

FCC Test Report

Product Name : Dual-band Wireless USB Adapter

Trade Name : ASUS

Model No. : USB-N53

FCC ID. : MSQ-USBN53

Applicant : ASUSTeK COMPUTER INC.

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

Date of Receipt : Apr. 06, 2016

Issued Date : May. 06, 2016

Report No. : 1640156R-RFUSP45V00-A

Report Version : V1.0



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.

Test Report Certification

Issued Date : May. 06, 2016

Report No. : 1640156R-RFUSP45V00-A



Product Name : Dual-band Wireless USB Adapter
 Applicant : ASUSTeK COMPUTER INC.
 Address : 4F, No. 150, Li-Te Rd., Peitou, Taipei, Taiwan
 Manufacturer : Askey Technology (Jiangsu) LTD.
 Model No. : USB-N53
 FCC ID. : MSQ-USBN53
 EUT Voltage : DC 5V (Power by PC)
 Testing Voltage : DC 5V(Power by PC)
 Trade Name : ASUS
 Applicable Standard : FCC CFR Title 47 Part 15 Subpart E Section 15.407: 2015
 ANSI C63.10: 2009
 Test Lab : QuieTek Hsin Chu Laboratory
 Test Result : Complied

The test results relate only to the samples tested.

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Revision History

Report No.	Version	Description	Issued Date
115250R-RFUSP46V01	V1.0	Initial issue of report	Jun. 29, 2011
1640156R-RFUSP45V00-A	V1.0	Update WLAN 5G band 1 standard to FCC 15E new rule.	May. 06, 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:

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1. General Information

1.1. EUT Description

Product Name	Dual-band Wireless USB Adapter
Trade Name	ASUS
Model No.	MSQ-USBN53
Frequency Range	IEEE 802.11a & IEEE 802.11n (20MHz): 5180~5240MHz IEEE 802.11n (40MHz): 5190~5230MHz
Channel Number	IEEE 802.11a & IEEE 802.11n (20MHz): 4 IEEE 802.11n (40MHz): 2
Type of Modulation	IEEE 802.11a/n: Orthogonal Frequency Division Multiplexing (OFDM) 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 15 and bandwidth defined in 802.11n
Channel Control	Manual

Antenna Information	
Antenna Type	PIFA Antenna
Antenna Gain	3.17dBi

Accessories Information	
LAN Cable	Non-Shielded, 0.15m

ANT-TX / Rx & Bandwidth

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

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

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
36	5180MHz	40	5200MHz	44	5220MHz	48	5240MHz

IEEE 802.11n (40MHz)

Working Frequency of Each Channel			
Channel	Frequency	Channel	Frequency
38	5190MHz	46	5230MHz

Note:

1. This device is a Dual-band Wireless USB Adapter including 2.4GHz b/g/n and 5GHz a/n (2x2) 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 2.4GHz & 5.8GHz transmitting is measured and makes a test report of the report number: 1590187R-RFUSP28V00 & 1640156R-RFUSP45V00-A.
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 115250R-RFUSP37V02 under Declaration of Conformity.
6. For this project, this device no increase power level, so update WLAN 5G band 1 standard to FCC 15E new rule without any tested.

Attachment 1

- **Original Report**