

Fig.94. Number of hopping frequencies: GFSK, Channel 0 - 39

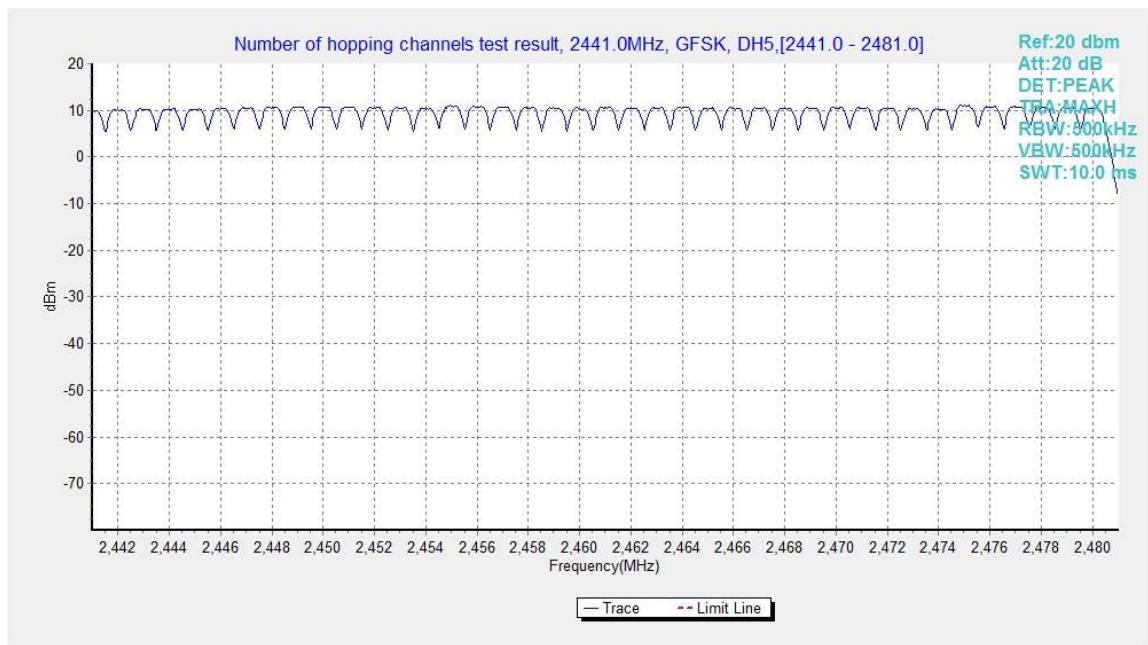


Fig.95. Number of hopping frequencies: GFSK, Channel 40 - 78

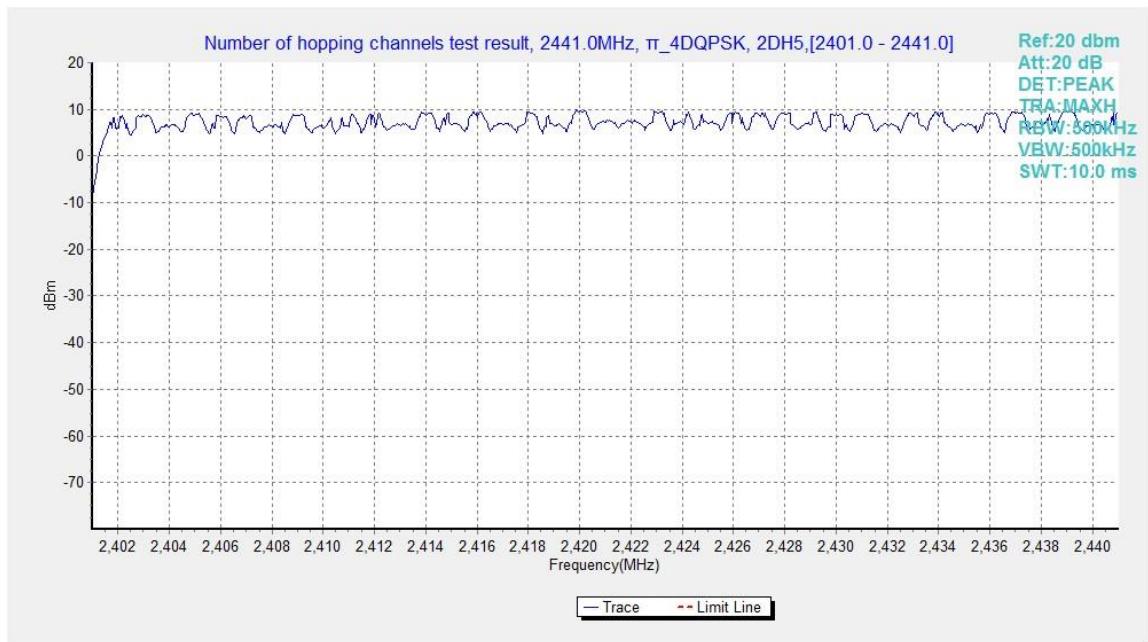


Fig.96. Number of hopping frequencies: $\pi/4$ DQPSK, Channel 0 - 39

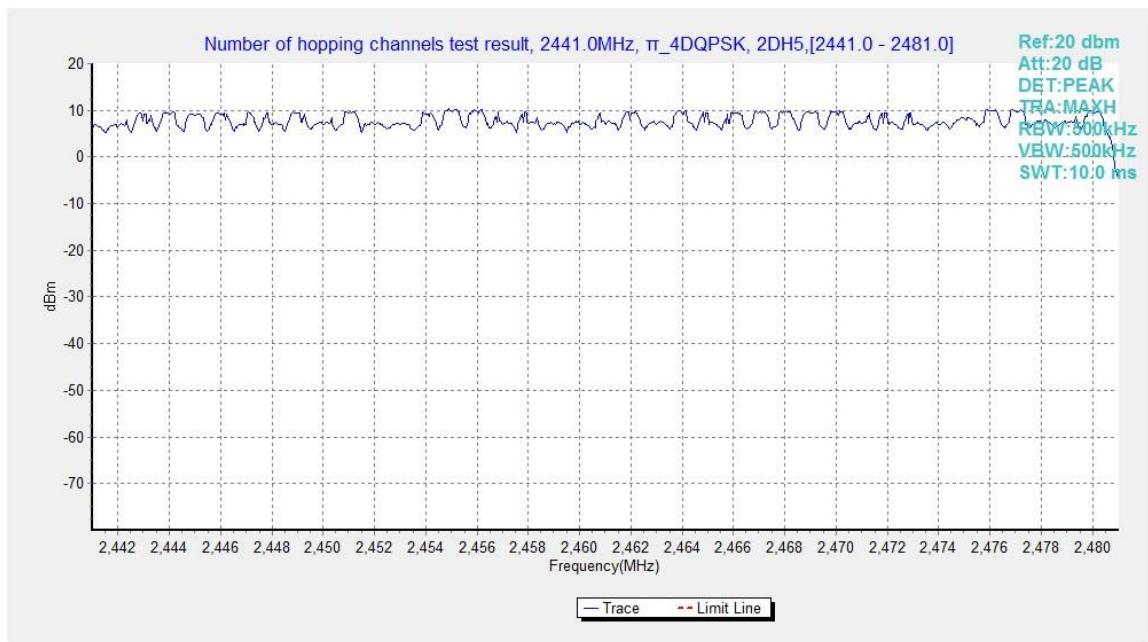


Fig.97. Number of hopping frequencies: $\pi/4$ DQPSK, Channel 40 - 78

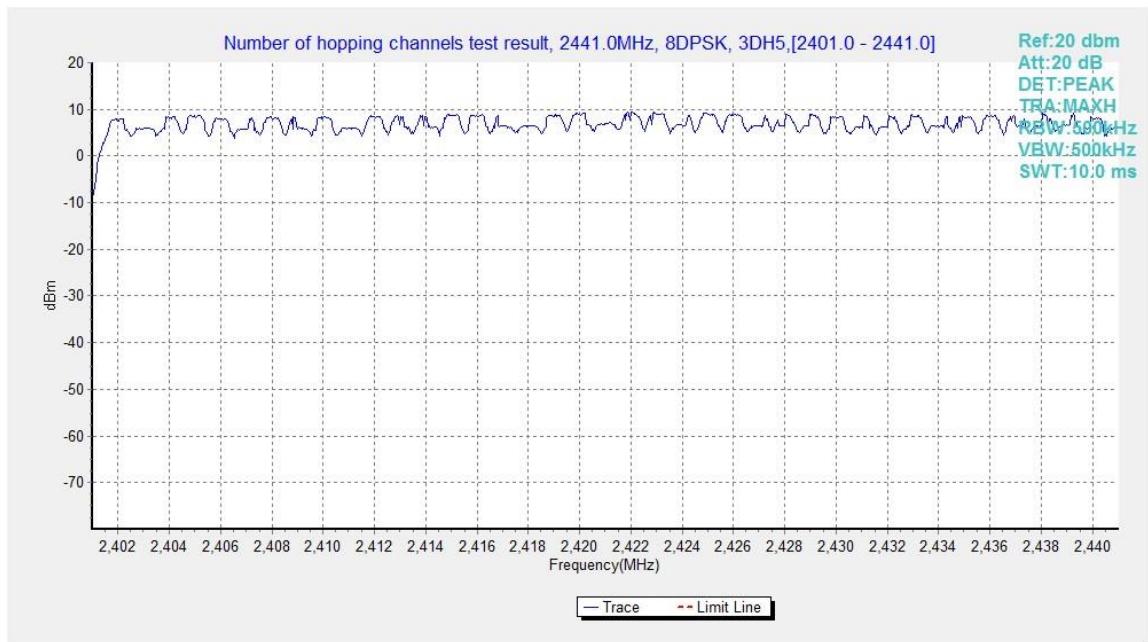


Fig.98. Number of hopping frequencies: 8DPSK, Channel 0 - 39

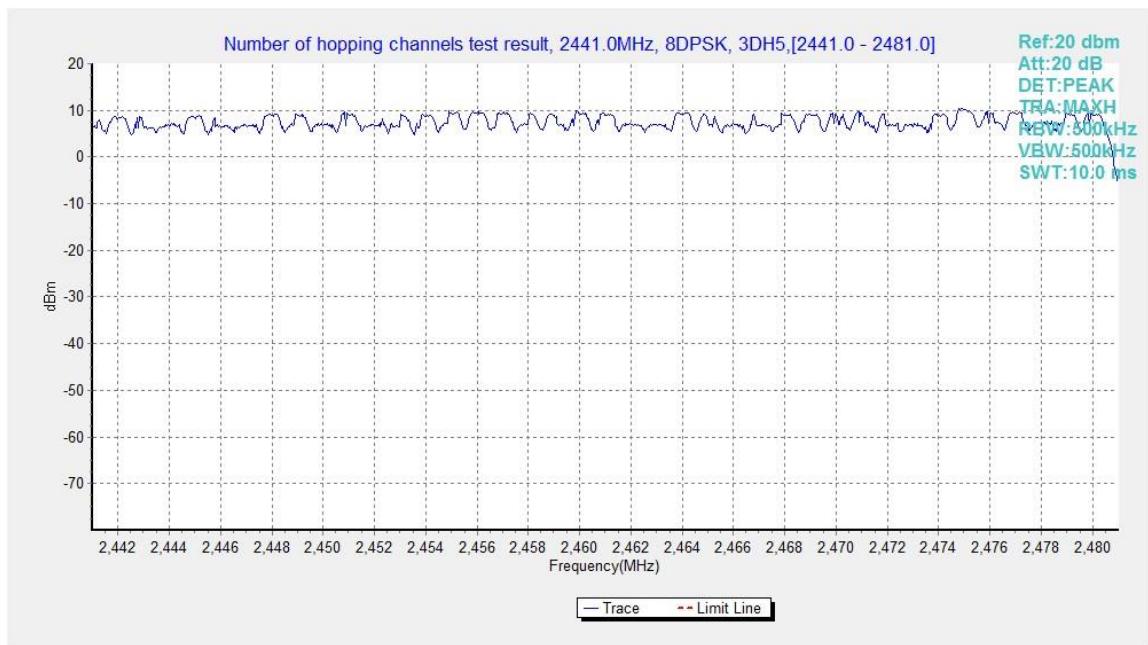


Fig.99. Number of hopping frequencies: 8DPSK, Channel 40 - 78

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.

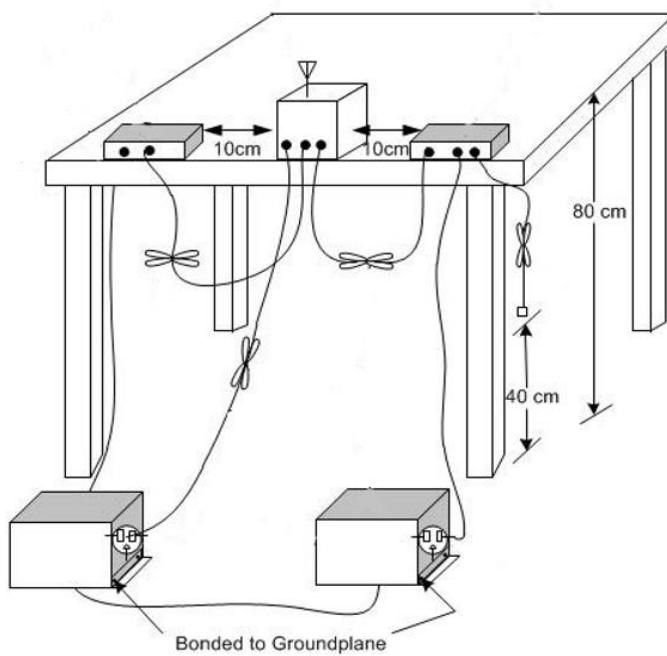
The measurement bandwidth is:

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:

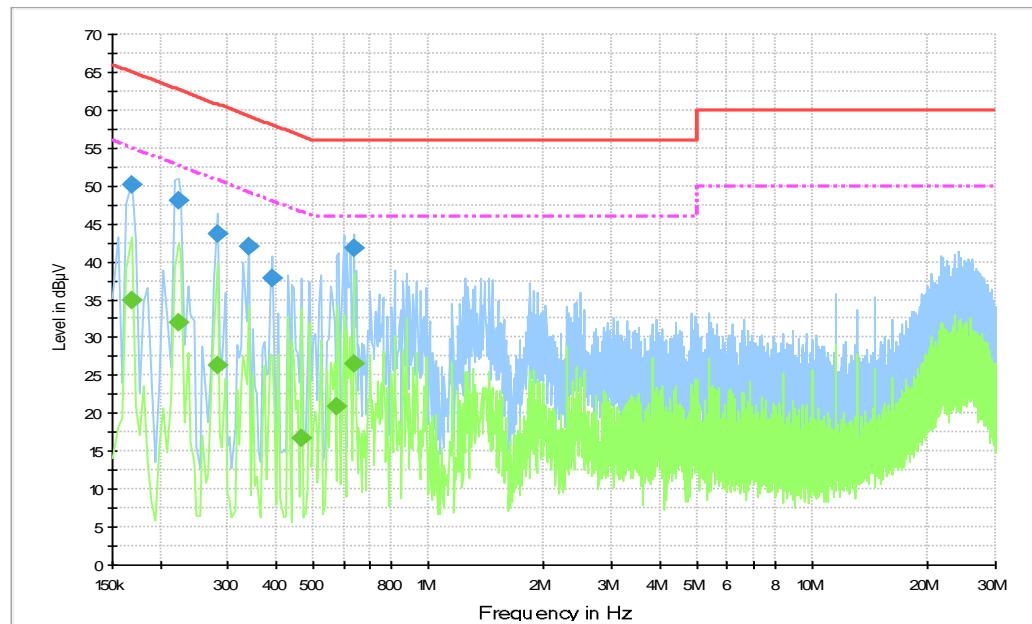


Fig.B.10.1 AC Powerline Conducted Emission- Bluetooth

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

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.168000	50.2	2000.0	9.000	On	N	20.1	14.8	65.1
0.222000	48.1	2000.0	9.000	On	L1	20.0	14.7	62.7
0.280500	43.6	2000.0	9.000	On	N	20.1	17.2	60.8
0.339000	42.1	2000.0	9.000	On	N	20.1	17.1	59.2
0.393000	37.8	2000.0	9.000	On	L1	20.0	20.2	58.0
0.636000	41.8	2000.0	9.000	On	L1	20.0	14.2	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.168000	34.8	2000.0	9.000	On	L1	20.0	20.2	55.1
0.222000	31.9	2000.0	9.000	On	N	20.0	20.8	52.7
0.280500	26.3	2000.0	9.000	On	N	20.1	24.5	50.8
0.465000	16.8	2000.0	9.000	On	N	20.2	29.8	46.6
0.577500	20.9	2000.0	9.000	On	N	20.1	25.1	46.0
0.636000	26.6	2000.0	9.000	On	L1	20.0	19.4	46.0

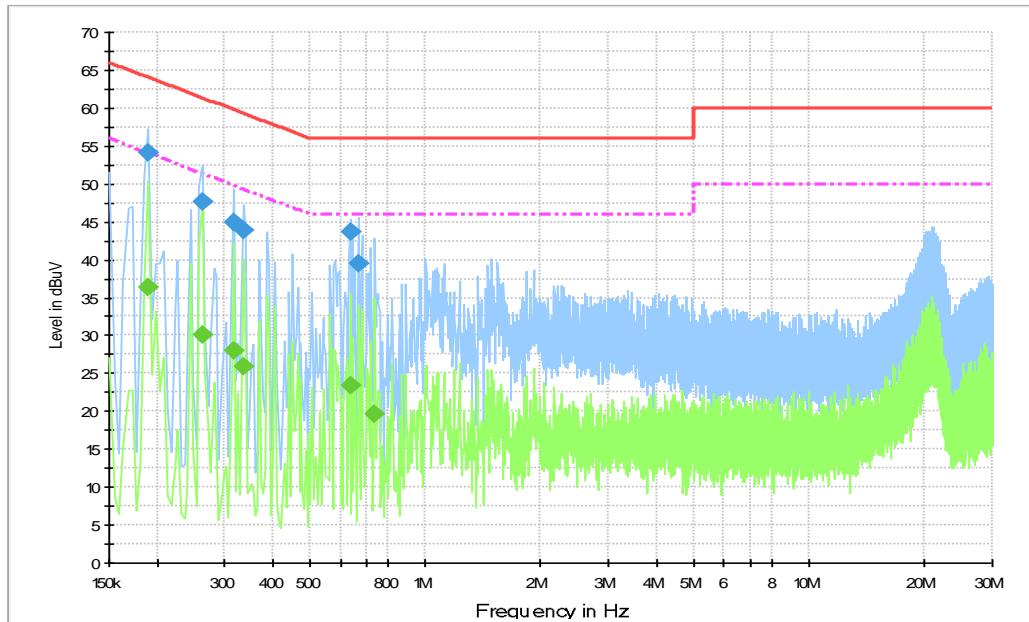


Fig.B.10.2 AC Powerline Conducted Emission-Idle

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)
0.190500	54.2	2000.0	9.000	On	L1	19.9	9.8	64.0
0.262500	47.7	2000.0	9.000	On	N	19.8	13.7	61.4
0.316500	44.9	2000.0	9.000	On	N	19.8	14.9	59.8
0.334500	44.0	2000.0	9.000	On	L1	19.8	15.4	59.3
0.636000	43.6	2000.0	9.000	On	L1	19.9	12.4	56.0
0.667500	39.4	2000.0	9.000	On	N	19.9	16.6	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.190500	36.3	2000.0	9.000	On	N	19.9	17.7	54.0
0.262500	30.0	2000.0	9.000	On	L1	19.8	21.3	51.4
0.316500	28.0	2000.0	9.000	On	L1	19.8	21.8	49.8
0.334500	25.9	2000.0	9.000	On	L1	19.8	23.4	49.3
0.636000	23.5	2000.0	9.000	On	N	19.9	22.5	46.0
0.739500	19.7	2000.0	9.000	On	N	19.9	26.3	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*****