



A Test Lab Techno Corp.

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MPE Report

Test Report No.	: 1803FS12-01
Applicant	: Datto, Inc.
Product Type	: WiFi Access Point
Trade Name	: Open Mesh, Inc. Datto, Inc.
Model Number	: A62, AP62
Date of Received	: Oct. 17, 2017
Test Period	: Jan. 15 ~ Jan. 25, 2018
Date of Issued	: Apr. 16, 2018
Test Specification	: ANSI / IEEE Std.C95.1-1992 / IEEE Std. 1528-2013 47 CFR § 2.1091 47 CFR § 1.1310
Location of Test Lab.	: Chang-an Lab.

1. The test operations have to be performed with cautious behavior, the test results are as attached.
2. The test results are under chamber environment of A Test Lab Techno Corp. A Test Lab Techno Corp. does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples.
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(Yung Tan Tsai)

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(Eric Chao)



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1. Description of Equipment under Test (EUT)

Applicant	Datto, Inc. 101 Merritt 7 Norwalk, CT 06851, United States				
Manufacturer	Datto, Inc. 101 Merritt 7 Norwalk, CT 06851, United States				
Product Type	WiFi Access Point				
Trade Name	Open Mesh, Inc. Datto, Inc.				
Model Number	A62, AP62				
Trade Name / Model Number Different Description	Those trade names & model numbers differ from each other in selling region. (A62 for Open Mesh apply, AP62 for Datto apply)				
FCC ID	WT8DNWAP62				
Frequency Range	Operate Band			Frequency Range (MHz)	
	IEEE 802.11b / 802.11g IEEE 802.11n 2.4GHz 20MHz (256QAM)			2412 - 2462	
	IEEE 802.11n 2.4GHz 40 MHz (256QAM)			2422 - 2452	
	IEEE 802.11a U-NII Band I			5180 - 5240	
	IEEE 802.11a U-NII Band III			5745 - 5825	
	IEEE 802.1ac / 802.11n 5GHz 20MHz U-NII Band I			5180 - 5240	
	IEEE 802.1ac / 802.11n 5GHz 20MHz U-NII Band III			5745 - 5825	
	IEEE 802.1ac / 802.11n 5GHz 40MHz U-NII Band I			5190 - 5230	
	IEEE 802.1ac / 802.11n 5GHz 40MHz U-NII Band III			5755 - 5795	
	IEEE 802.11ac 80MHz U-NII Band I			5210	
	IEEE 802.11ac 80MHz U-NII Band III			5775	
Antenna Information	Antenn a	Model	Type	Max. Gain (dBi)	
	ANT-0	6525A0041300	PIFA Antenna	U-NII Band I	3.60
	ANT-1	6525A0041300	PIFA Antenna	U-NII Band I	4.40
	ANT-0	6525A0042300	PIFA Antenna	2.4GHz	4.10
				U-NII Band III	4.20
	ANT-1	6525A0042300	PIFA Antenna	2.4GHz	2.90
				U-NII Band III	4.10
	Directional Gain			2.4GHz	6.53
				U-NII Band I	7.02
U-NII Band III				7.16	
Antenna Delivery	2TX (MIMO/Beamforming on)				
RF Evaluation	0.705 mW/cm ²				
Temperature Range	0 ~ +50°C				

The above equipment was tested by A Test Lab Techno Corp. For compliance with the requirements set forth in 47 CFR § 2.1091 / 47 CFR § 1.1310. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties



2. Human Exposure Assessment

Due to the design and installation of this product, it is not possible to conduct SAR evaluation. This is because client either manufactures or supplies the antenna(s) that will be used in the installation of this product. Therefore, this product will be evaluated as a mobile device per 47 CFR § 1.1310 titled "Radiofrequency radiation exposure limits", generally referred to as MPE limits.

In 47 CFR § 2.1091, paragraph (b) defines a mobile device as "a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 cm is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. " This product is intended to be installed into a vehicle such that the unit is physically secured at one location. In the installation guide supplied with the product,

Client has made the following statement: "IMPORTANT: To meet the FCC's RF Exposure Guidelines, the antenna should be installed so there is at least 20 cm of separation between the body of the user and nearby persons and the antenna". Based on the installation of the transceiver and the antenna, the transmitters radiating structure is more than 20 cm from the user. Thus, this product is a "mobile device" as defined in section § 2.1091 paragraph (b).

Exposure evaluation

$$S = \frac{PG}{4\pi R^2}$$

Where

S: power density

P: power input to the antenna

G: power gain of the antenna in the direction of interest relative to an isotropic radiator.

R: distance to the center of radiation of the antenna.

3. RF Output Power

The conducted power turn-up tolerance reference manufacturer specification.

Band	Data Rate (Mbps)	Frequency (MHz)	Average Conducted power (dBm)		
			ANT-0	ANT-1	ANT-0+1
IEEE 802.11b	1	2412.0	24.02	23.62	26.83
		2437.0	24.10	24.21	27.17
		2462.0	23.22	23.44	26.34
	2	2437.0	24.05	24.14	27.11
	5.5	2437.0	24.08	24.13	27.12
	11	2437.0	23.98	24.10	27.05
IEEE 802.11g	6	2412.0	19.03	18.79	21.92
		2437.0	24.08	23.60	26.86
		2462.0	19.14	19.29	22.23
	9	2437.0	24.00	23.56	26.80
	12	2437.0	23.98	23.54	26.78
	18	2437.0	23.85	23.50	26.69
	24	2437.0	23.91	23.42	26.68
	36	2437.0	23.86	23.48	26.68
	48	2437.0	23.80	23.40	26.61
IEEE 802.11n 2.4GHz 20MHz	13	2412.0	18.99	18.77	21.89
		2437.0	24.05	23.65	26.86
		2462.0	18.27	18.44	21.37
	28.8	2437.0	24.04	23.62	26.85
	43.4	2437.0	24.00	23.63	26.83
	57.8	2437.0	23.93	23.55	26.75
	86.6	2437.0	23.91	23.51	26.72
	115.6	2437.0	23.97	23.54	26.77
	130	2437.0	23.90	23.48	26.71
	144.4	2437.0	23.84	23.46	26.66
	173.4	2437.0	23.81	23.39	26.62
IEEE 802.11n 2.4GHz 40MHz	27	2422.0	17.09	16.70	19.91
		2437.0	19.41	19.57	22.50
		2452.0	16.64	16.86	19.76
	60	2437.0	19.36	19.56	22.47
	90	2437.0	19.33	19.50	22.43
	120	2437.0	19.28	19.47	22.39
	180	2437.0	19.30	19.42	22.37
	240	2437.0	19.21	19.45	22.34
	270	2437.0	19.19	19.40	22.31
	300	2437.0	19.24	19.32	22.29
	360	2437.0	19.15	19.35	22.26
	400	2437.0	19.13	19.33	22.24

Note: The relevant measured result has the offset with cable loss already.

Band	Data Rate (Mbps)	Frequency (MHz)	Average Conducted power (dBm)		
			ANT-0	ANT-1	ANT-0+1
IEEE 802.11a	6	5180.0	19.50	20.60	23.10
		5200.0	19.75	20.65	23.23
		5220.0	20.55	19.81	23.21
		5240.0	20.53	19.53	23.07
		5745.0	19.74	19.99	22.88
		5765.0	19.61	20.00	22.82
		5785.0	19.60	20.06	22.85
		5805.0	19.62	20.03	22.84
		5825.0	19.77	19.90	22.85
	54	5180.0	19.37	20.40	22.93
		5200.0	19.55	20.52	23.07
		5220.0	20.28	19.61	22.97
		5240.0	20.28	19.22	22.79
		5745.0	19.53	19.62	22.59
		5765.0	19.43	19.75	22.60
		5785.0	19.35	19.81	22.60
		5805.0	19.36	19.74	22.56
		5825.0	19.50	19.62	22.57
IEEE 802.11ac 20MHz	13	5180.0	19.77	20.60	23.22
		5200.0	19.89	20.75	23.35
		5220.0	20.75	20.03	23.42
		5240.0	20.43	19.63	23.06
		5745.0	18.87	19.85	22.40
		5765.0	18.68	19.80	22.29
		5785.0	19.50	19.90	22.71
		5805.0	19.55	19.88	22.73
		5825.0	19.50	19.78	22.65
	173.4	5180.0	19.50	20.26	22.91
		5200.0	19.61	20.53	23.10
		5220.0	20.53	19.78	23.18
		5240.0	20.17	19.45	22.84
		5745.0	18.56	19.63	22.14
		5765.0	18.50	19.58	22.08
		5785.0	19.16	19.64	22.42
		5805.0	19.29	19.60	22.46
		5825.0	19.28	19.57	22.44

Note: The relevant measured result has the offset with cable loss already.

Band	Data Rate (Mbps)	Frequency (MHz)	Average Conducted power (dBm)		
			ANT-0	ANT-1	ANT-0+1
IEEE 802.11ac 40MHz	27	5190.0	18.55	18.45	21.51
		5230.0	20.54	19.74	23.17
		5755.0	19.90	20.28	23.10
		5795.0	20.01	20.30	23.17
	400	5190.0	18.33	18.22	21.29
		5230.0	20.27	19.50	22.91
		5755.0	19.69	20.00	22.86
		5795.0	19.83	19.99	22.92
IEEE 802.11ac 80MHz	58.6	5210.0	17.05	16.93	20.00
		5775.0	19.63	19.87	22.76
	866.6	5210.0	16.87	16.77	19.83
		5775.0	19.41	19.60	22.52

Note: The relevant measured result has the offset with cable loss already.

Beamforming on

Band	Data Rate (Mbps)	Frequency (MHz)	Average Conducted power (dBm)		
			ANT-0	ANT-1	ANT-0+1
IEEE 802.11b	1	2412.0	20.58	20.15	23.38
		2437.0	20.75	20.76	23.77
		2462.0	19.86	19.94	22.91
	2	2437.0	20.72	20.74	23.74
	5.5	2437.0	20.70	20.72	23.72
	11	2437.0	20.65	20.67	23.67
IEEE 802.11g	6	2412.0	15.84	15.48	18.67
		2437.0	20.61	20.50	23.57
		2462.0	15.89	16.16	19.04
	9	2437.0	20.58	20.47	23.54
	12	2437.0	20.52	20.42	23.48
	18	2437.0	20.43	20.40	23.43
	24	2437.0	20.44	20.34	23.40
	36	2437.0	20.40	20.28	23.35
	48	2437.0	20.35	20.23	23.30
	54	2437.0	20.33	20.30	23.33
IEEE 802.11n 2.4GHz 20MHz	13	2412.0	15.67	15.38	18.54
		2437.0	20.52	20.51	23.53
		2462.0	14.88	15.18	18.04
	28.8	2437.0	20.50	20.48	23.50
	43.4	2437.0	20.48	20.42	23.46
	57.8	2437.0	20.42	20.33	23.39
	86.6	2437.0	20.34	20.38	23.37
	115.6	2437.0	20.36	20.30	23.34
	130	2437.0	20.38	20.28	23.34
	144.4	2437.0	20.28	20.21	23.26
IEEE 802.11n 2.4GHz 40MHz	27	2422.0	13.88	13.64	16.77
		2437.0	16.03	16.20	19.13
		2452.0	13.48	13.82	16.66
	60	2437.0	16.00	16.18	19.10
	90	2437.0	15.99	16.11	19.06
	120	2437.0	15.93	16.07	19.01
	180	2437.0	15.81	15.90	18.87
	240	2437.0	15.89	16.03	18.97
	270	2437.0	15.83	15.98	18.92
	300	2437.0	15.78	15.90	18.85
	360	2437.0	15.73	15.83	18.79
	400	2437.0	15.67	15.77	18.73

Note: The relevant measured result has the offset with cable loss already.

Band	Data Rate (Mbps)	Frequency (MHz)	Average Conducted power (dBm)		
			ANT-0	ANT-1	ANT-0+1
IEEE 802.11a	6	5180.0	16.51	16.67	19.60
		5200.0	16.71	16.73	19.73
		5220.0	17.20	17.12	20.17
		5240.0	16.83	16.79	19.82
		5745.0	16.46	16.60	19.54
		5765.0	16.35	16.62	19.50
		5785.0	16.42	16.66	19.55
		5805.0	16.49	16.67	19.59
		5825.0	16.52	16.88	19.71
	54	5180.0	16.28	16.40	19.35
		5200.0	16.53	16.50	19.53
		5220.0	16.94	16.83	19.90
		5240.0	16.62	16.58	19.61
		5745.0	16.25	16.33	19.30
		5765.0	16.12	16.36	19.25
		5785.0	16.21	16.33	19.28
		5805.0	16.21	16.41	19.32
		5825.0	16.32	16.67	19.51
IEEE 802.11ac 20MHz	13	5180.0	16.93	17.01	19.98
		5200.0	17.14	17.14	20.15
		5220.0	17.18	16.93	20.07
		5240.0	16.74	16.72	19.74
		5745.0	15.96	16.03	19.01
		5765.0	15.83	16.02	18.94
		5785.0	16.32	16.62	19.48
		5805.0	16.30	16.65	19.49
		5825.0	16.32	16.76	19.56
	173.4	5180.0	16.62	16.69	19.67
		5200.0	16.87	16.88	19.89
		5220.0	16.86	16.69	19.79
		5240.0	16.50	16.41	19.47
		5745.0	15.67	15.71	18.70
		5765.0	15.55	15.68	18.63
		5785.0	15.99	16.37	19.19
		5805.0	16.08	16.43	19.27
		5825.0	16.12	16.53	19.34

Note: The relevant measured result has the offset with cable loss already.

Band	Data Rate (Mbps)	Frequency (MHz)	Average Conducted power (dBm)		
			ANT-0	ANT-1	ANT-0+1
IEEE 802.11ac 40MHz	27	5190.0	15.11	14.96	18.05
		5230.0	16.78	16.67	19.74
		5755.0	16.46	16.70	19.59
		5795.0	16.58	16.75	19.68
	400	5190.0	14.88	14.66	17.78
		5230.0	16.54	16.39	19.48
		5755.0	16.21	16.48	19.36
		5795.0	16.32	16.45	19.40
IEEE 802.11ac 80MHz	58.6	5210.0	13.95	13.86	16.92
		5775.0	16.21	16.38	19.31
	866.6	5210.0	13.68	13.58	16.64
		5775.0	15.98	16.12	19.06

Note: The relevant measured result has the offset with cable loss already.



4. Test Results

WLAN Antenna_MIMO										
Band	Data Rate (Mbps)	Frequency (MHz)	Limit (mw)	Distance [R] (cm)	Max tune-up Power (upper limit) [P] (dBm)	ANT Gain (dBi)	Numeric Gain [G]	Duty Cycle	Power with Duty cycle [TP] (mW)	Power Density [S] (mw/cm ²)
IEEE 802.11b	1	2412.0	1	20	27.30	6.53	4.5	1	2416.64	0.481
		2437.0	1	20	27.30	6.53	4.5	1	2416.64	0.481
		2462.0	1	20	27.30	6.53	4.5	1	2416.64	0.481
IEEE 802.11g	6	2412.0	1	20	22.00	6.53	4.5	1	713.2	0.142
		2437.0	1	20	27.00	6.53	4.5	1	2255.34	0.449
		2462.0	1	20	22.30	6.53	4.5	1	764.21	0.152
IEEE 802.11n 2.4GHz 20MHz	13	2412.0	1	20	22.00	6.53	4.5	1	713.2	0.142
		2437.0	1	20	27.00	6.53	4.5	1	2255.34	0.449
		2462.0	1	20	21.50	6.53	4.5	1	635.64	0.126
IEEE 802.11n 2.4GHz 40MHz	27	2422.0	1	20	20.00	6.53	4.5	1	450	0.090
		2437.0	1	20	22.60	6.53	4.5	1	818.87	0.163
		2452.0	1	20	19.90	6.53	4.5	1	439.76	0.087
IEEE 802.11a	6	5180.0	1	20	23.3	7.02	5.04	1	1077.53	0.214
		5200.0	1	20	23.3	7.02	5.04	1	1077.53	0.214
		5220.0	1	20	23.3	7.02	5.04	1	1077.53	0.214
		5240.0	1	20	23.3	7.02	5.04	1	1077.53	0.214
		5745.0	1	20	23	7.16	5.2	1	1037.54	0.206
		5765.0	1	20	23	7.16	5.2	1	1037.54	0.206
		5785.0	1	20	23	7.16	5.2	1	1037.54	0.206
		5805.0	1	20	23	7.16	5.2	1	1037.54	0.206
		5825.0	1	20	23	7.16	5.2	1	1037.54	0.206
IEEE 802.11ac 20MHz	13	5180.0	1	20	23.5	7.02	5.04	1	1128.32	0.224
		5200.0	1	20	23.5	7.02	5.04	1	1128.32	0.224
		5220.0	1	20	23.5	7.02	5.04	1	1128.32	0.224
		5240.0	1	20	23.5	7.02	5.04	1	1128.32	0.224
		5745.0	1	20	22.8	7.16	5.2	1	990.84	0.197
		5765.0	1	20	22.8	7.16	5.2	1	990.84	0.197
		5785.0	1	20	22.8	7.16	5.2	1	990.84	0.197
		5805.0	1	20	22.8	7.16	5.2	1	990.84	0.197
		5825.0	1	20	22.8	7.16	5.2	1	990.84	0.197
IEEE 802.11ac 40MHz	27	5190.0	1	20	23.3	7.02	5.04	1	1077.53	0.214
		5230.0	1	20	23.3	7.02	5.04	1	1077.53	0.214
		5755.0	1	20	23.3	7.16	5.2	1	1111.74	0.221
		5795.0	1	20	23.3	7.16	5.2	1	1111.74	0.221
IEEE 802.11ac 80MHz	58.6	5210.0	1	20	20.1	7.02	5.04	1	515.74	0.103
		5775.0	1	20	22.9	7.16	5.2	1	1013.92	0.202

WLAN Antenna_MIMO_ Beamforming on										
Band	Data Rate (Mbps)	Frequency (MHz)	Limit (mw)	Distance [R] (cm)	Max tune-up Power (upper limit) [P] (dBm)	ANT Gain (dBi)	Numeric Gain [G]	Duty Cycle	Power with Duty cycle [TP] (mW)	Power Density [S] (mw/cm ²)
IEEE 802.11b	1	2412.0	1	20	23.90	6.53	4.5	1	1104.62	0.220
		2437.0	1	20	23.90	6.53	4.5	1	1104.62	0.220
		2462.0	1	20	23.90	6.53	4.5	1	1104.62	0.220
IEEE 802.11g	6	2412.0	1	20	18.80	6.53	4.5	1	341.36	0.068
		2437.0	1	20	23.70	6.53	4.5	1	1054.9	0.210
		2462.0	1	20	19.10	6.53	4.5	1	365.77	0.073
IEEE 802.11n 2.4GHz 20MHz	13	2412.0	1	20	18.60	6.53	4.5	1	326	0.065
		2437.0	1	20	23.60	6.53	4.5	1	1030.89	0.205
		2462.0	1	20	18.10	6.53	4.5	1	290.54	0.058
IEEE 802.11n 2.4GHz 40MHz	27	2422.0	1	20	16.90	6.53	4.5	1	220.4	0.044
		2437.0	1	20	19.20	6.53	4.5	1	374.29	0.074
		2452.0	1	20	16.80	6.53	4.5	1	215.38	0.043
IEEE 802.11a	6	5180.0	1	20	20.3	7.02	5.04	1	540.05	0.107
		5200.0	1	20	20.3	7.02	5.04	1	540.05	0.107
		5220.0	1	20	20.3	7.02	5.04	1	540.05	0.107
		5240.0	1	20	20.3	7.02	5.04	1	540.05	0.107
		5745.0	1	20	19.8	7.16	5.2	1	496.6	0.099
		5765.0	1	20	19.8	7.16	5.2	1	496.6	0.099
		5785.0	1	20	19.8	7.16	5.2	1	496.6	0.099
		5805.0	1	20	19.8	7.16	5.2	1	496.6	0.099
		5825.0	1	20	19.8	7.16	5.2	1	496.6	0.099
IEEE 802.11ac 20MHz	13	5180.0	1	20	20.3	7.02	5.04	1	540.05	0.107
		5200.0	1	20	20.3	7.02	5.04	1	540.05	0.107
		5220.0	1	20	20.3	7.02	5.04	1	540.05	0.107
		5240.0	1	20	20.3	7.02	5.04	1	540.05	0.107
		5745.0	1	20	19.7	7.16	5.2	1	485.29	0.097
		5765.0	1	20	19.7	7.16	5.2	1	485.29	0.097
		5785.0	1	20	19.7	7.16	5.2	1	485.29	0.097
		5805.0	1	20	19.7	7.16	5.2	1	485.29	0.097
		5825.0	1	20	19.7	7.16	5.2	1	485.29	0.097
IEEE 802.11ac 40MHz	27	5190.0	1	20	19.8	7.02	5.04	1	481.32	0.096
		5230.0	1	20	19.8	7.02	5.04	1	481.32	0.096
		5755.0	1	20	19.8	7.16	5.2	1	496.6	0.099
		5795.0	1	20	19.8	7.16	5.2	1	496.6	0.099
IEEE 802.11ac 80MHz	58.6	5210.0	1	20	17	7.02	5.04	1	252.6	0.050
		5775.0	1	20	19.4	7.16	5.2	1	452.9	0.090



Note:

1. Mobile or fixed location transmitters, minimum separation distance is 20cm, even if calculations indicate MPE distance is less.
2. The Numeric Gain calculated by $10^{(\text{ant. Gain(dBi)} / 10)}$.
3. Each band max power which perform MPE of any configurations.
4. The MPE results are evaluated by lowest data rate for WLAN.
5. The device operating IEEE 802.11 b/g/n/a/ac mode is 2TX MIMO .
6. We used the maximum antenna gain to provide MPE results.

Simultaneous Transmitting:

Simultaneous MPE = 2.4GHz MPE+5GHz MPE = $0.481 + 0.224 = 0.705 \text{ (mw)/cm}^2 < 1 \text{ (mw)/cm}^2$