FCC / ISED TEST REPORT

For

Remote Solution Co., LTD.

Wi-Fi Adapter

Test Model: AP0100

Prepared for	:	Remote Solution Co., LTD.
Address	:	326-14, Apo-daero, Nam-myeon, Gimcheon-si Gyeongsangbuk-do, Korea 39662
Prepared by	:	Shenzhen LCS Compliance Testing Laboratory Ltd.
Address	:	1F., Xingyuan Industrial Park, Tongda Road, Bao'an Blvd., Bao'an District, Shenzhen, Guangdong, China
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Web	:	www.LCS-cert.com
Mail	:	webmaster@LCS-cert.com
Date of receipt of test sample	:	June 14, 2019
Number of tested samples	:	1
Serial number	:	Prototype
Date of Test	:	June 14, 2019~ July 16, 2019
Date of Report	:	July 17, 2019

FCC / ISED TEST REPORT
FCC CFR 47 PART 15 C (15.247) / FCC CFR 47 PART 15 E (15.407) / RSS-247

Report Reference No.	**:**	**LCS190611011AEH**
Date of Issue.....	:	July 17, 2019
Testing Laboratory Name	**:**	**Shenzhen LCS Compliance Testing Laboratory Ltd.**
Address.....	:	1F., Xingyuan Industrial Park, Tongda Road, Bao'an Blvd., Bao'an District, Shenzhen, Guangdong, China
Testing Location/ Procedure.....	:	Full application of Harmonised standards ■ Partial application of Harmonised standards □ Other standard testing method □
Applicant's Name.....	**:**	**Remote Solution Co., LTD.**
Address.....	:	326-14, Apo-daero, Nam-myeon, Gimcheon-si Gyeongsangbuk-do, Korea 39662
Test Specification		
Standard	:	FCC CFR 47 PART 15 C (15.247) / FCC CFR 47 PART 15 E (15.407) / RSS-247 Issue 2 / ANSI C63.10: 2013 / RSS-Gen Issue 5
Test Report Form No.	**:**	LCSEMC-1.0
TRF Originator	:	Shenzhen LCS Compliance Testing Laboratory Ltd.
Master TRF.....	:	Dated 2011-03

EUT Description.	**:**	**Wi-Fi Adapter**
Trade Mark.....	:	N/A
Test Model	:	AP0100
Ratings.....	:	DC 5.0V
Result	:	**Positive**

Compiled by:	**Supervised by:**	**Approved by:**
Peter Xiao	Aking Jin	Gavin Liang
Peter Xiao / Administrators	Aking Jin / Technique principal	Gavin Liang/ Manager

FCC / ISED -- TEST REPORT

Test Report No. : **LCS190611011AEH**	July 17, 2019 Date of issue

EUT.....	:	Wi-Fi Adapter
Test Model.....	:	AP0100
Applicant.....	**:**	**Remote Solution Co., LTD.**
Address.....	:	326-14, Apo-daero, Nam-myeon, Gimcheon-si Gyeongsangbuk-do, Korea 39662
Telephone.....	:	/
Fax.....	:	/
Manufacturer.....	**:**	**Iton Technology Corp.**
Address.....	:	7 Floor East, Building C, Shenzhen International Innovation Center, No. 1006 Shennan Road, Futian District, Shenzhen, China
Telephone.....	:	/
Fax.....	:	/
Factory.....	**:**	**Iton Technology Corp.**
Address.....	:	7 Floor East, Building C, Shenzhen International Innovation Center, No. 1006 Shennan Road, Futian District, Shenzhen, China
Telephone.....	:	/
Fax.....	:	/

Test Result:	**Positive**

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Revision History

Revision	Issue Date	Revisions	Revised By
000	July 17, 2019	Initial Issue	Gavin Liang

TABLE OF CONTENTS

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	Wi-Fi Adapter
Test Model	:	AP0100
Power Supply	:	DC 7.4 by Battery(10000mAh)*2 Recharged Voltage: DC 12V/3.33A
PMN	:	Wi-Fi Adapter
HVIN	:	AP0100
FVIN	:	n/a
HMN	:	n/a
Hardware Version	:	BW2569-USBD_V1.1
Software Version	:	7.35.143.36
Bluetooth	:	
Frequency Range	:	2402MHz ~ 2480MHz
Channel Number	:	79 channels for Bluetooth V4.1 (BDR/EDR) 40 channels for Bluetooth V4.1 (BT LE)
Channel Spacing	:	1MHz for Bluetooth V4.1 (BDR/EDR) 2MHz for Bluetooth V4.1 (BT LE)
Modulation Type	:	GFSK, π/4-DQPSK, 8-DPSK for Bluetooth V4.1 (BDR/EDR) GFSK for Bluetooth V4.1 (BT LE)
Bluetooth Version	:	V4.1
WIFI(2.4G Band)	:	
Frequency Range	:	2412MHz-2462MHz
Channel Spacing	:	5MHz
Channel Number	:	11 channels for 20MHz bandwidth (2412~2462MHz) 7 channels for 40MHz bandwidth (2422~2452MHz)
Modulation Type	:	IEEE 802.11b: DSSS (CCK,DQPSK,DBPSK); IEEE 802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
WIFI 5GWLAN (U-NI-1)	:	
Frequency Range	:	5180MHz-5240MHz
Channel Number	:	4 channels for 20MHz bandwidth (5180-5240MHz) 2 channels for 40MHz bandwidth (5190~5230MHz) 1 channels for 80MHz bandwidth (5210MHz)
Modulation Type	:	IEEE 802.11a/n/ac: OFDM (64QAM, 16QAM, QPSK, BPSK)
WIFI 5GWLAN (U-NI-2A)	:	
Frequency Range	:	5260MHz-5320MHz
Channel Number	:	4 channels for 20MHz bandwidth (5260-5320MHz) 2 channels for 40MHz bandwidth (5270~5310MHz) 1 channels for 80MHz bandwidth (5290MHz)
Modulation Type	:	IEEE 802.11a/n/ac: OFDM (64QAM, 16QAM, QPSK, BPSK)

WIFI 5GWLAN (U-NI-2C)	:	
Frequency Range	:	5500MHz-5700MHz
Channel Number	:	11 channels for 20MHz bandwidth (5500-5700MHz) 5 channels for 40MHz bandwidth (5510~5670MHz) 1 channels for 80MHz bandwidth (5530MHz)
Modulation Type	:	IEEE 802.11a/n/ac: OFDM (64QAM, 16QAM, QPSK, BPSK)
WIFI 5GWLAN (U-NI-3)	:	
Frequency Range	:	5745MHz-5825MHz
Channel Number	:	5 channels for 20MHz bandwidth (5745-5825MHz) 2 channels for 40MHz bandwidth (5755~5795MHz) 1 channels for 80MHz bandwidth (5775MHz)
Modulation Type	:	IEEE 802.11a/n/ac: OFDM (64QAM, 16QAM, QPSK, BPSK)
Antenna Description	:	Two same Internal Antenna for WiFi, support MIMO technology, and another Internal Antenna for Bluetooth; ANT0 used for WIFI TX/RX, 2.16dBi (Max.) for 2.4G and 2.04dBi (Max.) for 5GHz Band; ANT1 used for WIFI TX/RX, 2.16dBi (Max.) for 2.4G and 2.04dBi (Max.) for 5GHz Band; ANT2 used for Bluetooth 2.16dBi (Max.)
DFS Operation Mode	:	☐ Master ☐ Client with Radar detection capability ☒ Client without radar detection capability

1.2. Host System Configuration List and Details

Manufacturer	Description	Model	Serial Number	Certificate
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1.3. External I/O Cable

I/O Port Description	Quantity	Cable
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1.4. Description of Test Facility

FCC Registration Number is 254912.
Industry Canada Registration Number is 9642A-1.
EMSD Registration Number is ARCB0108.
UL Registration Number is 100571-492.
TUV SUD Registration Number is SCN1081.
TUV RH Registration Number is UA 50296516-001.
NVLAP Accreditation Code is 600167-0.
FCC Designation Number is CN5024.
CAB identifier is CN0071.

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.4:2014 and CISPR 16-1-4:2010 SVSWR requirement for radiated emission above 1GHz.

1.5. Statement of the Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements" and is documented in the LCS quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

1.6. Measurement Uncertainty

Test Item		Frequency Range	Uncertainty	Note
Radiation Uncertainty	:	9KHz~30MHz	±3.10dB	(1)
		30MHz~200MHz	±2.96dB	(1)
		200MHz~1000MHz	±3.10dB	(1)
		1GHz~26.5GHz	±3.80dB	(1)
		26.5GHz~40GHz	±3.90dB	(1)
Conduction Uncertainty	:	150kHz~30MHz	±1.63dB	(1)
Power disturbance	:	30MHz~300MHz	±1.60dB	(1)

(1). This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

1.7. Description of Test Modes

According to KDB 996369 D04 Module Integration Guide v01 "Perform testing on the product with the transmitter3 or transmitters operating to confirm that the host product meets the FCC requirements. This investigation of the final product can be done by spot checking emissions from the device while operating the host as a composite system (with all the transmitters operating simultaneously). This testing is performed with the host product configured in typical operational modes to check the fundamental-frequency and spurious emissions for compliance with all the applicable rules."

The device support WLAN/BT modular and share difference antenna, can operating simultaneously for WLAN and BT, while 2.4GHz WLAN and 5GHz WLAN share same modular and same antenna, 2.4GWLAN and 5GWLAN can be active at the same time, but only with interleaving of packages switched on board level. That means that they don't transmit at the same time. No need consider simultaneous transmission for 2.4GWLAN and 5GWLAN;

We spot all modes (including mode and channel) for WLAN and BT, recorded worst case mode for simultaneously emissions;

Mode Description	Spot Check	Final Testing
Mode 1: IEEE 802.11b_Middle Channel + BT_GFSK_High Channel	Yes	Yes

2. TEST METHODOLOGY

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

The radiated testing was performed at an antenna-to-EUT distance of 3 meters. All radiated and conducted emissions measurement was performed at Shenzhen LCS Compliance Testing Laboratory Ltd.

2.1. EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

2.2. EUT Exercise

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

According to its specifications, the EUT must comply with the requirements of the Section 15.203, 15.205, 15.207, 15.209, 15.407 and 15.247 under the FCC Rules Part 15 Subpart C, FCC Subpart E and RSS-247 Issue 2, RSS-Gen Issue 5.

2.3. General Test Procedures

2.3.1 Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 6.2.1 of ANSI C63.10-2013 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using Quasi-peak and average detector modes.

2.3.2 Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 6.3 of ANSI C63.10-2013.

3. SYSTEM TEST CONFIGURATION

3.1. Justification

The system was configured for testing in a continuous transmits condition. The duty cycle is 100% and the average correction factor is 0.

3.2. EUT Exercise Software

The system was configured for testing in a continuous transmits condition and change test channels by software (MTool_REL_2_0_1_8) provided by application.

3.3. Special Accessories

No.	Equipment	Manufacturer	Model No.	Serial No.	Length	shielded/ unshielded	Notes
1	PC	Lenovo	B470	/	/	/	DOC
2	Power adapter	Lenovo	ADP-90DDB	/	1.00m	unshielded	DOC

3.4. Block Diagram/Schematics

Please refer to the related document

3.5. Equipment Modifications

Shenzhen LCS Compliance Testing Laboratory Ltd. has not done any modification on the EUT.

3.6. Test Setup

Please refer to the test setup photo.

4. SUMMARY OF TEST RESULTS

Applied Standard: FCC Part 15.247 / FCC Part 15.407 / RSS-247 Issue 2 / RSS-Gen Issue 5				
FCC Rules	ISED Rules	Description of Test	Result	Remark
§15.209, §15.247(d) §15.407(b)	RSS-247 §5.5; RSS-Gen §6.13	Radiated Spurious Emissions	Compliant	Note 1

Remark:
1. Note 1 – Test results inside test report;

5. SIMULTANEOUSLY EMISSIONS

5.1. Standard Applicable

According to KDB996369 D04 Module Integration Guide v01 “Perform testing on the product with the transmitter3 or transmitters operating to confirm that the host product meets the FCC requirements. This investigation of the final product can be done by spot checking emissions from the device while operating the host as a composite system (with all the transmitters operating simultaneously). This testing is performed with the host product configured in typical operational modes to check the fundamental-frequency and spurious emissions for compliance with all the applicable rules.”

According to FCC 15.205 (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
\1\ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293.	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(\2\)
13.36-13.41			

\1\ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz

\2\ Above 38.6

According to §15.247 (d): 20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

According to section 5.5 of RSS-247: In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under Section 5.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen Issue 5 is not required.

In case the emission fall within the restricted band specified on RSS-Gen Issue 5, then the RSS-Gen Issue 5 limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

5.2. Measuring Instruments and Setting

Please refer to equipment list in this report. The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10^{th} carrier harmonic
RB / VB (Emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 1/B kHz for Average
RB / VB (Emission in non-restricted band)	1MHz / 1MHz for Peak, 1 MHz / 1/B kHz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB/VB 200Hz/1KHz for QP/AVG
Start ~ Stop Frequency	150kHz~30MHz / RB/VB 9kHz/30KHz for QP/AVG
Start ~ Stop Frequency	30MHz~1000MHz / RB/VB 120kHz/1MHz for QP

5.3. Test Procedures

1) Sequence of testing 9 kHz to 30 MHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 0.8 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions.

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Premeasurement:

--- The turntable rotates from 0° to 315° using 45° steps.

--- The antenna height is 0.8 meter.

--- At each turntable position the analyzer sweeps with peak detection to find the maximum of all emissions

Final measurement:

--- Identified emissions during the premeasurement the software maximizes by rotating the turntable position (0° to 360°) and by rotating the elevation axes (0° to 360°).

--- The final measurement will be done in the position (turntable and elevation) causing the highest emissions with QPK detector.

--- The final levels, frequency, measuring time, bandwidth, turntable position, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement and the limit will be stored.

2) Sequence of testing 30 MHz to 1 GHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a table with 0.8 m height is used, which is placed on the ground plane.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Premeasurement:

--- The turntable rotates from 0° to 315° using 45° steps.

--- The antenna is polarized vertical and horizontal.

--- The antenna height changes from 1 to 3 meter.

--- At each turntable position, antenna polarization and height the analyzer sweeps three times in peak to find the maximum of all emissions.

Final measurement:

--- The final measurement will be performed with minimum the six highest peaks.

--- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable position (± 45°) and antenna movement between 1 and 4 meter.

--- The final measurement will be done with QP detector with an EMI receiver.

--- The final levels, frequency, measuring time, bandwidth, antenna height, antenna polarization, turntable angle, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement with marked maximum final measurements and the limit will be stored.

3) Sequence of testing 1 GHz to 18 GHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Premeasurement:

--- The turntable rotates from 0° to 315° using 45° steps.

--- The antenna is polarized vertical and horizontal.

--- The antenna height scan range is 1 meter to 2.5 meter.

--- At each turntable position and antenna polarization the analyzer sweeps with peak detection to find the maximum of all emissions.

Final measurement:

--- The final measurement will be performed with minimum the six highest peaks.

--- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable position (± 45°) and antenna movement between 1 and 4 meter. This procedure is repeated for both antenna polarizations.

--- The final measurement will be done in the position (turntable, EUT-table and antenna polarization) causing the highest emissions with Peak and Average detector.

--- The final levels, frequency, measuring time, bandwidth, turntable position, EUT-table position, antenna polarization, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement with marked maximum final measurements and the limit will be stored.

4) Sequence of testing above 18 GHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 1 meter.

--- The EUT was set into operation.

Premeasurement:

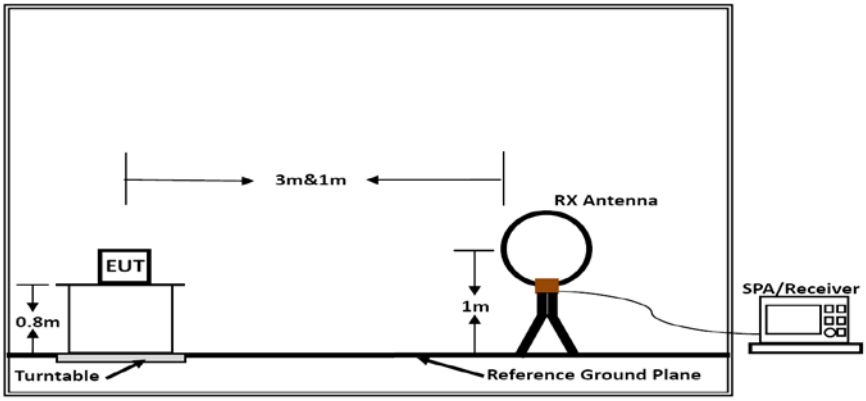
--- The antenna is moved spherical over the EUT in different polarizations of the antenna.

Final measurement:

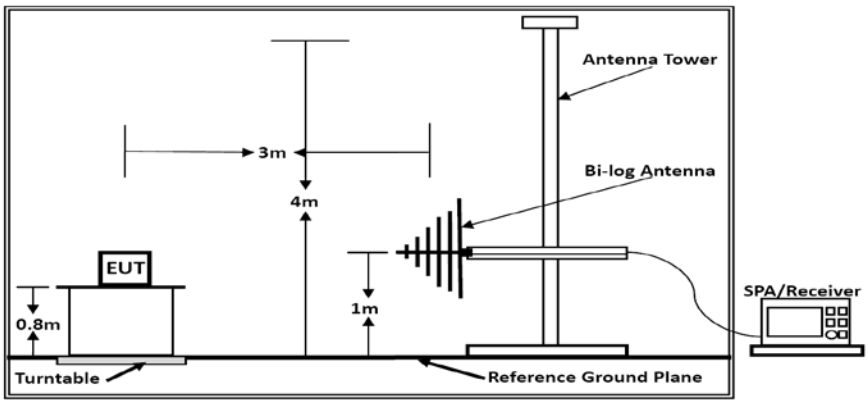
--- The final measurement will be performed at the position and antenna orientation for all detected emissions that were found during the premeasurements with Peak and Average detector.

--- The final levels, frequency, measuring time, bandwidth, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement and the limit will be stored.

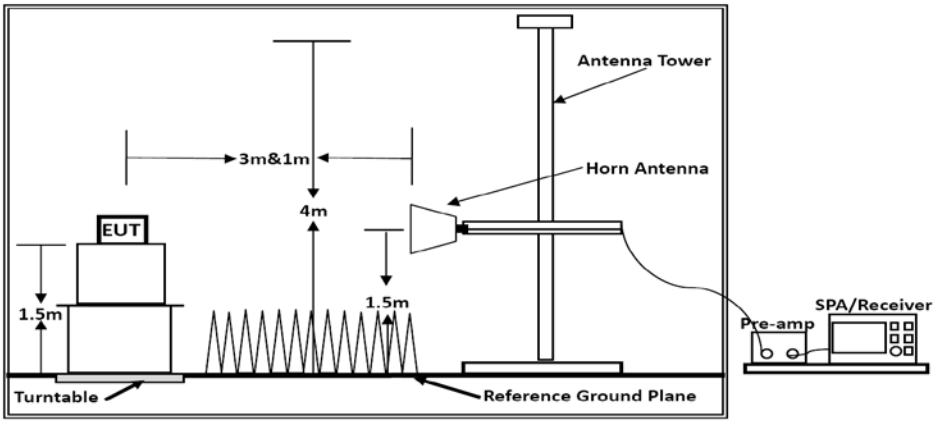
5.4. Test Setup Layout



Below 30MHz



Below 1GHz



Above 1GHz

Above 18 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade form 3m to 1m.

Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1.5m]) (dB);
Limit line = specific limits (dBuV) + distance extrapolation factor [6 dB].

5.5. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode (Mode 1: IEEE 802.11b_Middle Channel + BT_GFSK_High Channel).

5.6. Results of Radiated Emissions (9 KHz~30MHz)

Temperature	24.5℃	Humidity	53.7%
Test Engineer	Wang Chuang	Configurations	BT LE

Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Over Limit (dBuV)	Remark
-	-	-	-	See Note

Note:

The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

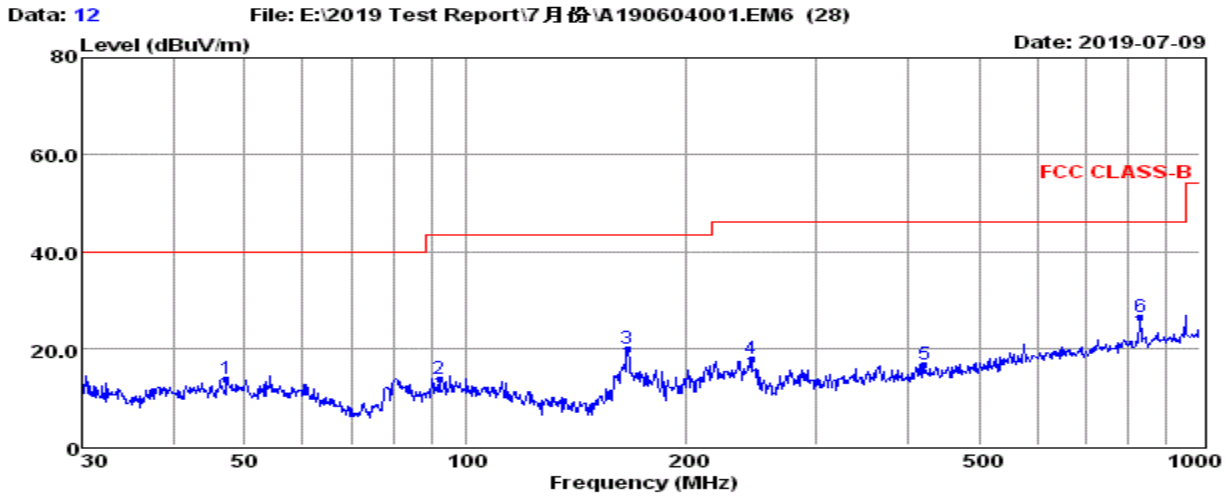
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);
Limit line = specific limits (dBuV) + distance extrapolation factor.

5.7. Results of Radiated Emissions (30MHz~1GHz)

Temperature	24.5℃	Humidity	53.7%
Test Engineer	Wang Chuang	Configurations	Mode 1: IEEE 802.11b_Middle Channel + BT_GFSK_High Channel

Test result for Mode 1: IEEE 802.11b_Middle Channel + BT_GFSK_High Channel

Horizontal

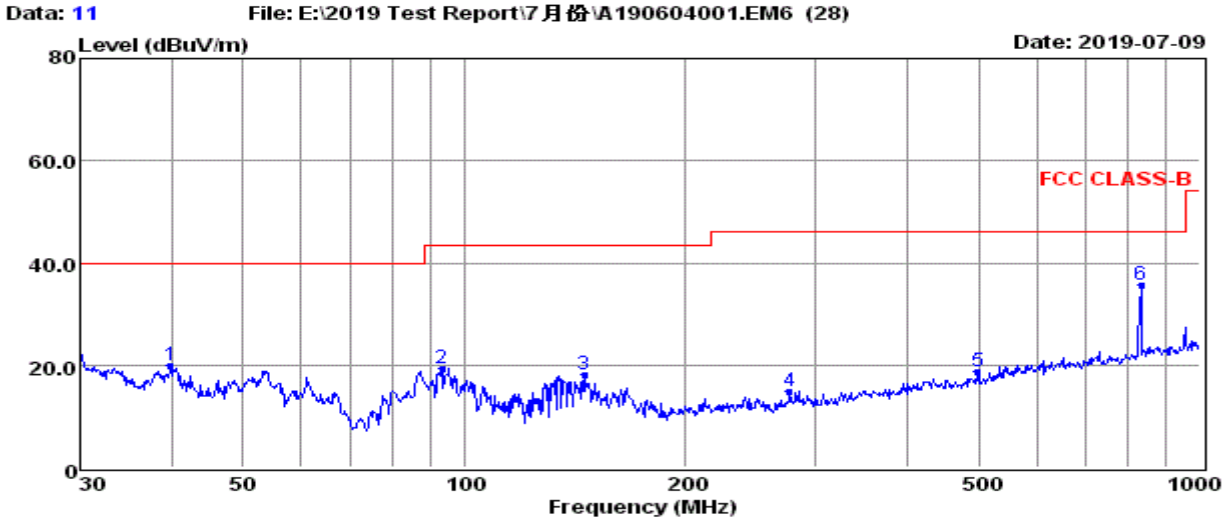


Env./Ins: 24.5℃/53.7%
pol: HORIZONTAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	47.16	0.04	0.35	13.42	13.81	40.00	-26.19	QP
2	92.14	0.96	0.56	12.30	13.82	43.50	-29.68	QP
3	166.07	10.16	0.77	8.85	19.78	43.50	-23.72	QP
4	245.09	4.88	0.90	12.08	17.86	46.00	-28.14	QP
5	422.06	-0.03	1.33	15.48	16.78	46.00	-29.22	QP
6	830.40	4.28	1.67	20.37	26.32	46.00	-19.68	QP

Note: 1. All readings are Quasi-peak values.
2. Measured= Reading + Antenna Factor + Cable Loss
3. The emission that are 20db below the official limit are not reported

Vertical



Env./Ins: 24.5℃/53.7%
pol: VERTICAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	39.85	6.09	0.38	13.54	20.01	40.00	-19.99	QP
2	93.11	6.35	0.56	12.49	19.40	43.50	-24.10	QP
3	145.35	9.08	0.77	8.23	18.08	43.50	-25.42	QP
4	277.09	1.32	1.00	12.58	14.90	46.00	-31.10	QP
5	499.42	0.84	1.34	16.57	18.75	46.00	-27.25	QP
6	833.32	13.47	1.86	20.40	35.73	46.00	-10.27	QP

Note: 1. All readings are Quasi-peak values.
2. Measured= Reading + Antenna Factor + Cable Loss
3. The emission that are 20db below the official limit are not reported

Note:

1). Pre-scan all modes and recorded the worst case results in this report (Mode 1: IEEE 802.11b_Middle Channel + BT_GFSK_High Channel).

2). Emission level (dBuV/m) = 20 log Emission level (uV/m).

3). Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

5.8. Results for Radiated Emissions (1 – 40 GHz)

Mode 1: IEEE 802.11b_Middle Channel + BT_GFSK_High Channel)

Freq. MHz	Reading dBuV	Ant. Fac. dB/m	Pre. Fac. dB	Cab. Loss dB	Measured dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol.
4882.00	56.89	33.16	35.15	3.96	58.86	74.00	-15.14	Peak	Horizontal
4882.00	41.94	33.16	35.15	3.96	43.91	54.00	-10.09	Average	Horizontal
4882.00	53.26	33.16	35.15	3.96	55.23	74.00	-18.77	Peak	Vertical
4882.00	42.20	33.16	35.15	3.96	44.17	54.00	-9.83	Average	Vertical
4924.00	58.08	33.26	35.14	3.98	60.18	74.00	-13.82	Peak	Horizontal
4924.00	44.18	33.26	35.14	3.98	46.28	54.00	-7.72	Average	Horizontal
4924.00	55.97	33.26	35.14	3.98	58.07	74.00	-15.93	Peak	Vertical
4924.00	41.89	33.26	35.14	3.98	43.99	54.00	-10.01	Average	Vertical

Notes:

1). Measuring frequencies from 9 KHz - 10th harmonic or 40GHz (which is less), No emission found between lowest internal used/generated frequency to 30MHz.

2). Radiated emissions measured in frequency range from 9 KHz~10th harmonic or 40GHz (which is less) were made with an instrument using Peak detector mode.

3). Data of measurement within this frequency range shown "---" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
4). Sport check all mode (including test chanenls and modes); recorded worst case at Mode 1: IEEE 802.11b_Middle Channel + BT_GFSK_High Channel

6. SUMMARY OF TEST EQUIPMENT

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Power Meter	R&S	NRVS	100444	2019-06-11	2020-06-10
2	Power Sensor	R&S	NRV-Z81	100458	2019-06-11	2020-06-10
3	Power Sensor	R&S	NRV-Z32	10057	2019-06-11	2020-06-10
4	Test Software	Tonscend	JS1120-2	/	N/A	N/A
5	RF Control Unit	Tonscend	JS0806-2	N/A	2019-06-11	2020-06-10
6	MXA Signal Analyzer	Agilent	N9020A	MY50510140	2019-06-11	2020-06-10
7	DC Power Supply	Agilent	E3642A	N/A	2018-11-15	2019-11-14
8	EMI Test Software	AUDIX	E3	/	N/A	N/A
9	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	2019-06-12	2020-06-11
10	Positioning Controller	MF	MF-7082	N/A	2019-06-12	2020-06-11
11	Active Loop Antenna	SCHWARZBECK	FMZB 1519B	00005	2018-07-26	2019-07-25
12	By-log Antenna	SCHWARZBECK	VULB9163	9163-470	2018-07-26	2019-07-25
13	Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1925	2018-07-02	2019-07-01
14	Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	791	2018-09-20	2019-09-19
15	Broadband Preamplifier	SCHWARZBECK	BBV 9719	9719-025	2018-09-20	2019-09-19
16	EMI Test Receiver	R&S	ESR 7	101181	2019-06-12	2020-06-11
17	RS SPECTRUM ANALYZER	R&S	FSP40	100503	2018-11-15	2019-11-14
18	Broadband Preamplifier	/	BP-01M18G	P190501	2019-07-01	2020-06-30
19	RF Cable-R03m	Jye Bao	RG142	CB021	2019-06-12	2020-06-11
20	RF Cable-HIGH	SUHNER	SUCOFLEX 106	03CH03-HY	2019-06-12	2020-06-11
21	6dB Attenuator	/	100W/6dB	1172040	2019-06-11	2020-06-10
22	3dB Attenuator	/	2N-3dB	/	2019-06-11	2020-06-10
23	EMI Test Receiver	R&S	ESPI	101840	2019-06-11	2020-06-10
24	Artificial Mains	R&S	ENV216	101288	2019-06-12	2020-06-11
25	10dB Attenuator	SCHWARZBECK	MTS-IMP-136	261115-001-0032	2019-06-11	2020-06-10
Note: All equipment is calibrated through CHINA CEPREI LABORATORY and GUANGZHOU LISAI CALIBRATION AND TEST CO., LTD.						

7. TEST SETUP PHOTOGRAPHS OF EUT

Please refer to separated files for Test Setup Photos of the EUT.

8. EXTERIOR PHOTOGRAPHS OF THE EUT

Please refer to separated files for External Photos of the EUT.

9. INTERIOR PHOTOGRAPHS OF THE EUT

Please refer to separated files for Internal Photos of the EUT.

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