

B.8. Carrier Frequency Separation

Method of Measurement: See ANSI C63.10-clause 7.8.2

The EUT must have its hopping function enabled. Use the following spectrum analyzer settings:

- Span = 3MHz
- RBW=300kHz
- VBW=300kHz
- Sweep = auto
- Detector function = peak
- Trace = max hold
- Allow the trace to stabilize

Search the peak marks of the middle frequency and adjacent channel, then record the separation between them.

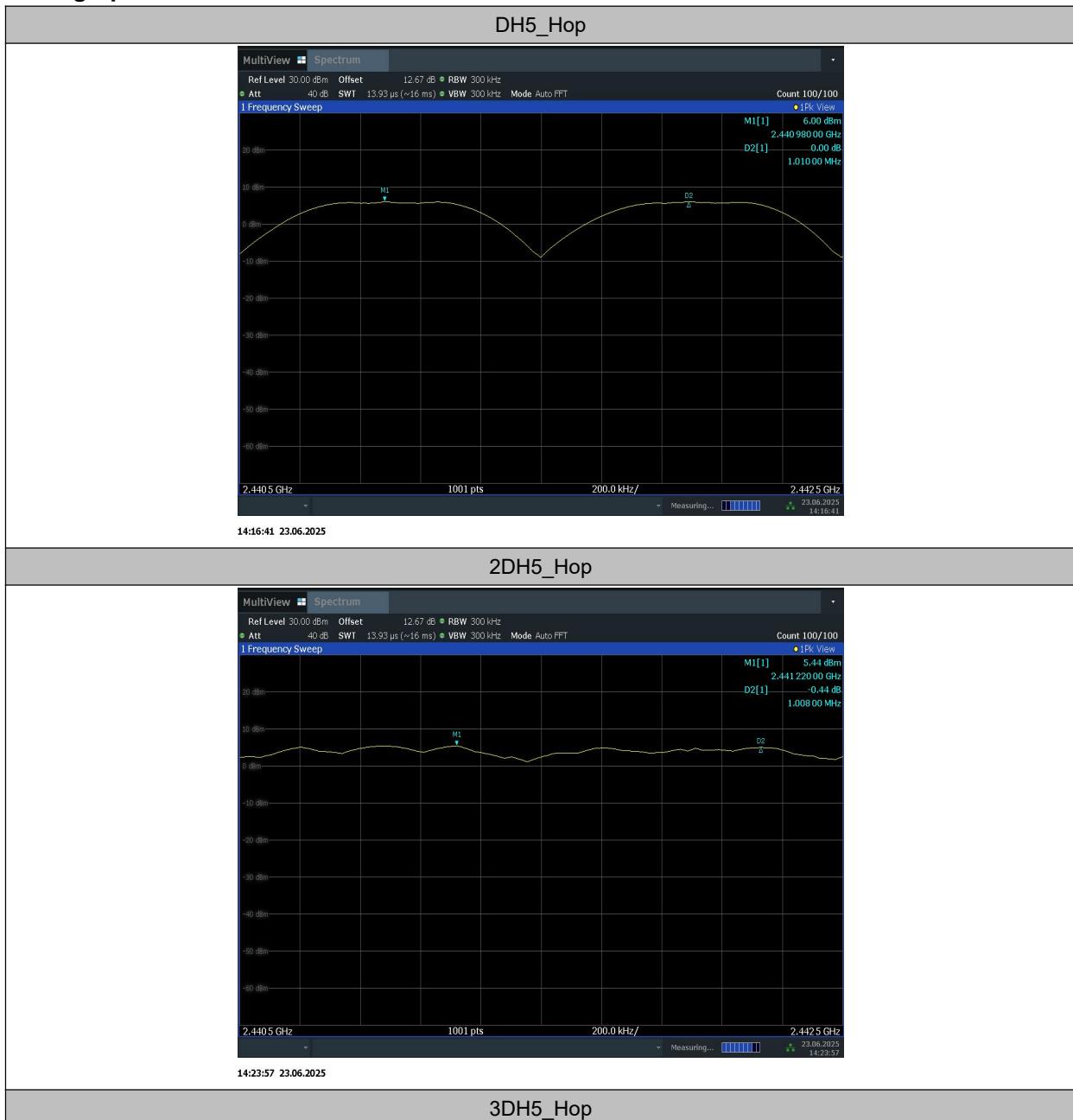
* Comment: This limit should be over 25 kHz or $(2/3) * 20\text{dB}$ bandwidth, whichever is greater.

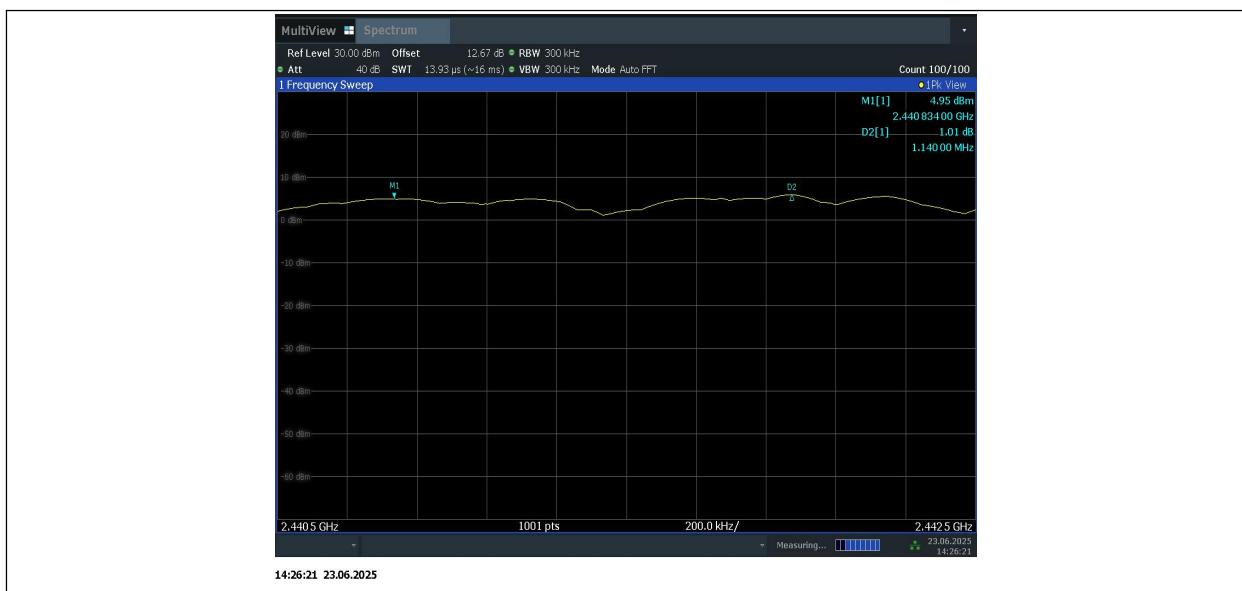
Measurement Limit:

Standard	Limit(kHz)
FCC 47 CFR Part 15.247(a)(1)	over 25 kHz or $(2/3) * 20\text{dB}$ bandwidth

Measurement Result:

TestMode	Frequency[MHz]	Result[MHz]	Limit[MHz]	Verdict
DH5	Hop	1.01	≥ 0.860	PASS
2DH5	Hop	1.008	≥ 0.873	PASS
3DH5	Hop	1.14	≥ 0.873	PASS

Test graphs as below:




Conclusion: PASS

B.9. Number of Hopping Channels

Method of Measurement: See ANSI C63.10-clause 7.8.3

The EUT must have its hopping function enabled. Use the following spectrum analyzer settings:

- Span = the frequency band of operation
- RBW = 500kHz
- VBW = 500kHz
- Sweep = auto
- Detector function = peak
- Trace = max hold
- Allow the trace to stabilize

It might prove necessary to break the span up into subranges to show clearly all of the hopping frequencies. Compliance of an EUT with the appropriate regulatory limit shall be determined for the number of hopping channels. A plot of the data shall be included in the test report.

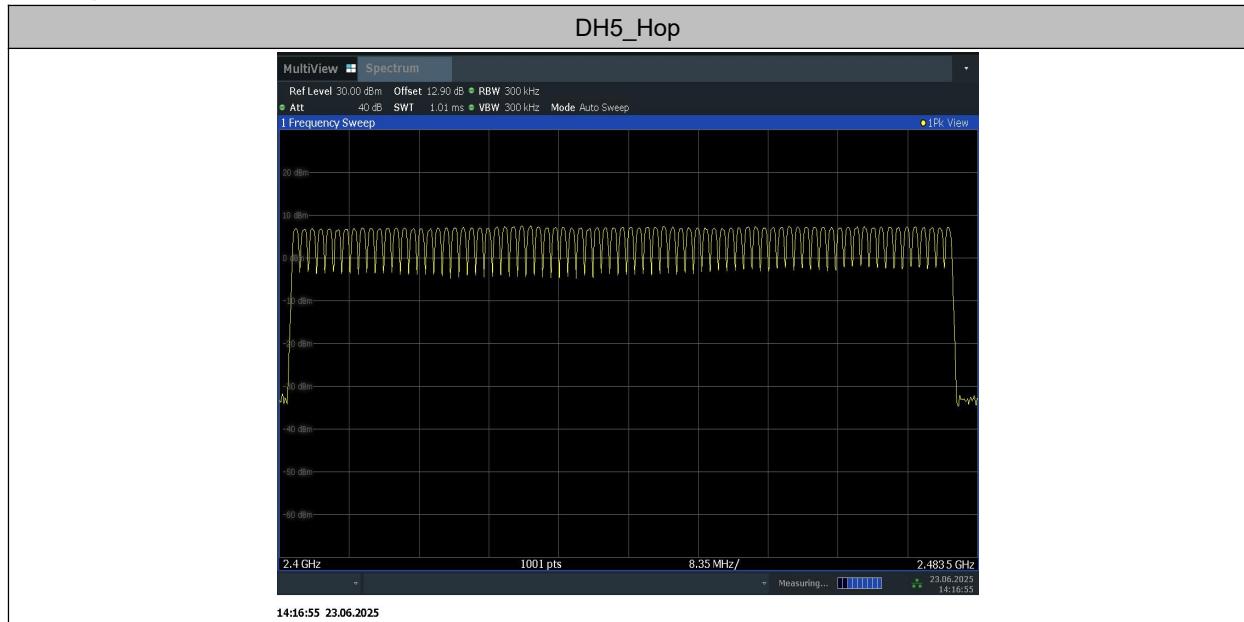
Measurement Limit:

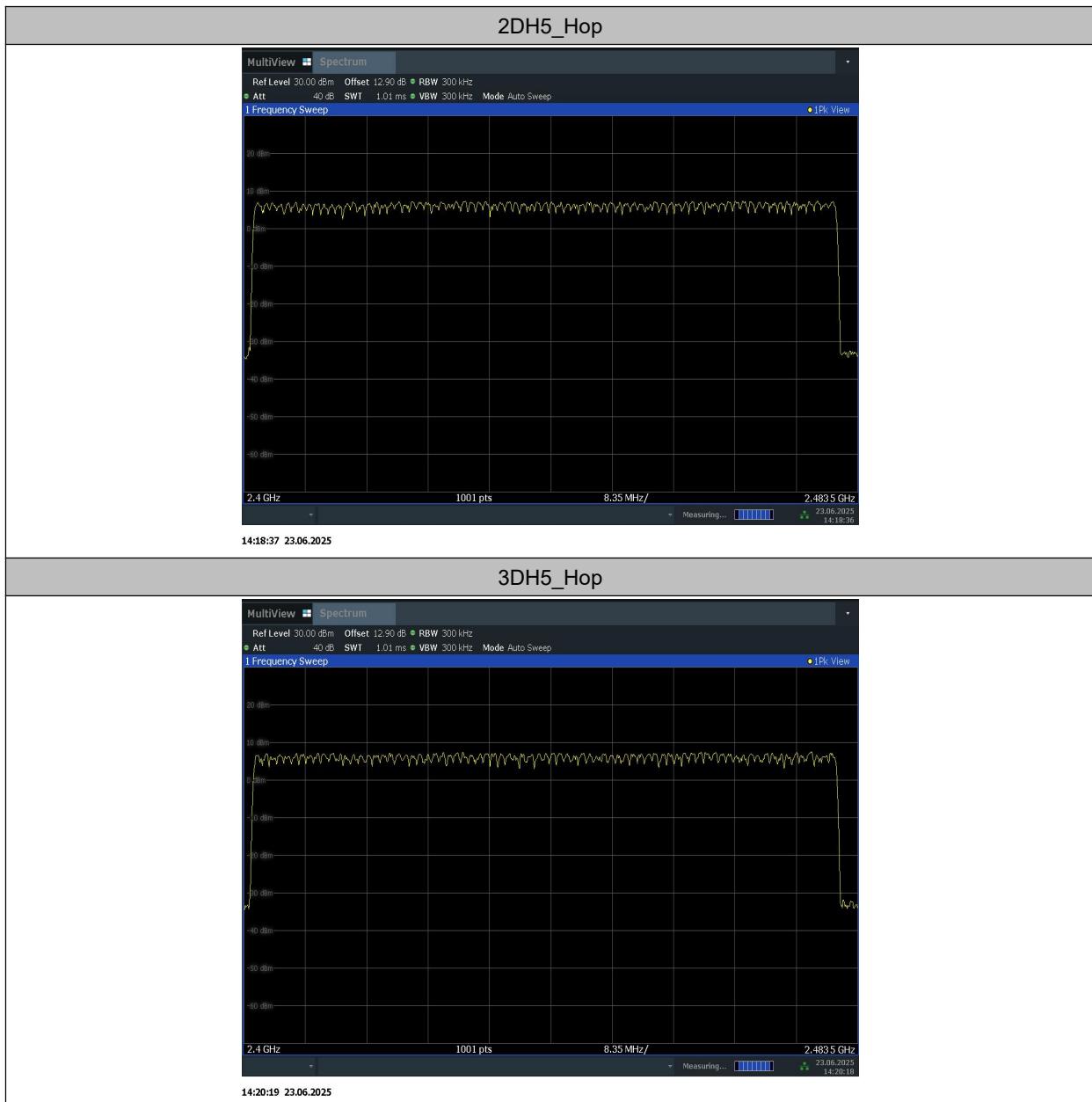
Standard	Limit
FCC 47 CFR Part 15.247(a) (1)(iii)	At least 15 non-overlapping channels

Measurement Result:

TestMode	Frequency[MHz]	Result[Num]	Limit[Num]	Verdict
DH5	Hop	79	≥15	PASS
2DH5	Hop	79	≥15	PASS
3DH5	Hop	79	≥15	PASS

Test graphs as below:





Conclusion: PASS

B.10. AC Powerline Conducted Emission

Summary

All AC line conducted spurious emissions are measured with a receiver connected to a grounded LISN while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates and modes were investigated for conducted spurious emissions. Only the conducted emissions of the configuration that produced the worst case emissions are reported in this section.

Method of Measurement:

See Clause 6.2 of ANSI C63.10 specifically.

See Clause 4 and Clause 5 of ANSI C63.10 generally.

The conducted emissions from the AC port of the EUT are measured in a shielding room. The EUT is connected to a Line Impedance Stabilization Network (LISN). An overview sweep with peak detection was performed. The measurements were performed with a quasi-peak detector and if required, an average detector.

The conducted emission measurements were made with the following detector of the test receiver:
Quasi-Peak / Average Detector.

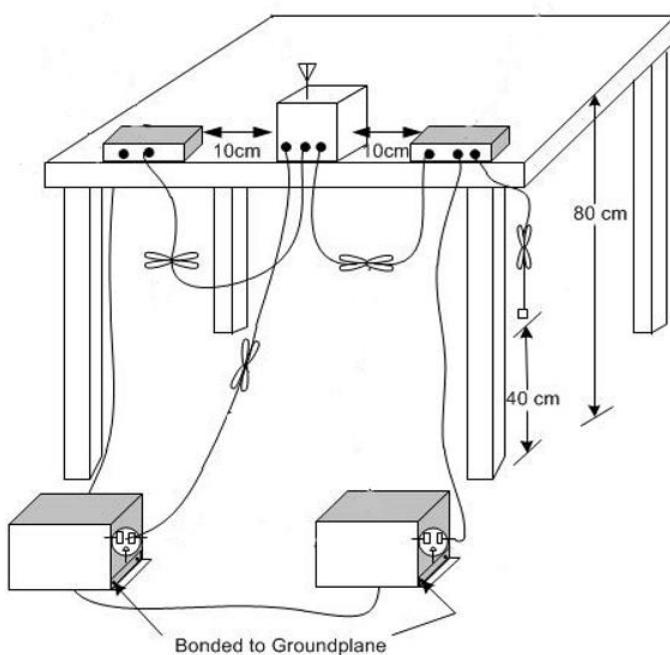
The measurement bandwidth is:

Frequency of Emission (MHz)	RBW/IF bandwidth
0.15-30	9kHz

Test Condition:

Voltage (V)	Frequency (Hz)
120	60

Test setup



Measurement Result and limit:

Bluetooth (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dB μ V)	Result (dB μ V)		Conclusion	
		With charger			
		bluetooth	Idle		
0.15 to 0.5	66 to 56	Fig.B.10.1	Fig. B.10.2	P	
0.5 to 5	56				
5 to 30	60				

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

Bluetooth (Average Limit)

Frequency range (MHz)	Average Limit (dB μ V)	Result (dB μ V)		Conclusion	
		With charger			
		bluetooth	Idle		
0.15 to 0.5	56 to 46	Fig.B.10.1	Fig. B.10.2	P	
0.5 to 5	46				
5 to 30	50				

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

Conclusion: Pass
Test graphs as below:

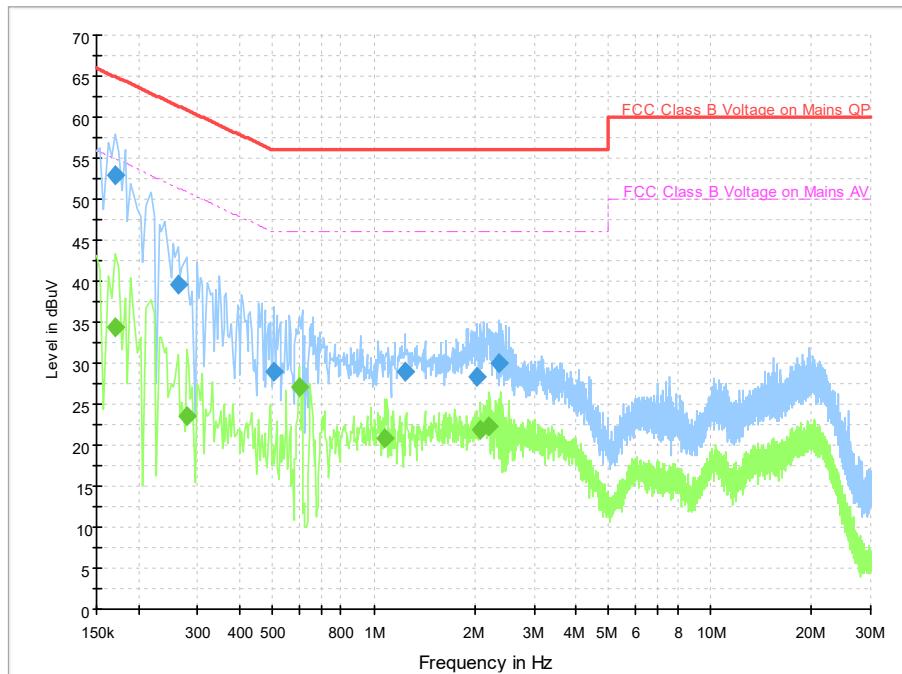


Fig.B.10.1 AC Powerline Conducted Emission- bluetooth

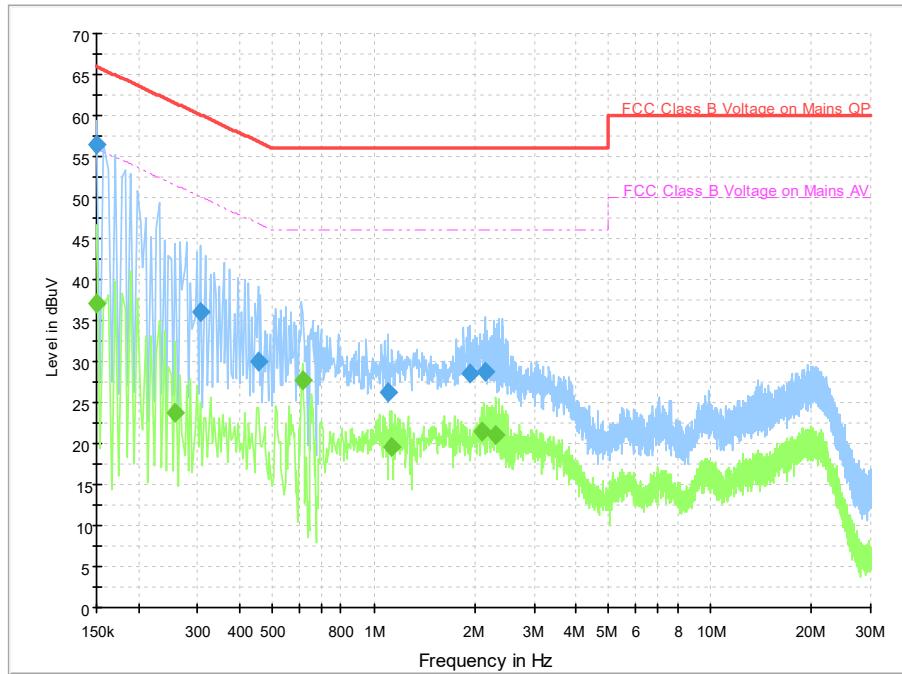
Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
0.170000	53.0	2000.0	9.000	On	N	19.8	12.0	65.0	
0.262000	39.5	2000.0	9.000	On	L1	19.9	21.8	61.4	
0.502000	28.9	2000.0	9.000	On	N	19.9	27.1	56.0	
1.242000	28.9	2000.0	9.000	On	L1	19.9	27.1	56.0	
2.030000	28.4	2000.0	9.000	On	L1	19.8	27.6	56.0	
2.354000	29.9	2000.0	9.000	On	L1	19.8	26.1	56.0	

Final Result 2

Frequency (MHz)	CAverage (dB μ V)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
0.170000	34.4	2000.0	9.000	On	N	19.8	20.5	55.0	
0.278000	23.5	2000.0	9.000	On	N	19.8	27.4	50.9	
0.598000	27.0	2000.0	9.000	On	L1	20.0	19.0	46.0	
1.082000	20.8	2000.0	9.000	On	N	19.7	25.2	46.0	
2.078000	21.8	2000.0	9.000	On	N	19.6	24.2	46.0	
2.206000	22.3	2000.0	9.000	On	L1	19.8	23.7	46.0	


Fig.B.10.2 AC Powerline Conducted Emission-Idle

Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
0.150000	56.4	2000.0	9.000	On	N	20.1	9.6	66.0	
0.306000	36.1	2000.0	9.000	On	N	19.8	24.0	60.1	
0.454000	30.1	2000.0	9.000	On	L1	20.0	26.7	56.8	
1.098000	26.2	2000.0	9.000	On	L1	19.9	29.8	56.0	
1.922000	28.4	2000.0	9.000	On	N	19.6	27.6	56.0	
2.150000	28.7	2000.0	9.000	On	L1	19.8	27.3	56.0	

Final Result 2

Frequency (MHz)	CAverage (dB μ V)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
0.150000	37.0	2000.0	9.000	On	N	20.1	19.0	56.0	
0.258000	23.7	2000.0	9.000	On	N	19.8	27.8	51.5	
0.614000	27.7	2000.0	9.000	On	L1	20.0	18.3	46.0	
1.130000	19.5	2000.0	9.000	On	N	19.7	26.5	46.0	
2.094000	21.6	2000.0	9.000	On	L1	19.8	24.4	46.0	
2.314000	21.0	2000.0	9.000	On	L1	19.8	25.0	46.0	

B.11. Antenna Requirement

The antenna of the device is permanently attached. There are no provisions for connection to an external antenna.

The unit complies with the requirement of FCC Part 15.203.

ANNEX C: Accreditation Certificate



Accredited Laboratory

A2LA has accredited

TELECOMMUNICATION TECHNOLOGY LABS, CAICT

Beijing, People's Republic of China

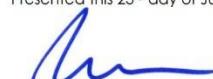
for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017
General requirements for the competence of testing and calibration laboratories. This accreditation demonstrates
technical competence for a defined scope and the operation of a laboratory quality management system
(refer to joint ISO-ILAC-IAF Communiqué dated April 2017).



Presented this 23rd day of July 2024.



Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 7049.01
Valid to July 31, 2026

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

*****END OF REPORT*****