

FCC Test Report

Product Name : Dual-band Wireless-N Ethernet Adapter
Trade Name : ASUS
Model No. : EA-N66
FCC ID. : MSQ-EAN66

Applicant : ASUSTeK COMPUTER INC.

Address : 4F, No. 150, Li-Te Rd., Peitou, Taipei, Taiwan

Date of Receipt : May 04, 2016

Issued Date : May 12, 2016

Report No. : 1650242R-RFUSP56V00-A

Report Version : V1.0



The test results relate only to the samples tested.

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Test Report Certification

Issued Date : May 12, 2016

Report No. : 1650242R-RFUSP56V00-A



Product Name : Dual-band Wireless-N Ethernet Adapter
Applicant : ASUSTeK COMPUTER INC.
Address : 4F, No. 150, Li-Te Rd., Peitou, Taipei, Taiwan
Manufacturer : ASUSTeK COMPUTER INC.
Model No. : EA-N66
FCC ID. : MSQ-EAN66
EUT Voltage : AC 100-240V, 50-60Hz
Testing Voltage : AC 120V/60Hz
Trade Name : ASUS
Applicable Standard : FCC CFR Title 47 Part 15 Subpart E Section 15.407: 2015
ANSI C63.10: 2013
Test Lab : QuieTek Hsin Chu Laboratory
Test Result : Complied

The test results relate only to the samples tested.

The test report shall not be reproduced except in full without the written approval of QuieTek Corporation.

Documented By :

A handwritten signature in blue ink, appearing to read "Carol Tsai".

(Carol Tsai / Senior Engineering Adm. Specialist)

Tested By :

A handwritten signature in blue ink, appearing to read "JuBo Shen".

(JuBo Shen / Senior Engineer)

Approved By :

A handwritten signature in blue ink, appearing to read "Roy Wang".

(Roy Wang / Director)

Revision History

Report No.	Version	Description	Issued Date
11B489R-RFUSP42V01	V1.0	Initial issue of report	Dec. 07, 2011
12B281R-RFUSP42V01	V1.0	Add adapter (DSA-12PFA-09 FUS 120100)	Dec. 14, 2012
1590187R-RFUSP28V00	V1.0	Add three Lever 6 adapters (WA-24Q12FU, DSA-12PFT-12 FUS 120100, WA-12M12FU)	Oct. 14, 2015
1650242R-RFUSP56V00-A	V1.0	Update WLAN 5G band 4 standard to FCC 15E new rule, and verify Power Density (Measure Level & Limit), Frequency Stability tested. The WLAN 2.4G test data, please refer to the 1590187R-RFUSP28V00.	May 12, 2016

Laboratory Information

We, **QuieTek Corporation**, are an independent RF consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted (audited or listed) by the following related bodies in compliance with ISO 17025 specified testing scopes:

Taiwan R.O.C.	: TAF, Accreditation Number: 3024
USA	: FCC, Registration Number: 365520
Canada	: IC, Submission No: 181665 / IC Registration Number: 4075C-4

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site:<http://www.quietek.com/english/about/certificates.aspx?bval=5>

The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site :
http://www.quietek.com/index_en.aspx

If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

HsinChu Testing Laboratory:

No.75-2, 3rd Lin, Wangye Keng, Yonghxing Tsuen, Qionglin Shiang, Hsinchu County 307, Taiwan, R.O.C.

TEL:+886-3-592-8858 / FAX:+886-3-592-8859

E-Mail : service@quietek.com

LinKou Testing Laboratory:

No.5-22, Ruishukeng, Linkou Dist., New Taipei City 24451, Taiwan, R.O.C.

TEL : 886-2-8601-3788 / FAX : 886-2-8601-3789

E-Mail : service@quietek.com

TABLE OF CONTENTS

Description	Page
1. General Information.....	6
1.1. EUT Description	6
1.2. Test Mode	12
1.3. Tested System Details	13
1.4. Configuration of tested System	13
1.5. EUT Exercise Software	14
1.6. Test Facility.....	15
2. Power Density	16
2.1. Test Equipment.....	16
2.2. Test Setup	16
2.3. Limits	16
2.4. Test Procedure	17
2.5. Uncertainty	17
2.6. Test Result.....	18
3. Frequency Stability	38
3.1. Test Equipment.....	38
3.2. Test Setup	38
3.3. Limits	38
3.4. Test Procedure	38
3.5. Uncertainty	38
3.6. Test Result.....	39
Attachment 1.....	53
Original Report	53

1. General Information

1.1. EUT Description

Product Name	Dual-band Wireless-N Ethernet Adapter	
Product Type	WLAN(3TX,3RX)	
Trade Name	ASUS	
Model No.	EA-N66	
Frequency Range / Channel Number	IEEE 802.11a/ IEEE 802.11n (20MHz)	5745~5825MHz / 5 Channels
	IEEE 802.11n (40MHz)	5755~5795MHz / 2 Channels
Type of Modulation	IEEE 802.11a/n	Orthogonal Frequency Division Multiplexing (OFDM)
Data Speed	IEEE 802.11a	6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps, 54Mbps
	IEEE 802.11n	Support a subset of the combination of GI, MCS 0~MCS 23 and bandwidth defined in 802.11n

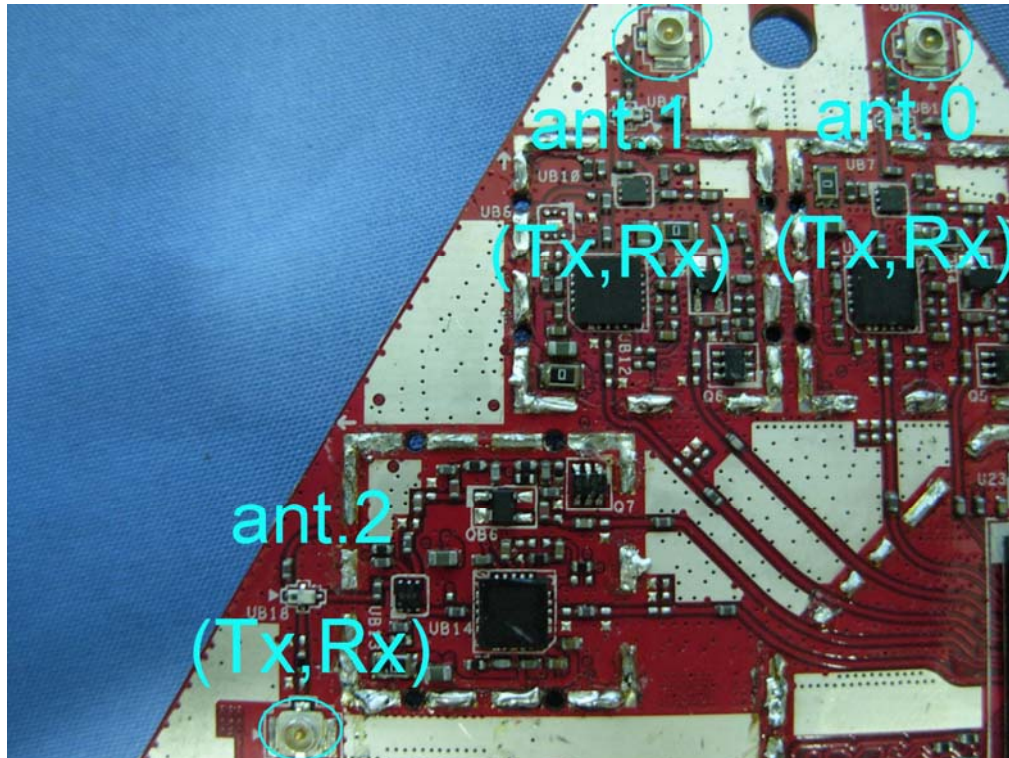
Antenna Information	
Antenna Type	Dipole Antenna
Antenna Gain	4dBi

Accessories Information	
LAN Cable	Non-Shielded, 1.0m
Power Adapter	DVE, DSA-12GX-12 FUS 120120 I/P : 100-240V~50/60Hz 0.3A O/P : +12V $\equiv$ 1A Cable Out: Non-Shielded, 1.5m
Power Adapter	PHIHONG, PSA12A-120 I/P : 100-240V~0.5A 50-60Hz O/P : 12V $\equiv$ 1.0A 27-37VA Cable Out: Non-Shielded, 1.5m, one ferrite core bonded.
Power Adapter	DVE, DSA-12PFA-09 FUS 120100 I/P : 100-240V~50/60Hz 0.5A O/P : +12V $\equiv$ 1A Cable Out: Non-Shielded, 1.5m
Power Adapter (Level 6)	APD, WA-24Q12FU I/P : 100-240V~50-60Hz 0.7A Max. O/P : 12V $\equiv$ 2A Cable Out: Non-Shielded, 1.5m
Power Adapter (Level 6)	DVE, DSA-12PFT-12 FUS 120100 I/P : 100-240V~50/60Hz 0.5A O/P : +12V $\equiv$ 1A Cable Out: Non-Shielded, 1.5m
Power Adapter (Level 6)	APD, WA-12M12FU I/P : 100-240V~, 50-60Hz 0.5A Max. O/P : 12V $\equiv$ 1A Cable Out: Non-Shielded, 1.5m

ANT-TX / Rx & Bandwidth

ANT-TX / RX	SINGLE-TX		THREE-TX		RX	
Mode/ Channel Bandwidth	20MHz	40MHz	20MHz	40MHz	20MHz	40MHz
IEEE802.11a	✓				✓	
IEEE802.11n			✓	✓	✓	✓

TX / RX



IEEE 802.11n

MCS Index	Modulation	R	N _{BPSCS}	N _{CBPS}		N _{DBPS}		Data Rate(Mb/s)			
				20MHz	40MHz	20MHz	40MHz	800ns GI		400ns GI (Note1)	
								20MHz	40MHz	20MHz	40MHz
0	BPSK	1/2	1	52	108	26	54	6.5	13.5	7.2	15.0
1	QPSK	1/2	2	104	216	52	108	13.0	27.0	14.4	30.0
2	QPSK	3/4	2	104	216	78	162	19.5	40.5	21.7	45.0
3	16-QAM	1/2	4	208	432	104	216	26.0	54.0	28.9	60.0
4	16-QAM	3/4	4	208	432	156	324	39.0	81.0	43.3	90.0
5	64-QAM	2/3	6	312	648	208	432	52.0	108.0	57.8	120.0
6	64-QAM	3/4	6	312	648	234	486	58.5	121.5	65.0	135.0
7	64-QAM	5/6	6	312	648	260	540	65.0	135.0	72.2	150.0

Note 1: Support of 400ns GI is optional on transmit and receive.

Table 1 – MCS parameters for TX Antenna number = 1

MCS Index	Modulation	R	N _{BPSCS}	N _{CBPS}		N _{DBPS}		Data Rate(Mb/s)			
				20MHz	40MHz	20MHz	40MHz	800ns GI		400ns GI (Note1)	
								20MHz	40MHz	20MHz	40MHz
8	BPSK	1/2	1	104	216	52	108	13.0	27.0	14.4	30.0
9	QPSK	1/2	2	208	432	104	216	26.0	54.0	28.9	60.0
10	QPSK	3/4	2	208	432	156	324	39.0	81.0	43.3	90.0
11	16-QAM	1/2	4	416	864	208	432	52.0	108.0	57.8	120.0
12	16-QAM	3/4	4	416	864	312	648	78.0	162.0	86.7	180.0
13	64-QAM	2/3	6	624	1296	416	864	104.0	216.0	115.6	240.0
14	64-QAM	3/4	6	624	1296	468	972	117.0	243.0	130.0	270.0
15	64-QAM	5/6	6	624	1296	520	1080	130.0	270.0	144.4	300.0

Note 1: Support of 400ns GI is optional on transmit and receive.

Table 2 – MCS parameters for TX Antenna number = 2

MCS Index	Modulation	R	N _{BPSCS}	N _{CBPS}		N _{DBPS}		Data Rate(Mb/s)			
				20MHz	40MHz	20MHz	40MHz	800ns GI		400ns GI (Note1)	
								20MHz	40MHz	20MHz	40MHz
16	BPSK	1/2	1	156	324	78	162	19.5	40.5	21.7	45.0
17	QPSK	1/2	2	312	648	156	324	39.0	81.0	43.3	90.0
18	QPSK	3/4	2	312	648	234	486	58.5	121.5	65.0	135.0
19	16-QAM	1/2	4	624	1296	312	648	78.0	162.0	86.7	180.0
20	16-QAM	3/4	4	624	1296	468	972	117.0	243.0	130.0	270.0
21	64-QAM	2/3	6	936	1944	624	1296	156.0	324.0	173.3	360.0
22	64-QAM	3/4	6	936	1944	702	1458	175.5	364.5	195.0	405.0
23	64-QAM	5/6	6	936	1944	780	1620	195.0	405.0	216.7	450.0

Note 1: Support of 400ns GI is optional on transmit and receive.

Table 3 – MCS parameters for TX Antenna number = 3

Symbol	Explanation
R	Code rate
N _{BPSC}	Number of coded bits per single carrier
N _{CBPS}	Number of coded bits per symbol
N _{DBPS}	Number of data bits per symbol
GI	guard interval

IEEE 802.11a & IEEE 802.11n (20MHz)

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
149	5745 MHz	153	5765 MHz	157	5785 MHz	161	5805 MHz
165	5825 MHz						

IEEE 802.11n (40MHz)

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
151	5755 MHz	159	5795 MHz				

Note:

1. This device is a Dual-band Wireless-N Ethernet Adapter including 2.4GHz b/g/n and 5GHz a/n (3x3) transmitting and receiving function.
2. These test results on a sample of the device are for the purpose of demonstrating Compliance with Part 15 Subpart E Paragraph 15.407.
3. Regards to the frequency band operation; the lowest , middle and highest frequency of channel were selected to perform the test, and then shown on this report.
4. The function of the 2.4G & 5.2GHz transmitting is measured and makes a test report of the report number: 1590187R-RFUSP28V00 & 1650242R-RFUSP56V00.
5. This device is a composite device in accordance with Part 15 regulations. The receiving function receiving was tested and its test report number is 1590187R-RFUSP01V00 under Declaration of Conformity.

1.2. Test Mode

QuieTek has verified the construction and function in typical operation. The preliminary tests were performed in different data rate, and to find the worst condition, which was shown in this test report. The following table is the final test mode.

TX	Mode 1: Transmit (Adapter: DVE, DSA-12GX-12 FUS 120120) Mode 2: Transmit (Adapter: PHIHONG, PSA12A-120) Mode 3: Transmit (Adapter: DVE, DSA-12PFA-09 FUS 120100) Mode 4: Transmit (Adapter: APD, WA-24Q12FU) Mode 5: Transmit (Adapter: DVE, DSA-12PFT-12 FUS 120100) Mode 6: Transmit (Adapter: APD, WA-12M12FU)
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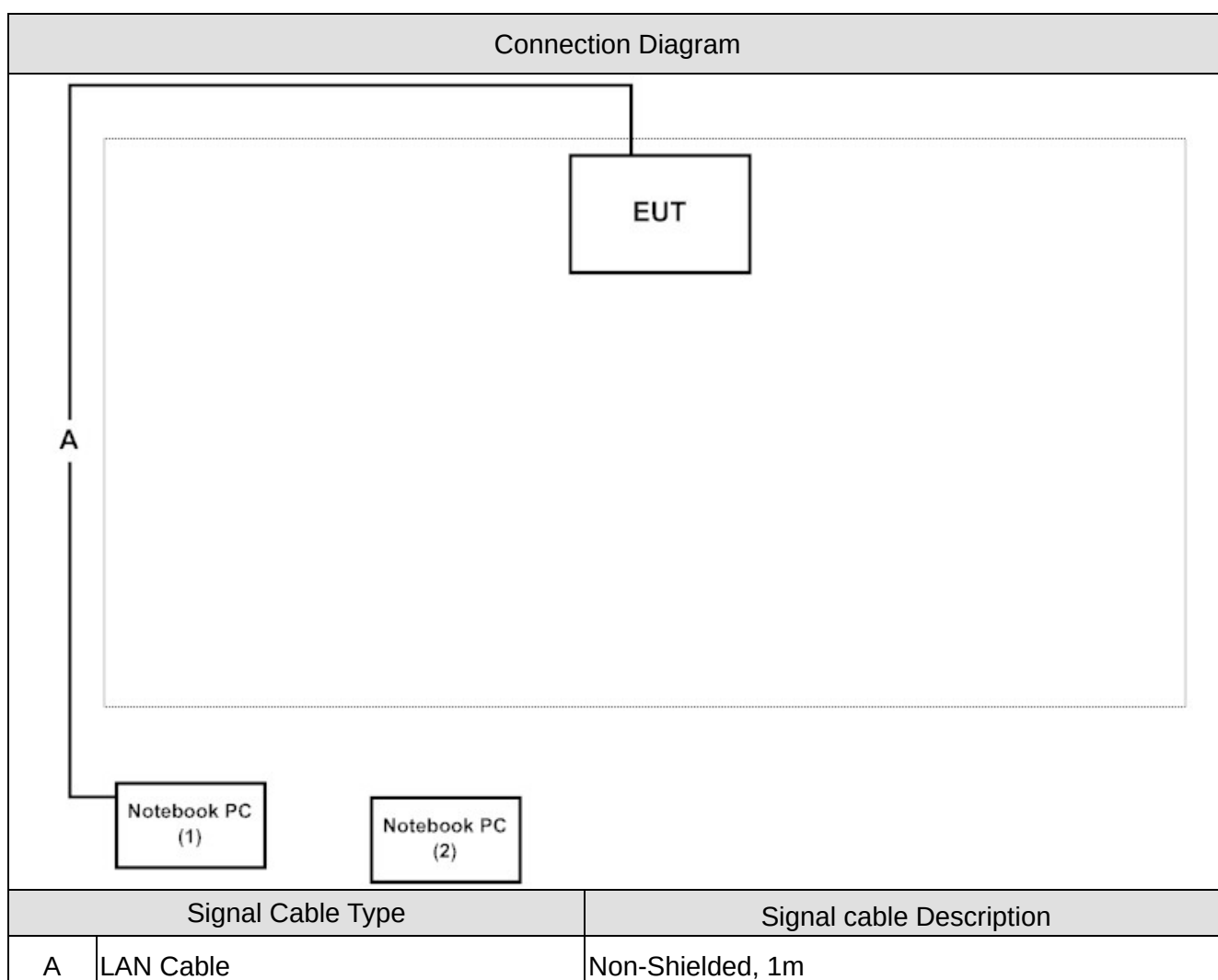
Test Items	Mode	Channel	Antenna	Result
Conducted Emission	11n(40MHz)	151/159	0+1+2	N/A
Peak Power Output	a	149/ 157/ 165	0	N/A
	11n(20MHz)	149/ 157/ 165	0+1+2	N/A
	11n(40MHz)	151/ 159	0+1+2	N/A
Radiated Emission	a	149/ 157/ 165	0	N/A
	11n(20MHz)	149/ 157/ 165	0+1+2	N/A
	11n(40MHz)	151/ 159	0+1+2	N/A
RF antenna conducted test	a	149/ 165	0	N/A
	11n(20MHz)	149/ 165	0/1/2	N/A
	11n(40MHz)	151/ 159	0/1/2	N/A
Occupied Bandwidth	a	149/ 157/ 165	0	N/A
	11n(20MHz)	149/ 157/ 165	0/1/2	N/A
	11n(40MHz)	151/ 159	0/1/2	N/A
Power Density	a	149/ 157/ 165	0	Complies
	11n(20MHz)	149/ 157/ 165	0+1+2	Complies
	11n(40MHz)	151/ 159	0+1+2	Complies
Frequency Stability	a	149/ 165	0	Complies
	11n(20MHz)	149/ 165	0/1/2	Complies
	11n(40MHz)	151/ 159	0/1/2	Complies

1.3. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
1	Notebook PC	DELL	PP37L	CD8BNG1	DoC	Non-Shielded, 1.8m
2	Notebook PC	ACER	MS2296	LUSCV0213911503 32C2000	DoC	Non-Shielded, 2.5m one ferrite core bonded

1.4. Configuration of tested System



1.5. EUT Exercise Software

1	Setup the EUT as shown in Section 1.4.
2	Execute the “RT3883-AP-v1.0.4.0” on the EUT.
3	Configure the test mode, the test channel, and the data rate.
4	Press “Start TX” to start the continuous transmitting.
5	Verify that the EUT works properly.

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual
Temperature (°C)	FCC PART 15 E 15.407 Power Density (DSSS)	15 - 35	25
Humidity (%RH)		25 - 75	48
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 E 15.407 Frequency Stability	15 - 35	25°C
Humidity (%RH)		25 - 75	45%RH
Barometric pressure (mbar)		860 - 1060	950-1000

2. Power Density

2.1. Test Equipment

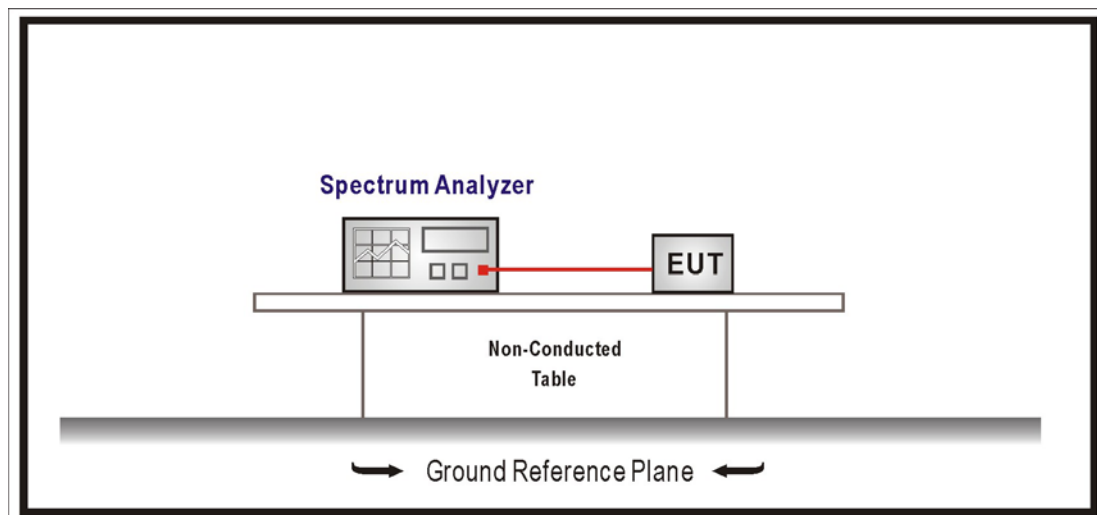
The following test equipments are used during the radiated emission tests:

Peak Power Spectrum Density / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A-EXA	US47140172	2016/08/23

Note: All equipments that need to calibrate are with calibration period of 1 year.

2.2. Test Setup



2.3. Limits

1. For the band 5.15-5.25 GHz, the peak power spectral density shall not exceed 17 dBm in any 1MHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
2. For client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi
3. For the band 5.25-5.35 GHz, the peak power spectral density shall not exceed 11 dBm in any 1-MHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
4. For the band 5.725-5.850 GHz, the peak power spectral density shall not exceed 30 dBm in any 500KHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.

2.4. Test Procedure

The EUT was setup to ANSI C63.10: 2013; tested to U-NII test procedure of KDB 789033 D02 for compliance to FCC 47CFR Subpart E requirements.

For Band1 : Set RBW=1MHz, VBW=3MHz with RMS detector. The PPSD is the highest level found across the emission in any 1-MHz band after 100 sweeps of averaging.

For Band4 : Set RBW=500KHz, VBW=1.5MHz with RMS detector. The PPSD is the highest level found across the emission in any 500KHz band after 100 sweeps of averaging.

2.5. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB

2.6. Test Result

Product	Dual-band Wireless-N Ethernet Adapter		
Test Item	Power Density		
Test Mode	Mode 1: Transmit (Adapter: DVE, DSA-12GX-12 FUS 120120)		
Date of Test	2011/11/30	Test Site	SR7

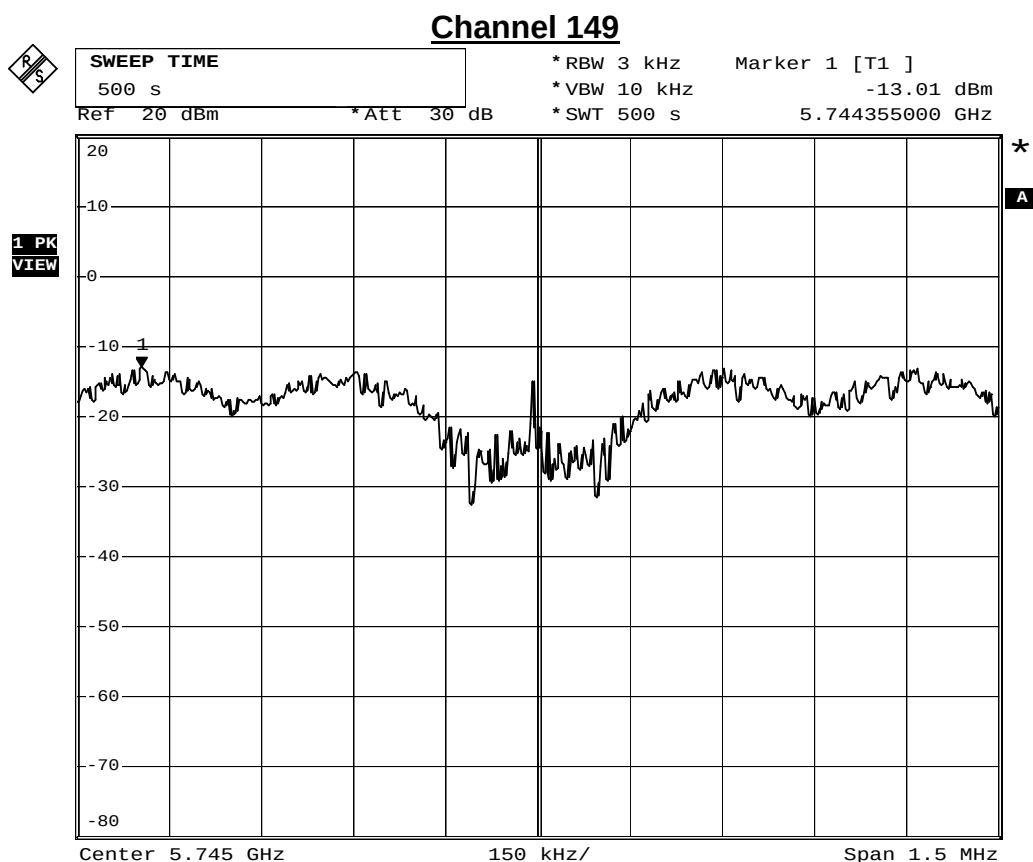
IEEE 802.11a				
Channel No.	Frequency (MHz)	Reading Level(dBm)	Measure Level(dBm)	Limit (dBm)
149	5745	-13.01	9.208	≤ 30
157	5785	-14.27	7.948	≤ 30
165	5825	-13.55	8.668	≤ 30

Remark:

Original Report RBM=10kHz

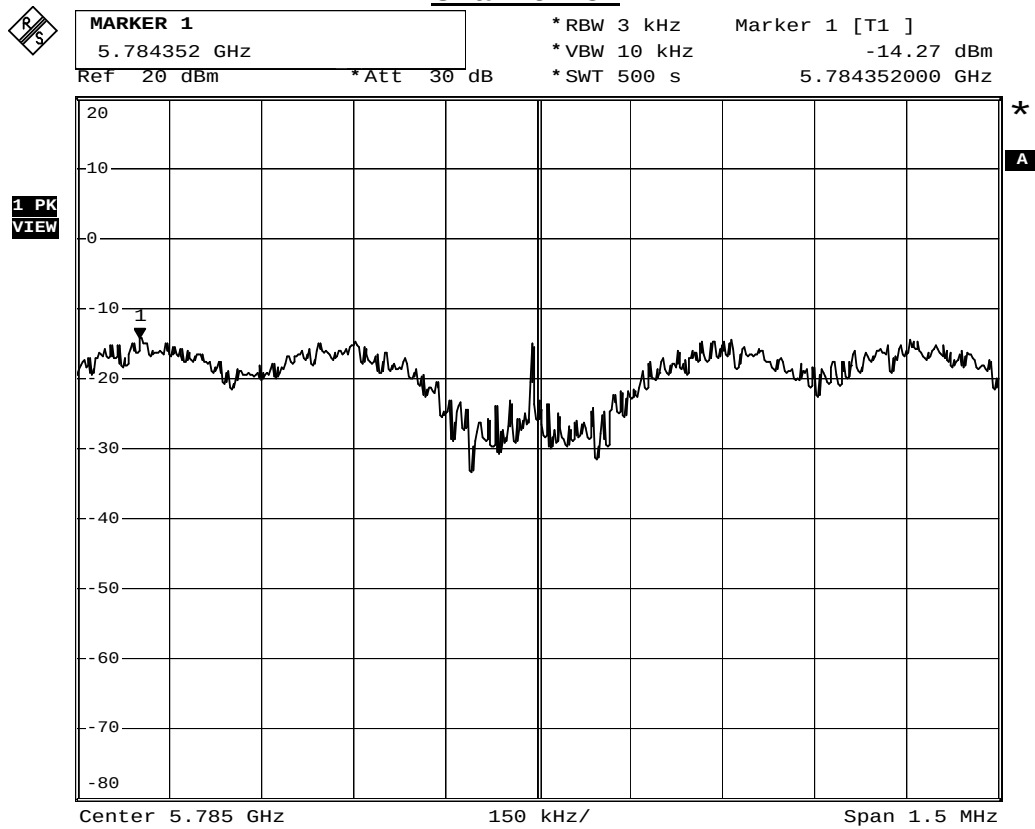
Correct factor= $10\log(500\text{kHz}/3\text{kHz})=22.218\text{dB}$

Measure=Reading + correct factor



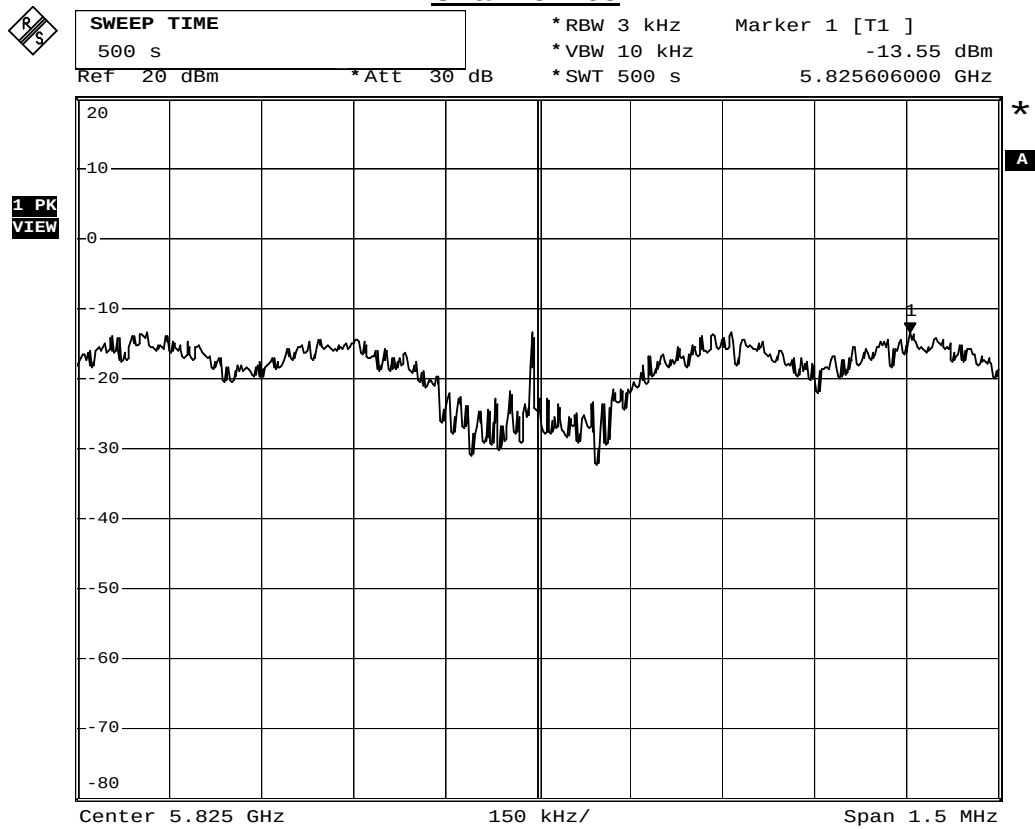
Date: 30.NOV.2011 16:34:20

Channel 157



Date: 30.NOV.2011 16:35:55

Channel 165



Date: 30.NOV.2011 16:37:21

Product	Dual-band Wireless-N Ethernet Adapter		
Test Item	Power Density		
Test Mode	Mode 1: Transmit (Adapter: DVE, DSA-12GX-12 FUS 120120)		
Date of Test	2011/11/30	Test Site	SR7

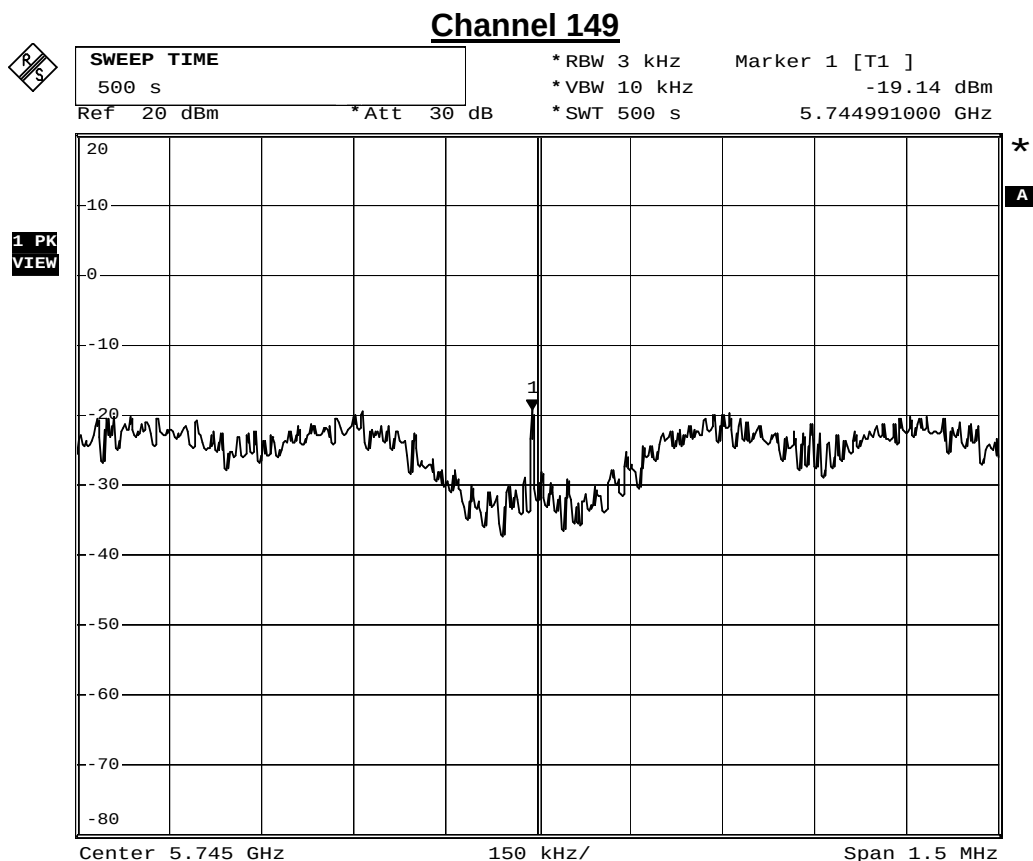
IEEE 802.11n(20M)_Ant. 0				
Channel No.	Frequency (MHz)	Reading Level(dBm)	Measure Level(dBm)	Limit (dBm)
149	5745	-19.14	3.078	≤ 30
157	5785	-17.59	4.628	≤ 30
165	5825	-17.21	5.008	≤ 30

Remark:

Original Report RBM=10kHz

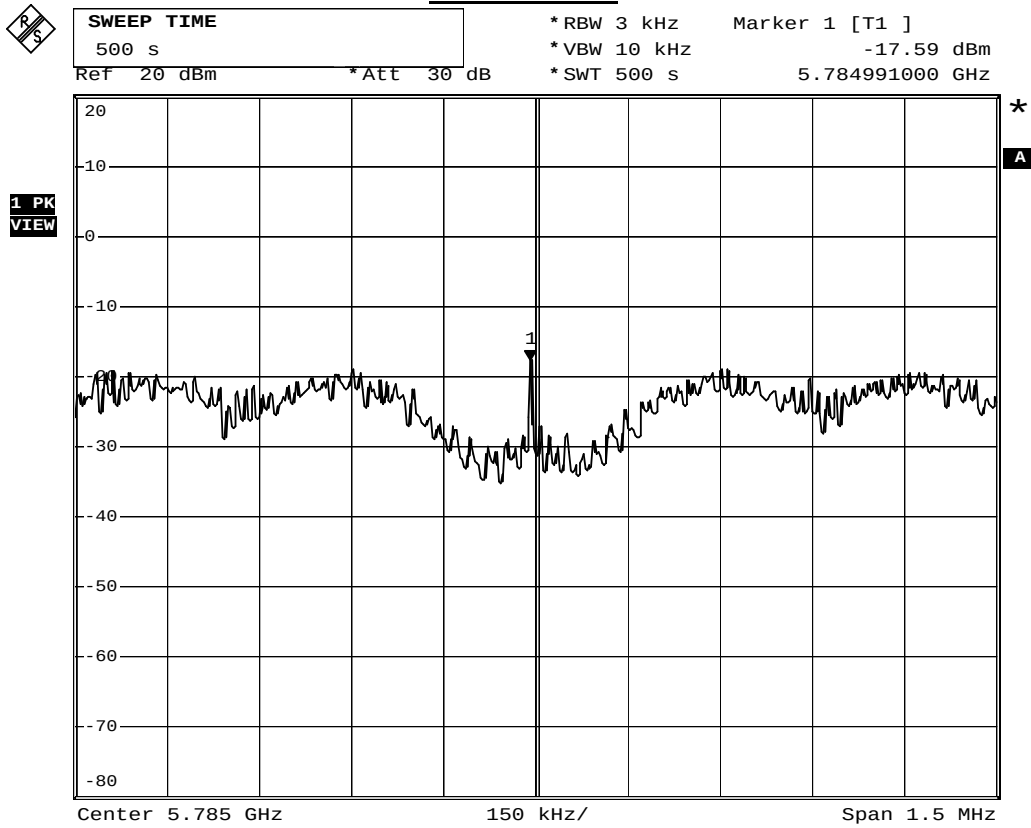
Correct factor= $10\log(500\text{kHz}/3\text{kHz})=22.218\text{dB}$

Measure=Reading + correct factor



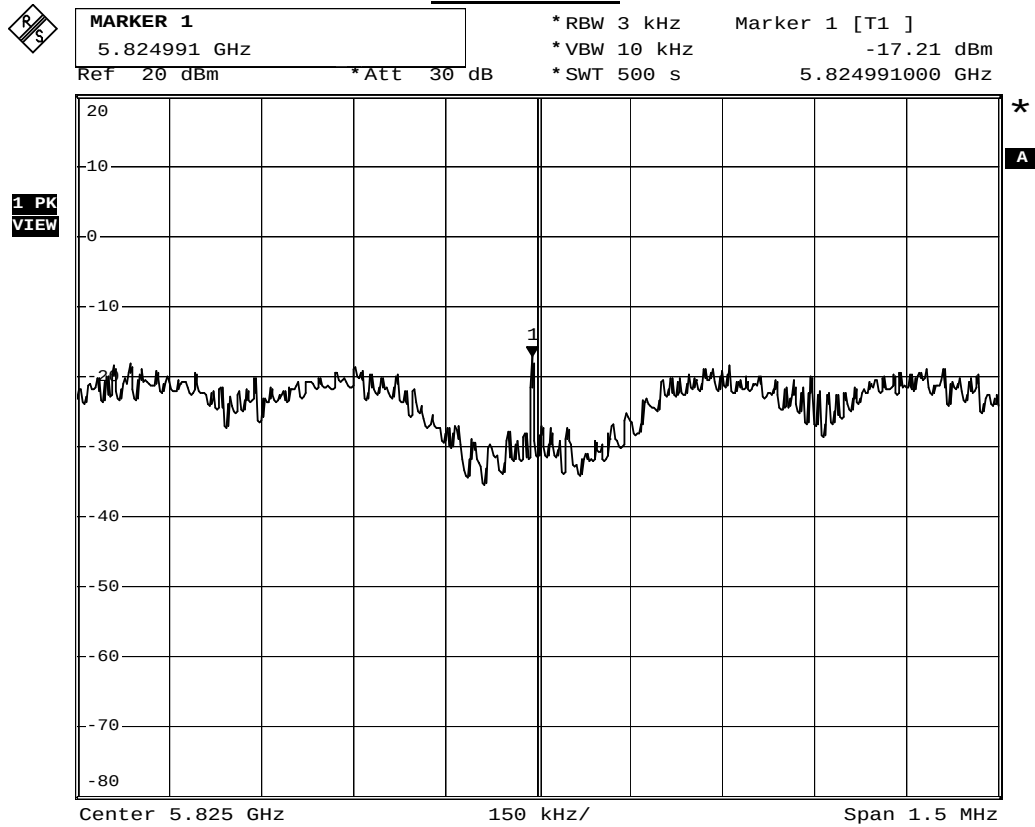
Date: 30.NOV.2011 16:40:21

Channel 157



Date: 30.NOV.2011 16:48:32

Channel 165



Date: 30.NOV.2011 16:54:29

Product	Dual-band Wireless-N Ethernet Adapter		
Test Item	Power Density		
Test Mode	Mode 1: Transmit (Adapter: DVE, DSA-12GX-12 FUS 120120)		
Date of Test	2011/11/30	Test Site	SR7

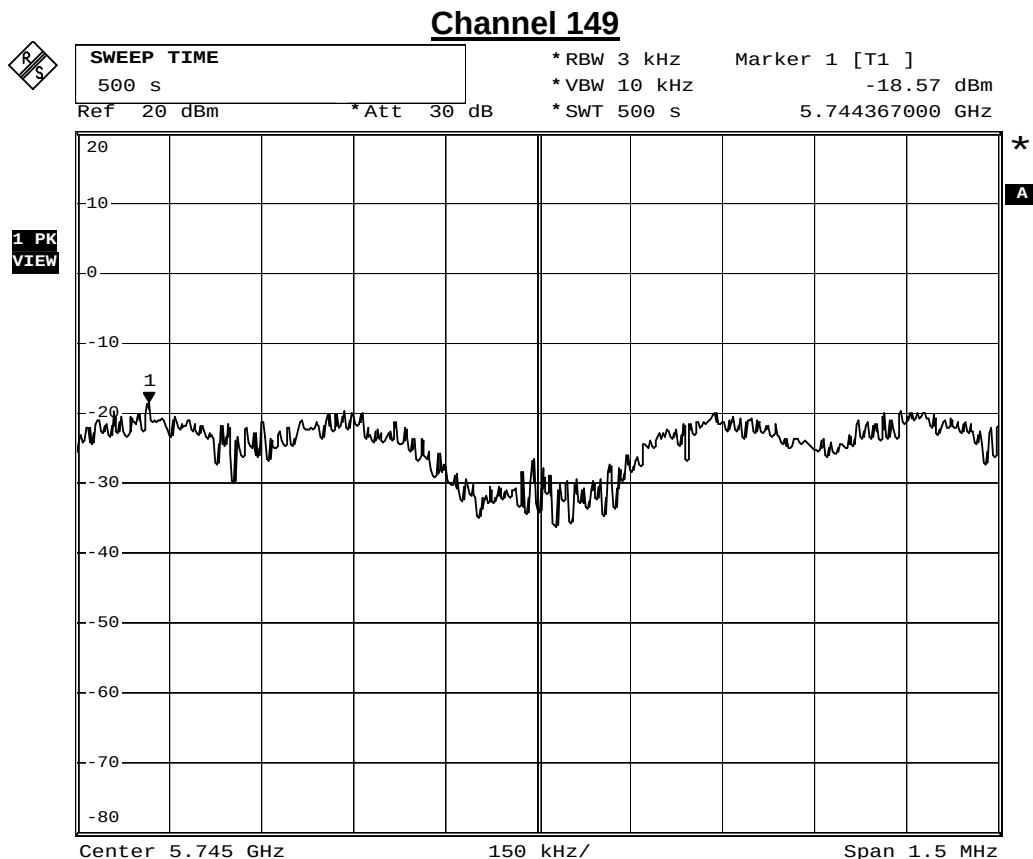
IEEE 802.11n(20M)_Ant. 1				
Channel No.	Frequency (MHz)	Reading Level(dBm)	Measure Level(dBm)	Limit (dBm)
149	5745	-18.57	3.648	≤ 30
157	5785	-17.20	5.018	≤ 30
165	5825	-18.72	3.498	≤ 30

Remark:

Original Report RBM=10kHz

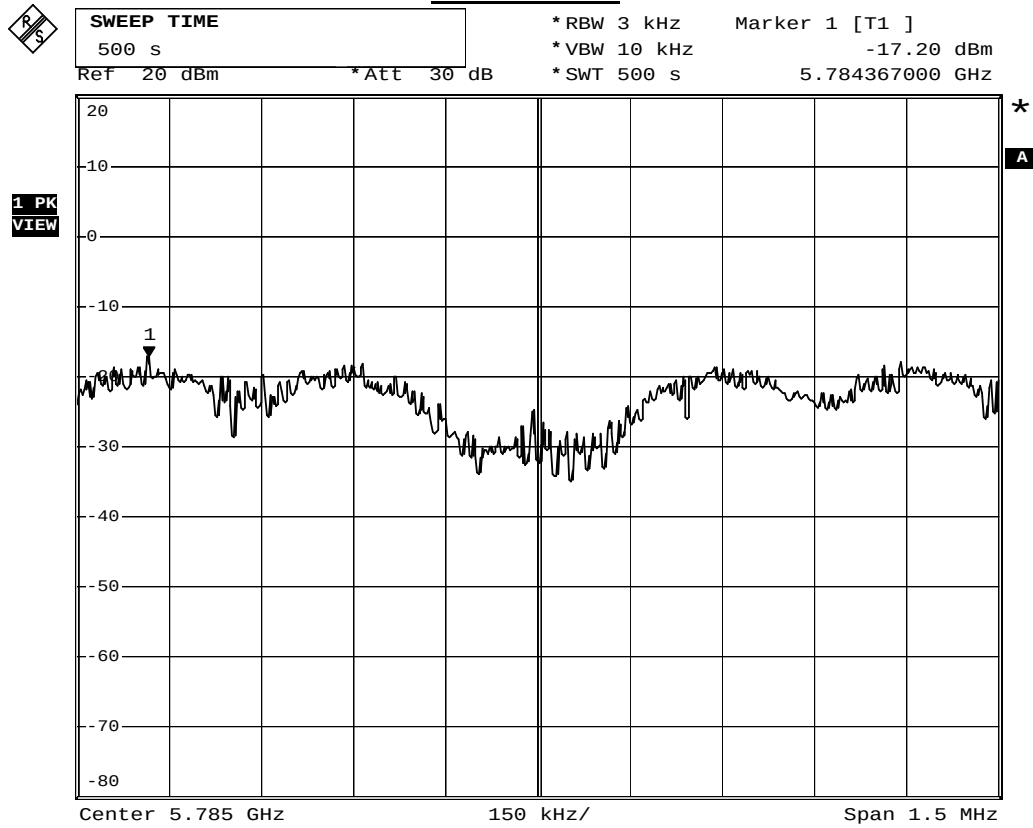
Correct factor= $10\log(500\text{kHz}/3\text{kHz})=22.218\text{dB}$

Measure=Reading + correct factor



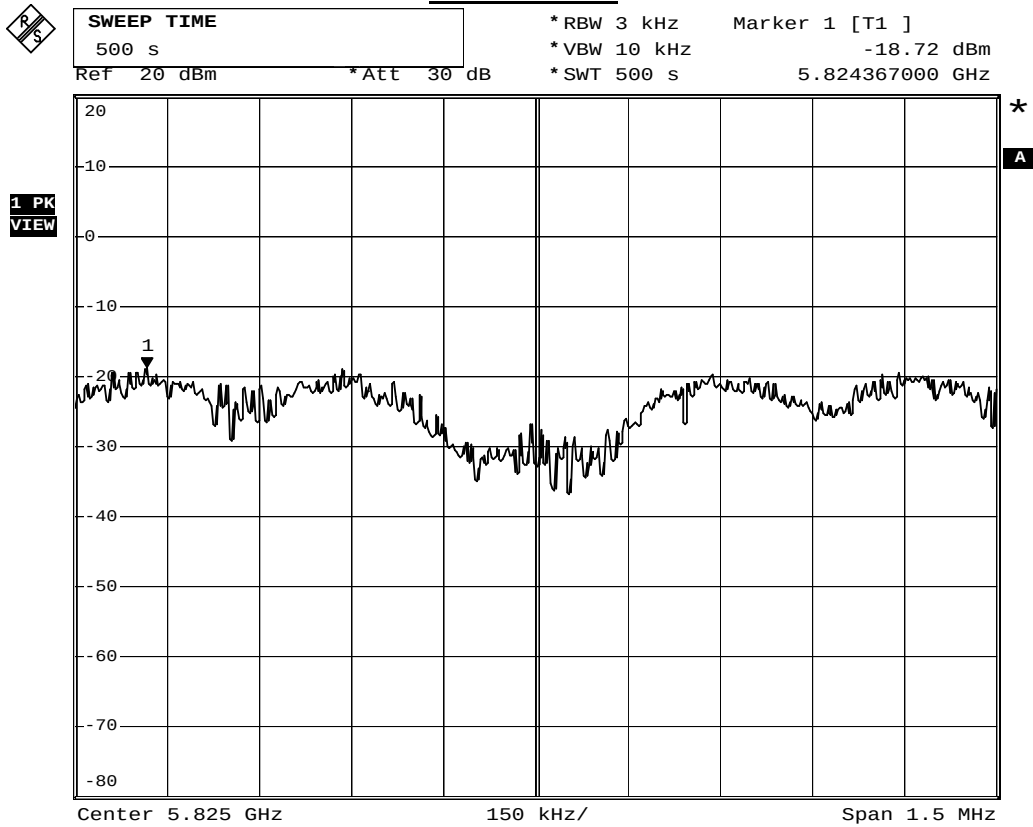
Date: 30.NOV.2011 16:41:31

Channel 157



Date: 30.NOV.2011 16:46:33

Channel 165



Date: 30.NOV.2011 16:55:31

Product	Dual-band Wireless-N Ethernet Adapter		
Test Item	Power Density		
Test Mode	Mode 1: Transmit (Adapter: DVE, DSA-12GX-12 FUS 120120)		
Date of Test	2011/11/30	Test Site	SR7

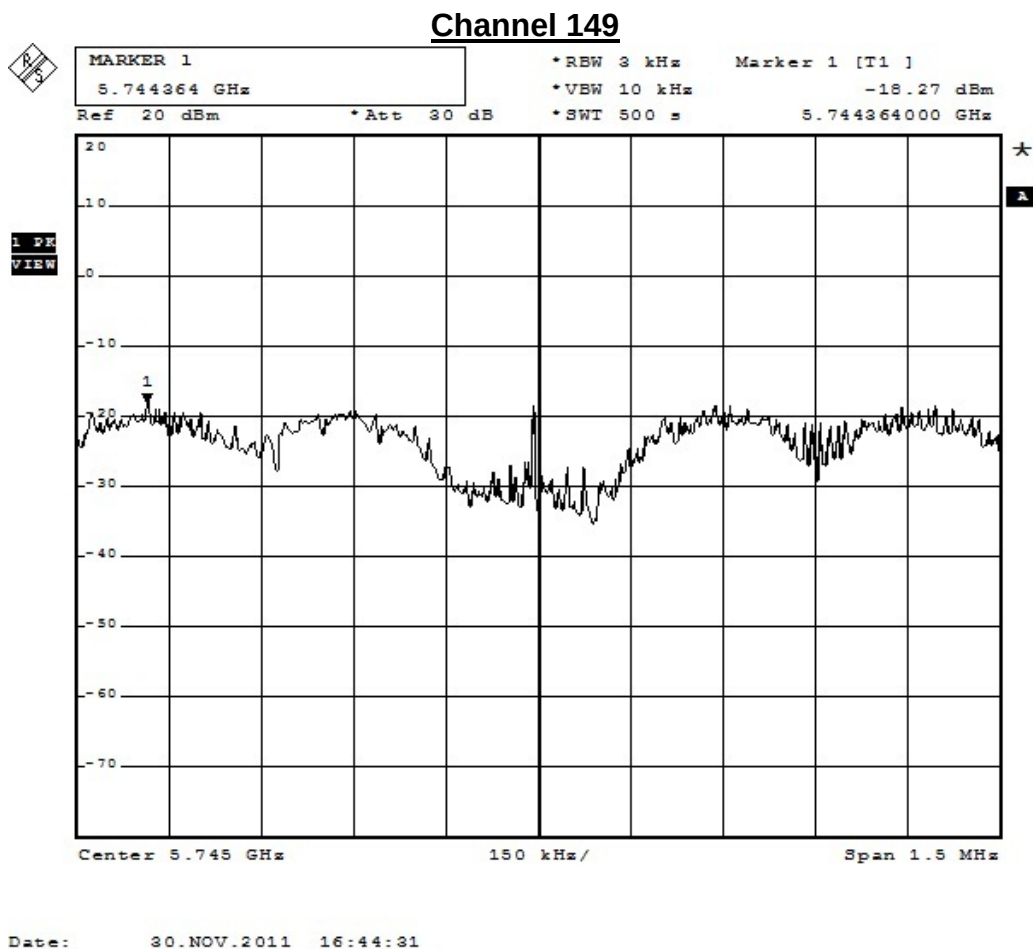
IEEE 802.11n(20M)_Ant. 2				
Channel No.	Frequency (MHz)	Reading Level(dBm)	Measure Level(dBm)	Limit (dBm)
149	5745	-18.27	3.948	≤ 30
157	5785	-18.27	3.948	≤ 30
165	5825	-18.66	3.558	≤ 30

Remark:

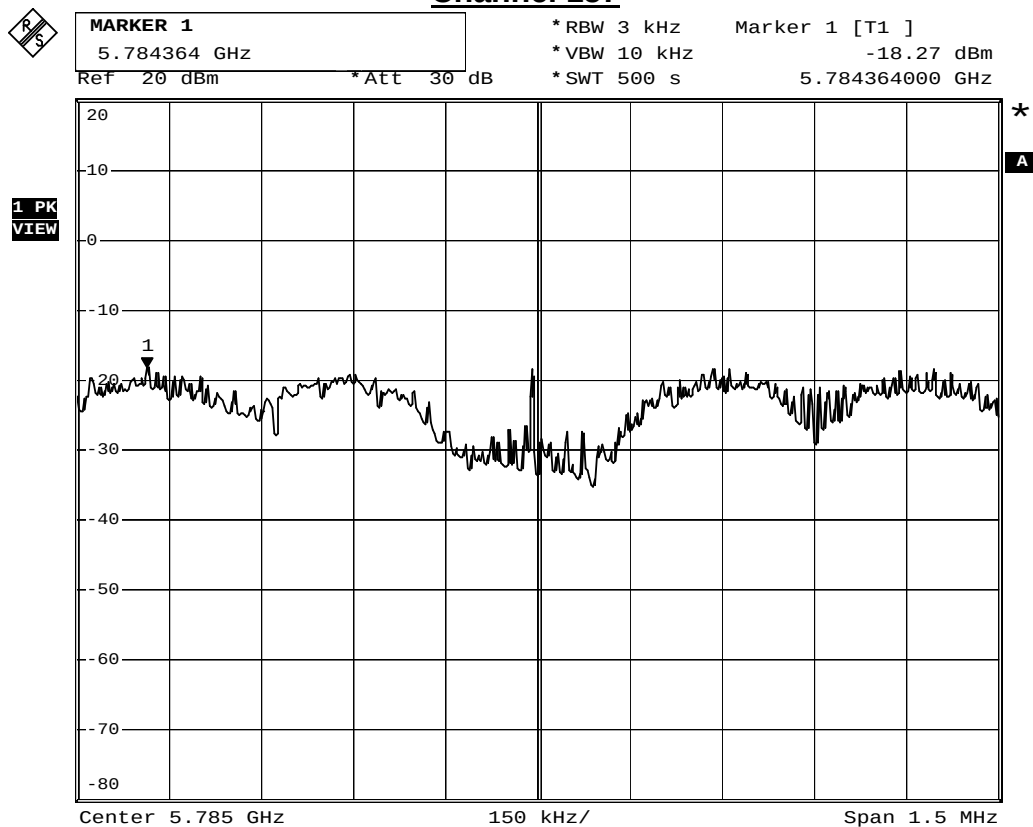
Original Report RBM=10kHz

Correct factor= $10\log(500\text{kHz}/3\text{kHz})=22.218\text{dB}$

Measure=Reading + correct factor

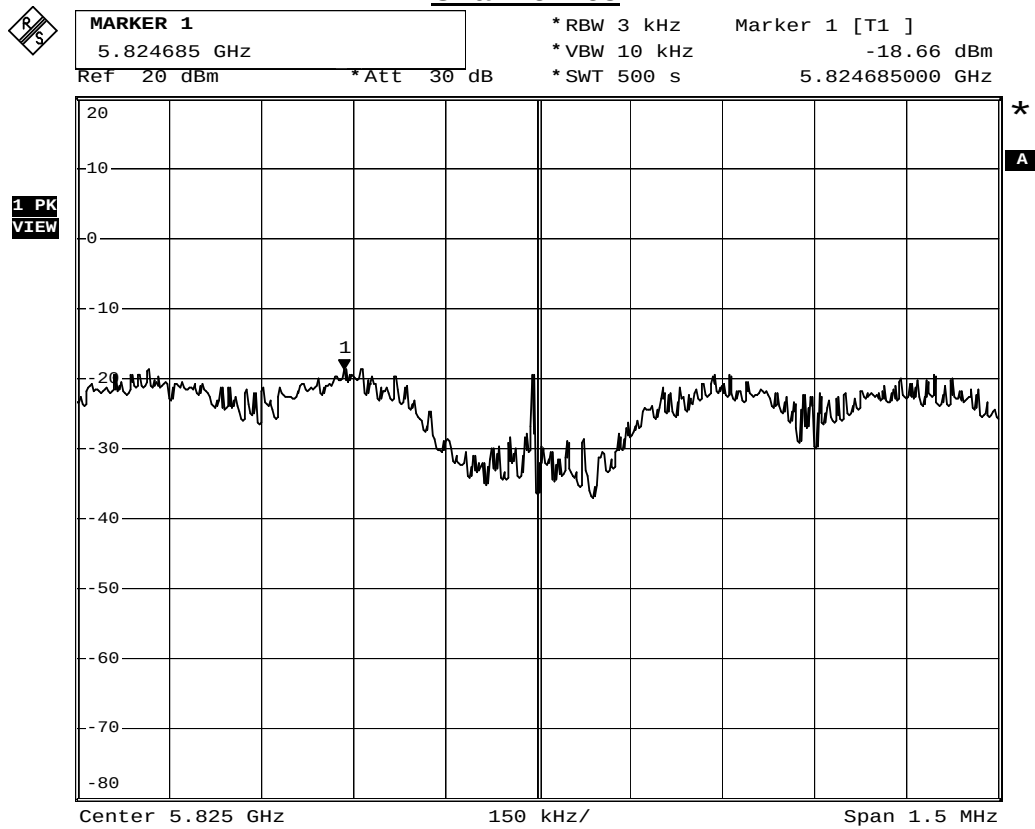


Channel 157



Date: 30.NOV.2011 16:45:56

Channel 165



Date: 30.NOV.2011 16:56:35

Product	Dual-band Wireless-N Ethernet Adapter		
Test Item	Power Density		
Test Mode	Mode 1: Transmit (Adapter: DVE, DSA-12GX-12 FUS 120120)		
Date of Test	2011/11/30	Test Site	SR7

IEEE 802.11n(20M)_Ant. 0+1+2			
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)
149	5745	8.344	≤ 30
157	5785	9.325	≤ 30
165	5825	8.851	≤ 30

Remark:

Original Report RBM=10kHz

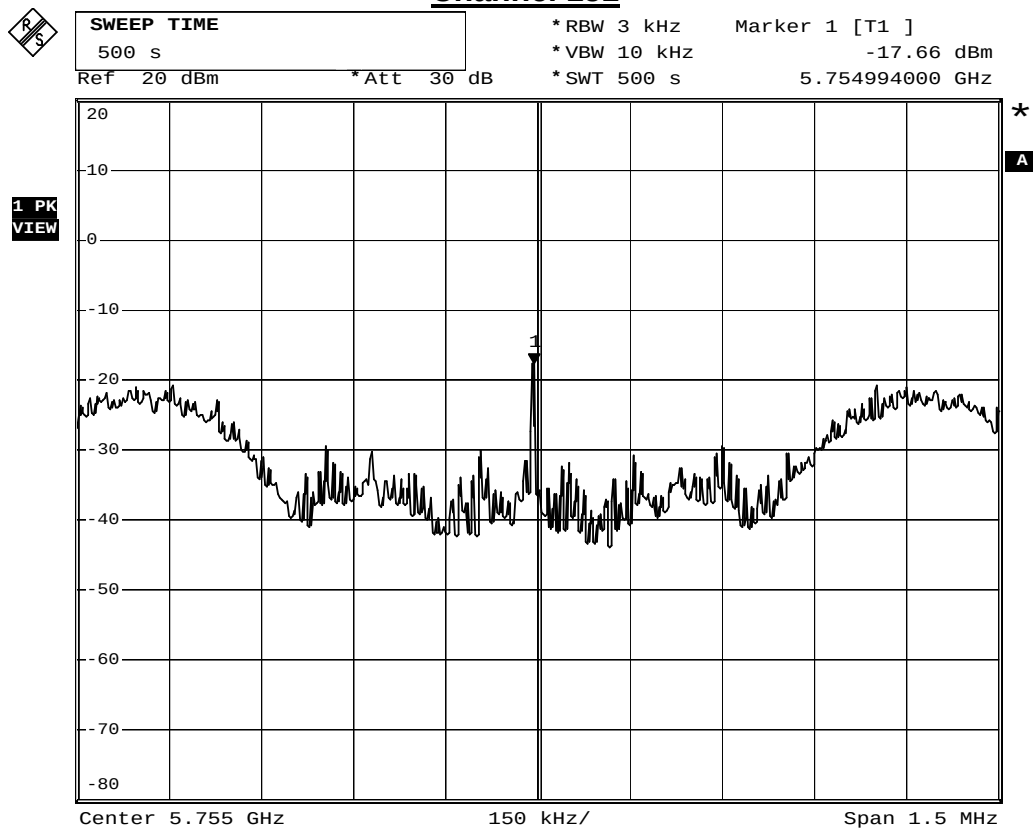
Correct factor= $10\log(500\text{kHz}/3\text{kHz})=22.218\text{dB}$

Measure=Reading + correct factor

Product	Dual-band Wireless-N Ethernet Adapter		
Test Item	Power Density		
Test Mode	Mode 1: Transmit (Adapter: DVE, DSA-12GX-12 FUS 120120)		
Date of Test	2011/11/30	Test Site	SR7

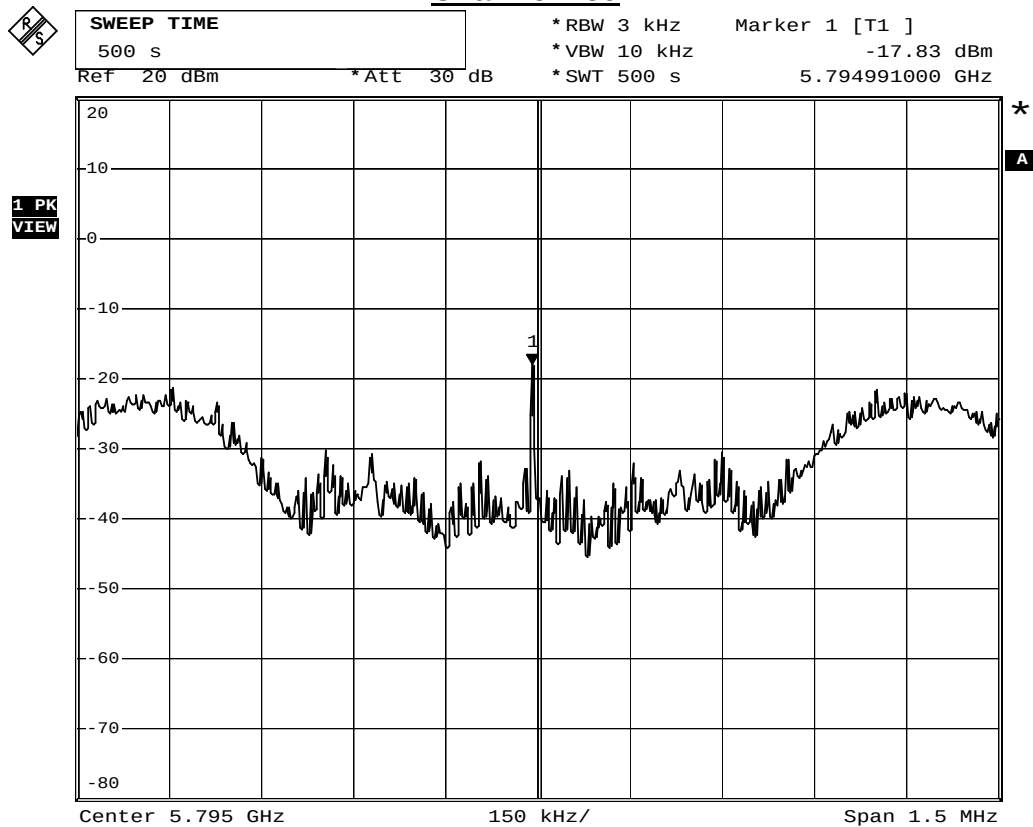
IEEE 802.11n(40M)_Ant. 0				
Channel No.	Frequency (MHz)	Reading Level(dBm)	Measure Level(dBm)	Limit (dBm)
151	5755	-17.66	4.558	≤ 30
159	5795	-17.83	4.388	≤ 30

Channel 151



Date: 30.NOV.2011 17:02:16

Channel 159



Date: 30.NOV.2011 17:04:40

Product	Dual-band Wireless-N Ethernet Adapter		
Test Item	Power Density		
Test Mode	Mode 1: Transmit (Adapter: DVE, DSA-12GX-12 FUS 120120)		
Date of Test	2011/11/30	Test Site	SR7

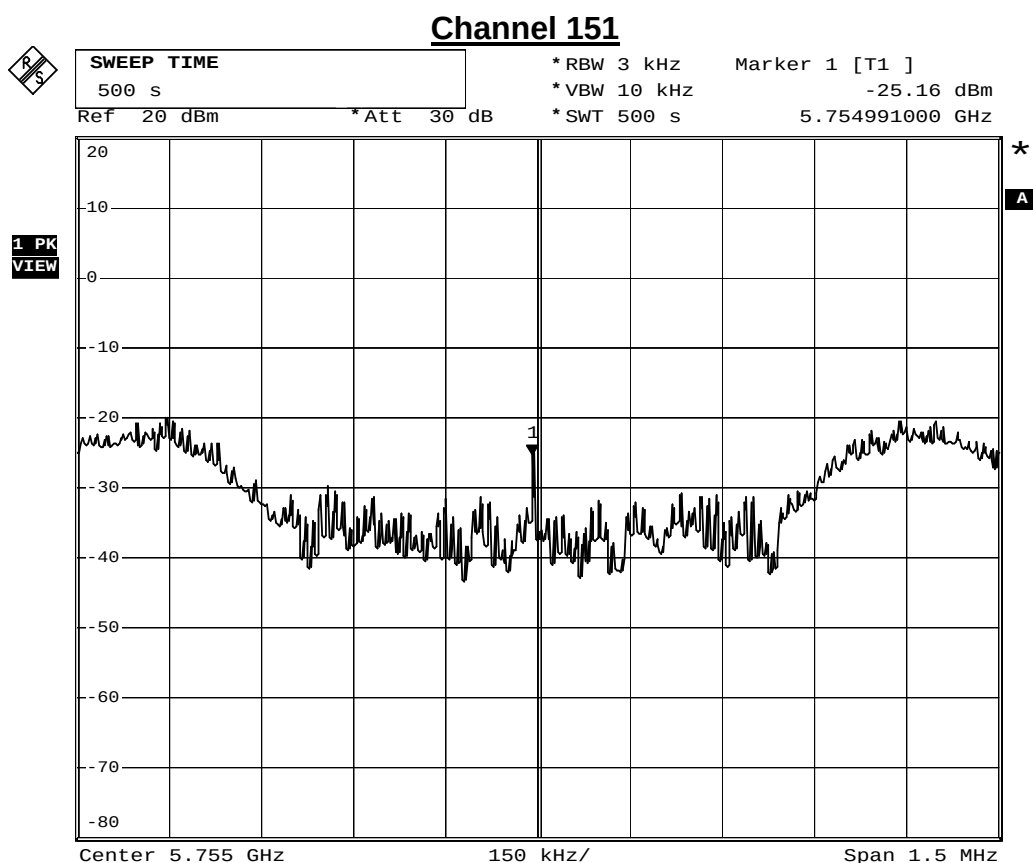
IEEE 802.11n(40M)_Ant. 1				
Channel No.	Frequency (MHz)	Reading Level(dBm)	Measure Level(dBm)	Limit (dBm)
151	5755	-25.16	-2.942	≤ 30
159	5795	-21.03	1.188	≤ 30

Remark:

Original Report RBM=10kHz

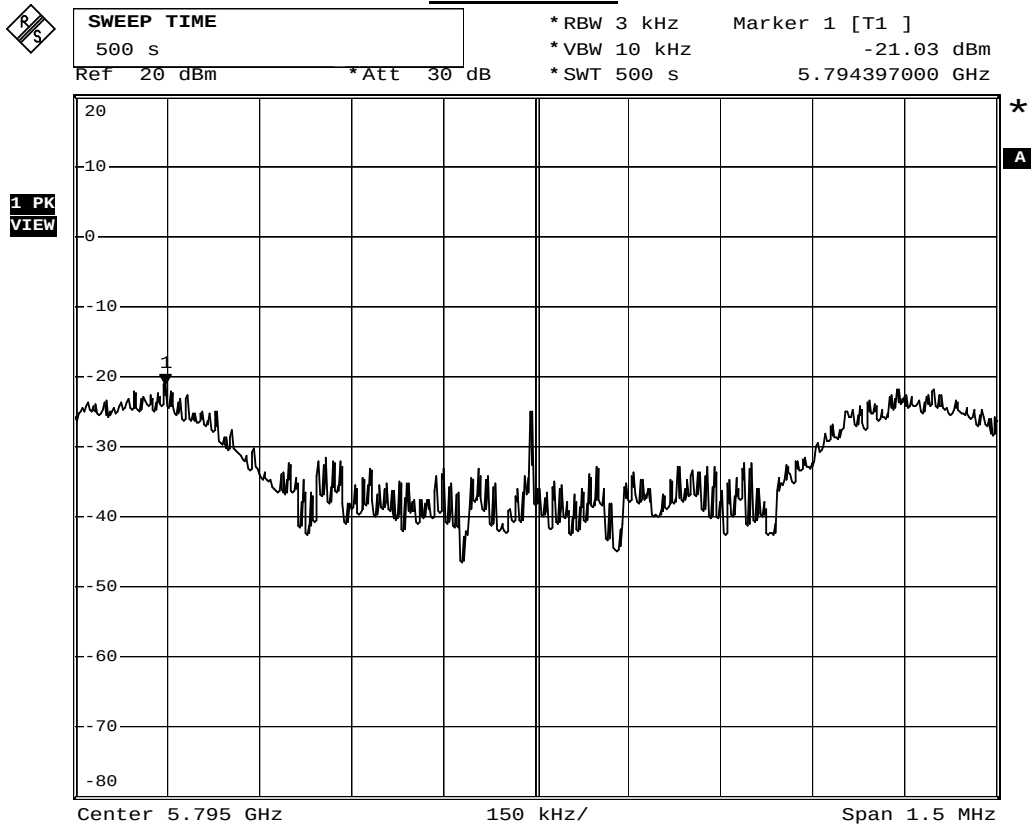
Correct factor=10log(500kHz/3KHz)=22.218dB

Measure=Reading + correct factor



Date: 30.NOV.2011 17:00:51

Channel 159



Date: 30.NOV.2011 17:05:38

Product	Dual-band Wireless-N Ethernet Adapter		
Test Item	Power Density		
Test Mode	Mode 1: Transmit (Adapter: DVE, DSA-12GX-12 FUS 120120)		
Date of Test	2011/11/30	Test Site	SR7

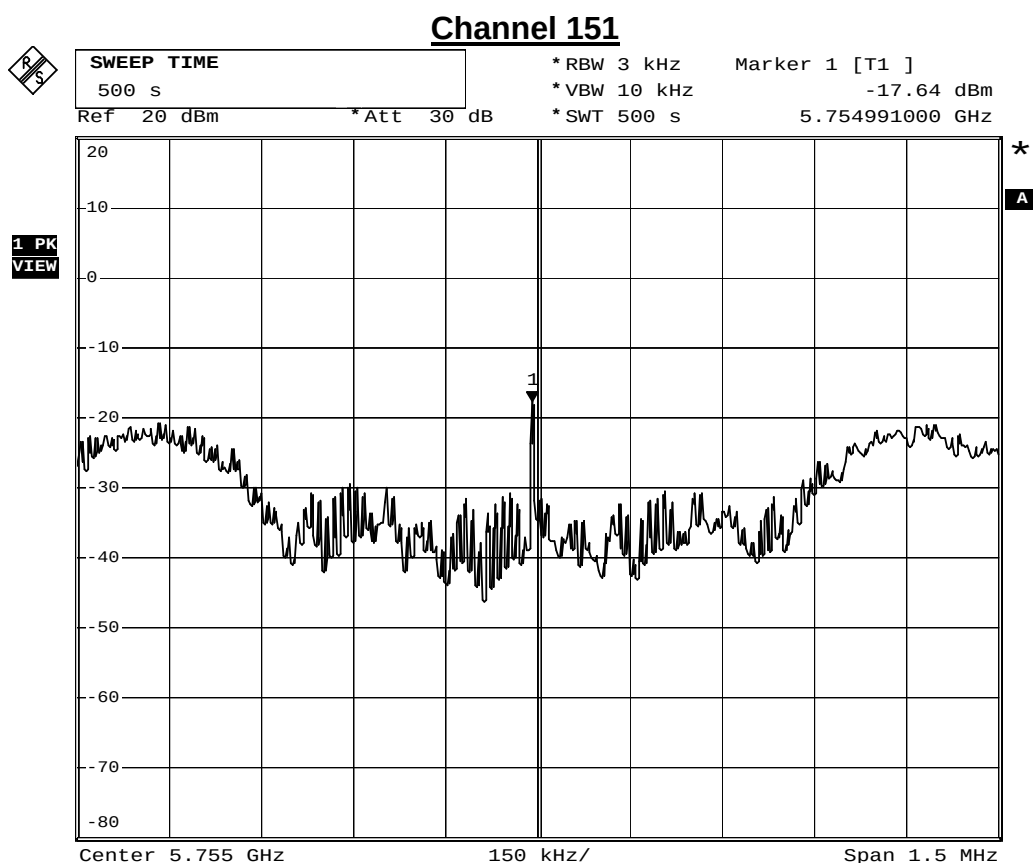
IEEE 802.11n(40M)_Ant. 2				
Channel No.	Frequency (MHz)	Reading Level(dBm)	Measure Level(dBm)	Limit (dBm)
151	5755	-17.64	4.578	≤ 30
159	5795	-17.81	4.408	≤ 30

Remark:

Original Report RBM=10kHz

Correct factor= $10\log(500\text{kHz}/3\text{kHz})=22.218\text{dB}$

Measure=Reading + correct factor



Date: 30.NOV.2011 16:58:26

5.794994000 GHz



Page: 36 of 53

Product	Dual-band Wireless-N Ethernet Adapter		
Test Item	Power Density		
Test Mode	Mode 1: Transmit (Adapter: DVE, DSA-12GX-12 FUS 120120)		
Date of Test	2011/11/30	Test Site	SR7

IEEE 802.11n(40M)_Ant. 0+1+2			
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)
151	5755	7.947	≤ 30
159	5795	8.338	≤ 30

Remark:

Original Report RBM=10kHz

Correct factor= $10\log(500\text{kHz}/3\text{KHz})=22.218\text{dB}$

Measure=Reading + correct factor

3. Frequency Stability

3.1. Test Equipment

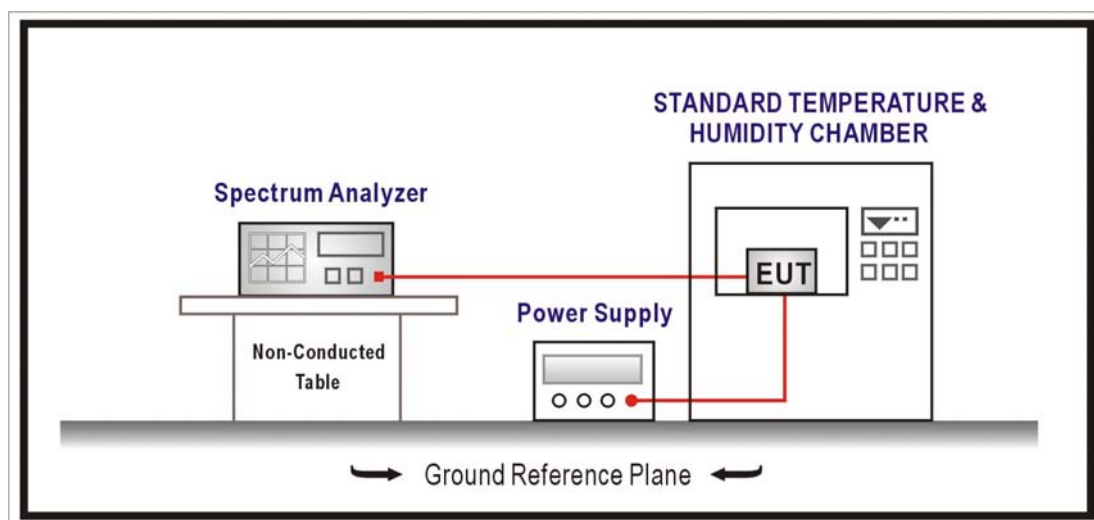
The following test equipments are used during the radiated emission tests:

Frequency Stability / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A-EXA	US47140172	2016/08/23
Temperature & Humidity Chamber	WIT	TH-1S-B	1082101	2017/01/18

Note: All equipments that need to calibrate are with calibration period of 1 year.

3.2. Test Setup



3.3. Limits

Manufactures of all 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

3.4. Test Procedure

The EUT was setup to ANSI C63.10: 2013; tested to U-NII test procedure of KDB 789033 D02 for compliance to FCC 47CFR Subpart E requirements.

3.5. Uncertainty

The measurement uncertainty is defined as ± 150 Hz

3.6. Test Result

Product	Dual-band Wireless USB Adapter		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit (Adapter: DVE, DSA-12GX-12 FUS 120120) 802.11a - 5745MHz(ANT 0)		
Date of Test	2016/03/29	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5745.03439	5.9920	PASS
-10		5745.00921	1.6030	PASS
0		5745.02229	3.8801	PASS
10		5744.99214	-1.3688	PASS
20		5744.99580	-0.7310	PASS
30		5744.97168	-4.9301	PASS
40		5744.95938	-7.0708	PASS
50		5744.99582	-0.7270	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5744.99992	-0.0135	PASS
	120	5744.97425	-4.4816	PASS
	138	5744.98752	-2.1717	PASS

Product	Dual-band Wireless USB Adapter		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit (Adapter: DVE, DSA-12GX-12 FUS 120120) 802.11a - 5825MH(ANT 0)		
Date of Test	2016/03/29	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5825.04191	7.2012	PASS
-10		5825.03322	5.7025	PASS
0		5825.01094	1.8780	PASS
10		5824.98453	-2.6565	PASS
20		5824.98141	-3.1913	PASS
30		5824.98874	-1.9329	PASS
40		5824.99432	-0.9751	PASS
50		5824.98377	-2.7854	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5824.99899	-0.1741	PASS
	120	5824.95878	-7.0758	PASS
	138	5824.95872	-7.0869	PASS

Product	Dual-band Wireless USB Adapter		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit (Adapter: DVE, DSA-12GX-12 FUS 120120) 802.11n_20M - 5745MHz(ANT 0)		
Date of Test	2016/03/29	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5745.03144	5.4788	PASS
-10		5745.03832	6.6708	PASS
0		5745.01886	3.2831	PASS
10		5744.98314	-2.9349	PASS
20		5744.99523	-0.8301	PASS
30		5744.97001	-5.2206	PASS
40		5744.95116	-8.5007	PASS
50		5744.99989	-0.0194	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5744.99714	-0.4979	PASS
	120	5744.99085	-1.5926	PASS
	138	5744.97645	-4.0995	PASS

Product	Dual-band Wireless USB Adapter		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit (Adapter: DVE, DSA-12GX-12 FUS 120120) 802.11n_20M - 5745MHz(ANT 1)		
Date of Test	2016/03/29	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5745.00717	1.2537	PASS
-10		5745.01177	2.0485	PASS
0		5745.00057	0.0985	PASS
10		5744.99562	-0.7620	PASS
20		5744.98887	-1.9382	PASS
30		5744.97355	-4.6047	PASS
40		5744.97369	-4.5797	PASS
50		5744.95645	-7.5811	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5744.99892	-0.1884	PASS
	120	5744.97516	-4.3235	PASS
	138	5744.99607	-0.6836	PASS

Product	Dual-band Wireless USB Adapter		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit (Adapter: DVE, DSA-12GX-12 FUS 120120) 802.11n_20M - 5745MHz(ANT 2)		
Date of Test	2016/03/29	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5745.01228	2.1429	PASS
-10		5745.01985	3.4545	PASS
0		5745.01383	2.4065	PASS
10		5744.99224	-1.3508	PASS
20		5744.99502	-0.8672	PASS
30		5744.99498	-0.8741	PASS
40		5744.99123	-1.5258	PASS
50		5744.95216	-8.3270	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5744.99840	-0.2787	PASS
	120	5744.95757	-7.3856	PASS
	138	5744.95280	-8.2157	PASS

Product	Dual-band Wireless USB Adapter		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit (Adapter: DVE, DSA-12GX-12 FUS 120120) 802.11n_20M - 5825MHz(ANT 0)		
Date of Test	2016/03/29	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5825.03548	6.0965	PASS
-10		5825.03226	5.5390	PASS
0		5825.00964	1.6555	PASS
10		5824.99914	-0.1474	PASS
20		5824.98058	-3.3342	PASS
30		5824.99699	-0.5174	PASS
40		5824.94457	-9.5164	PASS
50		5824.98335	-2.8584	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5824.99723	-0.4754	PASS
	120	5824.98914	-1.8650	PASS
	138	5824.97381	-4.4961	PASS

Product	Dual-band Wireless USB Adapter		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit (Adapter: DVE, DSA-12GX-12 FUS 120120) 802.11n_20M-5825MHz(ANT 1)		
Date of Test	2016/03/29	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5825.03194	5.4884	PASS
-10		5825.02654	4.5569	PASS
0		5825.02294	3.9389	PASS
10		5824.98026	-3.3892	PASS
20		5824.98538	-2.5097	PASS
30		5824.99718	-0.4845	PASS
40		5824.95013	-8.5611	PASS
50		5824.97453	-4.3729	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5824.99770	-0.3956	PASS
	120	5824.96901	-5.3196	PASS
	138	5824.97930	-3.5542	PASS

Product	Dual-band Wireless USB Adapter		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit (Adapter: DVE, DSA-12GX-12 FUS 120120) 802.11n_20M-5825MHz(ANT 2)		
Date of Test	2016/03/29	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5825.02263	3.8910	PASS
-10		5825.01378	2.3657	PASS
0		5825.01712	2.9392	PASS
10		5824.99084	-1.5729	PASS
20		5824.98740	-2.1627	PASS
30		5824.98646	-2.3248	PASS
40		5824.94907	-8.7438	PASS
50		5824.99321	-1.1663	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5824.99792	-0.3571	PASS
	120	5824.99014	-1.6925	PASS
	138	5824.98802	-2.0560	PASS

Product	Dual-band Wireless USB Adapter		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit (Adapter: DVE, DSA-12GX-12 FUS 120120) 802.11n_40M-5755MHz(ANT 0)		
Date of Test	2016/03/29	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5755.01340	2.3341	PASS
-10		5755.01940	3.3715	PASS
0		5755.02805	4.8742	PASS
10		5754.99946	-0.0939	PASS
20		5754.98828	-2.0359	PASS
30		5754.98683	-2.2877	PASS
40		5754.94606	-9.3733	PASS
50		5754.96955	-5.2911	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5754.99752	-0.4301	PASS
	120	5754.97802	-3.8195	PASS
	138	5754.98857	-1.9854	PASS

Product	Dual-band Wireless USB Adapter		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit (Adapter: DVE, DSA-12GX-12 FUS 120120) 802.11n_40M-5755MHz(ANT 1)		
Date of Test	2016/03/29	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5755.03961	6.8890	PASS
-10		5755.01080	1.8773	PASS
0		5755.00231	0.4010	PASS
10		5754.99308	-1.2021	PASS
20		5754.99011	-1.7185	PASS
30		5754.99722	-0.4836	PASS
40		5754.94955	-8.7655	PASS
50		5754.98505	-2.5970	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5754.99803	-0.3425	PASS
	120	5754.97075	-5.0817	PASS
	138	5754.98083	-3.3310	PASS

Product	Dual-band Wireless USB Adapter		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit (Adapter: DVE, DSA-12GX-12 FUS 120120) 802.11n_40M-5755MHz(ANT 2)		
Date of Test	2016/03/29	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5755.04061	7.0625	PASS
-10		5755.01585	2.7547	PASS
0		5755.01561	2.7127	PASS
10		5754.99977	-0.0400	PASS
20		5754.99633	-0.6374	PASS
30		5754.99032	-1.6828	PASS
40		5754.95103	-8.5091	PASS
50		5754.98539	-2.5380	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5754.99963	-0.0650	PASS
	120	5754.99050	-1.6506	PASS
	138	5754.96192	-6.6165	PASS

Product	Dual-band Wireless USB Adapter		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit (Adapter: DVE, DSA-12GX-12 FUS 120120) 802.11n_40M-5795MHz(ANT 0)		
Date of Test	2016/03/29	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5795.04314	7.4496	PASS
-10		5795.01345	2.3204	PASS
0		5795.00373	0.6439	PASS
10		5794.98353	-2.8421	PASS
20		5794.99125	-1.5098	PASS
30		5794.99751	-0.4293	PASS
40		5794.98566	-2.4753	PASS
50		5794.95829	-7.1976	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5794.99914	-0.1491	PASS
	120	5794.99865	-0.2330	PASS
	138	5794.98681	-2.2760	PASS

Product	Dual-band Wireless USB Adapter		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit (Adapter: DVE, DSA-12GX-12 FUS 120120) 802.11n_40M-5795MHz(ANT 1)		
Date of Test	2016/03/29	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5795.04021	6.9453	PASS
-10		5795.00044	0.0754	PASS
0		5795.02297	3.9635	PASS
10		5794.99418	-1.0045	PASS
20		5794.98831	-2.0175	PASS
30		5794.98841	-1.9997	PASS
40		5794.97501	-4.3118	PASS
50		5794.97542	-4.2422	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5794.99974	-0.0452	PASS
	120	5794.96578	-5.9046	PASS
	138	5794.96469	-6.0934	PASS

Product	Dual-band Wireless USB Adapter		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit (Adapter: DVE, DSA-12GX-12 FUS 120120) 802.11n_40M-5795MHz(ANT 2)		
Date of Test	2016/03/29	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5795.01858	3.2123	PASS
-10		5795.00336	0.5791	PASS
0		5795.01068	1.8438	PASS
10		5794.98068	-3.3334	PASS
20		5794.98217	-3.0776	PASS
30		5794.99860	-0.2414	PASS
40		5794.95203	-8.2775	PASS
50		5794.97830	-3.7443	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5794.99917	-0.1429	PASS
	120	5794.97261	-4.7267	PASS
	138	5794.96926	-5.3040	PASS

Attachment 1

- **Original Report**