Bilog Antenna	ETS•Lindgren	3142E	156975	2017.02.21	2020.02.21
DGITL- 352	Pre Amplifier	MInl-Circuits	ZFC-1000HX	SN292801110	2019.05.31	2020.05.31
DGITL-163	Active Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-062	2017.11.16	2020.11.16

5 Test Results

5.1 Antenna Requirement

According to FCC Part 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

Test Result

This requirement does not apply to intentional radiators that must be professionally installed (§ 15.203 Antenna requirement).

5.2 Radiated Emissions

Test Requirement: FCC Part 15 C section 209(a)

Test Method: ANSI C63.10

Operating Environment:

Temperature: 25.0 °C Humidity: 50 % RH Atmospheric Pressure: 101 kPa

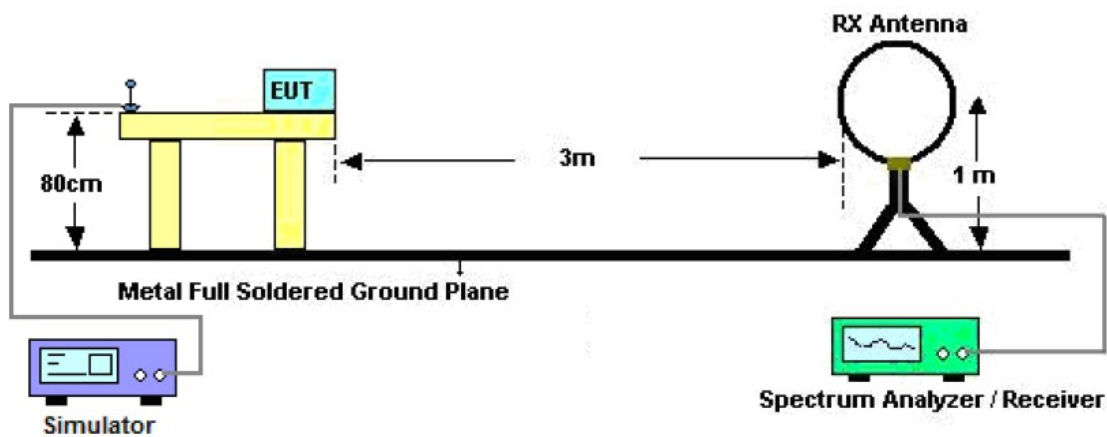
Test Status: Test the transmitter in continuous transmitting mode.

Limit: The field strength of emissions from intentional radiators operated under this Section shall not exceed the following:

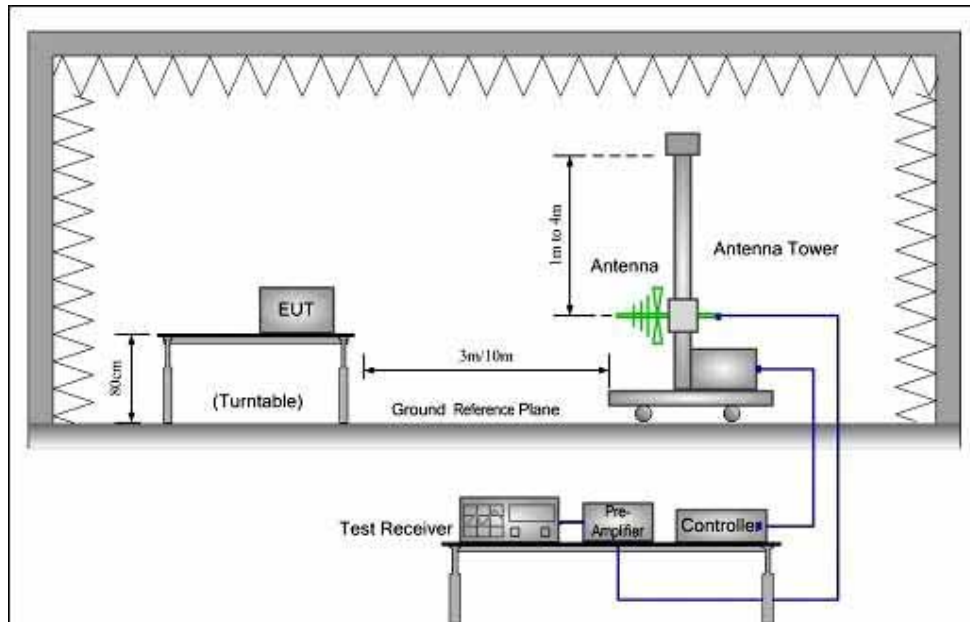
Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Dist	
	uV/m	Distance (m)	uV/m	dBuV/m
0.009 ~ 0.490	$2400/F(\text{kHz})$	300	$10000 * 2400/F(\text{kHz})$	$20\log^{(2400/F(\text{kHz}))} + 80$
0.490 ~ 1.705	$24000/F(\text{kHz})$	30	$100 * 24000/F(\text{kHz})$	$20\log^{(24000/F(\text{kHz}))} + 40$
1.705 ~ 30	30	30	$100 * 30$	$20\log^{(30)} + 40$
30 ~ 88	100	3	100	$20\log^{(100)}$
88 ~ 216	150	3	150	$20\log^{(150)}$
216 ~ 960	200	3	200	$20\log^{(200)}$
Above 960	500	3	500	$20\log^{(500)}$

Test Configuration:

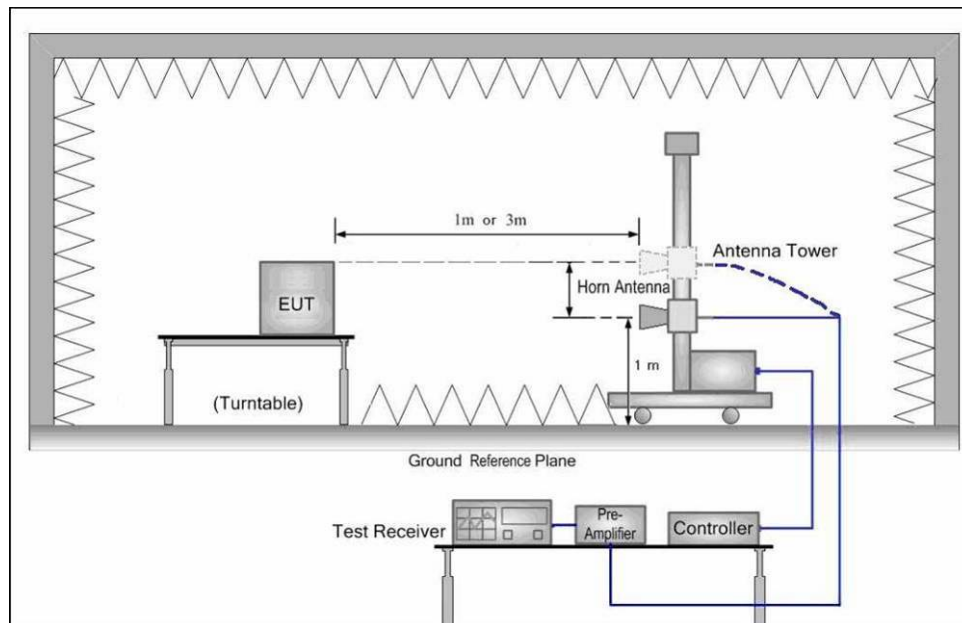
1) 9 kHz to 30 MHz emissions:



2) 30 MHz to 1 GHz emissions:



3) 1 GHz to 40 GHz emissions:



Test Procedure:

1) 9 kHz to 30 MHz emissions:

For testing performed with the loop antenna. The centre of the loop was positioned 1 m above the ground and positioned with its plane vertical at the special distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane.

2) 30 MHz to 1 GHz emissions:

For testing performed with the bi-log type antenna. The measurement is performed with the EUT rotated 360°, the antenna height scanned between 1 m and 4 m, and the antenna rotated to repeat the measurement for both the horizontal and vertical antenna polarizations.

3) 1 GHz to 40 GHz emissions:

Test site with RF absorbing material covering the ground plane that met the site validation criterion called out in CISPR 16-1-4:2007 was used to perform radiated emission test above 1 GHz.

For testing performed with the horn antenna. The measurement is performed with the EUT rotated 360°, the antenna height scanned between 1m and 4m, and the antenna rotated to repeat the measurement for both the horizontal and vertical antenna polarizations.

The field strength of radiation emission was measured in the following position: EUT stand-up position (Y axis), lie-down position (X, Z axis). The worst case of X axis was reported.

Detector: Resolution bandwidth for Peak and Quasi-Peak value:

200 Hz for 9 kHz to 150 kHz

9 kHz for 150 kHz to 30 MHz

120 kHz for 30 MHz to 1GHz

1 MHz for above 1 GHz,

VBW $\geq$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

For AV value:

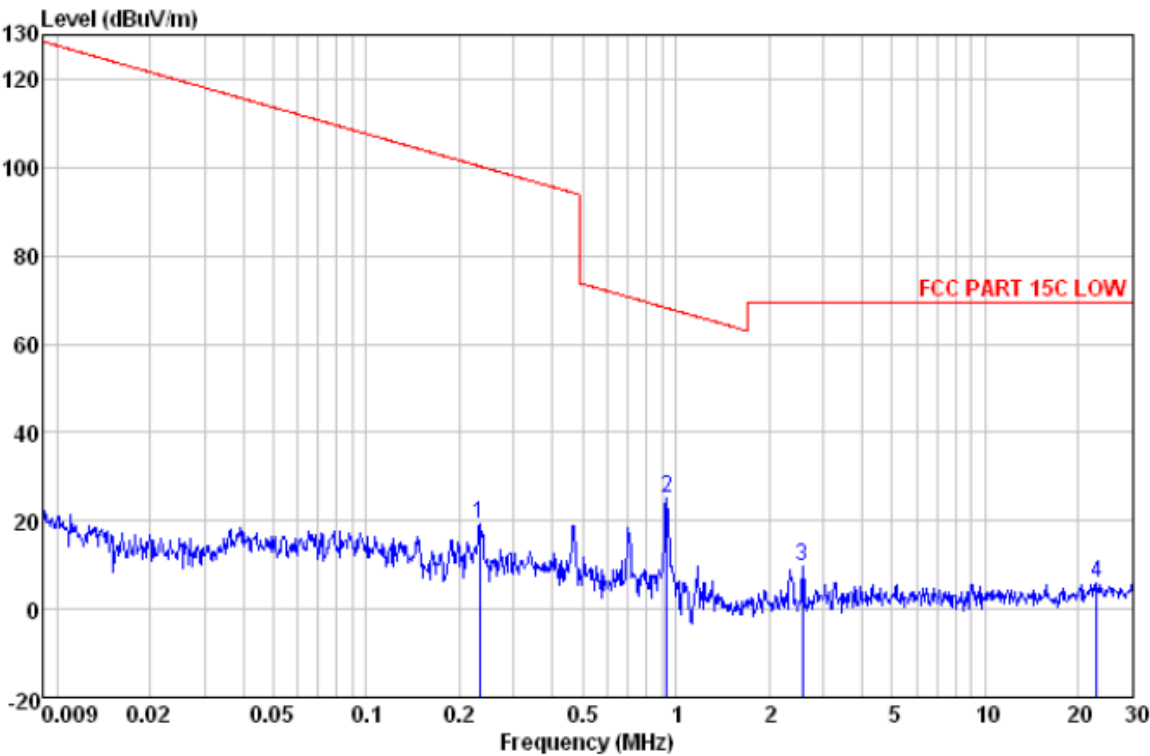
Average = Peak value + 20log (Duty cycle)

Measurement Data

DC 5V 2A

Evaluation has been done with the antenna placed vertically and horizontally. Only the worst case test setup pictures and results are presented in the report

9kHz~30MHz Test result

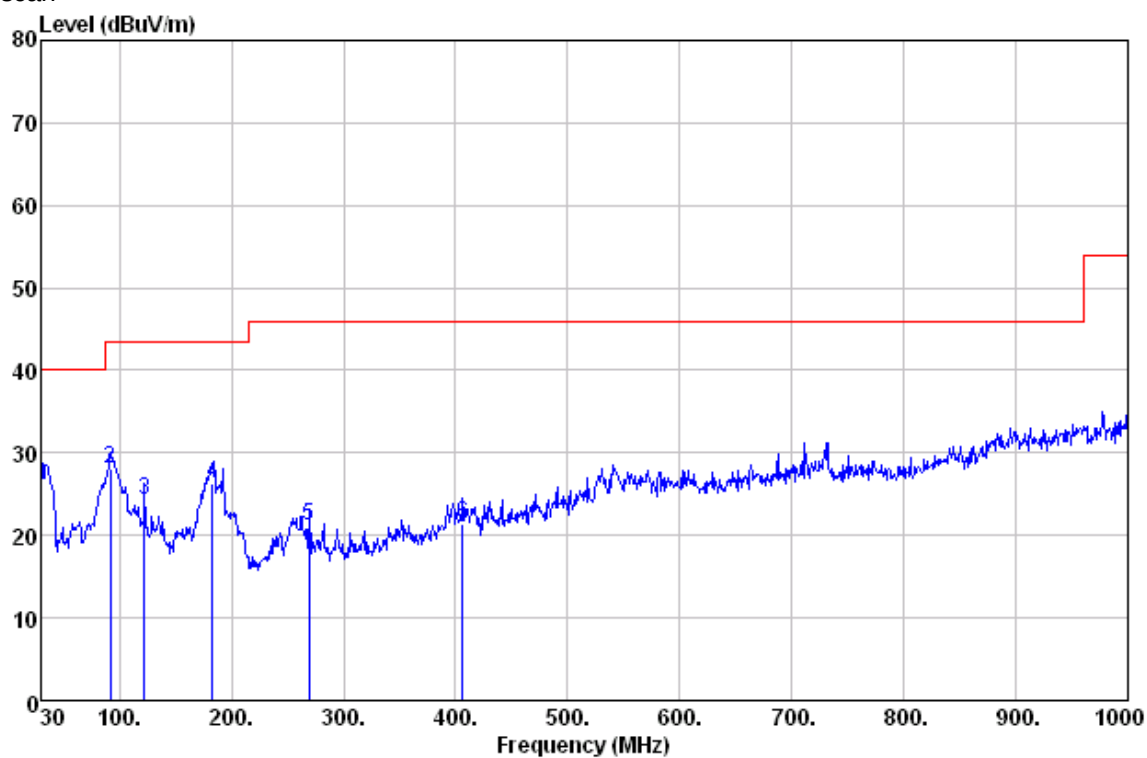


Frequency (MHz)	Reading Level (dBμV/m)	Correct (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
0.233	8.84	10.34	19.18	100.27	-81.09	PK
0.932	19.01	6.23	25.24	68.22	-42.98	PK
2.569	7.07	2.47	9.54	69.54	-60.00	PK
22.954	18.29	-12.23	6.06	69.54	-63.48	PK

30 MHz~1 GHz Spurious Emissions .Quasi-Peak Measurement

Horizontal:

Peak scan

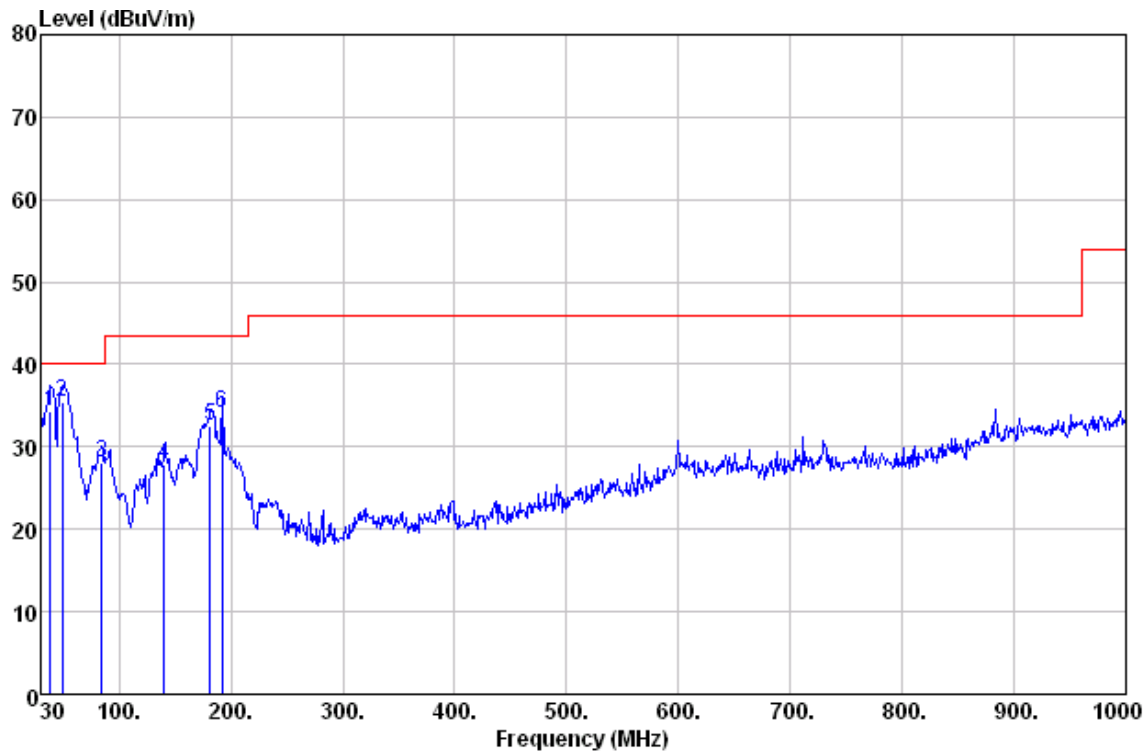


No.	Freq MHz	Read Level dBuV	Antenna Factor dB	Cable Loss dB	Preamp Factor dB	Level dBuV/m	Limit Line dBuV/m	Over Limit dB	Pol/Phase	Remark
1	30.000	38.34	15.63	0.63	28.50	26.10	40.00	-13.90	HORIZONTAL	QP
2	92.080	42.83	12.59	1.12	28.49	28.05	43.50	-15.45	HORIZONTAL	QP
3	122.150	36.07	15.45	1.31	28.48	24.35	43.50	-19.15	HORIZONTAL	QP
4	183.260	37.22	15.11	1.63	27.73	26.23	43.50	-17.27	HORIZONTAL	QP
5	269.590	29.27	17.14	2.01	27.22	21.20	46.00	-24.80	HORIZONTAL	QP
6	406.360	26.22	20.90	2.47	28.17	21.42	46.00	-24.58	HORIZONTAL	QP

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

Vertical:

Peak scan



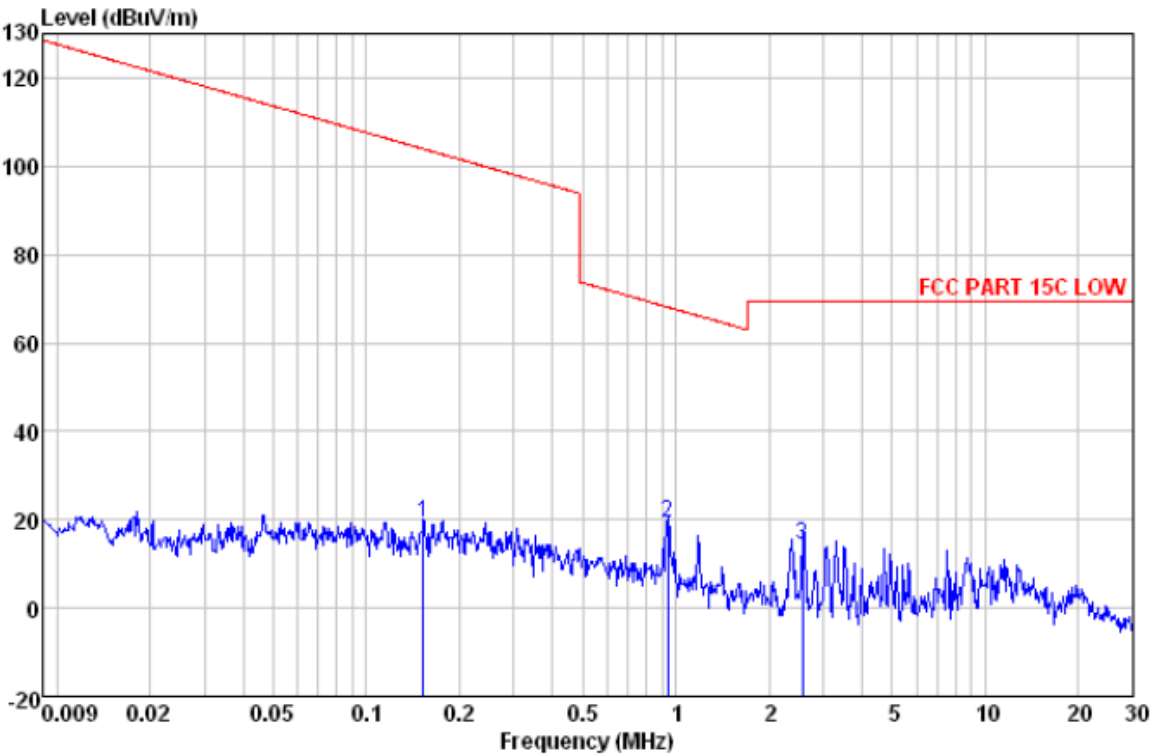
No.	Freq MHz	Read Level dBuV	Antenna Factor dB	Cable Loss dB	Preamp Factor dB	Level dBuV/m	Limit Line dBuV/m	Over Limit dB	Pol/Phase	Remark
1	38.730	44.85	17.03	0.71	28.22	34.37	40.00	-5.63	VERTICAL	QP
2	49.400	46.29	16.83	0.80	28.59	35.33	40.00	-4.67	VERTICAL	QP
3	84.320	43.08	12.26	1.07	28.23	28.18	40.00	-11.82	VERTICAL	QP
4	140.580	37.90	16.72	1.41	28.22	27.81	43.50	-15.69	VERTICAL	QP
5	181.320	43.43	15.23	1.62	27.77	32.51	43.50	-10.99	VERTICAL	QP
6	191.990	45.54	14.59	1.67	27.66	34.14	43.50	-9.36	VERTICAL	QP

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

DC 9V 2A

Evaluation has been done with the antenna placed vertically and horizontally. Only the worst case test setup pictures and results are presented in the report

9kHz~30MHz Test result

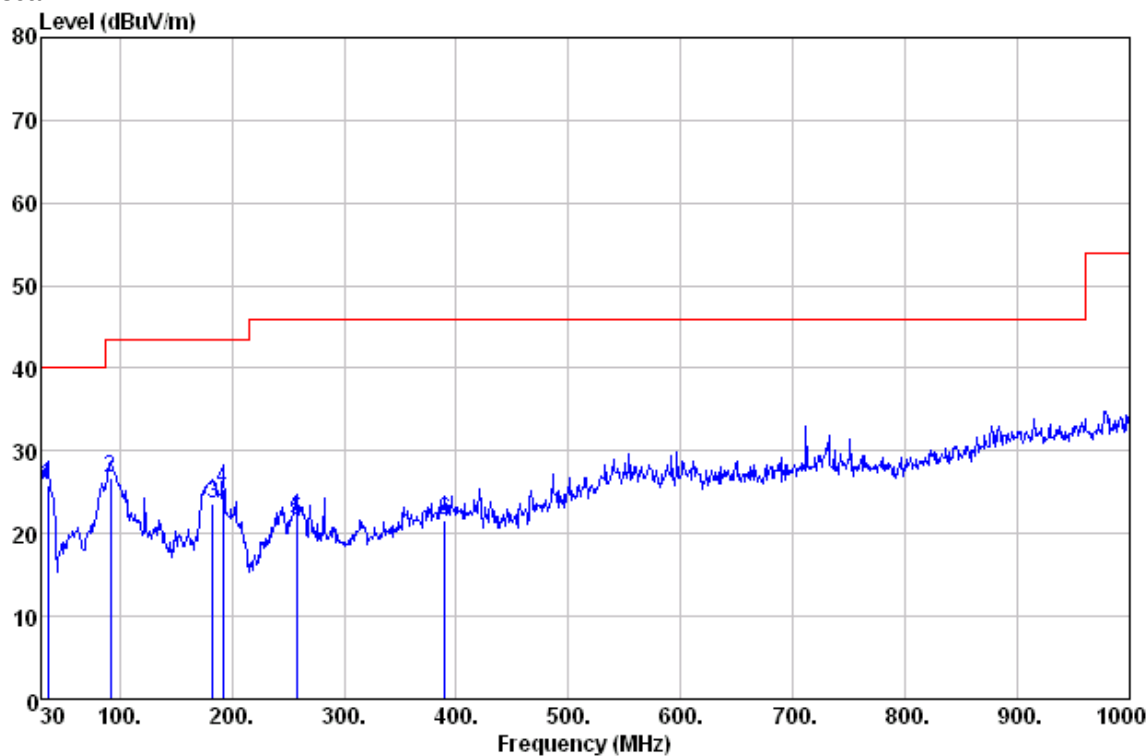


Frequency (MHz)	Reading Level (dBμV/m)	Correct (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
0.153	7.55	11.67	19.22	103.93	-84.71	PK
0.939	13.23	6.22	19.45	68.15	-48.70	PK
2.569	11.68	2.47	14.15	69.54	-60.00	PK

30 MHz~1 GHz Spurious Emissions .Quasi-Peak Measurement

Horizontal:

Peak scan

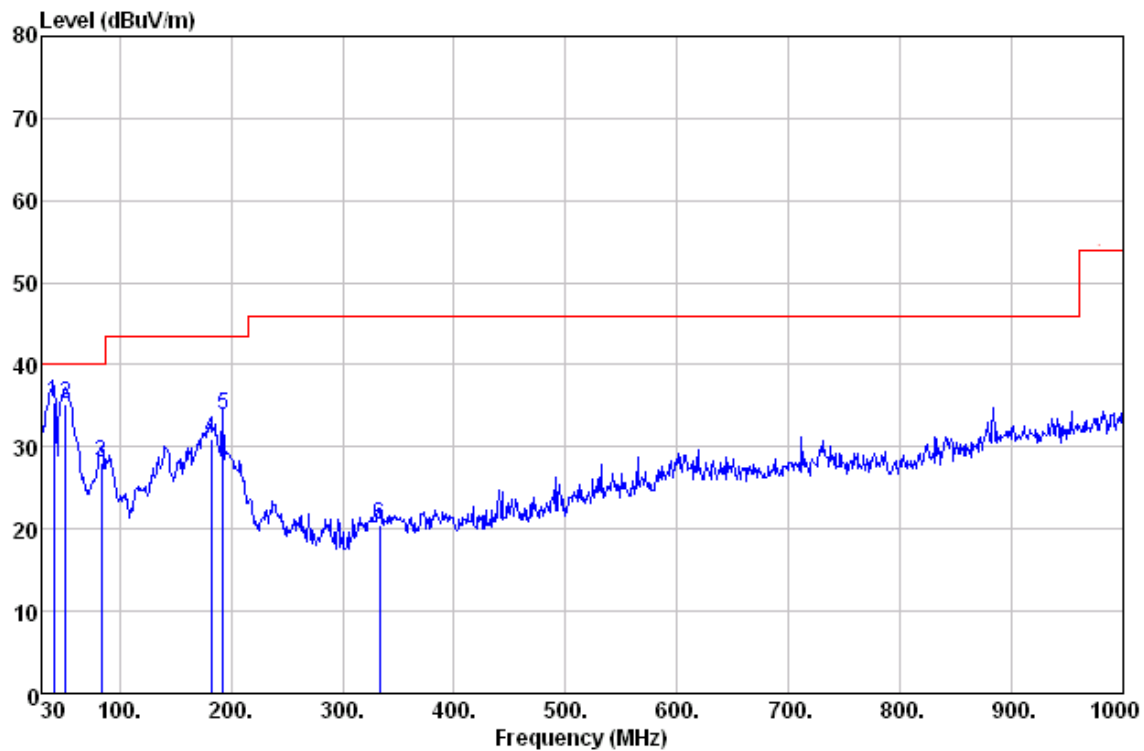


No.	Freq MHz	Read Level dBuV	Antenna Factor dB	Cable Loss dB	Preamp Factor dB	Level dBuV/m	Limit Line dBuV/m	Over Limit dB	Pol/Phase	Remark
1	35.820	37.03	16.60	0.68	28.51	25.80	40.00	-14.20	HORIZONTAL	QP
2	92.080	41.42	12.59	1.12	28.49	26.64	43.50	-16.86	HORIZONTAL	QP
3	183.260	34.61	15.11	1.63	27.73	23.62	43.50	-19.88	HORIZONTAL	QP
4	191.990	36.70	14.59	1.67	27.66	25.30	43.50	-18.20	HORIZONTAL	QP
5	257.950	30.62	16.62	1.96	27.54	21.66	46.00	-24.34	HORIZONTAL	QP
6	389.870	26.93	20.47	2.41	28.28	21.53	46.00	-24.47	HORIZONTAL	QP

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

Vertical:

Peak scan



No.	Freq MHz	Read Level dBuV	Antenna Factor dB	Cable Loss dB	Preamp Factor dB	Level dBuV/m	Limit Line dBuV/m	Over Limit dB	Pol/Phase	Remark
1	40.670	45.66	17.19	0.72	28.16	35.41	40.00	-4.59	VERTICAL	QP
2	51.340	46.22	16.67	0.82	28.54	35.17	40.00	-4.83	VERTICAL	QP
3	83.350	43.07	12.23	1.06	28.20	28.16	40.00	-11.84	VERTICAL	QP
4	182.290	41.84	15.17	1.62	27.75	30.88	43.50	-12.62	VERTICAL	QP
5	192.960	45.32	14.53	1.67	27.69	33.83	43.50	-9.67	VERTICAL	QP
6	333.610	26.80	18.94	2.23	27.43	20.54	46.00	-25.46	VERTICAL	QP

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

5.3 Emission Bandwidth

Test Requirement: FCC Part 15 C section 15.215 (c)

Test Method: ANSI C63.10:

Operating Environment:

Temperature: 25.0 °C Humidity: 50 % RH Atmospheric Pressure: 101 kPa

Requirements:

According to 15.215 (c), intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

Method of measurement: The useful radiated emission from the EUT was detected by the spectrum analyzer with peak detector. Record the 20 dB bandwidth of the carrier.

According to the ANSI 63.10-2013, the emission bandwidth test method as follows.

Set span = 10kHz, centered on a transmitting channel

RBW ≥ 1% 20dB Bandwidth, VBW ≥ RBW

Sweep = auto

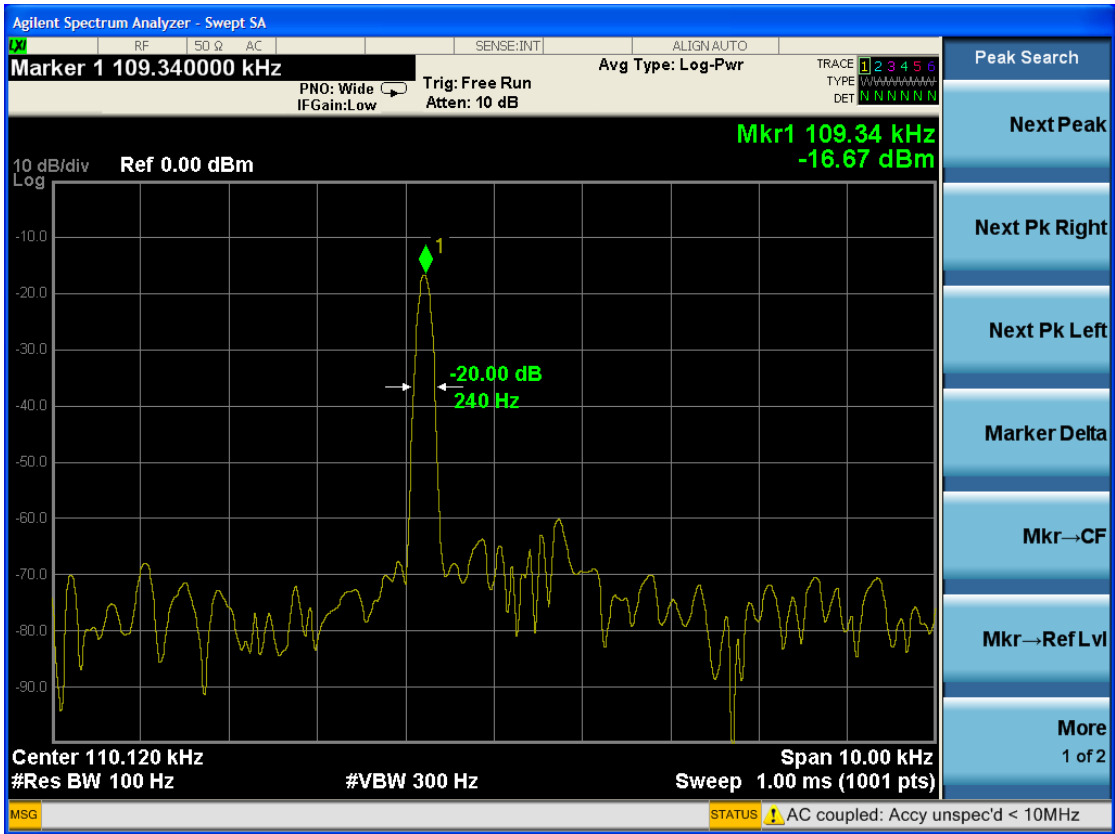
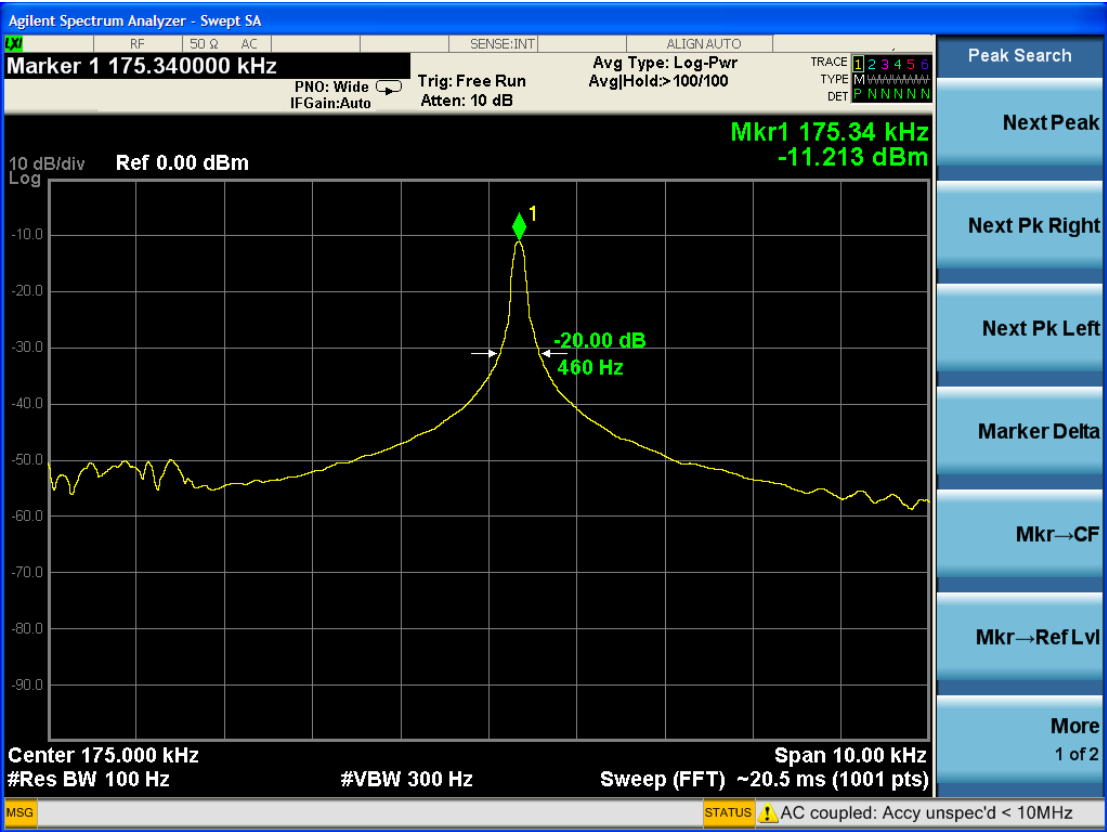
Detector function = peak

Trace = max hold

Test result:

Mode	Test Frequency kHz	20dB Bandwidth Hz
Mode 1	175	460
Mode 2	109	240

Test plot:



5.4 Conducted Emissions at Mains Terminals 150 kHz to 30MHz (N/A)

Test Requirement: FCC Part 15 C section 15.207

Test Method: ANSI C63.10

Operating Environment:

Temperature: °C Humidity: % RH Atmospheric Pressure: kPa

Frequency Range: 150 kHz to 30 MHz

Detector: Peak for pre-scan (9 kHz Resolution Bandwidth)

Test Limit

Limits for conducted disturbance at the mains ports of class B

Frequency Range (MHz)	Class B Limit dB(μV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
NOTE 1 The limit decreases linearly with the logarithm of the frequency in the range 0,15 MHz to 0,50 MHz.		

-- End of test report --