Modulation Standard: 802.11a (54Mbps), Ant 2

Operating frequency: 5240 MHz							
Temp (°C)	Power supply (V)	2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	93.5	5240.0087	0.000165	5239.9703	-0.000566	5240.0149	0.000285
	110	5240.0044	0.000085	5240.0101	0.000193	5240.0003	0.000006
	126.5	5239.9985	-0.000028	5239.9776	-0.000428	5240.0015	0.000030
40	93.5	5239.9709	-0.000556	5239.9800	-0.000382	5239.9757	-0.000464
	110	5239.9750	-0.000477	5239.9707	-0.000558	5239.9903	-0.000186
	126.5	5239.9728	-0.000518	5239.9835	-0.000314	5239.9775	-0.000428
30	93.5	5240.0142	0.000270	5239.9678	-0.000614	5240.0184	0.000351
	110	5240.0206	0.000393	5240.0033	0.000064	5239.9847	-0.000292
	126.5	5239.9938	-0.000119	5240.0121	0.000231	5240.0003	0.000005
20	93.5	5239.9984	-0.000031	5239.9490	-0.000973	5239.9751	-0.000475
	110	5240.0059	0.000112	5240.0028	0.000054	5240.0078	0.000149
	126.5	5240.0117	0.000224	5240.0237	0.000451	5239.9763	-0.000452
10	93.5	5240.0045	0.000086	5239.9941	-0.000112	5239.9779	-0.000422
	110	5239.9905	-0.000181	5239.9786	-0.000408	5240.0247	0.000471
	126.5	5239.9953	-0.000089	5239.9636	-0.000694	5239.9807	-0.000367
0	93.5	5240.0216	0.000413	5239.9860	-0.000268	5240.0062	0.000118
	110	5239.9895	-0.000200	5239.9833	-0.000319	5240.0023	0.000044
	126.5	5240.0012	0.000024	5239.9957	-0.000083	5240.0068	0.000129
-10	93.5	5239.9752	-0.000473	5239.9972	-0.000053	5240.0137	0.000261
	110	5239.9873	-0.000242	5239.9999	-0.000002	5239.9878	-0.000234
	126.5	5239.9779	-0.000422	5240.0053	0.000102	5239.9979	-0.000040
-20	93.5	5239.9633	-0.000700	5240.0160	0.000304	5240.0164	0.000313
	110	5239.9580	-0.000802	5240.0089	0.000170	5239.9966	-0.000064
	126.5	5239.9726	-0.000523	5240.0142	0.000272	5240.0192	0.000367
-30	93.5	5240.0297	0.000568	5240.0087	0.000167	5240.0081	0.000154
	110	5240.0196	0.000373	5240.0029	0.000055	5240.0195	0.000372
	126.5	5239.9850	-0.000287	5239.9979	-0.000040	5240.0026	0.000050

Limit :

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

Modulation Standard: 802.11a (54Mbps), Ant 3

Operating frequency: 5240 MHz							
Temp (°C)	Power supply (V)	2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	93.5	5239.9211	-0.001506	5239.9757	-0.000845	5239.9857	-0.000273
	110	5239.9481	-0.000990	5239.9782	-0.000473	5239.9748	-0.000481
	126.5	5239.9513	-0.000929	5239.9889	-0.000218	5239.9649	-0.000670
40	93.5	5239.9804	-0.000374	5239.9808	-0.000233	5239.9738	-0.000500
	110	5240.0079	0.000151	5239.9859	-0.000462	5240.0147	0.000281
	126.5	5239.9891	-0.000208	5239.9614	-0.000746	5239.9876	-0.000237
30	93.5	5240.0072	0.000137	5239.9826	-0.000370	5240.0028	0.000053
	110	5240.0055	0.000105	5239.9837	-0.000254	5240.0047	0.000090
	126.5	5240.0167	0.000319	5239.9934	-0.000118	5240.0126	0.000240
20	93.5	5239.9211	-0.001506	5240.0054	0.000040	5240.0035	0.000067
	110	5239.9481	-0.000990	5240.0065	0.000065	5240.0044	0.000084
	126.5	5239.9513	-0.000929	5240.0077	0.000145	5240.0013	0.000025
10	93.5	5239.9804	-0.000374	5240.0061	0.000116	5240.0013	0.000025
	110	5240.0079	0.000151	5240.0174	0.000332	5240.0144	0.000275
	126.5	5239.9891	-0.000208	5239.9945	-0.000105	5239.9958	-0.000080
0	93.5	5239.9895	-0.000200	5239.9657	-0.000655	5239.9808	-0.000233
	110	5239.9656	-0.000656	5239.9563	-0.000834	5239.9859	-0.000462
	126.5	5239.9767	-0.000445	5239.9782	-0.000416	5239.9614	-0.000746
-10	93.5	5240.0058	0.000111	5240.0292	0.000557	5239.9826	-0.000370
	110	5239.9787	-0.000406	5240.0182	0.000347	5239.9837	-0.000254
	126.5	5239.9724	-0.000527	5239.9879	-0.000231	5239.9934	-0.000118
-20	93.5	5239.9603	-0.000758	5240.0165	0.000315	5240.0054	0.000040
	110	5239.9816	-0.000351	5240.0274	0.000523	5240.0065	0.000065
	126.5	5239.9725	-0.000525	5240.0183	0.000349	5240.0077	0.000145
-30	93.5	5240.0014	0.000027	5240.0083	0.000158	5240.0108	0.000202
	110	5240.0102	0.000195	5240.0194	0.000370	5240.0019	0.000027
	126.5	5239.9583	-0.000796	5240.0247	0.000471	5240.0012	0.000015

Limit :

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

Modulation Standard: 802.11an HT20 (130Mbps)

Operating frequency: 5240 MHz							
Temp (°C)	Power supply (V)	2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	93.5	5240.0201	0.000383	5239.9725	-0.000524	5240.0171	0.000326
	110	5239.9976	-0.000046	5240.0057	0.000108	5240.0062	0.000117
	126.5	5240.0069	0.000132	5239.9714	-0.000545	5239.9985	-0.000030
40	93.5	5239.9768	-0.000442	5239.9854	-0.000278	5239.9717	-0.000540
	110	5239.9840	-0.000306	5239.9623	-0.000719	5239.9869	-0.000250
	126.5	5239.9680	-0.000611	5239.9773	-0.000434	5239.9788	-0.000405
30	93.5	5240.0130	0.000248	5239.9689	-0.000593	5240.0159	0.000303
	110	5240.0296	0.000565	5240.0104	0.000199	5239.9959	-0.000078
	126.5	5239.9967	-0.000063	5240.0076	0.000145	5240.0026	0.000050
20	93.5	5239.9964	-0.000069	5239.9450	-0.001050	5239.9779	-0.000422
	110	5240.0090	0.000172	5240.0056	0.000106	5239.9989	-0.000022
	126.5	5240.0157	0.000299	5240.0197	0.000376	5239.9783	-0.000413
10	93.5	5240.0060	0.000114	5239.9935	-0.000124	5239.9787	-0.000407
	110	5239.9889	-0.000212	5239.9703	-0.000566	5240.0221	0.000423
	126.5	5240.0014	0.000026	5239.9640	-0.000688	5239.9829	-0.000326
0	93.5	5240.0163	0.000311	5239.9886	-0.000218	5240.0084	0.000161
	110	5239.9957	-0.000081	5239.9895	-0.000200	5240.0043	0.000082
	126.5	5240.0076	0.000145	5239.9915	-0.000163	5240.0166	0.000316
-10	93.5	5239.9737	-0.000501	5240.0020	0.000038	5240.0129	0.000246
	110	5239.9847	-0.000292	5239.9991	-0.000017	5239.9891	-0.000208
	126.5	5239.9735	-0.000505	5240.0048	0.000092	5240.0004	0.000008
-20	93.5	5239.9647	-0.000674	5240.0168	0.000320	5240.0208	0.000398
	110	5239.9576	-0.000809	5239.9996	-0.000008	5239.9937	-0.000120
	126.5	5239.9676	-0.000619	5240.0056	0.000106	5240.0139	0.000265
-30	93.5	5240.0304	0.000580	5239.9989	-0.000021	5240.0052	0.000100
	110	5240.0205	0.000392	5240.0067	0.000127	5240.0255	0.000486
	126.5	5239.9927	-0.000139	5240.0057	0.000109	5240.0065	0.000124

Limit :

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

Modulation Standard: 802.11an HT40 (27Mbps)

Operating frequency: 5230 MHz							
Temp (°C)	Power supply (V)	2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	93.5	5230.0154	-0.190546	5229.9235	-0.192300	5229.9898	-0.191033
	110	5230.0011	-0.190818	5229.9446	-0.191898	5229.9635	-0.191537
	126.5	5229.9964	-0.190909	5229.9537	-0.191724	5229.9747	-0.191322
40	93.5	5229.9856	-0.191115	5229.9848	-0.191129	5230.0052	-0.190740
	110	5229.9742	-0.191331	5230.0209	-0.190441	5229.9755	-0.191307
	126.5	5229.9707	-0.191399	5229.9832	-0.191160	5229.9776	-0.191267
30	93.5	5230.0222	-0.190417	5230.0064	-0.190718	5229.9918	-0.190996
	110	5230.0264	-0.190336	5230.0052	-0.190740	5229.9969	-0.190898
	126.5	5229.9950	-0.190934	5230.0087	-0.190674	5229.9671	-0.191467
20	93.5	5230.0273	-0.190319	5230.0055	-0.190734	5229.9933	-0.190968
	110	5230.0100	-0.190649	5229.9799	-0.191223	5230.0126	-0.190599
	126.5	5230.0176	-0.190503	5230.0136	-0.190581	5229.9701	-0.191410
10	93.5	5229.9975	-0.190887	5230.0114	-0.190622	5230.0005	-0.190830
	110	5230.0162	-0.190530	5229.9739	-0.191337	5230.0063	-0.190719
	126.5	5230.0165	-0.190525	5229.9956	-0.190924	5229.9877	-0.191075
0	93.5	5229.9989	-0.190861	5229.9922	-0.190989	5229.9736	-0.191344
	110	5230.0172	-0.190511	5229.9724	-0.191367	5229.9831	-0.191162
	126.5	5229.9906	-0.191018	5229.9699	-0.191415	5229.9819	-0.191186
-10	93.5	5229.9673	-0.191465	5229.9669	-0.191471	5230.0188	-0.190480
	110	5229.9581	-0.191639	5230.0116	-0.190618	5230.0183	-0.190491
	126.5	5229.9799	-0.191222	5229.9931	-0.190972	5229.9904	-0.191022
-20	93.5	5230.0184	-0.190488	5230.0091	-0.190667	5230.0186	-0.190485
	110	5230.0134	-0.190584	5230.0010	-0.190821	5230.0258	-0.190347
	126.5	5229.9848	-0.191129	5230.0152	-0.190549	5230.0168	-0.190519
-30	93.5	5230.0174	-0.190508	5230.0033	-0.190777	5230.0017	-0.190807
	110	5230.0212	-0.190435	5229.9960	-0.190917	5230.0191	-0.190475
	126.5	5230.0146	-0.190561	5230.0024	-0.190794	5230.0355	-0.190162

Limit :

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

10. Band Edges Measurement

10.1. Test Procedure

1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set both RBW and VBW of spectrum analyzer to 100 KHz with convenient frequency span including 100 MHz bandwidth from band edge
3. The band edges was measured and recorded.

10.2. Measurement Equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	FSP40	R&S	10047	2009/03/26	2010/03/25

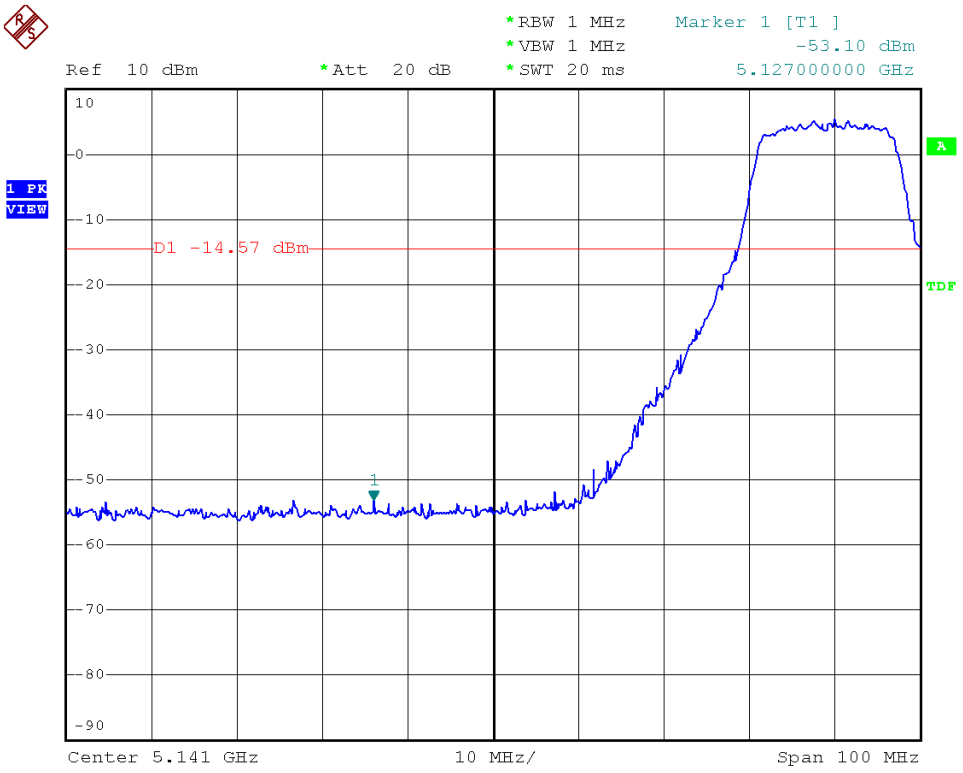
10.3. Test Result and Data

Test Date: Feb. 25, 2010 Temperature: 23℃

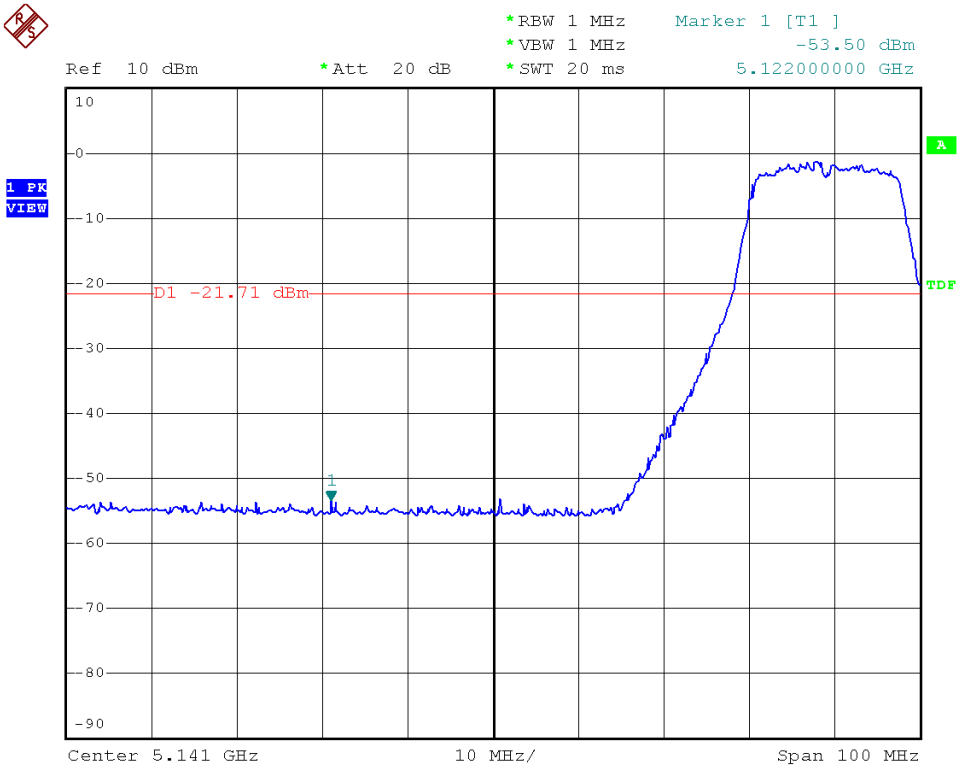
Atmospheric pressure: 1021 hPa Humidity: 66%

Modulation Standard	Channel	Frequency (MHz)	maximum value in frequency (MHz)			maximum value (dBm)		
			Ant 1	Ant 2	Ant 3	Ant 1	Ant 2	Ant 3
802.11a (54Mbps)	36	5180	5127.0	5127.2	5132.0	-53.10	-52.67	-53.69
802.11an HT20 (130Mbps)	36	5180	5120.8	5122.0	5136.0	-55.30	-53.50	-52.95
802.11an HT40 (27Mbps)	38	5190	5149.6	5149.8	5149.8	-50.84	-52.55	-51.55

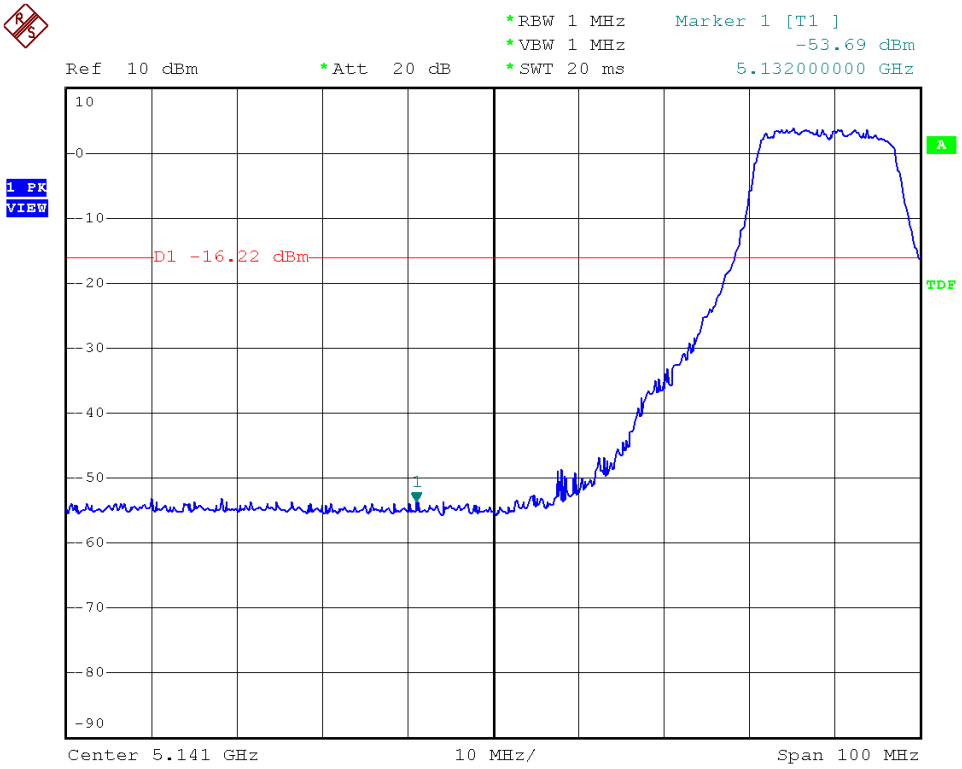
Modulation Standard: 802.11a (54Mbps), Ant 1
Channel: 36



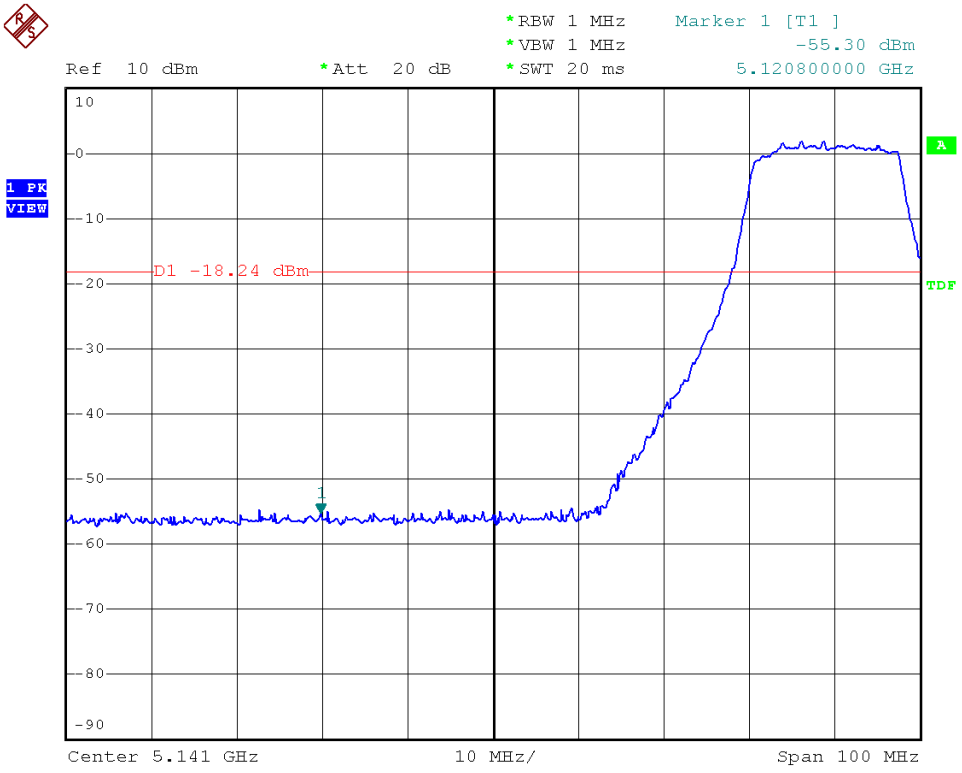
Modulation Standard: 802.11a (54Mbps), Ant 2
Channel: 36



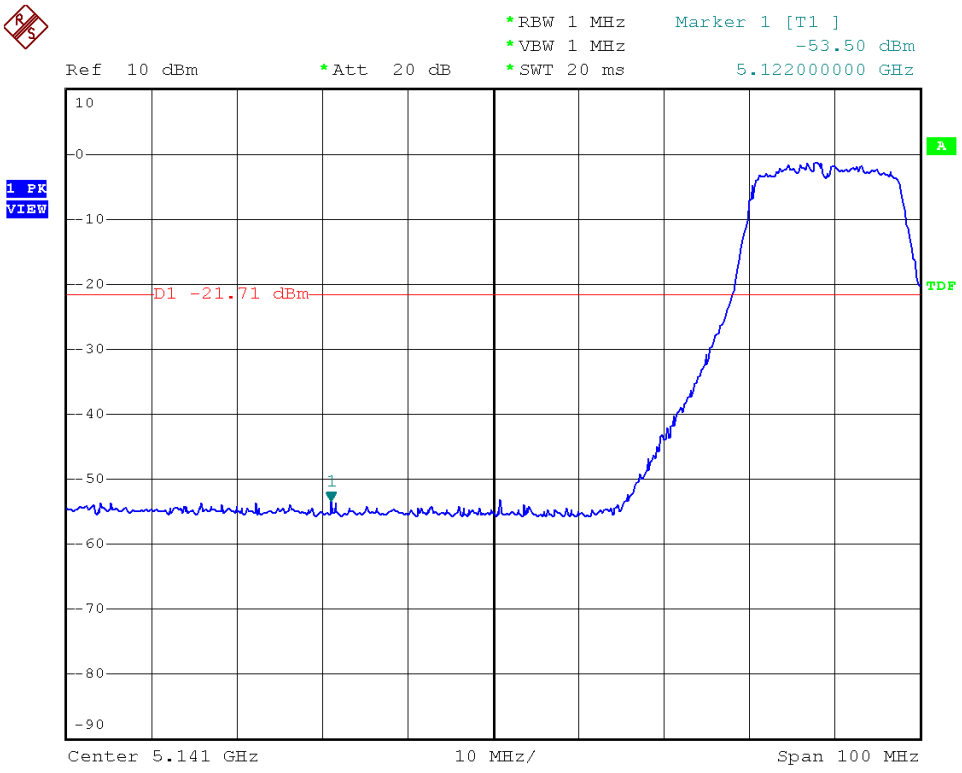
Modulation Standard: 802.11a (54Mbps), Ant 3
Channel: 36



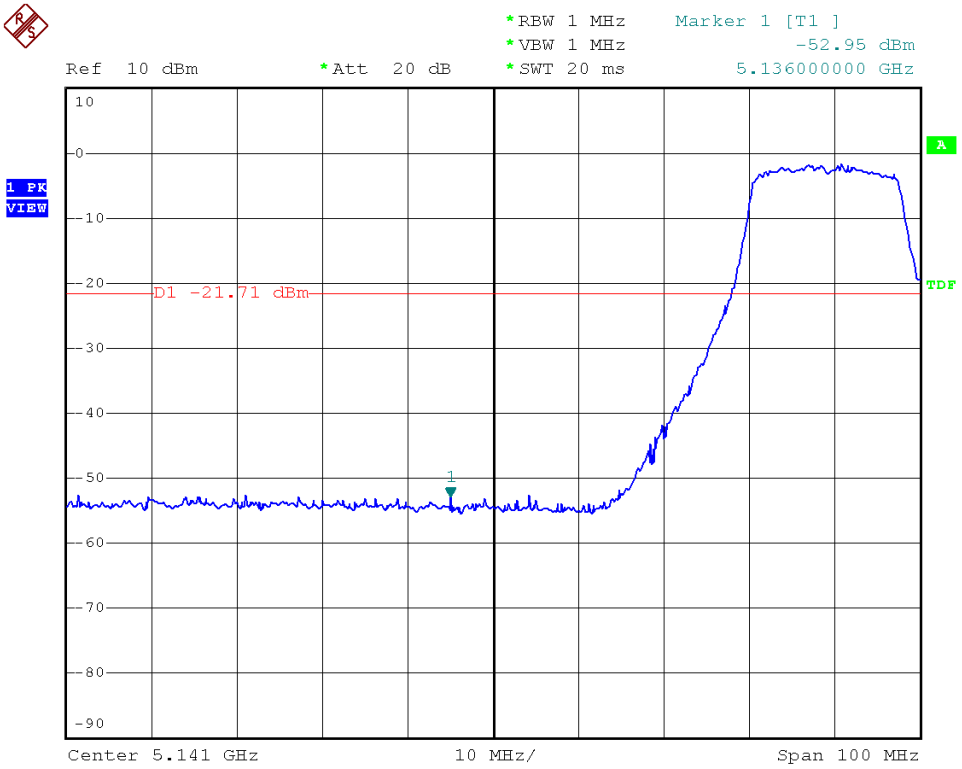
Modulation Standard: 802.11an HT20 (130Mbps), Ant 1
Channel: 36



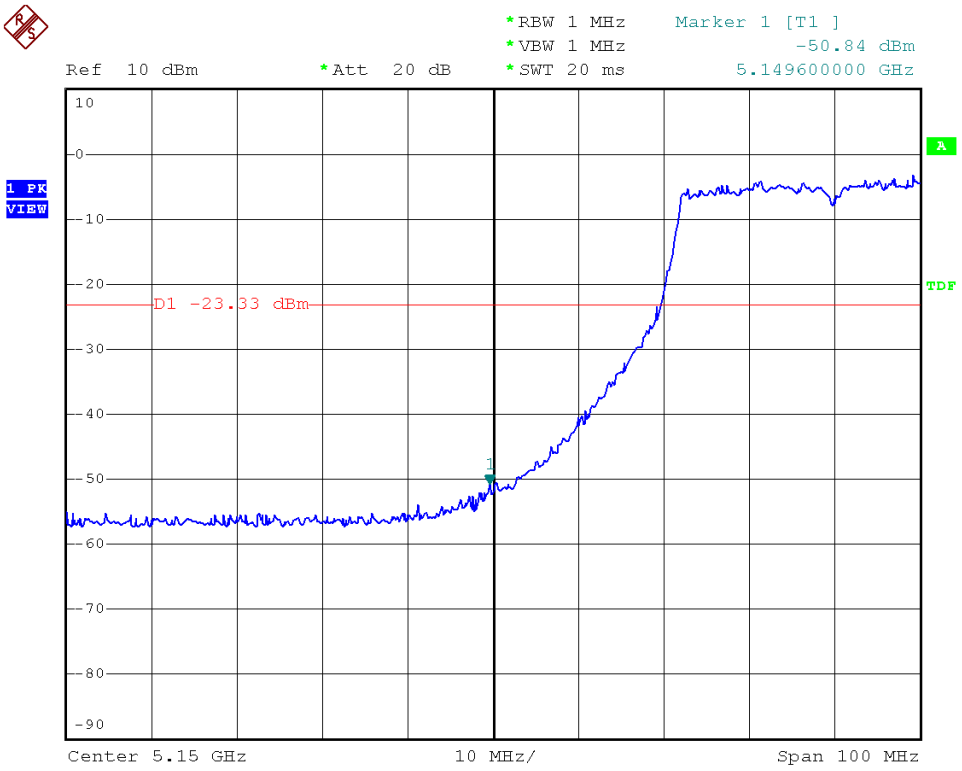
Modulation Standard: 802.11an HT20 (130Mbps), Ant 2
Channel: 36



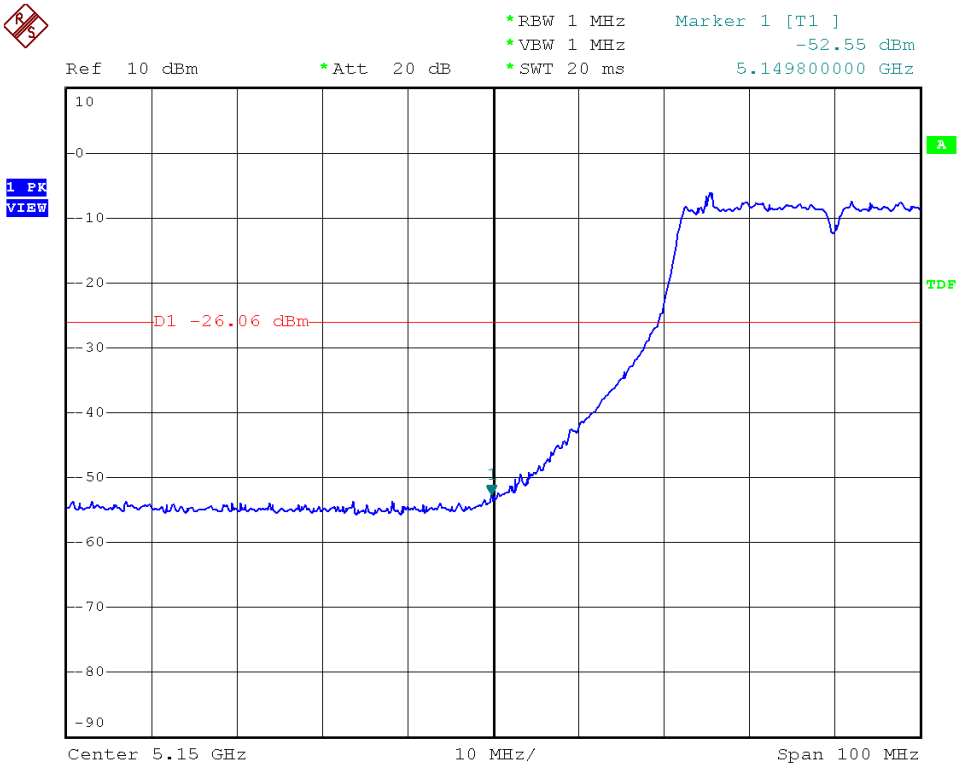
Modulation Standard: 802.11an HT20 (130Mbps), Ant 3
Channel: 36



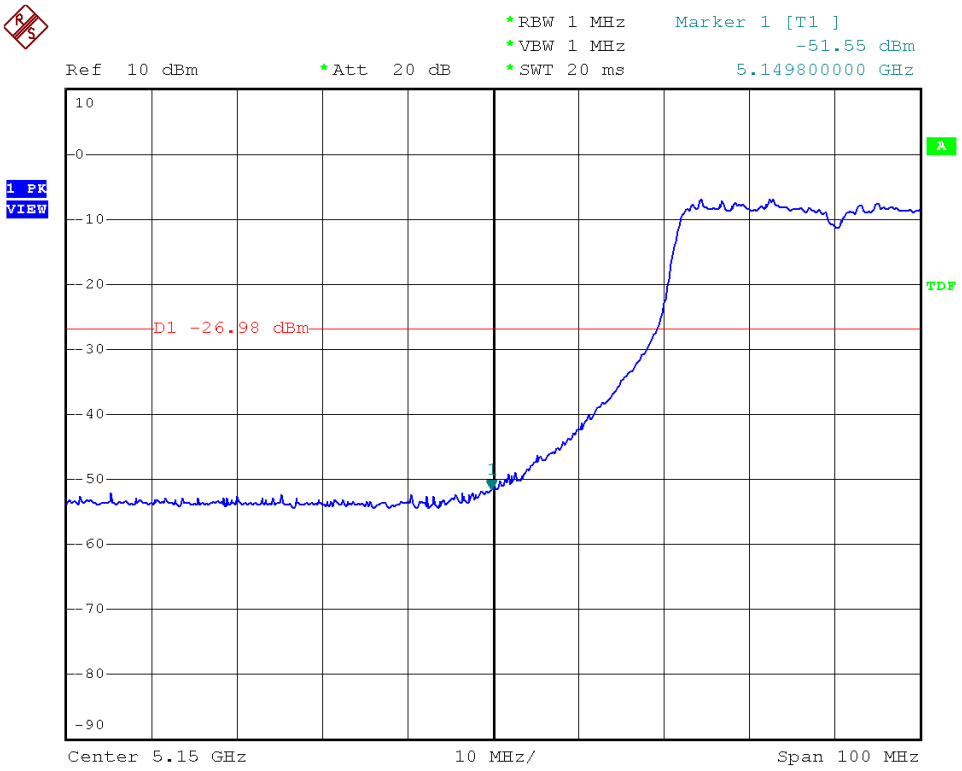
Modulation Standard: 802.11an HT40 (27Mbps), Ant 1
Channel: 38



Modulation Standard: 802.11an HT40 (27Mbps), Ant 2
Channel: 38



Modulation Standard: 802.11an HT40 (27Mbps), Ant 3
Channel: 38



10.4. Restrict Band Emission Measurement Data

Test Date: Jan. 29, 2010 Temperature: 20℃

Atmospheric pressure: 1022 hPa Humidity: 66%

Modulation Standard: IEEE 802.11a (54Mbps)

Channel 36										Fundamental Frequency: 5180 MHz
Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)	Table Deg.	Ant High (m)
						Peak	Ave			
5137.90	H	48.53	5.08	53.61	Peak	74	54	-20.39	140	1.51
5148.40	H	37.48	5.10	42.58	Ave	74	54	-11.42	140	1.51
5148.90	V	55.47	5.10	60.57	Peak	74	54	-13.43	257	1.00
5149.70	V	38.62	5.10	43.72	Ave	74	54	-10.28	257	1.00

Modulation Standard: IEEE 802.11an, HT20 (130Mbps)

Channel 36										Fundamental Frequency: 5180 MHz
Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)	Table Deg.	Ant High (m)
						Peak	Ave			
5115.90	H	48.87	5.03	53.90	Peak	74	54	-20.10	151	1.40
5149.40	H	37.16	5.10	42.26	Ave	74	54	-11.74	151	1.40
5120.70	V	49.71	5.04	54.75	Peak	74	54	-19.25	257	1.00
5146.70	V	37.35	5.09	42.44	Ave	74	54	-11.56	257	1.00

Modulation Standard: IEEE 802.11an, HT40 (27Mbps)

Channel 38										Fundamental Frequency: 5190 MHz
Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)	Table Deg.	Ant High (m)
						Peak	Ave			
5141.40	H	48.79	5.08	53.87	Peak	74	54	-20.13	151	1.40
5149.70	H	37.36	5.10	42.46	Ave	74	54	-11.54	151	1.40
5149.90	V	51.76	5.10	56.86	Peak	74	54	-17.14	257	1.00
5149.90	V	38.52	5.10	43.62	Ave	74	54	-10.38	257	1.00

Notes:

1. Result = Meter Reading + Factor
2. Factor = Antenna Factor + Cable Loss – Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3 MHz for Peak detection at frequency above 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10 MHz for Average detection at frequency above 1GHz.

11. Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.09000 – 0.11000	16.42000 – 16.42300	399.9 – 410.0	4.500 – 5.250
0.49500 – 0.505**	16.69475 – 16.69525	608.0 – 614.0	5.350 – 5.460
2.17350 – 2.19050	16.80425 – 16.80475	960.0 – 1240.0	7.250 – 7.750
4.12500 – 4.12800	25.50000 – 25.67000	1300.0 – 1427.0	8.025 – 8.500
4.17725 – 4.17775	37.50000 – 38.25000	1435.0 – 1626.5	9.000 – 9.200
4.20725 – 4.20775	73.00000 – 74.60000	1645.5 – 1646.5	9.300 – 9.500
6.21500 – 6.21800	74.80000 – 75.20000	1660.0 – 1710.0	10.600 – 12.700
6.26775 – 6.26825	108.00000 – 121.94000	1718.8 – 1722.2	13.250 – 13.400
6.31175 – 6.31225	123.00000 – 138.00000	2200.0 – 2300.0	14.470 – 14.500
8.29100 – 8.29400	149.90000 – 150.05000	2310.0 – 2390.0	15.350 – 16.200
8.36200 – 8.36600	156.52475 – 156.52525	2483.5 – 2500.0	17.700 – 21.400
8.37625 – 8.38675	156.70000 – 156.90000	2655.0 – 2900.0	22.010 – 23.120
8.41425 – 8.41475	162.01250 – 167.17000	3260.0 – 3267.0	23.600 – 24.000
12.29000 – 12.29300	167.72000 – 173.20000	3332.0 – 3339.0	31.200 – 31.800
12.51975 – 12.52025	240.00000 – 285.00000	3345.8 – 3358.0	36.430 – 36.500
12.57675 – 12.57725	322.00000 – 335.40000	3600.0 – 4400.0	Above 38.6
13.36000 – 13.41000			

**: Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz

11.1. Labeling Requirement

The device shall bear the following statement in a conspicuous location on the device:
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

12. RF Exposure

FCC Rules and Regulations Part 1.1307, 1.1310, 2.1091, 2.1093:
RF Exposure Compliance

12.1. Limit for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm²)	Averaging Time |E|²,|H|² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm²)	Averaging Time |E|²,|H|² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

F=frequency in MHz *Plane-wave equivalent power density

12.2. MPE Calculations

$$\text{E (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \qquad \text{Power Density: Pd (mW/cm}^2\text{)} = \frac{E^2}{3770}$$

E = Electric field (V/m)

P = Peak output power (W)

G = Antenna numeric gain (numeric)

d = Separation distance (m)

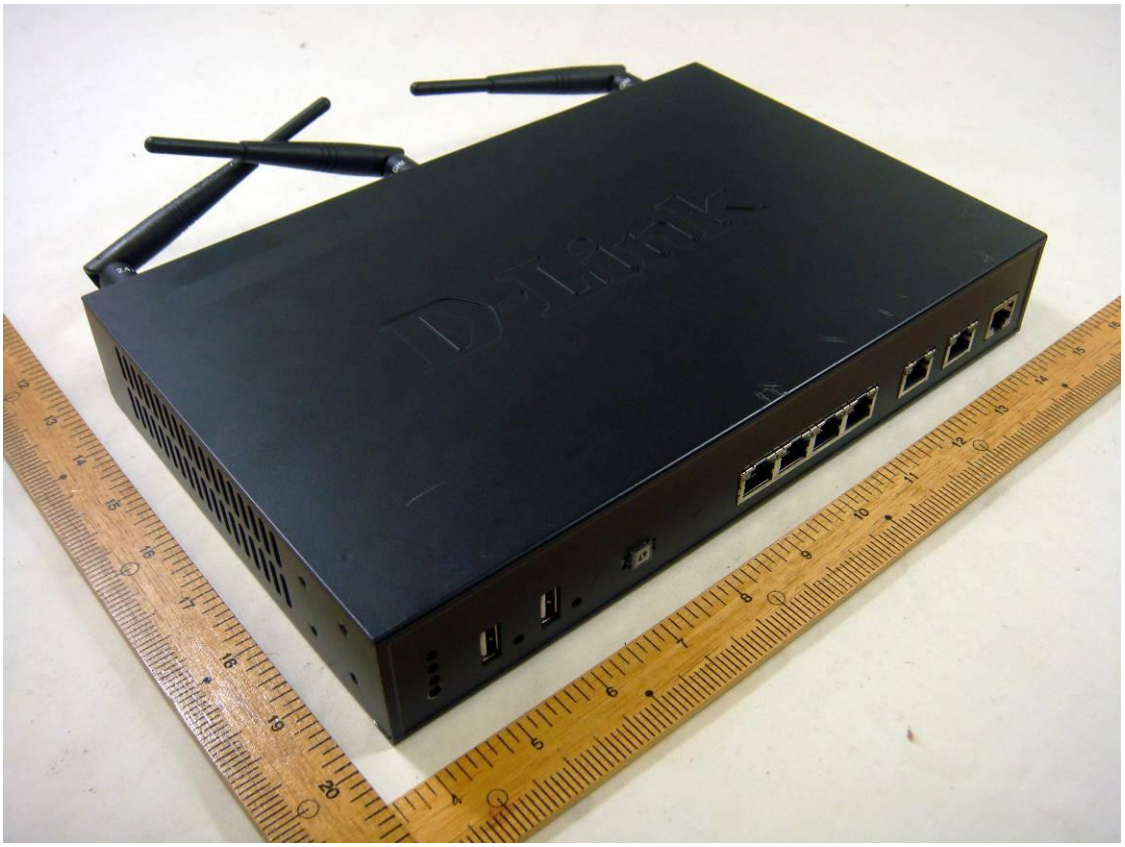
Because the EUT is belong to General Population/ Uncontrolled Exposure. So the Limit of Power Density is 10 W/m². We can change the formula to:

$$d = \sqrt{\frac{30 \times P \times G}{3770}}$$

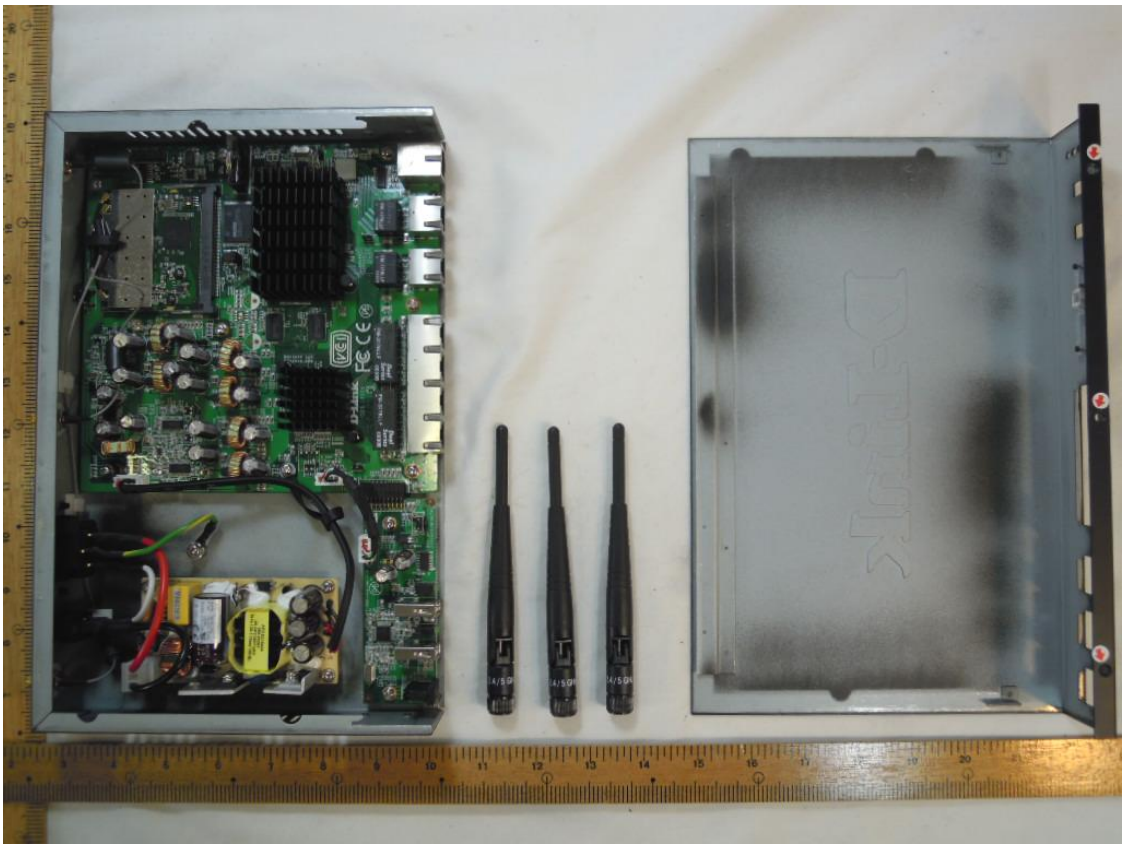
12.3. FCC Radiation Exposure Statement

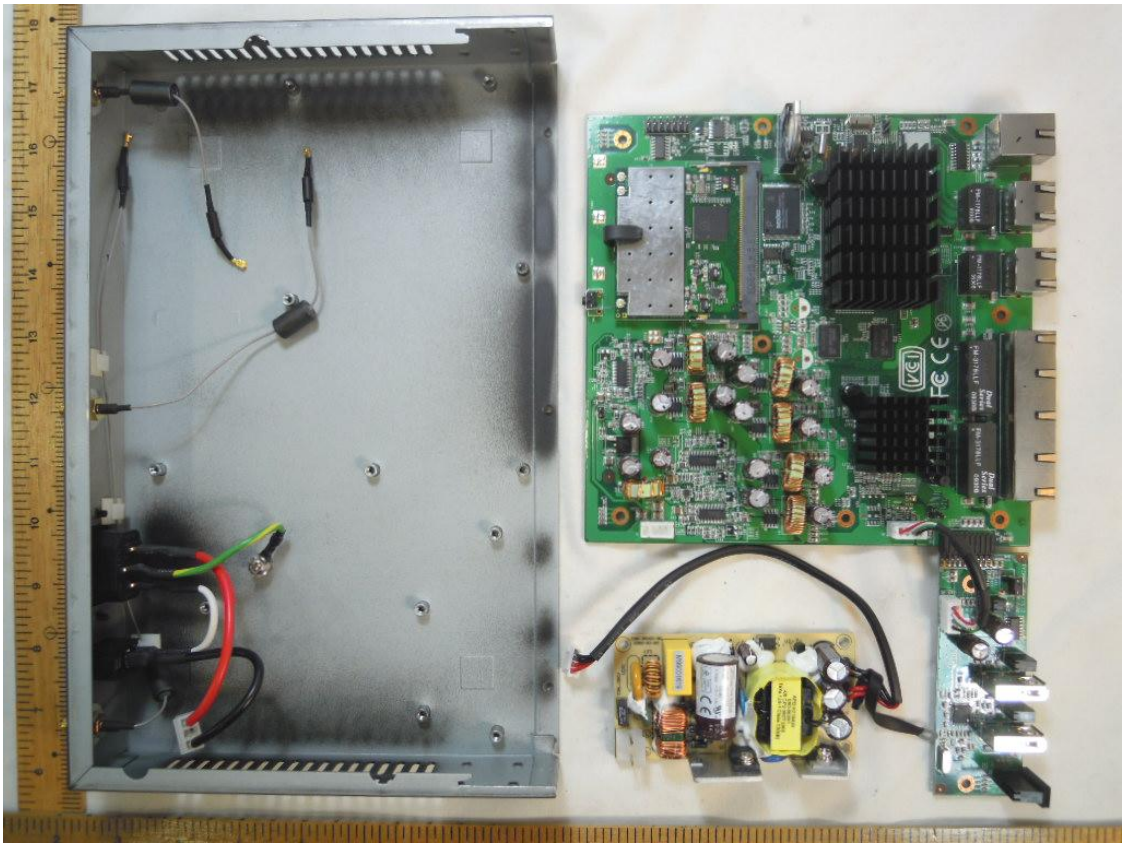
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20cm (8 inches) during normal operation. Proposed RF exposure safety information to include in User's Manual.

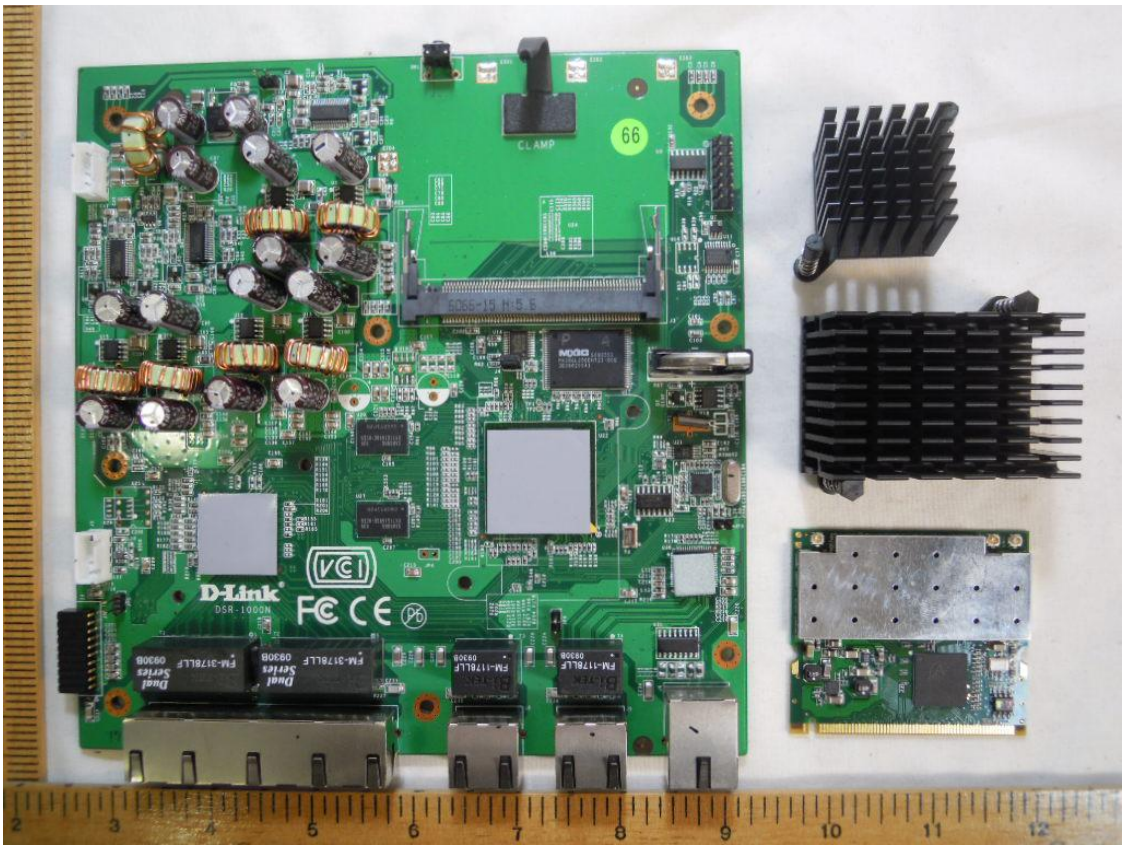
Appendix A. Photographs of EUT




AC LINE 100-240VAC
50-60Hz,0.4A MAX



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D-Link
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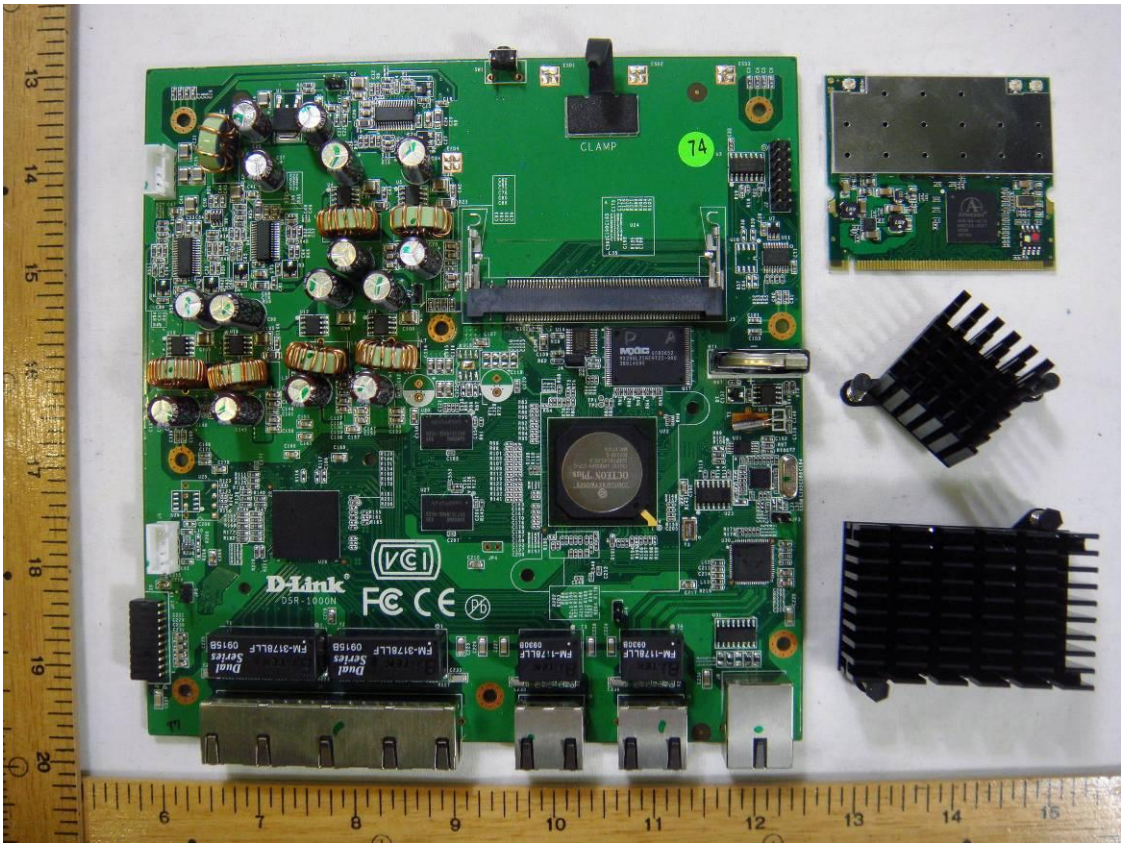
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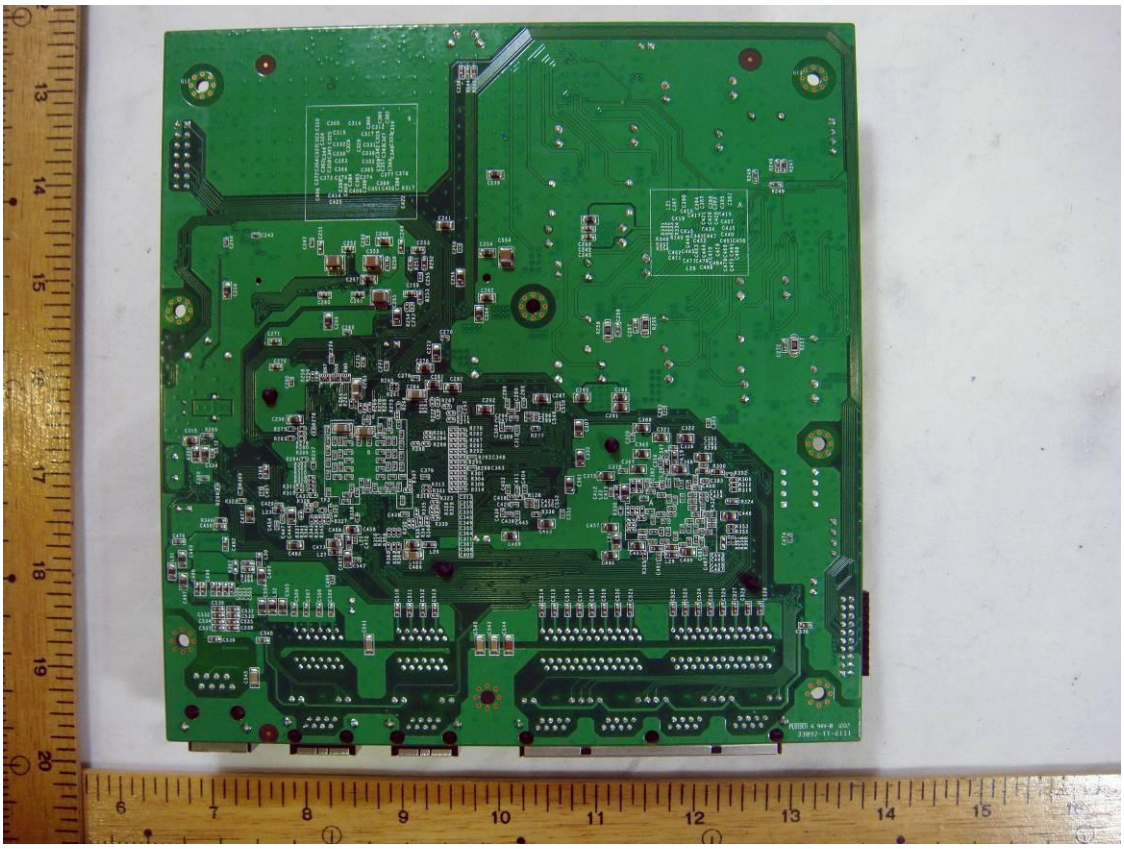


CAVIUM NETWORKS
OCTEON™Plus
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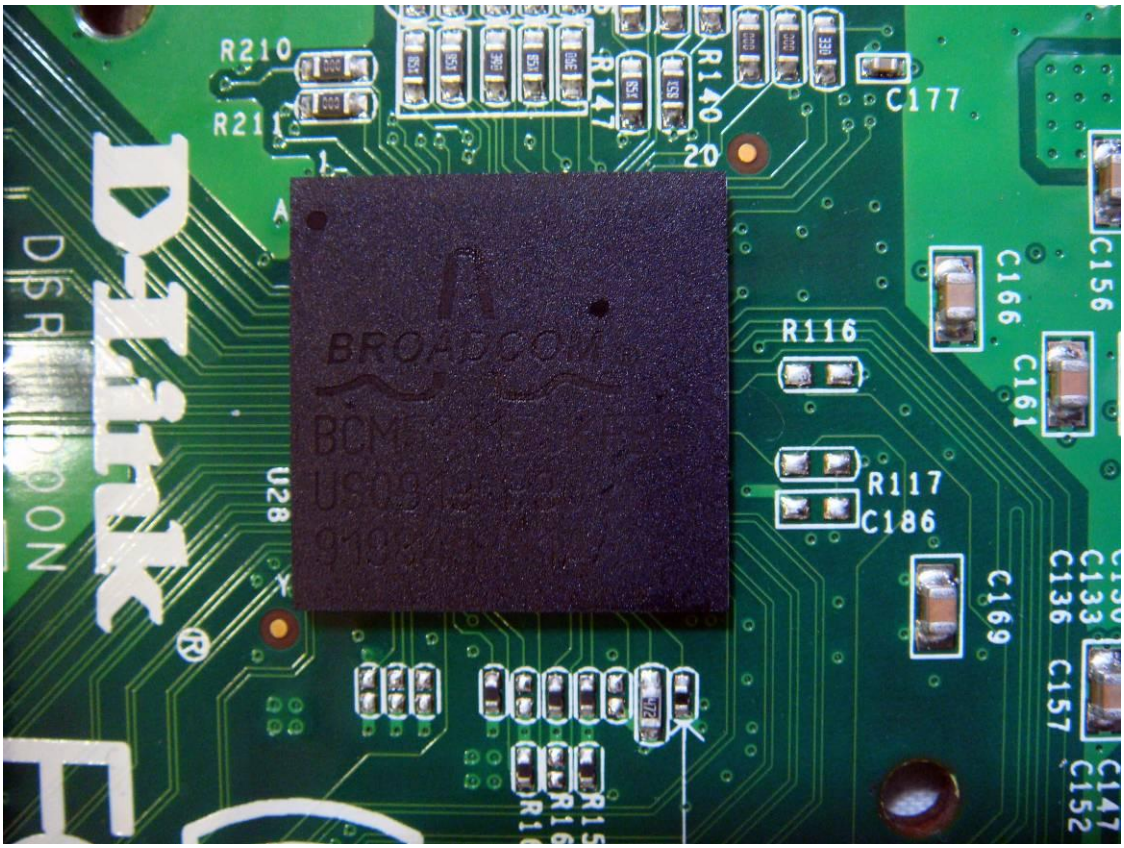
126P0X141.00.3
B0933B-G
MALAYSIA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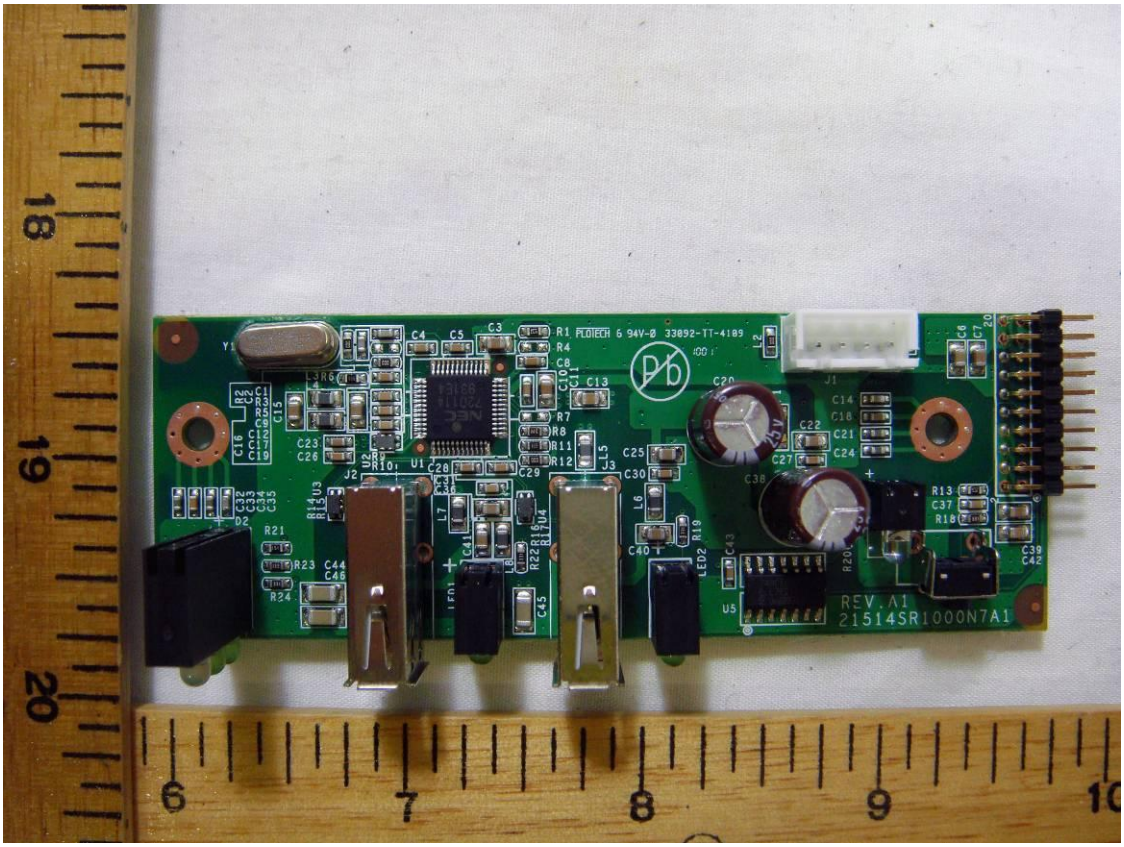
U28
BROADCOM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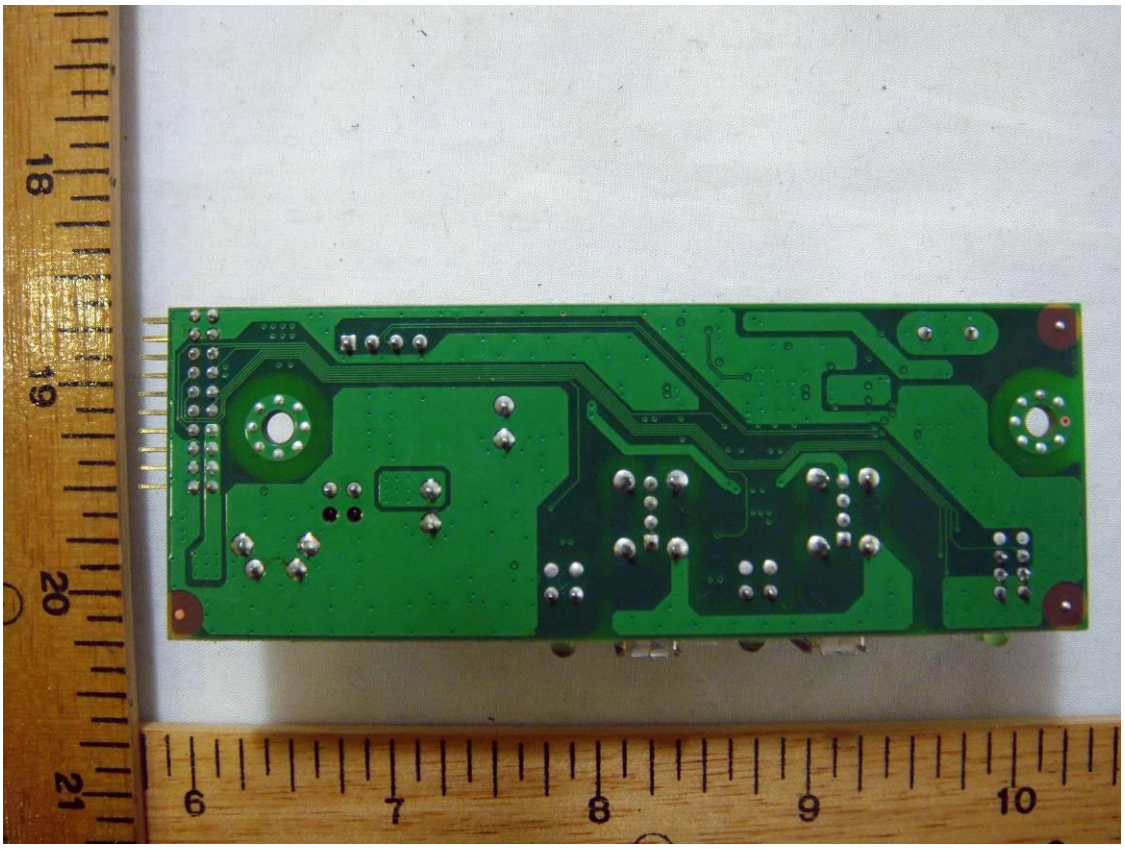

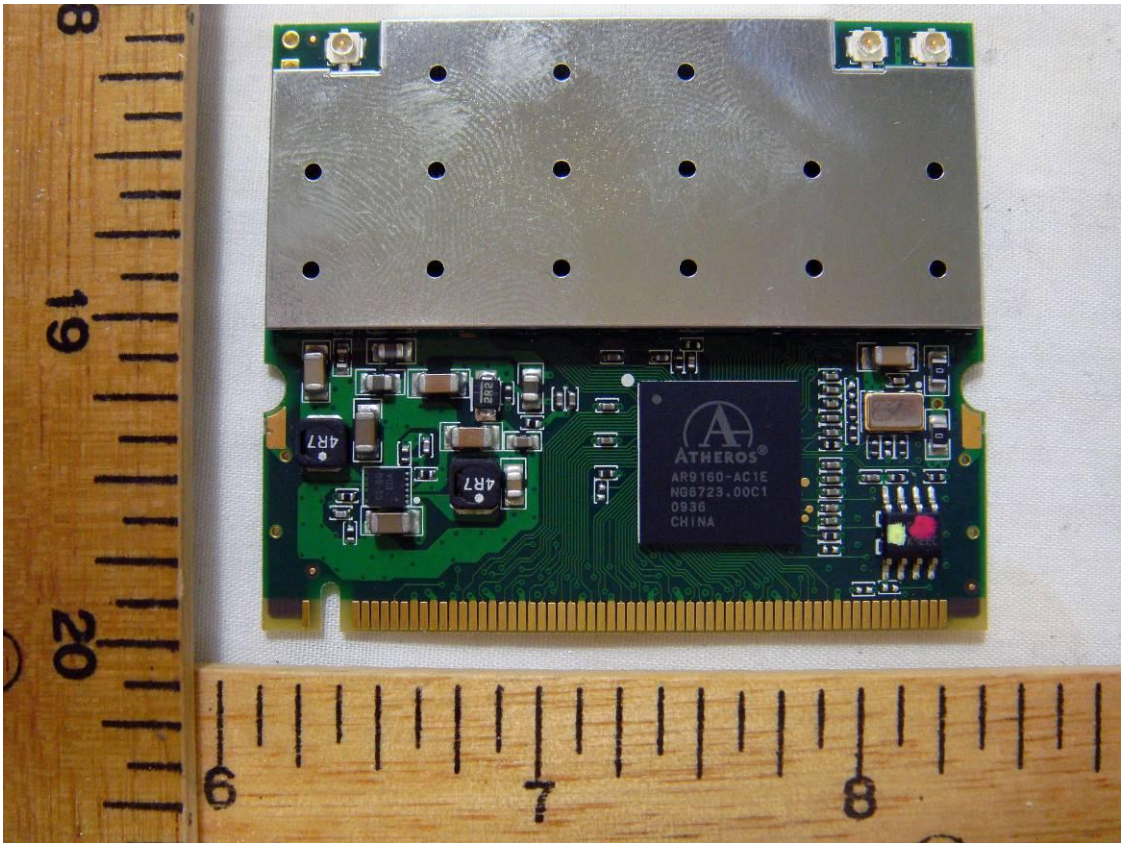
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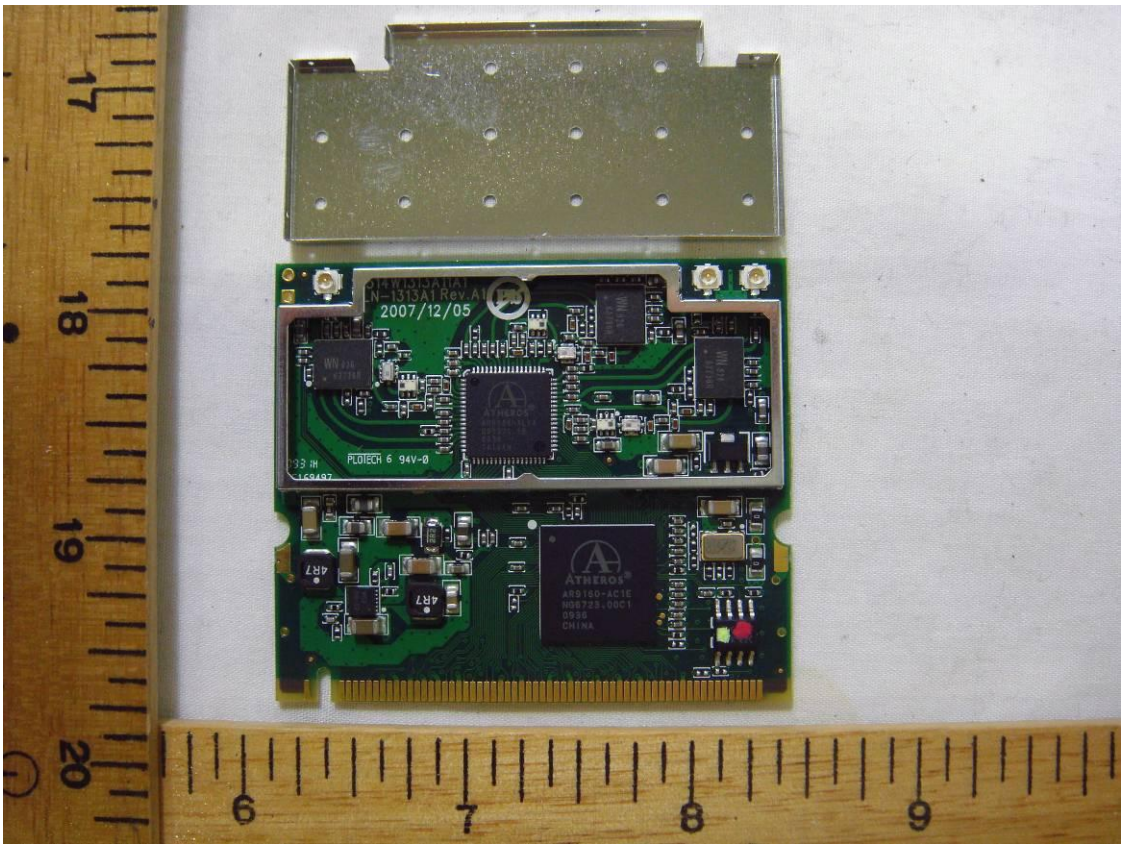
0936
CHINA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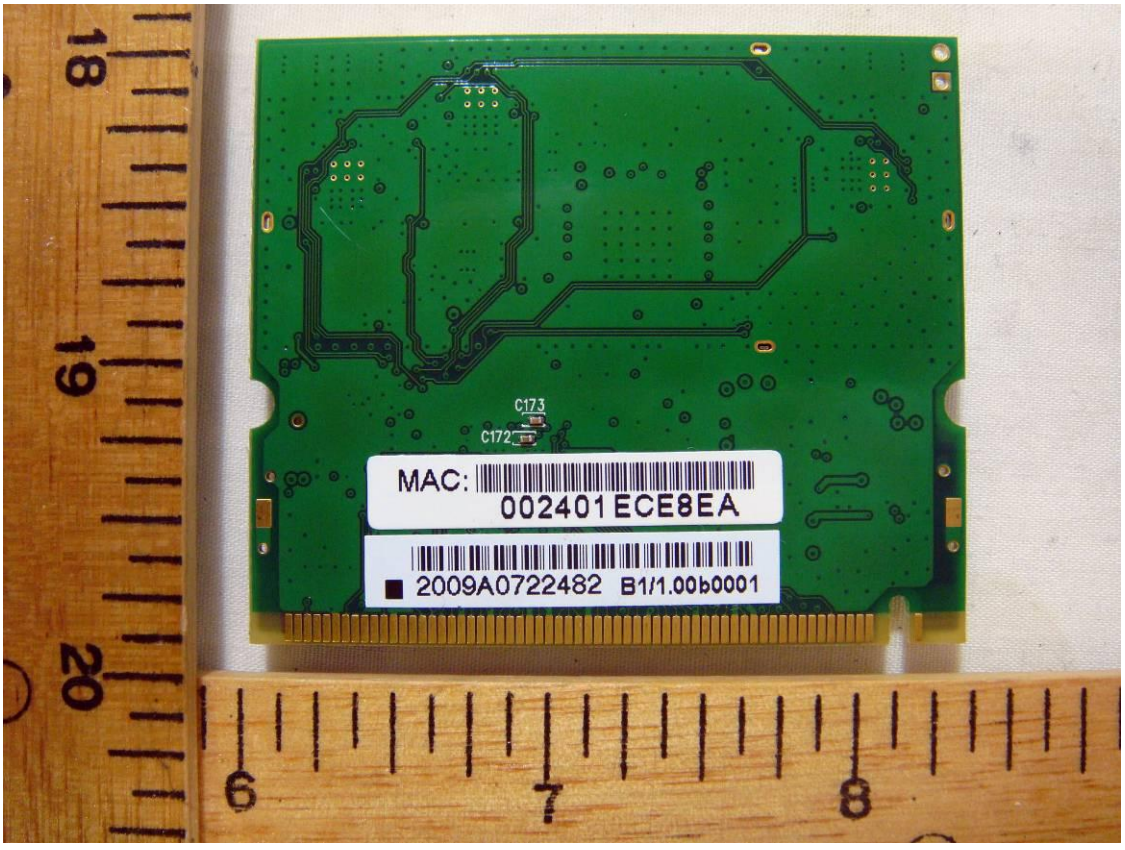
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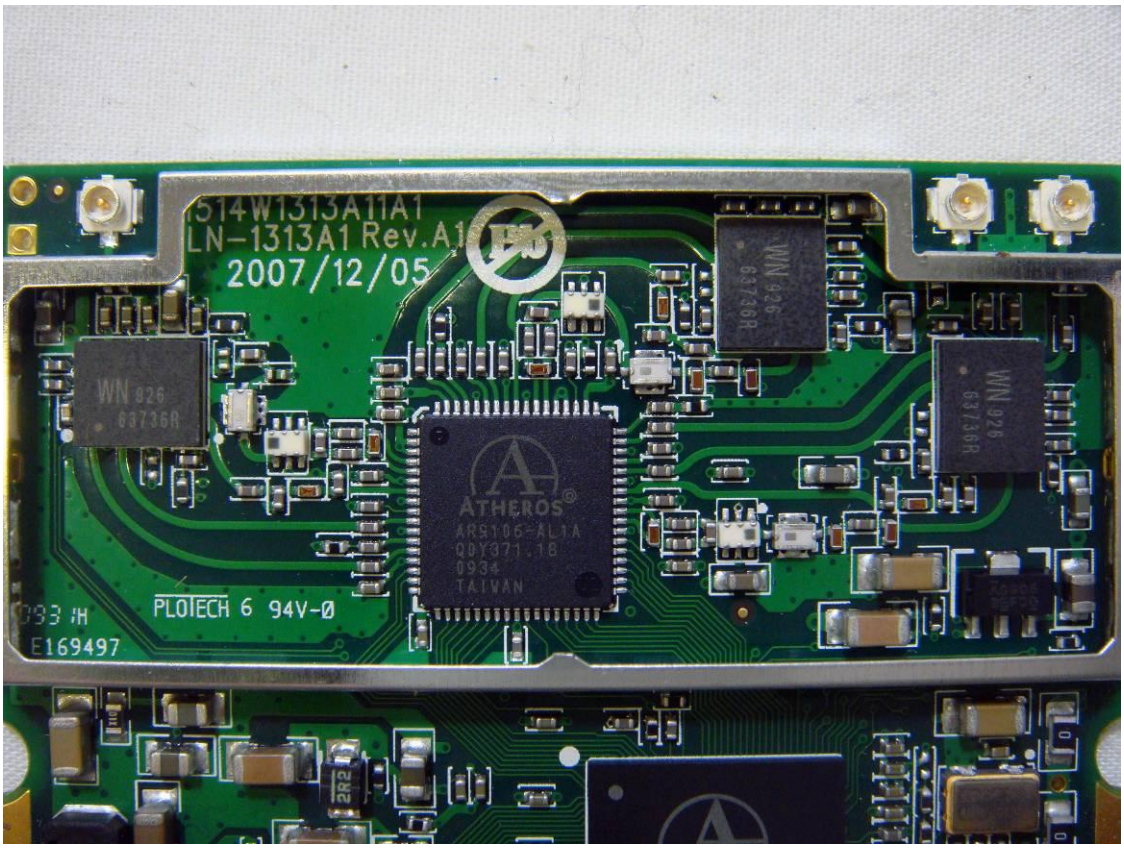
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PLOTECH 6 94V-0
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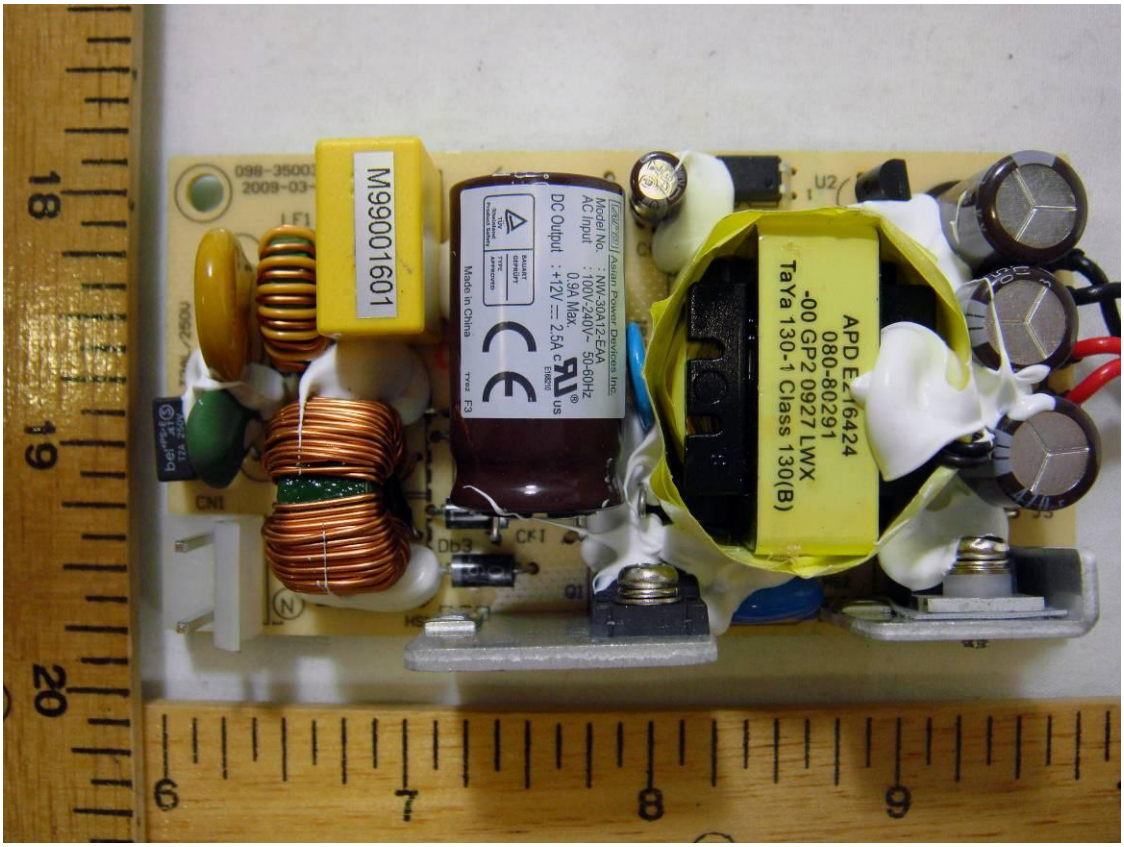
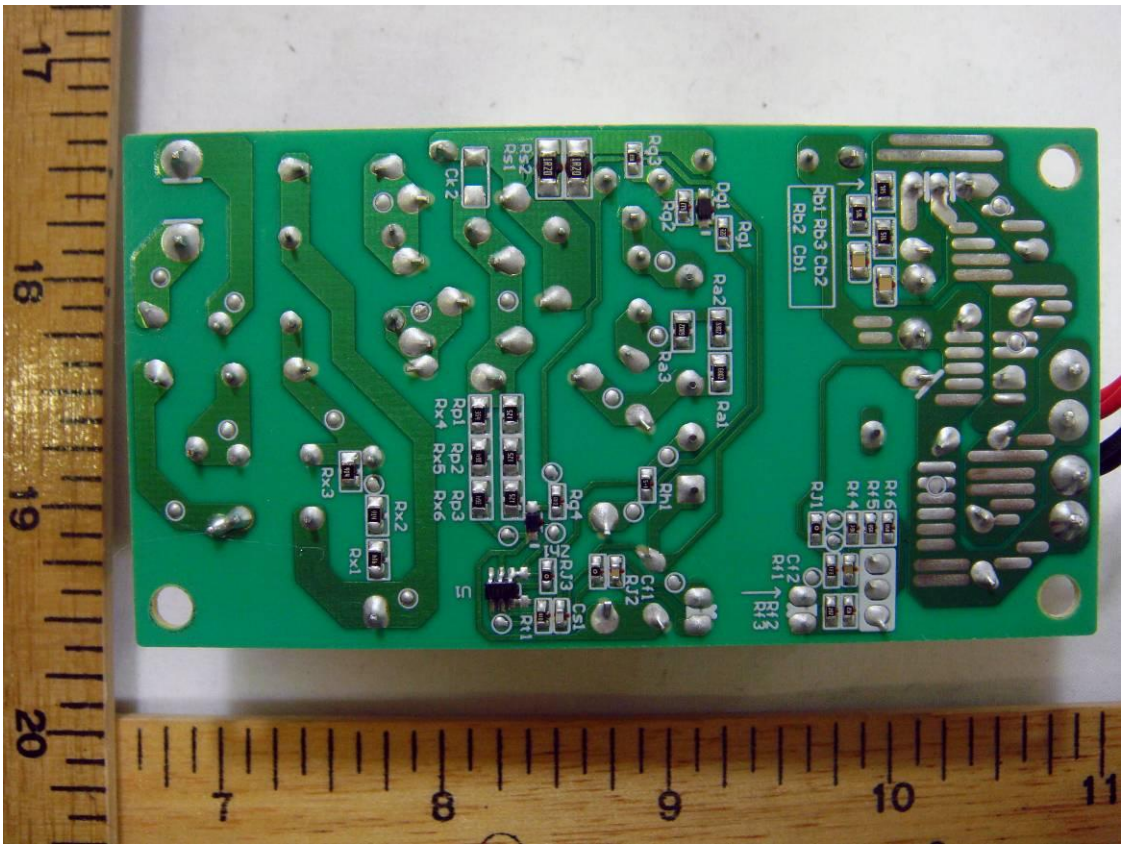

M99001601
Asian Power Devices Inc.
Model No. : NW-30A12-EAA
AC Input : 100V-240V~ 50-60Hz
0.9A Max.
DC Output : +12V 2.5A
Made in China
APD E216424
080-80291
-00 GP2 0927 LWX
TaYa 130-1 Class 130(B)


Rb1 Rb3 Cb2
Rb2 Cb1


2.4/5 GHz
2.4/5 GHz
2.4/5