# **FCC RF Test Report**

**APPLICANT**: Wistron Corporation

EQUIPMENT : Tablet PC
BRAND NAME : Lenovo
MODEL NAME : TP00082A

FCC ID : PU5-TP00082AI

STANDARD : FCC Part 15 Subpart E §15.407

**CLASSIFICATION**: (NII) Unlicensed National Information Infrastructure

Equipment: Intel 8265D2W tested inside of Lenovo Tablet PC

This is a partial report which is included the conducted emission and radiated emission test items. The product was received on Sep. 12, 2016 and testing was completed on Nov. 21, 2016. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager

### SPORTON INTERNATIONAL INC.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C.

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# **REVISION HISTORY**

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR5N2711-09E	Rev. 01	Initial issue of report	Dec. 05, 2016

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# **SUMMARY OF TEST RESULT**

Report Section	FCC Rule Description		Limit	Result	Remark	
			15.407(b)(4)(i)		Under limit	
3.1	15.407(b)	Unwanted Emissions	&15.209(a)	Pass	6.25 dB at	
			&13.209(a)		35.670 MHz	
	15.207		45.007( )	1	Under limit	
0.0		400 1 1 1 5 1 1			9.30 dB at	
3.2		15.207 AC Conducted Emi	AC Conducted Emission	Emission 15.207(a)	Pass	0.470 MHz and
					0.550 MHz	
0.0	15.407(c)	Automatically Discontinue	Discontinue	Pass		
3.3		Transmission	Transmission		-	
0.4	15.203 &	Antonio Degicio ment	NI/A	Pass		
3.4	15.407(a)	Antenna Requirement	N/A		-	

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### 1 General Description

### 1.1 Applicant

#### **Wistron Corporation**

21F, No. 88, Sec. 1, Hsin Tai Wu Rd., Hsichih Dist, New Taipei City 221, Taiwan R.O.C.

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#### 1.2 Manufacturer

#### **Wistron Corporation**

21F, No. 88, Sec. 1, Hsin Tai Wu Rd., Hsichih Dist, New Taipei City 221, Taiwan R.O.C.

### 1.3 Product Feature of Equipment Under Test

Product Feature			
Equipment	Tablet PC		
Brand Name	Lenovo		
Model Name	TP00082A		
FCC ID	PU5-TP00082AI		
Integrated WI AN Medule	Brand Name: Intel		
Integrated WLAN Module	Model Name: 8265D2W		
	WLAN 11a/b/g/n HT20/HT40		
EUT supports Radios application	WLAN 11ac VHT20/VHT40/VHT80		
	Bluetooth BR/EDR/LE		
EUT Stage	Production Unit		

#### Remark:

- 1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
- 2. Equipment: Intel 8265D2W tested inside of Lenovo Tablet PC.

	Antenna Information					
Manufacturer	Manufacturer PULSE					
Antenna Type	Main: Dipole Antenna	Aux.: Dipole Antenna				
Part Number	025.900FC.0001	025.900FD.0001				
	WLAN (2.4GHz): -0.82	WLAN (2.4GHz): 1.39				
Peak Gain		Bluetooth: 1.39				
	WLAN (5GHz): 2.31	WLAN (5GHz): 3.13				

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### 1.4 Product Specification of Equipment Under Test

Standards-related Product Specification					
Tx/Rx Channel Frequency Range	5745 MHz ~ 5825 MHz				
Type of Modulation 802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM			256QAM)		
Antenna Function Description	802.11 a/n/ac 802.11 n/ac MIMO	Ant. 1 V V	Ant. 2 V		

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Note: MIMO Ant. 1+2 is a calculated result from sum of the power MIMO Ant. 1 and MIMO Ant. 2.

#### 1.5 Modification of EUT

No modifications are made to the EUT during all test items.

### 1.6 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190) and the FCC designation No. TW1022 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

Test Site	SPORTON INTERNATIONAL INC.			
	No. 52, Hwa Ya 1 <sup>st</sup> Rd., Hwa Ya Technology Park,			
Test Site Location	Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C.			
rest Site Location	TEL: +886-3-327-3456			
	FAX: +886-3-328-4978			
Toot Cito No	Sporton	Site No.		
Test Site No.	CO05-HY	03CH07-HY		

**Note:** The test site complies with ANSI C63.4 2014 requirement.

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### 1.7 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

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- FCC Part 15 Subpart E
- FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r03
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- FCC KDB 644545 D03 Guidance for IEEE 802 11ac New Rules v01
- ANSI C63.10-2013

**Remark:** All test items were verified and recorded according to the standards and without any deviation during the test.

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# 2 Test Configuration of Equipment Under Test

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 kHz to 30 MHz) and radiated emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Z plane for Ant. 2; X plane for Ant. 1+2) were recorded in this report.

### 2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
	149	5745	157	5785
5725-5850 MHz Band 4	151*	5755	159*	5795
(U-NII-3)	153	5765	161	5805
(3.411.6)	155#	5775	165	5825

#### Note:

- 1. The above Frequency and Channel in "\*" were 802.11n HT40 and 802.11ac VHT40.
- 2. The above Frequency and Channel in "#" were 802.11ac VHT80.

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#### 2.2 Test Mode

Final test mode of conducted test items and radiated spurious emissions are considering the modulation and worse data rates from the power table described in section 2.2.

#### Single Antenna

Modulation	Data Rate
802.11a	6 Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ac VHT20	MCS0
802.11ac VHT40	MCS0
802.11ac VHT80	MCS0

#### **MIMO Antenna**

Modulation	Data Rate
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ac VHT20	MCS0
802.11ac VHT40	MCS0
802.11ac VHT80	MCS0

AC Conducted	Mode 1: WLAN (5GHz) Tx + TF + TC
Emission	WEAN (Saliz) IX + II + IO

#### Remark:

- 1. TF stands for Test Function, and consists of MPEG4 and H-pattern.
- 2. TC stands for Test Configuration, and consists of iPod Earphone, USB HD, Adapter, SD Card, and DP Cable.

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Ch. #		Band IV : 5725-5850 MHz			
	Cn. #	802.11a	802.11n HT20	802.11n HT40	
L	Low	149	149	151	
M	Middle	157	157	-	
Н	High	165	165	159	

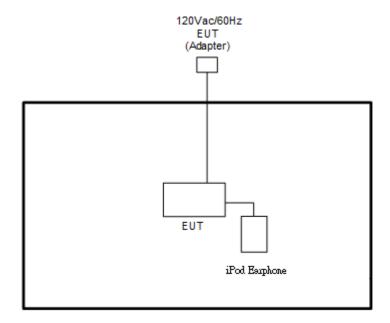
	Ch. #	Band IV:5725-5850 MHz					
	CII.#	802.11ac VHT20	802.11ac VHT40	802.11ac VHT80			
L	Low	149	151	-			
M	Middle	157	-	155			
Н	High	165	159	-			

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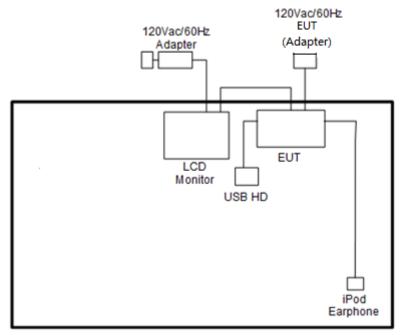
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# 2.3 Connection Diagram of Test System

#### <WLAN Tx Mode>



#### <AC Conducted Emission Mode>



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### 2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	iPod Earphone	Apple	N/A	Verification	Unshielded, 1.0 m	N/A
2.	LCD Monitor	DELL	U2410	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
3.	USB HD	PQI	H568V	FCC DoC	Unshielded, 0.5 m	N/A
4.	SD Card	SanDisk	MicroSD HC	FCC DoC	N/A	N/A

### 2.5 EUT Operation Test Setup

The programmed RF utility, "DRTU Tool", is installed in EUT to provide channel selection, power level, data rate and the application type. RF Utility can send transmitting signal for all testing. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

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### 3 Test Result

#### 3.1 Unwanted Emissions Measurement

This section as specified in FCC Part 15.407(b) is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement. The unwanted emissions shall comply with 15.407(b)(1) to (6), and restricted bands per FCC Part15.205.

#### 3.1.1 Limit of Unwanted Emissions

- (1) For transmitters operating in the 5.725-5.85 GHz band: 15.407(b)(4)(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
- (2) Unwanted spurious emissions fallen in restricted bands per FCC Part15.205 shall comply with the general field strength limits set forth in § 15.209 as below table,

Frequency	Field Strength	Measurement Distance
(MHz)	(microvolts/meter)	(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

**Note:** The following formula is used to convert the EIRP to field strength.

$$E = \frac{1000000\sqrt{30P}}{3}$$
 µV/m, where P is the eirp (Watts)

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EIRP (dBm)	Field Strength at 3m (dBµV/m)
-17	78.3
- 27	68.3

(3) KDB 789033 D02 General UNII Test Procedures New Rules v01r03 G)2)c) As specified in 15.407(b), emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit of -27 dBm/MHz (or -17 dBm/MHz as specified in 15.407(b)(4)). However, an out-of-band emission that complies with both the average and peak limits of 15.209 is not required to satisfy the -27 dBm/MHz or -17 dBm/MHz peak emission limit.

#### 3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

#### 3.1.3 Test Procedures

- The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r03.
   Section G) Unwanted emissions measurement.
  - (1) Procedure for Unwanted Emissions Measurements Below 1000MHz
    - RBW = 120 kHz
    - VBW = 300 kHz
    - Detector = Peak
    - Trace mode = max hold
  - (2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz
    - RBW = 1 MHz
    - VBW ≥ 3 MHz
    - Detector = Peak
    - Sweep time = auto
    - Trace mode = max hold
  - (3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz
    - RBW = 1 MHz
    - VBW = 10 Hz, when duty cycle is no less than 98 percent.
    - VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

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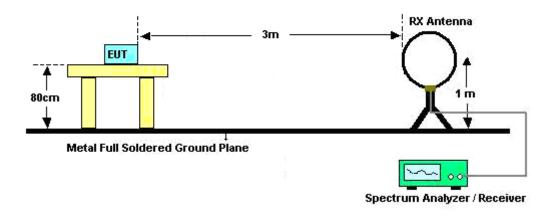
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- The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
- 3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- 4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
- 5. For each suspected emission, the EUT was arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
- 6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
- 7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

#### 3.1.4 Test Setup

#### For radiated emissions below 30MHz



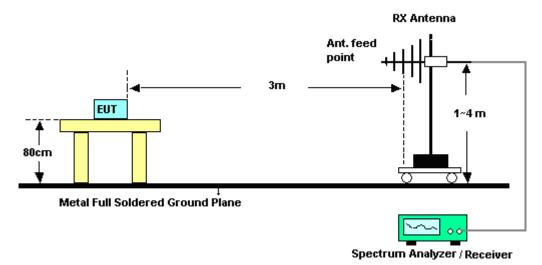
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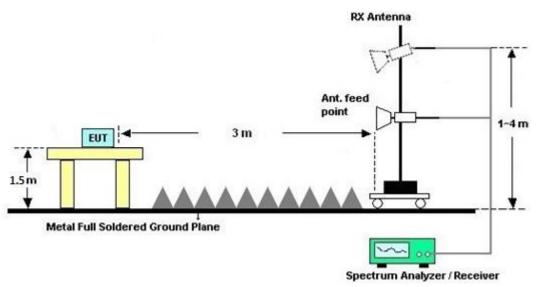
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#### For radiated emissions from 30MHz to 1GHz



#### For radiated emissions above 1GHz



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#### 3.1.5 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

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#### 3.1.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix A and B.

#### 3.1.7 Duty Cycle

Please refer to Appendix C.

### 3.1.8 Test Result of Radiated Spurious Emissions (30MHz ~ 10th Harmonic)

Please refer to Appendix A and B.

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#### 3.2 AC Conducted Emission Measurement

#### 3.2.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Fraguency of amission (MHz)	Conducted limit (dBμV)				
Frequency of emission (MHz)	Quasi-peak	Average			
0.15-0.5	66 to 56*	56 to 46*			
0.5-5	56	46			
5-30	60	50			

<sup>\*</sup>Decreases with the logarithm of the frequency.

### 3.2.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

#### 3.2.3 Test Procedures

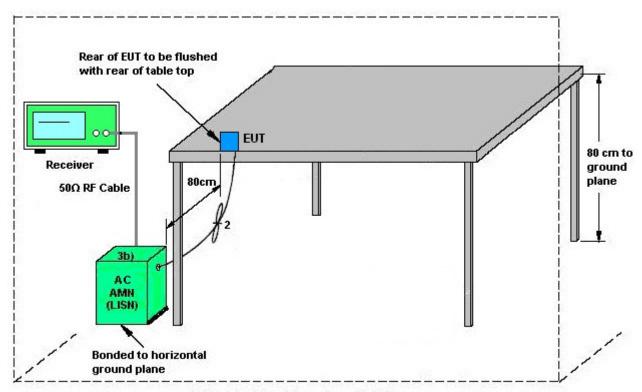
- 1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- 2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
- 3. All the support units are connecting to the other LISN.
- 4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
- 5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
- 6. Both sides of AC line were checked for maximum conducted interference.
- 7. The frequency range from 150 kHz to 30 MHz was searched.
- 8. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

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#### 3.2.4 Test Setup



AMN = Artificial mains network (LISN)

AE = Associated equipment

EUT = Equipment under test

ISN = Impedance stabilization network

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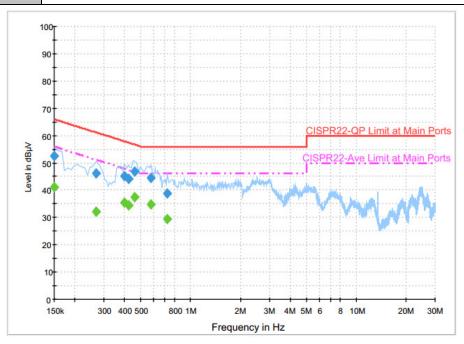
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#### 3.2.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	<b>20~22</b> ℃
Test Engineer :	James Chiu	Relative Humidity :	50~55%
Test Voltage :	120Vac / 60Hz	Phase :	Line

Function Type: WLAN (5GHz) Tx + TF + TC



#### Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	52.7	Off	L1	19.6	13.3	66.0
0.270000	46.3	Off	L1	19.6	14.8	61.1
0.398000	45.2	Off	L1	19.6	12.7	57.9
0.422000	44.1	Off	L1	19.6	13.3	57.4
0.462000	46.9	Off	L1	19.6	9.8	56.7
0.574000	44.5	Off	L1	19.6	11.5	56.0
0.726000	38.9	Off	L1	19.6	17.1	56.0

#### Final Result : Average

mai necunt i zivenage								
Frequency	Average	Eiltor	Filter Line	Corr.	Margin	Limit		
(MHz)	(dBµV)	Filler		(dB)	(dB)	(dBµV)		
0.150000	41.1	Off	L1	19.6	14.9	56.0		
0.270000	32.1	Off	L1	19.6	19.0	51.1		
0.398000	35.4	Off	L1	19.6	12.5	47.9		
0.422000	34.5	Off	L1	19.6	12.9	47.4		
0.462000	37.4	Off	L1	19.6	9.3	46.7		
0.574000	34.6	Off	L1	19.6	11.4	46.0		
0.726000	29.5	Off	L1	19.6	16.5	46.0		

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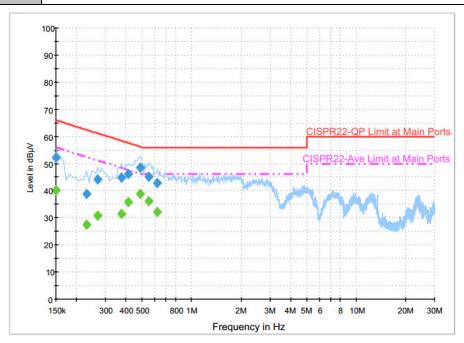
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Test Mode : Mo	lode 1	Temperature :	<b>20~22</b> ℃
Test Engineer: Ja	ames Chiu	Relative Humidity :	50~55%
Test Voltage: 12	20Vac / 60Hz	Phase :	Neutral

Function Type: WLAN (5GHz) Tx + TF + TC



#### Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	52.1	Off	N	19.6	13.9	66.0
0.230000	38.7	Off	N	19.6	23.7	62.4
0.270000	44.1	Off	N	19.6	17.0	61.1
0.374000	44.8	Off	N	19.6	13.6	58.4
0.414000	46.1	Off	N	19.6	11.5	57.6
0.486000	48.6	Off	N	19.6	7.6	56.2
0.550000	45.3	Off	N	19.6	10.7	56.0
0.622000	42.9	Off	N	19.6	13.1	56.0

#### Final Result : Average

•	mai nesuit . Average									
	Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)			
	0.150000	40.3	Off	N	19.6	15.7	56.0			
	0.230000	27.6	Off	N	19.6	24.8	52.4			
	0.270000	30.7	Off	N	19.6	20.4	51.1			
	0.374000	31.5	Off	N	19.6	16.9	48.4			
	0.414000	35.6	Off	N	19.6	12.0	47.6			
	0.486000	38.8	Off	N	19.6	7.4	46.2			
	0.550000	36.2	Off	N	19.6	9.8	46.0			
	0.622000	32.0	Off	N	19.6	14.0	46.0			
	0.414000 0.486000 0.550000	35.6 38.8 36.2	Off Off	N N N	19.6 19.6 19.6	12.0 7.4 9.8	47. 46. 46.			

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### 3.3 Automatically Discontinue Transmission

#### 3.3.1 Limit of Automatically Discontinue Transmission

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization to describe how this requirement is met.

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#### 3.3.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

#### 3.3.3 Test Result of Automatically Discontinue Transmission

While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.

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### 3.4 Antenna Requirements

#### 3.4.1 Standard Applicable

According to FCC 47 CFR Section 15.407(a)(1)(2) ,if transmitting antenna directional gain is greater than 6 dBi, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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#### 3.4.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

#### 3.4.3 Antenna Gain

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

Directional gain =  $G_{ANT}$  + Array Gain, where Array Gain is as follows.

For power spectral density (PSD) measurements on all devices,

Array Gain =  $10 \log(N_{ANT}/N_{SS}=1) dB$ .

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for  $N_{ANT} \le 4$ .

Directional gain may be calculated by using the formulas applicable to equal gain antennas with GANT set equal to the gain of the antenna having the highest gain;

The EUT supports CDD mode.

For power, the directional gain G<sub>ANT</sub> is set equal to the antenna having the highest gain, i.e., F)2)f)i).

For PSD, the directional gain calculation is following F)2)f)ii) of KDB 662911 D01 v02r01.

The power and PSD limit should be modified if the directional gain of EUT is over 6 dBi,

The directional gain "DG" is calculated as following table.

			DG	DG	Power	PSD
			for	for	Limit	Limit
	Ant 1	Ant 2	Power	PSD	Reduction	Reduction
	(dBi)	(dBi)	(dBi)	(dBi)	(dB)	(dB)
Band IV	1.10	2.44	2.44	4.81	0.00	0.00

Power limit reduction = Composite gain - 6dBi, (min = 0)

PSD limit reduction = Composite gain + PSD Array gain - 6dBi, ( min = 0 )

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# 4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Bilog Antenna	TESEQ	CBL 6111D&00800 N1D01N-06	35419&03	30MHz to 1GHz	Jan. 13, 2016	Nov. 05, 2016 ~ Nov. 16, 2016	Jan. 12, 2017	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 19, 2016	Nov. 05, 2016 ~ Nov. 16, 2016	Aug. 18, 2017	Radiation (03CH07-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY54130085	20Hz ~ 8.4GHz	Oct. 26, 2016	Nov. 05, 2016 ~ Nov. 16, 2016	Oct. 25, 2017	Radiation (03CH07-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Sep. 02, 2015	Nov. 05, 2016 ~ Nov. 16, 2016	Sep. 01, 2017	Radiation (03CH07-HY)
Preamplifier	MITEQ	AMF-7D-0010 1800-30-10P	1590075	1GHz ~ 18GHz	Apr. 15, 2016	Nov. 05, 2016 ~ Nov. 16, 2016	Apr. 14, 2017	Radiation (03CH07-HY)
Preamplifier	COM-POWER	PA-103A	161241	10MHz-1GHz	Mar. 18, 2016	Nov. 05, 2016 ~ Nov. 16, 2016	Mar. 17, 2017	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Oct. 12, 2016	Nov. 05, 2016 ~ Nov. 16, 2016	Oct. 11, 2017	Radiation (03CH07-HY)
Spectrum Analyzer	Agilent	N9010A	MY53470118	10Hz~44GHz	Feb. 27, 2016	Nov. 05, 2016 ~ Nov. 16, 2016	Feb. 26, 2017	Radiation (03CH07-HY)
Antenna Mast	Max-Full	MFA520BS	N/A	1m~4m	N/A	Nov. 05, 2016 ~ Nov. 16, 2016	N/A	Radiation (03CH07-HY)
Turn Table	ChainTek	Chaintek 3000	N/A	0~360 Degree	N/A	Nov. 05, 2016 ~ Nov. 16, 2016	N/A	Radiation (03CH07-HY)
Loop Cable	Rohde & Schwarz	N/A	N/A	9KHz~30MHz	Dec. 03, 2015	Nov. 05, 2016 ~ Nov. 16, 2016	Dec. 02, 2016	Radiation (03CH07-HY)
Preamplifier	MITEQ	JS44-1800400 0-33-8P	1840917	18GHz ~ 40GHz	Jun. 14, 2016	Nov. 05, 2016 ~ Nov. 16, 2016	Jun. 13, 2017	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA917025 1	18GHz- 40GHz	Oct. 07, 2016	Nov. 05, 2016 ~ Nov. 16, 2016	Oct. 06, 2017	Radiation (03CH07-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100055	9kHz-40GHz	Jul. 17, 2016	Sep. 19, 2016 ~ Nov. 21, 2016	Jul. 16, 2017	Radiation (03CH07-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Nov. 07, 2016	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9kHz~7GHz	Aug. 30, 2016	Nov. 07, 2016	Aug. 29, 2017	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Dec. 02, 2015	Nov. 07, 2016	Dec. 01, 2016	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Dec. 14, 2015	Nov. 07, 2016	Dec. 13, 2016	Conduction (CO05-HY)

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# 5 Uncertainty of Evaluation

#### **Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)**

Measuring Uncertainty for a Level of Confidence	2.7
of 95% (U = 2Uc(y))	2.1

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#### <u>Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)</u>

Measuring Uncertainty for a Level of Confidence		
of 95% (U = 2Uc(y))	5.7	

#### **Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)**

Measuring Uncertainty for a Level of Confidence	5.5
of 95% (U = 2Uc(y))	5.5

#### <u>Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)</u>

Measuring Uncertainty for a Level of Confidence	F.O.	
of 95% (U = 2Uc(y))	5.2	

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