

# MEASUREMENT REPORT

## EN 301 893 WLAN 802.11a/n

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**Applicant:** Compex Systems Pte Ltd

**Address:** No:9 Harrison Road, Harrison Industrial Building, #05-01,  
Singapore 369651

**Product:** WIRELESS-ABGN 2X2 NETWORK MINIPCIE ADAPTER

**Model No.:** WLE200NX, WLE200NX-I

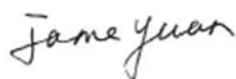
**Brand Name:** COMPEX

**Standards:** ETSI EN 301 893 V1.8.1 (2015-03)  
ETSI EN 301 893 V2.1.1 Clause 4.2.8

**Result:** Complies

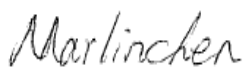
**Test Date:** June 24 ~ July 11, 2017

Reviewed By :



( Jame Yuan )

Approved By :



( Marlin Chen )



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

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## Revision History

Report No.	Version	Description	Issue Date	Note
1706RSU02303	Rev. 01	Initial report	07-24-2017	Valid

Note: This test report was based on MRT report number 1608RSU02006 and updated the standard EN 301893 version according to REDCA Technical Guidance Note 27. Besides the receiver blocking item, there is no any other updated item.

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## 1. General Information

### 1.1. Applicant

Compex Systems Pte Ltd

No:9 Harrison Road, Harrison Industrial Building, #05-01, Singapore 369651

### 1.2. Manufacturer

Compex Systems Pte Ltd

No:9 Harrison Road, Harrison Industrial Building, #05-01, Singapore 369651

### 1.3. Testing Facility

#### Test Site

MRT Technology (Suzhou) Co., Ltd

#### Test Site Location

D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China

#### Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Tian'edang Rd., Suzhou, China

- MRT facility is a FCC registered (MRT Reg. No. 809388) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules.
- MRT facility is an IC registered (MRT Reg. No. 11384A-1) test laboratory with the site description on file at Industry Canada.
- MRT facility is a VCCI registered (R-4179, G-814, C-4664, T-2206) test laboratory with the site description on file at VCCI Council.
- MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (A2LA) under the American Association for Laboratory Accreditation Program (A2LA Cert. No. 3628.01) in EMC, Telecommunications and Radio testing for FCC, Industry Canada, EU and TELEC Rules.



#### 1.4. Feature of Equipment under Test

Product Name:	WIRELESS-ABGN 2X2 NETWORK MINIPCIE ADAPTER
Serial Model:	WLE200NX, WLE200NX-I
Brand Name:	COMPEX
Wi-Fi Specification:	802.11a/b/g/n

Note: Differences between all models are for different marketing requirement.

#### 1.5. Product Specification Subjective

Frequency Range	For 802.11a/n-HT20 5180~5240 MHz, 5260~5320 MHz, 5500~5700 MHz For 802.11n-HT40 5190~5230 MHz, 5270~5310 MHz, 5510~5670 MHz
Channel Number	802.11a/n-HT20/ac-VHT20: 19 802.11n-HT40/ac-VHT40: 9
Type of Modulation	802.11a/n/ac: OFDM
Data Rate	802.11a: 6/9/12/18/24/36/48/54Mbps 802.11n: up to 300Mbps
Antenna Gain	2.6dBi

Note: For other features of this EUT, test report will be issued separately.

#### 1.6. Operation Frequency / Channel List

802.11a/n-HT20

Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180 MHz	40	5200 MHz	44	5220 MHz
48	5240 MHz	52	5260 MHz	56	5280 MHz
60	5300 MHz	64	5320 MHz	100	5500 MHz
104	5520 MHz	108	5540 MHz	112	5560 MHz
116	5580 MHz	120	5600 MHz	124	5620 MHz
128	5640 MHz	132	5660 MHz	136	5680 MHz
140	5700 MHz	--	--	--	--

802.11n-HT40

Channel	Frequency	Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz	54	5270 MHz
62	5310 MHz	102	5510 MHz	110	5550 MHz
118	5590 MHz	126	5630 MHz	134	5670 MHz

### 1.7. Standards Applicable for Testing

The EUT complies with the requirements of ETSI EN 301 893 V1.8.1 (2015-03) & ETSI EN 301 893 V2.1.1 Clause 4.2.8.

## 2. Test Summary

Clause EN301893	Test Parameter	Result (Pass/Fail)	Remark
4.2.8	Receiver Blocking	Pass	--

### 3. Receiver Blocking

#### 3.1. Limit

The minimum performance criterion shall be a PER less than or equal to 10 %. The manufacturer may declare alternative performance criteria as long as that is appropriate for the intended use of the equipment.

#### 3.2. Test Setup

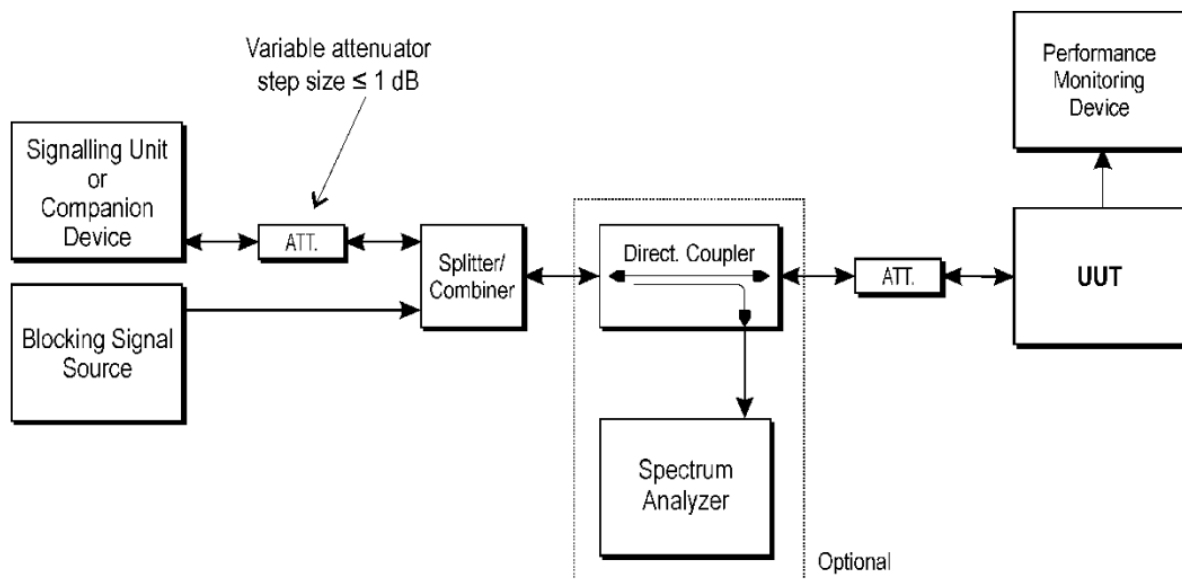


Figure 6: Test Set-up for receiver blocking

#### 3.3. Test Procedure

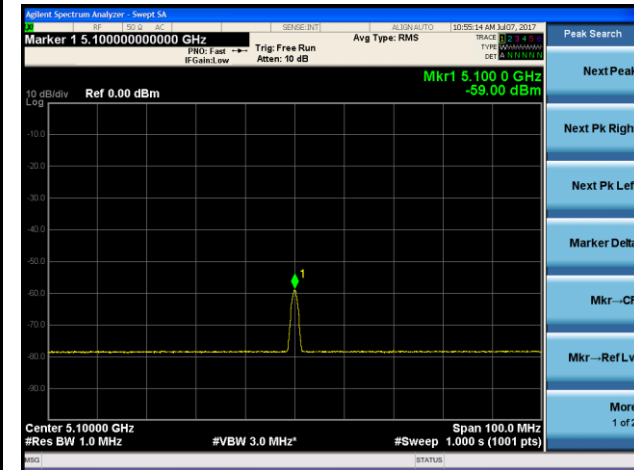
Refer to ETSI EN 301 893 V2.1.1 (2017-05) Clause 5.4.10.2.1.



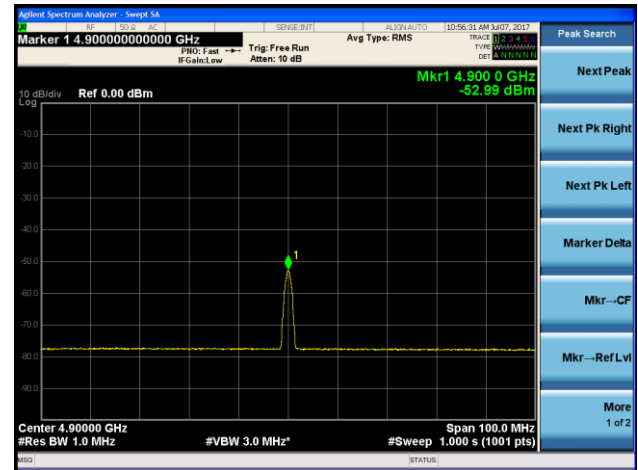
### 3.4. Test Result

#### Blocking Signal Calibration Plots

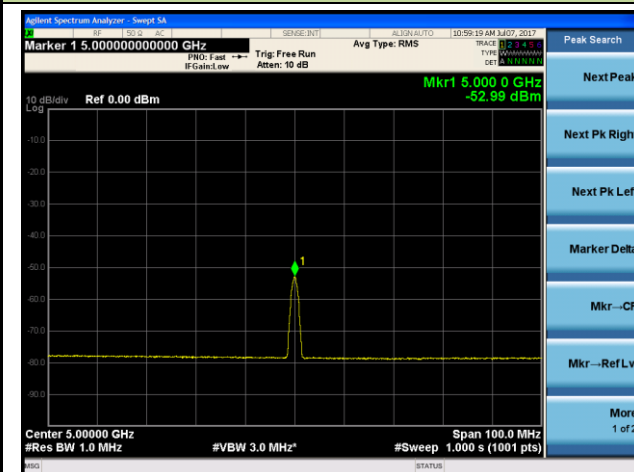
5100MHz



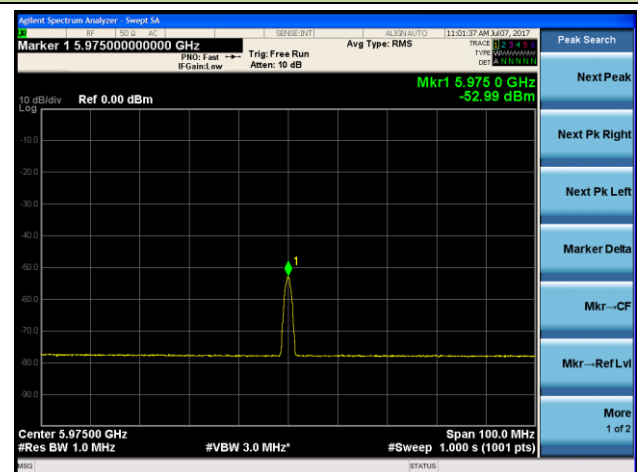
4900MHz



5000MHz



5975MHz



Product	WIRELESS ACCESS POINT	Temperature	26°C
Test Engineer	Andy Zhu	Relative Humidity	54%
Test Site	TR4	Test Data	2017/07/07
Test Mode	802.11a		

Channel	Wanted Signal Mean Power from Companion Device (dBm)	Blocking Signal Frequency (MHz)	Blocking Signal Power (dBm)	Type of Blocking Signal	PER Test Result	Limit (PER)	Test Result
64	P <sub>min</sub> + 6 dB	4900	-47	CW	1.8	< 10%	Pass
		5000	-47		4.3		Pass
		5100	-53		2.5		Pass
		5975	-47		4.2		Pass
Note 1: the P <sub>min</sub> of channel 64 is -87dBm.							
100	P <sub>min</sub> + 6 dB	4900	-47	CW	4.2	< 10%	Pass
		5000	-47		3.7		Pass
		5100	-53		2.9		Pass
		5975	-47		3.4		Pass
Note 2: the P <sub>min</sub> of channel 100 is -87dBm.							

## **4. User Access Restrictions**

### **4.1. Requirement**

The equipment shall be so constructed that settings (hardware and/or software) related to DFS shall not be accessible to the user if changing those settings result in the equipment no longer being compliant with the DFS requirements.

### **4.2. Test Result**

The user can not change the country code of operation which is locked by the manufacturer. All RF parameters are limited by the country code.

So the equipment can satisfy the user access restrictions requirement.

## 5. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Parameter	Uncertainty
Radio Frequency	$\pm 10$ ppm
RF output power, conducted	$\pm 1.5$ dB
Power Spectral Density, conducted	$\pm 3$ dB
Spurious Emissions, radiated	$\pm 6$ dB
Temperature	$\pm 2$ °C
Humidity	$\pm 5$ %
Time	$\pm 10$ %

## 6. List of Measuring Instrument

Receiver Blocking - TR4

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Vector Signal Generator	Agilent	E4438C	MRTSUE06026	1 year	2017/12/06
4 Ch. Simultaneous Sampling 14	Agilent	U2531A	MRTSUE06247	N/A	N/A
4 Ch. Simultaneous Sampling 14	Agilent	U2531A	MRTSUE06248	N/A	N/A
Wideband Radio Communication Tester	R&S	CMW 500	MRTSUE06243	1 year	2018/02/14
Directional Coupler	Narda	4216-20	MRTSUE06065	1 year	2018/03/29
Power divider	Marvelous Microwave Inc.	ZFRSC-123- S+	MVE8577	1 year	2018/03/20
Thermohygrometer	Testo	608-H1	MRTSUE06222	1 year	2017/12/19

Software	Version	Function
e3	V8.3.5	EMI Test Software

The End