7.4. PEAK OUTPUT POWER

7.4.1. LIMITS

The maximum peak output power of the intentional radiator shall not exceed the following:

Report No.: C140429Z02-RP1

- 1. According to §15.247(b)(3), for systems using digital modulation in the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz: 1 Watt.
- 2. According to §15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

7.4.2. TEST INSTRUMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Last Calibration	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US44300399	03/01/2014	03/01/2015
Power Meter	Anritsu	ML2495A	1204003	03/01/2014	03/01/2015
Power Sensor	Anritsu	MA2411B	1126150	03/01/2014	03/01/2015

7.4.3. TEST PROCEDURES (please refer to measurement standard)

9.1.1 RBW ≥ DTS bandwidth

This procedure shall be used when the measurement instrument has available a resolution bandwidth that is greater than the *DTS* bandwidth.

- a) Set the RBW ≥ DTS bandwidth.
- b) Set VBW ≥ 3 RBW.
- c) Set span ≥ 3 x RBW
- d) Sweep time = auto couple.
- e) Detector = peak.
- f) Trace mode = max hold.
- g) Allow trace to fully stabilize.
- h) Use peak marker function to determine the peak amplitude level.

FCC ID: HLZA1401 Page 86 / 134



9.1.2 Integrated band power method

This procedure may be used when the maximum available RBW of the measurement instrument is less than the *DTS* bandwidth.

Report No.: C140429Z02-RP1

- a) Set the RBW = 1 MHz.
- b) Set the VBW ≥ 3 RBW
- c) Set the span \geq 1.5 x DTS bandwidth.
- d) Detector = peak.
- e) Sweep time = auto couple.
- f) Trace mode = max hold.
- g) Allow trace to fully stabilize.
- h) Use the instrument's band/channel power measurement function with the band limits set equal to the DTS bandwidth edges (for some instruments, this may require a manual override to select peak detector). If the instrument does not have a band power function, sum the spectrum levels (in linear power units) at intervals equal to the RBW extending across the DTS bandwidth.

9.1.3 PKPM1 Peak power meter method

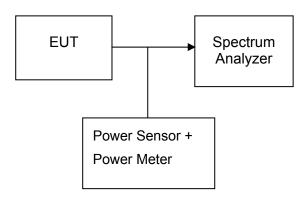
The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall utilize a fast-responding diode detector.

FCC ID: HLZA1401 Page 87 / 134



Report No.: C140429Z02-RP1

7.4.4. TEST SETUP



7.4.5. TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11b (Antenna 0)

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	16.33	0.04295		PASS
Mid	2437	16.31	0.04276	1	PASS
High	2462	16.53	0.04498		PASS

Test mode: IEEE 802.11b (Antenna 1)

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	15.32	0.03404		PASS
Mid	2437	16.41	0.04375	1	PASS
High	2462	15.94	0.03926		PASS

Test mode: IEEE 802.11g (Antenna 0)

		9 (2			
Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	19.92	0.09817		PASS
Mid	2437	19.76	0.09462	1	PASS
High	2462	19.62	0.09162		PASS

Test mode: IEEE 802.11g (Antenna 1)

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	18.62	0.07278		PASS
Mid	2437	19.32	0.08551	1	PASS
High	2462	19.76	0.09462		PASS

FCC ID: HLZA1401 Page 88 / 134



Report No.: C140429Z02-RP1

Test mode: IEEE 802.11n HT20 MHz (Combine with Antenna 0 and Antenna 1)

Channel	Frequency (MHz)	Output Power (dBm)			Output Power (W)		Result
		Antenna 0	Antenna 1	Total	(**)	(W)	
Low	2412	20.49	20.18	23.35	0.21618		PASS
Mid	2437	20.82	20.41	23.63	0.23068	1	PASS
High	2462	21.33	20.83	24.10	0.25689		PASS

Test mode: IEEE 802.11n HT20 MHz SISO (Antenna 0)

- 1	oot illoudi	Cot mode: IEEE GOE: THI TITES WITE GOO (Antomia G)										
	Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result						
	Low	2412	19.55	0.09016		PASS						
	Mid	2437	19.57	0.09057	1	PASS						
	High	2462	19.53	0.08974		PASS						

Test mode: IEEE 802.11n HT20 MHz SISO (Antenna 1)

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2412	18.46	0.07015		PASS
Mid	2437	19.29	0.08492	1	PASS
High	2462	19.57	0.09057		PASS

FCC ID: HLZA1401 Page 89 / 134



Report No.: C140429Z02-RP1

7.5. BAND EDGES MEASUREMENT

7.5.1. LIMITS

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)).

7.5.2. TEST INSTRUMENTS

	Radiated Eı	mission Test S	ite 966 (2)		
Name of Equipment	Manufacturer	Model Number	Serial Number	Last Calibration	Due Calibration
PSA Series Spectrum Analyzer	Agilent	E4446A	US44300399	03/01/2014	03/01/2015
EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI	100783	03/09/2014	03/08/2015
Amplifier	MITEQ	AM-1604-3000	1123808	03/18/2015	03/18/2015
High Noise Amplifier	Agilent	8449B	3008A01838	03/18/2015	03/18/2015
Board-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170-497	07/10/2013	07/09/2014
Bilog Antenna	SCHAFFNER	CBL6143	5082	03/01/2014	03/01/2015
Horn Antenna	SCHWARZBECK	BBHA9120	D286	03/01/2014	03/01/2015
Loop Antenna	COM-POWER	AL-130	121044	09/27/2013	09/26/2014
Turn Table	N/A	N/A	N/A	N.C.R	N.C.R
Controller	Sunol Sciences	SC104V	022310-1	N.C.R	N.C.R
Controller	СТ	N/A	N/A	N.C.R	N.C.R
Temp. / Humidity Meter	Anymetre	JR913	N/A	02/28/2014	02/28/2015
Antenna Tower	SUNOL	TLT2	N/A	N.C.R	N.C.R
Test S/W	FARAD		LZ-RF / CCS	S-SZ-3A2	

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

- 2. The FCC Site Registration number is 101879.
- 3. N.C.R = No Calibration Required.

FCC ID: HLZA1401 Page 90 / 134



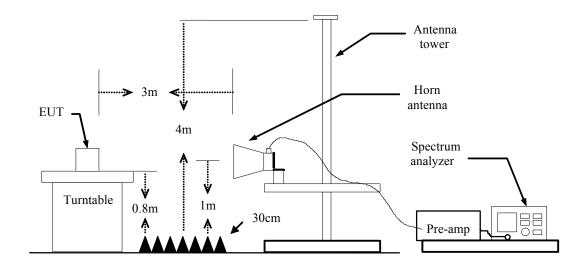
7.5.3. TEST PROCEDURES (please refer to measurement standard)

- 1. The EUT is placed on a turntable, which is 0.8m above the ground plane.
- 2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.

Report No.: C140429Z02-RP1

- 3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
- 4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
 - (a) PEAK: RBW=VBW=1MHz / Sweep=AUTO
 - (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO
- 5. Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are

7.5.4. TEST SETUP



FCC ID: HLZA1401 Page 91 / 134

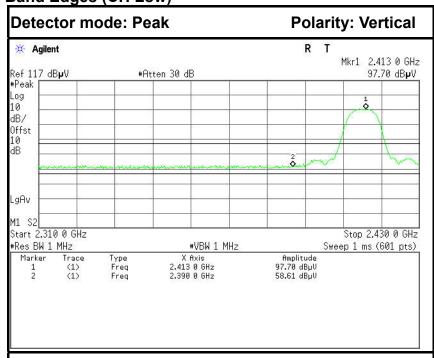
Report No.: C140429Z02-RP1

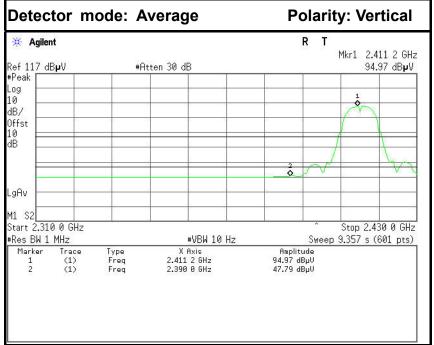
7.5.5. TEST RESULTS

Test Plot

IEEE 802.11b mode (Antenna 0)

Band Edges (CH Low)



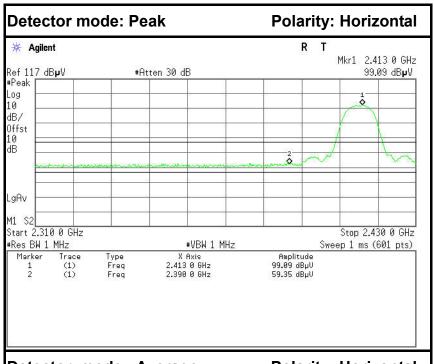


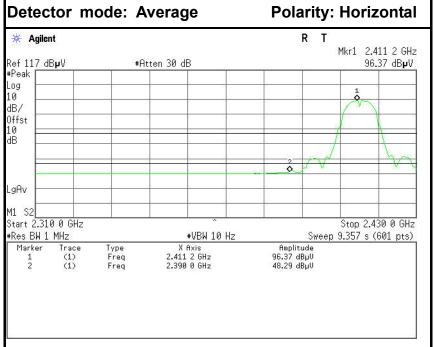
No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	52.01	-6.60	58.61	74.00	-15.39	Peak	Vertical
2	2390.0000	41.19	-6.60	47.79	54.00	-6.21	Average	Vertical

FCC ID: HLZA1401 Page 92 / 134



Report No.: C140429Z02-RP1



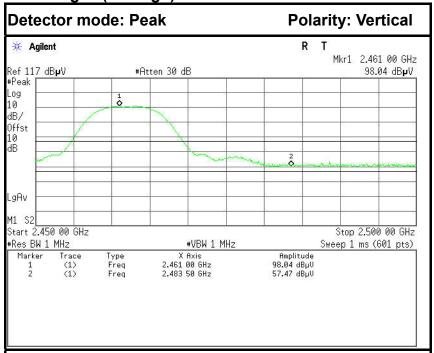


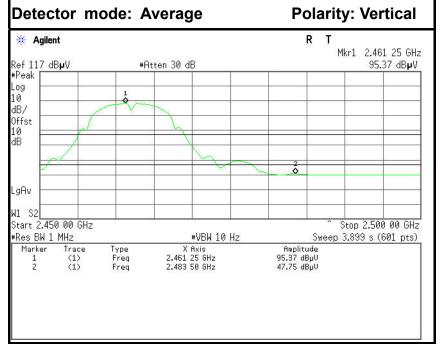
No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	52.75	-6.60	59.35	74.00	-14.65	Peak	Horizontal
2	2390.0000	41.69	-6.60	48.29	54.00	-5.71	Average	Horizontal

FCC ID: HLZA1401 Page 93 / 134

Report No.: C140429Z02-RP1

Band Edges (CH High)

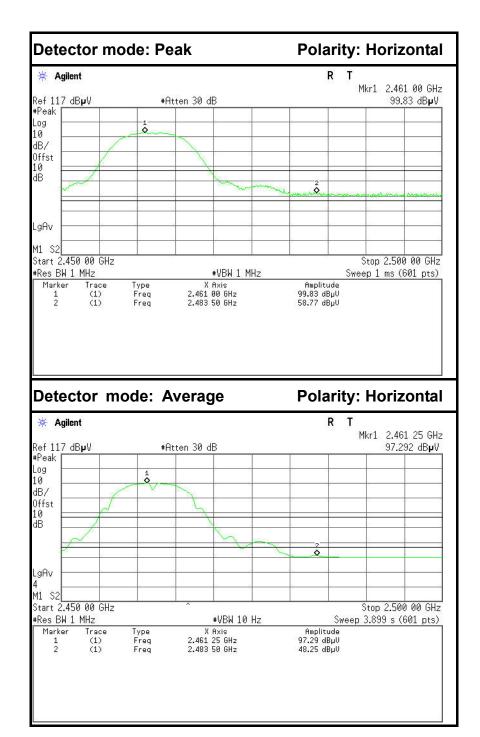




No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	51.23	-6.24	57.47	74.00	-16.53	Peak	Vertical
2	2483.5000	41.51	-6.24	47.75	54.00	-6.25	Average	Vertical

FCC ID: HLZA1401 Page 94 / 134

Report No.: C140429Z02-RP1



No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	52.53	-6.24	58.77	74.00	-15.23	Peak	Horizontal
2	2483.5000	42.01	-6.24	48.25	54.00	-5.75	Average	Horizontal

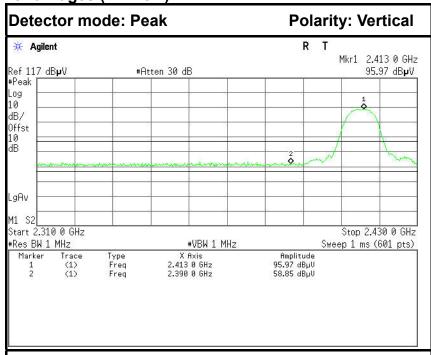
FCC ID: HLZA1401 Page 95 / 134

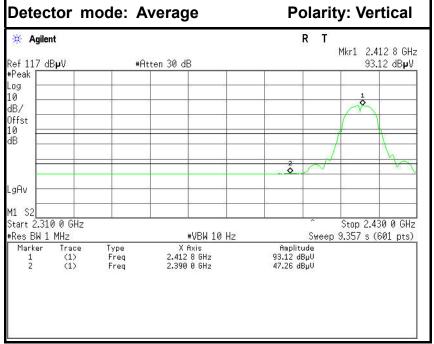


Report No.: C140429Z02-RP1

IEEE 802.11b mode (Antenna 1)

Band Edges (CH Low)

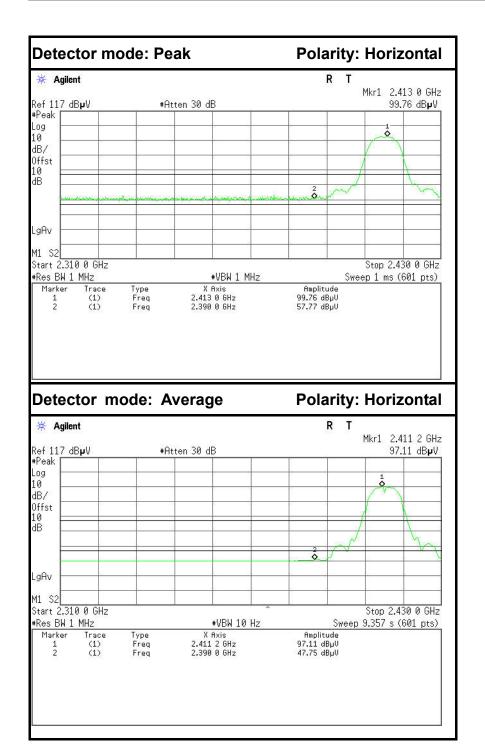




No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	52.25	-6.60	58.85	74.00	-15.15	Peak	Vertical
2	2390.0000	40.66	-6.60	47.26	54.00	-6.74	Average	Vertical

FCC ID: HLZA1401 Page 96 / 134

Report No.: C140429Z02-RP1

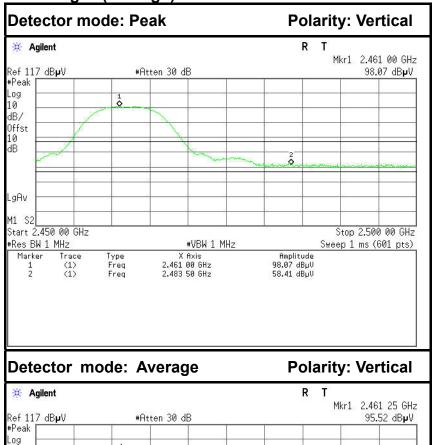


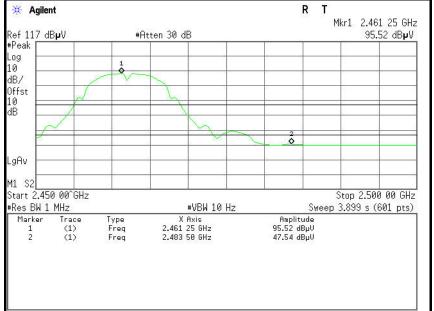
No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	51.17	-6.60	57.77	74.00	-16.23	Peak	Horizontal
2	2390.0000	41.15	-6.60	47.75	54.00	-6.25	Average	Horizontal

FCC ID: HLZA1401 Page 97 / 134

Report No.: C140429Z02-RP1



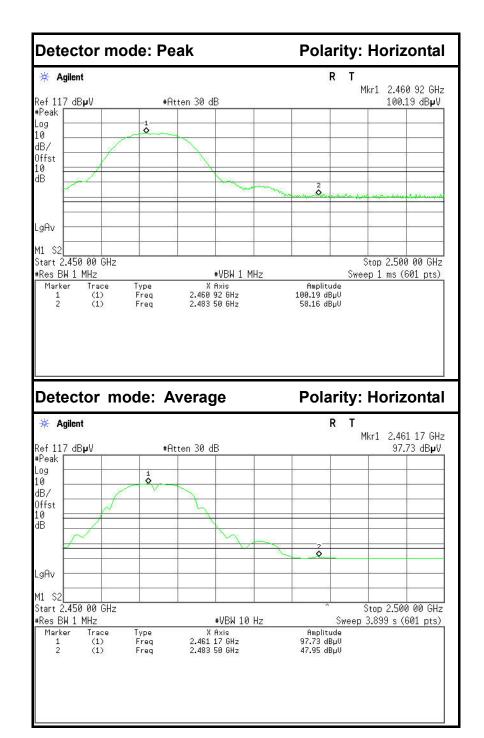




No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	52.17	-6.24	58.41	74.00	-15.59	Peak	Vertical
2	2483.5000	41.30	-6.24	47.54	54.00	-6.46	Average	Vertical

FCC ID: HLZA1401 Page 98 / 134





No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	51.92	-6.24	58.16	74.00	-15.84	Peak	Horizontal
2	2483.5000	41.71	-6.24	47.95	54.00	-6.05	Average	Horizontal

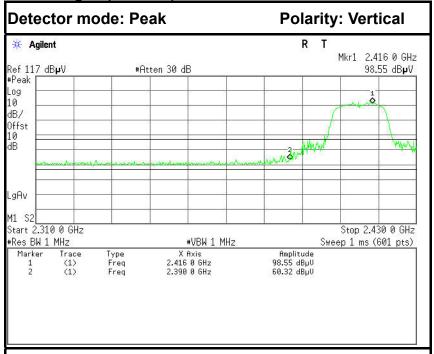
FCC ID: HLZA1401 Page 99 / 134

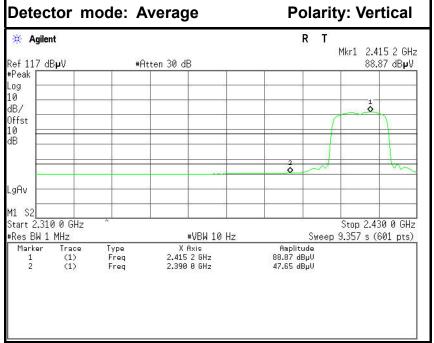


Report No.: C140429Z02-RP1

IEEE 802.11g mode (Antenna 0)

Band Edges (CH Low)



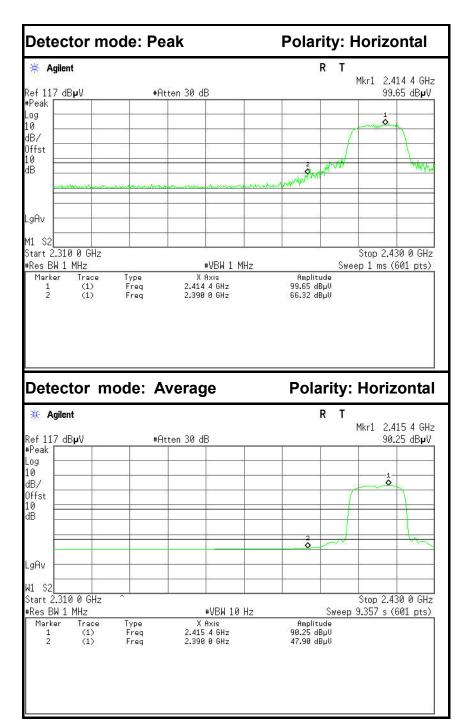


No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	53.72	-6.60	60.32	74.00	-13.68	Peak	Vertical
2	2390.0000	41.05	-6.60	47.65	54.00	-6.35	Average	Vertical

FCC ID: HLZA1401 Page 100 / 134



Report No.: C140429Z02-RP1

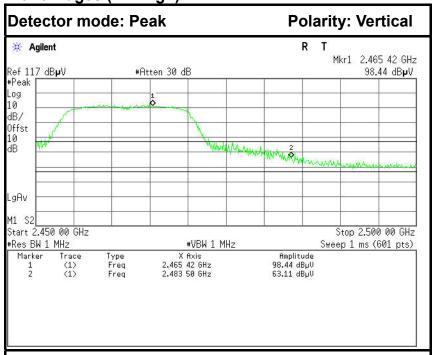


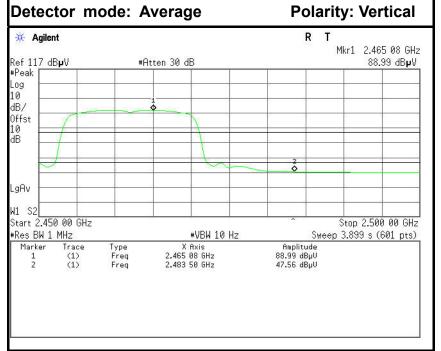
No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	59.72	-6.60	66.32	74.00	-7.68	Peak	Horizontal
2	2390.0000	41.30	-6.60	47.90	54.00	-6.10	Average	Horizontal

FCC ID: HLZA1401 Page 101 / 134

Report No.: C140429Z02-RP1

Band Edges (CH High)

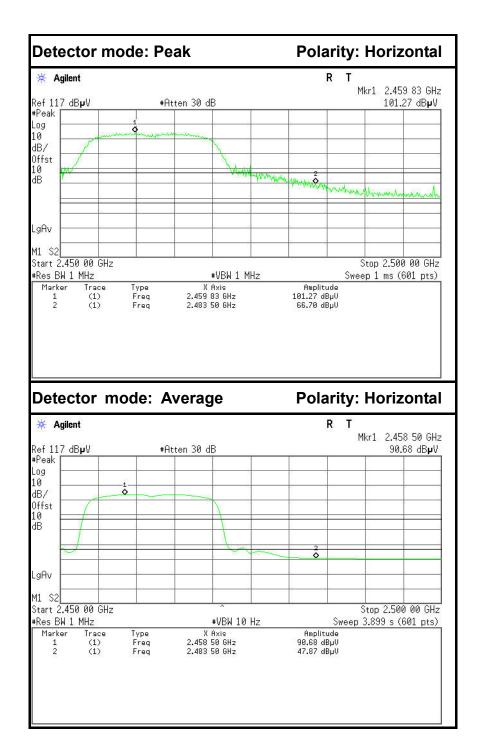




No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	56.87	-6.24	63.11	74.00	-10.89	Peak	Vertical
2	2483.5000	41.32	-6.24	47.56	54.00	-6.44	Average	Vertical

FCC ID: HLZA1401 Page 102 / 134

Report No.: C140429Z02-RP1



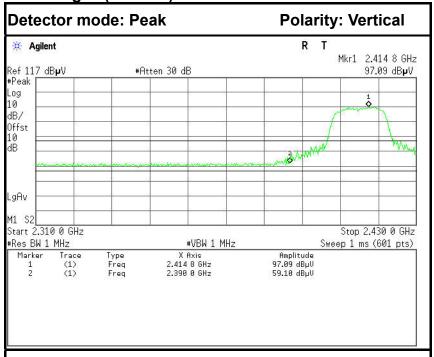
No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	60.46	-6.24	66.70	74.00	-7.30	Peak	Horizontal
2	2483.5000	41.63	-6.24	47.87	54.00	-6.13	Average	Horizontal

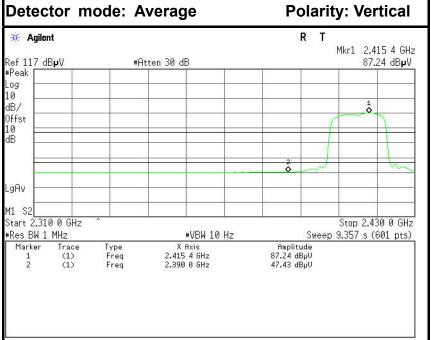
FCC ID: HLZA1401 Page 103 / 134

Report No.: C140429Z02-RP1

IEEE 802.11g mode (Antenna 1)

Band Edges (CH Low)



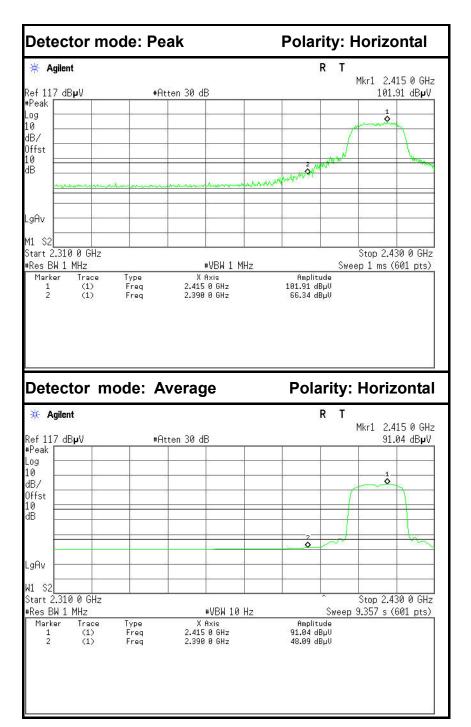


No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	52.50	-6.60	59.10	74.00	-14.90	Peak	Vertical
2	2390.0000	40.83	-6.60	47.43	54.00	-6.57	Average	Vertical

FCC ID: HLZA1401 Page 104 / 134



Report No.: C140429Z02-RP1

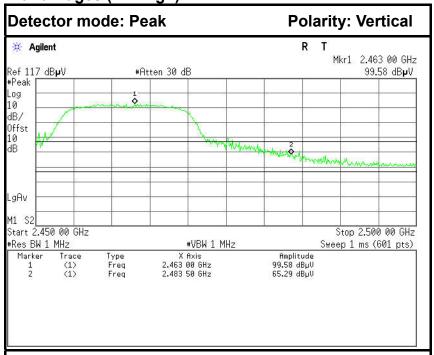


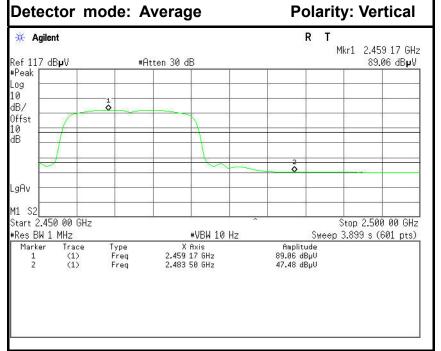
No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	59.74	-6.60	66.34	74.00	-7.66	Peak	Horizontal
2	2390.0000	41.49	-6.60	48.09	54.00	-5.91	Average	Horizontal

FCC ID: HLZA1401 Page 105 / 134

Report No.: C140429Z02-RP1

Band Edges (CH High)

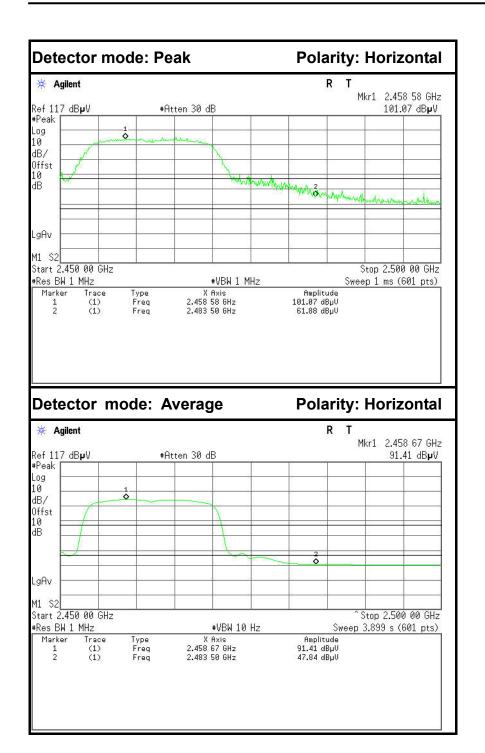




No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	59.05	-6.24	65.29	74.00	-8.71	Peak	Vertical
2	2483.5000	41.24	-6.24	47.48	54.00	-6.52	Average	Vertical

FCC ID: HLZA1401 Page 106 / 134

Report No.: C140429Z02-RP1



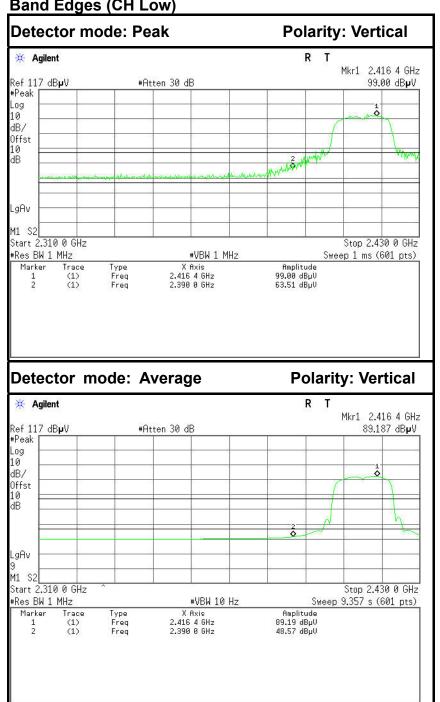
No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	55.64	-6.24	61.88	74.00	-12.12	Peak	Horizontal
2	2483.5000	41.60	-6.24	47.84	54.00	-6.16	Average	Horizontal

FCC ID: HLZA1401 Page 107 / 134

Report No.: C140429Z02-RP1

IEEE 802.11n HT20 MHz mode (Combine with Antenna 0 and Antenna 1)

Band Edges (CH Low)

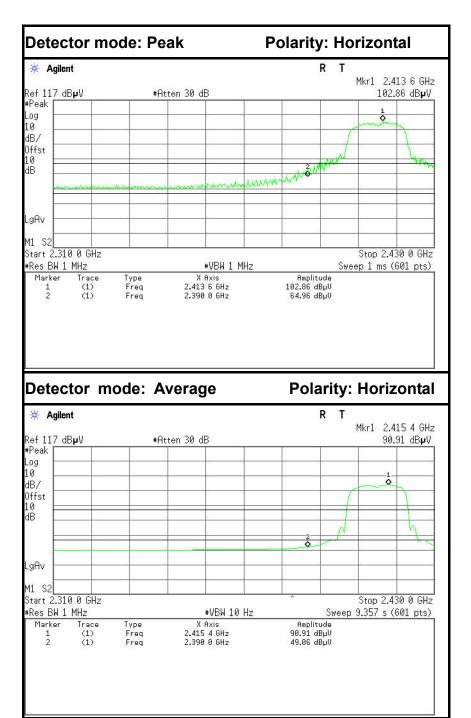


No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	56.91	-6.60	63.51	74.00	-10.49	Peak	Vertical
2	2390.0000	41.97	-6.60	48.57	54.00	-5.43	Average	Vertical

FCC ID: HLZA1401 Page 108 / 134



Report No.: C140429Z02-RP1



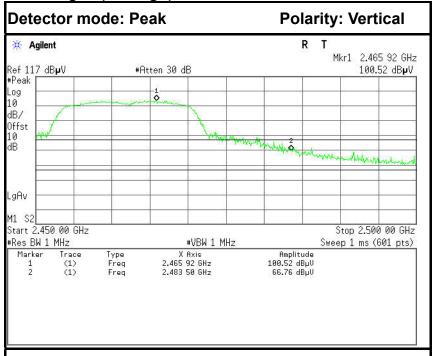
No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	58.36	-6.60	64.96	74.00	-9.04	Peak	Horizontal
2	2390.0000	42.46	-6.60	49.06	54.00	-4.94	Average	Horizontal

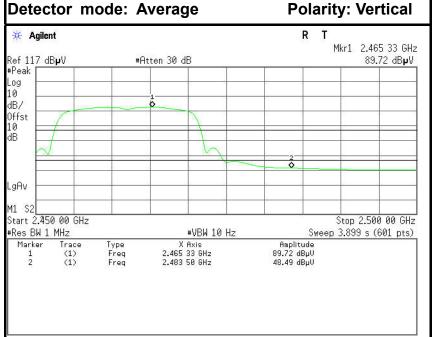
FCC ID: HLZA1401 Page 109 / 134



Report No.: C140429Z02-RP1

Band Edges (CH High)



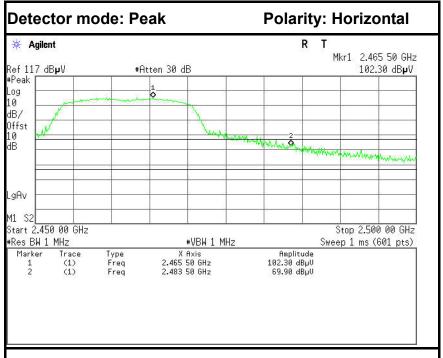


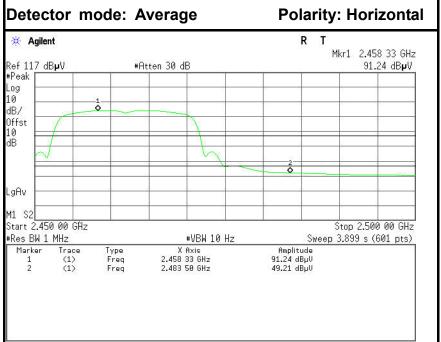
No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	60.52	-6.24	66.76	74.00	-7.24	Peak	Vertical
2	2483.5000	42.25	-6.24	48.49	54.00	-5.51	Average	Vertical

FCC ID: HLZA1401 Page 110 / 134



Report No.: C140429Z02-RP1





No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	63.66	-6.24	69.90	74.00	-4.10	Peak	Horizontal
2	2483.5000	42.97	-6.24	49.21	54.00	-4.79	Average	Horizontal

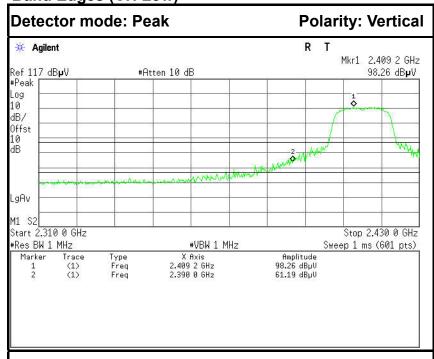
FCC ID: HLZA1401 Page 111 / 134

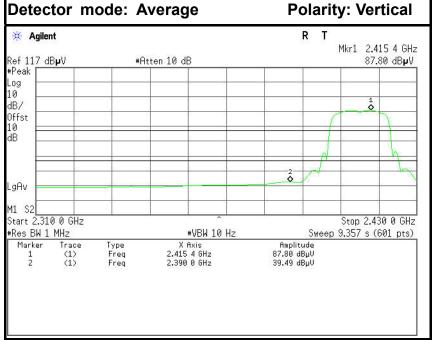


Report No.: C140429Z02-RP1

IEEE 802.11n HT20 MHz SISO mode (Antenna 0)

Band Edges (CH Low)



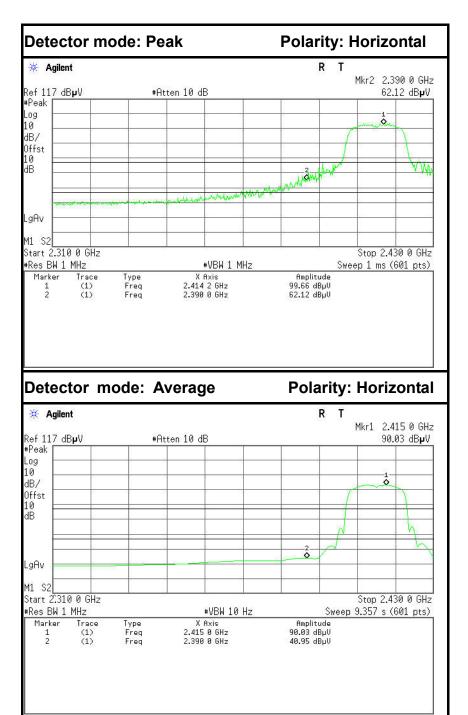


No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	54.59	-6.60	61.19	74.00	-12.81	Peak	Vertical
2	2390.0000	32.89	-6.60	39.49	54.00	-14.51	Average	Vertical

FCC ID: HLZA1401 Page 112 / 134



Report No.: C140429Z02-RP1

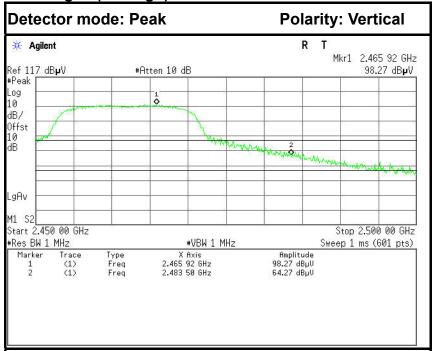


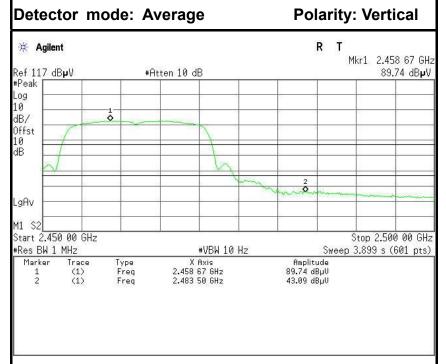
No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	55.52	-6.60	62.12	74.00	-11.88	Peak	Horizontal
2	2390.0000	34.35	-6.60	40.95	54.00	-13.05	Average	Horizontal

FCC ID: HLZA1401 Page 113 / 134

Report No.: C140429Z02-RP1

Band Edges (CH High)

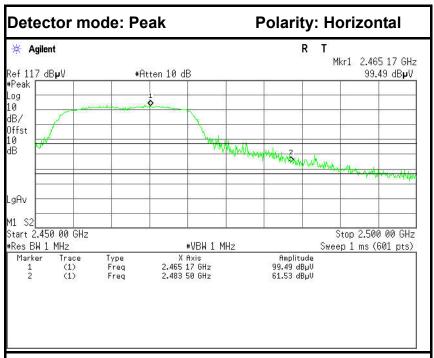


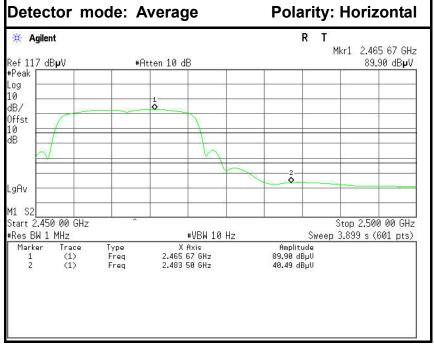


No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	58.03	-6.24	64.27	74.00	-9.73	Peak	Vertical
2	2483.5000	36.85	-6.24	43.09	54.00	-10.91	Average	Vertical

FCC ID: HLZA1401 Page 114 / 134

Report No.: C140429Z02-RP1





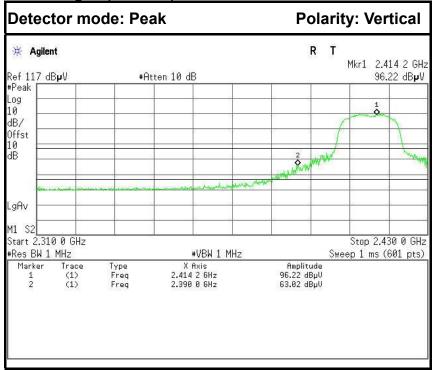
No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	55.29	-6.24	61.53	74.00	-12.47	Peak	Horizontal
2	2483.5000	34.25	-6.24	40.49	54.00	-13.51	Average	Horizontal

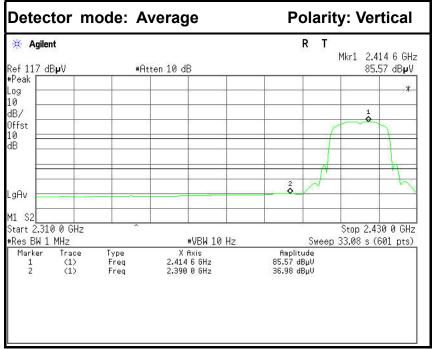
FCC ID: HLZA1401 Page 115 / 134

Report No.: C140429Z02-RP1

IEEE 802.11n HT20 MHz SISO mode (Antenna 1)

Band Edges (CH Low)



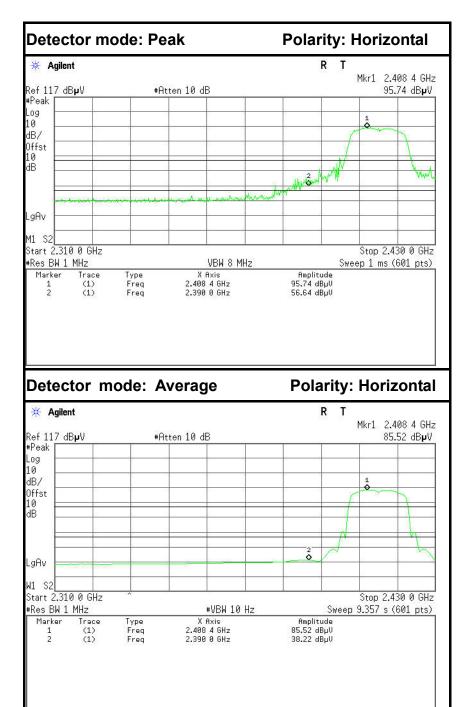


N	0.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	1	2390.0000	56.42	-6.60	63.02	74.00	-10.98	Peak	Vertical
2	2	2390.0000	30.38	-6.60	36.98	54.00	-17.02	Average	Vertical

FCC ID: HLZA1401 Page 116 / 134



Report No.: C140429Z02-RP1

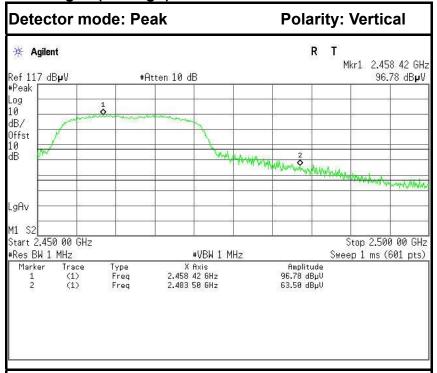


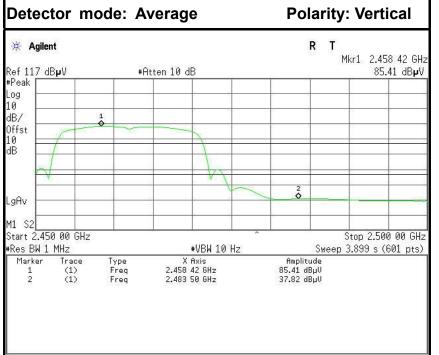
No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2390.0000	50.04	-6.60	56.64	74.00	-17.36	Peak	Horizontal
2	2390.0000	31.62	-6.60	38.22	54.00	-15.78	Average	Horizontal

FCC ID: HLZA1401 Page 117 / 134

Report No.: C140429Z02-RP1

Band Edges (CH High)

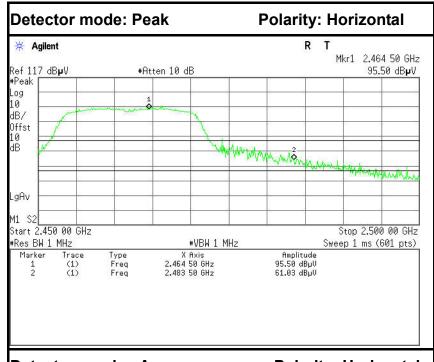


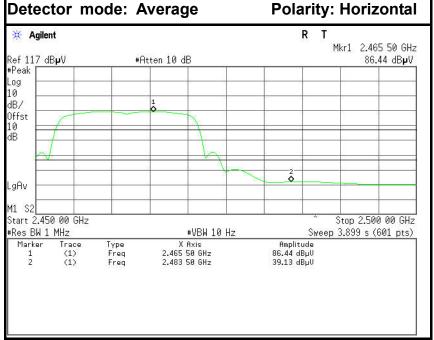


No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	57.26	-6.24	63.50	74.00	-10.50	Peak	Vertical
2	2483.5000	31.58	-6.24	37.82	54.00	-16.18	Average	Vertical

FCC ID: HLZA1401 Page 118 / 134

Report No.: C140429Z02-RP1





No.	Frequency (MHz)	Reading (dBuV)	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Antenna Pole
1	2483.5000	54.79	-6.24	61.03	74.00	-12.97	Peak	Horizontal
2	2483.5000	32.89	-6.24	39.13	54.00	-14.87	Average	Horizontal

FCC ID: HLZA1401 Page 119 / 134



Report No.: C140429Z02-RP1

7.6. PEAK POWER SPECTRAL DENSITY MEASUREMENT

7.6.1. LIMITS

According to §15.247(e), for digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

According to §15.247(f), the digital modulation operation of the hybrid system, with the frequency hopping turned off, shall comply with the power density requirements of paragraph (d) of this section.

7.6.2. TEST INSTRUMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Last Calibration	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US44300399	03/01/2014	03/01/2015

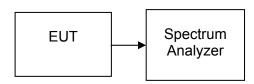
7.6.3. TEST PROCEDURES (please refer to measurement standard)

§15.247(e)specifies a conducted power spectral density (PSD) limit of 8 dBm in any 3 kHz band segment within the fundamental EBW during any time interval of continuous transmission. The same method as used to determine the conducted output power shall be used to determine the power spectral density (i.e.,if peak-detected fundamental power was measured then use the peak PSD procedure and if average fundamental power was measured then use the average PSD procedure).

10.2 Method PKPSD (peak PSD)

- 1. Set analyzer center frequency to DTS channel center frequency.
- 2. Set the span to 1.5 times the DTS bandwidth.
- 3. Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- 4. Set the VBW \geq 3 x RBW.
- 5. Detector = peak.
- 6. Sweep time = auto couple.
- 7. Trace mode = max hold.
- 8. Allow trace to fully stabilize.
- 9. Use the peak marker function to determine the maximum amplitude level within the RBW.
- 10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

7.6.4. TEST SETUP



FCC ID: HLZA1401 Page 120 / 134



Report No.: C140429Z02-RP1

7.6.5. TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11b (Antenna 0)

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Test Result
Low	2412	-9.17		PASS
Mid	2437	-8.67	8	PASS
High	2462	-8.69		PASS

Test mode: IEEE 802.11b (Antenna 1)

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Test Result
Low	2412	-8.51		PASS
Mid	2437	-7.87	8	PASS
High	2462	-7.90		PASS

Test mode: IEEE 802.11g (Antenna 0)

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Test Result
Low	2412	-12.40		PASS
Mid	2437	-12.50	8	PASS
High	2462	-12.41		PASS

Test mode: IEEE 802.11g (Antenna 1)

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Test Result
Low	2412	-19.22		PASS
Mid	2437	-19.80	8	PASS
High	2462	-18.93		PASS

FCC ID: HLZA1401 Page 121 / 134



Report No.: C140429Z02-RP1

Test mode: IEEE 802.11n HT20 MHz (Combine with Antenna 0 and Antenna 1)

Channel	Frequency (MHz)	PPSD (dBm)			Limit (dBm)	Test Result
		Antenna 0	Antenna 1	Total	(abiii)	
Low	2412	-13.13	-11.03	-8.94		PASS
Mid	2437	-12.51	-12.00	-9.24	8	PASS
High	2462	-11.56	-11.76	-8.65		PASS

Test mode: IEEE 802.11n HT20 MHz SISO (Antenna 0)

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Test Result
Low	2412	-18.00		PASS
Mid	2437	-15.91	8	PASS
High	2462	-14.81		PASS

Test mode: IEEE 802.11n HT20 MHz SISO (Antenna 1)

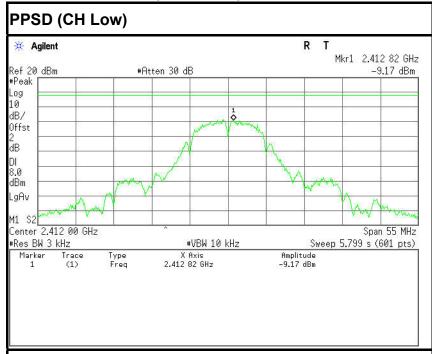
Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Test Result
Low	2412	-16.00		PASS
Mid	2437	-14.60	8	PASS
High	2462	-14.33		PASS

FCC ID: HLZA1401 Page 122 / 134

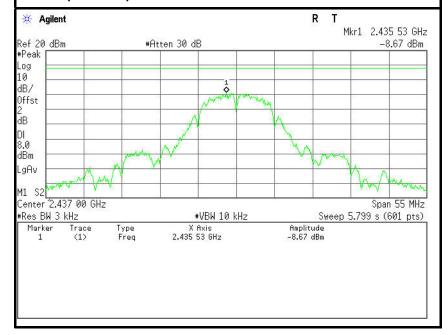
Report No.: C140429Z02-RP1

Test Plot

IEEE 802.11b mode (Antenna 0)



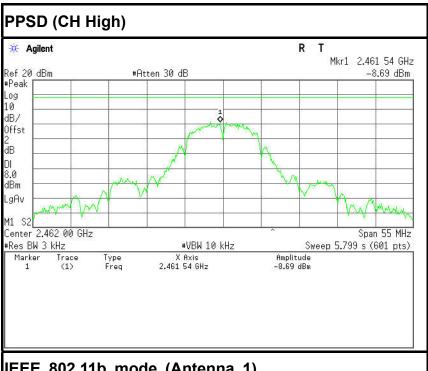
PPSD (CH Mid)



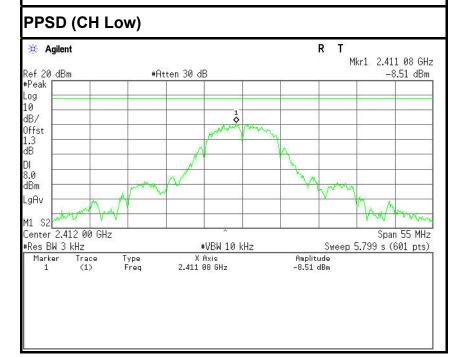
FCC ID: HLZA1401 Page 123 / 134



Report No.: C140429Z02-RP1

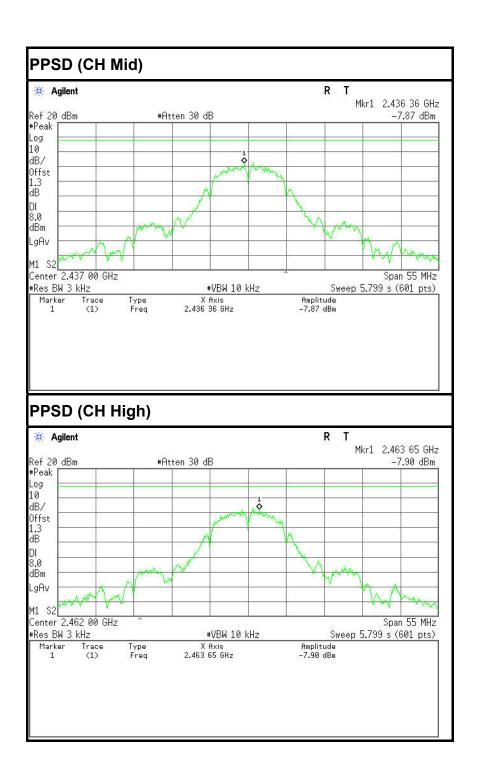


IEEE 802.11b mode (Antenna 1)



FCC ID: HLZA1401 Page 124 / 134

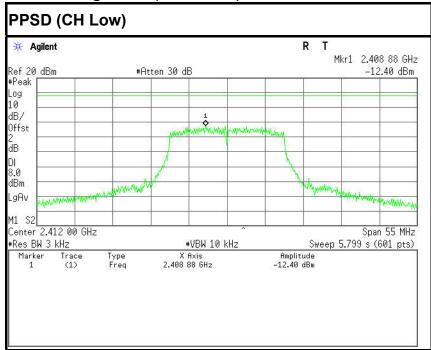
Report No.: C140429Z02-RP1



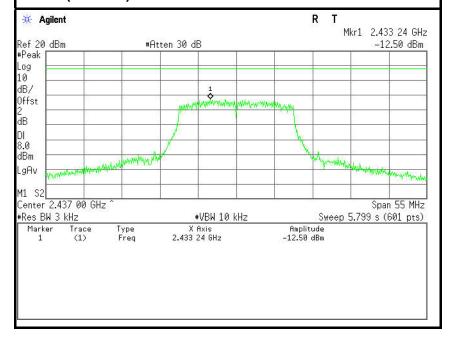
FCC ID: HLZA1401 Page 125 / 134 This report shall not be reproduced except in full, without the written approval of Compliance Certification Services.

Report No.: C140429Z02-RP1

IEEE 802.11g mode (Antenna 0)



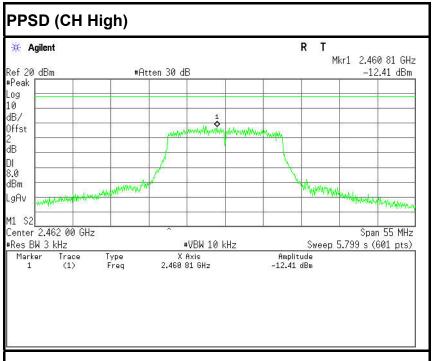
PPSD (CH Mid)



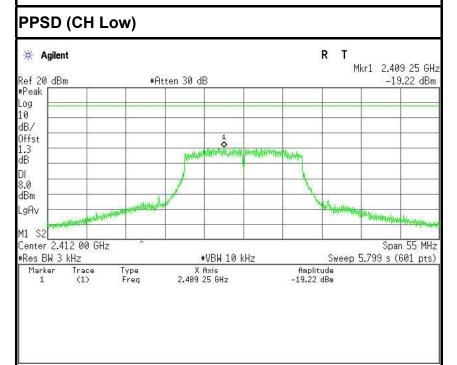
FCC ID: HLZA1401 Page 126 / 134



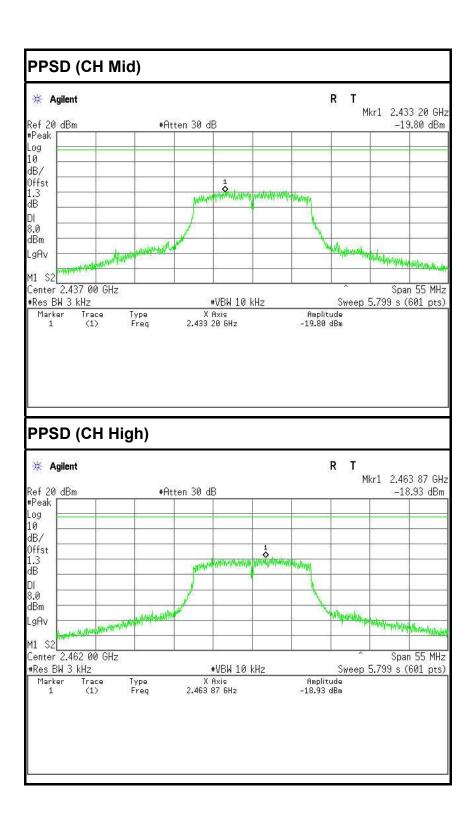
Report No.: C140429Z02-RP1



IEEE 802.11g mode (Antenna 1)



Report No.: C140429Z02-RP1

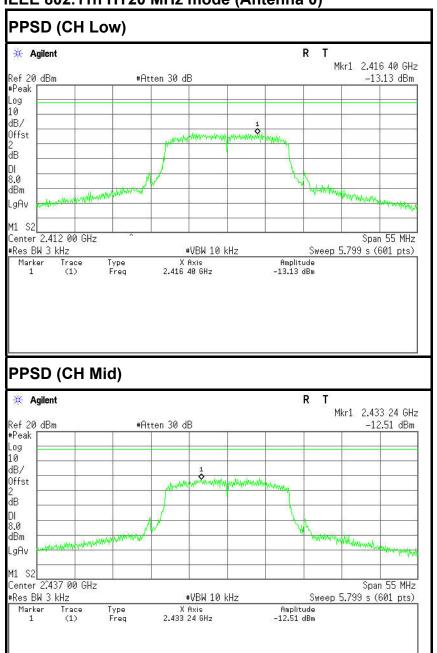


FCC ID: HLZA1401 Page 128 / 134



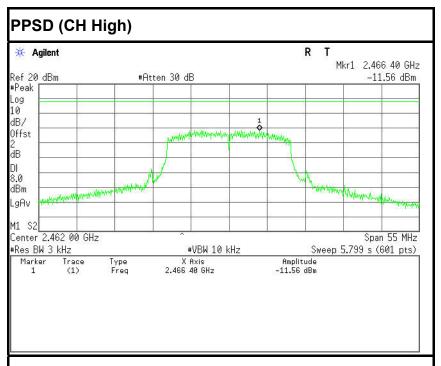
Report No.: C140429Z02-RP1

IEEE 802.11n HT20 MHz mode (Antenna 0)

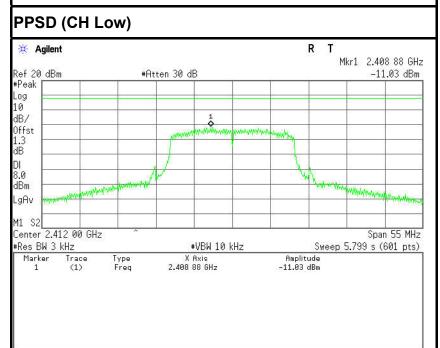




Report No.: C140429Z02-RP1

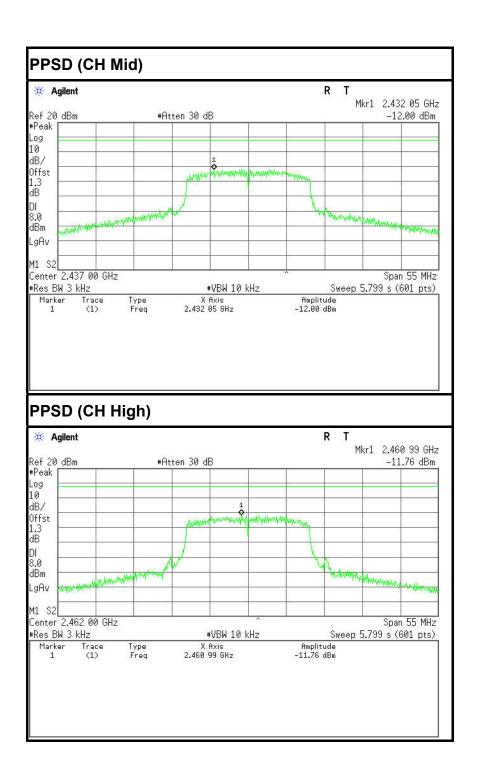


IEEE 802.11n HT20 MHz mode (Antenna 1)



FCC ID: HLZA1401 Page 130 / 134

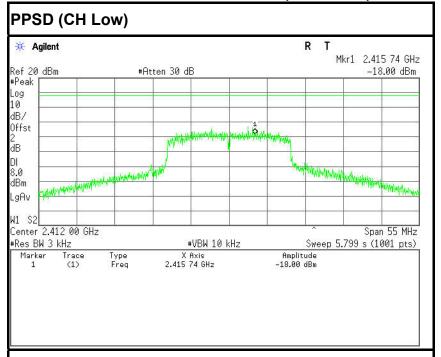
Report No.: C140429Z02-RP1



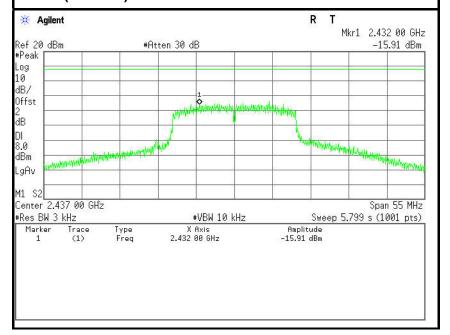
FCC ID: HLZA1401 Page 131 / 134 This report shall not be reproduced except in full, without the written approval of Compliance Certification Services.

Report No.: C140429Z02-RP1

IEEE 802.11n HT20 MHz SISO mode (Antenna 0)



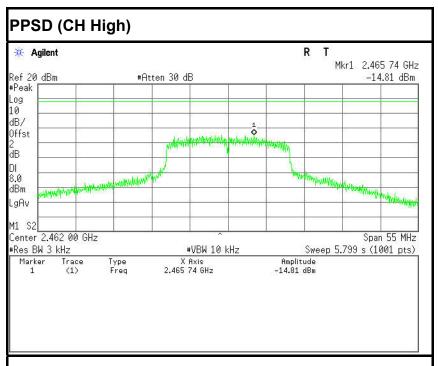
PPSD (CH Mid)



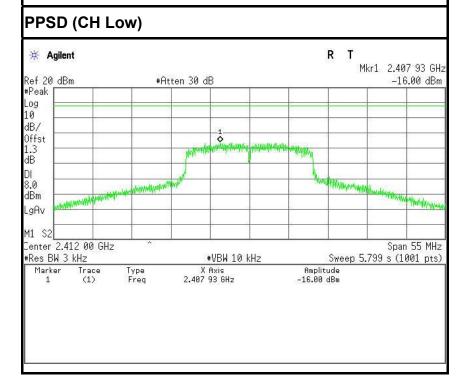
FCC ID: HLZA1401 Page 132 / 134



Report No.: C140429Z02-RP1

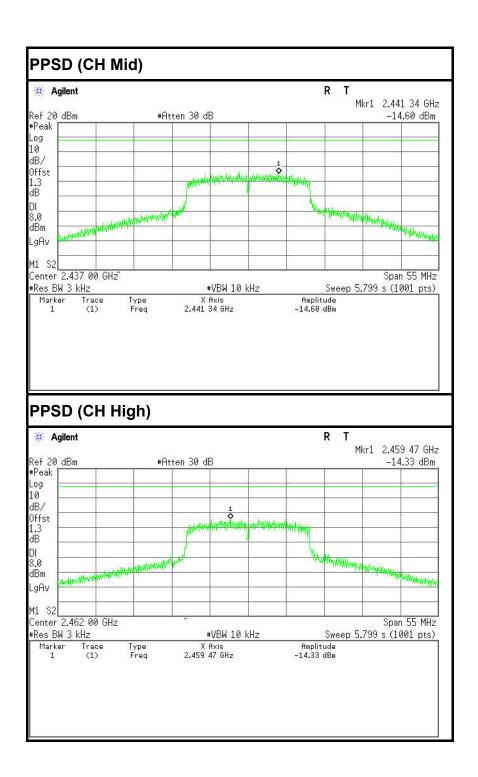


IEEE 802.11n HT20 MHz SISO mode (Antenna 1)



FCC ID: HLZA1401 Page 133 / 134

Report No.: C140429Z02-RP1



FCC ID: HLZA1401 Page 134 / 134
This report shall not be reproduced except in full, without the written approval of Compliance Certification Services.