

**802.11n-HT20**

## Ch1

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
17933.000	43.19	-25.50	46.70	21.99	54.00	10.81	H
14863.500	38.98	-28.60	40.80	26.78	54.00	15.02	H
12813.500	38.89	-30.70	39.10	30.39	54.00	15.11	H
8127.500	33.57	-34.60	37.30	30.77	54.00	20.43	V
7977.000	32.51	-34.80	37.10	30.21	54.00	21.49	V
2389.900	50.64	-20.00	28.10	42.64	54.00	3.36	V

## Ch6

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
17960.000	43.01	-25.50	46.70	21.81	54.00	10.99	V
14833.000	39.25	-28.60	40.80	27.05	54.00	14.75	V
12565.000	38.75	-31.00	39.00	30.85	54.00	15.25	V
8159.500	33.56	-34.60	37.30	30.76	54.00	20.44	V
7999.500	32.32	-34.80	37.10	30.02	54.00	21.68	V
4875.500	29.24	-37.20	33.20	33.24	54.00	24.76	V

## Ch11

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
17951.500	42.89	-25.50	46.70	21.69	54.00	11.11	H
14850.000	39.08	-28.60	40.80	26.88	54.00	14.92	H
12701.000	38.65	-30.50	39.10	30.05	54.00	15.35	H
8503.500	33.23	-34.10	37.90	29.53	54.00	20.77	H
7987.000	32.82	-34.80	37.10	30.52	54.00	21.18	H
2485.200	50.29	-20.00	28.30	41.99	54.00	3.71	V

**Peak Measurement results**
**802.11b**

## Ch1

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
17949.500	53.04	-25.50	46.70	31.84	74.00	20.96	H
14829.000	49.59	-28.60	40.80	37.39	74.00	24.41	V
12564.000	48.68	-31.00	39.00	40.78	74.00	25.32	H
9877.500	43.28	-33.50	38.10	38.68	74.00	30.72	V
7443.000	42.77	-35.20	36.70	41.17	74.00	31.23	H
2379.500	56.44	-20.00	28.10	48.44	74.00	17.56	V

## Ch6

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
17871.000	53.14	-25.50	46.70	31.94	74.00	20.86	H
14649.000	49.28	-27.30	41.90	34.68	74.00	24.72	H
12538.000	48.31	-31.00	39.00	40.41	74.00	25.69	V
8017.500	43.54	-34.70	37.20	41.04	74.00	30.46	V
4874.000	42.57	-37.20	33.20	46.57	74.00	31.43	V
7991.500	42.03	-34.80	37.10	39.73	74.00	31.97	V

## Ch11

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
16825.500	52.74	-26.60	41.50	37.84	74.00	21.26	V
14880.500	48.99	-28.60	40.80	36.79	74.00	25.01	V
12583.500	48.86	-31.00	39.00	40.96	74.00	25.14	H
4923.500	45.57	-37.10	33.30	49.37	74.00	28.43	V
8047.000	44.20	-34.70	37.20	41.70	74.00	29.80	V
2485.900	56.43	-20.00	28.30	48.13	74.00	17.57	V

**802.11g**

## Ch1

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
17935.500	53.11	-25.50	46.70	31.91	74.00	20.89	V
14999.000	48.98	-27.90	40.20	36.58	74.00	25.02	H
12678.500	48.61	-30.50	39.10	40.01	74.00	25.39	V
8541.500	43.58	-34.10	37.90	39.88	74.00	30.42	V
7963.000	42.84	-34.80	37.10	40.54	74.00	31.16	H
2389.800	62.65	-20.00	28.10	54.65	74.00	11.35	V

## Ch6

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
17950.500	52.96	-25.50	46.70	31.76	74.00	21.04	H
14849.500	49.20	-28.60	40.80	37.00	74.00	24.80	H
12540.500	48.87	-31.00	39.00	40.97	74.00	25.13	H
8636.500	43.49	-34.40	37.90	39.89	74.00	30.51	V
7975.500	42.67	-34.80	37.10	40.37	74.00	31.33	V
4770.500	39.07	-37.30	33.00	43.27	74.00	34.93	V

## Ch11

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
17930.000	54.12	-25.50	46.70	32.92	74.00	19.88	H
14490.500	49.98	-28.60	42.50	36.08	74.00	24.02	V
12545.500	49.34	-31.00	39.00	41.44	74.00	24.66	V
8198.000	43.95	-35.20	37.40	41.65	74.00	30.05	H
7984.500	42.26	-34.80	37.10	39.96	74.00	31.74	H
2485.400	61.44	-20.00	28.30	53.14	74.00	12.56	V

**802.11n-HT20**

## Ch1

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
17869.000	53.04	-25.50	46.70	31.84	74.00	20.96	V
14860.000	49.54	-28.60	40.80	37.34	74.00	24.46	H
12571.500	48.38	-31.00	39.00	40.48	74.00	25.62	V
8301.500	43.47	-35.00	37.60	40.87	74.00	30.53	H
7985.000	42.20	-34.80	37.10	39.90	74.00	31.80	H
2389.800	63.41	-20.00	28.10	55.41	74.00	10.59	V

## Ch6

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
17951.000	52.40	-25.50	46.70	31.20	74.00	21.60	H
14528.000	48.83	-28.60	42.50	34.93	74.00	25.17	V
12571.000	48.80	-31.00	39.00	40.90	74.00	25.20	H
8159.000	42.87	-34.60	37.30	40.07	74.00	31.13	H
7987.000	42.78	-34.80	37.10	40.48	74.00	31.22	V
4976.500	38.86	-36.60	33.40	42.06	74.00	35.14	H

## Ch11

Frequency (MHz)	Measurement Result (dBμV/m)	Cable loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBμV)	Limit (dBμV/m)	Margin (dB)	Antenna Pol. (H/V)
17875.000	52.95	-25.50	46.70	31.75	74.00	21.05	H
14881.000	48.65	-28.60	40.80	36.45	74.00	25.35	H
12593.500	48.41	-31.00	39.00	40.51	74.00	25.59	V
8512.000	43.74	-34.10	37.90	40.04	74.00	30.26	V
7911.500	42.77	-34.90	37.10	40.57	74.00	31.23	V
2485.600	64.15	-20.00	28.30	55.85	74.00	9.85	V

Sample calculation: 802.11n CH11–Peak, 17875.000 MHz

$$\text{Peak ERP(dBm)} = P_{\text{Mea}}(31.75\text{dB}\mu\text{V/m}) + \text{Cable Loss}(-25.50) + \text{Antenna Factor}(46.70) = 52.95 \text{ dB}\mu\text{V/m}$$

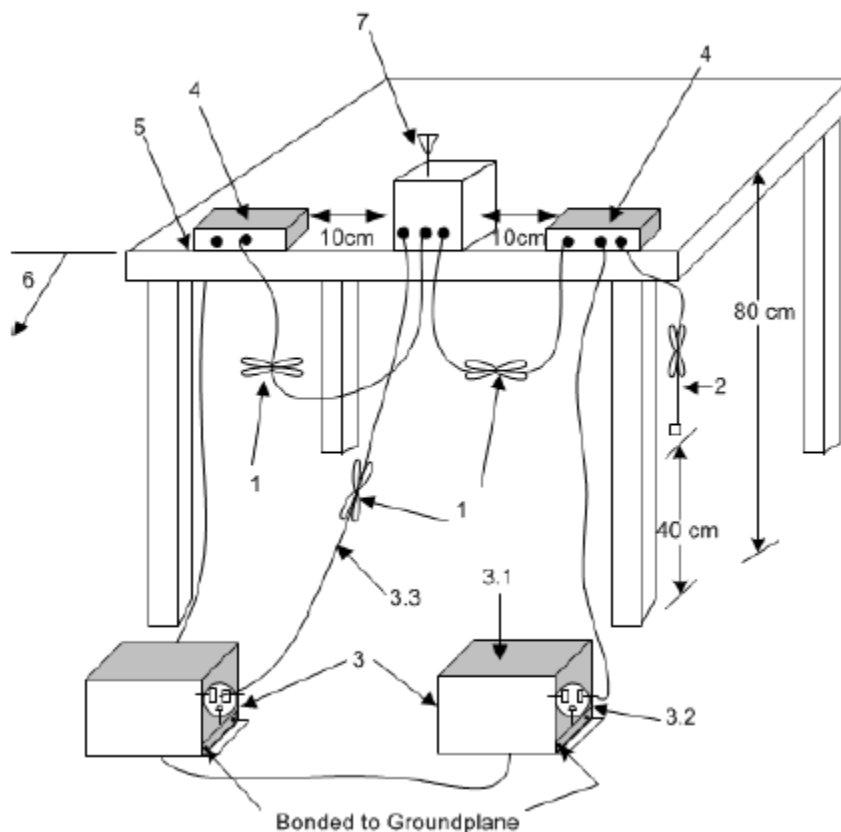
## **A.7. AC Power-line Conducted Emission**

**Method of Measurement: See ANSI C63.10-clause 6.2**

### **Setup:**

A stand-alone EUT shall be placed in the center along the back edge of the tabletop. For multiunit tabletop systems, the EUT shall be centered laterally (left to right facing the tabletop) on the tabletop and its rear shall be flush with the rear of the table.

Accessories that are part of an EUT system tested on a tabletop shall be placed in a test arrangement on one or both sides of the host with a 10 cm separation between the nearest points of the cabinets. The rear of the host and accessories shall be flush with the back of the supporting tabletop unless that would not be typical of normal use. If more than two accessories are present, then an equipment test arrangement shall be chosen that maintains 10 cm spacing between cabinets unless the equipment is normally located closer together.



### **Exploratory ac power-line conducted emission measurements**

Exploratory measurements shall be used to identify the frequency of the emission that has the highest amplitude relative to the limit by operating the EUT in a range of typical modes of operation, cable positions, and with a typical system equipment configuration and arrangement. For each mode of operation and for each ac power current-carrying conductor, cable manipulation shall be performed within the range of likely configurations. For this measurement or series of measurements, the frequency spectrum of interest shall be monitored looking for the emission that has the highest amplitude relative to the limit. Once that emission is found for each current-carrying conductor of each power cord associated with the EUT (but not the cords associated with non-EUT equipment in the overall system), the one configuration and

arrangement and mode of operation that produces the emission closest to the limit over all of the measured conductors shall be recorded.

#### Final ac power-line conducted emission measurements

Based on the exploratory tests of the EUT, the one EUT cable configuration and arrangement and mode of operation that produced the emission with the highest amplitude relative to the limit is selected for the final measurement, while applying the appropriate modulating signal to the EUT. If the EUT is relocated from an exploratory test site to a final test site, the highest emissions shall be remaximized at the final test location before final ac power-line conducted emission measurements are performed. The final test on all current-carrying conductors of all of the power cords to the equipment that comprises the EUT (but not the cords associated with other non-EUT equipment in the system) is then performed for the full frequency range for which the EUT is being tested for compliance without further variation of the EUT arrangement, cable positions, or EUT mode of operation. If the EUT is composed of equipment units that have their own separate ac power connections (e.g., floor-standing equipment with independent power cords for each shelf that are able to connect directly to the ac power network), then each current-carrying conductor of one unit is measured while the other units are connected to a second (or more) LISN(s). All units shall be measured separately. If a power strip is provided by the manufacturer, to supply all of the units making up the EUT, only the conductors in the power cord of the power strip shall be measured.

#### Test Condition:

Voltage (V)	Frequency (Hz)
120	60

#### Measurement Result and limit:

**Conclusion: Pass**

**EUT ID: EUT5**

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)		Conclusion
		With charger		
		802.11b	Idle	
0.15 to 0.5	66 to 56	Fig.A.7.1	Fig.A.7.2	P
0.5 to 5	56			
5 to 30	60			

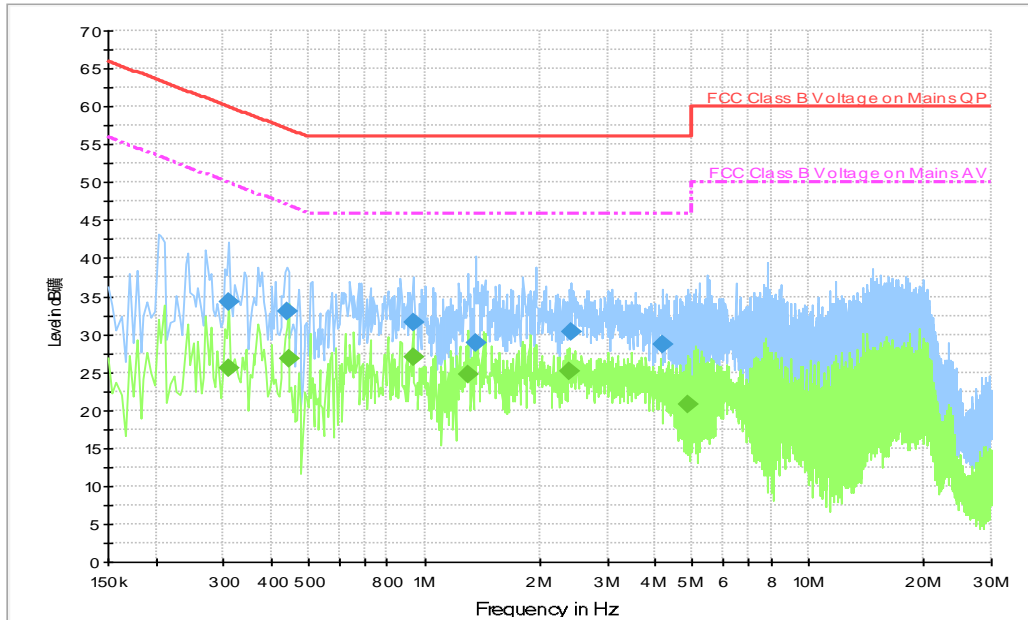
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

WLAN (Average Limit)

Frequency range (MHz)	Average Limit (dB $\mu$ V)	Result (dB $\mu$ V)		Conclusion
		With charger		
		802.11b	Idle	
0.15 to 0.5	56 to 46	Fig.A.7.1	Fig.A.7.2	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.

Test graphs as below:



**Fig.A.7.1 AC Powerline Conducted Emission-802.11b**

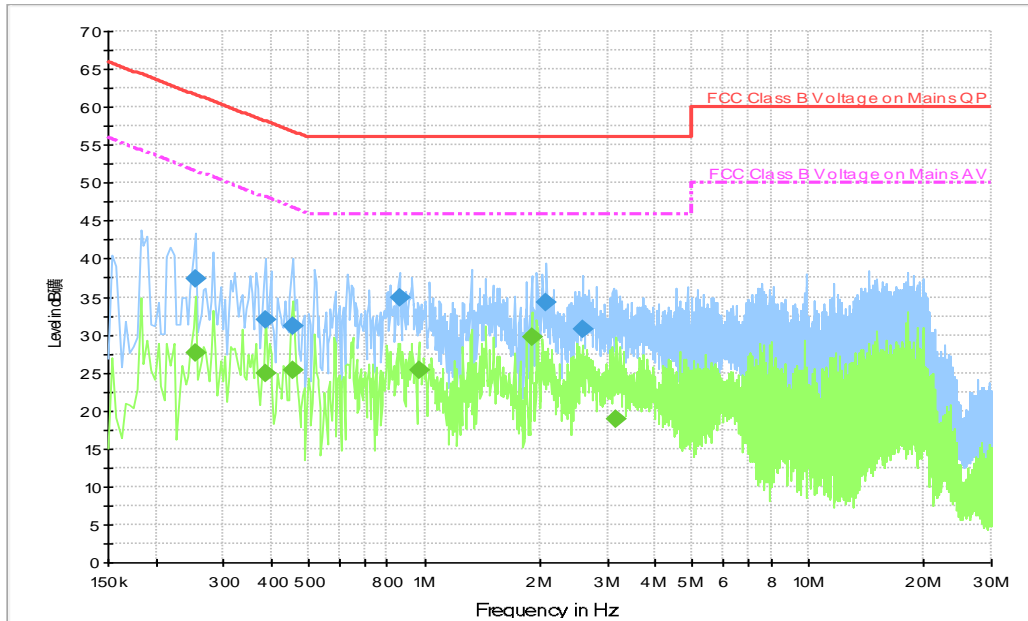
Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

**Final Result 1**

Frequency (MHz)	QuasiPeak (dB $\mu$ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)
0.310000	34.3	L1	19.8	25.7	60.0
0.438000	33.0	N	19.8	24.1	57.1
0.934000	31.6	N	19.6	24.4	56.0
1.362000	28.9	N	19.6	27.1	56.0
2.406000	30.3	N	19.7	25.7	56.0
4.166000	28.7	L1	19.6	27.3	56.0

**Final Result 2**

Frequency (MHz)	QuasiPeak (dB $\mu$ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)
0.310000	25.5	L1	19.8	24.5	50.0
0.442000	26.7	L1	19.8	20.3	47.0
0.934000	27.1	L1	19.7	18.9	46.0
1.302000	24.7	L1	19.7	21.3	46.0
2.394000	25.2	L1	19.6	20.8	46.0
4.878000	20.7	L1	19.6	25.3	46.0



**Fig.A.7.2 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)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.254000	37.4	L1	19.8	24.2	61.6
0.386000	32.1	L1	19.8	26.1	58.1
0.454000	31.2	L1	19.8	25.6	56.8
0.862000	34.9	L1	19.7	21.1	56.0
2.082000	34.2	N	19.7	21.8	56.0
2.578000	30.7	N	19.6	25.3	56.0

**Final Result 2**

Frequency (MHz)	QuasiPeak (dBμV)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.254000	27.6	L1	19.8	24.0	51.6
0.386000	25.0	L1	19.8	23.1	48.1
0.454000	25.3	L1	19.8	21.5	46.8
0.966000	25.3	L1	19.7	20.7	46.0
1.902000	29.7	L1	19.6	16.3	46.0
3.170000	18.9	N	19.6	27.1	46.0



## ANNEX B: EUT parameters

Disclaimer: The worse case provided by the client may affect the validity of the measurement results in this report, and the client shall bear the impact and consequences arising therefrom.

## ANNEX C: Accreditation Certificate



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