



TEST REPORT

APPLICANT	Hangzhou Konke Information Technology Co.,Ltd.
PRODUCT NAME	: Konke Smart Camera
MODEL NAME	: CAMERA-1080CU
BRAND NAME	: KONKE
FCC ID	: 2AJZ4-CAM1080CUA
STANDARD(S)	: 47 CFR Part 15 Subpart C
TEST DATE	: 2018-03-10 to 2018-03-28
ISSUE DATE	: 2018-04-08

Tested by:

Tu Ya'nan

JU /

Tu Ya'nan (Test Engineer)

Approved by:

Andy Yeh (Technical Director)

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Change History					
Issue	Date	Reason for change			
1.0	2018-04-08	First edition			



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1. Technical Information

Note: Provide by applicant.

1.1. Applicant and Manufacturer Information

Applicant:	Hangzhou Konke Information Technology Co.,Ltd.	
Applicant Address: 28F Huafeng international mansion, No.200 Xinye Road		
	Jianggan District, Hangzhou	
Manufacturer:	Hangzhou Konke Information Technology Co.,Ltd.	
Manufacturer Address:	28F Huafeng international mansion, No.200 Xinye Road	
	Jianggan District, Hangzhou	

1.2. Equipment Under Test (EUT) Description

Product Name:	Konke Smart Camera
Serial No:	(N/A, marked #1 by test site)
Hardware Version:	BLK18EV-0237-WK-WIFI-DH-V1_01
Software Version:	S15F-32HW702-D5PT_FW18.1.5.3423_APP1.3.37.9153
Modulation Type:	DSSS, OFDM
Operating Frequency Banger	802.11b/g/n-20MHz: 2.412GHz - 2.462GHz
Operating Frequency Range.	802.11n-40MHz: 2.422GHz - 2.452GHz
Channel Number	802.11b/g/n-20MHz: 11
	802.11n-40MHz: 7
Antenna Type:	Metal Antenna
Antenna Gain:	3.0dBi

Note 1: The EUT is operating at 2.4GHz ISM; it supports 802.11b, 802.11g, 802.11n and they are all tested in this report.

For 802.11b/g/n-20MHz (2.4GHz band), the frequencies allocated is F (MHz) =2412+5*(n-1) (1<=n<=11). The lowest, middle, highest channel numbers of the EUT used and tested in this report are separately 1 (2412MHz), 6 (2437MHz) and 11 (2462MHz).

For 802.11n-40MHz, the frequencies allocated is F (MHz) = $2412+5^{*}(n-1)$ (3<=n<=9). The lowest, middle, highest channel numbers of the EUT used and tested in this report are separately 3 (2422MHz), 6 (2437MHz) and 9 (2452MHz).

Note 2: The EUT connected to the serial port of the computer with a serial communication cable, we use the dedicated software to control the EUT continuous transmission.

Note 3: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.





1.3. Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 15 Subpart C for the EUT FCC ID Certification:

			-	· - · · ·			
NO	Identity		Document litie				
1	47 CFR Pa	rt 15 (10-1-15 Edition)	Radio	o Frequency Dev	vices		
Test detailed items/section required by FCC rules and results are as below:							
No.	Section	Description		Test Date	Test Engineer	Result	
1	15.203	Antenna Requirement		N/A	N/A	PASS	
2	15.247(b)	Peak Output Power		Mar 27, 2018	Tu Ya'nan	PASS	
3	15.247(a)	Bandwidth		Mar 27, 2018	Tu Ya'nan	PASS	
4	15.247(d)	Conducted Spurious Emission and Band Edge		Mar 27, 2018	Tu Ya'nan	PASS	
5	15.247(d)	Restricted Frequency Banc	ls	Mar 28, 2018	Peng Xuewei	PASS	
6	15.207	Conducted Emission		Mar 10, 2018	Peng Xuewei	PASS	
7	15.209,	Padiated Emission		Mar 28, 2018	Pong Yuowoi	DV66	
1	15.247(d)			iviai 20, 2010	Felig Adewei	FA33	
8	15.247(e)	Power spectral density (PS	D)	Mar 27, 2018	Tu Ya'nan	PASS	

Note: The tests of Conducted Emission and Radiated Emission were performed according to the method of measurements prescribed in ANSI C63.10 2013 and KDB558074 D01 v04 (04/05/2017).

1.4. Environmental Conditions

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

Temperature (°C):	15 - 35
Relative Humidity (%):	30 -60
Atmospheric Pressure (kPa):	86-106







2. 47 CFR Part 15C Requirements

2.1. Antenna requirement

2.1.1. Applicable Standard

According to FCC 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

2.1.2. Result: Compliant

The EUT has a permanently and irreplaceable attached antenna. Please refer to the EUT internal photos.

2.2. Peak Output Power

2.2.1. Requirement

According to FCC section 15.247(b)(3), For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: The maximum peak conducted output power of the intentional radiator shall not exceed1 Watt.

2.2.2. Test Description

The measured output power was calculated by the reading of the USB Wideband Power Sensor and calibration.

A. Test Setup:







The EUT (Equipment under the test) which is coupled to the USB Wideband Power Sensor; the RF load attached to the EUT antenna terminal is 500hm; the path loss as the factor is calibrated to correct the reading.

B. Equipments List:

Please refer ANNEX A(1.5).

2.2.3. Test Result

						1
Channel		Measured Output Peak Power		Limit		V a nali a t
Channel		dBm	W	dBm	W	verdict
1	2412	12.45	0.01758			PASS
6	2437	12.35	0.01718	30	1	PASS
11	2462	11.52	0.01419			PASS

2.2.3.1 802.11b Test Mode

Channel	Frequency (MHz)	Measured Output Average Power		Limit		Verdict
		dBm	W	dBm	W	
1	2412	8.51	0.00710			PASS
6	2437	8.54	0.00714	30	1	PASS
11	2462	7.72	0.00592			PASS

2.2.3.2 802.11g Test mode

		Measured Output Peak Power		Limit		Vordict
Channel	Frequency (MHZ)	dBm	W	dBm	W	veruici
1	2412	13.81	0.02404			PASS
6	2437	15.15	0.03273	30	1	PASS
11	2462	13.99	0.02506			PASS

Channel Frequency (MHz)		Measured Output Average Power		Limit		Verdict
		dBm	W	dBm	W	
1	2412	1.83	0.00152			PASS
6	2437	2.03	0.00160	30	1	PASS
11	2462	1.11	0.00129			PASS



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2.2.3.3 802.11n-20MHz Test mode

		Measured Output Peak Power		Limit		Vordict
Channel	Frequency (MHZ)	dBm	W	dBm	W	veruici
1	2412	12.71	0.01866			PASS
6	2437	13.76	0.02377	30	1	PASS
11	2462	13.63	0.02307			PASS

Channel	Frequency (MHz)	Measured	asured Output Average Power		t	Verdict
		dBm	W	dBm	W	
1	2412	0.51	0.00112			PASS
6	2437	0.71	0.00118	30	1	PASS
11	2462	-0.01	0.00100			PASS

2.2.3.4 802.11n-40MHz Test mode

Channel Frequency (MHz)		Measured Output Peak Power		Limit		Vardiat
		dBm	W	dBm W		verdict
3	2422	12.89	0.01945			PASS
6	2437	13.21	0.02094	30	1	PASS
9	2452	12.76	0.01888			PASS

Channel	Frequency (MHz)	Measured Output Average Power		asured Output Average Limit		Verdict
		dBm	W	dBm	W	
3	2422	-1.92	0.00064			PASS
6	2437	-1.10	0.00078	30	1	PASS
9	2452	-1.66	0.00068			PASS





2.3.1. Requirement

According to FCC section 15.247(a) (2), Systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

2.3.2. Test Description

A. Test Set:



The EUT is coupled to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 500hm; the path loss as the factor is calibrated to correct the reading.

Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW.

KDB 558074 Section 8.1 Option 1 was used in order to prove compliance.

B. Equipments List:

Please refer ANNEX A(1.5).





2.3.3. Test Result

2.3.3.1 802.11b Test mode

A. Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
1	2412	8.247	≥500	PASS
6	2437	7.817	≥500	PASS
11	2462	9.148	≥500	PASS

B. Test Plots



(Channel 1, 2412MHz, 802.11b)



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(Channel 6, 2437 MHz, 802.11b)



(Channel 11, 2462MHz, 802.11b)





2.3.3.2 802.11g Test mode

A. Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits (kHz)	Result
1	2412	16.41	≥500	PASS
6	2437	16.39	≥500	PASS
11	2462	16.40	≥500	PASS

B. Test Plots:



(Channel 1, 2412MHz, 802.11g)









(Channel 6, 2437MHz, 802.11g)



(Channel 11, 2462MHz, 802.11g)

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2.3.3.3 802.11n-20 Test mode

A. Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits (kHz)	Result
1	2412	17.36	≥500	PASS
6	2437	17.69	≥500	PASS
11	2462	17.39	≥500	PASS

B. Test Plots:



(Channel 1, 2412MHz, 802.11n-20)









(Channel 6.	2437MHz.	802.11n-20)
	,	000000000



(Channel 11, 2462MHz, 802.11n-20)





2.3.3.4 802.11n-40 Test mode

A. Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits (kHz)	Result
3	2422	36.05	≥500	PASS
6	2437	36.04	≥500	PASS
9	2452	35.51	≥500	PASS

B. Test Plots:



(Channel 3, 2422Mz, 802.11n-40)









		000 11 10
(Channel 6,	2437MHZ,	802.11n-40)



(Channel 9, 2452MHz, 802.11n-40)







2.4. Conducted Spurious Emissions and Band Edge

2.4.1. Requirement

According to FCC section 15.247(c), in any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

2.4.2. Test Description

A. Test Set:



The EUT is coupled to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 500hm; the path loss as the factor is calibrated to correct the reading.

Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW.

KDB 558074 Section 11.0 was used in order to prove compliance.

B. Equipments List:

Please refer ANNEX A(1.5).





2.4.3. Test Result

2.4.3.1 802.11b Test mode

A. Test Verdict:

		Measured Max. Out	Limi		
Channel	Frequency (MHz)	of Band Emission	Carrier	Calculated	Verdict
		(dBm)	Level	-20dBc Limit	
1	2412	-55.07	-4.15	-24.15	PASS
6	2437	-54.16	-4.88	-24.88	PASS
11	2462	-55.15	-4.46	-24.46	PASS

B. Test Plots:

Note: The power of the Module transmitting frequency should be ignored.

Agilent Spectr	um Analyzer - Swep	ot SA					
Marker 2	RF 50 Ω	AC 00000 GHz	SENSE:IN	T Avg Ty	ALIGNAUTO	07:36:35 PM Mar 27, 2018 TRACE 1 2 3 4 5 6	Peak Search
		PNO: Fast IFGain:Low	Trig: Free Run Atten: 8 dB	Avg Ho	ld: 5/100	DET PNNNN	
10 dB/div	Ref Offset 12 o Ref 10.00 d	dB Bm			MI	(r2 24.126 GHz -55.072 dBm	Next Peak
-10.0	1						Next Pk Right
-30.0						2	Next Pk Left
-60.0 -70.0 -80.0	and the second designed of the second designed designed and the second designed and the second designed and the	apieri fativela i suantal bise adara dista d	Support of the second	asa Uginga Japan Panga Pang	ىلىپىلى ^{ىلى} تىكىكىرىمى	Arran M	Marker Delta
Start 30 M #Res BW	1Hz 100 kHz	#VE	W 300 kHz	FUNCTION		Stop 25.00 GHz 2.386 s (2001 pts)	Mkr→CF
1 N 1 2 N 1 3 4 5 6	f	2.415 GHz 24.126 GHz	-4.153 dBm -55.072 dBm				Mkr→RefLvl
7 8 9 10 11						×	More 1 of 2
MSG					STATUS		

(Channel = 1, 30MHz to 25GHz)



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(Band Edge @ Channel = 1)



(Channel = 6, 30MHz to 25GHz)

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Agilent Spectrum	m Analyzer - Swept RF 50 Ω A	SA AC	SENSE:I	NT	ALIGNAUTO	07:38:08 PM Mar 27, 20	118 Deak Search
Marker 2 2	24.02617000	0000 GHz PN0: Fast	Trig: Free Ru	Avgʻ n Avg ⊦	Type: Log-Pwr Iold: 7/100	TRACE 1 2 3 4 TYPE MWWW DET P N N N	S 6 T Car Search
10 dB/div	Ref Offset 12 dE Ref 10.00 dB	B M	Attention		М	kr2 24.026 GH -55.149 dB	Next Peak
-10.0	1						Next Pk Right
-30.0						^	Next Pk Left
-60.0 -70.0 <mark>Alexandresh</mark> -80.0	A A A A A A A A A A A A A A A A A A A	ne ^{nte} rieri, endetti teogi _e i da ^{ren} te	Sunday survey and a	للهريق والمحالي والمحالي والمحالي والمحالية والمح	terre alternation	and the second s	A Marker Delta
Start 30 MI #Res BW 1	Hz 100 kHz	#VE	W 300 kHz Y	FUNCTION	Sweep FUNCTION WIDTH	Stop 25.00 GH 2.386 s (2001 pt FUNCTION VALUE	lz ts) Mkr→CF
1 N 1 2 N 1 3 4 5 5 6 7		2.465 GHz 24.026 GHz	-4.458 dBm -55.149 dBm				Mkr→RefLvl
8 9 10 11			III)			>	More 1 of 2
MSG					STATUS	6	

(Channel = 11, 30MHz to 25GHz)



(Band Edge @ Channel = 11)

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2.4.3.2 802.11g Test mode

A. Test Verdict:

		Measured Max. Out	Limi		
Channel	Frequency (MHz)	of Band Emission	Carrier	Calculated	Verdict
		(dBm)	Level	-20dBc Limit	
1	2412	-53.52	-6.23	-26.23	PASS
6	2437	-54.64	-5.64	-25.64	PASS
11	2462	-55.15	-7.14	-27.14	PASS

B. Test Plots:

Note: The power of the Module transmitting frequency should be ignored.



(Channel = 1, 30MHz to 25GHz)







(Band Edge @ Channel = 1)



(Channel = 6, 30MHz to 25GHz)

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E-mail: service@morlab.cn



Agilent Spectrum Analyzer - Swept SA 24 RF 50 Q AC Marker 2 24.051140000000 GHz PNO: Fa	sense:INT Trig: Free Run	ALIGNAUTO Avg Type: Log-Pwr Avg Hold: 6/100	08:03:16 PM Mar 27, 2018 TRACE 1 2 3 4 5 6 TYPE M WWWWWWW DET P N N N N N	Peak Search
Ref Offset 12 dB	UW FREELOWB	M	kr2 24.051 GHz -55.151 dBm	Next Peak
-10.0 -20.0				Next Pk Right
-30.0			2	Next Pk Left
-60.0 -70.0 -80.0	^{مر} ور و المرور و	يەلىرىنەيەر بەر يەرىيەر بەر يەرىيەر بىرىنى مەرىيەر بەر يەرىيەر بىرىنى بەر يەرىيەر بىرىنى بىرى بىرى بىرى بىرى بىرى	m	Marker Delta
Start 30 MHz #Res BW 100 kHz # MKR MODE TRC SCL × 1 N 1 5 2 452 CH	FVBW 300 kHz	Sweep	Stop 25.00 GHz 2.386 s (2001 pts) FUNCTION VALUE	Mkr→CF
2 N 1 f 24.051 GH 3 4 5 6 6	z -55.161 dBm			Mkr→RefLvl
7 8 9 10 11			~	More 1 of 2
MSG		STATUS		

(Channel = 11, 30MHz to 25GHz)



(Band Edge @ Channel = 11)

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2.4.3.3 802.11n -20MHz Test mode

A. Test Verdict:

		Measured Max. Out	Limi		
Channel	Frequency (MHz)	of Band Emission	Carrier	Calculated	Verdict
		(dBm)	Level	-20dBc Limit	
1	2412	-54.35	-6.19	-26.19	PASS
6	2437	-53.32	-8.79	-28.79	PASS
11	2462	-54.45	-10.63	-30.63	PASS

B. Test Plots:

Note: The power of the Module transmitting frequency should be ignored.



(Channel = 1, 30MHz to 25GHz)



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(Band Edge @ Channel = 1)



(Channel = 6, 30MHz to 25GHz)

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Agilent Spectru	Im Analyzer - Swe	pt SA	SENSI	=:INT	ALIGNAUTO	08:08:02 PM Mar 27, 2018	3
Marker 2 2	24.7003600	00000 GHz	Trig: Free F	Avg Run Avg	Type: Log-Pwr Hold: 6/100	TRACE 1 2 3 4 5 TYPE MWWWW	6 Peak Search
		IFGain:Low	, 🔭 Atten: 8 dE	3		DET P NNNN	Next Peak
10 dB/div	Ref Offset 12 Ref 10.00 d	dB Bm			M	kr2 24.700 GH: -54.452 dBn	
-10.0	1						Next Pk Right
-30.0						2 2 2	Next Pk Left
-50.0 -60.0 -70.0 -80.0	L. Armana	for a start of the	and the second s	Mandala a galana ang di Pangin No.	ALULA HAIMANA	har and the second s	Marker Delta
Start 30 M #Res BW	Hz 100 kHz	#V	BW 300 kHz	FUNCTION	Sweep	Stop 25.00 GHz 2.386 s (2001 pts	Mkr→CF
1 N 1 2 N 1 3 4 5 6	f f	2.465 GHz 24.700 GHz	-10.625 dBr -54.452 dBr	n			Mkr→RefLvl
7 8 9 10 11							More 1 of 2
MSG					STATU	S	

(Channel = 11, 30MHz to 25GHz)



(Band Edge @ Channel = 11)

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2.4.3.4 802.11n -40MHz Test mode

A. Test Verdict:

		Measured Max. Out	Limi		
Channel	Frequency (MHz)	of Band Emission	Carrier	Calculated	Verdict
		(dBm)	Level	-20dBc Limit	
3	2422	-54.27	-9.22	-29.22	PASS
6	2437	-54.48	-9.73	-29.73	PASS
9	2452	-54.94	-11.82	-31.82	PASS

B. Test Plots:

Note: The power of the Module transmitting frequency should be ignored.



(Channel = 3, 30MHz to 25GHz)



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(Band Edge @ Channel = 3)



(Channel = 6, 30MHz to 25GHz)

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Agilent Spectrum Analyzer - Swept SA				
Marker 2 24.737815000000 GHz	SENSE:INT	ALIGNAUTO Avg Type: Log-Pwr	08:11:54 PM Mar 27, 2018 TRACE 1 2 3 4 5 6	Peak Search
PNO: Fas IFGain:Los	Trig: Free Run Atten: 8 dB	Avg Hold: 8/100	DET PNNNN	
Ref Offset 12 dB		M	kr2 24.738 GHz	Next Peak
10 dB/div Ref 10.00 dBm			-54.935 dBm	
-10.0				Next Pk Right
-20.0				
-30.0				
-40.0				Next Pk Left
-50.0				
-60.0		with an the strates and the strategic states	man	
-70.0 physical residues and	A share a shar			Marker Delta
-80.0				
Start 30 MHz	~		Stop 25.00 GHz	
#Res BW 100 kHz #\	'BW 300 kHz	Sweep	2.386 s (2001 pts)	Mkr→CF
MKR MODE TRC SCL X	Y FUN	CTION FUNCTION WIDTH	FUNCTION VALUE	
2 N 1 f 24.738 GHz	-54.935 dBm			
4				Mkr→RefLvl
5 6			<u>≡</u>	
7				
9				1 of 2
11			~	TOTE
MSG		STATU	s	

(Channel = 9, 30MHz to 25GHz)



(Band Edge @ Channel = 9)



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2.5. Power spectral density (PSD)

2.5.1. Requirement

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

2.5.2. Test Description

A. Test procedure

The measured power spectral density was calculated by the reading of the spectrum analyzer and calibration. Following is the test procedure for PSD test:

- a) Set analyzer center frequency to channel center frequency.
- b) Set the span to 1.5 times DTS
- c) Set the RBW to 3 kHz
- d) Set the VBW to 10 kHz
- e) Detector = peak.
- f) Sweep time = auto couple.
- g) Trace mode = max hold.
- h) Allow trace to fully stabilize.
- i) Use the peak marker function to determine the maximum amplitude level within the RBW.

B. Test Set:



The EUT is coupled to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 500hm; the path loss as the factor is calibrated to correct the reading.

KDB 558074 Section 10.2 was used in order to prove compliance.

C. Equipments List:

Please refer ANNEX A(1.5).





2.5.3. Test Result

2.5.3.1 802.11b Test mode

A. Test Verdict:

Spectral power density (dBm/3kHz)						
Channel	Frequency (MHz)	Measured PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict		
1	2412	-16.69	8	PASS		
6	2437	-16.24	8	PASS		
11	2462	-17.01	8	PASS		

B. Test Plots:



(Channel = 1, 802.11b)





Agilent Spectrum Analyzer - Swept SA X RF 50 Ω AC	SENSE:INT	ALIGNAUTO	07:43:33 PM Mar 27, 2018	Shan
Span 11.7255000 MHz	PNO: Wide 😱 Trig: Free Run	Avg Type: Log-Pwr Avg Hold: 19/100	TRACE 123456 TYPE MWWWWW DET PNNNNN	Span
Ref Offset 12 dB	in Gaine Bay	Mkr1	2.436 255 GHz -16 239 dBm	Span 11.7255000 MHz
0.00				
-10.0	1 	10 all a land the second		Full Span
-30.0 Hadwill have a fact of the second of the second of the			and the second	
40.0				Zero Span
-40.0				
-50.0				Last Span
-60.0				
-70.0				
-80.0				Signal Track
Center 2.437000 GHz	#\/B\W 10 kHz	Sween	Span 11.73 MHz	(Span Zoom) On <u>Off</u>
MSG	#VOW TO KH2	Sweep	1.200 S (2001 pts)	

(Channel = 6, 802.11b)



(Channel = 11, 802.11b)

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2.5.3.2 802.11g Test mode

A. Test Verdict:

Spectral power density (dBm/3kHz)						
Channel	Frequency (MHz)	Measured PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict		
1	2412	-20.93	8	PASS		
6	2437	-20.85	8	PASS		
11	2462	-20.92	8	PASS		

B. Test Plots:



(Channel = 1, 802.11g)



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(Channel = 6, 802.11g)



(Channel = 11, 802.11g)

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2.5.3.3 802.11n-20MHz Test mode

A. Test Verdict:

Spectral power density (dBm/3kHz)						
Channel	Frequency	Macourod BSD (dBm/2kHz)	Limit	Verdict		
Channel	(MHz)	Measured FSD (UBII/SKHZ)	(dBm/3kHz)			
1	2412	-21.20	8	PASS		
6	2437	-21.16	8	PASS		
11	2462	-21.63	8	PASS		

B. Test Plots:



(Channel = 1, 802.11n-20MHz)



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(Channel = 6, 802.11n-20MHz)



(Channel = 11, 802.11n-20MHz)

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2.5.3.4 802.11n-40MHz Test mode

A. Test Verdict:

	Spectral power density (dBm/3kHz)									
Channel	Frequency	Macourod DSD (dBm/2kHz)	Limit	Vardiat						
Channel	(MHz)	Measured FSD (dBIII/SKHZ)	(dBm/3kHz)	verdict						
3	2422	-23.98	8	PASS						
6	2437	-23.94	8	PASS						
9	2452	-23.15	8	PASS						

B. Test Plots:



(Channel = 3, 802.11n-40MHz)



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(Channel = 6, 802.11n-40MHz)



(Channel = 9, 802.11n-40MHz)

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2.6. Restricted Frequency Bands

2.6.1. Requirement

According to FCC section 15.247(d), in any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, 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).

2.6.2. Test Description

A. Test Setup



The EUT is located in a 3m Semi-Anechoic Chamber; the antenna factors, cable loss and so on of the site as factors are calculated to correct the reading.

For the Test Antenna:

Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength.

KDB 558074 Section 12.1 was used in order to prove compliance.



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B. Equipments List:

Please refer ANNEX A(1.5).

2.6.3. Test Result

The lowest and highest channels are tested to verify Restricted Frequency Bands.

The measurement results are obtained as below: E $[dB\mu V/m] = U_R + A_T + A_{Factor} [dB]; A_T = L_{Cable loss} [dB] - G_{preamp} [dB]$ A_T : Total correction Factor except Antenna U_R : Receiver Reading G_{preamp} : Preamplifier Gain A_{Factor} : Antenna Factor at 3m

Note: Restricted Frequency Bands were performed when antenna was at vertical and horizontal polarity, and only the worse test condition (vertical) was recorded in this test report.

2.6.3.1 802.11b Test mode

A. Test Verdict:

Channel	Frequency	Detector	Receiver Reading	A _T	A _{Factor}	Max. Emission	Limit	Verdict
	(MHz)	PK/ AV	U _R (dBuV)	(dB)	(dB@3m)	E (dBµV/m)	(dBµV/m)	Vordiet
1	2360.59	PK	49.28	-33.63	32.56	48.21	74	Pass
1	2387.14	AV	36.73	-33.63	32.56	35.66	54	Pass
11	2484.65	PK	48.90	-33.18	32.50	48.22	74	Pass
11	2484.50	AV	36.58	-33.18	32.50	35.90	54	Pass





B. Test Plots:

Keysight Spectrum Analyzer - Swept SA 06:21:37 AM Mar 28, 2018 TRACE 1 2 3 4 5 6 TYPE MWWWW DET P P N N N N RI Avg Type: Voltage Avg|Hold:>100/100 Marker Marker 1 2.360592000000 GHz Trig: Free Run Atten: 10 dB TYPE PNO: Fast Select Marker Mkr1 2.360 59 GHz 49.279 dBµ\ 10 dB/div Log **r** Ref 106.99 dBµV Normal 02 Delta **♦**¹ **Fixed** Start 2.30000 GHz #Res BW (CISPR) 1 MHz Stop 2.41200 GHz Sweep 1.000 ms (1001 pts) #VBW 3.0 MHz Off FUNCTION FUNCTION WIDTH N VALUE N 1 f N 1 f 2.360 59 GHz 2.390 00 GHz 49.279 dBµV 48.538 dBµV Properties► More 1 of 2

(Channel = 1 PEAK, 802.11b)



(Channel = 1 AVG, 802.11b)

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RL RF PRESEL 50 Ω DC arker 2 2.484648000000	GHz PNO: Fast G	Trig: Free F Atten: 10 c	e:INT Run 1B	Avg Ty Avg Hol	ALIGN OFF pe: Voltage d:>100/100	06:45:41 A TRAC TYI DI	M Mar 28, 2018 DE 1 2 3 4 5 6 PE MWWWWW ET P N N N N	Marker
dB/div Ref 106.99 dBµV					Mkr2	2.484 6 48.89	48 GHz 5 dBμV	
7.0								Norn
7.0 7.0	6		1/	2				De
7.0	**************************************	here of the second s		avedik Djo. osvolike	unduriettiin saelaet	u southte-sought		
7.0						Stop 2.5		Fixe
	#VB\	N 3.0 MHz	FUNC	TION F	Sweep 1	.000 ms (1000 GH2 1001 pts)	
N 1 f 2.483 N 1 f 2.484	500 GHz 648 GHz	47.467 dBµ 48.895 dBµ						Propertie

(Channel = 11 PEAK, 802.11b)



(Channel = 11 AVG, 802.11b)



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2.6.3.2 802.11g Test mode

A. Test Verdict:

Channel	Frequency	Detector	Receiver Reading	A _T	A _{Factor}	Max. Emission	Limit	Vordiat
Channel	(MHz)	PK/ AV	U _R (dBuV)	(dB)	(dB@3m)	E (dBµV/m)	(dBµV/m)	verdici
1	2362.81	PK	48.56	-33.63	32.56	47.49	74	Pass
1	2370.43	AV	36.60	-33.63	32.56	35.53	54	Pass
11	2488.14	PK	49.82	-33.18	32.50	49.14	74	Pass
11	2483.96	AV	36.55	-33.18	32.50	35.87	54	Pass

B. Test Plots:



(Channel = 1 PEAK, 802.11g)

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RL RF PRESEL 50 Ω arker 1 2.370428960	DC DOOD GHz PNO: Fast (IEGain: ov	Trig: Free Run	Avg T Avg H	ALIGN OFF Type: Voltage Iold:>100/100	07:58:18 AM Mar 28, TRACE 1 2 3 TYPE MWW DET P NN	2018 456 WWW NNN	Marker
dB/div Ref 106.99 c	iBμV			Mkr	1 2.370 43 G 36.603 dB	iHz iµV	Select Markel
9 7.0							Norm
7.0							De
0			▲ ¹		¢ ²		Fixe
art 2.30000 GHz ^ s BW (CISPR) 1 MHz	#VB	W 10 Hz		Sweep	Stop 2.41200 (12.84 s (1001	GHz pts)	(
MODE TRC SCL N 1 f N 1 f	X 2.370 43 GHz 2.390 00 GHz	Υ 36.603 dBμV 36.619 dBμV	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE		Propertie
							Mo

(Channel = 1 AVG, 802.11g)



(Channel = 11 PEAK, 802.11g)

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#	Mar 28, 2018	08:11:45 AM	ALIGN OFF		ISE:INT	SEN		- Swept SA 50 Ω DC	ectrum Analyzer RF PRESEL	Keysight Sp R L
Marker Select Marker	123456 M PNNNNN	TRACE TYPE DET	Type: Voltage lold:>100/100	Avg Avg	e Run dB	Trig: Free Atten: 10	CHZ PNO: Fast IFGain:Low	4000000	2.48396	arker 2
2	4 GHz dBµV	2.483 96 36.553	Mkr2					.99 dBµV	Ref 106	0 dB/div
Norm										og 37.0 37.0
Delf										77.0 57.0 57.0
Fixed				2			••••••			47.0 37.0
Fixed		Stop 2 500							200 CH-	17.0
o	001 pts)	4.357 s (1	Sweep	071011	5	/ 10 Hz	#VB	1 MHz	(CISPR)	Res BW
Properties		FUNCTION	FUNCTION WIDTH	ICTION	μV μV	36.500 dB 36.553 dB	500 GHz 964 GHz	× 2.483 2.483	f f	N N 1 N 2 N 3 4 5 5
Moi 1 of										6 7 8 9
										1

(Channel = 11 AVG, 802.11g)

2.6.3.3 802.11n-20MHz Test mode

A. Test Verdict:

Channel	Frequency	Detector	Receiver Reading	A _T	A _{Factor}	Max. Emission	Limit	Verdict
	(IVIHZ)	PK/ AV	(dBuV)	(UD)	(ub@sill)	⊏ (dBµV/m)	(ασμν/m)	
1	2375.38	PK	49.40	-33.63	32.56	48.33	74	Pass
1	2387.70	AV	36.72	-33.63	32.56	35.65	54	Pass
11	2485.03	PK	49.47	-33.18	32.50	48.79	74	Pass
11	2487.00	AV	36.42	-33.18	32.50	35.74	54	Pass



B. Test Plots:

📕 Keysight Spectrum Analyzer - Swept SA Avg Type: Voltage Avg|Hold:>100/100 :54 AM Mar 28, 2018 Trace/Detector TRACE 1 2 3 4 5 TYPE MWWWW DET P NNNN **RBW 1 MHz** PNO: Fast Trig: Free Run IFGain:Low Atten: 10 dB Select Trace Mkr1 2.375 38 GHz 49.402 dBµV Ref 106.99 dBµV 0 dB/div og **Clear Write** Trace Average 1 12 Max Hold Start 2.30000 GHz Res BW (CISPR) 1 MHz Stop 2.41200 GHz 1.000 ms (1001 pts) #VBW 3.0 MHz Sweep **Min Hold** 2.375 38 GHz 2.390 00 GHz 49.402 dBµV 47.754 dBµV N View Blank Trace On More 1 of 3

(Channel = 1 PEAK, 802.11n-20)



(Channel = 1 AVG, 802.11n-20)

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E-mail: service@morlab.cn





RL RP PRESEL 50 Q DC SERVET Add Lon OFF OT15:533 AM Market 28, 2018 Harker 2 2.448502800000 GHz PNO: Fast (FG ain:Low) Trig: Free Run Atten: 10 dB Avg Type: Voltage Avg Hoid:>100/100 Trig: Free Run Q TYPE Avg Type: Voltage (TYPE)	Keysight Spe	ectrum Analyzer	- Swept SA										
PND: Fast Trig: Free Run Avg Hold:>100/100 Tree Select Ma Mkr2 2.485 028 GHz 0 dB/div Ref 106.99 dBµV 49.463 dBµV 0 dB/div Ref 106.99 dBµV 99 70 1 2 70 1 2 70 1 2 70 1 2 70 1 2 70 7 70 1 2 7 8 1 1 <td <<="" colspan="2" td=""><td>arker 2</td><td>RF PRESEL 5</td><td>0Ω DC 3000000</td><td>GHz</td><td>SE</td><td>NSE:INT</td><td>Avg</td><td>ALIGN OFF Type: Voltage</td><td>07:15:33 A</td><td>M Mar 28, 2018 CE 1 2 3 4 5 6</td><td>Marker</td></td>	<td>arker 2</td> <td>RF PRESEL 5</td> <td>0Ω DC 3000000</td> <td>GHz</td> <td>SE</td> <td>NSE:INT</td> <td>Avg</td> <td>ALIGN OFF Type: Voltage</td> <td>07:15:33 A</td> <td>M Mar 28, 2018 CE 1 2 3 4 5 6</td> <td>Marker</td>		arker 2	RF PRESEL 5	0Ω DC 3000000	GHz	SE	NSE:INT	Avg	ALIGN OFF Type: Voltage	07:15:33 A	M Mar 28, 2018 CE 1 2 3 4 5 6	Marker
Mkr2 2.485 028 GHz Mkr2 2.				PNO: Fast IFGain:Low	Trig: Fre Atten: 1	e Run 0 dB	Avg	Hold:>100/100	TY	PE MWWWWW ET P N N N N N	Select Marke		
70 70 <td< td=""><td>dB/div</td><td>Ref 106.</td><td>.99 dBµV</td><td></td><td></td><td></td><td></td><td>Mkr2</td><td>2.485 0</td><td>)28 GHz 8 dBµV</td><td>Select Marke</td></td<>	dB/div	Ref 106.	.99 dBµV					Mkr2	2.485 0)28 GHz 8 dBµV	Select Marke		
70 1 2 1 2 1 1 2 1	7.0										Norn		
Image: Constraint of the second sec													
Image: Non-the second	.0			- And -		^1	2				De		
N 1 f 2.485 028 GHz 49.468 dBpV Function Function Value Prope	.o .o				man	underniker	and all small second	somenleoninenskey:	radioace and stand	ennethelist-Alexand			
Image: Second state in the second s	.0										Fixe		
N 1 f 2.483 500 GHz 48.578 dBpV Function Function width Function value	art 2.46	200 GHz							Stop 2.5	0000 GHz			
N 1 f 2.483 500 GHz 48.578 dBuV Function Function width Function value	tes BW	(CISPR) 1	MHz	#VE	3W 3.0 MH2	2		Sweep 1	.000 ms ((1001 pts)	1		
N 1 f 2.435 028 GHz 49.468 dBnV N 1 f 2.435 028 GHz 49.468 dBnV	R MODE TR	RC SCL	× 2 483	500 GHz	Y 48 578 di	FUN	ICTION	FUNCTION WIDTH	FUNCTI	ON VALUE			
	Ň	f	2.485	028 GHz	49.468 di	βμV					Propertie		
											1		

(Channel = 11 PEAK, 802.11n-20)



(Channel = 11 AVG, 802.11n-20)



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2.6.3.4 802.11n-40MHz Test mode

A. Test Verdict:

Channel	Frequency (MHz)	Detector	Receiver Reading U⊳	A _T (dB)	A _{Factor} (dB@3m)	Max. Emission F	Limit (dBuV/m)	Verdict
	()	PK/ AV	(dBuV)	(42)		_ (dBµV/m)		
3	2388.37	PK	49.02	-33.63	32.56	47.95	74	Pass
3	2387.92	AV	36.74	-33.63	32.56	35.67	54	Pass
9	2485.45	PK	50.33	-33.18	32.50	49.65	74	Pass
9	2484.19	AV	36.56	-33.18	32.50	35.88	54	Pass

B. Test Plots:



(Channel = 3 PEAK, 802.11n-40)



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eysight Spectrum Analyze	er - Swept SA		SEN	SEINT		ALIGN OFF	07:38:13.4	M Mar 28 2018	
rker 1 2.38792	20000000	GHz	Trig: Eroo	Bun		e: Voltage	TRA	CE 1 2 3 4 5 6	Marker
		PNO: Fast (IFGain:Low	Atten: 10	dB	Avginoid	.~100/100	D	ET P NNNNN	Select Marke
dB/div Ref 10	6.99 dBµV					Mkr	1 2.387 36.74	92 GHz 1 dBµV	
o									Norr
₀									
0									
0									De
						•	12 V		
									Fixe
0									TIXC
							Oter oît		
es BW (CISPR)	1 MHz	#VB	W 10 Hz			Sweep	12.84 s	1200 GHZ (1001 pts)	
MODE TRC SCL	Х		Y	FUNCT	ION FUI	NCTION WIDTH	FUNCT	ON VALUE	
N 1 f N 1 f	2.38	37 92 GHz 90 00 GHz	36.741 dB 36.639 dB	μV μV					
									Propertie
								=	
									M
									1
								-	

(Channel = 3 AVG, 802.11n-40)



(Channel = 9 PEAK, 802.11n-40)

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	Mar 20, 2010	07-20-20 41		cel.	or high a		Swept SA	ctrum Analyzer -	Keysight Sp
Marker	1 2 3 4 5 6 MWWWW P N N N N N	TRAC TYP DE	Type: Voltage Hold:>100/100	Av n Avg	ig: Free Ru tten: 10 dB	Hz PNO: Fast 🖵	000000	2.484192	arker 2
Select Markel	92 GHz 7 dBµV	2.484 1 36.55	Mkr2				99 dBµV	Ref 106.	dB/div
Norm									7.0 7.0
Del									7.0 7.0 7.0
Fixe									
	000 GH7	Stop 2.50						200 GH7	art 2.46
c	001 pts)	4.357 s (′	Sweep		Hz	#VBW	MHz	(CISPR) 1	les BW
	N VALUE	FUNCTIO	FUNCTION WIDTH	FUNCTION	γ 537 dBµV 557 dBµV	00 GHz 92 GHz	× 2.483 5 2.484 1	f f	R MODE II 1 N 1 2 N 1
Propertie	E								3 4 5 6
Ма 1 о									
	-								1

(Channel = 9 AVG, 802.11n-40)







2.7. Conducted Emission

2.7.1. Requirement

According to FCC section 15.207, for an intentional radiator 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 within the band 150kHz to 30MHz shall not exceed the limits in the following table, as measured using a 50μ H/50 Ω line impedance stabilization network (LISN).

Frequency range	Conducted	Limit (dBµV)
(MHz)	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5 - 30	60	50

NOTE:

(a) The lower limit shall apply at the band edges.

(b) The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50MHz.

2.7.2. Test Description

A. Test Setup:



The Table-top EUT was placed upon a non-metallic table 0.8m above the horizontal metal reference ground plane. EUT was connected to LISN and LISN was connected to reference Ground Plane. EUT was 80cm from LISN. The set-up and test methods were according to ANSI C63.10 2013.

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B. Equipments List:

Please refer ANNEX A(1.5).

2.7.3. Test Result

The maximum conducted interference is searched using Peak (PK), if the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. Refer to recorded points and plots below.

Note: Both of the test voltage AC 120V/60Hz and AC 230V/50Hz were considered and tested respectively, only the results of the worst case AC 120V/60Hz were recorded in this report.

A. Test setup:

The EUT configuration of the emission tests is EUT + Link. The test voltage is AC 120V/60Hz.



B. Test Plots:

(Plot A: L Phase)

NO.	Fre.	Emission Level (dBµV)		Limit (dBµV)		Dower line	Vardiat
	(MHz)	Quai-peak	Average	Quai-peak	Average	Fower-line	verdict
1	0.16	45.14	37.43	65.21	55.21	Line	PASS
2	0.26	40.15	32.97	61.27	51.27		PASS
3	0.59	32.53	26.53	56.00	46.00		PASS
4	2.99	34.53	28.63	56.00	46.00		PASS
5	6.48	28.72	21.94	60.00	50.00		PASS
6	15.34	27.86	19.91	60.00	50.00		PASS



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(Plot B: N Phase)

NO.	Fre.	Emission Level (dBµV)		Limit (dBµV)		Dowor line	Vardiat
	(MHz)	Quai-peak	Average	Quai-peak	Average	Fower-line	verdict
1	0.20	45.07	36.27	63.82	53.82	Neutral	PASS
2	0.29	39.76	32.32	60.54	50.54		PASS
3	0.41	37.06	30.11	57.66	47.66		PASS
4	0.78	31.18	25.19	56.00	46.00		PASS
5	3.45	33.79	27.44	56.00	46.00		PASS
6	5.85	32.47	24.20	60.00	50.00		PASS



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2.8. Radiated Emission

2.8.1. Requirement

According to FCC section 15.247(d), radiated emission outside the frequency band attenuation below the general limits specified in FCC section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in FCC section 15.205(a), must also comply with the radiated emission limits specified in FCC section 15.209(a).

According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (µV/m)	Measurement Distance (m)
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:

- For Above 1000MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit.
- For above 1000MHz, limit field strength of harmonics: 54dBuV/m@3m (AV) and 74dBuV/m@3m (PK)

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





2.8.2. Test Description

A. Test Setup:

1) For radiated emissions from 9kHz to 30MHz



2) For radiated emissions from 30MHz to1GHz





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3) For radiated emissions above 1GHz



The RF absorbing material used on the reference ground plane and on the turntable have a maximum height (thickness) of 30 cm (12 in) and have a minimum-rated attenuation of 20 dB at all frequencies from 1 GHz to 18 GHz. Test site have a minimum area of the ground plane covered with RF absorbing material as specified in Figure 6 of ANSI C63.4: 2014.

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4dB according to the standards: ANSI C63.10 (2013). For radiated emissions below or equal to 1GHz, The EUT was set-up on insulator 80cm above the Ground Plane, For radiated emissions above 1GHz, The EUT was set-up on insulator 150cm above the Ground Plane. The set-up and test methods were according to ANSI C63.10

For the radiated emission test above 1GHz:

Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.

The EUT is located in a 3m Semi-Anechoic Chamber; the antenna factors, cable loss and so on of the site as factors are calculated to correct the reading



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For the Test Antenna:

(a) In the frequency range of 9kHz to 30MHz, magnetic field is measured with Loop Test Antenna. The Test Antenna is positioned with its plane vertical at 1m distance from the EUT. The center of the Loop Test Antenna is 1m above the ground. During the measurement the Loop Test Antenna rotates about its vertical axis for maximum response at each azimuth about the EUT.

(b) In the frequency range above 30MHz, Bi-Log Test Antenna (30MHz to 1GHz) and Horn Test Antenna (above 1GHz) are used. Place the test antenna at 3m away from area of the EUT, while keeping the test antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The test antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final test antenna elevation shall be that which maximizes the emissions. The test antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane. The emission levels at both horizontal and vertical polarizations should be tested.

A. Equipments List:

Please refere ANNEX A(1.5).

2.8.3. Test Result

According to ANSI C63.10, because of peak detection will yield amplitudes equal to or greater than amplitudes measured with the quasi-peak (or average) detector, the measurement data from a spectrum analyzer peak detector will represent the worst-case results, if the peak measured value complies with the quasi-peak limit, it is unnecessary to perform an quasi-peak measurement.

The measurement results are obtained as below:

E $[dB\mu V/m] = U_R + A_T + A_{Factor} [dB]; A_T = L_{Cable loss} [dB] - G_{preamp} [dB]$ A_T: Total correction Factor except Antenna U_R: Receiver Reading G_{preamp}: Preamplifier Gain A_{Factor}: Antenna Factor at 3m

During the test, the total correction Factor A_T and A_{Factor} were built in test software.

Note1: All radiated emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

Note2: For the frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit was not recorded.

Note3: For the frequency, which started from 25GHz to 40GHz, was pre-scanned and the result which was 10dB lower than the limit was not recorded.





2.8.3.1 802.11b Test mode

Plots for Channel = 1



(Antenna Horizontal, 30MHz to 25GHz)



(Antenna Vertical, 30MHz to 25GHz)



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Plot for Channel = 6



(Antenna Horizontal, 30MHz to 25GHz)



(Antenna Vertical, 30MHz to 25GHz)



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Plot for Channel = 11



(Antenna Horizontal, 30MHz to 25GHz)



(Antenna Vertical, 30MHz to 25GHz)



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2.8.3.2 802.11g Test mode

Plots for Channel = 1



(Antenna Horizontal, 30MHz to 25GHz)



(Antenna Vertical, 30MHz to 25GHz)



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Plot for Channel = 6



(Antenna Horizontal, 30MHz to 25GHz)



(Antenna Vertical, 30MHz to 25GHz)



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Plot for Channel = 11



(Antenna Horizontal, 30MHz to 25GHz)



(Antenna Vertical, 30MHz to 25GHz)



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2.8.3.3 802.11n-20MHz Test mode

Plots for Channel = 1



(Antenna Horizontal, 30MHz to 25GHz)



(Antenna Vertical, 30MHz to 25GHz)



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Plot for Channel = 6



(Antenna Horizontal, 30MHz to 25GHz)



(Antenna Vertical, 30MHz to 25GHz)



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Plot for Channel = 11



(Antenna Horizontal, 30MHz to 25GHz)



(Antenna Vertical, 30MHz to 25GHz)



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2.8.3.4 802.11n-40MHz Test mode

Plots for Channel = 3



(Antenna Horizontal, 30MHz to 25GHz)



(Antenna Vertical, 30MHz to 25GHz)



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Plots for Channel = 6



(Antenna Horizontal, 30MHz to 25GHz)



(Antenna Vertical, 30MHz to 25GHz)



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Plots for Channel = 9



(Antenna Horizontal, 30MHz to 25GHz)



(Antenna Vertical, 30MHz to 25GHz)



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Annex A Test Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for test performed on the EUT as specified in CISPR 16-1-2:

Test items	Uncertainty
Peak Output Power	±2.22dB
Power spectral density (PSD)	±2.22dB
Bandwidth	±5%
Conducted Spurious Emission	±2.77 dB
Restricted Frequency Bands	±5%
Radiated Emission	±2.95dB
Conducted Emission	±2.44dB

This uncertainty represent an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2



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Annex B Testing Laboratory Information

1. Identification of the Responsible Testing Laboratory

Company Name:	Shenzhen Morlab Communications Technology Co., Ltd.		
Department: Morlab Laboratory			
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChar		
	Road, Block 67, BaoAn District, ShenZhen, GuangDong		
	Province, P. R. China		
Responsible Test Lab	Mr. Su Feng		
Manager:			
Telephone:	+86 755 36698555		
Facsimile:	+86 755 36698525		

2. Identification of the Responsible Testing Location

Nama	Shenzhen Morlab Communications Technology Co., Ltd.
Name.	Morlab Laboratory
	FL.3, Building A, FeiYang Science Park, No.8 LongChang
Address:	Road, Block 67, BaoAn District, ShenZhen, GuangDong
	Province, P. R. China

3. Facilities and Accreditations

All measurement facilities used to collect the measurement data are located at FL.3, Building A, FeiYang Science Park, Block 67, BaoAn District, Shenzhen, 518101 P. R. China. The test site is constructed in conformance with the requirements of ANSI C63.10-2013 and CISPR Publication 22; the FCC designation number is CN1192.




4. Test Equipments Utilized

4.1 Conducted Test Equipments

Equipment Name	Serial No.	Туре	Manufacturer	Cal. Date	Cal. Due
Power Splitter	NW521	1506A	Weinschel	2017.05.24	2018.05.23
Attenuator 1	(N/A.)	10dB	Resnet	2017.05.24	2018.05.23
Attenuator 2	(N/A.)	3dB	Resnet	2017.05.24	2018.05.23
EXA Signal Analzver	MY53470836	N9010A	Agilent	2017.12.03	2018.12.02
USB Wideband Power Sensor	MY54210011	U2021XA	Agilent	2017.05.24	2018.05.23
RF cable (30MHz-26GHz)	CB01	RF01	Morlab	N/A	N/A
Coaxial cable	CB02	RF02	Morlab	N/A	N/A
SMA connector	CN01	RF03	HUBER-SUHNER	N/A	N/A

4.2 Conducted Emission Test Equipments

Equipment Name	Serial No.	Туре	Manufacturer	Cal. Date	Cal. Due
Receiver	MY56400093	N9038A	KEYSIGHT	2017.07.13	2018.07.12
LISN	812744	NSLK 8127	Schwarzbeck	2017.05.17	2018.05.16
Pulse Limiter (20dB)	9391	VTSD 9561-D	Schwarzbeck	2017.05.17	2018.05.16
Coaxial cable(BNC) (30MHz-26GHz)	CB01	EMC01	Morlab	N/A	N/A

4.3Auxiliary Test Equipment

Equipment Name	Model No.	Brand Name	Manufacturer	Cal.Date	Cal.Due Date
Computer	T430i	Think Pad	Lenovo	N/A	N/A





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4.4 Radiated Test Equipments

Equipment Name	Serial No.	Туре	Manufacturer	Cal. Date	Cal.Due Date
Receiver	MY54130016	N9038A	Agilent	2017.05.17	2018.05.16
Test Antenna - Bi-Log	9163-519	VULB 9163	Schwarzbeck	2017.05.14	2018.05.13
Test Antenna - Horn	9170C-531	BBHA9170	Schwarzbeck	2017.09.13	2018.09.12
Test Antenna - Loop	1519-022	FMZB1519	Schwarzbeck	2018.03.03	2019.03.02
Test Antenna - Horn	01774	BBHA 9120D	Schwarzbeck	2017.09.13	2018.09.12
Coaxial cable (N male) (9KHz-30MHz)	CB04	EMC04	Morlab	N/A	N/A
Coaxial cable (N male) (30MHz-26GHz)	CB02	EMC02	Morlab	N/A	N/A
Coaxial cable(N male) (30MHz-26GHz)	CB03	EMC03	Morlab	N/A	N/A
1-18GHz pre-Amplifier	MA02	TS-PR18	Rohde& Schwarz	2017.05.17	2018.05.16
18-26.5GHz pre-Amplifier	MA03	TS-PR18	Rohde& Schwarz	2017.05.17	2018.05.16
Anechoic Chamber	N/A	9m*6m*6m	CRT	2017.11.19	2020.11.18

_____ END OF REPORT _____

