FCC REPORT
(WIFI)

Applicant:	Alleswolke Inc.
Address of Applicant:	39899 Balentine Drive Suite 200, Newark, CA, USA 94536
Equipment Under Test (EUT)	
Product Name:	alleswolke LTE Dashcam
Model No.:	UCM 3310, UCM 3320, UCM 3300, UCM 4300
FCC ID:	2AOYPUCM3310
Applicable standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.247
Date of sample receipt:	22 Jan., 2018
Date of Test:	22 Jan., to 09 Mar., 2018
Date of report issued:	09 Mar., 2018
Test Result:	PASS*

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Bruce Zhang
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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2 Version

Version No.	Date	Description
00	*09 Mar., 2018*	*Original*

Tested by: ***Date:*** *09 Mar., 2018*

Test Engineer

Reviewed by: ***Date:*** *09 Mar., 2018*

Project Engineer

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4 Test Summary

Test Items	Section in CFR 47	Result
Antenna requirement	15.203 & 15.247 (c)	Pass
AC Power Line Conducted Emission	15.207	Pass
Conducted Peak Output Power	15.247 (b)(3)	Pass
6dB Emission Bandwidth 99% Occupied Bandwidth	15.247 (a)(2)	Pass
Power Spectral Density	15.247 (e)	Pass
Band Edge	15.247 (d)	Pass
Spurious Emission	15.205 & 15.209	Pass
Pass: The EUT complies with the essential requirements in the standard. *N/A: N/A: Not Applicable.*		

5 General Information

5.1 Client Information

Applicant:	Alleswolke Inc.
Address:	39899 Balentine Drive Suite 200, Newark, CA, USA 94536
Manufacturer:	Nanjing Miaoow Planet Technology Co., Ltd.
Address:	Building 4 SEU Science Park Changjianghou St Xuanwu Nanjing

5.2 General Description of E.U.T.

Product Name:	alleswolke LTE Dashcam
Model No.:	UCM 3310, UCM 3320, UCM 3300, UCM 4300
Operation Frequency:	2412MHz~2462MHz (802.11b/802.11g/802.11n(H20)) 2422MHz~2452MHz (802.11n(H40))
Channel numbers:	11 for 802.11b/802.11g/802.11(H20) 7 for 802.11n(H40)
Channel separation:	5MHz
Modulation technology: (IEEE 802.11b)	Direct Sequence Spread Spectrum (DSSS)
Modulation technology: (IEEE 802.11g/802.11n)	Orthogonal Frequency Division Multiplexing(OFDM)
Data speed (IEEE 802.11b):	1Mbps, 2Mbps, 5.5Mbps, 11Mbps
Data speed (IEEE 802.11g):	6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps, 54Mbps
Data speed (IEEE 802.11n):	Up to 150Mbps
Antenna Type:	Internal Antenna
Antenna gain:	2dBi
Power supply:	DC 12V
AC adapter:	Model: WSD-1202000-P07 Input: AC 100-240V, 50/60Hz, 0.6A Output: DC 12V, 2.0A
Remark:	The No.: UCM 3310, UCM 3320, UCM 3300, UCM 4300 were identical inside, the electrical circuit design, layout, components used and internal wiring, with only difference being model name and color.

Operation Frequency each of channel for 802.11b/g/n(H20)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412MHz	4	2427MHz	7	2442MHz	10	2457MHz
2	2417MHz	5	2432MHz	8	2447MHz	11	2462MHz
3	2422MHz	6	2437MHz	9	2452MHz		

Note:
1. For 802.11n-HT40 mode, the channel number is from 3 to 9;
2. Channel 1, 6 & 11 selected for 802.11b/g/n-HT20 as Lowest, Middle and Highest channel, Channel; 3, 6 & 9 selected for 802.11n-HT40 as Lowest, Middle and Highest channel, Channel.

5.3 Test environment and test mode

Operating Environment:	
Temperature:	24.0 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010 mbar
Test mode:	
Transmitting mode	Keep the EUT in continuous transmitting with modulation

The sample was placed 0.8m (below 1GHz)/1.5m (above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.
We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Per-scan all kind of data rate, the follow list were the worst case.	
Mode	Data rate
802.11b	1Mbps
802.11g	6Mbps
802.11n(H20)	6.5Mbps
802.11n(H40)	13.5Mbps

5.4 Description of Support Units

The EUT has been tested as an independent unit.

5.5 Measurement Uncertainty

Parameters	Expanded Uncertainty
Conducted Emission (9kHz ~ 30MHz)	2.14 dB (k=2)
Radiated Emission (9kHz ~ 30MHz)	4.24 dB (k=2)
Radiated Emission (30MHz ~ 1000MHz)	4.35 dB (k=2)
Radiated Emission (1GHz ~ 18GHz)	4.44 dB (k=2)
Radiated Emission (18GHz ~ 26.5GHz)	4.56 dB (k=2)

5.6 Laboratory Facility

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

- **FCC - Registration No.: 727551**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been accredited as a testing laboratory by FCC (Federal Communications Commission). The Registration No. is 727551.

- **IC - Registration No.: 10106A-1**

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **CNAS - Registration No.: CNAS L6048**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048.

- **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf

5.7 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.
Address: No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,
Bao'an District, Shenzhen, Guangdong, China
Tel: +86-755-23118282, Fax: +86-755-23116366
Email: info@ccis-cb.com, Website: http://www.ccis-cb.com

5.8 Test Instruments list

Radiated Emission:

Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
3m SAC	SAEMC	9m*6m*6m	966	07-22-2017	07-21-2020
Loop Antenna	SCHWARZBECK	FMZB1519B	00044	02-25-2017	02-24-2018
				02-25-2018	02-24-2019
BiConiLog Antenna	SCHWARZBECK	VULB9163	497	02-25-2017	02-24-2018
				02-25-2018	02-24-2019
Horn Antenna	SCHWARZBECK	BBHA9120D	916	02-25-2017	02-24-2018
				02-25-2018	02-24-2019
EMI Test Software	AUDIX	E3	6.110919b	N/A	N/A
Pre-amplifier	HP	8447D	2944A09358	02-25-2017	02-24-2018
				02-25-2018	02-24-2019
Pre-amplifier	CD	PAP-1G18	11804	02-25-2017	02-24-2018
				02-25-2018	02-24-2019
Spectrum analyzer	Rohde & Schwarz	FSP30	101454	02-25-2017	02-24-2018
				02-25-2018	02-24-2019
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	02-25-2017	02-24-2018
				02-25-2018	02-24-2019
Cable	ZDECL	Z108-NJ-NJ-81	1608458	02-25-2017	02-24-2018
				02-25-2018	02-24-2019
Cable	MICRO-COAX	MFR64639	K10742-5	02-25-2017	02-24-2018
				02-25-2018	02-24-2019
Cable	SUHNER	SUCOFLEX100	58193/4PE	02-25-2017	02-24-2018
				02-25-2018	02-24-2019

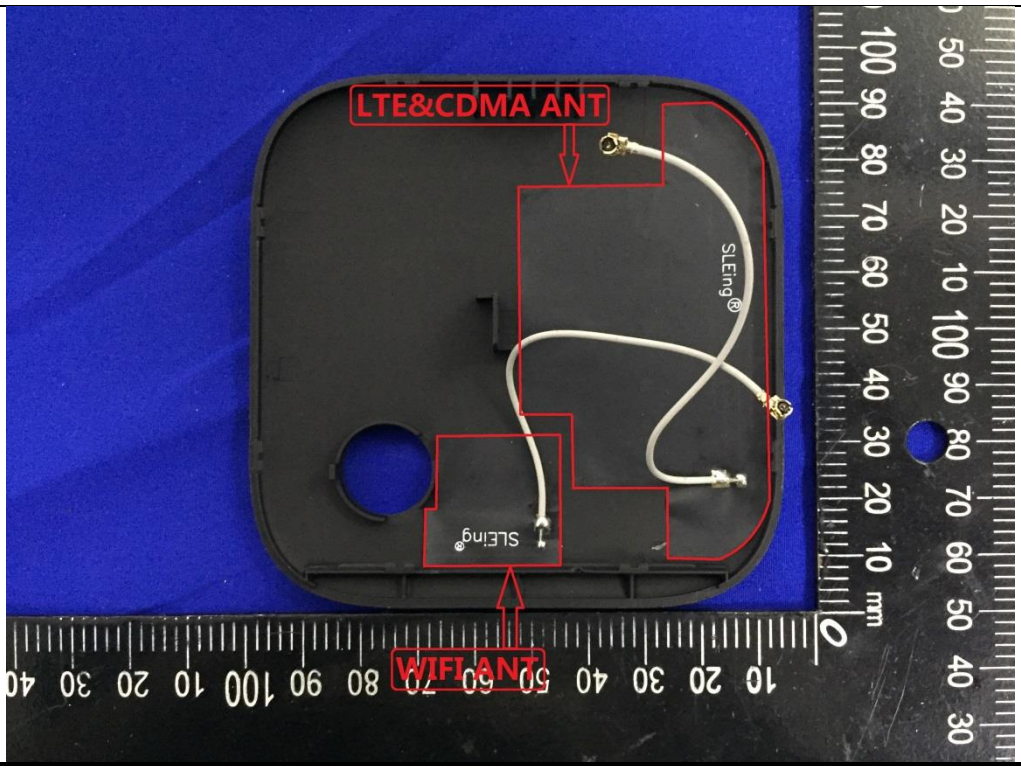
Conducted Emission:

Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
EMI Test Receiver	Rohde & Schwarz	ESCI	101189	02-25-2017	02-24-2018
				02-25-2018	02-24-2019
Pulse Limiter	SCHWARZBECK	OSRAM 2306	9731	02-25-2017	02-24-2018
				02-25-2018	02-24-2019
LISN	CHASE	MN2050D	1447	02-25-2017	02-24-2018
				02-25-2018	02-24-2019
LISN	Rohde & Schwarz	ESH3-Z5	8438621/010	02-25-2017	02-24-2018
				02-25-2018	02-24-2019
Cable	HP	10503A	N/A	02-25-2017	02-24-2018
				02-25-2018	02-24-2019
EMI Test Software	AUDIX	E3	6.110919b	N/A	N/A

6 Test results and Measurement Data

6.1 Antenna requirement

Standard requirement:	FCC Part 15 C Section 15.203 /247(c)
15.203 requirement: 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, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. 15.247(c) (1)(i) requirement: (i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.	
E.U.T Antenna:	
The WiFi antenna is an internal antenna which cannot replace by end-user, the best case gain of the antenna is 2 dBi.	



6.2 Conducted Emission

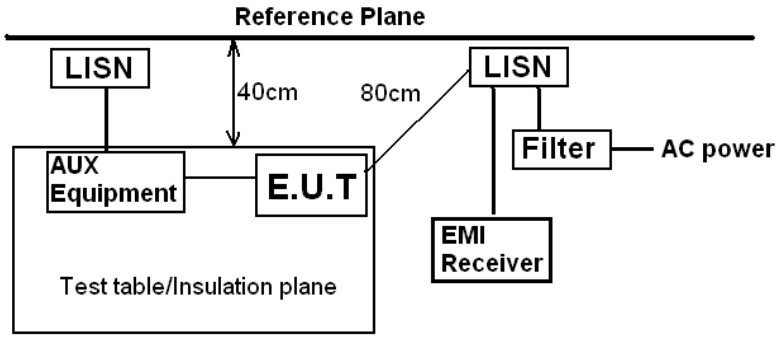
Test Requirement:	FCC Part 15 C Section 15.207
Test Method:	ANSI C63.10: 2013
Test Frequency Range:	150 kHz to 30 MHz
Class / Severity:	Class B
Receiver setup:	RBW=9 kHz, VBW=30 kHz
Limit:	

Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50
* Decreases with the logarithm of the frequency.		

Test procedure

1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.), which provides a 50ohm/50uH coupling impedance for the measuring equipment.
2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).
3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement.

Test setup:

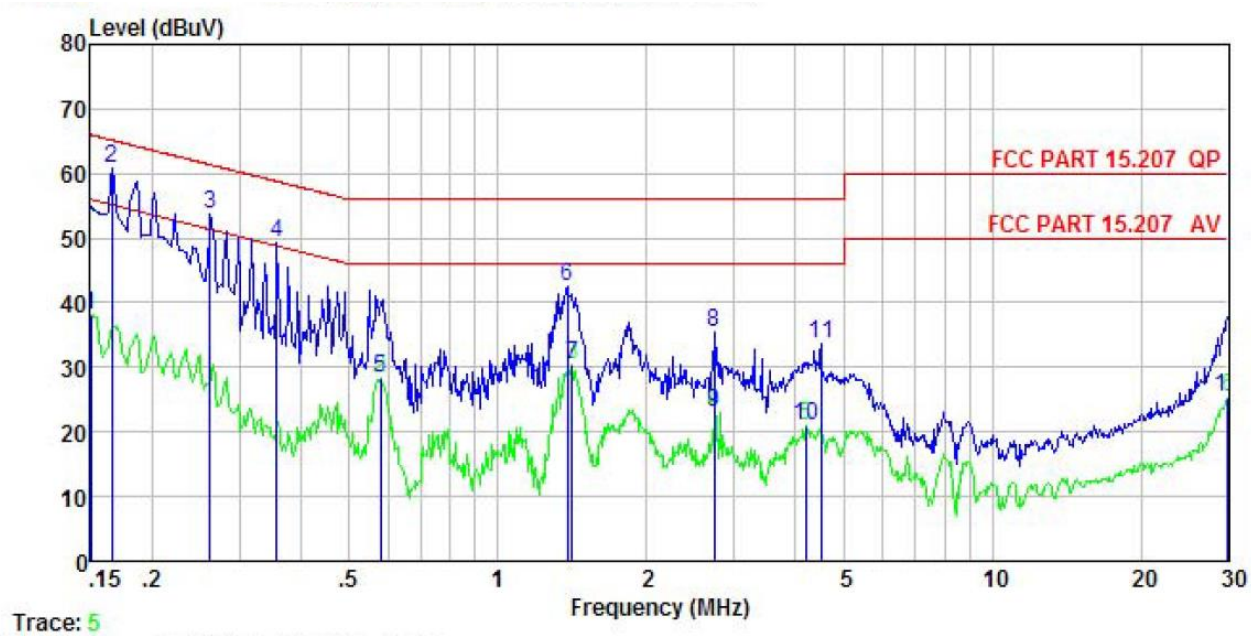


Remark:
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m

Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data:

Test Phase: Neutral



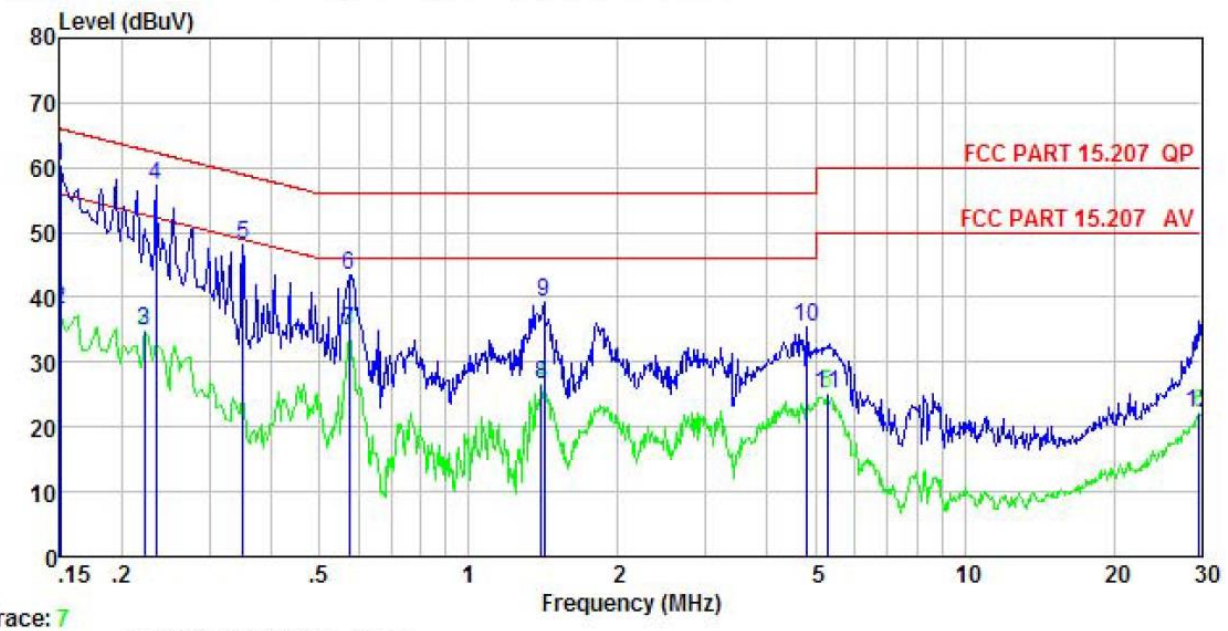
Site : CCIS Shielding Room
Condition : FCC PART 15.207 QP LISN(RS) NEUTRAL
EUT : alleswolke LTE Dashcam
Model : UCM3310
Test Mode : Wifi Mode
Power Rating : AC 120/60Hz
Environment : Temp: 23 ℃ Huni:56% Atmos:101KPa
Test Engineer: MT
Remark :

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.150	26.75	0.70	10.78	38.23	56.00	-17.77	Average
2	0.166	49.22	0.70	10.77	60.69	65.16	-4.47	QP
3	0.262	42.33	0.65	10.75	53.73	61.38	-7.65	QP
4	0.358	37.95	0.63	10.73	49.31	58.78	-9.47	QP
5	0.579	16.87	0.62	10.76	28.25	46.00	-17.75	Average
6	1.381	30.95	0.67	10.91	42.53	56.00	-13.47	QP
7	1.411	18.77	0.67	10.91	30.35	46.00	-15.65	Average
8	2.736	23.88	0.68	10.93	35.49	56.00	-20.51	QP
9	2.736	11.44	0.68	10.93	23.05	46.00	-22.95	Average
10	4.202	9.33	0.69	10.88	20.90	46.00	-25.10	Average
11	4.501	22.00	0.70	10.87	33.57	56.00	-22.43	QP
12	30.000	13.95	0.69	10.87	25.51	50.00	-24.49	Average

Notes:

1. *An initial pre-scan was performed on the live and neutral lines with peak detector.*
2. *Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.*
3. *Final Level =Receiver Read level + LISN Factor + Cable Loss.*

Test Phase: **Line**



Trace: 7

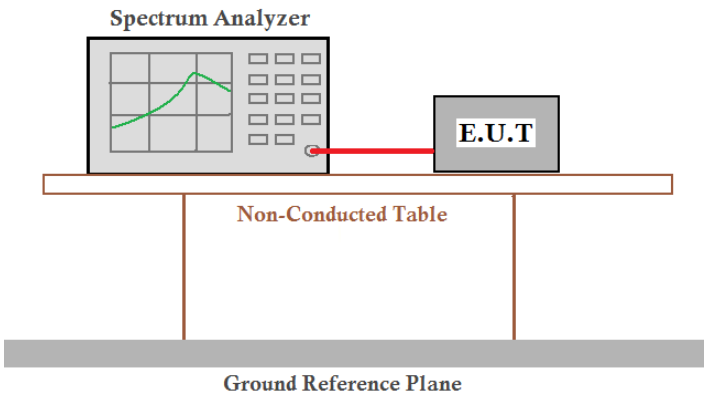
Site : CCIS Shielding Room
Condition : FCC PART 15.207 QP LISN(RS) LINE
EUT : alleswolke LTE Dashcam
Model : UCM3310
Test Mode : Wifi Mode
Power Rating : AC 120/60Hz
Environment : Temp: 23 ℃ Huni:56% Atmos:101KPa
Test Engineer: MT
Remark :

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.150	48.78	0.71	10.78	60.27	66.00	-5.73	QP
2	0.150	26.46	0.71	10.78	37.95	56.00	-18.05	Average
3	0.222	23.35	0.73	10.76	34.84	52.74	-17.90	Average
4	0.234	45.71	0.74	10.75	57.20	62.30	-5.10	QP
5	0.350	36.68	0.75	10.73	48.16	58.96	-10.80	QP
6	0.573	32.00	0.76	10.76	43.52	56.00	-12.48	QP
7	0.573	23.19	0.76	10.76	34.71	46.00	-11.29	Average
8	1.403	14.73	0.78	10.91	26.42	46.00	-19.58	Average
9	1.418	27.59	0.78	10.92	39.29	56.00	-16.71	QP
10	4.797	23.76	0.76	10.86	35.38	56.00	-20.62	QP
11	5.277	13.55	0.76	10.84	25.15	50.00	-24.85	Average
12	29.684	10.68	0.70	10.87	22.25	50.00	-27.75	Average

Notes:

1. *An initial pre-scan was performed on the live and neutral lines with peak detector.*
2. *Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.*
3. *Final Level =Receiver Read level + LISN Factor + Cable Loss.*

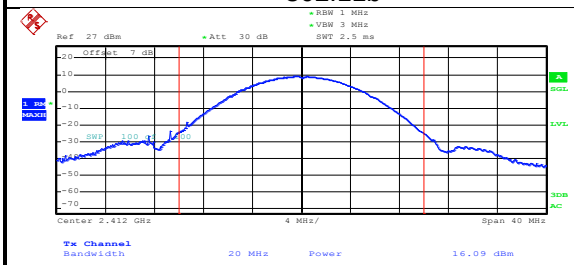
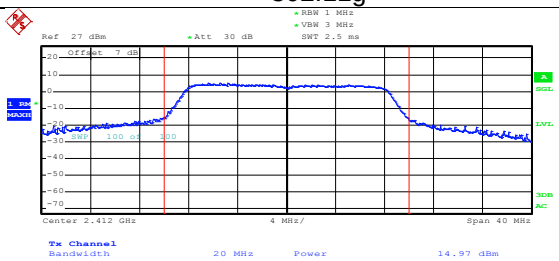
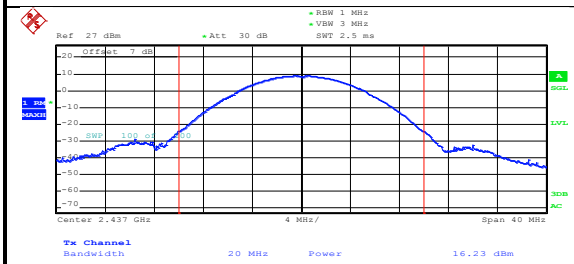
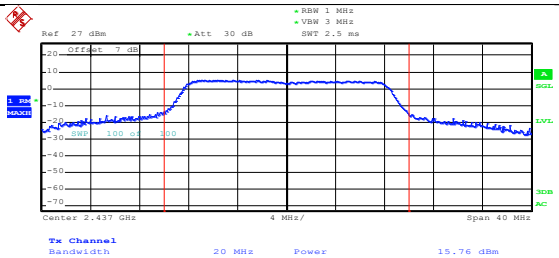
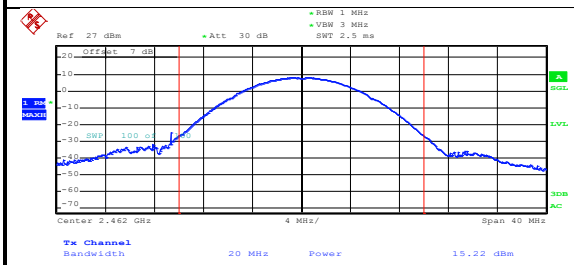
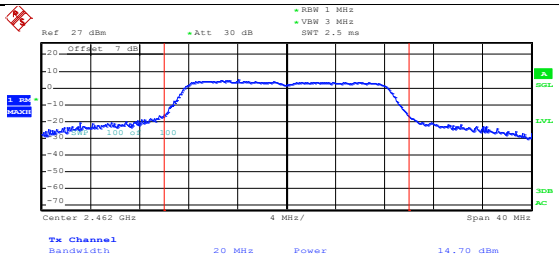
6.3 Conducted Output Power

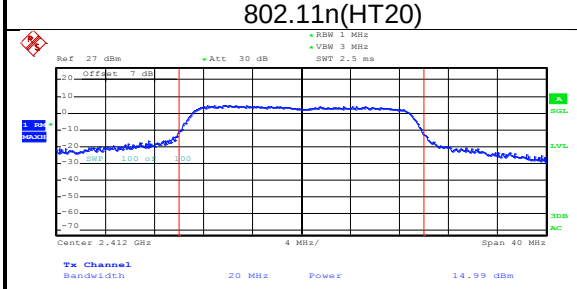
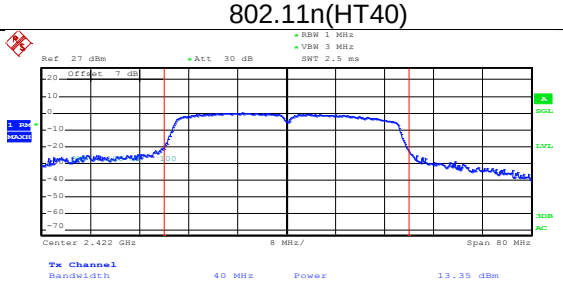
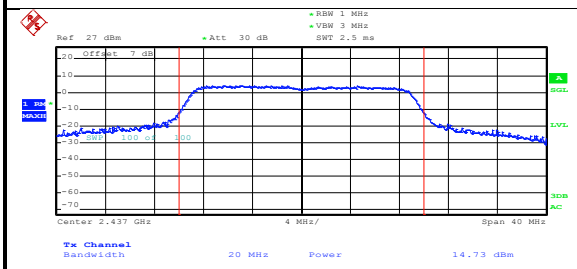
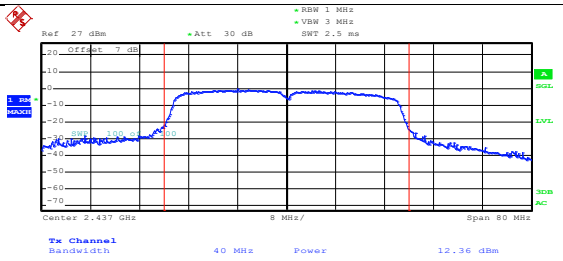
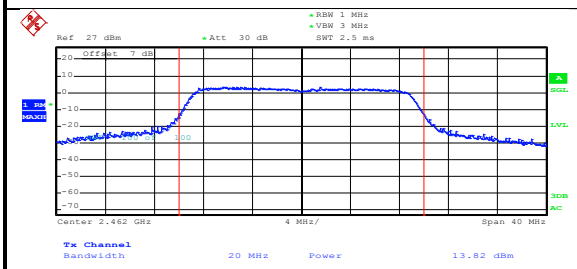
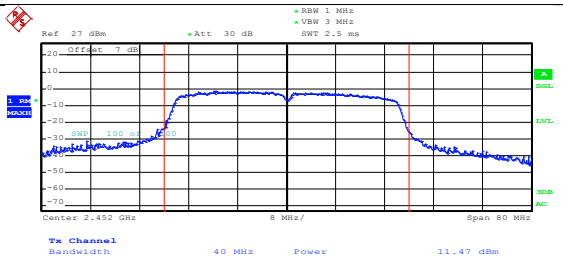
Test Requirement:	FCC Part 15 C Section 15.247 (b)(3)
Test Method:	ANSI C63.10:2013 and KDB 558074
Limit:	30dBm
Test setup:	
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data:

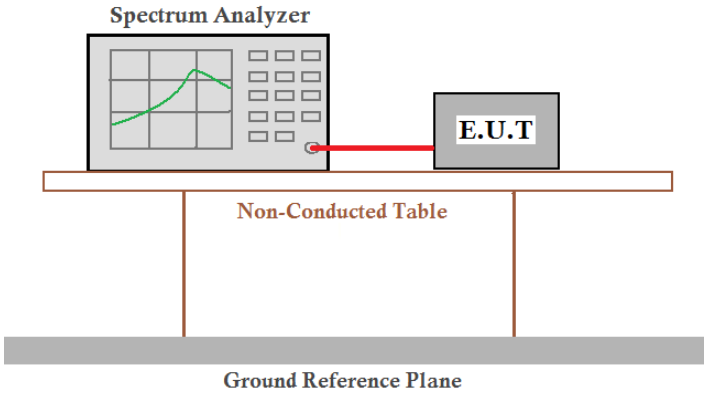
Test CH	Maximum Conducted Output Power (dBm)				Limit(dBm)	Result
	802.11b	802.11g	802.11n(H20)	802.11n(H40)		
Lowest	16.09	14.97	14.99	13.35	30.00	Pass
Middle	16.23	15.76	14.73	12.36		
Highest	15.22	14.70	13.82	11.47		

Test plot as follows:

802.11b	802.11g
	
Lowest channel	Lowest channel
	
Middle channel	Middle channel
	
Highest channel	

802.11n(HT20)	802.11n(HT40)
	
Lowest channel	Lowest channel
	
Middle channel	Middle channel
	
Highest channel	

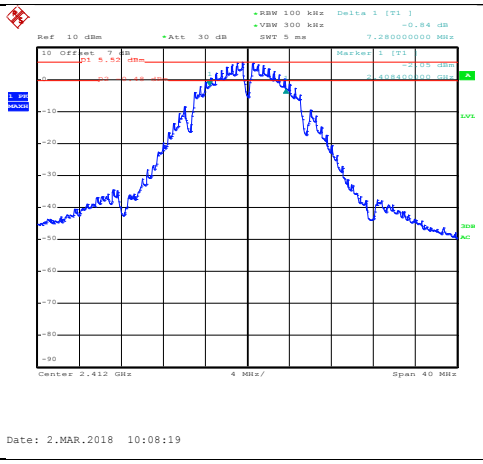
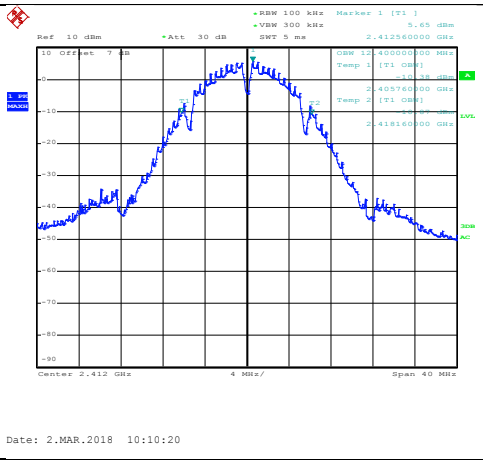
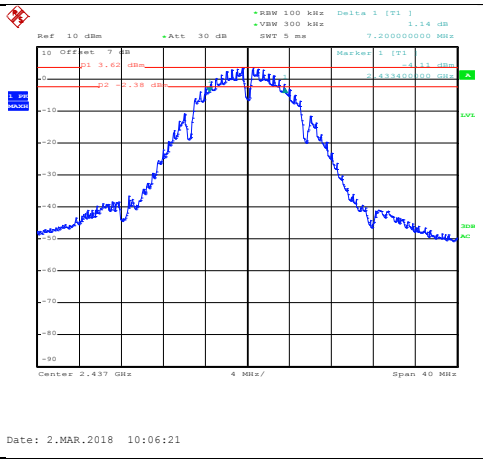
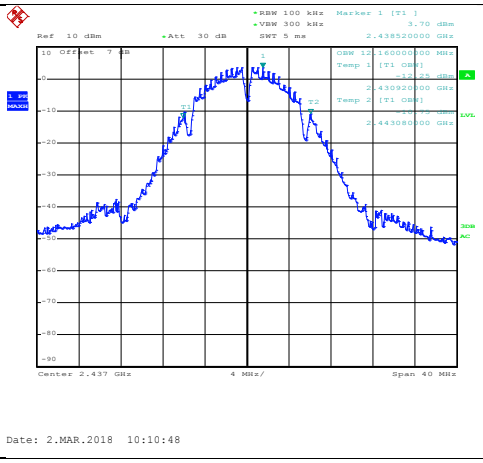
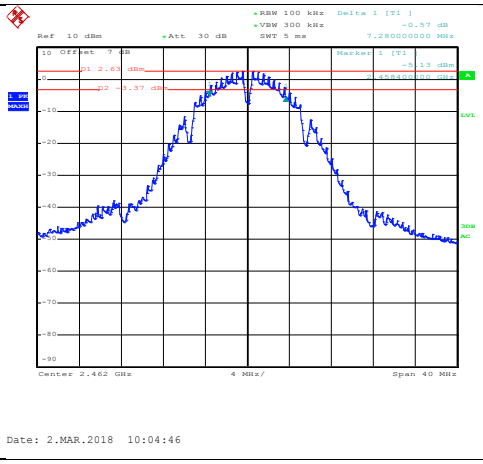
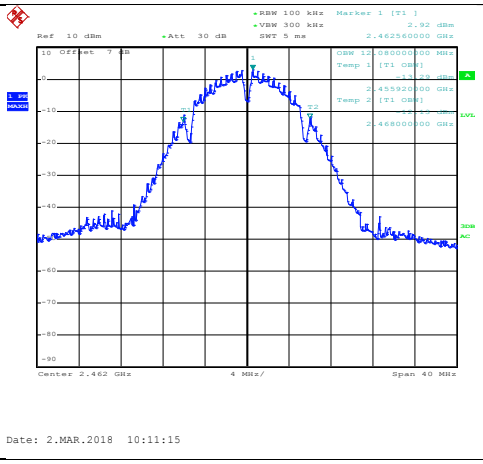
6.4 Occupy Bandwidth

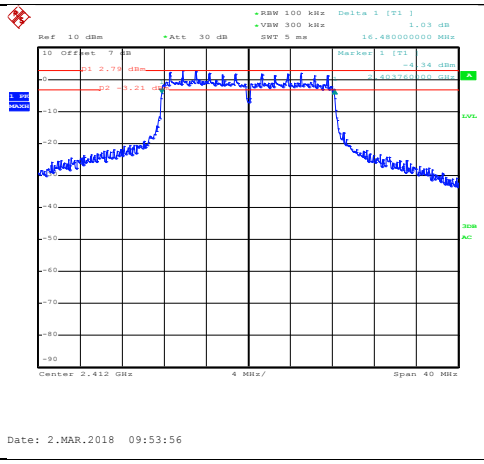
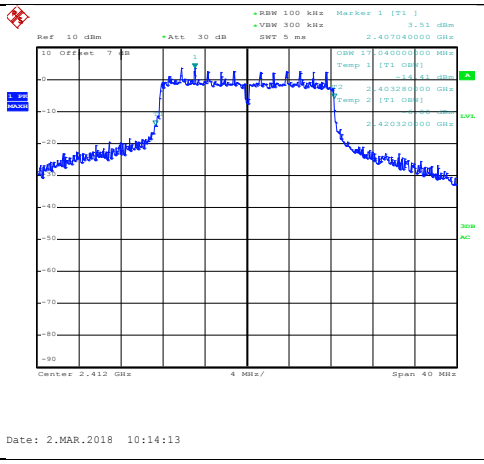
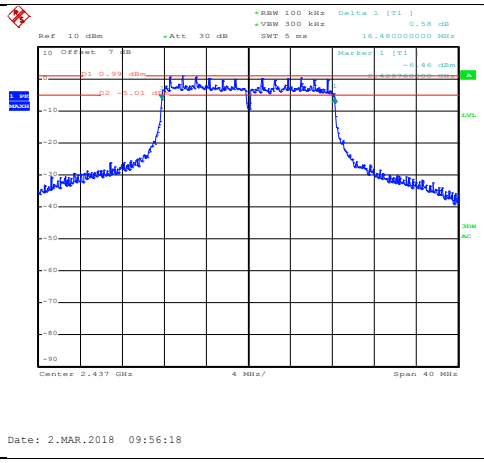
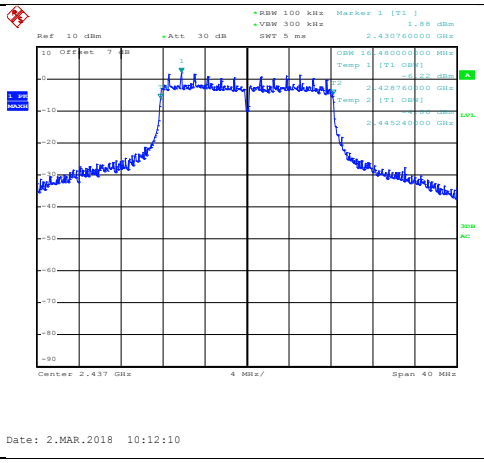
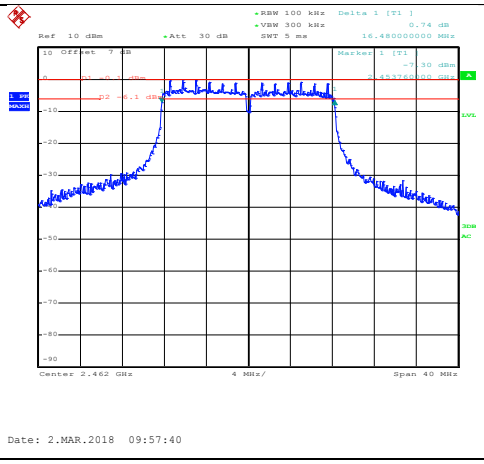
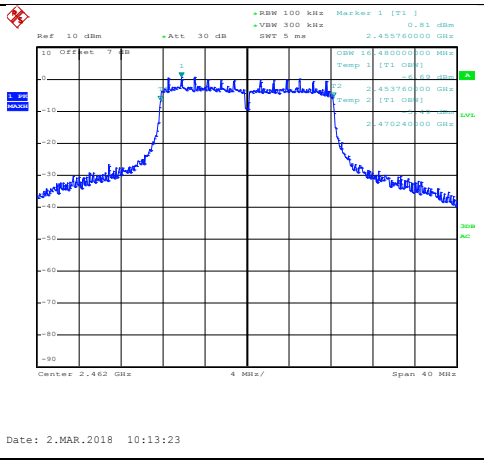
Test Requirement:	FCC Part 15 C Section 15.247 (a)(2)
Test Method:	ANSI C63.10:2013 and KDB 558074
Limit:	>500kHz
Test setup:	
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

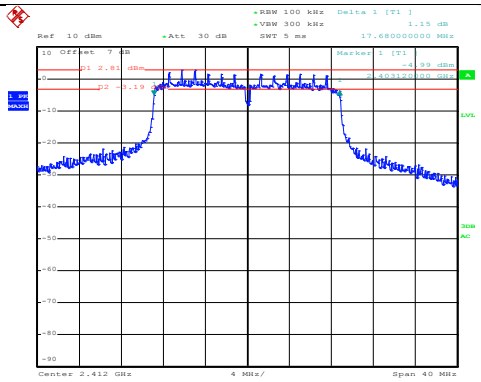
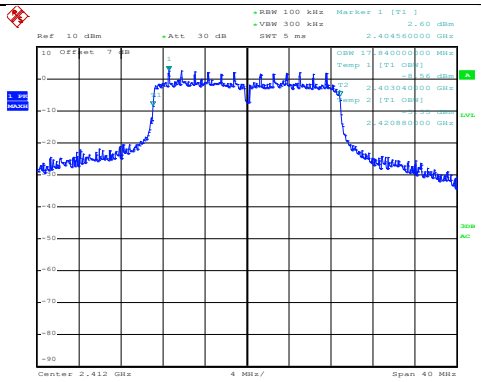
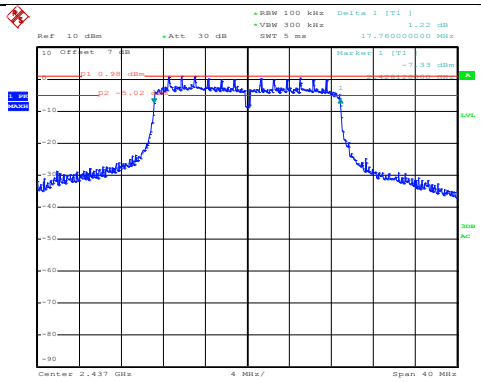
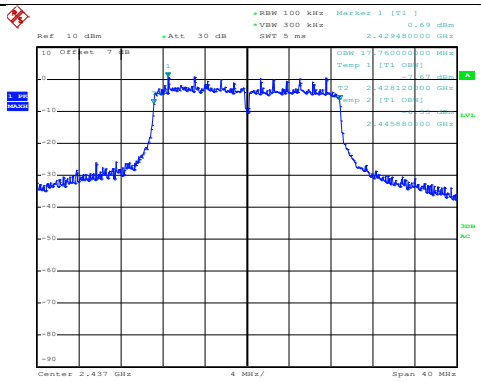
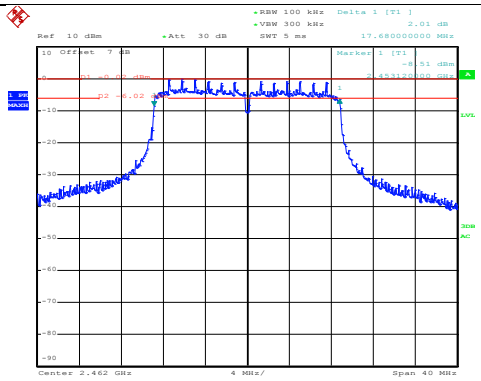
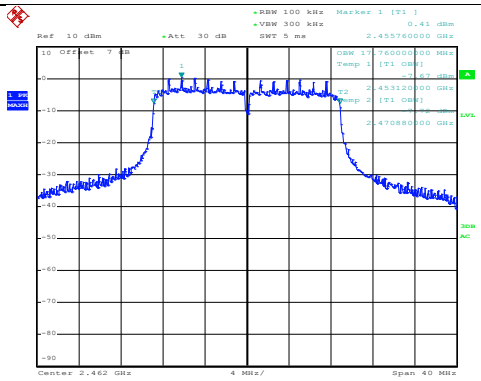
Measurement Data:

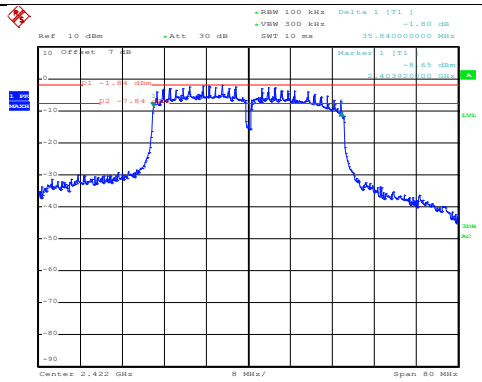
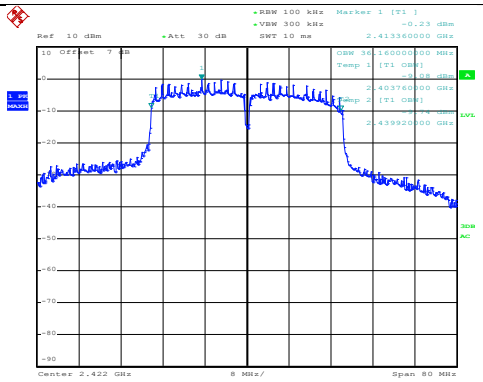
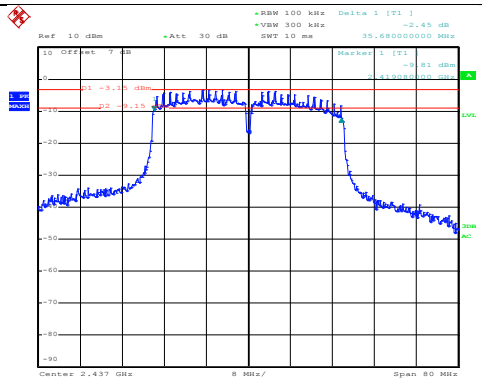
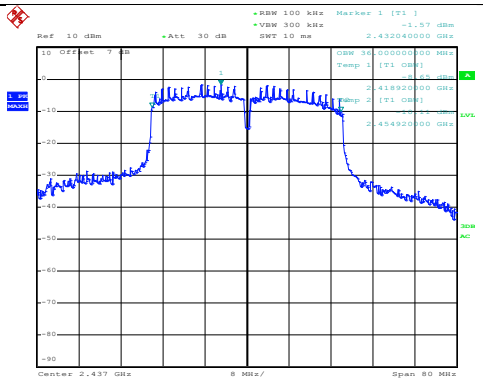
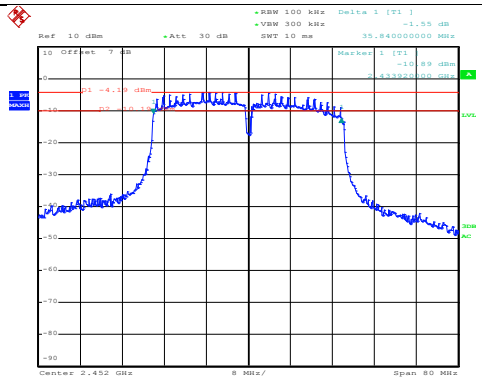
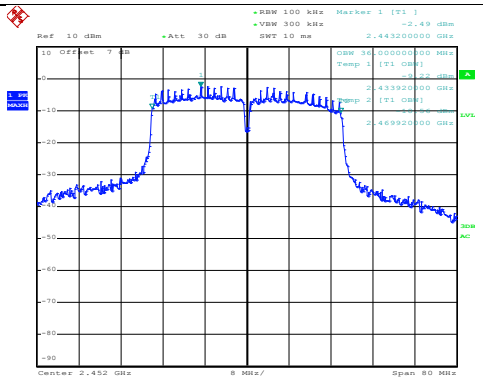
Test CH	6dB Emission Bandwidth (MHz)				Limit(kHz)	Result
	802.11b	802.11g	802.11n(H20)	802.11n(H40)		
Lowest	7.28	16.48	17.68	35.84	>500	Pass
Middle	7.20	16.48	17.76	35.68		
Highest	7.28	16.48	17.68	35.84		
Test CH	99% Occupy Bandwidth (MHz)				Limit(kHz)	Result
	802.11b	802.11g	802.11n(H20)	802.11n(H40)		
Lowest	12.40	17.04	17.84	36.16	N/A	N/A
Middle	12.16	16.48	17.76	36.00		
Highest	12.08	16.48	17.76	36.00		

Test plot as follows:

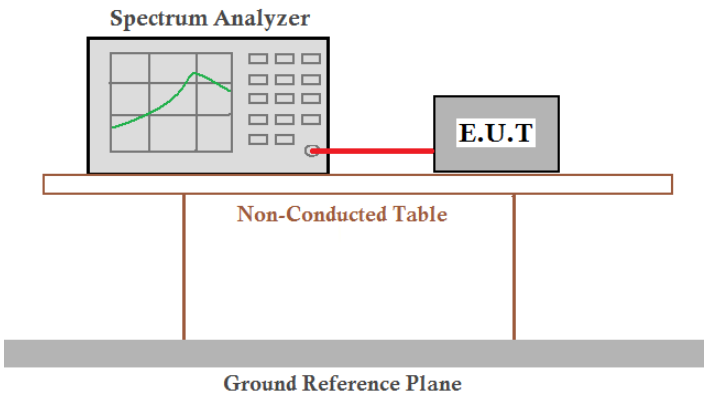
802.11b	
6dB EBW	**99% OBW**
	
Lowest channel	Lowest channel
	
Middle channel	Middle channel
	
Highest channel	Highest channel

802.11g	
6dB EBW	**99% OBW**
	
Lowest channel	Lowest channel
	
Middle channel	Middle channel
	
Highest channel	Highest channel

802.11n(H20)	
6dB EBW	**99% OBW**
	
Lowest channel	Lowest channel
	
Middle channel	Middle channel
	
Highest channel	Highest channel

802.11n(H40)	
6dB EBW	**99% OBW**
 Date: 2.MAR.2018 09:40:53	 Date: 2.MAR.2018 10:22:30
Lowest channel	Lowest channel
 Date: 2.MAR.2018 09:39:24	 Date: 2.MAR.2018 10:21:56
Middle channel	Middle channel
 Date: 2.MAR.2018 09:38:28	 Date: 2.MAR.2018 10:21:25
Highest channel	Highest channel

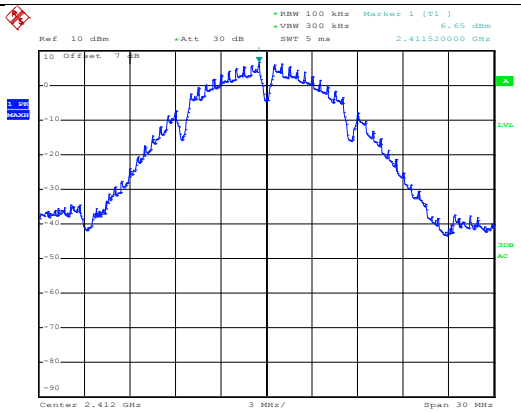
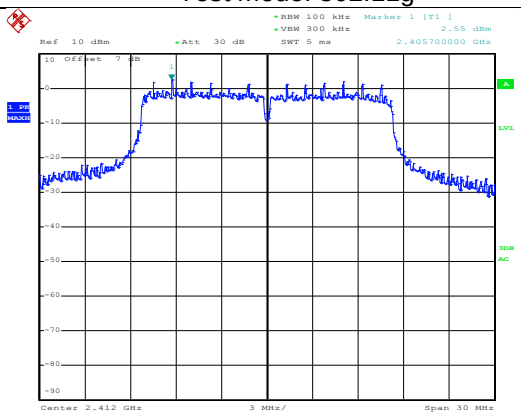
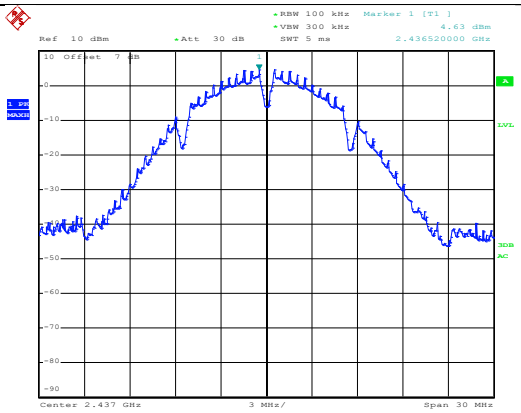
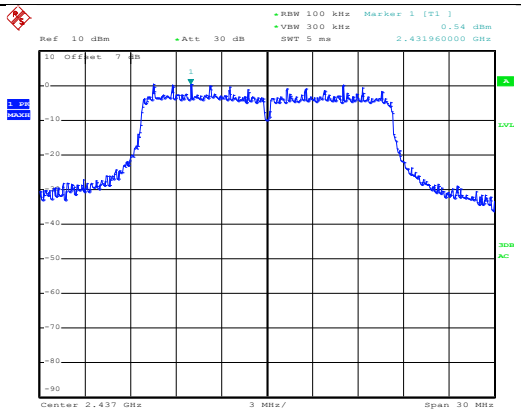
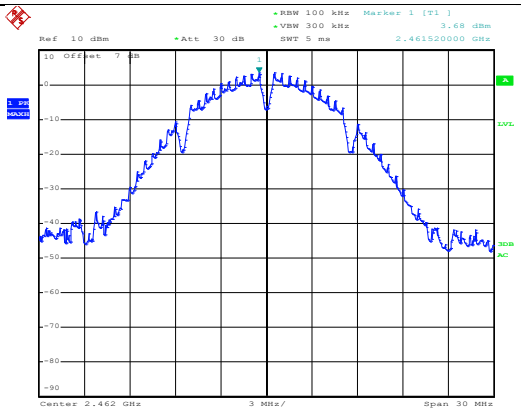
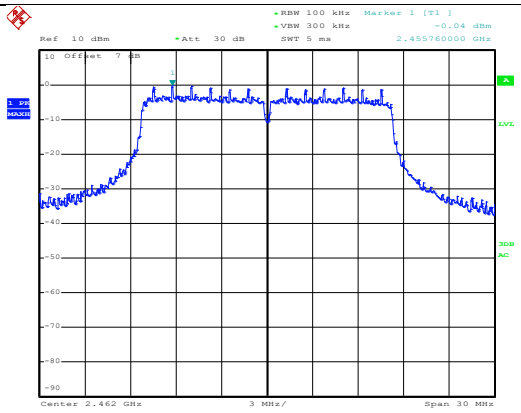
6.5 Power Spectral Density

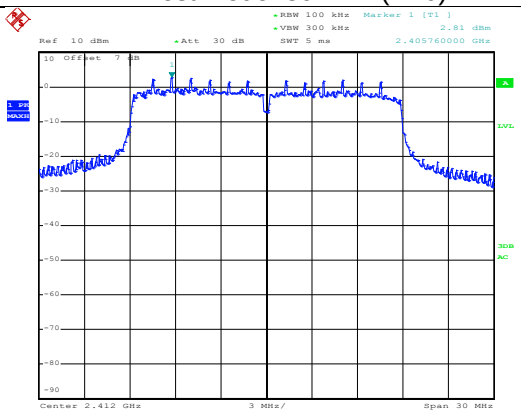
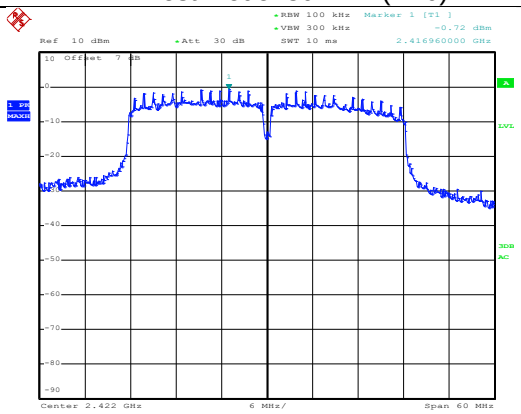
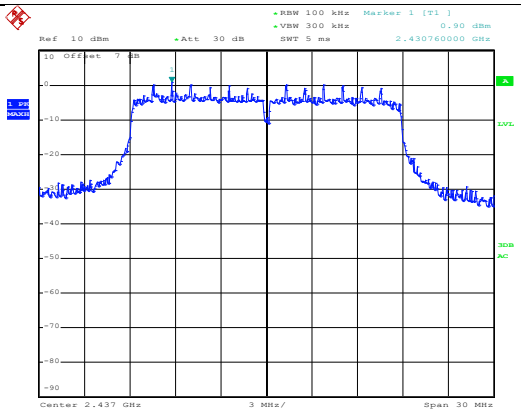
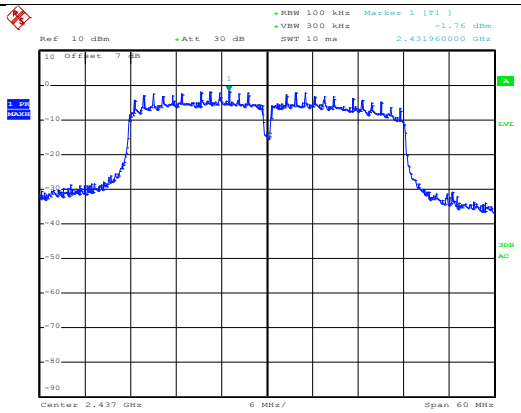
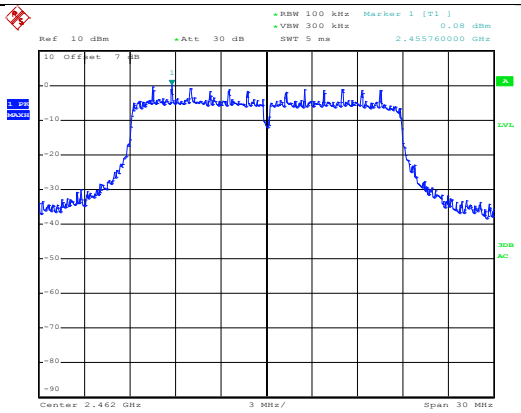
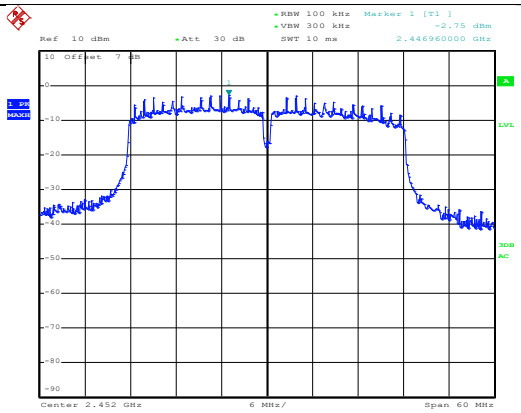
Test Requirement:	FCC Part 15 C Section 15.247 (e)
Test Method:	ANSI C63.10:2013 and KDB 558074
Limit:	8dBm
Test setup:	
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data:

Test CH	Power Spectral Density (dBm)				Limit(dBm)	Result
	802.11b	802.11g	802.11n(H20)	802.11n(H40)		
Lowest	6.65	2.55	2.81	-0.72	8.00	Pass
Middle	4.63	0.54	0.90	-1.76		
Highest	3.68	-0.04	0.08	-2.75		

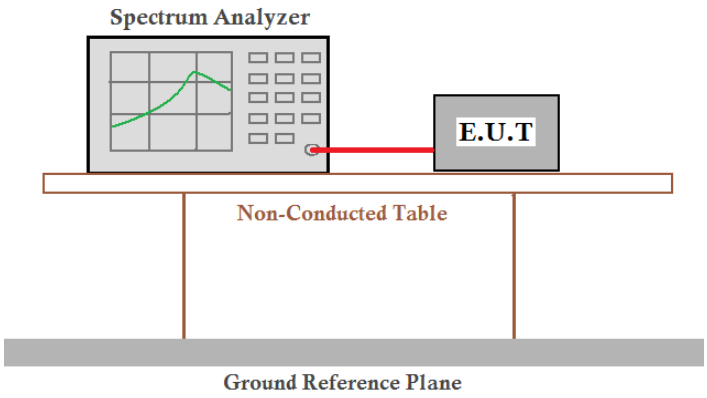
Test plot as follows:

Test mode: 802.11b	Test mode: 802.11g
	
Lowest channel	Lowest channel
	
Middle channel	Middle channel
	
Highest channel	Highest channel

Test mode: 802.11n(H20)	Test mode: 802.11n(H40)
 Date: 2.MAR.2018 10:31:18	 Date: 2.MAR.2018 10:24:33
Lowest channel	Lowest channel
 Date: 2.MAR.2018 10:31:44	 Date: 2.MAR.2018 10:26:44
Middle channel	Middle channel
 Date: 2.MAR.2018 10:32:06	 Date: 2.MAR.2018 10:27:19
Highest channel	Highest channel

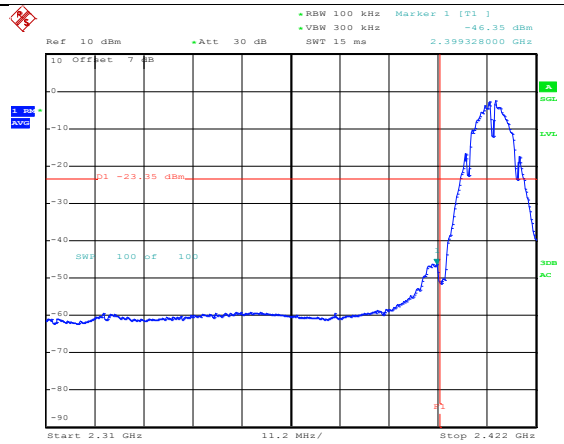
6.6 Band Edge

6.6.1 Conducted Emission Method

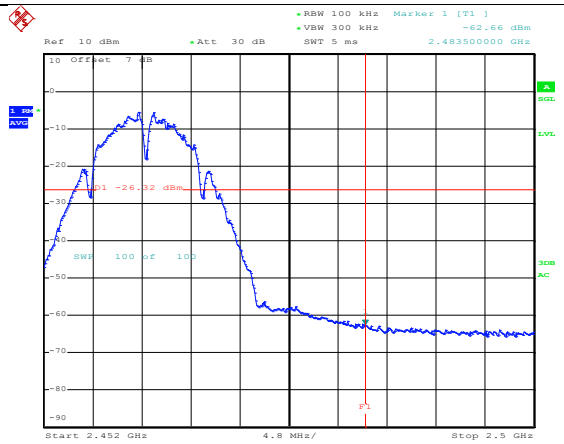
Test Requirement:	FCC Part 15 C Section 15.247 (d)
Test Method:	ANSI C63.10:2013 and KDB 558074
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 30 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test setup:	
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Test plot as follows:

802.11b

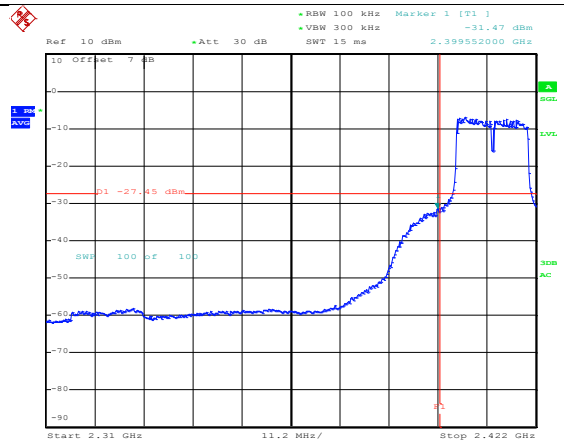


Lowest channel

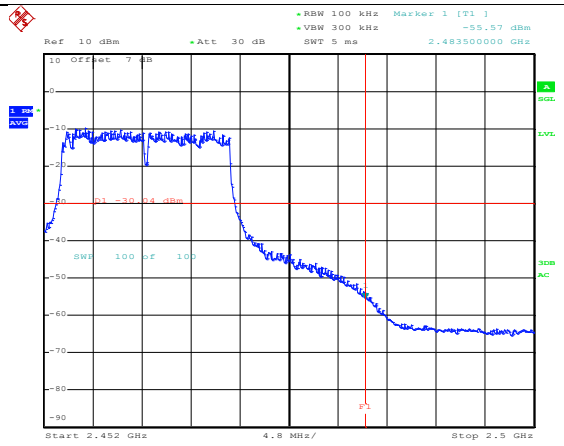


Highest channel

802.11g

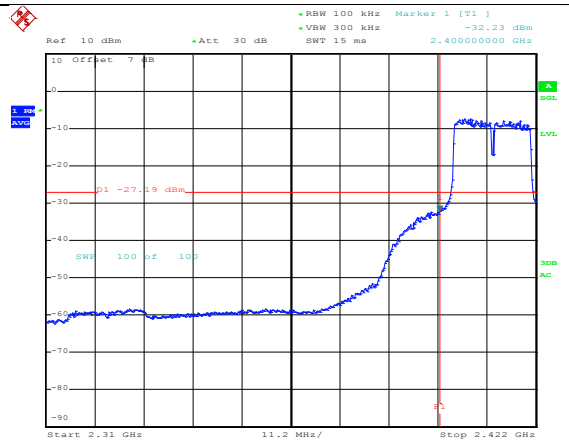


Lowest channel

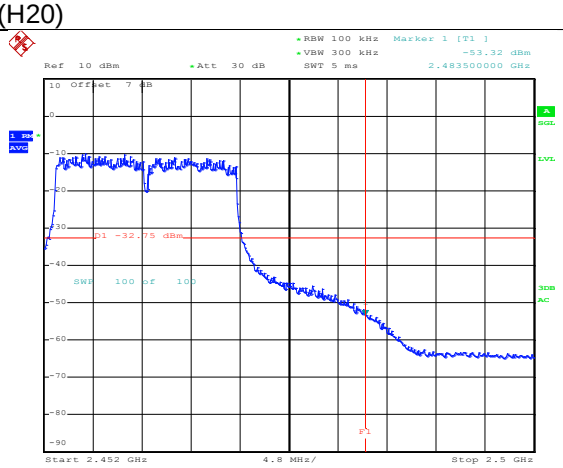


Highest channel

802.11n(H20)

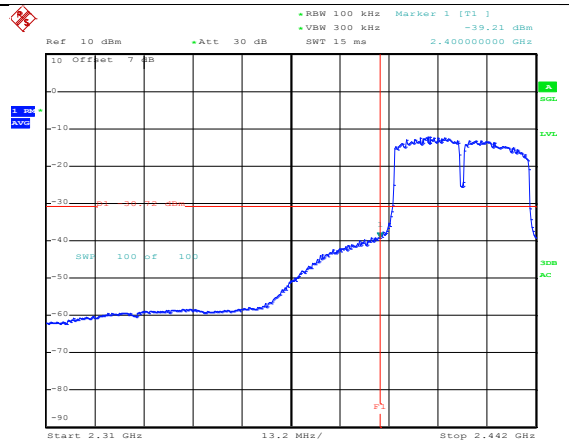


Lowest channel

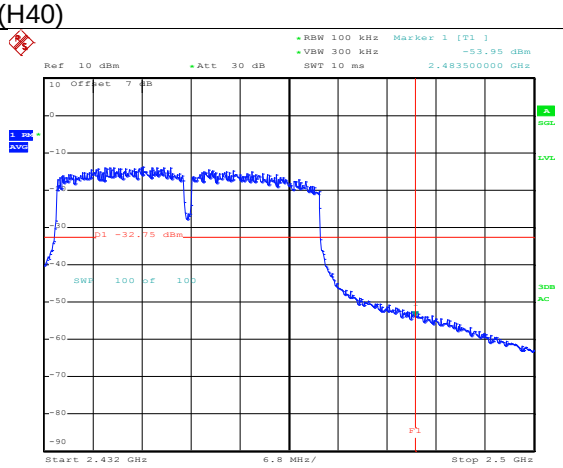


Highest channel

802.11n(H40)



Lowest channel



Highest channel

6.6.2 Radiated Emission Method

Test Requirement:	FCC Part 15 C Section 15.209 and 15.205
Test Method:	ANSI C63.10: 2013 and KDB 558074
Test Frequency Range:	2.3GHz to 2.5GHz
Test Distance:	3m

Receiver setup:

Frequency	Detector	RBW	VBW	Remark
Above 1GHz	Peak	1MHz	3MHz	Peak Value
	RMS	1MHz	3MHz	Average Value

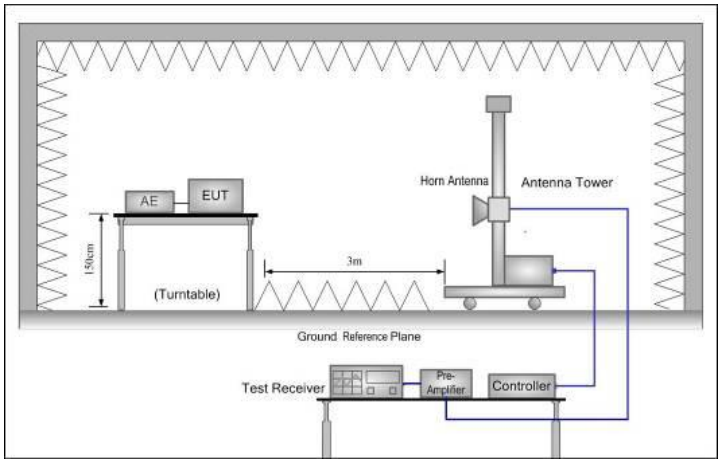
Limit:

Frequency	Limit (dBuV/m @3m)	Remark
Above 1GHz	54.00	Average Value
	74.00	Peak Value

Test Procedure:

1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
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 antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Test setup:

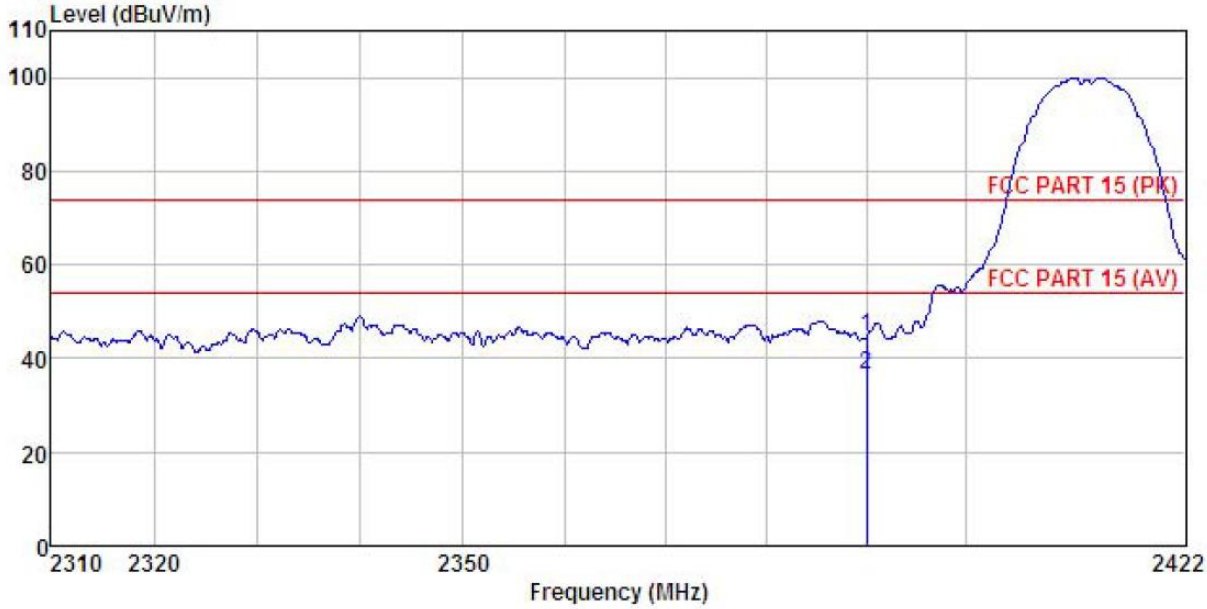


Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

802.11b

Test channel: Lowest channel

Test Polarization: Horizontal



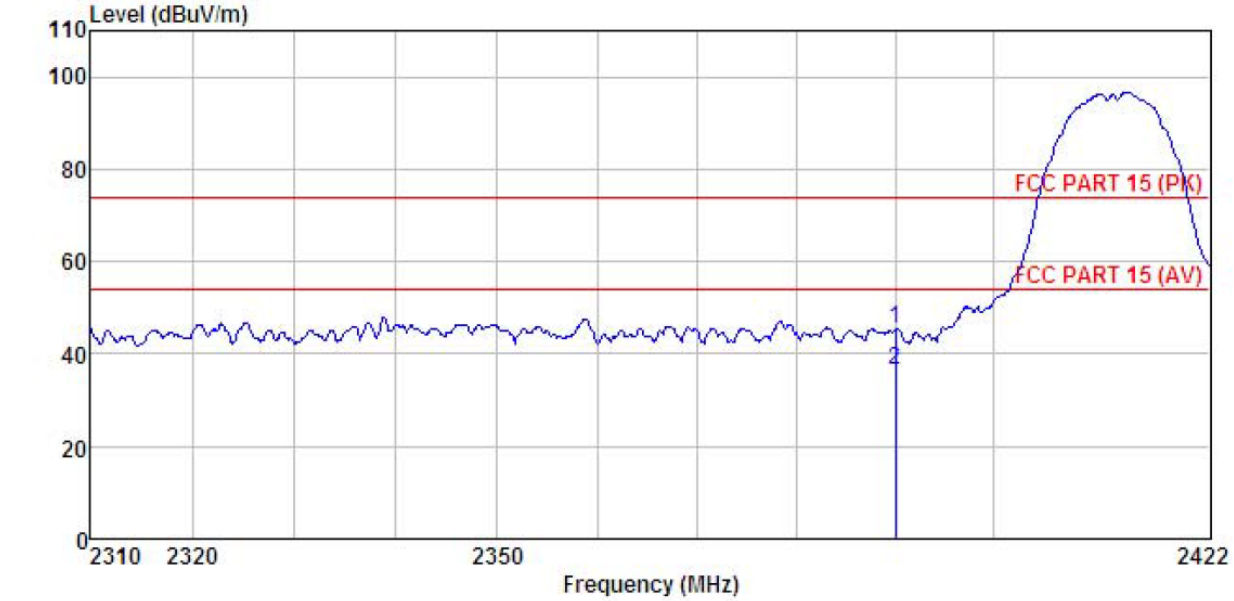

```
Site          : 3m chamber
Condition     : FCC PART 15 (PK) 3m BBHA9120(1G18G) HORIZONTAL
EUT           : alleswolke LTE Dashcam
Model         : UCM 3310
Test mode     : 802.11b-L mode
Power Rating  : AC120V/60Hz
Environment   : Temp:25.5℃  Huni:55%  101KPa
Test Engineer: MT
REMARK        :
                 ReadAntenna  Cable Preamp         Limit   Over
           Freq  Level Factor   Loss Factor  Level   Line  Limit Remark
        --------- ------ ------ ------ ------ ------ ------ ------ ----------
               MHz   dBuV   dB/m     dB     dB dBuV/m dBuV/m     dB

   1    2390.000  14.55  25.45   4.69   0.00  44.69  74.00 -29.31 Peak
   2    2390.000   6.30  25.45   4.69   0.00  36.44  54.00 -17.56 Average
```

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Test Polarization: Vertical



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(1G18G) VERTICAL
EUT : alleswolke LTE Dashcam
Model : UCM 3310
Test mode : 802.11b-L mode
Power Rating : AC120V/60Hz
Environment : Temp:25.5℃ Huni:55% 101KPa
Test Engineer: MT
REMARK :

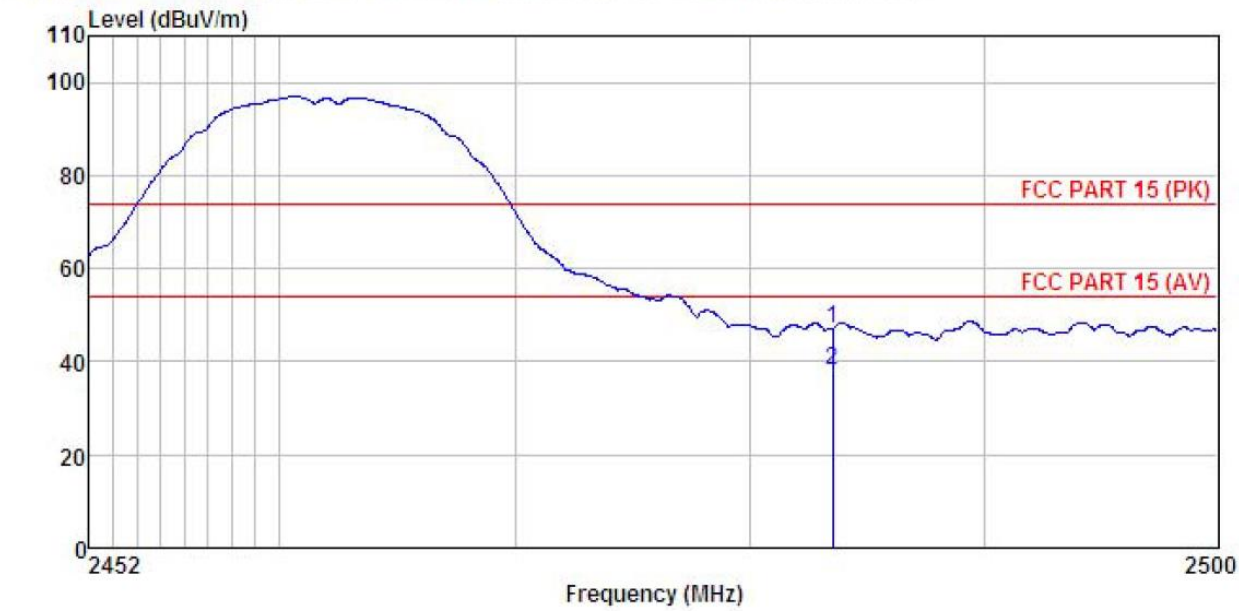
	Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.000	15.23	25.45	4.69	0.00	45.37	74.00	-28.63	Peak
2	2390.000	6.37	25.45	4.69	0.00	36.51	54.00	-17.49	Average

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Test channel: Highest channel

Test Polarization: Horizontal



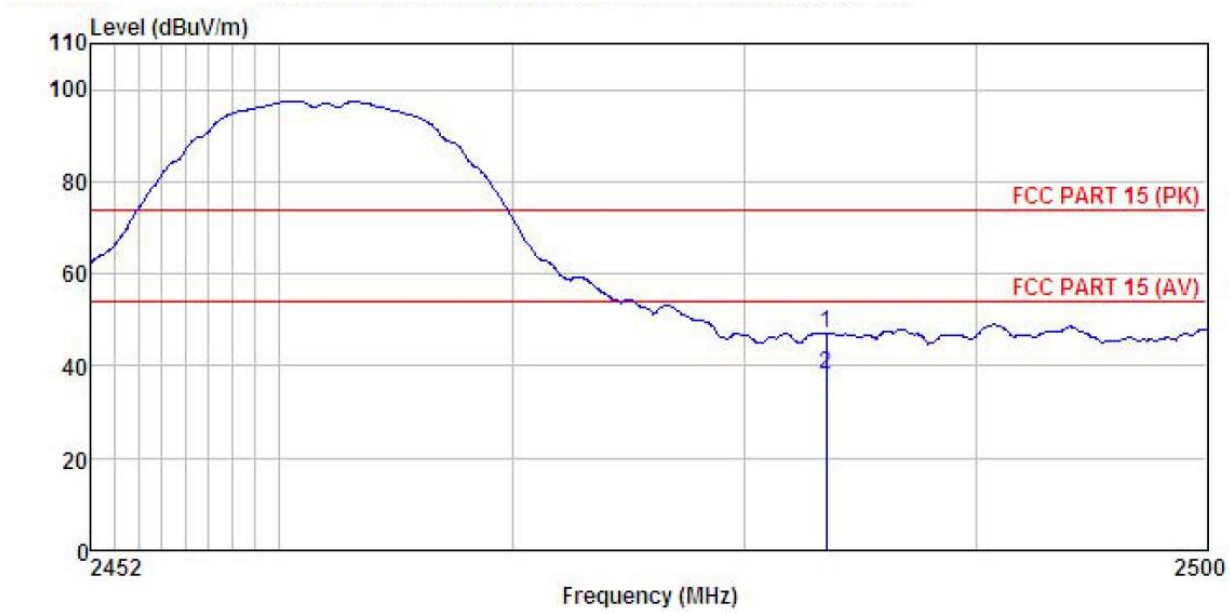

```
Site          : 3m chamber
Condition     : FCC PART 15 (PK) 3m BBHA9120(1G18G) HORIZONTAL
EUT           : alleswolke LTE Dashcam
Model         : UCM 3310
Test mode     : 802.11b-H mode
Power Rating  : AC120V/60Hz
Environment   : Temp:25.5'C  Huni:55%  101KPa
Test Engineer: MT
REMARK        :
                 ReadAntenna  Cable Preamp         Limit   Over
          Freq  Level Factor   Loss Factor  Level   Line  Limit Remark
       --------- ------ ------ ------ ------ ------ ------ ------ ----------
             MHz   dBuV   dB/m     dB     dB dBuV/m dBuV/m     dB

  1   2483.500  16.52  25.66   4.81   0.00  46.99  74.00 -27.01 Peak
  2   2483.500   7.84  25.66   4.81   0.00  38.31  54.00 -15.69 Average
```

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Test Polarization: Vertical



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(1G18G) VERTICAL
EUT : alleswolke LTE Dashcam
Model : UCM 3310
Test mode : 802.11b-H mode
Power Rating : AC120V/60Hz
Environment : Temp:25.5℃ Huni:55% 101KPa
Test Engineer: MT
REMARK :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2483.500	16.76	25.66	4.81	0.00	47.23	74.00	-26.77	Peak
2	2483.500	7.87	25.66	4.81	0.00	38.34	54.00	-15.66	Average

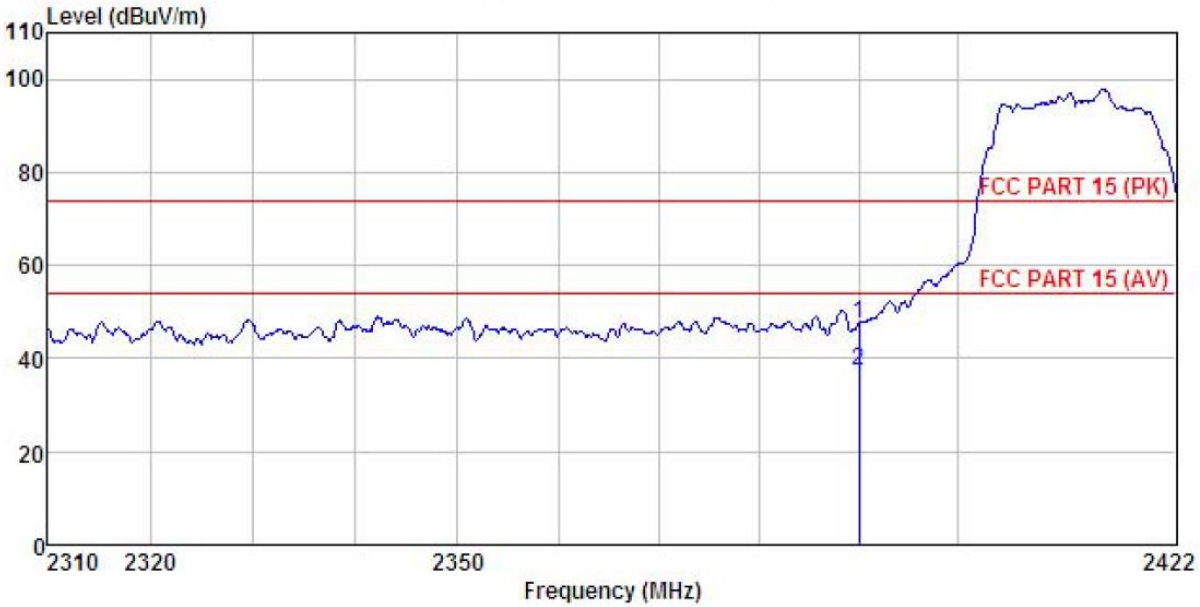
Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

802.11g

Test channel: Lowest channel

Test Polarization: Horizontal



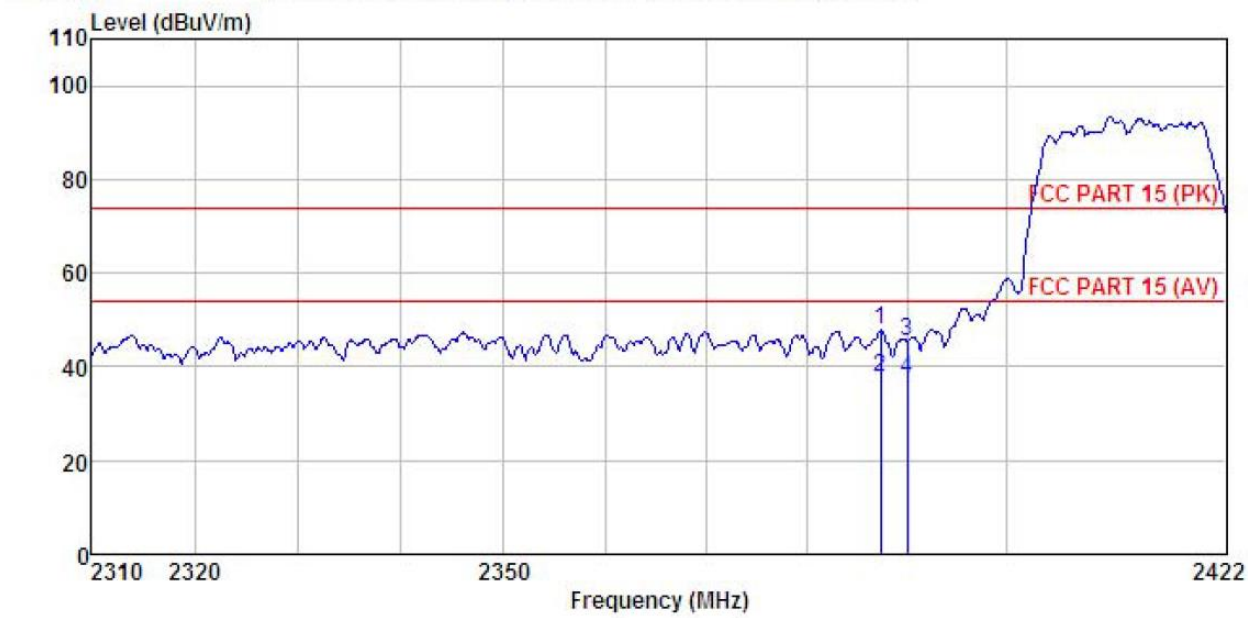

```
Site          : 3m chamber
Condition     : FCC PART 15 (PK) 3m BBHA9120(1G18G) HORIZONTAL
EUT           : alleswolke LTE Dashcam
Model         : UCM 3310
Test mode     : 802.11g-L mode
Power Rating  : AC120V/60Hz
Environment   : Temp:25.5℃  Huni:55%  101KPa
Test Engineer: MT
REMARK        :
                  ReadAntenna  Cable Preamp         Limit   Over
            Freq  Level Factor   Loss Factor  Level   Line  Limit Remark
         --------- ------ ------ ------ ------ ------ ------ ------ ----------
                MHz   dBuV   dB/m     dB     dB dBuV/m dBuV/m     dB

   1    2390.000  17.47  25.45   4.69   0.00  47.61  74.00 -26.39 Peak
   2    2390.000   7.17  25.45   4.69   0.00  37.31  54.00 -16.69 Average
```

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Test Polarization: Vertical



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(1G18G) VERTICAL
EUT : alleswolke LTE Dashcam
Model : UCM 3310
Test mode : 802.11g-L mode
Power Rating : AC120V/60Hz
Environment : Temp:25.5℃ Huni:55% 101KPa
Test Engineer: MT
REMARK :

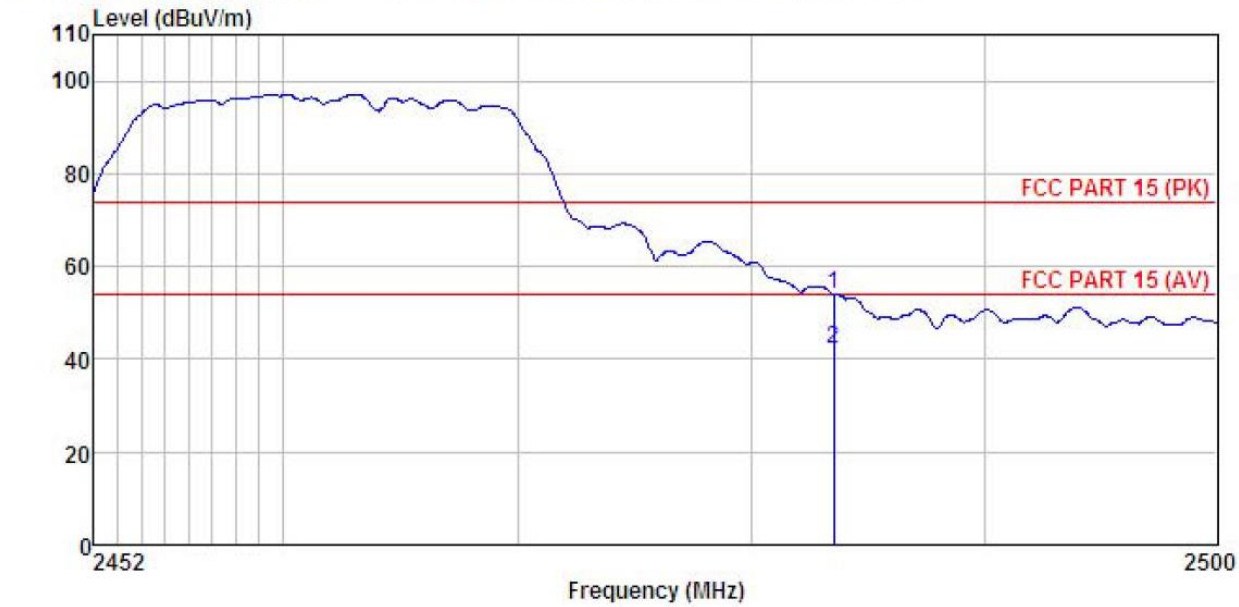
	Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2387.389	17.58	25.45	4.69	0.00	47.72	74.00	-26.28	Peak
2	2387.389	7.78	25.45	4.69	0.00	37.92	54.00	-16.08	Average
3	2390.000	15.32	25.45	4.69	0.00	45.46	74.00	-28.54	Peak
4	2390.000	7.16	25.45	4.69	0.00	37.30	54.00	-16.70	Average

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Test channel: Highest channel

Test Polarization: Horizontal



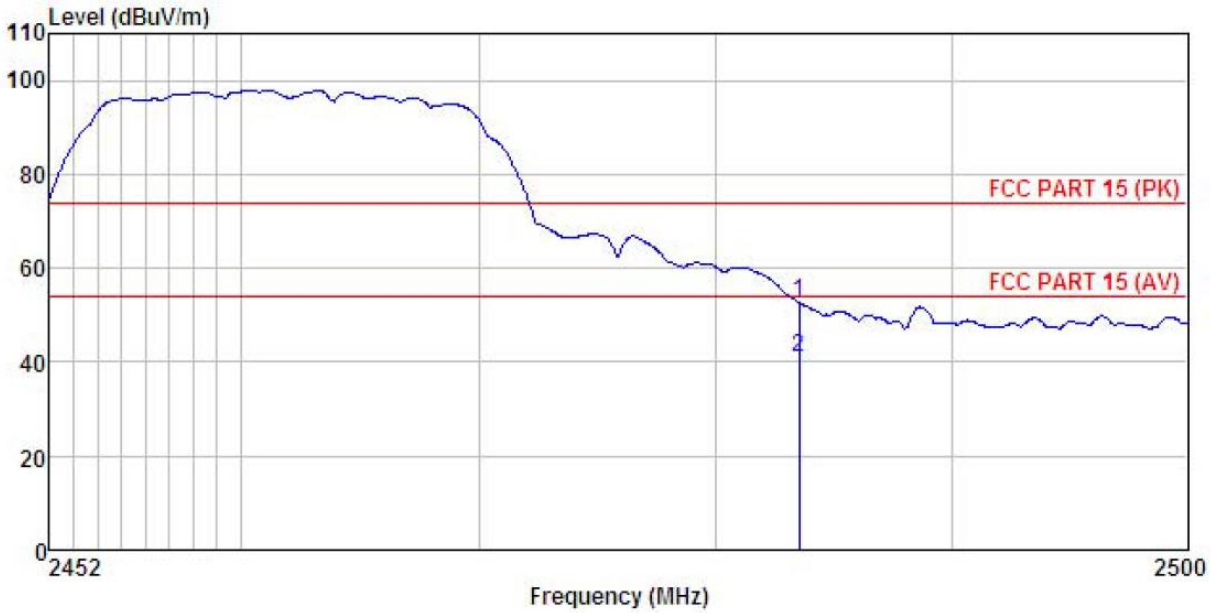

```
Site          : 3m chamber
Condition     : FCC PART 15 (PK) 3m BBHA9120(1G18G) HORIZONTAL
EUT           : alleswolke LTE Dashcam
Model         : UCM 3310
Test mode     : 802.11g-H mode
Power Rating  : AC120V/60Hz
Environment   : Temp:25.5℃  Huni:55%  101KPa
Test Engineer: MT
REMARK        :
                 ReadAntenna  Cable Preamp         Limit   Over
           Freq  Level Factor   Loss Factor  Level   Line  Limit Remark
        --------- ------ ------ ------ ------ ------ ------ ------ ----------
              MHz   dBuV   dB/m     dB     dB dBuV/m dBuV/m     dB

  1    2483.500  23.34  25.66   4.81   0.00  53.81  74.00 -20.19 Peak
  2    2483.500  11.71  25.66   4.81   0.00  42.18  54.00 -11.82 Average
```

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Test Polarization: Vertical



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(1G18G) VERTICAL
EUT : alleswolke LTE Dashcam
Model : UCM 3310
Test mode : 802.11g-H mode
Power Rating : AC120V/60Hz
Environment : Temp:25.5℃ Huni:55% 101KPa
Test Engineer: MT
REMARK :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2483.500	22.26	25.66	4.81	0.00	52.73	74.00	-21.27	Peak
2	2483.500	10.57	25.66	4.81	0.00	41.04	54.00	-12.96	Average

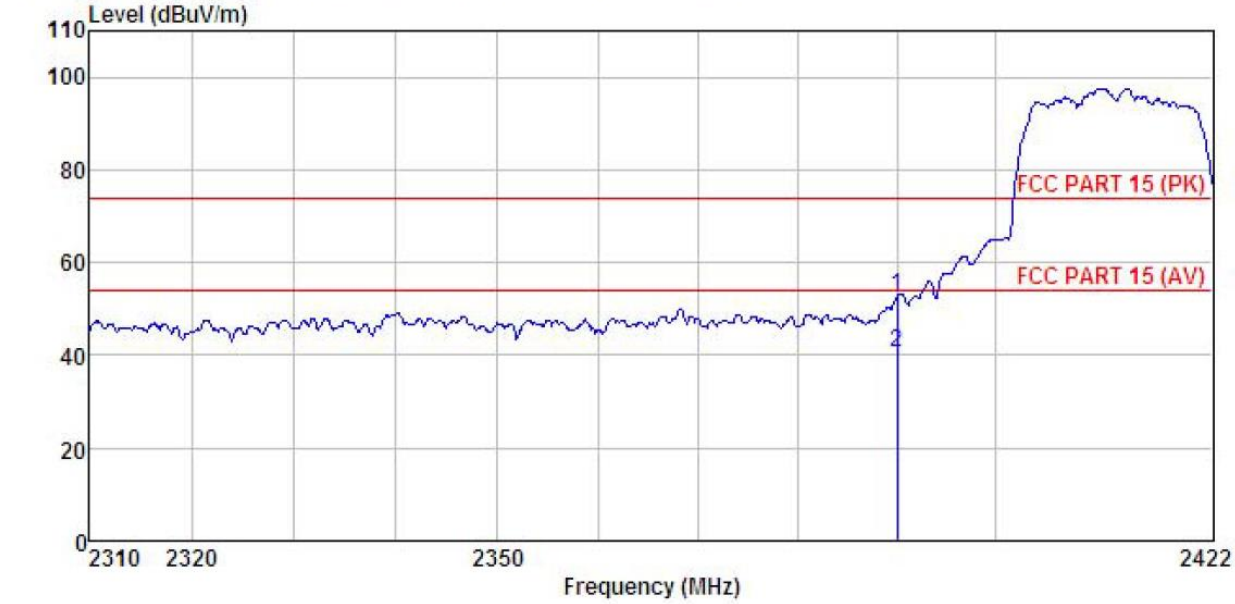
Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

802.11n (H20)

Test channel: Lowest channel

Test Polarization: Horizontal



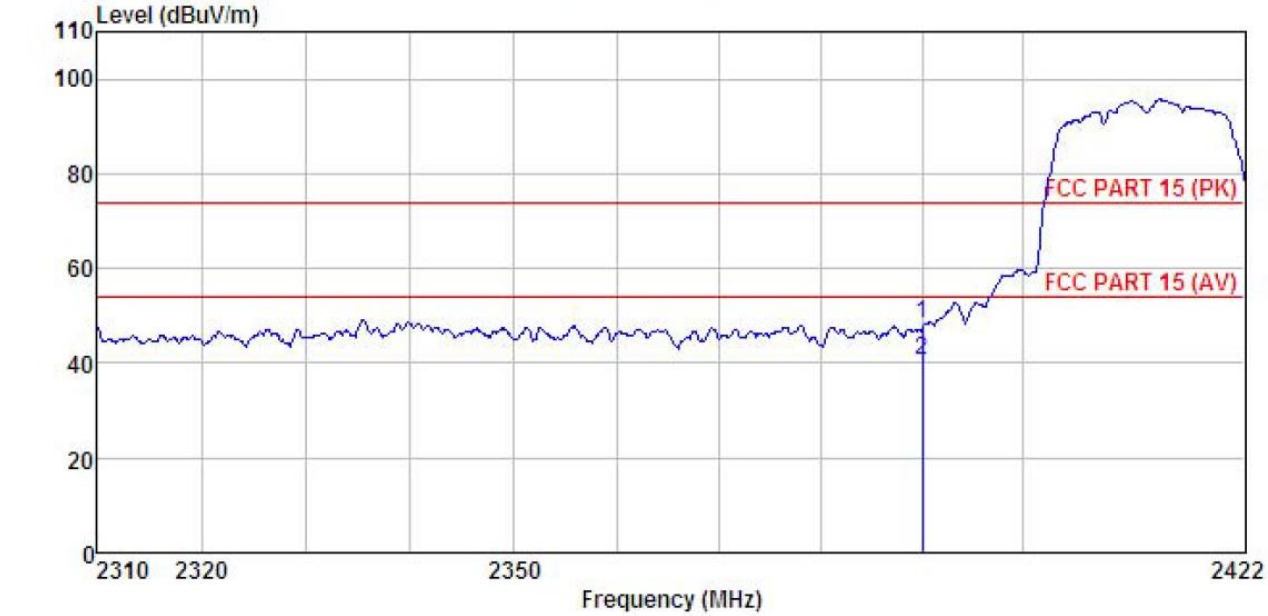

```
Site          : 3m chamber
Condition     : FCC PART 15 (PK) 3m BBHA9120(1G18G) HORIZONTAL
EUT           : alleswolke LTE Dashcam
Model         : UCM 3310
Test mode     : 802.11n20-L mode
Power Rating  : AC120V/60Hz
Environment   : Temp:25.5℃  Huni:55%  101KPa
Test Engineer: MT
REMARK        :
                  ReadAntenna  Cable Preamp          Limit   Over
           Freq  Level Factor   Loss Factor  Level   Line  Limit Remark
        --------- ------ ------ ------ ------ ------ ------ ------ ----------
               MHz   dBuV   dB/m     dB     dB dBuV/m dBuV/m     dB

  1    2390.000  22.57  25.45   4.69   0.00  52.71  74.00 -21.29 Peak
  2    2390.000  10.27  25.45   4.69   0.00  40.41  54.00 -13.59 Average
```

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Test Polarization: Vertical



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(1G18G) VERTICAL
EUT : alleswolke LTE Dashcam
Model : UCM 3310
Test mode : 802.11n20-L mode
Power Rating : AC120V/60Hz
Environment : Temp:25.5℃ Huni:55% 101KPa
Test Engineer: MT
REMARK :

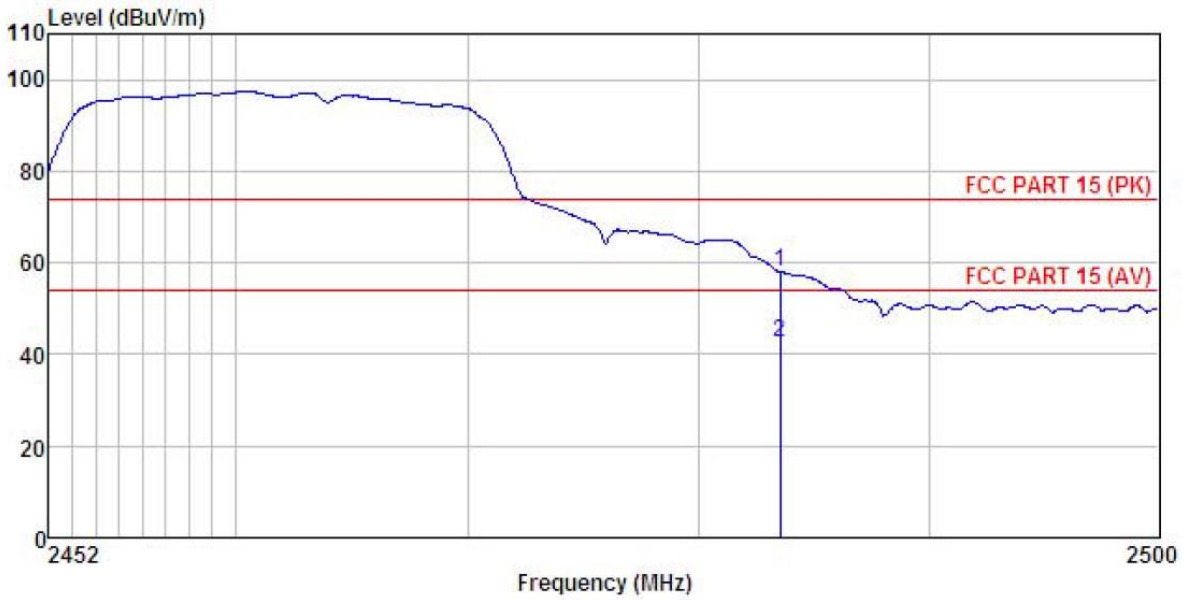
	Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.000	18.10	25.45	4.69	0.00	48.24	74.00	-25.76	Peak
2	2390.000	10.36	25.45	4.69	0.00	40.50	54.00	-13.50	Average

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Test channel: Highest channel

Test Polarization: Horizontal



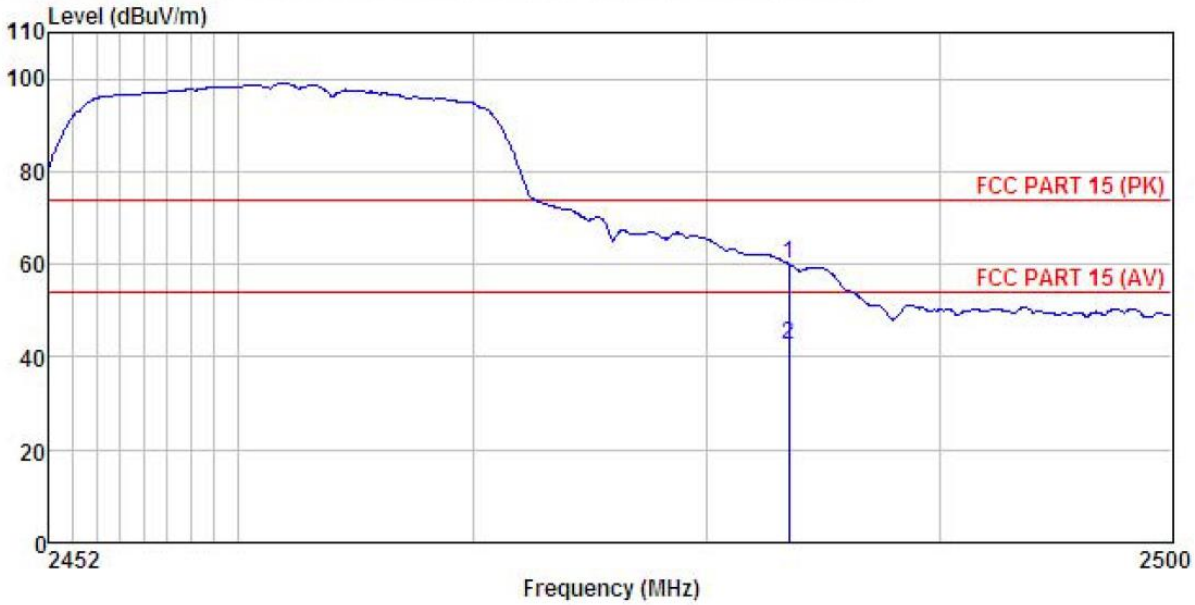

```
Site          : 3m chamber
Condition     : FCC PART 15 (PK) 3m BBHA9120(1G18G) HORIZONTAL
EUT           : alleswolke LTE Dashcam
Model         : UCM 3310
Test mode     : 802.11n20-H mode
Power Rating  : AC120V/60Hz
Environment   : Temp:25.5℃  Huni:55%  101KPa
Test Engineer: MT
REMARK        :
                  ReadAntenna  Cable Preamp         Limit   Over
           Freq  Level Factor   Loss Factor  Level   Line  Limit Remark
        --------- ------ ------ ------ ------ ------ ------ ------ ----------
               MHz   dBuV   dB/m     dB     dB dBuV/m dBuV/m     dB

   1   2483.500  27.44  25.66   4.81   0.00  57.91  74.00 -16.09 Peak
   2   2483.500  12.21  25.66   4.81   0.00  42.68  54.00 -11.32 Average
```

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Test Polarization: Vertical




```
Site          : 3m chamber
Condition     : FCC PART 15 (PK) 3m BBHA9120(1G18G) VERTICAL
EUT           : alleswolke LTE Dashcam
Model         : UCM 3310
Test mode     : 802.11n20-H mode
Power Rating  : AC120V/60Hz
Environment   : Temp:25.5℃  Huni:55%  101KPa
Test Engineer: MT
REMARK        :
                 ReadAntenna  Cable Preamp        Limit   Over
          Freq  Level Factor   Loss Factor  Level   Line  Limit Remark
       --------- ------ ------ ------ ------ ------ ------ ------ ----------
            MHz   dBuV   dB/m     dB     dB dBuV/m dBuV/m     dB

  1    2483.500  29.70  25.66   4.81   0.00  60.17  74.00 -13.83 Peak
  2    2483.500  12.24  25.66   4.81   0.00  42.71  54.00 -11.29 Average
```

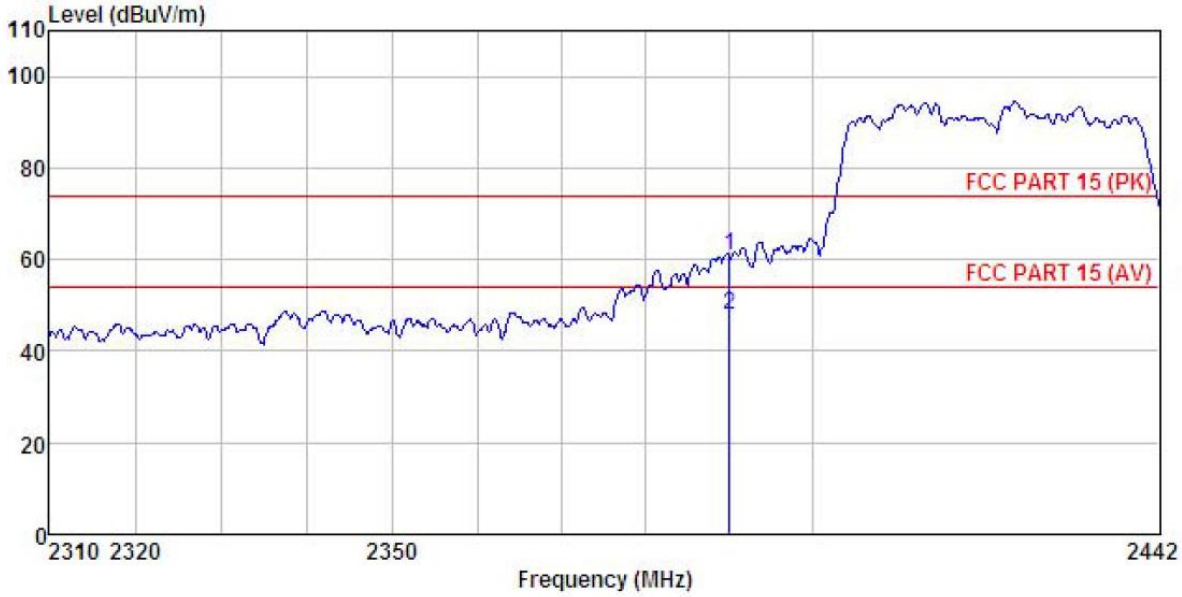
Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

802.11n (H40)

Test channel: Lowest channel

Test Polarization: Horizontal



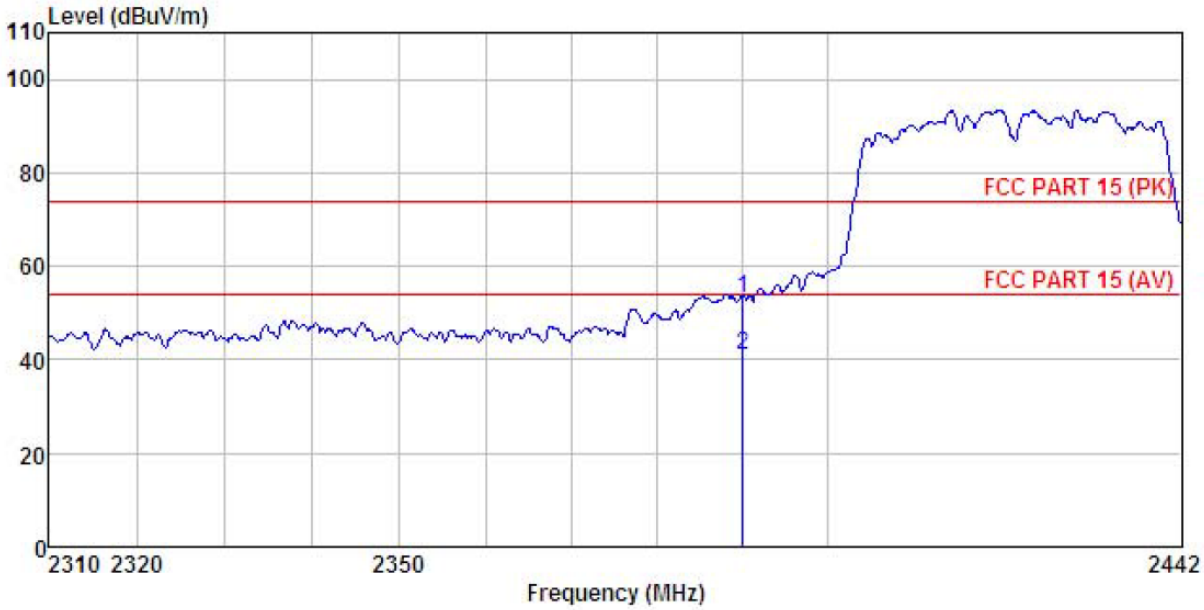

```
Site          : 3m chamber
Condition     : FCC PART 15 (PK) 3m BBHA9120(1G18G) HORIZONTAL
EUT           : alleswolke LTE Dashcam
Model         : UCM 3310
Test mode     : 802.11n40-L mode
Power Rating  : AC120V/60Hz
Environment   : Temp:25.5'C  Huni:55%  101KPa
Test Engineer: MT
REMARK        :
                 ReadAntenna  Cable Preamp         Limit   Over
           Freq  Level Factor   Loss Factor  Level   Line  Limit Remark
        --------- ------ ------ ------ ------ ------ ------ ------ ----------
              MHz   dBuV   dB/m     dB     dB dBuV/m dBuV/m     dB

   1   2390.000  30.89  25.45   4.69   0.00  61.03  74.00 -12.97 Peak
   2   2390.000  17.96  25.45   4.69   0.00  48.10  54.00  -5.90 Average
```

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Test Polarization: Vertical



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(1G18G) VERTICAL
EUT : alleswolke LTE Dashcam
Model : UCM 3310
Test mode : 802.11n40-L mode
Power Rating : AC120V/60Hz
Environment : Temp:25.5℃ Huni:55% 101KPa
Test Engineer: MT
REMARK :

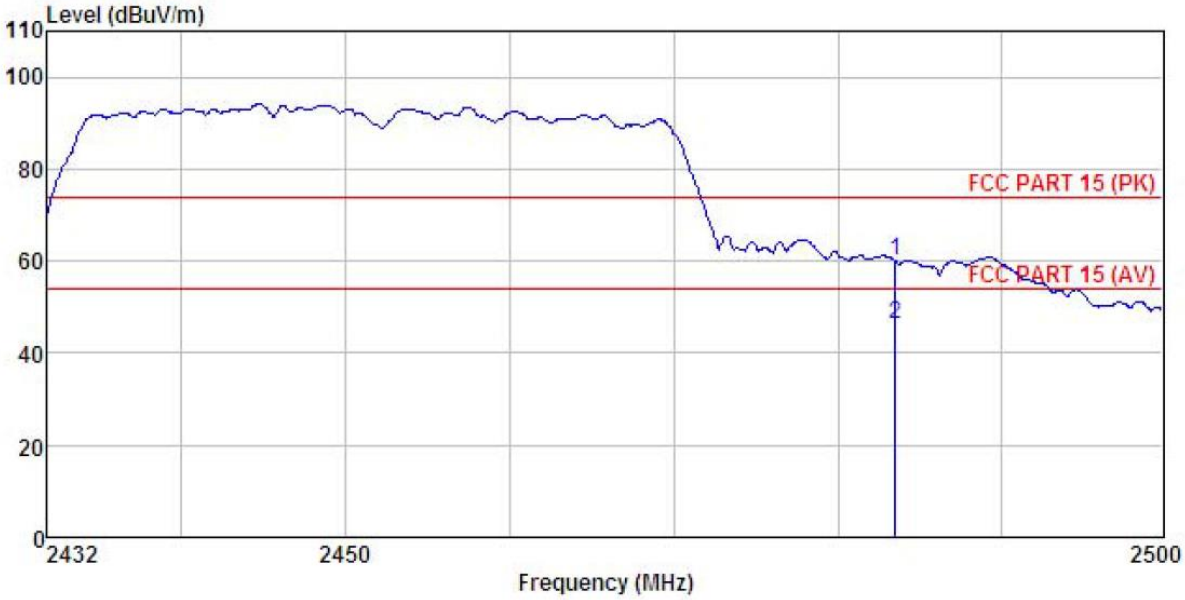
	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.000	22.96	25.45	4.69	0.00	53.10	74.00	-20.90	Peak
2	2390.000	10.69	25.45	4.69	0.00	40.83	54.00	-13.17	Average

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Test channel: Highest channel

Test Polarization: Horizontal



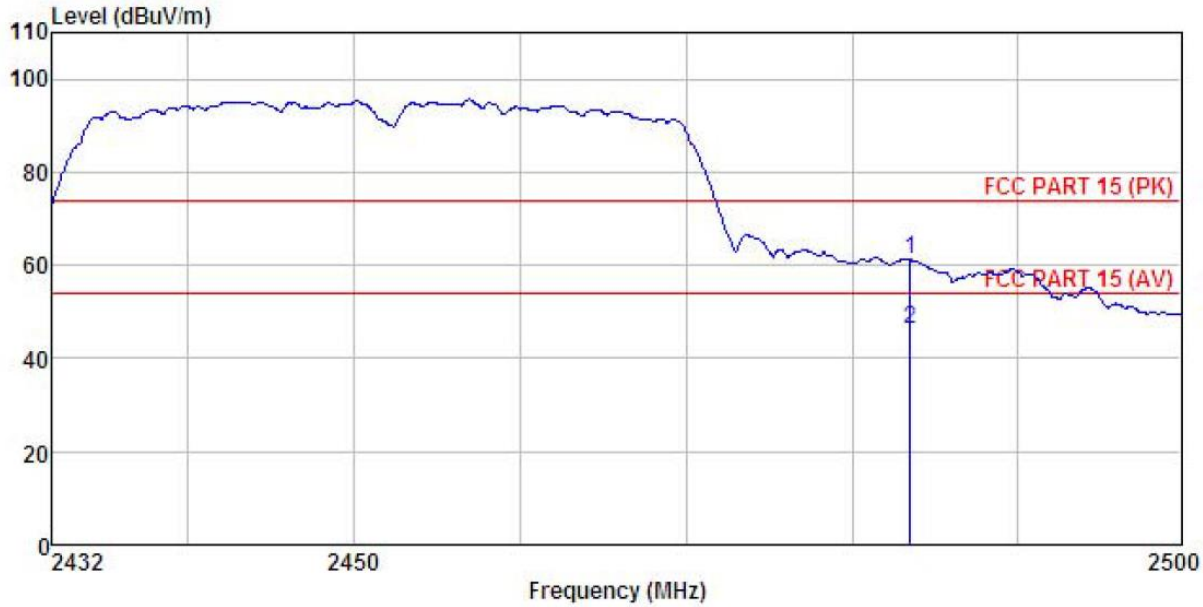

```
Site          : 3m chamber
Condition     : FCC PART 15 (PK) 3m BBHA9120(1G18G) HORIZONTAL
EUT           : alleswolke LTE Dashcam
Model         : UCM 3310
Test mode     : 802.11n40-H mode
Power Rating  : AC120V/60Hz
Environment   : Temp:25.5℃  Huni:55%  101KPa
Test Engineer: MT
REMARK        :
                 ReadAntenna  Cable Preamp         Limit   Over
          Freq  Level Factor   Loss Factor  Level   Line  Limit Remark
     --------- ------ ------ ------ ------ ------ ------ ------ ----------
           MHz   dBuV   dB/m     dB     dB dBuV/m dBuV/m     dB

  1   2483.500  29.64  25.66   4.81   0.00  60.11  74.00 -13.89 Peak
  2   2483.500  15.78  25.66   4.81   0.00  46.25  54.00  -7.75 Average
```

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Test Polarization: Vertical



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(1G18G) VERTICAL
EUT : alleswolke LTE Dashcam
Model : UCM 3310
Test mode : 802.11n40-H mode
Power Rating : AC120V/60Hz
Environment : Temp:25.5℃ Huni:55% 101KPa
Test Engineer: MT
REMARK :

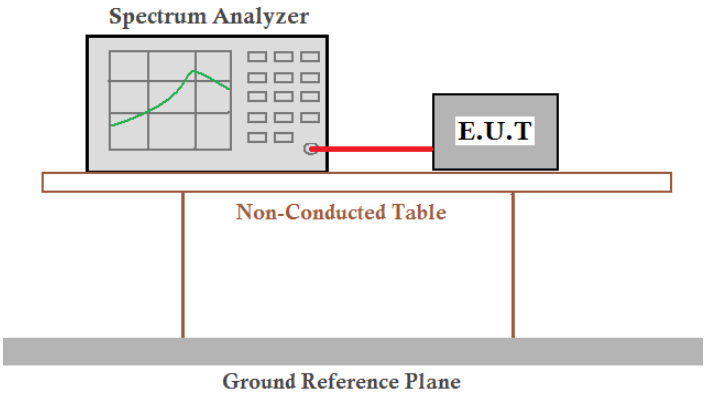
	Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2483.500	30.66	25.66	4.81	0.00	61.13	74.00	-12.87	Peak
2	2483.500	15.81	25.66	4.81	0.00	46.28	54.00	-7.72	Average

Remark:

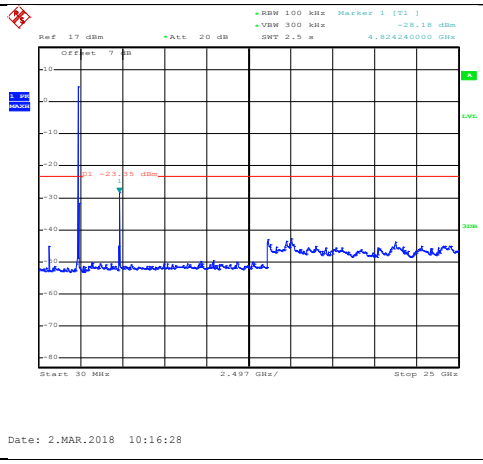
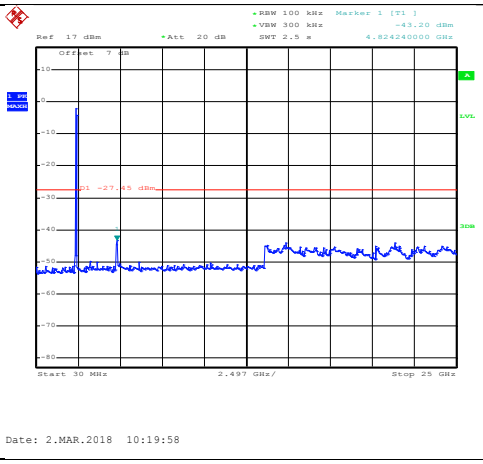
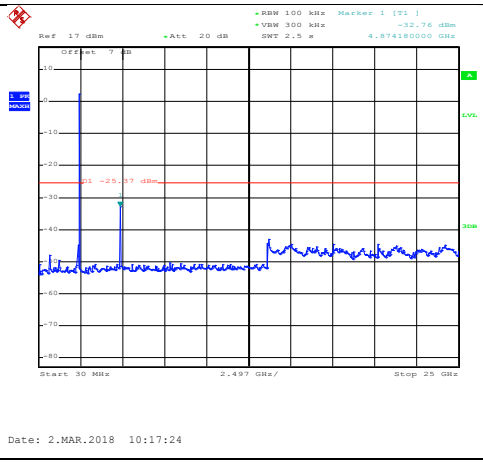
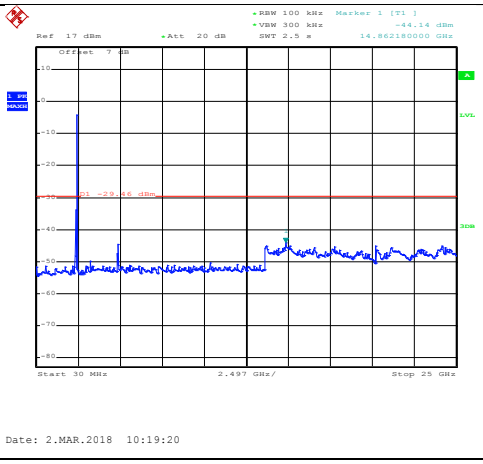
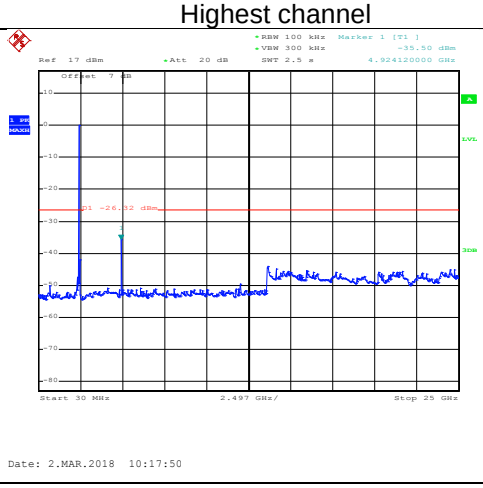
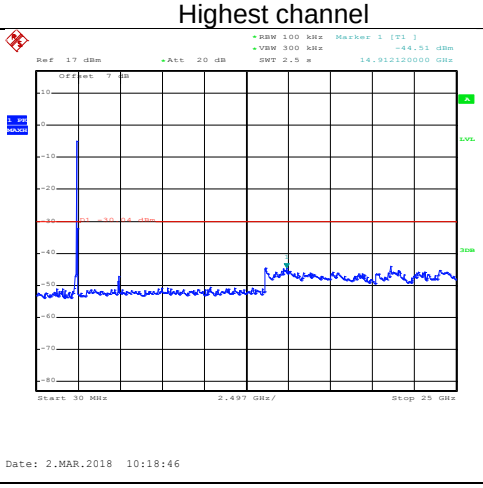
1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

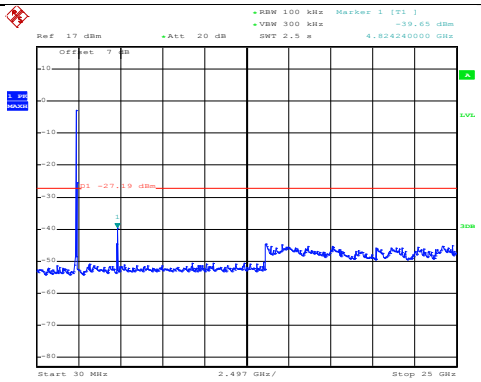
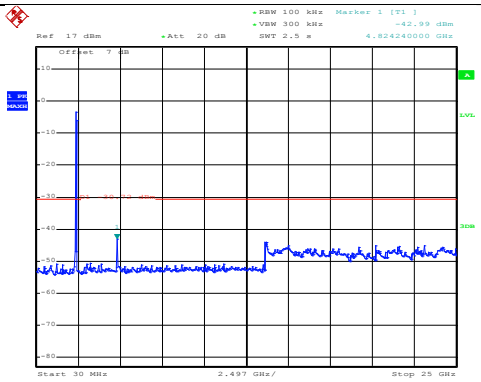
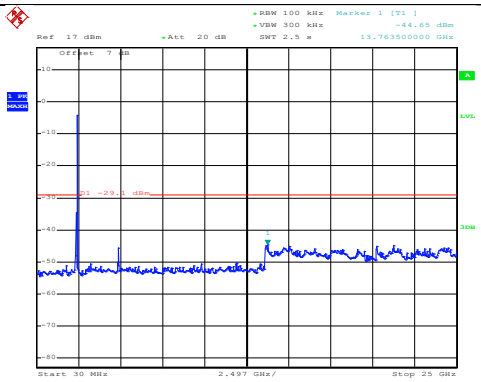
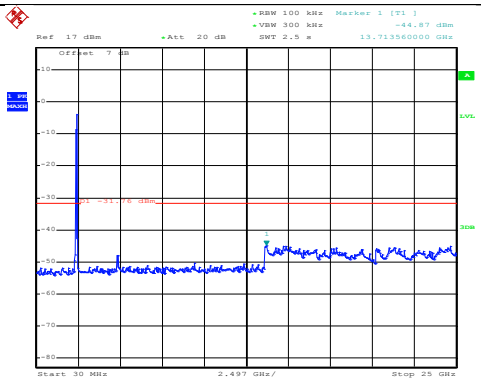
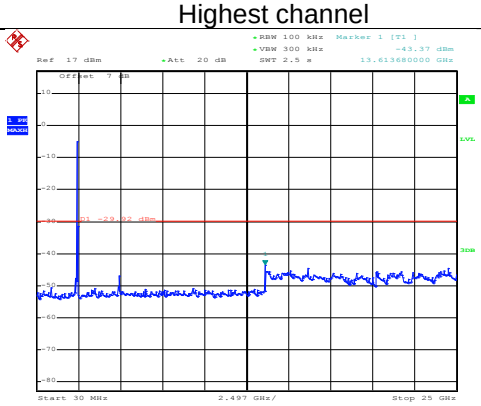
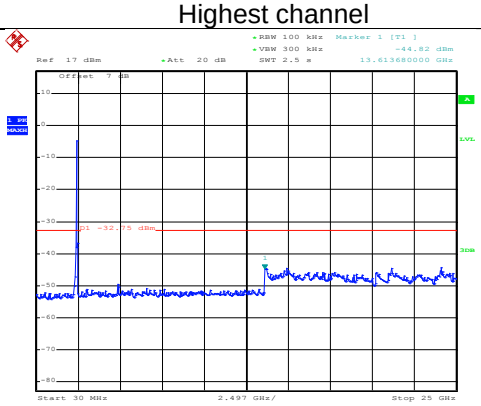
6.7 Spurious Emission

6.7.1 Conducted Emission Method

Test Requirement:	FCC Part 15 C Section 15.247 (d)
Test Method:	ANSI C63.10:2013 and KDB 558074
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph(b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.
Test setup:	
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Test plot as follows:

Test mode: 802.11b	Test mode: 802.11g
Lowest channel	Lowest channel
	
30MHz~25GHz	30MHz~25GHz
Middle channel	Middle channel
	
30MHz~25GHz	30MHz~25GHz
Highest channel	Highest channel
	
30MHz~25GHz	30MHz~25GHz

Test mode: 802.11n(H20)	Test mode: 802.11n(H40)
Lowest channel	Lowest channel
	
30MHz~25GHz	30MHz~25GHz
Middle channel	Middle channel
	
30MHz~25GHz	30MHz~25GHz
Highest channel	Highest channel
	
30MHz~25GHz	30MHz~25GHz

6.7.2 Radiated Emission Method

Test Requirement:	FCC Part 15 C Section 15.209 and 15.205
Test Method:	ANSI C63.10:2013
Test Frequency Range:	9kHz to 25GHz
Test Distance:	3m

Receiver setup:

Frequency	Detector	RBW	VBW	Remark
30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value
Above 1GHz	Peak	1MHz	3MHz	Peak Value
	RMS	1MHz	3MHz	Average Value

Limit:

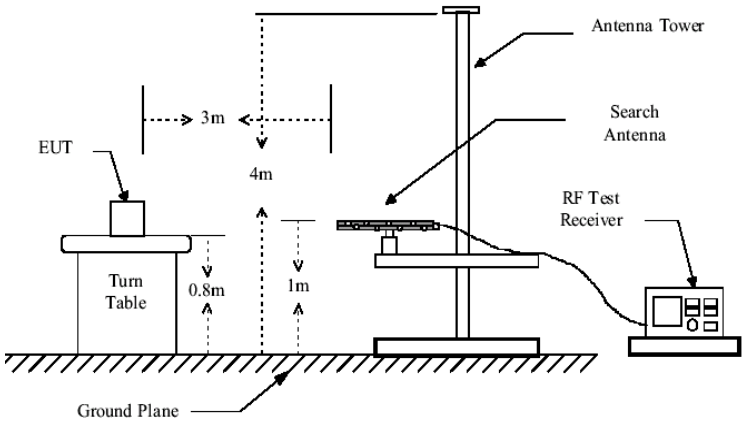
Frequency	Limit (dBuV/m @3m)	Remark
30MHz-88MHz	40.0	Quasi-peak Value
88MHz-216MHz	43.5	Quasi-peak Value
216MHz-960MHz	46.0	Quasi-peak Value
960MHz-1GHz	54.0	Quasi-peak Value
Above 1GHz	54.0	Average Value
	74.0	Peak Value

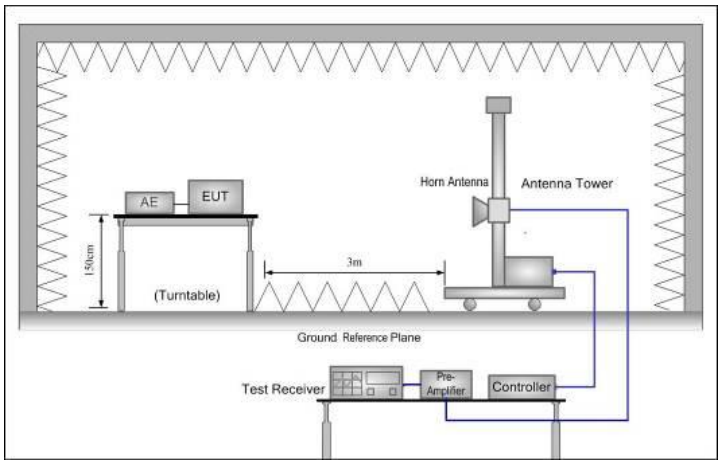
Test Procedure:

1. The EUT was placed on the top of a rotating table 0.8m(below 1GHz)/1.5m(above 1GHz) above the ground at a 3 meter chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
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 antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Test setup:

Below 1GHz

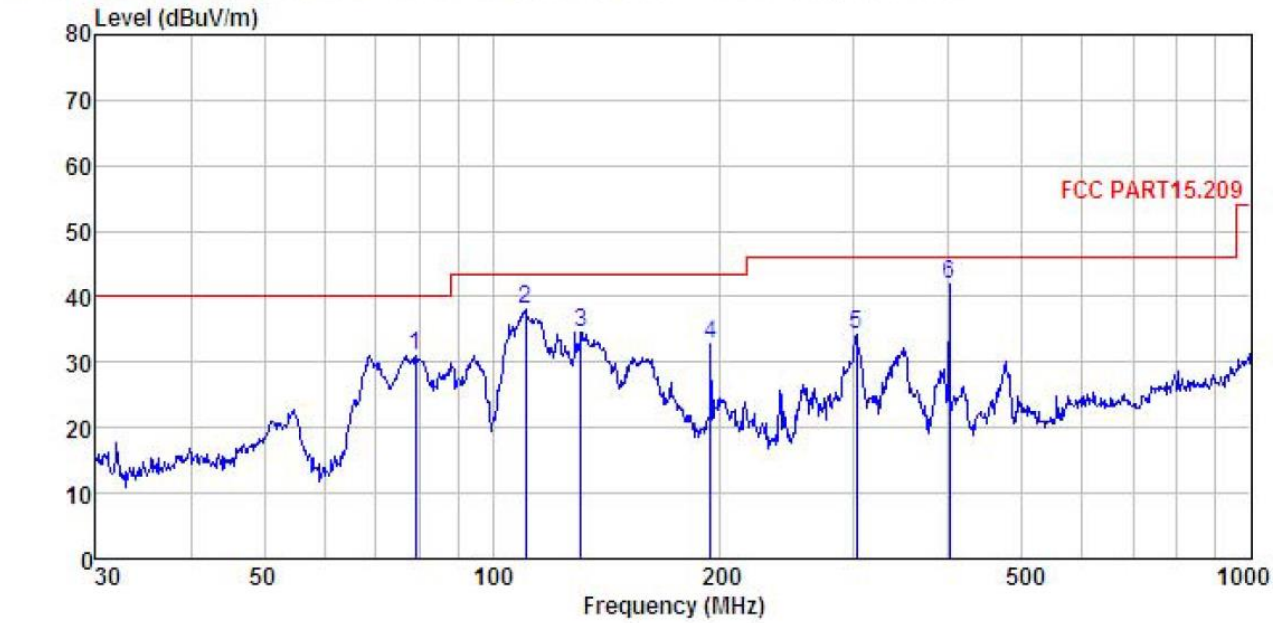


	Above 1GHz 
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed
Remark:	1. Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis is the worst case. 2. 9 kHz to 30MHz is too low, so only shows the data of above 30MHz in this report.

Measurement Data (worst case):

Below 1GHz:

Test Polarization: Horizontal



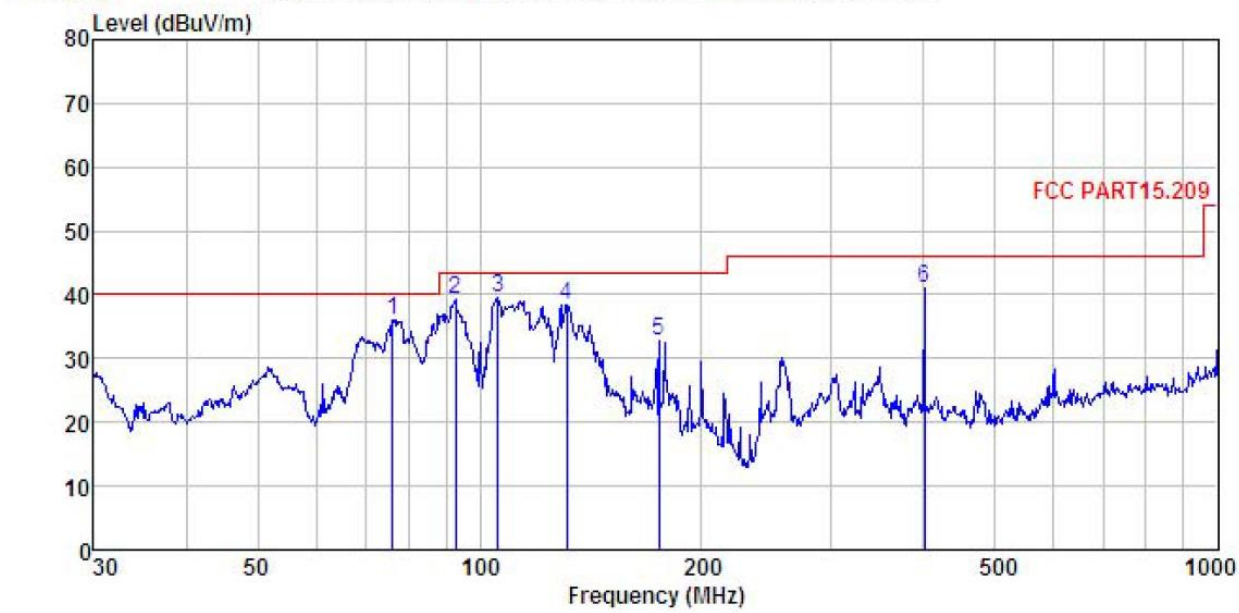
Site : 3m chamber
Condition : FCC PART15.209 3m VULB9163(30M2G) HORIZONTAL
EUT : alleswolke LTE Dashcam
Model : UCM 3310
Test mode : Wifi mode
Power Rating : AC120V/60Hz
Environment : Temp:25.5℃ Huni:55%
Test Engineer: MT
Remark :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	79.243	50.63	8.50	1.65	29.65	31.13	40.00	-8.87	QP
2	110.569	53.35	12.00	2.05	29.45	37.95	43.50	-5.55	QP
3	130.837	53.07	8.60	2.29	29.32	34.64	43.50	-8.86	QP
4	193.773	48.17	10.76	2.82	28.87	32.88	43.50	-10.62	QP
5	302.481	46.38	13.42	2.95	28.45	34.30	46.00	-11.70	QP
6	400.432	52.77	14.80	3.08	28.78	41.87	46.00	-4.13	QP

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Test Polarization: Vertical



Site : 3m chamber
Condition : FCC PART15.209 3m VULB9163(30M2G) VERTICAL
EUT : alleswolke LTE Dashcam
Model : UCM 3310
Test mode : Wifi mode
Power Rating : AC120V/60Hz
Environment : Temp:25.5℃ Huni:55%
Test Engineer: MT
Remark :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	76.244	54.95	9.18	1.63	29.67	36.09	40.00	-3.91	QP
2	92.787	55.74	11.13	2.03	29.56	39.34	43.50	-4.16	QP
3	106.013	54.93	12.08	2.01	29.48	39.54	43.50	-3.96	QP
4	131.297	56.91	8.60	2.30	29.32	38.49	43.50	-5.01	QP
5	175.037	49.66	9.30	2.69	29.01	32.64	43.50	-10.86	QP
6	400.432	51.83	14.80	3.08	28.78	40.93	46.00	-5.07	QP

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Above 1GHz

802.11b								
Test channel: Lowest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4824.00	53.57	30.94	6.81	41.82	49.50	74.00	-24.50	Vertical
4824.00	54.33	30.94	6.81	41.82	50.26	74.00	-23.74	Horizontal
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4824.00	45.36	30.94	6.81	41.82	41.29	54.00	-12.71	Vertical
4824.00	47.26	30.94	6.81	41.82	43.19	54.00	-10.81	Horizontal
Test channel: Middle channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4874.00	56.05	31.20	6.85	41.84	52.26	74.00	-21.74	Vertical
4874.00	55.88	31.20	6.85	41.84	52.09	74.00	-21.91	Horizontal
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4874.00	46.69	31.20	6.85	41.84	42.90	54.00	-11.10	Vertical
4874.00	48.69	31.20	6.85	41.84	44.90	54.00	-9.10	Horizontal
Test channel: Highest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4924.00	55.60	31.46	6.89	41.86	52.09	74.00	-21.91	Vertical
4924.00	55.96	31.46	6.89	41.86	52.45	74.00	-21.55	Horizontal
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4924.00	47.69	31.46	6.89	41.86	44.18	54.00	-9.82	Vertical
4924.00	47.23	31.46	6.89	41.86	43.72	54.00	-10.28	Horizontal

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

802.11g								
Test channel: Lowest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4824.00	53.67	30.94	6.81	41.82	49.60	74.00	-24.40	Vertical
4824.00	55.88	30.94	6.81	41.82	51.81	74.00	-22.19	Horizontal
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4824.00	46.63	30.94	6.81	41.82	42.56	54.00	-11.44	Vertical
4824.00	47.89	30.94	6.81	41.82	43.82	54.00	-10.18	Horizontal
Test channel: Middle channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4874.00	55.52	31.20	6.85	41.84	51.73	74.00	-22.27	Vertical
4874.00	54.64	31.20	6.85	41.84	50.85	74.00	-23.15	Horizontal
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4874.00	47.03	31.20	6.85	41.84	43.24	54.00	-10.76	Vertical
4874.00	47.79	31.20	6.85	41.84	44.00	54.00	-10.00	Horizontal
Test channel: Highest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4924.00	55.43	31.46	6.89	41.86	51.92	74.00	-22.08	Vertical
4924.00	54.07	31.46	6.89	41.86	50.56	74.00	-23.44	Horizontal
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4924.00	48.13	31.46	6.89	41.86	44.62	54.00	-9.38	Vertical
4924.00	47.09	31.46	6.89	41.86	43.58	54.00	-10.42	Horizontal

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

802.11n(HT20)								
Test channel: Lowest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4824.00	52.67	36.06	6.81	41.82	53.72	74.00	-20.28	Vertical
4824.00	53.12	36.06	6.81	41.82	54.17	74.00	-19.83	Horizontal
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4824.00	45.26	36.06	6.81	41.82	46.31	54.00	-7.69	Vertical
4824.00	46.01	36.06	6.81	41.82	47.06	54.00	-6.94	Horizontal
Test channel: Middle channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4874.00	51.17	36.32	6.85	41.84	52.50	74.00	-21.50	Vertical
4874.00	52.09	36.32	6.85	41.84	53.42	74.00	-20.58	Horizontal
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4874.00	45.43	36.32	6.85	41.84	46.76	54.00	-7.24	Vertical
4874.00	44.19	36.32	6.85	41.84	45.52	54.00	-8.48	Horizontal
Test channel: Highest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4924.00	52.26	36.58	6.89	41.86	53.87	74.00	-20.13	Vertical
4924.00	53.17	36.58	6.89	41.86	54.78	74.00	-19.22	Horizontal
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4924.00	42.21	36.58	6.89	41.86	43.82	54.00	-10.18	Vertical
4924.00	43.33	36.58	6.89	41.86	44.94	54.00	-9.06	Horizontal

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

802.11n(HT40)								
Test channel: Lowest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4844.00	51.15	36.06	6.81	41.82	52.20	74.00	-21.80	Vertical
4844.00	52.23	36.06	6.81	41.82	53.28	74.00	-20.72	Horizontal
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4844.00	42.27	36.06	6.81	41.82	43.32	54.00	-10.68	Vertical
4844.00	43.39	36.06	6.81	41.82	44.44	54.00	-9.56	Horizontal
Test channel: Middle channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4874.00	51.45	36.32	6.85	41.84	52.78	74.00	-21.22	Vertical
4874.00	51.08	36.32	6.85	41.84	52.41	74.00	-21.59	Horizontal
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4874.00	43.37	36.32	6.85	41.84	44.70	54.00	-9.30	Vertical
4874.00	45.16	36.32	6.85	41.84	46.49	54.00	-7.51	Horizontal
Test channel: Highest channel								
Detector: Peak Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4904.00	50.17	36.45	6.87	41.85	51.64	74.00	-22.36	Vertical
4904.00	51.28	36.45	6.87	41.85	52.75	74.00	-21.25	Horizontal
Detector: Average Value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4904.00	41.22	36.45	6.87	41.85	42.69	54.00	-11.31	Vertical
4904.00	42.65	36.45	6.87	41.85	44.12	54.00	-9.88	Horizontal

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*