



# TEST REPORT

### FCC PART 15 SUBPART C 15.247

Report Reference No. ...... CTL1607252810-WF-01

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Product Name...... WIFI MODULE

Model/Type reference ...... ZK-7662

List Model(s)..... See next page

Trade Mark ...... CT-UNITE

FCC ID ...... 2ACWK76X2

Applicant's name ...... CT Unite Communication Technology Ltd

6C, Jiajiahao Commercial Building, Yiyuan Road, North of Address of applicant .....

Shennan Avenue, Nanshan District, Shenzhen, China

Test Firm ..... Shenzhen CTL Testing Technology Co., Ltd.

Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road, Address of Test Firm .....

Nanshan District, Shenzhen, China 518055

Test specification .....

Standard...... 47 CFR FCC Part 15 Subpart C 15.247

TRF Originator ...... Shenzhen CTL Testing Technology Co., Ltd.

Master TRF ...... Dated 2011-01

Date of Receipt ...... Jul. 25, 2016

**Date of Test Date**...... Jul. 26, 2016–Aug. 19, 2016

Data of Issue..... Aug. 20, 2016

Result ..... Pass

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# TEST REPORT

Test Report No. : CTL1607252810-WF-01 Aug. 20, 2016

Date of issue

Equipment under Test : WIFI MODULE

Model /Type : ZK-7662

ZK-7632V, ZK-7632U, ZK-7632-TU, ZK-7632-T, ZK-7632-M,

ZK-7632-L, ZK-7632-G, ZK-7662, ZK-7662U, ZK-7662-M, ZK-7662-T, ZK-7662-C, ZK-7662-TL, ZK-7662-V, ZK-7662-L

ZK-7662-T, ZK-7662-G, ZK-7662-TU, ZK-7662-V, ZK-7662-L, Listed Models

ZK-7612, ZK-7612-T, ZK-7612-U, ZK-7612-V, ZK-7612-G, ZK-7612-M, ZK-7612-TU, ZK-7610, ZK-7610U, ZK-7610V, ZK-7610-T, ZK-7610-M, ZK-7610-G, ZK-7610-TU, ZK-5572

Applicant : CT Unite Communication Technology Ltd

Address : 6C, Jiajiahao Commercial Building, Yiyuan Road, North of

Shennan Avenue, Nanshan District, Shenzhen, China

Manufacturer : CT Unite Communication Technology Ltd

Address : 6C, Jiajiahao Commercial Building, Yiyuan Road, North of Shennan Avenue, Nanshan District, Shenzhen, China

Test result Pas	s *
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<sup>\*</sup> In the configuration tested, the EUT complied with the standards specified page 5.

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.

# \*\* Modified History \*\*

Revisions	Description	Issued Data	Report No.	Remark
Version 1.0	Initial Test Report Release	2016-08-20	CTL1607252810-WF-01	Tracy Qi



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### 1. SUMMARY

### 1.1. TEST STANDARDS

The tests were performed according to following standards:

FCC Rules Part 15.247: Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz

KDB558074 D01 V03r05: Guidance for Performing Compliance Measurements on Digital

Transmission Systems (DTS) Operating Under §15.247

ANSI C63.10:2013: American National Standard for Testing Unlicensed Wireless Devices

ANSI C63.4: 2014: —American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40GHz

### 1.2. Test Description

FCC PART 15.247		
FCC Part 15.207	AC Power Conducted Emission	PASS
FCC Part 15.247(a)(2)	6dB Bandwidth	PASS
FCC Part 15.247(d)	Spurious RF Conducted Emission	PASS
FCC Part 15.247(b)	Maximum Conducted Output Power	PASS
FCC Part 15.247(e)	Power Spectral Density	PASS
FCC Part 15.109/ 15.205/ 15.209	Radiated Emissions	PASS
FCC Part 15.247(d)	Band Edge	PASS
FCC Part 15.203/15.247 (b)	Antenna Requirement	PASS

Testing Technology

### 1.3. Test Facility

#### 1.3.1 Address of the test laboratory

Shenzhen CTL Testing Technology Co., Ltd.

Floor 1-A, Baisha Technology Park, No. 3011, Shahexi Road, Nanshan, Shenzhen 518055 China

There is one 3m semi-anechoic chamber and two line conducted labs for final test. The Test Sites meet the requirements in documents ANSI C63.4 and CISPR 22/EN 55022 requirements.

### 1.3.2 Laboratory accreditation

The test facility is recognized, certified, or accredited by the following organizations:

### IC Registration No.: 9618B

The 3m alternate test site of Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration No.: 9618B on November 13, 2013.

### FCC-Registration No.: 970318

Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 970318, December 19, 2013.

### 1.4. 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 Shenzhen CTL Testing Technology Co., Ltd. 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.

Hereafter the best measurement capability for CTL laboratory is reported:

Test	Measurement Uncertainty	Notes
Transmitter power conducted	±0.57 dB	(1)
Transmitter power Radiated	±2.20 dB	(1)
Conducted spurious emission 9KHz-40 GHz	±2.20 dB	(1)
Occupied Bandwidth	±0.01ppm	(1)
Radiated Emission 30~1000MHz	±4.10dB	(1)
Radiated Emission Above 1GHz	±4.32dB	(1)
Conducted Disturbance0.15~30MHz	±3.20dB	(1)

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

### 2. GENERAL INFORMATION

### 2.1. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Normal Temperature:	25°C
Relative Humidity:	55 %
Air Pressure:	101 kPa

### 2.2. General Description of EUT

Product Name:	WIFI MODULE
Model/Type reference:	ZK-7662
Power supply:	DC 3.3V from host device
WIFI	
Supported type:	802.11b SISO /802.11g SISO /802.11n(H20) MIMO /802.11n(H40) M
Modulation: 802.11b: DSSS 802.11g/802.11n(H20)/802.11n(H40): OFDM	
Operation frequency: 802.11b/802.11g/802.11n(H20): 2412MHz~2462MHz 802.11n(H40): 2422MHz~2452MHz	
Channel number:	802.11b/802.11g/802.11n(H20): 11 802.11n(H40): 7
Channel separation:	5MHz
Antenna type:	PIFA Antenna
Antenna gain:	1.0dBi; antenna number: 2; Directional gain for MIMO mode=4dBi

Note: For more details, refer to the user's manual of the EUT.

## 2.3. Description of Test Modes and Test Frequency

The Applicant provides communication tools software to control the EUT for staying in continuous transmitting (Duty Cycle more than 98%) and receiving mode for testing.

All test performed at the low, middle and high of operational frequency range of each mode.

### **Operation Frequency WIFI:**

<u> </u>		M	
Channel	Frequency(MHz)	Channel	Frequency(MHz)
1	2412	8	2447
2	2417	9	2452
3	2422	10	2457
4	2427	11	2462
5	2432		
6	2437		
7	2442		

Note: The line display in grey were the channel selected for testing

### **Data Rate Used:**

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode	Data Rate	Channel
Maximum Conducted Output Power	11b/DSSS	1 Mbps	1/6/11
Power Spectral Density 6dB Bandwidth	11g/OFDM	6 Mbps	1/6/11
Spurious RF conducted emission Radiated Emission 9kHz~1GHz& Radiated Emission 1GHz~10th Harmonic	11n(20MHz)/OFDM	6.5Mbps	1/6/11
	11n(40MHz)/OFDM	13.5 Mbps	3/6/9
Radiated Emission 19112-10th Hamionic	11b/DSSS	1 Mbps	1/11
Pand Edga	11g/OFDM	6 Mbps	1/11
Band Edge	11n(20MHz)/OFDM	6.5Mbps	1/11
	11n(40MHz)/OFDM	13.5 Mbps	3//9



## 2.4. Equipments Used during the Test

Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
LISN	R&S	ENV216	3560.6550.1 2	2016/06/02	2017/06/01
LISN	R&S	ESH2-Z5	860014/010	2016/06/02	2017/06/01
Power Meter	Anritsu	ML2487B	110553	2016/06/02	2017/06/01
Power Sensor	Anritsu	MA2411B	100345	2016/05/21	2017/05/20
Bilog Antenna	Sunol Sciences Corp.	JB1	A061713	2016/06/02	2017/06/01
EMI Test Receiver	R&S	ESCI	103710	2016/06/02	2017/06/01
Spectrum Analyzer	Agilent	E4407B	MY41440676	2016/05/21	2017/05/20
Spectrum Analyzer	Agilent	N9020	US46220290	2016/01/17	2017/01/16
Controller	EM Electronics	Controller EM 1000	N/A	2016/05/21	2017/05/20
Horn Antenna	Sunol Sciences Corp.	DRH-118	A062013	2016/05/19	2017/05/18
Active Loop Antenna	SCHWARZBE CK	FMZB1519	1519-037	2016/05/19	2017/05/18
Amplifier	Agilent	8349B	3008A02306	2016/05/19	2017/05/18
Amplifier	Agilent	8447D	2944A10176	2016/05/19	2017/05/18
Temperature/Humi dity Meter	Gangxing	CTH-608	02	2016/05/20	2017/05/19
High-Pass Filter	K&L	9SH10-2700/X1 2750-O/O	N/A	2016/05/20	2017/05/19
High-Pass Filter	K&L	41H10-1375/U1 2750-O/O	N/A	2016/05/20	2017/05/19
Coaxial Cables	HUBER+SUHN ER	SUCOFLEX 104PEA-10M	10m	2016/06/02	2017/06/01
Coaxial Cables	HUBER+SUHN ER	SUCOFLEX 104PEA-3M	3m	2016/06/02	2017/06/01
Coaxial Cables	HUBER+SUHN ER	SUCOFLEX 104PEA-3M	3m	2016/06/02	2017/06/01
RF Cable	Megalon	RF-A303	N/A	2016/06/02	2017/06/01

The calibration interval was one year

## 2.5. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

### 2.6. Modifications

No modifications were implemented to meet testing criteria.

### 3. TEST CONDITIONS AND RESULTS

#### 3.1. Conducted Emissions Test

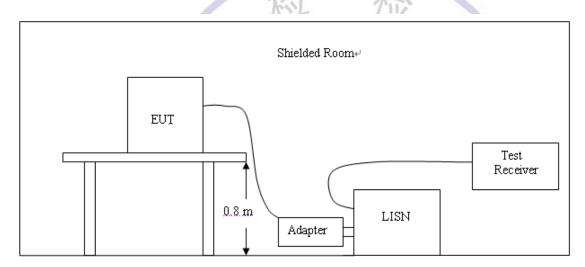
#### LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.207

Fraguenov rango (MHz)	Limit (dBuV)		
Frequency range (MHz)	Quasi-peak	Average	
0.15-0.5	66 to 56*	56 to 46*	
0.5-5	56		
5-30	60	50	

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

### **TEST CONFIGURATION**

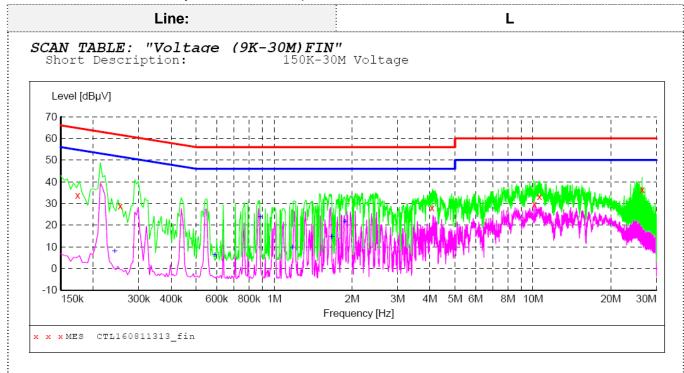


#### **TEST PROCEDURE**

- 1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10:2013.
- 2. Support equipment, if needed, was placed as per ANSI C63.10:2013
- 3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10:2013.
- 4. The adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
- 5. All support equipments received AC power from a second LISN, if any.
- 6. The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7. Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
- 8. During the above scans, the emissions were maximized by cable manipulation.

### **TEST RESULTS**

Remark: All modes 802.11b SISO/802.11g SISO/802.11n (H20) MIMO/802.11n (H40) MIMO MODE ALL have been tested; only worse case is reported.

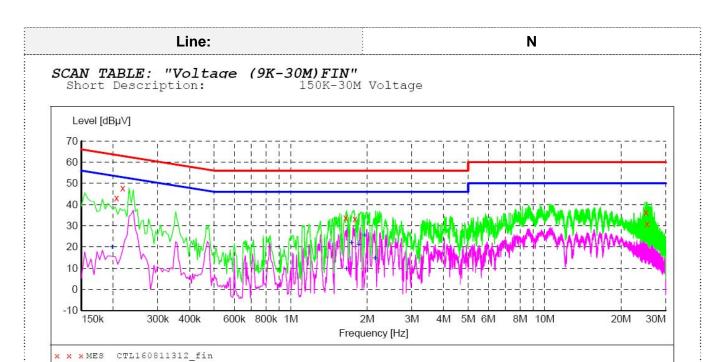


### MEASUREMENT RESULT: "CTL160811313 fin"

11/2016 5:	26PM						
Frequency	Level	Transd	Limit	Margin	Detector	Line	PΕ
MHz	dBuV	dB	dBuV	dB			
			,				
0.174000	33.80	10.2	65	31.0	QP	L1	GND
0.254000	28.90	10.2	62	32.7	QP	L1	GND
4.070000	28.00	10.4	56	28.0	QP	L1	GND
10.112000	29.60	10.6	60	30.4	QP	L1	GND
10.580000	33.10	10.6	60	26.9	QP	L1	GND
26.414000	36.30	11.2	60	23.7	QP	L1	GND
	Frequency MHz 0.174000 0.254000 4.070000 10.112000 10.580000	MHz dBμV  0.174000 33.80 0.254000 28.90 4.070000 28.00 10.112000 29.60 10.580000 33.10	Frequency MHz dBμV dB  0.174000 33.80 10.2 0.254000 28.90 10.2 4.070000 28.00 10.4 10.112000 29.60 10.6 10.580000 33.10 10.6	Frequency MHz         Level dBμV         Transd dB dBμV         Limit dBμV           0.174000         33.80         10.2         65           0.254000         28.90         10.2         62           4.070000         28.00         10.4         56           10.112000         29.60         10.6         60           10.580000         33.10         10.6         60	Frequency MHz         Level dBμV         Transd dB dBμV         Limit dBμV         Margin dB           0.174000         33.80         10.2         65         31.0           0.254000         28.90         10.2         62         32.7           4.070000         28.00         10.4         56         28.0           10.112000         29.60         10.6         60         30.4           10.580000         33.10         10.6         60         26.9	Frequency MHz         Level dBμV         Transd dB dBμV         Limit dBμV         Margin dB         Detector dB           0.174000         33.80         10.2         65         31.0         QP           0.254000         28.90         10.2         62         32.7         QP           4.070000         28.00         10.4         56         28.0         QP           10.112000         29.60         10.6         60         30.4         QP           10.580000         33.10         10.6         60         26.9         QP	Frequency MHz         Level dBμV         Transd dB μV         Limit dBμV         Margin dB         Detector Line           0.174000         33.80         10.2         65         31.0         QP         L1           0.254000         28.90         10.2         62         32.7         QP         L1           4.070000         28.00         10.4         56         28.0         QP         L1           10.112000         29.60         10.6         60         30.4         QP         L1           10.580000         33.10         10.6         60         26.9         QP         L1

### MEASUREMENT RESULT: "CTL160811313 fin2"

8/11/2016 5:	26PM						
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PΕ
0.242000	7.90	10.2	52	44.1	AV	L1	GND
0.590000	6.20	10.2	46	39.8	AV	L1	GND
0.884000	23.60	10.2	46	22.4	AV	L1	GND
1.178000	9.70	10.3	46	36.3	AV	L1	GND
1.670000	14.70	10.3	46	31.3	AV	L1	GND
1.880000	21.50	10.3	46	24.5	AV	L1	GND



### MEASUREMENT RESULT: "CTL160811312\_fin"

8/11/2016 5:2	3PM						
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.206000	43.10	10.2	63	20.3	QP	N	GND
0.218000	47.80	10.2	63	15.1	QP	N	GND
1.646000	33.90	10.3	56	22.1	QP	N	GND
1.790000	33.10	10.3	56	22.9	QP	N	GND
25.088000	36.40	11.1	60	23.6	QP	N	GND
25 274000	30 90	11 1	60	29 1	OP	N	GND

### MEASUREMENT RESULT: "CTL160811312 fin2"

8/11/2016 5	5:23PM						
Frequency MHz		Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.198000	19.80	10.2	54	33.9	AV	N	GND
1.658000	9.60	10.3	46	36.4	AV	N	GND
1.736000	21.90	10.3	46	24.1	AV	N	GND
1.856000	21.00	10.3	46	25.0	AV	N	GND
1.958000	25.30	10.3	46	20.7	AV	N	GND
2.150000	14.50	10.4	46	31.5	AV	N	GND

## 3.2. Radiated Emissions and Band Edge

### Limit

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emission out of authorized band shall not exceed the following table at a 3 meters measurement distance.

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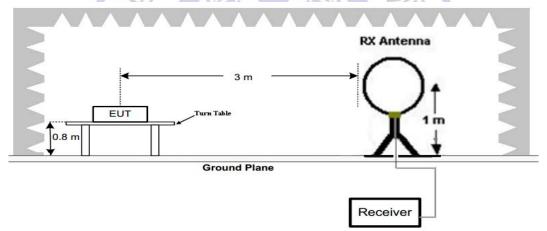
In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a)

Radiated emission limits

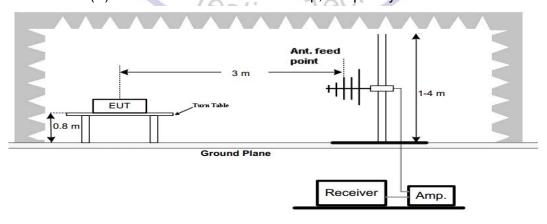
Frequency (MHz)	Distance (Meters)	Radiated (dBµV/m)	Radiated (µV/m)
0.009-0.49	3	20log(2400/F(KHz))+40log(300/3)	2400/F(KHz)
0.49-1.705	3	20log(24000/F(KHz))+ 40log(30/3)	24000/F(KHz)
1.705-30	3	20log(30)+ 40log(30/3)	30
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

### **TEST CONFIGURATION**

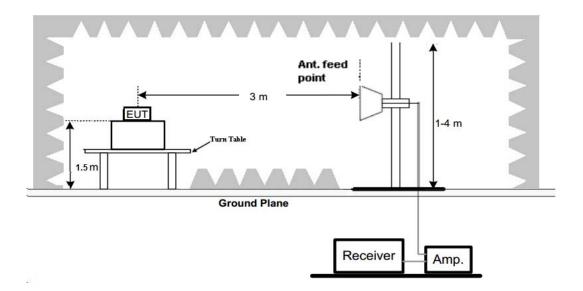
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency below 1000MHz



(C) Radiated Emission Test Set-Up, Frequency above 1000MHz



### **Test Procedure**

- 1. Below 1GHz measurement the EUT is placed on a turntable which is 0.8m above ground plane, and above 1GHz measurement EUT was placed on a low permittivity and low loss tangent turn table which is 1.5m above ground plane.
- 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- 3. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- 4. The test-receiver system was set to peak and average detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.
- 5. Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0°C to 360°C to acquire the highest emissions from EUT
- 6. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 7. Repeat above procedures until all frequency measurements have been completed.

### **TEST RESULTS**

#### Remark:

- 1. Radiated emission test from 9KHz to 10th harmonic of fundamental was verified, and no emission found except system noise floor in 9KHz to 30MHz and not recorded in this report.
- 2. For below 1GHz measurement, all three channels (lowest/middle/highest) of each mode were tested and recorded worst case at 802.11b ant 1 low channel.
- 3. For above 1GHz measurement, all three channels (lowest/middle/highest) of each mode were tested and recorded worst case at 802.11b mode.

### For 30MHz-1GHz

Test mode:		WI	IFI		Polari	zation:		Н	orizontal
WEEP TABLE		t (30M-1							
Short Descr Start	ription: Stop	Detect		Strength . IF		Transo	ducer		
Frequency	Frequenc		Time	Ba	ndw.				
30.0 MHz	1.0 GHz	MaxPea	k 300.0	) ms 12	0 kHz	JB1			
Lovel [dRu\//m]									
Level [dBµV/m] 80									
70		_	   	! ! !	! ! !				
60			! !		 	!		!	
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0 30M 40M	50M 60M	70M 10	0M	200	0 <b>M</b>	300M	400M 500	OM 6001	M 800M
			F	requency [H	lz]				
x x MES CTL16	0104685_re	ed							
EASUREMENT	RESUL	T: CTLI	6010466	5_rea					
/5/2016 9:4 Frequency	4PM Level	l Transd	Limit	Margin	Det.	Height	Azimı+	·h Þa	olarizatio
Frequency MHz	Leve. dBµV/r		dBµV/m	Margin dB	Det.	reight cm	AZIMUU de		/±a±±∠atl(
20 000000	•			16.0		0.0		_	ND T D ANT = =
30.000000 76.560000	24.00 12.10		40.0 40.0	16.0 27.9		0.0	0.0		ORIZONTAL ORIZONTAL
132.820000	19.70	0 14.4	43.5	23.8		0.0	0.0	0 HC	DRIZONTAL
200.720000 518.880000	18.10 25.00		43.5	25.4		0.0	0.0	0 HC	DRIZONTAL
908.820000	7.5.00		16 0	21 0		0 0			D T 7 O NIM 7 T
900.020000	31.40		46.0 46.0	21.0 14.6		0.0	0.0	0 HC	RIZONTAL RIZONTAL
908.820000					 		0.0	0 HC	
Test mode:  WEEP TABLE Short Descr	31.40	0 26.1 W	46.0	14.6 Strength		zation:	0.0	00 HC	
Test mode:  WEEP TABLE Short Descr	31.40 E: "tes	0 26.1 W	46.0   F   G)"  Field Sor Meas.   Time	14.6 Strength IF Ba		0.0	0.0	00 HC	RIZONTAL
Test mode:  WEEP TABLE Short Descr Start Frequency	31.40  E: "tes  ciption: Stop Frequence	0 26.1  W   t (30M-1)  Detectory	46.0   F   G)"  Field Sor Meas.   Time	14.6 Strength IF Ba	ndw.	zation:	0.0	00 HC	RIZONTAL
Test mode: WEEP TABLE Short Descr Start Frequency 30.0 MHz	31.40  E: "tes  ciption: Stop Frequence	0 26.1  W   t (30M-1)  Detectory	46.0   F   G)"  Field Sor Meas.   Time	14.6 Strength IF Ba	ndw.	zation:	0.0	00 HC	RIZONTAL
Test mode: WEEP TABLE Short Descr Start Frequency 30.0 MHz Level [dBµV/m]	31.40  E: "tes  ciption: Stop Frequence	0 26.1  W   t (30M-1)  Detectory	46.0   F   G)"  Field Sor Meas.   Time	14.6 Strength IF Ba	ndw.	zation:	0.0	00 HC	RIZONTAL
Test mode: WEEP TABLE Short Descr Start Frequency 30.0 MHz  Level [dBµV/m]	31.40  E: "tes  ciption: Stop Frequence	0 26.1  W   t (30M-1)  Detectory	46.0   F   G)"  Field Sor Meas.   Time	14.6 Strength IF Ba	ndw.	zation:	0.0	00 HC	RIZONTAL
Test mode:  WEEP TABLE Short Descr Start Frequency 30.0 MHz  Level [dBµV/m]	31.40  E: "tes  ciption: Stop Frequence	0 26.1  W   t (30M-1)  Detectory	46.0   F   G)"  Field Sor Meas.   Time	14.6 Strength IF Ba	ndw.	zation:	0.0	00 HC	RIZONTAL
Test mode:  WEEP TABLE Short Descr Start Frequency 30.0 MHz  Level [dBµV/m] 80	31.40  E: "tes  ciption: Stop Frequence	0 26.1  W   t (30M-1)  Detectory	46.0   F   G)"  Field Sor Meas.   Time	14.6 Strength IF Ba	ndw.	zation:	0.0	00 HC	RIZONTAL
Test mode:  WEEP TABLE Short Descr Start Frequency 30.0 MHz  Level [dBµV/m] 80 70	31.40  E: "tes  ciption: Stop Frequence	0 26.1  W   t (30M-1)  Detectory	46.0   F   G)"  Field Sor Meas.   Time	14.6 Strength IF Ba	ndw.	zation:	0.0	00 HC	RIZONTAL
Test mode:  WEEP TABLE Short Descr Start Frequency 30.0 MHz  Level [dBµV/m]  80 70	31.40  E: "tes  ciption: Stop Frequence	0 26.1  W   t (30M-1)  Detectory	46.0   F   G)"  Field Sor Meas.   Time	14.6 Strength IF Ba	ndw.	zation:	0.0	00 HC	RIZONTAL
Test mode:  WEEP TABLE Short Descr Start Frequency 30.0 MHz  Level [dBµV/m] 80 70	31.40  E: "tes  ciption: Stop Frequence	0 26.1  W   t (30M-1)  Detectory	46.0   F   G)"  Field Sor Meas.   Time	14.6 Strength IF Ba	ndw.	zation:	0.0	00 HC	RIZONTAL
Test mode:  WEEP TABLE Short Descr Start Frequency 30.0 MHz  Level [dBµV/m] 80 70 60 50 10 10	31.40  E: "tes  ciption: Stop Frequence	0 26.1  W   t (30M-1)  Detectory	46.0   F   G)"  Field Sor Meas.   Time	14.6 Strength IF Ba	ndw.	zation:	0.0	00 HC	RIZONTAL
Test mode:  WEEP TABLE Short Descr Start Frequency 30.0 MHz  Level [dBµV/m] 80 70	31.40 E: "tes iption: Stop Frequence 1.0 GHz	Wet (30M-1) Detectory MaxPea	46.0   Fi	14.6 Strength IF Ba O ms 12	ndw. 0 kHz	Zation:  Transd  JB1	0.0	00 HC	Vertical
Test mode:  WEEP TABLE Short Descr Start Frequency 30.0 MHz  Level [dBµV/m]  80  70  60  60  60  10  10  10  10	31.40 E: "tes iption: Stop Frequence 1.0 GHz	Wet (30M-1) Detectory MaxPea	46.0   Fi	14.6 Strength IF Ba ) ms 12	ndw. 0 kHz	Zation:  Transd  JB1	0.0	00 HC	Vertical
Test mode:  WEEP TABLE Short Descr Start Frequency 30.0 MHz  Level [dBµV/m] 80 70 60 40 30 30 30M 40M	31.40 E: "tes iption: Stop Frequence 1.0 GHz	Detectory MaxPea	46.0   Fi	14.6 Strength IF Ba O ms 12	ndw. 0 kHz	Zation:  Transd  JB1	0.0	00 HC	Vertical
Test mode:  WEEP TABLE Short Descr Start Frequency 30.0 MHz  Level [dBµV/m] 80 70 60 40 30 30 30M 40M	31.40  E: "tes iption: Stop Frequence 1.0 GHz	Detectory MaxPea	46.0   Fi	14.6 Strength IF Ba O ms 12	ndw. 0 kHz	Zation:  Transd  JB1	0.0	00 HC	Vertical
Test mode:  WEEP TABLE Short Descr Start Frequency 30.0 MHz  Level [dBµV/m] 80 70 60 40 30 30 30M 40M	31.40  E: "tes iption: Stop Frequence 1.0 GHz	Detectory MaxPea	46.0   Fi	14.6 Strength IF Ba O ms 12	ndw. 0 kHz	Zation:  Transd  JB1	0.0	00 HC	Vertical
Test mode:  WEEP TABLE Short Descr Start Frequency 30.0 MHz  Level [dBµV/m]  80 70 60 50 40 30 30 40 30 40 30 40 30 40 40 40 40 40 40 40 40 40 40 40 40 40	31.40 E: "tes ription: Stop Frequence 1.0 GHz	Wet (30M-1) Detectory MaxPea	46.0   Fi	14.6 Strength IF Ba O ms 12	ndw. 0 kHz	Zation:  Transd  JB1	0.0	00 HC	Vertical
Test mode:  WEEP TABLE Short Descr Start Frequency 30.0 MHz  Level [dBµV/m] 80 70 70 70 70 70 70 70 70 70 70 70 70 70	31.40 E: "tes iption: Stop Frequence 1.0 GHz  50M 60M	Wet (30M-1) Detectory MaxPea	46.0   Fi	14.6 Strength IF Ba O ms 12	ndw. 0 kHz	Zation:  Transd  JB1	0.0	00 HC	Vertical
Test mode:  WEEP TABLE Short Descr Start Frequency 30.0 MHz  Level [dBµV/m] 80 70 60 50 10 30 30M 40M  EXXMES CTL16  WEASUREMENT 75/2016 9:4	31.40 E: "tes iption: Stop Frequence 1.0 GHz  50M 60M	Wat (30M-1) Detectory MaxPeal 70M 100	46.0   F   G)"  Field Sor Meas.  Time	14.6 Strength IF Ba ) ms 12	ndw. 0 kHz	Zation:  Transd JB1	0.0 0.0	00 HC	Vertical  Vertical
Test mode:  WEEP TABLE Short Descr Start Frequency 30.0 MHz  Level [dBµV/m] 80 70 70 70 70 70 70 70 70 70 70 70 70 70	31.40 E: "tes iption: Stop Frequence 1.0 GHz  50M 60M	Wet (30M-1) Detectory MaxPea  70M 100  1 Transd	46.0   Fi	14.6 Strength IF Ba O ms 12	ndw. 0 kHz	Zation:  Transd JB1	0.0	h Po	Vertical
Test mode:  WEEP TABLE Short Descr Start Frequency 30.0 MHz  Level [dBµV/m] 80 70 60 50 40 30 30M 40M  EXXMES CTL16  WEASUREMENT /5/2016 9:4 Frequency MHz	31.40 E: "tes ription: Stop Frequenc 1.0 GHz  50M 60M  60104686_re Level dBµV/r	Detectory MaxPeal  70M 100  1 Transd Max dB	46.0   FI   G) "   Field S   Or Meas. Time   K   300.0	14.6 Strength IF Ba Oms 12  200 Frequency [H  Margin dB	ndw. 0 kHz	Zation:  Transd JB1  Height cm	ducer  Azimut de	h Pog	Vertical  Vertical
Test mode:  WEEP TABLE Short Descr Start Frequency 30.0 MHz  Level [dBµV/m] 80 70 60 50 10 30M 40M  EXXMES CTL16  WEASUREMENT /5/2016 9:4 Frequency MHz 33.8800000	31.40 E: "tes iption: Stop Frequence 1.0 GHz  50M 60M  Colo4686_re dBµV/r 30.30	Wet (30M-1) Detectory MaxPea  70M 100  Transd m dB 0 17.7	46.0   F   G)"  Field Sor Meas. Time k 300.0    OM   Field Solution   Fie	14.6 Strength IF Ba ) ms 12  200 Frequency [H  Margin dB 9.7	ndw. 0 kHz	Zation:  Transd JB1  Height cm 0.0	0.0 0.0 0.0 ducer	h Pog	Vertical  Vertical
Test mode:  WEEP TABLE Short Descr Start Frequency 30.0 MHz  Level [dBµV/m] 80 70 60 50 40 30 30M 40M  EXXMES CTL16  WEASUREMENT /5/2016 9:4 Frequency MHz	31.40 E: "tes ription: Stop Frequenc 1.0 GHz  50M 60M  60104686_re Level dBµV/r	0 26.1  W  t (30M-1)  Detectory  MaxPeal  70M 100  ed  1. Transd  dB  0 17.7  8.0	46.0   FI   G) "   Field S   Or Meas. Time   K   300.0	14.6 Strength IF Ba Oms 12  200 Frequency [H  Margin dB	ndw. 0 kHz	Zation:  Transd JB1  Height cm	ducer  Azimut de	h Pog	Vertical  Vertical
Test mode:  WEEP TABLE Short Descr Start Frequency 30.0 MHz  Level [dBµV/m] 80 70 40 30 30M 40M  EXXMES CTL16  WEEP TABLE Short Descr Start Frequency 30.0 MHz  Level [dBµV/m] 80 70 80 90 30M 40M  EXXMES CTL16  WEASUREMENT /5/2016 9:4 Frequency MHz 33.880000 59.100000 144.460000 208.480000	31.40  E: "tes ription: Stop Frequence 1.0 GHz  50M 60M  60104686_re  dBµV/r  30.30 13.90 18.80 19.00	70M 100  1 Transd dB 0 17.7 8.0 0 14.1 0 14.0	46.0   F   G)"   Field Sor Meas.   Time	14.6  Strength	ndw. 0 kHz	0.0  zation:  Transd JB1  300M  Height cm 0.0 0.0 0.0 0.0	0.0 0.0 0.0 ducer	h Pog O VE O VE O VE O VE	Vertical  Vertical  Vertical
Test mode:  WEEP TABLE Short Descr Start Frequency 30.0 MHz  Level [dBµV/m] 80 60 60 30 30 40 30 40 40  EASUREMENT /5/2016 9:4 Frequency MHz  33.880000 59.100000 144.460000	31.40  E: "tes ciption: Stop Frequence 1.0 GHz  50M 60M  60104686_re  dBµV/r  30.30 13.90 18.80	0 26.1  W  t (30M-1)  Detectory  MaxPea  70M 100  ed  17.7  8.0  14.1  0 14.0  0 20.4	46.0   F   G)"  Field Sor Meas. Time   100   10	14.6 Strength IF Ba O ms 12  200 Frequency [H  Margin dB 9.7 26.1 24.7	ndw. 0 kHz	Zation:  Transd JB1  Height cm 0.0 0.0 0.0	0.0 0.0 0.0 ducer	h Pog O VE	Vertical  Vertical  Vertical

#### For 1GHz to 25GHz

Note: 802.11b SISO/802.11g SISO /802.11n (H20) MIMO/802.11n (H40) MIMO all have been tested, only worse case 802.11b SISO MODE ANT 1 is reported.

802.11b Mode (above 1GHz)

	Frequency	(MH2)-		241		uc (ubov	Polarity:	HORIZONTAL		
	rrequericy			241	_		Clarity.	ı	HORIZO	NIAL
No.	Frequency (MHz)	Emissi Leve (dBuV/	I	Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	2412.00	101.87	PK			68.45	28.80	4.62	0.00	33.42
1	2412.00	91.26	ΑV	-		57.84	28.80	4.62	0.00	33.42
2	2390.00	39.98	PΚ	74	34.02	6.66	28.72	4.60	0.00	33.32
2	2390.00		ΑV	54						
3	2400.00	51.78	PK	74	22.22	18.39	28.78	4.61	0.00	33.39
3	2400.00		ΑV	54		1		-		
4	4824.00	66.29	PK	74	7.71	61.74	33.52	6.92	35.89	4.55
4	4824.00	51.52	ΑV	54	2.48	46.97	33.52	6.92	35.89	4.55
5	5115.75	41.32	PK	74	32.68	34.13	34.36	7.10	34.27	7.19
5	5115.75	-	ΑV	54	1025		408			
6	7236.00	50.23	PK	74	23.77	38.96	37.10	9.19	35.02	11.27
6	7236.00	/	ΑV	54						

	Frequency	(MHz):		241	2	I	Polarity:		VERTICAL		
No.	Frequency (MHz)	Emissi Leve (dBuV/	Ú	Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)	
1	2412.00	101.69	PK		S. 100	68.27	28.80	4.62	0.00	33.42	
1	2412.00	91.48	ΑV			58.06	28.80	4.62	0.00	33.42	
2	2390.00	39.52	PK	74	34.48	6.20	28.72	4.60	0.00	33.32	
2	2390.00	1	ΑV	54	  -  -	1	700		-		
3	2400.00	50.59	PΚ	74	23.41	17.20	28.78	4.61	0.00	33.39	
3	2400.00	ŀ	ΑV	54	1	ກ	-		-		
4	4824.00	66.78	PK	74	7.22	62.23	33.52	6.92	35.89	4.55	
4	4824.00	51.68	ΑV	54	2.32	47.13	33.52	6.92	35.89	4.55	
5	5025.75	42.91	PK	74	31.09	36.03	34.07	7.05	34.24	6.88	
5	5025.75	ŀ	ΑV	54		-			-		
6	7236.00	50.87	PK	74	23.13	39.60	37.10	9.19	35.02	11.27	
6	7236.00		ΑV	54							

### **REMARKS**:

- 1. Emission level (dBuV/m) =Raw Value (dBuV)+Correction Factor (dB/m)
- 2. Correction Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- 3. Margin value = Limit value- Emission level.
- 4. -- Mean the PK detector measured value is below average limit.
- 5. The other emission levels were very low against the limit.
- 6. RBW1MHz VBW3MHz Peak detector is for PK value; RBW 1MHz VBW10Hz Peak detector is for AV value.

	Frequency	(MHz):		243	37	Polarity:			HORIZONTAL		
No.	Frequency (MHz)	Emissi Leve (dBuV/	I	Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)	
1	2437.00	102.79	PK			69.29	28.85	4.65	0.00	33.50	
1	2437.00	91.41	ΑV	-		57.91	28.85	4.65	0.00	33.50	
2	3875.50	49.75	PΚ	74	24.25	45.09	33.29	6.26	34.89	4.66	
2	3875.50	-	ΑV	54		-	-	1	-		
3	4874.00	67.54	PK	74	6.46	61.20	33.59	6.95	34.20	6.34	
3	4874.00	51.98	ΑV	54	2.02	45.64	33.59	6.95	34.20	6.34	
4	5125.25	41.23	PK	74	32.77	33.90	34.38	7.10	34.16	7.33	
4	5125.25	1	ΑV	54	-	1	1	1	-		
5	7311.00	48.69	PK	74	25.31	37.03	37.44	9.22	35.00	11.66	
5	7311.00		ΑV	54		-					

	Frequency	(MHz):		243	37	Polarity:			VERTICAL		
No.	Frequency (MHz)	Emissi Leve (dBuV/		Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)	
1	2437.00	102.84	PK	-	<b>?</b> /	69.34	28.85	4.65	0.00	33.50	
1	2437.00	91.54	ΑV	1		58.04	28.85	4.65	0.00	33.50	
2	3986.75	49.69	PK	74	24.31	44.98	33.14	6.38	34.81	4.71	
2	3986.75	- 0	ΑV	54	1			<b>/-</b>	· -		
3	4874.00	66.92	PK	74	7.08	60.58	33.59	6.95	34.20	6.34	
3	4874.00	51.75	ΑV	54	2.25	45.41	33.59	6.95	34.20	6.34	
4	5215.50	41.59	PK	74	32.41	33.99	34.56	7.15	34.11	7.60	
4	5215.50		ΑV	54	-8	%		.0			
5	7311.00	48.73	PK	74	25.27	37.07	37.44	9.22	35.00	11.66	
5	7311.00		ΑV	54	<b>&gt;</b>		105	-			

### **REMARKS**:

- 1. Emission level (dBuV/m) =Raw Value (dBuV)+Correction Factor (dB/m)
- 2. Correction Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- 3. Margin value = Limit value- Emission level.
- 4. -- Mean the PK detector measured value is below average limit.
- 5. The other emission levels were very low against the limit.
- 6. RBW1MHz VBW3MHz Peak detector is for PK value; RBW 1MHz VBW10Hz Peak detector is for AV value.

	Frequency	(MHz):		246	52	Polarity:			HORIZONTAL		
No.	Frequency (MHz)	Emissi Leve (dBuV/	el	Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)	
1	2462.00	102.14	PK			68.57	28.89	4.68	0.00	33.57	
1	2462.00	91.85	ΑV			58.28	28.89	4.68	0.00	33.57	
2	2483.50	51.51	PK	74	22.49	17.88	28.93	4.70	0.00	33.63	
2	2483.50		ΑV	54							
3	2500.00	40.74	PK	74	33.26	7.06	28.96	4.72	0.00	33.68	
3	2500.00		ΑV	54							
4	4924.00	66.98	PK	74	7.02	62.20	33.71	6.98	35.91	4.78	
4	4924.00	51.57	ΑV	54	2.43	46.79	33.71	6.98	35.91	4.78	
5	5025.25	43.56	PK	74	30.44	36.69	34.07	7.05	34.24	6.87	
5	5025.25		ΑV	54							
6	7386.00	50.21	PK	74	23.79	38.33	37.61	9.25	34.98	11.88	
6	7386.00		ΑV	54	1.5	7.	11/				

	Frequency	(MHz):		246	2		Polarity:		VERTICAL		
No.	Frequency (MHz)	Emissi Leve (dBuV/	I	Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)	
1	2462.00	102.25	PK		-	68.68	28.89	4.68	0.00	33.57	
1	2462.00	91.41	ΑV	1	1	57.84	28.89	4.68	0.00	33.57	
2	2483.50	51.59	PK	74	22.41	17.96	28.93	4.70	0.00	33.63	
2	2483.50	-	ΑV	54				7 `	J		
3	2500.00	40.22	PK	74	33.78	6.54	28.96	4.72	0.00	33.68	
3	2500.00		AV	54	1	1	-	00			
4	4924.00	66.51	PK	74	7.49	61.73	33.71	6.98	35.91	4.78	
4	4924.00	51.69	ΑV	54	2.31	46.91	33.71	6.98	35.91	4.78	
5	5110.75	41.88	PK	74	32.12	34.70	34.35	7.10	34.27	7.18	
5	5110.75		ΑV	54	N	p					
6	7386.00	50.48	PK	74	23.52	38.60	37.61	9.25	34.98	11.88	
6	7386.00		AV	54							

### **REMARKS**:

- 1. Emission level (dBuV/m) =Raw Value (dBuV)+Correction Factor (dB/m)
- 2. Correction Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- 3. Margin value = Limit value- Emission level.
- 4. -- Mean the PK detector measured value is below average limit.
- 5. The other emission levels were very low against the limit.
- 6. RBW1MHz VBW3MHz Peak detector is for PK value; RBW 1MHz VBW10Hz Peak detector is for AV value.

## 3.3. Maximum Conducted Output Power

### **Limit**

The Maximum Peak Output Power Measurement is 30dBm.

### **Test Procedure**

Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power sensor.

### **Test Configuration**



### **Test Results**

#### WIFI

Туре	Channel	PK Output power Ant1 (dBm)	PK Output power Ant2 (dBm)	Output power Total (dBm)	Limit (dBm)	Result
222.44	01	19.62	18.75	1		
802.11b SISO	06 🕥	19.57	18.92	10	30.00	Pass
0.00	11	19.51	19.07	1 1		
000.44	01	19.73	18.90	1 3		
802.11g SISO	06	19.53	18.98	10	30.00	Pass
0.00	11 6	19.16	18.73	1		
000 44 (UT00)	01	18.68	17.72	21.24		
802.11n(HT20) MIMO	06	18.49	17.69	21.12	30.00	Pass
IVIIIVIO	11	18.17	17.48	20.85		
000 44 (11740)	03	18.66	17.78	21.25		
802.11n(HT40) MIMO	06	18.86	17.72	21.34	30.00	Pass
IVIIIVI O	09	18.62	17.30	21.02		

Note: 1.The test results including the cable lose.

### 3.4. Power Spectral Density

#### Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

#### **Test Procedure**

- 1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
- 2. Set the RBW ≥ 3 kHz.
- 3. Set the VBW  $\geq$  3× RBW.
- 4. Set the span to 1.5 times the DTS channel bandwidth.
- 5. Detector = peak.
- 6. Sweep time = auto couple.
- 7. Trace mode = max hold.
- 8. Allow trace to fully stabilize.
- 9. Use the peak marker function to determine the maximum power level.
- 10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.
- 11. The resulting peak PSD level must be 8dBm.

### **Test Configuration**



### **Test Results**

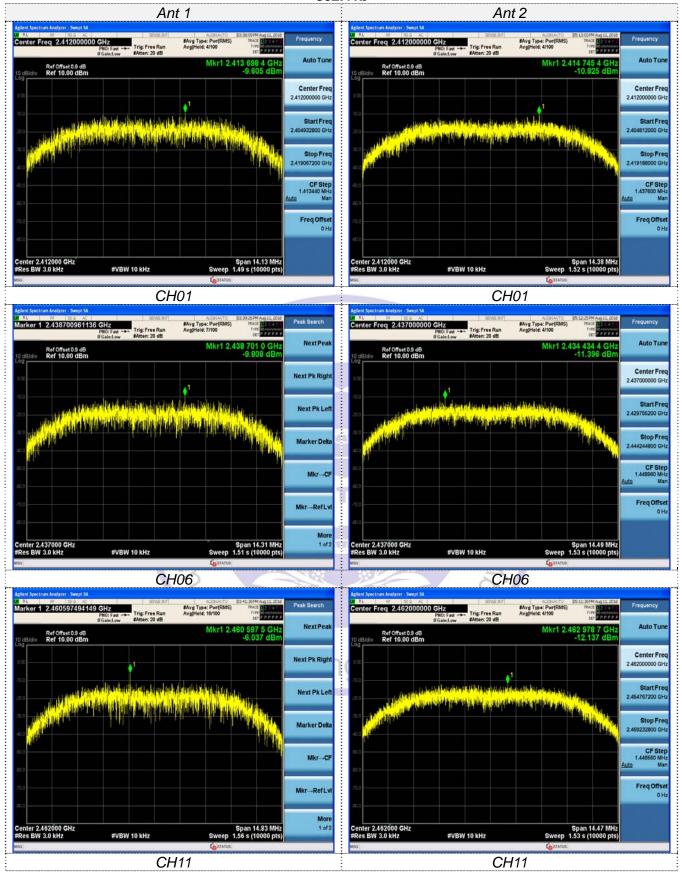
#### WIEI

Туре	Channel	Power	Power	Power		D 14
		Spectral	Spectral	Spectral	Limit	
		Density Ant1	Density Ant2	Density Total	(dBm/3KHz)	Result
		(dBm/3KHz)	(dBm/3KHz)	(dBm/3KHz)	,	
802.11b SISO	01	-9.605	-10.825	U' T		
	06	-9.808	-11.396	1	8.00	Pass
	11	-6.037	-12.137	1		
802.11g SISO	01	-15.762	-16.695	1		
	06	-16.498	-16.711	1	8.00	Pass
	11	-16.589	-16.113	/		
802.11n(HT20) MIMO	01	-16.161	-17.011	-13.55		
	06	-16.160	-15.401	-12.75	8.00	Pass
	11	-16.463	-16.769	-13.60		
802.11n(HT40) MIMO	03	-19.685	-21.913	-17.65		
	06	-19.119	-20.964	-16.93	8.00	Pass
	09	-19.988	-20.587	-17.27		

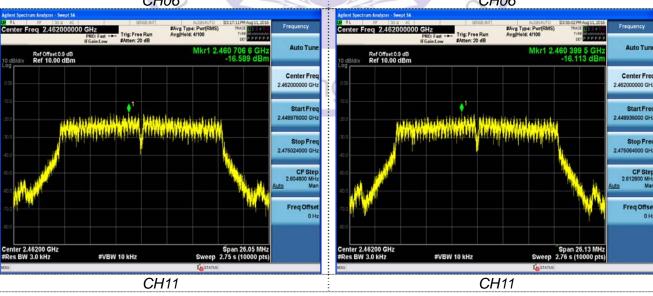
Test plot as follows:

802.11b

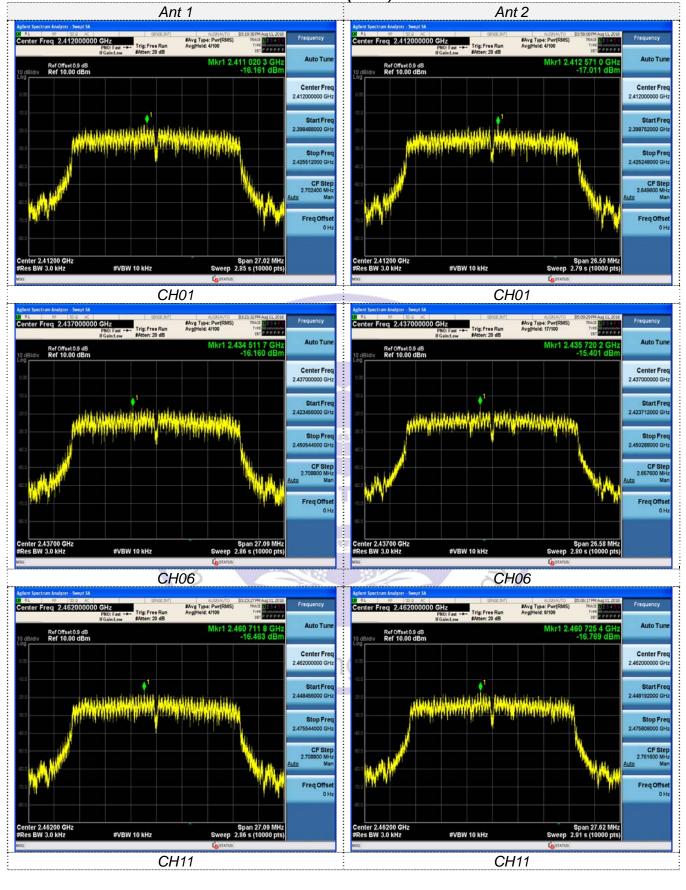
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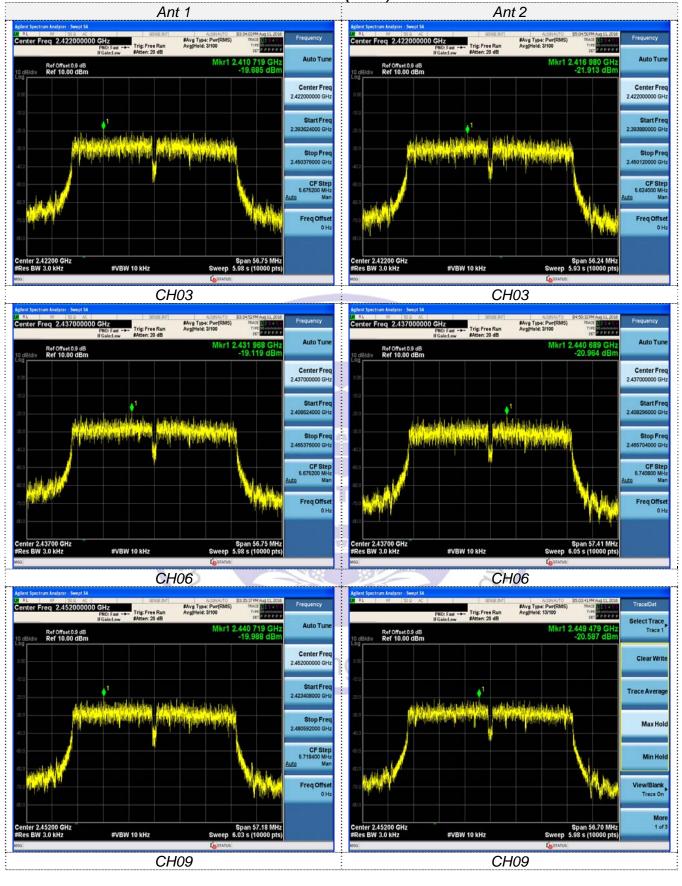
802.11g Ant 2 Ant 1 #Avg Type: Pwr(RMS) Avg[Held: 4/100 #Avg Type: Pwr(R/ Avg[Hold: 5/100 Fast --- Trig: Free Run Trig: Free Run Ref Offset 0.9 dB Ref 10.00 dBm Ref Offset 0.9 dB Ref 10.00 dBm Center Free Center Fre racini propinsi i a si sa saka saka ji saka ji pa sa sa sa sa the ingressing again thing pages at case atte CF Step 2.510400 MH CF Step 2.611200 MH: Mar Freq Offse Freq Offse Span 26.11 MHz Sweep 2.75 s (10000 pts) Span 25.10 MHz Sweep 2.65 s (10000 pts #VBW 10 kHz #VBW 10 kHz CH01 CH01 r Freq 2.437000000 GHz er Freq 2.437000000 GHz #Avg Type: Pwr(RM Avg[Hold: 4/100 #Avg Type: Pwr(RMS) AvgiHold: 8/100 Auto Tur Vkr1 2.440 684 3 G -16.711 dE Ref Offset 0.9 dB Ref 10.00 dBm Ref Offset 0.9 dB Ref 10.00 dBm Stop Fre CF Step 2.609600 MH CF Step 2.619200 MH Freq Offse Freq Offse Span 26.10 MHz Sweep 2.75 s (10000 pts) Span 26.19 MHz Sweep 2.76 s (10000 pts) er 2.43700 GHz BW 3.0 kHz enter 2.43700 GHz Res BW 3.0 kHz #VBW 10 kHz #VBW 10 kHz CH06 **CH06** #Avg Type: Pwr(R Avg[Hold: 4/100 #Avg Type: Pwr(R Avg[Hold: 4/100 Trig: Free Run Mkr1 2.460 399 5 GF -16.113 dB 2.460 706 6 GH -16.589 dBi Ref Offset 0.9 dB Ref 10.00 dBm Ref Offset 0.9 dB Ref 10.00 dBm Center Fre Center Fre



802.11n(HT20)



802.11n(HT40)



### 3.5. 6dB Bandwidth

### <u>Limit</u>

For digital modulation systems, the minimum 6 dB bandwidth shall be at least 500 kHz

### **Test Procedure**

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100 KHz RBW and 300 KHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

### **Test Configuration**



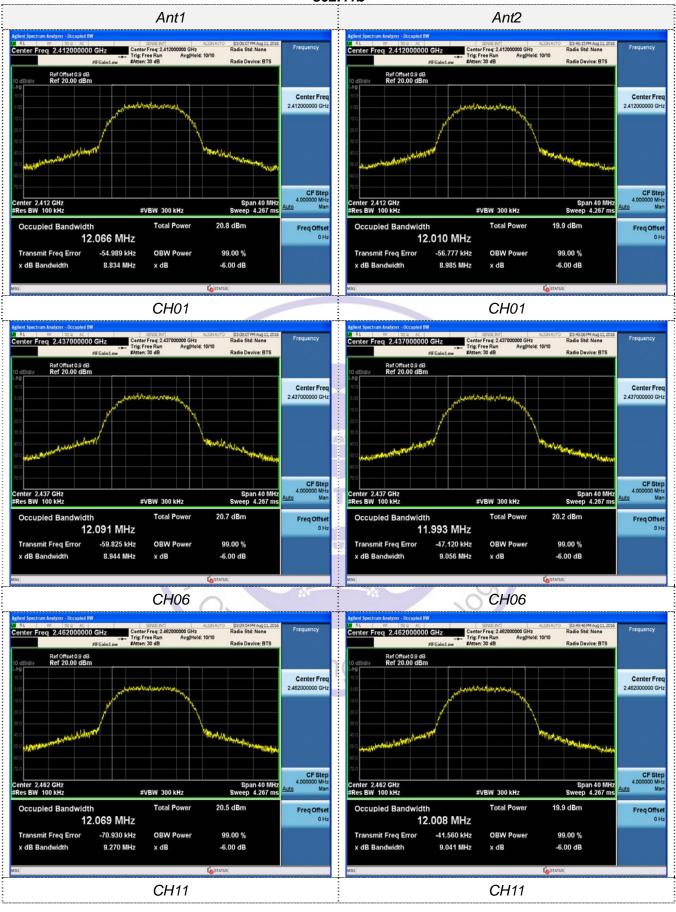
### **Test Results**

#### WIFI

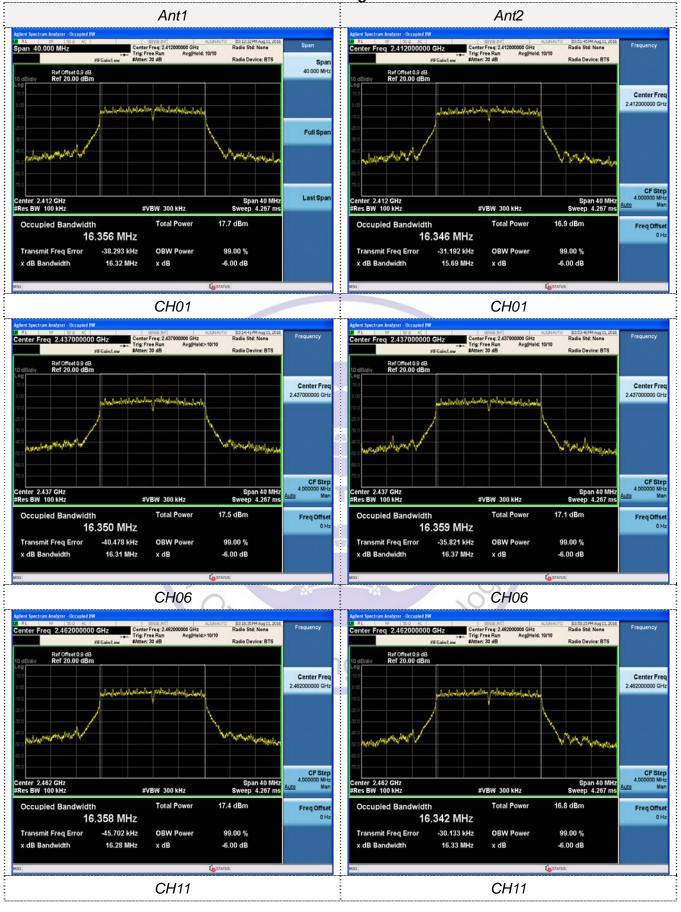
Туре	Channel	6dB Bandwidth Ant1 (MHz)	6dB Bandwidth Ant2 (MHz)	Limit (KHz)	Result
802.11b	01	8.83	8.99		Pass
	06	8.94	9.06	≥500	
	11	9.27	9.04		
802.11g	01	16.32	15.69		Pass
	06	16.31	16.37	≥500	
	110	16.28	16.33		
802.11n(HT20)	01	16.89	16.56		
	06	16.93	16.61	≥500	Pass
	11	16.93	17.26		
802.11n(HT40)	03	35.47	35.15		
	06	35.47	35.88	≥500	Pass
	09	35.74	35.44		

Test plot as follows:

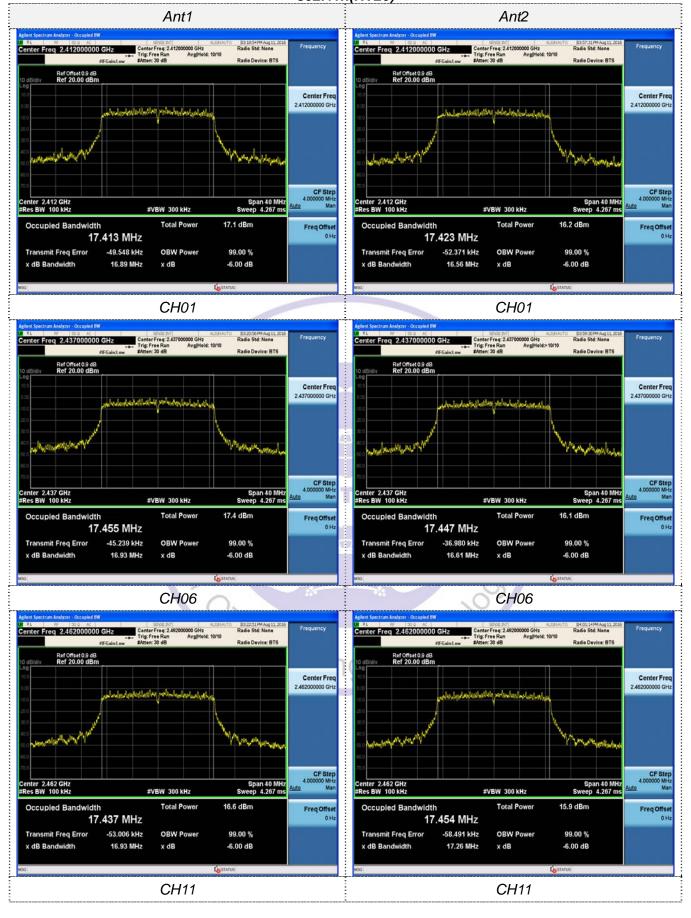
### 802.11b



802.11g



802.11n(HT20)



### 802.11n(HT40)

