FCC Spot Check Test Report

FCC ID	:	**I88XMG3563-B10A**
Equipment	:	**Dual-Band Wireless AC/N VDSL2 Combo WAN Gigabit IAD**
Model No.	:	**XMG3563-B10A**
Brand Name	:	**ZYXEL**
Applicant	:	**Zyxel Communications Corporation**
Address	:	**No.2 Industry East RD. IX, Hsinchu Science Park, Hsinchu 30075, Taiwan, R.O.C**
Standard	:	**47 CFR FCC Part 15.247** **47 CFR FCC Part 15.407**
Received Date	:	**Sep. 26, 2017**
Tested Date	:	**Oct. 04, 2017**

We, International Certification Corp., would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

Reviewed by: **Approved by:**

Along Chen / Assistant Manager **Gary Chang / Manager**

Testing Laboratory 2732

Table of Contents

Release Record

Report No.	Version	Description	Issued Date
FR651003-04	Rev. 01	Initial issue	Nov. 10, 2017

1 General Description

1.1 Information

1.1.1 Specification of the Equipment under Test (EUT)

RF General Information					
Frequency Range (MHz)	**IEEE Std. 802.11**	**Ch. Freq. (MHz)**	**Channel Number**	**Transmit Chains (N_{TX})**	**Data Rate / MCS**
2400-2483.5	b	2412-2462	1-11 [11]	1	1-11 Mbps
2400-2483.5	g	2412-2462	1-11 [11]	2	6-54 Mbps
2400-2483.5	n (HT20)	2412-2462	1-11 [11]	2	MCS 0-15
2400-2483.5	n (HT40)	2422-2452	3-9 [7]	2	MCS 0-15
Note 1: RF output power specifies that Maximum Conducted (Average) Output Power. Note 2: 802.11b uses a combination of DSSS-DBPSK, DQPSK, CCK modulation. Note 3: 802.11g/n uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.					

RF General Information					
Frequency Range (MHz)	**IEEE Std. 802.11**	**Ch. Freq. (MHz)**	**Channel Number**	**Transmit Chains (N_{TX})**	**Data Rate / MCS**
5150-5250	a	5180-5240	36-48 [4]	4	6-54 Mbps
5150-5250	n (HT20)	5180-5240	36-48 [4]	4	MCS 0-31
5150-5250	n (HT40)	5190-5230	38-46 [2]	4	MCS 0-31
5150-5250	ac (VHT20)	5180-5240	36-48 [4]	4	MCS 0-9
5150-5250	ac (VHT40)	5190-5230	38-46 [2]	4	MCS 0-9
5150-5250	ac (VHT80)	5210	42 [1]	4	MCS 0-9
5725-5850	a	5745-5825	149-165 [5]	4	6-54 Mbps
5725-5850	n (HT20)	5745-5825	149-165 [5]	4	MCS 0-31
5725-5850	n (HT40)	5755-5795	151-159 [2]	4	MCS 0-31
5725-5850	ac (VHT20)	5745-5825	149-165 [5]	4	MCS 0-9
5725-5850	ac (VHT40)	5755-5795	151-159 [2]	4	MCS 0-9
5725-5850	ac (VHT80)	5775	155 [1]	4	MCS 0-9
Note 1: RF output power specifies that Maximum Conducted Output Power. Note 2: 802.11a/n/ac uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation. Note 3: 802.11ac supports beamforming function.					

1.1.2 Antenna Details

Model	Type	Connector	Frequencies (MHz) / Antenna Gain (dBi)		
			2400~2483.5	5150~5250	5725~5850
A1	Dipole	UFL	--	-0.54	-0.56
A2	Dipole	UFL	--	-0.54	-0.56
A3	Dipole	UFL	--	-0.54	-0.56
A4	Dipole	UFL	--	-0.54	-0.56
B1	Dipole	UFL	2.9	--	--
B2	Dipole	UFL	1.3	--	--

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	12Vdc from adapter

1.1.4 Accessories

Accessories		
No.	**Equipment**	**Description**
1	AC adapter	Brand: LEADER Model: MU42-3120350-A1 Power Rating: I/P: 100-240Vac, 50/60Hz, 1.5A O/P: 12Vdc, 3.5A Power Line: 1.5m non-shielded without core
2	Ethernet cable	1.7m non-shielded without core
3	Phone cable	1.75m non-shielded without core

1.1.5 Channel List

Frequency band (MHz)		2400~2483.5	
802.11 b / g / n HT20		802.11n HT40	
Channel	Frequency(MHz)	Channel	Frequency(MHz)
1	2412	3	2422
2	2417	4	2427
3	2422	5	2432
4	2427	6	2437
5	2432	7	2442
6	2437	8	2447
7	2442	9	2452
8	2447	---	---
9	2452	---	---
10	2457	---	---
11	2462	---	---

For Frequency band 5150-5250 MHz			
802.11 a / HT20 / VHT20		HT40 / VHT40	
Channel	Frequency(MHz)	Channel	Frequency(MHz)
36	5180	38	5190
40	5200	46	5230
44	5220	VHT80	
48	5240	42	5210

For Frequency band 5725~5850 MHz			
802.11 a / HT20 / VHT20		HT40 / VHT40	
Channel	Frequency(MHz)	Channel	Frequency(MHz)
149	5745	151	5755
153	5765	159	5795
157	5785	VHT80	
161	5805	155	5775
165	5825	---	---

2 Referencing Test Data

2.1 Introduction

The variant model (FCC ID: I88XMG3563-B10A) references the test data of original model (FCC ID: I88XMG3512-B10A).

Reference FCC ID	Equipment Class	Frequency bands	Reference Report Title
I88XMG3512-B10A	NII	5180-5240 MHz 5745-5825 MHz	FR651003AN
	DTS	2412-2462 MHz	FR651003AC

FCC ID: I88XMG3512-B10A / I88XMG3563-B10A use the same internal printed circuit board, antenna and software version for Wi-Fi function.

Applicant takes full responsibility that the test data as referenced below represents compliance for the FCC ID: I88XMG3563-B10A.

2.2 Difference

Difference between FCC ID: I88XMG3512-B10A / I88XMG3563-B10A is only VOIP(FXS) function by population / depopulation of components without PCB layout modification . Other parts are identical to each other.

Characteristic		FCC ID: I88XMG3563-B10A	FCC ID: I88XMG3512-B10A
Wireless function	Frequency band	2412-2462 MHz 5180-5240 MHz 5745-5825 MHz	2412-2462 MHz 5180-5240 MHz 5745-5825 MHz
	Antenna	Dipole	Dipole
	Operation modes	11a/b/g/n/ac	11a/b/g/n/ac
	Channel Bandwidth	20 / 40 / 80	20 / 40 / 80
Wired function	WAN	O	O
	LAN	O	O
	USB	O	O
	DSL	O	O
	SFP	O	O
	VOIP(FXS)	O	X

2.3 Spot Check Verification Data

Test Item	Mode	FCC ID: I88XMG3512-B10A	FCC ID: I88XMG3563-B10A	Difference (dB)
Average Conducted Power (dBm)	802.11b	21.05	21.03	0.02
	802.11g	26.76	26.65	0.11
	802.11n HT20	26.98	26.91	0.07
	802.11n HT40	22.49	22.83	-0.34
RSE (Band Edge. Harmonic dBuV/m)	11b	53.88	52.85	1.03
	802.11n HT40	53.68	52.73	0.95
Average Conducted Power (dBm)	802.11a	24.34	24.16	0.18
	802.11n HT20	24.71	24.52	0.19
	802.11n HT40	26.33	26.19	0.14
	802.11ac VHT20	24.81	24.48	0.33
	802.11ac VHT40	26.48	26.78	-0.30
	802.11ac VHT80	26.98	26.74	0.24
RSE (Band Edge. Harmonic dBuV/m)	802.11ac VHT20 5.2G BF mode	68.07	66.94	1.13
	802.11ac VHT40 5.2G BF mode	53.83	53.52	0.31
	802.11ac VHT40 5.8G non BF mode	53.74	52.70	1.04
	802.11ac VHT80 5.8G non BF mode	65.10	64.21	0.89

2.4 Reference

Equipment Class	Reference FCC ID	Type Grant	Reference application	Reference Report Title
NII	I88XMG3512-B10A	Original	I88XMG3563-B10A	FR651003AN
DTS	I88XMG3512-B10A	Original	I88XMG3563-B10A	FR651003AC

2.5 The Equipment List

Test Item	RF Conducted				
Test Site	(TH01-WS)				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101063	Mar. 15, 2017	Mar. 14, 2018
Power Meter	Anritsu	ML2495A	1241002	Oct. 06, 2016	Oct. 05, 2017
Power Sensor	Anritsu	MA2411B	1207366	Oct. 06, 2016	Oct. 05, 2017
AC POWER SOURCE	APC	AFC-500W	F312060012	Oct. 28, 2016	Oct. 27, 2017
Measurement Software	Sporton	Sporton_1	1.3.30	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Radiated Emission				
Test Site	966 chamber1 / (03CH01-WS)				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101498	Nov. 25, 2016	Nov. 24, 2017
Receiver	R&S	ESR3	101658	Nov. 24, 2016	Nov. 23, 2017
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Jul. 25, 2017	Jul. 24, 2018
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1096	Dec. 21, 2016	Dec. 20, 2017
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Oct. 25, 2016	Oct. 24, 2017
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 10, 2016	Nov. 09, 2017
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Dec. 09, 2016	Dec. 08, 2017
Preamplifier	EMC	EMC02325	980225	Jul. 28, 2017	Jul. 27, 2018
Preamplifier	Agilent	83017A	MY39501308	Oct. 06, 2016	Oct. 05, 2017
Preamplifier	EMC	EMC184045B	980192	Aug. 22, 2017	Aug. 21, 2018
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16014/4	Dec. 09, 2016	Dec. 08, 2017
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16019/4	Dec. 09, 2016	Dec. 08, 2017
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16139/4	Dec. 09, 2016	Dec. 08, 2017
LF cable 1M	EMC	EMCCFD400-NM-NM-1000	16052	Dec. 09, 2016	Dec. 08, 2017
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-001	Dec. 09, 2016	Dec. 08, 2017
LF cable 10M	Woken	CFD400NL-LW	CFD400NL-002	Dec. 09, 2016	Dec. 08, 2017
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

3 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corp (EMC and Wireless Communication Laboratory), it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan District. Location map can be found on our website http://www.icertifi.com.tw.

Linkou	**Kwei Shan**	**Kwei Shan Site II**
Tel: 886-2-2601-1640	Tel: 886-3-271-8666	Tel: 886-3-271-8640
No. 30-2, Ding Fwu Tsuen, Lin Kou District, New Taipei City, Taiwan, R.O.C.	No. 3-1, Lane 6, Wen San 3rd St., Kwei Shan District, Tao Yuan City 333, Taiwan, R.O.C.	No. 14-1, Lane 19, Wen San 3rd St., Kwei Shan District, Tao Yuan City 333, Taiwan, R.O.C.

If you have any suggestion, please feel free to contact us as below information.

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