

## 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.

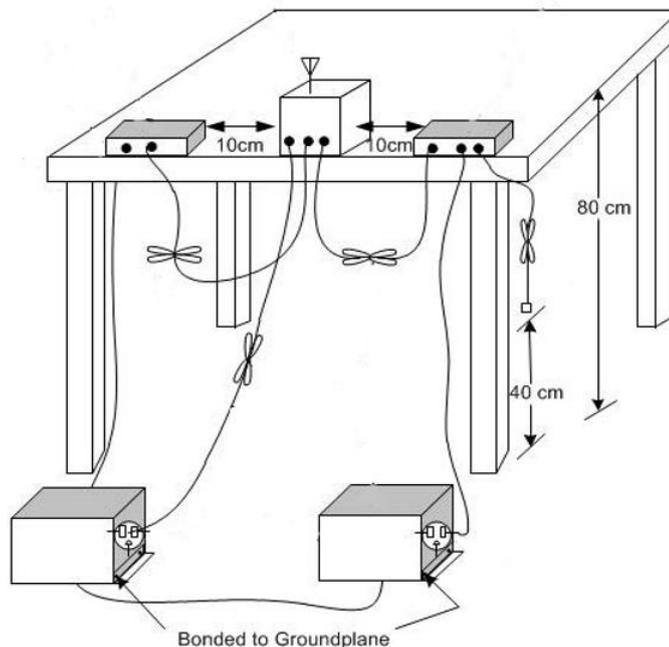
The measurement bandwidth is:

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 $\mu$ V)	Result (dB $\mu$ V)		Conclusion
		With charger		
		bluetooth	Idle	
0.15 to 0.5	66 to 56	Fig.B.10.1	Fig.B.10.2	<b>P</b>
0.5 to 5	56			
5 to 30	60			

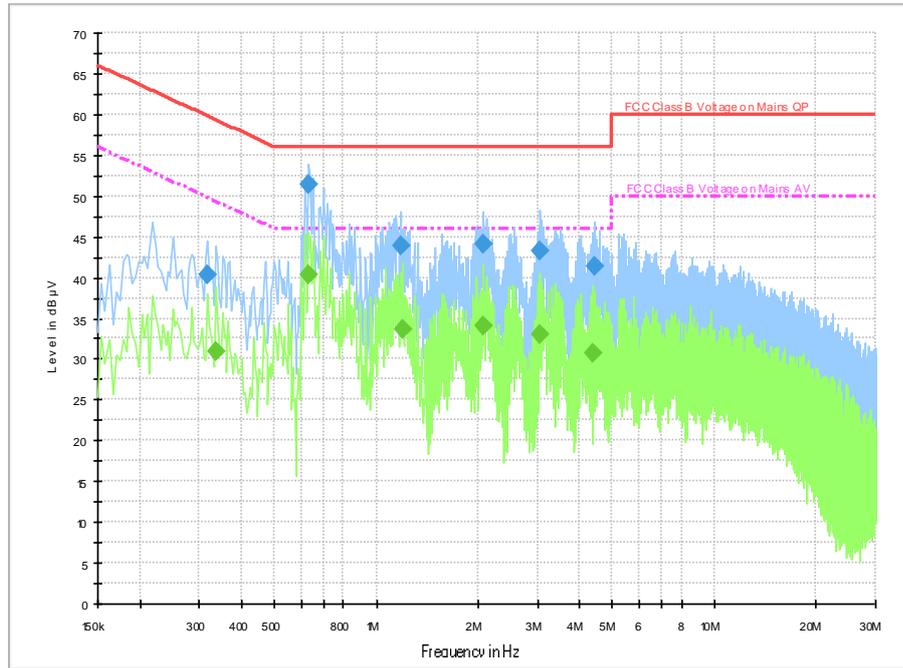
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

Bluetooth (Average Limit)

Frequency range (MHz)	Average Limit (dB $\mu$ V)	Result (dB $\mu$ V)		Conclusion
		With charger		
		bluetooth	Idle	
0.15 to 0.5	56 to 46	Fig.B.10.1	Fig.B.10.2	<b>P</b>
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-blutetooth**

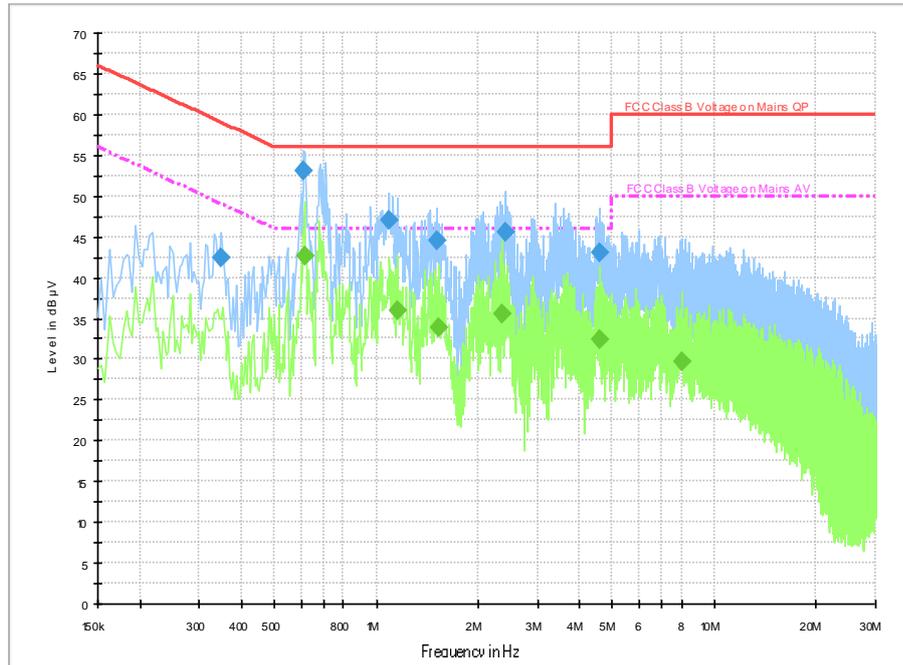
Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

**Final Result 1**

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.318000	40.4	2000.0	9.000	On	L1	19.7	19.3	59.8	
0.630000	51.3	2000.0	9.000	On	L1	19.7	4.7	56.0	
1.182000	43.9	2000.0	9.000	On	L1	19.6	12.1	56.0	
2.070000	44.1	2000.0	9.000	On	L1	19.6	11.9	56.0	
3.062000	43.3	2000.0	9.000	On	L1	19.6	12.7	56.0	
4.426000	41.4	2000.0	9.000	On	L1	19.6	14.6	56.0	

**Final Result 2**

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.334000	31.0	2000.0	9.000	On	L1	19.8	18.3	49.4	
0.630000	40.4	2000.0	9.000	On	L1	19.7	5.6	46.0	
1.194000	33.7	2000.0	9.000	On	L1	19.6	12.3	46.0	
2.070000	34.0	2000.0	9.000	On	L1	19.6	12.0	46.0	
3.062000	33.0	2000.0	9.000	On	L1	19.6	13.0	46.0	
4.398000	30.7	2000.0	9.000	On	L1	19.6	15.3	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 (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.346000	42.4	2000.0	9.000	On	L1	19.8	16.6	59.1	
0.610000	53.0	2000.0	9.000	On	L1	19.8	3.0	56.0	
1.090000	47.1	2000.0	9.000	On	L1	19.6	8.9	56.0	
1.510000	44.5	2000.0	9.000	On	L1	19.6	11.5	56.0	
2.402000	45.6	2000.0	9.000	On	L1	19.6	10.4	56.0	
4.598000	43.0	2000.0	9.000	On	L1	19.6	13.0	56.0	

**Final Result 2**

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.614000	42.6	2000.0	9.000	On	L1	19.8	3.4	46.0	
1.158000	35.9	2000.0	9.000	On	L1	19.6	10.1	46.0	
1.526000	33.8	2000.0	9.000	On	L1	19.6	12.2	46.0	
2.346000	35.5	2000.0	9.000	On	L1	19.6	10.5	46.0	
4.598000	32.4	2000.0	9.000	On	L1	19.6	13.6	46.0	
8.034000	29.6	2000.0	9.000	On	L1	19.6	20.4	50.0	



## **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 26<sup>th</sup> day of June 2023.

Mr. Trace McInturf, Vice President, Accreditation Services  
For the Accreditation Council  
Certificate Number 7049.01  
Valid to July 31, 2024

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

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