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TEST REPORT

Report No. CTC20222157E03
FCC ID 2AGKB-KM7PLUS
Applicant VIDEOSTRONG TECHNOLOGY CO.,LTD
Address 604, Lushi industrial Building, 28 District, Bao'an District, Shenzhen, China
Manufacturer VIDEOSTRONG TECHNOLOGY CO.,LTD
Address 604, Lushi industrial Building, 28 District, Bao'an District, Shenzhen, China
Product Name Android TV Box
Trade Mark MECOOL
Model/Type reference KM7 PLUS
Listed Model(s) 9MAX,10MAX, KM2, KM2 PRO, KM2 PLUS, KD3, KD5, KM6, KM7,9S,10S,9P,10P, KM10, KM11, KD6, KD7, IPx1, IPx2
Standard FCC CFR Title 47 Part 15 Subpart C Section 15.247
Date of receipt of test sample Dec. 20, 2022
Date of testing Dec. 20, 2022 ~ Dec. 20, 2022
Date of issue Dec. 21, 2022
Result PASS

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Testing Laboratory Name CTC Laboratories, Inc.
Address 1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Shenzhen, Guangdong, China

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1. TEST SUMMARY

1.1. Test Standards

The tests were performed according to following standards:

[FCC Rules Part 15.247](#): Operation within the bands of 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz.

[ANSI C63.10-2013](#): American National Standard for Testing Unlicensed Wireless Devices.

1.2. Report version

Revised No.	Date of issue	Description
01	Dec. 21, 2022	Original



1.3. Test Description

FCC Part 15 Subpart C (15.247)			
Test Item	Standard Section	Result	Test Engineer
	FCC		
Transmitter Radiated Spurious	15.209&15.247(d)	Pass	Lucy Lan

Note: The measurement uncertainty is not included in the test result.



1.4. Test Facility

CTC Laboratories, Inc.

Add: 1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Shenzhen, Guangdong, China

Laboratory accreditation

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

A2LA-Lab Cert. No.: 4340.01

CTC Laboratories, Inc. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

Industry Canada (Registration No.: 9783A, CAB Identifier: CN0029)

CTC Laboratories, Inc. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration NO.: 9783A on Jan, 2016.

FCC (Registration No.: 951311, Designation Number CN1208)

CTC Laboratories, Inc. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 951311, Aug 26, 2017.

1.5. Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 2" and is documented in the CTC Laboratories, Inc. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Below is the best measurement capability for CTC Laboratories, Inc.



Test Items	Measurement Uncertainty	Notes
Radiated Emissions 30~1000MHz	4.70 dB	(1)
Radiated Emissions 1~18GHz	5.00 dB	(1)
Radiated Emissions 18~40GHz	5.54 dB	(1)

Note (1): This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=1.96$.

1.6. Environmental conditions

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

Temperature:	25°C
Relative Humidity:	40%
Air Pressure:	101kPa

2. GENERAL INFORMATION

2.1. Client Information

Applicant:	VIDEOSTRONG TECHNOLOGY CO.,LTD
Address:	604, Lushi industrial Building, 28 District, Bao'an District, Shenzhen, China
Manufacturer :	VIDEOSTRONG TECHNOLOGY CO.,LTD
Address:	604, Lushi industrial Building, 28 District, Bao'an District, Shenzhen, China
Factory:	Shenzhen Skyworth Digital Technology Co.,LTD. Baoan Branch Factory
Address:	2-5F,Integration Multi-Storied Building, Skyworth Science and Technology Industrial Park, Tangtou Industrial Zone, Shiyan Street, Baoan District, Shenzhen city, China

2.2. General Description of EUT

Product Name:	Android TV Box
Trade Mark:	MECOOL
Model/Type reference:	KM7 PLUS
Listed Model(s):	9MAX,10MAX, KM2, KM2 PRO, KM2 PLUS, KD3, KD5, KM6, KM7,9S,10S,9P,10P, KM10, KM11, KD6, KD7, IPx1, IPx2
Model Difference:	All these models are identical in the same PCB, layout and electrical circuit, Different is model number.
Power supply:	DC12V 1A from AC/DC Adapter
Adapter model 1:	RJ-SKY120100U60S ^{Note1} Input: 100-240V~ 50/60Hz 0.5A Output: 12Vdc/1A
Adapter model 2:	YS-SKY120100U00P ^{Note2} Input: 100-240V~ 50/60Hz 0.5A Output: 12Vdc/1A
Adapter model 3:	TEKA-TB120100US Input: 100-240V~ 50/60Hz 0.35A Output: 12Vdc/1A
Hardware version:	54024
Software version:	P2.0.3_20220929

WIFI 802.11b/ g/ n(HT20)/n(HT40)

Modulation:	DSSS for 802.11b OFDM for 802.11g/802.11n(HT20)/802.11n(HT40)
Operation frequency:	2412MHz~2462MHz for 802.11b/802.11g/802.11n(HT20) 2422MHz~2452MHz for 802.11n(HT40)
Channel number:	11 for 802.11b/802.11g/802.11n(HT20) 7 for 802.11n(HT40)
Channel separation:	5MHz
Antenna 1 and 2 type:	PCBA Antenna
Antenna 1 & 2 gain:	1dBi

Note:

1. RJ-SKY120100AXXS,(A = E or B , stands for different plug, E means for Europe plug, B means for UK plug, M or U means for US plug.XX = 00-99. stands for customer code)
2. YS-SKY120100N0XP (N = E, B ,1character indicate difference plug type: E denote EU plug, B denote UK plug,X = 0-9, 1 digit, only for marketing purpose, no impact on safety)

2.3. Operation state

Operation Frequency List: The EUT has been tested under typical operating condition. The Applicant provides communication tools software to control the EUT for staying in continuous transmitting and receiving mode for testing.

Operation Frequency List:

Channel	Frequency (MHz)
01	2412
02	2417
03	2422
04	2427
05	2432
06	2437
07	2442
08	2447
09	2452
10	2457
11	2462

Note: CH 01~CH 11 for 802.11b/g/n(HT20), CH 03~CH 09 for 802.11n(HT40)

Data Rated

Preliminary tests were performed in different data rate, and found which the below bit rate is worst case mode, so only show data which it is a worst case mode.

Mode	Data rate (worst mode)
802.11b	1Mbps
802.11g	6Mbps
802.11n(HT20)	HT-MCS0
802.11n(HT40)	HT-MCS0

Test mode

For RF test items:
The engineering test program was provided and enabled to make EUT continuous transmit.
For AC power line conducted emissions:
The EUT was set to connect with the WLAN AP under large package sizes transmission.
For Radiated spurious emissions test item:
The engineering test program was provided and enabled to make EUT continuous transmit (duty cycle>98%). EUT support for SISO and MIMO Transmission,802.11b/g only supports SISO Mode, SISO mode sets the same power level as MIMO mode, so MIMO mode is the worst case. Recorded in the report.



2.4. Accessory Equipment information

Equipment Information			
Name	Model	S/N	Manufacturer
Notebook	ThinkBook 14G3 ACL	MP246QDR	Lenovo
Displayer	EW3270-T	EW3270U	BenQ
Cable Information			
Name	Shielded Type	Ferrite Core	Length
LAN Cable	Without	Without	1.5M
HDMI Cable	Without	Without	1.5M
Test Software Information			
Name	Versions	/	/
WLAN TEST	/	/	/

2.5. Measurement Instruments List

Radiated emission(3m chamber 2)					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated Until
1	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	9168-1013	Jan. 12, 2023
2	Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-647	Dec. 16, 2023
3	Loop Antenna	LAPLAC	RF300	9138	Dec. 16, 2023
4	Spectrum Analyzer	R&S	FSU26	100105	Dec. 16, 2023
5	Spectrum Analyzer	R&S	FSV40-N	101331	Mar. 15, 2023
6	Pre-Amplifier	SONOMA	310	186194	Dec. 16, 2023
7	Low Noise Pre-Amplifier	EMCI	EMC051835	980075	Dec. 16, 2023
8	Test Receiver	R&S	ESCI7	100967	Dec. 16, 2023
9	3m chamber 2	Frankonia	EE025	/	Oct. 23, 2024

Note:1. The Cal. Interval was one year.

2. The cable loss has calculated in test result which connection between each test instruments.

3. TEST ITEM AND RESULTS

3.1. Radiated Emission

Limit

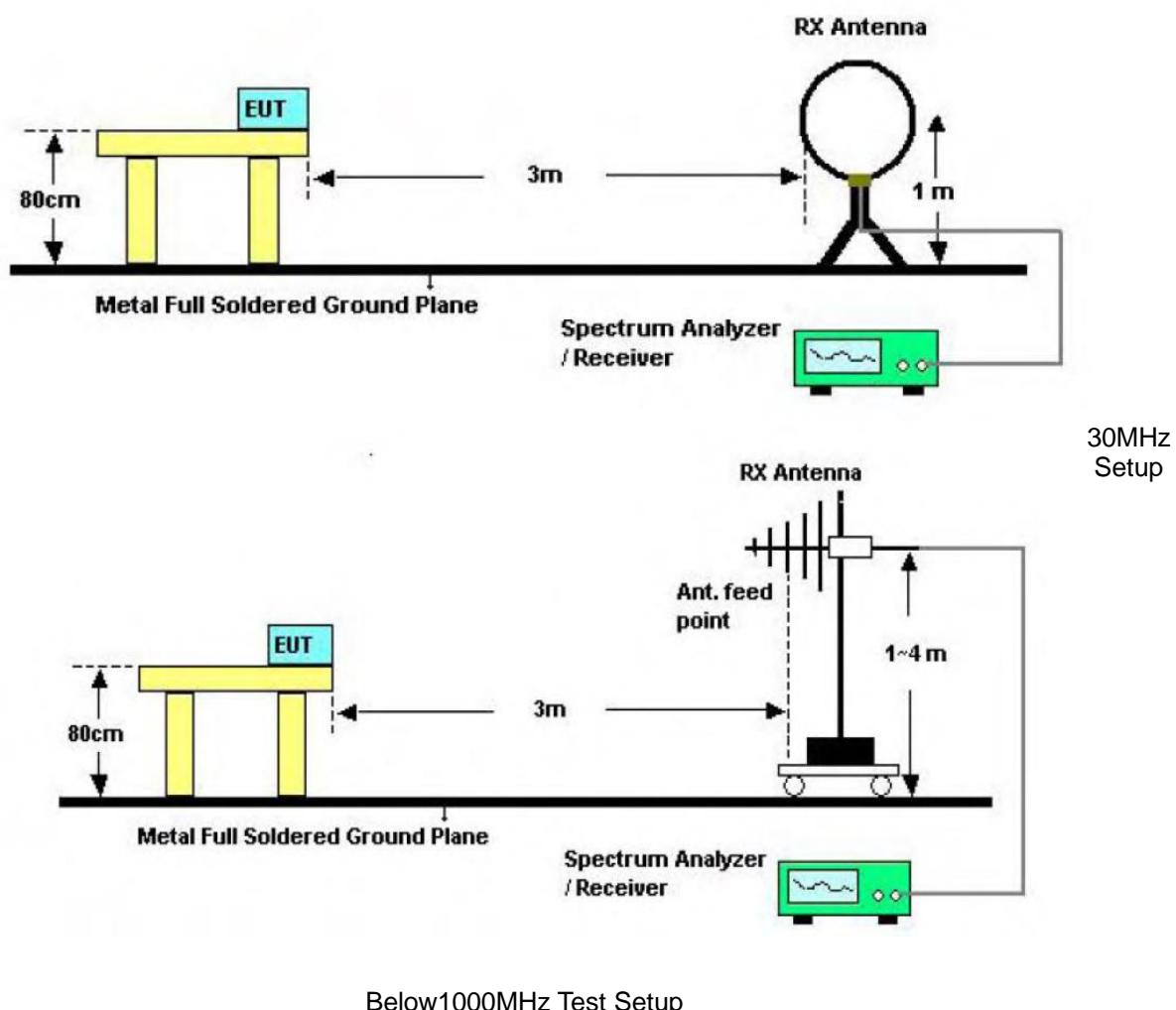
FCC CFR Title 47 Part 15 Subpart C Section 15.209:

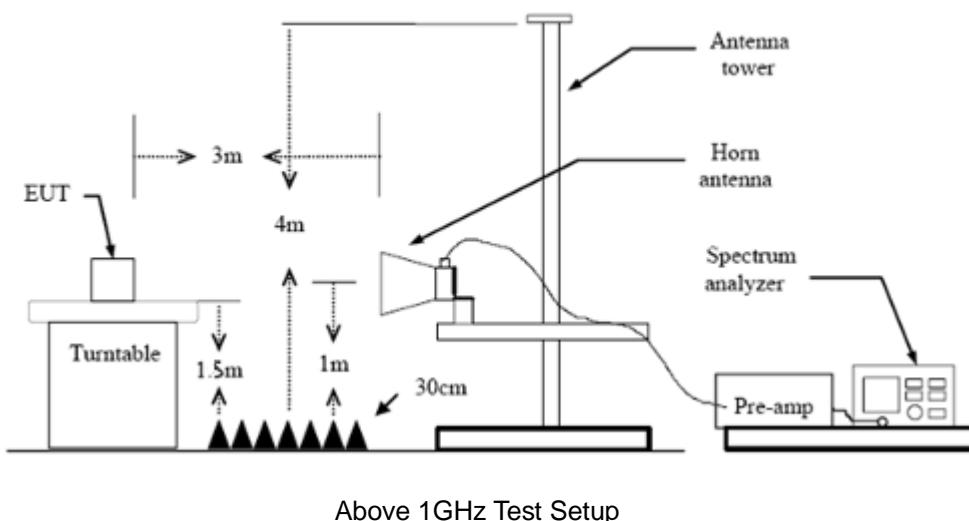
Frequency	Limit (dBuV/m @3m)	Value
30 MHz ~ 88 MHz	40.00	Quasi-peak
88 MHz ~ 216 MHz	43.50	Quasi-peak
216 MHz ~ 960 MHz	46.00	Quasi-peak
960 MHz ~ 1 GHz	54.00	Quasi-peak
Above 1 GHz	54.00	Average
	74.00	Peak

Note:

- (1) The tighter limit applies at the band edges.
- (2) Emission Level (dBuV/m)=20log Emission Level (uV/m).

Test Configuration





Test Procedure

1. The EUT was setup and tested according to ANSI C63.10:2013
2. The EUT is placed on a turn table which is 0.8 meter above ground for below 1 GHz, and 1.5 m for above 1 GHz. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the top of a variable height antenna tower.
4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
5. Set to the maximum power setting and enable the EUT transmit continuously.
6. Use the following spectrum analyzer settings
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Below 1 GHz:
RBW=120 kHz, VBW=300 kHz, Sweep=auto, Detector function=peak, Trace=max hold;
If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
 - (3) From 1 GHz to 10th harmonic:
RBW=1MHz, VBW=3MHz Peak detector for Peak value.
RBW=1MHz, VBW=3MHz RMS detector for Average value.

Test Mode

Please refer to the clause 2.3.

Test Result

9 KHz~30 MHz

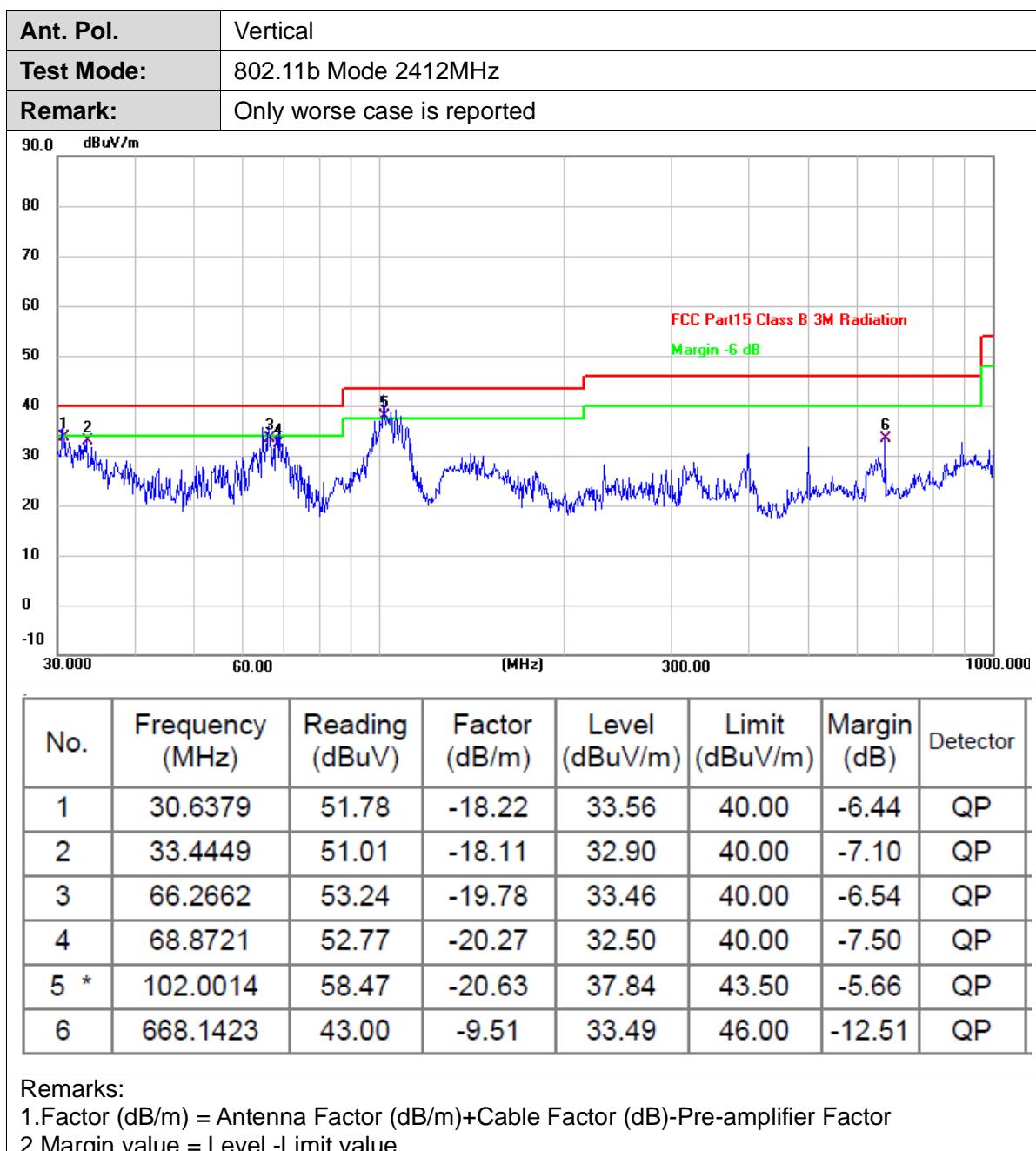
From 9 KHz to 30 MHz: Conclusion: PASS

Note:

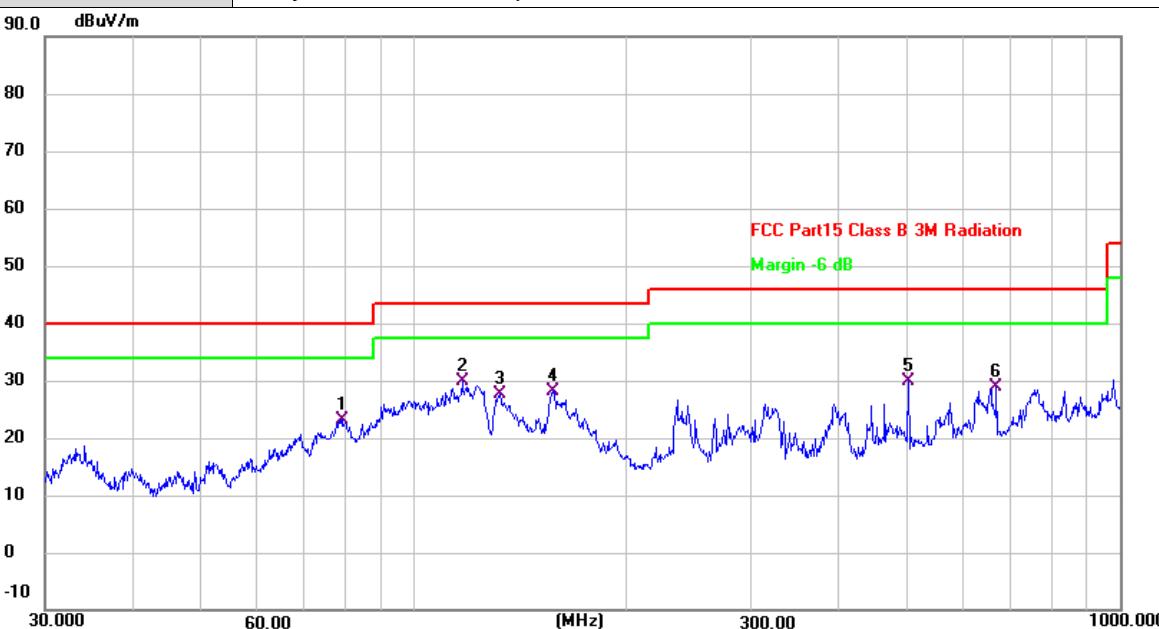
1. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
2. Only show the worse case.

30MHz-1GHz
Original test data:

Ant. Pol.	Horizontal						
Test Mode:	802.11b Mode 2412MHz						
Remark:	Only worse case is reported						
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	66.2661	48.79	-19.78	29.01	40.00	-10.99	QP
2	86.5027	48.19	-21.85	26.34	40.00	-13.66	QP
3	106.7587	54.24	-20.41	33.83	43.50	-9.67	QP
4	233.3486	50.07	-19.21	30.86	46.00	-15.14	QP
5	651.9417	43.05	-9.79	33.26	46.00	-12.74	QP
6 *	668.1422	46.48	-9.51	36.97	46.00	-9.03	QP
Remarks: 1. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2. Margin value = Level -Limit value							



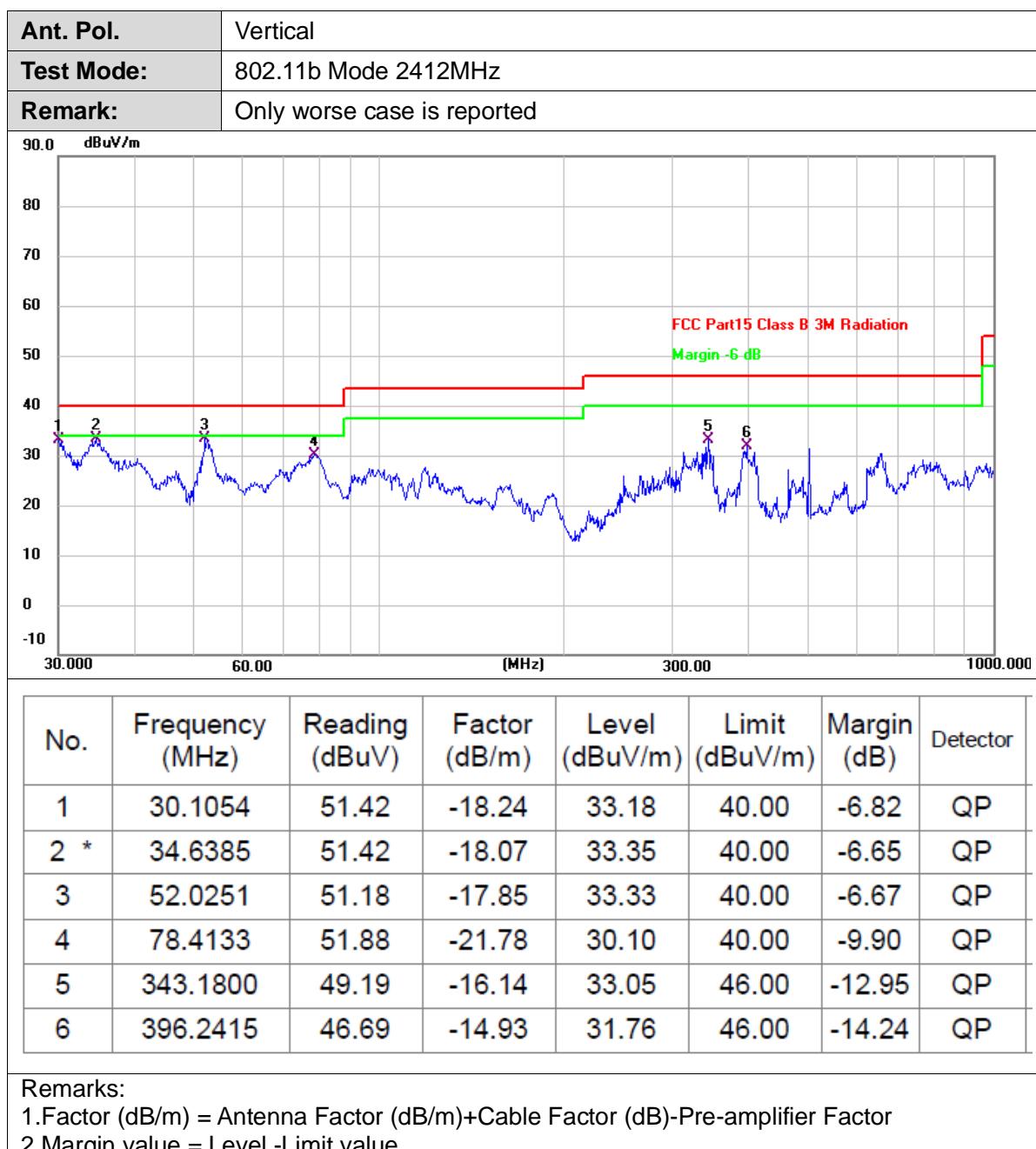
New test data:

Ant. Pol.	Horizontal						
Test Mode:	802.11b Mode 2412MHz						
Remark:	Only worse case is reported						
							
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	79.2426	45.01	-21.90	23.11	40.00	-16.89	QP
2 *	116.9495	49.42	-19.56	29.86	43.50	-13.64	QP
3	132.2206	46.08	-18.33	27.75	43.50	-15.75	QP
4	157.0074	44.92	-16.87	28.05	43.50	-15.45	QP
5	501.1790	42.62	-12.64	29.98	46.00	-16.02	QP
6	668.1423	38.42	-9.51	28.91	46.00	-17.09	QP

Remarks:

1. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor

2. Margin value = Level -Limit value





Adobe 1GHz

Original test data:

Ant No.	ANT1
Ant. Pol.	Horizontal
Test Mode:	TX B Mode 2412MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4823.994	43.45	2.20	45.65	74.00	-28.35	peak
2 *	4824.026	35.17	2.20	37.37	54.00	-16.63	AVG

Remarks:

1. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor

2. Margin value = Level -Limit value

Ant No.	ANT1
Ant. Pol.	Vertical
Test Mode:	TX B Mode 2412MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4823.984	43.52	2.20	45.72	74.00	-28.28	peak
2 *	4824.076	36.00	2.20	38.20	54.00	-15.80	AVG

Remarks:

1. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor

2. Margin value = Level -Limit value



Ant No.	ANT1						
Ant. Pol.	Horizontal						
Test Mode:	TX B Mode 2437MHz						
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported						
Remarks: 1. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2. Margin value = Level -Limit value							

Ant No.	ANT1						
Ant. Pol.	Vertical						
Test Mode:	TX B Mode 2437MHz						
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported						
Remarks: 1. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2. Margin value = Level -Limit value							



Ant No.	ANT1						
Ant. Pol.	Horizontal						
Test Mode:	TX B Mode 2462MHz						
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported						
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4924.001	35.44	2.41	37.85	54.00	-16.15	AVG
2	4924.151	44.53	2.41	46.94	74.00	-27.06	peak
Remarks: 1. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2. Margin value = Level -Limit value							

Ant No.	ANT1						
Ant. Pol.	Vertical						
Test Mode:	TX B Mode 2462MHz						
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported						
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4924.095	41.99	2.41	44.40	74.00	-29.60	peak
2 *	4924.109	32.94	2.41	35.35	54.00	-18.65	AVG
Remarks: 1. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2. Margin value = Level -Limit value							

**New test data:**

Ant No.	ANT1
Ant. Pol.	Horizontal
Test Mode:	TX B Mode 2412MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4823.803	48.93	-3.44	45.49	74.00	-28.51	peak
2 *	4824.058	40.68	-3.44	37.24	54.00	-16.76	AVG

Remarks:

1. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2. Margin value = Level -Limit value

Ant No.	ANT1
Ant. Pol.	Vertical
Test Mode:	TX B Mode 2412MHz
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported Only worse case is reported

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4823.970	36.17	-3.44	32.73	54.00	-21.27	AVG
2	4824.198	48.90	-3.44	45.46	74.00	-28.54	peak

Remarks:

1. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2. Margin value = Level -Limit value



Ant No.	ANT1						
Ant. Pol.	Horizontal						
Test Mode:	TX B Mode 2437MHz						
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported						
Remarks:							
1. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor							
2. Margin value = Level -Limit value							

Ant No.	ANT1						
Ant. Pol.	Vertical						
Test Mode:	TX B Mode 2437MHz						
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported						
Remarks:							
1. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor							
2. Margin value = Level -Limit value							



Ant No.	ANT1						
Ant. Pol.	Horizontal						
Test Mode:	TX B Mode 2462MHz						
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported						
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4924.099	36.42	-3.20	33.22	54.00	-20.78	AVG
2	4924.150	49.42	-3.20	46.22	74.00	-27.78	peak
Remarks: 1. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2. Margin value = Level -Limit value							

Ant No.	ANT1						
Ant. Pol.	Vertical						
Test Mode:	TX B Mode 2462MHz						
Remark:	No report for the emission which more than 10 dB below the prescribed limit. Only worse case is reported						
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	4923.977	36.99	-3.20	33.79	54.00	-20.21	AVG
2	4924.010	47.46	-3.20	44.26	74.00	-29.74	peak
Remarks: 1. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2. Margin value = Level -Limit value							