FCC Test Report

Report No.: AGC02399180201FE04

FCC ID	:	2ACG9-MINI3
APPLICATION PURPOSE	:	Original Equipment
PRODUCT DESIGNATION	:	Tablet pc
BRAND NAME	:	Vantec
MODEL NAME	:	mini3
CLIENT	:	Conedera S.A.
DATE OF ISSUE	:	Apr. 10, 2018
STANDARD(S) **TEST PROCEDURE(S)**	:	FCC Part 15.247 KDB 558074 D01 DTS Meas Guidance v04
REPORT VERSION	:	V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd

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Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Apr. 10, 2018	Valid	Original Report

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1. VERIFICATION OF CONFORMITY

Applicant	Conedera S.A.
Address	ALBORADA 10 ETAPA AVE. BENJAMIN CARRION C.C.LA ROTONDA LOCAT 2 Guayaquil Ecuador
Manufacturer	SHENZHEN SUNGWORLD ELECTRONICS CO., LIMITED
Address	4#, North Zone, Shangxue Ind. park, Bantian, Long Gang Dist., Shenzhen, China.
Product Designation	Tablet pc
Brand Name	Vantec
Test Model	mini3
Date of test	Mar. 15, 2018~Apr. 10, 2018
Deviation	None
Condition of Test Sample	Normal
Report Template	AGCRT-US-BGN/RF

We hereby certify that:
The above equipment was tested by Attestation of Global Compliance(Shenzhen) Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with requirement of FCC Part 15 Rules requirement.
The test results of this report relate only to the tested sample identified in this report.

Tested By donjon huang

Donjon Huang(Huang Dongyang) Apr. 10, 2018

Reviewed By Bart Xie

Bart Xie(Xie Xiaobin) Apr. 10, 2018

2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

The EUT is designed as “Tablet pc ”. It is designed by way of utilizing the DSSS and OFDM technology to achieve the system operation.

A major technical description of EUT is described as following

Operation Frequency	2.412 GHz～2.462GHz
Output Power	IEEE 802.11b:**15.25**dBm, IEEE 802.11g:**13.24**dBm; IEEE 802.11n(20):**12.96**dBm,IEEE 802.11n(40):**12.47**dBm
Modulation	DSSS(DBPSK/DQPSK/CCK);OFDM(BPSK/QPSK/16-QAM/64-QAM)
Number of channels	11 Channels (IEEE802.11(20)b/g/n)& 9 Channels (IEEE802.11(40)n)
Hardware Version	E706W02
Software Version	N/A
Antenna Designation	PIFA Antenna
Antenna Gain	1.0dBi
Power Supply	DC3.7V by Built-in Li-ion Battery

2.2. TABLE OF CARRIER FREQUENCYS

Frequency Band	Channel Number	Frequency
2400~2483.5MHZ	1	2412 MHZ
	2	2417 MHZ
	3	2422 MHZ
	4	2427 MHZ
	5	2432 MHZ
	6	2437 MHZ
	7	2442 MHZ
	8	2447 MHZ
	9	2452 MHZ
	10	2457 MHZ
	11	2462 MHZ

Note: For 20MHZ bandwidth system use Channel 1 to Channel 11

For 802.11n 40MHZ bandwidth system use Channel 3 to Channel 9.

2.3. IEEE 802.11N MODULATION SCHEME

MCS Index	Nss	Modulation	R	NBPSC	NCBPS		NDBPS		Data rate(Mbps)	
									800nsGI	
					20MHz	40MHz	20MHz	40MHz	20MHz	40MHz
0	1	BPSK	1/2	1	52	108	26	54	6.5	13.5
1	1	QPSK	1/2	2	104	216	52	108	13.0	27.0
2	1	QPSK	3/4	2	104	216	78	162	19.5	40.5
3	1	16-QAM	1/2	4	208	432	104	216	26.0	54.0
4	1	16-QAM	3/4	4	208	432	156	324	39.0	81.0
5	1	64-QAM	2/3	6	312	648	208	432	52.0	108.0
6	1	64-QAM	3/4	6	312	648	234	489	58.5	121.5
7	1	64-QAM	5/6	6	312	648	260	540	65.0	135.0

Symbol	Explanation
NSS	Number of spatial streams
R	Code rate
NBPSC	Number of coded bits per single carrier
NCBPS	Number of coded bits per symbol
NDBPS	Number of data bits per symbol
GI	Guard interval

2.4. RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2ACG9-MINI3** filing to comply with the FCC Part 15 requirements.

2.5. TEST METHODOLOGY

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10 (2013).
Radiated testing was performed at an antenna to EUT distance 3 meters.
Others testing (listed at item 5.3) was performed according to the procedures in FCC Part 15.247 rules KDB 558074 D01 DTS Means Guidance v04.

2.6. SPECIAL ACCESSORIES

Refer to section 5.2.

2.7. EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

3. MEASUREMENT UNCERTAINTY

-Uncertainty of Conducted Emission, Uc=±3.2dB

- Uncertainty of Radiated Emission below 1GHz, Uc±3.9dB

- Uncertainty of Radiated Emission above 1GHz, Uc±4.8dB

4. DESCRIPTION OF TEST MODES

NO.	TEST MODE DESCRIPTION
1	Low channel TX
2	Middle channel TX
3	High channel TX
4	Normal operating

Note:
Transmit by 802.11b with Date rate (1/2/5.5/11)
Transmit by 802.11g with Date rate (6/9/12/18/24/36/48/54)
Transmit by 802.11n (20MHz) with Date rate (6.5/13/19.5/26/39/52/58.5/65)
Transmit by 802.11n (40MHz) with Date rate (13.5/27/40.5/54/81/108/121.5/135)

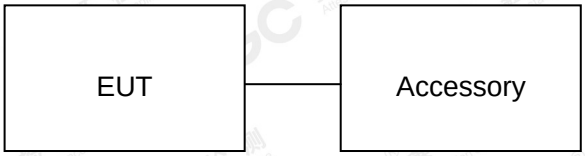
Note:

1. The EUT has been set to operate continuously on the lowest, middle and highest operation frequency Individually, and the eut is operating at its maximum duty cycle>or equal 98%
2. All modes under which configure applicable have been tested and the worst mode test data recording in the test report, if no other mode data.
3. For Radiated Emission, 3axis were chosen for testing for each applicable mode.

5. SYSTEM TEST CONFIGURATION

5.1. CONFIGURATION OF EUT SYSTEM

Configure:



5.2. EQUIPMENT USED IN EUT SYSTEM

Item	Equipment	Model No.	ID or Specification	Remark
1	Tablet pc	mini3	2ACG9-MINI3	EUT
2	Battery	347095	DC3.7V/ 2000mAh	Accessory

Note: All the accessories have been used during the test in conduction emission test.

5.3. SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§15.247	Output Power	Compliant
§15.247	6 dB Bandwidth	Compliant
§15.247	Conducted Spurious Emission	Compliant
§15.247	Maximum Conducted Output Power SPECTRAL Density	Compliant
§15.209	Radiated Emission	Compliant
§15.247	Band Edges	Compliant
§15.207	Line Conduction Emission	N/A

Note: Customer delivery without adapters. So Power Line Conduction Emission RESULT is N/A.

6. TEST FACILITY

Site	Attestation of Global Compliance (Shenzhen) Co., Ltd
Location	1-2F., Bldg.2, No.1-4, Chaxi Sanwei Technical Industrial Park, Gushu, Xixiang, Bao'an District B112-B113, Bldg.12, Baoan Bldg Materials Center, No.1 of Xixiang Inner Ring Road, Baoan District, Shenzhen 518012
NVLAP LAB CODE	600153-0
Designation Number	CN5028
Description	Attestation of Global Compliance(Shenzhen) Co., Ltd is accredited by National Voluntary Laboratory Accreditation program, NVLAP Code 600153-0

ALL TEST EQUIPMENT LIST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	Jun.20, 2017	Jun.19, 2018
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Dec.08, 2017	Dec.07, 2018
Horn antenna	SCHWARZBECK	BBHA 9170	#768	Sep.20, 2017	Sep.19, 2018
preamplifier	ChengYi	EMC184045SE	980508	Sep.15, 2017	Sep.14, 2018
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	May.18, 2017	May.17, 2019
Broadband Preamplifier	SCHWARZBECK	BBV 9718	9718-205	Jun.20, 2017	Jun.19, 2018
ANTENNA	SCHWARZBECK	VULB9168	D69250	Sep.28, 2017	Sep.27, 2018
SIGNAL ANALYZER	Agilent	N9020A	MY52090123	Sep. 21, 2017	Sep. 20, 2018
USB Wideband Power Sensor	Agilent	U2021XA	MY54110007	Sep. 21, 2017	Sep. 20, 2018
LOOP ANTENNA	A.H	SAS-562B	/	Mar.01,2018	Feb.28,2020

7. OUTPUT POWER

7.1. MEASUREMENT PROCEDURE

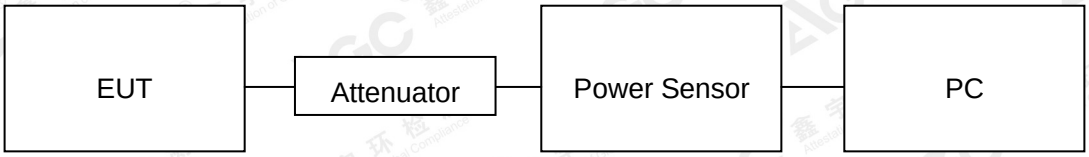
For max average conducted output power test:

1. Connect EUT RF output port to power probe through an RF attenuator.
2. Connect the power probe to the PC.
3. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
4. Record the maximum power from the software.

Note：The EUT was tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

7.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

AVERAGE POWER SETUP



7.3. LIMITS AND MEASUREMENT RESULT

TEST ITEM	OUTPUT POWER
TEST MODE	802.11b with data rate 1

Frequency (GHz)	Average Power (dBm)	Applicable Limits (dBm)	Pass or Fail
2.412	**15.25**	30	Pass
2.437	14.90	30	Pass
2.462	15.20	30	Pass

TEST ITEM	OUTPUT POWER
TEST MODE	802.11g with data rate 6

Frequency (GHz)	Average Power (dBm)	Applicable Limits (dBm)	Pass or Fail
2.412	11.21	30	Pass
2.437	**13.24**	30	Pass
2.462	12.72	30	Pass

TEST ITEM	OUTPUT POWER
TEST MODE	802.11n 20 with data rate 6.5

Frequency (GHz)	Average Power (dBm)	Applicable Limits (dBm)	Pass or Fail
2.412	11.13	30	Pass
2.437	**12.96**	30	Pass
2.462	12.58	30	Pass

TEST ITEM	OUTPUT POWER
TEST MODE	802.11n 40 with data rate 13.5

Frequency (GHz)	Average Power (dBm)	Applicable Limits (dBm)	Pass or Fail
2.422	**12.47**	30	Pass
2.437	12.42	30	Pass
2.452	12.28	30	Pass

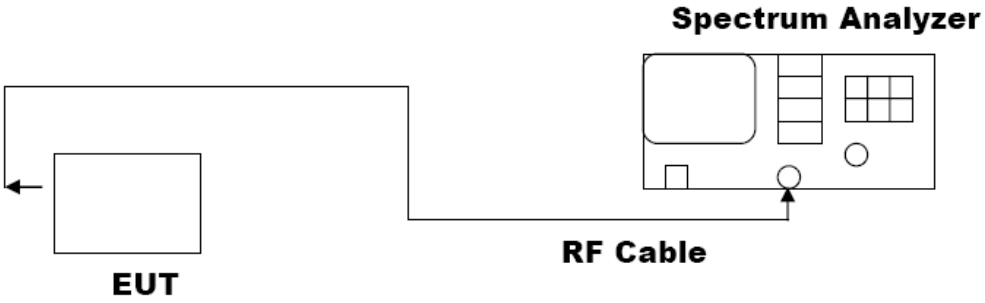
8. 6dB BANDWIDTH

8.1. MEASUREMENT PROCEDURE

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set SPA Centre Frequency = Operation Frequency, RBW= 100 KHz, VBW≥3×RBW.
4. Set SPA Trace 1 Max hold, then View.

Note: The EUT was tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

8.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)



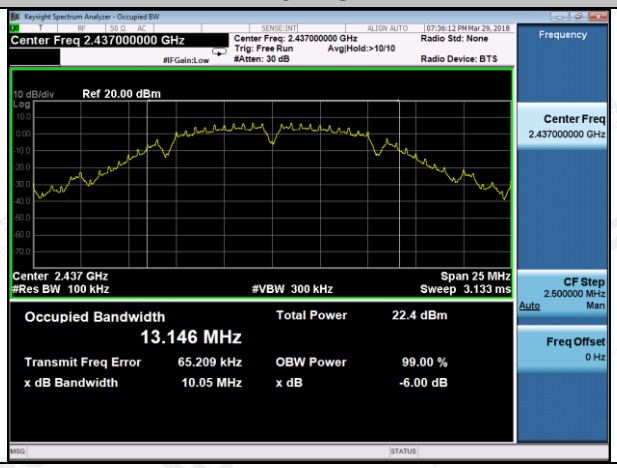
8.3. LIMITS AND MEASUREMENT RESULTS

Mode	Channel	6dB Bandwidth [MHz]	Verdict
11b	LCH	9.814	PASS
	MCH	10.05	PASS
	HCH	10.04	PASS
11g	LCH	15.13	PASS
	MCH	15.13	PASS
	HCH	15.10	PASS
11nHT20	LCH	15.13	PASS
	MCH	15.13	PASS
	HCH	15.91	PASS
11nHT40	LCH	35.17	PASS
	MCH	35.16	PASS
	HCH	35.16	PASS

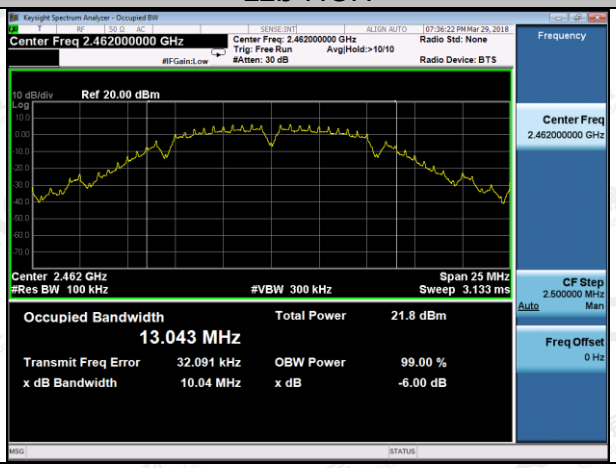
Test Graph

11b-LCH

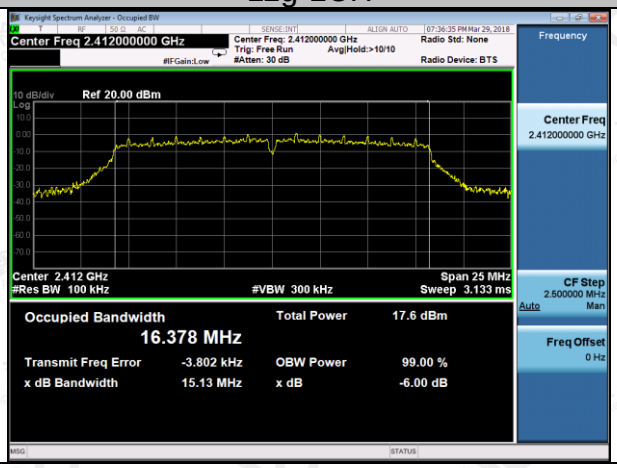
11b-MCH



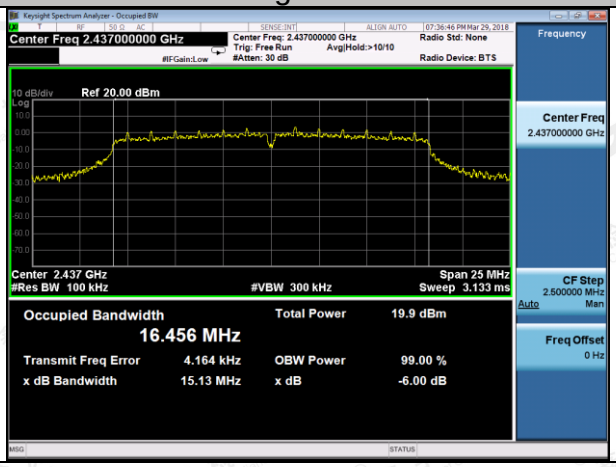
11b-HCH



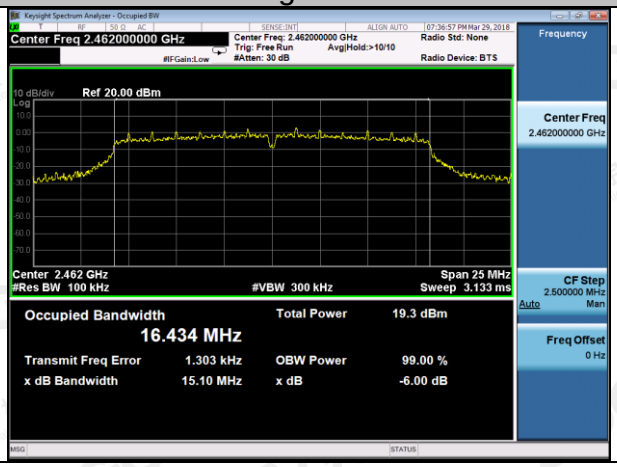
11g-LCH

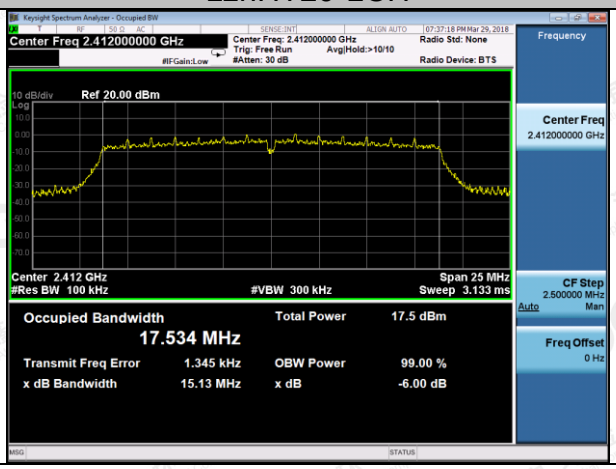
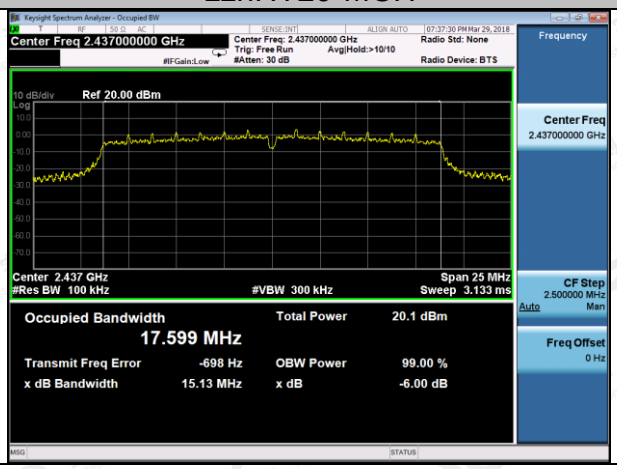
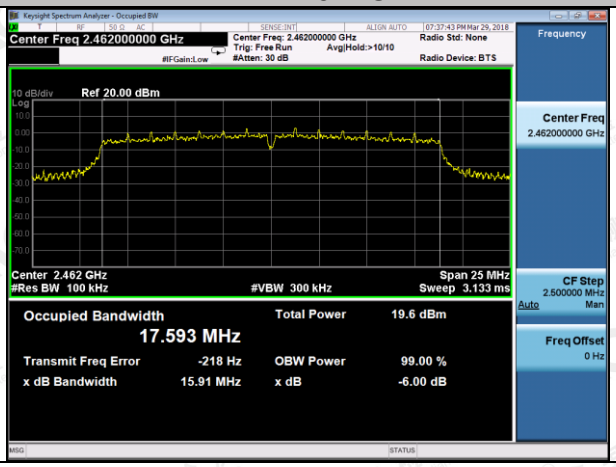
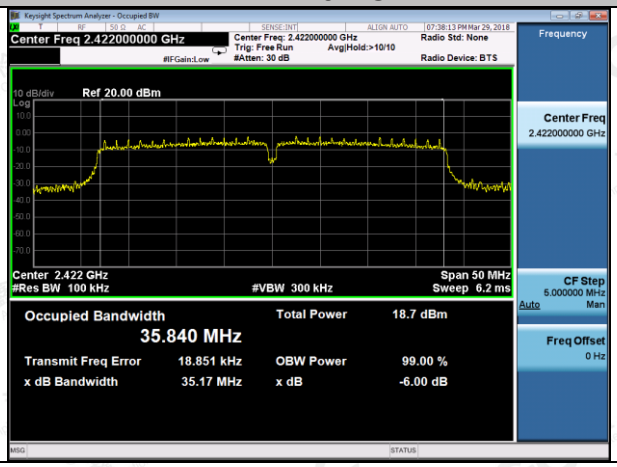
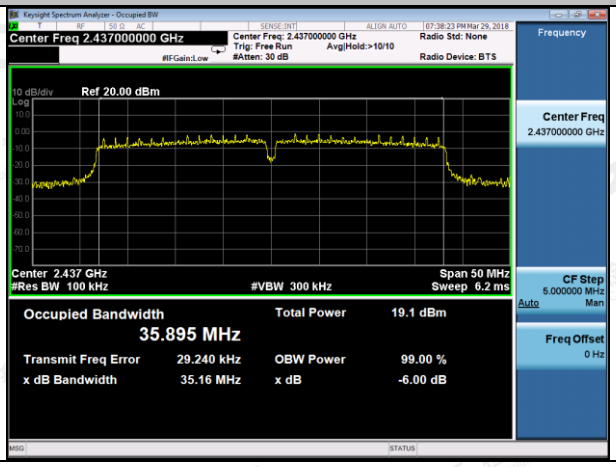
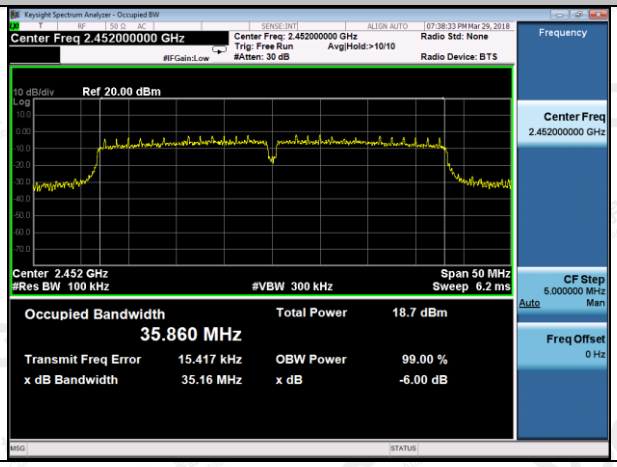


11g-MCH



11g-HCH



11nHT20-LCH	11nHT20-MCH
	
11nHT20-HCH	11nHT20-LCH
	
11nHT40-MCH	11nHT40-HCH
	

9. CONDUCTED SPURIOUS EMISSION

9.1. MEASUREMENT PROCEDURE

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2, Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set SPA Trace 1 Max hold, then View.

Note: The EUT was tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements. Owing to satisfy the requirements of the number of measurement points, we set the RBW=1MHz, VBW＞RBW, scan up through 10th harmonic, and consider the tested results as the worst case, if the tested results conform to the requirement, we can deem that the real tested results(set the RBW=100KHz, VBW＞RBW) are conform to the requirement.

9.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

The same as described in section 8.2.

9.3. MEASUREMENT EQUIPMENT USED

The same as described in section 6.